

Contract Documents for:
Crescent Connector STP 5300(13), Essex Junction, VT

Work to be performed under this contract includes the construction of a new roadway (Railroad Street) on a new alignment, additional turning lanes on Park Street and Maple Street, reconstruction of existing Railroad Street, installation of traffic signals and railroad signals, and installation of concrete sidewalks, granite curbs, street lights, drainage improvements, pavement markings, signs, and other highway related items.

VT Agency of Transportation 2018 Standard Specifications for Construction shall apply to this contract.

Owner:
City of Essex Junction
City of Essex Junction Municipal Office
2 Lincoln Street
Essex Junction, VT 05452

November 18, 2022

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- Geotechnical Engineering Report (Traffic Signals) dated 05-16-2019
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- NECR Construction and Maintenance Agreement dated 08-07-2019

The following documents are available at:

<https://outside.vermont.gov/agency/VTRANS/external/MAB-LP> (under Federal Aid Projects - Construction Phase)

- Notice of Award
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**INVITATION TO BID
Crescent Connector STP 5300(13)**

Sealed bids from pre-qualified contractors shall be accepted until **2:00 PM**, prevailing time, on **Thursday, January 12, 2023** at Essex Junction City Hall, 2 Lincoln Street, Essex Junction, VT, 05452 for construction of the project hereinafter described. Bid opening will occur immediately after the bid submittal deadline. The time of receiving and opening bids may be postponed due to emergencies or unforeseen conditions.

Sealed BIDS shall be marked in the lower left hand corner:

“Bid Documents: Crescent Connector STP 5300(13)”

Each BID must be accompanied by a certified check payable to the City of Essex Junction for five percent (5%) of the total amount of the BID. A BID bond may be used in lieu of a certified check.

PREQUALIFICATION OF CONTRACTORS:

All bidders must:

- (1) be listed on the current Vermont Agency of Transportation (VTrans) Contract Administration listing of preapproved contractors for “Contractors List of Road and Highway Construction Category”; **OR**
- (1)(a) have submitted a complete annual prequalification application to VTrans Contract Administration a minimum of ten (10) working days prior to the bid opening and shall include a copy of their approval notice with their bid; **AND**
- (2) must submit a request for contract-specific prequalification using Form CA-82. Contract-specific prequalification will be determined by VTrans taking into consideration the prospective Bidder’s current volume, degree of completion and rate of progress on uncompleted work then under contract in relation to the prospective Bidder’s Maximum Dollar Capacity Rating (MDCR) and Number of Contract Capacity Rating (NCCR), and whether the prospective Bidder is approved for the specific work classification(s) for the contract.

Responsibility of Bidders

All Bidders must be prequalified under the appropriate VTrans work category. For this project, a current annual prequalification AND a contract-specific prequalification are BOTH required. Documentation of each Bidder’s current annual prequalification and contract-specific prequalification shall be submitted with the Bid. The contact for prequalification is Jon Winter, (802) 622-1267. Applications for contract-specific prequalification must be made at least ten (10) working days prior to the Bid opening.

PROJECT LOCATION: Beginning at a point on Park Street approximately 875 feet south of the Five Corners Intersection, then extending north along Park Street to the New England Central Railroad (NECR) Burlington Branch crossing; along the east side of NECR’s Burlington Branch and crossing NECR’s main line; continuing north across

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Maple Street; and then along the existing alignment of Railroad Street to the intersection of Main Street.

TYPE OF CONSTRUCTION: Work to be performed under this project includes: The construction of a new roadway (Railroad Street) on a new alignment; addition of turning lanes on Park Street and Maple Street; reconstruction of Railroad Street; installation of traffic signals; and installation of concrete sidewalks, granite curbs, street lights, drainage improvements, pavement markings, signs and other highway related items.

CONTRACT COMPLETION DATE: The Contract shall be completed on or before September 1, 2024.

ENGINEERS ESTIMATE: For this Proposal, the Engineers Estimate falls between \$5,000,000 and \$10,000,000.

OBTAINING PLANS: Digital project plans and bid documents may be obtained at no cost from: <https://www.dubois-king.com/projects-bidding-active/>. Contact Ken Robie, Design Project Manager, at 802-728-7238 or krobie@dubois-king.com for assistance, if needed.

PLANS AND BID DOCUMENTS MAY BE VIEWED AT:
Essex Junction City Hall, 2 Lincoln Street, Essex Junction, VT.

PREBID CONFERENCE: A **non-mandatory** pre-bid meeting will be held for the project at **10:00 AM on Wednesday, December 7, 2022**. The meeting will be held at Essex Junction City Hall, 2 Lincoln Street, Essex Junction, VT.

STANDARD SPECIFICATIONS: This contract is governed by the Vermont Agency of Transportation (VTrans) 2018 Standard Specifications for Construction.

QUESTIONS: During the advertisement phase of this project all questions shall be addressed solely to Ken Robie, Design Project Manager, via email at krobie@dubois-king.com. All questions must be submitted by **5:00 PM on Tuesday, January 3, 2023**. The City will not provide responses to questions received after the due date.

EQUAL EMPLOYMENT OPPORTUNITY (EEO) CERTIFICATION: Certification is required by the Equal Employment Opportunity regulations of the Secretary of labor (41 CFR 60-1.7(b) (1)) and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Generally only contracts and subcontracts of \$10,000 or under are exempt as set forth in 41 CFR 60-1.5. See Appendix A for Contractors EEO Certification Form (CA-109). **This certification form must be submitted with the bid.**

NON-COLLUSION AFFIDAVIT: All bidders are required to execute a sworn statement, certifying that the bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of

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free competitive bidding in connection with such contract. See Appendix B for Debarment and Non-Collusion Affidavit (CA-91). **This affidavit must be submitted with the bid.**

DEBARMENT AFFIDAVIT: All bidders are required to execute a sworn statement, certifying that the bidder has not within the last three (3) years been, suspended, debarred, voluntarily excluded or determined ineligible by any Federal or State Agency; does not have a proposed suspension, debarment, voluntary exclusion or ineligibility determination pending; and has not been indicted, convicted or had civil judgment rendered against (it, him, her, them) by a court having jurisdiction in any matter involving fraud or official misconduct within the past three (3) years. See Appendix B for Debarment and Non-Collusion Affidavit (CA-91). **This affidavit must be submitted with the bid.**

WORKER CLASSIFICATION COMPLIANCE REQUIREMENT FORM (*Prime Contractor*): All bidders are required to complete this self-reporting form in its entirety and **submit with the bid.**

NON-DISCRIMINATION IN FEDERALLY ASSISTED CONTRACTS: The City of Essex Junction hereby notifies all bidders that it will ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the basis of race, color, religion, sex or national origin for an award. This is consistent with the Town's requirement to comply with provisions of Title VI.

DAVIS BACON WAGE REQUIREMENTS: Bidders agree to abide by the Davis Bacon Wage Rate Schedule, which are appended to these Contract Documents.

BUY AMERICA REQUIREMENTS: Buy America requirements of 23 CFR 635.410 are applicable to all Federal-aid construction projects. All steel or iron products permanently incorporated into Federal-aid projects, shall be products that have been entirely manufactured within the United States. All manufacturing processes of the steel or iron material, in a product, must occur within the United States to be considered of domestic origin. This includes process such as rolling, extruding, machining, bending, grinding, and drilling. The action of applying a coating to a material is deemed a manufacturing process subject to Buy America. Coating includes epoxy coating, galvanizing, painting, and any other coating that protects or enhances the value of the material.

Buy America requirements also include the Build America, Buy America Act, as further described in the Special Provisions of these Contract Documents.

INSTRUCTIONS TO BIDDERS
Crescent Connector STP 5300(13)

1. Bid Preparation and Submission

- a. Bidders are expected to examine the specifications, drawings, all instructions and, the construction site. Failure to do so will be at the bidders' risk.
- b. All bids must be submitted on the forms provided by the City. Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidders name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of the agent's authority. (Bidders should retain a copy of their bid for their own records.)
- c. All bids shall be sealed in an envelope which shall be clearly marked with the words "Bid Document," the Invitation to Bid number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.
- d. This solicitation requires bidding on **ALL** items, failure to do so will disqualify the bid.
- e. Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.
- f. Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph, facsimile (fax) machines, or electronically via the internet or email will not be considered.
- g. All blank spaces under the page(s) headed "Bid Form" must be filled in with ink or typewriter in both words and figures indicating the unit price for each respective bid item. The bid total shall also be entered in words and figures.
- h. In case of a discrepancy between a unit price written in words and one entered in figures, the price written in words shall govern.
- i. In case of a discrepancy between the bid total written in words and that entered as a figure, the adjusted figure shall govern.

- j. The estimated quantities are not guaranteed and can be adjusted as needed during the project, but are given as a basis for the comparison of bids.

2. Explanation and Interpretation to Prospective Bidders

- a. Any prospective bidder desiring an explanation or interpretation of the solicitation, specification, drawings, etc., must request it at least 10 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given to a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written addendum to the solicitation, if that information is necessary in submitting bids, or if lack of it would be prejudicial to other prospective bidders.
- b. Any information obtained by, or provided to, a bidder other than by formal addendum to the solicitation shall not constitute a change to the solicitation.

3. Addendum to Invitation for Bids

- a. If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.
- b. Bidders shall acknowledge receipt of any addendum to this solicitation by identifying the addendum number and date on the bid form. Bids which fail to acknowledge the bidders receipt of any addendum will result in the rejection of the bid if the addendum (addenda) contained information which substantively changed the City's requirements.
- c. Addenda will be available on the project bid website and will be on file in the offices of the City at least 5 days before the bid opening.

4. Responsibility of Prospective Contractor

- a. All Bidders must be prequalified under the appropriate VTrans work category. For this project, a current annual prequalification AND a contract-specific prequalification are BOTH required. Documentation of each Bidder's current annual prequalification and contract-specific prequalification shall be submitted with the Bid. The contact for prequalification is Jon Winter, (802) 622-1267. Applications for

Instructions to Bidders

contract-specific prequalification must be made at least ten (10) working days prior to the Bid opening.

- b. The VERMONT AGENCY OF TRANSPORTATION "POLICIES AND PROCEDURES FOR PREQUALIFICATION, BIDDING, AND AWARD OF CONTRACTS", latest edition, Sections 1-6 and 9 are hereby incorporated in these specifications and the contract by reference. Sections 1 through 6 shall not be subject to the changes to the definitions in the Special Provisions.
- c. The Method of Measurement and Basis of Payment for all contract items shall follow the Vermont Agency of Transportation's ("VTrans") 2018 Standard Specification for Construction, unless modified in these Contract Documents.
- d. If a bidder submits a unit bid price of zero for a contract bid item, the bid will be declared informal.
- e. A bidder may submit a unit bid price that is obviously below the cost of the item. If the City awards and enters into a contract with a Bidder that has submitted a unit bid price that is obviously below cost, the contractor shall be obligated to perform the work under such item as indicated in the contract documents and/or as directed by the Engineer.
- f. When "Optional Bid Items" are indicated in the proposal bidders shall bid on only one pay item in each group of options, leaving the other pay items in the group without a bid price. If a bidder enters more than one unit price bid in a group of options, only the lowest total price will be considered as the basis of calculation for determining the low bidder and used in the contract.
- g. When "Alternate Bid Items" are indicated in the Proposal bidders **MUST** bid on all pay items in each set of "Alternate Bid Items". Failure to bid on all of the "Alternate Bid Items" in the proposal may result in rejection of the bid.
- h. When the Bid Form for a contract contains pay item(s) which have a quantity of one (1) and a unit price and total price entered, the work will be performed by the contractor according to the contract documents at the unit price listed if such item is determined to be needed by the Engineer.
- i. When it is indicated in the contract documents that payment or costs of work and/or materials are incidental to one or more other contract

items (but not to specific other items), such costs shall be included by the bidder in the price bid for all other contract items.

5. Errors and/or Inconsistencies in Contract Documents

- a. By submitting a bid, a prospective bidder/contractor certifies that it shall assert no claim, cause of action, litigation, or defense against the City unless notice was provided to the City in writing of any error or inconsistency discovered in the plans, specifications, and/or contract documents immediately upon discovery of such error or inconsistency.

6. Availability of Lands for Work, Etc.

- a. The lands upon which the Work is to be performed, rights of way and easement for access thereto and other lands designated for use by the contractor in performing the Work are identified in the contract documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the work are to be obtained and paid for by the Contractor. Easements for permanent structures or permanent changes in the existing facilities are to be obtained and paid for by the City unless otherwise provided for in the contract documents.

7. Familiarity with Laws, Ordinances and Regulations

- a. By submitting a bid an entity certifies that it is familiar with all Federal, State and local laws, ordinances and regulations which affect in any way the materials, equipment, haul roads used in or upon the work, the conduct of the work, and the persons engaged or employed in the performance of the work to be performed pursuant to the contract.
- b. By submitting a bid an entity certifies that it shall forthwith report in writing to the City any provision in the plans, specifications or proposed contract that the bidder/contractor believes is in conflict with or inconsistent with any Federal, State or local law, ordinance, or regulation.
- c. By submitting a bid a prospective Bidder certifies that if, during its investigation of the work in the process of preparing its bid, it discovers or encounters subsurface or latent physical conditions at a project site differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, it shall notify in writing the City of the specific differing conditions immediately upon discovering or encountering the differing site conditions.

Instructions to Bidders

- d. An entity further certifies that if it fails to notify the City of any differing site conditions as described above, it shall waive any and all rights that it might have to additional compensation from the City for additional work as a result of the differing site conditions and that it shall not bring a claim for additional compensation because of differing site conditions.
- e. By submitting a bid a prospective bidder/contractor certifies that no claim or defense of ignorance or misunderstanding concerning Federal, State or local laws, ordinances and/or regulations will be employed by a bidder/contractor or considered by the City in claims, litigation, alternative dispute resolution procedures, or other matters concerning the contract for which the bid is submitted.

8. Late Submissions, Modifications, and Withdrawal of Bids

- a. Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered.
- b. Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a.) of this provision.
- c. The only acceptable evidence to establish the time of receipt at the City is the time/date stamp of the City on the bid wrapper, or other documentary evidence of receipt maintained by the City.
- d. Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids: provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized agent if , before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

9. Bid Opening

- a. All bids received by the date and time specified in the solicitation will be publicly opened and total bid amounts read aloud. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present. In the event of unforeseen circumstances (severe weather, etc.) the City reserves the right to postpone the reading of the bids for that contract. All bids for a contract will be opened at the same time and location at a later date.

10. Protests

- a. This Section sets forth the exclusive protest remedies available with respect to this solicitation. Each Bidder, by submitting its bid, expressly recognizes the limitation on its rights to protest contained herein, expressly waives all other rights and remedies and agrees that the decision on any protest, as provided herein, shall be final and conclusive unless wholly arbitrary. These provisions are included in this solicitation expressly in consideration for such waiver and agreement by the Bidders. Such waiver and agreement by each Bidder are also consideration to each other Bidder for making the same waiver and agreement.
- b. A Bidder may protest any determination regarding the proposed award of a Contract by filing a notice of protest by hand delivery or courier to the City Council. Such notice shall be provided: (a) no earlier than the day of issuance of the Notice of Award; and (b) no later than five (5) business days after issuance of the Notice of Award. The notice of protest shall specifically state the grounds of the protest.
- c. Within seven (7) calendar days of the notice of protest the protesting Bidder must file with the City Council a detailed statement of the grounds, legal authorities and facts, including all documents and evidentiary statements, in support of the protest. Evidentiary statements, if any, shall be submitted under penalty of perjury. The protesting Bidder shall have the burden of proving its protest by clear and convincing evidence.
- d. Failure to file a notice of protest or a detailed statement within the applicable period shall constitute an unconditional waiver of the right to protest the evaluation or qualified process and decisions there under.
- e. Unless otherwise required by law, no evidentiary hearing or oral argument shall be provided, except the City Council, in its sole discretion, may decide to permit a hearing or argument if it determines that such hearing or argument is necessary for the protection of the public interest. The City Council shall issue a written decision regarding the protest within thirty (30) calendar days after it receives the detailed statement of protest. Such decision shall be final and conclusive.
- f. If the City Council conclude that the Bidder submitting the protest has established a basis for protest, the City Council will determine what remedial steps, if any, are necessary or appropriate to address the issues raised in the protest. Such steps may include, without limitation, withdrawing or revising the decisions, issuing a new solicitation or taking other appropriate actions.

11. Rejection of Bids

- a. The City may declare a Bid “Informal” and hence rejected if the bid shows any alteration of form, omissions or additions not called for in the bid, lacks proper signatures, is a conditional bid, has alternate bids unless required in the bid, has irregularities of any kind, has changes to the printed content, is submitted on a form not furnished by the City, is incomplete, fails to acknowledge receipt of one or more addendums, or includes a clause in which the bidder reserves a right to accept or reject the contract award.
- b. The City may reject a bid at the time of bid opening or following analysis to confirm the proposal.
- c. The City may reject any or all bids, waive any or all technicalities, and/or advertise for new bids if the City, in consultation with VTrans, determines that the best interests of the City, or the awarding authority, will be served.
- d. The City will reject a bid submitted without a completed Debarment and Non-Collusion Affidavit.
- e. The City will reject a bid submitted without a signed Contractors Equal Employment Certification Form.
- f. The City will reject a bid submitted without a Bid Bond.
- g. The City will reject bids which fail to acknowledge the bidder’s receipt of any addendum if the addendum (addenda) contained information which substantively changed the City’s requirements.
- h. The City will decide whether any bid prices are unbalanced above or below a reasonable cost analysis value as determined by its Municipal Project Manager. Bids in which bid prices are unbalanced, mathematically and/or materially, may be rejected at the sole discretion of the City. For purposes of this subsection “mathematically unbalanced bid” and “materially unbalanced bid” shall have the same meaning as in 23 CFR Part 635 – Construction and Maintenance.
- i. Prospective bidders may be disqualified for various reasons including (a) Submission of more than one proposal for the same work by an entity under the same or different names, (b) Evidence of collusion among bidders, or (c) Any other cause for suspension or debarment as detailed in the Agency’s policy and Procedures on Debarment, Code of Vermont Rules (CVR), Volume 8A, 14 010 004, pages 1-10.

12. Contract Award

- a. The City will evaluate bids in response to this solicitation without discussions and will award a contract to the lowest responsive and responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the City considering only price and any price related factors specified in the solicitation.
- b. Opened bids will be considered and submitted bids confirmed on the basis of the summation of the products of the quantities shown in each bid's Schedule of Items multiplied by the unit prices bid. In the event of a discrepancy between the written bid amount and the alpha numeric figure, the written amount shall govern. In the event of a discrepancy between a unit price and the calculated extension, the product based on the unit price bid and the mathematically correct summation of the products shall govern.
- c. The City may reject any and all bids, waive any or all technicalities, and/or advertise for new bids if the City, in consultation with VTrans, determines that the best interests of the City will be served.
- d. The City may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.
- e. A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.
- f. Prior to signing a construction contract, the successful bidder must submit a current Certificate of Good Standing from the Vermont Secretary of State's office.

13. Bid Guarantee

- a. All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the State of Vermont. Certified checks and bank drafts must be made payable to the order of the City. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation.

Failure to submit a bid guarantee with the bid shall result in rejection of the bid. Bid guarantees of the two lowest bidders that have submitted bids that comply with all the provisions required to render them formal will be retained until the contract and bonds have been signed by all parties. Bid guarantees submitted by the remaining unsuccessful bidders will be returned as soon as practicable after bid opening. Should no award be made within thirty-one calendar days following the opening of bids, thirty-two if the thirty-first day is a state holiday, all bids may be rejected and all guarantees may be returned.

14. Contract Bonds

- a. A successful bidder entering into a contract for any portion of the work included in a bid shall provide the Town sufficient surety in the form of; 1) a labor and materials bond, and 2) a compliance bond, both as required by 19 V.S.A. Section 10(8) and (9).
- b. Each bond shall be in a sum equal to one hundred percent (100%) of the contract awarded.
- c. The labor and materials bond shall guarantee the payment in full of all bills and accounts for materials and labor used in the work as well as other obligations incurred in carrying out the terms of the contract.
- d. The compliance bond shall guarantee the faithful performance and completion of the work to be done under the contract as well as compliance with all provisions of the contract.
- e. The form of the bond shall be that provided by the City, and the surety shall be acceptable to the State. The bonds shall be procured from an insurance company registered and licensed to do business in the State of Vermont.

15. Signing the Contract

- a. The entity to which the Contract has been awarded shall sign the contract documents and return them to the City within thirty (30) calendar days from the date of the Notice of Award. No contract shall be considered effective until it has been fully executed by all parties.
- b. Failure to comply with any of the requirements of these provisions relative to signing the contract or failure to furnish the required surety within fifteen (15) calendar days after notice of award shall be just cause for the annulment of the award or of the contract and/or forfeiture of the bid guarantee/bid bond. Further, if the award or the contract is annulled, or if the contract is not awarded due to in(action) of the lowest responsible bidder that has submitted a bid that complies with all the provisions required to make it formal, the bid guarantee

accompanying the bid shall become the property of the City, not as a penalty but as liquidated damages.

- c. If the award or the contract is annulled, the City may award the contract to the next lowest responsible bidder that has submitted a bid that complies with all the provisions required to make it formal or advertise a new request for bids for the contract(s).
- d. Failure by the contractor to sign the contract within the time provided by this Subsection shall not be reason for an extension of the contract completion date.

16. Taxes and Insurance Requirements

- a. Taxes and insurance for this project shall be in conformance with Section 103 of the VTrans 2018 Standard Specifications for Construction.

17. Prompt Pay Compliance

- a. Vermont's Prompt Pay Statute requires payment from primes to subs within 7 days of primes receiving payment. Vermont State Statutes Annotated, Title 9, §4003 provides: "Notwithstanding any contrary agreement, when a subcontractor has performed in accordance with the provisions of its contract, a contractor shall pay a subcontractor, and each subcontractor shall in turn pay its subcontractors, the full or proportional amount received for each such subcontractor's work and materials based on work completed or service provided under the subcontractor, seven days after receipt of each progress or final payment or seven days after receipt of the subcontractor's invoice, whichever is later."

18. Preconstruction Conference

- a. After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the City, Design and/or Resident Engineer, Municipal Project Manager (MPM), and the VTrans Project Supervisor, and other interested parties convened by the City's engineer/representative. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The City will provide the successful bidder with the date, time and place of the conference. **Note:** If the specific material testing and certification requirements are not included elsewhere in the contract documents, they will be provided by the City to the contractor at the preconstruction conference.

19. Waste Borrow and Staging Areas

- a. The opening and use of offsite waste, borrow and staging areas shall follow the provisions of Section 105.25 of the VTrans Standard Specifications for Construction, 2018 Edition.
- b. The Contractor and/or property owner shall obtain all necessary permits and clearances prior to using off site waste, borrow or staging areas. In addition all off site waste borrow and staging areas must be reviewed and approved by the VTrans Environmental Section prior to use. Application should be made at least 21 calendar days prior to planned utilization. No work will be performed at offsite waste borrow or staging areas without written approval of the VTrans Environmental Section. The forms for either documenting an exempt site or applying for review of a site may be found on the VTrans web site at:
<http://vtrans.vermont.gov/working/offsite-activity>

20. DBE Requirements

- a. There are to be no mandatory Contract goals for DBE compliance on this project.

21. Contaminated Soils

- a. If contaminated soils or groundwater are encountered during the course of construction, the Contractor is directed to contact: Mr. Andy Shively, Hazardous Material and Waste Coordinator, of the Vermont Agency of Transportation at andy.shively@vermont.gov or by phone at (802) 229-8740 or by pager at (802) 250-4666.

22. Contract Documents

See Sample Construction Contract below for contract documents to be included.

<https://outside.vermont.gov/agency/VTRANS/external/MAB-LP/SitePages/FinalPlans,SpecificationsAndEstimate.aspx>

In the event that a bidder suspects or determines the proposal is incomplete, notify Rick Hamlin, Municipal Project Manager, 802-878-3956.

BID FORM
Crescent Connector STP 5300(13)

Proposal of _____
(hereinafter called Bidder), organized and existing under the laws of the State of _____ doing business as _____
(a corporation, a partnership, or an individual).

To the City of Essex Junction, Vermont (hereinafter called Owner).

The Bidder represents that this bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation. The bidder has not directly or indirectly induced or solicited any other bidder to submit a false bid. Bidder has not solicited or induced any person, firm or corporation to refrain from bidding and the bidder has not sought by collusion to obtain for himself any advantage over any other bidder or Owner.

It is essential that all forms that require signature as part of the final Bid Submission be filled out and signed or the Bid itself will be invalid:

- Contractors EEO Certification Form CA-109 – Appendix A
- Debarment & Non-Collusion Affidavit CA-91 – Appendix B
- Worker Classification Compliance Form (Prime Contractor) – Appendix C

The undersigned bidder proposed and agrees, if this bid is accepted, to enter into an agreement with Owner to furnish all materials and to complete all work as specified or indicated in the Contract Documents for the contract price and within the contract time indicated in this bid and in accordance with the Contract Documents.

Bidder hereby agrees to commence Work under this contract on the date of issuance of the Notice to Proceed and that the Final Completion date for this contract is **September 1, 2024**.

Bidder acknowledges receipt of the following Addenda:

Bidder agrees to perform all the Work described in the Contract Documents for the following schedule of prices.
Bids from unqualified bidders will not be accepted.

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
201.10	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
203.15	COMMON EXCAVATION				
		CY	9400	\$	\$
	UNIT PRICE IN WORDS:				
203.16	SOLID ROCK EXCAVATION				
		CY	420	\$	\$
	UNIT PRICE IN WORDS:				
203.31	SAND BORROW				
		CY	800	\$	\$
	UNIT PRICE IN WORDS:				
204.20	TRENCH EXCAVATION OF EARTH				
		CY	2100	\$	\$
	UNIT PRICE IN WORDS:				
204.21	TRENCH EXCAVATION OF ROCK				
		CY	200	\$	\$
	UNIT PRICE IN WORDS:				
204.22	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)				
		CY	50	\$	\$
	UNIT PRICE IN WORDS:				
204.30	GRANULAR BACKFILL FOR STRUCTURES				
		CY	1900	\$	\$
	UNIT PRICE IN WORDS:				
210.10	COARSE-MILLING, BITUMINOUS PAVEMENT				
		SY	4000	\$	\$
	UNIT PRICE IN WORDS:				
301.26	SUBBASE OF CRUSHED GRAVEL, FINE GRADED				
		CY	2500	\$	\$
	UNIT PRICE IN WORDS:				
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE				
		CY	5300	\$	\$
	UNIT PRICE IN WORDS:				
404.65	EMULSIFIED ASPHALT				
		CWT	80	\$	\$
	UNIT PRICE IN WORDS:				
406.35	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT				
		TON	3200	\$	\$
	UNIT PRICE IN WORDS:				
406.38	HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES				
		SY	640	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
406.45	BITUMINOUS CONCRETE PAVEMENT SURFACE PREPARATION				
		TON	10	\$	\$
	UNIT PRICE IN WORDS:				
406.50	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)				
		LU	1	\$	\$
	UNIT PRICE IN WORDS:				
418.10	ASPHALTIC APPROACH MATERIAL				
		SF	1140	\$	\$
	UNIT PRICE IN WORDS:				
541.25	CONCRETE, CLASS B				
		CY	1	\$	\$
	UNIT PRICE IN WORDS:				
601.2605	12" CPEP(SL)				
		LF	340	\$	\$
	UNIT PRICE IN WORDS:				
601.2610	15" CPEP(SL)				
		LF	1010	\$	\$
	UNIT PRICE IN WORDS:				
601.2615	18" CPEP(SL)				
		LF	20	\$	\$
	UNIT PRICE IN WORDS:				
601.2620	24" CPEP(SL)				
		LF	310	\$	\$
	UNIT PRICE IN WORDS:				
601.995	CLEANING CULVERT PIPE, IN-PLACE [0 TO 24 IN., INCL.]				
		LF	100	\$	\$
	UNIT PRICE IN WORDS:				
601.996	CLEANING CULVERT PIPE, IN-PLACE [GREATER THAN 24 IN.]				
		LF	100	\$	\$
	UNIT PRICE IN WORDS:				
604.20	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE				
		EACH	17	\$	\$
	UNIT PRICE IN WORDS:				
604.21	PRECAST REINFORCED CONCRETE MANHOLE WITH CAST IRON COVER				
		EACH	3	\$	\$
	UNIT PRICE IN WORDS:				
604.40	CHANGING ELEVATION OF DROP INLETS, CATCH BASINS, OR MANHOLES				
		EACH	30	\$	\$
	UNIT PRICE IN WORDS:				
604.412	REHAB. DROP INLETS, CATCH BASINS, OR MANHOLES, CLASS I				
		EACH	17	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
604.415	REHAB. DROP INLETS, CATCH BASINS, OR MANHOLES, CLASS II				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				
604.418	REHAB. DROP INLETS, CATCH BASINS, OR MANHOLES, CLASS III				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				
604.42	CHANGING ELEVATION OF SEWER MANHOLES				
		EACH	7	\$	\$
	UNIT PRICE IN WORDS:				
604.55	CAST IRON COVER WITH FRAME				
		EACH	5	\$	\$
	UNIT PRICE IN WORDS:				
608.30	POWER BROOM RENTAL, TYPE I				
		HR	100	\$	\$
	UNIT PRICE IN WORDS:				
608.31	POWER BROOM RENTAL, TYPE II				
		HR	100	\$	\$
	UNIT PRICE IN WORDS:				
609.10	DUST CONTROL WITH WATER				
		MGAL	20	\$	\$
	UNIT PRICE IN WORDS:				
613.10	STONE FILL, TYPE I				
		CY	15	\$	\$
	UNIT PRICE IN WORDS:				
616.21	VERTICAL GRANITE CURB				
		LF	4000	\$	\$
	UNIT PRICE IN WORDS:				
616.21	VERTICAL GRANITE CURB (36")				
		LF	80	\$	\$
	UNIT PRICE IN WORDS:				
616.215	VERTICAL GRANITE CURB, MOUNTABLE				
		LF	70	\$	\$
	UNIT PRICE IN WORDS:				
616.27	CAST-IN-PLACE CONCRETE CURB, TYPE A				
		LF	50	\$	\$
	UNIT PRICE IN WORDS:				
616.41	REMOVAL OF EXISTING CURB				
		LF	2300	\$	\$
	UNIT PRICE IN WORDS:				
618.30	DETECTABLE WARNING SURFACE				
		SF	330	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
619.14	BOLLARDS				
		EACH	5	\$	\$
	UNIT PRICE IN WORDS:				
619.20	REMOVING AND RESETTING PROPERTY MARKERS				
		EACH	4	\$	\$
	UNIT PRICE IN WORDS:				
620.55	REMOVAL OF EXISTING FENCE				
		LF	370	\$	\$
	UNIT PRICE IN WORDS:				
621.80	REMOVAL AND DISPOSAL OF GUARDRAIL				
		LF	75	\$	\$
	UNIT PRICE IN WORDS:				
622.10	INSULATION BOARD				
		MFBM	20	\$	\$
	UNIT PRICE IN WORDS:				
628.35	PVC SEWER PIPE (6")				
		LF	50	\$	\$
	UNIT PRICE IN WORDS:				
628.35	PVC SEWER PIPE (15")				
		LF	50	\$	\$
	UNIT PRICE IN WORDS:				
628.35	PVC SEWER PIPE (24")				
		LF	50	\$	\$
	UNIT PRICE IN WORDS:				
629.20	ADJUST ELEVATION OF VALVE BOX				
		EACH	34	\$	\$
	UNIT PRICE IN WORDS:				
629.24	DUCTILE IRON WATER PIPE, CEMENT-LINED (6 INCH)				
		LF	60	\$	\$
	UNIT PRICE IN WORDS:				
629.24	DUCTILE IRON WATER PIPE, CEMENT-LINED (8 INCH)				
		LF	380	\$	\$
	UNIT PRICE IN WORDS:				
629.24	DUCTILE IRON WATER PIPE, CEMENT-LINED (10 INCH)				
		LF	50	\$	\$
	UNIT PRICE IN WORDS:				
629.27	GATE VALVE WITH VALVE BOX (6")				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				
629.27	GATE VALVE WITH VALVE BOX (8")				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
629.28	HYDRANT				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				
629.30	REMOVE HYDRANT				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				
629.35	TAPPING SLEEVE AND VALVE WITH VALVE BOX (6 INCH)				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				
629.35	TAPPING SLEEVE AND VALVE WITH VALVE BOX (8 INCH)				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				
629.35	TAPPING SLEEVE AND VALVE WITH VALVE BOX (10 INCH)				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				
629.42	TRANSFER TO NEW SYSTEM, WATER SYSTEM (8 INCH)				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
629.42	TRANSFER TO NEW SYSTEM, WATER SYSTEM (10 INCH)				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
630.10	UNIFORMED TRAFFIC OFFICERS				
		HR	1000	\$	\$
	UNIT PRICE IN WORDS:				
630.15	FLAGGERS				
		HR	7000	\$	\$
	UNIT PRICE IN WORDS:				
631.16	TESTING EQUIPMENT, CONCRETE				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
631.17	TESTING EQUIPMENT, BITUMINOUS				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
632.10	RAILROAD FLAGGERS (N.A.B.I.)				
		DL	75000	\$	\$
	UNIT PRICE IN WORDS:				
633.10	CPM SCHEDULE				
		EACH	8	\$	\$
	UNIT PRICE IN WORDS:				
635.11	MOBILIZATION/DEMOBILIZATION				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
641.11	TRAFFIC CONTROL, ALL-INCLUSIVE				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
641.15	PORTABLE CHANGEABLE MESSAGE SIGN				
		EACH	6	\$	\$
	UNIT PRICE IN WORDS:				
646.403	DURABLE 4 INCH WHITE LINE, EPOXY PAINT				
		LF	6100	\$	\$
	UNIT PRICE IN WORDS:				
646.413	DURABLE 4 INCH YELLOW LINE, EPOXY PAINT				
		LF	5400	\$	\$
	UNIT PRICE IN WORDS:				
646.443	DURABLE 8 INCH WHITE LINE, EPOXY PAINT				
		LF	220	\$	\$
	UNIT PRICE IN WORDS:				
646.453	DURABLE 8 INCH YELLOW LINE, EPOXY PAINT				
		LF	170	\$	\$
	UNIT PRICE IN WORDS:				
646.483	DURABLE 24 INCH STOP BAR, EPOXY PAINT				
		LF	350	\$	\$
	UNIT PRICE IN WORDS:				
646.493	DURABLE LETTER OR SYMBOL, EPOXY PAINT				
		EACH	70	\$	\$
	UNIT PRICE IN WORDS:				
646.503	DURABLE CROSSWALK MARKING, EPOXY PAINT				
		LF	490	\$	\$
	UNIT PRICE IN WORDS:				
646.513	DURABLE RAILROAD CROSSING SYMBOL, EPOXY PAINT				
		EACH	9	\$	\$
	UNIT PRICE IN WORDS:				
646.602	TEMPORARY 4 INCH WHITE LINE, PAINT				
		LF	10500	\$	\$
	UNIT PRICE IN WORDS:				
646.612	TEMPORARY 4 INCH YELLOW LINE, PAINT				
		LF	10700	\$	\$
	UNIT PRICE IN WORDS:				
646.642	TEMPORARY 8 INCH WHITE LINE, PAINT				
		LF	500	\$	\$
	UNIT PRICE IN WORDS:				
646.652	TEMPORARY 8 INCH YELLOW LINE, PAINT				
		LF	330	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
646.682	TEMPORARY 24 INCH STOP BAR, PAINT				
		LF	550	\$	\$
	UNIT PRICE IN WORDS:				
646.692	TEMPORARY LETTER OR SYMBOL, PAINT				
		EACH	140	\$	\$
	UNIT PRICE IN WORDS:				
646.702	TEMPORARY CROSSWALK MARKING, PAINT				
		LF	970	\$	\$
	UNIT PRICE IN WORDS:				
646.712	TEMPORARY RAILROAD CROSSING SYMBOL, PAINT				
		EACH	14	\$	\$
	UNIT PRICE IN WORDS:				
646.76	LINE STRIPING TARGETS				
		EACH	1200	\$	\$
	UNIT PRICE IN WORDS:				
646.85	REMOVAL OF EXISTING PAVEMENT MARKINGS				
		SF	380	\$	\$
	UNIT PRICE IN WORDS:				
651.15	SEED				
		LB	220	\$	\$
	UNIT PRICE IN WORDS:				
651.17	SEED, WINTER RYE				
		LB	220	\$	\$
	UNIT PRICE IN WORDS:				
651.18	FERTILIZER				
		LB	500	\$	\$
	UNIT PRICE IN WORDS:				
651.20	AGRICULTURAL LIMESTONE				
		TON	2	\$	\$
	UNIT PRICE IN WORDS:				
651.35	TOPSOIL				
		CY	400	\$	\$
	UNIT PRICE IN WORDS:				
653.01	EPSC PLAN				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
653.02	MONITORING EPSC PLAN				
		HR	80	\$	\$
	UNIT PRICE IN WORDS:				
653.03	MAINTENANCE OF EPSC PLAN (N.A.B.I.)				
		LU	1	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
653.10	HAY MULCH				
		TON	1	\$	\$
	UNIT PRICE IN WORDS:				
653.20	ROLLED EROSION CONTROL PRODUCT, TYPE I				
		SY	750	\$	\$
	UNIT PRICE IN WORDS:				
653.25	CHECK DAM, TYPE I				
		CY	10	\$	\$
	UNIT PRICE IN WORDS:				
653.35	STABILIZED CONSTRUCTION ENTRANCE				
		CY	100	\$	\$
	UNIT PRICE IN WORDS:				
653.41	INLET PROTECTION DEVICE, TYPE II				
		EACH	50	\$	\$
	UNIT PRICE IN WORDS:				
653.42	INLET PROTECTION DEVICE, TYPE III				
		CY	1	\$	\$
	UNIT PRICE IN WORDS:				
653.45	FILTER BAG				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				
653.475	SILT FENCE, TYPE I				
		LF	100	\$	\$
	UNIT PRICE IN WORDS:				
653.55	PROJECT DEMARCATION FENCE				
		LF	950	\$	\$
	UNIT PRICE IN WORDS:				
656.30	DECIDUOUS TREES (CELTIS OCCIDENTALIS PRARIE PRIDE)(B&B)(2.5"-3" CAL.)				
		EACH	3	\$	\$
	UNIT PRICE IN WORDS:				
656.30	DECIDUOUS TREES (ACER RUBRUM)(B&B)(2.5"-3" CAL.)				
		EACH	8	\$	\$
	UNIT PRICE IN WORDS:				
656.30	DECIDUOUS TREES (ULMUS AMERICANA "PRINCETON")(B&B)(2.5"-3" CAL.)				
		EACH	18	\$	\$
	UNIT PRICE IN WORDS:				
656.45	TRANSPLANTING TREES				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				
656.55	TRANSPLANTING GROUNDCOVER				
		SY	100	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
656.65	LANDSCAPE WATERING				
		MGAL	11	\$	\$
	UNIT PRICE IN WORDS:				
656.80	LANDSCAPE BACKFILL, TRUCK MEASUREMENT				
		CY	35	\$	\$
	UNIT PRICE IN WORDS:				
656.85	TREE PROTECTION				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
675.20	TRAFFIC SIGN, TYPE A				
		SF	450	\$	\$
	UNIT PRICE IN WORDS:				
675.33	TUBULAR STEEL SIGN POST				
		LB	1000	\$	\$
	UNIT PRICE IN WORDS:				
675.341	SQUARE TUBE SIGN POST AND ANCHOR				
		LF	630	\$	\$
	UNIT PRICE IN WORDS:				
675.43	FOUNDATION FOR TUBULAR STEEL POST				
		EACH	8	\$	\$
	UNIT PRICE IN WORDS:				
675.50	REMOVING SIGNS				
		EACH	73	\$	\$
	UNIT PRICE IN WORDS:				
675.60	RESETTING SIGNS				
		EACH	24	\$	\$
	UNIT PRICE IN WORDS:				
678.15	TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (FIVE CORNERS)				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				
678.15	TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (MAPLE STREET & RAILROAD STREET)				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				
678.15	TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (PARK STREET & IROQUOIS AVE & FRANKLIN STREET)				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				
678.15	TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (PARK STREET & RAILROAD STREET)				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				
678.15	TRAFFIC CONTROL SIGNAL SYSTEM, INTERSECTION (PARK STREET & SOUTH STREET & RIVER STREET)				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
678.21	ELECTRICAL CONDUIT (2 INCH HDPE)				
		LF	720	\$	\$
	UNIT PRICE IN WORDS:				
678.23	WIRED CONDUIT				
		LF	6700	\$	\$
	UNIT PRICE IN WORDS:				
678.24	ELECTRICAL WIRING				
		LF	335	\$	\$
	UNIT PRICE IN WORDS:				
678.30	ELECTRICAL CONDUIT SLEEVE (10" HDPE)				
		LF	230	\$	\$
	UNIT PRICE IN WORDS:				
690.50	PRICE ADJUSTMENT, FUEL (N.A.B.I.)				
		LU	1	\$	\$
	UNIT PRICE IN WORDS:				
900.608	SPECIAL PROVISION (EXCAVATION OF PETROLEUM CONTAMINATED SOILS, CLASS I)				
		CY	10	\$	\$
	UNIT PRICE IN WORDS:				
900.608	SPECIAL PROVISION (EXCAVATION OF PETROLEUM CONTAMINATED SOILS, CLASS II)				
		CY	10	\$	\$
	UNIT PRICE IN WORDS:				
900.608	SPECIAL PROVISION (EXCAVATION OF CONTAMINATED SOILS, CLASS III)				
		CY	10	\$	\$
	UNIT PRICE IN WORDS:				
900.608	SPECIAL PROVISION (DISPOSAL OF DEVELOPMENT SOILS)				
		CY	4060	\$	\$
	UNIT PRICE IN WORDS:				
900.608	SPECIAL PROVISION (DISPOSAL OF NON-HAZARDOUS WASTE SOILS)				
		CY	340	\$	\$
	UNIT PRICE IN WORDS:				
900.608	SPECIAL PROVISION (DRAINAGE AGGREGATE)				
		CY	540	\$	\$
	UNIT PRICE IN WORDS:				
900.608	SPECIAL PROVISION (PERMEABLE BASE)				
		CY	120	\$	\$
	UNIT PRICE IN WORDS:				
900.608	SPECIAL PROVISION (RAILROAD BALLAST)				
		CY	10	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (BICYCLE LOCKER)				
		EACH	5	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
900.620	SPECIAL PROVISION (BIKE RACK)				
		EACH	9	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (ADJUST ELEVATION OF MONITORING WELL)				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (CORING CONCRETE)				
		EACH	6	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (JUNCTION BOX, HEAVY DUTY)				
		EACH	13	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (POWER PEDESTAL)				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (PRECAST CONCRETE COMBINATION STRUCTURE WITH CAST IRON GRATE AND COVER)				
		EACH	4	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (REMOVE BOLLARD)				
		EACH	4	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (STREET LIGHT ASSEMBLY, TYPE PL)				
		EACH	47	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (STREET LIGHT ASSEMBLY, TYPE SL)				
		EACH	4	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (VIDEO MONITORING SYSTEM)				
		EACH	1	\$	\$
	UNIT PRICE IN WORDS:				
900.620	SPECIAL PROVISION (JUNCTION BOX, BURLINGTON TELECOM)				
		EACH	2	\$	\$
	UNIT PRICE IN WORDS:				
900.625	SPECIAL PROVISION (CURING COMPOUND)				
		GAL	120	\$	\$
	UNIT PRICE IN WORDS:				
900.640	SPECIAL PROVISION (6" SLEEVE FOR UTILITY)				
		LF	100	\$	\$
	UNIT PRICE IN WORDS:				
900.640	SPECIAL PROVISION (DUCTBANK, UC-DB1)				
		LF	620	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
900.640	SPECIAL PROVISION (DUCTBANK, UC-DB2)				
		LF	60	\$	\$
	UNIT PRICE IN WORDS:				
900.640	SPECIAL PROVISION (DUCTBANK, UC-DB3)				
		LF	100	\$	\$
	UNIT PRICE IN WORDS:				
900.640	SPECIAL PROVISION (FENCE, ORNAMENTAL BLACK STEEL WITH GATE)				
		LF	80	\$	\$
	UNIT PRICE IN WORDS:				
900.640	SPECIAL PROVISION (FENCE, ORNAMENTAL BLACK STEEL, 6 FEET)				
		LF	1010	\$	\$
	UNIT PRICE IN WORDS:				
900.640	SPECIAL PROVISION (FENCE, ORNAMENTAL WHITE VINYL PICKET)				
		LF	170	\$	\$
	UNIT PRICE IN WORDS:				
900.640	SPECIAL PROVISION (FENCE, TEMPORARY CHAIN-LINK, 8 FEET)				
		LF	1130	\$	\$
	UNIT PRICE IN WORDS:				
900.645	SPECIAL PROVISION (EV CHARGING STATION)				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
900.645	SPECIAL PROVISION (REMOVE TIMBER WALL)				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
900.645	SPECIAL PROVISION (STORMWATER TREATMENT SYSTEM)				
		LS	1	\$	\$
	UNIT PRICE IN WORDS:				
900.675	SPECIAL PROVISION (GREEN PAVEMENT MARKINGS)				
		SY	5	\$	\$
	UNIT PRICE IN WORDS:				
900.675	SPECIAL PROVISION (IMPRINTED/COLORIZED CONCRETE SURFACE, 4 INCH)				
		SY	560	\$	\$
	UNIT PRICE IN WORDS:				
900.675	SPECIAL PROVISION (PORTLAND CEMENT CONCRETE SIDEWALK, 4 INCH)				
		SY	1390	\$	\$
	UNIT PRICE IN WORDS:				
900.675	SPECIAL PROVISION (PORTLAND CEMENT CONCRETE SIDEWALK, 6 INCH)				
		SY	60	\$	\$
	UNIT PRICE IN WORDS:				
900.675	SPECIAL PROVISION (PORTLAND CEMENT CONCRETE SIDEWALK, 8 INCH)				
		SY	320	\$	\$
	UNIT PRICE IN WORDS:				

VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
900.675	SPECIAL PROVISION (SOIL DEMARCATION BARRIER)				
		SY	4000	\$	\$
	UNIT PRICE IN WORDS:				
900.675	SPECIAL PROVISION (PERMEABLE PAVERS)				
		SY	730	\$	\$
	UNIT PRICE IN WORDS:				

TOTAL BASE BID: \$

TOTAL BASE BID WRITTEN:

BID ALTERNATES					
VTRANS ITEM #	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
900.620	SPECIAL PROVISION (STREET LIGHT ASSEMBLY, TYPE PL)(ALTERNATE)				
		EACH	47	\$	\$
	UNIT PRICE IN WORDS:				

Bid Form

The lowest responsive and responsible bidder will be determined by the **Total Base Bid.**

The above unit prices shall include all labor, materials, removal, overhead, profit, insurance, etc. to cover the finished work as specified within the Contract Documents.

By submitting this bid, a bidder certifies that it shall report in writing to the municipality any errors or inconsistency discovered in the plans, proposal, specifications, or proposal documents immediately upon discovery.

THE ABOVE PROPOSAL IS HEREBY RESPECTFULLY SUBMITTED BY:

Contractor

By

Title

Business Address

City

State

Date

ATTEST _____

LS = lump sum

EA = each

SY = square yard

SF = square feet

CWT = hundredweight

GAL = gallon

HR = hour

LU = lump unit

CY = cubic yard

LF = linear foot

TON = ton

MGAL = thousand gallons

LB = pound

PROJECT SPECIAL PROVISIONS

In case of discrepancy, precedence of the Contract Documents will be determined by Section 105.05 of the latest edition of the VTrans Standard Specifications for Construction.

NOTICE TO BIDDERS – GENERAL SPECIAL PROVISIONS. The Contractor is hereby notified that the most recent General Special Provisions in effect on the date of advertisement shall apply to this Contract. The General Special Provisions may be found at the following address:

<https://vtrans.vermont.gov/highway/construct-material/construct-services/pre-contractspecifications/active>

NOTICE TO BIDDERS – SUBSECTION 107.22. Subsection 107.22 is hereby modified by adding the following subpart:

(e) The Infrastructure Investment and Jobs Act (IIJA), Pub. L. No. 117-58 includes the Build America, Buy America Act (The Act). Pub. L. No. 117-58, §§ 70901-52. The Office of Management and Budget issued memorandum M-22-11 to provide guidance on the law which can be found here: <https://www.whitehouse.gov/wp-content/uploads/2022/04/M-22-11.pdf>. All construction materials, as defined in the law, that are permanently incorporated into federal-aid projects shall meet Build America, Buy America requirements.

NOTICE TO BIDDERS – ESSEX JUNCTION. Wherever the term Village of Essex Junction appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean, the City of Essex Junction.

NOTICE TO BIDDERS - UTILITIES. The Contractor is advised to use caution when working around aerial or underground utilities to protect the facilities from damage.

Employees or agents of utility companies are to be allowed free and full access within the project limits with the tools, materials, and equipment necessary to install, operate, maintain, place, replace, relocate, and remove their facilities.

There will be no extra compensation paid to the Contractor for any inconvenience caused by working around and with utilities.

Act No. 86 of 1987 (30 VSA Chapter 86) (“Dig Safe”) requires that notice be given prior to making an excavation. It is suggested that the Permit Holder or his/her contractor telephone 1-888-344-7233 at least 48 hours before, and not more than 30 days before, beginning any excavation at any location.

Should the Contractor desire additional adjustments of the utility facilities for his/her convenience, proper arrangements shall be made in conformance with Subsection 105.07 of the Standard Specifications for Construction.

NOTICE TO BIDDERS – TEMPORARY CONSTRUCTION SIGNS. All temporary construction signs shall meet the following requirements:

(a) Where sign installations are not protected by guardrail or other approved traffic barriers, all sign stands and post installations shall meet National Cooperative Highway Research Program (NCHRP) Report 350 or the AASHTO Manual for Assessing Safety Hardware (MASH). The appropriate resource shall be determined as described in the MASH publication.

(b) As a minimum, roll up sign material shall have ASTM D 4956 Type VI fluorescent orange retroreflective sheeting.

(c) All post-mounted signs and solid substrate portable signs shall have ASTM D 4956 Type VII, Type VIII, or Type IX fluorescent orange retroreflective sheeting.

(d) All retroreflective sheeting on traffic cones, barricades, and drums shall be at a minimum ASTM D 4956 Type III sheeting.

(e) All stationary signs shall be mounted on two 3 lb/ft flanged channel posts or 2 inch square steel inserted in 2-1/4" galvanized square steel anchors. No sign posts shall extend over the top edge of sign installed on said posts.

(f) Construction signs shall be installed so as to not interfere with nor obstruct the view of existing traffic control devices, stopping sight distance, and corner sight distance from drives and town highways.

(g) Speed zones, if used, should be a maximum of 10 mph below existing posted speeds. Temporary speed limit certificates must be approved by the Chief Engineer on State highways and can be approved by the governing municipality on local roads.

NOTICE TO BIDDERS – PERMANENT SIGNS. All retroreflective sheeting on permanent signs (signs to remain after the project is completed) shall be at a minimum ASTM Type III sheeting, unless otherwise shown on the Plans.

NOTICE TO BIDDERS – AFAD. The Contractor is hereby notified that Automated Flagger Assistance Devices (AFADs) are remotely operated devices that enable a certified flagger to be positioned out of the lane of traffic and are used to control motorists through work zones.

AFADs shall only be used in situations where there is no more than one lane of approaching traffic that needs to be controlled. Additionally, since AFADs are not traffic control signals, they shall not be used to replace traffic signals or other continuously operating traffic control devices.

These devices may be used as a safety enhancement to flaggers on an hour-for-hour basis. AFADs shall meet the following requirements:

- (a) All AFAD applications shall meet the requirements of the applicable sections of the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- (b) All AFAD applications shall be in accordance with NCHRP Report 350 or the MASH for the applicable test level and device weight. Documentation of the crashworthiness of the device shall be submitted to the Engineer for approval prior to use on the project.
- (c) AFAD applications shall always be controlled by a flagger who has been trained in the operation of the AFAD and who meets the requirements of Section 630. The flagger shall not flag traffic and operate an AFAD at the same time.
- (d) Should an AFAD malfunction or otherwise not function as intended they shall be replaced by another AFAD or flagger(s) or work shall cease and the roadway shall be opened to unrestricted traffic flow immediately.
- (e) Each AFAD will be considered equivalent to one flagger and will be measured and paid for on an hourly basis under Item 630.15 Flaggers. One hour of AFAD use shall be paid for as one hour of flagging.
- (f) Flaggers will only be measured for payment when actually performing flagging duties. Flaggers controlling AFADs but not actually flagging will not be measured for payment, but will be considered incidental to the Contract lump sum price for Item 641.10 Traffic Control, or Item 641.11 Traffic Control, All-Inclusive, as applicable.
- (g) The use of AFADs may be suspended at the discretion of the Engineer.

NOTICE TO BIDDERS – GENDER-FREE SINGLE OCCUPANCY RESTROOMS. The Contractor shall comply with all of the requirements of Vermont Act 127 (H.333) relating to the designation and signage of single-user toilet facilities in public buildings or places of public accommodation. Any such facilities may be identified by a sign, provided that the sign marks the facility as a restroom and does not indicate any specific gender.

NOTICE TO BIDDERS – CONTAMINATED SHARPS (HYPODERMIC NEEDLES). The Contractor is hereby notified that there are an increasing number of hypodermic needles (also known as contaminated sharps) being found throughout Vermont, and there is the potential to find them along any project. In accordance with Section 107.05, Sanitary Provisions, the Contractor is required to provide a neat and sanitary working environment for each of its employees and workers at no additional cost to the Agency.

Special Provisions

The Contractor may reach out to local Police, the Town Health Officer or the Vermont Department of Health at <https://dec.vermont.gov/content/safe-disposal-sharps> for guidance.

If the sharps are located in an area where work is required, the Contractor shall dispose of the sharps in accordance with OSHA Standard 1910.1030 for blood borne pathogens. OSHA has an e-tool for disposal of sharps on their website as well. The standard can be found at the following link:

https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10051.

If the sharps are not in an area where the Contractor or workers will come into contact with them, it is best practice to avoid them altogether. The area can be marked and workers should be notified to stay out of the area.

NOTICE TO BIDDERS: EMERALD ASH BORER (EAB), *Agrilus planipennis*, has been confirmed within Vermont's borders. To provide an assurance of compliance with state and federal EAB laws the contractor shall adhere to the following:

Known EAB infestation areas are changing rapidly. Therefore the Contractor shall consult the online version of the EAB Infested Area Map (Located here: www.vtinvasives.org/land/emerald-ash-borer-vermont) on the same day cutting is to occur. If the project is located with an EAB infested area, ALL tree material, regardless of species, within the project area shall be handled in accordance with a document developed by the Vermont Department of Forests, Parks and Recreation and the Vermont Agency of Agriculture titled "Recommendations to SLOW THE SPREAD of Emerald Ash Borer When Moving Ash from the Infested Area", (<https://vtinvasives.org/sites/default/files/images/SlowSpreadWoodVT.pdf>). Tree material shall not be moved out of state.

Alternatively, the Contractor may choose to hire a qualified professional (Arborist certified by the International Society of Arboriculture or Licensed Forester), at their own expense, to identify the presence of ash trees. Those identified ash trees would be subject to the above referenced recommendations, however other tree species would not.

The Contractor is also hereby made aware of the same potential restrictions as they relate to proposed Waste, Borrow and Staging areas under Section 105.25 Control of Waste, Borrow, and Staging Areas.

HIGHWAY PARKING RESTRICTIONS. Only such trucks and equipment as are necessary for the construction of this project will be permitted to stop or park on the shoulders or right-of-way of the highway. All trucks or equipment so stopped or parked shall be at least 4 feet from the edge of the thru traffic lanes. Parking or stopping on the traveled portion of the roadway will not be permitted unless authorized by the Engineer to meet field conditions.

Private automobiles or workers will not be permitted to stop or park on the shoulders or right-of-way of the highway.

Each of the Contractor's trucks or equipment used for the construction of this project and permitted to park or stop as provided above shall be equipped with flashing light signals on the front and rear and the signals shall be operating at all times when parked or stopped on the highway unless otherwise authorized by the Engineer.

The flashing light signals shall be visibly distinct from and physically separate from the hazard warning system required by Federal and State motor vehicle laws and regulations. At least one of these flashing light signals shall be visible to traffic approaching from any angle at all times.

Qualified traffic control personnel shall be employed whenever the Contractor's vehicles or equipment (including that which belongs to the individual workers) enter or leave the traffic flow. All movement, in or out of the traffic flow, shall be with the flow of traffic.

NOTICE TO BIDDERS – MEASURES TO MITIGATE POTENTIAL IMPACTS DUE TO THE COVID-19 PANDEMIC. The Contractor is hereby notified that they should anticipate the possibility of future temporary Contract shutdowns, delays, or suspensions as a result of the COVID-19 pandemic. The Contractor shall consider risks associated with the COVID-19 pandemic as the Contractor develops project schedules and advances the work. The Contractor shall schedule work in a manner that in the event of a temporary shutdown, delay, or suspension, the impacts to mobility will be minimized. The sequence and progression of the work will be solely the Contractor's responsibility. The Contractor is expected to communicate with the Agency regularly to discuss the risks to the project and proposed mitigation measures. VTrans will collaborate with the contractor to mitigate the risks to the project and adjust the sequence of work as necessary to ensure that mobility is not impaired unnecessarily. If a shutdown, suspension or delay occurs due to the COVID-19 pandemic, the Contractor shall ensure the site is in a stable, safe, and maintainable condition by implementing mitigation measures. Such mitigation measures may include, but are not limited to, limiting the area of milled surfaces exposed at once, or limiting the number of work operations in progress at any one time. The Contractor is solely responsible for any additional maintenance activities or delays related to the sequence and progression of operations. The Agency has established a contract duration which may be longer than expected for the specified work to account for inefficiencies related to the COVID-19 pandemic. The Contractor should anticipate mobility, labor, employee protection measures and material supply issues related to the COVID-19 pandemic. The Contractor is also expected to comply with any Executive Orders.

NOTICE TO BIDDERS – SITE CONDITION. Prior to any shutdown or suspension, the site condition shall be in a stable, safe, and maintainable condition for the travelling public. Stable, safe, and maintainable condition means that the Contractor shall establish necessary erosion and environmental controls; ensure that the full width of the roadway is fully paved with no milled sections; install all safety features including

guardrail, traffic signs, and pavement markings as designed or restored to the existing condition to meet the existing geometry; and undertake any additional measures as needed based on site conditions. No lane reductions will be allowed through the winter months. Subsection 109.06 will not apply for work that is required to bring a project to a satisfactory shutdown condition. In the event of a project Suspension of Work Ordered by the Engineer, the Contractor will be reimbursed per Subsection 108.16.

NOTICE TO BIDDERS – SUBSECTION 635.03(a). Subsection 635.03(a) is hereby modified by being deleted in its entirety and replaced with the following:
The first payment of 50% of the lump sum price for Mobilization/Demobilization, or 10% of the adjusted Contract price, whichever is less, will be made within 30 days after execution of the Contract.

NOTICE TO BIDDERS – PROHIBITION OF RUSSIAN GOODS. The Contractor is hereby notified that, pursuant to Vermont Executive Order No. 02-22, dated March 3rd, 2022, the purchase of Russian-sourced goods and goods produced by Russian entities (defined as institutions or companies that are headquartered in Russia or have their principal place of business in Russia) is prohibited. The awarded Contractor must fill out and sign the Executive Order 02-22 Vendor Certification as part of Contract awarding process.

NOTICE TO BIDDERS – CONCURRENT CONSTRUCTION. The Contractor is made aware of the following VTrans construction project(s) which are expected to be in progress within the area of this project during its construction.

TABLE 1 – CONCURRENT CONSTRUCTION PROJECTS

Project	Contractor	Anticipated Contract Completion Date
Main Street Waterline	TBD	TBD
Brickyard Road Culvert	TBD	TBD

This list is not all-inclusive, and it is possible there may be other VTrans, municipal, or private construction projects within the area of this project during its construction. The Contractor shall coordinate construction schedules and traffic control with the work required for these projects. There will be no extra compensation paid to the Contractor for any inconvenience caused by working around these or other projects.

NOTICE TO BIDDERS – PERFORMANCE GRADED ASPHALT BINDER. All permanent pavement on both main line and side streets is required to use the PG binder grade specified elsewhere in the Plans and Specifications. All pavement used for driveways, U-Turns or surface preparation, regardless of the method of placement, will be allowed to use either the binder grade specified elsewhere, or PG 58-28 binder. There will be no additional compensation allowed for using either binder grade.

NOTICE TO BIDDERS – STANDARD DRAWINGS. The Vermont Agency of Transportation Standard Drawings listed on the Index of Sheets are not included in the plan set, but may be found at the following address:
https://outside.vermont.gov/agency/vtrans/external/CADD/WebFiles/Downloads/Standards/VAOTconSTD_Owner.xml

SECTION 101 – DEFINITIONS

101.02, DEFINITIONS, are hereby modified by deleting the existing following definitions and replacing as follows:

AGENCY – Wherever the word Agency appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the City of Essex Junction, except when referenced to documents or publications.

BOARD – Wherever the term Board or Transportation Board appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Transportation Board of the State of Vermont or its successor.

CALENDAR DAY – Any day shown on the calendar, beginning and ending at midnight.

CHANGE ORDER – A document recommended by the Engineer, signed by the Contractor and the Municipality, and approved by the Agency of Transportation authorizing changes in the plans or quantities or both, establishing the basis of payment and time adjustments for the Work affected by the changes.

CONSTRUCTION ENGINEER – Wherever the term Construction Engineer appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Municipal Project Manager and/or Full Time Employee in Responsible Charge.

CONTRACT COMPLETION DATE - The calendar date specified in the Contract and as adjusted by Change Order when applicable, by which the Contractor shall achieve Substantial Completion.

CONTRACT – The written agreement between the Municipality and the Contractor setting forth the obligations of the parties relative to the performance of the work. The Contract includes the Contract agreement, Contract Bonds, Project permits, Project Special Provisions, Contract Plans, General Special Provisions, Standard Drawings, Supplemental Specifications, the Standard Specifications for Construction, and any Supplemental Agreements or supporting documents that are required to complete the work in an acceptable manner.

CONTRACT BOND(S) – The approved forms of security, signed, notarized and furnished by the Contractor and the Contractor's Surety or Sureties, guaranteeing complete performance of the Contract, compliance with the Contract, and the payment of all legal debts pertaining to the construction of the Project or work.

Special Provisions

CONTRACTOR(S) – The individual, partnership, firm, corporation, any acceptable combination thereof, or a joint venture which is a party to the Contract with the Agency which is undertaking the performance of the work under the terms of the Contract and acting directly or through its agent(s) or employee(s). The term “Contractor” means the prime Contractor as differentiated from a Subcontractor. All Contractors must be registered with the Vermont Secretary of State. The Contractor will act in an independent capacity and not as officers or employees of the State.

ENGINEER – Wherever the term Engineer appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the Resident Engineer (RE).

GENERAL SPECIAL PROVISIONS – Approved additions and revisions to the Standard Specifications for Construction approved pursuant to the Specification approval process.

MATERIALS MANAGER – Whenever the term Materials Manager appears on the plans, in any specification, or in the Contract, it shall be read as, and shall mean Ken Robie, Design Project Manager, DuBois & King, Inc.

PROPOSAL FORM – Whenever the term Proposal Form appears on the plans, in any specification, or in the Contract it shall be read as, and shall mean; the BID FORM unless specifically referenced otherwise in these Special Provisions.

REGIONAL CONSTRUCTION ENGINEER – Whenever the term Regional Construction Engineer appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean Rick Hamlin, Municipal Project Manager, Hamlin Engineering.

RESIDENT ENGINEER – An entity employed by the Municipality to perform supervisory duties including the oversight of testing services on the project.

SECRETARY – Wherever the term Secretary appears on the plans, in any specification, or in the contract it shall be read as, and shall mean; the Essex Junction City Council.

PROJECT SPECIAL PROVISIONS – Additions and revisions to the Standard Specifications for Construction, Supplemental Specifications, General Special Provisions applicable to the Contract, as well as other provisions specific to the Contract. Also referred to as Special Provisions.

SPECIFICATIONS – The compilation of provisions and requirements for the performance of prescribed work including the Standard Specifications for Construction, Supplemental Specifications, General Special Provisions, Project Special Provisions, and other requirements included in the contract.

STANDARD SPECIFICATIONS or STANDARD SPECIFICATIONS FOR CONSTRUCTION – The Vermont Agency of Transportation book entitled Standard Specifications For Construction and the specifications included therein, as approved for general and repetitive use and application in Agency/Municipal projects.

Special Provisions

STATE – Wherever the term State appears on the plans, in any specification, or in the contract, it shall be read as, and shall mean; the City of Essex Junction.

SURETY – An individual or legal entity acceptable to the Town executing the bond or bonds furnished by the bidder or contractor.

WORK – The furnishing of all labor, materials, equipment, and incidentals necessary or convenient to the successful completion of a project and the carrying out of all duties and obligations imposed by a contract.

WORKING DAY – Weekdays during the Construction Season during which construction operations may proceed. If the Contractor works on Saturdays, Sundays, holidays, or during the Seasonal Closure Period, those days will be considered Working Days.

ADD TO DEFINITION LIST IN 101.02, DEFINITIONS, the following definitions:

ADDENDUM (addenda) – Contract revisions developed after advertisement and before opening bids.

ADVERTISEMENT – A public announcement, inviting bids for work to be performed or materials to be furnished.

AGREEMENT – The written instrument which is evidence of the agreement between the Municipality and the Contractor.

AWARD – The formal acceptance by the Municipality of a bid.

BID – The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

BID BOND – A bid guarantee as outlined in the Instructions to Bidders for Contracts.

BIDDER – The individual, partnership, firm, corporation, or any combination thereof, or joint venture, submitting a Bid in accordance with the bidding requirements.

CONTRACT TIME – The time allowed for completion of the contract including authorized time extensions.

INCIDENTAL AND INCIDENTAL ITEM – These terms are used to indicate work for which no direct payment will be made. Such work is considered to be incidental to items having contract prices, and the bid prices submitted by the contractor shall be sufficient to absorb the cost of all work designated as incidental or as incidental items.

INVITATION FOR BIDS – An advertisement for receiving bids for all work and/or materials on which bids are invited from prospective contractors.

MUNICIPAL PROJECT MANAGER – A person or firm employed or appointed by the Municipality to provide administrative services for the project.

NOTICE OF AWARD – The written notice of the acceptance of the Bid from the Owner to the successful Bidder.

OWNER – City of Essex Junction.

PREQUALIFICATION:

Annual Prequalification – The Agency of Transportation process by which an entity is generally approved to bid on contracts advertised by the Local Project Sponsor. Depending on the project size annual prequalification may be the only prequalification necessary.

Contract Specific Prequalification – The process by which an entity is approved to bid on a specific contract determined by the Municipality to be of a size or scope to warrant more than an Annual Prequalification.

PREQUALIFICATION ADMINISTRATOR – An Agency of Transportation employee charged with administration of the prequalification process for the Prequalification Committee.

PROPOSAL – The offer of a bidder, on the prescribed form, to perform work and/or provide materials at the price quoted in the offer.

PROPOSAL FORM – The prescribed form on which the Municipality requires the Bid be submitted.

PROPOSAL GUARANTEE – The security furnished with a bid to ensure that the bidder will enter into a contract if the bidder's proposal is accepted by the Municipality.

SUBCONTRACTOR – An individual or legal entity to which the contractor sublets a part of the work included in the contract.

TESTING FIRM – An independent firm employed by the Municipality or Resident Engineer to perform all sampling and testing of materials as specified in the Contract Documents and as defined in the VTrans Qualified Laboratory Program.

SECTION 105 CONTROL OF THE WORK

105.09 CONSTRUCTION STAKES, Part (a) Initial Layout, (b) Layout of Subgrade and (c) Permanent Marking Layout delete these paragraphs in their entirety and replace with the following:

Horizontal and vertical control information for the project is shown on the project plans or shall be based on existing conditions. The information is sufficient to enable the Contractor to stake the project. The Contractor shall perform all staking requirements for the proposed work. The Contractor will be responsible for the accuracy and preservation of the staking.

105.20 CLAIMS FOR ADJUSTMENT , (c) **Claims Procedure**; Delete the second, third and fourth sentence and replace with the following:

Claims must be evaluated first by the Engineer and then by the Municipal Project Manager. Should a claim be ruled in favor of the Contractor, it will be allowed, in whole or in part, and paid as provided in the Contract. Should a claim be denied in whole or in part by the Municipal Project Manager the Contractor may appeal to the governing body of the project sponsor. Should a claim be denied in whole or in part by the governing body of the project sponsor, the Contractor may appeal to the Chief Engineer.

(d) Claims Documentation Requirements; In the first sentence, replace Construction Engineer with Municipal Project Manager.

SECTION 106 – CONTROL OF MATERIAL

106.03 SAMPLES AND TESTS. Add the following two paragraphs to the beginning:

An independent firm employed by the Municipality or Resident Engineer to perform all sampling and testing of materials as specified in the Contract Documents and as defined in the VTrans Qualified Laboratory Program, shall be responsible for all acceptance sampling and testing of materials and completed work.

The Contractor shall be responsible for their Quality Control. The cost of their Quality Control shall be considered incidental to the payment items in the bid. Any sampling, testing, retesting, and submission of reports and certifications by the Contractor as required by the contract documents and plans shall be considered incidental to the payment items in the bid.

Change the last word in the first paragraph from Agency to Municipality.

Delete the first sentence of the second paragraph and replace with the following:

Samples will be taken and testing performed by certified personnel of the testing firm in accordance with the requirements of the latest edition of the Vermont Agency of Transportation's Quality Assurance Program and Material Sampling Manual.

Modify the last sentence of the third paragraph to read as follows:

Copies of all test results shall be forwarded directly to the Resident Engineer and the Contractor by the testing firm.

SECTION 656 - PLANTING TREES, SHRUBS, AND VINES

656.09 ESTABLISHMENT AND MAINTENANCE, Delete the third paragraph and replace with the following:

The Resident Engineer, Contractor, and a Town Representative shall inspect the plantings prior to final acceptance of the project. If any dead or dying plants are identified, these plants shall be replaced at the contractor's expense.

656.13 BASIS OF PAYMENT, Delete Part (b) and replace with the following:

(b) The remaining 20% of the Contract Unit Price shall be paid after the plantings have been inspected and accepted by the Resident Engineer and the municipality.

SECTION 900 – PAY ITEMS

DISPOSAL OF CONTAMINATED SOILS

1. DESCRIPTION. This work shall consist of properly disposing of contaminated soils from roadways, sidewalks, railways, and stormwater treatment facilities. The work shall include proper identification, classification, treatment, transportation, disposal and final placement of the contaminated soils.

The contractor shall follow the Corrective Action Plan prepared by Stone Environmental and approved by the State of Vermont dated June 17, 2021 and by reference becomes a part of this contract.

2. CLASSIFICATION. The work shall be classified as follows and in accordance with the latest edition of the Investigation and Remediation of Contaminated Properties Rule Vermont Agency of Natural Resources (ANR Rule). All efforts should be made to minimize the volume of contaminated soil destined for disposal.
 - (a) Urban Soils. Urban soils shall be identified as soils that are contaminated with PAHs below the applicable urban background value. Urban soils do not require on-site remediation.
 - (b) Development Soils. Development soils requiring either on-site or off-site remediation shall be identified as unconsolidated mineral and organic matter overlying bedrock that contains only polycyclic aromatic hydrocarbons (PAHs), arsenic, or lead in concentrations that exceed the relevant Vermont Soil Standard.
 - (c) Non-Hazardous Waste Soils. Non-hazardous waste contaminated soils requiring either on-site or off-site remediation shall be identified as soils that are contaminated with hazardous materials at concentrations above the Residential Vermont Soil Standard that are not hazardous wastes under the Vermont Hazardous Waste Management Rule.
 - (d) Hazardous Waste Soils. Hazardous waste contaminated soils requiring either on-site or off-site remediation shall be identified as soils that are subject to regulation as defined by the Vermont Hazardous Waste Management Regulations.

Hazardous Waste Soils include those which exhibits one or more characteristics including toxicity, corrosivity, ignitability or reactivity or is listed as a hazardous waste. Prior to disposal, contaminated soil should be sampled and analyzed for hazardous waste characteristics to confirm the appropriate disposal facility.

The ANR Rule can be found at the following website address:

<https://dec.vermont.gov/waste-management/contaminated-sites/rule>

The following reports of explorations and tests of subsurface conditions at the Site are known:

Phase II Environmental Site Assessment of the Crescent Connector, SMS#: 2012-4263, Essex Junction, Vermont, Stone Environmental, Inc. November 13, 2013.

Corrective Action Plan, Crescent Connector Roadway Project, Final Report, SMS Number: 2012-4263, Essex Junction, Vermont, Stone Environmental, Inc., June 17, 2021.

3. GENERAL CONSTRUCTION REQUIREMENTS. A contaminated soil management and disposal plan has been developed and approved by the State of Vermont and has been made available to the Engineer.

Unless otherwise directed in writing by the Engineer, the Contractor shall comply with all provisions of the contaminated soil management and disposal plan.

All changes to the remediation/disposal plan ordered in writing by the Engineer will be paid for as Extra Work.

The Contractor shall retain a qualified consultant who shall prepare a site-specific Health & Safety Plan, train site workers, monitor contamination levels of excavated soils, and ensure that the remediation/disposal plan is followed.

The Vermont Agency of Transportation Hazardous Materials and Waste Coordinator, or his/her representative, may also monitor the contamination levels of the excavated soils for the Engineer and ensure that the contaminated soil management and disposal plan is fully followed.

If during the excavation of non-hazardous soils, the Contractor encounters any condition or situation which is different from that expected, the Contractor shall immediately notify the Engineer. All excavation operations in the contaminated area shall cease until the condition or situation can be evaluated. The evaluation shall include, but is not limited to, the determination of health or other hazards to the Contractor's personnel and the immediate neighborhood, the possibility of explosion, requirements for protective clothing, and special excavation or transportation requirements.

In the event that unidentified contaminated soils are encountered during construction beyond those areas identified in the plans, the Contractor shall excavate and properly dispose of the contaminated soils as necessary and be compensated under the same

Contract items applied to those areas of identified contamination.

The Engineer will decide whether to leave the excavation open and exposed, whether barrier fence shall be erected around the excavation to act as a visible barrier, or whether to backfill it while the Agency and the Contractor are evaluating the situation and negotiating the Supplemental Agreement(s). The cost of installing barrier fence or backfilling the excavated area, if either is required, will be included in the Supplemental Agreement(s).

No additional compensation or allowance for additional Contract time will be made for any delays incurred waiting for an agreement(s) to be executed, for failure to make an agreement(s), nor for any delays incurred in executing the remediation and/or disposal plan(s).

4. METHOD OF MEASUREMENT. The quantities of Special Provision (Disposal of Development Soils) and Special Provision (Disposal of Non-Hazardous Waste Soils) to be measured for payment will be the number of cubic yards of material removed and designated for remediation and/or disposal, as indicated on the Plans or as directed by the Engineer, as measured in its original position by cross sections, in the complete and accepted work. The quantity shall be computed by the method of average end areas, or when impractical, by other acceptable methods involving three-dimensional measurement. The limits for payment shall not exceed those indicated on the Plans or designated by the Engineer in writing. The method of mass centers for computing volumes will be allowed only when the method has been used in the original design computations.

Excavation requiring more than one handling prior to final placement will not be measured for payment for the additional handling unless specifically called for in the Contract Documents.

5. BASIS OF PAYMENT. The accepted quantities of Special Provision (Disposal of Development Soils) and Special Provision (Disposal of Non-Hazardous Waste Soils) will be paid for at the Contract unit price per cubic yard. Payment shall be full compensation for performing the work specified, including research; employee training; monitoring; and developing and complying with the Health and Safety Plan; classifying, segregating, and stockpiling soil materials; performing any testing required; satisfactorily transporting and disposing of contaminated soils and for providing all materials, labor, tools, equipment, and incidentals necessary to complete the work.

All excavation shall be paid under the standard excavation items identified in the plans or specifications.

Payment for proper disposal of development soils and non-hazardous waste soils not re-

used on the project will be made as follows:

- (a) The first payment of 70% of the actual quantity will be paid when the material is placed at a treatment site or otherwise properly removed from the project.
- (b) The remaining 30% of the actual quantity will be paid when proper disposal in accordance with the remediation and/or disposal plan has been completed. The remaining 30% of the actual quantity will not be paid if proper disposal of the development and non-hazardous waste soils is not accomplished prior to Final Inspection.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.608 Special Provision (Disposal of Development Soils)	Cubic Yard
900.608 Special Provision (Disposal of Non-Hazardous Waste Soils)	Cubic Yard

EXCAVATION AND DISPOSAL OF PETROLEUM CONTAMINATED SOILS
AND GROUNDWATER

1. DESCRIPTION. This work shall consist of excavating and properly disposing of contaminated soils from roadways, sidewalks, railways, and stormwater treatment facilities in reasonably close conformity with the lines, grades, and typical cross sections shown on the Plans or established by the Engineer. The work shall include proper identification, classification, excavation, removal, treatment, transportation, disposal and final placement of the contaminated soils. The Contractor shall engage the services of a qualified environmental consultant to develop and implement a soil management plan and to coordinate plan review and approval with the Vermont Agency of Natural Resources (ANR), Department of Environmental Conservation (DEC), Sites Management Section (SMS).

This work may also include management, treatment, and disposal of contaminated groundwater, if encountered.

2. CLASSIFICATION. The work shall be classified as follows:

- (a) Petroleum Contaminated Soils (Class I and Class II). Petroleum contaminated soils will be classified in accordance with the latest edition of the, *Investigation and Remediation of Contaminated Properties Procedure* Vermont Agency of Natural Resources (ANR Guidelines). All efforts should be made to minimize the volume of contaminated soil destined for disposal.

- (1) Petroleum contaminated soils requiring on-site or off-site remediation shall be identified as Class I Contaminated Soils, defined as follows:

Class I contaminated soils exhibit a volatile organic compound (VOC) concentration ranging from 20 to 100 parts per million (ppm) for gasoline contaminated soil, and a concentration ranging from 10 to 100 ppm for heating oil contaminated soil, as measured by a properly calibrated photo ionization detector (PID) following the field screening guidelines outlined in the ANR Guidelines.

- (2) Petroleum contaminated soils not suitable for on-site or off-site remediation shall be identified as Class II Contaminated Soils, defined as follows:

Class II contaminated soils exhibit VOC concentration ranging from 100 to 1,000 ppm for gasoline contaminated soil, and a concentration ranging from 100 to 400 ppm for heating oil contaminated soil, as measured by a properly

calibrated PID following the field screening guidelines outlined in the ANR Guidelines.

- (b) Contaminated Soils Designated as Hazardous Waste (Class III). Soils classified as Hazardous Waste shall be identified as Class III Contaminated Soils, defined as follows:

Class III contaminated soils include petroleum contaminated soils which exhibit a VOC concentration greater than 1,000 ppm for gasoline contaminated soils or concentrations greater than 400 ppm for heating oil contaminated soil as measured by a properly calibrated PID following the field screening guidelines outlined in the ANR Guidelines, as well as any soils containing Listed or Characteristic hazardous waste. Contaminated soil suspected to be designated hazardous waste must be sampled to confirm the material is eligible for the Petroleum Contaminated Soils exemption under the Vermont Hazardous Waste Management Regulation 7-203(p). These soils may also include coal tar, heavy and toxic metals, solvents, chemicals, and/or any other classified or unclassified contaminant.

The ANR Guidelines can be found at the following website address:

<http://dec.vermont.gov/waste-management/contaminated-sites/guidance>

For information regarding the remediation and/or disposal plan, VTrans Hazardous Materials and Waste Coordinator must be contacted. The information provided to the Contractor by the Hazardous Materials and Waste Coordinator is presented in good faith and is not intended to be a substitute for any investigation that the Contractor may conduct on their own. The Contractor is encouraged to conduct an investigation to define the degree and extent of soil and groundwater contamination in an effort to establish the parameters of the required remediation and/or disposal plan.

- (c) Contaminated Groundwater. If contaminated groundwater is encountered and must be dewatered to complete construction of subsurface infrastructure, the Contractor shall engage an environmental consultant to develop and implement a wastewater management plan. The wastewater management plan shall be submitted to, and approved by, ANR and the municipality in conjunction with the Engineer.

The wastewater management plan shall include storage, sampling, monitoring, and treatment methods for contaminants of concern. Contaminated groundwater shall be stored in container(s) constructed of materials compatible with the contaminants encountered. Additionally, the container(s) shall be of adequate volume to store all contaminated groundwater generated during dewatering efforts. A FRAC Tank

with a minimum capacity of 18,000 gallons is commonly used for excavation dewatering storage and is considered to meet the storage requirements above.

The sampling and monitoring methodology will be dependent on the treatment method selected. Treatment methods include reinjection, carbon filtration, air stripping, fractionation tank storage, and carbon filtration, or disposal at a wastewater treatment plant.

If treated wastewater is destined to be discharged to surface water, the engaged consultant shall apply for and receive a wastewater discharge permit (General Permit 3-9004). The permit application shall be reviewed and authorized by the Agency of Natural Resources and the municipality prior to implementation.

All contaminated groundwater shall be managed, stored, treated, and/or disposed in accordance with ANR *Guidance for Construction of Public Works Projects in Areas Where Contamination is Suspected or Known*.

This guidance can be found at the following website address:

http://dec.vermont.gov/sites/dec/files/documents/waterline_guide.pdf

For information regarding guidance in developing the remediation and/or disposal plan, the Contractor shall contact the Agency of Natural Resources, Waste Management Division.

3. GENERAL CONSTRUCTION REQUIREMENTS. The Contractor's consultant shall develop a contaminated soil management and disposal plan for review and approval from SMS or submit an alternate plan which must be approved by SMS and the Engineer prior to implementation.

Unless otherwise directed in writing by the Engineer, the Contractor shall comply with all provisions of the contaminated soil management and disposal plan.

All changes to the remediation/disposal plan ordered in writing by the Engineer will be paid for as Extra Work.

The Contractor shall hire a qualified consultant who shall prepare a site specific Health & Safety Plan, train site workers, monitor contamination levels of excavated soils, and ensure that the remediation/disposal plan is followed. Complete copies of the details of the plan and program shall be provided to the Engineer.

The Agency's Hazardous Materials and Waste Coordinator, or his/her representative, may also monitor the contamination levels of the excavated soils for the Engineer and ensure that the contaminated soil management and disposal plan is fully followed.

If during the excavation of petroleum contaminated soil, the Contractor encounters any condition or situation which is different from that expected, the Contractor shall immediately notify the Engineer. All excavation operations in the contaminated area shall cease until the condition or situation can be evaluated. The evaluation shall include, but is not limited to, the determination of health or other hazards to the Contractor's personnel and the immediate neighborhood, the possibility of explosion, requirements for protective clothing, and special excavation or transportation requirements.

In the event that unidentified hazardous waste or contaminated soils are encountered during construction beyond those areas identified in the plans, the Contractor shall excavate and properly dispose of the contaminated soils as necessary and be compensated under the same Contract items applied to those areas of identified contamination.

All compensation for groundwater management requirements will be made under a Supplemental Agreement in accordance with Subsection 109.06.

The Engineer will decide whether to leave the excavation open and exposed, whether barrier fence shall be erected around the excavation to act as a visible barrier, or whether to backfill it while the Agency and the Contractor are evaluating the situation and negotiating the Supplemental Agreement(s). The cost of installing barrier fence or backfilling the area, if either is required, will be included in the Supplemental Agreement(s).

No additional compensation or allowance for additional Contract time will be made for any delays incurred waiting for an agreement(s) to be executed, for failure to make an agreement(s), nor for any delays incurred in executing the remediation and/or disposal plan(s).

4. METHOD OF MEASUREMENT. The quantities of Special Provision (Excavation of Petroleum Contaminated Soils, Class I), Special Provision (Excavation of Petroleum Contaminated Soils, Class II), and Special Provision (Excavation of Contaminated Soils, Class III) to be measured for payment will be the number of cubic yards of material removed and designated for remediation and/or disposal, as is indicated on the Plans or as directed by the Engineer, as measured in its original position by cross sections, in the complete and accepted work. The quantity shall be computed by the method of average end areas, or when impractical, by other accepted methods involving three-dimensional measurement. The limits for payment shall not exceed those indicated on the Plans or

designated by the Engineer in writing. The method of mass centers for computing volumes will be allowed only when the method has been used in the original design computations.

Excavation requiring more than one handling prior to final placement will not be measured for payment for the additional handling unless specifically called for in the Contract Documents.

5. **BASIS OF PAYMENT.** The accepted quantities of Special Provision (Excavation of Petroleum Contaminated Soils, Class I), Special Provision (Excavation of Petroleum Contaminated Soils, Class II), and Special Provision (Excavation of Contaminated Soils, Class III) will be paid for at the Contract unit price per cubic yard. Payment shall be full compensation for performing the work specified, including research; employee training; monitoring; and developing and complying with the Health and Safety Plan; classifying, segregating, and stockpiling soil materials; performing any testing required; satisfactorily transporting and disposing of contaminated soils and for providing all materials, labor, tools, equipment, and incidentals necessary to complete the work.
 - (a) Payment for contaminated soils re-used on the project will be made as follows:
 - (1) The first payment of 50 percent of the actual quantity will be paid when the material is placed at the treatment site.
 - (2) The remaining 50 percent of the actual quantity will be paid when the material has been incorporated back into the project.
 - (b) Payment for contaminated soils not re-used on the project will be made as follows:
 - (1) The first payment of 70 percent of the actual quantity will be paid when the material is placed at a treatment site or otherwise properly removed from the project.
 - (2) The remaining 30 percent of the actual quantity will be paid when proper disposal in accordance with the remediation and/or disposal plan has been completed. The remaining 30 percent of the actual quantity will not be paid if proper disposal of the petroleum contaminated soil is not accomplished prior to Final Inspection.

Crescent Connector STP 5300(13)
Special Provisions

November 18, 2022

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.608 Special Provision (Excavation of Petroleum Contaminated Soils, Class I)	Cubic Yard
900.608 Special Provision (Excavation of Petroleum Contaminated Soils, Class II)	Cubic Yard
900.608 Special Provision (Excavation of Contaminated Soils, Class III)	Cubic Yard

DRAINAGE AGGREGATE

1. DESCRIPTION. This work shall consist of furnishing and placing drainage aggregate as shown in the Plans and as directed by the Engineer.
2. MATERIALS. Gradation shall meet the requirements of the following table:

TABLE 1 – GRADATION REQUIREMENTS

Sieve Size	Percentage by Weight Passing Square Mesh Sieves
3"	100
2 ½"	90-100
2"	35-70
1 ½"	0-15

3. CONSTRUCTION REQUIREMENTS. The surface where backfill is to be placed shall be prepared to a smooth condition free of debris, depressions, or obstructions.

Drainage aggregate shall be placed in uniform layers of not more than 12 inches in thickness and compacted using plate compactors. The drainage aggregate shall not be placed directly by dumping from haul vehicles or by pushing material by bulldozers, graders, or other equipment. Placing shall be limited to the use of hand shovels, backhoes, front end loaders, or other similar types of equipment as approved by the Engineer.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Drainage Aggregate) to be measured for payment will be the number of cubic yards installed in the complete and accepted work, measured within the limits shown on the Plans or as directed by the Engineer.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Drainage Aggregate) will be paid for at the Contract unit price per cubic yard. Payment will be full compensation for furnishing, transporting, handling, and placing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Excavation will be paid for separately under the appropriate Contract items.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.608 Special Provision (Drainage Aggregate)	Cubic Yard

PERMEABLE BASE

1. DESCRIPTION. This work shall consist of furnishing and placing permeable base material as shown in the Plans and as directed by the Engineer.
2. MATERIALS. Gradation shall meet the requirements of the following table:

TABLE 1 – GRADATION REQUIREMENTS

Sieve Size	Percentage by Weight Passing Square Mesh Sieves
1 ½"	100
1"	95-100
½"	25-60
#4	0-10
#8	0-5

3. CONSTRUCTION REQUIREMENTS. The surface where base material is to be placed shall be prepared to a smooth condition free of debris, depressions, or obstructions.

Permeable base material shall be placed in uniform layers of not more than 6 inches in thickness and compacted using plate compactors. The base material shall not be placed directly by dumping from haul vehicles or by pushing material by bulldozers, graders, or other equipment. Placing shall be limited to the use of hand shovels, backhoes, front end loaders, or other similar types of equipment as approved by the Engineer.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Permeable Base) to be measured for payment will be the number of cubic yards installed in the complete and accepted work, measured within the limits shown on the Plans or as directed by the Engineer.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Permeable Base) will be paid for at the Contract unit price per cubic yard. Payment will be full compensation for furnishing, transporting, handling, and placing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Excavation will be paid for separately under the appropriate Contract items.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.608 Special Provision (Permeable Base)	Cubic Yard

RAILROAD BALLAST

1. DESCRIPTION. This work shall consist of furnishing and installing railroad ballast as shown on the Plans and as directed by the Engineer.
2. MATERIALS.
 - (a) Ballast. Ballast shall meet the requirements of Chapter 1 Roadway and Ballast, Sections 2.3 "Materials" and 2.4 "Property Requirements", of the AREMA Manual. The ballast shall be Size No. 4 or larger as defined in Table 1-2-2 in Chapter 1, Section 2.4.4 "Gradations" of the AREMA Manual, and shall be limited to crushed granites, trap rocks, or quartzites, and shall contain no carbonates or slags.
3. CONSTRUCTION REQUIREMENTS.
 - (a) Production and Handling. Production and handling shall meet the requirements of AREMA Chapter 1, Section 2.5.
 - (b) Sampling and Testing. Sampling and testing shall meet the requirements of AREMA Chapter 1, Section 2.8.
 - (c) Installation. Installation shall be performed in accordance with Chapter 5 - Track, Section 4.1 "Specifications for Track Construction" of the AREMA Manual. Railroad ballast shall be installed and tamped in the cribs and shoulders to the depths shown on the Plans.
 - (d) Grading. Grading shall meet the requirements of AREMA Chapter 1, Section 2.6.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (Railroad Ballast) to be measured for payment will be the number of cubic yards placed in the complete and accepted work. All loads designated shall be leveled at the point of delivery as directed by the Engineer. A load ticket shall be furnished to the Engineer for each load delivered to the job site.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Railroad Ballast) will be paid for at the Contract unit price per cubic yard. Payment will be full compensation for furnishing, transporting, handling, testing, placing, and tamping the materials specified, including ballast, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.608 Special Provision (Railroad Ballast)	Cubic Yard

ADJUST ELEVATION OF MONITORING WELL

1. DESCRIPTION. This work shall consist of adjusting the elevation of existing monitoring well(s) to match the finish grade of the proposed pavement.

The work under this Section shall be performed in accordance with these provisions, the Plans, and the appropriate provisions of Section 604 of the Standard Specifications.

2. MATERIALS. If required, materials shall match those of the existing monitoring wells.
3. METHOD OF MEASUREMENT. The quantity of Special Provision (Adjust Elevation of Monitoring Well) to be measured for payment will be the number of units modified in the complete and accepted work.
4. BASIS OF PAYMENT. The accepted quantity of Special Provision (Adjust Elevation of Monitoring Well) will be paid for at the Contract unit price for each. Payment will be full compensation for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Adjust Elevation of Monitoring Well)	Each

BIKE LOCKER

1. DESCRIPTION. This work shall consist of furnishing and installing a bike locker in accordance with the Plans and as directed by the Engineer.
2. MATERIALS.
 - (a) General. The materials for bike locker shall meet the requirements specified in the Contract Documents, and as recommended by the manufacturer.
 - (b) Bike Locker. Acceptable bike lockers are available from the following manufacturers, or approved equal:
 - (1) American Bicycle Security Company
P.O. Box 7359
Ventura, CA 93006
Product: Model #301
Tel.: (805) 933-3688
Website: www.ameribike.com
 - (2) Cycle Safe, Inc.
5211 Cascade Road, SE Suite 210
Grand Rapids, Michigan 49546
Model ProPark View-Thru
Tel.: (616) 954-9977
Website: www.cyclesafe.com
 - (3) Dero Bike Racks, Inc.
42 Northern Stacks Drive, Suite 100
Minneapolis, MN 55421
Dero Single Locker
Tel.: (888) 337-6729
Website: www.dero.com
3. INSTALLATION. The bike locker shall be installed at the location(s) shown on the Plans in accordance with the manufacturer's recommendations.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (Bike Locker) to be measured for payment will be the number of each bike locker installed in the complete and accepted work.

5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Bike Locker) will be paid for at the Contract unit price for each. Payment will be full compensation for installing a complete bike locker in accordance with the Contract, and for furnishing all labor, materials, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Bike Locker)	Each

BIKE RACK

1. DESCRIPTION. This work shall consist of furnishing and installing bike racks in accordance with the Plans and as directed by the Engineer.
2. MATERIALS. Bike rack(s) shall be the following, or approved equal:

Belson Outdoors Model #U190-SF-P (1-7/8" O.D. Tubing)

Cycle Safe, Inc. Model #U/S 12700S

Dero Hoop Rack – Surface Mount
3. INSTALLATION. The bike racks shall be installed at the locations shown on the Plans and in accordance with the manufacturer's recommendations.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (Bike Rack) to be measured for payment will be the number of bike rack units (hoops) installed in the complete and accepted work.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Bike Rack) will be paid for at the Contract unit price for each. Payment will be full compensation for installing a complete bike rack system in accordance with the Contract Documents, and for furnishing all labor, materials, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Bike Rack)	Each

CORING CONCRETE

1. DESCRIPTION. This work shall consist of coring into an existing concrete structure and mortaring pipe, ducts, or conduit into the structure at the locations indicated in the Plans and as directed by the Engineer.
2. MATERIALS. Mortar shall meet the requirements of Subsection 707.02.
3. CONSTRUCTION REQUIREMENTS. The existing concrete structure shall be cored to allow the new pipe, ducts, or conduit to extend into or through the concrete structure. The diameter of the core shall be between ½ inch and 1-1/2 inches larger than the diameter of installed pipe, duct, or conduit. The new pipe, duct, or conduit shall be mortared in place, using Mortar, Type II, filling any voids between the pipe and the structure.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (Coring Concrete) to be measured for payment will be the number of cores made in the complete and accepted work.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Coring Concrete) will be paid for at the Contract unit price per each. Payment will be full compensation for coring the existing concrete structure, for mortaring new pipe, ducts, or conduit in place, and for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work.

New underdrain or drainage pipe will be paid under the appropriate Contract item(s).

Excavation, including backfill operations and the disposal of excavated material (excess or unsuitable for backfill), will be paid under the appropriate Contract excavation item(s).

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Coring Concrete)	Each

JUNCTION BOX, HEAVY DUTY

1. DESCRIPTION. This work shall consist of furnishing and installing heavy duty junction boxes at the location(s) shown in the Plans and as directed by the Engineer.
2. MATERIALS. Materials shall meet the requirements specified in the Plans.

A Type A Certification shall be furnished.
3. CONSTRUCTION REQUIREMENTS. Junction boxes shall be constructed in accordance with the requirements of Section 678, in the locations shown in the plans or as directed by the Engineer.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (Junction Box, Heavy Duty) to be measured for payment will be the number of Junction Boxes installed in the complete and accepted work.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Junction Box, Heavy Duty) will be paid for at the Contract unit price for each. Payment will be full compensation for furnishing, transporting, handling, and installing the materials specified, and for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Junction Box, Heavy Duty)	Each

JUNCTION BOX, BURLINGTON TELECOM

1. DESCRIPTION. This work shall consist of furnishing and installing junction boxes at the location(s) shown in the Plans and as directed by the Engineer.
2. MATERIALS. Materials shall be provided by Burlington Telecom at no cost to the contractor.
3. CONSTRUCTION REQUIREMENTS. Junction boxes shall be installed in accordance with the requirements of Section 678, in the locations shown in the plans or as directed by the Engineer.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (Junction Box, Burlington Telecom) to be measured for payment will be the number of Junction Boxes installed in the complete and accepted work.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Junction Box, Burlington Telecom) will be paid for at the Contract unit price for each. Payment will be full compensation for handling and installing the materials specified, and for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Junction Box, Burlington Telecom)	Each

POWER PEDESTAL

1. DESCRIPTION. This work shall consist of furnishing and installing a new electrical service with meter socket/power distribution panel/load center, contactors, and time clock for the new lighting, traffic signal and receptacle circuits. The new electrical meter and power pedestal shall be installed at the locations shown on the contract drawings. The Contractor shall coordinate with the utility company (Green Mountain Power) on the installation of the electric meter and energizing the new pedestal. Section 678 and Section 679 of the 2018 Standard Specifications for Construction shall apply unless modified herein or by the details and specifications shown on the Plans.
2. MATERIALS. The electrical meter and power pedestal with power panel shall meet the details and specifications shown on the Plans. The meter socket, main breaker and power distribution panel/load center, contactors, and time clock shall be mounted in a pedestal that is free standing and supported on a concrete base.

Prior to ordering, the Contractor shall submit fabrication drawings to the Engineer in accordance with Section 105. The submittal shall, at a minimum, include the information for the power drop, meter socket, power distribution panel/load center, contactors, time clock and enclosure.

Time Clock:

- 365-day electronic time clock with repeatable annual programming
- Automatic daylight savings time adjustments
- At least 20 set points for individual programs for each day of the week
- Manual override
- USB port programming
- Accurate date and time maintained for up to 100 hours without power
- Automatic input voltage selection from 120-277 VAC
- 16 output circuits (zones) with total 350 amp capacity
- 30 Amp @ 12-240 VAC switch rating
- Contacts to be switch type
- Wiring terminals sized for #20 to #6 AWG wire
- NEMA 3R lockable gray painted steel enclosure
- -40EF to 120EF operating temperature rating

Contactors

- UL Listed, 30A, 250V, electrically held, 4 pole per the drawings

Special Provisions

3. METHOD OF MEASUREMENT. The quantity of Special Provision (Power Pedestal) to be measured for payment will be the number of each installed in the complete and accepted work.
4. BASIS OF PAYMENT. The accepted quantity of Special Provision (Power Pedestal) will be paid for at the Contract unit price per each. Payment will be full compensation for furnishing and installing the electrical meter & power panel in accordance with the utility company's requirements, and coordination with the utility company to obtain power service to the new pedestal. Connection to the power source, circuit testing, and the furnishing of all labor tools, equipment, hardware and incidentals necessary to complete the work shall be included. This item shall include furnishing, assembly and installing the ground rods, conductors, wires, conduits, conduit bends, conduit fittings, expansion/slip fittings, pull rope, meter socket with power pedestal that contains the power distribution panel/load center, circuit breakers, contactors, timeclock, mounting board (internal to pedestal) and hardware necessary to complete the work. Excavation, bedding and backfill, including concrete, and compaction required will not be paid for separately, but will be considered incidental.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Power Pedestal)	Each

PRECAST CONCRETE COMBINATION STRUCTURE
WITH CAST IRON GRATE AND COVER

1. DESCRIPTION. This work shall consist of furnishing and installing the precast concrete combination structure with cast iron grate and cover at the locations and elevations indicated on the Plans and as directed by the Engineer.

2. GENERAL.

The Precast Concrete Combination Structure shall be in conformance with the details on the plans. The Precast Concrete Combination Structure shall be manufactured to accept a cast iron grate and cast iron cover.

3. MATERIALS. Materials shall meet the requirements of the following Subsections of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction:

Clay or Shale Sewer Brick.....	705.01
Concrete Masonry Blocks.....	705.02
Precast Drop Inlets, Catch Basins, and Manholes.....	705.04
Mortar, Type II.....	707.02
Bar Reinforcement, Level I.....	713.01
Welded Steel Wire Fabric.....	713.05
Cast Iron Frame, Grate, and Cover.....	715.01(b)
Ductile Iron Frame and Cover.....	715.01(c)

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Unless otherwise specified, cast-in-place concrete shall conform to the requirements of Section 541 for Concrete, Class B.

Material for steel grates shall meet the requirements of ASTM A36/A36M. For steel grates, a Type D certification shall be furnished.

Pipe stubs for precast reinforced concrete curb drop inlets shall meet the requirements of Section 601.

The term “cast iron,” as used in these Specifications, or in various Contract items, when used in conjunction with covers and frames, shall be understood to mean “cast iron or ductile iron.” The Contractor may use ductile iron covers and frames meeting the requirements of Subsection 715.01(c) instead of cast iron covers and frames.

4. GENERAL CONSTRUCTION REQUIREMENTS. The combination structure shall be installed as detailed on the Plans, as directed by the Engineer, and in accordance with the

following requirements. The excavation shall be to the limits shown on the Plans or ordered by the Engineer, and carefully shaped and graded.

Precast manholes and structures shall be constructed in accordance with the Section 604 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.

Except for components cast using the dry cast process, precast concrete components shall not have the forms removed until a minimum compressive strength of 2000 psi has been achieved. Precast components shall not be moved until two hours after they have been cast and until a minimum compressive strength of 2000 psi has been achieved. Concrete cylinders shall be made, in accordance with AASHTO T 23, at the last placement of the day.

Precast sections shall not be shipped from the manufacturing facility until the eighth day from the date of manufacture, except when the supplier provides test results demonstrating that the design strength has been achieved.

5. METHOD OF MEASUREMENT. The quantities of Special Provision (Precast Concrete Combination Structure with Cast Iron Grate and Cover) to be measured for payment will be the number of units used in the complete and accepted work.
6. BASIS OF PAYMENT. The accepted quantities of Special Provision (Precast Concrete Combination Structure with Cast Iron Grate and Cover) will be paid at the Contract unit price per unit each. Payment will be full compensation for furnishing, transporting, handling, and placing the materials specified, including concrete, mortar, brick, frames, grates, pipe stubs, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Excavation will be paid for as Trench Excavation of Earth. Backfill will be paid for as Granular Backfill for Structures.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Precast Concrete Combination Structure With Cast Iron Grate And Cover)	Each

REMOVE BOLLARD

1. DESCRIPTION. This work shall consist of removing and disposing of existing bollards within the limits indicated in the Plans and as directed by the Engineer.
2. METHOD OF MEASUREMENT. The quantity of Special Provision (Remove Bollard) to be measured for payment will be on an each basis in the complete and accepted work.
3. BASIS OF PAYMENT. The accepted quantity of Special Provision (Remove Bollard) will be paid for at the Contract unit price for each. Payment will be full compensation for removal and disposal of each bollard and any associated items, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Remove Bollard)	Each

STREET LIGHT ASSEMBLY, TYPE PL

1. DESCRIPTION. This work shall consist of furnishing and installing a street lighting system. Section 679 of the Standard Specifications shall apply unless modified herein or by the details and specifications shown on the Plans. Special Provision (Street Light Assembly, Type PL) shall include the luminaire, pole, foundation, banner arms, ladder rest, base cover, and duplex receptacle at the locations indicated on the Plans. The luminaire includes the housing, LED light source, LED driver and any accessory elements.
2. MATERIALS. The luminaire, pole, banner arms, ladder rest, base cover, and duplex receptacle shall meet the details and specifications shown on the Plans. The luminaire, pole, banner arms, base cover, and ladder rest shall be black in color. The luminaire, pole, banner arms, ladder rest, base cover, and duplex receptacle shall be as specified below. Materials shall be in accordance with Section 679 and the following requirements:

- (a) Foundation: Concrete shall meet the requirements of Section 541 for Concrete, Class B.
- (b) Light Pole: Pole shall be decorative 12 fluted, post welded to a round aluminum pole base which is welded top and bottom to a cast aluminum anchor plate. The pole shall include a 4-1/2" x 10" maintenance opening. The pole shall have a 10'-2" mounting height.

Manufacturer: Spring City Electrical Mfg. Co., Inc.

Pole Model No: Hancock with Ladder Rest PSHNC-16-10.17-LR-GFWI
One Piece Cast Pole W/ GFCI 20A/120V Duplex Receptacle
w/ In-Use Cover (Black).

- (c) Base Cover: The decorative base cover shall be made from cast-aluminum pieces fastened together with stainless steel hardware around the base of the light pole. The base cover shall be complete with a door to access the pole maintenance opening.
- (d) Finish: The light pole, base, base cover, light fixture, receptacle w/ in-use cover, and accessories as shown on the plans shall be "black textured" surface treatment, durable polyester resin based powder coating.
- (e) Light Fixture: The post-top mounted light fixture (luminaire) shall have lens panels made of acrylic (rippled), accepting a 3-1/2" tenon (vertical support) and finial #6 (standard). Luminaire assembly is a self-contained unit consisting of cast aluminum body. Hinged lid. IP66 rated.

Manufacturer: King Luminaire Co Inc.

Luminaire Model No: K56-S-T-P4-AR-III-60-(SSL)-7030-240-4K-BK-WS

Finish: Powder Coat Black

The LED wattage for the luminaire shall be a minimum 60 watt LED/5000 delivered Lumens. The optics system is LED arrays including optical baffles constructed of polished aluminum. Luminaire shall be a Type III distribution. Driver shall be suitable for multi-voltage with the operating voltage being 240V. Include a wattage selector with dimming capabilities up to 90% of light output.

- (f) Wiring: The Contractor shall provide and install all wiring for the proposed lighting system. The wire shall be copper, 600 volt insulated, type XHHW-2 to the gages specified on the contract plans.
- (g) Duplex Receptacle: The light fixture/pole shall include a surface mounted weatherproof 20A, 120V, duplex receptacle with ground fault interrupter and “in-use” cover. Color to match pole color.

Substitutions or alternate manufacturers of the luminaire, pole, banner arms, ladder rest, base cover, or duplex receptacle will not be accepted. Banners will be supplied and installed by the Owner.

- 3. CONSTRUCTION REQUIREMENTS. The contractor shall submit manufacturer’s descriptive literature for material specified in accordance with 105.03.

Transport, storage, and handling of products shall be in accordance with manufacturer’s instructions.

Light poles shall only be installed in the locations specified on the plans and in accordance with manufacturer’s instructions.

- 4. SUBMITTALS. The contractor shall submit fabrication drawings to the Engineer in accordance with Section 105. The submittal shall include, at a minimum, light fixture, pole and banner arms for review and approval by the Engineer.
- 5. METHOD OF MEASUREMENT. The quantity of Special Provision (Street Light Assembly, Type PL) to be measured for payment will be the number of each installed in the complete and accepted work.

6. BASIS OF PAYMENT. The accepted quantity of Special Provision (Street Light Assembly, Type PL) will be paid for at the contract unit price per each. Payment will be full compensation for furnishing, transporting, handling, and installing the materials and equipment specified in accordance with the manufacturer's recommendations. This includes, but is not limited to, the luminaire, pole, foundation, banner arms, ladder rest, base cover, and duplex receptacle, as well as all wiring, fusing, connection to power sources, circuit testing, grounding and hardware, and for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Other elements of the street lighting system, such as wired conduit, and electrical power pedestal (meter & power panel) will be paid for separately. Wiring, connections, coordination, and other labor and materials necessary for a functioning street lighting system that are not paid for specifically under those other pay items will be considered incidental to Special Provision (Street Light Assembly, Type PL).

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Street Light Assembly, Type PL)	Each

STREET LIGHT ASSEMBLY, TYPE PL (ALTERNATE)

1. DESCRIPTION. This work shall consist of furnishing and installing a street lighting system. Section 679 of the Standard Specifications shall apply unless modified herein or by the details and specifications shown on the Plans. Special Provision (Street Light Assembly, Type PL)(Alternate) shall include the luminaire, pole, foundation, banner arms, ladder rest, base cover, and duplex receptacle at the locations indicated on the Plans. The luminaire includes the housing, LED light source, LED driver and any accessory elements.
2. MATERIALS. The luminaire, pole, banner arms, ladder rest, base cover, and duplex receptacle shall meet the details and specifications shown on the Plans. The luminaire, pole, banner arms, base cover, and ladder rest shall be black in color. The luminaire, pole, banner arms, ladder rest, base cover, and duplex receptacle shall be as specified below. Materials shall be in accordance with Section 679 and the following requirements:
 - (a) Foundation: Concrete shall meet the requirements of Section 541 for Concrete, Class B.
 - (b) Light Pole: 10 ft high straight steel pole manufactured from a one-piece 4" round tube of high-tensile carbon steel sealed by a rolled and flattened vertical weld seam and welded to both the top and bottom of a steel anchor plate. The pole tube shall have a minimum wall thickness of 0.180", and shall have a 2" by 4.5" maintenance opening complete with cover and copper ground lug. The poles shall be provided with a duplex receptacle, two 18" banner arms and a tenon of diameter and length compatible with the selected luminaire.
 - (c) Base Cover: A round two-piece base cover, made of formed aluminum, shall be mechanically fastened to the base with stainless steel hardware. The base cover shall have an outside diameter not exceeding 16".
 - (d) Finish: The light pole, base, base cover, light fixture, receptacle w/ in-use cover, and accessories shall be "black textured" surface treatment, durable polyester resin based powder coating.
 - (e) Light Fixture: Luminaires shall meet the following requirements:
 - be a round LED post-top fixture
 - have a cast aluminum housing
 - all exposed metal surfaces shall have a polyester powder coat finish
 - all internal and external hardware shall be stainless steel or aluminum
 - have a watertight polycarbonate or acrylic frosted globe

- have a flat LED array with cut-off optics
- have Type III light distribution, 4,500 lumen output and 4000EK color temperature
- have a 120-277 VAC 60 watt LED driver
- shall mount on the pole using a 3" I.D. (min.) x 3" deep slip fitter
- shall not have decorative options (i.e. ring, struts or a finial)
- be DLC qualified

The following luminaires exemplify the above specifications:

- Philips Lumec: Serenade DSX (S56-SFX) Series
- King Luminaire: K124 Paragon Series
- Philips Hadco: RL34 Refractive Globe Series

- (f) Wiring: The Contractor shall provide and install all wiring for the proposed lighting system. The wire shall be copper, 600 volt insulated, type XHHW-2 to the gages specified on the contract plans.
- (g) Duplex Receptacle: The light fixture/pole shall include a surface mounted weatherproof 20A, 120V, duplex receptacle with ground fault interrupter and in-use cover. Color to match pole color.

Banners will be supplied and installed by the Owner.

3. CONSTRUCTION REQUIREMENTS. The contractor shall submit manufacturer's descriptive literature for material specified in accordance with 105.03.

Transport, storage, and handling of products shall be in accordance with manufacturer's instructions.

Light poles shall only be installed in the locations specified on the plans and in accordance with manufacturer's instructions.

4. SUBMITTALS. The contractor shall submit fabrication drawings to the Engineer in accordance with Section 105. The submittal shall include, at a minimum, light fixture, pole and banner arms for review and approval by the Engineer.
5. METHOD OF MEASUREMENT. The quantity of Special Provision (Street Light Assembly, Type PL)(Alternate) to be measured for payment will be the number of each installed in the complete and accepted work.

Special Provisions

6. BASIS OF PAYMENT. The accepted quantity of Special Provision (Street Light Assembly, Type PL)(Alternate) will be paid for at the contract unit price per each. Payment will be full compensation for furnishing, transporting, handling, and installing the materials and equipment specified in accordance with the manufacturer's recommendations. This includes, but is not limited to, the luminaire, pole, foundation, banner arms, ladder rest, base cover, and duplex receptacle, as well as all wiring, fusing, connection to power sources, circuit testing, grounding and hardware, and for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Other elements of the street lighting system, such as wired conduit, and electrical power pedestal (meter & power panel) will be paid for separately. Wiring, connections, coordination, and other labor and materials necessary for a functioning street lighting system that are not paid for specifically under those other pay items will be considered incidental to Special Provision (Street Light Assembly, Type PL)(Alternate).

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Street Light Assembly, Type PL)(Alternate)	Each

STREET LIGHT ASSEMBLY, TYPE SL

1. DESCRIPTION. This work shall consist of furnishing and installing a street lighting system. Section 679 of the Standard Specifications shall apply unless modified herein or by the details and specifications shown on the Plans. Special Provision (Street Light Assembly, Type SL) shall include the luminaire and bracket arm mounted on traffic signal poles at the locations indicated on the Plans. The luminaire includes the housing, LED light source, LED driver and any accessory elements.
2. MATERIALS. The luminaire and bracket arm shall meet the details and specifications shown on the Plans and shall be in accordance with Section 679 and the following requirements:
 1. Be a downward facing LED fixture mounted on a Bishops Crook arm per King Luminaire Model Number below.
 2. Shall provide a luminaire mounting height $\pm 12''$ above the top of the pole have a curved round cast aluminum housing, textured black in color.
 3. All exposed metal surfaces shall have a polyester powder coat finish.
 4. All internal and external hardware shall be stainless steel or aluminum.
 5. Shall have a watertight flat glass lens sealed to the lens frame with a continuous silicone rubber gasket.
 6. Include a flat LED array with cut-off optics.
 7. Type III light distribution, 10,200 lumen output minimum and have a 120-277 VAC dimmable LED driver.
 8. Mount on the pole using a slip fitter.
 9. DLC qualified.

Manufacturer Ordering Summary:

Luminaire

Manufacturer:	King Luminaire Co Inc.
Model No:	K829-P4FL-III-75(SSL)-8060-120V-KPL10-4K-BK
Finish:	Powder Coat Standard Black (finish to match Village Standard)

Bracket Arm

Manufacturer: King Luminaire Co Inc.
Arm Model No: KA15-T1 Aluminum Bishops Crook
Finish: Powder Coat Standard Black (finish to match Village Standard)

Prior to ordering, the Contractor shall submit fabrication drawings to the Engineer in accordance with Section 105. The submittal shall, at a minimum, include the information for luminaires and accessories listed in Section 679.04, including all options required by the Plans.

The Contractor shall provide and install all wiring for the proposed lighting system. The wire shall be copper, 600 volt insulated, type XHHW-2 to the gages specified on the contract plans.

3. CONSTRUCTION REQUIREMENTS. The contractor shall submit manufacturer's descriptive literature for material specified in accordance with 105.03.

Transport, storage, and handling of products shall be in accordance with manufacturer's instructions.

Street light assemblies shall only be installed in the locations specified on the plans and in accordance with manufacturer's instructions.

4. SUBMITTALS. The contractor shall submit shop drawings of luminaire and bracket arm for review and approval by the Engineer.
5. METHOD OF MEASUREMENT. The quantity of Special Provision (Street Light Assembly, Type SL) to be measured for payment will be the number of each installed in the complete and accepted work.
6. BASIS OF PAYMENT. The accepted quantity of Special Provision (Street Light Assembly, Type SL) will be paid for at the contract unit price per each. Payment will be full compensation for furnishing, transporting, handling, and installing the materials and equipment specified in accordance with the manufacturer's recommendations. This includes, but is not limited to, the luminaire and bracket arm, as well as all wiring, fusing, connection to power sources, circuit testing, grounding and hardware, and for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Other elements of the street lighting system, such as wired conduit, and electrical power pedestal (meter & power panel) will be paid for separately. Wiring, connections, coordination, and other labor and materials necessary for a functioning street lighting system that are not paid for specifically under those other pay items will be considered incidental to Special Provision (Street Light Assembly, Type SL).

Crescent Connector STP 5300(13)
Special Provisions

November 18, 2022

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Street Light Assembly, Type SL)	Each

VIDEO MONITORING SYSTEM

1. DESCRIPTION. This work shall consist of furnishing and installing a video monitoring system at the location(s) indicated in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 678 of the Standard Specifications.

2. GENERAL REQUIREMENTS. All associated electrical work performed and all materials installed shall be subject to inspection and approval of the Municipal Electrical Inspector. As a minimum, all work must meet the requirements of the National Electrical Code (NEC) and the National Electrical Safety Code (NESC).

3. SYSTEM REQUIREMENTS. The video monitoring systems shall include IP-addressable network camera(s) suitable for 24-hour outdoor environment installation. The camera(s) must provide a 360-degree view. If two cameras are proposed, the cameras shall be mounted back-to-back or otherwise aligned to not induce infrared blinding.

The video monitoring system shall include all necessary equipment to perform to the manufacturer's specifications, including (as needed) internal heater, integrated adjustable sunshield, mounting hardware (camera mounting bracket and / or camera pole mount extension bracket), integrated machine vision processor, communications interface panel, all associated equipment or miscellaneous fittings (cabinet wiring), and all labor, materials, and equipment required to complete the installation and make the video monitoring system fully operational. All of the video detection system components shall be current production equipment produced by the same manufacturer (for system operation compatibility purposes) unless otherwise noted herein or approved in advance by the Engineer.

The video monitoring system shall be compatible with and integrate into the City of Essex Junction's existing closed-circuit television monitoring and cloud-based Video Management Software (VMS). The current City of Essex Junction VMS system is Exacq.

The video monitoring system shall upload recorded video to the City of Essex Junction's VMS system. The video monitoring system shall also contain a minimum of 3 days recorded video on-board storage capacity. The system shall be installed to both upload and maintain a current 3-day recorded video log.

- (a) Camera(s). The selected camera(s) shall meet the following minimum hardware requirements:

Lens:	Fixed 3.2 mm F2.0
Field of view:	Horizontal – 180-degrees Vertical – 90-degrees
Day and night:	yes; automatically removable infrared-cut filter
Minimum illumination:	Color – 0.17 lux, F2.0 Black and white – 0.05 luc, F2.0
Shutter time:	1/33500 to 1/10s
Camera angle:	Pan +/- 180-degrees Tilt 0-, 35-, 45-, 55-degrees Roll +/- 10-degrees
Video compression:	H.264 (MPEG-4 Part 10/AVC) baseline Main and high profile motion JPEG
Resolution:	4320x1920 to 480x270
Frame Rate:	8.3 MP
Video streaming:	8.3 MP Controllable frame rate and bandwidth
Image settings:	Saturation, contrast, brightness, sharpness, white balance, day/night threshold, exposure mode, compression, dynamic text and image overlay, exposure control, noise reduction, low light fine tuning, polygon privacy masks
Network security:	Password protection, IP address filtering, HTTPS encryption, IEEE 802.1X network access control, digest authentication, user

	access log, centralized certificate management signed firmware
Supported protocols:	IPv4/v6, HTTP, HTTPS, SSL/TLS, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, SNMP v1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS, SSH, LLDP
API:	Open API for software integration
Analytics:	Motion detection; active tampering alarm
Event triggers:	Analytics; edge storage events; shock detection
Event actions:	Day/night mode, overlay text, video recording to edge storage, pre- and post-alarm video buffering, send SNMP trap File upload: FTP, SFTP, HTTP, HTTPS network share, email Notification: email, HTTP, HTTPS TCP
Casing:	IP66-/IP67- and NEMA 4X-rated, IK10-rated impact-resistant casing Color: matte black (factory or painted according to manufacturer's instructions)
Memory:	1024 MB RAM, 512 MB Flash
Power:	Power over Ethernet (PoE) IEEE 802.3af/802.3at Type 1 Class 3
Connectors:	Shielded RJ45 10BASE-T/100BASE-TX/1000BASE-T PoE Audio and I/O connectivity
Storage:	Support for microSD / microSDHC / microSDXC card

Support for SD card encryption
Support for recording to network-attached storage (NAS)

Operating conditions: -30 °C to 50 °C (-22 °F to 122 °F)
Maximum temperature (intermittent): 60 °C (140 °F)
Humidity: 10–100% RH (condensing)

Storage conditions: -40 °C to 65 °C (-40 °F to 149 °F)

Approvals: EMC:
EN 55032 Class A, EN 50121-4, IEC 62236-4, EN 55024, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class A, ICES-003 Class A, VCCI Class A, RCM AS/NZS CISPR 32 Class A, KC KN32 Class A, KC KN35

Safety: IEC/EN/UL 60950-22, IEC/EN/UL 62368-1, IS 13252

Environment: IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, IEC 60068-2-14, IEC 60068-2-27, IEC 60068-2-78, IEC/EN 60529 IP66/IP67, IEC/EN 62262 IK10, NEMA 250 Type 4X

- (b) Network Switch. The video monitoring system shall be connected to a data network via a fiber optic cable from the traffic control signal system. The fiber optic wire shall connect into a network switch within the video monitoring system. The network switch shall be powered by a circuit from the street light system from which it is mounted. The network switch will connect to the video monitoring system via a power-over-ethernet (PoE) CAT-6 cable directly from the network switch to the camera, or as required by the manufacturer. The network switch shall have minimum performance requirements to convert the 4K / 8 MP camera signal to the cloud via the fiber optic network connection, with at least gigabit processing capacity and a temperature operating range from -40-degrees to 120-degrees Fahrenheit.

- (c) Cabinet. The video monitoring system shall include a NEMA-rated, watertight, lockable exterior grade cabinet to house the necessary electrical equipment, network equipment, and other necessary video monitoring system hardware. The cabinet shall be the minimum size necessary to house the equipment, cables, electrical supply, and all necessary wiring connections safely and securely. The cabinet shall be factory or painted matte black.

A hard copy of programming data and camera support information shall be left in the control cabinet. The Contractor shall supply a complete set of interface cables in each controller cabinet. The Contractor shall also supply any required cables and wiring connections between network hardware, camera, and accessory equipment.

- 4. SUBMITTALS. The Contractor shall submit Fabrication Drawings in accordance with Sections 105 and 678.

Three (3) advance copies of equipment manuals furnished by the manufacturer shall be submitted to the Engineer for review a minimum of ten days prior to the scheduled start of the first 24-hour operation test period. The Engineer will verify the manufacturer's equipment manual as part of the test and integration process. The equipment manual incorporating the Engineer's corrections and comments shall be integrated by the Contractor into the operations and maintenance manual. The manual shall, as a minimum, include the following:

- (a) Complete and accurate schematic diagrams.
- (b) Complete installation and operation procedures.
- (c) Complete performance specifications (functions, network addresses, electrical, mechanical, and environmental) of the system.
- (d) Complete accurate troubleshooting, diagnostic, and maintenance procedures.

- 5. CONSTRUCTION REQUIREMENTS. The Contractor shall be responsible for furnishing all training, labor, materials, cables, connectors, tools, equipment, shipping, and incidental items necessary to complete the installation and make the video monitoring system fully operational and IP-available on the cloud. The City of Essex Junction shall be responsible for integration of the video monitoring system into the existing City VMS, including VMS licensing.

Routing of the video monitoring system fiber optic cable shall provide a drip loop for protection of the camera(s), connector(s), and associated equipment. The fiber optic cable shall be installed continuous with no splices between the network switches at the video

monitoring system and traffic control cabinet. Fiber optic cable shall be incidental to the associated conduit and video monitoring system pay items.

6. METHOD OF MEASUREMENT. The quantity of Special Provision (Video Monitoring System) to be measured for payment will be the number of each video monitoring system installed in the complete and accepted work.
7. BASIS OF PAYMENT. The accepted quantity of Special Provision (Video Monitoring System) will be paid for at the Contract unit price per each at each designated location indicated on the plans. Payment will be full compensation for furnishing, handling, and placing the equipment and materials specified in the Contract Documents including camera(s), enclosure(s), cabinet(s), surface preparation and restoration, network hardware, mounting hardware, wiring, and networking; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Fiber optic cable shall be considered incidental to the associated conduit and video monitoring system pay items.

Payment will be made as follows:

- (a) Upon installation of a functioning system as indicated by a successful continuous 24-hour operation test period and on-line access, twenty-five percent (25%) of the Contract unit price will be paid.
- (b) Fifty percent (50%) of the Contract unit price will be paid after successful completion of the 30-day test control period.
- (c) The final twenty-five percent (25%) of the Contract unit price will be paid upon acceptance of the project.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.620 Special Provision (Video Monitoring System)	Each

CURING COMPOUND

1. DESCRIPTION. Special Provision (Curing Compound) shall consist of applying Certi-Vex waterproof coating to all concrete sidewalk and exposed surfaces per the manufacturer's instructions and as directed by the Engineer. This waterproof coating shall be applied just after placement and finishing of the concrete and shall serve as the curing compound.
2. MATERIALS. The Contractor shall apply Certi-Vex AC 1315 waterproof coating as manufactured by Vexcon Chemicals, Inc. This compound shall meet ASTM C-1315 Type 1, Class A Acrylic concrete sealing compound and shall be non-yellowing, slip resistant gloss. The compound shall be applied at a rate of 300 square feet per gallon for the first application while the concrete is still wet and after finishing. A second coating shall be applied at a rate of 500 square feet per gallon on the next day.
3. METHOD OF MEASUREMENT. The quantity of Special Provision (Curing Compound) to be measured for payment will be the number of gallons used in the complete and accepted work for applying two coats of the Certi-Vex waterproof coating to all new concrete curbing and sidewalk surfaces including the colored concrete and the colored textured concrete areas.
4. BASIS OF PAYMENT. The measured quantity of Special Provision (Curing Compound) will be paid for at the contract unit price per gallon. Payment will be full compensation for furnishing and placing two coats of the Certi-Vex waterproofing compound on all concrete sidewalk surfaces (including colored and textured colored concrete) following the application rates listed above.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.625 Special Provision (Curing Compound)	Gallon

SLEEVES FOR UTILITIES

1. DESCRIPTION. This work shall consist of the furnishing and installation of concrete encased, 6 inch PVC split sleeve to protect existing public or private utilities.
2. MATERIALS. Sleeves shall be Schedule 80 PVC split sleeve with banding.

Concrete shall conform to the requirements of Section 541 for Concrete, Class B.
3. INSTALLATION. The split sleeve shall be installed around the existing utility at the location(s) shown on the Plans in accordance with the manufacturer's recommendations. The installed sleeve shall be encased in a minimum of 2" of concrete.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (6 Inch Sleeve for Utility) to be measured for payment will be the number of linear feet installed in the complete and accepted work.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (6 Inch Sleeve for Utility) will be paid for at the Contract Unit Price per linear foot. Payment will be full compensation for fabricating, furnishing, transporting, handling, and placing all materials, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.640 Special Provision (6 Inch Sleeve for Utility)	Linear Foot

DUCTBANK

1. DESCRIPTION. This work shall consist of furnishing and installing underground ductbank for cable television, electrical power, communication cable, telephone service and fiber optic cable. This work shall also include the furnishing and installing of all conduit, sleeves, appurtenances, and hardware for transitioning from underground to aerial service. The work shall be performed in conformance with the lines, grades, dimensions, locations, and details shown on the Plans or as determined by the Engineer.

The terms “Duct” and “Conduit” are used interchangeably in these provisions.

2. MATERIALS. Conduit shall be HDPE SDR 11. Conduit bends (sweeps) shall be PVC Schedule 80 with a minimum bend radius of 48 inches.

Sand borrow shall conform to the requirements of Subsection 703.03.

3. GENERAL REQUIREMENTS. The Contractor shall coordinate and work with each utility company, as necessary, to ensure the conduit systems installed are constructed in accordance with the Plans and the utility company’s specifications.
4. EXCAVATION. The conduit trench shall be excavated to the required depth shown on the Plans and to a width sufficient to install the conduit and sand encasement. The depth of excavation shall also be sufficient for an initial 3 inch leveling layer of approved sand borrow raked smooth so that conduit sections will be either level or on a uniform gradient.

All excavation shall be confined to the minimum surface area as possible, keeping within all applicable safety requirements.

5. INSTALLATION OF CONDUIT. Conduit bends shall match bends as noted on the Plans. Conduit bends (sweeps) shall be PVC Schedule 80 with a minimum bend radius of 48 inches.

Random main conduit may be mandreled at the direction of the Engineer and utility companies’ inspector.

If at the time the cable is being installed in the conduit by the utility, and the cable cannot be pulled through the conduit, then the Contractor shall replace/repair (at the Contractor’s expense) the conduit.

Conduit spacers, as approved by the Engineer and utility companies’ inspector, must be used to ensure separation between the conduits as shown on the Plans. Spacers are to be placed at 6 foot intervals or as recommended by the product manufacturer.

The Contractor shall furnish and install a minimum 300 pound nylon pull-in cord in each duct. The pull-in cords shall be installed in the completed ducts. Connection of conduit to proposed conduit in the approaches installed by others will be performed by the utility.

The Contractor shall install furnished plastic warning tape, describing buried electrical lines, along the entire length of the ductbank.

Tape shall be installed approximately 6 inches deep or as directed by the utility companies' inspector.

Duct joints shall be made watertight by the use of brush-applied cement as recommended by the manufacturer.

All conduit placement will require approval by the utility companies' inspector prior to backfill. Any field modifications will be done only with the approval of the inspectors.

The Contractor shall confirm, before placing ducts, that the surface on which bedding material is to be placed is firmly compacted fill free from voids, rock, or rubble.

Duct envelope shall be square or rectangular in cross section and shall provide for sand thickness over the outside ducts as shown on the Plans.

6. BACKFILL. Approved material shall be placed over the ductbank in 6 inch layers and compacted in accordance with Subsection 203.11(d) by using air or mechanical tampers. Hand tampers will not be permitted. The material shall be brought to subgrade beneath roadway, grass belt, and any other paved or gravel areas. For grassed areas outside the highway construction limits, the material shall be brought to within 4 inches of the finished grade, a 4 inch layer of topsoil placed, and the area seeded and mulched in accordance with the applicable requirements of Section 651. Paved, concrete, or gravel areas outside the highway construction limits shall be replaced in kind as directed by the Engineer. Backfill for conduit shall have maximum 1-1/2 inch stone.
7. METHOD OF MEASUREMENT. The quantities of Special Provision (Ductbank) to be measured for payment will be the number of linear feet installed in the complete and accepted work, measured to the nearest foot along the center of the ductbank.
8. BASIS OF PAYMENT. The quantities of Special Provision (Ductbank) will be paid for at the Contract unit price per linear foot. Payment will be full compensation for furnishing, transporting, handling, and placing the materials specified, including conduit, conduit spacers, transition couplings, elbows and other fittings, caps, plugs, pulling wire, bedding material, and all other material needed for a complete duct system, excavation and backfill,

temporary pavement, and for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Any additional depth of excavation required to construct ductbanks under other utilities, and the cost thereof, shall be considered incidental to the item, as applicable.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.640 Special Provision (Ductbank, UC-DB1)	Linear Foot
900.640 Special Provision (Ductbank, UC-DB2)	Linear Foot
900.640 Special Provision (Ductbank, UC-DB3)	Linear Foot

ORNAMENTAL FENCE

1. DESCRIPTION. This work shall consist of installing fence at the location(s) indicated in the Contract Documents and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, Section 620 of the Standard Specifications, and the manufacturers specifications.

2. MATERIALS.

Ornamental Fence - Black Steel with Gate:

Fence shall be made of steel and have a powder coated black finish. The fence shall stand no higher than 29 inches, with no portion of the pickets extending above the top rail.

Acceptable ornamental fencing systems are available from the following manufacturers, or approved equal:

Master Halco

Product: Monumental Imperial Fence – Style A, 2 Rail

Tel.: (800) 969-3058

Website: www.masterhalco.com

Ameristar Fence Products, Inc.

Product: Montage Majestic, 2 Rail

Tel.: (888) 333-3422

Website: www.ameristarfence.com

Merchants Metals

Product: Monroe Style, 2 Rail

Tel.: (800) 447-5713

Website: www.merchantsmetals.com

Ornamental Fence - Black Steel (6 Feet):

Fence shall be made of steel and have a powder coated black finish. The fence shall stand approximately 6 feet high, with no portion of the pickets extending above the top rail.

Acceptable ornamental fencing systems are available from the following manufacturers, or approved equal:

Master Halco

Product: Monumental Imperial Fence – Style D, 3 Rail with Acorn post caps

Tel.: (800) 969-3058

Website: www.masterhalco.com

Ameristar Fence Products, Inc.

Product: Aegis 3 Rail Majestic w/Rings

Tel.: (888) 333-3422

Website: www.ameristarfence.com

Merchants Metals

Product: Monroe Style, 3 Rail, 1 Row of Rings with Ball post caps

Tel.: (800) 447-5713

Website: www.merchantsmetals.com

Ornamental Fence – White Vinyl Picket:

Fence shall be made of white vinyl and shall stand no higher than 29 inches.

Acceptable ornamental fencing systems are available from the following manufacturers, or approved equal:

Master Halco

Product: Illusions Traditional Picket

Tel.: (800) 969-3058

Website: www.masterhalco.com

CertainTeed

Product: Cape Cod

Tel.: (800) 233-8990

Website: www.certainteed.com

PlyGem

Product: Wide Scalloped Picket

Tel.: (888) 975-9436

Website: www.plygem.com

Other ornamental fencing systems that meet the requirements of the Contract Documents may be used upon approval of the Engineer.

3. INSTALLATION. The fence shall be installed in the locations indicated on the plans, in accordance with the manufacturers' recommendations, and in general conformance with the requirements of Subsection 620.05.

Special Provisions

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Fence, Ornamental) to be measured for payment will be the number of linear feet installed in the complete and accepted work. Measurement will be along the top of the fence from outside to outside of end posts for each continuous run of fence.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Fence, Ornamental) will be paid for at the Contract unit price per linear foot. Payment will be full compensation for furnishing, transporting, handling, assembling, and placing the railing components; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.640 Special Provision (Fence, Ornamental Black Steel with Gate)	Linear Foot
900.640 Special Provision (Fence, Ornamental Black Steel, 6 Feet)	Linear Foot
900.640 Special Provision (Fence, Ornamental White Vinyl Picket)	Linear Foot

FENCE, TEMPORARY CHAIN-LINK, 8 FEET

1. DESCRIPTION. This work shall consist of furnishing and erecting a temporary chain-link fence as shown in the Plans and as directed by the Engineer. The fence shall be 8 feet in height.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 620 of the Standard Specifications.

2. CONSTRUCTION REQUIREMENTS. Fence posts shall be either driven into the ground, set in galvanized construction barrier base units or as directed by the Engineer.
3. METHOD OF MEASUREMENT. The quantity of Special Provision (Fence, Temporary Chain-Link, 8 feet) to be measured for payment will be number of linear feet of fence installed in the complete and accepted work. Measurement will be along the top of the fence from inside to outside of the corner posts.
4. BASIS OF PAYMENT. The accepted quantity of Special Provision (Fence, Temporary Chain-Link, 8 Feet) will be paid for at the Contract unit price per linear foot. Payment will be full compensation for furnishing, transporting, handling, assembling, and placing the materials specified, including all posts and hardware, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.640 Special Provision (Fence, Temporary Chain-Link, 8 Feet)	Linear Foot

EV CHARGING STATION

1. DESCRIPTION. This work shall consist of furnishing, installing, and testing a EV Charging Station, cabinet, internal electrical components, WiFi Access Point and wiring, as shown in the Plans and as directed by the Engineer. The WiFi Access Point is to receive a signal from the EV Charging Station, the Access Point, mounting, wiring and testing will be installed at an approved location by the City at the City Offices at an exterior location and the cabling extended to a network interface location connection point as directed by the City.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 679 of the Standard Specifications.

2. MATERIALS. Materials shall meet the requirements of Section 679 and the following:
 - a. Prior to ordering any components, the Contractor shall submit Fabrication Drawings in accordance with Section 105. The submittal shall contain, as a minimum, the following information:
 1. EV Charging Station, size, manufacturer, model, material, accessories and finish.
 2. Concrete Foundation or pole mounting hardware.
 3. Dimensions to match EV Charging station including cabinet, reinforcing, and material.
 4. WiFi Access Point (installed at the City Office) including all components and wiring, conduit, mounting supports. Make, model, and applicable electrical capacities and settings.
 5. Test results from demonstrating adequate signal strength is available to adequately communicate between the EV Charging Station and the City office for revenue metering.
 - b. Concrete shall meet the requirements of section 541 of the Standard Specifications.
 - c. Bedding material shall meet the requirements of section 301 of the Standard Specifications.
3. CONSTRUCTION REQUIREMENTS. Power for the EV Charging Station will be from the Power Pedestal PP2. The Contractor shall coordinate the installation of the WiFi Access Point with the City. The Contractor shall install conduit, sweeps, wire, and termination to

enable the power supply connection, for the EV Charging Station and the WiFi Access Point.

Basis-of-Design Product: Provide a Chargepoint CT4000 Electric Vehicle Charging Station designed for commercial applications, EVSE station from Schneider Electric, EVbox IQON or approved equal.

Obtain EV charging equipment from a single manufacturer. Electrical components, devices, and accessories: UL or ETL listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

Comply with NFPA 70.

When installed to manufacturer's instructions, the charging station must comply with the Americans with Disabilities Act requirements for fuel dispensers and gas pumps as specified in the ADA standards for accessible design (latest edition accepted by the state).

The EV station shall measure the amount of energy dispensed to the car in order to calculate fees and report usage information to the driver and the City. Revenue grade meters will be installed upstream of the charging equipment, and they are outside the scope of the EV billing system.

Metering: +/- 2 percent from 2 percent to full scale of output (30 A).

EV charging equipment mounting shall be a freestanding (bollard style or approved type mount).

Enclosures: rated for environmental conditions at installed location.

- (a) Outdoor locations: NEMA 250, Type 3R.
- (b) Aluminum and UV-resistant plastic.
- (c) Paint and anodized.
- (d) Charging components shall be protected by security screws.
- (e) Charging connectors shall be in locking holsters.
- (f) Meter, modem, and CPU, tamper resistant.
- (g) The charging station shall be complete with a standard cable management system.

- (h) Unit shall have a clean cord technology that keeps cables off the ground, with 8 ft (2.4 m) cable management system and includes 23 ft (7.5 m) cables. EV cable and connectors: SAE J1772 connector; two connectors with locking holster; 23-foot (7.5 m) cable with cable management system.
- (i) Provided with status indicators: LEDs to indicate power, vehicle charging, charging complete, system status, faults, and service, as well as authorization.
- (j) Display screen shall be a VGA-resolution, daylight-viewable LCD screen with UV protection and fingerprint resistant.
- (k) LCD shall be a 640 x 480 resolution, active matrix LCD screen, and shall allow the town to upload to 60 seconds of 30 FPS full motion video.
- (l) Displays power, charging, charging complete, remote control, system status, faults, payment and pricing details, and service.
- (m) Networking: BWAN communications: cellular GSM/GPRS and CDMA. LAN communications: 2.4 GHZ wifi 802.11B/G/N. Capable of remote configuration, diagnostics and reporting. Capable of remote software updates (future proof).

Payment system

- (a) RFID (ISO 15693, ISO 14443), NFC, contactless credit card reader.
- (b) PCI (payment card industry) compliant.
- (c) Capable of remote control and authorization including mobile phone application or toll free phone number.
- (d) Charging Network: Compatible with third party EV charging network.
- (e) Multiple units shall independently connect to charging network.
- (f) Multiple units shall have one unit designated as a master unit that is configured as a gateway unit between the EV charging equipment and the charging network.
- (g) Individual units shall be capable of indicating station status and availability providing or connecting user to customer support and remote control.

Thermal Movements: Allow for thermal movements from ambient and surface temperature changes. Surge withstand: 6 KV at 3000, complete with an integral GFCI. Auto-GFCI fault retry.

Input power:

- (a) Two 40 A, 208/240-V AC, 60 HZ, single phase per charger.
- (b) Dual circuits will not be interlocked.

EV Charging Levels:

- (a) Dual vehicles, AC Level 2 at up to 7.2 KW.
- (b) Multiple vehicles simultaneously charging at a site using automatic power load management may be charged up to 7.2 KW per vehicle.

Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping. Appearance of finished work: noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.

Examine areas and conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the work.

Examine roughing-in for EV charging equipment electrical conduit to verify actual locations of conduit connections before equipment installation.

Examine the area for suitable conditions where EV charging equipment will be installed. Proceed with installation only after unsatisfactory conditions have been corrected.

Comply with NECA 1 and NECA 413.

Concrete Base Mounting:

- (a) For detailed instructions on setting the anchor bolts into the concrete and securing the EV Charging Station to the concrete base refer the manufacturer's instructions.
- (b) Install EV charging equipment on concrete base as shown on the plans.
- (c) Place and secure anchorage devices as per drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
- (d) Install anchor bolts to elevations required for proper attachment to supported equipment.

- (e) Secure EV charging equipment to concrete base according to manufacturer's written instructions.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (EV Charging Station) to be measured for payment will be on a Lump Sum (LS) basis for the unit installed in the complete and accepted work.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (EV Charging Station) will be paid for at the Contract as a Lump Sum. Payment will be full compensation for furnishing, transporting, handling, assembling, testing, and placing the materials specified, including foundations, anchors, grounding, receptacles, cabinet, mounting panels, internal electrical components, control panel, credit card reader, transformer(s), internal lights, and wiring, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work as shown on the Electrical plans, except the conduit which is paid separately. Excavation, bedding and backfill, including concrete, and compaction required will not be paid for separately, but will be considered incidental.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.645 Special Provision (EV Charging Station)	Lump Sum

REMOVE TIMBER WALL

1. DESCRIPTION. Special Provision (Remove Timber Wall) shall consist of removing and disposing of an existing timber wall at the location(s) indicated on the Plans and as directed by the Engineer.
2. METHOD OF MEASUREMENT. The quantity of Special Provision (Remove Timber Wall) to be measured for payment will be on a lump sum basis for the complete and accepted work.
3. BASIS OF PAYMENT. The accepted quantity of Special Provision (Remove Timber Wall) will be paid for at the Contract lump sum price. Payment will be full compensation for removing and disposing of the existing timber wall, including excavation; transporting, handling, and removing the materials specified; and for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.645 Special Provision (Remove Timber Wall)	Lump Sum

STORMWATER TREATMENT SYSTEM

1. DESCRIPTION. This work shall consist of furnishing and installing the stormwater treatment system at the locations and elevations indicated on the Plans and as directed by the Engineer. The proposed stormwater treatment system includes two (2) 6-foot diameter precast concrete drainage manhole structures, two (2) 9-foot by 17-foot precast concrete sand filter structures, sand filter material, drainage aggregate, polyvinyl chloride piping, corrugated polyethylene pipe, and associated appurtenances.
2. MATERIALS. Materials shall meet the following requirements:
 - (a) Precast Drainage Manhole. Precast Drainage Manholes shall meet the requirements of Section 540 and Subsection 705.04 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.
 - (b) Precast Concrete Structure. Precast Concrete Structure shall meet the requirements of Section 540 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.
 - (c) Sand Filter Material. Sand Filter Material shall meet the requirements of ASTM C-33 concrete sand or approved equivalent, and have a minimum coefficient of permeability of 3.5 feet per day.
 - (d) Drainage Aggregate. Drainage Aggregate Material shall meet the requirements of Table 704.16A for Drainage Aggregate as described in Subsection 704.16 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.
 - (e) 1-1/2 Inch Stone. 1-1/2 Inch Stone Material shall meet the requirements of Table 704.02C as described in Subsection 704.02 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.
 - (f) Polyvinyl Chloride Plastic Pipe. Polyvinyl Chloride Plastic Pipe shall meet the requirements of Subsection 710.06 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.
 - (g) Corrugated Polyethylene Pipe. Corrugated Polyethylene Pipe shall meet the requirements of Subsection 710.03 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.

(h) Polystyrene Insulation Board. Polystyrene Insulation Board shall meet the requirements of Subsection 735.01 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.

3. CONSTRUCTION REQUIREMENTS. Stormwater treatment system shall be installed as detailed on the Plans, as directed by the Engineer, and in accordance with the following requirements:

Precast manholes and structures shall be constructed in accordance with the Section 604 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.

Polyvinyl Chloride Plastic Pipe shall be constructed in accordance with the Section 605 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.

Corrugated Polyethylene Pipe shall be constructed in accordance with the Section 601 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.

Polystyrene Insulation Board shall be constructed in accordance with the Section 622 of the Vermont Agency of Transportation 2018 Standards and Specifications for Construction.

Prior to ordering any components of the system, the Contractor shall submit Fabrication Drawings in accordance with Section 105.03.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Stormwater Treatment System) to be measured for payment will be on a lump sum basis for the complete and accepted work.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Stormwater Treatment System) will be paid for at the Contract lump sum price. Payment will be full compensation for installation of all components of the stormwater treatment system, including excavation, backfill operations and the disposal of excavated material (excess or unsuitable for backfill). Payment will be made for a single excavation and backfill operation. If subsequent excavations of this area are required to facilitate concrete structure and drainage pipe installation at two separate times, this subsequent excavation, backfill and disposal shall be incidental.

Crescent Connector STP 5300(13)
Special Provisions

November 18, 2022

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.645 Special Provision (Stormwater Treatment System)	Lump Sum

GREEN PAVEMENT MARKINGS

1. DESCRIPTION. This work shall consist of furnishing and installing non-retroreflective green pavement markings at the locations and in accordance with the patterns shown in the Plans and as directed by the Engineer and in conformance with these specifications.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 646 of the Standard Specifications.

2. MATERIALS. Materials for green pavement markings shall be an MMA (Methyl Methacrylate) in the approved FHWA Green color as specified in Interim Approval IA-14 for use in bike lanes as identified below:

CycleGripMMAX by Ennis-Flint,

Color-Safe by Transpo Industries,

or approved equal.

All materials shall be approved by the Engineer prior to use.

3. CONSTRUCTION REQUIREMENTS. The marking material shall be placed in accordance with this special provision and the manufacturer's recommendations, including, but not limited to; material requirements, surface preparation, atmospheric conditions, application equipment and required personal protective equipment.

Existing pavement markings shall be removed prior to placing new markings. All surfaces shall be thoroughly clean, dry, and free of all dirt, grease, and other contaminants that might interfere with proper adhesion.

Cleaning and marking removal operations shall be conducted such that the finished pavement surface is not damaged and does not exhibit a pattern that will mislead or misdirect the road user. Vacuum-type equipment or equivalent shall be used to collect and contain debris generated by cleaning and marking removal.

Following surface preparation, the Contractor shall broom the pavement surface and use compressed air cleaning to remove all residue and debris resulting from the preparation work. The Contractor shall control and minimize airborne dust and similar debris generated by surface preparation and cleanup to prevent a hazard to motor vehicle operation or nuisance to adjacent property.

After application, markings shall be protected from crossing vehicles for a time at least equivalent to the drying time of the marking material used. Markings shall be protected

from the moment of application until they are sufficiently dry to bear traffic without damage to the marking, tracking, or adhering to vehicle tires.

Any pavement marking materials spilled or tracked on the roadway surfaces shall be removed by the Contractor to the satisfaction of the Engineer and at no additional cost to the State. The method of removal shall be acceptable to the Engineer and not injurious to the roadway or other surfaces.

4. METHOD OF MEASUREMENT. The quantity of Special Provision (Green Pavement Markings) to be measured for payment will be the number of square yards complete in place in the accepted work.
5. BASIS OF PAYMENT. The accepted quantities of Special Provision (Green Pavement Markings) of the types and sizes specified will be paid for at the Contract unit prices per square yard.

Payment will be full compensation for removal of existing pavement markings, surface preparation, furnishing, transporting, handling, assembling, and placing the materials specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.675 Special Provision (Green Pavement Markings)	Square Yard

IMPRINTED/COLORIZED CONCRETE SURFACE

1. DESCRIPTION. This work shall consist of furnishing and installing imprinted/colorized concrete surface at the locations shown in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 618 of the Standard Specifications.

2. MATERIALS.

- (a) General. Where imprinted/colorized concrete surface is specified in the Plans, a herringbone brick paver pattern shall be used to imprint the concrete, and a brick red color shall be applied to the concrete. The color shall be fully integrated into the concrete. Match imprinted/colorized concrete surfaces existing within the project limits and/or vicinity.

Alternative imprinting patterns or colors may be used if approved by the Engineer. If alternative products are to be used, they shall be of equal quality, detail, function, and performance to that specified.

All materials, color, and the imprinted pattern shall be approved by the Engineer prior to use.

- (b) Dowels shall be 12 inch long, ½ inch diameter, smooth, Grade 60 steel rods.

3. CONSTRUCTION REQUIREMENTS. Imprinted/colorized concrete surface shall be constructed to the depths and widths shown in the Plans, as recommended by the manufacturer and as directed by the Engineer.

- (a) Preparation. The Contractor shall plan the pattern layout in order to coordinate slab dimensions and construction joint locations with stamping pattern dimensions.

The Contractor shall provide for approval by the Engineer a graphic of available patterns and colors for the imprinted concrete. Once approved, the Contractor shall also provide a 1-1/2 foot x 4 foot mock-up to the Engineer to demonstrate methods of obtaining consistent visual appearance. The mock-up shall be constructed a minimum of one month prior to the start of final work, using materials and methods to be used in the final work. The mock-up shall be located on site in a location determined by the Engineer. Samples of materials used in the mock-up shall be retained for comparison with materials used in the final work. The accepted mock-up will constitute a visual standard for the final work. The mock-up shall be

removed by the Contractor when no longer required for comparison with the final work.

- (b) Dowels shall be placed in accordance with the City of Essex Junction Public Works Specifications. Adjacent sidewalk surfaces shall be set flush with one another.
- (c) Where imprinted/colorized concrete sidewalk is poured adjacent to new non-imprinted concrete sidewalk, the existing concrete sidewalk shall be masked and covered to prevent discoloring from the wet colorized imprinted concrete sidewalk pour. Conversely, the set imprinted/colorized concrete surface shall be protected from discoloring due to pouring new concrete sidewalks in adjacent areas. Any discoloring of adjacent surfaces shall be removed by the Contractor at no additional compensation.
- (d) Finishing. A color hardener shall be broadcast evenly over a freshly screed and floated concrete surface. The color hardener shall be worked into the concrete surface, integrating the color with the concrete. The hardener shall be allowed to be wet out with bleed water prior to floating. If necessary, additional material shall be broadcast and worked into the surface to intensify the final color appearance.

The concrete set time shall be monitored carefully. When concrete is set adequately to support worker's weight, color release shall be broadcast evenly over the slab surface at the rate of 3 lbs/100 ft².

The imprinting operation shall be performed using the imprinting tool kit, and shall be performed quickly and continuously across the entire pour as follows:

- (1) Place each tool on slab surface, aligned with each other and slab edges as pattern requires.
- (2) Step on back of stamping tool to create full depth impression in concrete.
- (3) Use special half tools and texture mats at slab edges, walls, and corners.
- (4) Broom texture surface where required.

The concrete slab shall be allowed to thoroughly cure prior to rinsing residual powder release from the surface. Ensure the surface is clean and apply protective waterproofing sealer to flush sidewalk only.

Special Provisions

4. QUALIFICATIONS. The Contractor shall be ACI certified and have constructed a minimum of 8 concrete imprinting projects. The Contractor shall submit a resume, including a minimum of 3 references from concrete imprinting projects constructed within 3 years prior to the commencement of this project, to the Engineer for review and approval. The work under this Section shall not commence until the Engineer approves Contractor qualifications.
5. METHOD OF MEASUREMENT. The quantity of Special Provision (Imprinted/Colorized Concrete Surface, 4 inch) to be measured for payment will be the number of square yards of imprinted/colorized concrete surface, 4 inch, placed in the complete and accepted work.
6. BASIS OF PAYMENT. The accepted quantity of Special Provision (Imprinted/Colorized Concrete Surface, 4 inch) will be paid for at the Contract unit price per square yard for the specified depth. Payment will be full compensation for furnishing, handling, placing, finishing and curing the materials specified, including concrete, dowels, and expansion material, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.675 Special Provision (Imprinted/Colorized Concrete Surface, 4 Inch)	Square Yard

PERMEABLE PAVERS

1. DESCRIPTION. This work shall consist of furnishing and installing permeable pavers in accordance with the plans, the manufacturers specifications, and as directed by the Engineer.
2. QUALIFICATIONS. The installer shall provide their installation history, including installation of permeable pavers, to the Engineer.

The installer's foreman shall have a minimum of 5 years of experience in the installation of unit paver systems of similar size and complexity.

3. MATERIALS. Pavers, stabilization grid, bedding and joint material shall be as per manufacturer specifications.

Permeable paver systems shall be as listed below, or approved equal:

Unilock Eco-Prioria Permeable Paver System
Color: Granite
www.unilock.com

Belgard Aqualine Permeable Paver System
Color: Graphite
www.belgardcommercial.com

Hanover Permeable Paver System, 4 1/2" x 9" Scored
Color: Charcoal
www.hanoverpavers.com

4. INSTALLATION. The permeable pavers shall be handled and installed at the locations indicated in the Plans and in accordance with the manufacturer's recommendations. Paver pattern shall be submitted to the Engineer for review and approval prior to installation.
5. CONSTRUCTION REQUIREMENTS. Care should be taken to follow the manufacturer's installation specifications as improper handling or use of material may clog or damage the permeable pavers and reduce or eliminate their effectiveness at infiltrating water.
6. METHOD OF MEASUREMENT. The quantity of Special Provision (Permeable Pavers) to be measured for payment will be the number of square yards placed in the complete and accepted work.
- 7.. BASIS OF PAYMENT. The accepted quantity of Special Provision (Permeable Pavers) will be paid for at the contract unit price per square yard. Payment will be full compensation for transporting, handling, and placing the material specified, including pavers, joint and bedding material, and stabilization grid; performing any other required excavation; cleaning the completed surface as required; and for all labor, tools, equipment and incidentals necessary to complete the work.

The Contractor will be responsible for replacing, at no additional cost, any pavers that are broken or otherwise damaged by the Contractor's operations.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.675 Special Provision (Permeable Pavers)	Square Yard

PORTLAND CEMENT CONCRETE SIDEWALK

1. DESCRIPTION. This work shall consist of the construction of Portland cement concrete sidewalk and curb ramps.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 108 of the City of Essex Junction Land Development Code Appendix A: Public Works Specifications.

2. MATERIALS. Dowels shall be 12" long, ½" diameter smooth Grade 60 steel bars.
3. CONSTRUCTION REQUIREMENTS. Dowels shall be placed at mid-depth of the concrete sidewalk. Dowels shall be placed at all sidewalk construction joints, twelve (12) inches on center. All false joints will be sawcut to 1/3 of the slab depth. False joints shall not be struck.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (Portland Cement Concrete Sidewalk) to be measured for payment will be the number of square yards of the specified depth of sidewalk installed in the complete and accepted work.
5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Portland Cement Concrete Sidewalk) will be paid for at the Contract unit price per square yard for the specified depth.

Payment will be full compensation for furnishing, transporting, handling, placing, finishing and curing the materials specified, including, dowels, and polyethylene, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Bed course material will be paid for under the appropriate Contract item in Section 301.

Excavation, unless otherwise specified, will be paid for under the appropriate Contract item in Section 203.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.675 Special Provision (Portland Cement Concrete Sidewalk, 4 Inch)	Square Yard
900.675 Special Provision (Portland Cement Concrete Sidewalk, 6 Inch)	Square Yard
900.675 Special Provision (Portland Cement Concrete Sidewalk, 8 Inch)	Square Yard

SOIL DEMARCATION BARRIER

1. DESCRIPTION. The work shall consist of furnishing and placing soil demarcation barrier at the location(s) indicated in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Section 649 of the Standard Specifications.

2. MATERIALS. Soil demarcation barrier shall be an orange nonwoven geotextile as listed below, or approved equal.

Mirafi Orange Delineation Nonwoven Geotextile – 140NLO
TenCate
365 South Holland Drive
Pendergrass, GA 30567
www.mirafi.com

FX-35HS Orange
Carthage Mills
4243 Hunt Road
Cincinnati, OH 45242
www.carthagemills.com

US 100NW-HVO Warning Barrier
US Fabrics, Inc.
3904 Virginia Avenue
Cincinnati, OH 45227
www.usfabricsinc.com

3. INSTALLATION. Soil demarcation barrier shall be installed in accordance with Section 649.04. The minimum overlap distance for the soil demarcation barrier geotextile at the ends and sides of adjoining sheets shall be 12 inches.
4. METHOD OF MEASUREMENT. The quantity of Special Provision (Soil Demarcation Barrier) to be measured for payment will be the number of square yards placed in the complete and accepted work.

5. BASIS OF PAYMENT. The accepted quantity of Special Provision (Soil Demarcation Barrier) will be paid for at the Contract Unit Price per square yard. Payment will be full compensation for furnishing, transporting, storing, handling, placing and repairing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.675 Special Provision (Soil Demarcation Barrier)	Square Yard

APPENDIX A

STATE OF VERMONT
AGENCY OF TRANSPORTATION

November, 1985
CA-109

CONTRACTOR'S EEO CERTIFICATION FORM

Certification with regard to the Performance of Previous Contracts of Subcontracts subject to the Equal Opportunity Clause and the filing of Required Reports.

The bidder _____, proposed subcontractor _____, hereby certifies that he/she has _____, has not _____, participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246 as amended, and that he/she has _____, has not _____, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Company	By	Title
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NOTE: The above certification is required by the Equal Employment Opportunity regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5 (Generally only contracts or subcontracts of \$10,000 or under are exempt.) Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7 (b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration, or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

APPENDIX B

CA-91

STATE OF VERMONT
AGENCY OF TRANSPORTATION
DEBARMENT AND NON-COLLUSION AFFIDAVIT

I, _____, representing
(Official Authorized to Sign Contracts)

_____ of _____,
(Individual, Partnership or Corporation) (City or State)

being duly sworn, depose and certify under the penalties of perjury under the laws of the State of Vermont and the United States that on behalf of the person, firm, association, or corporation submitting the bid certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action, in restraint of free competitive bidding in connection with the submitted bid for the Vermont project:

(Project Name)

_____ project located on _____,
(Project Number) (Route or Highway)

bids opened at _____,
(Town or City)

Vermont on _____, 20____.
(Date)

I further depose and certify under the penalties of perjury under the laws of the State of Vermont and the United States that except as noted below said individual, partnership or corporation or any person associated therewith in any capacity is not currently, and has not been within the past three (3) years, suspended, debarred, voluntarily excluded or determined ineligible by any Federal or State Agency; does not have a proposed suspension, debarment, voluntary exclusion or ineligibility determination pending; and has not been indicted, convicted, or had a civil judgement rendered against (it, him, her, them) by a court having jurisdiction in any matter involving fraud or official misconduct within the past three (3) years.

Exceptions: _____ No _____ Yes. (If yes complete back of this form.)

Sworn to before me this

_____ day of _____, 20____

(Name of Individual, Partnership or Corporation) L.S.

(Signature of Official Authorized to Sign Contracts) L.S.

(Notary Public)

(Name of Individual Signing Affidavit) L.S.

(My commission expires _____)

(Title of Individual Signing Affidavit) L.S.

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Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate below to whom it applies, initiating agency, and dates of action. Providing false information may result in criminal prosecution or administration sanctions.

EXCEPTIONS:

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RFP/PROJECT NAME & NUMBER:
DATE:

WORKER CLASSIFICATION COMPLIANCE REQUIREMENT

Self Reporting Form 1 of 2

This form must be completed in its entirety and submitted as part of the response for the proposal to be considered valid.

The Vermont Agency of Transportation, in accordance with Section 32 of Act 54 (2009), as amended by Section 17 of Act 142 (2010) and further amended by Section 6 of Act 50 (2011), and for total projects costs exceeding \$250,000.00, requires bidders comply with the following provisions and requirements.

Bidder is required to self report the following information relating to past violations, convictions, suspensions, and any other information related to past performance and likely compliance with proper coding and classification of employees. The Agency of Transportation is requiring information on any incidents that occurred in the previous 12 months. Attach additional pages as necessary. If not applicable, so state.

Summary of Detailed Information	Date of Notification	Outcome

WORKER CLASSIFICATION COMPLIANCE REQUIREMENT: Bidder hereby certifies that the company/individual is in compliance with the requirements as detailed in Section 32 of Act 54(2009), as amended by Section 17 of Act 142 (2010) and further amended by Section 6 of Act 50 (2011).

Date: _____

Name of Company: _____

Contact Name: _____

Address: _____

Title: _____

Phone Number: _____

E-mail: _____

Fax Number: _____

By: _____

Name: _____

Signature (Request/Report Not Valid Unless Signed) *

(Type or Print)

*Form must be signed by individual authorized to sign on the bidder's behalf.

DO NOT WRITE IN THIS SPACE – AGENCY USE ONLY	
VDOL CHECKED RE: ACT 54 2009, AND AMENDMENTS	<input type="checkbox"/>

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

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1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

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within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants /

Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:

The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

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(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

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(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding (29 CFR 5.5)

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics,

including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records (29 CFR 5.5)

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or

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subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees (29 CFR 5.5)

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State

Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the

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corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor

set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility (29 CFR 5.5)

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1 of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph 1 of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1 of this section. 29 CFR 5.5.

* \$27 as of January 23, 2019 (See 84 FR 213-01, 218) as may be adjusted annually by the Department of Labor; pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990).

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3. Withholding for unpaid wages and liquidated damages.

The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 2 of this section. 29 CFR 5.5.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs 1 through 4 of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1 through 4 of this section. 29 CFR 5.5.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or

equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance

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with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.326.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders

or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.326.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant

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who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is

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submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(b) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(c) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier

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subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.
2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

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ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS
(EXECUTIVE ORDER 11246)

1. As used in these specifications:
 - a. "Covered Area" means the geographical area described in the solicitation from which this contract resulted.
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.
 - c. "Employer Identification Number" means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

A Minority Group Member is:

...American Indian or Alaskan Native

consisting of all persons having origins in any of the original people of North American and who maintain cultural identification through tribal affiliations or community recognition.

...Black

consisting of all persons having origins in any of the Black racial groups of Africa.

...Asian or Pacific Islander

consisting of all persons having origins in any of the original people of the Far East, Southeast Asia, the Indian Sub-Continent or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippines and Samoa.

...Hispanic

consisting of all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin.

...Cape Verde an

consisting of all persons having origins in the Cape Verde Islands.

...Portuguese

consisting of all persons of Portuguese, Brazilian or other Portuguese culture or origin.

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000.00 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in the Hometown Plan

approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontract participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. the overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in Paragraphs 7a through p of these specifications. The goals set for the Contractor in the solicitation from which this contract resulted are expressed as percentages in the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the Contractor has a collective bargaining agreement to refer either minority or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity . The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available and maintain a record of the organizations' responses.
 - c. Maintain a current file of the names, addresses and telephone numbers of each

minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

- d. Provide immediate written notifications to the Regional Director when the union or unions, with which the Contractor has a collective bargaining agreement, have not referred to the Contractor a minority person or woman sent by the Contractor or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under Paragraph 7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, Supervisors etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, and providing written notification to, and discussing the Contractor's EEO policy with, other Contractors and subcontractors with whom the Contractor anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notifications to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority

persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
 - l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
 - m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the EEO policy and Contractor's obligations under these specifications are being carried out.
 - n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (Paragraph 7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under Paragraph 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's non-compliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under-utilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to

discriminate against any person because of race, color, religion, sex or national origin.

11. The Contractor shall not enter into any subcontract with any person for firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, terminations and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in Paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application or requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL
EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Economic Areas	Timetables	Goals for Minority participation for each trade (%)	Goals for Female Participation in each trade (%)
Entire State of Vermont:			
<u>Vermont</u> 003 Burlington, VT Non-SMSA Counties NH Coos; NH Grafton; NH Sullivan; VT Addison; VT Caledonia; VT Chittenden; VT Essex; VT Franklin; VT Grand Isle; VT Lamoille; VT Orange; VT Orleans; VT Rutland; VT Washington; VT Windsor	Indefinite	0.8	6.9
<u>Connecticut (Mass)</u> 006 Hartford - New Haven Springfield, CT-MA Non-SMSA Counties CT Litchfield; CT Windham; MA Franklin; NH Cheshire; VT Windham	Indefinite	5.9	
<u>New York</u> 007 Albany - Schenectady - Troy, NY Non-SMSA Counties NY Clinton; NY Columbia; NY Essex; NY Fulton; NY Greene; NY Hamilton; NY Schoharie; NY Warren; NY Washington; VT Bennington	Indefinite	2.6	

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulation in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten working days of award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notifications shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; and the geographical area in which the subcontract is to be performed.
4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any)

APPENDIX F

CA101

Minimum Labor and Truck Rates
Under Title 19, Vermont Statutes
Annotated Section 18, as amended

April 3, 1997
Sheet 1 of 1

STATE OF VERMONT AGENCY OF TRANSPORTATION MONTPELIER

FOR OTHER THAN FEDERAL-AID. In accordance with the provisions of Title 19, VSA, Section 18, the following minimum rate for labor shall apply to this project:

The minimum wage for common labor will not be less than the State or Federal minimum wage, whichever is higher.

ON FEDERAL-AID PROJECTS ONLY.

The minimum rates for labor for Federal-Aid Projects shall be those set in the Wage Determination Decision of the U.S. Secretary of Labor for each project in accordance with the Federal-Aid Highway Act of 1956. When such wage rates are required they shall be included in the proposal. In the event these rates are lower than the Vermont rates, the Vermont rates shall prevail.

TRUCK RATES. In accordance with the provisions of Title 19, VSA, Section 18, the following minimum rates for trucks shall apply to this project:

<u>Trucks, not Including Driver</u> <u>Water Level Body Capacity</u>	<u>Minimum Rates</u> <u>Per YD per Hr.</u>
Trucks, Equipment Loaded	\$1.65

DISADVANTAGED BUSINESS ENTERPRISE (DBE) POLICY CONTRACT REQUIREMENTS

Disadvantaged Business Enterprise (DBE) Policy. It shall be the policy of the Vermont Agency of Transportation (VTrans) to ensure nondiscriminatory opportunity for Disadvantaged Business Enterprises (DBEs) to participate in the performance of all contracts and subcontracts financed with Federal funds as specified by the regulations of the United States Department of Transportation (USDOT), Federal Highway Administration and as set forth below.

1. **Policy.** It is the policy of USDOT that DBEs as defined in 49 Code of Federal Regulation (CFR) Part 26 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal funds. Consequently, the DBE requirements of 49 CFR Part 26 and 23 CFR, Chapter 1, Part 230, Subpart b apply to this contract.
2. **DBE Obligation.** The State and its Contractors agree to ensure that DBEs as defined in 49 CFR Part 26, have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds. **Each subcontract the prime contractor signs with a subcontractor must include this assurance:** *The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as VTrans deems appropriate.*
3. **Sanctions for Noncompliance.** The Contractor is hereby advised that failure of the Contractor, or any Subcontractor performing work under this contract, to carry out the requirements set forth in paragraphs 1 and 2 above shall constitute a breach of contract and after the notification of the Vermont Agency of Transportation, Secretary of Transportation, may result in termination of this contract by the State or such remedy as the State deems necessary.
4. **Inclusion in Subcontracts.** The Contractor shall insert in each of its subcontracts this Disadvantaged Business Enterprise (DBE) Policy and also a clause requiring its subcontractors to include this same Policy in any lower tier subcontracts which they may enter into, together with a clause requiring the inclusion of the Policy in any further subcontract that may in turn be made. This Policy shall not be incorporated by reference.

Disadvantaged Business Enterprise (DBE) Program Goals. The Vermont Agency of Transportation (VTrans) is required to set an overall DBE goal for participation in all transportation related Federal-aid projects. The goal is determined following guidelines set forth in 49 CFR 26.45, and based on the availability of ready, willing and able DBEs who submitted bids and quotes for transportation related projects, compared as a percentage of all available contractors who submitted bids and quotes for transportation related projects during the same time period. The DBE goal may be adjusted to take into account other factors impacting DBE utilization, in an effort to narrowly tailor the overall DBE goal. The detailed goal setting methodology and current overall DBE goal may be viewed on the VTrans website at: <http://vtrans.vermont.gov/civil-rights/doing-business/dbe-center/program-goals>

VTrans currently utilizes a race/gender neutral policy to fulfill its overall DBE goals, and relies on the voluntary participation of contractors to utilize certified DBEs on every project sufficient to obtain the Agency's overall DBE goal. In order for this practice to continue, contractors must be proactive and solicit bids and quotes from certified DBEs for use when submitting their own bids, and employ certified DBEs when participating on transportation related projects. Otherwise, VTrans may have to implement specified contract goals on projects to ensure the overall DBE goals are met. VTrans may include specific DBE contract goals in certain cases to ensure DBE participation, if failure to obtain the project DBE goal would negatively impact the Agency's overall DBE goal because of the size of the contract.

Disadvantaged Business Enterprise (DBE) Definition. A DBE is defined as a business that is owned and controlled by one or more socially and economically disadvantaged person(s). For the purposes of this definition:

- (1) "Socially and economically disadvantaged person" means an individual who is a citizen or lawful permanent resident of the United States and who is a Woman, Black, Hispanic, Portuguese, Native American, Asian American, or a member of another group, or an individual found to be disadvantaged by the Small Business Administration pursuant to Section 3 of the Small Business Act.
- (2) "Owned and controlled" means a business which is:
 - a. A sole proprietorship legitimately owned and controlled by an individual who is a disadvantaged person.
 - b. A partnership, joint venture or limited liability company in which at least 51% of the beneficial ownership interests legitimately is held by a disadvantaged person(s).
 - c. A corporation or other entity in which at least 51% of the voting interest and 51% of the beneficial ownership interests legitimately are held by a disadvantaged person(s).

The disadvantaged group owner(s) or stockholder(s) must possess control over management, interest in capital, and interest in earnings commensurate with percentage of ownership. Disadvantaged participation in a joint venture must also be based on the sharing of real earnings, as above. If the disadvantaged group ownership interests are real, substantial and continuing and not created solely to meet the requirements of the program, a firm is considered a bona fide DBE.

Certified DBE Directory. The current Vermont Unified Disadvantaged Business Enterprise (DBE) Directory is available online at: <http://vtrans.vermont.gov/civil-rights/doing-business/dbe-center/directory>. This directory contains all currently certified DBEs available for work in Vermont, and is updated continuously. Only firms listed in this directory are eligible for DBE credit on Vermont Federal-aid projects. If you have questions about DBE certification, or do not have access to the Internet, please call the DBE Program Manager at (802) 828-5858 for assistance.

Counting DBE Participation Towards Project Goals. In order for payments made to DBE contractors to be counted toward DBE goals, the DBE contractors must perform a commercially

useful function (CUF). The DBE must be responsible for execution of the work of the contract and must carry out its responsibilities by actually performing, managing, and supervising the work involved, consistent with standard industry practices.

This means that:

- The DBE must also be responsible for ordering its own materials and supplies, determining quantity and quality, negotiating price, installing (where applicable) and paying for the material itself;
- The DBE must perform work commensurate with the amount of its contract;
- The DBE's contribution cannot be that of an extra participant or a conduit through which funds are passed in order to obtain the appearance of DBE participation;
- The DBE must exercise responsibility for at least fifty percent of the total cost of its contract with its own workforce;
- None of the DBE's work can be subcontracted back to the prime contractor, nor can the DBE employ the prime's or other subcontractor's supervisors currently working on the project;
- The DBE's labor force must be separate and apart from that of the prime contractor or other subcontractors on the project. Transferring crews between primes, subcontractors, and DBE contractors is not acceptable;
- The DBE owner must hold necessary professional or craft license(s) or certification(s) for the type of work he/she performs on the project;
- The DBE may rent or lease, at competitive rates, equipment needed on the project from customary leasing sources or from other subcontractors on the project.

Allowable credit for payments made to DBEs for work performed. A contractor may take credit for payments made to a certified DBE that satisfies CUF requirements at the following rate:

- A DBE Prime Contractor: Count 100% of the value of the work performed by own forces, equipment and materials towards the DBE goals.
- An approved DBE subcontractor: Count 100% of the value of work performed by the DBE's own forces, equipment and materials, excluding the following:
 - The cost of materials/supplies purchased from a non-DBE Prime Contractor.
 - The value of work provided by non-DBE lower tier subcontractors, including non-DBE trucking to deliver asphalt to a DBE contractor.
- A DBE owner-operator of construction equipment: Count 100% of expenditures committed.

- A DBE manufacturer: Count 100% of expenditures committed. The manufacturer must be a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor.
- A regular DBE dealer/supplier: Count 60% of expenditures committed. A regular dealer/supplier is defined as a firm that owns, operates, or maintains a store, warehouse or other establishment, in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. A person may be a dealer in such bulk items as petroleum products, steel, cement, gravel, stone or asphalt without owning, operating or maintaining a place of business, if the person both owns and operates distribution equipment for the products, by the means of a long term agreement, and not by a contract by contract basis.
- A DBE broker: Count for DBE credit only the fees or commissions charged for assistance in the procurement, and, fees and transportation charges for the delivery of materials or supplies required at the job site, but not the cost of materials procured. A broker is defined as any person(s) or firm who arranges or expedites transactions for materials or supplies, and does not take physical possession of the materials or supplies at their place of business for resale.
- A DBE renter of construction equipment to a contractor: Count 20% of expenditures committed, with or without operator.
- A bona fide DBE service provider: Count 100% of reasonable fees or commissions. Eligible services include professional, technical, consultant, or managerial, services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies required for the performance of the contract. Eligible services also include agencies providing bonding and insurance specifically required for the performance of the contract.
- A trucking, hauling or delivery operation: Count 100% of expenditures committed when trucks are owned, operated, licensed and insured by the DBE and used on the contract and, if applicable, includes the cost of the materials and supplies. 100% of expenditures committed when the DBE leases trucks from another DBE firm including an owner-operator. 100% of reasonable fees, or commissions, the DBE receives as a result of a lease arrangement for trucks from a non-DBE, including an owner-operator.
- Any combination of the above.

Removal of Approved DBE From Transportation Related Project. Contractors may not terminate for convenience, any approved DBE subcontractor and perform the work with their own forces, without prior written consent from the VTrans DBE Program Manager or VTrans Chief of Civil Rights.

Federal-aid projects which specify a DBE contract goal. The provisions of the Vermont Agency of Transportation Supplemental Specification – Disadvantaged Business Enterprise

(DBE) Utilization (CR 160) shall apply to all VTrans Federal-aid projects which specify a DBE contract goal.

Compliance With Prompt Payment Statute. In accordance with Vermont's Prompt Payment Act and VTrans Standard Specifications for Construction, Section 107.01(g), the Contractor shall fully comply with the provisions of 9 V.S.A. Chapter 102, also referred to as Act No. 74 of 1991 or the Prompt Payment Act, as amended.

Subcontractor Payments. In accordance with VTrans Standard Specifications for Construction, Section 107.01(h), on all federal-aid and state funded contracts, the Contractor, during the life of the Contract and on a monthly basis, shall submit electronically, a listing of payments to subcontractors on the form specified by the State and made available at: <http://apps.vtrans.vermont.gov/promptpay/>. Electronic reports shall be filed with the Agency Office of Civil Rights by an authorized representative and received in the Agency Office of Civil Rights on or before the tenth working day after month end. Contractors without access to the internet shall obtain and submit manual reports to the Agency Office of Civil Rights. Manual reports shall be signed by an authorized representative, sent to the Agency Office of Civil Rights, and postmarked on or before the tenth working day after month end. There shall be no direct compensation allowed the Contractor for this work, but the cost thereof shall be included in the general cost of the work. In accordance with 9 V.S.A. Section 4003, notwithstanding any contrary agreement, payments made to subcontractors after seven days from receipt of a corresponding progress payment by the State to the Contractor, or seven days after receipt of a subcontractor's invoice, whichever is later, violate this agreement. Violations shall be reported to the Agency Office of Civil Rights for review. Failure to resolve disputes in a timely manner may result in a complaint made to the Agency Pre-qualification Committee. In this Committee's judgment, appropriate penalties may be involved for failure to comply with this specification. Penalties may include suspension, reduction or revocation of the Contractor's pre-qualification rating. This clause shall be included in the prime Contractor's Contract made with all if its subcontractors.

APPENDIX H

COMPLIANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called Owner, in the penal sum of _____ Dollars, \$(_____) in
lawful money of the United States, for the payment of which sum well and truly to be
made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these
presents.

APPENDIX H

The condition of this obligation is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20____, a copy of which is hereto attached and made a part hereof for the construction of:

Now, therefore, if the principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if they shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

Provided, further, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

APPENDIX H

IN WITNESS WHEREOF, this instrument is executed in ____ counterparts, (No.)
each one of which shall be deemed an original, this the ____ day of
_____, 20__.

ATTEST:

Principal

(Principal Secretary)

(SEAL)

By: _____(s)

Address: _____

Witness as to Principal

Address

Surety

ATTEST:

By: _____
Attorney-in-Fact

Witness as to Surety

Address

APPENDIX H

Address

NOTE: Date of Bond must not be prior to date of Contract.

If Contractor is Partnership, all partners should execute Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570) as amended and be authorized to transact business in the State where the Project is located.

APPENDIX I

LABOR & MATERIAL BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

Hereinafter called Owner, in the penal sum of _____ Dollars, \$(_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

APPENDIX I

The Condition of this obligation is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20____, a copy of which is hereto attached and made a part hereof for the construction of:

Now, Therefore, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the Work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such Work and all insurance premiums on said Work, and for all labor performed in such Work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in force and effect.

Provided, further, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the Work or to the Specifications.

Provided, further, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

APPENDIX I

In Witness Whereof, this instrument is executed in ____ count (No.)
each one of which shall be deemed an original, this the ____ day of
_____, 20__.

ATTEST:

Principal

(Principal Secretary)

By: _____(s)

(SEAL)

Address: _____

Witness as to Principal

Address

Surety

ATTEST:

By: _____

Attorney-in-Fact

Witness as to Surety

Address

Address

APPENDIX I

NOTE: Date of Bond must not be prior to date of Contract.

If Contractor is Partnership, all partners should execute Bond.

IMPORTANT: Surety companies executing Bond must appear on the Treasury Department's most current list (Circular 570) as amended and be authorized to transact business in the State where the Project is located.

APPENDIX J

CHANGE ORDER

Date: _____

Change Order No: _____

Name of Project: _____

Municipality: _____

Contractor: _____

The following changes are hereby made to the Contract:

Justifications:

Change to Contract Price: \$ _____

Original Contract Price: \$ _____

Current Contract Price adjusted by previous Change Order: \$ _____

The Contract Price due to this Change Order will be (increased) decreased by: \$ _____

New Adjusted Contract Price: \$ _____

Change to Contract Time: _____

The Contract Time will be (increased) decreased by _____ Calendar days

The date for completion of all work will be _____

APPROVALS

Contractor: _____

Construction Inspector: _____

Municipality: _____

VTrans Project Manager: _____

APPENDIX K

Assurance Appendix A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, disability, income-level, or LEP in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations as set forth in Appendix E, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, national origin, sex, age, disability, income-level, or LEP.
4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the FHWA, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
 - a. withholding payments to the contractor under the contract until the contractor complies; and/or
 - b. cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement

APPENDIX K

as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX K

Assurance Appendix E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin), as implemented by 49 C.F.R. § 21.1 *et seq.* and 49 C.F.R. § 303;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (102 Stat. 28.), (“....*which restore[d] the broad scope of coverage and to clarify the application of title IX of the Education Amendments of 1972, section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, and title VI of the Civil Rights Act of 1964.*”);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 -- 12189) as implemented by Department of Justice regulations at 28 C.F.R. parts 35 and 36, and Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration’s Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*), as implemented by 49 C.F.R. § 25.1 *et seq.*

APPENDIX L

VERMONT AGENCY OF TRANSPORTATION
CERTIFICATE VERIFYING WORKERS' COMPENSATION COVERAGE
(PRIME CONTRACTOR)

REQUIRED FOR CONTRACTS OVER \$250,000, PER ACT 54 OF 2009 & ACT 50 OF 2011

VTrans Project: _____

Prime Contractor: _____

Vermont statutes and standard State contract provisions require contractors and subcontractors to obtain and maintain workers' compensation insurance while performing work for the State.

Evidence of coverage, including but not limited to this Certificate, must be provided prior to commencement of work.

1. The undersigned organization certifies that it either:

A. Has workers' compensation insurance ☐

Insurance Company: _____

Policy Expiration Date: _____

-OR-

B. Is approved by the Vermont Department of Labor to operate as a self-insured for workers' compensation ☐

2. The undersigned organization certifies that it has verified that its workers' compensation coverage contains a rider or non-cancellation clause reading in substance (per 2018 Standard Specifications for Construction §103.04(e)) as follows:

Anything herein to the contrary notwithstanding, no cancellation, termination, or alteration of this policy by the company or the assured shall become effective unless and until notice of cancellation, termination, or alteration has been given by registered mail to the Chief Engineer of the Vermont Agency of Transportation, 1 National Life Drive, Montpelier, Vermont 05633-5001, at least 30 Calendar Days before the effective cancellation, termination, or alteration date, unless all work required to be performed under the terms of the Contract is satisfactorily completed as evidenced by the formal, final acceptance of the Project by the Agency.

Signature (must be by a person authorized to sign for contractor) Date

Print name of person signing Title

Crescent Connector STP 5300(13)
Project Specific Attachments

November 18, 2022

Superseded General Decision Number: VT20210059

State: Vermont

Construction Type: Highway

County: Chittenden County in Vermont.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$15.00 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

* SUVT2017-020 08/06/2019

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 21.66	3.58

LABORER: Common or General, Includes Asphalt Raker, Shoveler, Spreader and Distributor.....	\$ 17.57	2.04
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 20.76	1.96
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 20.96	5.99
OPERATOR: Broom/Sweeper.....	\$ 18.57	2.47
OPERATOR: Loader.....	\$ 21.50	2.41
OPERATOR: Milling Machine.....	\$ 28.48	13.11
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$ 21.41	3.55
OPERATOR: Pounder.....	\$ 22.30	5.04
TRAFFIC CONTROL: Flagger.....	\$ 12.66 **	0.00
TRUCK DRIVER, Includes all axles including Dump Trucks.....	\$ 18.88	2.33

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$15.00) or 13658 (\$11.25). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for

the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 715.01 Iron Casting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 17 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 604.2 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 715.02 Iron Casting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 3 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 604.21 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 715.01 Iron Castings

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 30 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 604.4 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized RepresentativeName: _____
(Type or Print)Title: _____
Company and AffiliationContact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 715.01 Iron Castings

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 17 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 604.412 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 715.01 Iron Castings

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 2 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 604.415 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized RepresentativeName: _____
(Type or Print)Title: _____
Company and AffiliationContact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 715.01 Iron Castings

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 2 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 604.418 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized RepresentativeName: _____
(Type or Print)Title: _____
Company and AffiliationContact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 715.01 Iron Castings

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 7 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 604.42 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 715.01 Iron Castings

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 5 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 604.55 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 728.01(b) Steel Posts and Accessories

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 5 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 619.14 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized RepresentativeName: _____
(Type or Print)Title: _____
Company and AffiliationContact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 740.07 Ductile Iron Pipe, Cement Lined

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 60 LF

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 629.24 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 740.07 Ductile Iron Pipe, Cement Lined

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 380 LF

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 629.24 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 740.07 Ductile Iron Pipe, Cement Lined

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 50 LF

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 629.24 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.05 High-Strength Bolts, Nuts, And Washers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1000 LB

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 675.33 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized RepresentativeName: _____
(Type or Print)Title: _____
Company and AffiliationContact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 750.01(a) Sign Posts - Steel

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1000 LB

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 675.33 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 750.01(a) Sign Posts - Steel

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 630 LF

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 675.341 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 750.01(a) Sign Posts - Steel

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 8 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 675.43 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.05 High-Strength Bolts, Nuts, And Washers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized RepresentativeName: _____
(Type or Print)Title: _____
Company and AffiliationContact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

The signor of this form is subject to the Vermont False Claims Act as set forth in 32 V.S.A. § 630 et seq., and shall not discriminate or retaliate against any employees or agents for disclosing information concerning a violation of law, fraud, waste, abuse of authority or acts threatening health or safety, including but not limited to allegations concerning the False Claims Act.

THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.06 Traffic Signal Controllers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

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**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.15 Grounding Electrodes

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.01 Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.09 Anchor Bolts, Traffic Signals, Lighting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(a) Steel Poles and Baseplates

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(b) Cantilever Mast Arm

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.05 High-Strength Bolts, Nuts, And Washers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.06 Traffic Signal Controllers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.15 Grounding Electrodes

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.01 Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.09 Anchor Bolts, Traffic Signals, Lighting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(a) Steel Poles and Baseplates

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(b) Cantilever Mast Arm

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.05 High-Strength Bolts, Nuts, And Washers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized RepresentativeName: _____
(Type or Print)Title: _____
Company and AffiliationContact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

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THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.06 Traffic Signal Controllers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.15 Grounding Electrodes

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.01 Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.09 Anchor Bolts, Traffic Signals, Lighting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(a) Steel Poles and Baseplates

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(b) Cantilever Mast Arm

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.05 High-Strength Bolts, Nuts, And Washers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.06 Traffic Signal Controllers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.15 Grounding Electrodes

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.01 Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.09 Anchor Bolts, Traffic Signals, Lighting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(a) Steel Poles and Baseplates

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(b) Cantilever Mast Arm

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

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**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.05 High-Strength Bolts, Nuts, And Washers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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Authorized RepresentativeName: _____
(Type or Print)Title: _____
Company and AffiliationContact Information: _____
(Telephone Number and Email Address)

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.06 Traffic Signal Controllers

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.15 Grounding Electrodes

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.01 Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.09 Anchor Bolts, Traffic Signals, Lighting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(a) Steel Poles and Baseplates

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.03(b) Cantilever Mast Arm

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 1EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 678.15 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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Signature: _____
Authorized Representative

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Title: _____
Company and Affiliation

Contact Information: _____
(Telephone Number and Email Address)

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " A " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 900.620 Junction Box

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 13 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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Signature: _____
Authorized Representative

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.01 Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 4 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 715.01 Iron Castings

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 4 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.02 Mechanical Splices for Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 4 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 540.04 Misc Steel and Iron

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 4 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

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Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.05 Welded Wire Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 4 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

By signing you certify that all materials subject to the Buy America Provision comply with said provision. I understand that this is subject to the Vermont False Claims Act set forth in 32 V.S.A. § 630 et seq.

Signature: _____
Authorized RepresentativeName: _____
(Type or Print)Title: _____
Company and AffiliationContact Information: _____
(Telephone Number and Email Address)

NOTE: The Manufacturer is the only entity that can conclusively certify that all tests have been performed on the material and that the results of those tests meet VTTrans specifications. However, if the supplier or contractor can provide documentation that establishes an auditable chain of custody for the material that also shows it meets VTTrans specifications then they can accept full legal responsibility for the manufacture of the material and sign the certification form.

Certifications for materials requiring a Type "C" or "D" certification as specified by the Vermont Standard Specification for Construction, General Special Provisions, or Contract Documents must include a Certificate of Analysis (COA) as well as a Certificate of Compliance (COC).

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THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.15 Grounding Electrodes

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 47 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.01 Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 47 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.09 Anchor Bolts, Traffic Signals, Lighting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 47 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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Authorized Representative

Name: _____
(Type or Print)

Title: _____
Company and Affiliation

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(Telephone Number and Email Address)

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**THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.15 Grounding Electrodes

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 47 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.01 Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 47 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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Authorized Representative

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(Type or Print)

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Company and Affiliation

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AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.09 Anchor Bolts, Traffic Signals, Lighting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 47 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " BA " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 752.15 Grounding Electrodes

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 4 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER**



**Municipal Assistance Bureau
Materials Acceptance Program**

**Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 713.01 Bar Reinforcement

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 4 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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AND/OR RESIDENT ENGINEER**

**Municipal Assistance Bureau
Materials Acceptance Program****Record of Manufactured Material Certification
Type " D " Certification**

Manufacturer: _____

Address: _____

WE HEREBY CERTIFY the following material: 714.09 Anchor Bolts, Traffic Signals, Lighting

Identified by (Lot #, Batch #, Heat #, Unique Identifier) : _____

For use on (Project Line Number): _____

In the quantity of: 4 EA

Furnished by (Contractor or Supplier): _____

Contract Name and Number: Essex Junction STP 5300(13)

CONFORMS TO ALL REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2018 STANDARD SPECIFICATIONS, PERTINENT PROJECT PLANS, AND SPECIAL PROVISIONS FOR THE ABOVE CONTRACT FOR PAY ITEM NUMBER(S) LISTED AS FOLLOWS: 900.62 AND THAT PROCESSING, PRODUCT TESTING AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMITY WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND/OR STANDARDS OF ALL MATERIALS FURNISHED.

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THIS CERTIFICATION MUST BE COMPLETED & RETURNED TO THE PROJECT INSPECTOR
AND/OR RESIDENT ENGINEER

Municipal Assistance Bureau
Materials Acceptance Program - Certification Unit

Date: _____

Submitted By: _____

Company / Title: _____

Contract Name and Number: Essex Junction STP 5300(13)

The following materials, covered by the Agency's "Approved Products List", were inspected and authorized for use on the above project.

Project	Pay Item No. & Name			
<u>Line No.</u>	<u>Material Subsection & Description:</u>	<u>Product Name:</u>	<u>Quantity:</u>	<u>Manufacturer/Supplier Name & Loc.:</u>
	404.65-EMULSIFIED ASPHALT 702.04-Emulsified Asphalt		80 CWT	
	418.10-ASPHALTIC APROACH MATERIAL 707.17-Asphaltic Plug Joint		1140 SF	
	601.2605-12" CPEP(SL) 710.03-Corrugated Polyethylene Pipe		340 LF	
	601.2610-15" CPEP(SL) 710.03-Corrugated Polyethylene Pipe		1010 LF	
	601.2615-18" CPEP(SL) 710.03-Corrugated Polyethylene Pipe		20 LF	
	601.2620-24" CPEP(SL) 710.03-Corrugated Polyethylene Pipe		310 LF	
	604.20-PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE 705.04-Precast Drop Inlets, Catch Basins, and Manholes		17 EA	

Municipal Assistance Bureau
Materials Acceptance Program - Certification Unit

Date: _____

Submitted By: _____

Company / Title: _____

Contract Name and Number: Essex Junction STP 5300(13)

The following materials, covered by the Agency's "Approved Products List", were inspected and authorized for use on the above project.

Project	Pay Item No. & Name			
<u>Line No.</u>	<u>Material Subsection & Description:</u>	<u>Product Name:</u>	<u>Quantity:</u>	<u>Manufacturer/Supplier Name & Loc.:</u>
	604.21-PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE		3 EA	
	705.05-Precast Drop Inlets, Catch Basins, and Manholes			
	618.30-DETECTABLE WARNING SURFACE		330 SF	
	751.08-Detectable Warning Surface			
	629.27-GATE VALVE WITH VALVE BOX (6")		2 EA	
	629.27-Gate valve with Valve Box			
	629.27-GATE VALVE WITH VALVE BOX (8")		2 EA	
	629.27-Gate valve with Valve Box			
	629.28-HYDRANT		2 EA	
	629.28-Hydrant			
	629.35-TAPPING SLEEVE AND VALVE WITH VALVE BOX (6 INCH)		1 EA	
	629.35-Tapping Sleeve and Valve with Valve Box			
	629.35-TAPPING SLEEVE AND VALVE WITH VALVE BOX (8 INCH)		1 EA	
	629.35-Tapping Sleeve and Valve with Valve Box			

Municipal Assistance Bureau
Materials Acceptance Program - Certification Unit

Date: _____

Submitted By: _____

Company / Title: _____

Contract Name and Number: Essex Junction STP 5300(13)

The following materials, covered by the Agency's "Approved Products List", were inspected and authorized for use on the above project.

Project	Pay Item No. & Name			
<u>Line No.</u>	<u>Material Subsection & Description:</u>	<u>Product Name:</u>	<u>Quantity:</u>	<u>Manufacturer/Supplier Name & Loc.:</u>
	629.35-TAPPING SLEEVE AND VALVE WITH VALVE BOX (10 INCH)		2 EA	
	629.35-Tapping Sleeve and Valve with Valve Box			
	646.403-DURABLE 4 INCH WHITE LINE, EPOXY PAINT		6100 LF	
	754.01(a)-Optics, Type I			
	646.403-DURABLE 4 INCH WHITE LINE, EPOXY PAINT		6100 LF	
	754.01(b)-Optics, Type II			
	646.403-DURABLE 4 INCH WHITE LINE, EPOXY PAINT		6100 LF	
	754.01(c)-Optics, Type III			
	646.403-DURABLE 4 INCH WHITE LINE, EPOXY PAINT		6100 LF	
	708.08(c)-Epoxy Paint			
	646.413-DURABLE 4 INCH YELLOW LINE, EPOXY PAINT		5400 LF	
	754.01(a)-Optics, Type I			
	646.413-DURABLE 4 INCH YELLOW LINE, EPOXY PAINT		5400 LF	
	754.01(b)-Optics, Type II			

Municipal Assistance Bureau
Materials Acceptance Program - Certification Unit

Date: _____

Submitted By: _____

Company / Title: _____

Contract Name and Number: Essex Junction STP 5300(13)

The following materials, covered by the Agency's "Approved Products List", were inspected and authorized for use on the above project.

Project	Pay Item No. & Name			
<u>Line No.</u>	<u>Material Subsection & Description:</u>	<u>Product Name:</u>	<u>Quantity:</u>	<u>Manufacturer/Supplier Name & Loc.:</u>
	646.413-DURABLE 4 INCH YELLOW LINE, EPOXY PAINT 754.01(c)-Optics, Type III		5400 LF	
	646.413-DURABLE 4 INCH YELLOW LINE, EPOXY PAINT 708.08(c)-Epoxy Paint		5400 LF	
	646.443-DURABLE 8 INCH WHITE LINE, EPOXY PAINT 754.01(a)-Optics, Type I		220 LF	
	646.443-DURABLE 8 INCH WHITE LINE, EPOXY PAINT 754.01(b)-Optics, Type II		220 LF	
	646.443-DURABLE 8 INCH WHITE LINE, EPOXY PAINT 754.01(c)-Optics, Type III		220 LF	
	646.443-DURABLE 8 INCH WHITE LINE, EPOXY PAINT 708.08(c)-Epoxy Paint		220 LF	
	646.453-DURABLE 8 INCH YELLOW LINE, EPOXY PAINT 754.01(a)-Optics, Type I		170 LF	

Municipal Assistance Bureau
Materials Acceptance Program - Certification Unit

Date: _____

Submitted By: _____

Company / Title: _____

Contract Name and Number: Essex Junction STP 5300(13)

The following materials, covered by the Agency's "Approved Products List", were inspected and authorized for use on the above project.

Project	Pay Item No. & Name			
<u>Line No.</u>	<u>Material Subsection & Description:</u>	<u>Product Name:</u>	<u>Quantity:</u>	<u>Manufacturer/Supplier Name & Loc.:</u>
	646.453-DURABLE 8 INCH YELLOW LINE, EPOXY PAINT 754.01(b)-Optics, Type II		170 LF	
	646.453-DURABLE 8 INCH YELLOW LINE, EPOXY PAINT 754.01(c)-Optics, Type III		170 LF	
	646.453-DURABLE 8 INCH YELLOW LINE, EPOXY PAINT 708.08(c)-Epoxy Paint		170 LF	
	646.483-DURABLE 24 INCH STOP BAR, EPOXY PAINT 754.01(a)-Optics, Type I		350 LF	
	646.483-DURABLE 24 INCH STOP BAR, EPOXY PAINT 754.01(b)-Optics, Type II		350 LF	
	646.483-DURABLE 24 INCH STOP BAR, EPOXY PAINT 754.01(c)-Optics, Type III		350 LF	
	646.483-DURABLE 24 INCH STOP BAR, EPOXY PAINT 708.08(c)-Epoxy Paint		350 LF	

Municipal Assistance Bureau
Materials Acceptance Program - Certification Unit

Date: _____

Submitted By: _____

Company / Title: _____

Contract Name and Number: Essex Junction STP 5300(13)

The following materials, covered by the Agency's "Approved Products List", were inspected and authorized for use on the above project.

Project	Pay Item No. & Name			
Line No.	Material Subsection & Description:	Product Name:	Quantity:	Manufacturer/Supplier Name & Loc.:
	646.493-DURABLE LETTER OR SYMBOL, EPOXY PAINT 754.01(a)-Optics, Type I		70 EA	
	646.493-DURABLE LETTER OR SYMBOL, EPOXY PAINT 754.01(b)-Optics, Type II		70 EA	
	646.493-DURABLE LETTER OR SYMBOL, EPOXY PAINT 754.01(c)-Optics, Type III		70 EA	
	646.493-DURABLE LETTER OR SYMBOL, EPOXY PAINT 708.08(c)-Epoxy Paint		70 EA	
	646.503-DURABLE CROSSWALK MARKING, EPOXY PAINT 754.01(a)-Optics, Type I		490 LF	
	646.503-DURABLE CROSSWALK MARKING, EPOXY PAINT 754.01(b)-Optics, Type II		490 LF	
	646.503-DURABLE CROSSWALK MARKING, EPOXY PAINT 754.01(c)-Optics, Type III		490 LF	

Municipal Assistance Bureau
Materials Acceptance Program - Certification Unit

Date: _____

Submitted By: _____

Company / Title: _____

Contract Name and Number: Essex Junction STP 5300(13)

The following materials, covered by the Agency's "Approved Products List", were inspected and authorized for use on the above project.

Project	Pay Item No. & Name			
<u>Line No.</u>	<u>Material Subsection & Description:</u>	<u>Product Name:</u>	<u>Quantity:</u>	<u>Manufacturer/Supplier Name & Loc.:</u>
	646.503-DURABLE CROSSWALK MARKING, EPOXY PAINT 708.08(c)-Epoxy Paint		490 LF	
	646.513-DURABLE RAILROAD CROSSING SYMBOL, EPOXY PAINT 754.01(a)-Optics, Type I		9 EA	
	646.513-DURABLE RAILROAD CROSSING SYMBOL, EPOXY PAINT 754.01(b)-Optics, Type II		9 EA	
	646.513-DURABLE RAILROAD CROSSING SYMBOL, EPOXY PAINT 754.01(c)-Optics, Type III		9 EA	
	646.513-DURABLE RAILROAD CROSSING SYMBOL, EPOXY PAINT 708.08(c)-Epoxy Paint		9 EA	
	653.25-CHECK DAM, TYPE I 720.04-Geotextile Under Stone Fill		10 CY	
	653.35-STABILIZED CONSTRUCTION ENTRANCE 720.04-Geotextile under Stone Fill		100 CY	

Municipal Assistance Bureau
Materials Acceptance Program - Certification Unit

Date: _____

Submitted By: _____

Company / Title: _____

Contract Name and Number: Essex Junction STP 5300(13)*The following materials, covered by the Agency's "Approved Products List", were inspected and authorized for use on the above project.*

Project	Pay Item No. & Name			
<u>Line No.</u>	<u>Material Subsection & Description:</u>	<u>Product Name:</u>	<u>Quantity:</u>	<u>Manufacturer/Supplier Name & Loc.:</u>
	653.41-INLET PROTECTION DEVICE, TYPE II 653.09(b)(2)-Inlet Protection Device, Type II		50 EA	
	653.45-FILTER BAG 653.09(c)-Filter Bag		1 EA	
	653.475-SILT FENCE, TYPE I 720.07-Geotextile For Silt Fence		100 LF	
	675.20-TRAFFIC SIGNS, TYPE A 750.08-Retroreflective Sheeting		450 SF	

Vermont Agency of Transportation
Municipal Assistance Bureau

RE:
Project Supervisor: Ande DeForge
Project: Essex Junction STP 5300(13)

Materials
Testing Record

QAP Level: 2

Pay Item #	Spec. #	Description	Tests	Frequency	Qty.
203.31	703.03	Sand Borrow	Gradation Moisture Density	1/3000 CY 1/2000 CY 1/2000 CY	800 CY
204.30	704.08	Granular Backfill for Structures	Gradation Moisture Density	1/3000 CY 1/500 CY 1/500 CY	1900 CY
301.26	704.05B	Subbase of Crushed Gravel, Fine Graded	Gradation Moisture Density	1/3000 CY 1/1000 CY 1/1000 CY	2500 CY
301.35	704.06	Subbase of Dense Graded Crushed Stone	Gradation Moisture Density	1/3000 CY 1/1000 CY 1/1000 CY	5300 CY
404.65	702.04	Emulsified Asphalt	Distillation, Penetration @ 25 °C	1 / 200 CWT	80 CWT
406.35	490.03	Superpave Bituminous Concrete Pavement	Slip AC Content Gradation Air voids, VMA Mixing Temperature Density-mat	1/500 TONS for first 1,000 TONS, 1/1,000 TONS thereafter	3200 Tons
	702.02	Performance-Graded Asphalt Binder	Unit weight, Flashpoint, Rotational Viscosity, DSR - Original, Effect of heating mass, DSR - RTFO, DSR - PAV, Creep stiffness, m Value		
541.25	541.03	Concrete, Class B	Air Temperature Compressive Strength	1/ 50 CY	1 CY + total Project
900.675	541.03	Portland Cement Sidewalk	Air Temperature Compressive Strength	1/ 75 CY	2330 SY

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
STORMWATER DISCHARGE PERMIT

STORMWATER RUNOFF TO WATERS OF THE STATE

In compliance with provisions of 10 V.S.A. §1264, the Stormwater Permitting Rule, and in accordance with "Terms and Conditions" hereinafter specified,

Village of Essex
2 Lincoln Street
Essex Junction, Vermont 05452

Impervious Area: 2.04 acres

the permittee is hereby granted permission to discharge stormwater runoff from Crescent Connector STP 5300 (13) located at Maple Street, Railroad Street, Park Street, Crescent Connector in Essex Junction, Vermont to Winooski River and an unnamed tributary to the Winooski River. This individual permit amends previously authorized permit 7778-INDS.A and is required due to procedures used outside the scope of the General Permit 3-9015.

1. Expiration: This permit, unless revoked, modified or suspended, shall be valid until the designated expiration date not withstanding any intervening change in water quality, effluent, or treatment standards, or classification of the receiving waters including groundwater. However, any such changed standard or classification, and any applicable requirement in a total maximum daily load (TMDL) shall be applied in determining whether or not to renew this permit, and in determining the conditions of a renewed permit.

The permittee shall reapply for a renewed discharge permit sixty (60) days prior to the expiration date of this permit.
2. Revocation: 10 V.S.A. §1267 provides as follows:
The Secretary may, after notice and opportunity for a public hearing, revoke, modify or suspend this permit if it is found that the permittee submitted false or inaccurate information in its application or has violated any requirement, restrictions, or condition of this permit, or if there is any change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. The Secretary shall impose conditions as the Secretary deems necessary for regulating the discharges of a permittee whose permit has been revoked, modified or suspended. Revocation shall be effective upon actual notice thereof to the permittee.
3. Operating Fees: This discharge is subject to operating fees under 3 V.S.A. §2822. The permittee shall submit the operating fees to the Agency in accordance with procedures provided by the Secretary.
4. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. Provided all applicable fees under 3 V.S.A. §2822 have been paid, a permittee may submit a notice of transfer to the Stormwater Management Program. The notice shall be submitted at least five (5) days prior to the proposed date of transfer. The notice shall state that the prospective permittee has adequate funding to comply with this permit. The permittee shall provide a copy of this permit to the new owner or tenant and inform him of the responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.
5. Right of Entry: The permittee shall allow the Secretary, or his or her authorized representatives, at reasonable times, upon presentation of credentials, to enter upon and inspect the permitted premises, and the stormwater collection, treatment and control system; and to sample any discharge to determine compliance with this permit; and to have access to and inspect and copy any records required to be kept pursuant to this permit.
6. Receiving Waters: Winooski River and an unnamed tributary to the Winooski River
7. Manner of Discharge:
S/N 001: Stormwater from Park Street sidewalk and roadway, and from a portion of the Crescent Connector sidewalk and roadway, via sheet flow to curb line and then into existing storm drain system discharging to the Winooski River.

S/N 002: Stormwater from Maple Street sidewalks and Railroad Street roadway and sidewalk will sheet flow to curb and then routed into existing storm drain system without treatment. Stormwater from a portion of Crescent Connector's roadway and sidewalk, as well as stormwater from the parking lot will sheet flow to curbs then collect in deep sump catch basins and will be conveyed to two underground sand filters located in the vicinity of the parking lot. This treated stormwater will then be discharged into the existing storm drain system which empties into an unnamed tributary to the Winooski River.

The Site Balancing Procedure for the Discharge of Stormwater Runoff from the Expansion or Redevelopment of Impervious Surfaces was utilized to meet applicable treatment standards for this project.

The Stormwater Procedure for Public Linear Transportation Projects was utilized to meet applicable treatment standards for this project.

8. Wastes Permitted: Stormwater runoff from the above-named areas of the project permitted herein after treatment as specified in the Manner of Discharge.
9. Volumes Permitted and Frequency of Discharge: Such volumes and frequency as required by the discharge specified in the Manner of Discharge above.
10. Approved Project Design: This project shall be constructed and operated in accordance with the following site plans, details and supporting information prepared by DuBois & King, Inc. By reference, the following plans are made a part of this permit.

Sheet No.	Sheet Title	Date Created	Revision Date
SW1	Existing Conditions Plan	December 2019	4.6.2020
SW2	Proposed Conditions Plan	December 2019	4.6.2020
SW3	Stormwater Details (Sheet 1)	December 2019	5.12.2020
SW4	Stormwater Details (Sheet 2)	December 2019	

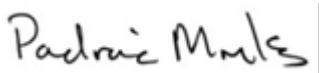
11. Inspection and Maintenance Reporting Requirements:
 - a. The stormwater collection, treatment and control system shall be maintained in good operating condition at all times and **shall be inspected annually and cleaned as necessary to maintain design specifications. The inspections shall be conducted between the conclusion of spring snow melt and June 15th of each year.**
 - b. Any sediment removed from the stormwater collection, treatment and control system shall be disposed of properly in accordance with state and federal statutes and regulations.
 - c. **By July 15 of each year the permittee shall submit an annual inspection report to the Secretary; or by July 30 of each year if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. Annual Inspection Reports shall be submitted electronically to the DEC – Watershed Management Division, Stormwater Program at: <https://anonline.vermont.gov>**
 - i. Unless previously submitted by the permittee(s) under a previously issued authorization or discharge permit, the first report submitted after construction completion shall also be submitted with a Designer's Initial Statement of Compliance that the project was built in compliance with the Approved Project Design outlined above at <https://anonline.vermont.gov>.
12. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of the Inspection and Maintenance Reporting above.
13. Monitoring and Reporting Requirement: No monitoring required; reporting requirement as specified in the Inspection and Maintenance Reporting above.
14. Other Requirements:
 - a. Treated stormwater runoff is the only waste authorized for disposal under the terms and conditions of this permit. The discharge of any hazardous materials or hazardous waste into the stormwater management system is prohibited.
 - b. The issuance of this permit does not relieve the permittee from the responsibility to obtain any other local, state or federal permits required by law.

15. Compliance with Anti-degradation and Water Quality Standards: The Secretary has determined that the permitted discharges satisfy Vermont's Anti-Degradation Policy described in the Department of Environmental Conservation's Interim Anti-Degradation Implementation Procedure, because the procedure allows a presumption of compliance for discharges that are in compliance with the Vermont Stormwater Management Manual and any additional best management practices that will be used to control the stormwater discharge as described in Section IX.D.1.d of the Department's Interim Anti-Degradation Implementation Procedure. The Secretary has also determined that for such discharges that qualify for the presumption under IX.D.1.d, all existing uses of surface waters, and the level of water quality necessary to protect those existing uses will be maintained and protected. The Secretary has determined that if the permittee is in full compliance with all permit conditions, including approved plans, monitoring, reporting and recordkeeping conditions, and is fully implementing stormwater BMPs required by this permit, the permitted discharges will meet the requirements of the Vermont Stormwater Management Manual and qualify for the presumption described in Section IX.D.1.d of the Department's Interim Anti-Degradation Implementation Procedure and will be presumed to comply with the Vermont Water Quality Standards, including but not limited to §1-03 (Anti-degradation Policy).
16. Right to Appeal:
(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.
17. Effective Date and Expiration Date of this Authorization: This authorization to discharge shall become effective on August 18, 2020 and shall expire on August 17, 2025.

Dated August 18, 2020

Peter Walke, Commissioner
Department of Environmental Conservation

By: 
Padraic Monks, Program Manager
Stormwater Management Program

4/26/2022

Dear Permittee(s),

The Notice of Intent for the discharge of stormwater runoff from Low Risk Construction Activity under Construction General Permit (CGP) 3-9020 (March 19, 2020) has been authorized. You will need the following documents to maintain compliance with this authorization. Enclosed with this cover letter is your **Authorization to Discharge under General Permit 3-9020** and a copy of the **Notice of Authorization** that you must post at your construction site. In addition, any additional Owners and Operators that were not identified on the Notice of Intent at the time of application must file a **Notice of Addition of Co-Permittee**. See below for more details on these and other permit requirements.

1. **Authorization to Discharge under General Permit 3-9020**

The authorization for Low Risk Construction Activity is valid for five years from the date of the authorization. If the project will proceed past the expiration date, you must reapply for coverage under this or another construction stormwater permit before that time. If the project is completed or is sold before that time, you may terminate the authorization by submitting a Notice of Termination, subject to Subpart 7.4 of CGP 3-9020. Any proposed project changes must be first evaluated in accordance with the terms, conditions, and eligibility provisions set forth in Part 5 of CGP 3-9020.

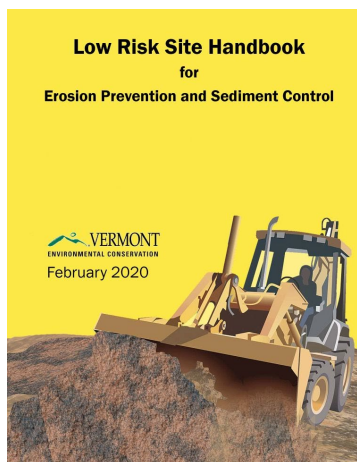
2. **Notice of Authorization for Posting**

The Notice of Authorization, which details the authorization and conditions you selected in completing Appendix A to the CGP, must be posted in a location visible to the public in accordance with Subpart 4.5.C of the CGP.

3. **Notice of Addition of Co-Permittee**

This form must be submitted for every additional Owner and/or Operator who joins the project, in accordance with Subpart 7.3 of the CGP. Use ANR Online to file all Notice of Additions. ANR Online can be accessed using the following link: <https://anronline.vermont.gov>. Instructions on creating an account are available on the main page.

Low Risk Site Handbook for Erosion Prevention and Sediment Control



Please provide the Owner(s) and Operator(s) access to the Low Risk Site Handbook for Erosion Prevention and Sediment Control. This handbook details the practices that must be implemented throughout the construction project to prevent erosion and the discharge of sediment from the construction site. Some practices must be in place before construction begins, so please review the entire handbook before starting the project. The handbook can be found at the website below. Please email anr.wsmdstormwatergeneral@vermont.gov to request a printing of the handbook if you are unable to do so.

The CGP, copies of pertinent forms, and an electronic version of the Low Risk Site Handbook for Erosion Prevention and Sediment Control are available on the [Stormwater Program](#) website. If you have any questions related to your authorization, please contact the Environmental Analyst in the [Stormwater District](#) where your project is located.

Sincerely,
Stormwater Management Program

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VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9020

A determination has been made that the applicant(s) (here in after "permittee"):

Village of Essex Junction
2 Lincoln Street
Essex Junction, VT 05452

meets the criteria necessary for inclusion under General Permit 3-9020 for low risk construction activities. Subject to the conditions and eligibility provisions of General Permit 3-9020, the permittee is authorized to discharge stormwater to Winooski River from the following construction activities: Work to be performed under this contract includes the construction of a new roadway (Crescent Connector) on a new alignment; addition of turning lanes on Park Street and Maple Street; reconstruction of Railroad Street; construction of a parking lot; installation of traffic signals and railroad signals; and installation of concrete sidewalks, granite curbs, street lights, drainage improvements, pavement markings, and signs. The project is located at Maple Street, Railroad Street, Park Street, and Crescent Connector in Essex, Vermont.

1. **Effective Date and Expiration Date of this Authorization:** This authorization to discharge shall become effective on April 26, 2022 and shall continue until April 25, 2027. The permittee shall reapply for coverage at least 60 days prior to expiration if the project has not achieved final stabilization or if construction activities are expected after the date of expiration.
2. **Compliance with General Permit 3-9020 and this Authorization:** The permittee shall comply with this authorization and all the terms, conditions, and eligibility provisions of General Permit 3-9020. The completed Notice of Intent (NOI) and Appendix A completed for this project are incorporated by reference into this authorization and are included in the terms of this authorization. These terms include:
 - Implementation and maintenance of erosion prevention and sediment control practices required by the Low Risk Site Handbook for Erosion Prevention and Sediment Control.
 - All areas of disturbance must have temporary or final stabilization within 14 days of the initial disturbance. After this time, disturbed areas must be temporarily or permanently stabilized in advance of any runoff producing event. A runoff producing event is an event that produces runoff from the construction site. The following exception to the above stabilization requirements apply:
 - Temporary stabilization is not required if work is occurring in a self-contained excavation (i.e. no outlet) with a depth of 2 feet or greater (e.g. house foundation excavation, utility trenches). Areas of a construction site that drain to sediment basins are not considered eligible for this exemption and the exemption applies only to the excavated area itself.
 - The total authorized disturbance is 6.02 acre(s).
 - No more than 5 acres of land may be disturbed at any one time.
 - No disturbance shall occur within 50 feet (horizontal) upslope of any stream or river, wetland, lake, or pond.
 - Inspections shall be conducted at least once every (7) calendar days and daily during the winter construction period (October 15 through April 15), for all areas that have been disturbed and are not yet finally stabilized. In addition:
 - If visibly discolored stormwater runs off the construction site or discharges to waters of the State, the permittee shall take immediate corrective action to inspect and maintain existing best management practices (BMPs), and to install supplemental BMPs necessary to minimize and prevent the discharge.

- If, after completing corrective action, there continues to be a discharge of discolored stormwater from the construction site to waters of the State, the permittee shall notify DEC by submitting a Discharge Report within 24 hours of discovering the discharge.
3. Transferability and Addition of Co-Permittee: This authorization to discharge is not transferable to any person, nor may any person be added as a permittee, except in compliance with General Permit 3-9020 including submission of a complete Notice of Transfer or Notice of Addition of Co-Permittee.
 4. Following receipt of authorization under General Permit 3-9020, additional Owner(s) and Operator(s) not identified on the Notice of Intent at the time of application shall be added as a co-permittee by filing a Notice of Addition of Co-Permittee with the Secretary. The co-permittee shall be subject to all terms and conditions of the permittee's authorization and Construction General Permit 3-9020.

5. Right to Appeal:

(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

Dated April 26, 2022

Julia S. Moore, Secretary
Agency of Natural Resources

By:



Chris Gianfagna, Program Manager
Stormwater Management Program

Notice of Authorization
Under Vermont Construction General Permit 3-9020
For Low Risk Construction Activity



Permittee Directions for Posting:

This notice shall be placed near the construction entrance at a location visible to the public. If displaying near the main entrance is infeasible, the notice shall be posted in a local public building such as the municipal office or public library. For linear projects, the notice shall be posted at a publicly accessible location near the active part of the construction project (e.g., where a pipeline project crosses a public road) or, in the event posting in a publicly accessible location near the active part of the project is infeasible, the permittee shall post in a local public building such as the municipal office or public library.

Project Name:	Crescent Connector STP 5300(13)
Permittee Name(s):	Village of Essex Junction
NOI Number:	7778-9020.3
Date of Authorization:	April 26, 2022
Date of Expiration:	April 25, 2027
The project listed above has received authorization under General Permit 3-9020 to discharge stormwater from the following construction activities:	
Construction of a new roadway (Crescent Connector) on a new alignment; addition of turning lanes on Park Street and Maple Street; reconstruction of Railroad Street; construction of a parking lot; installation of traffic signals and railroad signals; and installation of concrete sidewalks, granite curbs, street lights, drainage improvements, pavement markings, and signs.	

This authorization includes the following requirements:

- Implementation and maintenance of erosion prevention and sediment control practices required by the Low Risk Site Handbook for Erosion Prevention and Sediment Control.
- All areas of disturbance must have temporary or final stabilization within 14 days of the initial disturbance. After this time, disturbed areas must be temporarily or permanently stabilized in advance of any runoff producing event. A runoff producing event is an event that produces runoff from the construction site. The following exception to the above stabilization requirements apply:
 - Temporary stabilization is not required if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of two feet or greater (e.g. house foundation excavation, utility trenches). Areas of a construction site that drain to sediment basins are not considered eligible for this exemption and the exemption applies only to the excavated area itself.
- The total authorized disturbance is 6.02 acre(s).
- No more than 5 acres of land may be disturbed at any one time.
- No disturbance shall occur within 50 feet (horizontal) upslope of any stream, river, wetland, lake, or pond.
- Inspections shall be conducted at least once every (7) calendar days and daily during the winter construction period (October 15 through April 15), for all areas that have been disturbed and are not yet finally stabilized. In addition:
 - If visibly discolored stormwater runs off the construction site or discharges to waters of the State, the permittee shall take immediate corrective action to inspect and maintain existing best management practices (BMPs), and to install supplemental BMPs necessary to minimize and prevent the discharge.
- If, after completing corrective action, there continues to be a discharge of sediment from the construction site to waters of the State, the permittee shall notify DEC by submitting a Discharge Report within 24 hours of discovering the discharge.
- The permittee shall comply with all inspection, maintenance, corrective action, record keeping, and reporting requirements, and all other terms, conditions, and eligibility provisions, including those conditions related to project changes, as set forth in General Permit 3-9020 and this authorization.
- Following receipt of authorization under General Permit 3-9020, additional Owner(s) and Operator(s) not identified on the Notice of Intent at the time of application shall be added as a co-permittee by filing a Notice of Addition of Co-Permittee with the Secretary. The co-permittee shall be subject to all terms and conditions of the permittee's authorization and General Permit 3-9020.

To request information on this authorization, or to report compliance concerns, please contact:

Vermont Department of Environmental Conservation
Watershed Management Division
1 National Life Drive, Davis 3
Montpelier, VT 05620

PHASE II ENVIRONMENTAL SITE ASSESSMENT OF THE CRESCENT CONNECTOR

**SMS#: 2012-4263
ESSEX JUNCTION, VERMONT**

**Stone Project ID 12-152
November 13, 2013**

Prepared for:

Dubois & King Engineers, Inc.
Evan Detrick
28 North Main Street
Randolph, Vermont 05060
Tel. / 802.728.3376
E-Mail / edetrick@dubois-king.com

Prepared by:

Stone Environmental, Inc.
Daniel Voisin
535 Stone Cutters Way
Montpelier, VT 05602
Tel. / 802.229.1875
E-Mail / dvoisin@stone-env.com

EXECUTIVE SUMMARY

Stone Environmental, Inc. (Stone), under contract with Dubois & King Engineers, Inc. (D&K), performed a Phase II Environmental Site Assessment (Phase II ESA) of the planned route for the proposed Crescent Connector in the Village of Essex Junction, Vermont (Figure 1). The Crescent Connector (the Project Area) is a proposed road, approximately 1,400 feet in length, intended to bypass the Essex Junction Five Corners Area. This Phase II ESA sought to identify whether hazardous materials have been released to soils within the Project area that, if present, would pose an unacceptable risk of exposure to construction workers and future users.

Prior environmental assessment of the proposed Project Area included an Area Wide Assessment (AWA) of the Village Center in June 2012. The AWA identified that past and current land use in the Project Area included industries that potentially used hazardous substances that may have been released to the environment, including over 150 years of railroad operations and five gasoline service stations, among others. In addition, the AWA revealed that the Project Area is located downgradient or immediately adjacent to three Vermont Hazardous Waste Sites. Gasoline released from at least one of these sites (Simon's Store, SMS #96-1961) has been determined by others to have migrated in groundwater to the Project Area.

This Phase II ESA included the advancement of 48 soil borings along the proposed alignment to collect soil samples for a wide range of potential contaminants of concern, including volatile organic compounds (VOCs), metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), herbicides, organo-chlorine pesticides, and asbestos. Concentration results indicate PAHs and the metals arsenic, antimony, lead, and mercury are present in shallow soils at concentrations in excess of US EPA Regional Screening Levels, and will require mitigation and/or management as part of the construction of the Crescent Connector roadway. Field screening and laboratory analysis of VOCs in soil samples collected in the Project Area indicate gasoline VOCs are not present within Project Area soils, and therefore do not present an exposure risk to future construction workers or other Project Area users.

Past use of the Project Area includes over 150 years of railway conveyance. The presence of metals and PAHs in Project Area soils is primarily attributed to coal ash waste and unburned coal debris. The presence of metals in Project Area soils may also be attributed former maintenance activities, such as application or use of wood preservatives and insecticides along the rail corridor.

Stone developed the following recommendations based on the conclusions drawn from the Phase II ESA:

- 1) As a function of this Phase II ESA, evidence of past release of contaminants to the environment was identified in the Project Area. In accordance with Vermont Statute 10 V.S.A. Chapter 159 Section 6617, "Any person who has knowledge of a release or a suspected release and who may be subject to liability for a release, as detailed in section 6615 (e.g. owners or operators of a facility), shall immediately notify the Agency."
- 2) In accordance with 29 CFR 1910.120, construction workers engaged in activities where they are exposed or potentially exposed to hazardous substances are required to have Hazardous Waste Operations and Emergency Response (HAZWOPER) training.
- 3) Construction of the roadway will require the removal of up to two feet of existing soil, to be replaced by imported sub-base material. Any native soils removed from the Project Area will need to be managed according to their waste profile.
 - a. Based on our current understanding of the distribution of metals in soil within the area of the proposed alignment, select areas, specifically in the area of SB-11 (Arsenic = 264 mg/Kg,

Antimony = 47 mg/Kg, Lead = 735 mg/Kg), SB-9 (Mercury = 5.57 mg/Kg) and SG-41 (Arsenic= 532 mg/Kg) will require management and disposal as hazardous waste in accordance with all applicable Federal, State, and local laws.

- 4) A Corrective Action Plan should be developed prior to construction. As part of the Corrective Action Plan, a Soil Management Plan, including calculation of volumes for disposal, transportation options, and associated costs, as well as ongoing requirements for maintenance of infrastructure should be developed. Stone recommends the Corrective Action Plan/Soil Management Plan be developed in advance of construction activities to reduce costly delays that may be encountered during construction.
- 5) To date, potential impacts to groundwater from COCs identified during this Phase II ESA have not been assessed.

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1. INTRODUCTION

Stone Environmental, Inc. (Stone), under contract with Dubois & King Engineers, Inc. (D&K), performed a Phase II Environmental Site Assessment (Phase II ESA) of the planned alignment for the proposed Crescent Connector in Essex Junction, Vermont (Figure 1). The Crescent Connector (the Project Area) is a proposed road, approximately 1,400 feet in length, intended to bypass the Essex Junction Five Corners Area. The Crescent Connector will link Vermont Route 2A (Park Street) and Vermont Route 117 (Maple Street) and facilitate traffic flow from Vermont Route 117 (Maple Street) to Route 15 east (Main Street). Collectively, these areas encompass the Project Area (Figure 2).

1.1. Project Area Description

The proposed alignment of the Crescent Connector is presented on Figure 2. The general topographic setting of the Project Area is flat at an elevation of approximately 340 feet above mean sea level (ft AMSL). The nearest surface water body is the Winooski River, located 2,500 feet south of the Project Area. The Project Area is part of the center of the Village of Essex Junction. The Village Center is defined by the intersections of Vermont Routes 2A (Lincoln Street – north, and Park Street – south), Vermont Route 15 (Pearl Street – west, and Main Street – northeast), and Vermont Route 117 (Maple Street – southeast). The intersection of these roadways is locally known as the Five Corners.

According to the Vermont Agency of Natural Resources (ANR) Natural Resources Atlas, there are 11 State of Vermont Hazardous Waste Sites, one State-listed hazardous waste generator, and seven facilities with registered underground storage tanks (USTs) within one-quarter mile of the Five Corners intersection.

Utilities traversing the Project Area include sanitary sewer and stormwater pipes, natural gas pipes, and buried and overhead electrical and communications cables. Water and sanitary sewer services within the Project Area are supplied by municipal utilities. According to the ANR Well Locator, the nearest water supply well to the Project Area is a domestic well located approximately 840 feet to the east-southeast of the Project Area and is owned by David Adams (Well ID 8-263).

From the south, the proposed Crescent Connector road first traverses a parcel currently under commercial use (34 Park Street). Businesses operating at this address include: Centrodyne Corporation of America (designer and manufacturer of automotive digital electronic products), Karen's Kloset (used clothing store), Paizlee's (consignment shop), Vermont Aquatics (fish, coral, and aquarium supplies), and West Meadow Farm Gluten Free Bakery (bakery). The second parcel traversed is a railway corridor owned by the State of Vermont and operated by New England Central Railroad, Inc. The proposed road then crosses Maple Street (VT Route 117). The proposed road then follows Railroad Street to the north, terminating at Main Street (VT Route 15).

1.2. Prior Environmental Assessment

Prior environmental assessment of the Project Area includes the Essex Junction Area Wide Assessment performed by Stone in July 2012 for the Village of Essex Junction and Chittenden County Regional Planning Commission under a Brownfield Assessment Grant awarded by the U.S. Environmental Protection Agency (US EPA). During the course of the Area Wide Assessment, Stone reviewed pertinent historical documents, published geologic literature, Federal and State environmental databases, and Vermont Department of Environmental Conservation (VT DEC) Sites Management Section (SMS) files for known hazardous waste

sites within and immediately upgradient of the Village Center zoning district, which includes the Project Area. From this assessment, Stone developed the following findings that are germane to the Project Area:

- Rail operations occurred on portions of the Project Area for over 150 years. Due to the nature of past use, specifically the rail operations, potential contaminants of concern (COCs) within soils in the Project Area include volatile organic compounds (VOCs) associated with petroleum fuels and solvents, chlorinated solvents, pesticides, polycyclic aromatic hydrocarbons (PAHs) associated with coal and coal ash, polychlorinated biphenyls (PCBs), metals, and asbestos.
- Operation of historically-documented gasoline USTs occurred at several locations immediately upgradient of the Project Area, including the following:
 - Former Robinson's Service Station at 1 Park Street from 1929 through 1967,
 - Former Graff's Garage at 12 Park Street from 1929 through 1944,
 - Former service station operated under the names R.L. Baker and Raymond Huntley at 9 Main Street from 1922 to 1962,
 - Former Standard Oil Company at Main and Maple (currently Road Res-Q) from 1928 to present, and
 - Simons Store at 2 Park Street from 1954 to present.
- Gasoline contamination in groundwater from at least one State-listed hazardous waste site (Simon's Store, SMS #96-1961) has migrated onto the Project Area. The Project Area is also located downgradient of the Road Res-Q hazardous waste site (SMS# 96-1993), and is adjacent to a third hazardous waste site (Bushey's Sunoco; SMS#98-2430).

As a result of the above-listed findings of the Area Wide Assessment, Stone recommended that pre-construction planning for the proposed Crescent Connector consider the potential existence of surface soil contamination on the Project Area parcels. Stone further recommended additional assessment to evaluate whether the documented contamination of groundwater in the Project Area by petroleum from upgradient release(s) presents an unacceptable risk through direct contact or inhalation exposure to construction workers during the construction of the proposed Crescent Connector. The Phase II ESA documented herein was designed to evaluate the potential exposure risk to construction workers performing work in the Project Area as part of the construction of the proposed Crescent Connector, and to evaluate the possible remedial/disposal options for contaminated materials generated during Crescent Connector construction activities.

2. METHODS AND RESULTS

The overall objective of this Phase II ESA was to address select recognized environmental conditions (RECs) identified at the Project Area. Specifically, the Phase II ESA was conducted to determine if past land use within the Project Area has resulted in a release of COCs to shallow soil within the Project Area and, if present, to evaluate the potential exposure risk to construction workers and future Project Area users. An additional objective was to evaluate if special handling and management of soils will be required during the construction phase of the Crescent Connector project. Phase II ESA activities were performed in accordance with the Work Plan Memorandum dated June 10, 2013.

After evaluating the initial soil analytical results, Stone performed collected additional soil samples to further delineate areas of contaminated soils and to obtain additional data required for disposal cost estimation. The soil sampling program is documented in Sections 2.1 and Section 2.2.

To facilitate roadway and related stormwater infrastructure design, Stone also performed a geotechnical assessment including Standard Penetration Testing (SPT) at selected locations in the Project Area. Methods and results of the geotechnical assessment are provided in a memorandum attached to this report as Appendix E.

Soil analytical results were compared to the VT DEC Soil Screening Values (SSV) for residential and industrial soils, which are equivalent to US EPA Region III Regional Screening Levels (RSLs) for residential soils. The analytical results were compared to the latest version of the RSLs updated in May 2013.

2.1. Soil Boring Investigation Methods

Stone advanced 30 soil borings on June 27 and 28, 2013, along the approximately 1,400 linear-foot Project Area. Soil borings were advanced via a track-mounted Geoprobe® 7822DT drill rig to the maximum depth anticipated for the construction of the Crescent Connector (10 feet below ground surface [ft bgs]). Soil cores were collected in disposable acetate liners using a MacroCore®-5 discrete soil sampler. Borings were spaced along the proposed Crescent Connector corridor at 50-foot intervals, except in the areas inferred to be immediately downgradient of the gasoline release from Simon's Store, where the spacing was reduced to approximately 25 feet (Figure 2).

Soil cores were logged by a Stone field geologist for texture, color, moisture content, and total VOCs using a handheld photoionization detector (PID). The PID was equipped with a 10.6 electron Volt (eV) lamp and was calibrated each field day to a 100 parts-per-million by volume (ppm v/v) isobutylene standard gas. Soil samples were collected at 1.0-foot depth intervals and placed into a Ziploc polyethylene bag, leaving sufficient headspace in the bag for screening. Soil samples were allowed to equilibrate within the headspace for at least five minutes while the core was logged prior to being measured for VOCs with the PID. If PID readings exceeded 10.0 ppm v/v, a discrete soil sample was to be collected for VOC analysis by fixed-based laboratory via US EPA Method 8260. No soil samples exhibited headspace readings exceeding 10.0 ppm v/v, and as a result no soil samples were collected for laboratory VOC analysis. PID field screening results are presented on the soil boring logs in Appendix D.

To evaluate the exposure risk from COCs related to railroad operations, discrete (grab) soil samples were collected from the uppermost two feet of each soil boring. Sections of the Project Area that were subject to a 25-foot soil boring spacing were sampled for railroad COCs at every other soil boring location. Grab soil samples were collected from the 0.5-foot depth interval for odd-numbered soil boring locations and from the

2.0 foot depth interval for even-numbered soil boring locations. Samples were transported under chain of custody to National Environmental Laboratory Accreditation Program (NELAP)-accredited AMRO Environmental Laboratories Corporation (AMRO) in Merrimack, NH for analysis of PAH, PCBs, Priority Pollutant Metals, and pesticides by US EPA Methods 8270 with selective ion monitoring (SIM), 8082, 6010B, and 8081, respectively.

To assess the possible presence of asbestos-containing wastes within railway fill, four (4) composite soil samples were collected from the 0.5-foot bgs depth interval (Figure 2). Soil samples were transported under chain of custody to EMSL Analytical, Inc. (EMSL) in Cinnaminson, New Jersey for asbestos analysis by Polarized Light Microscopy (PLM) via California Air Resources Board (CARB) Method 435.

Based on analytical results of soil samples collected during the initial soil boring investigation on July 27-28, soil within select areas of the proposed alignment, specifically in the area of SB-11 (Arsenic = 264 mg/Kg, Antimony = 47 mg/Kg, Lead = 735 mg/Kg), and SB-9 (Mercury = 5.57 mg/Kg) will require disposal as hazardous waste.

To further delineate these areas of soil requiring disposal as hazardous waste, and to support the development of a Soil Management Plan, Stone collected additional soil samples on August 30th, 2013. Additional soil samples were also collected from shallow soil borings in the areas of SB-21 (Antimony= 7.3 mg/Kg, Arsenic= 22.5 mg/Kg) and SB-28 (Antimony= 19.9 mg/Kg, Arsenic= 13.4 mg/Kg). This work was approved by D&K via e-mail on August 21st, 2013.

Supplemental soil borings were advanced using a stainless-steel hand auger, which was decontaminated with water and Alconox brand phosphate-free detergent between sampling locations. The hand auger was advanced to depths between 1.1 and 2.0 ft bgs at each location. Four borings were spaced approximately 25 feet radially from initial boring locations SB-9, SB-11, and SB-21. Three borings were spaced approximately 25 feet radially from initial boring location SB-28. No supplemental boring was completed to the west of SB-28, as it would have been located within an active railway and outside of the Project Area. Supplemental soil boring locations were designated SB-34 through SB-48 and are depicted on Figure 3.

Soil cores were logged by a Stone field geologist for texture, color, moisture content, and total VOCs using a PID. The PID was equipped with a 10.6 eV lamp and was calibrated on the day of the investigation using 100 ppm isobutylene calibration gas. Soil samples were screened using the same protocol as the initial soil sampling program. One soil sample, collected from supplemental boring SB-34, exhibited a screening result above the 10 ppm v/v action level. A discrete soil sample was collected from boring SB-34 for fixed-based laboratory VOC analysis via US EPA Method 8260. Confirmatory discrete soil samples for VOC analysis were collected from three other supplemental soil borings that exhibited the highest PID reading, or, in the absence of PID response, at random by using dedicated, disposable polyethylene soil samplers. VOC samples were collected according to US EPA Method 5035. PID field screening results for each boring are presented in the soil boring logs in Appendix D. Additional sample volume was placed in sample jars from four locations, each located in the vicinity of a previously collected soil sample, and transported under chain of custody to AMRO for SVOC analysis by EPA Method 8270 with SIM.

Soil from the deepest boring depth at each supplemental soil boring location was placed in soil jars using a clean stainless steel trowel, which was decontaminated between sample locations. Samples were transported under chain of custody to AMRO for analysis of the Resource Conservation and Recovery Act (RCRA) 8 Metals by US EPA Method 6010B.

Four composite soil samples were collected by mixing equal proportions of soil from the three to four soil borings located the vicinity of the four soil borings that were targeted for further delineation. Soils were placed in approximately equal proportions in a stainless steel bowl and mixed with a clean stainless steel spoon, placed in sample jars, and shipped under chain of custody to AMRO for analysis of VOCs, SVOCs, organochlorine pesticides, herbicides, and RCRA 8 metals, all with US EPA Toxicity Characteristic Leaching Procedure (TCLP) extraction. AMRO subcontracted Phoenix Environmental Laboratories, Inc. of Manchester, Connecticut for the herbicides portion of the TCLP analysis.

2.2. Soil Boring Investigation Results

Native soils observed in the Project Area generally comprised one to two feet of fill, overlying fine-grained sands and silt to approximately six ft bgs, overlying medium to coarse sand. The uppermost portion of the fill was gravelly sand “sub-base” material, while fill containing coal and coal ash was observed in contact with the sand and silt unit. The thickness of the coal and ash layer varied from 0.3 to 1.4 feet across the Project Area and was found to be nearly ubiquitous. The coal and ash layer was not observed in soil borings SB-17 and SB-24. Stone field staff did not identify coal ash within supplemental soil borings. However, very dark sand was observed in the interval between the ground surface and 1.5 ft bgs in ten of the fifteen locations, which may indicate the presence of coal ash residue at those locations. This coal and ash layer was not observed in borings SB-36, SB-45, SB-46, SB-47, or SB-48. Observations from the supplemental soil borings are summarized in Appendix D.

Soil PAH concentrations, presented in full in Appendix B and in summary Table 2-2, below, were compared to US EPA RSLs for both residential and industrial soils. Full laboratory reports are provided in Appendix C. Toxicity equivalence concentrations, included in Table 2-1, were calculated for the seven carcinogenic PAHs. According to US EPA RSL User’s Guide:

“Toxicity equivalency factors (TEF) are used to convert concentrations of carcinogenic PAHs to an equivalent concentration of benzo(a)pyrene when assessing the cancer risks posed by these substances from oral exposures. These TEFs are based on the potency of each compound relative to that of benzo(a)pyrene.”

Table 2-1: Toxicity Equivalency Factors Used for Normalizing Carcinogenic PAHs to Benzo(a)pyrene:

Compound	Toxicity Equivalency Factor
Benzo(a)pyrene	1.0
Benz(a)anthracene	0.1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenz(a,h)anthracene	1.0
Indeno(1,2,3-c,d)pyrene	0.1

Figure 3 includes a summary of analytes detected at concentrations greater than the US EPA RSLs for residential soils. Analytical results, summarized in Table 2-2, below, indicate variable distribution of metals and PAHs across the Project Area. Out of the 29 soil samples analyzed for PAHs, reported concentrations of PAHs exceeded the US EPA RSLs for residential soils in 17 soil samples, and exceeded the RSLs for industrial soils in 13 of the soil samples. The highest concentrations of PAHs generally occurred within the shallowest soil samples (0.5 ft bgs) and corresponded to the coal and ash layer.

Soil metals concentrations, presented in full in Table B-1 of Appendix B and in summary Table 2-2, below, were compared to US EPA RSLs for both residential and industrial soils. Full laboratory reports are provided in Appendix C. Metals found in excess of the RSLs for residential soils include antimony (7 samples), arsenic (38 samples), lead (3 samples), and mercury (1 sample). Mercury, arsenic, lead, and antimony were also found in excess of the industrial RSLs.

Composite soil samples analyzed for asbestos by PLM did not contain asbestos fibers at concentrations greater than the laboratory reporting limit.

No PCBs, VOCs, or targeted TCLP analytes (SVOCs, VOCs, PCBs, metals, herbicides) were detected at concentrations greater than the laboratory detection limit. Full laboratory reports are provided in Appendix C.

2.3. Quality Control Summary

Field duplicate samples were collected at a frequency of 5% of the total number of primary samples. Two field duplicate samples were collected during the initial Phase II ESA. The duplicates, indicated by the suffix “-FD” were collected with primary samples SB-21-0.5 and SB-31-0.5. Two additional field duplicate samples were collected during the supplemental soil boring field work, with primary samples SB-38-2.0 and SB-47-2.0. Relative percent difference (RPD) values were calculated for each primary-duplicate sample pair using the following formula:

$$RPD = \frac{|C_1 - C_2|}{\frac{C_1 + C_2}{2}} \times 100$$

Where: C_1 = Concentration of a given target analyte in the Primary Sample, and
 C_2 = Concentration of a given target analyte in the Field Duplicate sample

Table B1 in Appendix B presents calculated RPDs for the primary-duplicate pairs. RPD values for SB-21 exceeded the acceptable QC limit of 50% for nearly every compound detected. The elevated RPDs may be attributed to the highly heterogeneous nature of the soils observed in the Project Area. RPDs calculated for sample SB-31, SB-38, and SB-47 were all within the acceptable limits.

Table 2-2: Soil Concentration Results, Compounds in Excess of US EPA Region III RSLs, Crescent Connector Phase II ESA

Analyte	Units	US EPA Region III										
		Regional Screening Levels		SB-1-0.5	SB-2-2.0	SB-3	SB-4	SB-5	SB-6	SB-7	SB-8	SB-9
		Residential	Industrial	(0.5 ft bgs)	(2.0 ft bgs)	(0.5 ft bgs)	(2.0 ft bgs)	(0.5 ft bgs)	(2.0 ft bgs)	(0.5 ft bgs)	(0.5 ft bgs)	(0.5 ft bgs)
Total TEC of cPAHs as B(a)P ¹	µg/Kg	15	210	106.76	857.07	5,154.6	ND	732.81	ND	478.99	ND	153.769
Antimony	mg/Kg	3.1	41	1.9	1.1	1.5	ND	6.5	ND	11.5	ND	1.4
Arsenic	mg/Kg	0.61	2.4	4.93	4.85	7.91	3.89	8.61	3.72	7.22	4.75	6.27
Lead	mg/Kg	400	800	28.7	21.9	38.9	ND	93.8	5.4	248	ND	155
Mercury	mg/Kg	1	4.3	ND	ND	ND	ND	ND	ND	ND	ND	5.57

Analyte	Units	US EPA Region III										
		Regional Screening Levels		SB-10	SB-11	SB-12	SB-15	SB-17	SB-21	SB-24	SB-25	SB-26
		Residential	Industrial	(0.5 ft bgs)	(2.0 ft bgs)	(0.5 ft bgs)	(2.0 ft bgs)	(0.5 ft bgs)	(2.0 ft bgs)	(0.5 ft bgs)	(0.5 ft bgs)	(0.5 ft bgs)
Total TEC of cPAHs as B(a)P ¹	µg/Kg	15	210	ND	3,593.3	ND	ND	1,729.2	16,837.6	5,847.4	33.425	ND
Antimony	mg/Kg	3.1	41	1.3	47	0.85	0.8	7	7.3	ND	ND	ND
Arsenic	mg/Kg	0.61	2.4	9.36	264	5.45	4.92	14.3	22.5	7.71	ND	4.45
Lead	mg/Kg	400	800	47.3	735	5.45	5.33	129	216	82.8	7.96	ND
Mercury	mg/Kg	1	4.3	0.0525	0.356	0.0543	0.0515	0.123	0.088	ND	ND	ND

		US EPA Region III Regional Screening Levels		SB-27	SB-28	SB-29	SB-30	SB-31	SB-32	SB-33	SB-34	SB-35
Analyte	Units	Residential	Industrial	(0.5 ft bgs)	(2.0 ft bgs)	(0.5 ft bgs)	(2.0 ft bgs)	(0.5 ft bgs)	(2.0 ft bgs)	(0.5 ft bgs)	(1.5 ft bgs)	(1.5 ft bgs)
Total TEC of cPAHs as B(a)P ¹	µg/Kg	15	210	19.32	1,995.8	35.743	5,585.5	ND	935.95	ND	2,859	NA
Antimony	mg/Kg	3.1	41	ND	19.9	ND	9.8	ND	ND	ND	NA	NA
Arsenic	mg/Kg	0.61	2.4	6.19	13.4	4.52	10.8	5.89	4.22	5.97	14.2	14.1
Lead	mg/Kg	400	800	8.67	251	8.43	170	8.76	8.95	8.45	663	333
Mercury	mg/Kg	1	4.3	ND	0.0863	ND	0.0614	ND	ND	ND	0.334	0.413
		US EPA Region III Regional Screening Levels		SB-36	SB-37	SB-38	SB-39	SB-40	SB-41	SB-42	SB-43	SB-44
Analyte	Units	Residential	Industrial	(2.0 ft bgs)	(2.0 ft bgs)	(2.0 ft bgs)	(1.5 ft bgs)	(1.2 ft bgs)	(1.1 ft bgs)	(1.5 ft bgs)	(1.0 ft bgs)	(1.0 ft bgs)
Total TEC of cPAHs as B(a)P ¹	µg/Kg	15	210	NA	NA	ND	NA	NA	NA	NA	NA	NA
Antimony	mg/Kg	3.1	41	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/Kg	0.61	2.4	3.6	5.28	4.57	10.3	5.16	532	14.9	13	16.2
Lead	mg/Kg	400	800	ND	ND	66.5	273	58.3	964	205	260	296
Mercury	mg/Kg	1	4.3	ND	ND	ND	0.193	ND	0.266	0.103	0.109	0.111

		US EPA Region III Regional Screening Levels					
				SB-45	SB-46	SB-47	SB-48
Analyte	Units	Residential	Industrial	(1.5 ft bgs)	(2.0 ft bgs)	(2.0 ft bgs)	(1.5 ft bgs)
Total TEC of cPAHs as B(a)P ¹	µg/Kg	15	210	596	NA	ND	NA
Antimony	mg/Kg	3.1	41	NA	NA	NA	NA
Arsenic	mg/Kg	0.61	2.4	5.53	5.83	5.23	4.72
Lead	mg/Kg	400	800	102	7.52	102	ND
Mercury	mg/Kg	1	4.3	ND	ND	ND	ND

Values in **bold** indicate analyte was detected at a concentration greater than the laboratory reporting limit.

Values with grey highlight indicate analyte was detected at a concentration in excess of the US EPA Region III Screening Level for Residential Soils.

Values with grey highlight and italicized text indicate analyte was detected at a concentration in excess of the US EPA Region III Regional Screening Level for Industrial Soils.

cPAHs: carcinogenic PAHs

mg/Kg: milligrams per kilogram

µg/Kg: micrograms per kilogram

ND: not detected

NA: not applicable, sample not analyzed for target analyte

¹ Total TEC of cPAHs as B(a)P: Total Toxicity Equivalent Concentration of carcinogenic PAHs as benzo(a)pyrene.

3. CONCEPTUAL SITE MODEL

A Conceptual Site Model (CSM) is a set of working hypotheses which describe key aspects of the problem at a site. As with any hypothesis, the CSM is not conclusive and may require testing to arrive at desired levels of certainty. A CSM includes discussions of how chemicals were released at a site, their transport pathways and fate mechanisms, as well as exposure routes for both ecological and human receptors. The CSM is based on all available information related to the Project Area. In general terms, a CSM provides the context for the Site Investigation, to ensure that investigation phases are developed to efficiently provide the information needed for making sound site management decisions.

The following is a CSM for the Project Area based on review of historic documentation of prior uses within the downtown area, existing data sets of identified hazardous waste sites within or near the Project Area, and various other sources for the physical description of the area.

3.1. Project Area Geology and Hydrogeology

According to the Surficial Geologic Map of Vermont (Doll, 1970) and other published literature, native unconsolidated soils in the Project Area are pebbly marine sand derived from a proto-delta of the Winooski River as it emptied into the marine water intrusion from the Saint Lawrence Seaway called the “Champlain Sea” following the last ice age. Deeper soils within the Project Area, based on borings performed during hazardous site investigations within the Project Area, are finer silts and clays associated with a series broad freshwater glacial lakes that preceded the marine water intrusion. Lake Vermont, as it is commonly referred to, stretched as far inland as Montpelier, Roxbury, and Williamstown. As a result of these paleo water bodies, unconsolidated materials within the Project Area consist of as much as 20 feet of sand and gravel underlain by an unknown, but likely highly variable, thickness of silt and clay. Native soils collected from borings performed during this Phase II ESA corroborate the shallower sandy deposits recorded in published literature. Non-native fill is also present at the Project Area and includes both engineered sub-base material consisting of crushed stone and gravel, as well as PAH- and metals-contaminated debris from long-running deposition of coal ash from the adjacent rail lines.

Bedrock in the vicinity of the Project Area is mapped as the Skeels Corners Slate, a laminated, black slate with thin orange dolostone beds (Doll, 1961; Ratcliffe et al., 2011). Structural geologic mapping of the area documents folding of the bedrock with axial planes dipping moderately to the north.

Surface water bodies in proximity to the Project Area include the Winooski River, located approximately 2,400 feet south of the Project Area, and Indian Brook located approximately 3,400 feet north of the Project Area.

Stormwater runoff from paved areas in the Project Area is captured by the municipal stormwater system, which discharges to local surface water bodies, including Sunderland Brook, Indian Brook, the Winooski River, and several unnamed tributaries.

Based on environmental investigation of nearby hazardous waste sites, groundwater within the Project Area is inferred to flow from the northwest to southeast at a slight gradient. Borings in the Project Area encountered saturated soil between six and seven ft bgs during the Phase II ESA..

3.2. Contaminant Distribution

Analytical results of soil samples collected during the Phase II ESA identified widespread contamination of Project Area soils with metals and PAHs. Groundwater contamination with VOCs was identified downgradient of sites adjacent to the Project Area, but not in soil samples above the water table. PCBs and asbestos were not detected in soil samples collected during the Phase II ESA.

3.2.1. PAHs

PAHs are a group of chemicals that are common byproducts of the combustion of fossil fuels, and occur naturally in fuel oil, coal, and tar. PAHs are regulated compounds in the State of Vermont, and have been identified as carcinogenic, teratogenic, and/or mutagenic compounds. PAHs do not readily dissolve into water without help from a co-solvent, and are therefore slow to migrate and degrade under natural conditions.

PAHs were identified in shallow soils across the Project Area, which were observed to contain fill material with a high proportion of coal and coal ash. Published statistical studies conducted in Massachusetts have shown that background concentrations of total carcinogenic PAHs in soils containing coal ash are typically greater than 42 µg/Kg (MassDEP, 2002). The presence of PAHs in Project Area soils may therefore be attributed to the historic railroad operations that were documented in historical sources reviewed by Stone for the Essex Junction Area Wide Assessment. Historic railroad operations reportedly included the use coal-burning locomotive engines, and the storage of coal in open areas along the rail corridor.

3.2.2. Volatile Organic Compounds

A release of gasoline from the Simons Store property, as documented by environmental investigation of this property, has migrated in groundwater to the Project Area south of Maple Street and north of the Bailey's Spring and Chassis building. Field screening and laboratory analytical results of select soil samples performed during this Phase II ESA indicate that gasoline-related VOCs are not present in shallow soils at concentrations that would pose unacceptable risk of exposure to construction workers or other Site users through direct contact or inhalation pathways.

Other non-gasoline related VOCs, such as chlorinated solvents, Freons, or ketones, were not identified in soil samples collected during the Phase II ESA.

3.2.3. Arsenic

Arsenic is a naturally occurring metal in Vermont and has a low US EPA Region III RSL (0.39 milligrams per kilogram (mg/Kg)) for residential soils; background arsenic concentrations within the Project Area likely exceed the appropriate regulatory criteria for this compound, as typical arsenic concentrations in Vermont native soils range between 2 and 10 mg/Kg. Higher concentrations of arsenic than what can be attributed to natural occurrence were observed in several samples, including one sample that contained 264 mg/Kg of arsenic (SB-11) at 0.5 ft bgs and one sample that contained 532 mg/Kg of arsenic (SB-41) at 1.1 ft bgs. The sample collected from soil boring SB-11 also contained concentrations of antimony, lead and PAHs above regulatory criteria (industrial RSLs for PAHs and antimony, residential RSL for lead). The sample collected from SB-41 also contained lead at concentrations greater than the industrial RSL. The source of these contaminants is likely related to coal ash present in the sample. Naturally-occurring metals present in coal are often concentrated in coal combustion residue (i.e. ash and slag), and concentrations of arsenic in coal ash-containing soils have been shown to exceed 16 mg/Kg (MassDEP, 2002). In addition, arsenic was commonly

used as a fortifying agent for creosote to assist in wood preservation, and arsenic-based pesticides may have either been shipped to/from the railroad or used during maintenance activities of the rail bed itself. For example, historical documents indicate that creosote-treated railroad ties were stockpiled in the Project Area.

3.2.4. Antimony

Naturally-occurring metals present in coal are often concentrated in coal combustion residue (i.e. ash and slag), and concentrations of antimony in coal ash-containing soils have been shown to exceed 7 mg/Kg (MassDEP, 2002). Antimony is alloyed with other metals such as lead to increase its hardness and strength; its primary use is in antimonial lead, which is used in grid metal for lead acid storage batteries. Other uses of antimony alloys are for solder, sheet and pipe, bearing metals, castings, and type metal. Antimony oxides (primarily antimony trioxide) are used as fire retardants for plastics, textiles, rubber, adhesives, pigments, and paper. The presence of antimony in shallow soils in the Project Area is most likely attributed to coal ash; however contributions from one or more of the other potential sources of antimony listed here cannot be ruled out.

3.2.5. Lead and Mercury

The source of both lead and mercury contamination in shallow soils are likely attributable to coal ash, as described above for arsenic and antimony. Other anthropogenic sources of lead include lead-based paint, batteries, and solder, while mercury is commonly used in fluorescent light bulbs and thermometers.

3.2.6. Pesticides and PCBs

The organo-chlorine pesticide 4,4-DDT was detected in five samples at concentrations less than the US EPA Region III RSL for residential soils. Other, less prominent pesticides detected within Project Area soils included Dieldrin, 4,4-DDE, and 4,4-DDD. Organo-chlorine pesticides were commonly used in agricultural regions between 1939 and the 1970s, and are relatively insoluble, persistent (depending on the specific compound) and have a low vapor pressure. As the potential mobility of these chemicals under natural conditions is very low, their occurrence would be limited to areas where they were directly applied or otherwise released to the environment.

Arsenic-based pesticides were widely used prior to the early 1940s, when they were replaced by DDT. A release of arsenic-based pesticide in the Project Area may also explain the presence of arsenic in near-surface soils.

PCBs were detected as Aroclor 1260 in one soil sample within the Project Area (SB-5). The reported concentration of Aroclor 1260 was less than the RSL for residential soils. Reported PCB concentrations were below laboratory reporting limits in the remaining soil samples analyzed during the Phase II ESA. Based on their limited occurrence and low concentration, PCBs do not appear to be pervasive in the Project Area.

4. CONCLUSIONS

Based on the findings of the Phase II ESA documented herein, Stone has identified the following conclusions:

4.1. PAHs in Soil

PAHs are present in shallow soils throughout most of the Project Area at concentrations greater than the US EPA Region III RSLs including:

- Seventeen locations where Total PAH TEC was greater than the residential US EPA Region III RSL;
- Twelve locations where Total PAH TEC was greater than the industrial US EPA Region III RSL; and
- The highest Total PAH TEC concentration of 16,800 mg/Kg, was detected in shallow soil collected from railroad property adjacent Maple Street.

Soil containing coal and coal ash was observed in borings advanced throughout the Project Area. The presence of PAHs in near-surface soils in the Project Area is attributed to the observed coal and coal ash.

4.2. Metals in Soil

Arsenic, antimony, lead, and mercury were detected in Project Area soils at concentrations greater than the US EPA Region III RSLs:

- Arsenic was detected in 38 of 40 soil samples collected. The presence of arsenic may be attributed to natural background levels in 27 of these samples. The eleven remaining samples contained arsenic at concentrations that cannot be confidently attributed to natural occurrence. One such sample, collected from SB-41 a location within the railroad right-of-way, exhibited 532 mg/Kg arsenic. The presence of arsenic at levels above natural background is attributed to coal and coal ash from historic railroad operations. Additional arsenic sources may include the use of arsenic fortified creosote, or the application of arsenic-based pesticides, as part of railroad operations.
- Antimony was detected in thirteen of 25 samples, including:
 - Seven samples contained antimony at concentrations greater than the residential US EPA Region III RSL.
 - Sample SB-11, a location within the railroad right of way, contained antimony at concentration greater than the industrial US EPA Region III RSL, 47 mg/Kg antimony. The most likely source of this contamination is from coal ash- and coal-containing soils.
- Lead was detected in 33 of 40 samples.
 - Sample SB-11 contained lead at a concentration greater than the residential US EPA Region III RSL (735 mg/Kg); no samples contained lead greater than the industrial US EPA Region III RSL. The most likely source of this contamination is from coal ash- and coal-containing soils.
- Mercury was detected in 13 of 40 samples.

- Sample SB-9 contained mercury at a concentration greater than both the residential and industrial US EPA Region III RSL (5.57 mg/Kg); no other samples contained lead greater than the residential US EPA Region III RSL. The most likely source of this contamination is from coal ash- and coal-containing soils.

4.3. Other Contaminants of Concern

No other COCs were detected at concentrations greater than residential US EPA Region III RSLs.

5. RECOMMENDATIONS

Based on the findings of this Phase II ESA and the proposed construction of the Crescent Connector, Stone recommends the following:

- 6) As a function of this Phase II ESA, evidence of past release of contaminants to the environment was identified in the Project Area. In accordance with Vermont Statute 10 V.S.A. Chapter 159 Section 6617, "Any person who has knowledge of a release or a suspected release and who may be subject to liability for a release, as detailed in section 6615 (e.g. owners or operators of a facility), shall immediately notify the Agency."
- 7) In accordance with 29 CFR 1910.120, construction workers engaged in activities where they are exposed or potentially exposed to hazardous substances are required to have Hazardous Waste Operations and Emergency Response (HAZWOPER) training.
- 8) Construction of the roadway will require the removal of up to two feet of existing soil, to be replaced by imported sub-base material. Any native soils removed from the Project Area will need to be managed according to their waste profile.
 - a. Based on our current understanding of the distribution of metals in soil within the area of the proposed alignment, select areas, specifically in the area of SB-11 (Arsenic = 264 mg/Kg, Antimony = 47 mg/Kg, Lead = 735 mg/Kg), SB-9 (Mercury = 5.57 mg/Kg) and SG-41 (Arsenic= 532 mg/Kg) will require management and disposal as hazardous waste in accordance with all applicable Federal, State, and local laws.
- 9) A Corrective Action Plan should be developed prior to construction. As part of the Corrective Action Plan, a Soil Management Plan, including calculation of volumes for disposal, transportation options, and associated costs, as well as ongoing requirements for maintenance of infrastructure should be developed. Stone recommends the Corrective Action Plan/Soil Management Plan be developed in advance of construction activities to reduce costly delays that may be encountered during construction.
- 10) To date, potential impacts to groundwater from COCs identified during this Phase II ESA have not been assessed.

6. REFERENCES

Dole, Charles G., 1960, *Centennial Geologic Map of Vermont*, Vermont State Geological Survey

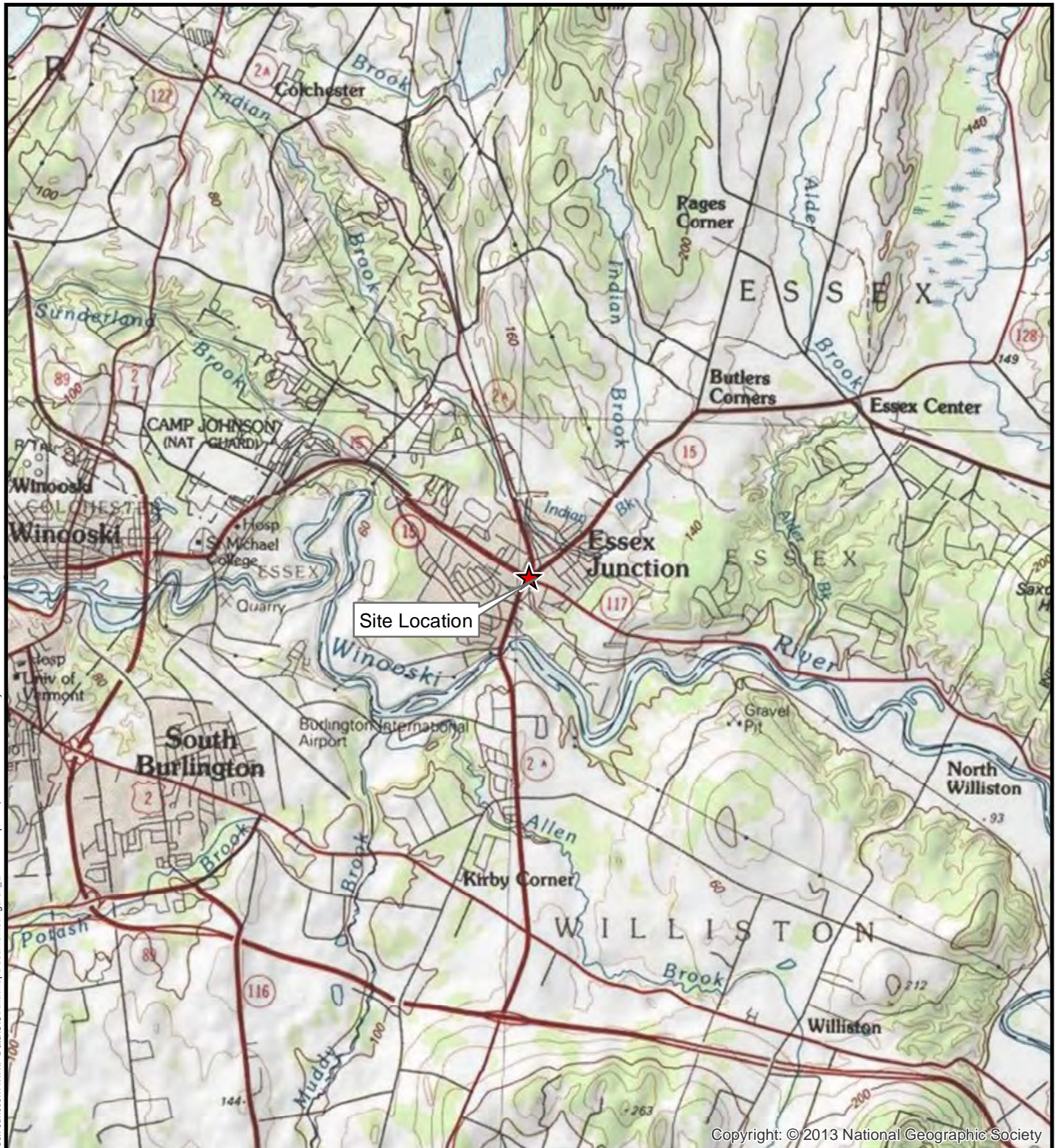
Ratcliffe, N.M., Stanley, R.S., Gale, M.H., Thompson, P.J., and Walsh, G.J., 2011, *Bedrock Geologic Map of Vermont*, U.S. Geological Survey Scientific Investigations Map 3184, 3 sheets, scale 1:100,000.

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Massachusetts Department of Environmental Protection, 2002. *Technical Update, Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil*, Office of Research and Standards, May 2002.

APPENDICES

APPENDIX A: FIGURES



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★ Village Center

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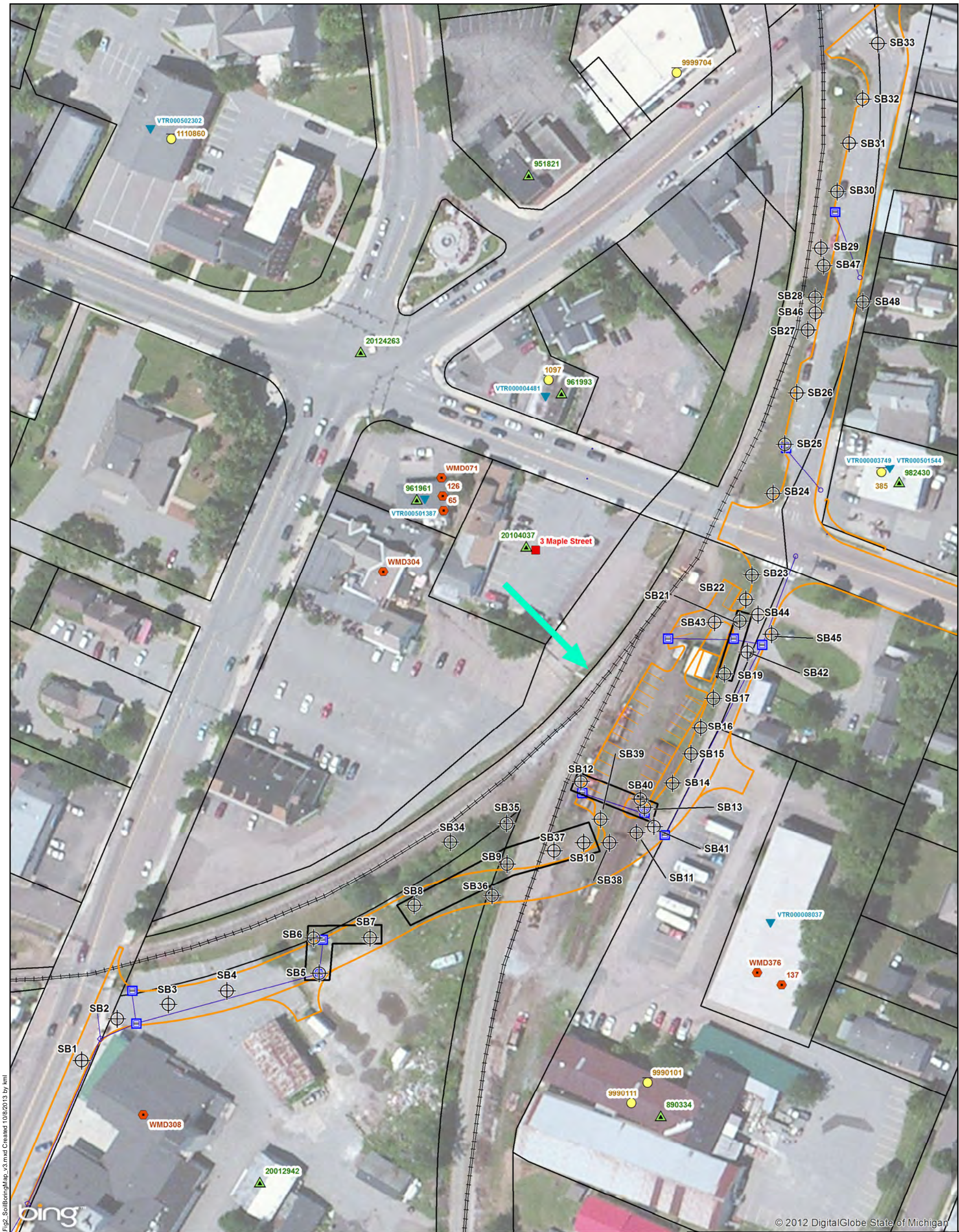


Sources: ESRI: US Topo Map

Location Map

**Crescent Connector
Phase II ESA
Essex Junction, Vermont
Prepared for Dubois & King, Inc.**

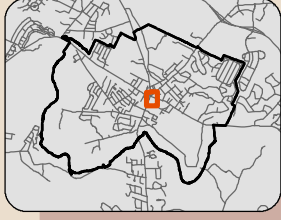
 **STONE ENVIRONMENTAL INC**



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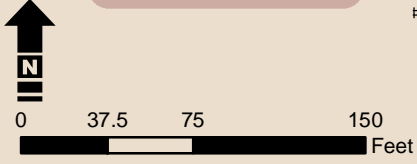
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- ⊕ Soil Boring Location
- ▭ Composite Asbestos Sample
- ▭ Proposed Catch Basins
- Proposed Drain Lines
- Presumed Groundwater Flow Direction
- Proposed Crescent Connector Corridor
- Existing Railroad
- ▭ Assessor's Parcel Boundaries (2011)

- VT DEC Listed UST Facility
- ▲ VT Hazardous Waste Site
- VT Brownfields
- ▼ VT Hazardous Waste Generators
- VT DEC Registered Spills



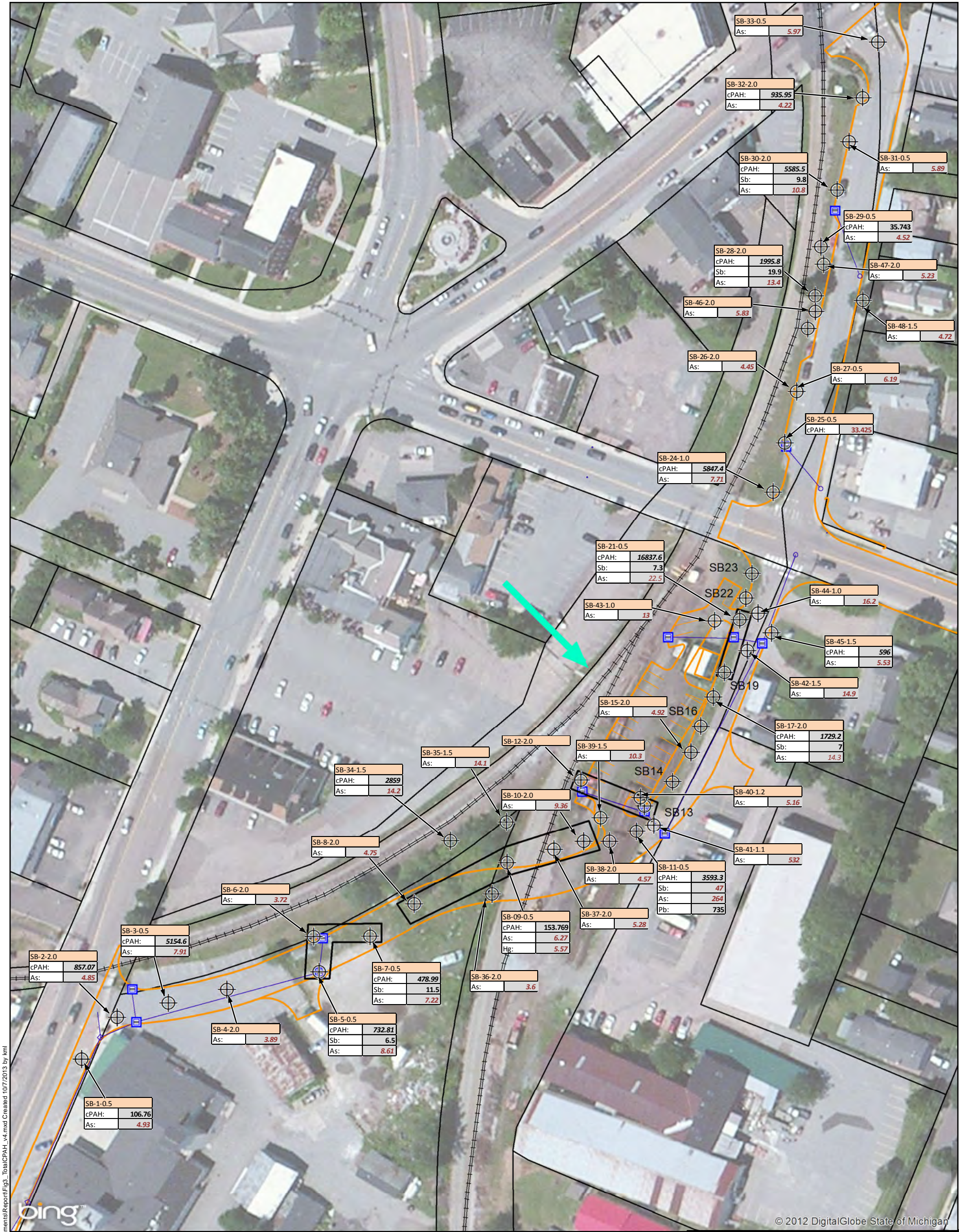
Sources: Stone Environmental: Soil Borings (2013); AMRO soil analytical data (2013) ANR: UST Facilities (2012), Hazardous Waste Sites (2012), Brownfields (2012), Hazardous Waste Generators (2012), Spills (2012); CCMPO: Crescent Connector (2011); CCRPC: Village Center (2011); VCGI: Railroads (2003); ESRI: Bing Imagery (2010)

Soil Boring Locations

**Crescent Connector
Phase II ESA
Essex Junction, Vermont
Prepared for Dubois & King, Inc.**

STONE ENVIRONMENTAL INC

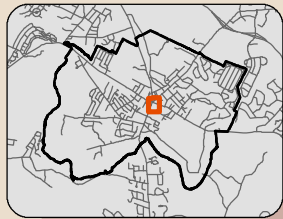
FIGURE 2



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- Soil Boring Location
- Composite Asbestos Sample
- Proposed Catch Basins
- Proposed Drain Lines
- Presumed Groundwater Flow Direction
- Proposed Crescent Connector Corridor
- Existing Railroad
- Assessor's Parcel Boundaries (2011)

1) Concentration units for cPAHs are in ug/Kg; Metals are reported in mg/Kg.

2) Only concentrations greater than the US EPA Regional Screening Level for Residential Soils are shown. Values in red text are also greater than the RSL for industrial soils.

3) cPAH: Total carcinogenic polycyclic aromatic hydrocarbon toxicity equivalence concentration relative to benzo(a)pyrene.

Compounds Detected in Exceedance in Soil

**Crescent Connector
Phase II ESA
Essex Junction, Vermont
Prepared for Dubois & King, Inc.**



STONE ENVIRONMENTAL INC

Sources: Stone Environmental: Soil Borings (2013); AMRO soil analytical data (2013) ANR: UST Facilities (2012), Hazardous Waste Sites (2012), Brownfields (2012), Hazardous Waste Generators (2012), Spills (2012); CCMPO: Crescent Connector (2011); CCRPC: Village Center (2011); VCGI: Railroads (2003); ESRI: Bing Imagery (2010)

APPENDIX B: TABLES

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-1-0.5		AMR-SB-2-2.0		AMR-SB-3-0.5		AMR-SB-4-2.0		AMR-SB-5-0.5		AMR-SB-6-2.0	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q
Polycyclic Aromatic Hydrocarbons															
2-Methylnaphthalene	µg/Kg	23000	220000	470		230		1300		10 U		420		11 U	
Acenaphthene	µg/Kg	340000	3300000	11 U		19		54		10 U		11 U		11 U	
Acenaphthylene	µg/Kg	NS	NS	12		210		760		10 U		61		11 U	
Anthracene	µg/Kg	1700000	17000000	20		150		670		10 U		67		11 U	
Benz(a)anthracene	µg/Kg	150	2100	76		520		2800		10 U		370		11 U	
Benzo(a)pyrene	µg/Kg	15	210	65		530		3300		10 U		460		11 U	
Benzo(b)fluoranthene	µg/Kg	150	2100	71		610		3600		10 U		510		11 U	
Benzo(g,h,i)perylene	µg/Kg	NS	NS	47		410		2400		10 U		340		11 U	
Benzo(k)fluoranthene	µg/Kg	1500	21000	45		540		3100		10 U		330		11 U	
Chrysene	µg/Kg	15000	210000	110		670		3600		10 U		510		11 U	
Dibenz(a,h)anthracene	µg/Kg	15	210	23		170		950		10 U		150		11 U	
Fluoranthene	µg/Kg	230000	2200000	100		880		5100		10 U		340		11 U	
Fluorene	µg/Kg	230000	2200000	11 U		16		81		10 U		12		11 U	
Indeno(1,2,3-cd)pyrene	µg/Kg	150	2100	35		380		2300		10 U		310		11 U	
Naphthalene	µg/Kg	3600	18000	290		200		980		10 U		340		11 U	
Phenanthrene	µg/Kg	NS	NS	280		390		1900		10 U		350		11 U	
Pyrene	µg/Kg	170000	1700000	110		900		4900		10 U		420		11 U	
Total CPAH Equivalent Toxicity as Benzo(a)pyrene	µg/Kg			107		857		5155		23		733		25	
Herbicides															
4,4'-DDD	µg/Kg	2000	7200	1.7 U		1.7 U		1.8 U		1.7 U		1.7 U		1.8 U	
4,4'-DDE	µg/Kg	1400	5100	1.7 U		1.7 U		1.8 U		1.7 U		1.7 U		1.8 U	
4,4'-DDT	µg/Kg	1700	7000	1.7 U		3.6		1.8 U		1.7 U		7.6		1.8 U	
Aldrin	µg/Kg	29	100	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
alpha-BHC	µg/Kg	77	270	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
alpha-Chlordane	µg/Kg	NS	NS	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
beta-BHC	µg/Kg	270	960	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
delta-BHC	µg/Kg	NS	NS	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
Dieldrin	µg/Kg	30	110	1.7 U		1.7 U		15		1.7 U		1.7 U		1.8 U	
Endosulfan I	µg/Kg	NS	NS	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
Endosulfan II	µg/Kg	NS	NS	1.7 U		1.7 U		1.8 U		1.7 U		1.7 U		1.8 U	
Endosulfan sulfate	µg/Kg	NS	NS	1.7 U		1.7 U		1.8 U		1.7 U		1.7 U		1.8 U	
Endrin	µg/Kg	1800	18000	1.7 U		1.7 U		1.8 U		1.7 U		1.7 U		1.8 U	
Endrin aldehyde	µg/Kg	NS	NS	1.7 U		1.7 U		1.8 U		1.7 U		1.7 U		1.8 U	
Endrin ketone	µg/Kg	NS	NS	1.7 U		1.7 U		1.8 U		1.7 U		1.7 U		1.8 U	
gamma-BHC	µg/Kg	520	2100	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
gamma-Chlordane	µg/Kg	NS	NS	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
Heptachlor	µg/Kg	110	380	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
Heptachlor epoxide	µg/Kg	53	190	0.85 U		0.84 U		0.92 U		0.85 U		0.87 U		0.89 U	
Methoxychlor	µg/Kg	31000	310000	8.5 U		8.4 U		9.2 U		8.5 U		8.7 U		8.9 U	
Technical Chlordane	µg/Kg	NS	NS	26 U		26 U		29 U		27 U		27 U		28 U	
Toxaphene	µg/Kg	440	1600	26 U		26 U		29 U		27 U		27 U		28 U	

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-1-0.5		AMR-SB-2-2.0		AMR-SB-3-0.5		AMR-SB-4-2.0		AMR-SB-5-0.5		AMR-SB-6-2.0	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q
Polychlorinated Biphenyls (as Aroclors)															
Aroclor 1016	µg/Kg	390	3700	26 U	26 U	29 U	27 U	27 U	28 U						
Aroclor 1221	µg/Kg	140	540	26 U	26 U	29 U	27 U	27 U	28 U						
Aroclor 1232	µg/Kg	140	540	26 U	26 U	29 U	27 U	27 U	28 U						
Aroclor 1242	µg/Kg	220	740	26 U	26 U	29 U	27 U	27 U	28 U						
Aroclor 1248	µg/Kg	220	740	26 U	26 U	29 U	27 U	27 U	28 U						
Aroclor 1254	µg/Kg	110	740	26 U	26 U	29 U	27 U	27 U	28 U						
Aroclor 1260	µg/Kg	220	740	26 U	26 U	29 U	27 U	38	28 U						
Aroclor 1262	µg/Kg	NE	NE	26 U	26 U	29 U	27 U	27 U	28 U						
Aroclor 1268	µg/Kg	NE	NE	26 U	26 U	29 U	27 U	27 U	28 U						
Metals															
Antimony	mg/Kg	3.1	41	1.9	1.1	1.5	0.79 U	6.5	0.84 U						
Arsenic	mg/Kg	0.61	2.4	4.93	4.85	7.91	3.89	8.61	3.72						
Beryllium	mg/Kg	16	200	0.326 U	0.322 U	0.356	0.317 U	0.416	0.338 U						
Cadmium	mg/Kg	7	80	0.652 U	0.644 U	0.694 U	0.635 U	0.67 U	0.676 U						
Chromium	mg/Kg	NS	NS	10.8	13.8	9.33	10.4	11.5	12.9						
Copper	mg/Kg	310	4100	15.3	43	22.4	6.72	27.5	8.37						
Lead	mg/Kg	400	800	28.7	21.9	38.9	5.07 U	93.8	5.4 U						
Mercury	mg/Kg	1	4.3	0.0522 U	0.0518 U	0.0547 U	0.0494 U	0.0547 U	0.0538 U						
Nickel	mg/Kg	150	2000	15.9	23.3	13.5	13.4	11	13.9						
Selenium	mg/Kg	39	510	1.3 U	1.3 U	1.4 U	1.3 U	1.3 U	1.4 U						
Silver	mg/Kg	39	510	1.83 U	1.8 U	1.95 U	1.77 U	1.87 U	1.89 U						
Thallium	mg/Kg	0.078	1	1.3 U, PS	1.3 U, PS	1.4 U, PS	1.3 U, PS	1.3 U, PS	1.4 U, PS						
Zinc	mg/Kg	2300	31000	38.2	54.3	37.9	30.1	35	32.9						

Values in bold indicate compound was detected at a concentration greater than the laboratory reporting limit.

Values in grey highlight indicate concentration is greater than the US EPA RSL for Residential Soils.

Values in italicized text indicates concentrations are greater than the US EPA RSL for industrial soils.

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-7-0.5		AMR-SB-8-2.0		AMR-SB-09-0.5		AMR-SB-10-2.0		AMR-SB-11-0.5		AMR-SB-12-2.0	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q
Polycyclic Aromatic Hydrocarbons															
2-Methylnaphthalene	µg/Kg	23000	220000	1400		11	U	16		11	U	970		18	
Acenaphthene	µg/Kg	340000	3300000	11	U	11	U	11	U	11	U	53		11	U
Acenaphthylene	µg/Kg	NS	NS	77		11	U	11	U	11	U	1400		11	U
Anthracene	µg/Kg	1700000	17000000	88		11	U	17		11	U	800		11	U
Benz(a)anthracene	µg/Kg	150	2100	270		11	U	86		11	U	1700		11	U
Benzo(a)pyrene	µg/Kg	15	210	280		11	U	100		11	U	1600		11	U
Benzo(b)fluoranthene	µg/Kg	150	2100	390		11	U	100		11	U	4200		11	U
Benzo(g,h,i)perylene	µg/Kg	NS	NS	230		11	U	76		11	U	2700		11	U
Benzo(k)fluoranthene	µg/Kg	1500	21000	250		11	U	87		11	U	3000		11	U
Chrysene	µg/Kg	15000	210000	490		11	U	99		11	U	3300		11	U
Dibenz(a,h)anthracene	µg/Kg	15	210	110		11	U	27		11	U	1100		11	U
Fluoranthene	µg/Kg	230000	2200000	490		11	U	170		11	U	2300		11	U
Fluorene	µg/Kg	230000	2200000	21		11	U	11	U	11	U	47		11	U
Indeno(1,2,3-cd)pyrene	µg/Kg	150	2100	200		11	U	72		11	U	2700		11	U
Naphthalene	µg/Kg	3600	18000	1200		11	U	14		11	U	1000		16	
Phenanthrene	µg/Kg	NS	NS	930		11	U	75		11	U	900		11	U
Pyrene	µg/Kg	170000	1700000	480		11	U	170		11	U	2000		11	U
Total CPAH Equivalent Toxicity as Benzo(a)pyrene	µg/Kg			479		25		154		25		3593		25	
Herbicides															
4,4'-DDD	µg/Kg	2000	7200	1.8	U	1.7	U	1.7	U	1.7	U	2	U	1.8	U
4,4'-DDE	µg/Kg	1400	5100	1.8	U	1.7	U	1.7	U	1.7	U	2	U	1.8	U
4,4'-DDT	µg/Kg	1700	7000	11		1.7	U	1.7	U	1.7	U	7.1		1.8	U
Aldrin	µg/Kg	29	100	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
alpha-BHC	µg/Kg	77	270	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
alpha-Chlordane	µg/Kg	NS	NS	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
beta-BHC	µg/Kg	270	960	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
delta-BHC	µg/Kg	NS	NS	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
Dieldrin	µg/Kg	30	110	1.8	U	1.7	U	1.7	U	1.7	U	11		1.8	U
Endosulfan I	µg/Kg	NS	NS	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
Endosulfan II	µg/Kg	NS	NS	1.8	U	1.7	U	1.7	U	1.7	U	2	U	1.8	U
Endosulfan sulfate	µg/Kg	NS	NS	1.8	U	1.7	U	1.7	U	1.7	U	2	U	1.8	U
Endrin	µg/Kg	1800	18000	1.8	U	1.7	U	1.7	U	1.7	U	2	U	1.8	U
Endrin aldehyde	µg/Kg	NS	NS	1.8	U	1.7	U	1.7	U	1.7	U	2	U	1.8	U
Endrin ketone	µg/Kg	NS	NS	1.8	U	1.7	U	1.7	U	1.7	U	2	U	1.8	U
gamma-BHC	µg/Kg	520	2100	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
gamma-Chlordane	µg/Kg	NS	NS	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
Heptachlor	µg/Kg	110	380	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
Heptachlor epoxide	µg/Kg	53	190	0.92	U	0.86	U	0.86	U	0.87	U	0.98	U	0.92	U
Methoxychlor	µg/Kg	31000	310000	9.2	U	8.6	U	8.6	U	8.7	U	9.8	U	9.2	U
Technical Chlordane	µg/Kg	NS	NS	29	U	27	U	27	U	27	U	31	U	29	U
Toxaphene	µg/Kg	440	1600	29	U	27	U	27	U	27	U	31	U	29	U

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-7-0.5		AMR-SB-8-2.0		AMR-SB-09-0.5		AMR-SB-10-2.0		AMR-SB-11-0.5		AMR-SB-12-2.0	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q
Polychlorinated Biphenyls (as Aroclors)															
Aroclor 1016	µg/Kg	390	3700	29	U	27	U	27	U	27	U	31	U	29	U
Aroclor 1221	µg/Kg	140	540	29	U	27	U	27	U	27	U	31	U	29	U
Aroclor 1232	µg/Kg	140	540	29	U	27	U	27	U	27	U	31	U	29	U
Aroclor 1242	µg/Kg	220	740	29	U	27	U	27	U	27	U	31	U	29	U
Aroclor 1248	µg/Kg	220	740	29	U	27	U	27	U	27	U	31	U	29	U
Aroclor 1254	µg/Kg	110	740	29	U	27	U	27	U	27	U	31	U	29	U
Aroclor 1260	µg/Kg	220	740	29	U	27	U	27	U	27	U	31	U	29	U
Aroclor 1262	µg/Kg	NE	NE	29	U	27	U	27	U	27	U	31	U	29	U
Aroclor 1268	µg/Kg	NE	NE	29	U	27	U	27	U	27	U	31	U	29	U
Metals															
Antimony	mg/Kg	3.1	41	11.5		0.84	U	1.4		1.3		47		0.85	U
Arsenic	mg/Kg	0.61	2.4	7.22		4.75		6.27		9.36		264		5.45	U
Beryllium	mg/Kg	16	200	0.421		0.336	U	0.311	U	0.336	U	0.585		0.341	U
Cadmium	mg/Kg	7	80	0.698	U	0.672	U	0.622	U	0.672	U	0.768	U	0.88	
Chromium	mg/Kg	NS	NS	12.3		11.4		11		13.6		18.1		15.4	
Copper	mg/Kg	310	4100	59.6		8.54		42		51.7		157		10.6	
Lead	mg/Kg	400	800	248		5.38	U	155		47.3		735		5.45	U
Mercury	mg/Kg	1	4.3	0.0542	U	0.0533	U	5.57		0.0525	U	0.356		0.0543	U
Nickel	mg/Kg	150	2000	10.8		16.8		12.7		14.3		17.5		21	
Selenium	mg/Kg	39	510	5.6	U	1.3	U	1.2	U	1.3	U	2.6		1.4	U
Silver	mg/Kg	39	510	1.95	U	1.88	U	1.74	U	1.88	U	2.15	U	1.91	U
Thallium	mg/Kg	0.078	1	1.4	U, PS	1.3	U, PS	1.2	U, PS	1.3	U, PS	1.5	U, PS	1.4	U, PS
Zinc	mg/Kg	2300	31000	33.7		23.9		98.2		31.3		38		101	

Values in bold indicate compound was detected at a concentration greater than the laboratory reporting limit.

Values in grey highlight indicate concentration is greater than the US EPA RSL for Residential Soils.

Values in italicized text indicates concentrations are greater than the US EPA RSL for industrial soils.

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-15-2.0		AMR-SB-17-2.0		AMR-SB-21-0.5		AMR-SB-21-0.5 FD		RPD	AMR-SB-24-1.0		AMR-SB-25-0.5	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q		Value	Q	Value	Q
Polycyclic Aromatic Hydrocarbons																
2-Methylnaphthalene	µg/Kg	23000	220000	11	U	130		320		61		136.0	52		10	U
Acenaphthene	µg/Kg	340000	3300000	11	U	38		170		54	U	NA	54		10	U
Acenaphthylene	µg/Kg	NS	NS	11	U	390		5000		580		158.4	900		10	U
Anthracene	µg/Kg	1700000	17000000	11	U	350		2100		340		144.3	590		10	U
Benz(a)anthracene	µg/Kg	150	2100	11	U	810		6400		660		162.6	3100		26	
Benzo(a)pyrene	µg/Kg	15	210	11	U	1100		11000		1000		166.7	3900		22	
Benzo(b)fluoranthene	µg/Kg	150	2100	11	U	1300		11000		1100		163.6	3500		22	
Benzo(g,h,i)perylene	µg/Kg	NS	NS	11	U	840		9500		1100		158.5	2700		14	
Benzo(k)fluoranthene	µg/Kg	1500	21000	11	U	910		7900		770		164.5	3400		20	
Chrysene	µg/Kg	15000	210000	11	U	1100		8600		950		160.2	3400		25	
Dibenz(a,h)anthracene	µg/Kg	15	210	11	U	330		3200		370		158.5	1000		10	U
Fluoranthene	µg/Kg	230000	2200000	11	U	1700		14000		1300		166.0	6200		39	
Fluorene	µg/Kg	230000	2200000	11	U	46		190		54	U	NA	100		10	U
Indeno(1,2,3-cd)pyrene	µg/Kg	150	2100	11	U	780		8100		860		161.6	2500		14	
Naphthalene	µg/Kg	3600	18000	11	U	110		520		67		154.3	140		10	U
Phenanthrene	µg/Kg	NS	NS	11	U	830		4700		460		164.3	1700		10	U
Pyrene	µg/Kg	170000	1700000	11	U	1600		14000		1500		161.3	5700		35	
Total CPAH Equivalent Toxicity as Benzo(a)pyrene	µg/Kg			25		1729		16838		1641		164.5	5847		33	
Herbicides																
4,4'-DDD	µg/Kg	2000	7200	1.8	U	3.4		12		17	U	NA	3		1.7	U
4,4'-DDE	µg/Kg	1400	5100	1.8	U	6.5		1.8	U	17	U	NA	2.2	U	1.7	U
4,4'-DDT	µg/Kg	1700	7000	3.3		28		15		30		66.7	9.9		1.7	U
Aldrin	µg/Kg	29	100	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
alpha-BHC	µg/Kg	77	270	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
alpha-Chlordane	µg/Kg	NS	NS	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
beta-BHC	µg/Kg	270	960	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
delta-BHC	µg/Kg	NS	NS	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
Dieldrin	µg/Kg	30	110	1.8	U	1.9	U	17		17	U	NA	5.6		1.7	U
Endosulfan I	µg/Kg	NS	NS	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
Endosulfan II	µg/Kg	NS	NS	1.8	U	1.9	U	1.8	U	17	U	NA	2.2	U	1.7	U
Endosulfan sulfate	µg/Kg	NS	NS	1.8	U	1.9	U	1.8	U	17	U	NA	2.2	U	1.7	U
Endrin	µg/Kg	1800	18000	1.8	U	1.9	U	1.8	U	17	U	NA	2.2	U	1.7	U
Endrin aldehyde	µg/Kg	NS	NS	1.8	U	1.9	U	1.8	U	17	U	NA	2.2	U	1.7	U
Endrin ketone	µg/Kg	NS	NS	1.8	U	1.9	U	1.8	U	17	U	NA	2.2	U	1.7	U
gamma-BHC	µg/Kg	520	2100	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
gamma-Chlordane	µg/Kg	NS	NS	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
Heptachlor	µg/Kg	110	380	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
Heptachlor epoxide	µg/Kg	53	190	0.88	U	0.95	U	0.91	U	8.7	U	NA	1.1	U	0.84	U
Methoxychlor	µg/Kg	31000	310000	8.8	U	9.5	U	9.1	U	87	U	NA	11	U	8.4	U
Technical Chlordane	µg/Kg	NS	NS	28	U	30	U	29	U	270	U	NA	35	U	26	U
Toxaphene	µg/Kg	440	1600	28	U	30	U	29	U	270	U	NA	35	U	26	U

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-15-2.0		AMR-SB-17-2.0		AMR-SB-21-0.5		AMR-SB-21-0.5 FD		RPD	AMR-SB-24-1.0		AMR-SB-25-0.5	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q		Value	Q	Value	Q
Polychlorinated Biphenyls (as Aroclors)																
Aroclor 1016	µg/Kg	390	3700	28	U	30	U	29	U	270	U	NA	35	U	26	U
Aroclor 1221	µg/Kg	140	540	28	U	30	U	29	U	270	U	NA	35	U	26	U
Aroclor 1232	µg/Kg	140	540	28	U	30	U	29	U	270	U	NA	35	U	26	U
Aroclor 1242	µg/Kg	220	740	28	U	30	U	29	U	270	U	NA	35	U	26	U
Aroclor 1248	µg/Kg	220	740	28	U	30	U	29	U	270	U	NA	35	U	26	U
Aroclor 1254	µg/Kg	110	740	28	U	30	U	29	U	270	U	NA	35	U	26	U
Aroclor 1260	µg/Kg	220	740	28	U	30	U	29	U	270	U	NA	35	U	26	U
Aroclor 1262	µg/Kg	NE	NE	28	U	30	U	29	U	270	U	NA	35	U	26	U
Aroclor 1268	µg/Kg	NE	NE	28	U	30	U	29	U	270	U	NA	35	U	26	U
Metals																
Antimony	mg/Kg	3.1	41	0.8	U	7		7.3		11		40.4	1.1	U	0.79	U
Arsenic	mg/Kg	0.61	2.4	4.92		14.3	MSA	22.5	MSA	4.02		139.4	7.71		5.03	U
Beryllium	mg/Kg	16	200	0.32	U	0.411		0.542		0.337	U	NA	0.429	U	0.314	U
Cadmium	mg/Kg	7	80	0.642	U	0.761	U	0.799		0.673	U	NA	0.858	U	0.629	U
Chromium	mg/Kg	NS	NS	14.8		24.6		19.1		12.4		42.5	19.3		8.5	
Copper	mg/Kg	310	4100	11		50.7		82.1		30.9		90.6	29.6		21.2	
Lead	mg/Kg	400	800	5.33		129		216		117		59.5	82.8		7.96	
Mercury	mg/Kg	1	4.3	0.0515	U	0.123		0.088		0.066		28.6	0.0665	U	0.0498	U
Nickel	mg/Kg	150	2000	14.7		21.2		24.1		9.73		85.0	24.2		14.2	
Selenium	mg/Kg	39	510	1.3	U	1.5	U, MS,	1.4		1.3	U	7.4	1.7	U	1.3	U
Silver	mg/Kg	39	510	1.8	U	2.13	U	1.9	U	1.89	U	NA	2.41	U	1.76	U
Thallium	mg/Kg	0.078	1	1.3	U, PS	1.5	U, PS	1.4	U, PS	1.3	U, PS	NA	1.7	U, PS	1.3	U, PS
Zinc	mg/Kg	2300	31000	28.4		113		120		47.9		85.9	68		44.9	

Values in bold indicate compound was detected at a concentration greater than the laboratory reporting limit.

Values in grey highlight indicate concentration is greater than the US EPA RSL for Residential Soils.

Values in italicized text indicates concentrations are greater than the US EPA RSL for industrial soils.

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-26-2.0		AMR-SB-27-0.5		AMR-SB-28-2.0		AMR-SB-29-0.5		AMR-SB-30-2.0		AMR-SB-31-0.5	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q
Polycyclic Aromatic Hydrocarbons															
2-Methylnaphthalene	µg/Kg	23000	220000	10 U		10 U		740		12 U		52		10 U	
Acenaphthene	µg/Kg	340000	3300000	10 U		10 U		49		12 U		51		10 U	
Acenaphthylene	µg/Kg	NS	NS	10 U		10 U		770		12 U		940		11	
Anthracene	µg/Kg	1700000	17000000	10 U		10 U		510		12 U		520		10 U	
Benz(a)anthracene	µg/Kg	150	2100	10 U		10 U		1100		17		3200		11	
Benzo(a)pyrene	µg/Kg	15	210	10 U		12		1100		23		3700		14	
Benzo(b)fluoranthene	µg/Kg	150	2100	10 U		12		1900		28		3400		15	
Benzo(g,h,i)perylene	µg/Kg	NS	NS	10 U		10 U		950		23		2500		13	
Benzo(k)fluoranthene	µg/Kg	1500	21000	10 U		11		1400		22		3200		10 U	
Chrysene	µg/Kg	15000	210000	10 U		10		1800		23		3500		21	
Dibenz(a,h)anthracene	µg/Kg	15	210	10 U		10 U		470		12 U		960		10 U	
Fluoranthene	µg/Kg	230000	2200000	10 U		14		2000		35		5500		15	
Fluorene	µg/Kg	230000	2200000	10 U		10 U		55		12 U		60		10 U	
Indeno(1,2,3-cd)pyrene	µg/Kg	150	2100	10 U		10 U		1100		20		2300		10 U	
Naphthalene	µg/Kg	3600	18000	10 U		10 U		710		12 U		81		10 U	
Phenanthrene	µg/Kg	NS	NS	10 U		10 U		1400		12 U		1300		10 U	
Pyrene	µg/Kg	170000	1700000	10 U		14		1700		31		5200		17	
Total CPAH Equivalent Toxicity as Benzo(a)pyrene	µg/Kg			23 U		19		1996		36		5586		22	
Herbicides															
4,4'-DDD	µg/Kg	2000	7200	1.7 U		1.7 U		1.8 U		1.9 U		12		1.7 U	
4,4'-DDE	µg/Kg	1400	5100	1.7 U		1.7 U		1.8 U		1.9 U		1.8 U		1.7 U	
4,4'-DDT	µg/Kg	1700	7000	1.7 U		1.7 U		1.8 U		1.9 U		41		1.7 U	
Aldrin	µg/Kg	29	100	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
alpha-BHC	µg/Kg	77	270	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
alpha-Chlordane	µg/Kg	NS	NS	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
beta-BHC	µg/Kg	270	960	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
delta-BHC	µg/Kg	NS	NS	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
Dieldrin	µg/Kg	30	110	1.7 U		1.7 U		1.8 U		1.9 U		13		1.7 U	
Endosulfan I	µg/Kg	NS	NS	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
Endosulfan II	µg/Kg	NS	NS	1.7 U		1.7 U		1.8 U		1.9 U		1.8 U		1.7 U	
Endosulfan sulfate	µg/Kg	NS	NS	1.7 U		1.7 U		1.8 U		1.9 U		1.8 U		1.7 U	
Endrin	µg/Kg	1800	18000	1.7 U		1.7 U		1.8 U		1.9 U		1.8 U		1.7 U	
Endrin aldehyde	µg/Kg	NS	NS	1.7 U		1.7 U		1.8 U		1.9 U		1.8 U		1.7 U	
Endrin ketone	µg/Kg	NS	NS	1.7 U		1.7 U		1.8 U		1.9 U		1.8 U		1.7 U	
gamma-BHC	µg/Kg	520	2100	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
gamma-Chlordane	µg/Kg	NS	NS	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
Heptachlor	µg/Kg	110	380	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
Heptachlor epoxide	µg/Kg	53	190	0.83 U		0.86 U		0.92 U		0.94 U		0.89 U		0.84 U	
Methoxychlor	µg/Kg	31000	310000	8.3 U		8.6 U		9.2 U		9.4 U		8.9 U		8.4 U	
Technical Chlordane	µg/Kg	NS	NS	26 U		27 U		29 U		29 U		28 U		26 U	
Toxaphene	µg/Kg	440	1600	26 U		27 U		29 U		29 U		28 U		26 U	

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-26-2.0		AMR-SB-27-0.5		AMR-SB-28-2.0		AMR-SB-29-0.5		AMR-SB-30-2.0		AMR-SB-31-0.5	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q
Polychlorinated Biphenyls (as Aroclors)															
Aroclor 1016	µg/Kg	390	3700	26	U	27	U	29	U	29	U	28	U	26	U
Aroclor 1221	µg/Kg	140	540	26	U	27	U	29	U	29	U	28	U	26	U
Aroclor 1232	µg/Kg	140	540	26	U	27	U	29	U	29	U	28	U	26	U
Aroclor 1242	µg/Kg	220	740	26	U	27	U	29	U	29	U	28	U	26	U
Aroclor 1248	µg/Kg	220	740	26	U	27	U	29	U	29	U	28	U	26	U
Aroclor 1254	µg/Kg	110	740	26	U	27	U	29	U	29	U	28	U	26	U
Aroclor 1260	µg/Kg	220	740	26	U	27	U	29	U	29	U	28	U	26	U
Aroclor 1262	µg/Kg	NE	NE	26	U	27	U	29	U	29	U	28	U	26	U
Aroclor 1268	µg/Kg	NE	NE	26	U	27	U	29	U	29	U	28	U	26	U
Metals															
Antimony	mg/Kg	3.1	41	0.77	U	0.8	U	19.9		0.9	U	9.8		0.83	U
Arsenic	mg/Kg	0.61	2.4	4.45		6.19		13.4		4.52		10.8		5.89	
Beryllium	mg/Kg	16	200	0.307	U	0.321	U	0.606		0.358	U	0.349	U	0.332	U
Cadmium	mg/Kg	7	80	0.612	U	0.642	U	0.926		0.717	U	0.697	U	0.663	U
Chromium	mg/Kg	NS	NS	9.56		11.2		18		11.8		14.7		10.2	
Copper	mg/Kg	310	4100	10.6		24.4		159		8.84		110		26.7	
Lead	mg/Kg	400	800	4.9	U	8.67		251		8.43		170		8.76	
Mercury	mg/Kg	1	4.3	0.0507	U	0.0508	U	0.0863		0.0576	U	0.0614		0.051	U
Nickel	mg/Kg	150	2000	16.3		15.8		20		9.26		19.8		18.3	
Selenium	mg/Kg	39	510	1.2	U	1.3	U	2.9	U	1.4	U	1.4	U	1.3	U
Silver	mg/Kg	39	510	1.72	U	1.79	U	2	U	2	U	1.96	U	1.86	U
Thallium	mg/Kg	0.078	1	1.2	U, PS	1.3	U, PS	1.4	U, PS	1.4	U, PS	1.4	U, PS	1.3	U, PS
Zinc	mg/Kg	2300	31000	27.4		49.7		35.8		27.9		48.2		43.5	

Values in bold indicate compound was detected at a concentration greater than the laboratory reporting limit.

Values in grey highlight indicate concentration is greater than the US EPA RSL for Residential Soils.

Values in italicized text indicates concentrations are greater than the US EPA RSL for industrial soils.

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-31-FD-0.5		RPD	AMR-SB-32-2.0		AMR-SB-33-0.5		
		Residential Soil	Industrial Soil	Value	Q		Value	Q	Value	Q	
Polycyclic Aromatic Hydrocarbons											
2-Methylnaphthalene	µg/Kg	23000	220000	10	U	NC	10	U	10	U	
Acenaphthene	µg/Kg	340000	3300000	10	U	NC	10	U	10	U	
Acenaphthylene	µg/Kg	NS	NS	10	U	NC	160		10	U	
Anthracene	µg/Kg	1700000	17000000	10	U	NC	130		10	U	
Benz(a)anthracene	µg/Kg	150	2100	10	U	NC	530		10	U	
Benzo(a)pyrene	µg/Kg	15	210	10	U	NC	600		10	U	
Benzo(b)fluoranthene	µg/Kg	150	2100	10	U	NC	560		10	U	
Benzo(g,h,i)perylene	µg/Kg	NS	NS	10	U	NC	440		10	U	
Benzo(k)fluoranthene	µg/Kg	1500	21000	10	U	NC	540		10	U	
Chrysene	µg/Kg	15000	210000	13		47.1	550		10	U	
Dibenz(a,h)anthracene	µg/Kg	15	210	10	U	NC	180		10	U	
Fluoranthene	µg/Kg	230000	2200000	10	U	NC	1000		10	U	
Fluorene	µg/Kg	230000	2200000	10	U	NC	11		10	U	
Indeno(1,2,3-cd)pyrene	µg/Kg	150	2100	10	U	NC	410		10	U	
Naphthalene	µg/Kg	3600	18000	10	U	NC	12		10	U	
Phenanthrene	µg/Kg	NS	NS	10	U	NC	270		10	U	
Pyrene	µg/Kg	170000	1700000	10	U	NC	890		10	U	
Total CPAH Equivalent Toxicity as Benzo(a)pyrene	µg/Kg			12			936		23		
Herbicides											
4,4'-DDD	µg/Kg	2000	7200	1.7	U	NC	1.7	U	1.7	U	
4,4'-DDE	µg/Kg	1400	5100	1.7	U	NC	1.7	U	1.7	U	
4,4'-DDT	µg/Kg	1700	7000	1.7	U	NC	1.7	U	1.7	U	
Aldrin	µg/Kg	29	100	0.85	U	NC	0.83	U	0.83	U	
alpha-BHC	µg/Kg	77	270	0.85	U	NC	0.83	U	0.83	U	
alpha-Chlordane	µg/Kg	NS	NS	0.85	U	NC	0.83	U	0.83	U	
beta-BHC	µg/Kg	270	960	0.85	U	NC	0.83	U	0.83	U	
delta-BHC	µg/Kg	NS	NS	0.85	U	NC	0.83	U	0.83	U	
Dieldrin	µg/Kg	30	110	1.7	U	NC	2.4		1.7	U	
Endosulfan I	µg/Kg	NS	NS	0.85	U	NC	0.83	U	0.83	U	
Endosulfan II	µg/Kg	NS	NS	1.7	U	NC	1.7	U	1.7	U	
Endosulfan sulfate	µg/Kg	NS	NS	1.7	U	NC	1.7	U	1.7	U	
Endrin	µg/Kg	1800	18000	1.7	U	NC	1.7	U	1.7	U	
Endrin aldehyde	µg/Kg	NS	NS	1.7	U	NC	1.7	U	1.7	U	
Endrin ketone	µg/Kg	NS	NS	1.7	U	NC	1.7	U	1.7	U	
gamma-BHC	µg/Kg	520	2100	0.85	U	NC	0.83	U	0.83	U	
gamma-Chlordane	µg/Kg	NS	NS	0.85	U	NC	0.83	U	0.83	U	
Heptachlor	µg/Kg	110	380	0.85	U	NC	0.83	U	0.83	U	
Heptachlor epoxide	µg/Kg	53	190	0.85	U	NC	0.83	U	0.83	U	
Methoxychlor	µg/Kg	31000	310000	8.5	U	NC	8.3	U	8.3	U	
Technical Chlordane	µg/Kg	NS	NS	26	U	NC	26	U	26	U	
Toxaphene	µg/Kg	440	1600	26	U	NC	26	U	26	U	

Table B1: Soil Concnetrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB-31-FD-0.5		RPD	AMR-SB-32-2.0		AMR-SB-33-0.5	
		Residential Soil	Industrial Soil	Value	Q		Value	Q	Value	Q
Polychlorinated Biphenyls (as Aroclors)										
Aroclor 1016	µg/Kg	390	3700	26	U	NC	26	U	26	U
Aroclor 1221	µg/Kg	140	540	26	U	NC	26	U	26	U
Aroclor 1232	µg/Kg	140	540	26	U	NC	26	U	26	U
Aroclor 1242	µg/Kg	220	740	26	U	NC	26	U	26	U
Aroclor 1248	µg/Kg	220	740	26	U	NC	26	U	26	U
Aroclor 1254	µg/Kg	110	740	26	U	NC	26	U	26	U
Aroclor 1260	µg/Kg	220	740	26	U	NC	26	U	26	U
Aroclor 1262	µg/Kg	NE	NE	26	U	NC	26	U	26	U
Aroclor 1268	µg/Kg	NE	NE	26	U	NC	26	U	26	U
Metals										
Antimony	mg/Kg	3.1	41	0.82	U	NC	0.81	U	0.82	U
Arsenic	mg/Kg	0.61	2.4	6.05		2.7	4.22		5.97	
Beryllium	mg/Kg	16	200	0.328	U	NC	0.324	U	0.327	U
Cadmium	mg/Kg	7	80	0.657	U	NC	0.648	U	0.653	U
Chromium	mg/Kg	NS	NS	9.95		2.5	9.15		11.4	
Copper	mg/Kg	310	4100	28.6		6.9	10.7		20.3	
Lead	mg/Kg	400	800	9.02		2.9	8.95		8.45	
Mercury	mg/Kg	1	4.3	0.0498	U	NC	0.0494	U	0.0503	U
Nickel	mg/Kg	150	2000	17.5		4.5	13.8		16.2	
Selenium	mg/Kg	39	510	1.3	U	NC	1.3	U	1.3	U
Silver	mg/Kg	39	510	1.84	U	NC	1.81	U	1.83	U
Thallium	mg/Kg	0.078	1	1.3	U, PS	NC	1.3	U, PS	1.3	U, PS
Zinc	mg/Kg	2300	31000	48.2		10.3	25.7		41.7	

Values in bold indicate compound was detected at a concentration greater than the laboratory reporting limit.

Values in grey highlight indicate concentration is greater than the US EPA RSL for Residential Soils.

Values in italicized text indicates concentrations are greater than the US EPA RSL for industrial soils.

Table B1: Soil Concentrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB9-COMP		AMR-SB11-COMP		AMR-SB21-COMP		AMR-SB28-COMP	
		Residential Soil (mg/Kg)	Industrial Soil (mg/Kg)	Value	Q	Value	Q	Value	Q	Value	Q
SVOCs											
1,4-Dichlorobenzene	mg/L	2.4	12	0.04	U	0.04	U	0.04	U	0.04	U
2,4,5-Trichlorophenol	mg/L	610	6200	0.04	U	0.04	U	0.04	U	0.04	U
2,4,6-Trichlorophenol	mg/L	6.1	62	0.04	U	0.04	U	0.04	U	0.04	U
2,4-Dinitrotoluene	mg/L	1.6	5.5	0.04	U	0.04	U	0.04	U	0.04	U
2-Methylphenol	mg/L	310	3100	0.04	U	0.04	U	0.04	U	0.04	U
4-Methylphenol	mg/L	610	6200	0.04	U	0.04	U	0.04	U	0.04	U
Cresols, Total	mg/L	610	6200	0.04	U	0.04	U	0.04	U	0.04	U
Hexachlorobenzene	mg/L	0.3	1.1	0.04	U	0.04	U	0.04	U	0.04	U
Hexachlorobutadiene	mg/L	6.1	22	0.04	U	0.04	U	0.04	U	0.04	U
Hexachloroethane	mg/L	4.3	43	0.04	U	0.04	U	0.04	U	0.04	U
Nitrobenzene	mg/L	4.8	24	0.04	U	0.04	U	0.04	U	0.04	U
Pentachlorophenol	mg/L	0.89	2.7	0.08	U	0.08	U	0.08	U	0.08	U
Pyridine	mg/L	7.8	100	0.08	U	0.08	U	0.08	U	0.08	U
VOCs											
1,1-Dichloroethene	mg/L	24	110	0.02	U	0.02	U	0.02	U	0.02	U
1,2-Dichloroethane	mg/L	0.43	2.2	0.02	U	0.02	U	0.02	U	0.02	U
1,4-Dichlorobenzene	mg/L	2.4	12	0.02	U	0.02	U	0.02	U	0.02	U
2-Butanone	mg/L	2800	20000	0.1	U	0.1	U	0.1	U	0.1	U
Benzene	mg/L	1.1	5.4	0.02	U	0.02	U	0.02	U	0.02	U
Carbon tetrachloride	mg/L	0.61	3	0.02	U	0.02	U	0.02	U	0.02	U
Chlorobenzene	mg/L	29	140	0.02	U	0.02	U	0.02	U	0.02	U
Chloroform	mg/L	0.29	1.5	0.02	U	0.02	U	0.02	U	0.02	U
Tetrachloroethene	mg/L	8.6	41	0.02	U	0.02	U	0.02	U	0.02	U
Trichloroethene	mg/L	0.44	2	0.02	U	0.02	U	0.02	U	0.02	U
Vinyl chloride	mg/L	0.06	1.7	0.02	U	0.02	U	0.02	U	0.02	U
Herbicides											
Chlordane	mg/L			0.0008	U	0.0008	U	0.0008	U	0.0008	U
Endrin	mg/L	1.8	18	0.000051	U	0.000051	U	0.000051	U	0.000051	U
gamma-BHC	mg/L	0.52	2.1	0.000026	U	0.000026	U	0.000026	U	0.000026	U
Heptachlor	mg/L	0.11	0.38	0.000026	U	0.000026	U	0.000026	U	0.000026	U
Heptachlor epoxide	mg/L	0.053	0.19	0.000026	U	0.000026	U	0.000026	U	0.000026	U
Methoxychlor	mg/L	31	310	0.00026	U	0.00026	U	0.00026	U	0.00026	U
Toxaphene	mg/L	0.44	1.6	0.0008	U	0.0008	U	0.0008	U	0.0008	U

Table B1: Soil Concentrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB9-COMP		AMR-SB11-COMP		AMR-SB21-COMP		AMR-SB28-COMP	
		Residential Soil (mg/Kg)	Industrial Soil (mg/Kg)	Value	Q	Value	Q	Value	Q	Value	Q
Polychlorinated Biphenyls (as Aroclors)											
Aroclor 1016	µg/Kg	390	3700	54	U	54	U	50	U	52	U
Aroclor 1221	µg/Kg	140	540	54	U	54	U	50	U	52	U
Aroclor 1232	µg/Kg	140	540	54	U	54	U	50	U	52	U
Aroclor 1242	µg/Kg	220	740	54	U	54	U	50	U	52	U
Aroclor 1248	µg/Kg	220	740	54	U	54	U	50	U	52	U
Aroclor 1254	µg/Kg	110	740	54	U	54	U	50	U	52	U
Aroclor 1260	µg/Kg	220	740	54	U	54	U	50	U	52	U
Aroclor 1262	µg/Kg			54	U	54	U	50	U	52	U
Aroclor 1268	µg/Kg			54	U	54	U	50	U	52	U
Metals											
Arsenic	mg/L	0.61	2.4	0.25	U	0.25	U	0.25	U	0.25	U
Barium	mg/L	1500	19000	4	U	4	U	4	U	4	U
Cadmium	mg/L			0.05	U	0.05	U	0.05	U	0.05	U
Chromium	mg/L	7	80	0.1	U	0.1	U	0.1	U	0.1	U
Lead	mg/L			0.25	U	0.25	U	0.25	U	0.25	U
Mercury	mg/L	400	800	0.001	U	0.001	U	0.001	U	0.001	U
Selenium	mg/L	1	4.3	0.85	U	0.85	U	0.85	U	0.85	U
Silver	mg/L	39	510	0.07	U	0.07	U	0.07	U	0.07	U
Other											
Ignitability	°F			>200		>200		>200		>200	
Percent Moisture	wt%			7.8		8.1		0.2		6.2	

Values in bold indicate compound was detected at a concentration greater than the laboratory reporting limit.

Values in grey highlight indicate concentration is greater than the US EPA RSL for Residential Soils.

Values in italicized text indicates concentrations are greater than the US EPA RSL for industrial soils.

Table B2: Soil Concentrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB34-1_5		AMR-SB38-2_0		AMR-SB38-2_0-FE		AMR-SB45-1_5		AMR-SB47-2_0		AMR-SB47-2_0-FD			
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	RPD	Value	Q	Value	Q	Value	Q	RPD
SVOCs																	
1,2,4-Trichlorobenzene	µg/Kg	6200	27000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
1,2-Dichlorobenzene	µg/Kg	190000	980000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
1,2-Diphenylhydrazine (as Azobenzene)	µg/Kg	610	2200	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
1,3-Dichlorobenzene	µg/Kg			280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
1,4-Dichlorobenzene	µg/Kg	2400	12000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2,4,5-Trichlorophenol	µg/Kg	610000	6200000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2,4,6-Trichlorophenol	µg/Kg	6100	62000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2,4-Dichlorophenol	µg/Kg	18000	180000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2,4-Dimethylphenol	µg/Kg	120000	1200000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2,4-Dinitrophenol	µg/Kg	12000	120000	550	U	560	U	570	U	NA	520	U	520	U	520	U	NA
2,4-Dinitrotoluene	µg/Kg	1600	5500	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2,6-Dinitrotoluene	µg/Kg	330	1200	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2-Chloronaphthalene	µg/Kg	630000	8200000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2-Chlorophenol	µg/Kg	39000	510000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2-Methylnaphthalene	µg/Kg	23000	220000	1200		280	U	280	U	NA	260	U	260	U	260	U	NA
2-Methylphenol	µg/Kg	310000	3100000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
2-Nitroaniline	µg/Kg	61000	600000	550	U	560	U	570	U	NA	520	U	520	U	520	U	NA
2-Nitrophenol	µg/Kg			280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
3,3I-Dichlorobenzidine	µg/Kg			280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
3-Nitroaniline	µg/Kg			550	U	560	U	570	U	NA	520	U	520	U	520	U	NA
4,6-Dinitro-2-methylphenol	µg/Kg	490	4900	550	U	560	U	570	U	NA	520	U	520	U	520	U	NA
4-Bromophenyl phenyl ether	µg/Kg			280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
4-Chloro-3-methylphenol	µg/Kg	610000	6200000	550	U	560	U	570	U	NA	520	U	520	U	520	U	NA
4-Chloroaniline	µg/Kg	2400	8600	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
4-Chlorophenyl phenyl ether	µg/Kg			280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
4-Methylphenol	µg/Kg	610000	6200000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
4-Nitroaniline	µg/Kg	24000	86000	850		560	U	570	U	NA	520	U	520	U	520	U	NA
4-Nitrophenol	µg/Kg			550	U	560	U	570	U	NA	520	U	520	U	520	U	NA
Acenaphthene	µg/Kg	340000	3300000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Acenaphthylene	µg/Kg			780		280	U	280	U	NA	260	U	260	U	260	U	NA
Anthracene	µg/Kg	1700000	17000000	850		280	U	280	U	NA	260	U	260	U	260	U	NA
Benz(a)anthracene	µg/Kg	150	2100	1700		280	U	280	U	NA	360		260	U	260	U	NA
Benzo(a)pyrene	µg/Kg	15	210	1800		280	U	280	U	NA	400		260	U	260	U	NA
Benzo(b)fluoranthene	µg/Kg	150	2100	2300		280	U	280	U	NA	350		260	U	260	U	NA
Benzo(g,h,i)perylene	µg/Kg			1400		280	U	280	U	NA	300		260	U	260	U	NA
Benzo(k)fluoranthene	µg/Kg	1500	21000	2200		280	U	280	U	NA	410		260	U	260	U	NA
Benzoic acid	µg/Kg	24000000	250000000	550	U	560	U	570	U	NA	520	U	520	U	520	U	NA
Benzyl alcohol	µg/Kg	610000	6200000	550	U	560	U	570	U	NA	520	U	520	U	520	U	NA
Bis(2-chloroethoxy)methane	µg/Kg	18000	180000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Bis(2-chloroethyl)ether	µg/Kg	210	1000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Bis(2-chloroisopropyl)ether	µg/Kg	4600	22000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Bis(2-ethylhexyl)phthalate	µg/Kg	35000	120000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Butyl benzyl phthalate	µg/Kg	260000	910000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA

Table B2: Soil Concentrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB34-1_5		AMR-SB38-2_0		AMR-SB38-2_0-FC		AMR-SB45-1_5		AMR-SB47-2_0		AMR-SB47-2_0-FD			
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	RPD	Value	Q	Value	Q	Value	Q	RPD
Carbazole	µg/Kg			320		280	U	280	U	NA	260	U	260	U	260	U	NA
Chrysene	µg/Kg	15000	210000	2600		280	U	280	U	NA	440		260	U	260	U	NA
Dibenz(a,h)anthracene	µg/Kg	15	210	650		280	U	280	U	NA	260	U	260	U	260	U	NA
Dibenzofuran	µg/Kg	7800	100000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Diethyl phthalate	µg/Kg	4900000	49000000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Dimethyl phthalate	µg/Kg			280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Di-n-butyl phthalate	µg/Kg	610000	6200000	830		1500		1100	30.8	1200		1100		1000		9.52	
Di-n-octyl phthalate	µg/Kg	61000	620000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Fluoranthene	µg/Kg	230000	2200000	3600		280	U	280	U	NA	800		260	U	260	U	NA
Fluorene	µg/Kg	230000	2200000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Hexachlorobenzene	µg/Kg	300	1100	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Hexachlorobutadiene	µg/Kg	6100	22000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Hexachlorocyclopentadiene	µg/Kg	37000	370000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Hexachloroethane	µg/Kg	4300	43000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Indeno(1,2,3-cd)pyrene	µg/Kg	150	2100	1400		280	U	280	U	NA	260	U	260	U	260	U	NA
Isophorone	µg/Kg	510000	1800000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Naphthalene	µg/Kg	3600	18000	750		280	U	280	U	NA	260	U	260	U	260	U	NA
Nitrobenzene	µg/Kg	4800	24000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
N-Nitrosodi-n-propylamine	µg/Kg	69	250	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
N-Nitrosodiphenylamine	µg/Kg	99000	350000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Pentachlorophenol	µg/Kg	890	2700	550	U	560	U	570	U	NA	520	U	520	U	520	U	NA
Phenanthrene	µg/Kg			1500		280	U	280	U	NA	300		260	U	260	U	NA
Phenol	µg/Kg	1800000	18000000	280	U	280	U	280	U	NA	260	U	260	U	260	U	NA
Pyrene	µg/Kg	170000	1700000	3300		280	U	280	U	NA	700		260	U	260	U	NA
Total CPAH Equivalent Toxicity as Benzo(a)pyrene	µg/Kg			2859		281	U	281	U	NA	596		260	U	260	U	NA
Metals																	
Arsenic	mg/Kg	0.61	2.4	14.2		4.57		5.62	20.6	5.53		5.23		5.06		3.30	
Barium	mg/Kg	1500	19000	115		25.2		19.2	27.0	37.6		14.9		14		6.23	
Cadmium	mg/Kg	7	80	1.41		0.993		0.877	12.4	0.811		0.79		0.629	U	NA	
Chromium	mg/Kg			18.6		17.7		14.9	17.2	14.5		13.3		11.4		15.4	
Lead	mg/Kg	400	800	663		66.5		78.9	17.1	102		5.09	U	5.04	U	NA	
Mercury	mg/Kg	1	4.3	0.334		0.0539	U	0.0542	U	NA	0.05	U	0.0512	U	0.0511	U	NA
Selenium	mg/Kg	39	510	2.8	U	1.4	U	1.3	U	NA	1.2	U	1.3	U	1.3	U	NA
Silver	mg/Kg	39	510	1.95	U	1.93	U	1.83	U	NA	1.74	U	1.78	U	1.76	U	NA
Other																	
Percent Moisture	wt%			11		10.5		12.3		4.9		3.6		4.3			

Values in bold indicate compound was detected at a concentration greater than the laboratory reporting limit.

Values in grey highlight indicate concentration is greater than the US EPA RSL for Residential Soils.

Values in italicized text indicates concentrations are greater than the US EPA RSL for industrial soils.

Table B2: Soil Concentrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB35-1_5		AMR-SB36-2_0		AMR-SB37-2_0		AMR-SB39-1_5		AMR-SB40-1_2		AMR-SB41-1_1	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q
Carbazole	µg/Kg														
Chrysene	µg/Kg	15000	210000												
Dibenz(a,h)anthracene	µg/Kg	15	210												
Dibenzofuran	µg/Kg	7800	100000												
Diethyl phthalate	µg/Kg	4900000	49000000												
Dimethyl phthalate	µg/Kg														
Di-n-butyl phthalate	µg/Kg	610000	6200000												
Di-n-octyl phthalate	µg/Kg	61000	620000												
Fluoranthene	µg/Kg	230000	2200000												
Fluorene	µg/Kg	230000	2200000												
Hexachlorobenzene	µg/Kg	300	1100												
Hexachlorobutadiene	µg/Kg	6100	22000												
Hexachlorocyclopentadiene	µg/Kg	37000	370000												
Hexachloroethane	µg/Kg	4300	43000												
Indeno(1,2,3-cd)pyrene	µg/Kg	150	2100												
Isophorone	µg/Kg	510000	1800000												
Naphthalene	µg/Kg	3600	18000												
Nitrobenzene	µg/Kg	4800	24000												
N-Nitrosodi-n-propylamine	µg/Kg	69	250												
N-Nitrosodiphenylamine	µg/Kg	99000	350000												
Pentachlorophenol	µg/Kg	890	2700												
Phenanthrene	µg/Kg														
Phenol	µg/Kg	1800000	18000000												
Pyrene	µg/Kg	170000	1700000												
Total CPAH Equivalent Toxicity as Benzo(a)pyrene	µg/Kg														
<i>Metals</i>															
Arsenic	mg/Kg	0.61	2.4	14.1		3.6		5.28		10.3		5.16		532	
Barium	mg/Kg	1500	19000	61.3		13.2		17.3		36.5		19.6		79	
Cadmium	mg/Kg	7	80	1		0.712		0.711		0.726		0.707		0.91	
Chromium	mg/Kg			16.1		7.66		11.2		18.1		14.4		17.5	
Lead	mg/Kg	400	800	333		4.93 U		5.03 U		273		58.3		964	
Mercury	mg/Kg	1	4.3	0.413		0.0511 U		0.0518 U		0.193		0.0536 U		0.266	
Selenium	mg/Kg	39	510	1.5		1.2 U		1.3 U		1.3 U		1.3 U		3.7 MSA	
Silver	mg/Kg	39	510	1.9 U		1.73 U		1.76 U		1.78 U		1.87 U		1.83 U	
<i>Other</i>															
Percent Moisture	wt%			11.6		5.2		6.8		8.5		9.6		9.4	

Values in bold indicate compound was detected at a concentration greater than the laboratory reporting limit.

Values in grey highlight indicate concentration is greater than the US EPA RSL for Residential Soils.

Values in italicized text indicates concentrations are greater than the US EPA RSL for industrial soils.

Table B2: Soil Concentrations, Crescent Connect, Essex Junction, Vermont

Analyte	Units	USEPA Screening Levels		AMR-SB42-1_5		AMR-SB43-1_0		AMR-SB44-1_0		AMR-SB46-2_0		AMR-SB48-1_5	
		Residential Soil	Industrial Soil	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q
Carbazole	µg/Kg												
Chrysene	µg/Kg	15000	210000										
Dibenz(a,h)anthracene	µg/Kg	15	210										
Dibenzofuran	µg/Kg	7800	100000										
Diethyl phthalate	µg/Kg	4900000	49000000										
Dimethyl phthalate	µg/Kg												
Di-n-butyl phthalate	µg/Kg	610000	6200000										
Di-n-octyl phthalate	µg/Kg	61000	620000										
Fluoranthene	µg/Kg	230000	2200000										
Fluorene	µg/Kg	230000	2200000										
Hexachlorobenzene	µg/Kg	300	1100										
Hexachlorobutadiene	µg/Kg	6100	22000										
Hexachlorocyclopentadiene	µg/Kg	37000	370000										
Hexachloroethane	µg/Kg	4300	43000										
Indeno(1,2,3-cd)pyrene	µg/Kg	150	2100										
Isophorone	µg/Kg	510000	1800000										
Naphthalene	µg/Kg	3600	18000										
Nitrobenzene	µg/Kg	4800	24000										
N-Nitrosodi-n-propylamine	µg/Kg	69	250										
N-Nitrosodiphenylamine	µg/Kg	99000	350000										
Pentachlorophenol	µg/Kg	890	2700										
Phenanthrene	µg/Kg												
Phenol	µg/Kg	1800000	18000000										
Pyrene	µg/Kg	170000	1700000										
Total CPAH Equivalent Toxicity as Benzo(a)pyrene	µg/Kg												
<i>Metals</i>													
Arsenic	mg/Kg	0.61	2.4	14.9		13		16.2		5.83		4.72	
Barium	mg/Kg	1500	19000	62.2		39		66.5		22.1		12.6	U
Cadmium	mg/Kg	7	80	1.11		0.846		1.19		0.641		0.628	U
Chromium	mg/Kg			25.7		20.7		17.5		8.68		10.4	
Lead	mg/Kg	400	800	205		260		296		7.52		5.03	U
Mercury	mg/Kg	1	4.3	0.103		0.109		0.111		0.0494	U	0.0502	U
Selenium	mg/Kg	39	510	1.4	U	1.4		1.4	U	1.3	U	1.3	U
Silver	mg/Kg	39	510	1.94	U	1.78	U	2.01	U	1.78	U	1.76	U
<i>Other</i>													
Percent Moisture	wt%			14.4		9		15.1		6.4		5.7	

Values in bold indicate compound was detected at a concentration greater than the laboratory reporting limit.

Values in grey highlight indicate concentration is greater than the US EPA RSL for Residential Soils.

Values in italicized text indicates concentrations are greater than the US EPA RSL for industrial soils.

APPENDIX C: LABORATORY REPORTS

September 5, 2013



STONE ENVIRONMENTAL INC

Dan Voisin
Stone Environmental
535 Stone Cutters Way
Montpelier, VT 05602

535 Stone Cutters Way
Montpelier, Vermont
05602 USA

Phone / 802.229.4541
Fax / 802.229.5417
Web Site / www.stone-env.com

SEI No. 12-152 Crescent Connector
RE: Soil Sample Analysis

Dear Mr. Voisin:

This data package presents the analytical results for the analyses performed by Stone Environmental, Inc. Laboratory (Stone Laboratory) in Barre, VT on August 30, 2013. Five soil samples were collected at the Crescent Connector Site by Stone Environmental Inc. on August 30, 2013 and were received by Stone Laboratory on August 30, 2013. This sample count includes one field duplicate and no matrix spike matrix spike duplicate samples.

The samples were analyzed by EPA SW846 Method 8260 (gas chromatography/mass spectrometry (GC/MS)) with solid phase microextraction technique for volatile organic compounds (VOCs). The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the National Environmental Laboratory Accreditation Conference (NELAC) standards. All QA/QC results associated with these data were found to be within tolerances set forth in the associated laboratory Standard Operating Procedures (SOPS) and the NELAC standards.

When applicable, the final results were annotated with the following codes:

- U - The analyte was analyzed for, but was not detected above the reported quantitation limit.
- J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- Q - The analyte had an associated quality control failure.
- E - Analyte was marginally above the calibration range; the associated numerical value is the approximate concentration of the analyte in the sample.
- UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual

limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

B - Indicates the analyte was found in the associated laboratory blank as well as the sample.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature:  _____

Sincerely yours,

Dave Crosby
Analytical Chemist

Direct Phone / 802.229.1871
E-Mail / dcrosby@stone-env.com

SAMPLE LOGIN SUMMARY

Mobile Lab 2 – SAMPLE LOG SHEET

Project ID: 12-152 SE1

Project Location: Crescent Connector

[illegible]

AutoNumber	LabID	WetMass	DryMass	AsReceived	PctMoisture	LocationID	Depth	Matrix	SampleName	SampleCode	Quantity	CollectedBy	CollectedDate	CollectedTime	CollectionMethod	ReceivedBy	ReceivedDate	ReceivedTime	ReceivedTemp	Comments	LabID_Parent	SoilClass	DepthBottom	ReportPg	CustodyID	pH	Preservative	TemperatureUnits	compositeSample
1	SEI-1	0	0	TRUE	0	SEI-SB47	00200	SL	SEI-SB47-2.0	N	1	LJR	8/30/2013	1/0/1900	Grab	MJM	8/30/2013	1/0/1900	N/A		SEI-30		000.00	1		HCL			FALSE
30	SEI-30	0	0	TRUE	0	SEI-SB38	00200	SL	SEI-SB38-02.0	N	1	LJR	8/30/2013	1/0/1900	Grab	MJM	8/30/2013	1/0/1900	N/A		SEI-30		000.00	1		HCL			FALSE
31	SEI-30-FD	0	0	TRUE	0	SEI-SB38	00200	SL	SEI-SB38-02.0-FD	FD	1	LJR	8/30/2013	1/0/1900	Grab	MJM	8/30/2013	1/0/1900	N/A		SEI-30		000.00	1		HCL			FALSE
32	SEI-32	0	0	TRUE	0	SEI-SB45	00150	SL	SEI-SB45-01.5	N	1	LJR	8/30/2013	1/0/1900	Grab	MJM	8/30/2013	1/0/1900	N/A				000.00	1		HCL			FALSE
33	SEI-33	0	0	TRUE	0	SEI-SB34	00150	SL	SEI-SB34-01.5	N	1	LJR	8/30/2013	1/0/1900	Grab	MJM	8/30/2013	1/0/1900	N/A				000.00	1		HCL			FALSE

LabID	SampleName	ContainerID	InitialMass	FinalVialMass	FinalSampleWeight	CupNumber	WetMass	DryMass	PctMoisture	AsReceived
SEI-1	SEI-SB47-2.0	148-VOC	37.08	49.11	12.03	0	26.1125	24.9525	4.442316898	FALSE
SEI-30	SEI-SB38-02.0	150-VOC	37.04	44.75	7.71	0	19.8925	18.0925	9.048636421	FALSE
SEI-30-FD	SEI-SB38-02.0-FD	145-VOC	37.16	45.13	7.97	0	19.8925	18.0925	9.048636421	FALSE
SEI-32	SEI-SB45-01.5	152-VOC	37.92	51.59	13.67	0	15.2325	14.3525	5.777121287	FALSE
SEI-33	SEI-SB34-01.5	146-VOC	37.13	43.86	6.73	0	12.9925	11.4725	11.69905715	FALSE

LABORATORY ANALYTICAL RESULTS

Onsite Laboratory Results Mobile Laboratory 2

Client: SEI
Location: VT
Project ID: 12-152 Crescent Connector
SEI Project No.: 12-152
Matrix: SL
Location ID: SEI-SB34

Report Date: 9/4/2013
Date(s) Sampled: 08/30/2013 - 08/30/2013
Date(s) Analyzed: 08/30/2013 - 08/30/2013
Test Method: 8260C,8260C
Results Given as: ug/kg as dry weight
Prep Method: Soils (SW), EPA 5035A0H/ASTM D62520-00
 Ground Waters (NPW), ASTM D6520-00



All of the tests results were performed in accordance with the NELAP standards and meet all NELAP requirements for parameters for which accreditation is required or available. The reports were completed according to contract specific reporting requirements. Any exceptions to the NELAP standard requirements are noted and the data has been qualified accordingly.

Depth Sample Name Analysis Date	CAS #	001.50	
		SEI-SB34-01.5	
		08/30/13 18:19	N
Chloromethane	74-87-3		340 U
Vinyl Chloride	75-01-4		130 U
Chloroethane	75-00-3		130 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		130 U
1,1-Dichloroethene	75-35-4		130 U
Carbon Disulfide	75-15-0		130 U
Methylene Chloride	75-09-2		130 U
t-Butyl-methyl ether	1634-04-4		130 U
trans-1,2-Dichloroethene	156-60-5		130 U
1,1-Dichloroethane	75-34-3		130 U
cis-1,2-Dichloroethene	156-59-2		130 U
Chloroform	67-66-3		130 U
1,1,1-Trichloroethane	71-55-6		130 U
Carbon Tetrachloride	56-23-5		130 U
Benzene	71-43-2		130 U
1,2-Dichloroethane	107-06-2		130 U
Trichloroethene	79-01-6		130 U
1,2-Dichloropropane	78-87-5		130 U
Bromodichloromethane	75-27-4		130 U
cis-1,3-Dichloropropene	10061-01-5		130 U
Toluene	108-88-3		130 U
1,1,2-Trichloroethane	79-00-5		130 U
Tetrachloroethene	127-18-4		130 U
trans-1,3-Dichloropropene	10061-02-6		130 U
Dibromochloromethane	124-48-1		130 U
1,2-Dibromoethane	106-93-4		130 U
Chlorobenzene	108-90-7		130 U
Ethylbenzene	100-41-4		130 U
m,p-Xylenes	136777612		270 U
o-Xylene	95-47-6		130 U
Styrene	100-42-5		130 U
Bromoform	75-25-2		130 U
Isopropylbenzene	98-82-8		130 U
1,1,2,2-Tetrachloroethane	79-34-5		130 U
1,2,4-Trimethylbenzene	95-63-6		130 U
1,3,5-Trimethylbenzene	108-67-8		130 U
1,3-Dichlorobenzene	541-73-1		130 U
1,4-Dichlorobenzene	106-46-7		130 U
1,2-Dichlorobenzene	95-50-1		130 U
1,2-Dibromo-3-chloropropane	96-12-8		130 U
1,2,4-Trichlorobenzene	120-82-1		130 U
Naphthalene	91-20-3		270
Bromofluorobenzene (SS)	460-00-4		94 %

U= Not detected above specified RL
 J= Estimated value
 Q= Associated with QC failure
 E= Estimated value, marginally above calibration level
 D= Analyzed at dilution
 N= Normal sample
 EB= Equip. Blank
 B= Blank contam.

Onsite Laboratory Results Mobile Laboratory 2

Client: SEI
Location: VT
Project ID: 12-152 Crescent Connector
SEI Project No.: 12-152
Matrix: SL
Location ID: SEI-SB38

Report Date: 9/4/2013
Date(s) Sampled: 08/30/2013 - 08/30/2013
Date(s) Analyzed: 08/30/2013 - 08/30/2013
Test Method: 8260C,8260C
Results Given as: ug/kg as dry weight
Prep Method: Soils (SW), EPA 5035A0H/ASTM D62520-00
 Ground Waters (NPW), ASTM D6520-00



All of the tests results were performed in accordance with the NELAP standards and meet all NELAP requirements for parameters for which accreditation is required or available. The reports were completed according to contract specific reporting requirements. Any exceptions to the NELAP standard requirements are noted and the data has been qualified accordingly.

Depth Sample Name Analysis Date	CAS #	002.00		002.00	
		SEI-SB38-02.0-FD		SEI-SB38-02.0	
		08/30/13 18:04	FD	08/30/13 17:48	N
Chloromethane	74-87-3	280 U		290 U	
Vinyl Chloride	75-01-4	110 U		110 U	
Chloroethane	75-00-3	110 U		110 U	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	110 U		110 U	
1,1-Dichloroethene	75-35-4	110 U		110 U	
Carbon Disulfide	75-15-0	110 U		110 U	
Methylene Chloride	75-09-2	110 U		110 U	
t-Butyl-methyl ether	1634-04-4	110 U		110 U	
trans-1,2-Dichloroethene	156-60-5	110 U		110 U	
1,1-Dichloroethane	75-34-3	110 U		110 U	
cis-1,2-Dichloroethene	156-59-2	110 U		110 U	
Chloroform	67-66-3	110 U		110 U	
1,1,1-Trichloroethane	71-55-6	110 U		110 U	
Carbon Tetrachloride	56-23-5	110 U		110 U	
Benzene	71-43-2	110 U		110 U	
1,2-Dichloroethane	107-06-2	110 U		110 U	
Trichloroethene	79-01-6	110 U		110 U	
1,2-Dichloropropane	78-87-5	110 U		110 U	
Bromodichloromethane	75-27-4	110 U		110 U	
cis-1,3-Dichloropropene	10061-01-5	110 U		110 U	
Toluene	108-88-3	110 U		110 U	
1,1,2-Trichloroethane	79-00-5	110 U		110 U	
Tetrachloroethene	127-18-4	110 U		110 U	
trans-1,3-Dichloropropene	10061-02-6	110 U		110 U	
Dibromochloromethane	124-48-1	110 U		110 U	
1,2-Dibromoethane	106-93-4	110 U		110 U	
Chlorobenzene	108-90-7	110 U		110 U	
Ethylbenzene	100-41-4	110 U		110 U	
m,p-Xylenes	136777612	220 U		230 U	
o-Xylene	95-47-6	110 U		110 U	
Styrene	100-42-5	110 U		110 U	
Bromoform	75-25-2	110 U		110 U	
Isopropylbenzene	98-82-8	110 U		110 U	
1,1,2,2-Tetrachloroethane	79-34-5	110 U		110 U	
1,2,4-Trimethylbenzene	95-63-6	110 U		110 U	
1,3,5-Trimethylbenzene	108-67-8	110 U		110 U	
1,3-Dichlorobenzene	541-73-1	110 U		110 U	
1,4-Dichlorobenzene	106-46-7	110 U		110 U	
1,2-Dichlorobenzene	95-50-1	110 U		110 U	
1,2-Dibromo-3-chloropropane	96-12-8	110 U		110 U	
1,2,4-Trichlorobenzene	120-82-1	110 U		110 U	
Naphthalene	91-20-3	110 U		110 U	
Bromofluorobenzene (SS)	460-00-4	96 %		98 %	

U= Not detected above specified RL
 J= Estimated value
 Q= Associated with QC failure
 E= Estimated value, marginally above calibration level
 D= Analyzed at dilution
 N= Normal sample
 EB= Equip. Blank
 B= Blank contam.

Onsite Laboratory Results Mobile Laboratory 2

Client: SEI
Location: VT
Project ID: 12-152 Crescent Connector
SEI Project No.: 12-152
Matrix: SL
Location ID: SEI-SB45

Report Date: 9/4/2013
Date(s) Sampled: 08/30/2013 - 08/30/2013
Date(s) Analyzed: 08/30/2013 - 08/30/2013
Test Method: 8260C,8260C
Results Given as: ug/kg as dry weight
Prep Method: Soils (SW), EPA 5035A0H/ASTM D62520-00
 Ground Waters (NPW), ASTM D6520-00



All of the tests results were performed in accordance with the NELAP standards and meet all NELAP requirements for parameters for which accreditation is required or available. The reports were completed according to contract specific reporting requirements. Any exceptions to the NELAP standard requirements are noted and the data has been qualified accordingly.

Depth Sample Name Analysis Date	CAS #	001.50	
		SEI-SB45-01.5	
		08/30/13 18:50	N
Chloromethane	74-87-3	150	U
Vinyl Chloride	75-01-4	59	U
Chloroethane	75-00-3	59	U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	59	U
1,1-Dichloroethene	75-35-4	59	U
Carbon Disulfide	75-15-0	59	U
Methylene Chloride	75-09-2	59	U
t-Butyl-methyl ether	1634-04-4	59	U
trans-1,2-Dichloroethene	156-60-5	59	U
1,1-Dichloroethane	75-34-3	59	U
cis-1,2-Dichloroethene	156-59-2	59	U
Chloroform	67-66-3	59	U
1,1,1-Trichloroethane	71-55-6	59	U
Carbon Tetrachloride	56-23-5	59	U
Benzene	71-43-2	59	U
1,2-Dichloroethane	107-06-2	59	U
Trichloroethene	79-01-6	59	U
1,2-Dichloropropane	78-87-5	59	U
Bromodichloromethane	75-27-4	59	U
cis-1,3-Dichloropropene	10061-01-5	59	U
Toluene	108-88-3	59	U
1,1,2-Trichloroethane	79-00-5	59	U
Tetrachloroethene	127-18-4	59	U
trans-1,3-Dichloropropene	10061-02-6	59	U
Dibromochloromethane	124-48-1	59	U
1,2-Dibromoethane	106-93-4	59	U
Chlorobenzene	108-90-7	59	U
Ethylbenzene	100-41-4	59	U
m,p-Xylenes	136777612	120	U
o-Xylene	95-47-6	59	U
Styrene	100-42-5	59	U
Bromoform	75-25-2	59	U
Isopropylbenzene	98-82-8	59	U
1,1,2,2-Tetrachloroethane	79-34-5	59	U
1,2,4-Trimethylbenzene	95-63-6	59	U
1,3,5-Trimethylbenzene	108-67-8	59	U
1,3-Dichlorobenzene	541-73-1	59	U
1,4-Dichlorobenzene	106-46-7	59	U
1,2-Dichlorobenzene	95-50-1	59	U
1,2-Dibromo-3-chloropropane	96-12-8	59	U
1,2,4-Trichlorobenzene	120-82-1	59	U
Naphthalene	91-20-3	59	U
Bromofluorobenzene (SS)	460-00-4	95	%

U= Not detected above specified RL
 J= Estimated value
 Q= Associated with QC failure
 E= Estimated value, marginally above calibration level
 D= Analyzed at dilution
 N= Normal sample
 EB= Equip. Blank
 B= Blank contam.

Onsite Laboratory Results Mobile Laboratory 2

Client: SEI
Location: VT
Project ID: 12-152 Crescent Connector
SEI Project No.: 12-152
Matrix: SL
Location ID: SEI-SB47

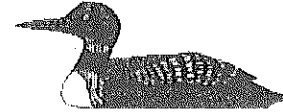
Report Date: 9/4/2013
Date(s) Sampled: 08/30/2013 - 08/30/2013
Date(s) Analyzed: 08/30/2013 - 08/30/2013
Test Method: 8260C,8260C
Results Given as: ug/kg as dry weight
Prep Method: Soils (SW), EPA 5035A0H/ASTM D62520-00
 Ground Waters (NPW), ASTM D6520-00



All of the tests results were performed in accordance with the NELAP standards and meet all NELAP requirements for parameters for which accreditation is required or available. The reports were completed according to contract specific reporting requirements. Any exceptions to the NELAP standard requirements are noted and the data has been qualified accordingly.

Depth Sample Name Analysis Date	CAS #	002.00	
		SEI-SB47-2.0	
		08/30/13 18:34	N
Chloromethane	74-87-3	170	U
Vinyl Chloride	75-01-4	70	U
Chloroethane	75-00-3	70	U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	70	U
1,1-Dichloroethene	75-35-4	70	U
Carbon Disulfide	75-15-0	70	U
Methylene Chloride	75-09-2	70	U
t-Butyl-methyl ether	1634-04-4	70	U
trans-1,2-Dichloroethene	156-60-5	70	U
1,1-Dichloroethane	75-34-3	70	U
cis-1,2-Dichloroethene	156-59-2	70	U
Chloroform	67-66-3	70	U
1,1,1-Trichloroethane	71-55-6	70	U
Carbon Tetrachloride	56-23-5	70	U
Benzene	71-43-2	70	U
1,2-Dichloroethane	107-06-2	70	U
Trichloroethene	79-01-6	70	U
1,2-Dichloropropane	78-87-5	70	U
Bromodichloromethane	75-27-4	70	U
cis-1,3-Dichloropropene	10061-01-5	70	U
Toluene	108-88-3	70	U
1,1,2-Trichloroethane	79-00-5	70	U
Tetrachloroethene	127-18-4	70	U
trans-1,3-Dichloropropene	10061-02-6	70	U
Dibromochloromethane	124-48-1	70	U
1,2-Dibromoethane	106-93-4	70	U
Chlorobenzene	108-90-7	70	U
Ethylbenzene	100-41-4	70	U
m,p-Xylenes	136777612	140	U
o-Xylene	95-47-6	70	U
Styrene	100-42-5	70	U
Bromoform	75-25-2	70	U
Isopropylbenzene	98-82-8	70	U
1,1,2,2-Tetrachloroethane	79-34-5	70	U
1,2,4-Trimethylbenzene	95-63-6	70	U
1,3,5-Trimethylbenzene	108-67-8	70	U
1,3-Dichlorobenzene	541-73-1	70	U
1,4-Dichlorobenzene	106-46-7	70	U
1,2-Dichlorobenzene	95-50-1	70	U
1,2-Dibromo-3-chloropropane	96-12-8	70	U
1,2,4-Trichlorobenzene	120-82-1	70	U
Naphthalene	91-20-3	70	U
Bromofluorobenzene (SS)	460-00-4	94	%

U= Not detected above specified RL
 J= Estimated value
 Q= Associated with QC failure
 E= Estimated value, marginally above calibration level
 D= Analyzed at dilution
 N= Normal sample
 EB= Equip. Blank
 B= Blank contam.



111 Herrick Street, Merrimack, NH 03054
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July 17, 2013

ANALYTICAL TEST RESULTS

Daniel Voisin
Stone Environmental, Inc.
535 Stone Cutters Way
3 rd Floor
Montpelier, VT 05602
TEL: (802) 229-1875
FAX: (802) 229-5417

Subject: 12-152 Crescent Connector

Workorder No.: 1307002

Dear Daniel Voisin:

AMRO Environmental Laboratories Corp. received 27 samples on 7/1/2013 for the analyses presented in the following report.

AMRO is accredited in accordance with NELAC and certifies that these test results meet all the requirements of NELAC, where applicable, unless otherwise noted in the case narrative.

The enclosed Sample Receipt Checklist details the condition of your sample(s) upon receipt. Please be advised that any unused sample volume and sample extracts will be stored for a period of 60 days from sample receipt date (90 days for samples from New York). After this time, AMRO will properly dispose of the remaining sample(s). If you require further analysis, or need the samples held for a longer period, please contact us immediately.

This report consists of a total of 174 pages. This letter is an integral part of your data report. All results in this project relate only to the sample(s) as received by the laboratory and documented in the Chain-of-Custody. This report shall not be reproduced except in full, without the written approval of the laboratory. If you have any questions regarding this project in the future, please refer to the Workorder Number above.

Sincerely,

Nancy Stewart
Vice President

State Certifications: NH (NELAC): 1001, MA: M-NH012, CT: PH-0758, NY: 11278 (NELAC), ME: NH012 and 1001.

Hard copy of the State Certification is available upon request.

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector
Lab Order: 1307002
Date Received: 7/1/2013

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date	Collection Time
1307002-01A	AMR-SB-27-0.5	6/27/2013	9:50 AM
1307002-02A	AMR-SB-28-2.0	6/27/2013	10:13 AM
1307002-03A	AMR-SB-30-2.0	6/27/2013	10:40 AM
1307002-04A	AMR-SB-31-0.5	6/27/2013	11:00 AM
1307002-05A	AMR-SB-31-FD-0.5	6/27/2013	11:00 AM
1307002-06A	AMR-SB-32-2.0	6/27/2013	11:15 AM
1307002-07A	AMR-SB-33-0.5	6/27/2013	11:40 AM
1307002-08A	AMR-SB-29-0.5	6/27/2013	11:50 AM
1307002-09A	AMR-SB-26-2.0	6/27/2013	12:45 PM
1307002-10A	AMR-SB-25-0.5	6/27/2013	1:05 PM
1307002-11A	AMR-SB-24-1.0	6/27/2013	1:25 PM
1307002-12A	AMR-SB-21-0.5	6/27/2013	2:35 PM
1307002-13A	AMR-SB-21-0.5 FD	6/27/2013	2:35 PM
1307002-14A	AMR-SB-17-2.0	6/27/2013	3:15 PM
1307002-15A	AMR-SB-15-2.0	6/27/2013	3:40 PM
1307002-16A	AMR-SB-12-2.0	6/27/2013	4:00 PM
1307002-17A	AMR-SB-4-2.0	6/28/2013	8:20 AM
1307002-18A	AMR-SB-3-0.5	6/28/2013	8:45 AM
1307002-19A	AMR-SB-2-2.0	6/28/2013	9:00 AM
1307002-20A	AMR-SB-1-0.5	6/28/2013	9:15 AM
1307002-21A	AMR-SB-5-0.5	6/28/2013	10:05 AM
1307002-22A	AMR-SB-6-2.0	6/28/2013	10:25 AM
1307002-23A	AMR-SB-7-0.5	6/28/2013	11:00 AM
1307002-24A	AMR-SB-8-2.0	6/28/2013	11:20 AM
1307002-25A	AMR-SB-09-0.5	6/28/2013	11:50 AM
1307002-26A	AMR-SB-11-0.5	6/28/2013	12:10 PM
1307002-27A	AMR-SB-10-2.0	6/28/2013	12:20 PM

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
 Client: Stone Environmental, Inc.
 Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-01A	AMR-SB-27-0.5	6/27/2013 9:50:00 AM	Sediment	ANTIMONY, Soil	EPA 3051/7041		7/11/2013		
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
				EPA 6010B ICP METALS, 3051/6010		7/2/2013	23357	7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060		7/2/2013	23357	7/5/2013	
				EPA 7471 MERCURY, Soil		7/3/2013	23365	7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013	23365		
				EPA 7841 THALLIUM, Soil 3051/7841		7/2/2013	23357	7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/2/2013	23360	7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES		7/2/2013	23359	7/3/2013	
1307002-02A	AMR-SB-28-2.0	6/27/2013 10:13:00 AM		EPA 8082 PCBs IN SOIL/SOLIDS		7/2/2013	23357		
				EPA 3541 SOPREP AUTOSOXHLET: PCBs		7/2/2013	23371	7/10/2013	
				PAH BY EPA 8270C SIM		7/8/2013	R51345		
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/8/2013	23357	7/9/2013	
				Percent Moisture					
				SELENIUM, Soil	EPA 3051/7740		23357	7/2/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
				EPA 6010B ICP METALS, 3051/6010		7/2/2013	23357	7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060		7/2/2013	23357	7/5/2013	
						7/2/2013	23357		

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
 Client: Stone Environmental, Inc.
 Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1307002-02A	AMR-SB-28-2.0	6/27/2013 10:13:00 AM	Sediment	EPA 7471 MERCURY, Soil EPA 7471 HG Soil Prep EPA 7841 THALLIUM, Soil 3051/7841 EPA 3051 SOPREP TOTAL METALS: Micro EPA 8081A ORGANOCHLORINE PESTICIDES EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/3/2013	7/5/2013 23365 7/10/2013 23357 7/9/2013 23360	
				EPA 8082 PCBs IN SOIL/SOLIDS EPA 3541 SOPREP AUTOSOXHLET: PCBs PAH BY EPA 8270C SIM EPA 3541 SOPREP AUTOSOXHLET: BNA SIM PAH BY EPA 8270C SIM	7/2/2013 7/2/2013 7/8/2013 7/8/2013	7/3/2013 23359 7/12/2013 23371 7/10/2013 23371	
				Percent Moisture	7/8/2013	7/8/2013 R51345	
				SELENIUM, Soil EPA 3051/7740 EPA 3051 SOPREP TOTAL METALS: Micro ANTIMONY, Soil EPA 3051/7041	7/2/2013	7/9/2013 23357 7/11/2013 23357	
1307002-03A	AMR-SB-30-2.0	6/27/2013 10:40:00 AM		EPA 6010B ICP METALS, 3051/6010 EPA 7060 ARSENIC, Soil 3051/7060 EPA 7471 MERCURY, Soil EPA 7471 HG Soil Prep	7/2/2013	7/2/2013 23357 7/5/2013 23357 7/3/2013 23365	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1307002-03A	AMR-SB-30-2.0	6/27/2013 10:40:00 AM	Sediment	EPA 7841 THALLIUM, Soil 3051/7841	7/2/2013	7/10/2013 23357	
				EPA 3051 SOPREP TOTAL METALS: Micro			
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/9/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/2/2013	23360	
				EPA 8081A ORGANOCHLORINE PESTICIDES	7/2/2013	23360	
				EPA 8082 PCBs IN SOIL/SOLIDS		7/3/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/2/2013	23359	
				PAH BY EPA 8270C SIM		7/10/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/8/2013	23371	
				PAH BY EPA 8270C SIM	7/8/2013	23371	
				Percent Moisture	7/8/2013	7/8/2013 R51345	
				SELENIUM, Soil EPA 3051/7740		7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	
1307002-04A	AMR-SB-31-0.5	6/27/2013 11:00:00 AM		ANTIMONY, Soil EPA 3051/7041	7/2/2013	7/11/2013 23357	
				EPA 6010B ICP METALS, 3051/6010		7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060	7/2/2013	23357	
				EPA 7471 MERCURY, Soil		7/5/2013	
				EPA 7471 HG Soil Prep	7/2/2013	23357	
					7/3/2013	23365	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1307002-04A	AMR-SB-31-0.5	6/27/2013 11:00:00 AM	Sediment	EPA 7841 THALLIUM, Soil 3051/7841		7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/9/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/2/2013	23360	
				EPA 8082 PCBS IN SOIL/SOLIDS		7/3/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBS	7/2/2013	23359	
				PAH BY EPA 8270C SIM		7/10/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/8/2013	23371	
				Percent Moisture		7/8/2013	
						RS1345	
				SELENIUM, Soil EPA 3051/7740		7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	
1307002-05A	AMR-SB-31-FD-0.5			ANTIMONY, Soil EPA 3051/7041		7/11/2013	
					7/2/2013	23357	
				EPA 6010B ICP METALS, 3051/6010		7/2/2013	
					7/2/2013	23357	
				EPA 7060 ARSENIC, Soil 3051/7060		7/5/2013	
					7/2/2013	23357	
				EPA 7471 MERCURY, Soil		7/3/2013	
				EPA 7471 HG Soil Prep	7/3/2013	23365	
				EPA 7841 THALLIUM, Soil 3051/7841		7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/9/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/2/2013	23360	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-05A	AMR-SB-31-FD-0.5	6/27/2013 11:00:00 AM	Sediment	EPA 8082 PCBs IN SOIL/SOLIDS	EPA 8082 PCBs IN SOIL/SOLIDS	7/3/2013	23359	7/3/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/2/2013	23359	7/2/2013	
				PAH BY EPA 8270C SIM	PAH BY EPA 8270C SIM	7/15/2013	23371	7/15/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/8/2013	23371	7/8/2013	
				Percent Moisture	Percent Moisture	7/8/2013	R51345	7/8/2013	
				SELENIUM, Soil EPA 3051/7740	SELENIUM, Soil EPA 3051/7740	7/9/2013	23357	7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/2/2013	
1307002-06A	AMR-SB-32-2.0	6/27/2013 11:15:00 AM		ANTIMONY, Soil EPA 3051/7041	ANTIMONY, Soil EPA 3051/7041	7/11/2013	23357	7/11/2013	
				EPA 6010B ICP METALS, 3051/6010	EPA 6010B ICP METALS, 3051/6010	7/2/2013	23357	7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060	EPA 7060 ARSENIC, Soil 3051/7060	7/5/2013	23357	7/5/2013	
				EPA 7471 MERCURY, Soil	EPA 7471 MERCURY, Soil	7/3/2013	23365	7/3/2013	
				EPA 7471 HG Soil Prep	EPA 7471 HG Soil Prep	7/3/2013	23365	7/3/2013	
				EPA 7841 THALLIUM, Soil 3051/7841	EPA 7841 THALLIUM, Soil 3051/7841	7/10/2013	23357	7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/2/2013	
				EPA 8081A ORGANOCHLORINE PESTICIDES	EPA 8081A ORGANOCHLORINE PESTICIDES	7/8/2013	23360	7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/2/2013	23359	7/2/2013	
				EPA 8082 PCBs IN SOIL/SOLIDS	EPA 8082 PCBs IN SOIL/SOLIDS	7/3/2013	23359	7/3/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/2/2013	23359	7/2/2013	
				PAH BY EPA 8270C SIM	PAH BY EPA 8270C SIM	7/10/2013	23371	7/10/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/8/2013	23371	7/8/2013	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
 Client: Stone Environmental, Inc.
 Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-06A	AMR-SB-32-2.0	6/27/2013 11:15:00 AM	Sediment	PAH BY EPA 8270C SIM				7/12/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/8/2013	23371		
				Percent Moisture				7/8/2013	
								R51345	
				SELENIUM, Soil EPA 3051/7740				7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
1307002-07A	AMR-SB-33-0.5	6/27/2013 11:40:00 AM		ANTIMONY, Soil EPA 3051/7041				7/11/2013	
						7/2/2013	23357		
				EPA 6010B ICP METALS, 3051/6010				7/2/2013	
								23357	
				EPA 7060 ARSENIC, Soil 3051/7060				7/5/2013	
						7/2/2013	23357		
				EPA 7471 MERCURY, Soil				7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013	23365		
				EPA 7841 THALLIUM, Soil 3051/7841				7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro				23357	
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/2/2013	23360		
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES		7/2/2013	23359		
				EPA 8082 PCBs IN SOIL/SOLIDS				7/3/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs		7/2/2013	23371		
				PAH BY EPA 8270C SIM				7/10/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/8/2013	23371		
				Percent Moisture				7/8/2013	
								R51345	

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-07A	AMR-SB-33-0.5	6/27/2013 11:40:00 AM	Sediment	SELENIUM, Soil	EPA 3051/7740	7/2/2013	23357	7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro					
1307002-08A	AMR-SB-29-0.5	6/27/2013 11:50:00 AM		ANTIMONY, Soil	EPA 3051/7041	7/2/2013	23357	7/11/2013	
				EPA 6010B ICP METALS, 3051/6010		7/2/2013	23357	7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060		7/2/2013	23357	7/5/2013	
				EPA 7471 MERCURY, Soil		7/3/2013	23365	7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013	23365	7/3/2013	
				EPA 7841 THALLIUM, Soil 3051/7841		7/10/2013	23357	7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357	23357	
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/8/2013	23360	7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES		7/2/2013	23360	23360	
				EPA 8082 PCBs IN SOIL/SOLIDS		7/3/2013	23359	7/3/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs		7/2/2013	23359	23359	
				PAH BY EPA 8270C SIM		7/10/2013	23371	7/10/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/8/2013	23371	23371	
				Percent Moisture		7/8/2013	R51345	7/8/2013	
				SELENIUM, Soil	EPA 3051/7740	7/9/2013	23357	7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357	23357	
1307002-09A	AMR-SB-26-2.0	6/27/2013 12:45:00 PM		ANTIMONY, Soil	EPA 3051/7041	7/2/2013	23357	7/11/2013	

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-09A	AMR-SB-26-2.0	6/27/2013 12:45:00 PM	Sediment	EPA 6010B ICP METALS, 3051/6010	EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060		7/2/2013	23357	7/5/2013	
				EPA 7471 MERCURY, Soil				7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013	23366		
				EPA 7841 THALLIUM, Soil 3051/7841				7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
				EPA 8081A ORGANOCHLORINE PESTICIDES				7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES		7/2/2013	23360		
				EPA 8082 PCBs IN SOIL/SOLIDS				7/5/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs		7/2/2013	23359		
				PAH BY EPA 8270C SIM				7/10/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/8/2013	23371		
				Percent Moisture				7/8/2013	
								R51345	
				SELENIUM, Soil EPA 3051/7740				7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
1307002-10A	AMR-SB-25-0.5	6/27/2013 1:05:00 PM		ANTIMONY, Soil EPA 3051/7041				7/11/2013	
				EPA 6010B ICP METALS, 3051/6010		7/2/2013	23357		
				EPA 7060 ARSENIC, Soil 3051/7060		7/2/2013	23357	7/5/2013	
						7/2/2013	23357		

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1307002-10A	AMR-SB-25-0.5	6/27/2013 1:05:00 PM	Sediment	EPA 7471 MERCURY, Soil	7/3/2013	23366	7/3/2013
				EPA 7471 HG Soil Prep			
				EPA 7841 THALLIUM, Soil 3051/7841			
				EPA 3051 SOPREP TOTAL METALS: Micro			
				EPA 8081A ORGANOCHLORINE PESTICIDES			
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES			
				EPA 8082 PCBs IN SOIL/SOLIDS			
				EPA 3541 SOPREP AUTOSOXHLET: PCBs			
				PAH BY EPA 8270C SIM			
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM			
				Percent Moisture			
1307002-11A	AMR-SB-24-1.0	6/27/2013 1:25:00 PM		SELENIUM, Soil EPA 3051/7740	7/2/2013	23357	7/2/2013
				EPA 3051 SOPREP TOTAL METALS: Micro			
				ANTIMONY, Soil EPA 3051/7041			
				ANTIMONY, Soil EPA 3051/7041			
				EPA 6010B ICP METALS, 3051/6010			
				EPA 7060 ARSENIC, Soil 3051/7060			
				EPA 7471 MERCURY, Soil			
				EPA 7471 HG Soil Prep			

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Batch ID	Analysis Date TCLP Date
1307002-11A	AMR-SB-24-1.0	6/27/2013 1:25:00 PM	Sediment	EPA 7841 THALLIUM, Soil 3051/7841	7/2/2013	23357	7/10/2013
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/10/2013
				EPA 8081A ORGANOCHLORINE PESTICIDES	7/2/2013	23360	7/10/2013
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/2/2013	23359	7/10/2013
				EPA 8082 PCBs IN SOIL/SOLIDS	7/2/2013	23371	7/10/2013
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/2/2013	23371	7/10/2013
				PAH BY EPA 8270C SIM	7/2/2013	23371	7/10/2013
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/2/2013	23371	7/10/2013
				PAH BY EPA 8270C SIM	7/2/2013	23371	7/10/2013
				Percent Moisture	7/2/2013	23357	7/10/2013
				SELENIUM, Soil EPA 3051/7740	7/2/2013	23357	7/10/2013
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/10/2013
				ANTIMONY, Soil EPA 3051/7041	7/2/2013	23357	7/10/2013
				EPA 6010B ICP METALS, 3051/6010	7/2/2013	23357	7/10/2013
				EPA 7060 ARSENIC, Soil 3051/7060	7/2/2013	23357	7/10/2013
				EPA 7471 MERCURY, Soil	7/2/2013	23366	7/10/2013
				EPA 7471 HG Soil Prep	7/2/2013	23366	7/10/2013
				EPA 7841 THALLIUM, Soil 3051/7841	7/2/2013	23357	7/10/2013
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/10/2013

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Batch ID	Analysis Date TCLP Date
1307002-12A	AMR-SB-21-0.5	6/27/2013 2:35:00 PM	Sediment	EPA 8081A ORGANOCHLORINE PESTICIDES	7/2/2013	23360	7/9/2013
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/2/2013	23359	7/10/2013
				EPA 8082 PCBS IN SOIL/SOLIDS	7/2/2013	23371	7/12/2013
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/2/2013	23357	7/12/2013
				PAH BY EPA 8270C SIM	7/2/2013	23357	7/12/2013
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/2/2013	23357	7/12/2013
				PAH BY EPA 8270C SIM	7/2/2013	23357	7/12/2013
				Percent Moisture	7/2/2013	RS1345	7/12/2013
				SELENIUM, Soil EPA 3051/7740	7/2/2013	23357	7/12/2013
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/12/2013
				ANTIMONY, Soil EPA 3051/7041	7/2/2013	23357	7/12/2013
				EPA 6010B ICP METALS, 3051/6010	7/2/2013	23357	7/12/2013
				EPA 7060 ARSENIC, Soil 3051/7060	7/2/2013	23357	7/12/2013
				EPA 7471 MERCURY, Soil	7/2/2013	23357	7/12/2013
				EPA 7471 HG Soil Prep	7/2/2013	23357	7/12/2013
				EPA 7841 THALLIUM, Soil 3051/7841	7/2/2013	23357	7/12/2013
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/12/2013
				EPA 8081A ORGANOCHLORINE PESTICIDES	7/2/2013	23357	7/12/2013
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/2/2013	23357	7/12/2013

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-13A	AMR-SB-21-0.5 FD	6/27/2013 2:35:00 PM	Sediment	EPA 8082 PCBs IN SOIL/SOLIDS	EPA 8082 PCBs IN SOIL/SOLIDS	7/8/2013	23359	7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/2/2013	23357	7/2/2013	
				PAH BY EPA 8270C SIM	PAH BY EPA 8270C SIM	7/10/2013	23371	7/10/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/8/2013	23371	7/8/2013	
				Percent Moisture	Percent Moisture	7/8/2013	R51345	7/8/2013	
				SELENIUM, Soil EPA 3051/7740	SELENIUM, Soil EPA 3051/7740	7/9/2013	23357	7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/2/2013	
				ANTIMONY, Soil EPA 3051/7041	ANTIMONY, Soil EPA 3051/7041	7/12/2013	23357	7/12/2013	
1307002-14A	AMR-SB-17-2.0	6/27/2013 3:15:00 PM		EPA 6010B ICP METALS, 3051/6010	EPA 6010B ICP METALS, 3051/6010	7/2/2013	23357	7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060	EPA 7060 ARSENIC, Soil 3051/7060	7/5/2013	23357	7/5/2013	
				EPA 7471 MERCURY, Soil	EPA 7471 MERCURY, Soil	7/3/2013	23366	7/3/2013	
				EPA 7471 HG Soil Prep	EPA 7471 HG Soil Prep	7/3/2013	23366	7/3/2013	
				EPA 7841 THALLIUM, Soil 3051/7841	EPA 7841 THALLIUM, Soil 3051/7841	7/10/2013	23357	7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/2/2013	
				EPA 8081A ORGANOCHLORINE PESTICIDES	EPA 8081A ORGANOCHLORINE PESTICIDES	7/8/2013	23360	7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/2/2013	23359	7/2/2013	
				EPA 8082 PCBs IN SOIL/SOLIDS	EPA 8082 PCBs IN SOIL/SOLIDS	7/5/2013	23359	7/5/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/2/2013	23371	7/2/2013	
				PAH BY EPA 8270C SIM	PAH BY EPA 8270C SIM	7/10/2013	23371	7/10/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/8/2013	23371	7/8/2013	

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-14A	AMR-SB-17-2.0	6/27/2013 3:15:00 PM	Sediment	PAH BY EPA 8270C SIM					
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/8/2013	23371	7/12/2013	
				Percent Moisture				7/8/2013	
								R51345	
				SELENIUM, Soil EPA 3051/7740				7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
1307002-15A	AMR-SB-15-2.0	6/27/2013 3:40:00 PM		ANTIMONY, Soil EPA 3051/7041				7/12/2013	
						7/2/2013	23357		
				EPA 6010B ICP METALS, 3051/6010				7/2/2013	
						7/2/2013	23357		
				EPA 7060 ARSENIC, Soil 3051/7060				7/5/2013	
						7/2/2013	23357		
				EPA 7471 MERCURY, Soil				7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013	23366		
				EPA 7841 THALLIUM, Soil 3051/7841				7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
				EPA 8081A ORGANOCHLORINE PESTICIDES				7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES		7/2/2013	23360		
				EPA 8082 PCBs IN SOIL/SOLIDS				7/5/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs		7/2/2013	23359		
				PAH BY EPA 8270C SIM				7/10/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/8/2013	23371		
				Percent Moisture				7/8/2013	
								R51345	

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Batch ID	Analysis Date TCLP Date
1307002-15A	AMR-SB-15-2.0	6/27/2013 3:40:00 PM	Sediment	SELENIUM, Soil EPA 3051/7740 EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/9/2013
1307002-16A	AMR-SB-12-2.0	6/27/2013 4:00:00 PM		ANTIMONY, Soil EPA 3051/7041 EPA 6010B ICP METALS, 3051/6010 EPA 7060 ARSENIC, Soil 3051/7060	7/2/2013 7/2/2013 7/2/2013	23357 23357 23357	7/12/2013 7/2/2013 7/5/2013
16							
				EPA 7471 MERCURY, Soil EPA 7471 HG Soil Prep EPA 7841 THALLIUM, Soil 3051/7841 EPA 3051 SOPREP TOTAL METALS: Micro EPA 8081A ORGANOCHLORINE PESTICIDES EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES EPA 8082 PCBs IN SOIL/SOLIDS EPA 3541 SOPREP AUTOSOXHLET: PCBs PAH BY EPA 8270C SIM EPA 3541 SOPREP AUTOSOXHLET: BNA SIM Percent Moisture	7/3/2013 7/3/2013 7/2/2013 7/2/2013 7/2/2013 7/2/2013 7/2/2013 7/2/2013 7/8/2013	23366 23357 23360 23359 23371 23357 R51345	7/10/2013 7/10/2013 7/8/2013 7/8/2013 7/10/2013 7/10/2013 7/8/2013
1307002-17A	AMR-SB-4-2.0	6/28/2013 8:20:00 AM		SELENIUM, Soil EPA 3051/7740 EPA 3051 SOPREP TOTAL METALS: Micro ANTIMONY, Soil EPA 3051/7041	7/2/2013 7/2/2013	23357 23357	7/9/2013 7/12/2013 7/2/2013

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1307002-17A	AMR-SB-4-2.0	6/28/2013 8:20:00 AM	Sediment	EPA 6010B ICP METALS, 3051/6010		7/2/2013	23357	7/2/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
				EPA 7060 ARSENIC, Soil 3051/7060		7/2/2013	23357	7/5/2013	
				EPA 7471 MERCURY, Soil		7/3/2013	23366	7/3/2013	
				EPA 7471 HG Soil Prep		7/5/2013	23366		
				EPA 7841 THALLIUM, Soil 3051/7841		7/10/2013	23357	7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/8/2013	23360	7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES		7/2/2013	23371	7/12/2013	
				EPA 8082 PCBs IN SOIL/SOLIDS		7/5/2013	23359	7/5/2013	
1307002-18A	AMR-SB-3-0.5	6/28/2013 8:45:00 AM		EPA 3541 SOPREP AUTOSOXHLET: PCBs		7/2/2013	23371	7/12/2013	
				PAH BY EPA 8270C SIM		7/8/2013	23371	7/12/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/8/2013	23371	7/12/2013	
				Percent Moisture		7/8/2013	RS1345	7/8/2013	
				SELENIUM, Soil EPA 3051/7740		7/9/2013	23357	7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
				ANTIMONY, Soil EPA 3051/7041		7/2/2013	23357	7/12/2013	
				EPA 6010B ICP METALS, 3051/6010		7/2/2013	23357	7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060		7/2/2013	23357	7/5/2013	
						7/2/2013	23357	7/5/2013	

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Batch ID	Analysis Date TCLP Date
1307002-18A	AMR-SB-3-0.5	6/28/2013 8:45:00 AM	Sediment	EPA 7471 MERCURY, Soil	7/3/2013	23366	7/3/2013
				EPA 7471 HG Soil Prep			
				EPA 7841 THALLIUM, Soil 3051/7841			
				EPA 3051 SOPREP TOTAL METALS: Micro			
				EPA 8081A ORGANOCHLORINE PESTICIDES			
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES			
				EPA 8082 PCBs IN SOIL/SOLIDS			
				EPA 3541 SOPREP AUTOSOXHLET: PCBs			
				PAH BY EPA 8270C SIM			
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM			
1307002-19A	AMR-SB-2-2.0	6/28/2013 9:00:00 AM		PAH BY EPA 8270C SIM	7/8/2013	23371	7/8/2013
				Percent Moisture			
				SELENIUM, Soil EPA 3051/7740			
				EPA 3051 SOPREP TOTAL METALS: Micro			
				ANTIMONY, Soil EPA 3051/7041			
				EPA 6010B ICP METALS, 3051/6010			
				EPA 7060 ARSENIC, Soil 3051/7060			
				EPA 7471 MERCURY, Soil			
				EPA 7471 HG Soil Prep			

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-19A	AMR-SB-2-2.0	6/28/2013 9:00:00 AM	Sediment	EPA 7841 THALLIUM, Soil 3051/7841	EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	7/10/2013	
				EPA 8081A ORGANOCHEMISTRIES				7/8/2013	
				EPA 3541 SOPREP AUTOSXHLET: PESTICIDES		7/2/2013	23360		
				EPA 8082 PCBs IN SOIL/SOLIDS				7/5/2013	
				EPA 3541 SOPREP AUTOSXHLET: PCBs		7/2/2013	23359		
				PAH BY EPA 8270C SIM				7/15/2013	
				EPA 3541 SOPREP AUTOSXHLET: BNA SIM		7/8/2013	23371		
				PAH BY EPA 8270C SIM		7/8/2013	23371		
				Percent Moisture				7/8/2013	
								R51345	
				SELENIUM, Soil EPA 3051/7740				7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		
1307002-20A	AMR-SB-1-0.5	6/28/2013 9:15:00 AM		ANTIMONY, Soil EPA 3051/7041		7/2/2013	23357		
				EPA 6010B ICP METALS, 3051/6010				7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060		7/2/2013	23357		
				EPA 7471 MERCURY, Soil				7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013	23366		
				EPA 7841 THALLIUM, Soil 3051/7841				7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23357		

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Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Batch ID	Analysis Date TCLP Date
1307002-20A	AMR-SB-1-0.5	6/28/2013 9:15:00 AM	Sediment	EPA 8081A ORGANOCHLORINE PESTICIDES		7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/3/2013	23362	
				EPA 8082 PCBs IN SOIL/SOLIDS		7/5/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/3/2013	23361	
				PAH BY EPA 8270C SIM		7/12/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/8/2013	23371	
				Percent Moisture		7/8/2013	
						R51345	
				SELENIUM, Soil EPA 3051/7740		7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23357	
1307002-21A	AMR-SB-5-0.5	6/28/2013 10:05:00 AM		ANTIMONY, Soil EPA 3051/7041	7/2/2013	23358	
				EPA 6010B ICP METALS, 3051/6010	7/2/2013	23358	
				EPA 6010B ICP METALS, 3051/6010	7/2/2013	23358	
				EPA 7060 ARSENIC, Soil 3051/7060	7/2/2013	23358	
				EPA 7471 MERCURY, Soil	7/2/2013	23358	
				EPA 7471 HG Soil Prep	7/2/2013	23358	
				EPA 7841 THALLIUM, Soil 3051/7841	7/2/2013	23358	
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23358	
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/3/2013	23362	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-21A	AMR-SB-5-0.5	6/28/2013 10:05:00 AM	Sediment	EPA 8082 PCBs IN SOIL/SOLIDS	EPA 8082 PCBs IN SOIL/SOLIDS	7/5/2013	23361	7/5/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/3/2013	23361	7/3/2013	
				PAH BY EPA 8270C SIM	PAH BY EPA 8270C SIM	7/12/2013	23370	7/12/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/9/2013	23370	7/9/2013	
				Percent Moisture	Percent Moisture	7/8/2013	RS1345	7/8/2013	
				SELENIUM, Soil EPA 3051/7740	SELENIUM, Soil EPA 3051/7740	7/9/2013	23358	7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23358	7/2/2013	
1307002-22A	AMR-SB-6-2.0	6/28/2013 10:25:00 AM		ANTIMONY, Soil EPA 3051/7041	ANTIMONY, Soil EPA 3051/7041	7/12/2013	23358	7/12/2013	
				EPA 6010B ICP METALS, 3051/6010	EPA 6010B ICP METALS, 3051/6010	7/2/2013	23358	7/2/2013	
				EPA 7060 ARSENIC, Soil 3051/7060	EPA 7060 ARSENIC, Soil 3051/7060	7/5/2013	23358	7/5/2013	
				EPA 7471 MERCURY, Soil	EPA 7471 MERCURY, Soil	7/3/2013	23366	7/3/2013	
				EPA 7471 HG Soil Prep	EPA 7471 HG Soil Prep	7/3/2013	23366	7/3/2013	
				EPA 7841 THALLIUM, Soil 3051/7841	EPA 7841 THALLIUM, Soil 3051/7841	7/10/2013	23358	7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23358	7/2/2013	
				EPA 8081A ORGANOCHLORINE PESTICIDES	EPA 8081A ORGANOCHLORINE PESTICIDES	7/8/2013	23362	7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/3/2013	23361	7/3/2013	
				EPA 8082 PCBs IN SOIL/SOLIDS	EPA 8082 PCBs IN SOIL/SOLIDS	7/6/2013	23361	7/6/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/3/2013	23361	7/3/2013	
				PAH BY EPA 8270C SIM	PAH BY EPA 8270C SIM	7/12/2013	23370	7/12/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/9/2013	23370	7/9/2013	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Batch ID	Analysis Date TCLP Date
1307002-22A	AMR-SB-6-2.0	6/28/2013 10:25:00 AM	Sediment	Percent Moisture		7/8/2013 R51345	
				SELENIUM, Soil EPA 3051/7740		7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23358	
1307002-23A	AMR-SB-7-0.5	6/28/2013 11:00:00 AM		EPA 6010B ICP METALS, 3051/6010		7/3/2013 23358	
				EPA 7060 ARSENIC, Soil 3051/7060	7/2/2013	23358	
				EPA 7471 MERCURY, Soil		7/3/2013	
				EPA 7471 HG Soil Prep	7/3/2013	23366	
				EPA 7841 THALLIUM, Soil 3051/7841		7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23358	
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES	7/3/2013	23362	
				EPA 8082 PCBs IN SOIL/SOLIDS		7/6/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs	7/3/2013	23361	
				PAH BY EPA 8270C SIM		7/15/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/9/2013	23370	
				PAH BY EPA 8270C SIM		7/15/2013	
				Percent Moisture	7/9/2013	23370	
						7/8/2013 R51345	
				SELENIUM, Soil EPA 3051/7740		7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23358	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
 Client: Stone Environmental, Inc.
 Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-24A	AMR-SB-8-2.0	6/28/2013 11:20:00 AM	Sediment	ANTIMONY, Soil EPA 3051/7041	EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	23358	7/12/2013	
				EPA 6010B ICP METALS, 3051/6010		7/2/2013	23358	7/3/2013	
				EPA 7060 ARSENIC, Soil 3051/7060		7/2/2013	23358	7/5/2013	
				EPA 7471 MERCURY, Soil		7/3/2013	23366	7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013	23366	7/10/2013	
				EPA 7841 THALLIUM, Soil 3051/7841		7/2/2013	23358	7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23358	7/8/2013	
				EPA 8081A ORGANOCHLORINE PESTICIDES		7/3/2013	23362	7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES		7/3/2013	23362	7/6/2013	
				EPA 8082 PCBs IN SOIL/SOLIDS		7/3/2013	23361	7/6/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs		7/3/2013	23361	7/15/2013	
				PAH BY EPA 8270C SIM		7/9/2013	23370	7/15/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/9/2013	23370	7/8/2013	
				Percent Moisture			RS1345	7/9/2013	
				SELENIUM, Soil EPA 3051/7740		7/2/2013	23358	7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013	23358	7/12/2013	
				ANTIMONY, Soil EPA 3051/7041		7/2/2013	23358	7/12/2013	
1307002-25A	AMR-SB-09-0.5	6/28/2013 11:50:00 AM		EPA 6010B ICP METALS, 3051/6010		7/2/2013	23358	7/3/2013	
						7/2/2013	23358	7/3/2013	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
 Client: Stone Environmental, Inc.
 Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-25A	AMR-SB-09-0.5	6/28/2013 11:50:00 AM	Sediment	EPA 7060 ARSENIC, Soil 3051/7060				7/5/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013		23358	
				EPA 7471 MERCURY, Soil				7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013		23366	
				EPA 7841 THALLIUM, Soil 3051/7841				7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013		23358	
				EPA 8081A ORGANOCHLORINE PESTICIDES				7/8/2013	
				EPA 3541 SOPREP AUTOSXHLET: PESTICIDES		7/3/2013		23362	
				EPA 8082 PCBs IN SOIL/SOLIDS				7/6/2013	
				EPA 3541 SOPREP AUTOSXHLET: PCBs		7/3/2013		23361	
1307002-26A	AMR-SB-11-0.5	6/28/2013 12:10:00 PM		PAH BY EPA 8270C SIM				7/15/2013	
				EPA 3541 SOPREP AUTOSXHLET: BNA SIM		7/9/2013		23370	
				Percent Moisture				7/8/2013	
								RS1345	
				SELENIUM, Soil EPA 3051/7740				7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013		23358	
				EPA 6010B ICP METALS, 3051/6010				7/3/2013	
						7/2/2013		23358	
				EPA 7471 MERCURY, Soil				7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013		23366	
1307002-26A	AMR-SB-11-0.5	6/28/2013 12:10:00 PM		EPA 7841 THALLIUM, Soil 3051/7841				7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013		23358	
				EPA 8081A ORGANOCHLORINE PESTICIDES				7/8/2013	
				EPA 3541 SOPREP AUTOSXHLET: PESTICIDES		7/3/2013		23362	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name	Preparatory Test Name	Prep Date	Batch ID	Analysis Date	TCLP Date
1307002-26A	AMR-SB-11-0.5	6/28/2013 12:10:00 PM	Sediment	EPA 8082 PCBs IN SOIL/SOLIDS				7/6/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs		7/3/2013		23361	
				PAH BY EPA 8270C SIM				7/15/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA SIM		7/9/2013		23370	
				PAH BY EPA 8270C SIM				7/15/2013	
						7/9/2013		23370	
				Percent Moisture				7/8/2013	
								R51345	
				SELENIUM, Soil EPA 3051/7740				7/9/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013		23358	
1307002-27A	AMR-SB-10-2.0	6/28/2013 12:20:00 PM		ANTIMONY, Soil EPA 3051/7041		7/2/2013		7/12/2013	
								23358	
				EPA 6010B ICP METALS, 3051/6010				7/3/2013	
						7/2/2013		23358	
				EPA 7060 ARSENIC, Soil 3051/7060				7/5/2013	
						7/2/2013		23358	
				EPA 7471 MERCURY, Soil				7/3/2013	
				EPA 7471 HG Soil Prep		7/3/2013		23366	
				EPA 7841 THALLIUM, Soil 3051/7841				7/10/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro		7/2/2013		23358	
				EPA 8081A ORGANOCHLORINE PESTICIDES				7/8/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PESTICIDES		7/3/2013		23362	
				EPA 8082 PCBs IN SOIL/SOLIDS				7/6/2013	
				EPA 3541 SOPREP AUTOSOXHLET: PCBs		7/5/2013		23361	

AMRO Environmental Laboratories Corp.

17-Jul-13

Lab Order: 1307002
 Client: Stone Environmental, Inc.
 Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1307002-27A	AMR-SB-10-2.0	6/28/2013 12:20:00 PM	Sediment	PAH BY EPA 8270C SIM EPA 3541 SOPREP AUTOSOXHLET: BNA SIM	7/9/2013	7/15/2013 23370	
				Percent Moisture		7/8/2013 RS1345	
				SELENIUM, Soil EPA 3051/7740 EPA 3051 SOPREP TOTAL METALS: Micro	7/2/2013	7/9/2013 23358	

AMRO Environmental Laboratories Corporation
111 Herrick Street
Merrimack, NH 03054

CHAIN-OF-CUSTODY RECORD

Office: (603) 424-2022
Fax: (603) 429-8496
web: www.amrolabs.com

60587

Project No.: 12-152	Project Name: Crescent Connector	Project State: VT	Project Manager: Dan Voisin	Samplers (Signature): [Signature]	AMRO Project No.: 1307002
P.O.#:	Results Needed by: Standard TA	Matrix	Total # of Cont. & Size	Comp.	Grab
QUOTE #:	Seal Intact? Yes No N/A	Date/Time Sampled			
Sample ID:					
AMR-SB-27-0.5	6/27/13 9:50	SL	100g		
AMR-SB-28-2.0	10:13	SL			
AMR-SB-30-2.0	10:16	SL			
AMR-SB-31-0.5	11:00	SL			
AMR-SB-31-FQ-0.5	11:00	SL			
AMR-SB-32-2.0	11:15	SL			
AMR-SB-33-0.5	11:40	SL			
AMR-SB-29-0.5	11:50	SL			
AMR-SB-26-2.0	12:45	SL			
AMR-SB-25-0.5	13:05	SL			
Preservative: Cl-HCl, MeOH, N-HN03, S-H2SO4, Na-NaOH, O-Other					
Send Results To: Dan Voisin, Stone Environmental, 535 State Cutoffs Way, Montpelier VT 05602					
PHONE #: 802-229-1875 FAX #: 802-229-5417					
E-mail: dvoisin@stone-env.com					
Relinquished By: [Signature] Date/Time: 6/27/13 17:00					
Received By: [Signature] Date/Time: 7/1/13 9:15					
Samples arriving after 12:00 noon will be tracked and billed as received on the following day.					
7-1-13 15:40					
Please print clearly, legibly and completely. Samples can not be logged in and the turnaround time clock will not start until any ambiguities are resolved.					
White: Lab Copy Yellow: Client Copy					
SHEET 1 OF 3 AMROCC03004 Rev.3 08/18/04					

Required Reporting Limits:
S-1 ☐ GW-1 ☐
S-2 ☐ GW-2 ☐
S-3 ☐ GW-3 ☐
Other: VTDEC 5SVs
KNOWN SITE
CONTAMINATION:

MCP Methods Needed:
YES ☐ NO ☒
AMRO report package level needed:
EDD required:

MCP Presumptive Certainty Required?
YES ☐ NO ☒
Dissolved Metals Field Filtered? N/A YES ☐ NO ☐
METALS 8 RCRA ☐ 13 PP ☒ 23 TAL ☐ 14 MCP ☐
Method: 6010 ☐ 200.7 ☐ Other Metals:

AMRO policy requires notification in writing to the laboratory in cases where the samples were collected from highly contaminated sites.

Project No.: 12-152		Project Name: Crescent Concrete		Project State: VT		Project Manager: Dan Voisin		AMRO Project No.: 1307002	
P.O.#:		Results Needed by: Standard Day		Total # of Cont. & Size		REQUSTED ANALYSES		Remarks	
QUOTE #:		Seal Intact? Yes No N/A							
Sample ID.:		Date/Time Sampled		Matrix					
AMR-SB-24-1.0	6/27/13 1325	SL	1	8230 PAH in Soil	8082	8081			
AMR-SB-21-0.5	1435	SL	1						
AMR-SB-21-0.5FD	1435	SL	1						
AMR-SB-17-2.0	1515	SL	1						
AMR-SB-15-2.0	1540	SL	1						
AMR-SB-12-2.0	1600	SL	1						
AMR-SB-4-2.0	6/28/13 0830	SL	1						
AMR-SB-3-0.5	0845	SL	1						
AMR-SB-2-2.0	0900	SL	1						
AMR-SB-1-0.5	0915	SL	1						
Preservative: Cl-HCl, MeOH, N-HN03, S-H2SO4, Na-NaOH, O-Other									
Send Results To: Dan Voisin		Priority Turnaround Time Authorization		Before submitting samples for expedited TAT, you must have a coded AUTHORIZATION NUMBER		METALS 8 RCRA 13 PP 23 TAL 14 MCP			
Stone Environmental		AUTHORIZATION No.:		BY:		Method: 6010 200.7 Other Metals:			
525 Stone Cutters Way		802-228-5417				Dissolved Metals Field Filtered? N/A YES NO			
Montpelier, VT 05602		FAX #:				MCP Presumptive Certainty Required? YES NO			
PHONE #: 802-229-1875		Date/Time		Received By:		MCP Methods Needed: YES NO		Required Reporting Limits: S-1 GW-1 S-2 GW-2 S-3 GW-3 Other: VT DEC SSVs	
E-mail: dvoisin@stone-env.com		7/1/13 9:15		7/1/13 9:15		AMRO report package level needed: YES NO		KNOWN SITE	
Returned By: [Signature]		7/1-13 15:40		[Signature]		EDD required:		CONTAMINATION:	
[Signature]		Samples arriving after 12:00 noon will be tracked and billed as received on the following day.		[Signature]					
Please print clearly, legibly and completely. Samples can not be logged in and the turnaround time clock will not start until any ambiguities are resolved.									
White: Lab Copy		Yellow: Client Copy		SHEET 2 OF 3		AMROCC02004, Rev.3 08/18/04			

Office: (603) 424-2022
Fax: (603) 429-8496
web: www.amrolabs.com

[illegible]

SAMPLE RECEIPT CHECKLIST

111 Herrick Street
Merrimack, NH 03054
(603) 424-2022

Client: <u>STONE</u>		AMRO ID: <u>1307002</u>	
Project Name: <u>12-132 CRESCENT CONNECTOR</u>		Date Rec.: <u>7-1-13</u>	
Ship via: (circle one) Fed Ex., UPS, <u>AMRO Courier</u>		Date Due: <u>7-9-13</u>	
Hand Del., Other Courier, Other: _____			

Items to be Checked Upon Receipt	Yes	No	NA	Comments
1. Army Samples received in individual plastic bags?			✓	
2. Custody Seals present?			✓	
3. Custody Seals Intact?			✓	
4. Air Bill included in folder if received?			✓	
5. Is COC included with samples?	✓			
6. Is COC signed and dated by client?	✓			
7. Laboratory receipt temperature. TEMP = <u>30</u>				
Samples rec. with ice <u>✓</u> ice packs <u> </u> neither <u> </u>				
8. Were samples received the same day they were sampled?		✓		
Is client temperature = or <6°C ?				
If no obtain authorization from the client for the analyses.				
Client authorization from: _____ Date: _____ Obtained by: _____				
9. Is the COC filled out correctly and completely?	✓			
10. Does the info on the COC match the samples?	✓			
11. Were samples rec. within holding time?	✓			
12. Were all samples properly labeled?	✓			
13. Were all samples properly preserved?	✓			
14. Were proper sample containers used?	✓			
15. Were all samples received intact? (none broken or leaking)	✓			
16. Were VOA vials rec. with no air bubbles?			✓	
17. Were the sample volumes sufficient for requested analysis?	✓			
18. Were all samples received?	✓			
19. VPH and VOA Soils only:				
Sampling Method VPH (circle one): M=Methanol, E=EnCore (air-tight container)				
Sampling Method VOA (circle one): M=Methanol, SB=Sodium Bisulfate, E=EnCore, B=Bulk				
If M or SB:				
Does preservative cover the soil?				
If NO then client must be faxed.				
Does preservation level come close to the fill line on the vial?				
If NO then client must be faxed.				
Were vials provided by AMRO?				
If NO then weights MUST be obtained from client				
Was dry weight aliquot provided?				
If NO then fax client and inform the VOA lab ASAP.				
20. Subcontracted Samples:				
What samples sent:			✓	
Where sent:				
Date:				
Analysis:				
TAT:				
21. Information entered into:				
Internal Tracking Log?	✓			
Dry Weight Log?	✓			
Client Log?			✓	
Composite Log?			✓	
Filtration Log?			✓	

Received By: <u>MG</u>	Date: <u>7-1-13</u>	Logged in By: <u>MG</u>	Date: <u>7-1-13</u>
Labeled By: <u>MG</u>	Date: <u>7-1-13</u>	Checked By: <u>[Signature]</u>	Date: <u>7-2-13</u>

CLIENT: Stone Environmental, Inc.

Project: 12-152 Crescent Connector

Lab Order: 1307002

CASE NARRATIVE

GC/MS SEMIVOLATILES: PAH:SIM:

1. The surrogate Terphenyl-d14 recovered outside the laboratory control limits in the sample AMR-SB-21-0.5 (1307002-12A) due to sample matrix effect.
2. No other QC deviations were noted.

GC/ECD-PESTICIDES: 8081A:

1. The recovery for the surrogate Decachlorobiphenyl was above the laboratory control limits on signal two in samples AMR-SB-30-2.0 (1307002-03A) AMR-SB-3-0.5 (1307002-18A) and AMR-SB-11-0.5 (1307002-26A) due to sample matrix interference. The recovery on signal one was reported.
2. No other QC deviations were noted.

GC/ECD-PCBs: 8082:

1. The ending Continuing Calibration Verification standard on 07/05/13 was out low on signal one for Aroclor 1260. The data from signal two was reported; the ending Continuing Calibration Verification standard passed on signal two.
2. No other QC deviations were noted.

METALS:

1. The % RPD for Antimony exceeded laboratory limits in Batch # 23358 by Graphite Furnace.
2. The ICP Matrix Spike result for Antimony in Batch # 23357 was low. The Matrix Spike Duplicate result was within laboratory limits.
3. The Matrix Spike result for Arsenic exceeded laboratory limits in Batch # 22357 by Graphite Furnace. The Matrix Spike Duplicate result was within laboratory limits.
4. Both the Matrix Spike and the Matrix Spike Duplicate results for Arsenic in Batch # 23358 were low by Graphite Furnace.
5. The Matrix Spike result for Antimony was low in Batch # 22357 by Graphite Furnace. The Matrix Spike Duplicate result was within laboratory limits.

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CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector
Lab Order: 1307002

CASE NARRATIVE

6. The Matrix Spike Duplicate result for Antimony was low in Batch # 22358 by Graphite Furnace. The Matrix Spike result was within laboratory limits.

7. All of the Thallium Matrix Spike results were low. In addition, all of the Post Digestion Spikes were low. This was a terrible matrix for the analysis of Thallium by Graphite Furnace.

8. No other QC deviations were noted.

DATA COMMENT PAGE

Organic Data Qualifiers

ND	Indicates compound was analyzed for, but not detected at or above the reporting limit.
J	Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than the method detection limit.
H	Method prescribed holding time exceeded.
E	This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.
B	This flag is used when the analyte is found in the associated blank as well as in the sample.
R	RPD outside accepted recovery limits
RL	Reporting limit; defined as the lowest concentration the laboratory can accurately quantitate.
S	Spike Recovery outside accepted recovery limits.
#	See Case Narrative

Micro Data Qualifiers

TNTC	Too numerous to count
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Inorganic Data Qualifiers

ND or U	Indicates element was analyzed for, but not detected at or above the reporting limit.
J	Indicates a value greater than or equal to the method detection limit, but less than the quantitation limit.
H	Indicates analytical holding time exceedance.
B	Indicates that the analyte is found in the associated blank, as well as in the sample.
MSA	Indicates value determined by the Method of Standard Addition
+	Indicates the correlation coefficient for the Method of Standard Addition is less than 0.995
E	This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.
R	RPD outside accepted recovery limits
RL	Reporting limit; defined as the lowest concentration the laboratory can accurately quantitate.
S	Spike Recovery outside accepted recovery limits.
PS	The analyte was below the Reporting Limit but has significant matrix interference as noted by the poor recovery of the Post Digestion Spike.
#	See Case Narrative
*	MCL Exceeded

Report Comments:

1. Soil, sediment and sludge sample results are reported on a "dry weight" basis.
2. Reporting limits are adjusted for sample size used, dilutions and moisture content, if applicable.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-01A

Client Sample ID: AMR-SB-27-0.5
Collection Date: 6/27/2013 9:50:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
2-Methylnaphthalene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Acenaphthylene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Acenaphthene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Fluorene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Phenanthrene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Anthracene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Fluoranthene	14	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Pyrene	14	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Benz(a)anthracene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Chrysene	10	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Benzo(b)fluoranthene	12	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Benzo(k)fluoranthene	11	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Benzo(a)pyrene	12	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Dibenz(a,h)anthracene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Benzo(g,h,i)perylene	ND	10		µg/Kg-dry	1	7/10/2013 12:03:00 PM
Surr: Nitrobenzene-d5	73.0	15-103		%REC	1	7/10/2013 12:03:00 PM
Surr: 2-Fluorobiphenyl	82.8	21.9-109		%REC	1	7/10/2013 12:03:00 PM
Surr: 4-Terphenyl-d14	128	42.8-147		%REC	1	7/10/2013 12:03:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-02A

Client Sample ID: AMR-SB-28-2.0
Collection Date: 6/27/2013 10:13:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	710	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
2-Methylnaphthalene	740	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Acenaphthylene	770	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Acenaphthene	49	12		µg/Kg-dry	1	7/10/2013 12:38:00 PM
Fluorene	55	12		µg/Kg-dry	1	7/10/2013 12:38:00 PM
Phenanthrene	1,400	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Anthracene	510	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Fluoranthene	2,000	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Pyrene	1,700	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Benz(a)anthracene	1,100	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Chrysene	1,800	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Benzo(b)fluoranthene	1,900	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Benzo(k)fluoranthene	1,400	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Benzo(a)pyrene	1,100	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Dibenz(a,h)anthracene	470	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Indeno(1,2,3-cd)pyrene	1,100	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Benzo(g,h,i)perylene	950	120		µg/Kg-dry	10	7/12/2013 12:21:00 PM
Surr: Nitrobenzene-d5	83.3	15-103		%REC	1	7/10/2013 12:38:00 PM
Surr: 2-Fluorobiphenyl	89.6	21.9-109		%REC	1	7/10/2013 12:38:00 PM
Surr: 4-Terphenyl-d14	130	42.8-147		%REC	1	7/10/2013 12:38:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-03A

Client Sample ID: AMR-SB-30-2.0
Collection Date: 6/27/2013 10:40:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	81	11		µg/Kg-dry	1	7/10/2013 1:13:00 PM
2-Methylnaphthalene	52	11		µg/Kg-dry	1	7/10/2013 1:13:00 PM
Acenaphthylene	940	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Acenaphthene	51	11		µg/Kg-dry	1	7/10/2013 1:13:00 PM
Fluorene	60	11		µg/Kg-dry	1	7/10/2013 1:13:00 PM
Phenanthrene	1,300	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Anthracene	520	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Fluoranthene	5,500	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Pyrene	5,200	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Benz(a)anthracene	3,200	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Chrysene	3,500	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Benzo(b)fluoranthene	3,400	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Benzo(k)fluoranthene	3,200	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Benzo(a)pyrene	3,700	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Dibenz(a,h)anthracene	960	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Indeno(1,2,3-cd)pyrene	2,300	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Benzo(g,h,i)perylene	2,500	220		µg/Kg-dry	20	7/12/2013 12:56:00 PM
Surr: Nitrobenzene-d5	52.2	15-103		%REC	1	7/10/2013 1:13:00 PM
Surr: 2-Fluorobiphenyl	62.3	21.9-109		%REC	1	7/10/2013 1:13:00 PM
Surr: 4-Terphenyl-d14	108	42.8-147		%REC	1	7/10/2013 1:13:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-04A

Client Sample ID: AMR-SB-31-0.5
Collection Date: 6/27/2013 11:00:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
2-Methylnaphthalene	ND	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Acenaphthylene	11	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Acenaphthene	ND	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Fluorene	ND	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Phenanthrene	ND	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Anthracene	ND	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Fluoranthene	15	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Pyrene	17	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Benz(a)anthracene	11	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Chrysene	21	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Benzo(b)fluoranthene	15	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Benzo(k)fluoranthene	ND	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Benzo(a)pyrene	14	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Dibenz(a,h)anthracene	ND	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Benzo(g,h,i)perylene	13	10		µg/Kg-dry	1	7/10/2013 1:48:00 PM
Surr: Nitrobenzene-d5	81.8	15-103		%REC	1	7/10/2013 1:48:00 PM
Surr: 2-Fluorobiphenyl	88.0	21.9-109		%REC	1	7/10/2013 1:48:00 PM
Surr: 4-Terphenyl-d14	106	42.8-147		%REC	1	7/10/2013 1:48:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-05A

Client Sample ID: AMR-SB-31-FD-0.5
Collection Date: 6/27/2013 11:00:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
2-Methylnaphthalene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Acenaphthylene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Acenaphthene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Fluorene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Phenanthrene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Anthracene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Fluoranthene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Pyrene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Benz(a)anthracene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Chrysene	13	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Benzo(b)fluoranthene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Benzo(k)fluoranthene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Benzo(a)pyrene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Dibenz(a,h)anthracene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Benzo(g,h,i)perylene	ND	10		µg/Kg-dry	1	7/15/2013 1:50:00 PM
Surr: Nitrobenzene-d5	67.0	15-103		%REC	1	7/15/2013 1:50:00 PM
Surr: 2-Fluorobiphenyl	73.3	21.9-109		%REC	1	7/15/2013 1:50:00 PM
Surr: 4-Terphenyl-d14	105	42.8-147		%REC	1	7/15/2013 1:50:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB-32-2.0**Lab Order:** 1307002**Collection Date:** 6/27/2013 11:15:00 AM**Project:** 12-152 Crescent Connector**Matrix:** SEDIMENT**Lab ID:** 1307002-06A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	12	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
2-Methylnaphthalene	ND	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
Acenaphthylene	160	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
Acenaphthene	ND	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
Fluorene	11	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
Phenanthrene	270	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
Anthracene	130	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
Fluoranthene	1,000	100		µg/Kg-dry	10	7/12/2013 2:06:00 PM
Pyrene	890	100		µg/Kg-dry	10	7/12/2013 2:06:00 PM
Benz(a)anthracene	530	100		µg/Kg-dry	10	7/12/2013 2:06:00 PM
Chrysene	550	100		µg/Kg-dry	10	7/12/2013 2:06:00 PM
Benzo(b)fluoranthene	560	100		µg/Kg-dry	10	7/12/2013 2:06:00 PM
Benzo(k)fluoranthene	540	100		µg/Kg-dry	10	7/12/2013 2:06:00 PM
Benzo(a)pyrene	600	100		µg/Kg-dry	10	7/12/2013 2:06:00 PM
Dibenz(a,h)anthracene	180	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
Indeno(1,2,3-cd)pyrene	410	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
Benzo(g,h,i)perylene	440	10		µg/Kg-dry	1	7/10/2013 2:58:00 PM
Surr: Nitrobenzene-d5	80.2	15-103		%REC	1	7/10/2013 2:58:00 PM
Surr: 2-Fluorobiphenyl	81.8	21.9-109		%REC	1	7/10/2013 2:58:00 PM
Surr: 4-Terphenyl-d14	126	42.8-147		%REC	1	7/10/2013 2:58:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-07A

Client Sample ID: AMR-SB-33-0.5
Collection Date: 6/27/2013 11:40:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
2-Methylnaphthalene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Acenaphthylene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Acenaphthene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Fluorene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Phenanthrene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Anthracene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Fluoranthene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Pyrene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Benz(a)anthracene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Chrysene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Benzo(b)fluoranthene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Benzo(k)fluoranthene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Benzo(a)pyrene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Dibenz(a,h)anthracene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Benzo(g,h,i)perylene	ND	10		µg/Kg-dry	1	7/10/2013 3:33:00 PM
Surr: Nitrobenzene-d5	86.5	15-103		%REC	1	7/10/2013 3:33:00 PM
Surr: 2-Fluorobiphenyl	83.0	21.9-109		%REC	1	7/10/2013 3:33:00 PM
Surr: 4-Terphenyl-d14	128	42.8-147		%REC	1	7/10/2013 3:33:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-08A

Client Sample ID: AMR-SB-29-0.5
Collection Date: 6/27/2013 11:50:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
2-Methylnaphthalene	ND	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Acenaphthylene	ND	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Acenaphthene	ND	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Fluorene	ND	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Phenanthrene	ND	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Anthracene	ND	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Fluoranthene	35	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Pyrene	31	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Benz(a)anthracene	17	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Chrysene	23	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Benzo(b)fluoranthene	28	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Benzo(k)fluoranthene	22	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Benzo(a)pyrene	23	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Dibenz(a,h)anthracene	ND	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Indeno(1,2,3-cd)pyrene	20	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Benzo(g,h,i)perylene	23	12		µg/Kg-dry	1	7/10/2013 4:08:00 PM
Surr: Nitrobenzene-d5	60.4	15-103		%REC	1	7/10/2013 4:08:00 PM
Surr: 2-Fluorobiphenyl	64.8	21.9-109		%REC	1	7/10/2013 4:08:00 PM
Surr: 4-Terphenyl-d14	107	42.8-147		%REC	1	7/10/2013 4:08:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-09A

Client Sample ID: AMR-SB-26-2.0
Collection Date: 6/27/2013 12:45:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
2-Methylnaphthalene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Acenaphthylene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Acenaphthene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Fluorene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Phenanthrene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Anthracene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Fluoranthene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Pyrene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Benz(a)anthracene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Chrysene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Benzo(b)fluoranthene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Benzo(k)fluoranthene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Benzo(a)pyrene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Dibenz(a,h)anthracene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Benzo(g,h,i)perylene	ND	10		µg/Kg-dry	1	7/10/2013 4:43:00 PM
Surr: Nitrobenzene-d5	33.6	15-103		%REC	1	7/10/2013 4:43:00 PM
Surr: 2-Fluorobiphenyl	30.7	21.9-109		%REC	1	7/10/2013 4:43:00 PM
Surr: 4-Terphenyl-d14	106	42.8-147		%REC	1	7/10/2013 4:43:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-10A

Client Sample ID: AMR-SB-25-0.5
Collection Date: 6/27/2013 1:05:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
2-Methylnaphthalene	ND	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Acenaphthylene	ND	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Acenaphthene	ND	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Fluorene	ND	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Phenanthrene	ND	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Anthracene	ND	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Fluoranthene	39	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Pyrene	35	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Benz(a)anthracene	26	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Chrysene	25	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Benzo(b)fluoranthene	22	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Benzo(k)fluoranthene	20	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Benzo(a)pyrene	22	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Dibenz(a,h)anthracene	ND	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Indeno(1,2,3-cd)pyrene	14	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Benzo(g,h,i)perylene	14	10		µg/Kg-dry	1	7/10/2013 5:18:00 PM
Surr: Nitrobenzene-d5	84.9	15-103		%REC	1	7/10/2013 5:18:00 PM
Surr: 2-Fluorobiphenyl	83.2	21.9-109		%REC	1	7/10/2013 5:18:00 PM
Surr: 4-Terphenyl-d14	116	42.8-147		%REC	1	7/10/2013 5:18:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-11A

Client Sample ID: AMR-SB-24-1.0
Collection Date: 6/27/2013 1:25:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	140	13		µg/Kg-dry	1	7/10/2013 5:53:00 PM
2-Methylnaphthalene	52	13		µg/Kg-dry	1	7/10/2013 5:53:00 PM
Acenaphthylene	900	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Acenaphthene	54	13		µg/Kg-dry	1	7/10/2013 5:53:00 PM
Fluorene	100	13		µg/Kg-dry	1	7/10/2013 5:53:00 PM
Phenanthrene	1,700	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Anthracene	590	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Fluoranthene	6,200	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Pyrene	5,700	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Benz(a)anthracene	3,100	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Chrysene	3,400	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Benzo(b)fluoranthene	3,500	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Benzo(k)fluoranthene	3,400	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Benzo(a)pyrene	3,900	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Dibenz(a,h)anthracene	1,000	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Indeno(1,2,3-cd)pyrene	2,500	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Benzo(g,h,i)perylene	2,700	270		µg/Kg-dry	20	7/12/2013 2:41:00 PM
Surr: Nitrobenzene-d5	82.1	15-103		%REC	1	7/10/2013 5:53:00 PM
Surr: 2-Fluorobiphenyl	84.6	21.9-109		%REC	1	7/10/2013 5:53:00 PM
Surr: 4-Terphenyl-d14	118	42.8-147		%REC	1	7/10/2013 5:53:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-12A

Client Sample ID: AMR-SB-21-0.5
Collection Date: 6/27/2013 2:35:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM	SW8270C					Analyst: KAM
Naphthalene	520	55		µg/Kg-dry	1	7/10/2013 6:29:00 PM
2-Methylnaphthalene	320	55		µg/Kg-dry	1	7/10/2013 6:29:00 PM
Acenaphthylene	5,000	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Acenaphthene	170	55		µg/Kg-dry	1	7/10/2013 6:29:00 PM
Fluorene	190	55		µg/Kg-dry	1	7/10/2013 6:29:00 PM
Phenanthrene	4,700	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Anthracene	2,100	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Fluoranthene	14,000	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Pyrene	14,000	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Benz(a)anthracene	6,400	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Chrysene	8,600	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Benzo(b)fluoranthene	11,000	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Benzo(k)fluoranthene	7,900	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Benzo(a)pyrene	11,000	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Dibenz(a,h)anthracene	3,200	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Indeno(1,2,3-cd)pyrene	8,100	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Benzo(g,h,i)perylene	9,500	550		µg/Kg-dry	10	7/12/2013 3:17:00 PM
Surr: Nitrobenzene-d5	99.5	15-103		%REC	1	7/10/2013 6:29:00 PM
Surr: 2-Fluorobiphenyl	108	21.9-109		%REC	1	7/10/2013 6:29:00 PM
Surr: 4-Terphenyl-d14	154	42.8-147	S	%REC	1	7/10/2013 6:29:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-13A

Client Sample ID: AMR-SB-21-0.5 FD
Collection Date: 6/27/2013 2:35:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	67	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
2-Methylnaphthalene	61	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Acenaphthylene	580	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Acenaphthene	ND	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Fluorene	ND	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Phenanthrene	460	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Anthracene	340	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Fluoranthene	1,300	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Pyrene	1,500	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Benz(a)anthracene	660	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Chrysene	950	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Benzo(b)fluoranthene	1,100	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Benzo(k)fluoranthene	770	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Benzo(a)pyrene	1,000	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Dibenz(a,h)anthracene	370	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Indeno(1,2,3-cd)pyrene	860	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Benzo(g,h,i)perylene	1,100	54		µg/Kg-dry	1	7/10/2013 7:04:00 PM
Surr: Nitrobenzene-d5	97.5	15-103		%REC	1	7/10/2013 7:04:00 PM
Surr: 2-Fluorobiphenyl	102	21.9-109		%REC	1	7/10/2013 7:04:00 PM
Surr: 4-Terphenyl-d14	137	42.8-147		%REC	1	7/10/2013 7:04:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-14A

Client Sample ID: AMR-SB-17-2.0
Collection Date: 6/27/2013 3:15:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	110	12		µg/Kg-dry	1	7/10/2013 7:39:00 PM
2-Methylnaphthalene	130	12		µg/Kg-dry	1	7/10/2013 7:39:00 PM
Acenaphthylene	390	12		µg/Kg-dry	1	7/10/2013 7:39:00 PM
Acenaphthene	38	12		µg/Kg-dry	1	7/10/2013 7:39:00 PM
Fluorene	46	12		µg/Kg-dry	1	7/10/2013 7:39:00 PM
Phenanthrene	830	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Anthracene	350	12		µg/Kg-dry	1	7/10/2013 7:39:00 PM
Fluoranthene	1,700	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Pyrene	1,600	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Benz(a)anthracene	810	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Chrysene	1,100	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Benzo(b)fluoranthene	1,300	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Benzo(k)fluoranthene	910	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Benzo(a)pyrene	1,100	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Dibenz(a,h)anthracene	330	12		µg/Kg-dry	1	7/10/2013 7:39:00 PM
Indeno(1,2,3-cd)pyrene	780	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Benzo(g,h,i)perylene	840	120		µg/Kg-dry	10	7/12/2013 3:52:00 PM
Surr: Nitrobenzene-d5	79.7	15-103		%REC	1	7/10/2013 7:39:00 PM
Surr: 2-Fluorobiphenyl	86.0	21.9-109		%REC	1	7/10/2013 7:39:00 PM
Surr: 4-Terphenyl-d14	119	42.8-147		%REC	1	7/10/2013 7:39:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-15A

Client Sample ID: AMR-SB-15-2.0
Collection Date: 6/27/2013 3:40:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
2-Methylnaphthalene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Acenaphthylene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Acenaphthene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Fluorene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Phenanthrene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Anthracene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Fluoranthene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Pyrene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Benz(a)anthracene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Chrysene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Benzo(b)fluoranthene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Benzo(k)fluoranthene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Benzo(a)pyrene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Dibenz(a,h)anthracene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Indeno(1,2,3-cd)pyrene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Benzo(g,h,i)perylene	ND	11		µg/Kg-dry	1	7/10/2013 8:14:00 PM
Surr: Nitrobenzene-d5	80.6	15-103		%REC	1	7/10/2013 8:14:00 PM
Surr: 2-Fluorobiphenyl	85.2	21.9-109		%REC	1	7/10/2013 8:14:00 PM
Surr: 4-Terphenyl-d14	112	42.8-147		%REC	1	7/10/2013 8:14:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-16A

Client Sample ID: AMR-SB-12-2.0
Collection Date: 6/27/2013 4:00:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	16	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
2-Methylnaphthalene	18	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Acenaphthylene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Acenaphthene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Fluorene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Phenanthrene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Anthracene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Fluoranthene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Pyrene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Benz(a)anthracene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Chrysene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Benzo(b)fluoranthene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Benzo(k)fluoranthene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Benzo(a)pyrene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Dibenz(a,h)anthracene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Indeno(1,2,3-cd)pyrene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Benzo(g,h,i)perylene	ND	11		µg/Kg-dry	1	7/10/2013 8:49:00 PM
Surr: Nitrobenzene-d5	80.0	15-103		%REC	1	7/10/2013 8:49:00 PM
Surr: 2-Fluorobiphenyl	85.5	21.9-109		%REC	1	7/10/2013 8:49:00 PM
Surr: 4-Terphenyl-d14	107	42.8-147		%REC	1	7/10/2013 8:49:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-17A

Client Sample ID: AMR-SB-4-2.0
Collection Date: 6/28/2013 8:20:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
2-Methylnaphthalene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Acenaphthylene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Acenaphthene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Fluorene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Phenanthrene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Anthracene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Fluoranthene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Pyrene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Benz(a)anthracene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Chrysene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Benzo(b)fluoranthene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Benzo(k)fluoranthene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Benzo(a)pyrene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Dibenz(a,h)anthracene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Benzo(g,h,i)perylene	ND	10		µg/Kg-dry	1	7/12/2013 4:28:00 PM
Surr: Nitrobenzene-d5	72.4	15-103		%REC	1	7/12/2013 4:28:00 PM
Surr: 2-Fluorobiphenyl	73.8	21.9-109		%REC	1	7/12/2013 4:28:00 PM
Surr: 4-Terphenyl-d14	110	42.8-147		%REC	1	7/12/2013 4:28:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-18A

Client Sample ID: AMR-SB-3-0.5
Collection Date: 6/28/2013 8:45:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	980	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
2-Methylnaphthalene	1,300	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Acenaphthylene	760	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Acenaphthene	54	11		µg/Kg-dry	1	7/12/2013 5:03:00 PM
Fluorene	81	11		µg/Kg-dry	1	7/12/2013 5:03:00 PM
Phenanthrene	1,900	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Anthracene	670	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Fluoranthene	5,100	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Pyrene	4,900	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Benz(a)anthracene	2,800	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Chrysene	3,600	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Benzo(b)fluoranthene	3,600	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Benzo(k)fluoranthene	3,100	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Benzo(a)pyrene	3,300	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Dibenz(a,h)anthracene	950	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Indeno(1,2,3-cd)pyrene	2,300	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Benzo(g,h,i)perylene	2,400	230		µg/Kg-dry	20	7/15/2013 4:46:00 PM
Surr: Nitrobenzene-d5	78.4	15-103		%REC	1	7/12/2013 5:03:00 PM
Surr: 2-Fluorobiphenyl	80.1	21.9-109		%REC	1	7/12/2013 5:03:00 PM
Surr: 4-Terphenyl-d14	111	42.8-147		%REC	1	7/12/2013 5:03:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-19A

Client Sample ID: AMR-SB-2-2.0
Collection Date: 6/28/2013 9:00:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM	SW8270C					Analyst: KAM
Naphthalene	200	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
2-Methylnaphthalene	230	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Acenaphthylene	210	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Acenaphthene	19	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Fluorene	16	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Phenanthrene	390	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Anthracene	150	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Fluoranthene	880	110		µg/Kg-dry	10	7/15/2013 3:00:00 PM
Pyrene	900	110		µg/Kg-dry	10	7/15/2013 3:00:00 PM
Benz(a)anthracene	520	110		µg/Kg-dry	10	7/15/2013 3:00:00 PM
Chrysene	670	110		µg/Kg-dry	10	7/15/2013 3:00:00 PM
Benzo(b)fluoranthene	610	110		µg/Kg-dry	10	7/15/2013 3:00:00 PM
Benzo(k)fluoranthene	540	110		µg/Kg-dry	10	7/15/2013 3:00:00 PM
Benzo(a)pyrene	530	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Dibenz(a,h)anthracene	170	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Indeno(1,2,3-cd)pyrene	380	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Benzo(g,h,i)perylene	410	11		µg/Kg-dry	1	7/12/2013 5:39:00 PM
Surr: Nitrobenzene-d5	86.6	15-103		%REC	1	7/12/2013 5:39:00 PM
Surr: 2-Fluorobiphenyl	87.9	21.9-109		%REC	1	7/12/2013 5:39:00 PM
Surr: 4-Terphenyl-d14	117	42.8-147		%REC	1	7/12/2013 5:39:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-20A

Client Sample ID: AMR-SB-1-0.5
Collection Date: 6/28/2013 9:15:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	290	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
2-Methylnaphthalene	470	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Acenaphthylene	12	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Acenaphthene	ND	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Fluorene	ND	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Phenanthrene	280	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Anthracene	20	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Fluoranthene	100	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Pyrene	110	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Benz(a)anthracene	76	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Chrysene	110	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Benzo(b)fluoranthene	71	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Benzo(k)fluoranthene	45	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Benzo(a)pyrene	65	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Dibenz(a,h)anthracene	23	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Indeno(1,2,3-cd)pyrene	35	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Benzo(g,h,i)perylene	47	11		µg/Kg-dry	1	7/12/2013 6:15:00 PM
Surr: Nitrobenzene-d5	86.6	15-103		%REC	1	7/12/2013 6:15:00 PM
Surr: 2-Fluorobiphenyl	89.7	21.9-109		%REC	1	7/12/2013 6:15:00 PM
Surr: 4-Terphenyl-d14	119	42.8-147		%REC	1	7/12/2013 6:15:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-21A

Client Sample ID: AMR-SB-5-0.5
Collection Date: 6/28/2013 10:05:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM	SW8270C					Analyst: KAM
Naphthalene	340	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
2-Methylnaphthalene	420	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Acenaphthylene	61	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Acenaphthene	ND	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Fluorene	12	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Phenanthrene	350	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Anthracene	67	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Fluoranthene	340	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Pyrene	420	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Benz(a)anthracene	370	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Chrysene	510	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Benzo(b)fluoranthene	510	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Benzo(k)fluoranthene	330	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Benzo(a)pyrene	460	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Dibenz(a,h)anthracene	150	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Indeno(1,2,3-cd)pyrene	310	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Benzo(g,h,i)perylene	340	11		µg/Kg-dry	1	7/12/2013 8:02:00 PM
Surr: Nitrobenzene-d5	67.4	15-103		%REC	1	7/12/2013 8:02:00 PM
Surr: 2-Fluorobiphenyl	70.0	21.9-109		%REC	1	7/12/2013 8:02:00 PM
Surr: 4-Terphenyl-d14	98.5	42.8-147		%REC	1	7/12/2013 8:02:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-22A

Client Sample ID: AMR-SB-6-2.0
Collection Date: 6/28/2013 10:25:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
2-Methylnaphthalene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Acenaphthylene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Acenaphthene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Fluorene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Phenanthrene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Anthracene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Fluoranthene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Pyrene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Benz(a)anthracene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Chrysene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Benzo(b)fluoranthene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Benzo(k)fluoranthene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Benzo(a)pyrene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Dibenz(a,h)anthracene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Indeno(1,2,3-cd)pyrene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Benzo(g,h,i)perylene	ND	11		µg/Kg-dry	1	7/12/2013 8:38:00 PM
Surr: Nitrobenzene-d5	76.2	15-103		%REC	1	7/12/2013 8:38:00 PM
Surr: 2-Fluorobiphenyl	76.8	21.9-109		%REC	1	7/12/2013 8:38:00 PM
Surr: 4-Terphenyl-d14	104	42.8-147		%REC	1	7/12/2013 8:38:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-23A

Client Sample ID: AMR-SB-7-0.5
Collection Date: 6/28/2013 11:00:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	1,200	110		µg/Kg-dry	10	7/15/2013 4:11:00 PM
2-Methylnaphthalene	1,400	110		µg/Kg-dry	10	7/15/2013 4:11:00 PM
Acenaphthylene	77	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Acenaphthene	ND	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Fluorene	21	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Phenanthrene	930	110		µg/Kg-dry	10	7/15/2013 4:11:00 PM
Anthracene	88	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Fluoranthene	490	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Pyrene	480	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Benz(a)anthracene	270	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Chrysene	490	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Benzo(b)fluoranthene	390	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Benzo(k)fluoranthene	250	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Benzo(a)pyrene	280	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Dibenz(a,h)anthracene	110	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Indeno(1,2,3-cd)pyrene	200	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Benzo(g,h,i)perylene	230	11		µg/Kg-dry	1	7/15/2013 11:29:00 AM
Surr: Nitrobenzene-d5	75.4	15-103		%REC	1	7/15/2013 11:29:00 AM
Surr: 2-Fluorobiphenyl	77.8	21.9-109		%REC	1	7/15/2013 11:29:00 AM
Surr: 4-Terphenyl-d14	107	42.8-147		%REC	1	7/15/2013 11:29:00 AM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-24A

Client Sample ID: AMR-SB-8-2.0
Collection Date: 6/28/2013 11:20:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
2-Methylnaphthalene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Acenaphthylene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Acenaphthene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Fluorene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Phenanthrene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Anthracene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Fluoranthene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Pyrene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Benz(a)anthracene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Chrysene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Benzo(b)fluoranthene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Benzo(k)fluoranthene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Benzo(a)pyrene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Dibenz(a,h)anthracene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Indeno(1,2,3-cd)pyrene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Benzo(g,h,i)perylene	ND	11		µg/Kg-dry	1	7/15/2013 12:04:00 PM
Surr: Nitrobenzene-d5	64.7	15-103		%REC	1	7/15/2013 12:04:00 PM
Surr: 2-Fluorobiphenyl	69.4	21.9-109		%REC	1	7/15/2013 12:04:00 PM
Surr: 4-Terphenyl-d14	112	42.8-147		%REC	1	7/15/2013 12:04:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-25A

Client Sample ID: AMR-SB-09-0.5
Collection Date: 6/28/2013 11:50:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	14	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
2-Methylnaphthalene	16	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Acenaphthylene	ND	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Acenaphthene	ND	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Fluorene	ND	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Phenanthrene	75	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Anthracene	17	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Fluoranthene	170	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Pyrene	170	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Benz(a)anthracene	86	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Chrysene	99	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Benzo(b)fluoranthene	100	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Benzo(k)fluoranthene	87	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Benzo(a)pyrene	100	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Dibenz(a,h)anthracene	27	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Indeno(1,2,3-cd)pyrene	72	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Benzo(g,h,i)perylene	76	11		µg/Kg-dry	1	7/15/2013 12:40:00 PM
Surr: Nitrobenzene-d5	59.9	15-103		%REC	1	7/15/2013 12:40:00 PM
Surr: 2-Fluorobiphenyl	65.4	21.9-109		%REC	1	7/15/2013 12:40:00 PM
Surr: 4-Terphenyl-d14	120	42.8-147		%REC	1	7/15/2013 12:40:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-26A

Client Sample ID: AMR-SB-11-0.5
Collection Date: 6/28/2013 12:10:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	1,000	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
2-Methylnaphthalene	970	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Acenaphthylene	1,400	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Acenaphthene	53	12		µg/Kg-dry	1	7/15/2013 10:54:00 AM
Fluorene	47	12		µg/Kg-dry	1	7/15/2013 10:54:00 AM
Phenanthrene	900	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Anthracene	800	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Fluoranthene	2,300	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Pyrene	2,000	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Benz(a)anthracene	1,700	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Chrysene	3,300	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Benzo(b)fluoranthene	4,200	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Benzo(k)fluoranthene	3,000	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Benzo(a)pyrene	1,600	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Dibenz(a,h)anthracene	1,100	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Indeno(1,2,3-cd)pyrene	2,700	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Benzo(g,h,i)perylene	2,700	120		µg/Kg-dry	10	7/15/2013 3:35:00 PM
Surr: Nitrobenzene-d5	66.8	15-103		%REC	1	7/15/2013 10:54:00 AM
Surr: 2-Fluorobiphenyl	87.8	21.9-109		%REC	1	7/15/2013 10:54:00 AM
Surr: 4-Terphenyl-d14	111	42.8-147		%REC	1	7/15/2013 10:54:00 AM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-27A

Client Sample ID: AMR-SB-10-2.0
Collection Date: 6/28/2013 12:20:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PAH BY EPA 8270C SIM		SW8270C				Analyst: KAM
Naphthalene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
2-Methylnaphthalene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Acenaphthylene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Acenaphthene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Fluorene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Phenanthrene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Anthracene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Fluoranthene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Pyrene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Benz(a)anthracene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Chrysene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Benzo(b)fluoranthene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Benzo(k)fluoranthene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Benzo(a)pyrene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Dibenz(a,h)anthracene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Indeno(1,2,3-cd)pyrene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Benzo(g,h,i)perylene	ND	11		µg/Kg-dry	1	7/15/2013 1:15:00 PM
Surr: Nitrobenzene-d5	73.8	15-103		%REC	1	7/15/2013 1:15:00 PM
Surr: 2-Fluorobiphenyl	79.3	21.9-109		%REC	1	7/15/2013 1:15:00 PM
Surr: 4-Terphenyl-d14	101	42.8-147		%REC	1	7/15/2013 1:15:00 PM

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: MB-23371 Batch ID: 23371 Test Code: SW6270C Units: µg/Kg Analysis Date 7/10/2013 10:52:00 AM Prep Date: 7/8/2013
 Client ID: Run ID: SV-4_130710A SeqNo: 854534

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Que
Naphthalene	ND	10	µg/Kg									
2-Methylnaphthalene	ND	10	µg/Kg									
Acenaphthylene	ND	10	µg/Kg									
Acenaphthene	ND	10	µg/Kg									
Fluorene	ND	10	µg/Kg									
Phenanthrene	ND	10	µg/Kg									
Anthracene	ND	10	µg/Kg									
Fluoranthene	ND	10	µg/Kg									
Pyrene	ND	10	µg/Kg									
Benz(a)anthracene	ND	10	µg/Kg									
Chrysene	ND	10	µg/Kg									
Benzo(b)fluoranthene	ND	10	µg/Kg									
Benzo(k)fluoranthene	ND	10	µg/Kg									
Benzo(a)pyrene	ND	10	µg/Kg									
Dibenz(a,h)anthracene	ND	10	µg/Kg									
Indeno(1,2,3-cd)pyrene	ND	10	µg/Kg									
Benzo(g,h,i)perylene	ND	10	µg/Kg									
Surr: Nitrobenzene-d5	178	5.0	µg/Kg	250	0	71.2	15	103	0			
Surr: 2-Fluorobiphenyl	192.5	5.0	µg/Kg	250	0	77	21.9	109	0			
Surr: 4-Terphenyl-d14	294.5	5.0	µg/Kg	250	0	118	42.8	147	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 f - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where f values or ND results occur
 RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: MB-23370 **Batch ID:** 23370 **Test Code:** SW8270C **Units:** µg/Kg **Analysis Date:** 7/12/2013 10:36:00 AM **Prep Date:** 7/9/2013
Client ID: **Run ID:** SV-4_130712A **SeqNo:** 854886

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Que
Naphthalene	ND	10	µg/Kg									
2-Methylnaphthalene	ND	10	µg/Kg									
Acenaphthylene	ND	10	µg/Kg									
Acenaphthene	ND	10	µg/Kg									
Fluorene	ND	10	µg/Kg									
Phenanthrene	ND	10	µg/Kg									
Anthracene	ND	10	µg/Kg									
Fluoranthene	ND	10	µg/Kg									
Pyrene	ND	10	µg/Kg									
Benz(a)anthracene	ND	10	µg/Kg									
Chrysene	ND	10	µg/Kg									
Benzo(b)fluoranthene	ND	10	µg/Kg									
Benzo(k)fluoranthene	ND	10	µg/Kg									
Benzo(a)pyrene	ND	10	µg/Kg									
Dibenz(a,h)anthracene	ND	10	µg/Kg									
Indeno(1,2,3-cd)pyrene	ND	10	µg/Kg									
Benzo(g,h,i)perylene	ND	10	µg/Kg									
Surr: Nitrobenzene-d5	2160	5.0	µg/Kg	2500	0	86.4	15	103	0			
Surr: 2-Fluorobiphenyl	2304	5.0	µg/Kg	2500	0	92.2	21.9	109	0			
Surr: 4-Terphenyl-d14	2812	5.0	µg/Kg	2500	0	112	42.8	147	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID: LCS-23371	Batch ID: 23371	Test Code: SW8270C	Units: µg/Kg	Analysis Date	7/10/2013 11:27:00 AM	Prep Date: 7/8/2013						
Client ID:	Run ID:	SV-4_130710A	SeqNo: 854535									
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qualifier
Naphthalene	157	10	µg/Kg	250	0	62.8	27	100	0			
2-Methylnaphthalene	163.8	10	µg/Kg	250	0	65.5	36	96	0			
Acenaphthylene	185	10	µg/Kg	250	0	74	38	112	0			
Acenaphthene	182.5	10	µg/Kg	250	0	73	38	106	0			
Fluorene	200.8	10	µg/Kg	250	0	80.3	29	140	0			
Phenanthrene	211	10	µg/Kg	250	0	84.4	39	105	0			
Anthracene	209	10	µg/Kg	250	0	83.6	41	109	0			
Fluoranthene	222.8	10	µg/Kg	250	0	89.1	37	131	0			
Pyrene	240.2	10	µg/Kg	250	0	96.1	37	123	0			
Benz(a)anthracene	224.2	10	µg/Kg	250	0	89.7	39	126	0			
Chrysene	229.5	10	µg/Kg	250	0	91.8	38	126	0			
Benzo(b)fluoranthene	247	10	µg/Kg	250	0	98.8	49	116	0			
Benzo(k)fluoranthene	236.8	10	µg/Kg	250	0	94.7	45	119	0			
Benzo(a)pyrene	240	10	µg/Kg	250	0	96	42	119	0			
Dibenz(a,h)anthracene	240.5	10	µg/Kg	250	0	96.2	42	144	0			
Indeno(1,2,3-cd)pyrene	246.8	10	µg/Kg	250	0	98.7	47	134	0			
Benzo(g,h,i)perylene	237.8	10	µg/Kg	250	0	95.1	46	130	0			
Surr: Nitrobenzene-d5	167	5.0	µg/Kg	250	0	66.8	15	103	0			
Surr: 2-Fluorobiphenyl	176.8	5.0	µg/Kg	250	0	70.7	21.9	109	0			
Surr: 4-Terphenyl-d14	281.2	5.0	µg/Kg	250	0	112	42.8	147	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

Sample ID: LCS-23370 Batch ID: 23370 Test Code: SW8270C Units: µg/Kg Analysis Date 7/12/2013 11:11:00 AM Prep Date: 7/9/2013
 Client ID: Run ID: SV-4_130712A SeqNo: 954887

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Que
Naphthalene	217.8	10	µg/Kg	250	0	87.1	27	100	0			
2-Methylnaphthalene	198.2	10	µg/Kg	250	0	79.3	36	96	0			
Acenaphthylene	257	10	µg/Kg	250	0	103	38	112	0			
Acenaphthene	240.5	10	µg/Kg	250	0	96.2	38	106	0			
Fluorene	250.5	10	µg/Kg	250	0	100	29	140	0			
Phenanthrene	240.5	10	µg/Kg	250	0	96.2	39	105	0			
Anthracene	249.5	10	µg/Kg	250	0	99.8	41	109	0			
Fluoranthene	261.8	10	µg/Kg	250	0	105	37	131	0			
Pyrene	252.2	10	µg/Kg	250	0	101	37	123	0			
Benz(a)anthracene	254.8	10	µg/Kg	250	0	102	39	126	0			
Chrysene	256.8	10	µg/Kg	250	0	103	38	126	0			
Benzo(b)fluoranthene	263.2	10	µg/Kg	250	0	105	49	116	0			
Benzo(k)fluoranthene	281.8	10	µg/Kg	250	0	113	45	119	0			
Benzo(a)pyrene	269	10	µg/Kg	250	0	108	42	119	0			
Dibenz(a,h)anthracene	276	10	µg/Kg	250	0	110	42	144	0			
Indeno(1,2,3-cd)pyrene	278	10	µg/Kg	250	0	111	47	134	0			
Benzo(g,h,i)perylene	270	10	µg/Kg	250	0	108	46	130	0			
Surr: Nitrobenzene-d5	224.2	5.0	µg/Kg	250	0	89.7	15	103	0			
Surr: 2-Fluorobiphenyl	217.8	5.0	µg/Kg	250	0	87.1	21.9	109	0			
Surr: 4-Terphenyl-d14	282	5.0	µg/Kg	250	0	113	42.8	147	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

QC SUMMARY REPORT

Laboratory Control Spike Duplicate

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

Sample ID: LCSD-23370 Batch ID: 23370 Test Code: SW8270C Units: µg/Kg Analysis Date 7/12/2013 11:46:00 AM Prep Date: 7/9/2013
 Client ID: Run ID: SV-4_130712A SeqNo: 854888

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	QC
Naphthalene	223	10	µg/Kg	250	0	89.2	27	100	217.8	2.38	30	
2-Methylnaphthalene	204.2	10	µg/Kg	250	0	81.7	36	96	198.2	2.98	30	
Acenaphthylene	263.2	10	µg/Kg	250	0	105	38	112	257	2.4	30	
Acenaphthene	247	10	µg/Kg	250	0	98.8	38	106	240.5	2.67	30	
Fluorene	257.2	10	µg/Kg	250	0	103	29	140	250.5	2.66	30	
Phenanthrene	244.8	10	µg/Kg	250	0	97.9	39	105	240.5	1.75	30	
Anthracene	252.2	10	µg/Kg	250	0	101	41	109	249.5	1.1	30	
Fluoranthene	267.2	10	µg/Kg	250	0	107	37	131	261.8	2.08	30	
Pyrene	256.8	10	µg/Kg	250	0	103	37	123	252.2	1.77	30	
Benz(a)anthracene	258.8	10	µg/Kg	250	0	104	39	126	254.8	1.56	30	
Chrysene	261.2	10	µg/Kg	250	0	104	38	126	256.8	1.74	30	
Benzo(b)fluoranthene	275.5	10	µg/Kg	250	0	110	49	116	263.2	4.55	30	
Benzo(k)fluoranthene	281	10	µg/Kg	250	0	112	45	119	281.8	0.267	30	
Benzo(a)pyrene	275.2	10	µg/Kg	250	0	110	42	119	269	2.3	30	
Dibenz(a,h)anthracene	290.2	10	µg/Kg	250	0	116	42	144	276	5.03	30	
Indeno(1,2,3-cd)pyrene	284.5	10	µg/Kg	250	0	114	47	134	278	2.31	30	
Benzo(g,h,i)perylene	275.8	10	µg/Kg	250	0	110	46	130	270	2.11	30	
Surr: Nitrobenzene-d5	225	5.0	µg/Kg	250	0	90	15	103	0	0	0	
Surr: 2-Fluorobiphenyl	222	5.0	µg/Kg	250	0	88.8	21.9	109	0	0	0	
Surr: 4-Terphenyl-d14	287.8	5.0	µg/Kg	250	0	115	42.8	147	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 1307002-17AMS		Batch ID: 23371	Test Code: SW8270C		Units: µg/Kg-dry	Analysis Date 7/12/2013 6:51:00 PM		Prep Date: 7/8/2013				
Client ID: AMR-SB-4-2.0			Run ID: SV-4_130712A	SeqNo: 854899								
Analyte	QC Sample Result	RL	Units	Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Naphthalene	180.9	10	µg/Kg-dry	260.3	0	69.5	27	100	0			
2-Methylnaphthalene	165.8	10	µg/Kg-dry	260.3	0	63.7	36	96	0			
Acenaphthylene	214.8	10	µg/Kg-dry	260.3	0	82.5	38	112	0			
Acenaphthene	205.7	10	µg/Kg-dry	260.3	0	79	38	106	0			
Fluorene	227.3	10	µg/Kg-dry	260.3	0	87.3	29	140	0			
Phenanthrene	244.2	10	µg/Kg-dry	260.3	0	93.8	39	105	0			
Anthracene	246.5	10	µg/Kg-dry	260.3	0	94.7	41	109	0			
Fluoranthene	257.2	10	µg/Kg-dry	260.3	0	98.8	37	131	0			
Pyrene	272.3	10	µg/Kg-dry	260.3	0	105	37	123	0			
Benz(a)anthracene	268.4	10	µg/Kg-dry	260.3	0	103	39	126	0			
Chrysene	263.4	10	µg/Kg-dry	260.3	0	101	38	126	0			
Benzo(b)fluoranthene	278.5	10	µg/Kg-dry	260.3	0	107	49	116	0			
Benzo(k)fluoranthene	271.8	10	µg/Kg-dry	260.3	0	104	45	119	0			
Benzo(a)pyrene	275.2	10	µg/Kg-dry	260.3	0	106	42	119	0			
Dibenz(a,h)anthracene	291.8	10	µg/Kg-dry	260.3	0	112	42	144	0			
Indeno(1,2,3-cd)pyrene	283.5	10	µg/Kg-dry	260.3	0	109	47	134	0			
Benzo(g,h,i)perylene	272	10	µg/Kg-dry	260.3	0	105	46	130	0			
Surr: Nitrobenzene-d5	177.8	5.2	µg/Kg-dry	260.3	0	68.3	15	103	0			
Surr: 2-Fluorobiphenyl	185.4	5.2	µg/Kg-dry	260.3	0	71.2	21.9	109	0			
Surr: 4-Terphenyl-d14	304.3	5.2	µg/Kg-dry	260.3	0	117	42.8	147	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike Duplicate

Sample ID: 1307002-17AMSD		Batch ID: 23371		Test Code: SW8270C		Units: µg/Kg-dry		Analysis Date 7/12/2013 7:26:00 PM		Prep Date: 7/8/2013		
Client ID: AMR-SB-4-2.0		Run ID: SV-4_130712A		SeqNo: 854900								
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Naphthalene	202.5	10	µg/Kg-dry	259.3	0	78.1	27	100	180.9	11.3	50	
2-Methylnaphthalene	187.5	10	µg/Kg-dry	259.3	0	72.3	36	96	165.8	12.3	50	
Acenaphthylene	210	10	µg/Kg-dry	259.3	0	81	38	112	214.8	2.22	50	
Acenaphthene	202.8	10	µg/Kg-dry	259.3	0	78.2	38	106	205.7	1.41	50	
Fluorene	213.2	10	µg/Kg-dry	259.3	0	82.2	29	140	227.3	6.41	50	
Phenanthrene	207.7	10	µg/Kg-dry	259.3	0	80.1	39	105	244.2	16.1	50	
Anthracene	210	10	µg/Kg-dry	259.3	0	81	41	109	246.5	16	50	
Fluoranthene	212.6	10	µg/Kg-dry	259.3	0	82	37	131	257.2	19	50	
Pyrene	233.9	10	µg/Kg-dry	259.3	0	90.2	37	123	272.3	15.2	50	
Benz(a)anthracene	220.9	10	µg/Kg-dry	259.3	0	85.2	39	126	268.4	19.4	50	
Chrysene	216.8	10	µg/Kg-dry	259.3	0	83.6	38	126	263.4	19.4	50	
Benzo(b)fluoranthene	226.4	10	µg/Kg-dry	259.3	0	87.3	49	116	278.5	20.7	50	
Benzo(k)fluoranthene	216.5	10	µg/Kg-dry	259.3	0	83.5	45	119	271.8	22.6	50	
Benzo(a)pyrene	226.4	10	µg/Kg-dry	259.3	0	87.3	42	119	275.2	19.5	50	
Dibenz(a,h)anthracene	235.7	10	µg/Kg-dry	259.3	0	90.9	42	144	291.8	21.3	50	
Indeno(1,2,3-cd)pyrene	238.3	10	µg/Kg-dry	259.3	0	91.9	47	134	283.5	17.3	50	
Benzo(g,h,i)perylene	229.2	10	µg/Kg-dry	259.3	0	88.4	46	130	272	17.1	50	
Surr: Nitrobenzene-d5	195.5	5.2	µg/Kg-dry	259.3	0	75.4	15	103	0	0	0	
Surr: 2-Fluorobiphenyl	189.6	5.2	µg/Kg-dry	259.3	0	73.1	21.9	109	0	0	0	
Surr: 4-Terphenyl-d14	269.4	5.2	µg/Kg-dry	259.3	0	104	42.8	147	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-01**Collection Date:** 6/27/2013 9:50:00 AM**Collection Time:****Client Sample ID:** AMR-SB-27-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082**

Analyst: KAM

Aroclor 1016	ND	27		µg/Kg-dry	1	7/3/2013 1:41:00 PM
Aroclor 1221	ND	27		µg/Kg-dry	1	7/3/2013 1:41:00 PM
Aroclor 1232	ND	27		µg/Kg-dry	1	7/3/2013 1:41:00 PM
Aroclor 1242	ND	27		µg/Kg-dry	1	7/3/2013 1:41:00 PM
Aroclor 1248	ND	27		µg/Kg-dry	1	7/3/2013 1:41:00 PM
Aroclor 1254	ND	27		µg/Kg-dry	1	7/3/2013 1:41:00 PM
Aroclor 1260	ND	27		µg/Kg-dry	1	7/3/2013 1:41:00 PM
Aroclor 1262	ND	27		µg/Kg-dry	1	7/3/2013 1:41:00 PM
Aroclor 1268	ND	27		µg/Kg-dry	1	7/3/2013 1:41:00 PM
Surr: Tetrachloro-m-xylene	101	35-141		%REC	1	7/3/2013 1:41:00 PM
Surr: Decachlorobiphenyl	88.2	33-144		%REC	1	7/3/2013 1:41:00 PM

Lab ID: 1307002-02**Collection Date:** 6/27/2013 10:13:00 AM**Collection Time:****Client Sample ID:** AMR-SB-28-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082**

Analyst: KAM

Aroclor 1016	ND	29		µg/Kg-dry	1	7/3/2013 2:07:00 PM
Aroclor 1221	ND	29		µg/Kg-dry	1	7/3/2013 2:07:00 PM
Aroclor 1232	ND	29		µg/Kg-dry	1	7/3/2013 2:07:00 PM
Aroclor 1242	ND	29		µg/Kg-dry	1	7/3/2013 2:07:00 PM
Aroclor 1248	ND	29		µg/Kg-dry	1	7/3/2013 2:07:00 PM
Aroclor 1254	ND	29		µg/Kg-dry	1	7/3/2013 2:07:00 PM
Aroclor 1260	ND	29		µg/Kg-dry	1	7/3/2013 2:07:00 PM
Aroclor 1262	ND	29		µg/Kg-dry	1	7/3/2013 2:07:00 PM
Aroclor 1268	ND	29		µg/Kg-dry	1	7/3/2013 2:07:00 PM
Surr: Tetrachloro-m-xylene	83.7	35-141		%REC	1	7/3/2013 2:07:00 PM
Surr: Decachlorobiphenyl	82.1	33-144		%REC	1	7/3/2013 2:07:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-03**Collection Date:** 6/27/2013 10:40:00 AM**Collection Time:****Client Sample ID:** AMR-SB-30-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	28		µg/Kg-dry	1	7/3/2013 2:34:00 PM
Aroclor 1221	ND	28		µg/Kg-dry	1	7/3/2013 2:34:00 PM
Aroclor 1232	ND	28		µg/Kg-dry	1	7/3/2013 2:34:00 PM
Aroclor 1242	ND	28		µg/Kg-dry	1	7/3/2013 2:34:00 PM
Aroclor 1248	ND	28		µg/Kg-dry	1	7/3/2013 2:34:00 PM
Aroclor 1254	ND	28		µg/Kg-dry	1	7/3/2013 2:34:00 PM
Aroclor 1260	ND	28		µg/Kg-dry	1	7/3/2013 2:34:00 PM
Aroclor 1262	ND	28		µg/Kg-dry	1	7/3/2013 2:34:00 PM
Aroclor 1268	ND	28		µg/Kg-dry	1	7/3/2013 2:34:00 PM
Surr: Tetrachloro-m-xylene	102	35-141		%REC	1	7/3/2013 2:34:00 PM
Surr: Decachlorobiphenyl	87.8	33-144		%REC	1	7/3/2013 2:34:00 PM

Lab ID: 1307002-04**Collection Date:** 6/27/2013 11:00:00 AM**Collection Time:****Client Sample ID:** AMR-SB-31-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	26		µg/Kg-dry	1	7/3/2013 3:00:00 PM
Aroclor 1221	ND	26		µg/Kg-dry	1	7/3/2013 3:00:00 PM
Aroclor 1232	ND	26		µg/Kg-dry	1	7/3/2013 3:00:00 PM
Aroclor 1242	ND	26		µg/Kg-dry	1	7/3/2013 3:00:00 PM
Aroclor 1248	ND	26		µg/Kg-dry	1	7/3/2013 3:00:00 PM
Aroclor 1254	ND	26		µg/Kg-dry	1	7/3/2013 3:00:00 PM
Aroclor 1260	ND	26		µg/Kg-dry	1	7/3/2013 3:00:00 PM
Aroclor 1262	ND	26		µg/Kg-dry	1	7/3/2013 3:00:00 PM
Aroclor 1268	ND	26		µg/Kg-dry	1	7/3/2013 3:00:00 PM
Surr: Tetrachloro-m-xylene	110	35-141		%REC	1	7/3/2013 3:00:00 PM
Surr: Decachlorobiphenyl	88.8	33-144		%REC	1	7/3/2013 3:00:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-05**Collection Date:** 6/27/2013 11:00:00 AM**Collection Time:****Client Sample ID:** AMR-SB-31-FD-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	26		µg/Kg-dry	1	7/3/2013 3:27:00 PM
Aroclor 1221	ND	26		µg/Kg-dry	1	7/3/2013 3:27:00 PM
Aroclor 1232	ND	26		µg/Kg-dry	1	7/3/2013 3:27:00 PM
Aroclor 1242	ND	26		µg/Kg-dry	1	7/3/2013 3:27:00 PM
Aroclor 1248	ND	26		µg/Kg-dry	1	7/3/2013 3:27:00 PM
Aroclor 1254	ND	26		µg/Kg-dry	1	7/3/2013 3:27:00 PM
Aroclor 1260	ND	26		µg/Kg-dry	1	7/3/2013 3:27:00 PM
Aroclor 1262	ND	26		µg/Kg-dry	1	7/3/2013 3:27:00 PM
Aroclor 1268	ND	26		µg/Kg-dry	1	7/3/2013 3:27:00 PM
Surr: Tetrachloro-m-xylene	108	35-141		%REC	1	7/3/2013 3:27:00 PM
Surr: Decachlorobiphenyl	86.0	33-144		%REC	1	7/3/2013 3:27:00 PM

Lab ID: 1307002-06**Collection Date:** 6/27/2013 11:15:00 AM**Collection Time:****Client Sample ID:** AMR-SB-32-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	26		µg/Kg-dry	1	7/3/2013 3:51:00 PM
Aroclor 1221	ND	26		µg/Kg-dry	1	7/3/2013 3:51:00 PM
Aroclor 1232	ND	26		µg/Kg-dry	1	7/3/2013 3:51:00 PM
Aroclor 1242	ND	26		µg/Kg-dry	1	7/3/2013 3:51:00 PM
Aroclor 1248	ND	26		µg/Kg-dry	1	7/3/2013 3:51:00 PM
Aroclor 1254	ND	26		µg/Kg-dry	1	7/3/2013 3:51:00 PM
Aroclor 1260	ND	26		µg/Kg-dry	1	7/3/2013 3:51:00 PM
Aroclor 1262	ND	26		µg/Kg-dry	1	7/3/2013 3:51:00 PM
Aroclor 1268	ND	26		µg/Kg-dry	1	7/3/2013 3:51:00 PM
Surr: Tetrachloro-m-xylene	103	35-141		%REC	1	7/3/2013 3:51:00 PM
Surr: Decachlorobiphenyl	85.7	33-144		%REC	1	7/3/2013 3:51:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-07**Collection Date:** 6/27/2013 11:40:00 AM**Collection Time:****Client Sample ID:** AMR-SB-33-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	26		µg/Kg-dry	1	7/3/2013 4:17:00 PM
Aroclor 1221	ND	26		µg/Kg-dry	1	7/3/2013 4:17:00 PM
Aroclor 1232	ND	26		µg/Kg-dry	1	7/3/2013 4:17:00 PM
Aroclor 1242	ND	26		µg/Kg-dry	1	7/3/2013 4:17:00 PM
Aroclor 1248	ND	26		µg/Kg-dry	1	7/3/2013 4:17:00 PM
Aroclor 1254	ND	26		µg/Kg-dry	1	7/3/2013 4:17:00 PM
Aroclor 1260	ND	26		µg/Kg-dry	1	7/3/2013 4:17:00 PM
Aroclor 1262	ND	26		µg/Kg-dry	1	7/3/2013 4:17:00 PM
Aroclor 1268	ND	26		µg/Kg-dry	1	7/3/2013 4:17:00 PM
Surr: Tetrachloro-m-xylene	104	35-141		%REC	1	7/3/2013 4:17:00 PM
Surr: Decachlorobiphenyl	83.8	33-144		%REC	1	7/3/2013 4:17:00 PM

Lab ID: 1307002-08**Collection Date:** 6/27/2013 11:50:00 AM**Collection Time:****Client Sample ID:** AMR-SB-29-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	29		µg/Kg-dry	1	7/3/2013 5:37:00 PM
Aroclor 1221	ND	29		µg/Kg-dry	1	7/3/2013 5:37:00 PM
Aroclor 1232	ND	29		µg/Kg-dry	1	7/3/2013 5:37:00 PM
Aroclor 1242	ND	29		µg/Kg-dry	1	7/3/2013 5:37:00 PM
Aroclor 1248	ND	29		µg/Kg-dry	1	7/3/2013 5:37:00 PM
Aroclor 1254	ND	29		µg/Kg-dry	1	7/3/2013 5:37:00 PM
Aroclor 1260	ND	29		µg/Kg-dry	1	7/3/2013 5:37:00 PM
Aroclor 1262	ND	29		µg/Kg-dry	1	7/3/2013 5:37:00 PM
Aroclor 1268	ND	29		µg/Kg-dry	1	7/3/2013 5:37:00 PM
Surr: Tetrachloro-m-xylene	102	35-141		%REC	1	7/3/2013 5:37:00 PM
Surr: Decachlorobiphenyl	89.2	33-144		%REC	1	7/3/2013 5:37:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-09**Collection Date:** 6/27/2013 12:45:00 PM**Collection Time:****Client Sample ID:** AMR-SB-26-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	26		µg/Kg-dry	1	7/5/2013 6:42:00 PM
Aroclor 1221	ND	26		µg/Kg-dry	1	7/5/2013 6:42:00 PM
Aroclor 1232	ND	26		µg/Kg-dry	1	7/5/2013 6:42:00 PM
Aroclor 1242	ND	26		µg/Kg-dry	1	7/5/2013 6:42:00 PM
Aroclor 1248	ND	26		µg/Kg-dry	1	7/5/2013 6:42:00 PM
Aroclor 1254	ND	26		µg/Kg-dry	1	7/5/2013 6:42:00 PM
Aroclor 1260	ND	26		µg/Kg-dry	1	7/5/2013 6:42:00 PM
Aroclor 1262	ND	26		µg/Kg-dry	1	7/5/2013 6:42:00 PM
Aroclor 1268	ND	26		µg/Kg-dry	1	7/5/2013 6:42:00 PM
Surr: Tetrachloro-m-xylene	88.3	35-141		%REC	1	7/5/2013 6:42:00 PM
Surr: Decachlorobiphenyl	96.5	33-144		%REC	1	7/5/2013 6:42:00 PM

Lab ID: 1307002-10**Collection Date:** 6/27/2013 1:05:00 PM**Collection Time:****Client Sample ID:** AMR-SB-25-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	26		µg/Kg-dry	1	7/5/2013 7:08:00 PM
Aroclor 1221	ND	26		µg/Kg-dry	1	7/5/2013 7:08:00 PM
Aroclor 1232	ND	26		µg/Kg-dry	1	7/5/2013 7:08:00 PM
Aroclor 1242	ND	26		µg/Kg-dry	1	7/5/2013 7:08:00 PM
Aroclor 1248	ND	26		µg/Kg-dry	1	7/5/2013 7:08:00 PM
Aroclor 1254	ND	26		µg/Kg-dry	1	7/5/2013 7:08:00 PM
Aroclor 1260	ND	26		µg/Kg-dry	1	7/5/2013 7:08:00 PM
Aroclor 1262	ND	26		µg/Kg-dry	1	7/5/2013 7:08:00 PM
Aroclor 1268	ND	26		µg/Kg-dry	1	7/5/2013 7:08:00 PM
Surr: Tetrachloro-m-xylene	74.6	35-141		%REC	1	7/5/2013 7:08:00 PM
Surr: Decachlorobiphenyl	109	33-144		%REC	1	7/5/2013 7:08:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-11**Collection Date:** 6/27/2013 1:25:00 PM**Collection Time:****Client Sample ID:** AMR-SB-24-1.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	35		µg/Kg-dry	1	7/5/2013 7:35:00 PM
Aroclor 1221	ND	35		µg/Kg-dry	1	7/5/2013 7:35:00 PM
Aroclor 1232	ND	35		µg/Kg-dry	1	7/5/2013 7:35:00 PM
Aroclor 1242	ND	35		µg/Kg-dry	1	7/5/2013 7:35:00 PM
Aroclor 1248	ND	35		µg/Kg-dry	1	7/5/2013 7:35:00 PM
Aroclor 1254	ND	35		µg/Kg-dry	1	7/5/2013 7:35:00 PM
Aroclor 1260	ND	35		µg/Kg-dry	1	7/5/2013 7:35:00 PM
Aroclor 1262	ND	35		µg/Kg-dry	1	7/5/2013 7:35:00 PM
Aroclor 1268	ND	35		µg/Kg-dry	1	7/5/2013 7:35:00 PM
Surr: Tetrachloro-m-xylene	84.8	35-141		%REC	1	7/5/2013 7:35:00 PM
Surr: Decachlorobiphenyl	96.3	33-144		%REC	1	7/5/2013 7:35:00 PM

Lab ID: 1307002-12**Collection Date:** 6/27/2013 2:35:00 PM**Collection Time:****Client Sample ID:** AMR-SB-21-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	29		µg/Kg-dry	1	7/5/2013 8:01:00 PM
Aroclor 1221	ND	29		µg/Kg-dry	1	7/5/2013 8:01:00 PM
Aroclor 1232	ND	29		µg/Kg-dry	1	7/5/2013 8:01:00 PM
Aroclor 1242	ND	29		µg/Kg-dry	1	7/5/2013 8:01:00 PM
Aroclor 1248	ND	29		µg/Kg-dry	1	7/5/2013 8:01:00 PM
Aroclor 1254	ND	29		µg/Kg-dry	1	7/5/2013 8:01:00 PM
Aroclor 1260	ND	29		µg/Kg-dry	1	7/5/2013 8:01:00 PM
Aroclor 1262	ND	29		µg/Kg-dry	1	7/5/2013 8:01:00 PM
Aroclor 1268	ND	29		µg/Kg-dry	1	7/5/2013 8:01:00 PM
Surr: Tetrachloro-m-xylene	87.0	35-141		%REC	1	7/5/2013 8:01:00 PM
Surr: Decachlorobiphenyl	91.2	33-144		%REC	1	7/5/2013 8:01:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-13**Collection Date:** 6/27/2013 2:35:00 PM**Collection Time:****Client Sample ID:** AMR-SB-21-0.5 FD**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	270		µg/Kg-dry	10	7/8/2013 12:43:00 PM
Aroclor 1221	ND	270		µg/Kg-dry	10	7/8/2013 12:43:00 PM
Aroclor 1232	ND	270		µg/Kg-dry	10	7/8/2013 12:43:00 PM
Aroclor 1242	ND	270		µg/Kg-dry	10	7/8/2013 12:43:00 PM
Aroclor 1248	ND	270		µg/Kg-dry	10	7/8/2013 12:43:00 PM
Aroclor 1254	ND	270		µg/Kg-dry	10	7/8/2013 12:43:00 PM
Aroclor 1260	ND	270		µg/Kg-dry	10	7/8/2013 12:43:00 PM
Aroclor 1262	ND	270		µg/Kg-dry	10	7/8/2013 12:43:00 PM
Aroclor 1268	ND	270		µg/Kg-dry	10	7/8/2013 12:43:00 PM
Surr: Tetrachloro-m-xylene	42.5	35-141		%REC	10	7/8/2013 12:43:00 PM
Surr: Decachlorobiphenyl	49.6	33-144		%REC	10	7/8/2013 12:43:00 PM

Lab ID: 1307002-14**Collection Date:** 6/27/2013 3:15:00 PM**Collection Time:****Client Sample ID:** AMR-SB-17-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	30		µg/Kg-dry	1	7/5/2013 8:54:00 PM
Aroclor 1221	ND	30		µg/Kg-dry	1	7/5/2013 8:54:00 PM
Aroclor 1232	ND	30		µg/Kg-dry	1	7/5/2013 8:54:00 PM
Aroclor 1242	ND	30		µg/Kg-dry	1	7/5/2013 8:54:00 PM
Aroclor 1248	ND	30		µg/Kg-dry	1	7/5/2013 8:54:00 PM
Aroclor 1254	ND	30		µg/Kg-dry	1	7/5/2013 8:54:00 PM
Aroclor 1260	ND	30		µg/Kg-dry	1	7/5/2013 8:54:00 PM
Aroclor 1262	ND	30		µg/Kg-dry	1	7/5/2013 8:54:00 PM
Aroclor 1268	ND	30		µg/Kg-dry	1	7/5/2013 8:54:00 PM
Surr: Tetrachloro-m-xylene	80.7	35-141		%REC	1	7/5/2013 8:54:00 PM
Surr: Decachlorobiphenyl	85.0	33-144		%REC	1	7/5/2013 8:54:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-15**Collection Date:** 6/27/2013 3:40:00 PM**Collection Time:****Client Sample ID:** AMR-SB-15-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	28		µg/Kg-dry	1	7/5/2013 9:20:00 PM
Aroclor 1221	ND	28		µg/Kg-dry	1	7/5/2013 9:20:00 PM
Aroclor 1232	ND	28		µg/Kg-dry	1	7/5/2013 9:20:00 PM
Aroclor 1242	ND	28		µg/Kg-dry	1	7/5/2013 9:20:00 PM
Aroclor 1248	ND	28		µg/Kg-dry	1	7/5/2013 9:20:00 PM
Aroclor 1254	ND	28		µg/Kg-dry	1	7/5/2013 9:20:00 PM
Aroclor 1260	ND	28		µg/Kg-dry	1	7/5/2013 9:20:00 PM
Aroclor 1262	ND	28		µg/Kg-dry	1	7/5/2013 9:20:00 PM
Aroclor 1268	ND	28		µg/Kg-dry	1	7/5/2013 9:20:00 PM
Surr: Tetrachloro-m-xylene	85.4	35-141		%REC	1	7/5/2013 9:20:00 PM
Surr: Decachlorobiphenyl	90.2	33-144		%REC	1	7/5/2013 9:20:00 PM

Lab ID: 1307002-16**Collection Date:** 6/27/2013 4:00:00 PM**Collection Time:****Client Sample ID:** AMR-SB-12-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	29		µg/Kg-dry	1	7/5/2013 9:47:00 PM
Aroclor 1221	ND	29		µg/Kg-dry	1	7/5/2013 9:47:00 PM
Aroclor 1232	ND	29		µg/Kg-dry	1	7/5/2013 9:47:00 PM
Aroclor 1242	ND	29		µg/Kg-dry	1	7/5/2013 9:47:00 PM
Aroclor 1248	ND	29		µg/Kg-dry	1	7/5/2013 9:47:00 PM
Aroclor 1254	ND	29		µg/Kg-dry	1	7/5/2013 9:47:00 PM
Aroclor 1260	ND	29		µg/Kg-dry	1	7/5/2013 9:47:00 PM
Aroclor 1262	ND	29		µg/Kg-dry	1	7/5/2013 9:47:00 PM
Aroclor 1268	ND	29		µg/Kg-dry	1	7/5/2013 9:47:00 PM
Surr: Tetrachloro-m-xylene	85.2	35-141		%REC	1	7/5/2013 9:47:00 PM
Surr: Decachlorobiphenyl	91.5	33-144		%REC	1	7/5/2013 9:47:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-17**Collection Date:** 6/28/2013 8:20:00 AM**Collection Time:****Client Sample ID:** AMR-SB-4-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	27		µg/Kg-dry	1	7/5/2013 10:13:00 PM
Aroclor 1221	ND	27		µg/Kg-dry	1	7/5/2013 10:13:00 PM
Aroclor 1232	ND	27		µg/Kg-dry	1	7/5/2013 10:13:00 PM
Aroclor 1242	ND	27		µg/Kg-dry	1	7/5/2013 10:13:00 PM
Aroclor 1248	ND	27		µg/Kg-dry	1	7/5/2013 10:13:00 PM
Aroclor 1254	ND	27		µg/Kg-dry	1	7/5/2013 10:13:00 PM
Aroclor 1260	ND	27		µg/Kg-dry	1	7/5/2013 10:13:00 PM
Aroclor 1262	ND	27		µg/Kg-dry	1	7/5/2013 10:13:00 PM
Aroclor 1268	ND	27		µg/Kg-dry	1	7/5/2013 10:13:00 PM
Surr: Tetrachloro-m-xylene	88.7	35-141		%REC	1	7/5/2013 10:13:00 PM
Surr: Decachlorobiphenyl	92.4	33-144		%REC	1	7/5/2013 10:13:00 PM

Lab ID: 1307002-18**Collection Date:** 6/28/2013 8:45:00 AM**Collection Time:****Client Sample ID:** AMR-SB-3-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	29		µg/Kg-dry	1	7/5/2013 10:40:00 PM
Aroclor 1221	ND	29		µg/Kg-dry	1	7/5/2013 10:40:00 PM
Aroclor 1232	ND	29		µg/Kg-dry	1	7/5/2013 10:40:00 PM
Aroclor 1242	ND	29		µg/Kg-dry	1	7/5/2013 10:40:00 PM
Aroclor 1248	ND	29		µg/Kg-dry	1	7/5/2013 10:40:00 PM
Aroclor 1254	ND	29		µg/Kg-dry	1	7/5/2013 10:40:00 PM
Aroclor 1260	ND	29		µg/Kg-dry	1	7/5/2013 10:40:00 PM
Aroclor 1262	ND	29		µg/Kg-dry	1	7/5/2013 10:40:00 PM
Aroclor 1268	ND	29		µg/Kg-dry	1	7/5/2013 10:40:00 PM
Surr: Tetrachloro-m-xylene	66.9	35-141		%REC	1	7/5/2013 10:40:00 PM
Surr: Decachlorobiphenyl	94.4	33-144		%REC	1	7/5/2013 10:40:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-19**Collection Date:** 6/28/2013 9:00:00 AM**Collection Time:****Client Sample ID:** AMR-SB-2-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	26		µg/Kg-dry	1	7/5/2013 11:06:00 PM
Aroclor 1221	ND	26		µg/Kg-dry	1	7/5/2013 11:06:00 PM
Aroclor 1232	ND	26		µg/Kg-dry	1	7/5/2013 11:06:00 PM
Aroclor 1242	ND	26		µg/Kg-dry	1	7/5/2013 11:06:00 PM
Aroclor 1248	ND	26		µg/Kg-dry	1	7/5/2013 11:06:00 PM
Aroclor 1254	ND	26		µg/Kg-dry	1	7/5/2013 11:06:00 PM
Aroclor 1260	ND	26		µg/Kg-dry	1	7/5/2013 11:06:00 PM
Aroclor 1262	ND	26		µg/Kg-dry	1	7/5/2013 11:06:00 PM
Aroclor 1268	ND	26		µg/Kg-dry	1	7/5/2013 11:06:00 PM
Surr: Tetrachloro-m-xylene	85.0	35-141		%REC	1	7/5/2013 11:06:00 PM
Surr: Decachlorobiphenyl	91.0	33-144		%REC	1	7/5/2013 11:06:00 PM

Lab ID: 1307002-20**Collection Date:** 6/28/2013 9:15:00 AM**Collection Time:****Client Sample ID:** AMR-SB-1-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	26		µg/Kg-dry	1	7/5/2013 11:33:00 PM
Aroclor 1221	ND	26		µg/Kg-dry	1	7/5/2013 11:33:00 PM
Aroclor 1232	ND	26		µg/Kg-dry	1	7/5/2013 11:33:00 PM
Aroclor 1242	ND	26		µg/Kg-dry	1	7/5/2013 11:33:00 PM
Aroclor 1248	ND	26		µg/Kg-dry	1	7/5/2013 11:33:00 PM
Aroclor 1254	ND	26		µg/Kg-dry	1	7/5/2013 11:33:00 PM
Aroclor 1260	ND	26		µg/Kg-dry	1	7/5/2013 11:33:00 PM
Aroclor 1262	ND	26		µg/Kg-dry	1	7/5/2013 11:33:00 PM
Aroclor 1268	ND	26		µg/Kg-dry	1	7/5/2013 11:33:00 PM
Surr: Tetrachloro-m-xylene	71.8	35-141		%REC	1	7/5/2013 11:33:00 PM
Surr: Decachlorobiphenyl	88.1	33-144		%REC	1	7/5/2013 11:33:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-21**Collection Date:** 6/28/2013 10:05:00 AM**Collection Time:****Client Sample ID:** AMR-SB-5-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	27		µg/Kg-dry	1	7/5/2013 11:59:00 PM
Aroclor 1221	ND	27		µg/Kg-dry	1	7/5/2013 11:59:00 PM
Aroclor 1232	ND	27		µg/Kg-dry	1	7/5/2013 11:59:00 PM
Aroclor 1242	ND	27		µg/Kg-dry	1	7/5/2013 11:59:00 PM
Aroclor 1248	ND	27		µg/Kg-dry	1	7/5/2013 11:59:00 PM
Aroclor 1254	ND	27		µg/Kg-dry	1	7/5/2013 11:59:00 PM
Aroclor 1260	38	27		µg/Kg-dry	1	7/5/2013 11:59:00 PM
Aroclor 1262	ND	27		µg/Kg-dry	1	7/5/2013 11:59:00 PM
Aroclor 1268	ND	27		µg/Kg-dry	1	7/5/2013 11:59:00 PM
Surr: Tetrachloro-m-xylene	71.0	35-141		%REC	1	7/5/2013 11:59:00 PM
Surr: Decachlorobiphenyl	84.5	33-144		%REC	1	7/5/2013 11:59:00 PM

Lab ID: 1307002-22**Collection Date:** 6/28/2013 10:25:00 AM**Collection Time:****Client Sample ID:** AMR-SB-6-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	28		µg/Kg-dry	1	7/6/2013 12:26:00 AM
Aroclor 1221	ND	28		µg/Kg-dry	1	7/6/2013 12:26:00 AM
Aroclor 1232	ND	28		µg/Kg-dry	1	7/6/2013 12:26:00 AM
Aroclor 1242	ND	28		µg/Kg-dry	1	7/6/2013 12:26:00 AM
Aroclor 1248	ND	28		µg/Kg-dry	1	7/6/2013 12:26:00 AM
Aroclor 1254	ND	28		µg/Kg-dry	1	7/6/2013 12:26:00 AM
Aroclor 1260	ND	28		µg/Kg-dry	1	7/6/2013 12:26:00 AM
Aroclor 1262	ND	28		µg/Kg-dry	1	7/6/2013 12:26:00 AM
Aroclor 1268	ND	28		µg/Kg-dry	1	7/6/2013 12:26:00 AM
Surr: Tetrachloro-m-xylene	75.4	35-141		%REC	1	7/6/2013 12:26:00 AM
Surr: Decachlorobiphenyl	87.4	33-144		%REC	1	7/6/2013 12:26:00 AM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-23 **Collection Date:** 6/28/2013 11:00:00 AM**Collection Time:****Client Sample ID:** AMR-SB-7-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	29		µg/Kg-dry	1	7/6/2013 12:53:00 AM
Aroclor 1221	ND	29		µg/Kg-dry	1	7/6/2013 12:53:00 AM
Aroclor 1232	ND	29		µg/Kg-dry	1	7/6/2013 12:53:00 AM
Aroclor 1242	ND	29		µg/Kg-dry	1	7/6/2013 12:53:00 AM
Aroclor 1248	ND	29		µg/Kg-dry	1	7/6/2013 12:53:00 AM
Aroclor 1254	ND	29		µg/Kg-dry	1	7/6/2013 12:53:00 AM
Aroclor 1260	ND	29		µg/Kg-dry	1	7/6/2013 12:53:00 AM
Aroclor 1262	ND	29		µg/Kg-dry	1	7/6/2013 12:53:00 AM
Aroclor 1268	ND	29		µg/Kg-dry	1	7/6/2013 12:53:00 AM
Surr: Tetrachloro-m-xylene	63.0	35-141		%REC	1	7/6/2013 12:53:00 AM
Surr: Decachlorobiphenyl	84.6	33-144		%REC	1	7/6/2013 12:53:00 AM

Lab ID: 1307002-24**Collection Date:** 6/28/2013 11:20:00 AM**Collection Time:****Client Sample ID:** AMR-SB-8-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	27		µg/Kg-dry	1	7/6/2013 1:20:00 AM
Aroclor 1221	ND	27		µg/Kg-dry	1	7/6/2013 1:20:00 AM
Aroclor 1232	ND	27		µg/Kg-dry	1	7/6/2013 1:20:00 AM
Aroclor 1242	ND	27		µg/Kg-dry	1	7/6/2013 1:20:00 AM
Aroclor 1248	ND	27		µg/Kg-dry	1	7/6/2013 1:20:00 AM
Aroclor 1254	ND	27		µg/Kg-dry	1	7/6/2013 1:20:00 AM
Aroclor 1260	ND	27		µg/Kg-dry	1	7/6/2013 1:20:00 AM
Aroclor 1262	ND	27		µg/Kg-dry	1	7/6/2013 1:20:00 AM
Aroclor 1268	ND	27		µg/Kg-dry	1	7/6/2013 1:20:00 AM
Surr: Tetrachloro-m-xylene	81.6	35-141		%REC	1	7/6/2013 1:20:00 AM
Surr: Decachlorobiphenyl	87.0	33-144		%REC	1	7/6/2013 1:20:00 AM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-25**Collection Date:** 6/28/2013 11:50:00 AM**Collection Time:****Client Sample ID:** AMR-SB-09-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	27		µg/Kg-dry	1	7/6/2013 1:46:00 AM
Aroclor 1221	ND	27		µg/Kg-dry	1	7/6/2013 1:46:00 AM
Aroclor 1232	ND	27		µg/Kg-dry	1	7/6/2013 1:46:00 AM
Aroclor 1242	ND	27		µg/Kg-dry	1	7/6/2013 1:46:00 AM
Aroclor 1248	ND	27		µg/Kg-dry	1	7/6/2013 1:46:00 AM
Aroclor 1254	ND	27		µg/Kg-dry	1	7/6/2013 1:48:00 AM
Aroclor 1260	ND	27		µg/Kg-dry	1	7/6/2013 1:46:00 AM
Aroclor 1262	ND	27		µg/Kg-dry	1	7/6/2013 1:46:00 AM
Aroclor 1268	ND	27		µg/Kg-dry	1	7/6/2013 1:46:00 AM
Surr: Tetrachloro-m-xylene	91.6	35-141		%REC	1	7/6/2013 1:46:00 AM
Surr: Decachlorobiphenyl	88.5	33-144		%REC	1	7/6/2013 1:46:00 AM

Lab ID: 1307002-26**Collection Date:** 6/28/2013 12:10:00 PM**Collection Time:****Client Sample ID:** AMR-SB-11-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082****Analyst:** KAM

Aroclor 1016	ND	31		µg/Kg-dry	1	7/6/2013 5:18:00 AM
Aroclor 1221	ND	31		µg/Kg-dry	1	7/6/2013 5:18:00 AM
Aroclor 1232	ND	31		µg/Kg-dry	1	7/6/2013 5:18:00 AM
Aroclor 1242	ND	31		µg/Kg-dry	1	7/6/2013 5:18:00 AM
Aroclor 1248	ND	31		µg/Kg-dry	1	7/6/2013 5:18:00 AM
Aroclor 1254	ND	31		µg/Kg-dry	1	7/6/2013 5:18:00 AM
Aroclor 1260	ND	31		µg/Kg-dry	1	7/6/2013 5:18:00 AM
Aroclor 1262	ND	31		µg/Kg-dry	1	7/6/2013 5:18:00 AM
Aroclor 1268	ND	31		µg/Kg-dry	1	7/6/2013 5:18:00 AM
Surr: Tetrachloro-m-xylene	66.7	35-141		%REC	1	7/6/2013 5:18:00 AM
Surr: Decachlorobiphenyl	83.4	33-144		%REC	1	7/6/2013 5:18:00 AM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-27**Collection Date:** 6/28/2013 12:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB-10-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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PCBS BY EPA8082**SW8082**

Analyst: KAM

Aroclor 1016	ND	27		µg/Kg-dry	1	7/6/2013 5:44:00 AM
Aroclor 1221	ND	27		µg/Kg-dry	1	7/6/2013 5:44:00 AM
Aroclor 1232	ND	27		µg/Kg-dry	1	7/6/2013 5:44:00 AM
Aroclor 1242	ND	27		µg/Kg-dry	1	7/6/2013 5:44:00 AM
Aroclor 1248	ND	27		µg/Kg-dry	1	7/6/2013 5:44:00 AM
Aroclor 1254	ND	27		µg/Kg-dry	1	7/6/2013 5:44:00 AM
Aroclor 1260	ND	27		µg/Kg-dry	1	7/6/2013 5:44:00 AM
Aroclor 1262	ND	27		µg/Kg-dry	1	7/6/2013 5:44:00 AM
Aroclor 1268	ND	27		µg/Kg-dry	1	7/6/2013 5:44:00 AM
Surr: Tetrachloro-m-xylene	83.8	35-141		%REC	1	7/6/2013 5:44:00 AM
Surr: Decachlorobiphenyl	91.4	33-144		%REC	1	7/6/2013 5:44:00 AM

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: MB-23361 **Batch ID:** 23361 **Test Code:** SW8082 **Units:** µg/Kg **Analysis Date:** 7/5/2013 5:22:00 PM **Prep Date:** 7/3/2013
Client ID: **Run ID:** GC-ELVIS_130705A **SeqNo:** 854095

Analyte	QC Sample		QC Spike		Original Sample		Original Sample		%RPD	RPDLimit	Qua
	Result	RL	Units	Amount	Result	%REC	LowLimit	HighLimit			
Aroclor 1016	ND	25	µg/Kg								
Aroclor 1221	ND	25	µg/Kg								
Aroclor 1232	ND	25	µg/Kg								
Aroclor 1242	ND	25	µg/Kg								
Aroclor 1248	ND	25	µg/Kg								
Aroclor 1254	ND	25	µg/Kg								
Aroclor 1260	ND	25	µg/Kg								
Aroclor 1262	ND	25	µg/Kg								
Aroclor 1268	ND	25	µg/Kg								
Surrogate: Tetrachloro-m-xylene	6.609	0	µg/Kg	8	0	82.6	35	141	0		
Surrogate: Decachlorobiphenyl	7.557	0	µg/Kg	8	0	94.5	33	144	0		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: MB-23359 **Batch ID:** 23359 **Test Code:** SW8082 **Units:** µg/Kg **Analysis Date:** 7/3/2013 12:22:00 PM **Prep Date:** 7/2/2013
Client ID: **Run ID:** GC-ELVIS_130703A **SeqNo:** 854185

Analyte	QC Sample		RL	QC Spike		Units	Original Sample		%REC	Original Sample		%RPD	RPDLimit	Qua
	Result			Amount	Result		Amount	Result		HighLimit	or MS Result			
Aroclor 1016	ND		25			µg/Kg								
Aroclor 1221	ND		25			µg/Kg								
Aroclor 1232	ND		25			µg/Kg								
Aroclor 1242	ND		25			µg/Kg								
Aroclor 1248	ND		25			µg/Kg								
Aroclor 1254	ND		25			µg/Kg								
Aroclor 1260	ND		25			µg/Kg								
Aroclor 1262	ND		25			µg/Kg								
Aroclor 1268	ND		25			µg/Kg								
Surr: Tetrachloro-m-xylene	8.105		0	8	0	µg/Kg	8	0	101	35	141	0		
Surr: Decachlorobiphenyl	8.126		0	8	0	µg/Kg	8	0	102	33	144	0		

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID: LCS-23361 Batch ID: 23361 Test Code: SW8082 Units: µg/Kg Analysis Date: 7/5/2013 5:49:00 PM Prep Date: 7/3/2013
 Client ID: Run ID: GC-ELVIS_130705A SeqNo: 854096

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	QC
Aroclor 1016	464.3	25	µg/Kg	500	0	92.9	45	128	0			
Aroclor 1260	510.1	25	µg/Kg	500	0	102	40	130	0			
Surr: Tetrachloro-m-xylene	7.734	0	µg/Kg	8	0	96.7	35	141	0			
Surr: Decachlorobiphenyl	7.861	0	µg/Kg	8	0	98.3	33	144	0			

Sample ID: LCS-23361 Batch ID: 23361 Test Code: SW8082 Units: µg/Kg Analysis Date: 7/5/2013 6:15:00 PM Prep Date: 7/3/2013
 Client ID: Run ID: GC-ELVIS_130705A SeqNo: 854097

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	QC
Aroclor 1016	474.3	25	µg/Kg	500	0	94.9	45	128	464.3	2.13	50	
Aroclor 1260	527.7	25	µg/Kg	500	0	106	40	130	510.1	3.37	50	
Surr: Tetrachloro-m-xylene	8.134	0	µg/Kg	8	0	102	35	141	0	0	0	
Surr: Decachlorobiphenyl	8.044	0	µg/Kg	8	0	101	33	144	0	0	0	

Sample ID: LCS-23359 Batch ID: 23359 Test Code: SW8082 Units: µg/Kg Analysis Date: 7/3/2013 12:48:00 PM Prep Date: 7/2/2013
 Client ID: Run ID: GC-ELVIS_130703A SeqNo: 854186

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	QC
Aroclor 1016	449	25	µg/Kg	500	0	89.8	45	128	0			
Aroclor 1260	474.4	25	µg/Kg	500	0	94.9	40	130	0			
Surr: Tetrachloro-m-xylene	8.368	0	µg/Kg	8	0	105	35	141	0			
Surr: Decachlorobiphenyl	8.588	0	µg/Kg	8	0	109	33	144	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: 1307002-07AMS Batch ID: 23359 Test Code: SW8082 Units: µg/Kg-dry Analysis Date: 7/3/2013 4:44:00 PM Prep Date: 7/2/2013
Client ID: AMR-SB-33-0.5 Run ID: GC-ELVIS_130703A SeqNo: 854182

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Aroclor 1016	473.7	26	µg/Kg-dry	519.9	0	91.1	36	130	0			
Aroclor 1260	407.8	26	µg/Kg-dry	519.9	0	78.4	22	134	0			
Surr: Tetrachloro-m-xylene	8.467	0	µg/Kg-dry	8.319	0	102	35	141	0			
Surr: Decachlorobiphenyl	7.393	0	µg/Kg-dry	8.319	0	88.9	33	144	0			

Sample ID: 1307002-07AMSD Batch ID: 23359 Test Code: SW8082 Units: µg/Kg-dry Analysis Date: 7/3/2013 5:10:00 PM Prep Date: 7/2/2013
Client ID: AMR-SB-33-0.5 Run ID: GC-ELVIS_130703A SeqNo: 854183

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Aroclor 1016	478.1	26	µg/Kg-dry	510.8	0	93.6	36	130	473.7	0.932	50	
Aroclor 1260	413	26	µg/Kg-dry	510.8	0	80.9	22	134	407.8	1.28	50	
Surr: Tetrachloro-m-xylene	8.778	0	µg/Kg-dry	8.173	0	107	35	141	0	0	0	
Surr: Decachlorobiphenyl	7.255	0	µg/Kg-dry	8.173	0	88.8	33	144	0	0	0	

Sample ID: 1307002-25AMS Batch ID: 23361 Test Code: SW8082 Units: µg/Kg-dry Analysis Date: 7/6/2013 4:25:00 AM Prep Date: 7/3/2013
Client ID: AMR-SB-09-0.5 Run ID: GC-ELVIS_130705A SeqNo: 854204

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Aroclor 1016	472.4	27	µg/Kg-dry	542.1	0	87.1	36	130	0			
Aroclor 1260	506.5	27	µg/Kg-dry	542.1	0	93.4	22	134	0			
Surr: Tetrachloro-m-xylene	7.483	0	µg/Kg-dry	8.674	0	86.3	35	141	0			
Surr: Decachlorobiphenyl	7.521	0	µg/Kg-dry	8.674	0	86.7	33	144	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike Duplicate

Sample ID: 1307002-25AMSD	Batch ID: 23361	Test Code: SW8082	Units: µg/Kg-dry	Analysis Date 7/6/2013 4:51:00 AM	Prep Date: 7/3/2013							
Client ID: AMR-SB-09-0.5		Run ID: GC-ELVIS_130705A		SeqNo: 854205								
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Aroclor 1016	445.5	27	µg/Kg-dry	539.4	0	82.6	36	130	472.4	5.88	50	
Aroclor 1260	489.3	27	µg/Kg-dry	539.4	0	90.7	22	134	506.5	3.45	50	
Surr: Tetrachloro-m-xylene	7.327	0	µg/Kg-dry	8.631	0	84.9	35	141	0	0	0	
Surr: Decachlorobiphenyl	7.372	0	µg/Kg-dry	8.631	0	85.4	33	144	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-01A

Client Sample ID: AMR-SB-27-0.5
Collection Date: 6/27/2013 9:50:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
beta-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
delta-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
gamma-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Heptachlor	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Aldrin	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Heptachlor epoxide	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Endosulfan I	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
alpha-Chlordane	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
gamma-Chlordane	ND	0.86		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 12:34:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 12:34:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 12:34:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Methoxychlor	ND	8.6		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Toxaphene	ND	27		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Technical Chlordane	ND	27		µg/Kg-dry	1	7/8/2013 12:34:00 PM
Surr: Tetrachloro-m-xylene	61.7	48-141		%REC	1	7/8/2013 12:34:00 PM
Surr: Decachlorobiphenyl	82.0	37-157		%REC	1	7/8/2013 12:34:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-02A

Client Sample ID: AMR-SB-28-2.0
Collection Date: 6/27/2013 10:13:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: KAM		
alpha-BHC	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
beta-BHC	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
delta-BHC	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
gamma-BHC	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Heptachlor	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Aldrin	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Heptachlor epoxide	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Endosulfan I	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
alpha-Chlordane	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
gamma-Chlordane	ND	0.92		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Dieldrin	ND	1.8		µg/Kg-dry	1	7/9/2013 12:22:00 PM
4,4'-DDE	ND	1.8		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Endrin	ND	1.8		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Endosulfan II	ND	1.8		µg/Kg-dry	1	7/9/2013 12:22:00 PM
4,4'-DDD	ND	1.8		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Endrin aldehyde	ND	1.8		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Endrin ketone	ND	1.8		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Endosulfan sulfate	ND	1.8		µg/Kg-dry	1	7/9/2013 12:22:00 PM
4,4'-DDT	ND	1.8		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Methoxychlor	ND	9.2		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Toxaphene	ND	29		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Technical Chlordane	ND	29		µg/Kg-dry	1	7/9/2013 12:22:00 PM
Surr: Tetrachloro-m-xylene	67.8	48-141		%REC	1	7/9/2013 12:22:00 PM
Surr: Decachlorobiphenyl	123	37-157		%REC	1	7/9/2013 12:22:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-03A

Client Sample ID: AMR-SB-30-2.0
Collection Date: 6/27/2013 10:40:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHELORINE PESTICIDES		SW8081A		1307002-03A		Analyst: KAM
alpha-BHC	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
beta-BHC	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
delta-BHC	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
gamma-BHC	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Heptachlor	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Aldrin	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Heptachlor epoxide	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Endosulfan I	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
alpha-Chlordane	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
gamma-Chlordane	ND	0.89		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Dieldrin	13	1.8		µg/Kg-dry	1	7/9/2013 12:44:00 PM
4,4'-DDE	ND	1.8		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Endrin	ND	1.8		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Endosulfan II	ND	1.8		µg/Kg-dry	1	7/9/2013 12:44:00 PM
4,4'-DDD	12	1.8		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Endrin aldehyde	ND	1.8		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Endrin ketone	ND	1.8		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Endosulfan sulfate	ND	1.8		µg/Kg-dry	1	7/9/2013 12:44:00 PM
4,4'-DDT	41	18		µg/Kg-dry	10	7/9/2013 3:36:00 PM
Methoxychlor	ND	8.9		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Toxaphene	ND	28		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Technical Chlordane	ND	28		µg/Kg-dry	1	7/9/2013 12:44:00 PM
Surr: Tetrachloro-m-xylene	66.0	48-141		%REC	1	7/9/2013 12:44:00 PM
Surr: Decachlorobiphenyl	142	37-157		%REC	1	7/9/2013 12:44:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-04A

Client Sample ID: AMR-SB-31-0.5
Collection Date: 6/27/2013 11:00:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
beta-BHC	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
delta-BHC	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
gamma-BHC	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Heptachlor	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Aldrin	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Heptachlor epoxide	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Endosulfan I	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
alpha-Chlordane	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
gamma-Chlordane	ND	0.84		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/9/2013 1:05:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/9/2013 1:05:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/9/2013 1:05:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Methoxychlor	ND	8.4		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Toxaphene	ND	26		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Technical Chlordane	ND	26		µg/Kg-dry	1	7/9/2013 1:05:00 PM
Surr: Tetrachloro-m-xylene	62.2	48-141		%REC	1	7/9/2013 1:05:00 PM
Surr: Decachlorobiphenyl	59.1	37-157		%REC	1	7/9/2013 1:05:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB-31-FD-0.5**Lab Order:** 1307002**Collection Date:** 6/27/2013 11:00:00 AM**Project:** 12-152 Crescent Connector**Matrix:** SEDIMENT**Lab ID:** 1307002-05A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
beta-BHC	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
delta-BHC	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
gamma-BHC	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Heptachlor	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Aldrin	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Heptachlor epoxide	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Endosulfan I	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
alpha-Chlordane	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
gamma-Chlordane	ND	0.85		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/9/2013 1:26:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/9/2013 1:26:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/9/2013 1:26:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Methoxychlor	ND	8.5		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Toxaphene	ND	26		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Technical Chlordane	ND	26		µg/Kg-dry	1	7/9/2013 1:26:00 PM
Surr: Tetrachloro-m-xylene	63.5	48-141		%REC	1	7/9/2013 1:26:00 PM
Surr: Decachlorobiphenyl	73.3	37-157		%REC	1	7/9/2013 1:26:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB-32-2.0**Lab Order:** 1307002**Collection Date:** 6/27/2013 11:15:00 AM**Project:** 12-152 Crescent Connector**Matrix:** SEDIMENT**Lab ID:** 1307002-06A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
beta-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
delta-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
gamma-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Heptachlor	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Aldrin	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Heptachlor epoxide	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Endosulfan I	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
alpha-Chlordane	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
gamma-Chlordane	ND	0.83		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Dieldrin	2.4	1.7		µg/Kg-dry	1	7/8/2013 11:04:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 11:04:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 11:04:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Methoxychlor	ND	8.3		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Toxaphene	ND	26		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Technical Chlordane	ND	26		µg/Kg-dry	1	7/8/2013 11:04:00 PM
Surr: Tetrachloro-m-xylene	64.7	48-141		%REC	1	7/8/2013 11:04:00 PM
Surr: Decachlorobiphenyl	74.2	37-157		%REC	1	7/8/2013 11:04:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB-33-0.5**Lab Order:** 1307002**Collection Date:** 6/27/2013 11:40:00 AM**Project:** 12-152 Crescent Connector**Matrix:** SEDIMENT**Lab ID:** 1307002-07A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES						Analyst: KAM
SW8081A						
alpha-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
beta-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
delta-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
gamma-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Heptachlor	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Aldrin	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Heptachlor epoxide	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Endosulfan I	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
alpha-Chlordane	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
gamma-Chlordane	ND	0.83		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 12:56:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 12:56:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 12:56:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Methoxychlor	ND	8.3		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Toxaphene	ND	26		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Technical Chlordane	ND	26		µg/Kg-dry	1	7/8/2013 12:56:00 PM
Surr: Tetrachloro-m-xylene	61.3	48-141		%REC	1	7/8/2013 12:56:00 PM
Surr: Decachlorobiphenyl	83.9	37-157		%REC	1	7/8/2013 12:56:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT:	Stone Environmental, Inc.	Client Sample ID:	AMR-SB-29-0.5
Lab Order:	1307002	Collection Date:	6/27/2013 11:50:00 AM
Project:	12-152 Crescent Connector	Matrix:	SEDIMENT
Lab ID:	1307002-08A		

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: KAM		
alpha-BHC	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
beta-BHC	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
delta-BHC	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
gamma-BHC	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Heptachlor	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Aldrin	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Heptachlor epoxide	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Endosulfan I	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
alpha-Chlordane	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
gamma-Chlordane	ND	0.94		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Dieldrin	ND	1.9		µg/Kg-dry	1	7/8/2013 1:18:00 PM
4,4'-DDE	ND	1.9		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Endrin	ND	1.9		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Endosulfan II	ND	1.9		µg/Kg-dry	1	7/8/2013 1:18:00 PM
4,4'-DDD	ND	1.9		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Endrin aldehyde	ND	1.9		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Endrin ketone	ND	1.9		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Endosulfan sulfate	ND	1.9		µg/Kg-dry	1	7/8/2013 1:18:00 PM
4,4'-DDT	ND	1.9		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Methoxychlor	ND	9.4		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Toxaphene	ND	29		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Technical Chlordane	ND	29		µg/Kg-dry	1	7/8/2013 1:18:00 PM
Surr: Tetrachloro-m-xylene	55.8	48-141		%REC	1	7/8/2013 1:18:00 PM
Surr: Decachlorobiphenyl	71.9	37-157		%REC	1	7/8/2013 1:18:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB-26-2.0**Lab Order:** 1307002**Collection Date:** 6/27/2013 12:45:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SEDIMENT**Lab ID:** 1307002-09A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: KAM		
alpha-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
beta-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
delta-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
gamma-BHC	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Heptachlor	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Aldrin	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Heptachlor epoxide	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Endosulfan I	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
alpha-Chlordane	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
gamma-Chlordane	ND	0.83		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 1:40:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 1:40:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 1:40:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Methoxychlor	ND	8.3		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Toxaphene	ND	26		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Technical Chlordane	ND	26		µg/Kg-dry	1	7/8/2013 1:40:00 PM
Surr: Tetrachloro-m-xylene	63.1	48-141		%REC	1	7/8/2013 1:40:00 PM
Surr: Decachlorobiphenyl	89.4	37-157		%REC	1	7/8/2013 1:40:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT:	Stone Environmental, Inc.	Client Sample ID:	AMR-SB-25-0.5
Lab Order:	1307002	Collection Date:	6/27/2013 1:05:00 PM
Project:	12-152 Crescent Connector	Matrix:	SEDIMENT
Lab ID:	1307002-10A		

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
beta-BHC	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
delta-BHC	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
gamma-BHC	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Heptachlor	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Aldrin	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Heptachlor epoxide	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Endosulfan I	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
alpha-Chlordane	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
gamma-Chlordane	ND	0.84		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 2:02:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 2:02:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 2:02:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Methoxychlor	ND	8.4		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Toxaphene	ND	26		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Technical Chlordane	ND	26		µg/Kg-dry	1	7/8/2013 2:02:00 PM
Surr: Tetrachloro-m-xylene	50.7	48-141		%REC	1	7/8/2013 2:02:00 PM
Surr: Decachlorobiphenyl	93.3	37-157		%REC	1	7/8/2013 2:02:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB-24-1.0**Lab Order:** 1307002**Collection Date:** 6/27/2013 1:25:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SEDIMENT**Lab ID:** 1307002-11A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES	SW8081A					Analyst: KAM
alpha-BHC	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
beta-BHC	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
delta-BHC	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
gamma-BHC	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Heptachlor	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Aldrin	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Heptachlor epoxide	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Endosulfan I	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
alpha-Chlordane	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
gamma-Chlordane	ND	1.1		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Dieldrin	5.6	2.2		µg/Kg-dry	1	7/8/2013 11:25:00 PM
4,4'-DDE	ND	2.2		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Endrin	ND	2.2		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Endosulfan II	ND	2.2		µg/Kg-dry	1	7/8/2013 11:25:00 PM
4,4'-DDD	3.0	2.2		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Endrin aldehyde	ND	2.2		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Endrin ketone	ND	2.2		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Endosulfan sulfate	ND	2.2		µg/Kg-dry	1	7/8/2013 11:25:00 PM
4,4'-DDT	9.9	2.2		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Methoxychlor	ND	11		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Toxaphene	ND	35		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Technical Chlordane	ND	35		µg/Kg-dry	1	7/8/2013 11:25:00 PM
Surr: Tetrachloro-m-xylene	61.8	48-141		%REC	1	7/8/2013 11:25:00 PM
Surr: Decachlorobiphenyl	103	37-157		%REC	1	7/8/2013 11:25:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB-21-0.5**Lab Order:** 1307002**Collection Date:** 6/27/2013 2:35:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SEDIMENT**Lab ID:** 1307002-12A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
beta-BHC	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
delta-BHC	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
gamma-BHC	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Heptachlor	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Aldrin	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Heptachlor epoxide	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Endosulfan I	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
alpha-Chlordane	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
gamma-Chlordane	ND	0.91		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Dieldrin	17	1.8		µg/Kg-dry	1	7/9/2013 1:48:00 PM
4,4'-DDE	ND	1.8		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Endrin	ND	1.8		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Endosulfan II	ND	1.8		µg/Kg-dry	1	7/9/2013 1:48:00 PM
4,4'-DDD	12	1.8		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Endrin aldehyde	ND	1.8		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Endrin ketone	ND	1.8		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Endosulfan sulfate	ND	1.8		µg/Kg-dry	1	7/9/2013 1:48:00 PM
4,4'-DDT	15	1.8		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Methoxychlor	ND	9.1		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Toxaphene	ND	29		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Technical Chlordane	ND	29		µg/Kg-dry	1	7/9/2013 1:48:00 PM
Surr: Tetrachloro-m-xylene	76.4	48-141		%REC	1	7/9/2013 1:48:00 PM
Surr: Decachlorobiphenyl	84.7	37-157		%REC	1	7/9/2013 1:48:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-13A

Client Sample ID: AMR-SB-21-0.5 FD
Collection Date: 6/27/2013 2:35:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
beta-BHC	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
delta-BHC	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
gamma-BHC	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Heptachlor	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Aldrin	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Heptachlor epoxide	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Endosulfan I	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
alpha-Chlordane	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
gamma-Chlordane	ND	8.7		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Dieldrin	ND	17		µg/Kg-dry	10	7/9/2013 11:39:00 AM
4,4'-DDE	ND	17		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Endrin	ND	17		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Endosulfan II	ND	17		µg/Kg-dry	10	7/9/2013 11:39:00 AM
4,4'-DDD	ND	17		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Endrin aldehyde	ND	17		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Endrin ketone	ND	17		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Endosulfan sulfate	ND	17		µg/Kg-dry	10	7/9/2013 11:39:00 AM
4,4'-DDT	30	17		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Methoxychlor	ND	87		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Toxaphene	ND	270		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Technical Chlordane	ND	270		µg/Kg-dry	10	7/9/2013 11:39:00 AM
Surr: Tetrachloro-m-xylene	86.2	48-141		%REC	10	7/9/2013 11:39:00 AM
Surr: Decachlorobiphenyl	118	37-157		%REC	10	7/9/2013 11:39:00 AM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-14A

Client Sample ID: AMR-SB-17-2.0
Collection Date: 6/27/2013 3:15:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
beta-BHC	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
delta-BHC	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
gamma-BHC	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Heptachlor	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Aldrin	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Heptachlor epoxide	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Endosulfan I	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
alpha-Chlordane	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
gamma-Chlordane	ND	0.95		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Dieldrin	ND	1.9		µg/Kg-dry	1	7/8/2013 11:47:00 PM
4,4'-DDE	6.5	1.9		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Endrin	ND	1.9		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Endosulfan II	ND	1.9		µg/Kg-dry	1	7/8/2013 11:47:00 PM
4,4'-DDD	3.4	1.9		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Endrin aldehyde	ND	1.9		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Endrin ketone	ND	1.9		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Endosulfan sulfate	ND	1.9		µg/Kg-dry	1	7/8/2013 11:47:00 PM
4,4'-DDT	28	1.9		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Methoxychlor	ND	9.5		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Toxaphene	ND	30		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Technical Chlordane	ND	30		µg/Kg-dry	1	7/8/2013 11:47:00 PM
Surr: Tetrachloro-m-xylene	61.4	48-141		%REC	1	7/8/2013 11:47:00 PM
Surr: Decachlorobiphenyl	99.3	37-157		%REC	1	7/8/2013 11:47:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-15A

Client Sample ID: AMR-SB-15-2.0
Collection Date: 6/27/2013 3:40:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
beta-BHC	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
delta-BHC	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
gamma-BHC	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Heptachlor	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Aldrin	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Heptachlor epoxide	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Endosulfan I	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
alpha-Chlordane	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
gamma-Chlordane	ND	0.88		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Dieldrin	ND	1.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
4,4'-DDE	ND	1.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Endrin	ND	1.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Endosulfan II	ND	1.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
4,4'-DDD	ND	1.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Endrin aldehyde	ND	1.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Endrin ketone	ND	1.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Endosulfan sulfate	ND	1.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
4,4'-DDT	3.3	1.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Methoxychlor	ND	8.8		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Toxaphene	ND	28		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Technical Chlordane	ND	28		µg/Kg-dry	1	7/8/2013 2:23:00 PM
Surr: Tetrachloro-m-xylene	64.6	48-141		%REC	1	7/8/2013 2:23:00 PM
Surr: Decachlorobiphenyl	89.3	37-157		%REC	1	7/8/2013 2:23:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-16A

Client Sample ID: AMR-SB-12-2.0
Collection Date: 6/27/2013 4:00:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
beta-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
delta-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
gamma-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Heptachlor	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Aldrin	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Heptachlor epoxide	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Endosulfan I	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
alpha-Chlordane	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
gamma-Chlordane	ND	0.92		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Dieldrin	ND	1.8		µg/Kg-dry	1	7/8/2013 2:45:00 PM
4,4'-DDE	ND	1.8		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Endrin	ND	1.8		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Endosulfan II	ND	1.8		µg/Kg-dry	1	7/8/2013 2:45:00 PM
4,4'-DDD	ND	1.8		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Endrin aldehyde	ND	1.8		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Endrin ketone	ND	1.8		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Endosulfan sulfate	ND	1.8		µg/Kg-dry	1	7/8/2013 2:45:00 PM
4,4'-DDT	ND	1.8		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Methoxychlor	ND	9.2		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Toxaphene	ND	29		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Technical Chlordane	ND	29		µg/Kg-dry	1	7/8/2013 2:45:00 PM
Surr: Tetrachloro-m-xylene	61.4	48-141		%REC	1	7/8/2013 2:45:00 PM
Surr: Decachlorobiphenyl	88.0	37-157		%REC	1	7/8/2013 2:45:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.

Client Sample ID: AMR-SB-4-2.0

Lab Order: 1307002

Collection Date: 6/28/2013 8:20:00 AM

Project: 12-152 Crescent Connector

Matrix: SEDIMENT

Lab ID: 1307002-17A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES	SW8081A					Analyst: KAM
alpha-BHC	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
beta-BHC	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
delta-BHC	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
gamma-BHC	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Heptachlor	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Aldrin	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Heptachlor epoxide	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Endosulfan I	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
alpha-Chlordane	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
gamma-Chlordane	ND	0.85		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 3:07:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 3:07:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 3:07:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Methoxychlor	ND	8.5		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Toxaphene	ND	27		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Technical Chlordane	ND	27		µg/Kg-dry	1	7/8/2013 3:07:00 PM
Surr: Tetrachloro-m-xylene	66.3	48-141		%REC	1	7/8/2013 3:07:00 PM
Surr: Decachlorobiphenyl	93.7	37-157		%REC	1	7/8/2013 3:07:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT:	Stone Environmental, Inc.	Client Sample ID:	AMR-SB-3-0.5
Lab Order:	1307002	Collection Date:	6/28/2013 8:45:00 AM
Project:	12-152 Crescent Connector	Matrix:	SEDIMENT
Lab ID:	1307002-18A		

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES SW8081A						Analyst: KAM
alpha-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
beta-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
delta-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
gamma-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Heptachlor	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Aldrin	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Heptachlor epoxide	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Endosulfan I	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
alpha-Chlordane	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
gamma-Chlordane	ND	0.92		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Dieldrin	15	1.8		µg/Kg-dry	1	7/8/2013 8:54:00 PM
4,4'-DDE	ND	1.8		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Endrin	ND	1.8		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Endosulfan II	ND	1.8		µg/Kg-dry	1	7/8/2013 8:54:00 PM
4,4'-DDD	ND	1.8		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Endrin aldehyde	ND	1.8		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Endrin ketone	ND	1.8		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Endosulfan sulfate	ND	1.8		µg/Kg-dry	1	7/8/2013 8:54:00 PM
4,4'-DDT	ND	1.8		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Methoxychlor	ND	9.2		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Toxaphene	ND	29		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Technical Chlordane	ND	29		µg/Kg-dry	1	7/8/2013 8:54:00 PM
Surr: Tetrachloro-m-xylene	72.5	48-141		%REC	1	7/8/2013 8:54:00 PM
Surr: Decachlorobiphenyl	123	37-157		%REC	1	7/8/2013 8:54:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.

Client Sample ID: AMR-SB-2-2.0

Lab Order: 1307002

Collection Date: 6/28/2013 9:00:00 AM

Project: 12-152 Crescent Connector

Matrix: SEDIMENT

Lab ID: 1307002-19A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: KAM		
alpha-BHC	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
beta-BHC	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
delta-BHC	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
gamma-BHC	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Heptachlor	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Aldrin	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Heptachlor epoxide	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Endosulfan I	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
alpha-Chlordane	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
gamma-Chlordane	ND	0.84		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 6:01:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 6:01:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 6:01:00 PM
4,4'-DDT	3.6	1.7		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Methoxychlor	ND	8.4		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Toxaphene	ND	26		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Technical Chlordane	ND	26		µg/Kg-dry	1	7/8/2013 6:01:00 PM
Surr: Tetrachloro-m-xylene	68.0	48-141		%REC	1	7/8/2013 6:01:00 PM
Surr: Decachlorobiphenyl	97.1	37-157		%REC	1	7/8/2013 6:01:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.

Client Sample ID: AMR-SB-1-0.5

Lab Order: 1307002

Collection Date: 6/28/2013 9:15:00 AM

Project: 12-152 Crescent Connector

Matrix: SEDIMENT

Lab ID: 1307002-20A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: KAM		
alpha-BHC	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
beta-BHC	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
delta-BHC	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
gamma-BHC	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Heptachlor	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Aldrin	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Heptachlor epoxide	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Endosulfan I	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
alpha-Chlordane	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
gamma-Chlordane	ND	0.85		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 9:16:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 9:16:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 9:16:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Methoxychlor	ND	8.5		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Toxaphene	ND	26		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Technical Chlordane	ND	26		µg/Kg-dry	1	7/8/2013 9:16:00 PM
Surr: Tetrachloro-m-xylene	70.0	48-141		%REC	1	7/8/2013 9:16:00 PM
Surr: Decachlorobiphenyl	78.4	37-157		%REC	1	7/8/2013 9:16:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT:	Stone Environmental, Inc.	Client Sample ID:	AMR-SB-5-0.5
Lab Order:	1307002	Collection Date:	6/28/2013 10:05:00 AM
Project:	12-152 Crescent Connector	Matrix:	SEDIMENT
Lab ID:	1307002-21A		

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: KAM		
alpha-BHC	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
beta-BHC	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
delta-BHC	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
gamma-BHC	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Heptachlor	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Aldrin	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Heptachlor epoxide	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Endosulfan I	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
alpha-Chlordane	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
gamma-Chlordane	ND	0.87		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
4,4'-DDT	7.6	1.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Methoxychlor	ND	8.7		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Toxaphene	ND	27		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Technical Chlordane	ND	27		µg/Kg-dry	1	7/8/2013 9:37:00 PM
Surr: Tetrachloro-m-xylene	78.6	48-141		%REC	1	7/8/2013 9:37:00 PM
Surr: Decachlorobiphenyl	145	37-157		%REC	1	7/8/2013 9:37:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-22A

Client Sample ID: AMR-SB-6-2.0
Collection Date: 6/28/2013 10:25:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: KAM		
alpha-BHC	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
beta-BHC	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
delta-BHC	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
gamma-BHC	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Heptachlor	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Aldrin	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Heptachlor epoxide	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Endosulfan I	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
alpha-Chlordane	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
gamma-Chlordane	ND	0.89		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Dieldrin	ND	1.8		µg/Kg-dry	1	7/8/2013 4:12:00 PM
4,4'-DDE	ND	1.8		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Endrin	ND	1.8		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Endosulfan II	ND	1.8		µg/Kg-dry	1	7/8/2013 4:12:00 PM
4,4'-DDD	ND	1.8		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Endrin aldehyde	ND	1.8		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Endrin ketone	ND	1.8		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Endosulfan sulfate	ND	1.8		µg/Kg-dry	1	7/8/2013 4:12:00 PM
4,4'-DDT	ND	1.8		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Methoxychlor	ND	8.9		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Toxaphene	ND	28		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Technical Chlordane	ND	28		µg/Kg-dry	1	7/8/2013 4:12:00 PM
Surr: Tetrachloro-m-xylene	57.8	48-141		%REC	1	7/8/2013 4:12:00 PM
Surr: Decachlorobiphenyl	93.1	37-157		%REC	1	7/8/2013 4:12:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB-7-0.5**Lab Order:** 1307002**Collection Date:** 6/28/2013 11:00:00 AM**Project:** 12-152 Crescent Connector**Matrix:** SEDIMENT**Lab ID:** 1307002-23A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
beta-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
delta-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
gamma-BHC	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Heptachlor	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Aldrin	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Heptachlor epoxide	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Endosulfan I	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
alpha-Chlordane	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
gamma-Chlordane	ND	0.92		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Dieldrin	ND	1.8		µg/Kg-dry	1	7/8/2013 9:59:00 PM
4,4'-DDE	ND	1.8		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Endrin	ND	1.8		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Endosulfan II	ND	1.8		µg/Kg-dry	1	7/8/2013 9:59:00 PM
4,4'-DDD	ND	1.8		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Endrin aldehyde	ND	1.8		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Endrin ketone	ND	1.8		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Endosulfan sulfate	ND	1.8		µg/Kg-dry	1	7/8/2013 9:59:00 PM
4,4'-DDT	11	1.8		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Methoxychlor	ND	9.2		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Toxaphene	ND	29		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Technical Chlordane	ND	29		µg/Kg-dry	1	7/8/2013 9:59:00 PM
Surr: Tetrachloro-m-xylene	88.1	48-141		%REC	1	7/8/2013 9:59:00 PM
Surr: Decachlorobiphenyl	112	37-157		%REC	1	7/8/2013 9:59:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-24A

Client Sample ID: AMR-SB-8-2.0
Collection Date: 6/28/2013 11:20:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
beta-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
delta-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
gamma-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Heptachlor	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Aldrin	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Heptachlor epoxide	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Endosulfan I	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
alpha-Chlordane	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
gamma-Chlordane	ND	0.86		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 4:34:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 4:34:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 4:34:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Methoxychlor	ND	8.6		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Toxaphene	ND	27		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Technical Chlordane	ND	27		µg/Kg-dry	1	7/8/2013 4:34:00 PM
Surr: Tetrachloro-m-xylene	65.4	48-141		%REC	1	7/8/2013 4:34:00 PM
Surr: Decachlorobiphenyl	94.7	37-157		%REC	1	7/8/2013 4:34:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-25A

Client Sample ID: AMR-SB-09-0.5
Collection Date: 6/28/2013 11:50:00 AM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: KAM		
alpha-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
beta-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
delta-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
gamma-BHC	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Heptachlor	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Aldrin	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Heptachlor epoxide	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Endosulfan I	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
alpha-Chlordane	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
gamma-Chlordane	ND	0.86		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 10:21:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 10:21:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 10:21:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Methoxychlor	ND	8.6		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Toxaphene	ND	27		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Technical Chlordane	ND	27		µg/Kg-dry	1	7/8/2013 10:21:00 PM
Surr: Tetrachloro-m-xylene	65.6	48-141		%REC	1	7/8/2013 10:21:00 PM
Surr: Decachlorobiphenyl	92.3	37-157		%REC	1	7/8/2013 10:21:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-26A

Client Sample ID: AMR-SB-11-0.5
Collection Date: 6/28/2013 12:10:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A				Analyst: KAM
alpha-BHC	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
beta-BHC	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
delta-BHC	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
gamma-BHC	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Heptachlor	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Aldrin	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Heptachlor epoxide	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Endosulfan I	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
alpha-Chlordane	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
gamma-Chlordane	ND	0.98		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Dieldrin	11	2.0		µg/Kg-dry	1	7/8/2013 10:42:00 PM
4,4'-DDE	ND	2.0		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Endrin	ND	2.0		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Endosulfan II	ND	2.0		µg/Kg-dry	1	7/8/2013 10:42:00 PM
4,4'-DDD	ND	2.0		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Endrin aldehyde	ND	2.0		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Endrin ketone	ND	2.0		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Endosulfan sulfate	ND	2.0		µg/Kg-dry	1	7/8/2013 10:42:00 PM
4,4'-DDT	7.1	2.0		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Methoxychlor	ND	9.8		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Toxaphene	ND	31		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Technical Chlordane	ND	31		µg/Kg-dry	1	7/8/2013 10:42:00 PM
Surr: Tetrachloro-m-xylene	82.5	48-141		%REC	1	7/8/2013 10:42:00 PM
Surr: Decachlorobiphenyl	104	37-157		%REC	1	7/8/2013 10:42:00 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1307002
Project: 12-152 Crescent Connector
Lab ID: 1307002-27A

Client Sample ID: AMR-SB-10-2.0
Collection Date: 6/28/2013 12:20:00 PM
Matrix: SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8081A ORGANOCHLORINE PESTICIDES		SW8081A		Analyst: KAM		
alpha-BHC	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
beta-BHC	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
delta-BHC	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
gamma-BHC	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Heptachlor	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Aldrin	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Heptachlor epoxide	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Endosulfan I	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
alpha-Chlordane	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
gamma-Chlordane	ND	0.87		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Dieldrin	ND	1.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
4,4'-DDE	ND	1.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Endrin	ND	1.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Endosulfan II	ND	1.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
4,4'-DDD	ND	1.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Endrin aldehyde	ND	1.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Endrin ketone	ND	1.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Endosulfan sulfate	ND	1.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
4,4'-DDT	ND	1.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Methoxychlor	ND	8.7		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Toxaphene	ND	27		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Technical Chlordane	ND	27		µg/Kg-dry	1	7/8/2013 4:56:00 PM
Surr: Tetrachloro-m-xylene	67.4	48-141		%REC	1	7/8/2013 4:56:00 PM
Surr: Decachlorobiphenyl	94.2	37-157		%REC	1	7/8/2013 4:56:00 PM

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

QC SUMMARY REPORT

Method Blank

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

Sample ID: MB-23360	Batch ID: 23360	Test Code: SW8081A	Units: µg/Kg	Analysis Date 7/8/2013 11:07:00 AM	Prep Date: 7/2/2013							
Client ID:		Run ID: GC-FING2_130708A		SeqNo: 854208								
	QC Sample Result	RL	Units	QC Spike Original Sample Amount	Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual

alpha-BHC	ND	0.80	µg/Kg									
beta-BHC	ND	0.80	µg/Kg									
delta-BHC	ND	0.80	µg/Kg									
gamma-BHC	ND	0.80	µg/Kg									
Heptachlor	ND	0.80	µg/Kg									
Aldrin	ND	0.80	µg/Kg									
Heptachlor epoxide	ND	0.80	µg/Kg									
Endosulfan I	ND	0.80	µg/Kg									
alpha-Chlordane	ND	0.80	µg/Kg									
gamma-Chlordane	ND	0.80	µg/Kg									
Dieidrin	ND	1.6	µg/Kg									
4,4'-DDE	ND	1.6	µg/Kg									
Endrin	ND	1.6	µg/Kg									
Endosulfan II	ND	1.6	µg/Kg									
4,4'-DDD	ND	1.6	µg/Kg									
Endrin aldehyde	ND	1.6	µg/Kg									
Endrin ketone	ND	1.6	µg/Kg									
Endosulfan sulfate	ND	1.6	µg/Kg									
4,4'-DDT	ND	1.6	µg/Kg									
Methoxychlor	ND	8.0	µg/Kg									
Toxaphene	ND	25	µg/Kg									
Technical Chlordane	ND	25	µg/Kg									
Surr: Tetracloro-m-xylene	4.421	0	µg/Kg	8	0	55.3	48	141	0			
Surr: Decachlorobiphenyl	5.404	0	µg/Kg	8	0	67.6	37	157	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: MB-23362 Batch ID: 23362 Test Code: SW8081A Units: µg/Kg Analysis Date: 7/8/2013 11:51:00 AM Prep Date: 7/3/2013
 Client ID: Run ID: GC-FING2_130708A SeqNo: 854210

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Que
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alpha-BHC	ND	0.80	µg/Kg									
beta-BHC	ND	0.80	µg/Kg									
delta-BHC	ND	0.80	µg/Kg									
gamma-BHC	ND	0.80	µg/Kg									
Heptachlor	ND	0.80	µg/Kg									
Aldrin	ND	0.80	µg/Kg									
Heptachlor epoxide	ND	0.80	µg/Kg									
Endosulfan I	ND	0.80	µg/Kg									
alpha-Chlordane	ND	0.80	µg/Kg									
gamma-Chlordane	ND	0.80	µg/Kg									
Dieldrin	ND	1.6	µg/Kg									
4,4'-DDE	ND	1.6	µg/Kg									
Endrin	ND	1.6	µg/Kg									
Endosulfan II	ND	1.6	µg/Kg									
4,4'-DDD	ND	1.6	µg/Kg									
Endrin aldehyde	ND	1.6	µg/Kg									
Endrin ketone	ND	1.6	µg/Kg									
Endosulfan sulfate	ND	1.6	µg/Kg									
4,4'-DDT	ND	8.0	µg/Kg									
Methoxychlor	ND	25	µg/Kg									
Toxaphene	ND	25	µg/Kg									
Technical Chlordane	ND	0	µg/Kg	8	0	54.7	48	141	0			
Surr: Tetrachloro-m-xylene	4.374	0	µg/Kg	8	0	81.3	37	157	0			
Surr: Decachlorobiphenyl	6.505	0	µg/Kg									

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike - Full List

Sample ID: LCS-23360 **Batch ID:** 23360 **Test Code:** SW8081A **Units:** µg/Kg **Analysis Date:** 7/8/2013 11:29:00 AM **Prep Date:** 7/2/2013
Client ID: **Run ID:** GC-FING2_130708A **SeqNo:** 854209

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Queue
alpha-BHC	7.15	0.80	µg/Kg	10	0	71.5	48	169	0			
beta-BHC	10.05	0.80	µg/Kg	10	0	101	74	165	0			
delta-BHC	6.594	0.80	µg/Kg	10	0	65.9	-25	170	0			
gamma-BHC	6.464	0.80	µg/Kg	10	0	64.6	48	172	0			
Heptachlor	6.974	0.80	µg/Kg	10	0	69.7	56	148	0			
Aldrin	7.26	0.80	µg/Kg	10	0	72.6	60	155	0			
Heptachlor epoxide	7.12	0.80	µg/Kg	10	0	71.2	60	146	0			
Endosulfan I	7.768	0.80	µg/Kg	10	0	77.7	61	145	0			
alpha-Chlordane	6.832	0.80	µg/Kg	10	0	68.3	56	141	0			
gamma-Chlordane	8.768	0.80	µg/Kg	10	0	87.7	62	139	0			
Dieldrin	6.618	1.6	µg/Kg	10	0	66.2	56	152	0			
4,4'-DDE	6.597	1.6	µg/Kg	10	0	66	59	148	0			
Endrin	7.316	1.6	µg/Kg	10	0	73.2	62	170	0			
Endosulfan II	6.38	1.6	µg/Kg	10	0	63.8	56	150	0			
4,4'-DDD	7.75	1.6	µg/Kg	10	0	77.5	51	148	0			
Endrin aldehyde	6.646	1.6	µg/Kg	10	0	66.5	50	148	0			
Endrin ketone	7.979	1.6	µg/Kg	10	0	79.8	58	177	0			
Endosulfan sulfate	7.206	1.6	µg/Kg	10	0	72.1	50	158	0			
4,4'-DDT	7.61	1.6	µg/Kg	10	0	76.1	47	161	0			
Methoxychlor	9.1	8.0	µg/Kg	10	0	91	67	157	0			
Surr: Tetrachloro-m-xylene	4.364	0	µg/Kg	8	0	54.5	48	141	0			
Surr: Decachlorobiphenyl	6.236	0	µg/Kg	8	0	78	37	157	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
NA - Not applicable where J values or ND results occur

B - Analyte detected in the associated Method Blank

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

QC SUMMARY REPORT

Laboratory Control Spike - Full List

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

Sample ID: LCS-23362 Batch ID: 23362 Test Code: SW8081A Units: µg/Kg Analysis Date 7/8/2013 12:13:00 PM Prep Date: 7/3/2013
 Client ID: Run ID: GC-FING2_130708A SeqNo: 854211

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Que
alpha-BHC	6.432	0.80	µg/Kg	10	0	64.3	48	169	0			
beta-BHC	8.576	0.80	µg/Kg	10	0	85.8	74	165	0			
delta-BHC	5.65	0.80	µg/Kg	10	0	56.5	-25	170	0			
gamma-BHC	6.023	0.80	µg/Kg	10	0	60.2	48	172	0			
Heptachlor	6.6	0.80	µg/Kg	10	0	66	56	148	0			
Aldrin	6.748	0.80	µg/Kg	10	0	67.5	60	155	0			
Heptachlor epoxide	6.856	0.80	µg/Kg	10	0	68.6	60	146	0			
Endosulfan I	6.142	0.80	µg/Kg	10	0	61.4	61	145	0			
alpha-Chlordane	7.11	0.80	µg/Kg	10	0	71.1	56	141	0			
gamma-Chlordane	8.413	0.80	µg/Kg	10	0	84.1	62	139	0			
Dieldrin	6.06	1.6	µg/Kg	10	0	60.6	56	152	0			
4,4'-DDE	6.376	1.6	µg/Kg	10	0	63.8	59	148	0			
Endrin	6.251	1.6	µg/Kg	10	0	62.5	62	170	0			
Endosulfan II	5.792	1.6	µg/Kg	10	0	57.9	56	150	0			
4,4'-DDD	5.209	1.6	µg/Kg	10	0	52.1	51	148	0			
Endrin aldehyde	5.754	1.6	µg/Kg	10	0	57.5	50	148	0			
Endrin ketone	7.665	1.6	µg/Kg	10	0	76.6	58	177	0			
Endosulfan sulfate	5.688	1.6	µg/Kg	10	0	56.9	50	158	0			
4,4'-DDT	7.1	1.6	µg/Kg	10	0	71	47	161	0			
Methoxychlor	8.812	8.0	µg/Kg	10	0	88.1	67	157	0			
Surr: Tetrachloro-m-xylene	4.315	0	µg/Kg	8	0	53.9	48	141	0			
Surr: Decachlorobiphenyl	5.348	0	µg/Kg	8	0	66.8	37	157	0			

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.

Work Order: 1307002

Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Matrix Spike - Full List

Sample ID: 1307002-09AMS	Batch ID: 23360	Test Code: SW8081A	Units: µg/Kg-dry	Analysis Date 7/8/2013 3:29:00 PM	Prep Date: 7/2/2013							
Client ID: AMR-SB-26-2.0	Run ID: GC-FING2_130708A	SeqNo: 854287										
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	QC Result
alpha-BHC	8.983	0.83	µg/Kg-dry	10.38	0	86.5	41	166	0			0
beta-BHC	13.02	0.83	µg/Kg-dry	10.38	0	125	61	149	0			0
delta-BHC	9.347	0.83	µg/Kg-dry	10.38	0	90	11	160	0			0
gamma-BHC	8.649	0.83	µg/Kg-dry	10.38	0	83.3	48	166	0			0
Heptachlor	8.317	0.83	µg/Kg-dry	10.38	0	80.1	48	145	0			0
Aldrin	8.727	0.83	µg/Kg-dry	10.38	0	84.1	51	148	0			0
Heptachlor epoxide	8.222	0.83	µg/Kg-dry	10.38	0	79.2	51	145	0			0
Endosulfan I	7.154	0.83	µg/Kg-dry	10.38	0	68.9	44	144	0			0
alpha-Chlordane	9.472	0.83	µg/Kg-dry	10.38	0	91.2	36	147	0			0
gamma-Chlordane	11.03	0.83	µg/Kg-dry	10.38	0	106	44	141	0			0
Dieldrin	8.639	1.7	µg/Kg-dry	10.38	0	83.2	49	153	0			0
4,4'-DDE	8.977	1.7	µg/Kg-dry	10.38	0	86.5	48	155	0			0
Endrin	10.1	1.7	µg/Kg-dry	10.38	0	97.2	49	157	0			0
Endosulfan II	8.801	1.7	µg/Kg-dry	10.38	0	84.8	38	154	0			0
4,4'-DDD	8.333	1.7	µg/Kg-dry	10.38	0	80.3	38	163	0			0
Endrin aldehyde	8.048	1.7	µg/Kg-dry	10.38	0	77.5	40	156	0			0
Endrin ketone	10.44	1.7	µg/Kg-dry	10.38	0	101	49	159	0			0
Endosulfan sulfate	10.35	1.7	µg/Kg-dry	10.38	0	99.6	38	163	0			0
4,4'-DDT	10.64	1.7	µg/Kg-dry	10.38	0	102	18	169	0			0
Methoxychlor	10.94	8.3	µg/Kg-dry	10.38	0	105	52	158	0			0
Surr: Tetrachloro-m-xylene	5.435	0	µg/Kg-dry	8.305	0	65.4	48	141	0			0
Surr: Decachlorobiphenyl	7.857	0	µg/Kg-dry	8.305	0	94.6	37	157	0			0

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

QC SUMMARY REPORT

Matrix Spike Duplicate - Full List

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

Sample ID: 1307002-09AMSD **Batch ID:** 23360 **Test Code:** SW8081A **Units:** µg/Kg-dry **Analysis Date:** 7/8/2013 3:51:00 PM **Prep Date:** 7/2/2013
Client ID: AMR-SB-26-2.0 **Run ID:** GC-FING2_130708A **SeqNo:** 854288

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Que
alpha-BHC	8.888	0.84	µg/Kg-dry	10.46	0	85	41	166	8.983	1.07	50	
beta-BHC	11.48	0.84	µg/Kg-dry	10.46	0	110	61	149	13.02	12.6	50	
delta-BHC	10.16	0.84	µg/Kg-dry	10.46	0	97.2	11	160	9.347	8.34	50	
gamma-BHC	8.199	0.84	µg/Kg-dry	10.46	0	78.4	48	166	8.649	5.35	50	
Heptachlor	8.061	0.84	µg/Kg-dry	10.46	0	77.1	48	145	8.317	3.13	50	
Aldrin	8.757	0.84	µg/Kg-dry	10.46	0	83.7	51	148	8.727	0.342	50	
Heptachlor epoxide	8.541	0.84	µg/Kg-dry	10.46	0	81.7	51	145	8.222	3.81	50	
Endosulfan I	7.414	0.84	µg/Kg-dry	10.46	0	70.9	44	144	7.154	3.57	50	
alpha-Chlordane	9.231	0.84	µg/Kg-dry	10.46	0	88.3	36	147	9.472	2.57	50	
gamma-Chlordane	8.931	0.84	µg/Kg-dry	10.46	0	85.4	44	141	11.03	21	50	
Dieldrin	8.744	1.7	µg/Kg-dry	10.46	0	83.6	49	153	8.639	1.2	50	
4,4'-DDE	9.132	1.7	µg/Kg-dry	10.46	0	87.3	48	155	8.977	1.71	50	
Endrin	10.31	1.7	µg/Kg-dry	10.46	0	98.6	49	157	10.1	2.15	50	
Endosulfan II	10.07	1.7	µg/Kg-dry	10.46	0	96.3	38	154	8.801	13.4	50	
4,4'-DDD	6.584	1.7	µg/Kg-dry	10.46	0	63	38	163	8.333	23.5	50	
Endrin aldehyde	7.902	1.7	µg/Kg-dry	10.46	0	75.6	40	156	8.048	1.84	50	
Endrin ketone	9.982	1.7	µg/Kg-dry	10.46	0	95.4	49	159	10.44	4.51	50	
Endosulfan sulfate	10.16	1.7	µg/Kg-dry	10.46	0	97.1	38	163	10.35	1.81	50	
4,4'-DDT	11.3	1.7	µg/Kg-dry	10.46	0	108	18	169	10.64	6.01	50	
Methoxychlor	11.85	8.4	µg/Kg-dry	10.46	0	113	52	158	10.94	7.95	50	
Surr: Tetrachloro-m-xylene	5.589	0	µg/Kg-dry	8.367	0	66.8	48	141	0	0	0	
Surr: Decachlorobiphenyl	8.085	0	µg/Kg-dry	8.367	0	96.6	37	157	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Matrix Spike - Full List

Sample ID: 1307002-27AMS Batch ID: 23362 Test Code: SW8081A Units: µg/Kg-dry Analysis Date 7/8/2013 5:17:00 PM Prep Date: 7/3/2013
 Client ID: AMR-SB-10-2.0 Run ID: GC-FING2_130708A SeqNo: 854292

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Queue
alpha-BHC	8.81	0.88	µg/Kg-dry	10.96	0	80.4	41	166	0			
beta-BHC	9.542	0.88	µg/Kg-dry	10.96	0	87.1	61	149	0			
delta-BHC	6.827	0.88	µg/Kg-dry	10.96	0	62.3	11	160	0			
gamma-BHC	7.837	0.88	µg/Kg-dry	10.96	0	71.5	48	166	0			
Heptachlor	8.088	0.88	µg/Kg-dry	10.96	0	73.8	48	145	0			
Aldrin	8.632	0.88	µg/Kg-dry	10.96	0	78.8	51	148	0			
Heptachlor epoxide	8.198	0.88	µg/Kg-dry	10.96	0	74.8	51	145	0			
Endosulfan I	9.294	0.88	µg/Kg-dry	10.96	0	84.8	44	144	0			
alpha-Chlordane	8.658	0.88	µg/Kg-dry	10.96	0	79	36	147	0			
gamma-Chlordane	10.2	0.88	µg/Kg-dry	10.96	0	93.1	44	141	0			
Dieldrin	8.496	1.8	µg/Kg-dry	10.96	0	77.5	49	153	0			
4,4'-DDE	8.628	1.8	µg/Kg-dry	10.96	0	78.7	48	155	0			
Endrin	8.904	1.8	µg/Kg-dry	10.96	0	81.2	49	157	0			
Endosulfan II	9.057	1.8	µg/Kg-dry	10.96	0	82.6	38	154	0			
4,4'-DDD	10.26	1.8	µg/Kg-dry	10.96	0	93.6	38	163	0			
Endrin aldehyde	7.32	1.8	µg/Kg-dry	10.96	0	66.8	40	156	0			
Endrin ketone	10.53	1.8	µg/Kg-dry	10.96	0	96.1	49	159	0			
Endosulfan sulfate	9.119	1.8	µg/Kg-dry	10.96	0	83.2	38	163	0			
4,4'-DDT	10.27	1.8	µg/Kg-dry	10.96	0	93.7	18	169	0			
Methoxychlor	9.666	8.8	µg/Kg-dry	10.96	0	88.2	52	158	0			
Surr: Tetrachloro-m-xylene	5.539	0	µg/Kg-dry	8.767	0	63.2	48	141	0			
Surr: Decachlorobiphenyl	8.117	0	µg/Kg-dry	8.767	0	92.6	37	157	0			

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 09-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Matrix Spike Duplicate - Full List

Sample ID: 1307002-27AMSD		Batch ID: 23362	Test Code: SW8081A		Units: µg/Kg-dry	Analysis Date 7/8/2013 5:39:00 PM		Prep Date: 7/3/2013				
Client ID: AMR-SB-10-2.0		Run ID: GC-FING2_130708A		SeqNo: 854293								
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
alpha-BHC	9.276	0.87	µg/Kg-dry	10.92	0	85	41	166	8.81	5.16	50	
beta-BHC	10.34	0.87	µg/Kg-dry	10.92	0	94.7	61	149	9.542	8.04	50	
delta-BHC	11.14	0.87	µg/Kg-dry	10.92	0	102	11	160	6.827	48	50	
gamma-BHC	8.463	0.87	µg/Kg-dry	10.92	0	77.5	48	166	7.837	7.68	50	
Heptachlor	8.509	0.87	µg/Kg-dry	10.92	0	78	48	145	8.088	5.07	50	
Aldrin	9.093	0.87	µg/Kg-dry	10.92	0	83.3	51	148	8.632	5.2	50	
Heptachlor epoxide	8.425	0.87	µg/Kg-dry	10.92	0	77.2	51	145	8.198	2.73	50	
Endosulfan I	9.4	0.87	µg/Kg-dry	10.92	0	86.1	44	144	9.294	1.13	50	
alpha-Chlordane	8.785	0.87	µg/Kg-dry	10.92	0	80.5	36	147	8.658	1.45	50	
gamma-Chlordane	10.4	0.87	µg/Kg-dry	10.92	0	95.3	44	141	10.2	1.93	50	
Dieldrin	8.841	1.7	µg/Kg-dry	10.92	0	81	49	153	8.496	3.98	50	
4,4'-DDE	8.96	1.7	µg/Kg-dry	10.92	0	82.1	48	155	8.628	3.77	50	
Endrin	11.01	1.7	µg/Kg-dry	10.92	0	101	49	157	8.904	21.2	50	
Endosulfan II	8.095	1.7	µg/Kg-dry	10.92	0	74.2	38	154	9.057	11.2	50	
4,4'-DDD	10.19	1.7	µg/Kg-dry	10.92	0	93.4	38	163	10.26	0.711	50	
Endrin aldehyde	7.134	1.7	µg/Kg-dry	10.92	0	65.4	40	156	7.32	2.57	50	
Endrin ketone	10.34	1.7	µg/Kg-dry	10.92	0	94.7	49	159	10.53	1.89	50	
Endosulfan sulfate	7.588	1.7	µg/Kg-dry	10.92	0	69.5	38	163	9.119	18.3	50	
4,4'-DDT	10.69	1.7	µg/Kg-dry	10.92	0	97.9	18	169	10.27	3.99	50	
Methoxychlor	12.34	8.7	µg/Kg-dry	10.92	0	113	52	158	9.666	24.3	50	
Surr: Tetrachloro-m-xylene	5.716	0	µg/Kg-dry	8.733	0	65.4	48	141	0	0	0	
Surr: Decachlorobiphenyl	8.072	0	µg/Kg-dry	8.733	0	92.4	37	157	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-01**Collection Date:** 6/27/2013 9:50:00 AM**Collection Time:****Client Sample ID:** AMR-SB-27-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.321		mg/Kg-dry	1	7/2/2013 7:09:06 PM
Cadmium	ND	0.642		mg/Kg-dry	1	7/2/2013 7:09:06 PM
Chromium	11.2	1.29		mg/Kg-dry	1	7/2/2013 7:09:06 PM
Copper	24.4	3.21		mg/Kg-dry	1	7/2/2013 7:09:06 PM
Lead	8.67	5.13		mg/Kg-dry	1	7/2/2013 7:09:06 PM
Nickel	15.8	5.13		mg/Kg-dry	1	7/2/2013 7:09:06 PM
Silver	ND	1.79		mg/Kg-dry	1	7/2/2013 7:09:06 PM
Zinc	49.7	7.71		mg/Kg-dry	1	7/2/2013 7:09:06 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	6.19	2.57		mg/Kg-dry	2	7/5/2013 11:15:29 AM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0508		mg/Kg-dry	1	7/3/2013 3:52:17 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	6.9	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	ND	0.80		mg/Kg-dry	1	7/11/2013 2:12:59 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 11:20:23 AM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 11:18:27 AM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-02**Collection Date:** 6/27/2013 10:13:00 AM**Collection Time:****Client Sample ID:** AMR-SB-28-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Antimony	19.9	5.71		mg/Kg-dry	1	7/2/2013 7:46:46 PM
Beryllium	0.606	0.357		mg/Kg-dry	1	7/2/2013 7:46:46 PM
Cadmium	0.926	0.714		mg/Kg-dry	1	7/2/2013 7:46:46 PM
Chromium	18.0	1.43		mg/Kg-dry	1	7/2/2013 7:46:46 PM
Copper	159	3.57		mg/Kg-dry	1	7/2/2013 7:46:46 PM
Lead	251	5.71		mg/Kg-dry	1	7/2/2013 7:46:46 PM
Nickel	20.0	5.71		mg/Kg-dry	1	7/2/2013 7:46:46 PM
Silver	ND	2.00		mg/Kg-dry	1	7/2/2013 7:46:46 PM
Zinc	35.8	8.57		mg/Kg-dry	1	7/2/2013 7:46:46 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	13.4	5.71		mg/Kg-dry	4	7/5/2013 11:49:56 AM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	0.0863	0.0571		mg/Kg-dry	1	7/3/2013 3:55:32 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	14.0	0		wt%	1	7/8/2013
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	2.9		mg/Kg-dry	2	7/9/2013 11:42:19 AM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.4	PS	mg/Kg-dry	1	7/10/2013 11:38:35 AM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-03**Collection Date:** 6/27/2013 10:40:00 AM**Collection Time:****Client Sample ID:** AMR-SB-30-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.349		mg/Kg-dry	1	7/2/2013 7:54:05 PM
Cadmium	ND	0.697		mg/Kg-dry	1	7/2/2013 7:54:05 PM
Chromium	14.7	1.40		mg/Kg-dry	1	7/2/2013 7:54:05 PM
Copper	110	3.49		mg/Kg-dry	1	7/2/2013 7:54:05 PM
Lead	170	5.58		mg/Kg-dry	1	7/2/2013 7:54:05 PM
Nickel	19.8	5.58		mg/Kg-dry	1	7/2/2013 7:54:05 PM
Silver	ND	1.96		mg/Kg-dry	1	7/2/2013 7:54:05 PM
Zinc	48.2	8.37		mg/Kg-dry	1	7/2/2013 7:54:05 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	10.8	2.79		mg/Kg-dry	2	7/5/2013 11:58:27 AM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	0.0614	0.0558		mg/Kg-dry	1	7/3/2013 4:05:22 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	10.6	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	9.8	3.5		mg/Kg-dry	4	7/11/2013 3:00:56 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.4		mg/Kg-dry	1	7/9/2013 12:00:43 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.4	PS	mg/Kg-dry	1	7/10/2013 11:55:41 AM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-04**Collection Date:** 6/27/2013 11:00:00 AM**Collection Time:****Client Sample ID:** AMR-SB-31-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.332		mg/Kg-dry	1	7/2/2013 8:21:58 PM
Cadmium	ND	0.663		mg/Kg-dry	1	7/2/2013 8:21:58 PM
Chromium	10.2	1.32		mg/Kg-dry	1	7/2/2013 8:21:58 PM
Copper	26.7	3.32		mg/Kg-dry	1	7/2/2013 8:21:58 PM
Lead	8.76	5.31		mg/Kg-dry	1	7/2/2013 8:21:58 PM
Nickel	18.3	5.31		mg/Kg-dry	1	7/2/2013 8:21:58 PM
Silver	ND	1.86		mg/Kg-dry	1	7/2/2013 8:21:58 PM
Zinc	43.5	7.95		mg/Kg-dry	1	7/2/2013 8:21:58 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	5.89	2.65		mg/Kg-dry	2	7/5/2013 12:07:19 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0510		mg/Kg-dry	1	7/3/2013 4:08:38 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	6.2	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	ND	0.83		mg/Kg-dry	1	7/11/2013 3:06:39 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 12:18:46 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 12:07:05 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-05**Collection Date:** 6/27/2013 11:00:00 AM**Collection Time:****Client Sample ID:** AMR-SB-31-FD-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.328		mg/Kg-dry	1	7/2/2013 8:29:17 PM
Cadmium	ND	0.657		mg/Kg-dry	1	7/2/2013 8:29:17 PM
Chromium	9.95	1.32		mg/Kg-dry	1	7/2/2013 8:29:17 PM
Copper	28.6	3.28		mg/Kg-dry	1	7/2/2013 8:29:17 PM
Lead	9.02	5.25		mg/Kg-dry	1	7/2/2013 8:29:17 PM
Nickel	17.5	5.25		mg/Kg-dry	1	7/2/2013 8:29:17 PM
Silver	ND	1.84		mg/Kg-dry	1	7/2/2013 8:29:17 PM
Zinc	48.2	7.88		mg/Kg-dry	1	7/2/2013 8:29:17 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	6.05	2.63		mg/Kg-dry	2	7/5/2013 12:15:49 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0498		mg/Kg-dry	1	7/3/2013 4:11:53 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	6.5	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	ND	0.82		mg/Kg-dry	1	7/11/2013 3:18:04 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 12:25:08 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 12:18:52 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-06**Collection Date:** 6/27/2013 11:15:00 AM**Collection Time:****Client Sample ID:** AMR-SB-32-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Beryllium	ND	0.324		mg/Kg-dry	1	7/2/2013 8:36:23 PM
Cadmium	ND	0.648		mg/Kg-dry	1	7/2/2013 8:36:23 PM
Chromium	9.15	1.30		mg/Kg-dry	1	7/2/2013 8:36:23 PM
Copper	10.7	3.24		mg/Kg-dry	1	7/2/2013 8:36:23 PM
Lead	8.95	5.18		mg/Kg-dry	1	7/2/2013 8:36:23 PM
Nickel	13.8	5.18		mg/Kg-dry	1	7/2/2013 8:36:23 PM
Silver	ND	1.81		mg/Kg-dry	1	7/2/2013 8:36:23 PM
Zinc	25.7	7.77		mg/Kg-dry	1	7/2/2013 8:36:23 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	4.22	1.30		mg/Kg-dry	1	7/5/2013 12:21:32 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	ND	0.0494		mg/Kg-dry	1	7/3/2013 4:15:18 PM
PERCENT MOISTURE		D2216				Analyst: MG
Percent Moisture	5.2	0		wt%	1	7/8/2013
ANTIMONY, SOIL 3051/7041		SW7041				Analyst: REB
Antimony	ND	0.81		mg/Kg-dry	1	7/11/2013 3:29:51 PM
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 12:31:09 PM
THALLIUM, SOIL 3051/7841		SW7841				Analyst: REB
Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 12:30:16 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-07**Collection Date:** 6/27/2013 11:40:00 AM**Collection Time:****Client Sample ID:** AMR-SB-33-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.327		mg/Kg-dry	1	7/2/2013 8:43:41 PM
Cadmium	ND	0.653		mg/Kg-dry	1	7/2/2013 8:43:41 PM
Chromium	11.4	1.31		mg/Kg-dry	1	7/2/2013 8:43:41 PM
Copper	20.3	3.27		mg/Kg-dry	1	7/2/2013 8:43:41 PM
Lead	8.45	5.23		mg/Kg-dry	1	7/2/2013 8:43:41 PM
Nickel	16.2	5.23		mg/Kg-dry	1	7/2/2013 8:43:41 PM
Silver	ND	1.83		mg/Kg-dry	1	7/2/2013 8:43:41 PM
Zinc	41.7	7.84		mg/Kg-dry	1	7/2/2013 8:43:41 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	5.97	2.61		mg/Kg-dry	2	7/5/2013 12:35:43 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0503		mg/Kg-dry	1	7/3/2013 4:18:35 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	4.6	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	ND	0.82		mg/Kg-dry	1	7/11/2013 3:46:57 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 12:49:30 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 12:41:37 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-08**Collection Date:** 6/27/2013 11:50:00 AM**Collection Time:****Client Sample ID:** AMR-SB-29-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B****Analyst: AL**

Beryllium	ND	0.358		mg/Kg-dry	1	7/2/2013 8:51:16 PM
Cadmium	ND	0.717		mg/Kg-dry	1	7/2/2013 8:51:16 PM
Chromium	11.8	1.43		mg/Kg-dry	1	7/2/2013 8:51:16 PM
Copper	8.84	3.58		mg/Kg-dry	1	7/2/2013 8:51:16 PM
Lead	8.43	5.74		mg/Kg-dry	1	7/2/2013 8:51:16 PM
Nickel	9.26	5.74		mg/Kg-dry	1	7/2/2013 8:51:16 PM
Silver	ND	2.00		mg/Kg-dry	1	7/2/2013 8:51:16 PM
Zinc	27.9	8.60		mg/Kg-dry	1	7/2/2013 8:51:16 PM

ARSENIC, SOIL 3051/7060**SW7060A****Analyst: REB**

Arsenic	4.52	1.43		mg/Kg-dry	1	7/5/2013 12:41:46 PM
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MERCURY, 7471A**SW7471A****Analyst: AL**

Mercury	ND	0.0576		mg/Kg-dry	1	7/3/2013 4:21:52 PM
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PERCENT MOISTURE**D2216****Analyst: MG**

Percent Moisture	16.2	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041****Analyst: REB**

Antimony	ND	0.90		mg/Kg-dry	1	7/11/2013 3:58:19 PM
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SELENIUM, SOIL 3051/7740**SW7740****Analyst: REB**

Selenium	ND	1.4		mg/Kg-dry	1	7/9/2013 12:55:30 PM
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THALLIUM, SOIL 3051/7841**SW7841****Analyst: REB**

Thallium	ND	1.4	PS	mg/Kg-dry	1	7/10/2013 12:58:40 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-09**Collection Date:** 6/27/2013 12:45:00 PM**Collection Time:****Client Sample ID:** AMR-SB-26-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.307		mg/Kg-dry	1	7/2/2013 8:58:30 PM
Cadmium	ND	0.612		mg/Kg-dry	1	7/2/2013 8:58:30 PM
Chromium	9.56	1.22		mg/Kg-dry	1	7/2/2013 8:58:30 PM
Copper	10.6	3.07		mg/Kg-dry	1	7/2/2013 8:58:30 PM
Lead	ND	4.90		mg/Kg-dry	1	7/2/2013 8:58:30 PM
Nickel	16.3	4.90		mg/Kg-dry	1	7/2/2013 8:58:30 PM
Silver	ND	1.72		mg/Kg-dry	1	7/2/2013 8:58:30 PM
Zinc	27.4	7.36		mg/Kg-dry	1	7/2/2013 8:58:30 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	4.45	2.45		mg/Kg-dry	2	7/5/2013 12:53:09 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0507		mg/Kg-dry	1	7/3/2013 4:35:06 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	5.1	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	ND	0.77		mg/Kg-dry	1	7/11/2013 4:10:05 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.2		µg/L-dry	1	7/9/2013 1:08:13 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.2	PS	mg/Kg-dry	1	7/10/2013 1:10:03 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-10**Collection Date:** 6/27/2013 1:05:00 PM**Collection Time:****Client Sample ID:** AMR-SB-25-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.314		mg/Kg-dry	1	7/2/2013 9:05:32 PM
Cadmium	ND	0.629		mg/Kg-dry	1	7/2/2013 9:05:32 PM
Chromium	8.50	1.26		mg/Kg-dry	1	7/2/2013 9:05:32 PM
Copper	21.2	3.14		mg/Kg-dry	1	7/2/2013 9:05:32 PM
Lead	7.96	5.04		mg/Kg-dry	1	7/2/2013 9:05:32 PM
Nickel	14.2	5.04		mg/Kg-dry	1	7/2/2013 9:05:32 PM
Silver	ND	1.76		mg/Kg-dry	1	7/2/2013 9:05:32 PM
Zinc	44.9	7.55		mg/Kg-dry	1	7/2/2013 9:05:32 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	ND	5.03		mg/Kg-dry	4	7/5/2013 1:10:58 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0498		mg/Kg-dry	1	7/3/2013 4:54:46 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	6.5	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	ND	0.79		mg/Kg-dry	1	7/11/2013 4:21:49 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 1:26:12 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 1:21:24 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-11**Collection Date:** 6/27/2013 1:25:00 PM**Collection Time:****Client Sample ID:** AMR-SB-24-1.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.429		mg/Kg-dry	1	7/2/2013 9:12:40 PM
Cadmium	ND	0.858		mg/Kg-dry	1	7/2/2013 9:12:40 PM
Chromium	19.3	1.72		mg/Kg-dry	1	7/2/2013 9:12:40 PM
Copper	29.6	4.29		mg/Kg-dry	1	7/2/2013 9:12:40 PM
Lead	82.8	6.86		mg/Kg-dry	1	7/2/2013 9:12:40 PM
Nickel	24.2	6.86		mg/Kg-dry	1	7/2/2013 9:12:40 PM
Silver	ND	2.41		mg/Kg-dry	1	7/2/2013 9:12:40 PM
Zinc	68.0	10.3		mg/Kg-dry	1	7/2/2013 9:12:40 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	7.71	3.43		mg/Kg-dry	2	7/5/2013 1:22:43 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0665		mg/Kg-dry	1	7/3/2013 4:58:00 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	28.9	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	ND	1.1		mg/Kg-dry	1	7/11/2013 4:33:12 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.7		mg/Kg-dry	1	7/9/2013 1:32:12 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.7	PS	mg/Kg-dry	1	7/10/2013 1:32:47 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-12**Collection Date:** 6/27/2013 2:35:00 PM**Collection Time:****Client Sample ID:** AMR-SB-21-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	0.542	0.339		mg/Kg-dry	1	7/2/2013 9:19:47 PM
Cadmium	0.799	0.679		mg/Kg-dry	1	7/2/2013 9:19:47 PM
Chromium	19.1	1.36		mg/Kg-dry	1	7/2/2013 9:19:47 PM
Copper	82.1	3.39		mg/Kg-dry	1	7/2/2013 9:19:47 PM
Lead	216	5.43		mg/Kg-dry	1	7/2/2013 9:19:47 PM
Nickel	24.1	5.43		mg/Kg-dry	1	7/2/2013 9:19:47 PM
Silver	ND	1.90		mg/Kg-dry	1	7/2/2013 9:19:47 PM
Zinc	120	8.15		mg/Kg-dry	1	7/2/2013 9:19:47 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	22.5	5.43	MSA	mg/Kg-dry	4	7/5/2013 1:39:41 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	0.0880	0.0567		mg/Kg-dry	1	7/3/2013 5:01:14 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	13.1	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	7.3	3.4		mg/Kg-dry	4	7/12/2013 12:04:08 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	1.4	1.4		mg/Kg-dry	1	7/9/2013 1:38:11 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.4	PS	mg/Kg-dry	1	7/10/2013 1:44:53 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-13**Collection Date:** 6/27/2013 2:35:00 PM**Collection Time:****Client Sample ID:** AMR-SB-21-0.5 FD**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.337		mg/Kg-dry	1	7/2/2013 9:27:18 PM
Cadmium	ND	0.673		mg/Kg-dry	1	7/2/2013 9:27:18 PM
Chromium	12.4	1.34		mg/Kg-dry	1	7/2/2013 9:27:18 PM
Copper	30.9	3.37		mg/Kg-dry	1	7/2/2013 9:27:18 PM
Lead	117	5.39		mg/Kg-dry	1	7/2/2013 9:27:18 PM
Nickel	9.73	5.39		mg/Kg-dry	1	7/2/2013 9:27:18 PM
Silver	ND	1.89		mg/Kg-dry	1	7/2/2013 9:27:18 PM
Zinc	47.9	8.08		mg/Kg-dry	1	7/2/2013 9:27:18 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	4.02	1.35		mg/Kg-dry	1	7/5/2013 1:45:23 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	0.0660	0.0526		mg/Kg-dry	1	7/3/2013 5:04:31 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	8.3	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	11	3.4		mg/Kg-dry	4	7/12/2013 12:16:40 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 1:44:11 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 2:01:55 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-14**Collection Date:** 6/27/2013 3:15:00 PM**Collection Time:****Client Sample ID:** AMR-SB-17-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**Analyst: **AL**

Beryllium	0.411	0.381		mg/Kg-dry	1	7/2/2013 9:54:44 PM
Cadmium	ND	0.761		mg/Kg-dry	1	7/2/2013 9:54:44 PM
Chromium	24.6	1.52		mg/Kg-dry	1	7/2/2013 9:54:44 PM
Copper	50.7	3.81		mg/Kg-dry	1	7/2/2013 9:54:44 PM
Lead	129	6.10		mg/Kg-dry	1	7/2/2013 9:54:44 PM
Nickel	21.2	6.10		mg/Kg-dry	1	7/2/2013 9:54:44 PM
Silver	ND	2.13		mg/Kg-dry	1	7/2/2013 9:54:44 PM
Zinc	113	9.13		mg/Kg-dry	1	7/2/2013 9:54:44 PM

ARSENIC, SOIL 3051/7060**SW7060A**Analyst: **REB**

Arsenic	14.3	3.04	MSA	mg/Kg-dry	2	7/5/2013 1:53:52 PM
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MERCURY, 7471A**SW7471A**Analyst: **AL**

Mercury	0.123	0.0572		mg/Kg-dry	1	7/3/2013 5:07:46 PM
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PERCENT MOISTURE**D2216**Analyst: **MG**

Percent Moisture	18.3	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**Analyst: **REB**

Antimony	7.0	3.8		mg/Kg-dry	4	7/12/2013 12:32:13 PM
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SELENIUM, SOIL 3051/7740**SW7740**Analyst: **REB**

Selenium	ND	1.5	MSA	mg/Kg-dry	1	7/9/2013 1:50:32 PM
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THALLIUM, SOIL 3051/7841**SW7841**Analyst: **REB**

Thallium	ND	1.5	PS	mg/Kg-dry	1	7/10/2013 2:14:01 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-15**Collection Date:** 6/27/2013 3:40:00 PM**Collection Time:****Client Sample ID:** AMR-SB-15-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B****Analyst: AL**

Beryllium	ND	0.320		mg/Kg-dry	1	7/2/2013 10:02:10 PM
Cadmium	ND	0.642		mg/Kg-dry	1	7/2/2013 10:02:10 PM
Chromium	14.8	1.29		mg/Kg-dry	1	7/2/2013 10:02:10 PM
Copper	11.0	3.20		mg/Kg-dry	1	7/2/2013 10:02:10 PM
Lead	5.33	5.13		mg/Kg-dry	1	7/2/2013 10:02:10 PM
Nickel	14.7	5.13		mg/Kg-dry	1	7/2/2013 10:02:10 PM
Silver	ND	1.80		mg/Kg-dry	1	7/2/2013 10:02:10 PM
Zinc	28.4	7.70		mg/Kg-dry	1	7/2/2013 10:02:10 PM

ARSENIC, SOIL 3051/7060**SW7060A****Analyst: REB**

Arsenic	4.92	2.57		mg/Kg-dry	2	7/5/2013 2:11:20 PM
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MERCURY, 7471A**SW7471A****Analyst: AL**

Mercury	ND	0.0515		mg/Kg-dry	1	7/3/2013 5:11:01 PM
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PERCENT MOISTURE**D2216****Analyst: MG**

Percent Moisture	9.2	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041****Analyst: REB**

Antimony	ND	0.80		mg/Kg-dry	1	7/12/2013 12:43:37 PM
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SELENIUM, SOIL 3051/7740**SW7740****Analyst: REB**

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 2:14:55 PM
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THALLIUM, SOIL 3051/7841**SW7841****Analyst: REB**

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 2:26:06 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-16**Collection Date:** 6/27/2013 4:00:00 PM**Collection Time:****Client Sample ID:** AMR-SB-12-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B****Analyst: AL**

Beryllium	ND	0.341		mg/Kg-dry	1	7/2/2013 10:09:24 PM
Cadmium	0.880	0.681		mg/Kg-dry	1	7/2/2013 10:09:24 PM
Chromium	15.4	1.36		mg/Kg-dry	1	7/2/2013 10:09:24 PM
Copper	10.6	3.41		mg/Kg-dry	1	7/2/2013 10:09:24 PM
Lead	ND	5.45		mg/Kg-dry	1	7/2/2013 10:09:24 PM
Nickel	21.0	5.45		mg/Kg-dry	1	7/2/2013 10:09:24 PM
Silver	ND	1.91		mg/Kg-dry	1	7/2/2013 10:09:24 PM
Zinc	101	8.18		mg/Kg-dry	1	7/2/2013 10:09:24 PM

ARSENIC, SOIL 3051/7060**SW7060A****Analyst: REB**

Arsenic	ND	5.45		mg/Kg-dry	4	7/5/2013 2:28:25 PM
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MERCURY, 7471A**SW7471A****Analyst: AL**

Mercury	ND	0.0543		mg/Kg-dry	1	7/3/2013 5:14:17 PM
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PERCENT MOISTURE**D2216****Analyst: MG**

Percent Moisture	13.1	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041****Analyst: REB**

Antimony	ND	0.85		mg/Kg-dry	1	7/12/2013 12:49:41 PM
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SELENIUM, SOIL 3051/7740**SW7740****Analyst: REB**

Selenium	ND	1.4		mg/Kg-dry	1	7/9/2013 2:21:16 PM
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THALLIUM, SOIL 3051/7841**SW7841****Analyst: REB**

Thallium	ND	1.4	PS	mg/Kg-dry	1	7/10/2013 2:38:14 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-17**Collection Date:** 6/28/2013 8:20:00 AM**Collection Time:****Client Sample ID:** AMR-SB-4-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Beryllium	ND	0.317		mg/Kg-dry	1	7/2/2013 10:16:57 PM
Cadmium	ND	0.635		mg/Kg-dry	1	7/2/2013 10:16:57 PM
Chromium	10.4	1.27		mg/Kg-dry	1	7/2/2013 10:16:57 PM
Copper	6.72	3.17		mg/Kg-dry	1	7/2/2013 10:16:57 PM
Lead	ND	5.07		mg/Kg-dry	1	7/2/2013 10:16:57 PM
Nickel	13.4	5.07		mg/Kg-dry	1	7/2/2013 10:16:57 PM
Silver	ND	1.77		mg/Kg-dry	1	7/2/2013 10:16:57 PM
Zinc	30.1	7.62		mg/Kg-dry	1	7/2/2013 10:16:57 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	3.89	2.54		mg/Kg-dry	2	7/5/2013 2:45:34 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	ND	0.0494		mg/Kg-dry	1	7/3/2013 5:24:09 PM
PERCENT MOISTURE		D2216				Analyst: MG
Percent Moisture	6.4	0		wt%	1	7/8/2013
ANTIMONY, SOIL 3051/7041		SW7041				Analyst: REB
Antimony	ND	0.79		mg/Kg-dry	1	7/12/2013 12:56:06 PM
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 2:27:16 PM
THALLIUM, SOIL 3051/7841		SW7841				Analyst: REB
Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 2:49:36 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-18**Collection Date:** 6/28/2013 8:45:00 AM**Collection Time:****Client Sample ID:** AMR-SB-3-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B****Analyst: AL**

Beryllium	0.356	0.348		mg/Kg-dry	1	7/2/2013 10:24:09 PM
Cadmium	ND	0.694		mg/Kg-dry	1	7/2/2013 10:24:09 PM
Chromium	9.33	1.39		mg/Kg-dry	1	7/2/2013 10:24:09 PM
Copper	22.4	3.48		mg/Kg-dry	1	7/2/2013 10:24:09 PM
Lead	38.9	5.55		mg/Kg-dry	1	7/2/2013 10:24:09 PM
Nickel	13.5	5.55		mg/Kg-dry	1	7/2/2013 10:24:09 PM
Silver	ND	1.95		mg/Kg-dry	1	7/2/2013 10:24:09 PM
Zinc	37.9	8.33		mg/Kg-dry	1	7/2/2013 10:24:09 PM

ARSENIC, SOIL 3051/7060**SW7060A****Analyst: REB**

Arsenic	7.91	2.78		mg/Kg-dry	2	7/5/2013 2:54:09 PM
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MERCURY, 7471A**SW7471A****Analyst: AL**

Mercury	ND	0.0547		mg/Kg-dry	1	7/3/2013 5:27:27 PM
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PERCENT MOISTURE**D2216****Analyst: MG**

Percent Moisture	14.3	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041****Analyst: REB**

Antimony	1.5	0.87		mg/Kg-dry	1	7/12/2013 1:07:35 PM
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SELENIUM, SOIL 3051/7740**SW7740****Analyst: REB**

Selenium	ND	1.4		mg/Kg-dry	1	7/9/2013 2:45:46 PM
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THALLIUM, SOIL 3051/7841**SW7841****Analyst: REB**

Thallium	ND	1.4	PS	mg/Kg-dry	1	7/10/2013 3:06:46 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-19**Collection Date:** 6/28/2013 9:00:00 AM**Collection Time:****Client Sample ID:** AMR-SB-2-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B****Analyst: AL**

Beryllium	ND	0.322		mg/Kg-dry	1	7/2/2013 10:31:49 PM
Cadmium	ND	0.644		mg/Kg-dry	1	7/2/2013 10:31:49 PM
Chromium	13.8	1.29		mg/Kg-dry	1	7/2/2013 10:31:49 PM
Copper	43.0	3.22		mg/Kg-dry	1	7/2/2013 10:31:49 PM
Lead	21.9	5.15		mg/Kg-dry	1	7/2/2013 10:31:49 PM
Nickel	23.3	5.15		mg/Kg-dry	1	7/2/2013 10:31:49 PM
Silver	ND	1.80		mg/Kg-dry	1	7/2/2013 10:31:49 PM
Zinc	54.3	7.71		mg/Kg-dry	1	7/2/2013 10:31:49 PM

ARSENIC, SOIL 3051/7060**SW7060A****Analyst: REB**

Arsenic	4.85	2.57		mg/Kg-dry	2	7/5/2013 3:05:40 PM
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MERCURY, 7471A**SW7471A****Analyst: AL**

Mercury	ND	0.0518		mg/Kg-dry	1	7/3/2013 5:30:44 PM
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PERCENT MOISTURE**D2216****Analyst: MG**

Percent Moisture	6.8	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041****Analyst: REB**

Antimony	1.1	0.80		mg/Kg-dry	1	7/12/2013 1:13:20 PM
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SELENIUM, SOIL 3051/7740**SW7740****Analyst: REB**

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 2:51:49 PM
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THALLIUM, SOIL 3051/7841**SW7841****Analyst: REB**

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 3:18:14 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-20**Collection Date:** 6/28/2013 9:15:00 AM**Collection Time:****Client Sample ID:** AMR-SB-1-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.326		mg/Kg-dry	1	7/2/2013 10:38:59 PM
Cadmium	ND	0.652		mg/Kg-dry	1	7/2/2013 10:38:59 PM
Chromium	10.8	1.30		mg/Kg-dry	1	7/2/2013 10:38:59 PM
Copper	15.3	3.26		mg/Kg-dry	1	7/2/2013 10:38:59 PM
Lead	28.7	5.22		mg/Kg-dry	1	7/2/2013 10:38:59 PM
Nickel	15.9	5.22		mg/Kg-dry	1	7/2/2013 10:38:59 PM
Silver	ND	1.83		mg/Kg-dry	1	7/2/2013 10:38:59 PM
Zinc	38.2	7.82		mg/Kg-dry	1	7/2/2013 10:38:59 PM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	4.93	2.61		mg/Kg-dry	2	7/5/2013 3:17:10 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0522		mg/Kg-dry	1	7/3/2013 5:34:03 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	8.0	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	1.9	0.81		mg/Kg-dry	1	7/12/2013 1:19:04 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 2:57:52 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 3:29:44 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-21**Collection Date:** 6/28/2013 10:05:00 AM**Collection Time:****Client Sample ID:** AMR-SB-5-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**Analyst: **AL**

Beryllium	0.416	0.335		mg/Kg-dry	1	7/2/2013 11:34:23 PM
Cadmium	ND	0.670		mg/Kg-dry	1	7/2/2013 11:34:23 PM
Chromium	11.5	1.34		mg/Kg-dry	1	7/2/2013 11:34:23 PM
Copper	27.5	3.35		mg/Kg-dry	1	7/2/2013 11:34:23 PM
Lead	93.8	5.36		mg/Kg-dry	1	7/2/2013 11:34:23 PM
Nickel	11.0	5.36		mg/Kg-dry	1	7/2/2013 11:34:23 PM
Silver	ND	1.87		mg/Kg-dry	1	7/2/2013 11:34:23 PM
Zinc	35.0	8.04		mg/Kg-dry	1	7/2/2013 11:34:23 PM

ARSENIC, SOIL 3051/7060**SW7060A**Analyst: **REB**

Arsenic	8.61	2.68		mg/Kg-dry	2	7/5/2013 3:39:57 PM
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MERCURY, 7471A**SW7471A**Analyst: **AL**

Mercury	ND	0.0547		mg/Kg-dry	1	7/3/2013 5:37:22 PM
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PERCENT MOISTURE**D2216**Analyst: **MG**

Percent Moisture	9.2	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**Analyst: **REB**

Antimony	6.5	3.3		mg/Kg-dry	4	7/12/2013 1:48:53 PM
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SELENIUM, SOIL 3051/7740**SW7740**Analyst: **REB**

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 3:18:51 PM
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THALLIUM, SOIL 3051/7841**SW7841**Analyst: **REB**

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 3:49:42 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-22 **Collection Date:** 6/28/2013 10:25:00 AM**Collection Time:****Client Sample ID:** AMR-SB-6-2.0 **Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
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Beryllium	ND	0.338		mg/Kg-dry	1	7/3/2013 12:11:48 AM
Cadmium	ND	0.676		mg/Kg-dry	1	7/3/2013 12:11:48 AM
Chromium	12.9	1.35		mg/Kg-dry	1	7/3/2013 12:11:48 AM
Copper	8.37	3.38		mg/Kg-dry	1	7/3/2013 12:11:48 AM
Lead	ND	5.40		mg/Kg-dry	1	7/3/2013 12:11:48 AM
Nickel	13.9	5.40		mg/Kg-dry	1	7/3/2013 12:11:48 AM
Silver	ND	1.89		mg/Kg-dry	1	7/3/2013 12:11:48 AM
Zinc	32.9	8.11		mg/Kg-dry	1	7/3/2013 12:11:48 AM

ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
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Arsenic	3.72	2.70		mg/Kg-dry	2	7/5/2013 4:05:30 PM
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MERCURY, 7471A		SW7471A				Analyst: AL
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Mercury	ND	0.0538		mg/Kg-dry	1	7/3/2013 5:40:42 PM
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PERCENT MOISTURE		D2216				Analyst: MG
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Percent Moisture	10.6	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041		SW7041				Analyst: REB
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Antimony	ND	0.84		mg/Kg-dry	1	7/12/2013 2:26:18 PM
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SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
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Selenium	ND	1.4		mg/Kg-dry	1	7/9/2013 3:46:40 PM
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THALLIUM, SOIL 3051/7841		SW7841				Analyst: REB
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Thallium	ND	1.4	PS	mg/Kg-dry	1	7/10/2013 4:15:40 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-23**Collection Date:** 6/28/2013 11:00:00 AM**Collection Time:****Client Sample ID:** AMR-SB-7-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Antimony	11.5	5.58		mg/Kg-dry	1	7/3/2013 12:18:59 AM
Beryllium	0.421	0.349		mg/Kg-dry	1	7/3/2013 12:18:59 AM
Cadmium	ND	0.698		mg/Kg-dry	1	7/3/2013 12:18:59 AM
Chromium	12.3	1.40		mg/Kg-dry	1	7/3/2013 12:18:59 AM
Copper	59.6	3.49		mg/Kg-dry	1	7/3/2013 12:18:59 AM
Lead	248	5.58		mg/Kg-dry	1	7/3/2013 12:18:59 AM
Nickel	10.8	5.58		mg/Kg-dry	1	7/3/2013 12:18:59 AM
Silver	ND	1.95		mg/Kg-dry	1	7/3/2013 12:18:59 AM
Zinc	33.7	8.38		mg/Kg-dry	1	7/3/2013 12:18:59 AM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	7.22	2.79		mg/Kg-dry	2	7/5/2013 4:19:47 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0542		mg/Kg-dry	1	7/3/2013 5:43:57 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	13.5	0		wt%	1	7/8/2013
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	5.6		mg/Kg-dry	4	7/9/2013 4:04:50 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.4	PS	mg/Kg-dry	1	7/10/2013 4:27:29 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-24**Collection Date:** 6/28/2013 11:20:00 AM**Collection Time:****Client Sample ID:** AMR-SB-8-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**Analyst: **AL**

Beryllium	ND	0.336		mg/Kg-dry	1	7/3/2013 12:26:27 AM
Cadmium	ND	0.672		mg/Kg-dry	1	7/3/2013 12:26:27 AM
Chromium	11.4	1.34		mg/Kg-dry	1	7/3/2013 12:26:27 AM
Copper	8.54	3.36		mg/Kg-dry	1	7/3/2013 12:26:27 AM
Lead	ND	5.38		mg/Kg-dry	1	7/3/2013 12:26:27 AM
Nickel	16.8	5.38		mg/Kg-dry	1	7/3/2013 12:26:27 AM
Silver	ND	1.88		mg/Kg-dry	1	7/3/2013 12:26:27 AM
Zinc	23.9	8.06		mg/Kg-dry	1	7/3/2013 12:26:27 AM

ARSENIC, SOIL 3051/7060**SW7060A**Analyst: **REB**

Arsenic	4.75	2.69		mg/Kg-dry	2	7/5/2013 4:31:17 PM
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MERCURY, 7471A**SW7471A**Analyst: **AL**

Mercury	ND	0.0533		mg/Kg-dry	1	7/3/2013 5:47:10 PM
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PERCENT MOISTURE**D2216**Analyst: **MG**

Percent Moisture	8.3	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**Analyst: **REB**

Antimony	ND	0.84		mg/Kg-dry	1	7/12/2013 2:50:33 PM
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SELENIUM, SOIL 3051/7740**SW7740**Analyst: **REB**

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 4:16:53 PM
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THALLIUM, SOIL 3051/7841**SW7841**Analyst: **REB**

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 4:39:19 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-25**Collection Date:** 6/28/2013 11:50:00 AM**Collection Time:****Client Sample ID:** AMR-SB-09-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B			Analyst: AL	
Beryllium	ND	0.311		mg/Kg-dry	1	7/3/2013 12:33:33 AM
Cadmium	ND	0.622		mg/Kg-dry	1	7/3/2013 12:33:33 AM
Chromium	11.0	1.25		mg/Kg-dry	1	7/3/2013 12:33:33 AM
Copper	42.0	3.11		mg/Kg-dry	1	7/3/2013 12:33:33 AM
Lead	155	4.98		mg/Kg-dry	1	7/3/2013 12:33:33 AM
Nickel	12.7	4.98		mg/Kg-dry	1	7/3/2013 12:33:33 AM
Silver	ND	1.74		mg/Kg-dry	1	7/3/2013 12:33:33 AM
Zinc	98.2	7.46		mg/Kg-dry	1	7/3/2013 12:33:33 AM
ARSENIC, SOIL 3051/7060		SW7060A			Analyst: REB	
Arsenic	6.27	2.49		mg/Kg-dry	2	7/5/2013 4:39:51 PM
MERCURY, 7471A		SW7471A			Analyst: AL	
Mercury	5.57	0.263		mg/Kg-dry	5	7/3/2013 6:12:34 PM
PERCENT MOISTURE		D2216			Analyst: MG	
Percent Moisture	8.5	0		wt%	1	7/8/2013
ANTIMONY, SOIL 3051/7041		SW7041			Analyst: REB	
Antimony	1.4	0.78		mg/Kg-dry	1	7/12/2013 3:02:03 PM
SELENIUM, SOIL 3051/7740		SW7740			Analyst: REB	
Selenium	ND	1.2		mg/Kg-dry	1	7/9/2013 4:22:56 PM
THALLIUM, SOIL 3051/7841		SW7841			Analyst: REB	
Thallium	ND	1.2	PS	mg/Kg-dry	1	7/10/2013 4:51:07 PM

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-26**Collection Date:** 6/28/2013 12:10:00 PM**Collection Time:****Client Sample ID:** AMR-SB-11-0.5**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Antimony	47.0	6.14		mg/Kg-dry	1	7/3/2013 1:00:38 AM
Arsenic	264	7.68		mg/Kg-dry	1	7/3/2013 1:00:38 AM
Beryllium	0.585	0.384		mg/Kg-dry	1	7/3/2013 1:00:38 AM
Cadmium	ND	0.768		mg/Kg-dry	1	7/3/2013 1:00:38 AM
Chromium	18.1	1.54		mg/Kg-dry	1	7/3/2013 1:00:38 AM
Copper	157	3.84		mg/Kg-dry	1	7/3/2013 1:00:38 AM
Lead	735	6.14		mg/Kg-dry	1	7/3/2013 1:00:38 AM
Nickel	17.5	6.14		mg/Kg-dry	1	7/3/2013 1:00:38 AM
Silver	ND	2.15		mg/Kg-dry	1	7/3/2013 1:00:38 AM
Zinc	38.0	9.21		mg/Kg-dry	1	7/3/2013 1:00:38 AM

MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	0.356	0.0613		mg/Kg-dry	1	7/3/2013 5:53:38 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	19.2	0		wt%	1	7/8/2013
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	2.6	1.5		mg/Kg-dry	1	7/9/2013 4:41:08 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.5	PS	mg/Kg-dry	1	7/10/2013 5:08:37 PM
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AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1307002**Lab ID:** 1307002-27**Collection Date:** 6/28/2013 12:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB-10-2.0**Matrix:** SEDIMENT

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B**

Analyst: AL

Beryllium	ND	0.336		mg/Kg-dry	1	7/3/2013 1:08:00 AM
Cadmium	ND	0.672		mg/Kg-dry	1	7/3/2013 1:08:00 AM
Chromium	13.6	1.34		mg/Kg-dry	1	7/3/2013 1:08:00 AM
Copper	51.7	3.36		mg/Kg-dry	1	7/3/2013 1:08:00 AM
Lead	47.3	5.37		mg/Kg-dry	1	7/3/2013 1:08:00 AM
Nickel	14.3	5.37		mg/Kg-dry	1	7/3/2013 1:08:00 AM
Silver	ND	1.88		mg/Kg-dry	1	7/3/2013 1:08:00 AM
Zinc	31.3	8.06		mg/Kg-dry	1	7/3/2013 1:08:00 AM

ARSENIC, SOIL 3051/7060**SW7060A**

Analyst: REB

Arsenic	9.36	5.38		mg/Kg-dry	4	7/5/2013 5:00:53 PM
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MERCURY, 7471A**SW7471A**

Analyst: AL

Mercury	ND	0.0525		mg/Kg-dry	1	7/3/2013 6:09:19 PM
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PERCENT MOISTURE**D2216**

Analyst: MG

Percent Moisture	9.7	0		wt%	1	7/8/2013
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ANTIMONY, SOIL 3051/7041**SW7041**

Analyst: REB

Antimony	1.3	0.84		mg/Kg-dry	1	7/12/2013 3:13:34 PM
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SELENIUM, SOIL 3051/7740**SW7740**

Analyst: REB

Selenium	ND	1.3		mg/Kg-dry	1	7/9/2013 4:59:14 PM
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THALLIUM, SOIL 3051/7841**SW7841**

Analyst: REB

Thallium	ND	1.3	PS	mg/Kg-dry	1	7/10/2013 5:19:59 PM
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AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID	MB-23357	Batch ID: 23357	Test Code: SW6010B	Units: mg/Kg	Analysis Date	7/2/13 6:47:14 PM	Prep Date	7/2/13			
Client ID:		Run ID:	ICP-OPTIMA_130702A	SeqNo:	853644						
Analyte	QC Sample	QC Spike	Original Sample	Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
	Result	Amount	Units								
Antimony	ND	5.0	mg/Kg								
Arsenic	ND	6.2	mg/Kg								
Beryllium	ND	0.31	mg/Kg								
Cadmium	ND	0.62	mg/Kg								
Chromium	ND	1.2	mg/Kg								
Copper	ND	3.1	mg/Kg								
Lead	ND	5.0	mg/Kg								
Nickel	ND	5.0	mg/Kg								
Silver	ND	1.8	mg/Kg								
Zinc	ND	7.5	mg/Kg								

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID	MB-23358	Batch ID:	23358	Test Code:	SW6010B	Units:	mg/Kg	Analysis Date	7/2/13 10:51:56 PM	Prep Date	7/2/13			
Client ID:		Run ID:	ICP-OPTIMA_130702A	SeqNo:	853672									
Analyte		QC Sample Result		RL	Units	Amount	Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Antimony		ND		5.0	mg/Kg									
Arsenic		ND		6.2	mg/Kg									
Beryllium		ND		0.31	mg/Kg									
Cadmium		ND		0.62	mg/Kg									
Chromium		ND		1.2	mg/Kg									
Copper		ND		3.1	mg/Kg									
Lead		ND		5.0	mg/Kg									
Nickel		ND		5.0	mg/Kg									
Silver		ND		1.8	mg/Kg									
Zinc		ND		7.5	mg/Kg									

Sample ID	MB-23357	Batch ID:	23357	Test Code:	SW7060A	Units:	mg/Kg	Analysis Date	7/5/13 11:04:17 AM	Prep Date	7/2/13			
Client ID:		Run ID:	AANALYST 600_130705	SeqNo:	854397									
Analyte		QC Sample Result		RL	Units	Amount	Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Arsenic		ND		1.2	mg/Kg									

Sample ID	MB-23358	Batch ID:	23358	Test Code:	SW7060A	Units:	mg/Kg	Analysis Date	7/5/13 3:22:55 PM	Prep Date	7/2/13			
Client ID:		Run ID:	AANALYST 600_130705	SeqNo:	854451									
Analyte		QC Sample Result		RL	Units	Amount	Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Arsenic		ND		1.2	mg/Kg									

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits N.A - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID	mb-23365	Batch ID: 23365	Test Code: SW7471A	Units: mg/Kg	Analysis Date 7/3/13 4:46:48 PM	Prep Date 7/3/13
Client ID:			Run ID: HG-FIMS_130703A		SeqNo: 853882	
Analyte	Mercury	QC Sample Result ND	QC Spike Original Sample Amount	Units	LowLimit HighLimit	%RSD RPDLimit Qua
			Result	mg/Kg	or MS Result	

Sample ID	mb-23366	Batch ID: 23366	Test Code: SW7471A	Units: mg/Kg	Analysis Date 7/3/13 4:25:09 PM	Prep Date 7/3/13
Client ID:			Run ID: HG-FIMS_130703A		SeqNo: 853912	
Analyte	Mercury	QC Sample Result ND	QC Spike Original Sample Amount	Units	LowLimit HighLimit	%RSD RPDLimit Qua
			Result	mg/Kg	or MS Result	

Sample ID	MB-23357	Batch ID: 23357	Test Code: SW7041	Units: mg/Kg	Analysis Date 7/11/13 2:04:34 PM	Prep Date 7/2/13
Client ID:			Run ID: AANALYST 600_130711		SeqNo: 854805	
Analyte	Antimony	QC Sample Result ND	QC Spike Original Sample Amount	Units	LowLimit HighLimit	%RSD RPDLimit Qua
			Result	mg/Kg	or MS Result	

Sample ID	MB-23358	Batch ID: 23358	Test Code: SW7041	Units: mg/Kg	Analysis Date 7/12/13 1:24:49 PM	Prep Date 7/2/13
Client ID:			Run ID: AANALYST 600_130712		SeqNo: 855030	
Analyte	Antimony	QC Sample Result ND	QC Spike Original Sample Amount	Units	LowLimit HighLimit	%RSD RPDLimit Qua
			Result	mg/Kg	or MS Result	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID	MB-23357	Batch ID: 23357	Test Code: SW7740	Units: mg/Kg	Analysis Date 7/9/13 11:11:32 AM	Prep Date 7/2/13
Client ID:			Run ID: AANALYST 600_130709	SeqNo: 854911		
Analyte	QC Sample	QC Sample	QC Spike Original Sample	Amount	Result	Original Sample
	Result	Result	Units	Amount	Result	or MS Result
	ND	ND	mg/Kg			
Selenium						
Sample ID	MB-23358	Batch ID: 23358	Test Code: SW7740	Units: mg/Kg	Analysis Date 7/9/13 3:03:55 PM	Prep Date 7/2/13
Client ID:			Run ID: AANALYST 600_130709	SeqNo: 854963		
Analyte	QC Sample	QC Sample	QC Spike Original Sample	Amount	Result	Original Sample
	Result	Result	Units	Amount	Result	or MS Result
	ND	ND	mg/Kg			
Selenium						
Sample ID	MB-23357	Batch ID: 23357	Test Code: SW7841	Units: mg/Kg	Analysis Date 7/10/13 11:10:03 AM	Prep Date 7/2/13
Client ID:			Run ID: AANALYST 600_130710	SeqNo: 854619		
Analyte	QC Sample	QC Sample	QC Spike Original Sample	Amount	Result	Original Sample
	Result	Result	Units	Amount	Result	or MS Result
	ND	ND	mg/Kg			
Thallium						
Sample ID	MB-23358	Batch ID: 23358	Test Code: SW7841	Units: mg/Kg	Analysis Date 7/10/13 3:41:13 PM	Prep Date 7/2/13
Client ID:			Run ID: AANALYST 600_130710	SeqNo: 854673		
Analyte	QC Sample	QC Sample	QC Spike Original Sample	Amount	Result	Original Sample
	Result	Result	Units	Amount	Result	or MS Result
	ND	ND	mg/Kg			
Thallium						

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	ics-23357	Batch ID: 23357	Test Code: SW6010B		Units: mg/Kg	Analysis Date 7/2/13 6:52:34 PM		Prep Date 7/2/13				
Client ID:		Run ID:	ICP-OPTIMA_130702A		SeqNo: 853645							
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Antimony	234.6	5.0	mg/Kg	250	0	93.8	80	120	0			
Arsenic	222.3	6.2	mg/Kg	250	0	88.9	80	120	0			
Beryllium	97.27	0.31	mg/Kg	99.62	0	97.6	80	120	0			
Cadmium	101.7	0.62	mg/Kg	100	0	102	80	120	0			
Chromium	526.1	1.2	mg/Kg	500	0	105	80	120	0			
Copper	250.9	3.1	mg/Kg	250	0	100	80	120	0			
Lead	250	5.0	mg/Kg	249.8	0	100	80	120	0			
Nickel	502	5.0	mg/Kg	498	0	101	80	120	0			
Silver	47.76	1.8	mg/Kg	50	0	95.5	80	120	0			
Zinc	486.2	7.5	mg/Kg	498	0	97.6	80	120	0			

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 NA - Not applicable where J values or ND results occur

B - Analyte detected in the associated Method Blank

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

Sample ID	Ics-23357	Batch ID: 23357	Test Code: SW6010B	Units: mg/Kg	Analysis Date	7/2/13 6:52:34 PM	Prep Date	7/2/13					
Client ID:			Run ID: ICP-OPTIMA_130702A		SeqNo: 853645								
Analyte	QC Sample	Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Antimony	234.6	5.0		mg/Kg	250	0	93.8	80	120	0			
Arsenic	222.3	6.2		mg/Kg	250	0	88.9	80	120	0			
Beryllium	97.27	0.31		mg/Kg	99.62	0	97.6	80	120	0			
Cadmium	101.7	0.62		mg/Kg	100	0	102	80	120	0			
Chromium	526.1	1.2		mg/Kg	500	0	105	80	120	0			
Copper	250.9	3.1		mg/Kg	250	0	100	80	120	0			
Lead	250	5.0		mg/Kg	249.8	0	100	80	120	0			
Nickel	502	5.0		mg/Kg	498	0	101	80	120	0			
Silver	47.76	1.8		mg/Kg	50	0	95.5	80	120	0			
Zinc	486.2	7.5		mg/Kg	498	0	97.6	80	120	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

QC SUMMARY REPORT

Laboratory Control Spike Duplicate

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

Sample ID	Icsd-23357	Batch ID: 23357	Test Code: SW6010B	Units: mg/Kg	Analysis Date	7/2/13 7:00:56 PM	Prep Date	7/2/13	
Client ID:			Run ID:	ICP-OPTIMA_130702A	SeqNo:	853646			
Analyte	QC Sample Result	RL	Units	QC Spike		Original Sample		RPDLimit	Qual
				Amount	Result	%REC	LowLimit		
Antimony	234.7	5.0	mg/Kg	250	0	93.9	234.6	0.0578	20
Arsenic	218.3	6.2	mg/Kg	250	0	87.3	222.3	1.82	20
Beryllium	98.32	0.31	mg/Kg	99.62	0	98.7	97.27	1.08	20
Cadmium	99.92	0.62	mg/Kg	100	0	99.9	101.7	1.76	20
Chromium	524.4	1.2	mg/Kg	500	0	105	526.1	0.321	20
Copper	250.6	3.1	mg/Kg	250	0	100	250.9	0.119	20
Lead	244.5	5.0	mg/Kg	249.8	0	97.9	250	2.24	20
Nickel	495.3	5.0	mg/Kg	498	0	99.5	502	1.36	20
Silver	46.09	1.8	mg/Kg	50	0	92.2	47.76	3.55	20
Zinc	478.7	7.5	mg/Kg	498	0	96.1	486.2	1.56	20

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

Date: 17-Jul-13

AMRO Environmental Laboratories Corp.

QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

Sample ID	LCS-23358	Batch ID: 23358	Test Code: SW6010B	Units: mg/Kg	Analysis Date	7/2/13 10:57:28 PM	Prep Date	7/2/13				
Client ID:			Run ID: ICP-OPTIMA_130702A		SeqNo:	853673						
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Antimony	220	5.0	mg/Kg	250	0	88	80	120	0			
Arsenic	217.7	6.2	mg/Kg	250	0	87.1	80	120	0			
Beryllium	93.33	0.31	mg/Kg	99.62	0	93.7	80	120	0			
Cadmium	98.58	0.62	mg/Kg	100	0	98.6	80	120	0			
Chromium	497.9	1.2	mg/Kg	500	0	99.6	80	120	0			
Copper	250.1	3.1	mg/Kg	250	0	100	80	120	0			
Lead	236.3	5.0	mg/Kg	249.8	0	94.6	80	120	0			
Nickel	487.8	5.0	mg/Kg	498	0	97.9	80	120	0			
Silver	46.13	1.8	mg/Kg	50	0	92.3	80	120	0			
Zinc	467.6	7.5	mg/Kg	498	0	93.9	80	120	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike Duplicate

Sample ID	LCS-23358	Batch ID: 23358	Test Code: SW6010B	Units: mg/Kg	Analysis Date 7/2/13 11:26:04 PM	Prep Date 7/2/13						
Client ID:			Run ID: ICP-OPTIMA_130702A		SeqNo: 853674							
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Antimony	225.7	5.0	mg/Kg	250	0	90.3	80	120	220	2.55	20	
Arsenic	217.1	6.2	mg/Kg	250	0	86.9	80	120	217.7	0.25	20	
Beryllium	93.29	0.31	mg/Kg	99.62	0	93.6	80	120	93.33	0.0367	20	
Cadmium	98.89	0.62	mg/Kg	100	0	98.9	80	120	98.58	0.317	20	
Chromium	503.4	1.2	mg/Kg	500	0	101	80	120	497.9	1.11	20	
Copper	246.8	3.1	mg/Kg	250	0	98.7	80	120	250.1	1.34	20	
Lead	240.4	5.0	mg/Kg	249.8	0	96.3	80	120	236.3	1.71	20	
Nickel	491.7	5.0	mg/Kg	498	0	98.7	80	120	487.8	0.8	20	
Silver	46.07	1.8	mg/Kg	50	0	92.1	80	120	46.13	0.129	20	
Zinc	474.9	7.5	mg/Kg	498	0	95.4	80	120	467.6	1.56	20	

Sample ID	LCS-23357	Batch ID: 23357	Test Code: SW7060A	Units: mg/Kg	Analysis Date 7/5/13 11:07:05 AM	Prep Date 7/2/13						
Client ID:			Run ID: AANALYST 600_130705		SeqNo: 854398							
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Arsenic	2.608	1.2	mg/Kg	2.5	0	104	80	120	0			

Sample ID	LCSD-23357	Batch ID: 23357	Test Code: SW7060A	Units: mg/Kg	Analysis Date 7/5/13 11:09:54 AM	Prep Date 7/2/13
Client ID:			Run ID: AANALYST 600_130705		SeqNo: 854399	
Analyte	QC Sample	Result	RL	Units	QC Spike Amount	Original Sample Result
						%REC
						LowLimit
						HighLimit
						RPDLimit
						%RPD
						Original Sample or MS Result
						Qua
Arsenic	2.631	1.2	mg/Kg	2.5	0	105
						80
						120
						2.608
						0.907
						20

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	LCS-23358	Batch ID:	23358	Test Code:	SW7060A	Units:	mg/Kg	Analysis Date	7/5/13 3:25:45 PM	Prep Date	7/2/13		
Client ID:		Run ID:	AANALYST 600_130705	SeqNo:	854452								
Analyte		QC Sample Result		QC Spike Original Sample				LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Arsenic		2.473	1.2	mg/Kg	2.5	0	98.9	80	120	0			

Sample ID	LCSD-23358	Batch ID:	23358	Test Code:	SW7060A	Units:	mg/Kg	Analysis Date	7/5/13 3:34:19 PM	Prep Date	7/2/13		
Client ID:		Run ID:	AANALYST 600_130705	SeqNo:	854455								
Analyte		QC Sample Result		QC Spike Original Sample				LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Arsenic		2.438	1.2	mg/Kg	2.5	0	97.5	80	120	2.473	1.43	20	

Sample ID	Ics-23365	Batch ID:	23365	Test Code:	SW7471A	Units:	mg/Kg	Analysis Date	7/3/13 2:50:01 PM	Prep Date	7/3/13		
Client ID:		Run ID:	HG-FIMS_130703A	SeqNo:	853883								
Analyte		QC Sample Result		QC Spike Original Sample				LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Mercury		0.8185	0.049	mg/Kg	0.8181	0	100	80	120	0			

Sample ID	Icsd-23365	Batch ID:	23365	Test Code:	SW7471A	Units:	mg/Kg	Analysis Date	7/3/13 2:53:15 PM	Prep Date	7/3/13		
Client ID:		Run ID:	HG-FIMS_130703A	SeqNo:	853884								
Analyte		QC Sample Result		QC Spike Original Sample				LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Mercury		0.8246	0.049	mg/Kg	0.8187	0	101	80	120	0.8185	0.735	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	Ics-23366	Batch ID:	23366	Test Code:	SW7471A	Units:	mg/Kg	Analysis Date	7/3/13 4:28:27 PM	Prep Date	7/3/13
Client ID:		Run ID:	HG-FIMS_130703A	SeqNo:	853913						
Analyte		QC Sample Result		QC Spike Amount	Original Sample Result	Units		LowLimit	HighLimit	%RPD	RPDLimit
Mercury		0.8033	0.048	0.8082	0	mg/Kg		80	120		0

Sample ID	Icsd-23366	Batch ID:	23366	Test Code:	SW7471A	Units:	mg/Kg	Analysis Date	7/3/13 4:31:46 PM	Prep Date	7/3/13
Client ID:		Run ID:	HG-FIMS_130703A	SeqNo:	853914						
Analyte		QC Sample Result		QC Spike Amount	Original Sample Result	Units		LowLimit	HighLimit	%RPD	RPDLimit
Mercury		0.8375	0.049	0.8135	0	mg/Kg		80	120	4.17	20

Sample ID	LCS-23357	Batch ID:	23357	Test Code:	SW7041	Units:	mg/Kg	Analysis Date	7/11/13 2:07:22 PM	Prep Date	7/2/13
Client ID:		Run ID:	AANALYST 600_130711	SeqNo:	854806						
Analyte		QC Sample Result		QC Spike Amount	Original Sample Result	Units		LowLimit	HighLimit	%RPD	RPDLimit
Antimony		2.259	0.78	2.5	0	mg/Kg		80	120		0

Sample ID	LCSD-23357	Batch ID:	23357	Test Code:	SW7041	Units:	mg/Kg	Analysis Date	7/11/13 2:10:11 PM	Prep Date	7/2/13
Client ID:		Run ID:	AANALYST 600_130711	SeqNo:	854807						
Analyte		QC Sample Result		QC Spike Amount	Original Sample Result	Units		LowLimit	HighLimit	%RPD	RPDLimit
Antimony		2.205	0.78	2.5	0	mg/Kg		80	120	2.41	20

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	LCS-23358	Batch ID:	23358	Test Code:	SW7041	Units:	mg/Kg	Analysis Date	7/12/13 1:27:39 PM	Prep Date	7/2/13
Client ID:		Run ID:	AANALYST 600_130712	SeqNo:	855031						
Analyte	QC Sample	Result	2.648	QC Spike	Original Sample	Amount	2.5	LowLimit	HighLimit	or MS Result	Original Sample
Antimony				RL	Units	mg/Kg	0.78	%REC	Result	%RPD	RPDLimit
											Qua

Sample ID	LCSD-23358	Batch ID:	23358	Test Code:	SW7041	Units:	mg/Kg	Analysis Date	7/12/13 1:30:29 PM	Prep Date	7/2/13
Client ID:		Run ID:	AANALYST 600_130712	SeqNo:	855032						
Analyte	QC Sample	Result	2.849	QC Spike	Original Sample	Amount	2.5	LowLimit	HighLimit	or MS Result	Original Sample
Antimony				RL	Units	mg/Kg	0.78	%REC	Result	%RPD	RPDLimit
											Qua

Sample ID	LCS-23357	Batch ID:	23357	Test Code:	SW7740	Units:	mg/Kg	Analysis Date	7/9/13 11:14:29 AM	Prep Date	7/2/13
Client ID:		Run ID:	AANALYST 600_130709	SeqNo:	854912						
Analyte	QC Sample	Result	2.726	QC Spike	Original Sample	Amount	2.5	LowLimit	HighLimit	or MS Result	Original Sample
Selenium				RL	Units	mg/Kg	1.2	%REC	Result	%RPD	RPDLimit
											Qua

Sample ID	LCSD-23357	Batch ID:	23357	Test Code:	SW7740	Units:	mg/Kg	Analysis Date	7/9/13 11:17:27 AM	Prep Date	7/2/13
Client ID:		Run ID:	AANALYST 600_130709	SeqNo:	854913						
Analyte	QC Sample	Result	2.745	QC Spike	Original Sample	Amount	2.5	LowLimit	HighLimit	or MS Result	Original Sample
Selenium				RL	Units	mg/Kg	1.2	%REC	Result	%RPD	RPDLimit
											Qua

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	LCS-23358	Batch ID: 23358	Test Code: SW7740	Units: mg/Kg	Analysis Date	7/9/13 3:06:54 PM	Prep Date	7/2/13				
Client ID:			Run ID: AANALYST 600_130709		SeqNo: 854964							
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium		2.591	1.2	mg/Kg	2.5	0	104	80	120		0	
Sample ID	LCSD-23358	Batch ID: 23358	Test Code: SW7740	Units: mg/Kg	Analysis Date	7/9/13 3:15:54 PM	Prep Date	7/2/13				
Client ID:			Run ID: AANALYST 600_130709		SeqNo: 854967							
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium		2.564	1.2	mg/Kg	2.5	0	103	80	120	2.591	1.07	20
Sample ID	LCS-23357	Batch ID: 23357	Test Code: SW7841	Units: mg/Kg	Analysis Date	7/10/13 11:12:52 AM	Prep Date	7/2/13				
Client ID:			Run ID: AANALYST 600_130710		SeqNo: 854620							
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium		2.444	1.2	mg/Kg	2.5	0	97.8	80	120		0	
Sample ID	LCSD-23357	Batch ID: 23357	Test Code: SW7841	Units: mg/Kg	Analysis Date	7/10/13 11:15:40 AM	Prep Date	7/2/13				
Client ID:			Run ID: AANALYST 600_130710		SeqNo: 854621							
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium		2.43	1.2	mg/Kg	2.5	0	97.2	80	120	2.444	0.564	20

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 17-Jul-13

QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

Sample ID	LCS-23358	Batch ID: 23358	Test Code: SW7841	Units: mg/Kg	Analysis Date	7/10/13 3:44:03 PM	Prep Date	7/2/13						
Client ID:			Run ID: AANALYST 600_130710		SeqNo:	854674								
Analyte	QC Sample	QC Sample	QC Spike	Original Sample	Amount	Result	%REC	LowLimit	HighLimit	Original Sample	%MS Result	%RPD	RPDLimit	Qual
Thallium	2.468	2.468	1.2	mg/Kg	2.5	0	98.7	80	120	0	0			

Sample ID	LCSD-23358	Batch ID: 23358	Test Code: SW7841	Units: mg/Kg	Analysis Date	7/10/13 3:46:52 PM	Prep Date	7/2/13					
Client ID:			Run ID: AANALYST 600_130710		SeqNo:	854675							
Analyte	QC Sample	QC Spike	Original Sample	Amount	Result	%REC	LowLimit	HighLimit	Original Sample	%MS Result	%RPD	RPDLimit	Qual
Thallium	2.468	2.468	2.5	0	98.7	80	120	2.468	0	20			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Duplicate

Sample ID	1307002-01AD	Batch ID: 23357	Test Code: SW6010B	Units: mg/Kg-dry	Analysis Date	7/2/13 7:23:16 PM	Prep Date	7/2/13				
Client ID:	AMR-SB-27-0.5	Run ID:	ICP-OPTIMA_130702A	SeqNo:	853649							
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Antimony	ND	5.2	mg/Kg-dry	0	0	0	0	0	2.513	0	20	
Arsenic	5.37	6.5	mg/Kg-dry	0	0	0	0	0	4.746	5.19	20	J
Beryllium	0.2519	0.32	mg/Kg-dry	0	0	0	0	0	0.2424	3.31	20	J
Cadmium	0.4826	0.65	mg/Kg-dry	0	0	0	0	0	0.4991	10.5	20	J
Chromium	10.67	1.3	mg/Kg-dry	0	0	0	0	0	10.42	4.83	20	
Copper	22.42	3.2	mg/Kg-dry	0	0	0	0	0	22.7	8.35	20	
Lead	9.246	5.2	mg/Kg-dry	0	0	0	0	0	8.07	6.45	20	
Nickel	15.75	5.2	mg/Kg-dry	0	0	0	0	0	14.74	0.569	20	
Silver	ND	1.8	mg/Kg-dry	0	0	0	0	0	0	0	20	
Zinc	45.49	7.8	mg/Kg-dry	0	0	0	0	0	46.23	8.75	20	

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Duplicate

Sample ID	1307002-21AD	Batch ID: 23358	Test Code: SW6010B	Units: mg/Kg-dry	Analysis Date	7/2/13 11:48:28 PM	Prep Date	7/2/13		
Client ID:	AMR-SB-5-0.5		Run ID:	ICP-OPTIMA_130702A	SeqNo:	853677				
Analyte	QC Sample Result	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Antimony	5.028	0	0	0	0	0	6.373	33	20	JR
Arsenic	7.289	0	0	0	0	0	7.484	12.3	20	
Beryllium	0.3919	0	0	0	0	0	0.3775	5.92	20	
Cadmium	0.6593	0	0	0	0	0	0.4991	18.1	20	J
Chromium	11.52	0	0	0	0	0	10.47	0.144	20	
Copper	24.82	0	0	0	0	0	24.99	10.3	20	
Lead	84.97	0	0	0	0	0	85.16	9.87	20	
Nickel	11.69	0	0	0	0	0	9.944	6.49	20	
Silver	ND	0	0	0	0	0	0	0	20	
Zinc	31.64	0	0	0	0	0	31.74	9.95	20	

Sample ID	1307002-01AD	Batch ID: 23357	Test Code: SW7060A	Units: mg/Kg-dry	Analysis Date	7/5/13 11:24:21 AM	Prep Date	7/2/13		
Client ID:	AMR-SB-27-0.5		Run ID:	AANALYST 600_130705	SeqNo:	854402				
Analyte	QC Sample Result	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Arsenic	6.367	0	0	0	0	0	6.193	2.77	20	

Sample ID	1307002-21AD	Batch ID:	23358	Test Code:	SW7060A	Units:	mg/Kg-dry	Analysis Date	7/5/13 3:45:37 PM	Prep Date	7/2/13			
Client ID:	AMR-SB-5-0.5			Run ID:	AANALYST 600_130705			SeqNo:	854457					
Analyte	QC Sample	QC Sample	Result	RL	Units	Amount	Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Arsenic	7.33	2.7	mg/Kg-dry	0	0	0	0	0	0	0	8.607	16	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Duplicate

Sample ID	1307002-09ad	Batch ID:	23366	Test Code:	SW7471A	Units:	mg/Kg-dry	Analysis Date	7/3/13 4:45:03 PM	Prep Date	7/3/13
Client ID:	AMR-SB-26-2.0	Run ID:	HG-FIMS_130703A	SeqNo:	853918						
Analyte	QC Sample	QC Sample	Result	QC Spike	Original Sample	Amount	Result	LowLimit	HighLimit	or MS Result	RPDLimit
Mercury	ND	0.052	mg/Kg-dry	0	0	0	0	0	0	0	20

Sample ID	1307002-01AD	Batch ID:	23357	Test Code:	SW7041	Units:	mg/Kg-dry	Analysis Date	7/11/13 2:24:24 PM	Prep Date	7/2/13
Client ID:	AMR-SB-27-0.5	Run ID:	AANALYST 600_130711	SeqNo:	854810						
Analyte	QC Sample	QC Sample	Result	QC Spike	Original Sample	Amount	Result	LowLimit	HighLimit	or MS Result	RPDLimit
Antimony	ND	0.81	mg/Kg-dry	0	0	0	0	0	0	0	20

Sample ID	1307002-21AD	Batch ID:	23358	Test Code:	SW7041	Units:	mg/Kg-dry	Analysis Date	7/12/13 1:57:55 PM	Prep Date	7/2/13
Client ID:	AMR-SB-5-0.5	Run ID:	AANALYST 600_130712	SeqNo:	855037						
Analyte	QC Sample	QC Sample	Result	QC Spike	Original Sample	Amount	Result	LowLimit	HighLimit	or MS Result	RPDLimit
Antimony	5.101	1.7	mg/Kg-dry	0	0	0	0	0	0	6.511	24.3

Sample ID	1307002-01AD	Batch ID:	23357	Test Code:	SW7740	Units:	mg/Kg-dry	Analysis Date	7/9/13 11:27:07 AM	Prep Date	7/2/13
Client ID:	AMR-SB-27-0.5	Run ID:	AANALYST 600_130709	SeqNo:	854916						
Analyte	QC Sample	QC Sample	Result	QC Spike	Original Sample	Amount	Result	LowLimit	HighLimit	or MS Result	RPDLimit
Selenium	0.455	1.3	mg/Kg-dry	0	0	0	0	0	0	0.47	3.24

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Duplicate

Sample ID	1307002-21AD	Batch ID: 23358	Test Code: SW7740	Units: mg/Kg-dry	Analysis Date	7/9/13 3:21:50 PM	Prep Date	7/2/13			
Client ID:	AMR-SB-5-0.5		Run ID:	AANALYST 600_130709	SeqNo:	854995					
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample Result	%REC	%RPD	RPDLimit	Qual	
Selenium		0.7234	1.4	mg/Kg-dry	0	0	0	0.7047	2.62	20	J

Sample ID	1307002-01AD	Batch ID: 23357	Test Code: SW7841	Units: mg/Kg-dry	Analysis Date	7/10/13 11:29:51 AM	Prep Date	7/2/13			
Client ID:	AMR-SB-27-0.5		Run ID:	AANALYST 600_130710	SeqNo:	854624					
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample Result	%REC	%RPD	RPDLimit	Qual	
Thallium		ND	1.3	mg/Kg-dry	0	0	0	0	0	20	

Sample ID	1307002-21AD	Batch ID: 23358	Test Code: SW7841	Units: mg/Kg-dry	Analysis Date	7/10/13 4:07:14 PM	Prep Date	7/2/13			
Client ID:	AMR-SB-5-0.5		Run ID:	AANALYST 600_130710	SeqNo:	854680					
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample Result	%REC	%RPD	RPDLimit	Qual	
Thallium		ND	1.4	mg/Kg-dry	0	0	0	0	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

QC SUMMARY REPORT

Sample Matrix Spike

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

Sample ID: 1307002-01AMS Batch ID: 23357 Test Code: SW6010B Units: mg/Kg-dry Analysis Date: 7/2/13 7:30:21 PM Prep Date: 7/2/13
 Client ID: AMR-SB-27-0.5 Run ID: ICP-OPTIMA_130702A SeqNo: 853650

Analyte	QC Sample		QC Spike Original Sample		Original Sample		%RPD	RPDLimit	Qua
	Result	RL	Units	Amount	Result	%REC	LowLimit	HighLimit	or MS Result
Antimony	199.2	5.4	mg/Kg-dry	214.8	2.513	73.3	75	125	0
Arsenic	223.4	6.7	mg/Kg-dry	214.8	4.746	81.5	75	125	0
Beryllium	95.25	0.34	mg/Kg-dry	85.61	0.2424	89	75	125	0
Cadmium	102.8	0.67	mg/Kg-dry	85.93	0.4991	95.5	75	125	0
Chromium	537.5	1.3	mg/Kg-dry	429.6	10.42	98.2	75	125	0
Copper	285.1	3.4	mg/Kg-dry	214.8	22.7	97.3	75	125	0
Lead	248.8	5.4	mg/Kg-dry	214.6	8.07	89.7	75	125	0
Nickel	517.7	5.4	mg/Kg-dry	427.9	14.74	94.1	75	125	0
Silver	46.22	1.9	mg/Kg-dry	42.96	0	86.3	75	125	0
Zinc	527.6	8.0	mg/Kg-dry	427.9	46.23	89.6	75	125	0

Qualifiers: NID - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

QC SUMMARY REPORT

Sample Matrix Spike Duplicate

CLIENT: Stone Environmental, Inc.
 Work Order: 1307002
 Project: 12-152 Crescent Connector

Sample ID	1307002-01AMSD	Batch ID: 23357	Test Code: SW6010B		Units: mg/Kg-dry		Analysis Date 7/2/13 7:38:36 PM		Prep Date 7/2/13			
Client ID:	AMR-SB-27-0.5		Run ID:	ICP-OPTIMA_130702A			SeqNo:	853651				
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Antimony	204.2	5.1	mg/Kg-dry	214.8	2.513	79	75	125	185.4	2.5	20	
Arsenic	221.9	6.4	mg/Kg-dry	214.8	4.746	85	75	125	208	0.645	20	
Beryllium	94.5	0.32	mg/Kg-dry	85.61	0.2424	92.7	75	125	88.68	0.792	20	
Cadmium	102.4	0.64	mg/Kg-dry	85.93	0.4991	99.8	75	125	95.71	0.405	20	
Chromium	531	1.3	mg/Kg-dry	429.6	10.42	102	75	125	500.4	1.22	20	
Copper	282.7	3.2	mg/Kg-dry	214.8	22.7	101	75	125	265.4	0.837	20	
Lead	246.6	5.1	mg/Kg-dry	214.6	8.07	93.3	75	125	231.6	0.901	20	
Nickel	515	5.1	mg/Kg-dry	427.9	14.74	98.2	75	125	482	0.525	20	
Silver	46.72	1.8	mg/Kg-dry	42.96	0	91.6	75	125	43.03	1.07	20	
Zinc	524.1	7.7	mg/Kg-dry	427.9	46.23	93.3	75	125	491.2	0.683	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID	1307002-21AMS	Batch ID:	23358	Test Code:	SW6010B	Units:	mg/Kg-dry	Analysis Date	7/2/13 11:55:22 PM	Prep Date	7/2/13					
Client ID:	AMR-SB-5-0.5	Run ID:	ICP-OPTIMA_130702A	SeqNo:	853678											
Analyte	QC Sample	Result	RL	Units	Amount	QC Spike	Original Sample	Result	%REC	LowLimit	HighLimit	Original Sample	or MS Result	%RPD	RPDLimit	Qual
Antimony	217.8	5.2	mg/Kg-dry	220.3	6.373	81.4	75	125	0							
Arsenic	218.5	6.5	mg/Kg-dry	220.3	7.484	81.1	75	125	0							
Beryllium	91.96	0.32	mg/Kg-dry	87.78	0.3775	88.7	75	125	0							
Cadmium	96.49	0.65	mg/Kg-dry	88.11	0.4991	92.6	75	125	0							
Chromium	513.7	1.3	mg/Kg-dry	440.5	10.47	96.9	75	125	0							
Copper	277.7	3.2	mg/Kg-dry	220.3	24.99	96.5	75	125	0							
Lead	328.7	5.2	mg/Kg-dry	220	85.16	90.8	75	125	0							
Nickel	492.8	5.2	mg/Kg-dry	438.8	9.944	93.4	75	125	0							
Silver	45.74	1.8	mg/Kg-dry	44.05	0	88.3	75	125	0							
Zinc	492.8	7.8	mg/Kg-dry	438.8	31.74	88.7	75	125	0							

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike Duplicate

Sample ID	1307002-01AMSD	Batch ID: 23358	Test Code: SW6010B	Units: mg/Kg-dry	Analysis Date	7/3/13 12:03:26 AM	Prep Date	7/2/13
Client ID:	AMR-SB-5-0.5		Run ID:	ICP-OPTIMA_130702A	SeqNo:	853679		
Analyte	QC Sample	Result	RL	Units	Amount	QC Spike Original Sample	Original Sample	Qua
						Result	or MS Result	
Antimony	228.2	5.2	mg/Kg-dry	220.3	6.373	85.1	197.8	20
Arsenic	232.8	6.5	mg/Kg-dry	220.3	7.484	86.5	198.4	20
Beryllium	97.47	0.32	mg/Kg-dry	87.78	0.3775	93.8	83.5	20
Cadmium	99.89	0.65	mg/Kg-dry	88.11	0.4991	95.6	87.61	20
Chromium	530.5	1.3	mg/Kg-dry	440.5	10.47	99.9	466.5	20
Copper	290.1	3.2	mg/Kg-dry	220.3	24.99	101	252.1	20
Lead	360.9	5.2	mg/Kg-dry	220	85.16	103	298.5	20
Nickel	511.1	5.2	mg/Kg-dry	438.8	9.944	96.7	447.5	20
Silver	46.55	1.8	mg/Kg-dry	44.05	0	89.6	41.53	20
Zinc	519.6	7.8	mg/Kg-dry	438.8	31.74	93.7	447.4	20

Sample ID	1307002-01AMS	Batch ID: 23357	Test Code: SW7060A	Units: mg/Kg-dry	Analysis Date	7/5/13 11:29:56 AM	Prep Date	7/2/13
Client ID:	AMR-SB-27-0.5		Run ID:	AANALYST 600_130705	SeqNo:	854403		
Analyte	QC Sample	Result	RL	Units	Amount	QC Spike Original Sample	Original Sample	Qua
						Result	or MS Result	
Arsenic	9.739	2.7	mg/Kg-dry	2.679	6.193	132	0	S

Sample ID	1307002-01AMSD	Batch ID: 23357	Test Code: SW7060A	Units: mg/Kg-dry	Analysis Date	7/5/13 11:35:52 AM	Prep Date	7/2/13
Client ID:	AMR-SB-27-0.5		Run ID:	AANALYST 600_130705	SeqNo:	854404		
Analyte	QC Sample	Result	RL	Units	Amount	QC Spike Original Sample	Original Sample	Qua
						Result	or MS Result	
Arsenic	8.328	2.6	mg/Kg-dry	2.551	6.193	83.7	9.739	20

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank

J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur

RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID	1307002-21AMS	Batch ID: 23358	Test Code: SW7060A	Units: mg/Kg-dry	Analysis Date	7/5/13 3:51:16 PM	Prep Date	7/2/13					
Client ID:	AMR-SB-5-0.5		Run ID: AANALYST 600_130705		SeqNo:	854458							
Analyte		QC Sample	QC Spike	Original Sample	LowLimit	HighLimit	or MS Result	%RPD	RPDLimit	Qual			
Arsenic		8.925	2.6	mg/Kg-dry	2.591	8.607	12.3	75	125	0	S		
Sample ID	1307002-21AMSD	Batch ID: 23358	Test Code: SW7060A	Units: mg/Kg-dry	Analysis Date	7/5/13 3:56:55 PM	Prep Date	7/2/13					
Client ID:	AMR-SB-5-0.5		Run ID: AANALYST 600_130705		SeqNo:	854459							
Analyte		QC Sample	QC Spike	Original Sample	LowLimit	HighLimit	or MS Result	%RPD	RPDLimit	Qual			
Arsenic		9.047	2.6	mg/Kg-dry	2.597	8.607	16.9	75	125	8.925	1.36	20	S
Sample ID	1307002-09ams	Batch ID: 23366	Test Code: SW7471A	Units: mg/Kg-dry	Analysis Date	7/3/13 4:48:19 PM	Prep Date	7/3/13					
Client ID:	AMR-SB-26-2.0		Run ID: HG-FIMS_130703A		SeqNo:	853919							
Analyte		QC Sample	QC Spike	Original Sample	LowLimit	HighLimit	or MS Result	%RPD	RPDLimit	Qual			
Mercury		0.8257	0.051	mg/Kg-dry	0.8778	0	98	75	125	0			
Sample ID	1307002-09amsd	Batch ID: 23366	Test Code: SW7471A	Units: mg/Kg-dry	Analysis Date	7/3/13 4:51:32 PM	Prep Date	7/3/13					
Client ID:	AMR-SB-26-2.0		Run ID: HG-FIMS_130703A		SeqNo:	853920							
Analyte		QC Sample	QC Spike	Original Sample	LowLimit	HighLimit	or MS Result	%RPD	RPDLimit	Qual			
Mercury		0.841	0.049	mg/Kg-dry	0.8778	0	102	75	125	0.7836	1.84	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID	1307002-01AMS	Batch ID: 23357	Test Code: SW7041	Units: mg/Kg-dry	Analysis Date	7/11/13 2:27:12 PM	Prep Date	7/2/13				
Client ID:	AMR-SB-27-0.5		Run ID: AANALYST 600_130711		SeqNo: 854811							
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		2.006	0.84	mg/Kg-dry	2.679	0	74.9	75	125	0		S

Sample ID	1307002-01AMS	Batch ID: 23357	Test Code: SW7041	Units: mg/Kg-dry	Analysis Date	7/11/13 2:29:59 PM	Prep Date	7/2/13				
Client ID:	AMR-SB-27-0.5		Run ID:	AANALYST 600_130711	SeqNo:	854812						
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		2.007	0.80	mg/Kg-dry	2.551	0	78.6	75	125	2.006	0.0182	20

Sample ID	1307002-21AMS	Batch ID: 23358	Test Code: SW7041	Units: mg/Kg-dry	Analysis Date	7/12/13 2:07:19 PM	Prep Date	7/2/13
Client ID:	AMR-SB-5-0.5		Run ID: AANALYST 600_130712		SeqNo:	855038		
Analyte		QC Sample	RL	Units	QC Spike Amount	Original Sample		
		Result			Result	HighLimit	LowLimit	%RPD
Antimony		8.899	3.2	mg/Kg-dry	2.591	6.511	92.1	75
								125
								0

Sample ID	1307002-21AMSD	Batch ID: 23358	Test Code: SW7041	Units: mg/Kg-dry	Analysis Date	7/12/13 2:14:07 PM	Prep Date	7/2/13				
Client ID:	AMR-SB-5-0.5		Run ID:	AANALYST 600_130712	SeqNo:	855039						
Analyte		QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony		8.275	1.6	mg/Kg-dry	2.597	6.511	67.9	75	125	8.899	7.26	20 S

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank

J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur

RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID	1307002-01AMS	Batch ID: 23357	Test Code: SW7740	Units: mg/Kg-dry	Analysis Date	7/9/13 11:30:04 AM	Prep Date	7/2/13					
Client ID:	AMR-SB-27-0.5		Run ID:	AANALYST 600_130709	SeqNo:	854917							
Analyte	QC Sample	Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	or MS Result	%RPD	RPDLimit	Qual
Selenium		3.283	1.3	mg/Kg-dry	2.679	0.47	105	75	125	0			
Sample ID	1307002-01AMSD	Batch ID: 23357	Test Code: SW7740	Units: mg/Kg-dry	Analysis Date	7/9/13 11:33:00 AM	Prep Date	7/2/13					
Client ID:	AMR-SB-27-0.5		Run ID:	AANALYST 600_130709	SeqNo:	854918							
Analyte	QC Sample	Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	or MS Result	%RPD	RPDLimit	Qual
Selenium		3.16	1.3	mg/Kg-dry	2.551	0.47	105	75	125	3.283	3.81	20	
Sample ID	1307002-21AMS	Batch ID: 23358	Test Code: SW7740	Units: mg/Kg-dry	Analysis Date	7/9/13 3:40:21 PM	Prep Date	7/2/13					
Client ID:	AMR-SB-5-0.5		Run ID:	AANALYST 600_130709	SeqNo:	854974							
Analyte	QC Sample	Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	or MS Result	%RPD	RPDLimit	Qual
Selenium		3.535	1.3	mg/Kg-dry	2.591	0.7047	109	75	125	0			
Sample ID	1307002-21AMSD	Batch ID: 23358	Test Code: SW7740	Units: mg/Kg-dry	Analysis Date	7/9/13 3:43:41 PM	Prep Date	7/2/13					
Client ID:	AMR-SB-5-0.5		Run ID:	AANALYST 600_130709	SeqNo:	854975							
Analyte	QC Sample	Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	or MS Result	%RPD	RPDLimit	Qual
Selenium		3.583	1.3	mg/Kg-dry	2.597	0.7047	111	75	125	3.535	1.37	20	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 15-Jul-13

CLIENT: Stone Environmental, Inc.
Work Order: 1307002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID	1307002-01AMS	Batch ID: 23357	Test Code: SW7841	Units: mg/Kg-dry	Analysis Date	7/10/13 11:32:38 AM	Prep Date	7/2/13
Client ID:	AMR-SB-27-0.5		Run ID:	AANALYST 600_130710	SeqNo:	854625		
Analyte	Thallium	QC Sample Result	0.6068	QC Spike Original Sample Amount	2.679	QC Spike Original Sample Result	0	JS
		QC Sample Result	0.6068	QC Spike Original Sample Amount	2.679	QC Spike Original Sample Result	0	JS
Sample ID	1307002-01AMS	Batch ID: 23357	Test Code: SW7841	Units: mg/Kg-dry	Analysis Date	7/10/13 11:35:48 AM	Prep Date	7/2/13
Client ID:	AMR-SB-27-0.5		Run ID:	AANALYST 600_130710	SeqNo:	854626		
Analyte	Thallium	QC Sample Result	0.8505	QC Spike Original Sample Amount	2.551	QC Spike Original Sample Result	0.6068	JSR
		QC Sample Result	0.8505	QC Spike Original Sample Amount	2.551	QC Spike Original Sample Result	0.6068	JSR
Sample ID	1307002-21AMS	Batch ID: 23358	Test Code: SW7841	Units: mg/Kg-dry	Analysis Date	7/10/13 4:10:03 PM	Prep Date	7/2/13
Client ID:	AMR-SB-5-0.5		Run ID:	AANALYST 600_130710	SeqNo:	854681		
Analyte	Thallium	QC Sample Result	0.3987	QC Spike Original Sample Amount	2.591	QC Spike Original Sample Result	0	JS
		QC Sample Result	0.3987	QC Spike Original Sample Amount	2.591	QC Spike Original Sample Result	0	JS
Sample ID	1307002-21AMS	Batch ID: 23358	Test Code: SW7841	Units: mg/Kg-dry	Analysis Date	7/10/13 4:12:51 PM	Prep Date	7/2/13
Client ID:	AMR-SB-5-0.5		Run ID:	AANALYST 600_130710	SeqNo:	854682		
Analyte	Thallium	QC Sample Result	0.3367	QC Spike Original Sample Amount	2.597	QC Spike Original Sample Result	0.3987	JS
		QC Sample Result	0.3367	QC Spike Original Sample Amount	2.597	QC Spike Original Sample Result	0.3987	JS

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800) 220-3675 / (856) 786-5974

<http://www.emsl.com>cinnaslab@EMSL.com

EMSL Order: 041317495

CustomerID: STON25

CustomerPO:

ProjectID:

Attn: **Daniel Voisin**
Stone Environmental, Inc.
535 Stonecutters Way
Third Floor
Montpelier, VT 05602

Phone: (802) 229-1875
Fax:
Received: 07/03/13 9:25 AM
Analysis Date: 7/16/2013
Collected: 6/28/2013

Project: 12-152

**Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method
with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity**

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
EMSL-Comp-1-0.5 041317495-0001	Composite soil sample	Brown/Black Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
EMSL-Comp-2-0.5 041317495-0002	Composite soil sample	Brown/Black Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
EMSL-Comp-3-0.5 041317495-0003	Composite soil sample	Brown/Black Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
EMSL-Comp-4-0.5 041317495-0004	Composite soil sample	Brown/Black Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected

Cert# PB101227

Analyst(s)

Garret Vliet (4)

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

This report relates only to the samples listed above and may not be reproduced except in full, without EMSL's written approval. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMSL is not responsible for sample collection activities or method limitations. Some samples may contain asbestos fibers below the resolution limit of PLM. EMSL recommends that samples reported as none detected or less than the limit of detection undergo additional analysis via TEM. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from 07/16/2013 13:33:40



111 Herrick Street, Merrimack, NH 03054
TEL: (603) 424-2022 • FAX: (603) 429-8496
www.amrolabs.com

September 16, 2013

ANALYTICAL TEST RESULTS

Daniel Voisin
Stone Environmental, Inc.
535 Stone Cutters Way
3 rd Floor
Montpelier, VT 05602
TEL: (802) 229-1875
FAX: (802) 229-5417

Subject: 12-152 Crescent Connector

Workorder No.: 1309002

Dear Daniel Voisin:

AMRO Environmental Laboratories Corp. received 21 samples on 9/3/2013 for the analyses presented in the following report.

AMRO is accredited in accordance with NELAC and certifies that these test results meet all the requirements of NELAC, where applicable, unless otherwise noted in the case narrative.

The enclosed Sample Receipt Checklist details the condition of your sample(s) upon receipt. Please be advised that any unused sample volume and sample extracts will be stored for a period of 60 days from sample receipt date (90 days for samples from New York). After this time, AMRO will properly dispose of the remaining sample(s). If you require further analysis, or need the samples held for a longer period, please contact us immediately.

This report consists of a total of 100 pages. This letter is an integral part of your data report. All results in this project relate only to the sample(s) as received by the laboratory and documented in the Chain-of-Custody. This report shall not be reproduced except in full, without the written approval of the laboratory. If you have any questions regarding this project in the future, please refer to the Workorder Number above.

Sincerely,

Nancy Stewart
Vice President

State Certifications: NH (NELAC): 1001, MA: M-NH012, CT: PH-0758, NY: 11278 (NELAC), ME: NH012 and 1001.

Hard copy of the State Certification is available upon request.

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector
Lab Order: 1309002
Date Received: 9/3/2013

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date	Collection Time
1309002-01A	AMR-SB34-1.5	8/30/2013	11:46 AM
1309002-02A	AMR-SB38-2.0	8/30/2013	1:00 PM
1309002-03A	AMR-SB38-2.0-FD	8/30/2013	1:00 PM
1309002-04A	AMR-SB45-1.5	8/30/2013	2:15 PM
1309002-05A	AMR-SB47-2.0	8/30/2013	3:00 PM
1309002-06A	AMR-SB35-1.5	8/30/2013	11:55 AM
1309002-07A	AMR-SB36-2.0	8/30/2013	12:05 PM
1309002-08A	AMR-SB37-2.0	8/30/2013	12:12 PM
1309002-09A	AMR-SB39-1.5	8/30/2013	1:12 PM
1309002-10A	AMR-SB40-1.2	8/30/2013	1:18 PM
1309002-11A	AMR-SB41-1.1	8/30/2013	1:25 PM
1309002-12A	AMR-SB42-1.5	8/30/2013	1:50 PM
1309002-13A	AMR-SB43-1.0	8/30/2013	2:00 PM
1309002-14A	AMR-SB44-1.0	8/30/2013	2:05 PM
1309002-15A	AMR-SB46-2.0	8/30/2013	2:48 PM
1309002-16A	AMR-SB48-1.5	8/30/2013	3:10 PM
1309002-17A	AMR-SB9-COMP	8/30/2013	12:20 PM
1309002-17B	AMR-SB9-COMP	8/30/2013	12:20 PM
1309002-18A	AMR-SB11-COMP	8/30/2013	1:30 PM
1309002-18B	AMR-SB11-COMP	8/30/2013	1:30 PM
1309002-19A	AMR-SB21-COMP	8/30/2013	2:20 PM
1309002-19B	AMR-SB21-COMP	8/30/2013	2:20 PM
1309002-20A	AMR-SB28-COMP	8/30/2013	3:20 PM
1309002-20B	AMR-SB28-COMP	8/30/2013	3:20 PM
1309002-21A	AMR-SB47-2.0-FD	8/30/2013	3:00 PM

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-01A	AMR-SB34-1.5	8/30/2013 11:46:00 AM	Soil	EPA 6010B ICP METALS, 3051/6010	9/5/2013	9/5/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
				EPA 7471 MERCURY, Soil	9/10/2013	9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				EPA 8270C SEMIVOLATILE ORGANICS, Soil/Solids	9/6/2013	9/6/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA	9/4/2013	23520	
1309002-02A	AMR-SB38-2.0	8/30/2013 1:00:00 PM		Percent Moisture	9/5/2013	9/5/2013	
						R51742	
				SELENIUM, Soil EPA 3051/7740	9/12/2013	9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
				EPA 6010B ICP METALS, 3051/6010	9/5/2013	9/5/2013	
					9/4/2013	23518	
1309002-03A	AMR-SB38-2.0-FD			EPA 7060 ARSENIC, Soil 3051/7060	9/6/2013	9/6/2013	
					9/4/2013	23518	
				EPA 7471 MERCURY, Soil	9/10/2013	9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				EPA 8270C SEMIVOLATILE ORGANICS, Soil/Solids	9/6/2013	9/6/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA	9/4/2013	23520	
1309002-03A	AMR-SB38-2.0-FD			Percent Moisture	9/5/2013	9/5/2013	
						R51742	
				SELENIUM, Soil EPA 3051/7740	9/12/2013	9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
1309002-03A	AMR-SB38-2.0-FD			EPA 6010B ICP METALS, 3051/6010	9/5/2013	9/5/2013	
					9/4/2013	23518	

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-03A	AMR-SB38-2.0-FD	8/30/2013 1:00:00 PM	Soil	EPA 7060 ARSENIC, Soil 3051/7060	9/6/2013	23518	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
				EPA 7471 MERCURY, Soil	9/10/2013	23534	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				EPA 8270C SEMIVOLATILE ORGANICS, Soil/Solids	9/6/2013	23520	
				EPA 3541 SOPREP AUTOSOXHLET: BNA	9/4/2013	23520	
				Percent Moisture	9/5/2013	R51742	
				SELENIUM, Soil EPA 3051/7740	9/12/2013	23518	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
				EPA 6010B ICP METALS, 3051/6010	9/5/2013	23518	
1309002-04A	AMR-SB45-1.5	8/30/2013 2:15:00 PM		EPA 7060 ARSENIC, Soil 3051/7060	9/4/2013	23518	
				EPA 7471 MERCURY, Soil	9/4/2013	23518	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				EPA 8270C SEMIVOLATILE ORGANICS, Soil/Solids	9/6/2013	23520	
				EPA 3541 SOPREP AUTOSOXHLET: BNA	9/4/2013	23520	
				Percent Moisture	9/5/2013	R51742	
				SELENIUM, Soil EPA 3051/7740	9/12/2013	23518	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
				EPA 6010B ICP METALS, 3051/6010	9/5/2013	23518	
					9/4/2013	23518	
1309002-05A	AMR-SB47-2.0	8/30/2013 3:00:00 PM					

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-05A	AMR-SB47-2.0	8/30/2013 3:00:00 PM	Soil	EPA 7060 ARSENIC, Soil 3051/7060	9/6/2013	9/6/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
				EPA 7471 MERCURY, Soil		9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				EPA 8270C SEMIVOLATILE ORGANICS, Soil/Solids		9/6/2013	
1309002-06A	AMR-SB35-1.5	8/30/2013 11:55:00 AM		EPA 3541 SOPREP AUTOSOXHLET: BNA	9/4/2013	23520	
				Percent Moisture		9/5/2013	
						R51742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
1309002-07A	AMR-SB36-2.0	8/30/2013 12:05:00 PM		EPA 6010B ICP METALS, 3051/6010	9/4/2013	9/5/2013	
						23518	
				EPA 7471 MERCURY, Soil		9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				Percent Moisture		9/5/2013	
1309002-07A	AMR-SB36-2.0	8/30/2013 12:05:00 PM				R51742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
				EPA 6010B ICP METALS, 3051/6010		9/5/2013	
					9/4/2013	23518	
1309002-07A	AMR-SB36-2.0	8/30/2013 12:05:00 PM		EPA 7060 ARSENIC, Soil 3051/7060		9/6/2013	
					9/4/2013	23518	
				EPA 7471 MERCURY, Soil		9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-07A	AMR-SB36-2.0	8/30/2013 12:05:00 PM	Soil	Percent Moisture		9/5/2013 R51742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
1309002-08A	AMR-SB37-2.0	8/30/2013 12:12:00 PM		EPA 6010B ICP METALS, 3051/6010		9/5/2013 23518	
				EPA 7060 ARSENIC, Soil 3051/7060	9/4/2013	23518	
				EPA 7471 MERCURY, Soil		9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				Percent Moisture		9/5/2013 R51742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
1309002-09A	AMR-SB39-1.5	8/30/2013 1:12:00 PM		EPA 6010B ICP METALS, 3051/6010		9/5/2013 23518	
				EPA 7060 ARSENIC, Soil 3051/7060	9/4/2013	23518	
				EPA 7471 MERCURY, Soil		9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				Percent Moisture		9/5/2013 R51742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-10A	AMR-SB40-1.2	8/30/2013 1:18:00 PM	Soil	EPA 6010B ICP METALS, 3051/6010	9/5/2013	9/5/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
				EPA 7060 ARSENIC, Soil 3051/7060	9/6/2013	9/6/2013	
					9/4/2013	23518	
				EPA 7471 MERCURY, Soil	9/10/2013	9/10/2013	
1309002-11A	AMR-SB41-1.1	8/30/2013 1:25:00 PM		EPA 7471 HG Soil Prep	9/10/2013	23534	
				Percent Moisture		9/5/2013	
						R51742	
				SELENIUM, Soil EPA 3051/7740	9/12/2013	9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
1309002-12A	AMR-SB42-1.5	8/30/2013 1:50:00 PM		EPA 6010B ICP METALS, 3051/6010	9/5/2013	9/5/2013	
					9/4/2013	23518	
				EPA 7060 ARSENIC, Soil 3051/7060	9/6/2013	9/6/2013	
					9/4/2013	23518	
				EPA 7471 MERCURY, Soil	9/10/2013	9/10/2013	
1309002-13A	AMR-SB43-1.3	8/30/2013 1:55:00 PM		EPA 7471 HG Soil Prep	9/10/2013	23534	
				Percent Moisture		9/5/2013	
						R51742	
				SELENIUM, Soil EPA 3051/7740	9/12/2013	9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-12A	AMR-SB42-1.5	8/30/2013 1:50:00 PM	Soil	Percent Moisture		9/5/2013 R51742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
1309002-13A	AMR-SB43-1.0	8/30/2013 2:00:00 PM		EPA 6010B ICP METALS, 3051/6010		9/5/2013 23518	
				EPA 7060 ARSENIC, Soil 3051/7060	9/4/2013	23518	
				EPA 7471 MERCURY, Soil		9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				Percent Moisture		9/5/2013 R51742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
1309002-14A	AMR-SB44-1.0	8/30/2013 2:05:00 PM		EPA 6010B ICP METALS, 3051/6010		9/5/2013 23518	
				EPA 7060 ARSENIC, Soil 3051/7060	9/4/2013	23518	
				EPA 7471 MERCURY, Soil		9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				Percent Moisture		9/5/2013 R51742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-15A	AMR-SB46-2.0	8/30/2013 2:48:00 PM	Soil	EPA 6010B ICP METALS, 3051/6010	9/4/2013	9/5/2013	
				EPA 3051 SOPREP TOTAL METALS; Micro		23518	
				EPA 7060 ARSENIC, Soil 3051/7060	9/4/2013	9/6/2013	
				EPA 7471 MERCURY, Soil		23518	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
1309002-16A	AMR-SB48-1.5	8/30/2013 3:10:00 PM		Percent Moisture		9/5/2013	
						R51742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS; Micro	9/4/2013	23518	
				EPA 6010B ICP METALS, 3051/6010	9/4/2013	9/5/2013	
1309002-17A	AMR-SB9-COMP	8/30/2013 12:20:00 PM		EPA 7060 ARSENIC, Soil 3051/7060		23518	
				EPA 7471 MERCURY, Soil	9/4/2013	23518	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				Percent Moisture		9/5/2013	
						R51742	
1309002-17A	AMR-SB9-COMP	8/30/2013 12:20:00 PM		SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS; Micro	9/4/2013	23518	
				EPA 1010 Ignitability		9/12/2013	
						R51790	
				EPA 6010B ICP METALS, TCLP		9/10/2013	
1309002-17A	AMR-SB9-COMP	8/30/2013 12:20:00 PM		EPA 3010 TCLP PREP FOR ICP	9/5/2013	23523	9/4/2013

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-17A	AMR-SB9-COMP	8/30/2013 12:20:00 PM	Soil	EPA 6010B ICP METALS, TCLP		9/5/2013	
				EPA 3010 TCLP PREP FOR ICP	9/5/2013	23523	9/4/2013
				EPA 7470 MERCURY, TCLP		9/11/2013	
				MERCURY PREP: EPA 7040	9/11/2013	23538	9/4/2013
				EPA 8081A PESTICIDES, TCLP Leached		9/10/2013	
				EPA 3510 AQPREP SEP FUNNEL: TCLP Pesticides	9/10/2013	23530	9/4/2013
				EPA 8082 PCBs IN SOIL/SOLIDS		9/5/2013	
				EPA 3540C SOPREP SOXHLET: PCBs	9/4/2013	23522	
				EPA 8260B VOLATILES, TCLP Leached		9/5/2013	
				EPA 1311/5030	9/4/2013	R51741	9/4/2013
				EPA 8270 SEMIVOLATILES, TCLP Leached		9/9/2013	
				EPA 3510 AQPREP SEP FUNNEL: TCLP BNA	9/6/2013	23528	9/4/2013
				Percent Moisture		9/5/2013	
1309002-18A	AMR-SB11-COMP	8/30/2013 1:30:00 PM		EPA 1010 Ignitability		R51742	
						9/12/2013	
						R51790	
				EPA 6010B ICP METALS, TCLP		9/6/2013	
				EPA 3010 TCLP PREP FOR ICP	9/5/2013	23523	9/4/2013
				EPA 6010B ICP METALS, TCLP		9/10/2013	
					9/5/2013	23523	9/4/2013
				EPA 7470 MERCURY, TCLP		9/11/2013	
				MERCURY PREP: EPA 7040	9/11/2013	23538	9/4/2013
				EPA 8081A PESTICIDES, TCLP Leached		9/10/2013	
				EPA 3510 AQPREP SEP FUNNEL: TCLP Pesticides	9/10/2013	23530	9/4/2013

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-18A	AMR-SB11-COMP	8/30/2013 1:30:00 PM	Soil	EPA 8082 PCBs IN SOIL/SOLIDS		9/5/2013	
				EPA 3540C SOPREP SOXHLET: PCBs	9/4/2013	23522	
				EPA 8260B VOLATILES, TCLP Leached		9/5/2013	
				EPA 1311/5030	9/4/2013	R51741	9/4/2013
				EPA 8270 SEMIVOLATILES, TCLP Leached		9/9/2013	
				EPA 3510 AQPREP SEP FUNNEL: TCLP BNA	9/6/2013	23528	9/4/2013
				Percent Moisture		9/5/2013	
						R51742	
				EPA 1010 Ignitability		9/12/2013	
						R51790	
1309002-19A	AMR-SB21-COMP	8/30/2013 2:20:00 PM		EPA 6010B ICP METALS, TCLP		9/6/2013	
				EPA 3010 TCLP PREP FOR ICP	9/5/2013	23523	9/4/2013
				EPA 6010B ICP METALS, TCLP		9/10/2013	
					9/5/2013	23523	9/4/2013
				EPA 7470 MERCURY, TCLP		9/11/2013	
				MERCURY PREP: EPA 7040	9/11/2013	23538	9/4/2013
				EPA 8081A PESTICIDES, TCLP Leached		9/10/2013	
				EPA 3510 AQPREP SEP FUNNEL: TCLP Pesticides	9/10/2013	23530	9/4/2013
				EPA 8082 PCBs IN SOIL/SOLIDS		9/5/2013	
				EPA 3540C SOPREP SOXHLET: PCBs	9/4/2013	23522	
				EPA 8260B VOLATILES, TCLP Leached		9/5/2013	
				EPA 1311/5030	9/4/2013	R51741	9/4/2013
				EPA 8270 SEMIVOLATILES, TCLP Leached		9/9/2013	
				EPA 3510 AQPREP SEP FUNNEL: TCLP BNA	9/6/2013	23528	9/4/2013

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002
Client: Stone Environmental, Inc.
Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-19A	AMR-SB21-COMP	8/30/2013 2:20:00 PM	Soil	Percent Moisture		9/5/2013 R51742	
1309002-20A	AMR-SB28-COMP	8/30/2013 3:20:00 PM		EPA 1010 Ignitability		9/12/2013 R51790	
				EPA 6010B ICP METALS, TCLP		9/10/2013	
				EPA 3010 TCLP PREP FOR ICP	9/5/2013	23523	9/4/2013
				EPA 6010B ICP METALS, TCLP		9/6/2013	
					9/5/2013	23523	9/4/2013
				EPA 7470 MERCURY, TCLP		9/11/2013	
				MERCURY PREP: EPA 7040	9/11/2013	23538	9/4/2013
				EPA 8081A PESTICIDES, TCLP Leached		9/10/2013	
				EPA 3510 AQPREP SEP FUNNEL: TCLP Pesticides	9/10/2013	23530	9/4/2013
				EPA 8082 PCBs IN SOIL/SOLIDS		9/5/2013	
				EPA 3540C SOPREP SOXHLET: PCBs	9/4/2013	23522	
				EPA 8260B VOLATILES, TCLP Leached		9/5/2013	
				EPA 1311/5030	9/4/2013	R51741	9/4/2013
				EPA 8270 SEMIVOLATILES, TCLP Leached		9/9/2013	
				EPA 3510 AQPREP SEP FUNNEL: TCLP BNA	9/6/2013	23528	9/4/2013
				Percent Moisture		9/5/2013 R51742	
1309002-21A	AMR-SB47-2.0-FD	8/30/2013 3:00:00 PM		EPA 6010B ICP METALS, 3051/6010		9/5/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	
				EPA 7060 ARSENIC, Soil 3051/7060		9/6/2013	
					9/4/2013	23518	

AMRO Environmental Laboratories Corp.

16-Sep-13

Lab Order: 1309002

Client: Stone Environmental, Inc.

Project: 12-152 Crescent Connector

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Analytical Test Name Preparatory Test Name	Prep Date	Analysis Date Batch ID	TCLP Date
1309002-21A	AMR-SB47-2.0-FD	8/30/2013 3:00:00 PM	Soil	EPA 7471 MERCURY, Soil		9/10/2013	
				EPA 7471 HG Soil Prep	9/10/2013	23534	
				EPA 8270C SEMIVOLATILE ORGANICS, Soil/Solids		9/6/2013	
				EPA 3541 SOPREP AUTOSOXHLET: BNA	9/4/2013	23520	
				Percent Moisture		9/5/2013	
						RS1742	
				SELENIUM, Soil EPA 3051/7740		9/12/2013	
				EPA 3051 SOPREP TOTAL METALS: Micro	9/4/2013	23518	

Project No.: 12-152		Project Name: Crescent Connector		Project State: VT		Project Manager: Dan Voisin		Samplers (Signature): See Request		AMRO Project No.: 1309002	
P.O.#:		Results Needed by: Normal TAT		Matrix		Total # of Cont. & Size		Comp.		Grab	
QUOTE #:		Seal Intact? Yes No N/A		Date/Time Sampled						REQUESTED ANALYSES	
Sample ID:										Remarks	
AMR-SB34-1.5		8/13/13 1146		Soil		148oz.		X		RCRA & Metals	
AMR-SB35-1.5		1155						X			
AMR-SB36-2.0		1205						X			
AMR-SB37-2.0		1212						X			
AMR-SB39-COMP		1220				148oz. 144oz.		X			
AMR-SB38-2.0		1300				148oz.		X			
AMR-SB38-2.0.FD		1300						X			
AMR-SB39-1.5		1312						X			
AMR-SB40-1.2		1318						X			
AMR-SB41-1.1		1325						X			
Preservative: CI-HCL, MeOH, N-HNO3, S-H2SO4, Na-NaOH, O- Other											
Send Results To: Dan Voisin											
METALS 8 RCRA <input checked="" type="checkbox"/> 13 PP <input type="checkbox"/> 23 TAL <input type="checkbox"/> 14 MCP <input type="checkbox"/>											
Method: 6010 <input type="checkbox"/> 200.7 <input type="checkbox"/> Other Metals: <input type="checkbox"/>											
Dissolved Metals Field Filtered? YES <input type="checkbox"/> NO <input type="checkbox"/>											
MCP Presumptive Certainty Required? YES <input type="checkbox"/> NO <input type="checkbox"/>											
MCP Methods Needed: YES <input type="checkbox"/> NO <input type="checkbox"/>											
AMRO report package level needed: <input type="checkbox"/>											
EDD required: EDD is Ready											
Required Reporting Limits: S-1 <input type="checkbox"/> GW-1 <input type="checkbox"/> S-2 <input type="checkbox"/> GW-2 <input type="checkbox"/> S-3 <input type="checkbox"/> GW-3 <input type="checkbox"/> Other: <input type="checkbox"/>											
PHONE #: 802-222-1875 FAX #:											
E-mail: dan.voisin@stone-env.com											
Relinquished By: Dan Voisin											
Date/Time: 9/13/13 10:30											
9/13/13 1575											
Samples arriving after 12:00 noon will be tracked and billed as received on the following day.											
Please print clearly, legibly and completely. Samples can not be logged in and the turnaround time clock will not start until any ambiguities are resolved.											
White: Lab Copy Yellow: Client Copy											
SHEET 1 OF 2 AMROCC2004 Rev.3 08/18/04											

Project No.: 12-152	Project Name: Cement Connector	Project State: VT	Project Manager: Dan Voisin	Samplers (Signature): <i>See Paulberry</i>	AMRO Project No.: 1309002
P.O.#:	Results Needed by: Normal TAT	Matrix	REQUESTED ANALYSES		
QUOTE #:	Seal Intact? Yes No N/A	Date/Time Sampled	Remarks		
Sample ID.:		Total # of Cont. & Size	Comp.	Grab	
AMR-SB11-COMP	8/30/13 1330	Soil	X	X	
AMR-SB42-1.5	1350		X	X	
AMR-SB43-1.0	1400		X	X	
AMR-SB44-1.0	1405		X	X	
AMR-SB45-1.5	1415		X	X	
AMR-SB46-1.5	1420		X	X	
AMR-SB46-2.0	1448		X	X	
AMR-SB47-2.0	1560		X	X	
AMR-SB48-1.5	1510		X	X	
AMR-SB48-COMP	1520		X	X	
Preservative: CI-HCl, MeOH, N-HNO3, S-H2SO4, Na-NaOH, O- Other					
Send Results To:					
PRIORITY TURNAROUND TIME AUTHORIZATION Before submitting samples for expedited TAT, you must have a coded AUTHORIZATION NUMBER					
AUTHORIZATION No.: BY:					
PHONE #:	FAX #:				
E-mail:	Dissolved Metals Field Filtered? YES <input type="checkbox"/> NO <input type="checkbox"/>				
Relinquished By:	MCP Presumptive Certainty Required? YES <input type="checkbox"/> NO <input type="checkbox"/>				
Date/Time	MCP Methods Needed: YES <input type="checkbox"/> NO <input type="checkbox"/>				
9/13/13 10:30	AMRO report package level needed: YES <input type="checkbox"/> NO <input type="checkbox"/>				
9/13/13 1515	EDD required: YES <input type="checkbox"/> NO <input type="checkbox"/>				
Required Reporting Limits: S-1 <input type="checkbox"/> GW-1 <input type="checkbox"/> S-2 <input type="checkbox"/> GW-2 <input type="checkbox"/> S-3 <input type="checkbox"/> GW-3 <input type="checkbox"/> Other: <input type="checkbox"/>					
Please print clearly, legibly and completely. Samples can not be logged in and the turnaround time clock will not start until any ambiguities are resolved.					
White: Lab Copy Yellow: Client Copy					
AMRO policy requires notification in writing to the laboratory in cases where the samples were collected from highly contaminated sites.					
KNOWN SITE CONTAMINATION: As seen in log					
SHEET 2 OF 2 AMROCC2004, Rev.3 08/18/04					

RE: couple of questions

From: Daniel Voisin

Sent: Tue, Sep 3, 2013 at 4:25 pm

To: nancy@amrolabs.com

Hi Nancy,

We do not need low level PAHs on the Pine Street samples (open them up, and you'll smell why).

We will need full TCLP plus ignitability for the Crescent Connector job. I am not sure if PCBs are usually presented as total or not and will have to ask our waste contractor.

Thanks,

Dan

From: nancy@amrolabs.com [mailto:nancy@amrolabs.com]

Sent: Tuesday, September 03, 2013 4:21 PM

To: Daniel Voisin

Subject: couple of questions

Hi Dan,

For the Crescent Connector job, Lucian included PCBs and Ignitability on the quote for TCLP. Do you want these? Also, if so, are the PCBs total or TCLP?

For the Pine Street job, do you need low level (SIM) for the PAHs?

Thanks,

Nancy

Nancy Stewart

Vice President

AMRO Env. Lab. Corp.

111 Herrick Street

Merrimack, NH 03054

tel.(603)424-2022 direct (603)620-0496 fax.(603)429-8496

www.amrolabs.com

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NELAC Accredited

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RE: couple of questions

From: Lee Rosberg

Sent: Tue, Sep 3, 2013 at 4:48 pm

To: Daniel Voisin, nancy@amrolabs.com

Yes this sample was slated for metals and SVOC analysis.

-Lee

From: Daniel Voisin

Sent: Tuesday, September 03, 2013 4:48 PM

To: nancy@amrolabs.com

Cc: Lee Rosberg

Subject: RE: couple of questions

I will defer to Lee to confirm, but as this is a Field Duplicate, the analysis should replicate the original; if SMR-SB47-2.0 is slated for Metals and SVOCs, then the FD sample should as well.

Thank you!

Dan

From: nancy@amrolabs.com [<mailto:nancy@amrolabs.com>]

Sent: Tuesday, September 03, 2013 4:46 PM

To: Daniel Voisin

Subject: RE: couple of questions

Also, we just discovered a sample that is not listed on the COC for Crescent. It is AMR-SB47-2.0-FD. Do you want us to run it for metals and SVOCs?

Thanks

-----Original Message-----

From: "Daniel Voisin" <dvoisin@stone-env.com>

Sent: Tuesday, September 3, 2013 4:37pm

To: "nancy@amrolabs.com" <nancy@amrolabs.com>

Subject: RE: couple of questions

Total for PCBs is fine.

Thanks,

Dan

From: nancy@amrolabs.com [<mailto:nancy@amrolabs.com>]

Sent: Tuesday, September 03, 2013 4:21 PM

To: Daniel Voisin

Subject: couple of questions

Hi Dan,

For the Crescent Connector job, Lucian included PCBs and Ignitability on the quote for TCLP. Do you want these? Also, if so, are the PCBs total or TCLP?

For the Pine Street job, do you need low level (SIM) for the PAHs?

SAMPLE RECEIPT CHECKLIST

111 Herrick Street
Merrimack, NH 03054
(603) 424-2022

Client: <u>Stone</u>		AMRO ID: <u>1309002</u>	
Project Name: <u>12-152 Crescent Connector</u>		Date Rec.: <u>9-3-13</u>	
Ship via: (circle one) Fed Ex., UPS, <u>AMRO Courier</u>		Date Due: <u>9-10-13</u>	
Hand Del., Other Courier, Other:			

Items to be Checked Upon Receipt	Yes	No	NA	Comments
1. Army Samples received in individual plastic bags?			X	
2. Custody Seals present?			X	
3. Custody Seals Intact?			X	
4. Air Bill included in folder if received?			X	
5. Is COC included with samples?	✓			
6. Is COC signed and dated by client?	✓			
7. Laboratory receipt temperature. TEMP = <u>5°C</u> Samples rec. with ice <u>✓</u> ice packs <u> </u> neither <u> </u>				
8. Were samples received the same day they were sampled? Is client temperature = or <6°C ? If no obtain authorization from the client for the analyses. Client authorization from: <u> </u> Date: <u> </u> Obtained by: <u> </u>	✓	✓		
9. Is the COC filled out correctly and completely?	✓			
10. Does the info on the COC match the samples?	✓	✓		AMR-SB47-2.0-FD not on loc
11. Were samples rec. within holding time?	✓			
12. Were all samples properly labeled?	✓			
13. Were all samples properly preserved?	✓			
14. Were proper sample containers used?	✓			
15. Were all samples received intact? (none broken or leaking)	✓			
16. Were VOA vials rec. with no air bubbles?			✓	
17. Were the sample volumes sufficient for requested analysis?	✓			
18. Were all samples received?	✓			
19. VPH and VOA Soils only: Sampling Method VPH (circle one): M=Methanol, E=EnCore (air-tight container) Sampling Method VOA (circle one): M=Methanol, SB=Sodium Bisulfate, E=EnCore, B=Bulk If M or SB: Does preservative cover the soil? If NO then client must be faxed. Does preservation level come close to the fill line on the vial? If NO then client must be faxed. Were vials provided by AMRO? If NO then weights MUST be obtained from client Was dry weight aliquot provided? If NO then fax client and inform the VOA lab ASAP.			✓	
20. Subcontracted Samples: What samples sent: <u>-17. → -20</u> Where sent: <u>Phoenix</u> Date: <u>9-5-13</u> Analysis: <u>TCLP Herb.</u> TAT: <u>5 day</u>	✓			
21. Information entered into: Internal Tracking Log? Dry Weight Log? Client Log? Composite Log? Filtration Log?	✓ ✓ ✓		✓ ✓ ✓ ✓	
Received By: <u>AD</u> Labeled By: <u>CD</u>	Date: <u>9-3-13</u> Date: <u>9-3-13</u>	Logged in By: <u>AD</u> Checked By: <u>AD</u>	Date: <u>9-3-13</u> Date: <u>9-5-13</u>	

AMRO Environmental Laboratories Corp.**Date:** 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector
Lab Order: 1309002

CASE NARRATIVE

SUB-CONTRACTED

1. Some analyses in this project were sub-contracted to another laboratory. Please see the sample receipt checklist for details and the sub-contract lab report for their certification status. AMRO does not transcribe data from another lab. A copy of the subcontract lab report is included in this report. AMRO keeps the original report on file with this workorder.

GC/MS VOLATILES: 1311:

1. A Matrix Spike (MS) and Matrix Spike Duplicate (MSD) were performed on sample AMR-SB28-COMP (1309002-20A) Batch ID: R51741 on 09/05/13:

1.1 The %RPD for 1 analyte out of 11 analytes was outside the laboratory control limits.

GC/MS SEMIVOLATILES: 8270C:

1. A Laboratory Control Sample (LCS) was performed on Batch ID: 23520:

1.1 The % Recovery for 1 analyte out of 67 analytes in the LCS was outside the laboratory control limits.

GC/MS SEMIVOLATILES: 1311:

1. No QC deviations were noted.

GC/ECD-PCBs: 8082:

1. No QC deviations were noted.

GC/ECD-PESTICIDES: 1311:

1. The closing IND A and IND B Continuing Calibration Verification Standard analyzed on 09/10/13 recovered above the control limits (15% average) on signal 1. All results were reported from signal 2, which passed. The samples were ND.

METALS:

1. Because of the high concentration, Arsenic was determined by ICP on samples: AMR-SB34-1.5, AMR-SB35-1.5, and AMR-SB41-1.1.

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector
Lab Order: 1309002

CASE NARRATIVE

2. The % RPD for Barium by ICP and Selenium by HGA exceeded laboratory limits suggesting non-homogeneity.
3. The Matrix Spike and Matrix Spike Duplicate recoveries for Arsenic by HGA were both high but there is no impact on the date since the sample was reported by ICP.
4. No other QC deviations were noted.

WET CHEMISTRY:

1. No QC deviations were noted.

DATA COMMENT PAGE

Organic Data Qualifiers

ND	Indicates compound was analyzed for, but not detected at or above the reporting limit.
J	Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than the method detection limit.
H	Method prescribed holding time exceeded.
E	This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.
B	This flag is used when the analyte is found in the associated blank as well as in the sample.
R	RPD outside accepted recovery limits
RL	Reporting limit; defined as the lowest concentration the laboratory can accurately quantitate.
S	Spike Recovery outside accepted recovery limits.
#	See Case Narrative

Micro Data Qualifiers

TNTC	Too numerous to count
------	-----------------------

Inorganic Data Qualifiers

ND or U	Indicates element was analyzed for, but not detected at or above the reporting limit.
J	Indicates a value greater than or equal to the method detection limit, but less than the quantitation limit.
H	Indicates analytical holding time exceedance.
B	Indicates that the analyte is found in the associated blank, as well as in the sample.
MSA	Indicates value determined by the Method of Standard Addition
+	Indicates the correlation coefficient for the Method of Standard Addition is less than 0.995
E	This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.
R	RPD outside accepted recovery limits
RL	Reporting limit; defined as the lowest concentration the laboratory can accurately quantitate.
S	Spike Recovery outside accepted recovery limits.
PS	The analyte was below the Reporting Limit but has significant matrix interference as noted by the poor recovery of the Post Digestion Spike.
#	See Case Narrative
*	MCL Exceeded

Report Comments:

1. Soil, sediment and sludge sample results are reported on a "dry weight" basis.
2. Reporting limits are adjusted for sample size used, dilutions and moisture content, if applicable.

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.

Client Sample ID: AMR-SB9-COMP

Lab Order: 1309002

Collection Date: 8/30/2013 12:20:00 PM

Project: 12-152 Crescent Connector

Matrix: SOIL

Lab ID: 1309002-17A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILES, TCLP LEACHED		SW1311/8260B				Analyst: DH
1,1-Dichloroethene	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
1,2-Dichloroethane	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
1,4-Dichlorobenzene	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
2-Butanone	ND	0.10		mg/L	10	9/5/2013 12:46:00 PM
Benzene	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
Carbon tetrachloride	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
Chlorobenzene	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
Chloroform	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
Tetrachloroethene	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
Trichloroethene	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
Vinyl chloride	ND	0.020		mg/L	10	9/5/2013 12:46:00 PM
Surr: 1,2-Dichloroethane-d4	83.1	74-124		%REC	10	9/5/2013 12:46:00 PM
Surr: 4-Bromofluorobenzene	98.7	62-129		%REC	10	9/5/2013 12:46:00 PM
Surr: Dibromofluoromethane	99.6	68-122		%REC	10	9/5/2013 12:46:00 PM
Surr: Toluene-d8	103	69-121		%REC	10	9/5/2013 12:46:00 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-18A

Client Sample ID: AMR-SB11-COMP
Collection Date: 8/30/2013 1:30:00 PM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILES, TCLP LEACHED		SW1311/8260B				Analyst: DH
1,1-Dichloroethene	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
1,2-Dichloroethane	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
1,4-Dichlorobenzene	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
2-Butanone	ND	0.10		mg/L	10	9/5/2013 1:21:00 PM
Benzene	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
Carbon tetrachloride	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
Chlorobenzene	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
Chloroform	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
Tetrachloroethene	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
Trichloroethene	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
Vinyl chloride	ND	0.020		mg/L	10	9/5/2013 1:21:00 PM
Surr: 1,2-Dichloroethane-d4	85.3	74-124		%REC	10	9/5/2013 1:21:00 PM
Surr: 4-Bromofluorobenzene	99.1	62-129		%REC	10	9/5/2013 1:21:00 PM
Surr: Dibromofluoromethane	96.8	68-122		%REC	10	9/5/2013 1:21:00 PM
Surr: Toluene-d8	103	69-121		%REC	10	9/5/2013 1:21:00 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-19A

Client Sample ID: AMR-SB21-COMP
Collection Date: 8/30/2013 2:20:00 PM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILES, TCLP LEACHED		SW1311/8260B				Analyst: DH
1,1-Dichloroethene	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
1,2-Dichloroethane	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
1,4-Dichlorobenzene	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
2-Butanone	ND	0.10		mg/L	10	9/5/2013 1:55:00 PM
Benzene	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
Carbon tetrachloride	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
Chlorobenzene	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
Chloroform	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
Tetrachloroethene	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
Trichloroethene	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
Vinyl chloride	ND	0.020		mg/L	10	9/5/2013 1:55:00 PM
Surr: 1,2-Dichloroethane-d4	84.8	74-124		%REC	10	9/5/2013 1:55:00 PM
Surr: 4-Bromofluorobenzene	97.0	62-129		%REC	10	9/5/2013 1:55:00 PM
Surr: Dibromofluoromethane	97.9	68-122		%REC	10	9/5/2013 1:55:00 PM
Surr: Toluene-d8	103	69-121		%REC	10	9/5/2013 1:55:00 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-20A

Client Sample ID: AMR-SB28-COMP
Collection Date: 8/30/2013 3:20:00 PM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
VOLATILES, TCLP LEACHED		SW1311/8260B				Analyst: DH
1,1-Dichloroethene	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
1,2-Dichloroethane	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
1,4-Dichlorobenzene	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
2-Butanone	ND	0.10		mg/L	10	9/5/2013 2:30:00 PM
Benzene	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
Carbon tetrachloride	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
Chlorobenzene	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
Chloroform	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
Tetrachloroethene	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
Trichloroethene	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
Vinyl chloride	ND	0.020		mg/L	10	9/5/2013 2:30:00 PM
Surr: 1,2-Dichloroethane-d4	84.4	74-124		%REC	10	9/5/2013 2:30:00 PM
Surr: 4-Bromofluorobenzene	98.3	62-129		%REC	10	9/5/2013 2:30:00 PM
Surr: Dibromofluoromethane	98.2	68-122		%REC	10	9/5/2013 2:30:00 PM
Surr: Toluene-d8	103	69-121		%REC	10	9/5/2013 2:30:00 PM

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: mb-23521 **Batch ID:** R51741 **Test Code:** SW1311/8260 **Units:** mg/L **Analysis Date:** 9/5/2013 12:12:00 PM **Prep Date:** 9/4/2013
Client ID: **Run ID:** V-3_130905A **SeqNo:** 861249

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	QuE
1,1-Dichloroethene	ND	0.020	mg/L									
1,2-Dichloroethane	ND	0.020	mg/L									
1,4-Dichlorobenzene	ND	0.020	mg/L									
2-Butanone	ND	0.10	mg/L									
Benzene	ND	0.020	mg/L									
Carbon tetrachloride	ND	0.020	mg/L									
Chlorobenzene	ND	0.020	mg/L									
Chloroform	ND	0.020	mg/L									
Tetrachloroethene	ND	0.020	mg/L									
Trichloroethene	ND	0.020	mg/L									
Vinyl chloride	ND	0.020	mg/L									
Surr: 1,2-Dichloroethane-d4	0.2098	0	mg/L	0.25	0	83.9	74	124	0			
Surr: 4-Bromofluorobenzene	0.2461	0	mg/L	0.25	0	98.4	62	129	0			
Surr: Dibromofluoromethane	0.2454	0	mg/L	0.25	0	98.2	68	122	0			
Surr: Toluene-d8	0.2574	0	mg/L	0.25	0	103	69	121	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID: Ics-09/05/13	Batch ID: R51741	Test Code: SW1311/8260		Units: mg/L		Analysis Date 9/5/2013 9:54:00 AM		Prep Date: 9/5/2013	
Client ID:		Run ID:	V-3_130905A			SeqNo:	861251		
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result
1,1-Dichloroethene	0.1979	0.020	mg/L	0.2	0	99	75	142	0
1,2-Dichloroethane	0.1818	0.020	mg/L	0.2	0	90.9	62	141	0
1,4-Dichlorobenzene	0.2074	0.020	mg/L	0.2	0	104	83	124	0
2-Butanone	0.142	0.10	mg/L	0.2	0	71	51	141	0
Benzene	0.2182	0.020	mg/L	0.2	0	109	73	131	0
Carbon tetrachloride	0.1951	0.020	mg/L	0.2	0	97.6	57	138	0
Chlorobenzene	0.2068	0.020	mg/L	0.2	0	103	81	126	0
Chloroform	0.1747	0.020	mg/L	0.2	0	87.4	66	139	0
Tetrachloroethene	0.2127	0.020	mg/L	0.2	0	106	85	143	0
Trichloroethene	0.2167	0.020	mg/L	0.2	0	108	76	136	0
Vinyl chloride	0.2127	0.020	mg/L	0.2	0	106	57	160	0
Surr: 1,2-Dichloroethane-d4	0.2145	0	mg/L	0.25	0	85.8	77	127	0
Surr: 4-Bromofluorobenzene	0.2622	0	mg/L	0.25	0	105	79	117	0
Surr: Dibromofluoromethane	0.2331	0	mg/L	0.25	0	93.2	85	116	0
Surr: Toluene-d8	0.2533	0	mg/L	0.25	0	101	86	114	0

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike Duplicate

Sample ID: **lcsd-09/05/13** Batch ID: **R51741** Test Code: **SW1311/8260** Units: **mg/L** Analysis Date: **9/5/2013 10:29:00 AM** Prep Date: **9/5/2013**
 Client ID: SeqNo: **861252**

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	QuE
1,1-Dichloroethene	0.2252	0.020	mg/L	0.2	0	113	75	142	0.1979	12.9	20	
1,2-Dichloroethane	0.186	0.020	mg/L	0.2	0	93	62	141	0.1818	2.28	20	
1,4-Dichlorobenzene	0.2147	0.020	mg/L	0.2	0	107	83	124	0.2074	3.46	20	
2-Butanone	0.1235	0.10	mg/L	0.2	0	61.8	51	141	0.142	13.9	20	
Benzene	0.2298	0.020	mg/L	0.2	0	115	73	131	0.2182	5.18	20	
Carbon tetrachloride	0.2068	0.020	mg/L	0.2	0	103	57	138	0.1951	5.82	20	
Chlorobenzene	0.2171	0.020	mg/L	0.2	0	109	81	126	0.2068	4.86	20	
Chloroform	0.2081	0.020	mg/L	0.2	0	104	66	139	0.1747	17.5	20	
Tetrachloroethene	0.2205	0.020	mg/L	0.2	0	110	85	143	0.2127	3.6	20	
Trichloroethene	0.2255	0.020	mg/L	0.2	0	113	76	136	0.2167	3.98	20	
Vinyl chloride	0.2364	0.020	mg/L	0.2	0	118	57	160	0.2127	10.6	20	
Surr: 1,2-Dichloroethane-d4	0.2064	0	mg/L	0.25	0	82.6	77	127	0	0	0	
Surr: 4-Bromofluorobenzene	0.257	0	mg/L	0.25	0	103	79	117	0	0	0	
Surr: Dibromofluoromethane	0.2389	0	mg/L	0.25	0	95.6	85	116	0	0	0	
Surr: Toluene-d8	0.2581	0	mg/L	0.25	0	103	86	114	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 1309002-20Ams **Batch ID:** R51741 **Test Code:** SW1311/8260 **Units:** mg/L **Analysis Date:** 9/5/2013 7:04:00 PM **Prep Date:** 9/4/2013
Client ID: AMR-SB28-COMP **Run ID:** V-3_130905A **SeqNo:** 861326

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	QC
1,1-Dichloroethene	0.2076	0.020	mg/L	0.2	0	104	66	171	0			
1,2-Dichloroethane	0.1823	0.020	mg/L	0.2	0	91.2	66	150	0			
1,4-Dichlorobenzene	0.2063	0.020	mg/L	0.2	0	103	81	134	0			
2-Butanone	0.1173	0.10	mg/L	0.2	0	58.6	34	147	0			
Benzene	0.2241	0.020	mg/L	0.2	0	112	77	150	0			
Carbon tetrachloride	0.1958	0.020	mg/L	0.2	0	97.9	57	161	0			
Chlorobenzene	0.2141	0.020	mg/L	0.2	0	107	88	133	0			
Chloroform	0.2062	0.020	mg/L	0.2	0	103	75	150	0			
Tetrachloroethene	0.2093	0.020	mg/L	0.2	0	105	84	155	0			
Trichloroethene	0.2239	0.020	mg/L	0.2	0	112	80	150	0			
Vinyl chloride	0.2142	0.020	mg/L	0.2	0	107	67	162	0			
Surr: 1,2-Dichloroethane-d4	0.2067	0	mg/L	0.25	0	82.7	74	124	0			
Surr: 4-Bromofluorobenzene	0.2551	0	mg/L	0.25	0	102	62	129	0			
Surr: Dibromofluoromethane	0.2387	0	mg/L	0.25	0	95.5	68	122	0			
Surr: Toluene-d8	0.2607	0	mg/L	0.25	0	104	69	121	0			

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike Duplicate

Sample ID: 1309002-20Amsd		Batch ID: R51741		Test Code: SW1311/8260		Units: mg/L		Analysis Date 9/5/2013 7:38:00 PM		Prep Date: 9/4/2013		
Client ID: AMR-SB28-COMP		Run ID: V-3_130905A		SeqNo: 861327								
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qualifier
1,1-Dichloroethene	0.2079	0.020	mg/L	0.2	0	104	66	171	0.2076	0.144	20	
1,2-Dichloroethane	0.191	0.020	mg/L	0.2	0	95.5	66	150	0.1823	4.66	20	
1,4-Dichlorobenzene	0.2094	0.020	mg/L	0.2	0	105	81	134	0.2063	1.49	20	
2-Butanone	0.1516	0.10	mg/L	0.2	0	75.8	34	147	0.1173	25.5	20	R
Benzene	0.2289	0.020	mg/L	0.2	0	114	77	150	0.2241	2.12	20	
Carbon tetrachloride	0.2026	0.020	mg/L	0.2	0	101	57	161	0.1958	3.41	20	
Chlorobenzene	0.2194	0.020	mg/L	0.2	0	110	88	133	0.2141	2.45	20	
Chloroform	0.2119	0.020	mg/L	0.2	0	106	75	150	0.2062	2.73	20	
Tetrachloroethene	0.2111	0.020	mg/L	0.2	0	106	84	155	0.2093	0.856	20	
Trichloroethene	0.2247	0.020	mg/L	0.2	0	112	80	150	0.2239	0.357	0	
Vinyl chloride	0.211	0.020	mg/L	0.2	0	106	67	162	0.2142	1.51	0	
Surr: 1,2-Dichloroethane-d4	0.2115	0	mg/L	0.25	0	84.6	74	124	0	0	0	
Surr: 4-Bromofluorobenzene	0.2558	0	mg/L	0.25	0	102	62	129	0	0	0	
Surr: Dibromofluoromethane	0.2394	0	mg/L	0.25	0	95.8	68	122	0	0	0	
Surr: Toluene-d8	0.2592	0	mg/L	0.25	0	104	69	121	0	0	0	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-01A

Client Sample ID: AMR-SB34-1.5
Collection Date: 8/30/2013 11:46:00 AM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8270C SEMIVOLATILE ORGANICS		SW8270C		Analyst: KAM		
Phenol	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Bis(2-chloroethyl)ether	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2-Chlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
1,3-Dichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
1,4-Dichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Benzyl alcohol	ND	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2-Methylphenol	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
1,2-Dichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Bis(2-chloroisopropyl)ether	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
4-Methylphenol	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
N-Nitrosodi-n-propylamine	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Hexachloroethane	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Nitrobenzene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Isophorone	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2,4-Dimethylphenol	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Benzoic acid	ND	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2-Nitrophenol	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Bis(2-chloroethoxy)methane	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2,4-Dichlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
1,2,4-Trichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Naphthalene	750	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
4-Chloroaniline	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Hexachlorobutadiene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
4-Chloro-3-methylphenol	ND	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2-Methylnaphthalene	1,200	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Hexachlorocyclopentadiene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2,4,6-Trichlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2,4,5-Trichlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2-Chloronaphthalene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2-Nitroaniline	ND	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Dimethyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2,6-Dinitrotoluene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Acenaphthylene	780	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
3-Nitroaniline	ND	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
4-Nitrophenol	ND	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2,4-Dinitrophenol	ND	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Acenaphthene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
2,4-Dinitrotoluene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Dibenzofuran	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB34-1.5**Lab Order:** 1309002**Collection Date:** 8/30/2013 11:46:00 AM**Project:** 12-152 Crescent Connector**Matrix:** SOIL**Lab ID:** 1309002-01A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diethyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
4-Chlorophenyl phenyl ether	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Fluorene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
4-Nitroaniline	850	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
4,6-Dinitro-2-methylphenol	ND	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
N-Nitrosodiphenylamine	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
1,2-Diphenylhydrazine (as Azobenzene)	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
4-Bromophenyl phenyl ether	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Hexachlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Pentachlorophenol	ND	550		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Phenanthrene	1,500	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Anthracene	850	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Carbazole	320	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Di-n-butyl phthalate	830	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Fluoranthene	3,600	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Pyrene	3,300	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Butyl benzyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Bis(2-ethylhexyl)phthalate	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
3,3'-Dichlorobenzidine	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Benz(a)anthracene	1,700	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Chrysene	2,600	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Di-n-octyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Benzo(b)fluoranthene	2,300	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Benzo(k)fluoranthene	2,200	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Benzo(a)pyrene	1,800	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Dibenz(a,h)anthracene	650	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Indeno(1,2,3-cd)pyrene	1,400	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Benzo(g,h,i)perylene	1,400	280		µg/Kg-dry	1	9/6/2013 9:42:00 AM
Surr: 2-Fluorophenol	76.3	21-102		%REC	1	9/6/2013 9:42:00 AM
Surr: Phenol-d5	77.7	25-106		%REC	1	9/6/2013 9:42:00 AM
Surr: Nitrobenzene-d5	80.5	19-107		%REC	1	9/6/2013 9:42:00 AM
Surr: 2-Fluorobiphenyl	86.2	26-100		%REC	1	9/6/2013 9:42:00 AM
Surr: 2,4,6-Tribromophenol	91.7	33-117		%REC	1	9/6/2013 9:42:00 AM
Surr: 4-Terphenyl-d14	107	40-116		%REC	1	9/6/2013 9:42:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB38-2.0**Lab Order:** 1309002**Collection Date:** 8/30/2013 1:00:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SOIL**Lab ID:** 1309002-02A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8270C SEMIVOLATILE ORGANICS		SW8270C				Analyst: KAM
Phenol	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Bis(2-chloroethyl)ether	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2-Chlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
1,3-Dichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
1,4-Dichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Benzyl alcohol	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2-Methylphenol	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
1,2-Dichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Bis(2-chloroisopropyl)ether	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
4-Methylphenol	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
N-Nitrosodi-n-propylamine	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Hexachloroethane	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Nitrobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Isophorone	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2,4-Dimethylphenol	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Benzoic acid	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2-Nitrophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Bis(2-chloroethoxy)methane	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2,4-Dichlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
1,2,4-Trichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Naphthalene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
4-Chloroaniline	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Hexachlorobutadiene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
4-Chloro-3-methylphenol	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2-Methylnaphthalene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Hexachlorocyclopentadiene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2,4,6-Trichlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2,4,5-Trichlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2-Chloronaphthalene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2-Nitroaniline	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Dimethyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2,6-Dinitrotoluene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Acenaphthylene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
3-Nitroaniline	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
4-Nitrophenol	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2,4-Dinitrophenol	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Acenaphthene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
2,4-Dinitrotoluene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Dibenzofuran	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB38-2.0**Lab Order:** 1309002**Collection Date:** 8/30/2013 1:00:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SOIL**Lab ID:** 1309002-02A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diethyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
4-Chlorophenyl phenyl ether	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Fluorene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
4-Nitroaniline	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
4,6-Dinitro-2-methylphenol	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
N-Nitrosodiphenylamine	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
1,2-Diphenylhydrazine (as Azobenzene)	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
4-Bromophenyl phenyl ether	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Hexachlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Pentachlorophenol	ND	560		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Phenanthrene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Anthracene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Carbazole	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Di-n-butyl phthalate	1,500	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Fluoranthene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Pyrene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Butyl benzyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Bis(2-ethylhexyl)phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
3,3'-Dichlorobenzidine	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Benz(a)anthracene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Chrysene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Di-n-octyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Benzo(b)fluoranthene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Benzo(k)fluoranthene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Benzo(a)pyrene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Dibenz(a,h)anthracene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Indeno(1,2,3-cd)pyrene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Benzo(g,h,i)perylene	ND	280		µg/Kg-dry	1	9/6/2013 10:08:00 AM
Surr: 2-Fluorophenol	63.5	21-102		%REC	1	9/6/2013 10:08:00 AM
Surr: Phenol-d5	66.0	25-106		%REC	1	9/6/2013 10:08:00 AM
Surr: Nitrobenzene-d5	63.6	19-107		%REC	1	9/6/2013 10:08:00 AM
Surr: 2-Fluorobiphenyl	69.9	26-100		%REC	1	9/6/2013 10:08:00 AM
Surr: 2,4,6-Tribromophenol	77.9	33-117		%REC	1	9/6/2013 10:08:00 AM
Surr: 4-Terphenyl-d14	97.3	40-116		%REC	1	9/6/2013 10:08:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-03A

Client Sample ID: AMR-SB38-2.0-FD
Collection Date: 8/30/2013 1:00:00 PM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8270C SEMIVOLATILE ORGANICS		SW8270C				Analyst: KAM
Phenol	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Bis(2-chloroethyl)ether	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2-Chlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
1,3-Dichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
1,4-Dichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Benzyl alcohol	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2-Methylphenol	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
1,2-Dichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Bis(2-chloroisopropyl)ether	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
4-Methylphenol	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
N-Nitrosodi-n-propylamine	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Hexachloroethane	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Nitrobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Isophorone	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2,4-Dimethylphenol	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Benzoic acid	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2-Nitrophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Bis(2-chloroethoxy)methane	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2,4-Dichlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
1,2,4-Trichlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Naphthalene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
4-Chloroaniline	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Hexachlorobutadiene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
4-Chloro-3-methylphenol	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2-Methylnaphthalene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Hexachlorocyclopentadiene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2,4,6-Trichlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2,4,5-Trichlorophenol	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2-Chloronaphthalene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2-Nitroaniline	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Dimethyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2,6-Dinitrotoluene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Acenaphthylene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
3-Nitroaniline	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
4-Nitrophenol	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2,4-Dinitrophenol	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Acenaphthene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
2,4-Dinitrotoluene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Dibenzofuran	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB38-2.0-FD**Lab Order:** 1309002**Collection Date:** 8/30/2013 1:00:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SOIL**Lab ID:** 1309002-03A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diethyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
4-Chlorophenyl phenyl ether	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Fluorene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
4-Nitroaniline	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
4,6-Dinitro-2-methylphenol	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
N-Nitrosodiphenylamine	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
1,2-Diphenylhydrazine (as Azobenzene)	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
4-Bromophenyl phenyl ether	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Hexachlorobenzene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Pentachlorophenol	ND	570		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Phenanthrene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Anthracene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Carbazole	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Di-n-butyl phthalate	1,100	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Fluoranthene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Pyrene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Butyl benzyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Bis(2-ethylhexyl)phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
3,3'-Dichlorobenzidine	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Benz(a)anthracene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Chrysene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Di-n-octyl phthalate	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Benzo(b)fluoranthene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Benzo(k)fluoranthene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Benzo(a)pyrene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Dibenz(a,h)anthracene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Indeno(1,2,3-cd)pyrene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Benzo(g,h,i)perylene	ND	280		µg/Kg-dry	1	9/6/2013 10:34:00 AM
Surr: 2-Fluorophenol	76.2	21-102		%REC	1	9/6/2013 10:34:00 AM
Surr: Phenol-d5	73.7	25-106		%REC	1	9/6/2013 10:34:00 AM
Surr: Nitrobenzene-d5	75.0	19-107		%REC	1	9/6/2013 10:34:00 AM
Surr: 2-Fluorobiphenyl	78.9	26-100		%REC	1	9/6/2013 10:34:00 AM
Surr: 2,4,6-Tribromophenol	86.6	33-117		%REC	1	9/6/2013 10:34:00 AM
Surr: 4-Terphenyl-d14	101	40-116		%REC	1	9/6/2013 10:34:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-04A

Client Sample ID: AMR-SB45-1.5
Collection Date: 8/30/2013 2:15:00 PM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8270C SEMIVOLATILE ORGANICS		SW8270C				Analyst: KAM
Phenol	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Bis(2-chloroethyl)ether	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2-Chlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
1,3-Dichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
1,4-Dichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Benzyl alcohol	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2-Methylphenol	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
1,2-Dichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Bis(2-chloroisopropyl)ether	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
4-Methylphenol	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
N-Nitrosodi-n-propylamine	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Hexachloroethane	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Nitrobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Isophorone	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2,4-Dimethylphenol	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Benzoic acid	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2-Nitrophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Bis(2-chloroethoxy)methane	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2,4-Dichlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
1,2,4-Trichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Naphthalene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
4-Chloroaniline	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Hexachlorobutadiene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
4-Chloro-3-methylphenol	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2-Methylnaphthalene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Hexachlorocyclopentadiene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2,4,6-Trichlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2,4,5-Trichlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2-Chloronaphthalene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2-Nitroaniline	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Dimethyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2,6-Dinitrotoluene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Acenaphthylene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
3-Nitroaniline	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
4-Nitrophenol	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2,4-Dinitrophenol	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Acenaphthene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
2,4-Dinitrotoluene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Dibenzofuran	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB45-1.5**Lab Order:** 1309002**Collection Date:** 8/30/2013 2:15:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SOIL**Lab ID:** 1309002-04A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diethyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
4-Chlorophenyl phenyl ether	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Fluorene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
4-Nitroaniline	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
4,6-Dinitro-2-methylphenol	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
N-Nitrosodiphenylamine	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
1,2-Diphenylhydrazine (as Azobenzene)	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
4-Bromophenyl phenyl ether	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Hexachlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Pentachlorophenol	ND	520		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Phenanthrene	300	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Anthracene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Carbazole	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Di-n-butyl phthalate	1,200	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Fluoranthene	800	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Pyrene	700	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Butyl benzyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Bis(2-ethylhexyl)phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
3,3'-Dichlorobenzidine	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Benz(a)anthracene	360	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Chrysene	440	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Di-n-octyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Benzo(b)fluoranthene	350	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Benzo(k)fluoranthene	410	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Benzo(a)pyrene	400	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Dibenz(a,h)anthracene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Indeno(1,2,3-cd)pyrene	ND	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Benzo(g,h,i)perylene	300	260		µg/Kg-dry	1	9/6/2013 11:00:00 AM
Surr: 2-Fluorophenol	69.7	21-102		%REC	1	9/6/2013 11:00:00 AM
Surr: Phenol-d5	67.1	25-106		%REC	1	9/6/2013 11:00:00 AM
Surr: Nitrobenzene-d5	67.4	19-107		%REC	1	9/6/2013 11:00:00 AM
Surr: 2-Fluorobiphenyl	72.9	26-100		%REC	1	9/6/2013 11:00:00 AM
Surr: 2,4,6-Tribromophenol	78.5	33-117		%REC	1	9/6/2013 11:00:00 AM
Surr: 4-Terphenyl-d14	93.6	40-116		%REC	1	9/6/2013 11:00:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.

Client Sample ID: AMR-SB47-2.0

Lab Order: 1309002

Collection Date: 8/30/2013 3:00:00 PM

Project: 12-152 Crescent Connector

Matrix: SOIL

Lab ID: 1309002-05A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8270C SEMIVOLATILE ORGANICS		SW8270C		Analyst: KAM		
Phenol	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Bis(2-chloroethyl)ether	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2-Chlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
1,3-Dichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
1,4-Dichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Benzyl alcohol	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2-Methylphenol	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
1,2-Dichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Bis(2-chloroisopropyl)ether	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
4-Methylphenol	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
N-Nitrosodi-n-propylamine	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Hexachloroethane	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Nitrobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Isophorone	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2,4-Dimethylphenol	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Benzoic acid	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2-Nitrophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Bis(2-chloroethoxy)methane	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2,4-Dichlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
1,2,4-Trichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Naphthalene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
4-Chloroaniline	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Hexachlorobutadiene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
4-Chloro-3-methylphenol	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2-Methylnaphthalene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Hexachlorocyclopentadiene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2,4,6-Trichlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2,4,5-Trichlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2-Chloronaphthalene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2-Nitroaniline	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Dimethyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2,6-Dinitrotoluene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Acenaphthylene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
3-Nitroaniline	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
4-Nitrophenol	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2,4-Dinitrophenol	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Acenaphthene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
2,4-Dinitrotoluene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Dibenzofuran	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB47-2.0**Lab Order:** 1309002**Collection Date:** 8/30/2013 3:00:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SOIL**Lab ID:** 1309002-05A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diethyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
4-Chlorophenyl phenyl ether	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Fluorene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
4-Nitroaniline	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
4,6-Dinitro-2-methylphenol	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
N-Nitrosodiphenylamine	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
1,2-Diphenylhydrazine (as Azobenzene)	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
4-Bromophenyl phenyl ether	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Hexachlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Pentachlorophenol	ND	520		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Phenanthrene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Anthracene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Carbazole	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Di-n-butyl phthalate	1,100	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Fluoranthene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Pyrene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Butyl benzyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Bis(2-ethylhexyl)phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
3,3'-Dichlorobenzidine	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Benz(a)anthracene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Chrysene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Di-n-octyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Benzo(b)fluoranthene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Benzo(k)fluoranthene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Benzo(a)pyrene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Dibenz(a,h)anthracene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Indeno(1,2,3-cd)pyrene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Benzo(g,h,i)perylene	ND	260		µg/Kg-dry	1	9/6/2013 11:26:00 AM
Surr: 2-Fluorophenol	73.2	21-102		%REC	1	9/6/2013 11:26:00 AM
Surr: Phenol-d5	72.9	25-106		%REC	1	9/6/2013 11:26:00 AM
Surr: Nitrobenzene-d5	72.6	19-107		%REC	1	9/6/2013 11:26:00 AM
Surr: 2-Fluorobiphenyl	76.4	26-100		%REC	1	9/6/2013 11:26:00 AM
Surr: 2,4,6-Tribromophenol	80.6	33-117		%REC	1	9/6/2013 11:26:00 AM
Surr: 4-Terphenyl-d14	99.8	40-116		%REC	1	9/6/2013 11:26:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB47-2.0-FD**Lab Order:** 1309002**Collection Date:** 8/30/2013 3:00:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SOIL**Lab ID:** 1309002-21A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 8270C SEMIVOLATILE ORGANICS		SW8270C				Analyst: KAM
Phenol	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Bis(2-chloroethyl)ether	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2-Chlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
1,3-Dichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
1,4-Dichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Benzyl alcohol	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2-Methylphenol	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
1,2-Dichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Bis(2-chloroisopropyl)ether	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
4-Methylphenol	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
N-Nitrosodi-n-propylamine	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Hexachloroethane	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Nitrobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Isophorone	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2,4-Dimethylphenol	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Benzoic acid	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2-Nitrophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Bis(2-chloroethoxy)methane	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2,4-Dichlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
1,2,4-Trichlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Naphthalene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
4-Chloroaniline	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Hexachlorobutadiene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
4-Chloro-3-methylphenol	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2-Methylnaphthalene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Hexachlorocyclopentadiene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2,4,6-Trichlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2,4,5-Trichlorophenol	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2-Chloronaphthalene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2-Nitroaniline	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Dimethyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2,6-Dinitrotoluene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Acenaphthylene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
3-Nitroaniline	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
4-Nitrophenol	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2,4-Dinitrophenol	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Acenaphthene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
2,4-Dinitrotoluene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Dibenzofuran	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-21A

Client Sample ID: AMR-SB47-2.0-FD
Collection Date: 8/30/2013 3:00:00 PM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diethyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
4-Chlorophenyl phenyl ether	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Fluorene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
4-Nitroaniline	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
4,6-Dinitro-2-methylphenol	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
N-Nitrosodiphenylamine	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
1,2-Diphenylhydrazine (as Azobenzene)	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
4-Bromophenyl phenyl ether	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Hexachlorobenzene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Pentachlorophenol	ND	520		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Phenanthrene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Anthracene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Carbazole	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Di-n-butyl phthalate	1,000	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Fluoranthene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Pyrene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Butyl benzyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Bis(2-ethylhexyl)phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
3,3'-Dichlorobenzidine	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Benz(a)anthracene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Chrysene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Di-n-octyl phthalate	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Benzo(b)fluoranthene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Benzo(k)fluoranthene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Benzo(a)pyrene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Dibenz(a,h)anthracene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Indeno(1,2,3-cd)pyrene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Benzo(g,h,i)perylene	ND	260		µg/Kg-dry	1	9/6/2013 11:51:00 AM
Surr: 2-Fluorophenol	73.3	21-102		%REC	1	9/6/2013 11:51:00 AM
Surr: Phenol-d5	73.2	25-106		%REC	1	9/6/2013 11:51:00 AM
Surr: Nitrobenzene-d5	73.5	19-107		%REC	1	9/6/2013 11:51:00 AM
Surr: 2-Fluorobiphenyl	75.1	26-100		%REC	1	9/6/2013 11:51:00 AM
Surr: 2,4,6-Tribromophenol	85.5	33-117		%REC	1	9/6/2013 11:51:00 AM
Surr: 4-Terphenyl-d14	100	40-116		%REC	1	9/6/2013 11:51:00 AM

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: **MB-23520** Batch ID: **23520** Test Code: **SW8270C** Units: **µg/Kg** Analysis Date **9/4/2013 3:36:00 PM** Prep Date: **9/4/2013**
 Client ID: Run ID: **SV-4_130904A** SeqNo: **861219**

Analys	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Phenol	ND	250	µg/Kg									
Bis(2-chloroethyl)ether	ND	250	µg/Kg									
2-Chlorophenol	ND	250	µg/Kg									
1,3-Dichlorobenzene	ND	250	µg/Kg									
1,4-Dichlorobenzene	ND	250	µg/Kg									
Benzyl alcohol	ND	500	µg/Kg									
2-Methylphenol	ND	250	µg/Kg									
1,2-Dichlorobenzene	ND	250	µg/Kg									
Bis(2-chloroisopropyl)ether	ND	250	µg/Kg									
4-Methylphenol	ND	250	µg/Kg									
N-Nitrosodi-n-propylamine	ND	250	µg/Kg									
Hexachloroethane	ND	250	µg/Kg									
Nitrobenzene	ND	250	µg/Kg									
Isophorone	ND	250	µg/Kg									
2,4-Dimethylphenol	ND	250	µg/Kg									
Benzoic acid	ND	500	µg/Kg									
2-Nitrophenol	ND	250	µg/Kg									
Bis(2-chloroethoxy)methane	ND	250	µg/Kg									
2,4-Dichlorophenol	ND	250	µg/Kg									
1,2,4-Trichlorobenzene	ND	250	µg/Kg									
Naphthalene	ND	250	µg/Kg									
4-Chloroaniline	ND	250	µg/Kg									
Hexachlorobutadiene	ND	250	µg/Kg									
4-Chloro-3-methylphenol	ND	500	µg/Kg									
2-Methylnaphthalene	ND	250	µg/Kg									

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Hexachlorocyclopentadiene	ND	250	µg/Kg
2,4,6-Trichlorophenol	ND	250	µg/Kg
2,4,5-Trichlorophenol	ND	250	µg/Kg
2-Chloronaphthalene	ND	250	µg/Kg
2-Nitroaniline	ND	500	µg/Kg
Dimethyl phthalate	ND	250	µg/Kg
2,6-Dinitrotoluene	ND	250	µg/Kg
Acenaphthylene	ND	250	µg/Kg
3-Nitroaniline	ND	500	µg/Kg
4-Nitrophenol	ND	500	µg/Kg
2,4-Dinitrophenol	ND	500	µg/Kg
Acenaphthene	ND	250	µg/Kg
2,4-Dinitrotoluene	ND	250	µg/Kg
Dibenzofuran	ND	250	µg/Kg
Diethyl phthalate	ND	250	µg/Kg
4-Chlorophenyl phenyl ether	ND	250	µg/Kg
Fluorene	ND	250	µg/Kg
4-Nitroaniline	ND	500	µg/Kg
4,6-Dinitro-2-methylphenol	ND	500	µg/Kg
N-Nitrosodiphenylamine	ND	250	µg/Kg
1,2-Diphenylhydrazine (as Azobe	ND	250	µg/Kg
4-Bromophenyl phenyl ether	ND	250	µg/Kg
Hexachlorobenzene	ND	250	µg/Kg
Pentachlorophenol	ND	500	µg/Kg
Phenanthrene	ND	250	µg/Kg
Anthracene	ND	250	µg/Kg
Carbazole	ND	250	µg/Kg
Di-n-butyl phthalate	ND	250	µg/Kg
Fluoranthene	ND	250	µg/Kg
Pyrene	ND	250	µg/Kg
Butyl benzyl phthalate	ND	250	µg/Kg

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.

Work Order: 1309002

Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Bis(2-ethylhexyl)phthalate	ND	250	µg/Kg
3,3'-Dichlorobenzidine	ND	250	µg/Kg
Benz(a)anthracene	ND	250	µg/Kg
Chrysene	ND	250	µg/Kg
Di-n-octyl phthalate	ND	250	µg/Kg
Benzo(b)fluoranthene	ND	250	µg/Kg
Benzo(k)fluoranthene	ND	250	µg/Kg
Benzo(a)pyrene	ND	250	µg/Kg
Dibenz(a,h)anthracene	ND	250	µg/Kg
Indeno(1,2,3-cd)pyrene	ND	250	µg/Kg
Benzo(g,h,i)perylene	ND	250	µg/Kg
Surr: 2-Fluorophenol	2500	50	µg/Kg
Surr: Phenol-d5	2687	50	µg/Kg
Surr: Nitrobenzene-d5	1500	50	µg/Kg
Surr: 2-Fluorobiphenyl	1784	50	µg/Kg
Surr: 2,4,6-Tribromophenol	2689	50	µg/Kg
Surr: 4-Terphenyl-d14	2686	50	µg/Kg

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits	B - Analyte detected in the associated Method Blank
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits	NA - Not applicable where J values or ND results occur
	RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.		

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

QC SUMMARY REPORT

Laboratory Control Spike

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

Sample ID: **LCS-23520** Batch ID: **23520** Test Code: **SW8270C** Units: **µg/Kg** Analysis Date **9/4/2013 4:03:00 PM** Prep Date: **9/4/2013**
 Client ID: Run ID: **SV-4_130904A** SeqNo: **861220**

Analyte	QC Sample Result	RL	QC Spike Amount	Units	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qualifier
Phenol	2422	250	3750	µg/Kg	0	64.6	37	91	0			
Bis(2-chloroethyl)ether	1473	250	2500	µg/Kg	0	58.9	32	87	0			
2-Chlorophenol	2458	250	3750	µg/Kg	0	65.5	35	89	0			
1,3-Dichlorobenzene	1446	250	2500	µg/Kg	0	57.8	30	83	0			
1,4-Dichlorobenzene	1488	250	2500	µg/Kg	0	59.5	31	82	0			
Benzyl alcohol	1732	500	2500	µg/Kg	0	69.3	34	94	0			
2-Methylphenol	2460	250	3750	µg/Kg	0	65.6	38	92	0			
1,2-Dichlorobenzene	1546	250	2500	µg/Kg	0	61.9	31	86	0			
Bis(2-chloroisopropyl)ether	1050	250	2500	µg/Kg	0	42	29	92	0			
4-Methylphenol	3648	250	7500	µg/Kg	0	48.6	39	93	0			
N-Nitrosodi-n-propylamine	1454	250	2500	µg/Kg	0	58.2	36	87	0			
Hexachloroethane	1366	250	2500	µg/Kg	0	54.6	32	85	0			
Nitrobenzene	1410	250	2500	µg/Kg	0	56.4	35	92	0			
Isophorone	1498	250	2500	µg/Kg	0	59.9	36	91	0			
2,4-Dimethylphenol	2448	250	3750	µg/Kg	0	65.3	38	92	0			
Benzoic acid	1242	500	3750	µg/Kg	0	33.1	10	55	0			
2-Nitrophenol	2482	250	3750	µg/Kg	0	66.2	34	94	0			
Bis(2-chloroethoxy)methane	1528	250	2500	µg/Kg	0	61.1	34	93	0			
2,4-Dichlorophenol	2806	250	3750	µg/Kg	0	74.8	38	99	0			
1,2,4-Trichlorobenzene	1732	250	2500	µg/Kg	0	69.3	33	89	0			
Naphthalene	1561	250	2500	µg/Kg	0	62.4	33	90	0			
4-Chloroaniline	1652	250	2500	µg/Kg	0	66.1	32	86	0			
Hexachlorobutadiene	1760	250	2500	µg/Kg	0	70.4	34	93	0			
4-Chloro-3-methylphenol	2877	500	3750	µg/Kg	0	76.7	43	99	0			
2-Methylnaphthalene	1638	250	2500	µg/Kg	0	65.5	36	92	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Hexachlorocyclopentadiene	1392	250	µg/Kg	2500	0	55.7	21	89	0
2,4,6-Trichlorophenol	2994	250	µg/Kg	3750	0	79.9	41	100	0
2,4,5-Trichlorophenol	3256	250	µg/Kg	3750	0	86.8	43	103	0
2-Chloronaphthalene	1785	250	µg/Kg	2500	0	71.4	39	97	0
2-Nitroaniline	1580	500	µg/Kg	2500	0	63.2	46	103	0
Dimethyl phthalate	2043	250	µg/Kg	2500	0	81.7	44	100	0
2,6-Dinitrotoluene	2140	250	µg/Kg	2500	0	85.6	44	106	0
Acenaphthylene	1848	250	µg/Kg	2500	0	73.9	39	93	0
3-Nitroaniline	1930	500	µg/Kg	2500	0	77.2	43	99	0
4-Nitrophenol	2598	500	µg/Kg	3750	0	69.3	40	109	0
2,4-Dinitrophenol	2306	500	µg/Kg	3750	0	61.5	10	107	0
Acenaphthene	1854	250	µg/Kg	2500	0	74.2	40	93	0
2,4-Dinitrotoluene	2150	250	µg/Kg	2500	0	86	47	106	0
Dibenzofuran	2006	250	µg/Kg	2500	0	80.2	43	98	0
Diethyl phthalate	2112	250	µg/Kg	2500	0	84.5	45	103	0
4-Chlorophenyl phenyl ether	2188	250	µg/Kg	2500	0	87.5	42	100	0
Fluorene	1999	250	µg/Kg	2500	0	80	42	98	0
4-Nitroaniline	1968	500	µg/Kg	2500	0	78.7	45	103	0
4,6-Dinitro-2-methylphenol	2819	500	µg/Kg	3750	0	75.2	19	111	0
N-Nitrosodiphenylamine	2018	250	µg/Kg	2500	0	80.7	43	105	0
1,2-Diphenylhydrazine (as Azobe	1394	250	µg/Kg	2500	0	55.8	43	106	0
4-Bromophenyl phenyl ether	2202	250	µg/Kg	2500	0	88.1	42	106	0
Hexachlorobenzene	2252	250	µg/Kg	2500	0	90.1	43	107	0
Pentachlorophenol	2574	500	µg/Kg	3750	0	68.7	32	99	0
Phenanthrene	2109	250	µg/Kg	2500	0	84.4	44	101	0
Anthracene	2074	250	µg/Kg	2500	0	82.9	44	104	0
Carbazole	2118	250	µg/Kg	2500	0	84.7	46	108	0
Di-n-butyl phthalate	2856	250	µg/Kg	2500	0	114	45	107	0
Fluoranthene	2242	250	µg/Kg	2500	0	89.7	45	107	0
Pyrene	2151	250	µg/Kg	2500	0	86	46	102	0
Butyl benzyl phthalate	1896	250	µg/Kg	2500	0	75.9	44	111	0

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Bis(2-ethylhexyl)phthalate	1982	250	µg/Kg	2500	0	79.3	44	110	0
3,3'-Dichlorobenzidine	1961	250	µg/Kg	2500	0	78.4	40	94	0
Benz(a)anthracene	2162	250	µg/Kg	2500	0	86.5	45	107	0
Chrysene	2160	250	µg/Kg	2500	0	86.4	49	107	0
Di-n-octyl phthalate	1942	250	µg/Kg	2500	0	77.7	47	107	0
Benzo(b)fluoranthene	2360	250	µg/Kg	2500	0	94.4	45	106	0
Benzo(k)fluoranthene	2068	250	µg/Kg	2500	0	82.7	47	106	0
Benzo(a)pyrene	2156	250	µg/Kg	2500	0	86.2	48	106	0
Dibenz(a,h)anthracene	1821	250	µg/Kg	2500	0	72.8	49	105	0
Indeno(1,2,3-cd)pyrene	1847	250	µg/Kg	2500	0	73.9	46	106	0
Benzo(g,h,i)perylene	1829	250	µg/Kg	2500	0	73.2	47	105	0
Surr: 2-Fluorophenol	2464	50	µg/Kg	3750	0	65.7	21	102	0
Surr: Phenol-d5	2520	50	µg/Kg	3750	0	67.2	25	106	0
Surr: Nitrobenzene-d5	1458	50	µg/Kg	2500	0	58.3	19	107	0
Surr: 2-Fluorobiphenyl	1808	50	µg/Kg	2500	0	72.3	26	100	0
Surr: 2,4,6-Tribromophenol	3320	50	µg/Kg	3750	0	88.5	33	117	0
Surr: 4-Terphenyl-d14	2616	50	µg/Kg	2500	0	105	40	116	0

Qualifiers:	ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits	B - Analyte detected in the associated Method Blank
	J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits	NA - Not applicable where J values or ND results occur
	RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.		

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-17A

Client Sample ID: AMR-SB9-COMP
Collection Date: 8/30/2013 12:20:00 PM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SEMIVOLATILES, TCLP LEACHED		SW1311/8270C				Analyst: KAM
Pyridine	ND	0.080		mg/L	1	9/9/2013 12:25:00 PM
Cresols, Total	ND	0.040		mg/L	1	9/9/2013 12:25:00 PM
1,4-Dichlorobenzene	ND	0.040		mg/L	1	9/9/2013 12:25:00 PM
Hexachloroethane	ND	0.040		mg/L	1	9/9/2013 12:25:00 PM
Nitrobenzene	ND	0.040		mg/L	1	9/9/2013 12:25:00 PM
Hexachlorobutadiene	ND	0.040		mg/L	1	9/9/2013 12:25:00 PM
2,4,6-Trichlorophenol	ND	0.040		mg/L	1	9/9/2013 12:25:00 PM
2,4,5-Trichlorophenol	ND	0.040		mg/L	1	9/9/2013 12:25:00 PM
2,4-Dinitrotoluene	ND	0.040		mg/L	1	9/9/2013 12:25:00 PM
Hexachlorobenzene	ND	0.040		mg/L	1	9/9/2013 12:25:00 PM
Pentachlorophenol	ND	0.080		mg/L	1	9/9/2013 12:25:00 PM
Surr: 2-Fluorophenol	54.3	23-65		%REC	1	9/9/2013 12:25:00 PM
Surr: Phenol-d5	33.0	17-44		%REC	1	9/9/2013 12:25:00 PM
Surr: Nitrobenzene-d5	93.7	43-106		%REC	1	9/9/2013 12:25:00 PM
Surr: 2-Fluorobiphenyl	92.2	43-103		%REC	1	9/9/2013 12:25:00 PM
Surr: 2,4,6-Tribromophenol	90.0	49-134		%REC	1	9/9/2013 12:25:00 PM
Surr: 4-Terphenyl-d14	108	52-121		%REC	1	9/9/2013 12:25:00 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.**Client Sample ID:** AMR-SB11-COMP**Lab Order:** 1309002**Collection Date:** 8/30/2013 1:30:00 PM**Project:** 12-152 Crescent Connector**Matrix:** SOIL**Lab ID:** 1309002-18A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SEMIVOLATILES, TCLP LEACHED		SW1311/8270C				Analyst: KAM
Pyridine	ND	0.080		mg/L	1	9/9/2013 12:51:00 PM
Cresols, Total	ND	0.040		mg/L	1	9/9/2013 12:51:00 PM
1,4-Dichlorobenzene	ND	0.040		mg/L	1	9/9/2013 12:51:00 PM
Hexachloroethane	ND	0.040		mg/L	1	9/9/2013 12:51:00 PM
Nitrobenzene	ND	0.040		mg/L	1	9/9/2013 12:51:00 PM
Hexachlorobutadiene	ND	0.040		mg/L	1	9/9/2013 12:51:00 PM
2,4,6-Trichlorophenol	ND	0.040		mg/L	1	9/9/2013 12:51:00 PM
2,4,5-Trichlorophenol	ND	0.040		mg/L	1	9/9/2013 12:51:00 PM
2,4-Dinitrotoluene	ND	0.040		mg/L	1	9/9/2013 12:51:00 PM
Hexachlorobenzene	ND	0.040		mg/L	1	9/9/2013 12:51:00 PM
Pentachlorophenol	ND	0.080		mg/L	1	9/9/2013 12:51:00 PM
Surr: 2-Fluorophenol	50.3	23-65		%REC	1	9/9/2013 12:51:00 PM
Surr: Phenol-d5	30.9	17-44		%REC	1	9/9/2013 12:51:00 PM
Surr: Nitrobenzene-d5	80.5	43-106		%REC	1	9/9/2013 12:51:00 PM
Surr: 2-Fluorobiphenyl	80.8	43-103		%REC	1	9/9/2013 12:51:00 PM
Surr: 2,4,6-Tribromophenol	82.2	49-134		%REC	1	9/9/2013 12:51:00 PM
Surr: 4-Terphenyl-d14	97.5	52-121		%REC	1	9/9/2013 12:51:00 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-19A

Client Sample ID: AMR-SB21-COMP
Collection Date: 8/30/2013 2:20:00 PM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SEMIVOLATILES, TCLP LEACHED		SW1311/8270C				Analyst: KAM
Pyridine	ND	0.080		mg/L	1	9/9/2013 1:43:00 PM
Cresols, Total	ND	0.040		mg/L	1	9/9/2013 1:43:00 PM
1,4-Dichlorobenzene	ND	0.040		mg/L	1	9/9/2013 1:43:00 PM
Hexachloroethane	ND	0.040		mg/L	1	9/9/2013 1:43:00 PM
Nitrobenzene	ND	0.040		mg/L	1	9/9/2013 1:43:00 PM
Hexachlorobutadiene	ND	0.040		mg/L	1	9/9/2013 1:43:00 PM
2,4,6-Trichlorophenol	ND	0.040		mg/L	1	9/9/2013 1:43:00 PM
2,4,5-Trichlorophenol	ND	0.040		mg/L	1	9/9/2013 1:43:00 PM
2,4-Dinitrotoluene	ND	0.040		mg/L	1	9/9/2013 1:43:00 PM
Hexachlorobenzene	ND	0.040		mg/L	1	9/9/2013 1:43:00 PM
Pentachlorophenol	ND	0.080		mg/L	1	9/9/2013 1:43:00 PM
Surr: 2-Fluorophenol	58.6	23-65		%REC	1	9/9/2013 1:43:00 PM
Surr: Phenol-d5	34.9	17-44		%REC	1	9/9/2013 1:43:00 PM
Surr: Nitrobenzene-d5	93.4	43-106		%REC	1	9/9/2013 1:43:00 PM
Surr: 2-Fluorobiphenyl	92.3	43-103		%REC	1	9/9/2013 1:43:00 PM
Surr: 2,4,6-Tribromophenol	98.0	49-134		%REC	1	9/9/2013 1:43:00 PM
Surr: 4-Terphenyl-d14	114	52-121		%REC	1	9/9/2013 1:43:00 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Lab Order: 1309002
Project: 12-152 Crescent Connector
Lab ID: 1309002-20A

Client Sample ID: AMR-SB28-COMP
Collection Date: 8/30/2013 3:20:00 PM
Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SEMIVOLATILES, TCLP LEACHED		SW1311/8270C				Analyst: KAM
Pyridine	ND	0.080		mg/L	1	9/9/2013 2:09:00 PM
Cresols, Total	ND	0.040		mg/L	1	9/9/2013 2:09:00 PM
1,4-Dichlorobenzene	ND	0.040		mg/L	1	9/9/2013 2:09:00 PM
Hexachloroethane	ND	0.040		mg/L	1	9/9/2013 2:09:00 PM
Nitrobenzene	ND	0.040		mg/L	1	9/9/2013 2:09:00 PM
Hexachlorobutadiene	ND	0.040		mg/L	1	9/9/2013 2:09:00 PM
2,4,6-Trichlorophenol	ND	0.040		mg/L	1	9/9/2013 2:09:00 PM
2,4,5-Trichlorophenol	ND	0.040		mg/L	1	9/9/2013 2:09:00 PM
2,4-Dinitrotoluene	ND	0.040		mg/L	1	9/9/2013 2:09:00 PM
Hexachlorobenzene	ND	0.040		mg/L	1	9/9/2013 2:09:00 PM
Pentachlorophenol	ND	0.080		mg/L	1	9/9/2013 2:09:00 PM
Surr: 2-Fluorophenol	50.2	23-65		%REC	1	9/9/2013 2:09:00 PM
Surr: Phenol-d5	30.2	17-44		%REC	1	9/9/2013 2:09:00 PM
Surr: Nitrobenzene-d5	76.4	43-106		%REC	1	9/9/2013 2:09:00 PM
Surr: 2-Fluorobiphenyl	74.2	43-103		%REC	1	9/9/2013 2:09:00 PM
Surr: 2,4,6-Tribromophenol	75.3	49-134		%REC	1	9/9/2013 2:09:00 PM
Surr: 4-Terphenyl-d14	88.7	52-121		%REC	1	9/9/2013 2:09:00 PM

AMRO Environmental Laboratories Corp.

Date: 09-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: MB-23528	Batch ID: 23528	Test Code: SW1311/8270	Units: mg/L	Analysis Date: 9/9/2013 11:33:00 AM	Prep Date: 9/6/2013
Client ID:	Run ID: SV-4_130909A	SeqNo: 861656			

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Pyridine	ND	0.080	mg/L									
Cresols, Total	ND	0.040	mg/L									
1,4-Dichlorobenzene	ND	0.040	mg/L									
Hexachloroethane	ND	0.040	mg/L									
Nitrobenzene	ND	0.040	mg/L									
Hexachlorobutadiene	ND	0.040	mg/L									
2,4,6-Trichlorophenol	ND	0.040	mg/L									
2,4,5-Trichlorophenol	ND	0.040	mg/L									
2,4-Dinitrotoluene	ND	0.040	mg/L									
Hexachlorobenzene	ND	0.040	mg/L									
Pentachlorophenol	ND	0.080	mg/L									
Surr: 2-Fluorophenol	0.179	0.0040	mg/L	0.3	0	59.7	23	65	0			
Surr: Phenol-d5	0.1101	0.0040	mg/L	0.3	0	36.7	17	44	0			
Surr: Nitrobenzene-d5	0.1907	0.0040	mg/L	0.2	0	95.4	43	106	0			
Surr: 2-Fluorobiphenyl	0.184	0.0040	mg/L	0.2	0	92	43	103	0			
Surr: 2,4,6-Tribromophenol	0.291	0.0040	mg/L	0.3	0	97	49	134	0			
Surr: 4-Terphenyl-d14	0.2198	0.0040	mg/L	0.2	0	110	52	121	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 09-Sep-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1309002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID: LCS-23528 Batch ID: 23528 Test Code: SW1311/8270 Units: mg/L Analysis Date 9/9/2013 11:59:00 AM Prep Date: 9/6/2013
 Client ID: Run ID: SV-4_130909A SeqNo: 861657

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qualifier
Pyridine	0.1088	0.080	mg/L	0.2	0	54.4	16	70	0			
Cresols, Total	0.4187	0.040	mg/L	0.4	0	105	21	130	0			
1,4-Dichlorobenzene	0.1574	0.040	mg/L	0.2	0	78.7	34	92	0			
Hexachloroethane	0.1564	0.040	mg/L	0.2	0	78.2	21	96	0			
Nitrobenzene	0.1757	0.040	mg/L	0.2	0	87.9	45	104	0			
Hexachlorobutadiene	0.1592	0.040	mg/L	0.2	0	79.6	27	108	0			
2,4,6-Trichlorophenol	0.1808	0.040	mg/L	0.2	0	90.4	38	121	0			
2,4,5-Trichlorophenol	0.1977	0.040	mg/L	0.2	0	98.9	44	112	0			
2,4-Dinitrotoluene	0.1767	0.040	mg/L	0.2	0	88.4	43	113	0			*
Hexachlorobenzene	0.1604	0.040	mg/L	0.2	0	80.2	24	116	0			*
Pentachlorophenol	0.1547	0.080	mg/L	0.2	0	77.3	14	142	0			
Surr: 2-Fluorophenol	0.1665	0.0040	mg/L	0.3	0	55.5	23	65	0			
Surr: Phenol-d5	0.1072	0.0040	mg/L	0.3	0	35.7	17	44	0			
Surr: Nitrobenzene-d5	0.1843	0.0040	mg/L	0.2	0	92.1	43	106	0			
Surr: 2-Fluorobiphenyl	0.18	0.0040	mg/L	0.2	0	90	43	103	0			
Surr: 2,4,6-Tribromophenol	0.2781	0.0040	mg/L	0.3	0	92.7	49	134	0			
Surr: 4-Terphenyl-d14	0.208	0.0040	mg/L	0.2	0	104	52	121	0			

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 09-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 1309002-18AMS		Batch ID: 23528		Test Code: SW1311/8270		Units: mg/L		Analysis Date 9/9/2013 1:17:00 PM		Prep Date: 9/6/2013		
Client ID: AMR-SB11-COMP		Run ID: SV-4_130909A		SeqNo: 861664								
Analyte	QC Sample		RL	Units	QC Spike		Original Sample		Original Sample		RPDLimit	Qua
	Result				Amount	Result	%REC	LowLimit	HighLimit	or MS Result		
Pyridine	0.1		0.080	mg/L	0.2	0	50	16	70	0		
Cresols, Total	0.4308		0.040	mg/L	0.4	0	108	21	130	0		
1,4-Dichlorobenzene	0.1575		0.040	mg/L	0.2	0	78.8	34	92	0		
Hexachloroethane	0.1477		0.040	mg/L	0.2	0	73.8	21	96	0		
Nitrobenzene	0.1747		0.040	mg/L	0.2	0	87.3	45	104	0		
Hexachlorobutadiene	0.1712		0.040	mg/L	0.2	0	85.6	27	108	0		
2,4,6-Trichlorophenol	0.1785		0.040	mg/L	0.2	0	89.3	38	121	0		
2,4,5-Trichlorophenol	0.1939		0.040	mg/L	0.2	0	97	44	112	0		
2,4-Dinitrotoluene	0.172		0.040	mg/L	0.2	0	86	43	113	0		*
Hexachlorobenzene	0.1598		0.040	mg/L	0.2	0	79.9	24	116	0		*
Pentachlorophenol	0.1619		0.080	mg/L	0.2	0	80.9	14	142	0		
Surr: 2-Fluorophenol	0.1686		0.0040	mg/L	0.3	0	56.2	23	65	0		
Surr: Phenol-d5	0.1042		0.0040	mg/L	0.3	0	34.7	17	44	0		
Surr: Nitrobenzene-d5	0.1798		0.0040	mg/L	0.2	0	89.9	43	106	0		
Surr: 2-Fluorobiphenyl	0.1783		0.0040	mg/L	0.2	0	89.1	43	103	0		
Surr: 2,4,6-Tribromophenol	0.2705		0.0040	mg/L	0.3	0	90.2	49	134	0		
Surr: 4-Terphenyl-d14	0.2076		0.0040	mg/L	0.2	0	104	52	121	0		

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-17**Collection Date:** 8/30/2013 12:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB9-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PCBS BY EPA8082		SW8082				Analyst: KAM
Aroclor 1016	ND	54		µg/Kg-dry	1	9/5/2013 4:03:00 PM
Aroclor 1221	ND	54		µg/Kg-dry	1	9/5/2013 4:03:00 PM
Aroclor 1232	ND	54		µg/Kg-dry	1	9/5/2013 4:03:00 PM
Aroclor 1242	ND	54		µg/Kg-dry	1	9/5/2013 4:03:00 PM
Aroclor 1248	ND	54		µg/Kg-dry	1	9/5/2013 4:03:00 PM
Aroclor 1254	ND	54		µg/Kg-dry	1	9/5/2013 4:03:00 PM
Aroclor 1260	ND	54		µg/Kg-dry	1	9/5/2013 4:03:00 PM
Aroclor 1262	ND	54		µg/Kg-dry	1	9/5/2013 4:03:00 PM
Aroclor 1268	ND	54		µg/Kg-dry	1	9/5/2013 4:03:00 PM
Surr: Tetrachloro-m-xylene	81.6	30-150		%REC	1	9/5/2013 4:03:00 PM
Surr: Decachlorobiphenyl	103	30-150		%REC	1	9/5/2013 4:03:00 PM

Lab ID: 1309002-18**Collection Date:** 8/30/2013 1:30:00 PM**Collection Time:****Client Sample ID:** AMR-SB11-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PCBS BY EPA8082		SW8082				Analyst: KAM
Aroclor 1016	ND	54		µg/Kg-dry	1	9/5/2013 4:29:00 PM
Aroclor 1221	ND	54		µg/Kg-dry	1	9/5/2013 4:29:00 PM
Aroclor 1232	ND	54		µg/Kg-dry	1	9/5/2013 4:29:00 PM
Aroclor 1242	ND	54		µg/Kg-dry	1	9/5/2013 4:29:00 PM
Aroclor 1248	ND	54		µg/Kg-dry	1	9/5/2013 4:29:00 PM
Aroclor 1254	ND	54		µg/Kg-dry	1	9/5/2013 4:29:00 PM
Aroclor 1260	ND	54		µg/Kg-dry	1	9/5/2013 4:29:00 PM
Aroclor 1262	ND	54		µg/Kg-dry	1	9/5/2013 4:29:00 PM
Aroclor 1268	ND	54		µg/Kg-dry	1	9/5/2013 4:29:00 PM
Surr: Tetrachloro-m-xylene	83.2	30-150		%REC	1	9/5/2013 4:29:00 PM
Surr: Decachlorobiphenyl	104	30-150		%REC	1	9/5/2013 4:29:00 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-19**Collection Date:** 8/30/2013 2:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB21-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PCBS BY EPA8082		SW8082				Analyst: KAM
Aroclor 1016	ND	50		µg/Kg-dry	1	9/5/2013 4:56:00 PM
Aroclor 1221	ND	50		µg/Kg-dry	1	9/5/2013 4:56:00 PM
Aroclor 1232	ND	50		µg/Kg-dry	1	9/5/2013 4:56:00 PM
Aroclor 1242	ND	50		µg/Kg-dry	1	9/5/2013 4:56:00 PM
Aroclor 1248	ND	50		µg/Kg-dry	1	9/5/2013 4:56:00 PM
Aroclor 1254	ND	50		µg/Kg-dry	1	9/5/2013 4:56:00 PM
Aroclor 1260	ND	50		µg/Kg-dry	1	9/5/2013 4:56:00 PM
Aroclor 1262	ND	50		µg/Kg-dry	1	9/5/2013 4:56:00 PM
Aroclor 1268	ND	50		µg/Kg-dry	1	9/5/2013 4:56:00 PM
Surr: Tetrachloro-m-xylene	85.3	30-150		%REC	1	9/5/2013 4:56:00 PM
Surr: Decachlorobiphenyl	101	30-150		%REC	1	9/5/2013 4:56:00 PM

Lab ID: 1309002-20**Collection Date:** 8/30/2013 3:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB28-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PCBS BY EPA8082		SW8082				Analyst: KAM
Aroclor 1016	ND	52		µg/Kg-dry	1	9/5/2013 5:22:00 PM
Aroclor 1221	ND	52		µg/Kg-dry	1	9/5/2013 5:22:00 PM
Aroclor 1232	ND	52		µg/Kg-dry	1	9/5/2013 5:22:00 PM
Aroclor 1242	ND	52		µg/Kg-dry	1	9/5/2013 5:22:00 PM
Aroclor 1248	ND	52		µg/Kg-dry	1	9/5/2013 5:22:00 PM
Aroclor 1254	ND	52		µg/Kg-dry	1	9/5/2013 5:22:00 PM
Aroclor 1260	ND	52		µg/Kg-dry	1	9/5/2013 5:22:00 PM
Aroclor 1262	ND	52		µg/Kg-dry	1	9/5/2013 5:22:00 PM
Aroclor 1268	ND	52		µg/Kg-dry	1	9/5/2013 5:22:00 PM
Surr: Tetrachloro-m-xylene	107	30-150		%REC	1	9/5/2013 5:22:00 PM
Surr: Decachlorobiphenyl	103	30-150		%REC	1	9/5/2013 5:22:00 PM

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: MB-23522	Batch ID: 23522	Test Code: SW8082	Units: µg/Kg	Analysis Date 9/5/2013 2:44:00 PM	Prep Date: 9/4/2013						
Client ID:		Run ID: GC-ELVIS_130905A		SeqNo: 861436							
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	HighLimit	LowLimit	%REC	%RPD	RPDLimit	QC
Aroclor 1016	ND	50	µg/Kg								
Aroclor 1221	ND	50	µg/Kg								
Aroclor 1232	ND	50	µg/Kg								
Aroclor 1242	ND	50	µg/Kg								
Aroclor 1248	ND	50	µg/Kg								
Aroclor 1254	ND	50	µg/Kg								
Aroclor 1260	ND	50	µg/Kg								
Aroclor 1262	ND	50	µg/Kg								
Aroclor 1268	ND	50	µg/Kg								
Surr: Tetrachloro-m-xylene	17.01	0	µg/Kg	16	0	106	30	150	0		
Surr: Decachlorobiphenyl	18.19	0	µg/Kg	16	0	114	30	150	0		

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID: LCS-23522	Batch ID: 23522	Test Code: SW8082	Units: µg/Kg	Analysis Date 9/5/2013 3:10:00 PM	Prep Date: 9/4/2013							
Client ID:		Run ID: GC-ELVIS_130905A		SeqNo: 861437								
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Que
Aroclor 1016	874.7	50	µg/Kg	1000	0	87.5	70.9	125	0			
Aroclor 1260	930.8	50	µg/Kg	1000	0	93.1	60.1	126	0			
Surr: Tetrachloro-m-xylene	17.41	0	µg/Kg	16	0	109	30	150	0			
Surr: Decachlorobiphenyl	18.16	0	µg/Kg	16	0	113	30	150	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 06-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 1309002-20AMS		Batch ID: 23522	Test Code: SW8082		Units: µg/Kg-dry		Analysis Date 9/5/2013 5:49:00 PM		Prep Date: 9/4/2013			
Client ID: AMR-SB28-COMP			Run ID: GC-ELVIS_130905A				SeqNo: 861443					
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	QC Sample Result
Aroclor 1016	1002	52	µg/Kg-dry	1045	0	95.8	70.9	125	0			
Aroclor 1260	979	52	µg/Kg-dry	1045	0	93.7	60.1	126	0			
Surr: Tetrachloro-m-xylene	18.92	0	µg/Kg-dry	16.72	0	113	54.6	143	0			
Surr: Decachlorobiphenyl	16.94	0	µg/Kg-dry	16.72	0	101	45.7	157	0			

Sample ID: 1309002-20AMSD		Batch ID: 23522		Test Code: SW8082		Units: µg/Kg-dry		Analysis Date 9/5/2013 6:15:00 PM		Prep Date: 9/4/2013	
Client ID: AMR-SB28-COMP				Run ID: GC-ELVIS_130905A				SeqNo: 861444			
Analyte	QC Sample		QC Spike		Original Sample		Original Sample		QC		
	Result	RL	Units	Amount	Result	%REC	LowLimit	HighLimit	or MS Result	%RPD	RPDLimit
	948.8	51	µg/Kg-dry	1018	0	93.2	70.9	125	1002	5.42	50
	945	51	µg/Kg-dry	1018	0	92.8	60.1	126	979	3.54	50
	17.93	0	µg/Kg-dry	16.29	0	110	54.6	143	0	0	0
Surr: Tetrachloro-m-xylene	16.31	0	µg/Kg-dry	16.29	0	100	45.7	157	0	0	0
Surr: Decachlorobiphenyl											

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-17**Collection Date:** 8/30/2013 12:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB9-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PESTICIDES, TCLP LEACHED		SW1311/8081A				Analyst: KAM
Chlordane	ND	0.00080		mg/L	1	9/10/2013 2:55:00 PM
Endrin	ND	0.000051		mg/L	1	9/10/2013 2:55:00 PM
gamma-BHC	ND	0.000026		mg/L	1	9/10/2013 2:55:00 PM
Heptachlor	ND	0.000026		mg/L	1	9/10/2013 2:55:00 PM
Heptachlor epoxide	ND	0.000026		mg/L	1	9/10/2013 2:55:00 PM
Methoxychlor	ND	0.00026		mg/L	1	9/10/2013 2:55:00 PM
Toxaphene	ND	0.00080		mg/L	1	9/10/2013 2:55:00 PM
Surr: Decachlorobiphenyl	85.3	52-150		%REC	1	9/10/2013 2:55:00 PM
Surr: Tetrachloro-m-xylene	61.3	38-119		%REC	1	9/10/2013 2:55:00 PM

Lab ID: 1309002-18**Collection Date:** 8/30/2013 1:30:00 PM**Collection Time:****Client Sample ID:** AMR-SB11-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PESTICIDES, TCLP LEACHED		SW1311/8081A				Analyst: KAM
Chlordane	ND	0.00080		mg/L	1	9/10/2013 3:40:00 PM
Endrin	ND	0.000051		mg/L	1	9/10/2013 3:40:00 PM
gamma-BHC	ND	0.000026		mg/L	1	9/10/2013 3:40:00 PM
Heptachlor	ND	0.000026		mg/L	1	9/10/2013 3:40:00 PM
Heptachlor epoxide	ND	0.000026		mg/L	1	9/10/2013 3:40:00 PM
Methoxychlor	ND	0.00026		mg/L	1	9/10/2013 3:40:00 PM
Toxaphene	ND	0.00080		mg/L	1	9/10/2013 3:40:00 PM
Surr: Decachlorobiphenyl	82.7	52-150		%REC	1	9/10/2013 3:40:00 PM
Surr: Tetrachloro-m-xylene	63.6	38-119		%REC	1	9/10/2013 3:40:00 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-19**Collection Date:** 8/30/2013 2:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB21-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PESTICIDES, TCLP LEACHED		SW1311/8081A				Analyst: KAM
Chlordane	ND	0.00080		mg/L	1	9/10/2013 4:02:00 PM
Endrin	ND	0.000051		mg/L	1	9/10/2013 4:02:00 PM
gamma-BHC	ND	0.000026		mg/L	1	9/10/2013 4:02:00 PM
Heptachlor	ND	0.000026		mg/L	1	9/10/2013 4:02:00 PM
Heptachlor epoxide	ND	0.000026		mg/L	1	9/10/2013 4:02:00 PM
Methoxychlor	ND	0.00026		mg/L	1	9/10/2013 4:02:00 PM
Toxaphene	ND	0.00080		mg/L	1	9/10/2013 4:02:00 PM
Surr: Decachlorobiphenyl	86.3	52-150		%REC	1	9/10/2013 4:02:00 PM
Surr: Tetrachloro-m-xylene	63.6	38-119		%REC	1	9/10/2013 4:02:00 PM

Lab ID: 1309002-20**Collection Date:** 8/30/2013 3:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB28-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PESTICIDES, TCLP LEACHED		SW1311/8081A				Analyst: KAM
Chlordane	ND	0.00080		mg/L	1	9/10/2013 4:24:00 PM
Endrin	ND	0.000051		mg/L	1	9/10/2013 4:24:00 PM
gamma-BHC	ND	0.000026		mg/L	1	9/10/2013 4:24:00 PM
Heptachlor	ND	0.000026		mg/L	1	9/10/2013 4:24:00 PM
Heptachlor epoxide	ND	0.000026		mg/L	1	9/10/2013 4:24:00 PM
Methoxychlor	ND	0.00026		mg/L	1	9/10/2013 4:24:00 PM
Toxaphene	ND	0.00080		mg/L	1	9/10/2013 4:24:00 PM
Surr: Decachlorobiphenyl	88.6	52-150		%REC	1	9/10/2013 4:24:00 PM
Surr: Tetrachloro-m-xylene	67.8	38-119		%REC	1	9/10/2013 4:24:00 PM

AMRO Environmental Laboratories Corp.

Date: 11-Sep-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1309002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID: MB-23530 Batch ID: 23530 Test Code: SW1311/8081 Units: mg/L Analysis Date 9/10/2013 2:11:00 PM Prep Date: 9/10/2013
 Client ID: Run ID: GC-FING2_130910A SeqNo: 862082

Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qua
Chlordane	ND	0.00080	mg/L									
Endrin	ND	0.000051	mg/L									
gamma-BHC	ND	0.000026	mg/L									
Heptachlor	ND	0.000026	mg/L									
Heptachlor epoxide	ND	0.000026	mg/L									
Methoxychlor	ND	0.00026	mg/L									
Toxaphene	ND	0.00080	mg/L									
Surr: Decachlorobiphenyl	0.0002229	0	mg/L	0.000256	0	87.1	52	150	0			
Surr: Tetrachloro-m-xylene	0.0001563	0	mg/L	0.000256	0	61.1	38	119	0			

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
 RL - Reporting Limit, defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 11-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID: LCS-23530		Batch ID: 23530		Test Code: SW1311/8081		Units: mg/L		Analysis Date 9/10/2013 2:33:00 PM		Prep Date: 9/10/2013	
Client ID:		Run ID:		GC-FING2_130910A		SeqNo: 862083					
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	QC
Endrin	0.0002875	0.000051	mg/L	0.00032	0	89.8	42	150	0		
gamma-BHC	0.0002666	0.000026	mg/L	0.00032	0	83.3	42	150	0		
Heptachlor	0.0002566	0.000026	mg/L	0.00032	0	80.2	33	134	0		
Heptachlor epoxide	0.0002675	0.000026	mg/L	0.00032	0	83.6	47	142	0		
Methoxychlor	0.0003285	0.000026	mg/L	0.00032	0	103	52	150	0		
Surr: Decachlorobiphenyl	0.0002386	0	mg/L	0.000256	0	93.2	34	135	0		
Surr: Tetrachloro-m-xylene	0.000165	0	mg/L	0.000256	0	64.4	37	129	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 11-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: 1309002-17AMS		Batch ID: 23530		Test Code: SW1311/8081		Units: mg/L		Analysis Date 9/10/2013 3:17:00 PM		Prep Date: 9/10/2013	
Client ID: AMR-SB9-COMP				Run ID: GC-FING2_130910A				SeqNo: 862085			
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit
Endrin	0.0002834	0.000051	mg/L	0.00032	0	88.6	42	150	0		
gamma-BHC	0.0002486	0.000026	mg/L	0.00032	0	77.7	42	150	0		
Heptachlor	0.0002434	0.000026	mg/L	0.00032	0	76.1	33	134	0		
Heptachlor epoxide	0.0002612	0.000026	mg/L	0.00032	0	81.6	47	142	0		
Methoxychlor	0.0003063	0.000026	mg/L	0.00032	0	95.7	52	150	0		
Surr: Decachlorobiphenyl	0.000219	0	mg/L	0.000256	0	85.6	34	135	0		
Surr: Tetrachloro-m-xylene	0.000162	0	mg/L	0.000256	0	63.3	37	129	0		

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit: defined as the lowest concentration the laboratory can accurately quantitate.
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-01**Collection Date:** 8/30/2013 11:46:00 AM**Collection Time:****Client Sample ID:** AMR-SB34-1.5**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B		Analyst: AL		
Arsenic	14.2	6.97		mg/Kg-dry	1	9/5/2013 8:40:54 PM
Barium	115	13.9		mg/Kg-dry	1	9/5/2013 8:40:54 PM
Cadmium	1.41	0.697		mg/Kg-dry	1	9/5/2013 8:40:54 PM
Chromium	18.6	1.39		mg/Kg-dry	1	9/5/2013 8:40:54 PM
Lead	663	5.58		mg/Kg-dry	1	9/5/2013 8:40:54 PM
Silver	ND	1.95		mg/Kg-dry	1	9/5/2013 8:40:54 PM
MERCURY, 7471A		SW7471A		Analyst: AL		
Mercury	0.334	0.0539		mg/Kg-dry	1	9/10/2013 8:44:13 PM
PERCENT MOISTURE		D2216		Analyst: NS		
Percent Moisture	11.0	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740		Analyst: REB		
Selenium	ND	2.8		mg/Kg-dry	2	9/12/2013 11:05:17 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-02**Collection Date:** 8/30/2013 1:00:00 PM**Collection Time:****Client Sample ID:** AMR-SB38-2.0**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	25.2	13.8		mg/Kg-dry	1	9/5/2013 9:23:50 PM
Cadmium	0.993	0.690		mg/Kg-dry	1	9/5/2013 9:23:50 PM
Chromium	17.7	1.38		mg/Kg-dry	1	9/5/2013 9:23:50 PM
Lead	66.5	5.52		mg/Kg-dry	1	9/5/2013 9:23:50 PM
Silver	ND	1.93		mg/Kg-dry	1	9/5/2013 9:23:50 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	4.57	1.38		mg/Kg-dry	1	9/6/2013 1:16:54 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	ND	0.0539		mg/Kg-dry	1	9/10/2013 8:57:18 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	10.5	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.4		mg/Kg-dry	1	9/12/2013 11:26:27 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-03**Collection Date:** 8/30/2013 1:00:00 PM**Collection Time:****Client Sample ID:** AMR-SB38-2.0-FD**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	19.2	13.0		mg/Kg-dry	1	9/5/2013 9:29:56 PM
Cadmium	0.877	0.652		mg/Kg-dry	1	9/5/2013 9:29:56 PM
Chromium	14.9	1.30		mg/Kg-dry	1	9/5/2013 9:29:56 PM
Lead	78.9	5.22		mg/Kg-dry	1	9/5/2013 9:29:56 PM
Silver	ND	1.83		mg/Kg-dry	1	9/5/2013 9:29:56 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	5.62	1.30		mg/Kg-dry	1	9/6/2013 1:22:34 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	ND	0.0542		mg/Kg-dry	1	9/10/2013 9:00:35 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	12.3	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.3		mg/Kg-dry	1	9/12/2013 11:50:54 AM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-04**Collection Date:** 8/30/2013 2:15:00 PM**Collection Time:****Client Sample ID:** AMR-SB45-1.5**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS TOTAL SW-846 - 3051/6010**SW6010B****Analyst: AL**

Barium	37.6	12.4		mg/Kg-dry	1	9/5/2013 9:36:04 PM
Cadmium	0.811	0.620		mg/Kg-dry	1	9/5/2013 9:36:04 PM
Chromium	14.5	1.24		mg/Kg-dry	1	9/5/2013 9:36:04 PM
Lead	102	4.96		mg/Kg-dry	1	9/5/2013 9:36:04 PM
Silver	ND	1.74		mg/Kg-dry	1	9/5/2013 9:36:04 PM

ARSENIC, SOIL 3051/7060**SW7060A****Analyst: REB**

Arsenic	5.53	1.24		mg/Kg-dry	1	9/6/2013 1:28:14 PM
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MERCURY, 7471A**SW7471A****Analyst: AL**

Mercury	ND	0.0500		mg/Kg-dry	1	9/10/2013 9:03:53 PM
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PERCENT MOISTURE**D2216****Analyst: NS**

Percent Moisture	4.9	0		wt%	1	9/5/2013
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SELENIUM, SOIL 3051/7740**SW7740****Analyst: REB**

Selenium	ND	1.2		mg/Kg-dry	1	9/12/2013 11:56:55 AM
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AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-05**Collection Date:** 8/30/2013 3:00:00 PM**Collection Time:****Client Sample ID:** AMR-SB47-2.0**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B			Analyst: AL	
Barium	14.9	12.7		mg/Kg-dry	1	9/5/2013 9:42:12 PM
Cadmium	0.790	0.636		mg/Kg-dry	1	9/5/2013 9:42:12 PM
Chromium	13.3	1.27		mg/Kg-dry	1	9/5/2013 9:42:12 PM
Lead	ND	5.09		mg/Kg-dry	1	9/5/2013 9:42:12 PM
Silver	ND	1.78		mg/Kg-dry	1	9/5/2013 9:42:12 PM
ARSENIC, SOIL 3051/7060		SW7060A			Analyst: REB	
Arsenic	5.23	1.27		mg/Kg-dry	1	9/6/2013 1:33:53 PM
MERCURY, 7471A		SW7471A			Analyst: AL	
Mercury	ND	0.0512		mg/Kg-dry	1	9/10/2013 9:07:11 PM
PERCENT MOISTURE		D2216			Analyst: NS	
Percent Moisture	3.6	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740			Analyst: REB	
Selenium	ND	1.3		mg/Kg-dry	1	9/12/2013 12:15:21 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-06**Collection Date:** 8/30/2013 11:55:00 AM**Collection Time:****Client Sample ID:** AMR-SB35-1.5**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Arsenic	14.1	6.78		mg/Kg-dry	1	9/5/2013 9:48:20 PM
Barium	61.3	13.6		mg/Kg-dry	1	9/5/2013 9:48:20 PM
Cadmium	1.00	0.678		mg/Kg-dry	1	9/5/2013 9:48:20 PM
Chromium	16.1	1.36		mg/Kg-dry	1	9/5/2013 9:48:20 PM
Lead	333	5.43		mg/Kg-dry	1	9/5/2013 9:48:20 PM
Silver	ND	1.90		mg/Kg-dry	1	9/5/2013 9:48:20 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	0.413	0.0559		mg/Kg-dry	1	9/10/2013 9:10:29 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	11.6	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	1.5	1.4		mg/Kg-dry	1	9/12/2013 12:33:23 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-07**Collection Date:** 8/30/2013 12:05:00 PM**Collection Time:****Client Sample ID:** AMR-SB36-2.0**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B			Analyst: AL	
Barium	13.2	12.3		mg/Kg-dry	1	9/5/2013 9:54:29 PM
Cadmium	0.712	0.616		mg/Kg-dry	1	9/5/2013 9:54:29 PM
Chromium	7.66	1.23		mg/Kg-dry	1	9/5/2013 9:54:29 PM
Lead	ND	4.93		mg/Kg-dry	1	9/5/2013 9:54:29 PM
Silver	ND	1.73		mg/Kg-dry	1	9/5/2013 9:54:29 PM
ARSENIC, SOIL 3051/7060		SW7060A			Analyst: REB	
Arsenic	3.60	1.23		mg/Kg-dry	1	9/6/2013 1:56:32 PM
MERCURY, 7471A		SW7471A			Analyst: AL	
Mercury	ND	0.0511		mg/Kg-dry	1	9/10/2013 9:13:49 PM
PERCENT MOISTURE		D2216			Analyst: NS	
Percent Moisture	5.2	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740			Analyst: REB	
Selenium	ND	1.2		mg/Kg-dry	1	9/12/2013 12:57:29 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-08**Collection Date:** 8/30/2013 12:12:00 PM**Collection Time:****Client Sample ID:** AMR-SB37-2.0**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	17.3	12.6		mg/Kg-dry	1	9/5/2013 10:00:38 PM
Cadmium	0.711	0.628		mg/Kg-dry	1	9/5/2013 10:00:38 PM
Chromium	11.2	1.26		mg/Kg-dry	1	9/5/2013 10:00:38 PM
Lead	ND	5.03		mg/Kg-dry	1	9/5/2013 10:00:38 PM
Silver	ND	1.76		mg/Kg-dry	1	9/5/2013 10:00:38 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	5.28	1.26		mg/Kg-dry	1	9/6/2013 2:02:40 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	ND	0.0518		mg/Kg-dry	1	9/10/2013 9:23:42 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	6.8	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.3		mg/Kg-dry	1	9/12/2013 1:15:52 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-09**Collection Date:** 8/30/2013 1:12:00 PM**Collection Time:****Client Sample ID:** AMR-SB39-1.5**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	36.5	12.7		mg/Kg-dry	1	9/5/2013 10:20:15 PM
Cadmium	0.726	0.637		mg/Kg-dry	1	9/5/2013 10:20:15 PM
Chromium	18.1	1.27		mg/Kg-dry	1	9/5/2013 10:20:15 PM
Lead	273	5.10		mg/Kg-dry	1	9/5/2013 10:20:15 PM
Silver	ND	1.78		mg/Kg-dry	1	9/5/2013 10:20:15 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	10.3	2.55		mg/Kg-dry	2	9/6/2013 2:11:09 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	0.193	0.0533		mg/Kg-dry	1	9/10/2013 9:26:59 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	8.5	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.3		mg/Kg-dry	1	9/12/2013 1:22:16 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-10**Collection Date:** 8/30/2013 1:18:00 PM**Collection Time:****Client Sample ID:** AMR-SB40-1.2**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B		Analyst: AL		
Barium	19.6	13.3		mg/Kg-dry	1	9/5/2013 10:26:25 PM
Cadmium	0.707	0.666		mg/Kg-dry	1	9/5/2013 10:26:25 PM
Chromium	14.4	1.33		mg/Kg-dry	1	9/5/2013 10:26:25 PM
Lead	58.3	5.33		mg/Kg-dry	1	9/5/2013 10:26:25 PM
Silver	ND	1.87		mg/Kg-dry	1	9/5/2013 10:26:25 PM
ARSENIC, SOIL 3051/7060		SW7060A		Analyst: REB		
Arsenic	5.16	1.33		mg/Kg-dry	1	9/6/2013 2:16:50 PM
MERCURY, 7471A		SW7471A		Analyst: AL		
Mercury	ND	0.0536		mg/Kg-dry	1	9/10/2013 9:30:13 PM
PERCENT MOISTURE		D2216		Analyst: NS		
Percent Moisture	9.6	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740		Analyst: REB		
Selenium	ND	1.3		mg/Kg-dry	1	9/12/2013 1:41:01 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-11**Collection Date:** 8/30/2013 1:25:00 PM**Collection Time:****Client Sample ID:** AMR-SB41-1.1**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Arsenic	532	6.54		mg/Kg-dry	1	9/5/2013 10:32:35 PM
Barium	79.0	13.1		mg/Kg-dry	1	9/5/2013 10:32:35 PM
Cadmium	0.910	0.654		mg/Kg-dry	1	9/5/2013 10:32:35 PM
Chromium	17.5	1.31		mg/Kg-dry	1	9/5/2013 10:32:35 PM
Lead	964	5.23		mg/Kg-dry	1	9/5/2013 10:32:35 PM
Silver	ND	1.83		mg/Kg-dry	1	9/5/2013 10:32:35 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	0.266	0.0548		mg/Kg-dry	1	9/10/2013 9:33:26 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	9.4	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	3.7	1.3	MSA	mg/Kg-dry	1	9/12/2013 2:08:08 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-12**Collection Date:** 8/30/2013 1:50:00 PM**Collection Time:****Client Sample ID:** AMR-SB42-1.5**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	62.2	13.8		mg/Kg-dry	1	9/5/2013 10:38:14 PM
Cadmium	1.11	0.692		mg/Kg-dry	1	9/5/2013 10:38:14 PM
Chromium	25.7	1.38		mg/Kg-dry	1	9/5/2013 10:38:14 PM
Lead	205	5.54		mg/Kg-dry	1	9/5/2013 10:38:14 PM
Silver	ND	1.94		mg/Kg-dry	1	9/5/2013 10:38:14 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	14.9	5.54		mg/Kg-dry	4	9/6/2013 2:28:06 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	0.103	0.0558		mg/Kg-dry	1	9/10/2013 9:36:40 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	14.4	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.4		mg/Kg-dry	1	9/12/2013 2:26:32 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-13**Collection Date:** 8/30/2013 2:00:00 PM**Collection Time:****Client Sample ID:** AMR-SB43-1.0**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	39.0	12.7		mg/Kg-dry	1	9/5/2013 10:44:36 PM
Cadmium	0.846	0.634		mg/Kg-dry	1	9/5/2013 10:44:36 PM
Chromium	20.7	1.27		mg/Kg-dry	1	9/5/2013 10:44:36 PM
Lead	260	5.08		mg/Kg-dry	1	9/5/2013 10:44:36 PM
Silver	ND	1.78		mg/Kg-dry	1	9/5/2013 10:44:36 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	13.0	5.08		mg/Kg-dry	4	9/6/2013 2:48:18 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	0.109	0.0523		mg/Kg-dry	1	9/10/2013 9:39:54 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	9.0	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	1.4	1.3		mg/Kg-dry	1	9/12/2013 2:32:33 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-14**Collection Date:** 8/30/2013 2:05:00 PM**Collection Time:****Client Sample ID:** AMR-SB44-1.0**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	66.5	14.3		mg/Kg-dry	1	9/5/2013 10:50:49 PM
Cadmium	1.19	0.716		mg/Kg-dry	1	9/5/2013 10:50:49 PM
Chromium	17.5	1.43		mg/Kg-dry	1	9/5/2013 10:50:49 PM
Lead	296	5.73		mg/Kg-dry	1	9/5/2013 10:50:49 PM
Silver	ND	2.01		mg/Kg-dry	1	9/5/2013 10:50:49 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	16.2	5.73		mg/Kg-dry	4	9/6/2013 2:59:34 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	0.111	0.0556		mg/Kg-dry	1	9/10/2013 9:43:10 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	15.1	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.4		mg/Kg-dry	1	9/12/2013 2:50:59 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-15**Collection Date:** 8/30/2013 2:48:00 PM**Collection Time:****Client Sample ID:** AMR-SB46-2.0**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	22.1	12.7		mg/Kg-dry	1	9/5/2013 10:57:03 PM
Cadmium	0.641	0.636		mg/Kg-dry	1	9/5/2013 10:57:03 PM
Chromium	8.68	1.27		mg/Kg-dry	1	9/5/2013 10:57:03 PM
Lead	7.52	5.09		mg/Kg-dry	1	9/5/2013 10:57:03 PM
Silver	ND	1.78		mg/Kg-dry	1	9/5/2013 10:57:03 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	5.83	2.54		mg/Kg-dry	2	9/6/2013 3:08:24 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	ND	0.0494		mg/Kg-dry	1	9/10/2013 9:46:26 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	6.4	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.3		mg/Kg-dry	1	9/12/2013 3:24:04 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-16**Collection Date:** 8/30/2013 3:10:00 PM**Collection Time:****Client Sample ID:** AMR-SB48-1.5**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	ND	12.6		mg/Kg-dry	1	9/5/2013 11:03:10 PM
Cadmium	ND	0.628		mg/Kg-dry	1	9/5/2013 11:03:10 PM
Chromium	10.4	1.26		mg/Kg-dry	1	9/5/2013 11:03:10 PM
Lead	ND	5.03		mg/Kg-dry	1	9/5/2013 11:03:10 PM
Silver	ND	1.76		mg/Kg-dry	1	9/5/2013 11:03:10 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	4.72	1.26		mg/Kg-dry	1	9/6/2013 3:14:04 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	ND	0.0502		mg/Kg-dry	1	9/10/2013 9:49:42 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	5.7	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.3		mg/Kg-dry	1	9/12/2013 3:42:09 PM

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-17**Collection Date:** 8/30/2013 12:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB9-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS, TCLP		SW1311/6010B				Analyst: AL
Arsenic	ND	0.25		mg/L	1	9/5/2013 11:47:35 PM
Barium	ND	4.0		mg/L	1	9/5/2013 11:47:35 PM
Cadmium	ND	0.050		mg/L	1	9/5/2013 11:47:35 PM
Chromium	ND	0.10		mg/L	1	9/5/2013 11:47:35 PM
Lead	ND	0.25		mg/L	1	9/5/2013 11:47:35 PM
Selenium	ND	0.85		mg/L	1	9/5/2013 11:47:35 PM
Silver	ND	0.070		mg/L	1	9/10/2013 4:07:17 PM
MERCURY, TCLP		SW7470				Analyst: AL
Mercury	ND	0.00100		mg/L	1	9/11/2013 5:08:25 PM
FLASH POINT / IGNITABILITY		SW1010				Analyst: AL
Ignitability	>200	0		°F	1	9/12/2013
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	7.8	0		wt%	1	9/5/2013

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-18**Collection Date:** 8/30/2013 1:30:00 PM**Collection Time:****Client Sample ID:** AMR-SB11-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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ICP METALS, TCLP**SW1311/6010B****Analyst: AL**

Arsenic	ND	0.25		mg/L	1	9/6/2013 12:16:29 AM
Barium	ND	4.0		mg/L	1	9/6/2013 12:16:29 AM
Cadmium	ND	0.050		mg/L	1	9/6/2013 12:16:29 AM
Chromium	ND	0.10		mg/L	1	9/6/2013 12:16:29 AM
Lead	ND	0.25		mg/L	1	9/6/2013 12:16:29 AM
Selenium	ND	0.85		mg/L	1	9/6/2013 12:16:29 AM
Silver	ND	0.070		mg/L	1	9/10/2013 4:50:42 PM

MERCURY, TCLP**SW7470****Analyst: AL**

Mercury	ND	0.00100		mg/L	1	9/11/2013 5:24:33 PM
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FLASH POINT / IGNITABILITY**SW1010****Analyst: AL**

Ignitability	>200	0		°F	1	9/12/2013
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PERCENT MOISTURE**D2216****Analyst: NS**

Percent Moisture	8.1	0		wt%	1	9/5/2013
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AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-19**Collection Date:** 8/30/2013 2:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB21-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS, TCLP		SW1311/6010B				Analyst: AL
Arsenic	ND	0.25		mg/L	1	9/6/2013 12:22:30 AM
Barium	ND	4.0		mg/L	1	9/6/2013 12:22:30 AM
Cadmium	ND	0.050		mg/L	1	9/6/2013 12:22:30 AM
Chromium	ND	0.10		mg/L	1	9/6/2013 12:22:30 AM
Lead	ND	0.25		mg/L	1	9/6/2013 12:22:30 AM
Selenium	ND	0.85		mg/L	1	9/6/2013 12:22:30 AM
Silver	ND	0.070		mg/L	1	9/10/2013 4:56:41 PM
MERCURY, TCLP		SW7470				Analyst: AL
Mercury	ND	0.00100		mg/L	1	9/11/2013 5:28:36 PM
FLASH POINT / IGNITABILITY		SW1010				Analyst: AL
Ignitability	>200	0		°F	1	9/12/2013
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	0.2	0		wt%	1	9/5/2013

AMRO Environmental Laboratories Corp.

Date: 16-Sep-13

CLIENT: Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-20**Collection Date:** 8/30/2013 3:20:00 PM**Collection Time:****Client Sample ID:** AMR-SB28-COMP**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS, TCLP		SW1311/6010B				Analyst: AL
Arsenic	ND	0.25		mg/L	1	9/6/2013 12:41:58 AM
Barium	ND	4.0		mg/L	1	9/6/2013 12:41:58 AM
Cadmium	ND	0.050		mg/L	1	9/6/2013 12:41:58 AM
Chromium	ND	0.10		mg/L	1	9/6/2013 12:41:58 AM
Lead	ND	0.25		mg/L	1	9/6/2013 12:41:58 AM
Selenium	ND	0.85		mg/L	1	9/6/2013 12:41:58 AM
Silver	ND	0.070		mg/L	1	9/10/2013 5:02:42 PM
MERCURY, TCLP		SW7470				Analyst: AL
Mercury	ND	0.00100		mg/L	1	9/11/2013 5:32:41 PM
FLASH POINT / IGNITABILITY		SW1010				Analyst: AL
Ignitability	>200	0		°F	1	9/12/2013
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	6.2	0		wt%	1	9/5/2013

AMRO Environmental Laboratories Corp.**Date:** 16-Sep-13**CLIENT:** Stone Environmental, Inc.
Project: 12-152 Crescent Connector**Lab Order:** 1309002**Lab ID:** 1309002-21**Collection Date:** 8/30/2013 3:00:00 PM**Collection Time:****Client Sample ID:** AMR-SB47-2.0-FD**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ICP METALS TOTAL SW-846 - 3051/6010		SW6010B				Analyst: AL
Barium	14.0	12.6		mg/Kg-dry	1	9/5/2013 11:09:15 PM
Cadmium	ND	0.629		mg/Kg-dry	1	9/5/2013 11:09:15 PM
Chromium	11.4	1.26		mg/Kg-dry	1	9/5/2013 11:09:15 PM
Lead	ND	5.04		mg/Kg-dry	1	9/5/2013 11:09:15 PM
Silver	ND	1.76		mg/Kg-dry	1	9/5/2013 11:09:15 PM
ARSENIC, SOIL 3051/7060		SW7060A				Analyst: REB
Arsenic	5.06	1.26		mg/Kg-dry	1	9/6/2013 3:20:08 PM
MERCURY, 7471A		SW7471A				Analyst: AL
Mercury	ND	0.0511		mg/Kg-dry	1	9/10/2013 9:53:00 PM
PERCENT MOISTURE		D2216				Analyst: NS
Percent Moisture	4.3	0		wt%	1	9/5/2013
SELENIUM, SOIL 3051/7740		SW7740				Analyst: REB
Selenium	ND	1.3		mg/Kg-dry	1	9/12/2013 4:00:12 PM

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID	mb-23523	Batch ID	23523	Test Code:	SW1311/6010	Units:	mg/L	Analysis Date	9/5/13 11:32:45 PM	Prep Date	9/5/13	
Client ID:		Run ID:	ICP-OPTIMA_130905A	SeqNo:	861393							
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Arsenic	ND	0.25	mg/L									
Barium	ND	4.0	mg/L									
Cadmium	ND	0.050	mg/L									
Chromium	ND	0.10	mg/L									
Lead	ND	0.25	mg/L									
Selenium	ND	0.85	mg/L									

Sample ID	mb-23523	Batch ID	23523	Test Code	SW1311/6010	Units	mg/L	Analysis Date	9/10/13 3:51:22 PM	Prep Date	9/5/13
Client ID:		Run ID:	ICP-OPTIMA_130910A	SeqNo:	862053						
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit
Silver	ND	0.070	mg/l								

Sample ID	mb-23518	Batch ID:	23518	Test Code:	SW6010B	Units:	mg/Kg	Analysis Date	9/5/13 8:23:52 PM	Prep Date	9/4/13	
Client ID:		Run ID:	ICP-OPTIMA_130905A	SeqNo:	861368							
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Arsenic	ND	6.2	mg/Kg									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Method Blank

Sample ID	MB-23518	Batch ID: 23518	Test Code: SW7060A	Units: mg/Kg	Analysis Date	9/6/13 12:25:14 PM	Prep Date	9/4/13
Client ID:			Run ID: AANALYST 600_130906		SeqNo: 861788			
Analyte		QC Sample Result	QC Spike Original Sample		LowLimit	HighLimit	Original Sample or MS Result	%RPD RPDLimit Qua
Arsenic		ND	Units Amount Result	mg/Kg				
Sample ID	mb-23534	Batch ID: 23534	Test Code: SW7471A	Units: mg/Kg	Analysis Date	9/10/13 8:27:51 PM	Prep Date	9/10/13
Client ID:			Run ID: HG-FIMS_130910B		SeqNo: 862143			
Analyte		QC Sample Result	QC Spike Original Sample		LowLimit	HighLimit	Original Sample or MS Result	%RPD RPDLimit Qua
Mercury		ND	Units Amount Result	mg/Kg				
Sample ID	mb-23538	Batch ID: 23538	Test Code: SW7470	Units: mg/L	Analysis Date	9/11/13 4:56:23 PM	Prep Date	9/11/13
Client ID:			Run ID: HG-FIMS_130911A		SeqNo: 862275			
Analyte		QC Sample Result	QC Spike Original Sample		LowLimit	HighLimit	Original Sample or MS Result	%RPD RPDLimit Qua
Mercury		ND	Units Amount Result	mg/L				
Sample ID	MB-23518	Batch ID: 23518	Test Code: SW7740	Units: mg/Kg	Analysis Date	9/12/13 10:50:26 AM	Prep Date	9/4/13
Client ID:			Run ID: AANALYST 600_130912		SeqNo: 862392			
Analyte		QC Sample Result	QC Spike Original Sample		LowLimit	HighLimit	Original Sample or MS Result	%RPD RPDLimit Qua
Selenium		ND	Units Amount Result	mg/Kg				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	Ics-23523	Batch ID: 23523	Test Code: SW1311/6010	Units: mg/L	Analysis Date	9/5/13 11:36:41 PM	Prep Date	9/5/13			
Client ID:			Run ID:	ICP-OPTIMA_130905A	SeqNo:	861394					
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	9.542	0.25	mg/L	10	0	95.4	80	120	0		
Barium	18.24	4.0	mg/L	20	0	91.2	80	120	0		
Cadmium	3.533	0.050	mg/L	4	0	88.3	80	120	0		
Chromium	17.06	0.10	mg/L	20	0	85.3	80	120	0		
Lead	9.823	0.25	mg/L	10	0	98.2	80	120	0		
Selenium	7.559	0.85	mg/L	8	0	94.5	80	120	0		

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Sample ID	Icsd-23523	Batch ID: 23523	Test Code: SW1311/6010		Units: mg/L	Analysis Date 9/5/13 11:42:08 PM		Prep Date 9/5/13			
Client ID:			Run ID:	ICP-OPTIMA_130905A	SeqNo:	861395					
Analyte	QC Sample Result	RL	Units	QC Spike		Original Sample		Original Sample		RPDLimit	Qual
				Amount	Result	%REC	LowLimit	HighLimit	or MS Result		
Arsenic	9.287	0.25	mg/L	10	0	92.9	80	120	9.542	2.7	20
Barium	18.07	4.0	mg/L	20	0	90.4	80	120	18.24	0.907	20
Cadmium	3.519	0.050	mg/L	4	0	88	80	120	3.533	0.377	20
Chromium	17.22	0.10	mg/L	20	0	86.1	80	120	17.06	0.932	20
Lead	9.619	0.25	mg/L	10	0	96.2	80	120	9.823	2.1	20
Selenium	7.437	0.85	mg/L	8	0	93	80	120	7.559	1.63	20

Sample ID	Ics-23523	Batch ID: 23523	Test Code: SW1311/6010		Units: mg/L	Analysis Date 9/10/13 3:55:17 PM		Prep Date 9/5/13				
Client ID:			Run ID:	ICP-OPTIMA_130910A		SeqNo:	862054					
Analyte		QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver		1.457	0.070	mg/L	1.565	0	93.1	80	120			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike Duplicate

Sample ID	Batch ID	Test Code	SW1311/6010	Units	mg/L	Analysis Date	9/10/13 4:01:17 PM	Prep Date	9/5/13
Client ID:			Run ID:	ICP-OPTIMA_130910A		SeqNo:	862055		
Analyte	QC Sample Result	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit
Silver	1.419	1.565	0	90.7	80	120	0	0	20
Sample ID	Batch ID	Test Code	SW6010B	Units	mg/Kg	Analysis Date	9/5/13 8:29:51 PM	Prep Date	9/4/13
Client ID:			Run ID:	ICP-OPTIMA_130905A		SeqNo:	861369		
Analyte	QC Sample Result	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit
Arsenic	241.4	250	0	96.6	80	120	0		
Barium	479.3	503.8	0	95.2	80	120	0		
Cadmium	92.92	100	0	92.9	80	120	0		
Chromium	467.4	500	0	93.5	80	120	0		
Lead	252.9	249.8	0	101	80	120	0		
Silver	44.92	50	0	89.8	80	120	0		
Sample ID	Batch ID	Test Code	SW6010B	Units	mg/Kg	Analysis Date	9/5/13 8:35:23 PM	Prep Date	9/4/13
Client ID:			Run ID:	ICP-OPTIMA_130905A		SeqNo:	861370		
Analyte	QC Sample Result	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit
Arsenic	247.4	250	0	99	80	120	241.4	2.44	20
Barium	493.2	503.8	0	97.9	80	120	479.3	2.85	20
Cadmium	95.93	100	0	95.9	80	120	92.92	3.19	20
Chromium	477.3	500	0	95.5	80	120	467.4	2.1	20
Lead	259	249.8	0	104	80	120	252.9	2.39	20
Silver	46.29	50	0	92.6	80	120	44.92	3	20

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002

Work Order: 1309002

Project: 12-152 Crescent Connector

Laboratory Control Spike

Qualifiers:

ND - Not Detected at the Reporting Limit	S - Spike Recovery outside accepted recovery limits	B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits	R - RPD outside accepted recovery limits	N/A - Not applicable where J values or ND results occur

RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	Icsd-23538	Batch ID: 23538	Test Code: SW7470	Units: mg/L	Analysis Date 9/11/13 5:00:22 PM	Prep Date 9/11/13
Client ID:			Run ID: HG-FIMS_130911A		SeqNo: 862276	
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	HighLimit	Original Sample or MS Result
Mercury		0.02126	0.0010 mg/L	0	80	120
				%REC	LowLimit	%RPD RPDLimit Qua
				0 106	80	120 0
Sample ID	Icsd-23538	Batch ID: 23538	Test Code: SW7470	Units: mg/L	Analysis Date 9/11/13 5:04:23 PM	Prep Date 9/11/13
Client ID:			Run ID: HG-FIMS_130911A		SeqNo: 862277	
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	HighLimit	Original Sample or MS Result
Mercury		0.02157	0.0010 mg/L	0	80	120
				%REC	LowLimit	%RPD RPDLimit Qua
				0 108	80	120 0.02126 1.48 20
Sample ID	PXYLENE	Batch ID: R51790	Test Code: SW1010	Units: °F	Analysis Date 9/12/13	Prep Date
Client ID:			Run ID: ING-WET_130912A		SeqNo: 862355	
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	HighLimit	Original Sample or MS Result
Ignitability		80	0 °F	81	97.5	102.5
				%REC	LowLimit	%RPD RPDLimit Qua
				0 98.8	97.5	102.5 0
Sample ID	3% ACETONE	Batch ID: R51790	Test Code: SW1010	Units: °F	Analysis Date 9/12/13	Prep Date
Client ID:			Run ID: ING-WET_130912A		SeqNo: 862356	
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	HighLimit	Original Sample or MS Result
Ignitability		100	0 °F	100	98	102
				%REC	LowLimit	%RPD RPDLimit Qua
				0 100	98	102 0

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID	LCS-23518	Batch ID:	23518	Test Code:	SW7740	Units:	mg/Kg	Analysis Date	9/12/13 10:53:23 AM	Prep Date	9/4/13
Client ID:		Run ID:	AAANALYST 600_130912	SeqNo:	862393						
Analyte		QC Sample Result	2.509	QC Spike Amount	2.5	Units	mg/Kg	Original Sample Result	0	%REC	100
Selenium		QC Sample Result	2.509	QC Spike Amount	2.5	Units	mg/Kg	Original Sample Result	0	%RPD	RPDLimit
Sample ID	LCSD-23518	Batch ID:	23518	Test Code:	SW7740	Units:	mg/Kg	Analysis Date	9/12/13 11:02:13 AM	Prep Date	9/4/13
Client ID:		Run ID:	AAANALYST 600_130912	SeqNo:	862394						
Analyte		QC Sample Result	2.468	QC Spike Amount	2.5	Units	mg/Kg	Original Sample Result	2.509	%REC	98.7
Selenium		QC Sample Result	2.468	QC Spike Amount	2.5	Units	mg/Kg	Original Sample Result	2.509	%RPD	1.66
											20

Qualifiers: NID - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Duplicate

Sample ID 1309002-17ad		Batch ID: 23523		Test Code: SW1311/6010		Units: mg/L		Analysis Date 9/5/13 11:59:32 PM		Prep Date 9/5/13		
Client ID: AMR-SB9-COMP				Run ID: ICP-OPTIMA_130905A		SeqNo: 861398						
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Arsenic	ND	0.25	mg/L	0	0	0	0	0	0	0	20	
Barium	ND	4.0	mg/L	0	0	0	0	0	0	0	20	
Cadmium	ND	0.050	mg/L	0	0	0	0	0	0	0	20	
Chromium	ND	0.10	mg/L	0	0	0	0	0	0	0	20	
Lead	ND	0.25	mg/L	0	0	0	0	0	0	0	20	
Selenium	ND	0.85	mg/L	0	0	0	0	0	0	0	20	

Sample ID 1309002-17ad		Batch ID: 23523		Test Code: SW1311/6010		Units: mg/L		Analysis Date 9/10/13 4:19:12 PM		Prep Date 9/5/13		
Client ID: AMR-SB9-COMP				Run ID: ICP-OPTIMA_130910A		SeqNo: 862058						
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Silver	ND	0.070	mg/L	0	0	0	0	0	0	0	20	

Sample ID 1309002-01ad		Batch ID: 23518		Test Code: SW6010B		Units: mg/Kg-dry		Analysis Date 9/5/13 9:06:30 PM		Prep Date 9/4/13		
Client ID: AMR-SB34-1.5				Run ID: ICP-OPTIMA_130905A		SeqNo: 861373						
Analyte	QC Sample Result	RL	Units	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result	%RPD	RPDLimit	Qual
Arsenic	16.19	6.9	mg/Kg-dry	0	0	0	0	0	14.22	13	20	
Barium	60.8	14	mg/Kg-dry	0	0	0	0	0	114.8	61.5	20	R
Cadmium	1.457	0.69	mg/Kg-dry	0	0	0	0	0	1.414	2.99	20	
Chromium	22.51	1.4	mg/Kg-dry	0	0	0	0	0	18.59	19	20	
Lead	696.9	5.5	mg/Kg-dry	0	0	0	0	0	662.7	5.03	20	
Silver	ND	1.9	mg/Kg-dry	0	0	0	0	0	0	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Duplicate

Sample ID	1309002-01AD	Batch ID: 23518	Test Code: SW7060A	Units: mg/Kg-dry	Analysis Date	9/6/13 12:51:26 PM	Prep Date	9/4/13
Client ID:	AMR-SB34-1.5		Run ID:	AANALYST 600_130906	SeqNo:	861793		
Analyte		QC Sample Result	QC Spike Original Sample	QC Spike Amount	QC Spike Units	QC Spike mg/Kg-dry	Original Sample Result	Original Sample HighLimit
Arsenic		16.83	0	0	0	0	14.4	15.6
								20
Sample ID	1309002-01ad	Batch ID: 23534	Test Code: SW7471A	Units: mg/Kg-dry	Analysis Date	9/10/13 8:47:28 PM	Prep Date	9/10/13
Client ID:	AMR-SB34-1.5		Run ID:	HG-FIMS_130910B	SeqNo:	862149		
Analyte		QC Sample Result	QC Spike Original Sample	QC Spike Amount	QC Spike Units	QC Spike mg/Kg-dry	Original Sample Result	Original Sample HighLimit
Mercury		0.3543	0	0	0	0	0.3345	5.75
								20
Sample ID	1309002-17ad	Batch ID: 23538	Test Code: SW7470	Units: mg/L	Analysis Date	9/11/13 5:12:27 PM	Prep Date	9/11/13
Client ID:	AMR-SB9-COMP		Run ID:	HG-FIMS_130911A	SeqNo:	862279		
Analyte		QC Sample Result	QC Spike Original Sample	QC Spike Amount	QC Spike Units	QC Spike mg/L	Original Sample Result	Original Sample HighLimit
Mercury		ND	0.0010	0	0	0	0	0
								20
Sample ID	1309002-17AD	Batch ID: R51790	Test Code: SW1010	Units: °F	Analysis Date	9/12/13	Prep Date	
Client ID:	AMR-SB9-COMP		Run ID:	ING-WET_130912A	SeqNo:	862354		
Analyte		QC Sample Result	QC Spike Original Sample	QC Spike Amount	QC Spike Units	QC Spike °F	Original Sample Result	Original Sample HighLimit
Ignitability		ND	0	0	0	0	0	0
								20

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT
Sample Duplicate

Sample ID	1309002-01AD	Batch ID: 23518	Test Code: SW7740	Units: mg/Kg-dry	Analysis Date	9/12/13 11:17:17 AM	Prep Date	9/4/13
Client ID:	AMR-SB34-1.5	Run ID:	AAANALYST 600_130912	SeqNo:	862397			
Analyte	QC Sample		QC Spike		Original Sample			
	Result	RL	Amount	Result	HighLimit	or MS Result	%RPD	RPDLimit
Selenium	1.714	1.4	0	0	0	1.355	23.4	20
			mg/Kg-dry					R

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
 Work Order: 1309002
 Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID	1309002-17ams	Batch ID: 23523	Test Code: SW1311/6010	Units: mg/L	Analysis Date	9/6/13 12:05:31 AM	Prep Date	9/5/13
Client ID:	AMR-SB9-COMP		Run ID:	ICP-OPTIMA_130905A	SeqNo:	861399		
Analyte	QC Sample Result	QC Spike Amount	Units	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result
Arsenic	9.601	10	mg/L	0	96	75	125	0
Barium	18.43	20	mg/L	0	92.1	75	125	0
Cadmium	3.52	4	mg/L	0	88	75	125	0
Chromium	17.55	20	mg/L	0	87.7	75	125	0
Lead	9.943	10	mg/L	0	99.4	75	125	0
Selenium	7.698	8	mg/L	0	96.2	75	125	0
Sample ID	1309002-17amsd	Batch ID: 23523	Test Code: SW1311/6010	Units: mg/L	Analysis Date	9/6/13 12:10:59 AM	Prep Date	9/5/13
Client ID:	AMR-SB9-COMP		Run ID:	ICP-OPTIMA_130905A	SeqNo:	861400		
Analyte	QC Sample Result	QC Spike Amount	Units	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result
Arsenic	9.272	10	mg/L	0	92.7	75	125	9.601
Barium	18.19	20	mg/L	0	90.9	75	125	18.43
Cadmium	3.496	4	mg/L	0	87.4	75	125	3.52
Chromium	17.48	20	mg/L	0	87.4	75	125	17.55
Lead	9.478	10	mg/L	0	94.8	75	125	9.943
Selenium	7.301	8	mg/L	0	91.3	75	125	7.698
Sample ID	1309002-17ams	Batch ID: 23523	Test Code: SW1311/6010	Units: mg/L	Analysis Date	9/10/13 4:25:10 PM	Prep Date	9/5/13
Client ID:	AMR-SB9-COMP		Run ID:	ICP-OPTIMA_130910A	SeqNo:	862059		
Analyte	QC Sample Result	QC Spike Amount	Units	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result
Silver	1.475	0.070	mg/L	0	94.3	75	125	0

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank
 NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike Duplicate

Sample ID 1309002-17amsd		Batch ID: 23523		Test Code: SW1311/6010		Units: mg/L		Analysis Date 9/10/13 4:31:12 PM		Prep Date 9/5/13	
Client ID: AMR-SB9-COMP				Run ID: ICP-OPTIMA_130910A		SeqNo: 862060					
Analyte	QC Sample	QC Sample	QC Spike	Original Sample	LowLimit	HighLimit	Original Sample	%RPD	RPDLimit	Qual	
Silver	1.485	0.070	mg/L	1.565	0	94.9	125	1.457	1.85	20	

Sample ID 1309002-01ams		Batch ID: 23518		Test Code: SW6010B		Units: mg/Kg-dry		Analysis Date 9/5/13 9:12:43 PM		Prep Date 9/4/13	
Client ID: AMR-SB34-1.5				Run ID: ICP-OPTIMA_130905A		SeqNo: 861374					
Analyte	QC Sample	QC Sample	QC Spike	Original Sample	LowLimit	HighLimit	Original Sample	%RPD	RPDLimit	Qual	
Arsenic	262.5	6.8	mg/Kg-dry	270.7	14.22	91.7	125	0			
Barium	567.1	14	mg/Kg-dry	545.6	114.8	82.9	125	0			
Cadmium	99.38	0.68	mg/Kg-dry	108.3	1.414	90.5	125	0			
Chromium	518.3	1.4	mg/Kg-dry	541.5	18.59	92.3	125	0			
Lead	891.4	5.4	mg/Kg-dry	270.5	662.7	84.5	125	0			
Silver	48.09	1.9	mg/Kg-dry	54.15	0	88.8	125	0			

Sample ID 1309002-01amsd		Batch ID: 23518		Test Code: SW6010B		Units: mg/Kg-dry		Analysis Date 9/5/13 9:18:17 PM		Prep Date 9/4/13	
Client ID: AMR-SB34-1.5				Run ID: ICP-OPTIMA_130905A		SeqNo: 861375					
Analyte	QC Sample	QC Sample	QC Spike	Original Sample	LowLimit	HighLimit	Original Sample	%RPD	RPDLimit	Qual	
Arsenic	276.5	6.7	mg/Kg-dry	268.8	14.22	97.6	125	262.5	5.2	20	
Barium	587	13	mg/Kg-dry	541.6	114.8	87.2	125	567.1	3.46	20	
Cadmium	101.7	0.67	mg/Kg-dry	107.5	1.414	93.2	125	99.38	2.27	20	
Chromium	517	1.3	mg/Kg-dry	537.6	18.59	92.7	125	518.3	0.243	20	
Lead	938.9	5.4	mg/Kg-dry	268.5	662.7	103	125	891.4	5.2	20	
Silver	49.61	1.9	mg/Kg-dry	53.76	0	92.3	125	48.09	3.12	20	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID	1309002-01AMS	Batch ID: 23518	Test Code: SW7060A	Units: mg/Kg-dry	Analysis Date	9/6/13 12:59:46 PM	Prep Date	9/4/13
Client ID:	AMR-SB34-1.5		Run ID:	AANALYST 600_130906	SeqNo:	861794		
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	LowLimit	HighLimit	Original Sample or MS Result	%RPD RPDLimit Qua
Arsenic		20.38	5.4 mg/Kg-dry	2.707	14.4	221	75 125 0	S
Sample ID	1309002-01AMS	Batch ID: 23518	Test Code: SW7060A	Units: mg/Kg-dry	Analysis Date	9/6/13 1:14:07 PM	Prep Date	9/4/13
Client ID:	AMR-SB34-1.5		Run ID:	AANALYST 600_130906	SeqNo:	861797		
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	LowLimit	HighLimit	Original Sample or MS Result	%RPD RPDLimit Qua
Arsenic		18.16	5.4 mg/Kg-dry	2.688	14.4	140	75 125 20.38	11.5 20 S
Sample ID	1309002-01ams	Batch ID: 23534	Test Code: SW7471A	Units: mg/Kg-dry	Analysis Date	9/10/13 8:50:44 PM	Prep Date	9/10/13
Client ID:	AMR-SB34-1.5		Run ID:	HG-FIMS_130910B	SeqNo:	862150		
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	LowLimit	HighLimit	Original Sample or MS Result	%RPD RPDLimit Qua
Mercury		1.279	0.056 mg/Kg-dry	0.9305	0.3345	101	75 125 0	
Sample ID	1309002-01amsd	Batch ID: 23534	Test Code: SW7471A	Units: mg/Kg-dry	Analysis Date	9/10/13 8:54:01 PM	Prep Date	9/10/13
Client ID:	AMR-SB34-1.5		Run ID:	HG-FIMS_130910B	SeqNo:	862151		
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	LowLimit	HighLimit	Original Sample or MS Result	%RPD RPDLimit Qua
Mercury		1.731	0.054 mg/Kg-dry	0.9059	0.3345	154	75 125 1.279	30.1 20 SR

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits NA - Not applicable where J values or ND results occur
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

AMRO Environmental Laboratories Corp.

Date: 13-Sep-13

CLIENT: Stone Environmental, Inc.
Work Order: 1309002
Project: 12-152 Crescent Connector

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID	1309002-17ams	Batch ID: 23538	Test Code: SW7470	Units: mg/L	Analysis Date	9/11/13 5:16:28 PM	Prep Date	9/11/13
Client ID:	AMR-SB9-COMP		Run ID:	HG-FIMS_130911A	SeqNo:	862280		
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result
Mercury		0.02128	0.0010 mg/L	0.02	0	106	75	125
								0
Sample ID	1309002-17amsd	Batch ID: 23538	Test Code: SW7470	Units: mg/L	Analysis Date	9/11/13 5:20:29 PM	Prep Date	9/11/13
Client ID:	AMR-SB9-COMP		Run ID:	HG-FIMS_130911A	SeqNo:	862281		
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result
Mercury		0.0211	0.0010 mg/L	0.02	0	106	75	125
								0.02128
								0.847
								20
Sample ID	1309002-01AMS	Batch ID: 23518	Test Code: SW7740	Units: mg/Kg-dry	Analysis Date	9/12/13 11:20:13 AM	Prep Date	9/4/13
Client ID:	AMR-SB34-1.5		Run ID:	AANALYST 600_130912	SeqNo:	862398		
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result
Selenium		4.373	1.4 mg/Kg-dry	2.707	1.355	111	75	125
								0
Sample ID	1309002-01AMSD	Batch ID: 23518	Test Code: SW7740	Units: mg/Kg-dry	Analysis Date	9/12/13 11:23:09 AM	Prep Date	9/4/13
Client ID:	AMR-SB34-1.5		Run ID:	AANALYST 600_130912	SeqNo:	862399		
Analyte		QC Sample Result	QC Spike Amount	Original Sample Result	%REC	LowLimit	HighLimit	Original Sample or MS Result
Selenium		4.318	1.3 mg/Kg-dry	2.688	1.355	110	75	125
								4.373
								1.25
								20

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
RL - Reporting Limit; defined as the lowest concentration the laboratory can accurately quantitate.

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank
NA - Not applicable where J values or ND results occur



Monday, September 16, 2013

Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Project ID: 1309002
Sample ID#s: BF35225 - BF35228

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Phyllis Shiller".

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 16, 2013

FOR: Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Sample Information

Matrix: SOIL
Location Code: AMRO
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

08/30/13 12:20
09/06/13 11:10

Laboratory Data

SDG ID: GBF35225
Phoenix ID: BF35225

Project ID: 1309002
Client ID: AMR-SB9-COMP

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
TCLP Herbicides Extraction	Completed			09/09/13	W/X/D	SW8150 Mod
TCLP Extraction for Organics	Completed			09/06/13	I	1311
<u>TCLP Herbicides</u>						
2,4,5-TP (Silvex)	ND	4.2	ug/L	09/10/13	CE	SW8151
2,4-D	ND	4.2	ug/L	09/10/13	CE	SW8151
<u>QA/QC Surrogates</u>						
% DCAA	65		%	09/10/13	CE	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director

September 16, 2013

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 16, 2013

FOR: Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Sample Information

Matrix: SOIL
Location Code: AMRO
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

08/30/13 13:30
09/06/13 11:10

Laboratory Data

SDG ID: GBF35225
Phoenix ID: BF35226

Project ID: 1309002
Client ID: AMR-SB11-COMP

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
TCLP Herbicides Extraction	Completed			09/09/13	W/X/D	SW8150 Mod
TCLP Extraction for Organics	Completed			09/06/13	I	1311
<u>TCLP Herbicides</u>						
2,4,5-TP (Silvex)	ND	4.2	ug/L	09/10/13	CE	SW8151
2,4-D	ND	4.2	ug/L	09/10/13	CE	SW8151
<u>QA/QC Surrogates</u>						
% DCAA	67		%	09/10/13	CE	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller, Laboratory Director

September 16, 2013

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 16, 2013

FOR: Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Sample Information

Matrix: SOIL
Location Code: AMRO
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

08/30/13 14:20
09/06/13 11:10

Laboratory Data

SDG ID: GBF35225
Phoenix ID: BF35227

Project ID: 1309002
Client ID: AMR-SB21-COMP

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
TCLP Herbicides Extraction	Completed			09/09/13	W/X/D	SW8150 Mod
TCLP Extraction for Organics	Completed			09/06/13	I	1311
<u>TCLP Herbicides</u>						
2,4,5-TP (Silvex)	ND	4.2	ug/L	09/10/13	CE	SW8151
2,4-D	ND	4.2	ug/L	09/10/13	CE	SW8151
<u>QA/QC Surrogates</u>						
% DCAA	65		%	09/10/13	CE	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller, Laboratory Director

September 16, 2013

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 16, 2013

FOR: Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Sample Information

Matrix: SOIL
Location Code: AMRO
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

08/30/13 15:20
09/06/13 11:10

Laboratory Data

SDG ID: GBF35225
Phoenix ID: BF35228

Project ID: 1309002
Client ID: AMR-SB28-COMP

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
TCLP Herbicides Extraction	Completed			09/09/13	W/X/D	SW8150 Mod
TCLP Extraction for Organics	Completed			09/06/13	I	1311
<u>TCLP Herbicides</u>						
2,4,5-TP (Silvex)	ND	4.2	ug/L	09/10/13	CE	SW8151
2,4-D	ND	4.2	ug/L	09/10/13	CE	SW8151
<u>QA/QC Surrogates</u>						
% DCAA	58		%	09/10/13	CE	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.
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Phyllis Shiller, Laboratory Director

September 16, 2013

Reviewed and Released by: Greg Lawrence, Assistant Lab Director



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Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

September 16, 2013

QA/QC Data

SDG I.D.: GBF35225

Parameter	Blank	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 250630, QC Sample No: BF35225 (BF35225, BF35226, BF35227, BF35228)									
<u>Chlorinated Herbicides</u>									
2,4,5-TP (Silvex)	ND	95	90	5.4				40 - 140	20
2,4-D	ND	98	103	5.0				40 - 140	20
% DCAA (Surrogate Rec)	53	59	59	0.0				30 - 150	20

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference

LCS - Laboratory Control Sample

LCSD - Laboratory Control Sample Duplicate

MS - Matrix Spike

MS Dup - Matrix Spike Duplicate

NC - No Criteria

Intf - Interference

Phyllis Shiller, Laboratory Director
September 16, 2013

Monday, September 16, 2013

Requested Criteria: None

State: VT

Sample Criteria Exceedences Report

GBF35225 - AMRO

Page 1 of 1

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
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*** No Data to Display ***

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[illegible]



Monday, September 16, 2013

Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Project ID: 1309002
Sample ID#s: BF35225 - BF35228

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Phyllis Shiller".

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301



Environmental Laboratories, Inc.
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Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 16, 2013

FOR: Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Sample Information

Matrix: SOIL
Location Code: AMRO
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

08/30/13 12:20
09/06/13 11:10

Laboratory Data

SDG ID: GBF35225
Phoenix ID: BF35225

Project ID: 1309002
Client ID: AMR-SB9-COMP

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
TCLP Herbicides Extraction	Completed			09/09/13	W/X/D	SW8150 Mod
TCLP Extraction for Organics	Completed			09/06/13	I	1311
<u>TCLP Herbicides</u>						
2,4,5-TP (Silvex)	ND	4.2	ug/L	09/10/13	CE	SW8151
2,4-D	ND	4.2	ug/L	09/10/13	CE	SW8151
<u>QA/QC Surrogates</u>						
% DCAA	65		%	09/10/13	CE	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

September 16, 2013

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Analysis Report

September 16, 2013

FOR: Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Sample Information

Matrix: SOIL
Location Code: AMRO
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

08/30/13 13:30
09/06/13 11:10

Laboratory Data

SDG ID: GBF35225
Phoenix ID: BF35226

Project ID: 1309002
Client ID: AMR-SB11-COMP

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
TCLP Herbicides Extraction	Completed			09/09/13	W/X/D	SW8150 Mod
TCLP Extraction for Organics	Completed			09/06/13	I	1311
<u>TCLP Herbicides</u>						
2,4,5-TP (Silvex)	ND	4.2	ug/L	09/10/13	CE	SW8151
2,4-D	ND	4.2	ug/L	09/10/13	CE	SW8151
<u>QA/QC Surrogates</u>						
% DCAA	67		%	09/10/13	CE	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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September 16, 2013

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Analysis Report

September 16, 2013

FOR: Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Sample Information

Matrix: SOIL
Location Code: AMRO
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

08/30/13 14:20
09/06/13 11:10

Laboratory Data

SDG ID: GBF35225
Phoenix ID: BF35227

Project ID: 1309002
Client ID: AMR-SB21-COMP

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
TCLP Herbicides Extraction	Completed			09/09/13	W/X/D	SW8150 Mod
TCLP Extraction for Organics	Completed			09/06/13	I	1311
<u>TCLP Herbicides</u>						
2,4,5-TP (Silvex)	ND	4.2	ug/L	09/10/13	CE	SW8151
2,4-D	ND	4.2	ug/L	09/10/13	CE	SW8151
<u>QA/QC Surrogates</u>						
% DCAA	65		%	09/10/13	CE	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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Phyllis Shiller, Laboratory Director

September 16, 2013

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Environmental Laboratories, Inc.
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Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

September 16, 2013

FOR: Attn: Ms. Nicole Borduz
AMRO Environmental Laboratories
111 Herrick Street
Merrimack, NH 03054

Sample Information

Matrix: SOIL
Location Code: AMRO
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

08/30/13 15:20
09/06/13 11:10

Laboratory Data

SDG ID: GBF35225
Phoenix ID: BF35228

Project ID: 1309002
Client ID: AMR-SB28-COMP

Parameter	Result	RL/ PQL	Units	Date/Time	By	Reference
TCLP Herbicides Extraction	Completed			09/09/13	W/X/D	SW8150 Mod
TCLP Extraction for Organics	Completed			09/06/13	I	1311
<u>TCLP Herbicides</u>						
2,4,5-TP (Silvex)	ND	4.2	ug/L	09/10/13	CE	SW8151
2,4-D	ND	4.2	ug/L	09/10/13	CE	SW8151
<u>QA/QC Surrogates</u>						
% DCAA	58		%	09/10/13	CE	30 - 150 %

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

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September 16, 2013

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Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

September 16, 2013

QA/QC Data

SDG I.D.: GBF35225

Parameter	Blank	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 250630, QC Sample No: BF35225 (BF35225, BF35226, BF35227, BF35228)									
<u>Chlorinated Herbicides</u>									
2,4,5-TP (Silvex)	ND	95	90	5.4				40 - 140	20
2,4-D	ND	98	103	5.0				40 - 140	20
% DCAA (Surrogate Rec)	53	59	59	0.0				30 - 150	20

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference

LCS - Laboratory Control Sample

LCSD - Laboratory Control Sample Duplicate

MS - Matrix Spike

MS Dup - Matrix Spike Duplicate

NC - No Criteria

Intf - Interference

Phyllis Shiller, Laboratory Director
September 16, 2013

Monday, September 16, 2013

Requested Criteria: None

State: VT

Sample Criteria Exceedences Report

GBF35225 - AMRO

Page 1 of 1

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
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Office: (603) 424-2022
Fax: (603) 429-8496
web: www.amrolabs.com

[illegible]

APPENDIX D: FIELD NOTES

Location Essex Junction Date 6/24/18 45
Project / Client Cuscut Comaster DTK
878 6141 village office Scale

DN + SPT on site at 7:30
Platform on site at 7:30 (Kevin Kiefer
Dun Byrne)

Revised HASP, constructed tailgate

Revised locations at 34 Park. N. Hall
no DRW notes. Called village

Set up on SB4 - located in the plain
left and free of utilities
between village of Essex DPW
Calibrated PID of 100 ppm 15000/100
Collected TB at 821

802 522 - 9729

Rebecca Barrow S. Burlington 878 7661
office
Matt Mears

Not confident about mark out. Called
On Target, called DTK Matt Mears to

See if any fiber optic is in area.
Matt confirmed spirit line to be east of
rail line to IBM but could not confirm that
there wasn't any thing in the area of SB1-4
Marking to Railroad St. where mark out
is good.

JB
Set up at SB27, worked north on RR St.
to north, then south to White Brook for lunch
at 11:00. on site at 1:30.

Location Essex JunctionDate 6/27/15

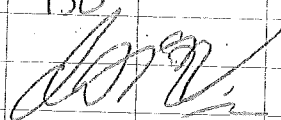
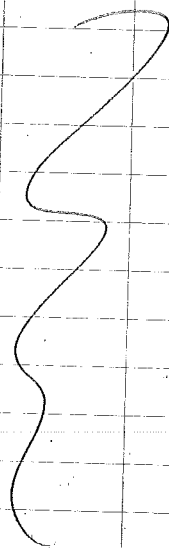
Project / Client

12152 Crescent Concrete Phase II BldgDubois & King

- On target came out to North remaining location
 SB 20 appears for close to Sport line
 so going was scratched. Consider screening
 Geo tech being that is ~20ft sub most
 filled briefly w/ EP to discover status

Holes abraded w/ cuttings, & chips to
 1ft bys. Top most 1ft backfilled w/ silica
 sand.

off site at 430

- 0640 Leave office
onsite @ 0740
- 0750 Platform onsite (Kevin Kipert + Dan Bayne)
- 0800 Reviewed safety issues (traffic, trains, COCs)
- 0810 Begin soil boring
- 0815 Bump check ETO (99.2 ppmv isobutylene)
- weather: intermittent light-moderate rain until ~1100, then
cloudy
- Concerned about proximity of SB-9 to
railroad tracks (South spur)
- NCE rep onsite to check signals, ^{NCE} rep
~~identifies~~ identifies potential comm. cable buried
in vicinity of SB-9, along tracks,
uncertain location
- 0930 Spoke w/ D. Vossin → collected hand
cutter sample @ SB-9 in lieu of boring
- ~1300 Finish boring, Platform offsite
- No VOC samples collected, also no T.B. blank
- 1300-1345 → marked all boring locations w/ GPS
(Trimble GeoXT), recorded locations
as shapefile
- 1400 Leave site
- 1500 Arrive office

Drilling Log

SB-1

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.5 orange brown sandy gravel (road sub-base), damp	0.5		
2	0.5-0.9 Black fine gravely sand w/wood/coal ash, damp	4.0	3.0	AMR-SB1-0.5
3	0.9-2.3 light brown med. Sand, damp	0.6		9:15
4				
5				
	<u>5-10' RUN</u>			
6	5.0-6.1 light brown medium sand, trace gravel, moist	0.6		
7	6.1-7.9 light brown medium to coarse sand, little gravel, wet	0.9	3.2	None
8	7.9-8.2 brown medium sand, wet	0.5		
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-2

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.4 light brown gravelly sand, dry	0.7		
2	0.4-2.6 dark brown fine to medium sand, some gravel, dry	0.6	3.3	AMR-SB2-2.0 9:00
3	2.6-3.3 red-brown fine sand	0.6		
4				
5				
	<u>5-10' RUN</u>			
6	5.0-7.3 light brown medium sand, trace gravel, moist	0.4		
7		0.3	3.6	None
8	7.3-8.6 light brown medium to coarse sand, some gravel, redox staining, wet	0.6		
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-3

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.4 grey-brown gravelly sand, dry	0.7		
2	0.4-2.0 blk gravelly sand, some coal/coal ash, construction debris, dry	0.6	4.1	AMR-SB3-0.5
3		0.5		8:45
4	2.0-4.1 light brown medium sand, dry	0.7		
5				
	<u>5-10' RUN</u>			
6	5.0-5.7 same as above	0.6		
7	5.7-6.2 brown gravelly coarse sand, wet	0.6	3.8	None
8	6.2-7.6 brown medium to coarse sand, redox staining, wet	0.5		
9	7.6-8.0 grey gravelly coarse sand, wet	0.5		
10	8.0-8.8 light brown medium sand, wet			
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-4

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-0.9 black gravelly sand, coal/coal ash, construction debris, damp	0.5		
2	0.9-2.9 yellow brown fine sand, damp	0.7	2.9	AMR-SB4-2.0
3		0.8		8:20
4				
5				
6	5-10' RUN 5.0-7.0 light brown medium to coarse sand, wet	0.6		
7	7.0-8.0 light brown medium sand, wet	0.6	3.0	None
8		0.6		
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-5

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-1.0 black gravelly sand, some coal/coal ash, construction debris, dry	0.5	3.8	AMR-SB5-0.5 10:05 EMSL-COMP-4-0.5 10:05
2	1.0-2.1 light brown fine sand, dry	0.5		
3	2.1-3.8 light brown medium sand, damp	0.5		
4		0.6		
5		0.5		
6	5-10' RUN 5.0-5.5 same as above	0.5	4.0	None
7	5.5-7.8 light brown medium to coarse sand, little fine sand, redox staining, wet	0.5		
8		0.7		
9	7.8-9.0 grey brown medium sand, wet	0.7		
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-6

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-0.3 grey gravelly sand, damp	0.5		
2	0.3-1.1 black gravelly sand, some coal/coal ash, damp	0.6	4.0	AMR-SB6-2.0 10:25
3	1.1-4.0 brown medium sand, damp	0.3		EMSL-COMP4- 0.5
4		0.6		10:05
5				
6	5-10' RUN 5.0-7.9 grey-brown medium to coarse sand, wet	0.6		
7		0.3	2.9	None
8		0.4		
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-7

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.3 grey gravelly sand, damp	0.3		
2	0.3-1.0 black gravelly sand, some coal/coal ash, construction debris, damp	0.2		EMSL-COMP4-0.5 10:05
3	1.0-1.9 brown fine sand, damp		3.5	
4	1.9-3.5 brown medium to coarse sand, damp	0.4		AMR-SB7-0.5 11:00
5				
	<u>5-10' RUN</u>			
6	5.0-7.0 same as above	0.2		
7	7.0-7.2 grey-brown fine sand, wet, redox staining	0.3		
8	7.2-8.6 grey brown medium to coarse sand, wet	0.4	3.6	None
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-8

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:			NA
State Plane Coordinate Feet (East):		Well Diameter (inches)			NA
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):			NA
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):			NA
Ground Elevation (feet):	NA	Screen Slot Size:			NA
Datum:	MSL	Sand Pack:			NA
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.5 dark grey gravelly sand, damp	0.2		EMSL-COMP-3-0.5
2	0.5-3.4 brown fine sand, damp	0.3	3.4	11:20
3		0.2		AMR-SB8-2.0
4				11:20
5		0.4		
	<u>5-10' RUN</u>			
6	5.0-5.5 same as above	0.3		
7	5.5-7.0 brown medium to coarse sand, little gravel, moist	0.4	3.2	None
8	7.0-8.2 brown medium to coarse sand, trace gravel, wet	0.6		
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-9

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	S.A. Hubbs	Company:	SEI	Drilling Method:	Hand Auger
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		

Notes: Boring location too close to rail line, NCR personnel also state that a comm. Line is buried in the vicinity of SB-10 along west side of rail line, sampled 0.0-0.5' b.g. w/hand auger instead

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	<u>0-0.5' RUN</u> 0.0-0.5 brown fine to medium sand, little gravel, dry	0.1	0.5	AMR-SB10-0.5 11:50
2				
3				
4				
5				
6	<u>5-10' RUN</u>			
7				
8				
9				
10				
11	<u>10-15' RUN</u>			
12				
13				
14				
15				

Drilling Log

SB-10

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-1.0 dark brown gravelly sand, some coal/coal ash, damp	0.2		
2	1.0-3.8 brown medium sand, damp	0.2	3.8	AMR-SB10-2.0
3		0.3		12:20
4		0.2		
5				
	<u>5-10' RUN</u>			
6	5.0-7.2 same as above	0.3		
7	7.2-9.1 grey medium to coarse sand, wet, redox staining at 8.9'	0.4	4.1	None
8		0.5		
9		0.4		
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-11

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-1.3 black gravelly sand, some coal/coal ash, dry	0.5		
2	1.3-1.9 olive fine sand, trace medium sand, damp	0.4		
3	1.9-2.1 brown silty clay, wet, trace brick		3.1	AMR-SB11-0.5
4		0.3		12:10
5				
6	5-10' RUN 5.0-8.2 brown, gravelly medium to coarse sand, wet	2.0		
7		0.3		
8		0.5	3.2	None
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-12

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-1.0 black medium to coarse sand and coal/coal ash, trace construction debris, dry	0.5		EMSL-COMP2-0.5
2	1.0-3.0 light brown fine sand, damp	0.9	3.9	16:00
3	3.0-3.9 grey-brown medium sand, damp	0.8		AMR-SB12-2.0
4		0.9		16:00
5		0.8		
	<u>5-10' RUN</u>			
6	5.0-5.5 same as above	1.1		
7	5.5-6.3 brown medium to coarse sand, wet	1.0	4.0	None
8	6.3-7.5 grey medium to coarse sand, wet	1.0		
9	7.5-9.0 grey fine to medium sand, trace gravel, wet	1.3		
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-13

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.8 blk gravelly sand, some coal/coal ash, construction debris, dry	0.2		
2	0.8-1.8 brown gravelly sand, trace coal/coal ash, dry	0.3		
3	1.8-3.3 light brown medium sand, damp	0.3	3.3	EMSL-COMP2-0.5 16:00 (6/27)
4				
5		0.3		
	<u>5-10' RUN</u>			
6	5.0-7.0 light brown medium to coarse sand, trace gravel, moist	0.4		
7	7.0-8.7 grey-brown medium to coarse sand, little gravel, wet	0.2		
8		0.2	3.7	None
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-14

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	0-5' RUN	0.5		
1	0.0-0.8 black fine gravelly sand, some coal/coal ash, dry	0.5		
2	0.8-3.0 light brown fine sand, damp	0.8		
3	3.0-3.6 light brown medium to coarse sand, damp	0.7	3.6	None
4				
5		0.6		
	5-10' RUN			
6	5.0-5.9 light brown gravelly sand, wet	0.7		
7	5.9-6.8 grey medium sand, wet	1.0		
8	6.8-7.9 grey and brown medium to coarse sand, little gravel, wet	0.8	2.9	None
9				
10				
	10-15' RUN			
11				
12				
13				
14				
15				

Drilling Log

SB-15

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-0.6 grey and dark brown gravelly sand, trace coal and coal ash, trace construction debris, damp	0.2 0.7		
2	0.6-1.8 yellow brown fine sand, trace medium to coarse sand, damp	0.9	1.8	AMR-SB15-2.0 15:40
3				
4				
5		0.6		
6	5-10' RUN 5.0-5.5 same as above	1.0		
7	5.5-5.8 dark brown fine gravelly sand, moist 5.8-7.6 grey medium to coarse sand, wet, redox staining @ 7.4'	1.2	2.6	None
8				
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-16

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-0.5 grey and brown gravelly sand, trace coal, dry	0.7		
2	0.5-2.6 light brown medium sand, damp	0.7	2.6	None
3				
4				
5		0.2		
6	5-10' RUN 5.0-7.5 light brown medium sand, wet	0.3		
7	7.5-8.0 grey brown medium to coarse sand, wet	0.3	3.2	None
8		0.8		
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-17

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-2.2 dark brown fine sandy silt, trace gravel, damp	0.4	2.2	AMR-SB17-2.0 15:15
2		0.3		
3				
4				
5		0.3		
6	5-10' RUN 5.0-7.2 light brown medium sand, wet 7.2-8.0 grey-brown medium to coarse sand, wet	0.4	3.0	None
7		0.6		
8		1.0		
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-18

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	<u>0-5' RUN</u>			
2				
3				
4				
5				
6	<u>5-10' RUN</u>			
7				
8				
9				
10				
11	<u>10-15' RUN</u>			
12				
13				
14				
15				

Drilling Log

SB-19

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-1.9 black gravelly sand, trace silt, damp	0.2		
2	1.9-2.2 brown fine sand, damp	0.3		
3			2.2	EMSL-COMP-1- 0.5 14:30
4				
5		0.2		
6	5-10' RUN 5.0-7.0 brown medium to coarse sand, trace gravel, wet	0.5		
7	7.0-7.7 grey medium sand, wet	0.5		
8			2.7	None
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-20

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/28/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	<u>0-5' RUN</u>			
2				
3				
4				
5				
6	<u>5-10' RUN</u>			
7				
8				
9				
10				
11	<u>10-15' RUN</u>			
12				
13				
14				
15				

Drilling Log

SB-21

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-0.4 dark brown gravelly sand, dry (topsoil)	0.3		AMR-SB21-0.5
2	0.4-1.3 black gravelly sand w/coal and construction debris, dry	0.4		AMR-SB21-FD-0.5
3	1.3-3.1 light brown fine sand, damp	0.5	3.1	14:35
4				EMSL-COMP-1-0.5
5		0.6		14:30
6	5-10' RUN 5.0-5.5 same as above	0.6		
7	5.5-7.4 grey-brown medium sand, trace gravel, moist	0.6		
8	7.4-7.6 brown fine sand, trace coarse sand, wet		2.6	None
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-22

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.3 grey and brown gravelly sand, construction debris, dry	0.3		
2	0.3-1.3 black coal ash, dry	0.3		
3	1.3-3.7 light brown fine sand, damp	4	3.7	None
4				
5		0.2		
	<u>5-10' RUN</u>			
6	5.0-5.4 same as above	0.2		
7	5.4-8.0 grey-brown medium to coarse sand, trace gravel, wet redox staining @5.4 and 6.9'	0.5	3.0	None
8		0.7		
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-23

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.6 grey and brown coarse gravelly sand, dry	0.3		
2	0.6-1.2 dark brown fine sand, trace coal, dry	0.3		
3	1.2-2.2 brown fine sand, trace medium sand, dry	0.1	3.0	None
4	2.2-3.0 light brown fine to medium sand, dry			
5		0.5		
	<u>5-10' RUN</u>			
6	5.0-6.8 yellow brown medium to coarse sand, moist	0.3		
7	6.8-7.3 red-brown medium to coarse sand, wet	0.7		
8	7.3-7.6 grey medium to coarse sand, wet	0.6	3.1	None
9	7.6-8.1 grey medium to coarse sand, redox staining, wet			
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-24

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-0.7 dark brown, fine sand and silt, dry (topsoil) loose 0.7-1.3 brown fine to medium sand, trace gravel, dry	0.2	13	AMR-SB24-1.0 13:25 poor recovery sampled @ 1.0'
2		0.4		
3				
4				
5		0.2		
6	5-10' RUN 5.0-5.6 same as above 5.6-7.4 brown medium to coarse sand, dry	0.3	2.4	None
7		0.3		
8				
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

Drilling Log

SB-25

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-1.0 grey and brown coarse gravelly sand, dry	0.5		
2	1.0-1.9 dark brown medium sand w/construction debris	0.0		
3	1.9-2.6 brown w/rusty brown mottles medium sand		3.4	AMR-SB-25-0.5
4		0.4		15:05
5	2.6-3.4 medium to fine light brown sand, moist			
	<u>5-10' RUN</u>			
6	5.0-7.3 medium to fine light brown sand, moist	0.1		
7	7.3-8.5 medium to coarse light brown sand, moist			
8		0.3		
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-26

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-1.0 grey and brown gravelly sand, dry	0.3		
2	1.0-1.3 dark brown sand w/coal debris, dry	0.3		
3	1.3-2.7 medium sand, brown, moist		3.0	AMR-SB26-2.0
4	2.7-3.0 interbedded silt and medium to fine sand, light brown, moist	0.4		12:45
5		0.6		
	<u>5-10' RUN</u>			
6	5.0-5.4 same as above			
7	5.4-6.7 medium to fine sand, light brown, moist	0.6		
8	6.7-8.4 coarse to medium sand, light brown, moist	0.5	3.4	None
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-27

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.5 grey gravelly sand, dry	0.0		
2	0.5-1.0 brown gravelly sand, dry	0.4		
3	1.0-1.6 dark brown and black coarse sand w/silt	0.5	3.3	AMR-SB27-0.5
4	1.6-3.3 light brown medium sand w/silt peds, moist			9:50
5		0.3		
	<u>5-10' RUN</u>			
6	5.0-5.3 same as above	0.3		
7	5.3-6.0 brown sandy silt, wet	0.1		
8	6.0-8.8 light brown medium sand coarsening w/depth to coarse and medium sand, moist	0.5	3.8	None
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-28

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-0.4 dark brown sandy loam, moist	0.1		
2	0.4-1.6 medium and coarse sand, moist, brown, roots	0.1		
3	1.6-2.1 dark brown sand, medium and fine w/pebbles, dry	0.2	3.2	AMR-SB28-0.5 10:13
4	2.1-3.2 light brown fine and medium sand w/trace silt, moist			
5		0.2		
	<u>5-10' RUN</u>			
6	5.0-6.0 same as above	2.0		
7	6.0-7.05 light brown fine sandy silt, wet	0.2	4.1	None
8	7.05-8.5 brown silty fine sand, wet	0.5		
9	8.5-9.1 light brown medium sand w/trace coarse sand, moist	0.4		
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-29

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	0-5' RUN	0.1		
1	0.0-0.3 dark brown fine sand and silt, dry (topsoil)	0.3		
2	0.3-1.4 brown medium sand, dry			
3	1.4-2.4 grey-brown fine to medium sand, trace gravel, damp	0.2	24	AMR-SB29-0.5 11:50
4				
5		0.2		
	5-10' RUN			
6	5.0-5.7 same as above	0.7		
7	5.7-5.8 light brown fine sandy silt, damp			
8	5.8-7.7 light brown fine to medium sand, damp	0.5	2.7	None
9				
10				
	10-15' RUN			
11				
12				
13				
14				
15				

Drilling Log

SB-30

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-1.2 light brown gravelly sand, dry	0.1		
2	1.2-2.0 dark brown medium sand w/coal ash debris, dry	0.1	3.7	AMR-SB30-2.0
3	2.0-2.3 medium and fine sand w/dark brown stains, dry	0.2		10:10
4	2.3-3.7 light brown medium to fine sand, well sorted, dry	0.3		
5				
	<u>5-10' RUN</u>			
6	5.0-5.7 same as above	0.2		
7	5.7-6.5 interbedded fine sand and sandy silt, moist, 1-3 cm thick layers	0.5	4.0	None
8	6.5-7.0 brown sandy silt, wet	0.1		
9	7.0-9.0 medium and fine sand, moist, light brown			
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-31

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:			NA
State Plane Coordinate Feet (East):		Well Diameter (inches)			NA
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):			NA
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):			NA
Ground Elevation (feet):	NA	Screen Slot Size:			NA
Datum:	MSL	Sand Pack:			NA
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	<u>0-5' RUN</u>			
1	0.0-1.6 coarse sand and gravel, light brown, dry	0.2		AMR-SB31-0.5 AMR-SB31-FD-0.5 11:00
2	1.6-2.0 dark brown sand w/coal debris, dry	0.2		
3	2.0-2.3 dark brown medium sand, dry		3.4	
4	2.3-3.4 light brown fine and medium sand, dry	0.3		
5				
	<u>5-10' RUN</u>			
6	5.0-6.0 SAME AS ABOVE	0.4		None
7	6.0-7.1 brown fine sandy silt, wet	0.2	3.5	
8	7.1-8.5 medium to coarse sand,brown, moist	0.2		
9				
10				
	<u>10-15' RUN</u>			
11				
12				
13				
14				
15				

Drilling Log

SB-32

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
	0-5' RUN			
1	0.0-1.6 coarse sand and gravel light brown, dry	0.2		
2	1.6-2.6 light brown fine sand, dry	0.1	2.6	AMR-SB32-2.0
3				11:15
4				
5		0.6		
	5-10' RUN			
6	5.0-5.6 light brown fine sand, moist	0.5		
7	5.6-6.4 brown fine sand and silt, wet	0.4	3.6	None
8	6.4-7.9 brown fine sand, wet	0.3		
9	7.9-8.6 borwn medium to coarse sand, wet			
10				
	10-15' RUN			
11				
12				
13				
14				
15				

Drilling Log

SB-33

Site Name:	Crescent Connector	Client:	Dubois and King	Permit No.:	NA
Location:	Essex Junction, Vermont	Drilling Dates:	6/27/2013		
Project:	Crescent Connector Phase II ESA	Field Log By:	Dan Voisin and Steve Hubbs		
Driller:	Dan Byrne	Company:	SEI	Drilling Method:	Geoprobe (6610 DT)
					MC5 sampler
Latitude:		Longitude:		Borehole Diam. (in.):	2.25
State Plane Coordinate Feet (North):		Outer Casing:	NA		
State Plane Coordinate Feet (East):		Well Diameter (inches)	NA		
Outer Casing (OC) Elevation (feet):	NA	Casing Length (feet):	NA		
Inner Casing (IC) Elevation (feet):	NA	Screen Length (feet):	NA		
Ground Elevation (feet):	NA	Screen Slot Size:	NA		
Datum:	MSL	Sand Pack:	NA		
Notes:					

Depth (feet)	Description	PID Response (ppm)	Recovery	Sample IDs
1	0-5' RUN 0.0-1.4 coarse gravelly sand, grey and light brown, dry	0.2		
2	1.4-1.8 dark brown medium sand, damp	0.4		
3	1.8-2.6 light brown medium sand, damp		2.6	AMR-SB33-0.5 11:40
4				
5				
6	5-10' RUN 5.0-5.9 same as above	0.4		
7	5.9-6.8 brown fine sandy silt, damp	0.3		
8	6.8-7.9 interbedded fine sand and silt, trace coarse sand at bottom, damp	0.2	2.9	None
9				
10				
11	10-15' RUN			
12				
13				
14				
15				

8/30/13 Crescent Connector

SJR

11:15 on-site

weather: 70's, sunny

objectives: Coc delineation by HA
soil borings

SB-34

0.0-0.5' Very dark brown loamy sand, dry

0.5-1.5' Dark brown s w/ some Co G, angular, dry

Peak PID = 10.6 ppm v/v

Samples collected: AMR-SB34-1.5 (VOC)

AMR-SB34-1.5 (RCRA 8 metals) 11.46

* SVOCs

SB-35

0.0-1.5' Very dark brown loamy sand w/ trace

Gravel, dry PID = 0.0 ppm v/v

Samples: 1155 AMR-SB35-1.5 (RCRA 8)

SB-36

0.0-0.2' crushed stone (eroded from RR bed)

0.2-2.0' Brown, very well sorted fine sand, dry

PID = 0.0 ppm v/v

Samples: 1205 AMR-SB36-2.0 (RCRA 8)

8/30/13
Crescent
Co.

SPR

SB-37

0.0-0.9 Very dark loamy sand, dry

0.8-2.0 Reddish brown F-Med. S, dry

PID = 0.0 ppm v/v

Samples! AMR-SB37-2.0 (RCRA 8) (121)

1220 Collected composite of SB-34 → 37 samples

for TCLP analysis (AMR-SB39-comp)

SB-38

0.0-0.3 Very dark loamy sand, dry

0.3-2.0 Brown well sorted-fine sand, dry

PID = 2.8 ppm v/v

13:00 Samples! SEI-SB38-2.0 (VOCs)!

AMR-SB38-2.0 (RCRA 8 / SVOCs)

+ FD's for both parameters

SB-39

0.0-1.5 Very dark loamy sand w/some G, dry

PID = 0.0 ppm v/v

13:12 Samples! AMR-SB39-1.5 (RCRA 8)

8/30/13
Crescent
Co.

SPR

SB-40

0.0-0.3 VD loamy sand, dry

0.3-1.2 brown, well sorted FS, trace MS, ~~dry~~

PID = 0.0 ppm v/v

Sample! 13:18 AMR-SB40-1.2 (RCRA 8)

SB-41

0.0-1.1 VD FS w/trace G, dry

PID = 0.8 ppm v/v

Sample! 13:25 AMR-SB41-1.1 (RCRA 8)

13:30 collected composite sample AMR-SB41-comp
of soil from SB-38 → 41 for TCLP analysis

SB-42

0.0-1.5 Very dark FS w/some G, dry

PID = 0.0 ppm v/v

Sample! 1350 AMR-SB42-1.5 (RCRA 8)

SB-43

0.0-1.0 Very dark FS w/Co G, dry

PID = 0.0 ppm v/v

Sample! 1400 AMR-SB43-1.0 (RCRA 8)

8130113
Crescent Con.
S/R

SB-44

0.0-1.0 Very dark brown gravelly sand, dry

PID = 0.0 ppm v/v

Sample: 1405 AMR-SB44-1.0 (RCRA 8)

SB-45

0.0-1.5 dark brown sand w/ some gravel, dry

PID = 0.0 ppm v/v

Samples: 1415 SEI-SB45-1.5 (VOCs)

AMR-SB45-1.5 (RCRA 8 + SVOCs)

1420 collected composite (AMR-21-COMP) of soil
from SB42 → 45 For TCLP analysis

SB-46

0.0-0.5 Brown, well sorted FS, dry

0.5-2.0 Grayish brown, FS, dry

PID = 0.0 ppm v/v

Sample: 1448 AMR-SB46-2.0 (RCRA 8)

SB-47

0.0-2.0 Brown, well sorted FS, trace G., dry

PID = 0.0 ppm v/v

Samples: 1500 SEI-SB47-2.0 (VOCs)

AMR-SB47-2.0 (RCRA 8 + SVOCs)

AMR-SB47-2.0-FD (RCRA 8)

SVOCs

8130113
Crescent Con.

S/R

SB-48

0.0-0.4 dark brown Fine sand, dry

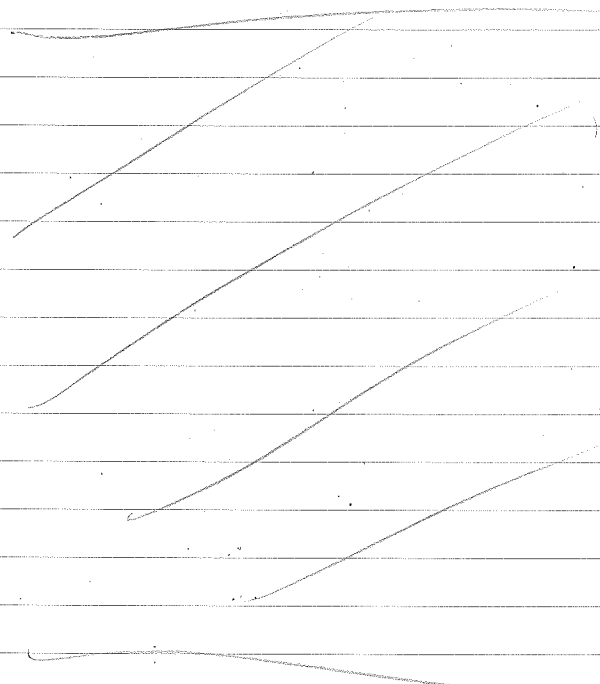
0.4-1.5 light brown Fine sand w/ some G @ bottom,
dry

PID = 0.0 ppm v/v

Sample: 1510 AMR-SB48-1.5 (RCRA 8)

1520 Collected composite of SB-46 → 48 For
TCLP analysis (AMR-SB48-COMP)

1525 of 5-site



Supplemental Soil Boring Logs

Soil Boring ID	Depth (ft bgs)	Description	PID Response (ppmv)	Sample IDs	Composite Sample IDs	
SB-34	0.0-0.5	Very dark brown loamy sand, dry	10.6	AMR-SB34-1.5	AMR-SB9-COMP	
	0.5-1.5	Dark brown sand with some coarse gravel, angular, dry				
SB-35	0.0-1.5	Very dark brown loamy sand w/trace gravel, dry	0.0	AMR-SB35-1.5		
SB-36	0.0-0.2	Crushed stone (eroded from railroad bed)	0.0	AMR-SB36-2.0		
	0.2-2.0	Brown, very well sorted fine sand, dry				
SB-37	0.0-0.8	Very dark loamy sand, dry	0.0	AMR-SB37-2.0		
	0.8-2.0	Reddish brown fine to medium sand, dry				
SB-38	0.0-0.3	Very dark loamy sand, dry	2.8	AMR-SB38-2.0		AMR-SB11-COMP
	0.3-2.0	Brown well sorted fine sand, dry				
SB-39	0.0-1.5	Very dark brown loamy sand with some gravel, dry	0.0	AMR-SB39-1.5		
SB-40	0.0-0.3	Very dark loamy sand, dry	0.0	AMR-SB40-1.2		
	0.3-1.2	Brown, well sorted fine sand, trace medium sand, dry				
SB-41	0.0-1.1	Very dark fine sand with a trace of gravel	0.8	AMR-SB41-1.1		
SB-42	0.0-1.5	Very dark fine sand with some gravel, dry	0.0	AMR-SB42-1.5	AMR-SB21-COMP	
SB-43	0.0-1.0	Very dark fine sand with coarse gravel, dry	0.0	AMR-SB43-1.0		
SB-44	0.0-1.0	Very dark brown gravelly sand, dry	0.0	AMR-SB44-1.0		
SB-45	0.0-1.5	Dark brown sand with some gravel, dry	0.0	AMR-SB45-1.5		
SB-46	0.0-0.5	Brown, well sorted fine sand, dry	0.0	AMR-SB46-2.0	AMR-SB28-COMP	
	0.5-2.0	Grayish brown fine sand, dry				
SB-47	0.0-2.0	Brown, well sorted fine sand, trace gravel, dry	0.0	AMR-SB47-2.0		
SB-48	0.0-0.4	Dark brown fine sand, dry	0.0	AMR-SB48-1.5		
	0.4-1.5	Light brown fine sand with some gravel at bottom, dry				

ft bgs = feet below ground surface

ppmv= parts per million/volume

APPENDIX E: STANDARD PENETRATION TESTING RESULTS

July 24, 2013

Page 1 of 3

To: Evan Detrick
Dubois and King Engineers, Inc.

MEMO



STONE ENVIRONMENTAL INC

From: Daniel Voisin
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SEI No. 12-152
Re: Results of Standard Penetration Testing, Crescent Connector, Essex Junction, Vermont

To facilitate roadway and related storm water infrastructure design, Stone Environmental Inc. (Stone) performed assessment of soil competency using Standard Penetration Test methods in select locations of the Crescent Connector Project Area.

Geotechnical Assessment Methods

To assess soil competency, Standard Penetration Testing (SPT) was performed during the completion of 6 soil borings on July 8, 2013. Borings were performed using 2.25 inch inner diameter hollow stem augers advanced using a Geoprobe 7822DT. Two-foot split spoons were advanced for the first two foot vertical interval for each five foot run of auger using a 140 pound automatic hammer. SPT was continued for each 5 ft vertical interval down to the water table.

Blow counts were recorded by a Stone geologist for each 6-inch vertical interval. Upon retrieving the split spoon sampler, soils were logged for texture, color and moisture content.

Geotechnical Assessment Results

Boring logs are provided as Attachment 1. In general, soils were found to be very loose to loose density sand. Medium density sands were observed from 5 to 7 feet below ground surface (ft bgs) in SPT-5. Depth to water table ranged from 5.5 ft bgs in SPT-1, located at the southern end of the Project Area to 7.0 ft bgs within the middle section of the proposed alignment (SPT-3 and SPT-4).

Table 1, below, provides results of penetration resistance and associated soil properties as determined by Peck, 1973.

July 24, 2013

Table 1: Blow Count Summary and Soil Properties, Crescent Connector, Essex Junction, Vermont

Test Interval (ft bgs)	SPT Interval	SPT-1		SPT-2		SPT-3		SPT-4		SPT-5		SPT-6	
		#	Properties ¹	#	Properties	#	Properties	#	Properties	#	Properties	#	Properties
0-2.0	N1 (0-6")	NC		5	Loose	3	Very Loose	2	Very Loose	5	Loose	3	Very Loose
	N2 (6-12")	3	Very Loose	5	Loose	4	Very Loose	2	Very Loose	4	Very Loose	7	Loose
	N3 (12-18")	2	Very Loose	5	Loose	4	Very Loose	1	Very Loose	3	Very Loose	4	Very Loose
	N4 (18-24")	2	Very Loose	3	Very Loose	3	Very Loose	2	Very Loose	4	Very Loose	4	Very Loose
5.0-7.0	N1 (0-6")	3	Very Loose	0	Very Loose	0	Very Loose	2	Very Loose	4	Very Loose	3	Very Loose
	N2 (6-12")	2	Very Loose	1	Very Loose	3	Very Loose	4	Very Loose	12	Medium	4	Very Loose
	N3 (12-18")	2	Very Loose	WoH	Very Loose	3	Very Loose	4	Very Loose	11	Medium	4	Very Loose
	N4 (18-24")	3	Very Loose	WoH	Very Loose	3	Very Loose	5	Loose	12	Medium	5	Loose
10.0-12.0	N1 (0-6")	NA		NA		NA		NA		3	Very Loose	4	Very Loose
	N2 (6-12")	NA		NA		NA		NA		4	Very Loose	6	Loose
	N3 (12-18")	NA		NA		NA		NA		5	Loose	6	Loose
	N4 (18-24")	NA		NA		NA		NA		4	Very Loose	7	Loose
Depth to Water (ft bgs)		6.0		5.5		7.0		7.0		6.5		6.8	

WoH: Weight of Hammer interval – no blow counts. ¹Soil properties based on Peck, Ralph B., *Foundation Engineering*, Second Edition, John Wiley & Sons, 1973.

July 24, 2013

ATTACHMENT 1: SOIL BORING LOGS

SOIL BORING LOG

Project Name: Crescent Connector Site Name: Essex Junction Crescent Connector
 Stone Project Number: 12-152-R Client: Dubois & King

BORING ID: SPT-1	Date Drilled: 7/8/13	Location:
SOP followed:		
Deviations? (if YES, attach details):		
Drilling Method: Hollow Stem Auger		
Driller's name:	Casing diameter:	
Sampling method: Split spoons		
Core Length:	Sample diameter:	
Comments: Water table estimated to be at 6.0 ft bgs based on heave in auger. Hole backfilled with cuttings and topped with hole pack		

Depth Interval (feet bgs)	Blow Counts (per 0.5 ft)	PID	Recovery (inches or feet)	Sample Description (color, texture, moisture, remarks)
0.0-0.5	NA	NC	NA	Asphalt
SPT 0.5-2.0	3,2,2		NC	0.5-1.0 dark brown gravelly sand 1.0-1.5 silty fine sand, tan brown
Auger from 2.0 to 5.0'				Cuttings: silty fine sand, tan brown, moist
SPT 5.0-7.0	3,2,2,3		1.75'	5.0-5.25 dark brown gravelly sand 5.25-6.5 dark brown coarse sand, wet, w/silt 6.5-6.75 dark brown medium sand w/silt

Geoscientist:	Signature:	Date:
Geoscientist:	Signature:	Date:

SOIL BORING LOG

Project Name: Crescent Connector Site Name: Essex Junction Crescent Connector
 Stone Project Number: 12-152-R Client: Dubois & King

BORING ID: SPT-2	Date Drilled: 7/8/13	Location:
SOP followed:		
Deviations? (if YES, attach details):		
Drilling Method: Hollow Stem Auger		
Driller's name:	Casing diameter:	
Sampling method: Split spoons		
Core Length:	Sample diameter:	
Comments: Water table at 5.5 ft bgs. Hole backfilled with cuttings.		

Depth Interval (feet bgs)	Blow Counts (per 0.5 ft)	PID	Recovery (feet)	Sample Description (color, texture, moisture, remarks)
SPT 0.0-2.0	5,5,5,3	NC	1.9	0.0-0.6 light gray gravelly sand, dry 0.6-1.6 dark brown-black coarse sand and gravel w/coal ash 1.6-1.9 dark brown medium sand w/silt, dry
Auger from 2.0 to 5.0'				
SPT 5.0-7.0	0, 1 for 5.5-7.0	NC	1.5	5.0-5.5 heave 5.5-6.5 coarse sand and gravel, brown, saturated

Geoscientist:	Signature:	Date:
Geoscientist:	Signature:	Date:

SOIL BORING LOG

Project Name: Crescent Connector Site Name: Essex Junction Crescent Connector
 Stone Project Number: 12-152-R Client: Dubois & King

BORING ID: SPT-3	Date Drilled: 7/8/13	Location:
SOP followed:		
Deviations? (if YES, attach details):		
Drilling Method: Hollow Stem Auger		
Driller's name:	Casing diameter:	
Sampling method: Split spoons		
Core Length:	Sample diameter:	
Comments: Water table at 5.8 ft bgs. Hole backfilled with cuttings		

Depth Interval (feet bgs)	Blow Counts (per 0.5 ft)	PID	Recovery (feet)	Sample Description (color, texture, moisture, remarks)
SPT 0.0-2.0	3,4,4,3	NC	2.0	0.0-0.6 coarse sand and gravel w/coal debris, black, dry 0.6-2.0 light brown medium sand w/silt, dry
Auger from 2.0 to 5.0'				
SPT 5.0-7.0	NC, 3,3,3	NC	1.2	5.0-5.2 heave 5.2-5.6 brown medium sand w/gravel, dry 5.6-6.2 brown-gray coarse and medium sand w/pebbles, wet at 5.8'

Geoscientist:	Signature:	Date:
Geoscientist:	Signature:	Date:

SOIL BORING LOG

Project Name: Crescent Connector Site Name: Essex Junction Crescent Connector
Stone Project Number: 12-152-R Client: Dubois & King

BORING ID: SPT-4	Date Drilled: 7/8/13	Location:
SOP followed:		
Deviations? (if YES, attach details):		
Drilling Method: Hollow Stem Auger		
Driller's name:	Casing diameter:	
Sampling method: Split spoons		
Core Length:	Sample diameter:	
Comments: Water table at 7.0 ft bgs. Hole backfilled with cuttings		

Depth Interval (feet bgs)	Blow Counts (per 0.5 ft)	PID	Recovery (feet)	Sample Description (color, texture, moisture, remarks)
SPT 0.0-2.0	2,2,1,2	NC	2.0	0.0-0.6 black coarse sand and gravel w/coal debris, dry 0.6-2.0 light brown medium sand w/silt, dry
Auger from 2.0 to 5.0'				
SPT 5.0-7.0	2,4,4,5	NC	1.6	5.0-5.2 heave 5.2-6.1 medium and coarse sand, moist, light brown 6.1-6.6 light brown w/rusty mottles medium sand w/pebbles, wet at bottom About 8" of heave after pulling center plug

Geoscientist:	Signature:	Date:
Geoscientist:	Signature:	Date:

SOIL BORING LOG

Project Name: Crescent Connector Site Name: Essex Junction Crescent Connector
 Stone Project Number: 12-152-R Client: Dubois & King

BORING ID: SPT-5	Date Drilled: 7/8/13	Location:
SOP followed:		
Deviations? (if YES, attach details):		
Drilling Method: Hollow Stem Auger		
Driller's name:	Casing diameter:	
Sampling method: Split spoons		
Core Length:	Sample diameter:	
Comments: Water table at 6.5 ft bgs. Hole backfilled with cuttings, toff w/hole patch		

Depth Interval (feet bgs)	Blow Counts (per 0.5 ft)	PID	Recovery (feet)	Sample Description (color, texture, moisture, remarks)
SPT 0.0-2.0	5,4,3,4	NC	1.4	0.0-0.8 light gray gravelly coarse sand, dry 0.8-1.4 light brown medium sand w/silt, moist
Auger from 2.0 to 5.0'				
SPT 5.0-7.0	4,12,11,12	NC	1.7	5.0-5.1 heave 5.1-6.7 light brown medium sand w/trace silt, dry until 6.6'
Auger from 5.0 to 10.0				
SPT 10.0-12.0	3,4,5,4	NC	1.0	Light brown coarse to medium sand w/trace gravel, saturated

Geoscientist:	Signature:	Date:
Geoscientist:	Signature:	Date:

SOIL BORING LOG

Project Name: Crescent Connector Site Name: Essex Junction Crescent Connector
 Stone Project Number: 12-152-R Client: Dubois & King

BORING ID: SPT-6	Date Drilled: 7/8/13	Location:
SOP followed:		
Deviations? (if YES, attach details):		
Drilling Method: Hollow Stem Auger		
Driller's name:	Casing diameter:	
Sampling method: Split spoons		
Core Length:	Sample diameter:	
Comments: Water table at 6.8 ft bgs. Hole backfilled with cuttings, top off w/hole patch		

Depth Interval (feet bgs)	Blow Counts (per 0.5 ft)	PID	Recovery (feet)	Sample Description (color, texture, moisture, remarks)
SPT 0.0-2.0	3,7,4,4	NC	1.2	0.0-1.0 light gray gravelly coarse sand, dry 1.0-1.2 dark brown – black coarse sand and gravel w/coal ash and debris
Auger from 2.0 to 5.0'				
SPT 5.0-7.0	3,4,4,5	NC	1.8	5.0-5.7 fine and medium sand, dry, light brown 5.7-6.8 olive brown silt and fine sand, moist to wet
Auger from 5.0 to 10.0				
SPT 10.0-12.0	4,6,6,7	NC	1.7	10.0-11.7 light brown sand w/trace gravel, wet

Geoscientist:	Signature:	Date:
Geoscientist:	Signature:	Date:

**CORRECTIVE ACTION PLAN AMENDMENT
CRESCENT CONNECTOR ROADWAY**

**SMS Number: 2012-4263
Essex Junction, Vermont
June 17, 2021**



PROJECT NO.

12-152

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Title and Approval Page

Document Title

Corrective Action Plan - Amendment, Crescent Connector Roadway, Essex Junction, Vermont.
SMS #2012-4263

June 17, 2021

Document Prepared by:

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Document Preparer Approvals:

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Signature



Date

Katrina J. Mattice, P.E., Project Engineer, Stone Environmental Inc.

By my signature, as a Vermont Registered Engineer that I hereby certify that I have reviewed this document.



Signature



Date



Executive Summary

Stone Environmental, Inc. (Stone), under contract with Dubois and King Inc. (D&K), has prepared this Corrective Action Plan (CAP) Amendment based on findings of prior environmental site investigation of the proposed Crescent Connector roadway project right-of-way limits (Project Area). This CAP amendment has been revised to incorporate comments from the Vermont Department of Environmental Conservation (VT DEC) in a letter dated March 3, 2021 and an email dated May 20, 2021.

Past use of the Project Area includes over 150 years of railway conveyance. The Project Area traverses a railroad right of way, municipal right of way, and commercial areas within the Village of Essex Junction. The Project Area is immediately adjacent to several properties in residential use, specifically along Railroad Street. From the south, the proposed Crescent Connector road first traverses a parcel currently under commercial use (34 Park Street). Businesses operating at this address include Karen's Kloset (used clothing), Not Just for Golf (club car sales and rentals), Lazy Farmer (restaurant), Heart n Soul by Mark BBQ (restaurant), Essex Barber Shop, and East Coast Printers. The second parcel traversed is a railway corridor owned by Canadian National and operated under lease agreement by New England Central Railroad, Inc. Limited Project Area improvements are proposed for 11 and 15 Maple Street, which are both privately owned and operated for commercial businesses, including Bailey's Spring and Chassis and Five Corners Antiques. The proposed road then crosses Maple Street (VT Route 117) and follows Railroad Street to the north, terminating at Main Street (VT Route 15).

The Vermont Agency of Transportation and the Village of Essex Junction intend to construct the Crescent Connector roadway to divert traffic from the five corners area of Essex Junction. The proposed roadway will connect Park Street, Maple Street, and Main Street with a two-lane road. A new at-grade rail crossing is proposed for the New England Central Railway (NECR) rail line along the proposed roadway. A small parking area is located between the proposed Crescent Connector and the railway with additional parking south of the roadway along Railroad Street Extension. Additional improvements will be made to Railroad Street to allow for more vehicular traffic than what is currently able to use the street. Stormwater infrastructure will include catch basins, swales, and sand filters and infiltration via porous pavement in the proposed parking lot.

In 2013, under contract with D&K, Stone performed Project Area investigations to determine the degree, nature, and extent of contamination in the Project Area. Concentration results indicate polycyclic aromatic hydrocarbons (PAHs) and the metals arsenic and lead are present at varying concentrations – including some in excess of the Vermont Soil Standards (VSSs) – in shallow soils across the Project Area resulting in four soil management categories: clean soil (native or fill), urban soil (soil with a PAH concentration greater than 0.07 milligrams per kilogram [mg/kg] and less than 0.58 mg/kg), development soil (soil with a PAH concentration greater than 0.58 mg/kg but less than 1.54 mg/kg), and non-hazardous waste soil. Approximately 41% of the Project Area is comprised of clean fill, while 11% is urban soils, and 43% is comprised of developments soils. The remaining 5% of the Project Area contains mercury and antimony and are non-hazardous waste soil. Due to the presence of contaminants, Site soils require mitigation and/or management as part of the construction of the Crescent Connector roadway.

Due to the heavy rail use of the Project Area, Stone attributes the observed contamination to emissions during the coal-burning history of the adjacent rail and maintenance performed along the rail Right of Way. The presence of metals and PAHs in Project Area soils is primarily attributed to coal ash waste and unburned coal debris. The presence of metals in Project Area soils may also be attributed to former maintenance activities, such as application or use of wood preservatives and insecticides along the rail corridor.

This *Corrective Action Plan* recommends that construction activities for the proposed roadway be performed to serve as adequate remedial systems to protect human health. The recommended remedial actions include:

- Implementing a soil management plan to properly identify, load, transport, and dispose of excess soils at an appropriate facility.
- Implement Project Area Control measures, including dust mitigation and erosion prevention during construction.
- Installation of engineered barriers to prevent direct contact with contaminated soil. Barriers will consist of the proposed roadway, parking lot, sidewalks, green spaces, and associated sub-base courses.
- Implementation of institutional controls on the Project Area in the form of a Village Ordinance for the Crescent Connector Right of Way.
- Periodic inspection of the engineered barriers with prompt repair in the event of degradation.

Corrective actions are expected to be performed over four months starting in the summer of 2021.

Corrective Action Plan - Amendment, Crescent Connector Roadway, Essex Junction, Vermont SMS #2012-4263

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1. Introduction

Stone Environmental, Inc. (Stone), under contract with Dubois & King, Inc. (D&K), performed a Phase II Environmental Site Assessment (Phase II ESA) of the planned alignment for the proposed Crescent Connector in Essex Junction, Vermont (Figure 1). The findings of this investigation were reported in the *Phase II Environmental Site Assessment of the Crescent Connector* (Phase II ESA Report), prepared by Stone and dated November 21, 2013.

The Crescent Connector roadway is a proposed new road, approximately 1,250 feet in length, intended to bypass the Essex Junction Five Corners Area. The Crescent Connector will link Vermont Route 2A (Park Street) and Vermont Route 117 (Maple Street) and facilitate traffic flow from Vermont Route 117 (Maple Street) to Route 15 east (Main Street). Collectively, the right-of-way limits for these segments encompass the “Project Area” (Figures 2 and 3). For this document, we have divided the Project Area into three main sections, including from south to north:

- Section 1: Park Street to the new New England Central Railway (NECR) grade crossing, totaling approximately 430 linear feet.
- Section 2: New NECR grade crossing to Maple Street, totaling approximately 360 linear feet.
- Section 3: Maple Street to Main Street along Railroad Street, totaling approximately 460 linear feet.

As documented in the *Phase II ESA Report*, past use of the Project Area includes over 150 years of railway conveyance. The presence of metals and PAHs in Project Area soils is primarily attributed to coal ash waste and unburned coal debris. The presence of metals in Project Area soils may also be attributed to former maintenance activities, such as application or use of wood preservatives and insecticides along the rail corridor.

Stone has prepared this *Corrective Action Plan* (CAP) amendment to address the contaminated soils present in the Project Area while supporting the planned construction of the Crescent Connector. This CAP amendment has been revised to incorporate comments from the Vermont Department of Environmental Conservation (VT DEC) in a letter dated March 3, 2021 and an email dated May 20, 2021. The objective of the CAP is to reduce the risk of direct contact exposure to PAH and metals contamination present in surficial and shallow soils. The corrective actions consist of:

1. Developing a site-specific health and safety plan detailing training and monitoring requirements during construction;
2. Managing compatible contaminated soils on-site as backfill in areas requiring infill prior to the construction of the roadway. Compatible soils are defined as soils having the same contaminants and are classified as urban soils, development soils, and non-hazardous waste soils;

-
3. Excavation of PAH- and metals-contaminated soils in excess of the volume to be required for constructed road base and asphalt section while maintaining desired grades;
 4. Transport and disposal of excess soils at an appropriate facility;
 5. Installation of the constructed roadway, parking, and sidewalks to serve as a protective barrier; and
 6. Implementation of an institutional control for ongoing management of the Project Area.

The CAP was initially dated March 15, 2017 and approved by the Vermont Department of Environmental Conservation (VT DEC) on May 16, 2017. This CAP amendment includes results of a supplemental soil assessment performed in May 2020, updates to Section 6.5, Soil Management Plan, updates to Section 6.8, Institutional Controls, and updates to the detailed costs estimates attached in Appendix E.

1.1. Site Description

The proposed alignment of the Crescent Connector is presented on Figure 2. The general topographic setting of the Project Area is flat at an elevation of approximately 340 feet above mean sea level (ft AMSL). The nearest surface water body is Indian Brook, located approximately 1,440 feet to the northeast of the Project Area. The Project Area is part of the center of the Village of Essex Junction. The Village Center is defined by the intersections of Vermont Routes 2A (Lincoln Street – north, and Park Street – south), Vermont Route 15 (Pearl Street – west, and Main Street – northeast), and Vermont Route 117 (Maple Street – southeast). The intersection of these roadways is locally known as the Five Corners.

According to the Vermont Agency of Natural Resources (ANR) Natural Resources Atlas, there are 11 State of Vermont Hazardous Waste Sites, one State-listed hazardous waste generator, and seven facilities with registered underground storage tanks (USTs) within one-quarter mile of the Five Corners intersection.

Utilities traversing the Project Area include potable water, sanitary sewer and stormwater pipes, natural gas pipes, and buried and overhead electrical and communications cables. Water and sanitary sewer services within the Project Area are supplied by municipal utilities. According to the ANR Well Locator, the nearest water supply well to the Project Area is a domestic well located approximately 840 feet to the east-southeast of the Project Area and is owned by David Adams (Well ID 8-263).

From the south, the proposed Crescent Connector road first traverses a parcel currently under commercial use (34 Park Street). Businesses operating at this address include: Karen's Closet (used clothing), Not Just for Golf (club car sales and rentals), Lazy Farmer (restaurant), Heart n Soul by Mark BBQ (restaurant), Essex Barber Shop, and East Coast Printers. The second parcel traversed is a railway corridor owned by Canadian National and operated under lease agreement by New England Central Railroad, Inc. The proposed road then crosses Maple Street (VT Route 117). The proposed road then follows Railroad Street to the north, terminating at Main Street (VT Route 15).

Adjacent properties are predominantly commercial and residential. Residential apartments can be found at 15E-J Maple Street, 17 Maple Street, along Railroad Street, and on Gaines Court. Nearby commercial properties include Bailey's Spring and Chassis (15A-B Maple), Architectural Antiques (11 Maple), Kalanges and Dalton Real Estate (15A Maple), Sunoco Gas Station (16 Maple Street), William Raveis BCK Real Estate (18 Railroad Street), Essex Eye Association (16 Railroad Street), All Seasons Siding (8 Railroad Street), and the Essex Insurance Agency (2 Railroad Street).

1.2. Site History

The vicinity of the Project Area has been in mixed commercial and residential use since before 1894, the earliest property-specific historic land use documentation available. A narrow band of industrial use occurs to the southeast of the Project Area. Parcels located closest to Five Corners have been predominantly commercial. Growth in the area, and development of past commercial use, was largely spurred by the rail, which were first brought to Essex Junction in the 1850s.

Later, with the advent of the automobile, commercial enterprises were focused around serving this more mobile, car-driving populace.

Trends to commercial use within the downtown corridor are consistent with the introduction of new technologies and fashions. For instance, tinsmiths and blacksmiths were common through Essex Junction area through the turn of the 20th century; however with the development of cheaper and more durable alternatives, such as plastics or aluminum, smiths became less common and were no longer found after 1940.

Beginning in approximately 1920, with the introduction of affordable automobiles, service stations, garages, and storage units for automobiles became widespread. Many of the facilities that formerly served as the support infrastructure for the horse-reliant populace were converted to support automobiles; liverys became garages, blacksmiths became service stations. It is interesting to note that there are several former gasoline service stations and small gasoline dispensaries that no longer serve in this type of use. A prominent example is Firebird Cafe, located at the intersection of Main and Maple Street, which was a former Mobil station. Other examples include 4 Central Street, 34 Park Street, and 25 Pearl Street.

1.3. Proposed Re-Use Plan

The Vermont Agency of Transportation and the Village of Essex Junction intend to construct the Crescent Connector roadway to divert traffic from the Five Corners area of Essex Junction. The proposed roadway will connect Park Street, Maple Street, and Main Street with a two-lane road. An at grade rail crossing is proposed for the New England Central Railway line. A small parking area will be located between the proposed Crescent Connector and the railway. Additional improvements will be made to Railroad Street to allow for more vehicular traffic than what is currently able to use the street. Stormwater infrastructure will include catch basins, swales, and sand filters and infiltration via porous pavement in the proposed parking lot.

2. Prior Environmental Investigations

Prior environmental assessment of the Project Area includes the Essex Junction Area Wide Brownfield Assessment performed by Stone in July 2012 for the Village of Essex Junction and Chittenden County Regional Planning Commission under a Brownfield Assessment Grant awarded by the US EPA. During the course of the Area Wide Assessment, Stone reviewed pertinent historical documents, published geologic literature, Federal and State environmental databases, and Vermont Department of Environmental Conservation (VT DEC) Sites Management Section (SMS) files for known hazardous waste sites within and immediately upgradient of the Village Center zoning district, which includes the Project Area. From this assessment, Stone developed the following findings that are germane to the Project Area:

- Rail operations occurred on portions of the Project Area for over 150 years. Due to the nature of past use, specifically the rail operations, potential contaminants of concern (COCs) within soils in the Project Area include volatile organic compounds (VOCs) associated with petroleum fuels and solvents, chlorinated solvents, pesticides, PAHs associated with coal and coal ash, polychlorinated biphenyls (PCBs), metals, and asbestos.
- Operation of historically-documented gasoline USTs occurred at several locations immediately upgradient of the Project Area, including the following:
 - Former Robinson's Service Station at 1 Park Street from 1929 through 1967;
 - Former Graff's Garage at 12 Park Street from 1929 through 1944;
 - Former service station operated under the names R.L. Baker and Raymond Huntley at 9 Main Street from 1922 to 1962;
 - Former Standard Oil Company at Main and Maple (formerly Road Res-Q and now Firebird Cafe) from 1928 to 1996; and
 - Simons Store at 2 Park Street from 1954 to present.
- Gasoline contamination in groundwater from at least one State-listed hazardous waste site (Simon's Store, SMS #96-1961) has migrated onto the Project Area. The Project Area is also located downgradient of the Road Res-Q hazardous waste site (SMS# 96-1993), and is adjacent to a third hazardous waste site (Bushey's Sunoco; SMS#98-2430).

As a result of the above-listed findings of the Area Wide Assessment, Stone recommended that pre-construction planning for the proposed Crescent Connector consider the potential existence of surface soil contamination on the Project Area parcels. In 2013, Stone completed that assessment in the form of a Phase II Environmental Site Assessment (Phase II ESA).

2.1. Phase II Environmental Site Assessment

The Phase II ESA included performing 48 soil borings along the proposed alignment and the collection of soil samples for analysis for VOCs, metals, PAHs, PCBs, herbicides, organo-chlorine pesticides, and asbestos

analyses. Results from the Phase II ESA indicate that PAHs and the metals arsenic, lead, and mercury are present in shallow soils at concentrations in excess of US EPA RSLs and Vermont Soil Standards (VSSs) in a small portion of the Project Area and require mitigation and/or management as part of the construction of the Crescent Connector roadway. PAHs and arsenic are present in soil at varying concentrations across the Project Area.

Field screening and laboratory analysis of VOCs in soil samples collected during the Phase II ESA in the Project Area indicate gasoline VOCs are not present within Project Area soils, and therefore do not present an exposure risk to future construction workers or other Project Area users. Other contaminants of concern, including polychlorinated biphenyls (PCBs) and herbicides were not detected at concentrations greater than their respective regulatory criteria; PCBs, specifically Aroclor 1260, was detected in one of 37 samples while herbicides were detected in 11 of 37 samples.

Tables B-1 through B-7 contain concentration results of all samples collected from the Project Area compared to current regulatory thresholds.

2.2. Supplemental Soil Assessment

In May, 2020, Stone performed supplemental soil assessment within the revised Project Area to establish soil quality conditions for previously unassessed areas including three utility pull boxes at the Maple Street crossing and an expanded parking area at the southern end of Section 2. Five soil borings were performed to four feet below ground surface. Discrete samples were collected from 2.0 feet in each boring and submitted to Con-Test Laboratories in East Longmeadow, Massachusetts for PAHs, VOCs, PCB, and priority pollutant metals analyses. Field notes from the supplemental assessment are provided in Appendix C. The laboratory analytical reports is provided in Appendix D.

Concentration results from this supplemental assessment are presented in Tables B-1 through B-3 and B-5 in Appendix B. Results indicate that soils in these two new areas are similar to their adjacent counterparts. While several metals were detected above the laboratory reporting limit, no metals concentrations were greater than the VSSs for residential properties. No PCB Aroclor was detected above the laboratory reporting limit. Total PAHs as benzo(a)pyrene-toxicity equivalency were detected in three of the five borings with detections all less than both the VSSs for industrial properties and the Vermont urban background value.

3. Conceptual Site Model

A Conceptual Site Model (CSM) is a set of working hypotheses which describe key aspects of the problem at a site. As with any hypothesis, the CSM is not conclusive and may require testing to arrive at desired levels of certainty. A CSM includes discussions of how chemicals were released at a site, their fate and transport mechanisms, as well as exposure routes for both ecological and human receptors. The CSM is based on all available information related to the Project Area. In general terms, a CSM provides the context for the Site Investigation, to ensure that investigation phases are developed to efficiently provide the information needed for making sound site management decisions.

The following is a CSM for the Project Area based on review of historic documentation of prior uses within the downtown area, existing data sets of identified hazardous waste sites within or near the Project Area, and various other sources for the physical description of the area.

3.1. Project Area Geology and Hydrogeology

According to the Surficial Geologic Map of Vermont (Doll, 1970) and other published literature, native unconsolidated soils in the Project Area are pebbly marine sand derived from a proto-delta of the Winooski River as it emptied into the pre-historic extent of Lake Champlain and later marine water intrusion from the Saint Lawrence Seaway called the “Champlain Sea” following the last ice age. Deeper soils within the Project Area, based on borings performed during hazardous site investigations within the Project Area, are finer silts and clays associated with a series of broad freshwater glacial lakes that preceded the marine water intrusion. Lake Vermont, as it is commonly referred to, stretched as far inland as Montpelier, Roxbury, and Williamstown. As a result of these paleo water bodies, unconsolidated materials within the Project Area consist of as much as 20 feet of sand and gravel underlain by an unknown, but likely highly variable, thickness of silt and clay. Native soils collected from borings performed during this Phase II ESA corroborate the shallower sandy deposits recorded in published literature.

Non-native fill is also present at the Project Area and includes both engineered sub-base material consisting of crushed stone and gravel, as well as PAH- and metals-contaminated debris from long-running deposition of coal ash from the adjacent rail lines.

Bedrock in the vicinity of the Project Area is mapped as the Skeels Corners Slate, a laminated, black slate with thin orange dolostone beds (Doll, 1961; Ratcliffe et al., 2011). Structural geologic mapping of the area documents folding of the bedrock with axial planes dipping moderately to the north. Based on the presence of marine clay mantling bedrock, the composition and structural features of the bedrock below the site is not germane to fate and transport mechanisms related to Project Area contaminants.

Surface water bodies in proximity to the Project Area include Indian Brook, which, at its closest point is 1,440 feet to the northwest of the Project Area, and the Winooski River, located approximately 2,400 feet south of the Project Area.

Stormwater runoff from paved areas in the Project Area is captured by the municipal stormwater system, which discharges to local surface water bodies, including Indian Brook, the Winooski River, and several unnamed tributaries.

Based on environmental investigation of nearby hazardous waste sites, groundwater within the Project Area is inferred to flow from the northwest to southeast at a slight gradient. Borings in the Project Area encountered saturated soil between six and seven feet below ground surface (bgs) during the Phase II ESA.

3.2. Contaminant Distribution

Analytical results of soil samples collected during the Phase II ESA identified widespread contamination of Project Area soils with metals and PAHs. Groundwater contamination with VOCs was identified downgradient of sites adjacent to the Project Area, but not in soil samples above the water table.

3.2.1. PAHs

PAHs are a group of chemicals that are common byproducts of the combustion of fossil fuels, and occur naturally in fuel oil, coal, and tar. PAHs are regulated compounds in the State of Vermont, and have been identified as carcinogenic, teratogenic, and/or mutagenic compounds. PAHs do not readily dissolve into water without help from a co-solvent and are therefore slow to migrate and degrade under natural conditions.

PAHs were identified in shallow soils across the Project Area, which were observed to contain fill material with a high proportion of coal and coal ash. Published statistical studies conducted in Massachusetts have shown that background concentrations of total carcinogenic PAHs in soils containing coal ash are typically greater than 42 $\mu\text{g/Kg}$ (MassDEP, 2002). The presence of PAHs in Project Area soils may therefore be attributed to the historic railroad operations that were documented in historical sources reviewed by Stone for the Essex Junction Area Wide Assessment. Historic railroad operations included coal-burning locomotive engines and the storage of coal in open areas along the rail corridor.

3.2.2. Volatile Organic Compounds

A release of gasoline from the Simons Store property, as documented by environmental investigation, has migrated in groundwater to the Project Area south of Maple Street and north of the Bailey's Spring and Chassis building (15 Maple Street). Field screening and laboratory analytical results of select soil samples performed during the Phase II ESA and supplemental soil assessment indicate that gasoline-related VOCs are not present in shallow soils at concentrations that would pose unacceptable risk of exposure to construction workers or other Project Area users through direct contact or inhalation pathways.

Other non-gasoline related VOCs, such as chlorinated solvents, Freons, or ketones, were not identified in soil samples collected during the Phase II ESA.

3.2.3. Arsenic

Arsenic is a naturally occurring metal in Vermont and has a low US EPA Region III RSL (0.39 milligrams per kilogram (mg/Kg)) for residential soils; background arsenic concentrations within the Project Area likely exceed the appropriate regulatory criteria for this compound, as typical arsenic concentrations in Vermont native soils range between 2 and 16 mg/Kg . Higher concentrations of arsenic than what can be attributed to natural occurrence were observed in several samples, including one sample that contained 264 mg/Kg of arsenic (SB-11) at 0.5 ft bgs and one sample that contained 532 mg/Kg of arsenic (SB-41) at 1.1 ft bgs. The sample collected from soil boring SB-11 also contained concentrations of antimony, lead and PAHs above regulatory criteria (industrial RSLs for PAHs and residential RSL for lead and antimony). The sample collected from SB-41 also contained lead at concentrations greater than the industrial RSL. The source of

these contaminants is likely related to coal ash present in the sample. Naturally-occurring metals present in coal are often concentrated in coal combustion residue (i.e. ash and slag), and concentrations of arsenic in coal ash-containing soils have been shown to exceed 16 mg/Kg (MassDEP, 2002). In addition, arsenic was commonly used as a fortifying agent for creosote to assist in wood preservation, and arsenic-based pesticides may have either been shipped to/from the railroad or used during maintenance activities of the rail bed itself. For example, historical documents indicate that creosote-treated railroad ties were stockpiled in the Project Area.

3.2.4. Lead and Mercury

The source of both lead and mercury contamination in shallow soils are likely attributable to coal ash, as described above for arsenic and antimony. Other anthropogenic sources of lead include lead-based paint, batteries, and solder, while mercury is commonly used in fluorescent light bulbs and thermometers.

3.2.5. Pesticides and PCBs

The organo-chlorine pesticide 4,4-DDT was detected in five samples at concentrations less than the US EPA Region III RSL for residential soils. Other, less prominent pesticides detected within Project Area soils included Dieldrin, 4,4-DDE, and 4,4-DDD. Organo-chlorine pesticides were commonly used in agricultural regions between 1939 and the 1970s, and are relatively insoluble, persistent (depending on the specific compound) and have a low vapor pressure. As the potential mobility of these chemicals under natural conditions is very low, their occurrence would be limited to areas where they were directly applied or otherwise released to the environment.

Arsenic-based pesticides were widely used prior to the early 1940s, when they were replaced by DDT. A release of arsenic-based pesticide in the Project Area may also explain the presence of arsenic in near-surface soils.

PCBs were detected as Aroclor 1260 in one soil sample within the Project Area (SB-5). The reported concentration of Aroclor 1260 was less than the VSSs for residential soils. Reported PCB concentrations were below laboratory reporting limits in the remaining soil samples analyzed during the Phase II ESA. Based on their limited occurrence and low concentration, PCBs do not appear to be pervasive in the Project Area.

3.3. Nearby Receptors and Abutting Landowners

Using the VT ANR Natural Resources Atlas, a qualitative receptor analysis was completed to evaluate the occurrence of potential receptors relative the Project Area.

3.3.1. Drinking Water Supplies

Public and private water supply wells located within one mile of the Project Area are depicted on Figure 1. Twenty-four private water supply wells were identified using the VT ANR Natural Resources Atlas within 1.0 mile of the Project Area, as presented in Table 1, below.

Table 1: Public Water Sources within 1 Mile

Well Report Number	System Owner	Well Use	Distance from Project Area (ft)	Direction from Project Area
392	Adams	Domestic	840	Southeast
227	Greenwood	Domestic	4,470	East, southeast
89	Carlson	Domestic	4,070	Southwest

281	IBM	OTHER	1,130	Southeast
136	IBM	Industrial	3,700	Southeast
282	IBM	OTHER	3,600	Southeast
137	IBM	Industrial	3,160	South, southeast
11	IBM Corporation	Industrial	3,010	South, southeast
23979	Hannaford Greer Ctr	Domestic	2,980	North, northeast
12983	VELCO	Industrial	2,730	South
6	IBM	Test	4,890	Southeast
50343	Reindeau	Domestic	2,730	North
135	IBM	Industrial	4,430	Southeast
49101	Green Mountain Power	Industrial	2,730	South, southwest
18	IBM CORPORATION	Industrial	4,710	Southeast
31861	Beathiaume	Domestic	4,790	North, northwest
312	Tuerass	Domestic	2,800	North, northeast
41193	Miller	Domestic	4,600	North, northwest
235	Morse Development	Domestic	4,610	North, northwest
13	IBM Corporation	Industrial	2,080	South, southeast
7	IBM	Test	4,890	Southeast
138	IBM	Industrial	3,630	East, Southeast
45	Agway, Inc.		4,360-	South
2135	Donnis	Domestic	1250	East, northeast

3.3.2. Surface Waters Source Protection Areas (SPAs)

No surface water source protection areas (SPAs) were identified within 1 mile of the Project Area.

3.3.3. Groundwater Source Protection Areas

No groundwater source protection areas (GSPAs) were identified within 1 mile of the Project Area.

3.3.4. Buildings with Basements

Structures with basements on abutting properties include several residences and commercial buildings along Railroad Street, 17 Maple Street, 34 Park Street, 4 Park Street, and 3 Maple Street. There are no building structures within the Project Area aside from a small shed located on the NECR property off Maple Street.

3.3.5. Wetlands

According to the Natural Resources Atlas, no mapped wetlands are located within the Project Area. The nearest mapped wetlands are located approximately 1,730 feet of the south of the Project Area along the Winooski River, with additional wetlands located along Indian Brook to the northeast and east.

3.3.6. Sensitive Ecological Areas

Mapped sensitive ecological areas, including deer wintering yards, habitat blocks, significant natural communities, VT Fish and Wildlife managed lands, and Indiana Bat hibernacula within 1 mile of the Project Area are summarized in Table 2, below.

Table 2: Sensitive Ecological Areas

Type	Unique ID (ANR Atlas)	Size (acres)	Distance from Project Area (ft)
Habitat Block	1134	395	4,300
Habitat Block	1139	42	3,440
Habitat Block	1172	26	3,230
Habitat Block	1191	652	3,050
Habitat Block	1233	1494	1,240

3.3.7. Rare, Threatened, and Endangered Species

Rare, threatened, and endangered species within a mile of the Project Area are summarized in Table 3, below. Based on the assessment performed as part of the Environmental Assessment for the Project, there are no threatened or endangered species within the Project Area.

Table 3: Rare, threatened, and endangered species

Type	Unique ID (ANR Atlas)	Category	Distance (ft)	Type	Unique ID (ANR Atlas)	Category	Distance from Project Area (ft)
40	3194	Vascular Plant	2,584	7515	2917	Nonvascular Plant	2,950
261	5051	Vascular Plant	5,023	7771	4352	Vascular Plant	4,974
517	712	Vascular Plant	744	7961	2402	Vascular Plant	2465
627	5051	Vascular Plant	1,649	8621	2857	Nonvascular Plant	2,760
672	1753	Vascular Plant	1,757	8622	3063	Nonvascular Plant	2,650
1247	4797	Vascular Plant	4,735	8623	3063	Nonvascular Plant	2,650
1568	5004	Vascular Plant	4,869	8624	3063	Nonvascular Plant	2,650
4005	4938	Vascular Plant	4,870	8625	3063	Nonvascular Plant	2,650
4869	3561	Vascular Plant	5,203	8755	3195	Vascular Plant	3,110
6172	4819	Vascular Plant	4,782	8778	2661	Vascular Plant	2,600
		Nonvascular Plant	2,600				3,375
7510	2660	Nonvascular Plant	2,641	9085	3561	Vascular Plant	4,580
7511	2660	Nonvascular Plant	2,693	9843	4400	Vascular Plant	4,000
7512	2660	Nonvascular Plant	2,600	10091	3842	Vertebrate Animal	1,580
7513	2660	Nonvascular Plant	2,950	10565	1753	Vascular Plant	1,580
7514	4352	Nonvascular Plant		10568	1753	Vascular Plant	
				11684		Vertebrate Animal	1,707

3.3.8. Adjoining Property Owners

Adjoining property owners, based on the 2019 Grand List for Essex, Vermont, are summarized in Table 4, below and depicted on Figure 2.

Table 4: Adjoining Property Owner Information

Parcel #	Span #	Current Occupant or Use	Street #	Street	Owner
1NECRAIL		Rail ROW			Central Vermont Railway
1029046000	207-066-13476	Parklet / Vacant	3	MAIN ST	DDH - GSH Trust
1029044000	207-066-15397	Vacant	5	MAIN ST	Reynolds, Raymond H. & Reynolds, Katherine S. Family Trust
1029229000	207-066-11115	Yankee Pride Quilts Shear Envy Essex	11	MAIN ST	Central Vermont Railway
1029043000	207-066-13271	Transitions Physical Therapy	17	MAIN ST	Roost LLC
1029212000	207-066-16092	Vacant – Under construction	3	MAPLE ST	3 Maple Street Essex, LLC
1029211000	207-066-15541	Architectural Antiques	11	MAPLE ST	Kalanges, William C.
1029205000	207-066-13272	15A-B, Bailey's Spring and Chassis 15D - Kalanges & Dalton Realtor 15E-J - Residential Apartments	15	MAPLE ST	Kalanges, William C.
1029059000	207-066-11510	Sunoco Gas Station	16	MAPLE ST	Sixteen Maple Street, LLC
1029213000	207-066-15865	Simon's Five Corner Store	2	PARK ST	Sisters and Brothers Investment Group
1029214000	207-066-14667	Lincoln Inn	4	PARK ST	LI Park St. Properties, LLC
1029215000	207-066-12241	Karen's Kloset Not Just for Golf Lazy Farmer Heart n Soul by Mark BBQ Essex Barber Shop East Coast Printers	34	PARK ST	McEwing Properties, LLC
1029215001	207-066-14715	See 34 Park St.	36	PARK ST	Robbins Mountain Towers, LLC
1029048000	207-066-13011	Essex Agency (Insurance)	2	RAILROAD ST	Holton and Hardy, LLC
1029049000	207-066-10891	All Seasons Siding	8	RAILROAD ST	BSA Management, Inc.
1029055000	207-066-15824	Residential	10	RAILROAD ST	Siegrist, Ronald C. & Siegrist, Alice M.
1029056000	207-066-15825	Residential	12	RAILROAD ST	Siegrist, Ronald C. & Siegrist, Alice M.
1029057000	207-066-13174	Residential	14	RAILROAD ST	James T. Benton & Erica L. Benton
1029058000	207-066-12707	Essex Eye Association William Raveis BCK Real Estate	16	RAILROAD ST	Sixteen Railroad Street, LLC

4. Remedial Objectives

The remedial objectives described within this CAP are designed to mitigate exposure risk to workers within the Project Area during the construction of the Crescent Connector roadway and future users to PAHs and metals in soil. To ensure the ongoing efficacy of the selected remedial alternatives (Section 5), the Village of Essex Junction proposes to pass a Village Ordinance mandating ongoing maintenance and monitoring of the remedial barriers.

The objectives of the Project Area remedial activities are:

1. To prevent risk of exposure of contaminated soils to workers and users within the Project Area.
2. To manage contaminated soils cost effectively and in a manner that is consistent with the intended use of the Project Area.
3. To conduct Project Area activities in a manner that prevents migration of contaminants from the site during construction activities.

4.1. Regulatory Guidelines

PAHs and metals in soil are regulated under the Vermont Soil Standards (VSS; IRule, updated July 2019). For those compounds not listed within the VSS, concentrations are compared to the US EPA Regional Screening Levels (May 2021).

Tables B-1 through B-7 present soil concentrations to these regulatory criteria as well as the Vermont urban background concentrations for arsenic and PAHs.

5. Evaluation of Corrective Action Alternatives

This section presents the Evaluation of Corrective Action Alternatives (ECAA) prepared by Stone to evaluate remedial alternatives for mitigating exposure of Project Area users to metals and PAHs in shallow site soils. The intent of the ECAA is to determine what technology would be best suited to support the mitigation of direct exposure risk to future Project Area users, while also minimizing the potential direct exposure to workers performing the remediation activities. The selected remedial approach is then used to develop a recommendation for a specific corrective action strategy, in addition to providing criteria for design, construction, and operations, monitoring, and maintenance (OM&M).

5.1. Assumptions

Unit rates for excavation of existing materials and, where applicable installation of fill soils, were developed using the Vermont Agency of Transportation 2-year Averaged Price List from January 2018 to January 2020.

For costing purposes, volumes for general excavation activities (excavation, transport, and disposal) include a twenty percent (20%) expansion factor. Unless otherwise noted, all volumes include this 20% expansion factor.

For development of disposal costs, a density of 1.5 tons per cubic yard of soil was assumed.

Costs for installation of final pavement, subbase materials, stormwater infrastructure, curbs, lane markings, and other finishes are not included. Alternative specific assumptions are provided alongside the cost estimate details provided in Appendix E.

5.2. Remedial Alternative Selection

Remedial approaches to addressing the presence of PAHs and metals in soil include:

- Alternative 1: removal of all contaminated soils greater than their respective VSS from the project area prior to initiating construction of the proposed roadway using clean backfill materials, sub-base, and pavement courses. Soils for removal would be transported to an approved facility for disposal.
- Alternative 2: installation of the sub-base, roadway, and associated infrastructure as part of an engineered separation barrier above contaminated soils and clean backfill materials, as needed. Limited soil volume generated for disposal; or
- Alternative 3: relocation of a sufficient volume of contaminated soils to serve as borrow materials, where needed combined with removal of excess soils for disposal at an approved disposal facility.

5.3. Alternative 1: Full Removal of contaminated soils

This alternative would involve removal of existing asphalt and sod in the Project Area; excavation of all contaminated soils above the residential RSL (generally within the uppermost 4 feet) within the proposed

project area; and installation of clean fill material to meet the subgrade requirements prior to installation of the pavement section (sub-base plus bituminous concrete).

Confirmation testing, consisting of collection of samples for analysis, would be required to confirm that all contaminated soils are removed from the Project Area.

Alternative 1 would require excavation of approximately 11,390 cubic yards of soil for transport and disposal and installation of over 4,750 cubic yards clean backfill prior to installing the pavement section. As no contaminated soils would remain, no institutional control or ongoing monitoring and maintenance to prevent future exposure would be required.

The cost to implement this remedial alternative is estimated at \$1,988,183 and would require approximately 7 months to complete. Costs to install pavement section are not provided in this estimate. Table 5, below, provides a summary cost estimate for Alternative 1. A detailed cost estimate is provided in Appendix E.

Table 5: Alternative 1 Cost Summary

Task	Subtotal
Project Coordination	\$21,389
Site Work – per week	\$108,586
<i>Oversight</i>	\$8,879
<i>Loading, Transport, and Disposal</i>	\$80,529
<i>Fill Installation</i>	\$13,987
<i>Dust Monitor</i>	\$2,420
<i>Waste Characterization and Confirmation Analyses</i>	\$2,771
18 Week Site Work Sub-Total	\$1,954,546
Remedial Action Report	\$12,248
TOTAL	\$1,988,183

5.3.1. Advantages

- Effective for protecting human health
- No ongoing monitoring required

5.3.2. Disadvantages

- Most expensive
- Only alternative that would require confirmation sample collection and analysis
- Increased costs for additional back fill materials
- Increased time for excavation and disruption in the project area and surrounding area
- Increased greenhouse gas contributions from excess transport for soils for disposal and materials for backfill

5.4. Alternative 2: Installation of roadway over existing surface

This alternative would involve removal of existing pavement and sod, where applicable, compaction, installation of a geotextile fabric to serve as an indicator fabric, and installation of the pavement section over the existing ground surface. Together, the pavement section and indicator fabric would serve as a cap over existing materials with disturbance of contaminated soils limited to surficial grading and installation of utilities. No additional fill is proposed. Soils generated for disposal are limited to those excavated for the installation of subsurface infrastructure (e.g., stormwater pipe, bedding, and catch basins).

Due to the thickness of the pavement section, roadway intersections, accesses, and the railroad crossing, grading for Alternative 2 would require additional design considerations from a road safety and drainage perspective.

Alternative 2 would require the use of institutional controls to ensure the ongoing monitoring and management of the remedial barriers. The institutional control would serve to notify future Project Area owners of the presence of PAHs and metals in soils below the pavement section, require an ongoing monitoring plan, and notification of the VT DEC in the event that excavation in the Project Area is required.

The cost to implement this remedial alternative is estimated at \$146,123 and would require approximately three and a half months to complete. Table 6, below, provides a summary cost estimate for Alternative 2. A detailed cost estimate is provided in Appendix E.

Table 6: Alternative 2 Cost Summary

Task	Subtotal
Project Coordination	\$6,471
Site Work – per week	\$31,540
<i>Oversight</i>	\$8,148
<i>Loading, Transport, and Disposal</i>	\$20,137
<i>Dust Monitor</i>	\$2,420
<i>Waste Characterization Analyses</i>	\$835
2 Week Site Work Sub-Total	\$63,080
Barrier Installation Oversight and ECAA Materials ¹ – per week	\$5,360
12 Week Barrier Installation Oversight Sub-Total	\$64,323
Remedial Action Report	\$12,248
TOTAL	\$146,123

¹ECAA-required materials include geotextile road base fabric to serve as indicator fabric at \$1.28/square yard (VTrans 2-yr 2018 price list)

5.4.1. Advantages

- Effective for protecting human health
- Lower overall project cost (labor and materials)

- The roadway would serve as a cap preventing infiltration of rainwater through contaminated soils left in place

5.4.2. Disadvantages

- Road and rail intersections will require unacceptable grade changes or reconstruction of cross streets and the rail lines to accommodate
- Not effective for removing contaminant mass

5.5. Alternative 3: Use of Site soils for borrow in fill areas, installation of standard roadway, and disposal of excess materials.

This alternative would involve removal of existing pavement and sod, where applicable, perform grading and excavation necessary to achieve the desired sub grade elevation in each area of the Project Area by removing excess soil in certain areas and installing that same soil as fill in others that require infilling. Compatible contaminated soils will be managed as fill in other areas if the soils have the same contaminants. Once desired sub-grades are achieved, the pavement section would be installed. Dust monitoring would be performed while native soils are disturbed or exposed.

Alternative 3 would require the use of institutional controls to ensure the ongoing monitoring and management of the remedial barriers. The institutional controls would require an ongoing monitoring plan, and notification of the VT DEC if excavation in the Project Area is required.

The cost to implement this remedial alternative is estimated at \$762,270 and would require an estimated 1.5 months to perform the excavation and an additional 1.5 to 3 months to construct the roadway. Active *in situ* soil management and capping is expected to require a total of 2 months.

Table 7, below, provides a summary cost estimate for Alternative 3. A detailed cost estimate is provided in Appendix E.

Table 7: Alternative 3 Cost Summary

Task	Subtotal
Project Coordination	\$8,095
Site Work – per week	\$119,910
<i>Oversight</i>	\$8,634
<i>Loading, Transport, and Disposal</i>	\$80,529
<i>Fill Installation</i>	\$26,665
<i>Dust Monitor</i>	\$2,420
<i>Waste Characterization Analyses</i>	\$1,671
6 Week Site Work Sub-Total	\$719,458
Barrier Installation Oversight	\$22,470
Remedial Action Report	\$12,248
TOTAL	\$762,270

5.5.1. Advantages

- Effective for protecting human health
- Median overall project cost (labor and materials)
 - Saves costs related to backfill materials
 - Saves costs and related to transport and disposal of contaminated soils, however, still requires disposal of approximately 3,600 cubic yards of soils
- Reduces greenhouse gas emissions that would occur during the transport of materials to and from the Project Area
- The roadway would serve as a cap preventing infiltration of rainwater through contaminated soils left in place

5.5.2. Disadvantages

- Requires careful management of soils to ensure materials are managed correctly
- Contaminated soils will remain, requiring ongoing management via a Village Ordinance.

5.6. Remedial Alternative Comparison

The remedial alternatives were subjected to a comparative analysis of their appropriateness for mitigating direct contact exposure risk to metals and PAHs and supporting of the proposed construction.

The following US EPA criteria were used as the basis for the comparative analysis:

- Overall Protectiveness – how well the technology will prevent direct contact exposure.
- Compliance with Applicable and Relevant Appropriate Requirements (ARARs) – whether the technology will effectively prevent exposure of Project Area users to PAHs and metals.
- Long-Term Effectiveness and Permanence – whether the technology is a viable long term solution.
- Reduction in Toxicity, Mobility or Volume through Treatment – how well the technology will provide these contaminant treatment objectives.
- Short-Term Effectiveness – how well the technology will provide the desired effects in the early stage of implementation.
- Implementability – level of practical difficulty of implementing the technology; and
- Capital Cost – qualitative rating of cost to construct the technology.

For the purposes of this ECAA, cost estimates are based on present worth calculations for each technology were developed based on published costing information from the VTrans 2-year running average.

Table 8, below, presents the results of technology comparison for each remedial alternative.

Table 8: Comparison of Remedial Alternatives, Crescent Connector Roadway

Criterion	Alternative 1 – Full Excavation	Alternative 2 – Install roadway over existing	Alternative 3 – Partially reuse soils on site, dispose of remaining
Overall Protectiveness	Protective	Protective	Protective
Long-Term Effectiveness and Permanence	Excellent	Acceptable	Acceptable
Compliance with redevelopment objectives	Acceptable	Poor	Acceptable
Green Remedial Strategy	Poor – high emissions due to extra truck traffic. Landfill capacity issues also of concern.	Acceptable	Acceptable.
Reduction in Toxicity, Mobility or Volume through Treatment ¹	Excellent for reducing mobility, excellent for reducing toxicity and volume of contaminant mass	Excellent for reducing mobility, poor for reducing toxicity and volume of contaminant mass	Excellent for reducing mobility, moderate for reducing toxicity and volume of contaminant mass
Short-Term Effectiveness	Excellent	Excellent	Excellent
Implementability	Acceptable	Poor	Acceptable
Is an Institutional Control Necessary?	None	Yes	Yes
Estimated Initial Capital Cost	Highest: \$1,988,183	Lowest: \$146,123	Middle: \$762,270
Ongoing Maintenance	No special maintenance for remedial purposes	Periodic inspection and maintenance of barriers	Periodic inspection and maintenance of barriers

5.7. ECAA Summary

Based on the results of the ECAA, the recommended remedial strategy is Alternative 3: using existing site soils as subgrade fill materials in areas where they are required; transport and disposal of excess soils at an approved disposal facility, implementation of an ongoing monitoring program, and emplacement of an institutional control on the project area in perpetuity.

Each remedial alternative is comparable in their overall protectiveness of human health, as they prevent direct exposure of Project Area users to contaminated soils. The major differences between the alternatives are therefore in the categories of implementability and cost (both initial and ongoing). Of these, a qualitative assessment of long-term durability, ongoing monitoring, lack of institutional controls, and maintenance costs favor Alternative 1. However, the much higher initial capital cost of Alternative 1 is, in our opinion, not justified to achieve higher long-term durability.

Properly constructed and maintained, the recommended remedial strategy will meet the objective of mitigating the exposure risk to Project Area users and workers constructing the roadway. Ongoing maintenance activities will need to be performed to ensure the continued effectiveness of the remedy and will be paired with normal maintenance activities and re-paving schedules.

The institutional control should require that maintenance activities be conducted for as long as the remedy is necessary to mitigate exposure risk; likely to be until the roadway is decommissioned.

6. Corrective Action Plan

This section describes the recommended design elements for the corrective actions proposed within the Project Area as part of construction of the Crescent Connector Roadway. The recommended design elements were developed to minimize the amount of soil to be transported from the site for disposal while also mitigating the direct exposure of Project Area users to known contaminants in soils. Excavation, transport, and disposal of contaminated soils and installation of infrastructure and roadway materials will be performed by the Village of Essex Junction's contractor, which will be selected through a formal solicitation.

For all soils, the cleanup criteria will be the VSS for non-residential use. All remedial actions will be performed by Hazardous Waste Operations and Emergency Response (HAZWOPER) trained contractors with oversight provided by Stone. Disposal characterization analyses have been performed with the exception of pH, ignitability, and reactivity cyanide/sulfide testing, but will likely need to be re-performed of stockpiled soils. Testing for these last parameters, which are not expected to affect the disposal characterization, will be performed upon stockpiling the soils.

According to Casella Waste Systems, Inc., these soils are suitable for use as alternative daily cover (ADC) in either Vermont or New York.

6.1. Primary Redevelopment Elements

According to the Village of Essex Junction and the design engineer, current construction plans for the Project Area include removal of existing asphalt surfaces, installation of stormwater and utility infrastructure, excavation and infilling to the designed subgrade elevation, and construction of the roadway. The roadway will measure approximately 1,250 feet in length and include two parking areas in Section 2 totaling 30 parking spaces with additional parallel parking included alongside the Railroad Street section. Drawings of the proposed roadway and parking lot are provided as Figure 4 and detailed in Sheets 8 through 12, 44 through 49, 58, and 59 in Appendix A.

6.2. Materials of Construction

The engineered controls to be constructed within the Project Area, developed by Dubois and King, will consist of the following materials, or other suitable substitute as applicable, provided those materials provide the same general use and direct exposure protection performance:

- Subgrade
 - Undisturbed native soils or borrow soils
- Roadway Subbase
 - 3 inches sand borrow
 - 4-inch insulation board
 - 24 inches: dense graded crushed stone

-
- 6 inches fine graded crushed stone
 - Roadway: 6 inches Superpave Bituminous Concrete Pavement
 - Sidewalks
 - 6 inches fine graded crushed gravel; 12 inches across commercial drives
 - 4 inches Portland cement concrete sidewalk, 6-8 inches across commercial drives
 - Railroad Street Parking Lot Subbase – Parking Lanes
 - 24 inches drainage aggregate
 - Railroad Street Parking Lot Pavement Section – Parking Lanes
 - 11 inches porous bituminous concrete pavement
 - Railroad Street Parking Lot - Travel Lanes
 - Subbase Section:
 - 3 inches sand borrow
 - 4-inch insulation board
 - 24 inches dense graded crushed stone
 - Pavement Section: 4 inches bituminous concrete pavement
 - Greenspaces
 - 6 inches: Fine graded crushed gravel
 - 4 inches topsoil.
 - Seed and mulch

6.3. Health and Safety

Due to the presence of contaminated soil within the Project Area, these construction activities should be performed using appropriate health and safety precautions. Contractors performing intrusive activities, where a risk of exposure to contaminated soil is present, will be required to do so under the supervision of a Qualified Environmental Professional (QEP).

A Health and Safety Plan is included in Appendix F for reference.

An Air Monitoring Plan has been prepared to ensure that site workers and the off-site public are not exposed to levels of airborne contaminants or fugitive dusts that could result in unacceptable risks during demolition, re-grading, excavation, and loading of contaminated soil. The Air Monitoring Plan is provided as an attachment to Stone's Health and Safety Plan (Appendix F). Real-time monitoring equipment will be used on-site while construction activities that disturb contaminated soil are occurring. Air monitoring data will be contained within a project database to document dust concentrations prior to and during construction activities.

Mitigation measures will be employed if action levels are reached or exceeded and may include water misting or calcium chloride application to reduce particulate concentrations to levels at or below the action level. Additional measures may include but are not limited to tarps or plastic sheeting to further isolate the work

area or suspending work until wind speeds drop to acceptable levels. If mitigation measures do not result in a drop in particulate concentrations to background levels, work activities will cease until particulate levels drop to background levels or dust mitigation procedures are re-evaluated.

6.4. Asphalt Removal

Asphalt, currently existing within Section 1 and Section 3, will be stripped, stockpiled, and transported for recycling. The selected contractor will be responsible for locating an appropriate asphalt recycling facility, however nearby facilities include:

- Myers Recycling, Colchester, (802) 655-4312
- Pike Industries, Williston (802) 658-0453
- Ranger Asphalt and Concrete, Colchester (802) 655-2005

6.5. Soil Management

Soil excavated during construction activities, such as stormwater infrastructure earthwork, surface grading, etc. will be used as fill in areas of the Project Area that require raising the final grade, specifically Section 1. Figure 4, included in Appendix A, depicts the portions of the Project Area that require a net removal of soil as well as those areas that require installation of borrow to achieve the designed subgrade elevation. Based on cut/fill estimates developed by the civil engineering team, approximately 3,600 cubic yards (yd³)/5,400 tons of soil will require off-site disposal. Of this volume, approximately 198 yd³– located within Section 2 and noted by the pink coloration on Figure 4 –will require disposal as ADC at a regulated solid waste landfill such as Casella’s landfill in Clinton County New York or the Coventry, Vermont landfill. The development soils will first be used as fill material at the Site in other areas designated as development soils, and the excess soils may be disposed at a categorical facility permitted to receive development soils. If a categorical facility is not identified, excess soils generated from areas noted as “development soils” on Figure 4 will require landfill disposal. Excess “urban” soils may be disposed at any property within an urban area as defined by the Vermont Agency of Natural Resources Natural Resource Atlas¹.

All excess soil for off-site disposal will either be live loaded onto trucks or staged on polyethylene sheeting prior to being transported off-site for disposal. Staged soil would be covered by polyethylene sheeting and silt fence would be installed around the base of stockpiles.

6.6. Engineered Barriers

Engineered barriers will be installed to prevent exposure to contaminated soils. Engineered barriers, described in detail in the following subsections, include:

- Concrete caps (proposed sidewalks);
- Asphalt, concrete, and aggregate cap (proposed parking lot and roadway); and
- Soil and geotextile fabric cap (proposed green spaces).

¹ <http://anrmaps.vermont.gov/websites/anra5/>

As designed, the proposed roadway, parking lot, and sidewalks achieve the prescribed separation minimums as detailed in VT DEC's *Investigation and Remediation of Contaminated Properties Rule* (VT DEC, 2019). Limited greenspaces are proposed; however those will include 6 inches of fine graded crushed stone with an overlay of 4 inches of topsoil. These materials will be installed above a geotextile indicator fabric. Engineered barriers will be installed with environmental oversight provided by a Qualified Environmental Professional (QEP). The areal extent of each type of barrier is provided as Sheets 7 through 12 included within Appendix A.

Clean fill imported to the Project Area to construct the engineered barriers will be certified in writing by each supplier to be material that has not been impacted by release of oil or hazardous materials.

Specifications used for the installation of engineered barriers have been selected by the Design Team Civil Engineer (Dubois and King) and are consistent with the following Vermont Agency of Transportation Standard Specifications for Construction 2018 and the Village of Essex Junction Public Works Specifications and Details:

- Section 203: Excavations and Embankments
- Section 301: Subbase
- Section 406: Bituminous Concrete Pavement
- Section 618: Sidewalks
- Section 649: Geotextile Fabric
- Section 651: Turf Establishment

Copies of these specifications can be found at:

<https://outside.vermont.gov/agency/VTRANS/external/docs/construction/02ConstrServ/PreContract/2018SpecBook/2018%20Standard%20Specifications%20for%20Construction.pdf>

Typical cross section details are provided as Sheets 8 through 12 in Appendix A.

6.6.1. Concrete Cap

Concrete sidewalks will also be utilized as a physical barrier between project users and underlying contaminated soil. Following grading to the required construction elevation 6-inches of compacted crushed gravel (AOT specification 704.05 fine) will be installed above the contaminated soils. Four inches of concrete will be poured over the compacted crushed gravel, with the exception that 6 or 8-inches of concrete over 12 inches of compacted crushed gravel will be installed in areas where sidewalks cross commercial driveways. The 4-inch-thick concrete layer and underlying 6-inch thick clean aggregate layer will serve as a 10-inch thick barrier between site users and contaminated soils. Barrier thickness will increase to 18 to 20-inches where sidewalks cross commercial driveways.

6.6.2. Porous Pavement Cap

To achieve stormwater treatment and onsite storage goals, D&K has designed the parking lot to be constructed using porous bituminous concrete. According to the typical sections developed by D&K porous concrete will consist of 11 inches of porous bituminous concrete installed over 24 inches of drainage aggregate.

6.6.3. Asphalt Cap

Construction activities for the proposed parking lot travel lanes and roadway includes the installation of a minimum of 37-inches of clean imported base material underlying a minimum of 6-inches of asphalt. A 4-

inch insulation board layer will be installed over a 3-inch sand borrow layer above native soils. Clean imported base materials installed over the insulation board and will include 24-inches of dense graded crushed stone overlain by 6-inches of fine graded crushed gravel. Asphalt will be installed in three, 2-inch courses for the roadway and two, 2-inch courses in the travel lanes of the parking lot.

6.6.4. Soil Cap

Proposed greenspaces are located along the perimeter of the proposed parking lot and along the proposed roadway. The engineered barrier in these areas would include grading sub grade soils to allow for subsequent installation of at least 10-inches of clean imported fill while allowing for final grade elevations. Following grading, clean fill will then be installed. The first 6 inches of the soil cap barrier will consist of fine graded crushed stone. The top four inches will consist of topsoil.

6.7. Engineering Controls

Project Area engineering controls include installation of asphalt, soil, and concrete caps as a mechanism for controlling direct exposure to contaminated soils. The physical integrity of these barriers will be managed through institutional controls as described in the following Section.

6.8. Institutional Controls

Institutional controls are proposed for the Project Area to ensure ongoing maintenance and monitoring of the remedy occur in perpetuity. The Institutional Controls include a Village Ordinance governing actions for the entire Project Area. A copy of the proposed Village Ordinance is in Appendix G.

6.8.1. Village Ordinance

The proposed roadway will be controlled by the Village of Essex Junction. To ensure long-term maintenance and operation of the engineered barriers in perpetuity, the Village of Essex Junction has drafted an ordinance dictating ongoing requirements for monitoring and maintaining the remedial barriers and notifying the VT DEC in the event of subsurface explorations for purposes such as utility or roadway maintenance. The Village Ordinance will be enforced by the Village with notification to VTDEC. The Village Ordinance shall describe the location of contamination remaining in the Project Area and the need for ongoing maintenance of the caps. The ordinance shall also require that the engineered barriers be maintained in perpetuity, that the caps will be routinely inspected for degradation, and that cracks or other degradation will be promptly repaired, within 30 days as allowed by weather. The ordinance will further require that the VT DEC be notified prior to any future excavations that would require penetrating the engineered barriers, and that such work will be performed under a health and safety plan prepared by personnel trained in accordance with the requirements of the OSHA HAZWOPER regulations (29 CFR 1910.120).

6.9. Long-Term Operations and Maintenance

The following operation and maintenance (O&M) activities will be required to maximize the useful life of the engineered barriers:

- Periodic inspection of the asphalt, soil, and concrete caps for visual indications of physical damage, to evaluate their continued effectiveness as engineered barriers. Repairs will be made to asphalt, soil, and concrete caps and documented, as necessary.
- Careful monitoring of soil caps for signs of erosion, particularly after storms, and timely repair of any areas of erosion to prevent exposure or off-site migration of the underlying contaminated materials due to erosion.

-
- Prompt repair of any damage to caps and regular maintenance, as necessary, to ensure the engineering controls and access restrictions continue to mitigate the exposure of users within the Project Area to underlying contaminated media.
 - Annual inspection reports will be submitted by the Village to the VT DEC.

Prior to performing any excavations that would disturb subgrade soils (I.E., those that penetrate the full depth of the engineered barrier), those performing the work will be required to obtain an Excavation and Right-of-Way Permit from the Village of Essex Junction and to notify the VT DEC Site Manager. Any contaminated soils generated during repairs should be preferentially used as backfill on-site or disposed of properly at a VT DEC-approved location. The engineered barrier shall be re-installed to the specifications presented above.

6.10. Health and Safety

Due to the presence of contaminated media within the Project Area, these construction activities should be performed using appropriate health and safety precautions. Contractors selected for construction shall perform construction services under the auspices of their own site-specific health and safety plan, to be developed for the project. The contractor must make their own determinations as to the appropriate level of health and safety protection required for each of the construction activities described in Sections 6.4 through 6.6. Where applicable, the work shall be performed by personnel trained in accordance with the requirements of the OSHA HAZWOPER regulations (29 CFR 1910.120).

6.11. Permitting

6.11.1. Erosion Control Measures

Based on the planned area of disturbance within the Project Area (>1 acre), it is anticipated that construction activities at the site, including the corrective actions described herein, will be conducted in accordance with the Construction General Permit issued by VT DEC under the National Pollution Discharge Elimination System (NPDES).

The Notice of Intent has been issued for the project as a low-risk project based on the risk assessment contained in Appendix A of the Construction General Permit 3-9020, and as such, the project will implement measures included in the Low Risk Site Handbook for Erosion Prevention and Sediment Control, published by VT DEC February 2020.

All native soil excavated from the Project Area will be either directly placed in its on-site re-use location or stockpiled on site on polyethylene sheeting with a minimum thickness of 6-mil. If stockpiled, at the end of each workday, and at all times after stockpiling is completed, stockpiles of native soil will be covered with minimum 6-mil reinforced polyethylene sheeting and surrounded by silt fence to filter stormwater runoff. The polyethylene sheet lining and covering on the stockpiles will be maintained in place until the material is shipped off-site for disposal or moved to its on-site re-use location.

6.11.2. Post-Construction Stormwater Management

Stone also evaluated the need for the proposed project to obtain coverage under a stormwater discharge permit against the thresholds contained in the General Permit 3-9015 for Stormwater Discharges from New Development and Redevelopment (VT DEC, issued March 20, 2013).

As existing site conditions include more than 1 acre of impervious surface and that the area of impervious surface will increase by more than 5,000 square feet as a result of the proposed project, a post-construction

stormwater discharge permit is required for the proposed Project Area, including the corrective actions described herein.

6.12. Reporting

Following completion of Project Area activities, a remediation completion report will be prepared and submitted to the VT DEC, Sites Management Section. The completion report will include a description of site activities including dates of work and as-built construction diagrams. Deviations from the Final CAP will be noted within the completion report.

Annual inspection reports will be prepared by the Village and submitted to the VTDEC. Additional reporting may be required by the VT DEC in the event that future excavation or maintenance activities are necessary. As stated in Section 6.8, the Village of Essex Junction and the VTDEC shall be notified prior to performing any excavations that extend into subgrade soils. Such activities would include reporting to the VT DEC.

6.13. Schedule, Contracting, and Interim Measures

Upon approval of the CAP, the proposed schedule for completion of the corrective action plan is provided in Table 9 below.

Table 9: Proposed Schedule.

Task	Responsible Party	Duration	Anticipated Start Date
Public Comment Period		30 days	October 30, 2020
Final CAP	Stone	15 days	December 15, 2020
Excavation, transportation, and disposal of contaminated soils	Contractor with QEP oversight	1.5 months	Summer 2021
Installation of engineered barriers	Contractor with PE oversight	2 months	Summer 2021
Corrective Action Completion Report	Stone	2 months	Fall 2021
Long-Term Monitoring	VTrans / Village of Essex	Ongoing	TBD

Submittal of Corrective Action Completion Report will be submitted within two months of completing Site activities.

At present, no contractor(s) has been awarded a contract for performing the described remedial actions. The selection and award of a contractor is outside the scope of this CAP development effort. Once a construction contractor has been selected to perform the CAP and construct the roadway, a more accurate project timeline can be developed and shared with VT DEC.

6.14. Cost

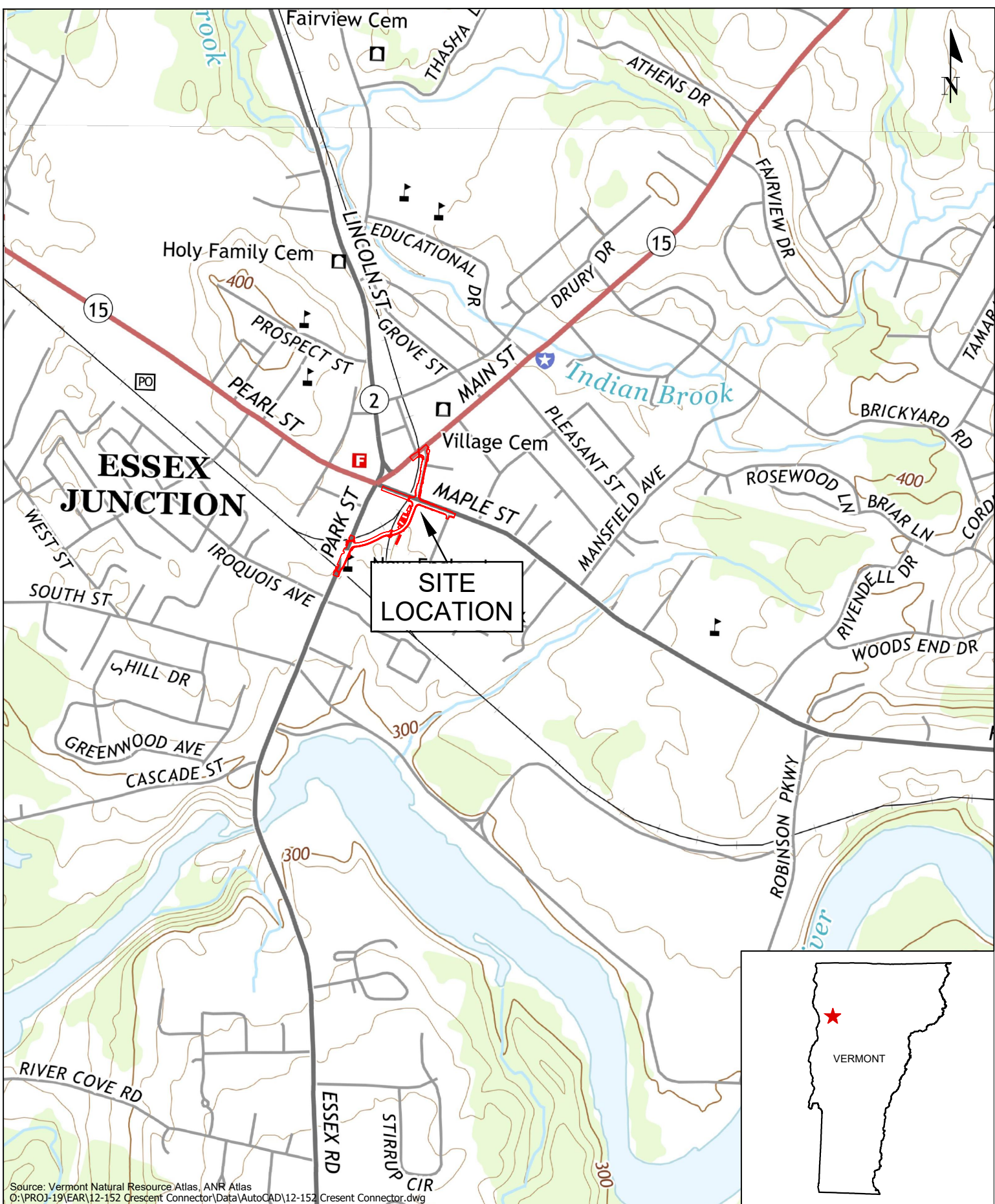
Stone has prepared a cost estimate for the corrective actions specified herein, including management of contaminated soils generated during Project Area preparation, oversight by a QEP, implementing a dust monitoring program, and reporting. Costs for construction of the roadway itself and associated infrastructure (e.g., stormwater management) are not included herein.

To prepare this opinion of cost, Stone utilized past project experience, the Vermont Agency of Transportation (VTrans) [2-Year Averaged Price List](#) (January 2018 through January 2020), in addition to unit pricing

provided by waste disposal companies. Following approval of this CAP by VT DEC, Stone anticipates that the consulting civil engineer will prepare a detailed construction specification and solicit bids to perform the work, including the corrective actions.

Stone estimates the total project cost to be \$882,180. A detailed cost estimate of the selected remedy is included in Appendix E.

Appendix A: Figures



DRAWING CREDITS

Drawn On: 3/27/2020
 Drawn By: LBR
 Checked On: 5/20/2020
 Checked By: DTV
 Project No.: 12-152

DRAWING SCALE

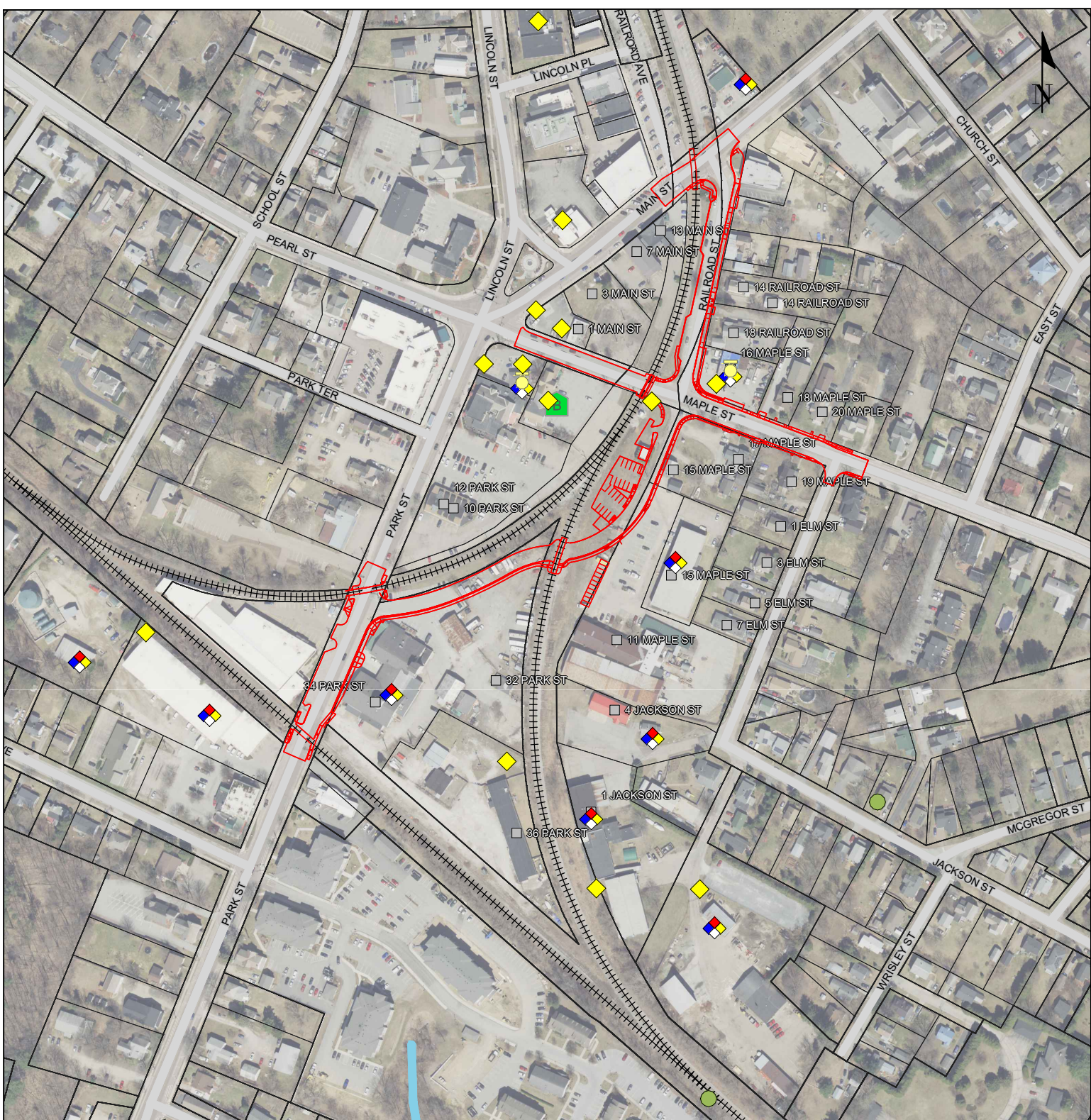


LOCATION MAP
 CORRECTIVE ACTION PLAN
 CRESENT CONNECTOR

ESSEX VERMONT

FIGURE NO.

1



LEGEND

- | | | |
|------------------------|----------------------|---------------------------|
| Parcel Boundary | Railroad | Hazardous Waste Generator |
| Revised Road Alignment | Public Water Source | Brownfields |
| Stream | Hazardous Waste Site | UST |

Source: Vermont Natural Resource Atlas, ANR Atlas
 O:\PROJ-19\EAR\12-152 Crescent Connector\Data\AutoCAD\12-152 Crescent Connector.dwg

Drawn On: 5/20/2020
 Drawn By: LBR
 Checked On: 5/20/2020
 Checked By: DTV
 Project No.: 12-152

DRAWING SCALE



VICINITY MAP
 CORRECTIVE ACTION PLAN
 CRESENT CONNECTOR

ESSEX

VERMONT

FIGURE NO.

2



LEGEND

- Crescent Connector Corridor
- Parcel Boundaries
- Soil Boring (May 2020)
- Soil Boring (October 2013)

Notes:

- Concentration units reported in mg/Kg.
- U - Indicates non detection of analyte with the limit of quantitation listed.
Values in **BOLD** exceed the Vermont Soil Standards for Residential Soils.
Values in **RED** text are also greater than the VSS for Non-Residential Soils.
- cPAH: Total carcinogenic polycyclic aromatic hydrocarbon concentration relative to benzo(a)pyrene TEQ.

0 60 120
Feet

Figure 3: Site Map

Corrective Action Plan
Crescent Connector

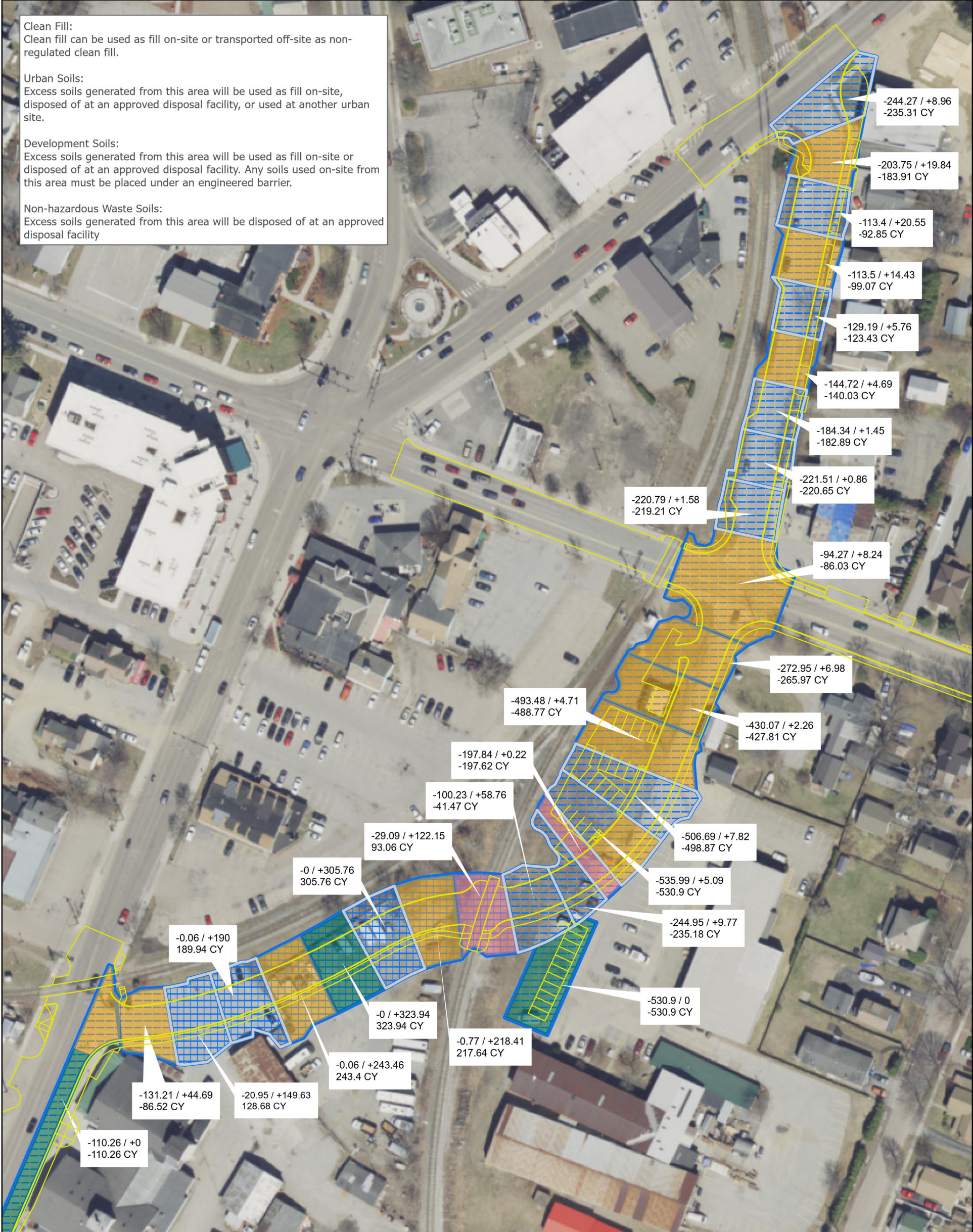
Essex Junction, Vermont

Clean Fill:
Clean fill can be used as fill on-site or transported off-site as non-regulated clean fill.

Urban Soils:
Excess soils generated from this area will be used as fill on-site, disposed of at an approved disposal facility, or used at another urban site.

Development Soils:
Excess soils generated from this area will be used as fill on-site or disposed of at an approved disposal facility. Any soils used on-site from this area must be placed under an engineered barrier.

Non-hazardous Waste Soils:
Excess soils generated from this area will be disposed of at an approved disposal facility



LEGEND

- Proposed Crescent Connector Corridor
- Development Soils
- Non-hazardous Waste Soils
- Urban Soils
- Clean Fill
- Proposed Remediation Area with cut (-)/ fill (+) and net (+/-) soil volumes in cubic yards
- Cut (Net) Fill (Net)



Figure 4: Soil Management Plan

Corrective Action Plan
Crescent Connector

Essex Junction, Vermont

Appendix B: Concentration Result Tables

Table B-1
Metals Concentrations in Soil

Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-1-0.5		AMR-SB-2-2.0		AMR-SB-3-0.5		AMR-SB-4-2.0		AMR-SB-5-0.5		AMR-SB-6-2.0	
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q
Beryllium	7440-41-7	35	289	160	2300	0.326	U	0.322	U	0.356		0.317	U	0.416		0.338	U
Cadmium	7440-43-9	6.9	87	71	980	0.652	U	0.644	U	0.694	U	0.635	U	0.67	U	0.676	U
Chromium	7440-47-3	NE	NE	NE	NE	10.8		13.8		9.33		10.4		11.5		12.9	
Copper	7440-50-8	10407	139231	3100	47000	15.3		43.0		22.4		6.72		27.5		8.37	
Lead	7439-92-1	400	800	400	800	28.7		21.9		38.9		5.07	U	93.8		5.4	U
Nickel	7440-02-0	940	9707	1500	22000	15.9		23.3		13.5		13.4		11		13.9	
Silver	7440-22-4	237	2483	390	5800	1.83	U	1.8	U	1.95	U	1.77	U	1.87	U	1.89	U
Zinc	7440-66-6	21986	294150	23000	350000	38.2		54.3		37.9		30.1		35.0		32.9	
Antimony	7440-36-0	26	319	31	470	1.9		1.1		1.5		0.79	U	6.5		0.84	U
Arsenic	7440-38-2	16	16	0.68	3	4.93		4.85		7.91		3.89		8.61		3.72	
Mercury	7439-97-6	3.1	3.1	11	46	0.0522	U	0.0518	U	0.0547	U	0.0494	U	0.0547	U	0.0538	U
Selenium	7782-49-2	366	4900	390	5800	1.3	U	1.3	U	1.4	U	1.3	U	1.3	U	1.4	U
Thallium	7440-28-0	NE	NE	0.78	12	1.3	U	1.3	U	1.4	U	1.3	U	1.3	U	1.4	U
Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-7-0.5		AMR-SB-8-2.0		AMR-SB-9-0.5		AMR-SB-10-2.0		AMR-SB-11-0.5		AMR-SB-12-2.0	
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q
Beryllium	7440-41-7	35	289	160	2300	0.421		0.336	U	0.311	U	0.336	U	0.585		0.341	U
Cadmium	7440-43-9	6.9	87	71	980	0.698	U	0.672	U	0.622	U	0.672	U	0.768	U	0.88	
Chromium	7440-47-3	NE	NE	NE	NE	12.3		11.4		11		13.6		18.1		15.4	
Copper	7440-50-8	10407	139231	3100	47000	59.6		8.54		42		51.7		157		10.6	
Lead	7439-92-1	400	800	400	800	248		5.38	U	155		47.3		735		5.45	U
Nickel	7440-02-0	940	9707	1500	22000	10.8		16.8		12.7		14.3		17.5		21.0	
Silver	7440-22-4	237	2483	390	5800	1.95	U	1.88	U	1.74	U	1.88	U	2.15	U	1.91	U
Zinc	7440-66-6	21986	294150	23000	350000	33.7		23.9		98.2		31.3		38.0		101	
Antimony	7440-36-0	26	319	31	470	11.5		0.84	U	1.4		1.3		47		0.85	U
Arsenic	7440-38-2	16	16	0.68	3	7.22		4.75		6.27		9.36		264		5.45	U
Mercury	7439-97-6	3.1	3.1	11	46	0.0542	U	0.0533	U	5.57		0.0525	U	0.356		0.0543	U
Selenium	7782-49-2	366	4900	390	5800	5.6	U	1.3	U	1.2	U	1.3	U	2.6		1.4	U
Thallium	7440-28-0	NE	NE	0.78	12	1.4	U	1.3	U	1.2	U	1.3	U	1.5	U	1.4	U
Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-15-2.0		AMR-SB-17-2.0		AMR-SB-21-0.5		AMR-SB-21-0.5 FD		AMR-SB-24-1.0		AMR-SB-25-0.5	
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q
Beryllium	7440-41-7	35	289	160	2300	0.32	U	0.411		0.542		0.337	U	0.429	U	0.314	U
Cadmium	7440-43-9	6.9	87	71	980	0.642	U	0.761	U	0.799		0.673	U	0.858	U	0.629	U
Chromium	7440-47-3	NE	NE	NE	NE	14.8		24.6		19.1		12.4		19.3		8.5	
Copper	7440-50-8	10407	139231	3100	47000	11.0		50.7		82.1		30.9		29.6		21.2	
Lead	7439-92-1	400	800	400	800	5.33		129		216		117		82.8		7.96	
Nickel	7440-02-0	940	9707	1500	22000	14.7		21.2		24.1		9.73		24.2		14.2	
Silver	7440-22-4	237	2483	390	5800	1.8	U	2.13	U	1.9	U	1.89	U	2.41	U	1.76	U
Zinc	7440-66-6	21986	294150	23000	350000	28.4		113		120		47.9		68.0		44.9	
Antimony	7440-36-0	26	319	31	470	0.8	U	7.0		7.3		11.0		1.1	U	0.79	U
Arsenic	7440-38-2	16	16	0.68	3	4.92		14.3		22.5		4.02		7.71		5.03	U
Mercury	7439-97-6	3.1	3.1	11	46	0.0515	U	0.123		0.088		0.066		0.0665	U	0.0498	U
Selenium	7782-49-2	366	4900	390	5800	1.3	U	1.5	U	1.4		1.3	U	1.7	U	1.3	U
Thallium	7440-28-0	NE	NE	0.78	12	1.3	U	1.5	U	1.4	U	1.3	U	1.7	U	1.3	U

Table B-1
Metals Concentrations in Soil

Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-26-2.0		AMR-SB-27-0.5		AMR-SB-28-2.0		AMR-SB-29-0.5		AMR-SB-30-2.0		AMR-SB-31-0.5	
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q
Beryllium	7440-41-7	35	289	160	2300	0.307	U	0.321	U	0.606		0.358	U	0.349	U	0.332	U
Cadmium	7440-43-9	6.9	87	71	980	0.612	U	0.642	U	0.926		0.717	U	0.697	U	0.663	U
Chromium	7440-47-3	NE	NE	NE	NE	9.56		11.2		18.0		11.8		14.7		10.2	
Copper	7440-50-8	10407	139231	3100	47000	10.6		24.4		159		8.84		110		26.7	
Lead	7439-92-1	400	800	400	800	4.9	U	8.67		251		8.43		170		8.76	
Nickel	7440-02-0	940	9707	1500	22000	16.3		15.8		20.0		9.26		19.8		18.3	
Silver	7440-22-4	237	2483	390	5800	1.72	U	1.79	U	2.0	U	2.0	U	1.96	U	1.86	U
Zinc	7440-66-6	21986	294150	23000	350000	27.4		49.7		35.8		27.9		48.2		43.5	
Antimony	7440-36-0	26	319	31	470	0.77	U	0.8	U	19.9		0.9	U	9.8		0.83	U
Arsenic	7440-38-2	16	16	0.68	3	4.45		6.19		13.4		4.52		10.8		5.89	
Mercury	7439-97-6	3.1	3.1	11	46	0.0507	U	0.0508	U	0.0863		0.0576	U	0.0614		0.051	U
Selenium	7782-49-2	366	4900	390	5800	1.2	U	1.3	U	2.9	U	1.4	U	1.4	U	1.3	U
Thallium	7440-28-0	NE	NE	0.78	12	1.2	U	1.3	U	1.4	U	1.4	U	1.4	U	1.3	U
Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-31-FD-0.5		AMR-SB-32-2.0		AMR-SB-33-0.5		AMR-SB34-1.5		AMR-SB35-1.5		AMR-SB36-2.0	
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q
Barium	7440-39-3	11247	127382	15000	220000	NS		NS		NS		115		61.3		13.2	
Beryllium	7440-41-7	35	289	160	2300	0.328	U	0.324	U	0.327	U	NS		NS		NS	
Cadmium	7440-43-9	6.9	87	71	980	0.657	U	0.648	U	0.653	U	1.41		1.0		0.712	
Chromium	7440-47-3	NE	NE	NE	NE	9.95		9.15		11.4		18.6		16.1		7.66	
Copper	7440-50-8	10407	139231	3100	47000	28.6		10.7		20.3		NS		NS		NS	
Lead	7439-92-1	400	800	400	800	9.02		8.95		8.45		663		333		4.93	U
Nickel	7440-02-0	940	9707	1500	22000	17.5		13.8		16.2		NS		NS		NS	
Silver	7440-22-4	237	2483	390	5800	1.84	U	1.81	U	1.83	U	1.95	U	1.9	U	1.73	U
Zinc	7440-66-6	21986	294150	23000	350000	48.2		25.7		41.7		NS		NS		NS	
Antimony	7440-36-0	26	319	31	470	0.82	U	0.81	U	0.82	U	NS		NS		NS	
Arsenic	7440-38-2	16	16	0.68	3	6.05		4.22		5.97		14.2		14.1		3.6	
Mercury	7439-97-6	3.1	3.1	11	46	0.0498	U	0.0494	U	0.0503	U	0.334		0.413		0.0511	U
Selenium	7782-49-2	366	4900	390	5800	1.3	U	1.3	U	1.3	U	2.8	U	1.5		1.2	U
Thallium	7440-28-0	NE	NE	0.78	12	1.3	U	1.3	U	1.3	U	NS		NS		NS	
Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB37-2.0		AMR-SB38-2.0		AMR-SB38-2.0-FD		AMR-SB39-1.5		AMR-SB40-1.2		AMR-SB41-1.1	
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q
Barium	7440-39-3	11247	127382	15000	220000	17.3		25.2		19.2		36.5		19.6		79.0	
Beryllium	7440-41-7	35	289	160	2300	NS		NS		NS		NS		NS		NS	
Cadmium	7440-43-9	6.9	87	71	980	0.711		0.993		0.877		0.726		0.707		0.910	
Chromium	7440-47-3	NE	NE	NE	NE	11.2		17.7		14.9		18.1		14.4		17.5	
Copper	7440-50-8	10407	139231	3100	47000	NS		NS		NS		NS		NS		NS	
Lead	7439-92-1	400	800	400	800	5.03	U	66.5		78.9		273		58.3		964	
Nickel	7440-02-0	940	9707	1500	22000	NS		NS		NS		NS		NS		NS	
Silver	7440-22-4	237	2483	390	5800	1.76	U	1.93	U	1.83	U	1.78	U	1.87	U	1.83	U
Zinc	7440-66-6	21986	294150	23000	350000	NS		NS		NS		NS		NS		NS	
Antimony	7440-36-0	26	319	31	470	NS		NS		NS		NS		NS		NS	
Arsenic	7440-38-2	16	16	0.68	3	5.28		4.57		5.62		10.3		5.16		532	
Mercury	7439-97-6	3.1	3.1	11	46	0.0518	U	0.0539	U	0.0542	U	0.193		0.0536	U	0.266	
Selenium	7782-49-2	366	4900	390	5800	1.3	U	1.4	U	1.3	U	1.3	U	1.3	U	3.7	
Thallium	7440-28-0	NE	NE	0.78	12	NS		NS		NS		NS		NS		NS	

Table B-1
Metals Concentrations in Soil

Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB42-1.5		AMR-SB43-1.0		AMR-SB44-1.0		AMR-SB45-1.5		AMR-SB46-2.0		AMR-SB47-2.0	
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q
Barium	7440-39-3	11247	127382	15000	220000	62.2		39.0		66.5		37.6		22.1		14.9	
Beryllium	7440-41-7	35	289	160	2300	NS		NS		NS		NS		NS		NS	
Cadmium	7440-43-9	6.9	87	71	980	1.11		0.846		1.19		0.811		0.641		0.79	
Chromium	7440-47-3	NE	NE	NE	NE	25.7		20.7		17.5		14.5		8.68		13.3	
Copper	7440-50-8	10407	139231	3100	47000	NS		NS		NS		NS		NS		NS	
Lead	7439-92-1	400	800	400	800	205		260		296		102		7.52		5.09 U	
Nickel	7440-02-0	940	9707	1500	22000	NS		NS		NS		NS		NS		NS	
Silver	7440-22-4	237	2483	390	5800	1.94 U		1.78 U		2.01 U		1.74 U		1.78 U		1.78 U	
Zinc	7440-66-6	21986	294150	23000	350000	NS		NS		NS		NS		NS		NS	
Antimony	7440-36-0	26	319	31	470	NS		NS		NS		NS		NS		NS	
Arsenic	7440-38-2	16	16	0.68	3	14.9		13.0		16.2		5.53		5.83		5.23	
Mercury	7439-97-6	3.1	3.1	11	46	0.103		0.109		0.111		0.05 U		0.0494 U		0.0512 U	
Selenium	7782-49-2	366	4900	390	5800	1.4 U		1.4		1.4 U		1.2 U		1.3 U		1.3 U	
Thallium	7440-28-0	NE	NE	0.78	12	NS		NS		NS		NS		NS		NS	
Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB47-2.0-FD		AMR-SB48-1.5		SB-101-2.0		SB-102-2.0		SB-103-2.0		SB-103-2.0-FD	
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	8/30/2013	Q	8/30/2013	Q	5/15/2020	Q	5/15/2020	Q	5/15/2020	Q	5/15/2020	Q
Barium	7440-39-3	11247	127382	15000	220000	14		12.6 U		NS		NS		NS		NS	
Beryllium	7440-41-7	35	289	160	2300	NS		NS		0.28		0.21		0.23		0.19 U	
Cadmium	7440-43-9	6.9	87	71	980	0.629 U		0.628 U		0.38 U		0.37 U		0.38 U		0.37 U	
Chromium	7440-47-3	NE	NE	NE	NE	11.4		10.4		13		12		12		11	
Copper	7440-50-8	10407	139231	3100	47000	NS		NS		61		45		63		65	
Lead	7439-92-1	400	800	400	800	5.04 U		5.03 U		120		45		69		74	
Nickel	7440-02-0	940	9707	1500	22000	NS		NS		16		16		16		15	
Silver	7440-22-4	237	2483	390	5800	1.76 U		1.76 U		0.38 U		0.37 U		0.38 U		0.37 U	
Zinc	7440-66-6	21986	294150	23000	350000	NS		NS		180		48		72		69	
Antimony	7440-36-0	26	319	31	470	NS		NS		1.9 U		1.9 U		1.9 U		1.9 U	
Arsenic	7440-38-2	16	16	0.68	3	5.06		4.72		6.3		4.2		4.8		5.1	
Mercury	7439-97-6	3.1	3.1	11	46	0.0511 U		0.0502 U		0.073		0.047		0.069		0.064	
Selenium	7782-49-2	366	4900	390	5800	1.3 U		1.3 U		3.8 U		3.7 U		3.8 U		3.7 U	
Thallium	7440-28-0	NE	NE	0.78	12	NS		NS		1.9 U		1.9 U		1.9 U		1.9 U	
Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	SB-104-2.0		SB-105-2.0									
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	5/15/2020	Q	5/15/2020	Q								
Barium	7440-39-3	11247	127382	15000	220000	NS		NS									
Beryllium	7440-41-7	35	289	160	2300	0.25		0.21									
Cadmium	7440-43-9	6.9	87	NE	980	0.36 U		0.37 U									
Chromium	7440-47-3	NE	NE	NE	NE	11		14									
Copper	7440-50-8	10407	139231	3100	47000	39		43									
Lead	7439-92-1	400	800	400	800	120		82									
Nickel	7440-02-0	940	9707	1500	22000	12		14									
Silver	7440-22-4	237	2483	390	5800	0.36 U		0.37 U									
Zinc	7440-66-6	21986	294150	23000	350000	25		31									
Antimony	7440-36-0	26	319	31	470	1.8 U		1.8 U									
Arsenic	7440-38-2	16	16	0.68	3	5.6		4.8									
Mercury	7439-97-6	3.1	3.1	11	46	0.029		0.028									
Selenium	7782-49-2	366	4900	390	5800	3.6 U		3.7 U									
Thallium	7440-28-0	NE	NE	0.78	12	1.8 U		1.8 U									

Key:
Vermont Soil Standards from Investigation and Remediation of Contaminated Properties Rule, July 2019
RSL - US Environmental Protection Agency, Regional Screening Levels for Residential (Res) and Industrial (Ind) settings, May 2019
mg/kg - milligrams per kilogram (parts per million)
Bold results indicate detections of the analyte
Shaded results indicate an exceedence of the Regional Screening Level for residential sites.
Italicized results indicate an exceedence of the Regional Screening Level for non-residential sites
Values with orange border exceed the Vermont Background Value (Arsenic only)
NE - screening level not established
Q - laboratory result qualifier
U - Analyte not detected; limit of quantitation listed
NS - Sample not analyzed for compound

Table B-2
Polychlorinated Biphenyls Concentrations in Soil

Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-1-0.5	AMR-SB-2-2.0	AMR-SB-3-0.5	AMR-SB-4-2.0	AMR-SB-5-0.5	AMR-SB-6-2.0
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q
Aroclor 1016	12674-11-2	NE	NE	4.1	27	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Aroclor 1221	11104-28-2	NE	NE	0.2	0.83	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Aroclor 1232	11141-16-5	NE	NE	0.17	0.72	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Aroclor 1242	53469-21-9	NE	NE	0.23	0.95	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Aroclor 1248	12672-29-6	NE	NE	0.23	0.95	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Aroclor 1254	11097-69-1	NE	NE	0.24	0.97	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Aroclor 1260	11096-82-5	NE	NE	0.24	0.99	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Aroclor 1262	37324-23-5	NE	NE	NE	NE	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Aroclor 1268	11100-14-4	NE	NE	NE	NE	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Total PCBs	1336-36-3	0.114	0.68	NE	NE	0.026 U	0.026 U	0.029 U	0.027 U	0.028 U
Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-7-0.5	AMR-SB-8-2.0	AMR-SB-9-0.5	AMR-SB-10-2.0	AMR-SB-11-0.5	AMR-SB-12-2.0
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q
Aroclor 1016	12674-11-2	NE	NE	4.1	27	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Aroclor 1221	11104-28-2	NE	NE	0.2	0.83	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Aroclor 1232	11141-16-5	NE	NE	0.17	0.72	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Aroclor 1242	53469-21-9	NE	NE	0.23	0.95	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Aroclor 1248	12672-29-6	NE	NE	0.23	0.95	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Aroclor 1254	11097-69-1	NE	NE	0.24	0.97	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Aroclor 1260	11096-82-5	NE	NE	0.24	0.99	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Aroclor 1262	37324-23-5	NE	NE	NE	NE	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Aroclor 1268	11100-14-4	NE	NE	NE	NE	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Total PCBs	1336-36-3	0.114	0.68	NE	NE	0.029 U	0.027 U	0.027 U	0.031 U	0.029 U
Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-15-2.0	AMR-SB-17-2.0	AMR-SB-21-0.5	AMR-SB-21-0.5 FD	AMR-SB-24-1.0	AMR-SB-25-0.5
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q
Aroclor 1016	12674-11-2	NE	NE	4.1	27	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Aroclor 1221	11104-28-2	NE	NE	0.2	0.83	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Aroclor 1232	11141-16-5	NE	NE	0.17	0.72	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Aroclor 1242	53469-21-9	NE	NE	0.23	0.95	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Aroclor 1248	12672-29-6	NE	NE	0.23	0.95	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Aroclor 1254	11097-69-1	NE	NE	0.24	0.97	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Aroclor 1260	11096-82-5	NE	NE	0.24	0.99	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Aroclor 1262	37324-23-5	NE	NE	NE	NE	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Aroclor 1268	11100-14-4	NE	NE	NE	NE	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Total PCBs	1336-36-3	0.114	0.68	NE	NE	0.028 U	0.030 U	0.029 U	0.027 U	0.026 U
Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-26-2.0	AMR-SB-27-0.5	AMR-SB-28-2.0	AMR-SB-29-0.5	AMR-SB-30-2.0	AMR-SB-31-0.5
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q
Aroclor 1016	12674-11-2	NE	NE	4.1	27	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U
Aroclor 1221	11104-28-2	NE	NE	0.2	0.83	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U
Aroclor 1232	11141-16-5	NE	NE	0.17	0.72	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U
Aroclor 1242	53469-21-9	NE	NE	0.23	0.95	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U
Aroclor 1248	12672-29-6	NE	NE	0.23	0.95	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U
Aroclor 1254	11097-69-1	NE	NE	0.24	0.97	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U
Aroclor 1260	11096-82-5	NE	NE	0.24	0.99	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U
Aroclor 1262	37324-23-5	NE	NE	NE	NE	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U
Aroclor 1268	11100-14-4	NE	NE	NE	NE	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U
Total PCBs	1336-36-3	0.114	0.68	NE	NE	0.026 U	0.027 U	0.029 U	0.028 U	0.026 U

Table B-2
Polychlorinated Biphenyls Concentrations in Soil

Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-31-FD-0.5	AMR-SB-32-2.0	AMR-SB-33-0.5	AMR-SB11-COMP	AMR-SB21-COMP	AMR-SB28-COMP					
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	8/30/2013	Q	8/30/2013	Q
Aroclor 1016	12674-11-2	NE	NE	4.1	27	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Aroclor 1221	11104-28-2	NE	NE	0.2	0.83	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Aroclor 1232	11141-16-5	NE	NE	0.17	0.72	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Aroclor 1242	53469-21-9	NE	NE	0.23	0.95	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Aroclor 1248	12672-29-6	NE	NE	0.23	0.95	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Aroclor 1254	11097-69-1	NE	NE	0.24	0.97	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Aroclor 1260	11096-82-5	NE	NE	0.24	0.99	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Aroclor 1262	37324-23-5	NE	NE	NE	NE	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Aroclor 1268	11100-14-4	NE	NE	NE	NE	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Total PCBs	1336-36-3	0.114	0.68	NE	NE	0.026 U		0.026 U		0.026 U		0.054 U		0.050 U	0.052 U
Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB9-COMP	SB-101-2.0	SB-102-2.0	SB-103-2.0	SB-103-2.0-FD	SB-104-2.0					
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	8/30/2013	Q	5/15/2020	Q	5/15/2020	Q	5/15/2020	Q	5/15/2020	Q
Aroclor 1016	12674-11-2	NE	NE	4.1	27	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Aroclor 1221	11104-28-2	NE	NE	0.2	0.83	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Aroclor 1232	11141-16-5	NE	NE	0.17	0.72	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Aroclor 1242	53469-21-9	NE	NE	0.23	0.95	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Aroclor 1248	12672-29-6	NE	NE	0.23	0.95	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Aroclor 1254	11097-69-1	NE	NE	0.24	0.97	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Aroclor 1260	11096-82-5	NE	NE	0.24	0.99	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Aroclor 1262	37324-23-5	NE	NE	NE	NE	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Aroclor 1268	11100-14-4	NE	NE	NE	NE	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Total PCBs	1336-36-3	0.114	0.68	NE	NE	0.054 U		0.087 U		0.090 U		0.088 U		0.088 U	0.086 U
Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	SB-105-2.0										
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	5/15/2020	Q								
Aroclor 1016	12674-11-2	NE	NE	4.1	27	0.084 U									
Aroclor 1221	11104-28-2	NE	NE	0.2	0.83	0.084 U									
Aroclor 1232	11141-16-5	NE	NE	0.17	0.72	0.084 U									
Aroclor 1242	53469-21-9	NE	NE	0.23	0.95	0.084 U									
Aroclor 1248	12672-29-6	NE	NE	0.23	0.95	0.084 U									
Aroclor 1254	11097-69-1	NE	NE	0.24	0.97	0.084 U									
Aroclor 1260	11096-82-5	NE	NE	0.24	0.99	0.084 U									
Aroclor 1262	37324-23-5	NE	NE	NE	NE	0.084 U									
Aroclor 1268	11100-14-4	NE	NE	NE	NE	0.084 U									
Total PCBs	1336-36-3	0.114	0.68	NE	NE	0.084 U									

Key:
Vermont Soil Standards from Investigation and Remediation of Contaminated Properties Rule, July 2019
RSL - US Environmental Protection Agency, Regional Screening Levels for Residential (Res) and Industrial (Ind) settings, May 2019
mg/kg - milligrams per kilogram (parts per million)
Bold results indicate detections of the analyte
Shaded results indicate an exceedence of the enforcement standard(s)
NE - screening level not established
Q - laboratory result qualifier
U - Analyte not detected; limit of quantitation listed

Table B-3

Carcinogenic Polycyclic Aromatic Hydrocarbons Concentrations in Soil

Sample ID Sample Date	CAS#	VSS - Resident (mg/Kg)	VSS - Non-resident (mg/Kg)	VSS - Urban Background (mg/Kg)	EPA - Residential RSL (mg/Kg)	EPA - Industrial RSL (mg/Kg)	AMR-SB-1-0.5 6/28/2013	Q	AMR-SB-2-2.0 6/28/2013	Q	AMR-SB-3-0.5 6/28/2013	Q	AMR-SB-4-2.0 6/28/2013	Q	AMR-SB-5-0.5 6/28/2013	Q	AMR-SB-6-2.0 6/28/2013	Q
B(a)P-TEQ	50-32-8	0.07	1.54	0.58	0.11	2.1	0.107		0.857		5.15		0.0116	U	0.733		0.0127	U
2-Methylnaphthalene	91-57-6	NE	NE	NE	240	3000	0.47		0.23		1.3		0.01	U	0.42		0.011	U
Acenaphthene	83-32-9	NE	NE	NE	3600	45000	0.011	U	0.019		0.054		0.01	U	0.011	U	0.011	U
Acenaphthylene	208-96-8	NE	NE	NE	NE	NE	0.012		0.21		0.76		0.01	U	0.061		0.011	U
Anthracene	120-12-7	NE	NE	NE	18000	230000	0.02		0.15		0.67		0.01	U	0.067		0.011	U
Benz(a)anthracene	56-55-3	NE	NE	NE	1.1	21	0.076		0.52		2.8		0.01	U	0.37		0.011	U
Benzo(a)pyrene	50-32-8	0.07	1.54	NE	0.11	2.1	0.065		0.53		3.3		0.01	U	0.46		0.011	U
Benzo(b)fluoranthene	205-99-2	NE	NE	NE	1.1	21	0.071		0.61		3.6		0.01	U	0.51		0.011	U
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	NE	0.047		0.41		2.4		0.01	U	0.34		0.011	U
Benzo(k)fluoranthene	207-08-9	NE	NE	NE	11	210	0.045		0.54		3.1		0.01	U	0.33		0.011	U
Chrysene	218-01-9	NE	NE	NE	110	2100	0.11		0.67		3.6		0.01	U	0.51		0.011	U
Dibenz(a,h)anthracene	53-70-3	NE	NE	NE	0.11	2.1	0.023		0.17		0.95		0.01	U	0.15		0.011	U
Fluoranthene	206-44-0	2301	26371	NE	2400	30000	0.1		0.88		5.1		0.01	U	0.34		0.011	U
Fluorene	86-73-7	2301	26371	NE	2400	30000	0.011	U	0.016		0.081		0.01	U	0.012		0.011	U
Indeno(1,2,3-cd)pyrene	193-39-5	NE	NE	NE	1.1	21	0.035		0.38		2.3		0.01	U	0.31		0.011	U
Naphthalene	91-20-3	2.7	16	NE	3.8	17	0.29		0.2		0.98		0.01	U	0.34		0.011	U
Phenanthrene	85-01-8	NE	NE	NE	NE	NE	0.28		0.39		1.9		0.01	U	0.35		0.011	U
Pyrene	129-00-0	NE	NE	NE	1800	23000	0.11		0.9		4.9		0.01	U	0.42		0.011	U
Sample ID Sample Date	CAS#	VSS - Resident (mg/Kg)	VSS - Non-resident (mg/Kg)	VSS - Urban Background (mg/Kg)	EPA - Residential RSL (mg/Kg)	EPA - Industrial RSL (mg/Kg)	AMR-SB-7-0.5 6/28/2013	Q	AMR-SB-8-2.0 6/28/2013	Q	AMR-SB-9-0.5 6/28/2013	Q	AMR-SB-10-2.0 6/28/2013	Q	AMR-SB-11-0.5 6/28/2013	Q	AMR-SB-12-2.0 6/27/2013	Q
B(a)P-TEQ	50-32-8	0.07	1.54	0.58	0.11	2.1	0.479		0.0127	U	0.154		0.0127	U	3.59		0.0127	U
2-Methylnaphthalene	91-57-6	NE	NE	NE	240	3000	1.4		0.011	U	0.016		0.011	U	0.97		0.018	
Acenaphthene	83-32-9	NE	NE	NE	3600	45000	0.011	U	0.011	U	0.011	U	0.011	U	0.053		0.011	U
Acenaphthylene	208-96-8	NE	NE	NE	NE	NE	0.077		0.011	U	0.011	U	0.011	U	1.4		0.011	U
Anthracene	120-12-7	NE	NE	NE	18000	230000	0.088		0.011	U	0.017		0.011	U	0.8		0.011	U
Benz(a)anthracene	56-55-3	NE	NE	NE	1.1	21	0.27		0.011	U	0.086		0.011	U	1.7		0.011	U
Benzo(a)pyrene	50-32-8	0.07	1.54	NE	0.11	2.1	0.28		0.011	U	0.10		0.011	U	1.6		0.011	U
Benzo(b)fluoranthene	205-99-2	NE	NE	NE	1.1	21	0.39		0.011	U	0.10		0.011	U	4.2		0.011	U
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	NE	0.23		0.011	U	0.076		0.011	U	2.7		0.011	U
Benzo(k)fluoranthene	207-08-9	NE	NE	NE	11	210	0.25		0.011	U	0.087		0.011	U	3		0.011	U
Chrysene	218-01-9	NE	NE	NE	110	2100	0.49		0.011	U	0.099		0.011	U	3.3		0.011	U
Dibenz(a,h)anthracene	53-70-3	NE	NE	NE	0.11	2.1	0.11		0.011	U	0.027		0.011	U	1.1		0.011	U
Fluoranthene	206-44-0	2301	26371	NE	2400	30000	0.49		0.011	U	0.17		0.011	U	2.3		0.011	U
Fluorene	86-73-7	2301	26371	NE	2400	30000	0.021		0.011	U	0.011	U	0.011	U	0.047		0.011	U
Indeno(1,2,3-cd)pyrene	193-39-5	NE	NE	NE	1.1	21	0.2		0.011	U	0.072		0.011	U	2.7		0.011	U
Naphthalene	91-20-3	2.7	16	NE	3.8	17	1.2		0.011	U	0.014		0.011	U	1.0		0.016	
Phenanthrene	85-01-8	NE	NE	NE	NE	NE	0.93		0.011	U	0.075		0.011	U	0.9		0.011	U
Pyrene	129-00-0	NE	NE	NE	1800	23000	0.48		0.011	U	0.17		0.011	U	2.0		0.011	U

Sample ID Sample Date	CAS#	VSS - Resident (mg/Kg)	VSS - Non-resident (mg/Kg)	VSS - Urban Background (mg/Kg)	EPA - Residential RSL (mg/Kg)	EPA - Industrial RSL (mg/Kg)	AMR-SB-15-2.0 6/27/2013	Q	AMR-SB-17-2.0 6/27/2013	Q	AMR-SB-21-0.5 6/27/2013	Q	AMR-SB-21-0.5 FD 6/27/2013	Q	AMR-SB-24-1.0 6/27/2013	Q	AMR-SB-25-0.5 6/27/2013	Q
B(a)P-TEQ	50-32-8	0.07	1.54	0.58	0.11	2.1	0.0127	U	1.73		16.8		1.64		5.85		0.0334	
2-Methylnaphthalene	91-57-6	NE	NE	NE	240	3000	0.011	U	0.13		0.32		0.061		0.052		0.01	U
Acenaphthene	83-32-9	NE	NE	NE	3600	45000	0.011	U	0.038		0.17		0.054	U	0.054		0.01	U
Acenaphthylene	208-96-8	NE	NE	NE	NE	NE	0.011	U	0.39		5.0		0.58		0.9		0.01	U
Anthracene	120-12-7	NE	NE	NE	18000	230000	0.011	U	0.35		2.1		0.34		0.59		0.01	U
Benzo(a)anthracene	56-55-3	NE	NE	NE	1.1	21	0.011	U	0.81		6.4		0.66		3.1		0.026	
Benzo(a)pyrene	50-32-8	0.07	1.54	NE	0.11	2.1	0.011	U	1.1		11		1.0		3.9		0.022	
Benzo(b)fluoranthene	205-99-2	NE	NE	NE	1.1	21	0.011	U	1.3		11		1.1		3.5		0.022	
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	NE	0.011	U	0.84		9.5		1.1		2.7		0.014	
Benzo(k)fluoranthene	207-08-9	NE	NE	NE	11	210	0.011	U	0.91		7.9		0.77		3.4		0.02	
Chrysene	218-01-9	NE	NE	NE	110	2100	0.011	U	1.1		8.6		0.95		3.4		0.025	
Dibenz(a,h)anthracene	53-70-3	NE	NE	NE	0.11	2.1	0.011	U	0.33		3.2		0.37		1.0		0.01	U
Fluoranthene	206-44-0	2301	26371	NE	2400	30000	0.011	U	1.7		14		1.3		6.2		0.039	
Fluorene	86-73-7	2301	26371	NE	2400	30000	0.011	U	0.046		0.19		0.054	U	0.1		0.01	U
Indeno(1,2,3-cd)pyrene	193-39-5	NE	NE	NE	1.1	21	0.011	U	0.78		8.1		0.86		2.5		0.014	
Naphthalene	91-20-3	2.7	16	NE	3.8	17	0.011	U	0.11		0.52		0.067		0.14		0.01	U
Phenanthrene	85-01-8	NE	NE	NE	NE	NE	0.011	U	0.83		4.7		0.46		1.7		0.01	U
Pyrene	129-00-0	NE	NE	NE	1800	23000	0.011	U	1.6		14		1.5		5.7		0.035	
Sample ID Sample Date	CAS#	VSS - Resident (mg/Kg)	VSS - Non-resident (mg/Kg)	VSS - Urban Background (mg/Kg)	EPA - Residential RSL (mg/Kg)	EPA - Industrial RSL (mg/Kg)	AMR-SB-26-2.0 6/27/2013	Q	AMR-SB-27-0.5 6/27/2013	Q	AMR-SB-28-2.0 6/27/2013	Q	AMR-SB-29-0.5 6/27/2013	Q	AMR-SB-30-2.0 6/27/2013	Q	AMR-SB-31-0.5 6/27/2013	Q
B(a)P-TEQ	50-32-8	0.07	1.54	0.58	0.11	2.1	0.0116	U	0.0193	U	2.0		0.0357		5.59		0.0222	
2-Methylnaphthalene	91-57-6	NE	NE	NE	240	3000	0.01	U	0.01	U	0.74		0.012	U	0.052		0.01	U
Acenaphthene	83-32-9	NE	NE	NE	3600	45000	0.01	U	0.01	U	0.049		0.012	U	0.051		0.01	U
Acenaphthylene	208-96-8	NE	NE	NE	NE	NE	0.01	U	0.01	U	0.77		0.012	U	0.94		0.011	
Anthracene	120-12-7	NE	NE	NE	18000	230000	0.01	U	0.01	U	0.51		0.012	U	0.52		0.01	U
Benzo(a)anthracene	56-55-3	NE	NE	NE	1.1	21	0.01	U	0.01	U	1.1		0.017		3.2		0.011	
Benzo(a)pyrene	50-32-8	0.07	1.54	NE	0.11	2.1	0.01	U	0.012		1.1		0.023		3.7		0.014	
Benzo(b)fluoranthene	205-99-2	NE	NE	NE	1.1	21	0.01	U	0.012		1.9		0.028		3.4		0.015	
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	NE	0.01	U	0.01	U	0.95		0.023		2.5		0.013	
Benzo(k)fluoranthene	207-08-9	NE	NE	NE	11	210	0.01	U	0.011		1.4		0.022		3.2		0.01	U
Chrysene	218-01-9	NE	NE	NE	110	2100	0.01	U	0.01		1.8		0.023		3.5		0.021	
Dibenz(a,h)anthracene	53-70-3	NE	NE	NE	0.11	2.1	0.01	U	0.01	U	0.47		0.012	U	0.96		0.01	U
Fluoranthene	206-44-0	2301	26371	NE	2400	30000	0.01	U	0.014		2.0		0.035		5.5		0.015	
Fluorene	86-73-7	2301	26371	NE	2400	30000	0.01	U	0.01	U	0.055		0.012	U	0.06		0.01	U
Indeno(1,2,3-cd)pyrene	193-39-5	NE	NE	NE	1.1	21	0.01	U	0.01	U	1.1		0.02		2.3		0.01	U
Naphthalene	91-20-3	2.7	16	NE	3.8	17	0.01	U	0.01	U	0.71		0.012	U	0.081		0.01	U
Phenanthrene	85-01-8	NE	NE	NE	NE	NE	0.01	U	0.01	U	1.4		0.012	U	1.3		0.01	U
Pyrene	129-00-0	NE	NE	NE	1800	23000	0.01	U	0.014		1.7		0.031		5.2		0.017	

Sample ID Sample Date	CAS#	VSS - Resident (mg/Kg)	VSS - Non-resident (mg/Kg)	VSS - Urban Background (mg/Kg)	EPA - Residential RSL (mg/Kg)	EPA - Industrial RSL (mg/Kg)	AMR-SB-31-FD-0.5 6/27/2013	Q	AMR-SB-32-2.0 6/27/2013	Q	AMR-SB-33-0.5 6/27/2013	Q	AMR-SB34-1.5 8/30/2013	Q	AMR-SB38-2.0 8/30/2013	Q	AMR-SB38-2.0-FD 8/30/2013	Q
B(a)P-TEQ	50-32-8	0.07	1.54	0.58	0.11	2.1	0.0116 U		0.936		0.0116 U		3.01		0.324 U		0.324 U	
2-Methylnaphthalene	91-57-6	NE	NE	NE	240	3000	0.01 U		0.01 U		0.01 U		1.2		0.28 U		0.28 U	
Acenaphthene	83-32-9	NE	NE	NE	3600	45000	0.01 U		0.01 U		0.01 U		0.28 U		0.28 U		0.28 U	
Acenaphthylene	208-96-8	NE	NE	NE	NE	NE	0.01 U		0.16		0.01 U		0.78		0.28 U		0.28 U	
Anthracene	120-12-7	NE	NE	NE	18000	230000	0.01 U		0.13		0.01 U		0.85		0.28 U		0.28 U	
Benzo(a)anthracene	56-55-3	NE	NE	NE	1.1	21	0.01 U		0.53		0.01 U		1.7		0.28 U		0.28 U	
Benzo(a)pyrene	50-32-8	0.07	1.54	NE	0.11	2.1	0.01 U		0.60		0.01 U		1.8		0.28 U		0.28 U	
Benzo(b)fluoranthene	205-99-2	NE	NE	NE	1.1	21	0.01 U		0.56		0.01 U		2.3		0.28 U		0.28 U	
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	NE	0.01 U		0.44		0.01 U		1.4		0.28 U		0.28 U	
Benzo(k)fluoranthene	207-08-9	NE	NE	NE	11	210	0.01 U		0.54		0.01 U		2.2		0.28 U		0.28 U	
Chrysene	218-01-9	NE	NE	NE	110	2100	0.013		0.55		0.01 U		2.6		0.28 U		0.28 U	
Dibenz(a,h)anthracene	53-70-3	NE	NE	NE	0.11	2.1	0.01 U		0.18		0.01 U		0.65		0.28 U		0.28 U	
Fluoranthene	206-44-0	2301	26371	NE	2400	30000	0.01 U		1.0		0.01 U		3.6		0.28 U		0.28 U	
Fluorene	86-73-7	2301	26371	NE	2400	30000	0.01 U		0.011		0.01 U		0.28 U		0.28 U		0.28 U	
Indeno(1,2,3-cd)pyrene	193-39-5	NE	NE	NE	1.1	21	0.01 U		0.41		0.01 U		1.4		0.28 U		0.28 U	
Naphthalene	91-20-3	2.7	16	NE	3.8	17	0.01 U		0.012		0.01 U		0.75		0.28 U		0.28 U	
Phenanthrene	85-01-8	NE	NE	NE	NE	NE	0.01 U		0.27		0.01 U		1.5		0.28 U		0.28 U	
Pyrene	129-00-0	NE	NE	NE	1800	23000	0.01 U		0.89		0.01 U		3.3		0.28 U		0.28 U	
Sample ID Sample Date	CAS#	VSS - Resident (mg/Kg)	VSS - Non-resident (mg/Kg)	VSS - Urban Background (mg/Kg)	EPA - Residential RSL (mg/Kg)	EPA - Industrial RSL (mg/Kg)	AMR-SB45-1.5 8/30/2013	Q	AMR-SB47-2.0 8/30/2013	Q	AMR-SB47-2.0-FD 8/30/2013	Q	SB-101-2.0 5/15/2020	Q	SB-102-2.0 5/15/2020	Q	SB-103-2.0 5/15/2020	Q
B(a)P-TEQ	50-32-8	0.07	1.54	0.58	0.11	2.1	0.619		0.3 U		0.3 U		0.469		0.22 U		0.37	
2-Methylnaphthalene	91-57-6	NE	NE	NE	240	3000	0.26 U		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Acenaphthene	83-32-9	NE	NE	NE	3600	45000	0.26 U		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Acenaphthylene	208-96-8	NE	NE	NE	NE	NE	0.26 U		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Anthracene	120-12-7	NE	NE	NE	18000	230000	0.26 U		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Benzo(a)anthracene	56-55-3	NE	NE	NE	1.1	21	0.36		0.26 U		0.26 U		0.27		0.19 U		0.19 U	
Benzo(a)pyrene	50-32-8	0.07	1.54	NE	0.11	2.1	0.4		0.26 U		0.26 U		0.29		0.19 U		0.22	
Benzo(b)fluoranthene	205-99-2	NE	NE	NE	1.1	21	0.35		0.26 U		0.26 U		0.46		0.19 U		0.35	
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	NE	0.3		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Benzo(k)fluoranthene	207-08-9	NE	NE	NE	11	210	0.41		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Chrysene	218-01-9	NE	NE	NE	110	2100	0.44		0.26 U		0.26 U		0.35		0.19 U		0.23	
Dibenz(a,h)anthracene	53-70-3	NE	NE	NE	0.11	2.1	0.26 U		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Fluoranthene	206-44-0	2301	26371	NE	2400	30000	0.8		0.26 U		0.26 U		0.66		0.19 U		0.34	
Fluorene	86-73-7	2301	26371	NE	2400	30000	0.26 U		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Indeno(1,2,3-cd)pyrene	193-39-5	NE	NE	NE	1.1	21	0.26 U		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Naphthalene	91-20-3	2.7	16	NE	3.8	17	0.26 U		0.26 U		0.26 U		0.19 U		0.19 U		0.19 U	
Phenanthrene	85-01-8	NE	NE	NE	NE	NE	0.3		0.26 U		0.26 U		0.37		0.19 U		0.19 U	
Pyrene	129-00-0	NE	NE	NE	1800	23000	0.7		0.26 U		0.26 U		0.52		0.19 U		0.32	

Table B-3 Carcinogenic Polycyclic Aromatic Hydrocarbons Concentrations in Soil												
Sample ID Sample Date	CAS#	VSS - Resident (mg/Kg)	VSS - Non-resident (mg/Kg)	VSS - Urban Background (mg/Kg)	EPA - Residential RSL (mg/Kg)	EPA - Industrial RSL (mg/Kg)	SB-103-2.0-FD 5/15/2020	Q	SB-104-2.0 5/15/2020	Q	SB-105-2.0 5/15/2020	Q
B(a)P-TEQ	50-32-8	0.07	1.54	0.58	0.11	2.1	0.222		0.208 U		0.241	
2-Methylnaphthalene	91-57-6	NE	NE	NE	240	3000	0.18 U		0.18 U		0.18 U	
Acenaphthene	83-32-9	NE	NE	NE	3600	45000	0.18 U		0.18 U		0.18 U	
Acenaphthylene	208-96-8	NE	NE	NE	NE	NE	0.18 U		0.18 U		0.18 U	
Anthracene	120-12-7	NE	NE	NE	18000	230000	0.18 U		0.18 U		0.18 U	
Benzo(a)anthracene	56-55-3	NE	NE	NE	1.1	21	0.18 U		0.18 U		0.18 U	
Benzo(a)pyrene	50-32-8	0.07	1.54	0.11	0.11	2.1	0.18 U		0.18 U		0.18 U	
Benzo(b)fluoranthene	205-99-2	NE	NE	NE	1.1	21	0.23		0.18 U		0.42	
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	NE	0.18 U		0.18 U		0.18 U	
Benzo(k)fluoranthene	207-08-9	NE	NE	NE	11	210	0.18 U		0.18 U		0.18 U	
Chrysene	218-01-9	NE	NE	NE	110	2100	0.18 U		0.18 U		0.19	
Dibenz(a,h)anthracene	53-70-3	NE	NE	NE	0.11	2.1	0.18 U		0.18 U		0.18 U	
Fluoranthene	206-44-0	2301	26371	NE	2400	30000	0.26		0.18 U		0.38	
Fluorene	86-73-7	2301	26371	NE	2400	30000	0.18 U		0.18 U		0.18 U	
Indeno(1,2,3-cd)pyrene	193-39-5	NE	NE	NE	1.1	21	0.18 U		0.18 U		0.18 U	
Naphthalene	91-20-3	2.7	16	NE	3.8	17	0.18 U		0.18 U		0.18 U	
Phenanthrene	85-01-8	NE	NE	NE	NE	NE	0.18 U		0.18 U		0.18 U	
Pyrene	129-00-0	NE	NE	NE	1800	23000	0.23		0.18 U		0.33	
Key:												
Vermont Soil Standards from Investigation and Remediation of Contaminated Properties Rule, July 2019												
RSL - US Environmental Protection Agency, Regional Screening Levels for Residential (Res) and Industrial (Ind) settings, May 2019												
mg/kg - milligrams per kilogram (parts per million)												
Bold results indicate detections of the analyte												
Shaded results indicate an exceedence of the Vermont Soil Screening Level for residential sites												
Italicized results indicate an exceedence of the Vermont Soil Screening Level for non-residential sites.												
Benzo(a)pyrene Toxicity Equivalency Quotient [B(a)P-TEQ] Values with orange border exceed the Vermont Urban Background Value												
NE - screening level not established												
Q - laboratory result qualifier												
U - Analyte not detected; limit of quantitation listed												
NS - Sample not analyzed for compound												

Table B-4
Semi Volatile Organic Compounds Concentrations in Soil¹

Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB34-1.5	AMR-SB38-2.0	AMR-SB38-2.0-FD	AMR-SB45-1.5	AMR-SB47-2.0	AMR-SB47-2.0-FD
Sample Date	CAS#				8/30/2013	8/30/2013	8/30/2013	8/30/2013	8/30/2013	8/30/2013
		(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	Q	Q	Q	Q	Q
1,2,4-Trichlorobenzene	120-82-1	NE	NE	24	110	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
1,2-Dichlorobenzene	95-50-1	NE	NE	1800	9300	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
1,2-Diphenylhydrazine (as A	122-66-7	NE	NE	0.68	2.9	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
1,3-Dichlorobenzene	541-73-1	NE	NE	NE	NE	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
1,4-Dichlorobenzene	106-46-7	NE	NE	2.6	11	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2,4,5-Trichlorophenol	95-95-4	NE	NE	6300	82000	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2,4,6-Trichlorophenol	88-06-2	NE	NE	49	210	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2,4-Dichlorophenol	120-83-2	NE	NE	190	2500	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2,4-Dimethylphenol	105-67-9	NE	NE	1300	16000	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2,4-Dinitrophenol	51-28-5	NE	NE	130	1600	0.55 U	0.56 U	0.57 U	0.52 U	0.52 U
2,4-Dinitrotoluene	121-14-2	NE	NE	1.7	7.4	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2,6-Dinitrotoluene	606-20-2	NE	NE	0.36	1.5	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2-Chloronaphthalene	91-58-7	NE	NE	4800	60000	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2-Chlorophenol	95-57-8	NE	NE	390	5800	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2-Methylphenol	95-48-7	NE	NE	3200	41000	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
2-Nitroaniline	88-74-4	NE	NE	630	8000	0.55 U	0.56 U	0.57 U	0.52 U	0.52 U
2-Nitrophenol	88-75-5	NE	NE	NE	NE	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
3,3'-Dichlorobenzidine	91-94-1	NE	NE	1.2	5.1	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
3-Nitroaniline	99-09-2	NE	NE	NE	NE	0.55 U	0.56 U	0.57 U	0.52 U	0.52 U
4,6-Dinitro-2-methylphenol	534-52-1	NE	NE	5.1	66	0.55 U	0.56 U	0.57 U	0.52 U	0.52 U
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
4-Chloro-3-methylphenol	59-50-7	NE	NE	6300	82000	0.55 U	0.56 U	0.57 U	0.52 U	0.52 U
4-Chloroaniline	106-47-8	NE	NE	2.7	11	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
4-Methylphenol	106-44-5	NE	NE	6300	82000	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
4-Nitroaniline	100-01-6	NE	NE	27	110	0.85	0.56 U	0.57 U	0.52 U	0.52 U
4-Nitrophenol	100-02-7	NE	NE	NE	NE	0.55 U	0.56 U	0.57 U	0.52 U	0.52 U
Benzoic acid	65-85-0	NE	NE	250000	3300000	0.55 U	0.56 U	0.57 U	0.52 U	0.52 U
Benzyl alcohol	100-51-6	NE	NE	6300	82000	0.55 U	0.56 U	0.57 U	0.52 U	0.52 U
Bis(2-chloroethoxy)methane	111-91-1	NE	NE	190	2500	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Bis(2-chloroethyl)ether	111-44-4	NE	NE	0.23	1	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Bis(2-chloroisopropyl)ether	108-60-1	2804	36274	3100	47000	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Bis(2-ethylhexyl)phthalate	117-81-7	20	120	39	160	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Butyl benzyl phthalate	85-68-7	NE	NE	290	1200	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Carbazole	86-74-8	NE	NE	NE	NE	0.32	0.28 U	0.28 U	0.26 U	0.26 U
Dibenzofuran	132-64-9	NE	NE	73	1000	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Diethyl phthalate	84-66-2	NE	NE	51000	660000	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Dimethyl phthalate	131-11-3	NE	NE	NE	NE	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Di-n-butyl phthalate	84-74-2	NE	NE	6300	82000	0.83	1.5	1.1	1.2	1
Di-n-octyl phthalate	117-84-0	NE	NE	630	8200	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Hexachlorobenzene	118-74-1	0.13	0.69	0.21	0.96	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Hexachlorobutadiene	87-68-3	NE	NE	1.2	5.3	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Hexachlorocyclopentadiene	77-47-4	NE	NE	1.8	7.5	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Hexachloroethane	67-72-1	NE	NE	1.8	8	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Isophorone	78-59-1	NE	NE	570	2400	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Nitrobenzene	98-95-3	NE	NE	5.1	22	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
N-Nitrosodi-n-propylamine	621-64-7	NE	NE	0.078	0.33	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
N-Nitrosodiphenylamine	86-30-6	NE	NE	110	470	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U
Pentachlorophenol	87-86-5	0.48	2.9	1	4	0.55 U	0.56 U	0.57 U	0.52 U	0.52 U
Phenol	108-95-2	NE	NE	19000	250000	0.28 U	0.28 U	0.28 U	0.26 U	0.26 U

1: Concentration results of carcinogenic PAH compounds appear in Table B-3

Key:

Vermont Soil Standards from Investigation and Remediation of Contaminated Properties Rule, July 2019

RSL - US Environmental Protection Agency, Regional Screening Levels for Residential (Res) and Industrial (Ind) settings, May 2019

mg/kg - milligrams per kilogram (parts per million)

Bold results indicate detections of the analyte

Shaded results indicate an exceedence of the enforcement standard(s)

NE - screening level not established

Q - laboratory result qualifier

U - Analyte not detected; limit of quantitation listed

NS - Sample not analyzed for compound

Table B-5
Volatile Organic Compounds Concentrations in Soil

SampleID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	SB-101-2.0	SB-102-2.0	SB-103-2.0	SB-103-2.0-FD	SB-104-2.0	SB-105-2.0
Sample Date	CAS#				5/15/2020	Q	5/15/2020	Q	5/15/2020	Q
	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)						
1,1,1,2-Tetrachloroethane	630-20-6	1.3	8	2	8.8	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,1,1-Trichloroethane	71-55-6	NE	NE	8100	36000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,1,2,2-Tetrachloroethane	79-34-5	NE	NE	0.6	2.7	0.00079 U	0.00078 U	0.00096 U	0.00089 U	0.00088 U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	76-13-1	NE	NE	6700	28000	0.0079 U	0.0078 U	0.0096 U	0.0089 U	0.0088 U
1,1,2-Trichloroethane	79-00-5	NE	NE	1.1	5	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,1-Dichloroethane	75-34-3	2.1	13	3.6	16	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,1-Dichloroethylene	75-35-4	NE	NE	230	1000	0.0032 U	0.0031 U	0.0038 U	0.0036 U	0.0035 U
1,1-Dichloropropene	563-58-6	NE	NE	NE	NE	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,2,3-Trichlorobenzene	87-61-6	NE	NE	63	930	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,2,3-Trichloropropane	96-18-4	0.00311	0.07	0.0051	0.11	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,2,4-Trichlorobenzene	120-82-1	NE	NE	24	110	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,2,4-Trimethylbenzene	95-63-6	144	177	300	1800	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0.01	0.06	0.0053	0.064	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,2-Dibromoethane (EDB)	106-93-4	0.02	0.14	0.036	0.16	0.00079 U	0.00078 U	0.00096 U	0.00089 U	0.00088 U
1,2-Dichlorobenzene	95-50-1	NE	NE	1800	9300	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,2-Dichloroethane	107-06-2	0.29	1.7	0.46	2	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,2-Dichloropropane	78-87-5	1.5	9.1	2.5	11	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,3,5-Trichlorobenzene	108-70-3	NE	NE	NE	NE	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,3,5-Trimethylbenzene	108-67-8	144	177	270	1500	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,3-Dichlorobenzene	541-73-1	NE	NE	NE	NE	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,3-Dichloropropane	142-28-9	NE	NE	1600	23000	0.00079 U	0.00078 U	0.00096 U	0.00089 U	0.00088 U
1,4-Dichlorobenzene	106-46-7	NE	NE	2.6	11	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
1,4-Dioxane	123-91-1	2.8	17	5.3	24	0.079 U	0.078 U	0.096 U	0.089 U	0.088 U
2,2-Dichloropropane	594-20-7	NE	NE	NE	NE	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
2-Butanone (MEK)	78-93-3	16952	26991	27000	190000	0.032 U	0.031 U	0.038 U	0.036 U	0.035 U
2-Chlorotoluene	95-49-8	NE	NE	1600	23000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
2-Hexanone (MBK)	591-78-6	NE	NE	200	1300	0.016 U	0.016 U	0.019 U	0.018 U	0.018 U
4-Chlorotoluene	106-43-4	NE	NE	1600	23000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
4-Methyl-2-pentanone (MIBK)	108-10-1	NE	NE	33000	140000	0.016 U	0.016 U	0.019 U	0.018 U	0.018 U
Acetone	67-64-1	40609	100028	61000	670000	0.079 U	0.078 U	0.096 U	0.089 U	0.088 U
Acrylonitrile	107-13-1	NE	NE	0.25	1.1	0.0048 U	0.0047 U	0.0058 U	0.0053 U	0.0053 U
Benzene	71-43-2	0.7	4.2	1.2	5.1	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Bromobenzene	108-96-1	NE	NE	290	1800	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Bromodichloromethane	74-97-5	193	597	150	630	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Bromodichloromethane	75-27-4	NE	NE	0.29	1.3	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Bromoform	75-25-2	NE	NE	19	86	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Bromomethane	74-83-9	NE	NE	6.8	30	0.0079 U	0.0078 U	0.0096 U	0.0089 U	0.0088 U
Carbon Disulfide	75-15-0	608	662	770	3500	0.0048 U	0.0047 U	0.0058 U	0.0053 U	0.0053 U
Carbon Tetrachloride	56-23-5	0.37	2.2	0.65	2.9	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Chlorobenzene	108-90-7	1414	726	280	1300	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Chlorodibromomethane	124-48-1	NE	NE	8.3	39	0.00079 U	0.00078 U	0.00096 U	0.00089 U	0.00088 U
Chloroethane	75-00-3	NE	NE	14000	57000	0.016 U	0.016 U	0.019 U	0.018 U	0.018 U
Chloroform	67-66-3	NE	NE	0.32	1.4	0.0032 U	0.0031 U	0.0038 U	0.0036 U	0.0035 U
Chloromethane	74-87-3	NE	NE	110	460	0.0079 U	0.0078 U	0.0096 U	0.0089 U	0.0088 U
cis-1,2-Dichloroethylene	156-59-2	140	1814	160	2300	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
cis-1,3-Dichloropropene	10061-01-5	NE	NE	NE	NE	0.00079 U	0.00078 U	0.00096 U	0.00089 U	0.00088 U
Dibromomethane	74-95-3	NE	NE	24	99	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Dichlorodifluoromethane (Freon 12)	75-71-8	NE	NE	87	370	0.016 U	0.016 U	0.019 U	0.018 U	0.018 U
Diethyl Ether	60-29-7	NE	NE	16000	230000	0.016 U	0.016 U	0.019 U	0.018 U	0.018 U
Diisopropyl Ether (DIPE)	108-20-3	NE	NE	2200	9400	0.00079 U	0.00078 U	0.00096 U	0.00089 U	0.00088 U
Ethylbenzene	100-41-4	3.7	22	5.8	25	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Hexachlorobutadiene	87-68-3	NE	NE	1.2	5.3	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Isopropylbenzene (Cumene)	98-82-8	256	254	1900	9900	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
m+p Xylene	108393106423	NE	NE	NE	NE	0.0032 U	0.0031 U	0.0038 U	0.0036 U	0.0035 U
Methyl Acetate	79-20-9	NE	NE	78000	1200000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Methyl Cyclohexane	108-87-2	NE	NE	NE	NE	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Methyl tert-Butyl Ether (MTBE)	1634-04-4	649	4464	47	210	0.0032 U	0.0031 U	0.0038 U	0.0036 U	0.0035 U
Methylene Chloride	75-09-2	NE	NE	57	1000	0.016 U	0.016 U	0.019 U	0.018 U	0.018 U
Naphthalene	91-20-3	2.7	16	3.8	17	0.0032 U	0.0031 U	0.0038 U	0.0036 U	0.0035 U
n-Butylbenzene	104-51-8	3504	51100	3900	58000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
n-Propylbenzene	103-65-1	253	261	3800	24000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
o-Xylene	95-47-6	NE	NE	650	2800	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
p-Isopropyltoluene (p-Cymene)	99-87-6	NE	NE	NE	NE	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
sec-Butylbenzene	135-98-8	7009	102200	7800	120000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Styrene	100-42-5	NE	NE	6000	35000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
tert-Butyl Methyl Ether (TAME)	994-05-8	NE	NE	NE	NE	0.00079 U	0.00078 U	0.00096 U	0.00089 U	0.00088 U
tert-Butyl Alcohol (TBA)	75-65-0	NE	NE	NE	NE	0.032 U	0.031 U	0.038 U	0.036 U	0.035 U
tert-Butyl Ethyl Ether (TBEE)	637-92-3	NE	NE	NE	NE	0.00079 U	0.00078 U	0.00096 U	0.00089 U	0.00088 U
tert-Butylbenzene	98-06-6	7009	102200	7800	120000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Tetrachloroethylene	127-18-4	2.4	14	24	100	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Tetrahydrofuran	109-99-9	NE	NE	18000	94000	0.0079 U	0.0078 U	0.0096 U	0.0089 U	0.0088 U
Toluene	108-88-3	706	798	4900	47000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Total Trimethylbenzene	25551-13-7	NE	NE	NE	NE	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Total Xylene	1330-20-7	252	257	580	2500	0.0032 U	0.0031 U	0.0038 U	0.0036 U	0.0035 U
trans-1,2-Dichloroethylene	156-60-5	1402	18137	1600	23000	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
trans-1,3-Dichloropropene	10061-02-6	NE	NE	NE	NE	0.00079 U	0.00078 U	0.00096 U	0.00089 U	0.00088 U
trans-1,4-Dichloro-2-butene	110-57-6	NE	NE	0.0074	0.032	0.0032 U	0.0031 U	0.0038 U	0.0036 U	0.0035 U
Trichloroethylene	79-01-6	0.68	6.5	0.94	6	0.0016 U	0.0016 U	0.0019 U	0.0018 U	0.0018 U
Trichlorofluoromethane (Freon 11)	75-69-4	NE	NE	23000	350000	0.0079 U	0.0078 U	0.0096 U	0.0089 U	0.0088 U
Vinyl Chloride	75-01-4	0.1	0.59	0.059	1.7	0.0079 U	0.0078 U	0.0096 U	0.0089 U	0.0088 U

Key:
Vermont Soil Standards from Investigation and Remediation of Contaminated Properties Rule, July 20
RSL - US Environmental Protection Agency, Regional Screening Levels for Residential (Res) and Industrial (Ind) settings, May 21
mg/kg - milligrams per kilogram (parts per million)
Bold results indicate detections of the analyt
Shaded results indicate an exceedence of the enforcement standard
NE - screening level not established
Q - laboratory result qualified
U - Analyte not detected; limit of quantitation listed

Table B-6
Herbicides Concentrations in Soil

Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-1-0.5	AMR-SB-2-2.0	AMR-SB-3-0.5	AMR-SB-4-2.0	AMR-SB-5-0.5	AMR-SB-6-2.0
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q
4,4'-DDD	72-54-8	NE	NE	1.9	9.6	0.0017	U	0.0017	U	0.0017	U
4,4'-DDE	72-55-9	NE	NE	2	9.3	0.0017	U	0.0017	U	0.0017	U
4,4'-DDT	50-29-3	NE	NE	1.9	8.5	0.0017	U	0.0036	U	0.0017	U
Aldrin	309-00-2	0.02	0.1	0.039	0.18	0.00085	U	0.00084	U	0.00087	U
alpha-BHC	319-84-6	NE	NE	0.086	0.36	0.00085	U	0.00084	U	0.00087	U
alpha-Chlordane	5103-71-9	NE	NE	NE	NE	0.00085	U	0.00084	U	0.00087	U
beta-BHC	319-85-7	NE	NE	0.3	1.3	0.00085	U	0.00084	U	0.00087	U
delta-BHC	319-86-8	NE	NE	NE	NE	0.00085	U	0.00084	U	0.00087	U
Dieldrin	60-57-1	NE	NE	0.034	0.14	0.0017	U	0.0017	U	0.0017	U
Endosulfan I	959-98-8	NE	NE	NE	NE	0.00085	U	0.00084	U	0.00087	U
Endosulfan II	33213-65-9	NE	NE	NE	NE	0.0017	U	0.0017	U	0.0017	U
Endosulfan sulfate	1031-07-8	NE	NE	380	4900	0.0017	U	0.0017	U	0.0017	U
Endrin	72-20-8	NE	NE	19	250	0.0017	U	0.0017	U	0.0017	U
Endrin aldehyde	7421-93-4	NE	NE	NE	NE	0.0017	U	0.0017	U	0.0017	U
Endrin ketone	53494-70-5	NE	NE	NE	NE	0.0017	U	0.0017	U	0.0017	U
gamma-BHC	58-89-9	NE	NE	0.57	2.5	0.00085	U	0.00084	U	0.00087	U
gamma-Chlordane	5103-74-2	NE	NE	NE	NE	0.00085	U	0.00084	U	0.00087	U
Heptachlor	76-44-8	NE	NE	0.13	0.63	0.00085	U	0.00084	U	0.00087	U
Heptachlor epoxide	1024-57-3	NE	NE	0.07	0.33	0.00085	U	0.00084	U	0.00087	U
Methoxychlor	72-43-5	NE	NE	320	4100	0.0085	U	0.0084	U	0.0087	U
Technical Chlordane	57-74-9	NE	NE	NE	NE	0.026	U	0.026	U	0.027	U
Toxaphene	8001-35-2	NE	NE	0.49	2.1	0.026	U	0.026	U	0.027	U

Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-7-0.5	AMR-SB-8-2.0	AMR-SB-9-0.5	AMR-SB-10-2.0	AMR-SB-11-0.5	AMR-SB-12-2.0
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/28/2013	Q	6/28/2013	Q	6/28/2013	Q
4,4'-DDD	72-54-8	NE	NE	1.9	9.6	0.0018	U	0.0017	U	0.0017	U
4,4'-DDE	72-55-9	NE	NE	2	9.3	0.0018	U	0.0017	U	0.0017	U
4,4'-DDT	50-29-3	NE	NE	1.9	8.5	0.011	U	0.0017	U	0.0017	U
Aldrin	309-00-2	0.02	0.1	0.039	0.18	0.00092	U	0.00086	U	0.00087	U
alpha-BHC	319-84-6	NE	NE	0.086	0.36	0.00092	U	0.00086	U	0.00087	U
alpha-Chlordane	5103-71-9	NE	NE	NE	NE	0.00092	U	0.00086	U	0.00087	U
beta-BHC	319-85-7	NE	NE	0.3	1.3	0.00092	U	0.00086	U	0.00087	U
delta-BHC	319-86-8	NE	NE	NE	NE	0.00092	U	0.00086	U	0.00087	U
Dieldrin	60-57-1	NE	NE	0.034	0.14	0.0018	U	0.0017	U	0.011	U
Endosulfan I	959-98-8	NE	NE	NE	NE	0.00092	U	0.00086	U	0.00087	U
Endosulfan II	33213-65-9	NE	NE	NE	NE	0.0018	U	0.0017	U	0.0017	U
Endosulfan sulfate	1031-07-8	NE	NE	380	4900	0.0018	U	0.0017	U	0.0017	U
Endrin	72-20-8	NE	NE	19	250	0.0018	U	0.0017	U	0.0017	U
Endrin aldehyde	7421-93-4	NE	NE	NE	NE	0.0018	U	0.0017	U	0.0017	U
Endrin ketone	53494-70-5	NE	NE	NE	NE	0.0018	U	0.0017	U	0.0017	U
gamma-BHC	58-89-9	NE	NE	0.57	2.5	0.00092	U	0.00086	U	0.00087	U
gamma-Chlordane	5103-74-2	NE	NE	NE	NE	0.00092	U	0.00086	U	0.00087	U
Heptachlor	76-44-8	NE	NE	0.13	0.63	0.00092	U	0.00086	U	0.00087	U
Heptachlor epoxide	1024-57-3	NE	NE	0.07	0.33	0.00092	U	0.00086	U	0.00087	U
Methoxychlor	72-43-5	NE	NE	320	4100	0.0092	U	0.0086	U	0.0087	U
Technical Chlordane	57-74-9	NE	NE	NE	NE	0.029	U	0.027	U	0.027	U
Toxaphene	8001-35-2	NE	NE	0.49	2.1	0.029	U	0.027	U	0.027	U

Table B-6
Herbicides Concentrations in Soil

Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-15-2.0	AMR-SB-17-2.0	AMR-SB-21-0.5	AMR-SB-21-0.5 FD	AMR-SB-24-1.0	AMR-SB-25-0.5							
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q		
4,4'-DDD	72-54-8	NE	NE	1.9	9.6	0.0018	U	0.0034		0.012		0.017	U	0.003	0.0017	U	
4,4'-DDE	72-55-9	NE	NE	2	9.3	0.0018	U	0.0065		0.018	U	0.017	U	0.0022	U	0.0017	U
4,4'-DDT	50-29-3	NE	NE	1.9	8.5	0.0033		0.028		0.015		0.03		0.0099		0.0017	U
Aldrin	309-00-2	0.02	0.1	0.039	0.18	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
alpha-BHC	319-84-6	NE	NE	0.086	0.36	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
alpha-Chlordane	5103-71-9	NE	NE	NE	NE	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
beta-BHC	319-85-7	NE	NE	0.3	1.3	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
delta-BHC	319-86-8	NE	NE	NE	NE	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
Dieldrin	60-57-1	NE	NE	0.034	0.14	0.0018	U	0.0019	U	0.017		0.017	U	0.0056		0.0017	U
Endosulfan I	959-98-8	NE	NE	NE	NE	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
Endosulfan II	33213-65-9	NE	NE	NE	NE	0.0018	U	0.0019	U	0.0018	U	0.017	U	0.0022	U	0.0017	U
Endosulfan sulfate	1031-07-8	NE	NE	380	4900	0.0018	U	0.0019	U	0.0018	U	0.017	U	0.0022	U	0.0017	U
Endrin	72-20-8	NE	NE	19	250	0.0018	U	0.0019	U	0.0018	U	0.017	U	0.0022	U	0.0017	U
Endrin aldehyde	7421-93-4	NE	NE	NE	NE	0.0018	U	0.0019	U	0.0018	U	0.017	U	0.0022	U	0.0017	U
Endrin ketone	53494-70-5	NE	NE	NE	NE	0.0018	U	0.0019	U	0.0018	U	0.017	U	0.0022	U	0.0017	U
gamma-BHC	58-89-9	NE	NE	0.57	2.5	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
gamma-Chlordane	5103-74-2	NE	NE	NE	NE	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
Heptachlor	76-44-8	NE	NE	0.13	0.63	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
Heptachlor epoxide	1024-57-3	NE	NE	0.07	0.33	0.00088	U	0.00095	U	0.00091	U	0.0087	U	0.0011	U	0.00084	U
Methoxychlor	72-43-5	NE	NE	320	4100	0.0088	U	0.0095	U	0.0091	U	0.087	U	0.011	U	0.0084	U
Technical Chlordane	57-74-9	NE	NE	NE	NE	0.028	U	0.03	U	0.029	U	0.27	U	0.035	U	0.026	U
Toxaphene	8001-35-2	NE	NE	0.49	2.1	0.028	U	0.03	U	0.029	U	0.27	U	0.035	U	0.026	U

Sample ID	VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-26-2.0	AMR-SB-27-0.5	AMR-SB-28-2.0	AMR-SB-29-0.5	AMR-SB-30-2.0	AMR-SB-31-0.5							
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q		
4,4'-DDD	72-54-8	NE	NE	1.9	9.6	0.0017	U	0.0017	U	0.0018	U	0.0019	U	0.012	0.0017	U	
4,4'-DDE	72-55-9	NE	NE	2	9.3	0.0017	U	0.0017	U	0.0018	U	0.0019	U	0.0018	U	0.0017	U
4,4'-DDT	50-29-3	NE	NE	1.9	8.5	0.0017	U	0.0017	U	0.0018	U	0.0019	U	0.0018	U	0.0017	U
Aldrin	309-00-2	0.02	0.1	0.039	0.18	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
alpha-BHC	319-84-6	NE	NE	0.086	0.36	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
alpha-Chlordane	5103-71-9	NE	NE	NE	NE	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
beta-BHC	319-85-7	NE	NE	0.3	1.3	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
delta-BHC	319-86-8	NE	NE	NE	NE	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
Dieldrin	60-57-1	NE	NE	0.034	0.14	0.0017	U	0.0017	U	0.0018	U	0.0019	U	0.013		0.0017	U
Endosulfan I	959-98-8	NE	NE	NE	NE	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
Endosulfan II	33213-65-9	NE	NE	NE	NE	0.0017	U	0.0017	U	0.0018	U	0.0019	U	0.0018	U	0.0017	U
Endosulfan sulfate	1031-07-8	NE	NE	380	4900	0.0017	U	0.0017	U	0.0018	U	0.0019	U	0.0018	U	0.0017	U
Endrin	72-20-8	NE	NE	19	250	0.0017	U	0.0017	U	0.0018	U	0.0019	U	0.0018	U	0.0017	U
Endrin aldehyde	7421-93-4	NE	NE	NE	NE	0.0017	U	0.0017	U	0.0018	U	0.0019	U	0.0018	U	0.0017	U
Endrin ketone	53494-70-5	NE	NE	NE	NE	0.0017	U	0.0017	U	0.0018	U	0.0019	U	0.0018	U	0.0017	U
gamma-BHC	58-89-9	NE	NE	0.57	2.5	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
gamma-Chlordane	5103-74-2	NE	NE	NE	NE	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
Heptachlor	76-44-8	NE	NE	0.13	0.63	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
Heptachlor epoxide	1024-57-3	NE	NE	0.07	0.33	0.00083	U	0.00086	U	0.00092	U	0.00094	U	0.00089	U	0.00084	U
Methoxychlor	72-43-5	NE	NE	320	4100	0.0083	U	0.0086	U	0.0092	U	0.0094	U	0.0089	U	0.0084	U
Technical Chlordane	57-74-9	NE	NE	NE	NE	0.026	U	0.027	U	0.029	U	0.029	U	0.028	U	0.026	U
Toxaphene	8001-35-2	NE	NE	0.49	2.1	0.026	U	0.027	U	0.029	U	0.029	U	0.028	U	0.026	U

Table B-6
Herbicides Concentrations in Soil

Sample ID		VSS - Resident	VSS - Non-resident	Residential RSL	Industrial RSL	AMR-SB-31-FD-0.5		AMR-SB-32-2.0		AMR-SB-33-0.5									
Sample Date	CAS#	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	6/27/2013	Q	6/27/2013	Q	6/27/2013	Q								
4,4'-DDD	72-54-8	NE	NE	1.9	9.6	0.0017	U	0.0017	U	0.0017	U								
4,4'-DDE	72-55-9	NE	NE	2	9.3	0.0017	U	0.0017	U	0.0017	U								
4,4'-DDT	50-29-3	NE	NE	1.9	8.5	0.0017	U	0.0017	U	0.0017	U								
Aldrin	309-00-2	0.02	0.1	0.039	0.18	0.00085	U	0.00083	U	0.00083	U								
alpha-BHC	319-84-6	NE	NE	0.086	0.36	0.00085	U	0.00083	U	0.00083	U								
alpha-Chlordane	5103-71-9	NE	NE	NE	NE	0.00085	U	0.00083	U	0.00083	U								
beta-BHC	319-85-7	NE	NE	0.3	1.3	0.00085	U	0.00083	U	0.00083	U								
delta-BHC	319-86-8	NE	NE	NE	NE	0.00085	U	0.00083	U	0.00083	U								
Dieldrin	60-57-1	NE	NE	0.034	0.14	0.0017	U	0.0024		0.0017	U								
Endosulfan I	959-98-8	NE	NE	NE	NE	0.00085	U	0.00083	U	0.00083	U								
Endosulfan II	33213-65-9	NE	NE	NE	NE	0.0017	U	0.0017	U	0.0017	U								
Endosulfan sulfate	1031-07-8	NE	NE	380	4900	0.0017	U	0.0017	U	0.0017	U								
Endrin	72-20-8	NE	NE	19	250	0.0017	U	0.0017	U	0.0017	U								
Endrin aldehyde	7421-93-4	NE	NE	NE	NE	0.0017	U	0.0017	U	0.0017	U								
Endrin ketone	53494-70-5	NE	NE	NE	NE	0.0017	U	0.0017	U	0.0017	U								
gamma-BHC	58-89-9	NE	NE	0.57	2.5	0.00085	U	0.00083	U	0.00083	U								
gamma-Chlordane	5103-74-2	NE	NE	NE	NE	0.00085	U	0.00083	U	0.00083	U								
Heptachlor	76-44-8	NE	NE	0.13	0.63	0.00085	U	0.00083	U	0.00083	U								
Heptachlor epoxide	1024-57-3	NE	NE	0.07	0.33	0.00085	U	0.00083	U	0.00083	U								
Methoxychlor	72-43-5	NE	NE	320	4100	0.0085	U	0.0083	U	0.0083	U								
Technical Chlordane	57-74-9	NE	NE	NE	NE	0.026	U	0.026	U	0.026	U								
Toxaphene	8001-35-2	NE	NE	0.49	2.1	0.026	U	0.026	U	0.026	U								

Key:
Vermont Soil Standards from Investigation and Remediation of Contaminated Properties Rule, July 2019
RSL - US Environmental Protection Agency, Regional Screening Levels for Residential (Res) and Industrial (Ind) settings, May 2019
mg/kg - milligrams per kilogram (parts per million)
Bold results indicate detections of the analyte
Shaded results indicate an exceedence of the enforcement standard(s)
NE - screening level not established
Q - laboratory result qualifier
U - Analyte not detected; limit of quantitation listed
NS - Sample not analyzed for compound

Table B-7
TCLP Concentrations in Soil

METALS TCLP									
Sample ID		AMR-SB11-COMP		AMR-SB21-COMP		AMR-SB28-COMP		AMR-SB9-COMP	
Sample Date	CAS#	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q
Arsenic	7440-38-2	0.25 U		0.25 U		0.25 U		0.25 U	
Barium	7440-39-3	4 U		4 U		4 U		4 U	
Cadmium	7440-43-9	0.05 U		0.05 U		0.05 U		0.05 U	
Chromium	7440-47-3	0.1 U		0.1 U		0.1 U		0.1 U	
Lead	7439-92-1	0.25 U		0.25 U		0.25 U		0.25 U	
Selenium	7782-49-2	0.85 U		0.85 U		0.85 U		0.85 U	
Silver	7440-22-4	0.07 U		0.07 U		0.07 U		0.07 U	
Mercury	7439-97-6	0.001 U		0.001 U		0.001 U		0.001 U	
PESTICIDES TCLP									
Sample ID		AMR-SB11-COMP		AMR-SB21-COMP		AMR-SB28-COMP		AMR-SB9-COMP	
Sample Date	CAS#	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q
Chlordane	57-74-9	0.0008 U		0.0008 U		0.0008 U		0.0008 U	
Endrin	72-20-8	0.000051 U		0.000051 U		0.000051 U		0.000051 U	
gamma-BHC	58-89-9	0.000026 U		0.000026 U		0.000026 U		0.000026 U	
Heptachlor	76-44-8	0.000026 U		0.000026 U		0.000026 U		0.000026 U	
Heptachlor epoxide	1024-57-3	0.000026 U		0.000026 U		0.000026 U		0.000026 U	
Methoxychlor	72-43-5	0.00026 U		0.00026 U		0.00026 U		0.00026 U	
Toxaphene	8001-35-2	0.0008 U		0.0008 U		0.0008 U		0.0008 U	
SEMI VOLATILE ORGANIC COMPOUNDS									
Sample ID		AMR-SB11-COMP		AMR-SB21-COMP		AMR-SB28-COMP		AMR-SB9-COMP	
Sample Date	CAS#	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q
1,4-Dichlorobenzene	106-46-7	0.04 U		0.04 U		0.04 U		0.04 U	
2,4,5-Trichlorophenol	95-95-4	0.04 U		0.04 U		0.04 U		0.04 U	
2,4,6-Trichlorophenol	88-06-2	0.04 U		0.04 U		0.04 U		0.04 U	
2,4-Dinitrotoluene	121-14-2	0.04 U		0.04 U		0.04 U		0.04 U	
2-Methylphenol	95-48-7	0.04 U		0.04 U		0.04 U		0.04 U	
4-Methylphenol	106-44-5	0.04 U		0.04 U		0.04 U		0.04 U	
Cresols, Total	1319-77-3	0.04 U		0.04 U		0.04 U		0.04 U	
Hexachlorobenzene	118-74-1	0.04 U		0.04 U		0.04 U		0.04 U	
Hexachlorobutadiene	87-68-3	0.04 U		0.04 U		0.04 U		0.04 U	
Hexachloroethane	67-72-1	0.04 U		0.04 U		0.04 U		0.04 U	
Nitrobenzene	98-95-3	0.04 U		0.04 U		0.04 U		0.04 U	
Pentachlorophenol	87-86-5	0.08 U		0.08 U		0.08 U		0.08 U	
Pyridine	110-86-1	0.08 U		0.08 U		0.08 U		0.08 U	

VOLATILE ORGANIC COMPOUNDS									
Sample ID		AMR-SB11-COMP		AMR-SB21-COMP		AMR-SB28-COMP		AMR-SB9-COMP	
Sample Date	CAS#	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q
1,1-Dichloroethene	75-35-4								
1,2-Dichloroethane	107-06-2	0.02 U		0.02 U		0.02 U		0.02 U	
1,4-Dichlorobenzene	106-46-7	0.02 U		0.02 U		0.02 U		0.02 U	
2-Butanone	78-93-3	0.02 U		0.02 U		0.02 U		0.02 U	
Benzene	71-43-2	0.1 U		0.1 U		0.1 U		0.1 U	
Carbon tetrachloride	56-23-5	0.02 U		0.02 U		0.02 U		0.02 U	
Chlorobenzene	108-90-7	0.02 U		0.02 U		0.02 U		0.02 U	
Chloroform	67-66-3	0.02 U		0.02 U		0.02 U		0.02 U	
Tetrachloroethene	127-18-4	0.02 U		0.02 U		0.02 U		0.02 U	
Trichloroethene	79-01-6	0.02 U		0.02 U		0.02 U		0.02 U	
Vinyl chloride	75-01-4	0.02 U		0.02 U		0.02 U		0.02 U	
IGNITABILITY									
Sample ID		AMR-SB11-COMP		AMR-SB21-COMP		AMR-SB28-COMP		AMR-SB9-COMP	
Sample Date	CAS#	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q	8/30/2013	Q
Ignitability		>200		>200		>200		>200	

Key:

mg/kg - milligrams per kilogram (parts per million)

Bold results indicate detections of the analyte

Shaded results indicate an exceedence of the enforcement standard(s)

Q - laboratory result qualifier

U - Analyte not detected; limit of quantitation listed

Appendix C: Field Notes Supplemental Soil Assessment

SOIL BORING LOG

Project Name: Crescent connector

Site Name: _____

Stone Project Number: 12-152

Client: _____

BORING/WELL ID: <u>SB-101</u>	Date Drilled: <u>5/15/20</u>	Location:
Soil followed:	Borehole Diam. (in): <u>3</u>	
Deviations:	Well Diameter (in): <u>NA</u>	
Drilling Method: <u>Hand auger</u>	Screen Length (ft):	
Driller's name: <u>DTC</u>	Screen Slot Size:	
Sampling method: <u>HA</u>	Sand Pack (ft):	
Core Length: <u>NA</u>	Well Seal (ft): <u>↓</u>	

Comments:

Depth Interval (ft bgs)	Recovery (feet)	PID		Soil Description (color, texture, moisture, remarks)	Sample Collected (Depth, ID & Time)	Well Const. Details
		Interval (ft)	Reading (ppm v/v)			
0-1.5	NA	0.5	0.3	0-0.5': brown, moist, loamy silt and sand. 0.5-1.5': brown to dark brown sand w trace silt, some coal fragments and coal ash throughout.		
		1.0	0.3			
		1.5	0.5			
1.5-3.0	NA	2.0	0.3	1.5-1.75': dark gravel and sand w/ significant coal and coal ash from ~ 1.5-1.65', then less coal + coal ash. 1.75-3.0': light brown fine sand and trace silt, no. 32.	SB-101-2.0 @ 10/0 VOCs, PP Metals, PATEs, PCBs	
		2.5	0.2			
		3.0	0.3			
				Small coal fragments present ~ 2.3' (may have fallen into auger bucket from upper side wall) no other coal + coal ash observed		

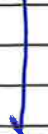
Geoscientist: <u>Dan Curran</u>	Signature: <u>Daniel D. Curran</u>	Date: <u>5/15/20</u>
Geoscientist:	Signature:	Date:

SCIFIELD FORMS/ISOIL BORING LOG 020212.DOC

SOIL BORING LOG

Project Name: Crescent Connector Site Name:

Stone Project Number: 12-152 Client: _____

Boring/Well ID: SB-102	Date Drilled: 5/15/20		Location:
Spaced followed:	Borehole Diam. (in)	3"	
Deviations:	Well Diameter (in):	NA	
Drilling Method: Hand Auger	Screen Length (ft):		
Driller's name: DTC	Screen Slot Size:		
Sampling method: HA	Sand Pack (ft):		
Core Length: NA	Well Seal (ft):		

Comments:

Depth Interval (ft bgs)	Recovery (feet)	PID		Soil Description (color, texture, moisture, remarks)	Sample Collected (Depth, ID & Time)	Well Const. Details
		Interval (ft)	Reading (ppm v/v)			
0-2.0	NA	0.5 1.0 1.5 2.0	0.1 0.1 0.1 0.1	0-0.8': Brown to dark brown sand and gravel, w/ trace silt, dry. 0.8-2.0 light brown fine sand w/ trace silt, dry becoming moist and brown ~1.5'.	SB-102-2.0 (Composite 0-2') 840 VOCs, PAHs, PCBs, Pb metals	
2-3	NA	2.5 3.0	0.1 0.1	2-3': SAA, moist brown fine sand w/ trace silt becoming light brown ~2.5'		

Geoscientist: <u>Dan Curran</u>	Signature: <u>Daniel S. Curran</u>	Date: <u>5/15/20</u>
Geoscientist:	Signature:	Date:

SOIL BORING LOG

Project Name: Crescent Connector

Site Name:

Stone Project Number: 12-152

Client:

BOH/ING/WELL ID: SB-103	Date Drilled: 5/15/20	Location:
Spaced followed:	Borehole Diam. (in) 3	
Deviations:	Well Diameter (in): NA	
Drilling Method: Hand Auger	Screen Length (ft):	
Driller's name: DTC	Screen Slot Size:	
Sampling method: HA	Sand Pack (ft):	
Core Length: NA	Well Seal (ft):	

Comments:

Depth Interval (ft bgs)	Recovery (feet)	PID		Soil Description (color, texture, moisture, remarks)	Sample Collected (Depth, ID & Time)	Well Const. Details
		Interval (ft)	Reading (ppm v/v)			
0-2	NA	0.5 1.0 1.5 2.0	0.3 0.4 0.3 0.4	0.0-1.5 brown to dark brown sand, gravel and crushed stone, w/ trace silt, dry becoming damp @ 1.0' 1.5-2.0 dark brown sand w/ trace silt and gravel, moist becoming light brown ~1.75' coal fragments throughout	SB-103-2.0 / SB-103-2.0-AD @ 925 (comp 0-2.0') VOCs, AP metals, PAHs, PCBs	
2-3	NA	2.5 3.0	0.3 0.3	2-3': light brown to tan fine sand w/ trace silt, moist. no coal fragments observed.		

Geoscientist: <u>Dan Curran</u>	Signature: <u>Daniel T. Curran</u>	Date: <u>5/15/20</u>
Geoscientist:	Signature:	Date:

SOIL BORING LOG

Project Name: 12-152

Site Name: _____

Stone Project Number: Crescent Connector

Client: _____

BORING/WELL ID: <u>SB-104</u>	Date Drilled: <u>5/15/20</u>	Location:
Soil followed:	Borehole Diam. (in): <u>3</u>	
Deviations:	Well Diameter (in): <u>NA</u>	
Drilling Method: <u>Hand Auger</u>	Screen Length (ft):	
Driller's name: <u>DTC</u>	Screen Slot Size:	
Sampling method: <u>HA</u>	Sand Pack (ft):	
Core Length: <u>NA</u>	Well Seal (ft):	

Comments: Coal fragments present at ground surface

Depth Interval (ft bgs)	Recovery (feet)	PID		Soil Description (color, texture, moisture, remarks)	Sample Collected (Depth, ID & Time)	Well Const. Details
		Interval (ft)	Reading (ppm v/v)			
0-2		0.25	0.3	0-0.5': black gravel and sand, dry with significant coal and coal ash throughout.	SB-104-2.0 (comp) @ 1045 VOCs, PAHs, PP metals, PCBs	
	0.5	0.4				
	1.0	0.4	0.5-2.0': light brown to brown fine sand with trace silt, trace of coal throughout, moist			
	1.5	0.5				
	2.0	0.4				
2-3		2.5	0.3	2.0-2.5' 2-3.0 light brown fine sand becoming medium to coarse sand @ 2.5', moist No coal observed.		
		3.0	0.3			

Geoscientist: <u>Dan Curran</u>	Signature: <u>Daniel T. Curran</u>	Date: <u>5/15/20</u>
Geoscientist:	Signature:	Date:

SCFIELD FORMS\SOIL BORING LOG 020212.DOC

① DTE 5/15/20

SOIL BORING LOG

Project Name: Crescent Connector

Site Name: _____

Stone Project Number: 12-152

Client: _____

BORING/WELL ID: <u>SB-105</u>	Date Drilled: <u>5/15/20</u>	Location:
Followed:	Borehole Diam. (in): <u>3</u>	
Deviations:	Well Diameter (in): <u>NA</u>	
Drilling Method: <u>Hand auger</u>	Screen Length (ft):	
Driller's name: <u>DTC</u>	Screen Slot Size:	
Sampling method: <u>HA</u>	Sand Pack (ft):	
Core Length: <u>NA</u>	Well Seal (ft):	

Comments:

Depth Interval (ft bgs)	Recovery (feet)	PID		Soil Description (color, texture, moisture, remarks)	Sample Collected (Depth, ID & Time)	Well Const. Details
		Interval (ft)	Reading (ppm v/v)			
0-2		0.5	0.7	0.0-1.0: black, gravel + sand, dry, with significant coal + coal ash throughout. 1.0-2.0: light brown, moist, medium to coarse sand w/ some gravel (1)	SB-105-2.0 VOCs, PAHs, PCBs, Pb Metal	0.0-2.0 V (Comp) 1/25 PCBs, Pb Metal
		1.0	0.5			
		1.5	0.5			
		2.0	0.5			
2-3		2.5	0.4	2.0-2.5: darker brown, fine 2.0-2.5: light brown fine sand with trace silt, moist, no coal. 2.5-2.6: darker brown fine silty sand, moist. 2.6-2.75: light brown, medium sand, moist		
		3.0	0.4			
				2.75-3.0 tan coarse sand and gravel, moist		

Geoscientist: Dan Curran

Signature: Daniel T. Curran

Date: 5/15/20

Geoscientist:

Signature:

Date:

SCIFIELD FORMS/ISOIL BORING LOG 020212.DOC

OBSERVATIONS AND REMARKS

Project Name/Description:

Crescent Connector



STONE ENVIRONMENTAL

535 Stone Cutters Way / Montpelier / VT / 05602 / USA
802.229.4541 / info@stone-env.com / www.stone-env.com

SEI Project #:

12-152

Client/Sponsor:

0805 Stone on-site @ Crescent connector to complete
SSI soil assessment.
weather: 50, cloudy, rain

calibrated PID. Confirmed SB locations are 15+ feet
outside center of rail line. Begin soil assessment. see
soil boring logs for details.

1145 collected TB-051520

1200 DTE off-site

Signed:

Daniel T. Curran

Date:

5/15/20

Page: 1

of 1

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Appendix D: Laboratory Analytical Report- Supplemental Soil Assessment

May 29, 2020

Dan Voisin
Stone Environmental
535 Stone Cutters Ways
Montpelier, VT 05602

Project Location: Essex Junction, VT
Client Job Number:
Project Number: 12-152
Laboratory Work Order Number: 20E0762

Enclosed are results of analyses for samples received by the laboratory on May 19, 2020. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Kaitlyn", written in a cursive, flowing style.

Kaitlyn A. Feliciano
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Stone Environmental
535 Stone Cutters Ways
Montpelier, VT 05602
ATTN: Dan Voisin

REPORT DATE: 5/29/2020

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 12-152

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 20E0762

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Essex Junction, VT

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SB-101-2.0	20E0762-01	Soil		SM 2540G SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8260C-D SW-846 8270D-E	
SB-102-2.0	20E0762-02	Soil		SM 2540G SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8260C-D SW-846 8270D-E	
SB-103-2.0	20E0762-03	Soil		SM 2540G SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8260C-D SW-846 8270D-E	
SB-103-2.0-FD	20E0762-04	Soil		SM 2540G SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8260C-D SW-846 8270D-E	
SB-104-2.0	20E0762-05	Soil		SM 2540G SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8260C-D SW-846 8270D-E	
SB-105-2.0	20E0762-06	Soil		SM 2540G SW-846 6010D SW-846 7471B SW-846 8082A SW-846 8260C-D SW-846 8270D-E	
TB-051520	20E0762-07	Trip Blank Soil		SW-846 8260C-D	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For 8270E, only PAHs were requested and reported.

SW-846 6010D**Qualifications:****MS-07**

Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.

Analyte & Samples(s) Qualified:**Antimony**

20E0762-02[SB-102-2.0], B258495-MS1

SW-846 8260C-D**Qualifications:****L-04**

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:**trans-1,4-Dichloro-2-butene**

20E0762-01[SB-101-2.0], 20E0762-02[SB-102-2.0], 20E0762-03[SB-103-2.0], 20E0762-04[SB-103-2.0-FD], 20E0762-05[SB-104-2.0], 20E0762-06[SB-105-2.0], 20E0762-07[TB-051520], B258383-BLK1, B258383-BS1, B258383-BSD1

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:**1,2-Dibromo-3-chloropropane (DBP)**

20E0762-01[SB-101-2.0], 20E0762-02[SB-102-2.0], 20E0762-03[SB-103-2.0], 20E0762-04[SB-103-2.0-FD], 20E0762-05[SB-104-2.0], 20E0762-06[SB-105-2.0], 20E0762-07[TB-051520], B258383-BLK1, B258383-BS1, B258383-BSD1, S048619-CCV1

2,2-Dichloropropane

20E0762-01[SB-101-2.0], 20E0762-02[SB-102-2.0], 20E0762-03[SB-103-2.0], 20E0762-04[SB-103-2.0-FD], 20E0762-05[SB-104-2.0], 20E0762-06[SB-105-2.0], 20E0762-07[TB-051520], B258383-BLK1, B258383-BS1, B258383-BSD1, S048619-CCV1

Carbon Tetrachloride

20E0762-01[SB-101-2.0], 20E0762-02[SB-102-2.0], 20E0762-03[SB-103-2.0], 20E0762-04[SB-103-2.0-FD], 20E0762-05[SB-104-2.0], 20E0762-06[SB-105-2.0], 20E0762-07[TB-051520], B258383-BLK1, B258383-BS1, B258383-BSD1, S048619-CCV1

tert-Butyl Alcohol (TBA)

20E0762-01[SB-101-2.0], 20E0762-02[SB-102-2.0], 20E0762-03[SB-103-2.0], 20E0762-04[SB-103-2.0-FD], 20E0762-05[SB-104-2.0], 20E0762-06[SB-105-2.0], 20E0762-07[TB-051520], B258383-BLK1, B258383-BS1, B258383-BSD1, S048619-CCV1

trans-1,4-Dichloro-2-butene

20E0762-01[SB-101-2.0], 20E0762-02[SB-102-2.0], 20E0762-03[SB-103-2.0], 20E0762-04[SB-103-2.0-FD], 20E0762-05[SB-104-2.0], 20E0762-06[SB-105-2.0], 20E0762-07[TB-051520], B258383-BLK1, B258383-BS1, B258383-BSD1, S048619-CCV1

V-34

Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:**Bromomethane**

20E0762-01[SB-101-2.0], 20E0762-02[SB-102-2.0], 20E0762-03[SB-103-2.0], 20E0762-04[SB-103-2.0-FD], 20E0762-05[SB-104-2.0], 20E0762-06[SB-105-2.0], 20E0762-07[TB-051520], B258383-BLK1, B258383-BS1, B258383-BSD1, S048619-CCV1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, appearing to read "Lisa Worthington", is written over a light pink rectangular background.

Lisa A. Worthington
Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-101-2.0

Sampled: 5/15/2020 10:10

Sample ID: 20E0762-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Acrylonitrile	ND	0.0048	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Benzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Bromobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Bromochloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Bromodichloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Bromoform	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Bromomethane	ND	0.0079	mg/Kg dry	1	V-34	SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
2-Butanone (MEK)	ND	0.032	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
tert-Butyl Alcohol (TBA)	ND	0.032	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
n-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
sec-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
tert-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Carbon Disulfide	ND	0.0048	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Carbon Tetrachloride	ND	0.0016	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Chlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Chlorodibromomethane	ND	0.00079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Chloroethane	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Chloroform	ND	0.0032	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Chloromethane	ND	0.0079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
2-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
4-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0016	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,2-Dibromoethane (EDB)	ND	0.00079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Dibromomethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,2-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,3-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,4-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
trans-1,4-Dichloro-2-butene	ND	0.0032	mg/Kg dry	1	L-04, V-05	SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,1-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,2-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,1-Dichloroethylene	ND	0.0032	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
cis-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
trans-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,3-Dichloropropane	ND	0.00079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
2,2-Dichloropropane	ND	0.0016	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,1-Dichloropropene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
cis-1,3-Dichloropropene	ND	0.00079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
trans-1,3-Dichloropropene	ND	0.00079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Diethyl Ether	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-101-2.0

Sampled: 5/15/2020 10:10

Sample ID: 20E0762-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.00079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,4-Dioxane	ND	0.079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Ethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Hexachlorobutadiene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
2-Hexanone (MBK)	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Isopropylbenzene (Cumene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Methyl Acetate	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0032	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Methyl Cyclohexane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Methylene Chloride	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Naphthalene	ND	0.0032	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
n-Propylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Styrene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,1,1,2-Tetrachloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,1,2,2-Tetrachloroethane	ND	0.00079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Tetrachloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Tetrahydrofuran	ND	0.0079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Toluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,2,3-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,2,4-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,3,5-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,1,1-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,1,2-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Trichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,2,3-Trichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.0079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,2,4-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
1,3,5-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Vinyl Chloride	ND	0.0079	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
m+p Xylene	ND	0.0032	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
o-Xylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:02	MFF
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
1,2-Dichloroethane-d4	93.3	70-130							
Toluene-d8	95.9	70-130							
4-Bromofluorobenzene	94.3	70-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-101-2.0

Sampled: 5/15/2020 10:10

Sample ID: 20E0762-01

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Acenaphthylene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Benzo(a)anthracene	0.27	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Benzo(a)pyrene	0.29	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Benzo(b)fluoranthene	0.46	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Benzo(g,h,i)perylene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Benzo(k)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Chrysene	0.35	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Dibenz(a,h)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Fluoranthene	0.66	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Fluorene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Indeno(1,2,3-cd)pyrene	0.19	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
2-Methylnaphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Naphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Phenanthrene	0.37	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Pyrene	0.52	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:22	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Nitrobenzene-d5	50.4	30-130							
2-Fluorobiphenyl	58.7	30-130							
p-Terphenyl-d14	46.8	30-130							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-101-2.0

Sampled: 5/15/2020 10:10

Sample ID: 20E0762-01

Sample Matrix: Soil

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:21	JMB
Aroclor-1221 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:21	JMB
Aroclor-1232 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:21	JMB
Aroclor-1242 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:21	JMB
Aroclor-1248 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:21	JMB
Aroclor-1254 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:21	JMB
Aroclor-1260 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:21	JMB
Aroclor-1262 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:21	JMB
Aroclor-1268 [1]	ND	0.087	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:21	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	104	30-150							
Decachlorobiphenyl [2]	97.0	30-150							
Tetrachloro-m-xylene [1]	96.7	30-150							
Tetrachloro-m-xylene [2]	98.4	30-150							

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-101-2.0

Sampled: 5/15/2020 10:10

Sample ID: 20E0762-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.9	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Arsenic	6.3	3.8	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Beryllium	0.28	0.19	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Cadmium	ND	0.38	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Chromium	13	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Copper	61	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Lead	120	0.56	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Mercury	0.073	0.028	mg/Kg dry	1		SW-846 7471B	5/20/20	5/22/20 12:43	CJV
Nickel	16	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Selenium	ND	3.8	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Silver	ND	0.38	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Thallium	ND	1.9	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW
Zinc	180	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:46	QNW

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-101-2.0

Sampled: 5/15/2020 10:10

Sample ID: 20E0762-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	89.5		% Wt	1		SM 2540G	5/19/20	5/20/20 7:14	CAH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-102-2.0

Sampled: 5/15/2020 08:40

Sample ID: 20E0762-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Acrylonitrile	ND	0.0047	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Benzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Bromobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Bromochloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Bromodichloromethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Bromoform	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Bromomethane	ND	0.0078	mg/Kg dry	1	V-34	SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
2-Butanone (MEK)	ND	0.031	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
tert-Butyl Alcohol (TBA)	ND	0.031	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
n-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
sec-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
tert-Butylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Carbon Disulfide	ND	0.0047	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Carbon Tetrachloride	ND	0.0016	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Chlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Chlorodibromomethane	ND	0.00078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Chloroethane	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Chloroform	ND	0.0031	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Chloromethane	ND	0.0078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
2-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
4-Chlorotoluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0016	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,2-Dibromoethane (EDB)	ND	0.00078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Dibromomethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,2-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,3-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,4-Dichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
trans-1,4-Dichloro-2-butene	ND	0.0031	mg/Kg dry	1	L-04, V-05	SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,1-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,2-Dichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,1-Dichloroethylene	ND	0.0031	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
cis-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
trans-1,2-Dichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,2-Dichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,3-Dichloropropane	ND	0.00078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
2,2-Dichloropropane	ND	0.0016	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,1-Dichloropropene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
cis-1,3-Dichloropropene	ND	0.00078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
trans-1,3-Dichloropropene	ND	0.00078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Diethyl Ether	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-102-2.0

Sampled: 5/15/2020 08:40

Sample ID: 20E0762-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.00078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,4-Dioxane	ND	0.078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Ethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Hexachlorobutadiene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
2-Hexanone (MBK)	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Isopropylbenzene (Cumene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Methyl Acetate	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0031	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Methyl Cyclohexane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Methylene Chloride	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Naphthalene	ND	0.0031	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
n-Propylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Styrene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,1,1,2-Tetrachloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,1,2,2-Tetrachloroethane	ND	0.00078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Tetrachloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Tetrahydrofuran	ND	0.0078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Toluene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,2,3-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,2,4-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,3,5-Trichlorobenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,1,1-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,1,2-Trichloroethane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Trichloroethylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,2,3-Trichloropropane	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.0078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,2,4-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
1,3,5-Trimethylbenzene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Vinyl Chloride	ND	0.0078	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
m+p Xylene	ND	0.0031	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
o-Xylene	ND	0.0016	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:27	MFF
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
1,2-Dichloroethane-d4	92.1	70-130							
Toluene-d8	97.9	70-130							
4-Bromofluorobenzene	96.5	70-130							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-102-2.0

Sampled: 5/15/2020 08:40

Sample ID: 20E0762-02

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Acenaphthylene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Benzo(a)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Benzo(a)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Benzo(b)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Benzo(g,h,i)perylene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Benzo(k)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Chrysene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Dibenz(a,h)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Fluorene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Indeno(1,2,3-cd)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
2-Methylnaphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Naphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Phenanthrene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 13:47	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Nitrobenzene-d5	60.6	30-130							
2-Fluorobiphenyl	69.9	30-130							
p-Terphenyl-d14	59.6	30-130							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-102-2.0

Sampled: 5/15/2020 08:40

Sample ID: 20E0762-02

Sample Matrix: Soil

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:39	JMB
Aroclor-1221 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:39	JMB
Aroclor-1232 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:39	JMB
Aroclor-1242 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:39	JMB
Aroclor-1248 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:39	JMB
Aroclor-1254 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:39	JMB
Aroclor-1260 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:39	JMB
Aroclor-1262 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:39	JMB
Aroclor-1268 [1]	ND	0.090	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 12:39	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	113	30-150							
Decachlorobiphenyl [2]	104	30-150							
Tetrachloro-m-xylene [1]	99.1	30-150							
Tetrachloro-m-xylene [2]	101	30-150							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-102-2.0

Sampled: 5/15/2020 08:40

Sample ID: 20E0762-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.9	mg/Kg dry	1	MS-07	SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Arsenic	4.2	3.7	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Beryllium	0.21	0.19	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Cadmium	ND	0.37	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Chromium	12	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Copper	45	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Lead	45	0.56	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Mercury	0.047	0.027	mg/Kg dry	1		SW-846 7471B	5/20/20	5/22/20 12:24	CJV
Nickel	16	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Selenium	ND	3.7	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Silver	ND	0.37	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Thallium	ND	1.9	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW
Zinc	48	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 17:41	QNW

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-102-2.0

Sampled: 5/15/2020 08:40

Sample ID: 20E0762-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	88.8		% Wt	1		SM 2540G	5/19/20	5/20/20 7:14	CAH

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Acrylonitrile	ND	0.0058	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Benzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Bromobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Bromochloromethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Bromodichloromethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Bromoform	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Bromomethane	ND	0.0096	mg/Kg dry	1	V-34	SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
2-Butanone (MEK)	ND	0.038	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
tert-Butyl Alcohol (TBA)	ND	0.038	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
n-Butylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
sec-Butylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
tert-Butylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Carbon Disulfide	ND	0.0058	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Carbon Tetrachloride	ND	0.0019	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Chlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Chlorodibromomethane	ND	0.00096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Chloroethane	ND	0.019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Chloroform	ND	0.0038	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Chloromethane	ND	0.0096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
2-Chlorotoluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
4-Chlorotoluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0019	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,2-Dibromoethane (EDB)	ND	0.00096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Dibromomethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,2-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,3-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,4-Dichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
trans-1,4-Dichloro-2-butene	ND	0.0038	mg/Kg dry	1	L-04, V-05	SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,1-Dichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,2-Dichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,1-Dichloroethylene	ND	0.0038	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
cis-1,2-Dichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
trans-1,2-Dichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,2-Dichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,3-Dichloropropane	ND	0.00096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
2,2-Dichloropropane	ND	0.0019	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,1-Dichloropropene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
cis-1,3-Dichloropropene	ND	0.00096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
trans-1,3-Dichloropropene	ND	0.00096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Diethyl Ether	ND	0.019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.00096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,4-Dioxane	ND	0.096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Ethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Hexachlorobutadiene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
2-Hexanone (MBK)	ND	0.019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Isopropylbenzene (Cumene)	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Methyl Acetate	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0038	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Methyl Cyclohexane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Methylene Chloride	ND	0.019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Naphthalene	ND	0.0038	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
n-Propylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Styrene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,1,1,2-Tetrachloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,1,2,2-Tetrachloroethane	ND	0.00096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Tetrachloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Tetrahydrofuran	ND	0.0096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Toluene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,2,3-Trichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,2,4-Trichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,3,5-Trichlorobenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,1,1-Trichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,1,2-Trichloroethane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Trichloroethylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,2,3-Trichloropropane	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.0096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,2,4-Trimethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
1,3,5-Trimethylbenzene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Vinyl Chloride	ND	0.0096	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
m+p Xylene	ND	0.0038	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
o-Xylene	ND	0.0019	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 8:52	MFF
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
1,2-Dichloroethane-d4	91.8	70-130							
Toluene-d8	98.9	70-130							
4-Bromofluorobenzene	93.1	70-130							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-03

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Acenaphthylene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Benzo(a)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Benzo(a)pyrene	0.22	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Benzo(b)fluoranthene	0.35	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Benzo(g,h,i)perylene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Benzo(k)fluoranthene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Chrysene	0.23	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Dibenz(a,h)anthracene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Fluoranthene	0.34	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Fluorene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Indeno(1,2,3-cd)pyrene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
2-Methylnaphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Naphthalene	ND	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Phenanthrene	0.19	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Pyrene	0.32	0.19	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:11	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Nitrobenzene-d5	59.0	30-130							
2-Fluorobiphenyl	68.7	30-130							
p-Terphenyl-d14	55.9	30-130							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-03

Sample Matrix: Soil

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 13:44	JMB
Aroclor-1221 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 13:44	JMB
Aroclor-1232 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 13:44	JMB
Aroclor-1242 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 13:44	JMB
Aroclor-1248 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 13:44	JMB
Aroclor-1254 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 13:44	JMB
Aroclor-1260 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 13:44	JMB
Aroclor-1262 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 13:44	JMB
Aroclor-1268 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 13:44	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	107	30-150							
Decachlorobiphenyl [2]	99.2	30-150							
Tetrachloro-m-xylene [1]	95.4	30-150							
Tetrachloro-m-xylene [2]	96.7	30-150							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.9	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Arsenic	4.8	3.8	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Beryllium	0.23	0.19	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Cadmium	ND	0.38	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Chromium	12	0.76	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Copper	63	0.76	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Lead	69	0.57	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Mercury	0.069	0.028	mg/Kg dry	1		SW-846 7471B	5/20/20	5/22/20 12:45	CJV
Nickel	16	0.76	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Selenium	ND	3.8	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Silver	ND	0.38	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Thallium	ND	1.9	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW
Zinc	72	0.76	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:03	QNW

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	89.0		% Wt	1		SM 2540G	5/19/20	5/20/20 7:15	CAH

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0-FD

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Acrylonitrile	ND	0.0053	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Benzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Bromobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Bromochloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Bromodichloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Bromoform	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Bromomethane	ND	0.0089	mg/Kg dry	1	V-34	SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
2-Butanone (MEK)	ND	0.036	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
tert-Butyl Alcohol (TBA)	ND	0.036	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
n-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
sec-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
tert-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Carbon Disulfide	ND	0.0053	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Carbon Tetrachloride	ND	0.0018	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Chlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Chlorodibromomethane	ND	0.00089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Chloroethane	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Chloroform	ND	0.0036	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Chloromethane	ND	0.0089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
2-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
4-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0018	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,2-Dibromoethane (EDB)	ND	0.00089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Dibromomethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,2-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,3-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,4-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
trans-1,4-Dichloro-2-butene	ND	0.0036	mg/Kg dry	1	L-04, V-05	SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,1-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,2-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,1-Dichloroethylene	ND	0.0036	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
cis-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
trans-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,3-Dichloropropane	ND	0.00089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
2,2-Dichloropropane	ND	0.0018	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,1-Dichloropropene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
cis-1,3-Dichloropropene	ND	0.00089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
trans-1,3-Dichloropropene	ND	0.00089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Diethyl Ether	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0-FD

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.00089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,4-Dioxane	ND	0.089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Ethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Hexachlorobutadiene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
2-Hexanone (MBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Isopropylbenzene (Cumene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Methyl Acetate	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0036	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Methyl Cyclohexane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Methylene Chloride	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Naphthalene	ND	0.0036	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
n-Propylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Styrene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,1,1,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,1,2,2-Tetrachloroethane	ND	0.00089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Tetrachloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Tetrahydrofuran	ND	0.0089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Toluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,2,3-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,2,4-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,3,5-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,1,1-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,1,2-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Trichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,2,3-Trichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.0089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,2,4-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
1,3,5-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Vinyl Chloride	ND	0.0089	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
m+p Xylene	ND	0.0036	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
o-Xylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:16	MFF
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
1,2-Dichloroethane-d4	96.3	70-130							
Toluene-d8	98.4	70-130							
4-Bromofluorobenzene	98.4	70-130							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0-FD

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-04

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Acenaphthylene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Benzo(a)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Benzo(a)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Benzo(b)fluoranthene	0.23	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Benzo(g,h,i)perylene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Benzo(k)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Chrysene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Dibenz(a,h)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Fluoranthene	0.26	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Fluorene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Indeno(1,2,3-cd)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Phenanthrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Pyrene	0.23	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/22/20 14:35	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Nitrobenzene-d5	46.1	30-130							
2-Fluorobiphenyl	54.4	30-130							
p-Terphenyl-d14	44.6	30-130							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0-FD

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-04

Sample Matrix: Soil

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:01	JMB
Aroclor-1221 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:01	JMB
Aroclor-1232 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:01	JMB
Aroclor-1242 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:01	JMB
Aroclor-1248 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:01	JMB
Aroclor-1254 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:01	JMB
Aroclor-1260 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:01	JMB
Aroclor-1262 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:01	JMB
Aroclor-1268 [1]	ND	0.088	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:01	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	109	30-150							
Decachlorobiphenyl [2]	101	30-150							
Tetrachloro-m-xylene [1]	98.6	30-150							
Tetrachloro-m-xylene [2]	101	30-150							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0-FD

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.9	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Arsenic	5.1	3.7	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Beryllium	ND	0.19	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Cadmium	ND	0.37	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Chromium	11	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Copper	65	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Lead	74	0.56	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Mercury	0.064	0.028	mg/Kg dry	1		SW-846 7471B	5/20/20	5/22/20 12:51	CJV
Nickel	15	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Selenium	ND	3.7	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Silver	ND	0.37	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Thallium	ND	1.9	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW
Zinc	69	0.75	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:08	QNW

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-103-2.0-FD

Sampled: 5/15/2020 09:25

Sample ID: 20E0762-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	89.7		% Wt	1		SM 2540G	5/19/20	5/20/20 7:15	CAH

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-104-2.0

Sampled: 5/15/2020 10:45

Sample ID: 20E0762-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Acrylonitrile	ND	0.0053	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Benzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Bromobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Bromochloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Bromodichloromethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Bromoform	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Bromomethane	ND	0.0088	mg/Kg dry	1	V-34	SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
2-Butanone (MEK)	ND	0.035	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
tert-Butyl Alcohol (TBA)	ND	0.035	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
n-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
sec-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
tert-Butylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Carbon Disulfide	ND	0.0053	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Carbon Tetrachloride	ND	0.0018	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Chlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Chlorodibromomethane	ND	0.00088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Chloroethane	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Chloroform	ND	0.0035	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Chloromethane	ND	0.0088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
2-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
4-Chlorotoluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0018	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,2-Dibromoethane (EDB)	ND	0.00088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Dibromomethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,2-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,3-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,4-Dichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
trans-1,4-Dichloro-2-butene	ND	0.0035	mg/Kg dry	1	L-04, V-05	SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,1-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,2-Dichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,1-Dichloroethylene	ND	0.0035	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
cis-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
trans-1,2-Dichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,2-Dichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,3-Dichloropropane	ND	0.00088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
2,2-Dichloropropane	ND	0.0018	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,1-Dichloropropene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
cis-1,3-Dichloropropene	ND	0.00088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
trans-1,3-Dichloropropene	ND	0.00088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Diethyl Ether	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-104-2.0

Sampled: 5/15/2020 10:45

Sample ID: 20E0762-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.00088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,4-Dioxane	ND	0.088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Ethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Hexachlorobutadiene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
2-Hexanone (MBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Isopropylbenzene (Cumene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Methyl Acetate	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0035	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Methyl Cyclohexane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Methylene Chloride	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Naphthalene	ND	0.0035	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
n-Propylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Styrene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,1,1,2-Tetrachloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,1,2,2-Tetrachloroethane	ND	0.00088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Tetrachloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Tetrahydrofuran	ND	0.0088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Toluene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,2,3-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,2,4-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,3,5-Trichlorobenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,1,1-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,1,2-Trichloroethane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Trichloroethylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,2,3-Trichloropropane	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.0088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,2,4-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
1,3,5-Trimethylbenzene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Vinyl Chloride	ND	0.0088	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
m+p Xylene	ND	0.0035	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
o-Xylene	ND	0.0018	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 9:40	MFF
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
1,2-Dichloroethane-d4	91.4	70-130							
Toluene-d8	97.0	70-130							
4-Bromofluorobenzene	94.3	70-130							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-104-2.0

Sampled: 5/15/2020 10:45

Sample ID: 20E0762-05

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Acenaphthylene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Benzo(a)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Benzo(a)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Benzo(b)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Benzo(g,h,i)perylene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Benzo(k)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Chrysene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Dibenz(a,h)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Fluorene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Indeno(1,2,3-cd)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Phenanthrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 12:54	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Nitrobenzene-d5	65.7	30-130						5/23/20 12:54	
2-Fluorobiphenyl	73.9	30-130						5/23/20 12:54	
p-Terphenyl-d14	67.4	30-130						5/23/20 12:54	

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-104-2.0

Sampled: 5/15/2020 10:45

Sample ID: 20E0762-05

Sample Matrix: Soil

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:19	JMB
Aroclor-1221 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:19	JMB
Aroclor-1232 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:19	JMB
Aroclor-1242 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:19	JMB
Aroclor-1248 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:19	JMB
Aroclor-1254 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:19	JMB
Aroclor-1260 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:19	JMB
Aroclor-1262 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:19	JMB
Aroclor-1268 [1]	ND	0.086	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:19	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	110	30-150							
Decachlorobiphenyl [2]	101	30-150							
Tetrachloro-m-xylene [1]	94.4	30-150							
Tetrachloro-m-xylene [2]	97.5	30-150							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-104-2.0

Sampled: 5/15/2020 10:45

Sample ID: 20E0762-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.8	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Arsenic	5.6	3.6	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Beryllium	0.25	0.18	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Cadmium	ND	0.36	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Chromium	11	0.72	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Copper	39	0.72	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Lead	120	0.54	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Mercury	0.029	0.027	mg/Kg dry	1		SW-846 7471B	5/20/20	5/22/20 12:52	CJV
Nickel	12	0.72	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Selenium	ND	3.6	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Silver	ND	0.36	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Thallium	ND	1.8	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW
Zinc	25	0.72	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:13	QNW

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-104-2.0

Sampled: 5/15/2020 10:45

Sample ID: 20E0762-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	90.5		% Wt	1		SM 2540G	5/19/20	5/20/20 7:15	CAH

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-105-2.0

Sampled: 5/15/2020 11:25

Sample ID: 20E0762-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Acrylonitrile	ND	0.0044	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.00074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Benzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Bromobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Bromochloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Bromodichloromethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Bromoform	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Bromomethane	ND	0.0074	mg/Kg dry	1	V-34	SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
2-Butanone (MEK)	ND	0.030	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
tert-Butyl Alcohol (TBA)	ND	0.030	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
n-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
sec-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
tert-Butylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.00074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Carbon Disulfide	ND	0.0044	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Carbon Tetrachloride	ND	0.0015	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Chlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Chlorodibromomethane	ND	0.00074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Chloroethane	ND	0.015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Chloroform	ND	0.0030	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Chloromethane	ND	0.0074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
2-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
4-Chlorotoluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0015	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,2-Dibromoethane (EDB)	ND	0.00074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Dibromomethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,2-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,3-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,4-Dichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
trans-1,4-Dichloro-2-butene	ND	0.0030	mg/Kg dry	1	L-04, V-05	SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,1-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,2-Dichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,1-Dichloroethylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
cis-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
trans-1,2-Dichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,2-Dichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,3-Dichloropropane	ND	0.00074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
2,2-Dichloropropane	ND	0.0015	mg/Kg dry	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,1-Dichloropropene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
cis-1,3-Dichloropropene	ND	0.00074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
trans-1,3-Dichloropropene	ND	0.00074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Diethyl Ether	ND	0.015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-105-2.0

Sampled: 5/15/2020 11:25

Sample ID: 20E0762-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.00074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,4-Dioxane	ND	0.074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Ethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Hexachlorobutadiene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
2-Hexanone (MBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Isopropylbenzene (Cumene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Methyl Acetate	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0030	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Methyl Cyclohexane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Methylene Chloride	ND	0.015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Naphthalene	ND	0.0030	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
n-Propylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Styrene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,1,1,2-Tetrachloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,1,2,2-Tetrachloroethane	ND	0.00074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Tetrachloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Tetrahydrofuran	ND	0.0074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Toluene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,2,3-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,2,4-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,3,5-Trichlorobenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,1,1-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,1,2-Trichloroethane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Trichloroethylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Trichlorofluoromethane (Freon 11)	ND	0.0074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,2,3-Trichloropropane	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.0074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,2,4-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
1,3,5-Trimethylbenzene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Vinyl Chloride	ND	0.0074	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
m+p Xylene	ND	0.0030	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
o-Xylene	ND	0.0015	mg/Kg dry	1		SW-846 8260C-D	5/20/20	5/20/20 10:06	MFF
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
1,2-Dichloroethane-d4	93.2	70-130							
Toluene-d8	97.3	70-130							
4-Bromofluorobenzene	94.0	70-130							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-105-2.0

Sampled: 5/15/2020 11:25

Sample ID: 20E0762-06

Sample Matrix: Soil

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Acenaphthylene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Benzo(a)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Benzo(a)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Benzo(b)fluoranthene	0.42	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Benzo(g,h,i)perylene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Benzo(k)fluoranthene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Chrysene	0.19	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Dibenz(a,h)anthracene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Fluoranthene	0.38	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Fluorene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Indeno(1,2,3-cd)pyrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
2-Methylnaphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Naphthalene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Phenanthrene	ND	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Pyrene	0.33	0.18	mg/Kg dry	1		SW-846 8270D-E	5/20/20	5/23/20 13:18	BGL
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Nitrobenzene-d5	79.6	30-130							
2-Fluorobiphenyl	90.0	30-130							
p-Terphenyl-d14	80.7	30-130							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-105-2.0

Sampled: 5/15/2020 11:25

Sample ID: 20E0762-06

Sample Matrix: Soil

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:36	JMB
Aroclor-1221 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:36	JMB
Aroclor-1232 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:36	JMB
Aroclor-1242 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:36	JMB
Aroclor-1248 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:36	JMB
Aroclor-1254 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:36	JMB
Aroclor-1260 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:36	JMB
Aroclor-1262 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:36	JMB
Aroclor-1268 [1]	ND	0.084	mg/Kg dry	4		SW-846 8082A	5/20/20	5/23/20 14:36	JMB
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
Decachlorobiphenyl [1]	112	30-150							
Decachlorobiphenyl [2]	104	30-150							
Tetrachloro-m-xylene [1]	98.4	30-150							
Tetrachloro-m-xylene [2]	101	30-150							

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-105-2.0

Sampled: 5/15/2020 11:25

Sample ID: 20E0762-06

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Antimony	ND	1.8	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Arsenic	4.8	3.7	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Beryllium	0.21	0.18	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Cadmium	ND	0.37	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Chromium	14	0.73	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Copper	43	0.73	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Lead	82	0.55	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Mercury	0.028	0.027	mg/Kg dry	1		SW-846 7471B	5/20/20	5/22/20 11:54	CJV
Nickel	14	0.73	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Selenium	ND	3.7	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Silver	ND	0.37	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Thallium	ND	1.8	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW
Zinc	31	0.73	mg/Kg dry	1		SW-846 6010D	5/21/20	5/21/20 18:18	QNW

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: SB-105-2.0

Sampled: 5/15/2020 11:25

Sample ID: 20E0762-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	92.2		% Wt	1		SM 2540G	5/19/20	5/20/20 7:16	CAH

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: TB-051520

Sampled: 5/15/2020 11:45

Sample ID: 20E0762-07

Sample Matrix: Trip Blank Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	0.10	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Acrylonitrile	ND	0.0060	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Benzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Bromobenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Bromochloromethane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Bromodichloromethane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Bromoform	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Bromomethane	ND	0.010	mg/Kg wet	1	V-34	SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
2-Butanone (MEK)	ND	0.040	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
tert-Butyl Alcohol (TBA)	ND	0.040	mg/Kg wet	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
n-Butylbenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
sec-Butylbenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
tert-Butylbenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Carbon Disulfide	ND	0.0060	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Carbon Tetrachloride	ND	0.0020	mg/Kg wet	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Chlorobenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Chlorodibromomethane	ND	0.0010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Chloroethane	ND	0.020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Chloroform	ND	0.0040	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Chloromethane	ND	0.010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
2-Chlorotoluene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
4-Chlorotoluene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Dibromomethane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
trans-1,4-Dichloro-2-butene	ND	0.0040	mg/Kg wet	1	L-04, V-05	SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Dichlorodifluoromethane (Freon 12)	ND	0.020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,1-Dichloroethane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,2-Dichloroethane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,2-Dichloropropane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,3-Dichloropropane	ND	0.0010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
2,2-Dichloropropane	ND	0.0020	mg/Kg wet	1	V-05	SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,1-Dichloropropene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Diethyl Ether	ND	0.020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF

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Project Location: Essex Junction, VT

Sample Description:

Work Order: 20E0762

Date Received: 5/19/2020

Field Sample #: TB-051520

Sampled: 5/15/2020 11:45

Sample ID: 20E0762-07

Sample Matrix: Trip Blank Soil

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,4-Dioxane	ND	0.10	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Ethylbenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Hexachlorobutadiene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
2-Hexanone (MBK)	ND	0.020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Methyl Acetate	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Methyl Cyclohexane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Methylene Chloride	ND	0.020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Naphthalene	ND	0.0040	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
n-Propylbenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Styrene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Tetrachloroethylene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Tetrahydrofuran	ND	0.010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Toluene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,3,5-Trichlorobenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Trichloroethylene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Vinyl Chloride	ND	0.010	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
m+p Xylene	ND	0.0040	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
o-Xylene	ND	0.0020	mg/Kg wet	1		SW-846 8260C-D	5/20/20	5/20/20 12:36	MFF
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
1,2-Dichloroethane-d4	92.0	70-130							
Toluene-d8	99.3	70-130							
4-Bromofluorobenzene	95.5	70-130							

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Sample Extraction Data

Prep Method: % Solids Analytical Method: SM 2540G

Lab Number [Field ID]	Batch	Date
20E0762-01 [SB-101-2.0]	B258342	05/19/20
20E0762-02 [SB-102-2.0]	B258342	05/19/20
20E0762-03 [SB-103-2.0]	B258342	05/19/20
20E0762-04 [SB-103-2.0-FD]	B258342	05/19/20
20E0762-05 [SB-104-2.0]	B258342	05/19/20
20E0762-06 [SB-105-2.0]	B258342	05/19/20

Prep Method: SW-846 3050B Analytical Method: SW-846 6010D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
20E0762-01 [SB-101-2.0]	B258495	1.49	50.0	05/21/20
20E0762-02 [SB-102-2.0]	B258495	1.51	50.0	05/21/20
20E0762-03 [SB-103-2.0]	B258495	1.48	50.0	05/21/20
20E0762-04 [SB-103-2.0-FD]	B258495	1.50	50.0	05/21/20
20E0762-05 [SB-104-2.0]	B258495	1.53	50.0	05/21/20
20E0762-06 [SB-105-2.0]	B258495	1.48	50.0	05/21/20

Prep Method: SW-846 7471 Analytical Method: SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
20E0762-06 [SB-105-2.0]	B258394	0.602	50.0	05/20/20

Prep Method: SW-846 7471 Analytical Method: SW-846 7471B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
20E0762-01 [SB-101-2.0]	B258395	0.609	50.0	05/20/20
20E0762-02 [SB-102-2.0]	B258395	0.617	50.0	05/20/20
20E0762-03 [SB-103-2.0]	B258395	0.599	50.0	05/20/20
20E0762-04 [SB-103-2.0-FD]	B258395	0.604	50.0	05/20/20
20E0762-05 [SB-104-2.0]	B258395	0.614	50.0	05/20/20

Prep Method: SW-846 3540C Analytical Method: SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
20E0762-01 [SB-101-2.0]	B258353	10.3	10.0	05/20/20
20E0762-02 [SB-102-2.0]	B258353	10.0	10.0	05/20/20
20E0762-03 [SB-103-2.0]	B258353	10.2	10.0	05/20/20
20E0762-04 [SB-103-2.0-FD]	B258353	10.1	10.0	05/20/20
20E0762-05 [SB-104-2.0]	B258353	10.3	10.0	05/20/20
20E0762-06 [SB-105-2.0]	B258353	10.3	10.0	05/20/20

Prep Method: SW-846 5035 Analytical Method: SW-846 8260C-D

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
20E0762-01 [SB-101-2.0]	B258383	7.03	10.0	05/20/20
20E0762-02 [SB-102-2.0]	B258383	7.21	10.0	05/20/20
20E0762-03 [SB-103-2.0]	B258383	5.85	10.0	05/20/20
20E0762-04 [SB-103-2.0-FD]	B258383	6.28	10.0	05/20/20
20E0762-05 [SB-104-2.0]	B258383	6.28	10.0	05/20/20

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method: SW-846 5035 Analytical Method: SW-846 8260C-D**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
20E0762-06 [SB-105-2.0]	B258383	7.31	10.0	05/20/20
20E0762-07 [TB-051520]	B258383	5.00	10.0	05/20/20

Prep Method: SW-846 3546 Analytical Method: SW-846 8270D-E

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
20E0762-01 [SB-101-2.0]	B258455	30.5	1.00	05/20/20
20E0762-02 [SB-102-2.0]	B258455	30.7	1.00	05/20/20
20E0762-03 [SB-103-2.0]	B258455	30.2	1.00	05/20/20
20E0762-04 [SB-103-2.0-FD]	B258455	30.8	1.00	05/20/20
20E0762-05 [SB-104-2.0]	B258455	30.7	1.00	05/20/20
20E0762-06 [SB-105-2.0]	B258455	30.8	1.00	05/20/20

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258383 - SW-846 5035										
Blank (B258383-BLK1)				Prepared & Analyzed: 05/20/20						
Acetone	ND	0.10	mg/Kg wet							
Acrylonitrile	ND	0.0060	mg/Kg wet							
tert-Amyl Methyl Ether (TAME)	ND	0.0010	mg/Kg wet							
Benzene	ND	0.0020	mg/Kg wet							
Bromobenzene	ND	0.0020	mg/Kg wet							
Bromochloromethane	ND	0.0020	mg/Kg wet							
Bromodichloromethane	ND	0.0020	mg/Kg wet							
Bromoform	ND	0.0020	mg/Kg wet							
Bromomethane	ND	0.010	mg/Kg wet							V-34
2-Butanone (MEK)	ND	0.040	mg/Kg wet							
tert-Butyl Alcohol (TBA)	ND	0.040	mg/Kg wet							V-05
n-Butylbenzene	ND	0.0020	mg/Kg wet							
sec-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butylbenzene	ND	0.0020	mg/Kg wet							
tert-Butyl Ethyl Ether (TBEE)	ND	0.0010	mg/Kg wet							
Carbon Disulfide	ND	0.0060	mg/Kg wet							
Carbon Tetrachloride	ND	0.0020	mg/Kg wet							V-05
Chlorobenzene	ND	0.0020	mg/Kg wet							
Chlorodibromomethane	ND	0.0010	mg/Kg wet							
Chloroethane	ND	0.020	mg/Kg wet							
Chloroform	ND	0.0040	mg/Kg wet							
Chloromethane	ND	0.010	mg/Kg wet							
2-Chlorotoluene	ND	0.0020	mg/Kg wet							
4-Chlorotoluene	ND	0.0020	mg/Kg wet							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0020	mg/Kg wet							V-05
1,2-Dibromoethane (EDB)	ND	0.0010	mg/Kg wet							
Dibromomethane	ND	0.0020	mg/Kg wet							
1,2-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,3-Dichlorobenzene	ND	0.0020	mg/Kg wet							
1,4-Dichlorobenzene	ND	0.0020	mg/Kg wet							
trans-1,4-Dichloro-2-butene	ND	0.0040	mg/Kg wet							L-04, V-05
Dichlorodifluoromethane (Freon 12)	ND	0.020	mg/Kg wet							
1,1-Dichloroethane	ND	0.0020	mg/Kg wet							
1,2-Dichloroethane	ND	0.0020	mg/Kg wet							
1,1-Dichloroethylene	ND	0.0040	mg/Kg wet							
cis-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
trans-1,2-Dichloroethylene	ND	0.0020	mg/Kg wet							
1,2-Dichloropropane	ND	0.0020	mg/Kg wet							
1,3-Dichloropropane	ND	0.0010	mg/Kg wet							
2,2-Dichloropropane	ND	0.0020	mg/Kg wet							V-05
1,1-Dichloropropene	ND	0.0020	mg/Kg wet							
cis-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
trans-1,3-Dichloropropene	ND	0.0010	mg/Kg wet							
Diethyl Ether	ND	0.020	mg/Kg wet							
Diisopropyl Ether (DIPE)	ND	0.0010	mg/Kg wet							
1,4-Dioxane	ND	0.10	mg/Kg wet							
Ethylbenzene	ND	0.0020	mg/Kg wet							
Hexachlorobutadiene	ND	0.0020	mg/Kg wet							
2-Hexanone (MBK)	ND	0.020	mg/Kg wet							
Isopropylbenzene (Cumene)	ND	0.0020	mg/Kg wet							
p-Isopropyltoluene (p-Cymene)	ND	0.0020	mg/Kg wet							
Methyl Acetate	ND	0.0020	mg/Kg wet							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B258383 - SW-846 5035

Blank (B258383-BLK1)

Prepared & Analyzed: 05/20/20

Methyl tert-Butyl Ether (MTBE)	ND	0.0040	mg/Kg wet							
Methyl Cyclohexane	ND	0.0020	mg/Kg wet							
Methylene Chloride	ND	0.020	mg/Kg wet							
4-Methyl-2-pentanone (MIBK)	ND	0.020	mg/Kg wet							
Naphthalene	ND	0.0040	mg/Kg wet							
n-Propylbenzene	ND	0.0020	mg/Kg wet							
Styrene	ND	0.0020	mg/Kg wet							
1,1,1,2-Tetrachloroethane	ND	0.0020	mg/Kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0010	mg/Kg wet							
Tetrachloroethylene	ND	0.0020	mg/Kg wet							
Tetrahydrofuran	ND	0.010	mg/Kg wet							
Toluene	ND	0.0020	mg/Kg wet							
1,2,3-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,2,4-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,3,5-Trichlorobenzene	ND	0.0020	mg/Kg wet							
1,1,1-Trichloroethane	ND	0.0020	mg/Kg wet							
1,1,2-Trichloroethane	ND	0.0020	mg/Kg wet							
Trichloroethylene	ND	0.0020	mg/Kg wet							
Trichlorofluoromethane (Freon 11)	ND	0.010	mg/Kg wet							
1,2,3-Trichloropropane	ND	0.0020	mg/Kg wet							
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.010	mg/Kg wet							
1,2,4-Trimethylbenzene	ND	0.0020	mg/Kg wet							
1,3,5-Trimethylbenzene	ND	0.0020	mg/Kg wet							
Vinyl Chloride	ND	0.010	mg/Kg wet							
m+p Xylene	ND	0.0040	mg/Kg wet							
o-Xylene	ND	0.0020	mg/Kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0468		mg/Kg wet	0.0500		93.5	70-130			
Surrogate: Toluene-d8	0.0495		mg/Kg wet	0.0500		99.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.0488		mg/Kg wet	0.0500		97.7	70-130			

LCS (B258383-BS1)

Prepared & Analyzed: 05/20/20

Acetone	0.192	0.10	mg/Kg wet	0.200		96.0	70-160			†
Acrylonitrile	0.0209	0.0060	mg/Kg wet	0.0200		104	70-130			
tert-Amyl Methyl Ether (TAME)	0.0186	0.0010	mg/Kg wet	0.0200		92.8	70-130			
Benzene	0.0194	0.0020	mg/Kg wet	0.0200		97.2	70-130			
Bromobenzene	0.0190	0.0020	mg/Kg wet	0.0200		94.9	70-130			
Bromochloromethane	0.0221	0.0020	mg/Kg wet	0.0200		111	70-130			
Bromodichloromethane	0.0177	0.0020	mg/Kg wet	0.0200		88.6	70-130			
Bromoform	0.0185	0.0020	mg/Kg wet	0.0200		92.7	70-130			
Bromomethane	0.0203	0.010	mg/Kg wet	0.0200		102	40-130		V-34	†
2-Butanone (MEK)	0.202	0.040	mg/Kg wet	0.200		101	70-160			†
tert-Butyl Alcohol (TBA)	0.136	0.040	mg/Kg wet	0.200		67.9	40-130		V-05	†
n-Butylbenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.5	70-130			
sec-Butylbenzene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130			
tert-Butylbenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-160			†
tert-Butyl Ethyl Ether (TBEE)	0.0193	0.0010	mg/Kg wet	0.0200		96.6	70-130			
Carbon Disulfide	0.214	0.0060	mg/Kg wet	0.200		107	70-130			
Carbon Tetrachloride	0.0155	0.0020	mg/Kg wet	0.0200		77.4	70-130		V-05	
Chlorobenzene	0.0194	0.0020	mg/Kg wet	0.0200		97.0	70-130			
Chlorodibromomethane	0.0187	0.0010	mg/Kg wet	0.0200		93.5	70-130			
Chloroethane	0.0197	0.020	mg/Kg wet	0.0200		98.3	70-130			
Chloroform	0.0183	0.0040	mg/Kg wet	0.0200		91.4	70-130			

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258383 - SW-846 5035										
LCS (B258383-BS1)				Prepared & Analyzed: 05/20/20						
Chloromethane	0.0213	0.010	mg/Kg wet	0.0200		107	70-130			
2-Chlorotoluene	0.0188	0.0020	mg/Kg wet	0.0200		94.0	70-130			
4-Chlorotoluene	0.0184	0.0020	mg/Kg wet	0.0200		91.8	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	0.0164	0.0020	mg/Kg wet	0.0200		82.1	70-130			V-05
1,2-Dibromoethane (EDB)	0.0170	0.0010	mg/Kg wet	0.0200		84.8	70-130			
Dibromomethane	0.0178	0.0020	mg/Kg wet	0.0200		89.2	70-130			
1,2-Dichlorobenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.6	70-130			
1,3-Dichlorobenzene	0.0196	0.0020	mg/Kg wet	0.0200		97.8	70-130			
1,4-Dichlorobenzene	0.0192	0.0020	mg/Kg wet	0.0200		95.9	70-130			
trans-1,4-Dichloro-2-butene	0.0124	0.0040	mg/Kg wet	0.0200		61.9	* 70-130			L-04, V-05
Dichlorodifluoromethane (Freon 12)	0.0201	0.020	mg/Kg wet	0.0200		101	40-160			†
1,1-Dichloroethane	0.0199	0.0020	mg/Kg wet	0.0200		99.4	70-130			
1,2-Dichloroethane	0.0171	0.0020	mg/Kg wet	0.0200		85.4	70-130			
1,1-Dichloroethylene	0.0186	0.0040	mg/Kg wet	0.0200		92.9	70-130			
cis-1,2-Dichloroethylene	0.0195	0.0020	mg/Kg wet	0.0200		97.3	70-130			
trans-1,2-Dichloroethylene	0.0195	0.0020	mg/Kg wet	0.0200		97.4	70-130			
1,2-Dichloropropane	0.0197	0.0020	mg/Kg wet	0.0200		98.6	70-130			
1,3-Dichloropropane	0.0192	0.0010	mg/Kg wet	0.0200		95.8	70-130			
2,2-Dichloropropane	0.0151	0.0020	mg/Kg wet	0.0200		75.4	70-130			V-05
1,1-Dichloropropene	0.0187	0.0020	mg/Kg wet	0.0200		93.7	70-130			
cis-1,3-Dichloropropene	0.0172	0.0010	mg/Kg wet	0.0200		85.9	70-130			
trans-1,3-Dichloropropene	0.0158	0.0010	mg/Kg wet	0.0200		78.8	70-130			
Diethyl Ether	0.0199	0.020	mg/Kg wet	0.0200		99.7	70-130			
Diisopropyl Ether (DIPE)	0.0224	0.0010	mg/Kg wet	0.0200		112	70-130			
1,4-Dioxane	0.200	0.10	mg/Kg wet	0.200		99.9	40-160			†
Ethylbenzene	0.0187	0.0020	mg/Kg wet	0.0200		93.3	70-130			
Hexachlorobutadiene	0.0178	0.0020	mg/Kg wet	0.0200		89.1	70-160			
2-Hexanone (MBK)	0.193	0.020	mg/Kg wet	0.200		96.6	70-160			†
Isopropylbenzene (Cumene)	0.0188	0.0020	mg/Kg wet	0.0200		93.8	70-130			
p-Isopropyltoluene (p-Cymene)	0.0192	0.0020	mg/Kg wet	0.0200		96.0	70-130			
Methyl Acetate	0.0208	0.0020	mg/Kg wet	0.0200		104	70-130			
Methyl tert-Butyl Ether (MTBE)	0.0184	0.0040	mg/Kg wet	0.0200		92.2	70-130			
Methyl Cyclohexane	0.0185	0.0020	mg/Kg wet	0.0200		92.5	70-130			
Methylene Chloride	0.0231	0.020	mg/Kg wet	0.0200		116	40-160			†
4-Methyl-2-pentanone (MIBK)	0.213	0.020	mg/Kg wet	0.200		107	70-160			†
Naphthalene	0.0190	0.0040	mg/Kg wet	0.0200		95.0	40-130			†
n-Propylbenzene	0.0188	0.0020	mg/Kg wet	0.0200		94.2	70-130			
Styrene	0.0195	0.0020	mg/Kg wet	0.0200		97.6	70-130			
1,1,1,2-Tetrachloroethane	0.0182	0.0020	mg/Kg wet	0.0200		91.0	70-130			
1,1,2,2-Tetrachloroethane	0.0192	0.0010	mg/Kg wet	0.0200		96.0	70-130			
Tetrachloroethylene	0.0178	0.0020	mg/Kg wet	0.0200		88.9	70-130			
Tetrahydrofuran	0.0210	0.010	mg/Kg wet	0.0200		105	70-130			
Toluene	0.0178	0.0020	mg/Kg wet	0.0200		89.1	70-130			
1,2,3-Trichlorobenzene	0.0182	0.0020	mg/Kg wet	0.0200		91.0	70-130			
1,2,4-Trichlorobenzene	0.0188	0.0020	mg/Kg wet	0.0200		94.0	70-130			
1,3,5-Trichlorobenzene	0.0186	0.0020	mg/Kg wet	0.0200		93.1	70-130			
1,1,1-Trichloroethane	0.0173	0.0020	mg/Kg wet	0.0200		86.6	70-130			
1,1,2-Trichloroethane	0.0194	0.0020	mg/Kg wet	0.0200		96.8	70-130			
Trichloroethylene	0.0183	0.0020	mg/Kg wet	0.0200		91.6	70-130			
Trichlorofluoromethane (Freon 11)	0.0170	0.010	mg/Kg wet	0.0200		85.2	70-130			
1,2,3-Trichloropropane	0.0186	0.0020	mg/Kg wet	0.0200		93.2	70-130			

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258383 - SW-846 5035										
LCS (B258383-BS1)				Prepared & Analyzed: 05/20/20						
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.0181	0.010	mg/Kg wet	0.0200		90.7	70-130			
1,2,4-Trimethylbenzene	0.0188	0.0020	mg/Kg wet	0.0200		94.1	70-130			
1,3,5-Trimethylbenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.6	70-130			
Vinyl Chloride	0.0220	0.010	mg/Kg wet	0.0200		110	40-130			†
m+p Xylene	0.0371	0.0040	mg/Kg wet	0.0400		92.7	70-130			
o-Xylene	0.0187	0.0020	mg/Kg wet	0.0200		93.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0467		mg/Kg wet	0.0500		93.3	70-130			
Surrogate: Toluene-d8	0.0494		mg/Kg wet	0.0500		98.9	70-130			
Surrogate: 4-Bromofluorobenzene	0.0488		mg/Kg wet	0.0500		97.5	70-130			
LCS Dup (B258383-BSD1)				Prepared & Analyzed: 05/20/20						
Acetone	0.183	0.10	mg/Kg wet	0.200		91.3	70-160	5.02	25	†
Acrylonitrile	0.0209	0.0060	mg/Kg wet	0.0200		104	70-130	0.0958	25	
tert-Amyl Methyl Ether (TAME)	0.0185	0.0010	mg/Kg wet	0.0200		92.7	70-130	0.129	25	
Benzene	0.0190	0.0020	mg/Kg wet	0.0200		95.0	70-130	2.33	25	
Bromobenzene	0.0190	0.0020	mg/Kg wet	0.0200		95.1	70-130	0.147	25	
Bromochloromethane	0.0223	0.0020	mg/Kg wet	0.0200		112	70-130	0.864	25	
Bromodichloromethane	0.0177	0.0020	mg/Kg wet	0.0200		88.7	70-130	0.0790	25	
Bromoform	0.0188	0.0020	mg/Kg wet	0.0200		93.9	70-130	1.31	25	
Bromomethane	0.0198	0.010	mg/Kg wet	0.0200		98.9	40-130	2.77	25	V-34 †
2-Butanone (MEK)	0.201	0.040	mg/Kg wet	0.200		100	70-160	0.639	25	†
tert-Butyl Alcohol (TBA)	0.136	0.040	mg/Kg wet	0.200		68.1	40-130	0.268	25	V-05 †
n-Butylbenzene	0.0183	0.0020	mg/Kg wet	0.0200		91.6	70-130	3.15	25	
sec-Butylbenzene	0.0188	0.0020	mg/Kg wet	0.0200		93.8	70-130	2.80	25	
tert-Butylbenzene	0.0189	0.0020	mg/Kg wet	0.0200		94.3	70-160	1.13	25	†
tert-Butyl Ethyl Ether (TBEE)	0.0194	0.0010	mg/Kg wet	0.0200		96.8	70-130	0.228	25	
Carbon Disulfide	0.208	0.0060	mg/Kg wet	0.200		104	70-130	3.05	25	
Carbon Tetrachloride	0.0150	0.0020	mg/Kg wet	0.0200		75.0	70-130	3.12	25	V-05
Chlorobenzene	0.0195	0.0020	mg/Kg wet	0.0200		97.4	70-130	0.329	25	
Chlorodibromomethane	0.0179	0.0010	mg/Kg wet	0.0200		89.7	70-130	4.07	25	
Chloroethane	0.0195	0.020	mg/Kg wet	0.0200		97.3	70-130	0.971	25	
Chloroform	0.0181	0.0040	mg/Kg wet	0.0200		90.3	70-130	1.23	25	
Chloromethane	0.0209	0.010	mg/Kg wet	0.0200		104	70-130	2.31	25	
2-Chlorotoluene	0.0185	0.0020	mg/Kg wet	0.0200		92.3	70-130	1.85	25	
4-Chlorotoluene	0.0182	0.0020	mg/Kg wet	0.0200		91.2	70-130	0.645	25	
1,2-Dibromo-3-chloropropane (DBCP)	0.0150	0.0020	mg/Kg wet	0.0200		74.9	70-130	9.21	25	V-05
1,2-Dibromoethane (EDB)	0.0165	0.0010	mg/Kg wet	0.0200		82.3	70-130	2.97	25	
Dibromomethane	0.0176	0.0020	mg/Kg wet	0.0200		87.9	70-130	1.49	25	
1,2-Dichlorobenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.5	70-130	0.926	25	
1,3-Dichlorobenzene	0.0192	0.0020	mg/Kg wet	0.0200		95.9	70-130	1.87	25	
1,4-Dichlorobenzene	0.0185	0.0020	mg/Kg wet	0.0200		92.3	70-130	3.77	25	
trans-1,4-Dichloro-2-butene	0.0126	0.0040	mg/Kg wet	0.0200		63.0	* 70-130	1.83	25	L-04, V-05
Dichlorodifluoromethane (Freon 12)	0.0200	0.020	mg/Kg wet	0.0200		100	40-160	0.648	25	†
1,1-Dichloroethane	0.0196	0.0020	mg/Kg wet	0.0200		97.9	70-130	1.56	25	
1,2-Dichloroethane	0.0174	0.0020	mg/Kg wet	0.0200		86.9	70-130	1.72	25	
1,1-Dichloroethylene	0.0181	0.0040	mg/Kg wet	0.0200		90.3	70-130	2.81	25	
cis-1,2-Dichloroethylene	0.0186	0.0020	mg/Kg wet	0.0200		93.2	70-130	4.25	25	
trans-1,2-Dichloroethylene	0.0195	0.0020	mg/Kg wet	0.0200		97.5	70-130	0.164	25	
1,2-Dichloropropane	0.0197	0.0020	mg/Kg wet	0.0200		98.5	70-130	0.132	25	
1,3-Dichloropropane	0.0192	0.0010	mg/Kg wet	0.0200		96.0	70-130	0.156	25	
2,2-Dichloropropane	0.0144	0.0020	mg/Kg wet	0.0200		71.9	70-130	4.76	25	V-05
1,1-Dichloropropene	0.0182	0.0020	mg/Kg wet	0.0200		90.9	70-130	2.97	25	

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258383 - SW-846 5035										
LCS Dup (B258383-BSD1)				Prepared & Analyzed: 05/20/20						
cis-1,3-Dichloropropene	0.0169	0.0010	mg/Kg wet	0.0200		84.5	70-130	1.74	25	
trans-1,3-Dichloropropene	0.0159	0.0010	mg/Kg wet	0.0200		79.5	70-130	0.872	25	
Diethyl Ether	0.0195	0.020	mg/Kg wet	0.0200		97.6	70-130	2.12	25	
Diisopropyl Ether (DIPE)	0.0215	0.0010	mg/Kg wet	0.0200		108	70-130	3.93	25	
1,4-Dioxane	0.195	0.10	mg/Kg wet	0.200		97.3	40-160	2.61	50	† ‡
Ethylbenzene	0.0184	0.0020	mg/Kg wet	0.0200		92.1	70-130	1.26	25	
Hexachlorobutadiene	0.0178	0.0020	mg/Kg wet	0.0200		88.8	70-160	0.304	25	
2-Hexanone (MBK)	0.194	0.020	mg/Kg wet	0.200		97.1	70-160	0.511	25	†
Isopropylbenzene (Cumene)	0.0187	0.0020	mg/Kg wet	0.0200		93.4	70-130	0.363	25	
p-Isopropyltoluene (p-Cymene)	0.0186	0.0020	mg/Kg wet	0.0200		92.8	70-130	3.35	25	
Methyl Acetate	0.0211	0.0020	mg/Kg wet	0.0200		106	70-130	1.46	25	
Methyl tert-Butyl Ether (MTBE)	0.0182	0.0040	mg/Kg wet	0.0200		91.0	70-130	1.34	25	
Methyl Cyclohexane	0.0185	0.0020	mg/Kg wet	0.0200		92.3	70-130	0.260	25	
Methylene Chloride	0.0224	0.020	mg/Kg wet	0.0200		112	40-160	3.26	25	†
4-Methyl-2-pentanone (MIBK)	0.210	0.020	mg/Kg wet	0.200		105	70-160	1.41	25	†
Naphthalene	0.0183	0.0040	mg/Kg wet	0.0200		91.6	40-130	3.68	25	†
n-Propylbenzene	0.0187	0.0020	mg/Kg wet	0.0200		93.4	70-130	0.789	25	
Styrene	0.0193	0.0020	mg/Kg wet	0.0200		96.5	70-130	1.16	25	
1,1,1,2-Tetrachloroethane	0.0176	0.0020	mg/Kg wet	0.0200		87.9	70-130	3.49	25	
1,1,2,2-Tetrachloroethane	0.0196	0.0010	mg/Kg wet	0.0200		98.0	70-130	2.11	25	
Tetrachloroethylene	0.0176	0.0020	mg/Kg wet	0.0200		88.0	70-130	0.938	25	
Tetrahydrofuran	0.0194	0.010	mg/Kg wet	0.0200		97.0	70-130	7.82	25	
Toluene	0.0177	0.0020	mg/Kg wet	0.0200		88.5	70-130	0.631	25	
1,2,3-Trichlorobenzene	0.0178	0.0020	mg/Kg wet	0.0200		89.1	70-130	2.12	25	
1,2,4-Trichlorobenzene	0.0178	0.0020	mg/Kg wet	0.0200		88.8	70-130	5.60	25	
1,3,5-Trichlorobenzene	0.0181	0.0020	mg/Kg wet	0.0200		90.4	70-130	2.91	25	
1,1,1-Trichloroethane	0.0167	0.0020	mg/Kg wet	0.0200		83.5	70-130	3.73	25	
1,1,2-Trichloroethane	0.0189	0.0020	mg/Kg wet	0.0200		94.6	70-130	2.34	25	
Trichloroethylene	0.0179	0.0020	mg/Kg wet	0.0200		89.5	70-130	2.31	25	
Trichlorofluoromethane (Freon 11)	0.0167	0.010	mg/Kg wet	0.0200		83.6	70-130	1.94	25	
1,2,3-Trichloropropane	0.0186	0.0020	mg/Kg wet	0.0200		93.2	70-130	0.0429	25	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.0179	0.010	mg/Kg wet	0.0200		89.5	70-130	1.31	25	
1,2,4-Trimethylbenzene	0.0184	0.0020	mg/Kg wet	0.0200		92.0	70-130	2.25	25	
1,3,5-Trimethylbenzene	0.0191	0.0020	mg/Kg wet	0.0200		95.4	70-130	0.916	25	
Vinyl Chloride	0.0213	0.010	mg/Kg wet	0.0200		107	40-130	3.29	25	†
m+p Xylene	0.0370	0.0040	mg/Kg wet	0.0400		92.4	70-130	0.286	25	
o-Xylene	0.0187	0.0020	mg/Kg wet	0.0200		93.5	70-130	0.00	25	
Surrogate: 1,2-Dichloroethane-d4	0.0448		mg/Kg wet	0.0500		89.7	70-130			
Surrogate: Toluene-d8	0.0498		mg/Kg wet	0.0500		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.0484		mg/Kg wet	0.0500		96.8	70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B258455 - SW-846 3546

Blank (B258455-BLK1)

Prepared: 05/20/20 Analyzed: 05/22/20

Acenaphthene	ND	0.17	mg/Kg wet							
Acenaphthylene	ND	0.17	mg/Kg wet							
Anthracene	ND	0.17	mg/Kg wet							
Benzo(a)anthracene	ND	0.17	mg/Kg wet							
Benzo(a)pyrene	ND	0.17	mg/Kg wet							
Benzo(b)fluoranthene	ND	0.17	mg/Kg wet							
Benzo(g,h,i)perylene	ND	0.17	mg/Kg wet							
Benzo(k)fluoranthene	ND	0.17	mg/Kg wet							
Chrysene	ND	0.17	mg/Kg wet							
Dibenz(a,h)anthracene	ND	0.17	mg/Kg wet							
Fluoranthene	ND	0.17	mg/Kg wet							
Fluorene	ND	0.17	mg/Kg wet							
Indeno(1,2,3-cd)pyrene	ND	0.17	mg/Kg wet							
2-Methylnaphthalene	ND	0.17	mg/Kg wet							
Naphthalene	ND	0.17	mg/Kg wet							
Phenanthrene	ND	0.17	mg/Kg wet							
Pyrene	ND	0.17	mg/Kg wet							
Surrogate: Nitrobenzene-d5	2.44		mg/Kg wet	3.33		73.1	30-130			
Surrogate: 2-Fluorobiphenyl	2.80		mg/Kg wet	3.33		83.9	30-130			
Surrogate: p-Terphenyl-d14	2.71		mg/Kg wet	3.33		81.4	30-130			

LCS (B258455-BS1)

Prepared: 05/20/20 Analyzed: 05/22/20

Acenaphthene	0.972	0.17	mg/Kg wet	1.67		58.3	40-140			
Acenaphthylene	0.954	0.17	mg/Kg wet	1.67		57.3	40-140			
Anthracene	1.04	0.17	mg/Kg wet	1.67		62.1	40-140			
Benzo(a)anthracene	0.961	0.17	mg/Kg wet	1.67		57.7	40-140			
Benzo(a)pyrene	1.03	0.17	mg/Kg wet	1.67		61.9	40-140			
Benzo(b)fluoranthene	1.02	0.17	mg/Kg wet	1.67		61.1	40-140			
Benzo(g,h,i)perylene	1.01	0.17	mg/Kg wet	1.67		60.7	40-140			
Benzo(k)fluoranthene	0.988	0.17	mg/Kg wet	1.67		59.3	40-140			
Chrysene	0.962	0.17	mg/Kg wet	1.67		57.7	40-140			
Dibenz(a,h)anthracene	1.03	0.17	mg/Kg wet	1.67		62.0	40-140			
Fluoranthene	1.01	0.17	mg/Kg wet	1.67		60.9	40-140			
Fluorene	1.05	0.17	mg/Kg wet	1.67		63.2	40-140			
Indeno(1,2,3-cd)pyrene	1.17	0.17	mg/Kg wet	1.67		70.4	40-140			
2-Methylnaphthalene	1.07	0.17	mg/Kg wet	1.67		64.2	40-140			
Naphthalene	0.978	0.17	mg/Kg wet	1.67		58.7	40-140			
Phenanthrene	1.02	0.17	mg/Kg wet	1.67		61.2	40-140			
Pyrene	1.01	0.17	mg/Kg wet	1.67		60.3	40-140			
Surrogate: Nitrobenzene-d5	2.02		mg/Kg wet	3.33		60.5	30-130			
Surrogate: 2-Fluorobiphenyl	2.32		mg/Kg wet	3.33		69.5	30-130			
Surrogate: p-Terphenyl-d14	1.99		mg/Kg wet	3.33		59.8	30-130			

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QUALITY CONTROL
Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258455 - SW-846 3546										
LCS Dup (B258455-BSD1)					Prepared: 05/20/20 Analyzed: 05/22/20					
Acenaphthene	1.09	0.17	mg/Kg wet	1.67		65.6	40-140	11.8	30	
Acenaphthylene	1.07	0.17	mg/Kg wet	1.67		64.2	40-140	11.5	30	
Anthracene	1.12	0.17	mg/Kg wet	1.67		67.2	40-140	7.95	30	
Benzo(a)anthracene	1.05	0.17	mg/Kg wet	1.67		62.7	40-140	8.44	30	
Benzo(a)pyrene	1.12	0.17	mg/Kg wet	1.67		67.2	40-140	8.21	30	
Benzo(b)fluoranthene	1.13	0.17	mg/Kg wet	1.67		67.7	40-140	10.3	30	
Benzo(g,h,i)perylene	1.05	0.17	mg/Kg wet	1.67		63.3	40-140	4.13	30	
Benzo(k)fluoranthene	1.09	0.17	mg/Kg wet	1.67		65.3	40-140	9.66	30	
Chrysene	1.05	0.17	mg/Kg wet	1.67		63.0	40-140	8.75	30	
Dibenz(a,h)anthracene	1.11	0.17	mg/Kg wet	1.67		66.8	40-140	7.55	30	
Fluoranthene	1.11	0.17	mg/Kg wet	1.67		66.6	40-140	9.07	30	
Fluorene	1.18	0.17	mg/Kg wet	1.67		70.8	40-140	11.3	30	
Indeno(1,2,3-cd)pyrene	1.25	0.17	mg/Kg wet	1.67		75.1	40-140	6.38	30	
2-Methylnaphthalene	1.19	0.17	mg/Kg wet	1.67		71.5	40-140	10.8	30	
Naphthalene	1.10	0.17	mg/Kg wet	1.67		66.1	40-140	11.9	30	
Phenanthrene	1.11	0.17	mg/Kg wet	1.67		66.7	40-140	8.60	30	
Pyrene	1.09	0.17	mg/Kg wet	1.67		65.5	40-140	8.23	30	
Surrogate: Nitrobenzene-d5	2.24		mg/Kg wet	3.33		67.4	30-130			
Surrogate: 2-Fluorobiphenyl	2.55		mg/Kg wet	3.33		76.6	30-130			
Surrogate: p-Terphenyl-d14	2.18		mg/Kg wet	3.33		65.3	30-130			

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QUALITY CONTROL
Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B258353 - SW-846 3540C
Blank (B258353-BLK1)

Prepared: 05/20/20 Analyzed: 05/23/20

Aroclor-1016	ND	0.020	mg/Kg wet							
Aroclor-1016 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1221	ND	0.020	mg/Kg wet							
Aroclor-1221 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1232	ND	0.020	mg/Kg wet							
Aroclor-1232 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1242	ND	0.020	mg/Kg wet							
Aroclor-1242 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1248	ND	0.020	mg/Kg wet							
Aroclor-1248 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1254	ND	0.020	mg/Kg wet							
Aroclor-1254 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1260	ND	0.020	mg/Kg wet							
Aroclor-1260 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1262	ND	0.020	mg/Kg wet							
Aroclor-1262 [2C]	ND	0.020	mg/Kg wet							
Aroclor-1268	ND	0.020	mg/Kg wet							
Aroclor-1268 [2C]	ND	0.020	mg/Kg wet							
Surrogate: Decachlorobiphenyl	0.230		mg/Kg wet	0.200		115	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.219		mg/Kg wet	0.200		110	30-150			
Surrogate: Tetrachloro-m-xylene	0.173		mg/Kg wet	0.200		86.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.178		mg/Kg wet	0.200		88.9	30-150			

LCS (B258353-BS1)

Prepared: 05/20/20 Analyzed: 05/23/20

Aroclor-1016	0.18	0.020	mg/Kg wet	0.200		89.8	40-140			
Aroclor-1016 [2C]	0.20	0.020	mg/Kg wet	0.200		98.1	40-140			
Aroclor-1260	0.19	0.020	mg/Kg wet	0.200		97.3	40-140			
Aroclor-1260 [2C]	0.20	0.020	mg/Kg wet	0.200		101	40-140			
Surrogate: Decachlorobiphenyl	0.230		mg/Kg wet	0.200		115	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.221		mg/Kg wet	0.200		110	30-150			
Surrogate: Tetrachloro-m-xylene	0.186		mg/Kg wet	0.200		93.1	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.191		mg/Kg wet	0.200		95.5	30-150			

LCS Dup (B258353-BSD1)

Prepared: 05/20/20 Analyzed: 05/23/20

Aroclor-1016	0.18	0.020	mg/Kg wet	0.200		90.1	40-140	0.404	30	
Aroclor-1016 [2C]	0.18	0.020	mg/Kg wet	0.200		92.0	40-140	6.45	30	
Aroclor-1260	0.20	0.020	mg/Kg wet	0.200		99.3	40-140	2.07	30	
Aroclor-1260 [2C]	0.20	0.020	mg/Kg wet	0.200		101	40-140	0.456	30	
Surrogate: Decachlorobiphenyl	0.233		mg/Kg wet	0.200		117	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.226		mg/Kg wet	0.200		113	30-150			
Surrogate: Tetrachloro-m-xylene	0.187		mg/Kg wet	0.200		93.7	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.191		mg/Kg wet	0.200		95.7	30-150			

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QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B258353 - SW-846 3540C

Matrix Spike (B258353-MS1)

Source: 20E0762-02

Prepared: 05/20/20 Analyzed: 05/23/20

Aroclor-1016	0.24	0.086	mg/Kg dry	0.215	ND	110	40-140			
Aroclor-1016 [2C]	0.24	0.086	mg/Kg dry	0.215	ND	111	40-140			
Aroclor-1260	0.23	0.086	mg/Kg dry	0.215	ND	107	40-140			
Aroclor-1260 [2C]	0.23	0.086	mg/Kg dry	0.215	ND	108	40-140			
Surrogate: Decachlorobiphenyl	0.238		mg/Kg dry	0.215		111	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.219		mg/Kg dry	0.215		102	30-150			
Surrogate: Tetrachloro-m-xylene	0.208		mg/Kg dry	0.215		96.8	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.211		mg/Kg dry	0.215		98.4	30-150			

Matrix Spike Dup (B258353-MSD1)

Source: 20E0762-02

Prepared: 05/20/20 Analyzed: 05/23/20

Aroclor-1016	0.25	0.090	mg/Kg dry	0.225	ND	111	40-140	5.62	50	
Aroclor-1016 [2C]	0.26	0.090	mg/Kg dry	0.225	ND	114	40-140	7.99	50	
Aroclor-1260	0.25	0.090	mg/Kg dry	0.225	ND	110	40-140	8.46	50	
Aroclor-1260 [2C]	0.25	0.090	mg/Kg dry	0.225	ND	111	40-140	7.99	50	
Surrogate: Decachlorobiphenyl	0.256		mg/Kg dry	0.225		114	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.238		mg/Kg dry	0.225		106	30-150			
Surrogate: Tetrachloro-m-xylene	0.232		mg/Kg dry	0.225		103	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.236		mg/Kg dry	0.225		105	30-150			

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QUALITY CONTROL
Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258394 - SW-846 7471										
Blank (B258394-BLK1)				Prepared: 05/20/20 Analyzed: 05/22/20						
Mercury	ND	0.025	mg/Kg wet							
LCS (B258394-BS1)				Prepared: 05/20/20 Analyzed: 05/22/20						
Mercury	7.72	0.38	mg/Kg wet	7.61		101	72.7-127.3			
LCS Dup (B258394-BSD1)				Prepared: 05/20/20 Analyzed: 05/22/20						
Mercury	7.07	0.38	mg/Kg wet	7.61		92.9	72.7-127.3	8.81	20	
Batch B258395 - SW-846 7471										
Blank (B258395-BLK1)				Prepared: 05/20/20 Analyzed: 05/22/20						
Mercury	ND	0.025	mg/Kg wet							
LCS (B258395-BS1)				Prepared: 05/20/20 Analyzed: 05/22/20						
Mercury	7.55	0.38	mg/Kg wet	7.61		99.3	72.7-127.3			
LCS Dup (B258395-BSD1)				Prepared: 05/20/20 Analyzed: 05/22/20						
Mercury	7.33	0.37	mg/Kg wet	7.61		96.3	72.7-127.3	3.05	20	
Duplicate (B258395-DUP1)				Source: 20E0762-02		Prepared: 05/20/20 Analyzed: 05/22/20				
Mercury	0.0461	0.029	mg/Kg dry		0.0474			2.86	20	
Matrix Spike (B258395-MS1)				Source: 20E0762-02		Prepared: 05/20/20 Analyzed: 05/22/20				
Mercury	0.448	0.029	mg/Kg dry	0.382	0.0474	105	80-120			
Batch B258495 - SW-846 3050B										
Blank (B258495-BLK1)				Prepared & Analyzed: 05/21/20						
Antimony	ND	1.7	mg/Kg wet							
Arsenic	ND	3.3	mg/Kg wet							
Beryllium	ND	0.17	mg/Kg wet							
Cadmium	ND	0.33	mg/Kg wet							
Chromium	ND	0.67	mg/Kg wet							
Copper	ND	0.67	mg/Kg wet							
Lead	ND	0.50	mg/Kg wet							
Nickel	ND	0.67	mg/Kg wet							
Selenium	ND	3.3	mg/Kg wet							
Silver	ND	0.33	mg/Kg wet							
Thallium	ND	1.7	mg/Kg wet							
Zinc	ND	0.67	mg/Kg wet							

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QUALITY CONTROL
Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B258495 - SW-846 3050B
LCS (B258495-BS1)

Prepared & Analyzed: 05/21/20

Antimony	126	4.9	mg/Kg wet	147		85.5	4.2-196.6			
Arsenic	135	9.8	mg/Kg wet	143		94.5	83.2-117.5			
Beryllium	182	0.49	mg/Kg wet	179		102	83.2-117.3			
Cadmium	53.8	0.98	mg/Kg wet	56.2		95.8	82.9-117.3			
Chromium	94.2	2.0	mg/Kg wet	101		93.3	82.4-116.8			
Copper	62.5	2.0	mg/Kg wet	63.1		99.0	84.2-115.8			
Lead	121	1.5	mg/Kg wet	125		96.6	82.4-116.8			
Nickel	108	2.0	mg/Kg wet	108		99.8	82.9-117.6			
Selenium	77.8	9.8	mg/Kg wet	77.9		99.8	79.3-120.7			
Silver	33.6	0.98	mg/Kg wet	34.3		98.0	81-119.2			
Thallium	118	4.9	mg/Kg wet	113		104	80.8-118.6			
Zinc	233	2.0	mg/Kg wet	240		97.2	80.8-118.8			

LCS Dup (B258495-BSD1)

Prepared & Analyzed: 05/21/20

Antimony	116	4.9	mg/Kg wet	147		79.0	4.2-196.6	7.88	30	
Arsenic	127	9.8	mg/Kg wet	143		88.8	83.2-117.5	6.19	30	
Beryllium	170	0.49	mg/Kg wet	179		94.9	83.2-117.3	6.74	30	
Cadmium	49.1	0.98	mg/Kg wet	56.2		87.4	82.9-117.3	9.18	20	
Chromium	90.7	2.0	mg/Kg wet	101		89.8	82.4-116.8	3.73	30	
Copper	59.9	2.0	mg/Kg wet	63.1		95.0	84.2-115.8	4.17	30	
Lead	122	1.5	mg/Kg wet	125		97.6	82.4-116.8	1.09	30	
Nickel	102	2.0	mg/Kg wet	108		94.7	82.9-117.6	5.25	30	
Selenium	73.1	9.8	mg/Kg wet	77.9		93.8	79.3-120.7	6.23	30	
Silver	32.5	0.98	mg/Kg wet	34.3		94.8	81-119.2	3.31	30	
Thallium	109	4.9	mg/Kg wet	113		96.3	80.8-118.6	8.05	30	
Zinc	225	2.0	mg/Kg wet	240		93.7	80.8-118.8	3.67	30	

Duplicate (B258495-DUP1)

Source: 20E0762-02

Prepared & Analyzed: 05/21/20

Antimony	ND	1.8	mg/Kg dry		ND			NC	35	
Arsenic	4.45	3.7	mg/Kg dry		4.24			4.95	35	
Beryllium	0.221	0.18	mg/Kg dry		0.212			4.31	35	
Cadmium	ND	0.37	mg/Kg dry		ND			NC	35	
Chromium	11.9	0.73	mg/Kg dry		12.3			3.39	35	
Copper	46.2	0.73	mg/Kg dry		45.4			1.79	35	
Lead	45.1	0.55	mg/Kg dry		45.4			0.728	35	
Nickel	15.6	0.73	mg/Kg dry		15.5			0.361	35	
Selenium	ND	3.7	mg/Kg dry		ND			NC	35	
Silver	ND	0.37	mg/Kg dry		ND			NC	35	
Thallium	ND	1.8	mg/Kg dry		ND			NC	35	
Zinc	48.9	0.73	mg/Kg dry		47.6			2.59	35	

Matrix Spike (B258495-MS1)

Source: 20E0762-02

Prepared & Analyzed: 05/21/20

Antimony	12.3	1.9	mg/Kg dry	18.7	ND	65.6	*	75-125		MS-07
Arsenic	22.0	3.7	mg/Kg dry	18.7	4.24	95.3		75-125		
Beryllium	19.9	0.19	mg/Kg dry	18.7	0.212	106		75-125		
Cadmium	18.5	0.37	mg/Kg dry	18.7	ND	99.0		75-125		
Chromium	31.5	0.75	mg/Kg dry	18.7	12.3	103		75-125		
Copper	84.8	0.75	mg/Kg dry	37.4	45.4	106		75-125		
Lead	60.7	0.56	mg/Kg dry	18.7	45.4	81.9		75-125		
Nickel	34.5	0.75	mg/Kg dry	18.7	15.5	101		75-125		
Selenium	17.5	3.7	mg/Kg dry	18.7	ND	93.6		75-125		
Silver	19.7	0.37	mg/Kg dry	18.7	ND	106		75-125		
Thallium	22.6	1.9	mg/Kg dry	18.7	ND	121		75-125		

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QUALITY CONTROL
Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B258495 - SW-846 3050B
Matrix Spike (B258495-MS1)
Source: 20E0762-02

Prepared & Analyzed: 05/21/20

Zinc	85.7	0.75	mg/Kg dry	37.4	47.6	102	75-125
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Reference (B258495-SRM1)

Prepared: 05/21/20 Analyzed: 05/22/20

Lead	0.555	0.51	mg/Kg wet	0.514	108	80-120
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QUALITY CONTROL
Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B258342 - % Solids										
Duplicate (B258342-DUP4)	Source: 20E0762-01			Prepared: 05/19/20 Analyzed: 05/20/20						
% Solids	89.7		% Wt		89.5			0.154	20	
Duplicate (B258342-DUP5)	Source: 20E0762-02			Prepared: 05/19/20 Analyzed: 05/20/20						
% Solids	88.4		% Wt		88.8			0.429	20	
Duplicate (B258342-DUP6)	Source: 20E0762-03			Prepared: 05/19/20 Analyzed: 05/20/20						
% Solids	88.9		% Wt		89.0			0.0773	20	
Duplicate (B258342-DUP7)	Source: 20E0762-04			Prepared: 05/19/20 Analyzed: 05/20/20						
% Solids	88.7		% Wt		89.7			1.11	20	

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B258353-BS1 Date(s) Analyzed: 05/23/2020 05/23/2020

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	-0.030	0.030	0.18	
	2	0.000	-0.030	0.030	0.20	10.5
Aroclor-1260	1	0.000	-0.030	0.030	0.19	
	2	0.000	-0.030	0.030	0.20	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B258353-BSD1 Date(s) Analyzed: 05/23/2020 05/23/2020

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	-0.030	0.030	0.18	
	2	0.000	-0.030	0.030	0.18	0.0
Aroclor-1260	1	0.000	-0.030	0.030	0.20	
	2	0.000	-0.030	0.030	0.20	0.0

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**IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***Matrix Spike**Lab Sample ID: B258353-MS1 Date(s) Analyzed: 05/23/2020 05/23/2020

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	-0.030	0.030	0.24	
	2	0.000	-0.030	0.030	0.24	0.0
Aroclor-1260	1	0.000	-0.030	0.030	0.23	
	2	0.000	-0.030	0.030	0.23	0.0

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

Matrix Spike Dup

Lab Sample ID: B258353-MSD1 Date(s) Analyzed: 05/23/2020 05/23/2020

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	-0.030	0.030	0.25	
	2	0.000	-0.030	0.030	0.26	3.9
Aroclor-1260	1	0.000	-0.030	0.030	0.25	
	2	0.000	-0.030	0.030	0.25	0.0

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
MS-07	Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-34	Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 6010D in Soil</i>	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Copper	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,AIHA,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
<i>SW-846 7470A in Water</i>	
Mercury	CT,NH,NY,NC,ME,VA
<i>SW-846 7471B in Soil</i>	
Mercury	CT,NH,NY,NC,ME,VA
<i>SW-846 8082A in Soil</i>	
Aroclor-1016	CT,NH,NY,ME,NC,VA,PA
Aroclor-1016 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1221	CT,NH,NY,ME,NC,VA,PA
Aroclor-1221 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1232	CT,NH,NY,ME,NC,VA,PA
Aroclor-1232 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1242	CT,NH,NY,ME,NC,VA,PA
Aroclor-1242 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1248	CT,NH,NY,ME,NC,VA,PA
Aroclor-1248 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1254	CT,NH,NY,ME,NC,VA,PA
Aroclor-1254 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1260	CT,NH,NY,ME,NC,VA,PA
Aroclor-1260 [2C]	CT,NH,NY,ME,NC,VA,PA
Aroclor-1262	NY,NC,VA,PA
Aroclor-1262 [2C]	NY,NC,VA,PA
Aroclor-1268	NY,NC,VA,PA
Aroclor-1268 [2C]	NY,NC,VA,PA
<i>SW-846 8260C-D in Soil</i>	
Acetone	CT,NH,NY,ME,VA
Acrylonitrile	CT,NH,NY,ME,VA
Benzene	CT,NH,NY,ME,VA
Bromobenzene	NH,NY,ME,VA
Bromochloromethane	NH,NY,ME,VA
Bromodichloromethane	CT,NH,NY,ME,VA
Bromoform	CT,NH,NY,ME,VA
Bromomethane	CT,NH,NY,ME,VA
2-Butanone (MEK)	CT,NH,NY,ME,VA

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260C-D in Soil</i>	
tert-Butyl Alcohol (TBA)	NY,ME
n-Butylbenzene	CT,NH,NY,ME,VA
sec-Butylbenzene	CT,NH,NY,ME,VA
tert-Butylbenzene	CT,NH,NY,ME,VA
Carbon Disulfide	CT,NH,NY,ME,VA
Carbon Tetrachloride	CT,NH,NY,ME,VA
Chlorobenzene	CT,NH,NY,ME,VA
Chlorodibromomethane	CT,NH,NY,ME,VA
Chloroethane	CT,NH,NY,ME,VA
Chloroform	CT,NH,NY,ME,VA
Chloromethane	CT,NH,NY,ME,VA
2-Chlorotoluene	CT,NH,NY,ME,VA
4-Chlorotoluene	CT,NH,NY,ME,VA
1,2-Dibromo-3-chloropropane (DBCP)	NY,ME
1,2-Dibromoethane (EDB)	NH,NY
Dibromomethane	NH,NY,ME,VA
1,2-Dichlorobenzene	CT,NH,NY,ME,VA
1,3-Dichlorobenzene	CT,NH,NY,ME,VA
1,4-Dichlorobenzene	CT,NH,NY,ME,VA
trans-1,4-Dichloro-2-butene	NY,ME
Dichlorodifluoromethane (Freon 12)	NH,NY,ME,VA
1,1-Dichloroethane	CT,NH,NY,ME,VA
1,2-Dichloroethane	CT,NH,NY,ME,VA
1,1-Dichloroethylene	CT,NH,NY,ME,VA
cis-1,2-Dichloroethylene	CT,NH,NY,ME,VA
trans-1,2-Dichloroethylene	CT,NH,NY,ME,VA
1,2-Dichloropropane	CT,NH,NY,ME,VA
1,3-Dichloropropane	NH,NY,ME,VA
2,2-Dichloropropane	NH,NY,ME,VA
1,1-Dichloropropene	NH,NY,ME,VA
cis-1,3-Dichloropropene	CT,NH,NY,ME,VA
trans-1,3-Dichloropropene	CT,NH,NY,ME,VA
Diethyl Ether	ME
1,4-Dioxane	NY,ME
Ethylbenzene	CT,NH,NY,ME,VA
Hexachlorobutadiene	NH,NY,ME,VA
2-Hexanone (MBK)	CT,NH,NY,ME,VA
Isopropylbenzene (Cumene)	CT,NH,NY,ME,VA
p-Isopropyltoluene (p-Cymene)	NH,NY
Methyl Acetate	NY,ME
Methyl tert-Butyl Ether (MTBE)	NY,ME,VA
Methyl Cyclohexane	NY
Methylene Chloride	CT,NH,NY,ME,VA
4-Methyl-2-pentanone (MIBK)	CT,NH,NY,ME,VA
Naphthalene	NH,NY,ME,VA
n-Propylbenzene	NH,NY,ME
Styrene	CT,NH,NY,ME,VA

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260C-D in Soil</i>	
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME,VA
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME,VA
Tetrachloroethylene	CT,NH,NY,ME,VA
Toluene	CT,NH,NY,ME,VA
1,2,3-Trichlorobenzene	NY,ME
1,2,4-Trichlorobenzene	NH,NY,ME,VA
1,3,5-Trichlorobenzene	ME
1,1,1-Trichloroethane	CT,NH,NY,ME,VA
1,1,2-Trichloroethane	CT,NH,NY,ME,VA
Trichloroethylene	CT,NH,NY,ME,VA
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME,VA
1,2,3-Trichloropropane	NH,NY,ME,VA
1,2,4-Trimethylbenzene	CT,NH,NY,ME,VA
1,3,5-Trimethylbenzene	CT,NH,NY,ME,VA
Vinyl Chloride	CT,NH,NY,ME,VA
m+p Xylene	CT,NH,NY,ME,VA
o-Xylene	CT,NH,NY,ME,VA
<i>SW-846 8270D-E in Soil</i>	
Acenaphthene	CT,NY,NH,ME,NC,VA
Acenaphthylene	CT,NY,NH,ME,NC,VA
Anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)pyrene	CT,NY,NH,ME,NC,VA
Benzo(b)fluoranthene	CT,NY,NH,ME,NC,VA
Benzo(g,h,i)perylene	CT,NY,NH,ME,NC,VA
Benzo(k)fluoranthene	CT,NY,NH,ME,NC,VA
Chrysene	CT,NY,NH,ME,NC,VA
Dibenz(a,h)anthracene	CT,NY,NH,ME,NC,VA
Fluoranthene	CT,NY,NH,ME,NC,VA
Fluorene	CT,NY,NH,ME,NC,VA
Indeno(1,2,3-cd)pyrene	CT,NY,NH,ME,NC,VA
2-Methylnaphthalene	CT,NY,NH,ME,NC,VA
Naphthalene	CT,NY,NH,ME,NC,VA
Phenanthrene	CT,NY,NH,ME,NC,VA
Pyrene	CT,NY,NH,ME,NC,VA
<i>SW-846 8270D-E in Water</i>	
Acenaphthene	CT,NY,NH,ME,NC,VA
Acenaphthylene	CT,NY,NH,ME,NC,VA
Anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)anthracene	CT,NY,NH,ME,NC,VA
Benzo(a)pyrene	CT,NY,NH,ME,NC,VA
Benzo(b)fluoranthene	CT,NY,NH,ME,NC,VA
Benzo(g,h,i)perylene	CT,NY,NH,ME,NC,VA
Benzo(k)fluoranthene	CT,NY,NH,ME,NC,VA
Chrysene	CT,NY,NH,ME,NC,VA
Dibenz(a,h)anthracene	CT,NY,NH,ME,NC,VA

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8270D-E in Water</i>	
Fluoranthene	CT,NY,NH,ME,NC,VA
Fluorene	CT,NY,NH,ME,NC,VA
Indeno(1,2,3-cd)pyrene	CT,NY,NH,ME,NC,VA
2-Methylnaphthalene	CT,NY,NH,ME,NC,VA
Naphthalene	CT,NY,NH,ME,NC,VA
Phenanthrene	CT,NY,NH,ME,NC,VA
Pyrene	CT,NY,NH,ME,NC,VA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Public Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2021
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2021
RI	Rhode Island Department of Health	LAO00112	12/30/2020
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2021
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

Phone: 413-525-2332
Fax: 413-525-6405

Email: info@contestlabs.com

Address: 535 Stone

Phone: 208-0762

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39 Spruce Street
East Longmeadow, MA 01028

CHAIN OF CUSTODY RECORD

Requested Turnaround Time

7-Day ☐ 10-Day ☐ Field Filtered ☐
PFAS 10-Day (std) ☐ Due Date: ☐ Lab to Filter ☐

1-Day ☐ 3-Day ☐ Field Filtered ☐
2-Day ☐ 4-Day ☐ Lab to Filter ☐

Format: PDF ☒ EXCEL ☐

Other: ☐

CLP Like Data Pkg Required: ☐

Email To: ☐

Fax To #: ☐

Project Name: ☐

Project Location: ☐

Project Number: ☐

Project Manager: ☐

Con-Test Quote Name/Number: ☐

Invoice Recipient: ☐

Sampled By: ☐

Client Sample ID / Description

Beginning Date/Time

Ending Date/Time

COMP GRAB

Matrix Code

Conc Code

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

ANALYSIS REQUESTED

Preservation Code

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

Glassware in the fridge? Y / N

Glassware in freezer? Y / N

Prepackaged Cooler? Y / N

*Contest is not responsible for missing samples from prepacked coolers

ANALYSIS REQUESTED

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IMPORTANT!

We are continuing to respond to the impact of COVID-19 around the world. [See our latest updates.](#) For COVID-19-related recipient closures, you can [redirect packages](#), [Ask FedEx](#), or contact the shipper.



770485267527



Delivered
Tuesday 5/19/2020 at 9:27 am

**DELIVERED**

Signed for by: R.PIETRIAS

GET STATUS UPDATES**OBTAIN PROOF OF DELIVERY**

FROM
Montpelier, VT US

TO
EAST LONGMEADOW, MA US

Shipment Facts

TRACKING NUMBER
770485267527

SERVICE
FedEx Priority Overnight

WEIGHT
25 lbs / 11.34 kgs

DIMENSIONS
24x14x14 in.

DELIVERED TO
Shipping/Receiving

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
25 lbs / 11.34 kgs

TERMS
Shipper

SHIPPER REFERENCE
12-152

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday, Non Standard Packaging

STANDARD TRANSIT
 5/19/2020 by 10:30 am

SHIP DATE
 Mon 5/18/2020

ACTUAL DELIVERY
Tue 5/19/2020 9:27 am

Travel History

Local Scan Time

Tuesday, 5/19/2020

9:27 am

EAST LONGMEADOW,
MA

Delivered

8:32 am

WINDSOR LOCKS, CT

On FedEx vehicle for delivery

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____



con-test®
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Sture

Received By nap Date 5/19 Time 9:27

How were the samples received? In Cooler T No Cooler On Ice T No Ice

Direct from Sampling Ambient Melted Ice

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 4.3

By Blank # Actual Temp -

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? f

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? f Who was notified?

Are there Rushes? f Who was notified?

Are there Short Holds? f Who was notified?

Is there enough Volume? T

Is there Headspace where applicable? f MS/MSD? f

Proper Media/Containers Used? T Is splitting samples required? f

Were trip blanks received? f On COC? T

Do all samples have the proper pH? NA Acid Base

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-	<u>7</u>	250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-	<u>14</u>	Flashpoint		Col./Bacteria		2oz Amb/Clear
DI-		Other Glass		Other Plastic		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Unused Media

Vials	#	Containers:	#	#	#	#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear
DI-		Other Plastic		Other Glass		Encore
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:
Sulfuric-		Perchlorate		Ziplock		

Comments:

Appendix E: Detailed Cost Estimates

**Crescent Connector, Alternative 1: Full Removal
12-152**

DETAILED FEE & SCOPE DETAILS

#	Staff Type	Name	Rate Per Unit	Unit	Amount	Subtotal	Scope Details
1	Project Coordination						Project Management (Contracting, Scheduling, Invoicing (4 hrs/month for 7 months) Coordinate access for dust monitoring, etc. (2 hrs) Procure equipment and consumables. (2 hrs) Attend weekly project team meetings in Essex for month prior and 7 months of active construction period (8 meetings, 2 hrs each)
	Professional Services						
	Senior Professional 1	\$	136 / hour	140	\$19,040		
	Project Professional 3	\$	126 / hour	4	\$504		
	Accountant 2	\$	78 / hour	7	\$546		
	Professional Services Summary				151	\$20,090	
	Stone Equipment						
	Civic Mileage		\$0.58 / mile	2240	\$1,299.20		
	Expense Summary					\$1,299	
	TASK SUBTOTAL						
2	Soil Loading, Transport and Disposal - PER WEEK						Costs per week for Loading, Transport, and Disposal of Contaminated Soils. Assumes: 1) Common excavation for loading of soils to tri-axel dump trailers. 2) Total volume for disposal = 11,390 yards @ 1.5 tons/yard = 17,085 tons. Approximately 1,000 tons will be generated from ~4,000 square ft for transport per week. 3) Costs for disposal and transport for soils as alternative daily cover at Coventry Landfill \$56/ton with \$6.75/ton for CCSWMD district fee. 4) Install 4,750 yards (350 yards per week) of clean coarse graded gravel fill to achieve desired sub-grade elevations. 5) Assumes oversight and confirmation sampling will be performed by Stone Staff Engineer 6) Samples will be collected for waste characterization during Site activities and be submitted for 48 hour turn around. Assume 2 waste characterization samples and 4 confirmation samples per week 7) Dust Monitoring will be performed to evaluate the effectiveness of dust control efforts on Site. 8) Assumes 4.5 month duration for project (18 weeks) 9) Project Engineer to provide weekly summary of Site activities related to environmental management of the Site for DEC and Project Team and attend a weekly meeting via conference call. 10) Costs for compaction and installation of pavement section are not included.
	Professional Services						
	Senior Professional 1	\$	136 / hour	2	\$272		
	Project Professional 3	\$	126 / hour	8	\$1,008		
	Staff Professional 2	\$	93 / hour	60	\$5,580		
	Accountant 2	\$	78 / hour	1	\$78		
	Professional Services Summary				71	\$6,938	
	Consultants*						
	Casella - Transport and Disposal		\$56 / ton	1000	\$61,600		
	CCSWD District Fee		\$6.75 / ton	1000	\$7,425		
	Loading (VTRANS, 2-yr 2018 Price List, Common Excavation)		\$15.68 / yard	667	\$11,504		
	Fill Installation (VTRANS, 2-yr 2018 Price List, Coarse Graded Gravel)		\$36.33 / yard	350	\$13,987		
	Dust Monitor		\$550 / unit/week	4	\$2,420		
	Confirmation Analyses		\$250 / ea	4	\$1,100		
	Waste Characteristics Analyses		\$760 / ea	2	\$1,671		
	Consultant Summary					\$99,707	
	External Expenses						
	Shipping/Freight		\$80.0 / ea	2	\$176		
	Field Supplies & Equipment		\$20.0 / day	5	\$110		
	Stone Equipment						
	Civic Mileage		\$0.58 / mile	400	\$232.00		
	EAR PID		\$90.00 / Daily	5	\$450.00		
	GPS Trimble Geo 7X		\$125.00 / Daily	5	\$625.00		
	EAR Hobo Weather Station/weekly		\$250.00 / Weekly	1	\$250.00		
	Stone Consumables						
	PPE		\$19.50 / day/staff	5	\$97.50		
	Expense Summary					\$1,941	
	PER WEEK TASK SUBTOTAL						
TASK SUBTOTAL						\$1,954,546	
3	Corrective Action Construction Completion Report						Prepare a CACCR in accordance with I-Rule following completion of remediation and construction. Develop as-built plans for ROW.
	Professional Services						
	Senior Professional 1	\$	136 / hour	8	\$1,088		
	Project Professional 3	\$	126 / hour	40	\$5,040		
	Staff Professional 3	\$	100 / hour	24	\$2,400		
	Staff Professional 2	\$	93 / hour	40	\$3,720		
	Professional Services Summary				112	\$12,248	
TASK SUBTOTAL						\$12,248	
PROJECT TOTAL						\$1,988,183	

Stone Environmental's standard mark-up on all Consultant and reimbursable project expenses is 10%.

**Crescent Connector, Alternative 2: Construct Over Existing
12-152**

DETAILED FEE & SCOPE DETAILS

#	Staff Type	Name	Rate Per Unit	Unit	Amount	Subtotal	Scope Details
1	Project Coordination						Project Management (Contracting, Scheduling, Invoicing (4 hrs/month for 2 months) Coordinate access for dust monitoring, etc. (2 hrs) Procure equipment and consumables. (2 hrs) Attend weekly project team meetings in Essex for month prior and 3 months of active construction period (8 meetings, 2 hrs each)
	Professional Services						
	Senior Professional 1	\$	136 / hour	40	\$5,440		
	Project Professional 3	\$	126 / hour	4	\$504		
	Accountant 2	\$	78 / hour	2	\$156		
	Professional Services Summary			46		\$6,100	
	Stone Equipment						
	Civic Mileage		\$0.58 / mile	640	\$371.20		
	Expense Summary					\$371	
	TASK SUBTOTAL						
2	Soil Loading, Transport and Disposal - PER WEEK						Costs for managing soils associated with Alternative 2: Construct over existing. Loading and tranporting of contaminated soil limited to those generated to install stormwater infrastructure. Assumes: 1) Approximatley 333 cubic yards for disposal, 500 tons will be produced to install subsurface infrastructure. Assumes disposal as ADC at Conventry Landfill 2) Work for load out will be completed over 2 weeks. 3) Dust monitoring will be required until all existing soils are covered
	Professional Services						
	Senior Professional 1	\$	136 / hour	2	\$272		
	Project Professional 3	\$	126 / hour	8	\$1,008		
	Staff Professional 2	\$	93 / hour	60	\$5,580		
	Professional Services Summary			70		\$6,860	
	Consultants*						
	Casella - Transport and Disposal		\$56 / ton	250	\$15,400		
	CCSWD District Fee		\$6.75 / ton	250	\$1,856		
	Loading (VTRANS, 2-yr 2018 Price List, Common Excavation)		\$15.68 / yard	167	\$2,880		
	Dust Monitor		\$550.00 / unit/week	4	\$2,420		
	Waste Characteristics Analyses		\$760 / ea	1	\$835		
	Consultant Summary					\$23,392	
	External Expenses						
	Shipping/Freight		\$80.0 / ea	2	\$176		
	Field Supplies & Equipment		\$15.0 / day	5	\$83		
	Stone Equipment						
	Civic Mileage		\$0.58 / mile	400	\$232.00		
	EAR PID		\$90.00 / Daily	5	\$450.00		
	EAR Hobo Weather Station/weekly		\$250.00 / Weekly	1	\$250.00		
	Stone Consumables						
	PPE		\$19.50 / day/staff	5	\$97.50		
	Expense Summary					\$1,288	
	PER WEEK TASK SUBTOTAL						
TASK SUBTOTAL						\$63,080	
3	Barrier Installation Oversight						Assumes two weeks for installation of sub base. Costs per week for oversight of Site work while contaminated soils are exposed. Assumes: 1) Costs for grading and installation of sub base and pavement sections provided by others. 2) Assumes 3 month duration for project (12 weeks) 3) Project Engineer to provide weekly summary of Site activities related to environmental management of the Site for DEC and Project Team. 4) PM to attend a weekly meeting via conference call.
	Professional Services						
	Senior Professional 1	\$	136 / hour	4	\$544		
	Project Professional 3	\$	126 / hour	8	\$1,008		
	Staff Professional 2	\$	93 / hour	20	\$1,860		
	Professional Services Summary			32		\$3,412	
	Consultants*						
	Geotextile Fabric		\$1.28 / sq yard	1054	\$1,484		
	Consultant Summary					\$1,484	
	Stone Equipment						
	Civic Mileage		\$0.58 / mile	800	\$464.00		
	Expense Summary					\$464	
TASK SUBTOTAL						\$5,360	
TASK SUBTOTAL						\$64,323	
4	Corrective Action Construction Completion Report						Prepare a CACCR in accordance with I-Rule following completion of remediation and construction. Develop as-built plans for ROW.
	Professional Services						
	Senior Professional 1	\$	136 / hour	8	\$1,088		
	Project Professional 3	\$	126 / hour	40	\$5,040		
	Staff Professional 3	\$	100 / hour	24	\$2,400		
	Staff Professional 2	\$	93 / hour	40	\$3,720		
	Professional Services Summary			112		\$12,248	
TASK SUBTOTAL						\$12,248	
PROJECT TOTAL						\$146,123	

Stone Environmental's standard mark-up on all Consultant and reimbursable project expenses is 10%.

Crescent Connector, Alternative 3: Targeted Cut / Fill with Site Borrow
12-152

DETAILED FEE & SCOPE DETAILS

#	Staff Type	Name	Rate Per Unit	Unit	Amount	Subtotal	Scope Details	
1	Project Coordination						Project Management (Contracting, Scheduling, Invoicing (4 hrs/month for 3 months) Coordinate access for dust monitoring, etc. (2 hrs) Procure equipment and consumables. (2 hrs) Attend weekly project team meetings in Essex for month prior and 3 months of active construction period (12 meetings, 2 hrs each)	
	Professional Services							
	Senior Professional 1	\$	136 / hour	50	\$6,800			
	Project Professional 3		126 / hour	4	\$504			
	Accountant 2	\$	78 / hour	3	\$234			
	Professional Services Summary			57		\$7,538		
	Stone Equipment							
	Civic Mileage		\$0.58 / mile	960	\$556.80			
	Expense Summary					\$557		
	TASK SUBTOTAL							\$8,095
2	Soil Loading, Transport and Disposal - PER WEEK						Costs per week for Loading, Transport, and Disposal of Contaminated Soils. Assumes: 1) Common excavation for loading of soils to tri-axel dump trailers. 2) Total volume for disposal = 3600 yards @ 1.5 tons/yard = 5400 tons. Approximately 1,000 tons will be generated from ~4,000 square ft for transport per week. 3) Costs for disposal and transport for soils as alternative daily cover at Coventry Landfill \$56/ton. 4) Assumes oversight will be performed by Stone Staff Engineer 5) Samples will be collected for waste characterization during Site activities and be submitted for 48 hour turn around. Assume 2 sample per week 6) Dust Monitoring will be performed to evaluate the effectiveness of dust control efforts on Site. 7) Assumes 6 weeks of active excavation within contaminated soils. 8) Project Engineer to provide weekly summary of Site activities related to environmental management of the Site for DEC and Project Team and attend a weekly meeting via conference call. 9) Costs for compaction and installation of pavement section are not included.	
	Professional Services							
	Senior Professional 1	\$	136 / hour	5	\$680			
	Project Professional 3	\$	126 / hour	8	\$1,008			
	Staff Professional 2	\$	93 / hour	60	\$5,580			
	Accountant 2	\$	78 / hour	1	\$78			
	Professional Services Summary			74		\$7,346		
	Consultants*							
	Casella - Transport and Disposal		\$56 / ton	1000	\$61,600			
	CCSWD District Fee		\$6.75 / ton	1000	\$7,425			
	Loading (VTRANS, 2-yr 2018 Price List, Common Excavation)		\$15.68 / yard	667	\$11,504			
	Fill Installation (VTRANS, 2-yr 2018 Price List, Coarse Graded Gravel)		\$36.33 / yard	667	\$26,655			
	Dust Monitor		\$550 / unit/week	4	\$2,420			
	Waste Characteristics Analyses		\$760 / ea	2	\$1,671			
	Consultant Summary					\$111,276		
	External Expenses							
	Shipping/Freight		\$80.0 / ea	2	\$176			
	Field Supplies & Equipment		\$15.0 / day	5	\$83			
	Stone Equipment							
	Civic Mileage		\$0.58 / mile	400	\$232.00			
	EAR PID		\$90.00 / Daily	5	\$450.00			
	EAR Hobo Weather Station/weekly		\$250.00 / Weekly	1	\$250.00			
			#N/A / #N/A		#N/A			
			#N/A / #N/A		#N/A			
			#N/A / #N/A		#N/A			
	Stone Consumables							
	PPE		\$19.50 / day/staff	5	\$97.50			
	Expense Summary					\$1,288		
	PER WEEK TASK SUBTOTAL							\$119,910
	TASK SUBTOTAL							\$719,458
3	Barrier Installation Oversight						Assumes six weeks for active excavation for in situ soils Perform periodic inspection of the installation of barriers. Compile notes and send weekly project status reports to project team. Assumes: 1) Daily trips to Project Area at the beginning and end of the day to start and cease dust monitors for duration until sub-base is installed within Project Area. 2) Two site visits per week each for one hour following installation of sub-base. 3) Duration of 12 weeks (2 with daily visits, 10 with twice weekly visits) Labor: 1 hour/week for Project Engineer for email updates to Project Team and coordination with project superintendent. 20 hrs/week for two weeks (40 hrs) for Staff scientist to deploy/retrieve dust monitors during sub base installation. Assumes 4	
	Professional Services							
	Project Professional 3	\$	126 / hour	12	\$1,512			
	Staff Professional 2	\$	93 / hour	136	\$12,648			
	Professional Services Summary			148		\$14,160		
	External Expenses							
	Rental-Field Equipment	dust mon.	\$550.000 / unit/week	8	\$4,840			
	Stone Equipment							
	Civic Mileage		\$0.58 / mile	5,120	\$2,969.60			
	EAR Hobo Weather Station/weekly		\$250.00 / Weekly	2	\$500.00			
	Expense Summary					\$8,310		
	TASK SUBTOTAL							\$22,470
4	Corrective Action Construction Completion Report						Prepare a CACCR in accordance with I-Rule following completion of remediation and construction. Develop as-built plans for ROW.	
	Professional Services							
	Senior Professional 1	\$	136 / hour	8	\$1,088			
	Project Professional 3	\$	126 / hour	40	\$5,040			
	Staff Professional 3	\$	100 / hour	24	\$2,400			
	Staff Professional 2	\$	93 / hour	40	\$3,720			
	Professional Services Summary			112		\$12,248		
	TASK SUBTOTAL							\$12,248
PROJECT TOTAL						\$762,270		

Stone Environmental's standard mark-up on all Consultant and reimbursable project expenses is 10%.

Appendix F: Health and Safety Plan

SECTION 1: GENERAL INFORMATION AND DISCLAIMER		PROJECT NUMBER:	12-152
PROJECT NAME:	Crescent Connector	CLIENT NAME:	Village of Essex Junction
PROJECT MANAGER:	Dan Voisin	SITE SAFETY OFFICER	Lee Rosberg
PREPARED BY:	Dan Voisin	DATE:	06/10/16

NOTE: This site specific Health and Safety Plan - Short Form (HASP-SF) has been prepared for use by Stone Environmental, Inc. (Stone) employees for work at this site / facility. **The HASP-SF has been written for the specific site / facility conditions, purposes, tasks, dates and personnel specified, and must be amended and reviewed by those personnel named in Section 4 if these conditions change.** Stone Environmental, Inc., is not responsible for its use by others.

Subcontractors shall be solely responsible for the health and safety of their employees and shall comply with all applicable laws and regulations. In accordance with 1910.120(b)(1)(iv) and (v), Stone Environmental, Inc. will inform subcontractors of the site / facility emergency response procedures, and any potential fire, explosion, health, safety or other hazards by making this Site Specific Health and Safety Plan and site information obtained by others available during regular business hours. All contractors and subcontractors are responsible for: (1) developing their own Health and Safety Plan, including a written Hazard Communication Program and any other written hazard specific or safety programs required by federal, state and local laws and regulations, that details subcontractor tasks, potential or actual hazards identified as a result of a risk analysis of those tasks, and the engineering controls, work practices and personal protective equipment to be utilized to minimize or eliminate employee exposure to the hazard; (2) providing their own personal protective equipment; (3) providing documentation that their employees have been health and safety trained in accordance with applicable federal, state and local laws and regulations; (4) providing evidence of medical surveillance and medical approvals for their employees; and (5) designating their own site safety officer responsible for ensuring that their employees comply with their own Health and Safety plan and taking any other additional measures required by their site activities.

Providing a copy of this Stone Environmental, Inc. HASP-SF to subcontractors, does not establish, nor is it intended to establish a "joint employer" relationship between the Contractor and Stone Environmental, Inc. This allowance does not establish, nor is it intended to establish, a direct or indirect employer/employee relationship with subcontractor's employees.

In addition, if any site has a HASP, prepared by another contractor then that document should be made available to Stone Staff.

SECTION 2: EMERGENCY INFORMATION

(A) LOCAL RESOURCES	SERVICE NAME AND ADDRESS,	TELEPHONE NUMBER (nonemergency and emergency)
EMERGENCY MEDICAL SERVICES	Village of Essex Junction Rescue	911, (802) 878-4859
	University of Vermont Medical Center (Emergency Room)	911, 802-847-2434
HOSPITAL (Map attached)		
FIRE DEPARTMENT	Village of Essex Junction Fire Department	911, (802) 878-8331
POLICE / SECURITY	Village of Essex Junction Police Department	911, (802) 878-8331
HAZMAT/ SPILL / OTHER RESPONSE	Village of Essex Junction Fire Department VT State HAZMAT Response Team	911, (802) 878-8331 911, 800-640-2106

(B) CORPORATE RESOURCES	STONE ENVIRONMENTAL, INC.	INCIDENT TELEPHONE NUMBERS
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<u>MAIN LINE NUMBER (802) 229-4541</u>		<u>OFFICE</u>	<u>CELL PHONE</u>
CORPORATE HEALTH & SAFETY	Kim Watson	(802) 229-2196	(802) 249-7753
PROJECT OFFICER	Chris Stone	(802) 229-6433	(802) 249-2222
PROJECT MANAGER	Dan Voisin	(802) 229-1875	(802) 279-8174
SITE SAFETY OFFICER	Lee Rosberg	(802) 229-5378	(802) 309-1629

SECTION 3: PROJECT INFORMATION
(A) SITE / FACILITY INFORMATION:

SITE NAME: Crescent Connector

SITE CLIENT CONTACT: Robin Pierce

ADDRESS	2 Lincoln Street	PHONE NUMBER:	802-878-6944
TOWNSHIP / COUNTY:	Essex Junction	SITE SAFETY CONTACT:	
STATE	Vermont		
CLIENT TYPE	<input type="checkbox"/> FEDERAL <input checked="" type="checkbox"/> STATE <input checked="" type="checkbox"/> MUNICIPAL / REGIONAL <input type="checkbox"/> PRIVATE		
(B) SITE / FACILITY TYPE:			
<input type="checkbox"/> HAZARDOUS (RCRA)	<input type="checkbox"/> UST / LUST	<input type="checkbox"/> WTP / WWTP	
<input type="checkbox"/> HAZARDOUS (CERCLA / Superfund)	<input checked="" type="checkbox"/> BROWNFIELD	<input type="checkbox"/> FIFRA	
<input checked="" type="checkbox"/> CONSTRUCTION	<input type="checkbox"/> CHEMICAL PLANT	<input type="checkbox"/> STATE _____ (describe)	
<input type="checkbox"/> LANDFILL (NON-HAZARDOUS)	<input type="checkbox"/> REFINERY	<input type="checkbox"/> OTHER:	
<input checked="" type="checkbox"/> ACTIVE	<input type="checkbox"/> INACTIVE		

(C) INVESTIGATION TYPE:		
<input type="checkbox"/> HAZARDOUS WASTE	<input type="checkbox"/> SOLID WASTE	<input type="checkbox"/> WASTE WATER
<input type="checkbox"/> HYDROGEOLOGY	<input checked="" type="checkbox"/> ENVIRONMENTAL	<input type="checkbox"/> WASTE STREAM
<input type="checkbox"/> WASTE WATER	<input type="checkbox"/> AUDIT	<input type="checkbox"/> AIR/ODOR _____
<input type="checkbox"/> PRE-JOB VISIT	<input type="checkbox"/> CONSTRUCTION	<input type="checkbox"/> SEDIMENT
<input checked="" type="checkbox"/> (SUB) CONTRACTOR OVERSIGHT	<input type="checkbox"/> LANDFILL	<input checked="" type="checkbox"/> SURFACE SOIL
<input type="checkbox"/> CONSTRUCTION MGMT	<input type="checkbox"/> AIR	<input checked="" type="checkbox"/> OTHER
<input type="checkbox"/> INSPECTION	<input type="checkbox"/> SURFACE WATER	Building Materials
<input type="checkbox"/> INVESTIGATION SURVEY	<input type="checkbox"/> GROUND WATER	
DATE(S) OF FIELD ACTIVITIES: <u>May through December 2017</u>		

(D) FIELD TASKS	
STONE ENVIRONMENTAL TASKS (List field tasks to be performed by Stone Environmental, Inc. staff)	
S1	<u>Oversight of target excavation and off-site disposal of contaminated native soil</u>
S2	<u>Oversight of installation of engineered barriers</u>
S3	<u>Performance Testing and Ongoing Monitoring</u>
S4	_____
TASKS PERFORMED BY OTHERS (List field tasks to be performed by client, subcontractors, or contractors)	
O1	<u>Excavation / Installation of engineered barriers to be completed by earthwork, paving, and concrete contractors</u>
O2	_____

SECTION 4: PROJECT SAFETY ORGANIZATION, HEALTH AND SAFETY TRAINING, AND MEDICAL MONITORING
(A) PROJECT HEALTH AND SAFETY ROLES, RESPONSIBILITIES AND COORDINATION

PROJECT OFFICER: <u>Chris Stone</u>	<p>The Project Officer (PO) is ultimately responsible for project performance. The PO seeks and gets appropriate approvals for risk management decisions (e.g. Legal Counsel, Corporate Health and Safety, Other On-Site HASPs), and selects an effective and qualified project team. The PO supports the Project Manager with appropriate resources. The Project Officer is the chief liaison with the client and will coordinate Stone Environmental, Inc Project Managers and Resources to respond to the client's needs.</p>
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PROJECT MANAGER: <u>Dan Voisin</u>	<p>The Project Manager (PM) has the responsibility for executing the project in accordance with the scope of work and good engineering practice. The PM will supervise the allocation of resources and staff to implement specific aspects of this HASP-SF and may delegate authority to expedite and facilitate any application of the program. The PM implements and executes an effective program of site-specific personnel protection and accident prevention. The Project Manager reports to the Program Manager.</p>
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CORPORATE HEALTH & SAFETY: <u>Kim Watson</u>	<p>Corporate Health and Safety Officer is responsible for Stone Environmental, Inc.'s overall Health and Safety Program and provides project guidance on air monitoring methodology, data interpretation and assistance in determining appropriate project engineering controls, work practices, and personal protective equipment. Corporate Health and Safety also reviews and approve HASPs in accordance with Section 1.</p>
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SITE SAFETY OFFICER: <u>Lee Rosberg</u> ALTERNATE SITE SAFETY OFFICER (S): <u>Dan Voisin</u>	<p>The Site Safety Officer (SSO) is responsible for interpreting and implementing the site health and safety provisions set out in this HASP-SF, and will guide the efforts of field team personnel in their day-to-day compliance with this HASP-SF. The SSO has the ability and authority to make necessary changes or additions to this HASP-SF and provide technical assistance to field team personnel on problems relating to worksite safety. The SSO has the authority to correct safety-related deficiencies in materials or practice and to call a Project STOP in the most serious cases.</p> <p>Alternate Site Safety Officer (ASSO) is assigned all duties and responsibilities of the Site Safety Officer in his/her absence.</p>
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FIELD TEAM PERSONNEL: <u>Lee Rosberg</u> <u>Steven Hubbs</u> <u>Dan Voisin</u> <u>Dan Curran</u>	<p>Field personnel have the following health and safety responsibilities:</p> <ul style="list-style-type: none"> • Implement the procedures set forth in the HASP-SF; • Take all reasonable precautions to prevent injury to themselves and their fellow employees; and • Perform only those tasks that they believe they can do safely, and immediately report any accidents and/or unsafe conditions in accordance with Section 1.
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PROJECT TEAM - The above Stone Environmental, Inc. personnel are designated to carry out the stated project job functions on site. **THE SITE SAFETY OFFICER OR A DESIGNATED ALTERNATE WILL BE ON-SITE DURING ALL SITE ACTIVITIES.** (NOTE: One person may carry out more than one job function.)

The following subcontractor(s) and governmental agencies have been informed by Stone Environmental, Inc. of emergency response procedures, and any potential fire, explosion, health, safety or other hazards of the site / facility by making this Site Specific Health and Safety Plan and site information obtained by others available during regular business hours. Subcontractors and governmental agencies shall be solely responsible for the health and safety of their employees and shall comply with all applicable laws and regulations as described in **Section 1** of this plan.

SUBCONTRACTOR: NA

FEDERAL AND STATE AGENCY REPS: VT DEC
 Kristi Herzer, VT DEC Brownfield Response

OTHER AGENCY REPS: Construction contractors - TBD

(B) HEALTH AND SAFETY TRAINING, MEDICAL MONITORING, AND FIT TESTING PROGRAM

The following project staff members are included in the Stone Environmental, Inc. Health and Safety Training and Medical Monitoring programs. The details of these programs can be found in the Health and Safety Policies and Written Programs.

HAZWOPER TRAINING
MEDICAL MONITORING

NAME	INITIAL 40HR (DATE)	8HR (DATE)	MEDICAL (DATE)	FIT TEST (DATE)
Dan Voisin	8/17/01	1/8/16	3/18/15	NA
Lee Rosberg	2/28/07	1/8/16	10/16/15	NA
Steve Hubbs	6/16/06	1/8/16	5/21/15	NA
Dan Curran	1/15/16	NA	1/13/16	NA

SECTION 5: HAZARD ANALYSIS
(A) ACTUAL OR POTENTIAL PHYSICAL HAZARDS – (Check all that apply to Stone Environmental, Inc. activities)

- | | | | |
|---|---|--|---|
| <input checked="" type="checkbox"/> ANIMALS / PLANTS
/DEER
TICKS/SNAKES | <input type="checkbox"/> ELECTRICAL | <input type="checkbox"/> HUNTING SEASON | <input type="checkbox"/> POWERED PLATFORMS |
| <input type="checkbox"/> ASBESTOS / LEAD | <input checked="" type="checkbox"/> EXCAVATIONS
(See Section 13) | <input type="checkbox"/> IMMERSION | <input type="checkbox"/> POOR VISIBILITY |
| <input checked="" type="checkbox"/> CHEMICAL
EXPOSURE
(See Section 5B/5C) | <input type="checkbox"/> EXTREME COLD
(See Section 10) | <input type="checkbox"/> IONIZING RADIATION | <input type="checkbox"/> ROLLING OBJECTS |
| <input type="checkbox"/> CONFINED SPACE
(See section 5b/5c) | <input type="checkbox"/> FALL >6'
VERTICAL | <input type="checkbox"/> LIGHT RADIATION
(i.e., Welding, High
Intensity) | <input type="checkbox"/> SCAFFOLDING |
| <input type="checkbox"/> DEMOLITION | <input type="checkbox"/> FALLING
OBJECTS | <input type="checkbox"/> LIMITED CONTACT | <input type="checkbox"/> SHARP OBJECTS |
| <input type="checkbox"/> DRILLING | <input type="checkbox"/> HEAT STRESS | <input type="checkbox"/> MOVING PARTS (LO /
TO) | <input checked="" type="checkbox"/> TRAFFIC (STRUCK BY) |
| <input type="checkbox"/> DRUM HANDLING | <input checked="" type="checkbox"/> HEAVY EQUIPMT | <input checked="" type="checkbox"/> NOISE (> 85 dB) | <input type="checkbox"/> STEEP / UNEVEN
TERRAIN |
| <input checked="" type="checkbox"/> DUST, HARMFUL | <input checked="" type="checkbox"/> HEAVY LIFTING | <input type="checkbox"/> NON-IONIZING
RADIATION | <input type="checkbox"/> OTHER:
<input type="text"/> |
| <input checked="" type="checkbox"/> DUST, NUISANCE | <input type="checkbox"/> HOT WORK | <input type="checkbox"/> OVERHEAD OBJECTS | |

**(B) PRESENCE OF HAZARDOUS MATERIALS STORED OR
USED ON SITE – If active.**

- | TYPE | | CURRENTLY
<input type="checkbox"/> YES | FORMERLY
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
|--|--|--|---|
| <input type="checkbox"/> EXPLOSIVES | <input checked="" type="checkbox"/> FLAMMABLE/
COMBUSTIBLE
LIQUIDS | <input type="checkbox"/> OXIDIZERS | <input type="checkbox"/> CORROSIVE |
| <input type="checkbox"/> COMPRESSED
GASES | <input type="checkbox"/> FLAMMABLE/
REACTIVE SOLIDS | <input checked="" type="checkbox"/> TOXIC/INFECTIOUS | <input type="checkbox"/> MISCELLANEOUS |
| | | <input type="checkbox"/> RADIOACTIVE | <input type="checkbox"/> HAZARDOUS WASTE
(STORED) |

(C) CHEMICAL HAZARDS OF CONTAMINANTS INFORMATION
(1) IDENTIFIED CONTAMINANTS - Known or suspected hazardous/toxic materials (attach historical information, physical description, map of contamination and tabulated data, if available)

Characteristics: CA (corrosive, acid), CC (corrosive, caustic), IG (ignitable), RA (radioactive), VO (volatile), TO (toxic), RE (reactive), BIO (infectious), UN (unknown), OT (other, describe)

Media types: GW (ground water), SW (surface water), WW (wastewater), AIR (air), SG (soil, gas), SL (soil), SD (sediment), WL (waste, liquid), WS (waste, solid), WD (waste, sludge), WG (waste, gas), OT (other, describe).

SUBSTANCES INVOLVED	CHARACTERISTICS	MEDIA	ESTIMATED CONCENTRATIONS	LOWEST PEL or TLV	
				Concentration	Units
			Non-detect to 16.8 mg/Kg as toxicity equivalent normalized to benzo(a)pyrene	0.2 (OSHA PEL; benzo(a)pyrene)	mg/m ³
PAHs	TO, Carcinogen	SL			
Lead	TO	SL	Non-detect to 964 mg/Kg	0.15 (OSHA PEL)	mg/m ³
Mercury	TO	SL	Non-detect to 5.57 mg/Kg	10 (OSHA PEL)	mg/m ³
Arsenic	TO	SL	5 to 210 mg/Kg	100 (OSHA PEL)	mg/m ³

(2) DESCRIBE POTENTIAL FOR CONTACT WITH EACH MEDIA TYPE FOR EACH OF THE MPI TASKS LISTED IN SEC 3 (E):

MPI TASK	ROUTE OF EXPOSURE (INHAL/INGEST/CONTACT/ABSORB)	POTENTIAL FOR CONTACT (HIGH / MEDIUM / LOW)	METHOD OF CONTROL
S1	Contact/Absorb/Inhal	Low	PPE, engineering controls
S2	Contact/Absorb/Inhal	Low	PPE, engineering controls
S3	Contact/Absorb/Inhal	Low	PPE, engineering controls

The Site Safety Officer will brief the field team on symptoms and signs of overexposure to chemical hazards

SECTION 6: SITE CONTROL MEASURES
(A) WORK ZONES – EXCAVATIONS, DRILLING OPERATIONS AND HEAVY EQUIPMENT

Lee Rosberg has been designated to coordinate access control and security for operations on site.

(B) WORK ZONES – CONTAMINATION

The prevailing wind conditions are Westerly. A wind direction indicator is used to determine daily wind direction. The Command Post is located from the Exclusion Zone or at sufficient distance to prevent exposure should a release occur. Control boundaries are identified by traffic cones.

NO UNAUTHORIZED PERSON SHOULD BE WITHIN THIS AREA

SECTION 7: SAFETY PROCEDURES/EQUIPMENT REQUIRED

Identify all procedures and equipment needed to eliminate or minimize exposure to hazards identified in Section 5.

<input checked="" type="checkbox"/> AIR MONITORING EQUIPMENT (Note type in see Section 9)	<input checked="" type="checkbox"/> FIRST AIDKIT	<input type="checkbox"/> EMERGENCY AIR HORN
<input type="checkbox"/> BARRIER TAPE	<input type="checkbox"/> FLOTATION DEVICE (USCG)	<input checked="" type="checkbox"/> PPE – PHYSICAL HAZARDS (see section 15)
<input checked="" type="checkbox"/> COMMUNICATIONS - ONSITE	<input type="checkbox"/> GFCI EXTENSION CORDS	<input checked="" type="checkbox"/> RESPIRATORY PROTECTION PROGRAM & EQUIPMENT (APR) (see Section 15)
<input checked="" type="checkbox"/> COMMUNICATIONS – OFFSITE (i.e. cell/digital phones if no other means)	<input type="checkbox"/> HARNESS(S) / LIFELINE(S)	<input checked="" type="checkbox"/> TRAFFIC CONES
<input type="checkbox"/> CONFINED SPACE PROGRAM & EQUIP (see Section 12)	<input type="checkbox"/> INSECT/TICK REPELLENT	<input checked="" type="checkbox"/> MSDS (Site Specific-Attach)
<input type="checkbox"/> VENTILATION EQUIPMENT	<input checked="" type="checkbox"/> SAFETY VESTS	<input type="checkbox"/> MSDS (Stone Environmental –on file at Stone)
<input type="checkbox"/> EMERGENCY SHOWERS	<input type="checkbox"/> SAFETY HARNESS - LADDER(S)	<input checked="" type="checkbox"/> LONE WORKER: Check In protocol: call/text Dan Voisin when off-Site @ 279-8174
<input type="checkbox"/> EYE WASH	<input type="checkbox"/> LIGHTING – HANDHELD	<input type="checkbox"/> OTHER: _____
<input type="checkbox"/> FALL PROTECTION PROGRAM & EQUIPMENT	<input type="checkbox"/> LIGHTING – FIXED EMERGENCY	
<input checked="" type="checkbox"/> FIRE EXTINGUISHER(S) - ABC	<input type="checkbox"/> LOCKOUT/TAGOUT PROGRAM & EQUIPMENT	

SECTION 8: COMMUNICATIONS AND SAFE WORK PRACTICE
(A) COMMUNICATIONS - ONSITE

Whenever possible, communications between site personnel should be face-to-face. When verbal communications is not possible, radio communications shall be established.

In case of radio communications failure, or when respiratory protection is in use, the following hand signals will be used:

OK; I AM ALL RIGHT; I UNDERSTAND	= THUMBS UP
NO; NEGATIVE	= THUMBS DOWN
NEED ASSISTANCE	= BOTH HANDS ON TOP OF HEAD
DANGER - NEED TO LEAVE AREA, NO QUESTIONS	= GRIP PARTNERS WRIST WITH BOTH HANDS
HAVING DIFFICULTY BREATHING	= HANDS TO THROAT

(B) COMMUNICATIONS – OFF SITE

If applicable, telephone communication to the Home Office should be established as soon as practical.

Telephone numbers that can be used to reach the command post are: (802) 229-4541 and (800) 959-9987

(C) SAFE WORK PRACTICES

1. LONE WORKER: MUST ENSURE THAT SOMEONE KNOWS WHERE YOU ARE AND WHEN YOU ARE EXPECTED HOME. MUST HAVE MOBILE PHONE ACCESS AT ALL TIMES AND CONTACT SAFETY OFFICER OR DESIGNEE WHEN YOU ARE HOME SAFE (BY TEXTING OR CALLING).
2. A "BUDDY SYSTEM" IN WHICH ANOTHER WORKER IS CLOSE ENOUGH TO RENDER IMMEDIATE AID WILL BE IN EFFECT. CLIENTS AND/OR CONTRACTORS MAY SERVE AS A "DESIGNATED BUDDY."
3. WHERE THE EYES OR BODY MAY BE EXPOSED TO CORROSIVE MATERIALS, SUITABLE FACILITIES FOR QUICK DRENCHING OR FLUSHING SHALL BE AVAILABLE FOR IMMEDIATE USE (SEE SECTION 7).
4. IF DRILLING EQUIPMENT IS INVOLVED, HAVE A CURRENT UTILITY SURVEY, AND KNOW WHERE THE 'KILL SWITCH' IS.
5. CONTACT WITH SAMPLES, EXCAVATED MATERIALS, OR OTHER CONTAMINATED MATERIALS MUST BE MINIMIZED.
6. ALL ELECTRICAL EQUIPMENT USED IN OUTSIDE LOCATIONS, WET AREAS OR NEAR WATER MUST BE PLUGGED INTO GROUND FAULT CIRCUIT INTERRUPTER (GFCI) PROTECTED OUTLETS (SEE SECTION 7).
7. IN THE EVENT OF TREACHEROUS WEATHER-RELATED WORKING CONDITIONS (I.E., THUNDERSTORM, LIMITED VISIBILITY, EXTREME COLD OR HEAT) FIELD TASKS WILL BE SUSPENDED UNTIL CONDITIONS IMPROVE OR APPROPRIATE PROTECTION FROM THE ELEMENTS IS PROVIDED.
8. SMOKING, EATING, CHEWING GUM OR TOBACCO, OR DRINKING ARE FORBIDDEN EXCEPT IN CLEAN OR DESIGNATED AREAS.
9. USE OF CONTACT LENSES NEAR CHEMICALS OR DURING USE OF RESPIRATORY PROTECTION IS PROHIBITED AT ALL TIMES.
10. GOOD HOUSEKEEPING PRACTICES ARE TO BE MAINTAINED.
11. SITE / FACILITY SPECIFIC SAFE WORK PRACTICES: Level D (hard hat, steel toe work shoes, and high visibility vests) should be worn at all times. See Section 15 for PPE required for each task. Work will be conducted during summer months, be aware of heat stress. Drink plenty of hydrating fluids, take shade breaks as necessary, use sunscreen, and wear protective clothing to prevent heat stress. If conditions are extremely hot, consult Site Health and Safety Officer and use best judgement to decide whether it is safe to proceed with work.
12. FOLLOW ALL SITE / FACILITY H&S REQUIREMENTS-PROTECTIVE EYEWEAR AT ALL TIMES.

SECTION 9: ENVIRONMENTAL MONITORING
☐ THIS SECTION IS NOT APPLICABLE TO SITE ACTIVITIES

(A) The following environmental monitoring instruments shall be used on site at the specified intervals and recorded in the site logbook.
 (NOTE: If monitoring period is "OTHER", monitoring schedule will be attached to this plan.) Note Action limit for upgrade or stop work.

EQUIPMENT	MONITORING PERIOD	ACTION LEVEL
<input type="checkbox"/> Combustible Gas Indicator	<input type="checkbox"/> Continuous <input type="checkbox"/> Hourly <input type="checkbox"/> x Day <input type="checkbox"/> Other	_____
<input type="checkbox"/> O ₂ Meter	<input type="checkbox"/> Continuous <input type="checkbox"/> Hourly <input type="checkbox"/> x Day <input type="checkbox"/> Other	_____
<input type="checkbox"/> Toxics: <input type="checkbox"/> CO <input type="checkbox"/> H ₂ S	<input type="checkbox"/> Continuous <input type="checkbox"/> Hourly <input type="checkbox"/> x Day <input type="checkbox"/> Other	_____
<input type="checkbox"/> Other: _____	<input type="checkbox"/> Continuous <input type="checkbox"/> Hourly <input type="checkbox"/> x Day <input type="checkbox"/> Other	_____
<input checked="" type="checkbox"/> PID (Lamp <u>10.6 eV</u>)	<input checked="" type="checkbox"/> Continuous <input type="checkbox"/> Hourly <input type="checkbox"/> x Day <input type="checkbox"/> Other	Stop work and consider respiratory protection if continuous readings of 5 ppm (NIOSH PEL for benzene) or greater are reached.
<input type="checkbox"/> FID		
<input type="checkbox"/> Colorimetric tubes:		
_____	<input type="checkbox"/> Continuous <input type="checkbox"/> Hourly <input type="checkbox"/> x Day <input type="checkbox"/> Other	_____
_____	<input type="checkbox"/> Continuous <input type="checkbox"/> Hourly <input type="checkbox"/> x Day <input type="checkbox"/> Other	_____
<input type="checkbox"/> Radiation: <input type="checkbox"/> α <input type="checkbox"/> β <input type="checkbox"/> γ	<input type="checkbox"/> x Day <input type="checkbox"/> Hourly <input type="checkbox"/> x Day <input type="checkbox"/> Other	_____



SECTION 10: PERSONAL MONITORING		<input type="checkbox"/> THIS SECTION IS NOT APPLICABLE TO SITE ACTIVITIES
(A)	PERSONAL EXPOSURE SAMPLING (Consider if high levels of noise or high concentrations of lead, mercury or arsenic are present)	
	An Air Monitoring Plan is attached to address personal exposure of Site users and nearby occupants to lead, arsenic, and PAH contaminated soil as harmful dust drifting off site.	
(B)	HEAT / COLD STRESS MONITORING	
	The expected air temperature range will be 50-95°F. If it is determined that heat stress or cold stress monitoring is required (mandatory for heavy exertion in PPE at temperatures over 70°F, or at temperatures under 40°F or wind chill equivalent), the following procedures shall be followed: The buddy system will be utilized to watch for signs of heat stress. Personnel should wear appropriate clothing, drink	

plenty of water, and take shade warming breaks as necessary. If signs of heat stress are observed, move the person to a cool shady area immediately and treat appropriately. Consider rescheduled work on days of extreme heat.

SECTION 11: HAZARD COMMUNICATION PROGRAM
☒ THIS SECTION IS NOT APPLICABLE TO SITE ACTIVITIES

If chemicals are introduced to the site by Stone Environmental, Inc. (e.g., decontamination liquids, preservatives, etc.), a copy of the Stone Environmental, Inc. Hazard Communication Program and Safety Data Sheets (SDSs) of chemicals introduced by Stone Environmental, Inc. to the site is provided in the mobile facilities. The Site Safety Officer will review this information with all field personnel prior to the start of the project, and will inform other employers (e.g., Owner, Contractor and Subcontractors) the availability and location of this information. The Comprehensive List of Chemicals introduced by Stone Environmental, Inc. to this site is:

All chemicals being introduced to the site, hazardous/potentially hazardous samples prepared at the site, and/or any hazardous materials previously sent to the site, that will be stored at the site or will be transported from the site by common carrier, will be packaged, labeled and identified as hazardous materials in accordance with U.S. Department of Transportation (DOT) and/or International Air Transport Association (IATA) regulations by a trained HazMat employee. *(NOTE: At multi-employer sites, the Site Safety Officer will obtain information, if applicable, on hazardous chemicals other employers may produce or introduce to the job site to which Stone Environmental, Inc. employees may be exposed, including the location of their written hazard communication program(s), labeling program(s), and Material Safety Data Sheet(s).)*

SECTION 12: CONFINED SPACE ENTRY
☒ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

If a permit-required confined space entry will be made on site, a copy of the Stone Environmental, Inc. Confined Space Entry Program, and a completed Stone Environmental, Inc. Confined Space Pre-Entry Inspection Check List will be attached to this plan. A Confined Space Entry Permit must be completed and posted outside the confined space prior to entry, and the entry will follow the Stone Environmental, Inc. Confined Space Entry written program. Permits are to be saved and logged with project documentation.

Name of Competent Person: _____

SECTION 13: EXCAVATION SAFETY
☐ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

Excavations being created in order to accomplish Stone Environmental, Inc. tasks or in progress during Stone Environmental, Inc. inspection of other activities or tasks, shall be shored or slopped or otherwise protected to prevent accidental collapse prior to entry, in accordance with Subpart F of 29 CFR 1926. It is Stone Environmental, Inc. policy that Stone Environmental, Inc. personnel will not enter trench or excavated areas without approval of Corporate Health and Safety. If an entry into an excavation by Stone Environmental, Inc. personnel is necessary, a Competent Person will be designated by the Corporate Health and Safety Officer. Excavations will not be left open overnight unless absolutely necessary.

COMPETENT PERSON

To Be Determined

Print Name

Signature

Date

SECTION 14: DECONTAMINATION PROCEDURES
☐ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

Personnel and equipment leaving the Exclusion Zone shall be thoroughly decontaminated. The Site Safety Officer is responsible for monitoring adherence with this decontamination plan.

A 5.1. decontamination protocol shall be used with the following decontamination stations:

(1) Trucks will drive across exit grid or stone bed to remove soil from tires. All loads of soil transported off-Site will be covered prior to exiting the Site.

(2) _____

(3) _____

(Other) _____

The following decontamination equipment is required:

☐ Decon Pad (Plastic Sheet) _____

☐ Dry Brushes

☐ Buckets

Other ☐ Exit Grid

<input type="checkbox"/> Trash Cans/Bags	<input type="checkbox"/> Wet Brushes	<input type="checkbox"/> Hose / Spray
_____ Will be used as the decontamination solution		

SECTION 15: PERSONAL PROTECTIVE EQUIPMENT

1 - List all that apply, i.e., FF w/ OV/AG/P

2 - Use same codes for clothing and boots of same material

TASK *	RESPIRATORS & CARTRIDGE ¹	USE ** (See Section 16)	CLOTHING	GLOVES	BOOTS	OTHER
S1	NA	NA	N/S	N	SL	HH/Hi Vis/G
S2	HF/P	CONT	N/S	N/Le	SL	HH/Hi Vis/G
S3	NA	NA	N/S	N/Le	SL	HH/Hi Vis/G

* Same as Section 3E

 **UP = Upgrade
CONT =
Continuous

NOTE: PPE use will be in accordance with Stone Environmental, Inc.'s Health and Safety Policy and Written Programs

CODES:
RESPIRATORS¹

HF = Half Face APR

FF = Full Face APR

ESCBA = Escape Bottle

SAR = Airline

SCBA = SCBA

CARTRIDGES¹

P = Particulate

 OV = Organic
Vapors

AG = Acid Gas

Multi = Multi-

Gas/Vapor

Other

CLOTHING

N/S = No

Special

C = Coveralls

T = Tyvek

Sx = Saranex

PT = PE Tyvek

GLOVES²

Co = Cotton

Le = Leather

L = Latex

N = Nitrile

B = Butyl

Neo = Neoprene

V = Viton

 PVC = Polyvinyl
Chloride

PVA = Polyvinyl

Alcohol

T = Teflon

Other: _____

BOOTS

SL =

Leather

Safety

H = Hip

(Fireman)

O = Latex

overboots

CHM =

Chemical

Resistant

OTHER

HH = Hard Hat

G = Safety Glasses

GP = Glare Protection

GI = Goggles - Impact

GS = Goggles - Splash

FS = Face Shield

HP = Hearing Protection

 PFD = Personal Flotation
Device

Respiratory protection will be upgraded under the following conditions:

Consider respirators for VOCs if continuous PID readings in breathing zone are 5 ppm or greater. It is not anticipated that respirators will need to be worn. NIOSH P100 dust masks should be worn by staff working within the exclusion zone during excavation of contaminated soil until dust control measures are shown to be adequate.

The following cartridge change out schedule is to be followed onsite (attach any calculations to plan):

SECTION 17: EMERGENCY ACTION PLAN

The following standard emergency response procedures will be used by onsite personnel. The Site Safety Officer shall be notified of any onsite emergencies and be responsible for ensuring that the appropriate procedures are followed.

(A) EVACUATION

All work activities are suspended and the site is to be EVACUATED IMMEDIATELY, when there is a threat to life or health as determined by individual good judgment, i.e. fire, hazardous chemical spill, dangerous gas leak, severe weather (i.e., tornado); or when notified by other site / facility staff and local fire or police officials.

- If an evacuation is called for, the emergency alarm system for weather-related, medical, fire and other evacuation emergencies is:
- 3 short blasts on a compressed air horn
- Evacuation from the Exclusion Zone should whenever possible occur through the decontamination line. In those situations where egress in this manner cannot occur, the following emergency escape routes have been designated (document on map if possible):

Once off site, all staff should gather at the **Village of Essex Junction Fire Station, located at 3 Pearl Street**, which is a minimum of 250 feet away from the incident.

(B) FIRE OR EXPLOSION

Upon discovery of a fire or an explosion, the above-designated emergency signal shall be sounded and all personnel shall assemble at the **Village of Essex Junction Fire Station, located at 3 Pearl Street**. The fire department is to be notified and all personnel moved to a safe distance (minimum 250') from the involved area.

If a person's clothing should catch fire, burning clothing may be extinguished by having the individual drop to the floor and roll. If necessary, physically restrain the person and roll them around on the floor to smother the flames. Use a fire blanket or extinguisher if one is readily available and you have been trained in its use. Call emergency medical services if not already done so.

If a person's clothing should become saturated with a chemical, douse the individual with water from the nearest safety shower if available. Consult the chemical Material Safety Data Sheets (MSDSs) for further information. Call emergency medical services if indicated by the MSDSs.

NEVER RE-ENTER THE SITE / FACILITY until the emergency has been declared over and permission to re-enter has been given by site / facility health and safety staff or local fire or police officials. If any staff is unaccounted for, notify an individual in charge.

(C) MEDICAL EMERGENCY

If you discover a medical emergency and are by yourself, CALL OUT FOR HELP. When someone arrives, tell them to call for help. If no one comes or you know you are alone, provide whatever care you can for 1 minute, and then make the call yourself. (See Section 2)

Upon notification of an injury the SSO or alternate should evaluate the nature of the injury and shall initiate the appropriate first aid, and contact should be made for an ambulance (and other emergency services as needed) and with the designated medical facility (if required). No persons shall reenter the Exclusion Zone until the cause of the injury or a symptom is determined.

The hospital is **10** Minutes from the site. Ambulance response time is suspected to take more than 10 minutes based on the location. If applicable, local fire and police should be briefed on the situation and the potential hazards and the substances involved. When IDLH conditions exist, arrangements should be made for onsite standby of emergency services. A map for directions to the nearest hospital is attached to this plan along with a site map.

(D) FOLLOW UP

In all situations, when an on site / facility emergency results in evacuation of the work area, or a "large spill" has occurred, staff shall not resume work until:

- The conditions resulting in the emergency have been corrected;
- The hazards reassessed by the SSO and Corporate Health and Safety;
- The HASP has been reviewed by the SSO and Corporate Health and Safety; and
- Site personnel have been briefed on any changes in the HASP by the SSO.

SECTION 18: SPILL CONTAINMENT / CONTROL

☒ THIS SECTION NOT APPLICABLE TO SITE ACTIVITIES

For most chemicals introduced to the worksite, or under control of Stone Environmental, Inc. employees, spills of chemicals would be considered incidental and would be controlled in the immediate area of the spill. Such spills shall be handled utilizing precautions appropriate for the chemical

characteristics specified in the MSDS for the chemical including spill control methods and selection and use of minimum personal protective equipment.

For chemicals introduced to the worksite, or under control of Stone Environmental, Inc. employees, that would cause a "large spill" (greater than 55 gallons), a copy of the appropriate Emergency Response Guidebook (ERG) guide shall be attached to this plan, and a spill response contractor shall be identified in Section 2.

SECTION 19: EMPLOYEE ACKNOWLEDGEMENTS
PLAN REVIEWED

BY:	NAME	DATE
Project Officer:	Chris Stone	
Project Manager:	Dan Voisin	
Site Safety Officer:	Lee Rosberg	
Corporate H & S	Kim Watson	

I acknowledge that I have read the information on this HASP-SF, attached Material Safety Data Sheets (MSDSs), DOT Emergency Response Guides, and Health and Safety Programs.

I understand the site / facility hazards as described and agree to comply with the contents of the plan.

EMPLOYEE (Print Name/Signature/Date)

_____/_____/_____ _____/_____/_____	_____/_____/_____ _____/_____/_____
--	--

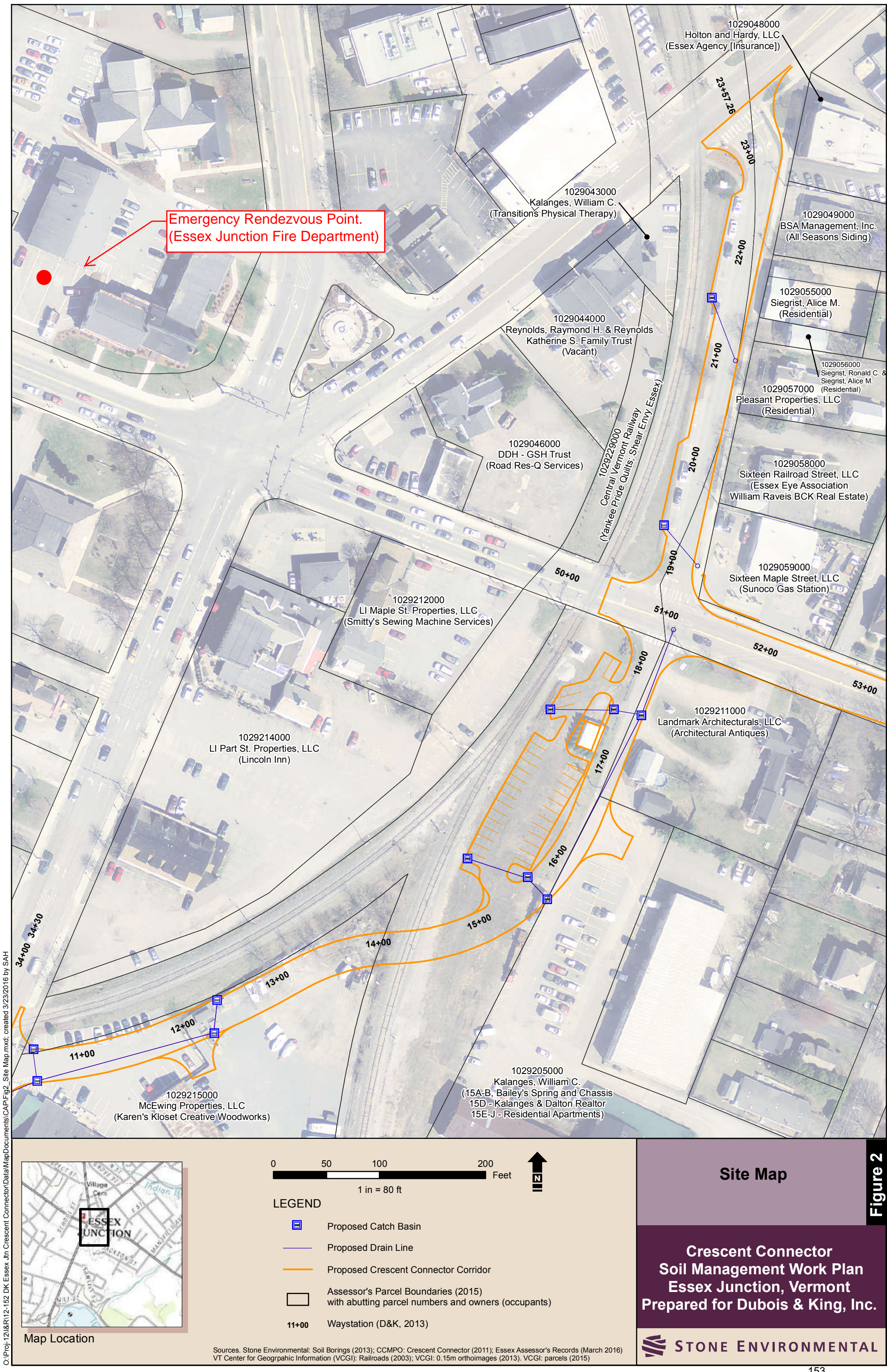
VISITORS (Print Name/Signature/Date)

_____/_____/_____ _____/_____/_____	_____/_____/_____ _____/_____/_____
--	--

ATTACHED DOCUMENTS

- | | | | |
|--|--|--|---|
| <input checked="" type="checkbox"/> MSDS(s) | <input type="checkbox"/> Hazard Communication
Written Program – if
introduction of other chemicals | <input type="checkbox"/> Confined Space Entry
Written Program | <input type="checkbox"/> Respiratory Protection
Program |
| <input checked="" type="checkbox"/> Site Map | <input type="checkbox"/> Personal Protective
Equipment
Written Program | <input type="checkbox"/> DOT ERG Guides | <input type="checkbox"/> Activity Hazard Analysis Forms
for activity risk assessment – attach. |
| <input checked="" type="checkbox"/> Hospital
Directions | <input type="checkbox"/> Emergency Action Plan | <input checked="" type="checkbox"/> H&S Daily Site Sheet | <input checked="" type="checkbox"/> Other: Air Monitoring Plan |

Attachment 1: Figures

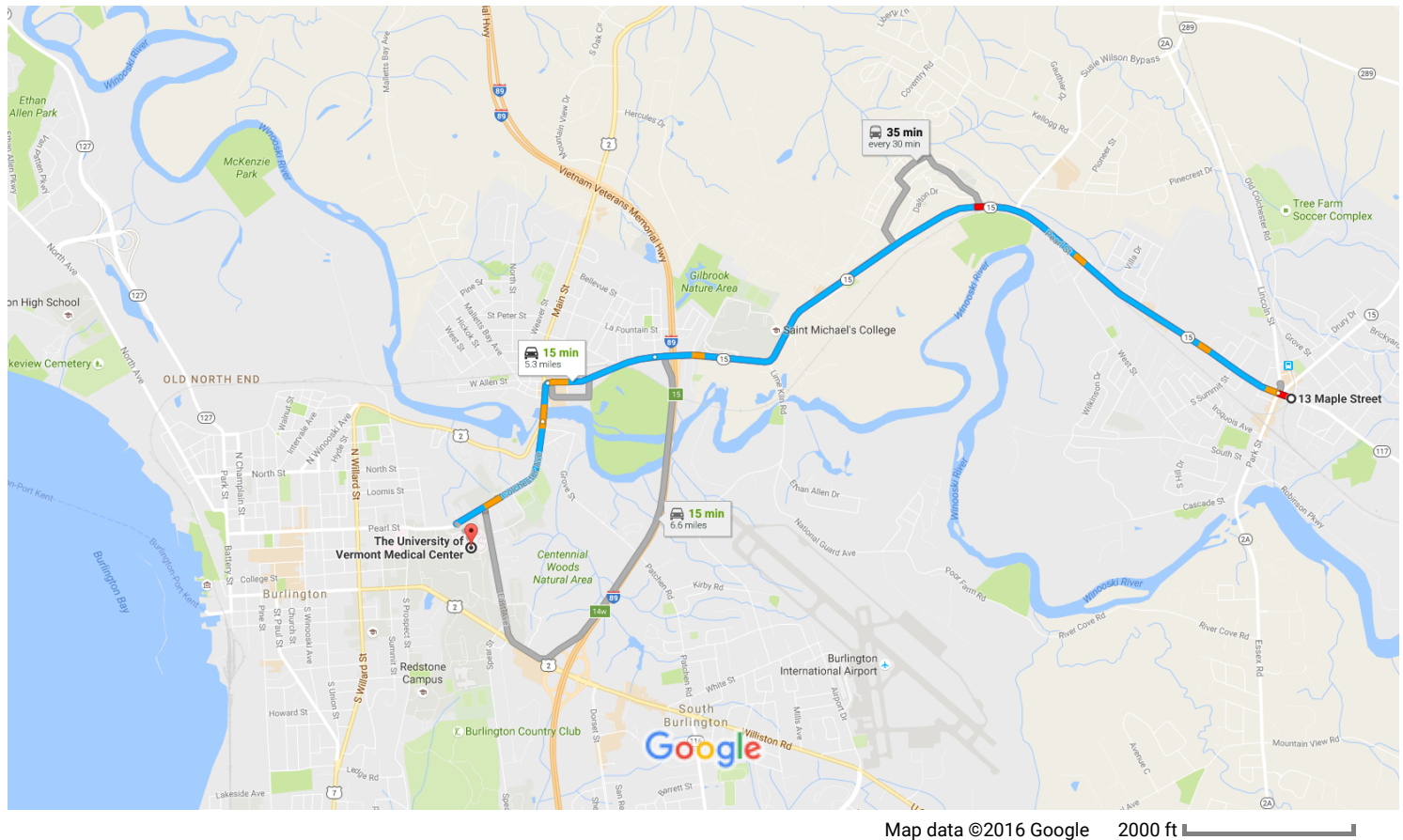






O:\Proj-12\12-152 DK Essex - In Crescent Connector\MapDocuments\CAP\Fig2_Site Map.mxd; created 3/23/2016 by SAH

Google Maps

13 Maple Street, Essex Junction, VT 05452 to The University of Vermont Medical Center

Drive 5.3 miles, 15 min



	via VT-15 W	15 min
	13 min without traffic	5.3 miles
	via VT-15 W and I-89 S	15 min
	14 min without traffic	6.6 miles
	2:27 PM–3:02 PM	35 min
	2	

Daily Tailgate Form



Health and Safety – Daily Site Sheet

535 Stone Cutters Way
Montpelier, Vermont
05602 USA

Phone / 802.229.4541
Fax / 802.229.5417
Web Site / www.stone-env.com

Project #: _____ Date: _____

Project Name: _____

Topics Covered:

HASP Author : Stone Environmental, Inc ☐

Other (Client) ☐

Person(s) Present

Signed: _____	Print: _____	Date: _____
Signed: _____	Print: _____	Date: _____
Signed: _____	Print: _____	Date: _____
Signed: _____	Print: _____	Date: _____
Signed: _____	Print: _____	Date: _____
Signed: _____	Print: _____	Date: _____
Signed: _____	Print: _____	Date: _____

Dust Monitoring and Abatement Plan

AIR MONITORING PLAN – CRESCENT CONNECTOR ROADWAY PROJECT

**SMS # 2012-4263
ESSEX JUNCTION, VERMONT**

**Stone Project ID 12-152
June 10, 2016**

Prepared for:

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1. INTRODUCTION

This Air Monitoring Plan (Plan) has been prepared for the excavation and regrading of contaminated soils at the Crescent Connector roadway project in Essex Junction, Vermont (the Site; Figure 1, Appendix A). The Plan was prepared by Stone Environmental, Inc. (Stone) on behalf of the Village of Essex Junction (the Village) under contract with Dubois and King Engineers (D&K) of Randolph, Vermont. Previous environmental assessment (Stone, 2013) determined that shallow soils are impacted by arsenic, lead, mercury and polycyclic aromatic hydrocarbons (PAHs).

The Plan describes the approach for dust suppression measures and perimeter air monitoring that will be implemented during remedial excavation and Site-wide grading activities that will occur during redevelopment of the Site. Construction activities requiring dust monitoring are expected to occur over six weeks. Air monitoring as described within this Plan will cease following installation of base materials for construction of the proposed building and parking lot. The monitoring will be conducted to:

1. Determine the air quality within the work zone;
2. Minimize the potential for unacceptable levels of airborne contaminants to leave the Site during redevelopment; and
3. Implement environmental controls in the event Site specific action levels are exceeded.

1.1. Site Description

The proposed alignment of the Crescent Connector is presented on Figure 2. The general topographic setting of the Project Area is flat at an elevation of approximately 340 feet above mean sea level (ft AMSL). The nearest surface water body is Indian Brook, located approximately 1,440 feet to the northeast of the Project Area. The Project Area is part of the center of the Village of Essex Junction. The Village Center is defined by the intersections of Vermont Routes 2A (Lincoln Street – north, and Park Street – south), Vermont Route 15 (Pearl Street – west, and Main Street – northeast), and Vermont Route 117 (Maple Street – southeast). The intersection of these roadways is locally known as the Five Corners.

1.2. Site History

The vicinity of the Project Area has been in mixed commercial and residential use since before 1894, the earliest property-specific historic land use documentation available. A narrow band of industrial use occurs to the southeast of the Project Area. Parcels located closest to Five Corners have been predominantly commercial. Growth in the area, and development of past commercial use, was largely spurred by the rail, which were first brought to Essex Junction in the 1850s.

Later, with the advent of the automobile, commercial enterprises were focused around serving this more mobile, car-driving populace.

Trends to commercial use within the downtown corridor are consistent with the introduction of new technologies and fashions. For instance, tinsmiths and blacksmiths were common through Essex Junction area through the turn of the 20th century; however with the development of cheaper and more durable alternatives, such as plastics or aluminum, smiths became less common and were no longer found after 1940.

Beginning in approximately 1920, with the introduction of affordable automobiles, service stations, garages, and storage units for automobiles became widespread. Many of the facilities that formerly served as the support infrastructure for the horse-reliant populace were converted to support automobiles; liverys became garages, blacksmiths became service stations. It is interesting to note that there are several former gasoline

service stations and small gasoline dispensaries that no longer serve in this type of use. A prominent example is Road Res-Q, located at the intersection of Main and Maple Street, which was a former Mobil station. Other examples include 4 Central Street, 34 Park Street, and 25 Pearl Street.

1.3. Sources of Contaminants

Polycyclic aromatic hydrocarbons (PAHs) and the metals arsenic, antimony, lead, and mercury are present in shallow soils at concentrations in excess of US EPA Regional Screening Levels (RSLs), and require mitigation and/or management as part of the construction of the Crescent Connector roadway. Field screening and laboratory analysis of VOCs in soil samples collected in the Project Area indicate gasoline VOCs are not present within Project Area soils, and therefore do not present an exposure risk to future construction workers or other Project Area users.

Due to the heavy rail use of the Project Area, Stone attributes the observed contamination to emissions during the coal-burning history of the adjacent rail and maintenance performed along the rail Right of Way. The presence of metals and PAHs in Project Area soils is primarily attributed to coal ash waste and unburned coal debris. The presence of metals in Project Area soils may be attributed former maintenance activities, such as application or use of wood preservatives and insecticides along the rail corridor.

1.4. Screening Evaluation

The concentrations of the contaminants of concern (COCs; lead, arsenic, mercury, and PAHs) in shallow soil were evaluated to develop a protective air monitoring plan. Based on the 95% Upper Confidence Limits (UCLs) of each of the COCs detected during Stone's Phase II ESA (2016), the highest anticipated concentration of each COC in air was calculated by the following equation:

$$C_{air} \left(\frac{\mu g \text{ COC}}{m^3 \text{ air}} \right) = C_{soil} \left(\frac{mg \text{ COC}}{kg \text{ soil}} \right) \times 10^{-6} \left(\frac{kg}{mg} \right) \times C_{st} \left(\frac{\mu g \text{ soil [= dust]}}{m^3 \text{ air}} \right)$$

Where: C_{air} = Concentration of COC in air (microgram per cubic meter [$\mu g/m^3$])
 C_{soil} = Concentration of COC in soil (milligrams per kilogram [mg/kg])
 C_{st} = Concentration of dust screening level in air ($\mu g/m^3$)

The calculation was conservatively based on the assumptions that the evaluated concentration in soil would become airborne and present at the property boundary, therefore representing a "most vulnerable" scenario. In addition, the screening evaluation assumed 1) dust would be maintained below the Vermont and National Ambient Air Quality Standard (NAAQS) concentration of 150 micrograms per cubic meter ($\mu g/m^3$) for PM_{10} , which is defined as particulate matter 10 micrometer or less in diameter and 2) if calculated air concentrations exceeded regulatory criteria with a dust concentration of $150 \mu g/m^3$, additional PM_{10} dust screening levels were evaluated. The maximum anticipated concentrations for lead, arsenic, mercury and PAHs in air are provided in Table 1, below. For PAHs, Toxicity Equivalency Concentrations (TECs), calculated for the seven carcinogenic PAHs (Stone, 2016), were used to calculate maximum anticipated air concentrations.

Table 1: Maximum Anticipated Air Concentration – Site COCs

Contaminant of Concern	Maximum 95% Upper Confidence Limit in Soil (mg/kg)	Required Concentration in Soil to Reach Air Screening Level @ PM ₁₀ 150 µg/m ³ (mg/kg)	Calculated Maximum Detection in Air PM ₁₀ @ 150 for 24 hour (µg/m ³)	Calculated Maximum Detection in Air PM ₁₀ @ 71 (µg/m ³)	Regulatory Agency Air Screening Levels (µg/m ³)
Lead	964	1,000	0.32	0.15	0.15 (NAAQS)
Arsenic	532	66,667	0.032	0.015	10 (OSHA PEL)
Mercury	5.57	666,667	0.001	0.00040	100 (OSHA PEL)
cPAH	16.8	1,333,333	0.0068	0.0032	*200 (OSHA PEL)

Notes:

mg/kg = Milligrams per kilogram

µg/m³ = Micrograms per cubic meter

cPAH = total carcinogenic polycyclic aromatic hydrocarbons, normalized to benzo(a)pyrene toxicity equivalent concentration (B[a]P-TEC)

* = Coal tar Pitch Volatiles (benzene soluble fraction) OSHA PEL

NAAQS = National ambient air quality standard

PM₁₀ = particulate matter greater than 10 micrometers

OSHA PEL = Occupational Safety and Health Administration permissible Exposure Limit

The calculated air concentrations of COCs were compared to available screening levels, which, for lead, include both Vermont and National Ambient Air Quality Standards (NAAQS). PAH, mercury, and arsenic screening levels have not been established by Vermont or within the NAAQS. The Vermont and NAAQS screening level for Particulate Matter PM₁₀, which is based on a 24-hour time weighted average (TWA), was used for comparison with calculated air concentrations for these COCs. Concentrations were also compared to Occupational Safety and Health Administration permissible Exposure Limits (OSHA PELs), which are based on an 8-hour TWA.

Calculated maximum air concentrations, assuming a PM₁₀ concentration of 150 µg/m³, are approximately equivalent to regulatory criteria for lead. Total arsenic and carcinogenic PAHs, normalized to a benzo(a)pyrene toxicity equivalent concentrations, are several orders of magnitude lower than OSHA PELs, assuming a PM₁₀ concentration of 150 µg/m³.

PM₁₀ concentrations lower than the NAAQS standards were evaluated to determine an appropriate Site-specific screening level that would be protective of Site workers and neighboring site users from lead. Assuming a PM₁₀ concentration of 71 µg/m³, calculated maximum air concentrations for lead is marginally below the NAAQS criteria.

Based on these calculations, air monitoring for lead would not be required as long as perimeter and working zone PM₁₀ air concentrations do not exceed 71 µg/m³, as this would be protective of Site worker health and nearby off-Site receptors. Adjoining properties are depicted on Figure 2. On-Site lead monitoring would be conducted if perimeter and/or working zone dust concentrations exceed 71 µg/m³.

2. DUST SUPPRESSION

Dust suppression measures will be implemented during the course of all work that disturbs or leaves exposed contaminated soil to minimize the generation and potential movement of fugitive dust off-Site. Dust suppression measures that will be implemented as part of this Plan include:

- Water exposed areas that have been disturbed at least twice daily to prevent visible dust emissions, except when rain provides adequate moisture content to prevent visible dust emissions.
- Water all unpaved access roads, parking areas, and staging area three times daily, except when rain provides adequate moisture content to prevent visible dust emissions. The rate of application will depend on conditions such as work activity and weather.
- Limit traffic speeds on unpaved roads to 15 miles per hour
- Cover and protect all loose stockpiled construction materials that are not being actively used (including clean soil) with wattles, polyethylene sheeting, or other appropriate covering against rain and wind. Active use is defined as materials that are scheduled for use within 14 days.
- Limit the track-out of dust. The contractor will control vehicle traffic such that all vehicles exiting the Site will travel across an exit grid, consisting of a sufficient length bed of 6-inch gravel or structural steel grid. The exit grid will shake and flex vehicle tires, dislodging rocks, soil, and debris from tire treads. Stone field staff will monitor compliance and effectiveness of the exit grid throughout the project and take appropriate action to address issues with track-out as they arise. Wet-sweep public streets daily if visible soil material is tracked off the Site.
- Cover truck beds with tarps once filled with contaminated soils.
- In the event of high wind conditions, conduct additional dust suppression methods, such as increasing watering frequency or applying calcium chloride. A high wind condition is defined as 25 mile per hour (mph) winds sustained for at least 5 minutes in any 1 hour period, as measured by an anemometer with a minimum resolution of 1.0 mph.
 - Suspend work if high wind conditions occur during excavation or grading activities and additional dust suppression methods are not successful at controlling dust below Site action levels as defined in Section 7 of this document.
- Perform air monitoring as described within this plan.

The active work areas of the Site will be designated as Exclusion Zones during the periods when contaminated soils are being excavated, handled, loaded, and transported from Site. Access to the Exclusion Zone will be controlled by the general contractor with guidance from Stone. No unauthorized personnel shall be within the Exclusion Zone.

3. PERIMETER AND WORKING ZONE AIR MONITORING METHODS

Air monitoring will be performed to determine and document that excavation and grading operations do not generate dust particles above action levels at the Site property boundaries (Figure 2). In the event that dust concentrations exceed the action level, onsite activities will be temporarily suspended so that additional dust mitigation measures can be performed. Visual monitoring for dust generation will be performed in addition to the permanent air-monitoring stations, described below, as a means to evaluate the effectiveness of dust suppression measures. If dust is visible in a localized area, suppression methods will be immediately implemented. Perimeter and work zone dust monitors will be then be checked for action level exceedances and additional engineering controls will be evaluated.

3.1. Monitoring Equipment and Methods

Real-time particulate air monitors (e.g. TSI Dust Trak 8532 or equivalent) equipped with an omni-directional air intake device and a PM₁₀ impactor head will be used at the Site to monitor dust levels at the Site boundaries and within the area of disturbance during excavation and regrading activities of contaminated soils. Real-time PM₁₀ concentrations will be collected continuously during normal working hours (7:00 AM to 5:00 PM). Data will be monitored by Stone using real-time using telemetry and recorded digitally.

Real-time dust monitoring may not be conducted during inclement weather conditions, including heavy rain or fog, as these conditions interfere with the functionality of the instrument and may cause damage. Precipitation will reduce the potential for the dust generation, so work may proceed under these conditions, even if monitors cannot be operated. During these periods of operation, visual observations will be used to determine if dust emissions are being generated that require suppression measures.

Wind speed and direction, precipitation, and temperature will be monitored using an on-Site weather station (ONSET HOBO U30-NRC, or equivalent). Stone proposes to setup the weather station adjacent the railroad shed on Railroad Street approximately in the middle of the Project Area (Figure 2). The actual weather station location will be dependent on construction activities and will be placed as to not impede construction. Wind speed and direction will be monitored using an anemometer and wind vane, respectively. Wind data will be recorded at five minute intervals. Weather station data will be transmitted to Stone directly using telemetry and recorded digitally.

3.2. Monitoring Locations

Three tripod mounted dust monitors will be setup around the Site perimeter, two on the downwind and one on the upwind side of the Site, as determined by a wind direction indicator at the start of each work day. Stone presumes the prevalent wind direction at the Site is westerly. Based on this scenario, dust monitors will be deployed as depicted on Figure 2, but will be stationed in locations specific to a day's activities and depend on daily wind conditions. Measured upwind concentration will be subtracted from downwind concentration to determine the net ground level (NGL) concentration. The NGL will be compared with the target air concentration (71 µg/m³). Background dust concentrations will be measured using the monitor at the beginning of each day prior to the initiation of any work activities. The background value will be noted on the daily logbook and used to determine whether dust concentrations require additional actions.

One tripod mounted dust monitor will be setup within a minimum of twenty five feet of the active work zone to monitor potential COC exposure to Site workers.

4. PERSONAL AIR MONITORING

Personal air monitoring will only be conducted in the event working zone or perimeter dust monitors detect PM₁₀ dust at or above the target air concentration (71 µg/m³) for fifteen consecutive minutes. If this Site action limit is reached, personal air-sampling devices will be worn by select field personnel to evaluate lead levels within the Site worker breathing zone.

4.1. Monitoring Equipment and Methods

Low-flow portable air-sampling pumps (GilAir5 or equivalent) will be fitted with a filter cassette collection device and will be worn during the Site work by one representative of the onsite work force. Sample pump air flow rates will range between 1 to 4 liters/minute. The filter cassette is a 37-mm, mixed cellulose ester (MCE). The personnel selected to wear the personal air sampling device will be selected by Stone based on the work task they perform and proximity to excavation or grading activities. The most likely candidate is a laborer who is working within excavations. One air sample will be collected in the worker's breathing zone for an 8-hour duration.

All samples will be submitted to Con-Test Analytical laboratory of East Longmeadow, Massachusetts, for laboratory analysis of lead by National Institute for Occupational Safety and Health (NIOSH) Method 7303.

If lead is present within the initial personal air sample, the need for respiratory protection for Site workers, additional personal monitoring, and off-Site air monitoring will be evaluated. Respiratory protection, if deemed necessary, would include the use of half-face mask air-purifying respirators equipped with NIOSH approved P-100 (filters at least 99.97% of airborne particles) cartridges. Individuals performing work within the exclusion zone may make their own determination whether respiratory protection measures beyond those described within this plan are desired.

6. QUALITY ASSURANCE/QUALITY CONTROL

6.1. Documentation and Records

Thorough documentation of project activities will be conducted during this monitoring effort. The main areas of documentation are field log notebooks, electronic monitoring data downloads, and inspection forms (Appendix B). Any corrective actions must be documented. Corrective actions may include, but not be limited to, monitoring equipment repairs or calibrations and alterations to dust suppression techniques. Photographs will be taken daily to document the construction activities occurring at the Site.

Field operation records include field logbooks, operator checklists, and maintenance logbooks. Monitoring data include all air monitoring readings collected through the duration of the project. These records will be submitted to the Vermont Department of Environmental Conservation (VT DEC) as part of the Remedial Action Report prepared at the conclusion of the project.

6.1.1. Quality Control

Stone will maintain a file of Site information that will include visit logs, air monitoring equipment calibration data, and a maintenance log. Copies of this documentation will be retained in the project files. The air monitors and weather station will be inspected and calibrated in accordance with the manufacturer's recommendations. Specific tasks for periodic testing, inspection, and maintenance are required for the air monitoring equipment to provide sufficient quality control to remain within the manufacturer's operating specifications, and ensure that the project air monitoring goals are met. The maintenance tasks for each type of equipment are summarized below as recommended by the manufacturer.

- TSI Dust Trak 8532 – The impactor head will be cleaned and a zero check will be performed daily before use. The inlet will be cleaned and internal filters replaced at least every 350 hours (based on a concentration of 1 mg/m³) or as needed.
- Weather Station Maintenance – The weather station does not require calibration according to the equipment manufacturer (Davis Instruments). However, Stone field staff will inspect and the weather station daily to ensure the weather station remains operable. Field personnel will visually correlate the reported wind direction to a wind sock installed adjacent to the weather station. A north/south demarcation will be added to the stand to assist field personnel in evaluating wind direction and will be recorded using a similar quadrant method used by the weather station (i.e., north, northeast, east, southeast, south, southwest, west, and northwest).
- GilAir Sampling Pumps – The flow of the samplers will be calibrated each day samples are collected. Calibration will be conducted with a Bios Defender flow meter. Other maintenance will be conducted as-needed in accordance with manufacturer specifications.

7. SITE ACTION LEVELS

Table 2, below, presents air monitoring action levels and the appropriate response that will be followed during excavation and grading of contaminated soils.

Table 2: Crescent Connector Air Monitoring Action Levels

Type	Measurement	Action
Visible	Empirical	If dust is visible in a localized area, suppression methods will be immediately implemented. Perimeter and work zone dust monitors will be then be checked for action level exceedances. Evaluate additional engineering controls.
		Cease operations. Identify/mitigate emission source originating from Site.
	Dust readings measured above background at the downwind property boundary or work zone > 71 µg/m ³ (TWA 15 minutes)	Assess need for more frequent wetting of exposed areas and access roads and/or additional dust suppression methods.
		Collect personal air monitoring sample
PM₁₀	Dust readings measured above background at the downwind property boundary or work zone > 150 µg/m ³ (TWA 15 minutes)	Cease operations. Identify/mitigate emission source originating from Site.
		Assess need for more frequent wetting of exposed areas and access roads and/or additional dust suppression methods.
Personal Monitoring	8-hour TWA lead in air sample (breathing zone)	Assess need for Site worker respiratory protection and additional personal monitoring.
		Conduct additional dust suppression (e.g. wetting).
	Wind speed > 25 mph sustained for 5 minutes	Cease operations if dust readings measured above background at the downwind property boundary or work zone > 150 µg/m ³ (TWA 15 minutes) with additional dust suppression measures.

Notes:

Based on net ground level concentration (downwind – upwind)

µg/m³ = Micrograms per cubic meter

PM₁₀ = Particulate matter greater than 10 micrometers

mph = miles per hour

8. LIST OF ACRONYMS

μg : microgram
 $\mu\text{g}/\text{m}^3$: microgram per cubic meter
B[a]P-TEC: Benzo[a]pyrene toxicity equivalent concentration
 C_{air} : Concentration of COC in air (microgram per cubic meter [$\mu\text{g}/\text{m}^3$])
 C_{soil} : Concentration of COC in soil (milligrams per kilogram [mg/kg])
 C_{sl} : Concentration of dust screening level in air ($\mu\text{g}/\text{m}^3$)
COC: Contaminant of concern
cPAH: Carcinogenic polycyclic aromatic hydrocarbon
CVOC: Chlorinated volatile organic compound
EPA: United States Environmental Protection Agency
ESA: Environmental Site Assessment
ITRC: Interstate Technology Regulatory Council
MCE: Mixed cellulose ester
 mg/m^3 : milligram per cubic meter
mm: millimeter
mph: miles per hour
NAAQS: National Ambient Air Quality Standards
NELAP: National Environmental Laboratory Accreditation Program
NIOSH: National Institute for Occupational Safety and Health
OSHA: Occupational Safety and Health Administration
PAH: Polycyclic aromatic hydrocarbon
PEL: Permissible exposure limit
 PM_{10} : Particulate matter greater than 10 micrometers
TWA: Time weighted average
UCL: Upper confidence limit
VT DEC: Vermont Department of Environmental Conservation

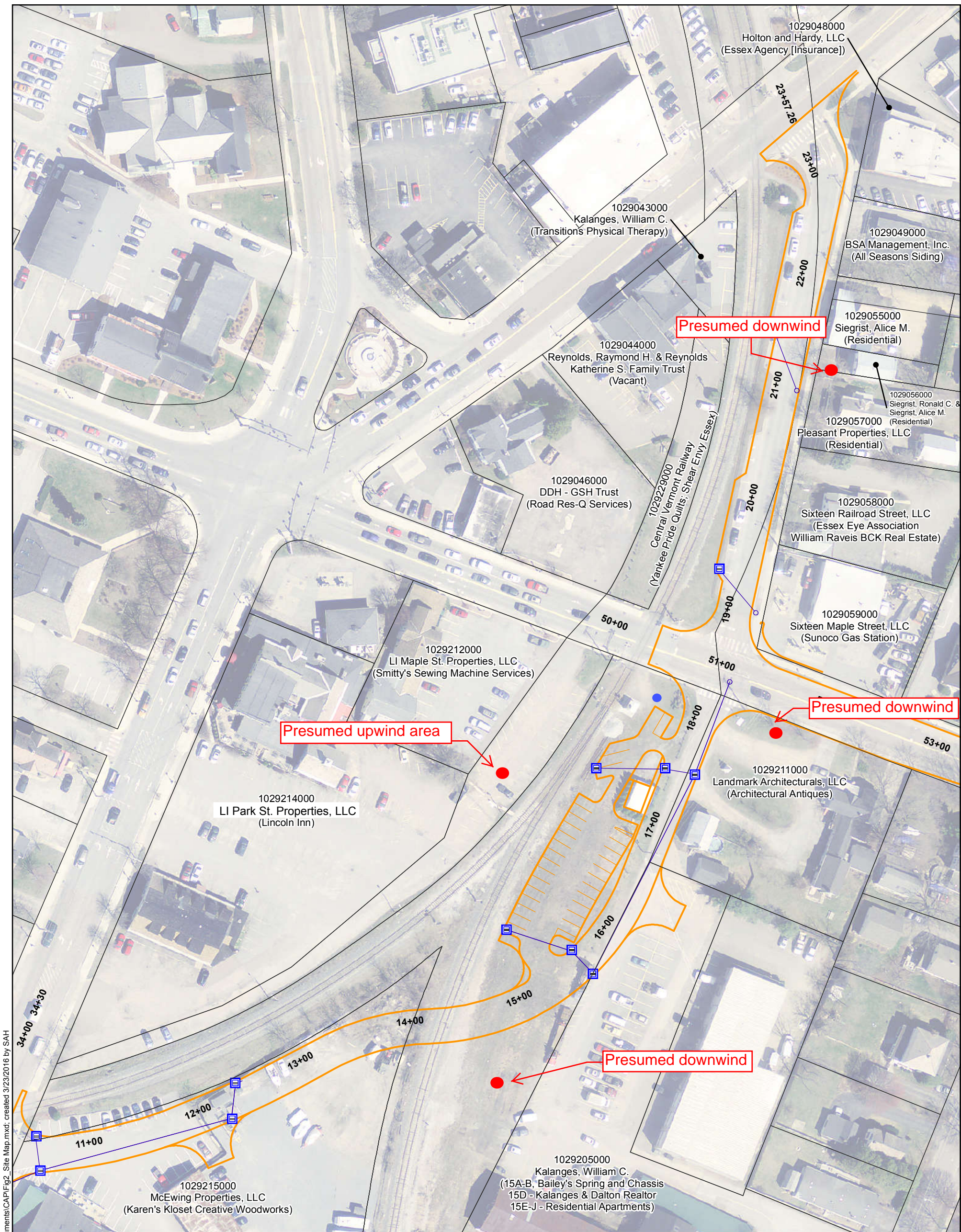
9. REFERENCES

Massachusetts Department of Environmental Protection, 2002. *Technical Update, Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil*, Office of Research and Standards, May 2002.

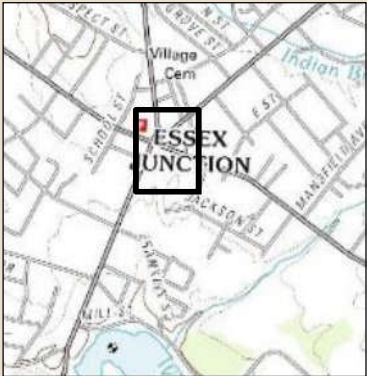
Stone, November 21, 2013, *Phase II Environmental Site Assessment of the Crescent Connector*, SMS#2012-4263, Essex Junction, Vermont.

APPENDICES

APPENDIX A: FIGURES



O:\Proj-12\12-152 DK Essex Junction Crescent Connector\MapDocuments\CAP\Fig2_Site Map.mxd; created 3/23/2016 by SAH



Map Location



LEGEND

- | | | | |
|--|--|--|------------------------|
| | Proposed Catch Basin | | Air Monitoring Station |
| | Proposed Drain Line | | Weather Station |
| | Proposed Crescent Connector Corridor | | |
| | Assessor's Parcel Boundaries (2015)
with abutting parcel numbers and owners (occupants) | | |
| | Waystation (D&K, 2013) | | |

Site Map

Crescent Connector
Soil Management Work Plan
Essex Junction, Vermont
Prepared for Dubois & King, Inc.

STONE ENVIRONMENTAL

Figure 2

Sources: Stone Environmental: Soil Borings (2013); CCMP: Crescent Connector (2011); Essex Assessor's Records (March 2016)
VT Center for Geographic Information (VCGI): Railroads (2003); VCGI: 0.15m orthoimages (2013); VCGI: parcels (2015)

APPENDIX B: INSPECTION FORMS

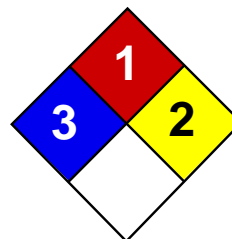


Project Title		Location		
Client		SEI Study #		
Project Manager		Personnel		
Upwind Dust Monitor Model/SN		Downwind Dust Monitor Model/SNs		Location ID:
				Location ID:
		Work Zone Dust Monitor Model/SNs		Location ID

174

[illegible]

Material Safety Data Sheets (MSDS)



Health	3
Fire	1
Reactivity	2
Personal Protection	E

Material Safety Data Sheet

Arsenic MSDS

Section 1: Chemical Product and Company Identification

Product Name: Arsenic

Catalog Codes: SLA1006

CAS#: 7440-38-2

RTECS: CG0525000

TSCA: TSCA 8(b) inventory: Arsenic

CI#: Not applicable.

Synonym:

Chemical Name: Arsenic

Chemical Formula: As

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Arsenic	7440-38-2	100

Toxicological Data on Ingredients: Arsenic: ORAL (LD50): Acute: 763 mg/kg [Rat]. 145 mg/kg [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks, of heat, of oxidizing materials.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:

Material in powder form, capable of creating a dust explosion. When heated to decomposition it emits highly toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 0.01 from ACGIH (TLV) [United States] [1995] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 74.92 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: Not available.

Melting Point: Sublimation temperature: 615°C (1139°F)

Critical Temperature: Not available.

Specific Gravity: 5.72 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents, acids, moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 145 mg/kg [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. Causes damage to the following organs: kidneys, lungs, the nervous system, mucous membranes.

Other Toxic Effects on Humans:

Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Arsenic UNNA: UN1558 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Arsenic California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Arsenic Pennsylvania RTK: Arsenic Massachusetts RTK: Arsenic TSCA 8(b) inventory: Arsenic

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:**WHMIS (Canada):**

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R22- Harmful if swallowed. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 2

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 1

Reactivity: 2

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information**References:**

-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Liste des produits purs tératogènes, mutagènes, cancérigènes. Répertoire toxicologique de la Commission de la Santé et de la Sécurité du Travail du Québec. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangereuses au Canada. Centre de conformité international Ltée. 1986.

Other Special Considerations: Not available.

Created: 10/09/2005 04:16 PM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Material Safety Data Sheet

Benzo[a]pyrene, 98%

MSDS# 37175

Section 1 - Chemical Product and Company Identification

MSDS Name: Benzo[a]pyrene, 98%
Catalog Numbers: AC105600000, AC105600010, AC105601000, AC377200000, AC377200010, AC377201000
Synonyms: 3,4-Benzopyrene; 3,4-Benzpyrene; Benzo[def]chrysene.

Company Identification: Acros Organics BVBA
Janssen Pharmaceuticaaan 3a
2440 Geel, Belgium

Company Identification: (USA) Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 800-ACROS-01

For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99

Emergency Number US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300

CHEMTREC Phone Number, Europe: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#: 50-32-8
Chemical Name: Benzo[a]pyrene
%: >96
EINECS#: 200-028-5

Hazard Symbols:



T N



Risk Phrases:

45 46 60 61 43 50/53

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! May cause allergic skin reaction. Cancer hazard. May cause harm to the unborn child. May impair fertility. May cause eye, skin, and respiratory tract irritation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause heritable genetic damage. Target Organs: Reproductive system, skin.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation. May be harmful if absorbed through the skin. May cause an allergic reaction in certain individuals.

Ingestion: May cause irritation of the digestive tract. The toxicological properties of this substance have not been fully investigated. May be harmful if swallowed.

Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated. May be harmful if inhaled.

Chronic: May cause cancer in humans. May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Autoignition Temperature: Not available.

Flash Point: Not available

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: health: 2; flammability: 0; instability: 0;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Benzo[a]pyrene	0.2 mg/m ³ TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m ³ TWA	0.2 mg/m ³ TWA (benzene soluble fraction) (listed under Coal tar pitches).

OSHA Vacated PELs: Benzo[a]pyrene: 0.2 mg/m³ TWA (benzene soluble fraction) (listed under Coal tar pitches)

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Powder

Color: yellow to brown

Odor: faint aromatic odor

pH: Not available

Vapor Pressure: Not available

Vapor Density: Not available

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: 495 deg C @ 760 mm Hg (923.00°F)

Freezing/Melting Point: 175 - 179 deg C

Decomposition Temperature: Not available

Solubility in water: 1.60x10⁻³ mg/l @25°C

Specific Gravity/Density:

Molecular Formula: C₂₀H₁₂

Molecular Weight: 252.31

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Dust generation.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 50-32-8: DJ3675000

LD50/LC50: RTECS: Not available.

Carcinogenicity: Benzo[a]pyrene - ACGIH: A1 - Confirmed Human Carcinogen (Coal tar pitches). California: carcinogen, initial date 7/1/87 NTP: Suspect carcinogen IARC: Group 1 carcinogen

Other: The toxicological properties have not been fully investigated.

Section 12 - Ecological Information

Not available

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOL (Benzo{a} pyrene)

Hazard Class: 9

UN Number: UN3077

Packing Group: III

Canada TDG

Shipping Name: Not available

Hazard Class:

UN Number:

Packing Group:

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T N

Risk Phrases:

R 45 May cause cancer.

R 46 May cause heritable genetic damage.

R 61 May cause harm to the unborn child.

R 43 May cause sensitization by skin contact.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R 60 May impair fertility.

Safety Phrases:

S 53 Avoid exposure - obtain special instructions before use.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 50-32-8: Not available

Canada

CAS# 50-32-8 is listed on Canada's DSL List

Canadian WHMIS Classifications: D2A, D2B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 50-32-8 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 50-32-8 is listed on the TSCA
Inventory.

Section 16 - Other Information

MSDS Creation Date: 9/02/1997

Revision #8 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.



Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Revision Date 10-Feb-2015

Revision Number 1

1. Identification

Product Name Benzo[a]pyrene, 98%

Cat No. : AC105600010; AC105601000

Synonyms Benzo[def]chrysene.; 3,4-Benzopyrene; 3,4-Benzpyrene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01
/ **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 /
Europe: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 /
Europe:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 1A
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1A

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May damage fertility or the unborn child

**Precautionary Statements****Prevention**

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Contaminated work clothing should not be allowed out of the workplace
 Wear protective gloves

Response

IF exposed or concerned: Get medical attention/advice

Skin

IF ON SKIN: Wash with plenty of soap and water
 If skin irritation or rash occurs: Get medical advice/attention
 Wash contaminated clothing before reuse

Storage

Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Benzo[a]pyrene	50-32-8	> 96

4. First-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes.
Inhalation	Move to fresh air.
Ingestion	Do not induce vomiting.
Most important symptoms/effects	May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media	No information available
Flash Point	
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

None known

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
2

Flammability
0

Instability
0

Physical hazards
N/A

6. Accidental release measures**Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions

See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up

Up

7. Handling and storage**Handling**

Ensure adequate ventilation.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Benzo[a]pyrene		TWA: 0.2 mg/m ³	

Component	Quebec	Mexico OEL (TWA)	Ontario TWA EV
Benzo[a]pyrene	TWA: 0.005 mg/m ³		TWA:

Legend

OSHA - Occupational Safety and Health Administration

Engineering Measures

Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment**Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Dark yellow
Odor	aromatic
Odor Threshold	No information available
pH	
Melting Point/Range	175 179 °C
Boiling Point/Range	°C @ 760 mmHg
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C20H12
Molecular Weight	252.31

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	None under normal use conditions
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Toxicologically Synergistic Products	No information available
--------------------------------------	--------------------------

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	No information available
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo[a]pyrene	50-32-8	Group 1	Reasonably Anticipated	A2	X	Not listed

Mutagenic Effects	No information available
-------------------	--------------------------

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Component	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benzo[a]pyrene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Benzo[a]pyrene	6.06

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benzo[a]pyrene - 50-32-8	U022	-

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077

Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
Hazard Class 9
Packing Group III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Benzo[a]pyrene	X	X	-	200-028-5	-		X	-	-	X	X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benzo[a]pyrene	50-32-8	> 96	0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzo[a]pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA

Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzo[a]pyrene	1 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Benzo[a]pyrene	50-32-8	Carcinogen	0.06 µg/day	Carcinogen

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo[a]pyrene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D2A Very toxic materials

**16. Other information**

Prepared By Regulatory Affairs
 Thermo Fisher Scientific
 Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015

Print Date 10-Feb-2015

Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

MSDS SUMMARY SHEET

Manufacturer:

Name: PHILLIPS PETROLEUM COMPANY

Address 1:

Address 2:

Address 3:

CSZ: BARTLESVILLE **State:** OK **Zipcode:** 74004

Emergency phone: (800) 424-9300

Business phone: 800-762-0942

Product:

Ferndale MSDS#: 1354 **Version # :** 6

Manufacturer MSDS#: 0041

Current? : 2002

Name:

NO. 2 DIESEL FUEL

Synonyms:

CARB **Diesel** TF3

CARB **Diesel**

CARB **Diesel** 10%

Diesel Fuel Oil

EPA Low Sulfur **Diesel** Fuel

EPA Low Sulfur **Diesel** Fuel – Dyed

EPA Off Road High Sulfur **Diesel** – Dyed

Fuel Oil No. 2 – CAS # 68476-30-2

No. 2 **Diesel** Fuel Oil

No. 2 Fuel Oil – Non Hiway – Dyed

No. 2 High Sulfur **Diesel** – Dyed

No. 2 Low Sulfur **Diesel** - Dyed

No. 2 Low Sulfur **Diesel** - Undyed

Crude column 3rd IR

Crude column 3rd side cut

Atmospheric tower 3rd side cut

Ultra Low Sulfur **Diesel** No. 2

Finished **Diesel**

DHT Reactor Feed

Straight Run **Diesel**

Diesel

Middle Distillate

Product/Catalog Numbers:

MSDS Date: 01/01/2002 (**received:** 01/14/2002)

NFPA codes:

Health: 0 **Flammability:** 2 **Reactivity:** 0

MATERIAL SAFETY DATA SHEET
No. 2 Diesel Fuel**1. PRODUCT AND COMPANY IDENTIFICATION**

Product Name: No. 2 Diesel Fuel
Product Code: Multiple
SAP Code:
Synonyms: 1354
CARB Diesel TF3
CARB Diesel
CARB Diesel 10%
Diesel Fuel Oil
EPA Low Sulfur Diesel Fuel
EPA Low Sulfur Diesel Fuel – Dyed
EPA Off Road High Sulfur Diesel – Dyed
Fuel Oil No. 2 – CAS # 68476-30-2
No. 2 Diesel Fuel Oil
No. 2 Fuel Oil – Non Hiway – Dyed
No. 2 High Sulfur Diesel – Dyed
No. 2 Low Sulfur Diesel - Dyed
No. 2 Low Sulfur Diesel – Undyed
No. 2 Ultra Low Sulfur Diesel – Dyed
No. 2 Ultra Low Sulfur Diesel - Undyed
Intended Use: Fuel
Chemical Family:
Responsible Party: Phillip's Petroleum Company
Bartlesville, Oklahoma 74004
For Additional MSDSs: 800-762-0942
Technical Information:

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

EMERGENCY OVERVIEW**24 Hour Emergency Telephone Numbers:**

Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800) 424-9300
Others: (703) 527-3887 (collect)

California Poison Control System: 800-356-3120

Health Hazards/Precautionary Measures: Causes severe skin irritation. Aspiration hazard if swallowed. Can enter lungs and cause damage. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling.

Physical Hazards/Precautionary Measures: Flammable liquid and vapor. Keep away from heat, sparks, flames, static electricity or other sources of ignition.

Appearance: Straw-colored to dyed red
Physical Form: Liquid
Odor: Characteristic petroleum

HFPA Hazard Class:

Health: 0 (Least)
 Flammability: 2 (Moderate)
 Reactivity: 0 (Least)

HMIS Hazard Class

Not Evaluated

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>HAZARDOUS COMPONENTS</u>	<u>% VOLUME</u>	<u>Limits</u>	<u>EXPOSURE GUIDELINE</u>	
			<u>Agency</u>	<u>Type</u>
Diesel Fuel No. 2 CAS# 68476-34-6	100	100* mg/m ³	ACGIH	TWA-SKIN
Naphthalene CAS# 91-20-3	<1	10ppm	ACGIH	TWA
		15ppm	ACGIH	STEL
		10ppm	OSHA	TWA
		250ppm	NIOSH	IDLH

All components are listed on the TSCA inventory

Tosco Low Sulfur No. 2 Diesel meets the specifications of 40 CFR 60.41 for low sulfur diesel fuel.

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

*Proposed ACGIH (1999)

3. HAZARDS IDENTIFICATION**Potential Health Effects:**

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Severe skin irritant. Contact may cause redness, itching, burning, and severe skin damage. Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin, leading to dermatitis (inflammation). Not actually toxic by skin absorption, but prolonged or repeated skin contact may be harmful (see Section 11).

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion (Swallowing): Low degree of toxicity by ingestion. ASPIRATION HAZARD – This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the nose and throat, irritation of the digestive tract, nausea, diarrhea and transient excitation followed by signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

Cancer: Possible skin cancer hazard (see Sections 11 and 14).

Target Organs: There is limited evidence from animal studies that overexposure may cause injury to the kidney (see Section 11).

Developmental: Inadequate data available for this material.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders and kidney disorders.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Immediately remove contaminated shoes, clothing, and constrictive jewelry and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek immediate medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops, seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard; Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: >125°F/>52°

OSHA Flammability Class: Combustible liquid

LEL %: 0.3 / UEL %: 10.0

Autoignition Temperature: 500°F/260°C

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (see Section 5). Spilled material may be absorbed into an appropriate material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharged. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practices.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing or high pressure hydraulic oil equipment.

“Empty” containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. “Empty” drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area “No Smoking or Open Flame.” Store only in approved containers. Keep away from incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentration below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Respiratory: A NIOSH certified air purifying respirator with an organic vapor cartridge maybe used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is a potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrants a respirator's use.

Skin: The use of gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation and skin damage (see glove manufacturer literature for information on permeability). Depending on conditions of use, apron and/or arm covers may be necessary.

Eyes/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse. It is recommended that impervious clothing be worn when skin contact is possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1atm).

Appearance: Straw-colored to dyed red

Physical State: Liquid

Odor: Characteristic petroleum

pH: unavailable

Vapor Pressure (mm Hg): 0.40

Vapor Density (air=1): >3

Boiling Point/Range: 320-700°F /160-371°C

Freezing/Melting Point: No Data

Solubility in Water: Negligible

Specific Gravity: 0.81-0.88 @ 60°F

Percent Volatile: Negligible

Evaporation Rate (nBuAc=1): <1

Viscosity: 32.6-40.0 SUS @ 100°F

Bulk Density: 7.08 lbs/gal

Flash Point: >125°F / >52°C

Flammable/Explosive Limits (%): LEL: 0.3 / UEL: 10.0

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable liquid and vapor. Vapor can cause flash fire.

Conditions To Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc.

Hazardous Decomposition Products: The use of hydrocarbon fuels in an area without adequate ventilation may result in hazardous levels of combustion products (e.g., oxides of carbon, sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels. ACGIH has included a TLV of 0.05 mg/m³ TWA for diesel exhaust particulate on its 1999 Notice of Intended Changes. See Section 11 for additional information on hazards of engine exhaust.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Diesel Fuel No. 2 (CAS# 68476-34-6)

Carcinogenicity: Chronic dermal application of certain middle distillate streams contained in diesel fuel No. 2 resulted in an increased incidence of skin tumors in mice. This material has not been identified as carcinogen by NTP, IARC, or OSHA. Diesel exhaust is a probable cancer hazard based on tests with laboratory animals.

Target Organ(s): Limited evidence of renal impairment has been noted from a few case reports involving excessive exposure to diesel fuel No. 2.

Naphthalene (CAS# 91-20-3)

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has not been identified as a carcinogen by IARC or OSHA.

12. ECOLOGICAL INFORMATION

Not evaluated at this time

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA “characteristic” hazardous waste due to the characteristic(s) of ignitability (D001) and benzene (D018). If the material is spilled to soil or water, characteristic testing of the contaminated materials is recommended. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent than the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container ?insate? could be considered a RCRA hazardous waste and must be disposed of with care and in compliance with federal, state and local regulations. Large empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller containers, consult with state and local regulations and disposal authorities.

14. TRANSPORT INFORMATION

DOT Shipping Description: Diesel Fuel, NA1983
Non-Bulk Package Marking: Diesel Fuel, 3, NA 1993, III

15. REGULATORY INFORMATION

EPA SARA 311/312 (Title III Hazard Categories):

Acute Health:	Yes
Chronic Health:	Yes
Fire Hazard:	Yes
Pressure Hazard:	No
Reactive Hazard:	No

SARA 313 and 40 CFR 372:

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:

Component	CAS Number	Weight %
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-- None known --

California Proposition 65:

Warning: This material contains the following chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Effect
Benzene	Cancer, Developmental and Reproductive Toxicant
Toluene	Developmental Toxicant

Diesel engine exhaust, while not a component of this material, is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA. See Section 11 for carcinogenicity information of individual components, if any. Diesel exhaust is a probable cancer hazard based on tests in laboratory animals. It has been identified as carcinogen by IARC.

EPA (CERCLA Reportable Quantity): None

16. OTHER INFORMATION

Issue Date: 01/01/02

Previous Issue Date: 05/15/01

Product Code: Multiple

Revised Sections: None

Previous Product Code: Multiple

MSDS Number: 0041

Disclaimer of Expressed and Implied Warranties:

The information presented in this Material Data Safety Sheet is based on data believed to be accurate as of the date this Material Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THE PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Tosco Refining Company

Ferndale Refinery

UltraLow Sulfur Diesel Product Specification

Ferndale Product Code:34380xx (5) Product Code: ULSD2

(COMETS)

Specification	Unit	Limit	Test Procedure	Typical
Appearance				
Water & Sediment	Vol %	0.05 Max	D 2709	
Color	Number	3.0 Max	D 1500	
Haze Rating	Rating	2 Max	D 4176	
Composition				
Carbon Residue (Ramsbottom)	Wt %	0.35 Max	D 524, D 189	
Volatility				
90% Recovered	Deg; F	540 Min	D 86	
	Deg; F	640 Min	D 86	
Flash Point	Deg; F	125 Min (1)	D 93	130 F
Gravity	API	30 Min	D 287, D4052	
Fluidity				
Pour Point	Deg; F	See Season Table (6)	D 97	
Cloud Point	Deg; F	See Season Table (6)	D 2500	10 F
Viscosity @ 104F	cSt	1.9 Min	D 445	
	cSt	4.1 Max	D 445	
Lubricity, SLBOCLE	grams	3100 Min	D 6078	3300gm
Lubricity, HFRR	mm	.45	D 6079	
Combustion				
Cetane Index or Cetane Number (3,4)	Number	40.0 Min	D 976, D613	47.0
Corrosion				
Copper Strip, 3hr @ 50 deg C	Number	3 Max (2)	D 130	
Aromatics (4)	Vol %	35 Max	D 1319	25 %
Contaminants				
Total Sulfur	PPM	30 Max	D 2622, D4294	15-20ppm
Water & Sediment	Vol %	0.05 Max	D 1796	
Ash	Wt %	0.01 Max	D 482	
Additives				
Cetane Improver	Lb/MBbl	675 Max		
Dye		Undyed		

1. Minimum release specification is 125 deg. F. The refinery should target 135 deg. F.
2. Test result reported as a number and letter (e.g. 1a). Any letter is allowable as long as the number meets the spec shown.
3. Either specification must be met.
4. Either cetane index minimum or aromatics maximum must be met.
5. Winter cloud and pour specifications may be relaxed to the summer specifications by agreement with the customer.
6. Season Table

Month	Product Code	Pour Point	Cloud Point
Jan, Feb, Nov, Dec	WI	0 max (5)	14 max (5)
Mar - Oct	SU	15 max	24 max

LEAD METAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION

Product Identity: Lead Metal

Trade Names and Synonyms: Lead; Pb; Plumbum; Metallic Lead; Inorganic Lead; ASTM B29; TADANAC Lead, Low-Alpha Lead.

Manufacturer:

Teck Metals Ltd.
Trail Operations
Trail, British Columbia
V1R 4L8
Emergency Telephone: 250-364-4214

Supplier:

In U.S.:
Teck American Metal Sales
Incorporated
501 North Riverpoint Blvd, Suite 300
Spokane, WA
USA, 99202

Other than U.S.:

Teck Metals Ltd.
#1700 – 11 King Street West
Toronto, Ontario
M5H 4C7

Preparer:

Teck Metals Ltd.
Suite 3300 – 550 Burrard Street
Vancouver, British Columbia
V6C 0B3

Date of Last Review: June 29, 2015.

Date of Last Edit: June 29, 2015.


Product Use: Used as a construction material for tank linings, piping, and equipment used in the manufacture of sulphuric acid and the refining and processing of petroleum; used in x-ray and atomic radiation shielding; used in the manufacture of paint pigments, organic and inorganic lead compounds, lead shot, lead wire for bullets, ballast, and lead solders; used as a bearing metal or alloy; used in the manufacture of storage batteries, ceramics, plastics, and electronic devices; used in the metallurgy of steel and other metals; and used in the form of lead oxide for batteries.

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION:

Health	Physical	Environmental
Acute Toxicity (Oral, Inhalation) – Does not meet criteria Skin Corrosion/Irritation – Does not meet criteria Eye Damage/Eye Irritation – Does not meet criteria Respiratory or Skin Sensitization – Does not meet criteria Mutagenicity – Does not meet criteria Carcinogenicity – Category 2 Reproductive Toxicity – Category 1A Specific Target Organ Toxicity Chronic Exposure – Category 1	Does not meet criteria for any Physical Hazard	Aquatic Toxicity – Short Term (Acute) Category 3

LABEL:

Symbols: 	Signal Word: DANGER
Hazard Statements DANGER! Causes damage to kidneys, blood-forming systems, central nervous system and digestive tract through prolonged or repeated exposure. May damage the unborn child. May cause harm to breast-fed children. Suspected of damaging fertility. Suspected of causing cancer. Harmful to aquatic life.	Precautionary Statements: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection. Do not breathe dust or fumes. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. If exposed or concerned or you feel unwell: Get medical advice/attention. Avoid release to the environment.

Emergency Overview: A bluish-white to silvery-grey, heavy, soft metal that does not burn in bulk. Finely-divided lead dust clouds are a moderate fire and explosion hazard, however. When heated strongly in air, highly toxic lead oxide fumes can be generated. Inhalation or ingestion of lead may produce both acute and chronic health effects. Possible cancer and reproductive hazard. SCBA and full protective clothing are required for fire emergency response personnel.

Potential Health Effects: Inhalation or ingestion of lead may result in headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia and leg, arm, and joint pain. Prolonged exposure may also cause central nervous system damage, hypertension, gastrointestinal disturbances, anemia, kidney dysfunction and possible reproductive effects. Pregnant women should be protected from excessive exposure in order to prevent lead crossing the placental barrier and causing infant neurological disorders. Lead and inorganic lead compounds are listed as an *A3 Carcinogen (Confirmed Animal Carcinogen with Unknown Relevance to Humans)* by the ACGIH. IARC has listed lead compounds as *Group 2A Carcinogens (Probably Carcinogenic to Humans)* while lead metal is listed as *Group 2B (Possibly Carcinogenic to Humans)*. The NTP lists lead and lead compounds as *Reasonably Anticipated to be a Human Carcinogen*. OSHA and the EU does not currently list lead as a human carcinogen (see Toxicological Information, Section 11).

Potential Environmental Effects: Lead metal has relatively low bioavailability; however, compounds which it forms with other elements can be toxic to both aquatic and terrestrial organisms at low concentrations. These compounds can be particularly toxic in the aquatic environment. Lead bioaccumulates in plants and animals in both aquatic and terrestrial environments (see Ecological Information, Section 12).

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENT	CAS Registry No.	CONCENTRATION (% wgt/wgt)
Lead	7439-92-1	99+%

Note: See Section 8 for Occupational Exposure Guidelines.

SECTION 4. FIRST AID MEASURES

Eye Contact: *Symptoms:* Eye irritation, redness. Gently brush product off face if necessary. Do not rub eye(s). Let the eye(s) water naturally for a few minutes. Look right and left, then up and down. If particle/dust does not dislodge, cautiously rinse eye(s) with lukewarm, gently flowing water for 5 minutes or until particle/dust is removed, while holding eyelid(s) open. If irritation persists, get medical advice/attention. DO NOT attempt to manually remove anything stuck to the eye.

Skin Contact: *Symptoms:* Skin soiling, mild irritation. Gently brush away excess dust. Wash gently and thoroughly with lukewarm, gently flowing water and non-abrasive soap for 5 minutes, or until product is removed. If skin irritation occurs or you feel unwell, get medical advice/attention. *Molten Metal:* Flush contact area to solidify and cool but do not attempt to remove encrusted material or clothing. Cover burns and seek medical attention immediately.

Inhalation: *Symptoms:* Respiratory irritation. Remove source of exposure or move person to fresh air and keep comfortable for breathing. Seek medical attention if you feel unwell.

Ingestion: *Symptoms:* Stomach upset. If you feel unwell or are concerned, get medical advice/attention.

SECTION 5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Massive metal is not flammable or combustible. Finely-divided lead dust or powder is a moderate fire hazard and moderate explosion hazard when dispersed in the air at high concentrations and exposed to heat, flame, or other ignition sources. Explosions may also occur upon contact with certain incompatible materials (see Stability and Reactivity, Section 10).

Extinguishing Media: Use any means of extinction appropriate for surrounding fire conditions such as water spray, carbon dioxide, dry chemical, or foam.

Fire Fighting: Do not use direct water streams on fires where molten metal is present, due to the risk of a steam explosion that could potentially eject molten metal uncontrollably. Use a fine water mist on the front-running edge of the spill and on the top of the molten metal to cool and solidify it. If possible, move solid material from fire area or cool material exposed to flame to prevent melting of the metal ingots. Highly toxic lead oxide fumes may evolve in fires. Fire fighters must be fully trained and wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup: Control source of spillage if possible to do so safely. Restrict access to the area until completion of clean-up. Clean up spilled material immediately, observing precautions outlined below. Molten metal should be allowed to solidify before cleanup. If solid metal, wear gloves, pick up and return to process. If dust, wear recommended personal protective equipment (see below) and use methods which will minimize dust generation (e.g., vacuum solids). Return uncontaminated spilled material to the process if possible. Place contaminated material in suitable labelled containers for later recovery or disposal. Treat or dispose of waste material in accordance with all local, regional, and national requirements.

Personal Precautions: Persons responding to an accidental release should wear protective clothing, gloves and a respirator (see also Section 8). Close-fitting safety goggles may be necessary in some circumstances to prevent eye contact with dust and fume. Where molten metal is involved, wear heat-resistant gloves and suitable clothing for protection from hot-metal splash as well as a respirator to protect against inhalation of lead fume. Workers should wash and change clothing following cleanup of a lead spill to prevent personal contamination with lead dust.

Environmental Precautions: Lead metal has low bioavailability; however, compounds which it forms with other elements can be toxic to aquatic and terrestrial organisms. Releases of the product to water and soil should be prevented.

SECTION 7. HANDLING AND STORAGE

Store in a DRY, covered area, separate from strong acids, other incompatible materials, active metals and food or feedstuffs. Solid metal suspected of containing moisture should be THOROUGHLY DRIED before being added to a molten bath. Otherwise, entrained moisture could expand explosively and spatter molten metal out of the bath. No special packaging materials are required. Lead metal, in contact with wood or other surfaces, may leave traces of lead particulate that can accumulate over time. Cleaning or disposal of these surfaces requires review to ensure that any effluent or solid waste disposal meets the requirements of regulations in the applicable jurisdiction.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Guidelines:

<u>Component</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>NIOSH REL</u>
Lead	0.05 mg/m ³	0.05 mg/m ³	0.05 mg/m ³

NOTE: OEGs for individual jurisdictions may differ from those given above. Check with local authorities for the applicable OEGs in your jurisdiction.

ACGIH - American Conference of Governmental Industrial Hygienists; OSHA - Occupational Safety and Health Administration; NIOSH - National Institute for Occupational Safety and Health. TLV – Threshold Limit Value, PEL – Permissible Exposure Limit, REL – Recommended Exposure Limit.

NOTE: The selection of the necessary level of engineering controls and personal protective equipment will vary depending upon the conditions of use and the potential for exposure. The following are therefore only general guidelines that may not fit all circumstances. Control measures to consider include:

Ventilation: Use adequate local or general ventilation to maintain the concentration of lead fumes in the working environment well below recommended occupational exposure limits. Supply sufficient replacement air to make up for air removed by the exhaust system. Local exhaust is recommended for melting, casting, welding, grinding, flame cutting or burning, and use of lead powders.

Protective Clothing: Gloves and coveralls or other work clothing are recommended to prevent prolonged or repeated direct skin contact when lead is processed. Appropriate eye protection should be worn where fume or dust is generated. Where hot or molten metal is handled, heat resistant gloves, goggles or face shield, and clothing to protect from radiant heat and hot metal splash should be worn. Safety type boots are recommended.

Respirators: Where lead dust or fumes are generated and cannot be controlled to within acceptable levels by engineering means, use appropriate NIOSH-approved respiratory protection equipment (a 42CFR84 Class N, R or P-100 particulate filter cartridge). When exposure levels are obviously high but the actual concentration is unknown, a self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask should be worn.

General Hygiene Considerations: Do not eat, drink or smoke in work areas. Thoroughly wash hands before eating, drinking, or smoking in appropriate, designated areas as well as at the end of the workday. A double locker-shower system with separate clean and dirty sides is usually required for lead handling operations to avoid cross-contamination of street clothes. Contaminated clothing should be changed frequently and laundered before each reuse. Inform laundry personnel of contaminants' hazards. Workers should not take dirty work clothes home and launder them with other personal clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Malleable, bluish-white to silvery-grey solid metal	Odour: None	Odour Threshold: Not Applicable	pH: Not Applicable
Vapour Pressure: (negligible @ 20°C)	Vapour Density: Not Applicable	Melting Point/Range: 328°C	Boiling Point/Range: 1,740°C
Relative Density (Water = 1): 11.34	Evaporation Rate: Not Applicable	Coefficient of Water/Oil Distribution: Not Applicable	Solubility: Insoluble in water
Flash Point: None	Flammable Limits (LEL/UEL): Not Flammable	Auto-ignition Temperature: None	Decomposition Temperature: None

SECTION 10. STABILITY AND REACTIVITY

Stability & Reactivity: Massive metal is stable and not considered reactive under normal temperatures and pressures. Hazardous polymerization or runaway reactions will not occur. Freshly cut or cast lead surfaces tarnish rapidly due to the formation of an insoluble protective layer of basic lead carbonate.

Incompatibilities: Lead reacts vigorously with strong acids (e.g., hot concentrated nitric acid, boiling concentrated hydrochloric acid, etc.), strong oxidizers such as peroxides, chlorates, nitrates and halogen or interhalogen compounds such as chlorine trifluoride. Powdered lead metal in contact with disodium acetylide, chlorine trifluoride, sodium carbide or fused ammonium nitrate poses a risk of explosion. Solutions of sodium azide in contact with lead metal can form lead azide, which is a detonating compound. Vigorous reactions can also occur between molten lead and active metals, such as sodium, potassium, lithium and calcium. A lead-zirconium alloy (10-70% Zr) will ignite when struck with a hammer.

Hazardous Decomposition Products: High temperature operations such as oxy-acetylene cutting or burning, electric arc welding or overheating a molten bath will generate highly toxic lead oxide fume. Lead oxide is highly soluble in body fluids and the particle size of the metal fumes is largely within the respirable size range, which increases the likelihood of inhalation and deposition of the fume within the body.

SECTION 11. TOXICOLOGICAL INFORMATION

General: Lead accumulates in bone and body organs once it enters the body. Elimination from the body is slow. Initial and periodic medical examinations are advised for persons repeatedly exposed to levels at or above the exposure limits of lead dust or fumes. Once lead enters the body, it can affect a variety of organ systems, including the nervous system, kidneys, reproductive system, blood formation, and gastrointestinal system. The primary routes of exposure to lead are inhalation or ingestion of dust and fumes.

Acute:

Skin/Eye: Contact with dust or fume may cause local irritation but would not cause tissue damage.

Inhalation: Exposure to lead dust or fume may cause headache, nausea, vomiting, abdominal spasms, fatigue, sleep disturbances, weight loss, anemia, and pain in legs, arms, and joints. An intense, short-term exposure to lead could cause acute encephalopathy with seizures, coma, and death. However, short-term exposures of this magnitude are unlikely in industry today. Kidney damage, as well as anemia, can occur from acute exposure.

Ingestion: Symptoms due to ingestion of lead dust or fume would be similar to those from inhalation. Other health effects such as metallic taste in the mouth and constipation or bloody diarrhea might also occur.

Chronic:

Prolonged exposure to lead dust and fume may produce many of the symptoms of short-term exposure and may also cause central nervous system damage, gastrointestinal disturbances, anemia, and, rarely, wrist drop. Reduced hemoglobin production has been associated with low lead exposures. Symptoms of central nervous system damage due to moderate lead exposure include fatigue, headaches, tremors and hypertension. Very high lead exposure can result in lead encephalopathy with symptoms of hallucinations, convulsions, and delirium. Kidney dysfunction and possible injury has also been associated with chronic lead poisoning. Chronic over-exposure to lead has been implicated as a causative agent for the impairment of male and female reproductive capacity. Pregnant women should be protected from excessive exposure as lead can cross the placental barrier and unborn children may suffer neurological damage or developmental problems due to excessive lead exposure. Teratogenic and mutagenic effects from exposure to lead have been reported in some studies but not in others. The literature is inconsistent and no firm conclusions can be drawn at this time. Lead and lead compounds are listed as an *A3 Carcinogen (Confirmed Animal Carcinogen with Unknown Relevance to Humans)* by the ACGIH. IARC has listed lead compounds as *Group 2A Carcinogens (Probably Carcinogenic to Humans)* while lead metal is listed as *Group 2B (Possibly Carcinogenic to Humans)*. The NTP lists lead and lead compounds as *Reasonably Anticipated to be a Human Carcinogen*. OSHA and the EU do not currently list lead as a human carcinogen.

Animal Toxicity:

<u>Hazardous Ingredient:</u>	<u>Acute Oral Toxicity:</u>	<u>Acute Dermal Toxicity:</u>	<u>Acute Inhalation Toxicity:</u>
Lead	No Data	No Data	No Data

SECTION 12. ECOLOGICAL INFORMATION

While lead metal is relatively insoluble, its processing or extended exposure in aquatic and terrestrial environments may lead to the release of lead compounds in more bioavailable forms. While lead compounds are not particularly mobile in the aquatic environment, they can be toxic to aquatic organisms, especially fish, at low concentrations. Water hardness, pH and dissolved organic carbon content are three major factors which regulate the degree of lead toxicity. Lead in soil is generally neither very mobile nor bioavailable, as it can become strongly sorbed onto soil particles, increasingly so over time, to a degree related to physical properties of the soil. Lead bioaccumulates in plants and animals in both aquatic and terrestrial environments.

SECTION 13. DISPOSAL CONSIDERATIONS

If material cannot be returned to process or salvage, dispose of in accordance with applicable regulations.

SECTION 14. TRANSPORT INFORMATION

PROPER SHIPPING NAME Not a regulated product in ingot form.
TRANSPORT CANADA AND U.S. DOT CLASSIFICATION Not Applicable

TRANSPORT CANADA AND U.S. DOT PIN Not Applicable
MARINE POLLUTANT No
IMO CLASSIFICATION Not Regulated

SECTION 15. REGULATORY INFORMATION

U.S.

Ingredient Listed on TSCA Inventory Yes

Hazardous Under Hazard Communication Standard Yes

CERCLA Section 103 Hazardous Substances Lead RQ: 10 lbs. (4.54 kg.)*
*reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers (0.004 inches).

EPCRA Section 302 Extremely Hazardous Substance No

EPCRA Section 311/312 Hazard Categories Delayed (chronic) health hazard - Carcinogen
Delayed (chronic) health hazard – Reproductive toxin

EPCRA Section 313 Toxic Release Inventory Lead CAS No. 7439-92-1
Percent by Weight - At least 99%

SECTION 16. OTHER INFORMATION

Date of Original Issue: July 23, 1997 **Version:** 01 (*First edition*)

Date of Latest Revision: June 29, 2015 **Version:** 13

The information in this Safety Data Sheet is based on the following references:

- American Conference of Governmental Industrial Hygienists, 2004, Documentation of the Threshold Limit Values and Biological Exposure Indices, Seventh Edition plus updates.
- American Conference of Governmental Industrial Hygienists, 2015, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
- American Conference of Governmental Industrial Hygienists, Guide to Occupational Exposure Values – 2015.
- Bretherick's Handbook of Reactive Chemical Hazards, 20th Anniversary Edition. (P. G. Urben, Ed), 1995.
- Canadian Centre for Occupational Health and Safety, Hamilton, ON, CHEMINFO Record No. 608 - Lead (Rev. 2009-05).
- European Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (REACH).
- Health Canada, SOR/2015-17, Hazardous Products Regulations, 30 January 2015.
- International Agency for Research on Cancer (IARC), Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, 1972 – present, (multi-volume work), World Health Organization, Geneva.
- International Chemical Safety Cards (WHO/IPCS/ILO), ICSC:0052 - Lead.
- Merck & Co., Inc., 2001, The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals, Thirteenth Edition.
- National Library of Medicine, National Toxicology Information Program, Hazardous Substance Data Bank (online version).
- Patty's Toxicology, Fifth Edition, 2001: E. Bingham, B. Cohrssen & C.H. Powell, Ed.
- U.S. Dept. of Health and Human Services, National Institute of Environmental Health Sciences, National Toxicology Program (NTP), 13th Report on Carcinogens, October 2014.
- U.S. Dept. of Health and Human Services, National Institute for Occupational Safety and Health, NIOSH Pocket Guide to Chemical Hazards, on-line edition.
- U.S. Dept. of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Toxicological Profile for Lead, September 2005.
- U.S. Occupational Safety and Health Administration, 1989, Code of Federal Regulations, Title 29, Part 1910.

Notice to Reader

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. Teck American Metal Sales Incorporated and Teck Metals Ltd. extend no warranty and assume no responsibility for the accuracy of the content and expressly disclaim all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling and processing of this product; it does not and cannot advise on all possible situations. Therefore, your specific use of this product should be evaluated to determine if additional precautions are required. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

Appendix G: Village Ordinance

VILLAGE OF ESSEX JUNCTION**MUNICIPAL CODE****CHAPTER _____****ORDINANCE REGULATING EARTH WORK WITHIN THE CRESCENT CONNECTOR****RIGHT-OF-WAY**

PURPOSE: The Crescent Connector Right-of-Way is located within or adjacent to railroad property which has been in rail use for over 150 years. Testing on the site has identified concentrations of polycyclic aromatic hydrocarbons (PAHs) and the metals arsenic, antimony, lead, and mercury in excess of US EPA Region Screening Levels. These conditions are believed to be attributed to former coal-burning emissions and maintenance associated with the railroad. As such, this Ordinance sets standards and conditions for any earth work activities within the Crescent Connector Right-of-Way.

SECTION 1: DEFINITIONS.

The following words and terms, when used in this Ordinance, shall for the purpose of this Ordinance, have the following meanings ascribed to them:

A. Earth Work – any activity which may result in the risk of exposure to contaminated soil, including but not limited to excavation, grading, resurfacing where the soil is exposed.

B. Corrective Action Plan – The Corrective Action Plan (“CAP”) prepared by Stone Environmental Inc. for the Crescent Connector Roadway Project, SMS Number: 2012-4263, as revised March 15, 2017. A copy of which is on file at the Village office and the VT Department of Environmental Conservation (VT DEC).

C. Crescent Connector Right-of-Way – the permanent Right-of-Way established and on file in the Land Records for the Crescent Connector starting at its intersection with Park Street and continuing along its entire length to its intersection with Main Street, including the properties leased from the railroad.

SECTION 2: ADMINISTRATION AND ENFORCEMENT.

The Village Manager or Agent shall be responsible for the administration of this Ordinance and shall have the authority to enforce compliance through the use of civil and criminal penalties as authorized by this Ordinance. Further, compliance with State and Federal regulations pertaining to the exposure,

transport, or disposal of contaminated soils shall apply and be enforceable by such State or Federal authorities having jurisdiction. Federal and or State authorities retain the right to inspect and or oversee compliance with applicable codes and standards.

SECTION 3: RIGHT-OF-WAY PROPERTY

- A. Any Earth Work proposed within the Crescent Connector Right-of-Way requires the approval of the Village Manager or Authorized Agent and notification to the VT DEC, Sites Management Section. The Village Manager or Agent shall approve the Earth Work if it is in compliance with the CAP, notice is provided to the Vermont DEC and conforms with best practices. The Village Manager may rely on a qualified environmental professional to determine compliance with the CAP. Any applicant seeking approval under this Ordinance may be assessed the costs expended by Village for the qualified environmental professional's review of the proposed Earth Work.
- B. Earth work that disturbs contaminated soils shall be performed in Level D or Modified Level D personal protective equipment by workers trained and medically monitored in accordance with the OSHA HAZWOPER regulations (29 CFR 1910.120 or as revised modified).
- C. Engineered barriers installed to prevent exposure to contaminated soils (including concrete caps such as sidewalks; asphalt, concrete and aggregate caps such as parking lots or roadways; or soil or geotextile fabric caps in green spaces) shall be monitored and maintained pursuant to Section 6.9 of the CAP (or as modified or revised) in perpetuity to ensure their integrity and functionality as designed.
- D. In addition to any other conditions, obligations or requirements, any earth work conducted within the Crescent Connector Right-of-Way shall adhere to the conditions and requirements stipulated with the Corrective Action Plan.
- E. The Contractor or entity performing the earth work, unless otherwise stipulated by the Village Manager or Agent under a written agreement, is responsible for obtaining the necessary approval and all cost associated with complying with all applicable provisions of the Corrective Action Plan or other State or Federal regulations pertaining to the exposure, handling, transporting and or disposal of contaminated soils.

SECTION 4: EQUITABLE REMEDIES.

In addition to the penalty provided in the Ordinance, the Village Manager or Agent may initiate injunction, mandamus, abatement, or any other appropriate action to remediate, remove or prevent further violation of any of the provisions of this Ordinance. Any and all costs for such actions are the sole responsibility of the party responsible for the violation. This Ordinance in no way removes or exempts the parties from compliance with applicable State or Federal regulations or the fines or penalties which may be imposed by such agencies.

SECTION 5: PENALTY.

In addition to Section 4 of this Ordinance, a violation of any provision of this Ordinance shall be punishable by a fine of up to \$500 per day, per violation until the unlawful condition is abated, corrected or removed.

SECTION 6: SEVERABILITY.

If any section of this Ordinance is held by a court of competent jurisdiction to be invalid, such finding shall not invalidate any other provisions of the Ordinance.

SECTION 7: APPEAL OF NOTICE OF VIOLATION PENALTY.

A person or entity aggrieved by a revocation, suspension or penalty pursuant to this Ordinance may appeal to the Ordinance Appeal Board as outlined in the Trustees' Policy regarding the Ordinance Appeal Board. An appeal of this Ordinance in no way voids or stays any other action of another entity such as the State or Federal authority that may have jurisdiction under a separate State or Federal regulation or action.

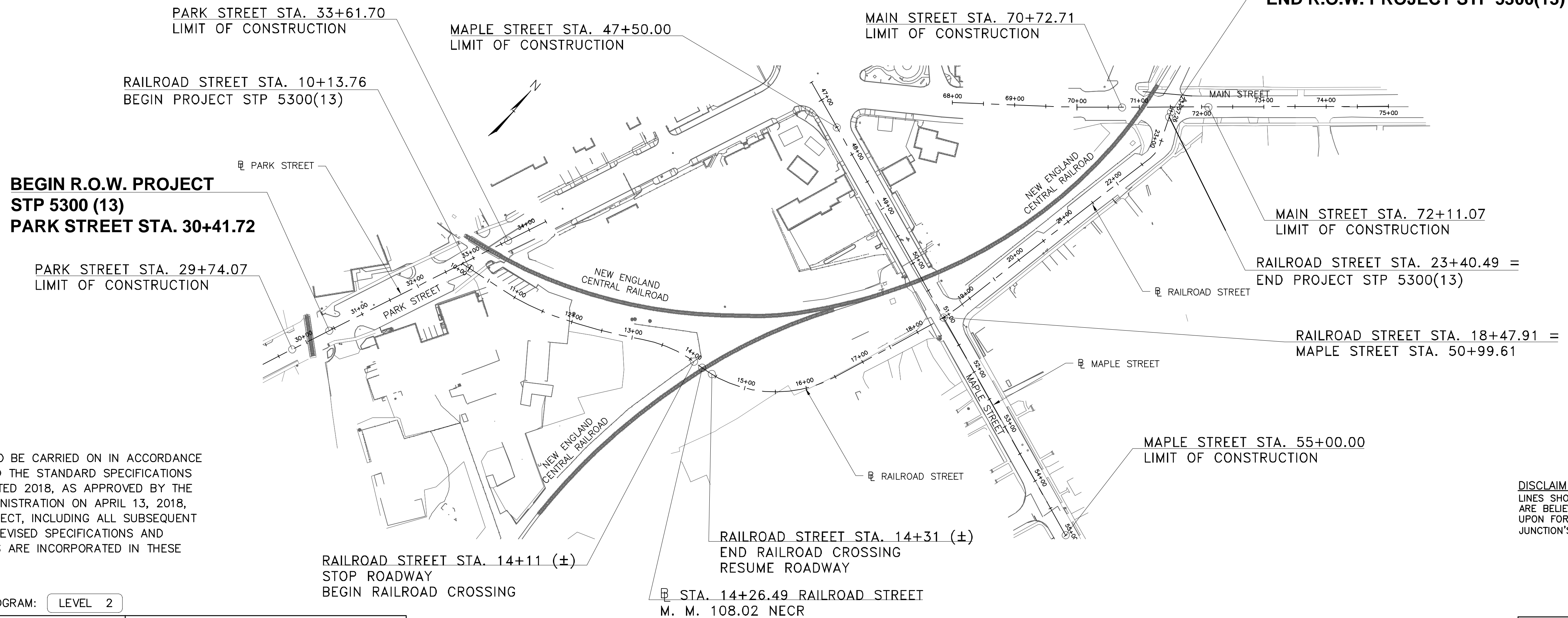
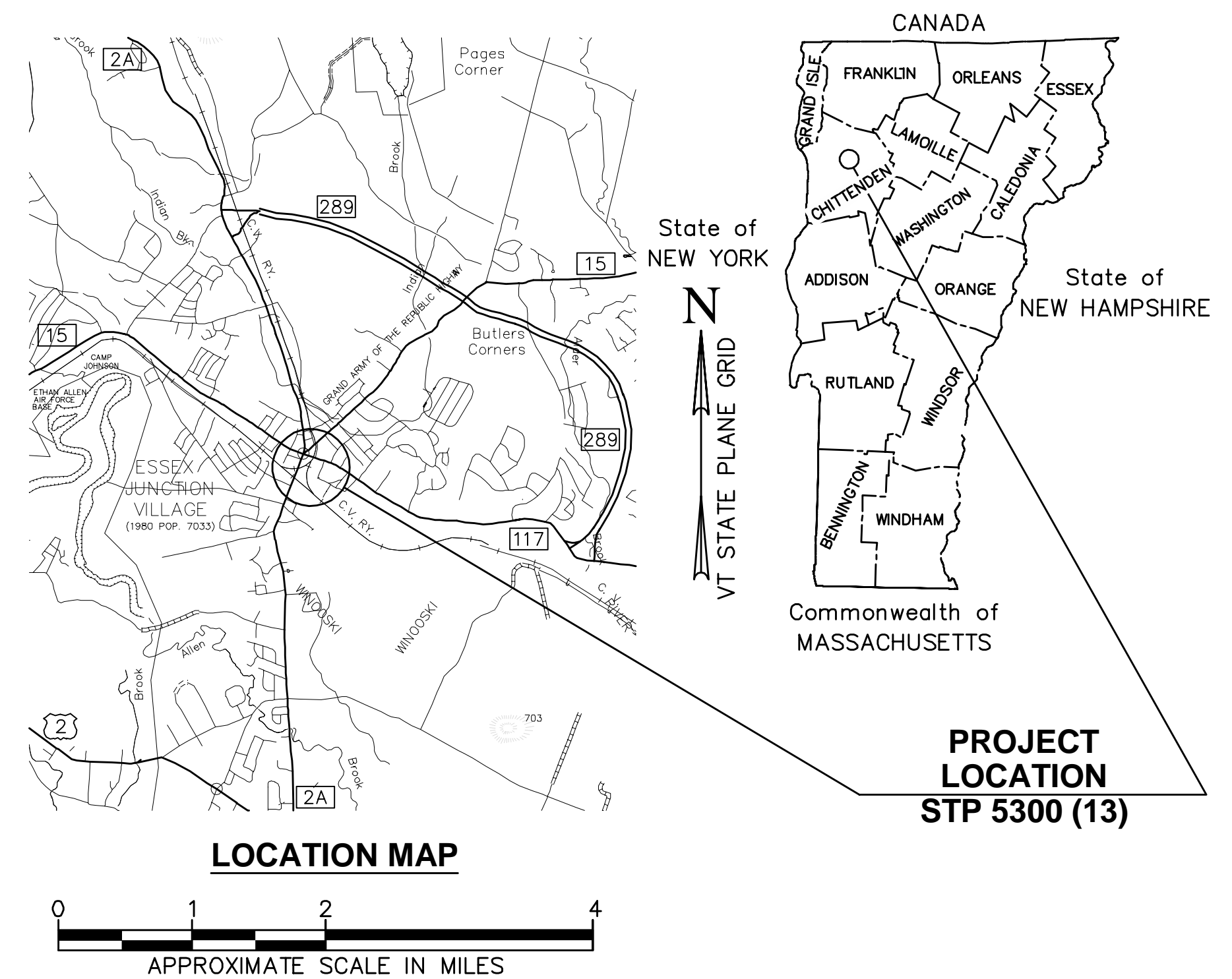
INDEX OF SHEETS:

1	R.O.W. TITLE SHEET
2-5	R.O.W. DETAIL SHEETS
6-12	R.O.W. LAYOUT SHEETS

PROPOSED IMPROVEMENT
VILLAGE OF ESSEX JUNCTION
COUNTY OF CHITTENDEN
STP 5300 (13)
CRESCENT CONNECTOR

PROJECT LOCATION BEGINNING AT A POINT ON PARK STREET APPROXIMATELY 875 FEET SOUTH OF THE "FIVE CORNERS" INTERSECTION, THEN EXTENDING NORTH ALONG PARK STREET TO THE NEW ENGLAND CENTRAL RAILROAD (NECR) BURLINGTON BRANCH; ALONG THE EAST SIDE OF NECR'S BURLINGTON BRANCH AND CROSSING NECR'S MAIN LINE; CONTINUING NORTH ACROSS MAPLE STREET; AND THEN ALONG THE EXISTING ALIGNMENT OF RAILROAD STREET TO THE INTERSECTION OF MAIN STREET.

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS CONTRACT INCLUDES THE CONSTRUCTION OF A NEW ROADWAY (RAILROAD STREET) ON A NEW ALIGNMENT; ADDITION OF TURNING LANES ON PARK STREET AND MAPLE STREET; RECONSTRUCTION OF RAILROAD STREET; INSTALLATION OF TRAFFIC SIGNALS AND RAILROAD SIGNALS; AND INSTALLATION OF CONCRETE SIDEWALKS, GRANITE CURBS, STREET LIGHTS, DRAINAGE IMPROVEMENTS, PAVEMENT MARKINGS, AND SIGNS.



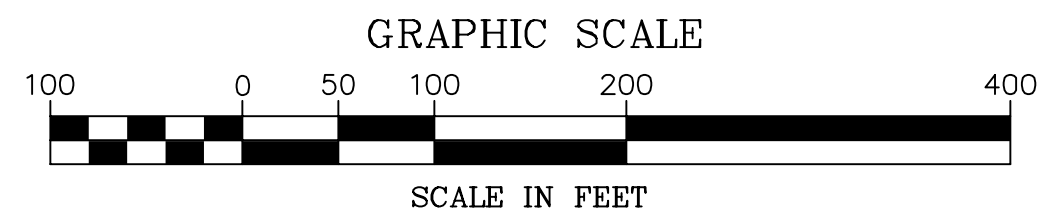
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON APRIL 13, 2018, FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS

QUALITY ASSURANCE PROGRAM: LEVEL 2

SURVEYED BY: DUBOIS & KING, INC. IN 2012

DATUM

VERTICAL : NAVD 83 (GEOID 12A)
HORIZONTAL : NAVD 83 (2011) EPOCH 2010.0



PLOTTED Mar 15, 2021

DISCLAIMER
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE VILLAGE OF ESSEX JUNCTION'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

FINAL R.O.W. PLANS
MARCH 2021

VILLAGE OF ESSEX JUNCTION

APPROVED _____ DATE _____












PROJECT NAME : CRESCENT CONNECTOR
PROJECT NUMBER : STP 5300 (13)

SHEET 1 OF 12 SHEETS

RIGHT - OF - WAY DETAIL SHEET 1

TABLE OF PROPERTY ACQUISITION															
PARCEL NO.	PROPERTY OWNER	R.O.W. LAYOUT NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1	CV PROPERTIES INCORPORATED	1,2,3,3A,6	RRS 10+38.23 LT	RRS 13+43.94 LT	0.03 ac										1174.96 sf, LABELLED 1-X
			RRS 10+46.31 LT	PS 33+70.26 RT				CONST. & MAINTEN.	SP	670.14 sf					LABELED 1-Xa
			RRS 13+71.32 RT	RRS 18+24.54 RT	0.68 ac										29583.86 sf, LABELLED 1-Y
			RRS 17+99.33 LT	RRS 18+22.72 LT				CONST. & MAINTEN.	SP	1110.30 sf					LABELED 1-Ya
			MS 50+47.18 LT	RRS 23+29.14 LT	0.25 ac										10895.36 sf, LABELLED 1-Z
			RRS 22+96.48 LT	RRS 23+13.24 LT				CONST. & MAINTEN.	SP	84.59 sf					LABELED 1-Za
			RRS 10+74.99 LT	RRS 13+76.43 LT				SLOPE	(T)	2335.24					
			RRS 10+75.00 LT	RRS 13+80.10 LT				CONSTRUCTION	(T)	1230.67 sf					DELINEATE WITH 6'-0" TEMPORARY CHAIN-LINK FENCE.
			RRS 13+63.21 RT	RRS 13+87.16 RT				CONSTRUCTION	(T)	119.67 sf					DELINEATE WITH 6'-0" TEMPORARY CHAIN-LINK FENCE.
			RRS 14+22.02 RT	RRS 14+85.01 RT				CONSTRUCTION	(T)	1726.04 sf					DELINEATE WITH 6'-0" TEMPORARY CHAIN-LINK OR PDF FENCE.
			RRS 14+62.52 RT	RRS 15+00.75 RT				SLOPE	(T)	679.44 sf					
			RRS 14+68.04 LT	RRS 18+04.31 LT				CONSTRUCTION	(T)	5241.35 sf					DELINEATE WITH 6'-0" TEMPORARY CHAIN-LINK FENCE.
			RRS 15+29.75 LT	RRS 17+01.78 LT				SLOPE	(T)	416.29 sf					
			RRS 18+03.54 LT	RRS 18+21.82 LT				SIGNAL	(P)	1030.77 sf					
			RRS 21+38.81 LT	RRS 22+98.48 LT				CONSTRUCTION	(T)	578.19 sf					DELINEATE WITH 6'-0" TEMPORARY CHAIN-LINK FENCE.
			RRS 21+47.82 LT	RRS 21+80.08 LT				SLOPE	(T)	33.21 sf					
			RRS 21+90.75 LT	RRS 21+97.16 LT				SLOPE	(T)	2.97 sf					
			RRS 22+52.53 LT	RRS 22+98.48 LT				SLOPE	(T)	66.99 sf					

[illegible]

PLAN LEGEND	
	EXISTING RIGHT-OF-WAY
	TAKING WITH ACCESS
	TAKING WITHOUT ACCESS
	CLEAR ZONE
	PROPERTY LINE
	TOE OF SLOPE
	TOP OF CUT
	SLOPE RIGHT
	CONSTRUCTION RIGHT
	PROJECT DEMARCATION FENCE
	TREE PROTECTION ZONE

SP	-SPECIAL PERMANENT
EC	-EROSION CONTROL
(P)	-PERMANENT
(T)	-TEMPORARY
DR.	-DRAINAGE RIGHT
DIT.	-DITCHING RIGHT
CH.	-CHANNEL RIGHT
DRIVE	-DRIVE RIGHT
CUL.	-CULVERT RIGHT
C&T	-CLEARING & TRIMMING RIGHT
SR	-SLOPE RIGHT
UE	-UTILITY EASEMENT

MS = MAPLE STREET ALIGNMENT
MNS = MAIN STREET ALIGNMENT
PS = PARK STREET ALIGNMENT
RRS = RAILROAD STREET ALIGNMENT

PLOT DATE 09/30/19

PROJECT NAME: CRESCENT CONNECTOR	
PROJECT NUMBER: STP 5300 (13)	
FILE NAME: 621803-ROW	PLOT DATE:
PROJECT LEADER: JKB	DRAWN BY: OID
DESIGNED BY: SAS	CHECKED BY: JDM
R.O.W. DETAIL SHEET #1	SHEET 1 OF 4

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VILLAGE OF
ESSEX JUNCTION
2 LINCOLN STREET
ESSEX JUNCTION,
VT 05452

CRESCENT
CONNECTOR
STP 5300 (13)

ESSEX JUNCTION

SHEET TITLE	
R.O.W. DETAIL	
SHEET 1	

DRAWN BY EBS	DATE MAR. 2021
CHECKED BY KAR	D&K PROJECT # 621803
PROJ. ENG. BMB	D&K ARCHIVE #

SHEET NUMBER
2
SHEET 2 OF 12

C:\6\621803\F1 Crescent Connector\DESIGN\CADD FILES\ROW\621803-ROW - DET.dwg 3/15/2021 1:56 PM

RIGHT - OF - WAY DETAIL SHEET 2

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	R.O.W. LAYOUT NO.	BEGINNING STATION	ENDING STATION	TAKE AREA±	REMAINDER AREA±	RIGHT			RECORDING DATA					REMARKS
							TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
2	MCEWING PROPERTIES, LLC.	1,2,3	PS 30+41.95 RT	PS 31+74.24 RT			CONSTRUCTION	(T)	1464.62 sf						INCL. TPZ
			PS 31+74.24 RT	PS 32+05.60 RT			DRIVE	(T)	632.55 sf						
			PS 32+05.60 RT	RRS 10+32.82 RT			CONSTRUCTION	(T)	187.91 sf						
			PS 32+64.84 RT	RRS 14+36.97 LT			HIGHWAY	(P)	0.42 ac						18176.12 sf
			RRS 10+27.61 RT	RRS 10+41.56 RT			SIGNAL	(P)	55.13 sf						
			RRS 10+43.45 RT	RRS 10+47.49 RT			LIGHTING	(P)	3.22 sf						
			RRS 10+44.36 RT	RRS 11+89.83 RT			CONSTRUCTION	(T)	1517.16 sf						
			RRS 10+55.99 RT	RRS 11+90.16 RT			SLOPE	(T)	2413.35 sf						
			RRS 11+02.43 RT	RRS 11+07.16 RT			LIGHTING	(P)	6.56 sf						
			RRS 11+77.74 RT	RRS 11+82.60 RT			LIGHTING	(P)	6.38 sf						
			RRS 11+89.83 RT	RRS 12+13.16 RT			DRIVE	(T)	1032.70 sf						
			RRS 12+12.61 RT	RRS 13+85.90 RT			SLOPE	(T)	3977.18 sf						
			RRS 12+13.16 RT	RRS 13+71.31 RT			CONSTRUCTION	(T)	1504.43 sf						
			RRS 12+47.22 RT	RRS 12+52.09 RT			LIGHTING	(P)	5.87 sf						
			RRS 13+14.68 RT	RRS 13+20.08 RT			LIGHTING	(P)	7.87 sf						
3	KALANGES, WILLIAM C.	3	RRS 14+51.35 RT	RRS 15+43.19 RT			DRIVE	(P)	3988.25 sf						
			RRS 15+39.46 RT	RRS 16+66.33 RT			HIGHWAY	(P)	2679.44 sf						
			RRS 15+42.32 RT	RRS 16+66.42 RT			SLOPE	(T)	781.60 sf						INCL. WATER LINE, DRIVE AND CONDUITS
			RRS 15+41.85 RT	RRS 16+66.60 RT			CONSTRUCTION	(T)	1720.80 sf						INCL. WATER LINE AND CONDUITS
			RRS 15+49.98 RT	RRS 15+54.43 RT			LIGHTING	(P)	9.10 sf						
			RRS 16+14.60 RT	RRS 16+19.05 RT			LIGHTING	(P)	7.21 sf						
4	LAND-MARK ARCHITECTURALS LLC	3,3A,4	RRS 16+65.86 RT	MS 52+86.85 RT			HIGHWAY	(P)	3658.37 sf						
			RRS 16+66.35 RT	RRS 16+73.57 RT			SLOPE	(T)	37.95 sf						
			RRS 16+66.40 RT	RRS 16+95.52 RT			CONSTRUCTION	(T)	71.53 sf						
			RRS 16+88.56 RT	RRS 16+95.53 RT			SLOPE	(T)	7.80 sf						
			RRS 16+88.96 RT	RRS 16+93.92 RT			LIGHTING	(P)	7.01 sf						
			RRS 17+32.14 RT	MS 52+03.24 RT			CONSTRUCTION	(T)	1410.46 sf						INCL. TPZ
			RRS 17+51.79 RT	RRS 17+76.37 RT			SLOPE	(T)	27.07 sf						
			RRS 17+57.51 RT	MS 52+02.18 RT			INSTALL	(T)	-						4'-0" WHITE VINYL PICKET FENCE
			RRS 17+73.73 RT	RRS 17+78.75 RT			LIGHTING	(P)	6.38 sf						
			RRS 17+87.75 RT	RRS 17+98.15 RT			SLOPE	(T)	25.58 sf						
			RRS 17+97.93 RT	RRS 18+20.21 RT			SIGNAL	(P)	169.70 sf						
			RRS 18+11.20 RT	RRS 18+15.61 RT			SLOPE	(T)	16.94 sf						
			MS 51+44.99 RT	MS 51+51.07 RT			LIGHTING	(P)	27.60 sf						
			MS 51+49.85 RT	MS 51+97.35 RT			SLOPE	(T)	154.56 sf						
			MS 51+97.35 RT	MS 52+02.37 RT			LIGHTING	(P)	27.25 sf						
			MS 52+03.32 RT	MS 52+18.98 RT			DRIVE	(T)	50.74 sf						

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE
1	8	ADDED WATER SERVICE AT STA 15+96 RT ADDED DRIVE AT STA 16+38 RT ADDED CONDUIT AT STA 16+64 RT	03/15/21
2	8	ADDED WATER SERVICE AT STA 15+96 RT ADDED CONDUIT AT STA 16+38 RT	03/15/21
3	8	REVISED LOCATION	03/15/21
4	8	REVISED LOCATION	03/15/21

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							CK'D
							BY
							DESCRIPTION
							DATE
							NO.
VILLAGE OF ESSEX JUNCTION 2 LINCOLN STREET ESSEX JUNCTION, VT 05452							
CRESCENT CONNECTOR STP 5300 (13) ESSEX JUNCTION							
SHEET TITLE							
R.O.W. DETAIL SHEET 2							
DRAWN BY EBS	DATE MAR. 2021						
CHECKED BY KAR	D&K PROJECT # 621803						
PROJ. ENG. BMB	D&K ARCHIVE #						
SHEET NUMBER							
3							
SHEET 3 OF 12							

PLAN LEGEND

EXISTING RIGHT-OF-WAY

TAKING WITH ACCESS

TAKING WITHOUT ACCESS

CLEAR ZONE

PROPERTY LINE

TOE OF SLOPE

TOP OF CUT

SLOPE RIGHT

CONSTRUCTION RIGHT

PROJECT DEMARCATION FENCE

TREE PROTECTION ZONE

SP
EC
(P)
(T)
DR.
DIT.
CH.
DRIVE
CUL.
C&T
SR
UE

-SPECIAL PERMANENT
-EROSION CONTROL
-PERMANENT
-TEMPORARY
-DRAINAGE RIGHT
-DITCHING RIGHT
-CHANNEL RIGHT
-DRIVE RIGHT
-CULVERT RIGHT
-CLEARING & TRIMMING RIGHT
-SLOPE RIGHT
-UTILITY EASEMENT

MS = MAPLE STREET ALIGNMENT
MNS = MAIN STREET ALIGNMENT
PS = PARK STREET ALIGNMENT
RRS = RAILROAD STREET ALIGNMENT

PLOT DATE 03/15/21

PROJECT NAME: CRESCENT CONNECTOR

PROJECT NUMBER: STP 5300 (13)

FILE NAME: 621803-ROW

PROJECT LEADER: JKB

DESIGNED BY: SAS

R.O.W. DETAIL SHEET #2

PLOT DATE:

DRAWN BY: OID

CHECKED BY: JDM

SHEET 2 OF 4

RIGHT - OF - WAY DETAIL SHEET 3															
TABLE OF PROPERTY ACQUISITION															
PARCEL NO.	PROPERTY OWNER	R.O.W. LAYOUT NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
4	LAND-MARK ARCHITECTURALS LLC (CONTINUED)	3,3A,4	MS 52+03.27 RT	MS 52+03.58 RT			SLOPE	(T)	3.25 sf						
			MS 52+18.94 RT	MS 52+69.11 RT			SLOPE	(T)	129.26 sf						
			MS 52+18.94 RT	MS 52+69.53 RT			CONSTRUCTION	(T)	563.48 sf						INCL. TPZ
			MS 52+68.94 RT	MS 52+82.55 RT			DRIVE	(T)	55.49 sf						
			MS 52+82.52 RT	MS 52+86.85 RT			SLOPE	(T)	10.21 sf						
			MS 52+82.52 RT	MS 52+86.61 RT			CONSTRUCTION	(T)	49.90 sf						
5	KAYNOR, DONNA M. GODBERSEN, GARY ROBERT	4	MS 52+86.81 RT	MS 53+80.01 RT			SLOPE	(T)	223.14 sf						
			MS 53+79.99 RT	MS 53+85.05 RT			LIGHTING	(P)	20.21 sf						
			MS 53+85.02 RT	MS 54+13.16 RT			SLOPE	(T)	49.54 sf						INCL. TPZ
6	PARRELLA, ALFRED L. BILLADO, DEBORAH A.	4	MS 54+16.58 LT	MS 54+18.37 LT			LIGHTING	(P)	6.78 sf						
			MS 54+16.59 LT	MS 54+30.44 LT			CONSTRUCTION	(T)	34.17 sf						
			MS 54+18.37 LT	MS 54+30.44 LT			SLOPE	(T)	11.73 sf						
7	PARRELLA, ALFRED L. BILLADO, DEBORAH A.	4	MS 53+23.93 LT	MS 54+16.59 LT			HIGHWAY	(P)	181.25 sf						
			MS 53+24.09 LT	MS 53+90.77 LT			SLOPE	(T)	207.77 sf						
			MS 53+24.25 LT	MS 53+88.51 LT			INSTALL	(T)	-						4'-0" BLACK ORNAMENTAL FENCE WITH GATE
			MS 53+24.32 LT	MS 53+90.77 LT			CONSTRUCTION	(T)	438.92 sf						
			MS 53+33.27 LT	MS 53+38.29 LT			LIGHTING	(P)	8.26 sf						
			MS 53+72.24 LT	MS 53+76.22 LT			REMOVE	(T)	-						CONCRETE SIDEWALK
			MS 53+89.72 LT	MS 54+02.15 LT			DRIVE	(T)	58.31 sf						
			MS 54+02.18 LT	MS 54+16.57 LT			CONSTRUCTION	(T)	77.88 sf						
			MS 54+03.47 LT	MS 54+16.59 LT			INSTALL	(T)	-						4'-0" BLACK ORNAMENTAL FENCE
			MS 54+13.35 LT	MS 54+16.59 LT			LIGHTING	(P)	0.79 sf						
8	PARENT, RICHARD L. PARENT, JENNIFER E.	4	MS 52+56.48 LT	MS 53+24.09 LT			HIGHWAY	(P)	132.75 sf						
			MS 52+56.51 LT	MS 52+59.84 LT			SLOPE	(T)	14.01 sf						
			MS 52+56.68 LT	MS 52+60.36 LT			CONSTRUCTION	(T)	20.00 sf						
			MS 52+59.10 LT	MS 52+74.71 LT			DRIVE	(T)	91.13 sf						
			MS 52+74.55 LT	MS 53+24.28 LT			SLOPE	(T)	219.55 sf						
			MS 52+74.55 LT	MS 53+24.28 LT			CONSTRUCTION	(T)	262.62 sf						
9	SIXTEEN MAPLE STREET LLC	3,3A,4,6	RRS 18+85.87 RT	MS 51+84.27 LT			SLOPE	(T)	246.79 sf						
			RRS 18+69.72 RT	RRS 18+88.95 RT			SIGNAL	(P)	283.58 sf						
			RRS 18+88.95 RT	MS 51+48.41 LT			HIGHWAY	(P)	126.02 sf						

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VILLAGE OF
ESSEX JUNCTION
2 LINCOLN STREET
ESSEX JUNCTION,
VT 05452

CRESCENT
CONNECTOR
STP 5300 (13)

ESSEX JUNCTION

SHEET TITLE

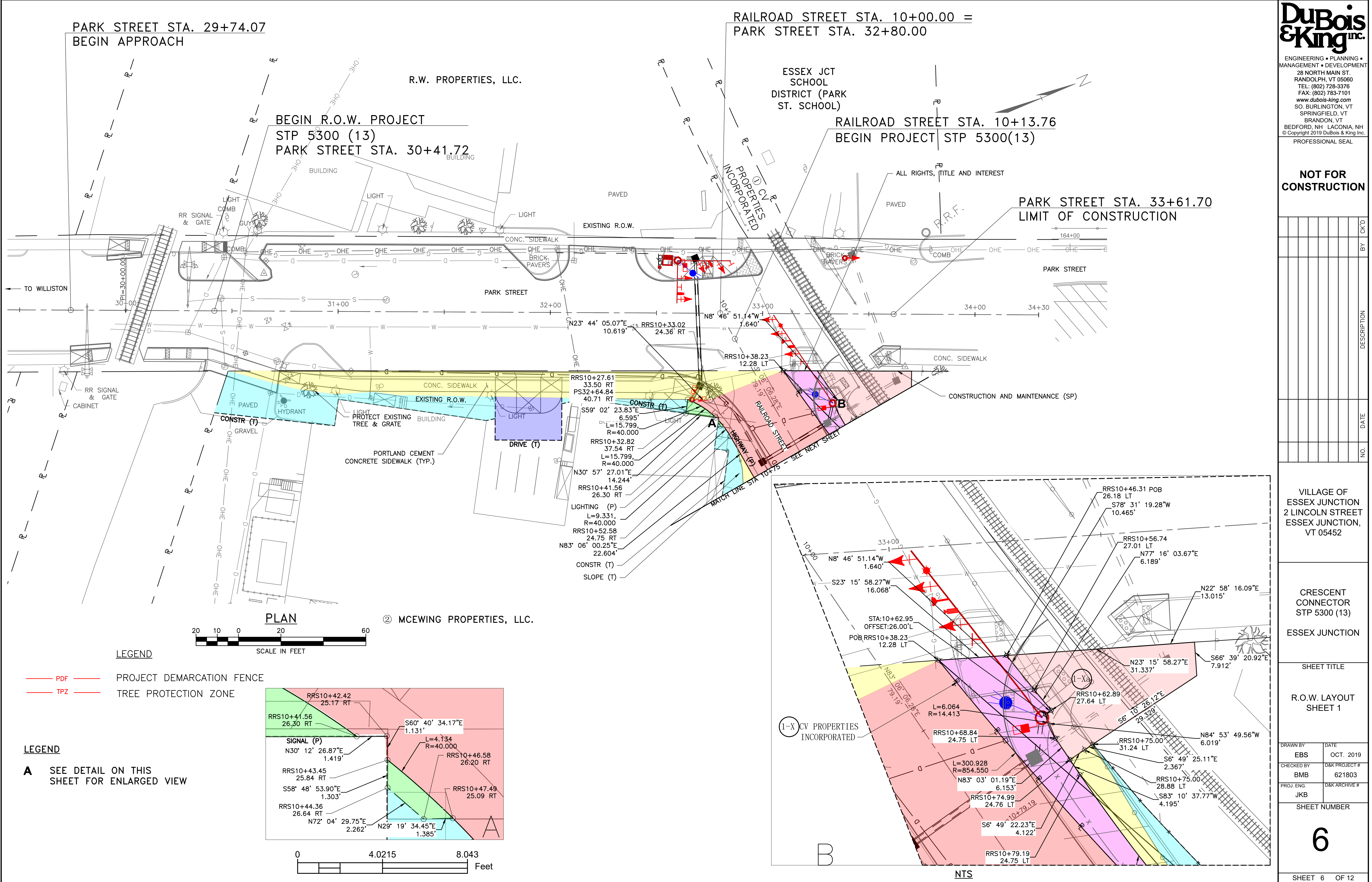
R.O.W. DETAIL
SHEET 4

DRAWN BY EBS	DATE MAR. 2021
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PROJ. ENG. BMB	D&K ARCHIVE #

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5

SHEET 5 OF 12



BEGIN R.O.W. PROJECT
STP 5300 (13)
PARK STREET STA. 30+41.72

RAILROAD STREET STA. 10+00.00 =
PARK STREET STA. 32+80.00

RAILROAD STREET STA. 10+13.76
BEGIN PROJECT STP 5300(13)

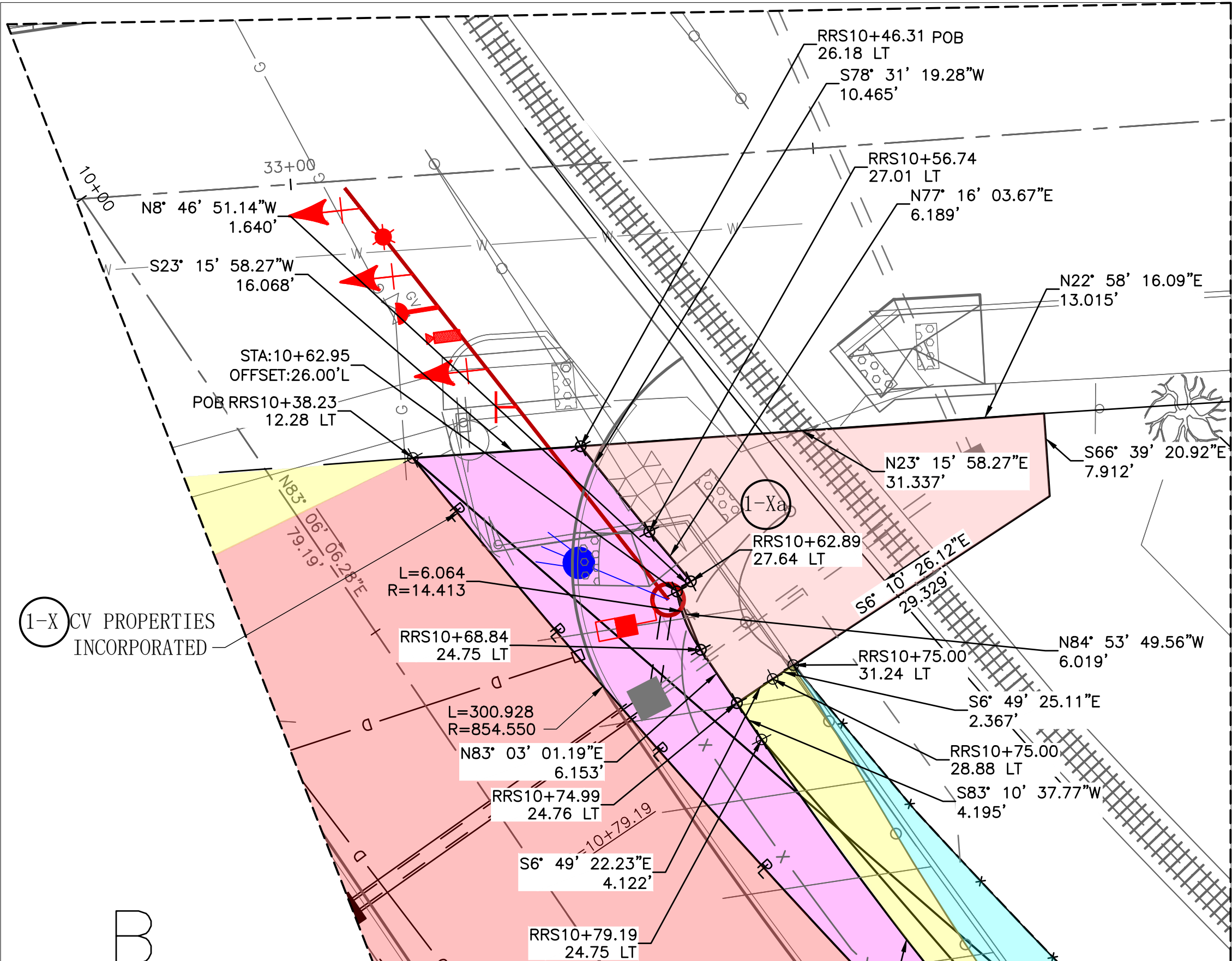
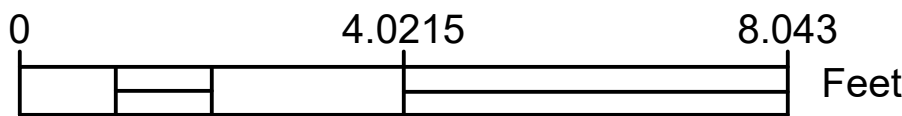
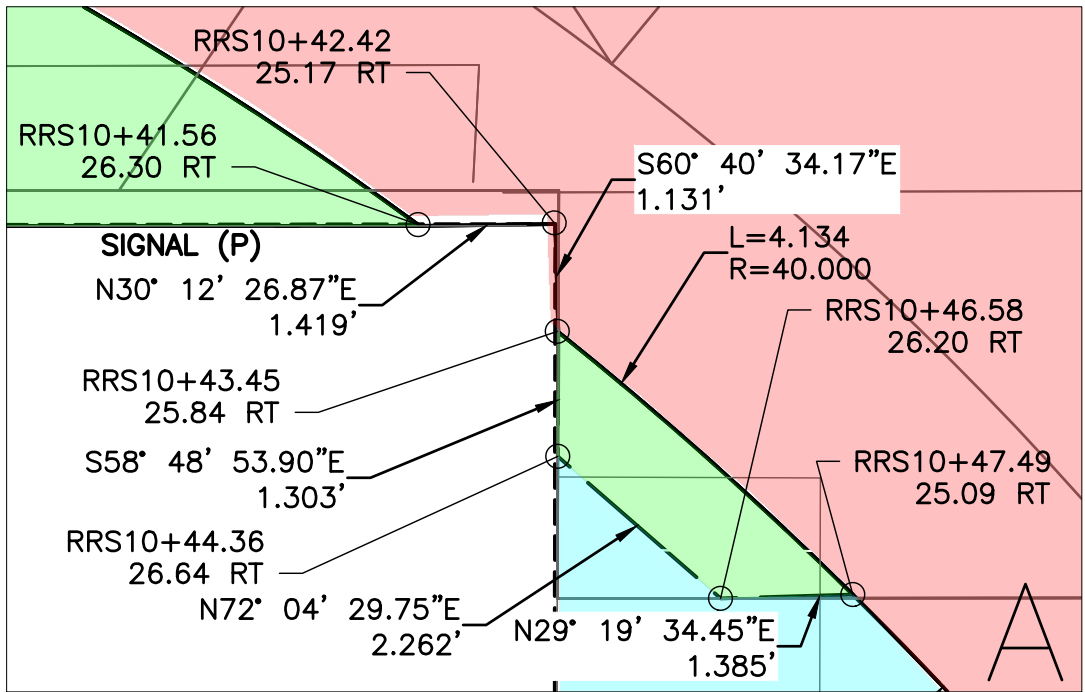
PARK STREET STA. 33+61.70
LIMIT OF CONSTRUCTION

LEGEND

- PDF PROJECT DEMARCATION FENCE
- TPZ TREE PROTECTION ZONE

LEGEND

A SEE DETAIL ON THIS SHEET FOR ENLARGED VIEW



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VILLAGE OF
ESSEX JUNCTION
2 LINCOLN STREET
ESSEX JUNCTION,
VT 05452

CRESCENT
CONNECTOR
STP 5300 (13)
ESSEX JUNCTION

SHEET TITLE

R.O.W. LAYOUT
SHEET 1

DRAWN BY	DATE
EBS	OCT. 2019

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BMB	621803

PROJ. ENG.	D&K ARCHIVE #
JKB	

SHEET NUMBER

6

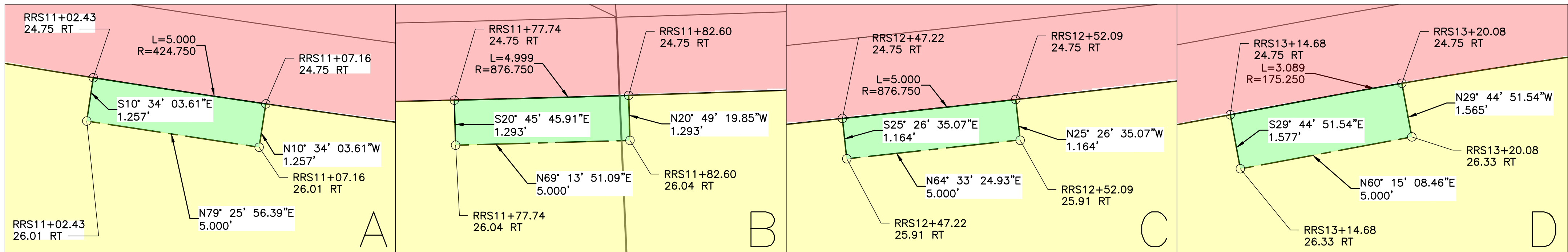
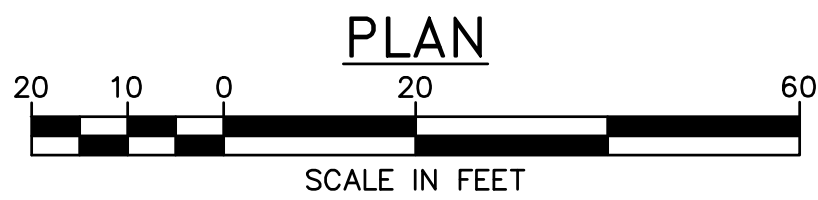
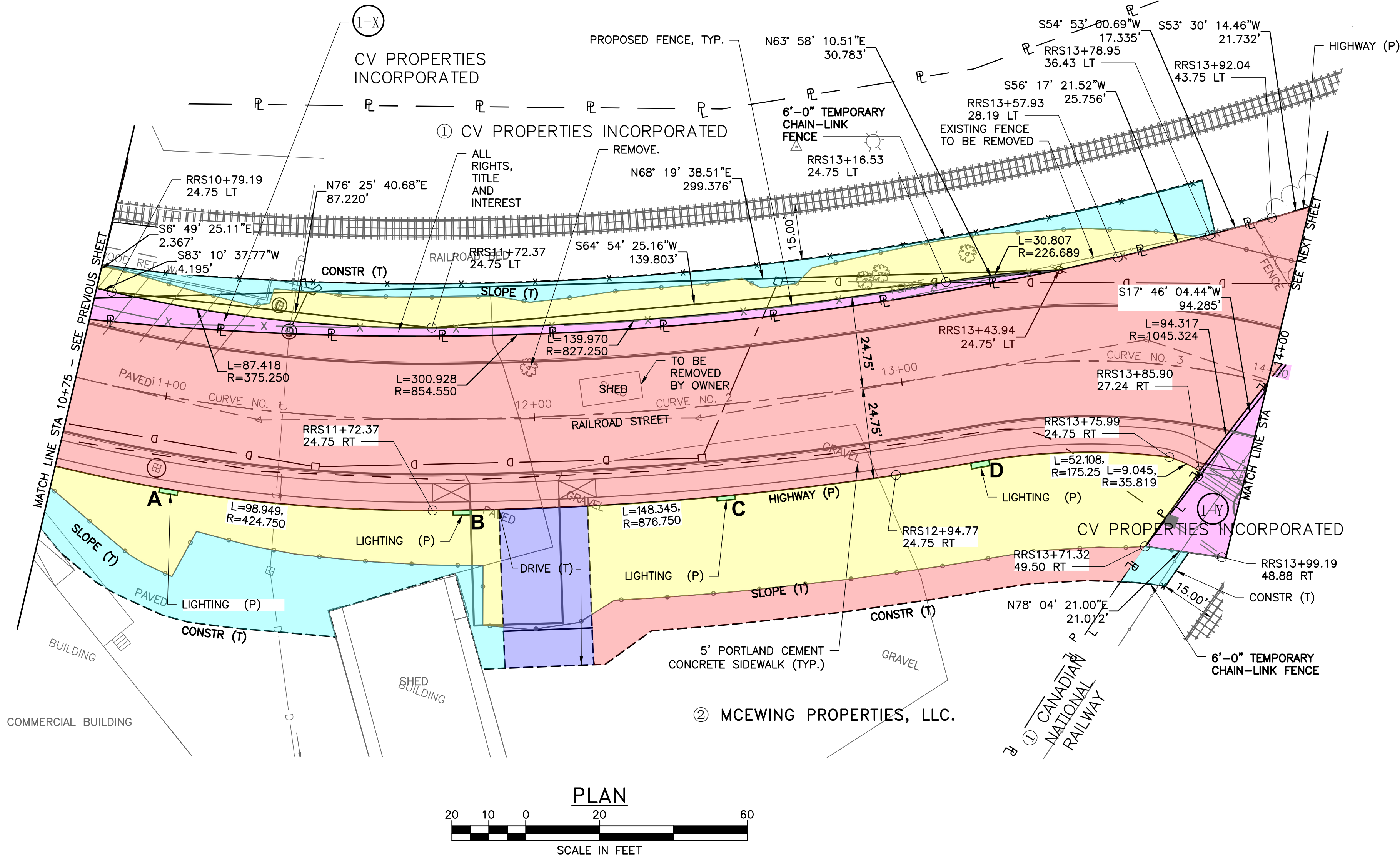
SHEET 6 OF 12

LEGEND

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LEGEND

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TPZ TREE PROTECTION ZONE



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2 LINCOLN STREET
ESSEX JUNCTION,
VT 05452

CRESCENT
CONNECTOR
STP 5300 (13)
ESSEX JUNCTION

SHEET TITLE
R.O.W. LAYOUT
SHEET 2

DRAWN BY EBS	DATE OCT. 2019
CHECKED BY BMB	D&K PROJECT # 621803
PROJ. ENG. JKB	D&K ARCHIVE #

SHEET NUMBER
7
SHEET 7 OF 12

VILLAGE OF
ESSEX JUNCTION
2 LINCOLN STREET
ESSEX JUNCTION,
VT 05452

CRESCENT
CONNECTOR
STP 5300 (13)

ESSEX JUNCTION

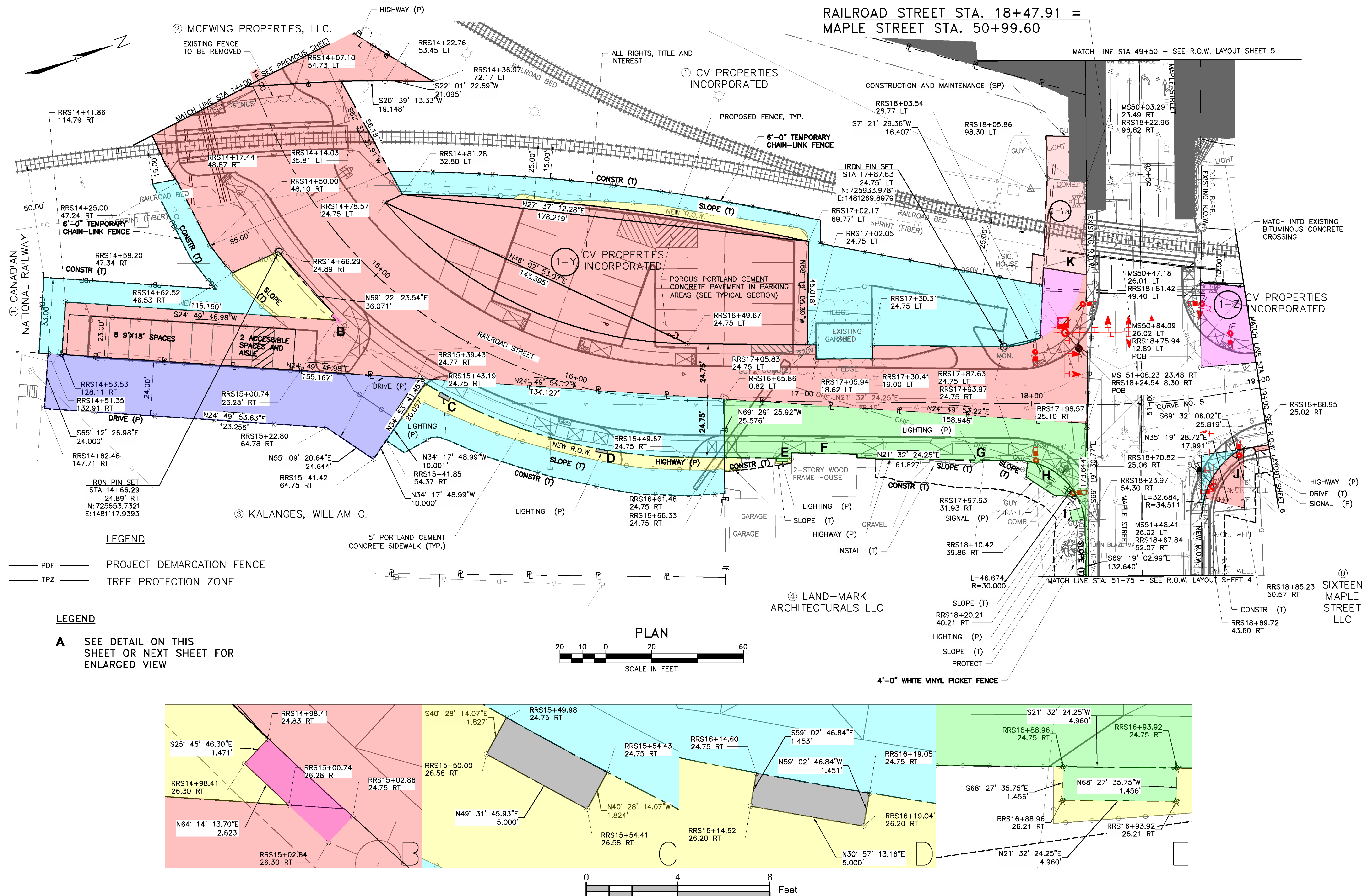
SHEET TITLE	
R.O.W. LAYOUT	
SHEET 3	

DRAWN BY EBS	DATE MAR. 2021
CHECKED BY KAR	D&K PROJECT # 621803
PROJ. ENG. BMB	D&K ARCHIVE #

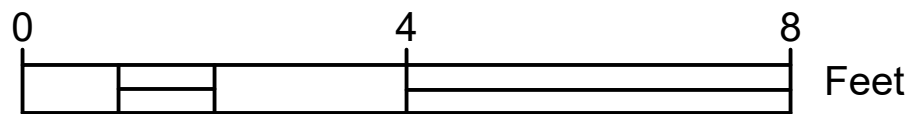
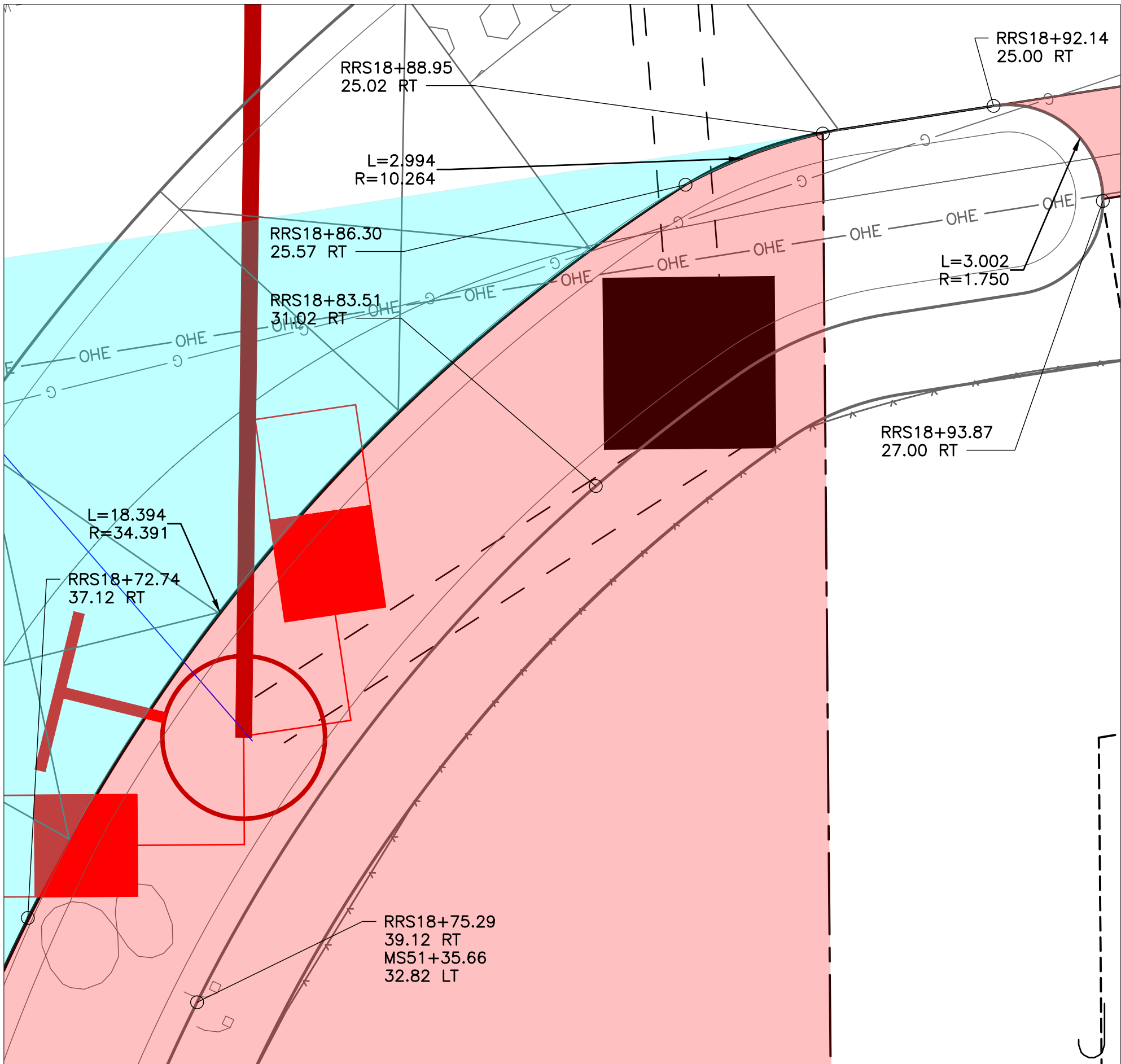
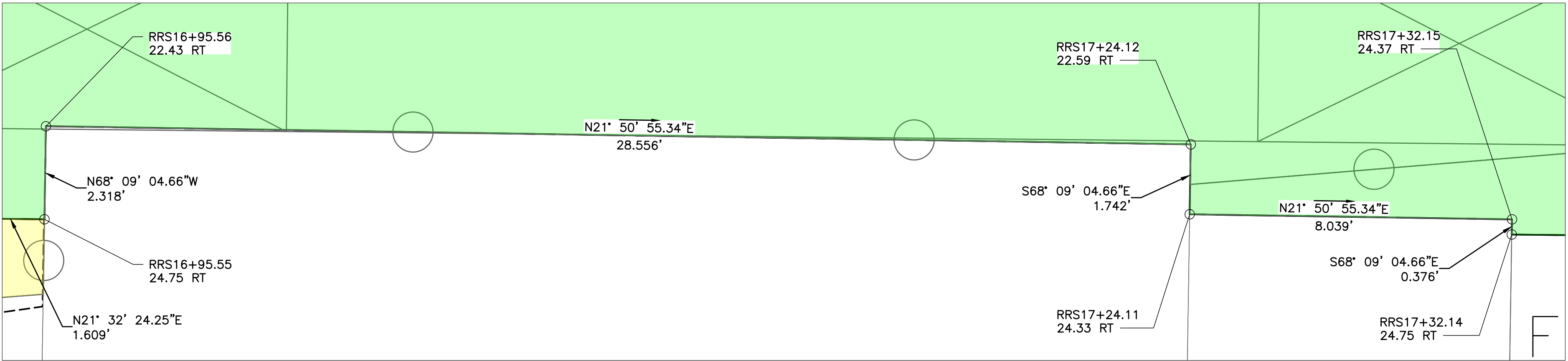
SHEET NUMBER

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SHEET 8 OF 12

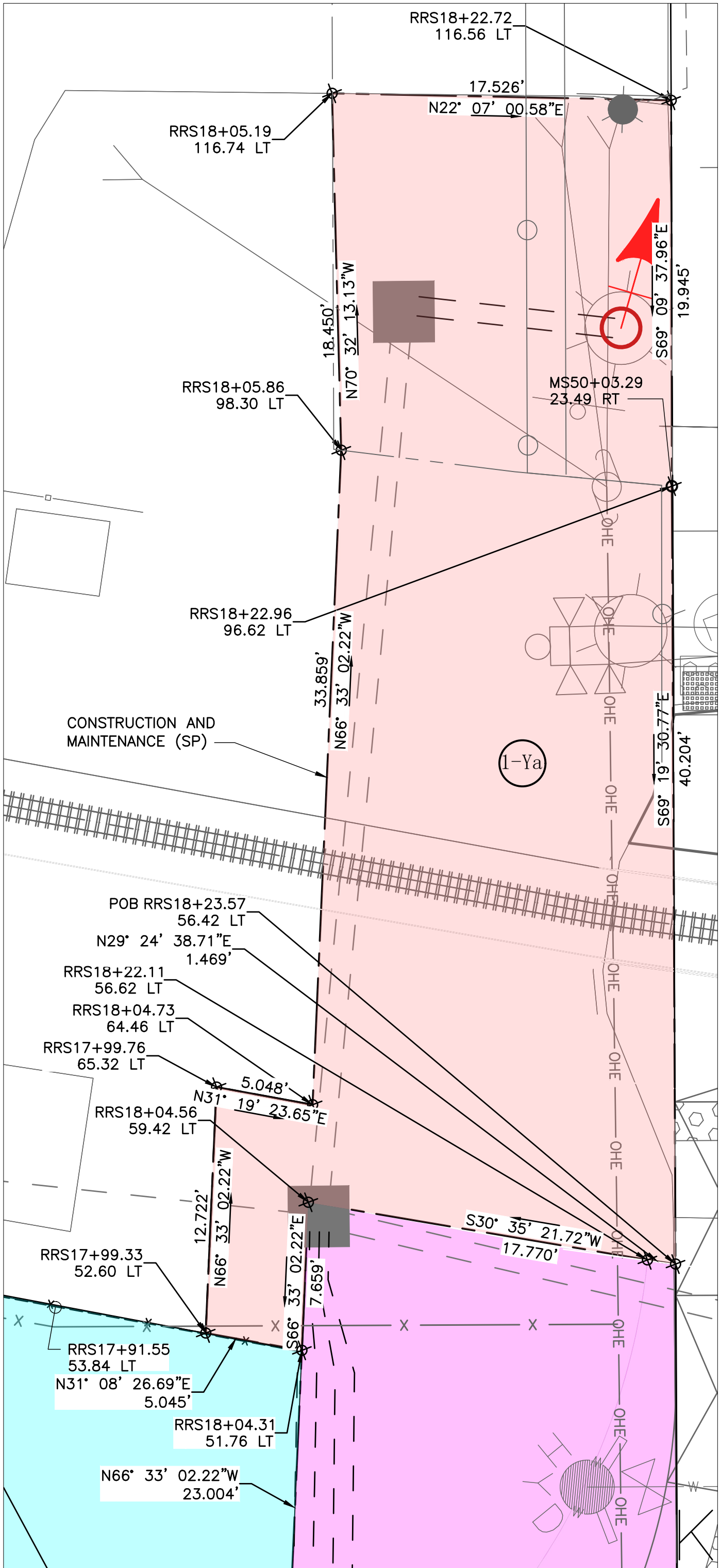
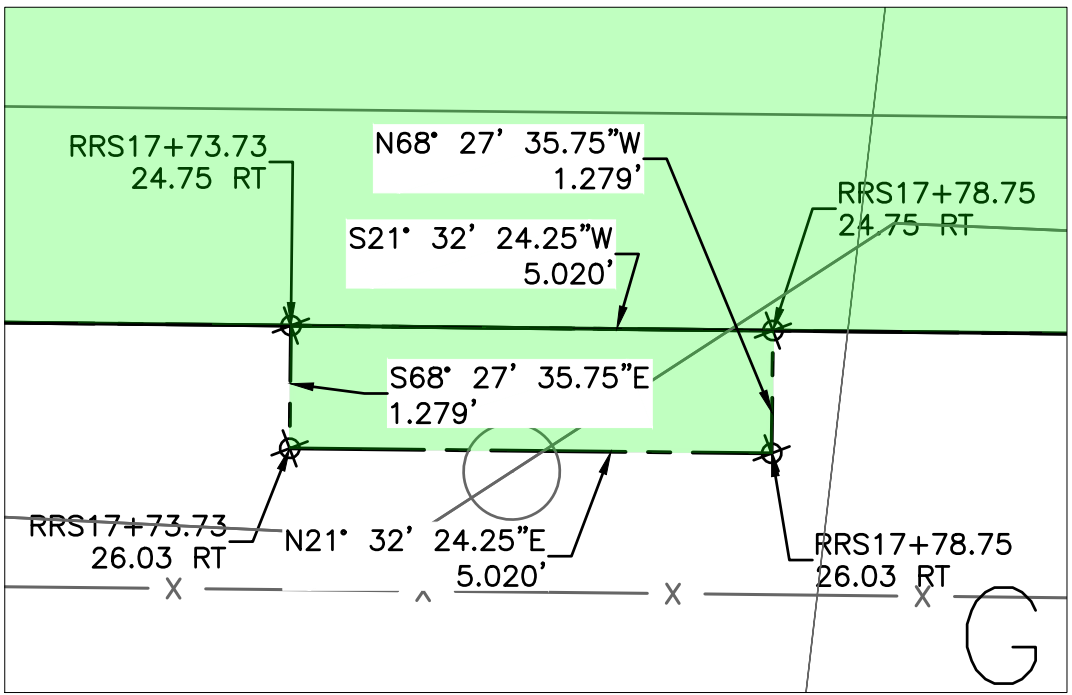


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LEGEND

- PDF PROJECT DEMARCATION FENCE
- TPZ TREE PROTECTION ZONE



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NO.	DATE	DESCRIPTION	BY	CK'D

VILLAGE OF
ESSEX JUNCTION
2 LINCOLN STREET
ESSEX JUNCTION,
VT 05452

CRESCENT
CONNECTOR
STP 5300 (13)
ESSEX JUNCTION

SHEET TITLE
R.O.W. LAYOUT
SHEET 3A

DRAWN BY EBS	DATE OCT. 2019
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PROJ. ENG. JKB	D&K ARCHIVE #

SHEET NUMBER
9
SHEET 9 OF 12

VILLAGE OF
ESSEX JUNCTION
2 LINCOLN STREET
ESSEX JUNCTION,
VT 05452

CRESCENT
CONNECTOR
STP 5300 (13)

ESSEX JUNCTION

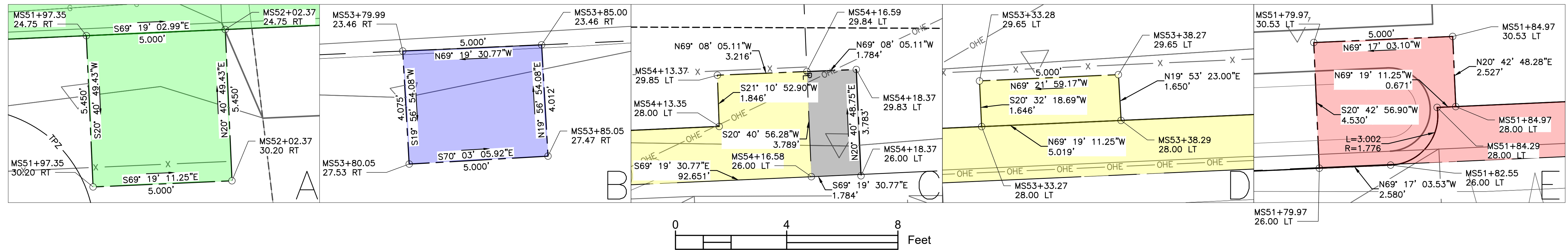
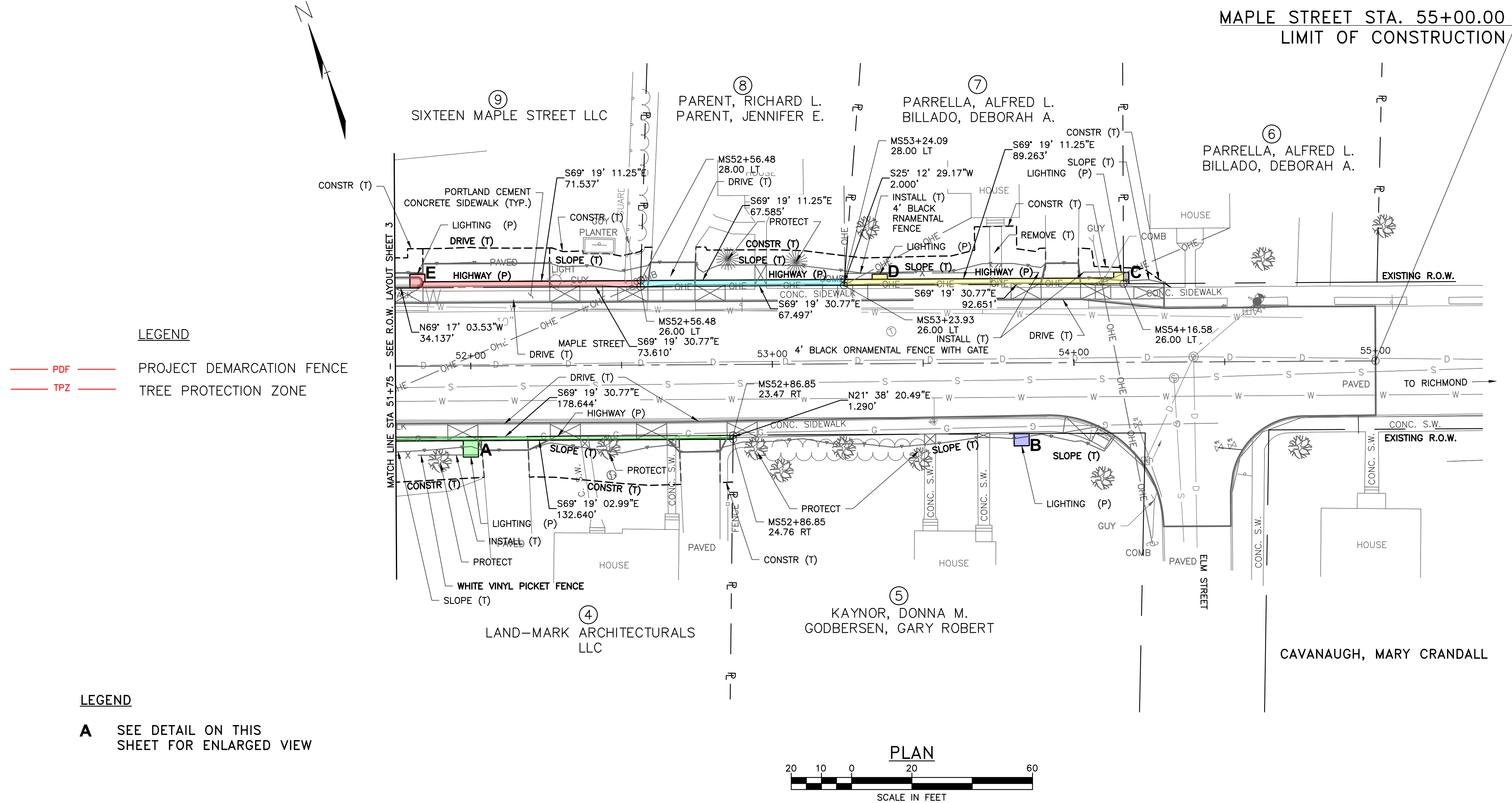
SHEET TITLE	
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R.O.W. LAYOUT
SHEET 4

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PROJ. ENG. JKB	D&K ARCHIVE #

SHEET NUMBER

10





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VILLAGE OF
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2 LINCOLN STREET
ESSEX JUNCTION,
VT 05452

CRESCENT
CONNECTOR
STP 5300 (13)

ESSEX JUNCTION

SHEET TITLE	
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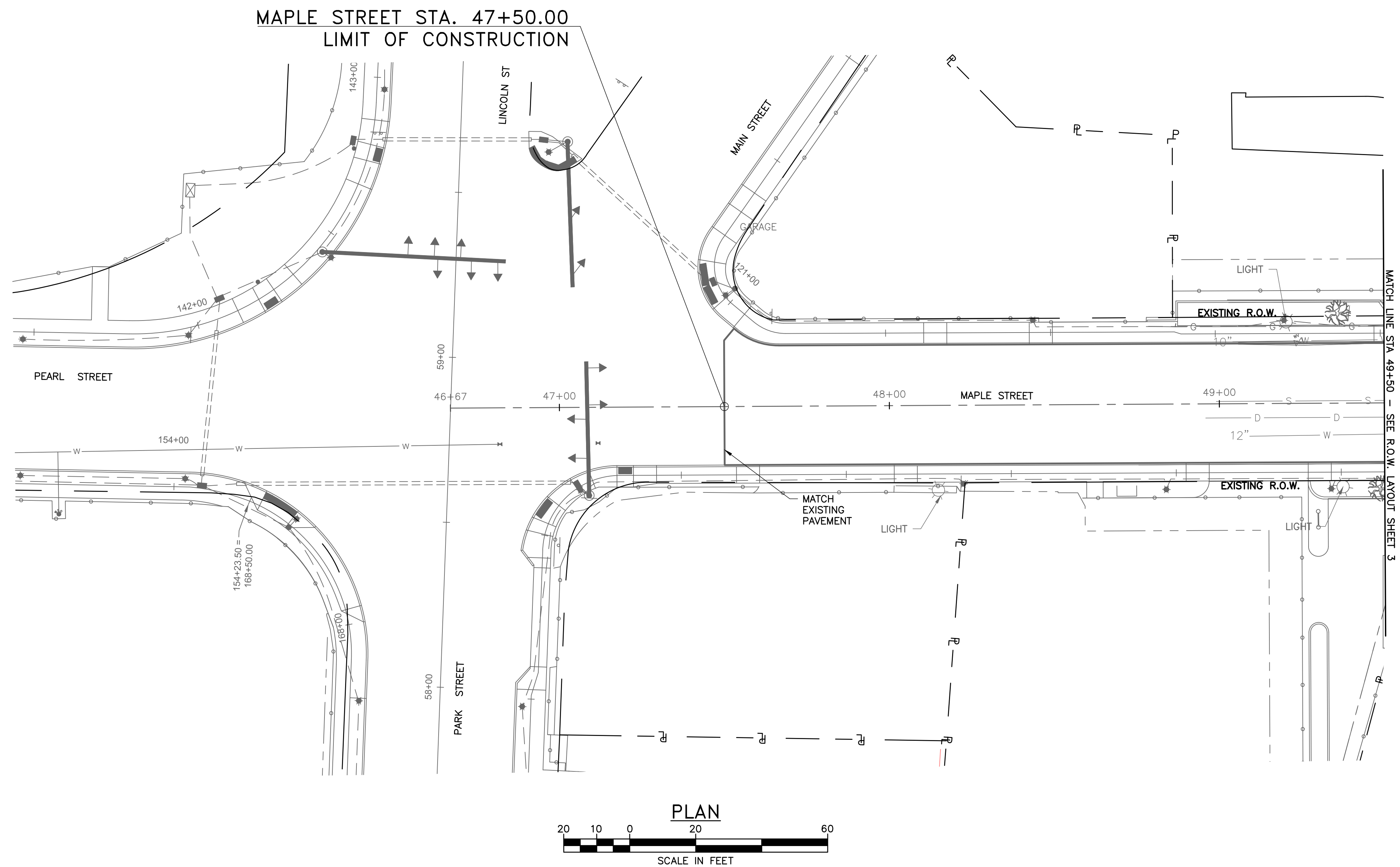
R.O.W. LAYOUT
SHEET 5

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PROJ. ENG. JKB	D&K ARCHIVE #

SHEET NUMBER

11

SHEET 11 OF 12



LEGEND

- PDF —— PROJECT DEMARCATION FENCE
—— TPZ —— TREE PROTECTION ZONE

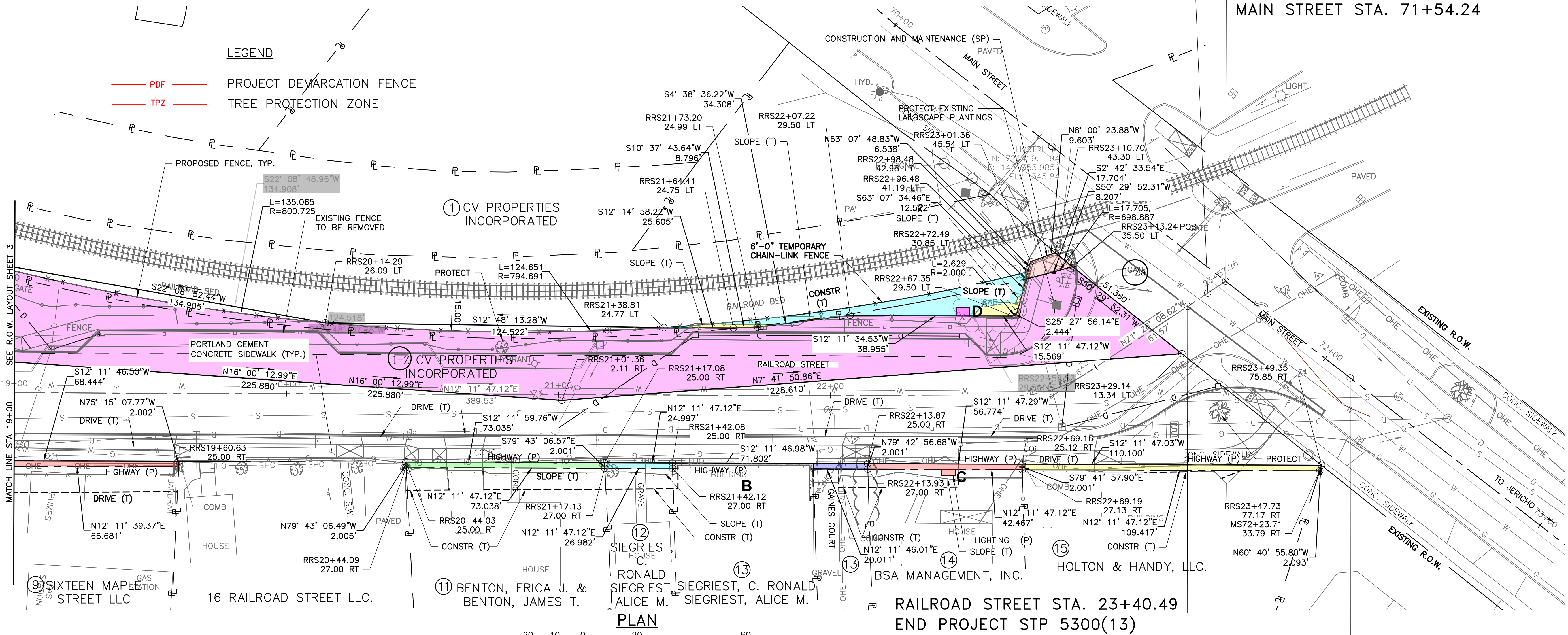
NOTE: ALL CONSTRUCTION WORK INDICATED ON
THIS SHEET IS WITHIN THE EXISTING RIGHT
OF WAY.

LEGEND

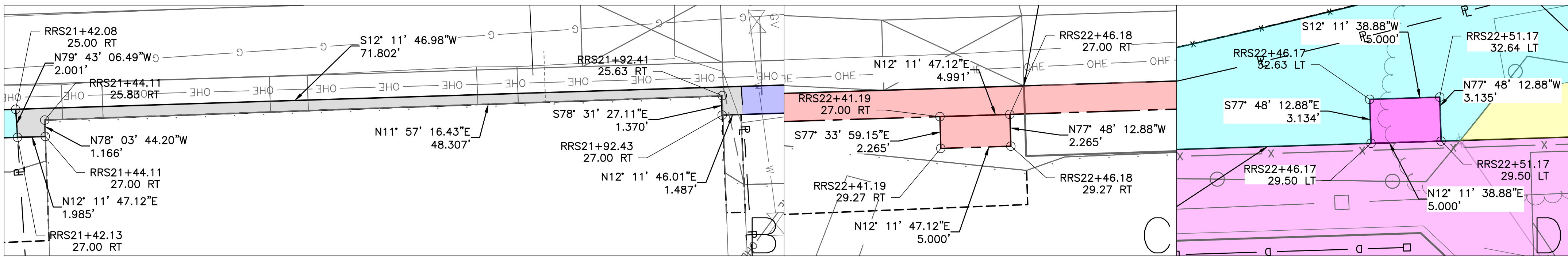
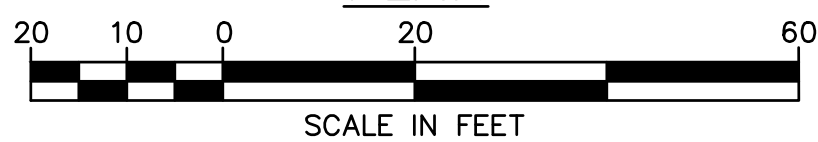
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LEGEND

PDF PROJECT DEMARCATION FENCE
TPZ TREE PROTECTION ZONE



PLAN



NOTE: ALL TREES ALONG RAILROAD STREET ARE TO BE PROTECTED

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NO.	DATE	DESCRIPTION	BY	CHK'D

VILLAGE OF
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2 LINCOLN STREET
ESSEX JUNCTION,
VT 05452

CRESCENT
CONNECTOR
STP 5300 (13)

ESSEX JUNCTION

SHEET TITLE

R.O.W. LAYOUT
SHEET 6

DRAWN BY	DATE
EBS	OCT. 2019
CHECKED BY	D&K PROJECT #
BMB	621803
PROJ. ENG.	D&K ARCHIVE #
JKB	

SHEET NUMBER

12

SHEET 12 OF 12



RIGHT OF WAY CERTIFICATE

DATE: 03/29/2021

PROJECT: Essex Junction STP 5300(13)

PPMS #: 12d282

This is to certify that the right of way has been or will be acquired in accordance with Vermont State Statute, the Uniform Relocation Assistance Real Property Acquisition Policies Act of 1970 as amended and Title 23 of the Code of Federal Regulations, Part 635 (when applicable) and the status of the right of way is as follows:

- ☐ No acquisitions of land or rights was necessary since all construction will be within the existing controlled right of way. Use of non-controlled right of ways will be allowed through executed agreements or approved permits.
- ☒ Pursuant to 23 CFR 635.309(c)(1) and/or (2), all the acquisitions of land and rights have been completed including legal and physical possession and/or the right to occupy and to use all rights of way required for the proper execution of the project has been acquired.
- ☐ Pursuant to 23 CFR 635.309(c)(3), all the necessary right of way has not been acquired, however, the acquisitions are being progressed and all legal and physical possession will be completed prior to award of the construction contract.

Comments:

APPROVED: **Trey Polk**

Digitally signed by Trey Polk
Date: 2021.03.29 13:18:12 -04'00'

Trey Polk, Right of Way Acquisitions and Utilities Manager

Distribution

Andrea Wright, Right of Way and Environmental Program Manager

Ande Deforge, Project Manager

Marvin D. Kingsbury, Programming Engineer, Planning

Craig Keller, Chief of Permits

Anthony Davis, Finance & Administration

Meredith Asselin, Finance & Administration

Patrick Kirby, FHWA

ROW Admin for OnBase



Mr. Richard Hamlin, P.E.
Hamlin Consulting Engineers
136 Pearl Street
Essex Junction, VT 05452

September 21, 2022

RE: Essex Junction STP 5300(13) – Crescent Connector
UTILITY AND RAILROAD CLEARANCE

Dear Mr. Hamlin,

To comply with the requirements of 23 C.F.R. 635.309b, all applicable utility and railroad coordination has been completed for the subject project.

Utility adjustments are required by proposed construction plans for the subject project.

All necessary arrangements have been made for the utility work to be undertaken and completed as required for proper coordination with physical construction schedules. The project team has coordinated with the pole owner, GMP, and the relocation order was issued on September 16th, 2022.

All railroad work has been completed or necessary arrangements have been made for it to be undertaken and completed as required for proper coordination with the physical construction schedules, as per the NECR Construction and Maintenance Agreement, dated 09-07-2019.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ken Robie', is positioned above the printed name of the signatory.

Kenneth A. Robie, P.E.
Senior Project Manager
DuBois & King, Inc.

cc: Ande DeForge, VTrans Project Manager



Mr. Richard Hamlin, P.E.
Hamlin Consulting Engineers
136 Pearl Street
Essex Junction, VT 05452

September 12, 2022

RE: Essex Junction STP 5300(13) – Crescent Connector
Design Certification

Dear Mr. Hamlin,

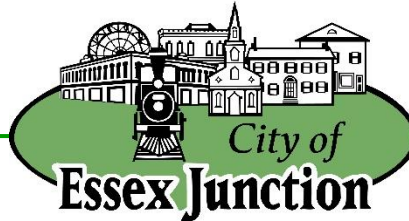
The project plans, calculations and notes for the project listed above have been reviewed by our personnel and are substantially free from errors and omissions and are in conformance with the appropriate standards, codes and specifications for design and public safety.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ken Robie', is positioned above the typed name.

Kenneth A. Robie, PE
Senior Project Manager
DuBois & King, Inc.

cc: Ande DeForge, VTrans Project Manager



September 1, 2022

Ande Deforge, Project Manager
VT Agency of Transportation, Municipal Assistance Section
219 North Main Street
Barre, VT 05641

RE: MA Project – Essex STP 5300(13), Crescent Connector

Dear Ande:

This letter certifies that the City of Essex Junction possesses all necessary property rights and interests in order to complete the project referenced above, obtained all necessary state and local permits, and satisfied all other requirements to construct the project.

We further certify that if the project involves the replacement of existing bicycle and pedestrian facilities, accommodation will be made for safe bicycle and pedestrian passage throughout construction, in accordance with the MUTCD and other relevant guidelines.

Sincerely,

Brad Luck

Brad Luck
Interim Co-Manager



GEOTECHNICAL | CONSTRUCTION | ENVIRONMENTAL
ENGINEERS and SCIENTISTS

May 16, 2019 (Original May 9, 2019)
File No. 1064-016.00

Corey Mack, P.E.
RSG, Inc.
180 Battery Street, Suite 350
Burlington, VT 05401

Via email: corey.mack@rsginc.com

Re: Geotechnical Engineering Report
Crescent Connector – Signal Mast Arm Foundation
Essex Junction, Vermont

Dear Mr. Mack:

We are providing this Geotechnical Engineering Report for design of signal mast arm foundations for the proposed Crescent Connector project in Essex Junction, Vermont. We completed these services in accordance with our proposal dated December 19, 2017.

BACKGROUND

Four mast arms are proposed for the Crescent Connector project to support new traffic signals; two at the VT-2A (Park Street) intersection and two at the VT-117 (Maple Street) and Railroad Street intersection. We understand that the mast arms will likely be supported by drilled shaft foundations, expected to be approximately 3 feet in diameter and 12 feet in length.

The contractor will be responsible for design of the mast arm foundations. **GeoDesign** was retained to perform (via subcontract) soil borings and prepare boring logs that will be used by contractors for bidding and design purposes.

SCOPE

Our scope generally included the following:

- coordinating, subcontracting, and monitoring four test borings; and,
- preparing a geotechnical engineering report providing:
 - a subsurface exploration summary and boring logs;
 - a summary of subsurface conditions encountered; and
 - a conclusion as to whether the subsurface conditions encountered would provide a comparable lateral resistance to a soil model consisting of a granular soil with a friction angle of 32 degrees and near surface groundwater level (as used in some preliminary shaft foundation design methods).



GEOLOGY

Surficial geologic mapping (Doll, et. al, 1970) indicates marine sand deposits are present in the site vicinity. The soils encountered in the borings are consistent with the geologic mapping.

TEST BORINGS

A Geo**Design** representative observed and logged four test borings (B-1 through B-4) drilled in the vicinity of the proposed mast arms by QCQA Laboratories, Inc. on April 22 and 23, 2019. The borings were drilled with a CME 550X ATV rig equipped with an automatic hammer. Hollow stem augers were used to advance all four borings to depths of approximately 26 feet below ground surface. Boring locations were selected by RSG and Geo**Design** based on required clearances to the railroad and overhead lines and the requirement to stay within the limits of existing roadway.

Representative soil samples were obtained by split barrel sampling procedures in general accordance with ASTM Specification D-1586. The split-barrel sampling procedure utilizes a standard 2-inch O.D. split-barrel sampler that is driven into the bottom of the boring with a 140-pound hammer falling a distance of 30 inches. The number of blows required to advance the sampler the middle 12-inches of a normal 24-inch penetration is recorded as the Standard Penetration Resistance Value (N). The blows are indicated on the boring logs at their depth of occurrence and provide an indication of the relative consistency of the material.

Boring locations are depicted on Figure 1 (Attachment 1) and boring logs are included as Attachment 2. Borings were located in the field by taping/pacing from existing site features. Approximate ground surface elevations were estimated from nearby spot elevations shown on an electronic site plan provided by RSG.

SUBSURFACE CONDITIONS

General Subsurface Profile

The generalized subsurface profile encountered in the borings is described below. Please refer to the boring logs (Attachment 2) for further details.

Asphalt

An approximately 5-inch thick layer of asphalt was encountered at the surface in each boring.



Road Base / Subbase

A Road Base / Subbase layer was encountered in each boring. The material typically consisted of sand and gravel with trace to little silt. SPT N values were not recorded in the upper two feet but N values between 2 and 4 feet indicated typically indicated loose to medium dense soils. The layer ranged from approximately 2 to 4 feet thick,

Sand / Silt

A Sand / Silt stratum was encountered below the Road Base / Subbase in all borings, except Boring B-3. This stratum typically consisted of loose to medium dense mixtures of silt and fine sand with occasional trace gravel. This layer was typically 2 to 4 feet thick.

Sand

A layer of Sand was encountered in all four borings at depths of 4 to 6 feet and continued to depths of approximately 16 to 25 feet. This stratum typically consisted of a loose to medium dense sand with trace silt, and trace to little fine gravel.

Clay / Silt

A Clay / Silt layer was encountered in Borings B-1 and B-2 below the Sand layer. The material consisted of soft to very soft clayey silt to silty clay. Boring B-1 and B-2 were terminated within this layer at a depth of 26 feet.

Silt / Clayey Silt

A Silt / Clayey Silt layer was encountered in Borings B-3 and B-4 below the Sand layer. The material consisted of very loose silt to clayey silt with occasional sublayers of silt and fine sand. Boring B-3 and B-4 were terminated within this layer at a depth of 26 feet.

Groundwater

Groundwater was observed in Borings B-1, B-2 and B-4 at depths of approximately 9, 8 and 10 feet respectively. Groundwater was inferred at a depth of 11 feet in Boring B-3 based on a wet sample.

The depth to groundwater observed in the borings will vary from conditions which will be encountered during construction, due to factors such as seasonal variations, temperature, rainfall, and other factors that differ from conditions at the time the subsurface explorations were made.



CONCLUSIONS

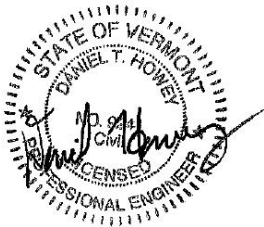
The findings from the four test borings indicate that the soils within 12 feet of the ground surface are granular and have a friction angle of 32 degrees or greater (based on correlation to SPT N-values). It is our opinion that soils encountered to a depth of at least 12 feet in the borings will provide a comparable lateral resistance to a soil model consisting of a granular soil with a friction angle of 32 degrees and near surface groundwater level. We also conclude that the information obtained in the soil borings will be sufficient for the contractor's design of the mast arm foundations.

LIMITATIONS

This report is subject to the limitations included in Attachment 3.

Sincerely,

GeoDesign, Inc.



Daniel T. Howey, P.E.
Senior Project Engineer

Ulrich La Fosse, P.E.
Senior Principal / Reviewer

Attachments:

- Attachment 1 – Figures
- Attachment 2 – Boring Logs
- Attachment 3 – Limitations

ATTACHMENT 1
EXPLORATION LOCATION PLAN

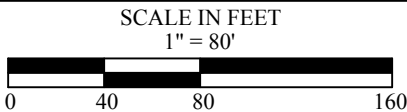


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MIDDLEBURY, CT NEW YORK, NY NEWARK, NJ BURLINGTON, VT


EXPLORATION LOCATION PLAN
CRESCENT CONNECTOR SIGNALS
ESSEX JUNCTION, VERMONT
FILE NO. 1064-016

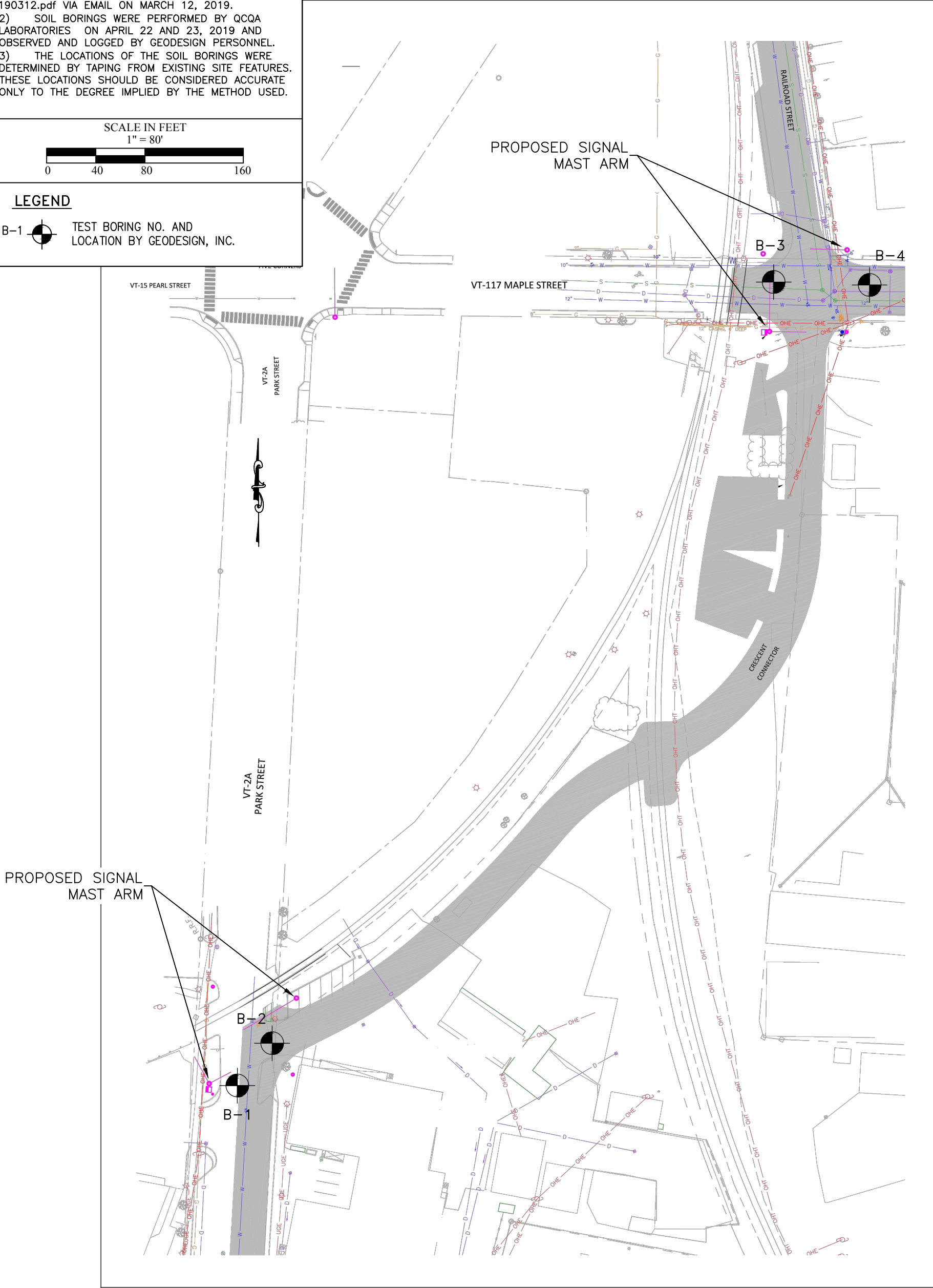
DRAWN BY: AJB
REVIEWED BY: DTH
DATE: APRIL 29, 2019
FIGURE NO. 1

- NOTES:
- 1) BASE MAP DEVELOPED FROM ELECTRONIC FILES PROVIDED BY RSG, INC ENTITLED 'ACAD-621803-SV01-190423.dwg' VIA EMAIL ON APRIL 23, 2019 and Crescent Connector - Boring Plan - 190312.pdf VIA EMAIL ON MARCH 12, 2019.
 - 2) SOIL BORINGS WERE PERFORMED BY QCQA LABORATORIES ON APRIL 22 AND 23, 2019 AND OBSERVED AND LOGGED BY GEODESIGN PERSONNEL.
 - 3) THE LOCATIONS OF THE SOIL BORINGS WERE DETERMINED BY TAPING FROM EXISTING SITE FEATURES. THESE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.



LEGEND

B-1  TEST BORING NO. AND LOCATION BY GEODESIGN, INC.



ATTACHMENT 2
BORING LOGS

EXPLANATION OF THE FORM - BORING LOG

The following provides an explanation of the various fields on the Boring Log form.

BORING LOG HEADING

Project and Boring Details

Within the upper portion of the Boring Log, details with regards to the Project Name and Location, Boring Number, and GeoDesign's file number are provided. In addition, within the upper section of the Boring Log, the Drilling Company's name, and their representative, together with the name of GeoDesign's representative, are presented. Details with regards to the dates when the boring was drilled, its coordinates or other location references and the corresponding surface elevation may also be provided. Where applicable, the Datum used is provided in the text of the Report.

Casing and Sampler

This section provides a summary of the typical size of samplers and casings used, together with the type of drilling rig. See below for a description of samplers.

Groundwater Observations

Water levels typically indicated on the Boring Log are levels measured in the boring at the times indicated. In permeable materials, the indicated levels may reflect the location of groundwater. In low permeability soils and/or due to effects of the casing, the accurate determination of groundwater levels may not be possible with only short term observations.

CENTRAL PORTION OF BORING LOG

DEPTH

This column gives the depth scale of the boring, in feet or meters.

CASING BLOWS

Indicates the number of blows per foot (0.3 m) required to advance the casing, using a 136 kg (300-pound) hammer.

SAMPLE INFORMATION

The initial columns provide the sample number, sample type, penetration, recovery and sample depth. The Sample Type Coding is as follows:

A - Auger Sample PS - Undisturbed Piston - 3" (76 mm) SSL - Large Split-Barrel - 3" (76 mm) V - Vane Test
C - Core - Diamond Bit - NX double tube, unless otherwise noted. SS - Split-Barrel (Split-Spoon) ST - Shelby Tube - 3" (76 mm)

Blows / 6 inch (0.15 meter) Interval

Representative soil samples were obtained in the boring by split-barrel sampling procedures in general accordance with ASTM D 1586. The split-barrel sampling procedure utilizes a standard 51 mm (2") outside diameter split-barrel sampler that is driven into the bottom of the boring with a 63.5 kg (140-pound) hammer falling a distance of 0.76 m (30"). The number of blows required to advance the sampler in 0.15 m (6") increments is recorded as part of the Standard Penetration Test (SPT). These values are indicated at their depth of occurrence.

The number of blows required to advance the split-barrel sampler the middle two - 0.15 m (6") increments of a 0.61 m (24") penetration is recorded as the Standard Penetration Resistance Value ("N").

Where the sampler advanced by Weight of Rods or Weight of Hammer, the designation WOR and WOH, respectively, was used. In the case of PS or ST samples, the designation PUSH was used.

Coring Time

This column provides the rate in minutes at which the core barrel was advanced into the bedrock (or boulder) in one foot (0.3 m) intervals.

PID Reading - Where Applicable

This column provides results for samples which were screened in the field with a photoionization detector for the presence of volatile organic compounds (including certain petroleum constituents) calibrated relative to benzene in air standard.

Moisture Content (%) - Where Applicable

This column provides moisture content determination results for the samples tested.

SAMPLE DESCRIPTION

This column provides a description of the soil and bedrock units, based on visual observation of the samples, sometimes in conjunction with field and laboratory tests. Each sample was generally described according to the following classification and terminology. In general, description of the soil units followed the Burmister classification system.

SOIL PROPERTIES & DESCRIPTIONS

TEXTURE*		COMPOSITION		COHESIVE SOILS		COHESIONLESS SOILS	
Component	Size (mm)			ESTIMATED CONSISTENCY	"N" Value	ESTIMATED COMPACTNESS	"N" Value
CLAY	< 0.002 mm	Principal Component in Upper Case i.e. >50%		CLASSIFICATION ***		DESCRIPTION ***	
SILT	< #200 Sieve (0.075 mm)	CLAY, SILT, SAND, GRAVEL, COBBLES, BOULDERS		Very Soft	< 2		
SAND	#200 to #4 Sieve (0.075 mm to 4.75 mm)	Minor Component Upper and Lower Case i.e. <50%		Soft	2 - 4	Very Loose	< 4
	Fine #200 to #40 Sieve (0.075 mm to 0.425 mm)	Clay, Silt, Sand, Gravel, Cobbles, Boulders		Medium	4 - 8	Loose	4 - 10
	Medium #40 to #10 Sieve (0.425 mm to 2.00 mm)			Stiff	8 - 15	Medium Dense	10 - 30
	Coarse #10 to #4 Sieve (2.00 mm to 4.75 mm)			Very Stiff	15 - 30	Dense	30 - 50
GRAVEL	#4 Sieve to 3 in (4.75 mm to 76 mm)	trace	<10 %	Hard	> 30	Very Dense	> 50
	Fine #4 Sieve to 3/4 in (4.75 mm to 19 mm)	little	10 - 20 %	*** empirical relationship			
	Coarse 3/4 in to 3 in (19 mm to 76 mm)	some	20 - 35 %				
		and	35 - 50 %	PLASTICITY - Burmister		STRUCTURE	
		MOISTURE CONDITION		Degree of Plasticity	Soil Type	Smallest Diameter of Thread**	
				Non-Plastic	SILT	None	Stratified, >6 mm (1/4")
				Slight	Clayey SILT	1/4" (6 mm)	Laminated, < 6 mm (1/4")
COBBLES	3 in to 12 in (76 mm to 305 mm)	Dry	Absence of moisture, dusty	Low	SILT & CLAY	1/8" (3 mm)	Parting, 0 to 1.6 mm (1/16")
BOULDERS	> 12 in (305 mm)	Moisture	Damp but no visible water	Medium	CLAY & SILT	1/16" (1.6 mm)	Seam, 1.6 to 13 mm (1/2")
		Wet	Visible free water	High	Silty CLAY	1/32" (0.8 mm)	Layer, 13 to 305 mm (12")
				Very High	CLAY	1/64" (0.4 mm)	Stratum, > 305 mm (12")

*textural classification as determined by sieve and hydrometer analyses

** moisture at or near optimum

BEDROCK PROPERTIES & DESCRIPTIONS

RECOVERY AND ROCK QUALITY DESIGNATION (RQD)

Recovery is defined as the length of core obtained expressed as a percentage of the total length cored.

RQD is defined as the total length of sound core pieces, 4 inches (100 mm) or greater in length, excluding drilling breaks, expressed as a percentage of the total length cored. RQD provides an indication of the integrity of the rock mass and relative extent of seams and bedding planes.

Classification	RQD %
Very Poor Quality	0 - 25
Poor Quality	25 - 50
Fair Quality	50 - 75
Good Quality	75 - 90
Excellent Quality	90 - 100

WEATHERING

Fresh	No visible signs of weathering
Slightly Weathered	Slight discoloration of parent material in joints and seams
Moderately Weathered	Less than 35% of rock material is decomposed. Fresh or discolored rock is present.
Highly Weathered	More than 35% of rock material is decomposed. Fresh or discolored rock is present.
Extremely Weathered	All rock material is decomposed to soil. Rock mass structure may still be intact.

When classification of rock materials has been estimated from disturbed samples, core samples and petrographic analysis may reveal other rock types.

SYMBOL

This column provides a graphical representation of the soil and bedrock units, and inferred geological contacts. See Subsurface Profile Legend.

HARDNESS

TYPICAL ROCK TYPES

Hard	Cannot be scratched with knife
Moderately Hard	Can scratch with knife but not fingernail
Soft	Can be scratched with fingernail

SANDSTONE

Well Cemented	Capable of scratching a knife blade
Cemented	Can be scratched with knife
Poorly Cemented	Can be broken apart easily with fingers

Moh's Hardness Scale

> 5.5
5.5 - 2.5
< 2.5

SANDSTONE

Well Cemented	Capable of scratching a knife blade
Cemented	Can be scratched with knife
Poorly Cemented	Can be broken apart easily with fingers

SPACING OF DISCONTINUITIES





















Bedding	Jointing	Spacing (inches)	Spacing (mm)
Very Thick Bedded	Very Wide	>80	>2000
Thick Bedded	Wide	24 - 80	600 - 2000
Medium Bedded	Moderate	8 - 24	200 - 600
Thin Bedded	Close	2.4 - 8	60 - 200
Very Thin Bedded	Very Close	0.8 - 2.4	20 - 60
Laminated	Shattered	0.24 - 0.8	6 - 20
Thinly Laminated	Fissured	<0.24	<6

BORING LOG FOOTER

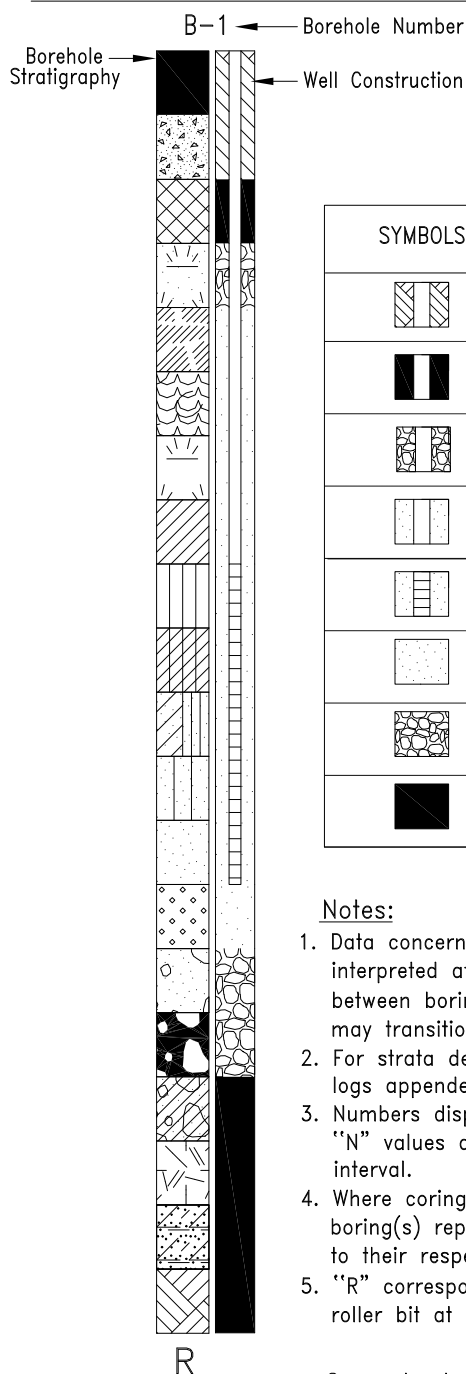
The lower portion of the log provides additional drilling notes within the Remarks section together with additional General Notes.

geo/cl/temp/explofboringlogs









STRATIGRAPHY SYMBOLS

SYMBOLS	TYPICAL DESCRIPTIONS OF PREDOMINANT MATERIAL TYPE
	ASPHALT
	CONCRETE
	FILL
	TOPSOIL
	SUBSOIL
	ORGANIC SILT OR CLAY WITH SHELLS
	PEAT
	CLAY
	SILT
	CLAY/SILT MIXTURE
	CLAY/SILT/SAND MIXTURE
	SILT/SAND MIXTURE
	POORLY-GRADED SAND
	WELL-GRADED SAND
	SAND/GRAVEL MIXTURE
	BOULDERS AND/OR COBBLES
	GLACIAL TILL
	DECOMPOSED BEDROCK
	SANDSTONE
	BEDROCK

EXPLANATION OF BORING



WELL SYMBOLS

SYMBOLS	TYPICAL DESCRIPTIONS
	CEMENT SEAL: 1 PIPE
	BENTONITE SEAL: 1 PIPE
	SLOUGH BACKFILL: 1 PIPE
	FILTER PACK: 1 PIPE
	SLOTTED PIPE WITH FILTER PACK: 1 PIPE
	FILTER PACK AT BOTTOM OF HOLE
	SLOUGH AT BOTTOM OF HOLE
	BENTONITE AT BOTTOM OF HOLE

Notes:

1. Data concerning the various strata have been interpreted at boring locations only. The stratigraphy between borings may vary from that shown, and may transition more gradually within borings.
2. For strata details, see Report and boring logs appended to this report.
3. Numbers displayed beside boring(s) represent SPT "N" values corresponding to their respective sampling interval.
4. Where coring was performed, numbers displayed beside boring(s) represent Recovery and RQD values corresponding to their respective sampling interval.
5. "R" corresponds to refusal of sampler, casing and/or roller bit at bottom of boring.

Groundwater Observations (where applicable)

- ▽ Water Level Reading at time of drilling.
- ▼ Water Level Reading after completing drilling.




GEODESIGN
INCORPORATED

GEOTECHNICAL ENGINEERS • ENVIRONMENTAL CONSULTANTS
54 MAIN STREET, P.O. BOX 677 • WINDSOR, VERMONT 05089
TELEPHONE: (802)674-2033 FACSIMILE: (802)674-5943

SUBSURFACE PROFILE LEGEND

VT BORING LOG MC 5/21/04 1064-16 BORINGS.GPJ GEODESIGN STANDARD GDT 4/26/19

<div style="text-align: center;">  GEODESIGN INCORPORATED </div> <div style="text-align: center;"> <i>Geotechnical / Construction / Environmental Engineers and Scientists</i> P.O. Box 699 Windsor, VT 05089 Phone: 802-674-2033/Fax: 802-674-5943 </div> <div style="text-align: center;"> 40 Farrell Street S. Burlington, VT 05403 Phone: 802-652-5140 </div>															BORING LOG Project Name Crescent Connector Signals Park and Maple Streets Essex Junction, VT					Boring No.: B-1 Page No.: 1 of 1 File No.: 1064-16 Checked By: DTH	
Boring Company: <u>QC/QA Laboratories, Inc.</u> Foreman: <u>John Leonhardt</u> GeoDesign Rep.: <u>Alan Baribault</u> Date Started: <u>April 22, 2019</u> Date Finished: <u>April 22, 2019</u> N. Coordinate: <u>725541.21</u> E. Coordinate: <u>1480654.9</u> Ground Surface Elevation (feet): <u>343</u> Station: <u> </u> Offset: <u> </u> ft					Casing: <u> </u> Sampler: <u> </u> Type: <u>H.S.A.</u> <u>SS</u> I.D.: <u>3.25 in.</u> <u>1.38 in.</u> Hammer Wt.: <u>NA</u> <u>140 lbs</u> Hammer Fall: <u>NA</u> <u>30 in.</u> Rig Type: <u>CME 550X ATV</u> Hammer Type: <u>Automatic</u>		Groundwater Observations Date: <u> </u> Depth (ft): <u> </u> Elev. (ft): <u> </u> Notes: <u> </u> <u>4/22/19, 10:35</u> <u>8.0</u> <u>335.0</u> <u>Wet sample</u> <u>4/22/19, 10:50</u> <u>8.8</u> <u>334.2</u> <u>In augers after 10min</u>														
Depth (ft)	Casing Blows/ft	Sample Information								Strata Description	Symbol	Sample Description									
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval						Coring Time (min./ft)	Moisture Content (%)							
							0 - 6	6 - 12	12 - 18						18 - 24						
		S1	A	18	18	0.5										~5" Asphalt Road Base / Subbase		S1) Reddish-brown fine to coarse GRAVEL and fine to coarse SAND, trace Silt, moist.			
		S2	SS	24	8	2	5	8	7	5								S2) Medium dense, brown and pinkish-brown fine to coarse SAND, some fine to coarse Gravel, trace Silt, moist.			
5		S3	SS	24	14	4	4	5	7	5								S3) Medium dense;			
																		S3A (upper 6"): brown and dark brown SILT and fine to medium Sand, trace fine Gravel, moist.			
		S4	SS	24	17	6	3	8	8	8								S3B (lower 8"): orange-brown and tan fine SAND and SILT, moist.			
		S5	SS	24	16	8	1	3	5	6								S4) Medium dense, gray-brown fine to medium SAND, trace fine Gravel, trace (-) Silt, moist.			
10		S6	SS	24	18	10	1	3	4	3								S5) Loose, orange and brown fine to coarse SAND, trace fine Gravel, trace Silt, wet.			
																		S6) Loose, orange and gray-brown fine to coarse SAND, trace Silt, trace fine Gravel, wet. With 1" Clayey SILT and fine to coarse SAND at top, possible slough/from inside augers.			
15		S7	SS	24	12	14	3	5	6	6								S7) Medium dense, brown and gray-brown fine SAND, trace coarse Gravel (1 piece), trace Silt, wet.			
20		S8	SS	24	24	19	WOR	1	1	2								S8) Soft, gray Clayey SILT, wet. PP = 0.5, 0.75, 0.75, 1.0 tsf; TV = 0.325, 0.325, 0.35 tsf.			
25		S9	SS	24	24	24	WOH	WOH	WOH	1								S9) Very soft, gray Silty CLAY, wet. PP = 0.16, 0.17, 0.20 tsf; TV = 0.225, 0.25, 0.25, 0.275 tsf.			
30																					
Remarks 1) Boring location coordinates determined by ties to existing site features upon completion of drilling and electronic site survey file provided by RSG. Elevation estimated based on nearby spot elevations on that electronic file. 2) Augers advanced through pavement, cleaned, and advanced to 2 feet deep. Sample S1 from cuttings and auger flights. 3) Water added to augers after sampling S6 (augers at 10 feet deep); water head maintained at each sampling depth thereafter. 4) Borehole backfilled with cuttings, tamped with auger, and backfilled with asphalt cold patch.															Boring No.: B-1						

Notes:


1) Stratification Lines Represent Approximate Boundary Between Material Types, Transitions May Be Gradual.


2) Water Level Readings Have Been Made At Times And Under Conditions Stated, Fluctuations Of Groundwater May Occur Due To Other Factors Than Those Present At The Time Measurements Were Made.

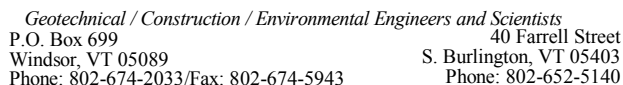
A.C. = After coring; N.R. = Not Recorded.

3) Sample Type Coding: A=Auger; C=Core; D=Driven; G=Grab; PS=Piston Sampler; SS=Split Barrel (Split Spoon); ST=Shelby Tube; Geo= Direct Push GeoProbe V=Vane; WOR/H=Weight of Rod/Hammer

4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%

<div style="text-align: center;">  GEODESIGN INCORPORATED </div> <div> Geotechnical / Construction / Environmental Engineers and Scientists P.O. Box 699 Windsor, VT 05089 Phone: 802-674-2033/Fax: 802-674-5943 </div> <div> 40 Farrell Street S. Burlington, VT 05403 Phone: 802-652-5140 </div>															BORING LOG					Boring No.: B-2						
Project Name															Page No.: 1 of 1											
Crescent Connector Signals Park and Maple Streets Essex Junction, VT															File No.: 1064-16											
															Checked By: DTH											
Boring Company: QC/QA Laboratories, Inc.															Casing: H.S.A.		Sampler: SS		Groundwater Observations							
Foreman: John Leonhardt															Type: H.S.A.		SS		Date		Depth (ft)		Elev. (ft)		Notes	
GeoDesign Rep.: Alan Baribault															I.D.: 3.25 in.		1.38 in.									
Date Started: April 22, 2019															Date Finished: April 22, 2019											
N. Coordinate: 725563.95															E. Coordinate: 1480693.28											
Ground Surface Elevation (feet): 343															Hammer Wt.: NA		140 lbs		4/22/19, 12:10		8.0		335.0		Wet sample	
Station: Offset: ft															Hammer Fall: NA		30 in.		4/22/19, 12:25		8.4		334.6		In augers after 10min	
Rig Type: CME 550X ATV															Hammer Type: Automatic											
Sample Information															Strata Description		Symbol		Sample Description							
Depth (ft)	Casing Blows/ft	Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)	Moisture Content (%)	Depth & Elevation (feet)		Classification System: Modified Burmister											
							0 - 6	6 - 12	12 - 18	18 - 24																
		S1	A	18	18	0.5																				
		S2	SS	24	13	2	9	12	16	9																
5		S3	SS	24	17	4	2	4	4	4																
		S4	SS	24	15	6	3	3	5	8																
		S5	SS	24	16	8	3	7	6	5																
10		S6	SS	24	16	10	5	3	5	7																
15		S7	SS	24	14	14	3	4	5	4																
20		S8	SS	24	18	19	1	4	3	3																
25		S9	SS	24	24	24	1	1	1	1																
30																										
Remarks															~5" Asphalt Road Base / Subbase		342.6		S1) Reddish-brown fine to coarse SAND, some fine to coarse Gravel, trace Silt, moist.							
															4.2		338.8		S2) Medium dense, brown (upper 3") and dark brown/black (lower 10") fine to coarse SAND, little Silt, trace fine Gravel, trace Cinders, moist.							
															6		337.0		S3) Loose, gray-brown, black (top 2"), and orange (bottom 2") SILT, some fine Sand. With 2" layer similar to S2 at top, and 2" layer fine to medium SAND, some Silt at bottom, moist.							
																			S4) Loose, brown medium to coarse SAND, trace Silt, trace fine Gravel, moist.							
																			S5) Medium dense, orange and orange-brown medium to coarse SAND, trace Silt, trace fine Gravel, top 8" moist, bottom 8" wet.							
																			S6) Loose, brown fine to medium SAND, trace Silt, wet.							
															16		327.0		S7) Loose, brown fine to medium SAND, trace Silt, wet.							
																			S8) Medium gray Clayey SILT to SILT&CLAY (top to bottom), wet.							
																			PP = 0.75, 0.7, 0.5 tsf;							
																			TV = 0.45, 0.375, 0.42 tsf.							
															26		317.0		S9) Soft, gray Silty CLAY with 1/16" to 1/4" SILT layers, wet.							
																			PP = 0.25, 0.26, 0.28 tsf;							
																			TV = 0.225, 0.25, 0.275, 0.35(in SILT layer) tsf.							
															Bottom of Exploration at 26.0 ft											
Notes:																										
1) Stratification Lines Represent Approximate Boundary Between Material Types, Transitions May Be Gradual.																										
2) Water Level Readings Have Been Made At Times And Under Conditions Stated, Fluctuations Of Groundwater May Occur Due To Other Factors Than Those Present At The Time Measurements Were Made.																										
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4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%																										
																			Boring No.: B-2							

 GEODESIGN INCORPORATED <i>Geotechnical / Construction / Environmental Engineers and Scientists</i> P.O. Box 699 40 Farrell Street Windsor, VT 05089 S. Burlington, VT 05403 Phone: 802-674-2033/Fax: 802-674-5943 Phone: 802-652-5140															BORING LOG Project Name Crescent Connector Signals Park and Maple Streets Essex Junction, VT					Boring No.: B-3 Page No.: 1 of 1 File No.: 1064-16 Checked By: DTH																																																																																																																																																																																																																																																																																																																														
Boring Company: <u>QC/QA Laboratories, Inc.</u> Foreman: <u>John Leonhardt</u> GeoDesign Rep.: <u>Alan Baribault</u> Date Started: <u>April 22, 2019</u> Date Finished: <u>April 22, 2019</u> N. Coordinate: <u>726006.05</u> E. Coordinate: <u>1481288.45</u> Ground Surface Elevation (feet): <u>343</u> Station: <u> </u> Offset: <u> </u> ft										Casing: <u> </u> Sampler: <u> </u> Type: <u>H.S.A.</u> <u>SS</u> I.D.: <u>3.25 in.</u> <u>1.38 in.</u> Hammer Wt.: <u>NA</u> <u>140 lbs</u> Hammer Fall: <u>NA</u> <u>30 in.</u> Rig Type: <u>CME 550X ATV</u> Hammer Type: <u>Automatic</u>		Groundwater Observations <table border="1"> <thead> <tr> <th>Date</th> <th>Depth (ft)</th> <th>Elev. (ft)</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>4/22/19, 14:30</td> <td>11.0</td> <td>332.0</td> <td>Wet sample</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>					Date	Depth (ft)	Elev. (ft)	Notes	4/22/19, 14:30	11.0	332.0	Wet sample																																																																																																																																																																																																																																																																																																																										
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6	6 - 12	12 - 18	18 - 24			S1	A	18	18	0.5																	S2	SS	24	6	2	4	5	4	6											5		S3	SS	24	16	4	6	5	9	11													S4	SS	24	18	6	2	5	7	7													S5	SS	24	16	8	3	4	6	7											10		S6	SS	24	18	10	4	6	7	6																																15		S7	SS	24	15	14	1	2	5	5																																20		S8	SS	24	20	19	1	1	2	3																																25		S9	SS	24	18	24	1	1	1	1																																30																					~5" Asphalt Road Base 342.6 Sand 339.0 Silt / Clayey Silt Bottom of Exploration at 26.0 ft 318.0 317.0		Classification System: Modified Burmister S1) Light brown and gray fine to coarse SAND, some fine Gravel, little Silt, moist. S2) Loose, brown and gray fine to coarse GRAVEL and fine to coarse SAND, trace to little Silt, moist. With 1 piece Clayey SILT likely from augers from B-2(previous hole). S3) Medium dense, light brown fine to medium SAND, little Silt, moist. S4) Medium dense, light brown and tan medium SAND, trace fine Gravel, trace Silt, moist. S5) Medium dense, light brown and tan fine to medium SAND, trace Silt, moist. S6) Medium dense, light brown fine to medium SAND, trace fine Gravel, trace Silt, moist (top 6") to wet (bottom 12"). S7) Loose, brown fine to coarse SAND, little fine Gravel, trace Silt, wet. S8) Very loose, brown fine to coarse SAND, little fine Gravel, trace Silt, wet. S9) Very loose / soft; S9A (upper 12"): Light brown fine to coarse SAND, trace Silt, wet. S9B (lower 6"): gray Clayey SILT, wet.				
Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description																																																																																																																																																																																																																																																																																																																																				
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Remarks 1) Boring location coordinates determined by ties to existing site features upon completion of drilling and electronic site survey file provided by RSG. Elevation estimated based on nearby spot elevations on that electronic file. 2) Augers advanced through pavement, cleaned, and advanced to 2 feet deep. Sample S1 from cuttings and auger flights. 3) Water added to augers after advancing to 14 feet deep, prior to removing auger plug; water head maintained at each sampling depth thereafter. 4) Borehole backfilled with cuttings, tamped with auger, and backfilled with asphalt cold patch.										Notes: 1) Stratification Lines Represent Approximate Boundary Between Material Types, Transitions May Be Gradual. 2) Water Level Readings Have Been Made At Times And Under Conditions Stated, Fluctuations Of Groundwater May Occur Due To Other Factors Than Those Present At The Time Measurements Were Made. A.C. = After coring; N.R. = Not Recorded. 3) Sample Type Coding: A=Auger; C=Core; D=Driven; G=Grab; PS=Piston Sampler; SS=Split Barrel (Split Spoon); ST=Shelby Tube; Geo= Direct Push GeoProbe V=Vane; WOR/H=Weight of Rod/Hammer 4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%					Boring No.: B-3																																																																																																																																																																																																																																																																																																																																			



Project Name

Boring No.: **B-4**

Page No.: 1 of 1

File No.: 1064-16

Checked By: DTH

Boring Company:	QC/QA Laboratories, Inc.		
Foreman:	John Leonhardt		
GeoDesign Rep.:	Alan Baribault		
Date Started:	April 23, 2019	Date Finished:	April 23, 2019
N. Coordinate:	725977.12	E. Coordinate:	1481360.95
Ground Surface Elevation (feet):	343		
Station:	Offset:	ft	

Casing:		Sampler:	Groundwater Observations			
Type:	H.S.A.	SS	Date	Depth (ft)	Elev. (ft)	Notes
I.D.:	3.25 in.	1.38 in.				
Hammer Wt.:	NA	140 lbs	▼ 4/23/19, 8:05	11.0	332.0	Wet sample
Hammer Fall:	NA	30 in.	▼ 4/23/19, 8:15	10.0	333.0	In augers after 10min
Rig Type:	CME 550X ATV	▼				
Hammer Type:	Automatic	▼				

[illegible]

- 1) Boring location coordinates determined by ties to existing site features upon completion of drilling and electronic site survey file provided by RSG. Elevation estimated based on nearby spot elevations on that electronic file.
- 2) Augers advanced through pavement, cleaned, and advanced to 2 feet deep. Sample S1 from cuttings and auger flights.
- 3) Water added to augers after sampling S6 (augers at 10 feet deep); water head maintained at each sampling depth thereafter.
- 4) Borehole backfilled with cuttings in approximate order as removed from borehole, tamped with auger, and backfilled with asphalt cold patch.

Notes:

- 1) Stratification Lines Represent Approximate Boundary Between Material Types, Transitions May Be Gradual.
- 2) Water Level Readings Have Been Made At Times And Under Conditions Stated, Fluctuations Of Groundwater May Occur Due To Other Factors Than Those Present At The Time Measurements Were Made.
A.C. = After coring, N.R. = Not Recorded.
- 3) Sample Type Coding: A=Auger, C=Core, D=Driven, G=Grab, PS=Piston Sampler, SS=Split Barrel (Split Spoon), ST=Shelby Tube, Geo= Direct Push GeoProbe V=Vane;
WOR/H=Weight of Rod/Hammer
- 4) Proportions Used: Trace = 1-10%, Little = 10-20%, Some = 20-35%, And = 35-50%

Boring No.: **B-4**

/UT BORING LOG MC 5/21/04 1064-16 BORINGS.GPJ GEODESIGN STANDARD.GDT 4/26/19

ATTACHMENT 3
LIMITATIONS

GEOTECHNICAL LIMITATIONS

Explorations

1. The analyses and recommendations submitted in this report are based in part upon the data obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.
2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.
3. Water level readings and moisture conditions have been made in the explorations, and from the samples at times and under conditions stated on the logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater and moisture condition may occur due to variations in rainfall, temperature, and other factors occurring since the time measurements were made.

Review

4. In the event that any changes in the nature, design or location of the proposed structures is planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by GeoDesign, Inc. We recommend that we be provided the opportunity to review and comment on the finalized project design and relevant construction specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications.

Use of Report

5. This report has been prepared for the exclusive use of Client, for specific application to the project, as described in GeoDesign's scope of services/ contract and related documents, in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.
6. This report has been prepared for this specific project by GeoDesign, Inc. This report is for design purposes only and is not sufficient to prepare an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to design considerations only, unless otherwise specified in the report.
7. Unless otherwise noted, the scope of our services did not include environmental assessment or investigation for the presence of hazardous or toxic materials in the soil, surface water, groundwater or air, on, below, or around this site.

TMP CHECKLIST

Purpose: To make a preliminary determination of whether the following issues are present or should be considered during project development through a more detailed TMP.

Project Name and Number/PIN: Crescent Connector
Essex Jct. STP5300(13)

Initial Project Significance Level (as determined in Table 4): Significant (Type B)

Project Manager during Project Definition:

Name: N/A Date: _____

Modified or Approved by (Project Manager at Preliminary Design for Significant Projects):

Name: N/A Date: _____

Modified or Approved by (Project Manager at PS&E for Significant Projects):

Name: _____ Date: _____

Project Description (Location, Activity, Anticipated Duration):

	Yes	No	Poss	N/A	Comments
1. Does the project require a long-term (greater than 3 days) ¹ lane or roadway/bridge closure?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Maintaining 2-way traffic.
2. Are there any restrictions or considerations regarding construction timeframes due to traffic concerns (e.g., time of day, site specific time of year limits)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No night work.
3. Can typical applications for traffic control be used? Are there any limitations to when typical applications can be used (time of year, times, days)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No limitations.
4. Is there a sidewalk, pedestrian/bicycle lane, path, trail, or access that needs to be maintained during construction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multiple areas where sidewalks will be impacted. TPARs required.
5. Is a speed reduction proposed (consistent with state guidance)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25 MPH existing.
6. Will temporary roadways or additional width be needed on culverts, bridges, or shoulders to maintain traffic?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Maintaining 2-way traffic within existing roadway width.
7. Will construction impact access to businesses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Will reroute and sign access. Loss of on-street parking. Providing temporary off-street parking.
8. Are there other projects (utility, district maintenance, construction, municipal) in the area that should be coordinated or avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TBD based on other project schedules

	Yes	No	Poss	N/A	Comments
9. Will/Can the traffic be reasonably detoured? If no or N/A, proceed to #10. If yes or possibly:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Multiple alternate routes, but no formal detour.
a. Is the detour route roadway type equivalent to closed roadway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Is the local alternate detour route in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Will the detour route have a detrimental impact on emergency vehicles, school buses, or other sensitive traffic?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
d. Are there load limit restrictions on the detour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
e. Are there bridge/culvert width or height restrictions on the detour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
f. Are modifications needed at intersections on detour/alternate routes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Will traffic signal timing need to be adjusted for the project (with or without a detour)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Depending on contractor phasing and user route choices.
11. Are there truck facilities or routes that would be impacted by the project or by a detour (turning radii, weight restrictions, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Significant truck route. Delays expected, but no access loss.
12. Are there special events or traffic generators (schools and bus routes, large employers, hospitals) that may be affected by the project and/or detour?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Will be restricted work areas during large special events (ie Champlain Valley Expo).
13. Will the emergency vehicle routing, mail delivery, school bus routes, or trash services be interrupted by the project (with or without a detour)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Potential delays, like all traffic, but no access loss.
14. Are there specific stakeholders to engage regarding the work zone impacts?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EMS, local businesses, public transit.
15. Does the project occur within a high crash location?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VT 2A and VT 15.
16. Are there other maintenance of traffic issues to consider? Specify.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RR coordination. Proper phasing.

1. MUTCD definition of long-term work is occupying a location more than 3 days.

Additional Narrative for Projects with issues identified above:

Project plans include Phasing and Temporary Traffic Control Plans, and the contractor is required to provide a site specific Temporary Traffic Control Plan as well.

New England Central Railroad, Inc.
CONSTRUCTION AND MAINTENANCE AGREEMENT

RR MILEPOST 108.02
VILLAGE OF ESSEX JUNCTION, COUNTY OF CHITTENDEN, STATE OF VERMONT

THIS AGREEMENT ("Agreement") made this 7th day of August, 2019, by and between the Village of Essex Junction, Vermont, hereinafter called "**Village**", and **New England Central Railroad, Inc.**, hereinafter called "**Railway**" or "**NECR**":

WITNESSETH:

WHEREAS, there is a proposed roadway to be operated by the **Village**, and

WHEREAS, that proposed roadway shall cross property owned or controlled by the **Railway**; and

WHEREAS, the **Village** wishes to improve the existing public roads at crossings (collectively hereinafter referred to as "Upgraded Crossings") identified as:

DOT# 247707P = Central Street, Railway's Roxbury Sub. Milepost 108.28;

DOT# 247706H = VT 15 / Main Street, Railway's Roxbury Sub. Milepost 108.18;

DOT# 247705B = VT 117 / Maple Street, Railway's Roxbury Sub. Milepost 108.09;

DOT# 247727B = VT 2A / Park Street, Railway's Roxbury Sub West Wye Milepost 0.35;

DOT# 247726U = VT 2A / Park Street, Railway's Burlington Sub. Milepost 7.66 and

install a proposed public road crossing identified as **DOT# 974526P = Crescent Connector / Railroad Street, Railway's Roxbury Sub. Milepost 108.02;** and

WHEREAS, in the interest of public safety and aiding motor vehicle traffic, the **Village** is willing, to undertake the entire expense for the installation of gates and lights at the crossings of **Central Street, Main Street (VT15), Maple Street (VT117), Park Street (VT2A);** and

WHEREAS, the **Village** is willing, to construct the new crossing, exclusive of the railroad tracks themselves, to include the crossing surface, gates, and signaling located at **Crescent Connector and Private Way at NECR, Railroad Project #13NECR04R** (hereinafter "New Crossing") (collectively the New Crossing and the Upgraded Crossings are referred to herein as the "Project"), located in the Village of Essex Junction, State of Vermont; and

WHEREAS, attached hereto and hereby made a part hereof as **Exhibit A** is a Project Plan Set showing the type, size, and location of the new at-grade crossing railroad equipment; and

WHEREAS, Railway is willing to take all necessary, reasonable steps to coordinate and implement the improvements to the above crossings upon the terms and conditions herein stated and not otherwise; and

WHEREAS, the Village is willing to undertake the entire cost and expense of future maintenance of the proposed roadway crossing surface; and

WHEREAS, the Village is satisfied with the existing surface condition and maintenance practices for the crossings; and

WHEREAS, said Project shall be constructed in accordance with full plans and full designs which shall be subject to the mutual approval of **Railway and Village and the State of Vermont Department of Transportation (Vtrans)**;

WHEREAS, the Village is simultaneously executing an Easement Agreement with CV Properties Incorporated and Railway to acquire the necessary permanent and temporary easements to construct and maintain portions of the proposed new Crescent Connector roadway, road grade crossing and parking areas, access drives, and public and private utilities, and paid mutually acceptable compensation for same.

NOW, THEREFORE, in consideration of the mutual covenants herein contained, it is mutually agreed as follows:

I. Performance of Work

The **Village** and **Railway** will each perform various items of work as described below:

A. WORK TO BE PERFORMED AND MATERIALS FURNISHED BY EITHER VILLAGE OR ITS CONTRACTOR AT VILLAGE EXPENSE.

1. Utility Construction

Bear responsibility for the reconstruction, if applicable, of the existing utility lines over the track, or under, which are a direct result of the **Project**. All overhead utility crossings that stay above the tracks will be raised in accordance with **Railway** requirements and specifications. The **Village** shall be responsible to properly permit and obtain **Railway** written approval of all utility crossings.

B. WORK TO BE PERFORMED AND MATERIALS FURNISHED BY THE RAILWAY AT VILLAGE EXPENSE.

1. Engineering and Bill Preparation

Perform preliminary engineering, construction engineering and special engineering review and inspection, including field and office work and preparation of bills for the **Project**.

2. Project Plans & Specifications and Construction

Except as otherwise herein provided, furnish all plans, engineering, supervision, labor, material, supplies and equipment necessary for construction of the proposed crossing warning systems at the Upgraded Crossings, and the road crossing surface, utility and signal sleeves, and the crossing signaling at the New Crossing.

3. Roadway Construction

The **Railway** or its contractor, pursuant to the final and VTRANS approved plans, shall construct the adjacent street roadbed including pavement structure, pavement surface, shoulders, sidewalks, pavement striping, erosion control and tree cutting in accordance with the attached drawings "Proposed Crossing Layouts", and "Proposed Road Crossing Profiles" at the New Crossing attached as **Exhibit A**.

The **Railway** shall take necessary, reasonable steps to update crossing pavement markings and warning signage with the project limits.

4. Construction of Crossing Surface at Crossing

The **Railway** or its contractor will remove the existing crossing surface, and install new track and crossing surface for the mainline crossings in accordance with the attached drawings "Proposed Crossing Layouts", attached as **Exhibit A**.

The **Railway**, with funding obtained by the Village from Vtrans, but in no instance at any expense to Railway, will install new, replace or relocate existing lights and gates and related ancillary crossing safety equipment at the crossing sites in accordance with the attached signal drawings "NECR00035, NECR00737, NECR00767, NECR10760, NECR10802, NECR10809, NECR10818, NECR10828, NECR10851, NECR10888, NECR10699, and NECR10954", attached as **Exhibit A**.

The **Railway** or its contractor will undercut, raise and surface track in accordance with the attached drawings "Proposed Track Profile Raise", attached as **Exhibit A**.

The **Village** shall be responsible for the track costs during initial construction but shall not be responsible for the ongoing maintenance or future replacement of the track.

5. Maintenance of Traffic

Village shall be responsible for all traffic detours, maintenance of traffic, and all other roadway modifications, permanent or temporary, necessary for the **Railway** to construct roadway improvements and for the **Railway** to complete crossing surface and warning device installations. The Railway shall coordinate with the Village and will not close any travel lanes until Village permission is granted.

6. Schedule & Notification

The **Railway** or its contractor will provide a project construction schedule, which conforms with the project deadlines for the Village's appropriation of VTRANS funding, and notify the **Village** at least sixty (60) days prior to the start of construction.

The **Railway** will begin procurement and construction of the **Project** after this Agreement is fully executed, and the **Railway** shall notify the **Village** within five (5) days of contractor award.

7. Flagging

The **Railway** will schedule and hire a flagger at the Village's expense during phase one of the construction, which includes construction of the New Railway Crossing

and any work performed to the Upgraded Crossings, as deemed necessary by the **Railway**. For any other construction, the **Village** shall be responsible for the cost of a flagger only when the work performed by the **Railway**, its contractor or the **Village** or its contractor is beyond the boundary of a, to be installed, protective fence, or at the intersection of a rail crossing and the Connector Road.

C. COSTS AND PAYMENTS.

Installation costs for the **Project** are estimated to be \$2,971,930 as shown on the attached **Exhibit B** and incorporated herein. The **Village** hereby agrees to pay the **Railway**, the actual project cost defined in this section. The **Railway** will provide a final invoice ninety (90) days after the end of **Project** construction/installation. The **Village** will have up to ninety (90) days to pay **Project** invoices. If a contractor is used, the **Village** will pay, or cause to have paid, the **Railway** contractor for work on the **Project**.

II. Construction Plans and Specifications

The **Railway** or its contractors shall perform its work on the **Project** in accordance with detailed plans and specifications prepared by the **Village** or its contractors and submitted to **Railway** for approval. No work on the **Project** shall be performed prior to approval of the plans by the **Railway** and the **Village** or their respective authorized representatives. Nothing provided in this Agreement with respect to said plans and specifications shall be construed or deemed to be ratification or an adoption by the **Railway** of either or both said plans as its own.

III. Traffic Protection, Safety and Flagging

All work herein provided for, to be done by the **Village** or its contractors on the **Project** shall be performed at such time and in such manner as not to interfere unnecessarily with the movement of trains or traffic upon the tracks of the **Railway**. The **Village** or its contractors shall enter into **Railway's** standard "Right-of-Entry Agreement" with **Railway** prior to the first entry onto **Railway's** right-of-way. The **Village** or **Village's** contractor shall reimburse **Railway** for all actual costs related to flagging per *Section I.B.7.* of this Agreement. **Railway** will submit bills for flagging and other protective services and devices during the progress of the work contemplated by this Agreement.

Wherever the safeguarding of trains or traffic of the **Railway** is mentioned in this Agreement, it is intended to cover and include all users of the **Railway's** tracks having permission for such use.

IV. Conditions, Restrictions, and Limitations

All the aforementioned rights are granted subject to the terms, provisions, conditions, restrictions, limitations, covenants, reservations and exceptions contained in this Agreement, including, without limitation, those set forth in **Exhibit C** attached hereto and by this reference incorporated herein; the **Village**, in the exercise of the rights and in the conduct of the **Project**, shall and will do, keep, observe and perform each and all of the terms, provisions, conditions, restrictions, limitations, covenants, reservations and exceptions.

The **Village** shall ensure that its contractor(s), if any, obtain and provide to **Railway** evidence that such contractor(s) have procured the insurance coverage described in **Exhibit C**, hereto attached, covering the **Village** or its contractors' work on **Railway's** property covering this **Project**. This provision shall not apply to any contractor procured by the **Railway** to perform work on behalf of the **Railway**.

V. Compliance with United States Federal Regulations

If the **Railway** enters into a contract or agreement with a contractor to perform any of the work, which the **Railway** is required to perform under the terms of this Agreement, the **Railway**, for itself, its assigns and successors in interest, agrees that it will not unlawfully discriminate in its choice of contractors.

VI. Signatory Warranty

Each signatory to this Agreement certifies that he has the authority to enter into this Agreement on behalf of his respective organization.

VII. Term, Ownership, and Maintenance Responsibilities

The term of this Agreement commences on the date on the top of page one hereof, but no earlier than the date of the last signature on the Easement Agreement, and shall continue for forty-eight (48) months thereafter. The **Village's** and the **Railway's** obligations under the following paragraphs of this Provision shall survive the term of this Agreement.

Upon completion of the Project, the **Village**, at the **Village's** expense, will be responsible for the maintenance of the highway roadbed outside of the railway ties and the roadway up to the edge of the railroad crossing surface to include but not limited to all pavement structure, pavement surface, shoulders, drainage, sidewalks, pavement striping, advance pavement markings, erosion control, tree cutting, mowing, and advance warning signs, and also the highway roadbed, for the width of the rail ties within the crossing area.

Upon completion of the New Crossing, the **Village**, at the **Village's** expense will be responsible for the maintenance of the crossing warning devices, equipment and all associated components of the **Railway** warning system, the crossing surface plus the highway roadbed for the width of the rail ties within the crossing area. Any and all maintenance and repair shall be performed by **Railway** or its contractors. The **Village** shall pay **Railway** the cost of the maintenance and repair of the New Crossing surface and warning devices. The actual costs of maintenance and repair of the New Crossing surface, warning devices, including, without limitation, signs, flashing lights, bells, gates, and all associated components will be billed to **Village** as the expenses are incurred, but no more than annually.

Upon completion of the Upgraded Crossings, the **Railway**, at **Railway** expense, will be responsible for the maintenance of the crossing warning devices, equipment and all associated components of the **Railway** warning system.

The **Village**, at the **Village's** expense, will be responsible for the complete future repair or replacement of the New Crossing surface and warning devices required due to Acts of God, normal wear and tear, damage from accidents where third party accountability cannot be determined and any other cause not attributable to the **Railway**.

VIII. Assignment

Neither party has the right to assign this Agreement without the consent of the other. Notwithstanding the foregoing, this Agreement shall inure to the benefit of and be binding on the parties hereto, their successors, and assigns.

IX. Construction

The **Railway** shall complete all construction within one (1) year of the execution date of this Agreement, or as outlined in Section 1.B.6. of this Agreement. If construction has commenced and is not complete, the **Railway** shall provide the **Village** a time line, to be approved by the Village, for the completion of the construction that may include a reduction in the amount billed to the Village due to the delay in project completion, but in no case shall include an increase in costs.

X. Insurance and Indemnification

The **Village** shall procure the insurance coverages for the Project identified in Exhibit C, attached hereto and incorporated herein and conforming to all of the requirements and conditions therein contained.

IF AND TO THE EXTENT ALLOWED BY LAW, VILLAGE AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS RAILWAY, ITS AFFILIATED AND PARENT COMPANIES, AND THEIR RESPECTIVE OFFICERS, AGENTS, AND EMPLOYEES FROM AND AGAINST ANY AND ALL CLAIMS, DEMANDS, LOSSES, DAMAGES, CAUSES OF ACTION, SUITS, AND LIABILITIES OF EVERY KIND (INCLUDING REASONABLE ATTORNEYS' FEES, COURT COSTS, AND OTHER EXPENSES RELATED THERETO) FOR INJURY TO OR DEATH OF A PERSON OR FOR LOSS OF OR DAMAGE TO ANY PROPERTY, ARISING OUT OF OR IN CONNECTION WITH ANY WORK DONE, ACTION TAKEN OR PERMITTED BY THE VILLAGE, ITS SUBCONTRACTORS, AGENTS OR EMPLOYEES UNDER THIS AGREEMENT. IT IS THE EXPRESS INTENTION OF THE PARTIES HERETO, VILLAGE AND RAILWAY, THAT THE INDEMNITY PROVIDED FOR IN THIS PARAGRAPH, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFIES RAILWAY FOR ITS OWN NEGLIGENCE, WHETHER THAT NEGLIGENCE IS ACTIVE OR PASSIVE, OR IS THE SOLE OR A CONCURRING CAUSE OF THE INJURY, DEATH OR DAMAGE; PROVIDED THAT SAID INDEMNITY SHALL NOT PROTECT RAILWAY FROM LIABILITY FOR DEATH, INJURY OR DAMAGE ARISING SOLELY OUT OF THE CRIMINAL ACTIONS OF RAILWAY, ITS OFFICERS, AGENTS AND EMPLOYEES. IT IS STIPULATED BY THE PARTIES THAT RAILWAY OWES NO DUTY TO VILLAGE, VILLAGE'S CONTRACTOR, OR THE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS OR INVITEES OF EITHER, TO PROVIDE A REASONABLY SAFE WORK PLACE AND THAT ALL PARTIES ENTERING ONTO RAILWAY PROPERTY DO SO AT THEIR SOLE RISK.

Notwithstanding the foregoing, the parties agree that the insurance coverages identified in Exhibit C are material requirements of this Agreement and such coverages shall not be limited by the Village's inability to indemnify and hold harmless the Railway under the Vermont Constitution.

The **Village's** and the **Railway's** obligations under this Section X shall survive the term of this Agreement.

XI. General Provisions

SOLE BENEFIT. This Agreement is intended for the sole benefit of the parties hereto. Nothing in this Agreement is intended or may be construed to give any person, firm, corporation, or other entity, other than the parties hereto and their respective officers, agents, employees, parent corporation, subsidiaries, affiliates, successors, and permitted assigns, any right or benefit pursuant to any provision or term of this Agreement, and all provisions and terms of this Agreement are and will be for the sole and exclusive benefit of the parties to this Agreement.

WAIVER. Any waiver at any time by one Party of a breach hereof by the other Party will extend only to the particular breach so waived and will not impair or affect the existence of any provision, condition, obligation, or requirement of this Agreement or the right of either party hereto thereafter to avail itself of any rights under this Agreement with respect to a subsequent breach. No provision of this Agreement shall be waived by any act or knowledge of the parties hereto, but only by a written instrument signed by the party waiving a right hereunder.

SEVERABILITY. If any part of this Agreement is determined to be invalid, illegal or unenforceable, such determination shall not affect the validity, legality or enforceability of any other part of this Agreement and the remaining parts of this Agreement shall be enforced as if such invalid, illegal or unenforceable part were not contained herein.

MERGER. This Agreement and the exhibits attached hereto contain the entire agreement of the parties with respect to the subject matter of this Agreement, and supersede all prior negotiations, agreements and understandings with respect thereto, written or oral. This Agreement is not intended to extinguish, supersede or supplant the Easement Agreement, executed on the same date hereof, or any portion thereof.

AMENDMENT. No provision of this Agreement shall be modified without the written concurrence of the parties hereto.

HEADINGS. The headings of the Sections of this Agreement are inserted for convenience only and are not intended to govern, limit or aid in the construction of any term or provision of this Agreement.

CONSTRUCTION OF TERMS. The terms of this Agreement have been arrived at after mutual negotiation and, therefore, it is the intention of the Parties that its terms not be construed against any of the Parties by reason of the fact that it was prepared by one of the Parties.

GOVERNING LAW. This Agreement will be construed in accordance with the laws of the State of Vermont.

COUNTERPARTS. This Agreement may be executed in any number of counterparts, each of which may be deemed an original for any purpose.

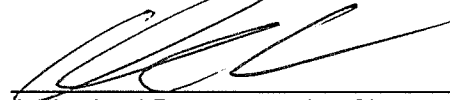
IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the day and year hereinafter written.

WITNESS:





Village of Essex Junction, VT



Authorized Representative Signature

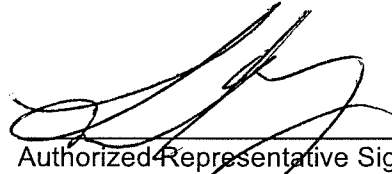
Andrew Brown, Village Trustee President
Authorized Representative (print) / Title

WITNESS:



Dawn Werner

New England Central Railroad, Inc.



Authorized Representative Signature

Leonard Wayne President
Authorized Representative (print) / Title

Exhibit A
Proposed Rail Crossing Surface Project Plans

See Enclosed Files:

DWG_Crescent_PE_Surface_181214.pdf (13 Pages)
DWG_Crescent_Track_Raise_181214.pdf (16 Pages)
 042518_NECR00035.pdf (13 Pages)
 042518_NECR00737.pdf (2 Pages)
 042518_NECR00767.pdf (16 Pages)
 042518_NECR10760.pdf (12 Pages)
 042518_NECR10802.pdf (1 Page)
 042518_NECR10809.pdf (60 Pages)
SIG_042518_NECR10818.pdf (20 Pages)
SIG_042518_NECR10828.pdf (16 Pages)
SIG_042518_NECR10815.pdf (21 Pages)
SIG_042518_NECR10888.pdf (12 Pages)
 SIG_042518_NECR10699.pdf (1 Page)
SIG_042518_NECR10954.pdf (14 Pages)

Exhibit B
Rail Construction and Equipment Cost Estimate

See Enclosed File:

CM Exhibit B FAE_190228_Crescent Connector.pdf (One Page)

Force Account Estimate

Preliminary

Railroad:	New England Central Railroad (NECR)	Region:	Northeast
Agency:	Essex Junction/ Vtrans	State:	VT
DOT #:	247728H, 247707P, 247706H, 247705B, 974526P, 247726U, 247727B,	COUNTY:	Chittenden
ROADWAY:	North Street, Central Street, Main Street, Maple Street, Crescent Connector, Park Street (North), Park Street (South)	CITY:	Essex Junction
DESCRIPTION:	Existing crossing Surface and warning signal improvement including track raise and roadway approach modifications to meet proposed track grades and superelevations. Crossing warning signals improvements include interconnection with proposed traffic signal modifications. Project includes new crossing surface and warning signals at proposed Crescent Connector at-grade crossing.		
AGENCY PROJECT NUMBER:	Unknown	ESTIMATE SUBJECT TO REVISION AFTER:	08/14/19

PRELIMINARY ENGINEERING:

Contracted & Administrative Engineering Services	\$	50,500
Subtotal	\$	50,500

CONSTRUCTION & CLOSEOUT:

Contracted & Administrative Engineering Services	\$	343,436
Subtotal	\$	343,436

FLAGGING SERVICE:

Contracted or Railroad Flagmen Services	60 Days	\$	84,000
Subtotal		\$	84,000

UTILITY WORK:

Power Service	\$	-
Other	\$	-
Subtotal	\$	-

CONTRACT WORK:

Outside Services	\$	362,090
Design & Labor & Material	\$	-
Subtotal	\$	362,090

RAILROAD TRACK:

Labor & Material	\$	964,490
Subtotal	\$	964,490

RAILROAD SIGNAL & COMMUNICATION:

Labor & Material	\$	1,087,352
Subtotal	\$	1,087,352

PROJECT SUBTOTAL:

	\$	2,887,508
Public Project Admin: 3.00%	\$	86,625
Contingencies: 10.00%	\$	288,751

PROJECT TOTAL:

	\$	3,262,884
CURRENT AUTHORIZED BUDGET:	\$	290,954
TOTAL SUPPLEMENT REQUESTED:	\$	2,971,930

DIVISION OF COST:

Agency	100.00%	\$	2,971,930
Railroad	0.00%	\$	-

NOTE: Estimate is based on FULL CROSSING CLOSURE during work by Railroad Forces & Contractors.

This estimate has been prepared based on site conditions, anticipated work duration periods, material prices, labor rates, manpower and resource availability, and other factors known as of the date prepared. The actual cost for the railroad work may differ based upon the agency's requirements, their contractor's work procedures, and/or other conditions that become apparent once construction commences or during the progress of the work.

Estimated prepared by: NVT(PEI)

Approved by: CB(NECR)

Public Project Department

DATE: 02/15/19

REVISED: 01/00/00

DATE: 02/27/19

Exhibit C

Insurance Requirements

Village shall, at its expense, procure and maintain throughout the term of this Agreement, **Commercial General Liability** coverage in amount of not less than \$2,000,000 combined single limit and \$6,000,000 aggregate for all damages arising out of bodily injury to or death of persons and for loss of or damage to property.

Village shall, at its expense, procure and maintain throughout the term of this Agreement, **Commercial Automobile Insurance** for all owned, non-owned and hired vehicles with a combined single limit of not less than \$1,000,000 for Bodily Injury and Property Damage Liability.

Village shall, at its expense, procure and maintain throughout the term of this Agreement, **Workers' Compensation** coverage, including **Federal Employee Liability Act** coverage if applicable, for its workers and subcontractors in accordance with the requirements of the State or States in which said work is to be performed in the amount of \$1,000,000 unless otherwise provided by applicable statute.

Village shall, at its expense, procure and maintain throughout the term of this Agreement a policy of **Railway Protective Liability** coverage in the amount of \$2,000,000 per occurrence, \$6,000,000 aggregate with named insured as outlined herein. NOTICE: ONLY A POLICY OF RAILROAD PROTECTIVE LIABILITY INSURANCE WHICH SPECIFICALLY NAMES GENESSEE & WYOMING INC. AND ALL THEIR AFFILIATED PROPERTIES, INCLUDING NEW ENGLAND CENTRAL RAILROAD, INC., AS THE INSURED PARTIES IS ACCEPTABLE AND A COPY OF SAID POLICY MUST BE RECEIVED PRIOR TO THIS AGREEMENT BEING APPROVED ON BEHALF OF RAILWAY.

The policies as outlined herein shall name Railway, its parent and affiliates, as additional insured. The policy or policies, where applicable, shall contain ISO Endorsement CG 2417 deleting any policy exclusions for work performed within 50 feet of a railroad. The policies shall contain a waiver of subrogation in favor of Railway and shall be primary and non-contributory.

No cancellation or modification of any policy or modification of the coverage afforded under any endorsement shall be effective until ten (10) days' written notice thereof has been given to: New England Central Railroad, Inc. (NECR); Attn.: Public Projects Department: Jacob Smith jacob.smith@gwrr.com 13901 Sutton Park Dr., STE 345 Jacksonville, FL 32224 AND Genessee & Wyoming Inc. Attn: David Cuthbertson, 75 Hammond Street, Worcester, MA 01610 AND Genessee & Wyoming Railroad Services, Inc. Attn: General Counsel, 20 West Avenue, Darien, CT 06820.

Railway requires that each Insurance Carrier providing coverage must be an Admitted Company in the State for which this Agreement is written and has an A.M. Best rating of "A" or better and a financial class rating of 10 or better.

Village shall keep said insurance in full force and effect until all work on the Project is completed to the satisfaction of and accepted by Railway and thereafter until **Village** has fulfilled the provisions of this Agreement with respect to the removal of tools, equipment and materials from the Premises.

Evidence of all required insurance coverage must be furnished to Railway prior to the performance of any work under this Agreement on a certificate of insurance reasonably acceptable to Railway in form and substance.

CONTRACTOR RIGHT OF ENTRY LICENSE AGREEMENT

THIS AGREEMENT (the "Agreement") is made as of _____, 20____, (the "Effective Date"), by and between _____ Railroad ("Railroad") and _____ ("Licensee").

WITNESSETH:

WHEREAS, Licensee has submitted a written request or application to Railroad requesting permission to enter Railroad's property at or near the location specified in Section 1 below for the limited purpose of performing certain work; and

WHEREAS, Railroad is willing to grant to Licensee the limited right and permission to enter upon such property for the limited purpose of performing such work in accordance with the terms provided herein.

NOW THEREFORE, in consideration of these promises, the Agreement herein, and other good and valuable consideration the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

Section 1. LOCATION/PAYMENT/WORK PRACTICES:

1.1 Railroad hereby conveys to Licensee the limited right and permission to enter upon the Railroad's property located at or near Milepost _____, _____ Subdivision, Latitude: _____, Longitude: _____ located in _____, in the County of _____, State of _____ as reflected on the map attached hereto as Exhibit A and incorporated herein by reference (the "Property") for the purpose of Licensee, through its employees, agents or contractors to _____ (the "Work"); and

1.2 Upon payment of a fee referenced in Section 11 herein, Railroad hereby grants to Licensee, the right and permission to enter upon Railroad's Property for the purpose of performing the Work, subject to the terms, conditions and provisions set forth in this Agreement.

1.3 The Work shall be performed at the entire cost and expense of Licensee, in accordance with good and sound engineering practices, to the satisfaction of Railroad's Chief Engineer, or his duly authorized representative (the "Representative"), and in a manner to avoid accident, damage or harm to persons or property and delays to or interference with the operations of Railroad.

Section 2. PRIOR NOTICE/FLAGGING/OTHER CONDITIONS.

2.1 Licensee or Licensee's contractor shall notify Railroad's Representative at least five (5) business days before proceeding with any phase of the Work on the Property and shall abide by the instructions of said Representative concerning the safety of the Railroad. All persons entering the Property pursuant to the permission granted herein shall comply with and perform the Work in accordance with Genesee & Wyoming Inc.'s Code of Ethics and Conduct and all publicly available policies referenced therein, including but not limited to the Contractor Safety Rules (collectively, the "Policies"), which can be located at https://www.gwrr.com/investors/pdfs/GWR_US_Ethics_073008.pdf and <https://www.gwrr.com/download.axd/0774e378f35949f59f232ef1adbc63e7.pdf?d=Contractor%20Safety%20Rules>. The following Personal Protective Equipment ("PPE") must be worn at all times on the Property: Hard Hats, Safety Footwear, certified Eye Protection with side shields and approved High-Visibility Work wear. Additional forms of PPE may be required under certain circumstances as specified in the aforesaid Contractor Safety Rules.

2.2 Railroad shall furnish such personnel, flagman or watchman which in Railroad's sole discretion may be necessary to protect the facilities and traffic of Railroad during the performance of said Work. The Licensee or its contractor shall reimburse Railroad promptly for the actual cost of said services, including all applicable surcharges, upon receipt of bill or bills therefor.

2.3 No equipment of Licensee or of its contractor, shall be placed and operated, nor Work permitted to be performed at a distance closer than fifty (50) feet from the center of track, nor equipment moved across the Railroad's track(s) at other than an established public crossing, unless prior arrangements have been made with said Chief Engineer or his Representative. Appropriate precautions must be taken by Licensee and its contractor to avoid interference with or damage to Railroad's facilities during the course of the Work.

2.4 Prior to entering upon the Property, Licensee agrees to comply with **the RAILROAD'S ROADWAY WORKER PROTECTION TRAINING POLICY** as set forth in Exhibit B attached hereto and incorporated herein by reference, if such training is applicable as determined in the sole discretion of Railroad.

2.5 The permission herein granted is subject to all existing leases, licenses and occupancies of the Property by third parties. Licensee acknowledges that, in agreeing to this Agreement, Railroad acts on its own behalf only and has no authority to act, and does not claim to act, on behalf of any other entity or person with respect to any right any such other entity or person may have to object to this Agreement. Licensee shall secure the consent, and protect the facilities, of each such third party occupier of the Property.

2.6 Licensee shall implement and enforce a safety program conforming to all applicable requirements of federal, state and local laws, rules and regulations.

Section 3. LEGAL COMPLIANCE.

Licensee expressly agrees, at its own cost and expense, to comply and cause its agents, employees and contractor(s) to comply with all applicable ordinances, rules, regulations, requirements and laws of any governmental authority (state, federal or local) having jurisdiction over the Work or Licensee's activities, including the location, contact, excavation and protection regulations of the Occupational Safety and Health Act and state "One Call" - "Call Before You Dig" requirements. Licensee shall indemnify, defend and save harmless Railroad and its affiliates from and against, and shall pay, all expenses, damages, penalties, and claims, including without limitation reasonable counsel fees, that may arise from, or be imposed because of, the failure of Licensee to comply with this Section.

Section 4. LIABILITY/INDEMNITY.

4.1 Licensee hereby assumes risk of and agrees to indemnify, defend, protect and save Railroad and its affiliates, and each of their directors, officers, agents and employees of Railroad, harmless from and against (a) injury to or death of any person or persons whomsoever, including but not limited to the agents, employees or contractor(s) of the parties hereto, and (b) the loss or damage to any property whatsoever, including property claims, demands, suits, judgments or expenses incurred in connection therewith. resulting from or arising out of the acts or omissions of Licensee, its agents, employees or contractor(s), or resulting from, arising out of, or occurring in connection with the entry or presence of Licensee, its agents, employees or contractor(s) on the Property, or resulting from, arising out of, or occurring in connection with the performance or execution of the Work performed under this Agreement or incidental thereto.

4.2 IN NO EVENT UNDER THIS AGREEMENT WILL RAILROAD HAVE ANY LIABILITY FOR INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES. THE TERM "RAILROAD" AS USED IN THIS SECTION 4 SHALL INCLUDE THE SUCCESSORS, ASSIGNS, AND AFFILIATED COMPANIES OF RAILROAD, AND ANY OTHER RAILROAD COMPANY THAT MAY BE LAWFULLY OPERATING UPON AND OVER THE TRACKS, OR THE TRACKS

CROSSING OR ADJACENT TO THE TRACKS, AND THE OFFICERS, AGENTS, INVITEES AND EMPLOYEES THEREOF.

Section 5. INSURANCE.

Licensee agrees to comply with the **INSURANCE REQUIREMENTS FOR CONTRACTOR RIGHT-OF-ENTRY LICENSE AGREEMENTS**, attached hereto as Exhibit C and incorporated herein by reference, and shall provide the required Certificate of Insurance to Railroad with return of the signed duplicate original of this Agreement prior to the commencement of the Work.

Section 6. NOTIFICATION.

Licensee shall promptly notify said Chief Engineer of any loss, damage, injury or death arising out of or in connection with said Work.

Section 7. RESTORATION.

Upon completion of the Work or the term of the Agreement, Licensee shall promptly remove from the Property all tools, equipment and materials placed thereon by Licensee. Licensee shall restore the Property to the same state and condition as when Licensee first entered thereon and shall leave the Property in a condition satisfactory to Railroad's Chief Engineer or Representative.

Section 8. TERM/TERMINATION.

This Agreement and the permission conferred and the license granted by it does not constitute a grant of permanent easement and shall terminate upon completion of the Work or at midnight 60 calendar days following the Effective Date, whichever occurs first, unless extended in writing by Railroad. Notwithstanding the foregoing, Railroad shall have the right to terminate this Agreement and the license granted hereunder immediately if Licensee defaults on any of the terms and/or conditions set forth herein.

Section 9. COMPLIANCE AND DOCUMENTATION.

Licensee agrees, and shall cause its agents, employees or contractor(s), to (a) understand and comply with the terms and conditions of this Agreement, (b) carry a copy of this Agreement at all times while on the Property, and (c) promptly present the copy of this Agreement to any employee of Railroad upon request.

Section 10. RAILROAD CONTACT INFORMATION.

The Railroad's Chief Engineer is:

The Railroad's Representative is:

Trainmaster, _____

Railroad **EMERGENCY** Phone Number: _____
Reference Location: _____ Subdivision _____ Milepost _____

Section 11. FEE.

Upon execution of this Agreement, Licensee shall pay Railroad the sum of \$1500 toward the cost of preparing this Agreement and for the privileges granted to the Licensee.

Section 12. NON-WAIVER.

If either party fails to enforce its respective rights under this Agreement, or fails to insist upon the performance of the other party's obligations hereunder, such failure shall not be construed as a permanent waiver of any rights or obligations in this Agreement.

Section 13. APPLICABLE LAW.

This Agreement shall be governed by and construed under the laws of the State of SC, without regard to the choice of law provisions thereof.

Section 14. ASSIGNMENT.

Licensee shall not assign this Agreement without the prior written consent of Railroad, which consent may be granted or withheld at Railroad's sole discretion. This Agreement shall be binding upon the parties and their respective successors and permitted assigns.

Section 15. INTERPRETATION/SEVERABILITY.

To the maximum extent possible, each provision of this Agreement shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement shall be prohibited by, or held to be invalid under, applicable law, such provision shall be ineffective solely to the extent of such prohibition or invalidity, and this shall not invalidate the remainder of such provision or any other provision of this Agreement.

Section 16. COUNTERPARTS.

This Agreement may be executed in multiple counterparts, each of which shall, for all purposes, be deemed an original but which together shall constitute one and the same instrument, and counterparts of this Agreement may also be exchanged via electronic facsimile machines and any electronic facsimile of any party's signature shall be deemed to be an original signature for all purposes.

Section 17. HEADINGS.

The headings of the Sections of this Agreement are inserted for convenience only and are not intended to govern, limit or aid in the construction of any term or provision of this Agreement.

Section 18. CONSTRUCTION OF TERMS.

The terms of this Agreement have been arrived at after mutual negotiation and, therefore, it is the intention of the Parties that its terms not be construed against any of the Parties by reason of the fact that it was prepared by one of the Parties.

[Signature Page Follows]

SAMPLE

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date.

RAILROAD:

LICENSEE:

By: _____

Name:

Its:

By: _____

Name:

Its:

SAMPLE

EXHIBIT A

DESCRIPTION OF PROPERTY

SAMPLE

EXHIBIT B

ROADWAY WORKER PROTECTION TRAINING POLICY

A. In order to maintain the integrity and security of the Property and Railroad's operations, prior to each employee of Licensee and its contractor entering upon the Property (each a "Licensee Applicant"), Licensee shall cause its employees, and shall cause its contractor to require its employees, to successfully complete the Genesee & Wyoming Inc. Roadway Worker Training Program (the "Program") on an annual basis to be administered by Roadway Worker Training, Inc. (the "Program Administer"), at the sole cost and expense of the Licensee or contractor, as the case may be (the current cost of which is \$35.00 USD per Licensee Applicant). The Program shall be available via the internet and instructions to access the Program set forth in Paragraph K.

B. Upon completion of the Program, the Licensee Applicant shall be required to satisfactorily complete a test administered by the Program Administer. The Program Administer shall be responsible for scoring such test and verifying whether the Licensee Applicant satisfies the requirements of Railroad to perform work on the Property. Any Licensee Applicant who fails to achieve a satisfactory score or who refuses to complete such test shall not be permitted to enter the Property.

C. When a satisfactory score is achieved by the Licensee Applicant, the Program Administrator shall furnish a certificate (the "Certificate") to the business address of Licensee or its contractor, as the case may be, for distribution to the Licensee Applicant. Until receipt of the Certificate from the Program Administrator, the Licensee Applicant shall print a temporary certificate authorizing the Licensee Applicant's access to the Property.

D. For the avoidance of doubt, satisfactory completion of the Program as evidenced by receipt of a Certificate does not in itself grant permission to the Licensee Applicant to enter the Property, except as expressly permitted under and in strict compliance with the terms of the Agreement.

E. The Licensee Applicant shall be responsible for carrying the Certificate at all times when on the Property.

F. All communications regarding Licensee Applicants, the Program, or any other matters described in this Exhibit B should be addressed to:

Michael Lundell
GWI Safety Department
13901 Sutton Park Drive South, Suite 180
Jacksonville, FL 32224
Mlundell@gwrr.com
(904) 596-1766

G. Licensee and its contractor shall be responsible for managing and recovering Certificates from their employees who resign, retire or are terminated.

H. Notwithstanding the receipt of a Certificate by a Licensee Applicant, Railroad reserves the right to reject any Licensee Applicant from entering upon the Property in Railroad's sole discretion in accordance with:

- i) Genesee & Wyoming Inc. Code of Ethics and Conduct,
- ii) Genesee & Wyoming Inc. Contractor Safety Rules, or
- iii) upon failure to comply with the terms and conditions of the Agreement and all applicable laws.

I. To the extent that any portion of the requirements set forth in this Exhibit B violates any law, ordinance, statute or regulation that portion shall be ignored and the Licensee or contractor, as the case may be, shall comply with all remaining portions of Railroad's Roadway Protection Training Policy, the Program or the related application process.

J. Licensee or its contractor, as the case may be, shall be primarily responsible for enforcement of the Program; *provided, however*, that both Railroad and the Federal Railroad Administration reserve the right to audit Licensee and its contractor, as the case may be, for compliance with the Program and Railroad's Roadway Protection Training Policy. Should a Licensee or its contractor, as applicable, be found out of compliance, any and all fines or penalties incurred by Railroad due to such non-compliance shall be the sole obligation of the Licensee.

K. To access the G&W Roadway Worker Protection Training for Railroad Contractors Course on the RWT On-Line please follow these instructions:

- Start at website www.rrtrainers.com
- Click on the "On-Line Courses" button
- Select the G&W course by clicking on the course name
- On the right hand side of the page select "New User Registration"
- Fill out all of the fields on the registration page and submit
- You will receive a username and password via email
- After receiving the username and password go back to the On-Line Courses page and select the G&W course again
- Complete the registration process and training.

EXHIBIT C

INSURANCE REQUIREMENTS FOR RIGHT-OF-ENTRY LICENSE AGREEMENT

(a) The Licensee shall, at its own cost and expense, prior to entry onto the Property or the commencement of any work pursuant to this Agreement, procure and thereafter maintain throughout the term of this Agreement the following types and minimum amounts of insurance:

(i) The Licensee shall maintain Public Liability or Commercial General Liability Insurance ("CGL"), including Contractual Liability Coverage and CG 24 17 "Contractual Liability – Railroads" endorsement, covering all liabilities assumed by the Licensee under this Agreement, without exception or restriction of any kind, with a combined single limit of not less than Two Million Dollars (\$2,000,000) for Bodily Injury and/or Property Damage Liability per occurrence, and an aggregate limit of not less than Six Million Dollars (\$6,000,000) per annual policy period. Such insurance policy shall be endorsed to provide a **Waiver of Subrogation in favor of the Railroad and its affiliates** and shall name the **Railroad and its affiliates as Additional Insured**. An Umbrella or Excess policy may be utilized to satisfy the required limits of liability under this section, but must "follow form" and afford no less coverage than the primary policy.

(ii) The Licensee shall maintain Commercial Automobile Insurance for all owned, non-owned and hired vehicles with a combined single limit of not less than One Million Dollars (\$1,000,000) for Bodily Injury and/or Property Damage Liability per occurrence. Such insurance policy shall be endorsed to provide a **Waiver of Subrogation in favor of the Railroad and its affiliates** and shall name the **Railroad and its affiliates as Additional Insured**.

(iii) The Licensee shall maintain Statutory Workers' Compensation and Employers' Liability Insurance for its employees (if any) with minimum limits of not less than One Million Dollars (\$1,000,000) for Bodily Injury by Accident, Each Accident; One Million Dollars (\$1,000,000) for Bodily Injury by Disease, Policy Limit; One Million Dollars (\$1,000,000) for Bodily Injury by Disease, Each Employee. Such insurance policy shall be endorsed to provide a **Waiver of Subrogation in favor of the Railroad and its affiliates**.

(iv) **Prior to construction within 50' of the railroad tracks**, the Licensee shall purchase Railroad Protective Liability Insurance naming the Railroad as the named insured with limits of Two Million Dollars (\$2,000,000) each occurrence and Six Million Dollars (\$6,000,000) aggregate limit. The policy shall be issued on a standard ISO form CG 00 35 12 03 or, if available, obtain such coverage from the Railroad.

(b) The following general insurance requirements shall apply:

(i) The specified insurance policies must be effected under standard form policies underwritten by insurers licensed in the state where work is to be performed, and carry a minimum Best's rating of "A-" and size "Class VII" or better. The Railroad reserves the right to reject as inadequate any insurance coverage provided by an insurer that is rated less than the ratings specified in this section.

(ii) All coverages shall be **primary and non-contributory to any insurance coverages maintained by the Railroad and its affiliates**.

(iii) All insurance policies shall be endorsed to provide the Railroad with thirty (30) days prior written notice of cancellation, non-renewal or material changes.

(iv) The Licensee shall provide the Railroad with certificates of insurance evidencing the insurance coverages, terms and conditions required prior to commencement of any activities on or about the Property. Said certificates should reference this Contractor Right of Entry License Agreement by agreement date and description and shall be furnished to the Railroad at the following address, or to such other address as the Railroad may hereafter specify:

C/O Genesee & Wyoming Railroad Services, Inc.
13901 Sutton Park Drive South, Suite 160
Jacksonville, FL 3224

(v) If any policies providing the required coverages are written on a Claims-Made basis, the following shall apply:

- (1) The retroactive date shall be prior to the commencement of the work;
- (2) The Licensee shall maintain such policies on a continuous basis;
- (3) If there is a change in insurer or policies are canceled or not renewed, the Licensee shall purchase an extended reporting period of not less than three (3) years after the contract completion date; and
- (4) Licensee shall arrange for adequate time for reporting of any loss under this Agreement.

(c) The Railroad may require the Licensee to purchase additional insurance if the Railroad reasonably determines that the amount of insurance then being maintained by the Licensee is insufficient in light of all relevant factors. If the Licensee is required to purchase additional insurance, the Railroad will notify the Licensee. Failure of the Licensee to comply within thirty (30) days shall be considered a default subject to termination of the Agreement.

(d) Furnishing of insurance by the Licensee shall not limit the Licensee's liability under this Agreement, but shall be additional security therefore.

(e) The above indicated insurance coverages shall be enforceable by any legitimate claimant after the termination or cancellation of this Agreement, or any amendment hereto, whether by expiration of time, by operation of law or otherwise, so long as the basis of the claim against the insurance company occurred during the period of time when the Agreement was in effect and the insurance was in force.

(f) Failure to provide the required insurance coverages or endorsements (including contractual liability endorsement) or adequate reporting time shall be at Licensee's sole risk.

(g) If contractors are utilized, the Licensee agrees to require all such contractors to comply with the insurance requirements of this Exhibit C.