

# STATE OF MAINE DEPARTMENT OF TRANSPORTATION



## SPECIFICATIONS

Design:  
2022 American Railway Engineering and Maintenance-of-Way  
Association (AREMA).

## DESIGN LOADING

Live Load ..... Cooper E80

## HYDROLOGIC DATA

Drainage Area ..... 7.93 sq mi  
Design Discharge (Q50) ..... 757 cfs  
Check Discharge (Q100) ..... 868 cfs  
Headwater Elevation (Q50) ..... 555.9 ft  
Headwater Elevation (Q100) ..... 556.4 ft  
Discharge Velocity (Q50) ..... 8.0 fps  
Discharge Velocity (Q100) ..... 9.0 fps  
Headwater Elevation (Q1.1) ..... 552.5 ft  
Discharge Velocity (Q1.1) ..... 1.4 fps

## MATERIALS

Concrete:  
Precast ..... Class "P"  
Fill ..... "Fill"  
All Other ..... Class "A"  
Reinforcing Steel ..... ASTM A 615/A 615M, Grade 60

## BASIC DESIGN STRESSES

Concrete ..... f 'c = 4,000 psi  
Precast Concrete ..... f 'c = 5,000 psi  
Reinforcing Steel ..... f y = 60,000 psi

# OAKFIELD AROOSTOOK COUNTY MADAWASKA SUBDIVISION OVER THOMAS BROOK BRIDGE REPLACEMENT PROJECT LENGTH 0.25 mi. BRIDGE NO. 7825 AT M.P. 149.42

## LIST OF DRAWINGS

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## UTILITIES

Versant Power

## MAINTENANCE OF TRAFFIC

Railroad closure for Main Line and Track 35. Additional  
consecutive closure for Tracks 4, 6, 8, and 10.  
See Section 107 Special Provision for details.

Temporary closure of gravel access road.

|                          |  |
|--------------------------|--|
| <u>PROJECT LOCATION:</u> | Madawaska Subdivision at Mile Post 149.42 in Oakfield, within the limits of the Oakfield Railyard (N46°6.516' W68°8.809'). |
| <u>PROGRAM AREA:</u>     | Multimodal Program   |
| <u>OUTLINE OF WORK:</u>  | Bridge replacement   |

WIN 25177.00

|   |  |
|---|--|
| STATE OF MAINE<br>DEPARTMENT OF TRANSPORTATION<br>APPROVED: <i>[Signature]</i><br>COMMISSIONER: <i>[Signature]</i><br>CHIEF ENGINEER: <i>[Signature]</i>  | DATE: 5-22-23                                  |
|   |  |
| SIGNATURE: <i>[Signature]</i><br>13225<br>P.E. NUMBER: 13225<br>DATE: May 16, 2023  |  |
| PROJECT INFORMATION<br>PROGRAM: MULTIMODAL<br>PROJECT MANAGER: AURELE CORNEAU<br>DESIGNER: GREG GOODRICH<br>CONSULTANT: VHB<br>PROJECT RESIDENT: VHB<br>CONTRACTOR: VHB<br>PROJECT COMPLETION DATE: | OAKFIELD<br>THOMAS BROOK BRIDGE<br>TITLE SHEET |
| SHEET NUMBER<br><br><b>1</b><br>OF 20   |  |

Date: 5/16/2023

Username: BMasse

Division: HIGHWAY

Filename: ... \BRIDGE\MSTA\002\_index.dgn

GENERAL CONSTRUCTION NOTES

- 1. For easements, construction limits and right of way lines, refer to Right of Way Map.
2. The clearing limits as shown on the plans are approximate. The exact limits will be established in the field by the Resident.
3. All utility facilities shall be adjusted by the respective utilities unless otherwise noted.
4. Do not excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident.
5. In areas where the Resident directs the Contractor not to excavate to the subgrade line shown on the plans, payment for grubbing, shaping, ditching, and compacting the existing subbase and layers of new subbase 6 inches or less thick will be made under appropriate equipment rental items.
6. Stones which cannot be rolled or compacted into the surface of the shoulder shall be removed by hand raking.
7. Place loam 2 inches deep on all new or reconstructed sideslopes or as directed by the Resident.
8. Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident.
9. Place a 24-in. wide strip of Temporary Erosion Control Blanket on the sideslopes along the top of the riprap and behind the wingwalls.
10. Guardrail posts as shown in the Standard Details shall be modified from the indicated length of 6 feet to a length of 8 feet with an embedment of 4.5 feet.
11. A Low Volume Guardrail End shall be installed concurrently with the placement of each section of beam guardrail.
12. Extended-use Erosion Control Blanket, seeded gutters, riprap downspouts, and other gutters lined with Stone Ditch Protection shall be constructed after final grading work is completed, where it is apparent that runoff will cause continual erosion.
13. All dimensions are horizontal or vertical and are given at 68 degrees Fahrenheit unless otherwise noted.
14. Cofferdams are to be placed at both the downstream and upstream ends of the structure to allow water to be pumped and removed during construction of the arch.
15. Existing dimensions or features shown on these plans have been obtained from limited field investigation and may not accurately reflect actual field conditions.
16. Working drawings for various items of work shall indicate the Contractor's actual field measurements and shall be so noted.
17. Any damage caused by the Contractor's equipment, personnel, or operations shall be repaired to the satisfaction of the Resident.
18. All work shall be done in accordance with the Maine Department of Transportation's Best Management Practices for Erosion and Sedimentation Control, February 2008.
19. Geotechnical information furnished or referred to in this plan set is for the use of the Bidders and the Contractor.

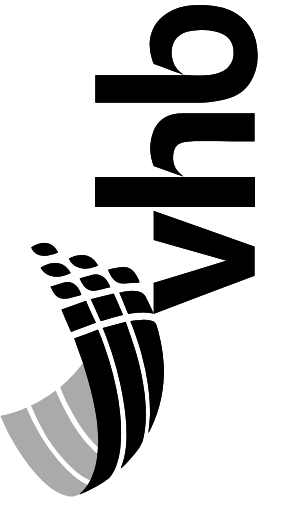
GENERAL CONSTRUCTION NOTES CONTINUED

- 20. Quantities included for pay items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:
a. If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.
b. If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.
c. If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation.

GENERAL RAILROAD CONSTRUCTION NOTES:

- 1. Track shall be removed and reset as required for performing bridge replacement and shall be coordinated with the Railroad prior to commencing work. Removal and resetting ties and rails shall be the responsibility of Maine Northern Railway (MNR).
2. The Contractor's attention is called to the fact that continuous coordination with the operator, Maine Northern Railway (MNR), will be required throughout construction of the railroad precast arch. MNR will provide the contractor with flaggers for protection of railroad traffic while work is being performed on the Railroad Right-of-Way (R.O.W.). The Contractor shall not enter the R.O.W. at any time without MNR Authorization. Railroad flagger protection will be provided by the Railroad as specified in the Protection of Railroad Traffic and Structures special provision. All costs for railroad coordination will be considered incidental to Contract Items.
3. All work effecting the track or the load carrying capacity of the bridge shall be performed during a shutdown of railroad traffic. The Contractor shall coordinate all shutdowns with MNR. See the special provisions for additional information regarding length of shutdowns and liquidated damaged for exceeding contractual time limits.
4. The Contractor is responsible for the protection of all utilities affected by the working at the bridge site for the duration of the construction. Limited utility information is included in these plans. The Contractor shall contact dig-safe, MNR, and the owner, Maine Department of Transportation (MaineDOT) to determine the presence and location of any utilities, whether in service or out of service prior to any construction at the site. See Special provisions 104 for any additional information and requirements.
5. All railroad ties and tracks shall be furnished and installed by the Railroad.
6. All temporary structural support systems designed shall be the responsibly of the Contractor and designed for E80 live load surcharge (when applicable) in accordance with the 2022 American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering. The design shall be stamped by a Professional Engineer licensed in the State of Maine.

Table with 4 columns: ITEM NO., DESCRIPTION, QUANTITY, UNIT. Lists various construction items like 'Removing Existing Bridge', 'Common Excavation', 'Common Borrow', etc., with their respective quantities and units.



STATE OF MAINE DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7625 WIN 025177.00 BRIDGE PLANS

THOMAS BROOK BRIDGE MADAWASKA SUBDIVISION OVER THOMAS BROOK OAKFIELD AROOSTOOK COUNTY, ME

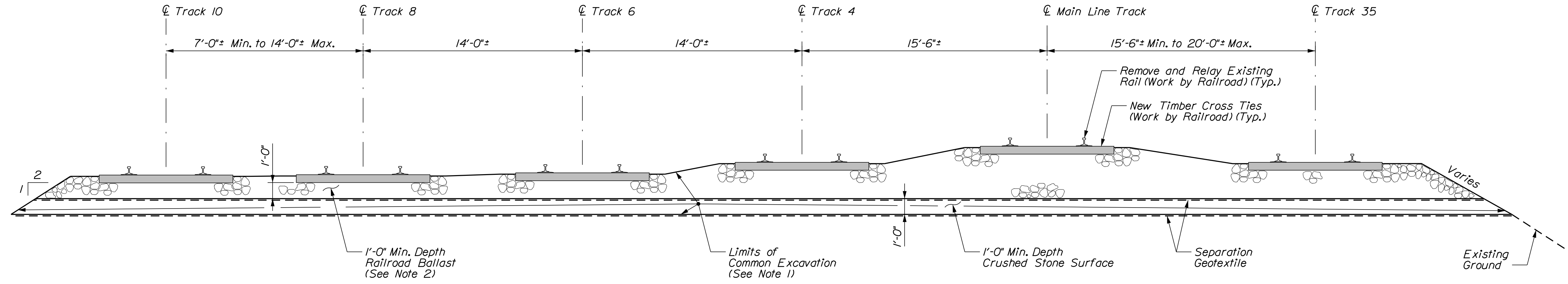
SHEET NUMBER

2

OF 20

GENERAL NOTES AND QUANTITIES

Table with 4 columns: PROJ. MANAGER, DATE, BY, FIELD CHANGES. Includes revision details like DESIGN-DETAILED, CHECKED-REVIEWED, etc.



**APPROACH TRACK SECTION**

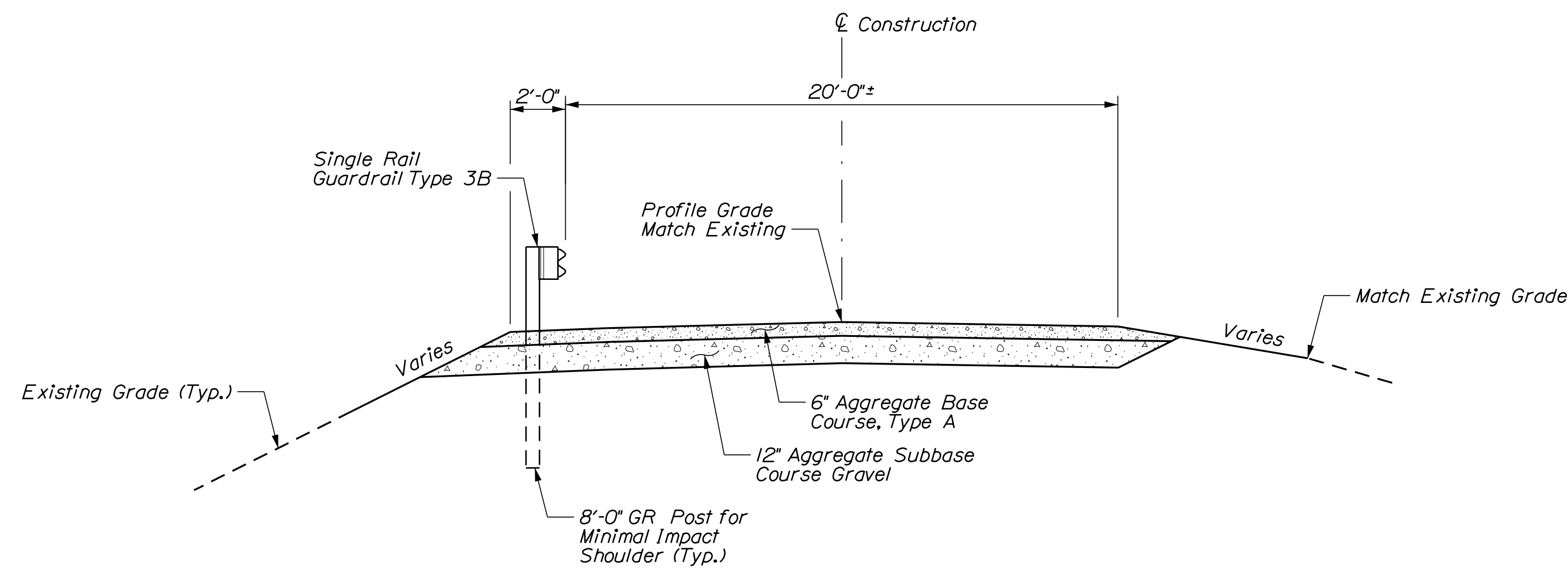
Sta. 100+60 to 101+65  
Scale: 1/4" = 1'-0"

**LEGEND**

- = Work to be Completed by Railroad (Not in Contract)
- = Work in Contract

**NOTES**

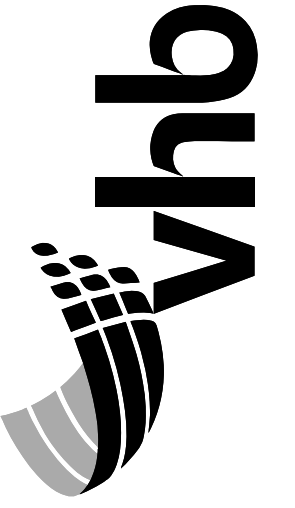
1. The Railroad is responsible for removing and resetting track for final and phased conditions. After tracks and ties have been removed from work zone, the Contractor is responsible for any excavation needed to complete their work in the Contract.
2. The Contractor is responsible for procuring and placing all ballast. The following sequence of construction shall be coordinated with the Railroad:
  - Contractor places the ballast to 1" below the bottom of tie
  - Railroad places ties, lays the track
  - Contractor floods the ties with the final lift of ballast
  - Railroad performs final tamping and line and grade of the track to set the final track profile.



**GRAVEL ACCESS ROAD SECTION**

(Section Taken South of Existing Culvert)  
Scale: 1/4" = 1'-0"

Note: See General Plan for limits of Gravel Access Road.

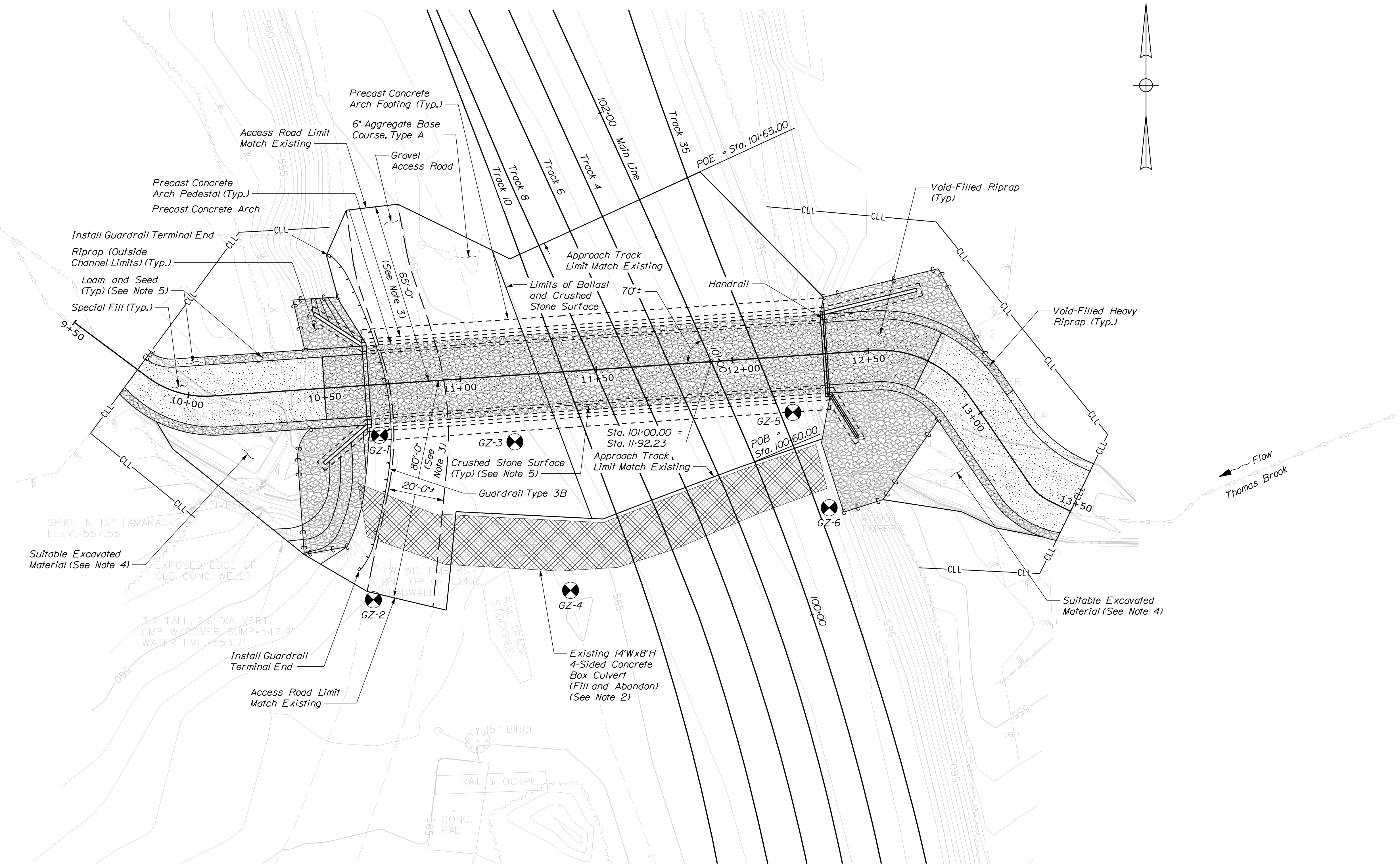


Date: 5/16/2023

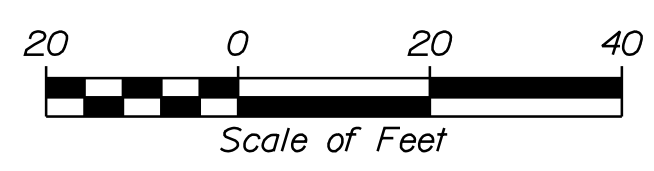
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Division: HIGHWAY

Filename: ... \BRIDGE\MSTA\004\_genplan.dgn



PLAN



NOTES

1. Remove portions of existing wingwalls and floor slab at inlet and outlet ends of the culvert as required. Remove the existing timber and concrete headwalls at the inlet and outlet ends of the culvert. Costs for removal shall be included in Item 202.191, Removing Existing Bridge.
2. Existing culvert shall be bulkheaded on both sides and filled with concrete fill. All costs will be paid under Item 502.565, Concrete Fill. See Special Provision 502 for additional information.
3. Limits of gravel access road reconstruction are given at the centerline of roadway from the centerline of culvert.
4. Fill in areas of existing channel with suitable excavated material as directed by the Resident and cover with 2" of loam and seed.
5. The Terrestrial Wildlife Crossing shall be surfaced with crushed stone within the arch and surfaced with loam and seed outside the arch limits. See Stream Restoration (2 of 2) sheet for typical sections.



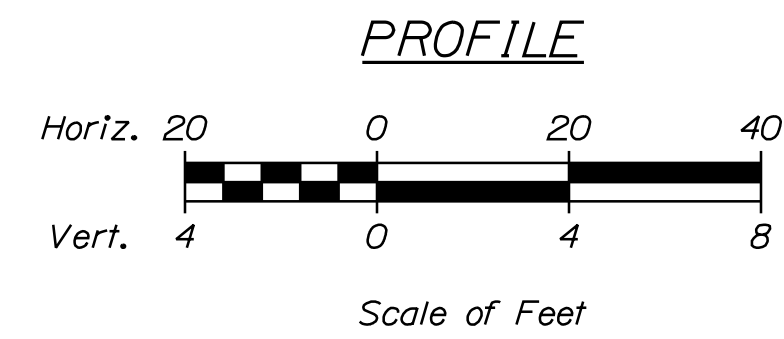
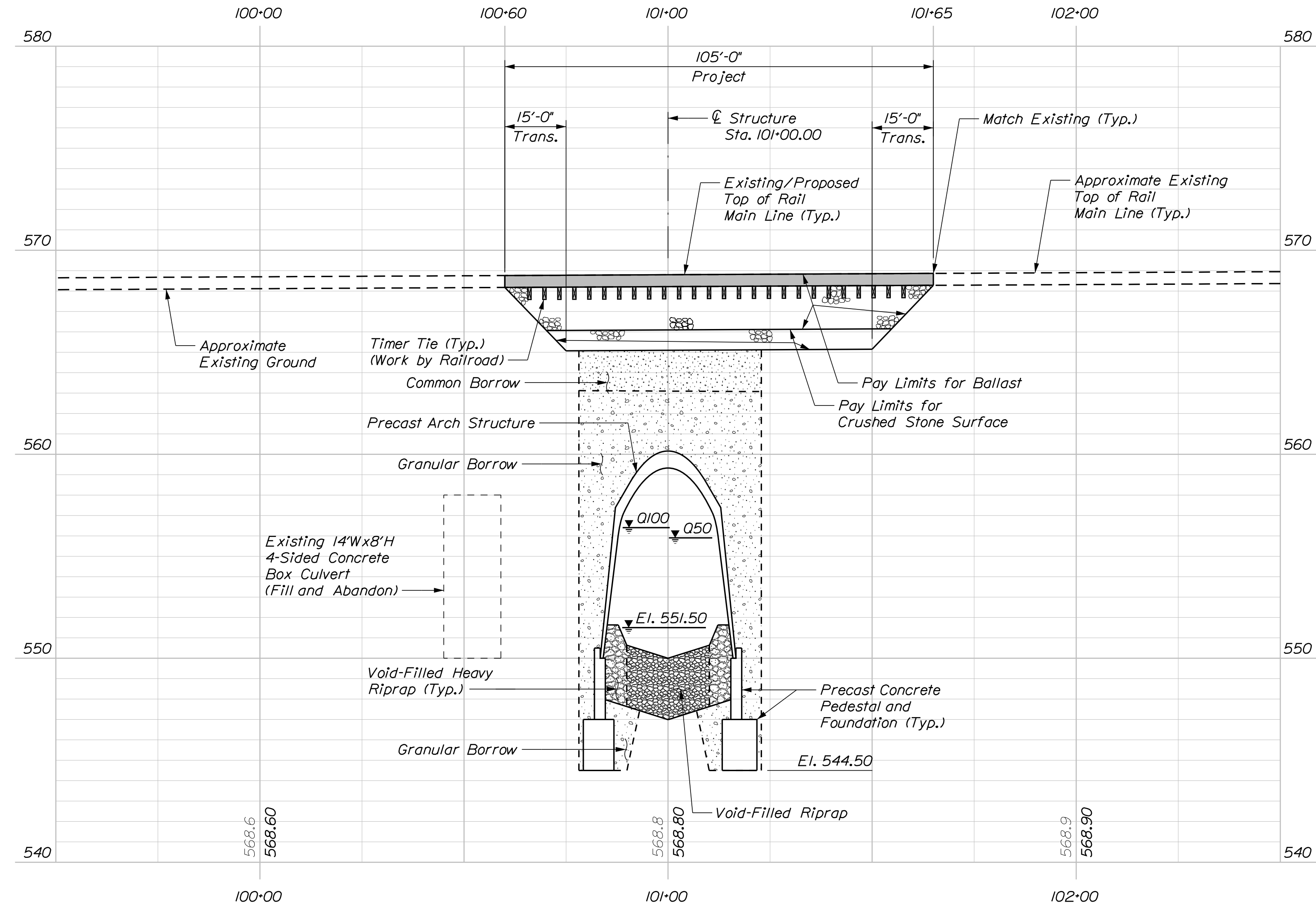
| PROJ. MANAGER     | AURELE CORNEAU | DATE   |
|-------------------|----------------|--------|
| DESIGN-DETAILED   | BM             | 5/2023 |
| CHECKED-REVIEWED  | CSC            | 5/2023 |
| DESIGN-2-DETAILED |                |        |
| DESIGN-3-DETAILED |                |        |
| REVISIONS         |                |        |
| REVISIONS 1       |                |        |
| REVISIONS 2       |                |        |
| REVISIONS 3       |                |        |
| REVISIONS 4       |                |        |
| FIELD CHANGES     |                |        |

THOMAS BROOK BRIDGE  
MADAWASKA SUBDIVISION OVER THOMAS BROOK  
OAKFIELD AROOSTOOK COUNTY, ME

SHEET NUMBER

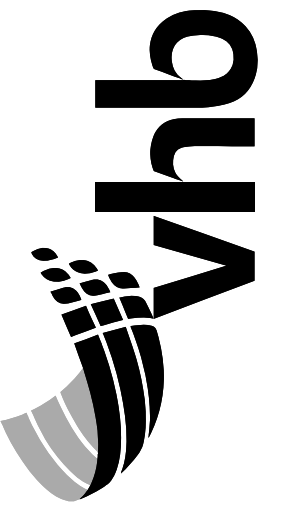
4

OF 20



**LEGEND**

- = Work to be Completed by Railroad (Not in Contract)
- = Work in Contract



| PROJ. MANAGER    | AURELE | CORNEAU | BY  | DATE   |
|------------------|--------|---------|-----|--------|
| DESIGN-DETAILED  | AMS    |         | BM  | 5/2023 |
| CHECKED-REVIEWED | LSC    |         | CSC | 5/2023 |
| DESIGN-DETAILED2 |        |         |     |        |
| DESIGN-DETAILED3 |        |         |     |        |
| REVISIONS 1      |        |         |     |        |
| REVISIONS 2      |        |         |     |        |
| REVISIONS 3      |        |         |     |        |
| REVISIONS 4      |        |         |     |        |
| FIELD CHANGES    |        |         |     |        |

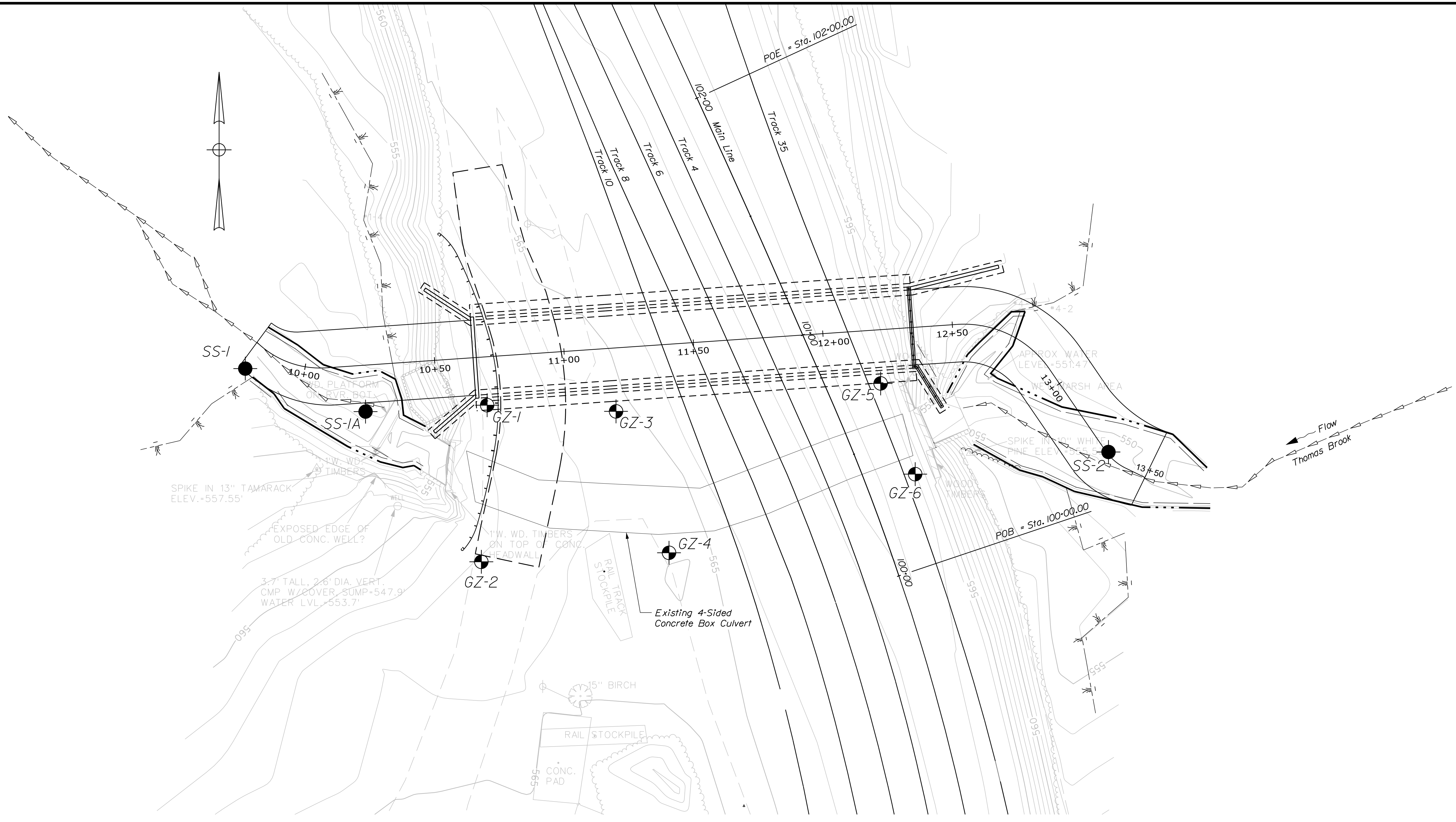
**THOMAS BROOK BRIDGE**  
MADAWASKA SUBDIVISION OVER THOMAS BROOK  
OAKFIELD AROOSTOOK COUNTY, ME

**PROFILE**

SHEET NUMBER

**5**

OF 20

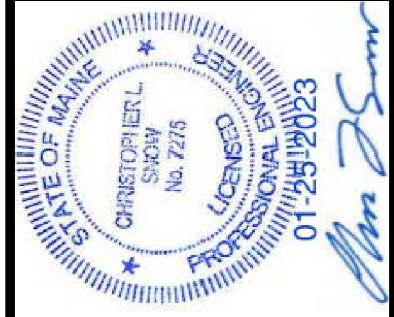
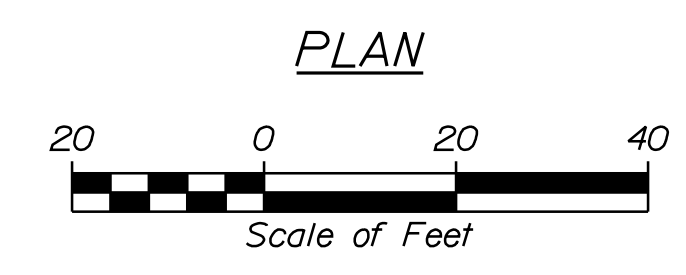


**NOTES**

- 1) Base map developed from electronic files (Contours.dgn, points.dgn, Text.dgn, and Topo.dgn) provided by VHB on December 7, 2021 and January 13, 2023.
- 2) As-drilled locations of the test borings were surveyed and provided by VHB within the referenced .dgn files. As-drilled elevations of the test borings were interpolated based on the provided contours and are in feet and refer to the North American Vertical Datum of 1988 (NAVD88)
- 3) GZ-1 series borings were performed by New England Boring Contractors and observed by GZA personnel between September 27 and September 29, 2021.
- 4) SS-1 series stream samples were collected mid-stream by GZA using a shovel while wading, and the locations were estimated by taping to existing structural elements and should be considered approximate.
- 5) Refer to the Geotechnical Design Report for laboratory testing results for the test boring and stream sampling.

**BORING LOCATION PLAN LEGEND**

- GZ-1 Location and designation of cased wash boring
- SS-1 Location and designation of Stream Sample



| PROJ. MANAGER    | M. KERSBERGEN | BY           | DATE     |
|------------------|---------------|--------------|----------|
| DESIGN-DETAILED  | N. WILLIAMS   | N. WILLIAMS  | JAN 2023 |
| CHECKED-REVIEWED | C. SNOW       | A. BLAISDELL | JAN 2023 |
| DESIGN-DETAILED2 |               |              |          |
| DESIGN-DETAILED3 |               |              |          |
| REVISIONS 1      |               |              |          |
| REVISIONS 2      |               |              |          |
| REVISIONS 3      |               |              |          |
| REVISIONS 4      |               |              |          |
| FIELD CHANGES    |               |              |          |

THOMAS BROOK BRIDGE  
MADAWASKA SUBDIVISION OVER THOMAS BROOK  
OAKFIELD AROOSTOOK COUNTY, ME

**BORING LOCATION PLAN**

SHEET NUMBER

6

OF 20



| Maine Department of Transportation   |                                |                  |  | Project: MNR Culvert Replacement   |                      | Boring No.: GZ-1 |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
|--|--------------------------------|------------------|--|--|----------------------|------------------|--------------|--|--|--|--|--|--|--|--|--|-------------|------------|-----------------|--------------------|---|---------------|-----------------|--------------|---|----|-------|-----------|------------|----|----|-----|---|---|----|------|-----------|---------|----|----|--|--|----|----|------|------------|---------|---|----|--|--|----|----|-------|-------------|------------|----|----|--|--|----|----|-------|-------------|-----------|----|----|--|---|----|----|-------|-------------|-------------|----|-----|--|--|----|----|-------|-------------|-------------|-----|-----|--|--|----|----|------|-------------|-------|--|--|-----|--|
| Soil/Rock Exploration Log<br>US CUSTOMARY UNITS  |                                |                  |  | Location: Oakfield, Maine  |                      | WIN: 25177.00    |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Driller:   | New England Boring Contractors | Elevation (ft.): | 563.0  | Auger ID/OD:   | 4.25                 |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Operator:  | Brad Enos                      | Datum:           | NAVD88   | Sampler:   | Standard Splittspoon |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Logged By:   | L. Navarrete                   | Rig Type:        | Track B-53 Mobile  | Hammer Wt./Fall:   | 140*/30"             |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Date Start/Finish:   | 9/28/21-9/29/21                | Drilling Method: | Drive & Wash   | Core Barrel:   | NQ2                  |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Boring Location:   | Sta. 10 + 69.0, 18.6 RT        | Casing ID/OD:    | 4"   | Water Level *1:  | 16.8'                |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Hammer Efficiency Factor:  | 0.863                          | Hammer Type:     | Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |  |                      |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Definitions:   |                                |                  |  | R - Rock Core Sample      S <sub>u</sub> - Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>D - Split Spoon Sample      SSA - Solid Stem Auger      T <sub>v</sub> - Pocket Torvane Shear Strength (psf)<br>MD - Unsuccessful Split Spoon Sample Attempt      HSA - Hollow Stem Auger      WC - Water Content, percent<br>U - Thin Wall Tube Sample      N - Uncorrected - Row Field SPT N-value      L - Liquid Limit<br>RC - Roller Cone      WOH - Weight of HMB, Hammer      PL - Plastic Limit<br>MU - Unsuccessful Thin Wall Tube Sample Attempt      WOP - Weight of Ribs or Casing      PI - Plasticity Index<br>V - Field Vane Shear Test      PP - Pocket Penetrometer      N <sub>60</sub> - SPT N-uncorrected Corrected for Hammer Efficiency      C - Grain Size Analysis<br>MV - Unsuccessful Field Vane Shear Test Attempt      N <sub>60</sub> - Hammer Efficiency Factor/60/N-uncorrected |                      |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| <table border="1"> <thead> <tr> <th colspan="8">Sample Information</th> <th rowspan="2">Laboratory Testing Results/AASHTO and Unified Class.</th> </tr> <tr> <th>Depth (ft.)</th> <th>Sample No.</th> <th>Pen./Rec. (in.)</th> <th>Sample Depth (ft.)</th> <th>Blows (1/8 in. Shear Strength (psf) or ROD (2))</th> <th>N-uncorrected</th> <th>N<sub>60</sub></th> <th>Casing Blows</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10</td> <td>24/10</td> <td>0.0 - 2.0</td> <td>5-10-11-11</td> <td>21</td> <td>30</td> <td>SSA</td> <td rowspan="2">Dark brown, moist, dense, GRAVEL, some fine to coarse sand, little silt, (F#1).</td> </tr> <tr> <td>5</td> <td>20</td> <td>24/8</td> <td>4.0 - 6.0</td> <td>2-6-4-3</td> <td>10</td> <td>14</td> <td></td> <td>Brown, dry, medium dense, Silty fine to coarse SAND, little gravel, (F#1).</td> </tr> <tr> <td>10</td> <td>30</td> <td>24/7</td> <td>9.0 - 11.0</td> <td>4-4-4-4</td> <td>8</td> <td>12</td> <td></td> <td>Brown, wet, medium dense, Silty fine to coarse SAND, some gravel, (F#1).</td> </tr> <tr> <td>15</td> <td>40</td> <td>24/11</td> <td>14.0 - 16.0</td> <td>6-10-10-11</td> <td>20</td> <td>29</td> <td></td> <td>14.0'-14.2': Grey, Silty fine to coarse SAND, trace organic fibers.<br/>14.2'-16.0': Olive brown, wet, medium dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).</td> </tr> <tr> <td>20</td> <td>50</td> <td>24/14</td> <td>19.0 - 21.0</td> <td>7-6-13-25</td> <td>19</td> <td>27</td> <td></td> <td>Olive-brown, wet, medium dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).<br/>Bottom 2" Gravel.</td> </tr> <tr> <td>25</td> <td>60</td> <td>24/16</td> <td>24.0 - 26.0</td> <td>27-49-36-33</td> <td>85</td> <td>122</td> <td></td> <td>Olive brown, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till).</td> </tr> <tr> <td>30</td> <td>70</td> <td>24/17</td> <td>29.0 - 31.0</td> <td>34-38-63-58</td> <td>101</td> <td>145</td> <td></td> <td>Olive-brown, wet, very dense, GRAVEL, some fine to coarse sand, some silt, (Glacial Till).</td> </tr> <tr> <td>35</td> <td>80</td> <td>24/2</td> <td>34.0 - 34.2</td> <td>50/2"</td> <td></td> <td></td> <td>NQ2</td> <td>Grey, wet, very dense, GRAVEL (probable bedrock).<br/>Splittspoon refusal at 34.2'; set up to core at 34.2'.<br/>R1: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are close to moderately spaced, moderately dipping, planar to stepped, smooth, fresh, very tight to tight.<br/>Rock Quality - Good<br/>Recovery - 97%<br/>Rock Core Times (min:sec): 34.2-35.2' (1:48), 35.2-36.2' (1:08), 36.2-37.2' (2:46), 37.2-38.2' (3:32), 38.2-39.1' (3:30)<br/>R2: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE.<br/>39.1'-42.6': Joints are close to moderately spaced, moderately dipping, planar to undulating, smooth to rough, fresh, very tight to partially open.<br/>41.6'-42.9': Rock is fractured to gravel-size pieces.<br/>42.9'-43.6': One low angle joint, undulating, smooth, fresh, tight.<br/>Rock Quality - Fair<br/>Recovery - 96%<br/>Rock Core Times (min:sec): 39.1-40.1' (3:29), 40.1-41.1' (1:46), 41.1-42.1' (2:52), 42.1-43.1' (3:16), 43.1-43.6' (3:52)<br/>Bottom of Exploration at 43.6 feet below ground surface.</td> </tr> </tbody> </table> |                                |                  |  |  |                      |                  |              | Sample Information   |  |  |  |  |  |  |  | Laboratory Testing Results/AASHTO and Unified Class. | Depth (ft.) | Sample No. | Pen./Rec. (in.) | Sample Depth (ft.) | Blows (1/8 in. Shear Strength (psf) or ROD (2)) | N-uncorrected | N <sub>60</sub> | Casing Blows | 0 | 10 | 24/10 | 0.0 - 2.0 | 5-10-11-11 | 21 | 30 | SSA | Dark brown, moist, dense, GRAVEL, some fine to coarse sand, little silt, (F#1). | 5 | 20 | 24/8 | 4.0 - 6.0 | 2-6-4-3 | 10 | 14 |  | Brown, dry, medium dense, Silty fine to coarse SAND, little gravel, (F#1). | 10 | 30 | 24/7 | 9.0 - 11.0 | 4-4-4-4 | 8 | 12 |  | Brown, wet, medium dense, Silty fine to coarse SAND, some gravel, (F#1). | 15 | 40 | 24/11 | 14.0 - 16.0 | 6-10-10-11 | 20 | 29 |  | 14.0'-14.2': Grey, Silty fine to coarse SAND, trace organic fibers.<br>14.2'-16.0': Olive brown, wet, medium dense, fine to coarse SAND, some gravel, some silt, (Glacial Till). | 20 | 50 | 24/14 | 19.0 - 21.0 | 7-6-13-25 | 19 | 27 |  | Olive-brown, wet, medium dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).<br>Bottom 2" Gravel. | 25 | 60 | 24/16 | 24.0 - 26.0 | 27-49-36-33 | 85 | 122 |  | Olive brown, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till). | 30 | 70 | 24/17 | 29.0 - 31.0 | 34-38-63-58 | 101 | 145 |  | Olive-brown, wet, very dense, GRAVEL, some fine to coarse sand, some silt, (Glacial Till). | 35 | 80 | 24/2 | 34.0 - 34.2 | 50/2" |  |  | NQ2 | Grey, wet, very dense, GRAVEL (probable bedrock).<br>Splittspoon refusal at 34.2'; set up to core at 34.2'.<br>R1: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are close to moderately spaced, moderately dipping, planar to stepped, smooth, fresh, very tight to tight.<br>Rock Quality - Good<br>Recovery - 97%<br>Rock Core Times (min:sec): 34.2-35.2' (1:48), 35.2-36.2' (1:08), 36.2-37.2' (2:46), 37.2-38.2' (3:32), 38.2-39.1' (3:30)<br>R2: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE.<br>39.1'-42.6': Joints are close to moderately spaced, moderately dipping, planar to undulating, smooth to rough, fresh, very tight to partially open.<br>41.6'-42.9': Rock is fractured to gravel-size pieces.<br>42.9'-43.6': One low angle joint, undulating, smooth, fresh, tight.<br>Rock Quality - Fair<br>Recovery - 96%<br>Rock Core Times (min:sec): 39.1-40.1' (3:29), 40.1-41.1' (1:46), 41.1-42.1' (2:52), 42.1-43.1' (3:16), 43.1-43.6' (3:52)<br>Bottom of Exploration at 43.6 feet below ground surface. |
| Sample Information   |                                |                  |  |  |                      |                  |              | Laboratory Testing Results/AASHTO and Unified Class.   |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Depth (ft.)  | Sample No.                     | Pen./Rec. (in.)  | Sample Depth (ft.)   | Blows (1/8 in. Shear Strength (psf) or ROD (2))  | N-uncorrected        | N <sub>60</sub>  | Casing Blows |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| 0  | 10                             | 24/10            | 0.0 - 2.0  | 5-10-11-11   | 21                   | 30               | SSA          | Dark brown, moist, dense, GRAVEL, some fine to coarse sand, little silt, (F#1).  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| 5  | 20                             | 24/8             | 4.0 - 6.0  | 2-6-4-3  | 10                   | 14               |              |  | Brown, dry, medium dense, Silty fine to coarse SAND, little gravel, (F#1). |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| 10   | 30                             | 24/7             | 9.0 - 11.0   | 4-4-4-4  | 8                    | 12               |              | Brown, wet, medium dense, Silty fine to coarse SAND, some gravel, (F#1).   |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| 15   | 40                             | 24/11            | 14.0 - 16.0  | 6-10-10-11   | 20                   | 29               |              | 14.0'-14.2': Grey, Silty fine to coarse SAND, trace organic fibers.<br>14.2'-16.0': Olive brown, wet, medium dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).   |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| 20   | 50                             | 24/14            | 19.0 - 21.0  | 7-6-13-25  | 19                   | 27               |              | Olive-brown, wet, medium dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).<br>Bottom 2" Gravel.  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| 25   | 60                             | 24/16            | 24.0 - 26.0  | 27-49-36-33  | 85                   | 122              |              | Olive brown, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till).   |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| 30   | 70                             | 24/17            | 29.0 - 31.0  | 34-38-63-58  | 101                  | 145              |              | Olive-brown, wet, very dense, GRAVEL, some fine to coarse sand, some silt, (Glacial Till).   |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| 35   | 80                             | 24/2             | 34.0 - 34.2  | 50/2"  |                      |                  | NQ2          | Grey, wet, very dense, GRAVEL (probable bedrock).<br>Splittspoon refusal at 34.2'; set up to core at 34.2'.<br>R1: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are close to moderately spaced, moderately dipping, planar to stepped, smooth, fresh, very tight to tight.<br>Rock Quality - Good<br>Recovery - 97%<br>Rock Core Times (min:sec): 34.2-35.2' (1:48), 35.2-36.2' (1:08), 36.2-37.2' (2:46), 37.2-38.2' (3:32), 38.2-39.1' (3:30)<br>R2: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE.<br>39.1'-42.6': Joints are close to moderately spaced, moderately dipping, planar to undulating, smooth to rough, fresh, very tight to partially open.<br>41.6'-42.9': Rock is fractured to gravel-size pieces.<br>42.9'-43.6': One low angle joint, undulating, smooth, fresh, tight.<br>Rock Quality - Fair<br>Recovery - 96%<br>Rock Core Times (min:sec): 39.1-40.1' (3:29), 40.1-41.1' (1:46), 41.1-42.1' (2:52), 42.1-43.1' (3:16), 43.1-43.6' (3:52)<br>Bottom of Exploration at 43.6 feet below ground surface. |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| <b>Remarks:</b><br>1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit Tests if available, rather than the MaineDOT Standard based percentages passing specific grain sizes.<br>2. Automatic hammer NEMO23 Energy transfer ratio = 0.863<br>3. Water level measured immediately after removal of casing.<br>4. The as-drilled location was surveyed by VHB (IN829669.7, E2227512.6). Elevation was interpolated from existing contours and estimated to the nearest 0.5'.  |                                |                  |  |  |                      |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.  |                                |                  |  |  |                      |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| * Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.  |                                |                  |  |  |                      |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |
| Page 1 of 1<br>Boring No.: GZ-1  |                                |                  |  |  |                      |                  |              |  |  |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |            |    |    |     |   |   |    |      |           |         |    |    |  |  |    |    |      |            |         |   |    |  |  |    |    |       |             |            |    |    |  |  |    |    |       |             |           |    |    |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |             |     |     |  |  |    |    |      |             |       |  |  |     |  |

| Maine Department of Transportation   |                                |                  |  | Project: MNR Culvert Replacement                |                      | Boring No.: GZ-2 |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
|--|--------------------------------|------------------|--|---|----------------------|------------------|--------------|---|---|--|--|--|--|--|--|--|-------------|------------|-----------------|--------------------|---|---------------|-----------------|--------------|---|----|-------|-----------|-------------|----|----|-----|--|---|----|-------|-----------|---------|---|---|--|---|----|----|------|------------|---------|---|---|------|--|----|----|-------|-------------|----------|----|----|--|--|----|----|-------|-------------|-------------|----|----|--|--|----|----|-------|-------------|-------------|----|----|--|--|----|----|-------|-------------|-------------|----|----|--|--|----|----|------|-------------|---------------|--|--|-----|---|----|--|--|--|--|--|--|--|--|
| Soil/Rock Exploration Log<br>US CUSTOMARY UNITS  |                                |                  |  | Location: Oakfield, Maine                       |                      | WIN: 25177.00    |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Driller:   | New England Boring Contractors | Elevation (ft.): | 563.0  | Auger ID/OD:                                    | 4.25                 |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Operator:  | Brad Enos                      | Datum:           | NAVD88   | Sampler:  | Standard Splittspoon |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Logged By:   | L. Navarrete                   | Rig Type:        | Track B-53 Mobile  | Hammer Wt./Fall:                                | 140*/30"             |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Date Start/Finish:   | 9/29/21-9/29/21                | Drilling Method: | Drive & Wash   | Core Barrel:                                    | NQ2                  |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Boring Location:   | Sta. 10 + 62.6, 78.7 RT        | Casing ID/OD:    | 4"   | Water Level *1:                                 | 11.0'                |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Hammer Efficiency Factor:  | 0.863                          | Hammer Type:     | Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |   |                      |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Definitions:   |                                |                  |  |   |                      |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| R - Rock Core Sample      S <sub>u</sub> - Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>D - Split Spoon Sample      SSA - Solid Stem Auger      T <sub>v</sub> - Pocket Torvane Shear Strength (psf)<br>MD - Unsuccessful Split Spoon Sample Attempt      HSA - Hollow Stem Auger      WC - Water Content, percent<br>U - Thin Wall Tube Sample      N - Uncorrected - Row Field SPT N-value      L - Liquid Limit<br>RC - Roller Cone      WOH - Weight of HMB, Hammer      PL - Plastic Limit<br>MU - Unsuccessful Thin Wall Tube Sample Attempt      WOP - Weight of Ribs or Casing      PI - Plasticity Index<br>V - Field Vane Shear Test      PP - Pocket Penetrometer      N <sub>60</sub> - SPT N-uncorrected Corrected for Hammer Efficiency      C - Grain Size Analysis<br>MV - Unsuccessful Field Vane Shear Test Attempt      N <sub>60</sub> - Hammer Efficiency Factor/60/N-uncorrected   |                                |                  |  |   |                      |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| <table border="1"> <thead> <tr> <th colspan="8">Sample Information</th> <th rowspan="2">Laboratory Testing Results/AASHTO and Unified Class.</th> </tr> <tr> <th>Depth (ft.)</th> <th>Sample No.</th> <th>Pen./Rec. (in.)</th> <th>Sample Depth (ft.)</th> <th>Blows (1/8 in. Shear Strength (psf) or ROD (2))</th> <th>N-uncorrected</th> <th>N<sub>60</sub></th> <th>Casing Blows</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10</td> <td>24/16</td> <td>0.0 - 2.0</td> <td>12-16-17-13</td> <td>33</td> <td>47</td> <td>SSA</td> <td rowspan="2">Brown, dry, dense, fine to coarse SAND, some gravel, some silt, (F#1).</td> </tr> <tr> <td>5</td> <td>20</td> <td>24/14</td> <td>4.0 - 6.0</td> <td>4-3-3-2</td> <td>6</td> <td>9</td> <td></td> <td>Brown, wet, loose, Silty fine to coarse SAND, some gravel, (F#1).</td> </tr> <tr> <td>10</td> <td>30</td> <td>24/9</td> <td>9.0 - 11.0</td> <td>1-1-1-1</td> <td>2</td> <td>3</td> <td>PUSH</td> <td>Brown, wet, very loose, Silty fine to coarse SAND, little gravel, (F#1).</td> </tr> <tr> <td>15</td> <td>40</td> <td>24/10</td> <td>15.0 - 17.0</td> <td>7-7-8-12</td> <td>15</td> <td>22</td> <td></td> <td>Grey, wet, dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).</td> </tr> <tr> <td>20</td> <td>50</td> <td>24/14</td> <td>19.0 - 21.0</td> <td>15-15-20-17</td> <td>35</td> <td>50</td> <td></td> <td>Grey, wet, dense, Sandy GRAVEL, some silt, (Glacial Till).</td> </tr> <tr> <td>25</td> <td>60</td> <td>24/13</td> <td>24.0 - 26.0</td> <td>16-16-11-21</td> <td>27</td> <td>39</td> <td></td> <td>Grey, wet, dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).</td> </tr> <tr> <td>30</td> <td>70</td> <td>24/13</td> <td>29.0 - 31.0</td> <td>28-27-23-20</td> <td>50</td> <td>72</td> <td></td> <td>Grey, wet, very dense, Gravelly SAND, some silt, (Glacial Till).</td> </tr> <tr> <td>35</td> <td>80</td> <td>14/5</td> <td>34.0 - 35.2</td> <td>54-56-30/2.4"</td> <td></td> <td></td> <td>NQ2</td> <td>Grey, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till).<br/>Splittspoon refusal at 35.2' indicates probable bedrock.<br/>Roller cone to 35.6'; Dark grey rock fragments observed in wash return. Set up to core at 35.6'.<br/>R1: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are close to moderately spaced, moderately dipping, planar to undulating, smooth, fresh, very tight to partially open.<br/>Rock Quality - Fair<br/>Recovery - 100%<br/>Rock Core Times (min:sec): 35.6-36.6' (2:58), 36.6-37.6' (1:47), 37.6-38.6' (2:20), 38.6-39.6' (2:56), 39.6-40.6' (2:08)<br/>R2: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are very close to moderately spaced, moderately dipping to high angle, planar, smooth to rough, fresh, very tight to partially open.<br/>Rock Quality - Fair<br/>Recovery - 100%<br/>Rock Core Times (min:sec): 40.6-41.6' (1:16), 41.6-42.6' (2:12), 42.6-43.6' (3:10), 43.6-44.6' (3:15), 44.6-45.6' (2:50)</td> </tr> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Bottom of Exploration at 45.6 feet below ground surface.</td> </tr> </tbody> </table> |                                |                  |  |   |                      |                  |              | Sample Information  |   |  |  |  |  |  |  | Laboratory Testing Results/AASHTO and Unified Class. | Depth (ft.) | Sample No. | Pen./Rec. (in.) | Sample Depth (ft.) | Blows (1/8 in. Shear Strength (psf) or ROD (2)) | N-uncorrected | N <sub>60</sub> | Casing Blows | 0 | 10 | 24/16 | 0.0 - 2.0 | 12-16-17-13 | 33 | 47 | SSA | Brown, dry, dense, fine to coarse SAND, some gravel, some silt, (F#1). | 5 | 20 | 24/14 | 4.0 - 6.0 | 4-3-3-2 | 6 | 9 |  | Brown, wet, loose, Silty fine to coarse SAND, some gravel, (F#1). | 10 | 30 | 24/9 | 9.0 - 11.0 | 1-1-1-1 | 2 | 3 | PUSH | Brown, wet, very loose, Silty fine to coarse SAND, little gravel, (F#1). | 15 | 40 | 24/10 | 15.0 - 17.0 | 7-7-8-12 | 15 | 22 |  | Grey, wet, dense, fine to coarse SAND, some gravel, some silt, (Glacial Till). | 20 | 50 | 24/14 | 19.0 - 21.0 | 15-15-20-17 | 35 | 50 |  | Grey, wet, dense, Sandy GRAVEL, some silt, (Glacial Till). | 25 | 60 | 24/13 | 24.0 - 26.0 | 16-16-11-21 | 27 | 39 |  | Grey, wet, dense, fine to coarse SAND, some gravel, some silt, (Glacial Till). | 30 | 70 | 24/13 | 29.0 - 31.0 | 28-27-23-20 | 50 | 72 |  | Grey, wet, very dense, Gravelly SAND, some silt, (Glacial Till). | 35 | 80 | 14/5 | 34.0 - 35.2 | 54-56-30/2.4" |  |  | NQ2 | Grey, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till).<br>Splittspoon refusal at 35.2' indicates probable bedrock.<br>Roller cone to 35.6'; Dark grey rock fragments observed in wash return. Set up to core at 35.6'.<br>R1: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are close to moderately spaced, moderately dipping, planar to undulating, smooth, fresh, very tight to partially open.<br>Rock Quality - Fair<br>Recovery - 100%<br>Rock Core Times (min:sec): 35.6-36.6' (2:58), 36.6-37.6' (1:47), 37.6-38.6' (2:20), 38.6-39.6' (2:56), 39.6-40.6' (2:08)<br>R2: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are very close to moderately spaced, moderately dipping to high angle, planar, smooth to rough, fresh, very tight to partially open.<br>Rock Quality - Fair<br>Recovery - 100%<br>Rock Core Times (min:sec): 40.6-41.6' (1:16), 41.6-42.6' (2:12), 42.6-43.6' (3:10), 43.6-44.6' (3:15), 44.6-45.6' (2:50) | 45 |  |  |  |  |  |  |  | Bottom of Exploration at 45.6 feet below ground surface. |
| Sample Information   |                                |                  |  |   |                      |                  |              | Laboratory Testing Results/AASHTO and Unified Class.  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Depth (ft.)  | Sample No.                     | Pen./Rec. (in.)  | Sample Depth (ft.)   | Blows (1/8 in. Shear Strength (psf) or ROD (2)) | N-uncorrected        | N <sub>60</sub>  | Casing Blows |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| 0  | 10                             | 24/16            | 0.0 - 2.0  | 12-16-17-13                                     | 33                   | 47               | SSA          | Brown, dry, dense, fine to coarse SAND, some gravel, some silt, (F#1).  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| 5  | 20                             | 24/14            | 4.0 - 6.0  | 4-3-3-2   | 6                    | 9                |              |   | Brown, wet, loose, Silty fine to coarse SAND, some gravel, (F#1). |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| 10   | 30                             | 24/9             | 9.0 - 11.0   | 1-1-1-1   | 2                    | 3                | PUSH         | Brown, wet, very loose, Silty fine to coarse SAND, little gravel, (F#1).  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| 15   | 40                             | 24/10            | 15.0 - 17.0  | 7-7-8-12  | 15                   | 22               |              | Grey, wet, dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| 20   | 50                             | 24/14            | 19.0 - 21.0  | 15-15-20-17                                     | 35                   | 50               |              | Grey, wet, dense, Sandy GRAVEL, some silt, (Glacial Till).  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| 25   | 60                             | 24/13            | 24.0 - 26.0  | 16-16-11-21                                     | 27                   | 39               |              | Grey, wet, dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| 30   | 70                             | 24/13            | 29.0 - 31.0  | 28-27-23-20                                     | 50                   | 72               |              | Grey, wet, very dense, Gravelly SAND, some silt, (Glacial Till).  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| 35   | 80                             | 14/5             | 34.0 - 35.2  | 54-56-30/2.4"                                   |                      |                  | NQ2          | Grey, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till).<br>Splittspoon refusal at 35.2' indicates probable bedrock.<br>Roller cone to 35.6'; Dark grey rock fragments observed in wash return. Set up to core at 35.6'.<br>R1: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are close to moderately spaced, moderately dipping, planar to undulating, smooth, fresh, very tight to partially open.<br>Rock Quality - Fair<br>Recovery - 100%<br>Rock Core Times (min:sec): 35.6-36.6' (2:58), 36.6-37.6' (1:47), 37.6-38.6' (2:20), 38.6-39.6' (2:56), 39.6-40.6' (2:08)<br>R2: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are very close to moderately spaced, moderately dipping to high angle, planar, smooth to rough, fresh, very tight to partially open.<br>Rock Quality - Fair<br>Recovery - 100%<br>Rock Core Times (min:sec): 40.6-41.6' (1:16), 41.6-42.6' (2:12), 42.6-43.6' (3:10), 43.6-44.6' (3:15), 44.6-45.6' (2:50) |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| 45   |                                |                  |  |   |                      |                  |              | Bottom of Exploration at 45.6 feet below ground surface.  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| <b>Remarks:</b><br>1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit Tests if available, rather than the MaineDOT Standard based percentages passing specific grain sizes.<br>2. Automatic hammer NEMO23 Energy transfer ratio = 0.863<br>3. Water level measured immediately after removal of casing.<br>4. The as-drilled location was surveyed by VHB (IN829669.3, E2227510.4). Elevation was interpolated from existing contours and estimated to the nearest 0.5'.  |                                |                  |  |   |                      |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.  |                                |                  |  |   |                      |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| * Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.  |                                |                  |  |   |                      |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |
| Page 1 of 1<br>Boring No.: GZ-2  |                                |                  |  |   |                      |                  |              |   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |             |    |    |     |  |   |    |       |           |         |   |   |  |   |    |    |      |            |         |   |   |      |  |    |    |       |             |          |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |       |             |             |    |    |  |  |    |    |      |             |               |  |  |     |   |    |  |  |  |  |  |  |  |  |

| Maine Department of Transportation  |                                |                  |  | Project: MNR Culvert Replacement                |                      | Boring No.: GZ-3 |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
|---|--------------------------------|------------------|--|---|----------------------|------------------|--------------|--|---|--|--|--|--|--|--|--|-------------|------------|-----------------|--------------------|---|---------------|-----------------|--------------|---|----|-------|-----------|---------|---|----|-----|--|---|----|-------|-----------|---------|---|---|--|---|----|----|-------|------------|---------|---|----|--|--|----|----|-------|-------------|----------|---|----|--|--|----|----|-------|-------------|---------|---|----|--|--|----|----|-------|-------------|-------------|----|-----|--|---|----|----|-------|-------------|-------------|----|-----|--|--|----|----|-------|-------------|-----------|--|--|--|--|
| Soil/Rock Exploration Log<br>US CUSTOMARY UNITS   |                                |                  |  | Location: Oakfield, Maine                       |                      | WIN: 25177.00    |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Driller:  | New England Boring Contractors | Elevation (ft.): | 565.0  | Auger ID/OD:                                    | 4.25                 |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Operator:   | Brad Enos                      | Datum:           | NAVD88   | Sampler:  | Standard Splittspoon |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Logged By:  | L. Navarrete                   | Rig Type:        | Track B-53 Mobile  | Hammer Wt./Fall:                                | 140*/30"             |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Date Start/Finish:  | 9/28/21-9/28/21                | Drilling Method: | Drive & Wash   | Core Barrel:                                    | NQ2                  |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Boring Location:  | Sta. 11 + 18.4, 24.4 RT        | Casing ID/OD:    | 4"   | Water Level *1:                                 | 14.0'                |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Hammer Efficiency Factor:   | 0.863                          | Hammer Type:     | Automatic <input checked="" type="checkbox"/> Hydraulic <input type="checkbox"/> Rope & Cathead <input type="checkbox"/> |   |                      |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Definitions:  |                                |                  |  |   |                      |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| R - Rock Core Sample      S <sub>u</sub> - Peak/Remolded Field Vane Undrained Shear Strength (psf)<br>D - Split Spoon Sample      SSA - Solid Stem Auger      T <sub>v</sub> - Pocket Torvane Shear Strength (psf)<br>MD - Unsuccessful Split Spoon Sample Attempt      HSA - Hollow Stem Auger      WC - Water Content, percent<br>U - Thin Wall Tube Sample      N - Uncorrected - Row Field SPT N-value      L - Liquid Limit<br>RC - Roller Cone      WOH - Weight of HMB, Hammer      PL - Plastic Limit<br>MU - Unsuccessful Thin Wall Tube Sample Attempt      WOP - Weight of Ribs or Casing      PI - Plasticity Index<br>V - Field Vane Shear Test      PP - Pocket Penetrometer      N <sub>60</sub> - SPT N-uncorrected Corrected for Hammer Efficiency      C - Grain Size Analysis<br>MV - Unsuccessful Field Vane Shear Test Attempt      N <sub>60</sub> - Hammer Efficiency Factor/60/N-uncorrected  |                                |                  |  |   |                      |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| <table border="1"> <thead> <tr> <th colspan="8">Sample Information</th> <th rowspan="2">Laboratory Testing Results/AASHTO and Unified Class.</th> </tr> <tr> <th>Depth (ft.)</th> <th>Sample No.</th> <th>Pen./Rec. (in.)</th> <th>Sample Depth (ft.)</th> <th>Blows (1/8 in. Shear Strength (psf) or ROD (2))</th> <th>N-uncorrected</th> <th>N<sub>60</sub></th> <th>Casing Blows</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10</td> <td>24/15</td> <td>0.0 - 2.0</td> <td>5-5-4-5</td> <td>9</td> <td>13</td> <td>SSA</td> <td rowspan="2">Brown to black, dry, medium dense, fine to coarse SAND, some silt, little gravel, (F#1).</td> </tr> <tr> <td>5</td> <td>20</td> <td>24/14</td> <td>4.0 - 6.0</td> <td>2-3-3-2</td> <td>6</td> <td>9</td> <td></td> <td>Brown, dry, loose, Silty fine to coarse SAND, some gravel, (F#1).</td> </tr> <tr> <td>10</td> <td>30</td> <td>24/13</td> <td>9.0 - 11.0</td> <td>2-5-3-3</td> <td>8</td> <td>12</td> <td></td> <td>Brown, dry, medium dense, Silty fine to coarse SAND, some gravel, (F#1).</td> </tr> <tr> <td>15</td> <td>40</td> <td>24/12</td> <td>14.0 - 16.0</td> <td>4-2-6-10</td> <td>8</td> <td>12</td> <td></td> <td>Top 10": Dark brown, wet, medium dense, fine to coarse SAND, some gravel, trace silt, with organics, (Alluvium).<br/>Bottom 2": Grey, wet, fine to coarse SAND, some gravel, little silt, (Glacial Till).</td> </tr> <tr> <td>20</td> <td>50</td> <td>24/17</td> <td>19.0 - 21.0</td> <td>6-4-5-4</td> <td>9</td> <td>13</td> <td></td> <td>Olive-brown, wet, medium dense, fine to coarse SAND, some gravel, little silt, (Glacial Till).</td> </tr> <tr> <td>25</td> <td>60</td> <td>24/14</td> <td>24.0 - 26.0</td> <td>24-20-61-51</td> <td>81</td> <td>117</td> <td></td> <td>Grey, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till).</td> </tr> <tr> <td>30</td> <td>70</td> <td>24/16</td> <td>29.0 - 31.0</td> <td>36-43-42-61</td> <td>85</td> <td>122</td> <td></td> <td>Olive-brown, wet, very dense, GRAVEL, some fine to coarse sand, some silt, (Glacial Till).</td> </tr> <tr> <td>35</td> <td>R1</td> <td>60/60</td> <td>34.0 - 39.0</td> <td>ROD - 60%</td> <td></td> <td></td> <td></td> <td>Increase in resistance at 33.7' during roller cone advancement indicates probable top of rock. Advanced roller cone to 34.0' and set up to core. Dark grey rock fragments observed in wash return.<br/>R1: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Primary joints are very close to moderately spaced, low angle to moderately dipping, planar to undulating, smooth to rough, fresh to discolored, very tight to open, with silt infilling. Secondary joints are close to widely spaced, high angle, planar to undulating, smooth, fresh to discolored, open, with silt infilling.<br/>Rock Quality - Fair<br/>Recovery - 100%<br/>Rock Core Times (min:sec): 34.0-35.0' (3:17), 35.0-36.0' (3:30), 36.0-37.0' (2:08), 37.0-38.0' (3:32), 38.0-39.0' (3:45)<br/>R2: 39.0'-39.6': Rock is fractured to gravel-size pieces.<br/>39.6'-43.3': Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are close to moderately spaced, moderately dipping to high angle, planar, smooth to rough, fresh, very tight to partially open, with silt infilling.<br/>Rock Quality - Poor<br/>Recovery - 87%<br/>Rock Core Times (min:sec): 39.0-40.0' (1:31), 40.0-41.0' (4:27), 41.0-42.0' (2:47), 42.0-43.0' (5:40), 43.0-43.3' (0:45)<br/>Bottom of Exploration at 43.3 feet below ground surface.</td> </tr> </tbody> </table> |                                |                  |  |   |                      |                  |              | Sample Information   |   |  |  |  |  |  |  | Laboratory Testing Results/AASHTO and Unified Class. | Depth (ft.) | Sample No. | Pen./Rec. (in.) | Sample Depth (ft.) | Blows (1/8 in. Shear Strength (psf) or ROD (2)) | N-uncorrected | N <sub>60</sub> | Casing Blows | 0 | 10 | 24/15 | 0.0 - 2.0 | 5-5-4-5 | 9 | 13 | SSA | Brown to black, dry, medium dense, fine to coarse SAND, some silt, little gravel, (F#1). | 5 | 20 | 24/14 | 4.0 - 6.0 | 2-3-3-2 | 6 | 9 |  | Brown, dry, loose, Silty fine to coarse SAND, some gravel, (F#1). | 10 | 30 | 24/13 | 9.0 - 11.0 | 2-5-3-3 | 8 | 12 |  | Brown, dry, medium dense, Silty fine to coarse SAND, some gravel, (F#1). | 15 | 40 | 24/12 | 14.0 - 16.0 | 4-2-6-10 | 8 | 12 |  | Top 10": Dark brown, wet, medium dense, fine to coarse SAND, some gravel, trace silt, with organics, (Alluvium).<br>Bottom 2": Grey, wet, fine to coarse SAND, some gravel, little silt, (Glacial Till). | 20 | 50 | 24/17 | 19.0 - 21.0 | 6-4-5-4 | 9 | 13 |  | Olive-brown, wet, medium dense, fine to coarse SAND, some gravel, little silt, (Glacial Till). | 25 | 60 | 24/14 | 24.0 - 26.0 | 24-20-61-51 | 81 | 117 |  | Grey, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till). | 30 | 70 | 24/16 | 29.0 - 31.0 | 36-43-42-61 | 85 | 122 |  | Olive-brown, wet, very dense, GRAVEL, some fine to coarse sand, some silt, (Glacial Till). | 35 | R1 | 60/60 | 34.0 - 39.0 | ROD - 60% |  |  |  | Increase in resistance at 33.7' during roller cone advancement indicates probable top of rock. Advanced roller cone to 34.0' and set up to core. Dark grey rock fragments observed in wash return.<br>R1: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Primary joints are very close to moderately spaced, low angle to moderately dipping, planar to undulating, smooth to rough, fresh to discolored, very tight to open, with silt infilling. Secondary joints are close to widely spaced, high angle, planar to undulating, smooth, fresh to discolored, open, with silt infilling.<br>Rock Quality - Fair<br>Recovery - 100%<br>Rock Core Times (min:sec): 34.0-35.0' (3:17), 35.0-36.0' (3:30), 36.0-37.0' (2:08), 37.0-38.0' (3:32), 38.0-39.0' (3:45)<br>R2: 39.0'-39.6': Rock is fractured to gravel-size pieces.<br>39.6'-43.3': Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are close to moderately spaced, moderately dipping to high angle, planar, smooth to rough, fresh, very tight to partially open, with silt infilling.<br>Rock Quality - Poor<br>Recovery - 87%<br>Rock Core Times (min:sec): 39.0-40.0' (1:31), 40.0-41.0' (4:27), 41.0-42.0' (2:47), 42.0-43.0' (5:40), 43.0-43.3' (0:45)<br>Bottom of Exploration at 43.3 feet below ground surface. |
| Sample Information  |                                |                  |  |   |                      |                  |              | Laboratory Testing Results/AASHTO and Unified Class.   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Depth (ft.)   | Sample No.                     | Pen./Rec. (in.)  | Sample Depth (ft.)   | Blows (1/8 in. Shear Strength (psf) or ROD (2)) | N-uncorrected        | N <sub>60</sub>  | Casing Blows |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| 0   | 10                             | 24/15            | 0.0 - 2.0  | 5-5-4-5   | 9                    | 13               | SSA          | Brown to black, dry, medium dense, fine to coarse SAND, some silt, little gravel, (F#1).   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| 5   | 20                             | 24/14            | 4.0 - 6.0  | 2-3-3-2   | 6                    | 9                |              |  | Brown, dry, loose, Silty fine to coarse SAND, some gravel, (F#1). |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| 10  | 30                             | 24/13            | 9.0 - 11.0   | 2-5-3-3   | 8                    | 12               |              | Brown, dry, medium dense, Silty fine to coarse SAND, some gravel, (F#1).   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| 15  | 40                             | 24/12            | 14.0 - 16.0  | 4-2-6-10  | 8                    | 12               |              | Top 10": Dark brown, wet, medium dense, fine to coarse SAND, some gravel, trace silt, with organics, (Alluvium).<br>Bottom 2": Grey, wet, fine to coarse SAND, some gravel, little silt, (Glacial Till).   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| 20  | 50                             | 24/17            | 19.0 - 21.0  | 6-4-5-4   | 9                    | 13               |              | Olive-brown, wet, medium dense, fine to coarse SAND, some gravel, little silt, (Glacial Till).   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| 25  | 60                             | 24/14            | 24.0 - 26.0  | 24-20-61-51                                     | 81                   | 117              |              | Grey, wet, very dense, Sandy GRAVEL, some silt, (Glacial Till).  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| 30  | 70                             | 24/16            | 29.0 - 31.0  | 36-43-42-61                                     | 85                   | 122              |              | Olive-brown, wet, very dense, GRAVEL, some fine to coarse sand, some silt, (Glacial Till).   |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| 35  | R1                             | 60/60            | 34.0 - 39.0  | ROD - 60%                                       |                      |                  |              | Increase in resistance at 33.7' during roller cone advancement indicates probable top of rock. Advanced roller cone to 34.0' and set up to core. Dark grey rock fragments observed in wash return.<br>R1: Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Primary joints are very close to moderately spaced, low angle to moderately dipping, planar to undulating, smooth to rough, fresh to discolored, very tight to open, with silt infilling. Secondary joints are close to widely spaced, high angle, planar to undulating, smooth, fresh to discolored, open, with silt infilling.<br>Rock Quality - Fair<br>Recovery - 100%<br>Rock Core Times (min:sec): 34.0-35.0' (3:17), 35.0-36.0' (3:30), 36.0-37.0' (2:08), 37.0-38.0' (3:32), 38.0-39.0' (3:45)<br>R2: 39.0'-39.6': Rock is fractured to gravel-size pieces.<br>39.6'-43.3': Hard, fresh, ophanitic, grey, CALCAREOUS METASILTSTONE. Joints are close to moderately spaced, moderately dipping to high angle, planar, smooth to rough, fresh, very tight to partially open, with silt infilling.<br>Rock Quality - Poor<br>Recovery - 87%<br>Rock Core Times (min:sec): 39.0-40.0' (1:31), 40.0-41.0' (4:27), 41.0-42.0' (2:47), 42.0-43.0' (5:40), 43.0-43.3' (0:45)<br>Bottom of Exploration at 43.3 feet below ground surface. |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| <b>Remarks:</b><br>1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques or laboratory Atterberg Limit Tests if available, rather than the MaineDOT Standard based percentages passing specific grain sizes.<br>2. Automatic hammer NEMO23 Energy transfer ratio = 0.863<br>3. Water level measured immediately after removal of casing.<br>4. West culvert head wall is 9.5' to top of water.<br>5. The as-drilled location was surveyed by VHB (IN829667.3, E2227562.3). Elevation was interpolated from existing contours and estimated to the nearest 0.5'.   |                                |                  |  |   |                      |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Stratification lines represent approximate boundaries between soil types; transitions may be gradual.   |                                |                  |  |   |                      |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| * Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.   |                                |                  |  |   |                      |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |
| Page 1 of 1<br>Boring No.: GZ-3   |                                |                  |  |   |                      |                  |              |  |   |  |  |  |  |  |  |  |             |            |                 |                    |   |               |                 |              |   |    |       |           |         |   |    |     |  |   |    |       |           |         |   |   |  |   |    |    |       |            |         |   |    |  |  |    |    |       |             |          |   |    |  |  |    |    |       |             |         |   |    |  |  |    |    |       |             |             |    |     |  |   |    |    |       |             |             |    |     |  |  |    |    |       |             |           |  |  |  |  |

**STATE OF MAINE**  
**DEPARTMENT OF TRANSPORTATION**

THOMAS BROOK BRIDGE  
 MADAWASKA SUBDIVISION OVER THOMAS BROOK  
 OAKFIELD  
 AROOSTOOK COUNTY, ME

BORING LOGS 1

SHEET NUMBER  
7

BRIDGE NO. 7825      WIN      025177.00

DATE: 01/25/2023

SIGNATURE: *[Signature]*      P.E. NUMBER:      DATE:

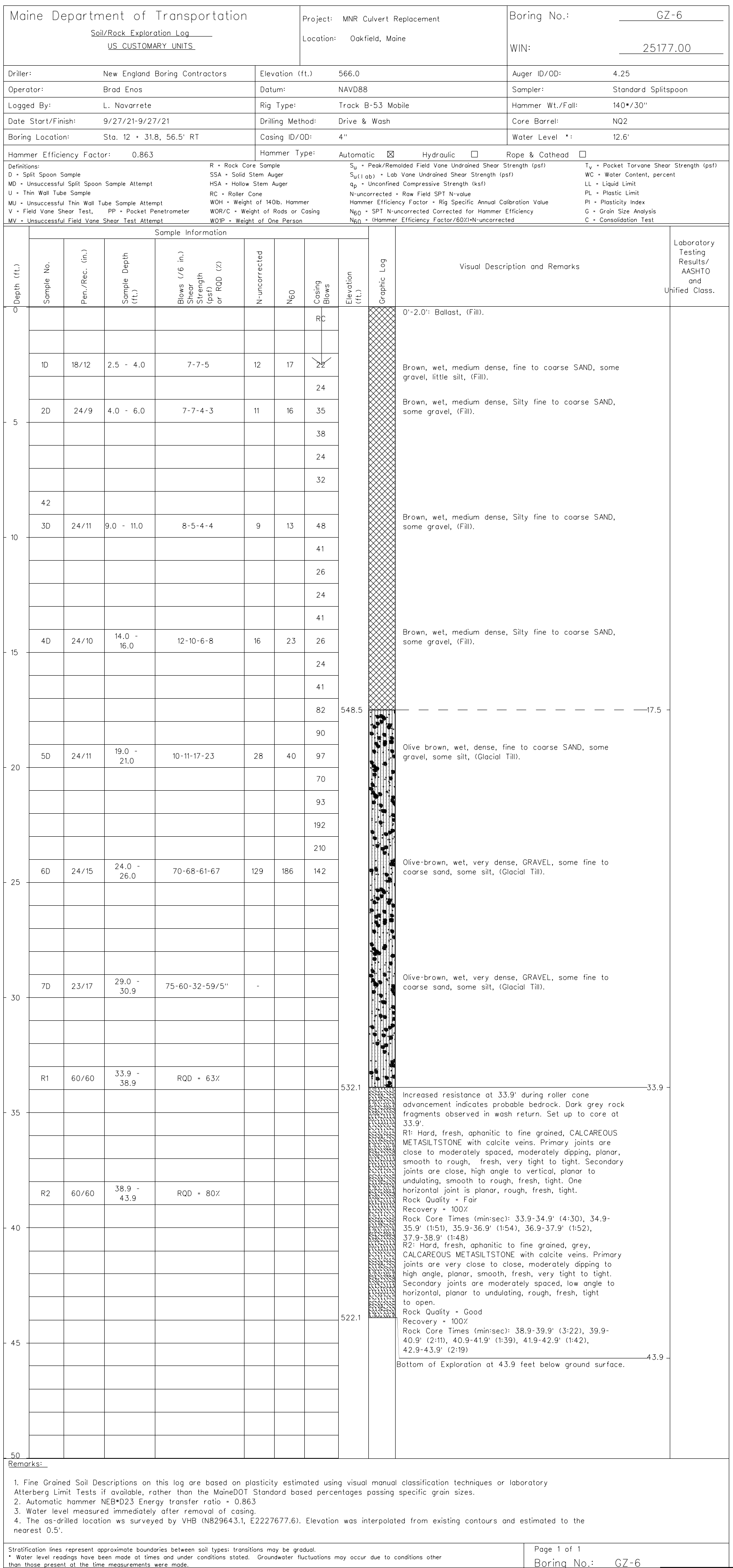
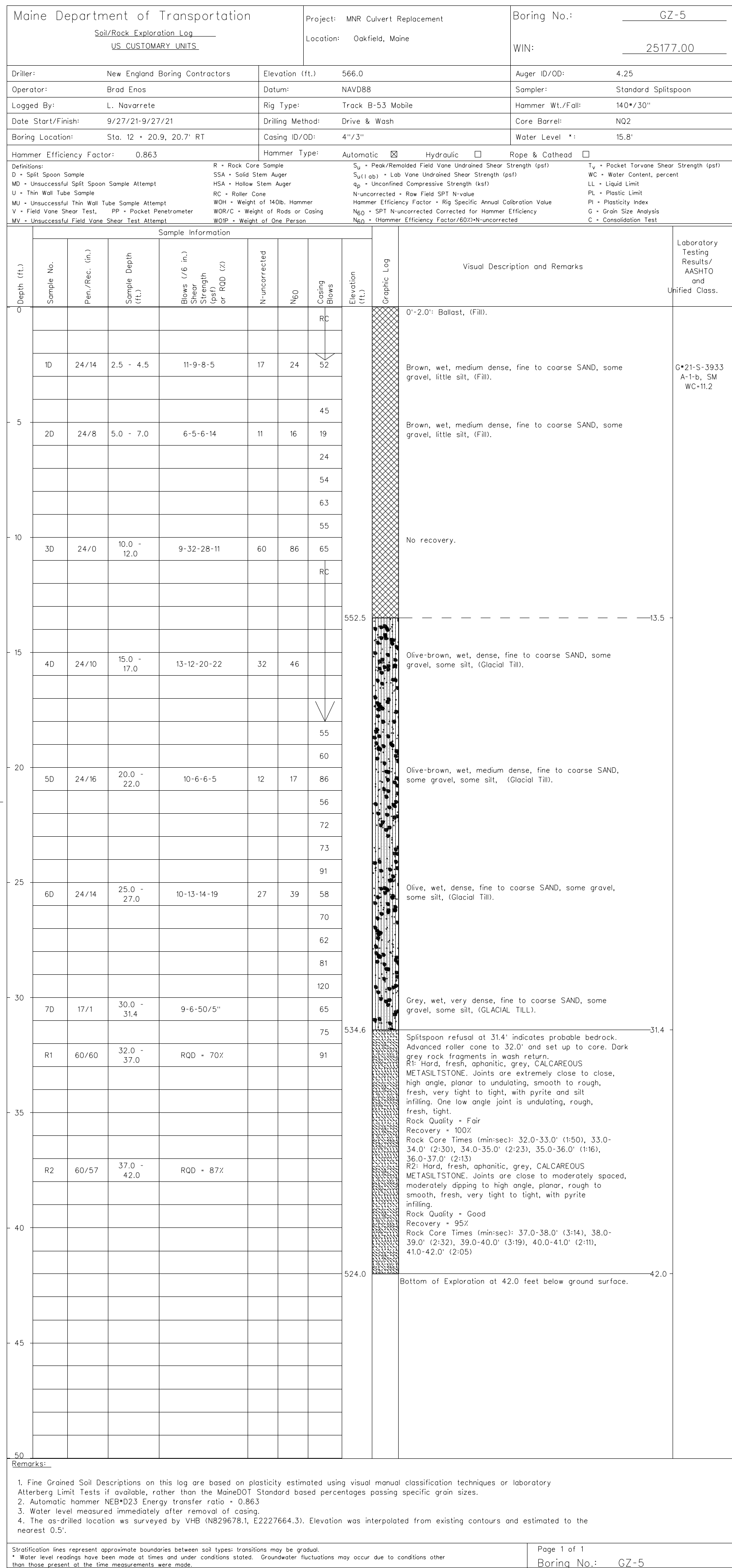
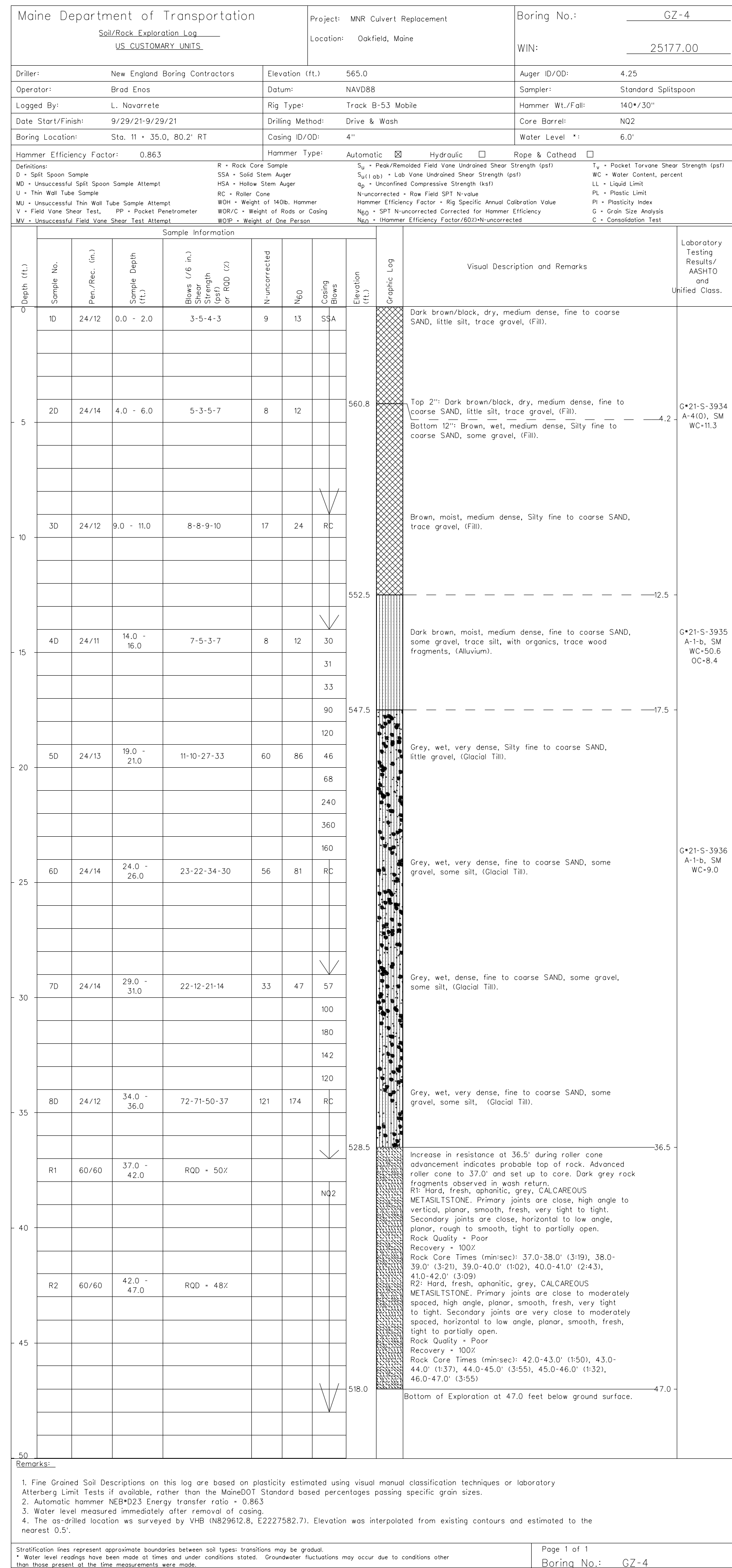
PROJ. MANAGER: M. KERSBERGEN      BY: N. WILLIAMS      N. WILLIAMS      J. BLASDELL      JAN 2023

DESIGN-DETAILED: C. SNOW      CHECKED-REVIEWED: J. BLASDELL      JAN 2023

DESIGN-DETAILED2:      DESIGN-DETAILED3:      REVISIONS 1:      REVISIONS 2:      REVISIONS 3:      REVISIONS 4:      FIELD CHANGES:

PREPARED BY: *[Signature]*





STATE OF MAINE

DEPARTMENT OF TRANSPORTATION

THOMAS BROOK BRIDGE

MADAWASKA SUBDIVISION OVER THOMAS BROOK

OAKFIELD AROOSTOOK COUNTY, ME

BORING LOGS 2

BRIDGE NO. 7825

WIN 025177.00

PROJ. MANAGER: M. KERSBERGEN  
 BY: N. WILLIAMS  
 CHECKED/REVIEWED: J. BLASDELL  
 DESIGN-DATE: 01/25/2023  
 REVISIONS: 1  
 REVISIONS: 2  
 REVISIONS: 3  
 REVISIONS: 4  
 FIELD CHANGES

DATE: JAN 2023  
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 P.E. NUMBER: [Blank]  
 DATE: [Blank]

SHEET NUMBER

8

OF 20

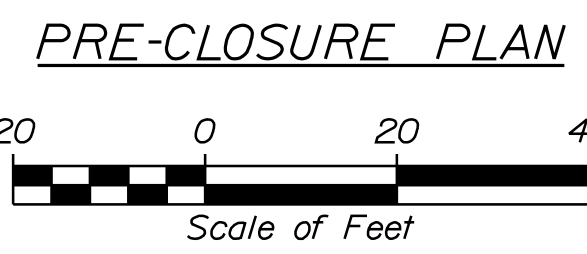
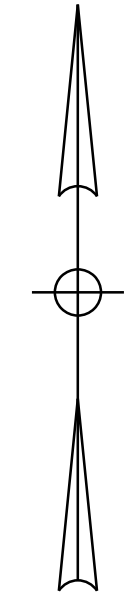
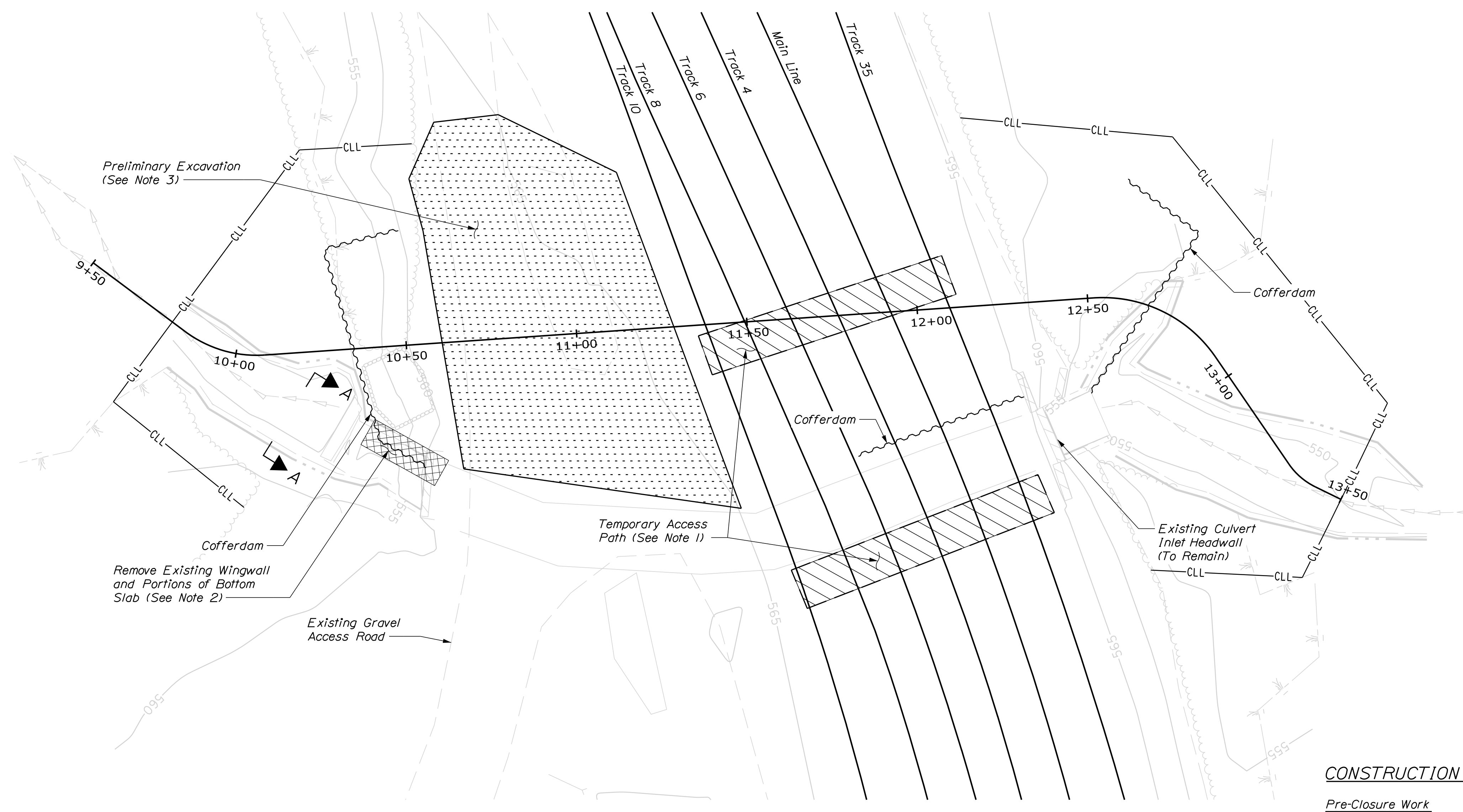
PREPARED BY:

Date: 5/16/2023

Username: BMasse

Division: HIGHWAY

Filename: ... \MSTAV009\_phase-closure.dgn



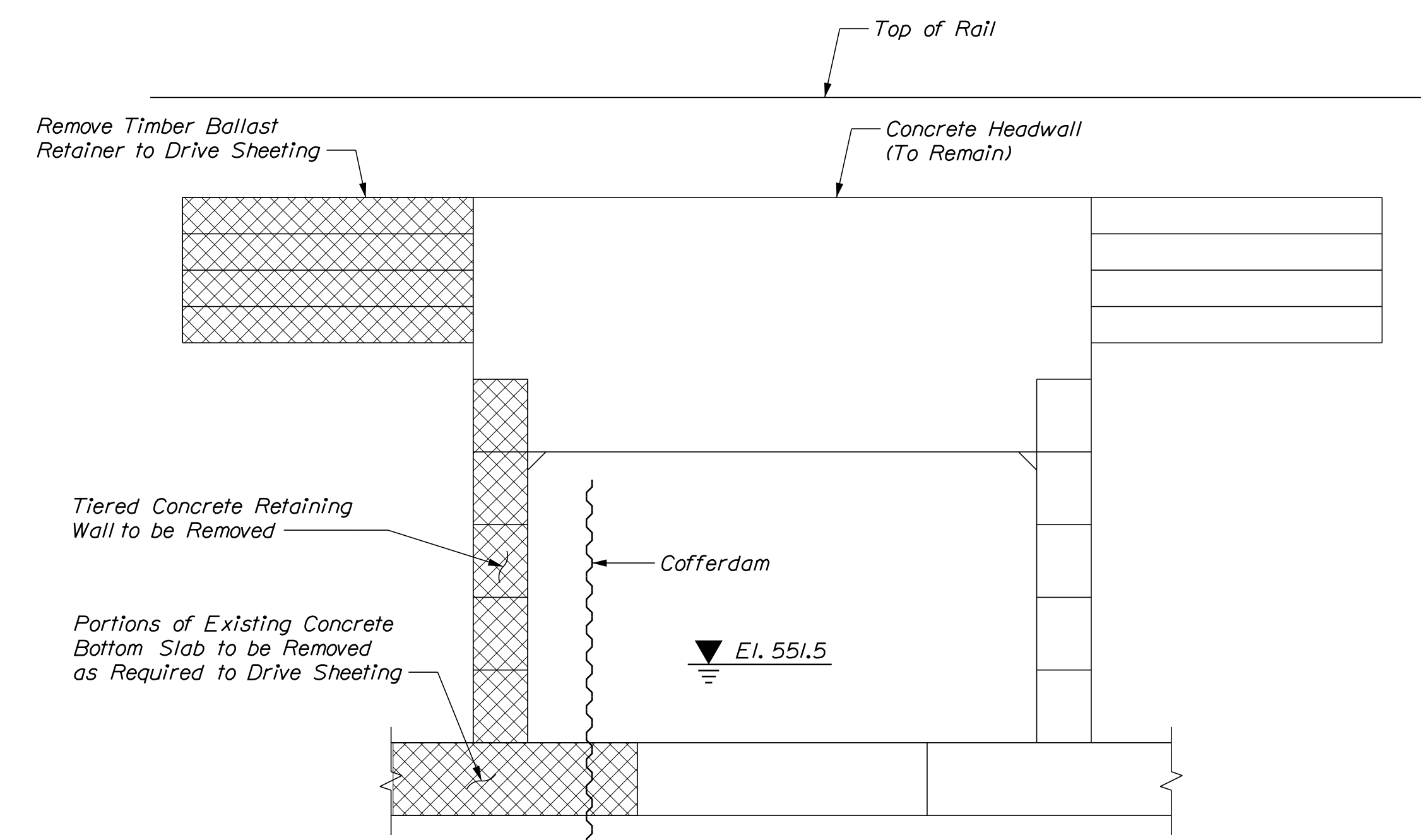
PRE-CLOSURE PLAN

TRACK LEGEND  
 — = Track In-Service

CONSTRUCTION NOTES

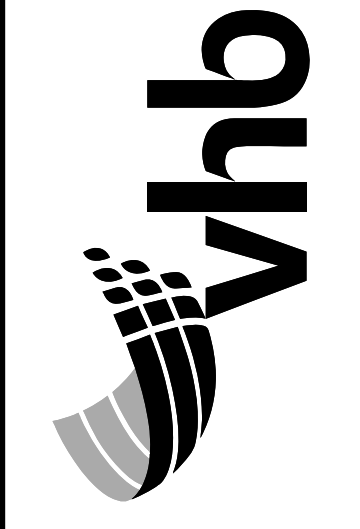
Pre-Closure Work

1. Coordinate with Railroad to temporarily flood track with ballast in the North and South Ends of work zone to allow for construction vehicle access across tracks.
2. Remove portions of existing northwest wingwall and portions of bottom slab for installation of cofferdam. Costs for the existing culvert removal to be included in Item 202.19I, Removing Existing Bridge. Costs for cofferdam shall be included in Item 511.07, Cofferdam.
3. At the Contractor's option, excavation in the vicinity of the access road can be started prior to track closure in an effort to reduce amount of work required during the Phase I track closure.



VIEW A-A  
 (Outlet Removal Shown, Mirrored for Removal at Inlet)  
 Not to Scale

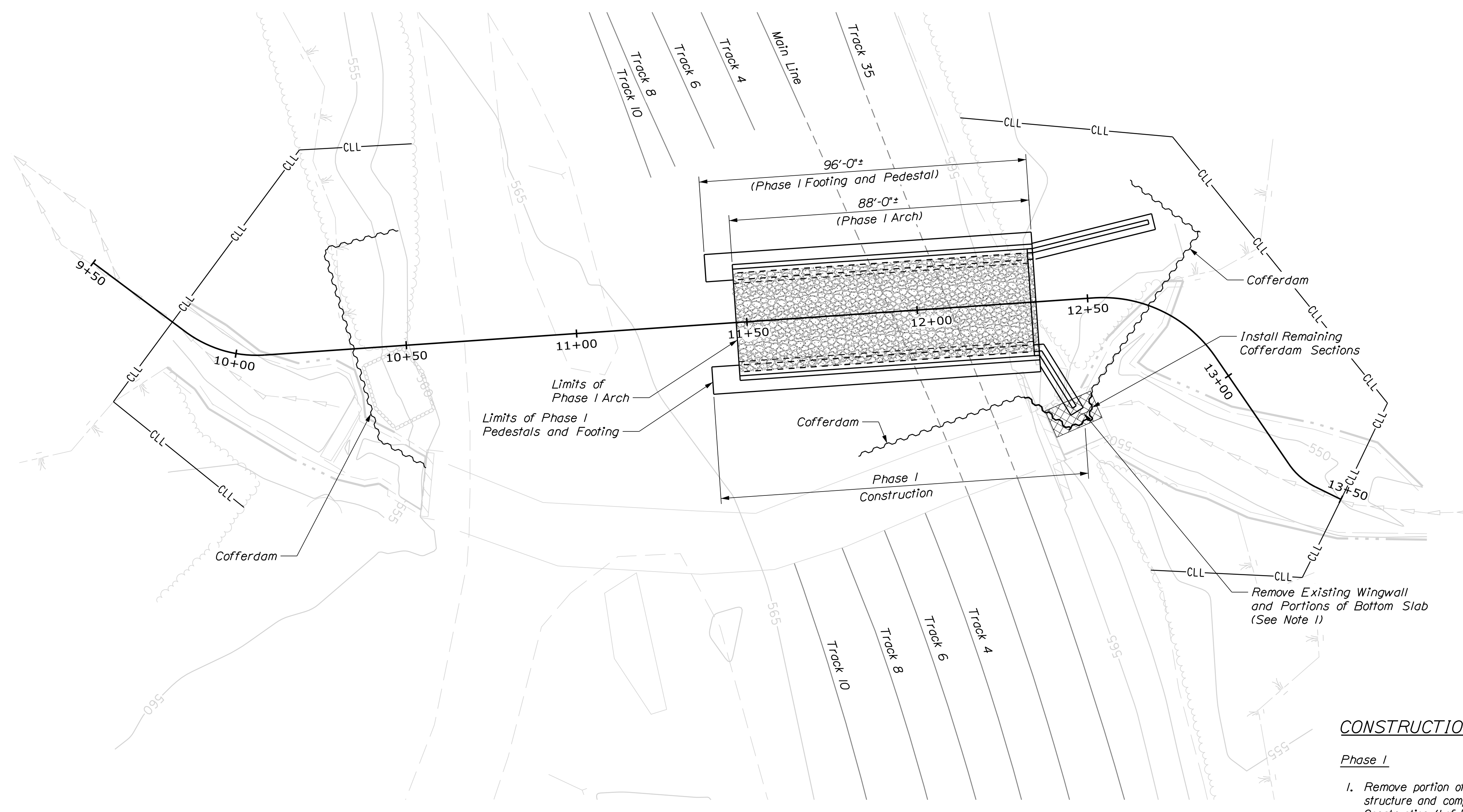
STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 WIN  
 025177.00  
 BRIDGE NO. 7625  
 BRIDGE PLANS



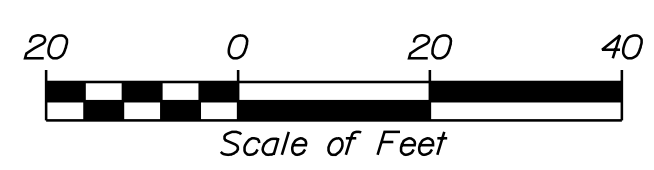
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|------------------|----------------|--------|
| DESIGN-DETAILED  | AMS            | 5/2023 |
| CHECKED-REVIEWED | LSC            | 5/2023 |
| DESIGN-DETAILED  | CSC            |        |
| DESIGN-DETAILED  |                |        |
| REVISIONS        |                |        |
| REVISIONS        |                |        |
| REVISIONS        |                |        |
| REVISIONS        |                |        |
| FIELD CHANGES    |                |        |

THOMAS BROOK BRIDGE  
 MADAWASKA SUBDIVISION OVER THOMAS BROOK  
 OAKFIELD AROOSTOOK COUNTY, ME  
**PHASED CONSTRUCTION**  
 (1 OF 5)

SHEET NUMBER  
**9**  
 OF 20



**PHASE I PLAN**



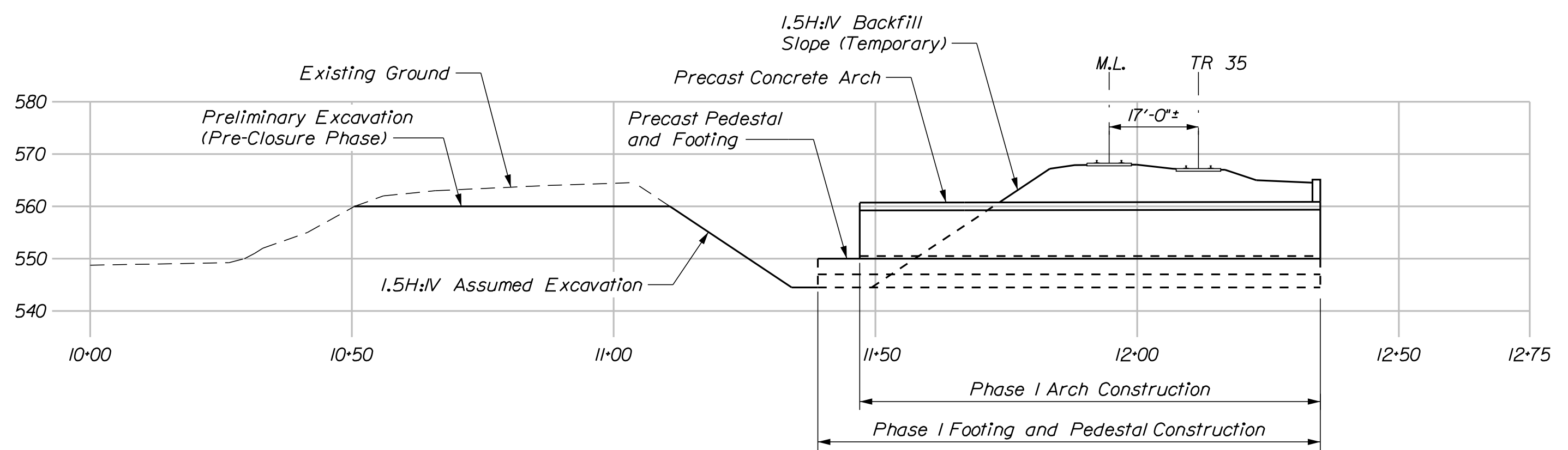
**TRACK LEGEND**

- = Track Out-of-Service
- - - = Track Reconstruction at End of Phase (by Railroad)

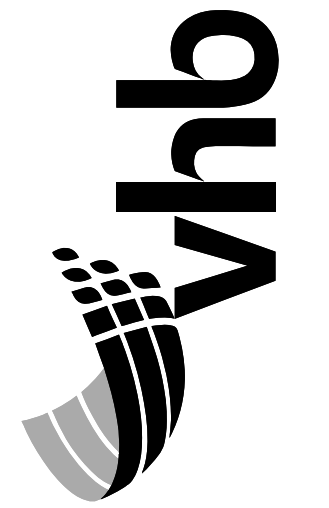
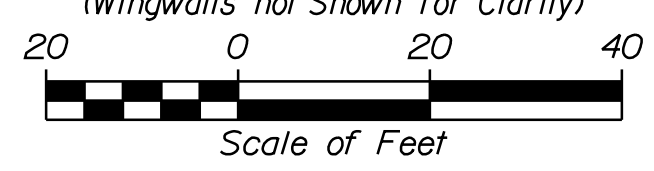
**CONSTRUCTION NOTES**

**Phase I**

1. Remove portion of existing wingwall as required for installation of new structure and completion of cofferdam. See View A-A on Phased Construction (1 of 5) sheet. Costs for wingwall removal shall be included in Item 202.19I, Removing Existing Bridge. Costs for cofferdam shall be included in Item 511.07, Cofferdam.
2. Cut sheeting within track limits a minimum of 3 feet below bottom of tie.
3. The Contractor is responsible for procuring and placing all ballast. The following sequence of construction shall be coordinated with the Railroad:
  - Contractor places the ballast to 1" below the bottom of tie
  - Railroad places ties, lays the track
  - Contractor floods the ties with the final lift of ballast
  - Railroad performs final tamping and line and grade of the track to set the final track profile.



**PHASE I LONGITUDINAL SECTION**  
(Wingwalls not Shown for Clarity)



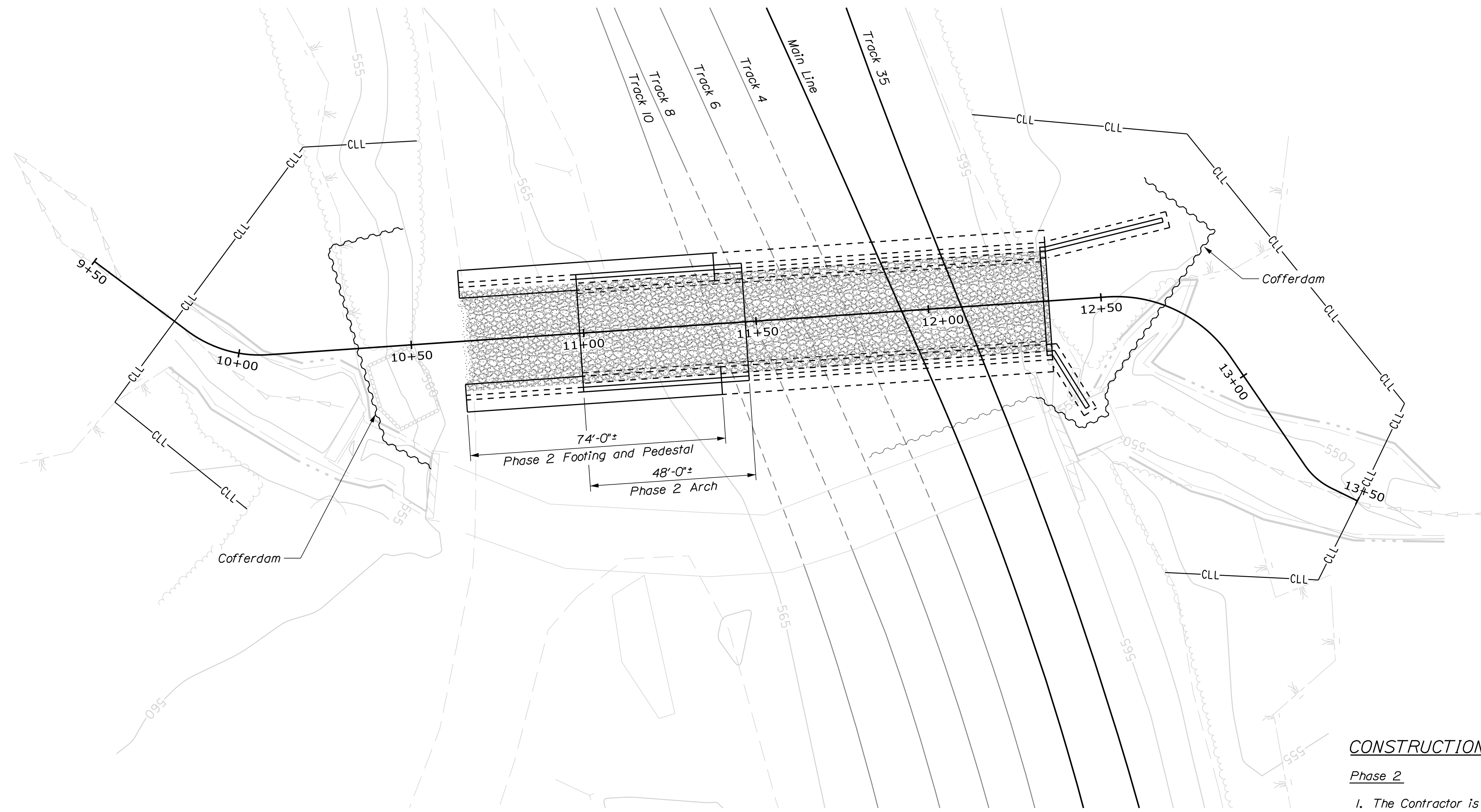
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|---------------------|----------------|--------|
| DESIGN-DETAILED     | AMS            | 5/2023 |
| CHECKED-REVIEWED    | LSC            | 5/2023 |
| DESIGN/2-DETAILED/2 |                |        |
| DESIGN/3-DETAILED/3 |                |        |
| REVISIONS           |                |        |
| REVISIONS 1         |                |        |
| REVISIONS 2         |                |        |
| REVISIONS 3         |                |        |
| REVISIONS 4         |                |        |
| FIELD CHANGES       |                |        |

THOMAS BROOK BRIDGE  
MADAWASKA SUBDIVISION OVER THOMAS BROOK  
OAKFIELD AROOSTOOK COUNTY, ME  
**PHASED CONSTRUCTION (2 OF 5)**

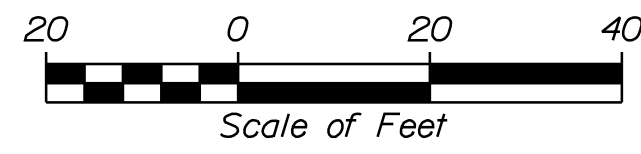
SHEET NUMBER

**10**

OF 20

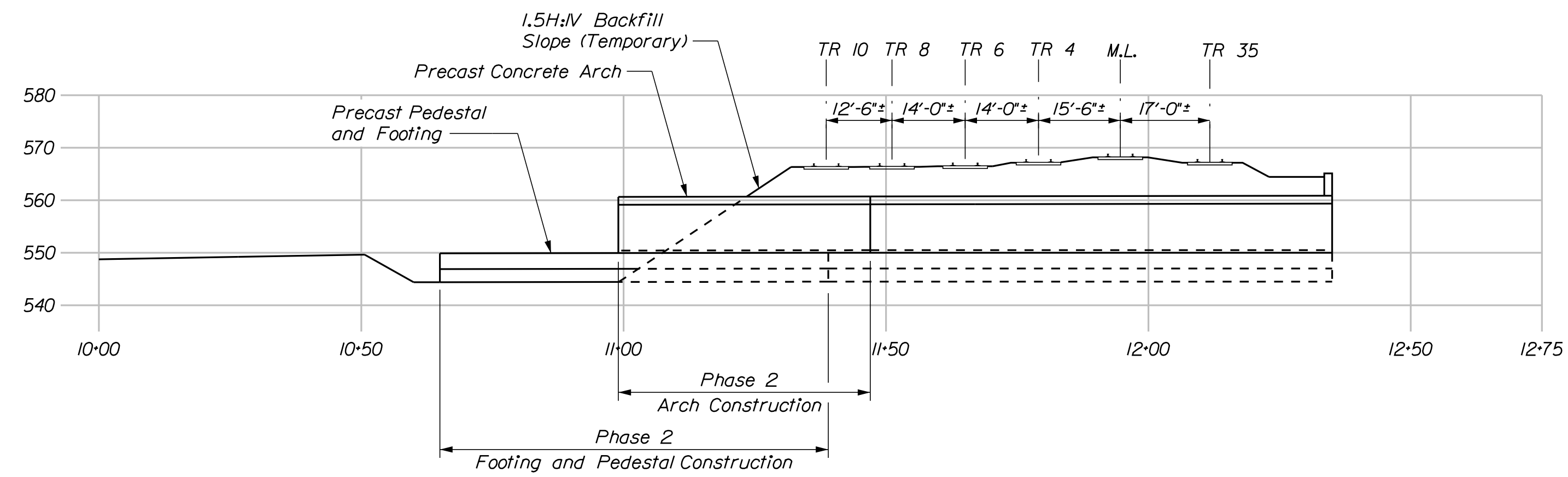


PHASE 2 PLAN

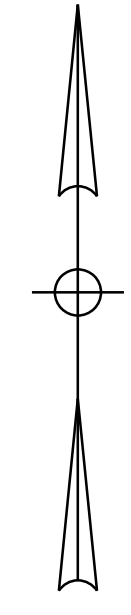
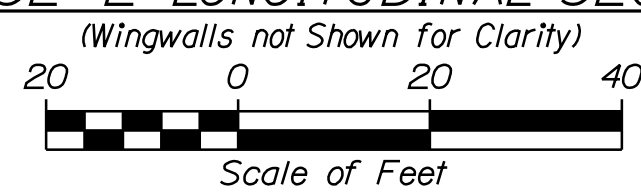


TRACK LEGEND

- = Track In-Service
- - - = Track Out-of-Service
- - - - = Track Reconstruction at End of Phase (by Railroad)



PHASE 2 LONGITUDINAL SECTION

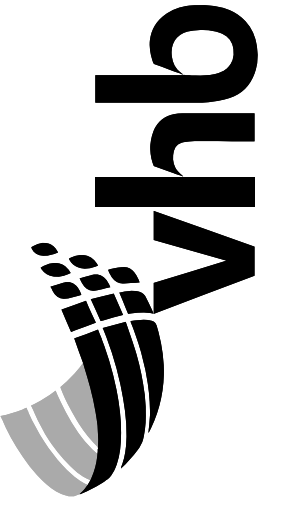


**CONSTRUCTION NOTES**

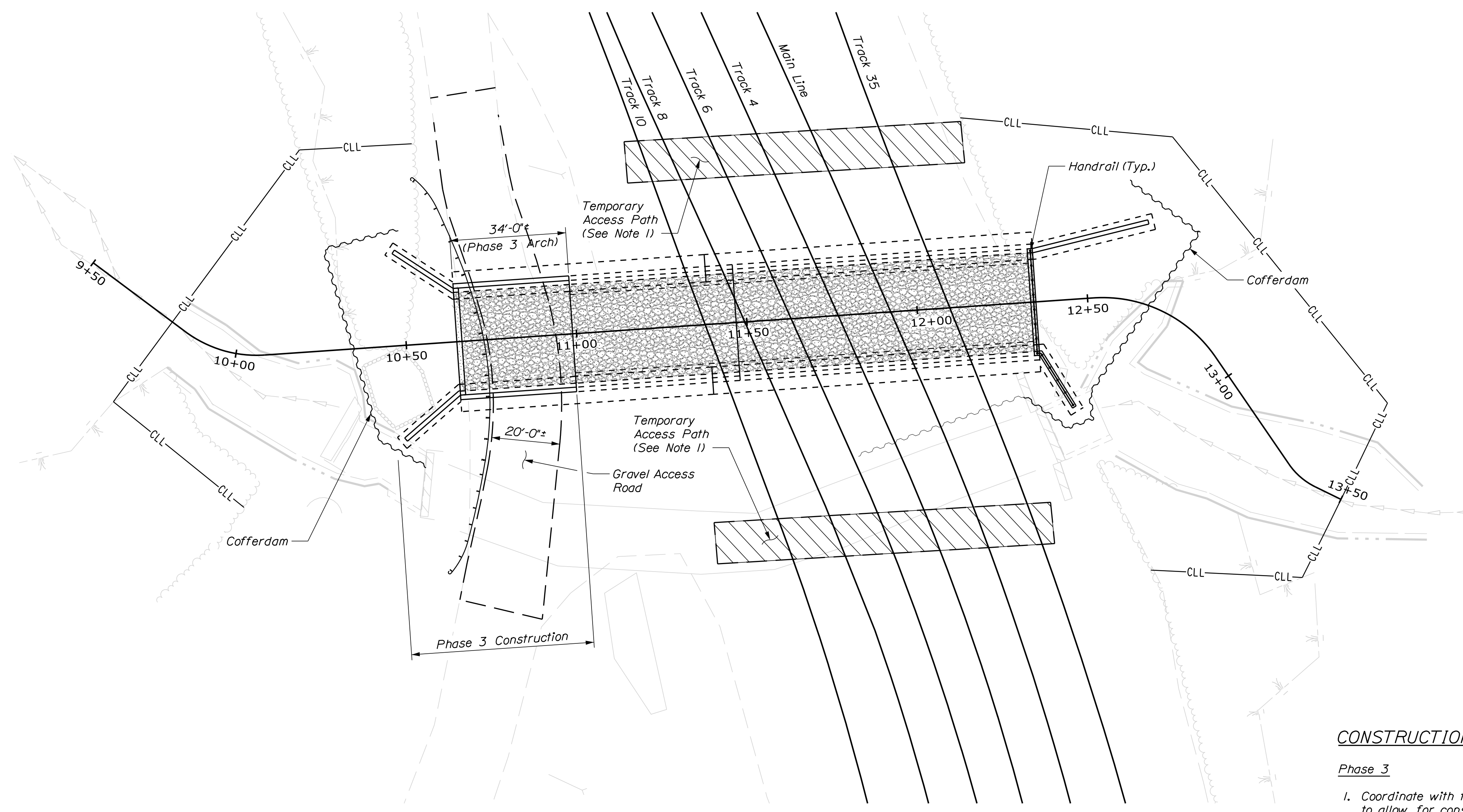
Phase 2

1. The Contractor is responsible for procuring and placing all ballast. The following sequence of construction shall be coordinated with the Railroad:

- Contractor places the ballast to 1" below the bottom of tie
- Railroad places ties, lays the track
- Contractor floods the ties with the final lift of ballast
- Railroad performs final tamping and line and grade of the track to set the final track profile.



| PROJ. MANAGER    | AURELE | CORNEAU | DATE   |
|------------------|--------|---------|--------|
| DESIGN-DETAILED  | AMS    |         | 5/2023 |
| CHECKED-REVIEWED | LSC    |         | 5/2023 |
| DESIGN-DETAILED  |        |         |        |
| DESIGN-DETAILED  |        |         |        |
| REVISIONS        |        |         |        |
| REVISIONS        |        |         |        |
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| REVISIONS        |        |         |        |
| FIELD CHANGES    |        |         |        |



PHASE 3 PLAN



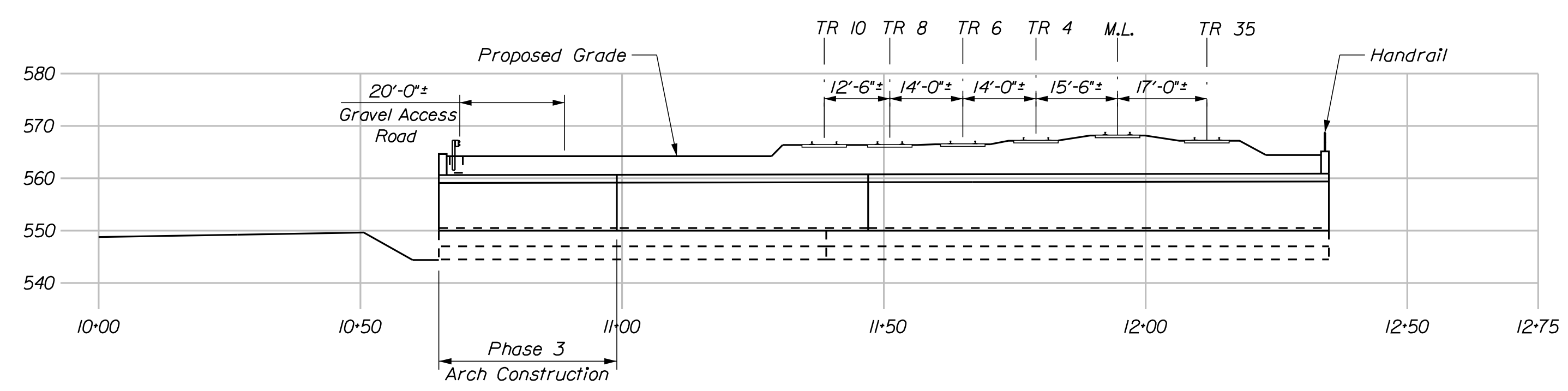
TRACK LEGEND

— = Track In-Service

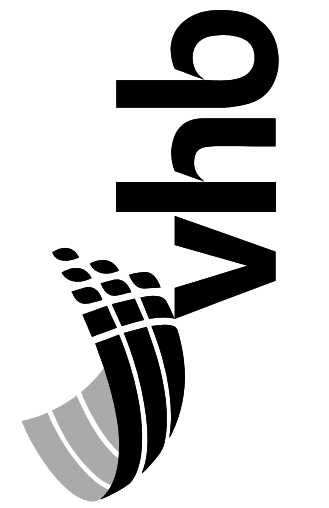
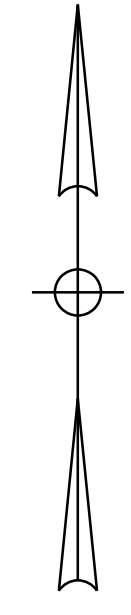
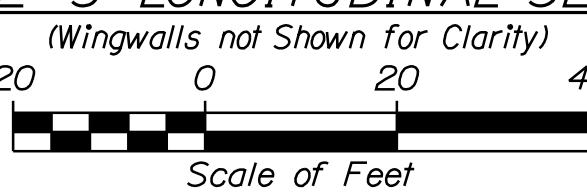
CONSTRUCTION NOTES

Phase 3

- 1. Coordinate with the Railroad to reconstruct temporary access path to allow for construction vehicle access to inlet.



PHASE 3 LONGITUDINAL SECTION



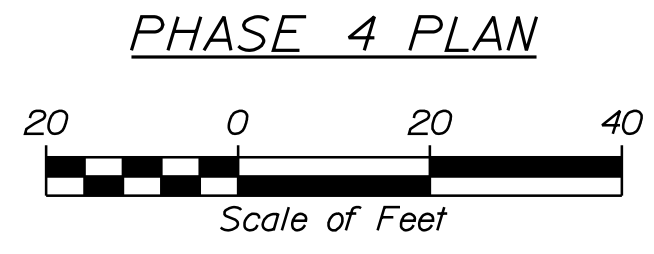
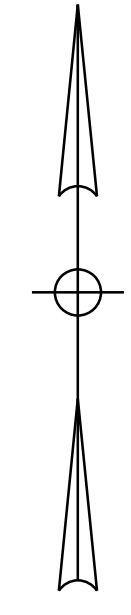
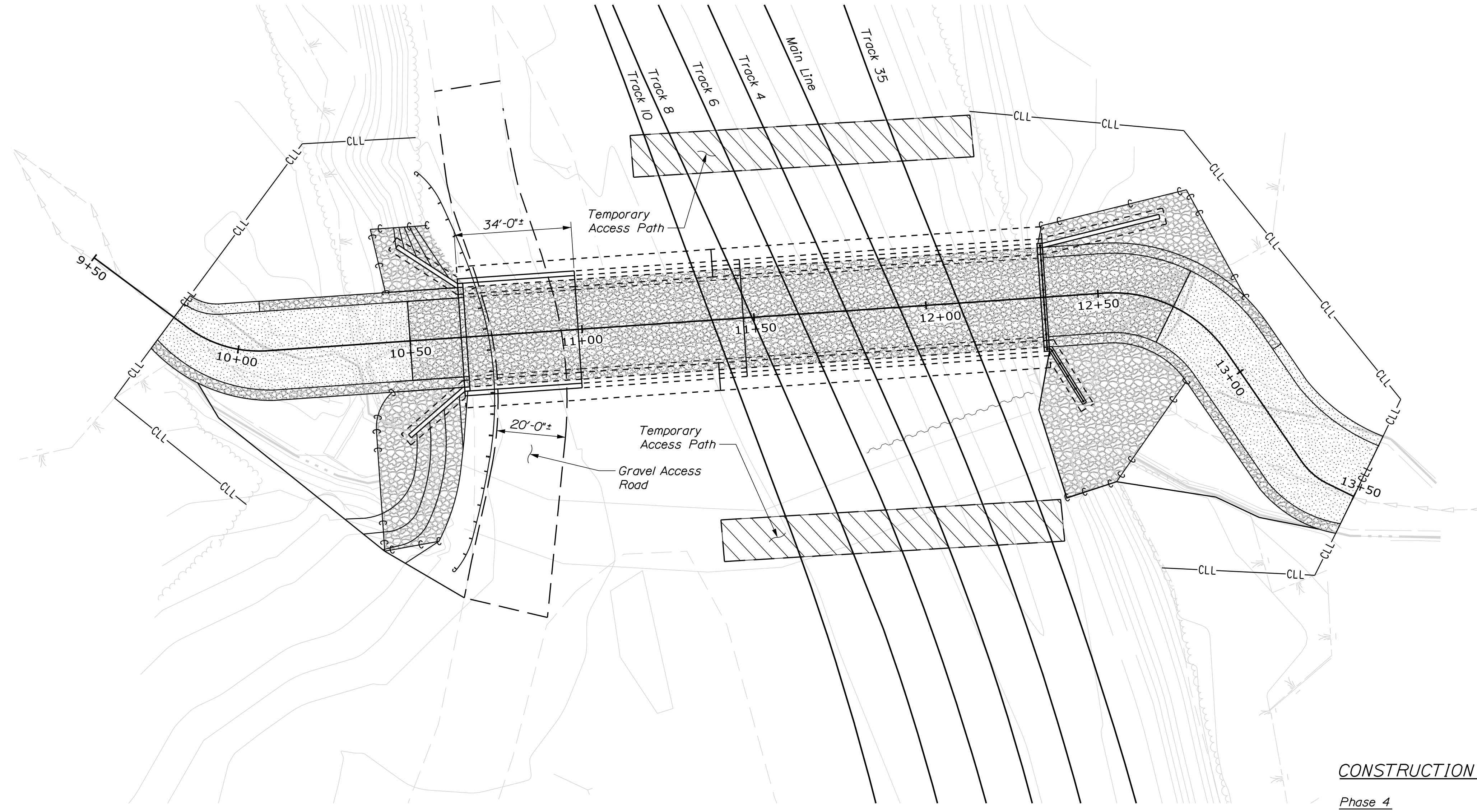
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|-------------------|----------------|-----|--------|
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| CHECKED-REVIEWED  | LSC            | CSC | 5/2023 |
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| DESIGN-3-DETAILED |                |     |        |
| REVISIONS         |                |     |        |
| REVISIONS 1       |                |     |        |
| REVISIONS 2       |                |     |        |
| REVISIONS 3       |                |     |        |
| REVISIONS 4       |                |     |        |
| FIELD CHANGES     |                |     |        |

THOMAS BROOK BRIDGE  
MADAWASKA SUBDIVISION OVER THOMAS BROOK  
OAKFIELD AROOSTOOK COUNTY, ME  
**PHASED CONSTRUCTION**  
**(4 OF 5)**

SHEET NUMBER

12

OF 20



**TRACK LEGEND**  
 — = Track In-Service

**CONSTRUCTION NOTES**

**Phase 4**

- Existing culvert headwalls are to be removed as necessary for regrading sideslopes. All costs for removing shall be included in Item 202.191, Removing Existing Bridge.

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 WIN  
 025177.00  
 BRIDGE NO. 7825  
 BRIDGE PLANS



| PROJ. MANAGER    | AURELE | GORNEAU | BY  | DATE   |
|------------------|--------|---------|-----|--------|
| DESIGN-DETAILED  | AMS    |         | BM  | 5/2023 |
| CHECKED-REVIEWED | LSC    |         | CSC | 5/2023 |
| DESIGN-DETAILED  |        |         |     |        |
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| REVISIONS        |        |         |     |        |
| REVISIONS        |        |         |     |        |
| REVISIONS        |        |         |     |        |
| REVISIONS        |        |         |     |        |
| FIELD CHANGES    |        |         |     |        |

THOMAS BROOK BRIDGE  
 MADAWASKA SUBDIVISION OVER THOMAS BROOK  
 OAKFIELD AROOSTOOK COUNTY, ME  
**PHASED CONSTRUCTION  
 (5 OF 5)**

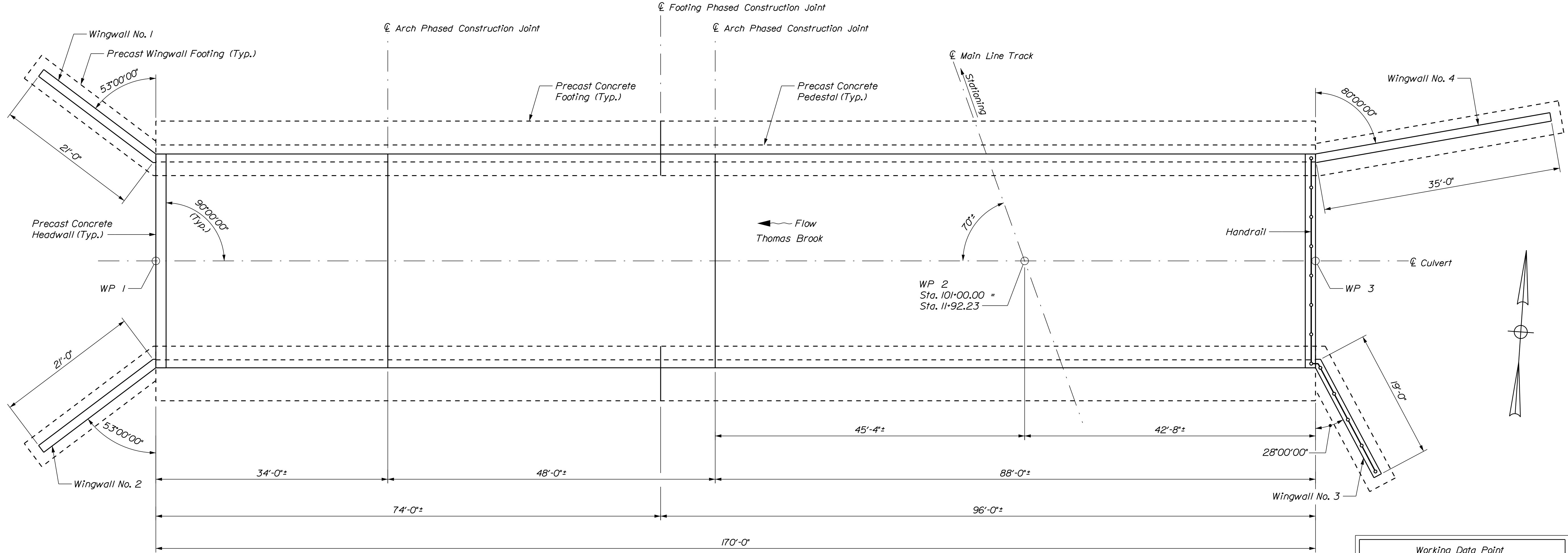
SHEET NUMBER  
**13**  
 OF 20

Date: 5/16/2023

Username: BMasse

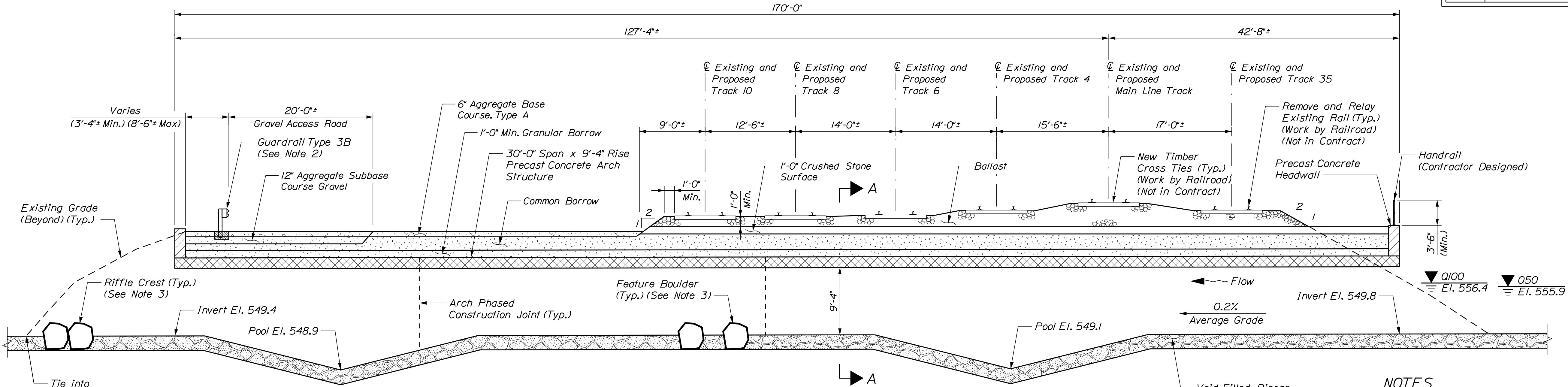
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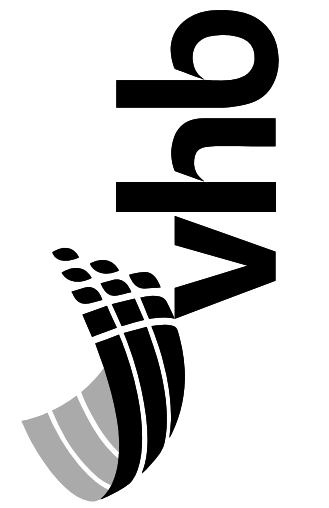
**PLAN**  
Scale: 1/8" = 1'-0"

| Working Data Point |             |              |
|--------------------|-------------|--------------|
| Point              | Northing    | Easting      |
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| WP 2               | 829696.7302 | 2227634.2980 |
| WP 3               | 829699.6584 | 2227676.8201 |



**LONGITUDINAL SECTION**  
Scale: 1/8" = 1'-0"

- NOTES**
- See Precast Arch Details (2 of 2) sheet for Precast Notes and Section A-A.
  - See Wingwall No. 1 and No. 2 Details sheet and Standard Detail 606(22) for guardrail above arch detail.
  - Feature boulders and riffle crest boulders shall be paid for under Item 610.212, Streambed Rock Features. See 610 Special Provision. See Stream Restoration sheets for additional information.



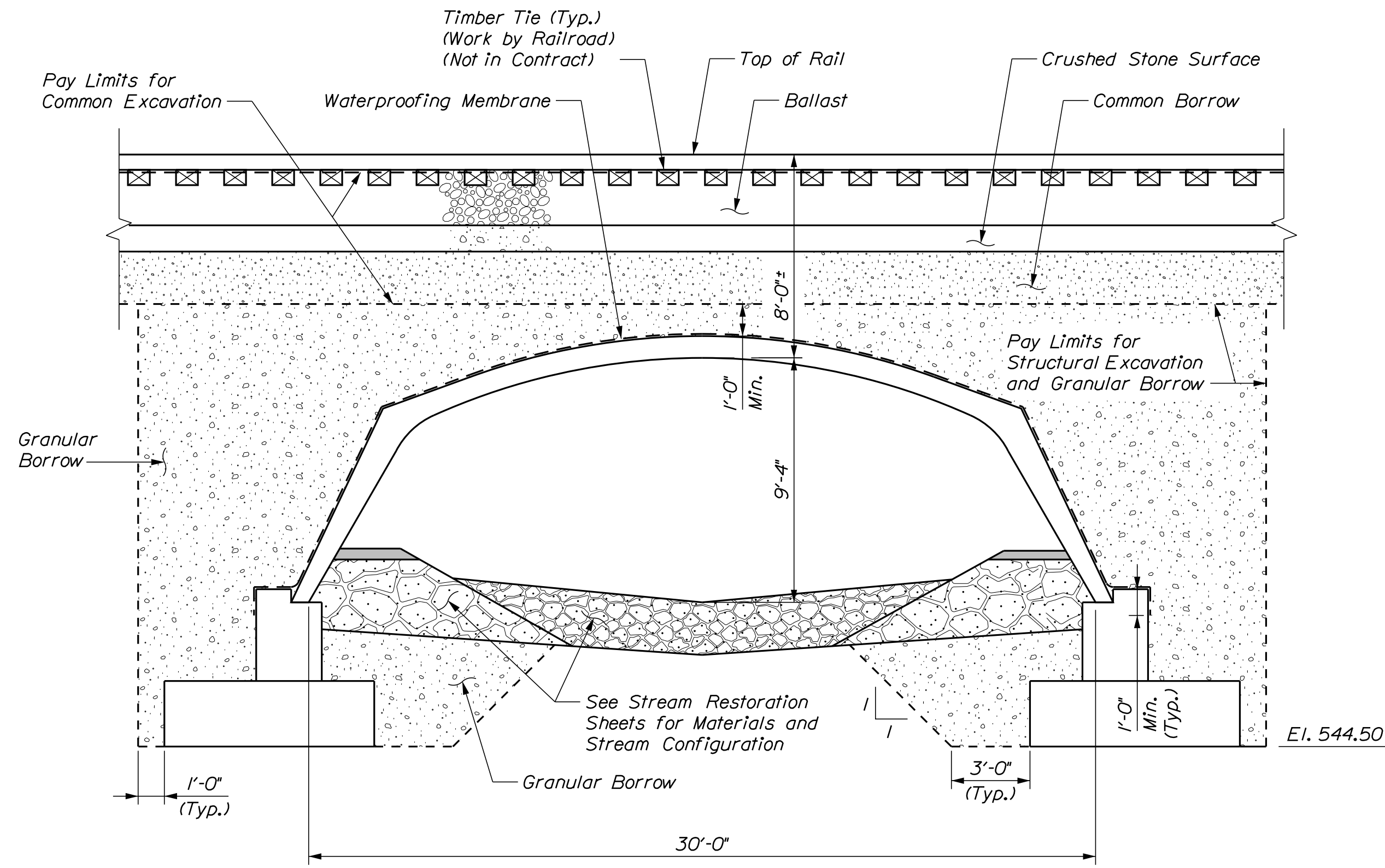
| DATE   | BY  | PROJ. MANAGER | AURELE | CORNEAU | DESIGN-DETAILED | CHECKED-REVIEWED | DESIGN-2-DETAILED | DESIGN-3-DETAILED | REVISIONS     |
|--------|-----|---------------|--------|---------|-----------------|------------------|-------------------|-------------------|---------------|
| 5/2023 | BAM |               |        |         |                 |                  |                   |                   | 1             |
| 5/2023 | CSC |               |        |         |                 |                  |                   |                   | 2             |
|        |     |               |        |         |                 |                  |                   |                   | 3             |
|        |     |               |        |         |                 |                  |                   |                   | 4             |
|        |     |               |        |         |                 |                  |                   |                   | FIELD CHANGES |

Date: 5/16/2023

Username: BMasse

Division: HIGHWAY

Filename: ... \BRIDGE\MSTA\015\_details.dgn



**PRECAST ARCH STRUCTURE A-A**  
**(TYPICAL RAILROAD SECTION)**  
 Scale: 1/4" = 1'-0"

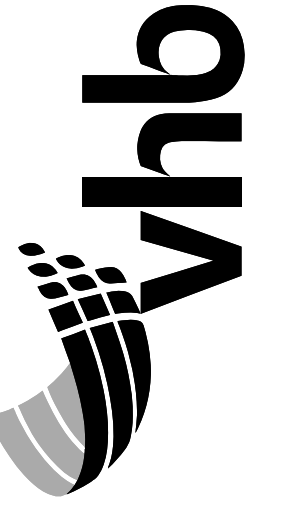
**PRECAST CONCRETE NOTES:**

- The Contractor shall design the precast concrete arch, pedestals, footings, wingwalls and associated headwalls in accordance with the 2022 American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering. The components should be designed and stamped by a Professional Engineer licensed in the State of Maine. Cost of arch and associated components shall be included in Item 534.70, Precast Structural Concrete Arch.
- The design live loading is Cooper E80. The design shall also incorporate a Cooper E80 railroad surcharge. An at-rest earth pressure coefficient,  $K_a$ , equal to 0.47 shall be used for design.
- The foundations should be designed as spread footings bearing at EL. 544.5 on Glacial Till with an allowable bearing capacity as shown in the table below. See Geotechnical Report for additional information.

| Effective Footing Width | Bearing Capacity |                             |
|-------------------------|------------------|-----------------------------|
|                         | Primary Loading  | Settlement Limit = 0.5 in ± |
| 6 Ft                    | 6.2 ksf ±        | 8.1 ksf ±                   |
| 7 Ft                    | 6.7 ksf ±        | 7.3 ksf ±                   |
| 8 Ft                    | 7.2 ksf ±        | 6.8 ksf ±                   |
| 9 Ft                    | 7.6 ksf ±        | 6.3 ksf ±                   |
| 10 Ft                   | 8.0 ksf ±        | 5.9 ksf ±                   |

- The precast units shall be designed to carry construction loading with a minimum fill cover of 18 inches over the top of the units.
- The construction, handling, and assembly of the precast units shall be in accordance with Special Provisions, Section 534, Precast Structural Concrete, and with the manufacturer's specifications as applicable.
- Install Sheet Waterproofing Membrane over the top and down the exterior sides of the arch extending over the top of the pedestal and down 12 inches on the sides. Extend the membrane 12 inches up the headwalls and sides of wingwalls.
- The furnishing and placing of backfill material between the granular borrow pay limit and the normal subgrade line will not be paid for directly but shall be considered incidental to the work. Backfill material shall be from suitable excavation within project limits, if available, and shall be granular material as directed by the resident.
- The exterior joints of the arch shall be covered with a minimum 12 inch wide joint wrap as indicated in Section 534.20 of MaineDOT Standard Specifications.
- Protective Coating for Concrete Surfaces shall be applied to the following areas:  
  - Concrete headwalls, including to one foot inside the arch
  - Exposed tops of vertical walls to one foot below the ground on the backside
  - Exposed faces of vertical walls to one foot inside the arch
- Working Drawings and Reinforcing Steel Schedules for the precast arch, handrails, headwalls, wingwalls pedestals, and footings shall be the responsibility of the Contractor. Refer to subsections 105.7 and 503.03 of the Standard Specifications and Special Provision 534 for additional information. Payment for all work associated with developing Working Drawings and Reinforcing Steel Schedules will be considered incidental to the related Contract items.
- The Contractor shall maintain the excavation so that the arch is constructed in-the-dry. The excavation will be completed beneath the groundwater table. Water should be controlled by pumping from sumps.
- The footing shall sit on undisturbed naturally deposited glacial till. If the subgrade is loosened or disturbed during excavation, the Contractor shall re-compact if needed, granular borrow may be placed in lifts and compacted up to the bottom of footing elevation in accordance with Standard Spec 203.13. The required dry density shall be 95 percent of the maximum density in accordance with ASTM D1557.

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION



| PROJ. MANAGER    | AURELE | CORNEAU | DATE   |
|------------------|--------|---------|--------|
| DESIGN-DETAILED  | AMS    | 5/2023  | 5/2023 |
| CHECKED-REVIEWED | LSC    |         |        |
| DESIGN-DETAILED  |        |         |        |
| DESIGN-DETAILED  |        |         |        |
| REVISIONS        |        |         |        |
| REVISIONS        |        |         |        |
| REVISIONS        |        |         |        |
| REVISIONS        |        |         |        |
| FIELD CHANGES    |        |         |        |

THOMAS BROOK BRIDGE  
 MADAWASKA SUBDIVISION OVER THOMAS BROOK  
 OAKFIELD AROOSTOOK COUNTY, ME  
**PRECAST ARCH DETAILS**  
 (2 OF 2)

SHEET NUMBER

15

OF 20

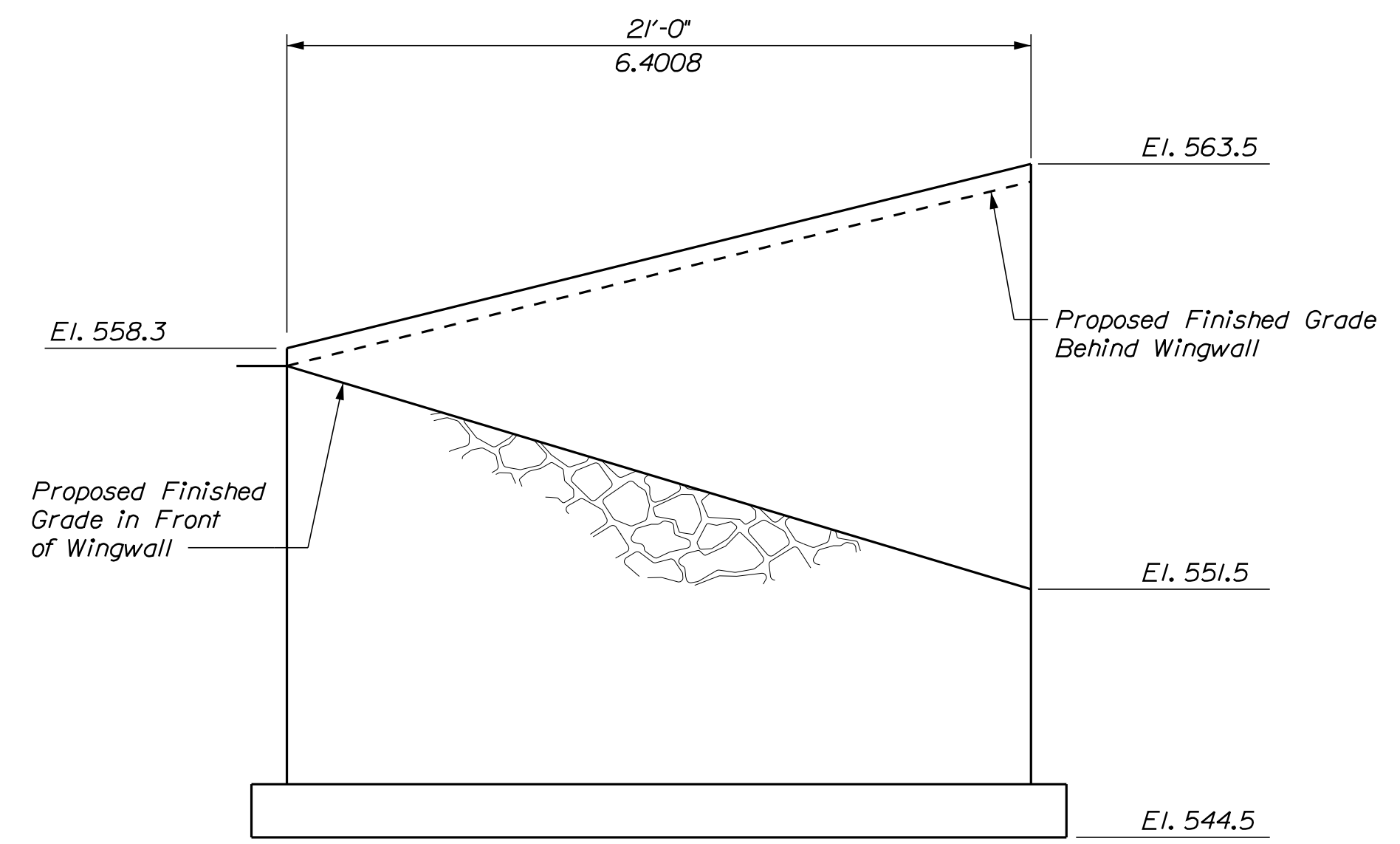
BRIDGE NO. 7625  
 WIN  
 025177.00  
 BRIDGE PLANS

Date: 5/16/2023

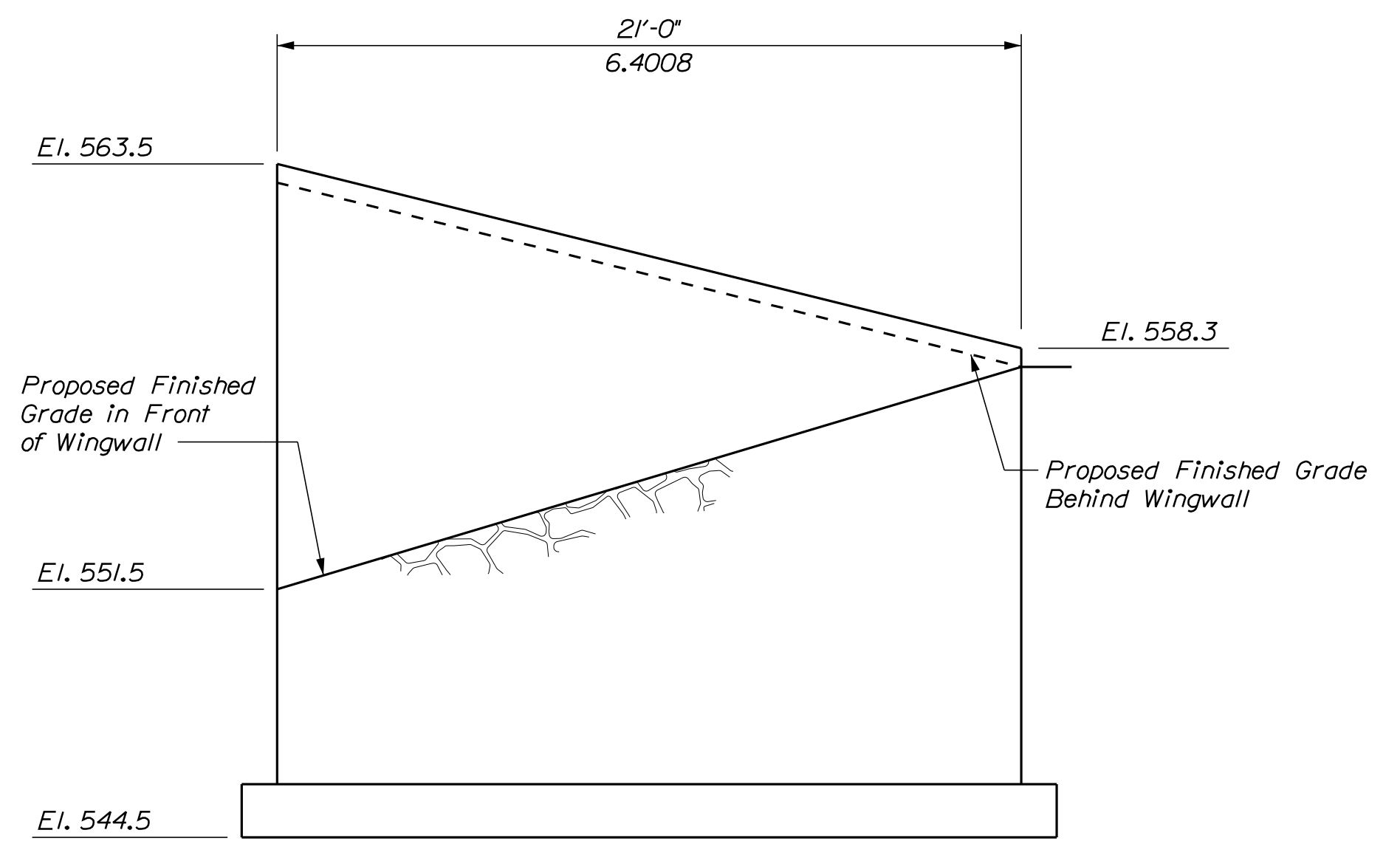
Username: BMasse

Division: HIGHWAY

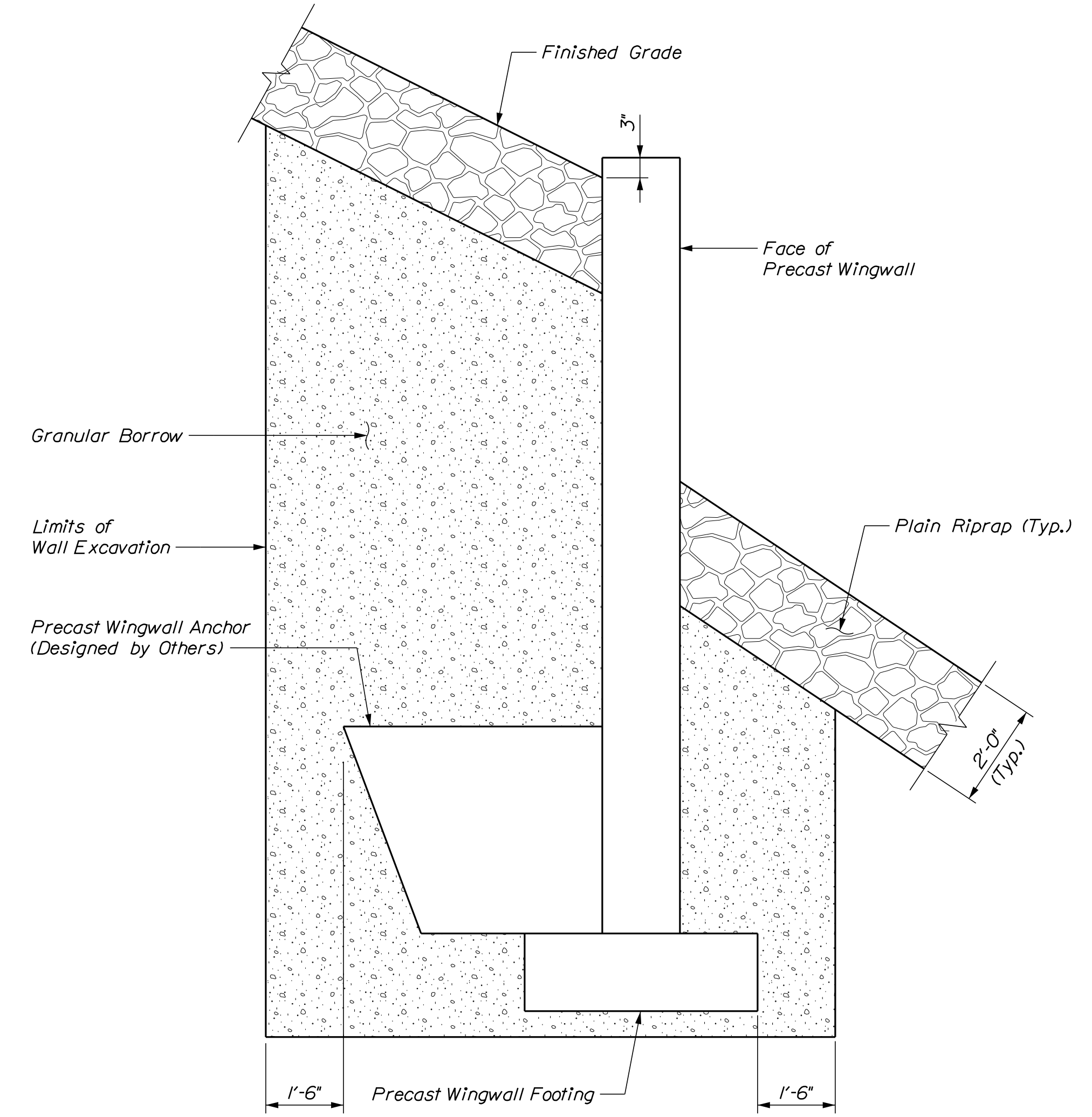
Filename: ... \MSTA\016\_ww\_details\_01.dgn



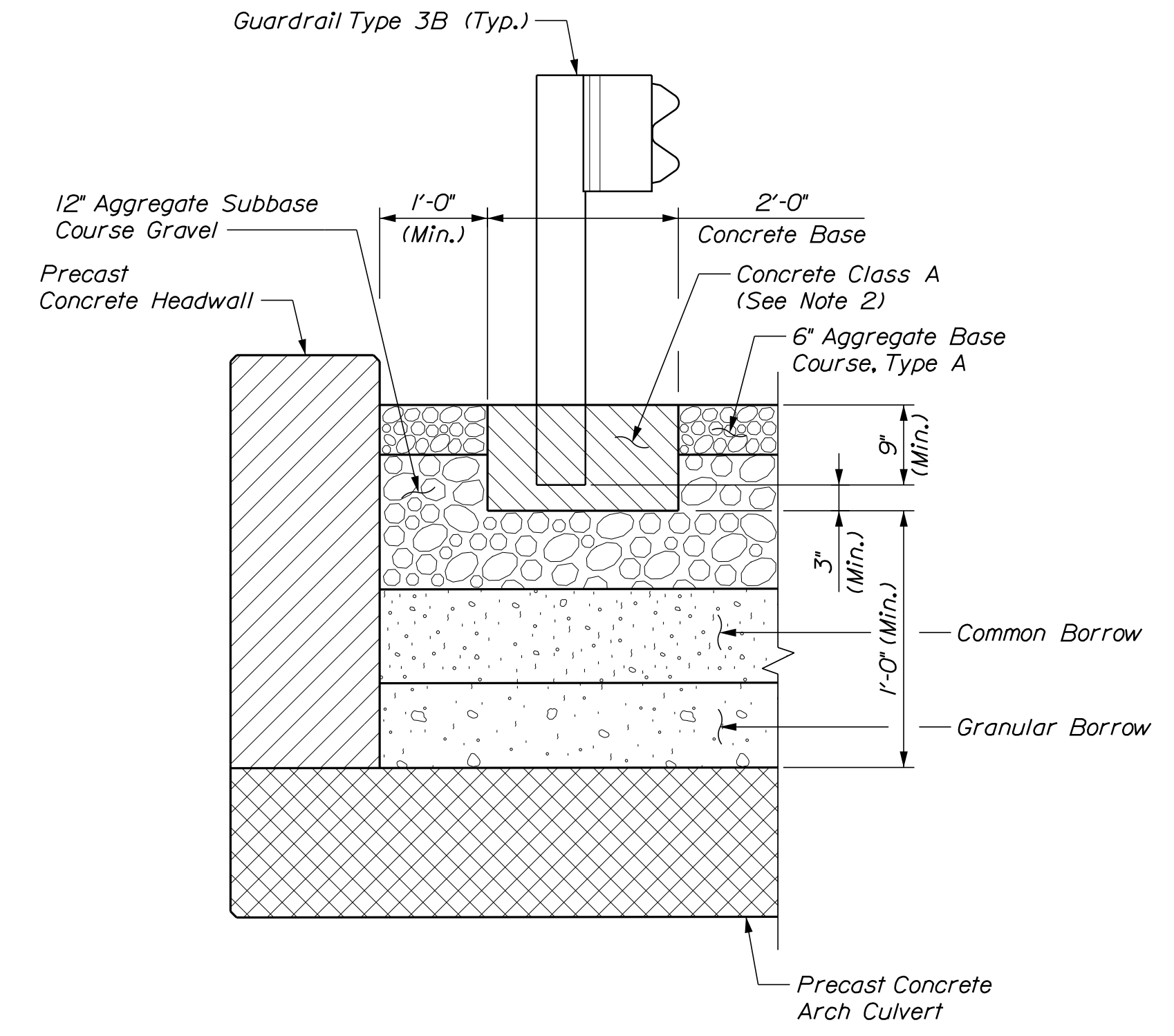
**WINGWALL NO. 1**  
Scale: 1/4" = 1'-0"



**WINGWALL NO. 2**  
Scale: 1/4" = 1'-0"



**TYPICAL WINGWALL SECTION**  
Not to Scale



**GUARDRAIL SECTION OVER ARCH**  
Not to Scale

**NOTES**

- Where guardrail posts conflict with the top of precast arch, posts shall be installed in accordance with MaineDOT Standard Detail 606(22).
- Payment for Concrete Class A will be considered incidental to the guardrail pay item.



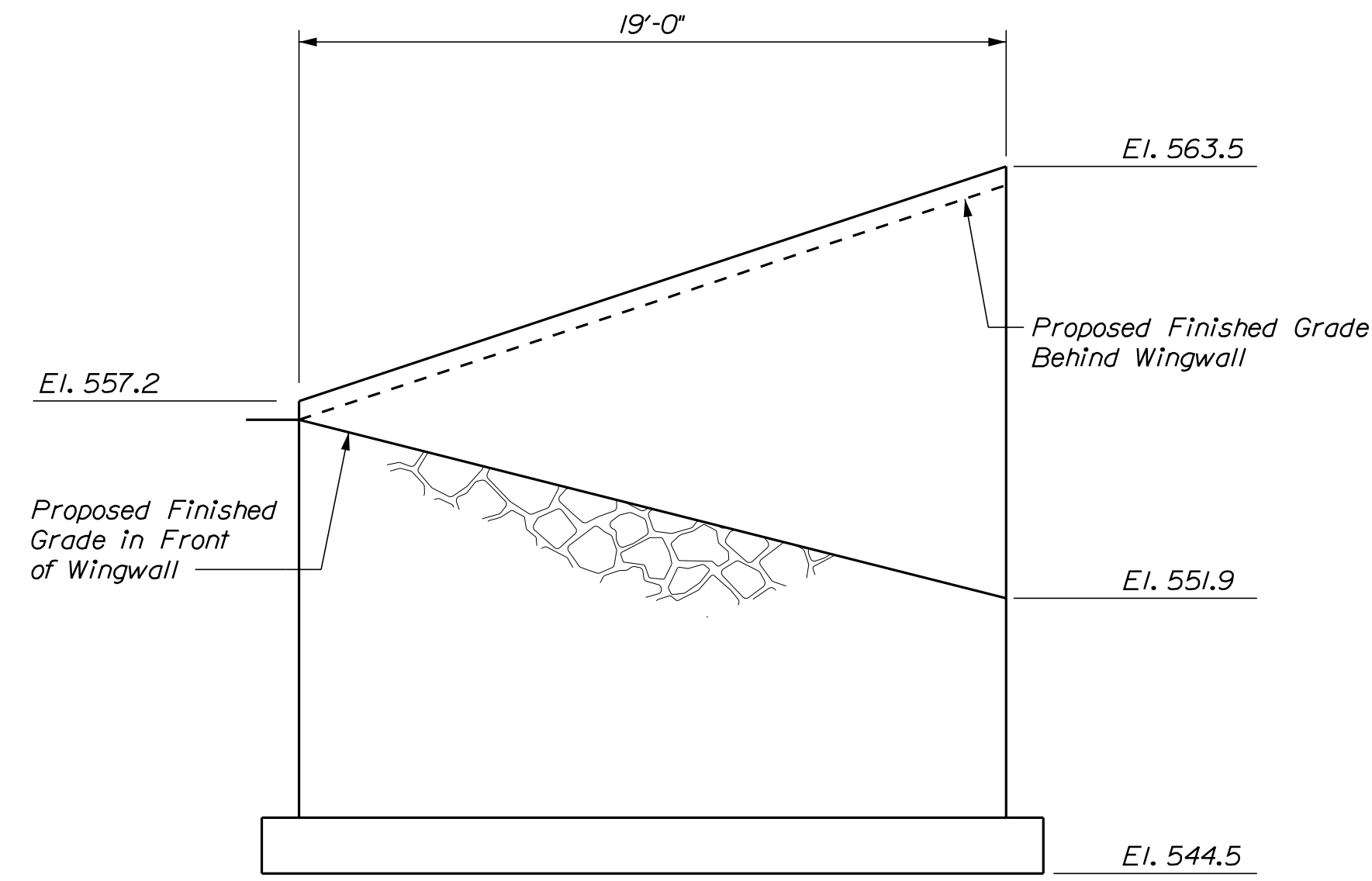
| PROJ. MANAGER    | AURELE          | CORNEAU | BY  | DATE   |
|------------------|-----------------|---------|-----|--------|
| DESIGN-DETAILED  | AMS             |         | BM  | 5/2023 |
| CHECKED-REVIEWED | LSC             |         | CSC | 5/2023 |
| DESIGN-DETAILED  | DESIGN-DETAILED |         |     |        |
| DESIGN-DETAILED  | DESIGN-DETAILED |         |     |        |
| REVISIONS        | 1               |         |     |        |
| REVISIONS        | 2               |         |     |        |
| REVISIONS        | 3               |         |     |        |
| REVISIONS        | 4               |         |     |        |
| FIELD CHANGES    |                 |         |     |        |

THOMAS BROOK BRIDGE  
MADAWASKA SUBDIVISION OVER THOMAS BROOK  
OAKFIELD AROOSTOOK COUNTY, ME  
**WINGWALL NO. 1 AND NO. 2**  
**DETAILS**

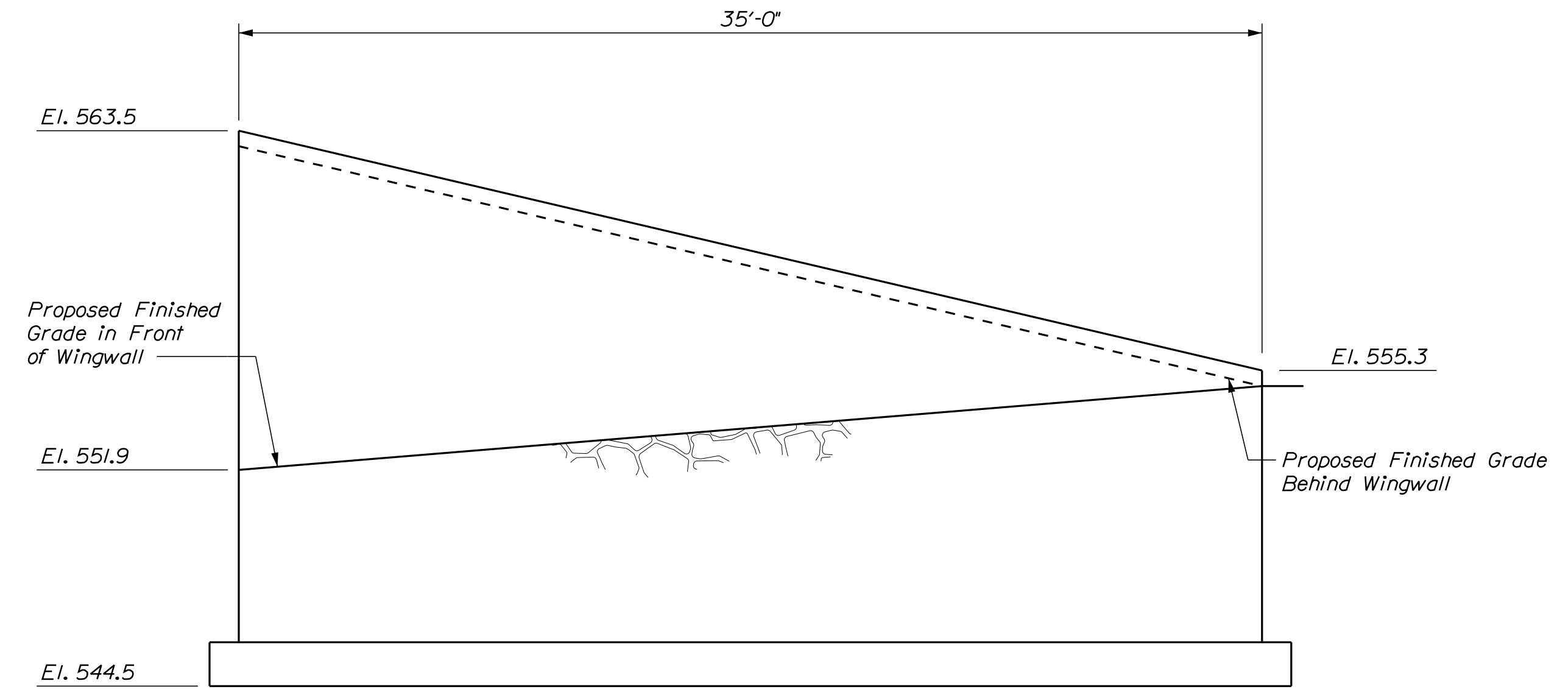
SHEET NUMBER

**16**

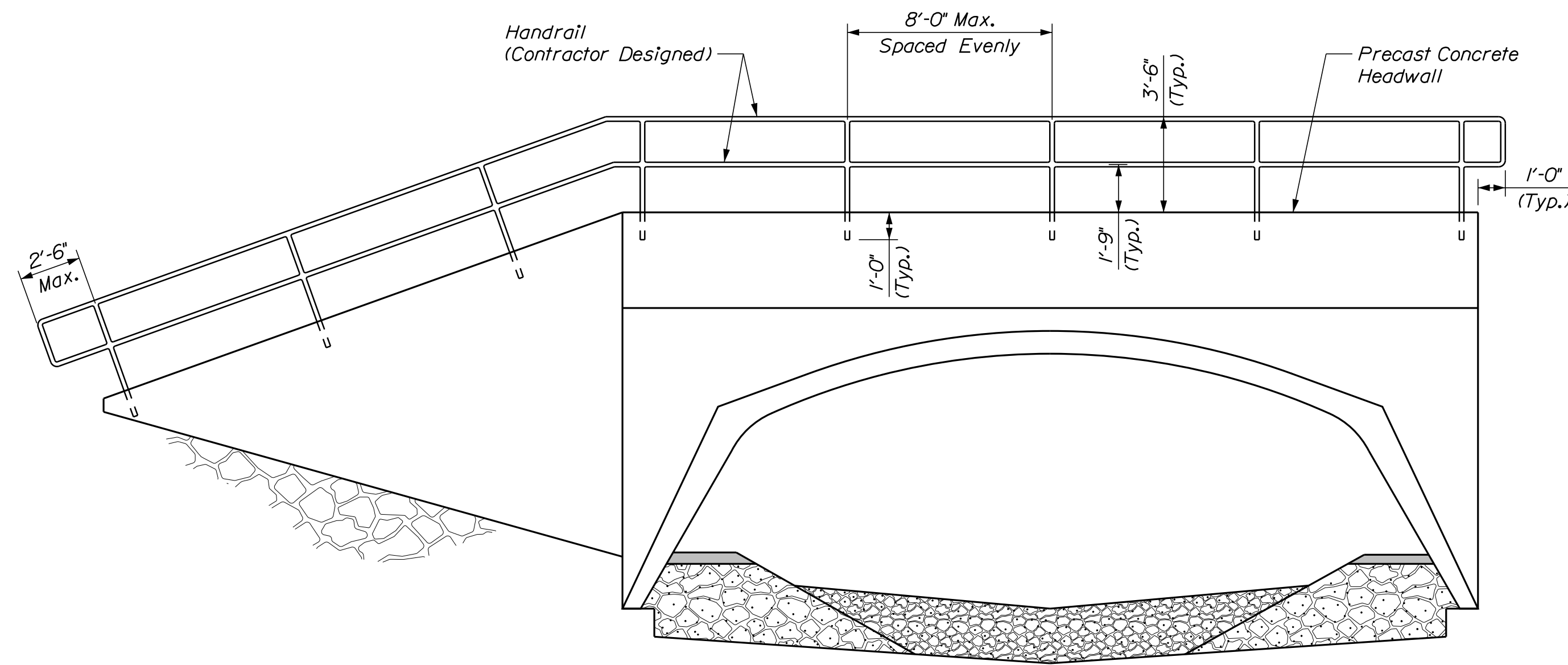
OF 20



**WINGWALL NO. 3**  
Scale: 1/4" = 1'-0"



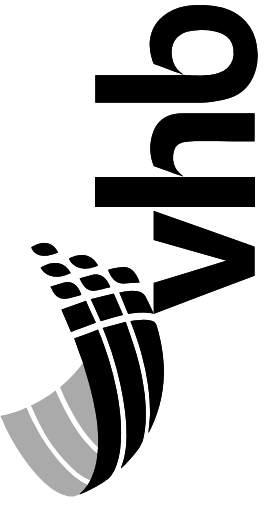
**WINGWALL NO. 4**  
Scale: 1/4" = 1'-0"



**INLET HANDRAIL DETAIL**  
(Wingwall No. 4 not Shown for Clarity)  
Scale: 1/4" = 1'-0"

**HANDRAIL NOTES**

1. Prior to fabrication, Working Drawings and calculations showing the proposed layout, size, and details of handrail and connections shall be submitted to the Resident.
2. Handrail shall be designed in accordance with Chapter 15, Section 8.5 of the 2022 American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering. All cost for design, fabrication, and installation shall be included in Item 507.0841.



STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7625  
WIN  
025177.00  
BRIDGE PLANS

| PROJ. MANAGER    | AURELE          | CORNEAU | BY  | DATE   |
|------------------|-----------------|---------|-----|--------|
| DESIGN-DETAILED  | AMS             |         | BM  | 5/2023 |
| CHECKED-REVIEWED | LSC             |         | CSC | 5/2023 |
| DESIGN-DETAILED  | DESIGN-DETAILED |         |     |        |
| DESIGN-DETAILED  | DESIGN-DETAILED |         |     |        |
| REVISIONS 1      |                 |         |     |        |
| REVISIONS 2      |                 |         |     |        |
| REVISIONS 3      |                 |         |     |        |
| REVISIONS 4      |                 |         |     |        |
| FIELD CHANGES    |                 |         |     |        |

THOMAS BROOK BRIDGE  
MADAWASKA SUBDIVISION OVER THOMAS BROOK  
OAKFIELD AROOSTOOK COUNTY, ME  
**WINGWALL NO. 3 AND NO. 4  
DETAILS**

SHEET NUMBER

17

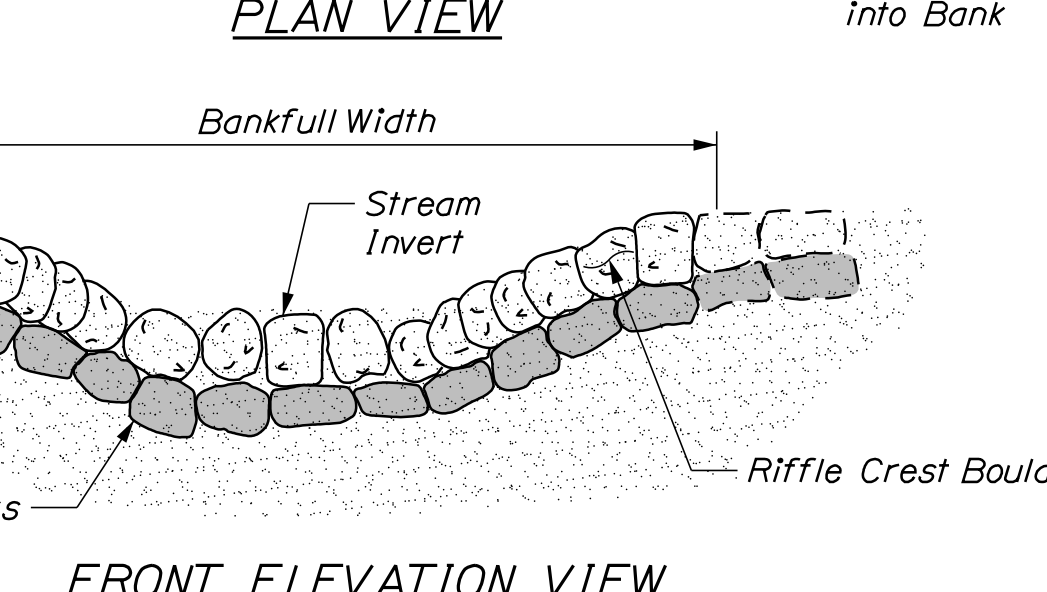
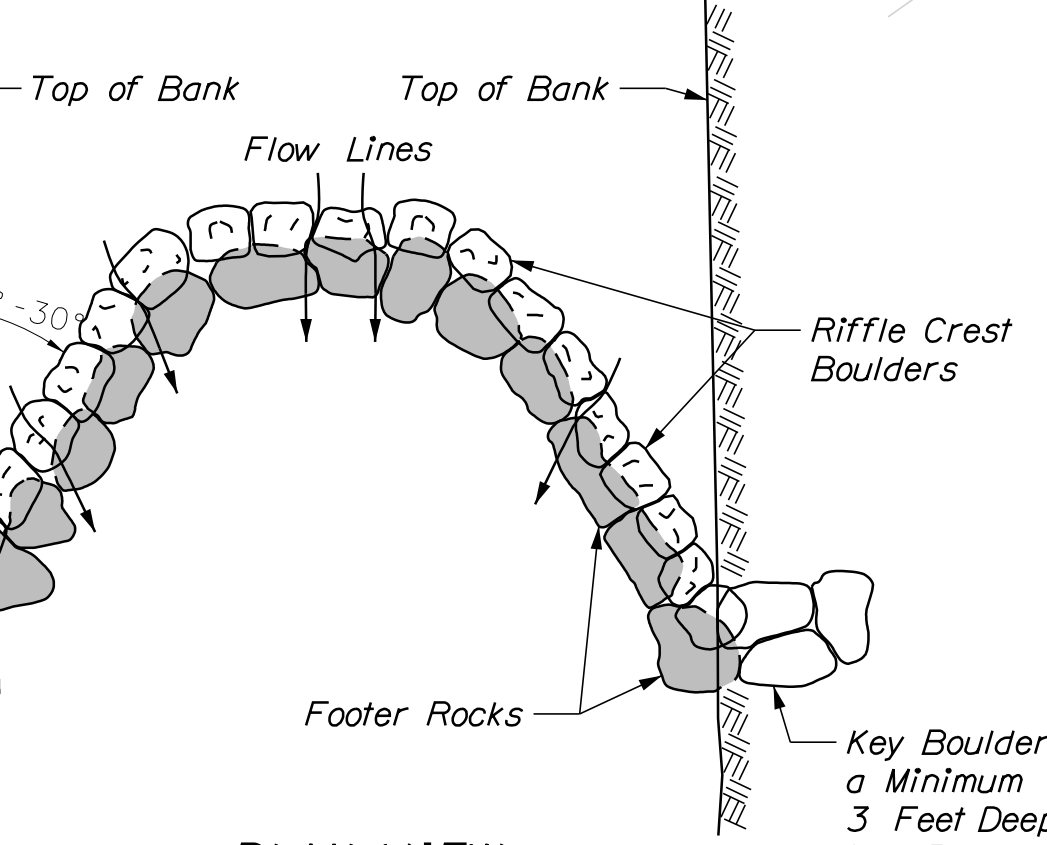
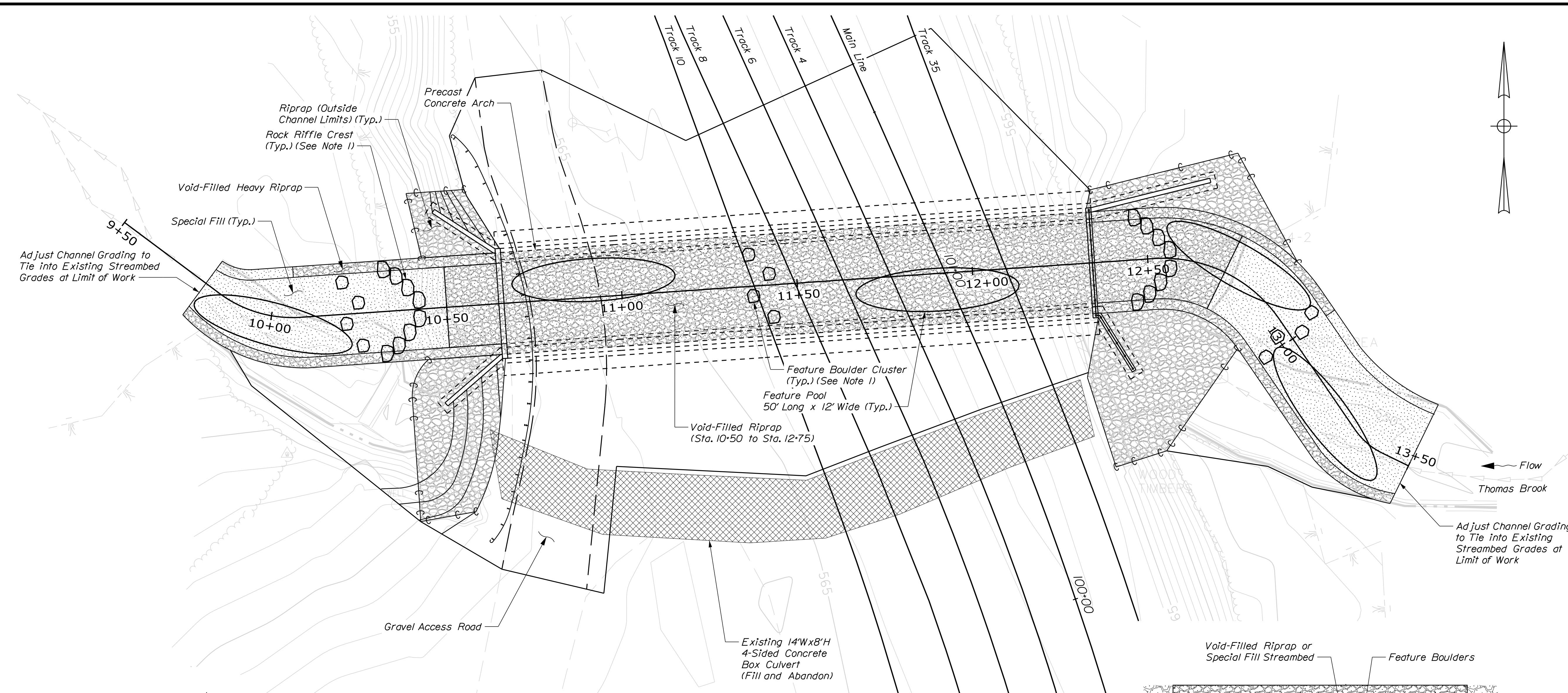
OF 20

Date: 5/16/2023

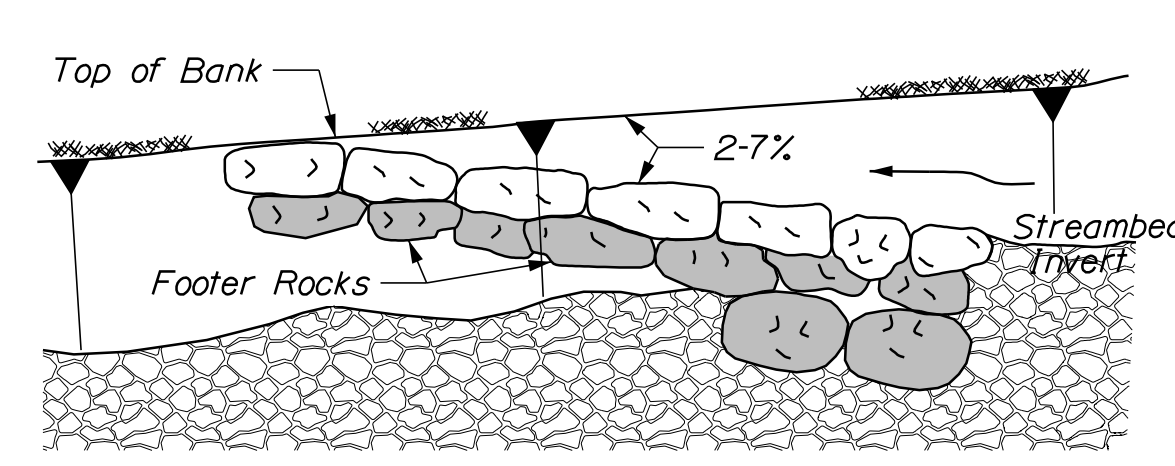
Username: BMasse

Division: HIGHWAY

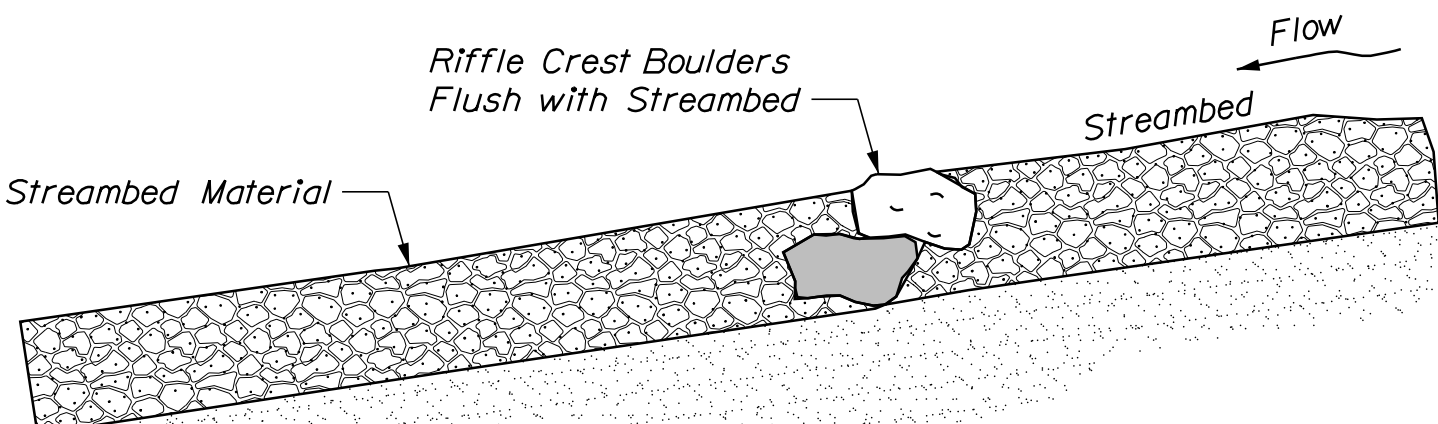
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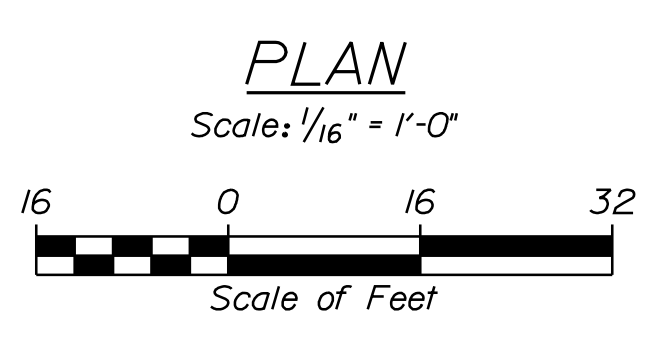
**RIFFLE CREST DETAIL**  
Not To Scale



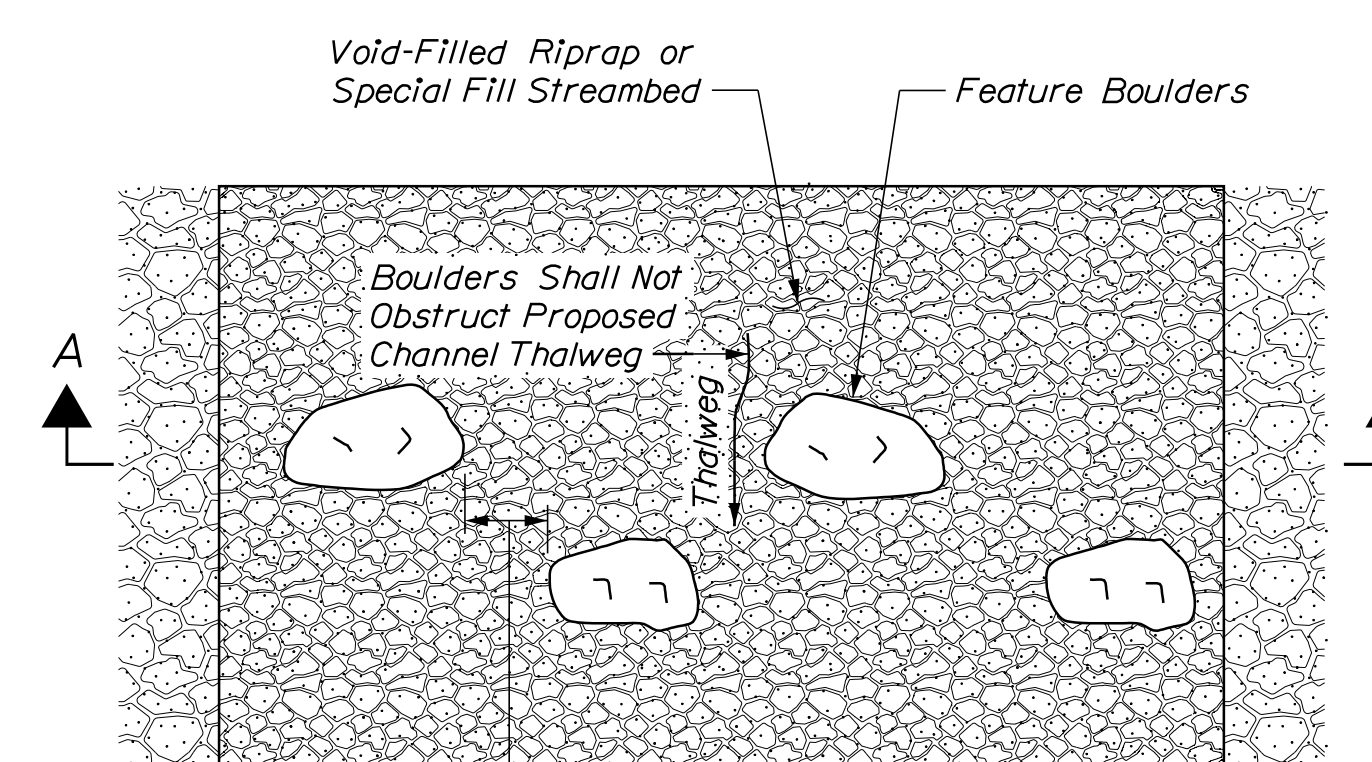
**PROFILE OF ARM**



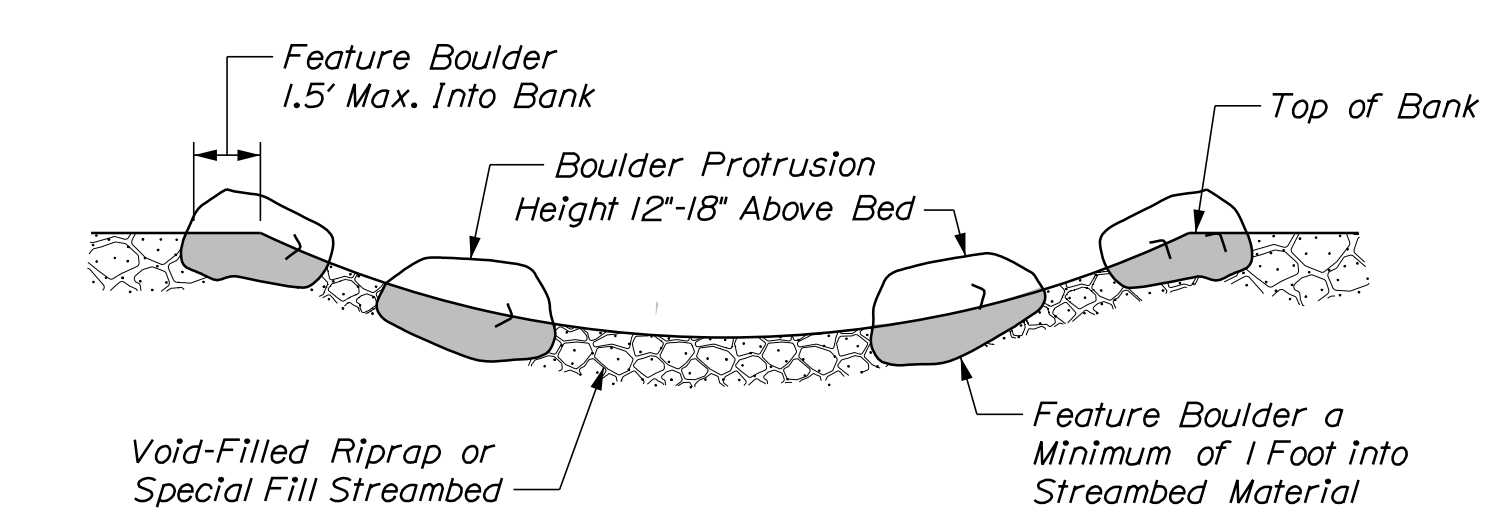
**PROFILE THROUGH CENTER OF RIFFLE CREST**



**NOTE**  
1. Feature boulders and riffle crest boulders shall be paid for under Item 610.212, Streambed Rock Features see 610 Special Provision.



**PLAN VIEW**



**SECTION A-A**

**FEATURE BOULDER CLUSTER**  
Not To Scale



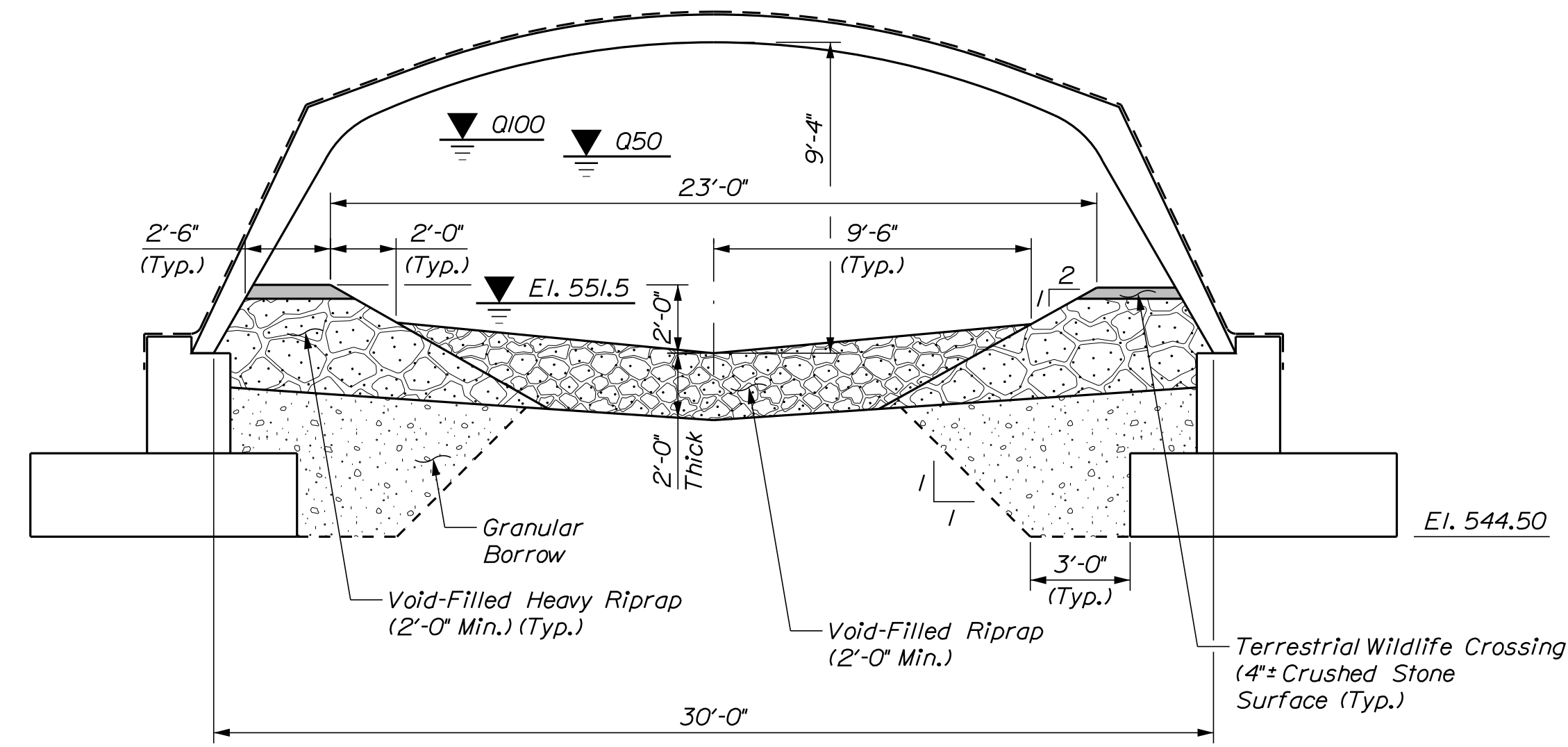
| DATE   | BY  | PROJ. MANAGER | AURELE | CORNEAU | DESIGN-DETAILED | CHKD | REVIEWED | DATE | REVISIONS | FIELD CHANGES |
|--------|-----|---------------|--------|---------|-----------------|------|----------|------|-----------|---------------|
| 5/2023 | BAM |               |        |         |                 |      |          |      | 1         |               |
| 5/2023 | CSC |               |        |         |                 |      |          |      | 2         |               |
|        |     |               |        |         |                 |      |          |      | 3         |               |
|        |     |               |        |         |                 |      |          |      | 4         |               |

Date: 5/16/2023

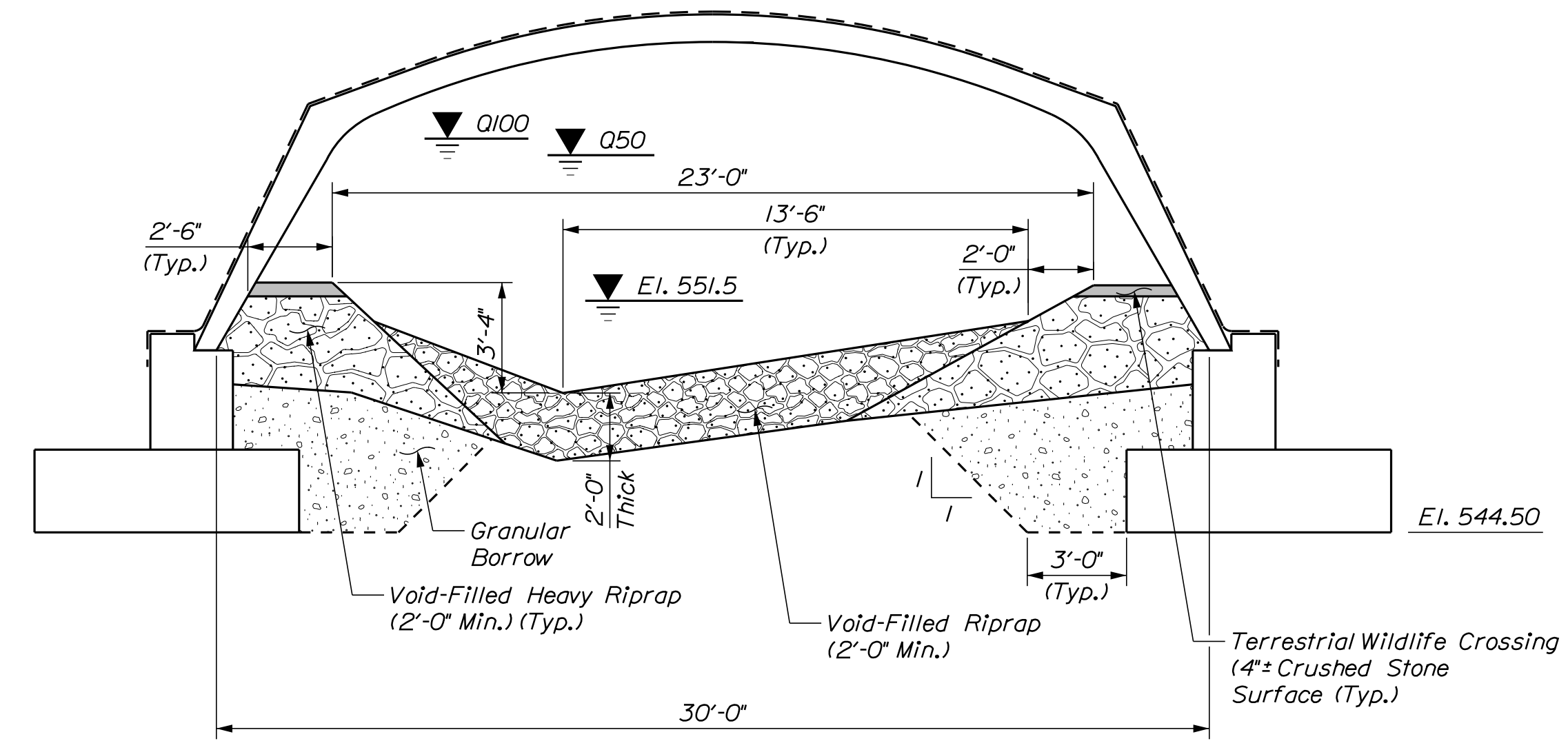
Username: BMasse

Division: HIGHWAY

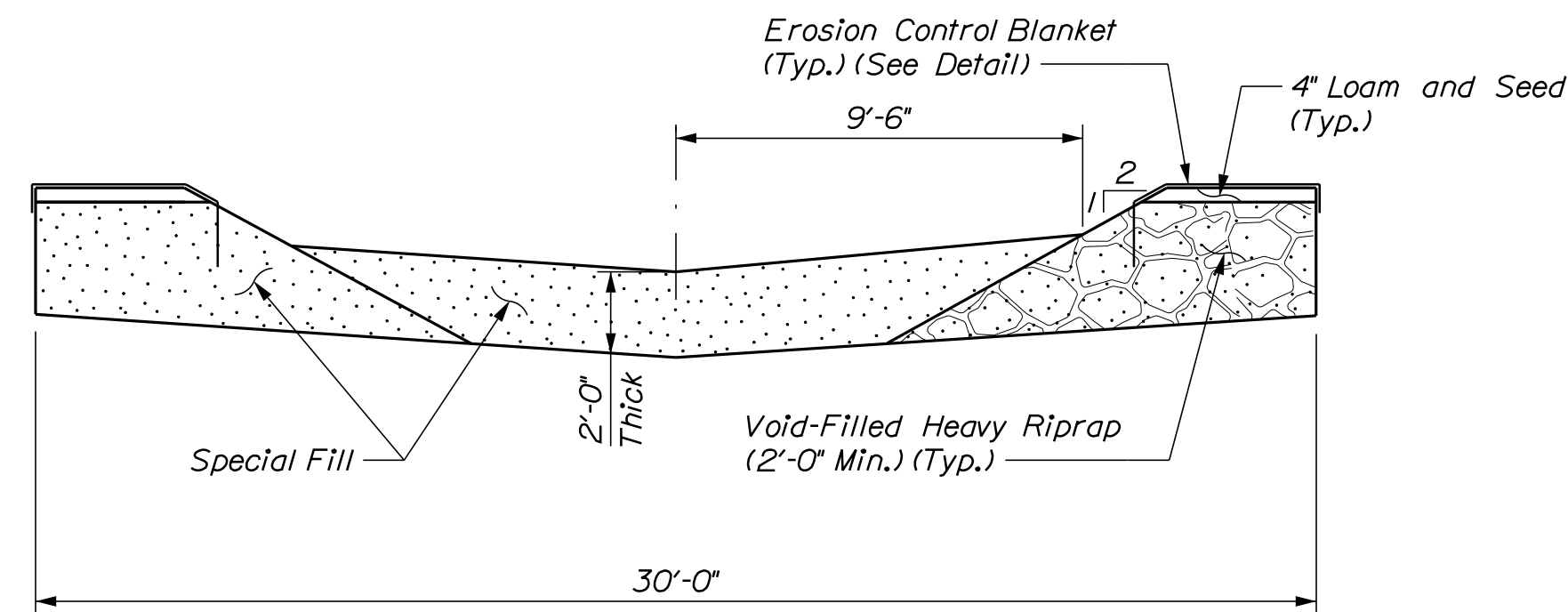
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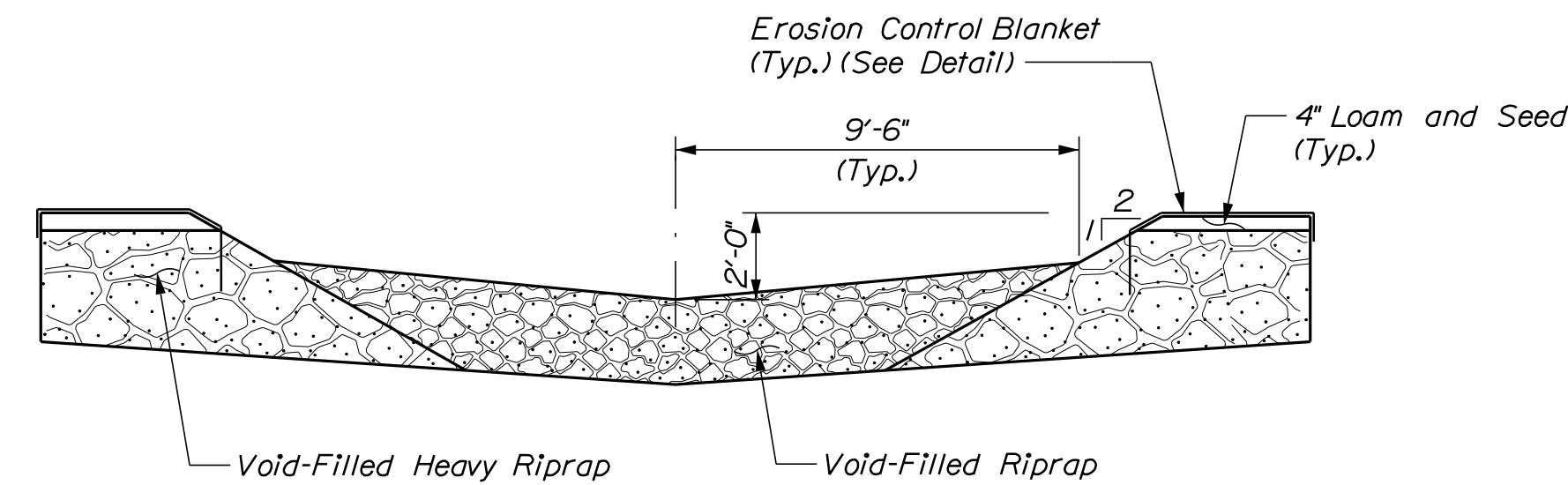
**TYPICAL CHANNEL SECTION WITHIN ARCH**  
Scale: 1/4" = 1'-0"



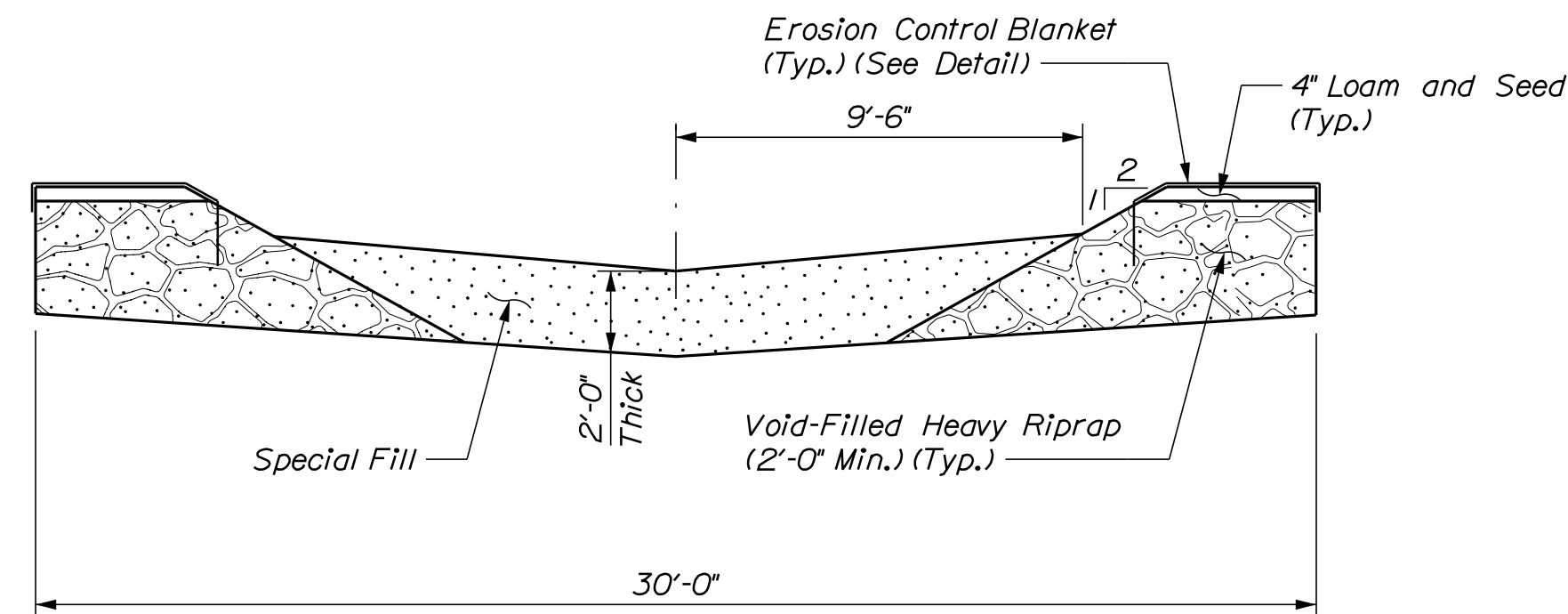
**FEATURE POOL SECTION**  
(Feature Pool Shown within Arch. Feature Pools Outside of Arch Limits have Similar Geometry)  
Scale: 1/4" = 1'-0"



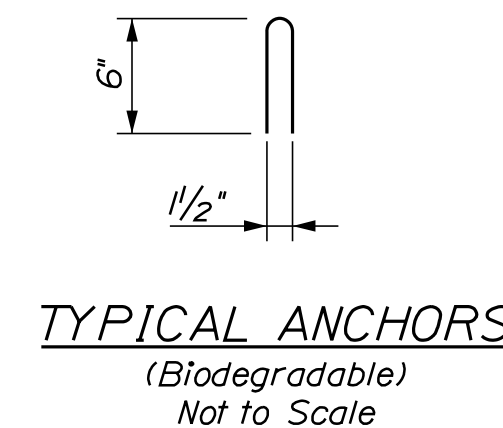
**CHANNEL SECTION OUTSIDE OF ARCH**  
(STA 9+80 TO 10+10 AND 13+00 TO 13+50)  
Scale: 1/4" = 1'-0"



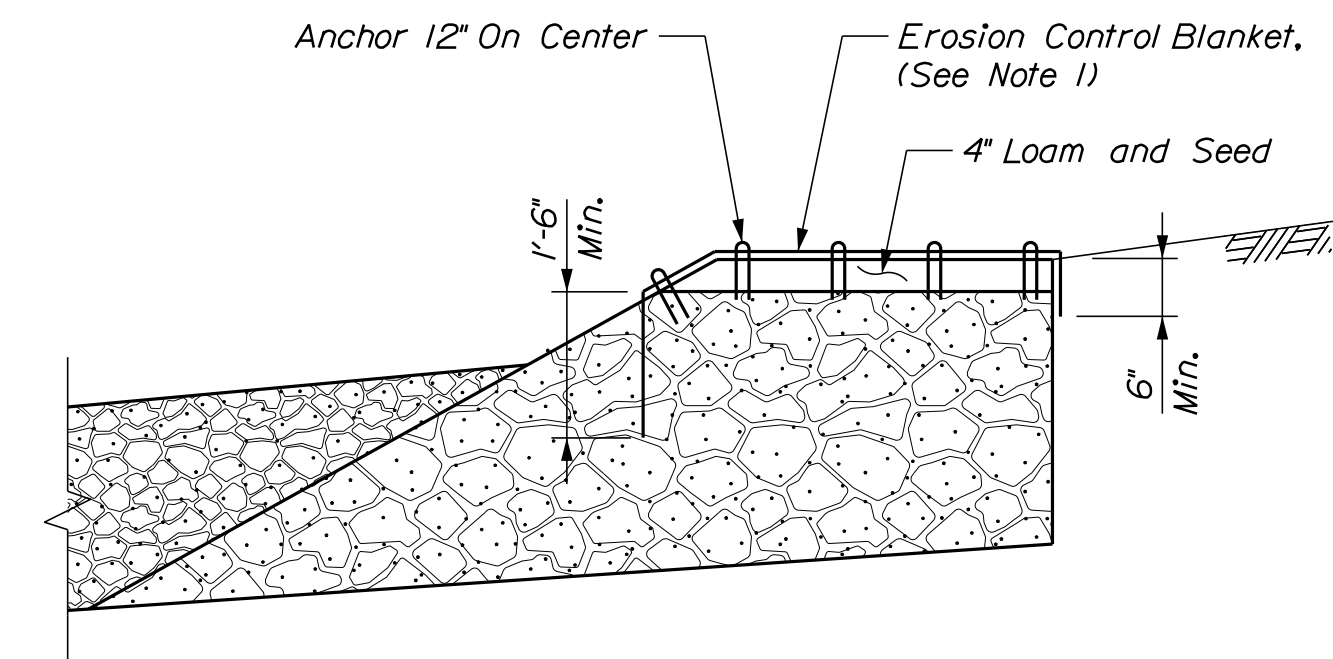
**CHANNEL SECTION OUTSIDE OF ARCH**  
(STA 10+50 TO 10+65 AND 12+35 TO 12+75)  
Scale: 1/4" = 1'-0"



**CHANNEL SECTION OUTSIDE OF ARCH**  
(STA 10+10 TO 10+50 AND 12+75 TO 13+00)  
Scale: 1/4" = 1'-0"



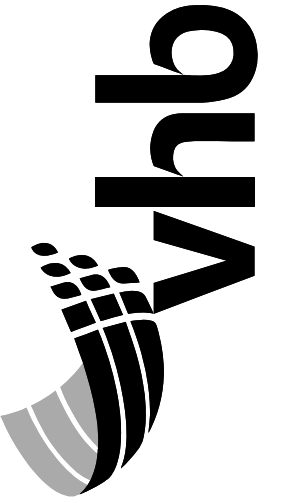
**TYPICAL ANCHORS**  
(Biodegradable)  
Not to Scale



**EROSION CONTROL BLANKET**  
Not to Scale

**NOTE**

1. Erosion Control Blankets shall be used in all areas where loam and seed are to be applied. Anchor blanket in a trench as shown. When blankets must be spliced, place upper blanket end over lower end with 6" min. overlap and anchor both together. Method of installation shall be per manufacturer's recommendation.



| DATE   | BY  | PROJ. MANAGER | AURELE | CORNEAU | DESIGN-DETAILED | CHECKED-REVIEWED | DATE   |
|--------|-----|---------------|--------|---------|-----------------|------------------|--------|
| 5/2023 | BM  |               |        |         |                 |                  | 5/2023 |
|        | CSC |               |        |         |                 |                  |        |
|        |     |               |        |         |                 |                  |        |
|        |     |               |        |         |                 |                  |        |
|        |     |               |        |         |                 |                  |        |
|        |     |               |        |         |                 |                  |        |
|        |     |               |        |         |                 |                  |        |
|        |     |               |        |         |                 |                  |        |
|        |     |               |        |         |                 |                  |        |
|        |     |               |        |         |                 |                  |        |

THOMAS BROOK BRIDGE  
MADAWASKA SUBDIVISION OVER THOMAS BROOK  
OAKFIELD AROOSTOOK COUNTY, ME  
STREAM RESTORATION (2 OF 2)

SHEET NUMBER

19

OF 20

Town, County, State \_\_\_\_\_  
 Approx. Property Lines \_\_\_\_\_  
 Existing Right of Way \_\_\_\_\_  
 Limits of Wrought Portion \_\_\_\_\_  
 Control Of Access \_\_\_\_\_  
 New Right of Way \_\_\_\_\_  
 New Easement \_\_\_\_\_  
 New Temporary Rights \_\_\_\_\_  
 New R/W Within Existing R/W \_\_\_\_\_

New R/W Along Existing R/W \_\_\_\_\_  
 Building \_\_\_\_\_  
 Trees Conifer \_\_\_\_\_  
 Tree Line \_\_\_\_\_  
 Water Edge \_\_\_\_\_  
 Ledge \_\_\_\_\_  
 Fence CHAIN LINK \_\_\_\_\_  
 Sign \_\_\_\_\_  
 Clearing Limit Line \_\_\_\_\_  
 Bush Line \_\_\_\_\_  
 Rock/Boulder \_\_\_\_\_  
 Barb Wire \_\_\_\_\_  
 Well \_\_\_\_\_  
 Flag Pole \_\_\_\_\_  
 Stockade \_\_\_\_\_  
 Mailbox \_\_\_\_\_

**PLAN LEGEND**

Existing Proposed

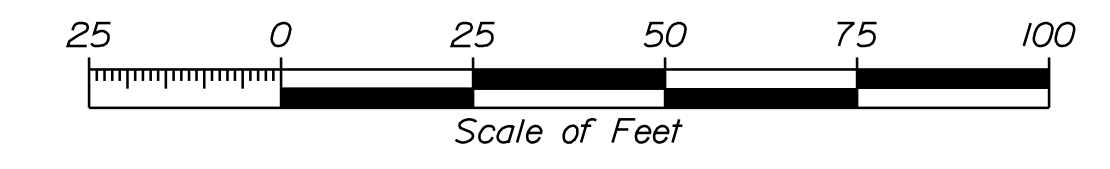
Sanitary Sewer \_\_\_\_\_  
 Telephone Line \_\_\_\_\_  
 Electric Line \_\_\_\_\_  
 Water Line \_\_\_\_\_  
 Underdrain Line \_\_\_\_\_  
 Gas Line \_\_\_\_\_  
 Guardrail \_\_\_\_\_  
 Culvert \_\_\_\_\_

Traveled Way \_\_\_\_\_  
 Ditch \_\_\_\_\_  
 Catch Basin \_\_\_\_\_  
 Manhole \_\_\_\_\_  
 Sewer Manhole \_\_\_\_\_  
 Utility Pole \_\_\_\_\_  
 Fire Hydrant \_\_\_\_\_  
 Curbing \_\_\_\_\_

Cut Line \_\_\_\_\_  
 Stonewall \_\_\_\_\_  
 Baseline \_\_\_\_\_  
 Monument \_\_\_\_\_  
 Iron Rod Found \_\_\_\_\_  
 Replacement Pin Set \_\_\_\_\_

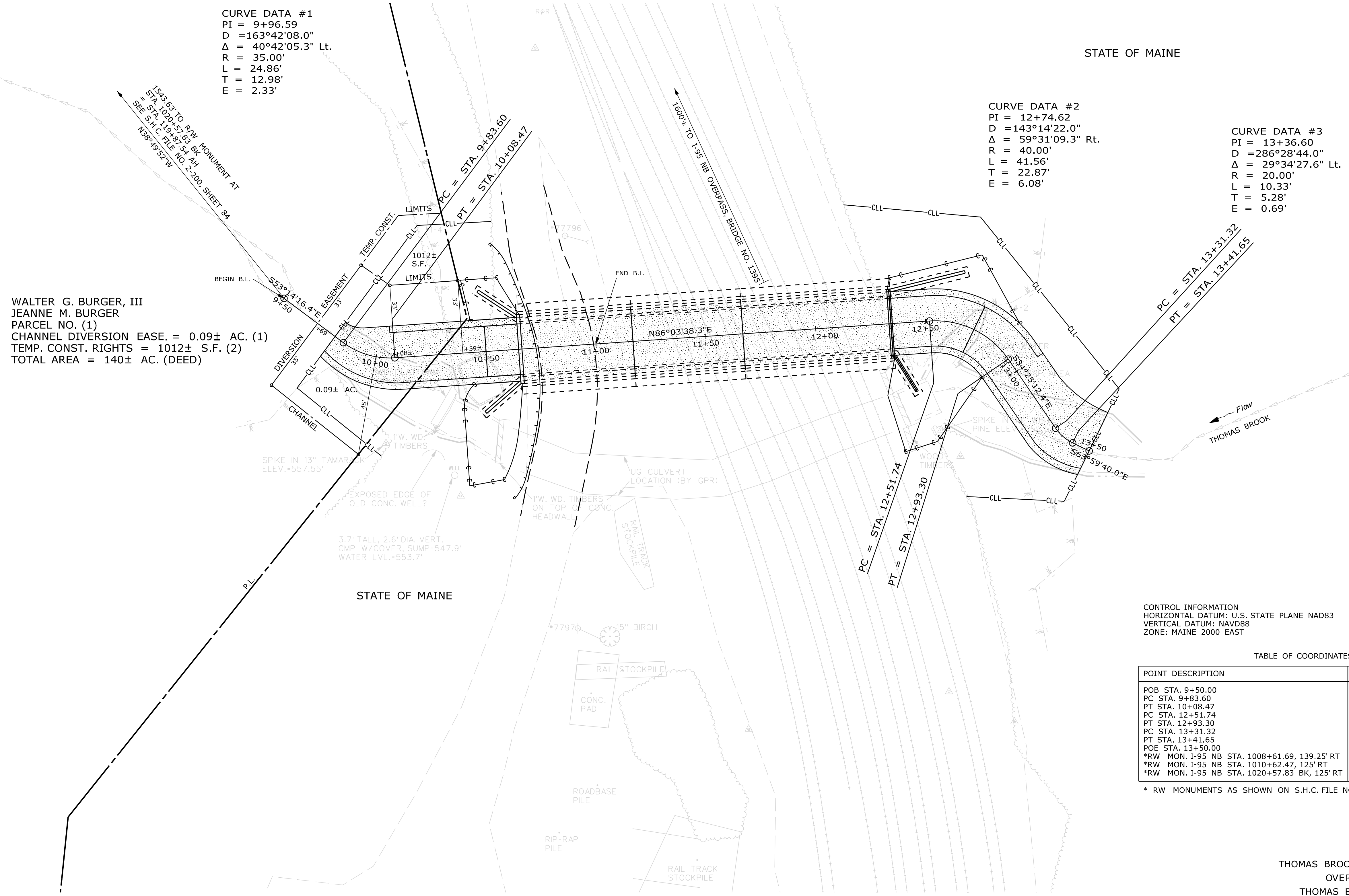
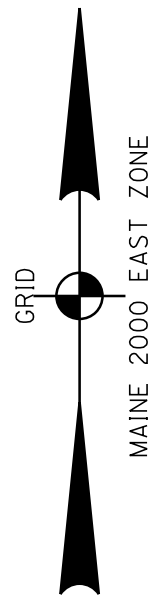
Fill Line \_\_\_\_\_  
 Retaining Wall \_\_\_\_\_  
 \_\_\_\_\_  
 Traverse Point \_\_\_\_\_  
 Pipe Found \_\_\_\_\_

THIS PLAN WAS PREPARED IN CONNECTION WITH THE DEPARTMENT'S ACQUISITION OF REAL PROPERTY FOR TRANSPORTATION PURPOSES. IT CANNOT BE USED TO ESTABLISH LEGAL BOUNDARIES BETWEEN ADJACENT PROPERTY OWNERS.



STATE OF MAINE  
 REGISTRY OF DEEDS

COUNTY \_\_\_\_\_  
 RECEIVED \_\_\_\_\_,  
 at \_\_\_\_\_ h \_\_\_\_\_ m \_\_\_\_\_ M and  
 recorded in Plan Bk \_\_\_\_\_, Pg. \_\_\_\_\_  
 Attest: \_\_\_\_\_ REGISTER



CONTROL INFORMATION  
 HORIZONTAL DATUM: U.S. STATE PLANE NAD83  
 VERTICAL DATUM: NAVD88  
 ZONE: MAINE 2000 EAST

TABLE OF COORDINATES

| POINT DESCRIPTION                            | NORTHING   | EASTING     |
|--|------------|-------------|
| POB STA. 9+50.00                             | 829711.096 | 2227400.699 |
| PC STA. 9+83.60                              | 829690.984 | 2227427.620 |
| PT STA. 10+08.47                             | 829684.106 | 2227450.972 |
| PC STA. 12+51.74                             | 829700.819 | 2227693.674 |
| PT STA. 12+93.30                             | 829683.524 | 2227729.419 |
| PC STA. 13+31.32                             | 829652.156 | 2227750.913 |
| PT STA. 13+41.65                             | 829645.486 | 2227758.642 |
| POE STA. 13+50.00                            | 829641.826 | 2227766.146 |
| *RW MON. I-95 NB STA. 1008+61.69, 139.25' RT | 830538.740 | 2225311.806 |
| *RW MON. I-95 NB STA. 1010+62.47, 125' RT    | 830620.913 | 2225493.298 |
| *RW MON. I-95 NB STA. 1020+57.83 BK, 125' RT | 830913.597 | 2226432.815 |

\* RW MONUMENTS AS SHOWN ON S.H.C. FILE NO. 2-200, SHEET 84

**PRELIMINARY PLAN**

| ITEM                    | TECH   | CHECKED |
|-------------------------|--------|---------|
| EXISTING CONDITION PLAN | B.M.D. | ---     |
| FINAL RIGHT OF WAY      | B.M.D. | ---     |
| AREAS                   | B.M.D. | ---     |

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 16 STATE HOUSE STATION - AUGUSTA, ME 04333-0016 - 207-624-3460  
 OAKFIELD  
 RIGHT OF WAY MAP

Date: 2/24/2023

Username: bdarron

Division: HIGHWAY

Filename: ... \ROW\MSTAN019\_RWP\ion.dgn

| REVISIONS |      |             | PLAN FILED IN PLAN BOOK |     |         |      | PAGE COUNTY RECORD |      |      |      |
|-----------|------|-------------|-------------------------|-----|---------|------|--------------------|------|------|------|
| NO.       | DATE | DESCRIPTION | BY                      | NO. | GRANTOR | PAGE | INSTRUMENT         | DATE | BOOK | PAGE |
|           |      |             |                         |     |         |      |                    |      |      |      |
|           |      |             |                         |     |         |      |                    |      |      |      |
|           |      |             |                         |     |         |      |                    |      |      |      |
|           |      |             |                         |     |         |      |                    |      |      |      |
|           |      |             |                         |     |         |      |                    |      |      |      |
|           |      |             |                         |     |         |      |                    |      |      |      |
|           |      |             |                         |     |         |      |                    |      |      |      |

BRUCE A. VAN NOTE  
 COMMISSIONER  
 JOYCE NOEL TAYLOR  
 CHIEF ENGINEER

DATE \_\_\_\_\_

MADAWASKA SUBDIVISION  
 M.P. 149.42  
 OAKFIELD AROOSTOOK COUNTY  
 STATE PROJECT NO. 025177.00

MAY 2023  
 SCALE 1" = 25'

RIGHT-OF-WAY MAP  
 SHEET 1 OF 1

D.O.T. FILE NO. 2-644

SHEET NUMBER  
**20**  
 OF 20