STATE OF VERMONT
AGENCY OF TRANSPORTATION

Scoping Report

FOR

Irasburg STP DECK(50)

Vermont Route 14, Bridge 124 over Black River

October 19, 2020

Table of Contents

I. Site Information

Bridge 124 is a State-owned bridge over Black River located on Vermont Route 14 approximately 0.4 miles north of the junction with VT Route 58. The existing bridge conditions were gathered from a combination of a Site Visit, the Inspection Report, Route Log and the existing Survey. See correspondence in the Appendix for more detailed information.

Roadway Classification	Major Collector
Bridge Type	Single Span Rolled Beam Bridge
Bridge Length	85 feet
Year Built	1939, reconstructed in 1968
Ownership	State of Vermont

Need

Bridge 124 carries VT Route 14 across Black River. The following is a list of deficiencies of Bridge 124 and VT Route 14 in this location:

1. The reinforced concrete deck is in fair condition. There are multiple correlating areas where depressions have formed along the top of the deck and delaminated areas are present in the soffit with efflorescence leakage and saturation. Minor map cracking and saturation is present in various areas around the deck. Additionally, the membrane has been compromised in a few locations. Both the upstream and downstream fascias are in poor condition with spalling and delaminations along the entire length. Spalling has exposed longitudinal and transverse bars with rust scaling and are starting to thin.

2. The bridge is narrow.

Traffic

A traffic study of this site was performed by the Vermont Agency of Transportation. The traffic volumes are projected for the years 2023 and 2043.

Traffic Data	2023	2043
AADT	2,700	3,000
DHV	310	350
ADTT	270	400
%T	13.4	17.9
%D	55	55

Design Criteria

The design standards for this bridge project are the Vermont State Standards, dated October 22, 1997. Minimum standards are based on an ADT of 3000, a DHV of 350, and a design speed of 40 mph for a Major Collector.

Design Criteria	Source	Existing Condition	Minimum Standard	Comment
Approach Lane and Shoulder Widths	VSS Table 5.3	11'/4' (30')	11'/3' (28')[1]	
Bridge Lane and Shoulder Widths	VSS Table 5.3	11'/2' (26')	11'/4' (30')[1]	Substandard
Clear Zone Distance	VSS Table 5.5	No Issues Noted	14' fill 12' cut	
Banking	VSS Section 5.13	NC	8% (max)	
Speed	VSS Section 5.3	40 mph (Posted)	40 mph (Design)	
Horizontal Alignment	AASHTO Green Book, Table 3.10b	$R = \infty$		
Vertical Grade	VSS Table 5.6	-1.88%	7% (max) for level terrain	
K Values for Vertical Curves	VSS Table 5.1	$K_{sag} = 135, 99$	60 crest / 60 sag	
Vertical Clearance	VSS Section 5.8	No Issues Noted	14' 3" (min)	
Stopping Sight Distance	VSS Table 5.1	508'	275'	
Bicycle/Pedestrian Criteria	VSS Table 5.8	2' Shoulder over bridge	4' Shoulder	Substandard
Bridge Railing	Structures Design Manual Section 13	Steel Beam Railing Mounted to Fascia Beams	TL-2	Not Crash Tested
Structural Capacity	Structures Design Manual, Ch. 3.4.1	Not Deficient	Design Live Load: HL-93	

Inspection Report Summary

Deck Rating	5 Fair
Superstructure Rating	7 Good
Substructure Rating	7 Good
Channel Rating	7 Good

From the Bridge Inspection Reports:

6/14/2019 – Structure is in need of a rehabilitation with deck having areas of delaminations forming with saturation and efflorescence leakage and fascia's are in poor condition with exposing thinning rebar. Deck membrane has been compromised with coinciding deterioration to deck below and needs

[1] A 3-foot shoulder is considered necessary for adequate safety and service according to Table 5.3 in the Vermont State Standards. However, a 4-foot foot shoulder is required for shared roadway use by bicycles per Table 5.8 due to heavy truck traffic along VT Route 14.

to be replaced. Bridge and approach rail needs to be upgraded due to weathering and damage. ~SMP/SEP

6/2/2017 – Structure is in fair to good condition. Deck could use some repairs and pavement pot holes should be patched. Spalling in the fascia on the upstream side should be repaired. ~FRE/JAS

6/3/2015 – Structure is in fair to good condition. Pending pothole on abutment #2 side should be cleaned and patched. Spalling on the fascia's should be cleaned and patched. ~FRE/TJB/JAS

6/24/2013 – Structure is in fair to good condition. Spalling in the fascia's should be cleaned and patched. ~FRE/DAK

5/5/2011 – The deck continues to deteriorate and full depth holes could occur any time any place. ~DCP/FRE

05/13/2009 – Deck surface is poor requiring frequent repair work. Deck should either be overlaid with 4" - 6" of concrete (if dead load allows) or preferably fully replaced If not full depth repairs will be necessary in a few years; especially in the downstream beam bay. ~MJ/DS

Utilities

The existing utilities are shown on the Existing Conditions Layout Sheet, and are as follows:

Aerial Utilities

- Aerial utilities exist along the west side of the bridge and these facilities are owned by Vermont Electric Coop, Comcast Communications and Consolidated communications.

Underground Utilities

- There are no buried utilities in the area of the bridge.

Municipal Utilities – Water and Sewer

- There are no municipal water or sewer facilities in the project area.

Right of Way

The existing Right-of-Way (ROW) is plotted on the Existing Conditions Layout sheet. There is ample Right-of-Way. It is assumed that additional rights will only be required if a temporary bridge is needed.

Resources

The environmental resources present at this project are shown on the Existing Conditions Layout Sheet, and are as follows:

Biological:

Wetlands/Watercourses

There are wetlands located in southeast, northwest, and southwest quadrants of the review area.

The bridge in the review area spans the Black River, which is regulated by the US Army Corps of Engineers.

Wildlife Habitat
Vt. Fish and Wildlife identifies the study area as a Highest Priority surface water and riparian area in the Vt. Conservation Design Community and Species Scale Components. See Appendix G for additional information.

Rare, Threatened and Endangered Species
The only listed species at this site is the federally threatened northern long-eared bat. The bridge itself is not considered suitable habitat.

Agricultural Soils:
The review area is mapped as statewide significant agricultural soils.

Hazardous Materials:

According to the Vermont Agency of Natural Resources (VANR) Vermont Hazardous Sites List, there are no hazardous sites or hazardous waste generators located in the project area.

Historic:

Bridge 124 is not a historic resource. No historic properties were identified within the project area.

Archaeological:

The NW quadrant consists of delineated wetlands along the edge of roadway and river bank but the land rises as it moves farther from the river and the higher terrace is considered archaeologically sensitive. The same situation occurs within the SW quadrant. See the Archaeological Resource ID in Appendix H for additional information.

Stormwater:

There are no stormwater concerns at this time.

II. Safety

There are no High Crash Location segments or intersections located in the project area.

III. Maintenance of Traffic

The Vermont Agency of Transportation developed an Accelerated Bridge Program in 2012, which focuses on expedited delivery of construction plans, permitting, and Right-of-Way, as well as accelerated construction of projects in the field. One practice that will help in this endeavor is closing

bridges for portions of the construction period, rather than providing temporary bridges. In addition to saving money, the intention is to minimize the closure period with accelerated construction techniques and incentives to encourage contractors to complete projects early. The Agency will consider the closure option on projects where rapid reconstruction or rehabilitation is feasible. The use of prefabricated elements and systems for new bridges will also expedite construction schedules. This can apply to decks, superstructures, and substructures. Accelerated Bridge Construction should provide enhanced safety for the workers and the travelling public while maintaining project quality. The following options have been considered:

Option 1: Off-Site Detour
This option would close the bridge and reroute VT Route 14 traffic onto a signed detour route. The regional detour route would detour traffic from VT Route 14, to VT Route 58, US Route 5, back to VT Route 14. This regional detour has an end-to-end distance of 12.8 miles and adds 3.2 miles to the through travel distance.

A map of the detour route can be found in Appendix O.

Advantages: This option would eliminate the need for a temporary bridge or phased construction, which would significantly decrease cost and time of construction. This option would not require rights from adjacent property owners for a temporary bridge. Additionally, this option would have the least impacts to adjacent properties and environmental resources. This option reduces the time and cost of the project both at the development stage and construction.

Disadvantages: Traffic flow would not be maintained through the project corridor during construction.

Option 2: Phased Construction
Phased bridge construction involves building one-side of the structure at a time, while maintaining traffic on the opposite side of the structure. This allows the road to stay open during construction, while having minimal impacts on neighboring property owners and environmental resources.

While the time required to develop a phased-construction project would remain the same, the time required to complete the project would increase because some construction tasks would have to be performed multiple times. In addition to increased design and construction costs, the costs also increase for phased construction due to the difficulty of working around traffic and coordinating the joints between the phases. Another negative aspect of phased construction is decreased worker and vehicular traffic safety, which is caused by the increased proximity and duration that workers and vehicles are operating in the same confined space. Phased construction is usually considered when the benefits include reduced impacts to resources and decreased costs and development time by not requiring the purchase of additional ROW for a temporary bridge.

Based on the current traffic volumes, it would be acceptable to close one lane of traffic and maintain one lane of signalized two-way traffic. Due to the high percent trucks, 12 feet of the existing bridge width should be kept open for one lane of traffic for each phase. The total traveled width of the bridge is 26-feet, which can accommodate an acceptable working width and traffic lane.

This option would decrease safety, as vehicular traffic would be in close proximity to the construction site and construction vehicles entering and exiting the site. The impact on property owners, however, would decrease.

Advantages: Traffic flow would be maintained through the project corridor during construction. Also, this option would have minimal impacts to adjacent properties and archaeological and wetland resources. Right-of-Way would not be required for this maintenance of traffic option.

Disadvantages: Phased construction generally involves higher costs and complexity of construction. Costs are usually higher and construction duration is longer, since many construction activities have to be performed two times. Additionally, since cars are traveling near construction activity, there is decreased safety. There would be some delays and disruption to traffic, since the road would be reduced to one-way traffic.

Option 3: Temporary Bridge

A temporary bridge could be placed on either the upstream (western side of VT Route 14) or the downstream (eastern side of VT Route 14) side of the structure from a constructability standpoint. A temporary bridge on either side of the road would have impacts to surrounding wetlands.

A temporary bridge on the upstream side would require the relocation of aerial utilities.

Based on the daily traffic volumes and length of the bridge, a one-way temporary bridge with traffic signals or a two-way temporary bridge would be recommended. A layout of the temporary bridge can be seen in the scoping plan set in Appendix P.

Advantages: A temporary bridge will maintain traffic flow through the project corridor during construction.

Disadvantages: Additional Right-of-Way acquisition would be required for placement of a temporary bridge. Both an upstream and downstream temporary bridge would have impacts to surrounding wetlands. A temporary bridge on upstream side would also require an aerial utility relocation.

IV. Alternatives Discussion

This project was identified by Asset Management as a candidate for the Bridge Deck Replacement Program. The objective of the program was to identify structures to apply a cost-effective treatment at the proper time to preserve and extend the useful life of the bridge. Preventative maintenance provides the biggest benefit for the smallest level of investment. By either repairing or replacing the bridge deck, the service life of the superstructure and substructure can be maximized by protecting them from exposure to the elements that have caused the deck to deteriorate to its current condition. Therefore, the alternatives analysis was limited to the bridge deck exclusively.

No Action
This alternative leaves the bridge in its current condition. A good rule of thumb for the "No Action" alternative is to determine whether the existing bridge can stay in place without any work being performed on it during the next 10 years. Given the 'fair' rating on the deck, this bridge will require work within the next 10 years. From the standpoint of safety and economics this alternative is not recommended and will not be considered further.

Alternative 1: Deck Patching
The existing deck is rated as a 5 ("fair"). The superstructure, referring to the steel beams, is rated a 7 ("good"), and the existing substructure is rated a 7 ("good"). Deck patching would include removal of loose and deteriorating concrete, cleaning and possibly supplementing reinforcing steel, application of patching materials to cracks and areas of section loss, and paving on the bridge and for a short distance on each approach to the bridge. Some characteristics of deck patching are as follows:

- Patching tends to accelerate the deterioration of the existing concrete that is contact with the patching material, and thus offers a widely variable service life often 15 years or less.

- Much of the work would take place underneath the bridge with efforts required to avoid contamination of the river.

- In approximately 15 years, the condition of the bridge would be similar to its current condition and major work would be required again.

- The bridge would remain substandard in width with an 11'/2' typical section.

Disadvantages seem to outweigh the benefits to this short-term fix. Deck patching alone will not be considered further.

Alternative 2: Deck Replacement
This alternative would involve removing the existing deck in its entirety and placing a new deck on the existing steel beams. In addition to replacing the bridge deck, some repair work on the curtain walls between the wingwall may be required.

The existing substructure is in good condition, and it is reasonable to assume that it can safely carry anticipated traffic loads for an additional 50 years. Therefore, no repairs would be recommended to the existing substructure at this time.

The existing 2-foot wide shoulders are substandard in width. The minimum shoulder width for safety and service as well as winter operations is 3-feet. The minimum width for shared use with biicycles is 4-feet. A new deck on the existing beams can be widened to a rail-to-rail with of 28-feet; 11-foot lanes, with 3-foot shoulders.

Advantages: This alternative will protect the superstructure for years to come from exposure to the elements which have deteriorated the deck. This option would also have minimal impacts to adjacent properties and resources. The deck can be widened to the minimum width required for safety and service.

Maintenance of Traffic: Traffic could be maintained on an offsite detour, a temporary bridge, or with phased construction.

V. Alternatives Summary

Based on the existing site conditions and bridge condition there are several viable alternatives:

- Alternative 1: Minor Rehabilitation with Traffic Maintained via Phased Construction
- Alternative 2a: Deck Replacement with Traffic Maintained on an Offsite Detour
- Alternative 2b: Deck Replacement with Traffic Maintained on a Temporary Bridge
- Alternative 2c: Deck Replacement with Traffic Maintained via Phased Construction

VI. Cost Matrix

Irasburg STP DECK(50)		Do Nothing	Alternative 1	Alternative 2		
			Minor Rehabilitation	Deck Replacement		
			a. Phased Construction	a. Offsite Detour	b. Temporary Bridge	c. Phased Construction
COST	Bridge Cost	$0	136,500	159,700	159,700	183,600
	Removal of Structure	$0	0	91,800	91,800	105,570
	Roadway	$0	113,000	155,000	155,000	223,000
	Maintenance of Traffic	$0	196,600	129,300	414,040	196,600
	Construction Costs	$0	446,100	535,800	820,540	708,770
	Construction Engineering & Contingencies	$0	133,830	160,740	287,189	283,508
	Accelerated Premium	$0	0	0	0	0
	Total Construction Costs w CEC	$0	579,930	696,540	1,107,729	992,278
	Preliminary Engineering	$0	133,830	53,580	82,054	106,316
	Right of Way	$0	0	0	30,000	0
	Total Project Costs	$0	713,760	750,120	1,219,783	1,098,594
	Annualized Costs	$0	35,688	15,002	24,396	21,972
TOWN SHARE						
TOWN %						
SCHEDULEING	Project Development Duration	NA	2 years	2 years	2 years	2 years
	Construction Duration	NA	3 months	4 months	8 months	8 months
	Closure Duration (If Applicable)	NA	NA	30 days	NA	NA
ENGINEERING	Typical Section - Roadway (feet)	32'	30'	30'	30'	30'
	Typical Section - Bridge (feet)	2-11-11-2 (26)	2-11-11-2 (26)	3-11-11-3 (28)	3-11-11-3 (28)	3-11-11-3 (28)
	Geometric Design Criteria	Substandard width for safety, service, and shared use	Substandard width for safety, service, and shared use	Substandard width for shared use	Substandard width for shared use	Substandard width for shared use
	Traffic Safety	No Change	Improved	Improved	Improved	Improved
	Alignment Change	No Change	No Change	No Change	No Change	No Change
	Bicycle Access	No Change	No Change	Improved	Improved	Improved
	Pedestrian Access	No Change	No Change	Improved	Improved	Improved
	Hydraulics	No Change	No Change	No Change	No Change	No Change
	Utilities	No Change	No Change	No Change	Potential Aerial Relocation	No Change
OTHER	ROW Acquisition	No	No	No	Yes	No
	Road Closure	No	No	Yes	No	No
	Design Life	10	20	50	50	50

VII. Conclusion

Our recommendation is **Alternative 2a**; to replace the existing deck while maintaining traffic on an offsite detour.

Structure:
This alternative includes replacing the deck with a cast-in-place concrete deck during a bridge closure. A deck replacement will also include new bridge railing, pavement, and new joints at the begin and end bridge to reduce the amount of maintenance necessary for this structure in the future

Traffic Control:
The detour for this location is 12.8 miles end-to-end. Given the relatively short length of the detour and low traffic volumes present, as well as surrounding wetland resources and aerial utilities, closing the bridge during construction is the preferred alternative.

VIII. Appendices

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Appendix A: Site Pictures

Picture 1: Looking North over Bridge 124

Picture 2: Looking South over Bridge 124

Picture 3: Fascia deterioration at backwall

Picture 4: Upstream Fascia

Picture 5: Southern Abutment

Picture 6: Northern abutment

Picture 7: Saturation and cracking in deck

Picture 8: Looking Upstream

Picture 9: Underside of deck

Picture 10: Bridge seat and abutment stem

Picture 11: Section loss at beam end

Picture 12: Potholes in wearing surface

Appendix B: Town Map

Irasburg
VT Route 14
Bridge 124

Scale: 1:55,060

N

- INTERSTATE
- STATE LONG
- STATE SHORT
- TOWN LONG
- FAS/FAU
- BIKE PATH
- INTERSTATE
- STATE HIGHWAY
- CLASS 1
- CLASS 2
- CLASS 3
- CLASS 4
- LEGAL TRAIL
- PRIVATE
- DISCONTINUED
- FAS/FAU HWY
- MAINTENANCE DISTRICT
- POLITICAL BOUNDARY
- VTRANS REGION BOUNDARY
- NAMED RIVER-STREAM
- UNNAMED RIVER-STREAM
- Point from Local Bridge Data *
- Point from Local Culvert Data *

* Points are from local town bridge and culvert inventories. Some points may overlap where VTrans has also conducted an inventory on the Town highway.
Data source: VOBCIT aka VTCulverts

Produced by:
Mapping Section
Division of Policy, Planning and Intermodal Development
Vermont Agency of Transportation
May 2017

IRASBURG

COUNTY-TOWN CODE: **1011-0**
ORLEANS COUNTY
DISTRICT # 9
District Long Name: Derby District
VTrans Four Region: Northeast

This map was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The representation of the authors expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation.

Appendix C: Bridge Inspection Report

STRUCTURE INSPECTION, INVENTORY and APPRAISAL SHEET

Vermont Agency of Transportation ~ Structures Section ~ Bridge Management and Inspection Unit

Inspection Report for IRASBURG **bridge no.:** 00124 **District:** 9

Located on: VT 00014 ML **over** BLACK RIVER **approximately** 0.4 MI N JCT. VT.58 E **Owner:** 01 STATE-OWNED

CONDITION

Deck Rating: 5 FAIR

Superstructure Rating: 7 GOOD

Substructure Rating: 7 GOOD

Channel Rating: 7 GOOD

Culvert Rating: N NOT APPLICABLE

Federal Str. Number: 200251012410112

Federal Sufficiency Rating: 073.2

Deficiency Status of Structure: ND

AGE and SERVICE

Year Built: 1939 **Year Reconstructed:** 1968

Service On: 1 HIGHWAY

Service Under: 5 WATERWAY

Lanes On the Structure: 02

Lanes Under the Structure: 00

Bypass, Detour Length (miles): 12

ADT: 002000 **% Truck ADT:** 06

Year of ADT: 1998

GEOMETRIC DATA

Length of Maximum Span (ft): 0082

Structure Length (ft): 000085

Lt Curb/Sidewalk Width (ft): 0

Rt Curb/Sidewalk Width (ft): 0

Bridge Rdwy Width Curb-to-Curb (ft): 26

Deck Width Out-to-Out (ft): 27

Appr. Roadway Width (ft): 030

Skew: 00

Bridge Median: 0 NO MEDIAN

Min Vertical Clr Over (ft): 99 FT 99 IN

Feature Under: FEATURE NOT A HIGHWAY OR RAILROAD

Min Vertical Underclr (ft): 00 FT 00 IN

STRUCTURE TYPE and MATERIALS

Bridge Type: ROLLED BEAM

Number of Approach Spans: 0000 **Number of Main Spans:** 001

Kind of Material and/or Design: 3 STEEL

Deck Structure Type: 1 CONCRETE CIP

Type of Wearing Surface: 6 BITUMINOUS

Type of Membrane: 2 PREFORMED FABRIC

Deck Protection: 0 NONE

APPRAISAL *AS COMPARED TO FEDERAL STANDARDS

Bridge Railings: 1 MEETS CURRENT STANDARD

Transitions: 1 MEETS CURRENT STANDARD

Approach Guardrail: 1 MEETS CURRENT STANDARD

Approach Guardrail Ends: 1 MEETS CURRENT STANDARD

Structural Evaluation 6 EQUAL TO MINIMUM CRITERIA

Deck Geometry: 4 MEETS MINIMUM TOLERABLE CRITERIA

Underclearances Vertical and Horizontal: N NOT APPLICABLE

Waterway Adequacy: 7 SLIGHT CHANCE OF OVERTOPPING BRIDGE & ROADWAY

Approach Roadway Alignment: 8 EQUAL TO DESIRABLE CRITERIA

Scour Critical Bridges: 8 STABLE FOR SCOUR

DESIGN VEHICLE, RATING, and POSTING

Load Rating Method (Inv): 1 LOAD FACTOR (LF)

Posting Status: A OPEN, NO RESTRICTION

Bridge Posting: 5 NO POSTING REQUIRED

Load Posting: 10 NO LOAD POSTING SIGNS ARE NEEDED

Posted Vehicle: POSTING NOT REQUIRED

Posted Weight (tons):

Design Load: 2 H 15

INSPECTION and CROSS REFERENCE

X-Ref. Route:

Insp. Date: 062019 **Insp. Freq. (months)** 24 **X-Ref. BrNum:**

INSPECTION SUMMARY and NEEDS

6/2/2017 Structure is in fair to good condition. Deck could use some repairs and pavement pot holes should be patched. Spalling in the fascia on the upstream side should be repaired. ~FRE/JAS

6/3/2015 Structure is in fair to good condition. Pending pothole on abutment #2 side should be cleaned and patched. Spalling on the fascia's should be cleaned and patched. ~FRE/TJB/JAS

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5/5/2011 The deck continues to deteriorate and full depth holes could occur any time any place. ~DCP/FRE

05/13/2009 - Deck surface is poor requiring frequent repair work. Deck should either be overlaid with 4" - 6" of concrete (if dead load allows) or preferably fully replaced. If not, full depth repairs will be necessary in a few years; especially in the downstream beam bay. ~MJ/DS

Appendix D: Preliminary Hydraulics

A hydraulic analysis will be completed during the design phase.

Appendix E: Preliminary Geotechnical Information

AGENCY OF TRANSPORTATION **OFFICE MEMORANDUM**

To: Nick Wark, P.E., P.I.I.T. Program Manager
SPM

From: Stephen Madden, Geotechnical Engineer, via Callie Ewald, P.E., Geotechnical Engineering Manager
CEE

Date: November 12th, 2019

Subject: Irasburg STP DECK(50) Preliminary Geotechnical Information

1.0 INTRODUCTION

As requested, we have completed our preliminary geotechnical investigation of Bridge No. 124 on VT Route 14 over the Black River in the Town of Irasburg, VT. Bridge No. 124 is located approximately 0.4 miles north of the junction of VT Route 14 with VT Route 58. The subject project consists of replacing the existing cast-in-place concrete deck. The project is currently in the scoping phase. This review included the examination of as-built record plans, historical in-house bridge boring files, water well logs and hazardous site information on-file at the Vermont Agency of Natural Resources (ANR), published surficial and bedrock geologic maps, and observations made during a site visit.

2.0 SUBSURFACE INFORMATION

2.1 Published Geologic Data

Mapping conducted in 1970 for the Surficial Geologic Map of Vermont shows that the project area consists of postglacial fluvial deposits (alluvium), consisting primarily of fluvial sand and gravels, glaciolacustrine deposits, consisting primarily of silt, silty clay, clay, and lake bottom sediments, and glacial till deposits (Doll, 1970).

According to the 2011 Bedrock Map of Vermont, published by the USGS and State of Vermont, the project site is underlain with metasandstone and metalimestone of the Waits River Formation (Ratliffe, et. al, 2011).

The Geotechnical Engineering Section maintains a GIS based historical record of subsurface investigations, which contains electronic records for the majority of borings completed in the past 10 years. An exploration of this database revealed one nearby project, Irasburg STP CULV(30) located approximately 0.4 miles from the project site. Borings logs indicated a mixture of sand, silt, and gravel with some layers of clayey silt/silty clay. Several borings encountered cobbles, boulders, and broken rock in the upper 10-15 feet (ft). Borings did not encounter bedrock to the termination depths of between 44.4 and 50 ft.

2.2 Water Well Logs

The Vermont ANR documents and publishes all water wells that are drilled for residential or commercial purposes. Published online, these logs may provide general characteristics of the soil strata and depth to bedrock in the area. The three closest recorded water wells were WRN 20, TAG 32412, and TAG 99-93 located approximately 1000 ft, 1340 ft, and 1370 ft from the project site, respectively. Bedrock was reported at a depth of 86 ft, 78 ft, and 110 ft for wells WRN 20, TAG 32412, and TAG 99-93, respectively.

2.3 Hazardous Materials and Underground Storage Tanks

The ANR Natural Resource Atlas also maps the location and information of known hazardous waste sites and underground storage tanks. The location of this project is not on the Hazardous Site List. No underground storage tanks are located within a 1.0 mile radius. A hazardous waste site, Irasburg General Store, is located approximately 0.4 miles from the project site, and monitoring of a gasoline contaminant is reportedly ongoing.

2.4 Previous Projects

Record plans for a construction project along VT Route 14, dated December 1952, were reviewed as part of this investigation however the plans did not include details of the foundation design or subsurface information for this structure.

3.0 FIELD OBSERVATIONS

A preliminary site visit was conducted on September 12th, 2019 to assess the existing structure and make any pertinent observations with relation to the proposed deck replacement. The face of the abutments appear to consist of stacked stone blocks with mortared connections and a concrete cap. The blocks appear to be in relatively good condition with some material loss and mortar cracking at the block to block interfaces. The abutments are shown in Figures 3.1 through 3.4.

Figure 3.1: *Facing northern abutment; note stacked stone facing and rip rap on adjacent embankments.*

Figure 3.2: *Facing northern abutment; note stacked stone facing and lack of mortar at some block connections (highlighted).*

Figure 3.3: *Facing southern abutment; note stacked stone facing and rip rap on adjacent embankments.*

Figure 3.4: *Facing southern abutment; note stacked stone facing and rip rap on adjacent embankments.*

4.0 RECOMMENDATIONS

Based on the information reviewed during this investigation this structure appears to be a good candidate for a deck replacement assuming the loads from the replacement deck are similar in magnitude to the existing loads. If a replacement deck will increase the loading on the existing abutments, then a detailed geotechnical assessment of the abutments may be required to assess their capacity to support the increased loads.

If a deck replacement is selected as the preferred alternative, we recommend that repointing of the mortared block connections within the stacked stone facing of the abutments is included as part of the project. We also recommend that scour protection meeting current Agency requirements be designed and added in front of the abutments. Addressing these issues during the deck replacement project should help to ensure the abutments perform as expected during the design life of the replacement deck.

5.0 CLOSING

The Geotechnical Engineering Section can assist in performing an assessment of the existing abutments if the proposed replacement of the deck will increase the loading. A detailed geotechnical assessment may be required to assess the capacity of the abutments to support the increased loading and check for any potential stability issues.

If you have any questions or would like to discuss this report, please contact us by phone at (802) 828-2561.

6.0 REFERENCES

Doll, C. G., 1970, Surficial Geologic Map of Vermont, Vermont Geological Survey, Montpelier, VT.

Ratcliffe, N. M., Stanley, R. S., Gale, M. H., Thompson, P. J., Walsh, G. J., 2011, Bedrock Geologic Map of Vermont, Vermont Geological Survey, Montpelier, VT.

Vermont Agency of Natural Resources Department of Environmental Conservation, Natural Resources Atlas, www.anr.vermont.gov/maps/nr-atlas%20, accessed 10/30/2019.

cc: Laura Stone, P.E., P.I.I.T. Project Engineer
Electronic Read File/MG
Project File/CEE
SPM

Z:\Highways\CMB\GeotechEngineering\Projects\Irasburg STP DECK(50)\REPORTS\Irasburg STP DECK(50) Preliminary Geotechnical Information.docx

Appendix F: Resource ID Completion Memo

OFFICE MEMORANDUM

AOT - PDB - ENVIRONMENTAL SECTION

RESOURCE IDENTIFICATION COMPLETION MEMO

TO: Daniel Beard, Project Manager
FROM: Julie Ann Held, Environmental Specialist (802)917-4319
DATE: November 19, 2019
Project: **Irasburg STP DECK(50)**

ENVIRONMENTAL RESOURCES:

Archaeological Site:	X Yes	___ No	See Archaeological Resource ID Memo Issued: 09/26/2019
Historic/Historic District:	___ Yes	X No	See Historic Resource ID Memo Issued: 11/18/2019
4(f) Property:	___ Yes	X No	
Wetlands:	X Yes	___ No	See Natural Resource ID Memo Issued: 10/18/2019
Agricultural Land:	X Yes	___ No	See Natural Resource ID Memo Issued: 10/18/2019
Fish & Wildlife Habitat:	X Yes	___ No	See Natural Resource ID Memo Issued: 10/18/2019
Wildlife Habitat Connectivity:	X Yes	___ No	See Natural Resource ID Memo Issued: 10/18/2019
Endangered Species:	X Yes	___ No	See Natural Resource ID Memo Issued: 10/18/2019
Stormwater:	___ Yes	X No	
6(f) Property:	___ Yes	X No	
Hazardous Waste:	___ Yes	X No	
VTrans Limited Reuse Soils:	___ Yes	X No	
USDA-Forest Service Lands:	___ Yes	X No	
Scenic Highway/Byway:	___ Yes	X No	
Act 250 Permits:	___ Yes	X No	
FEMA Floodplains:	___ Yes	X No	
Flood Hazard Area/ River Corridor:	X Yes	___ No	This project is located within a mapped River Corridor.
US Coast Guard:	___ Yes	X No	
Lakes and Ponds:	___ Yes	X No	
Environmental Justice:	___ Yes	X No	
303D List/ Class A Water/ Outstanding Resource Water:	___ Yes	X No	
Source Protection Area:	___ Yes	X No	
Public Water Sources/ Private Wells:	___ Yes	X No	
Other:	___ Yes	X No	

cc:
Project File

Appendix G: Natural Resources ID

Natural Resources Assessment Report for Vermont Agency of Transportation Irasburg STP DECK (50)

Irasburg, Vermont

Prepared by:
Arrowwood Environmental, LLC

October 18, 2019

ARROWWOOD ENVIRONMENTAL
950 BERT WHITE ROAD
HUNTINGTON,VT 05462
(802 434-7276 FAX: (802) 329-2253

Natural Resources Assessment Report for
Vermont Agency of Transportation
Irasburg STP DECK (50)

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Appendices

Natural Resources Assessment Report for
Vermont Agency of Transportation
Irasburg STP DECK (50)

I. Introduction and Project Description

Arrowwood Environmental, LLC (AE) was retained by the Vermont Agency of Transportation to perform a natural resources assessment for the proposed Bridge 124 project between mile marker 3.2 and mile marker 3.1 along Route 14 in Irasburg, Vermont. The study area for the assessment is shown on the Resource Map in Appendix 2.

The assessment consisted of a remote landscape analysis of the study area as well as a field assessment. The field assessment was conducted on September 13, 2019. This Natural Resource Assessment Report summarizes the results of the remote analysis and field assessment.

II. Site Characterization

Ecologically the site is within the Northern Vermont Piedmont biophysical region of the state (Thompson and Sorenson, 2000). The study area is located at approximately 820 feet above mean sea level according to U.S. Geologic Survey ("USGS") topographic data and is generally flat. The mapped bedrock that is underlying the site is metasandstone and metalimestone from the Waits River Formation. (Ratcliffe et al. 2011). The soils are mapped as Cabot, Nicholville and Lamoine silt loams (NRCS Soil Survey). The surrounding landscape is dominated by agricultural land, residential development and some forest land.

In addition to the three wetlands described below, the study area consists of mowed lawn, road shoulder and managed hay field. Dominant species include smooth brome (*Bromus inermis*), timothy (*Phleum pretense*) and goldenrod (*Solidago spp*.).

III. Wetlands

The wetland assessment involved both a remote review of available maps (including Vermont Significant Wetland Inventory Maps and the NRCS Soil Survey) and a field inventory component conducted on September 13, 2019. The protocols put forth in the USACE's *Corp of Engineers Wetlands Delineation Manual* (2009 Regional Supplement for the Northcentral and Northeast Region) were employed for delineating wetlands as is the standard practice in Vermont. Three wetlands were mapped within the study area and shown on the Resource Map in Appendix 2. Wetland classifications have not been determined with the Vermont Wetlands Office. Wetland delineation data forms and functions and values assessments for each of these wetlands are included in Appendices 3 and 4, respectively.

Wetland A: Wetland A sits along the banks of the Black River on the margin of a managed hay field. There is no evidence of recent flooding, though the clay soils impede drainage and result in wetland conditions. The dominant vegetation includes hummocks of tussock sedge (*Carex stricta*), as well as bluejoint grass (*Calamagrostis canadensis*), Canada goldenrod (*Solidago canadensis*) and joe-pye-weed (*Eutrochium maculatum*). This wetland continues west out of the study area.

Wetland B: Wetland B sits on the banks of the Black River and has similar soils and hydrology as Wetland A. The wetter areas of this wetland are dominated by hummocks of tussock sedge and reed canary grass (*Phalaris arundinacea*). This wetland contains slightly drier areas where smooth brome and milkweed (*Asclepias syricia*) are intermixed with the wetland vegetation. This wetland continues east outside of the study area.

Wetland C: Wetland C also sits on the banks of the Black River but does not appear to regularly flood. The loam soils in this wetland are hydric, but are not as poorly drained as those in Wetlands A and B. There are upland inclusions within this mapped wetland, including a narrow band along the riverbank. Dominant vegetation includes reed canary grass, purple loosestrife (*Lythrum salicaria*) and joe-pye-weed. There is a small drainage which cuts through the wetland and empties into the Black River which is bordered by a line of alder shrubs (*Alnus incana*).

IV. Rare, Threatened and Endangered Species

The RTE species review involved both a remote review of available digital maps for the study area as well as a field survey. AE reviewed digital orthophotography, the NRCS Soil Survey, the 2011 Bedrock Geologic Map of Vermont and the Wildlife Natural Heritage Inventory (NHI) Rare, Threatened and Endangered Species digital database.

In reviewing the NHI digital database, there are no records or occurrences of RTE plant or animal species in or directly adjacent to the study area.

Plant Species

An inventory for RTE and uncommon plant species was undertaken in the study area on September 13, 2019. No RTE or uncommon plant species were identified in the survey of the study area. A complete list of plants documented during that inventory is presented in Appendix 5.

Animal Species

The Northern Long Eared Bat (*Myotis septentrionalis*, MYSE) became a federally listed endangered species in May of 2015. The State of Vermont has determined that project clearing greater than 1% of the total forested area within a 1 square mile radius of a project triggers greater review for habitat loss for this endangered species. The project is not located in a forested environment. The Project would require more than 6.5 acres of clearing before reaching the 1% threshold triggering MYSE related restrictions or further review.

The study area was reviewed for the presence of trees that may provide potential summer roost habitat for MYSE. Trees with features that could support MYSE roosting were not documented during the field investigation.

No other RTE animal species are documented nearby or are expected to be impacted by the proposed project.

V. Non-Native Invasive Species (NNIS)

A non-native invasive plant species is considered to be a species which has become established outside of its native range and grows aggressively enough to threaten native ecological communities. For the purposes of this study, a NNIS plant is any species listed as a Class A or Class B noxious weed by the Vermont Noxious Weed Quarantine Rule or a plant on the Vermont

Invasive Exotic Plant Committee Watch List. An inventory for non-native invasive plant species was conducted on September 13, 2019.

Three populations of one species of NNIS were documented within the study area. Each of these populations is shown on the Resource Map in Appendix 2 and briefly described below.

N-1 Purple loosestrife (*Lythrium salicaria*): This population in Wetland C is a dominant plant. It comprises approximately 50% cover within the wetland area. Like the wetland boundary, this population continues west outside of the study area. At the time of the site visit, most plants were in seed.

N-2 Purple loosestrife (*Lythrium salicaria*): This population within Wetland A consists of scattered plants throughout the wetland comprising approximately 10% cover. Like the wetland boundary, this population continues west outside of the study area. At the time of the site visit, most plants were in seed.

N-3 Purple loosestrife (*Lythrium salicaria*): The population in Wetland B consists of scattered plants throughout the wetland comprising approximately 15% cover. Purple loosestrife is present throughout this wetland including areas southeast outside of the study area. At the time of the site visit, most plants were in seed.

VI. Streams

The stream assessment involved both a remote review of the USGS topographic map, Vermont Hydrography Dataset (streams, rivers, and waterbodies), LiDAR derived elevation data, and field investigation on September 13, 2019. There are no streams in the study area. Bridge 24 spans the Black River and summary data regarding this crossing location is provided below with a Summary Data Form included in Appendix 6.

Black River: The Black River flows east through the study area. This is a perennial river with a substrate consisting of coarse gravel, cobble and scattered boulders. The stream banks within the study area are steep, nearing vertical in some places, and rise 5-6 feet above the stream bed. These

banks are armored with rip-rap and the concrete bridge abutments. The bankfull width of the river is approximately 70 feet wide at the span of the bridge.

VII. Wildlife Habitat and Habitat Connectivity

The wildlife habitat assessment involved both a remote review of available digital maps for the study area and a field inventory component. A remote review of available digital databases was conducted to identify potentially necessary wildlife habitat within the study area and within the vicinity of the study area.

There are no mapped Vt. Fish and Wildlife deer winter habitats in the study area and field investigation confirmed the absence of deer wintering areas within the study area.

Vt. Fish and Wildlife identifies the study area as a Highest Priority surface water and riparian area in the Vt. Conservation Design Community and Species Scale Components. The study area is located in a largely agricultural and residential landscape setting with minimal tree or shrub cover adjacent to the riverbanks to augment wildlife connectivity through the structure. The river itself provides aquatic passage and it likely used by terrestrial wildlife moving east to west. Because of the surrounding land use, the river at this site may provide the best connectivity link between the forests of Allen Hill to the east and Round Hill and the Lowell mountain range to the west. The vegetative structure immediately east and west of the structure does not provide much cover for moving wildlife. The connectivity function at this site could be enhanced through a site and structure design that allows or encourages more vegetative structural diversity, particularly trees and shrubs, along the banks.

Concentrated amphibian crossing areas occur when different amphibian habitat features are separated from each other by roads. Typical habitat features include wetland/vernal pool breeding habitats and upland habitats, or, in some cases, different wetland feeding habitats. Movement typically occurs on warm rainy nights in the spring and early summer. Depending on surrounding land-use and the position of the different habitat features, this amphibian movement can be concentrated and involve hundreds or thousands of individuals. When this concentrated movement occurs across a busy road, mass mortality of amphibians can occur. While minor amphibian movement can occur scattered across the landscape, this movement rarely results in mass

amphibian mortality or traffic difficulties. For this reason, it is the concentrated amphibian crossing areas that are of a concern.

There are no wetlands within the study area that provide significant habitat for amphibians. Southwest of the study area, there is an old oxbow wetland that likely provides breeding habitat for a wide range of amphibians. Given the location of this habitat in relation to surrounding forested habitat, concentrated amphibian movement through the study area is unlikely.

VIII. Agricultural Soils

The agricultural soils assessment involved a remote review of the NRCS County Soil Survey for the Project area. Primary agricultural soils were identified throughout the Project area and presented on the Resource Map in Appendix 2. Primary soil types present include Cabot (Statewide (b)), Lamoine (Statewide) and Nicholville (Statewide) fine sandy loams. These soil types are considered either highly erodible or potentially highly erodible.

Appendix 1

Photo Log

Black River
September 13, 2019

Wetland A
September 13, 2019

Wetland B
September 13, 2019

Wetland C
September 13, 2019

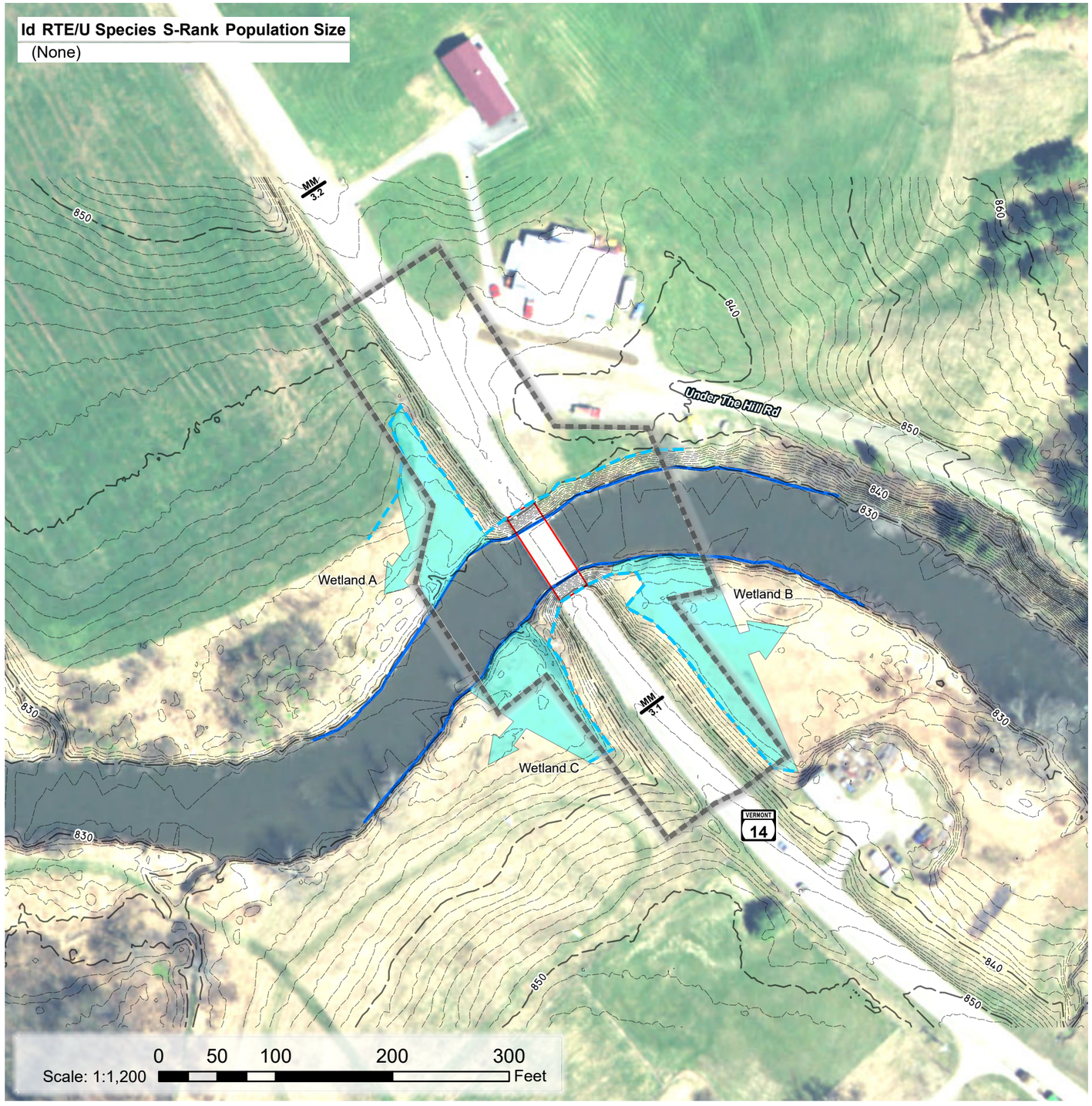
Buffer of Wetland A
September 13, 2019

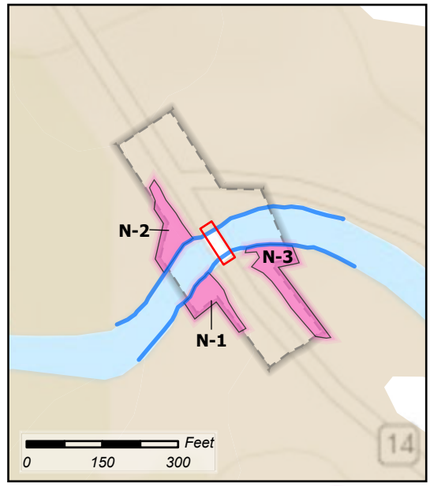
Buffer of Wetland B and C
September 13, 2019

Appendix 2

Resource Map

Id	RTE/U	Species	S-Rank	Population Size
(None)				





Non-native Invasive Species (NNIS)

Prime Ag Soils: **Statewide Ag Soils:**

NNIS Populations at this Site

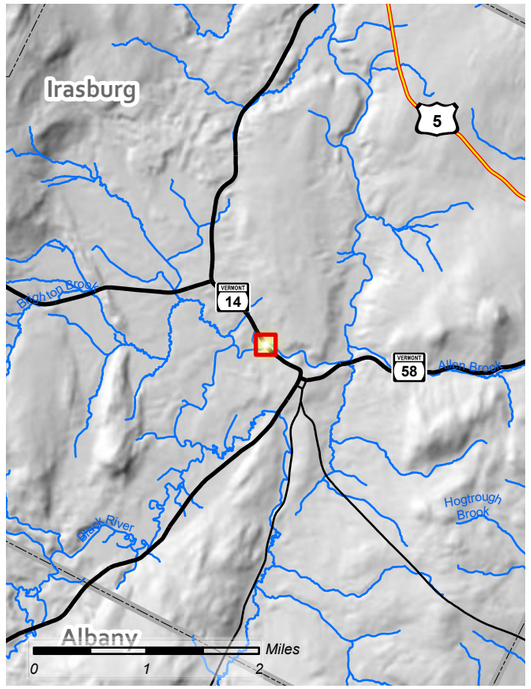
NNIS ID	Species
N-1	Lythrum salicaria
N-2	Lythrum salicaria
N-3	Lythrum salicaria

Vt. Conservation Design Elements

- Highest Priority Wildlife Crossings
- Highest Priority Surface Water and Riparian Areas
- Highest Priority Interior Forest Blocks

Combined Linkage Ratings

◄not impt. more impt.►



- Mile Markers (VCGI)
- Study Area
- Structures
- Wetlands
- Stream or Edge of Water
- Stream Top-of-Bank
- RTE Plant: S1
- Uncommon Plant: S3
- Potential Bat Tree

NOTES: INFORMATION PROVIDED BASED ON REMOTE AND FIELD ASSESSMENT BY ARROWWOOD ENVIRONMENTAL, 2019. WETLANDS FIELD DELINEATED, FLAGGED AND FLAGS LOCATED WITH SUB-METER GRADE GPS BY ARROWWOOD ENVIRONMENTAL. STREAMS, TOP-OF BANK, PLANT POPULATIONS, WILDLIFE FEATURES, AND STRUCTURE LOCATIONS FROM SUB-METER GRADE GPS, FIELDNOTES, AND ANALYSIS OF AERIAL IMAGERY AND HIGH-RESOLUTION LIDAR TOPOGRAPHIC DATA.

OTHER DATA FROM VCGI, VT AGENCY OF NATURAL RESOURCES. CONTOUR INTERVAL 1' DERIVED FROM LIDAR-BASED ELEVATION MODELS PROVIDED BY VCGI. MILE MARKERS FROM VCGI LAYER TITLED:"VT_MILE_POINTS__110MILE". BACKGROUND IMAGERY- VCGI 2018.

Vt. Agency of Transportation: Irasburg STP DECK (50). Statewide Natural Resource Services 2019

Monday, October 14, 2019 File: VtransNorthStructures Prepared By: A Worthley, Arrowwood Environmental Coordinate System: NAD 1983 StatePlane Vermont FIPS 4400

N W E S

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Appendix H: Archeology Memo

VERMONT

Jeannine Russell
VTrans Archaeology Officer
State of Vermont
Environmental Section
One National Life Drive
Montpelier, VT 05633-5001
802-477-3460 phone
Jeannine.russell@vermont.gov

Agency of Transportation

To: JulieAnn Held, Environmental Specialist

From: Jeannine Russell, VTrans Archaeology Officer

Date: September 26, 2019

Subject: Irasburg STP DECK(50) – Archaeological Resource ID

VTrans proposes work on Bridge 124 on VT Route 14 in the town of Irasburg, VT. The project location is a short distance west of the intersection of VT 14 and VT 58 on VT 14. It is the first major bridge crossing after the passing through the center of town. The scope is yet undefined but most likely will include work on the deteriorating bridge deck. The APE is unknown but all four quadrants surrounding the bridge were observed for archaeological potential along with an area approximately 200 feet in circumference of the bridge to account for approach work and possible temporary bridge and access if required.

The project area is situated on a mix of wetlands and relatively low floodplain that rises gradually onto higher, rolling terraces. The Black River bisects the floodplains and the area consists of agricultural property and rural landscape. Factors contributing to archaeological sensitivity include the Black River, wetlands of significant size and potential for natural corridor.

The VTrans Archaeology Officer conducted a site visit on September 26, 2019. The area in the NE quadrant in the location of the garage consists of fill over original grade in order to accommodate additional parking. Gravels were observed and fill was seen along the river back behind large rip rap near the bridge abutment. The remainder of the quadrant has been disturbed from driveway and garage construction.
The NW quadrant consists of delineated wetlands along the edge of roadway and river bank but the land rises as it moves farther from the river and the higher terrace is considered archaeologically sensitive. The same situation occurs within the SW quadrant. Those areas are depicted as shaded areas in the attached maps.
The SE quadrant consists of a wetland complex with hydric soils and vegetation. No areas of arch sensitivity were identified in the SE quadrant. The area that the Auto shop is built upon is entirely fill.

Formal review and determination of effect will be provided once plans are available.
The VTrans Archaeology Officer recommends avoiding both the fields in the NW and SW quadrants. If they cannot be avoided, further archaeological study will be required.

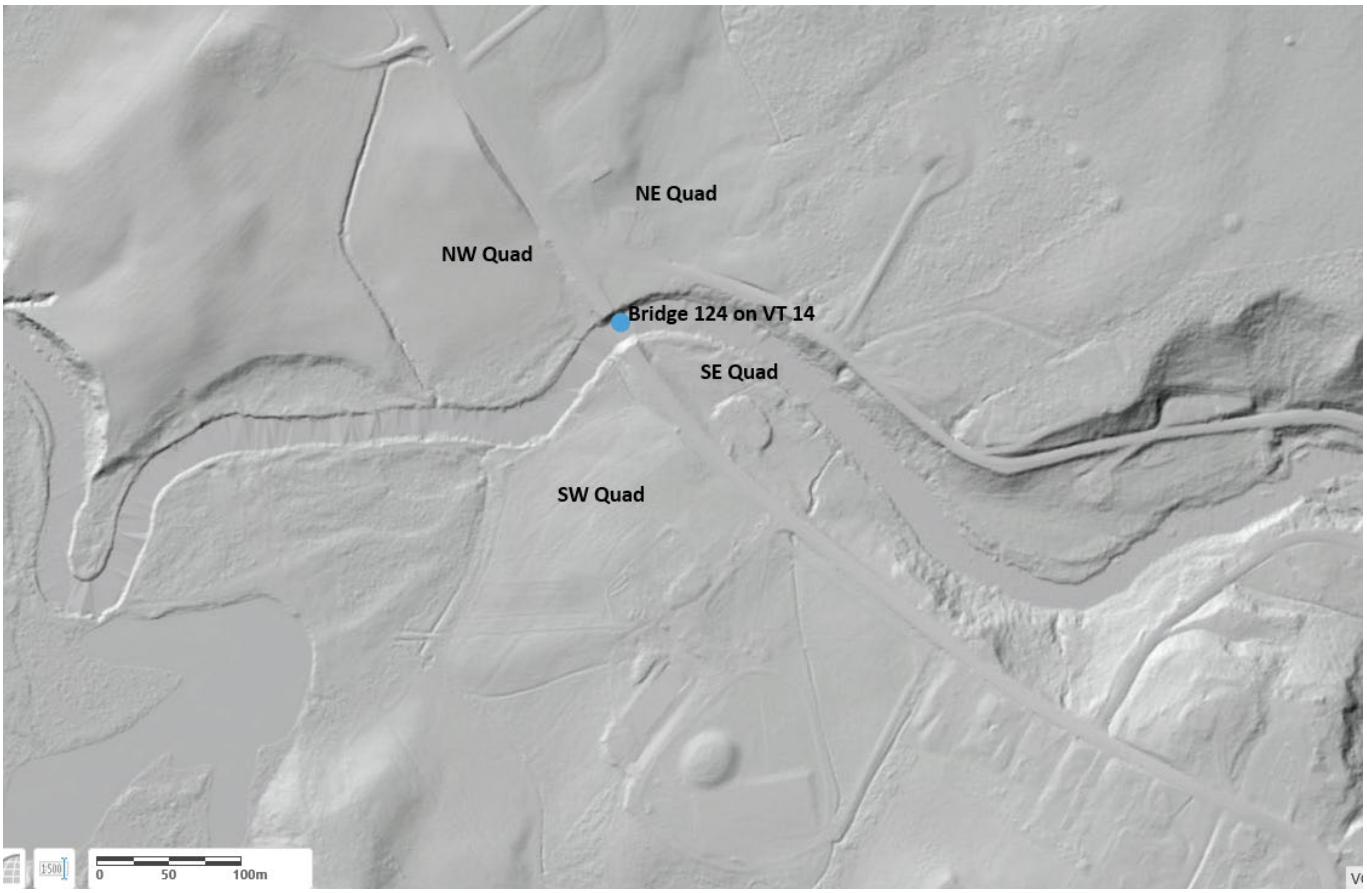
Please let me know if you have any questions.

Jen Russell

Thank you,
Jen Russell
VTrans Archaeology Officer

VTrans Working to Get You There
Vermont Agency of Transportation

Google image showing project location



LiDAR image of project location showing landforms

Shaded areas show locations of arch sensitivity. Other areas marked include wetlands and fill areas

ArcMap illustrating archaeologically sensitive areas

Appendix I: Historic Memo

VERMONT

State of Vermont *Agency of Transportation*

Gabrielle Fernandez
AOT Technical Apprentice IV
Gabrielle.Fernandez@vermont.gov
(802) 793-3738

Project Delivery Bureau - Environmental Section
One National Life Drive
Montpelier, VT 05633-5001
vtrans.vermont.gov

Historic Resources Identification Memo

To: JulieAnn Held, AOT Environmental Specialist
CC: Jeannine Russell, AOT Archaeologist
Reviewer: Judith Ehrlich, AOT Historic Preservation Officer

Date: November 18, 2019

Subject: Irasburg STP DECK(50) 19B217

I have completed the Resource Identification for Irasburg STP DECK(50). At this time, two resources over fifty years of age were identified within the possible project area: bridge number 124 and a barn at 2328 VT-14 in Irasburg.

This Resource Identification effort is being undertaken to provide information to the VTrans designers working on a proposed improvement project on bridge number 124 on VT-14 in Irasburg (Figure 1). Toward that end, VTrans Cultural Resources staff have identified potential resources within a broad preliminary Area of Potential Effect to ensure the designers are aware of all cultural resources that could possibly be affected by a project. Once the project is defined at the Conceptual Design phase, Cultural Resources staff will be able to determine a formal Area of Potential Effect for purposes of Section 106 and 22 VSA § 14.

Bridge number 124 is a metal rolled beam bridge on VT-14 over the Black River in Irasburg (Figure 2). Built in 1939, this single span structure is approximately 85 feet long. Sitting low over the river, this bridge has both concrete and stone abutments, and has been modified by modern railing.

The bridge type itself is not unique. According to the National Cooperative Highway Research Program's *A Context for Common Historic Bridge Types*, rolled beam highway bridges became popular in the 1920s, with reinforced concrete decks standard by the 1930s. From the 1920s to the 1960s, this standard bridge design would become popular as part of a push in Vermont and other states for the standardization of bridge design.

Metal rolled beam bridges possess lower significance within the context of bridge studies. The key character-defining features for significance include its beams, construction techniques, and any original rails, piers, wingwalls, or abutments. In the case of bridge number 124, the original rails are gone, however the structures abutments and substructure are in good shape (Figure 3).

Considering these factors, VTrans has determined that this bridge no longer retains enough significance to be eligible for the National Register of Historic Places.

A second resource was located at 4328 VT-14 in Irasburg (Figure 4). This building is a two-story gambrel-roofed barn with a cupola. Considering its age and architectural integrity, VTrans has determined that this bridge retains enough significance to be eligible for the National Register under Criterion A – association with the broad patterns of Vermont's rural agricultural history. Four other buildings at this site were determined to be ineligible due to age or alteration: two small sheds, a Quonset hut, and a home.

Three other properties lie within the survey area but were determined to be ineligible for the National Register. These are:

- A garage located on the property of a mobile home at 4409 VT-14 in Irasburg that is ineligible due to age and alterations (Figure 5).
- An auto garage at 4161 VT-14 in Irasburg that is ineligible due to age (Figure 6).
- A single-story ranch that is associated with the auto garage at 4161 VT-14 in Irasburg that is ineligible due to age (Figure 6).

No other buildings, structures, or sites were located within the survey area. No 4(f) resources were identified within the survey area.

Please do not hesitate to contact me should you have any questions.

Attachments:

- Map
- Photos

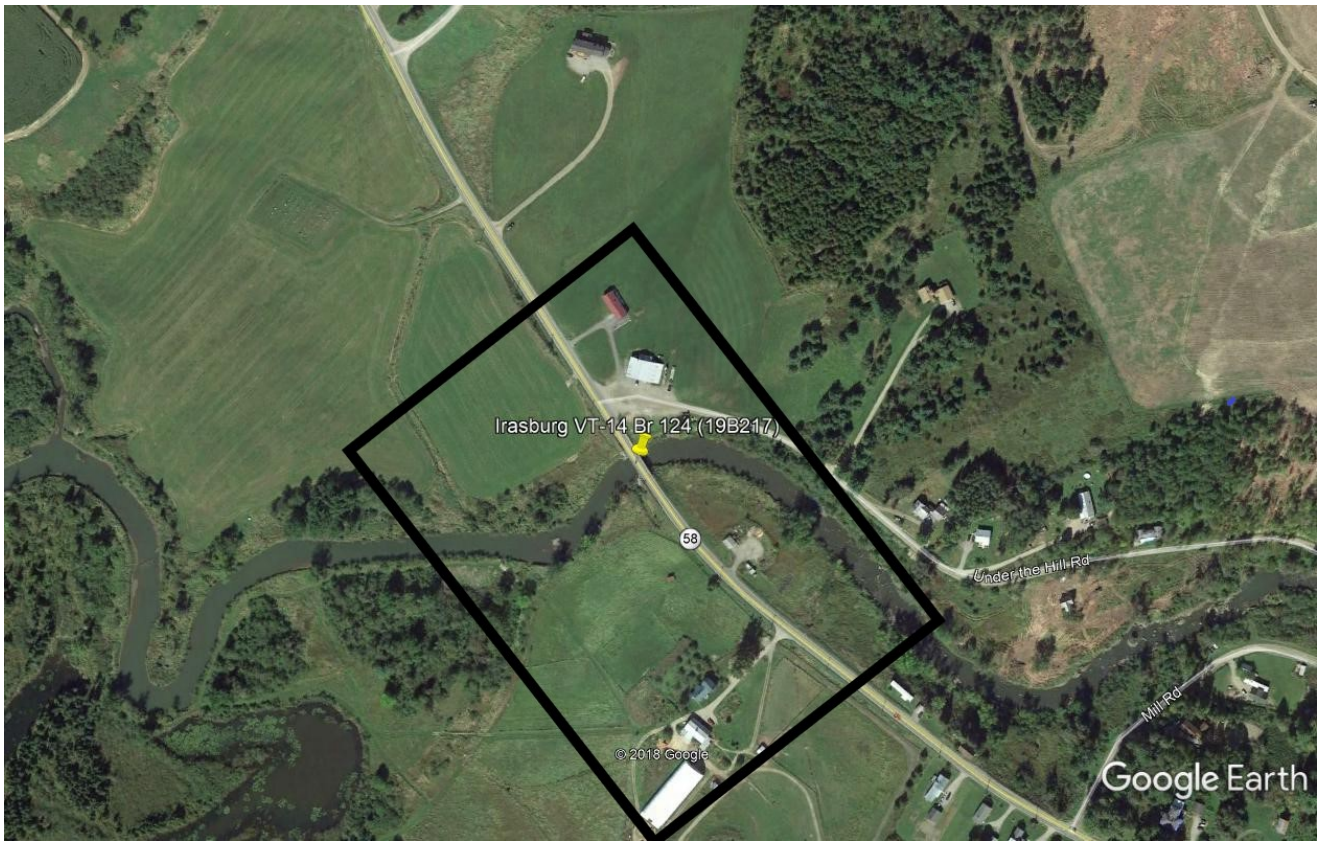


Figure 1: Google Earth view of the approximate survey area for Irasburg STP DECK(50).

Figure 2: Bridge number 124 in Irasburg.

Figure 3: Substructure and abutments for bridge number 124.

Figure 4: Google Maps view of the barn and associated buildings at 4328 VT-14 in Irasburg.

Figure 5: Google Maps view of the ineligible garage at 4409 VT-14 in Irasburg.

Figure 6: Ineligible ranch and auto garage at 4161 VT-14 in Irasburg.

Appendix J: Hazardous Waste Map

VERMONT

No Mapped Limited Reuse Soils

Vermont Agency of Natural Resources

vermont.gov

LEGEND

- Landfills
  - OPERATING
  - CLOSED
- Land Use Restrictions
  - Class IV GW Reclass
  - Class VI GW Reclass
  - Deed Restriction
  - Easement
  - Land Record Notice
  - Other
- Hazardous Site
- Brownfields
- Salvage Yard
- Aboveground Storage Tank
- Underground Storage Tank (w
- Dry Cleaner
- Urban Soil Background Areas
- Parcels (standardized)
- Parcels (non-standardized)
- VTRANS State and Town Long
- VTRANS State Short Structure
- Town Bridge
- Town Culvert
- Roads
  - Interstate
  - Principal Arterial
  - Minor Arterial
  - Major Collector

1: 6,503

July 24, 2019

NOTES

Map created using ANR's Natural Resources Atlas

330.0 0 165.00 330.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 542 Ft. 1cm = 65 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Appendix K: Crash Data

General Yearly Summaries - Crash Listing: State Highways and All Federal Aid Highway Systems

WHERE Year of Crash >= 2012 AND Year of Crash <= 2016

*	Reporting Agency/ Incident No.	City/Town	Mile Marker	Crash Date	Time	Weather	Contributing Circumstances	Direction of Collision	Number Of Injuries	Number Of Fatalities	Number Of Untimely Deaths	Direction	Road Group
	VTVSP0800/16B204112	Irasburg	1.18	10/28/2016	13:20	Rain	Failed to yield right of way, Under the influence of medication/drugs/alcohol, No improper driving	Left Turn and Thru, Broadside v<--	1	0	0	E, S	SH State Owned
	VTVSP0800/12B202184	Irasburg	2.43	07/14/2012	13:20	Cloudy	Failed to yield right of way, No improper driving	Left Turn and Thru, Head On ^v--	3	0	0	N, S	SH
	VTVSP0800/15B203122	Irasburg	2.54	09/15/2015	16:41	[No Weather]		[No Direction of Collision]	0	0	0		SH
	VTVSP0800/14B202678	Irasburg	2.65	08/18/2014	09:30	Cloudy	Operating defective equipment	Single Vehicle Crash	0	0	0	S	SH
	VTVSP0800/12B201932	Irasburg	2.66	06/24/2012	15:41	Clear	Driving too fast for conditions	Single Vehicle Crash	1	0	0	S	SH
	VTVSP0800/14B200448	Irasburg	2.67	02/07/2014	18:45	[No Weather]		[No Direction of Collision]	0	0	0		SH
	VTVSP0800/15B200651	Irasburg	2.86	03/02/2015	15:05	Blowing Sand, Soil, Dirt, Snow	Visibility obstructed, No improper driving	Rear End	4	0	0	E	SH
	VTVSP0800/16B202225	Irasburg	3.04	06/24/2016	16:15	Clear	Other improper action	Single Vehicle Crash	1	0	0	S	SH State Owned
	VTVSP0800/13B200863	Irasburg	3.20	03/23/2013	20:00	[No Weather]		[No Direction of Collision]	0	0	0		SH
	VTVSP0800/14B200665	Irasburg	3.34	02/28/2014	00:38	[No Weather]		[No Direction of Collision]	0	0	0		SH
	VTVSP0800/13B200017	Irasburg	3.88	01/02/2013	07:10	Snow	Driving too fast for conditions, No improper driving	Rear End	0	0	0	W	SH
	VTVSP0800/14B202648	Irasburg	3.88	08/15/2014	18:58	Clear	Under the influence of medication/drugs/alcohol, Exceeded authorized speed limit	Single Vehicle Crash	0	0	0	N	SH
	VTDMV0004/15MV005502	Irasburg	3.88	07/06/2015	09:00	Clear		No Turns, Thru moves only, Broadside ^<	0	0	0	E, S	SH
	VTVSP0800/15B203334	Irasburg	5.72	09/29/2015	09:22	Cloudy		Single Vehicle Crash	0	0	0	S	SH
	VTVSP0800/13B201197	Irasburg	6.79	04/21/2013	06:20	Cloudy	Driving too fast for conditions	Single Vehicle Crash	1	0	0	W	SH
	VTVSP0800/14B200776	Irasburg	7.33	03/11/2014	06:49	[No Weather]		[No Direction of Collision]	0	0	0		SH
	VTVSP0800/12B202958	Irasburg	UNK	08/31/2012	14:10	Clear		Single Vehicle Crash	0	0	0	N	SH
	VTVSP0800/13B200865	Irasburg	UNK	03/23/2013	20:15	[No Weather]		[No Direction of Collision]	0	0	0		SH
	VTVSP0800/16B200493	Irasburg	UNK	02/12/2016	22:03	[No Weather]		[No Direction of Collision]	0	0	0		SH State Owned
	VTVSP0800/14B200521	Coventry	0.11	02/13/2014	20:50	Snow	Exceeded authorized speed limit	Single Vehicle Crash	0	0	0	N	SH
	VTVSP0800/13B202671	Coventry	0.12	08/07/2013	01:55	Clear	Failure to keep in proper lane, Fatigued, asleep	Single Vehicle Crash	1	0	0	N	SH
	VTVSP0800/14B203437	Coventry	0.25	10/20/2014	20:39	Clear	Failure to keep in proper lane, Other improper action	Single Vehicle Crash	0	0	0	S	SH
	VTVSP0800/15B200409	Coventry	0.25	02/08/2015	13:20	Snow	Driving too fast for conditions, No improper driving	Head On	0	0	0	S, N	SH
	VTVSP0800/16B203529	Coventry	0.63	09/16/2016	07:42	Clear	Inattention, Followed too closely, No improper driving	Rear End	0	0	0	N	SH State Owned
	VTVSP0800/13B203882	Coventry	0.84	11/12/2013	20:30	[No Weather]		[No Direction of Collision]	0	0	0		SH

**Crash occurred prior to the last Highway Improvement Project. This data should not be used in a crash analysis. UNK indicates Mile Marker is Unknown.*

Appendix L: Local input

Local & Regional Input Questionnaire

Project Summary

This project, STP DECK(50), focuses on Bridge 124 on VT Route 14 in Irasburg, Vermont. The bridge deck is deteriorating and is in need of either a major maintenance action or replacement. Potential option being considered for this project is a new deck on the existing bridge. It is possible that VTrans will recommend a road closure and detour traffic away from the project site for the duration of the work. Efforts will be made to limit the detour to State roads.

Community Considerations

1. Are there regularly scheduled public events in the community that will generate increased traffic (e.g. vehicular, bicycles and/or pedestrians), or may be difficult to stage if the bridge is closed during construction? Examples include annual bike races, festivals, parades, cultural events, weekly farmers market, concerts, etc. that could be impacted? If yes, please provide approximate date, location and event organizers' contact info. Irasburg Church Fair, Ken Johnson 802-754-8417

2. Is there a "slow season" or period of time from May through October where traffic is less or no events are scheduled? No.

3. Please describe the location of the Town garage, emergency responders (fire, police, ambulance) and emergency response routes that might be affected by the closure of the bridge, one-way traffic, or lane closures and provide contact information (names, address, email addresses, and phone numbers. 217 Route 58E (Fire Department, Highway Crew) The ambulance service is in Orleans, VT.

4. Are there businesses (including agricultural operations and industrial parks) or delivery services (fuel or goods) that would be adversely impacted either by a detour or due to work zone proximity? Nelson Dairy Farm, Robillard Dairy Farm, Tree Corners Campground, Bob's Quick Stop, Rays Market, Riverside Garage, MBI, Casella, J. Hutchins

5. Are there important public buildings (town hall, community center, senior center, library) or community facilities (recreational fields, town green, etc.) close to the project? No.

6. What other municipal operations could be adversely affected by a road/bridge closure or detour? Road maintenance, grading etc.

7. Are there any town highways that might be adversely impacted by traffic bypassing the construction on other local roads? Please indicate which roads may be affected and their

condition (paved/unpaved, narrow, weight-limited bridges, etc), including those that may be or go into other towns. Mill Road, Covered Bridge Road, Under the Hill Road

8. Is there a local business association, chamber of commerce, regional development corporation, or other downtown group that we should be working with? If known, please provide name, organization, email, and phone number. Irasburg Planning Commission

9. Are there any public transit services or stops that use the bridge or transit routes in the vicinity that may be affected if they become the detour route? No.

Schools

1. Where are the schools in your community and what are their yearly schedules (example: first week in September to third week in June)? Irasburg Elemntary School(219 RT 58 East, Irasburg) Typically run from last week in August through 2nd week in June

2. Is this project on specific routes that school buses or students use to walk to and from school? Yes.

3. Are there recreational facilities associated with the schools nearby (other than at the school)? No.

Pedestrians and Bicyclists

1. What is the current level of bicycle and pedestrian use on the bridge? Minimal.

2. Are the current lane and shoulder widths adequate for pedestrian and bicycle use? Yes.

3. Does the community feel there is a need for a sidewalk or bike lane on the bridge? Yes. Wider shoulder for bicycles.

4. Is pedestrian and bicycle traffic heavy enough that it should be accommodated during construction? No.

5. Does the Town have plans to construct either pedestrian or bicycle facilities leading up to the bridge? Please provide any planning documents demonstrating this (scoping study, master plan, corridor study, town or regional plan). No.

6. In the vicinity of the bridge, is there a land use pattern, existing generators of pedestrian and/or bicycle traffic, or zoning that will support development that is likely to lead to significant levels of walking and bicycling? No.

Design Considerations

1. Are there any concerns with the alignment of the existing bridge? For example, if the bridge is located on a curve, has this created any problems that we should be aware of? No.

2. Are there any concerns with the width of the existing bridge? No, but a 4' shoulder would be nice.

3. Are there any special aesthetic considerations we should be aware of? No.

4. Does the location have a history of flooding? If yes, please explain. No.

5. Are there any known Hazardous Material Sites near the project site? No.

6. Are there any known historic, archeological and/or other environmental resource issues near the project site? No.

7. Are there any utilities (water, sewer, communications, power) attached to the existing bridge? Please provide any available documentation. No.

8. Are there any existing, pending, or planned municipal utility projects (communications, lighting, drainage, water, wastewater, etc.) near the project that should be considered? No.

9. Are there any other issues that are important for us to understand and consider? There is a lot of large farm machinery that uses the bridge throughout the year.

Land Use & Zoning

1. Please provide a copy of your existing and future land use map or zoning map, if applicable. N/A

2. Are there any existing, pending or planned development proposal that would impact future transportation patterns near the bridge? If so, please explain. No.

3. Is there any planned expansion of public transit or intercity transit service in the project area? Please provide the name and contact information for the relevant public transit provider. No.

Communications

1. Please identify any local communication outlets that are available for us to use in communicating with the local population. Include weekly or daily newspapers, blogs, radio, public access TV, Facebook, Front Page Forum, etc. Also include any unconventional means such as local low-power FM. Front Page Forum, The Chronicle

2. Other than people/organizations already referenced in this questionnaire, are there any others who should be kept in the loop as the project moves forward? Goodridge Lumber, MBI, Casella, Northeast Sand and Gravel / J. Hutchins.

Appendix M: Operations Survey

Bridge Scoping Project STP DECK(50)
Operations Input Questionnaire

The Structures Section has begun the scoping process for STP DECK(50), VT Route 14, Bridge 124, over the Black River. This is a rolled beam/concrete deck bridge constructed in 1939, and reconstructed in 1968. The Structure Inspection, Inventory, and Appraisal Sheet (attached) rates the deck as 5 (fair), the superstructure as 7 (good), and the substructures as 7 (good). We are interested in hearing your thoughts regarding the items listed below. Leave it blank if you don't wish to comment on a particular item.

1. What are your thoughts on the general condition of this bridge and the general maintenance effort required to keep it in service?
    - This structure has and continues to require above average maintenance, needing constant pavement patching on the deck surface. (It hasn't seen proper maintenance repairs in the past which is part of the problem)

2. What are your comments on the current geometry and alignment of the bridge (curve, sag, banking, sight distance)?
    - The alignment is good
    - Wider would be better

3. Do you feel that the posted speed limit is appropriate? Yes.

4. Is the current bridge and approach roadway width adequate for winter maintenance including snow plowing? Approaches are ok, the bridge is a little narrow.

5. Are the joints salvageable or would you recommend replacement?
   No na

6. Are the railings constantly in need of repair or replacement? What type of railing works best for your district? (We are recommending more and more box beam guardrail on our bridges because of crash-worthiness and compatibility with accelerated projects).
    - Undermount curb would be preferred.
    - Rail height not adequate, New rail height of 42" to accommodate for maintenance w/out the need to be harnessed.

7. Are you aware of any unpermitted driveways within close proximity to the bridge? We frequently encounter driveways that prevent us from meeting railing and safety standards.
   No
8. Are you aware of abutting property owners that are likely to need special attention during the planning and construction phases? These could be people with disabilities, elderly, or simply folks who feel they have been unfairly treated in the past.
   No

9. Do you find that extra effort is required to keep the slopes and river banks around the bridge in a stable condition? Is there frequent flood damage that requires repair?
   No, no

10. Does this bridge seem to catch an unusual amount of debris from the waterway? no

11. Are you familiar with traffic volumes in the area of this project? yes

12. Do you think a closure with off-site detour and accelerated construction would be appropriate? Do you have any opinion about a possible detour route, assuming that we use State route for State projects and any route for Town projects? Are there locations on a potential detour that are already congested that we should consider avoiding?

I don't believe the Town Rd. would not be adequate for a detour. No good off sight detour comes to mind.

13. Please describe any larger projects that you have completed that may not be reflected on the attached Appraisal sheet, such as deck patches, paving patches, railing replacement with new type, steel coating, etc.

Shimmed, leveled as part of a district leveling project.

14. If there is a sidewalk on this bridge, how effective are the Town's efforts to keep it free of snow and ice? NA

15. Are there any drainage issues that we should address on this project? No

16. Are you aware of any complaints that the public has about issues that we can address on this project? No official complaints. Any issues would be solved with a new deck. Then we just have to maintain it properly.

17. Is there anything else we should be aware of? No

Appendix N: Utilities ID

From Utilities:

II have completed the utility investigation for the subject project and have the following information to offer.

Aerial: Aerial utilities exist along the west side of the bridge and these facilities are owned by Vermont Electric Coop, Comcast Communications and Consolidated communications.

Underground: There are no buried utilities in the area of the bridge.

Shaun Corbett |Utility Coordination Supervisor

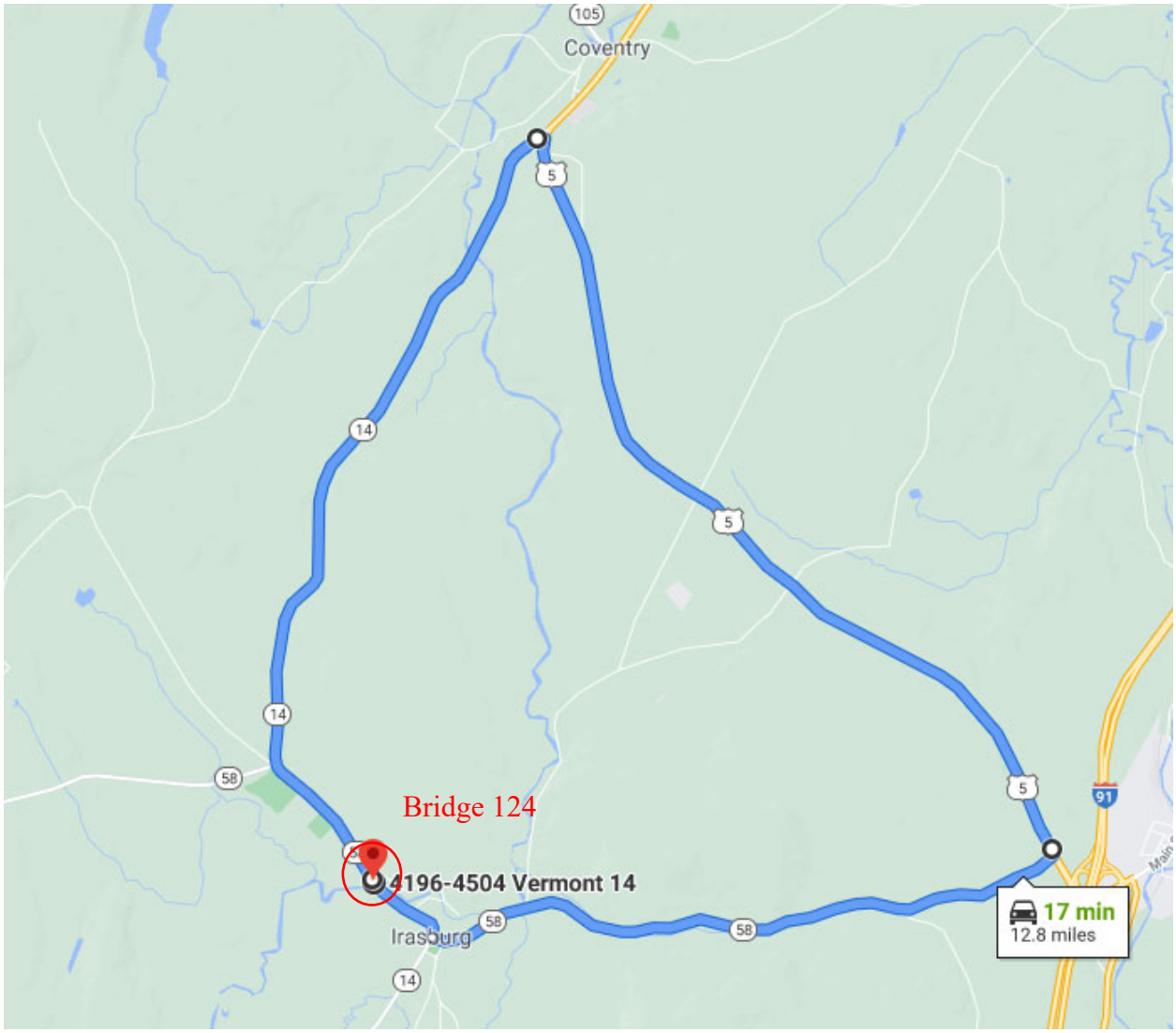
Vermont Agency of Transportation

One National Life Drive | Montpelier, VT 05633-5001

802-371-7943 cell

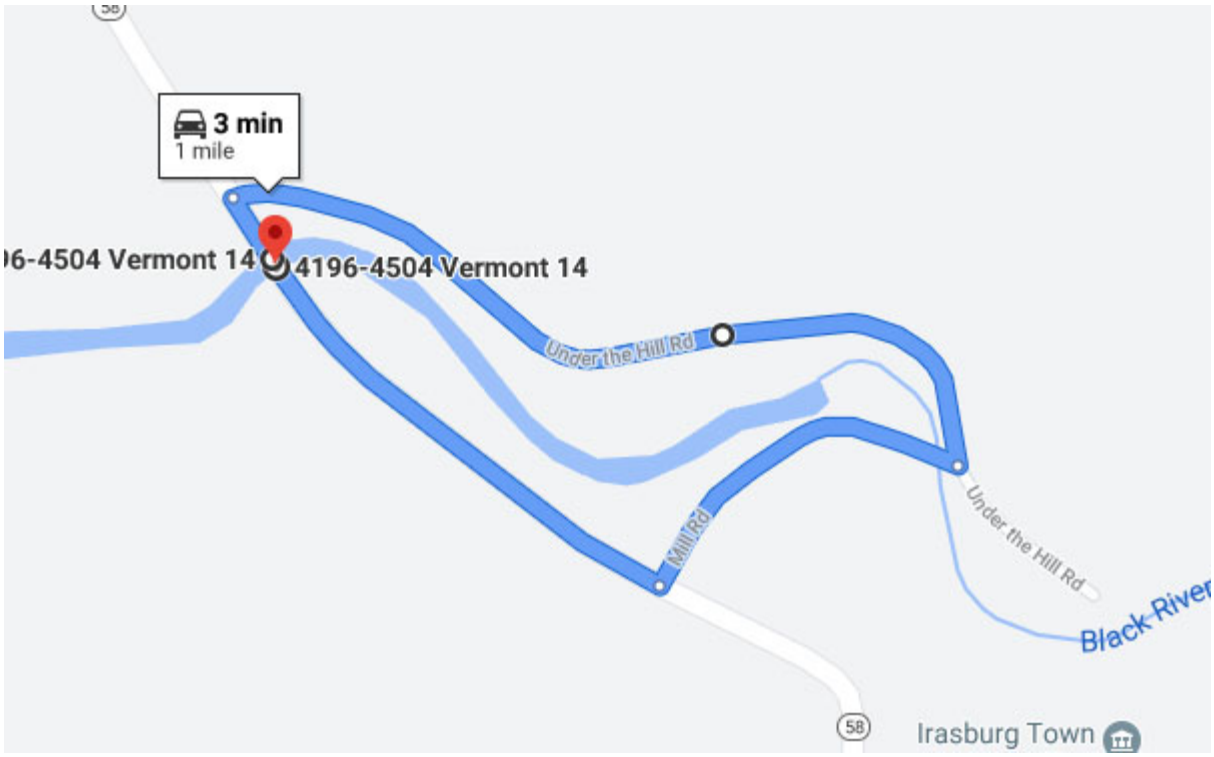
shaun.corbett@vermont.gov

Appendix O: Detour Map



Regional Detour Route: VT Route 14, to US Route 5, and VT Route 58, back to VT Route 14

4.8 Miles Through-Route
8.0 Miles Detour Route
12.8 Miles end-to-end
3.2 Miles Added



Local Bypass Route: VT Route 14, to Under the Hill Road, and Mill Road, back to VT Route 14

0.3 Miles Through-Route
0.7 Miles Detour Route
1.0 Miles end-to-end
0.4 Miles Added

Appendix P: Plans

INDEX OF SHEETS

SHEET NO.	SHEET DESCRIPTION
1	Existing Conditions Layout
2	Existing Profile Sheet
3	Typical Sections
4	Deck Replacement Layout
5	Phasing Typical Sections
6	Phase 1 Layout
7	Phase 2 Layout
8	Upstream Temporary Bridge Layout
9	Downstream Temporary Bridge Layout

HOLLAND, ROBERT R.;
GREEN, LAURIE J.

PORTLAND PIPELINE CORPORATION

NELSON FARMS, INC.

MACHIA, CHARLES EDWARD

CDMB GOODRIDGE, LLC.

SHELTRA, PAUL & YVETTE

EXISTING CURVE 1
DELTA = 13°34'33"
D = 4°05'33"
R = 1400.00'
T = 166.64'
L = 331.72'
E = 9.88'

BENCHMARK
RAILROAD SPIKE
IN POLE
ELEV. =837.20

PI STA 163+06.56

PT STA 164+73.28

VT ROUTE 14
TO ALBANY

VT ROUTE 14
TO COVENTRY

APPROX. EXISTING R.O.W.

APPROX. EXISTING TOWN R.O.W.

BLACK RIVER FLOW

4X4 CONCRETE BOUNDRY MARKER 1' AGS

ELECTRIC FENCE

GUY WIRE

COMB T2-18

SIGN VD-701 (BRIDGE 124 VT-14)

SIGN OM3-L

SIGN OM3-R

SIGN R2-1 (50)

SIGN D3-1 (UNDER THE HILL RD)

HVCTRL 100

GRAVEL DRIVE

PAVED DRIVE

TH-5 (UNDER THE HILL RD)

MONITOR WELL

AER E&T

ARCH

P L

163+00 164+00 165+00 166+00 167+00 168+00

50+00 51+00 52+00

EXISTING CONDITIONS

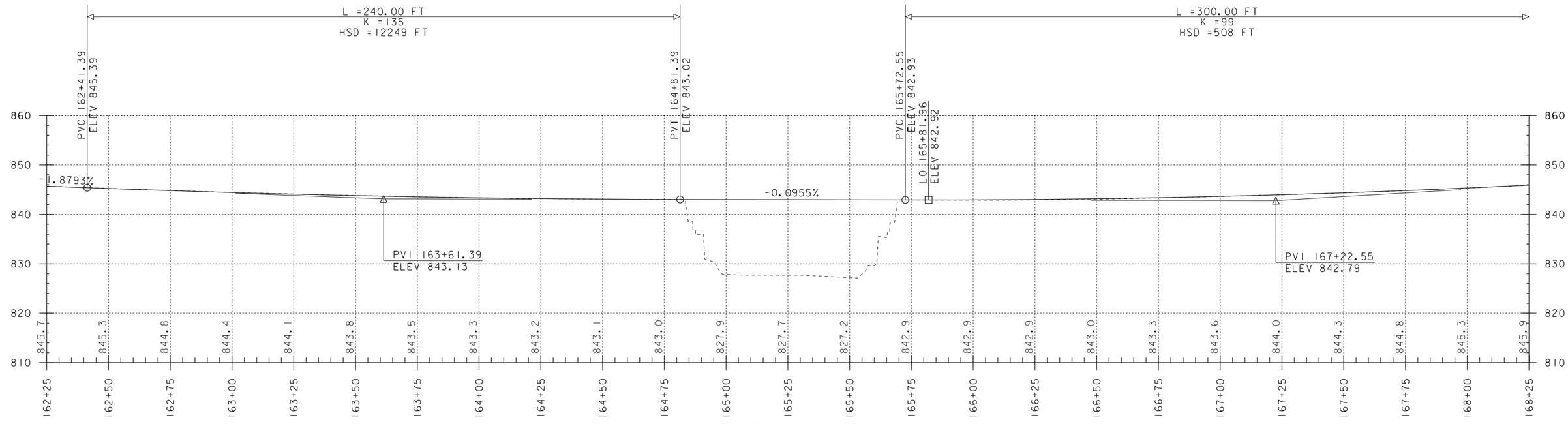
SCALE 1" = 20'-0"
20 0 20

EXISTING BRIDGE INFORMATION
BUILT 1939, RECONSTRUCTED 1968
SINGLE SPAN ROLLED BEAM
CAST-IN-PLACE DECK
85' MAX SPAN

VT STATE PLANE GRID

N

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP DECK(50)
FILE NAME: 19b217/sl9b217border.dgn	PLOT DATE: 11-SEP-2020
PROJECT LEADER: L.J.STONE	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
EXISTING CONDITIONS SHEET	SHEET 1 OF 9

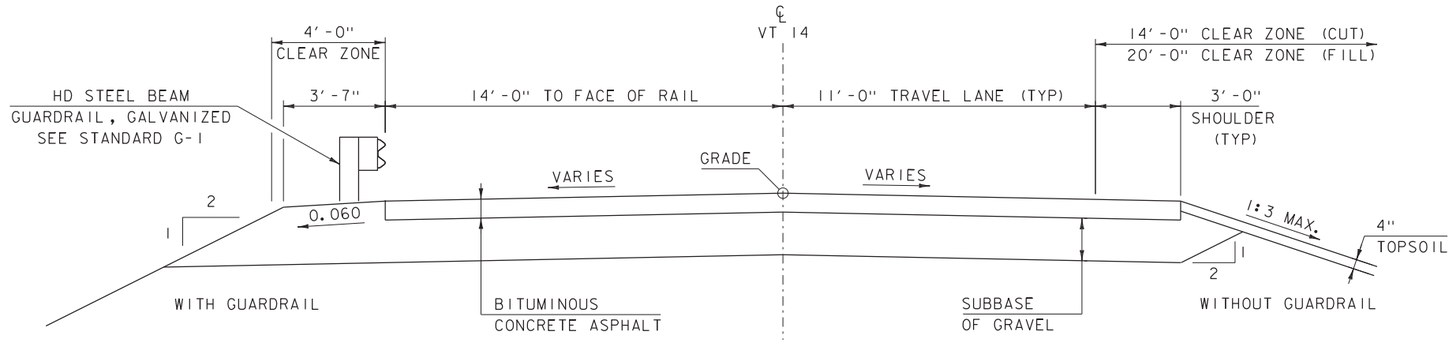


VT ROUTE 14 PROFILE

SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

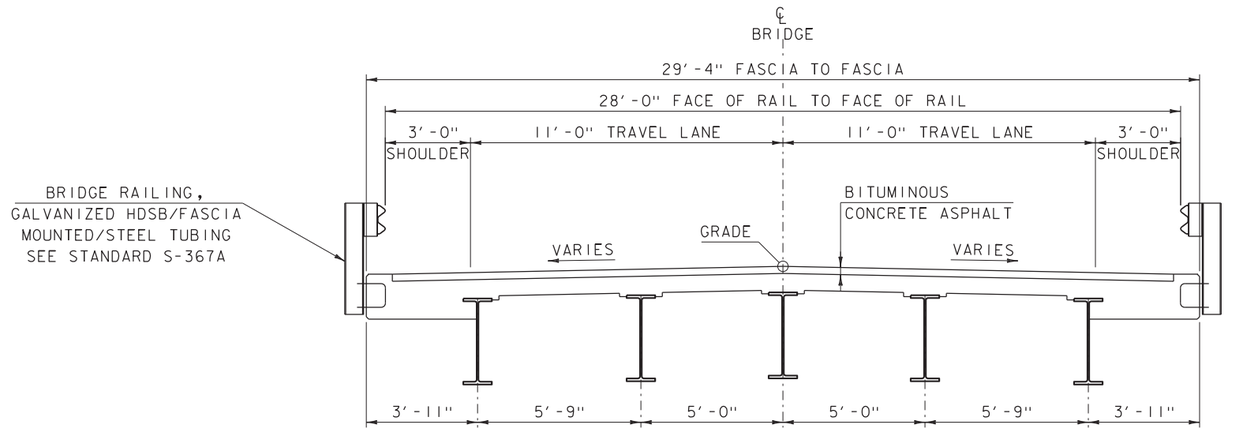
NOTE:
GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄
GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP DECK(50)
FILE NAME: 19b217/sl9b217profile.dgn	PLOT DATE: 11-SEP-2020
PROJECT LEADER: L.J.STONE	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
PROFILE SHEET	SHEET 2 OF 9



PROPOSED VT ROUTE 14 TYPICAL SECTION

SCALE 3/8" = 1'-0"



FLOW

PROPOSED BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"

MATERIAL TOLERANCES

(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP DECK(50)

FILE NAME: 19b217\sl9b217typ.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ----------
TYPICAL SECTIONS

PLOT DATE: 11-SEP-2020
DRAWN BY: D.D.BEARD
CHECKED BY: ------

EXISTING CURVE 1
DELTA = 13°34'33"
D = 4°05'33"
R = 1400.00'
T = 166.64'
L = 331.72'
E = 9.88'

PI STA 163+06.56

PT STA 164+71.28

BENCHMARK
RAILROAD SPIKE
IN POLE
ELEV. =837.20

VT ROUTE 14
TO ALBANY

VT ROUTE 14
TO COVENTRY

163+00 164+00 165+00 166+00 167+00 168+00

50+00 51+00 52+00

APPROX. EXISTING R.O.W.

APPROX. EXISTING TOWN R.O.W.

AER E&T

ARCH

ELECTRIC FENCE

GUY WIRE

COMB 121B 14

COMB 121B 15

4X4 CONCRETE BOUNDRY MARKER 1 FOOT BGS

12" GGMP

FLOW

STONE FILL

SIGN OM3-L

SIGN OM3-R

SIGN VD-701 (BRIDGE 124 VT-14)

SIGN R2-1 (40)

SIGN R2-1 (50)

SIGN D3-1 (UNDER THE HILL RD)

HVCTRL 101

HVCTRL 100

FIELD DRIVE

GRAVEL DRIVE

PAVED DRIVE

MONITOR WELL

TH-5 (UNDER THE HILL RD)

BLACK RIVER FLOW

VT E&T AEST ATE PLANE GRID

N

EXISTING BRIDGE INFORMATION
BUILT 1939, RECONSTRUCTED 1968
SINGLE SPAN ROLLED BEAM
CAST-IN-PLACE DECK
85' MAX SPAN

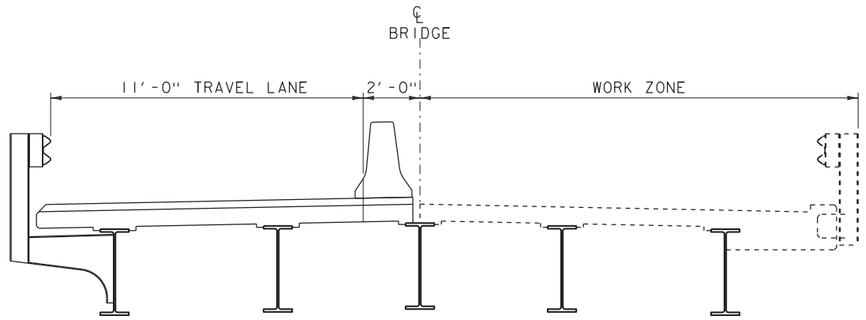
DECK REPLACEMENT

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP DECK(50)

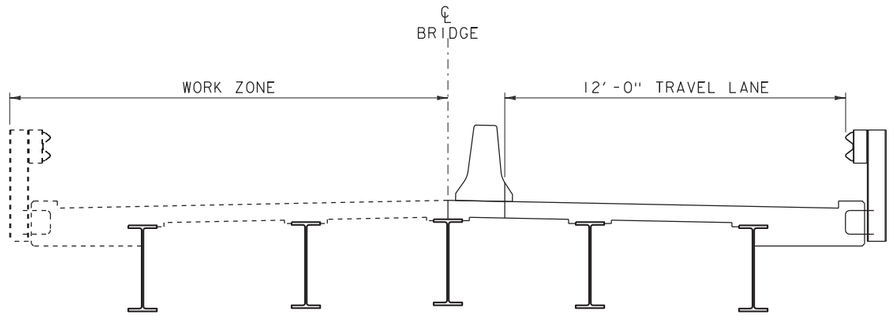
FILE NAME: 19b217/sl9b217border.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ------
DECK REPLACEMENT LAYOUT

PLOT DATE: 11-SEP-2020
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 4 OF 9



PHASE 1 TYPICAL SECTION

SCALE 3/8" = 1'-0"



PHASE 2 TYPICAL SECTION

SCALE 3/8" = 1'-0"

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP DECK(50)
FILE NAME: I9b2I7\sI9b2I7traffic.dgn	PLOT DATE: II-SEP-2020
PROJECT LEADER: L.J.STONE	DRAWN BY: D.D.BEARD
DESIGNED BY: ----------	CHECKED BY: ------
PHASING TYPICAL SECTIONS	SHEET 5 OF 9

EXISTING CURVE 1
DELTA = 13°34'33"
D = 4°05'33"
R = 1400.00'
T = 166.64'
L = 331.72'
E = 9.88'

PI STA 163+06.56

PT STA 164+71.28

BENCHMARK
RAILROAD SPIKE
IN POLE
ELEV. =837.20

VT ROUTE 14
TO ALBANY

VT ROUTE 14
TO COVENTRY

APPROX. EXISTING R.O.W.

APPROX. EXISTING TOWN R.O.W.

BLACK RIVER
FLOW

4X4 CONCRETE
BOUNDRY MARKER
I' BGS

GUY WIRE

ELECTRIC FENCE

ARCH

AER E&T

STONE FILL

SIGN OM3-L

SIGN OM3-R

SIGN VD-701 (BRIDGE 124 VT-14)

SIGN R2-1 (40)

SIGN R2-1 (50)

SIGN D3-1 (UNDER THE HILL RD)

COMB 121B 14

COMB 121B 15

HVCTRL 100

GRAVEL DRIVE

PAVED DRIVE

FIELD DRIVE

TH-5 (UNDER THE HILL RD)

MONITOR WELL

VT STATE PLANE GRID

N

50+00

51+00

52+00

163+00

164+00

165+00

166+00

167+00

168+00

PHASE I LAYOUT

SCALE 1" = 20'-0"
20 0 20

EXISTING BRIDGE INFORMATION
BUILT 1939, RECONSTRUCTED 1968
SINGLE SPAN ROLLED BEAM
CAST-IN-PLACE DECK
85' MAX SPAN

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP DECK(50)

FILE NAME: 19b217/sl9b217TCborder.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ------
PHASE I LAYOUT SHEET

PLOT DATE: 11-SEP-2020
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 6 OF 9

EXISTING CURVE 1
DELTA = 13°34'33"
D = 4°05'33"
R = 1400.00'
T = 166.64'
L = 331.72'
E = 9.88'

PI STA 163+06.56

PT STA 164+71.28

BENCHMARK
RAILROAD SPIKE
IN POLE
ELEV. =837.20

VT ROUTE 14
TO ALBANY

VT ROUTE 14
TO COVENTRY

163+00 164+00 165+00 166+00 167+00 168+00

50+00 51+00 52+00

APPROX. EXISTING R.O.W.

APPROX. EXISTING TOWN R.O.W.

AER E&T

ARCH

ELECTRIC FENCE

4X4 CONCRETE BOUNDRY MARKER BGS

GUY WIRE

COMB 12 B 14

SIGN VD-701 (BRIDGE 124 VT-14)

SIGN OM3-L

SIGN OM3-R

SIGN R2-1 (40)

SIGN R2-1 (50)

SIGN D3-1 (UNDER THE HILL RD)

STONE FILL

HVCTRL 100

BLACK RIVER FLOW

GGMP FLOW

GRAVEL DRIVE

PAVED DRIVE

FIELD DRIVE

TH-5 (UNDER THE HILL RD)

MONITOR WELL

VT E&T AERIAL STATE PLANE GRID N

EXISTING BRIDGE INFORMATION
BUILT 1939, RECONSTRUCTED 1968
SINGLE SPAN ROLLED BEAM
CAST-IN-PLACE DECK
85' MAX SPAN

PHASE 2 LAYOUT

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP DECK(50)

FILE NAME: 19b217/sl9b217TCborder.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ------
PHASE 2 LAYOUT

PLOT DATE: 11-SEP-2020
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 7 OF 9

EXISTING CURVE 1
DELTA = 13°34'33"
D = 4°05'33"
R = 1400.00'
T = 166.64'
L = 331.72'
E = 9.88'

PI STA 163+06.56

BENCHMARK
RAILROAD SPIKE
IN POLE
ELEV. =837.20

4X4 CONCRETE BOUNDRY MARKER BGS

APPROX. EXISTING R.O.W.

ELECTRIC FENCE

ARCH

GUY WIRE

COMB T21B I4

AER E&T

STONE FILL

SIGN OM3-L

SIGN OM3-R

SIGN VD-701 (BRIDGE 124 VT-14)

SIGN R2-1 (40)

SIGN D3-1 (UNDER THE HILL RD)

HVCTRL 101

50+00

51+00

52+00

163+00

164+00

165+00

166+00

167+00

168+00

VT ROUTE 14
TO ALBANY

VT ROUTE 14
TO COVENTRY

PT STA 164+71.08

4X4 CONCRETE BOUNDRY MARKER BGS

BLACK RIVER FLOW

APPROX. EXISTING TOWN R.O.W.

GRAVEL DRIVE

PAVED DRIVE

FIELD DRIVE

TH-5
(UNDER THE HILL RD)

MONITOR WELL

VT E&T
AEST ATE PLANE GRID

N

UPSTREAM TEMPORARY BRIDGE

SCALE 1" = 20'-0"
20 0 20

EXISTING BRIDGE INFORMATION
BUILT 1939, RECONSTRUCTED 1968
SINGLE SPAN ROLLED BEAM
CAST-IN-PLACE DECK
85' MAX SPAN

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP DECK(50)
FILE NAME: I9b2I7/sI9b2I7TCborder.dgn	PLOT DATE: II-SEP-2020
PROJECT LEADER: L.J.STONE	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
UPSTREAM TEMP BRIDGE LAYOUT	SHEET 8 OF 9

EXISTING CURVE 1
DELTA = 13°34'33"
D = 4°05'33"
R = 1400.00'
T = 166.64'
L = 331.72'
E = 9.88'

PI STA 163+06.56

PT STA 164+71.28

BENCHMARK
RAILROAD SPIKE
IN POLE
ELEV. =837.20

VT ROUTE 14
TO ALBANY

VT ROUTE 14
TO COVENTRY

163+00 164+00 165+00 166+00 167+00 168+00

50+00 51+00 52+00

APPROX. EXISTING R.O.W.

APPROX. EXISTING TOWN R.O.W.

AER E&T

ARCH

ELECTRIC FENCE

4X4 CONCRETE BOUNDRY MARKER BGS

GUY WIRE

COMB 121B 14

COMB 121B 15

SIGN VD-701 (BRIDGE 124 VT-14)

SIGN OM3-L

SIGN OM3-R

SIGN R2-1 (40)

SIGN R2-1 (50)

SIGN P3-1 (UNDER THE HILL RD)

STONE FILL

SIGN FILL OM3-L

HVCTRL 101

HVCTRL 100

FIELD DRIVE

GRAVEL DRIVE

PAVED DRIVE

MONITOR WELL

TH-5 (UNDER THE HILL RD)

BLACK RIVER FLOW

VT E&T AES STATE PLANE GRID N

DOWNSTREAM TEMPORARY BRIDGE

SCALE 1" = 20'-0"
20 0 20

EXISTING BRIDGE INFORMATION
BUILT 1939, RECONSTRUCTED 1968
SINGLE SPAN ROLLED BEAM
CAST-IN-PLACE DECK
85' MAX SPAN

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP DECK(50)

FILE NAME: l9b2l7/sl9b2l7TCborder.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ------
DOWNSTREAM TEMP BRIDGE LAYOUT

PLOT DATE: 11-SEP-2020
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 9 OF 9