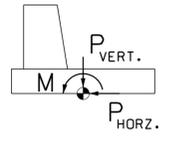


SITE PLAN
SCALE: 1" = 30'-0"

DESIGN LOADS, MATERIALS, AND SPECIFICATIONS

- Design Live Loading: MSE Wall Live Load Surcharge = HL-93
Rail Support Slab Collision = TL-4
- Design Method for the MSE Wall and Rail Support Slab is in accordance with LRFD design method.
- Specifications: AASHTO 2007 with Interims
NHDDT 2006 Standard Specifications as amended
Welding per AASHTO/AWS D1.5-08 & NHDDT Standard
Specifications for Road & Bridge Construction
- Foundation Data: Refer to the 592 Special Provision for the MSE Wall design criteria.
- Reinforcing Steel: All reinforcing steel shall conform to AASHTO M31 (ASTM A615), GRADE 60, epoxy coated, except as otherwise noted.
Reinforcing in the MSE facing panels shall be galvanized in accordance with AASHTO M111 or ASTM A767.
- Concrete: Precast MSE facing panels and copings (Class A-Modified) $f'c = 5,000$ psi
Rail Support Slab (Class AA) $f'c = 4,000$ psi
- Seismic Zone: 1

LOADS FROM RAIL SUPPORT SLAB			
LIMIT STATE	HORZ. (K/FT)	VERT. (K/FT)	MOMENT (KFT/FT)
STRENGTH III	1.15	9.2	19.95
EXTREME EVENT I	2.96	10.06	23.75



NOTE: ANCHORAGE SYSTEM AND MOMENT SLAB SHALL BE DESIGNED FOR EACH PROJECT.

NOTE: DETAILS AND NOTES MAY NOT BE CURRENT. CLOSELY REVIEW BEFORE USING DETAILS.

SUMMARY OF RETAINING WALL QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITIES	UNIT
209.5	GRANULAR BACKFILL FOR MSE WALLS	9,150	CY
504.101	COMMON BRIDGE EXCAVATION	5,500	CY
534.3	WATER REPELLENT (SILANE-SILOXANE)	52	GAL
585.4	STONE FILL, CLASS D	48	CY
592.103	MECHANICALLY STABILIZED EARTH RETAINING WALL	9,320	SF
607.642	CHAIN LINK FENCE WITH ALUMINUM COATED STEEL FABRIC, 4 FEET HIGH	40	LF

FOR SOUNDWALL QUANTITIES, INCLUDING RAIL SUPPORT SLAB, SEE BR. SHT. 12.

MSE WALL WORKING POINTS

DESCRIPTION	NORTHING	EASTING	STATION	OFFSET
WP 1	227460.79	1207754.62	53+05.74	31.24 LT.
WP 2	227374.91	1207823.36	54+14.26	22.96 LT.
WP 3	227290.29	1207893.63	55+23.34	21.45 LT.
WP 4	227206.95	1207965.42	56+33.31	24.07 LT.
WP 5	227010.35	1208137.23	58+96.80	31.95 LT.

RAIL SUPPORT SLAB/BARRIER WORKING POINTS

DESCRIPTION	NORTHING	EASTING	STATION	OFFSET
WP B1	227547.21	1207691.05	52+01.48	48.19 LT.
WP B2	227462.32	1207756.55	53+05.99	33.69 LT.
WP B3	227376.47	1207825.26	54+14.36	25.42 LT.
WP B4	227291.88	1207895.50	55+23.30	23.91 LT.
WP B5	227208.56	1207967.28	56+33.24	26.52 LT.
WP B6	227032.01	1208121.57	58+67.59	33.77 LT.

SAMPLE PLAN
DATE: 02-2010

INDEX OF BRIDGE SHEETS

BRIDGE SHEET	TITLE
1	SITE PLAN AND BORING LAYOUT
2	MSE WALL NOTES AND DETAILS
3	PLAN & ELEVATION VIEW 1 OF 3
4	PLAN & ELEVATION VIEW 2 OF 3
5	PLAN & ELEVATION VIEW 3 OF 3
6	LOG OF BORINGS 1 OF 3
7	LOG OF BORINGS 2 OF 3
8	LOG OF BORINGS 3 OF 3
9	RAIL SUPPORT SLAB DETAILS 1 OF 2
10	RAIL SUPPORT SLAB DETAILS 2 OF 2
11	WOOD PANEL SOUNDWALL 1 OF 2
12	WOOD PANEL SOUNDWALL 2 OF 2

NOTES:

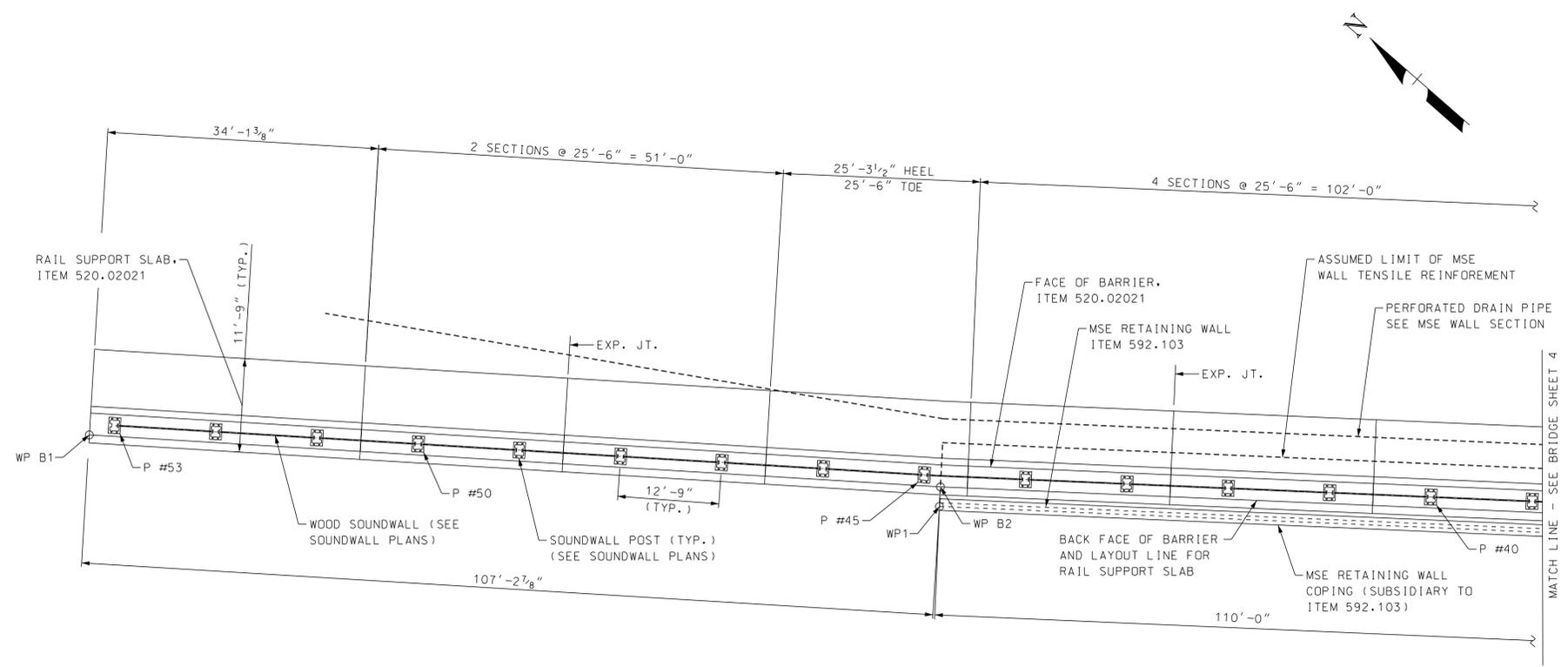
- For MSE wall notes see Br. Sht. 2.
- For soundwall notes see Br. Shts. 11 and 12.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN DOVER BRIDGE NO. STATE PROJECT 11238-L
LOCATION RETAINING WALL #3: 53+05 TO 58+97 & RAIL SUPPORT SLAB/SOUNDWALL: 52+01 TO 58+68

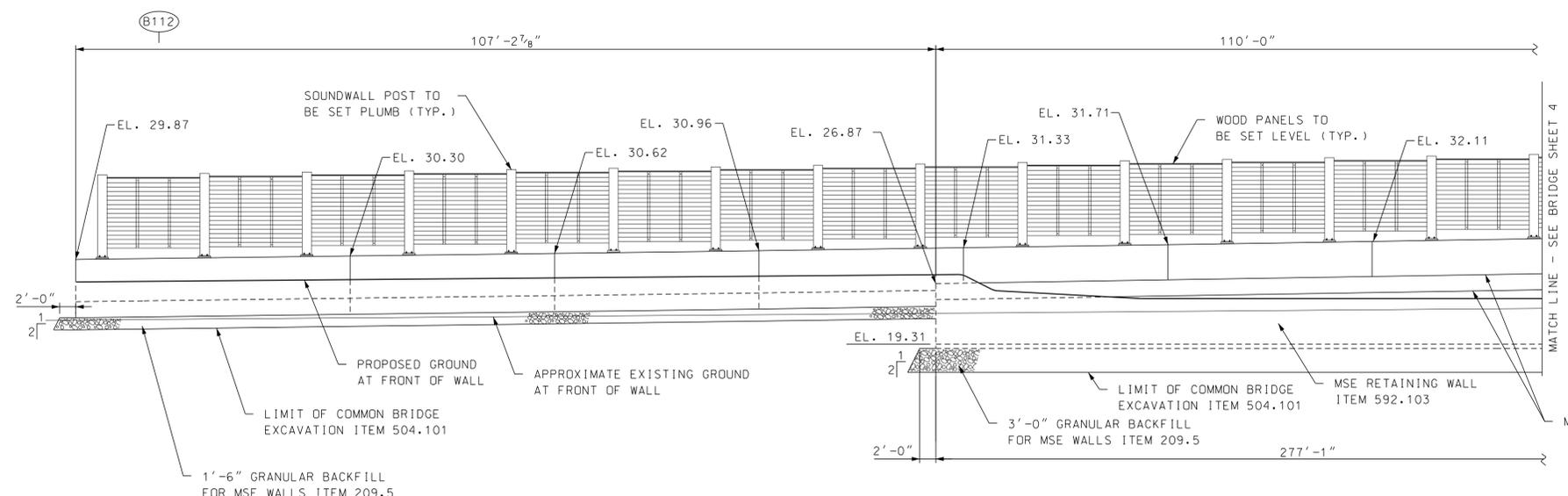
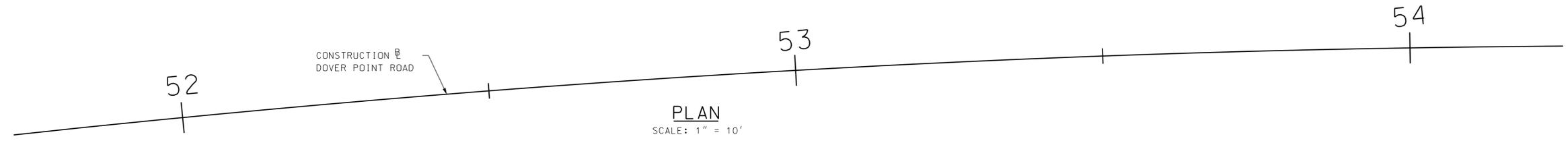
SITE PLAN AND BORING LAYOUT

DESIGNED	PAL	2/10	CHECKED	PMP	2/10	BRIDGE SHEET	1 OF 12
DRAWN	PAL	2/10	CHECKED	PMP	2/10	FILE NUMBER	113-2-3
QUANTITIES	AT	4/10	CHECKED	PAL	4/10	SHEET NO.	97
ISSUE DATE			FEDERAL PROJECT NO.			TOTAL SHEETS	270
REV. DATE							



NOTE: ANCHORAGE SYSTEM AND MOMENT SLAB SHALL BE DESIGNED FOR EACH PROJECT.

NOTE: DETAILS AND NOTES MAY NOT BE CURRENT. CLOSELY REVIEW BEFORE USING DETAILS.



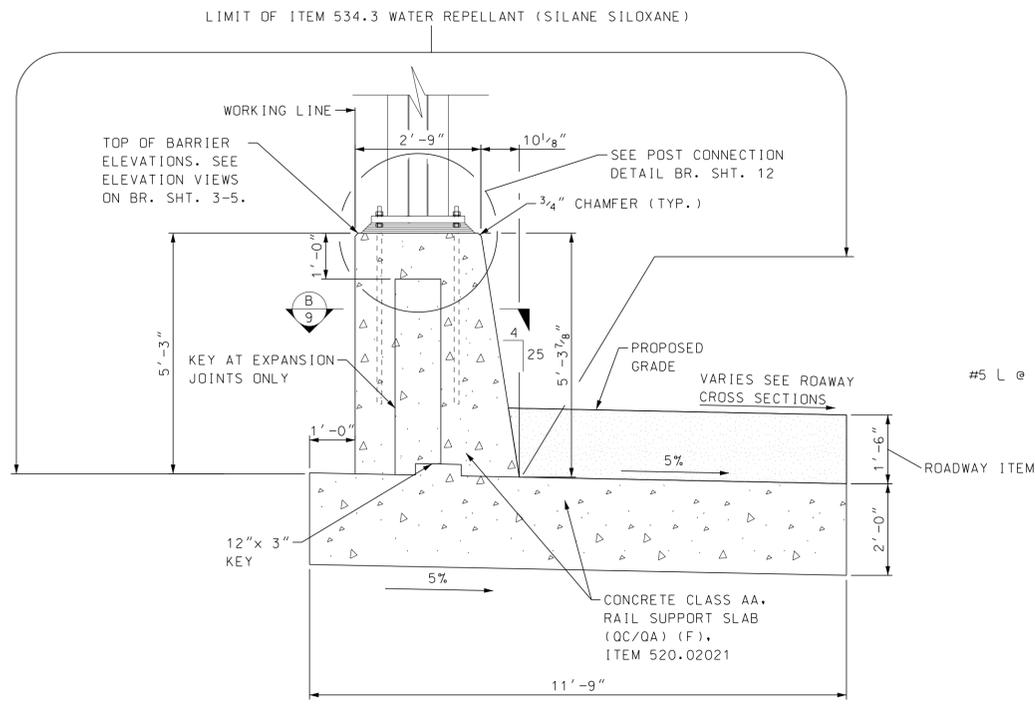
- NOTE:
- SEE BR. SHT. 2 FOR LOCATION OF LAYOUT LINE.
 - WALL AND BARRIER ARE TANGENT BETWEEN WORKING POINTS.
 - BOTTOM OF RAIL SUPPORT SLAB FOOTING SHALL BE SET 7.25FT BELOW TOP OF BARRIER ELEVATIONS SHOWN.

ELEVATION VIEW
SCALE: 1" = 10'

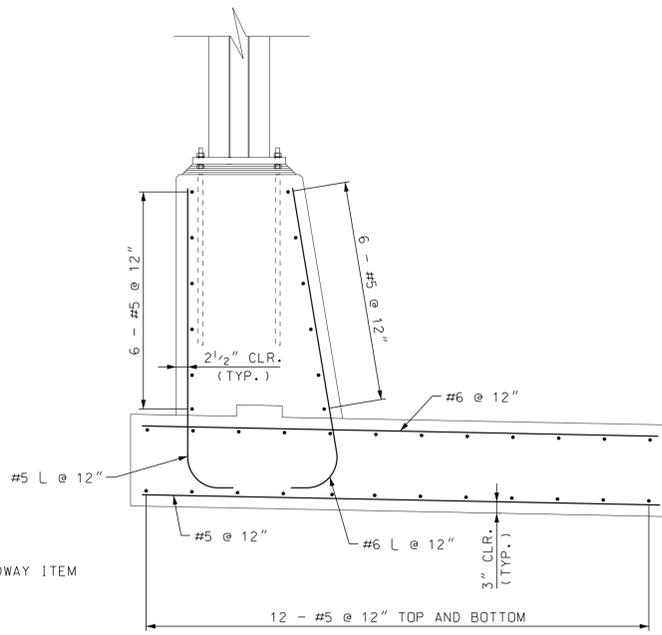
- NOTE:
- SEE BR. SHT. 2 FOR LOCATION OF LAYOUT LINE.
 - WALL AND BARRIER ARE TANGENT BETWEEN WORKING POINTS.

SAMPLE PLAN
DATE: 02-2010

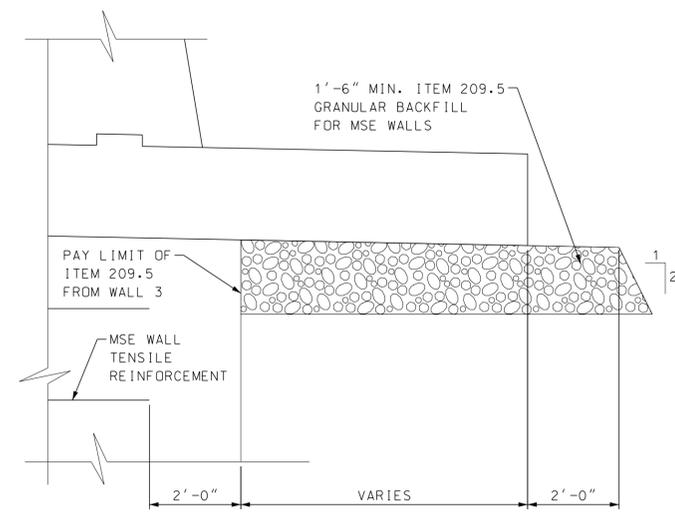
STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN DOVER	BRIDGE NO.	STATE PROJECT 11238-L			
LOCATION RETAINING WALL #3: 53+05 TO 58+97 & RAIL SUPPORT SLAB/SOUNDWALL: 52+01 TO 58+68					
PLAN & ELEVATION VIEW 1 OF 3					BRIDGE SHEET 3 OF 12
DESIGNED	PAL	2/10	CHECKED	PMP	2/10
DRAWN	PAL	2/10	CHECKED	PMP	2/10
QUANTITIES	AT	4/10	CHECKED	PAL	4/10
ISSUE DATE			FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE				99	270



TYPICAL RAIL SUPPORT SLAB MASONRY SECTION
SCALE: 1/2" = 1'-0"



SECTION A
SCALE: 1/2" = 1'-0"



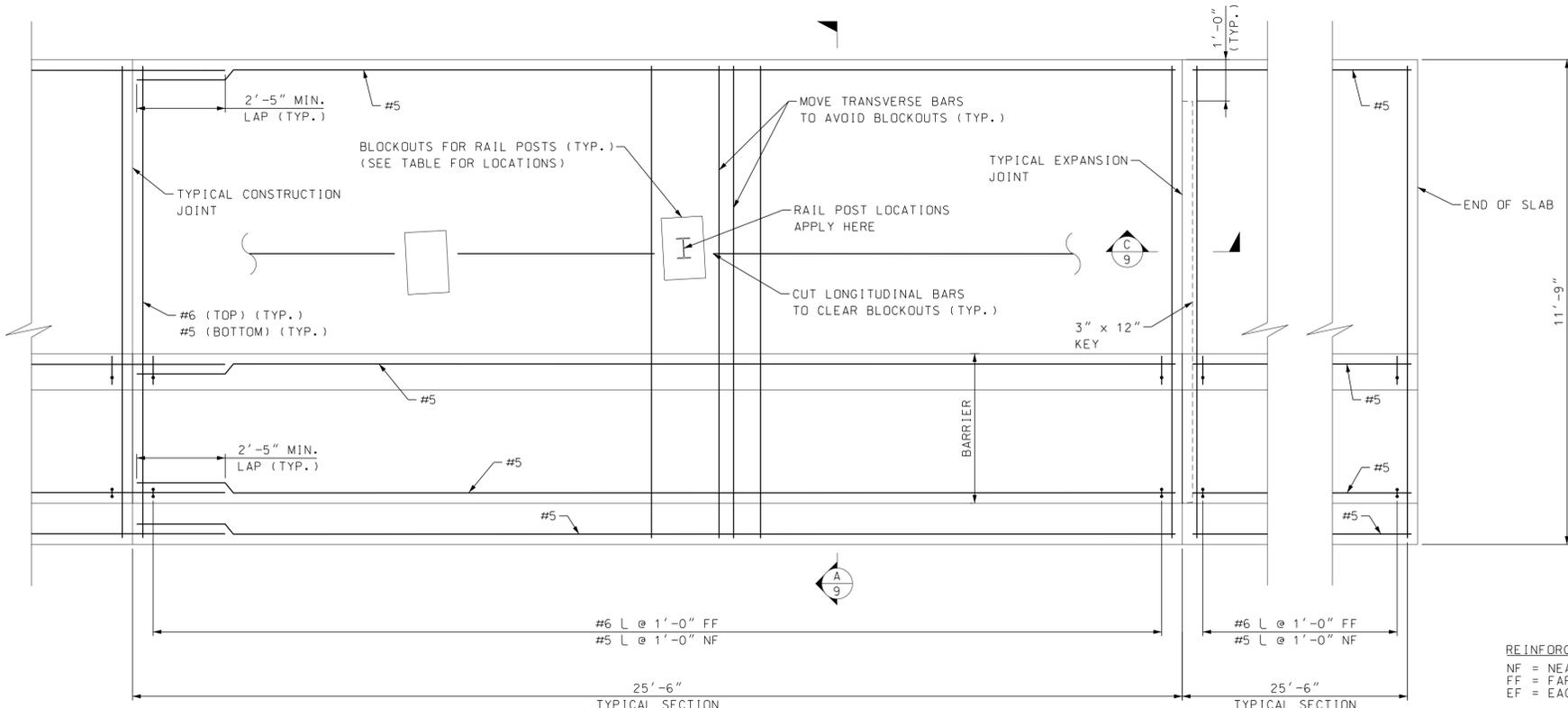
SECTION A
SCALE: 1/2" = 1'-0"

NOTE: DETAILS AND NOTES MAY NOT BE CURRENT. CLOSELY REVIEW BEFORE USING DETAILS.

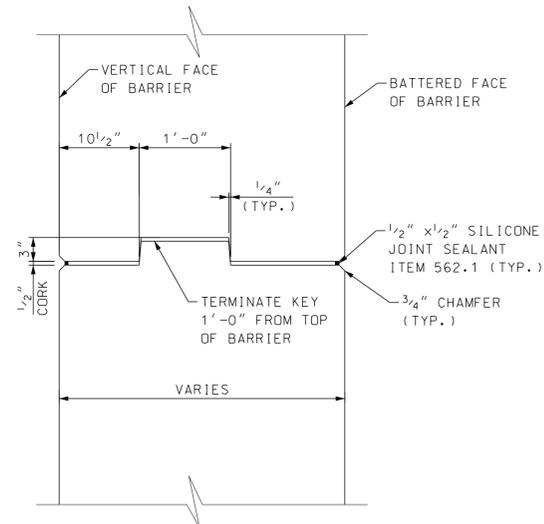
RAIL POST BLOCKOUT LOCATIONS		
RAIL POST NUMBER	NORTHING	EASTING
1	227058.04	1208113.42
2	227062.52	1208109.06
3	227067.00	1208104.70
4	227071.48	1208100.35
5	227075.97	1208095.99
6	227080.45	1208091.64
7	227084.93	1208087.28
8	227089.41	1208082.93
9	227093.90	1208078.57
10	227098.38	1208074.22
11	227100.62	1208072.04
12	227102.86	1208069.86
13	227105.10	1208067.68
14	227107.34	1208065.51
15	227109.59	1208063.33

FOR RAIL POST LOCATIONS SEE BR. SHT. 5

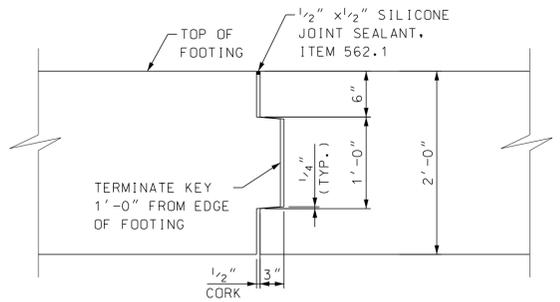
NOTE: ANCHORAGE SYSTEM AND MOMENT SLAB SHALL BE DESIGNED FOR EACH PROJECT.



RAIL SUPPORT SLAB REINFORCEMENT - PLAN VIEW
SCALE: 1/2" = 1'-0"



SECTION B
SCALE: 1" = 1'-0"



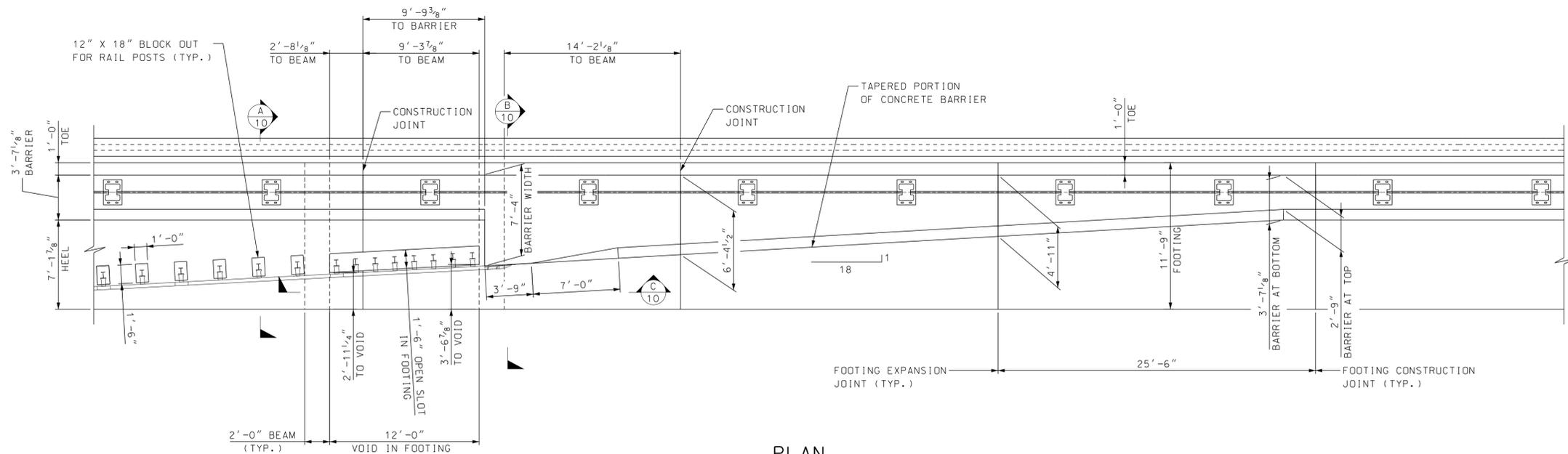
SECTION C
SCALE: 1" = 1'-0"

EXPANSION JOINT DETAILS

SAMPLE PLAN
DATE: 02-2010

REINFORCING TERMINOLOGY
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	DOVER	BRIDGE NO.	STATE PROJECT 11238-L		
LOCATION: RETAINING WALL #3: 53+05 TO 58+97 & RAIL SUPPORT SLAB/SOUNDWALL: 52+01 TO 58+68					
RAIL SUPPORT SLAB DETAILS 1 OF 2				BRIDGE SHEET	
REVISIONS AFTER PROPOSAL				BY	DATE
DESIGNED	PAL	2/10	CHECKED	PMP	2/10
DRAWN	PAL	2/10	CHECKED	PMP	2/10
QUANTITIES	AT	4/10	CHECKED	PAL	4/10
ISSUE DATE	FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS	
REV. DATE			105	270	

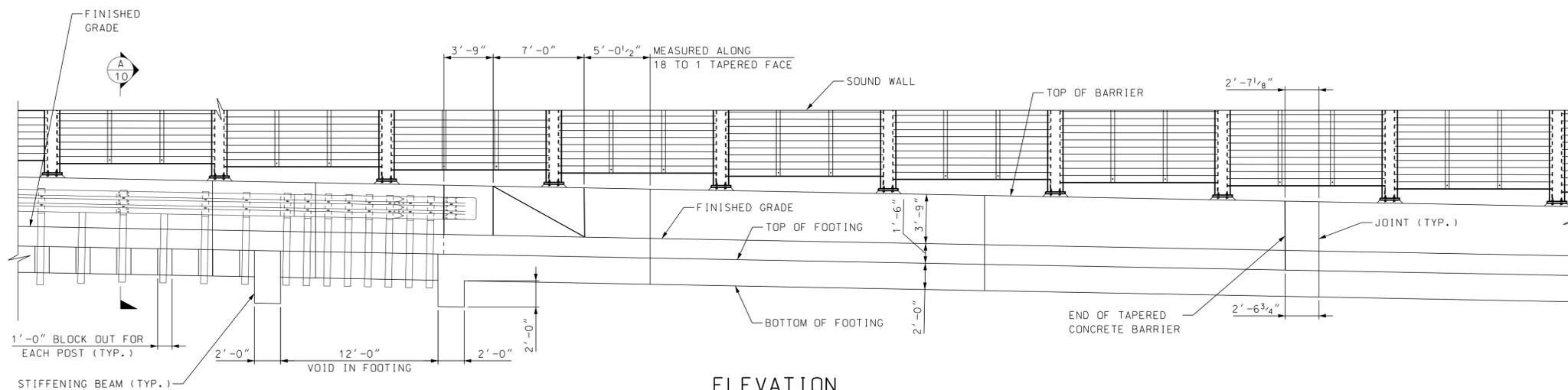


PLAN

SCALE: 3/16" = 1'-0"

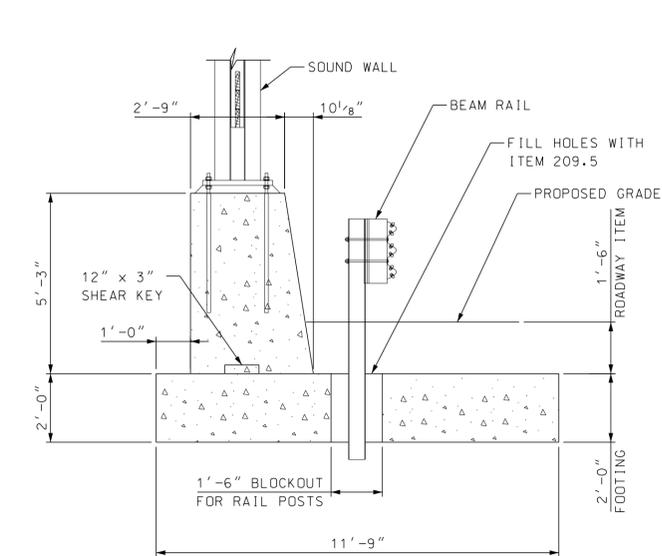
**NOTE: DETAILS AND NOTES
MAY NOT BE CURRENT.
CLOSELY REVIEW BEFORE
USING DETAILS.**

**NOTE: ANCHORAGE SYSTEM
AND MOMENT SLAB SHALL BE
DESIGNED FOR EACH PROJECT.**



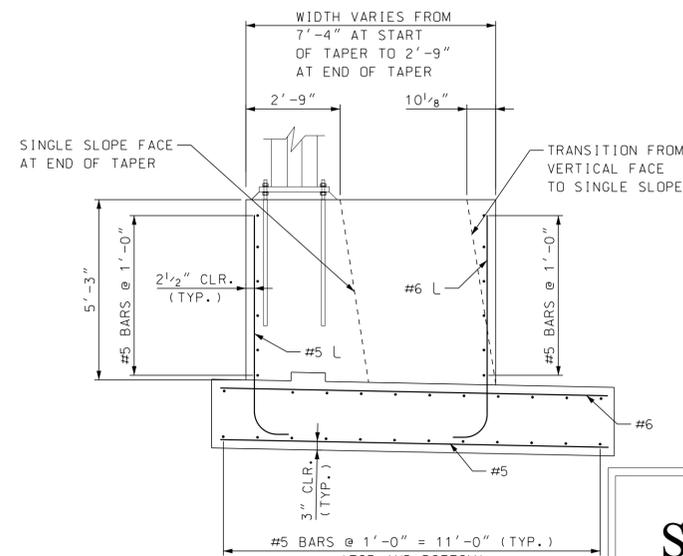
ELEVATION

SCALE: 3/16" = 1'-0"



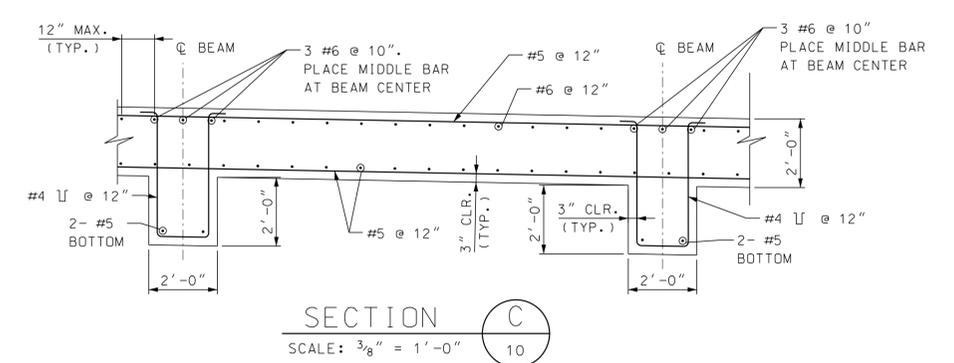
SECTION A

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



SECTION B

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



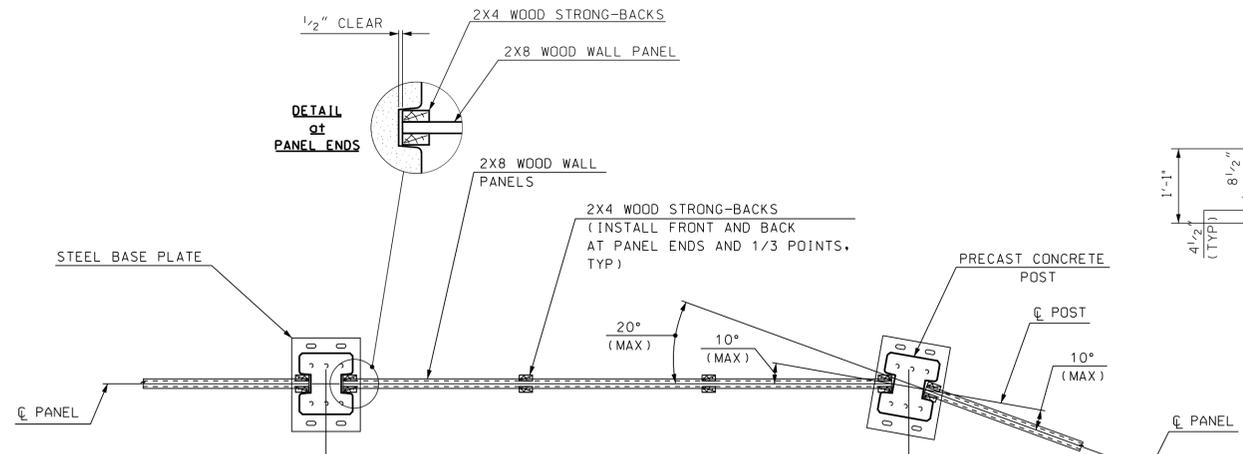
SECTION C

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

SAMPLE PLAN

DATE: 02-2010

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN DOVER	BRIDGE NO.	STATE PROJECT 11238-L			
LOCATION RETAINING WALL #3: 53+05 TO 58+97 & RAIL SUPPORT SLAB/SOUNDWALL: 52+01 TO 58+68					
RAIL SUPPORT SLAB DETAILS 2 OF 2					BRIDGE SHEET
REVISIONS AFTER PROPOSAL					10 OF 12
DESIGNED	PAL	DATE	CHECKED	PMP	DATE
DRAWN	PAL	2/10	CHECKED	PMP	2/10
QUANTITIES	AT	4/10	CHECKED	PAL	4/10
ISSUE DATE	FEDERAL PROJECT NO.			SHEET NO.	TOTAL SHEETS
REV. DATE				106	270

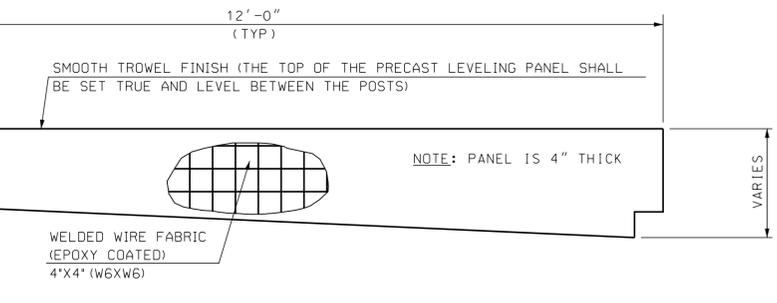


NOTE: DETAILS AND NOTES MAY NOT BE CURRENT. CLOSELY REVIEW BEFORE USING DETAILS.

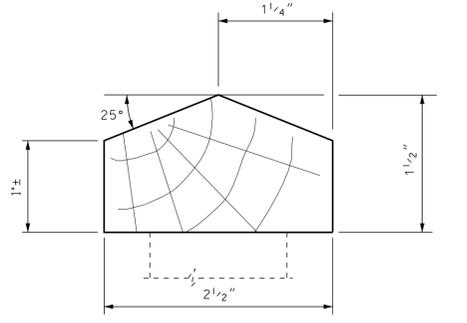
NOTE: ANCHORAGE SYSTEM AND MOMENT SLAB SHALL BE DESIGNED FOR EACH PROJECT.

TOP OF CONCRETE BARRIER

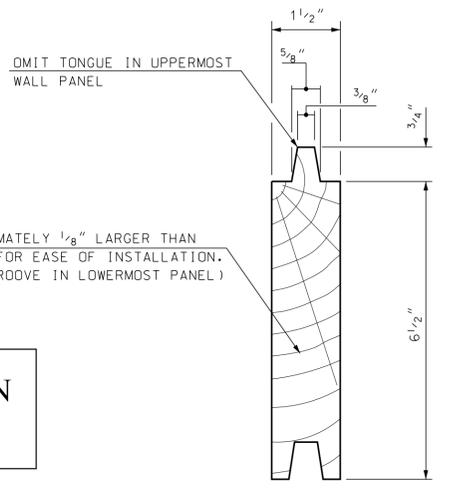
ANCHOR BOLTS (SEE BRIDGE SHEET 12)



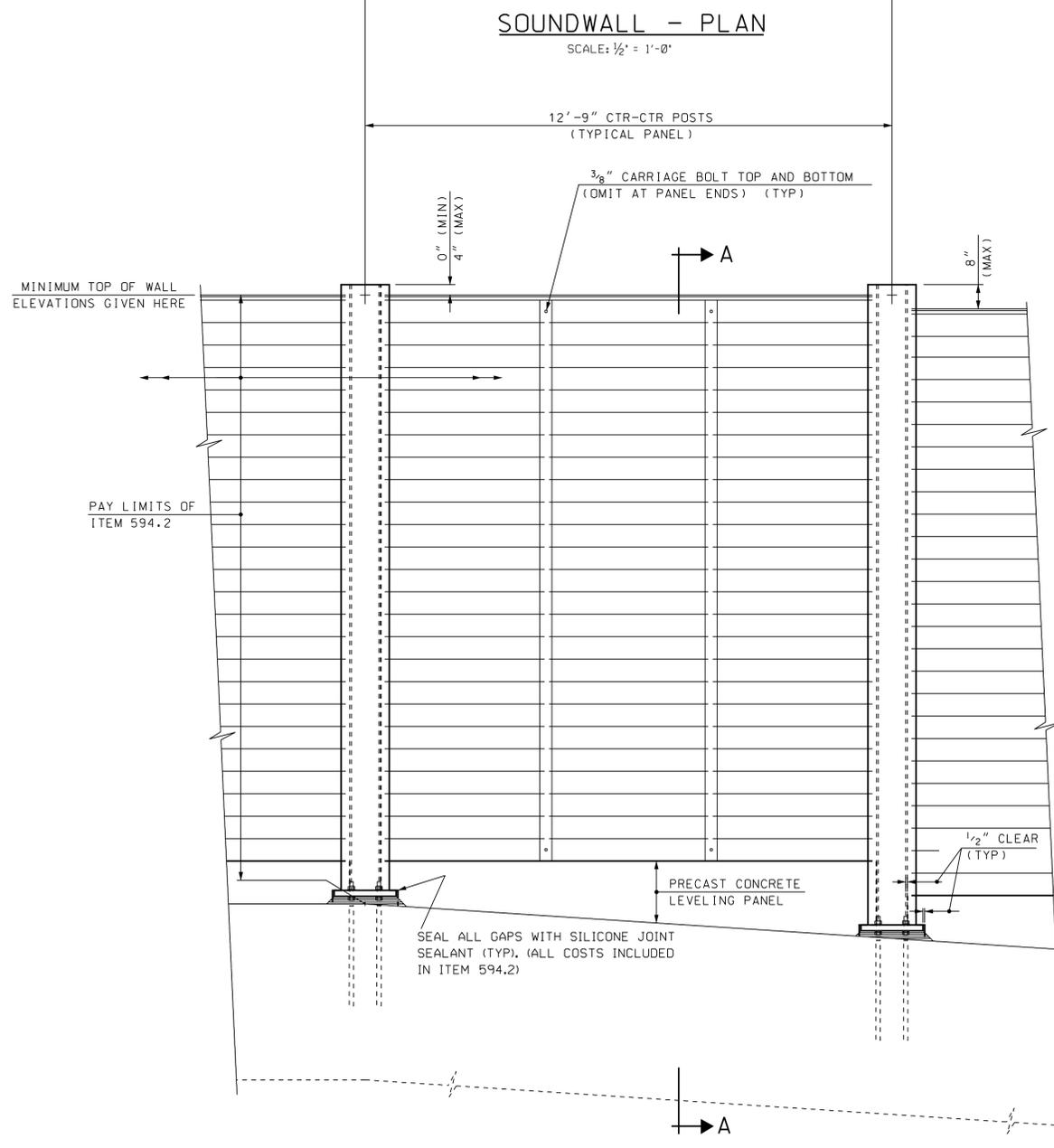
PRECAST CONCRETE LEVELING PANEL DETAIL
SCALE: 3/4" = 1'-0"



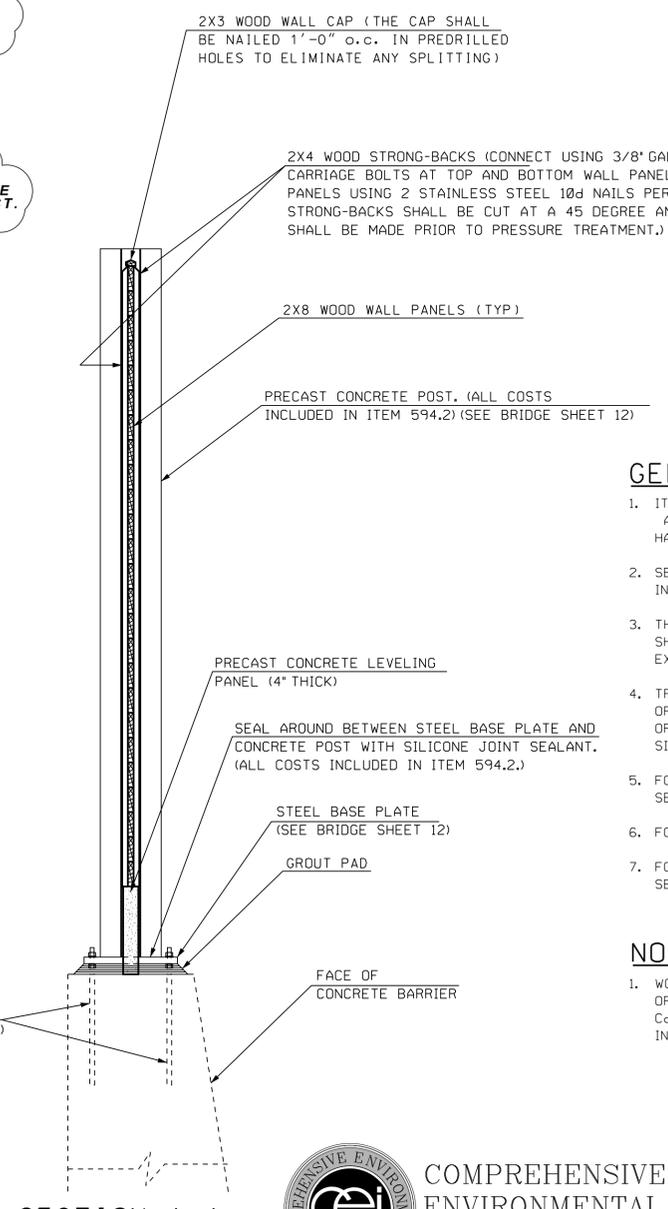
WOOD WALL CAP DETAIL
SCALE: 1" = 1'



WOOD WALL PANEL DETAIL
SCALE: 1/2" = 1'-0"



SOUNDWALL - PLAN
SCALE: 1/2" = 1'-0"



SECTION A-A
SCALE: 1/2" = 1'-0"

SAMPLE PLAN
DATE: 02-2010

GENERAL NOTES

- ITEM 594.2, WOOD PANEL SOUND ABATEMENT WALL SHALL INCLUDE ALL LUMBER, PRECAST CONCRETE POSTS AND LEVELING PANELS, STEEL BASE PLATES, ANCHOR BOLTS, GROUT PAD UNDERNEATH POSTS, AND ALL HARDWARE NECESSARY FOR CONSTRUCTION OF THE SOUNDWALL AS DETAILED ON THE PLANS.
- SEE SECTION 594 SPECIAL PROVISION FOR ADDITIONAL WOOD PANEL SOUNDWALL INFORMATION INCLUDING LUMBER REQUIREMENTS.
- THE ANGLE BETWEEN THE PRECAST CONCRETE POST AND WALL PANEL SHALL NOT EXCEED 10 DEGREES. POSTS SHALL BE HORIZONTALLY ALIGNED TO ACHIEVE THE PROPOSED WALL ALIGNMENT WITH ANGLE POINTS NOT TO EXCEED 20 DEGREES.
- TRANSITIONS IN TOP OF WALL ELEVATION SHALL BE AS DETAILED ON THE PLANS. IN THE CASE WHERE THE TOP OF WALL ELEVATION IS THE SAME ON BOTH SIDES OF A POST THE MAXIMUM ALLOWABLE DISTANCE FROM THE TOP OF WALL TO TOP OF POST SHALL BE 4". IN THE CASE WHERE THE TOP OF WALL ELEVATION VARIES ON BOTH SIDES OF A POST THE MAXIMUM ALLOWABLE DISTANCE FROM THE TOP OF WALL TO TOP OF POST SHALL BE 8".
- FOR PRECAST CONCRETE NOTES AND POST DETAILS AND STEEL BASE PLATE NOTES AND DETAILS SEE BRIDGE SHEET 12.
- FOR SUMMARY OF SOUNDWALL QUANTITIES SEE BRIDGE SHEET 12.
- FOR LAYOUT OF SOUNDWALL (INCLUDING POST NUMBERS, COORDINATES AND WALL ELEVATIONS) SEE BRIDGE SHEETS 1, 3-5 & 12.

NOTE TO DESIGNER:

- WOOD PANEL SOUNDWALL DESIGNED IN ACCORDANCE WITH AASHTO GUIDE SPECIFICATIONS FOR STRUCTURAL DESIGN OF SOUND BARRIERS 1989, WITH INTERIMS, FOR A WIND SPEED OF 90 MPH AND EXPOSURE CATEGORY C, WITH $\phi K_1 K_14$, $C_e = 0.80$. ("H" IS THE DISTANCE FROM AVERAGE LEVEL ADJOINING GROUND SURFACE TO CENTROID OF LOADED AREA IN EACH HEIGHT ZONE)

NOTE: DETAILS DEVELOPED FROM NHDOT BRIDGE DESIGN SOUNDWALL DETAIL SHEETS.



COMPREHENSIVE ENVIRONMENTAL INCORPORATED
21 DEPOT STREET
MERRIMACK NH, 03054

SHEET SCALE
AS NOTED

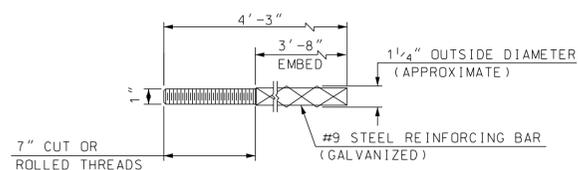
STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	DOVER	BRIDGE NO.	STATE PROJECT	11238-L	
LOCATION	RETAINING WALL #3: 53+05 TO 58+97 & RAIL SUPPORT SLAB/SOUNDWALL: 52+01 TO 58+68				
WOOD PANEL SOUNDWALL (1 of 2)				BRIDGE SHEET	
REVISIONS AFTER PROPOSAL				BY	DATE
DESIGNED				NC	4/14
DRAWN				NC	4/14
QUANTITIES				CHECKED	ML/RB 4/15
ISSUE DATE				CHECKED	ML/RB 4/15
REV. DATE				FEDERAL PROJECT NO.	SHEET NO.
				107	270

SOUND WALL POST LOCATIONS AND ELEVATIONS

POST NO.	NORTHING	EASTING	TOP OF CONCRETE BARRIER EL. (FT)	MIN. TOP OF SOUND WALL EL. (FT)	MIN. WALL HEIGHT (FT)
1	227036.9770	1208119.0536	42.51	52.93	10.42
2	227046.5773	1208110.6638	42.17	52.59	10.42
3	227056.1779	1208102.2738	41.83	52.25	10.42
4	227065.7784	1208093.8838	41.51	51.93	10.42
5	227075.3789	1208085.4938	41.20	51.62	10.42
6	227084.9795	1208077.1038	40.90	51.32	10.42
7	227094.5800	1208068.7138	40.61	51.03	10.42
8	227104.1806	1208060.3238	40.32	50.74	10.42
9	227113.7811	1208051.9338	40.03	50.45	10.42
10	227123.3817	1208043.5438	39.72	50.14	10.42
11	227132.9822	1208035.1538	39.42	49.84	10.42
12	227142.5827	1208026.7638	39.12	49.54	10.42
13	227152.1833	1208018.3738	38.83	49.25	10.42
14	227161.7838	1208009.9838	38.55	48.97	10.42
15	227171.3844	1208001.5938	38.28	48.70	10.42
16	227180.9849	1207993.2038	38.03	48.45	10.42
17	227190.5854	1207984.8138	37.78	48.20	10.42
18	227200.1860	1207976.4238	37.53	47.95	10.42
19	227209.7865	1207968.0361	37.30	47.72	10.42
20	227219.4486	1207959.7147	37.10	47.52	10.42
21	227229.1086	1207951.3932	36.90	47.32	10.42
22	227238.7686	1207943.0718	36.71	47.13	10.42
23	227248.4286	1207934.7503	36.50	46.92	10.42
24	227258.0886	1207926.4289	36.26	46.68	10.42
25	227267.7487	1207918.1074	36.00	46.42	10.42
26	227277.4087	1207909.7860	35.72	46.14	10.42
27	227287.0687	1207901.4645	35.44	45.86	10.42

SUMMARY OF SOUNDWALL QUANTITIES

ITEM NO.	ITEM DESCRIPTION	QUANTITIES	UNIT
209,5	GRANULAR BACKFILL FOR MSE WALLS	150	CY
504.101	COMMON BRIDGE EXCAVATION	85	CY
520.02021	CONCRETE CLASS AA, RAIL SUPPORT SLAB (DC/QA), (F)	1,030	CY
534.3	WATER REPELLENT (SILANE-SILOXANE)	65	GAL
544.31	REINFORCING STEEL, EPOXY COATED (CONTRACTOR-DETAILED)	61,000	LB
562.1	SILICONE JOINT SEALANT (F)	200	LF
594.2	WOOD PANEL SOUND ABATEMENT WALL	6,908	SF
1010.42	QUALITY CONTROL QUALITY ASSURANCE (QC/QA) FOR CONCRETE	--	\$

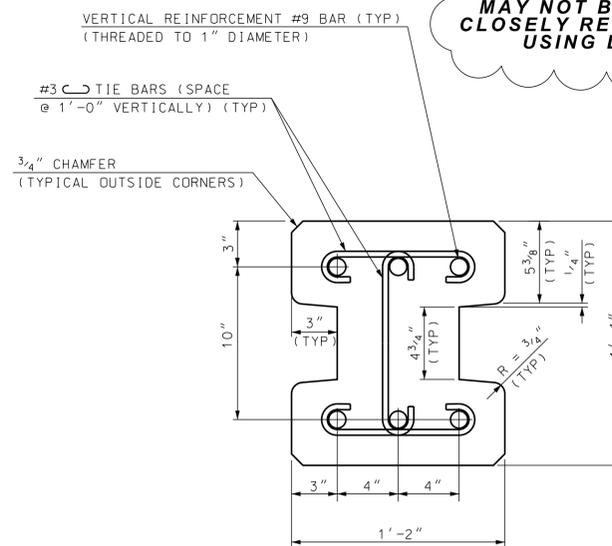


ANCHOR BOLT DETAIL
for WALL HEIGHT >10' to 15'
NOT TO SCALE

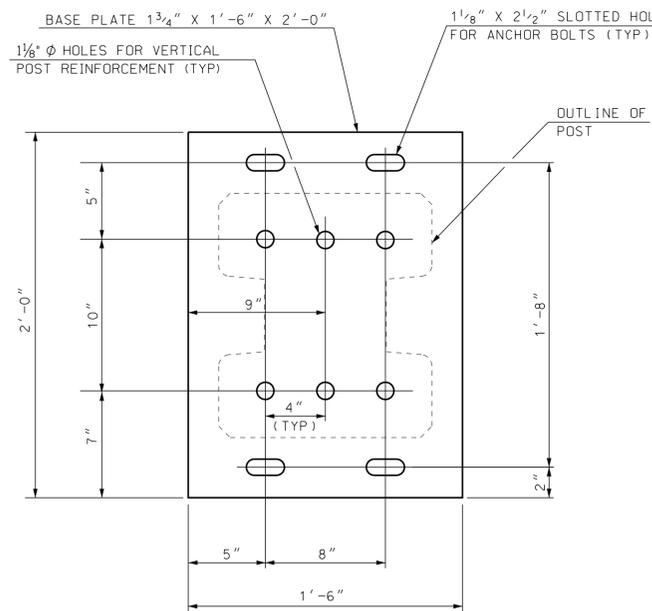
NOTE: ANCHORAGE SYSTEM AND MOMENT SLAB SHALL BE DESIGNED FOR EACH PROJECT.

SAMPLE PLAN

DATE: 02-2010

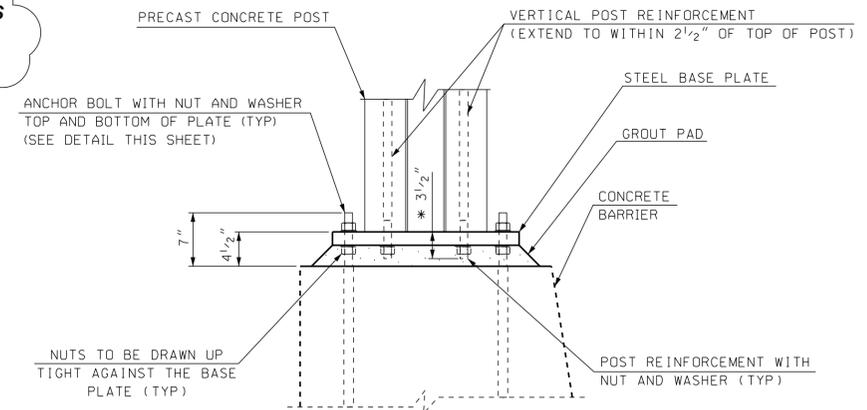


POST SECTION DETAIL
for WALL HEIGHT >10' to 15'
SCALE: 2" = 1'-0"



POST BASE PLATE DETAIL
for WALL HEIGHT >10' to 15'
SCALE: 2" = 1'-0"

NOTE: DETAILS AND NOTES MAY NOT BE CURRENT. CLOSELY REVIEW BEFORE USING DETAILS.



POST CONNECTION DETAIL
SCALE: 1"=1'-0"

PRECAST CONCRETE NOTES

- CONCRETE FOR THE POSTS AND LEVELING PANELS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI AND SHALL CONFORM TO SECTION 520 FOR CLASS AA CONCRETE UNLESS NOTED OTHERWISE.
- ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M 31, GRADE 60. VERTICAL REINFORCING STEEL FOR THE POSTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 594. TIE BARS FOR THE POST MAY BE GALVANIZED OR EPOXY COATED IN ACCORDANCE WITH SECTION 544.
- VERTICAL REINFORCING STEEL FOR THE POSTS SHALL HAVE THE LAST 4' THREADED TO THE SIZE SPECIFIED ON THE PLANS IN ACCORDANCE WITH SECTION 550.
- WELDED WIRE FABRIC FOR THE LEVELING PANELS SHALL CONFORM TO SECTION 544 AND SHALL BE EPOXY COATED.
- COAT ALL SURFACES OF THE PRECAST CONCRETE POSTS AND LEVELING PANELS WITH WATER REPELLENT (SILANE-SILOXANE) IN ACCORDANCE WITH SECTION 534.
- CLEAR COVER FOR REINFORCEMENT SHALL BE A MIN. OF 2".
- AFTER INSTALLATION OF POSTS AND LEVELING PANELS, ALL RECESSED INSTALLATION DEVICES SHALL BE FILLED WITH NON-SHRINK GROUT.

BASE PLATE AND ANCHOR BOLT NOTES

- STRUCTURAL STEEL FOR BASE PLATES SHALL CONFORM TO AASHTO M 270, GRADE 50.
- NUTS SHALL CONFORM TO AASHTO M 291, CLASS 10S (GRADE DH). WASHERS SHALL CONFORM TO AASHTO M 293, TYPE 1.
- ANCHOR BOLTS SHALL CONFORM TO AASHTO M 31, GRADE 60, AND SHALL BE FABRICATED IN ACCORDANCE WITH SECTION 550.
- ALL STEEL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SECTION 594.
- AFTER POST INSTALLATION GROUT THE AREA UNDERNEATH THE POSTS WITH APPROVED HIGH STRENGTH, NON-SHRINK GROUT. THE SLOTTED HOLES IN BASE PLATES SHALL BE FILLED FLUSH WITH GROUT.

NOTE: DETAILS DEVELOPED FROM NH DOT BRIDGE DESIGN SOUNDWALL DETAIL SHEETS.

STATE OF NEW HAMPSHIRE					
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN					
TOWN	DOVER	BRIDGE NO.	STATE PROJECT	11238-L	
LOCATION: RETAINING WALL #3: 53+05 TO 58+97 & RAIL SUPPORT SLAB/SOUNDWALL: 52+01 TO 58+68					
WOOD PANEL SOUNDWALL (2 of 2)					BRIDGE SHEET
REVISIONS AFTER PROPOSAL					12 OF 12
DESIGNED	NC	4/14	CHECKED	ML/RB	4/15
DRAWN	NC	4/14	CHECKED	ML/RB	4/15
QUANTITIES					FILE NUMBER
ISSUE DATE					583
REV. DATE					TOTAL SHEETS
FEDERAL PROJECT NO.					108
SHEET NO.					270



COMPREHENSIVE ENVIRONMENTAL INCORPORATED

21 DEPOT STREET
MERRIMACK NH, 03054

SHEET SCALE
AS NOTED