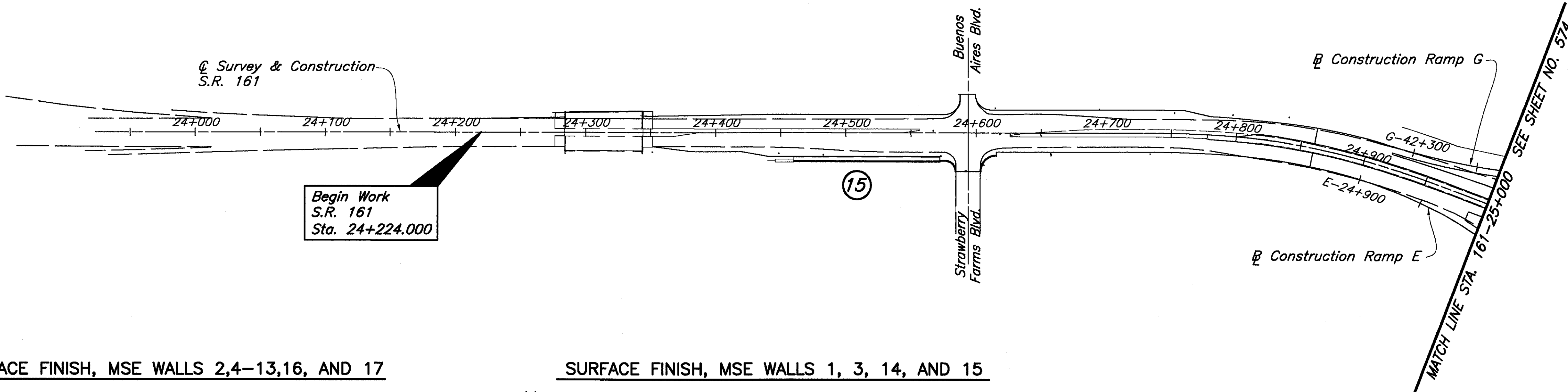


MSE Wall No.	Allowable Bearing Pressure (kPa)	Design Bearing Pressure (kPa)
1n	245	70
2n	345	140
3n	215	165
4n	475	120
4p	715	230
5n	430	110
5p	610	305
6n	530	130
6p	370	250
7n	120	120
7p	365	225
8n	165	65
9n	395	100
9p	505	280
10n	360	320
10p	245	245
11n	360	320
11n2	245	185
11p	360	335
12n	715	170
12p1	275	270
12p2	800	240
13n	565	140
13p	630	210
14n	345	105
15n	150	75
16n	245	175
16p	370	250
17n	275	75
17p	245	235



SURFACE FINISH, MSE WALLS 2,4-13,16, AND 17

- (A) SURFACE FINISH: THE EXPOSED VERTICAL SURFACES OF WALLS SHALL BE VERTICALLY STRIATED AS INDICATED IN THE "ELEVATION" VIEWS SHOWN ON SHEET 1162/1469 OF FRA-161-25.900, PART 1. SURFACE FINISH AND GROUT CLEANING SHALL CONFORM WITH 511.15.
- (B) STRIATIONS SHALL BE OBTAINED BY THE USE OF APPROVED FORM LINERS. STRIATIONS SHOWN ARE "SYMONS" TRAPAZOIDAL DEEP RIB. SIMILAR STRIATIONS BY OTHER MANUFACTURERS MAY BE USED SUBJECT TO THE APPROVAL OF THE DIRECTOR.
- (C) SHOP DRAWINGS OF FORMS SHOWING LINERS AND INSERTS ARE REQUIRED. THESE DRAWINGS SHALL BE SPECIFIC WITH RESPECT TO THE DIMENSIONS OF INSERTS FOR PANEL BOUNDARIES AND JOINT RUSTICATIONS (WOOD STRIPS).
- (D) VIBRATION: CARE SHALL BE TAKEN TO ENSURE PROPER DISTRIBUTION OF CONCRETE ALONG STRIATED SURFACES WITHOUT ADVERSELY AFFECTING THE INTEGRITY OF THE FORM LINERS AND INSERTS. EVERY EFFORT SHALL BE MADE TO PRODUCE A SURFACE FREE FROM AIR BUBBLES, CAVITIES AND HONEYCOMB SPOTS AND OTHER IMPERFECTIONS TO OBIATE THE NEED FOR SUBSEQUENT GROUT CLEANING.
- (E) WHERE THE WALL IS NOT TALL ENOUGH TO MERIT A FORM LINER, ONLY A SEALER COAT IS TO BE USED.
- (F) PAYMENT FOR SURFACE FINISH, SEALING, AND WHERE REQUIRED, GROUT CLEANING SHALL BE INCLUDED IN THE COST OF ITEM 610.

SURFACE FINISH, MSE WALLS 1, 3, 14, AND 15

- (A) SURFACE FINISH: THE EXPOSED VERTICAL SURFACES OF WALLS SHALL BE ASHLAR STONE AS INDICATED IN THE "ELEVATION" VIEWS SHOWN ON SHEET 1162A/1469 OF FRA-161-25.900, PART 1. SURFACE FINISH AND GROUT CLEANING SHALL CONFORM WITH 511.15.
- (B) ASHLAR STONE PATTERN SHALL BE OBTAINED BY THE USE OF APPROVED FORM LINERS.
- (C) SHOP DRAWINGS OF FORMS SHOWING LINERS AND INSERTS ARE REQUIRED. THESE DRAWINGS SHALL BE SPECIFIC WITH RESPECT TO THE DIMENSIONS OF INSERTS FOR PANEL BOUNDARIES AND JOINT RUSTICATIONS (WOOD STRIPS).
- (D) VIBRATION: CARE SHALL BE TAKEN TO ENSURE PROPER DISTRIBUTION OF CONCRETE ALONG STRIATED SURFACES WITHOUT ADVERSELY AFFECTING THE INTEGRITY OF THE FORM LINERS AND INSERTS. EVERY EFFORT SHALL BE MADE TO PRODUCE A SURFACE FREE FROM AIR BUBBLES, CAVITIES AND HONEYCOMB SPOTS AND OTHER IMPERFECTIONS TO OBIATE THE NEED FOR SUBSEQUENT GROUT CLEANING.
- (E) WHERE THE WALL IS NOT TALL ENOUGH TO MERIT A FORM LINER, ONLY A SEALER COAT IS TO BE USED.
- (F) PAYMENT FOR SURFACE FINISH, SEALING, AND WHERE REQUIRED, GROUT CLEANING SHALL BE INCLUDED IN THE COST OF ITEM 610.

ITEM 864 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):
THE COLOR OF THE EPOXY-URETHANE SEALANT SHALL BE FEDERAL COLOR NO. 17778 (LIGHT NEUTRAL) ON BOTH THE HIGHWAY AND RESIDENTIAL SIDES FOR ALL MSE WALLS EXCEPT FOR WALLS 14 & 15. MSE WALLS 14 & 15 SHALL BE SEALED WITH FEDERAL COLOR NO. 17778 (LIGHT NEUTRAL) ON THE HIGHWAY SIDE, AND FEDERAL COLOR NO. 10324 (DARK NEUTRAL) ON THE RESIDENTIAL SIDE.

ITEM SPECIAL - REINFORCED EARTH WALL, OR
ITEM SPECIAL - RETAINED EARTH WALL, OR
ITEM SPECIAL - MSE PLUS RETAINING WALL, OR
ITEM SPECIAL - RETAINING WALL, MISC.: ARES
RETAINING WALL BY TENSAR

THIS ITEM SHALL INCLUDE BUT NOT BE LIMITED TO THE LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT THE PRECAST WALL PANELS, THE CONCRETE LEVELING PAD, THE CONCRETE COPINGS (INCLUDING SLEEPER SLAB), THE SELECT GRANULAR EMBANKMENT FILL, UNCLASSIFIED EXCAVATIONS, AND SEALING OF CONCRETE SURFACES.

DESIGN A - REINFORCED EARTH WALLS

ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 1
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 2
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 3
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 4
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 5
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 6
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 7
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 8
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 9
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 10
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 11
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 12
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 13
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 14
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 15
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 16
SPECIAL	610 13600	LUMP	LUMP	REINFORCED EARTH WALLS, WALL 17

DESIGN B - FOSTER GEOTECHNICAL RETAINED EARTH WALLS

ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 1
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 2
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 3
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 4
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 5
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 6
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 7
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 8
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 9
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 10
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 11
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 12
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 13
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 14
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 15
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 16
SPECIAL	610 13800	LUMP	LUMP	RETAINED EARTH WALLS, WALL 17

DESIGN C - MSE PLUS RETAINING WALLS

ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 1
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 2
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 3
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 4
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 5
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 6
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 7
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 8
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 9
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 10
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 11
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 12
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 13
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 14
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 15
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 16
SPECIAL	610 14200	LUMP	LUMP	MSE PLUS RETAINING WALL, WALL 17

DESIGN D - ARES RETAINING WALLS BY TENSAR

ITEM	ITEM EXT	TOTAL	UNIT	DESCRIPTION
SPECIAL	610 14000	LUMP	LUMP	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 1
SPECIAL	610 14000	LUMP	LUMP	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 2
SPECIAL	610 14000	LUMP	LUMP	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 3
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 4
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 5
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 6
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 7
SPECIAL	610 14000	LUMP	LUMP	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 8
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 9
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 10
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 11
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 12
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 13
SPECIAL	610 14000	LUMP	LUMP	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 14
SPECIAL	610 14000	LUMP	LUMP	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 15
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 16
SPECIAL	610 14000	*	*	LS SPECIAL - A.R.E.S. RETAINING WALL, WALL 17

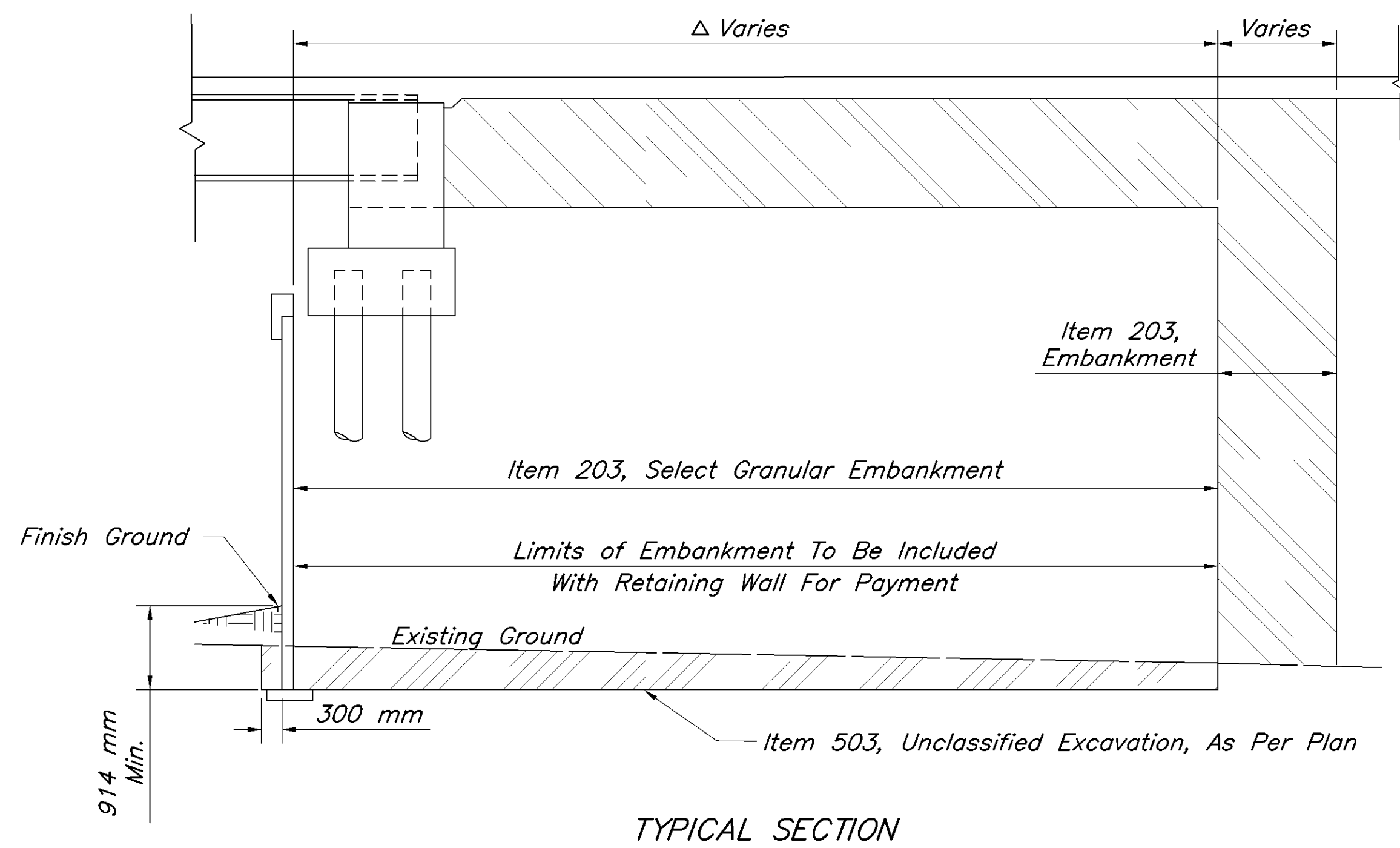
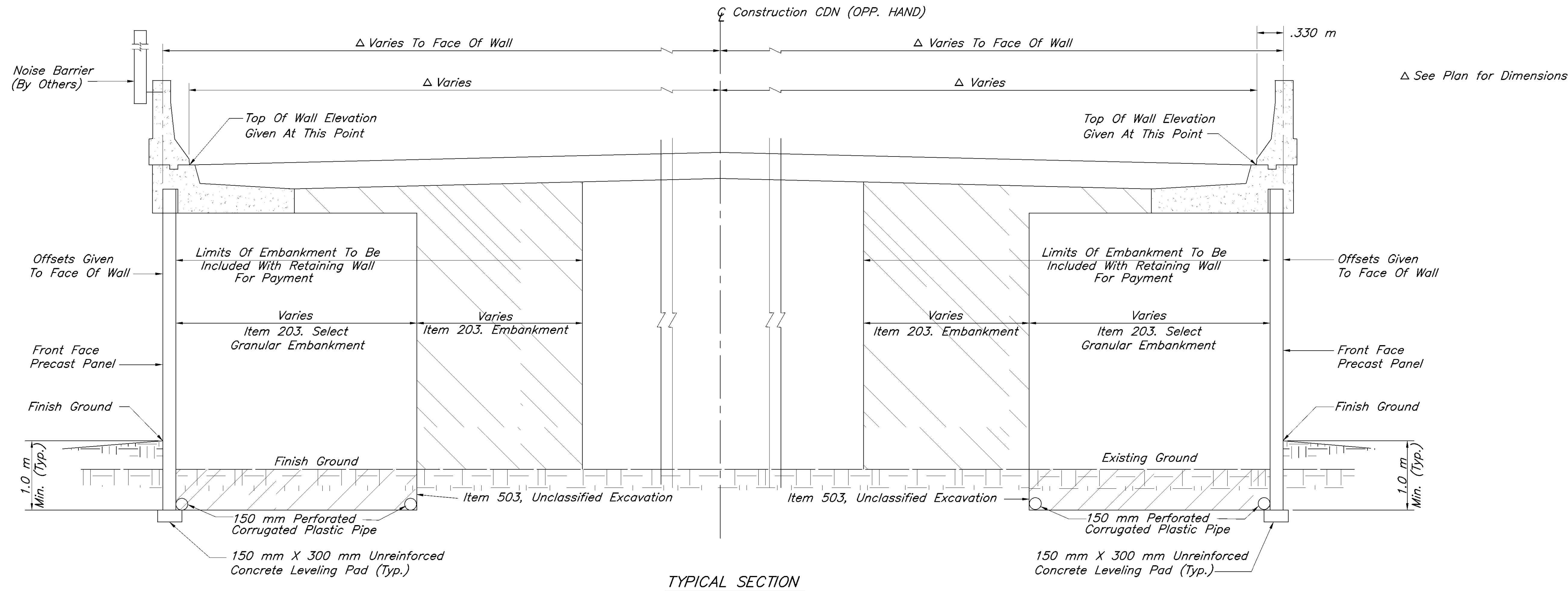
NOTES:

MSE WALLS LOCATED AT BRIDGE ABUTMENTS WERE ANALYZED BY TAKING A SECTION BOTH PARALLEL (P) TO THE CENTERLINE OF THE ROAD AND NORMAL (N) TO THE CENTERLINE OF THE ROAD. DESIGN SECTION TAKEN AT HIGHEST POINT OF WALL.

DESIGN BEARING VALUES WILL VERY BASED ON THE WALL HEIGHT AND UNIT WEIGHT OF THE SOIL USED WITHIN THE MSE WALL REINFORCED ZONE.

* DESIGN D IS NOT ALLOWED TO BE BID ON WALLS THAT SUPPORT BRIDGE ABUTMENTS WITHOUT PILES. ONLY DESIGN A, B, AND C CAN BE BID FOR THESE WALLS.

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* ESTIMATED QUANTITIES

MSE WALL	SHEET NO.	TOTAL LENGTH	TOTAL AREA	203 GRAN. EMB.	203 EMB.	503 EXCV.	518 150 MM PERF.	518 150 MM NON-PERF.	511 CLASS C CONC.	864 SURFACE SEALING
NO.	SHEET	METER	SQ. M	CU. M	CU. M	CU. M	METER	METER	CU. M	SQ. M
1	580	40	95	229	7	165	80	6	0	341
2	586	326	1593	6313	1454	346	640	13	412.5	960
3	586	308	1582	6688	1356	905	616	8	202.7	538
4	590	47	207	551	227	0	78	4	60.6	141
5	595	86	616	2494	330	180	142	3	110.9	258
6	595	67	454	1723	313	379	125	13	86.4	201
7	596	152	705	2474	605	69	290	8	195.9	456
8	601	150	302	724	202	134	300	33	193.4	450
9	604	53	304	1022	57	46	87	3	68.3	159
10	607	61	571	0	0	0	53	0	78.6	183
11	607	73	804	5250	0	1272	67	3	94.1	219
12	611	239	1659	7474	1037	268	2040	32	308.1	717
13	614	51	208	493	54	0	72	3	65.7	153
14	618	255	882	2486	283	959	515	4	0	1522
15	622	112	295	714	6	413	225	12	0	336
16	623	60	332	870	132	108	84	3	0	246
17	624	56	277	597	105	93	90	3	0	193
TOTALS		2,136	10,886	40,102	6,168	5,337	5,504	151	1,877.2	7,073

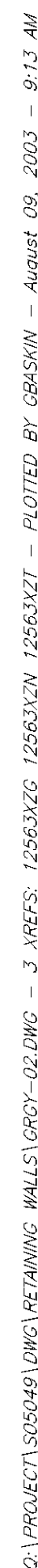
* These quantities are to be included in the Lump Sum bid for Item 610 Special-Reinforced Earth Wall.
All labor, materials and incidentals required to complete the walls are to be included in the Lump Sum bid price.

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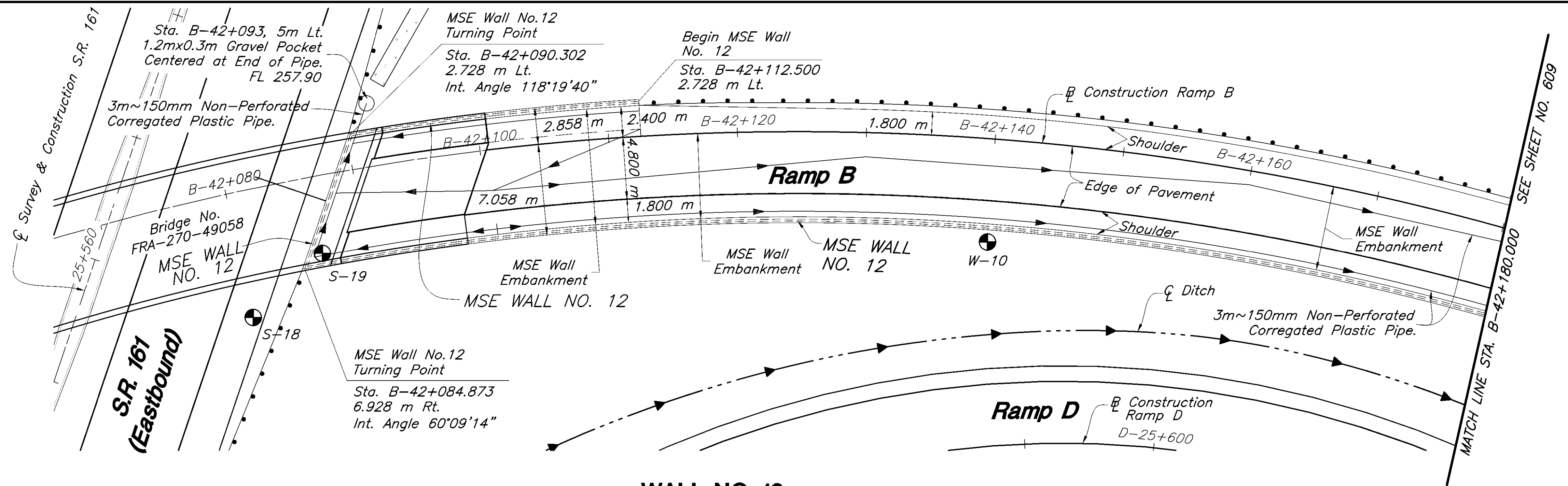
ESTIMATED QUANTITIES – NOISE BARRIERS													
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	ON INDEPENDENT FOOTING ADJACENT TO MSE WALL					ON MSE WALL			
					1	3	14	15		1	3	14	15
606	10920	189	Sq. Meter	Special – Noise Barrier, Misc: (Reflective) 3048 mm Height and Under	0	0	0	0		37	152	0	0
606	10920	187	Sq. Meter	Special – Noise Barrier, Misc: (Absorptive) 3048 mm Height and Under	0	0	0	0		0	0	0	187
517	76300	148.86	Meter	Railing, Misc: (Combination Noise and Traffic Barrier on Independent Footing)	28.65	14.33	91.55	14.33					
517	76300	538.29	Meter	Railing, Misc: (Combination Noise and Traffic Barrier on MSE Wall with Flexible Pavement)	0	0	0	0		40.81	140.74	254.65	102.09
864	10100	3860	Sq. Meter	Sealing of Concrete Surfaces (Epoxy – Urethane)	97	49	510	49		244	816	1522	573

NOTE:

RAILING (COMBINATION NOISE AND TRAFFIC BARRIER): See Plan Insert Sheets 1 through 10. These Insert Sheets are in English Units. Any conversion of dimensions required to construct the items shown on the Plan Insert Sheets is the responsibility of the Contractor. Refer to 109.02 for a listing of Conversion Factors. Conversions shall be appropriately precise and shall reflect standard industry metric values where suitable.

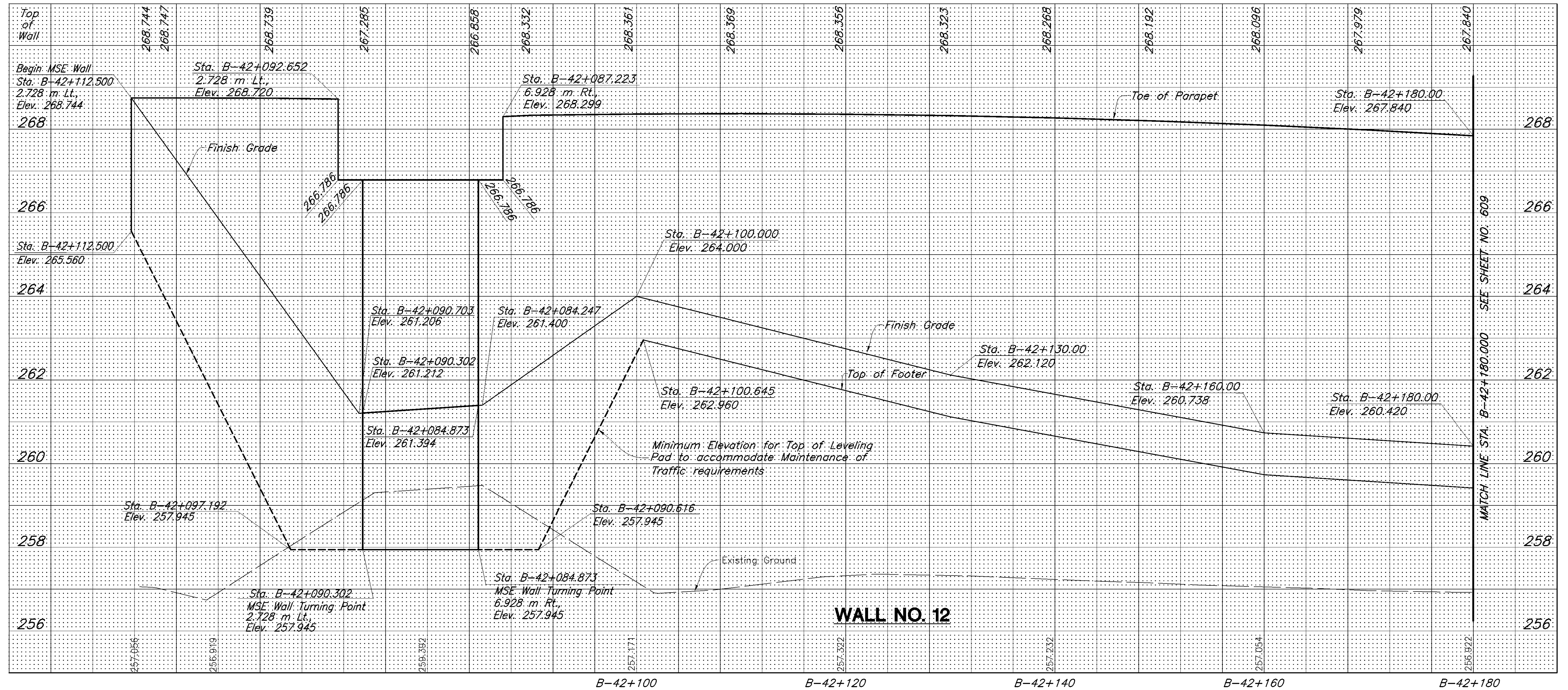


Ramp B
Curve Data
P.I. Sta. = B-42+434.934
 $\Delta = 144^\circ 42' 28''$
 $R = 204.800$ m
 $T = 643.811$ m
 $L = 517.248$ m
 $E = 470.800$ m
 $e_{\max} = 0.06$
P.C. Sta. = B-41+791.123
P.T. Sta. = B-42+308.371



Sta. F-42+137, 16m Rt.
Precast Reinforced
Concrete Outlet
FL 258.90

WALL NO. 12



0 5 10
HORIZONTAL
SCALE IN METERS

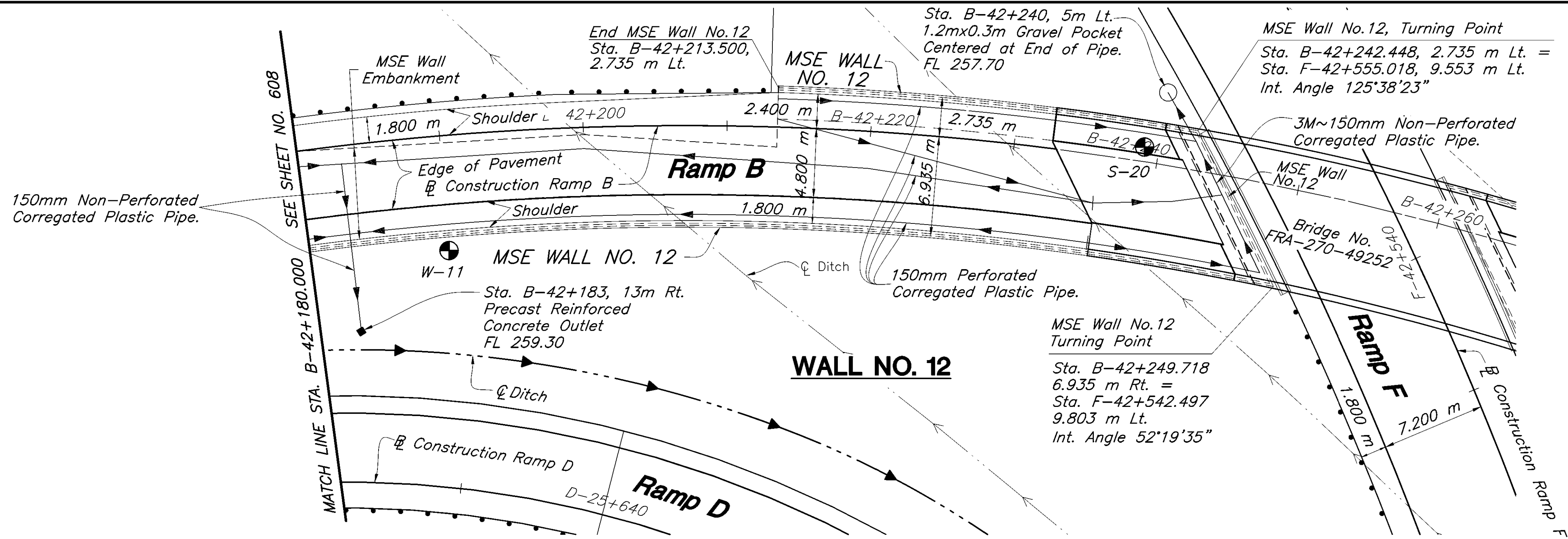
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PM
CHECKED
LGM

MSE WALL NO. 12 - RAMP B
STA. B-42+085.247 TO STA. B-42+180.000

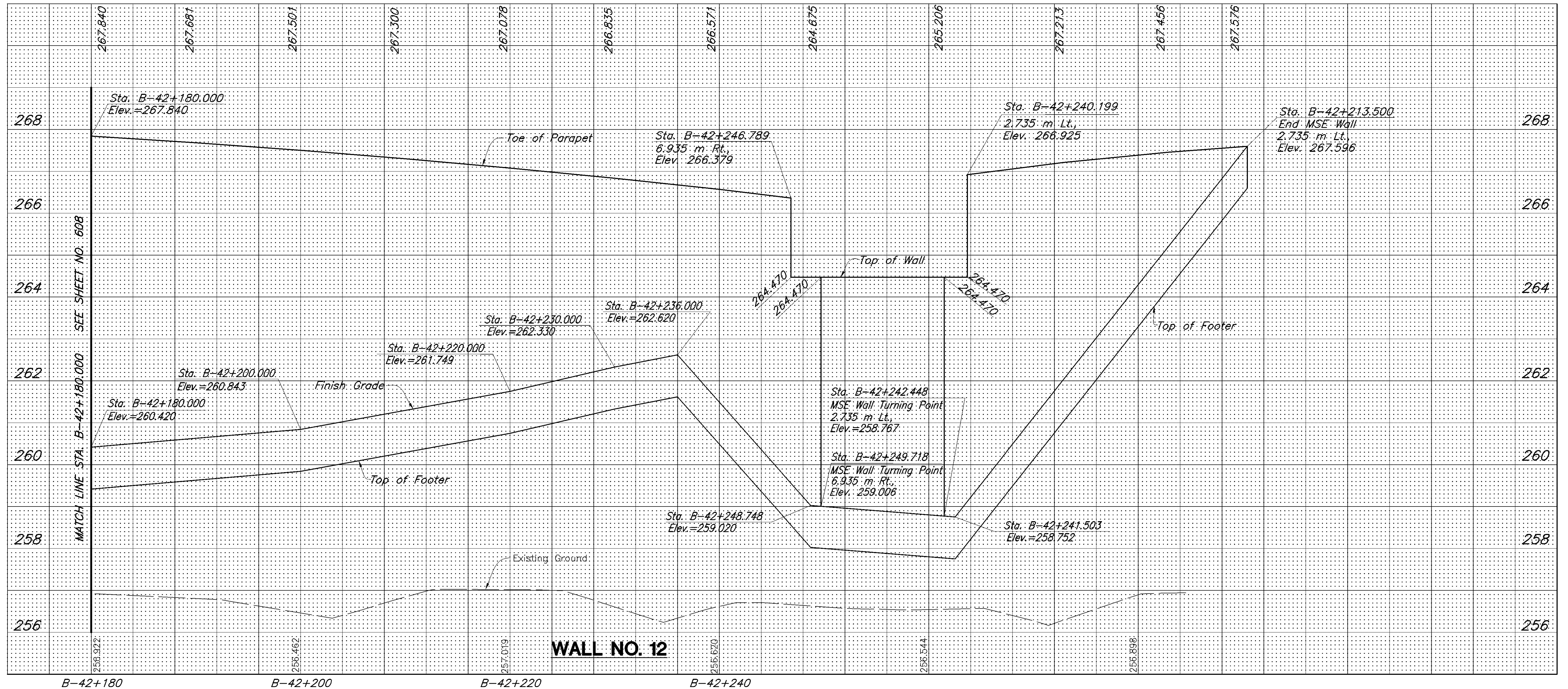
FRA-270-40.260

608
1039

G:\PROJECT\505049\DWG\RETAINING WALLS\GRA-04.DWG - 9 XREFS: 12563X2G 12563XPR 12563XCL 12563XV3 12563XV7 12563XVU 12563XVZ - PLOTTED BY CBASKIN - August 08, 2003 - 10:39 AM



Ramp B
Curve Data
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 $R = 204.800$ m
 $T = 643.811$ m
 $L = 517.248$ m
 $E = 470.800$ m
 $e_{max} = 0.06$
P.C. Sta. = B-41+791.123
P.T. Sta. = B-42+308.371



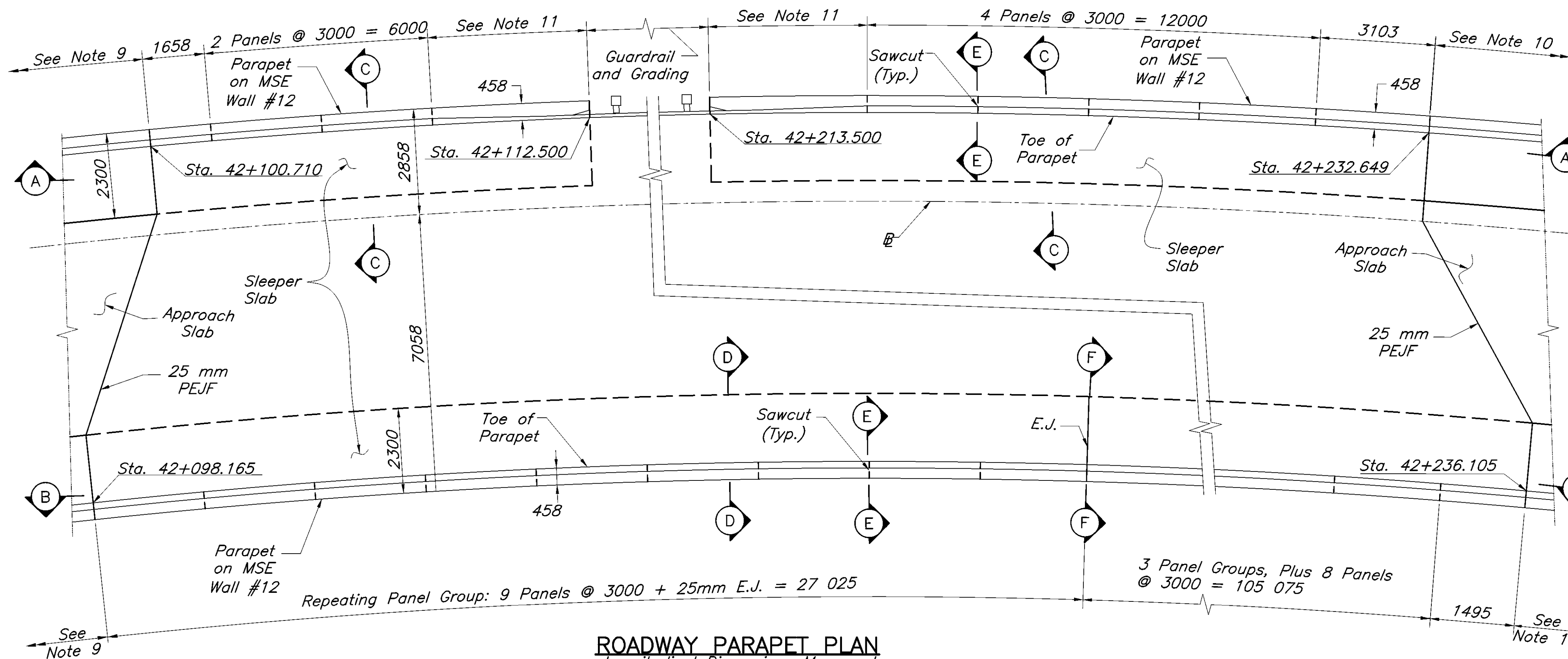
0 5 10
HORIZONTAL
SCALE IN METERS

CALCULATED
PM
CHECKED
LGM

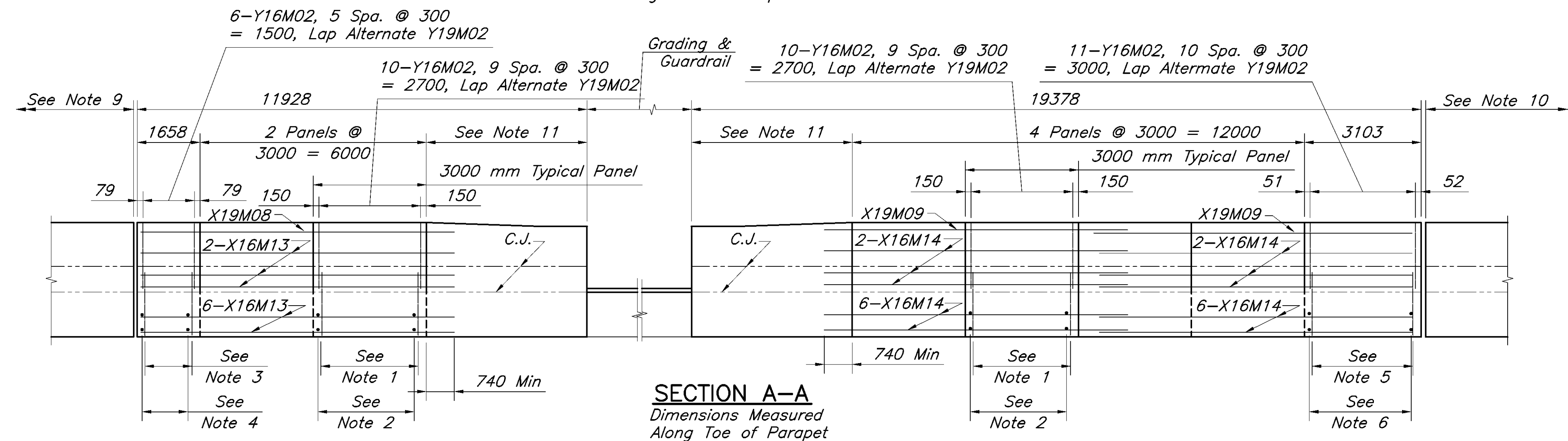
MSE WALL NO. 12 - RAMP B
STA. B-42+180.000 TO STA. B-42+249.718

FRA-270-40.260

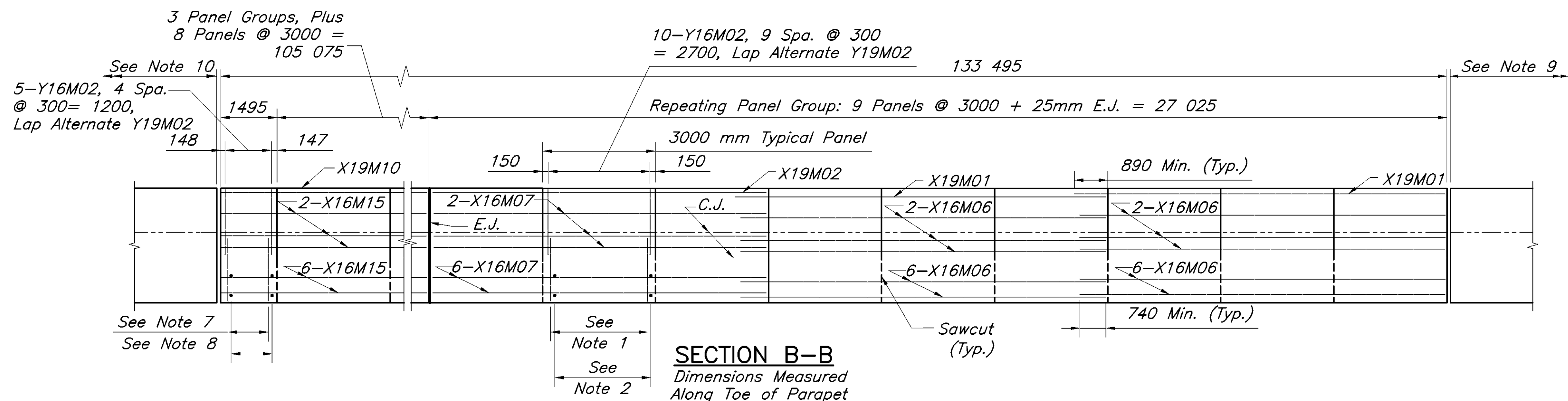
609
1039



ROADWAY PARAPET PLAN
Longitudinal Dimensions Measured
Along Toe of Parapet



SECTION A-A
Dimensions Measured
Along Toe of Parapet



SECTION B-B
Dimensions Measured
Along Toe of Parapet

DESIGN SPECIFICATIONS: "Standard Specifications For Highway Bridges" adopted by AASHTO, 1996, including the 1997, 1998, & 1999 Interim Specification.

DESIGN DATA:

Concrete Class S f'c = 31 MPa, Reinforcing Steel ASTM A615M, A616M, or A617M Grade 420 fy = 420 MPa.

CONTROL JOINTS FOR CONCRETE PARAPETS:

The joints shall be constructed by sawing 32 mm deep along perimeter of the parapet as soon as the saw can be operated without damaging the concrete.

The use of an edge guide, fence, or jog is required to insure that the cut joint is straight, true, and aligned on all faces of the parapet. The joint width shall be the width of the saw blade, a nominal width of 6 mm.

The perimeter of the deflection control joint shall be sealed with a caulking material to a minimum depth of 25 mm conforming to federal specification TT-S-00227E. The bottom 13 mm of the inside face of the parapet should be left unsealed to allow any water which may enter the joint to escape.

SAWCUT: Shall be Placed as Shown.

QUANTITIES of concrete, reinforcing steel, deflection joint sawcut, and caulking material for Parapet are included with MSE Walls for payment.

For bridge terminal assembly see standard construction drawing GR-3.1M and GR-3.2M.

NOTES:

- 10-Y19M01, 9 Spa. @ 300 = 2700 N.F.
19-Y19M02, 18 Spa. @ 150 = 2700 N.F.
10-Y19M05, 9 Spa. @ 300 = 2700 F.F.
- 10-X16M04, 9 Spa. @ 300 = 2700 (Top)
10-X16M05, 9 Spa. @ 300 = 2700 (Bottom)
- 6-Y19M01, 5 Spa. @ 300 = 1500 N.F.
11-Y19M02, 10 Spa. @ 150 = 1500 N.F.
6-Y19M05, 5 Spa. @ 300 = 1500 F.F.
- 6-X16M04, 5 Spa. @ 300 = 1500 (Top)
6-X16M05, 5 Spa. @ 300 = 1500 (Bottom)
- 11-Y19M01, 10 Spa. @ 300 = 3000 N.F.
21-Y19M02, 20 Spa. @ 150 = 3000 N.F.
11-Y19M05, 10 Spa. @ 300 = 3000 F.F.
- 11-X16M04, 10 Spa. @ 300 = 3000 (Top)
11-X16M05, 10 Spa. @ 300 = 3000 (Bottom)
- 5-Y19M01, 4 Spa. @ 300 = 1200 N.F.
9-Y19M02, 8 Spa. @ 150 = 1200 N.F.
5-Y19M05, 4 Spa. @ 300 = 1200 F.F.
- 5-X16M04, 11 Spa. @ 300 = 1200 (Top)
5-X16M05, 11 Spa. @ 300 = 1200 (Bottom)
- Panel on Forward Approach Slab. See Bridge No. FRA-270-25491 For Details.
- Panel on Rear Approach Slab. See Bridge No. FRA-270-42242 For Details.
- 4270 Transition Panel. See 915mm Parapet Transition Details Sheets.

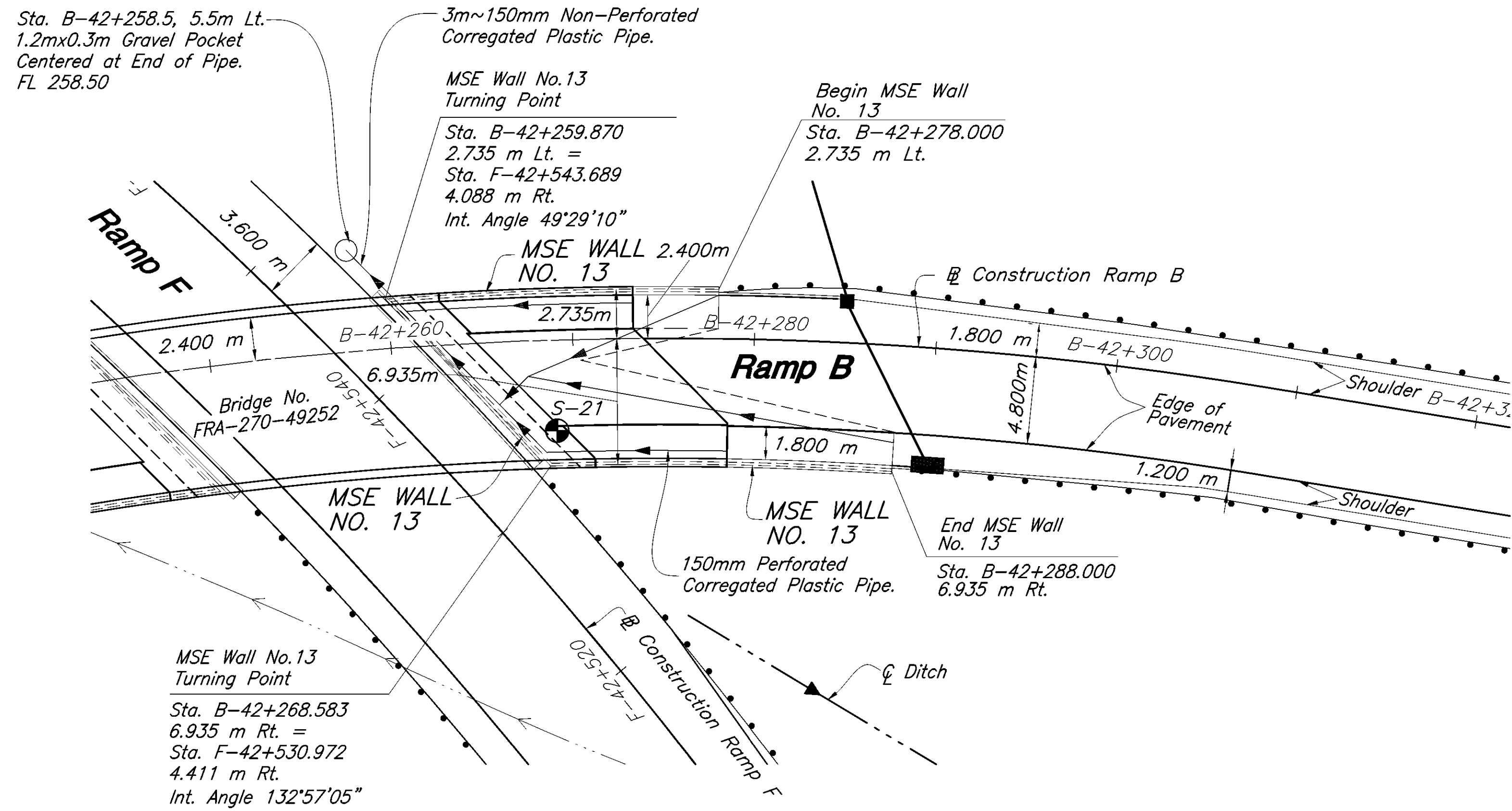
LEGEND:

C.J. - Construction Joint

N.F. - Near Face

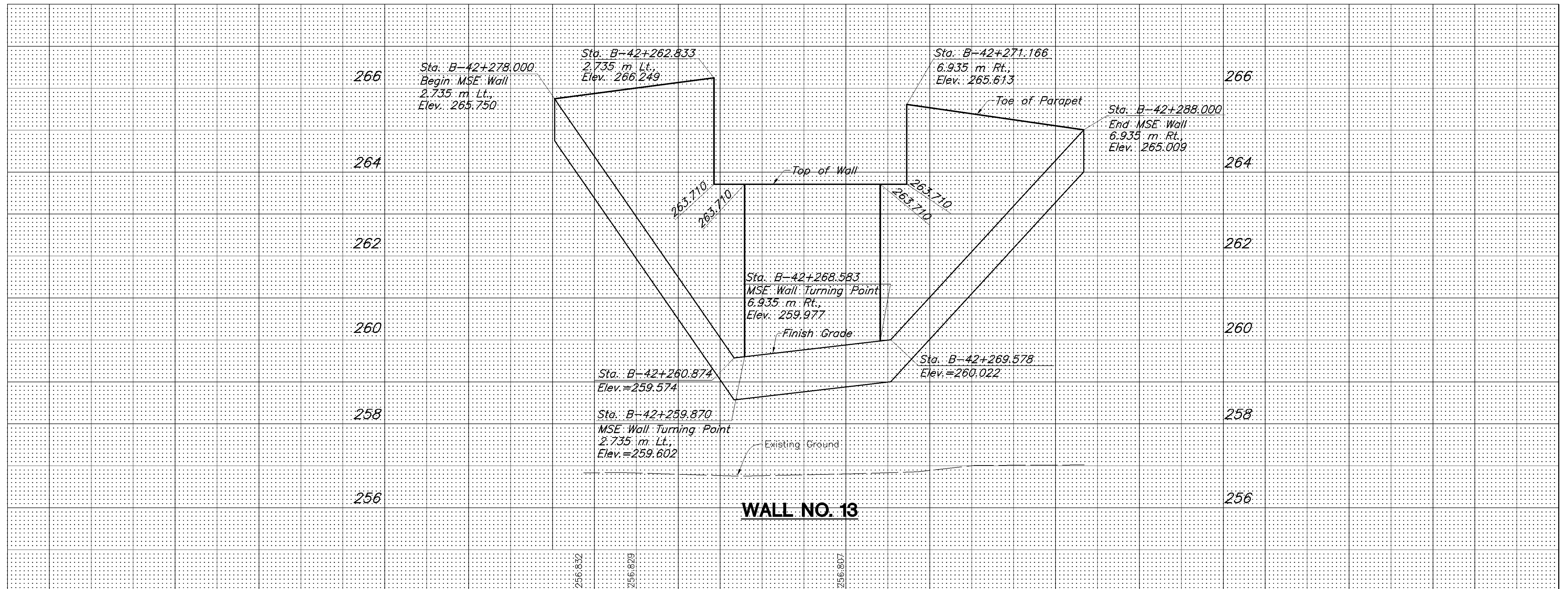
F.F. - Far Face

G:\PROJECT\505049\DWG\RETAINING WALLS\GRA-05.DWG - 10 AREAS: 12563XCL 12563XST 12563XV3 12563XV7 12563XVU 12563XVZ 12563XZT - PLOTTED BY CBASWIN - August 09, 2003 - 10:44 AM



Ramp B
Curve Data
P.I. Sta. = B-42+434.934
 $\Delta = 144^\circ 42' 28''$
R = 204.800 m
T = 643.811 m
L = 517.248 m
E = 470.800 m
 $e_{max} = 0.06$
P.C. Sta. = B-41+791.123
P.T. Sta. = B-42+308.371

WALL NO. 13



0 5 10
HORIZONTAL
SCALE IN METERS

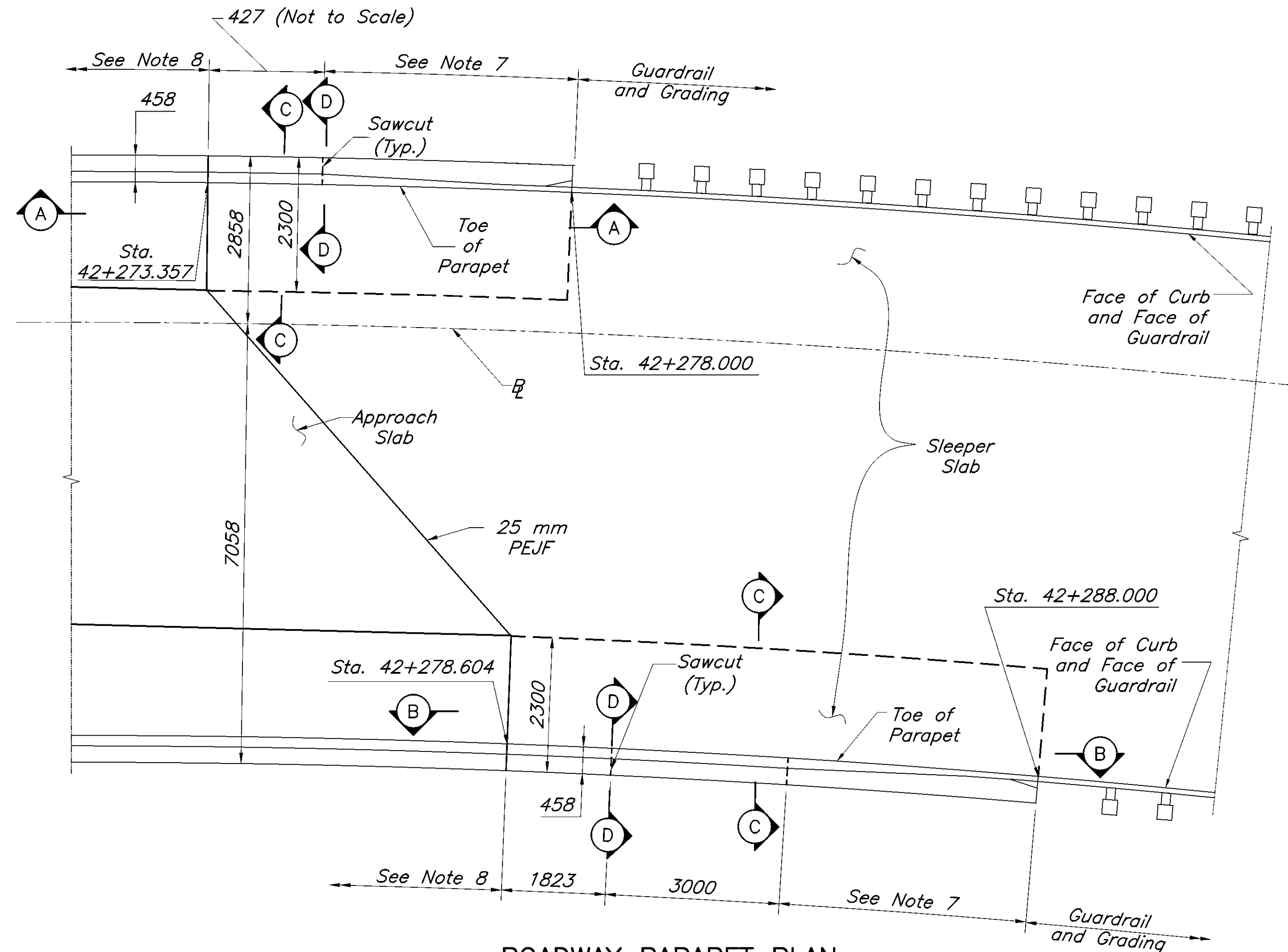
CALCULATED
PM
CHECKED
LGM

MSE WALL NO. 13 - RAMP B
STA. B-42+259.870 TO STA. B-42+288.000

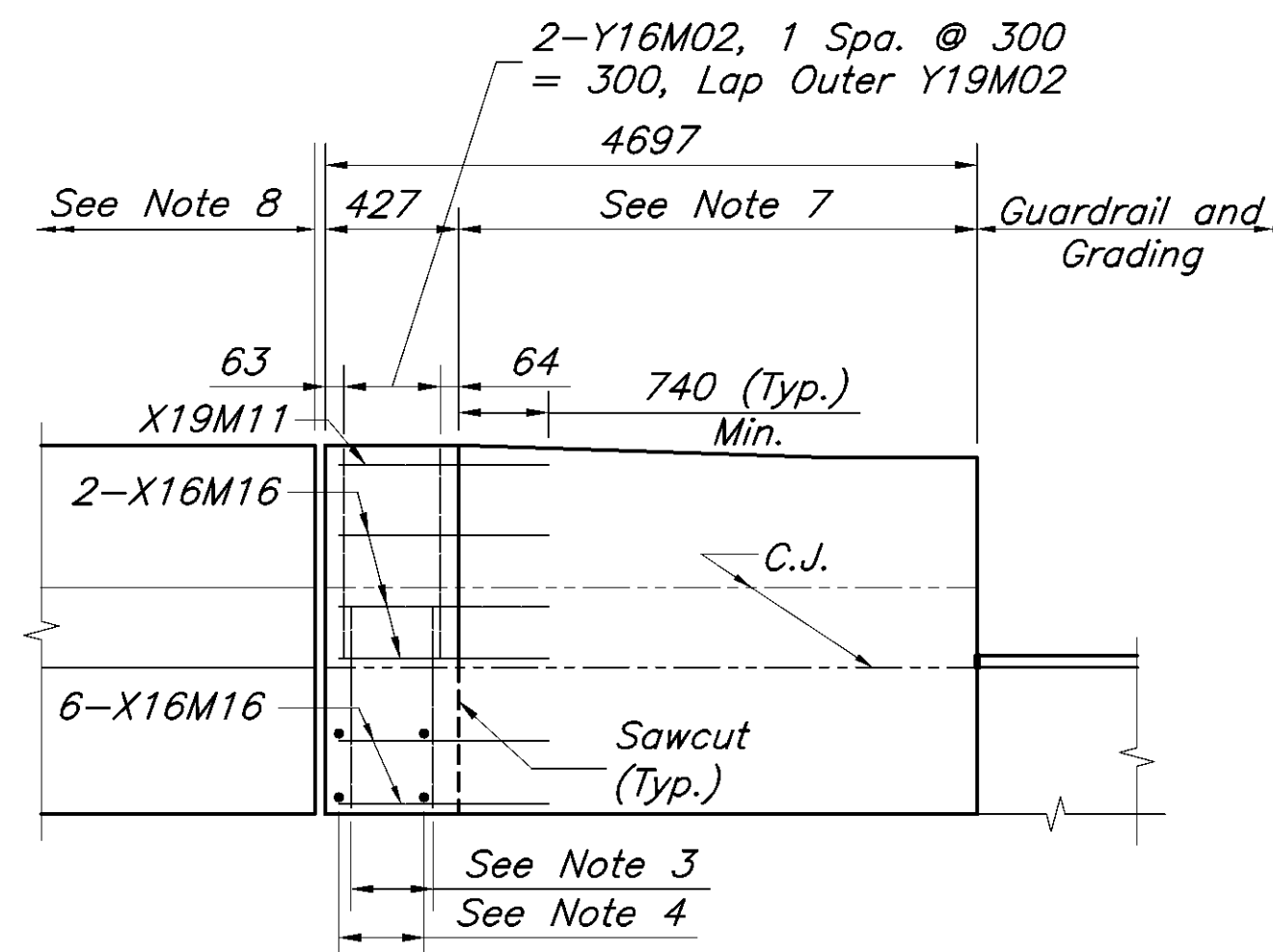
FRA-270-40.260

612
1039

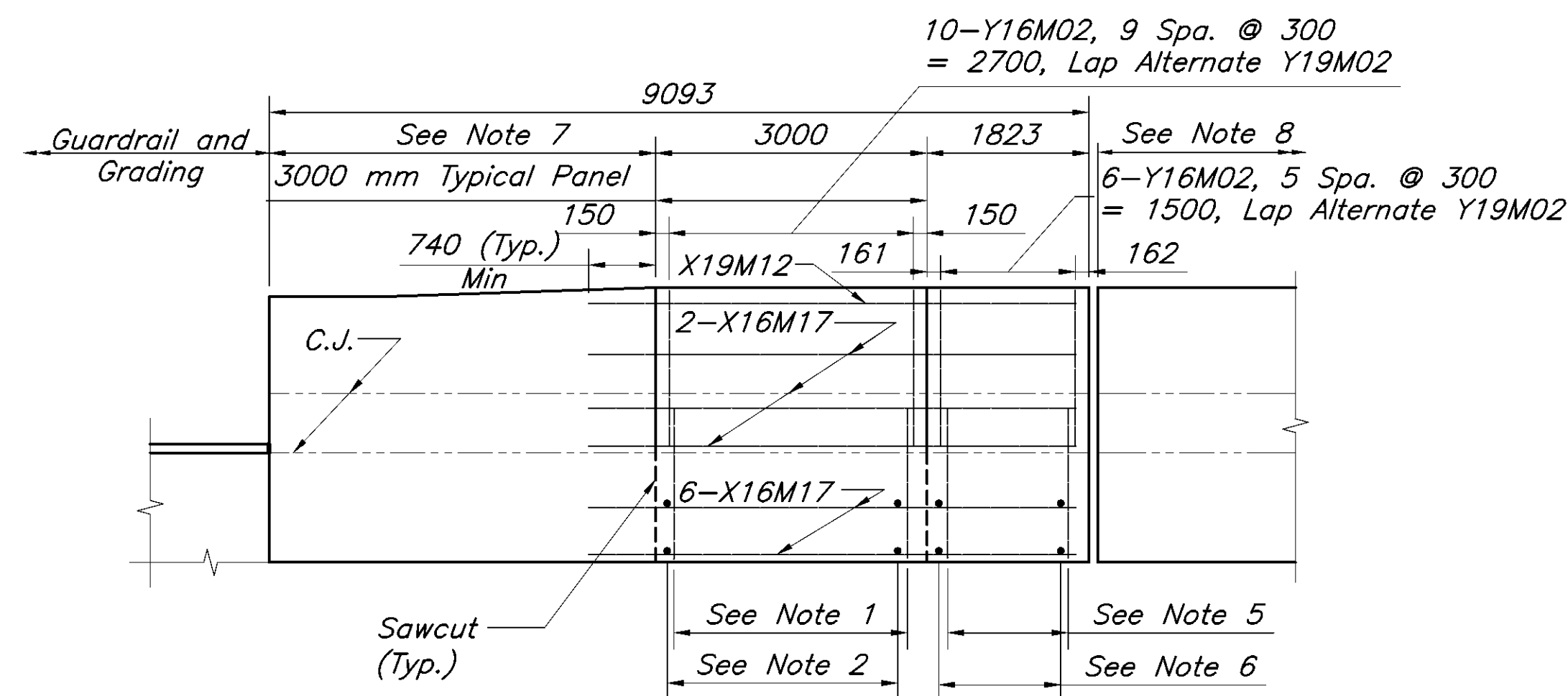
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ROADWAY PARAPET PLAN



SECTION A-A
Dimensions Measured
Along Toe of Parapet



SECTION B-B
Dimensions Measured
Along Toe of Parapet

DESIGN SPECIFICATIONS: "Standard Specifications For Highway Bridges" adopted by AASHTO, 1996, Including the 1997, 1998, & 1999 Interim Specifications.

DESIGN DATA:

Concrete Class S $f'_c = 31$ MPa, Reinforcing Steel ASTM A615M, A616M, or A617M Grade 420 $f_y = 420$ MPa.

CONTROL JOINTS FOR CONCRETE PARAPETS:

The joints shall be constructed by sawing 32 mm deep along perimeter of the parapet as soon as the saw can be operated without damaging the concrete.

The use of an edge guide, fence, or jog is required to insure that the cut joint is straight, true, and aligned on all faces of the parapet. The joint width shall be the width of the saw blade, a nominal width of 6 mm.

The perimeter of the deflection control joint shall be sealed with a caulking material to a minimum depth of 25 mm conforming to federal specification TT-S-00227E. The bottom 13 mm of the inside face of the parapet should be left unsealed to allow any water which may enter the joint to escape.

SAWCUT: Shall be Placed as Shown.

QUANTITIES of concrete, reinforcing steel, deflection joint sawcut, and caulking material for Parapet are included with MSE Walls for payment.

For bridge terminal assembly see standard construction drawing GR-3.1M and GR-3.2M.

NOTES:

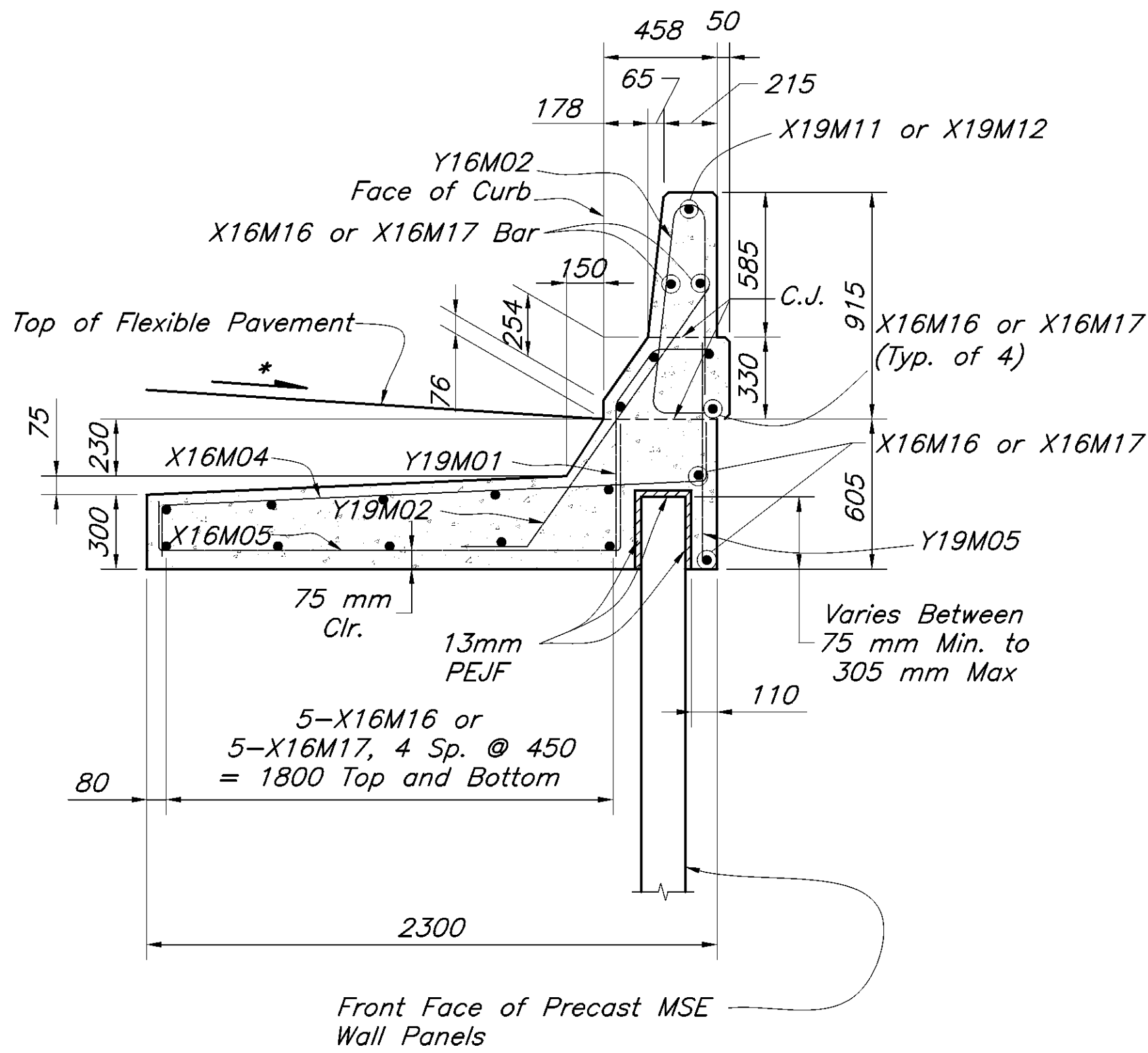
- 10-Y19M01, 9 Spa. @ 300 = 2700 N.F.
19-Y19M02, 18 Spa. @ 150 = 2700 N.F.
10-Y19M05, 9 Spa. @ 300 = 2700 F.F.
- 10-X16M04, 9 Spa. @ 300 = 2700 (Top)
10-X16M05, 9 Spa. @ 300 = 2700 (Bottom)
- 2-Y19M01, 1 Spa. @ 300 = 300 N.F.
3-Y19M02, 2 Spa. @ 150 = 300 N.F.
2-Y19M05, 1 Spa. @ 300 = 300 F.F.
- 2-X16M04, 1 Spa. @ 300 = 300 (Top)
2-X16M05, 1 Spa. @ 300 = 300 (Bottom)
- 6-Y19M01, 5 Spa. @ 300 = 1500 N.F.
11-Y19M02, 10 Spa. @ 150 = 1500 N.F.
6-Y19M05, 5 Spa. @ 300 = 1500 F.F.
- 6-X16M04, 5 Spa. @ 300 = 1500 (Top)
6-X16M05, 5 Spa. @ 300 = 1500 (Bottom)
- 4270 Transition Panel. See 915mm Parapet Transition Details Sheets.
- Panel on Forward Approach Slab. See Bridge No. FRA-270-49242 For Details.

LEGEND:

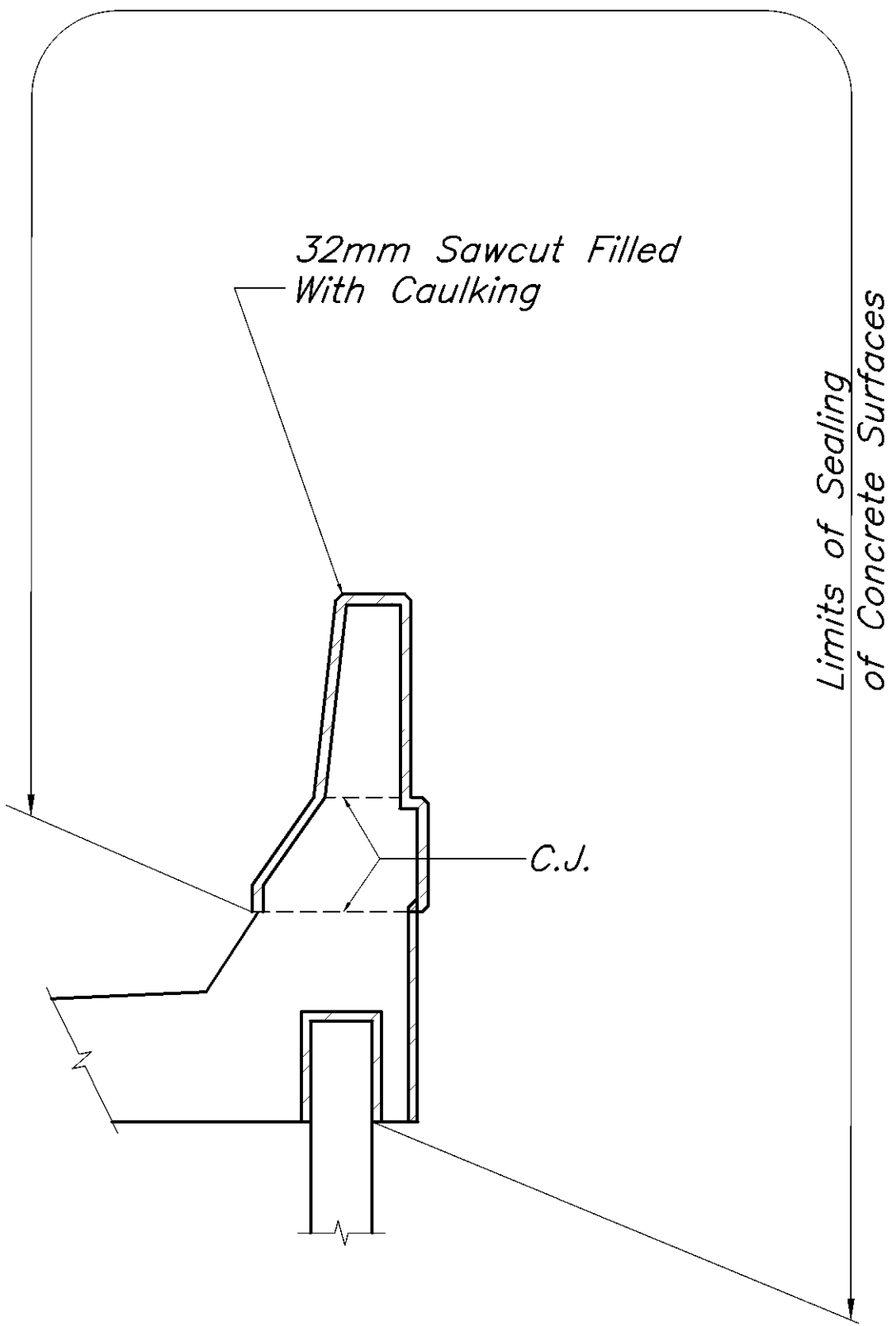
- C.J. - Construction Joint
N.F. - Near Face
F.F. - Far Face
E.J. - Expansion Joint

Q:\PROJECT\505049\DWG\RETAINING WALLS\GRP-C&B.DWG - 3 XREFS: 12563\ZC 12563\ZC 12563\ZC - PLOTTED BY GB&SKIN - August 09, 2003 - 10:46 AM

REINFORCING BAR LIST			
MARK	NUMBER	LENGTH	TYPE
X16M04	18	2500	BENT
X16M05	18	2420	BENT
X16M16	18	1120	STR.
X16M17	18	5515	STR.
X19M11	1	1120	STR.
X19M12	1	5515	STR.
Y16M02	18	1825	BENT
Y19M01	18	1065	BENT
Y19M02	33	1515	BENT
Y19M05	18	810	STR.

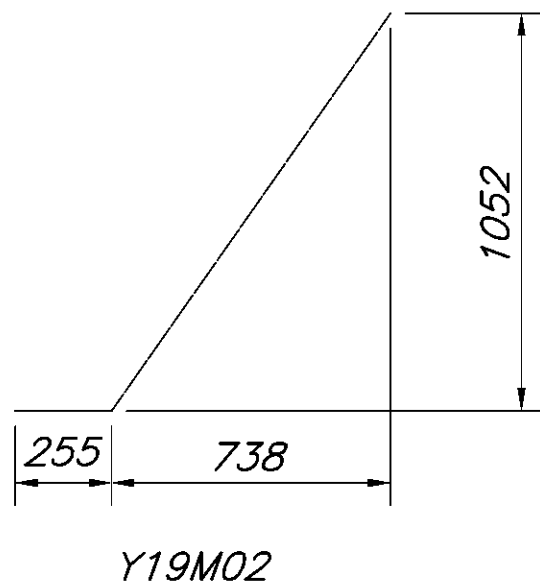
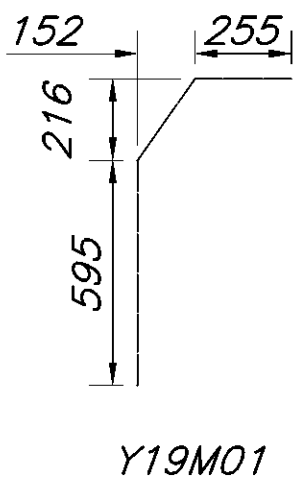
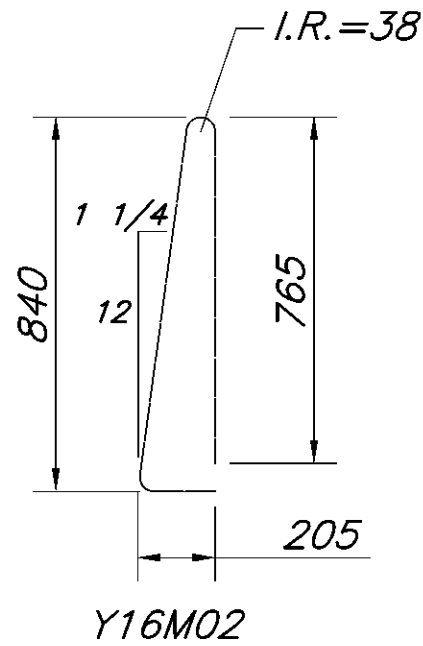
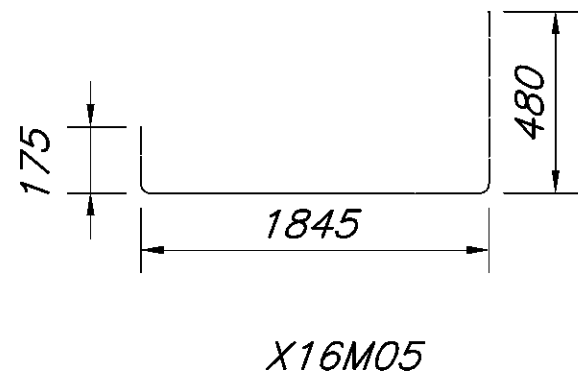
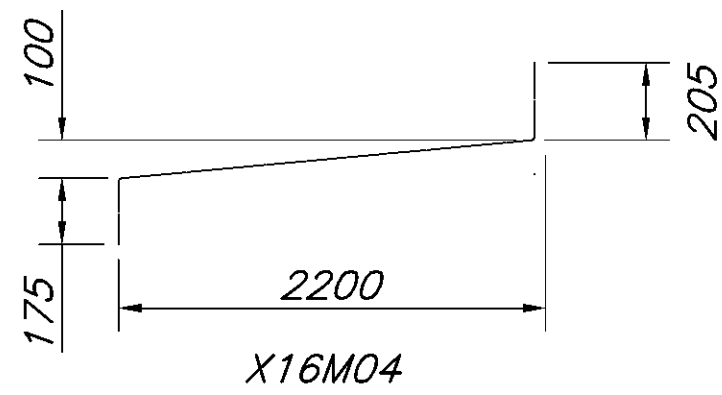


SECTION C-C



SECTION D-D

At Sawcut Joint
Reinforcing Not Shown For Clarity



ESTIMATED QUANTITIES * (For Information Only)			
ITEM	TOTAL	UNIT	DESCRIPTION
203	54	CU. M.	Embankment
203	493	CU. M.	Select Granular Embankment, AS Per Plan
503	0	CU. M.	Unclassified Excavation, As Per Plan
518	72	METER	150mm Perforated Corrugated Plastic Pipe Wrapped with Fiber Fabric.
518	3	METER	150mm Non Perforated Corrugated Plastic Pipe
842	65.7	CU. M.	Class C Concrete, Misc.: Parapet.
Special	153	SQ. M.	Sealing of Concrete Surface (See Proposal Note)
Special	208	SQ. M.	Mechanically Stabilized Earth Wall

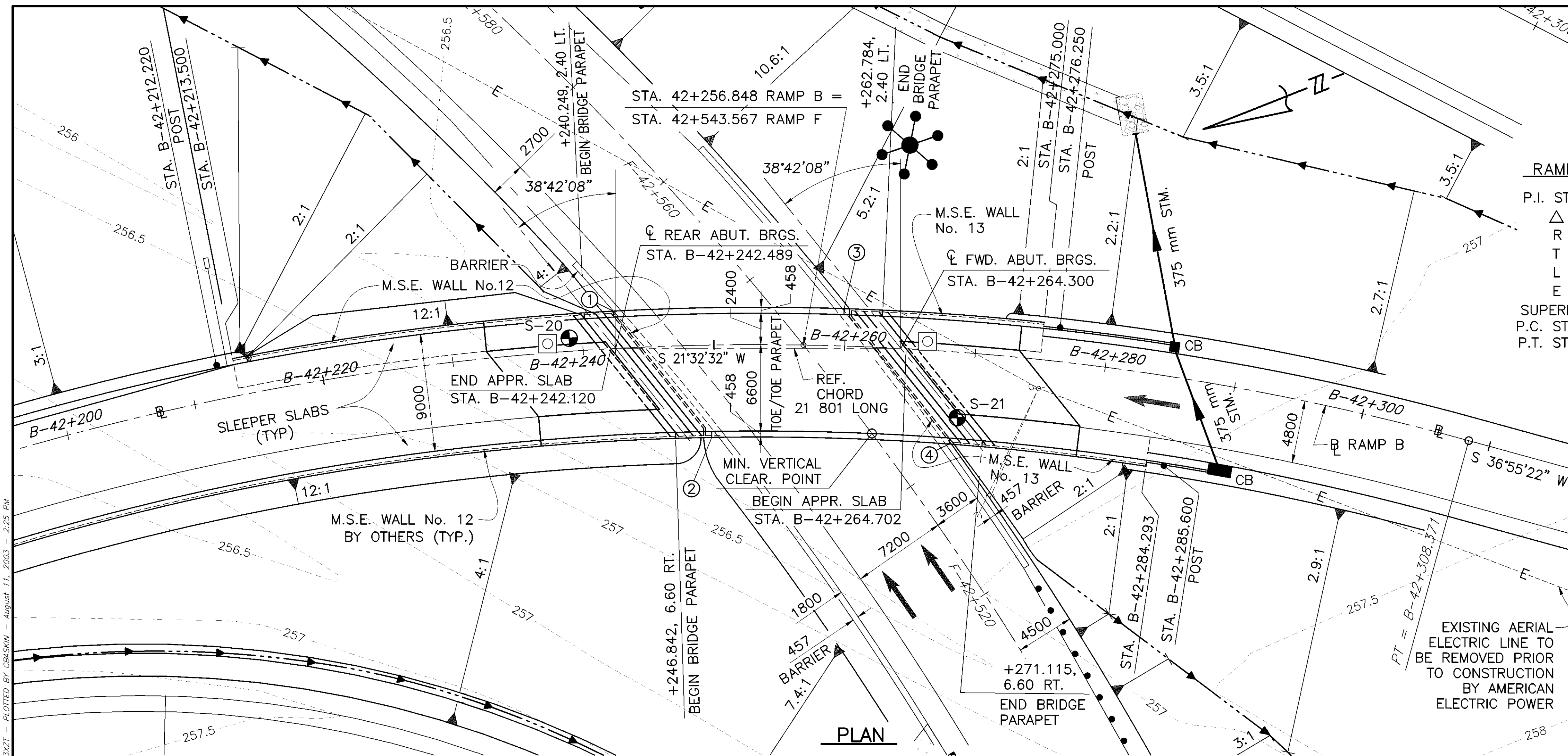
* Quantities to be included in Lump Sum price for MSE Walls.

LEGEND:

* Top Surface of Pavement Shall be Defined by the Applicable Roadway Cross-Section.

C.J. - Construction Joint

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RAMP B CURVE DATA

P.I. STA. = B-42+434.934
 Δ = 144° 42' 28" RT.
R = 204.800 m
T = 643.811 m
L = 517.248 m
E = 470.800 m
SUPERELEVATION = 0.060
P.C. STA. = B-41+791.123
P.T. STA. = B-42+308.371

RAMP F CURVE DATA

P.I. STA. = F-42+873.504
 Δ = 149° 38' 42" RT.
R = 250.000 m
T = 921.584 m
L = 652.950 m
E = 704.891 m
SUPERELEVATION = 0.060
P.C. STA. = F-41+951.919
P.T. STA. = F-42+604.869

M.S.E. WALL CORNER TURNING POINTS

- STA. B-42+242.448, 2.735 LT.
- STA. B-42+249.718, 6.935 RT.
- STA. B-42+259.870, 2.735 LT.
- STA. B-42+268.583, 6.935 RT.

* FACE OF WALL SET 1560 PARALLEL TO $\angle$ BEARINGS.
REMOVE HEEL OF TYPE D CONCRETE BARRIER AT MSE WALLS AS NEEDED.

BENCHMARK:

BRASS PLATE ON SOUTH SIDE OF EAST ABUTMENT OF S.R. 161 BRIDGE OVER I-270, 7.47M SOUTH OF CENTERLINE OF EASTBOUND LANES OF S.R. 161.
ELEVATION: 261.585

⊕ = BORING LOCATIONS

⊗ = PROPOSED SETTLEMENT PLATFORM LOCATION. SEE SHEET 43 FOR NOTES AND DETAILS.

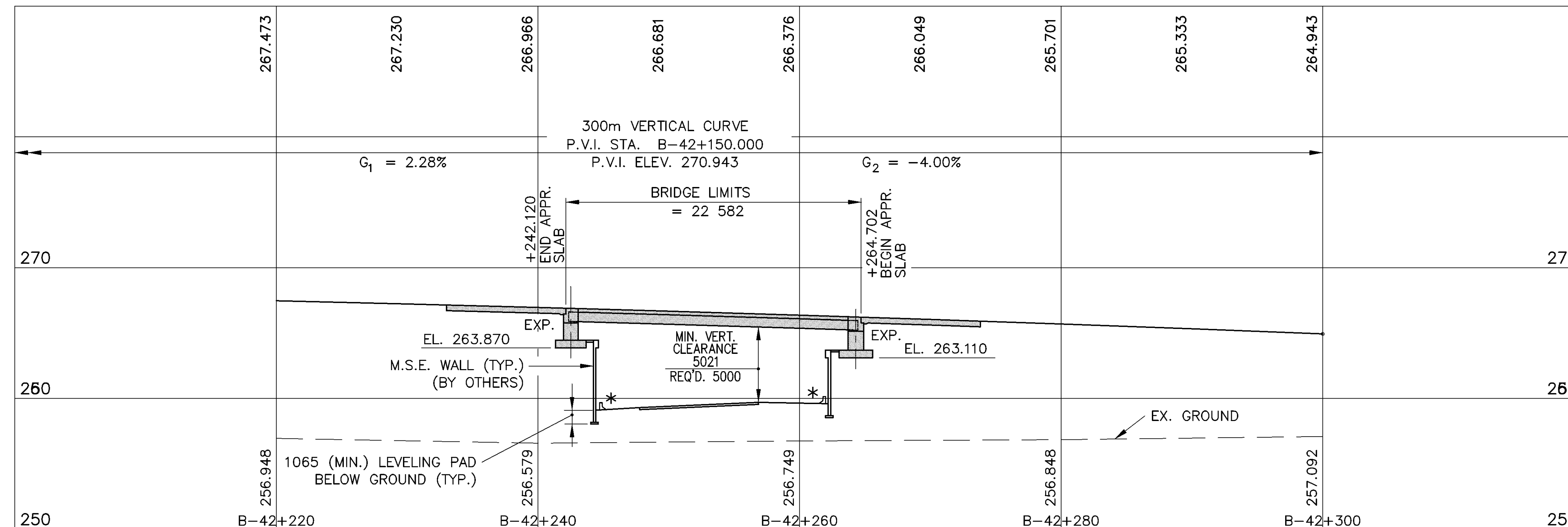
NOTE :
ALL DIMENSIONS ARE IN MILLIMETERS.
STATIONS AND ELEVATIONS ARE IN METERS.

TRAFFIC

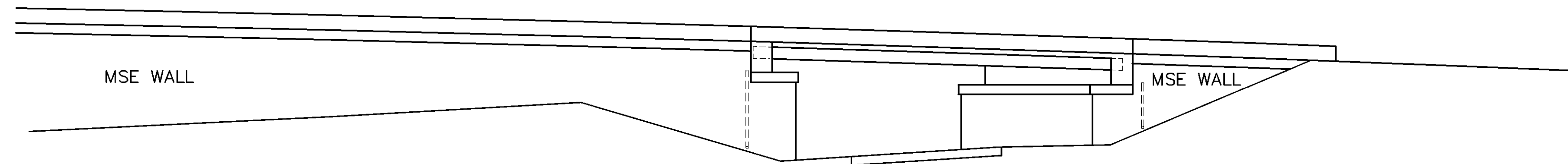
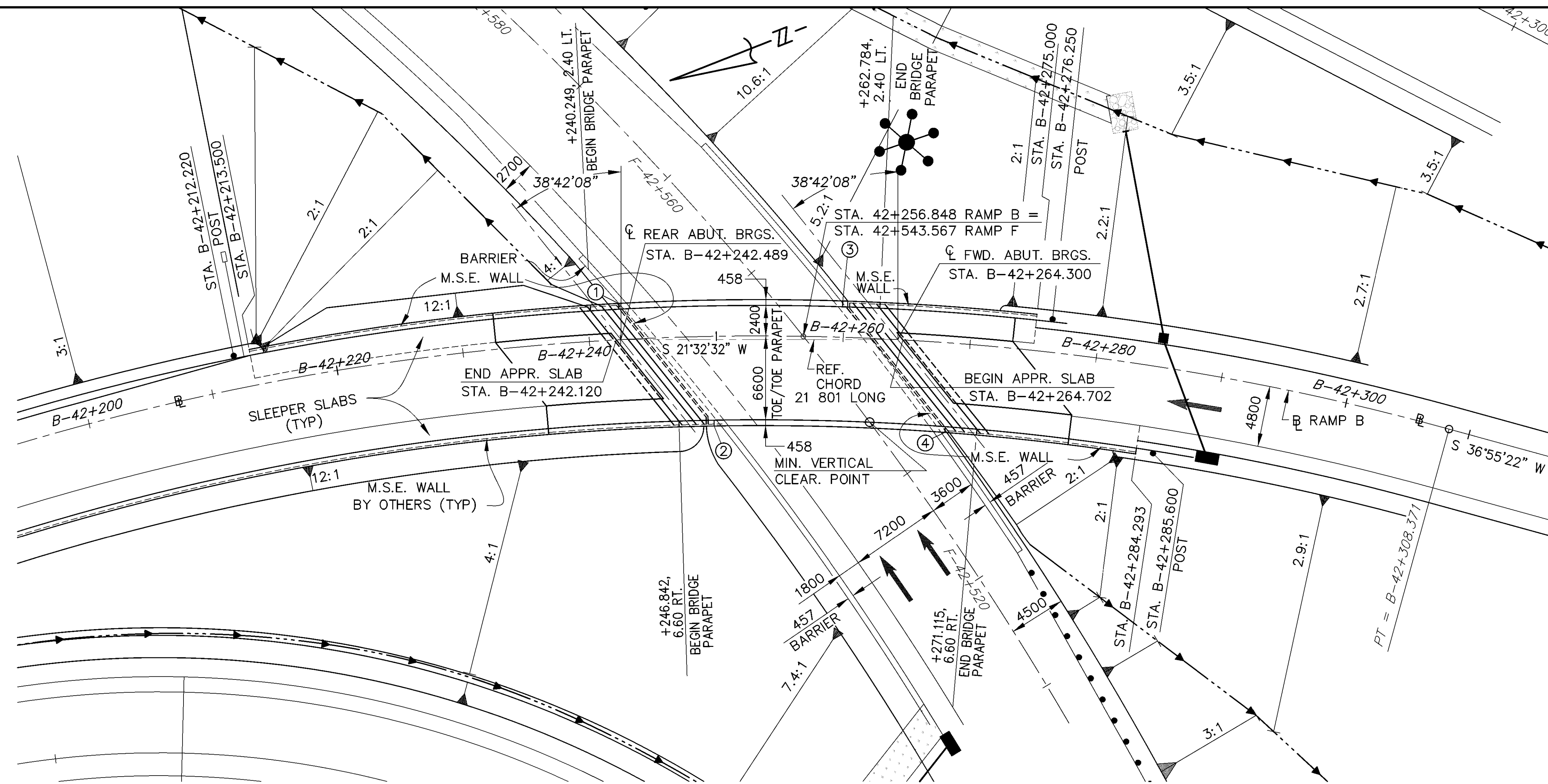
	2000	2020
ADT	7020	10970
ADTT	350	550

PROPOSED STRUCTURE

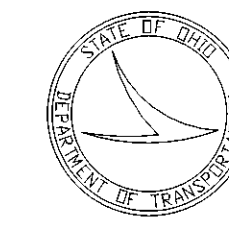
TYPE: SINGLE SPAN COMPOSITE(A572M, PAINTED) STEEL BEAM WITH CONCRETE DECK AND SEMI-INTEGRAL ABUTMENT ON SPREAD FOOTINGS ON MSE WALLS.
SPAN: 21 801 (REFERENCE CHORD)
C/C ABUTMENT BEARINGS
SKEW: 38°-42'-08" RT. FWD.(FROM REF. CHORD)
ALIGNMENT: 204.800 m RADIUS CURVE TO RT.
ROADWAY: 9000 T/T PARAPET
DESIGN LOADING: MS22.5, CASE II AND THE ALTERNATE MILITARY LOADING
WEARING SURFACE: MONOLITHIC CONCRETE
SUPERELEVATION : 0.06
APPROACH SLABS: AS-1-81M (9150 LONG) T=425
LAT. N 40° 04' 53" LONG. W 82° 54' 22"



B-42+239 SHALE ELEV. 245.12±
B-42+269 SHALE ELEV. 247.22±



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metric
units

EVANS, MECHWART, HAMBLETON & TILTON, INC.
CONSULTING ENGINEERS & SURVEYORS
170 MILL STREET
GAHANNA, OHIO 43230

REVIEWED	DATE
CJS 03/14/02	
STRUCTURE FILE NUMBER	2512386

DESIGNED HEM	DRAWN DDW
CHECKED GT	REVISED

GENERAL PLAN & ELEVATION
BRIDGE NO. FRA-270-49252
RAMP B OVER RAMP F

FRA 270-40.260

2 / 14

927
1039

\\C:\HDDATA\HIGHWAY\PROJECT\505049\DWG\CEVA 4-23-01\08-11\3\BRIDGE PLANS\BRIDGE-K-42242\BROK-SQ3.DWG -- 2 VIEWS: BROK-KA 12563XZT -- PLOTTED BY DVANCE -- November 17, 2003 -- 12:08 PM

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

AS-1-81	DATED (REVISED)	07-19-02
BR-1	DATED (REVISED)	07-19-02
GSD-1-96	DATED (REVISED)	07-19-02
SICD-1-96	DATED (REVISED)	07-19-02

AND TO SUPPLEMENTAL SPECIFICATIONS:

841	DATED	04-19-02
864	DATED	07-11-00
894	DATED	10-18-02
898	DATED	01-17-03

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996 INCLUDING THE 1997, 1998 AND 1999 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA:

DESIGN LOADING --	MS22.5 CASE II AND THE ALTERNATE MILITARY LOADING FUTURE WEARING SURFACE (FWS) OF 2.87 KPA
CONCRETE CLASS HP --	COMPRESSIVE STRENGTH 31.0 MPA (SUPERSTRUCTURE)
CONCRETE CLASS QSC1 --	COMPRESSIVE STRENGTH 27.5 MPA (SUBSTRUCTURE)
REINFORCING STEEL --	ASTM A615M OR A996M GRADE 420 -- UNIT STRESS 420 MPA.
STRUCTURAL STEEL --	ASTM A572/A709 GRADE 50 YIELD STRENGTH 350 MPA

DECK PROTECTION METHOD: EPOXY COATED REINFORCING STEEL, 65 MM CONCRETE COVER, CLASS HP CONCRETE, AND TREATING OF CONCRETE SURFACES.

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 25 MM THICK.

FOUNDATION BEARING PRESSURE: THE ABUTMENT FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 0.204 MPA. THE ALLOWABLE BEARING PRESSURE IS 0.240 MPA.

ITEM 898, QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE, AS PER PLAN:
IN ADDITION TO THE REQUIREMENTS OF ITEM 898, REFERENCE MONUMENTS SHALL BE INSTALLED IN EACH ABUTMENT SPREAD FOOTING. EACH SPREAD FOOTING SHALL HAVE TWO REFERENCE MONUMENTS INSTALLED, ONE AT EACH END OF THE FOOTING. THE REFERENCE MONUMENTS SHALL CONSIST OF A 25 MM, OR LARGER, EPOXY COATED REBAR. IT SHALL BE EMBEDDED INTO THE FOOTING AT LEAST 150 MM AND EXTEND VERTICALLY 100 TO 150 MM ABOVE THE TOP OF THE FOOTING. A 150 MM DIAMETER, SCHEDULE 40, PLASTIC PIPE SHALL BE INSTALLED AROUND THE REFERENCE MONUMENT; SHALL BE VERTICAL; AND THE TOP OF THE PIPE SHALL BE AT THE FINISHED GRADE. THE PIPE SHALL HAVE A REMOVABLE, SCHEDULE 40, PLASTIC CAP. THE PIPE SHALL BE CENTERED ON THE REFERENCE MONUMENT. THE BOTTOM OF THE PIPE SHALL BE PERMANENTLY ATTACHED TO THE TOP OF THE FOOTING.

GENERAL NOTES

THE BELOW TABLES SHALL BE COMPLETED FOR EACH INSTALLED REFERENCE MONUMENT

Project Number FRA-270-40.260	Maximum Bearing Pressure 0.204 MPa	
Bridge Number FRA-270-49252	Structure File Number 2512386	
Forward Abutment	Left Monument	Right Monument
After footing concrete is placed		
Before placement of superstructure members		
Before deck placement		
After deck placement		
Project completed		
Benchmark location		

Project Number FRA-270-40.260	Maximum Bearing Pressure 0.204 MPa	
Bridge Number FRA-270-49252	Structure File Number 2512386	
Forward Abutment	Left Monument	Right Monument
After footing concrete is placed		
Before placement of superstructure members		
Before deck placement		
After deck placement		
Project completed		
Benchmark location		

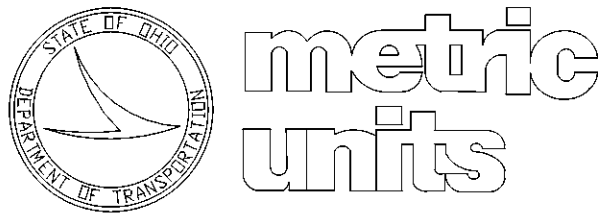
THE CONTRACTOR SHALL ESTABLISH A BENCHMARK FOR DETERMINING ELEVATIONS FOR THE ABOVE TABLE. THE BENCHMARK SHALL BE THE SAME THROUGHOUT THE PROJECT AND SHALL BE INDEPENDENT OF ALL STRUCTURES.

COMPLETED TABLES SHALL BECOME PART OF THE DISTRICT'S PROJECT PLAN RECORDS AND A COPY SHALL BE SENT TO THE OFFICE OF STRUCTURAL ENGINEERING.

THE ABUTMENTS CAN ONLY BE CONSTRUCTED AFTER 90% CONSOLIDATION OF THE EXISTING SOILS HAVE BEEN ACHIEVED WITH A MINIMUM WAITING PERIOD OF 30 DAYS AFTER THE MSE WALLS HAVE BEEN CONSTRUCTED TO THE LIMITS SHOWN ON THE PLANS.

UTILITY LINES: THE UTILITY(IES) SHALL BORE ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITY(IES) ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

ITEM 514 -- FIELD PAINTING STRUCTURAL STEEL, FINISH COAT, AS PER PLAN THE TOP COAT COLOR SHALL BE NEW ALBANY GREEN. THE CUSTOM COLOR SHALL MATCH SHERWIN WILLIAM'S NEW ALBANY GREEN (N.A.G.-4322). APPROVAL OF THE FINAL CUSTOM COLOR (NEW ALBANY GREEN) SHALL BE OBTAINED FROM ODOT. THE PAINT SUPPLIER MUST SUBMIT A 305MM X 305MM PAINT SAMPLE CARD BEFORE APPROVAL.



ITEM 516 SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN:

INSTALL A 1 METER WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 32 MM X 3 MM (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 25 MM OUTSIDE DIAMETER, 3 MM GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 225 MM. USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 150± MM, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 150± MM, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 150 MM, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 0.3 METER IN LENGTH, OR 150 MM IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 2.5 MM THICK GENERAL PURPOSE, HEAVY DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E. I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM METHOD	REQUIREMENT
THICKNESS, MM	D751	2.5 ± 0.25
BREAKING STRENGTH, GRAB, N, MINIMUM (LONG. X TRANS.)	D751	3130 X 3130
ADHESIVE STRIP, 25 MM WIDE X 50 MM LONG, N, MINIMUM	D751	27
BURST STRENGTH, MPA, MINIMUM	D751	9.65
HEAT AGING, 70 HR, 100°C, 180° BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMP. BRITTLINESS, 1 HR, -40°C, BEND AROUND 6 MM MANDREL	D2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF METERS.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 864, SEALING OF CONCRETE SURFACES, (EPOXY-URETHANE): THE COLOR OF THE EPOXY-URETHANE SEALANT SHALL BE FEDERAL COLOR NO. 17778 (LIGHT NEUTRAL)

metric
units

EVANS, MECHWART, HAMELTON & TILTON, INC.
CONSULTING ENGINEERS & SURVEYORS
170 MILL STREET
COLUMBUS, OHIO 43201

DESIGNED
HEM

CHECKED
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DRAWN
LO'C

REVIEWED
CJS

DATE
03/14/02

STRUCTURE FILE NUMBER
2512386

GENERAL NOTES

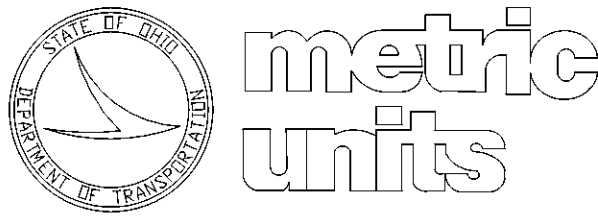
BRIDGE NO. FRA-270-49252
RAMP B OVER RAMP F

FRA 270-40.260

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CONSULTING ENGINEERS & SURVEYORS
170 MILL STREET
COLUMBUS, OHIO 43201

DESIGNED	DRAWN	REVIEWED	DATE
HEM	LO'C	CJS	03/14/02
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JF		2512386	

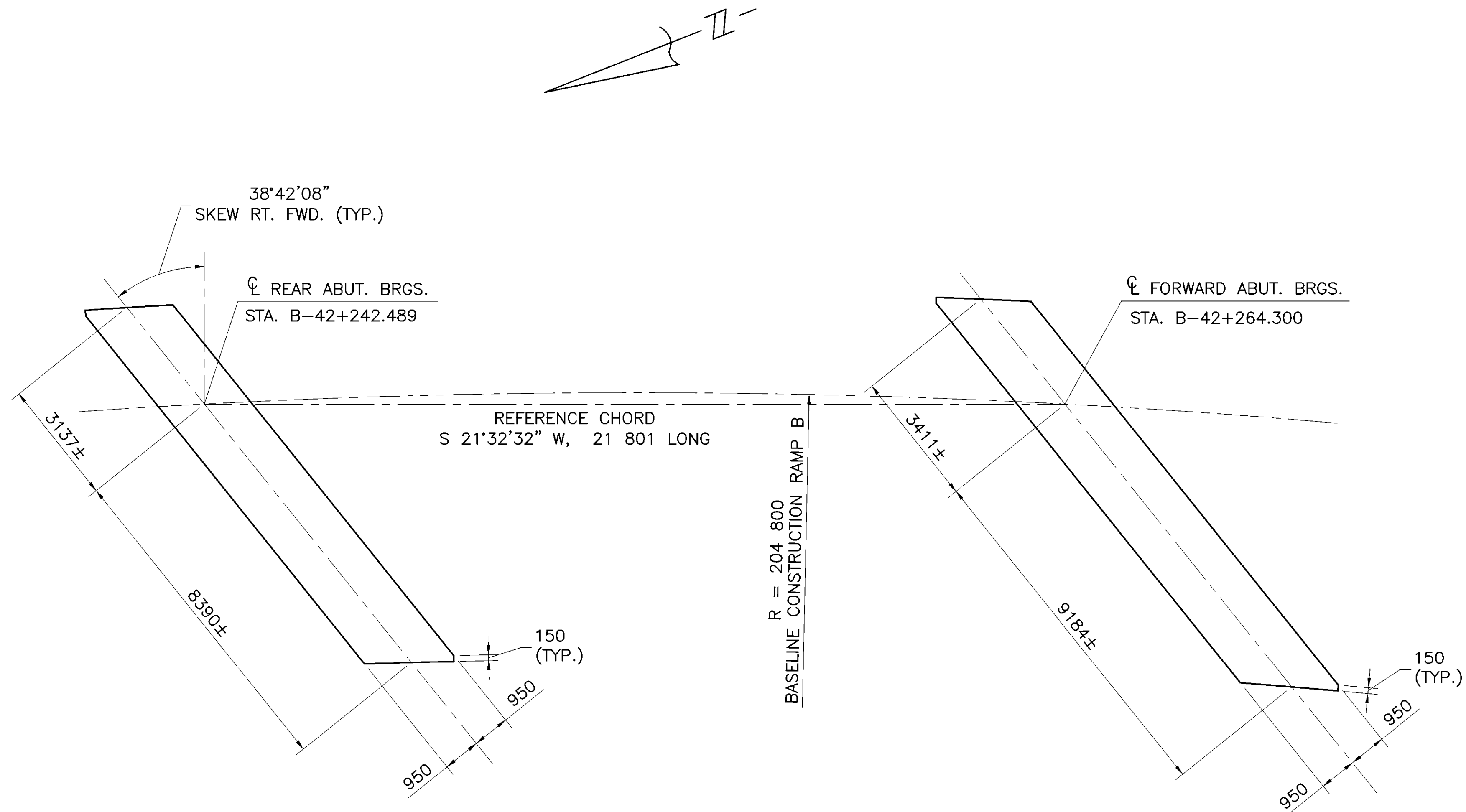
ESTIMATED QUANTITIES
BRIDGE NO. FRA-270-49252
RAMP B OVER RAMP F

FRA 270-40.260

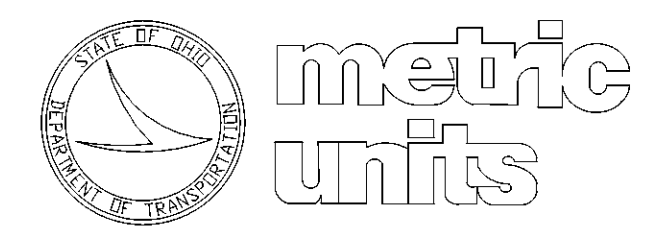
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ESTIMATED QUANTITIES						CALCULATED BY HEM, DATE 12/19/01				
						CHECKED BY JF, DATE 01/08/02				
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	ABUT.	SUPER	GEN'L		
509	10000	12,649	KILOGRAM	EPOXY COATED REINFORCING STEEL		1698	10,951			
511	52000	LUMP		CLASS HP CONCRETE, TEST SLAB			LUMP			
513	10020	LUMP		STRUCTURAL STEEL MEMBERS, LEVEL 1 (A572/A709 GRADE 50)			LUMP			
513	20000	918	EACH	WELDED STUD SHEAR CONNECTORS			918			
514	00300	LUMP		FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT			LUMP			
514	00401	LUMP		FIELD PAINTING STRUCTURAL STEEL, FINISH COAT, AS PER PLAN	3		LUMP			
516	13900	11	SQ. METER	51 mm PREFORMED EXPANSION JOINT FILLER		11				
516	14021	25	METER	SEMI- INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	3	25				
516	44001	10	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE), AS PER PLAN	9	10				
				(380x230x30 PAD, 406x256x42 AVERAGE PLATE)						
518	21200	25	CU. METER	POROUS BACKFILL WITH FILTER FABRIC		25				
518	40000	23	METER	150 mm PERFORATED CORRUGATED PLASTIC PIPE		23				
518	40010	8	METER	150 mm NON- PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		8				
526	30000	96	SQ. METER	REINFORCED CONCRETE APPROACH SLABS (T = 425 mm)				96		
864	10100	219	SQ. METER	SEALING OF CONCRETE SURFACES (EPOXY- URETHANE)	3	85	134			
894	10000	88	CU. METER	HIGH PERFORMANCE CONCRETE, FOR BRIDGE DECK WITH WARRANTY			88			
898	20001	52	CU. METER	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE, AS PER PLAN	3	52				

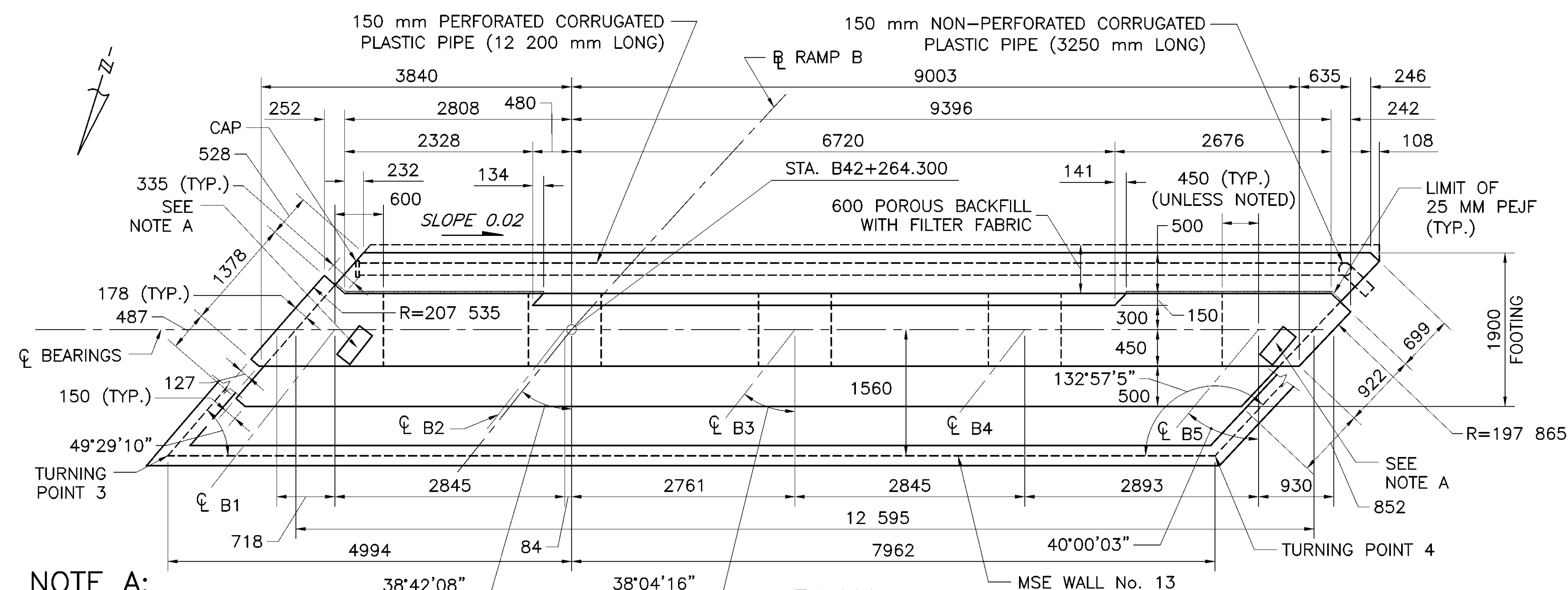
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FOUNDATION PLAN



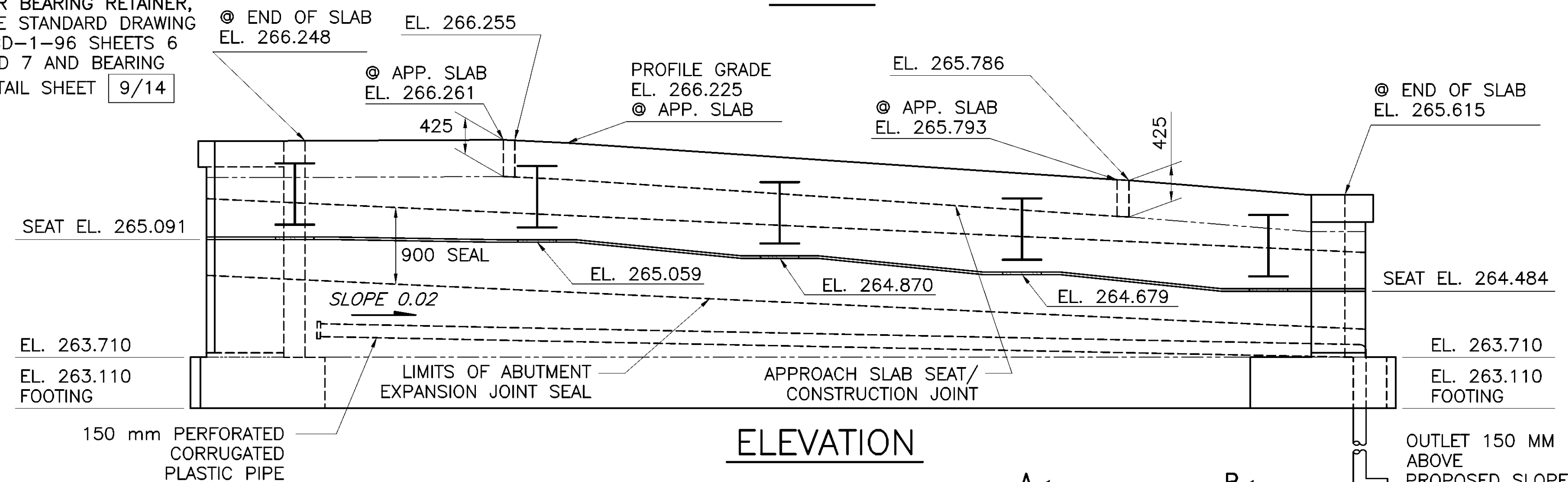
930 1039	5 / 14	FRA 270-40.260	FOUNDATION PLAN BRIDGE NO. FRA-270-49252 RAMP B OVER RAMP F				DESIGNED HEM	DRAWN LO'C	REVIEWED CJS	DATE 03/14/02	EVANS, MECHWART, HAMELTON & TILTON, INC. CONSULTING ENGINEERS & SURVEYORS 170 MILL STREET COLUMBUS, OHIO 43201
							CHECKED GT	REVISED	STRUCTURE FILE NUMBER 2512386		



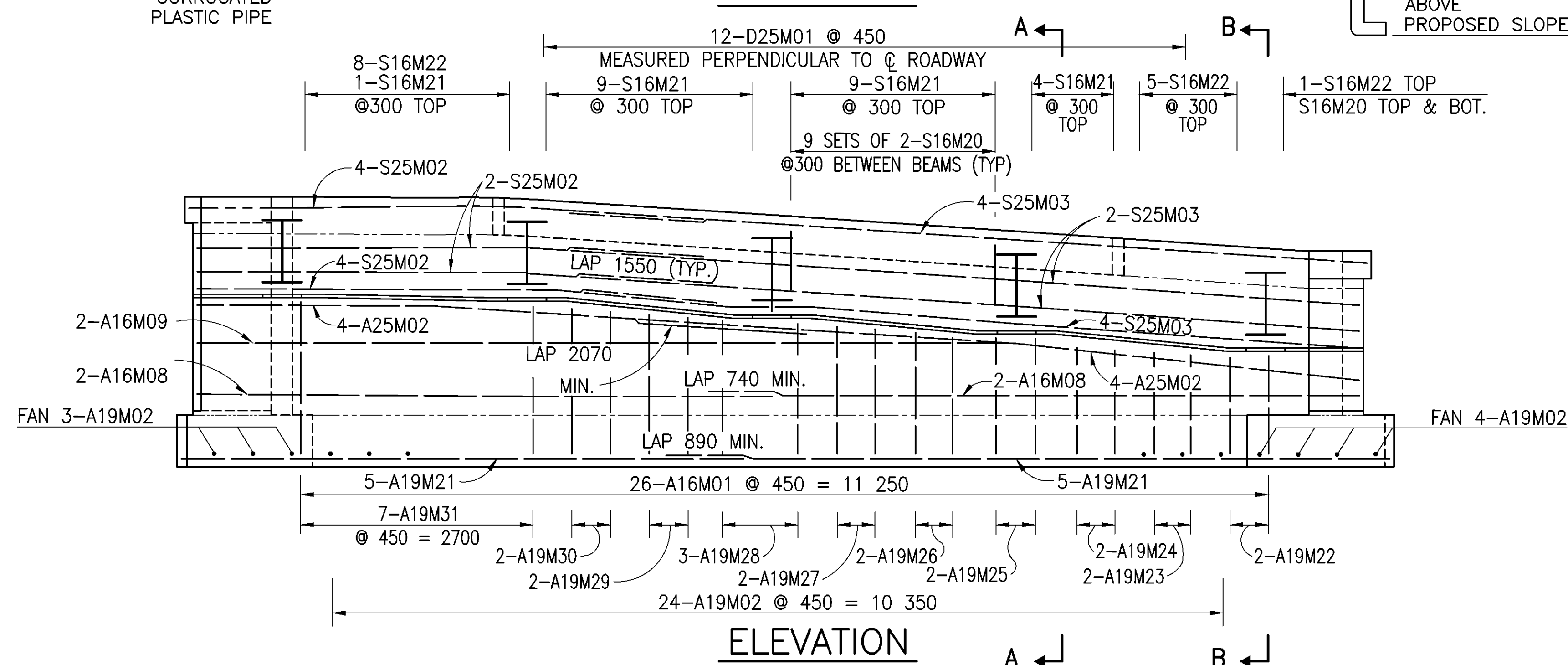
NOTE A:

FOR BEARING RETAINER, SEE STANDARD DRAWING SICD-1-96 SHEETS 6 AND 7 AND BEARING DETAIL SHEET 9/14

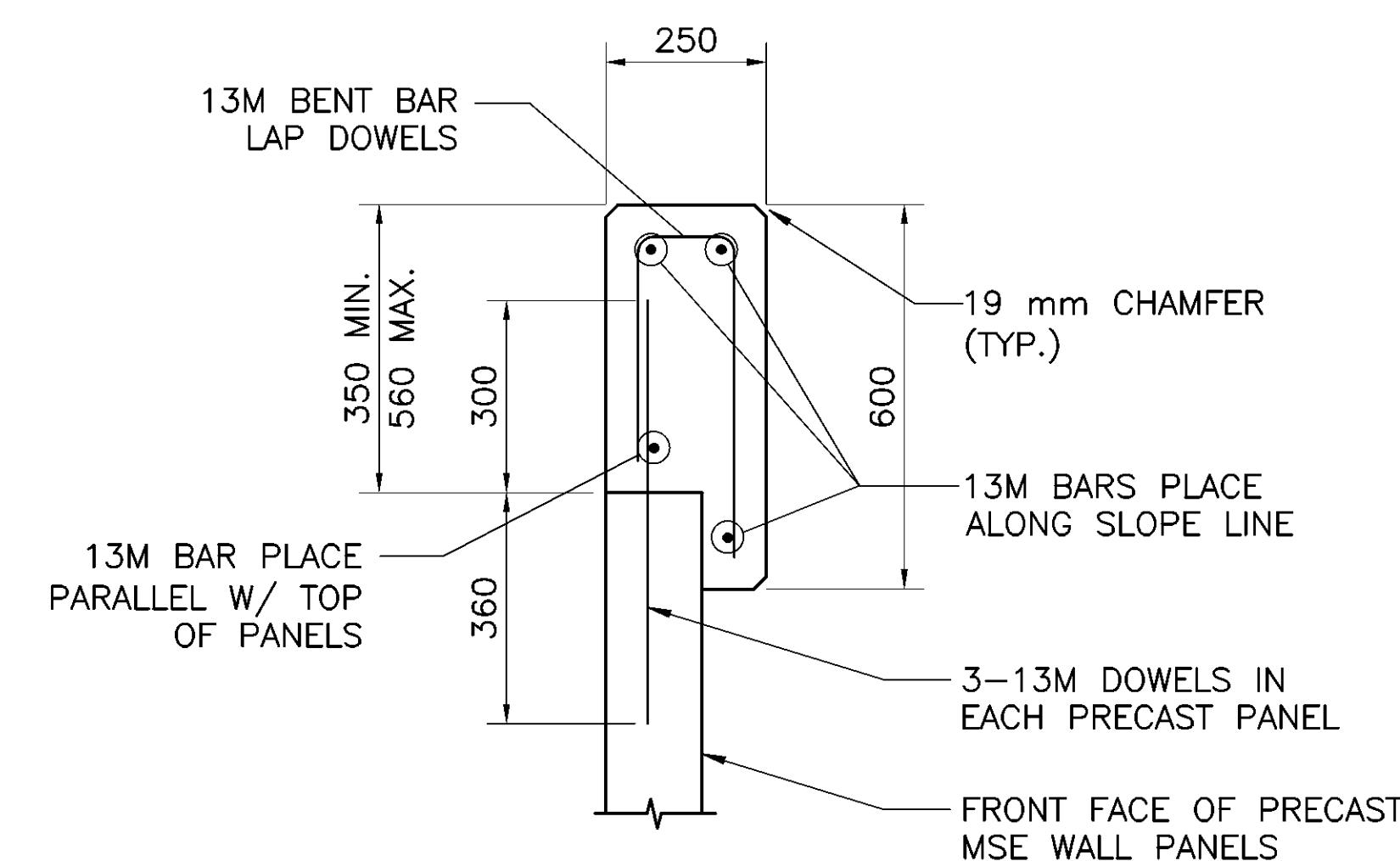
PLAN



ELEVATION

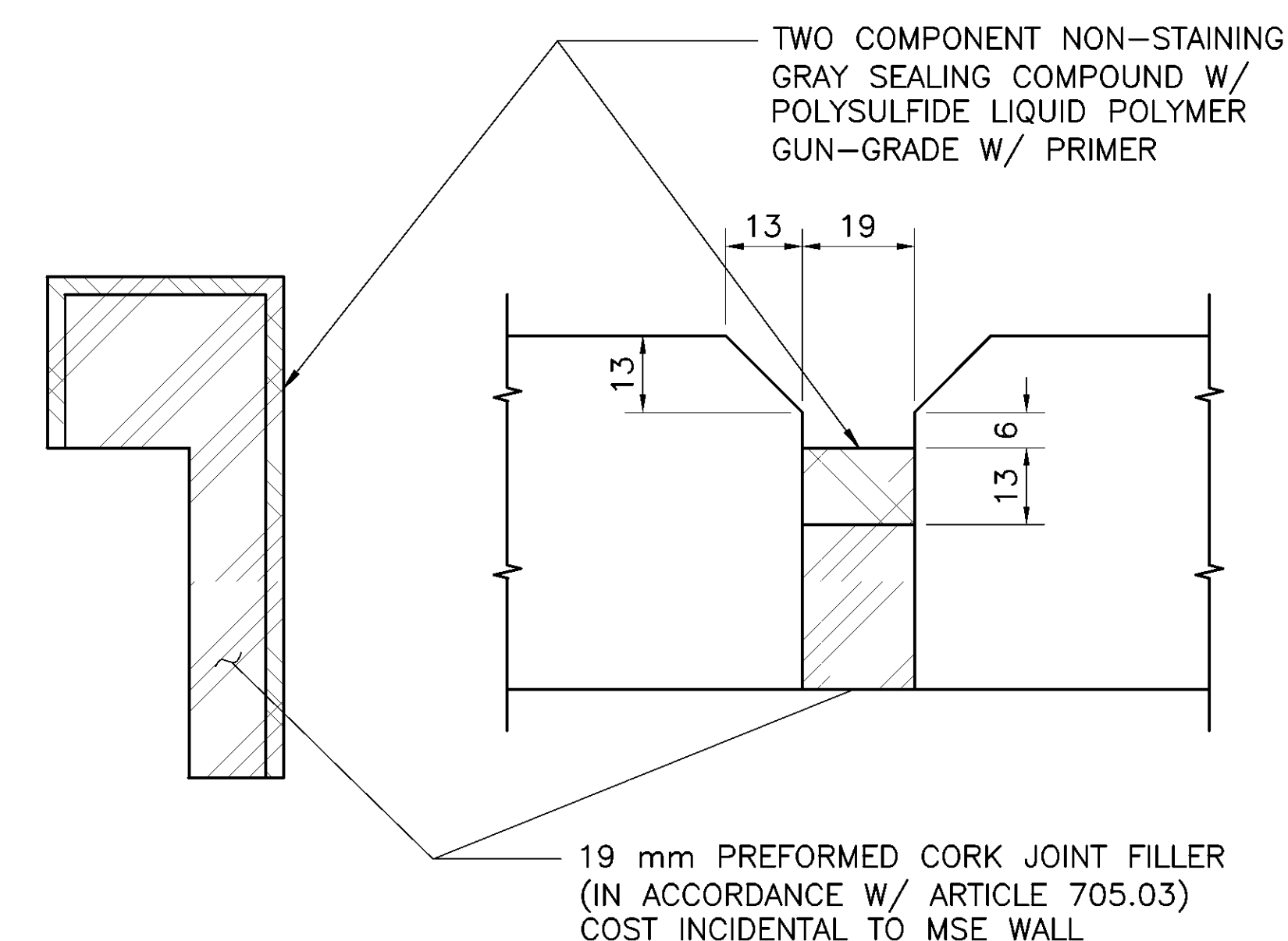


ELEVATION



MSE WALL COPING

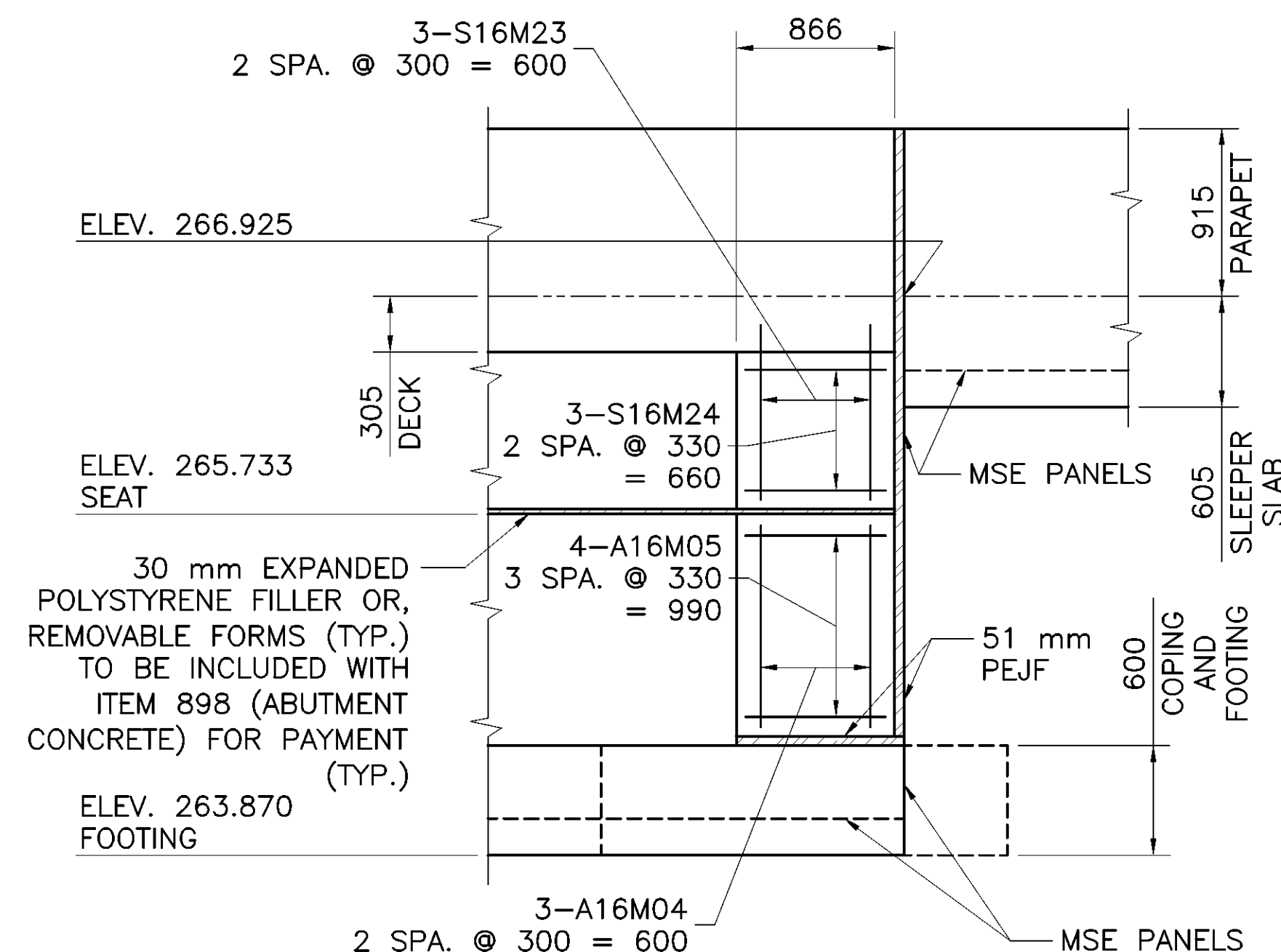
SEE NOTE 1



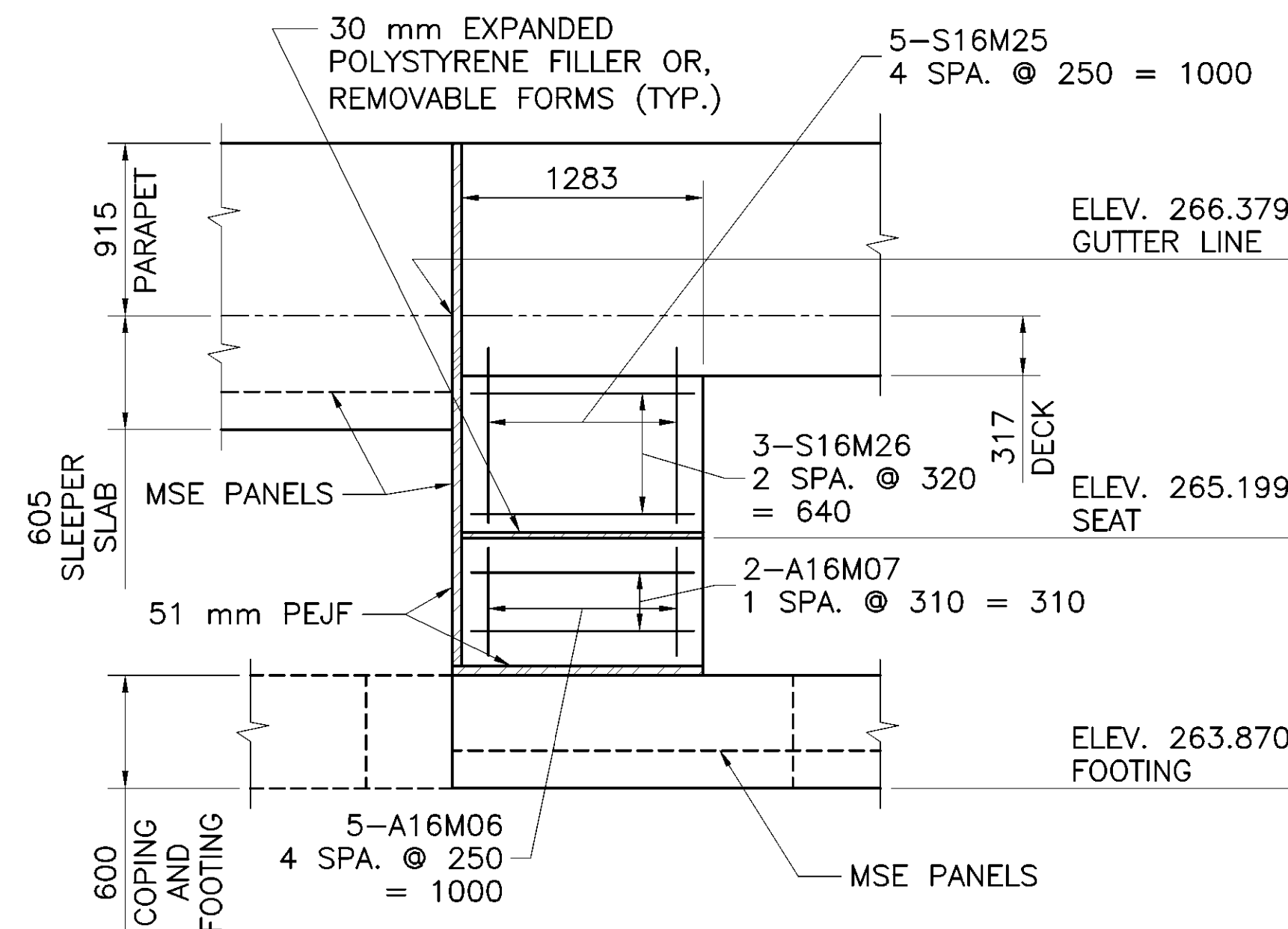
COPING EXPANSION JOINT DETAIL

NOTES:

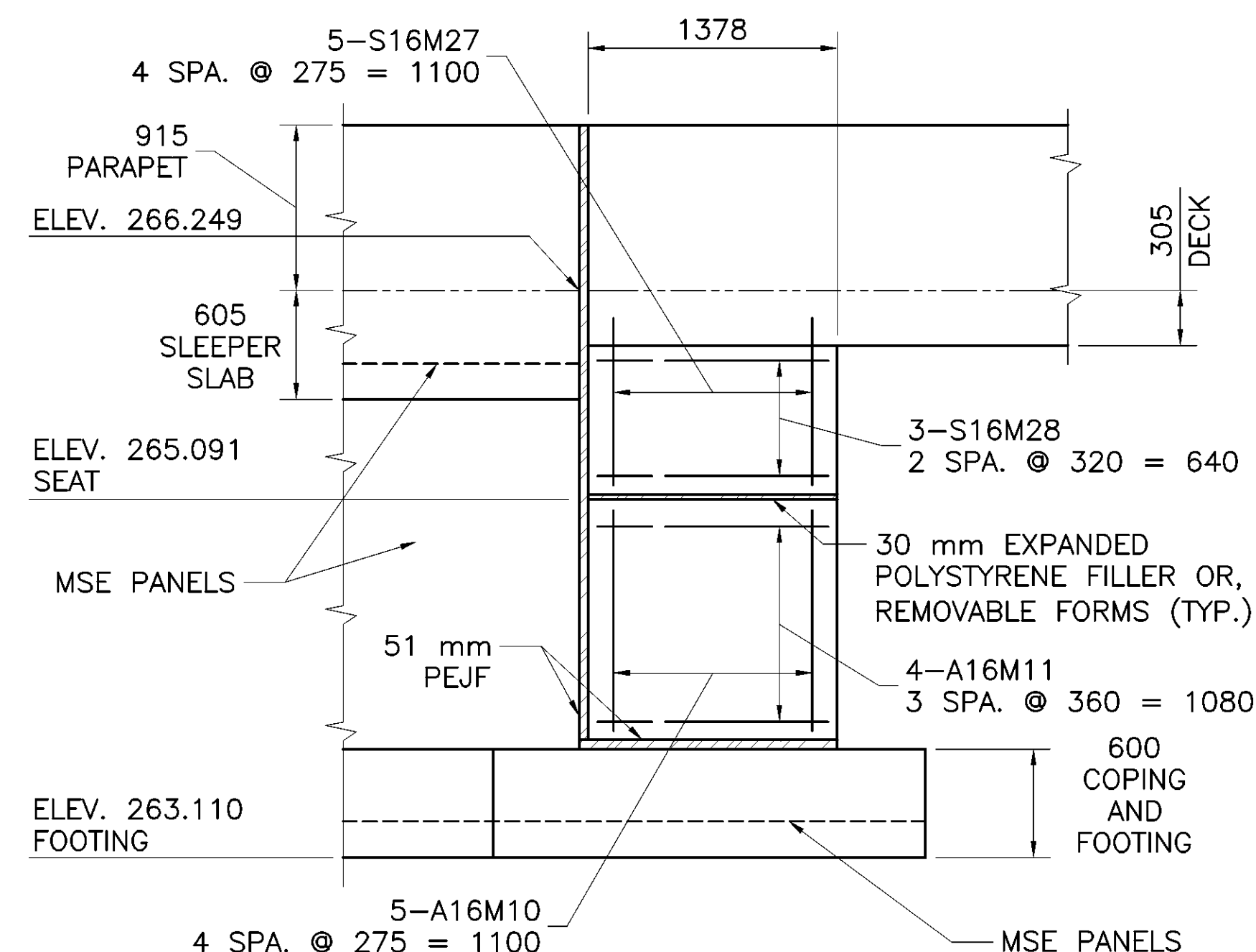
- CONSTRUCTION JOINTS IN COPING SHALL BE AT 2 PANEL INTERVALS AND COINCIDE APPROXIMATELY WITH CENTERLINE OF PANEL JOINT. REINFORCING STEEL SHALL BE STOPPED 50 mm SHORT OF EACH SIDE OF THE JOINTS.
- PROVIDE 13 mm EXPANSION JOINTS EVERY 9150 mm OR LESS TO COINCIDE WITH PANEL JOINTS.
- QUANTITIES OF CONCRETE, REINFORCING STEEL, AND EXPANSION JOINT MATERIAL FOR COPING ARE INCLUDED WITH MSE WALLS FOR PAYMENT.
- FOR SECTIONS A-A AND B-B, SEE SHEET 6/14



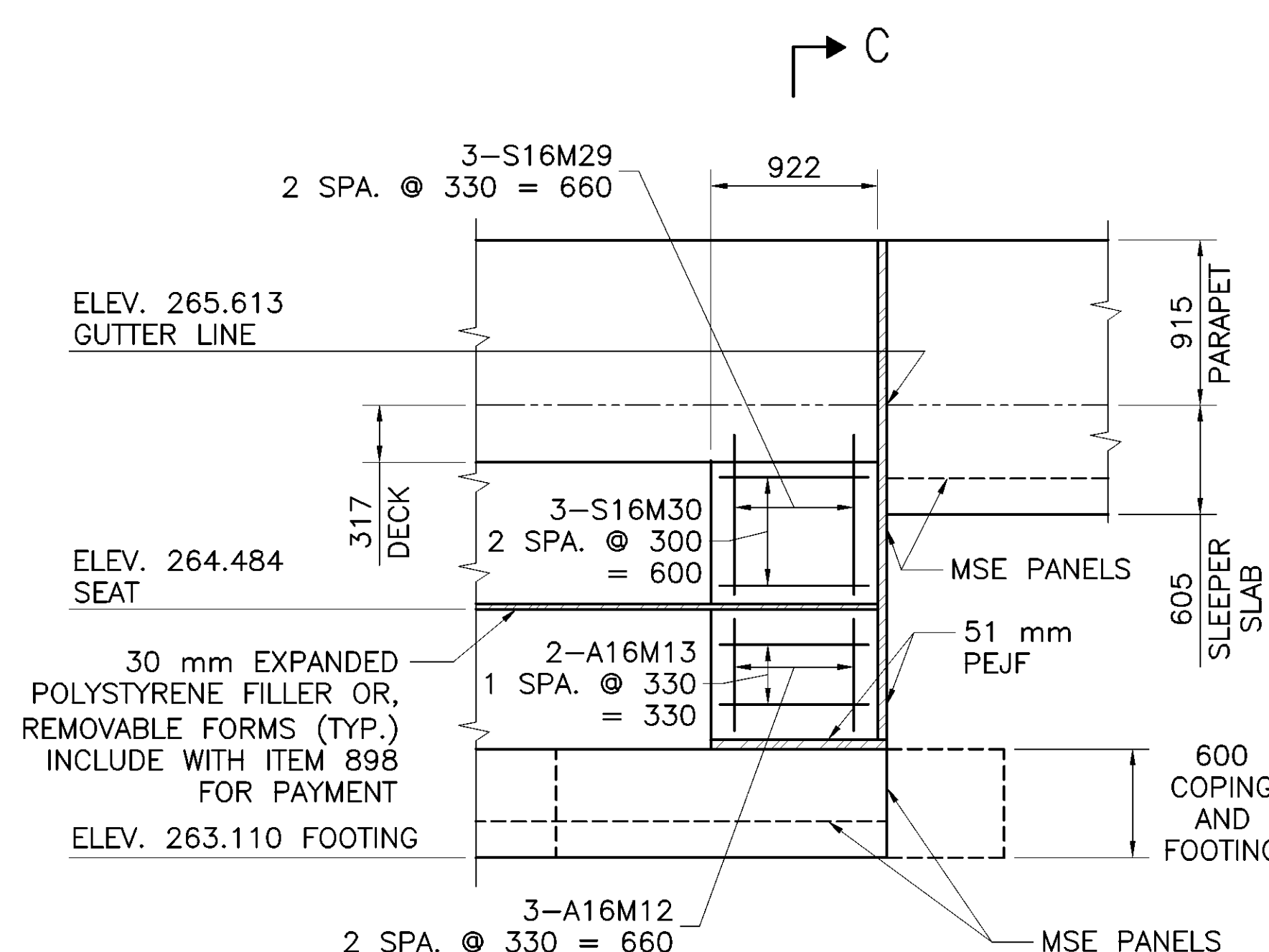
REAR ABUTMENT
LEFT SIDE ELEVATION



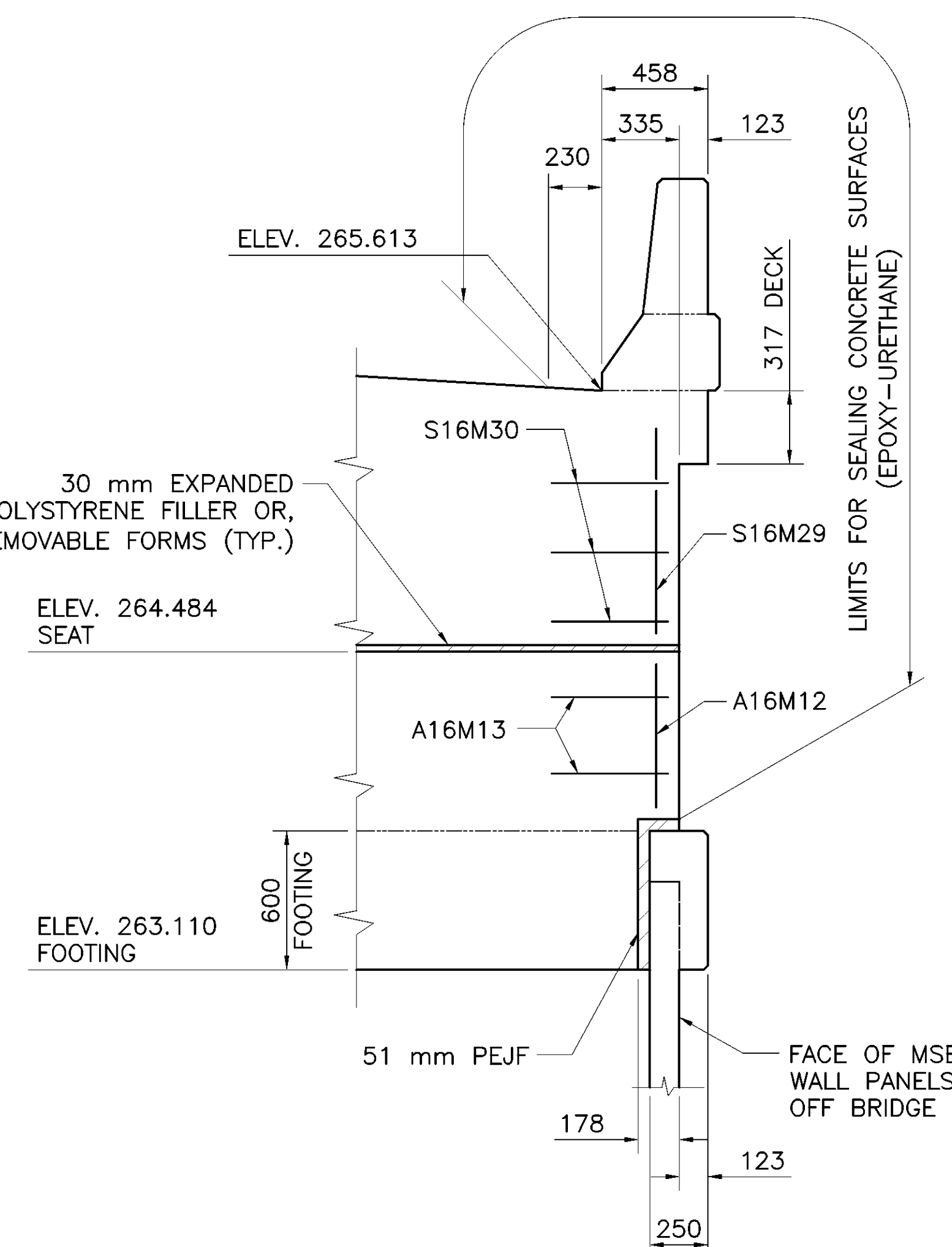
REAR ABUTMENT
RIGHT SIDE ELEVATION



FORWARD ABUTMENT
LEFT SIDE ELEVATION



FORWARD ABUTMENT
RIGHT SIDE ELEVATION



SECTION C-C
FORWARD ABUTMENT RIGHT SIDE
(OTHER SIDES SIMILAR)

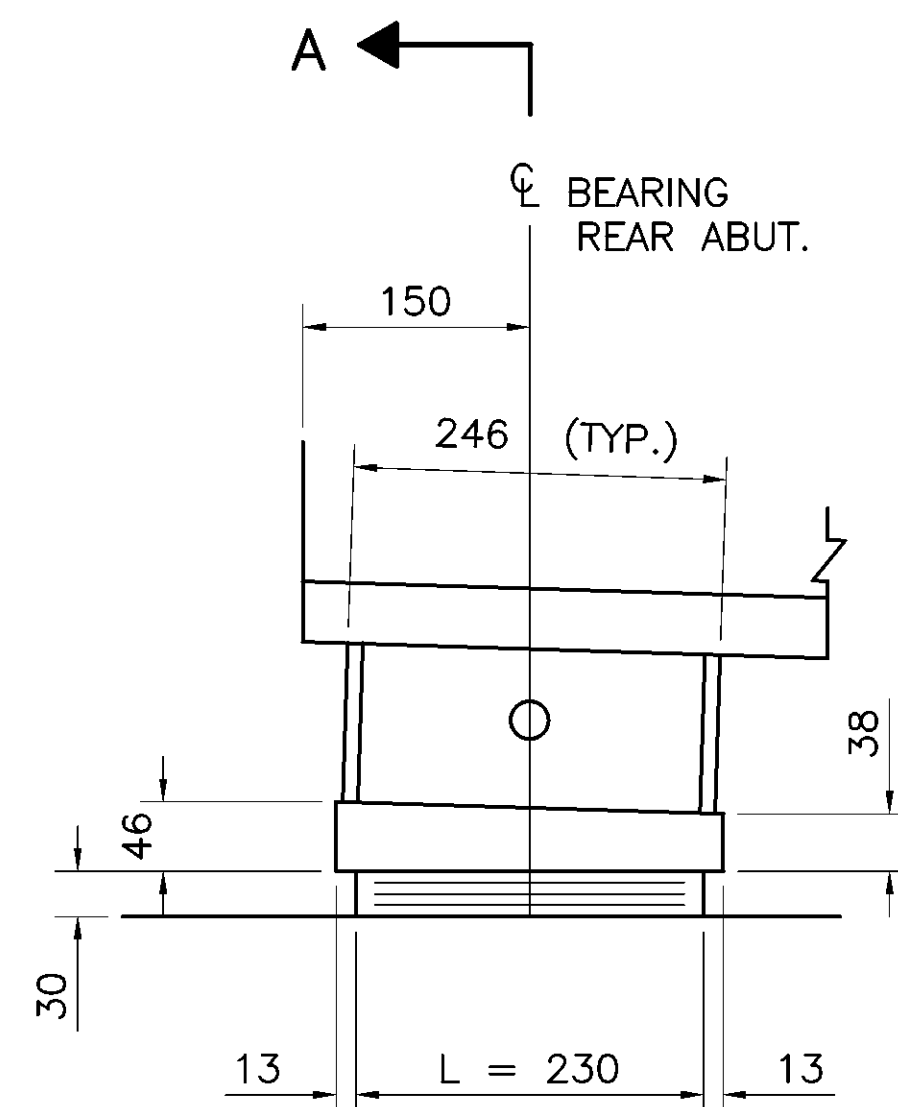
EXPANSION BEARING 50 DUROMETER

INT. ELASTOMERIC LAYERS	3 @ 5.1 = 15.3 mm
STEEL LAMINATES	4 @ 1.9 = 7.6 mm
EXT. ELASTOMERIC LAYERS	2 @ 3.5 = 7.0 mm
TOTAL	= 29.9 mm
T	= 30 mm

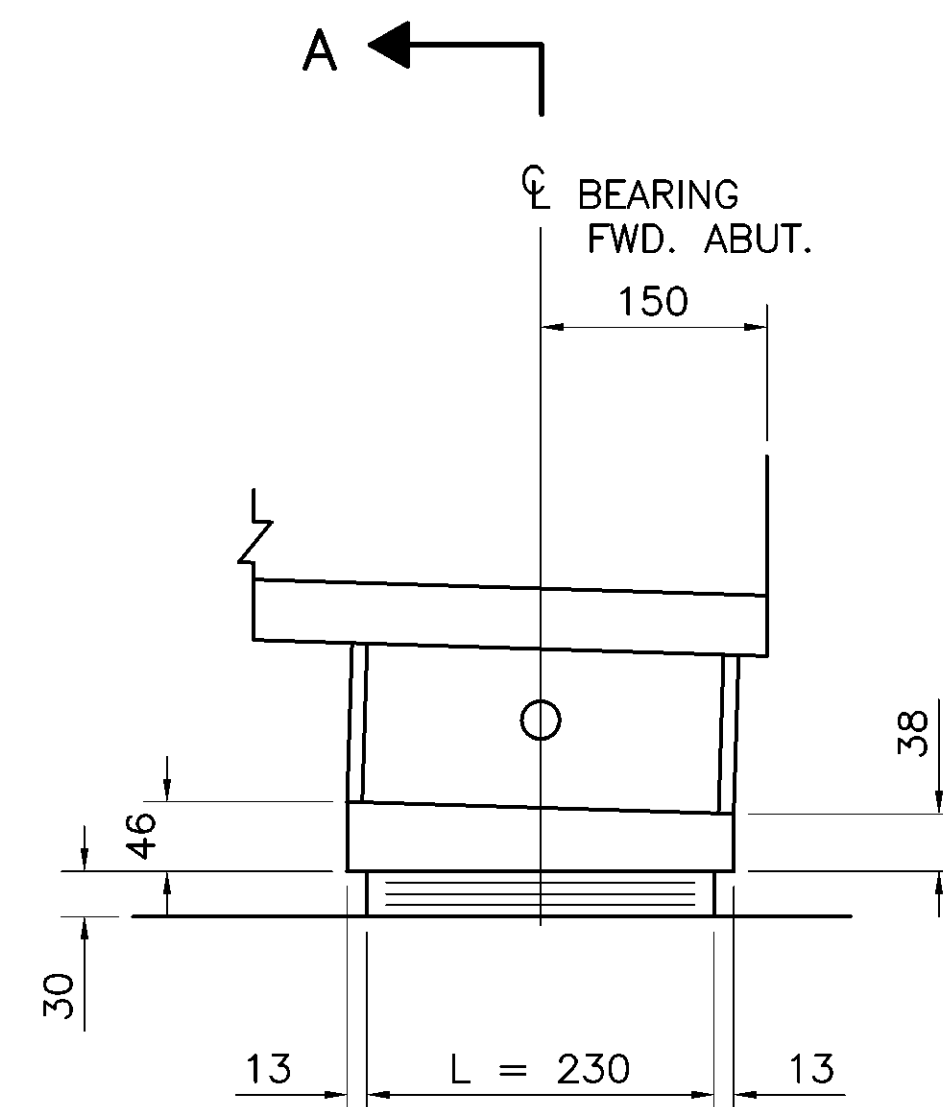
AT ABUTMENTS
DL = 302 kN
LL = 261 kN
TOTAL = 563 kN
(MAX. DESIGN LOAD)

NOTE:

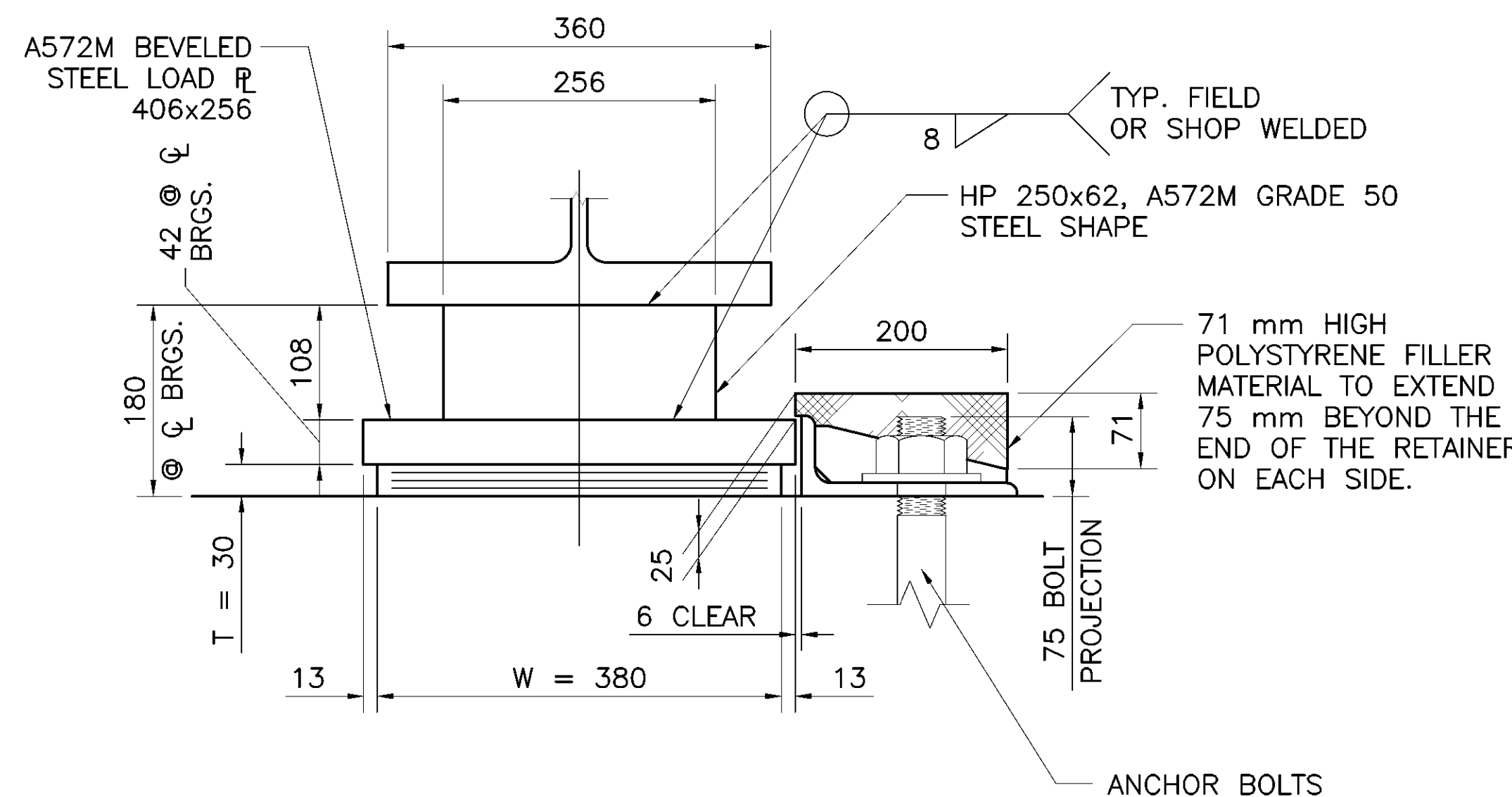
HP 250x62 STEEL SHAPE, BEARING RETAINER,
AND LOAD PLATE TO BE A572M GRADE 50 STEEL.



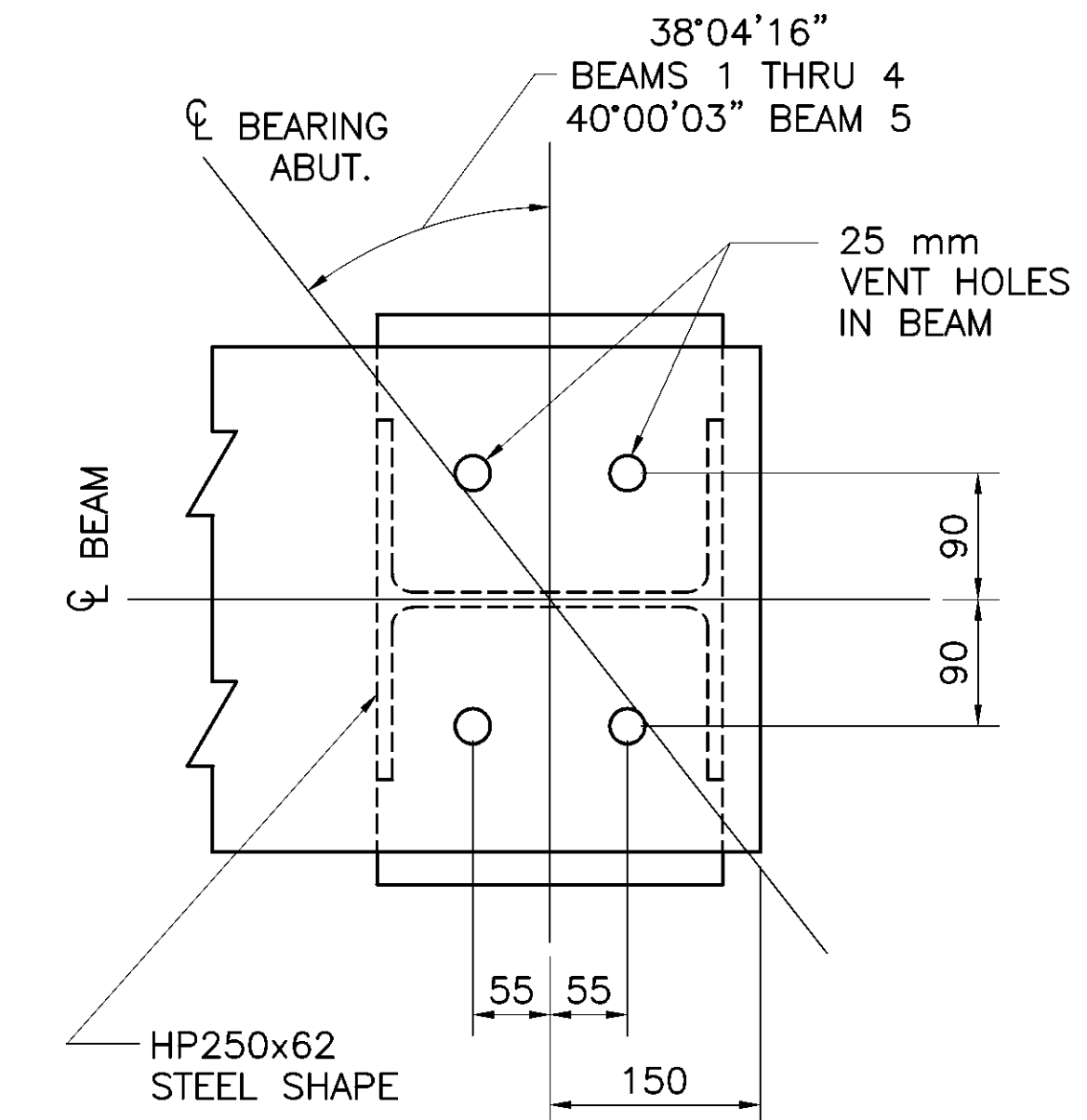
ELEVATION



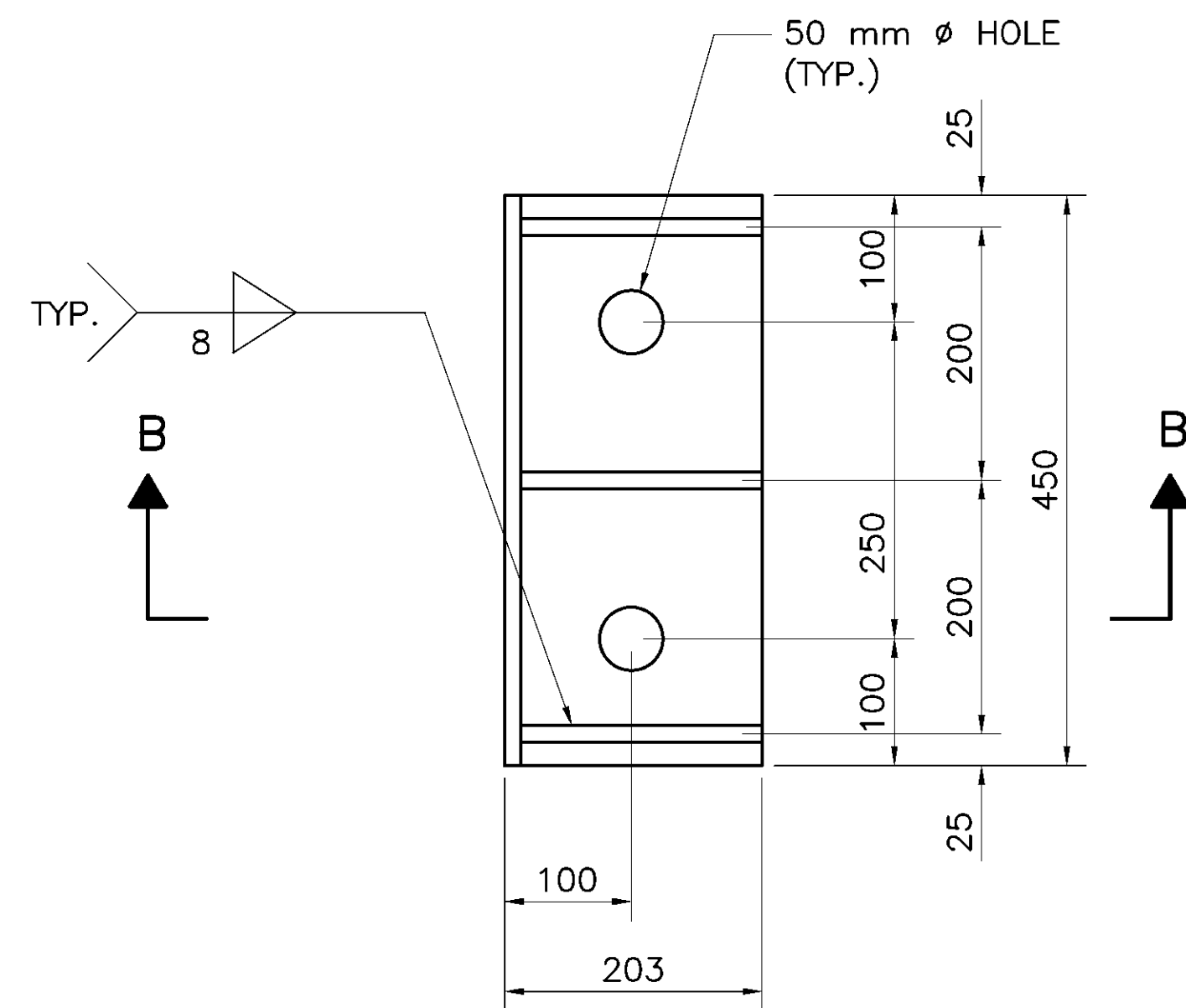
ELEVATION



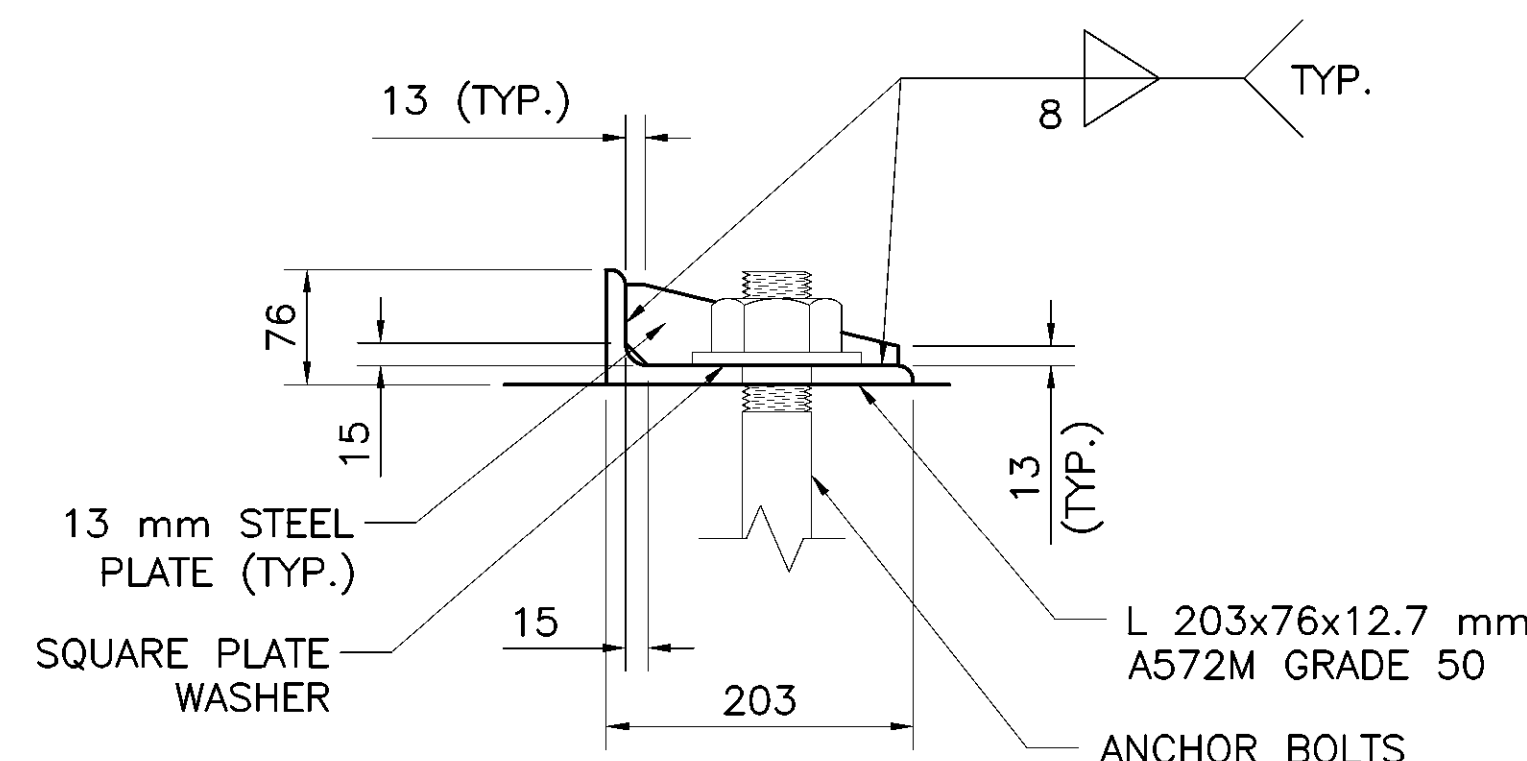
SECTION A-A



PLAN



BEARING RETAINER ASSEMBLY



SECTION B-B

ELASTOMERIC BEARINGS AT THE ABUTMENTS

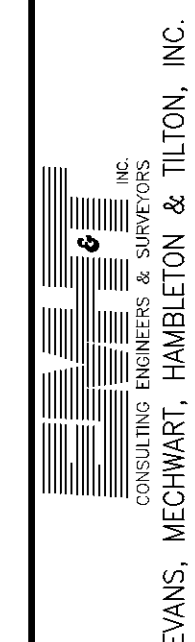
ELASTOMERIC BEARINGS SHALL BE GRADE 3, 50 DUROMETER ELASTOMER. BEARINGS WERE DESIGNED UNDER SECTION 14.6.6 OF SECTION 14, BEARINGS, DIVISION I, DESIGN.

LOAD PLATE: THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.

WELDING CONTROL WELDING SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 150°C AS DETERMINED BY USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

BEARING REPOSITIONING: IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 27° C OR LOWER THAN 4° C AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 15° C (+/-) 5° C, THE BEAMS SHALL BE RAISED TO ALLOW THE BEARING TO RETURN TO THEIR UNDEFORMED SHAPE AT 15° C (+/-) 5° C.

BASIS OF PAYMENT: THE UNIT BID PRICE SHALL INCLUDE ALL MATERIALS, LABOR, TESTING AND INCIDENTALS NECESSARY TO FURNISH AND INSTALL LAMINATED ELASTOMERIC BEARINGS. PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR ITEM 516, EACH, ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE, AS PER PLAN. (SEE ESTIMATED QUANTITIES)



REVIEWED	DATE
CJS 03/14/02	
STRUCTURE FILE NUMBER	
2512386	

SUPERSTRUCTURE DETAILS
BRIDGE NO. FRA-270-49252
RAMP B OVER RAMP F

FRA 270-40.260

10/14

935
1039



CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN).
THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH
TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01.

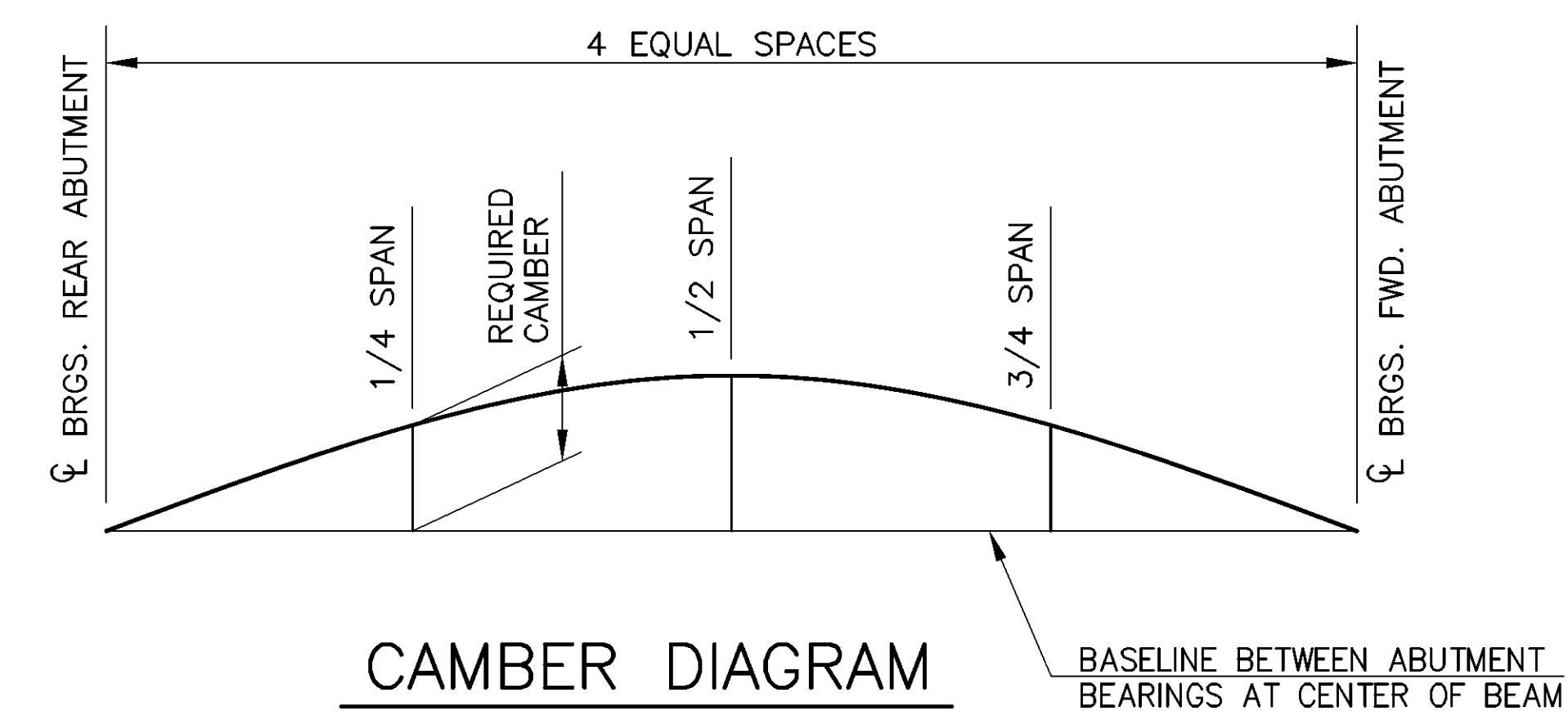
FOR INTERMEDIATE CROSSFRAME DETAILS, REFER TO THE TRANSVERSE SECTION ON SHEET 11/14 AND ODOT STANDARD DRAWING GSD-1-96, TYPE 1 INTERMEDIATE CROSSFRAME.

FRAMING PLAN

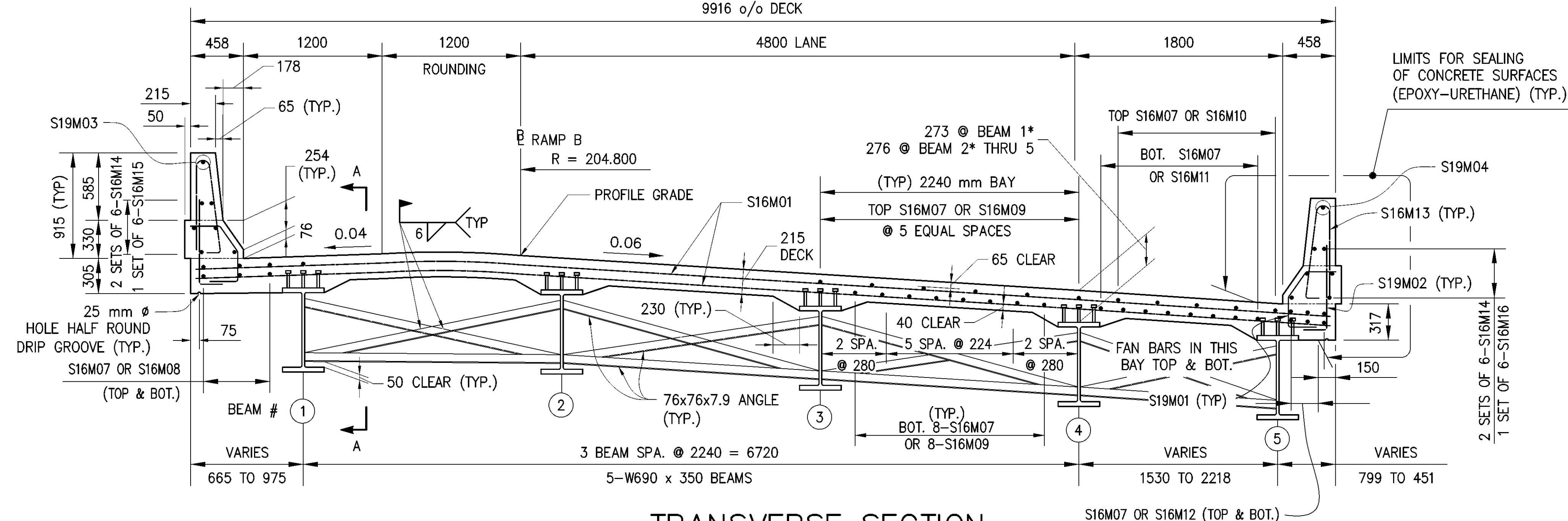


DEFLECTION AND CAMBER (IN MILLIMETERS)

	BEAM 1			BEAM 2 THRU 5		
	$\frac{1}{4}$ SPAN	$\frac{1}{2}$ SPAN	$\frac{3}{4}$ SPAN	$\frac{1}{4}$ SPAN	$\frac{1}{2}$ SPAN	$\frac{3}{4}$ SPAN
DEFLECTION DUE TO WEIGHT OF STEEL	10	13	10	10	13	10
DEFLECTION DUE TO WEIGHT OF CONCRETE DECK	28	38	28	28	38	28
DEFLECTION DUE TO REMAINING DEAD LOAD	12	16	12	12	16	12
ADJUSTMENT FOR HORIZ. AND VERT. CURVES	18	23	17	-4	-5	-4
REQUIRED SHOP CAMBER	68	90	67	46	62	46



ALL DIMENSIONS ARE RADIAL
9916 o/o DECK



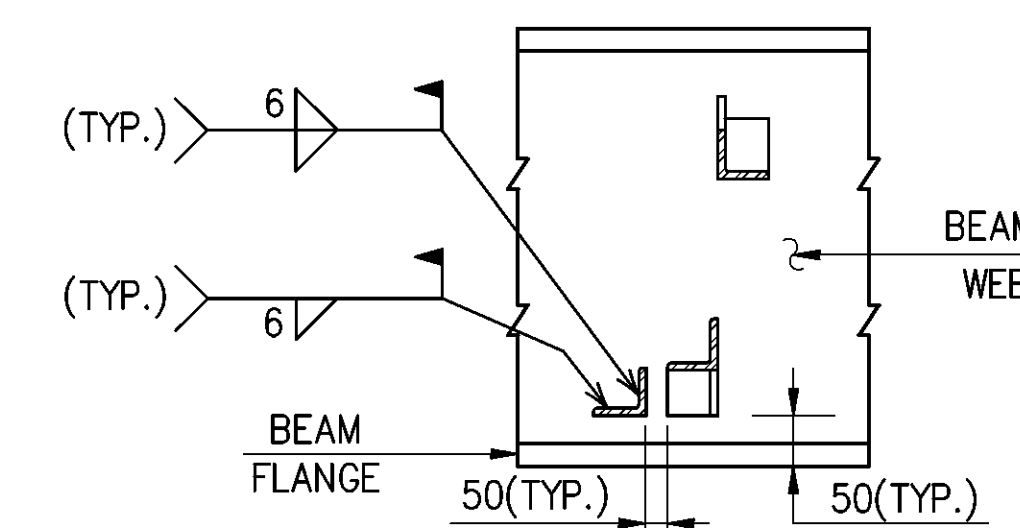
TRANSVERSE SECTION

NOTES:

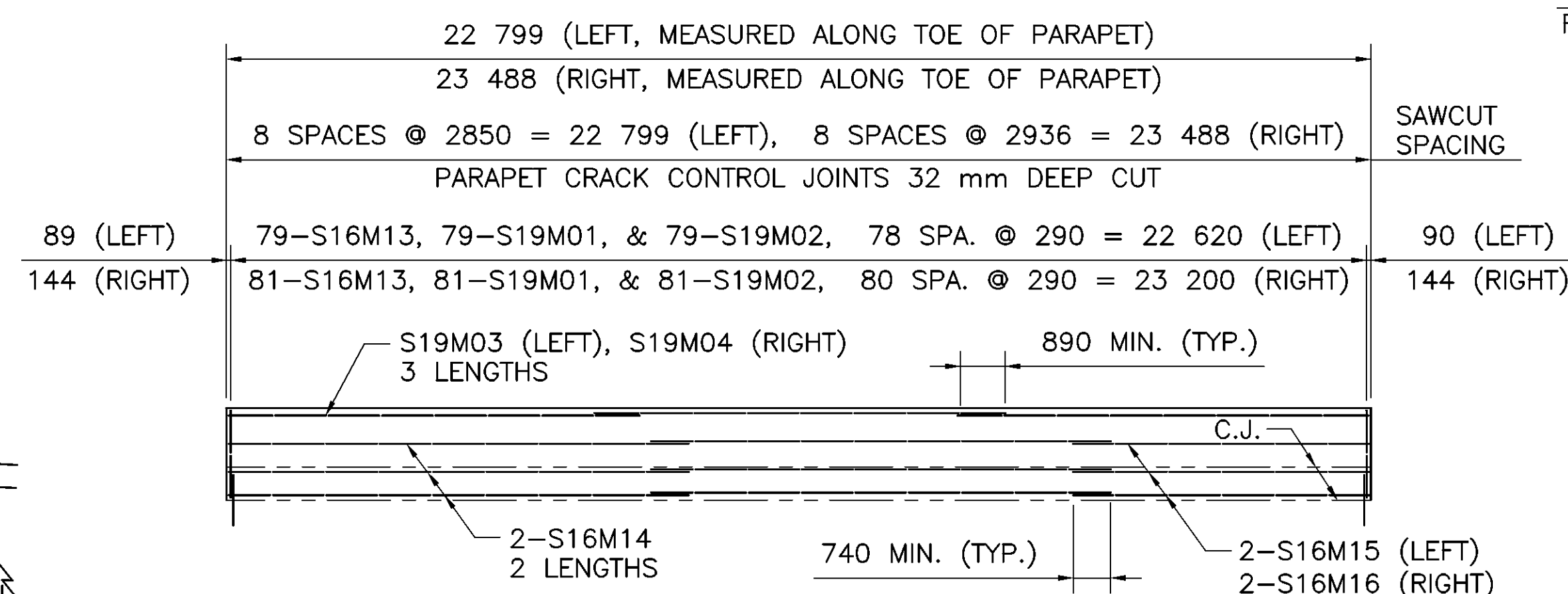
* DECK SLAB CONCRETE QUANTITY: THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM/ GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 50 MM AND A CONSTANT HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM/ GIRDER FLANGE OF 230 MM. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE FINISHED GRADE. THE ALLOWABLE TOLERANCE FOR THE HAUNCH WIDTH OUTSIDE THE EDGE OF EACH BEAM/ GIRDER FLANGE IS ± 75 MM.

THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM/ GIRDER, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.24.

BAR LAP FOR S16M BARS IS 740 MM,
FOR S19M BARS IS 890 MM.



SECTION A-A



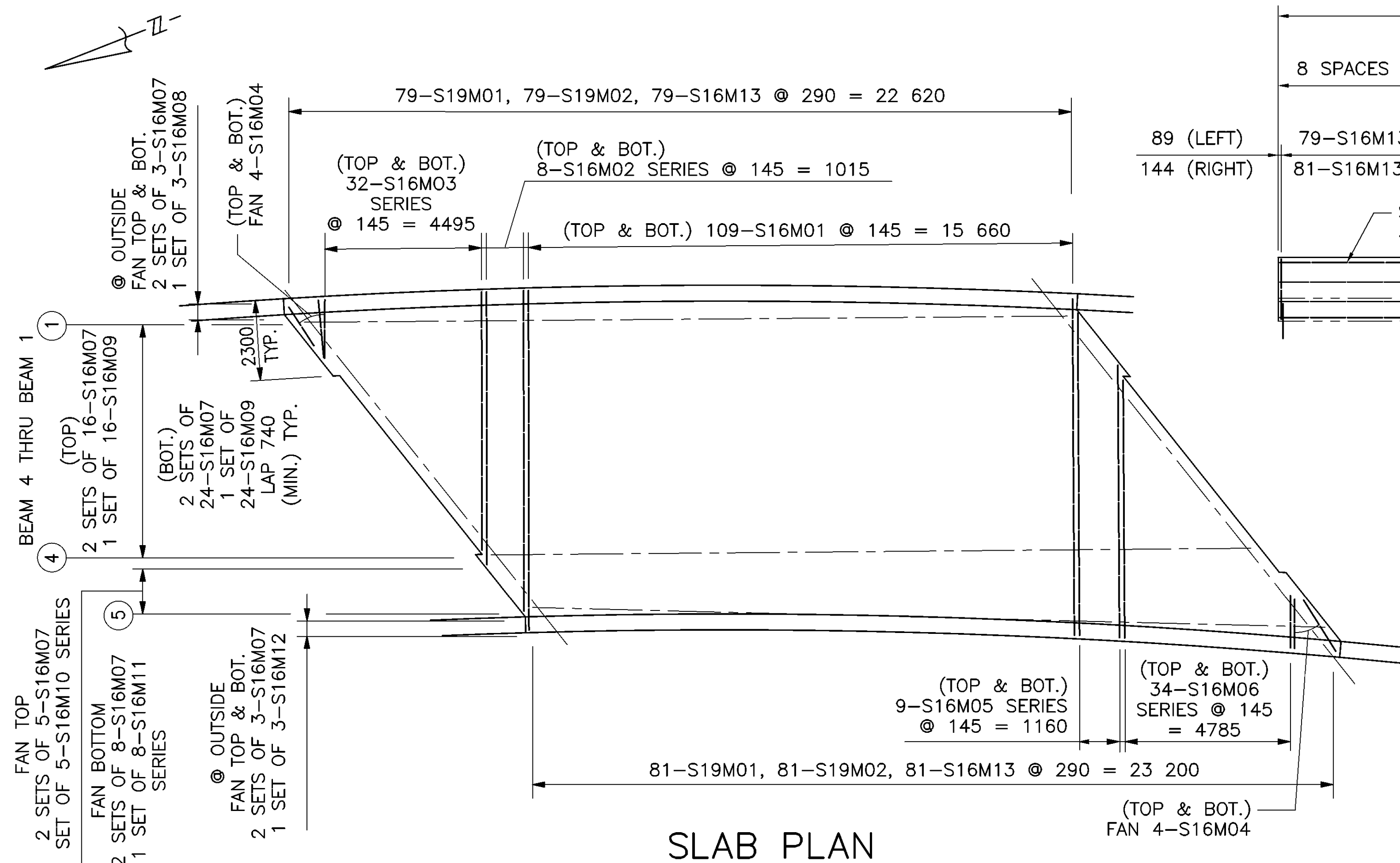
PARAPET ELEVATION

- SLAB NOT SHOWN FOR CLARITY
- LEFT INSIDE ELEVATION SHOWN
- RIGHT ELEVATION SIMILAR

SCREED ELEVATIONS

LOCATION	REAR ABUTMENT		1/4 SPAN		1/2 SPAN		3/4 SPAN		FORWARD ABUTMENT	
	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.
LEFT GUTTER	+240.793	266.908	+246.142	266.786	+251.492	266.639	+256.842	266.466	+262.192	266.270
BEAM 1	+240.976	266.914	+246.322	266.799	+251.675	266.654	+257.027	266.479	+262.370	266.272
BASE LINE	+242.489	266.897	+247.942	266.770	+253.395	266.618	+258.847	266.440	+264.300	266.238
BEAM 2	+242.619	266.883	+248.026	266.747	+253.437	266.596	+258.846	266.427	+264.244	266.243
BEAM 3	+244.299	266.697	+249.768	266.561	+255.239	266.408	+260.705	266.239	+266.157	266.054
BEAM 4	+246.017	266.511	+251.550	266.373	+257.081	266.220	+262.605	266.049	+268.110	265.863
BEAM 5	+247.215	266.383	+252.943	266.229	+258.680	266.059	+264.415	265.871	+270.140	265.668
RIGHT GUTTER	+247.424	266.361	+253.186	266.218	+258.948	266.051	+264.710	265.856	+270.471	265.637

SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.

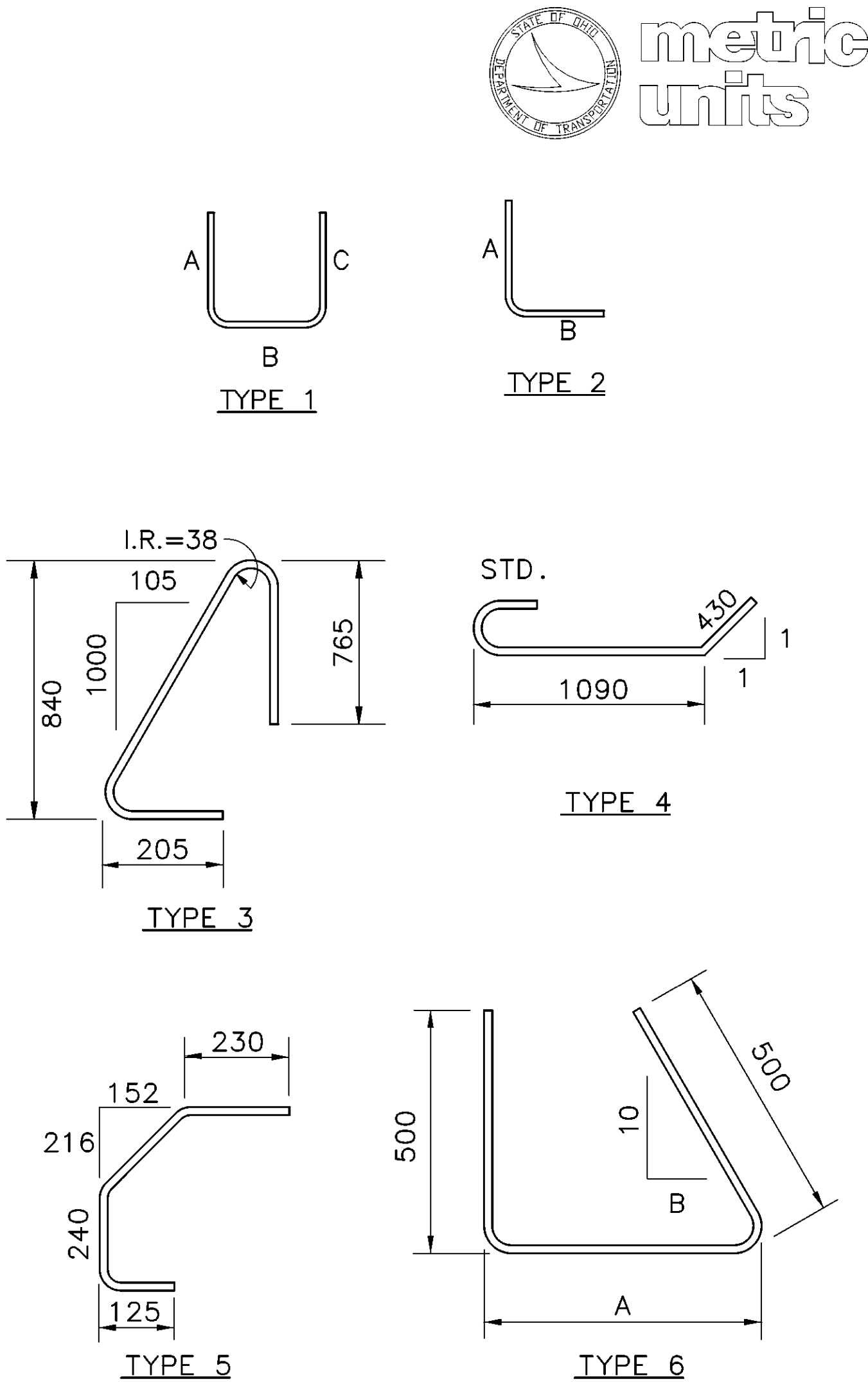


SLAB PLAN

Q:\PROJECT\505049\DWG\CEWA 4-23-01\98-113\BRIDGE PLANS\BRIDGE-K-42242\BROK-S12.DWG -- 2 XREFS: BROK-KA 12563XJT -- PLOTTED BY GBASKIN -- August 11, 2003 -- 3:00 PM

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E
REAR ABUTMENT									
A16M01	24	1425	53	1	350	800	350		
A16M02	4	6420	40	STR					
A16M03	2	6200	19	STR					
A16M04	3	1100	5	STR					
A16M05	4	1705	11	6	765	3.2			
A16M06	5	575	4	STR					
A16M07	2	2120	7	6	1180	7.1			
A19M01	10	6160	138	STR					
A19M02	27	1800	109	STR					
A19M03	2	3050	14	1	1175	800	1175		
A19M04	2	3170	14	1	1235	800	1235		
A19M05	2	3310	15	1	1305	800	1305		
A19M06	2	3370	15	1	1335	800	1335		
A19M07	2	3540	16	1	1420	800	1420		
A19M08	2	3680	16	1	1490	800	1490		
A19M09	2	3720	17	1	1510	800	1510		
A19M10	2	3890	17	1	1595	800	1595		
A19M11	8	4050	72	1	1675	800	1675		
A25M01	8	7080	225	STR					
		TOTAL	807						
FORWARD ABUTMENT									
A16M01	26	1425	58	1	350	800	350		
A16M08	4	6860	43	STR					
A16M09	2	7500	23	STR					
A16M10	5	1220	9	STR					
A16M11	4	2215	14	6	1275	7.9			
A16M12	3	620	3	STR					
A16M13	2	1760	5	6	820	4.6			
A19M02	31	1800	125	STR					
A19M21	10	6690	150	STR					
A19M22	2	3140	14	1	1220	800	1220		
A19M23	2	3220	14	1	1260	800	1260		
A19M24	2	3390	15	1	1345	800	1345		
A19M25	2	3530	16	1	1415	800	1415		
A19M26	2	3570	16	1	1435	800	1435		
A19M27	2	3740	17	1	1520	800	1520		
A19M28	3	3910	26	1	1605	800	1605		
A19M29	2	4010	18	1	1655	800	1655		
A19M30	2	4180	19	1	1740	800	1740		
A19M31	7	4290	67	1	1795	800	1795		
A25M02	8	7520	239	STR					
		TOTAL	891						
SUPERSTRUCTURE AT REAR ABUTMENT									
D25M01	12	1770	84	4					
S16M20	70	1825	198	1	550	800	550		
S16M21	22	2175	74	1	800	650	800		
S16M22	13	2325	47	1	800	800	800		
S16M23	3	955	4	STR					
S16M24	3	1705	8	6	765	3.2			
S16M25	5	930	7	STR					
S16M26	3	2120	10	6	1180	7.1			
S25M01	12	7740	369	STR					
S25M02	12	5650	269	STR					
		TOTAL	1070						

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	INC.
SUPERSTRUCTURE AT FORWARD ABUTMENT								
D25M01	12	1770	84	4				
S16M20	74	1825	210	1	550	800	550	
S16M21	23	2175	78	1	800	650	800	
S16M22	14	2325	51	1	800	800	800	
S16M27	5	925	7	STR				
S16M28	3	2215	10	6	1275	7.9		
S16M29	3	885	4	STR				
S16M30	3	1760	8	6	820	4.6		
S25M02	12	5650	269	STR				
S25M03	12	8840	421	STR				
		TOTAL	1142					
SUPERSTRUCTURE								
S16M01	218	9815	3321	STR				
S16M02	2 SERIES OF 8	9250 TO 7850*	212	STR				*200
S16M03	2 SERIES OF 32	7440 TO 1550*	446	STR				*190
S16M04	16	1700	42	STR				
S16M05	2 SERIES OF 9	9262 TO 7870*	239	STR				*174
S16M06	2 SERIES OF 34	7495 TO 1753*	488	STR				*174
S16M07	130	9144	1845	STR				
S16M08	6	5890	55	STR				
S16M09	40	5820	361	STR				
S16M10	1 SERIES OF 5	6450 TO 5966*	48	STR				*121
S16M11	1 SERIES OF 8	6550 TO 5766*	76	STR				*112
S16M12	6	6580	61	STR				
S16M13	160	1825	453	3				
S16M14	24	9144	341	STR				
S16M15	6	5890	55	STR				
S16M16	6	6580	61	STR				
S19M01	160	790	283	5				
S19M02	160	675	241	2	445	280		
S19M03	3	8160	55	STR				
S19M04	3	8390	56	STR				
		TOTAL	8739					

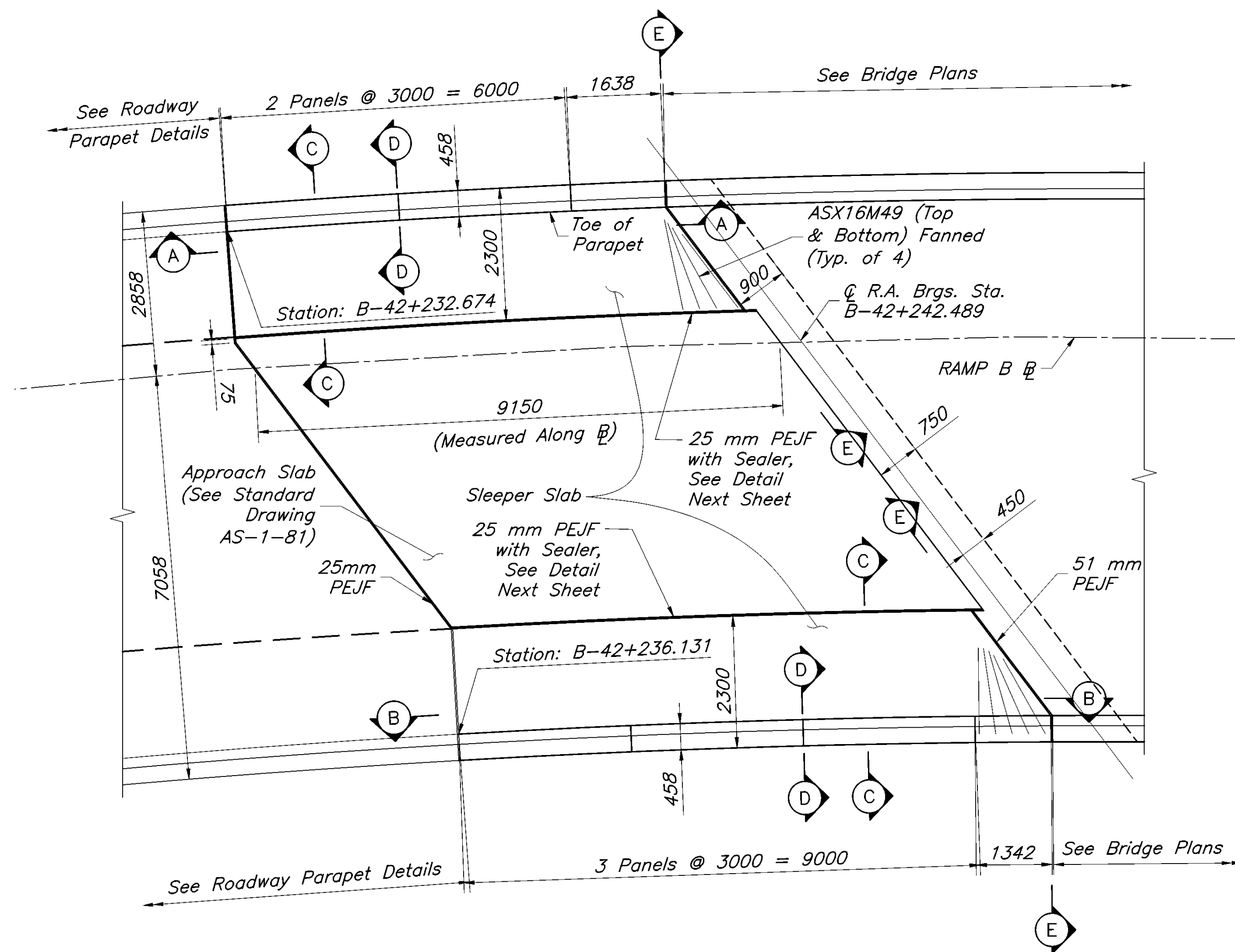


NOTES:

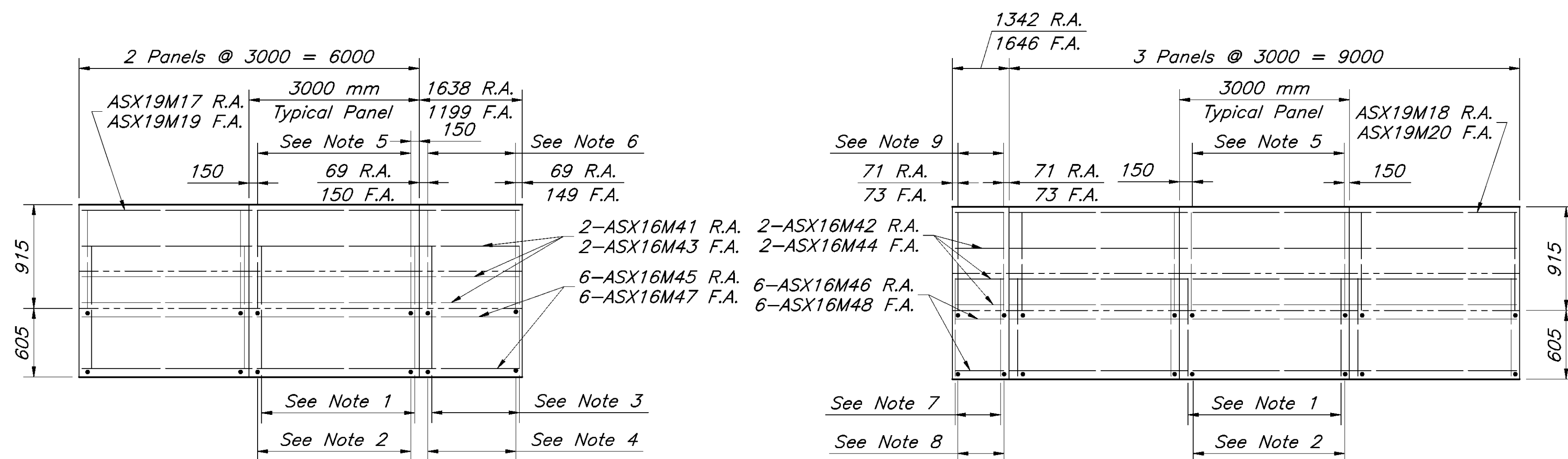
- THE REINFORCING STEEL WEIGHTS ARE FOR INFORMATION ONLY.
- BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED.
- ”STR” INDICATES A STRAIGHT BAR.
- ALL LENGTHS ARE GIVEN IN MILLIMETERS.
- ALL REINFORCING STEEL TO BE EPOXY COATED.

THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST TWO DIGITS INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, A16M01 IS ABUTMENT ”16M” BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED. ”R” INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. ”STD” WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL. SPLICED IN ACCORDANCE WITH 509.08.



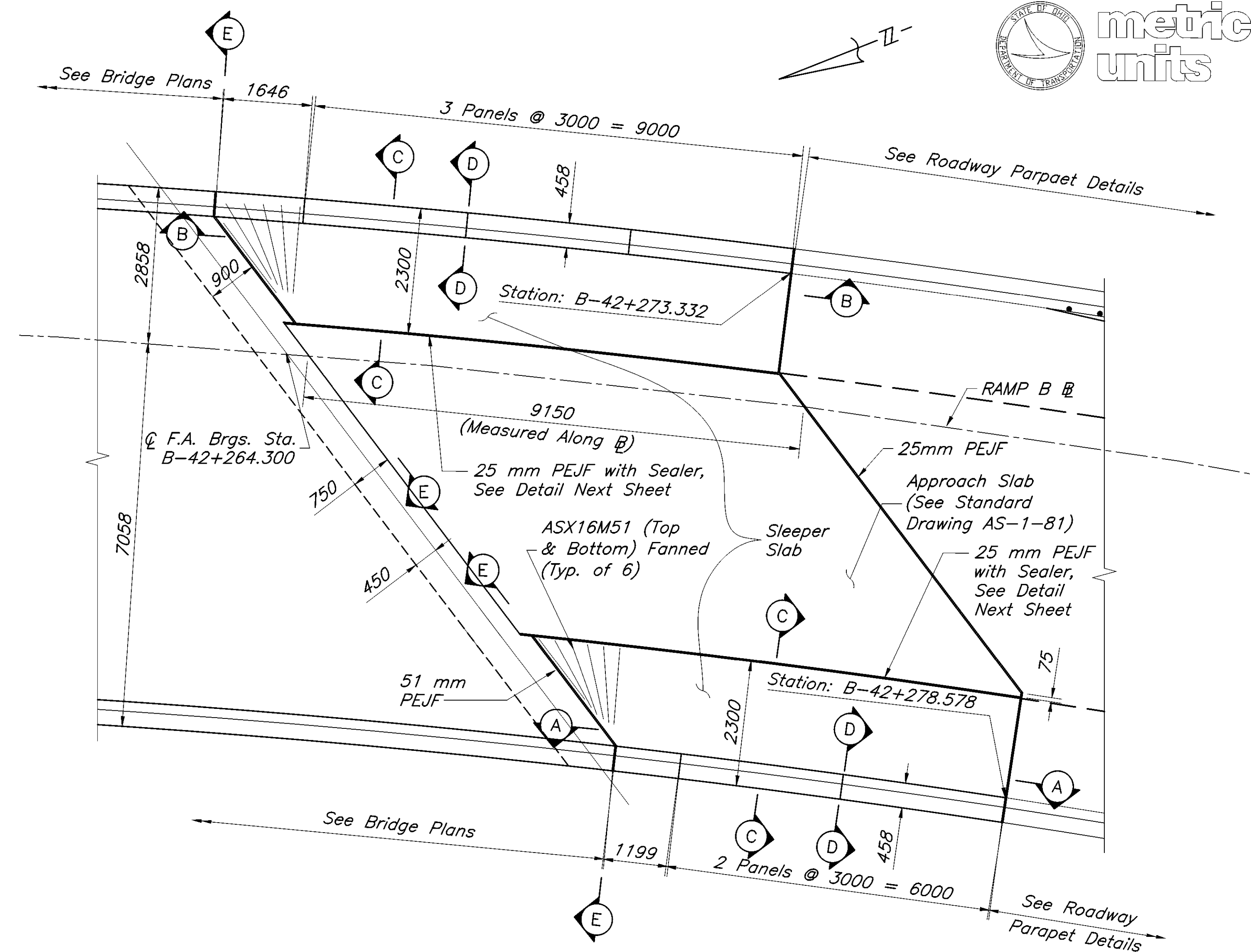
REAR APPROACH SLEEPER SLAB PLAN



SECTION A-A

Dimensions Measured
Along Toe of Parapet

SEE SHEET 14/14 FOR
SECTIONS C-C, D-D AND E-E.



FORWARD APPROACH SLEEPER SLAB PLAN

- NOTES:

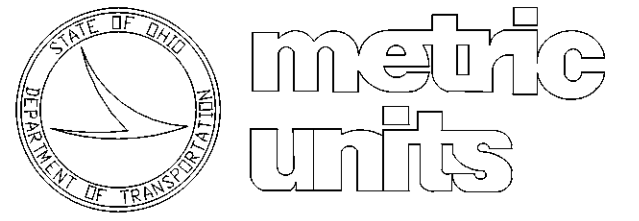
1. 10-ASY19M01, 9 Spa. @ 300 = 2700
10-ASY19M02, 9 Spa. @ 300 = 2700
19-ASY19M03, 18 Spa. @ 150 = 2700
2. 10-ASX16M01, 9 Spa. @ 300 = 2700 (Top),
10-ASX16M02, 9 Spa. @ 300 = 2700 (Bottom)
3. 6-ASY19M01, 5 Spa. @ 300 = 1500 R.A.
6-ASY19M02, 5 Spa. @ 300 = 1500 R.A.
11-ASY19M03, 10 Spa. @ 150 = 1500 R.A.
4-ASY19M01, 3 Spa. @ 300 = 900 F.A.
4-ASY19M02, 3 Spa. @ 300 = 900 F.A.
7-ASY19M03, 6 Spa. @ 150 = 900 F.A.
4. 6-ASX16M01, 5 Spa. @ 300 = 1500, (Top) R.A.,
6-ASX16M02, 5 Spa. @ 300 = 1500 (Bottom) R.A.
4-ASX16M01, 3 Spa. @ 300 = 900 (Top) F.A.,
4-ASX16M02, 3 Spa. @ 300 = 900 (Bottom) F.A.
5. 10-ASY16M01, 9 Spa. @ 300 = 2700
Lap ASY19M01
6. 6-ASY16M01, 5 Spa. @ 300 = 1500
Lap ASY19M01 R.A.
4-ASY16M01, 3 Spa. @ 300 = 900
Lap ASY19M01 F.A.

7. 5-ASY19M01, 4 Spa. @ 300 = 1200 R.A.
5-ASY19M02, 4 Spa. @ 300 = 1200 R.A.
9-ASY19M03, 8 Spa. @ 150 = 1200 R.A.
6-ASY19M01, 5 Spa. @ 300 = 1500 F.A.
6-ASY19M02, 5 Spa. @ 300 = 1500 F.A.
11-ASY19M03, 10 Spa. @ 150 = 1500 F.A.
8. 5-ASX16M50 (Top & Bottom) Fanned R.A.
6-ASX16M49 (Top & Bottom) Fanned F.A.
9. 5-ASY16M01, 4 Spa. @ 300 = 1200 R.A.,
Lap ASY19M01
6-ASY16M01, 5 Spa. @ 300 = 1500 F.A.,
Lap ASY19M01

LEGEND

LEGEND
R.A. = Rear Approach
F.A. = Forward Approach

Q:\PROJECT\505049\DWG\CEVA 4-23-01\98-113\BRIDGE PLANS\BRIDGE-K-42242\BROK-LA 12563V2T - PLOTTED BY CBASWIN - August 11, 2003 - 3:03 PM



EVANS, MECHWART, HAMELTON & TILTON, INC.
CONSULTING ENGINEERS & SURVEYORS
170 MILL STREET
CANANDA, OHIO 43020

DESIGNED
HEM
CHECKED
GT

DRAWN
LO'C
REVISED

REVIEWED
DATE
CJS 03/14/02

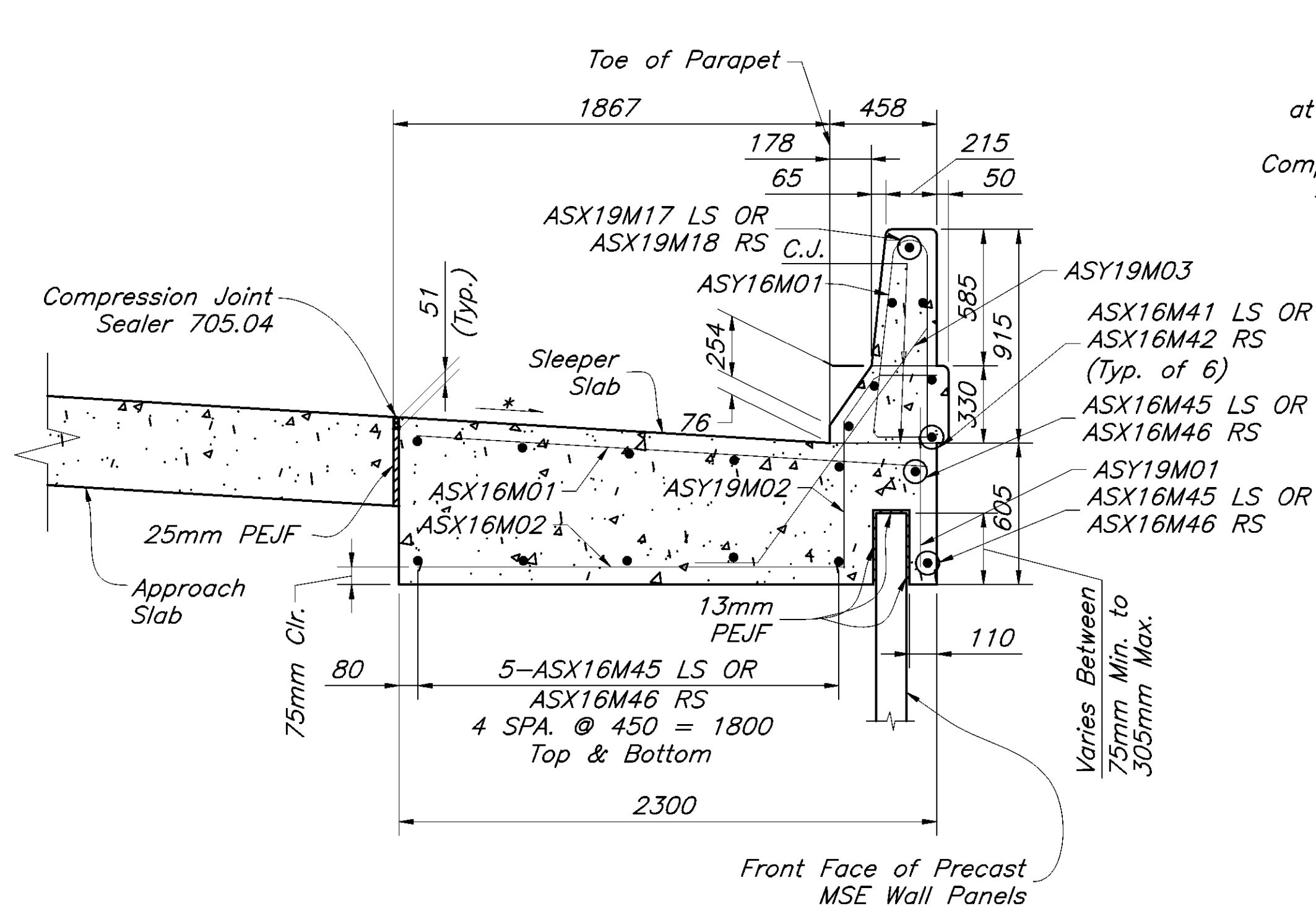
STRUCTURE FILE NUMBER
2512386

APPROACH SLEEPER SLAB DETAILS
BRIDGE NO. FRA-270-49252
RAMP B OVER RAMP F

FRA 270-40.260

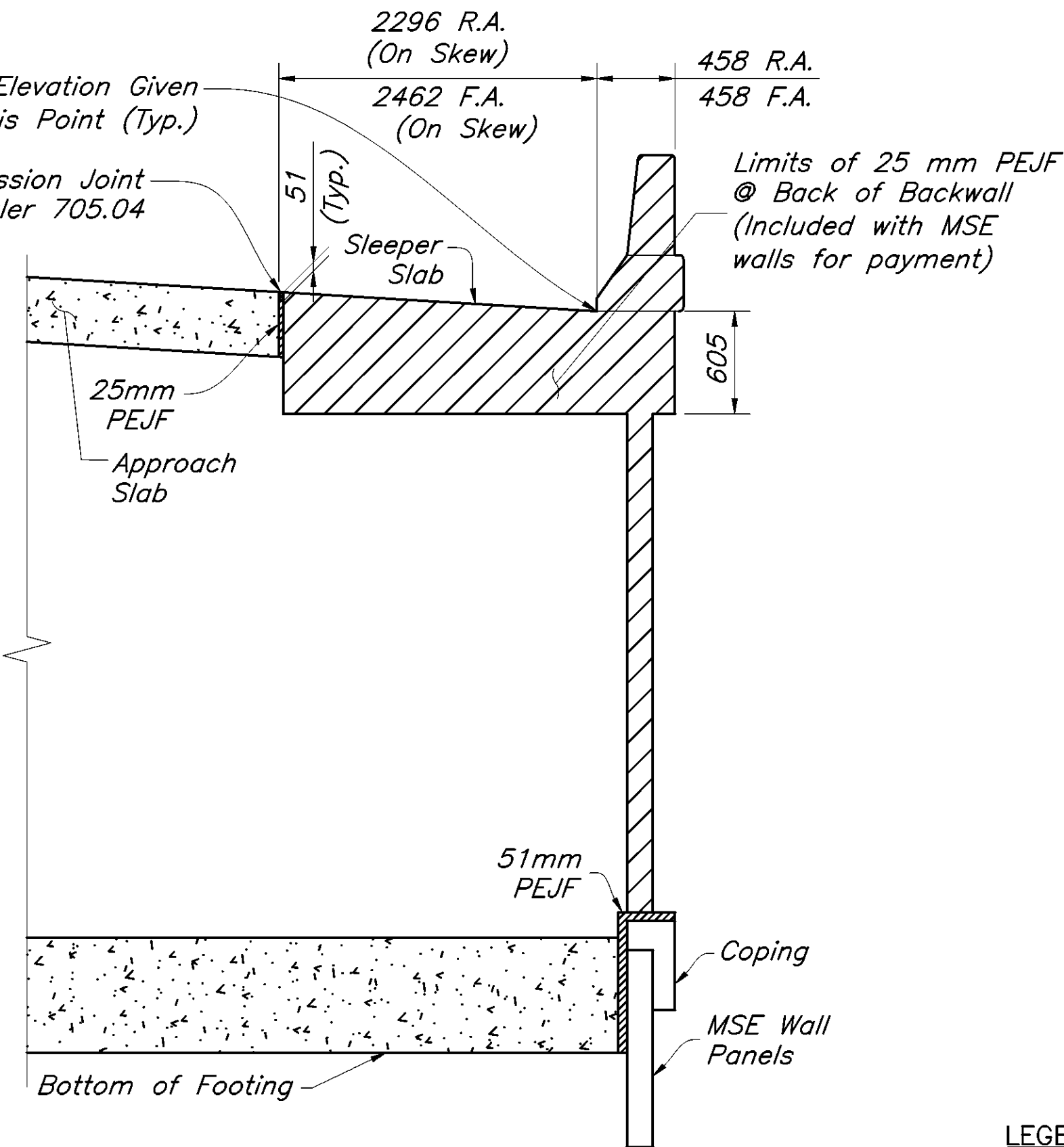
14/14

938A
1039



SECTION C-C
Rear Approach

* Top Surface of Sleeper Slab shall be defined by the applicable Roadway Cross-Section



SECTION E-E
Right Rear Shown
Others Similar

DESIGN SPECIFICATIONS: "Standard Specifications For Highway Bridges" adopted by AASHTO, 1996, Including the 1997, 1998, & 1999 Interim Specifications.

DESIGN DATA:

Concrete Class S f'c = 31 MPa, Reinforcing Steel ASTM A615M, A616M, or A617M Grade 420 fy = 420 MPa.

CONTROL JOINTS FOR CONCRETE PARAPETS:

The joints shall be constructed by sawing 32 mm deep along perimeter of the parapet as soon as the saw can be operated without damaging the concrete.

The use of an edge guide, fence, or jog is required to insure that the cut joint is straight, true, and aligned on all faces of the parapet. The joint width shall be the width of the saw blade, a nominal width of 6 mm.

The perimeter of the deflection control joint shall be sealed with a caulking material to a minimum depth of 25 mm conforming to federal specification TT-S-00227E. The bottom 13 mm of the inside face of the parapet should be left unsealed to allow any water which may enter the joint to escape.

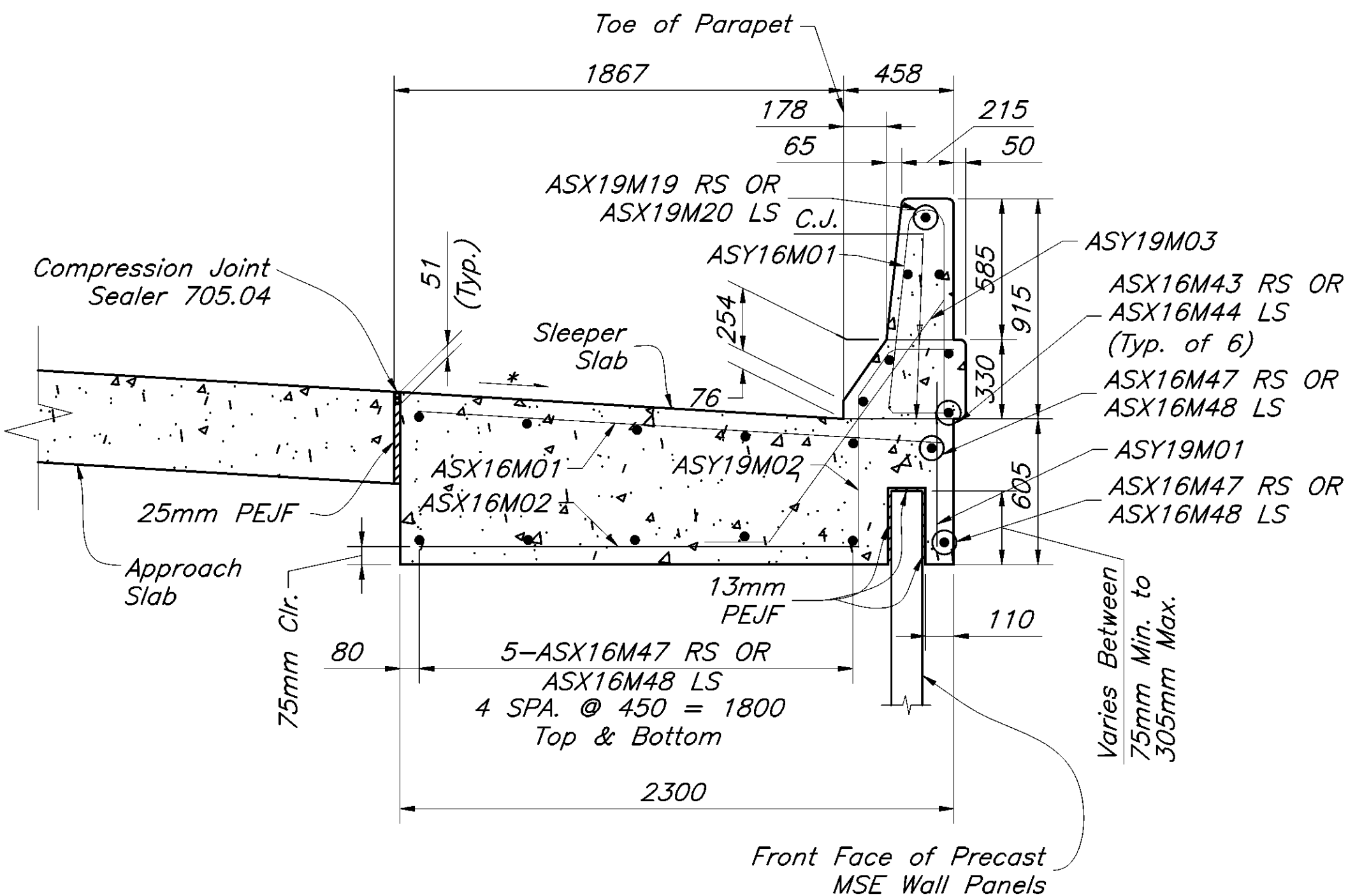
SAWCUT: Shall be Placed as Shown.

QUANTITIES of concrete, reinforcing steel, deflection joint sawcut, and caulking material for Parapet are included with MSE walls for payment.

LEGEND

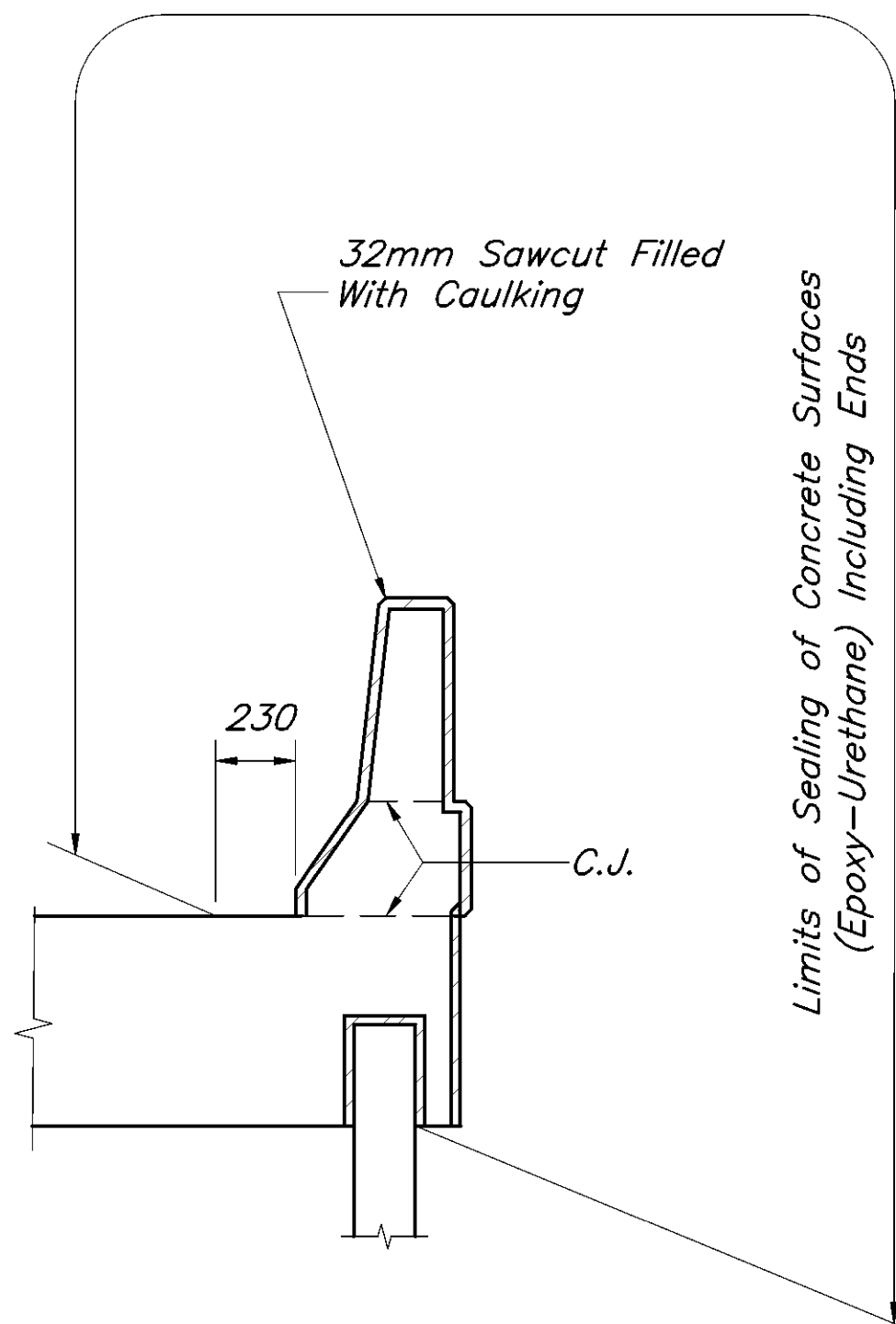
LS = Left Side
RS = Right Side
R.A. = Rear Approach
F.A. = Forward Approach

APPROACH PARAPET/SLEEPER SLAB REINFORCING BAR LIST					
MARK	NUMBER	LENGTH	WEIGHT	TYPE	INCR.
ASX16M01	110	2200	376	STR.	
ASX16M02	110	1915	327	STR.	
ASX16M41	6	7535	70	STR.	
ASX16M42	6	10 240	95	STR.	
ASX16M43	6	7095	66	STR.	
ASX16M44	6	10 545	98	STR.	
ASX16M45	2 Sets of	7535			
	6	T0	151	STR.	220
	2 Sets of	8890			
	6	T0	178	STR.	270
ASX16M46	2 Sets of	7090			
	6	10 240			
ASX16M47	2 Sets of	8800			
	6	8790			
ASX16M48	2 Sets of	8800			
	6	T0	180	STR.	345
ASX16M49	20	1600	50	STR.	
ASX16M50	10	1500	23	STR.	
ASX16M51	12	1400	26	STR.	
ASX19M17	1	7535	17	STR.	
ASX19M18	1	10240	23	STR.	
ASX19M19	1	7095	16	STR.	
ASX19M20	1	10545	24	STR.	
ASY16M01	121	1825	343	BENT	
ASY19M01	121	810	219	STR.	
ASY19M02	121	1065	288	BENT	
ASY19M03	228	1515	772	BENT	
		TOTAL	3490		



SECTION C-C
Forward Approach

* Top Surface of Sleeper Slab shall be defined by the applicable Roadway Cross-Section



SECTION D-D

At Sawcut Joint
Reinforcing Not Shown For Clarity

