

---

Notice of Intent

# MassDOT Municipal Bridge Improvements Program: Old Westfield Road over Hollister Brook (Bridge No. G-10-013) Granville, Massachusetts

PREPARED FOR

Town of Granville  
707 Main Road  
Granville, MA 01034

PREPARED BY



101 Walnut Street  
PO Box 9151  
Watertown, MA 02471  
617.924.1770

OCTOBER 2021



October 6, 2021

Ref: 14641.00

Granville Conservation Commission  
707 Main Road  
PO Box 247  
Granville, MA 01034

ATTN: Chairman Leon Ripley

Re: **Notice of Intent:**  
**MassDOT Municipal Bridge Improvements Program: Old Westfield Road over Hollister Brook (G-10-013)**  
**Granville, Massachusetts**

Dear Chairman Ripley and Commission Members:

On behalf of the Town of Granville Highway Department (the Applicant), VHB, Inc. is submitting the attached Notice of Intent (NOI) for proposed improvements on the existing bridge (the Project) on Old Westfield Road over Hollister Brook (G-10-013) in Granville, Massachusetts. This NOI is being filed under the Massachusetts Wetlands Protection Act, MGL c.131, §40 (WPA) and its implementing regulations, 310 CMR 10.00. The proposed Project work consists of Proposed work consists of rehabilitating the bridge structure, including installing a new superstructure, repairing abutments and wingwalls, installing crash tested barriers and approach guardrails, and planting vegetation to provide slope stabilization above Hollister Brook. The full scope of work is described in the attached Notice of Intent Narrative.

The Project will require work within areas subject to jurisdiction under the WPA. Work will be required in the 200-foot Riverfront Area associated with Hollister Brook for grading and repaving work as well as for repairs to the bridge superstructure. The Riverfront Area in the Project Limits is previously degraded from its natural state and consists entirely of the existing roadway and associated shoulders. The nature of the work and location of the bridge over perennial waterways makes these temporary resource impacts unavoidable. The Project has been designed to minimize impacts to wetland resources. Areas of temporary disturbance will be restored to their original condition upon completion of the Project.

In accordance with the WPA, a suite of mitigation measures is proposed for impacts to wetland resource areas. During construction, erosion controls will be installed to protect adjacent resources. To facilitate construction and help expedite the work, traffic may be detoured during the duration of the Project. On behalf of the Applicant, we respectfully request that the

101 Walnut Street  
PO Box 9151  
Watertown, Massachusetts 02471  
P 617.924.1770  
F 617.924.2286

**Engineers | Scientists | Planners | Designers**



Commission find the proposed Project adequately protective of the interests identified in the WPA and issue an Order of Conditions.

In compliance with the WPA and the Bylaw, notification to abutters regarding this NOI has been made by certified return receipt mail. A copy of the abutter notification form and a certified list of abutters are enclosed as part of the NOI.

As a municipally sponsored project, the Town is not subject to the WPA fees, so no application fees are attached. Abutters have been notified of the upcoming public hearing by return receipt mail.

Please advertise this matter for public hearing at the Commission's next scheduled meeting. Should you have any questions concerning this submittal, or require additional information please contact me at 617.607.1019.

Sincerely,

A handwritten signature in black ink that reads "Daniel M. Cannata". The signature is written in a cursive, slightly slanted style.

Dan Cannata  
Environmental Scientist

Attachment: Notice of Intent- MassDOT Municipal Bridge Improvements Program: Old Westfield Road over Hollister Brook (G-10-013)

CC: DEP Western Regional Office (filed electronically via eNOI)  
Doug Roberts, Town of Granville



## Table of Contents

### Notice of Intent Forms

- WPA Form 3
- NOI Wetland Fee Transmittal Form

### Notice of Intent Figures

- Figure 1 – USGS Locus
- Figure 2 – Aerial Map
- Figure 3 – NHESP Map
- Figure 4 – FEMA FIRM Map

### **Attachment A - Notice of Intent Narrative ..... 1**

Introduction .....	1
Site Description .....	1
Wetland Resource Areas.....	2
Work Description .....	4
Mitigation Measures.....	5
Regulatory Compliance .....	7
Summary .....	11

### **Attachment B- Abutter Information**

### **Attachment C- Project Plans- Bound Separately**



---

## Notice of Intent Forms

- › WPA Form 3
- › NOI Wetland Fee Transmittal Form

Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1159347
City/Town:GRANVILLE

A.General Information

1. Project Location:

a. Street Address OLD WESTFIELD ROADWAY LAYOUT
b. City/Town GRANVILLE c. Zip Code 01034
d. Latitude 42.10080N e. Longitude 72.85563W
f. Map/Plat # N/A g.Parcel/Lot # N/A

2. Applicant:

Individual Organization

a. First Name DOUGLAS b.Last Name ROBERTS
c. Organization TOWN OF GRANVILLE
d. Mailing Address 707 MAIN ROAD
e. City/Town GRANVILLE f. State MA g. Zip Code 01034
h. Phone Number i. Fax j. Email

3.Property Owner:

more than one owner

a. First Name b. Last Name
c. Organization TOWN OF GRANVILLE
d. Mailing Address 707 MAIN ROAD
e. City/Town GRANVILLE f.State MA g. Zip Code 01034
h. Phone Number i. Fax j.Email

4.Representative:

a. First Name DANIEL b. Last Name CANNATA
c. Organization VHB INC.
d. Mailing Address 101 WALNUT STREET
e. City/Town WATERTOWN f. State MA g. Zip Code 02471
h.Phone Number 617-607-1019 i.Fax j.Email dcannata@vhb.com

5.Total WPA Fee Paid (Automatically inserted from NOI Wetland Fee Transmittal Form):

a.Total Fee Paid 0.00 b.State Fee Paid 0.00 c.City/Town Fee Paid 0.00

6.General Project Description:

PROPOSED WORK CONSISTS OF REHABILITATING THE BRIDGE STRUCTURE, INCLUDING INSTALLING A NEW SUPERSTRUCTURE, REPAIRING ABUTMENTS AND WINGWALLS, INSTALLATION OF CRASH TESTED BARRIERS AND APPROACH GUARDRAILS. NO HORIZONTAL CHANGES TO THE ROADWAY ARE PROPOSED.

7a.Project Type:

- 1. Single Family Home 2. Residential Subdivision
3. Limited Project Driveway Crossing 4. Commercial/Industrial
5. Dock/Pier 6. Utilities
7. Coastal Engineering Structure 8. Agriculture (eg., cranberries, forestry)
9. Transportation 10. Other



**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 3 - Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
 MassDEP File #:  
 eDEP Transaction #:1159347  
 City/Town:GRANVILLE

- a. total square feet      b. square feet within 100 ft.      c. square feet between 100 ft. and 200 ft.

5. Has an alternatives analysis been done and is it attached to this NOI?  Yes  No  
 6. Was the lot where the activity is proposed created prior to August 1, 1996?  Yes  No

**3.Coastal Resource Areas: (See 310 CMR 10.25 - 10.35)**

Resource Area      Size of Proposed Alteration      Proposed Replacement (if any)

a. <input type="checkbox"/> Designated Port Areas	Indicate size under	Land under the ocean below,
b. <input type="checkbox"/> Land Under the Ocean	1. square feet	
	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes, below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	1. square feet	2. cubic yards dune nourishment
f. <input type="checkbox"/> Coastal Banks	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet	
h. <input type="checkbox"/> Salt Marshes	1. square feet	2. sq ft restoration, rehab, crea.
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet	
	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet	

**4.Restoration/Enhancement**

Restoration/Replacement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please entered the additional amount here.

- a. square feet of BVW      b. square feet of Salt Marsh



□ **Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 3 - Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
MassDEP File #:  
eDEP Transaction #:1159347  
City/Town:GRANVILLE

5. Projects Involves Stream Crossings

Project Involves Streams Crossings

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

**C. Other Applicable Standards and Requirements**

**Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review**

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage of Endangered Species program (NHESP)?

a.  Yes  No

If yes, include proof of mailing or hand delivery of NOI to:  
Natural Heritage and Endangered Species  
Program  
Division of Fisheries and Wildlife  
1 Rabbit Hill Road  
Westborough, MA 01581

b. Date of map: FROM MAP VIEWER

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18)...

c. Submit Supplemental Information for Endangered Species Review \* (Check boxes as they apply)

1.  Percentage/acreage of property to be altered:

(a) within Wetland Resource Area percentage/acreage

(b) outside Resource Area percentage/acreage

2.  Assessor's Map or right-of-way plan of site

3.  Project plans for entire project site, including wetland resource areas and areas outside of wetland jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work \*\*

a.  Project description (including description of impacts outside of wetland resource area & buffer zone)

b.  Photographs representative of the site

c.  MESA filing fee (fee information available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/mass-endangered-species-act-mesa/mesa-fee-schedule.html>)

Make check payable to "Natural Heritage & Endangered Species Fund" and **mail to NHESP** at above address

*Projects altering 10 or more acres of land, also submit:*

d.  Vegetation cover type map of site

e.  Project plans showing Priority & Estimated Habitat boundaries

d. OR Check One of the following

1.  Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <http://www.mass.gov/eea/agencies/dfg/dfw/laws-regulations/cmr/321-cmr-1000-massachusetts-endangered-species-act.html#10.14>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2.  Separate MESA review ongoing.

□ **Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 3 - Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
MassDEP File #:  
eDEP Transaction #:1159347  
City/Town:GRANVILLE

a. NHESP Tracking Number

b. Date submitted to NHESP

3.  Separate MESA review completed.

Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

\* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review...

2. For coastal projects only, is any portion of the proposed project located below the mean high waterline or in a fish run?

a.  Not applicable - project is in inland resource area only

b.  Yes  No

If yes, include proof of mailing or hand delivery of NOI to either:

South Shore - Cohasset to Rhode Island, and the Cape & Islands:

North Shore - Hull to New Hampshire:

Division of Marine Fisheries -  
Southeast Marine Fisheries Station  
Attn: Environmental Reviewer  
836 S. Rodney French Blvd  
New Bedford, MA 02744

Division of Marine Fisheries -  
North Shore Office  
Attn: Environmental Reviewer  
30 Emerson Avenue  
Gloucester, MA 01930

If yes, it may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional office.

3. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

a.  Yes  No

If yes, provide name of ACEC (see instructions to WPA Form 3 or DEP Website for ACEC locations). **Note:** electronic filers click on Website.

b. ACEC Name

4. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

a.  Yes  No

5. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L.c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L.c. 130, § 105)?

a.  Yes  No

6. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

a.  Yes, Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook  Vol.2, Chapter 3)

2.  A portion of the site constitutes redevelopment

3.  Proprietary BMPs are included in the Stormwater Management System

b.  No, Explain why the project is exempt:

Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 3 - Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1159347
City/Town:GRANVILLE

- 1. Single Family Home
2. Emergency Road Repair
3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department by regular mail delivery.

- 1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site.
2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.
3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s).
4. List the titles and dates for all plans and other materials submitted with this NOI.

a. Plan Title: b. Plan Prepared By: c. Plan Signed/Stamped By: c. Revised Final Date: e. Scale:

PLAN AND PROFILE OF OLD WESTFIELD ROAD (BRIDGE NO. G-10-013) IN THE TOWN OF GRANVILLE HAMPDEN COUNTY

NS

JT

7/26/2021

1"=20'

- 5. If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. Attach NOI Wetland Fee Transmittal Form.
9. Attach Stormwater Report, if needed.

**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands  
**WPA Form 3 - Notice of Intent**  
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
MassDEP File #:  
eDEP Transaction #:1159347  
City/Town:GRANVILLE

**E. Fees**

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

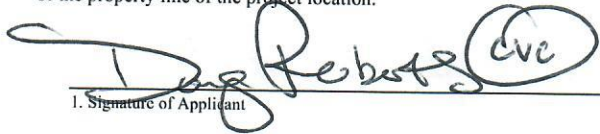
N/A- Municipal Project- Fee Exempt

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 2. Municipal Check Number          | 3. Check date                     |
| 4. State Check Number              | 5. Check date                     |
| 6. Payer name on check: First Name | 7. Payer name on check: Last Name |

**F. Signatures and Submittal Requirements**

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

  
1. Signature of Applicant

10/4/2021  
2. Date

3. Signature of Property Owner(if different)



4. Date

10/5/2021

5. Signature of Representative (if any)

6. Date

**For Conservation Commission:**

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

**For MassDEP:**

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a copy of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

**Other:**

If the applicant has checked the "yes" box in Section C, Items 1-3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

**Massachusetts Department of Environmental Protection**  
 Bureau of Resource Protection - Wetlands  
**WPA Form 3 - Notice of Wetland Fee Transmittal**  
**Form**  
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
 MassDEP File #:  
 eDEP Transaction #:1159347  
 City/Town:GRANVILLE

**A. Applicant Information**

**1. Applicant:**

a. First Name	DOUGLAS	b. Last Name	ROBERTS
c. Organization	TOWN OF GRANVILLE		
d. Mailing Address	707 MAIN ROAD		
e. City/Town	GRANVILLE	f. State	MA
		g. Zip Code	01034
h. Phone Number		i. Fax	
		j. Email	

**2. Property Owner:(if different)**

a. First Name		b. Last Name	
c. Organization	TOWN OF GRANVILLE		
d. Mailing Address	707 MAIN ROAD		
e. City/Town	GRANVILLE	f. State	MA
		g. Zip Code	01034
h. Phone Number		i. Fax	
		j. Email	

**3. Project Location:**

a. Street Address	OLD WESTFIELD ROADWAY LAYOUT	b. City/Town	GRANVILLE
-------------------	------------------------------	--------------	-----------

Are you exempted from Fee?  (YOU HAVE SELECTED 'YES')

**Note:** Fee will be exempted if you are one of the following:

- City/Town/County/District
- Municipal Housing Authority
- Indian Tribe Housing Authority
- MBTA

State agencies are only exempt if the fee is less than \$100

**B. Fees**

Activity Type	Activity Number	Activity Fee	RF Multiplier	Sub Total
		City/Town share of filling fee	State share of filing fee	Total Project Fee
		\$0.00	\$0.00	\$0.00



---

## Notice of Intent Figures



- › Figure 1 – USGS Locus
- › Figure 2 – Aerial Map
- › Figure 3 – NHESP Map
- › Figure 4 – FEMA FIRM



\\vhb\proj\Wat-TE\14641.00 Granville Bridge Improve\tech\NOI- GIS Temp\Figure1-USGS.mxd



**Municipal Bridge Improvement Program | Granville, MA**

-  Project Limits- Bridge G-10-013
-  Town Boundaries

**Figure 1: Project Locus  
Notice of Intent  
October 2021**

Source: MassGIS



\\vhb\gbl\proj\Wat-TE\14641.00 Granville Bridge Improve\tech\NOI- GIS Temp\Figure2-Aerial.mxd



**Municipal Bridge Improvement Program | Granville, MA**

 Project Limits- Bridge G-10-013

**Figure 2: Aerial Map  
Notice of Intent  
October 2021**








\\vhb\gbl\proj\Wat-TE\14641.00 Granville Bridge Improve\tech\NOI- GIS Temp\Figure3-NHESP.mxd



**Municipal Bridge Improvement Program | Granville, MA**

-  Project Limits- Bridge G-10-013
-  NHESP Priority Habitats of Rare Species
-  NHESP Estimated Habitats of Rare Wildlife (Not Present)

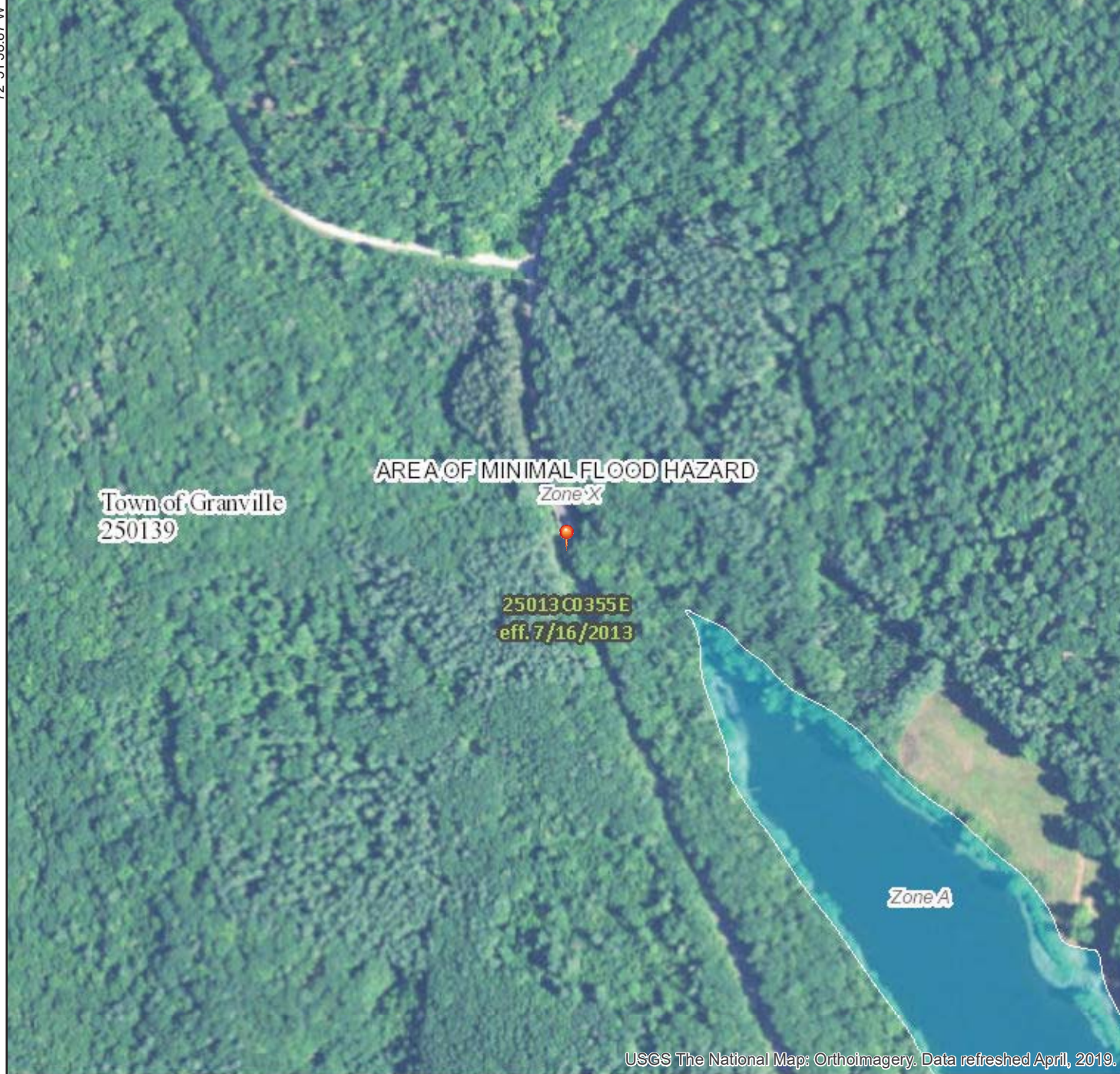
**Figure 3: NHESP Map  
Notice of Intent  
October 2021**

# National Flood Hazard Layer FIRMette



Figure 4

42°6'15.22"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Profile Baseline
		Hydrographic Feature

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/11/2019 at 4:56:15 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



USGS The National Map: Orthoimagery. Data refreshed April, 2019.



---

# Attachment A

## Notice of Intent Narrative

- › Introduction
- › Site Description
- › Work Description
- › Mitigation Measures
- › Regulatory Compliance
- › Summary



## Attachment A - Notice of Intent Narrative

This Notice of Intent (NOI) is filed pursuant to the Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40) and its implementing regulations (310 CMR 10.00).

### Introduction

The Town of Granville (the Applicant) is proposing maintenance to the existing bridge structure on Old Westfield Road over Hollister Brook (G-10-013) in Granville, Massachusetts (the Project) (See Figure 1- Project Locus and Figure 2 – Aerial Map). The Project is being undertaken as a part of the Massachusetts Department of Transportation (MassDOT) Municipal Bridge Improvement Program. Proposed work consists of rehabilitating the bridge structure, including installing a new superstructure, repairing abutments and wingwalls, installing crash tested barriers and approach guardrails, and planting vegetation to provide slope stabilization above Hollister Brook. No changes are proposed to the roadway alignment.

Portions of the Project are located within the 200-foot Riverfront Area (RFA) associated with Hollister Brook as well as within the 100-foot buffer zone to Bank. No temporary or permanent impacts to any Bank or Land Under Waterbodies and Waterways (LUWW), are proposed. Work in RFA will take place in degraded areas associated with the roadway and adjacent shoulders.

Wetland resource areas will be protected from impacts during construction through the implementation of an erosion and sedimentation control program. This program includes provisions to minimize areas of disturbance through phasing and sequencing, limit erosion through stabilization, and prevent sediment from leaving the limits of work by installing structural controls.

### Site Description

Old Westfield Road is a two-lane rural major collector roadway that conveys northbound and southbound traffic within the Project limits. The areas around the bridge site are primarily undeveloped and wooded with the exception of the approaching roadways and shoulders.

The existing bridge G-10-013 structure is currently in poor condition; however, the concrete abutments appear to be in acceptable condition if repairs are made and the parapet walls are replaced. Therefore, rehabilitation of the bridge has been recommended by MassDOT.

According to the latest data from the Massachusetts Natural Heritage and Endangered Species Program (NHESP)<sup>1</sup>, the Project is located within Priority Habitat of Rare Species (PH 872), however no portion of the Project limits is located within Estimated Habitat of Rare Wildlife or in the vicinity of any certified/non-certified vernal pools (Figure 3). The crossing of interest is not located within a National Flood Insurance Program (NFIP) Special Flood Hazard Area as shown on Flood Insurance Rate Map (FIRM) panel 25013C0355E (effective date of July 16, 2013)<sup>2</sup> (Figure 4). The NFIP Flood Insurance Study (FIS) for Hampden County, MA did not analyze Hollister Brook by detailed methods and there is no effective base flood elevation or regulatory floodway defined for Hollister Brook. A hydraulic Analysis conducted by VHB determined that the base flood elevation at the crossing is 613.2 feet, NAVD 88. No work associated with the Project will occur at or below this flood elevation.

The Project limits are located entirely within an Outstanding Resource Water<sup>3</sup> that contributes to public water supply. No portion of the Project will be located within an Area of Critical Environmental Concern (ACEC).

According to the regional Natural Resources Conservation Service (NRCS) soil survey, soils mapped near Bridge G-10-013 consist primarily of Sudbury fine sandy loam with areas of Hollis-Chatfield association (very rocky).

Wetland resource areas in the vicinity of the Project limits are described below.

## Wetland Resource Areas

Wetlands within the Project limits were delineated on July 25, 2019 by environmental scientists with VHB, Inc. in accordance with methods developed by the DEP<sup>4</sup> and the U.S. Army Corps of Engineers<sup>5</sup>. The following sections of this narrative describe the wetlands and identify resource areas that are regulated under the WPA Regulations (310 CMR 10.00).

The state-regulated wetland resource areas identified in the vicinity of the Project limits include Bank, Land Under Waterbodies and Waterways (LUWW), and Riverfront Area (Table 1). These resource areas are defined under the WPA Regulations (310 CMR 10.00) as follows:

- **Bank:** As defined at 310 CMR 10.54 (2), a Bank is the portion of the land surface, which normally abuts and confines a water body. The upper boundary of Bank is the first observable break in slope.

---

1 NHESP, 2021. *Massachusetts Natural Heritage Atlas, 15th Edition*.

2 Federal Emergency Management Agency, 2013. *Flood Insurance Rate Map, Town of Granville, Massachusetts, Hampden County*. Community Panel Number 25013C0355E.

3 DEP, 1993. *Designated Outstanding Resource Waters of Massachusetts*.

4 DEP, 1995. *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act*.

5 USACE, 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0*.

- **Land Under Waterbodies and Waterways (LUWW):** As defined at 310 CMR 10.56 (2), LUWW is “the bottom of, or land under, the surface of the ocean or any estuary, creek, river, stream, pond, or lake.”
- **Riverfront Area (RFA):** As defined at 310 CMR 10.58 (a)(3), RFA is “the area of land between a river’s mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet away.”

Wetlands on/adjacent to the property are summarized in the table below and are described in more detail in the following sections of this attachment.

**Table 1 Wetland Resource Areas**

Wetland	Flag Numbers	Description	Associated Resource Areas
Hollister Brook	BF1-100 to BF1-109 BF1-200 to BF1-205 BF1-300 to BF1-305 BF1-400 to BF1-405	Perennial Waterway	Bank, LUWW, RFA

Source: VHB, 2018.

### Hollister Brook

Hollister Brook is a perennial waterway that flows west to east at the crossing by Old Westfield Road at Bridge G-10-013 before discharging into the Granville Reservoir.

East of the Bridge, the banks of Hollister Brook are well-defined with several large granite boulders in the areas near the bridge abutments. Some large boulders are also present in the stream channel itself. Vegetation along the bank to the east of Old Westfield Road consists of poison ivy (*Toxicodendron radicans*), deer tongue (*Dichanthelium clandestinum*), sensitive fern (*Onoclea sensibilis*), steeplebush (*Spirea tomentosa*), goldenrod (*Solidago* sp.), wood sorrel (*Oxalis* sp.), yarrow (*Achillea millefolium*), silver maple (*Acer saccharinum*), spotted joe-pye-weed (*Eutrochium maculatum*), mullein (*Verbascum thapsus*), and white oak (*Quercus alba*).

The Banks of Hollister Brook within the bridge structure consist entirely of the concrete walls that make up the bridge abutments. A large area of sediment deposition is present throughout most of the channel under the bridge.

West of the bridge, the Banks of the Brook are initially steep and rocky near the road crossing, and transition to more gradual slopes with areas containing erosional features further west. Within the channel, many large boulders are present and form smaller channels within the stream. Vegetation along the Bank west of the bridge consists of eastern hemlock (*Tsuga canadensis*), striped maple (*Acer pensylvanicum*), hobblebush (*Viburnum lantanoides*), Christmas fern (*Polystichum acrostichoides*), tulip poplar (*Liriodendron tulipifera*), woodfern (*Dryopteris* sp.), jewelweed (*Impatiens capensis*), sphagnum moss (*Sphagnum* sp.), wild grape (*Vitis* sp.), red oak (*Quercus rubra*), green ash (*Fraxinus pennsylvanica*), Virginia creeper (*Parthenocissus quinquefolia*), Enchanter’s nightshade (*Circaea canadensis*), and Morrow’s honeysuckle (*Lonicera morrowii*).

The boundaries of Hollister Brook were demarcated with blue (Bank) flagging (labeled BF1-100 to BF1-109, BF1-200 to BF1-205, BF1-300 to BF1-305 and BF1-400 to BF1-405). Hollister Brook supports Bank and LUWW under the WPA along with associated 100-foot Buffer Zone to Bank and a 200-foot Riverfront Area.

### Riverfront Area

A 200-foot Riverfront area extends from the boundary of Hollister Brook within the Project Site. The Riverfront Area within the Project Limits consists of the roadway itself as well as adjacent shoulders and components of the existing bridge structure. The Riverfront Area beyond the roadway layout contains primarily undeveloped wooded areas.

### Buffer Zone

The WPA regulations (310 CMR 10.02(2)(b)) establish a 100-foot buffer zone from the limits of Bank of Hollister Brook described above. Within the Project limits, the buffer zone consists primarily of the existing paved roadway and the adjacent shoulders. Beyond the limits of the roadway the buffer zone is primarily forested with eastern hemlock, and red oak dominated forest.

## Work Description

The proposed work associated with the Project consists of measures designed to improve the condition of bridge G-10-013. Bridge rehabilitation work consists of installing a new superstructure, repairing abutments and wingwalls, and installing new crash tested barriers and approach guardrails. Work along the approaching portions of Old Westfield Road consists of grading, resurfacing by a combination of mill and overlay and full depth pavement reconstruction, and installing new TL-2 guardrails. Native plantings are proposed along the slope of roadway near the stream channel to stabilize areas above the banks of Hollister Brook. Work in the 200-foot Riverfront Area and the 100-foot buffer zone is described below and summarized in Table 2. This work fully complies with all applicable performance standards as demonstrated in the Regulatory Compliance section of this Narrative. Additionally, the Project can be permitted as a limited Project under 10.53(3)(i) because it consists of *"the maintenance, repair and improvement ... of structures, including buildings, piers, towers, headwalls, bridges and culverts which existed on November 1, 1987."*

**Table 2 Work in Wetland Resource Areas**

Resource Area	Area of Work within Resource	Permanent Alteration	Temporary Alteration
Riverfront Area	9,395 square feet	--	9,395 square feet

Source: VHB, 2021.

## Work in Riverfront Area

The entirety of the Project limits are located within the degraded 200-foot Riverfront Area associated with Hollister Brook. All work is required to complete structural modifications to the bridge and improve approaching sections of the roadway and associated shoulders. Proposed work within Riverfront Area includes structural improvements to the bridge structure, installing new sections of guardrail, and roadway resurfacing by mill and overlay of Old Westfield Road.

## Work in Buffer Zone

The entirety of the Project limits is located within the 100-foot buffer zone to Bank. Work within the 100-foot buffer zone will be required to complete structural modifications to the bridge as well as installing new sections of guardrail, and roadway resurfacing along the approaching roadway to the north and south of Hollister Brook and installing plantings for slope stability.

## Mitigation Measures

A suite of mitigation measures is proposed to prevent short- and long-term impacts to wetland resource areas. Mitigation measures proposed for the Project are described below.

## Erosion and Sediment Control

An erosion and sedimentation control program will be implemented to minimize temporary impacts to wetland resource areas during the construction phase of the Project. The program incorporates Best Management Practices (BMPs) specified in guidelines developed by the DEP<sup>6</sup> and the U.S. Environmental Protection Agency (EPA)<sup>7</sup>.

Proper implementation of the erosion and sedimentation control program will:

- › minimize exposed soil areas through sequencing and temporary stabilization;
- › place structures to manage stormwater runoff and erosion; and
- › establish a permanent vegetative cover or other forms of stabilization as soon as practicable.

The following sections describe the controls that will be used and practices that will be followed during construction. These practices comply with criteria contained in the NPDES General Permit for Discharges from Large and Small Construction Activities issued by the EPA.

---

6 DEP, 1997. *Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials*.

7 EPA, 2007. *Interim Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites*. Office of Water. Report EPA 833-R-060-04.



## Non-Structural Practices

Non-structural practices to be used during construction include temporary stabilization, temporary seeding, permanent seeding, pavement sweeping and dust control. These practices will be initiated as soon as practicable in appropriate areas at the site.

### Temporary Stabilization

Any areas of exposed soil or stockpiles that will remain inactive for more than 14 days will be covered with a layer of straw mulch applied at a rate of 90 pounds per 1,000 square feet. The mulch will be anchored with a tacking coat (non-tar) applied by a hydroseeded. Steeper slopes (greater than 10 percent) will be covered with a bonded fiber matrix (EcoAegis® or similar) according to the recommendations provided by the manufacturer.

### Permanent Seeding

Upon completion of final grading, any areas not covered by pavement, other forms of stabilization, or other methods of landscaping will be seeded with a native seed mix that includes species found in western Massachusetts. The mix will be applied at a rate specified by the manufacturer and will be covered with mulch or bonded fiber matrix.

### Pavement Sweeping

Portions of Old Westfield Road in the vicinity of the limits of work shall be swept as needed during construction. The sweeping program will remove sediment and other contaminants directly from paved surfaces before their release into stormwater runoff. Pavement sweeping has been demonstrated to be an effective initial treatment for reducing pollutant loading into stormwater<sup>8</sup>.

### Dust Control

The erosion and sediment control program includes provisions to minimize the generation of dust during dry and windy conditions. When necessary, larger areas of exposed soil will be wetted to prevent wind borne transport of fine-grained sediment. Enough water shall be applied to wet the upper 0.5 inches of soil. The water will be applied as a fine spray to prevent erosion. A water truck will be kept on the Site (or at a nearby location) to facilitate this practice.

### Vegetation Planting

Vegetation plantings will be installed above the banks of Hollister Brook to improve the stability of the slope of the roadway embankment. Plantings will consist of gray twig dogwood (*Cornus racemosa*), red-osier dogwood (*Cornus sericea*), fragrant sumac (*Rhus*

---

<sup>8</sup> U.S. Environmental Protection Agency, 1979. *Demonstration of Nonpoint Pollution Abatement Through Improved Street Cleaning Practices*

*aromatica*), hayscented fern (*Dennstaedtia punctilobula*) and a native seed mix. For a detailed planting plan and schedule, see sheet 8 of the Project Plans (Attachment C).

## Structural Practices

Structural erosion and sedimentation controls to be used on the site include barriers, described below.

### Erosion Control Barriers

Prior to any ground disturbance, an approved erosion control barrier will be installed at the downgradient limit of work. As construction progresses, additional barriers will be installed around the base of stockpiles and other erosion prone areas. The barriers will be entrenched into the substrate to prevent underflow.

If sediment has accumulated to a depth which impairs proper functioning of the barrier, it will be removed by hand or by machinery operating upslope of the barriers. This material will be either reused at the Site or disposed of at a suitable offsite location. Any damaged sections of the barrier will be repaired or replaced immediately upon discovery.

## Stormwater Management

The roadways do not have an existing stormwater management system; water sheet flows off of roadway surfaces during precipitation events as is typical with rural roadways. Due to the Project's close proximity to Hollister Brook, installing new stormwater BMPs would result in increased impacts to wetland resource areas and reduce the natural woodland buffer protecting those areas. The Project will maintain the existing footprint of the approaching roadways following construction and there will not be any increase in impervious surface. Post-construction conditions will therefore not differ significantly from preconstruction conditions and no calculations pertaining to stormwater have been prepared. The proposed plantings and scour control measures will provide additional protection against erosion during rain events and represent an improvement over existing conditions.

## Regulatory Compliance

As demonstrated below, the proposed work fully complies with the WPA regulations related to the 200-foot Riverfront Area and the 100-foot buffer zone. The project can be allowed as a Limited Project under the WPA regulations. As described in the Mitigation Measures section of this narrative, the Project includes provisions to minimize short and long-term impacts to adjacent wetlands.

### Limited Project

The Project qualifies as a limited project as the maintenance and improvement of existing structures (310 CMR 10.53(3)(i)). The proposed work on the bridge structures

and approaching roadway improvements will enhance safety conditions for drivers along Old Westfield Road within the Project limits.

In accordance with the WPA regulations Applicant reviewed potential alternatives to the proposed Project at bridge G-10-013. The alternatives included:

- Alternative 1 – constructing a new bridge structure at a different location
- Alternative 2 – the no-build alternative
- Alternative 3 – repair existing bridge (preferred alternative)

The use of an alternate roadway layout was determined to not be a feasible alternative because it would involve the acquisition of significant amounts of rights-of-way and would not avoid the Riverfront Area or buffer zone to Bank because the brook itself is perpendicular to Old Westfield Road.

The use of an alternate layout would result in significantly more impacts to unaltered Riverfront Area. Any build alternative to improve the roadway condition would result in work within the RFA and result in impacts to unaltered bank and LUWW associated with Hollister Brook. An alternate layout was therefore rejected as a viable alternative.

The no-build alternative would result in no improvements to the structural condition of the Old Westfield Road crossing of Hollister Brook. Therefore, the no-build alternative was rejected as a viable alternative as it did not meet the Project's purpose and need. The preferred alternative has been designed to minimize impacts to wetland resources and through proposed planting measures will represent an improvement over existing conditions.

Although the Project qualifies as a limited project, the following sections describe how the Project also meets all applicable performance standards under the WPA for the resource areas impacted.

### Work in Riverfront Area

As identified in 310 CMR 10.58(2) of the WPA regulations, Riverfront Area (RFA) is the area of land between a river's mean annual high-water line and a parallel line measured horizontally. The Riverfront area may include or overlap other resource areas or their buffer zones. Additionally, "The presence of natural vegetation within riverfront areas is critical to sustaining rivers as ecosystems."

Work on the bridge and approaching segments of the roadway will be conducted within the previously disturbed RFA associated with Hollister Brook. The RFA within the roadway is already degraded from its natural state and the Project will not result in any loss or reduction in the function of the RFA. The Riverfront Area within the Project Limits consists of the roadway itself as well as adjacent shoulders and the abutments to the bridge.

*(5) Redevelopment Within Previously Developed Riverfront Areas; Restoration and Mitigation.*

*Notwithstanding the provisions of 310 CMR 10.58(4)(c) and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation or expansion of existing structures, improvement of existing roads, or reuse of degraded or previously developed areas. A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds. Work to redevelop previously developed riverfront areas shall conform to the following criteria:*

*(a) At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.*

The Project proposes stabilization of eroding sections of slope above the banks of Hollister Brook. Native vegetation including shrub plantings will enhance the slope's stability and wildlife habitat within the Riverfront area.

*(b) Stormwater management is provided according to standards established by the Department.*

Erosion and sedimentation controls are proposed at the limits of work during construction. No stormwater management system is currently located within the Project limits and no changes to existing stormwater flow is proposed.

*(c) Within 200-foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25-foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).*

Due to the nature of the work as a bridge repair project over a perennial stream, work across Hollister Brook will be unavoidable.

*(d) Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).*

The Project involves work across Hollister Brook. No work is proposed within the brook or along its banks and erosion and sedimentation controls are proposed along limits of work.

*(e) The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).*

No permanent alteration of the Riverfront Area is proposed.

*(f) When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include:*

1. removal of all debris, but retaining any trees or other mature vegetation;
2. grading to a topography which reduces runoff and increases infiltration;
3. coverage by topsoil at a depth consistent with natural conditions at the site; and
4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;

No permanent alteration of Riverfront Area is proposed as a part of the Project.

*(g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184, §§ 31 to 33 to preserve undisturbed riverfront areas that could be otherwise altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131, § 40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Environmental Affairs.*

Not applicable. No onsite or offsite RFA mitigation is proposed.

As described in the Mitigation Measures section of this NOI, the preferred alternative has been designed to minimize impacts to wetland resource areas.

### **Work in Buffer Zone**

*As identified in 310 CMR 10.53(1) of the WPA regulations, "the issuing authority should consider the characteristics of the buffer zone, such as the presence of steep slopes, that may increase the potential for adverse impacts on resource areas. Conditions may include limitations on the scope and location of work in the buffer zone as necessary to avoid alteration of resource areas. The issuing authority may require erosion and sedimentation controls during construction, a clear limit of work, and the preservation of natural vegetation adjacent to the resource area and/or other measures commensurate with the scope and location of the work within the buffer zone to protect the interests of the Act."*

The proposed Project has been designed to address these requirements. As identified in the Mitigation Measures section of this attachment, an erosion and sedimentation control program will be implemented to prevent adverse impacts during construction. Additionally, because the location of the Project is within an existing roadway and its shoulders, the 100-foot buffer zone is previously degraded from its natural state. Native vegetation plantings proposed within the buffer zone will provide an improvement over existing conditions.

## Summary

The Town of Granville is proposing rehabilitation measures on the Old Westfield Road Bridge over Hollister Brook (G-10-013). Work will consist of installation of new superstructure, concrete repairs to deteriorated areas of abutments and wingwalls, and installation of a bridge railing system to meet current crash test standards.

Work will be required in the 100-foot buffer zone associated with Bank and all work will be located within the degraded 200-Foot Riverfront Areas associated with Hollister Brook. Work will not result in any permanent impacts to any wetland resource areas subject to the jurisdiction of the WPA. Wetland resource areas will be protected from impacts during construction through the implementation of an erosion and sedimentation control program.

The applicant respectfully requests that the Granville Conservation Commission find these measures adequately protective of the interests identified in the WPA and issue an Order of Conditions approving the work described in this NOI and shown on the accompanying plans.

---

## Attachment B

# Abutter Information

- › Notice to Abutters
- › List of Abutters

## **Notification to Abutters Under the Wetlands Protection Act**

Pursuant to the requirements of the Massachusetts Wetlands Protection Act (MGL Chapter 131, Section 40), you are hereby notified of the following:

The Town of Granville Department of Public Works (the Applicant) has filed a Notice of Intent (NOI) with the Granville Conservation Commission seeking approval to rehabilitate an existing bridge on Old Westfield Road over Hollister Brook (Bridge #G-10-013) in Granville, MA. Portions of the Project will occur in an area Subject to Protection under the Massachusetts Wetlands Protection Act. All work is proposed within the existing bridge and roadway layout of Old Westfield Road.

Information regarding the NOI may be obtained by calling the Granville Conservation Commission at (413) 357-8585 extension "0". The NOI may be viewed at the Granville Town Hall located at 707 Main Road, Granville, MA 01034. You may also call Dan Cannata of VHB at 617-924-1770 on Monday through Friday between 9 AM and 5 PM with questions or to arrange to view the NOI.

Copies of the NOI may be obtained from the Granville Conservation Commission by calling the number above or by calling Dan Cannata at 617-924-1770. You may be charged for a copy of the NOI.

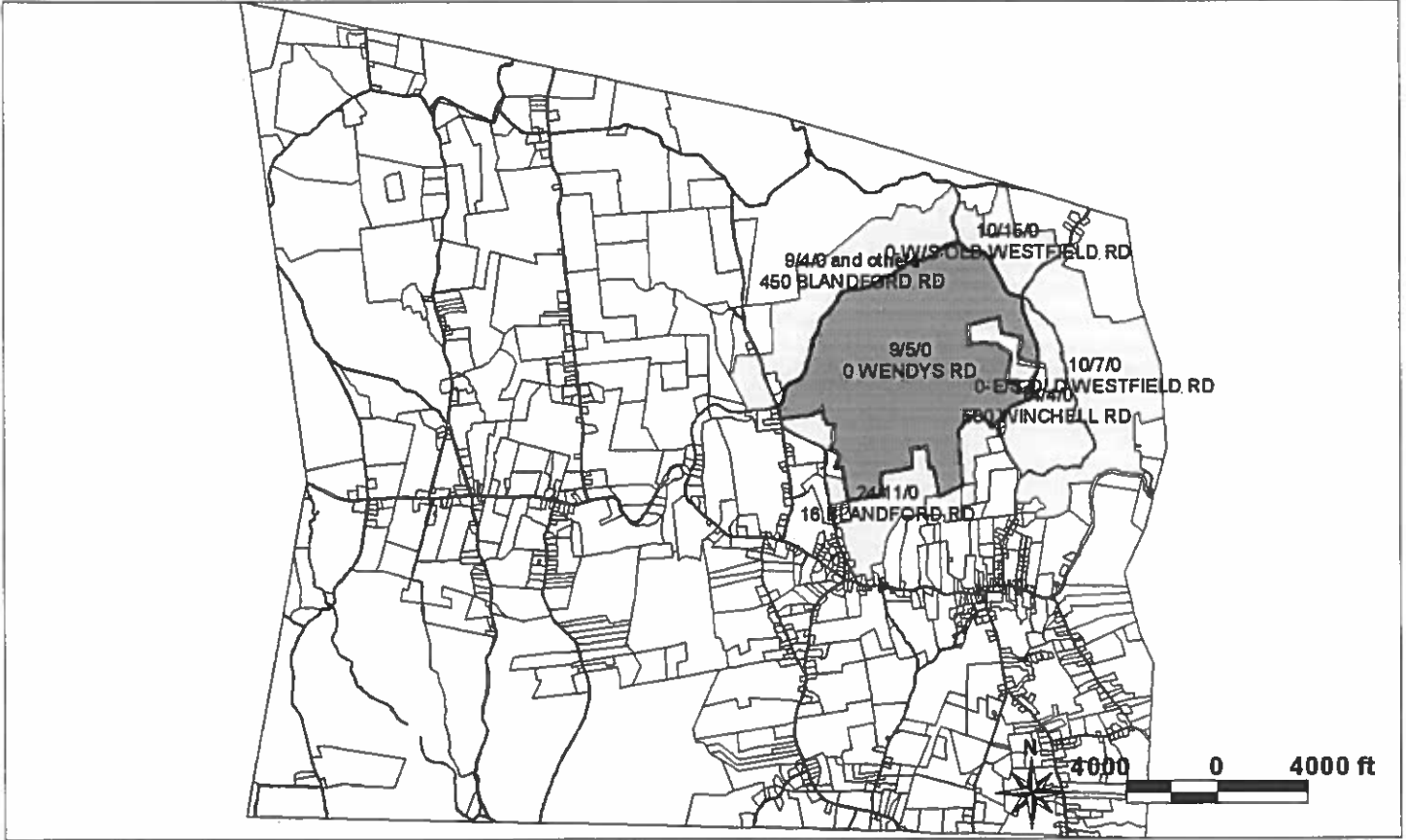
The Granville Conservation Commission will hold a public hearing on the NOI. Notice of the public hearing (including the date, time and place) will be published in a local newspaper at least 5 business days before and posted in Town Hall at least 48 hours in advance. You may also call the Granville Conservation Commission (at the number identified above) to determine the date, time and place of the hearing.

Information on this NOI and the Wetlands Protection Act may also be obtained by calling the Western Regional Office of the Massachusetts Department of Environmental Protection at 413-784-1100.



TOWN OF GRANVILLE, MA  
 BOARD OF ASSESSORS  
 TOWN HALL P O BOX 247, GRANVILLE, MA 01034

Abutters List Within 100 feet of Parcel 9/5/0

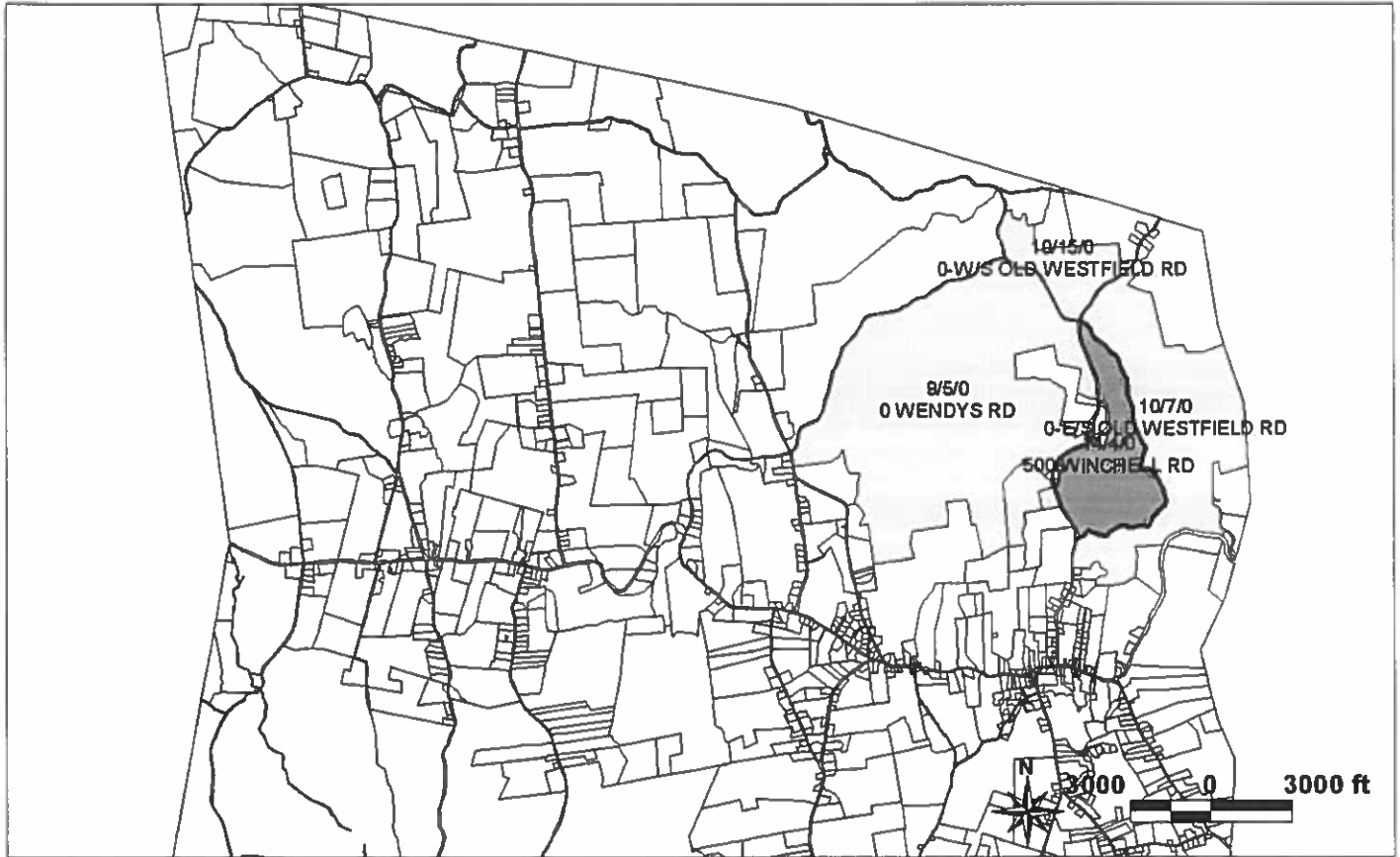


Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	ZipCd/Country
131	9-4-0-E	WESTFIELD CITY OF WATER DEPT	450 BLANDFORD RD	CITY HALL	WESTFIELD	MA	01085
132	9-4-1-R	EASTERN MICROWAVE	450 BLANDFORD RD	PO BOX 521807	LONGWOOD	FL	32752
133	9-5-0-E	WESTFIELD CITY OF WATER DEPT	0 WENDYS RD	CITY HALL	WESTFIELD	MA	01085
136	9-8-0-E	NEW ENGLAND FORESTRY FND	0 BLANDFORD RD	PO BOX 1346	LITTLETON	MA	01460-4346
150	10-7-0-E	WESTFIELD CITY OF WATER DEPT	0-E/S OLD WESTFIELD RD	CITY HALL	WESTFIELD	MA	01085
151	10-8-0-E	WESTFIELD CITY OF	0 OLD WESTFIELD RD	59 COURT STREET	WESTFIELD	MA	01085
152	10-9-0-E	WESTFIELD CITY OF	0 OLD WESTFIELD RD	59 COURT STREET	WESTFIELD	MA	01085
153	10-10-0-E	WESTFIELD CITY OF	429 OLD WESTFIELD RD	59 COURT ST	WESTFIELD	MA	01034
154	10-11-0-E	WESTFIELD CITY OF	0 OLD WESTFIELD RD	59 COURT ST	WESTFIELD	MA	01085
155	10-12-0-R	HAAS KENNETH HAAS SUSAN	11 BRUCE RD	11 BRUCE RD	GRANVILLE	MA	01034
156	10-13-0-R	TOOMEY BERNADETTE	10 BRUCE RD	10 BRUCE RD	GRANVILLE	MA	01034
157	10-14-0-E	GRANVILLE TOWN OF DELMAR CEMETERY	375 OLD WESTFIELD RD	375 OLD WESTFIELD RD	GRANVILLE	MA	01034
158	10-15-0-E	WESTFIELD CITY OF WATER DEPT	0-W/S OLD WESTFIELD RD	CITY HALL	WESTFIELD	MA	01085
159	10-16-0-R	TOOMEY BERNADETTE S	0 BRUCE RD	10 BRUCE RD	GRANVILLE	MA	01034
275	13-13-1-R	JONES-RAYMOND SUSAN K RAYMOND BRIAN	242 WENDYS RD	242 WENDYS RD	GRANVILLE	MA	01034

Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	ZipCd/Country
958	13-13-2-R	MADERA HECTOR L	349 BLANDFORD RD	349 BLANDFORD RD	GRANVILLE	MA	01034
276	13-13-3-R	KENNEDY ANN M	337 BLANDFORD RD	337 BLANDFORD RD	GRANVILLE	MA	01034
277	13-14-0-E	WESTFIELD CITY OF WATER DEPT	0 BLANDFORD RD	59 COURT ST	WESTFIELD	MA	01085
278	13-16-0-R	CLARK WAYNE E JR CZAHAR VICTORIA J	210 BLANDFORD RD	210 BLANDFORD RD	GRANVILLE	MA	01034
279	13-19-0-R	HEINRICH BEATRICE D	154 BLANDFORD RD	PO BOX 153 154 BLANDFORD ROAD	GRANVILLE	MA	01034-0153
280	13-19-1-R	HEINRICH BEATRICE D	0 BLANDFORD RD	PO BOX 153 154 BLANDFORD ROAD	GRANVILLE	MA	01034-0153
343	14-1-1-E	WESTFIELD CITY OF WATER DEPARTMENT	0 OLD WESTFIELD RD	CITY HALL	WESTFIELD	MA	01085
344	14-2-0-E	WESTFIELD CITY OF WATER DEPARTMENT	289 OLD WESTFIELD RD	CITY HALL	WESTFIELD	MA	01085
348	14-4-0-E	WESTFIELD CITY OF WATER DEPT	500 WINCHELL RD	CITY HALL	WESTFIELD	MA	01085
362	14-20-0-R	JENSEN PAUL D	0 BAD LUCK MT	231 OLD WESTFIELD RD	GRANVILLE	MA	01034
363	14-21-0-R	DANDY REALTY LLC	0 BAD LUCK MT	522 MAIN RD	GRANVILLE	MA	01034
713	24-11-0-R	WEBER JAMES K JR	16 BLANDFORD RD	16 BLANDFORD RD	GRANVILLE	MA	01034

TOWN OF GRANVILLE, MA  
 BOARD OF ASSESSORS  
 TOWN HALL P O BOX 247, GRANVILLE, MA 01034

Abutters List Within 100 feet of Parcel 14/4/0



Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST	Zip/Cd/Country
133	9-5-0-E	WESTFIELD CITY OF WATER DEPT	0 WENDYS RD	CITY HALL	WESTFIELD	MA	01085
150	10-7-0-E	WESTFIELD CITY OF WATER DEPT	0-E/S OLD WESTFIELD RD	CITY HALL	WESTFIELD	MA	01085
151	10-8-0-E	WESTFIELD CITY OF	0 OLD WESTFIELD RD	59 COURT STREET	WESTFIELD	MA	01085
152	10-9-0-E	WESTFIELD CITY OF	0 OLD WESTFIELD RD	59 COURT STREET	WESTFIELD	MA	01085
153	10-10-0-E	WESTFIELD CITY OF	429 OLD WESTFIELD RD	59 COURT ST	WESTFIELD	MA	01034
157	10-14-0-E	GRANVILLE TOWN OF DELMAR CEMETERY	375 OLD WESTFIELD RD	375 OLD WESTFIELD RD	GRANVILLE	MA	01034
158	10-15-0-E	WESTFIELD CITY OF WATER DEPT	0-W/S OLD WESTFIELD RD	CITY HALL	WESTFIELD	MA	01085
159	10-16-0-R	TOOMEY BERNADETTE S	0 BRUCE RD	10 BRUCE RD	GRANVILLE	MA	01034
342	14-1-0-R	JENSEN MELVIN E JR	0 OLD WESTFIELD RD	25 STATE ST	WESTFIELD	MA	01085
343	14-1-1-E	WESTFIELD CITY OF WATER DEPARTMENT	0 OLD WESTFIELD RD	CITY HALL	WESTFIELD	MA	01085
344	14-2-0-E	WESTFIELD CITY OF WATER DEPARTMENT	289 OLD WESTFIELD RD	CITY HALL	WESTFIELD	MA	01085
937	14-3-0-R	JENSEN MARK E	288 OLD WESTFIELD RD	288 OLD WESTFIELD RD	GRANVILLE	MA	01034
348	14-4-0-E	WESTFIELD CITY OF WATER DEPT	500 WINCHELL RD	CITY HALL	WESTFIELD	MA	01085
360	14-18-0-E	WESTFIELD CITY OF WATER DEPT	0 OLD WESTFIELD RD	CITY HALL	WESTFIELD	MA	01085
361	14-19-0-R	JENSEN PAUL D /LIFE ESTATE DERRIG JULI & KEENE JACKIE L	231 OLD WESTFIELD RD	231 OLD WESTFIELD RD	GRANVILLE	MA	01034



---

# Attachment C

## Project Plans

› Bound Separately





MASSWILDLIFE

DIVISION OF  
**FISHERIES & WILDLIFE**

1 Rabbit Hill Road, Westborough, MA 01581

p: (508) 389-6300 | f: (508) 389-7890

**MASS.GOV/MASSWILDLIFE**

November 17, 2021

Doug Roberts  
Granville Highway Department  
707 Main Road  
Granville MA 01034

RE: Project Location: Old Westfield Road over Hollister Brook, Granville  
Project Description: Bridge repairs and bank stabilization  
DEP Wetlands File No.: 166-0069  
**NHESP File No.: 21-40567**

Dear Applicant:

Thank you for submitting the MESA Project Review Checklist, site plans (dated July 2021) and other required materials to the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for review pursuant to the Massachusetts Endangered Species Act (MESA) (MGL c.131A) and its implementing regulations (321 CMR 10.00).

Based on a review of the information that was provided and the information that is currently contained in our database, the Division has determined that this project, as currently proposed, **will not result in a prohibited Take** of state-listed rare species. This determination is a final decision of the Division of Fisheries & Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Melany Cheeseman, Endangered Species Review Assistant, at (508) 389-6357.

Sincerely,

Everose Schlüter, Ph.D.  
Assistant Director

cc: Dan Cannata, Vanasse Hangen Brustlin, Inc.

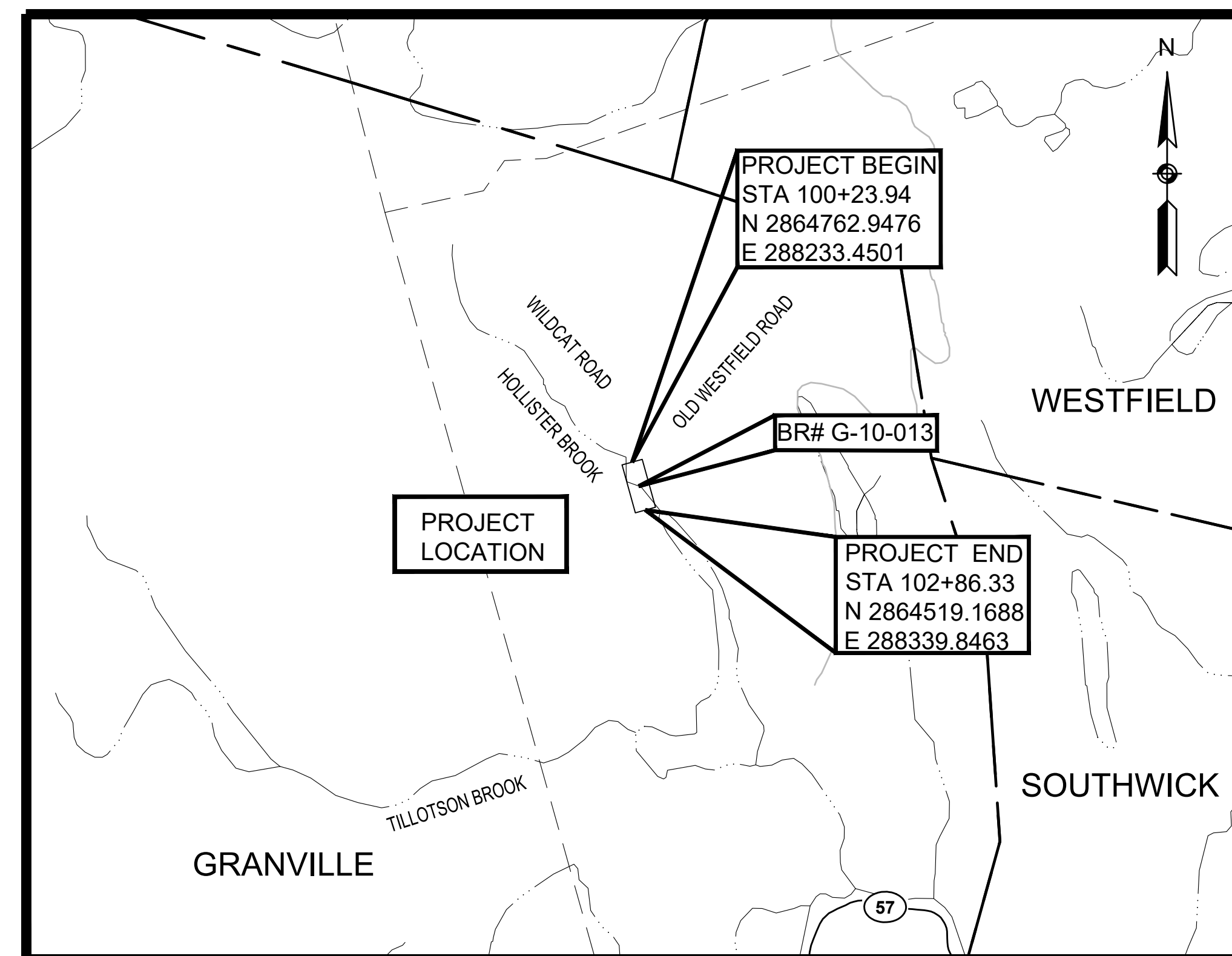
MASSWILDLIFE

PLAN AND PROFILE OF  
 OLD WESTFIELD ROAD  
 (BRIDGE NO. G-10-013)  
 IN THE TOWN OF  
 GRANVILLE  
 HAMPDEN COUNTY

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

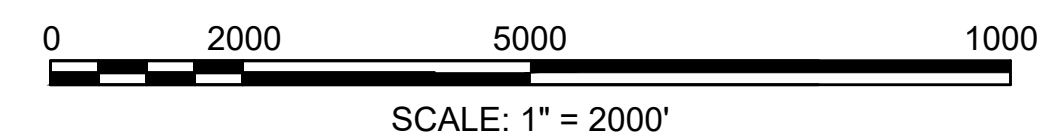
# NOTICE OF INTENT

SHEET NO.	DESCRIPTION
01	TITLE & INDEX SHEET
02	LEGEND ABBREVIATIONS & GENERAL NOTES
03	TYPICAL SECTIONS & PAVEMENT NOTES
04	CONSTRUCTION PLAN OVER PROFILE
05	GRADING PLAN
06-07	TEMPORARY TRAFFIC CONTROL PLANS
08-09	VEGETATION PLANS
10-19	BRIDGE PLANS
20	IMPACT SUMMARY PLAN




**DESIGN DESIGNATION (OLD WESTFIELD ROAD)**

DESIGN SPEED 35 MPH  
 FUNCTIONAL CLASSIFICATION MAJOR COLLECTOR



LENGTH OF PROJECT = 262.39 FEET = 0.050 MILES

DATE	DESCRIPTION	REV #

ENGINEER		DATE
 <b>Vanasse Hangen Brustlin, Inc.</b> 101 Walnut St., PO Box 9151 Watertown, MA 02472 617.924.1770 FAX 617.924.2286		
DESIGNED BY	APPROVED BY	SHEET OF
---	---	01 20
DRAWN BY	DFTG CHECKED BY	WB CAD FILE NAME
---	---	14641.00_HD(COV).DWG
CHECKED BY	DATE	JOB NO.
---	JULY 2021	14641.00

**GENERAL SYMBOLS**

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W/ 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		EROSION CONTROL BARRIER
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

**PAVEMENT MARKINGS SYMBOLS**

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE EDGE LINE
		SOLID WHITE LANE LINE
		SOLID YELLOW EDGE LINE
		BROKEN WHITE LINE, 10' LINE W/30' SPACING
		BROKEN YELLOW LINE, 10' LINE W/30' SPACING
		DOTTED WHITE LINE, 2' LINE W/6' SPACING
		DOTTED YELLOW LINE, 2' LINE W/6' SPACING
		LONG DASHED WHITE LINE EXTENSION, 3' LINE W/9' SPACING
		DOUBLE YELLOW CENTER LINE
		SOLID YELLOW CENTER LINE
		SOLID WHITE CHANNELIZATION LINE
		SOLID YELLOW CHANNELIZATION LINE

**ABBREVIATIONS**

GENERAL	DESCRIPTION
AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN

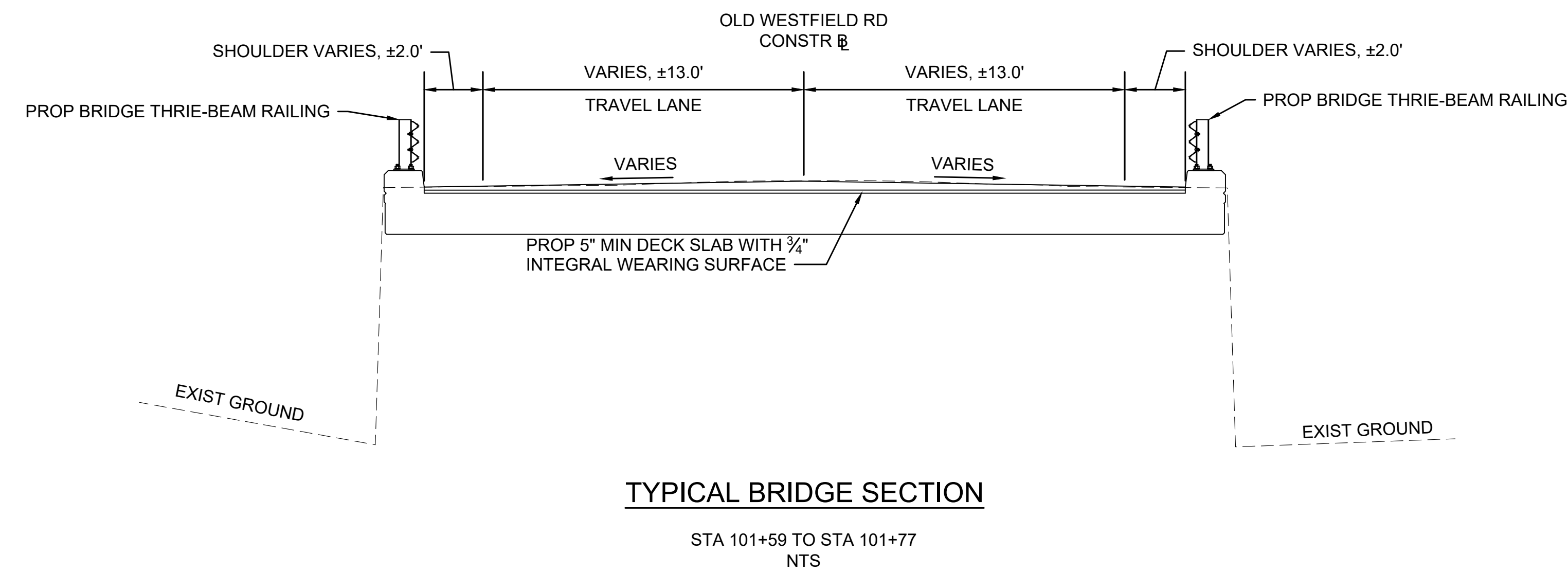
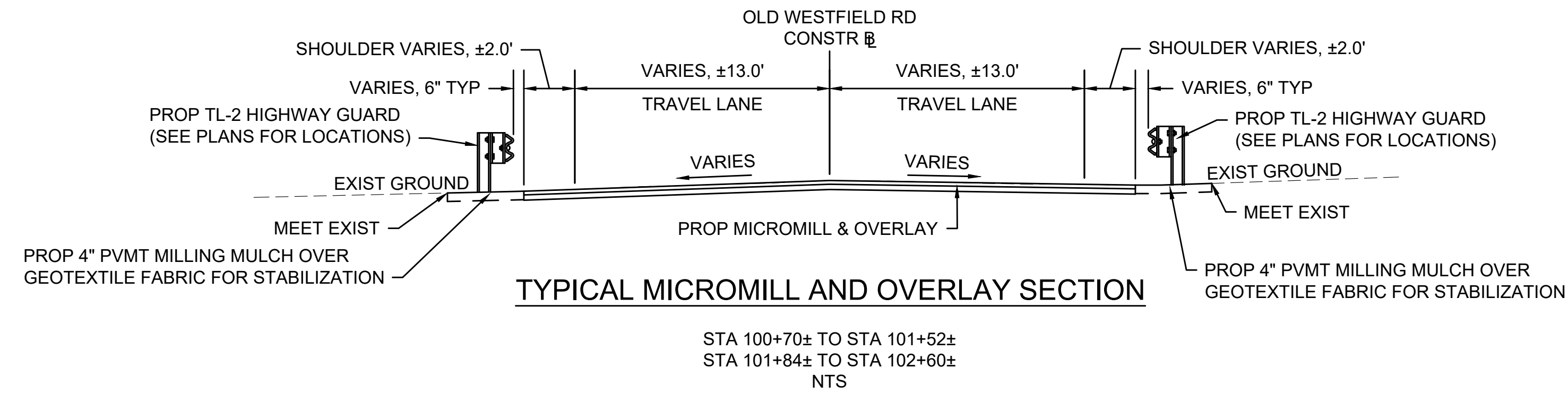
**ABBREVIATIONS (cont.)**

GENERAL	DESCRIPTION
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

**GENERAL NOTES:**

- EXISTING CONDITIONS AND TOPOGRAPHICAL INFORMATION FROM AN ACTUAL FIELD SURVEY CONDUCTED BY VHB, INC. IN AUGUST, 2019.
- THE HORIZONTAL CONTROL IS BASED ON THE MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM AND THE NATIONAL GEODETIC SURVEY (NAD83). ALL ELEVATION IS US FEET, REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD88).
- THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND GRADES IN THE FIELD BEFORE COMMENCING WORK AND PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH PROPOSED CONSTRUCTION ACTIVITIES. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER.
- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
- IF THE ALTERATION OF GAS, ELECTRIC, TELEPHONE, OR PRIVATE UTILITY IS REQUIRED, THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE WORK TO BE PERFORMED BY THE UTILITY COMPANIES.
- EXISTING UTILITY POLES WILL BE RELOCATED BY OTHERS IF REQUIRED.
- TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
- THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
- JOINTS BETWEEN NEW ASPHALT CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALER AND BACKSAUED.
- AFTER MILLING OPERATIONS AND PRIOR TO PAVING THE SUPERPAVE INTERMEDIATE OR SURFACES COURSES THE ENGINEER SHALL EVALUATE THE MILLED SURFACE AND SHALL APPLY THE APPROPRIATE REPAIR METHOD IF REQUIRED.
- EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED.
- DISPOSAL OF ALL SURPLUS MATERIAL SHALL BE AS APPROVED BY THE ENGINEER AND OWNER.





**PAVEMENT NOTES**

PROPOSED FULL DEPTH PAVEMENT

- SURFACE: 1.75" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER
- INTERMEDIATE: 1.75" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0) OVER
- BASE: 3.5" SUPERPAVE BASE COURSE - 25.0 (SBC - 25.0)
- SUBBASE: 12" GRAVEL BORROW

PROPOSED PAVEMENT MICROMILLING AND OVERLAY

- SURFACE: 1.75" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER
- INTERMEDIATE: VARIABLE DEPTH SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5) (1.75" MIN) OVER
- MILLING: VARIABLE DEPTH PAVEMENT MICROMILLING (3.75" TYP, 1.75" TYP)

PROPOSED BRIDGE PAVEMENT

- SURFACE: 1.75" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER
- INTERMEDIATE: VARIABLE DEPTH (1.75" MIN) SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC 12.5) OVER
- 5" CONCRETE DECK SLAB

GENERAL NOTES:

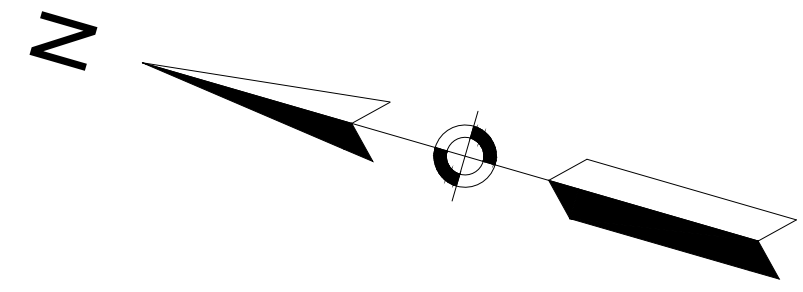
1. ALL SUPERPAVE HOT MIX ASPHALT SHALL BE PRODUCED WITH A WARM MIX ASPHALT TECHNOLOGY. SUPERPAVE SURFACE COURSE SHALL BE POLYMER MODIFIED ASPHALT.
2. ALL HOT MIX ASPHALT PAVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 450 QUALITY ASSURANCE FOR HMA AND SHALL BE PRODUCED IN ACCORDANCE WITH SECTION 455 SUPERPAVE HMA SPECIFICATIONS.
3. ASPHALT EMULSION FOR TACK COAT (ITEM 452.) SHALL BE SPRAY APPLIED FOR DOUBLE OVERLAP COVERAGE AT 0.08 GALLONS PER SQUARE YARD OVER MILLED SURFACES AND 0.07 GALLONS PER SQUARE YARD OVER SMOOTH SURFACES.
4. HMA JOINT SEALANT (ITEM 453.) SHALL BE APPLIED IN SURFACE COURSE AT ALL VERTICAL COLD JOINTS PRIOR TO HMA PAVING.

**HIGHWAY GUARD DETAILS**

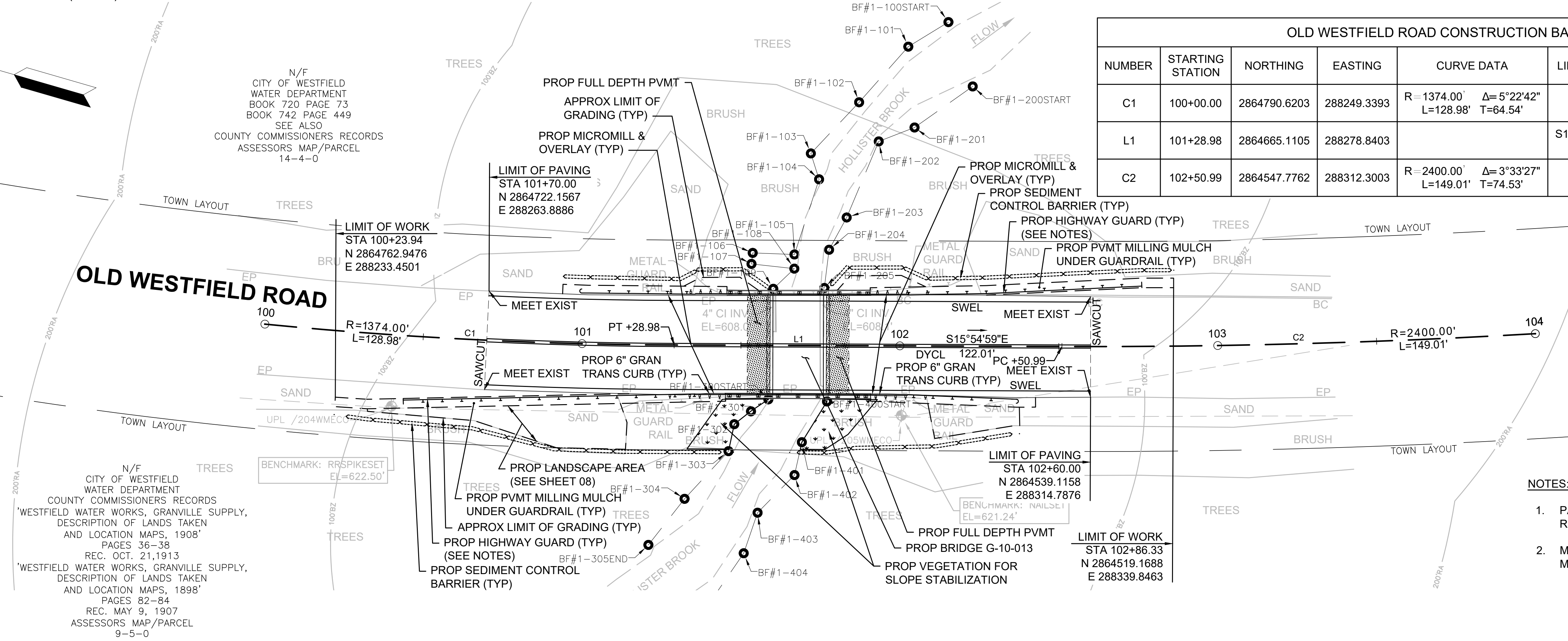
PROP TL-2 FLARED END TREATMENT STA 100+45 RT TO STA 100+70 RT  
 PROP TL-2 HIGHWAY GUARD STA 100+70 RT TO STA 101+37 RT  
 PROP THRIE-BEAM TRANSITION PANEL (400.1.3) STA 101+37 RT TO STA 101+43 RT  
 PROP BRIDGE THRIE-BEAM RAILING STA 101+43 RT TO 101+92 RT (SEE BRIDGE PLANS)  
 PROP THRIE-BEAM TRANSITION PANEL (400.1.3) STA 101+92 RT TO STA 101+99 RT  
 PROP TL-2 HIGHWAY GUARD STA 101+99 RT TO STA 102+27 RT  
 PROP TRAILING ANCHORAGE (400.4.1) STA 102+27 RT TO STA 102+37 RT

PROP TRAILING ANCHORAGE (400.4.1) STA 101+00 LT TO STA 101+09 LT  
 PROP TL-2 HIGHWAY GUARD STA 101+09 LT TO STA 101+37 LT  
 PROP THRIE-BEAM TRANSITION PANEL (400.1.3) STA 101+37 LT TO STA 101+44 LT  
 PROP BRIDGE THRIE-BEAM RAILING STA 101+44 LT TO 101+93 LT (SEE BRIDGE PLANS)  
 PROP THRIE-BEAM TRANSITION PANEL (400.1.3) STA 101+93 LT TO STA 101+99 LT  
 PROP TL-2 HIGHWAY GUARD STA 101+99 LT TO STA 102+51 LT  
 PROP TL-2 FLARED END TREATMENT STA 102+51 LT TO STA 102+76 LT

**GRANVILLE  
 OLD WESTFIELD ROAD  
 CONSTRUCTION PLAN OVER PROFILE  
 SHEET 04 OF 20**



OLD WESTFIELD ROAD CONSTRUCTION BASELINE DATA									
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING	
C1	100+00.00	2864790.6203	288249.3393	R = 1374.00' Δ = 5°22'42" L = 128.98' T = 64.54'		101+28.98	2864665.111	288278.840	
L1	101+28.98	2864665.1105	288278.8403		S15°54'59"E 122.01'	102+50.99	2864547.776	288312.300	
C2	102+50.99	2864547.7762	288312.3003	R = 2400.00' Δ = 3°33'27" L = 149.01' T = 74.53'		104+00.00	2864405.839	288357.585	

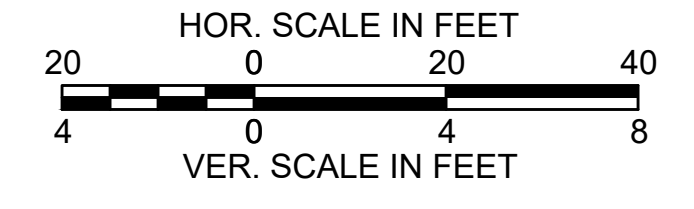
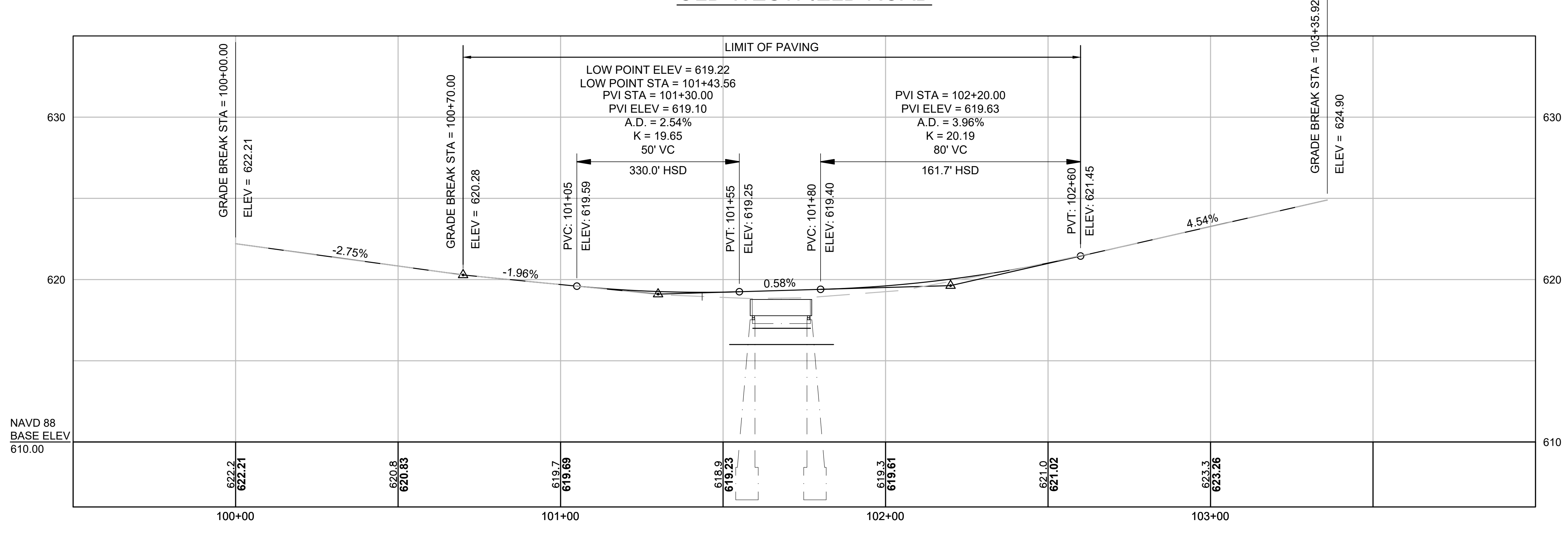


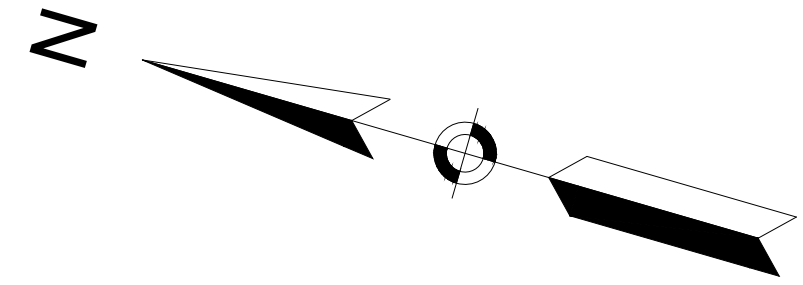
N/F  
 CITY OF WESTFIELD  
 WATER DEPARTMENT  
 BOOK 720 PAGE 73  
 BOOK 742 PAGE 449  
 SEE ALSO  
 COUNTY COMMISSIONERS RECORDS  
 ASSESSORS MAP/PARCEL  
 14-4-0

N/F  
 CITY OF WESTFIELD  
 WATER DEPARTMENT  
 COUNTY COMMISSIONERS RECORDS  
 'WESTFIELD WATER WORKS, GRANVILLE SUPPLY,  
 DESCRIPTION OF LANDS TAKEN  
 AND LOCATION MAPS, 1908'  
 PAGES 36-38  
 REC. OCT. 21, 1913  
 'WESTFIELD WATER WORKS, GRANVILLE SUPPLY,  
 DESCRIPTION OF LANDS TAKEN  
 AND LOCATION MAPS, 1898'  
 PAGES 82-84  
 REC. MAY 9, 1907  
 ASSESSORS MAP/PARCEL  
 9-5-0

- NOTES:**
- PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC
  - MEET EXISTING PAVEMENT MARKINGS AT LIMITS OF PAVING

**OLD WESTFIELD ROAD**





N/F  
 CITY OF WESTFIELD  
 WATER DEPARTMENT  
 BOOK 720 PAGE 73  
 BOOK 742 PAGE 449  
 SEE ALSO  
 COUNTY COMMISSIONERS RECORDS  
 ASSESSORS MAP/PARCEL  
 14-4-0

**OLD WESTFIELD ROAD**

N/F  
 CITY OF WESTFIELD  
 WATER DEPARTMENT  
 COUNTY COMMISSIONERS RECORDS  
 'WESTFIELD WATER WORKS, GRANVILLE SUPPLY,  
 DESCRIPTION OF LANDS TAKEN  
 AND LOCATION MAPS, 1908'  
 PAGES 36-38  
 REC. OCT. 21, 1913  
 'WESTFIELD WATER WORKS, GRANVILLE SUPPLY,  
 DESCRIPTION OF LANDS TAKEN  
 AND LOCATION MAPS, 1898'  
 PAGES 82-84  
 REC. MAY 9, 1907  
 ASSESSORS MAP/PARCEL  
 9-5-0

BENCHMARK: RRSPIKESSET  
 EL=622.50'

LIMIT OF PAVING  
 STA 101+70.00  
 N 2864722.1567  
 E 288263.8886

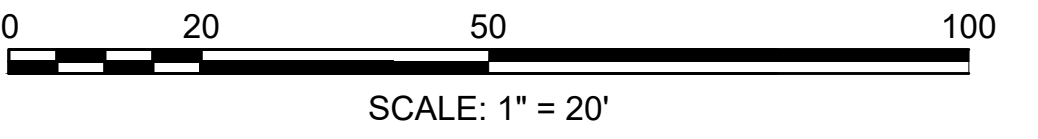
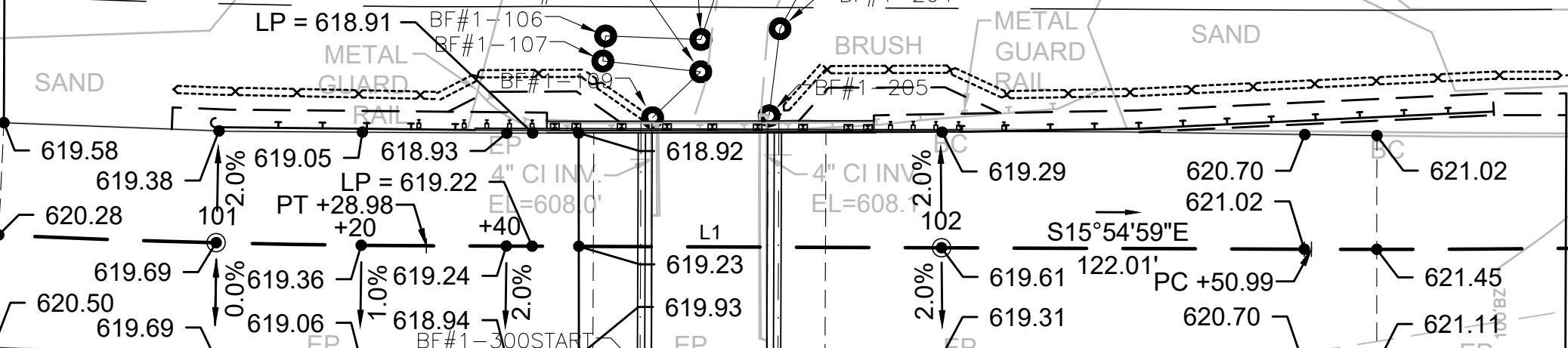
LIMIT OF WORK  
 STA 100+23.94  
 N 2864762.9476  
 E 288233.4501

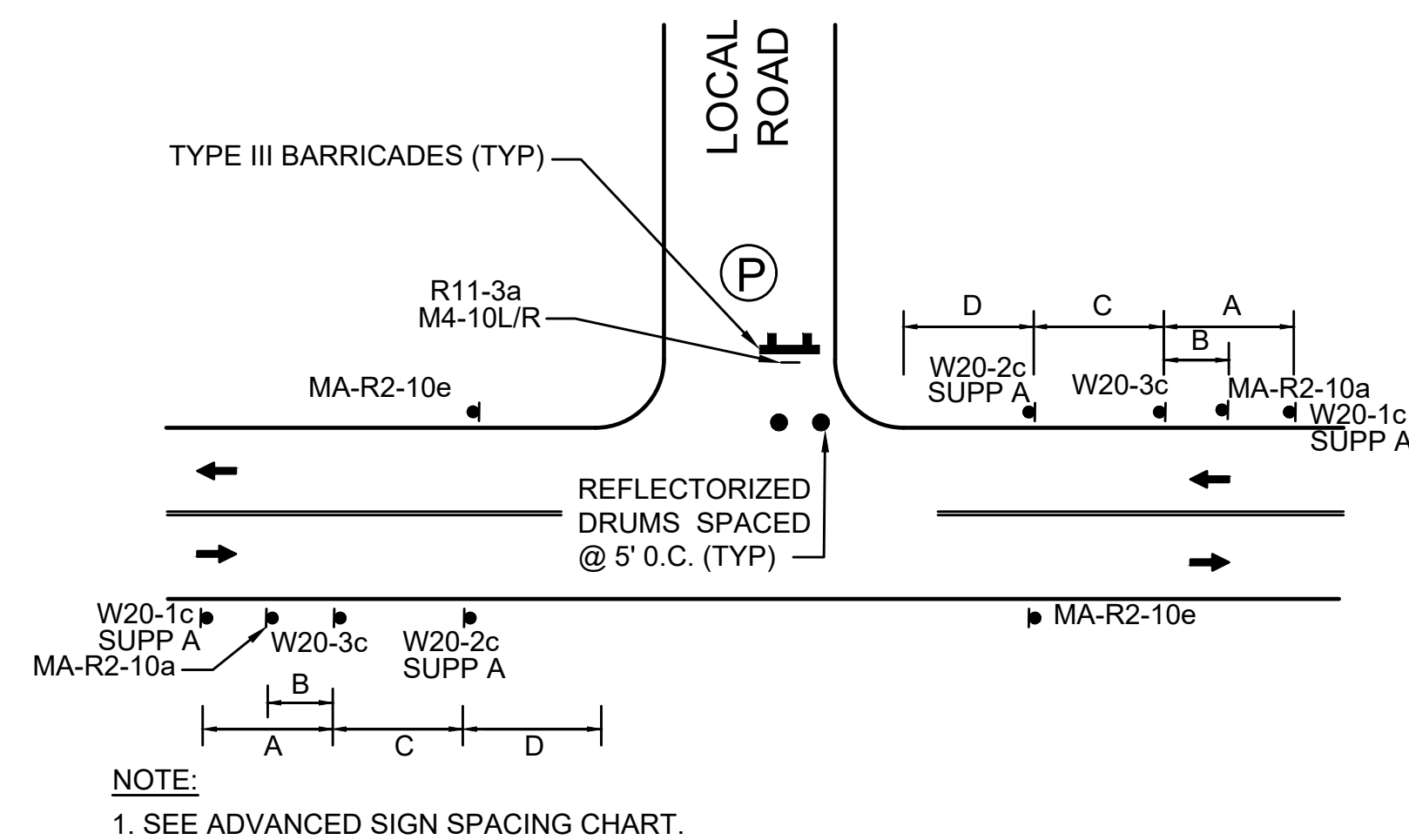
LIMIT OF PAVING  
 STA 102+60.00  
 N 2864539.1158  
 E 288314.7876

LIMIT OF WORK  
 STA 102+86.33  
 N 2864519.1688  
 E 288339.8463

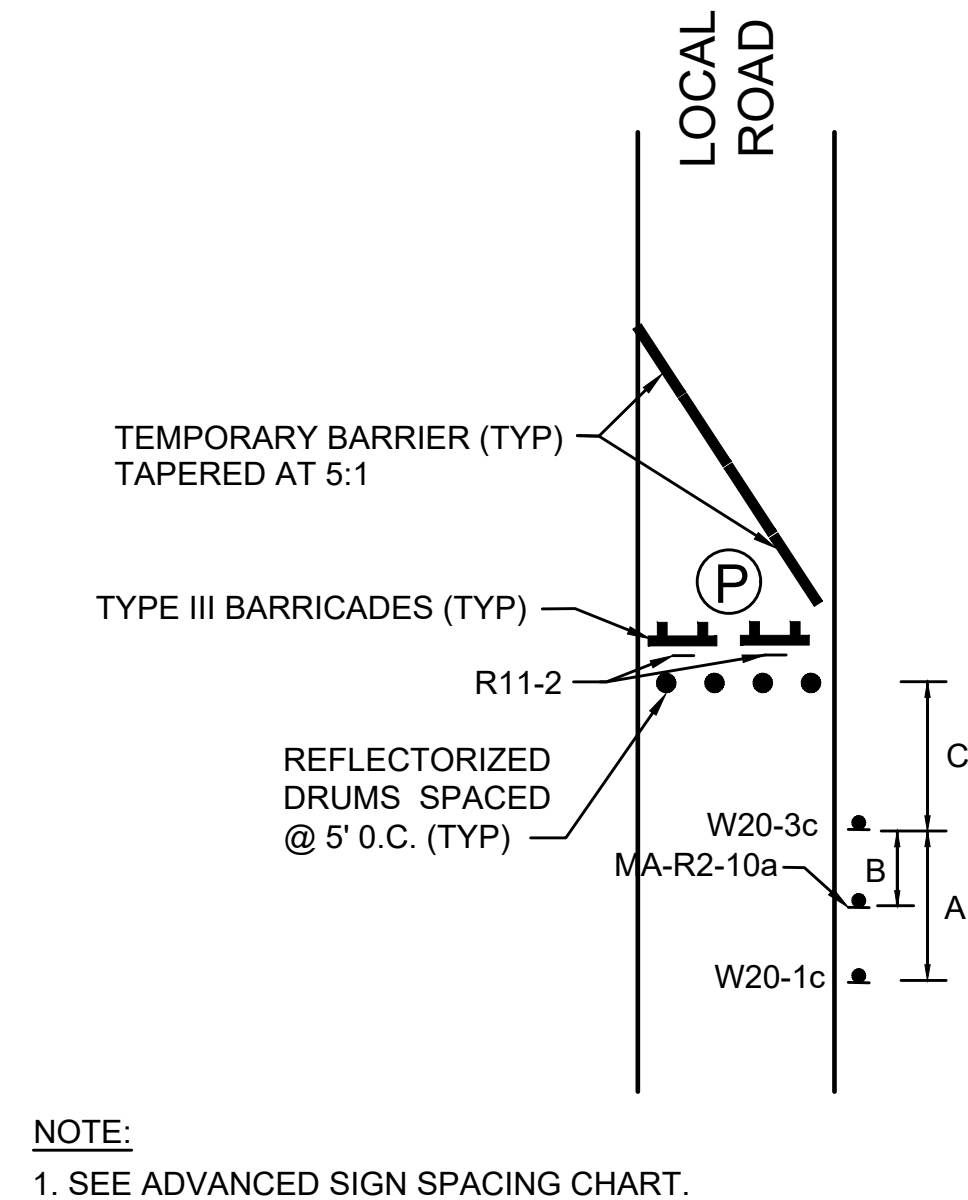
R=1374.00'  
 L=128.98'

R=2400.00'  
 L=149.01'





**TYPICAL LOCAL ROAD CLOSURE WITH LOCAL ACCESS**  
 SCALE: NTS



**TYPICAL LOCAL ROAD CLOSURE**  
 SCALE: NTS

- LEGEND**
- TYPE III BARRICADE
  - SIGN ASSEMBLY
  - POLICE OFFICER
  - REFLECTORIZED DRUM
  - TEMPORARY BARRIER
  - REFLECTORIZED DRUM WITH SEQUENTIAL FLASHING WARNING LIGHTS (SEE GEN. NOTE 17)
  - PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

	LOCATION	DISTANCE [FT]
A	LOCAL	100
B	LOCAL	50
C	LOCAL	100
D	LOCAL	100

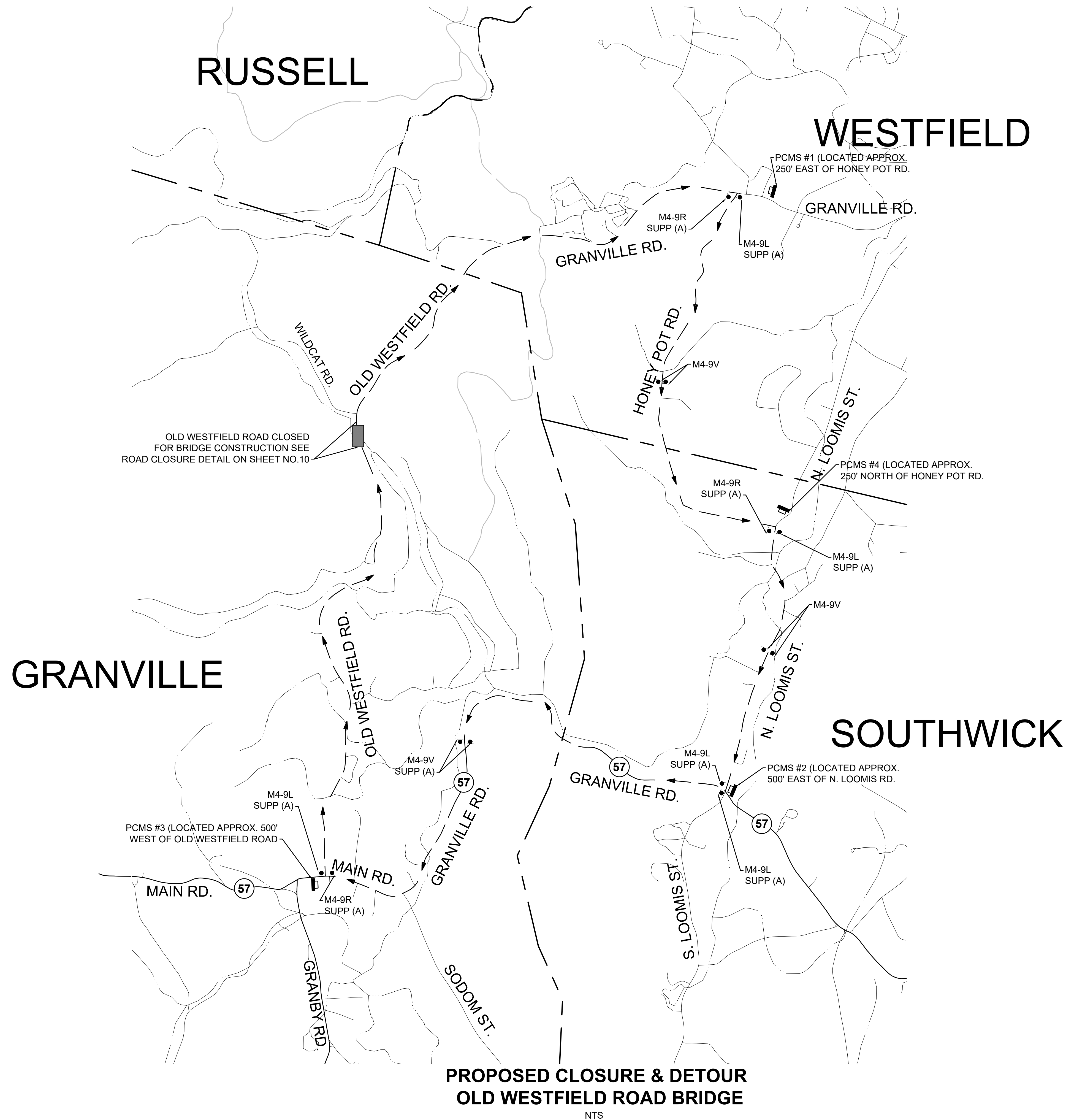
**TYPICAL ADVANCED SIGN SPACING**  
 SCALE: NTS

TEMPORARY TRAFFIC SIGN SUMMARY									
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR		
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER
MA-R2-10a	48"	36"		AS PER MASSDOT STANDARD			ORANGE	WHITE	BLACK
MA-R2-10e	36"	48"		↓			ORANGE	WHITE	BLACK
R11-2	48"	30"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION", AS AMENDED			WHITE	BLACK	BLACK
R11-3a	60"	30"		↓			WHITE	BLACK	BLACK
W20-1c	36"	36"		↓			FLUORESCENT ORANGE	BLACK	BLACK
W20-2c	36"	36"		↓			FLUORESCENT ORANGE	BLACK	BLACK
W20-3c	36"	36"		↓			FLUORESCENT ORANGE	BLACK	BLACK
M4-8	24"	12"		↓			FLUORESCENT ORANGE	BLACK	BLACK
M4-8a	24"	18"		↓			FLUORESCENT ORANGE	BLACK	BLACK
M4-9L	30"	24"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION", AS AMENDED			FLUORESCENT ORANGE	BLACK	BLACK
M4-9R	30"	24"		↓			FLUORESCENT ORANGE	BLACK	BLACK
M4-9V	30"	24"		↓			FLUORESCENT ORANGE	BLACK	BLACK
M4-10R	48"	18"		↓			BLACK	FLUORESCENT ORANGE	BLACK
M4-10L	48"	18"		↓			BLACK	FLUORESCENT ORANGE	BLACK
SUPP (A)	40"	12"		↓			FLUORESCENT ORANGE	BLACK	BLACK

NOTE: SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; AND THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED.

**GENERAL NOTES**

- ALL CONSTRUCTION SIGNING, TEMPORARY TRAFFIC CONTROL DEVICES, AND ROADSIDE ELEMENTS SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS AMENDED, THE LATEST REVISIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, (AASHTO) ROADSIDE DESIGN GUIDE, AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, AND NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
- ALL DRUMS SHALL BE SET AT 20' ON CENTER MAX. ON LOCAL ROADWAY AND 50' ON CENTER MAX. OTHERWISE, UNLESS NOTED OR ADJUSTED BY THE ENGINEER.
- ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS AND OTHER TRAFFIC CONTROL DEVICES, GRADING AND TEMPORARY PAVEMENT FOR PASSAGE OF PEDESTRIAN, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORKING HOURS, TO MAINTAIN SUCH ACCESS.
- THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS.
- GRADE SEPARATIONS IN EXCESS OF 2" DURING NON-WORKING HOURS WILL REQUIRE DELINEATION BY USE OF DRUMS.
- CONTRACTOR SHALL STAGE WORK SUCH THAT A DROP-OFF OF NO MORE THAN 4" AT THE END OF EACH WORK DAY EXISTS WITHIN THE CLEAR ZONE AT ANY TIME.
- 11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED.
- TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS WHEN NOT IN USE.
- SIGNS INSTALLED ON PORTABLE STANDS REQUIRE 12 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
- SIGNS INSTALLED ON PORTABLE STANDS PLACED AMONG CHANNELIZATION DEVICES REQUIRE A 36 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
- SIGNS MOUNTED ON POSTS REQUIRE A MINIMUM 84 INCH MOUNTING HEIGHT FROM THE ROADWAY OR SIDEWALK SURFACE TO THE BOTTOM OF THE SIGN.
- TEMPORARY MARKINGS SHALL BE STRIPING TAPE AS APPROVED BY THE ENGINEER.
- REFLECTORIZED CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.
- CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.
- THERE IS NO DESIGNATED BICYCLE LANE ON THE ROADWAY WITHIN THE PROJECT LIMITS. BICYCLES ARE EXPECTED TO SHARE THE ROAD WITH GENERAL VEHICULAR TRAFFIC.
- SEE DETOUR ROUTING PLANS FOR ADDITIONAL OPERATIONAL DETAILS.
- THE FIRST 10 DRUMS ON TAPERS SHALL BE REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS AND SHALL BE OPERATING, AT A MINIMUM, BETWEEN DUSK AND DAWN WHEN TAPER IS DEPLOYED.
- ALL WORK THAT REQUIRES BI-DIRECTIONAL ALTERNATING TRAFFIC (PAVEMENT RECLAMATION, PAVING OPERATIONS, ETC.) SHALL BE CONDUCTED BETWEEN 9:00 A.M. TO 3:00 P.M. UNLESS OTHERWISE APPROVED BY THE OWNER. WORK SHALL NOT AFFECT TRAFFIC PATTERNS DURING PEAK TRAFFIC PERIODS. PEAK TRAFFIC PERIODS ARE DEFINED AS MONDAY THROUGH FRIDAY 6:00 AM TO 9:00 AM AND 3:00 PM TO 7:00 PM.



**PCMS #1 - #4 MESSAGE TEXT**

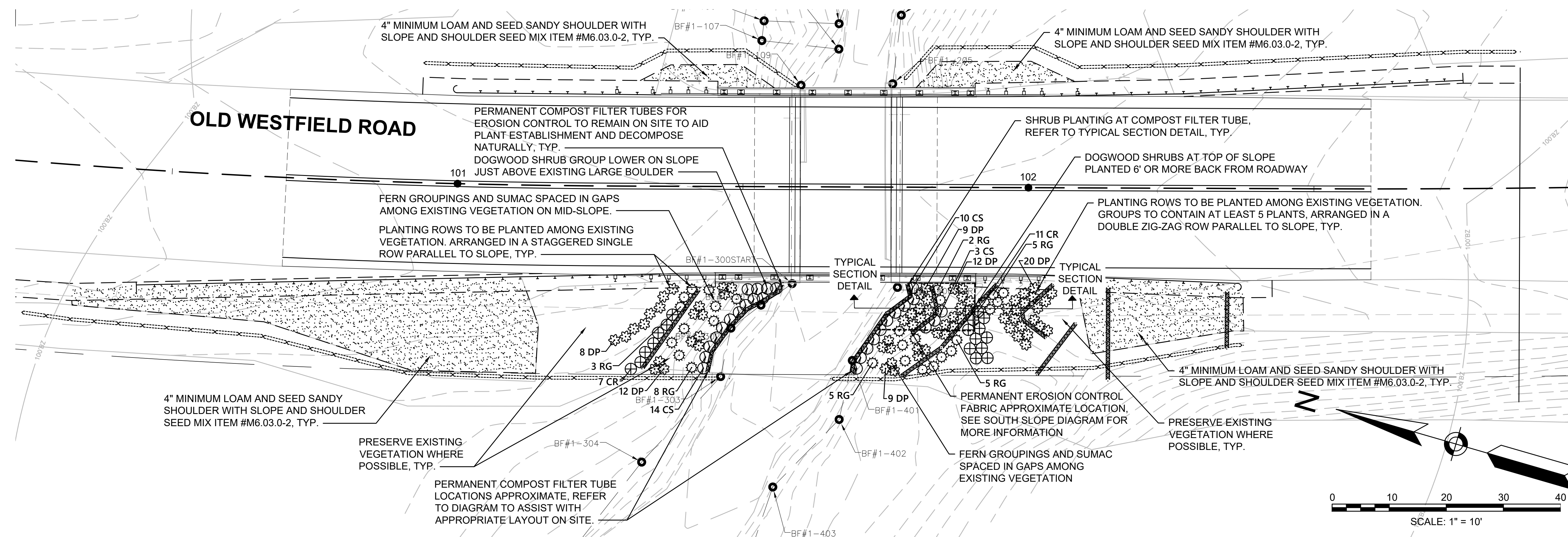
21 DAYS PRIOR TO START OF WORK	ROAD WORK BEGINS	XX/XX/XX USE CAUTION
21 DAYS PRIOR TO START OF WORK	OLD WESTFIELD RD. BRIDGE CLOSED	XX/XX/XX USE CAUTION
7 DAYS DURING CONSTRUCTION	ROAD WORK	USE CAUTION

- PCMS NOTES:**
1. PCMS SHALL BE INSTALLED WITHIN THE EXISTING RIGHT-OF-WAY (ROW) OFF THE ROADWAY AT APPROX. LOCATIONS SHOWN OR AS DIRECTED BY TOWN OF GRANVILLE. PCMS SHALL NOT BLOCK EXIST SIDEWALK.
  2. DATE AND TIMES ON PCMS MESSAGING SHALL BE COORDINATED WITH THE TOWN OF GRANVILLE.
  3. CONTRACTOR SHALL PROVIDE PCMS A MINIMUM OF 21 DAYS PRIOR TO START OF CONSTRUCTION OR AS DIRECTED BY THE TOWN OF GRANVILLE.
  4. CONTRACTOR SHALL REMOVE ALL PCMS 7 DAYS AFTER THE START OF CONSTRUCTION OR AS DIRECTED BY THE TOWN OF GRANVILLE.

- CONSTRUCTION NOTES:**
1. ALL SIGNS SHALL BE PLACED WITHIN THE PUBLIC RIGHT OF WAY. CONTRACTOR SHALL VERIFY EXISTING RIGHT OF WAY LIMITS PRIOR TO INSTALLATION OF SIGNS.
  2. ALL SIGNS SHALL BE INSTALLED PER MUTCD.
  3. THE DETOUR WILL BE PERMITTED BETWEEN JUNE 17, 2022, AND AUGUST 31, 2022.

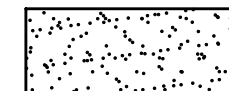
**LEGEND**

- PROPOSED DETOUR ROUTE OLD WESTFIELD ROAD BRIDGE
- PROPOSED WORK ZONE - ROAD CLOSED
- PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
- SIGN ASSEMBLY



**PLANT SCHEDULE**

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
CR	18	Cornus racemosa	Dogwood - Gray Twig	TUBELING (5" DEEP PLUG & 8" + HT.)	24" o.c.	790.530
CS	27	Cornus sericea	Dogwood - Redosier	TUBELING (5" DEEP PLUG & 8" + HT.)	24" o.c.	790.630
RG	28	Rhus aromatica 'Gro-Low'	Sumac - Fragrant 'Gro-Low'	1 GAL.	24" o.c.	794.345
PERENNIALS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS
DP	70	Dennstaedtia punctilobula	Hayscented Fern	1 GAL.	24" o.c.	796.727

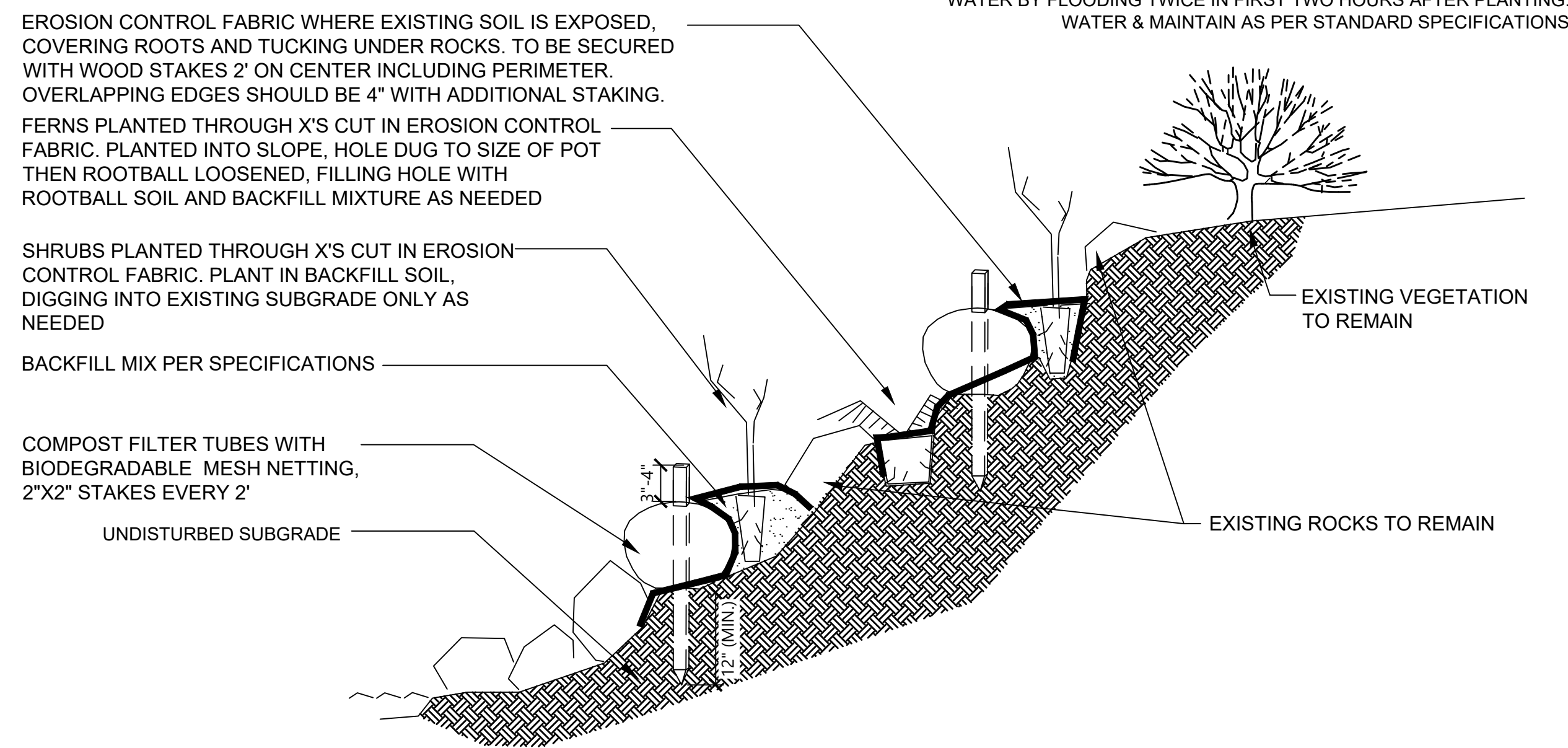
 Slope and Shoulder Standard Seed Mix

**PLANTING NOTES**

- SCHEDULE: INSTALL PERMANENT EROSION CONTROL FABRIC AND PERMANENT COMPOST FILTER TUBES PRIOR TO INITIATION OF CONSTRUCTION. INSTALL PLANTS DURING THE SPRING SEASON (MARCH 21 THROUGH JUNE 15). IF UNABLE TO PLANT IN SPRING, EROSION CONTROL FABRIC AND COMPOST FILTER TUBES SHALL REMAIN OVER WINTER FOR PLANTING THE FOLLOWING SPRING.
- CONTRACTOR SHALL HAVE ALL SUBSURFACE UTILITIES MARKED PRIOR TO THE START OF WORK. PLANT LOCATIONS ARE APPROXIMATE. PRIOR TO PLANTING, LOCATION OF ALL PLANT MATERIAL WILL BE APPROVED BY THE RESIDENT ENGINEER AND THE LANDSCAPE ARCHITECT. PLANTING PITS SHALL BE DUG BY HAND.
- FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS GRAPHICALLY SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLANT LIST AND PLANT LABELS PRIOR TO BIDDING.
- ANY PROPOSED PLANT SUBSTITUTIONS MUST BE REVIEWED BY LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
- ALL PLANT MATERIALS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND CONTRACT DOCUMENTS.
- ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
- ALL PLANT MATERIAL WILL HAVE TAGS INDICATING COMMON NAME, BOTANICAL NAME, & SIZE.
- UPON APPROVAL OF PLANTING, TAGS SHALL BE IMMEDIATELY REMOVED.
- ALL PLANTS WILL BE MULCHED WITH STANDARD AGED PINE BARK MULCH PER PLANS AND SPECIFICATIONS.
- PLANTS AND PLANTING BEDS SHALL BE THOROUGHLY WATERED AS NECESSARY AND PER SPECIFICATIONS.
- COMPOST FILTER TUBES INTERNAL TO THE SITE SHALL REMAIN IN PLACE TO ALLOW FOR PLANT ESTABLISHMENT.
- WETLAND LIMITS ARE MARKED, NO DISTURBANCE IN THE WETLAND.
- THIS PLAN IS INTENDED FOR PLANTING PURPOSES. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

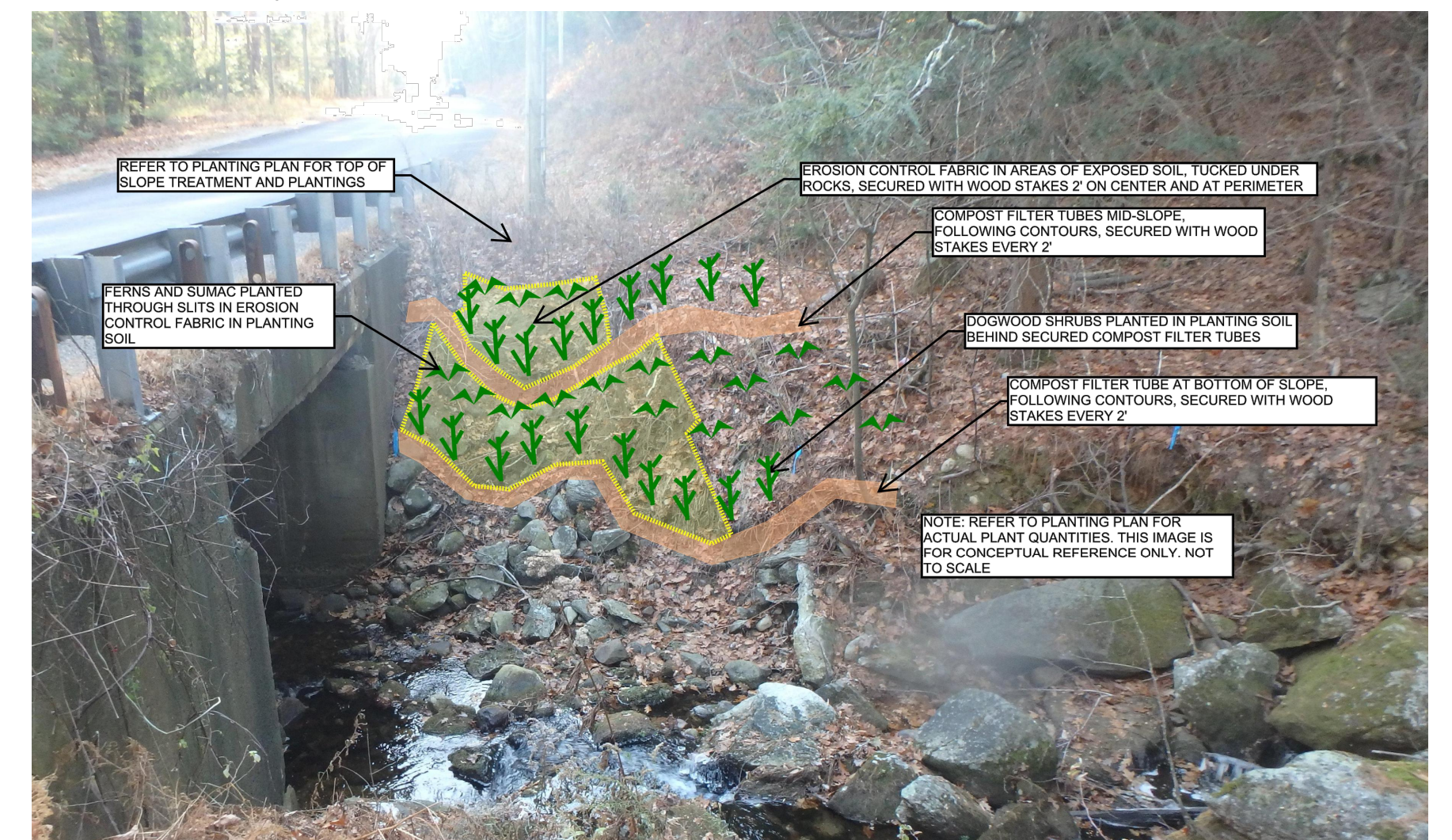
**PLANT MAINTENANCE NOTES**

- CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF SEEDING AND PLANTINGS. NO IRRIGATION IS PROPOSED FOR THIS SITE. THE CONTRACTOR SHALL SUPPLY SUPPLEMENTAL WATERING FOR NEW SEEDING AND PLANTINGS DURING THE MAINTENANCE PERIOD AND ESTABLISHMENT PERIOD.
- CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK. WATER SHALL BE PROVIDED BY THE CONTRACTOR.
- WATERING SHALL BE PROVIDED PER SPECIFICATIONS.
- CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS AT THE END OF THE ESTABLISHMENT PERIOD. CONTRACTOR SHALL TURN OVER MAINTENANCE TO THE FACILITY MAINTENANCE STAFF AT THAT TIME.



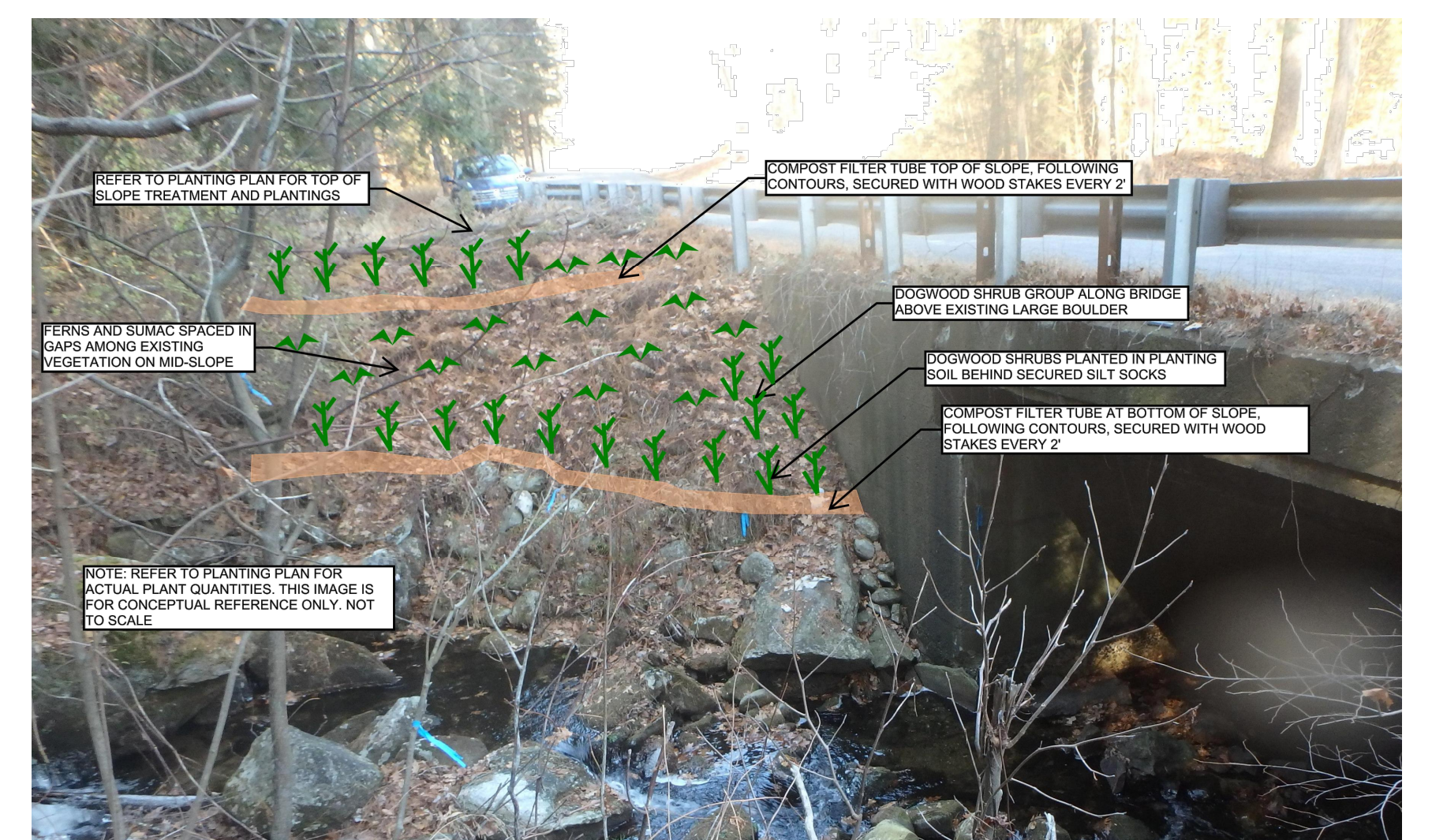
**TYPICAL SECTION DETAIL**

NOT TO SCALE



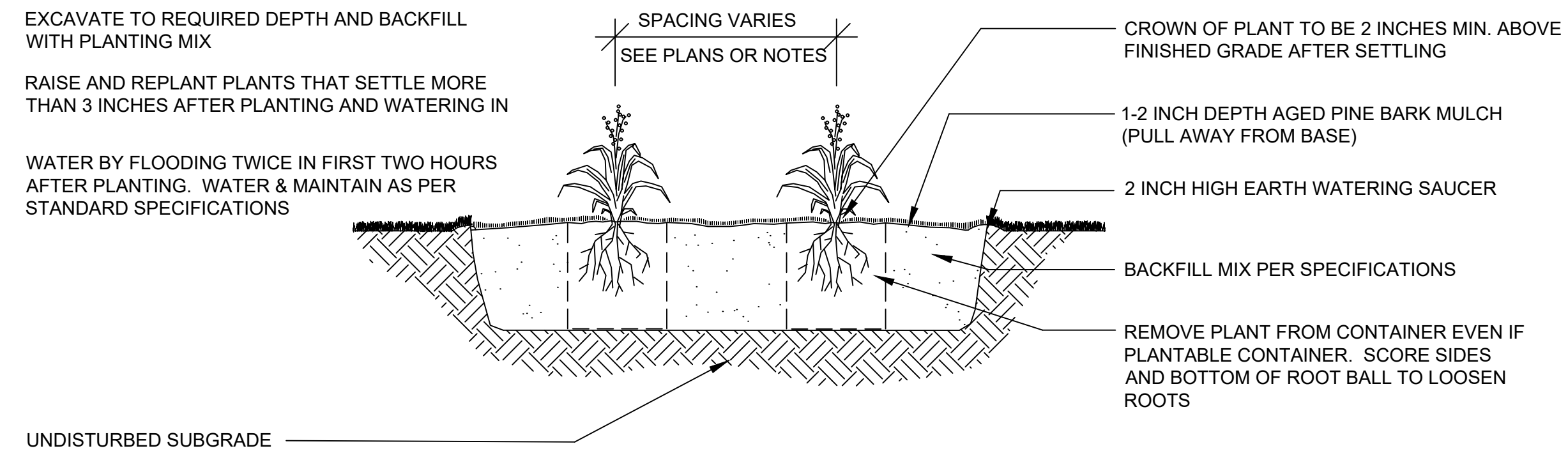
**DIAGRAM: SOUTH SLOPE**

NOT TO SCALE



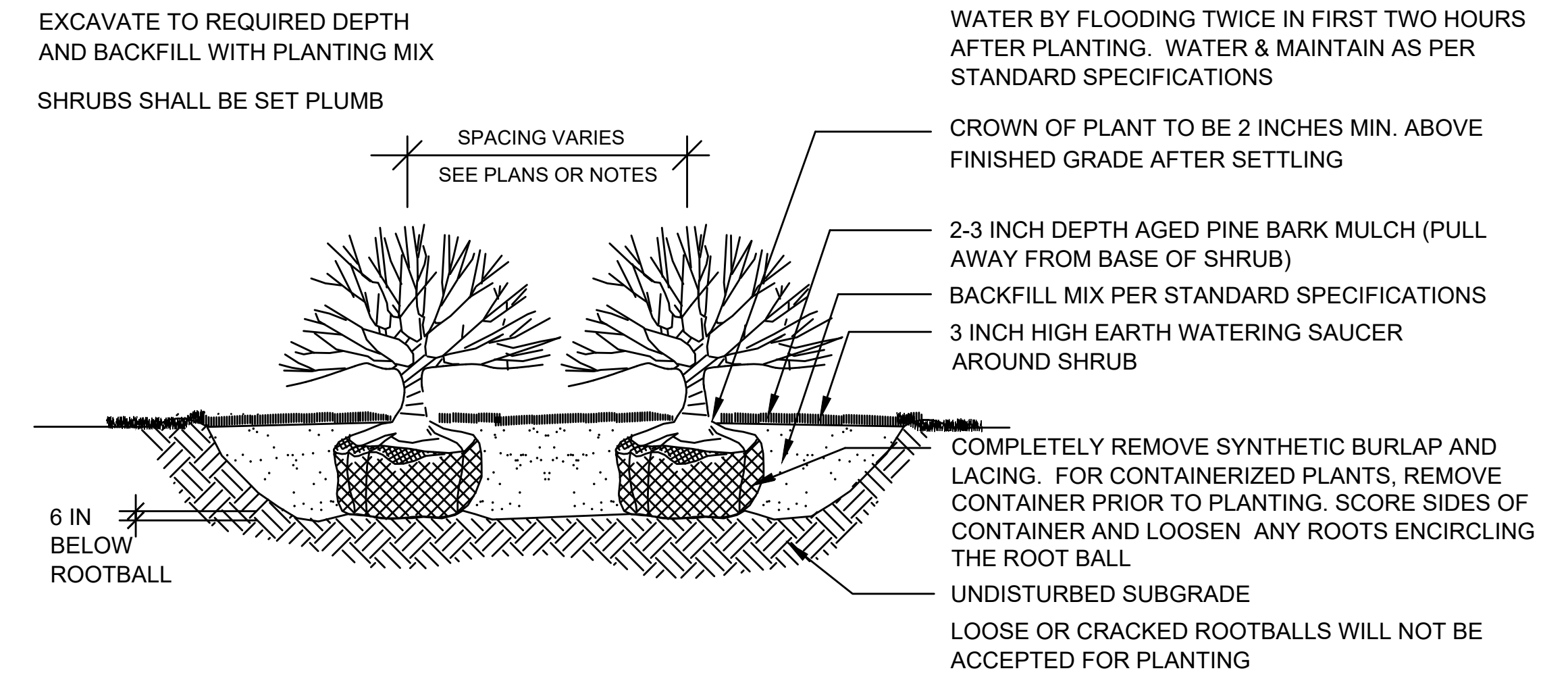
**DIAGRAM: NORTH SLOPE**

NOT TO SCALE



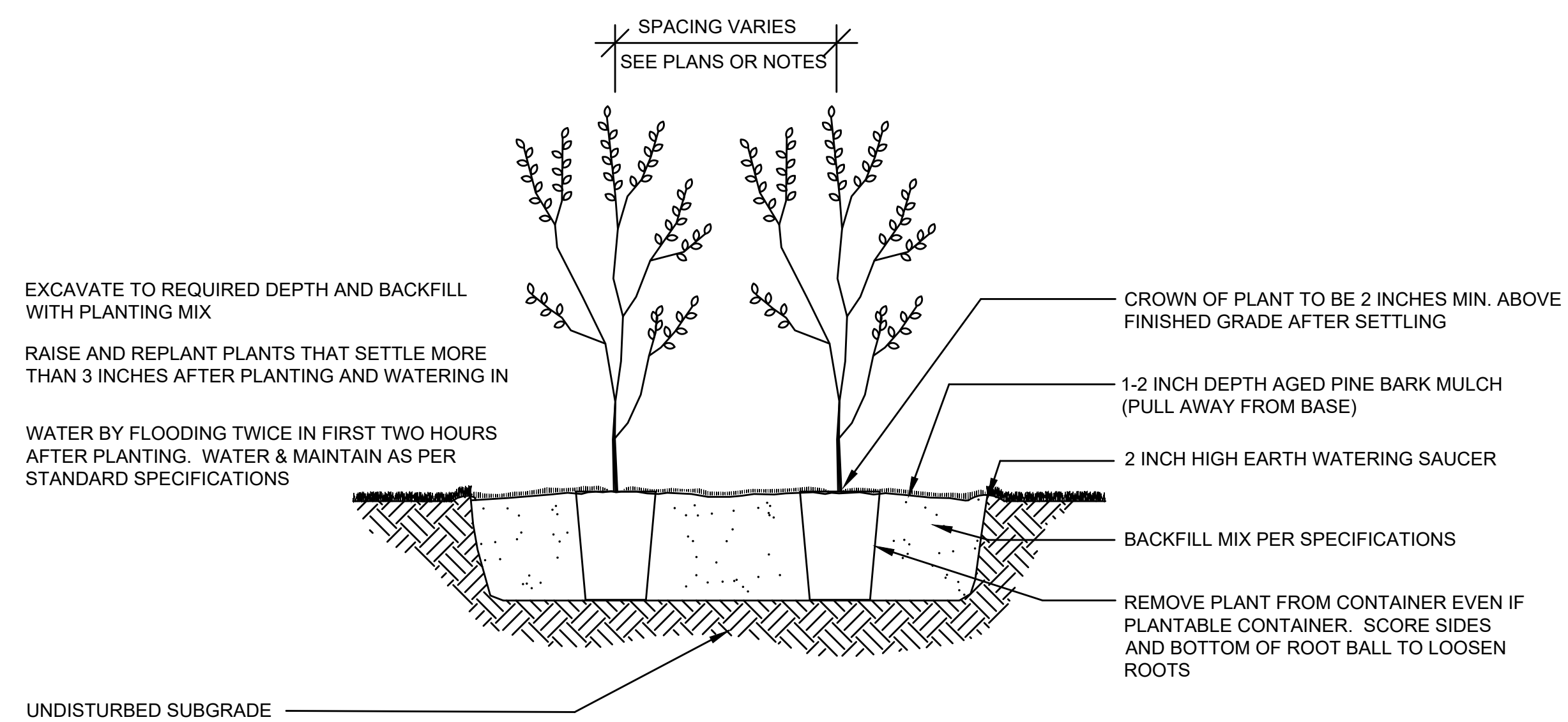
**PERENNIAL PLANTING**

NOT TO SCALE



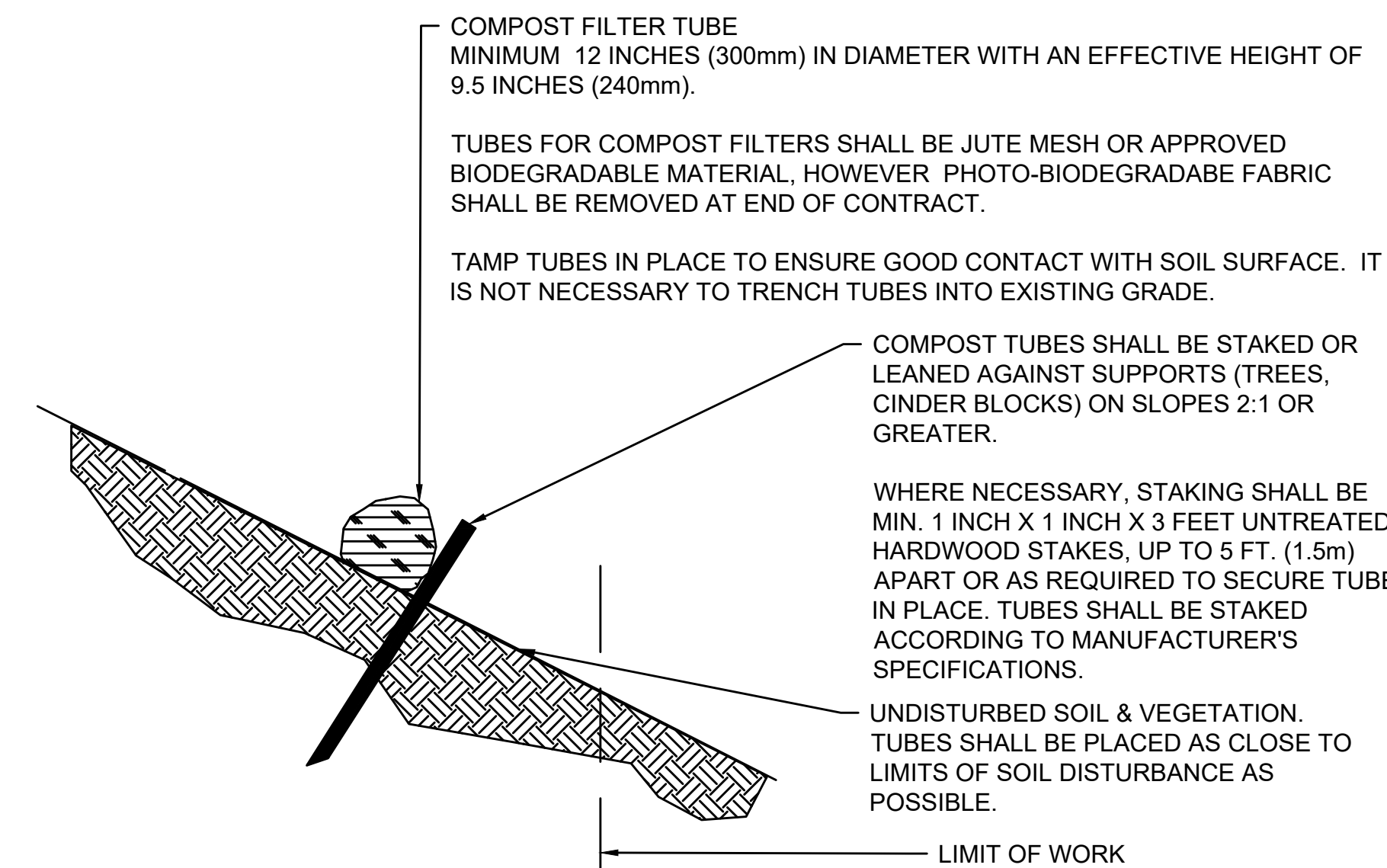
**SHRUB PLANTING**

NOT TO SCALE



**TUBELINING PLANTING**

NOT TO SCALE

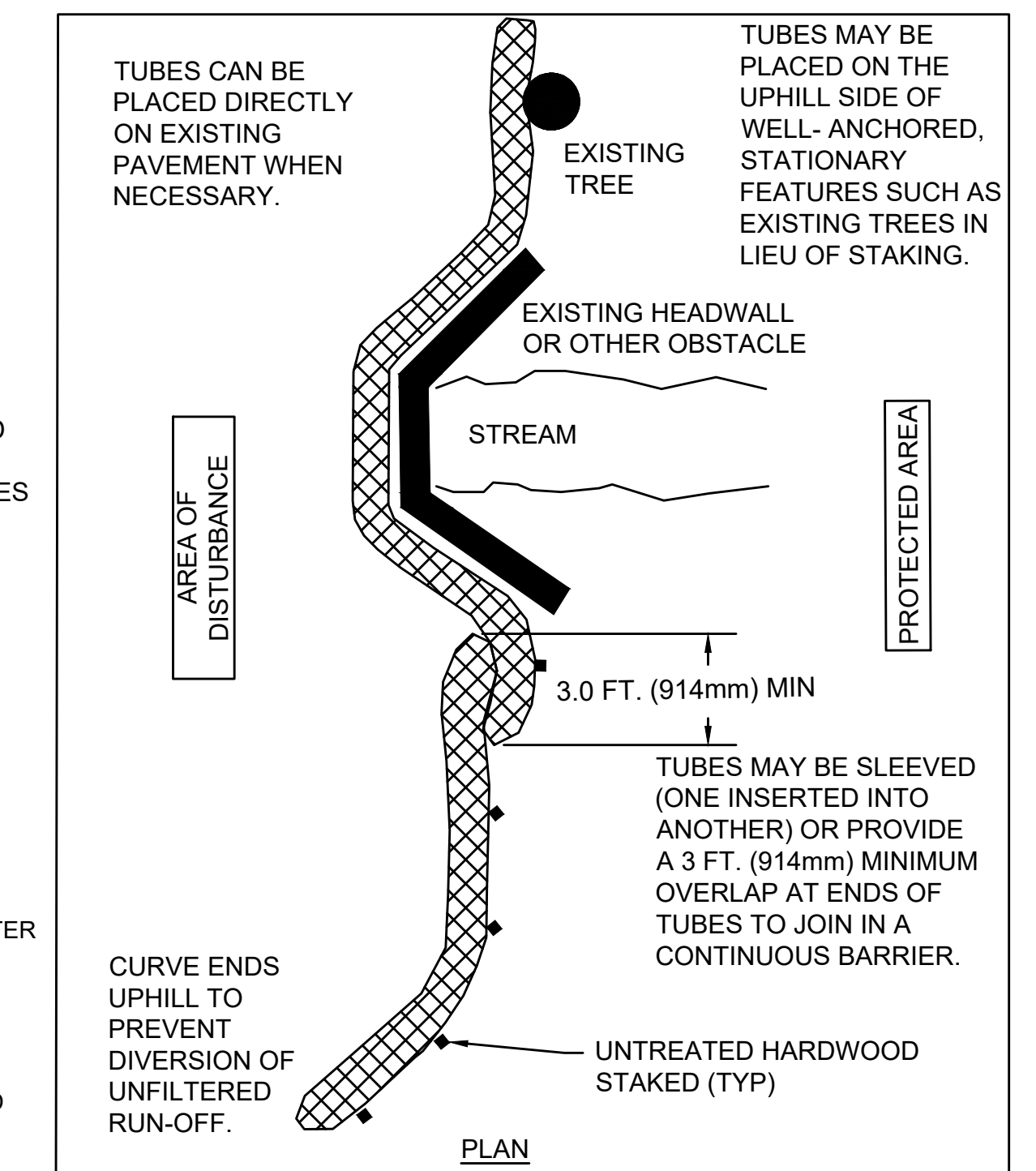


**NOTES:**

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.
4. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
5. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER.

**SEDIMENT CONTROL BARRIER**

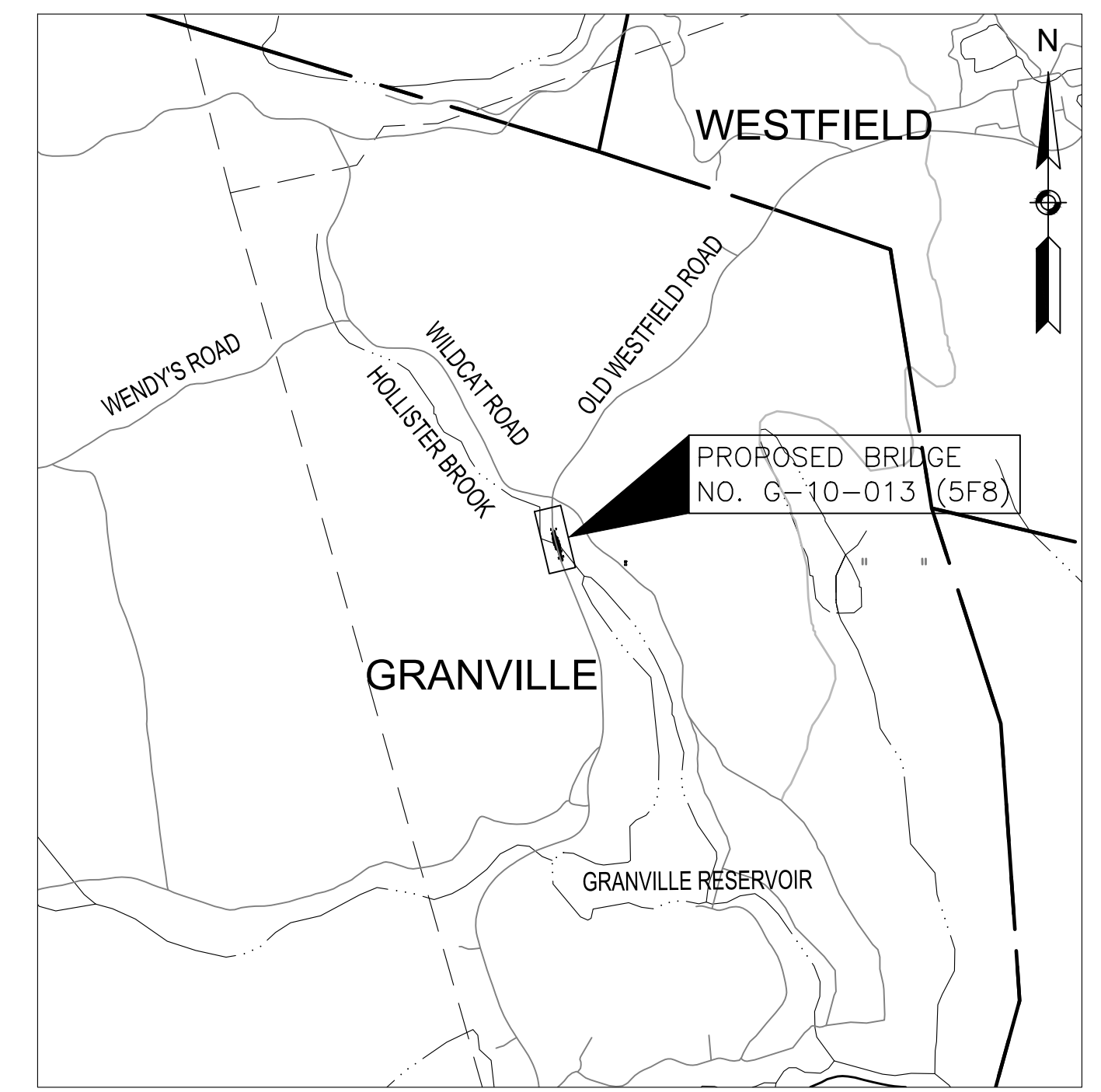
SCALE: N.T.S.



GRANVILLE  
OLD WESTFIELD ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	10	20
PROJECT FILE NO. N/A			

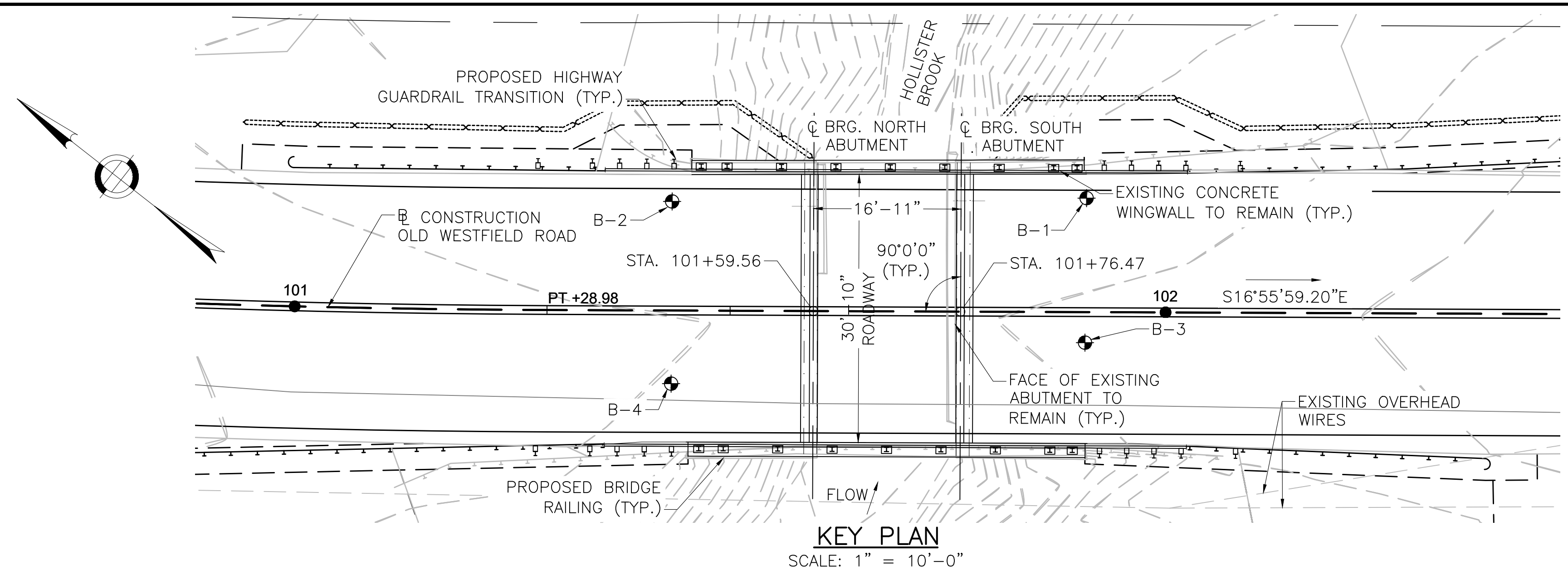
KEY PLAN, PROFILE & INDEX



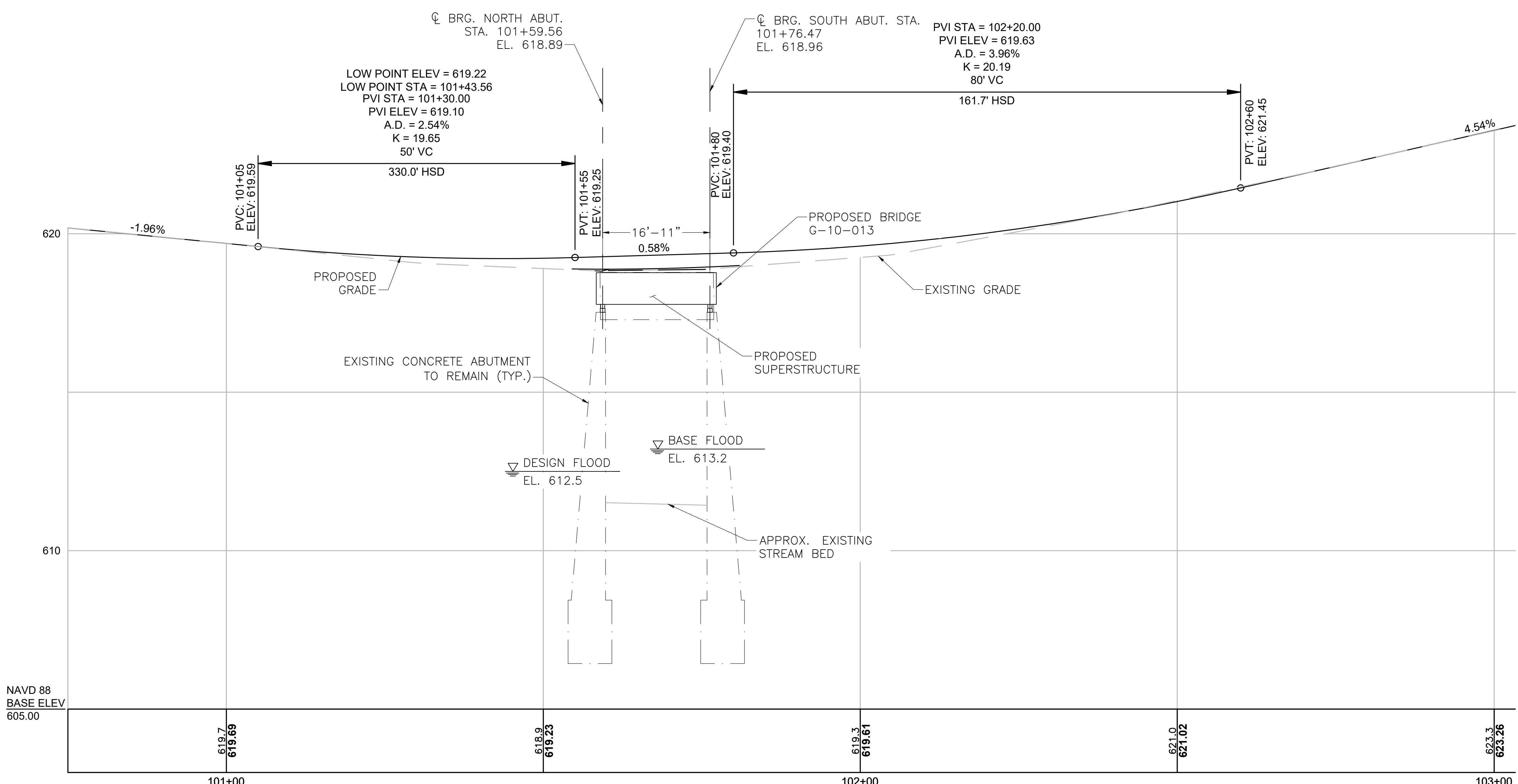
LOCUS MAP  
SCALE: 1" = 2000'

INDEX

SHEET	DESCRIPTION
1	KEY PLAN, PROFILE & INDEX
2	GENERAL NOTES
3	BORING LOGS
4	GENERAL PLAN & ELEVATION
5	NORTH ABUTMENT PLAN AND ELEVATION
6	SOUTH ABUTMENT PLAN AND ELEVATION
7	SUBSTRUCTURE DETAILS
8	BEAM DETAILS
9	DECK DETAILS
10	BRIDGE RAILING DETAILS



KEY PLAN  
SCALE: 1" = 10'-0"



PROFILE ALONG OLD WESTFIELD ROAD

HORIZONTAL SCALE: 1" = 10'-0"  
VERTICAL SCALE: 1" = 2'-0"

COMMONWEALTH OF MASSACHUSETTS  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

**vhb**  
Vanasse Hangen Brustlin, Inc.  
101 Walnut St, P.O. Box 9151  
Watertown, MA 02472  
617.924.1770 FAX 617.924.2286

APRIL 23, 2021	ISSUED FOR CONSTRUCTION
<b>PROPOSED SUPERSTRUCTURE REPLACEMENT GRANVILLE</b>	
OLD WESTFIELD ROAD OVER HOLLISTER BROOK	
TOWN OF GRANVILLE MASSACHUSETTS	

1461100\_BRKEY PLAN.DWG Plotted on 10-Jun-2021 2:10 PM Final Structural Submittal September-2020



GRANVILLE  
OLD WESTFIELD ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	N/A	11	20
PROJECT FILE NO. N/A			

GENERAL NOTES

GENERAL NOTES

DESIGN:

IN ACCORDANCE WITH:

THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

THE 2013 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION LRFD BRIDGE MANUAL.

THE 2011 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN WITH CURRENT INTERIM SPECIFICATIONS.

MASSDOT BENCH MARK:

NAIL SET ON S.W. CORNER  
N3038357.50, E583228.80, EL. 403.99'

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

SURVEY:

TOPOGRAPHICAL INFORMATION FROM A SURVEY BY VANASSE HANGEN BRUSTLIN, INC. BETWEEN THE DATES OF SEPTEMBER 16, 2019 AND OCTOBER 1, 2019.

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZE PRINTS (A3).

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60 EPOXY COATED. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. EPOXY COATED BARS, COVER <math>3d_b</math>, OR CLEARING SPACING <math>6d_b</math>	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

CONSTRUCTION REQUIREMENTS AND PROCEDURES:

THE CONTRACTOR SHALL TAKE THE PROPER PRECAUTIONS TO ENSURE THE STABILITY AND SAFE PERFORMANCE OF ALL STRUCTURAL ELEMENTS DURING DEMOLITION AND CONSTRUCTION. REFER TO APPROVED DEMOLITION/ERECTION PLANS

CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF EXISTING ABUTMENTS IF HEAVY EQUIPMENT IS PLACED BEHIND THE EXISTING ABUTMENTS.

EXISTING CONDITIONS:

THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENTS AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF, AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE OR SHE HAS MADE THE REQUIRED MEASUREMENTS AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

UTILITIES:

THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES.

CONSTRUCTION JOINTS:

CONSTRUCTION JOINTS, OTHER THAN THOSE SHOWN ON THE PLANS, WILL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.

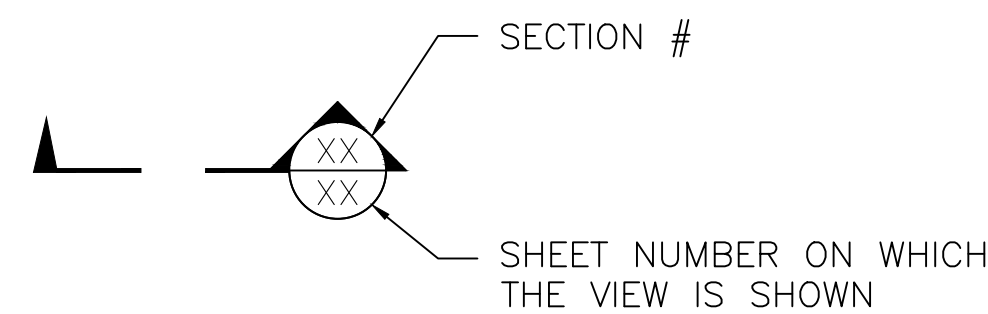
CONCRETE:

CAST-IN-PLACE DECK SHALL BE 4000 PSI,  $\frac{3}{4}$  IN., 585 HP CEMENT CONCRETE. SAFETY CURBS SHALL BE 5000 PSI,  $\frac{3}{4}$  IN., 685 HP CEMENT CONCRETE.

CAST-IN-PLACE ABUTMENT CAPS AND WINGWALLS SHALL BE 4000 PSI,  $\frac{3}{4}$  IN., 610 CEMENT CONCRETE.

PRECAST DECK BEAMS SHALL HAVE A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 5000 PSI.

SECTION MARK:



DEBRIS:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTAINING ALL DEBRIS GENERATED DURING THE WORK AND PREVENTING THE DEBRIS FROM DROPPING INTO OR BEING DISPERSED IN THE BROOK.

ALL DEBRIS SHALL BE CAPTURED AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS. GROUNDWATER, AND BYPASS SURFACE WATER AROUND THE SITE EXCAVATIONS.

PLAN REVISIONS:

IF THERE ARE REVISIONS TO APPROVED PLANS, THE CONTRACTOR SHALL SUBMIT THESE CHANGES TO THE ENGINEER OF RECORD AND MASSDOT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ONCE THESE REVISIONS ARE APPROVED BY THE MUNICIPALITY'S DESIGNER OF RECORD AND MASSDOT, THEY SHALL THEN BE SUBMITTED TO MASSDOT FOR FILING.

SUBSTRUCTURE:

THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY NOT TO DAMAGE THOSE PORTIONS OF THE SUBSTRUCTURE THAT ARE TO REMAIN. ANY PORTION OF THE SUBSTRUCTURE TO REMAIN WHICH BECOMES DAMAGED AS A RESULT OF THE CONTRACTORS OPERATIONS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.

HYDRAULIC DESIGN DATA

DRAINAGE AREA:	1.88	SQ. MILES
DESIGN FLOOD DISCHARGE:	325	C.F.S.
DESIGN FLOOD FREQUENCY	25	YEARS
DESIGN FLOOD VELOCITY:	7.9	F.P.S.
DESIGN FLOOD ELEVATION:	612.5	FEET, NAVD

BASE (100-YEAR) FLOOD DATA

BASE FLOOD DISCHARGE:	485	C.F.S.
BASE FLOOD ELEVATION:	613.2	FEET, NAVD

DESIGN AND CHECK SCOUR DATA

DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY:	50	YEARS
DESIGN FLOOD ABUTMENT SCOUR DEPTH:	3.4	FEET
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY:	100	YEARS
CHECK FLOOD ABUTMENT SCOUR DEPTH:	3.9	FEET

FLOOD OF RECORD

DISCHARGE:	UNKNOWN	C.F.S.
FREQUENCY (IF KNOWN):	UNKNOWN	YEARS
MAXIMUM ELEVATION:	UNKNOWN	FEET, NAVD
DATE:	UNKNOWN	MONTH, YEAR
HISTORY OF ICE FLOES:	NO	N.A.
EVIDENCE OF SCOUR AND EROSION:	YES	N.A.

SEISMIC DESIGN CRITERIA

DESIGN RETURN PERIOD:	1000-YR
DESIGN SPECTRA	
As	0.071g
SDs	0.157g
SD1	0.064g
SITE CLASS	C
SEISMIC DESIGN CATEGORY (SDC)	A

ESTIMATED BRIDGE QUANTITIES

(NOT GUARANTEED)

NO.	ITEM	QUANTITY	UNITS
114.1	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. G-10-013 (5F8)	1	LS
120.	EARTH EXCAVATION	20	CY
151.	GRAVEL BORROW	24	CY
450.231	SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P)	10	TON
450.31	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5)	10	TON
482.31	SAWING AND SEALING JOINTS IN ASPHALT PAVEMENT AT BRIDGES	62	FT
994.01	TEMPORARY PROTECTIVE SHIELDING, BRIDGE NO. G-10-013	1	LS
995.	BRIDGE SUPERSTRUCTURE, BRIDGE NO. G-10-013	1	LS

COMMONWEALTH OF MASSACHUSETTS  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

APRIL 23, 2021	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	12	20

PROJECT FILE NO. N/A

BORING LOGS

**BORING B-1**

STATION: 101+91.06  
OFFSET: 9.42' LEFT  
N 2864607.99 E 288304.93  
GROUND ELEVATION: 619

**BORING B-2**

STATION: 101+44.22  
OFFSET: 9.33' LEFT  
N 2864653.01 E 288291.99  
GROUND ELEVATION: 619

**BORING B-3**

STATION: 101+93.52  
OFFSET: 3.76' RIGHT  
N 2864602.01 E 288292.93  
GROUND ELEVATION: 619

**BORING B-4**

STATION: 101+43.38  
OFFSET: 8.12' RIGHT  
N 2864649.03 E 288274.98  
GROUND ELEVATION: 619

BORING LOG										Boring No.: B-1
Project Name										Page No.: 1 of 1
Old Westfield Road Bridge over Hollister Brook Granville, MA										File No.: 0837-093
Checked By: DTH										
Boring Company: Seaboard Drilling		Casing: Flush		Sampler: SS		Date		Groundwater Observations		Notes
Foreman: Mike Glynn		ID: 4.0 in.		1.38 in.						
Geoblog Rep: Bob Dromas		Date Started: September 17, 2019		Date Finished: September 17, 2019		Hammer Wt.: 140 lbs.		Hammer Fall: 30 in.		
N. Coordinate: 2864607		E. Coordinate: 288305		Rig Type: Mobile B53 Truck		Hammer Type: Automatic				
Ground Surface Elevation (bet): 619		Offset: 9								
Sample Information					Strata Description					Sample Description
Depth (ft)	Casing Blow (ft)	Number	Type	Recovery (%)	Blows / 6 inch Interval	Depth (ft)	Symbol	Classification System: Modified Burmeister		
0.6	0.6	1	SS	100	1	0.6	619.0	Fill (Gravelly Sand with inferred Cobbles)	S1) Medium dense, brown fine to coarse (-) SAND, some fine Gravel, trace (+) Silt. With rock fragments in spoon tip.	
1.2	1.2	2	SS	100	2	1.2	619.0		S2) Medium dense, brown fine to coarse (-) SAND, some fine Gravel, little (-) Silt.	
1.8	1.8	3	SS	100	3	1.8	619.0		S3) Loose, brown fine to coarse (-) SAND, little fine Gravel, little (-) Silt. With rock fragments in spoon tip.	
2.4	2.4	4	SS	100	4	2.4	619.0		S4) Medium dense, brown fine to medium SAND, little fine Gravel, little (-) Silt. With rock fragments in spoon tip.	
3.0	3.0	5	SS	100	5	3.0	619.0		S5) Very dense, SSA (upper half); brown fine to coarse SAND, and fine GRAVEL, trace Silt.	
3.6	3.6	6	SS	100	6	3.6	619.0		SSB (lower half); gray decomposed rock.	
4.2	4.2	7	SS	100	7	4.2	619.0		S6) Very dense, SSA (upper half); brown fine to coarse s SAND, some fine Gravel, little Silt.	
4.8	4.8	8	SS	100	8	4.8	619.0		SSB (lower half); Gray decomposed rock.	
5.4	5.4	9	SS	100	9	5.4	619.0		C1) Very poor quality, moderately weathered, hard, gray GNEISS.	
6.0	6.0	10	SS	100	10	6.0	619.0		Bottom of Exploration at 15.5 ft	

EL. 606±  
BOT. OF FOOTING

EL. 606±  
BOT. OF FOOTING

BORING LOG										Boring No.: B-2
Project Name										Page No.: 1 of 1
Old Westfield Road Bridge over Hollister Brook Granville, MA										File No.: 0837-093
Checked By: DTH										
Boring Company: Seaboard Drilling		Casing: Flush		Sampler: SS		Date		Groundwater Observations		Notes
Foreman: Mike Glynn		ID: 4.0 in.		1.38 in.						
Geoblog Rep: Bob Dromas		Date Started: September 17, 2019		Date Finished: September 17, 2019		Hammer Wt.: 140 lbs.		Hammer Fall: 30 in.		
N. Coordinate: 2864653		E. Coordinate: 288292		Rig Type: Mobile B53 Truck		Hammer Type: Automatic				
Ground Surface Elevation (bet): 619		Offset: 9								
Sample Information					Strata Description					Sample Description
Depth (ft)	Casing Blow (ft)	Number	Type	Recovery (%)	Blows / 6 inch Interval	Depth (ft)	Symbol	Classification System: Modified Burmeister		
0.6	0.6	1	SS	100	1	0.6	619.0	Fill (Gravelly Sand with inferred Cobbles)	S1) Medium dense, brown fine to coarse (-) SAND, little fine Gravel, trace Silt. With rock fragments in spoon tip.	
1.2	1.2	2	SS	100	2	1.2	619.0		S2) Loose, brown fine to medium SAND, some fine to coarse Gravel, trace (+) Silt.	
1.8	1.8	3	SS	100	3	1.8	619.0		S3) Loose, brown fine to medium SAND, little (+) Silt, little fine Gravel.	
2.4	2.4	4	SS	100	4	2.4	619.0		S4) Medium dense, brown fine to gray SILT and fine to medium SAND, trace fine Gravel.	
3.0	3.0	5	SS	100	5	3.0	619.0		S5) Refusal, brown to gray fine to coarse (-) SAND, little (+) Silt, little fine Gravel.	
3.6	3.6	6	SS	100	6	3.6	619.0		S6) Refusal, Gray fine GRAVEL, little fine Sand, little Silt.	
4.2	4.2	7	SS	100	7	4.2	619.0		C1) Fair quality, moderately weathered GNEISS.	
4.8	4.8	8	SS	100	8	4.8	619.0		C2) Fair quality, slightly weathered, hard, gray GNEISS, with fractured AMPHIBOLITE at bottom.	
5.4	5.4	9	SS	100	9	5.4	619.0		C3) Very poor quality, moderately weathered, moderately hard, fractured brown/gray AMPHIBOLITE interbedded with gray GNEISS.	
6.0	6.0	10	SS	100	10	6.0	619.0		C4) Poor quality, slightly weathered, hard, gray GNEISS.	
6.6	6.6	11	SS	100	11	6.6	619.0		Bottom of Exploration at 21.8 ft	

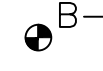
EL. 606±  
BOT. OF FOOTING

BORING LOG										Boring No.: B-3
Project Name										Page No.: 1 of 1
Old Westfield Road Bridge over Hollister Brook Granville, MA										File No.: 0837-093
Checked By: DTH										
Boring Company: Seaboard Drilling		Casing: Flush		Sampler: SS		Date		Groundwater Observations		Notes
Foreman: Mike Glynn		ID: 4.0 in.		1.38 in.						
Geoblog Rep: Bob Dromas		Date Started: September 18, 2019		Date Finished: September 18, 2019		Hammer Wt.: 140 lbs.		Hammer Fall: 30 in.		
N. Coordinate: 2864602		E. Coordinate: 288293		Rig Type: Mobile B53 Truck		Hammer Type: Automatic				
Ground Surface Elevation (bet): 619		Offset: 8								
Sample Information					Strata Description					Sample Description
Depth (ft)	Casing Blow (ft)	Number	Type	Recovery (%)	Blows / 6 inch Interval	Depth (ft)	Symbol	Classification System: Modified Burmeister		
0.6	0.6	1	SS	100	1	0.6	619.0	Fill (Gravelly Sand with inferred Cobbles and Boulders)	S1) Dense, brown to gray fine to medium SAND, some (-) fine to coarse Gravel, trace (+) Silt.	
1.2	1.2	2	SS	100	2	1.2	619.0		S2) Medium dense, brown fine to medium SAND, little fine Gravel, trace Silt.	
1.8	1.8	3	SS	100	3	1.8	619.0		S3) Loose, brown fine to medium SAND, some fine to coarse Gravel, trace Silt.	
2.4	2.4	4	SS	100	4	2.4	619.0		S4) Loose, brown fine to medium SAND, little fine Gravel, trace Silt.	
3.0	3.0	5	SS	100	5	3.0	619.0		S5) Refusal, brown fine to coarse SAND, some fine to coarse Gravel, trace Silt.	
3.6	3.6	6	SS	100	6	3.6	619.0		S6) Refusal, no recovery.	
4.2	4.2	7	SS	100	7	4.2	619.0		C1) Poor quality, slightly weathered, hard gray GNEISS.	
4.8	4.8	8	SS	100	8	4.8	619.0		Bottom of Exploration at 20.0 ft	

EL. 606±  
BOT. OF FOOTING

BORING LOG										Boring No.: B-4
Project Name										Page No.: 1 of 1
Old Westfield Road Bridge over Hollister Brook Granville, MA										File No.: 0837-093
Checked By: DTH										
Boring Company: Seaboard Drilling		Casing: Flush		Sampler: SS		Date		Groundwater Observations		Notes
Foreman: Mike Glynn		ID: 4.0 in.		1.38 in.						
Geoblog Rep: Bob Dromas		Date Started: September 18, 2019		Date Finished: September 18, 2019		Hammer Wt.: 140 lbs.		Hammer Fall: 30 in.		
N. Coordinate: 2864649		E. Coordinate: 288275		Rig Type: Mobile B53 Truck		Hammer Type: Automatic				
Ground Surface Elevation (bet): 619		Offset: 8								
Sample Information					Strata Description					Sample Description
Depth (ft)	Casing Blow (ft)	Number	Type	Recovery (%)	Blows / 6 inch Interval	Depth (ft)	Symbol	Classification System: Modified Burmeister		
0.6	0.6	1	SS	100	1	0.6	619.0	Fill (Gravelly Sand with inferred Cobbles and Boulders)	S1) Dense, brown fine to medium SAND, some fine to coarse Gravel, trace Silt.	
1.2	1.2	2	SS	100	2	1.2	619.0		S2) Medium dense, brown fine to medium SAND, some fine Gravel, trace Silt.	
1.8	1.8	3	SS	100	3	1.8	619.0		S3) Loose, brown to orange-brown fine to medium SAND, some fine to coarse Gravel, some Silt.	
2.4	2.4	4	SS	100	4	2.4	619.0		S4) Dense, brown fine to medium SAND, some fine to coarse Gravel, little Silt.	
3.0	3.0	5	SS	100	5	3.0	619.0		C1) Gray GNEISS (13" piece, Boulder)	
3.6	3.6	6	SS	100	6	3.6	619.0		Bottom of Exploration at 9.0 ft	

BORING NOTES:

- LOCATION OF BORINGS SHOWN ON THE KEY PLAN THUS:  B-1
- BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
- WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
- FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 1/8" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
- ALL BORINGS WERE MADE IN SEPTEMBER OF 2019.
- BORINGS WERE MADE BY GEODESIGN, INC. 54 MAIN ST. WINDSOR, VT 05089.
- THE VERTICAL DATUM IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
- BORING SAMPLES ARE STORED AT GEODESIGN, INC., 54 MAIN STREET IN WINDSOR, VERMONT. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING GEODESIGN, INC.

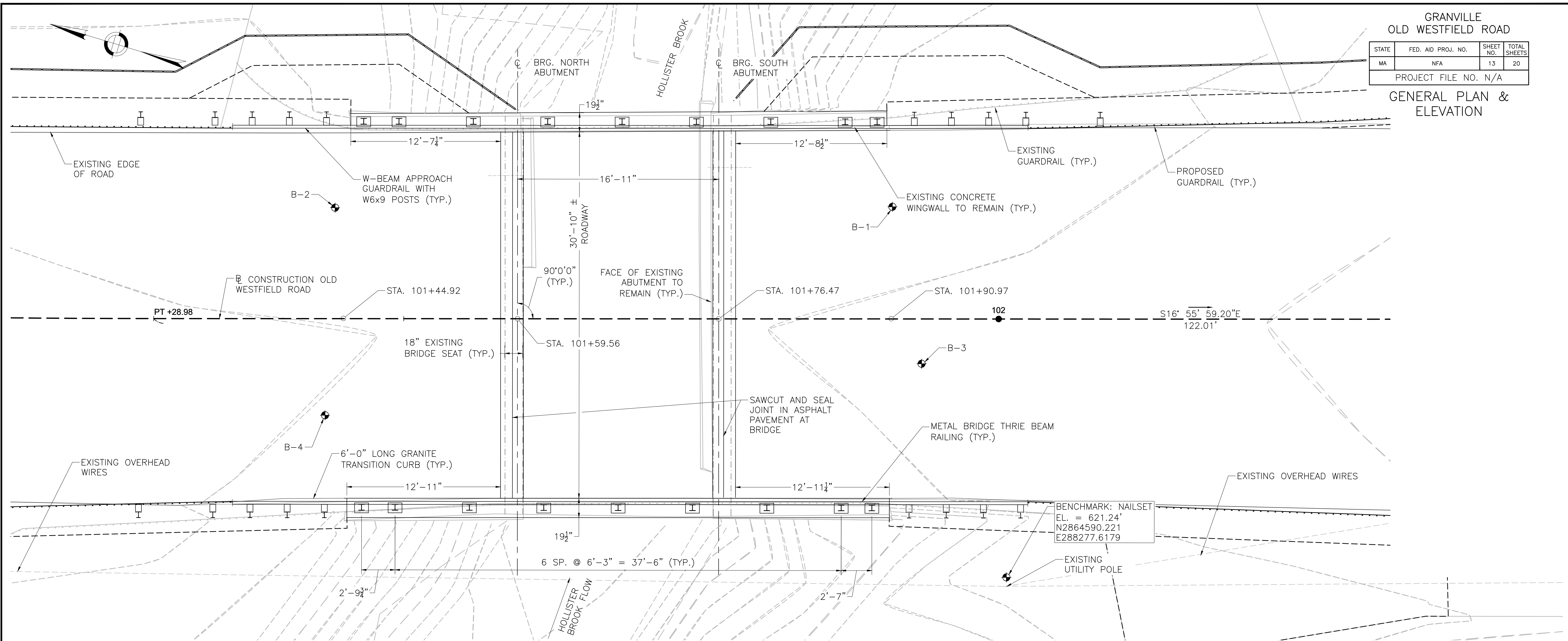
COMMONWEALTH OF MASSACHUSETTS  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

APRIL 23, 2021	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

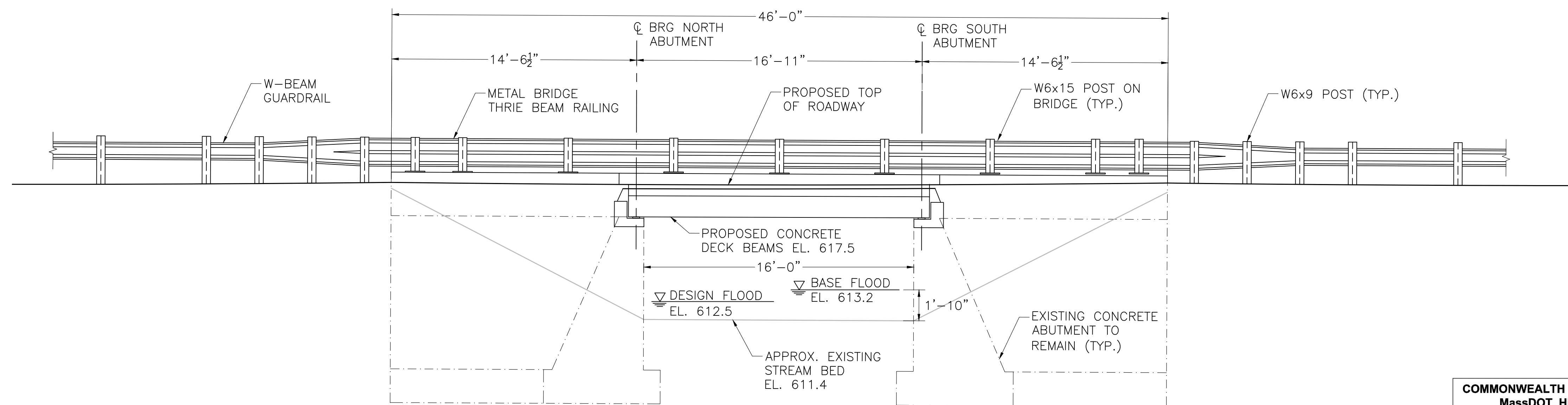
GRANVILLE  
OLD WESTFIELD ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	13	20

PROJECT FILE NO. N/A  
GENERAL PLAN &  
ELEVATION



**GENERAL PLAN**  
SCALE: 1/4" = 1'-0"



**ELEVATION (LOOKING EAST)**  
SCALE: 1/4" = 1'-0"

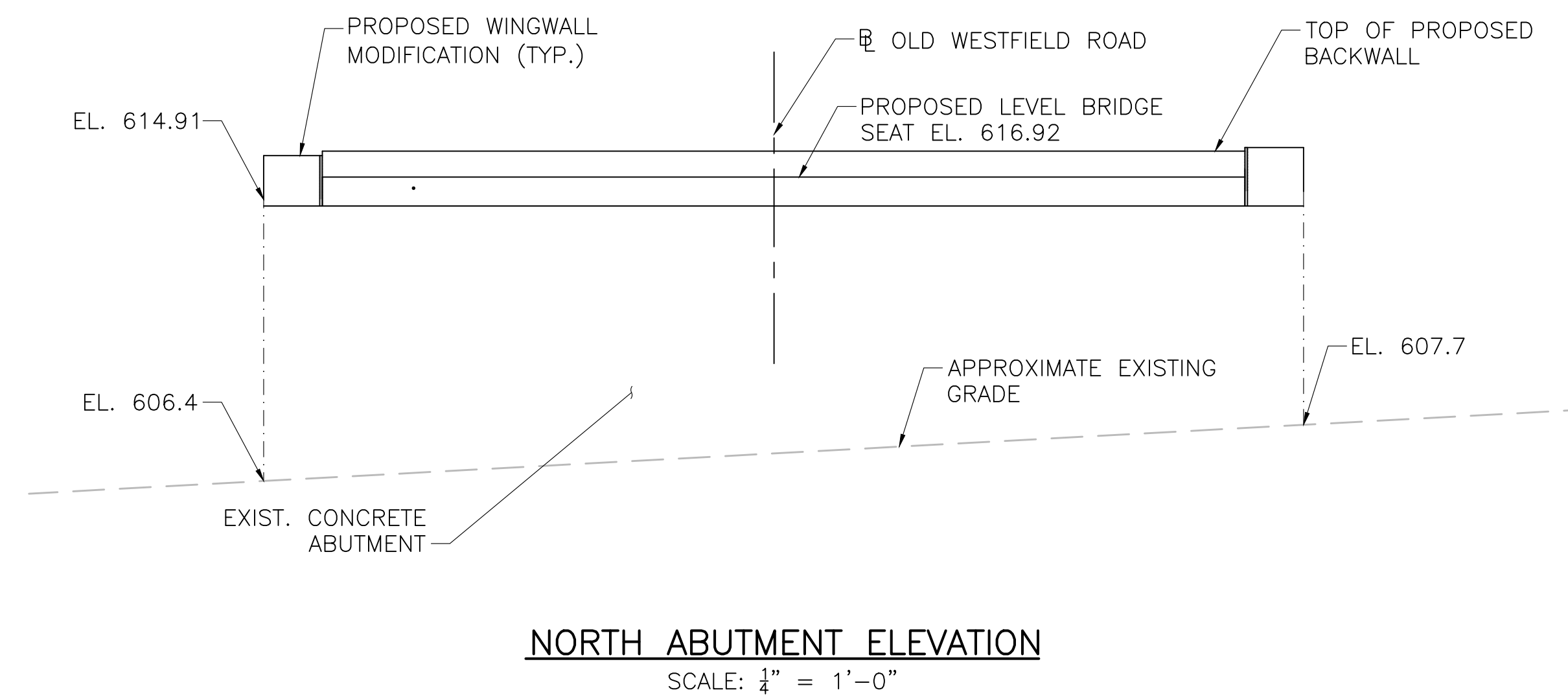
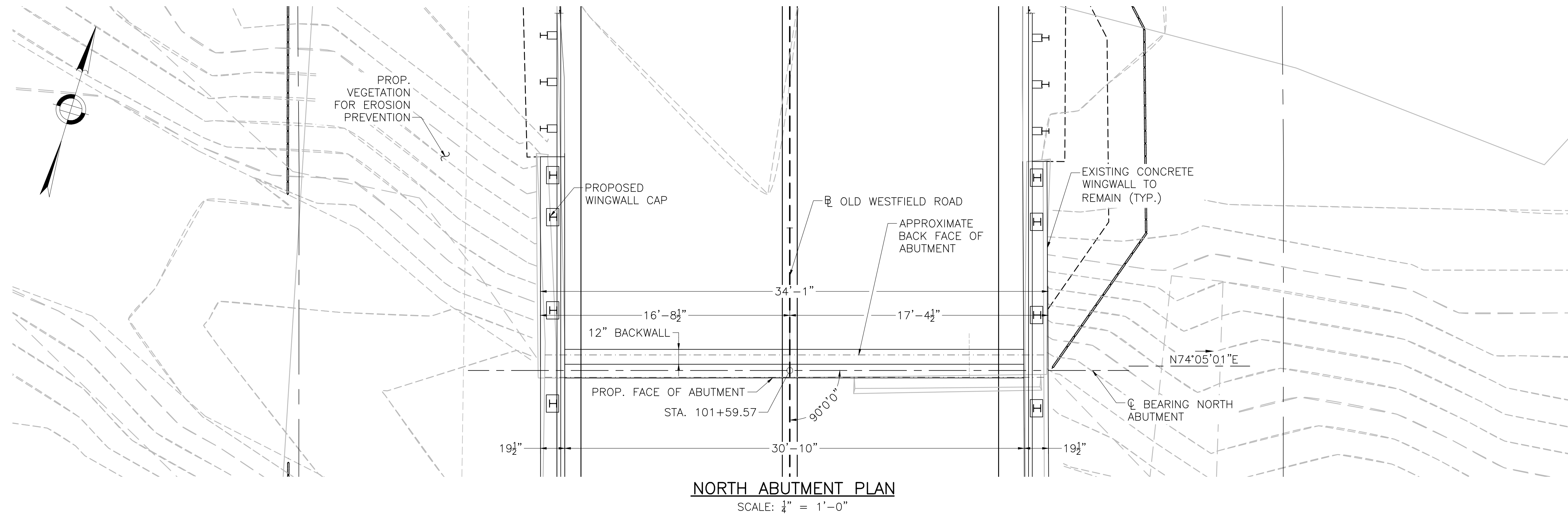
COMMONWEALTH OF MASSACHUSETTS  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

APRIL 23, 2021	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

GRANVILLE  
OLD WESTFIELD ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	14	20

PROJECT FILE NO. N/A  
NORTH ABUTMENT PLAN  
AND ELEVATION



**NOTES:**

- EXISTING ABUTMENT DIMENSIONS ARE DERIVED FROM LIMITED INFORMATION.
- BRIDGE SEAT ELEVATIONS ARE GIVEN ALONG CENTERLINE OF BEARINGS

COMMONWEALTH OF MASSACHUSETTS  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

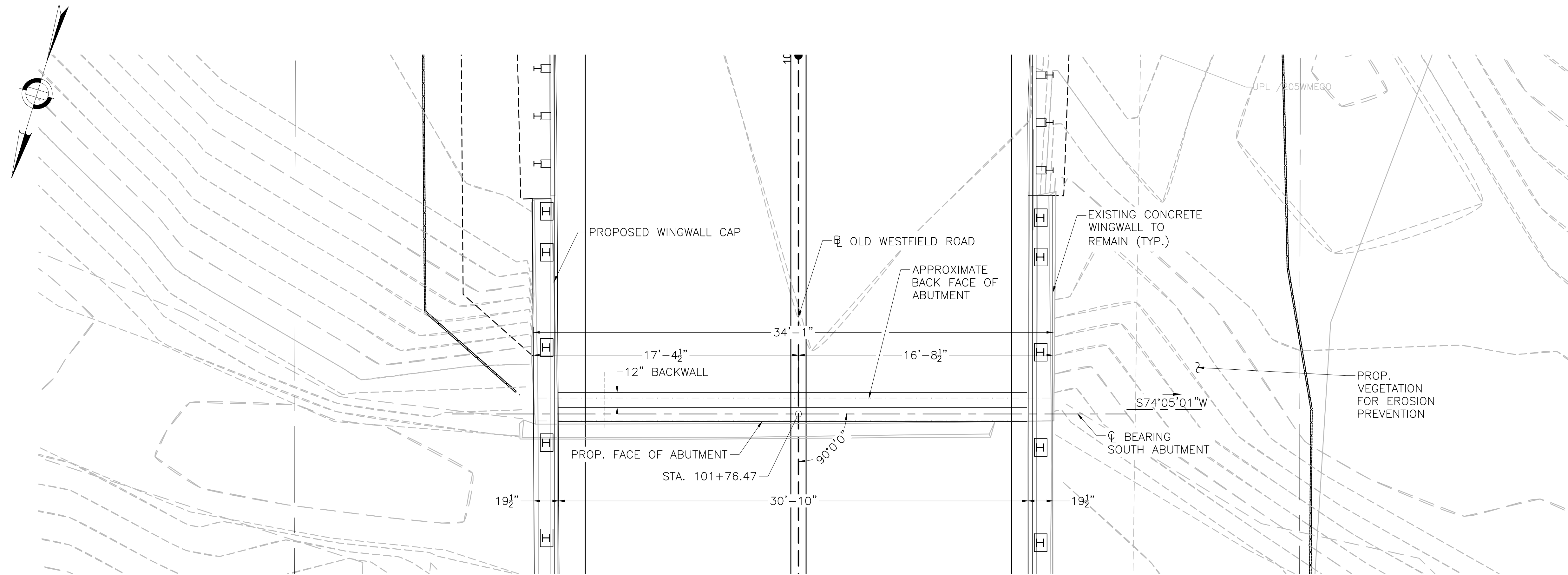
APRIL 23, 2021	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

GRANVILLE  
OLD WESTFIELD ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	15	20

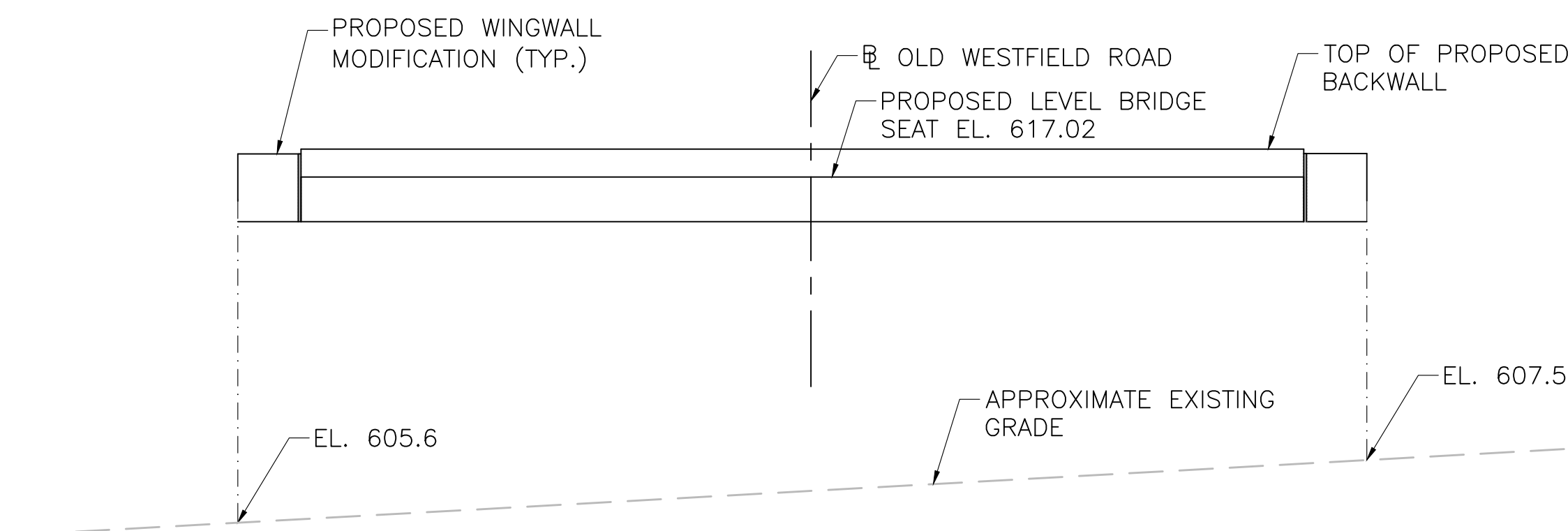
PROJECT FILE NO. N/A

SOUTH ABUTMENT PLAN  
AND ELEVATION



SOUTH ABUTMENT PLAN

SCALE: 1/4" = 1'-0"



SOUTH ABUTMENT ELEVATION

SCALE: 1/4" = 1'-0"

NOTE:

SEE NOTES ON SHEET 5 OF 10.

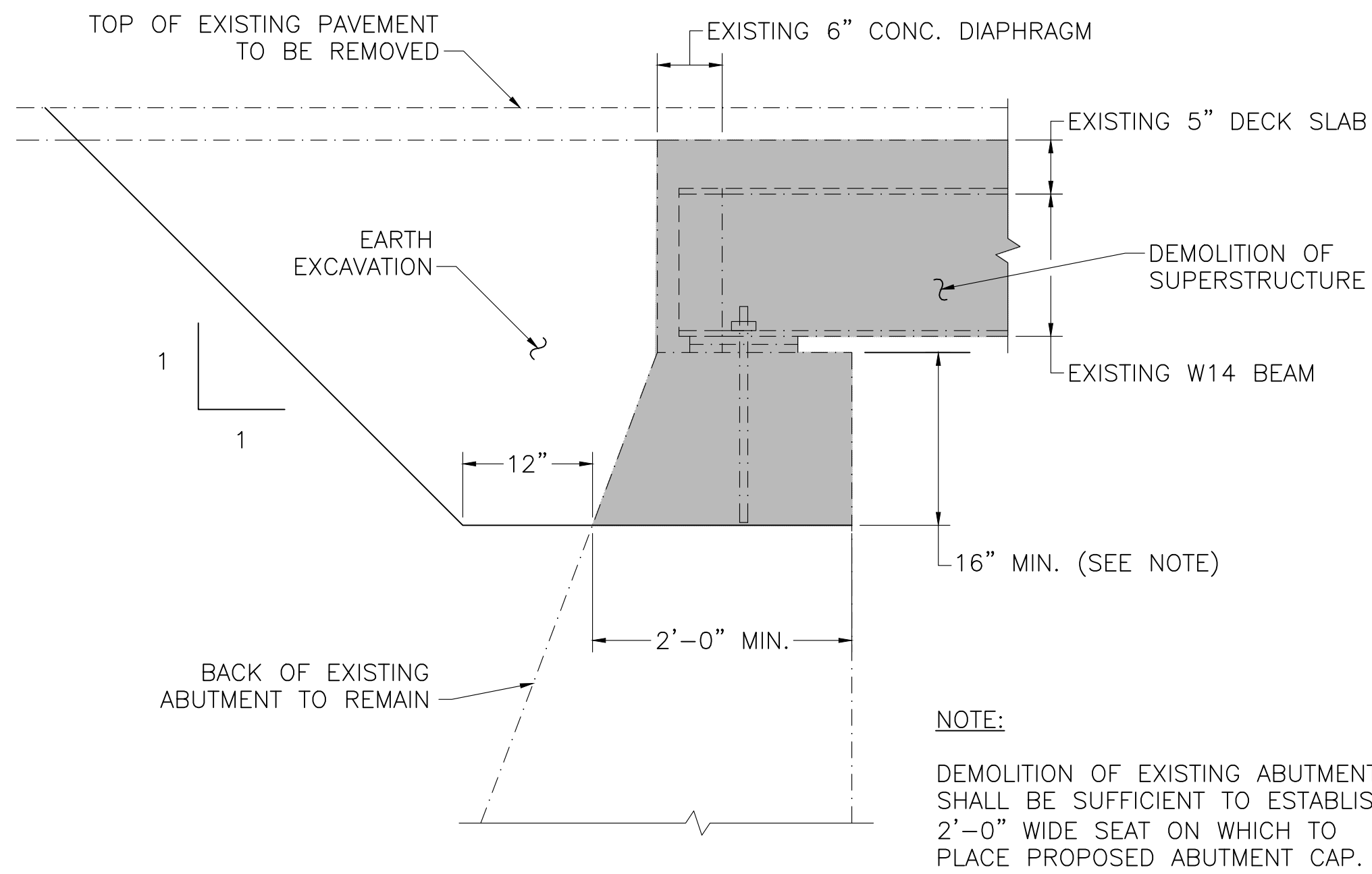
COMMONWEALTH OF MASSACHUSETTS  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

APRIL 23, 2021	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

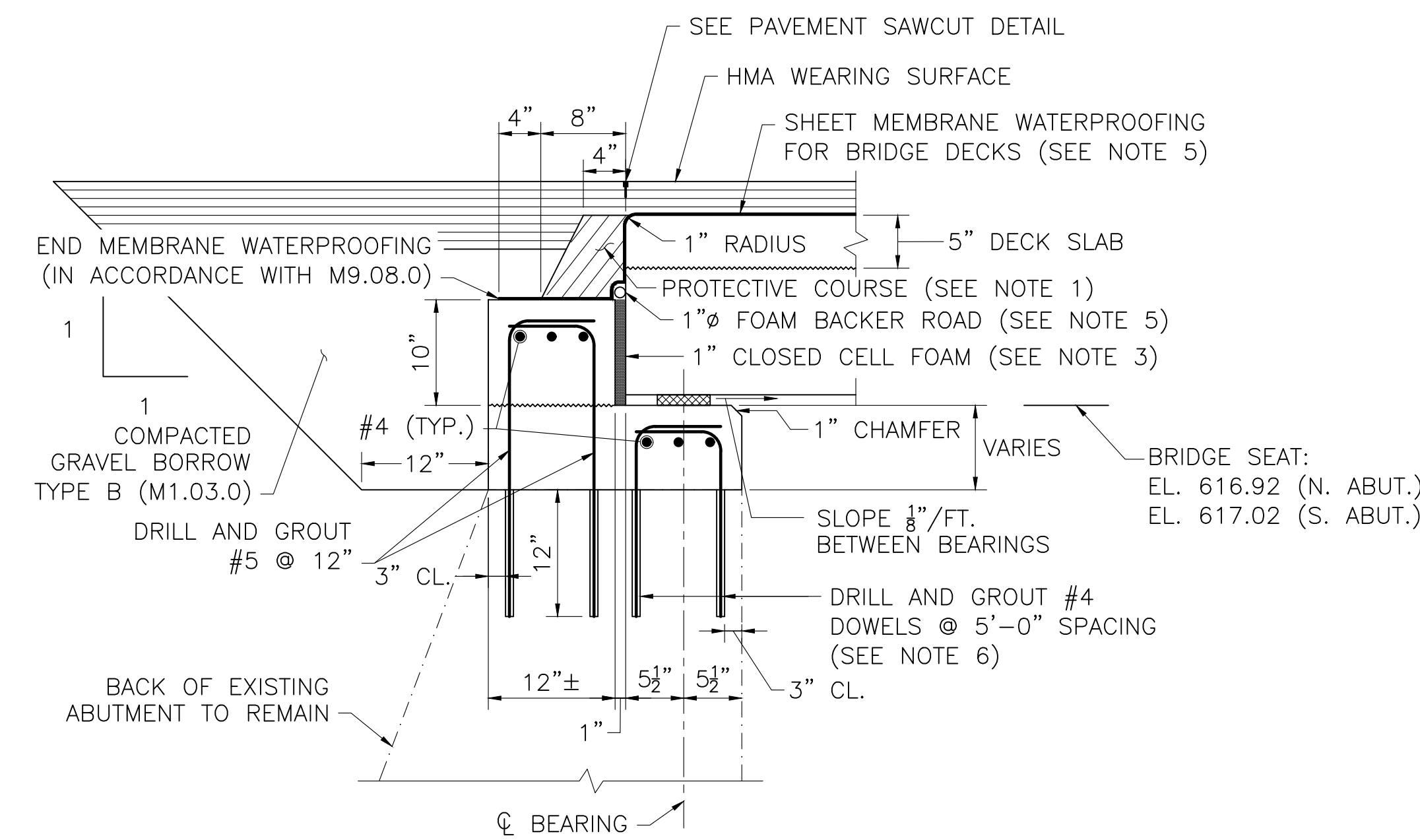
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	16	20

PROJECT FILE NO. N/A

SUBSTRUCTURE DETAILS



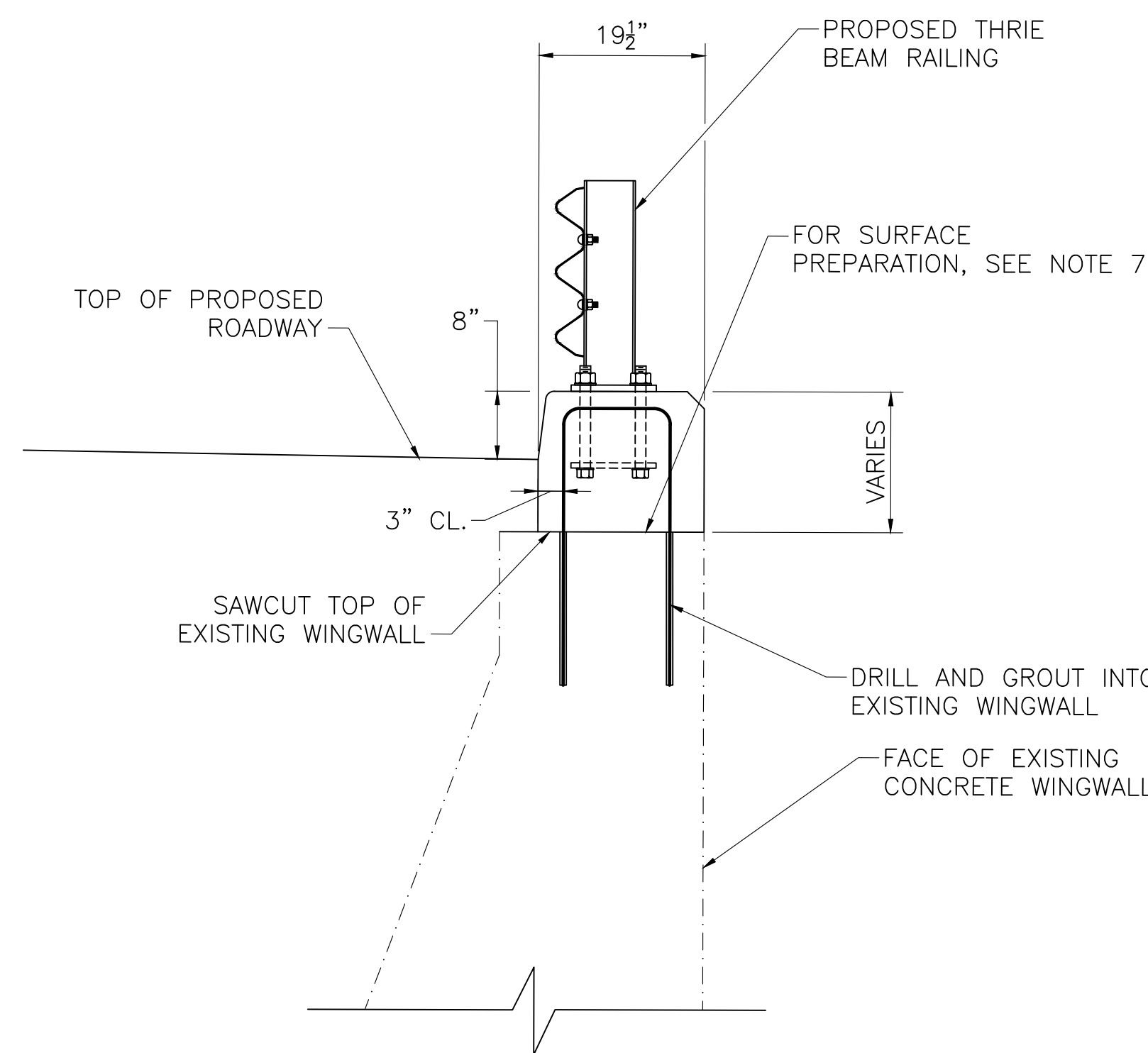
**EXISTING ABUTMENT DEMOLITION DETAIL**  
SCALE: 1" = 1'-0"



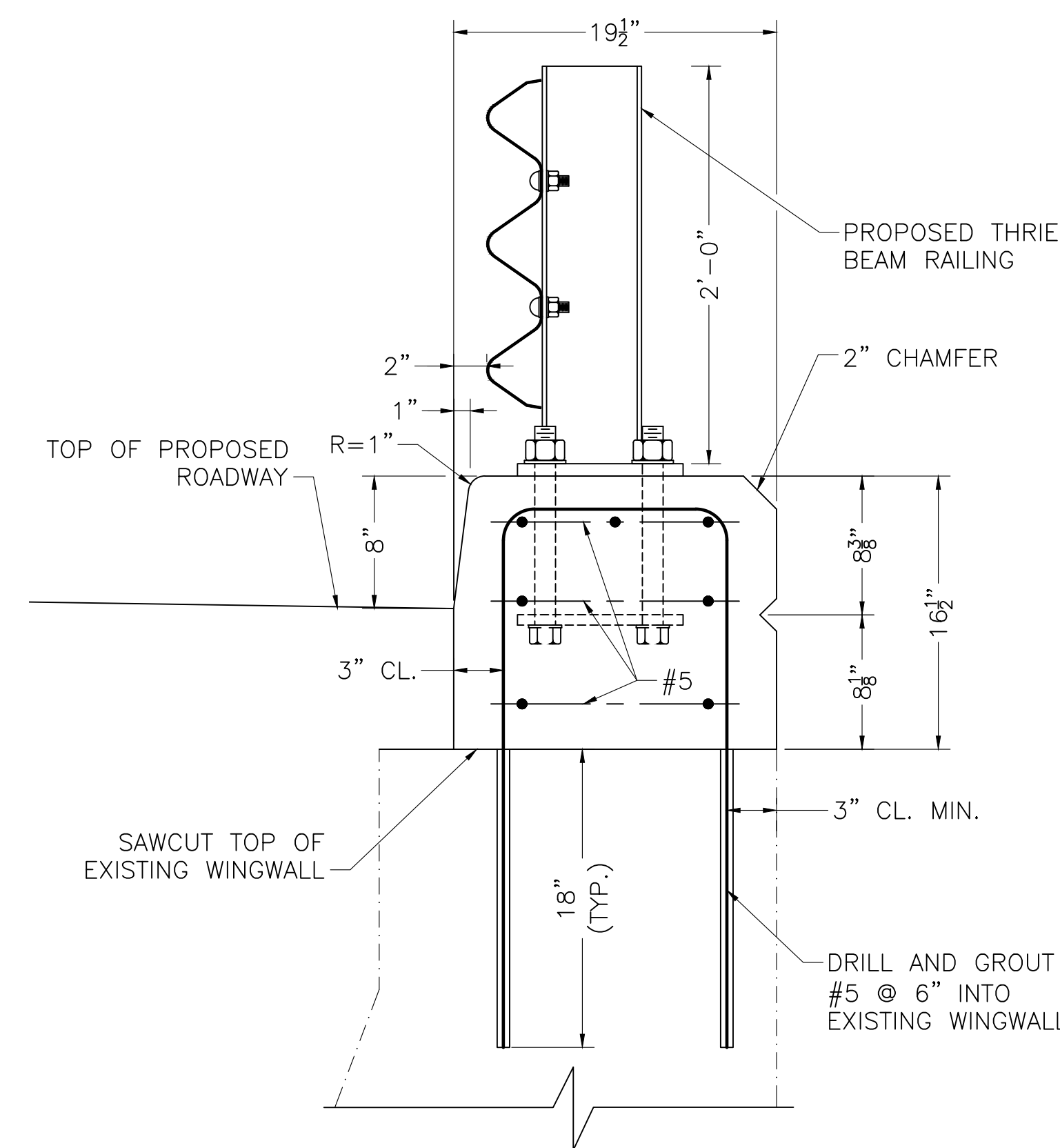
**PROPOSED ABUTMENT MODIFICATION DETAIL**  
SCALE: 1" = 1'-0"

**ABUTMENT DETAIL NOTES:**

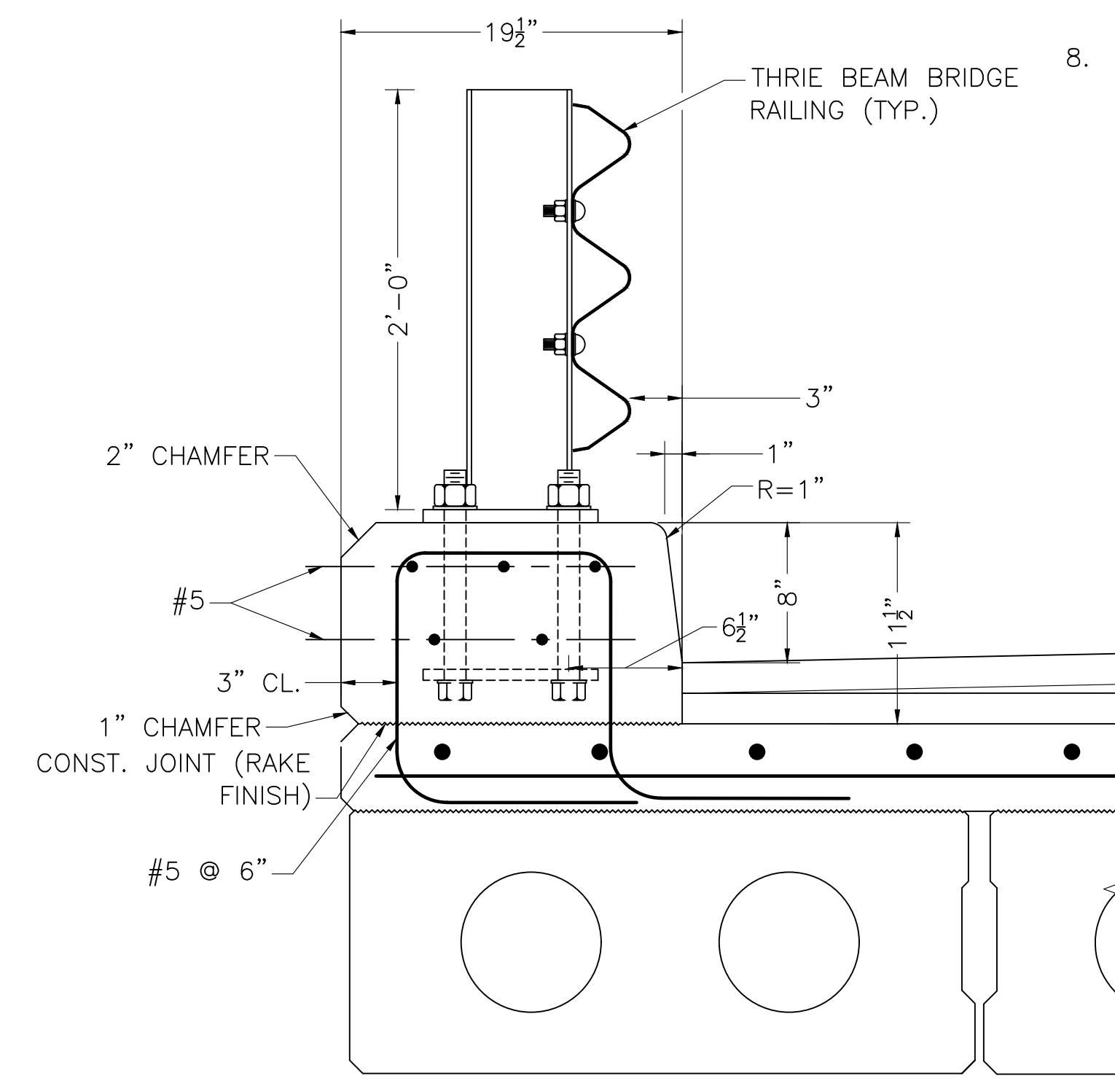
1. PROTECTIVE COURSE TO BE CLASS I DENSE BINDER COURSE FOR BRIDGES, PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER WITHIN 12 HOURS AFTER PLACING MEMBRANE WATERPROOFING.
2. ALL REINFORCING SHOWN IN THIS DETAIL SHALL BE COATED BARS.
3. ATTACH CLOSED CELL FOAM TO BACK OF PRECAST BEAM WITH ADHESIVE.
4. ABUTMENT CAP CONCRETE SHALL BE 4000 PSI, 3/4" IN, 610 CEMENT CONCRETE AND SHALL BE PLACED BEFORE ALL BEAMS HAVE BEEN ERECTED. ABUTMENT CAP CONCRETE SHALL HAVE ADEQUATE TIME TO CURE PRIOR TO ERECTION OF DECK BEAMS. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, DECK BEAMS SHALL NOT BE ERECTED ON CONCRETE ABUTMENT CAPS UNTIL THE CONCRETE HAS REACHED A MINIMUM DESIGN COMPRESSIVE STRENGTH OF 2800 PSI, CONFIRMED WITH CYLINDER BREAKS.
5. DRAPE MEMBRANE WATERPROOFING OVER CLOSED CELL FOAM BACKER ROD. WATERPROOFING SHALL BE APPROVED BY THE ENGINEER AND ALL SPECIFICATIONS SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.
6. DOWELS SHALL NOT BE PLACED LESS THAN 3" FROM THE OUTSIDE FACES OF THE EXISTING ABUTMENT. GROUT SHALL BE NON-SHRINK GROUT SELECTED FROM MASSDOT'S QUALIFIED CONSTRUCTION MATERIALS LIST AND APPROVED BY THE ENGINEER. DRILL HOLE DIAMETER SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. EXISTING SURFACE SHALL BE CLEANED BY ABRASIVE BLASTING AND ROUGHENED TO AN AMPLITUDE OF 1/4". EPOXY BONDING COMPOUND SHALL BE APPLIED TO CLEANED SURFACES OF EXISTING CONCRETE AT ALL SURFACES THAT ARE TO BE BONDED TO FRESH CONCRETE.
8. THE FACTORED BEARING PRESSURE = 5.39 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION. THE FACTORED BEARING RESISTANCE = 5.46 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.



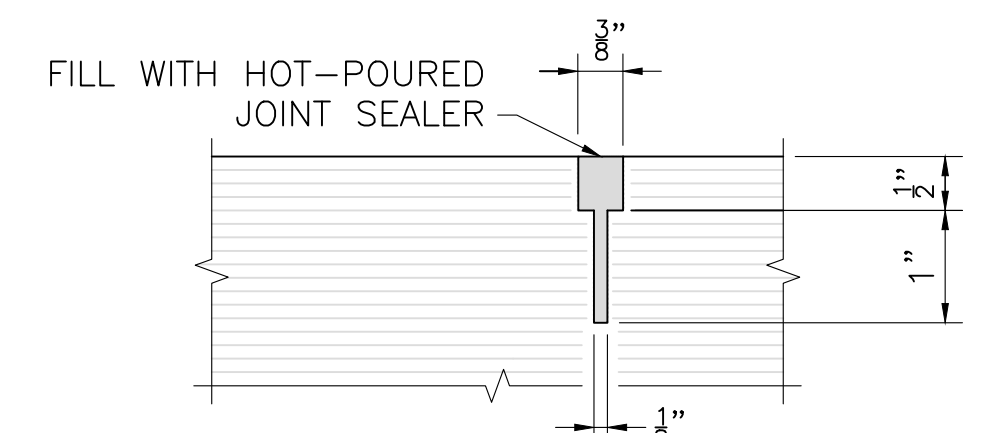
**PARTIAL WINGWALL SECTION**  
SCALE: 3/4" = 1'-0"



**REINFORCING AT WINGWALL**  
SCALE: 1 1/2" = 1'-0"



**REINFORCING AT DECK**  
SCALE: 1 1/2" = 1'-0"



**PAVEMENT SAWCUT DETAIL**  
NOT TO SCALE

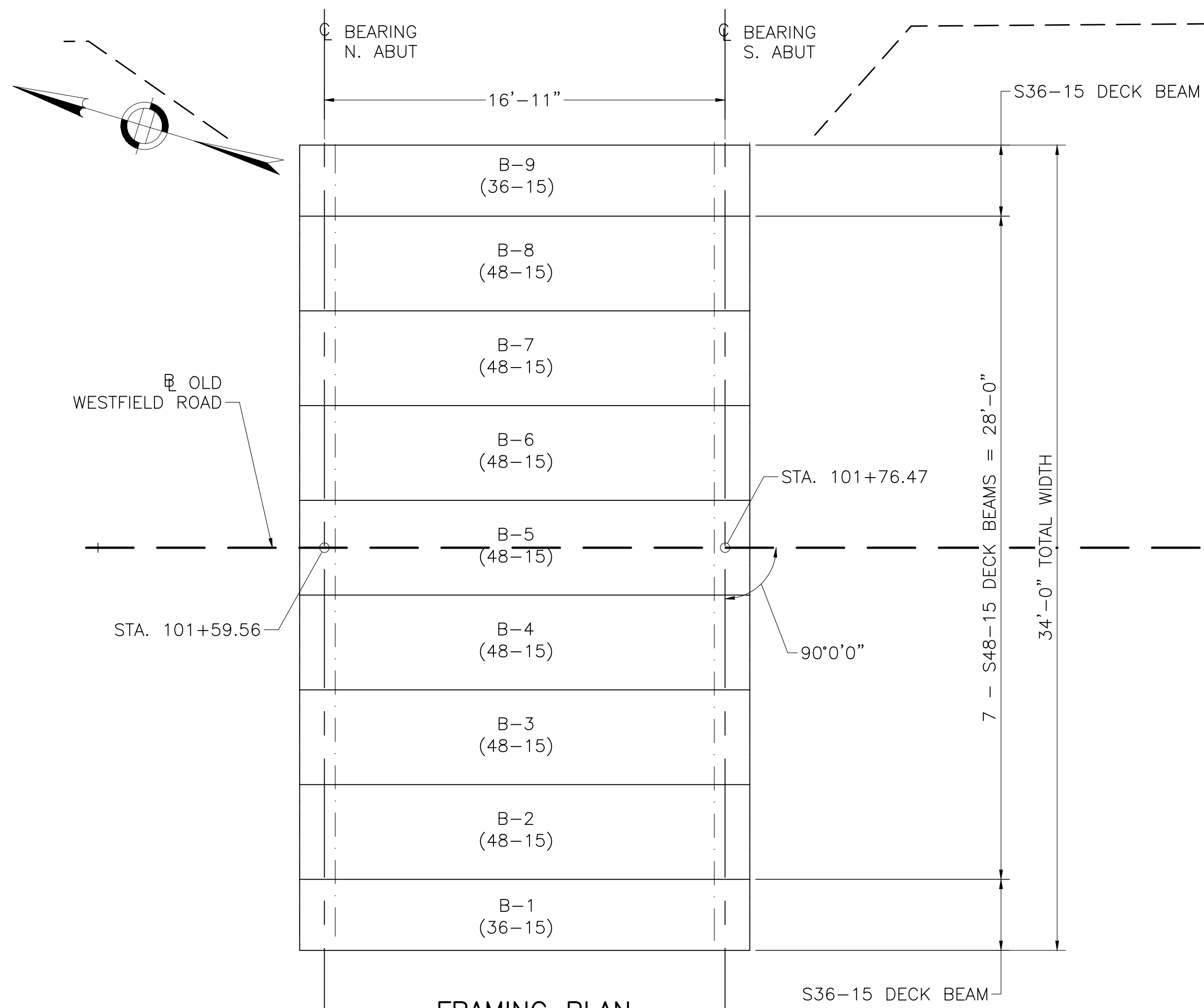
COMMONWEALTH OF MASSACHUSETTS  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

APRIL 23, 2021	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

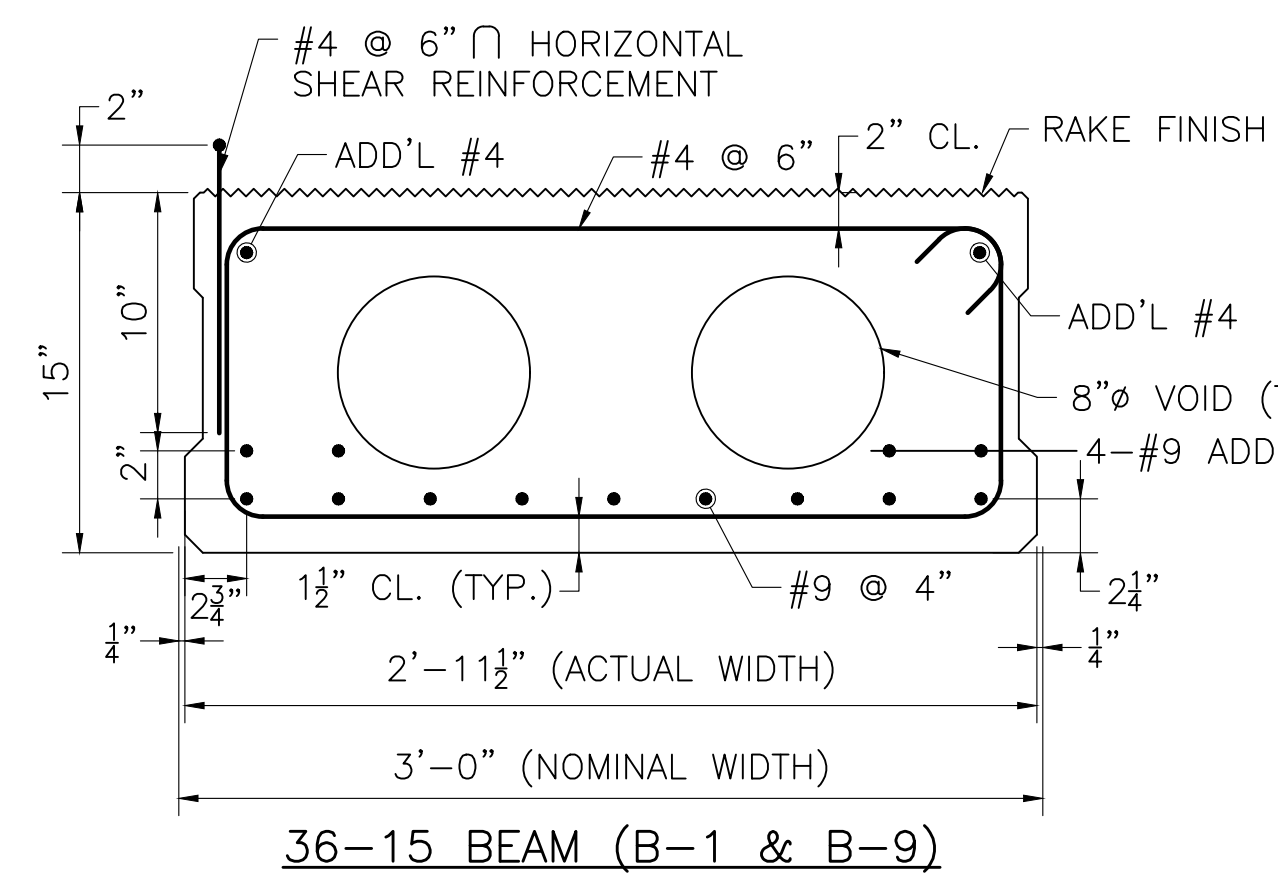
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	17	20

PROJECT FILE NO. N/A

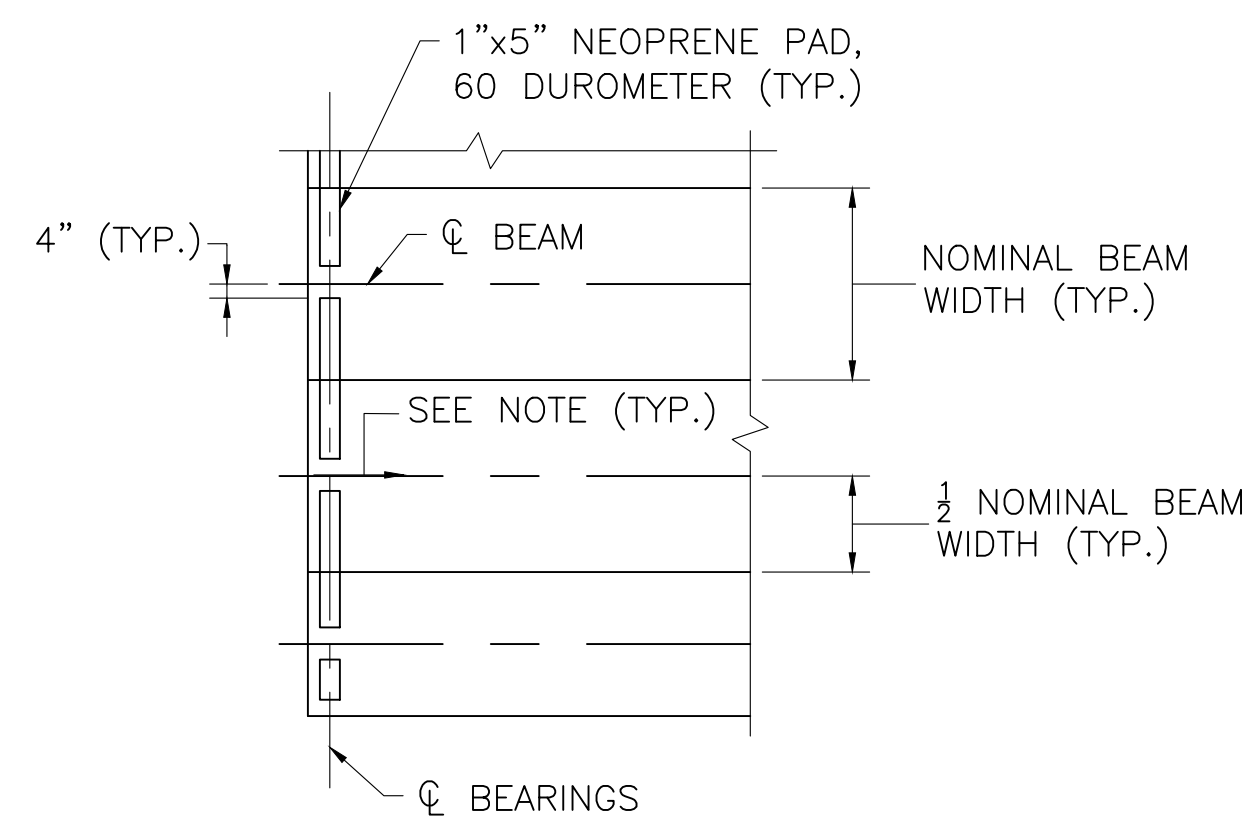
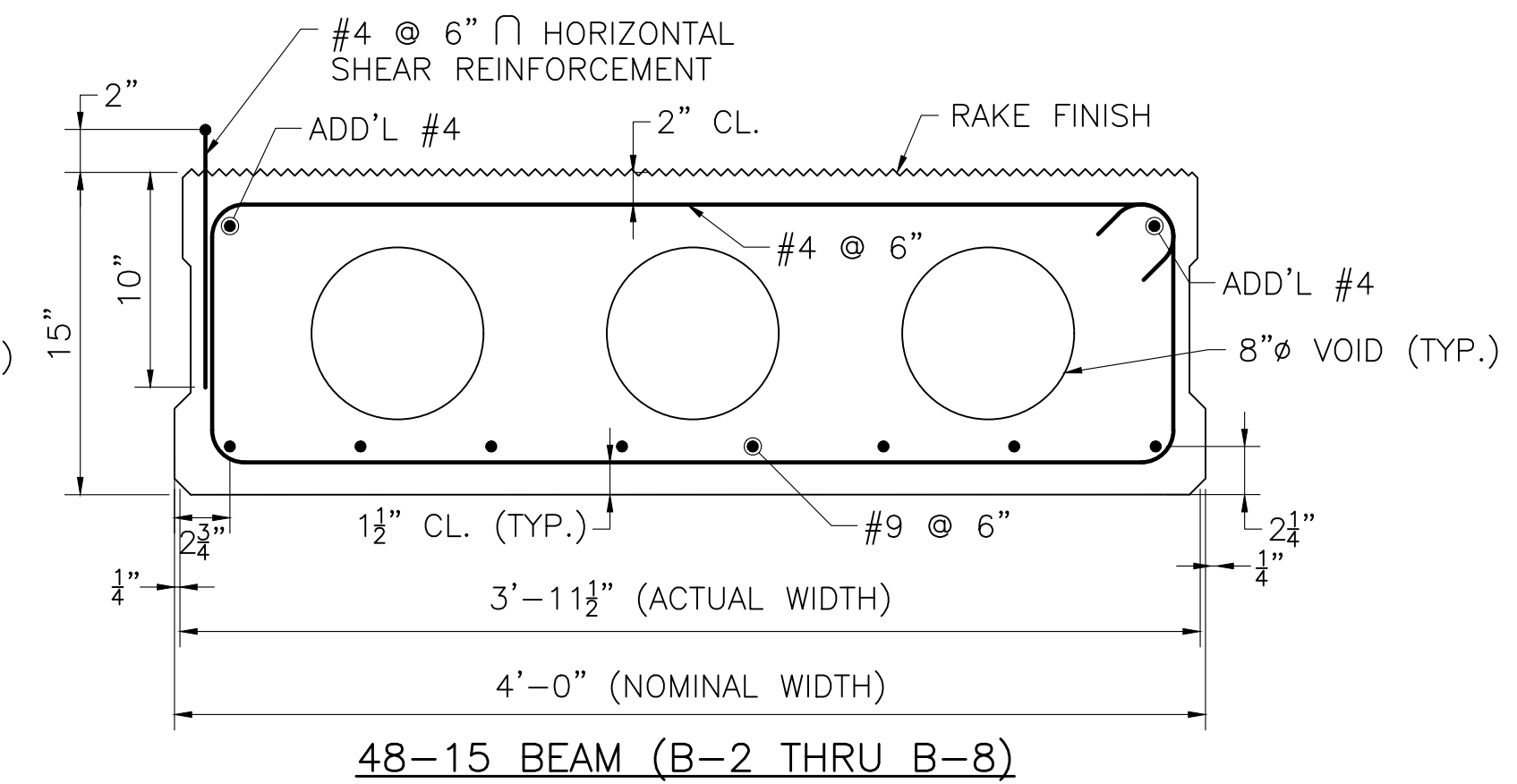
BEAM DETAILS



**FRAMING PLAN**  
SCALE: 1/4" = 1'-0"

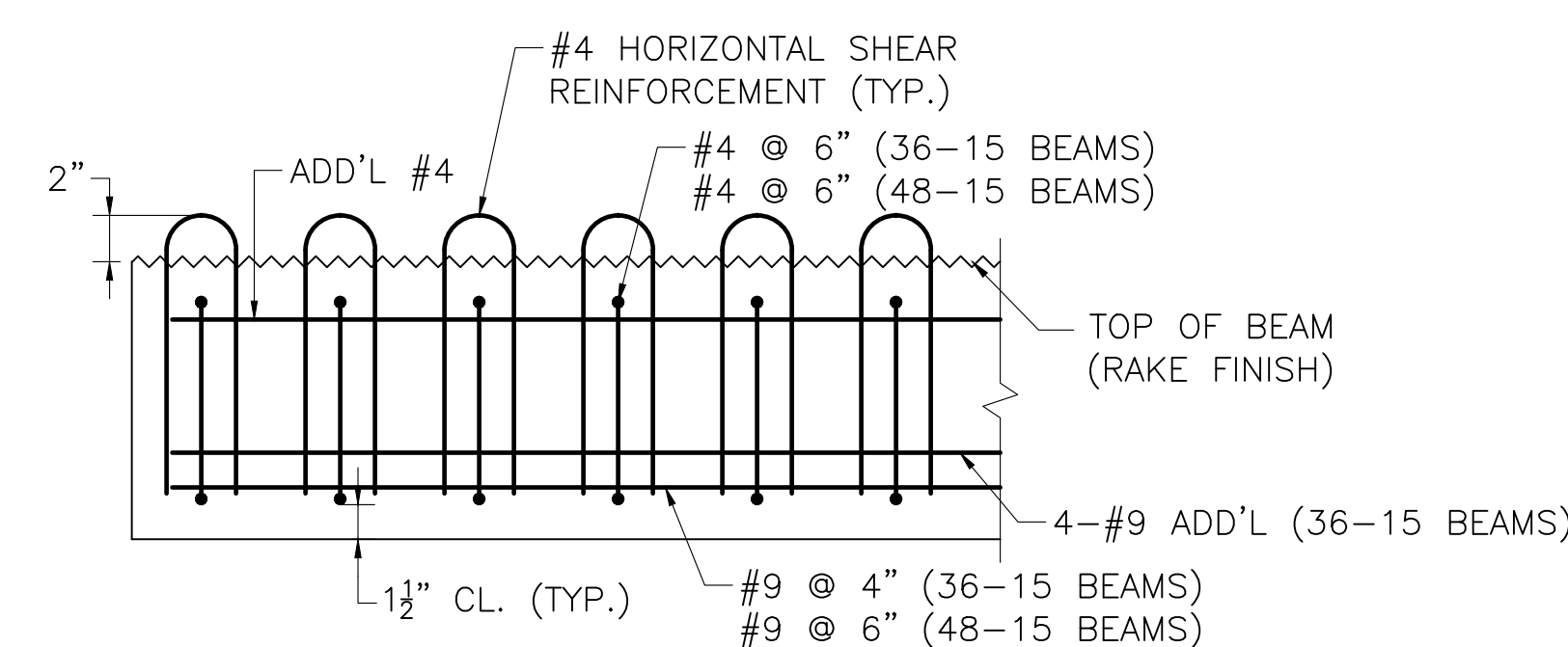


**TYPICAL SECTION**  
SCALE: 1/2" = 1'-0"

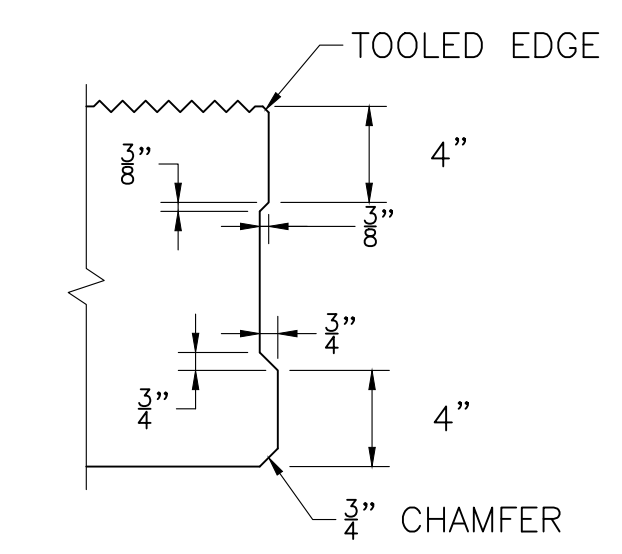


**NOTE:**  
PROVIDE 1/8"/FT. SLOPE BETWEEN BEARINGS.

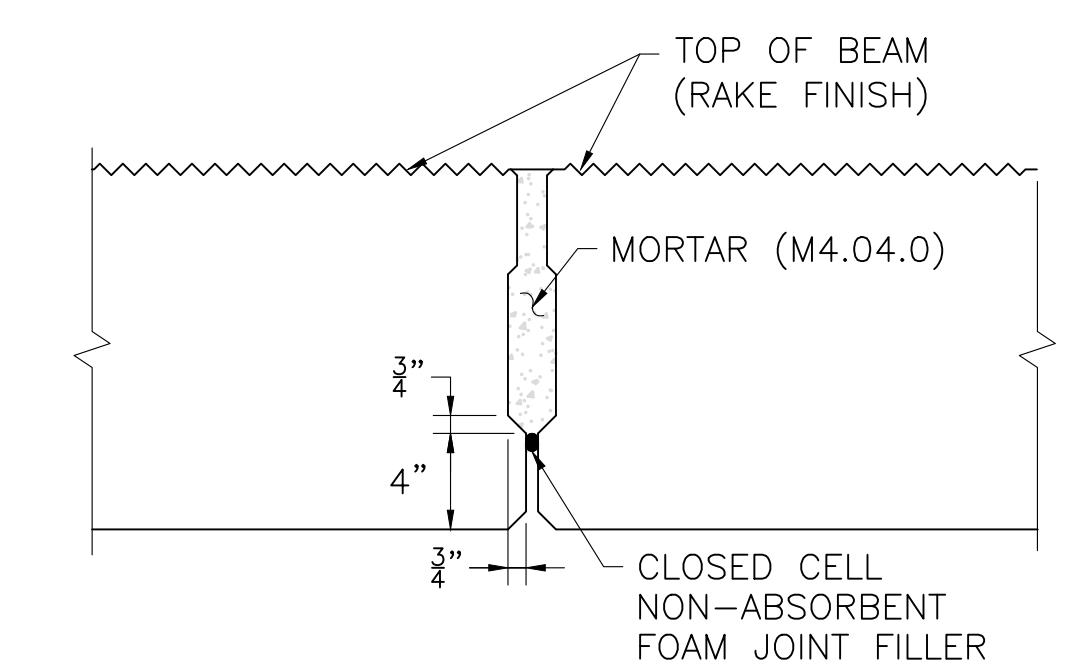
**LAYOUT OF BEARINGS**  
SCALE: 1/4" = 1'-0"



**LONGITUDINAL SECTION**  
SCALE: 1/2" = 1'-0"



**SHEAR KEY DETAIL**  
SCALE: 1/2" = 1'-0"



**LONGITUDINAL JOINT SECTION**  
SCALE: 1/2" = 1'-0"

**NOTES:**

- ALL REINFORCING STEEL SHALL BE EPOXY COATED AND CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60.
- THE MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 5000 PSI.
- THE TOP OF ALL BEAMS SHALL BE GIVEN A RAKE FINISH (1/4" AMPLITUDE) ACROSS THE WIDTH (PERPENDICULAR TO THE BEAM'S AXIS).
- THE FABRICATOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.
- ELIMINATE SHEAR KEY ON EXTERIOR FACES OF BEAMS 1 AND 7.

COMMONWEALTH OF MASSACHUSETTS  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

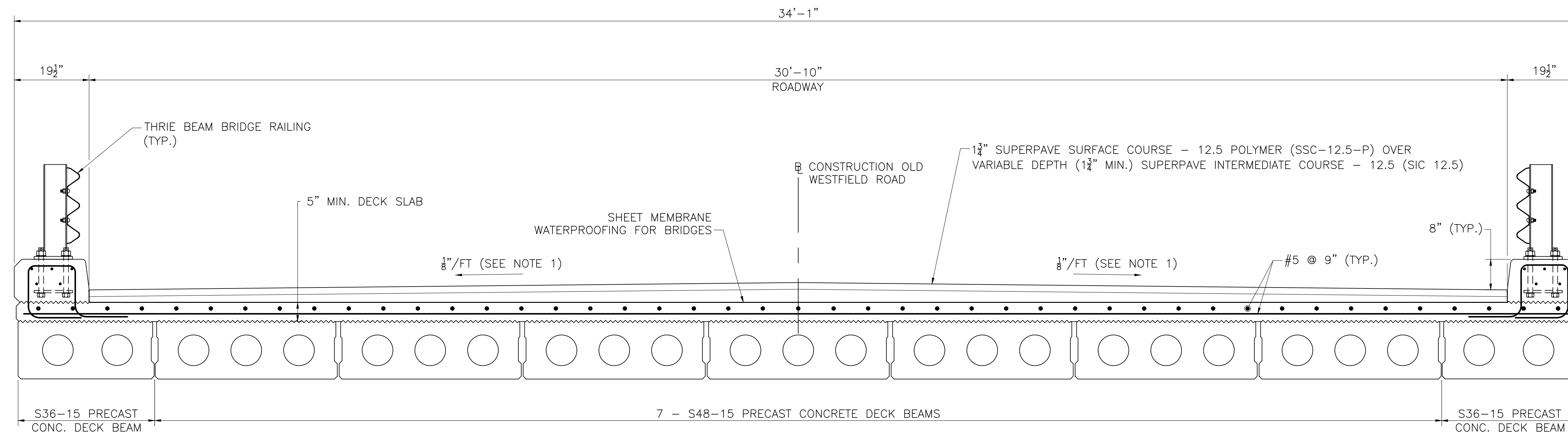
APRIL 23, 2021	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

GRANVILLE  
OLD WESTFIELD ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NFA	18	20

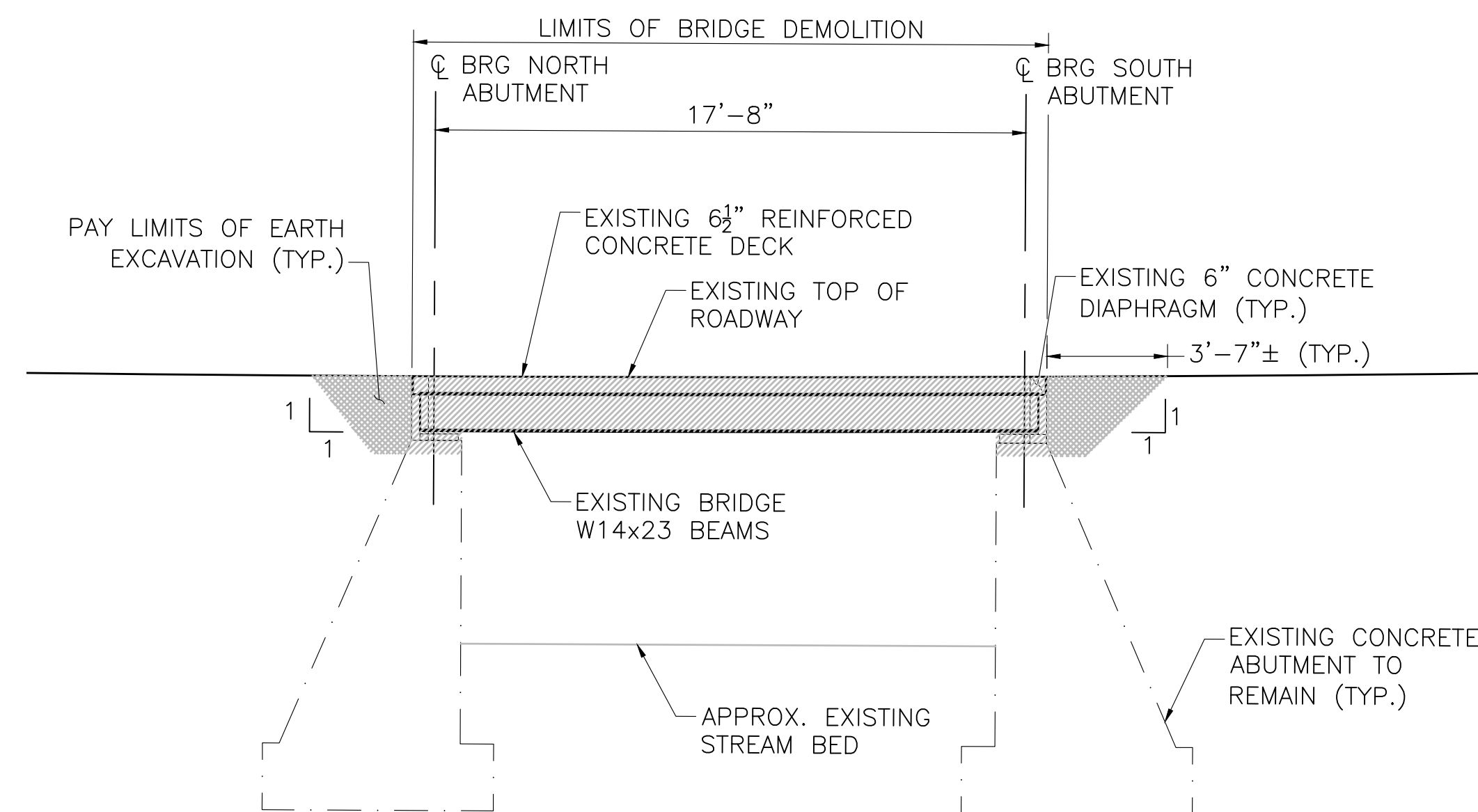
PROJECT FILE NO. N/A

DECK DETAILS



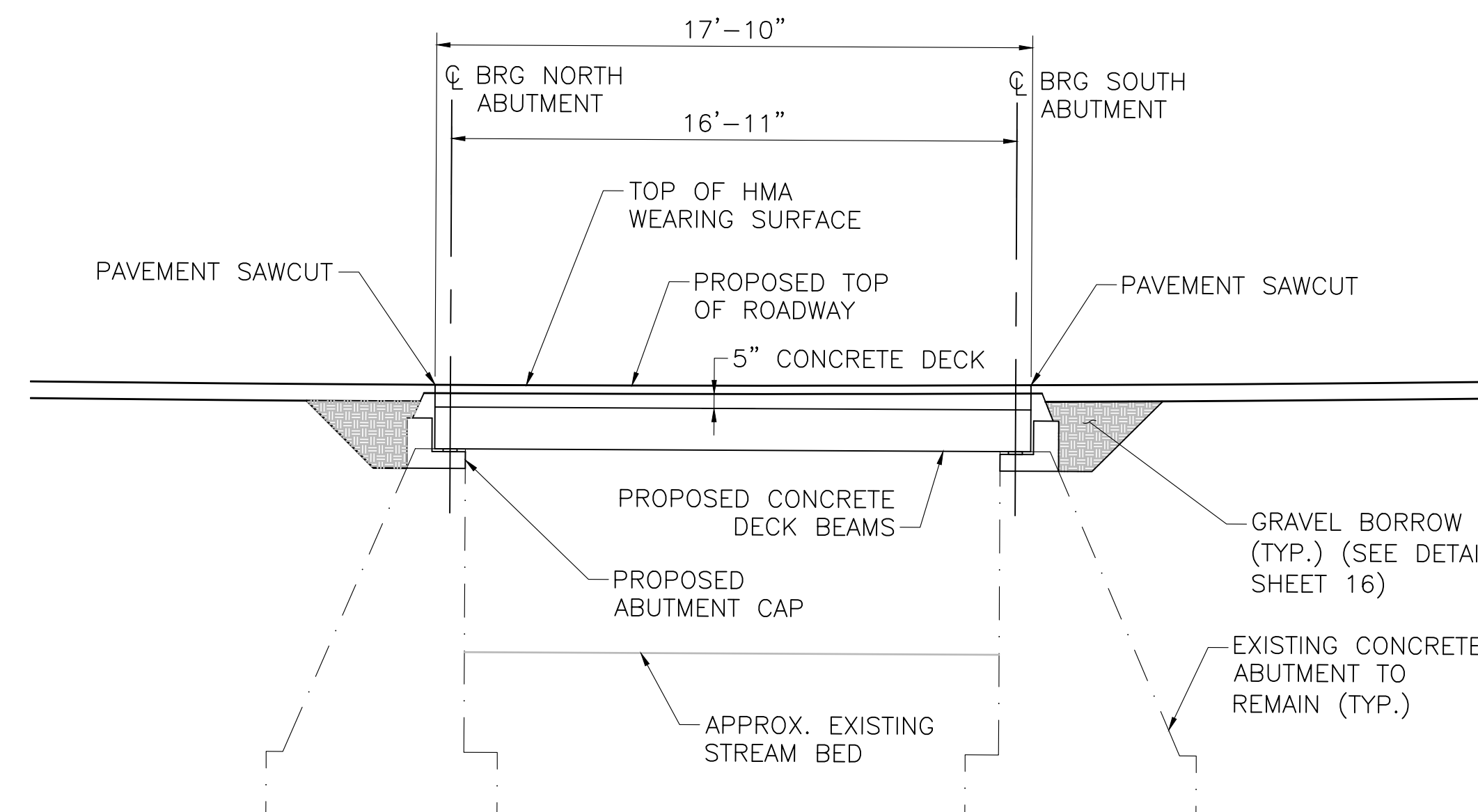
TYPICAL SECTION

SCALE: 3/4" = 1'-0"



EXISTING LONGITUDINAL SECTION

SCALE: 3/4" = 1'-0"



PROPOSED LONGITUDINAL SECTION

SCALE: 3/4" = 1'-0"

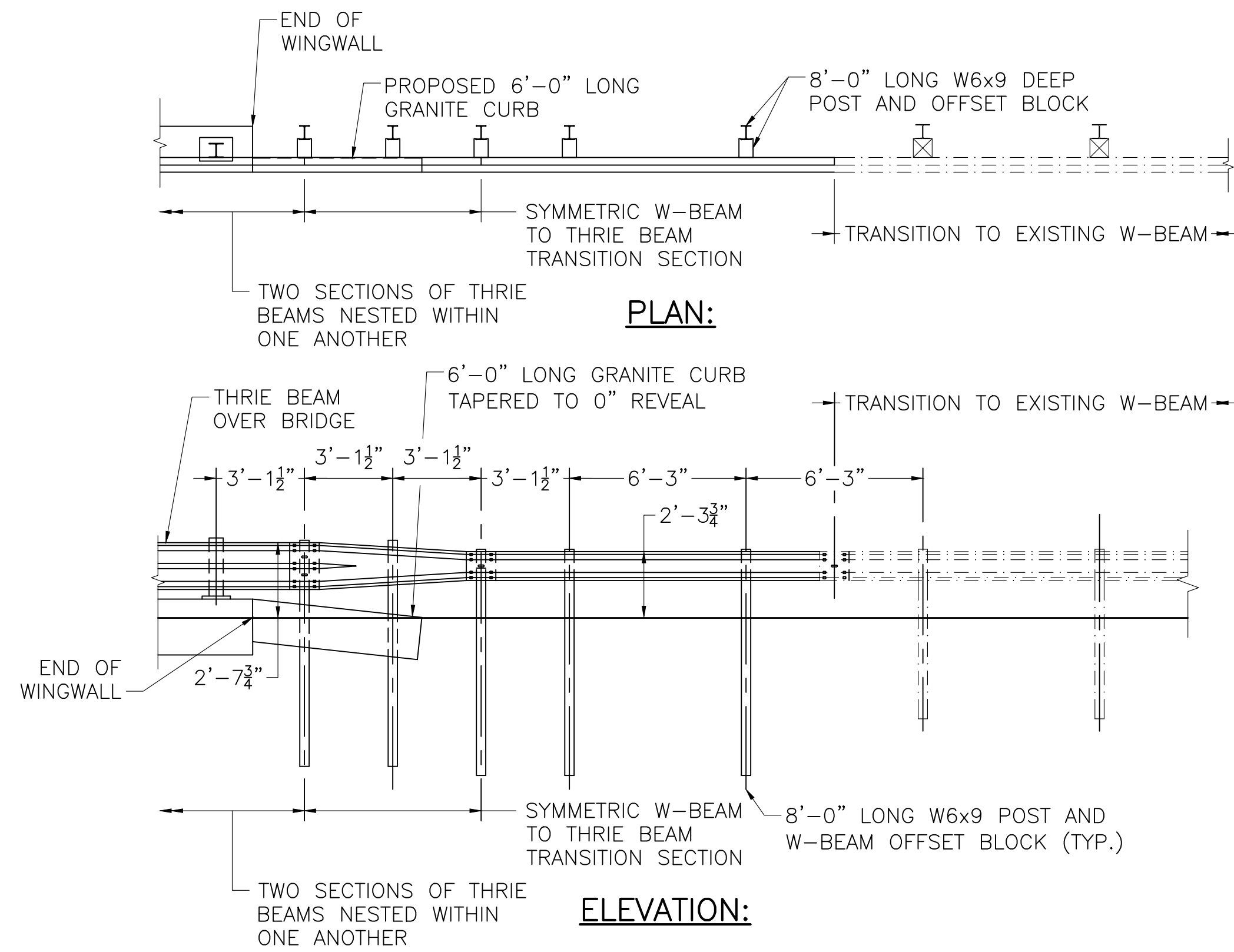
NOTES:

- AS AN ALTERNATIVE, THE CONTRACTOR MAY ELECT TO CROWN THE CONCRETE DECK SLAB INSTEAD OF THE SUPERPAVE INTERMEDIATE COURSE OF PAVEMENT.
- TYPICAL SECTION SHOWN AT APPROXIMATELY MIDSPAN AND LOOKING UPSTATION.
- SEE SHEET 17 OF 20 FOR PRECAST CONCRETE DECK BEAM DETAILS.

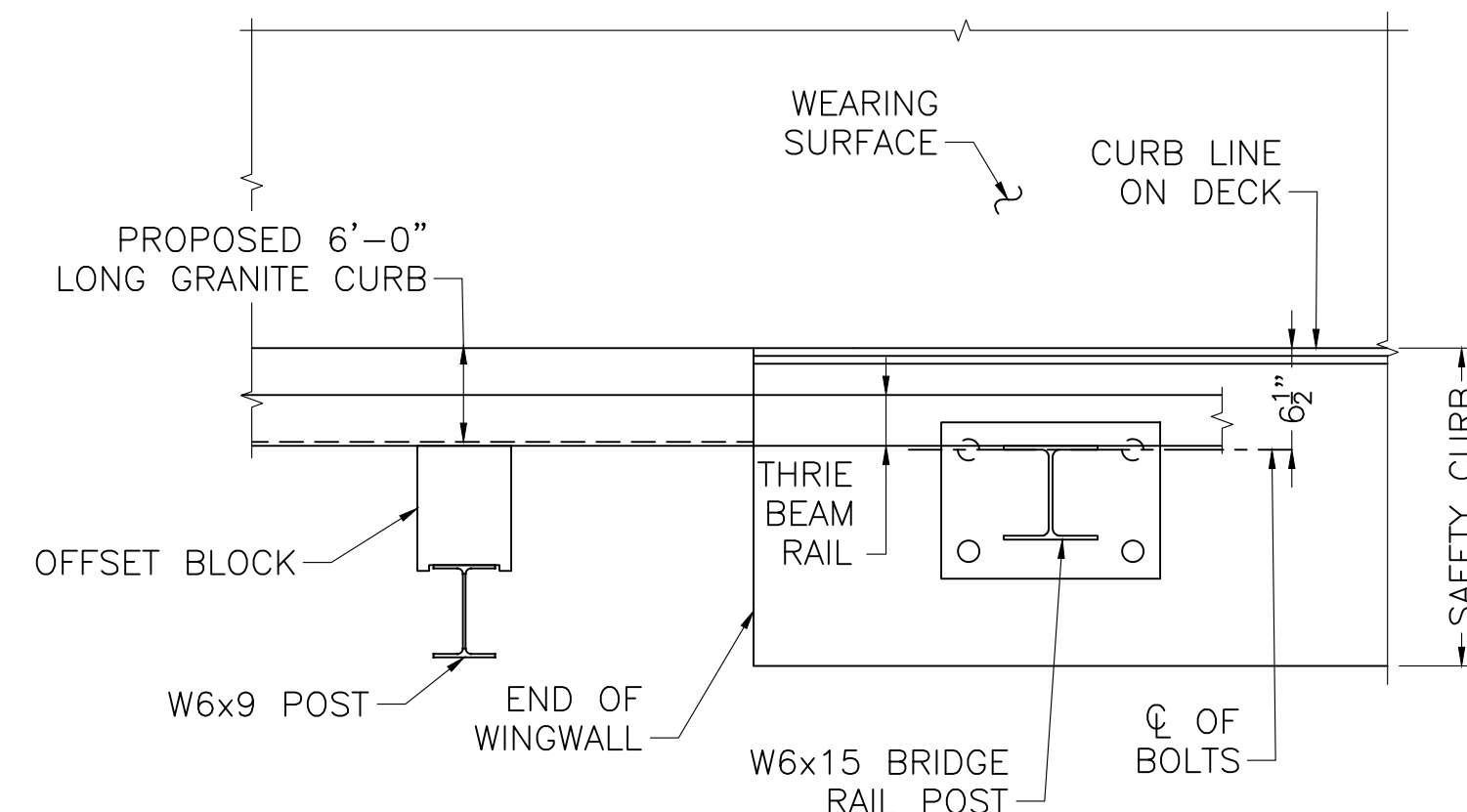
COMMONWEALTH OF MASSACHUSETTS  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

APRIL 23, 2021	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

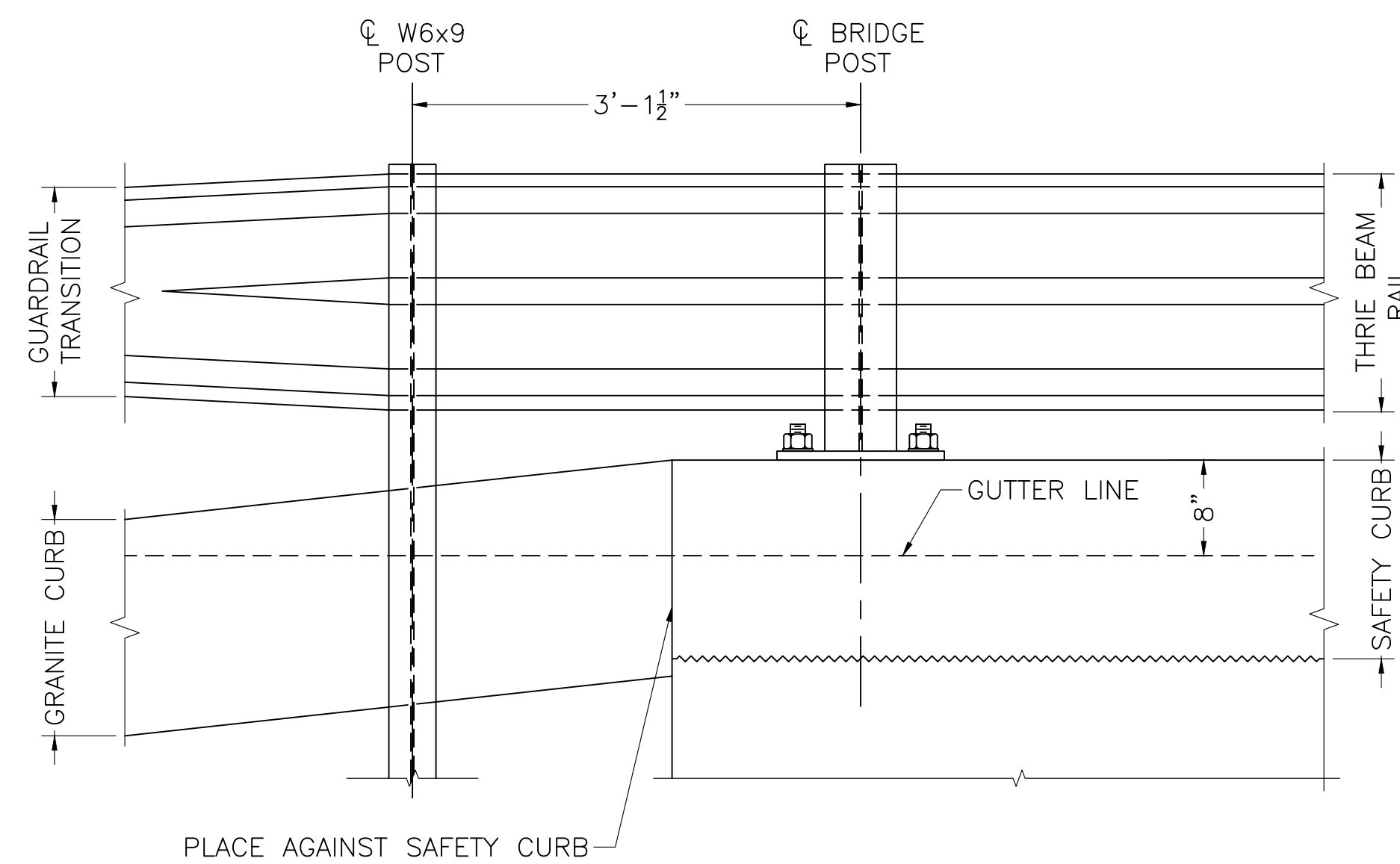




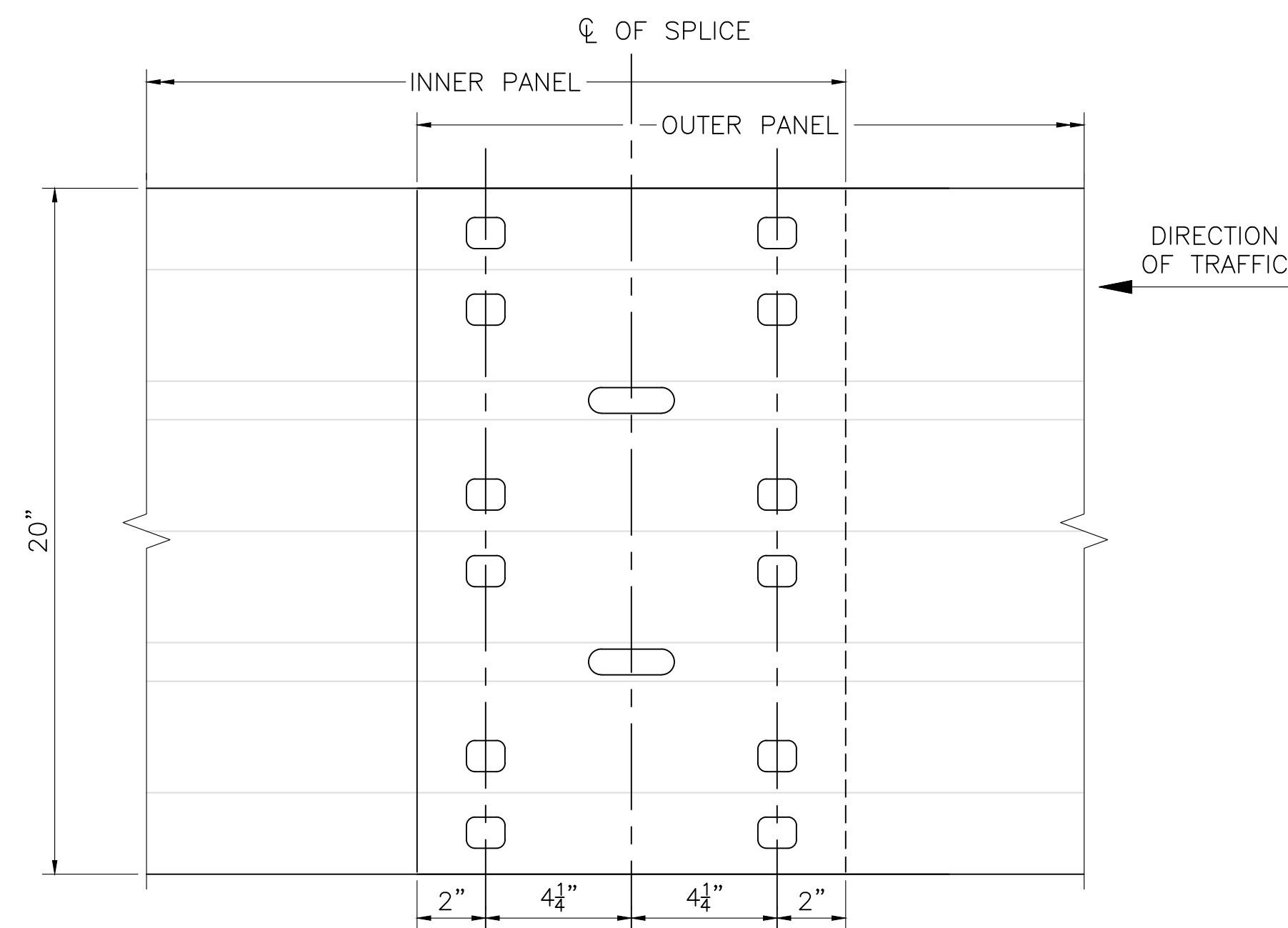
**GUARD RAIL APPROACH TRANSITION**  
SCALE: 1/4" = 1'-0"



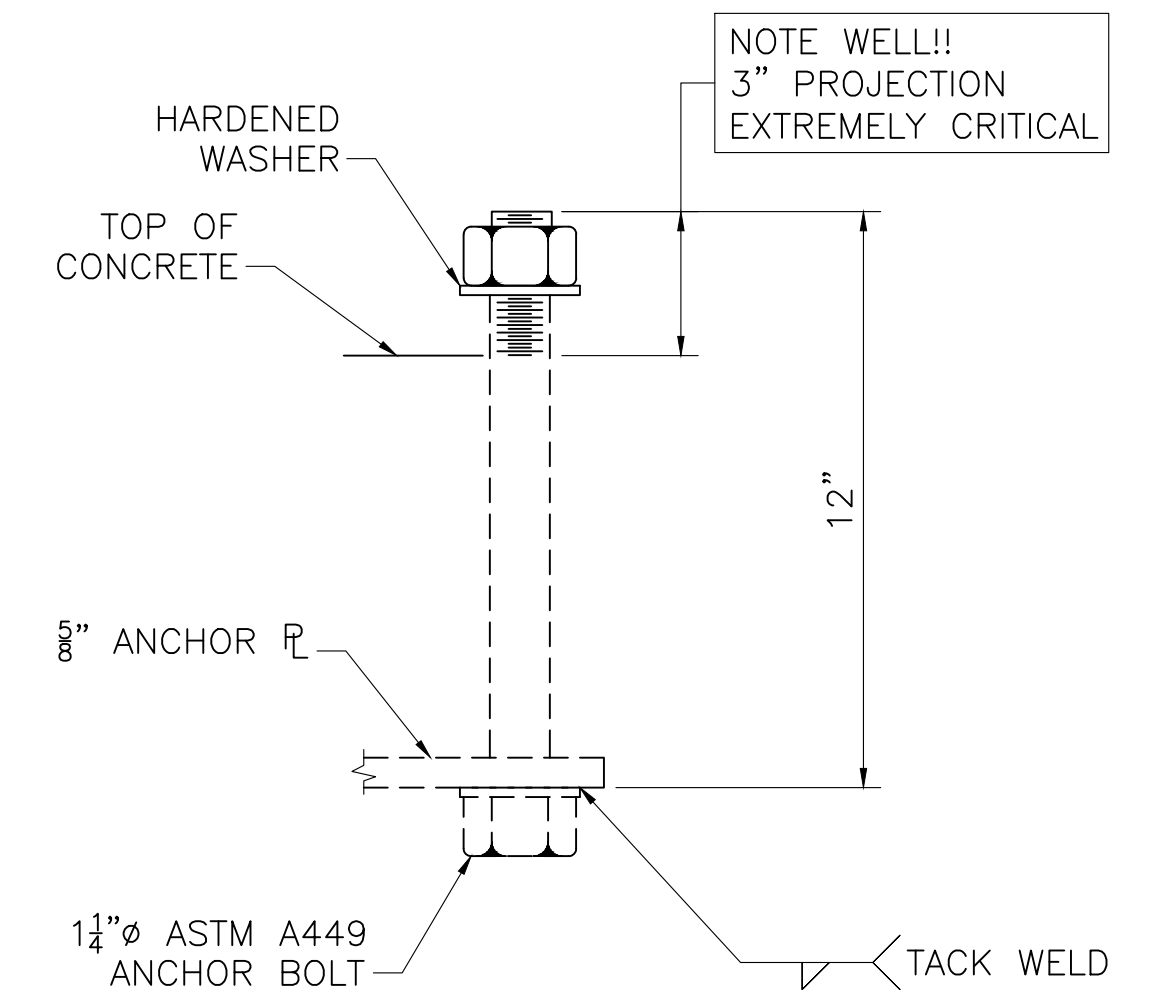
**TYPICAL DETAIL END OF SAFETY CURB**  
SCALE: 1" = 1'-0"



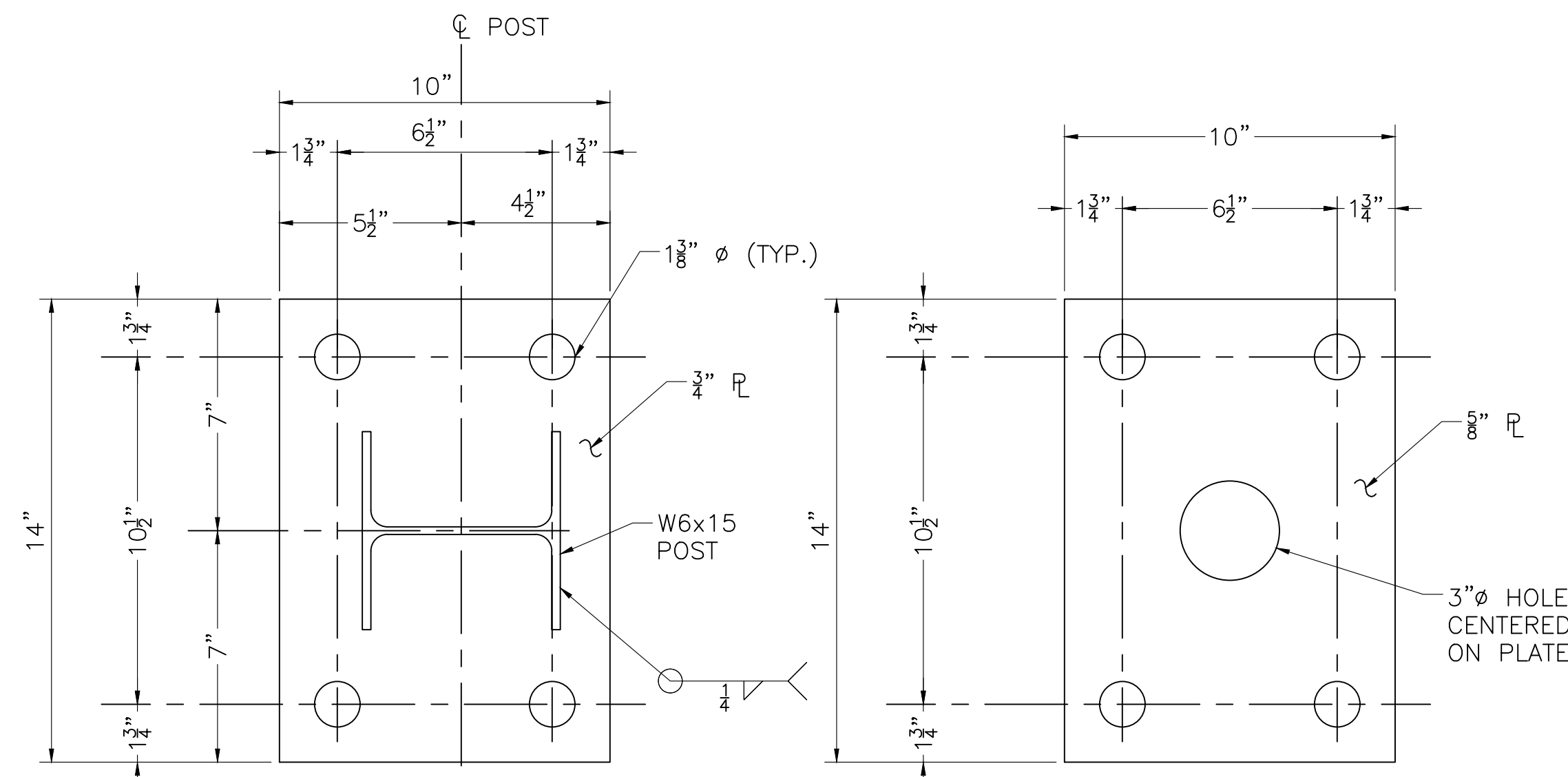
**TYPICAL RAILING ELEVATION**  
SCALE: 1" = 1'-0"



**THRIE BEAM RAIL SPLICE ELEVATION**  
SCALE: 3" = 1'-0"

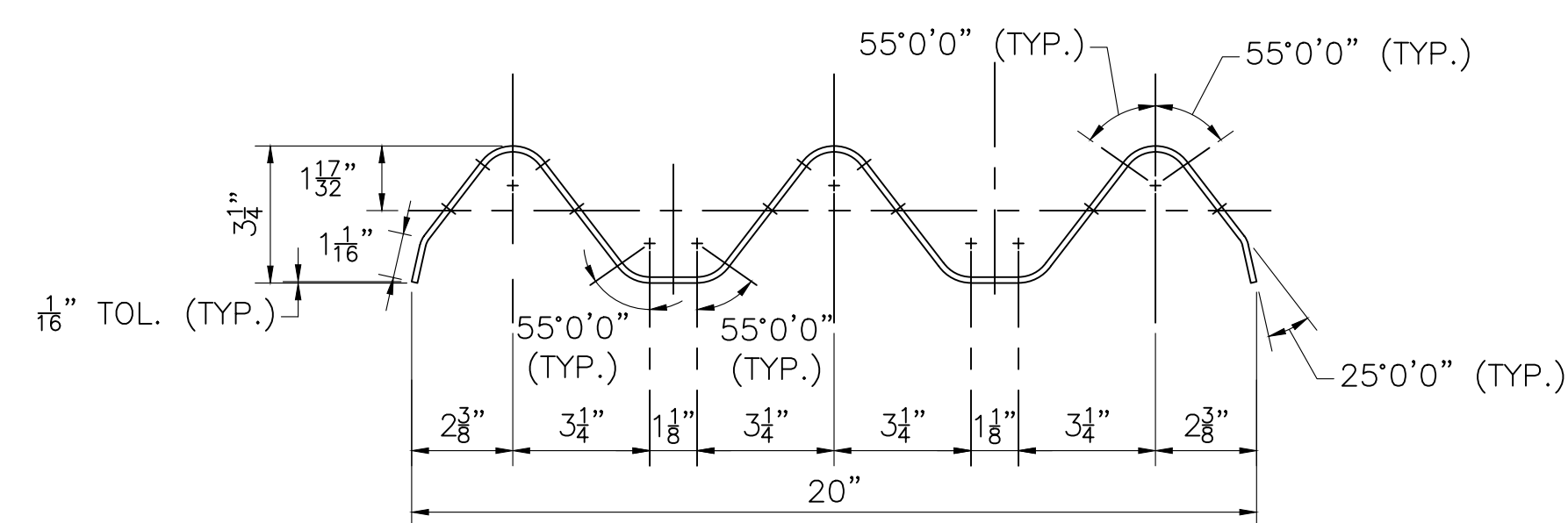


**ANCHOR BOLT DETAIL**  
SCALE: 3" = 1'-0"



**THRIE BEAM POST BASE PLATE DETAIL**  
SCALE: 3" = 1'-0"

**ANCHOR PLATE DETAIL**  
SCALE: 3" = 1'-0"



**STEEL THRIE BEAM 10 GAUGE BRIDGE GUARDRAIL SECTION**  
SCALE: 3" = 1'-0"

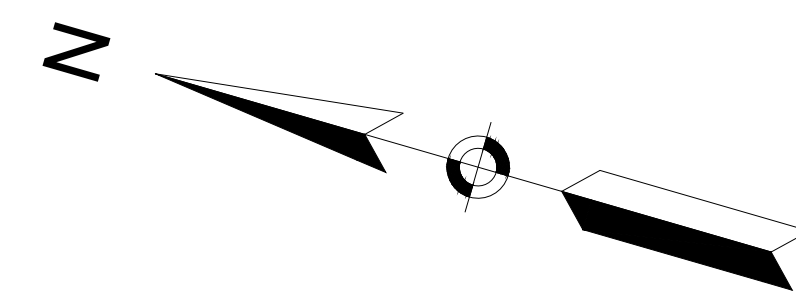
**RAILING NOTES:**

1. RAIL POST, BASE PLATES, AND ANCHOR PLATES SHALL BE AASHTO M270 GRADE 50 GALVANIZED.
2. THRIE BEAM BRIDGE RAIL SHALL BE AASHTO M180, CLASS B (10 GAUGE OR DOUBLE NESTED 12 GAUGE), AND GALVANIZED.
3. ALL BOLTS SHALL BE MECHANICALLY GALVANIZED WITH COMPATIBLE NUTS AND WASHERS UNLESS OTHERWISE NOTED.
4. SET POSTS PERPENDICULAR TO BRIDGE DECK.
5. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/4 TURN AFTER STEEL IS IN PLACE.
6. WELDING SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AASHTO/AWS D.1.5.
7. PLACE A REFLECTORIZED WASHER IN THE UPPER VALLEY OF EVERY THRIE BEAM POST.

**COMMONWEALTH OF MASSACHUSETTS**  
MassDOT, Highway Division  
APPROVED UNDER PROVISIONS OF  
MASS. GEN. LAWS CH 85 S 35

BRIDGE ENGINEER	DATE
-----------------	------

APRIL 23, 2021	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



LIMIT 200-FOOT RIVERFRONT AREA

LIMIT 100-FOOT BUFFER ZONE

N/F  
 CITY OF WESTFIELD  
 WATER DEPARTMENT  
 BOOK 720 PAGE 73  
 BOOK 742 PAGE 449  
 SEE ALSO  
 COUNTY COMMISSIONERS RECORDS  
 ASSESSORS MAP/PARCEL  
 14-4-0

**OLD WESTFIELD ROAD**

LIMIT OF WORK  
 STA 100+23.94  
 N 2864762.9476  
 E 288233.4501

LIMIT OF PAVING  
 STA 101+70.00  
 N 2864722.1567  
 E 288263.8886

LIMIT OF PAVING  
 STA 102+60.00  
 N 2864539.1158  
 E 288314.7876

LIMIT OF WORK  
 STA 102+86.33  
 N 2864519.1688  
 E 288339.8463

N/F  
 CITY OF WESTFIELD  
 WATER DEPARTMENT  
 COUNTY COMMISSIONERS RECORDS  
 'WESTFIELD WATER WORKS, GRANVILLE SUPPLY,  
 DESCRIPTION OF LANDS TAKEN  
 AND LOCATION MAPS, 1908'  
 PAGES 36-38  
 REC. OCT. 21, 1913  
 'WESTFIELD WATER WORKS, GRANVILLE SUPPLY,  
 DESCRIPTION OF LANDS TAKEN  
 AND LOCATION MAPS, 1898'  
 PAGES 82-84  
 REC. MAY 9, 1907  
 ASSESSORS MAP/PARCEL  
 9-5-0

PROP LANDSCAPE AREA  
 (SEE SHEET 08)  
 PROP PVT MILLING MULCH  
 UNDER GUARDRAIL (TYP)  
 APPROX LIMIT OF GRADING (TYP)  
 PROP HIGHWAY GUARD (TYP)  
 (SEE NOTES)  
 PROP SEDIMENT CONTROL  
 BARRIER (TYP)

PROP FULL DEPTH PVT  
 PROP BRIDGE G-10-013  
 PROP VEGETATION FOR  
 SLOPE STABILIZATION

PROP 8" GRAN  
 TRANS CURB (TYP)

PROP 8" GRAN  
 TRANS CURB (TYP)

PROP FULL DEPTH PVT  
 APPROX LIMIT OF  
 GRADING (TYP)  
 PROP MICROMILL &  
 OVERLAY (TYP)

PROP MICROMILL &  
 OVERLAY (TYP)  
 PROP SEDIMENT  
 CONTROL BARRIER (TYP)  
 PROP HIGHWAY GUARD (TYP)  
 PROP PVT MILLING MULCH  
 UNDER GUARDRAIL (TYP)

LIMIT OF PAVING  
 STA 101+70.00  
 N 2864722.1567  
 E 288263.8886

LIMIT OF PAVING  
 STA 102+60.00  
 N 2864539.1158  
 E 288314.7876

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

MEET EXIST

WORK WITHIN RIVERFRONT AREA: 9395± SF

