

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION



SPECIFICATIONS

Design: "American Railway Engineering and Maintenance of Way Association"
AREMA 2018 Manual for Railway Engineering

DESIGN LOADING

Live Load 4 Axle 286 kip vehicle at 25 mph with Tandem GP40 Locomotive

MATERIALS

Concrete:
Precast Class "P"
Cast-In-Place Class "A"
Reinforcing Steel ASTM A 615/A 615M, (Uncoated) Grade 60
Structural Steel:
Existing Low Carbon (Bessemer) Steel
All Material (except as noted) ASTM A 709/A 709M, Grade 50W
High Strength Bolts ASTM A325, Type 3

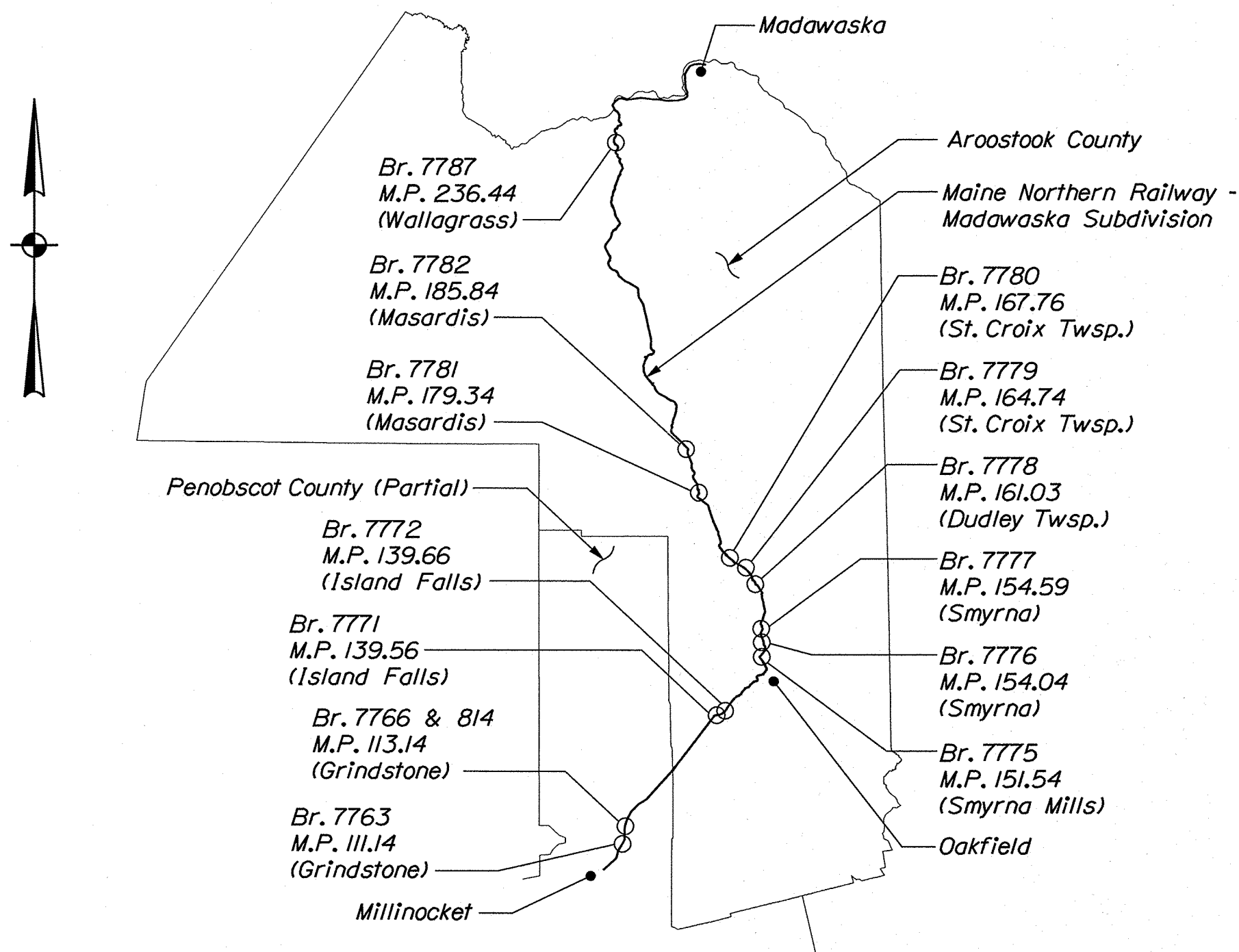
BASIC DESIGN STRESSES

Concrete:
Precast f'c = 5,000 psi
Cast-In-Place f'c = 4,000 psi
Reinforcing Steel f_y = 60,000 psi
Structural Steel:
Existing F_y = 30,000 psi
ASTM A 709/709M, Grade 50W F_y = 50,000 psi
ASTM A 325, Type 3 F_u = 120,000 psi

UTILITIES

Emera Maine
Eastern Maine Electric Cooperative, Inc.
Charter Communications
Maine Fiber Company
Consolidated Communications
Maine Northern Railway Company
MaineDOT Railroad

AROOSTOOK AND
PENOBSCOT COUNTY
MADAWASKA SUBDIVISION
MAINE RAILROAD BRIDGE
CAPACITY PROJECT-CONTRACT 2



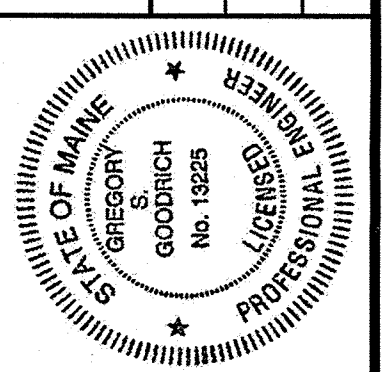
LOCATION MAP

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WIN 23486.00

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	APPROVED	DATE
	COMMISSIONER: <i>[Signature]</i> CHIEF ENGINEER: <i>[Signature]</i>	4/4/19 4-7-19



SIGNATURE <i>[Signature]</i>	P.E. NUMBER 13225	DATE 12-21-2018
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PROJECT INFORMATION		PROJECT RESIDENT	CONTRACTOR	PROJECT COMPLETION DATE
PROGRAM	MULTIMODAL			
PROJECT MANAGER	MATE BENOT			
DESIGNER	GREG GOODRICH			
CONSULTANT	VHB			

MAINE RAILROAD BRIDGE CAPACITY PROJECT - CONTRACT 2 MADAWASKA SUB. AROOSTOOK/PENOBSCOT	TITLE SHEET
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SHEET NUMBER
1
OF 74

PROJECT LOCATION:	14 bridges located on the Maine Northern Railway - Madawaska Subdivision from mile post 111.14 to 236.44, in Penobscot and Aroostook County.
PROGRAM AREA:	Multimodal Program
OUTLINE OF WORK:	Bridge Construction: Superstructure replacements, superstructure rehabilitations, strengthening and substructure rehabilitations.

PLANS PREPARED BY:

vhb

500 Southborough Drive, Suite 105B
South Portland, Maine 04106
207 889 3150 - FAX 207 253 5595

GENERAL BRIDGE CONSTRUCTION NOTES

1. All utility facilities shall be adjusted by the respective utilities unless otherwise noted.
2. All clearing shall be incidental to the contract and no separate payment will be made. The actual lines for clearing shall be established in the field by the Contractor and approved by the Resident.
3. Project information referred to below may be accessed at the following MaineDOT web address: <http://www.maine.gov/mdot/contractors>

The existing bridge plans may be accessed at the MaineDOT web address. The plans are reproductions of the original drawings as prepared for the construction of the bridge. It is highly unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.

5. Quantities included for pay items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:

- a. If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.
- b. If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.
- c. If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation and Time.

6. The Contractor shall submit a Bridge Demolition Plan to the Resident at least 10 business days prior to the start of demolition work. The plan shall outline the methods and equipment to be used to remove and dispose of all materials included in the bridge rehabilitation. No work related to the removal of the bridge shall be undertaken by the Contractor until MaineDOT has reviewed the Bridge Demolition Plan for appropriateness and completeness. Payment for all work necessary for developing, submitting and finalizing the Demolition Plan will be considered incidental to the bridge removal pay item.

7. Portions of existing bridges shall be removed by and become the property of the Contractor. Bridge removal includes structural steel, concrete, and stone masonry not otherwise included in other items and as shown in the plans. Steel portions of the existing bridges are coated with a lead-based paint system. The Contractor is responsible for the containment, proper management and disposal of all lead-contaminated hazardous waste generated by the process of demolishing the bridge. The Contractor is responsible for implementing appropriate OSHA mandated personal protection standards related to this process. Once portions of existing bridges are removed, the Contractor is solely responsible for the care, custody and control of the components of the existing bridges and any hazardous waste generated as a result of the storage, recycling or disposal of the bridge components, including lead-coated steel. The Contractor shall recycle or reuse the steel in accordance with the Maine Department of Environmental Protection's "Maine Hazardous Waste Management Regulations," Chapter 850. A copy of this regulation is available at MaineDOT's offices on Child Street in Augusta. Payment for all labor, materials, equipment and other costs required to remove and dispose of the existing bridge will be considered incidental to the bridge removal pay item.

8. All masonry work, concrete repair material placement, and backfilling shall be performed in the dry, unless otherwise directed by the Resident.

9. All dimensions are horizontal or vertical and are given at 68 degrees Fahrenheit unless otherwise noted.

10. Existing dimensions or features shown on these plans have been obtained from limited field investigation and may not accurately reflect actual field conditions. The plan, elevation, and sections shown are schematic only. The Contractor is responsible for taking sufficient field measurements of existing components to verify the dimensions of the proposed components before starting the work. Any discrepancies in dimensions, character, or extent of the existing structure shall be brought to the attention of the Engineer before advancing the work or beginning fabrication of new components. Costs will be considered incidental to the contract items.

11. Working drawings for various items of work shall indicate the Contractor's actual field measurements and shall be so noted.

12. The Contractor shall provide safe access to all areas of work on the bridge for the Resident's inspections. Cost will be considered incidental to the contract items.

13. The Contractor shall submit a written description of general repair and construction procedures and sequencing of work to the Resident for approval before advancing the work.

14. The Contractor's attention is called to the fact that, at several of the bridge locations, the existing lateral bracing members adjacent to the bridge bearings do not have the required strength to support jacking of the existing bridge. The Contractor shall submit working drawings and design calculations for the proposed jacking operations at each bridge, as applicable, for approval. Working drawings shall be submitted and will be reviewed in accordance with Standard Specification Section 105.7. Payment for all work necessary for developing, submitting and finalizing the working drawings and design calculations will be considered incidental to the associated contract items.

15. Surfaces of all existing bridge seats shall be cleaned of all accumulated dirt, debris and vegetation growth, including the removal and disposal of any delaminated or loose masonry or concrete. Cleaning of bridge seats shall be completed prior to advancing bearing and repointing work. Cleaning and inspection shall be done to the satisfaction of the Resident and all costs will be considered incidental to the related contract items.

16. Water elevations shown on plans are approximated based on inspections completed in October of 2016 and 2017. Actual water elevation at the time of construction will vary.

GENERAL RAILROAD CONSTRUCTION NOTES

1. All work shall be performed within existing Right-of-Way or State-of-Maine (SOM) property.
2. Any damage caused by the Contractor's equipment, personnel, or operations shall be repaired to the satisfaction of the Resident. All work, equipment, and materials required to make repairs shall be at the Contractor's expense.
3. All work shall be done in accordance with the Maine Department of Transportation's Best Management Practices for Erosion and Sedimentation Control, February, 2008.
4. Utility locations shown on the plans are approximate. It is the Contractor's responsibility to verify all utility locations. See Special Provision 104, Utilities for additional information.
5. Track shall be removed and reset as required for performing girder strengthening, stringer replacement and as otherwise required by the Contractor. Payment for this work will be paid under Item 648.511, Remove and Relay Existing Track.

6. The Contractor's attention is called to the fact that continuous coordination with the operator, Maine Northern Railway (MNR), will be required throughout construction. MNR will provide the contractor with flaggers for protection of railroad traffic while work is being performed on the Railroad Right-of-Way (R.O.W.). The Contractor shall not enter the R.O.W. at any time without MNR authorization. Railroad flagger protection will be provided by the railroad as specified in the Protection of Railroad Traffic and Structures special provision. All costs for railroad coordination will be considered incidental to contract items.

7. All work affecting the track or the load carrying capacity of a bridge shall be performed during a series of shutdowns of railroad traffic. During each shutdown the Contractor will be designated an amount of time as indicated by MNR to complete work, allowing time at each end of the shutdowns for the Contractor to remove and reset rails and ties, as applicable. The Contractor shall coordinate all shutdowns with MNR. See the special provisions for additional information regarding length of shutdowns and liquidated damages for exceeding contractual time limits.

8. The Contractor is responsible for the protection of all utilities affected by the work at each bridge site for the duration of construction, as applicable. Limited utility information is included in these plans. The Contractor shall contact dig-safe, MNR, and the owner, Maine Department of Transportation (MaineDOT) to determine the presence and location of any utilities, whether in service or out of service, prior to any construction at each site. See Special Provision 104, Utilities for additional information and requirements.

9. The Contractor shall field verify existing top of rail elevations at centerline of bearing. The Contractor shall confirm the desired final top of rail elevations with the Resident before starting the work. Temporary changes to top of rail elevations during the work must be submitted to the Resident for approval before advancing the work. The Contractor shall confirm that the desired top of rail elevations have been established after any work is completed that requires the track to be manipulated in any way including but not limited to jacking, removing and resetting, relocating, etc. Cost for verification of the top of rail elevation will be considered incidental to the related contract items.

GENERAL STRUCTURAL STEEL NOTES

1. All structural steel shall conform to MaineDOT Standard Specification Section 504 and 713 and ASTM A709 Grade 50W, unless noted otherwise. See individual bridge sheets for additional notes.

2. Structural steel for Bridge No. 7763 (MM 111.14) and Bridge No. 7776 (MM 154.04) shall be ASTM A709 Grade 50, Galvanized. See individual bridge sheets for additional notes.

3. All new bolted connections shall be made using 7/8" diameter high strength bolts in a 15/16" hole, unless otherwise noted. Where existing rivets are replaced with high strength bolts, the bolt shall be the same size as the existing rivet. All new bolts shall be ASTM A325 Type 3 and bolt threads shall be excluded from the shear plane of the connection.

4. All bolts shall be installed using the method and the minimum pretension specified in MaineDOT Standard Specification 504.

5. All existing steel surfaces in contact with new steel surfaces, except for web splice locations, shall be prepared in accordance with SSPC-SP3 Power Tool Cleaning.

6. The replacement bolted web splices at Bridge No. 7775 (M.P. 151.54), Bridge No. 7777 (M.P. 154.59), Bridge No. 7778 (M.P. 161.03), Bridge No. 7779 (164.74), and Bridge No. 7782 (M.P. 185.84) are slip-critical connections. All contact surfaces within the bolted splice shall be prepared in accordance with SSPC-SP6 Commercial Blast Cleaning, to achieve a minimum slip coefficient of 0.50.

7. All blast cleaned existing steel surfaces shall be touched up, as directed by the Resident, with a paint approved by the Resident. Cost for touch up will be considered incidental to contract items.

8. Bolt holes in web splice plates shall be shop drilled and may be up to 1" in diameter.

9. Bottom cover plates and web splice plates shall conform to the Zone 2 charpy v-notch impact test requirements of ASTM A709. These members have been labeled as Fracture Critical Member (FCM) for clarity.

10. All locations that require rivet removal and replacement with high strength bolts shall be done in accordance with the Special Provisions and as shown in the Plans. If any loose, deteriorated, or missing rivets are encountered during construction they shall be replaced with high strength bolts and shall be paid under Item 504.81, Remove Rivet and Replace with High Strength Bolt. An additional 10 EA of rivet replacement quantity has been included as a contingency for these locations. Where removal and replacement of rivets is required to complete work under another pay item, it shall be considered incidental to that item.

11. All dimensions relevant to the work shall be field verified by the Contractor prior to the preparation of working drawings to ensure the proper fit and connection of new members to the existing members. All cost for the field measurements required to prepare the working drawings shall be incidental to contract items.

12. Prior to structural steel erection, the Contractor shall submit an erection sequence to the Resident for approval.

REINFORCED CONCRETE NOTES

1. Reinforcing steel shall have a minimum clear cover of 2 inches for precast concrete and 3 inches for cast-in-place concrete, unless otherwise noted.

2. Precast and cast-in-place concrete shall have all exposed edges and corners chamfered 3/4" inch.

3. Precast concrete fabrication tolerances shall be as follows:
Length: ± 1/4"
Width: ± 1/4"
Depth: ± 1/4"
Variation from Specified end squareness or skew: ± 1/2"
Location of anchor rod and dowel sleeves: ± 1/4"

4. PVC sleeves for anchor bolts shall be removed prior to grouting.

5. Precast concrete pedestals, caps, and backwalls shall be placed on a bed of high-early strength, non-shrink polymer or epoxy grout material over the existing bridge seat and backwall, as applicable. All costs for grout shall be incidental to the related 534 Items. The existing bridge seat and backwalls shall be cleaned and free of laitance before placing the grout bed.

6. Protective Coating for Concrete Surfaces shall be applied to the following areas:

- Bridge No. 814 (M.P. 113.14) - All vertical surfaces on the north abutment and wingwalls below the top of bridge seat, including all existing concrete surfaces, all patch repaired concrete surfaces, and the vertical and horizontal surfaces along the full length of the repaired portion of the northeast wingwall.
- All exposed surfaces of precast concrete bearing pedestals.
- All exposed surfaced of precast concrete caps and backwalls.

7. Working Drawings and Reinforcing Steel Schedules for all precast concrete and for the cast-in-place concrete associated with Item 518.211, Rehabilitate Structural Concrete Substructure shall be the responsibility of the Contractor. Refer to subsections 105.7 and 503.03 of the Standard Specifications and Special Provisions 518 and 534 for additional information. Payment for all work associated with developing Working Drawings and Reinforcing Steel Schedules will be considered incidental to the related contract items.

BRIDGE TIE AND TIMBER NOTES

1. Bridge ties shall be solid-sawn Grade No. 1 or better Douglas Fir or Southern Yellow Pine for the following bridges: Bridge No. 7775 (MM 151.54), Bridge No. 7777 (MM 154.59), Bridge No. 7778 (MM 161.03), Bridge No. 7779 (MM 164.74), Bridge No. 7780 (MM 167.76), Bridge No. 7782 (MM 185.84), and Bridge No. 7787 (MM 236.44). All other bridge ties and all tie spacers shall be solid-sawn Grade No. 1 or better Douglas Fir, Southern Yellow Pine, or Oak. All ties shall meet the requirements of Chapter 7, Section 1.7 "Specification for Timber Bridge Ties" of the AREMA Manual for Railway Engineering. See Special Provisions 528 for additional timber and preservative treatment requirement.

2. Prepare holes for all lag screws, hook bolts and thru-bolts. Holes for lag screws shall be bored with a bit not larger than the screw at the base of the thread. Face of shank shall be tight to flange, no more than 1/8" gap. See special provisions for type of lag screws and hook bolt requirements.

3. The joint between abutting timber tie spacers shall not be placed on a bridge tie.

4. All costs for the complete timber deck shall be included in Item 528.4903, Bridge Ties and Timbers, including bridge ties, backwall timbers, tie spacers and blocks, hook bolts, thru-bolts, lag screws and any other required material.



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BRIDGE NO.
WIN 23486.00
BRIDGE PLANS

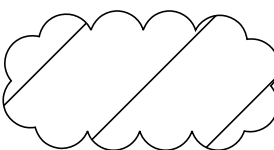
PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	11/2018	BJM	11/2018
CHECKED-REVIEWED	JCM	GSC	
DESIGNS-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT
GENERAL NOTES

SHEET NUMBER

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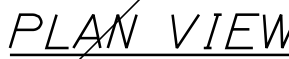
Indicates work to be done by the Railroad (Separate Contract)

* Includes an additional 10 EA as a contingency

 Indicates work to be done by
the Railroad (Separate Contract)



1. $\frac{1}{8}$ " Rivets shown, if existing rivet is other another size, it shall be replaced with a high strength bolt of the same size as existing.
2. Existing rivets and bolts shall be replaced if one of the following criteria is met:
 - a. A loose, sheared, or missing rivet/bolt has been identified on the plans.
 - b. A loose, sheared, or missing rivet/bolt is discovered during construction.
 - c. A rivet head has section loss exceeding the minimum criteria shown in the Rivet Replacement Criteria Detail.
3. All rivets and bolts shall be replaced with ASTM 325 Type 3 bolts, 1 hardened washer, and a nut as shown in the replacement bolt detail. All bolted connections shall meet the installation and tensioning requirements of MaineDOT Standard Specification 504.
4. Bridge shall be shored/supported as appropriate before rivet removal.
5. All existing steel surfaces in contact with new bolts and washers shall be prepared in accordance with SSPC-SP3.
6. See General Notes Sheet for Typical Structural Steel Notes.

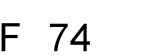


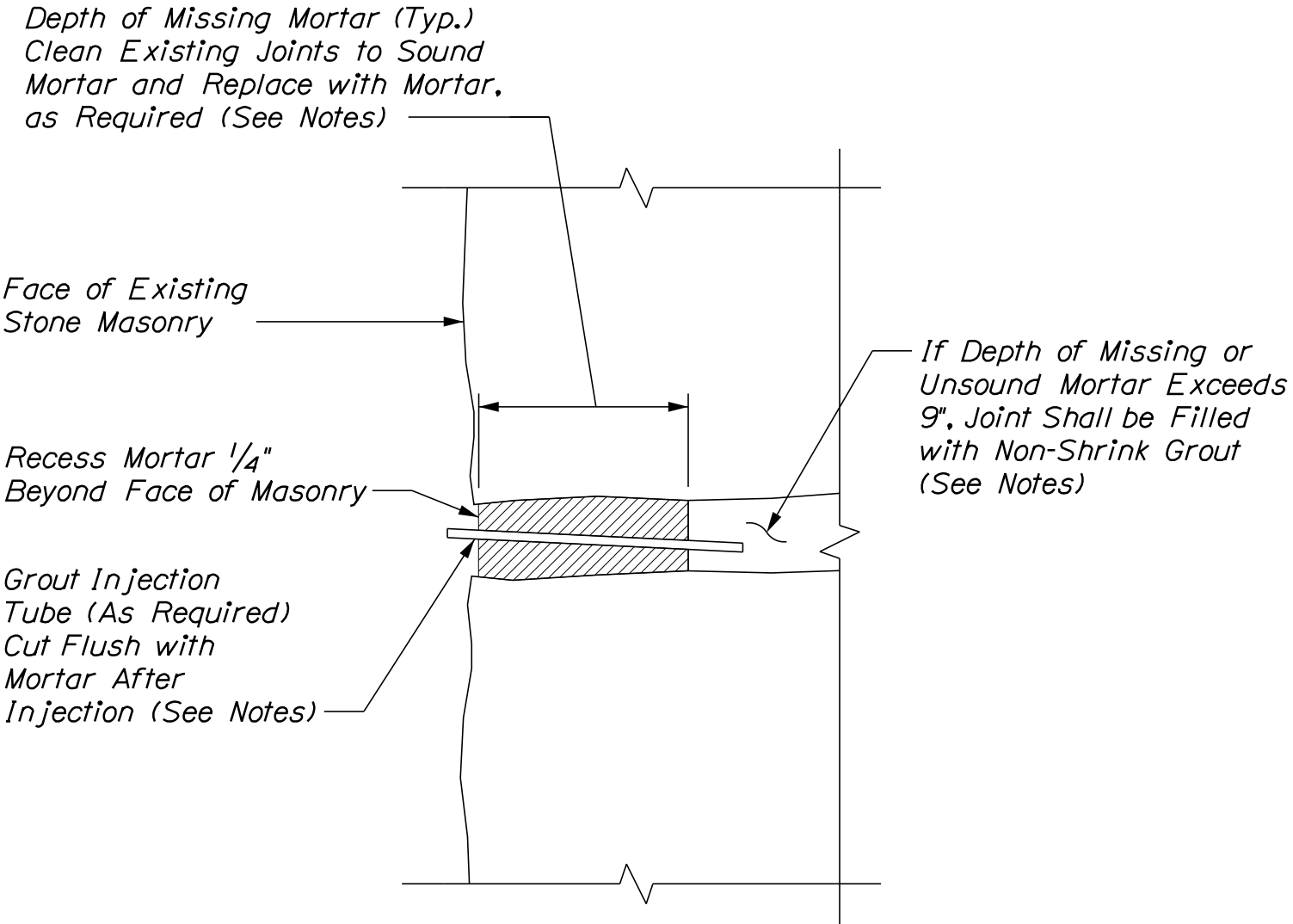
~~Work This Detail With Work ID -~~ C4
~~Install New Backwall Timber~~
~~Not to Scale~~

1. See General Notes sheet for Bridge Tie and Timber Notes
2. Thru-bolted connections shall be made using ASTM A307 or ASTM A449 bolts, 2 ogee washers and a nut. All hardware shall be galvanized in accordance with ASTM A153.
3. The bottom of the backwall timbers shall be trimmed in the field to maintain the appropriate top of rail elevation. All in cuts made in the field shall be treated with a timber preservative as specified in Special Provision 528, Bridge Ties and Timbers.
4. Treated timber blocks shall be drilled and placed so the thru-bolt hole is running parallel to the grain.

New Backwall Timber Dimensions							
Location		North Abutment			South Abutment		
Bridge No.	M.P.	Width	Depth	Length	Width	Depth	Length
7763	111.14	8"	10"	12'-0"	8"	10"	12'-0"
7766	113.14	Retain Existing			Not Applicable		
814	113.14	Not Applicable			Retain Existing		
7771	139.56	Retain Existing			Retain Existing		
7772	139.66	Retain Existing			Retain Existing		
7775	151.54	12"	18"	15'-0"	12"	18"	15'-0"
7776	154.04	8"	10"	12'-0"	8"	10"	12'-0"
7777	154.59	8"	12"	14'-0"	8"	12"	14'-0"
7778	161.03	12"	18"	15'-0"	12"	18"	15'-0"
7779	164.74	12"	12"	14'-0"	8"	12"	14'-0"
7780	167.76	Retain Existing			Retain Existing		
7781	179.34	8"	12"	14'-0"	8"	12"	14'-0"
7782	185.84	8"	18"	15'-0"	12"	18"	15'-0"
7787	236.44	Retain Existing			Retain Existing		

 Indicates work to be done by
the Railroad (Separate Contract)





REPOINT STONE MASONRY DETAIL

Work This Detail With Work ID - CI
Repoint Stone Masonry Abutment
Not to Scale

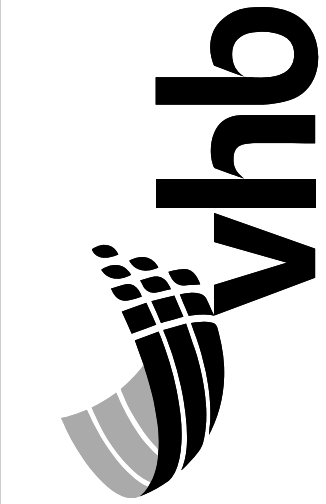
REPOINTING NOTES

1. Repointing shall be required where unsound mortar exceeds 2" in depth.
2. Loose, soft, or unsound mortar shall be removed by means of chisel, wire brush, or pressure hosing with air or water.
3. Where the depth of unsound mortar exceeds 9", grout injection tubes shall be installed, and the outer-most 3" of the joint shall be repointed. After the mortar has set, the cavity behind the mortar shall be filled with non-shrink grout using injection the tubes.
4. Mortar shall meet the requirements of MaineDOT Standard Specification 525.
5. Where required, a non-shrink grout shall be selected from the MaineDOT Qualified Products List.

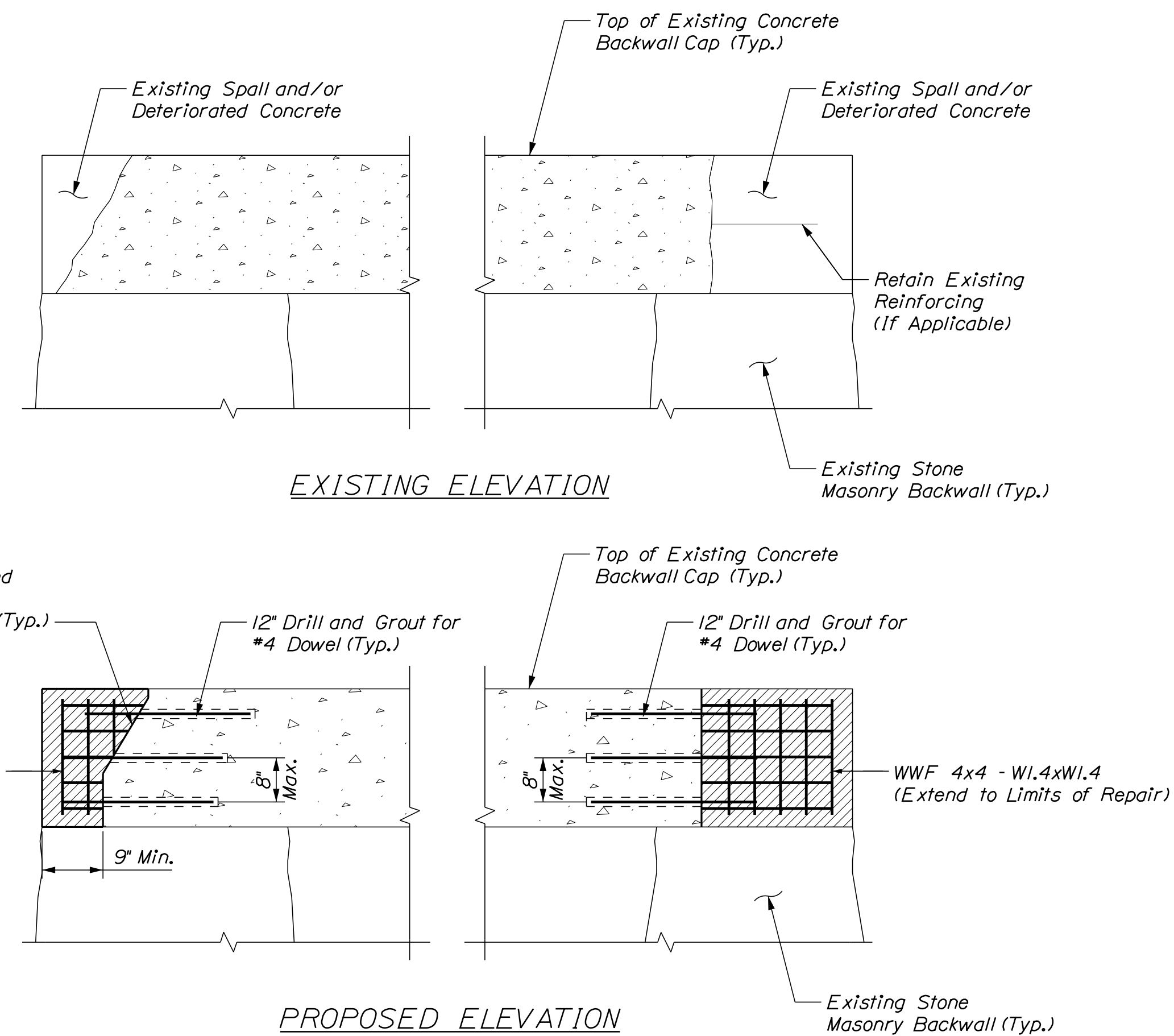
MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT
TYPICAL REPAIR DETAILS
(3 OF 4)

SHEET NUMBER

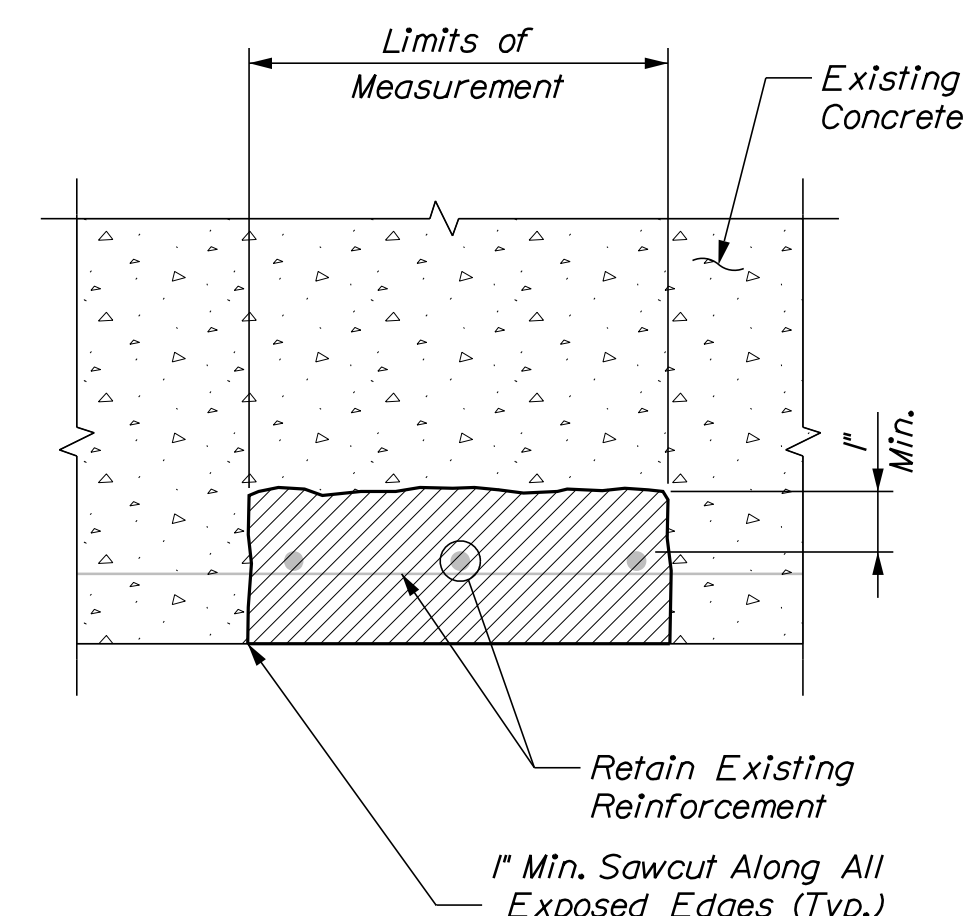
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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 23486.00
WIN
BRIDGE PLANS



Work This Detail With Work ID - C9 Repair Corner of Concrete Backwall Cap
Schematic Only - Actual Size and Location of Deficiencies Will Vary
Not to Scale



REINFORCED CONCRETE

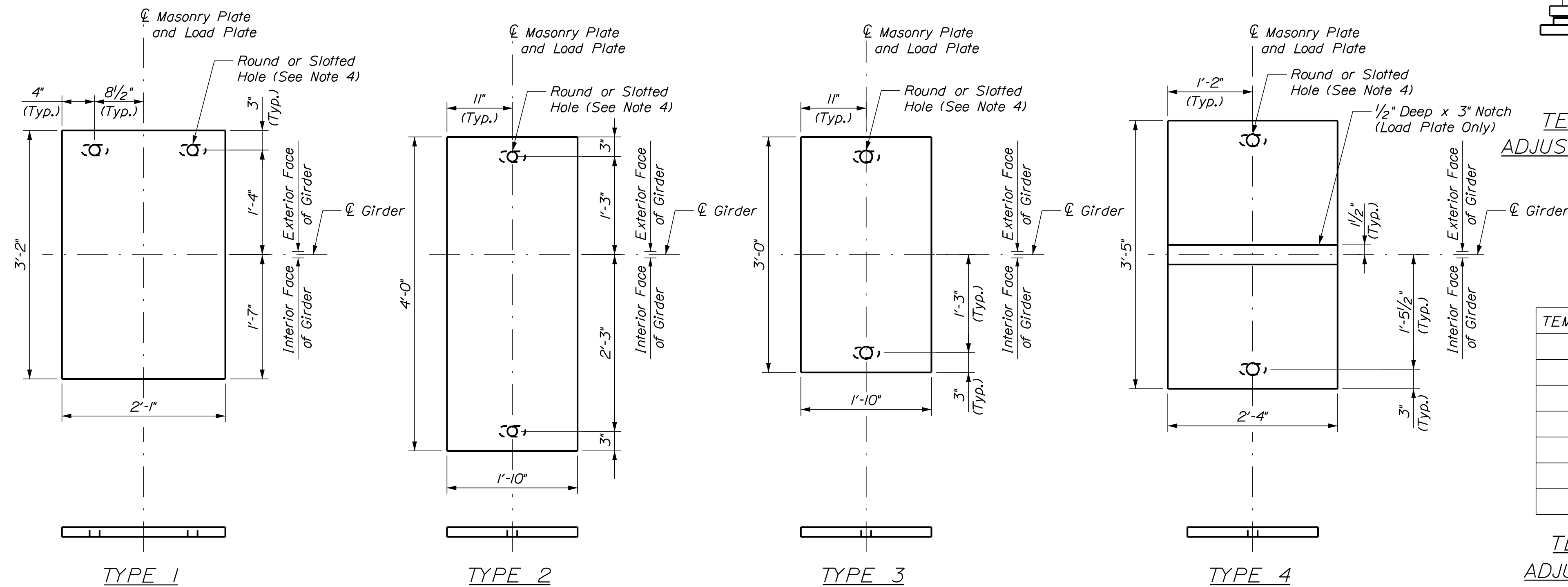
Work This Detail With Work ID - C7 Patch Repair of Concrete Surface
Schematic Only - Actual Size and Location of Deficiencies Will Vary
Not to Scale

A diagram showing a beam with a horizontal span of 6 inches. A curved arrow labeled "Bend" indicates the deflection of the beam. The deflection is labeled as $l' - l''$.

 Existing Concrete
 Proposed Concrete

1. Where Patch Repair of Concrete Surface or Repair Corner of Concrete Backwall is specified the work shall include removal of unsound concrete, placement and curing of repair materials and providing access for inspection. All concrete repair work shall be performed in accordance with Standard Specifications Section 518 or Special Provision 518, as applicable.
2. Where Surface Patch Repair is specified payment shall be made under Item 518.60, Repair of Vertical Surfaces < 8 inches.
3. Where Repair Corner of Concrete Backwall Cap is specified payment shall be made under Item 518.21, Rehabilitate Structural Concrete Substructure.
4. Where Repair Crack in Concrete is specified the work shall include epoxy injection of cracks in existing concrete and access for inspection. Work shall be performed in accordance with Special Provision 518 and shall be paid under Item 518.80, Crack Repair.
5. Prior to the start of concrete repairs the Resident and the Contractor shall sound all concrete surfaces and agree on the repair limits. Estimated repair quantities may increase at the Resident's discretion.
6. The Contractor shall remove all unsound concrete and all repairs shall be to the minimum depth shown. If removal limits change during the demolition process the Contractor shall notify the Resident. The Resident and Contractor shall agree on the revised limits prior to the Contractor continuing removal.
7. The estimated repair quantities are based on inspections completed in September of 2018. If additional locations of unsound concrete are discovered during construction, they shall be repaired at the Resident's discretion.
8. Reinforcement for concrete patch repairs shall be generally configured as shown on this sheet, unless otherwise directed by the Resident. Dowels for concrete patch repairs shall be spaced and oriented as directed by the Resident, dowel spacing shall not exceed 12".

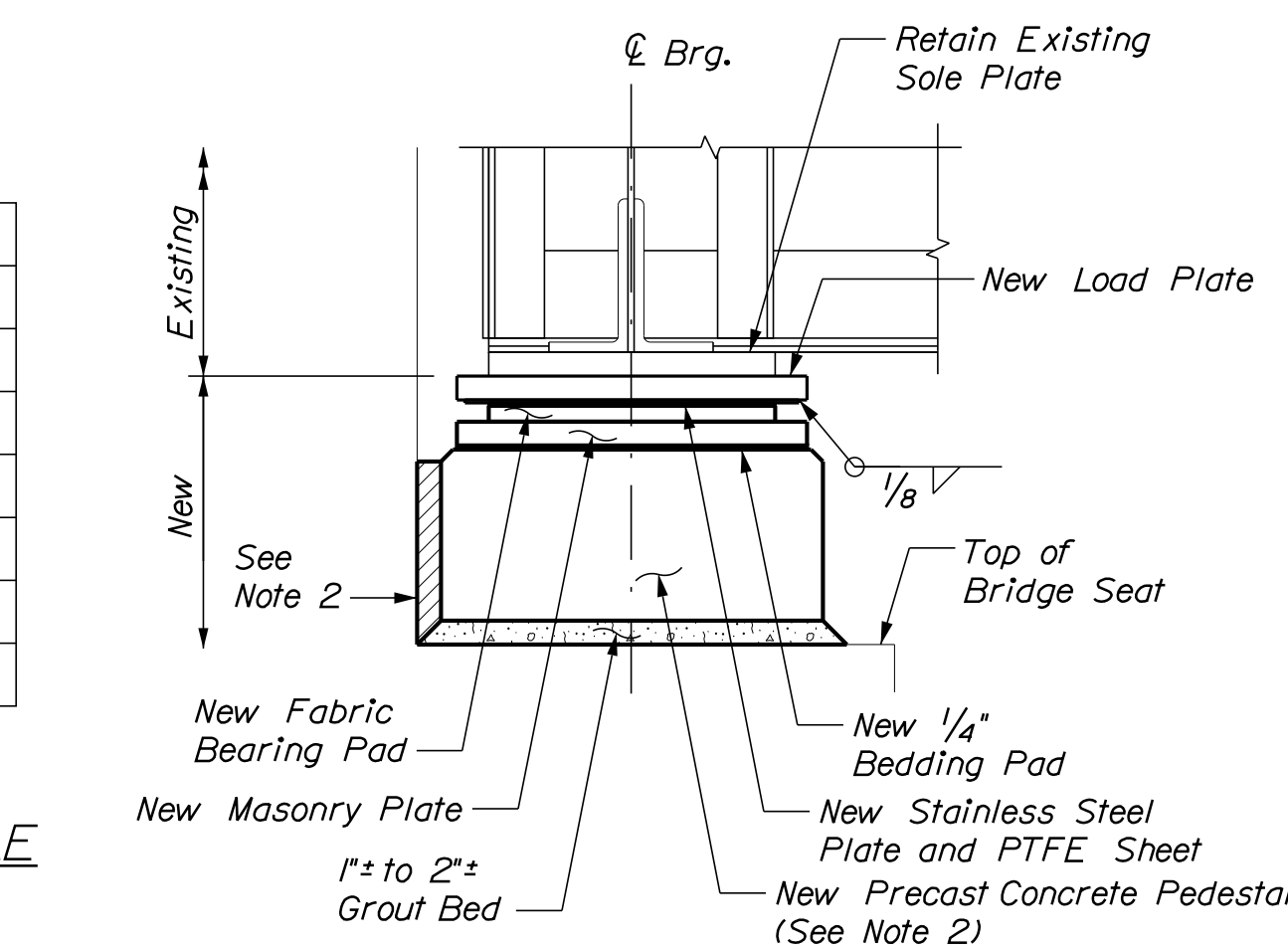
New Bearing Dimension Table										
Location			Masonry Plate	Fabric Bearing Pad		PTFE Sheet		Stainless Steel Plate		Load Plate
Bridge No.	M.P.	Abutment	Type	"L"	"W"	"L2"	"W2"	"L3"	"W3"	Type
7771	139.56	South	1	1'-9"	2'-0"	1'-9"	2'-0"	1'-11"	2'-2"	1
	139.56	North	1	---	---	---	---	---	---	---
7772	139.66	South	1	---	---	---	---	---	---	---
7775	151.54	North	2	1'-6"	2'-0"	1'-6"	2'-0"	1'-8"	2'-2"	2
7778	161.03	North	3	1'-6"	2'-0"	1'-6"	2'-0"	1'-8"	2'-2"	3
7782	185.84	North	3	1'-6"	2'-0"	1'-6"	2'-0"	1'-8"	2'-2"	3
7787	236.44	North	4	2'-0"	2'-0"	2'-0"	2'-0"	2'-2"	2'-2"	4



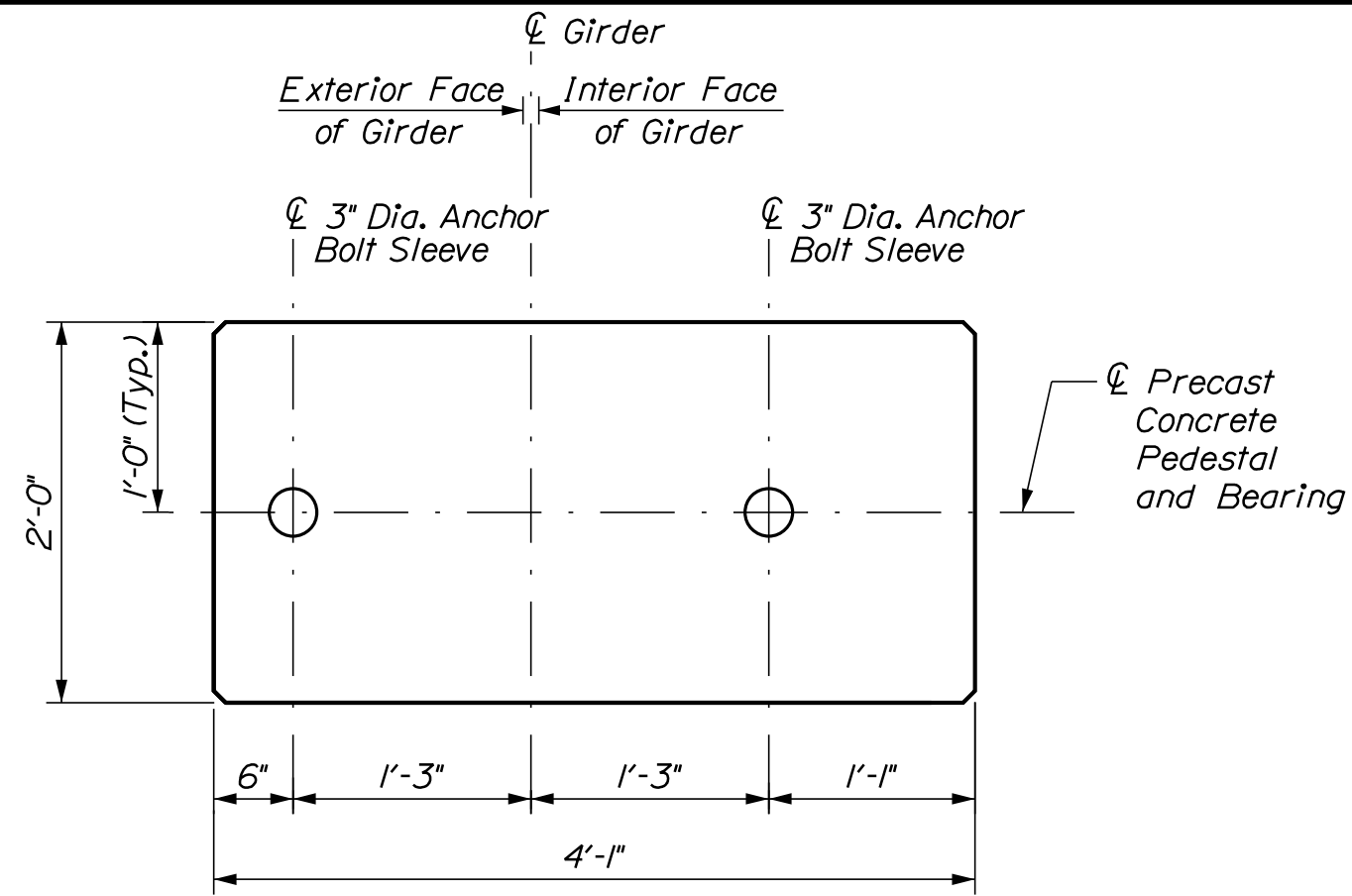
1. See Bearing and Pedestal Details (2 of 2) sheet for typical bearing and anchor bolts notes.
2. See Bearing and Pedestal Details (2 of 2) sheet for precast concrete pedestal details and notes.
3. Recesses in top of load plate shall be located to avoid rivet heads in existing sole plate. Recess locations shown on this sheet are schematic only, it is the responsibility of the Contractor to determine the location and number of recesses.
4. All holes in masonry plates shall be $\frac{15}{8}$ " diameter. All holes in load plates shall be 4" x $\frac{15}{8}$ " slotted holes.



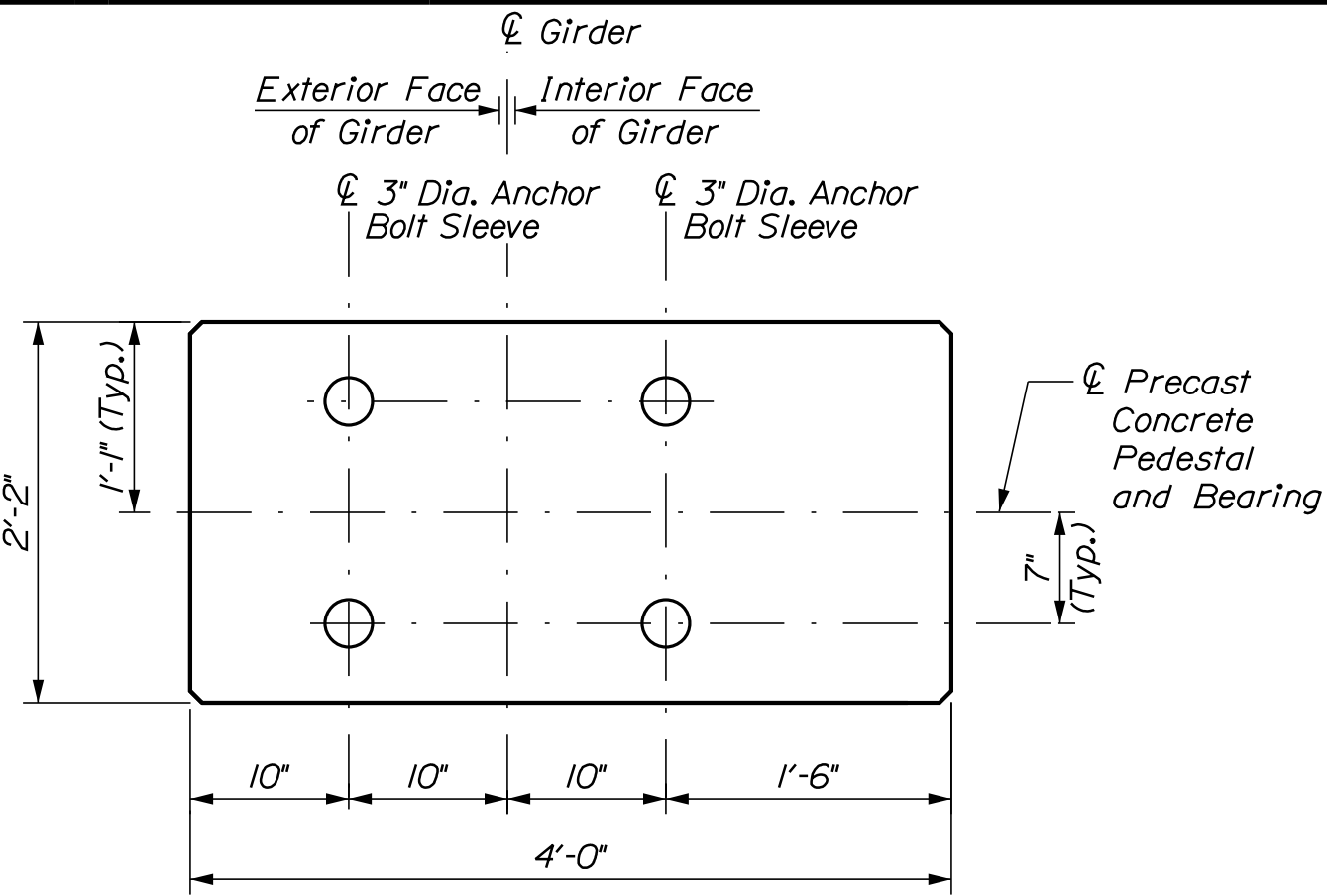
TEMPERATURE ADJUSTMENT TABLE



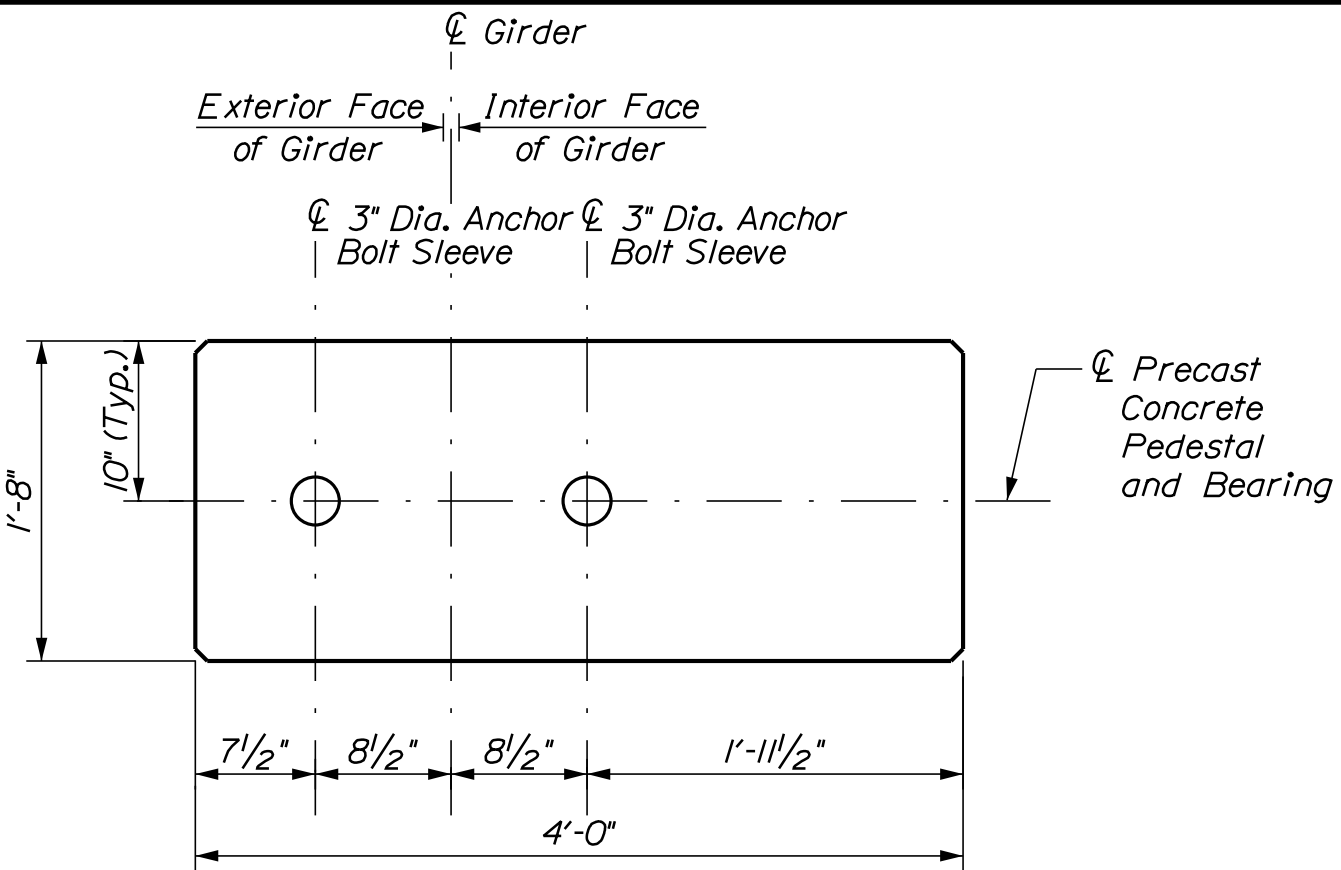
NEW FABRIC PAD EXPANSION BEARING DETAIL
Schematic Only - Actual Size and Configuration of Bearing, Existing Girder and
Substructure Will Vary. See Bearing Dimension Table and Individual Bridge Sheets.
Not to Scale



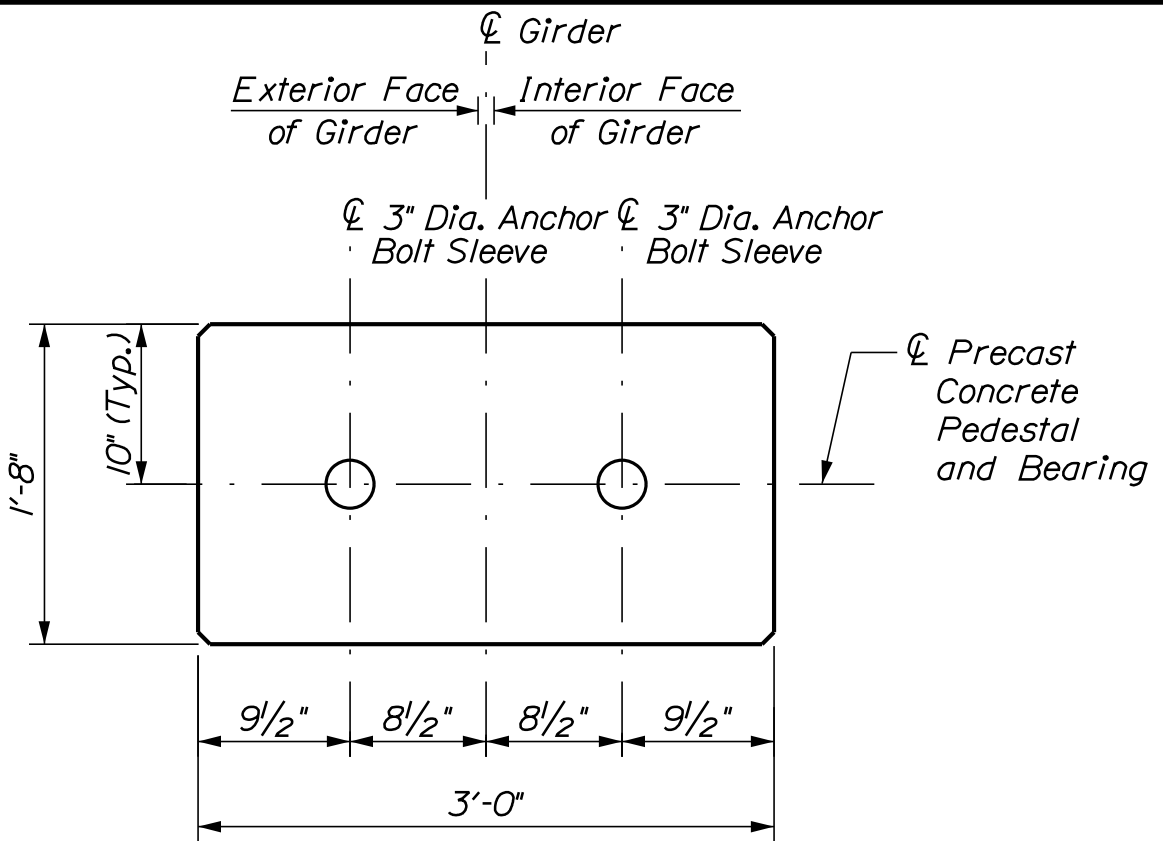
PRECAST CONCRETE PEDESTAL - TYPE 1
Not to Scale



PRECAST CONCRETE PEDESTAL - TYPE 2
Not to Scale



PRECAST CONCRETE PEDESTAL - TYPE 3
Not to Scale



PRECAST CONCRETE PEDESTAL - TYPE 4
Not to Scale

BEARING NOTES

1. New expansion bearings will be paid under Item 523.26, Expansion Bearing - Modification (Fabric Pad w/PTFE Sliding Surface). Cost for removal of existing bearing and pedestal components, as required, shall be incidental to contract items.

2. All bearing work shall be in accordance with AREMA Chapter 15, Part 5.

3. Fabric bearing pad shall meet the following design criteria:

Hardness (Shore A) = 90 $\pm$ 5 Durometer
Shear Modulus (G) = 450 psi

Design Loads (per bearing):

Dead Load = 50 kips
Live Load + Impact = 230 kips
Rotation = 0.003 radians

4. All steel in bearing devices (except stainless) shall be ASTM A709, Grade 36, metallized or galvanized. Touch up any damaged galvanizing with a zinc-rich paint, to the satisfaction of the Resident.

5. All bolts, nuts and washers shall be galvanized in accordance with ASTM A153.

6. Charpy v-notch toughness tests are not required for steel used in bearing components.

7. All bearing plates shall be flat and true after welding.

8. Bearings shall be covered during transit.

9. All necessary precautions shall be taken to protect bearing components from field weld flash and spatter. Heat from welding operations shall be controlled such that steel adjacent to the fabric pad does not exceed 200 degrees F. The temperature shall be verified by the use of temperature indicating crayons or other suitable means.

10. Bearing work at locations that only require a new precast concrete pedestal and anchor bolts or locations that require a new masonry plate, precast concrete pedestal and anchor bolts shall be paid for under Item 523.30I, Refurbish and Reset Fixed Bearing or Item 523.31I, Refurbish and Reset Expansion Bearing, as appropriate.

PRECAST CONCRETE PEDESTAL NOTES

1. New precast concrete pedestals will be paid under Item 534.30, Precast Structural Concrete.

2. See General Notes Sheet for Reinforced Concrete Notes.

3. The bottom of all precast concrete pedestals shall be intentionally roughened to an amplitude of 1/4 inch. Roughening shall run perpendicular to the centerline of girder.

4. The void between the face of the backwall and back of precast pedestal shall be filler with MaineDOT Class A Concrete or a grout selected from the MaineDOT qualified product list. Grout or concrete shall be sloped in the transverse direction to drain water away from the bearing. All costs shall be incidental to contract items.

ANCHOR BOLT NOTES

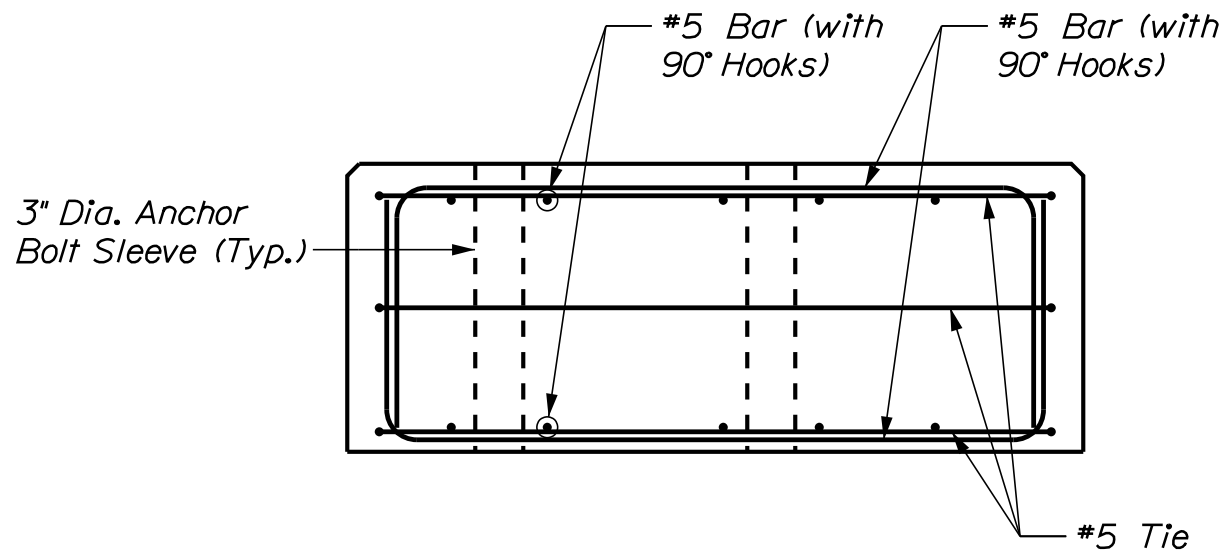
1. New anchor bolts and the removal of existing anchor bolts shall be incidental to the appropriate 523 Item at each bearing location.

2. The nuts for all expansion bearing anchor bolts shall be drawn up finger tight and then backed off 1/4 turn. Burr the threads on the anchor bolts after assembly. Burred areas shall be touched up with an approved zinc rich paint.

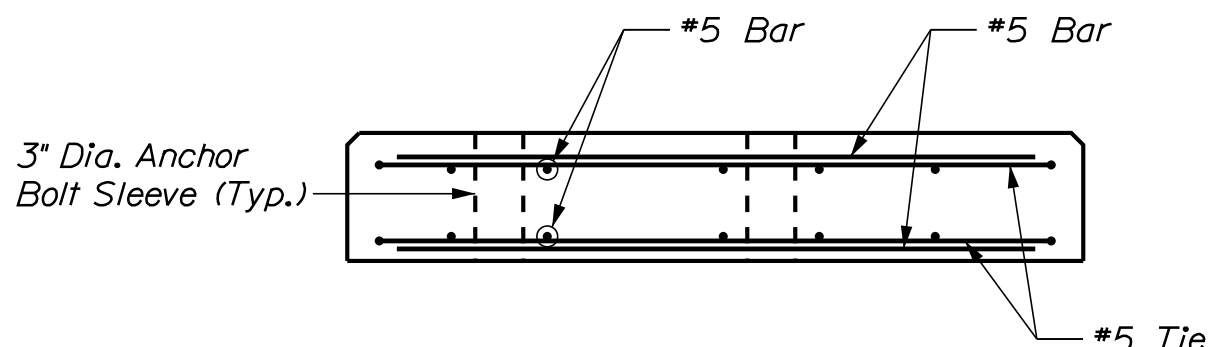
3. Anchor bolts shall be fully threaded ASTM 1554 Grade 55. Nuts shall be ASTM A563 Grade A or ASTM A194 Grade 2H heavy hex type. Washers shall be ASTM F436. All anchor bolts, nuts, and washers shall conform to AREMA Chapter 15, Section 5.9.5.

4. Anchor bolts shall be grouted with the same grout material used for grout beds. All costs for anchor bolt grouting material shall be considered incidental to Contract Items.

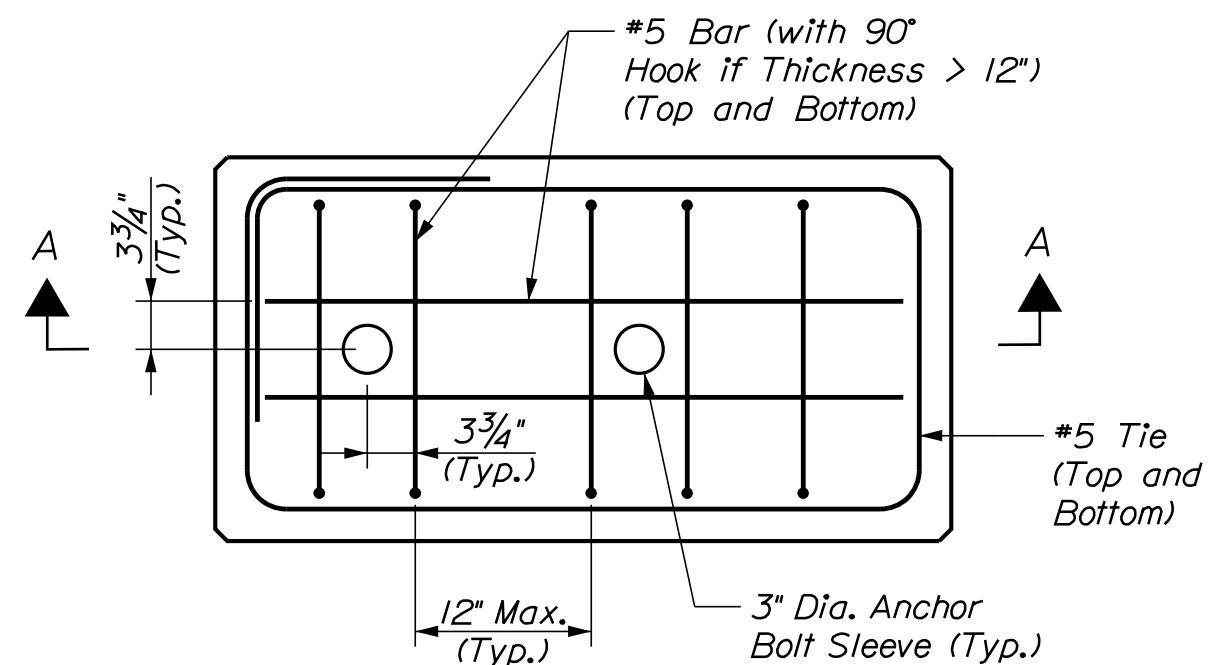
5. Anchor bolts shall be embedded a minimum of 1'-3". At locations where the precast concrete pedestal is less than 1'-3" thick the existing bridge seat shall be drilled to accommodate the required 1'-3" embedment. Drilling into existing masonry shall be done after the precast concrete pedestal has been set. Holes in existing stone masonry shall be cored, hammer drilling into existing stone masonry is not allowed.



SECTION A-A (>12" THICKNESS)



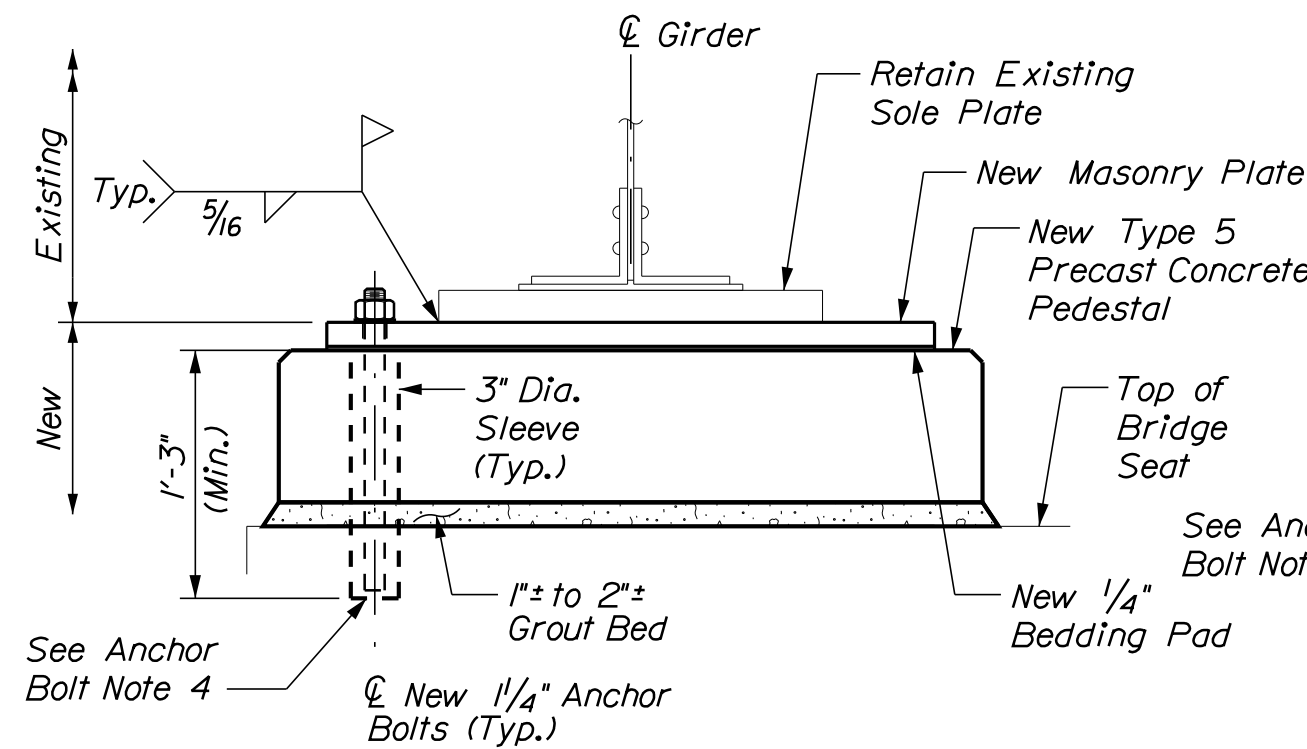
SECTION A-A (≤12" THICKNESS)



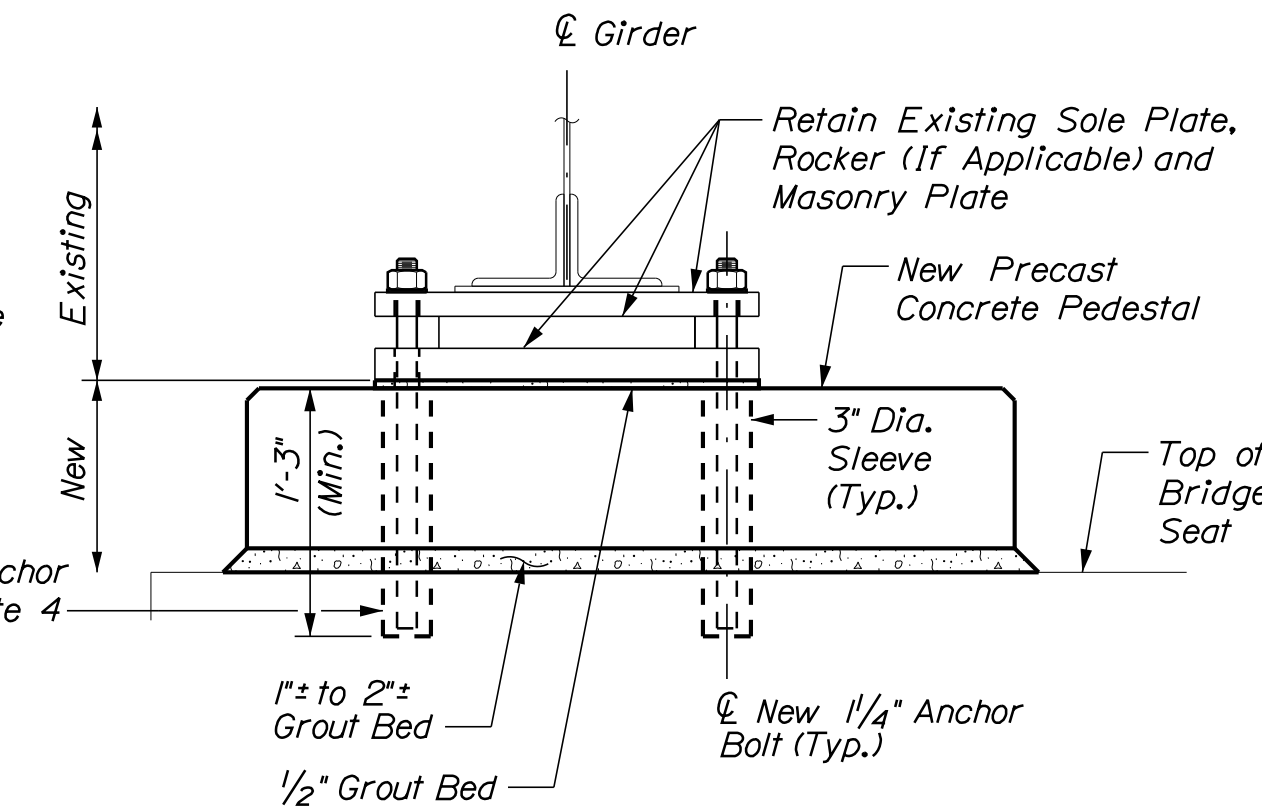
PLAN

TYPICAL PRECAST CONCRETE
PEDESTAL REINFORCING DETAILS
(Location of Anchor Bolt Sleeve and Reinforcing Varies by Pedestal Type)
Scale: 1" = 1'-0"

Precast Concrete Pedestal Table				
Location			Type	Thickness
Bridge No.	M.P.	Abutment		
7771	139.56	North	5	9 1/2"
		South	5	6 1/2"
7772	139.66	North	N/A	N/A
		South	5	13"
7777	154.59	North	3	19"
		South	3	14"
7778	161.03	North	1	11"
		South	2	12"
7779	164.74	North	3	8 1/2"
		South	3	8 1/2"
7780	167.76	North	4	14"
		South	4	14"
7781	179.34	North	4	18 1/2"
		South	4	18 1/2"
7782	185.84	North	1	17"
		South	2	18"



PEDESTAL AND MASONRY
PLATE REPLACEMENT DETAIL
Schematic Only - Actual Size and Configuration of Bearing,
Existing Girder and Substructure Will Vary. See Precast Concrete
Pedestal Table and Individual Bridge Sheets.
Not to Scale



PEDESTAL REPLACEMENT DETAIL
Schematic Only - Actual Size and Configuration of Bearing,
Existing Girder and Substructure Will Vary. See Precast Concrete
Pedestal Table and Individual Bridge Sheets.
Not to Scale



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

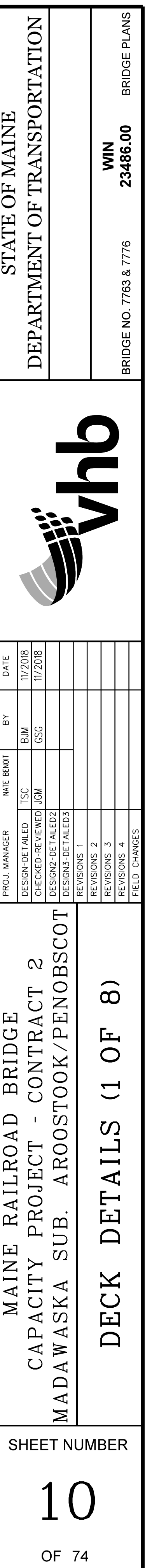
BRIDGE NO.
WIN
23486.00
BRIDGE PLANS

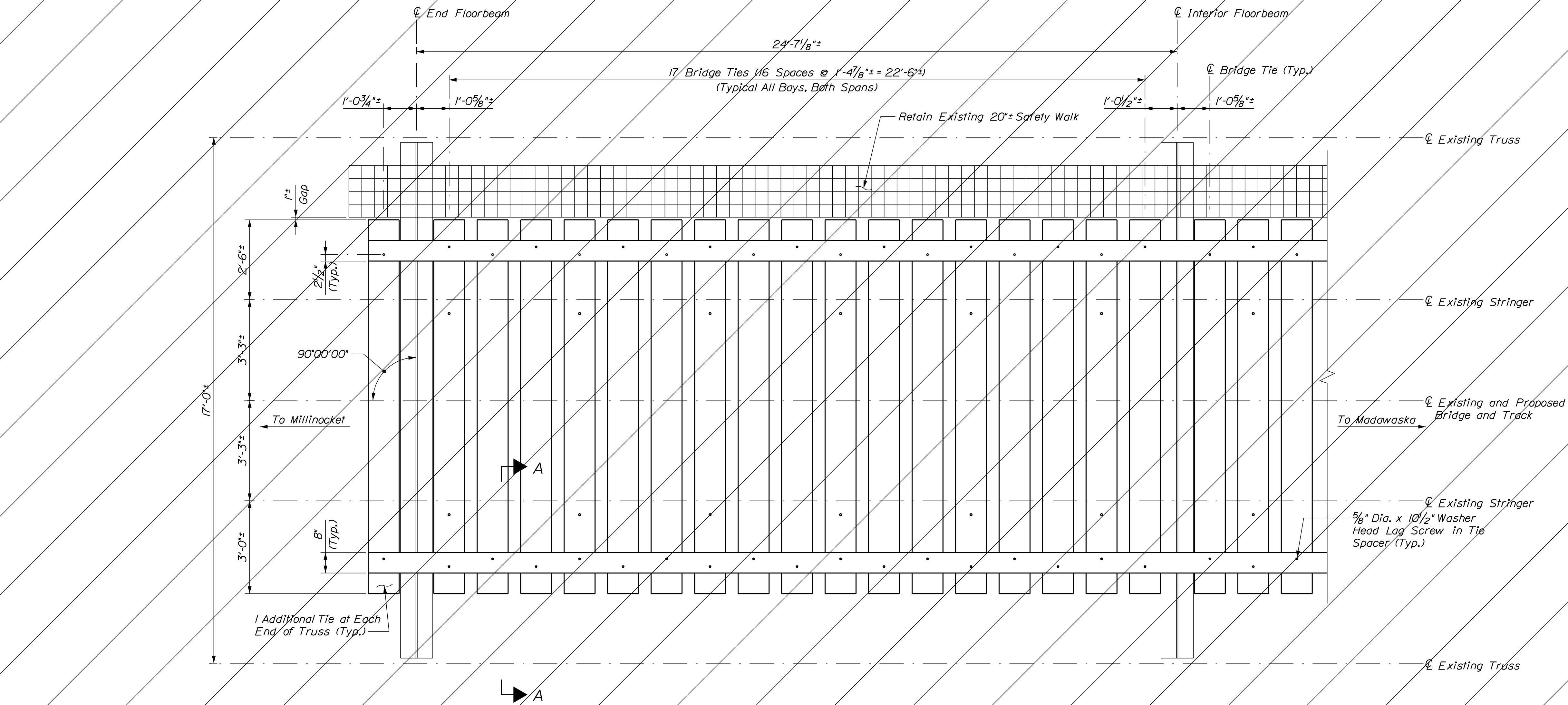
MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT
BEARING AND PEDESTAL
DETAILS (2 OF 2)

SHEET NUMBER

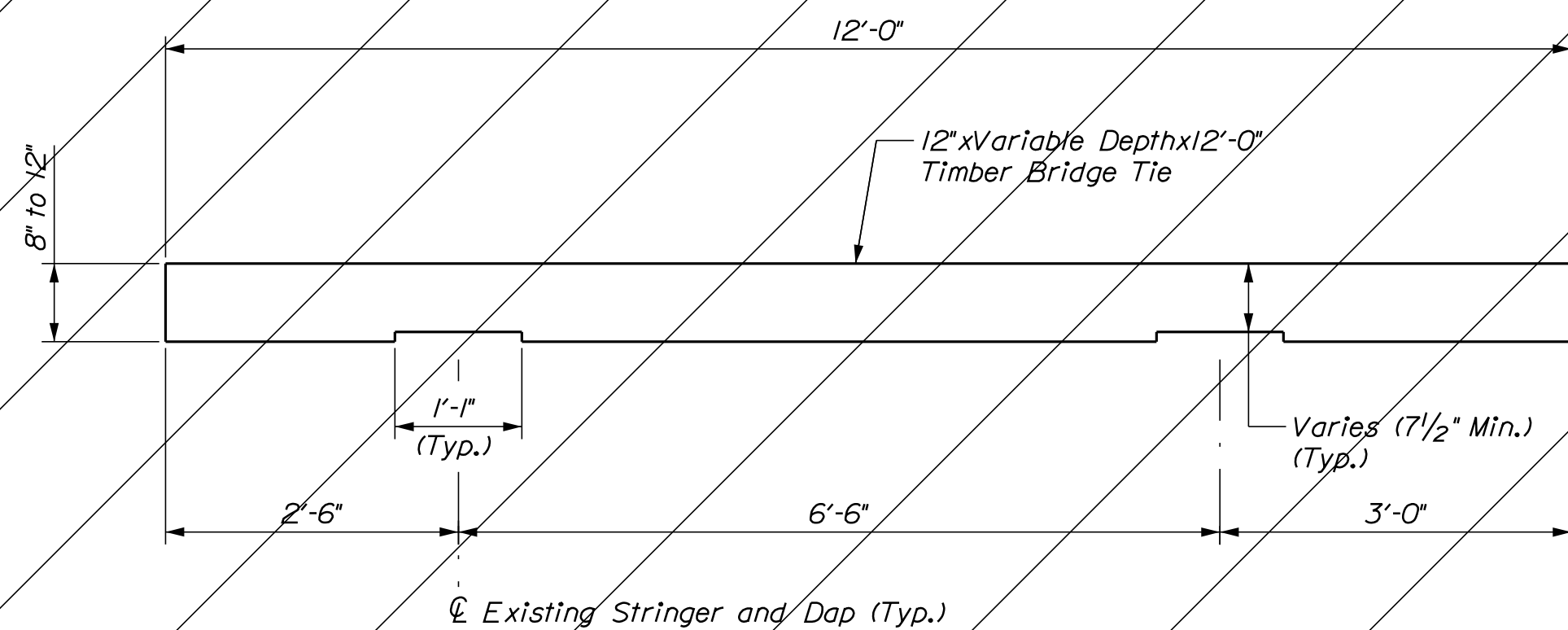
9

OF 74



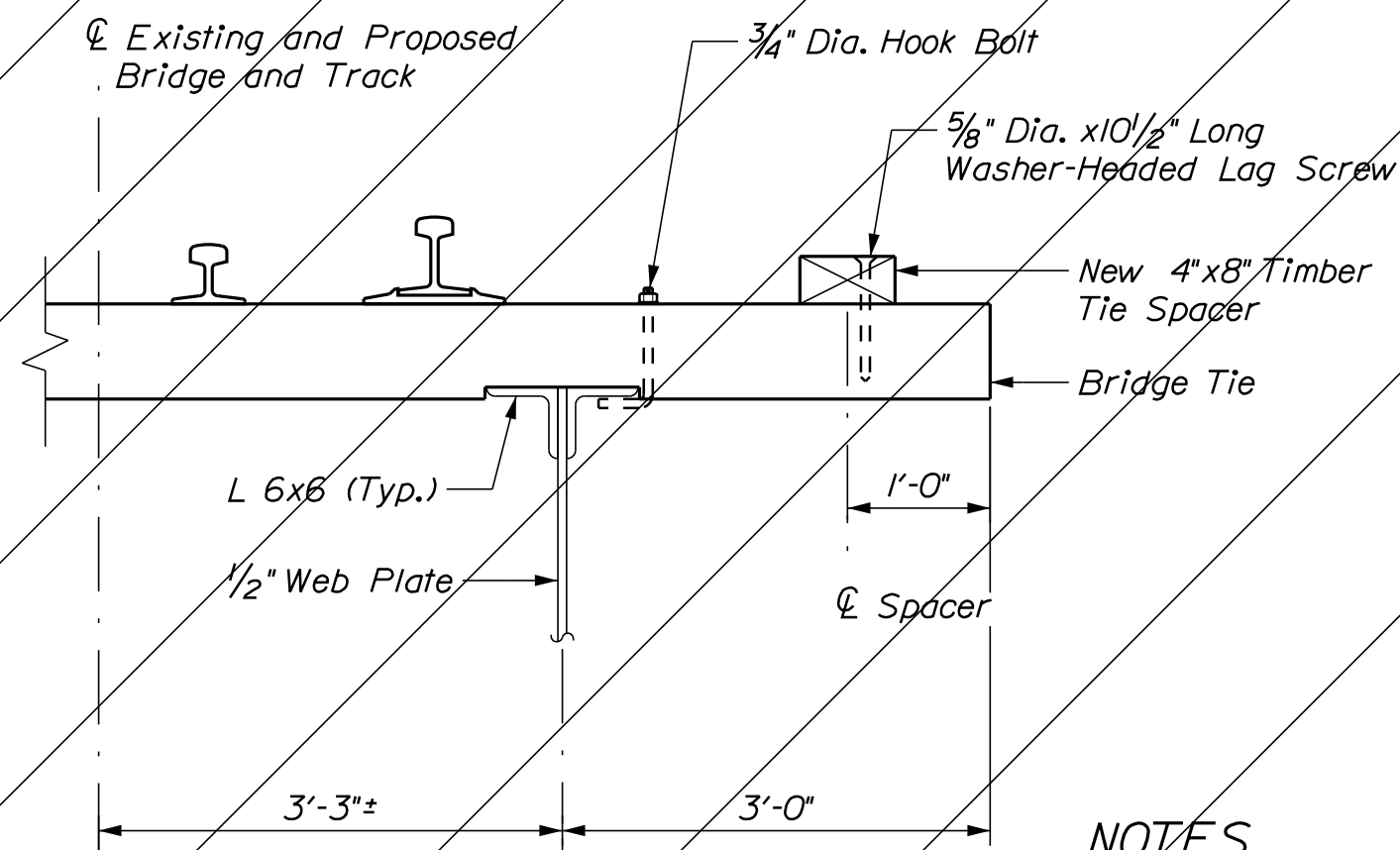


PARTIAL DECK PLAN
BRIDGE NO. 7766 (M.P. 113.14)
(Layout Typical for All Bays and Both Spans, Unless Noted Otherwise)
(Adjust Ties In-field to Accommodate Safety Walk Supports)
Scale: 1/2" = 1'-0"



TYPICAL DAPPED BRIDGE TIE - BRIDGE NO. 7766 (M.P. 113.14)
(208 Total)
Scale: 3/4" = 1'-0"

Dimensions in these plans shall not be used for fabrication purposes. All necessary dimensions and configurations shall be determined from actual field measurements by the Contractor.

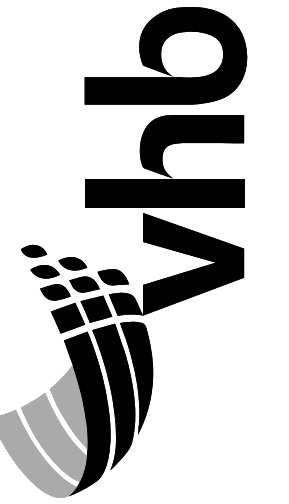


SECTION A-A
Scale: 3/4" = 1'-0"

NOTES

1. See General Notes Sheet for Bridge Tie and Timber Notes.
2. See Br. No. 7766 (M.P. 113.14) Over E. Br. Penobscot R. Sheets for bridge plans and details.
3. The tie depth and dap height shall vary to accommodate the change in track profile along the bridge. The Contractor shall survey the existing track and develop a dapping plan for approval. All cost associated with developing, submitting, and finalizing the dapping plan shall be incidental to item 528.4903 Bridge Ties and Timbers.

All work on this sheet to be done by the Railroad (Separate Contract)



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7766
WIN
23486.00
BRIDGE PLANS

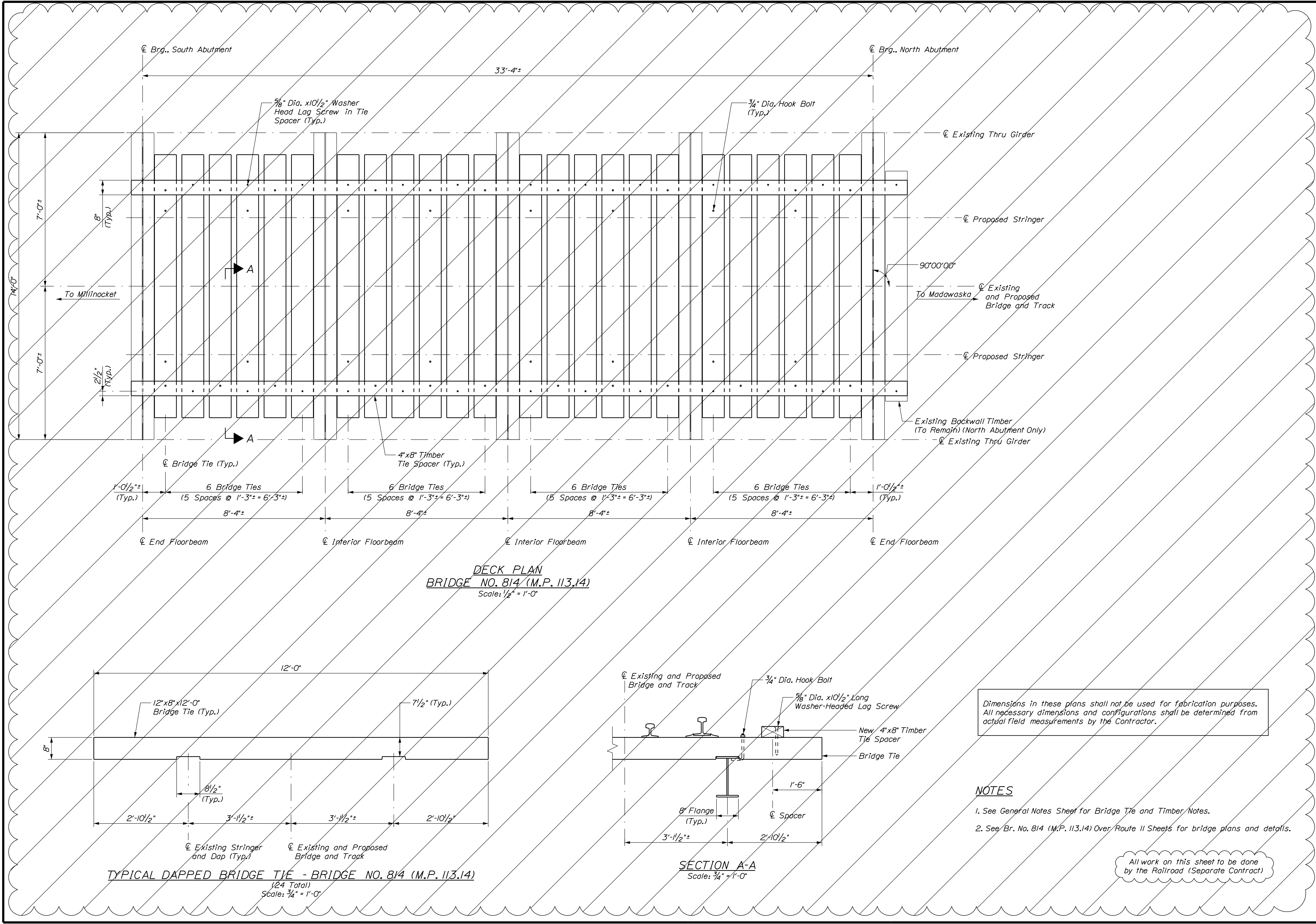
MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT

DECK DETAILS (2 OF 8)

SHEET NUMBER

11

OF 74



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
23486.00

BRIDGE NO. 7763 & 7776

BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	11/2018	BUM	11/2018
CHECKED-REVIEWED	MAC	CSG	
DESIGN-DETAILED			
REVISIONS	1		
REVISIONS	2		
REVISIONS	3		
REVISIONS	4		
FIELD CHANGES			

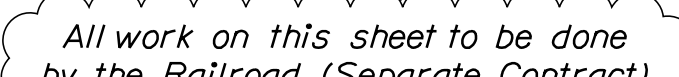
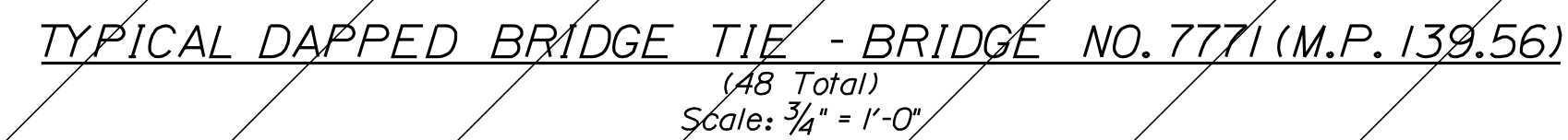
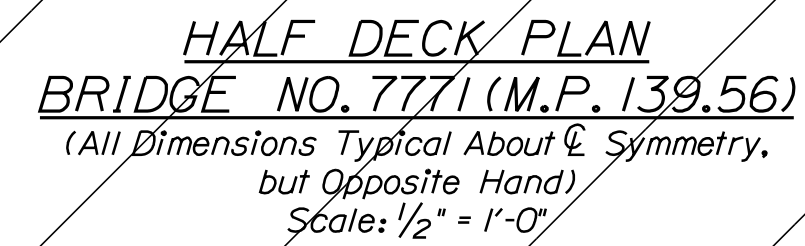
MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT

DECK DETAILS (3 OF 8)

SHEET NUMBER

12

OF 74



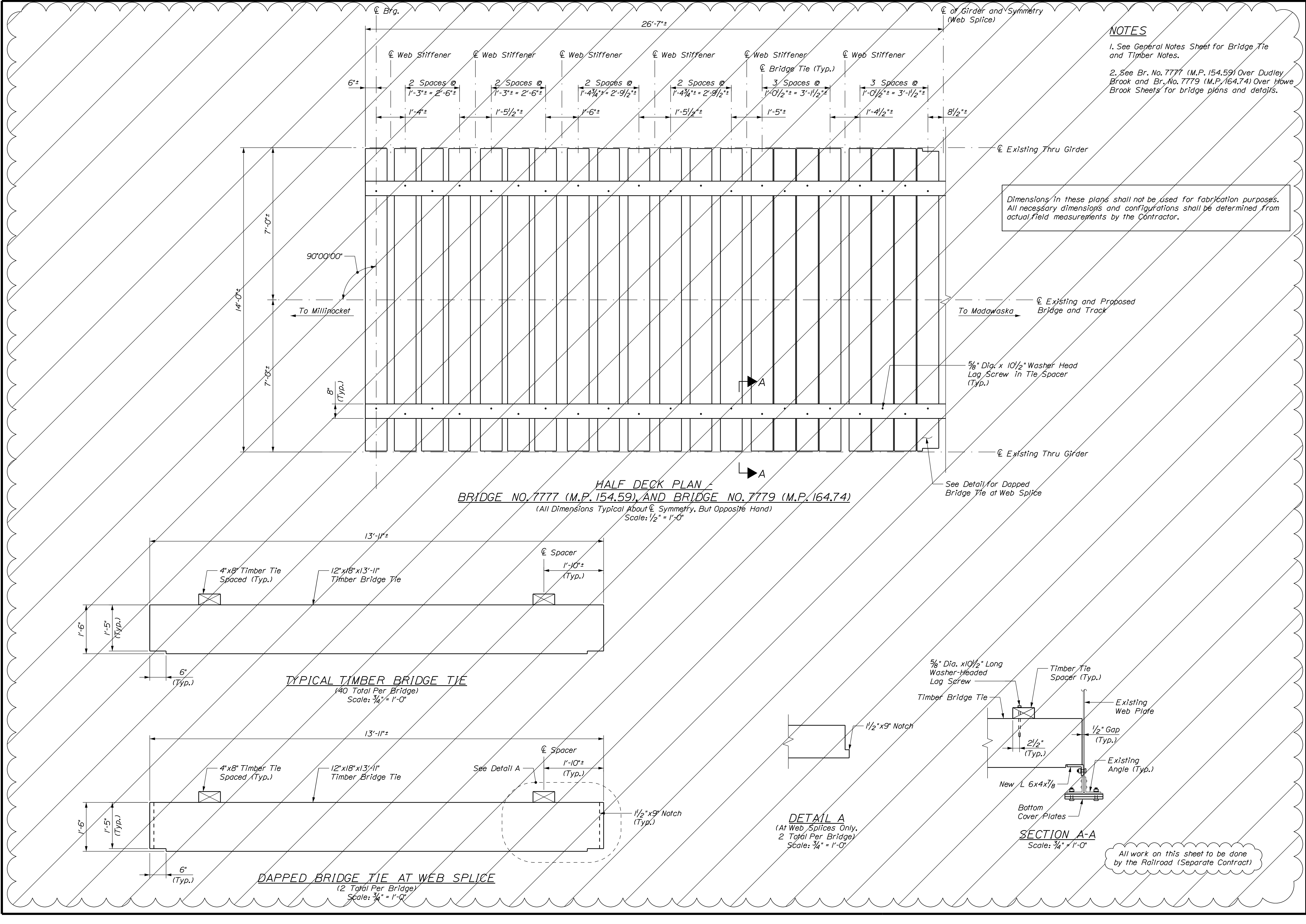
~~Dimensions in these plans shall not be used for fabrication purposes. All necessary dimensions and configurations shall be determined from actual field measurements by the Contractor.~~

1. See General Notes Sheet for Bridge Tie and Timber Notes.
2. See Br. No. 777 (M.P. 139.56) Over Fish River Sheets for bridge plans and details.
3. See Typical Details (I of 4) Sheet for Backwall Timber Connection Details.

SHEET NUMBER

13

OF 74



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7777, 7779

WIN
23486.00

BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	11/2018	BUM	11/2018
CHECKED-REVIEWED	MAC	GSG	
DESIGNS-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

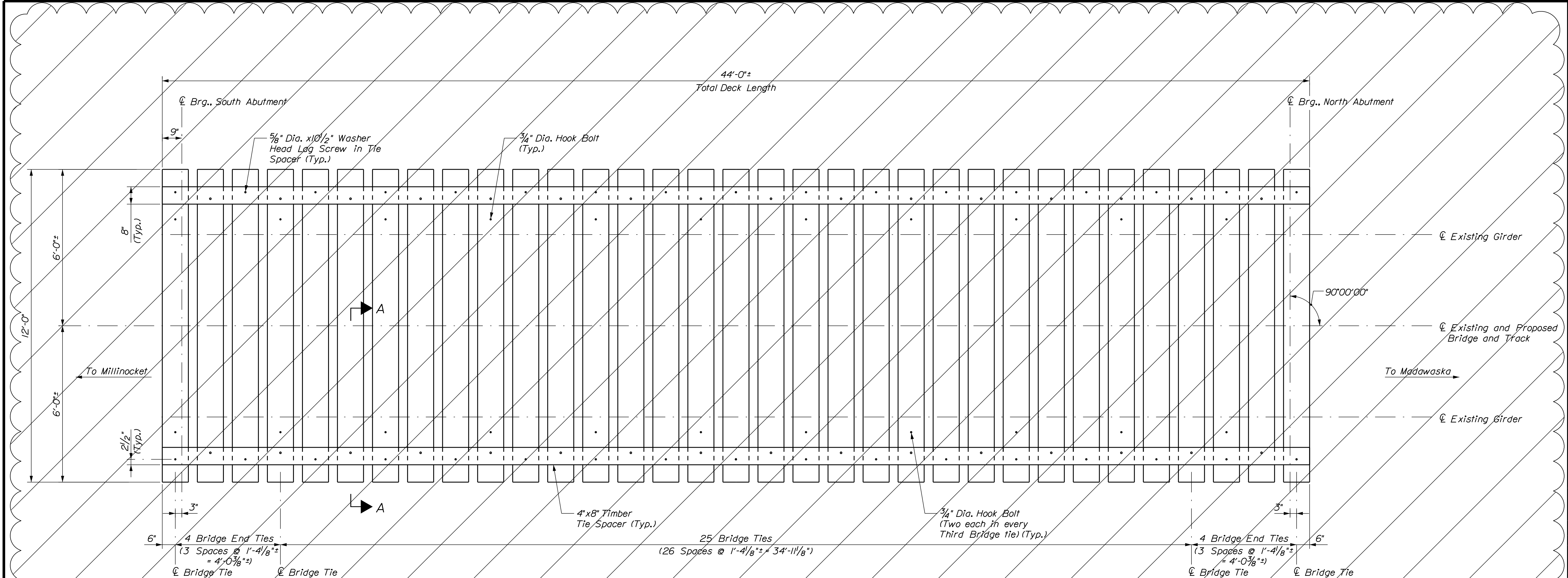
MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT

DECK DETAILS (6 OF 8)

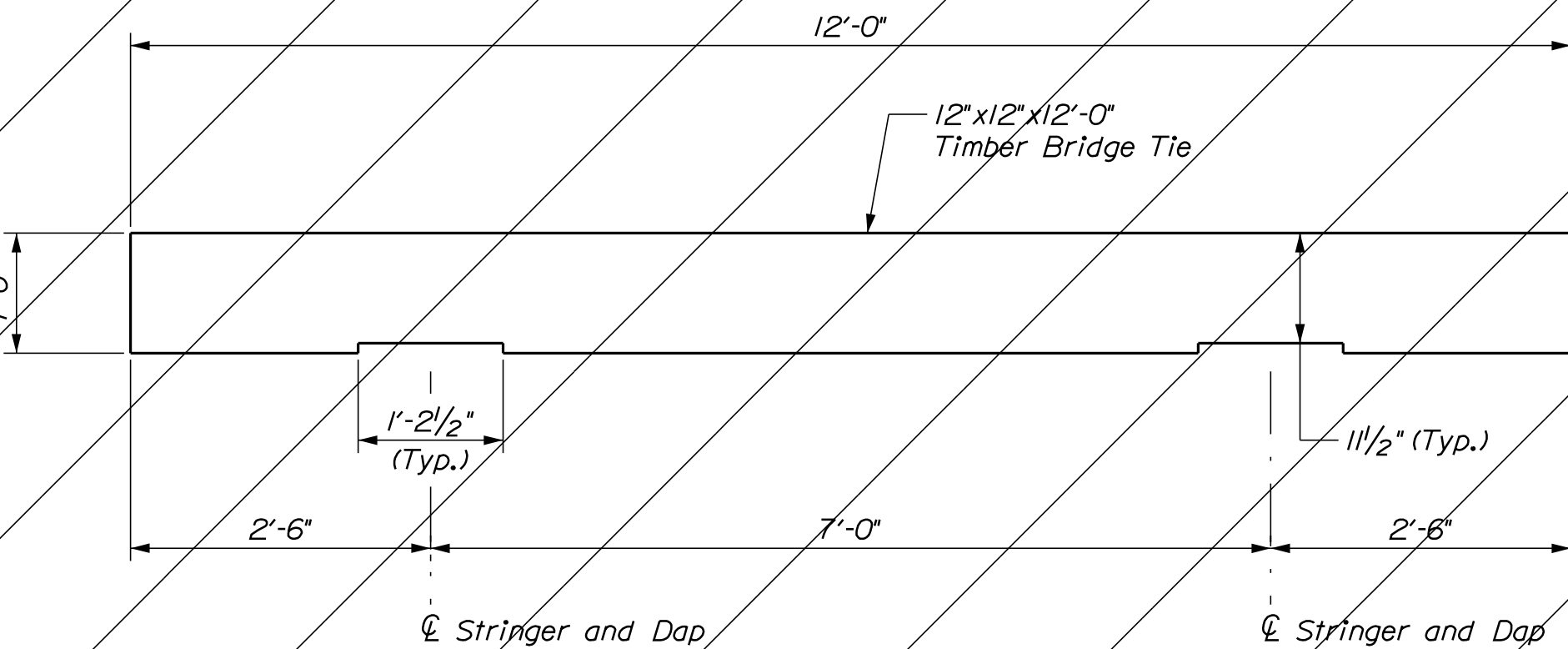
SHEET NUMBER

14

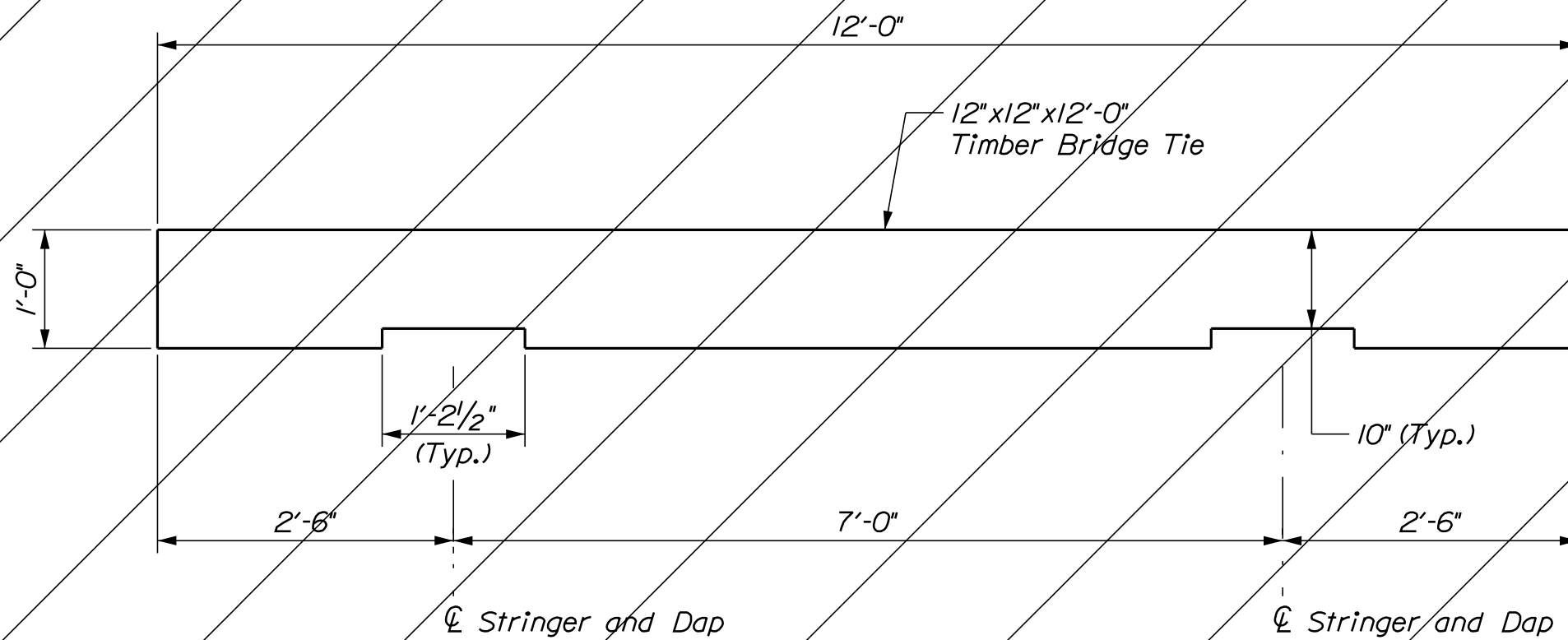
OF 74



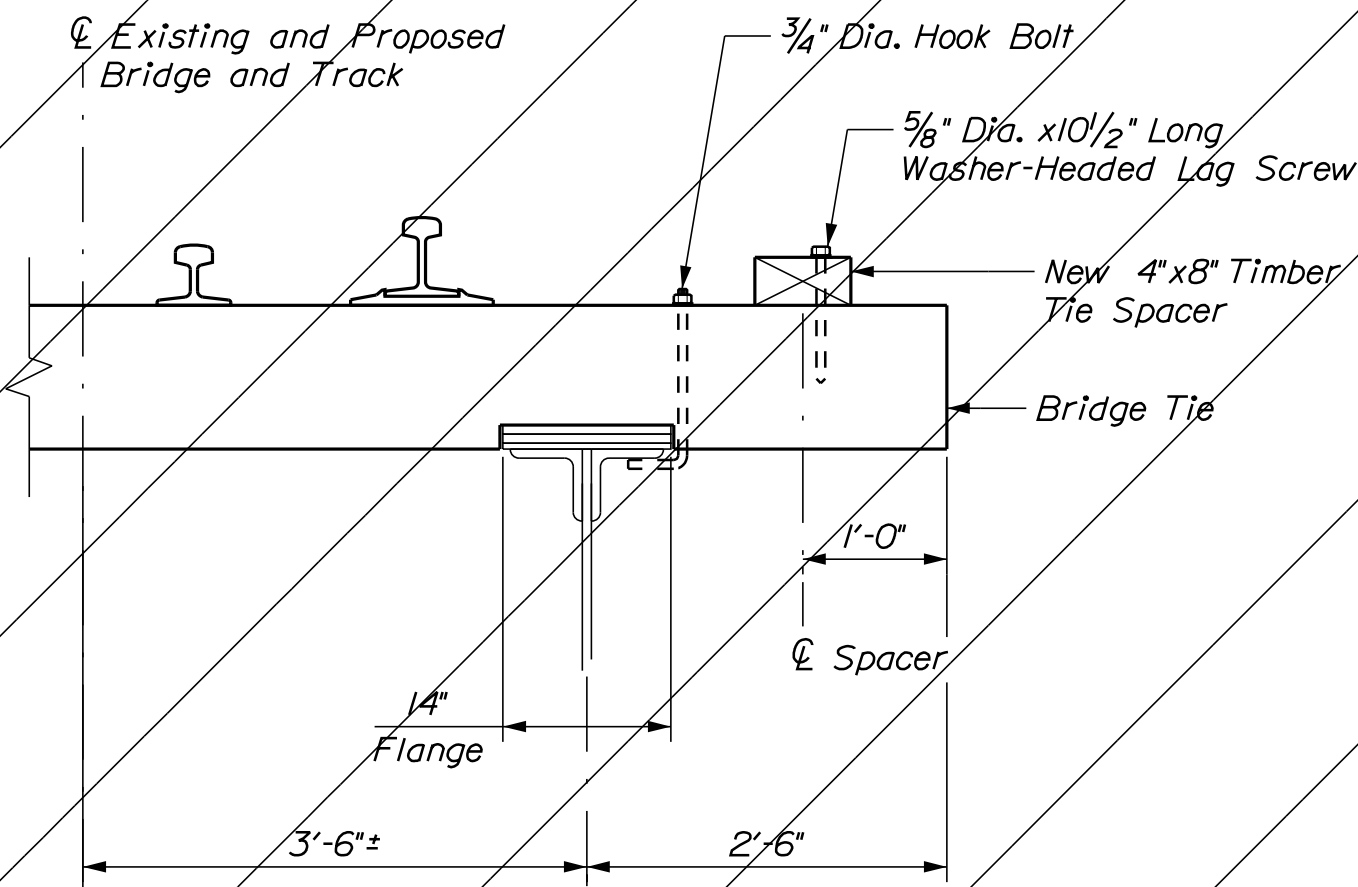
DECK PLAN
BRIDGE NO. 7780 (M.P. 167.76)
Scale: 1/2" = 1'-0"



DAPPED BRIDGE TIE AT BRIDGE END
BRIDGE NO. 7780 (M.P. 167.76)
(8 Total)
Scale: 3/4" = 1'-0"



TYPICAL DAPPED BRIDGE TIE AT NEW COVER PLATE
BRIDGE NO. 7780 (M.P. 167.76)
(25 Total)
Scale: 3/4" = 1'-0"



SECTION A-A
Scale: 3/4" = 1'-0"

Dimensions in these plans shall not be used for fabrication purposes. All necessary dimensions and configurations shall be determined from actual field measurements by the Contractor.

NOTES

1. See General Notes Sheet for Bridge Tie and Timber Notes.
2. See Br. No. 7780 (M.P. 167.76) Over Beaver Brook Sheets for bridge plans and details.



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7780, 7779
WIN
23486.00
BRIDGE PLANS

MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT

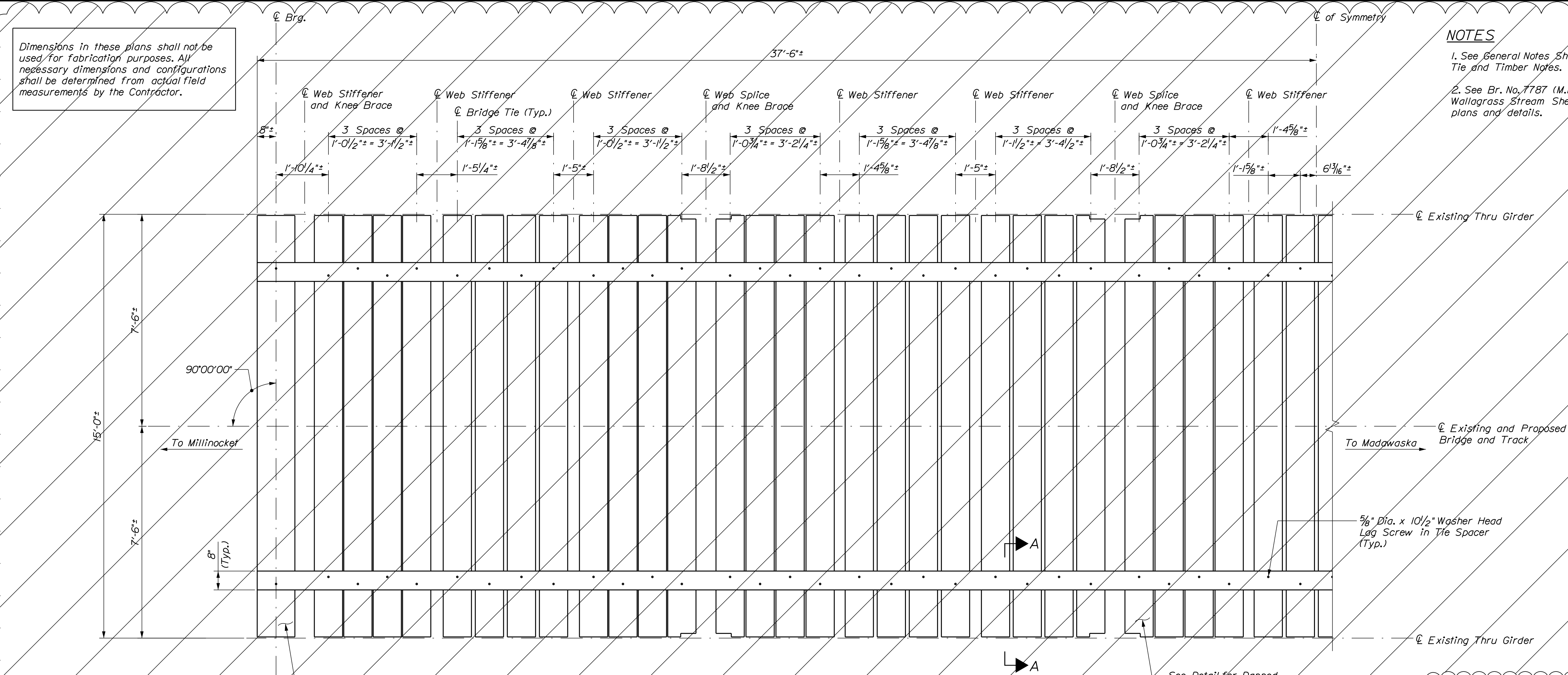
DECK DETAILS (7 OF 8)

SHEET NUMBER

15

OF 74

~~Dimensions in these plans shall not be used for fabrication purposes. All necessary dimensions and configurations shall be determined from actual field measurements by the Contractor.~~



NOTES

1. See General Notes Sheet for Bridge Tie and Timber Notes.
2. See Br. No. 7787 (M.P. 236.44) Over Wallagrass Stream Sheets for bridge plans and details.

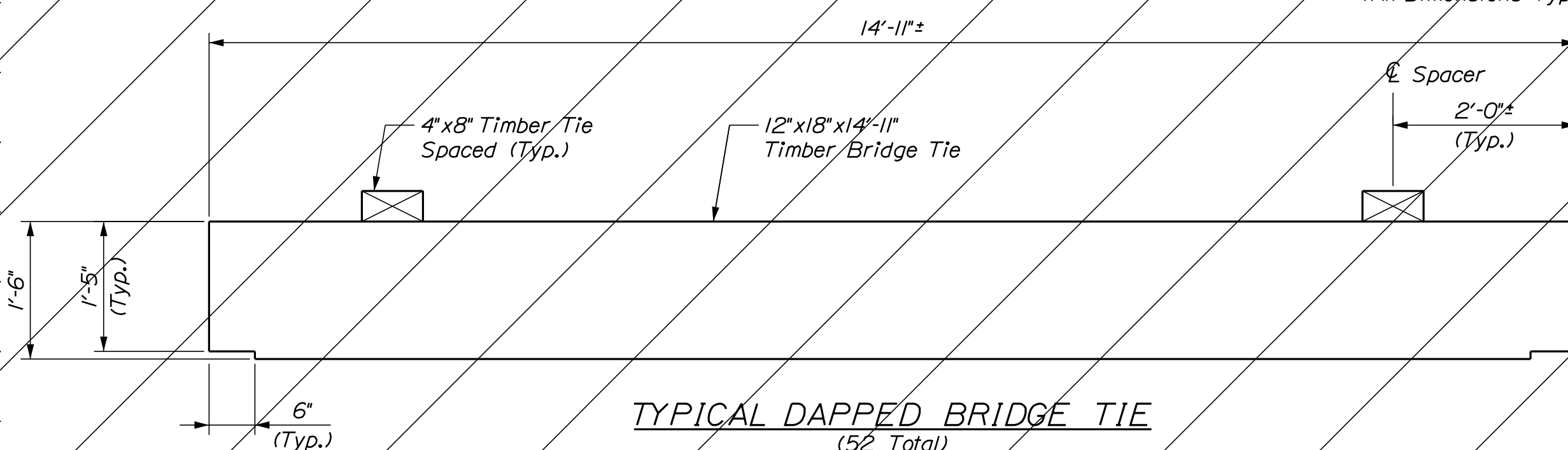
~~90°00'00"~~

To Millinocket

$$\frac{g_{ii}}{(Typ.)}$$

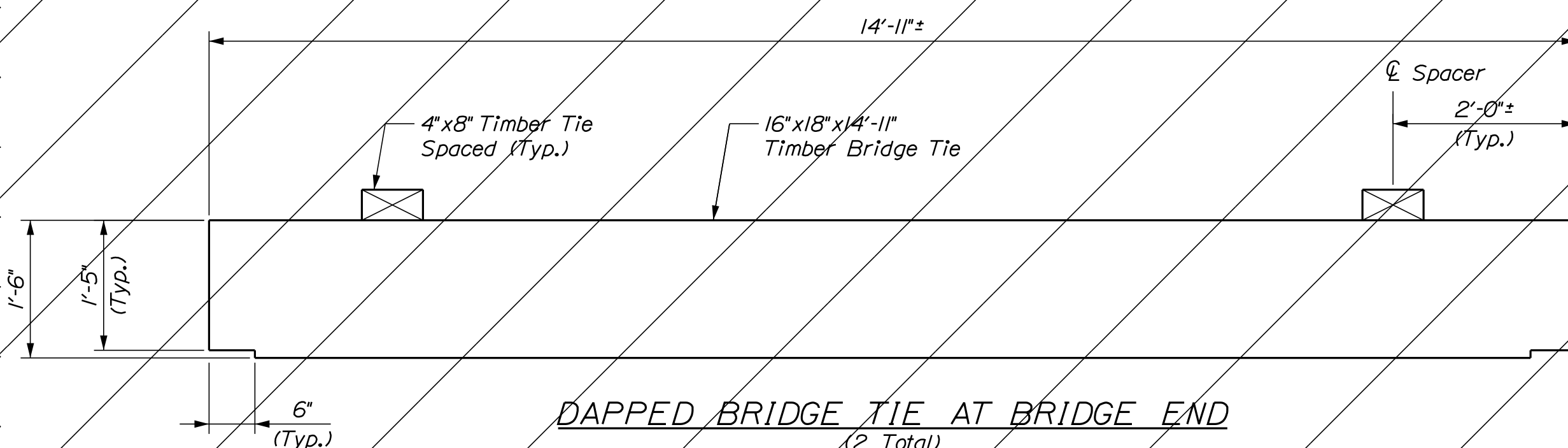
— See Detail for Dapped
Bridge Tie at Bridge End
(Typical at Both Ends of Bridge)

HALF DECK PLAN -
BRIDGE NO. 7787 (M.P. 236.44)
(All Dimensions Typical About C Symmetry, But Opposite Hand)
Scale: 1/2" = 1'-0"



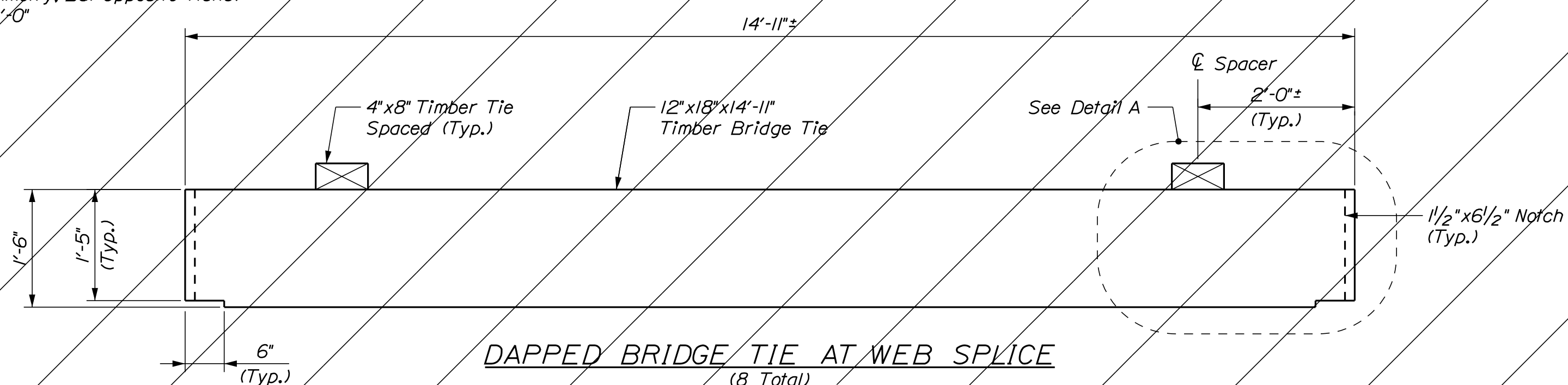
TYPICAL DAPPED BRIDGE TIE

(52 Total)
Scale: $\frac{3}{4}" = 1'-0"$



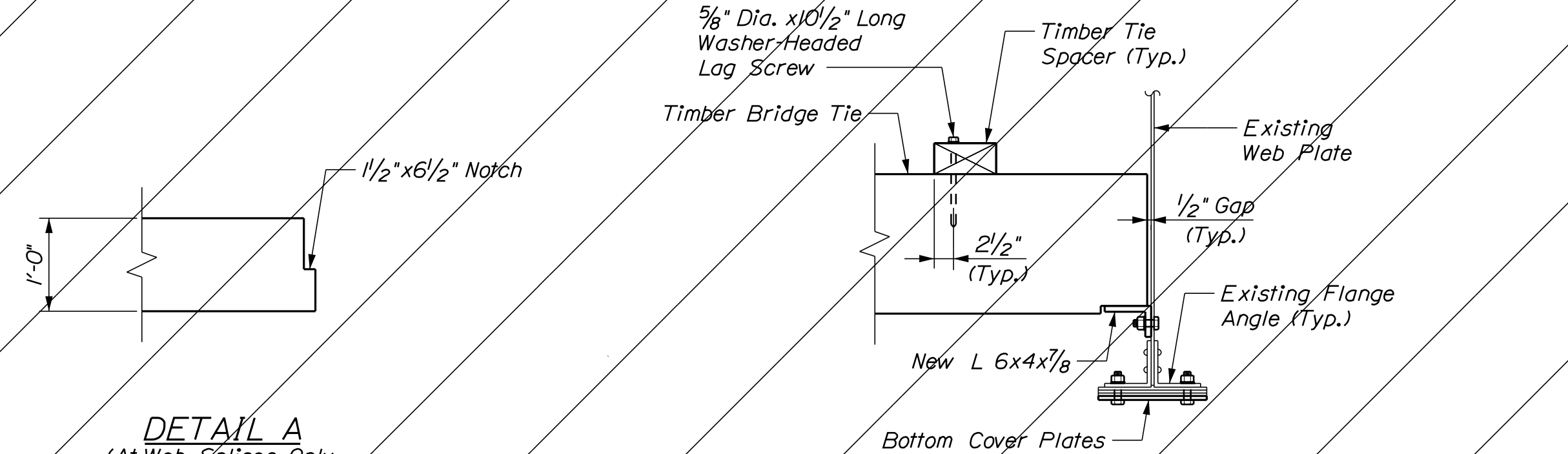
DAPPED BRIDGE TIE AT BRIDGE END

(2 Total)
Scale: $\frac{3}{4}" = 1'-0"$



DAPPED BRIDGE TIE AT WEB SPLICE

(8 Total)
Scale: $\frac{3}{4}" = 1'-0"$

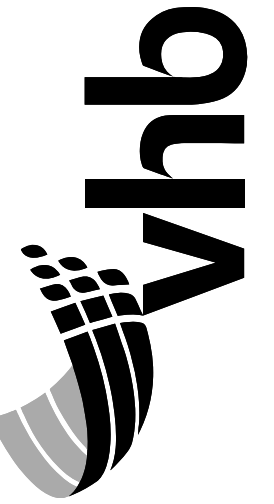


DETAIL A

DETAIL A
(At Web Splices Only,
8 Total Per Bridge).

SECTION A-A

Scale: $\frac{3}{4}" = 1'-0"$



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7787	WIN 23486.00	BRIDGE PLANS
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PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	11/2/08	BJM	
CHECKED-REVIEWED	11/2/08	GSM	
DESIGN-DETAILED2			
DESIGN-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

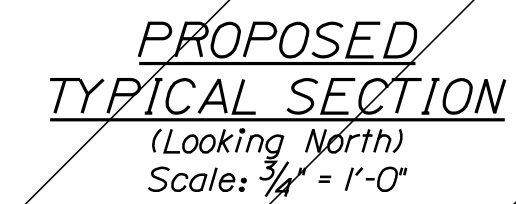
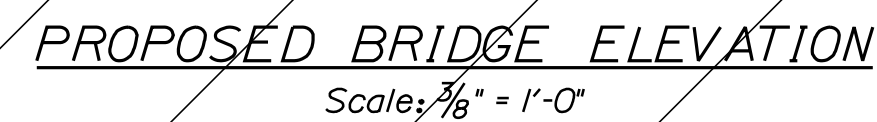
MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT

DECK DETAILS (8 OF 8)

SHEET NUMBER

16

OF 74



1. Temporarily remove existing rail, guard rail, approach ties, and associated hardware, as required.
2. Remove and dispose of existing timber bridge ties, and existing steel superstructure.
3. Remove and dispose of existing concrete caps and existing backwall timbers.
4. Install proposed precast concrete caps and precast concrete backwalls and repoint existing stone masonry abutments, as required.
5. Install proposed steel superstructure and bearings.
6. Install proposed timber bridge ties and backwall timbers.
7. Reset existing rail, guard rail, approach ties, and associated hardware.

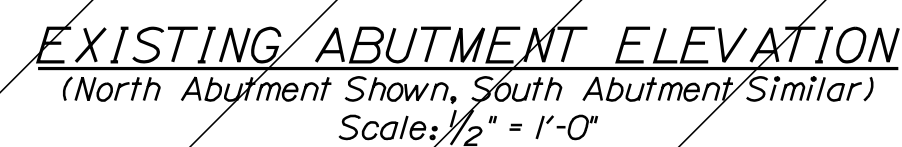
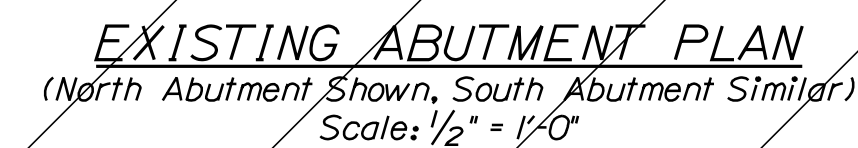
1. See General Notes Sheet for Bridge Construction Notes and Railroad Construction Notes.

2. All existing dimensions have been obtained through limited field measurements and are not guaranteed. Contractor shall verify all information shown prior to advancing the work.

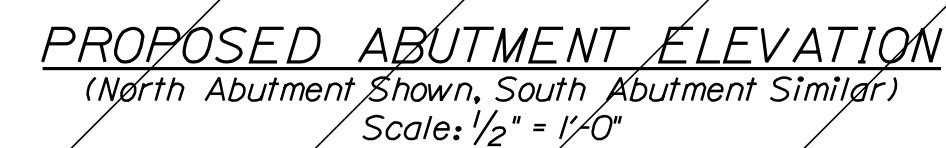
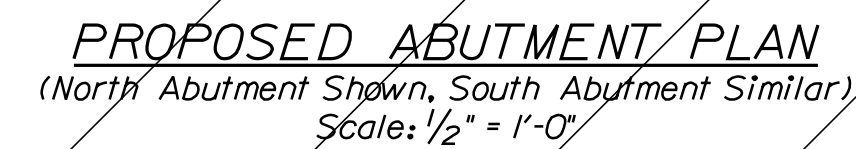
3. See Deck Details K1 of T1 Sheet for Deck Details.

*All work on this sheet to be done
by the Railroad (Separate Contract)*

PROJ. MANAGER	BY	DATE
DESIGN-DETAILED	TSC	11/2018
CHECKED-REVIEWED	JCM	11/2018
DESIGN-DETAILED2		
DESIGN-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

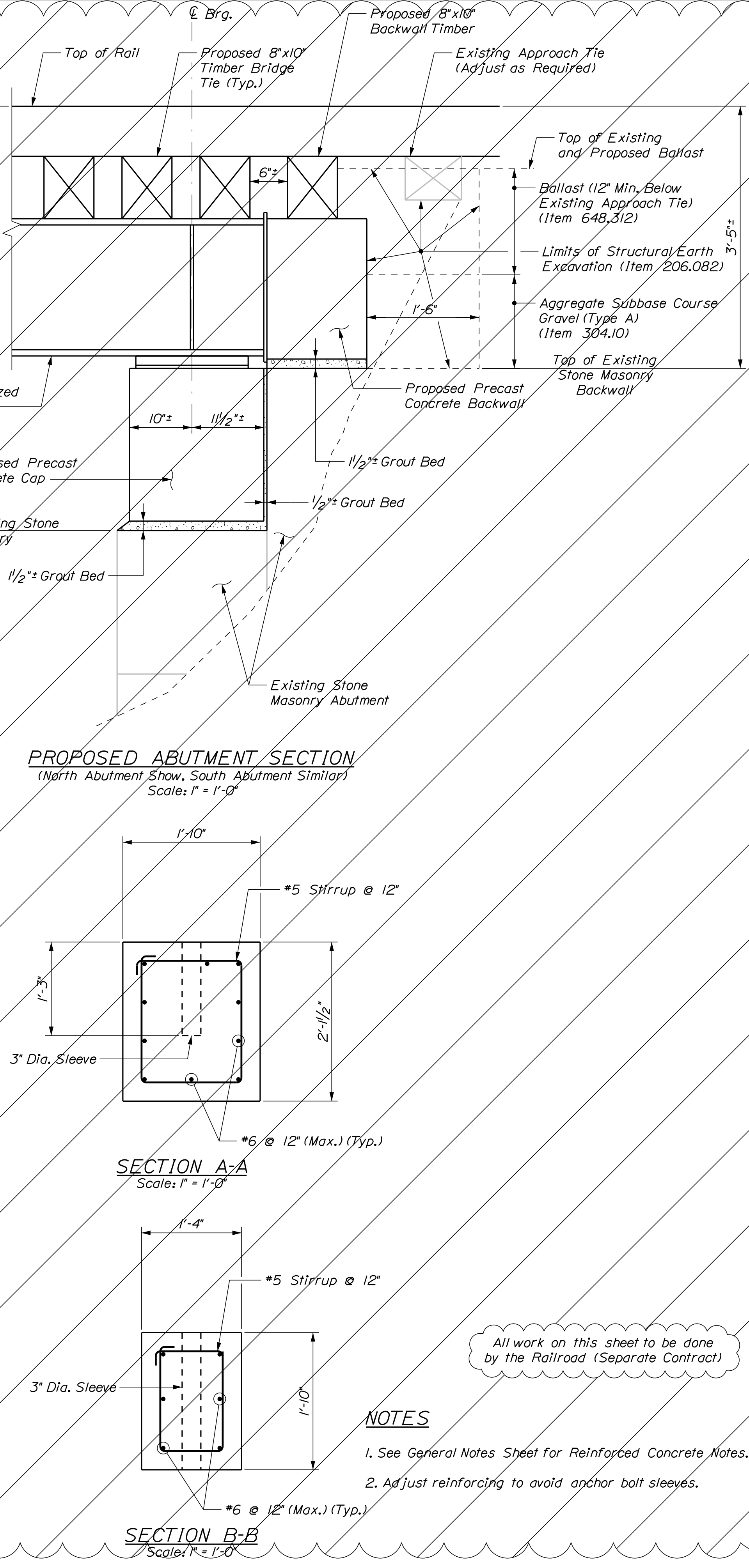
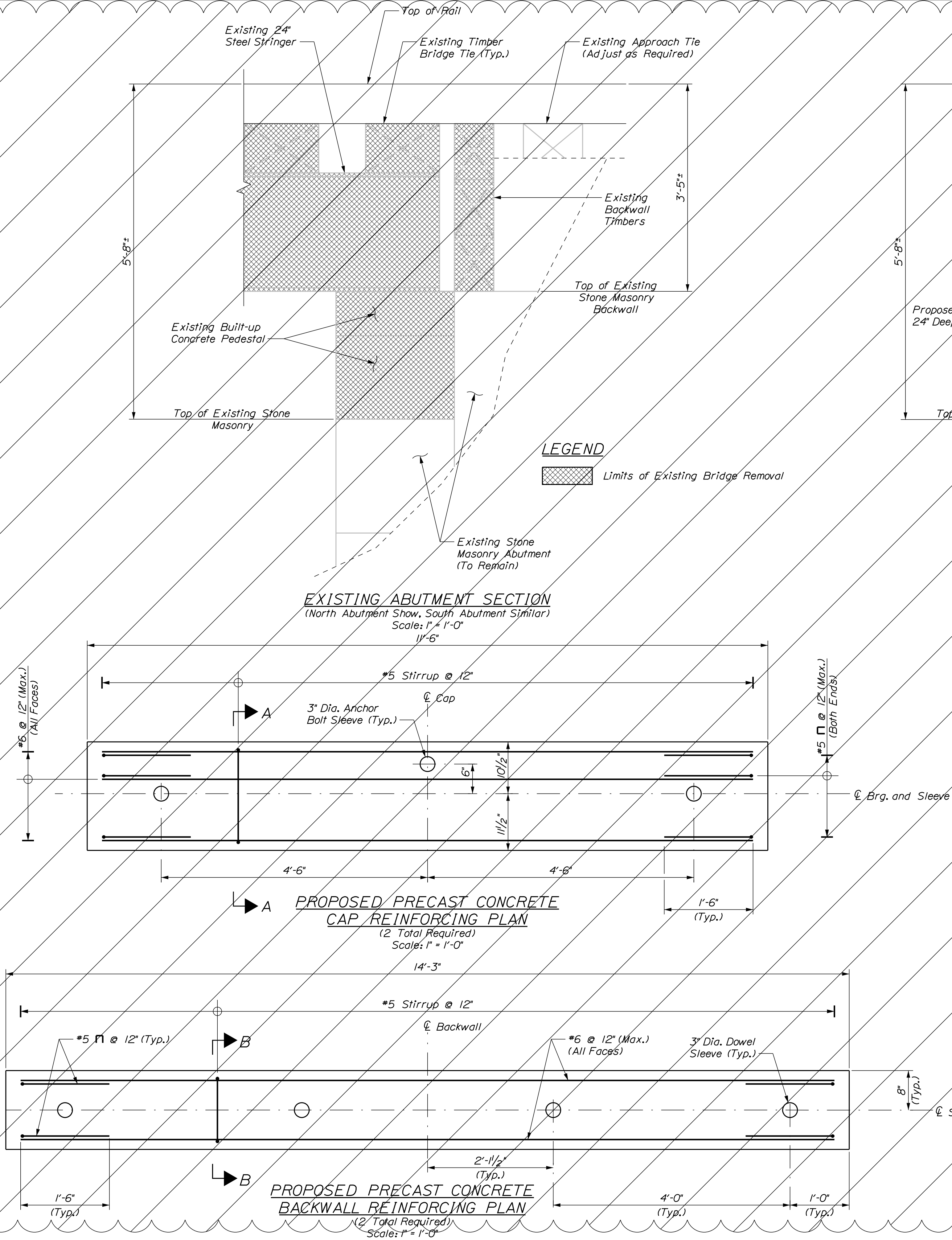


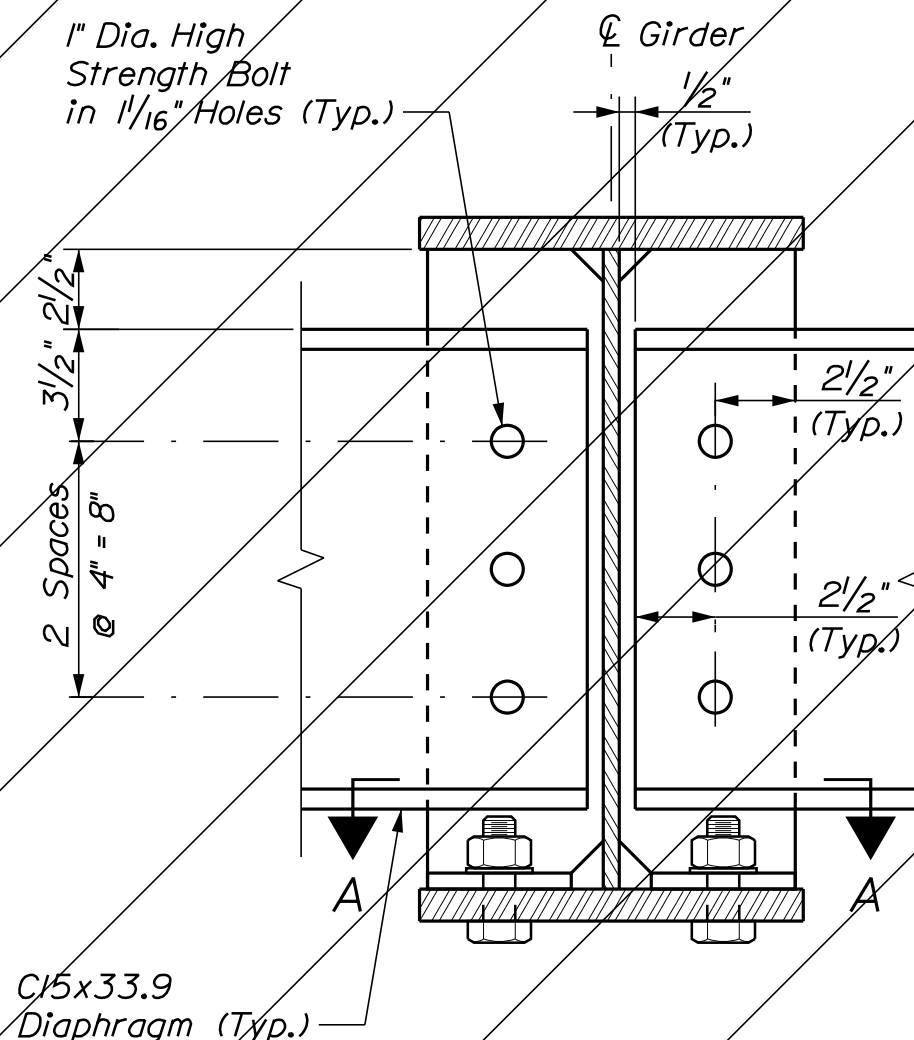
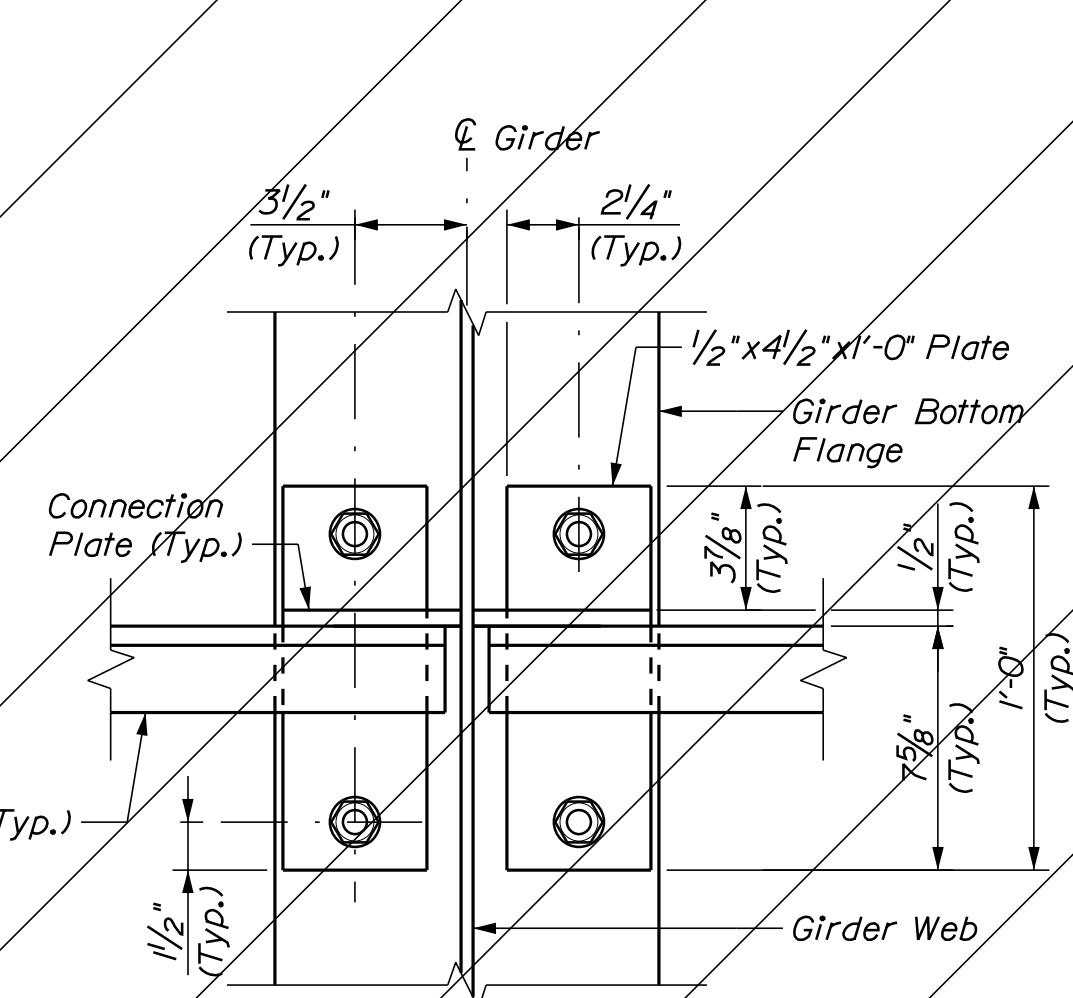
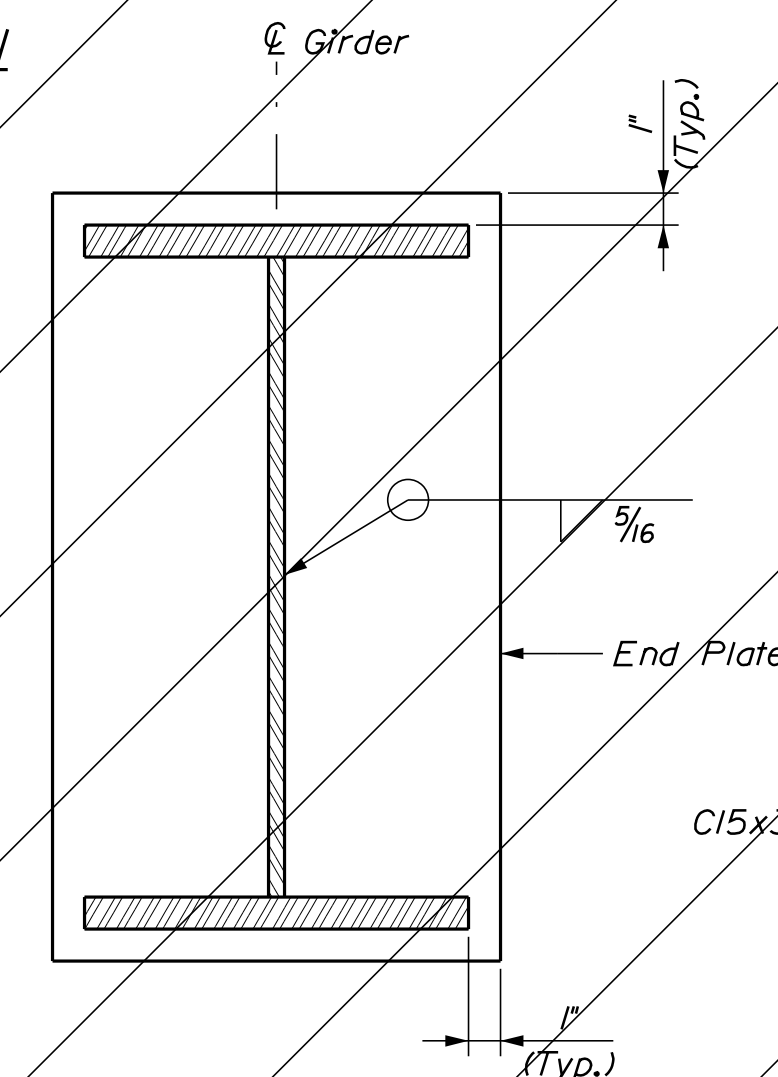
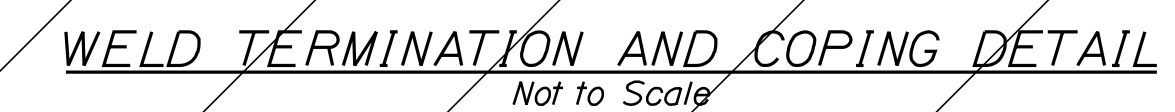
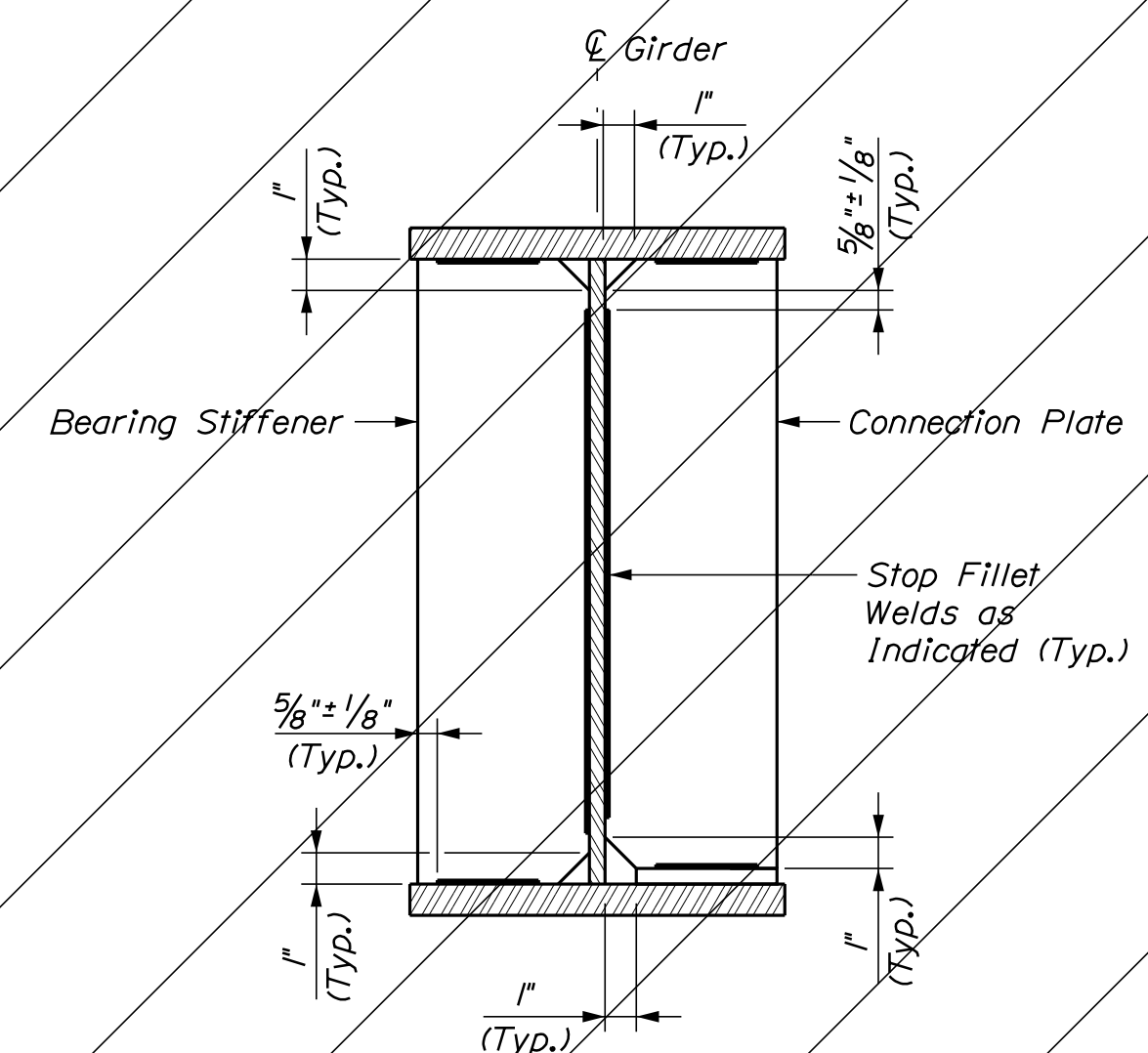
1. See Typical Details Sheet (1 of 4) for Backwall Timber Replacement Details.
2. See Typical Details Sheet (3 of 4) for Masonry Repointing Details.
3. See Bridge No. 7763 (M.P. III.14) Sheet (5 of 5) for Backwall Dowel Detail and Notes.



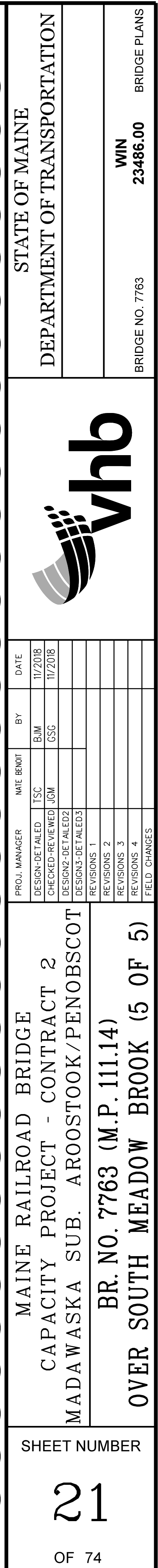
*All work on this sheet to be done
by the Railroad (Separate Contract)*

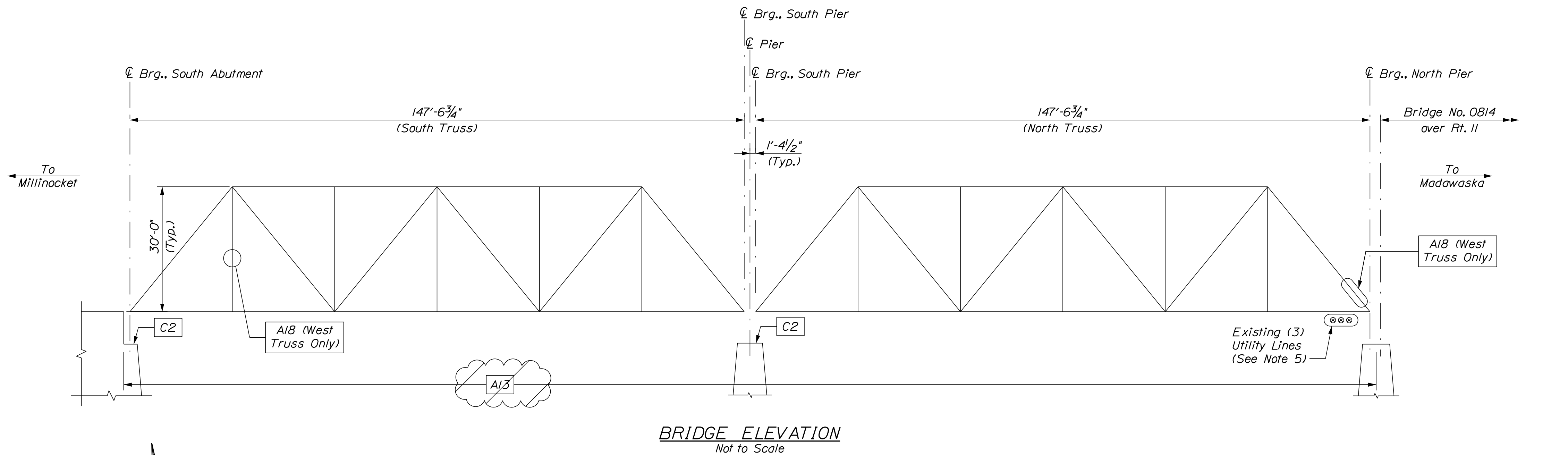
 Limits of Existing Bridge Removal



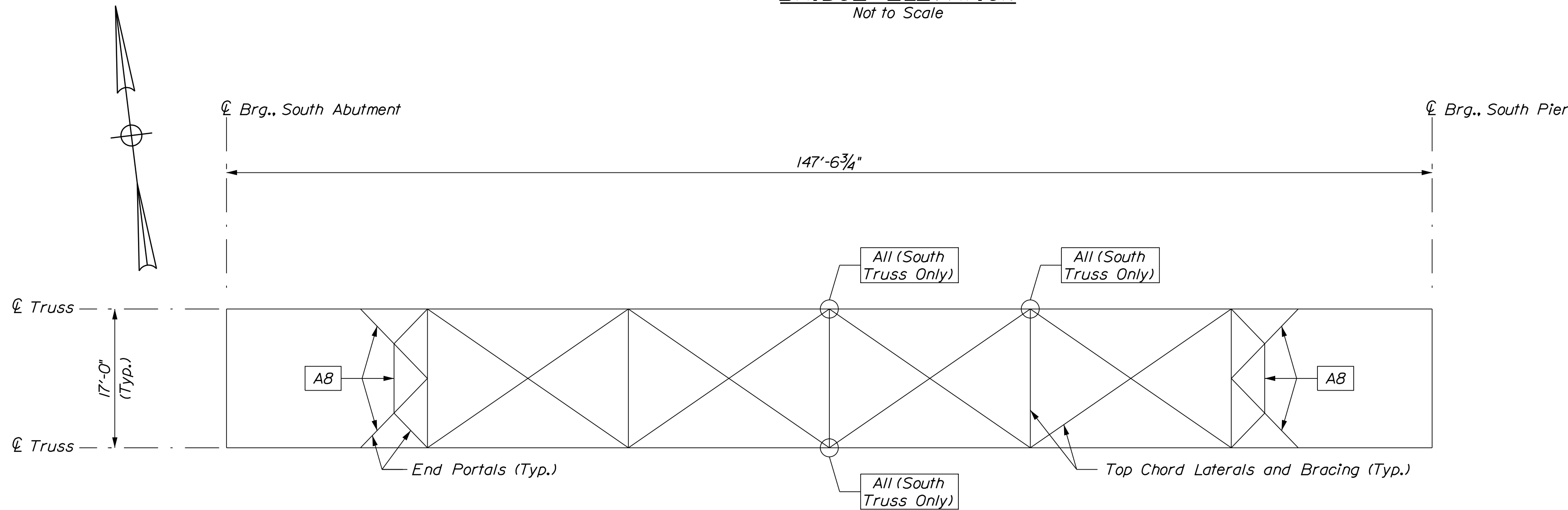


1. See the *General Notes Sheet for Structural Steel Notes*.
2. All webs, and flanges in tension areas shall conform to notch toughness requirements, for nonfracture critical members, as specified in MaineDOT Standard Specification Section 713.01. These members have been labeled (CVN) for clarity.
3. Structural steel plate girders, diaphragms, connection plates, end plates, and bearing stiffeners shall be galvanized in accordance with ASTM A123, for Bridge No. 7763 (M.P. III.14) and 7776 (M.P. V.4.04) only.
4. Flange and web plates shall be fabricated in one piece. No transverse butt welds are allowed.
5. Bearing stiffeners and end plates shall be plumb after erection and full dead load is applied to the structure.
6. Diaphragm connection plates may be either plumb or normal to the top flange.
7. Girders to be fabricated to zero camber plus tolerance.

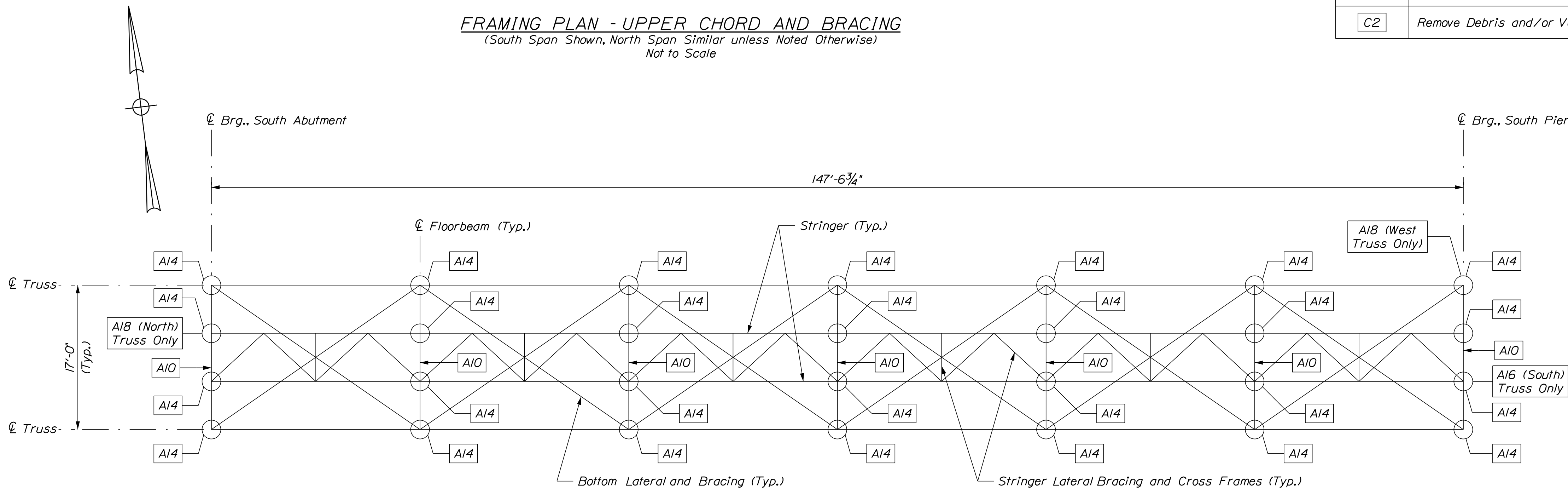




BRIDGE ELEVATION
Not to Scale



FRAMING PLAN - UPPER CHORD AND BRACING
(South Span Shown, North Span Similar unless Noted Otherwise)
Not to Scale



FRAMING PLAN - LOWER CHORD AND FLOOR SYSTEM
(South Span Shown, North Span Similar unless Noted Otherwise)
Not to Scale

Indicates work to be done by
the Railroad (Separate Contract)

SUPERSTRUCTURE WORK ITEMS			
Work ID	Description	Number of Locations	See Detail on Sheet
A8	Remove and Replace End Portal Members	4	23
A10	Install Additional Web Stiffeners	14	23
A11	Replace Loose, Missing or Deteriorated Rivet or Bolt with H.S. Bolt (See Note 3)	32	4
A13	Replace All Bridge Timbers (See Note 2)	1	11
A14	Clean and Paint Deteriorated Steel Members (Stringer to Floorbeam Connection) (See Note 4)	28	23
A14	Clean and Paint Deteriorated Steel Members (Floorbeam to Bottom Chord Connection) (See Note 4)	28	23
A16	Repair Crack in Floorbeam	1	23
A18	Repair Impact Damage - Type 2 (See Note 4)	3	N/A
SUBSTRUCTURE WORK ITEMS			
Work ID	Description	Number of Locations	See Detail on Sheet
C2	Remove Debris and/or Vegetation from Bridge Seat	2	N/A

NOTES

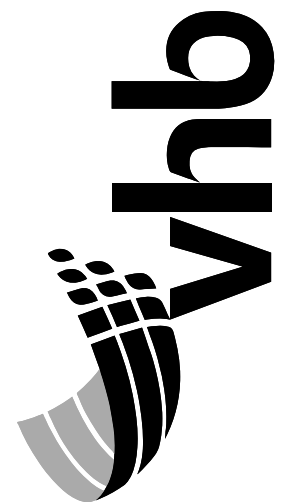
1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.

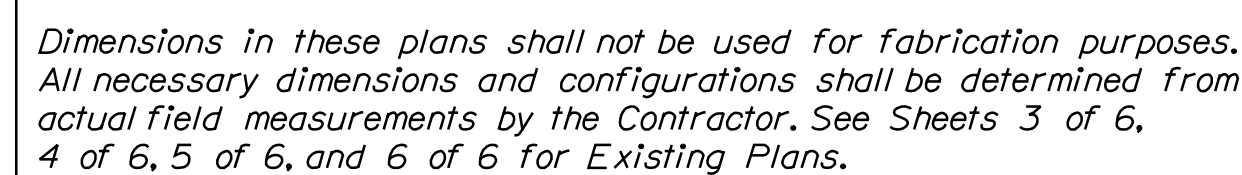
2. See Deck Details (2 of 7) Sheet for Timber Bridge Tie Layout and Details.

3. In addition to the locations along the top of the south truss and north floor system, an estimated quantity of rivets to be replaced with high strength bolts has been added to account for the deteriorated rivets that are within the "Clean and Paint Deteriorated Steel Members" locations. Prior to the start of work the Resident and Contractor shall agree on the quantity and locations of rivets to be replaced with high strength bolts. See Br. No. 7766 (M.P. 113.14) Over E. Br. Penobscot River (2 of 6) sheet for additional information.

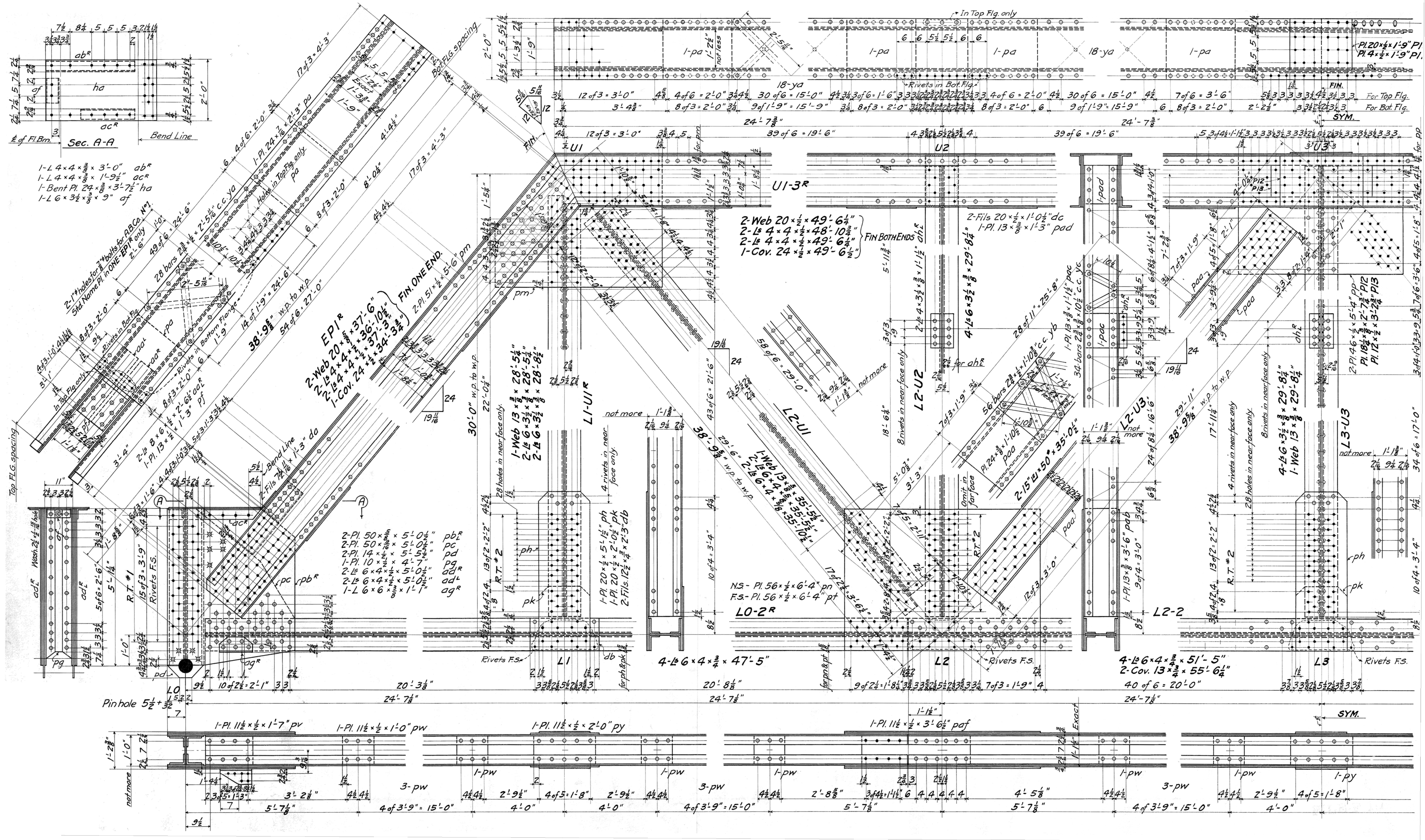
4. Heat straighten bent truss members and floorbeam top flange back into plane at damaged locations. All labor, equipment, and material required to complete "Repair Impact Damage-Type 2" work shall be paid under Item 504.7111, Heat Straighten Damaged Structural Steel. Work shall be done in accordance with Special Provision 504, Heat Straighten Damaged Structural Steel.

5. Existing utility lines are located under the bottom chord of the north truss adjacent to the north pier. See Special Provision 104, Utilities.





5. All labor and equipment required to complete "Remove and Replace End Portal Members" work shall be paid under Item 504.71 Structural Steel Erection. All material required to complete "Remove and Replace End Portal Members" work shall be paid under Item 504.70, Structural Steel Fabricated and Delivered.

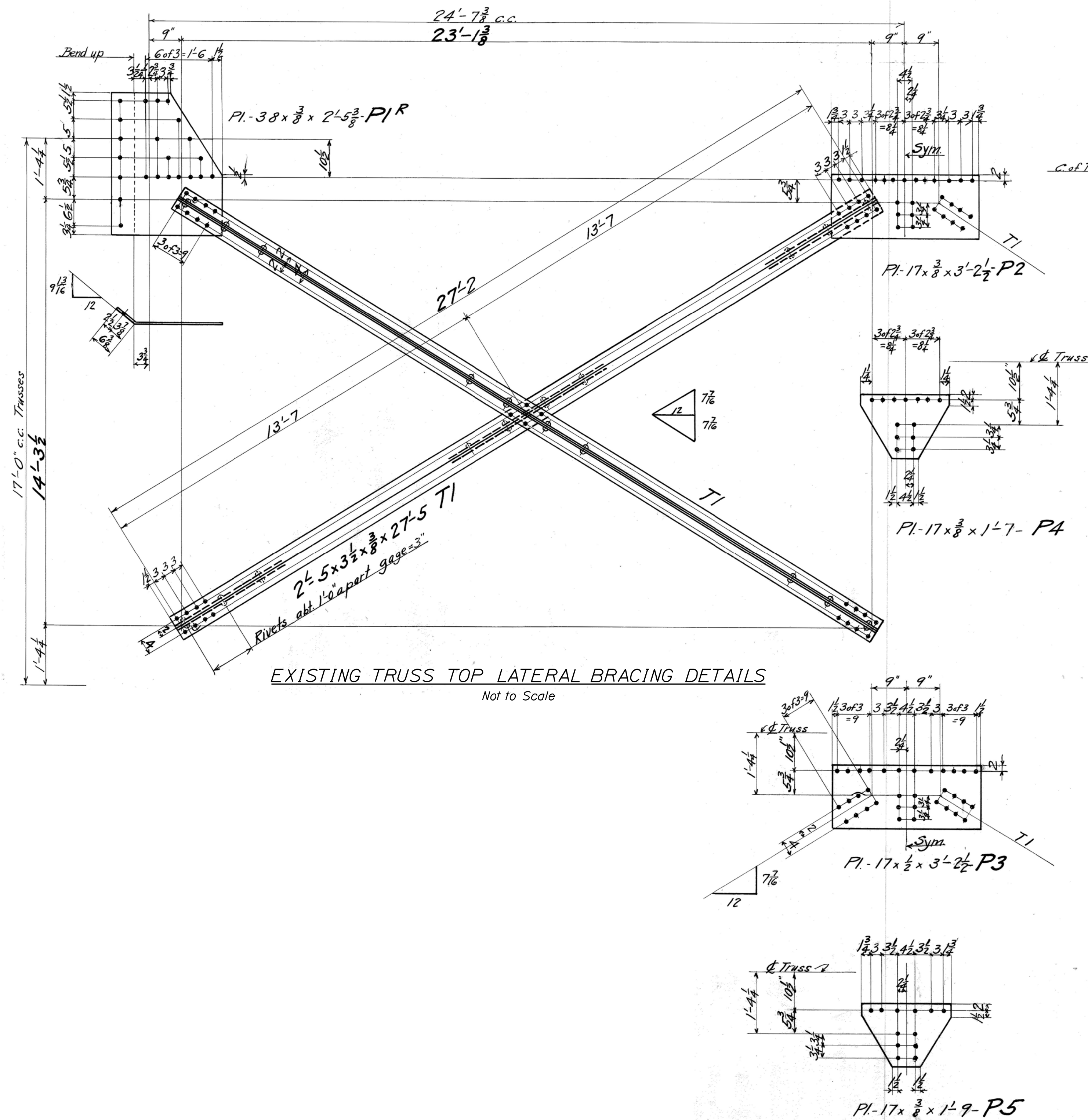


EXISTING TRUSS HALF ELEVATION
Not to Scale

SHEET PROVIDED FOR INFORMATION ONLY

NOTE

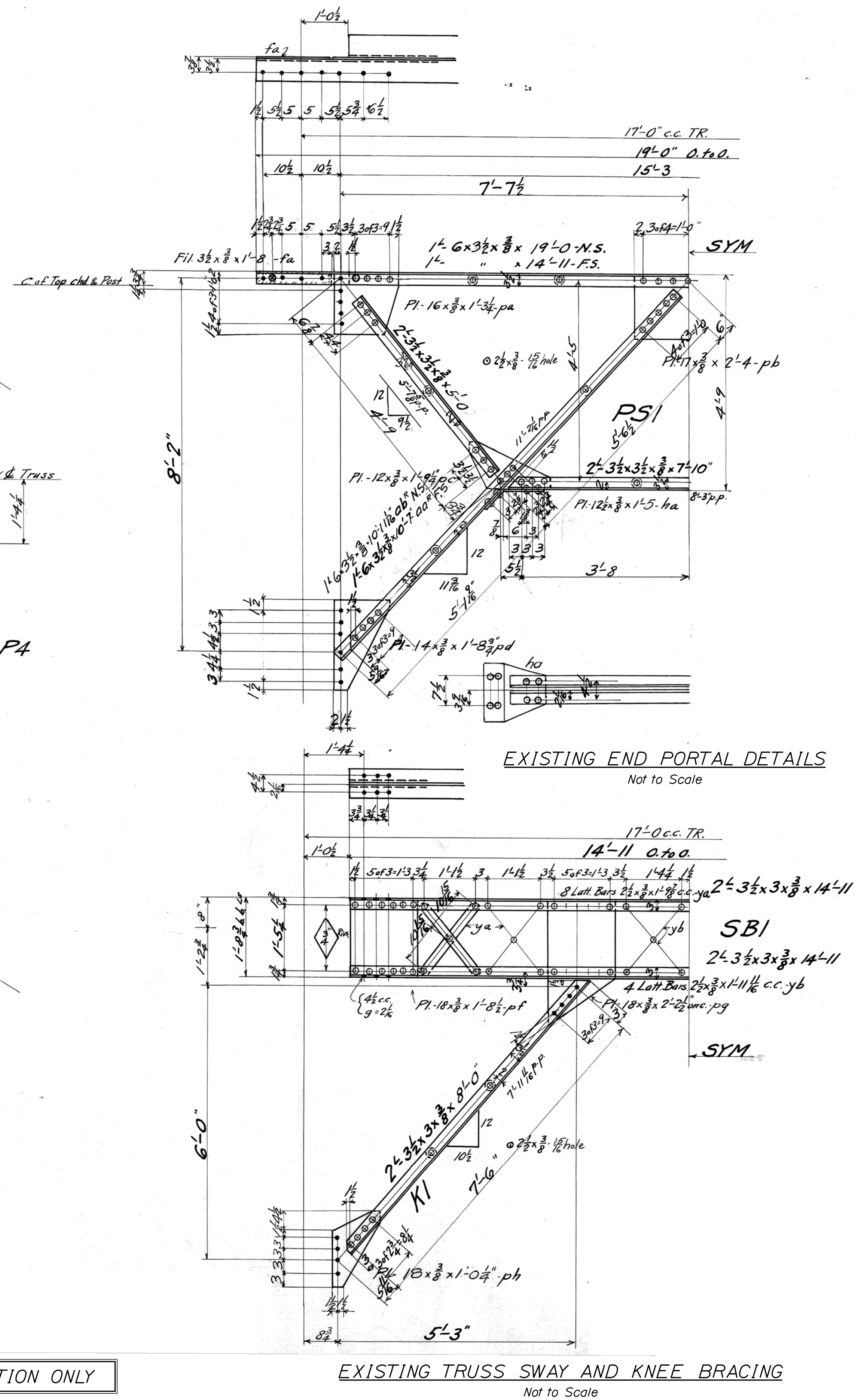
1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.



NOTE

1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.

SHEET PROVIDED FOR INFORMATION ONLY



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

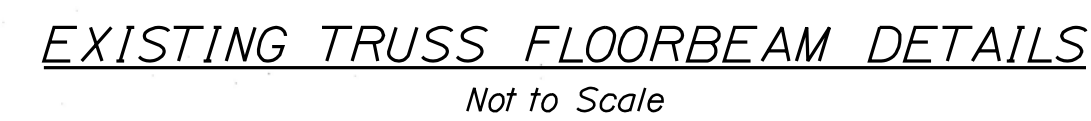
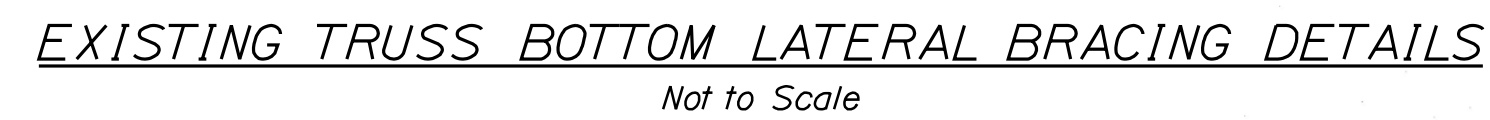
BRIDGE NO. 7766	23486.00	BRIDGE PLANS
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MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT
BR. NO. 7766 (M.P. 113.14) OVER
E. BR. PENOBSCOT RIVER (4 OF 6)

SHEET NUMBER

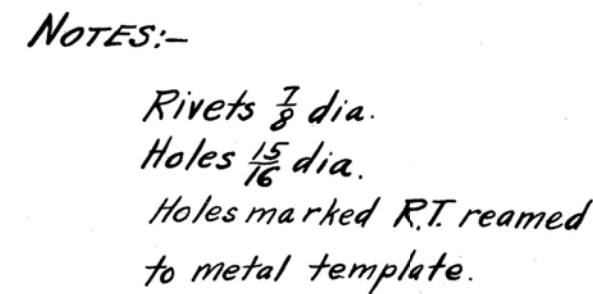
25

OF 74

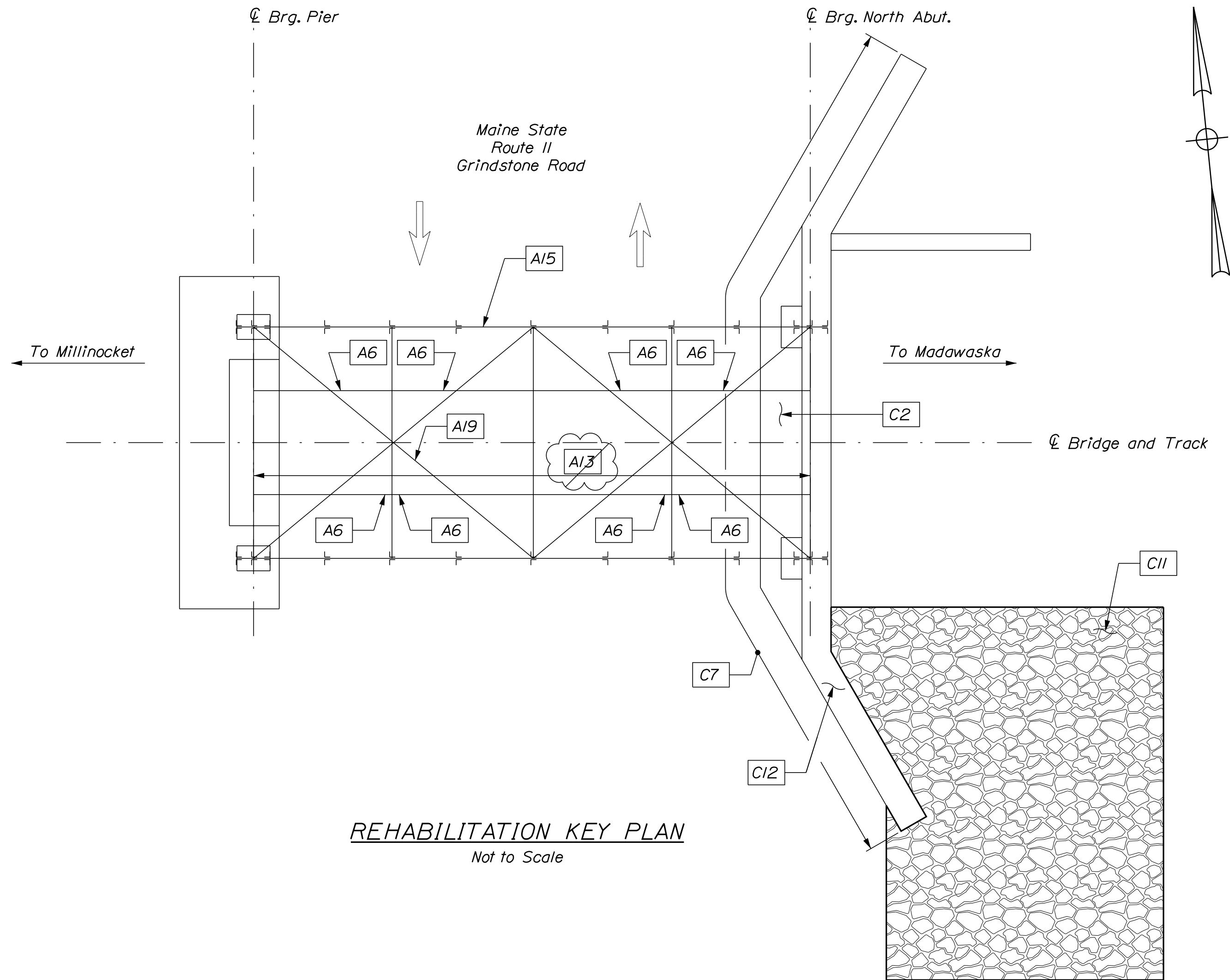


SHEET PROVIDED FOR INFORMATION ONLY

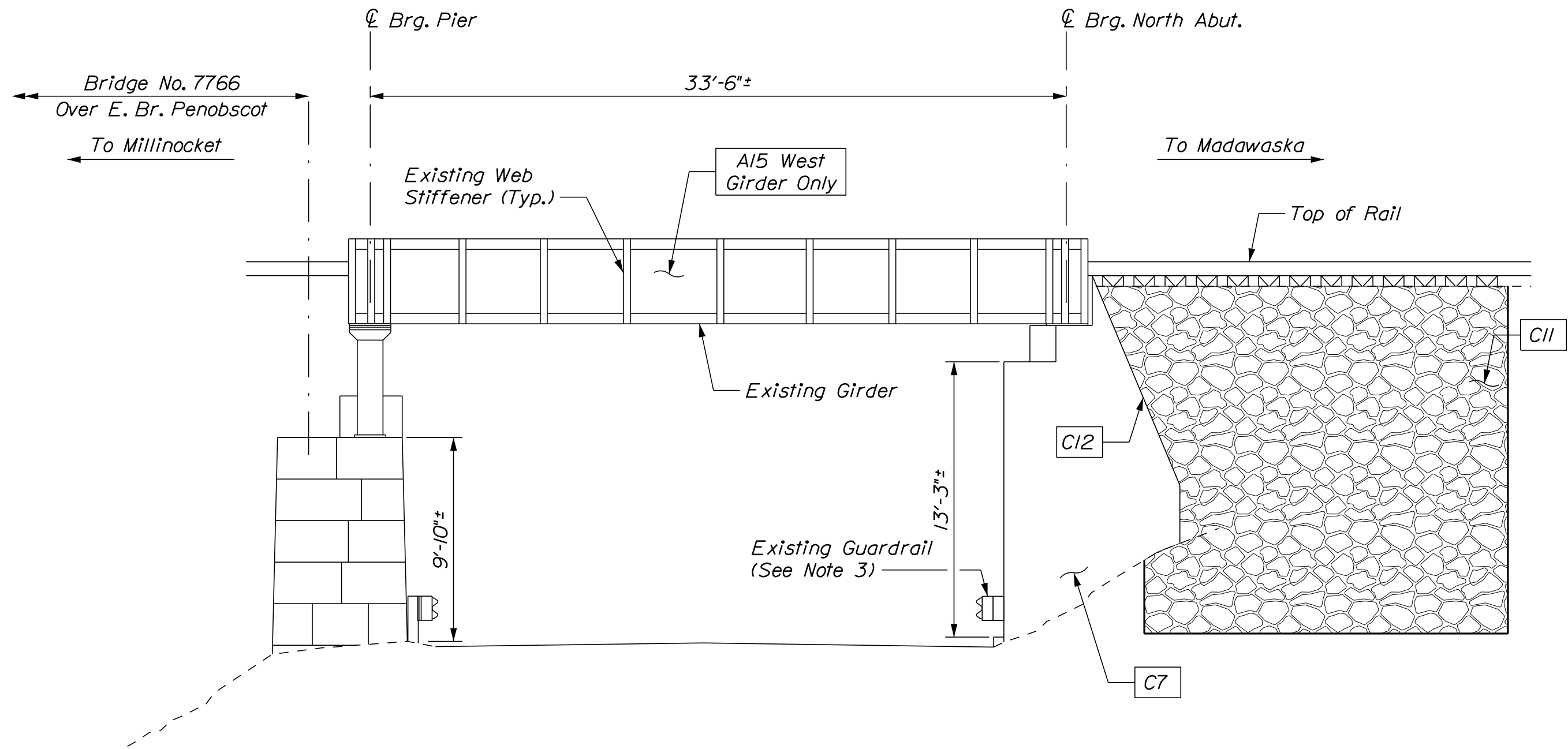
1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.



1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.

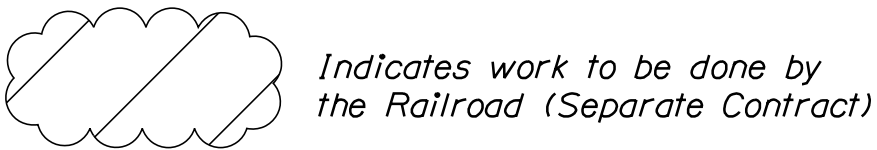


REHABILITATION KEY PLAN
Not to Scale



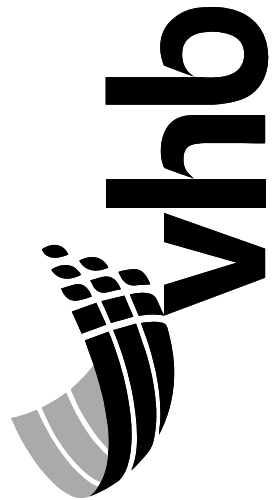
BRIDGE ELEVATION
Not to Scale

SUPERSTRUCTURE WORK ITEMS			
Work ID	Description	Number of Locations	See Detail on Sheet
A/6	Remove and Replace Stringers	8	29
A/3	Replace all Bridge Timbers (See Note 5)	1	12
A/5	Repair Impact Damage in Web	1	30
A/9	Repair Impact Damage - Type 3 (Replace In-Kind) (See Note 4)	1	N/A
SUBSTRUCTURE WORK ITEMS			
Work ID	Description	Number of Locations	See Detail on Sheet
C/2	Remove Debris and/or Vegetation From Bridge Seat	1	N/A
C/7	Patch Repair Concrete Surfaces	1	7 & 31
C/11	Stabilize Slope	1	31
C/12	Repair Top of Concrete Wingwall	1	31

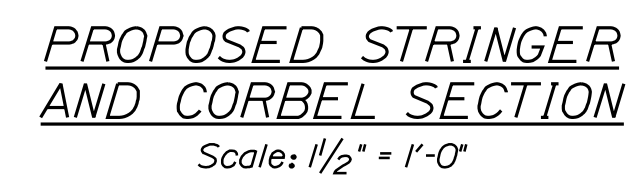
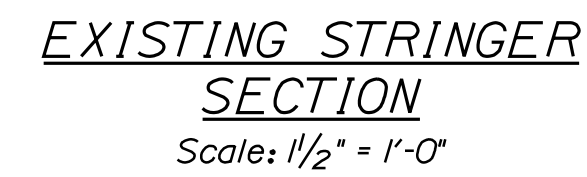
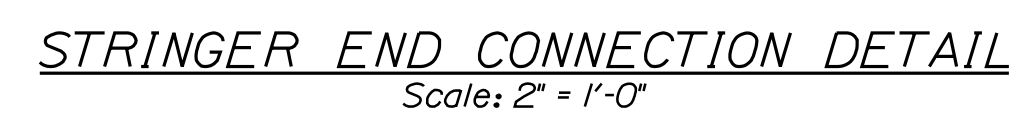
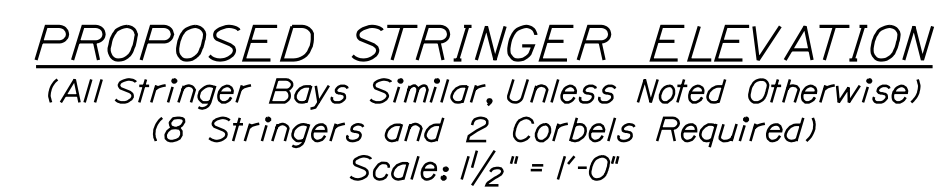
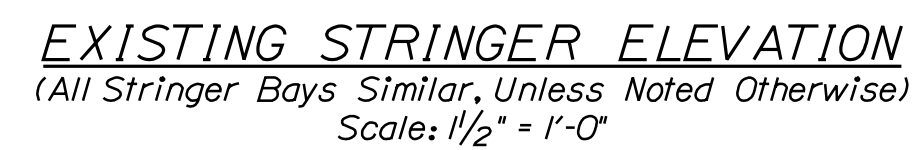


NOTES

1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.
2. The original girder span at this location shown in the 1925 existing plans was removed and replaced in 1992, with Bridge "W-25.70" previously located in Washburn, Maine. There are no existing superstructure plans for this bridge and the existing abutment does not match any of the plans on file. As a result, all geometry and dimension shown for this bridge have been obtained through limited field measurements and are not guaranteed. The Contractor shall verify all information shown.
3. Any removal and resetting of existing guardrail required to facilitate abutment repairs shall be considered incidental to the associated repair items.
4. Replace damaged lateral bracing angle in-kind. All labor and equipment required to replace the lateral bracing angle shall be paid under Item 504.71, Structural Steel Erection. All material required to replace the lateral bracing angle shall be paid under Item 504.70, Structural Steel Fabricated and Delivered.
5. See Deck Details 13 of 71 Sheet for Timber Bridge Tie Layout and Details.
6. Overhead powerlines are located over the north approach, adjacent to the bridge. See Special Provision 104, Utilities.



PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	12/2018	BJM	12/2018
CHECKED-REVIEWED	12/2018	CSG	12/2018
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			



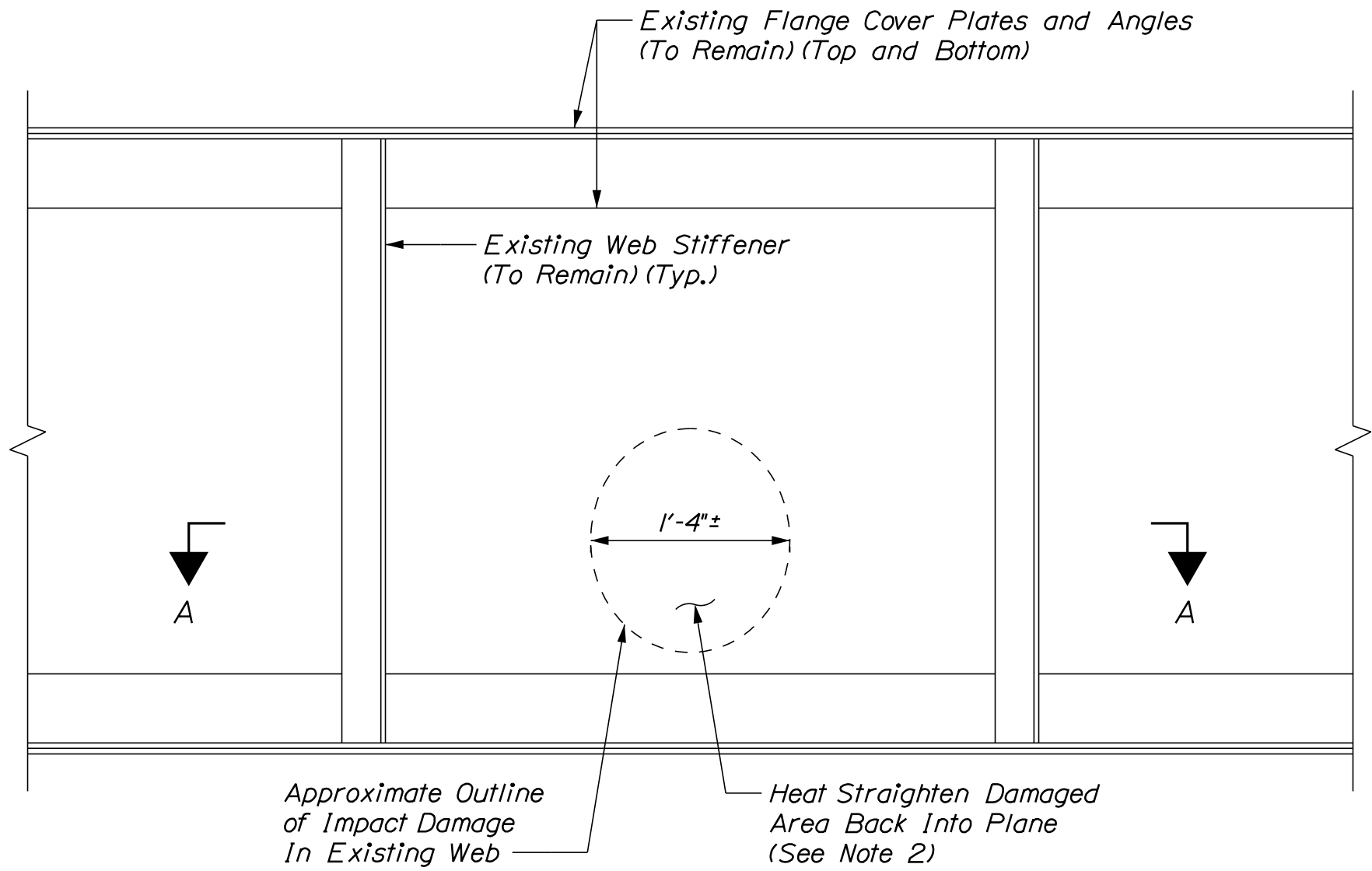
8. The Contractor shall field-measure and match the existing top of stringer elevation by adjusting the location of the new connection angles on the new stringer web.

Date:12/21/2018

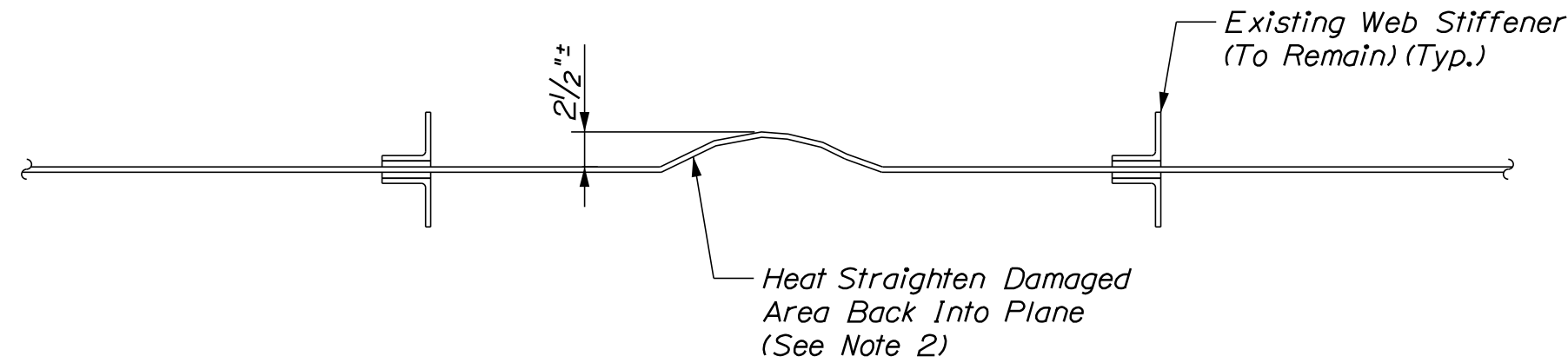
Username: JMacpherson

Division: MUL TIMODAL

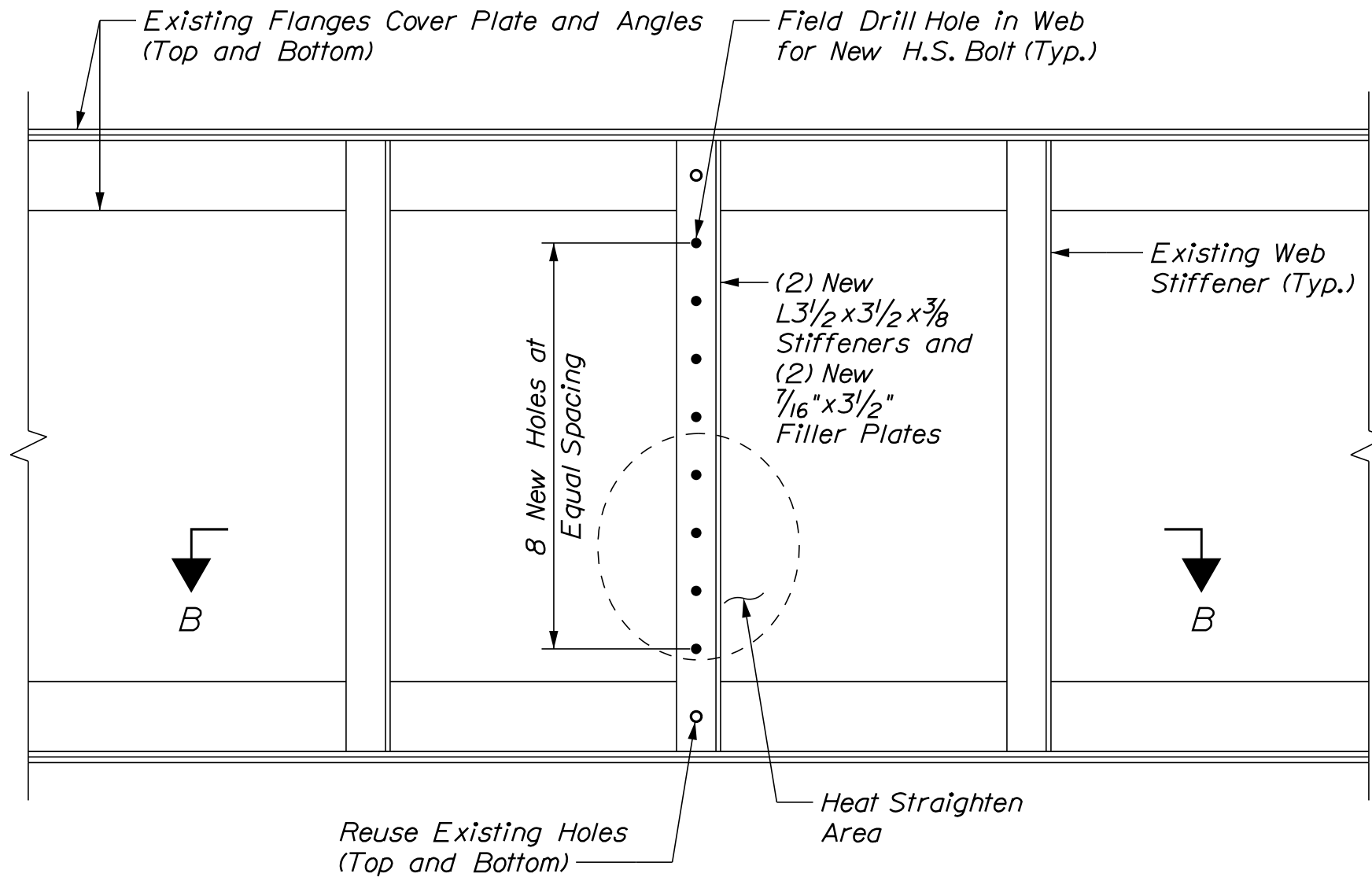
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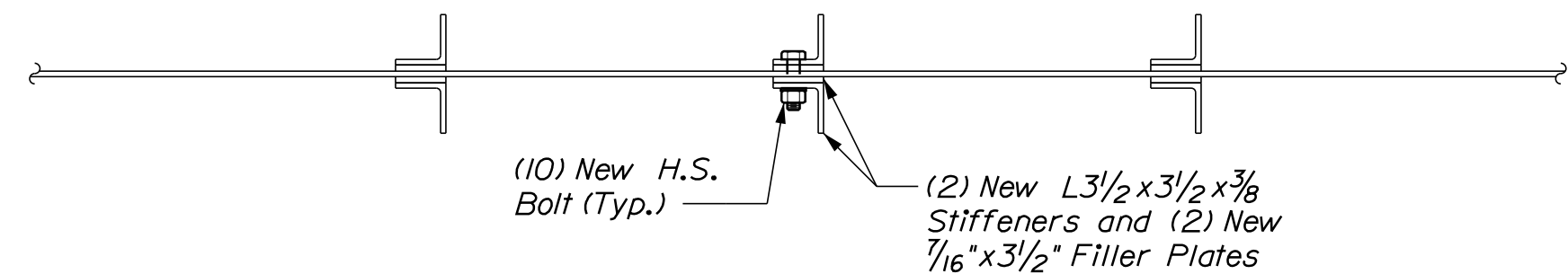
EXISTING ELEVATION
(Interior Face Shown)



SECTION A-A



PROPOSED ELEVATION
(Interior Face Shown)



SECTION B-B

WEB IMPACT DAMAGE REPAIR DETAIL
Scale: 1" = 1'-0"

LEGEND

- Field Drilled Hole
- Reuse Existing Hole

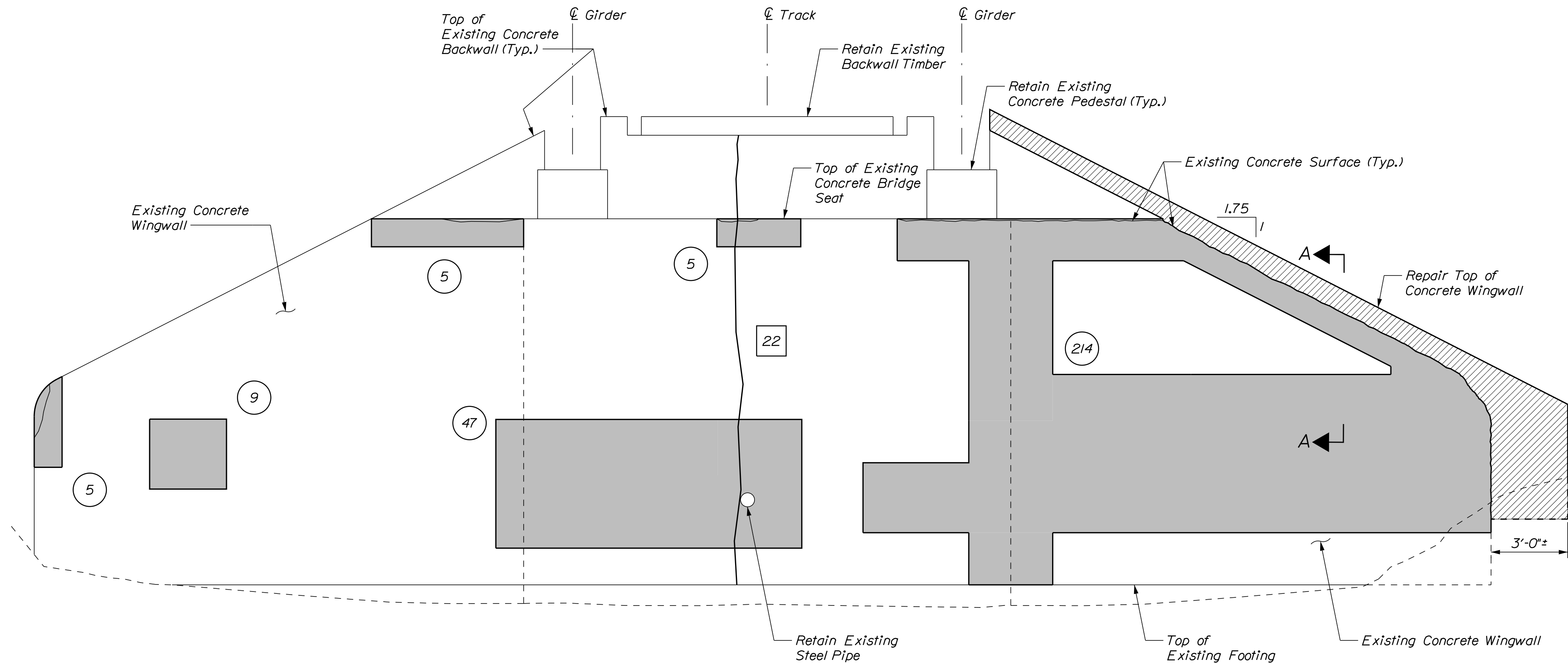
Dimensions in these plans shall not be used for fabrication purposes. All necessary dimensions and configurations shall be determined from actual field measurements by the Contractor. See Note 2 on Br. No. 814 (M.P. 113.14) Over Route 11 (1 of 4) Sheet.

NOTES

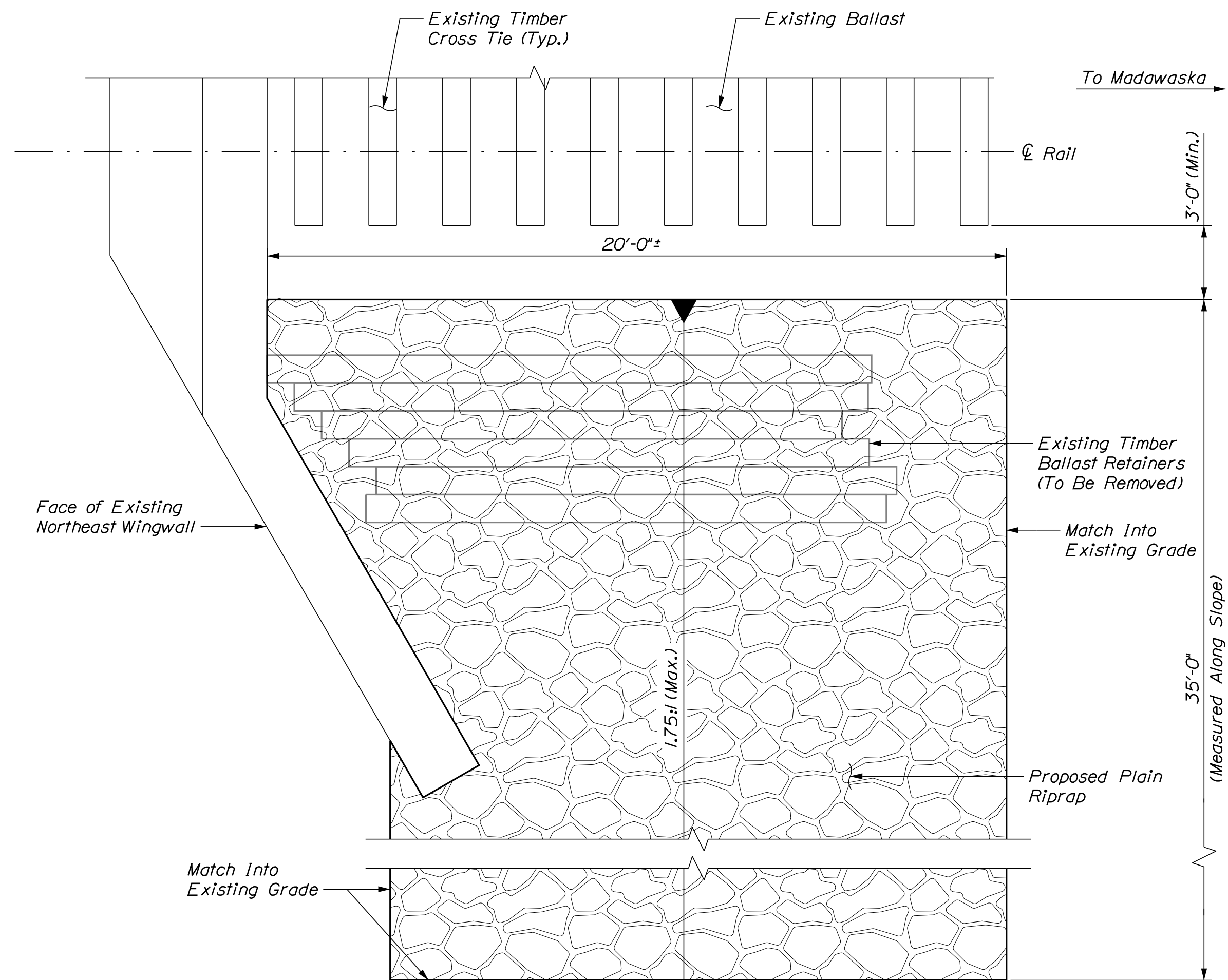
- See General Notes sheet for Structural Steel Notes.
- Heat straightening of existing web shall be done in accordance with Special Provision 504, Heat Straightening Damaged Structural Steel. All labor, equipment and material required to heat straighten the damaged web back into plane shall be paid under Item 504.7III, Heat Straightening Damaged Structural Steel.
- New web stiffeners shall be centered over the impacted area, as close as possible, using the existing holes in the vertical leg of the existing flange angles. The stiffeners shall have a tight fit at the top and bottom flanges. The new web stiffeners, and filler plates may be increased in size, at no extra cost, if required by the Contractor's means and methods of heat straightening. All labor and equipment required to install the new web stiffeners shall be paid under Item 504.7I, Structural Steel Erection. All material required to install the new web stiffeners shall be paid under Item 504.70, Structural Steel Fabricated and Delivered.

STATE OF MAINE DEPARTMENT OF TRANSPORTATION		PROJ. MANAGER	DATE	BY	DATE
		DESIGN-DETAILED	JSM	KDW	11/2018
		CHECKED-REVIEWED	GSG	GSG	11/2018
MAINE RAILROAD BRIDGE CAPACITY PROJECT - CONTRACT 2 MADAWASKA SUB. AROOSTOOK/PENOBSCOT	BR. NO. 814 (M.P. 113.14) OVER ROUTE 11 (3 OF 4)	DESIGNS-DETAILED3			
		REVISIONS 1			
		REVISIONS 2			
		REVISIONS 3			
		REVISIONS 4			
SHEET NUMBER		FIELD CHANGES			
30					
OF 74					

WIN 23486.00
BRIDGE NO. 814
BRIDGE PLANS



NORTH ABUTMENT ELEVATION
(Superstructure and Guardrail Not Shown for Clarity)
Scale: 3/8" = 1'-0"



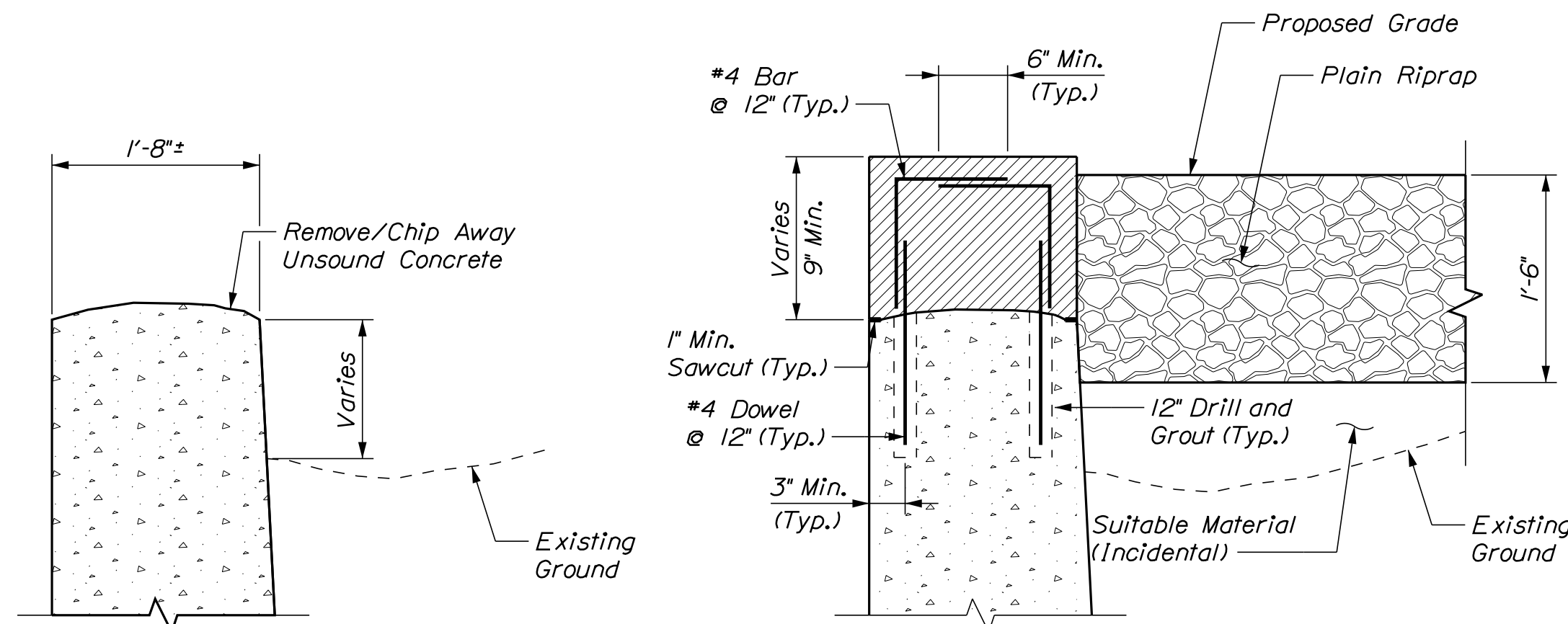
SLOPE STABILIZATION BEHIND NORTHEAST WINGWALL
Not To Scale

ESTIMATED CONCRETE REPAIR QUANTITIES

Surface Patch Repair (See Note 3) 315 SF *
*Includes 30SF additional repair quantity as a contingency
Epoxy Injection Crack Repair (See Note 2) 22 LF
Wingwall Repair Concrete (See Note 4) 4 CY *
*Includes 1.5CF additional repair quantity as a contingency

LEGEND

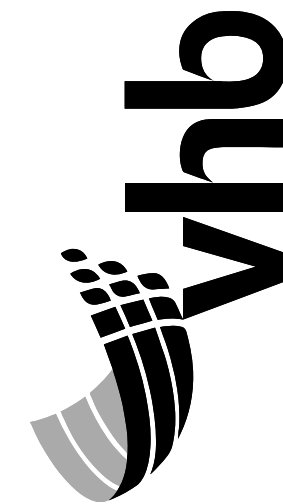
- Crack Repair
- # Approximate Linear Foot of Crack Repair (See Note 2)
- Approximate Limits of Surface Patch Repair
- # Approximate Square Footage of Surface Patch Repair (See Note 3)
- Existing Concrete
- Approximate Limits of Proposed Concrete (See Note 4)



SECTION A-A
Not To Scale

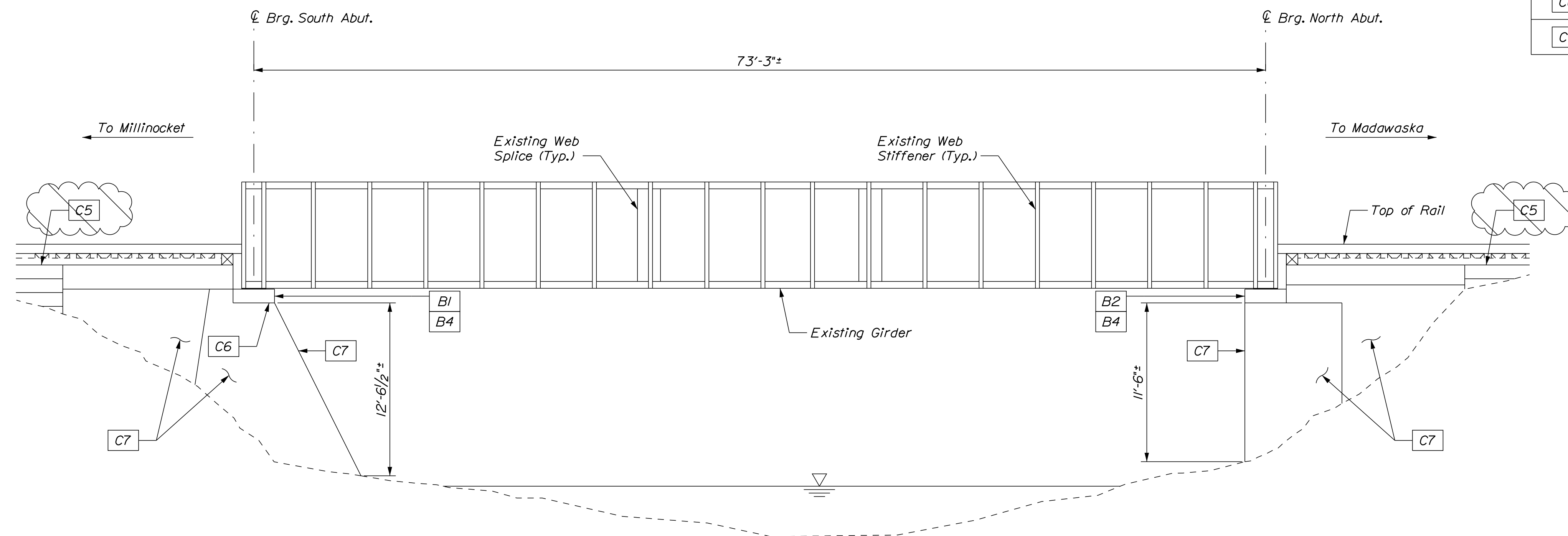
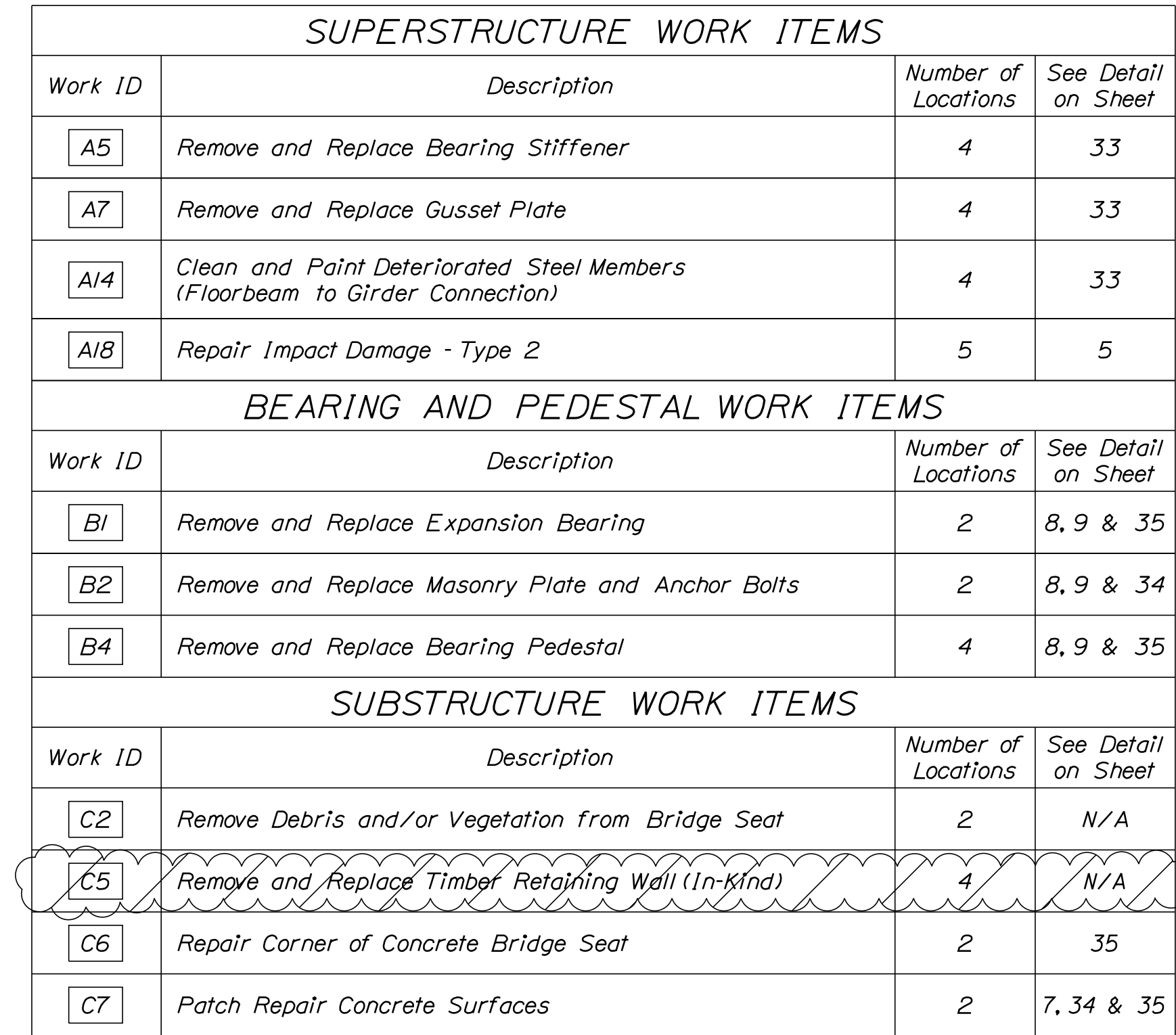
NOTES

- See General Notes Sheet for General Bridge Construction Notes, Railroad Construction Notes and Reinforced Concrete Notes.
- Where epoxy injection crack repair is specified payment shall be made under Item 518.80, Crack Repair. See Typical Details (4 of 4) Sheet for Epoxy Injection Crack Repair Details.
- Where Surface Patch Repair is specified payment shall be made under Item 518.60, Repair of Vertical Surfaces < 8 inches. See Typical Details (4 of 4) Sheet for Epoxy Injection Crack Repair Details.
- All labor, equipment, and material required to repair the top of northeast wingwall shall be paid under Item 518.211, Rehabilitate Structural Concrete Substructure.



PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	JSM	KOW	11/2018
CHECKED-REVIEWED	GSG		11/2018
DESIGN-DETAILED			
REVISIONS	1		
REVISIONS	2		
REVISIONS	3		
REVISIONS	4		
FIELD CHANGES			

MAINE RAILROAD BRIDGE CAPACITY PROJECT - CONTRACT 2 MADAWASKA SUB. AROOSTOOK/PENOBSCOT	BR. NO. 814 (M.P. 113.14) OVER ROUTE 11 (4 OF 4)
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 Indicates work to be done by the Railroad (Separate Contract)

NOTE

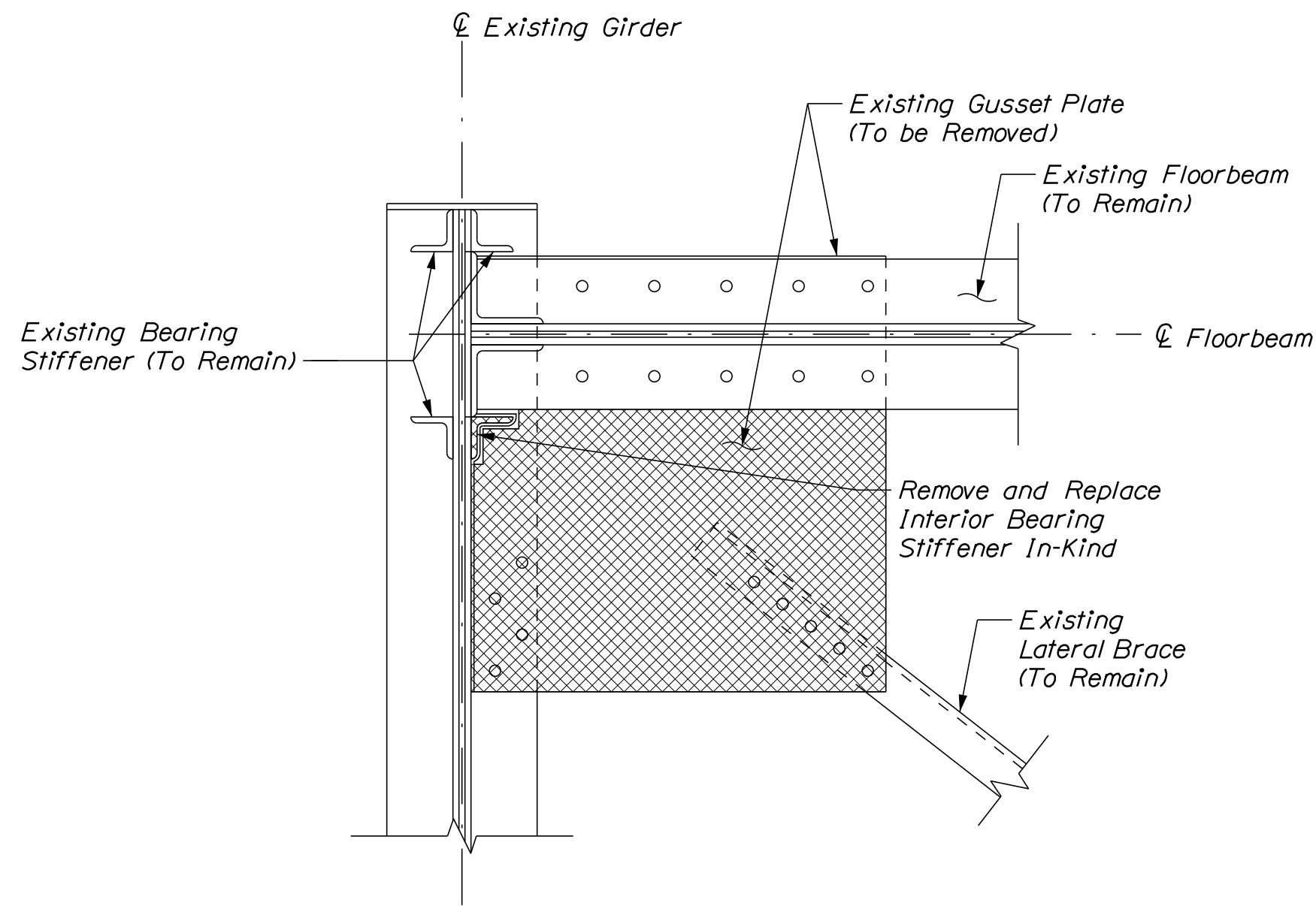
1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.

Date:12/21/2018

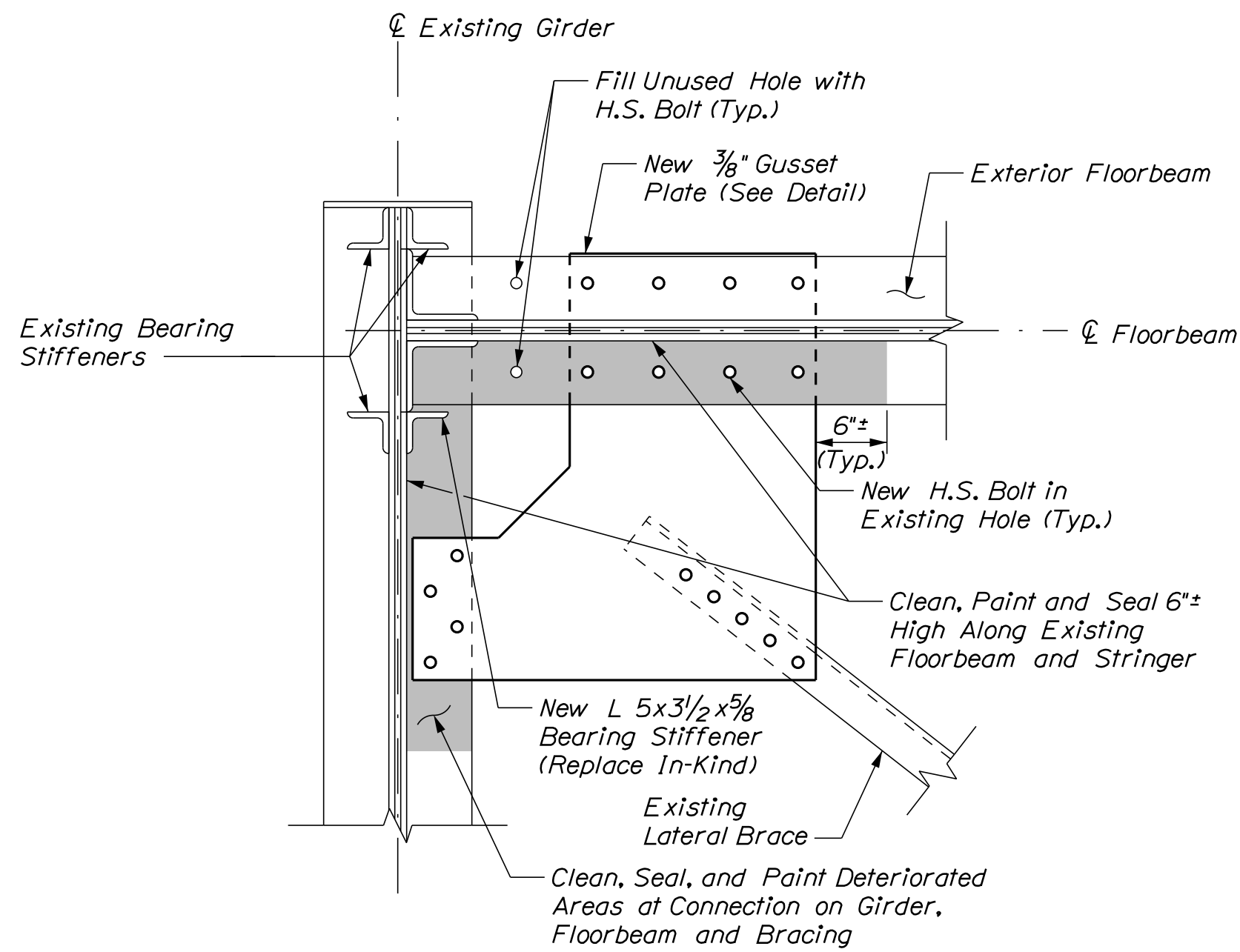
Username: JMacpherson

Division: MUL T1MODAL

Filename: 033_STEEL_03_139.56.dgn

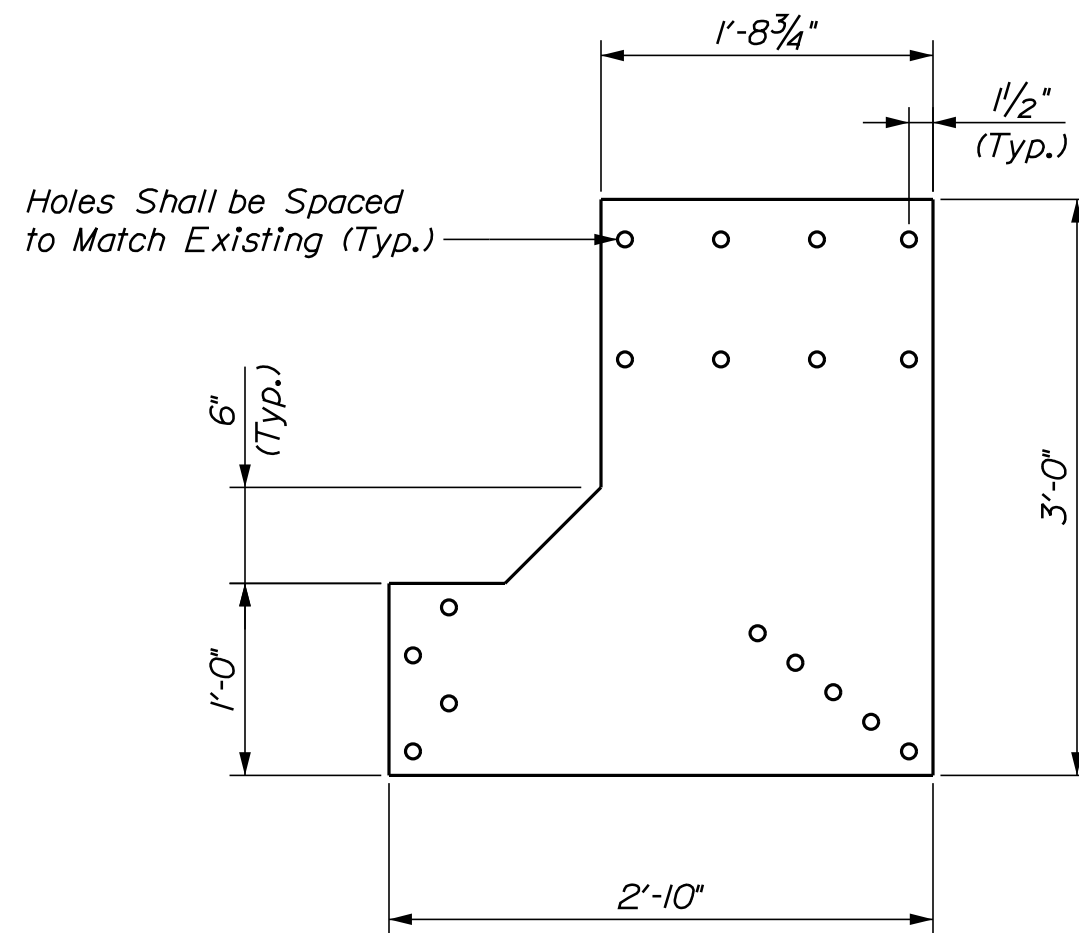


EXISTING



PROPOSED

BEARING STIFFENER AND
GUSSET PLATE REPLACEMENT DETAIL
Scale: 1" = 1'-0"



NEW 3/8" GUSSET PLATE DETAIL
Scale: 1" = 1'-0"

ESTIMATED SURFACE PREPARATION AND PAINTING QUANTITIES

Surface Preparation (See Note 3)	30 SF *
*Includes 6 SF additional repair quantity as a contingency	
Field Painting (See Note 3)	30 SF *
*Includes 6 SF additional repair quantity as a contingency	

LEGEND

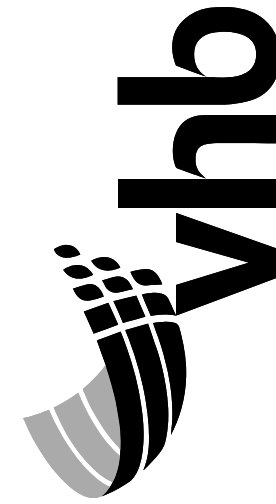
	Limits of Existing Bridge Removal
	Approximate Limits of Cleaning, Sealing, and Painting

NOTES

- See General Notes Sheet for General Bridge Construction Notes, General Railroad Construction Notes, and Structural Steel Notes.
- All labor and equipment required to complete "Remove and Replace Bearing Stiffener" and "Remove and Replace Connection Plate" work shall be paid under Item 504.71 Structural Steel Erection. Material required to complete "Remove and Replace Bearing Stiffener" and "Remove and Replace Connection Plate" work shall be paid under Item 504.70, Structural Steel Fabricated and Delivered.
- All labor, equipment, and material required to complete "Clean and Paint Deteriorated Steel Members" work shall be paid under Item 506.144, Field Painting of Existing and New Structural Steel, Item 506.1705, Surface Preparation of Existing Structural Steel, Item 506.18, Containment and Pollution Control Measures, and Item 506.19, Disposal of Special Waste or Hazardous Waste.

Dimensions in these plans shall not be used for fabrication purposes. All necessary dimensions and configurations shall be determined from actual field measurements by the Contractor. See Sheets 5 of 6 and 6 of 6 for Existing Plans.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 7771
WIN 23486.00
BRIDGE PLANS



PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	JCM	BUM	11/2018
CHECKED-REVIEWED	GSC	GSC	11/2018
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT
BR. NO. 7771 (M.P. 139.56)
OVER FISH RIVER (2 OF 6)

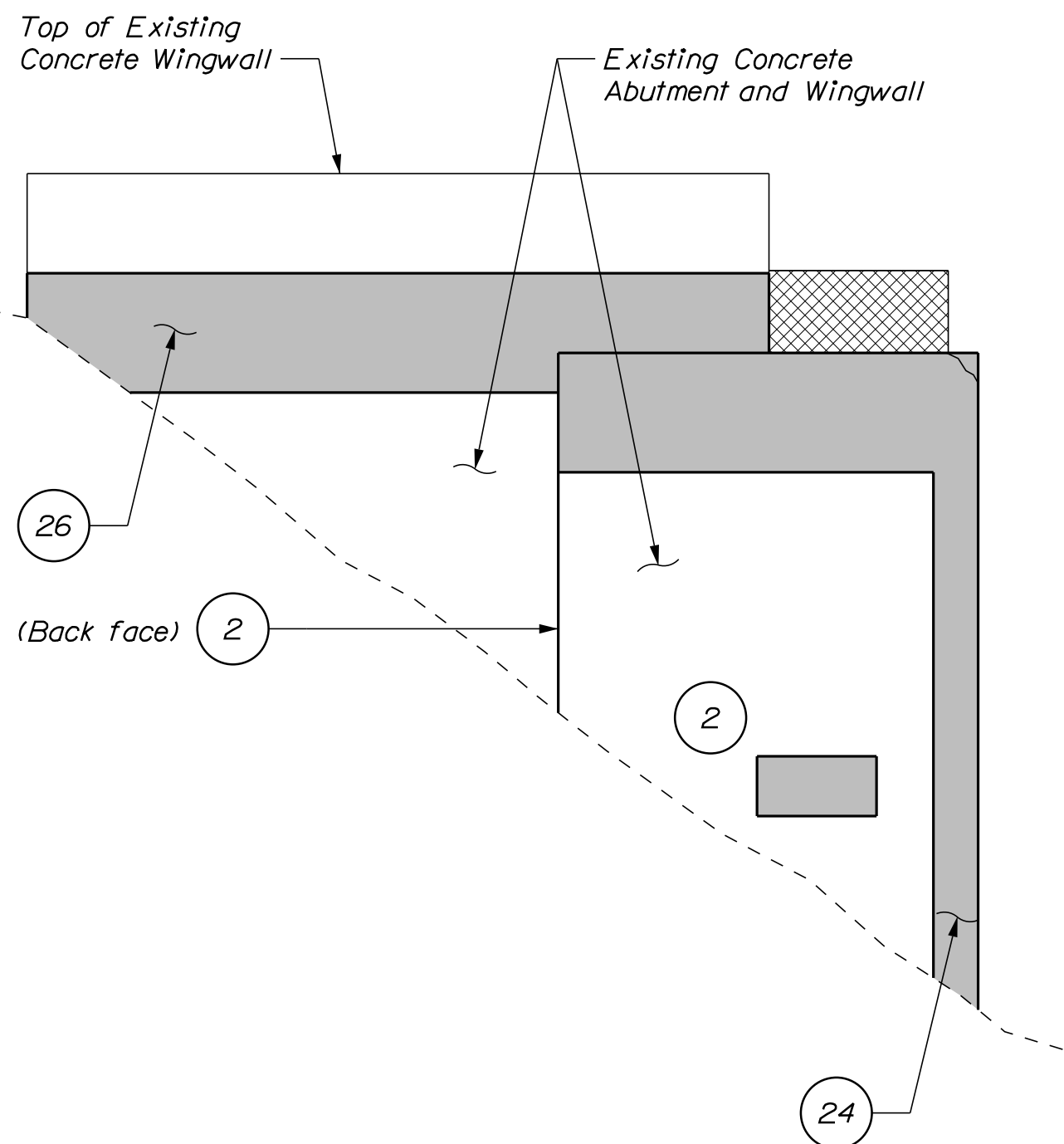
SHEET NUMBER
33
OF 74

Date:12/21/2018

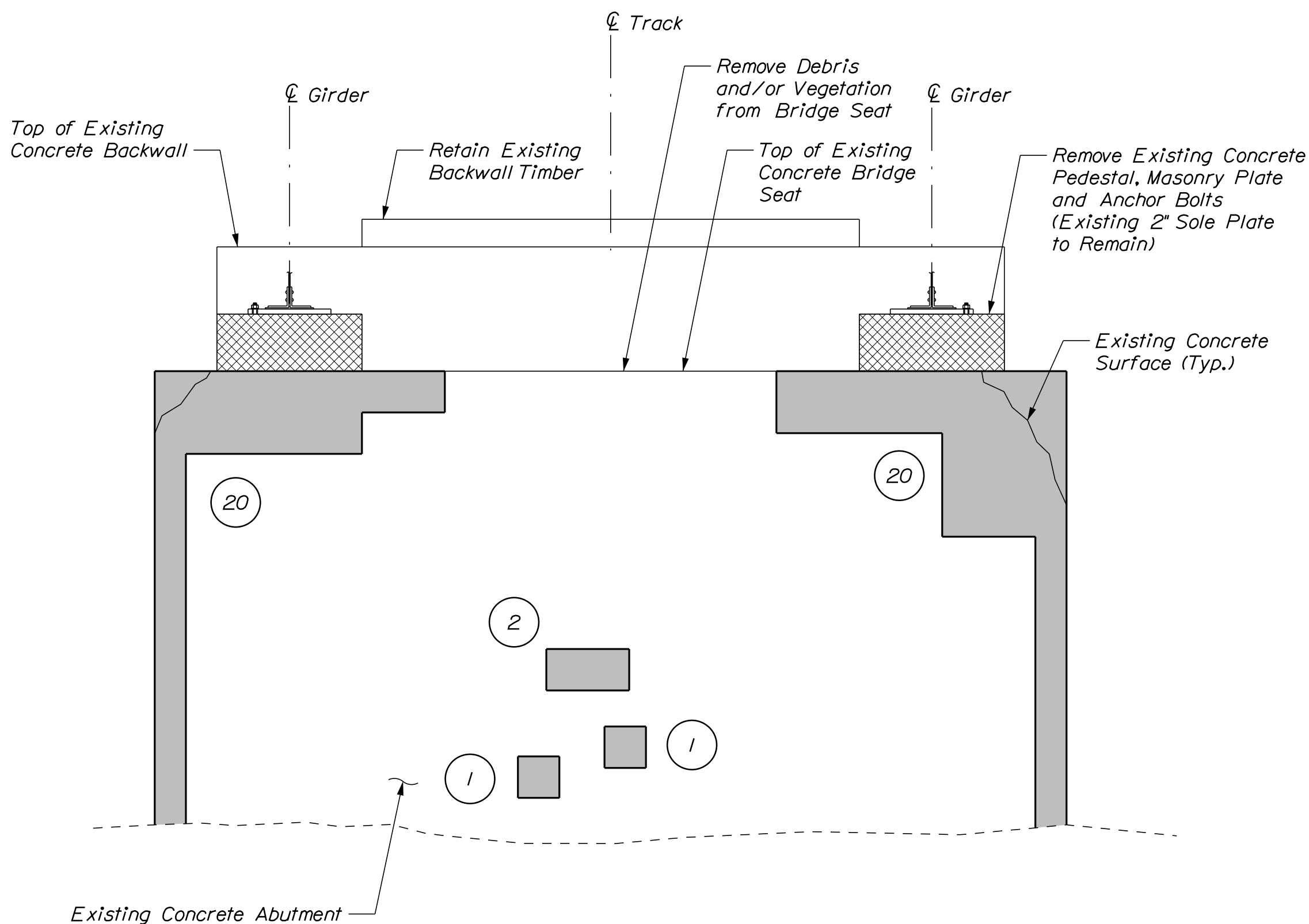
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Division: MUL TLMODAL

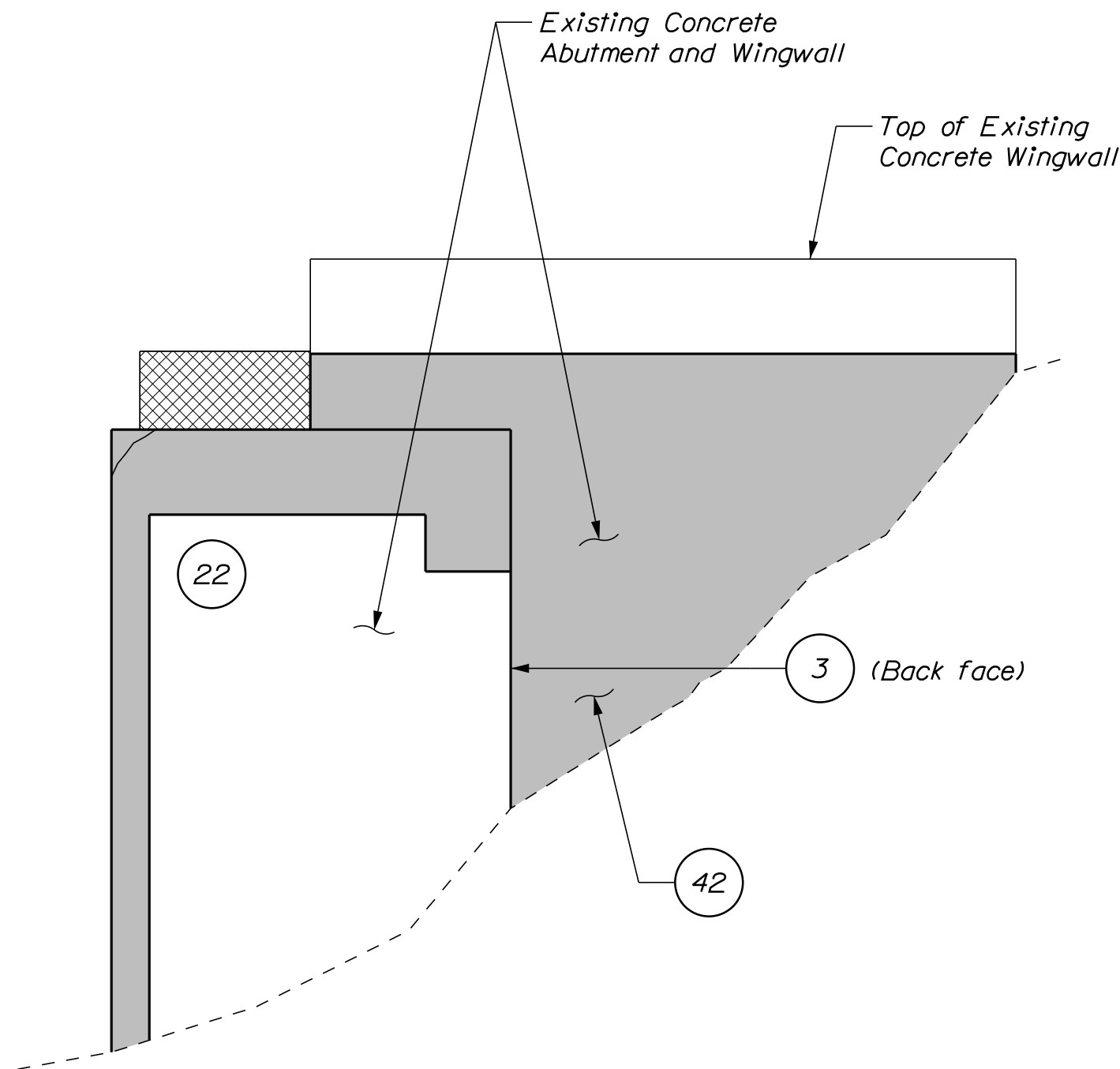
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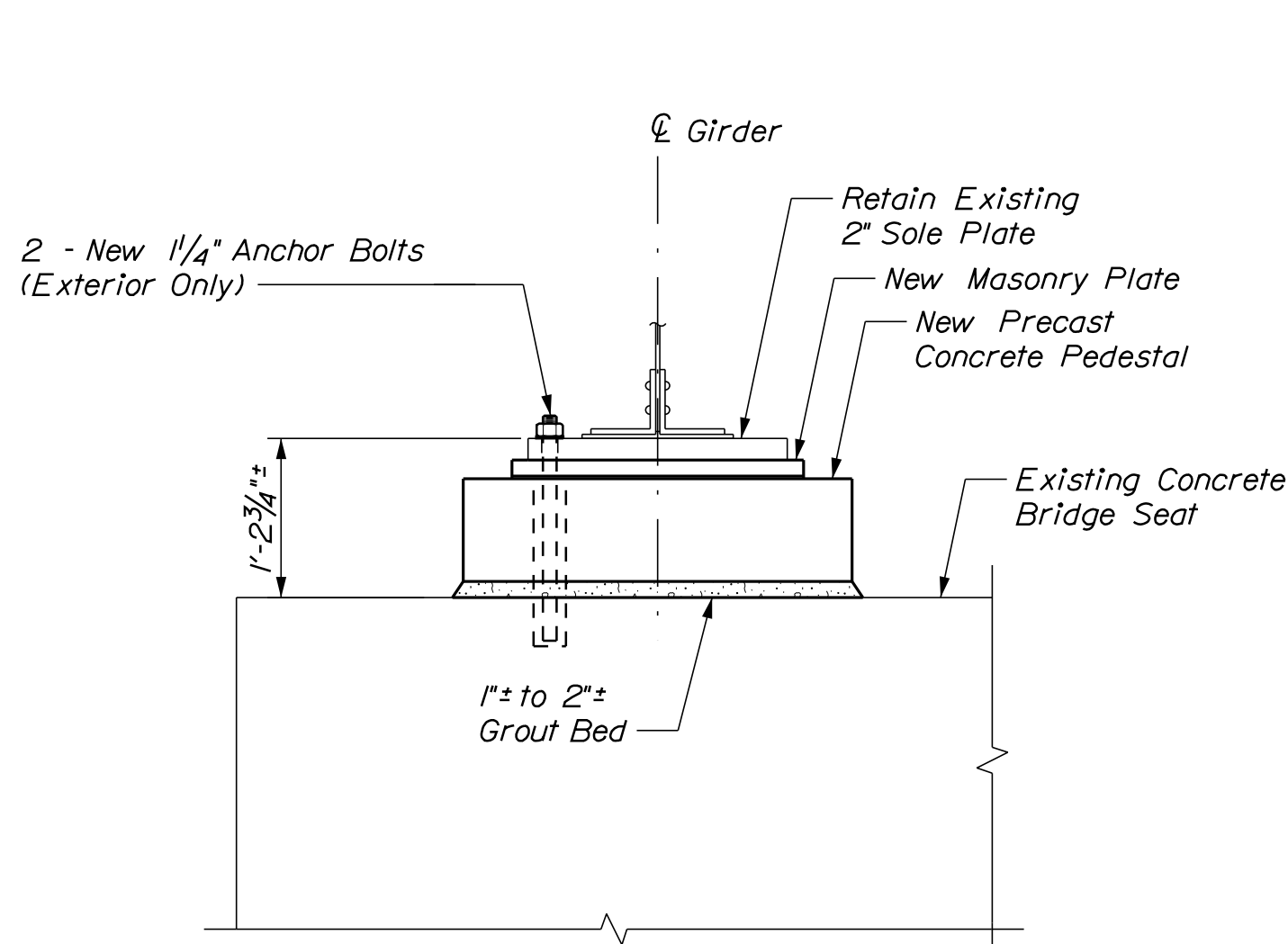
EXISTING NORTHWEST ABUTMENT ELEVATION
(Superstructure Not Shown for Clarity)
Scale: 3/8" = 1'-0"



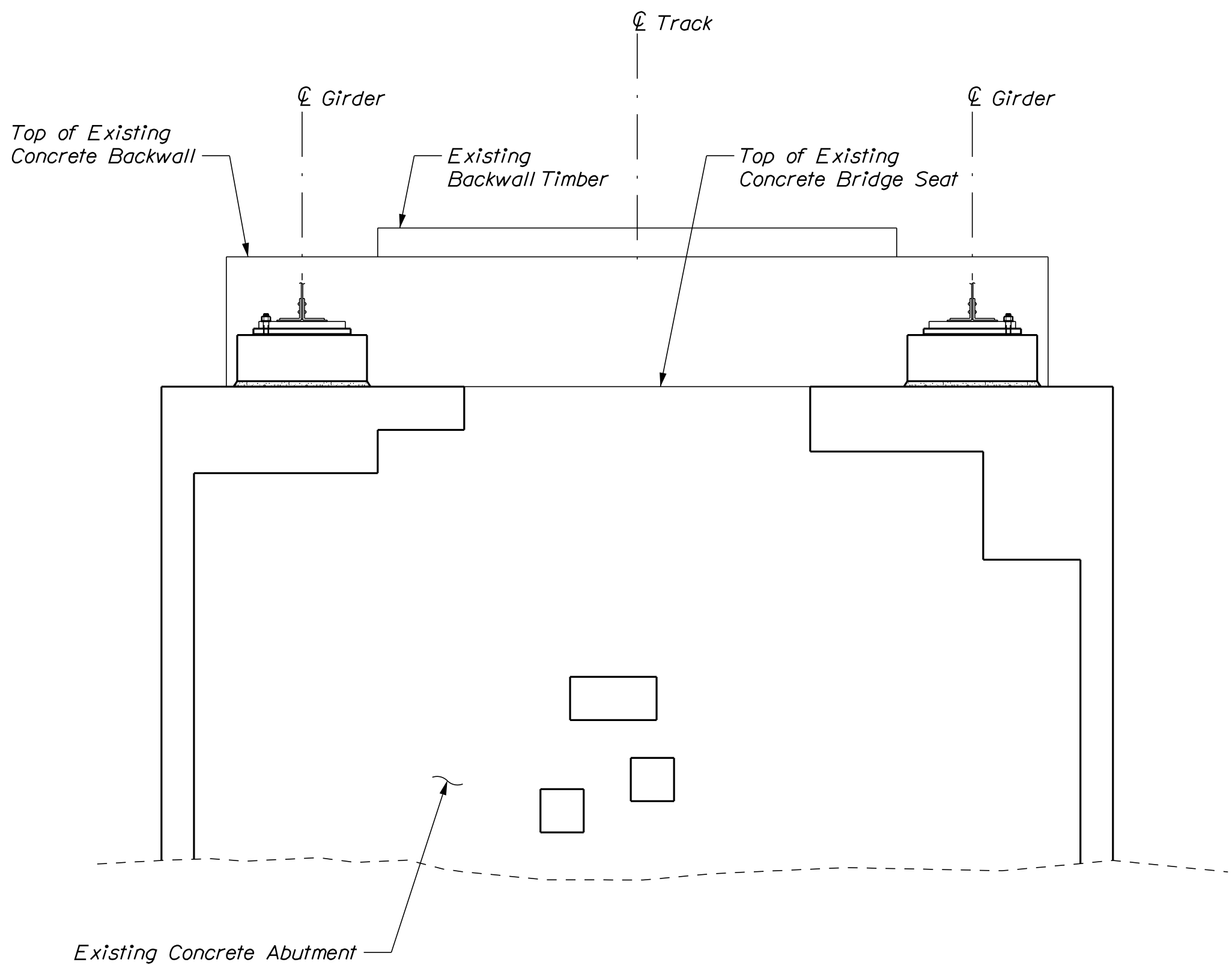
EXISTING NORTH ABUTMENT ELEVATION
(Superstructure Not Shown for Clarity)
Scale: 3/8" = 1'-0"



EXISTING NORTHEAST ABUTMENT ELEVATION
(Superstructure Not Shown for Clarity)
Scale: 3/8" = 1'-0"



PROPOSED NORTHWEST BEARING
AND PEDESTAL DETAIL
(Northeast Similar But Opposite Hand)
(See Note 3)
Not to Scale



PROPOSED NORTH ABUTMENT ELEVATION
(Superstructure Not Shown for Clarity)
Scale: 3/8" = 1'-0"

ESTIMATED CONCRETE REPAIR QUANTITIES

Surface Patch Repair (See Note 2) 185 SF *
* Includes 20 SF additional repair quantity as a contingency

LEGEND

- Limits of Existing Bridge Removal
- Approximate Limits of Surface Patch Repair
- Approximate Square Footage of Surface Patch Repair (See Note 2)

NOTES

- See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.
- Where Surface Patch Repair is specified payment shall be made under Item 518.60, Repair of Vertical Surfaces < 8 inches. See Typical Repair Details (4 of 4) Sheet for Surface Patch Repair Details and Notes.
- See Bearing and Pedestal Details Sheet for Proposed Bearing and Pedestal Details and Notes

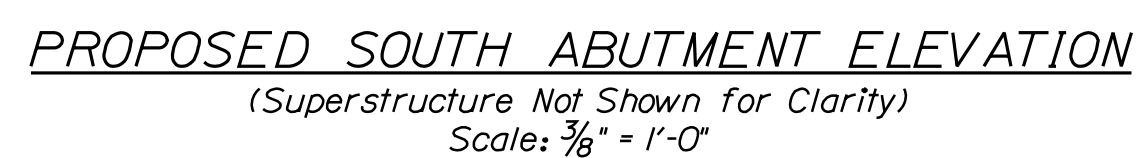
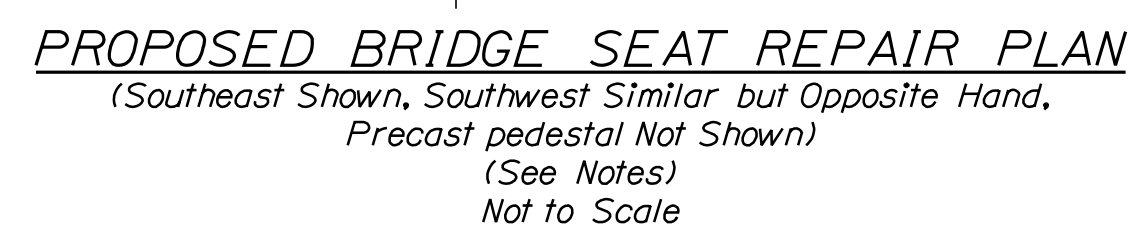
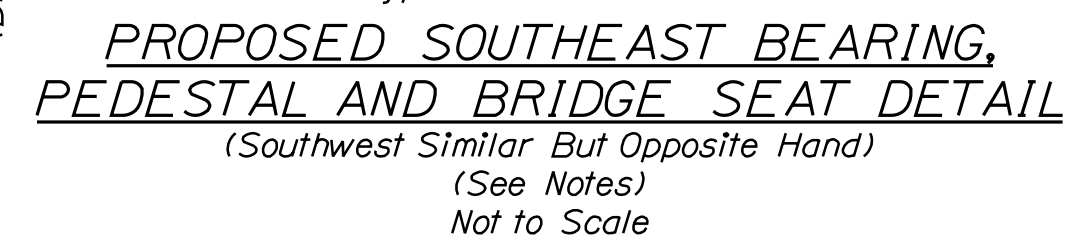
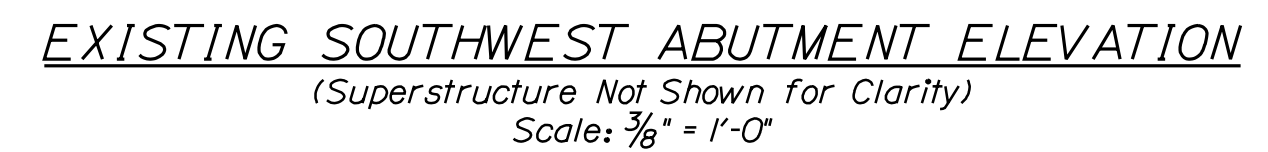
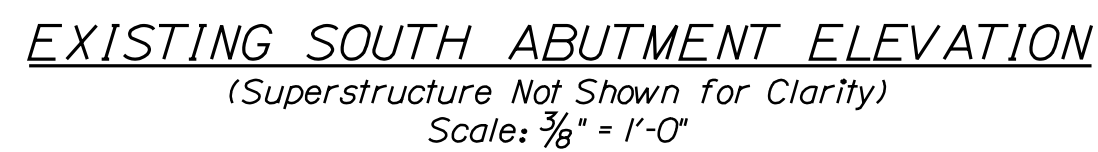
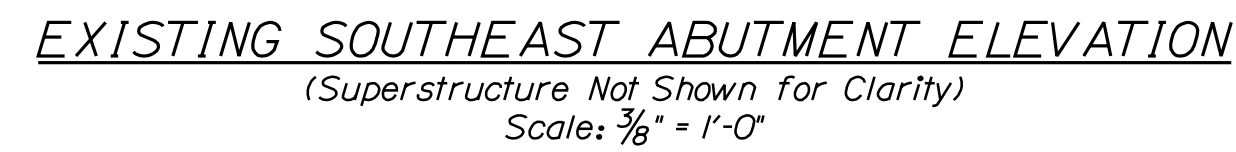


STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7771
WIN 23486.00
BRIDGE PLANS

MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT
BR. NO. 7771 (M.P. 139.56)
OVER FISH RIVER (3 OF 6)

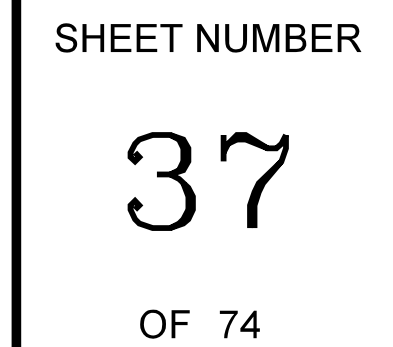
SHEET NUMBER
34
OF 74

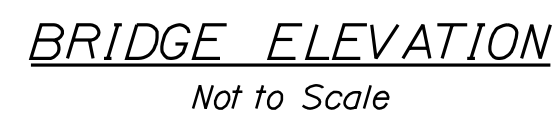
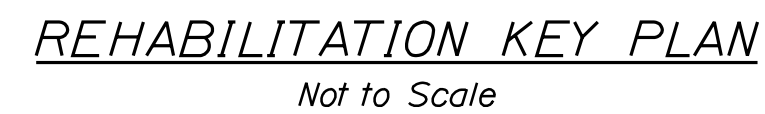


1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.
2. Where Surface Patch Repair is specified payment shall be made under Item 518.60, Repair of Vertical Surfaces < 8 inches. See Typical Repair Details (4 of 4) Sheet for Surface Patch Repair Details and Notes.
3. See Bearing and Pedestal Details Sheets for Proposed Bearing and Pedestal Details and Notes.
4. Partial removal of the existing backwall may be required to accommodate the new bearings and pedestals. Extent of removal shall be limited as much as possible. All cost for removal at the existing backwall shall be incidental to Contract Items.
5. All labor, equipment, and material required to repair the corer of the existing bridge seat shall be paid under Item 518.211, Rehabilitate Structural Concrete Substructure. Reinforcing and dowels shall be generally configured as shown on this sheet unless otherwise directed by the Resident.



1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.





SUBSTRUCTURE WORK ITEMS			
Work ID	Description	Number of Locations	See Detail on Sheet
C2	Remove Debris and/or Vegetation from Bridge Seat	1	N/A
C5	Remove and Replace Timber Retaining Wall (In-Kind)	2	N/A
C7	Patch Repair of Concrete Surface	1	7 & 40
C8	Rehabilitate Concrete Pier	1	41 & 42

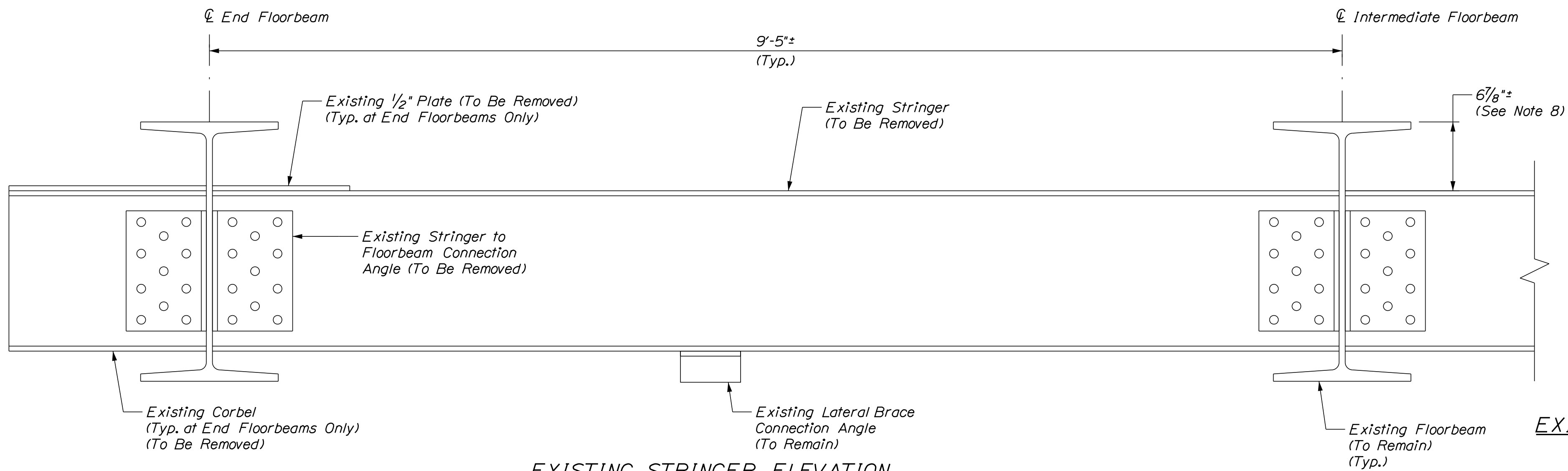
2. The locations shown for bridge timbers to be removed and replaced are approximate. Final location and quantity of bridge timbers to be removed and replaced shall be as directed by Resident and shall be agreed upon with the Contractor prior to start of work. Existing bridge timbers to be removed and replaced in-kind.

Date: 12/21/2018

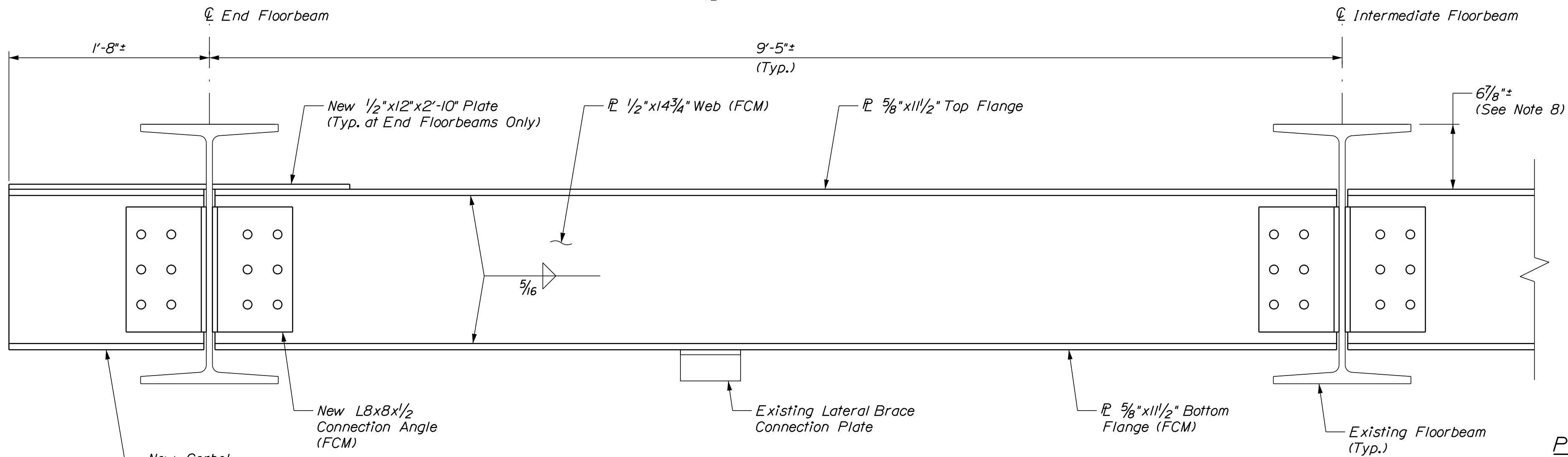
Username: JMacpherson

Division: MUL TIMODAL

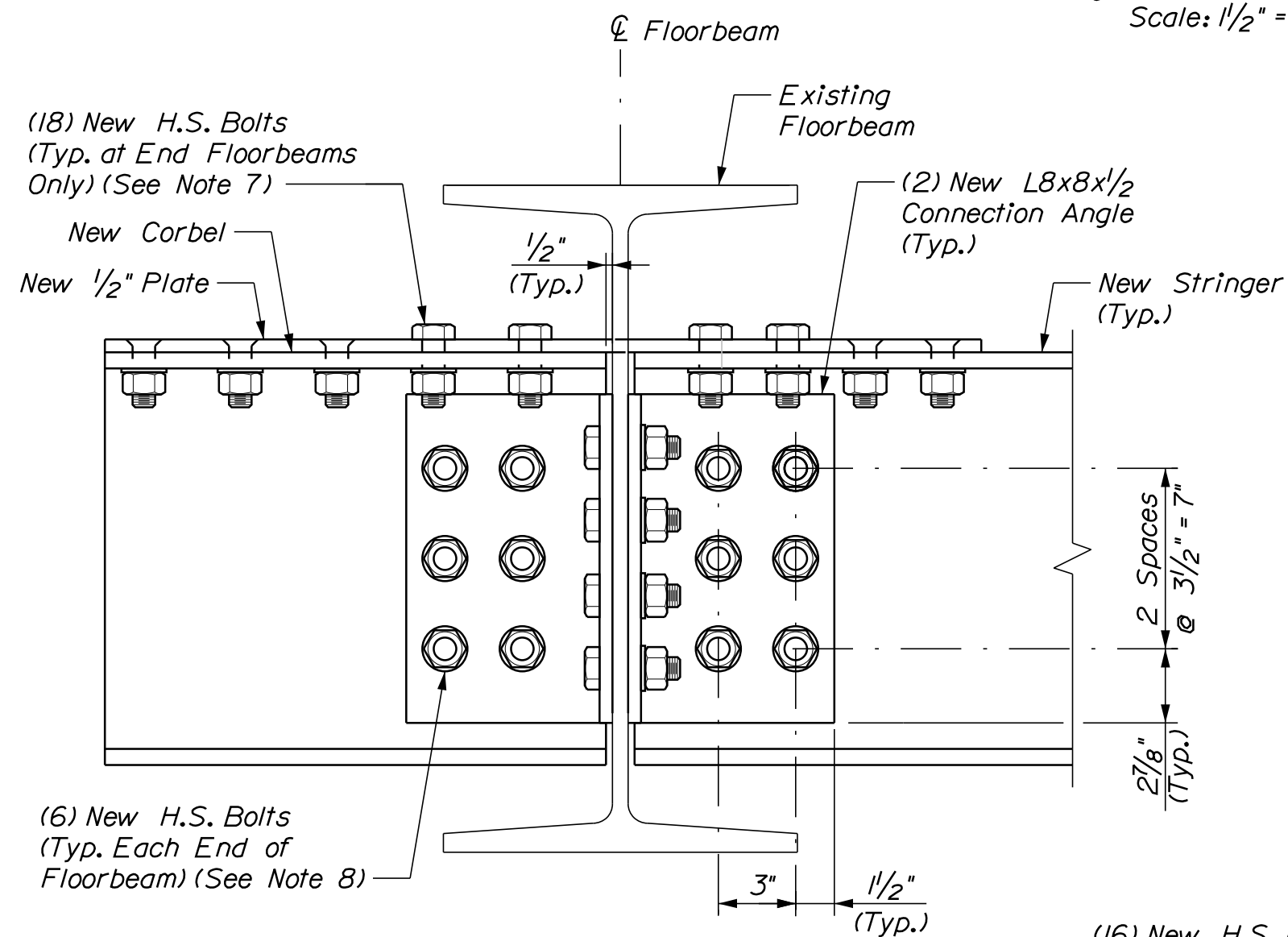
Filename: 039_STEEL_03_139.66.dgn



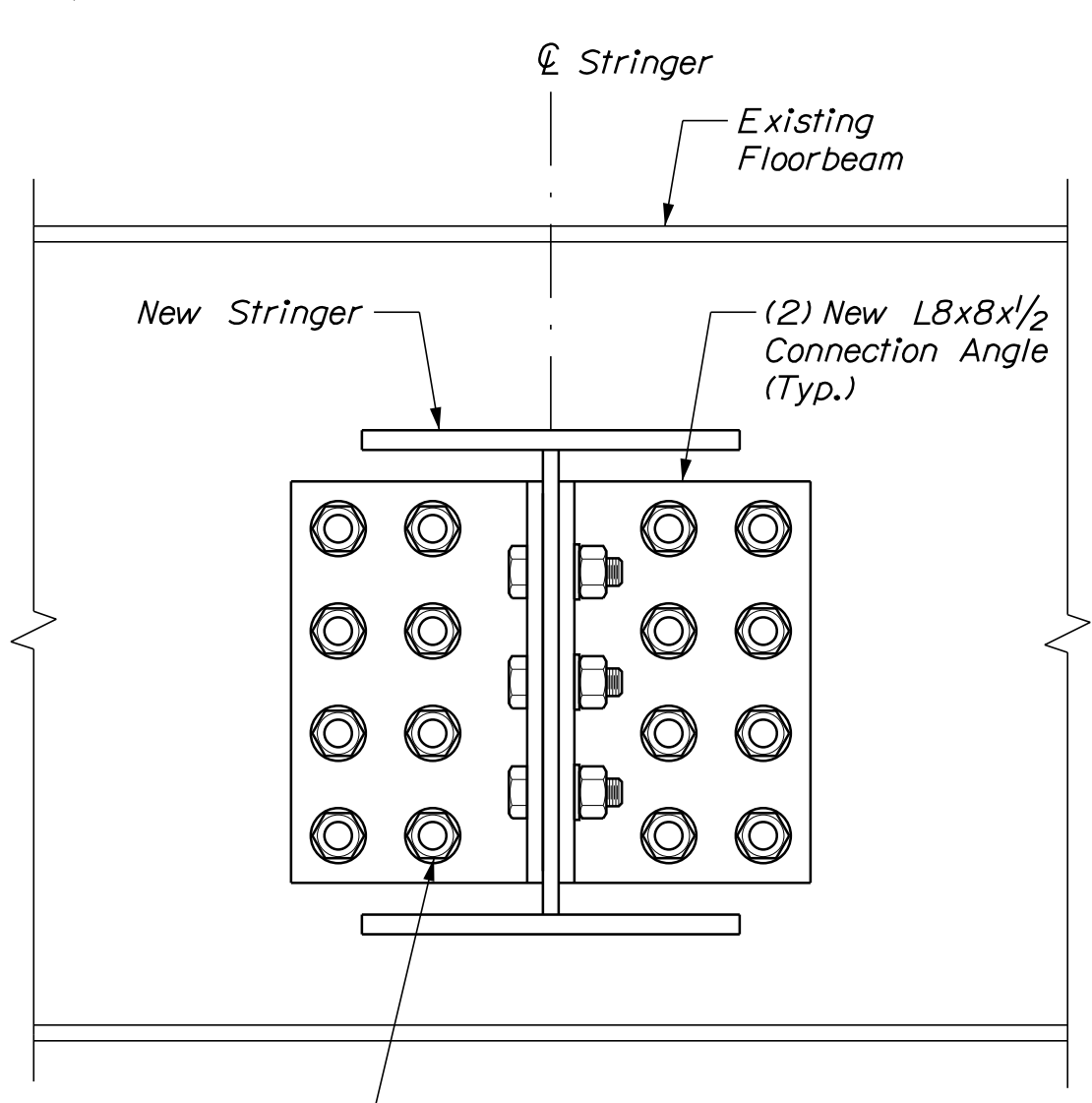
EXISTING STRINGER ELEVATION
(All Stringer Bays Similar, Unless Noted Otherwise)
Scale: 1 1/2" = 1'-0"



PROPOSED STRINGER ELEVATION
(All Stringer Bays Similar, Unless Noted Otherwise)
(24 Stringers and 8 Corbels Required)
Scale: 1 1/2" = 1'-0"

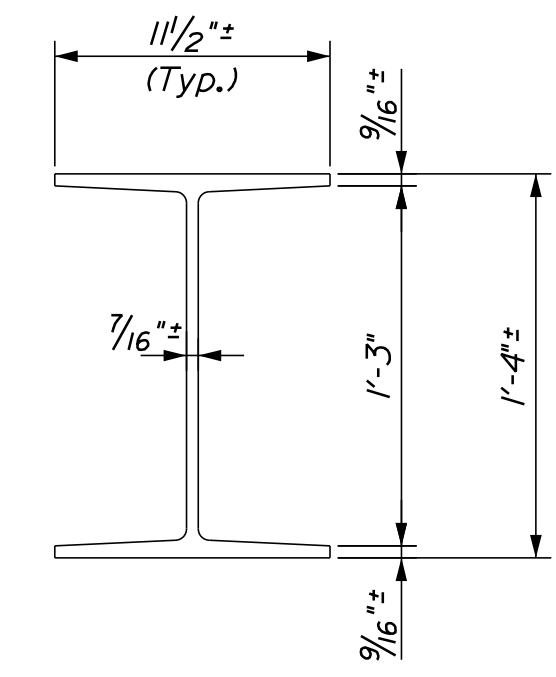


SECTION THRU FLOORBEAM
(End Floorbeam Shown, Other Floorbeams Similar)

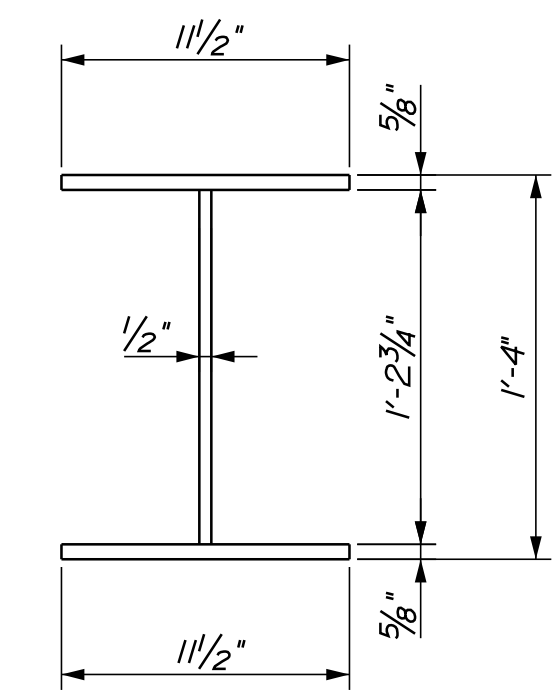


SECTION THRU STRINGER
(Similar for all Stringers)

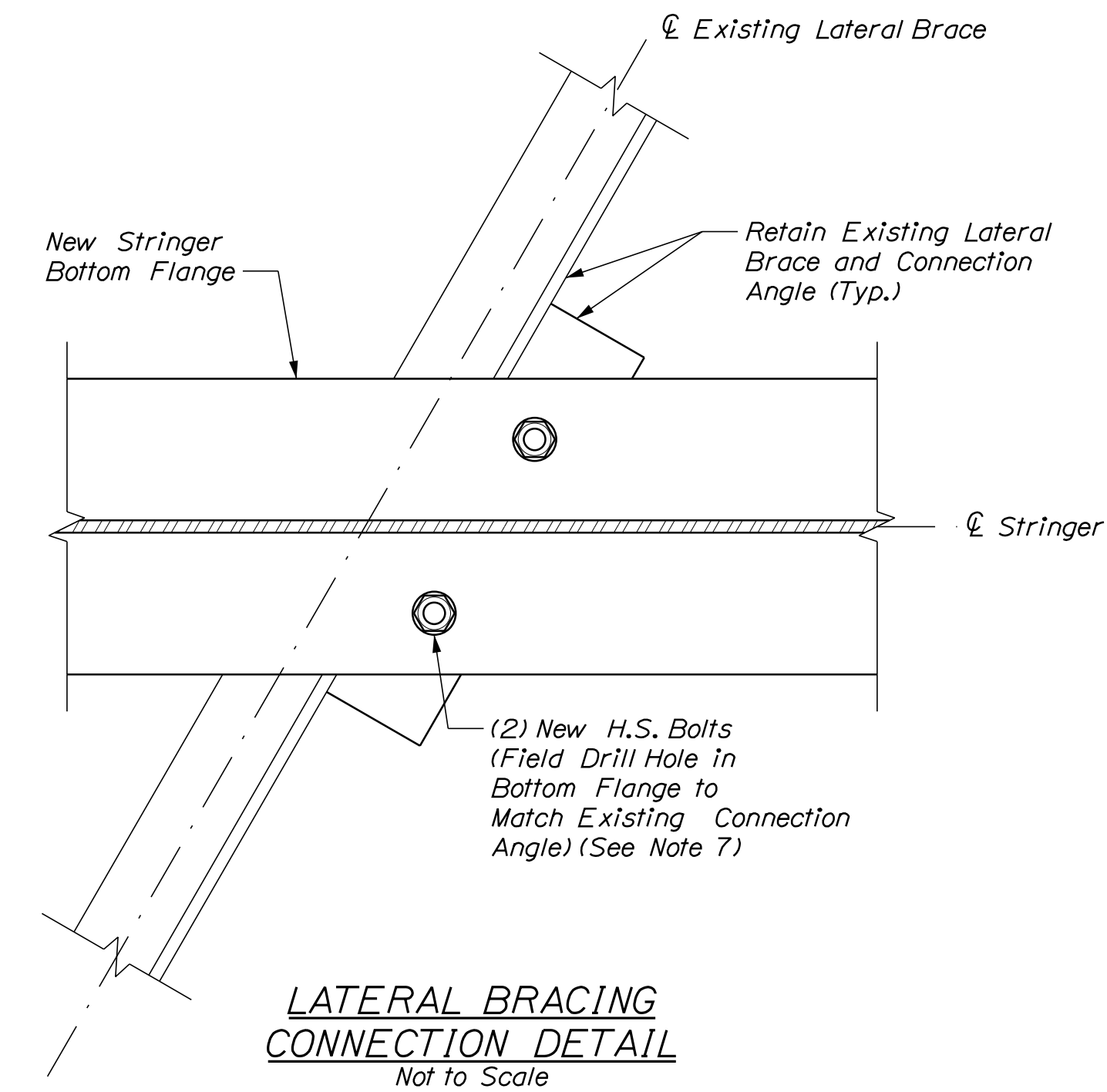
STRINGER END CONNECTION DETAIL
Scale: 2" = 1'-0"



EXISTING STRINGER SECTION
Scale: 1 1/2" = 1'-0"



PROPOSED STRINGER AND CORBEL SECTION
Scale: 1 1/2" = 1'-0"



LATERAL BRACING CONNECTION DETAIL
Not to Scale

Dimensions in these plans shall not be used for fabrication purposes. All necessary dimensions and configurations shall be determined from actual field measurements by the Contractor. See Sheets 6 of 7 and 7 of 7 for Existing Plans.

(FCM) = Fracture Critical Member

NOTES

1. See General Notes sheet for Structural Steel Notes.
2. All web, flange, and connection angles in tension areas shall conform to Zone 2 charpy v-notch requirements of ASTM A709. These members have been labeled (FCM) for clarity.
3. The existing steel surface in contact with the stringer end connections and bracing connections shall be prepared in accordance with SSPC-SP3 Power Tool Cleaning.
4. Stringers shall be fabricated to zero camber plus tolerance.
5. Flange and web plates shall be fabricated in one piece. No transverse butt welds are allowed.
6. At the Contractor's option a rolled W-shape stringer of comparable size may be substituted. Cost for design and detailing shall be incidental to Contract items and shall be submitted for approval.
7. The Contractor shall field-measure and match existing hole locations and spacing. The Contractor shall verify clearing and entering clearance is provided for all proposed connections and details prior to fabrication.
8. The Contractor shall field-measure and match the existing top of stringer elevation, by adjusting the location of the new connection angles on the new stringer web.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7772

WIN
23486.00

BRIDGE PLANS

PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED	11/2018	BUM	11/2018
CHECKED-REVIEWED	11/2018	GSG	11/2018
DESIGN-DETAILED			
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

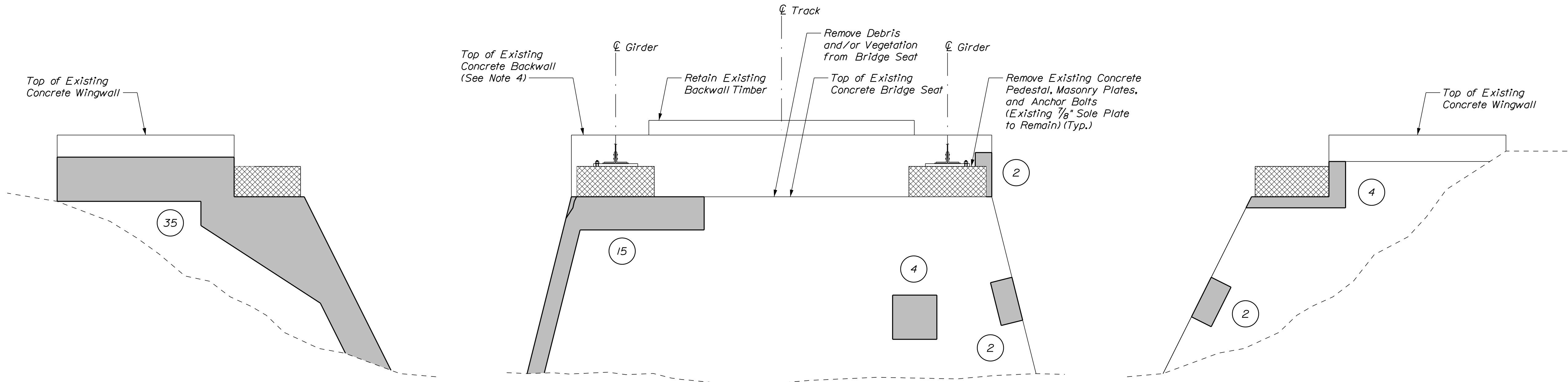
MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT

BR. NO. 7772 (M.P. 139.66) OVER
W. BR. MATTAWAMKEAG (2 OF 7)

SHEET NUMBER

39

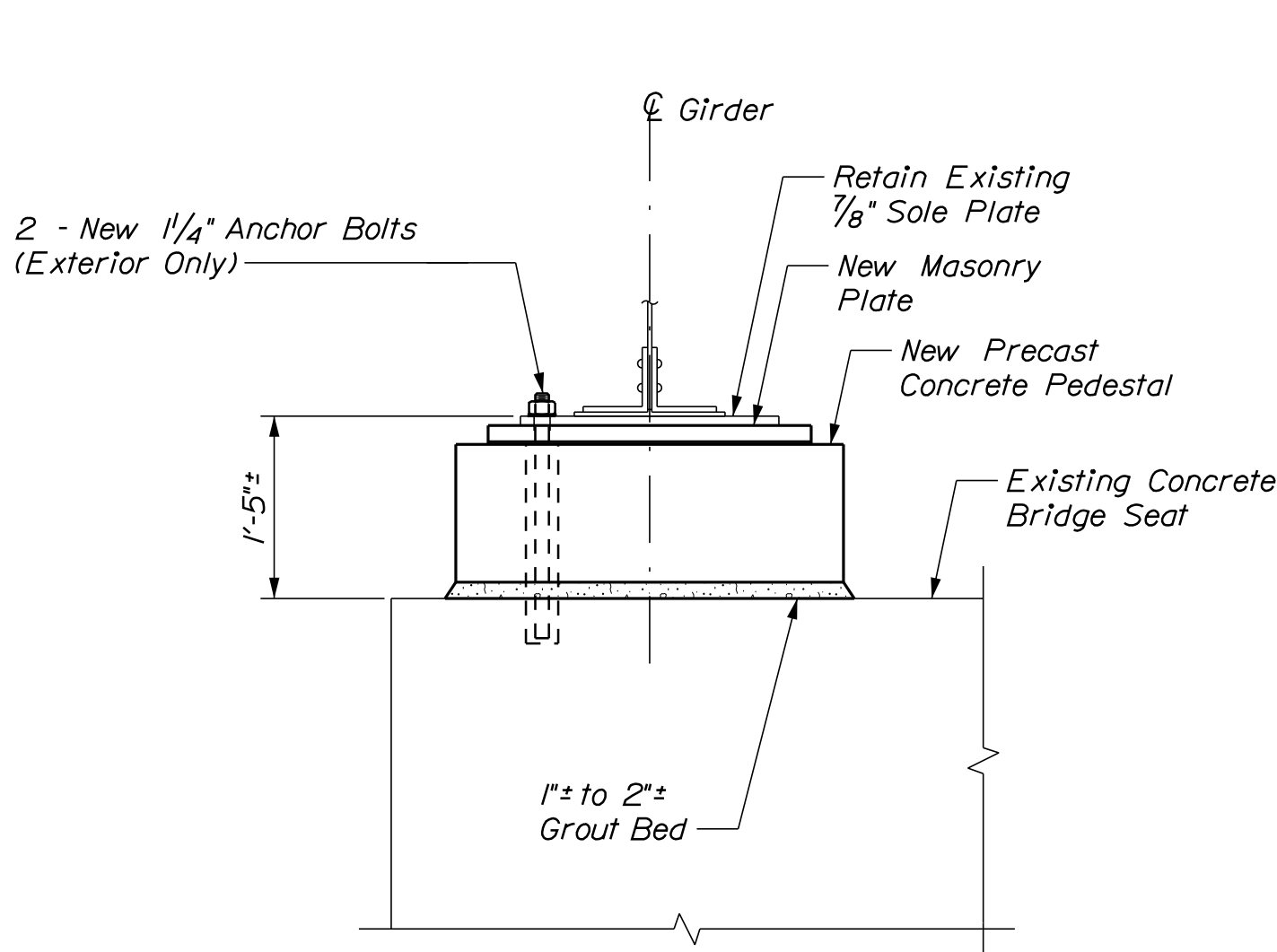
OF 74



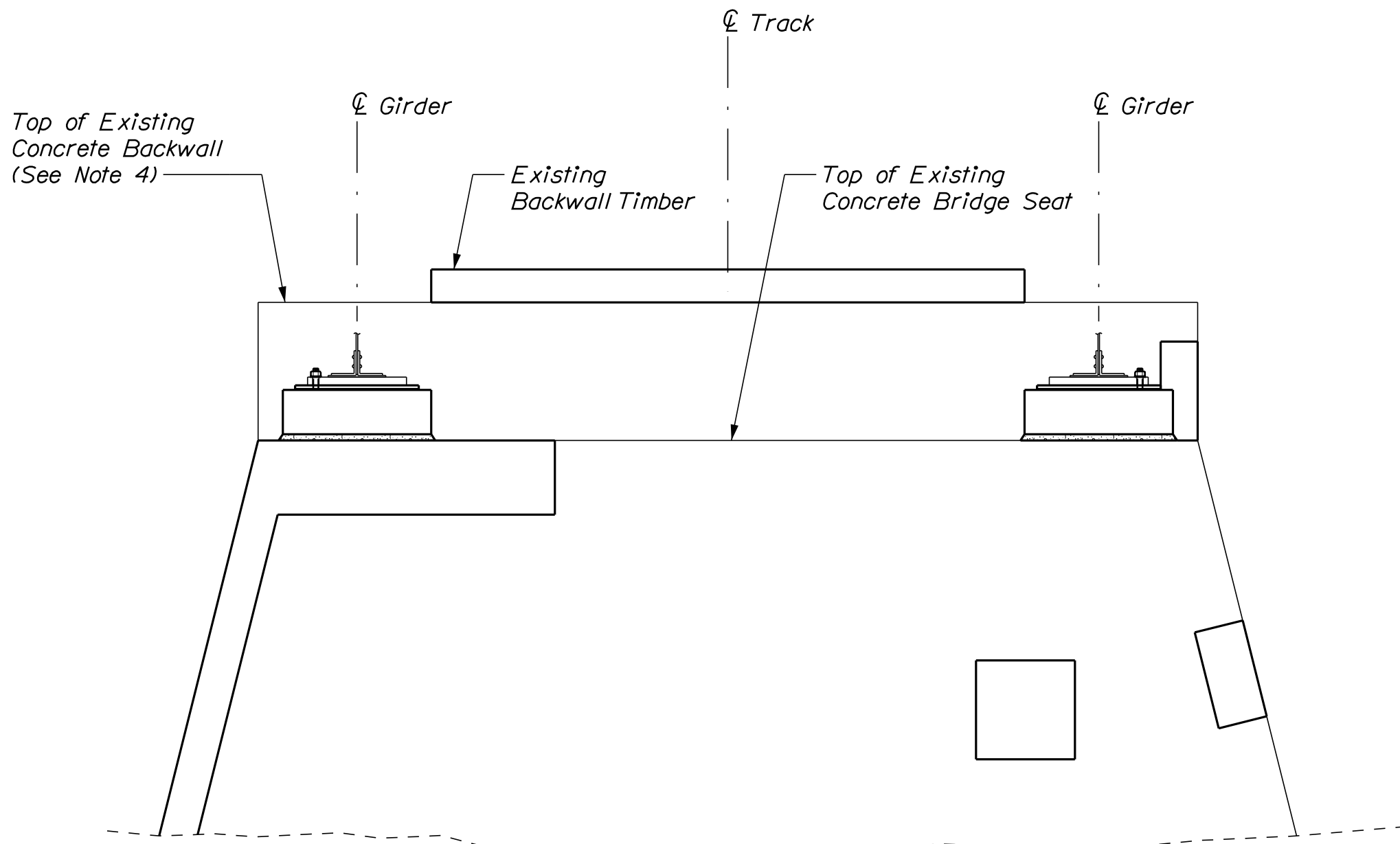
EXISTING SOUTHEAST ABUTMENT ELEVATION
(Superstructure Not Shown for Clarity)
Scale: $\frac{3}{8}" = 1'-0"$

EXISTING SOUTH ABUTMENT ELEVATION
(Superstructure Not Shown for Clarity)
Scale: $\frac{3}{8}" = 1'-0"$

EXISTING SOUTHWEST ABUTMENT ELEVATION
(Superstructure Not Shown for Clarity)
Scale: $\frac{3}{8}" = 1'-0"$



PROPOSED SOUTHEAST BEARING AND PEDESTAL DETAIL
(Southwest Similar But Opposite Hand)
(See Note 3)
Not to Scale



PROPOSED SOUTH ABUTMENT ELEVATION
(Superstructure Not Shown for Clarity)
Scale: $\frac{3}{8}" = 1'-0"$

ESTIMATED CONCRETE REPAIR QUANTITIES

Surface Patch Repair (See Note 2) 75 SF ★
★ Includes 11 SF additional repair quantity as a contingency

LEGEND

- Limit of Existing Bridge Removal
- Approximate Limits of Surface Patch Repair
- Approximate Square Footage of Surface Patch Repair (See Note 2)

NOTES

- See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.
- Where Surface Patch Repair is specified payment shall be made under Item 518.60, Repair of Vertical Surfaces < 8 inches. See Typical Repair Details (4 of 4) Sheet for Surface Patch Repair Details and Notes.
- See Bearing and Pedestal Details Sheets for Proposed Bearing and Pedestal Details and Notes.
- Partial removal of the existing backwall may be required to accommodate the new bearings and pedestals. Extent of removal shall be limited as much as possible. All cost for removal at the existing backwall shall be incidental to Contract Items.

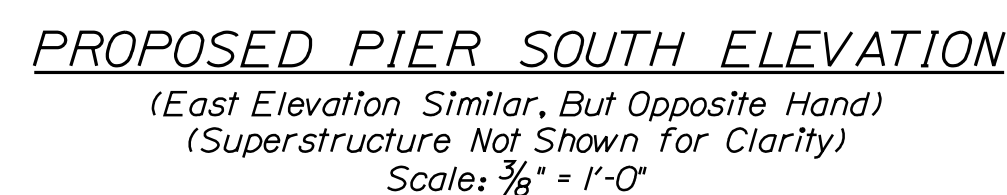
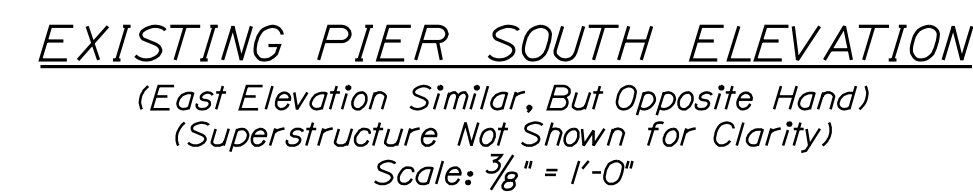
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7772
WIN 23486.00
BRIDGE PLANS

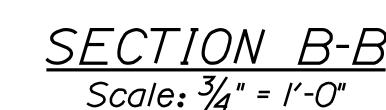
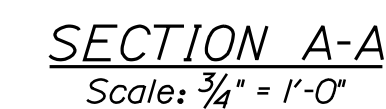
PROJ. MANAGER	DATE	BY	DATE
DESIGN-DETAILED JSM	11/2018	BY	11/2018
CHECKED-REVIEWED GSG	11/2018	BY	11/2018
DESIGN-DETAILED GSG		BY	
DESIGN-DETAILED GSG		BY	
REVISIONS 1		BY	
REVISIONS 2		BY	
REVISIONS 3		BY	
REVISIONS 4		BY	
FIELD CHANGES		BY	

MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT
BR. NO. 7772 (M.P. 139.66) OVER
W. BR. MATTA WAMKEAG (3 OF 7)

SHEET NUMBER
40
OF 74



Dimensions in these plans shall not be used for fabrication purposes. All necessary dimensions and configurations shall be determined from actual field measurements by the Contractor. See Sheets 6 of 7 and 7 of 7 for Existing Plans.

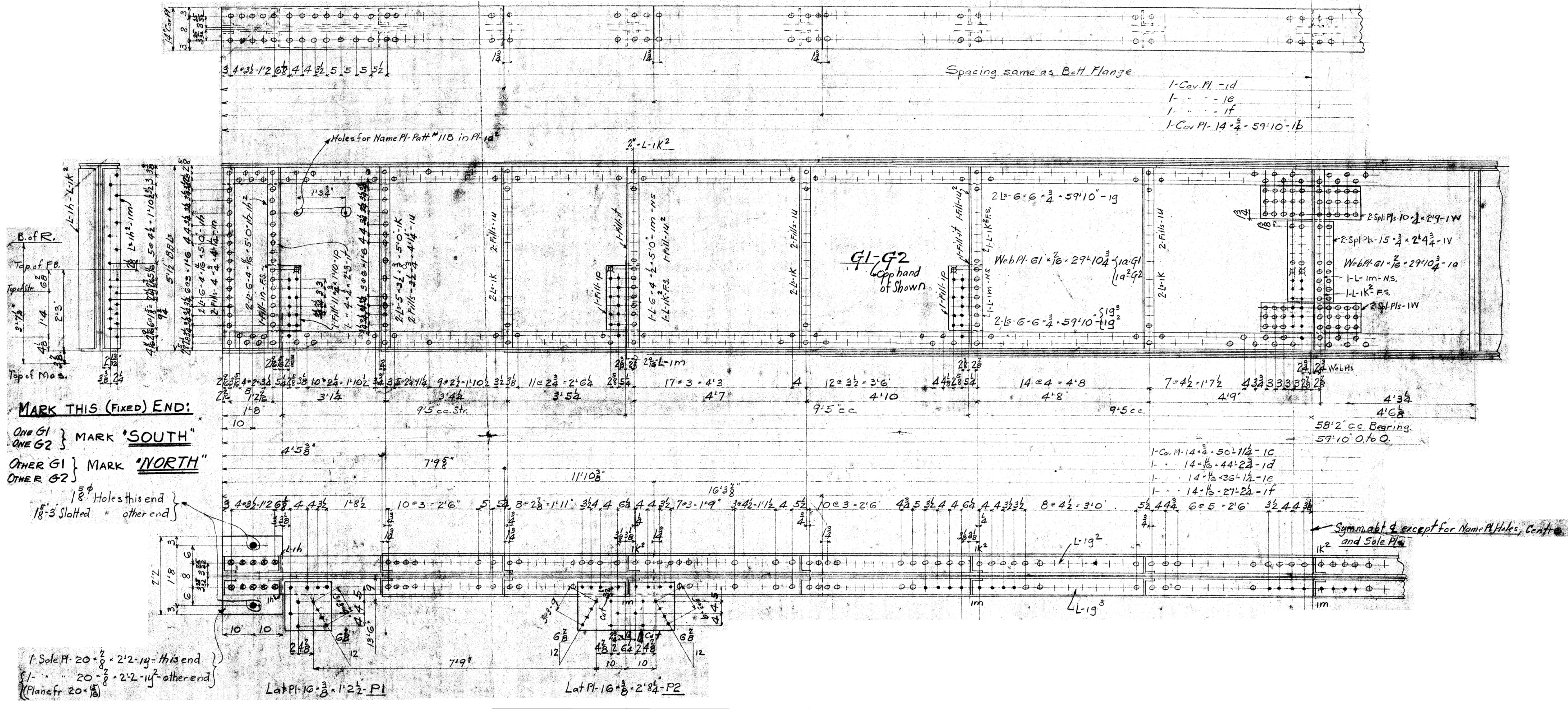


6. All labor, equipment, and material required to jack and temporarily shore the bridge during pier rehabilitation work shall be paid under Item 524.30, Temporary Support of Structure.



(1 Required)
Scale: 1" = 1'-0"

3. The Contractor shall field-measure and match the holes in the existing sole plates prior to fabrication of the new steel bolster. At the Contractor's option, the holes in the top base plate may be field drilled to ensure proper fit up.



EXISTING GIRDER HALF ELEVATION
Not to Scale

SHEET PROVIDED FOR INFORMATION ONLY

NOTES

1. See General Notes Sheet for General Bridge Construction Notes and Railroad Construction Notes.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

WIN
23486.00

BRIDGE NO. 7772
BRIDGE PLANS

MAINE RAILROAD BRIDGE
CAPACITY PROJECT - CONTRACT 2
MADAWASKA SUB. AROOSTOOK/PENOBSCOT

BR. NO. 7772 (M.P. 139.66) OVER
W. BR. MATTAWAMKEAG (6 OF 7)

DATE
11/2018
11/2018

BY
N/A
N/A

DATE REVISION
N/A
N/A

DESIGN-DETAILED
DESIGN-REVIEWED
DESIGN-DETAILED
DESIGN-REVIEWED
DESIGN-DETAILED
DESIGN-REVIEWED

REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

SHEET NUMBER

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STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 7772
BRIDGE PLANS