



# S.D. Ireland Companies \*Precast Division\*



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[www.sdireland.com](http://www.sdireland.com)

Attention: Artie St. Onge  
Company: A.L. St. Onge Constructor  
Address: 86 Fuller Bridge Rd.  
City, St, Zip: Montgomery, VT 05470  
Ph: / Fax: 802-326-4792

Date: 2/24/2016  
Job Name: Waitsfield BRF 013-4(39)  
Job Number: SDI #17005  
Regarding: ReCon Retaining Wall Block Submittal

WE ARE SENDING:  Quote  Details  Other: \_\_\_\_\_  
 Submittals  Prints  Plans  Specifications  
 Copy Of Letter  Change Order  Samples  Revised Submittals

Copies	Date	Pages	Description
1	2/24/2016	1	Transmittal Cover Sheet
	2/24/2016	2-8	Wall Design Plans

These Are Submitted as Checked Below:

For Approval  Approved as Submitted  Resubmit \_\_ Copies for Approval  
 For Your Use  Approved as Noted  Submit \_\_ Copies for Distribution  
 As Requested  Returned for Corrections  Return \_\_ Corrected Prints  
 For Review and Comment  Prints Returned After Loan to Us  
 For Bids Due: \_\_\_\_\_  Other: \_\_\_\_\_

### Notes/Remarks:

Artie,

One of the design engineers called my wall designer and had him add a 4" drain pipe behind both walls. Revised plan sheets are attached. Let me know if you have any questions.

Thank you.

Eric Barendse x265

Copy To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signed: \_\_\_\_\_

*If enclosures are not as noted, kindly notify us at once.*

# WAITSFIELD BRF 013-4(39)

## WAITSFIELD, VERMONT

### GENERAL NOTES:

#### DESIGN PROVISIONS:

- THE FOLLOWING EFFECTIVE STRENGTH PARAMETERS WERE ASSUMED IN THE PREPARATION OF THE STRUCTURAL CALCULATIONS FOR THE RECON RETAINING WALL SYSTEM:

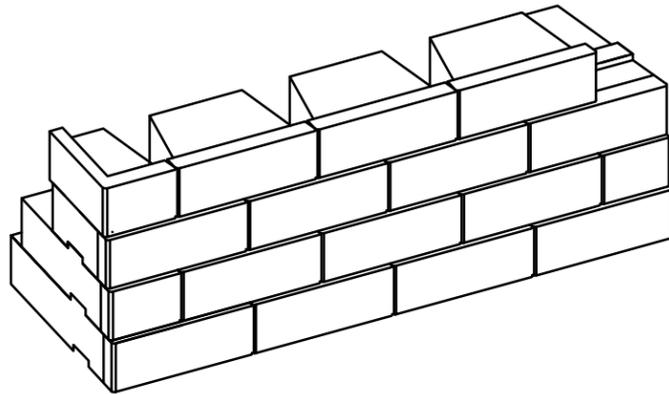
	$\phi$	c	$\gamma$	SOIL TYPE
RETAINED SOIL	34°	0 PSF	140 PCF	SELECT GRANULAR
FOUNDATION SOIL	38°	0 PSF	130 PCF	CLAYEY GRAVEL & SAND

SOILS INFORMATION OBTAINED FROM THE CONTRACT PLANS PREPARED BY MCFARLAND JOHNSON LAST DATED AUGUST 24, 2015. FOUNDATION SOILS SHALL BE EVALUATED BY A GEOTECHNICAL ENGINEER OR OWNERS REPRESENTATIVE TO ENSURE THAT THE BEARING SOILS MEET OR EXCEED THE DESIGN CONDITIONS OR ASSUMPTIONS.

- THE WALLS ARE DESIGNED TO MEET THE FOLLOWING DESIGN PARAMETERS AND MAXIMUM SURCHARGE LOADINGS:

UNIT TYPE: RECON SERIES 50: 24", 39", 60", AND 72" UNITS  
 FACE TEXTURE: NORTH SHORE GRANITE  
 BATTER: 3.6°  
 DESIGN METHOD: AASHTO LRFD  
 LIVE LOAD: 250 PSF  
 DEAD LOAD: 0 PSF  
 TOE SLOPE: 2H:1V  
 BACK SLOPE: 1.5H:1V  
 SEISMIC: NONE  
 HYDROSTATIC: N/A (DRAINAGE PROVIDED)

- THE FOUNDATION SOILS AT THE WALL LOCATIONS SHALL BE CAPABLE OF SAFELY SUPPORTING THE MAXIMUM APPLIED BEARING PRESSURE AS SHOWN ON THE WALL PROFILES WITHOUT FAILURE OR EXCESSIVE SETTLEMENT. LOCAL BEARING CAPACITY SHALL BE CONFIRMED BY THE SITE GEOTECHNICAL ENGINEER AFTER FOUNDATION EXCAVATION AND PRIOR TO WALL CONSTRUCTION.



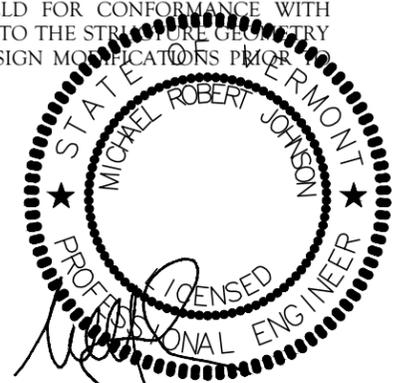
### SHEET INDEX

SHEET	DESCRIPTION
1.00	TITLE SHEET
2.00	SITE PLAN
3.00	SPECIFICATIONS
4.00	TYPICAL UNIT DETAILS
5.00	WALL SECTIONS
6.00	WALL 1 ELEVATION
6.01	WALL 2 ELEVATION

### GENERAL NOTES:

#### SUGGESTED QUALITY ASSURANCE PROVISIONS:

- MULTIPLE CONTRACTORS (FENCE, WALL, GRADING, ETC.) MAY BE USED TO COMPLETE THE OVERALL PROJECT AS SHOWN ON THESE SHOP DRAWINGS. PLANS DO NOT DEFINE SCOPE OF WORK FOR INDIVIDUAL ENTITIES. SEE CONTRACT DOCUMENTS FOR SPECIFIC DETAILS ON THE SCOPE OF WORK THAT WILL BE PROVIDED BY ALL PARTIES.
- WALL CONSTRUCTION SHALL BE SUPERVISED BY A QUALIFIED ENGINEER OR TECHNICIAN TO VERIFY FIELD AND SITE SOIL CONDITIONS. IF THIS WORK IS NOT PERFORMED BY THE SITE GEOTECHNICAL ENGINEER, A QUALIFIED GEOTECHNICAL ENGINEER/TECHNICIAN SHALL BE CONSULTED IN THOSE MATTERS PERTAINING TO THE SOIL CONDITIONS AND WALL PERFORMANCE.
- THE FOUNDATION SOILS AT THE BASE OF THE WALL(S) SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER. ANY UNSUITABLE SOILS OR IMPROPERLY COMPACTED EMBANKMENT MATERIAL SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE ENGINEER PRIOR TO WALL CONSTRUCTION TO PROVIDE ADEQUATE BEARING CAPACITY AND MINIMIZE SETTLEMENT.
- ALL WALL EXCAVATION AND RETAINED SOILS SHALL BE INSPECTED FOR GROUNDWATER CONDITIONS. ANY ADDITIONAL DRAINAGE PROVISIONS REQUIRED IN THE FIELD SHALL BE INCORPORATED INTO THE WALL CONSTRUCTION AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- WALL BACKFILL MATERIAL SHALL BE TESTED AND APPROVED BY THE ENGINEER, MEETING THE MINIMUM REQUIREMENTS OF THE APPROVED DESIGN PLANS OR SPECIFICATIONS.
- ALL SOIL BACKFILL SHALL BE TESTED BY THE GEOTECHNICAL ENGINEER FOR MOISTURE, DENSITY, AND COMPACTION PERIODICALLY (EVERY 2' VERTICALLY, 100'-200' C/C) MEETING THE MINIMUM REQUIREMENTS OF THE APPROVED DESIGN PLANS OR SPECIFICATIONS.
- THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN QUALITY CONTROL FOR THE CONSTRUCTION OF THE WALL TO ASSURE COMPLIANCE WITH CONTRACT REQUIREMENTS AND MAINTAIN RECORDS OF ITS QUALITY CONTROL.
- ALL WALL ELEVATIONS, GRADES, AND BACK SLOPE CONDITIONS SHALL BE VERIFIED BY THE ENGINEER IN THE FIELD FOR CONFORMANCE WITH APPROVED DESIGN PLANS. ANY REVISIONS TO THE STRUCTURE OR DESIGN CRITERIA SHALL REQUIRE DESIGN MODIFICATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.



MICHAEL R. JOHNSON, P.E. Date: 2/24/2016

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No.	Date	Revision	By
1	2.02.2016	REVISE BLOCK AND QUANTITIES	TPH
2	2.24.2016	ADD DRAINPIPE	TPH
3			
4			
5			
6			

Designed By: TPH	Project: WAITSFIELD BRF 013-4(39) WAITSFIELD, VERMONT	Registration No: 8619
Scale: N.T.S.	Title: TITLE SHEET	Project No: 15-0789
Date: JAN 28, 2016		Sheet No: 1.00

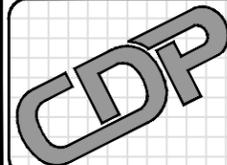
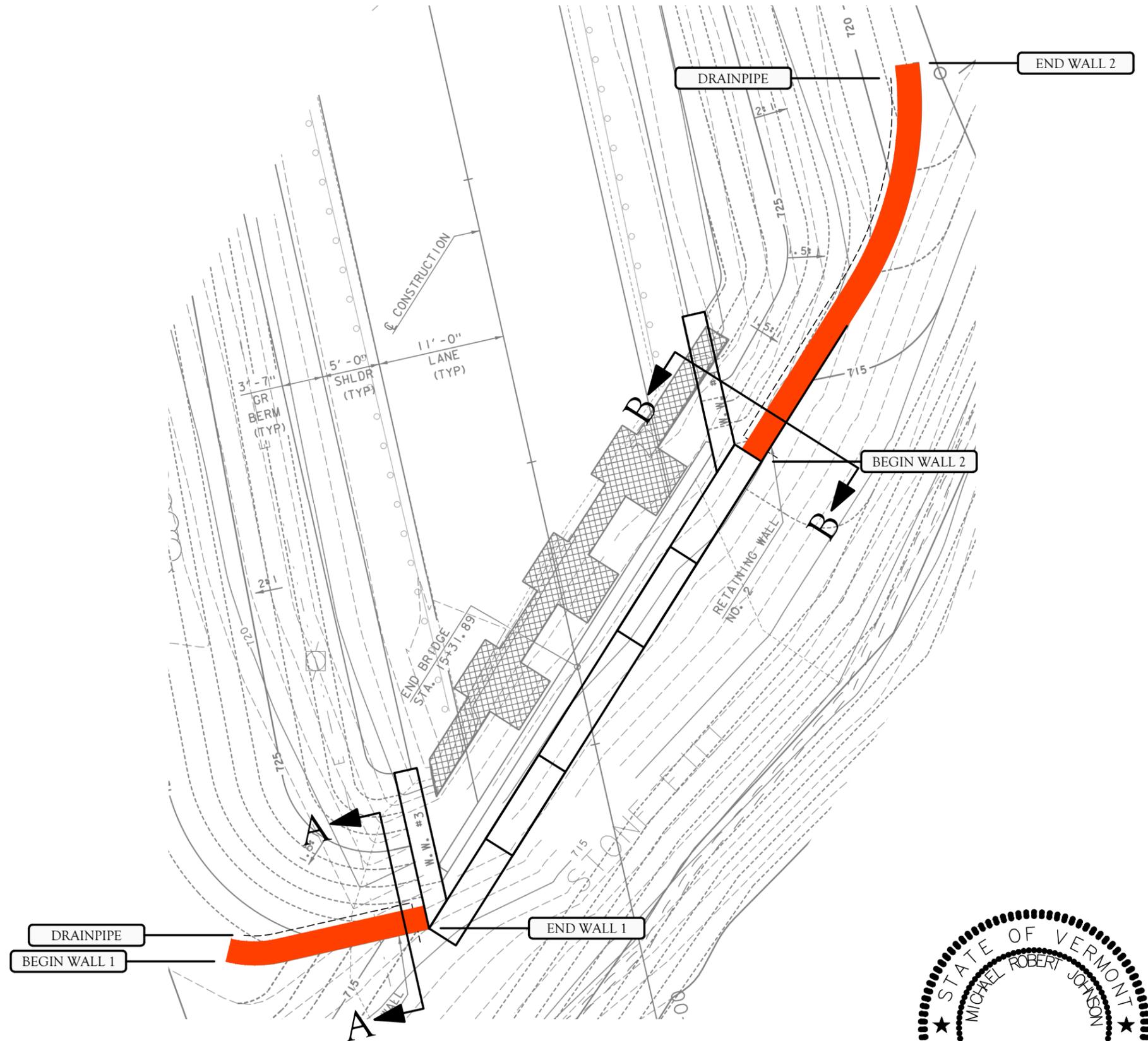
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**NOTES:**

1. THE SITE PLAN SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY. SITE PLAN PROVIDED IS REPRODUCED FROM MCFARLAND JOHNSON ABUTMENT NO. 2 GRADING PLAN (SHEET 24 OF 69) LAST DATED AUGUST 24, 2015.
2. THE APPROXIMATE LOCATION OF UTILITIES KNOWN TO EXIST AS SHOWN ON THE PLANS ARE BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF PLAN PREPARATION.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS AND NECESSARY INVERTS OF ALL UTILITIES WITHIN THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATIONS AND LIAISON WITH UTILITY COMPANIES IN THE PROCESS OF LOCATING, RELOCATING, AND TIE-IN TO THE PUBLIC UTILITIES.



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1	2.02.2016	REVISE BLOCK AND QUANTITIES	TPH
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3			
4			
5			
6			

Designed By:  
TPH  
Scale:  
1" = 10'  
Date:  
JAN 28, 2016

Project:  
WAITSFIELD BR# 0134(39)  
WAITSFIELD, VERMONT  
Title:  
SITE PLAN

Registration No:  
8619  
Project No:  
15-0789  
Sheet No:  
2.00



MICHAEL R. JOHNSON, P.E. Date: 2/24/2016

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**PART 1: GENERAL**

**1.01 DESCRIPTION**

- A. THE WORK TO BE PERFORMED INCLUDES SOURCING, PROVIDING AND INSTALLING CONCRETE RETAINING WALL BLOCKS TO THE LINES AND GRADES AS SPECIFIED ON THE PROJECT CONSTRUCTION DRAWINGS AND AS MAY BE FURTHER SPECIFIED HEREIN.
- B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, DRAINAGE AGGREGATE, AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
- C. WORK INCLUDES FURNISHING AND INSTALLING ALL RELATED MATERIALS REQUIRED FOR CONSTRUCTION OF THE RETAINING WALL AS SHOWN ON THE CONSTRUCTION SHOP DRAWINGS.

**1.02 REFERENCE STANDARDS**

- A. ASTM D448 SIZES OF AGGREGATE FOR ROAD AND BRIDGE CONSTRUCTION.
- B. ASTM D698 LABORATORY COMPACTION CHARACTERISTICS USING STANDARD EFFORT.
- C. AASHTO T27 SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES.
- D. AASHTO T90 STANDARD METHOD OF TEST FOR DETERMINING THE PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS.

**1.03 QUALITY ASSURANCE**

- A. OWNER SHALL BE RESPONSIBLE FOR SOIL TESTING AND INSPECTION QUALITY CONTROL DURING EARTHWORK OPERATIONS.

**PART 2: MATERIALS**

**2.01 DEFINITIONS**

- A. RECON RETAINING WALL UNIT - A PRECAST CONCRETE, SEGMENTAL FACING BLOCK PROVIDED BY AN AUTHORIZED MANUFACTURER UNDER LICENSE TO RECON RETAINING WALL SYSTEMS, INC.
- B. BASE LEVELING PAD - AN UNREINFORCED CAST-IN-PLACE OR COMPACTED CRUSHED STONE PAD WHICH SERVES AS A FLAT SURFACE FOR PLACING THE INITIAL COURSE OF PRECAST UNITS.
- C. DRAINAGE AGGREGATE - CLEAN 1" ANGULAR CRUSHED ROCK LOCATED WITHIN AND IMMEDIATELY BEHIND THE RETAINING WALL UNITS TO FACILITATE DRAINAGE AND AVOID COMPACTION IN CLOSE PROXIMITY TO THE RETAINING WALL UNITS.
- D. FOUNDATION SOIL - SOIL ZONE IMMEDIATELY BENEATH THE RETAINING WALL FACING UNITS AND THE WALL LEVELING PAD.
- E. RETAINED SOIL - SOIL IMMEDIATELY BEHIND THE RETAINING WALL FACING DRAINAGE AGGREGATE.
- F. SUBSURFACE DRAINAGE SYSTEM - A SYSTEM FOR REMOVING WATER FROM BEHIND THE WALL AND CHANNELING IT TO A POINT OF POSITIVE DRAINAGE.
- G. GEOTEXTILE FABRIC - PERMEABLE FABRIC USED IN SUBSURFACE DRAINAGE TO SEPARATE, FILTER, AND PROVIDE PERMANENT EROSION CONTROL.

**2.02 RECON RETAINING WALL UNITS**

- A. RECON WALL UNITS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. STANDARD WEIGHT CONCRETE SHALL HAVE A 4.5-7.5% AIR ENTRAINMENT BY VOLUME. WEIGHT OF CONCRETE SHALL BE 145 PCF.
- B. RECON BLOCKS SHALL BE CONSISTENT AND FREE OF STAINS, DEFECTS, CRACKS, OR CHIPS. UNITS THAT CONTAIN VISIBLE DEFECTS SUCH AS, BUT NOT LIMITED TO, VERTICAL OR HORIZONTAL SEAMS, CONSPICUOUS STAINS, FORM MARKS, OR COLOR STREAKS SHALL BE REPAIRED TO THE SATISFACTION OF THE PROJECT ENGINEER OR REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
- C. TEXTURE ON THE FACE OF THE BLOCK SHALL BE NORTH SHORE GRANITE (NATURAL GREY).

**2.03 BASE LEVELING PAD MATERIAL**

- A. MATERIAL SHALL CONSIST OF UNREINFORCED CONCRETE OR COMPACTED CRUSHED STONE AS SHOWN ON THE CONSTRUCTION DRAWING.

**2.04 DRAINAGE AGGREGATE AND CRUSHED STONE RETAINED BACKFILL (PHI 40°)**

- A. AGGREGATE SHALL HAVE AT LEAST TWO FRACTURED FACES AND SHALL NOT BE RIVER ROCK OR PEA GRAVEL.
- B. AGGREGATE SHALL CONSIST OF CLEAN 1" CRUSHED STONE MEETING THE FOLLOWING GRADATION:

SIEVE SIZE	% PASSING
1"	100
3/4"	100 - 75
NO. 4	0 - 10
NO. 50	0 - 5

**2.05 RETAINED BACKFILL (PHI 34°)**

- A. BACKFILL SHALL BE FREE OF DEBRIS AND ORGANIC MATERIAL MEETING THE FOLLOWING GRADATION:

SIEVE SIZE	% PASSING
4"	100
3"	100 - 75
NO. 40	0 - 60
NO. 200	0 - 12

PLASTICITY INDEX (PI) < 6

- B. SOUNDNESS. THE MATERIAL SHALL BE SUBSTANTIALLY FREE OF SHALE OR OTHER SOFT PARTICLES WITH POOR DURABILITY CHARACTERISTICS. THE MATERIAL SHALL HAVE A SODIUM SULFATE SOUNDNESS LOSS OF LESS THAN 8% AFTER FIVE (5) CYCLES, AS DETERMINED IN ACCORDANCE WITH AASHTO T104.
- C. MATERIAL CAN BE SITE EXCAVATED MATERIAL WHEN THE ABOVE REQUIREMENTS ARE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC MATERIALS) SHALL NOT BE USED IN THE RETAINED SOIL MASS.
- D. CONTRACTOR SHALL SUBMIT RETAINED FILL SAMPLE AND TEST RESULTS TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

**2.06 SUBSURFACE DRAINAGE SYSTEM**

- A. SUBSURFACE DRAINAGE SYSTEM SHALL CONSIST OF PERFORATED POLYETHYLENE (PE) PIPE WRAPPED IN A GEOTEXTILE FABRIC OR NON-PERFORATED WHERE REQUIRED.
- B. NON-PERFORATED PIPE SHALL BE USED TO CONNECT DRAINS FROM THE WALL TO DRAINAGE STRUCTURES OR HEADWALLS.
- C. FITTINGS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.

**2.07 GEOTEXTILE FABRIC**

- A. GEOTEXTILE FABRIC SHALL BE A NON-WOVEN FABRIC MEETING THE REQUIREMENTS OF SECTION 649 FOR GEOTEXTILE FOR ROADBED SEPARATOR, UNLESS OTHERWISE SPECIFIED.

**PART 3: EXECUTION**

**3.01 EXCAVATION**

- A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. CONTRACTOR SHALL BE CAREFUL NOT TO DISTURB EMBANKMENT AND FOUNDATION MATERIALS BEYOND LINES SHOWN.

**3.02 FOUNDATION SOIL PREPARATION**

- A. FOUNDATION SOIL SHALL BE EXCAVATED AS REQUIRED FOR LEVELING PAD DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS, OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- B. UNSUITABLE SOILS SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIAL.
- C. OVER-EXCAVATED AREAS SHALL BE BACKFILLED WITH APPROVED COMPACTED BACKFILL MATERIAL.

**3.03 BASE LEVELING PAD**

- A. LEVELING PAD MATERIALS SHALL BE PLACED UPON APPROVED FOUNDATION AS SHOWN ON THE CONSTRUCTION DRAWINGS TO A MINIMUM THICKNESS OF 6".
- B. AGGREGATE MATERIAL SHALL BE COMPACTED TO PROVIDE A DENSE, LEVEL SURFACE ON WHICH TO PLACE THE FIRST COURSE OF MODULAR UNITS. COMPACTION SHALL BE TO 95% OF STANDARD PROCTOR DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D698.
- C. CRUSHED STONE SHALL BE PLACED IN MAXIMUM 6" LIFTS AND SHALL BE WELL COMPACTED WITH A VIBRATORY PLATE COMPACTOR OR OTHER SUITABLE EQUIPMENT.

**3.04 UNIT INSTALLATION**

- A. THE FIRST COURSE OF CONCRETE MODULAR WALL UNITS SHALL BE CAREFULLY PLACED ON THE BASE LEVELING PAD. EACH UNIT SHALL BE CHECKED FOR LEVEL AND ALIGNMENT.
- B. UNITS ARE PLACED SIDE BY SIDE FOR FULL LENGTH OF WALL ALIGNMENT. ALIGNMENT MAY BE DONE BY MEANS OF A STRING LINE OR OFFSET FROM A BASE LINE.
- C. SWEEP EXCESS MATERIAL FROM TOP OF UNITS AND INSTALL NEXT COURSE. ENSURE THAT EACH COURSE IS COMPLETELY UNIT FILLED, BACKFILLED AND COMPACTED PRIOR TO PROCEEDING TO NEXT COURSE.

**3.05 DRAINAGE SYSTEM PLACEMENT**

- A. A DRAINAGE SYSTEM SHALL BE PROVIDED AT THE BASE OF THE WALL SYSTEM BEHIND THE RECON UNITS.
- B. THE DRAINAGE SYSTEM SHALL CONSIST OF 4" PERFORATED POLYETHYLENE (PE) PIPE WRAPPED WITH GEOTEXTILE FABRIC.
- C. THE PIPE SHALL BE INSTALLED WITH POSITIVE DRAINAGE, 1% MINIMUM.

**3.06 FILL PLACEMENT**

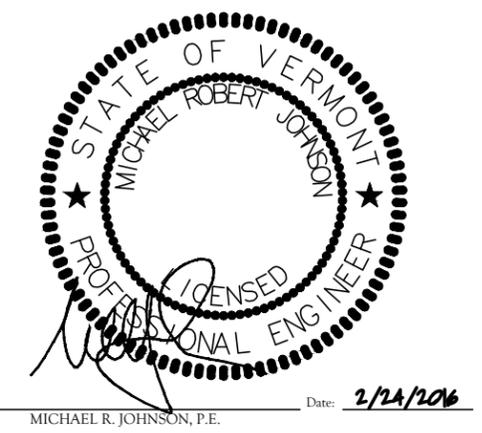
- A. BACKFILL PLACEMENT SHALL CLOSELY FOLLOW ERECTION OF EACH ROW OF BLOCKS. BACKFILL SHALL BE PLACED IN A WAY THAT DOES NOT CAUSE DAMAGE OR DISTURBANCE TO THE WALL.
- B. THE AREA IN FRONT AND AROUND THE LEVELING PAD SHALL BE BACKFILLED AS SOON AS PRACTICALLY POSSIBLE.
- C. BACKFILL MATERIAL SHALL BE PLACED WITH A MAXIMUM OF 8" LIFTS AND COMPACTED TO 95% OF STANDARD PROCTOR DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D698. THE IN PLACE MOISTURE CONTENT SHALL NOT EXCEED THE OPTIMUM MOISTURE CONTENT AS DETERMINED IN ACCORDANCE WITH ASTM D698 AND BE NO LOWER THAN 2% BELOW OPTIMUM MOISTURE CONTENT.
- D. CRUSHED STONE BACKFILL COMPACTION REQUIREMENTS:
  - 1. CRUSHED STONE BACKFILL SHALL BE PLACED IN UNIFORM MAXIMUM LIFTS OF 9".
  - 2. THE CRUSHED STONE BACKFILL SHALL BE COMPACTED BY A MINIMUM OF 3 PASSES OF A VIBRATORY COMPACTOR CAPABLE OF EXERTING 2,000 LBS OF CENTRIFUGAL FORCE AND TO THE SATISFACTION OF THE ONSITE GEOTECHNICAL ENGINEER OR THEIR DESIGNATED REPRESENTATIVE.
- E. COMPACTION WITHIN 3 FEET OF BACK FACE OF WALL SHALL BE ACHIEVED BY MEANS OF A MINIMUM 3 PASSES WITH A LIGHTWEIGHT MECHANICAL TAMPER, ROLLER, OR VIBRATORY SYSTEM. MAXIMUM LIFT SIZE SHALL NOT EXCEED 8 INCHES LOOSE. SOIL DENSITY IN THIS AREA SHALL NOT BE LESS THAN 90% STANDARD PROCTOR DENSITY.



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No.	Date	Revision	By
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2	2.24.2016	ADD DRAINPIPE	TPH
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Designed By: TPH	Project: WAITSFIELD BR# 013-4(39) WAITSFIELD, VERMONT	Registration No: 8619
Scale: N.T.S.		Project No: 15-0789
Date: JAN 28, 2016	Title: SPECIFICATIONS	Sheet No: 3.00

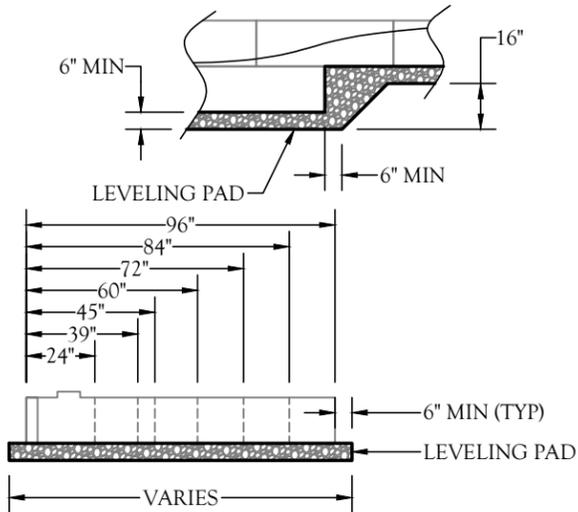


STATE OF VERMONT  
 MICHAEL ROBERT JOHNSON  
 LICENSED PROFESSIONAL ENGINEER  
 Date: 2/24/2016  
 MICHAEL R. JOHNSON, P.E.

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**NOTES:**

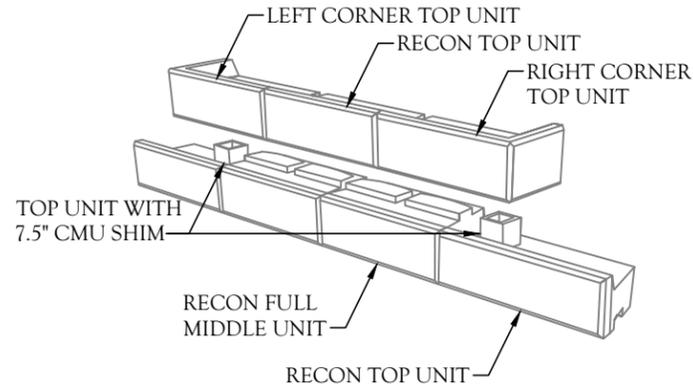
1. THE LEVELING PAD SHALL BE CONSTRUCTED OF CRUSHED STONE OR 2,000 PSI± UNREINFORCED CONCRETE.
2. THE CONTRACTOR SHALL HAVE A QUALIFIED GEOTECHNICAL ENGINEER VERIFY THE FOUNDATION SOILS TO ENSURE THAT IT MEETS OR EXCEEDS THE MINIMUM BEARING CAPACITY REQUIREMENTS.
3. THE BASE FOUNDATION SHALL BE APPROVED PRIOR TO PLACEMENT OF THE LEVELING PAD.



**1** LEVELING PAD  
SCALE: N.T.S.

**NOTES:**

1. IT WILL BE NECESSARY FOR BLOCK STABILITY TO ADD A CONCRETE SHIM BENEATH THE PORTION OF THE TOP CORNER UNIT THAT BEARS ON PART OF ANOTHER UNIT LOCATED BELOW.
2. THE SHIM IS TYPICALLY A STANDARD CONCRETE MASONRY UNIT (CMU). USING ADHESIVE ON THE SHIM WILL RESIST MOVEMENT DURING CONSTRUCTION.



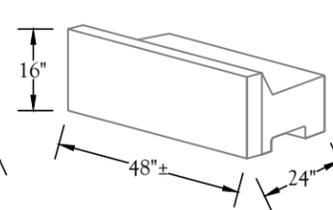
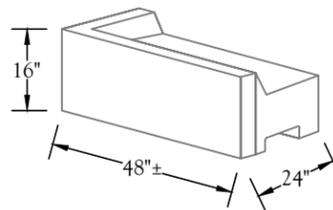
**2** STANDARD TOP OF WALL STEP  
SCALE: N.T.S.

**CORNER TOP**

WIDTH:	48"
DEPTH:	24"
HEIGHT:	16"
WEIGHT:	±1,103 LBS

**TOP UNIT**

WIDTH:	48"
DEPTH:	24"
HEIGHT:	16"
WEIGHT:	±971 LBS

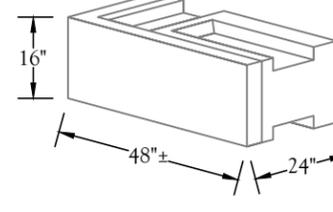
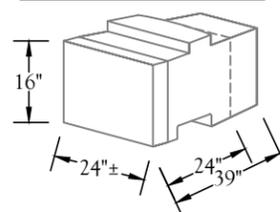


**HALF MIDDLE UNIT**

WIDTH:	24"
HEIGHT:	16"
DEPTH:	24"
WEIGHT:	±675 LBS
39"	±975 LBS

**CORNER BLOCK**

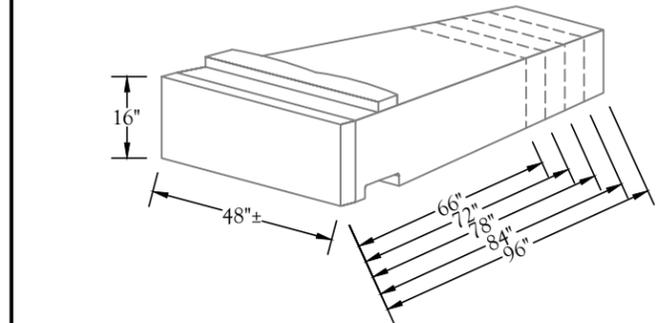
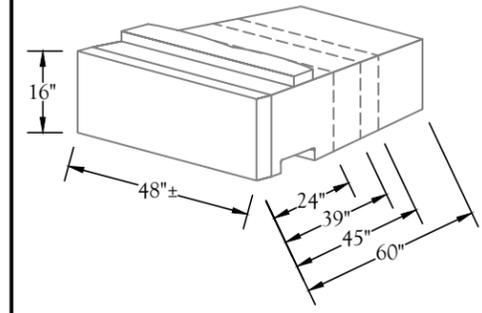
WIDTH:	48"
DEPTH:	24"
HEIGHT:	16"
WEIGHT:	±1,401 LBS



**3** RECON UNITS  
SCALE: N.T.S.

**MIDDLE UNIT**

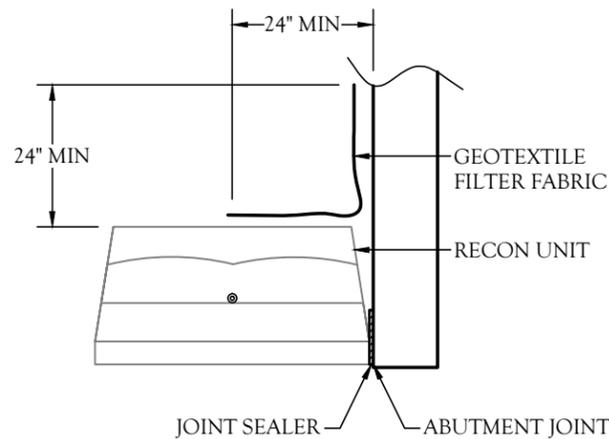
WIDTH:	48"
HEIGHT:	16"
DEPTH:	24"
WEIGHT:	±1,411 LBS
39"	±2,201 LBS
45"	±2,491 LBS
60"	±3,115 LBS
66"	±3,133 LBS
72"	±3,611 LBS
78"	±3,849 LBS
84"	±4,088 LBS
96"	±4,655 LBS



**4** RECON MIDDLE UNITS  
SCALE: N.T.S.

**NOTES:**

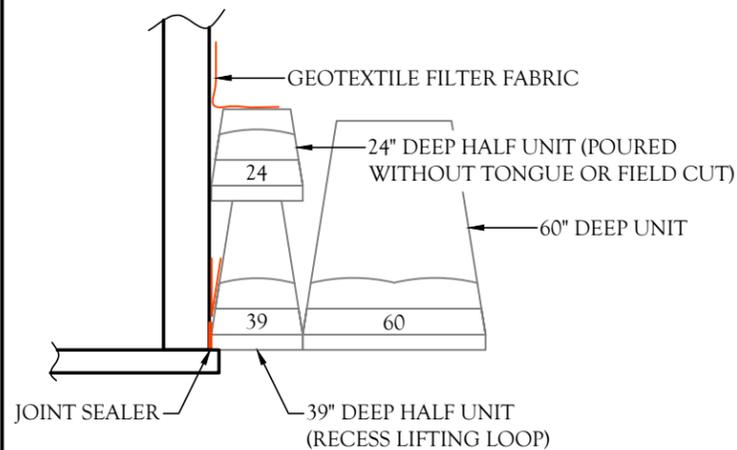
1. A GEOTEXTILE FABRIC SHALL BE PLACED WHERE THE RETAINING WALLS ABUT TO EXISTING FOUNDATIONS AS SHOWN ON THE RETAINING WALL SITE PLAN. OVERLAP ALL ABUTMENT JOINTS 24" WITH A MINIMUM 48" WIDE FABRIC.



**5** ABUTMENT WRAP  
SCALE: N.T.S.

**NOTES:**

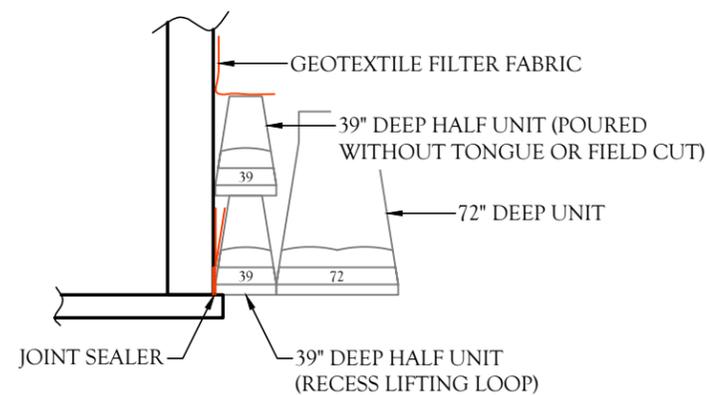
1. WHEN DOUBLE STACKING HALF UNITS, THE FRONT BLOCK SHALL BE CAST WITH THE REAR LIFTING LOOP RECESSED.
2. THE REAR BLOCK SHALL BE CAST WITHOUT A TONGUE IF THE TONGUE WILL PREVENT THE BLOCK PLACED ABOVE THE DOUBLE STACK FROM RESTING ON A LEVEL SURFACE.
3. PLACE A GEOTEXTILE FABRIC AT ABUTMENT.



**6** DOUBLE STACKING ABUTMENT (60")  
SCALE: N.T.S.

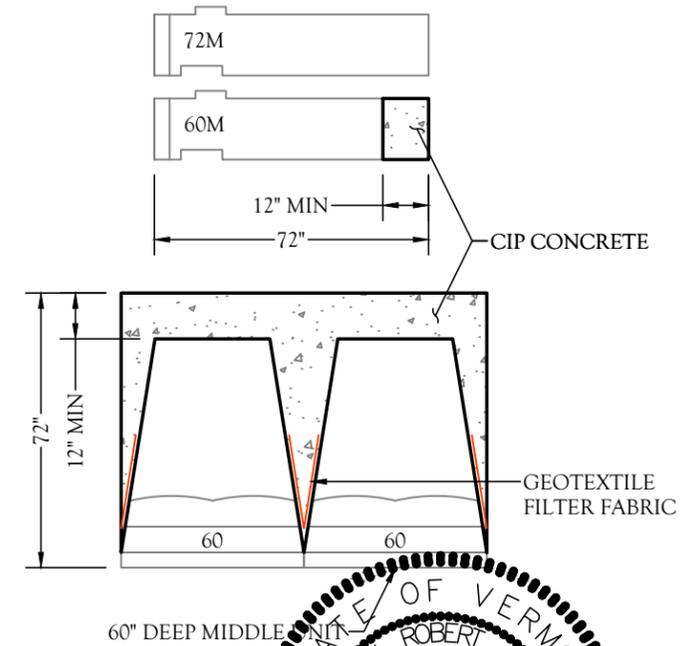
**NOTES:**

1. WHEN DOUBLE STACKING HALF UNITS, THE FRONT BLOCK SHALL BE CAST WITH THE REAR LIFTING LOOP RECESSED.
2. THE REAR BLOCK SHALL BE CAST WITHOUT A TONGUE IF THE TONGUE WILL PREVENT THE BLOCK PLACED ABOVE THE DOUBLE STACK FROM RESTING ON A LEVEL SURFACE.
3. PLACE A GEOTEXTILE FABRIC AT ABUTMENT.



**7** DOUBLE STACKING ABUTMENT (72")  
SCALE: N.T.S.

**IF 72" DEEP UNITS CAN NOT BE PRECAST:**



**8** CIP 72" DEEP UNITS  
SCALE: N.T.S.

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No.	Date	Revision	By
1	2.02.2016	REVISE BLOCK AND QUANTITIES	TPH
2	2.24.2016	ADD DRAINPIPE	TPH
3			
4			
5			
6			

Designed By: TPH  
Project: WAITSFIELD BR# 013-4(39) WAITSFIELD, VERMONT  
Scale: AS NOTED  
Date: JAN 28, 2016  
Title: TYPICAL UNIT DETAIL  
Registration No: 8619  
Project No: 15-0789  
Sheet No: 4.00

STATE OF VERMONT  
MICHAEL ROBERT JOHNSON  
LICENSED PROFESSIONAL ENGINEER  
Date: 2/24/2016  
MICHAEL R. JOHNSON, P.E.

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**NOTES:**

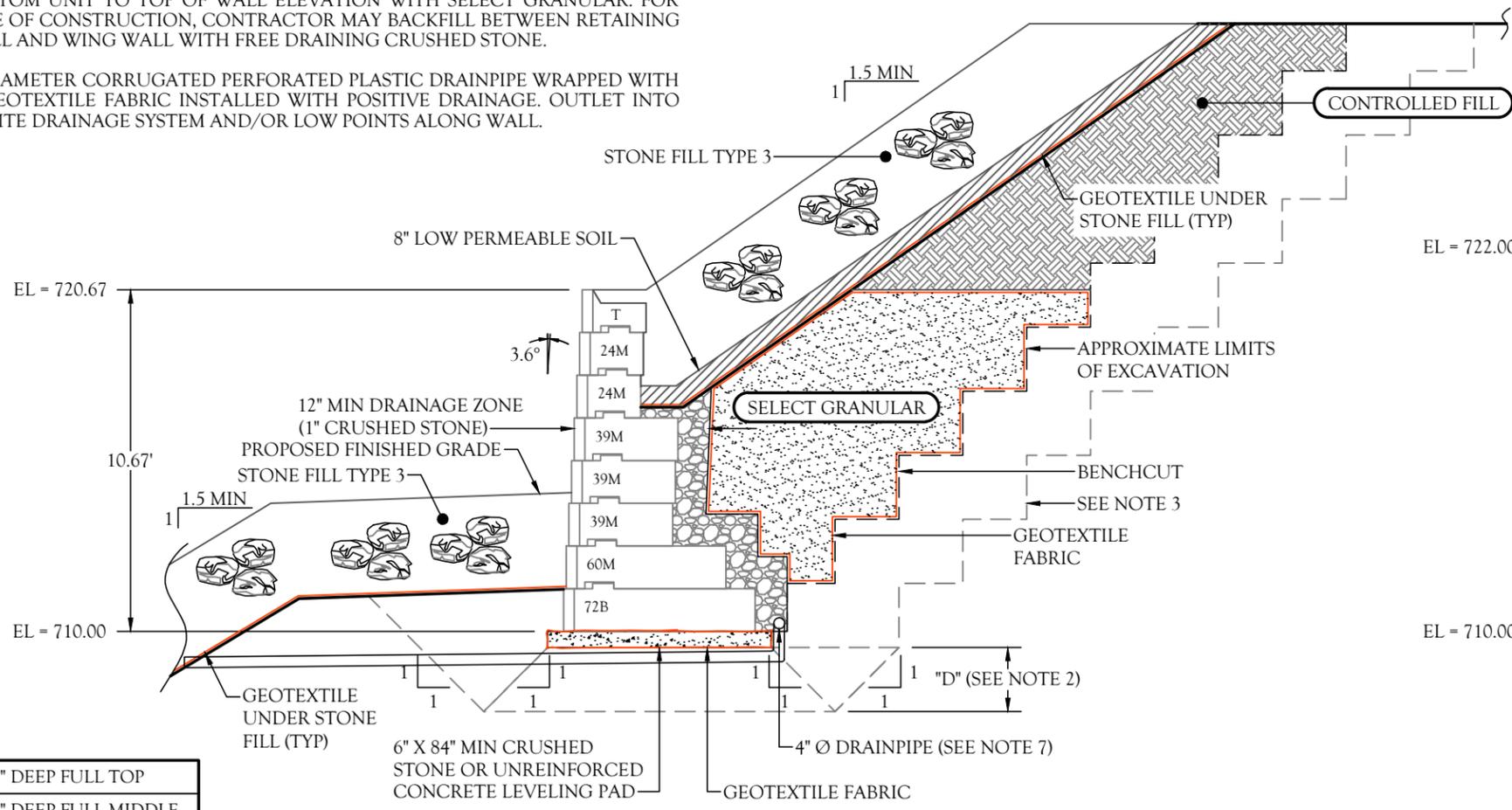
1. THE SECTION SHOWN IS A REPRESENTATIVE WALL SECTION. THE WALL HEIGHTS, ELEVATIONS, TOE SLOPES, AND BACK SLOPES VARY ACCORDING TO THE ELEVATION PLAN AND SITE PLAN RESPECTIVELY. SECTIONS AND DETAILS APPLY TO SAME AND SIMILAR CONDITIONS UNLESS SPECIFICALLY NOTED OTHERWISE.
2. UPON EXCAVATION, WHERE UNSUITABLE SOILS ARE FOUND, SUBCUT TO DEPTH "D" AS REQUIRED BY THE ONSITE GEOTECHNICAL ENGINEER AND REPLACE WITH SUITABLE COMPACTED STRUCTURAL FILL TO ACHIEVE THE REQUIRED BEARING CAPACITY. THE STRUCTURAL FILL SHALL BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY.
3. APPROXIMATE LIMITS OF EXCAVATION VARIES WHERE SUBCUT IS REQUIRED. ACTUAL LIMITS AND SIDE SLOPES SHALL BE DETERMINED BY OSHA REGULATIONS AND MATCH FIELD CONDITIONS AS DETERMINED BY THE CONTRACTOR.
4. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL STATE, COUNTY, AND CITY REGULATIONS AND CODES AS WELL AS OSHA STANDARDS.
5. THE WALLS SHALL BE CONSTRUCTED WITH RECON SERIES 50: 24", 39", 60", AND 72" DEEP UNITS USING 3.6° BATTER.
6. THE WALLS SHALL BE BACKFILLED UP AT A 1H:1V OFF THE BACK OF THE BOTTOM UNIT TO TOP OF WALL ELEVATION WITH SELECT GRANULAR. FOR EASE OF CONSTRUCTION, CONTRACTOR MAY BACKFILL BETWEEN RETAINING WALL AND WING WALL WITH FREE DRAINING CRUSHED STONE.
7. 4" DIAMETER CORRUGATED PERFORATED PLASTIC DRAINPIPE WRAPPED WITH A GEOTEXTILE FABRIC INSTALLED WITH POSITIVE DRAINAGE. OUTLET INTO ONSITE DRAINAGE SYSTEM AND/OR LOW POINTS ALONG WALL.

**NOTES:**

8. TO PREVENT PONDING OF WATER, POSITIVE DRAINAGE SHALL BE PROVIDED AT THE TOP AND BOTTOM OF WALL. INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS.
9. THE WORK SHALL BE PERFORMED IN A GENERAL SEQUENCE DEVELOPED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR THE SEQUENCES AND PROCEDURES TO BE USED.
10. ALL AVAILABLE MEANS AND METHODS SHALL BE USED TO KEEP EXCAVATION FOR THE RETAINING WALLS WITHIN THE CONSTRUCTION LIMITS SHOWN ON THE PLANS. EXCAVATION SLOPES SHALL BE DETERMINED BY OSHA REGULATIONS AND IN-SITU SOIL CONDITIONS.
11. DURING WALL EXCAVATION, BENCHCUT AS REQUIRED TO FACILITATE BACKFILL OPERATION AND BOND BETWEEN IN-SITU MATERIAL AND BACKFILL MATERIAL.
12. AT THE END OF EACH DAY'S OPERATION, SLOPE THE LAST LIFT OF BACKFILL TO DIRECT SURFACE RUNOFF AWAY FROM THE WALL. DO NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER WALL CONSTRUCTION AREA.

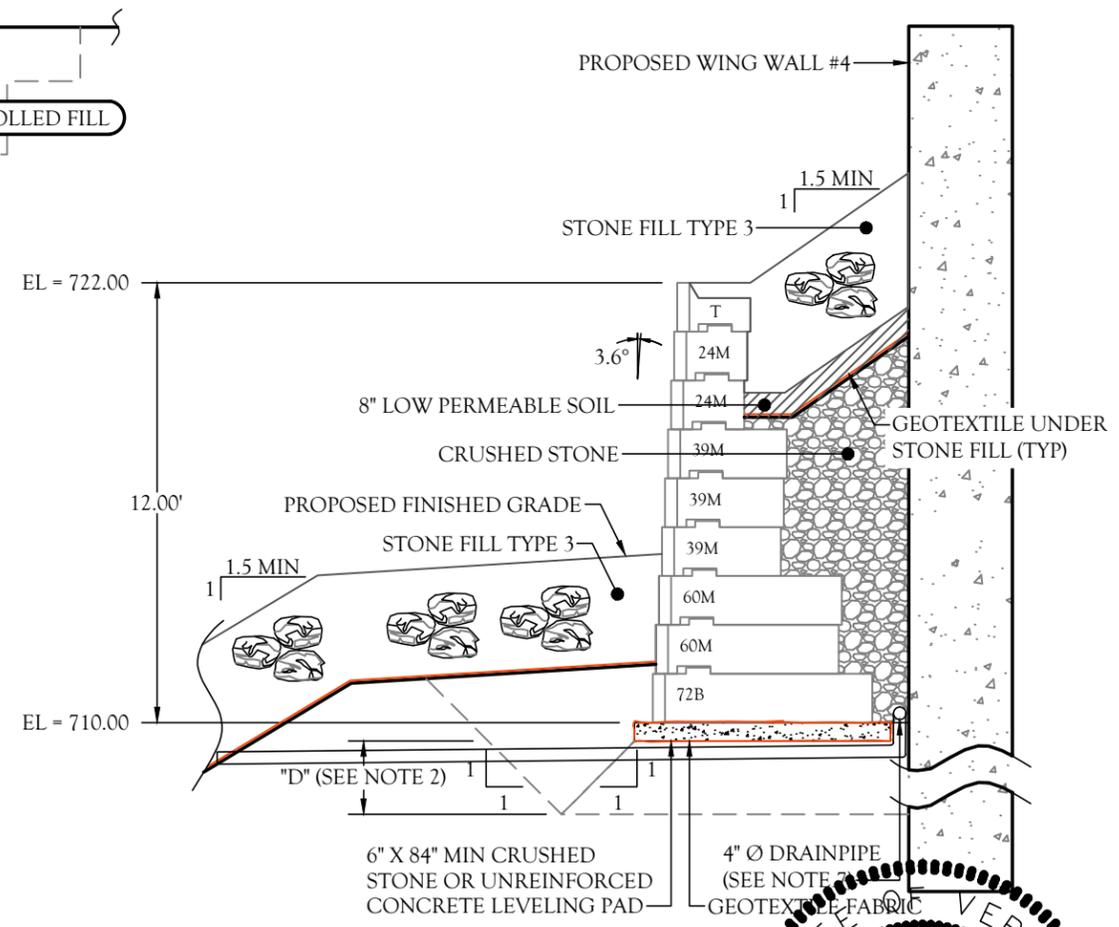
**NOTES:**

13. THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS AND DEPTHS OF EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. IF CONFLICTS EXIST THE ENGINEER SHALL BE CONTACTED IMMEDIATELY. THE CONTRACTOR SHALL COORDINATE RELOCATION OF ALL EXISTING CONDUITS AND SERVICES WITH THE UTILITY PROVIDER.
14. DO NOT BRING HEAVY COMPACTION OR PAVING EQUIPMENT WITHIN 3 FEET OF THE BACK OF THE RETAINING WALL. ONLY HAND-OPERATED COMPACTION EQUIPMENT (E.G. TAMPER, PLATE COMPACTOR, SHEEP'S FOOT ROLLER) SHALL BE USED WITHIN 3 FEET OF THE BACK OF THE RETAINING WALL UNITS.
15. IF, DURING THE PERFORMANCE OF THE WORK, THE CONTRACTOR FINDS A CONFLICT, ERROR, OR DISCREPANCY IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL SO REPORT TO THE ENGINEER IN WRITING AT ONCE. BEFORE PROCEEDING WITH THE AFFECTED THEREBY, THE CONTRACTOR SHALL OBTAIN A WRITTEN INTERPRETATION OR CLARIFICATION FROM THE ENGINEER. WORK DONE BEFORE THE ENGINEER RENDERS HIS DECISION IS AT THE CONTRACTOR'S SOLE RISK.
16. SEE MANUFACTURERS INFORMATION FOR ADDITIONAL DETAILS ON THE RECON RETAINING WALL SYSTEM. THE MANUFACTURER INFORMATION SHALL ACCOMPANY THE CONSTRUCTION PLANS.



**TYPICAL GRAVITY WALL SECTION A - A**  
(WALL 1 SECTION SHOWN AT 16.00')

T	24" DEEP FULL TOP
24M	24" DEEP FULL MIDDLE
39M	39" DEEP FULL MIDDLE
60M	60" DEEP FULL MIDDLE
72B	72" DEEP FULL BOTTOM



**GRAVITY WALL 2 SECTION B - B**  
(WALL 2 SECTION SHOWN AT 4.00')

STATE OF VERMONT  
MICHAEL ROBERT JOHNSON  
PROFESSIONAL ENGINEER

Date: 2/24/2016  
MICHAEL R. JOHNSON, P.E.

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No.	Date	Revision	By
1	2.02.2016	REVISE BLOCK AND QUANTITIES	TPH
2	2.24.2016	ADD DRAINPIPE	TPH
3			
4			
5			
6			

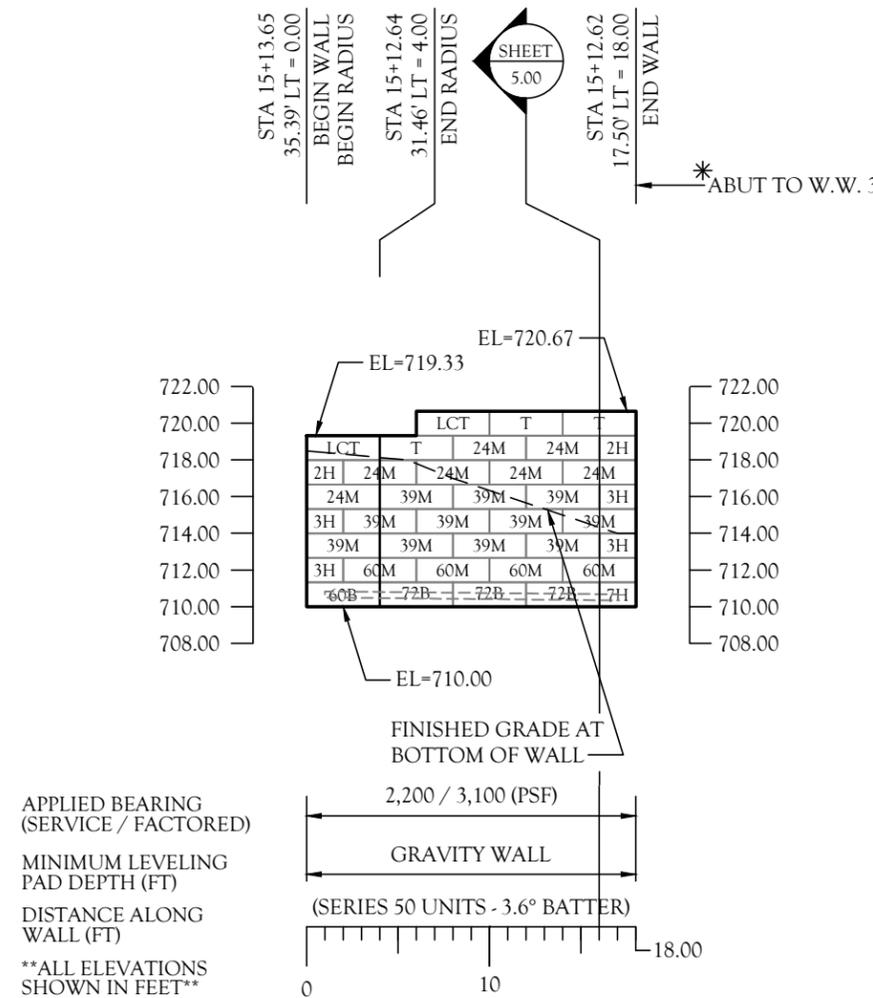
Designed By: TPH	Project: WAITSFIELD BR# 013-4(39) WAITSFIELD, VERMONT	Registration No: 8619
Scale: 1"=5'	Title: WALL SECTIONS	Project No: 15-0789
Date: JAN 28, 2016		Sheet No: 5.00

**NOTES:**

1. THE WALLS SHALL BE CONSTRUCTED WITH RECON SERIES 50: 24", 39", 60", AND 72" DEEP UNITS USING 3.6° BATTER.
2. THE WALLS SHALL BE BACKFILLED UP AT A 1H:1V OFF THE BACK OF THE BOTTOM UNIT TO TOP OF WALL ELEVATION WITH SELECT GRANULAR.
- \*3. A GEOTEXTILE FABRIC SHALL BE PLACED WHERE RETAINING WALLS ABUT TO EXISTING FOUNDATIONS AS SHOWN ON THE PLAN SHEETS. OVERLAP ALL ABUTMENT JOINTS 24" WITH A MINIMUM 48" WIDE FABRIC (SEE DETAIL 5, SHEET 4.00).
4. ALL STATIONS AND OFFSETS ARE TO THE FRONT FACE OF WALL AT THE PROPOSED GROUND LINE (UNLESS OTHERWISE NOTED).
5. CONSTRUCTION FOR WALLS WITH AN ABUTMENT SHALL BEGIN FROM EXISTING STRUCTURES TOWARDS THE OPEN END OF THE WALL (SEE DETAILS 5 AND 7, SHEET NO. 4.00).
6. WALL 1 IS NOT DESIGNED TO SUPPORT PROPOSED WING WALL #3. THE DESIGN OF WING WALL #3 SHALL APPLY NO LOAD UPON RETAINING WALL 1.
7. SEE MANUFACTURER INFORMATION FOR ADDITIONAL CONSTRUCTION DETAILS FOR THE RECON RETAINING WALL SYSTEM. THE MANUFACTURER INFORMATION SHALL ACCOMPANY THE CONSTRUCTION PLANS.

RECON WALL 1		
LCT	LEFT CORNER TOP	2
T	TOP BLOCK	3
24M	24" DEEP MIDDLE BLOCK	7
2H	24" DEEP HALF MIDDLE	2
39M	39" DEEP MIDDLE BLOCK	11
3H	39" DEEP HALF MIDDLE	4
60M	60" DEEP MIDDLE BLOCK	4
60B	60" DEEP BOTTOM BLOCK	1
7H	(2) - 39" DEEP HALF MIDDLES	1
72B	72" DEEP BOTTOM BLOCK	3
WWW.RECONWALLS.COM		

CONTRACTOR SHALL CONFIRM ALL QUANTITIES



RECON WALL 1 - FRONT FACE ELEVATION

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No.	Date	Revision	By
1	2.02.2016	REVISE BLOCK AND QUANTITIES	TPH
2	2.24.2016	ADD DRAINPIPE	TPH
3			
4			
5			
6			

Designed By: TPH	Project: WAITSFIELD BR# 013-4(39) WAITSFIELD, VERMONT	Registration No: 8619
Scale: 1" = 10'	Title: WALL 1 ELEVATION	Project No: 15-0789
Date: JAN 28, 2016		Sheet No: 6.00

MICHAEL R. JOHNSON, P.E.

Date: 2/24/2016

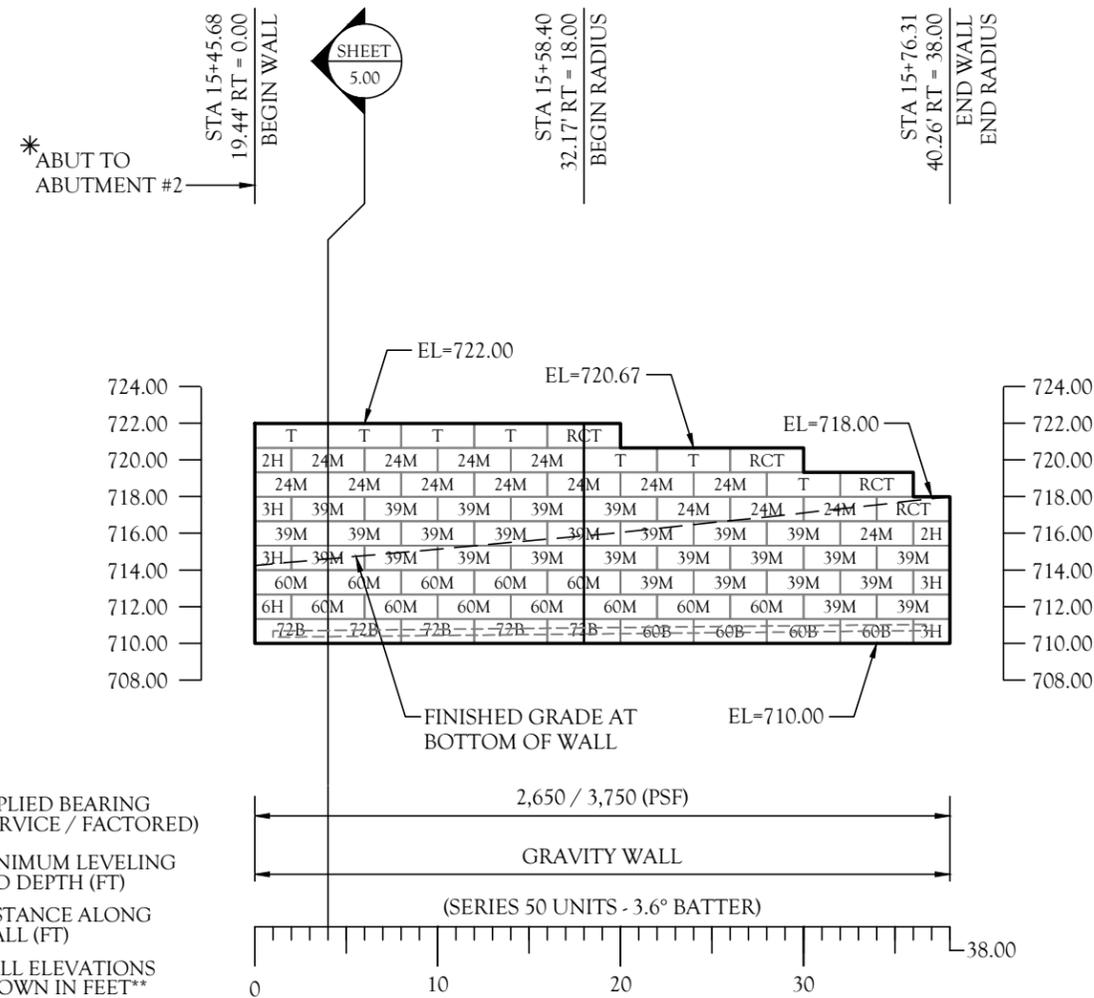
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**NOTES:**

1. THE WALLS SHALL BE CONSTRUCTED WITH RECON SERIES 50: 24", 39", 60", AND 72" DEEP UNITS USING 3.6° BATTER.
2. THE WALLS SHALL BE BACKFILLED UP AT A 1H:1V OFF THE BACK OF THE BOTTOM UNIT TO TOP OF WALL ELEVATION WITH SELECT GRANULAR.
- \*3. A GEOTEXTILE FABRIC SHALL BE PLACED WHERE RETAINING WALLS ABUT TO EXISTING FOUNDATIONS AS SHOWN ON THE PLAN SHEETS. OVERLAP ALL ABUTMENT JOINTS 24" WITH A MINIMUM 48" WIDE FABRIC (SEE DETAIL 5, SHEET 4.00).
4. ALL STATIONS AND OFFSETS ARE TO THE FRONT FACE OF WALL AT THE PROPOSED GROUND LINE (UNLESS OTHERWISE NOTED).
5. CONSTRUCTION FOR WALLS WITH AN ABUTMENT SHALL BEGIN FROM EXISTING STRUCTURES TOWARDS THE OPEN END OF THE WALL (SEE DETAILS 5 AND 6, SHEET NO. 4.00).
6. WALL 2 IS NOT DESIGNED TO SUPPORT PROPOSED WING WALL #4. THE DESIGN OF WING WALL #4 SHALL APPLY NO LOAD UPON RETAINING WALL 2.
7. SEE MANUFACTURER INFORMATION FOR ADDITIONAL CONSTRUCTION DETAILS FOR THE RECON RETAINING WALL SYSTEM. THE MANUFACTURER INFORMATION SHALL ACCOMPANY THE CONSTRUCTION PLANS.

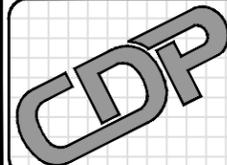
RECON WALL 2		
RCT	RIGHT CORNER TOP	4
T	TOP BLOCK	7
24M	24" DEEP MIDDLE BLOCK	15
2H	24" DEEP HALF MIDDLE	2
3H	39" DEEP HALF MIDDLE	4
39B	39" DEEP BOTTOM BLOCK	28
60M	60" DEEP MIDDLE BLOCK	12
6H	24" AND 39" DEEP HALF MIDDLES	1
60B	60" DEEP BOTTOM BLOCK	4
72B	72" DEEP BOTTOM BLOCK	5
WWW.RECONWALLS.COM		

CONTRACTOR SHALL CONFIRM ALL QUANTITIES



**ABUTMENT NOTE:**  
 AT ABUTMENT LOCATION, PROPOSED WING WALL 4 MAY OBSTRUCT THE PLACEMENT OF DEEPER RECON UNITS. CONTRACTOR MAY FIELD CUT BLOCK ONSITE OR USE RECON FITTING BLOCKS WITH CAST IN PLACE CONCRETE TO CREATE THE REQUIRED DEPTH.

APPLIED BEARING (SERVICE / FACTORED) 2,650 / 3,750 (PSF)  
 MINIMUM LEVELING PAD DEPTH (FT) 3.00  
 DISTANCE ALONG WALL (FT) 38.00  
 \*\*ALL ELEVATIONS SHOWN IN FEET\*\*

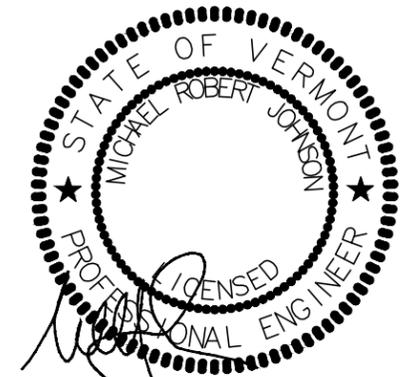


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Designed By: TPH	Project: WAITSFIELD BRP 013-4(39) WAITSFIELD, VERMONT	Registration No: 8619
Scale: 1" = 10'	Title: WALL 2 ELEVATION	Project No: 15-0789
Date: JAN 28, 2016		Sheet No: 6.01



MICHAEL R. JOHNSON, P.E. Date: 2/24/2016