

PROJECT LOCATION PLAN  
NOT TO SCALE

# TOWN OF VERNON

## PLAN

### FOR THE

## REPAIR AND RESURFACING OF

### BRIDGE NO. 05240

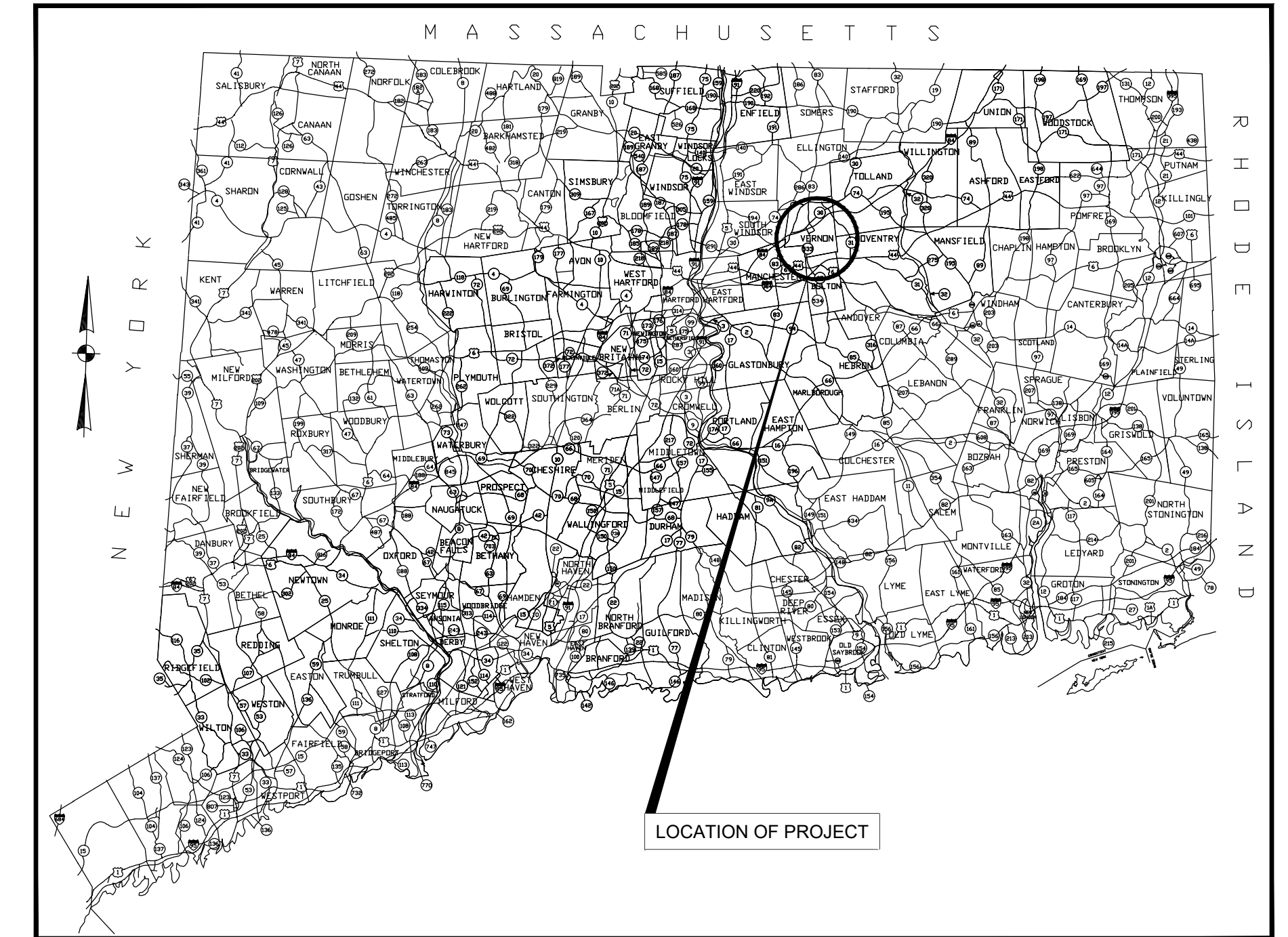
## KELLY ROAD OVER

### HOCKANUM RIVER

SCALES: AS NOTED  
TO BE MAINTAINED BY THE TOWN OF VERNON

MAYOR  
Daniel Champagne  
TOWN ADMINISTRATOR  
Michael J. Purcaro  
DIRECTOR OF PUBLIC WORKS  
Dwight Ryniewicz  
TOWN ENGINEER  
David Smith, P.E., L.S.

March 27, 2024



PROJECT VICINITY MAP  
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS: STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION FORM 818 (2020), SUPPLEMENTAL SPECIFICATIONS DATED 7/2023 AND SPECIAL PROVISIONS.

#### LIST OF DRAWINGS

SHEET NO.	TITLE	DRAWING	SHEET NO.	STANDARD DRAWINGS	FHWA APPROVAL DATE
1	TITLE SHEET	TITLE			
2	BRIDGE PLAN, SECTION & REPAIR DETAILS	PLA-01			
3-7	BRIDGE PLAN, SECTION & REPAIR DETAILS	S-1 TO S-5			

#### LIST OF DRAWING REVISIONS

SHEET NO.	DESCRIPTION	DATE	BY

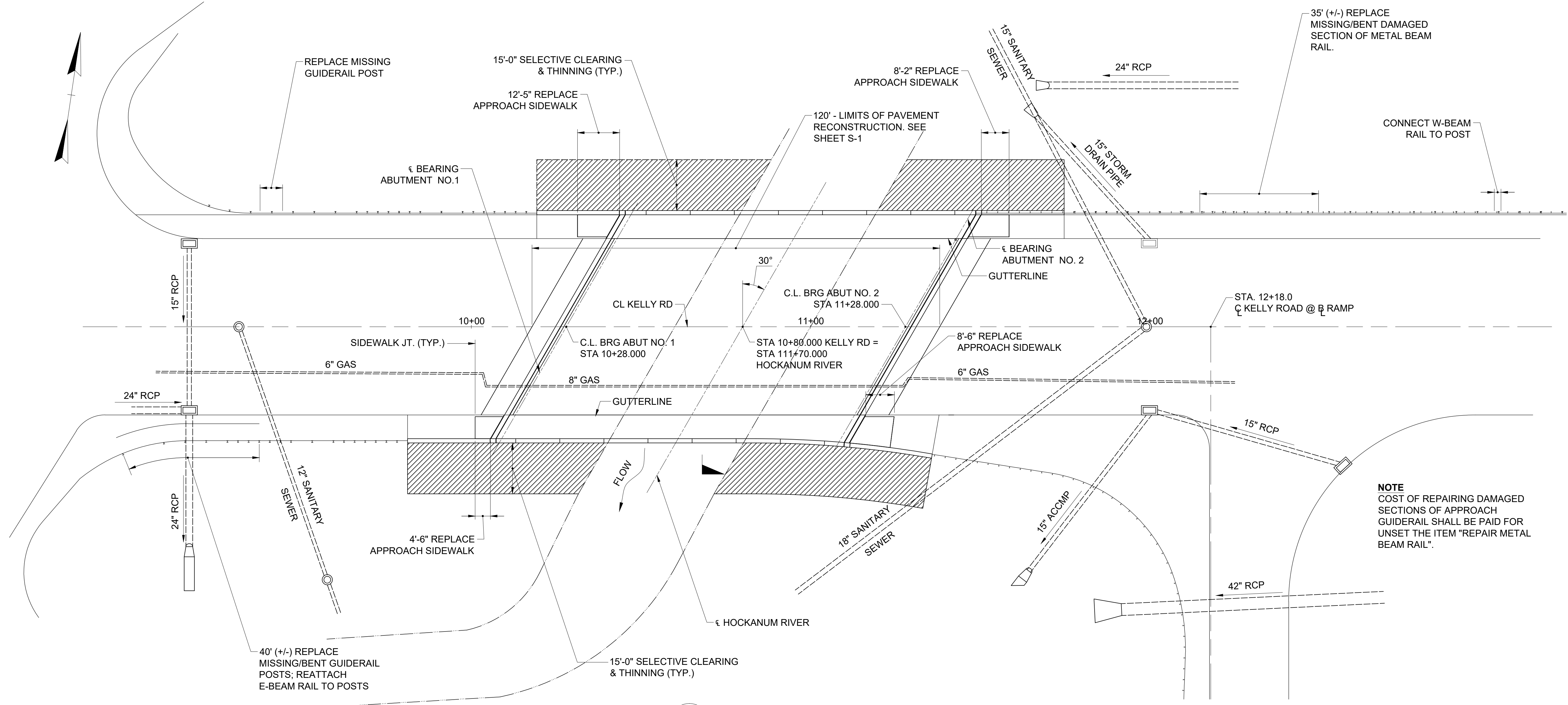


JOSEPH A. CERMOLA III, P.E., LICENSE NO. 12757

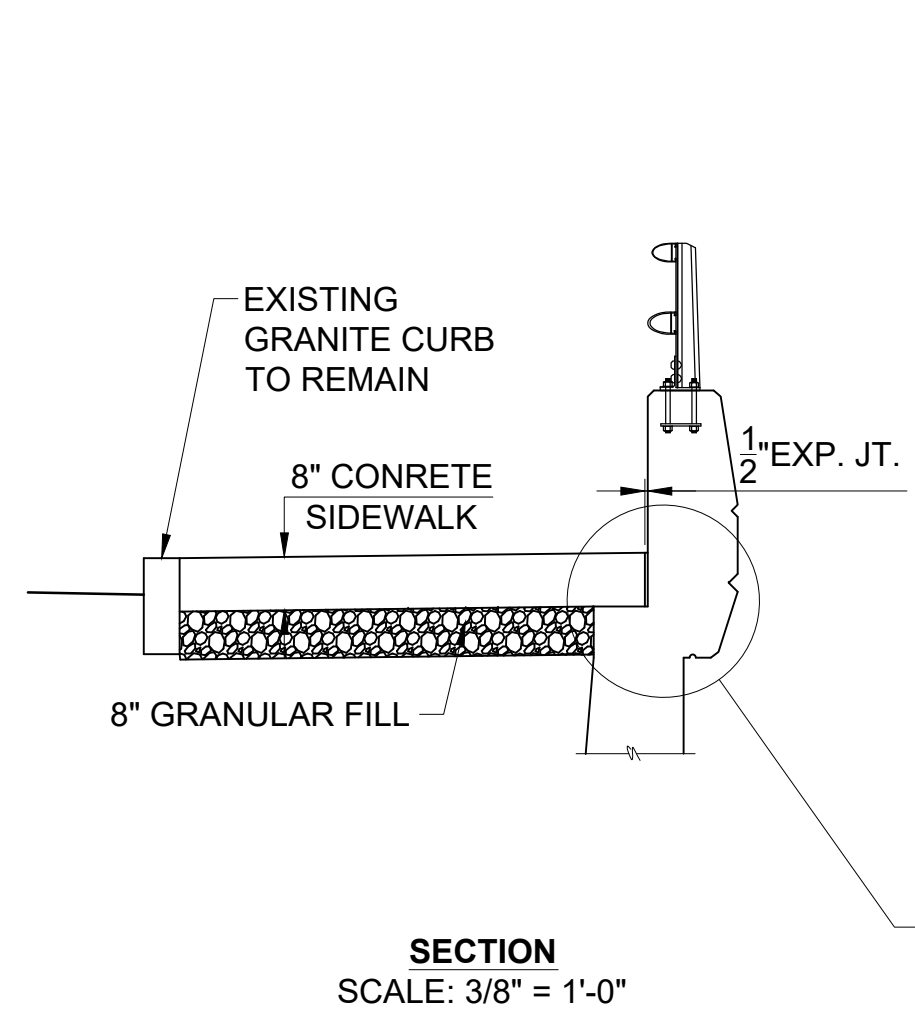
TITLE  
1

**CARDINAL**  
ENGINEERING ASSOCIATES  
180 RESEARCH PKWY/MERIDEN, CT 06450 | 203-238-1969  
457 BANTAM RD | LITCHFIELD, CT 06769 | 860-597-9306

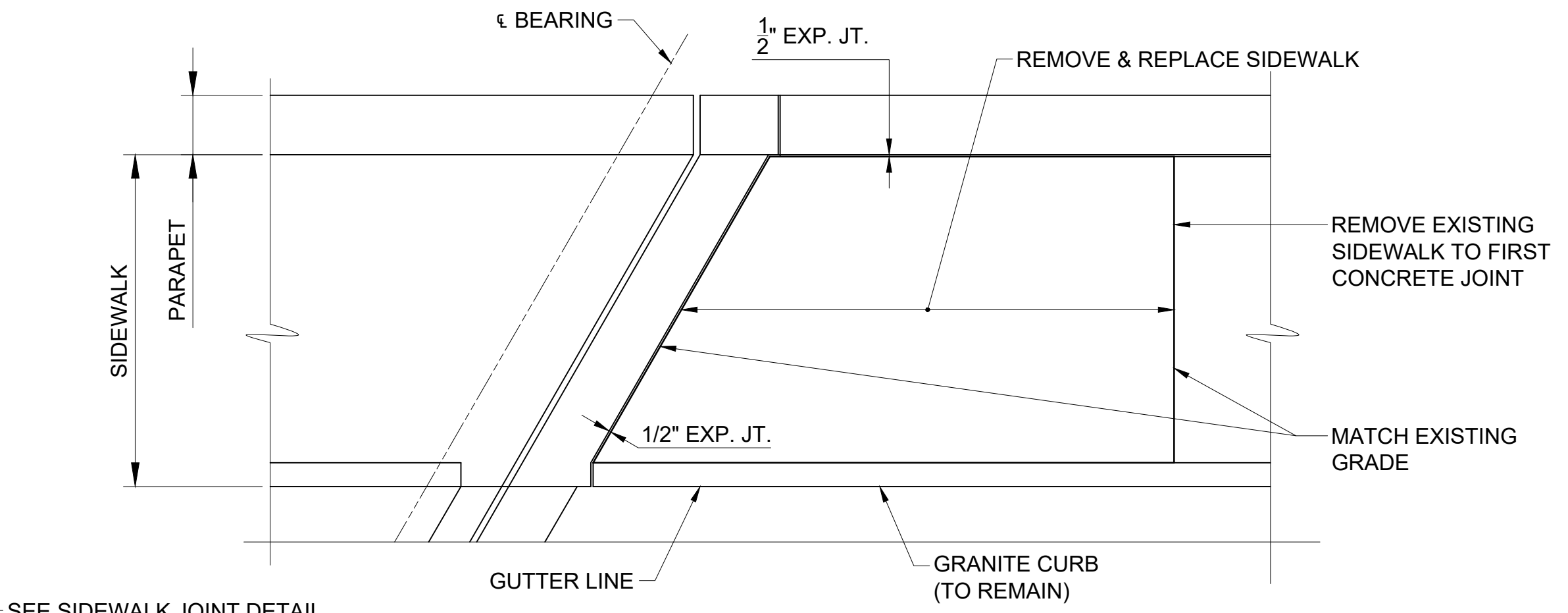




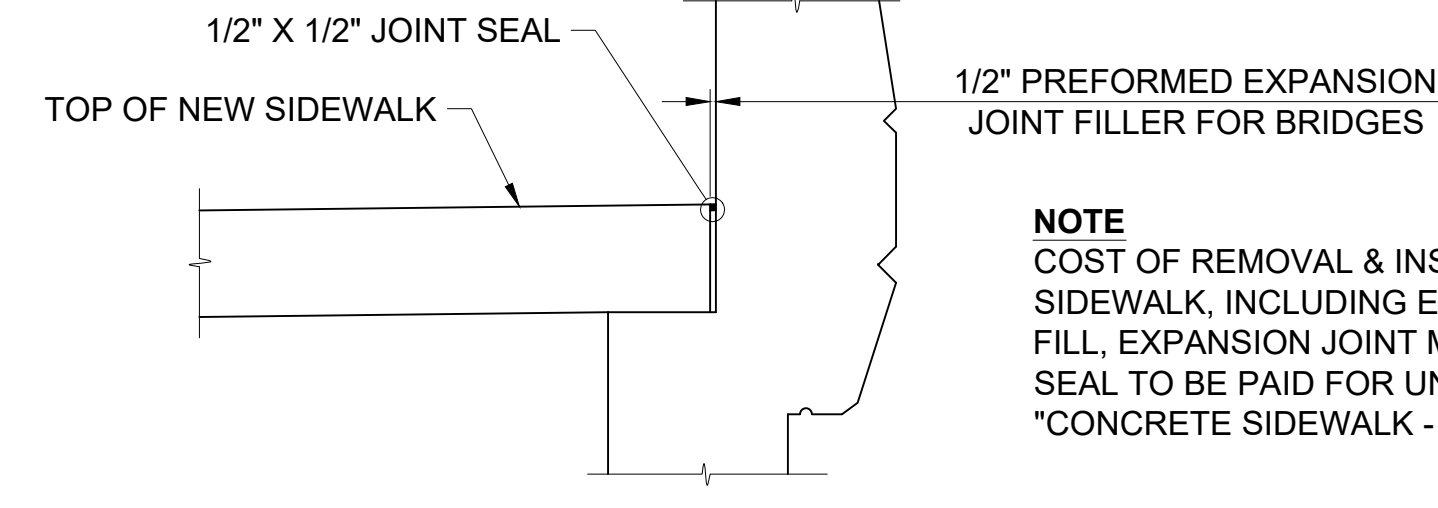
1 SITE PLAN  
 PLA-1 SCALE: 1/16" = 1'-0"



SECTION  
 SCALE: 3/8" = 1'-0"



PLAN  
 SCALE: 3/8" = 1'-0"



SIDEWALK JOINT DETAIL  
 SCALE: 3/4" = 1'-0"

**NOTE**  
 COST OF REMOVAL & INSTALLATION OF NEW SIDEWALK, INCLUDING EXCAVATION, GRANULAR FILL, EXPANSION JOINT MATERIAL, AND JOINT SEAL TO BE PAID FOR UNDER THE ITEM "CONCRETE SIDEWALK - 8" THICK".

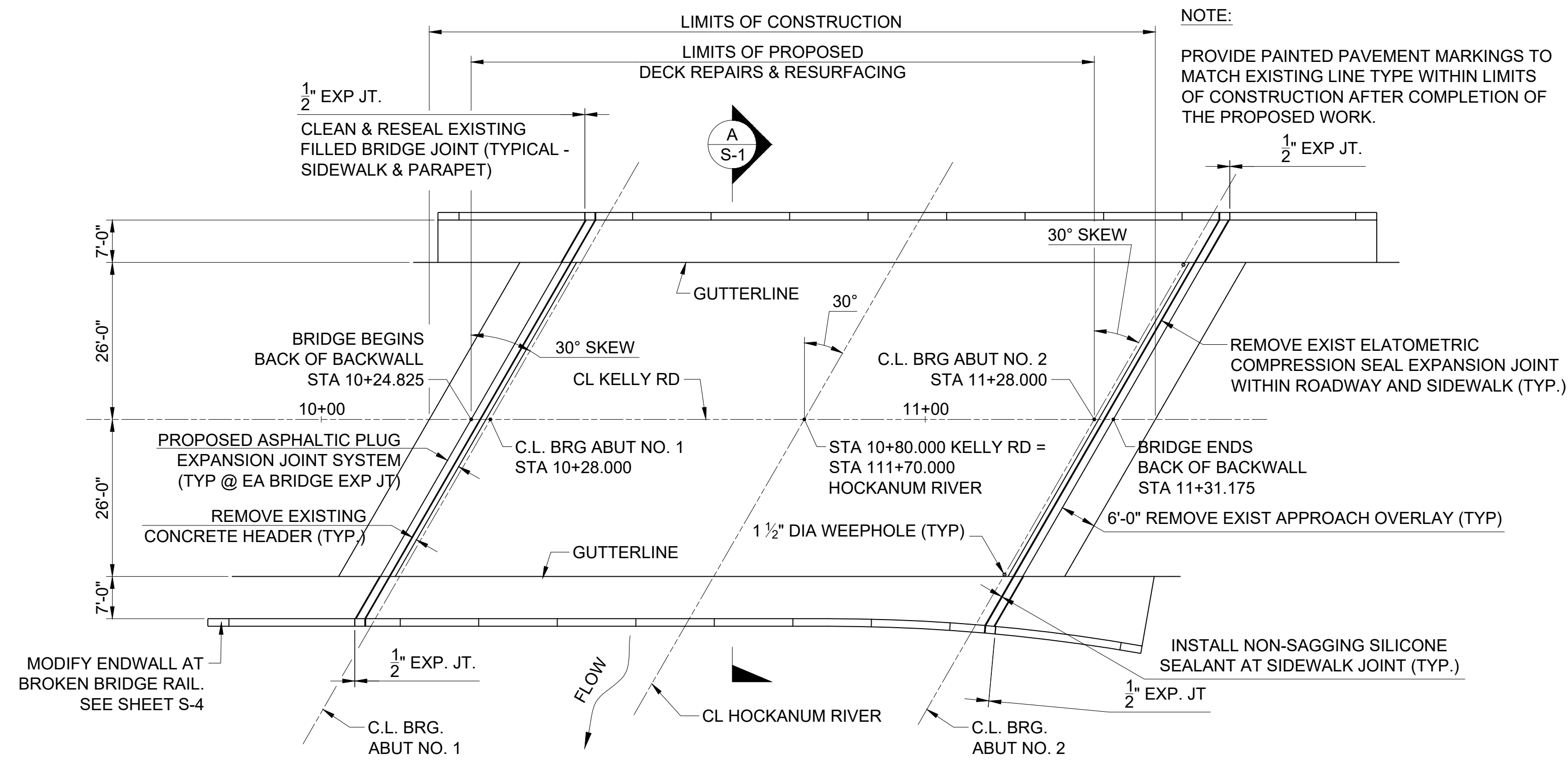
2 APPROACH SIDEWALK REPLACEMENT DETAIL  
 PLA-1

**NOTE**  
 COST OF REPAIRING DAMAGED SECTIONS OF APPROACH GUIDERAIL SHALL BE PAID FOR UNSET THE ITEM "REPAIR METAL BEAM RAIL".

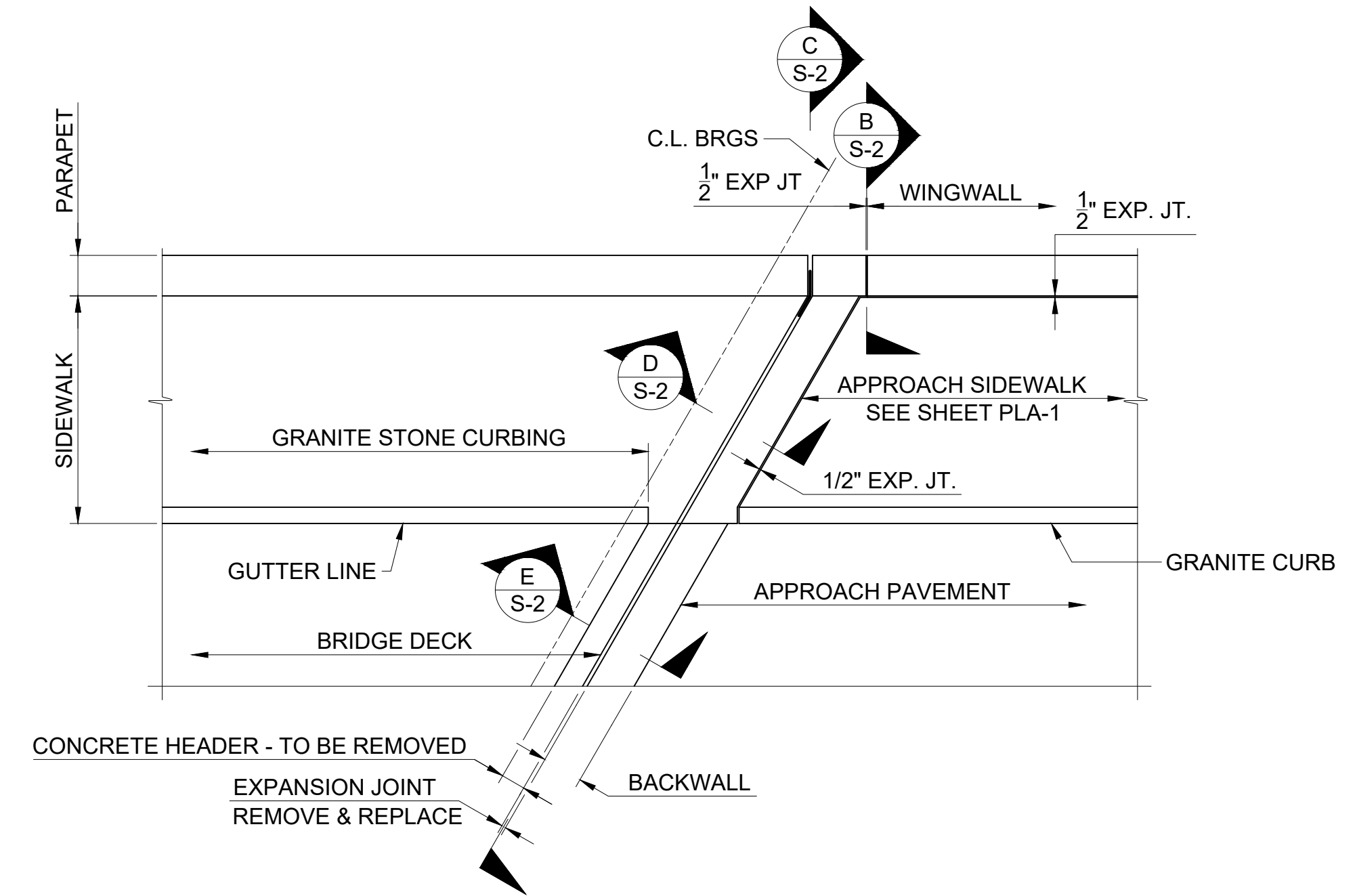
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PREPARED FOR <b>CARDINAL</b> ENGINEERING ASSOCIATES <small>475 BRIMFIELD AVENUE SUITE 200 WILMINGTON, MA 01897-1046</small>								
PREPARED BY <b>SILVA ENGINEERING, LLC</b> <small>1000 STATE STREET SUITE 400 WILMINGTON, MA 01897-1046</small>								
STATE OF CONNECTICUT JAMES J. SILVA 14633 LICENSED PROFESSIONAL ENGINEER								
TOWN OF VERNON REPAIR AND RESURFACING OF BRIDGE NO. 05240 KELLY ROAD OVER HOCKANUM RIVER BRIDGE PLAN, SECTION & REPAIR DETAILS								
2								
PLA-1								

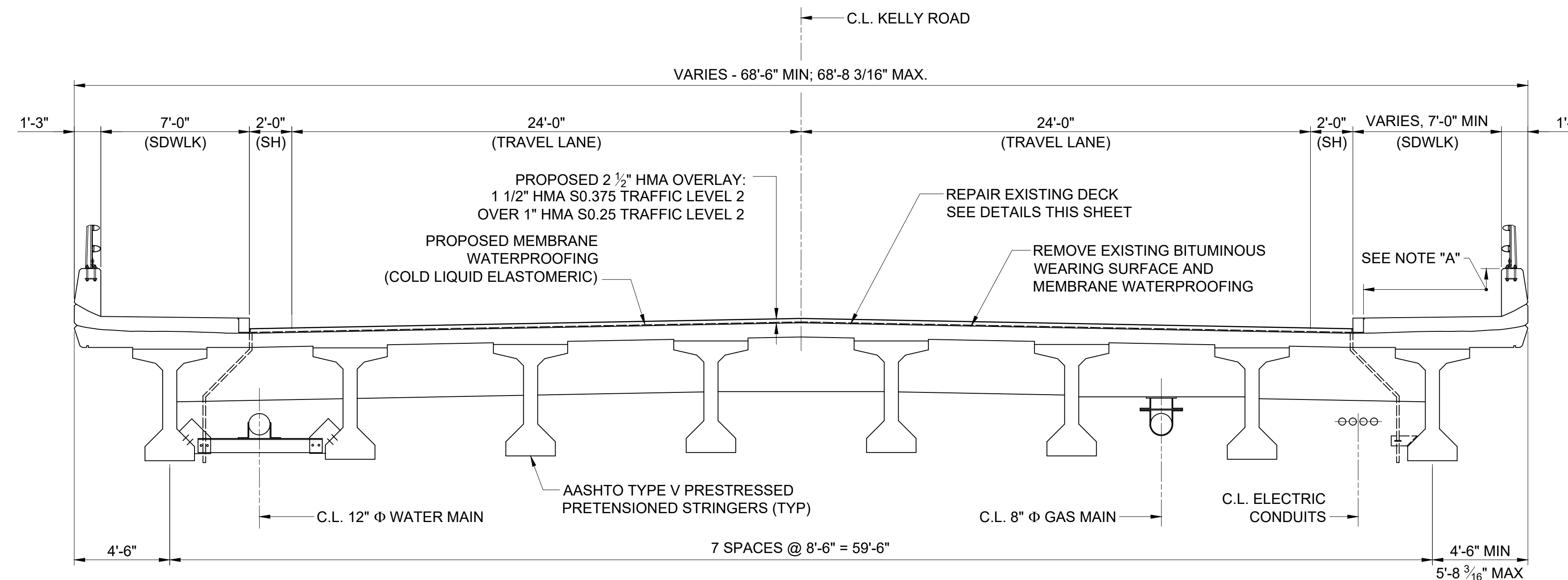




**3 BRIDGE PLAN**  
S-1 SCALE:  $\frac{1}{16}'' = 1'-0''$



**4 PARTIAL PLAN - BRIDGE DECK AT CORNER**  
S-1 SCALE:  $\frac{1}{4}'' = 1'-0''$



**A TYPICAL BRIDGE SECTION**  
S-1 SCALE:  $\frac{1}{4}'' = 1'-0''$

**SEQUENCE OF OPERATIONS - EXPANSION JOINT REPAIRS & BRIDGE DECK PATCHING:**

THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF WORK FOR EXPANSION JOINT REPAIRS AND BRIDGE DECK PATCHING A MINIMUM OF ONE (1) WEEK PRIOR TO THE PRE-CONSTRUCTION MEETING. THIS SCHEDULE OF WORK SHALL INCLUDE A SEQUENCE OF CONSTRUCTION. CONSTRUCTION SEQUENCING SHALL CONFORM TO WITH MAINTENANCE & PROTECTION OF TRAFFIC REQUIREMENTS, AND FOLLOWING:

THE PROPOSED WORK WILL PROGRESS IN A MANNER CONSISTENT WITH THE CONTRACT SPECIFICATIONS AND DRAWINGS. DETAILED CONSTRUCTION SEQUENCING IS THE RESPONSIBILITY OF THE CONTRACTOR. FOR THE PURPOSES OF THIS PLAN, THE PROJECT SHALL PROCEED IN A GENERAL MANNER CONSISTENT WITH THE FOLLOWING:

1. MODIFICATION OF EXISTING CONCRETE HEADERS AT EXPANSION JOINTS.
2. REMOVAL OF EXISTING HMA WEARING SURFACE AND MEMBRANE WATERPROOFING.
3. DECK PATCHING.
4. INSTALLATION OF NEW MEMBRANE WATERPROOFING AND BITUMINOUS WEARING SURFACE.
5. INSTALLATION OF ASPHALTIC PLUG EXPANSION JOINT.
6. CLEANING & RESEALING JOINTS.

**GENERAL NOTES:**

**SPECIFICATIONS:** ALL CONSTRUCTION MATERIALS & METHODS SHALL CONFORM WITH THE TOWN OF VERNON REQUIREMENTS AND WITH THE APPLICABLE SECTIONS OF THE CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION FOR ROADS, BRIDGES AND INCIDENTAL CONSTRUCTION, FORM 818 (2020) INCLUDING SUPPLEMENTAL SPECIFICATIONS DATED JULY 2022, AND SPECIAL PROVISIONS.

**FUTURE PAVING ALLOWANCE:** NONE

**HMA OVERLAY:** THIS SHALL CONSIST OF TWO LIFTS. THE FIRST SHALL BE HMA S 0.25 TRAFFIC LEVEL 2 (1" THICK) AND THE SECOND SHALL BE HMA S 0.375 TRAFFIC LEVEL 2 (1-1/2" THICK).

**DIMENSIONS:** DIMENSIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THEY HAVE BEEN TAKEN FROM THE ORIGINAL DESIGN DRAWINGS, AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY.

**NOTES**

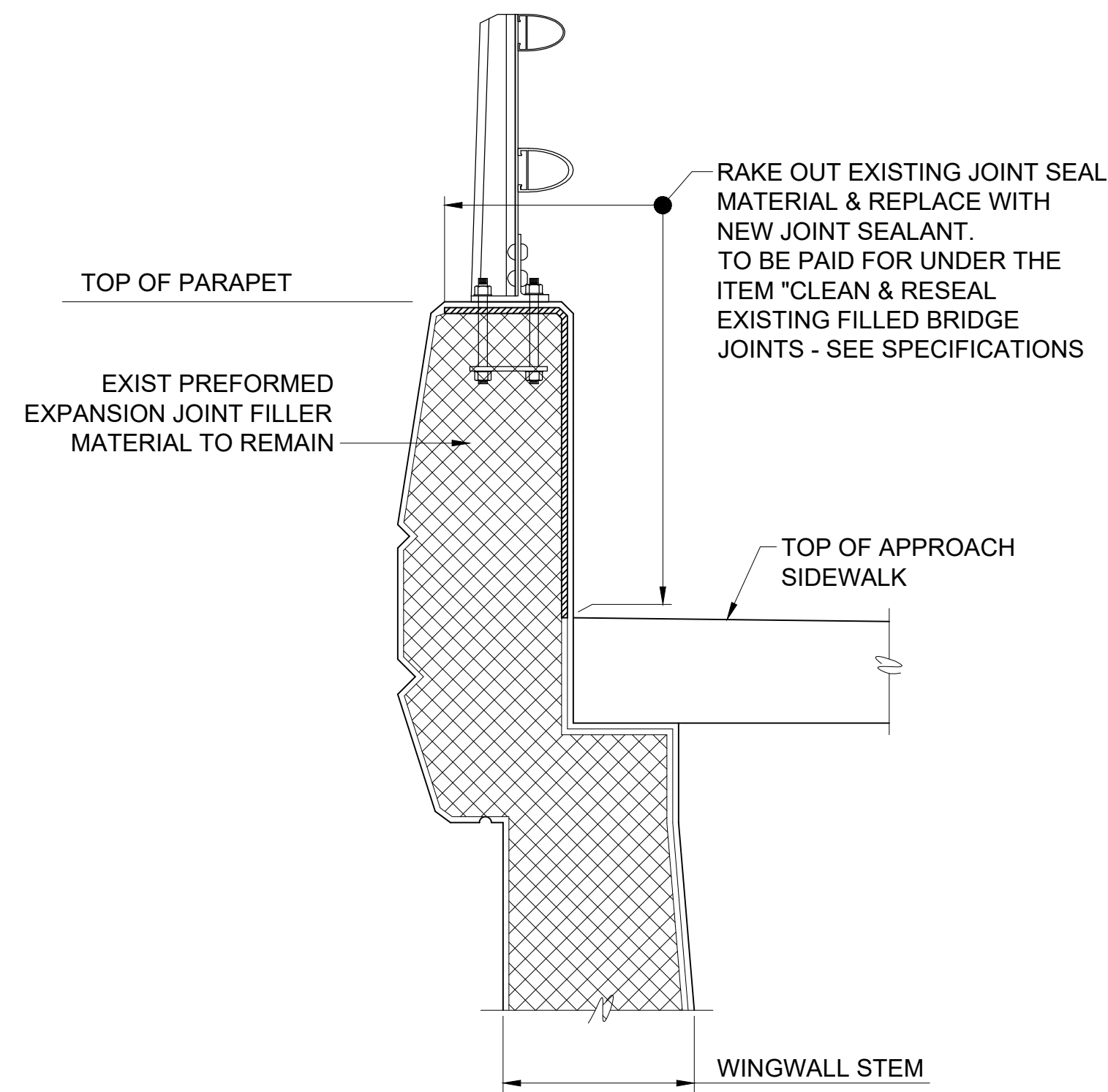
1. REMOVE CONCRETE HEADERS AT PIERS CONCURRENTLY WITH THE REMOVAL OF THE BRIDGE DECK WEARING SURFACE TO MAINTAIN A SMOOTH TRAVEL SURFACE ACROSS THE BRIDGE.
2. PROVIDE AN ANTI-SKID BROADCAST ON THE MEMBRANE WATERPROOFING AND LIMIT THE TIME THAT THE MEMBRANE IS EXPOSED PRIOR TO INSTALLING BITUMINOUS WEARING SURFACE TO NO MORE THAN FIVE DAYS.

**NOTE "A"**  
CLEAN PARAPET & SIDEWALK SURFACES. APPLY "PENETRATING SEALER PROTECTIVE COMPOUND" (TYP.)

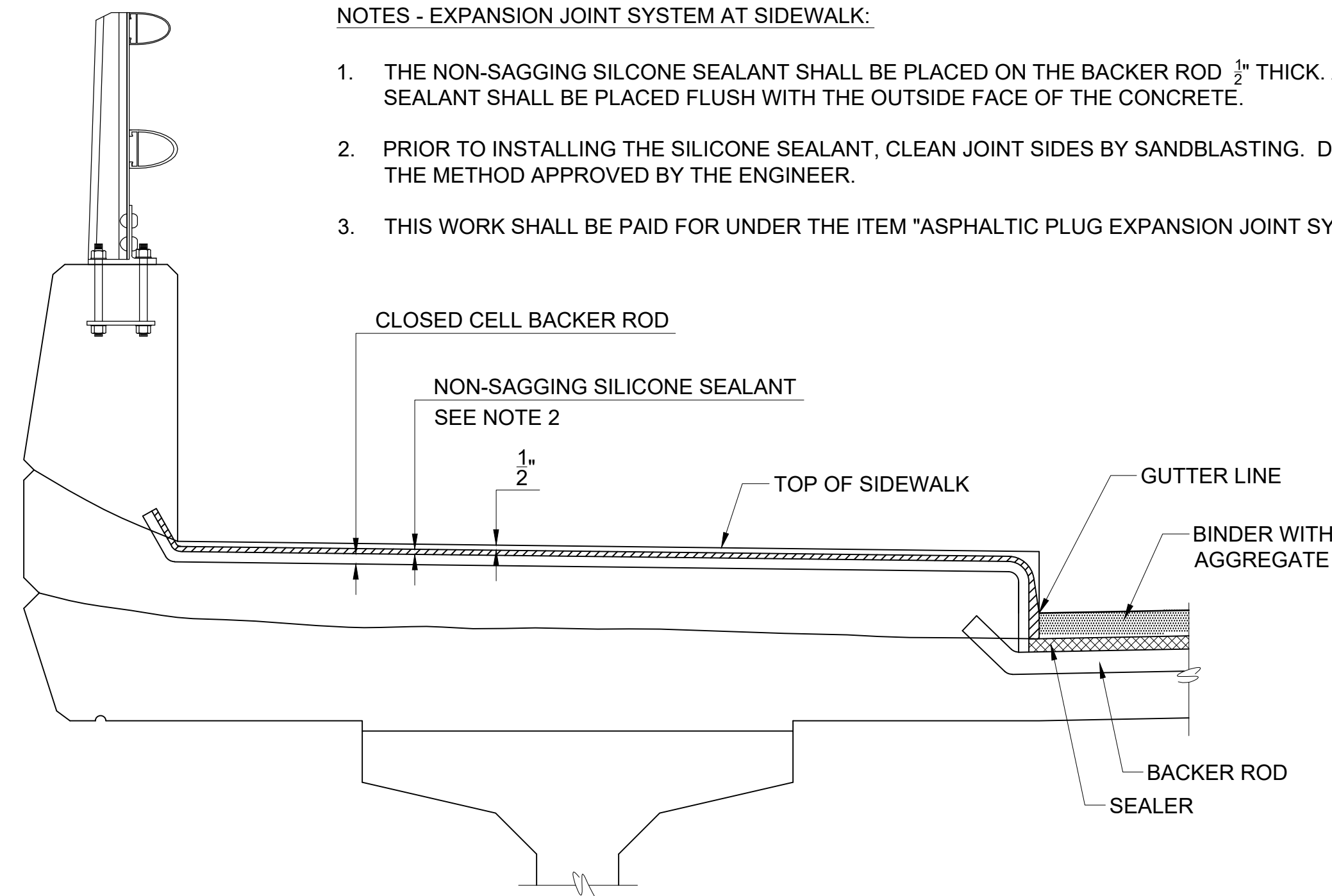
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<b>TOWN OF VERNON</b> REPAIR AND RESURFACING OF BRIDGE NO. 05240 KELLY ROAD OVER HOCKANUM RIVER BRIDGE PLAN, SECTION & REPAIR DETAILS							
3							
S-1							

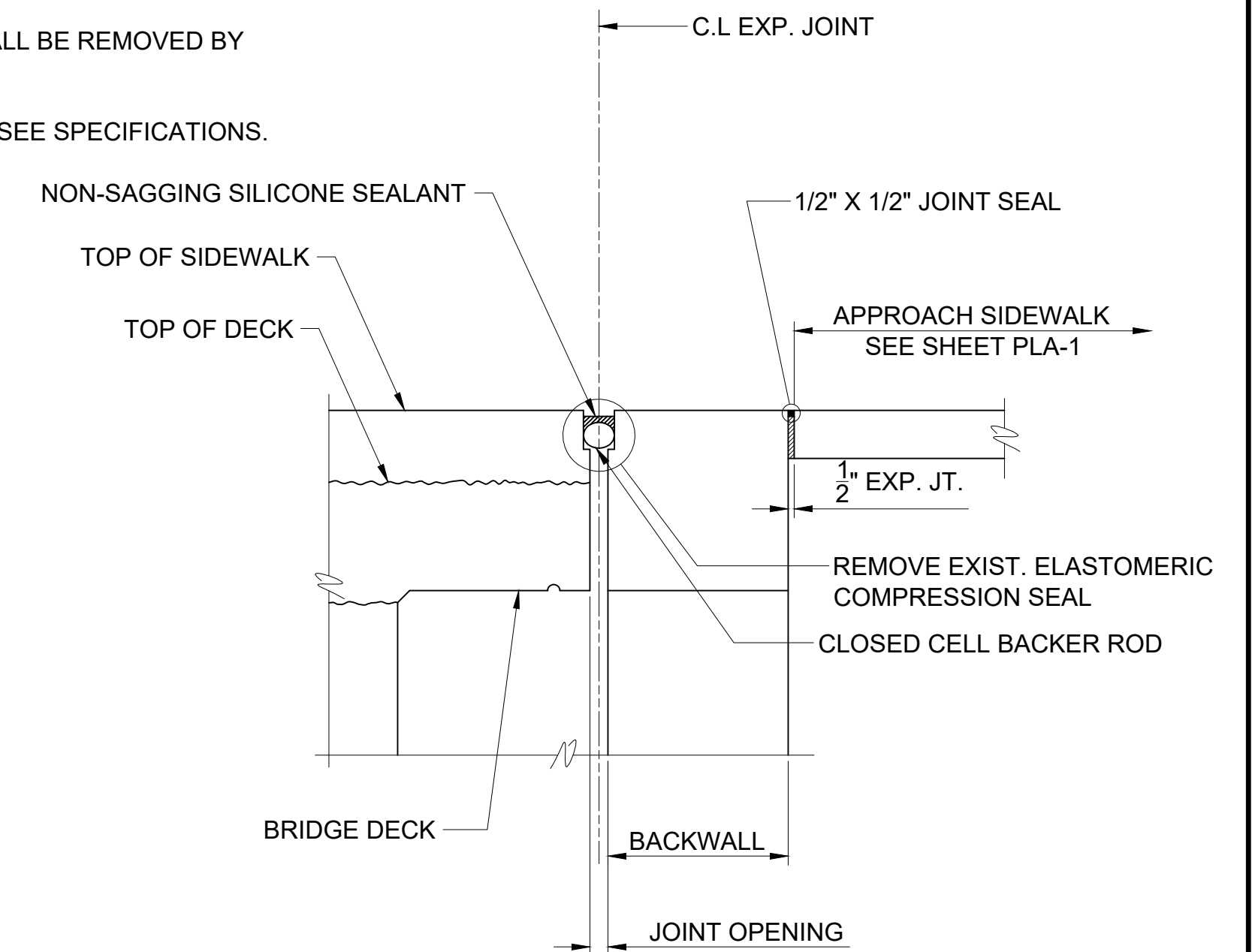




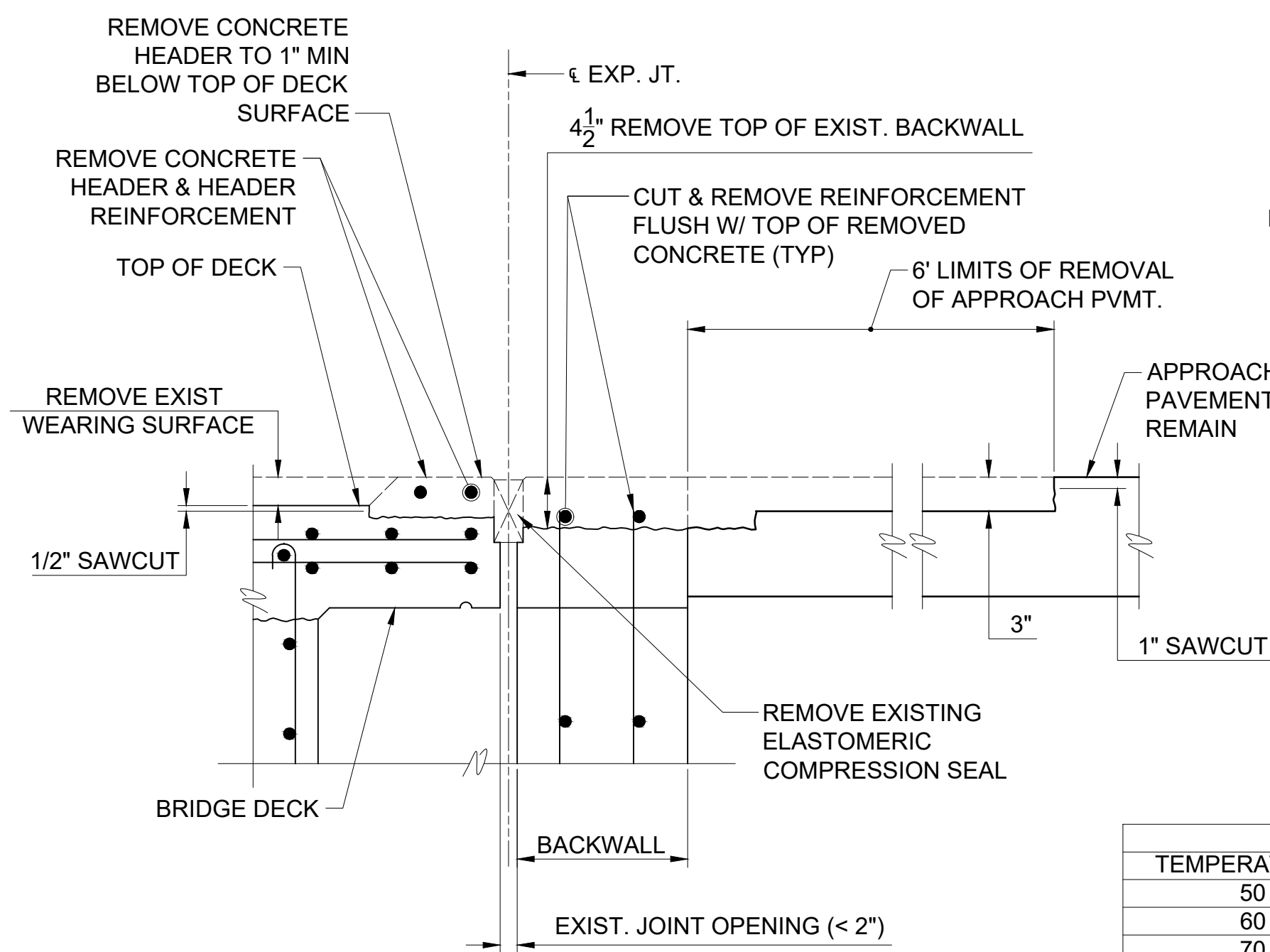
**B**  
S-2 SECTION  
SCALE: 1" = 1'-0"



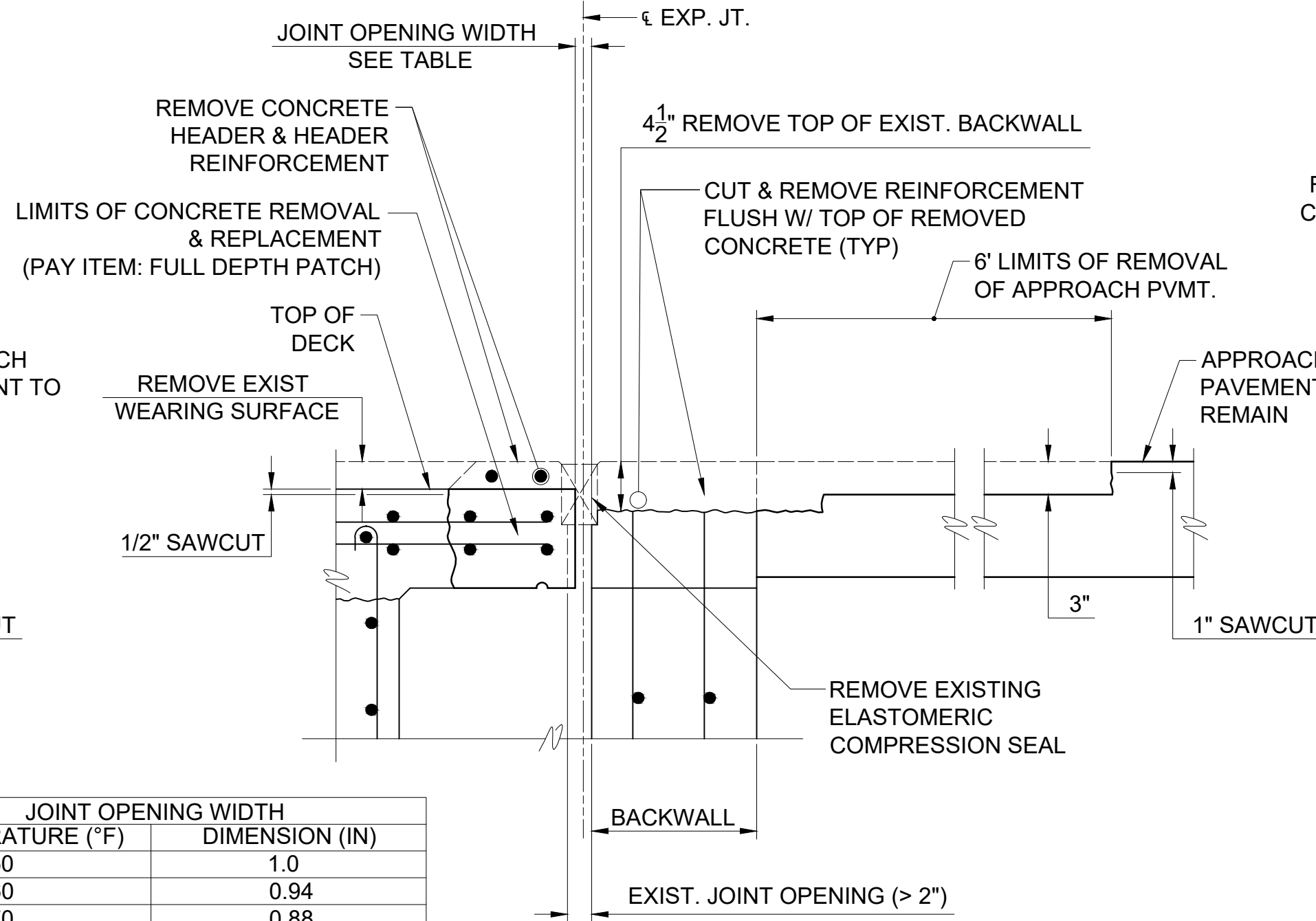
**C**  
S-2 SECTION - EXPANSION JOINT TREATMENT AT SIDEWALK  
SCALE: 1" = 1'-0"



**D**  
S-2 SECTION THRU EXPANSION JOINT AT SIDEWALK  
SCALE: 1" = 1'-0"

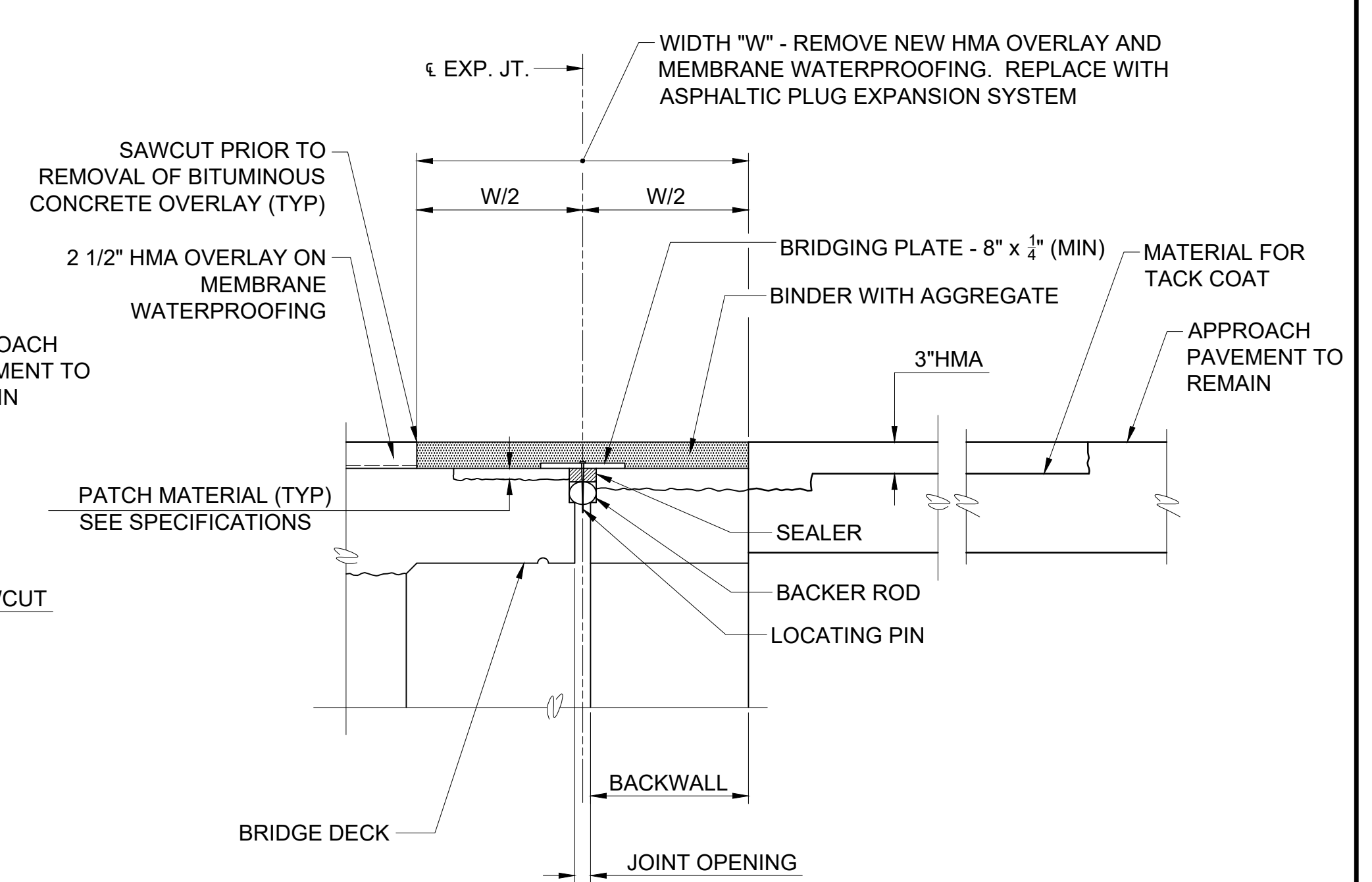


EXISTING CONDITION  
JOINT OPENING LESS THAN 2"



EXISTING CONDITION  
JOINT OPENING GREATER THAN 2"

JOINT OPENING WIDTH	
TEMPERATURE (°F)	DIMENSION (IN)
50	1.0
60	0.94
70	0.88
80	0.82
90	0.77



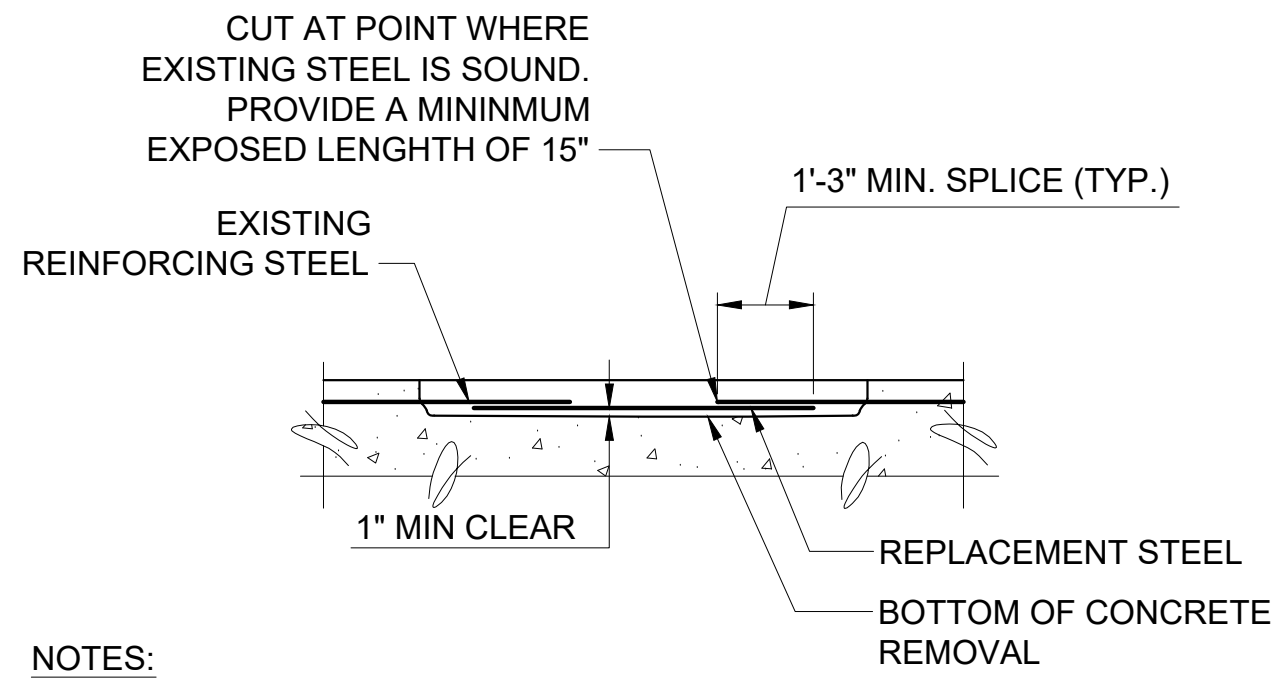
PROPOSED JOINT DETAIL

NOTES - REMOVE & REPLACE EXISTING EXPANSION JOINT SYSTEM:

1. WORK SHALL INCLUDE REMOVAL OF EXISTING EXPANSION JOINT SYSTEM, MODIFICATION OF EXISTING HEADER AND BACKWALL, AND THE INSTALLATION OF NEW ASPHALTIC PLUG EXPANSION JOINT ALONG THE ROADWAY, AND SILICONE JOINT SEALANT ALONG THE SIDEWALK, AS SHOWN (SEE SPECIFICATIONS)
2. REMOVAL AND PATCHING OF DETERIORATED CONCRETE BEYOND THE LIMITS SHOWN FOR REMOVAL OF EXIST CONC. HEADER SHALL BE PAID FOR UNDER THE ITEMS "PARTIAL DEPTH PATCH" OR "FULL DEPTH PATCH", WHICHEVER APPLIES.

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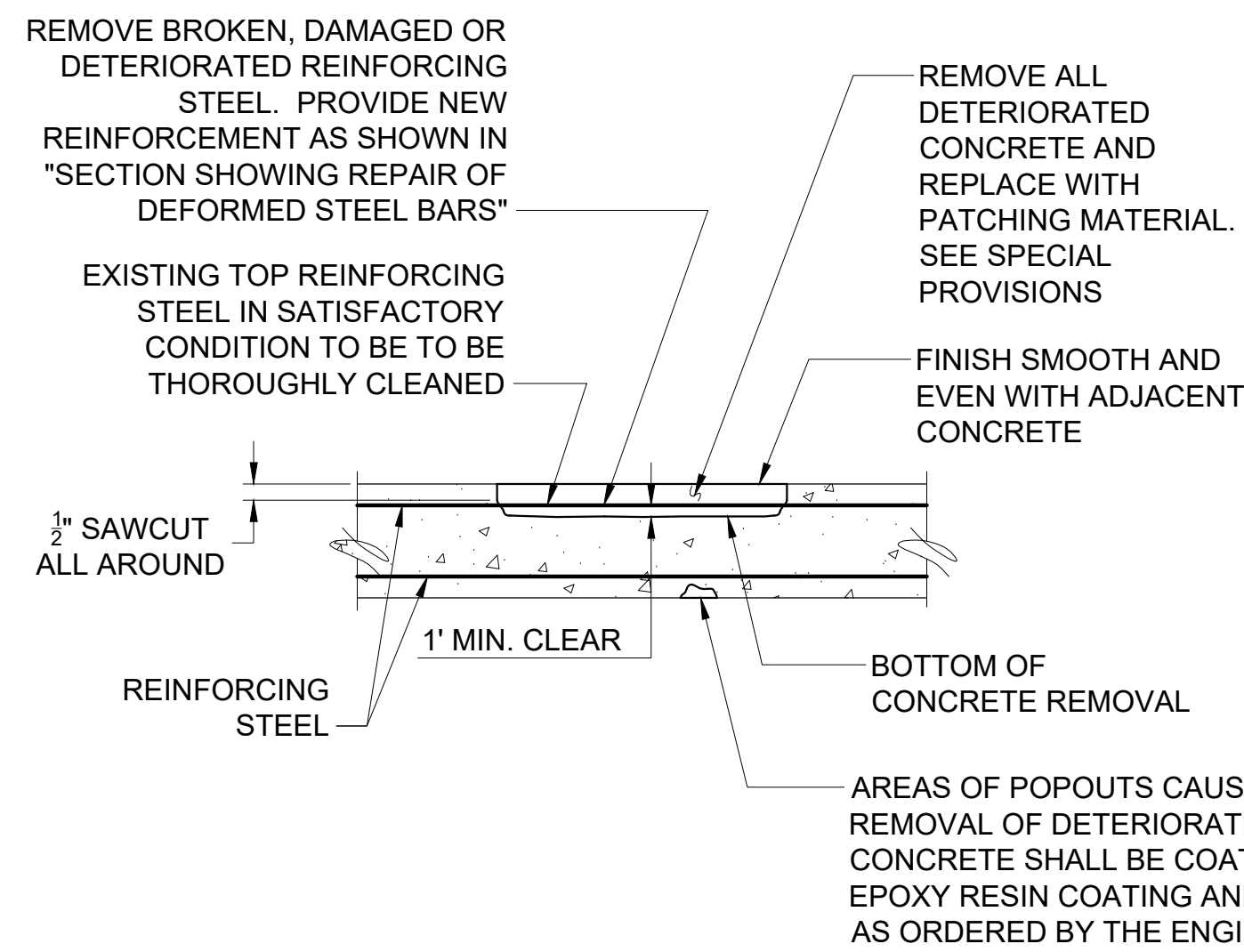
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<b>CARDINAL</b> ENGINEERING ASSOCIATES 475 WASHINGTON STREET, SUITE 400, BOSTON, MA 02111 TEL: 617.552.1100 FAX: 617.552.1101									
PREPARED BY: <b>SILVA ENGINEERING, LLC</b> 1000 WASHINGTON STREET, SUITE 400, BOSTON, MA 02111 TEL: 617.552.1100 FAX: 617.552.1101									
STATE OF CONNECTICUT PROFESSIONAL ENGINEER 14633 LICENSED									
<b>TOWN OF VERNON</b> REPAIR AND RESURFACING OF BRIDGE NO. 05240 KELLY ROAD OVER HOCKANUM RIVER BRIDGE PLAN, SECTION & REPAIR DETAILS									
4									
S-2									



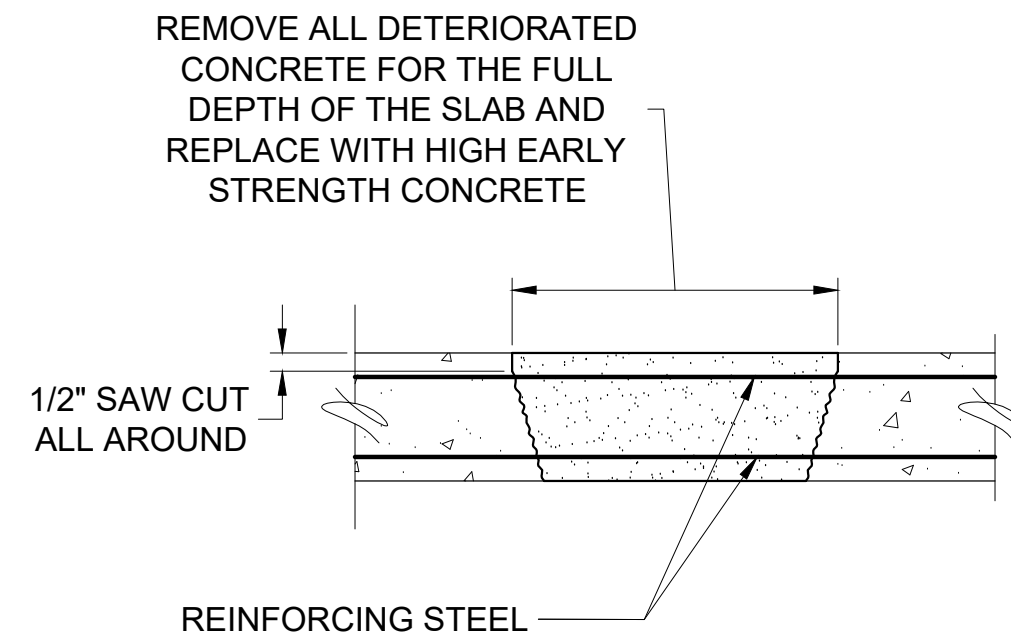
**NOTES:**

1. DETAIL MAY APPLY FOR FULL DEPTH PATCH OR PARTIAL DEPTH PATCH
2. ADDITIONAL CONCRETE REMOVAL REQUIRED FOR THE REPAIR OF THE REINFORCING SHALL BE PAID FOR UNDER THE ITEM FOR FULL DEPTH PATCH OR PARTIAL DEPTH PATCH WHICHEVER CONDITION APPLIES

**SECTION SHOWING REPAIR OF DEFORMED STEEL BARS**



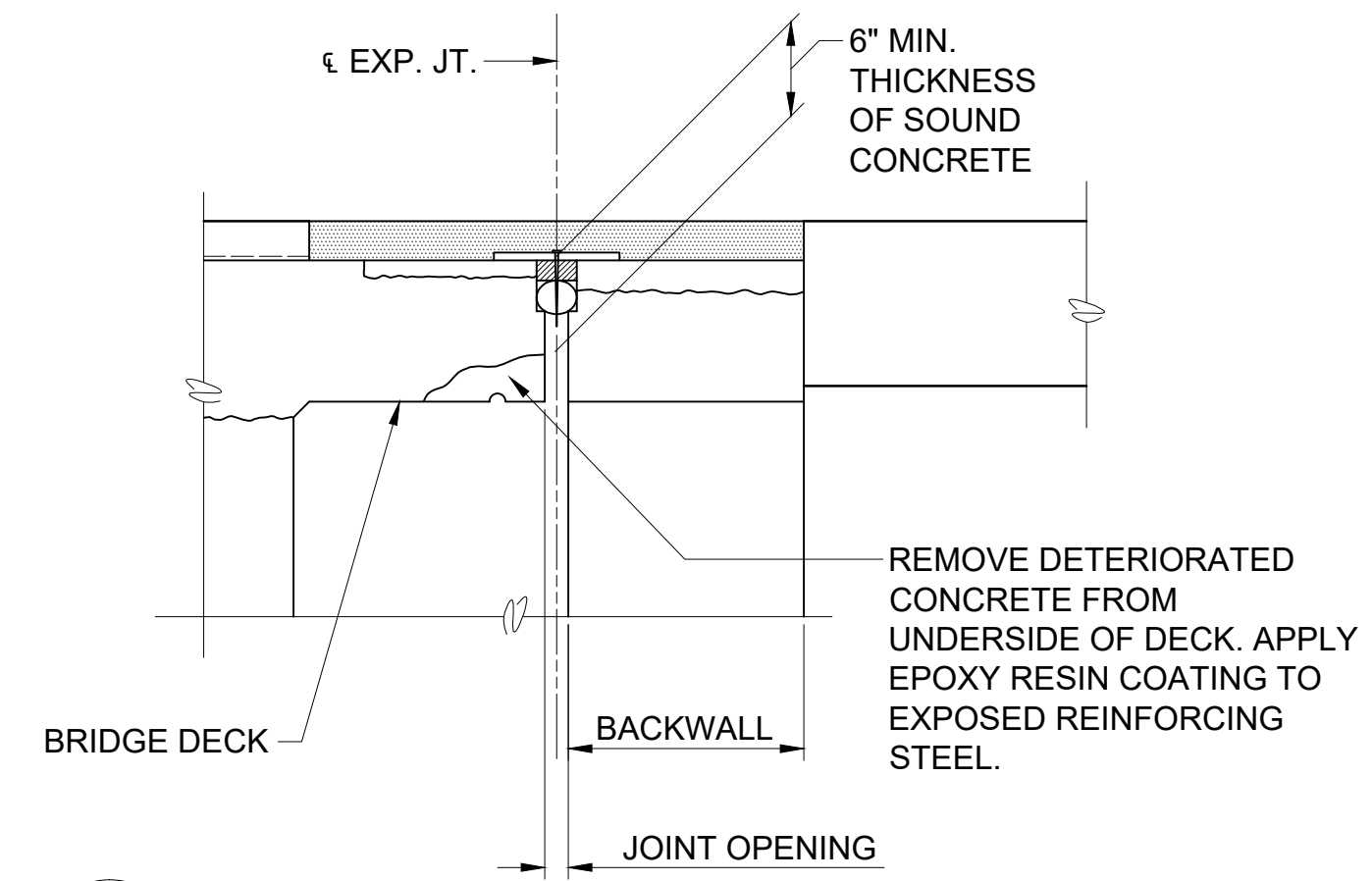
**PARTIAL DEPTH PATCH**



**FULL DEPTH PATCH**

**DECK REPAIR NOTES:**

1. DECK REPAIR DETAILS SHOWN HERE SHALL BE BASED ON AN EVALUATION OF THE CONDITION OF THE DECK AFTER REMOVAL OF THE EXISTING WEARING SURFACE. AREAS TO BE REPAIRED, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER
2. IF REMOVAL OF DETERIORATED CONCRETE FOR "PARTIAL DEPTH PATCH" EXCEEDS TWO-THIRDS OF THE TOTAL THICKNESS OF THE SLAB, PERFORM "FULL DEPTH PATCH". FINAL PAYMENT SHALL BE MADE FOR "FULL DEPTH PATCH ONLY" ONLY.
3. DO NOT USE PNEUMATIC HAMMERS OR OTHER VIBRATORY EQUIPMENT IN DIRECT CONTACT WITH EXISTING PRESTRESSED PRETENSIONED STRINGERS.
4. PROTECT ALL EXISTING UTILITIES DURING DECK REPAIR OPERATIONS.

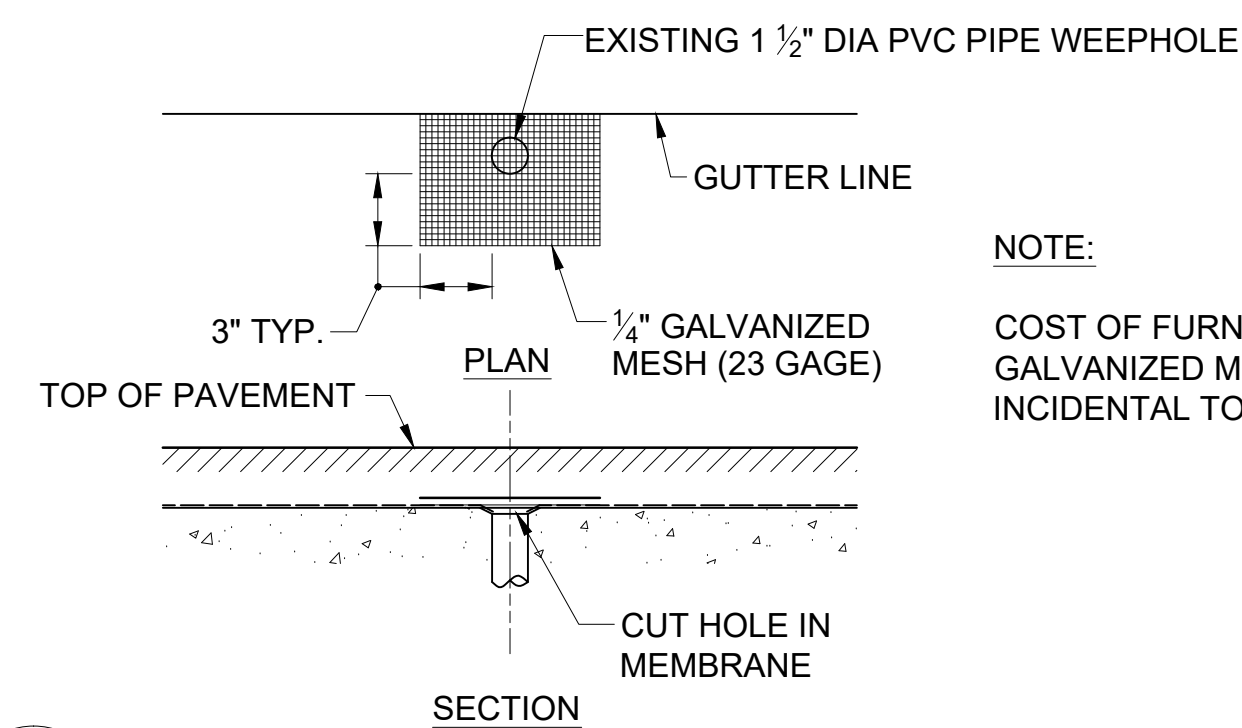


**6 UNDERSIDE OF DECK REPAIR AT EXP. JOINTS**  
S-3 NOT TO SCALE

**UNDERSIDE OF DECK REPAIR NOTES**

1. REPAIR APPLIES WHEN THICKNESS OF REMAINING SOUND CONCRETE AT EDGE OF JOINT IS GREATER THAN 6". IF THICKNESS OF REMAINING SOUND CONCRETE IS LESS THAN 6" REPAIR USING "FULL DEPTH PATCH (HIGH EARLY STRENGTH CONCRETE)".
2. REMOVAL OF DETERIORATED CONCRETE ON UNDERSIDE OF DECK AND APPLICATION OF EPOXY RESIN COATING SHALL BE PAID FOR UNDER THE ITEM FOR "CLEAN AND COAT EXPOSED REINFORCING STEEL".

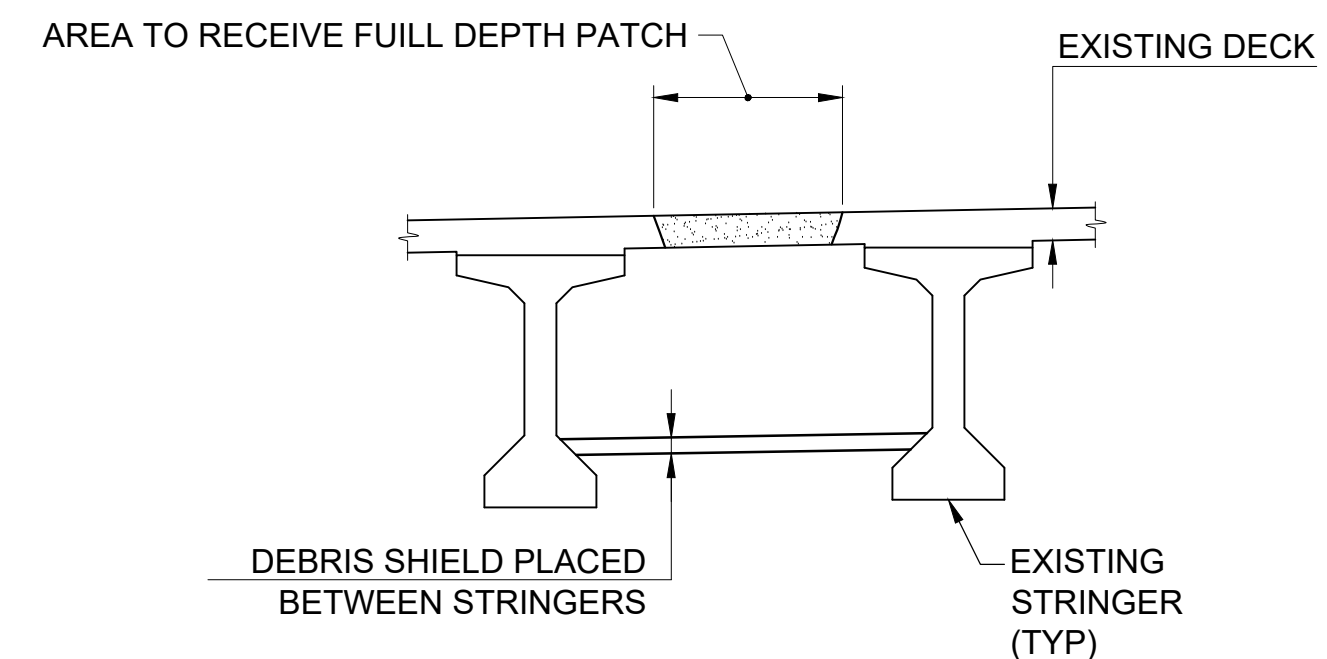
**5 DECK REPAIR DETAILS**  
S-3 NOT TO SCALE



**NOTE:**

COST OF FURNISHING AND INSTALLING GALVANIZED MESH SHALL BE INCIDENTAL TO THE PROJECT.

**7 TREATMENT OF MEMBRANE WATERPROOFING AT WEEPHOLES**  
S-3 SCALE: 1 1/2" = 1'-0"



**DEBRIS SHIELD NOTES:**

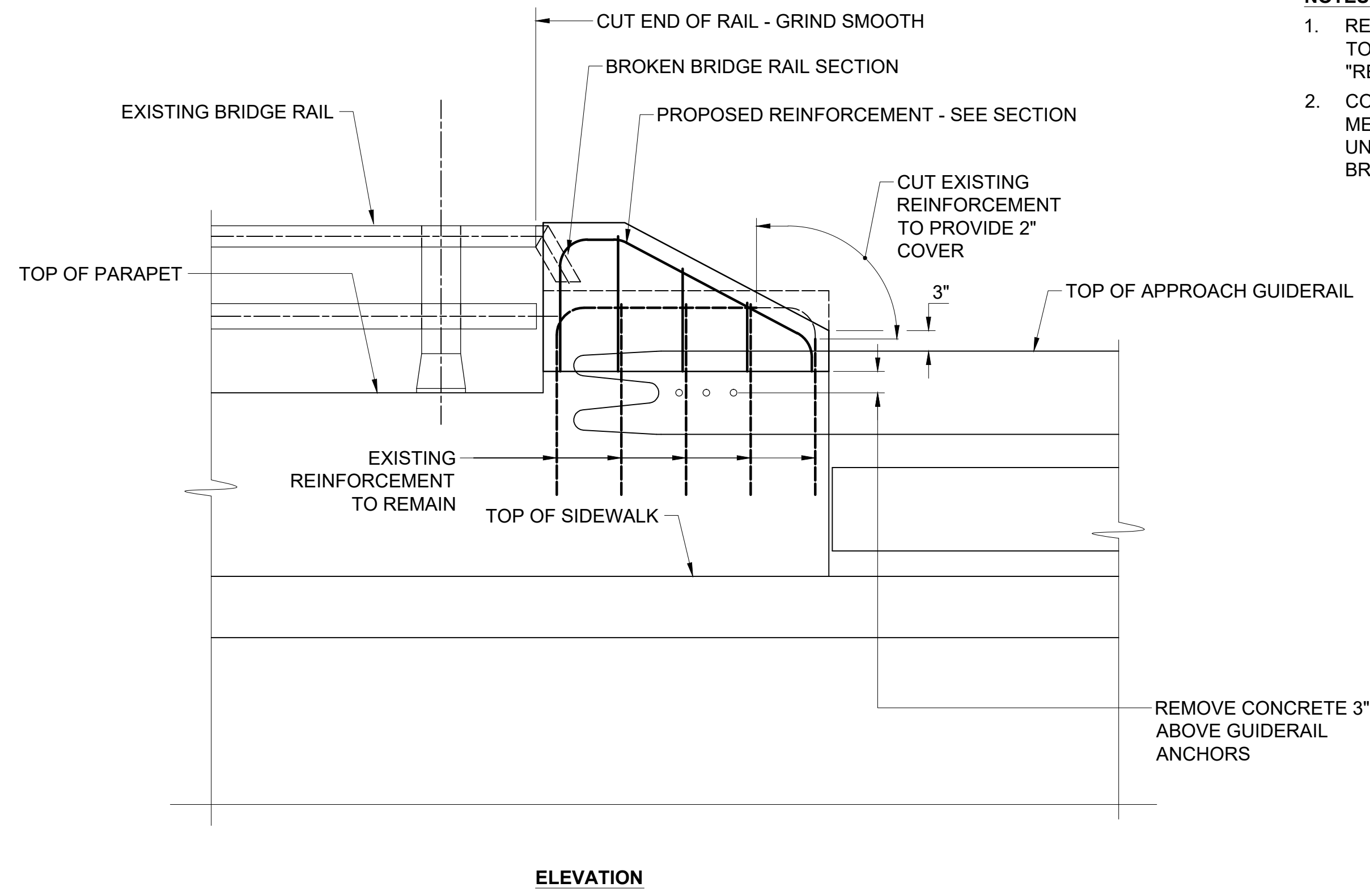
1. DEBRIS SHIELD REQUIRED FOR FULL DEPTH PATCHING OPERATIONS.
2. DEBRIS SHIELD WILL BE DESIGNED BY THE CONTRACTOR SO AS TO PREVENT ANY MATERIALS FROM FALLING ON REGULATED WETLANDS AND WATERCOURSES BELOW.
3. CONTRACTOR SHALL SUBMIT HIS PROPOSED METHOD OF PROVIDING DEBRIS SHIELD TO THE ENGINEER FOR REVIEW AND APPROVAL.
4. COST OF FURNISHING, INSTALLING, AND REMOVING DEBRIS SHIELD TO BE INCLUDED UNDER THE ITEM "FULL DEPTH PATCH."

**8 DEBRIS SHIELD FOR FULL DEPTH PATCH**  
S-3 SCALE: 1/4" = 1'-0"

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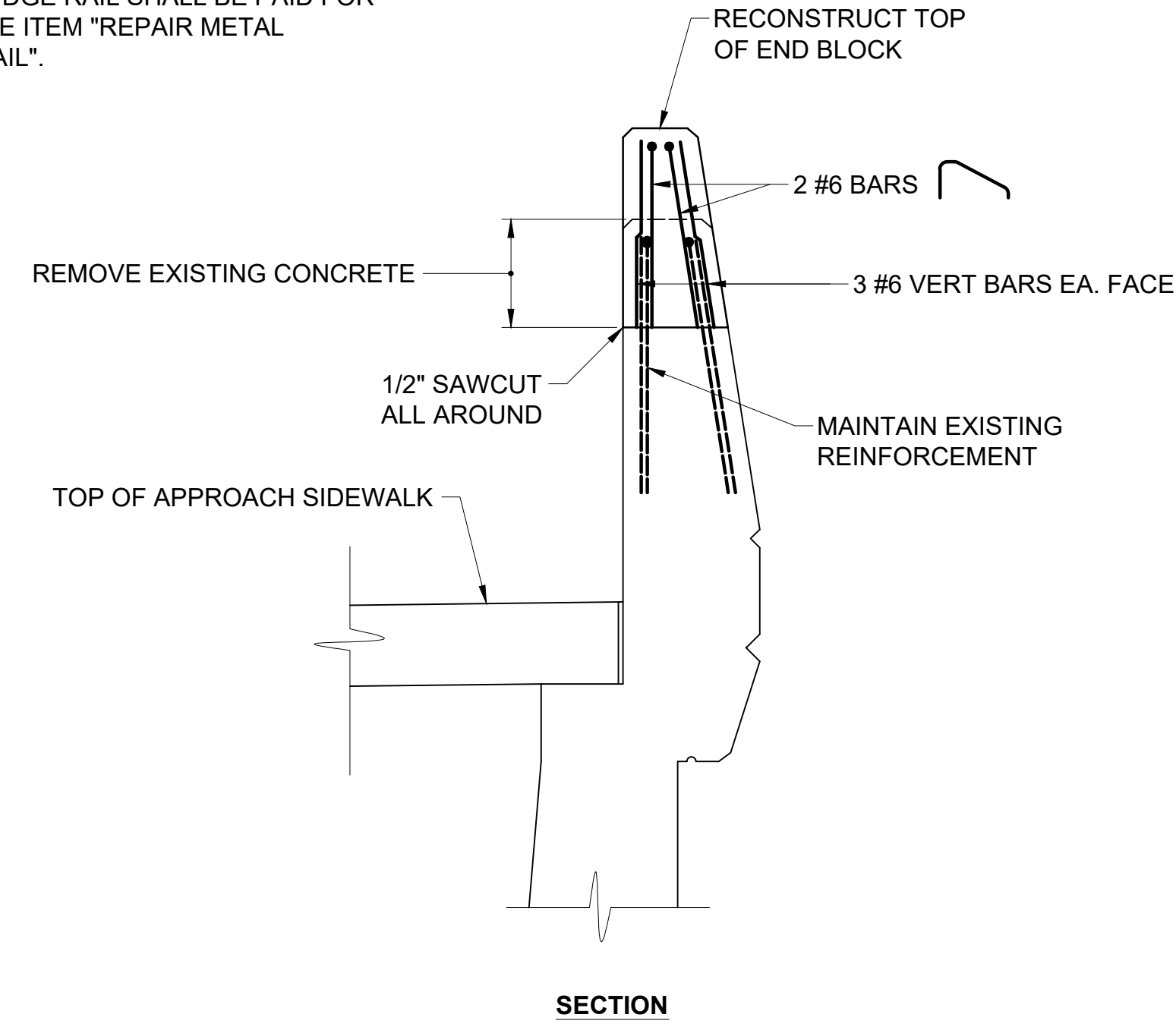
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<b>TOWN OF VERNON</b> REPAIR AND RESURFACING OF BRIDGE NO. 05240 KELLY ROAD OVER HOCKANUM RIVER BRIDGE PLAN, SECTION & REPAIR DETAILS							
5							
S-3							





**NOTES**

1. REMOVAL OF CONCRETE END BLOCK TO BE PAID FOR UNDER THE ITEM "REMOVAL OF EXISTING MASONRY".
2. COST OF CUTTING DAMAGED END OF METAL BRIDGE RAIL SHALL BE PAID FOR UNDER THE ITEM "REPAIR METAL BRIDGE RAIL".



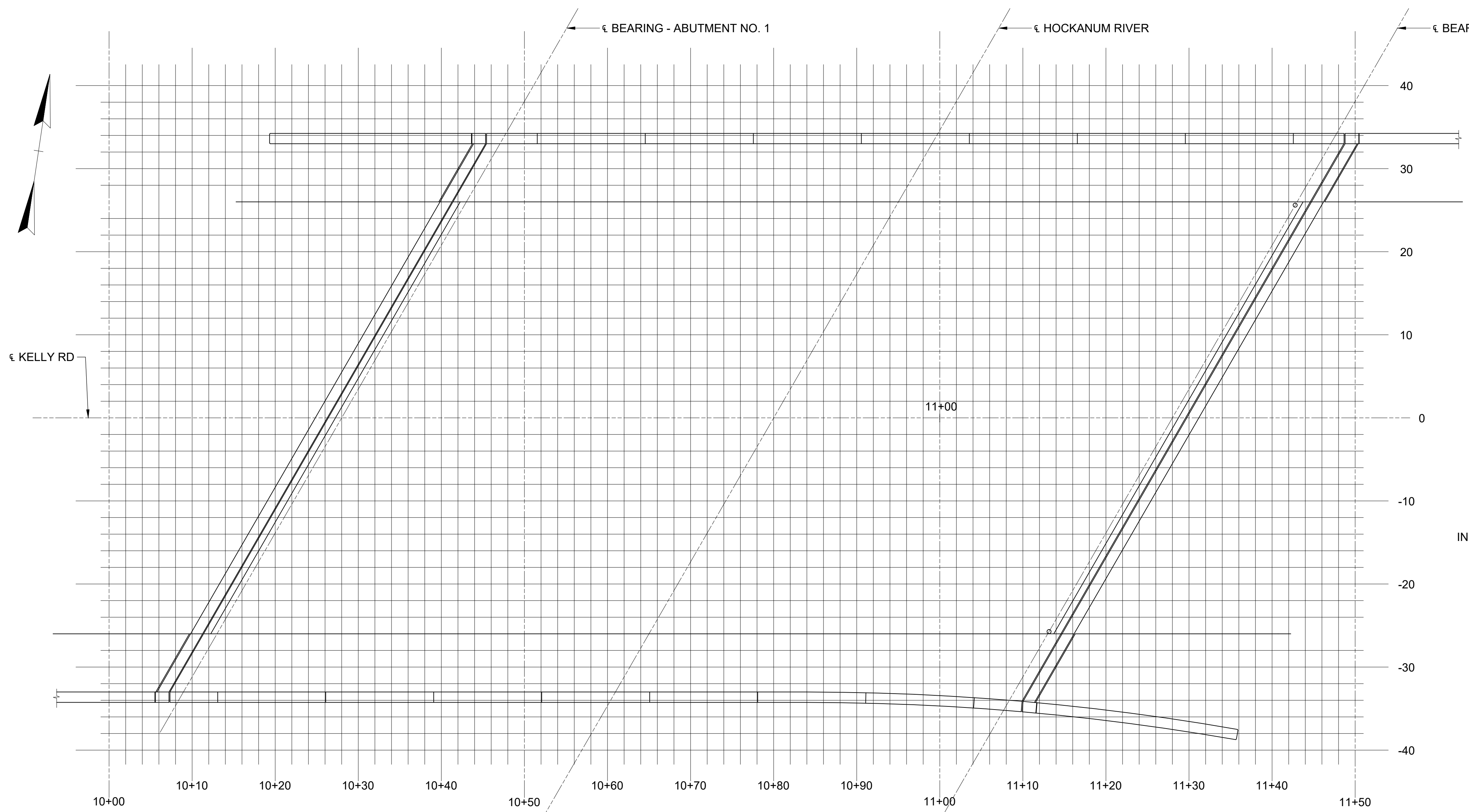
**ELEVATION**

**SECTION**

**9**  
**S-4** **END BLOCK MODIFICATION AT BROKEN BRIDGE RAIL**  
SCALE: 3/4" = 1'-0"

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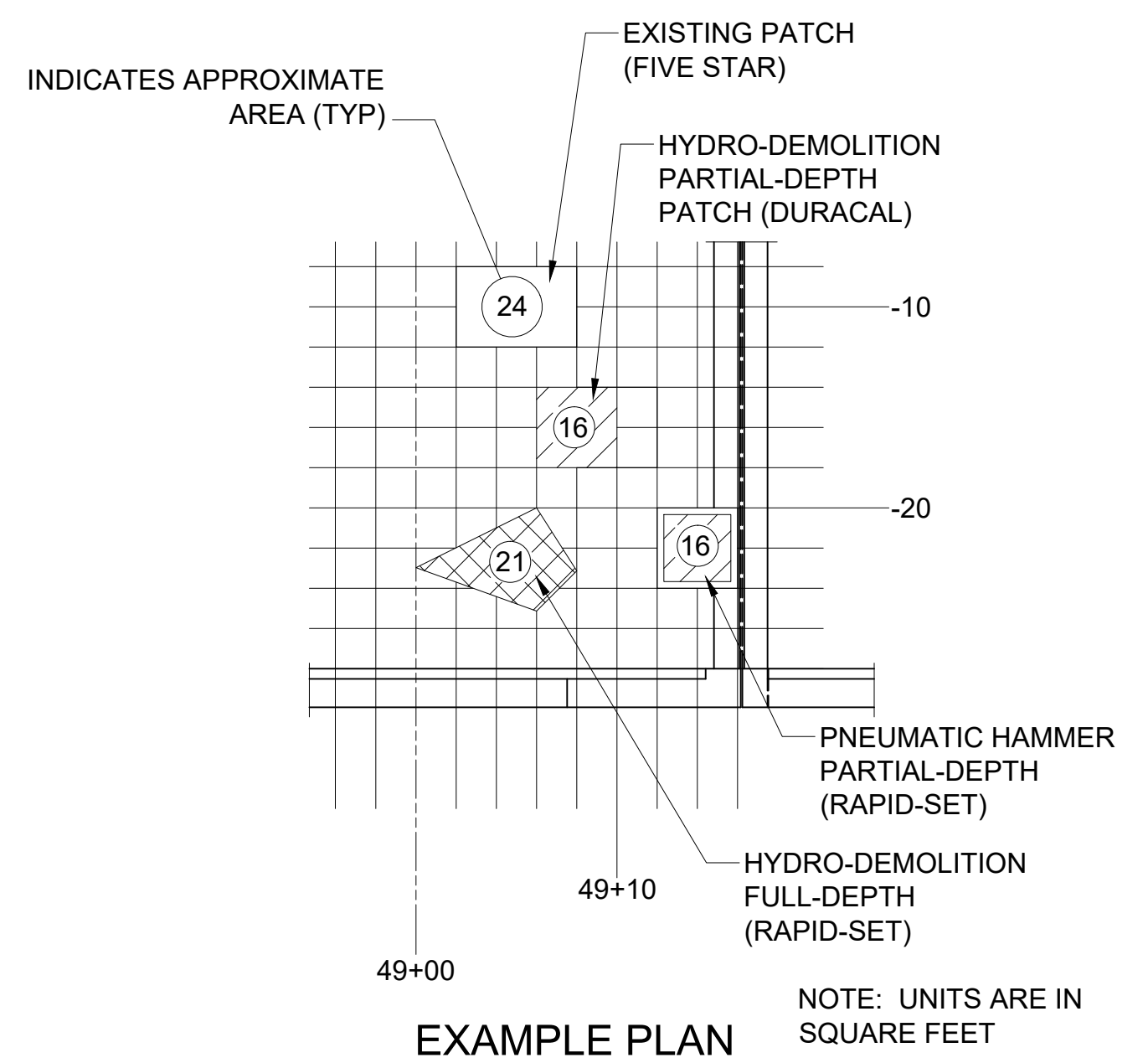
<p><b>TOWN OF VERNON</b>          REPAIR AND RESURFACING OF BRIDGE NO. 05240          KELLY ROAD OVER HOCKANUM RIVER          BRIDGE PLAN, SECTION &amp; REPAIR DETAILS</p>	<p><b>6</b> <b>S-4</b></p>								
	<p>PREPARED BY: </p>								
<p>PREPARED FOR:  <b>CARDINAL ENGINEERING ASSOCIATES</b>  <small>2000 Main Street, Wallingford, CT 06495          Phone: 203-261-2000, Fax: 203-261-2001, Email: info@cardinaleng.com, www.cardinaleng.com</small></p>	<p>DATE: 09/30/2022          SCALE: AS NOTED          DESIGNED BY: PF          DRAWN BY: JLS          CHECKED BY: JLS          APPROVED BY: JLS</p>								
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**10 DECK PATCHING PLAN**  
**S-5** SCALE: 1/8" = 1'-0"

THIS SHEET IS FOR INFORMATION ONLY AND IS TO BE COMPLETED BY THE ENGINEER ON A FULL SIZE PAPER COPY OF THIS DRAWING. THE COMPLETED DRAWING SHALL BE FORWARDED TO THE CONNECTICUT DOT MANAGER OF BRIDGE SAFETY AND EVALUATION. A COPY WILL BE FORWARDED TO THE ENGINEERING DEPARTMENT - TOWN OF VERNON.

- THE ENGINEER SHALL INDICATE THE FOLLOWING:
- THE BEGINNING AND COMPLETION DATES OF REPAIRS.
  - THE LIMITS OF EXISTING AND FINISHED PATCHED AREAS ON THIS PLAN USING THE PATTERNS SHOWN IN THE DECK PATCHING LEGEND (SEE EXAMPLE BELOW).
  - THE FINAL QUANTITIES OF PARTIAL AND FULL-DEPTH PATCHING MATERIAL USED ON DECK REPAIRS.
  - THE METHOD AND LIMITS OF REMOVAL OF THE DETERIORATED CONCRETE IF PNEUMATIC HAMMER OR HYDRO-DEMOLITION AS INDICATED ON THE DECK PLAN (SEE EXAMPLE BELOW).
  - THE BRAND OF PATCHING MATERIAL USED AT EACH LOCATION ON THE DECK (DURACAL, CLASS "F" CONCRETE, ETC) AS SHOWN IN THE EXAMPLE PLAN.



**DECK PATCHING LEGEND**

- EXISTING PATCHED AREA FULL-DEPTH AND PARTIAL-DEPTH APPROXIMATE PERCENTAGE OF TOTAL DECK AREA \_\_\_\_\_ %
- DENOTES THE LIMITS OF REMOVAL BY HYDRO-DEMOLITION, REPLACED WITH PARTIAL-DEPTH PATCH.
- DENOTES THE LIMITS OF REMOVAL BY PNEUMATIC HAMMER, REPLACED WITH PARTIAL-DEPTH PATCH.
- DENOTES THE LIMITS OF REMOVAL BY HYDRO-DEMOLITION, REPLACED WITH FULL-DEPTH PATCH.
- DENOTES THE LIMITS OF REMOVAL BY PNEUMATIC HAMMER, REPLACED WITH FULL-DEPTH PATCH.

PERCENTAGES AND QUANTITIES			
DATES	START OF REPAIRS		COMPLETION OF REPAIRS
PARTIAL-DEPTH PATCH		%	QTY.
HYDRO-DEMOLITION			
PNEUMATIC HAMMER			
TOTALS			
FULL-DEPTH PATCH		%	QTY.
HYDRO-DEMOLITION			
PNEUMATIC HAMMER			
TOTALS			

INSPECTOR COMMENTS

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<p><b>TOWN OF VERNON</b>          REPAIR AND RESURFACING OF BRIDGE NO. 05240          KELLY ROAD OVER HOCKANUM RIVER          BRIDGE PLAN, SECTION &amp; REPAIR DETAILS</p>	<p>7  <b>S-5</b></p>
<p>PREPARED FOR  <b>CARDINAL ENGINEERING ASSOCIATES</b>  <small>200 Main Street, Suite 100, Vernon, CT 06066          860-865-1100</small></p>	<p>PREPARED BY  <b>SILVA ENGINEERING, LLC</b>  <small>100 Main Street, Suite 100, Vernon, CT 06066          860-865-1100</small></p>
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