

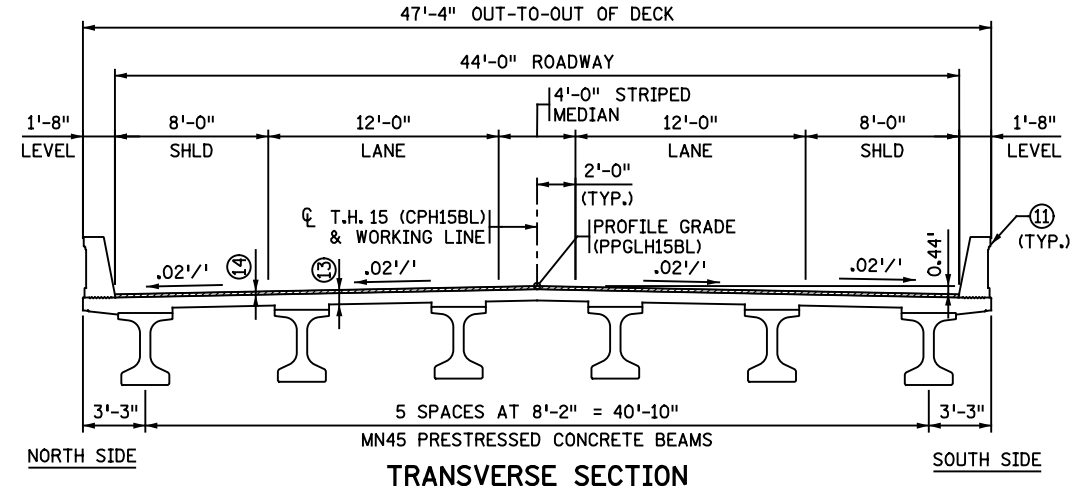
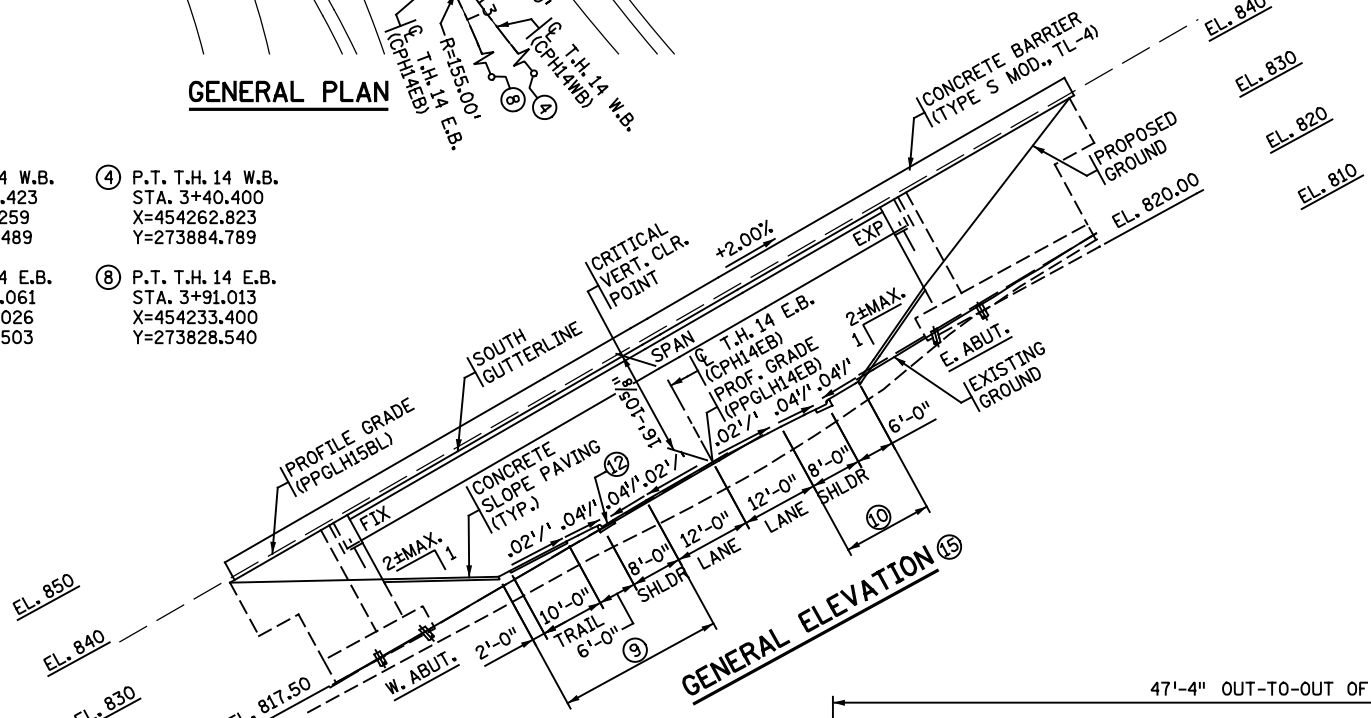
LIST OF SHEETS	
NO.	TITLE
1	GENERAL PLAN AND ELEVATION
2	CONSTRUCTION NOTES AND SOQ
3	BRIDGE LAYOUT
4	AESTHETIC DETAILS
5-7	WEST ABUTMENT DETAILS
8-12	WEST ABUTMENT REINFORCEMENT
13-15	EAST ABUTMENT DETAILS
16	ABUTMENT DETAILS
17-21	EAST ABUTMENT REINFORCEMENT
22	FRAMING PLAN
23	PRESTRESSED CONCRETE BEAM
24-26	SUPERSTRUCTURE DETAILS
27	BARRIER LAYOUT
28	SINGLE SLOPE CONCRETE BARRIER (36")
29	CONCRETE SLOPE PAVING
30	CONDUIT SYSTEM (LIGHTING)
31	WATERPROOF EXPANSION DEVICE
32	W.P. EXP. DEVICE SNOW PLOW PROTECTION
33-37	BRIDGE DETAILS
38	AS-BUILT PLAN
39	BRIDGE SURVEY
40	BORINGS

DESIGN DATA	
DESIGNED IN ACCORDANCE WITH 2014 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS	
HL-93 LIVE LOAD	
DEAD LOAD INCLUDES 20 psf ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.	
MATERIAL DESIGN PROPERTIES:	
REINFORCED CONCRETE:	
f'c = 4 ksi CONCRETE	
fy = 60 ksi PLAIN AND EPOXY COATED BARS	
fy = 60 ksi STAINLESS STEEL BARS	
n = 8 FOR REINFORCEMENT	
PRETENSIONED CONCRETE:	
f'c = 9 ksi CONCRETE	
fpu = 270 ksi LOW RELAXATION STRANDS	
n = 1 FOR REINFORCEMENT	
0.75 fpu FOR INITIAL PRESTRESS	
2035 PROJECTED TRAFFIC VOLUMES:	
ROAD OVER	ROAD UNDER
4150	A.D.T. 4000
220	H.C.A.D.T. 1150
DESIGN SPEED: 60 MPH (OVER), 30 MPH (UNDER)	
APPROXIMATE DECK AREA = 5630 SF	
HL 93 LRFR	
BRIDGE OPERATING RATING FACTOR RF = 1.85	

- WEST ABUT. REFERENCED FROM T.H. 14 E.B.
- (A) STA. 997+61.11 OFFSET 47.55' RT.* EL. 824.9±
 - (B) STA. 997+61.11 OFFSET 36.10' RT.* EL. 819.2±
 - (C) STA. 2+40.95 OFFSET 55.00' RT. EL. 828.4±
 - (D) STA. 2+50.25 OFFSET 38.00' RT. EL. 820.0±
- EAST ABUT. REFERENCED FROM T.H. 14 W.B.
- (E) STA. 2+37.34 OFFSET 42.94' LT. EL. 828.1±
 - (F) STA. 2+28.07 OFFSET 26.00' LT. EL. 819.5±
 - (G) STA. 3+01.16 OFFSET 39.90' LT. EL. 827.8±
 - (H) STA. 3+01.16 OFFSET 25.14' LT. EL. 820.4±
- * INCLUDES 10.09' FOR VARYING LANE

- (1) P.C. T.H. 14 W.B. STA. 996+88.121 X=454225.278 Y=274111.179
- (2) P.T. T.H. 14 W.B. STA. 998+00.645 X=454216.849 Y=274001.433
- (3) P.C. T.H. 14 W.B. STA. 2+65.423 X=454231.259 Y=273952.489
- (4) P.T. T.H. 14 W.B. STA. 3+40.400 X=454262.823 Y=273884.789
- (5) P.C. T.H. 14 E.B. STA. 997+62.672 X=454198.176 Y=274037.922
- (6) P.T. T.H. 14 E.B. STA. 998+24.502 X=454222.759 Y=273981.360
- (7) P.C. T.H. 14 E.B. STA. 2+88.061 X=454238.026 Y=273929.503
- (8) P.T. T.H. 14 E.B. STA. 3+91.013 X=454233.400 Y=273828.540

- (9) 26'-0" MIN. HORIZ. CLR. TO TOE OF SLOPE, MEASURED PERPENDICULAR TO EDGE OF LANE.
- (10) 13'-15/8" MIN. HORIZ. CLR. TO TOE OF SLOPE INCLUDES VARYING SHOULDER AND 6'-0" BERM.
- (11) CONCRETE BARRIER (TYPE S MOD., TL-4) 3'-0" MIN. HEIGHT ABOVE WEARING COURSE. SEE AESTHETICS.
- (12) B624 CURB AND GUTTER (TYP.)
- (13) 9" MIN. SLAB (INCLUDES WEARING COURSE)
- (14) 2" CONCRETE WEARING COURSE (3U17A)
- (15) SECTION LOCATED AT INTERSECTION OF T.H. 14 & T.H. 15 PERPENDICULAR TO T.H. 14.
- (16) T.H. 15 (CPH15BL) P.O.T. STA. 72+07.085 = T.H. 14 E.B. (CPH14EB) P.O.T. STA. 2+41.779 X=454224.954 Y=273973.901 Δ = 61°19'03.3"
- (17) STA. 70+90.59
- (18) STA. 71+35.13
- (19) STA. 72+71.30
- (20) STA. 73+07.83
- (21) STA. EQ. T.H. 14 E.B. P.T. STA. 998+24.502 (BK)= 2+34.004 (AH)
- (22) STA. EQ. T.H. 14 W.B. P.T. STA. 998+00.645 (BK)= 2+14.401 (AH)



- NOTES:**
- FOR CONSTRUCTION NOTES, SEE SHEET 2.
 - SEE BORING SHEET FOR INPLACE UTILITIES.
 - SUBSTRUCTURES SET PARALLEL AT AZ.=163°35'41.9"
 - BRIDGE APPROACH PANEL LAYOUT STANDARDS 5-297.224 AND 5-297.225 SHALL APPLY.
 - BRIDGE APPROACH TREATMENT STANDARD 5-297.233 APPLIES.
 - TRAFFIC TO BE DETOURED DURING CONSTRUCTION.
 - ALLOW FOR 2" FORMLINER IN ABUTMENT FACE AND WINGWALLS.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

SIGNED: _____ DATE: _____
 LICENSED PROFESSIONAL ENGINEER
 NAME: _____ LIC. NO. _____



TRUNK HIGHWAY NO. 15
 MINNESOTA DEPARTMENT
 OF TRANSPORTATION

BRIDGE NO. 52016
GENERAL PLAN AND ELEVATION

T.H. 15 OVER T.H. 14
 1.4 MILES NORTHEAST OF
 SOUTHWEST JCT. T.H. 14 AND T.H. 15

113' PRESTRESSED CONCRETE BEAM SPAN
 SPAN IDENTIFICATION NO. 501

SEC. 21 TWP. 110 N. R. 30 W.
 COURTLAND TWP. NICOLLET COUNTY, MN

APPROVED: _____ DATE _____
 STATE BRIDGE ENGINEER

DES: DJR DR: DJR
 CHK: DRS CHK: DRS

52016

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CONSTRUCTION NOTES:

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

SEE SPECIAL PROVISIONS FOR ALL XXXX.6XX SERIES PAY ITEMS FOR ADDITIONAL REQUIREMENTS.

THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

BARS MARKED WITH THE SUFFIX "S" SHALL BE STAINLESS STEEL IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

THE PILE LOADS SHOWN IN THE PLANS AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCE (Rn) WERE COMPUTED USING LRFD METHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.


CONSTRUCTION OF EACH ABUTMENT SHALL NOT BE STARTED UNTIL THE APPROACH FILL AT THAT ABUTMENT HAS BEEN CONSTRUCTED TO THE FULL HEIGHT AND CROSS SECTION PLUS 10' (AND ALLOWED TO SETTLE FOR 8 MONTHS).

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	ITEM	UNIT	QUANTITY	
2401.501	STRUCTURAL CONCRETE (1G52)	CU YD	0	(P)
2401.501	STRUCTURAL CONCRETE (3B52)	CU YD	0	(P)
2401.513	TYPE MOD S (TL-4) 36" BARRIER CONCRETE (3S52)	LIN FT	353	(P)
2401.541	REINFORCEMENT BARS	POUND	0	(P)
2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	0	(P)
2401.541	REINFORCEMENT BARS (STAINLESS-60KSI)	POUND	0	(P)
2401.601	STRUCTURE EXCAVATION	LUMP SUM	1	
2401.618	BRIDGE SLAB CONCRETE (3YHPC-S)	SQ FT	6337	(P)
2402.591	EXPANSION JOINT DEVICES TYPE 4	LIN FT	108	(P)
2402.595	BEARING ASSEMBLY	EACH	12	
2404.501	CONCRETE WEARING COURSE (3U17A)	SQ FT	6195	(P)
2405.502	PRESTRESSED CONCRETE BEAMS MN45	LIN FT	686	(P)
2405.511	DIAPHRAGMS FOR TYPE MN45 PREST BEAMS	LIN FT	98	(P)
2411.618	ANTI-GRAFFITI COATING	SQ FT	0	(P)
2411.618	ARCHITECTURAL SURFACE FINISH (MULTI COLOR)	SQ FT	0	(P)
2411.618	ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)	SQ FT	0	(P)
2411.618	ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE)	SQ FT	0	(P)
2452.520	STEEL H-TEST PILE 60FT LONG 10"	EACH	2	
2452.530	PILE TIP PROTECTION 10"	EACH	62	
2452.603	STEEL H-PILING 10"	LIN FT	3410	
2502.502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1	
2514.501	CONCRETE SLOPE PAVING	SQ YD	244	(P)

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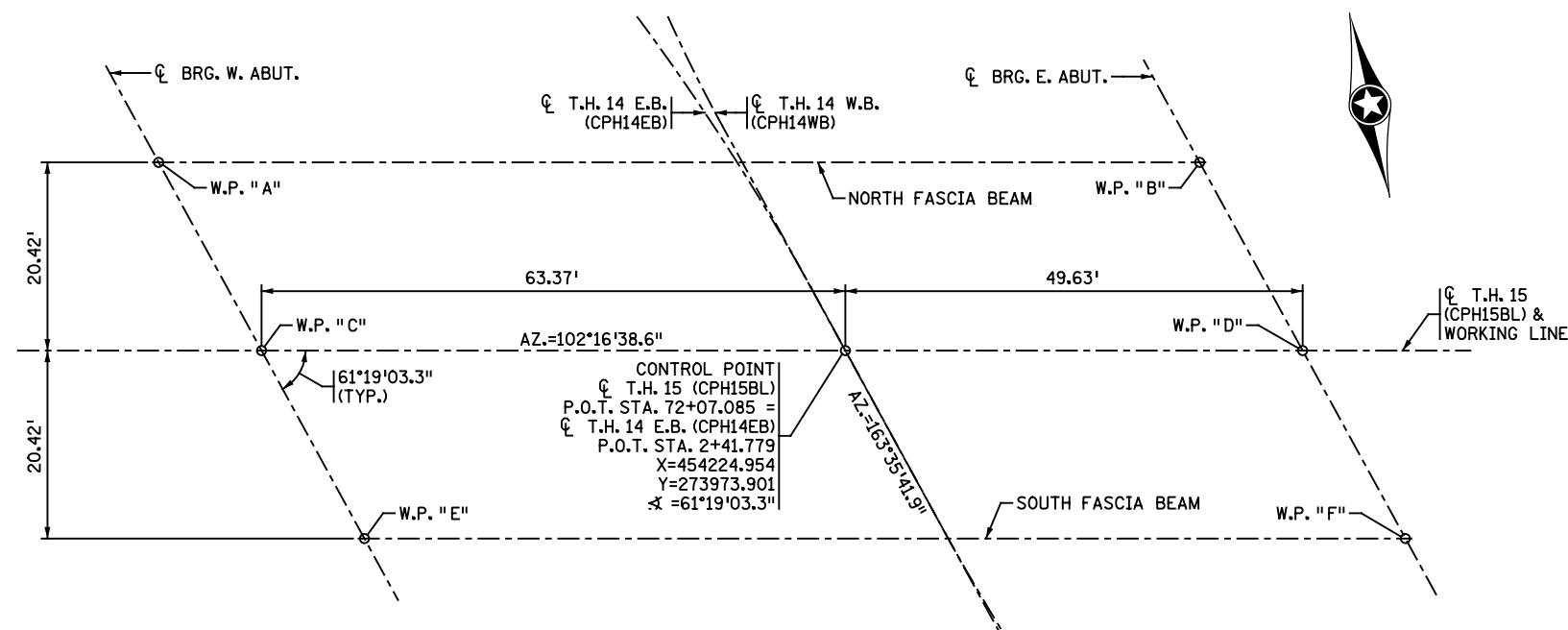
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NO.	DATE	DESCRIPTION	DR.	CHK.	APP'D.


 CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: **CONSTRUCTION NOTES AND SUMMARY OF QUANTITIES**

DES: DRS	DR: DJR	APPROVED:
CHK: LPR	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 2 OF 40 SHEETS		

BRIDGE NO.
52016

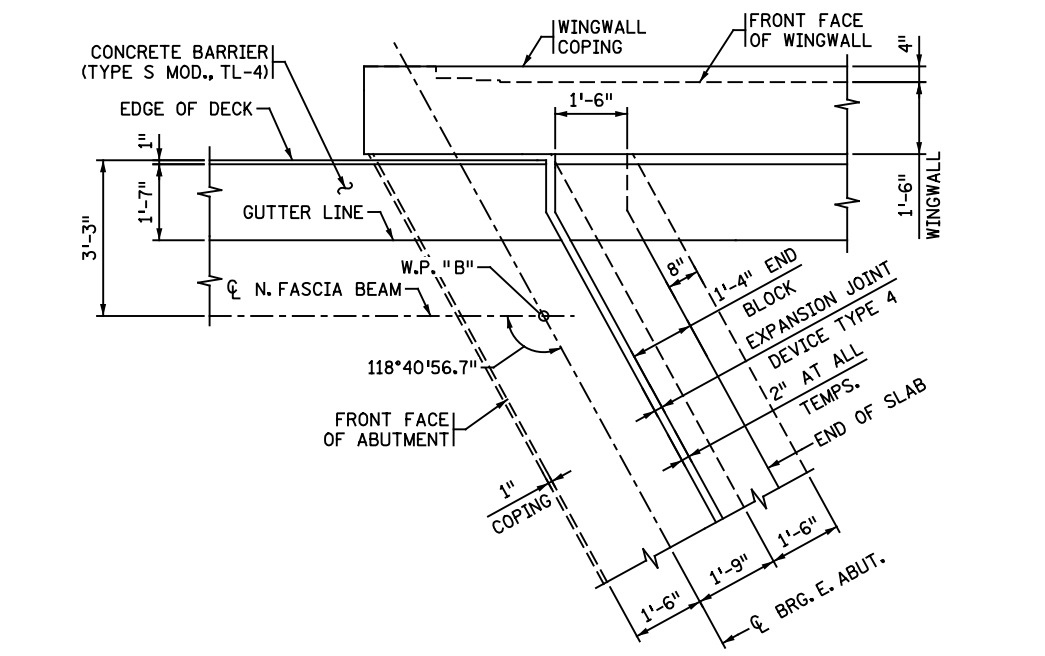


WORKING POINT LAYOUT

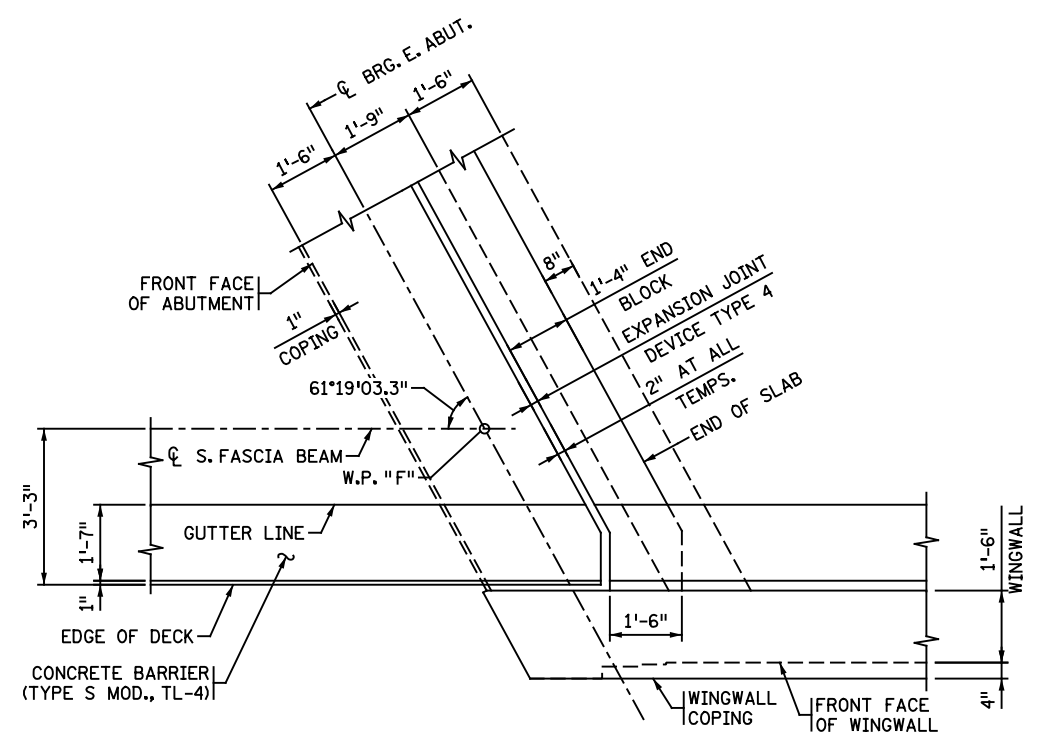
DIMENSIONS BETWEEN WORKING POINTS									ELEVATIONS				
POINT	STATION	X-COORDIN	Y-COORDIN	A	B	C	D	E	F	TOP OF ROADWAY	TOP OF RDWY TO BR. SEAT	BRIDGE SEAT	POINT
A	71+32.54	454156.460	274009.702		113.00	23.27	125.84		141.37	839.60	5.08	834.52	A
B	72+45.54	454266.876	273985.673				23.27	99.43		841.86	5.25	836.61	B
C	71+43.71	454163.033	273987.377				113.00	23.27	125.84	840.23			C
D	72+56.71	454273.448	273963.348						23.27	842.49			D
E	71+54.88	454169.605	273965.052						113.00	840.05	5.08	834.97	E
F	72+67.88	454280.021	273941.023							842.31	5.25	837.06	F

TOP OF ROADWAY TO BRIDGE SEAT					
	DECK THICKNESS	STOOL HEIGHT	BEAM HEIGHT	BEARING HEIGHT	TOTAL
					INCHES FEET
WEST ABUT.	9"	3 3/4"	45"	3 1/4"	61 5.08
EAST ABUT.	9"	3 3/4"	45"	5 1/4"	63 5.25

NOTES:
 ALL DISTANCES ARE STRAIGHT LINE HORIZONTAL DISTANCES MEASURED IN FEET.
 ALL COORDINATE VALUES SHOWN ARE PROJECT COORDINATES DEFINED IN FEET.
 WORKING LINE IS TANGENT TO C T.H. 15 AT CONTROL POINT (C T.H. 15 INTERSECTION WITH T.H. 14 E.B.)



NORTHEAST CORNER DETAIL
SOUTHWEST CORNER SIMILAR



SOUTHEAST CORNER DETAIL
NORTHWEST CORNER SIMILAR

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

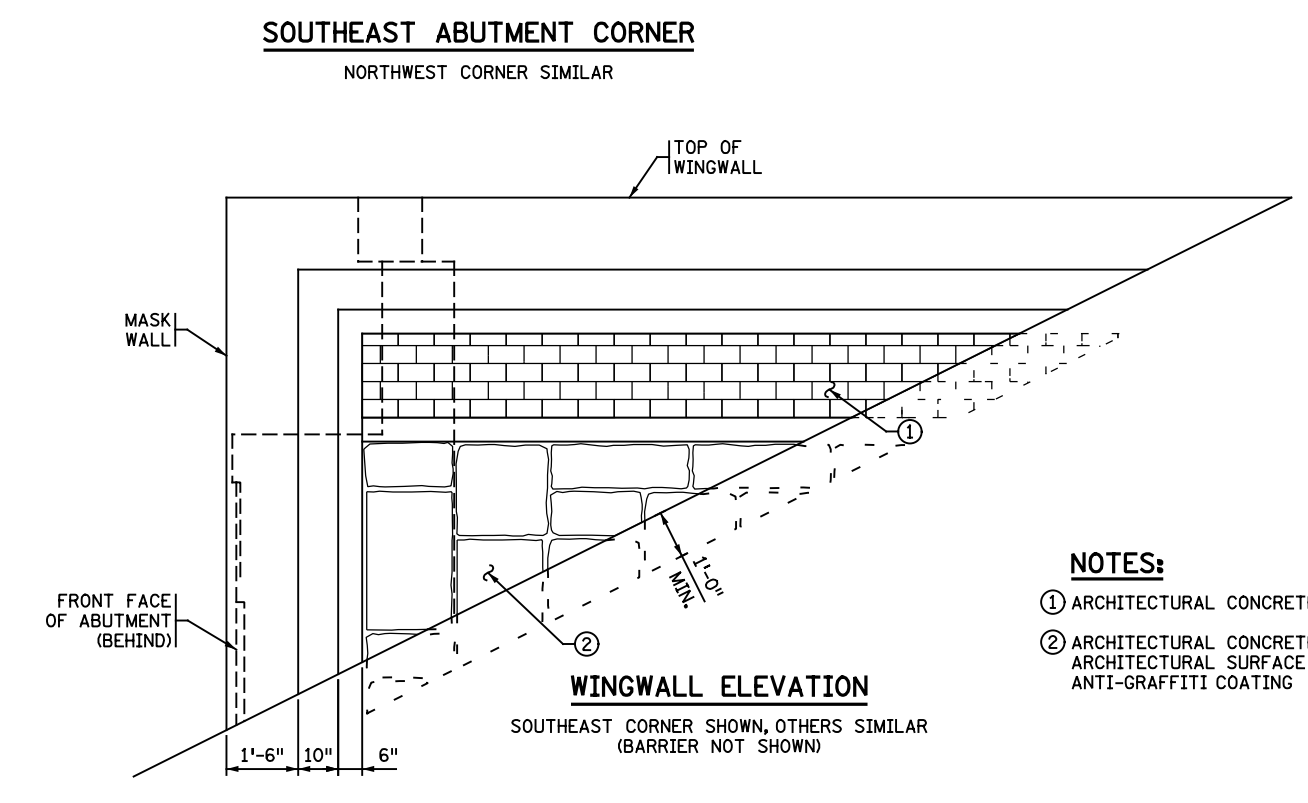
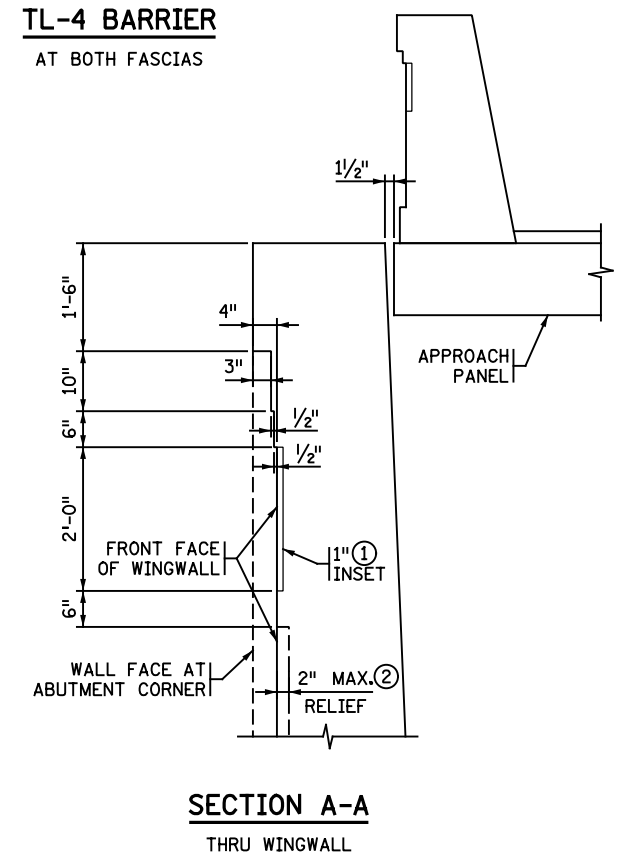
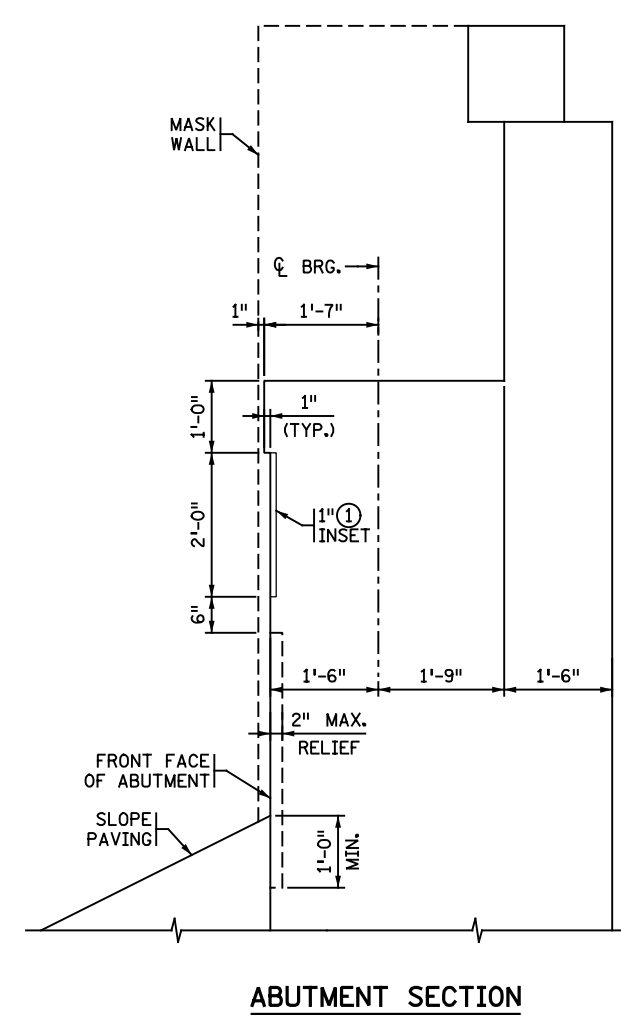
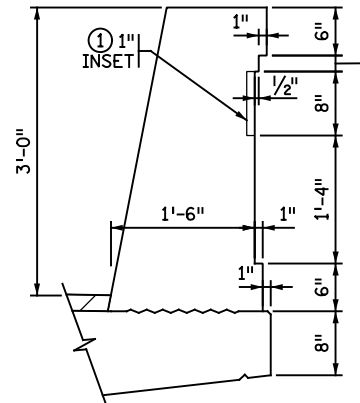
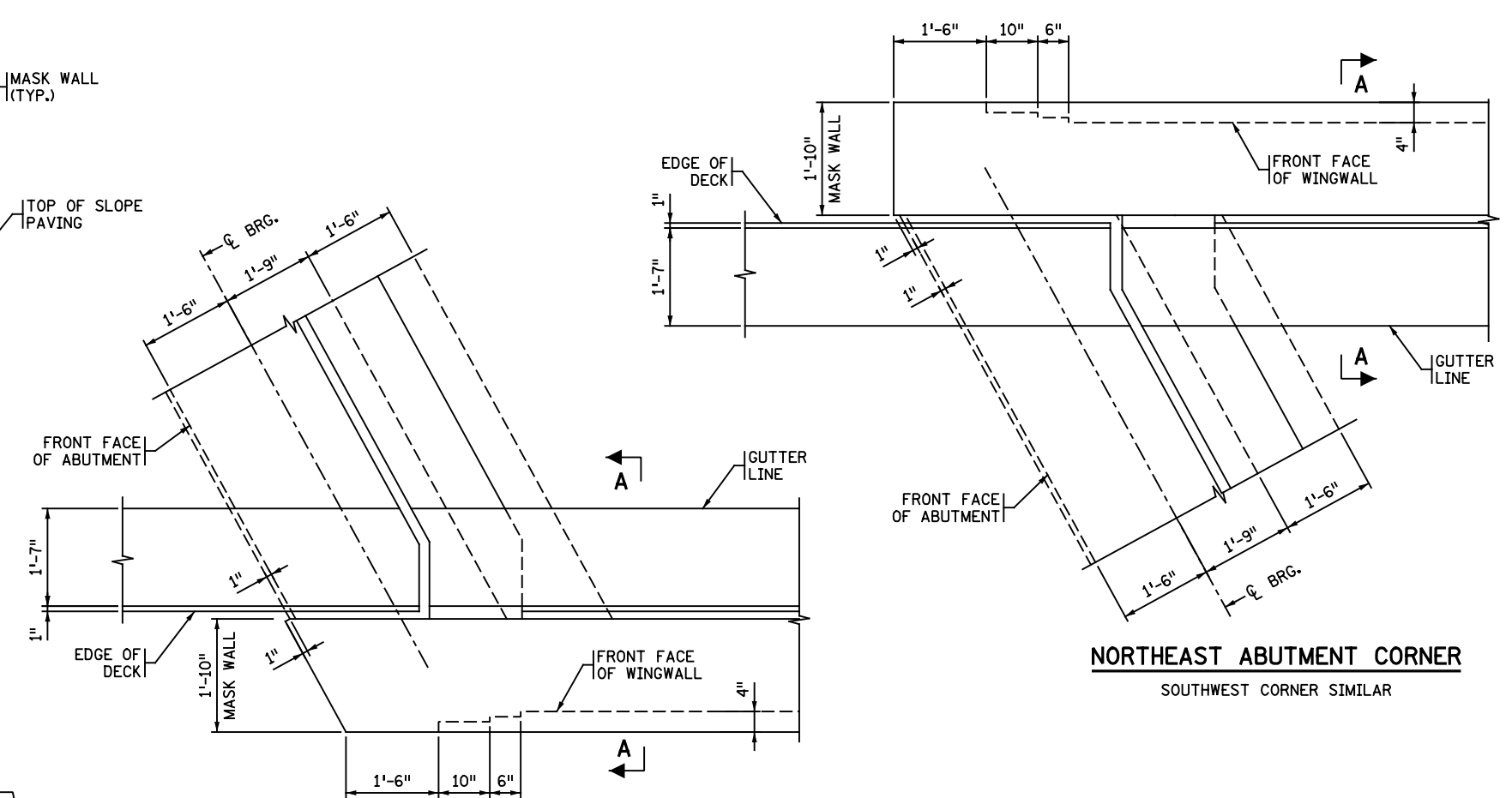
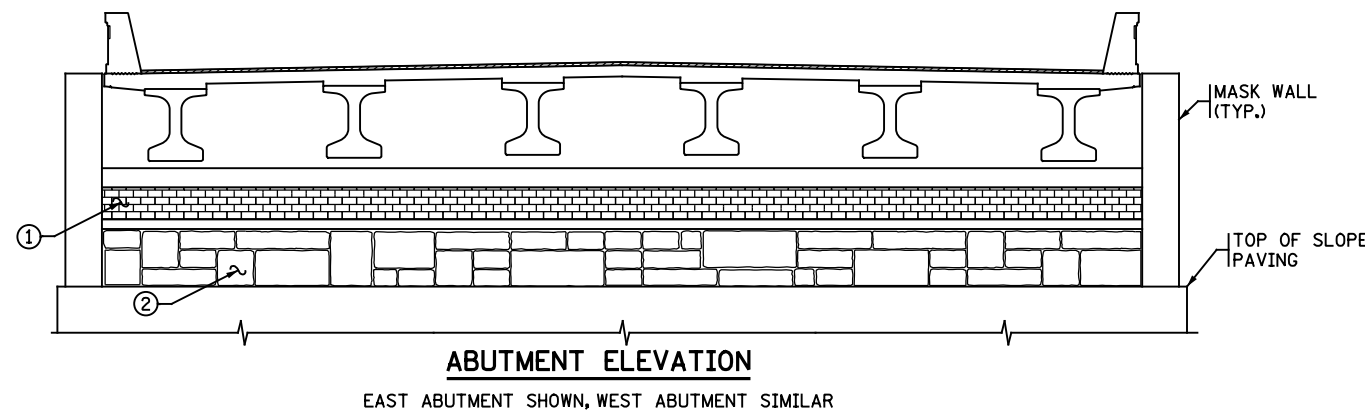


CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: **BRIDGE LAYOUT**

DES: DRS DR: DJR APPROVED: _____
 CHK: BAP CHK: DRS
STATE PROJECT NO. 0804-52016
SHEET NO. 3 OF 40 SHEETS

BRIDGE NO.
52016



- NOTES:**
- ① ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)
 - ② ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE) ARCHITECTURAL SURFACE FINISH (MULTI-COLOR) ANTI-GRAFFITI COATING

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

HDR

CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: **AESTHETIC DETAILS**

DES: DJR	DR: DJR	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 4 OF 40 SHEETS		
BRIDGE NO.		52016

WEST ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE FOR H-PILES R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ_{dyn}	** R_n
MNDOT PILE FORMULA 2012 (MPF12) $R_n = 20 \sqrt{\frac{W \times H}{1000}} \times \log\left(\frac{10}{S}\right)$	0.60	228.7
PDA	0.65	211.1

** R_n = (FACTORED DESIGN LOAD) / ϕ_{dyn}

WEST ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	120.0
FACTORED LIVE LOAD	17.2
**FACTORED DESIGN LOAD	137.2

*BASED ON STRENGTH I LOAD COMBINATION

PILE NOTES

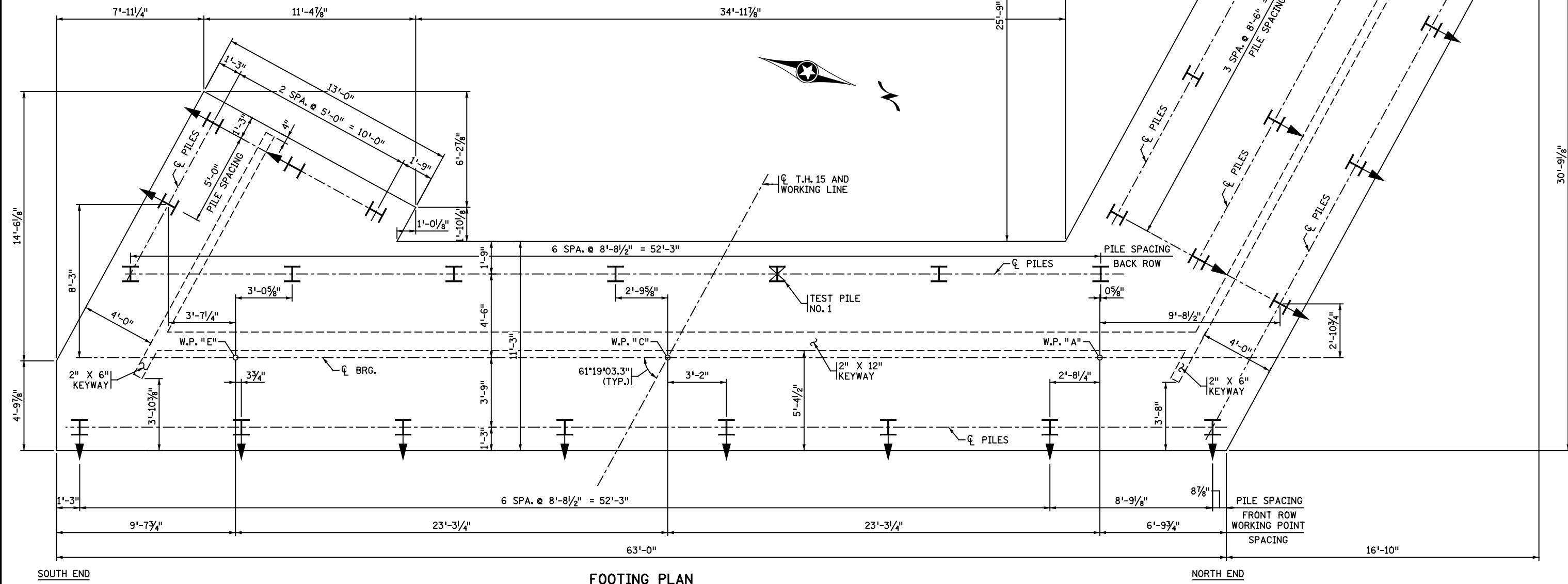
- 1 STEEL H TEST PILES 60 FT. LONG
 - 30 STEEL H PILES EST. LENGTH 55 FT.
 - 31 STEEL H PILES REQ'D FOR WEST ABUTMENT.
- PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
- PILES MARKED THUS H- TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.
- PILES TO BE HP-10x57.
- FOR PILE SPLICE DETAILS SEE DETAIL B202.

WEST ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	120.0
FACTORED DOWNDRAG	27.5
**FACTORED DEAD LOAD + EARTH PRESSURE + DOWNDRAG	147.5

**BASED ON DOWNDRAG LOAD COMBINATION, NOT INCLUDING TRANSIENT LOADS. ONLY USED FOR COMPARISON WITH FACTORED STRUCTURAL RESISTANCE. NOT TO BE USED FOR DRIVING.

NOTES:

FOR SUMMARY OF QUANTITIES, SEE SHEET 16.



FOOTING PLAN

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NO.	DATE	REVISION			
		DESCRIPTION	DR.	CHK.	APP'D.

CERTIFIED BY: _____

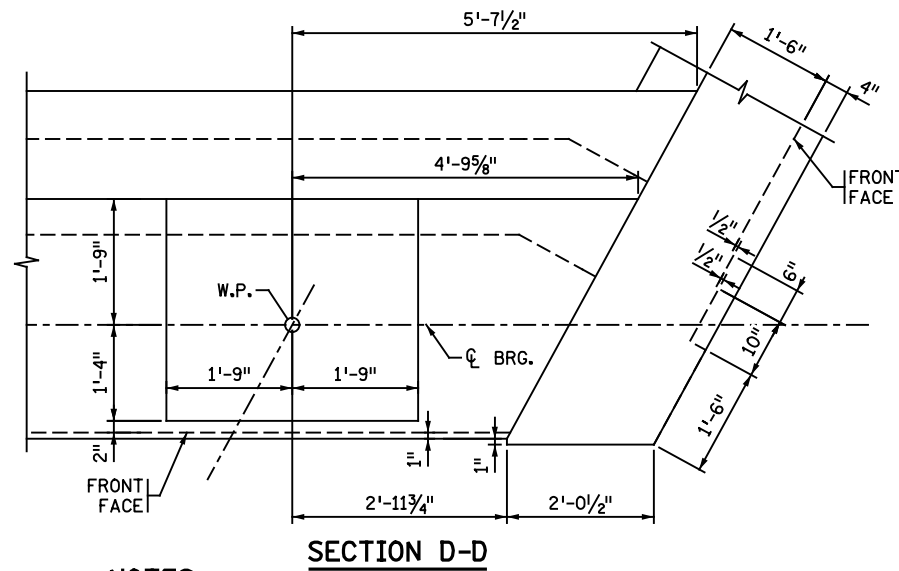
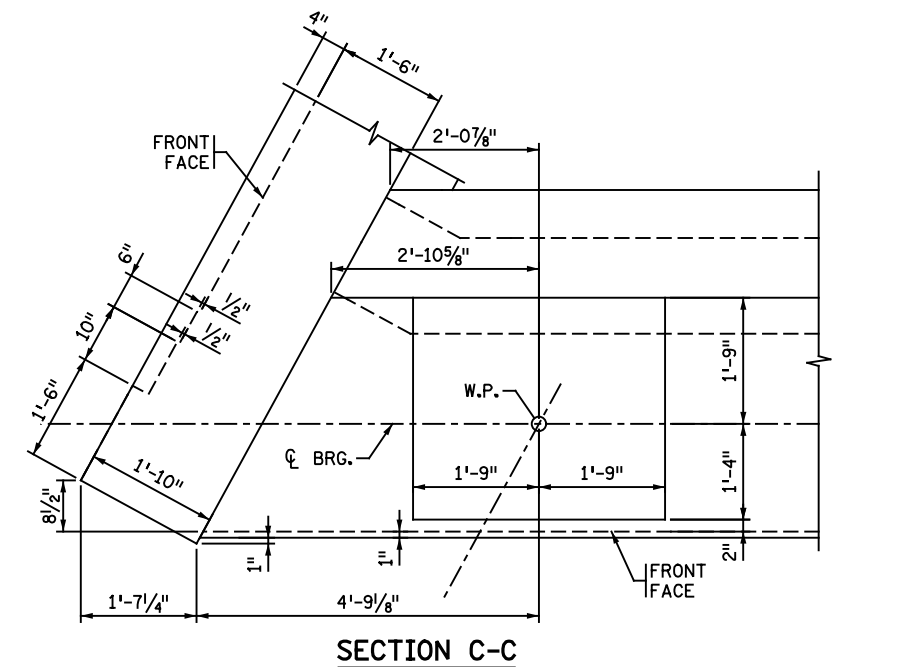
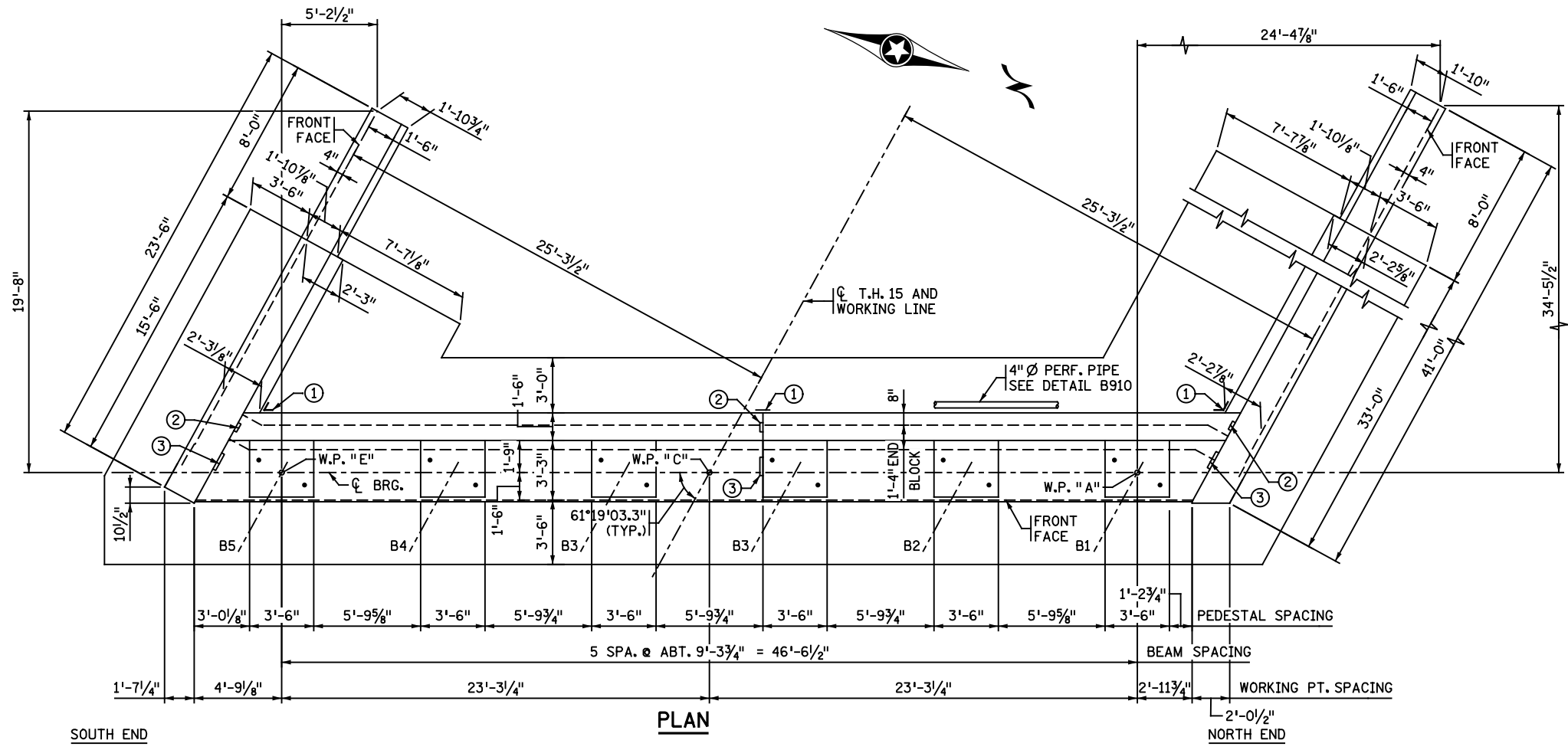
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NAME: _____ LIC. NO. _____

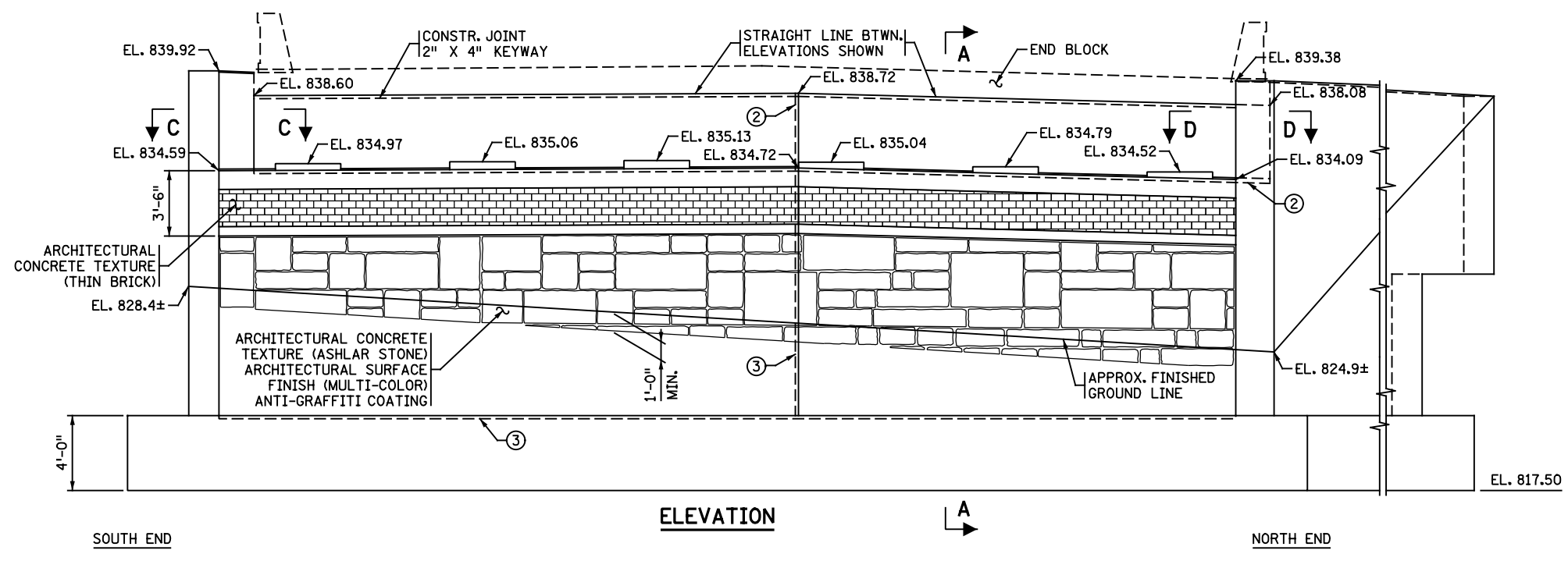
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DES: LPR	DR: DJR	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 5 OF 40 SHEETS		

BRIDGE NO.
52016



- NOTES:**
- FOR WINGWALL ELEVATIONS, SEE SHEET 7.
 - ARCHITECTURAL CONCRETE TEXTURE SHALL BE MATCHED ACROSS CONSTRUCTION JOINTS TO PROVIDE THE APPEARANCE OF A CONTINUOUS PATTERN.
 - SEE SPECIAL PROVISIONS FOR SPECIAL SURFACE FINISH COLORS AND LOCATIONS.
 - FOR SECTION A-A SEE SHEET 16.
 - PROVIDE A 72 HOUR MINIMUM TIME DELAY BETWEEN CONCRETE POURS ON ADJACENT ABUTMENT AND WINGWALL SECTIONS.
 - VERTICAL KEYWAYS SHALL STOP 1'-0" ± FROM EXPOSED SURFACE.
 - PILING NOT SHOWN FOR CLARITY.
 - SEE SHEET 7 FOR ANCHOR ROD DETAILS.
 - ① MEMBRANE WATERPROOFING SYSTEM PER MnDOT 2481.3B, TO BE INCLUDED IN PRICE BID FOR STRUCTURAL CONCRETE (3B52).
 - ② CONSTRUCTION JOINT 2" X 6" KEYWAY.
 - ③ CONSTRUCTION JOINT 2" X 12" KEYWAY



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REVISION		DESCRIPTION	DR.	CHK.	APP'D.
NO.	DATE				

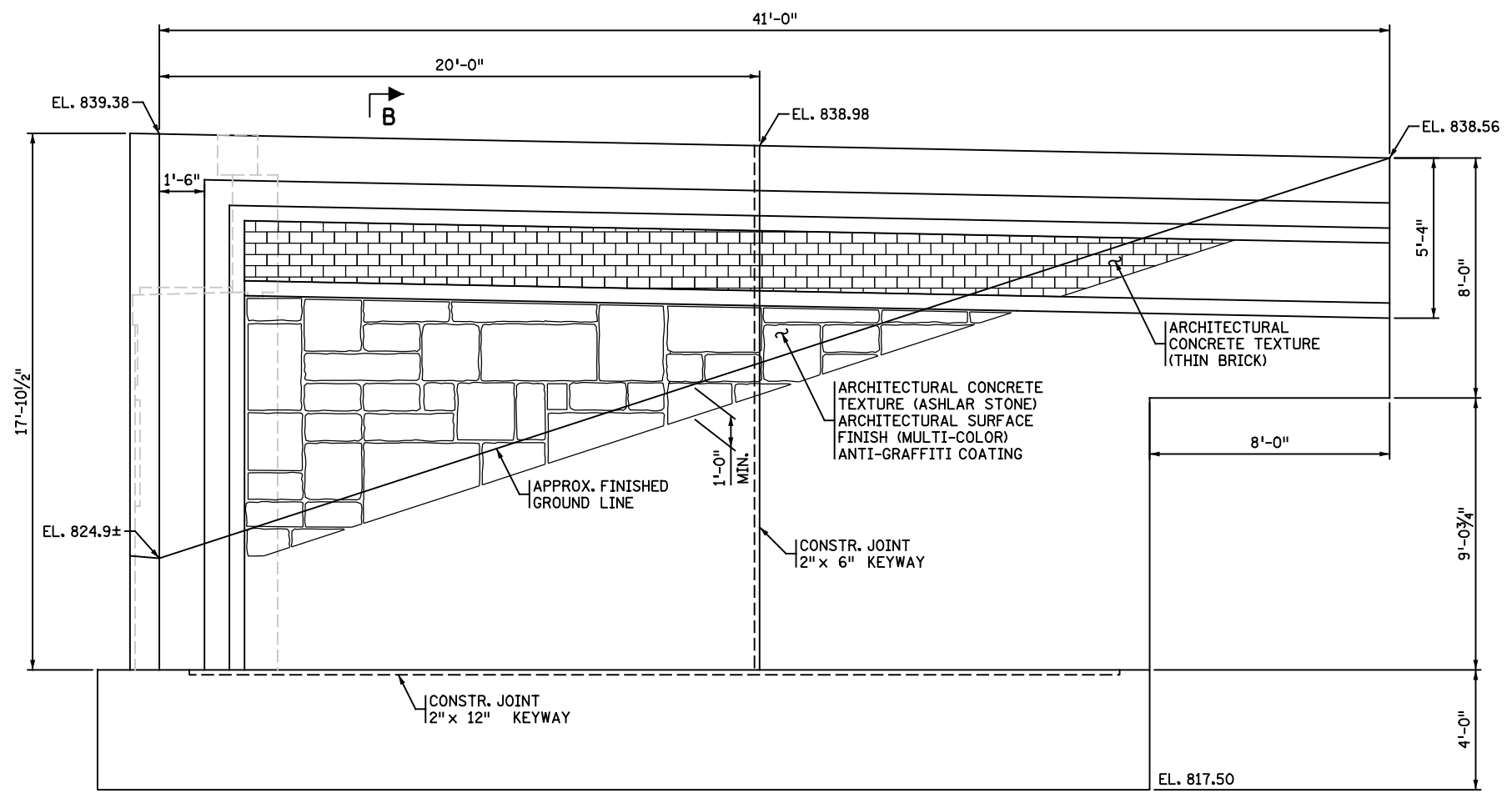
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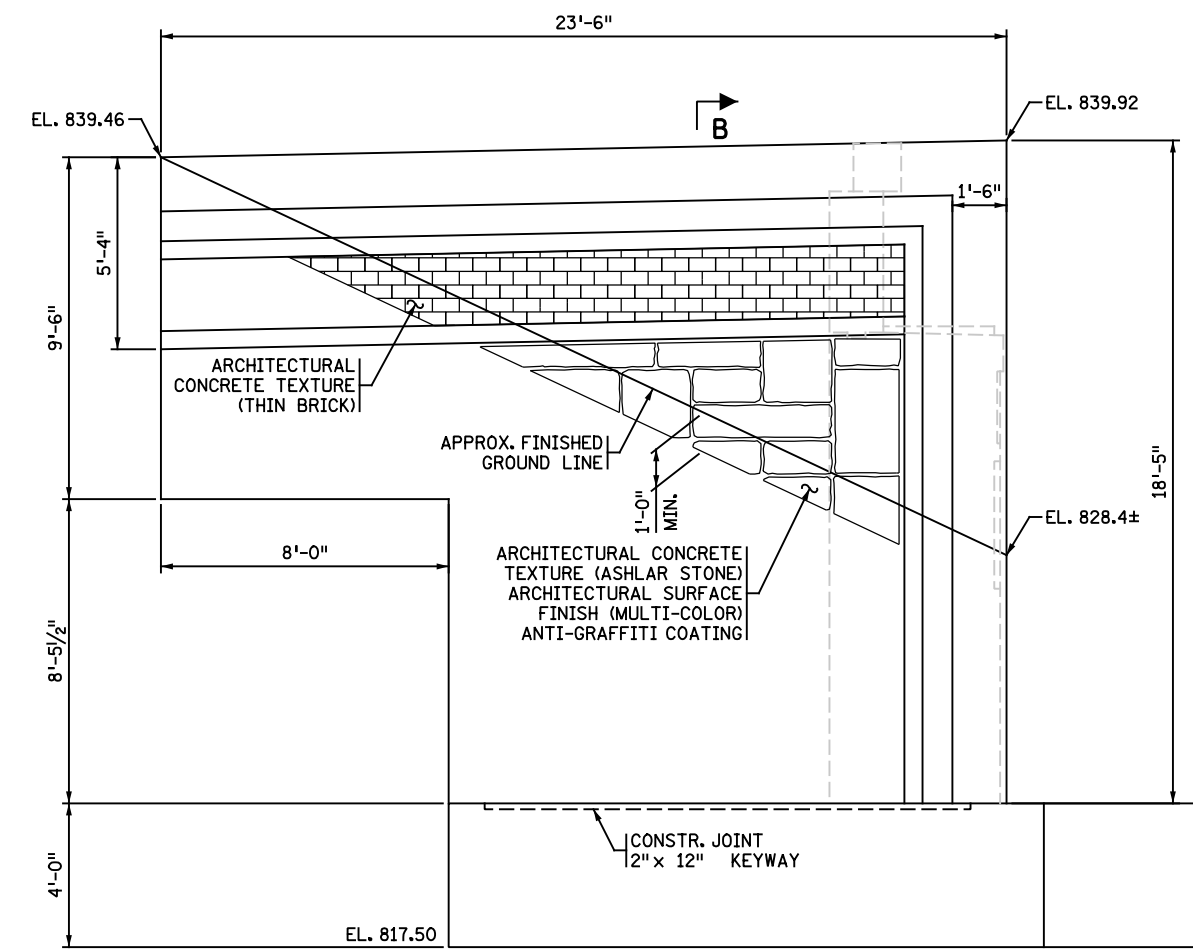
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CHK: DRS	CHK: DRS	
WEST ABUTMENT DETAILS 2		
STATE PROJECT NO. 0804-52016		
SHEET NO. 6 OF 40 SHEETS		
BRIDGE NO. 52016		

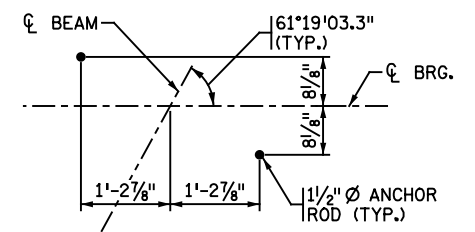
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NORTHWEST WINGWALL ELEVATION



SOUTHWEST WINGWALL ELEVATION



ANCHOR ROD DETAILS
TYPICAL ALL BEAMS

NOTES:

- FOR SECTION B-B, SEE SHEET 16 .
- PILING NOT SHOWN FOR CLARITY.
- FOR ADDITIONAL ABUTMENT NOTES, SEE SHEET 6 .

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

HDR

CERTIFIED BY: _____
LICENSED PROFESSIONAL ENGINEER DATE

NAME: _____ LIC. NO. _____

TITLE: **WEST ABUTMENT DETAILS 3**

DES: LPR	DR: DJR	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 7 OF 40 SHEETS		

BRIDGE NO.
52016

EAST ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE FOR H-PILES R_n - TONS/PILE		
FIELD CONTROL METHOD	ϕ dyn	** R_n
MNDOT PILE FORMULA 2012 (MPF12)	0.60	222.3
$R_n = 20 \sqrt{\frac{W \times H}{1000}} \times \log\left(\frac{10}{S}\right)$		
PDA	0.65	205.2

** R_n = (FACTORED DESIGN LOAD) / ϕ dyn

EAST ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	116.2
FACTORED LIVE LOAD	17.2
*FACTORED DESIGN LOAD	133.4

*BASED ON STRENGTH I LOAD COMBINATION

EAST ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
FACTORED DEAD LOAD + EARTH PRESSURE	116.2
FACTORED DOWNDRAG	33.0
***FACTORED DEAD LOAD + EARTH PRESSURE + DOWNDRAG	149.2

***BASED ON DOWNDRAG LOAD COMBINATION, NOT INCLUDING TRANSIENT LOADS. ONLY USED FOR COMPARISON WITH FACTORED STRUCTURAL RESISTANCE. NOT TO BE USED FOR DRIVING.

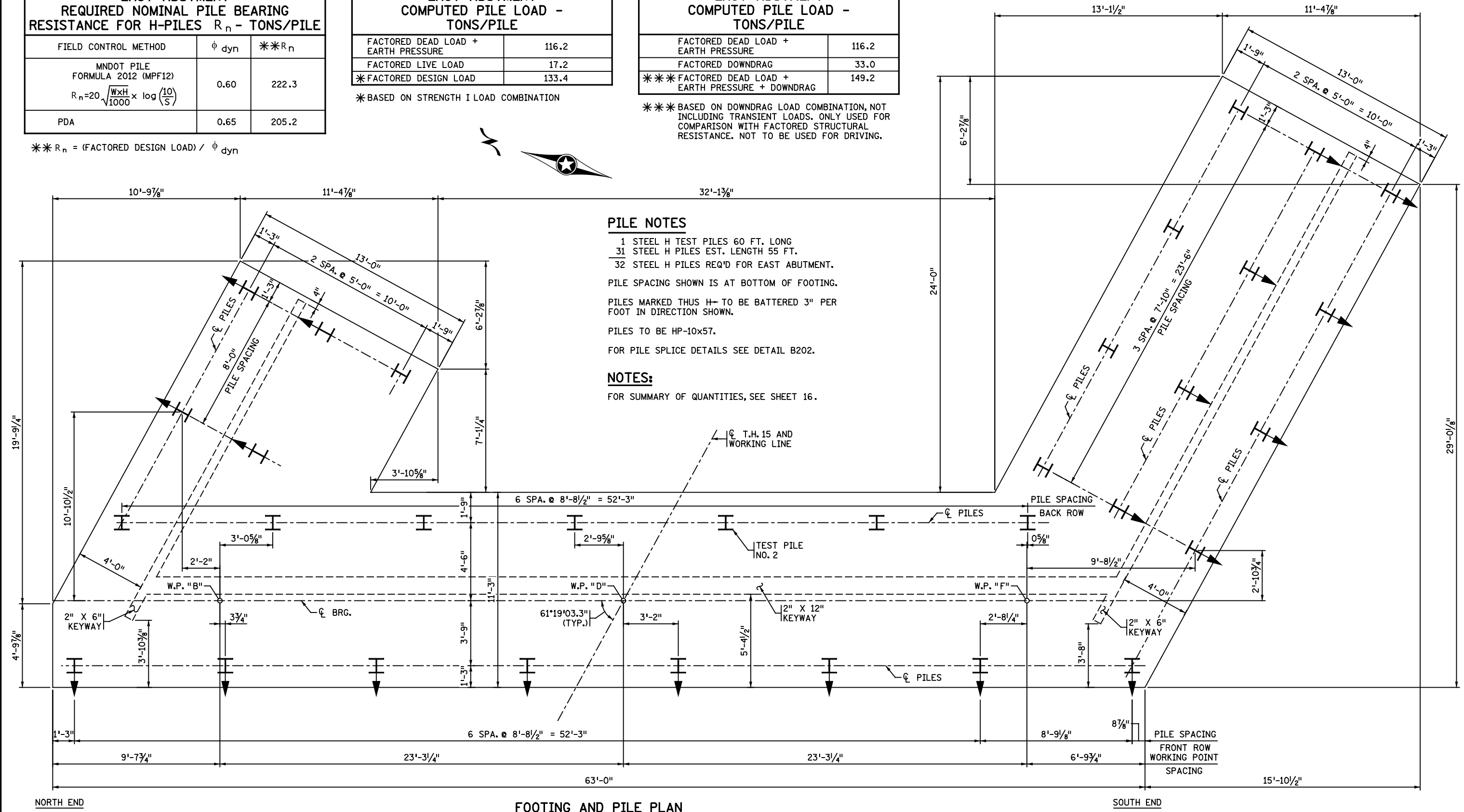


PILE NOTES

- 1 STEEL H TEST PILES 60 FT. LONG
- 31 STEEL H PILES EST. LENGTH 55 FT.
- 32 STEEL H PILES REQ'D FOR EAST ABUTMENT.
- PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
- PILES MARKED THUS H- TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.
- PILES TO BE HP-10x57.
- FOR PILE SPLICE DETAILS SEE DETAIL B202.

NOTES:

FOR SUMMARY OF QUANTITIES, SEE SHEET 16.



FOOTING AND PILE PLAN

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

CERTIFIED BY: _____

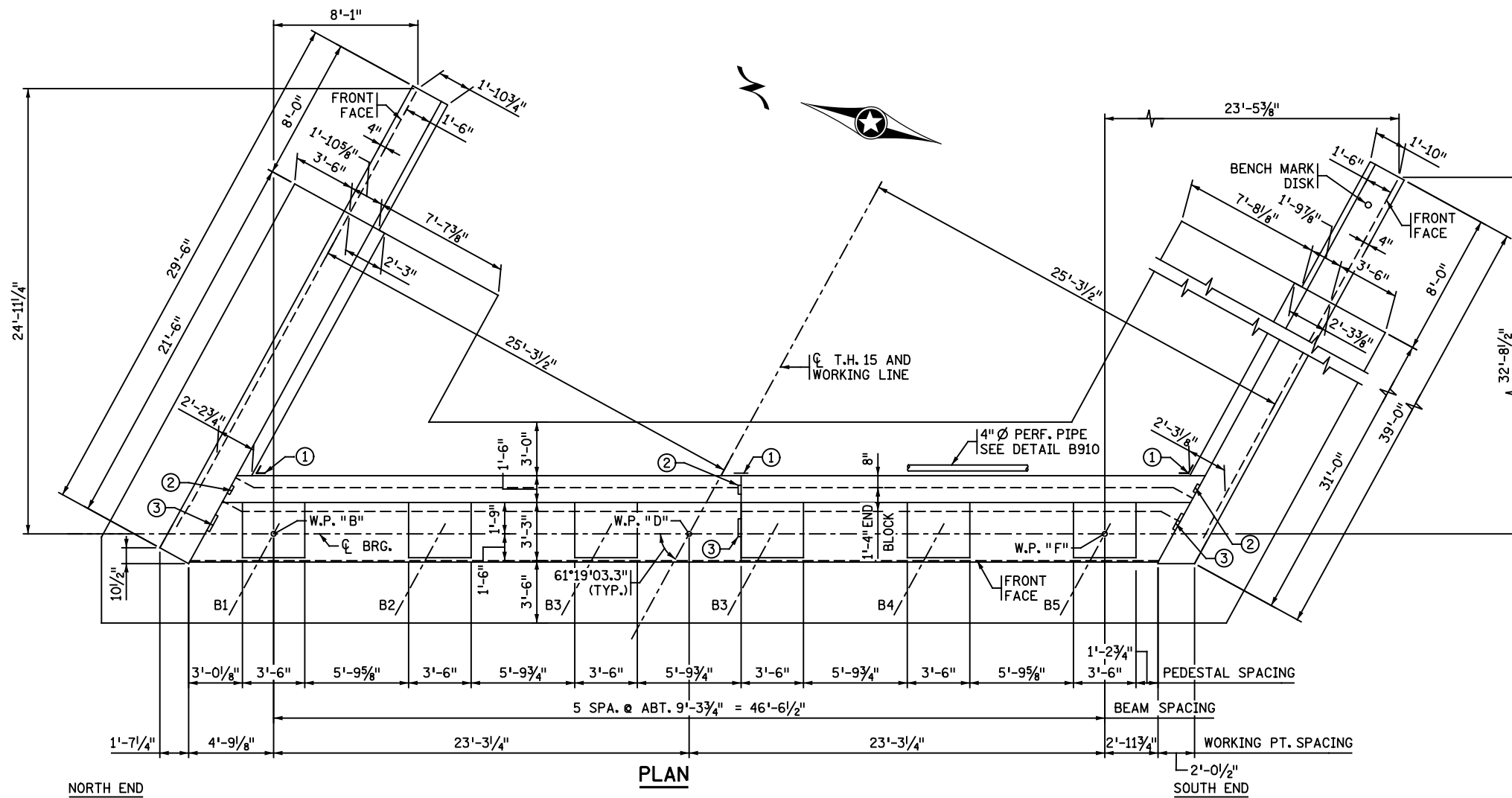
LICENSED PROFESSIONAL ENGINEER DATE _____

NAME: _____ LIC. NO. _____

TITLE: **EAST ABUTMENT DETAILS 1**

DES: LPR	DR: DJR	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 13 OF 40 SHEETS		

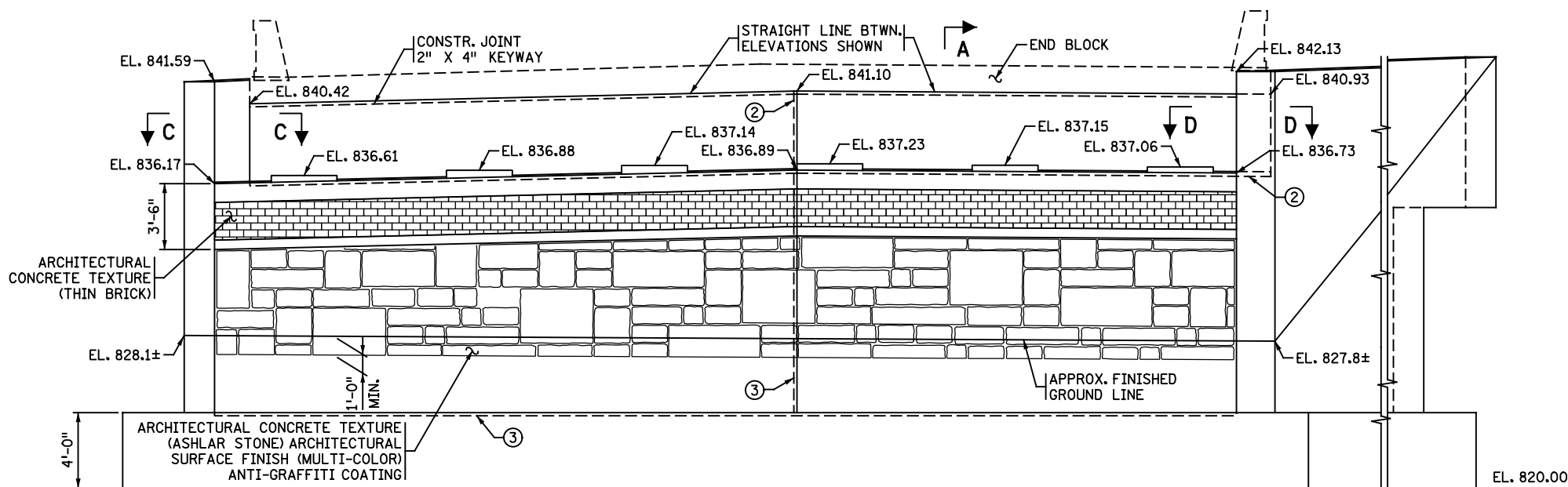
BRIDGE NO.
52016



PLAN

NORTH END

SOUTH END



ELEVATION

NORTH END

SOUTH END

NOTES:

- FOR ADD'L ABUTMENT NOTES, SEE SHEET 6.
- FOR WINGWALL ELEVATIONS, SEE SHEET 15.
- FOR SECTION A-A SEE SHEET 16.
- FOR SECTIONS C-C & D-D, SEE SHEET 6 .
- PILING NOT SHOWN FOR CLARITY.
- ① MEMBRANE WATERPROOFING SYSTEM PER MnDOT 2481.3B. TO BE INCLUDED IN PRICE BID FOR STRUCTURAL CONCRETE (3B52).
- ② CONSTRUCTION JOINT 2" X 6" KEYWAY.
- ③ CONSTRUCTION JOINT 2" X 12" KEYWAY

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

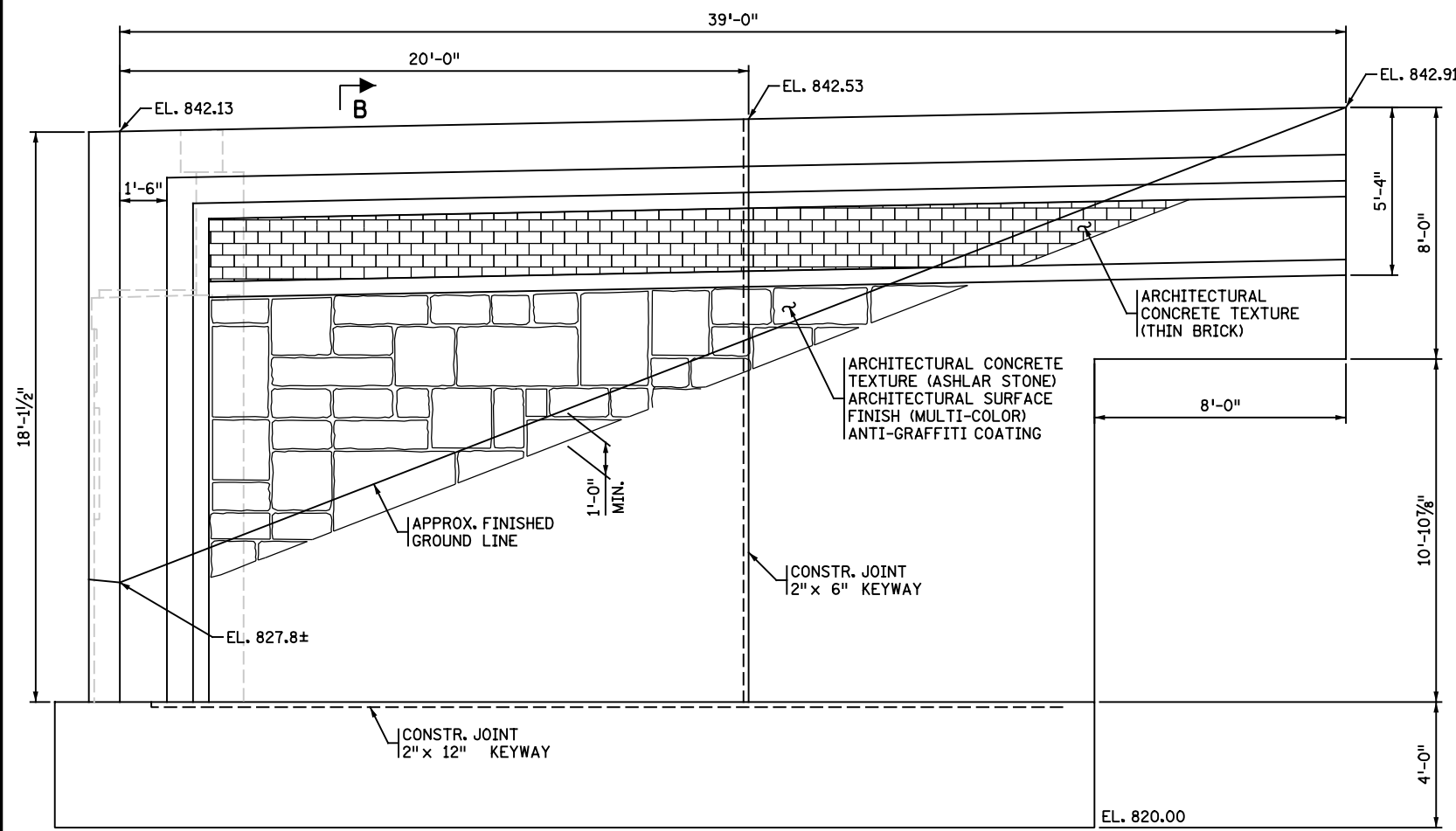


CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

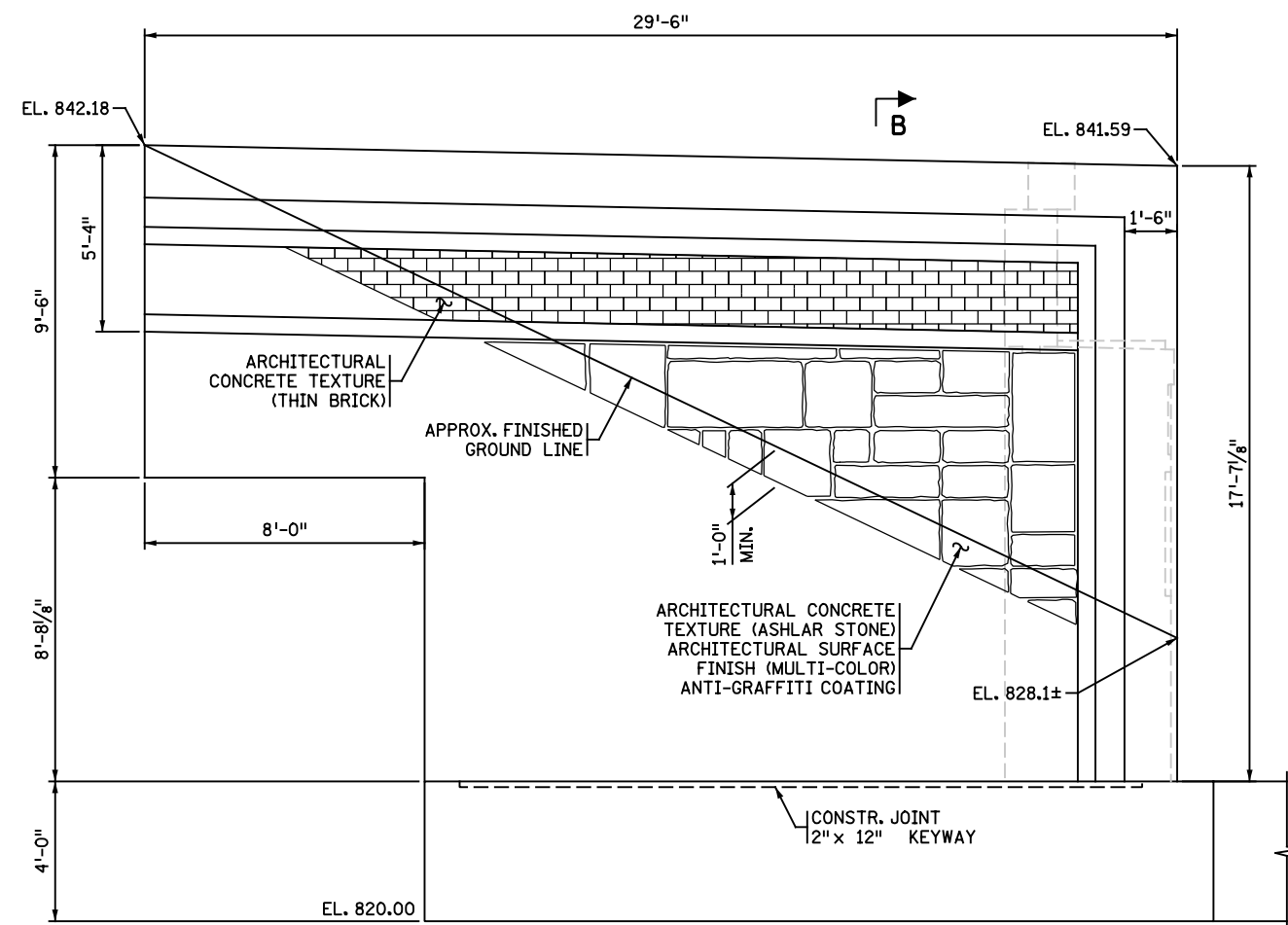
TITLE: **EAST ABUTMENT DETAILS 2**

DES: LPR	DR: DJR	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 14 OF 40 SHEETS		

BRIDGE NO.
52016



SOUTHEAST WINGWALL ELEVATION



NORTHEAST WINGWALL ELEVATION

NOTES:
 FOR SECTION B-B, SEE SHEET 16.
 PILING NOT SHOWN FOR CLARITY.
 FOR ADDITIONAL ABUTMENT NOTES,
 SEE SHEET 6.

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.



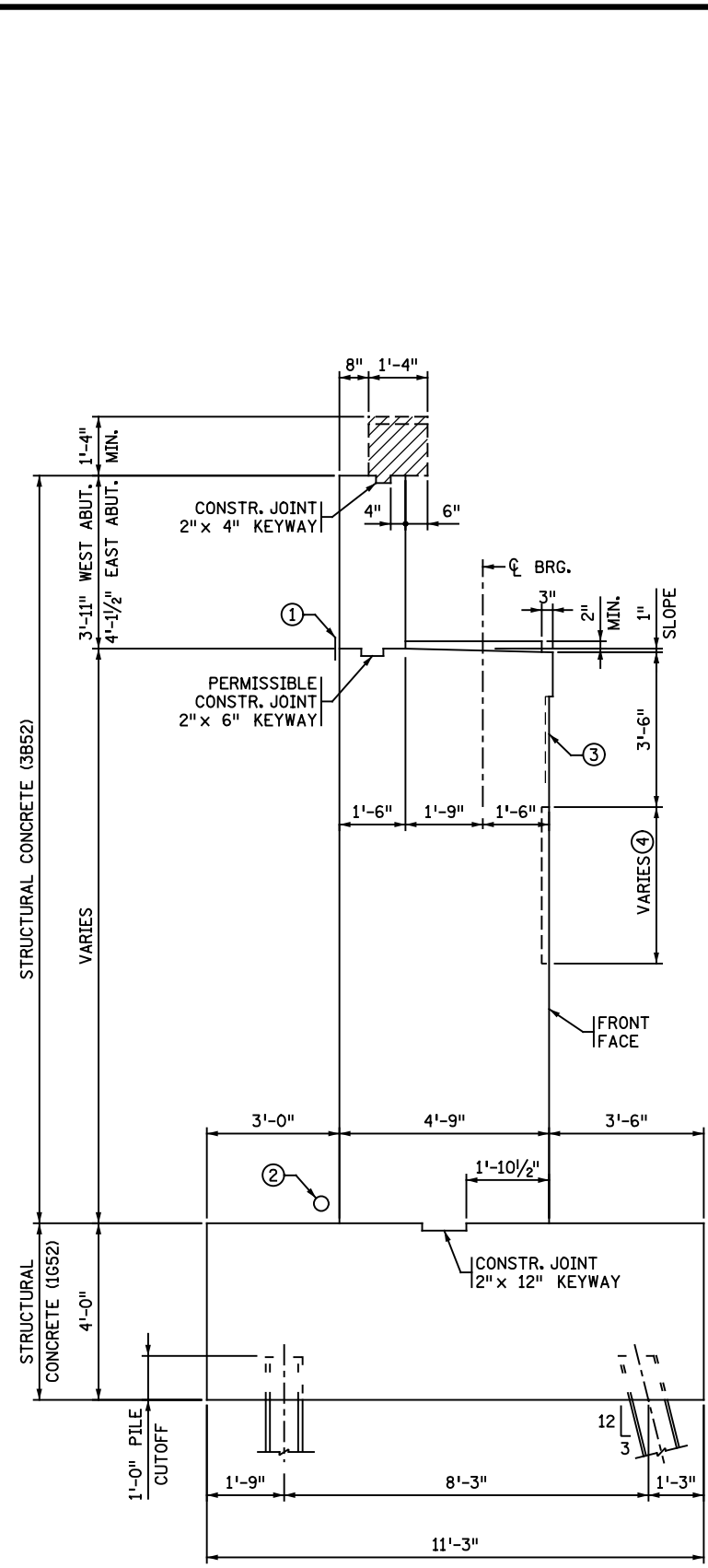
CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: **EAST ABUTMENT DETAILS 3**

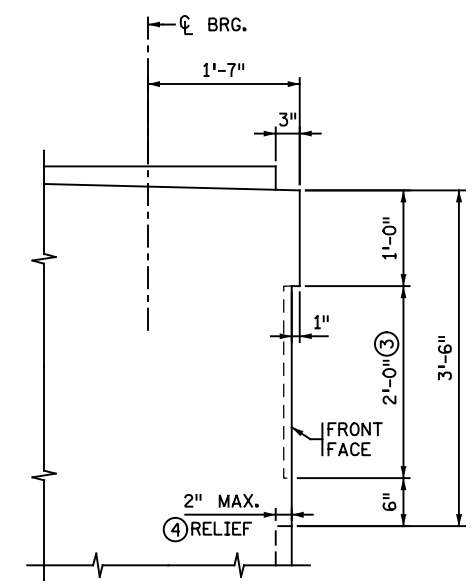
DES: LPR	DR: DJR	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 15 OF 40 SHEETS		

BRIDGE NO.
52016

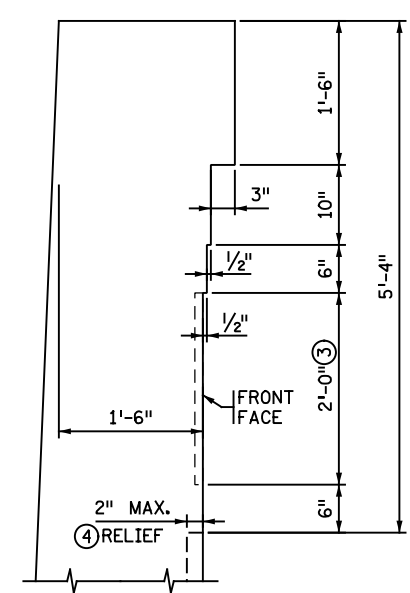
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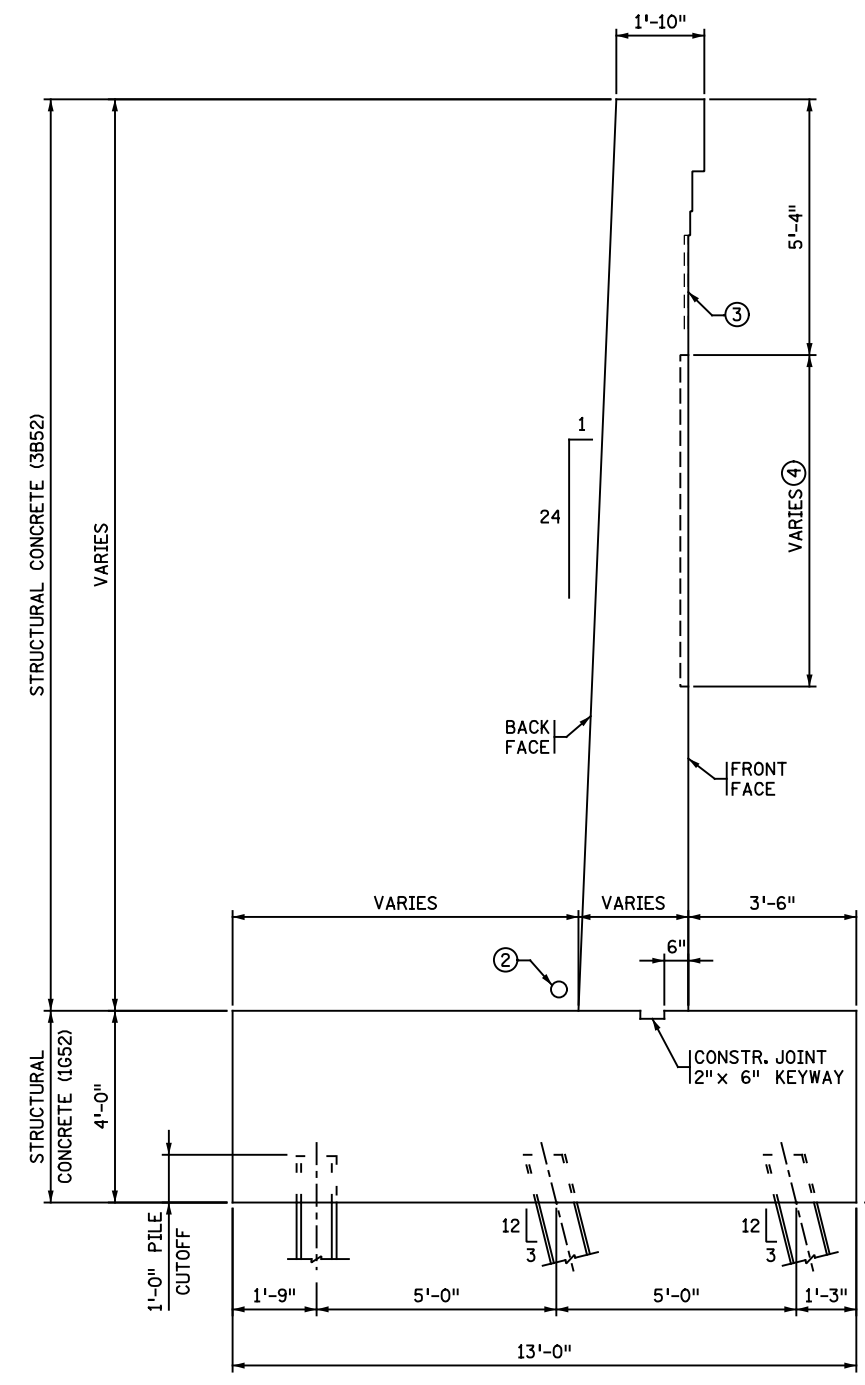
SECTION A-A



ABUTMENT COPING DETAIL



WINGWALL COPING DETAIL



SECTION B-B

SUMMARY OF QUANTITIES FOR WEST ABUTMENT

STRUCTURAL CONCRETE (1G52)	0	CU YD
STRUCTURAL CONCRETE (3B52)	0	CU YD
REINFORCEMENT BARS	0	POUND
REINFORCEMENT BARS (EPOXY COATED)	0	POUND
REINFORCEMENT BARS (STAINLESS-60KSI)	0	POUND
ANTI GRAFFITI COATING	0	SQ FT
ARCHITECTURAL SURFACE FINISH (MULTI COLOR)	0	SQ FT
ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)	0	SQ FT
ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE)	0	SQ FT
STEEL H-TEST PILE 60FT LONG 10"	1	EACH
STEEL H-PILING 10"	1705	LIN FT
PILE TIP PROTECTION 10"	31	EACH

SUMMARY OF QUANTITIES FOR EAST ABUTMENT

STRUCTURAL CONCRETE (1G52)	0	CU YD
STRUCTURAL CONCRETE (3B52)	0	CU YD
REINFORCEMENT BARS	0	POUND
REINFORCEMENT BARS (EPOXY COATED)	0	POUND
REINFORCEMENT BARS (STAINLESS-60KSI)	0	POUND
ANTI GRAFFITI COATING	0	SQ FT
ARCHITECTURAL SURFACE FINISH (MULTI COLOR)	0	SQ FT
ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)	0	SQ FT
ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE)	0	SQ FT
STEEL H-TEST PILE 60FT LONG 10"	1	EACH
STEEL H-PILING 10"	1705	LIN FT
PILE TIP PROTECTION 10"	31	EACH

NOTES:

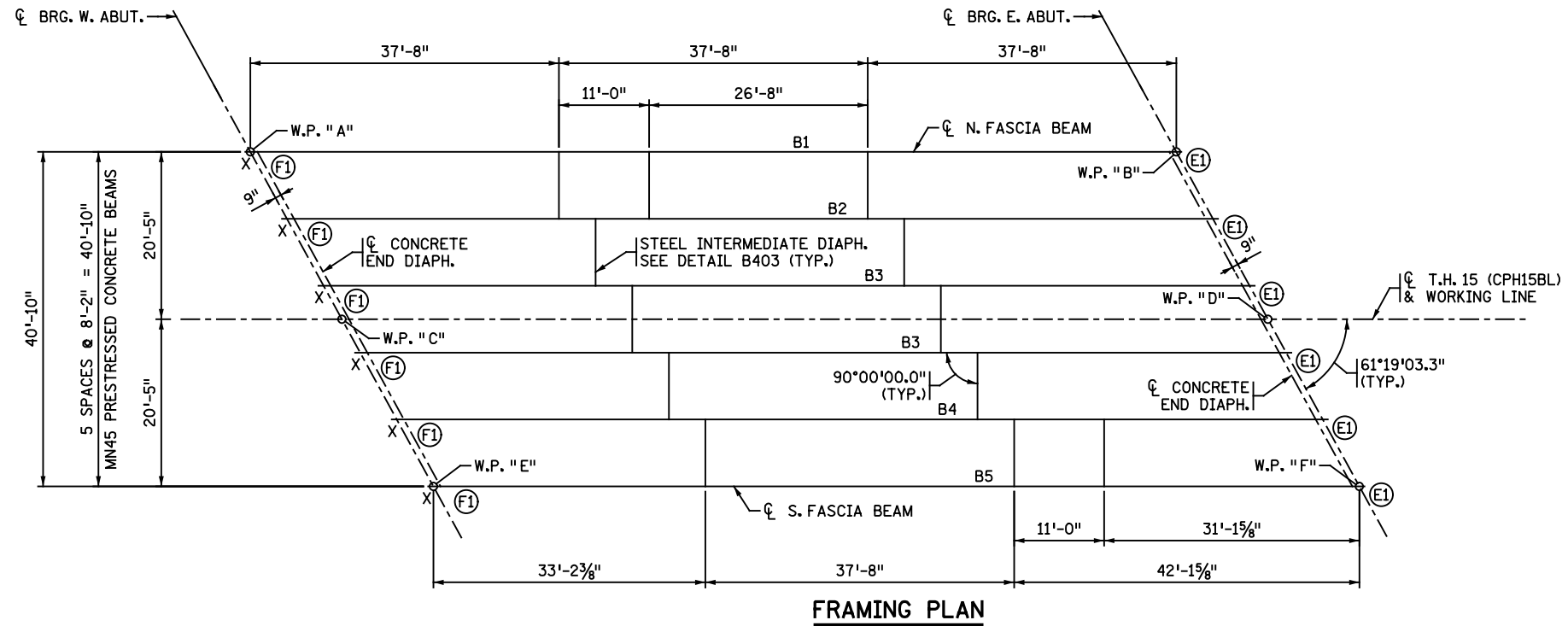
- ① MEMBRANE WATERPROOFING SYSTEM PER MnDOT 2481.3B. TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ② 4" Ø PERFORATED PIPE. SEE DETAIL B910 FOR DETAILS.
- ③ ARCHITECTURAL CONCRETE TEXTURE (THIN BRICK)
- ④ ARCHITECTURAL CONCRETE TEXTURE (ASHLAR STONE)
ARCHITECTURAL SURFACE FINISH (MULTI-COLOR)
ANTI-GRAFFITI COATING

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: **ABUTMENT DETAILS**

DES: LPR	DR: DJR	APPROVED:	BRIDGE NO. 52016
CHK: DRS	CHK: DRS	STATE PROJECT NO. 0804-52016	
SHEET NO. 16 OF 40 SHEETS			



FRAMING PLAN

NOTES:

- "X" DENOTES X END OF BEAM.
- (F1) DENOTES FIXED CURVE PLATE BEARING ASSEMBLY TYPE F1. SEE DETAIL B310.
- (E1) DENOTES EXPANSION CURVE PLATE BEARING ASSEMBLY TYPE E1. SEE DETAIL B311.

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NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.



CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____
 NAME: _____ LIC. NO. _____

TITLE: **FRAMING PLAN**

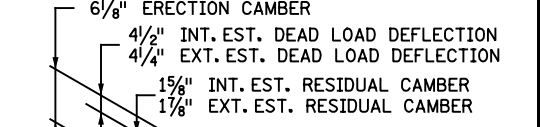
DES: DRS	DR: DJR	APPROVED:
CHK: REM	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 22 OF 40 SHEETS		

BRIDGE NO.
 52016

Y DISTANCES (INCHES)			
	NO.	CL. SPAN	END
STRAIGHT STRANDS	40	4.40	
DRAPED STRANDS	10	7.00	38.00 ⁵
TOTAL STRANDS	50	4.92	

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

5 A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.

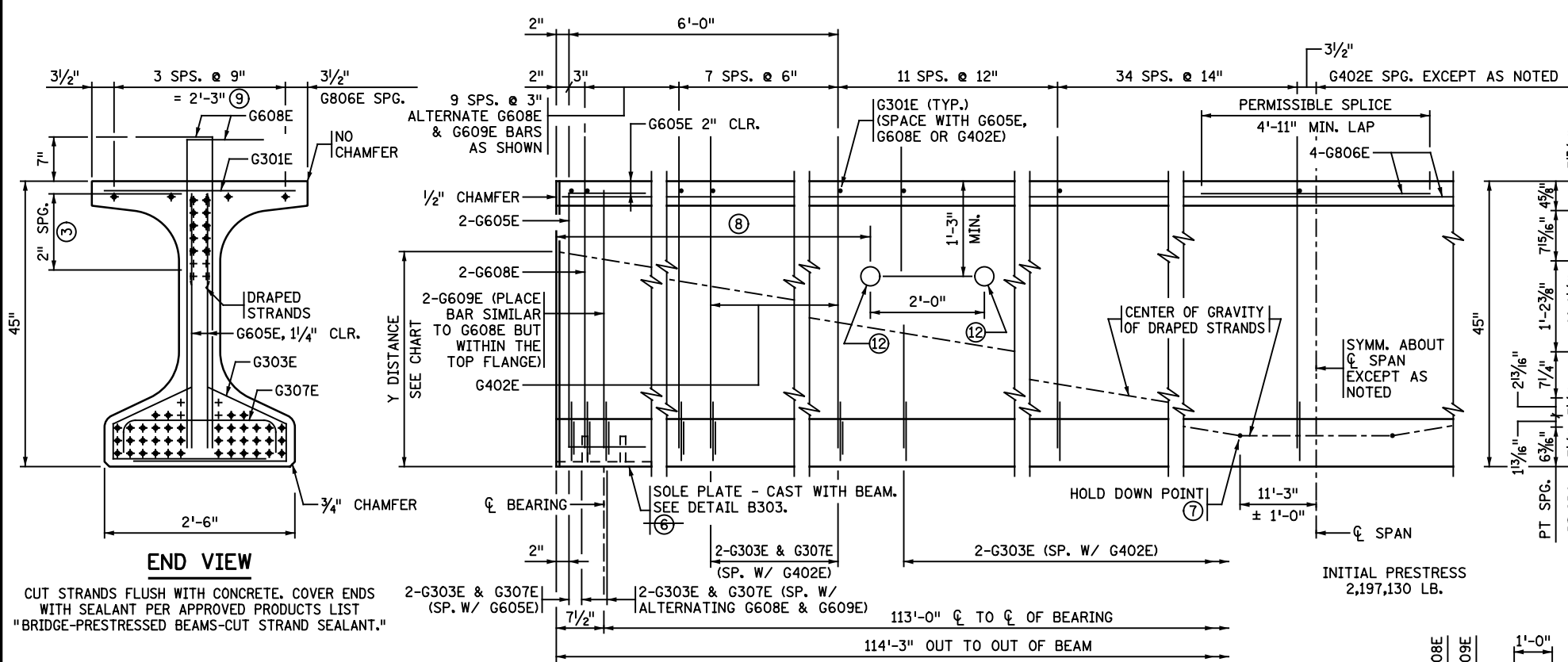


CAMBER DIAGRAM

ERECTION CAMBER SHOWN IS AFTER DIAPHRAGMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, BARRIER, SIDEWALK AND MEDIAN WHERE APPLICABLE.

CONTRACTOR WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE BUILDING FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS. PROVIDE COPY OF ELEVATIONS TO THE ENGINEER.



SECTION AT CL. SPAN

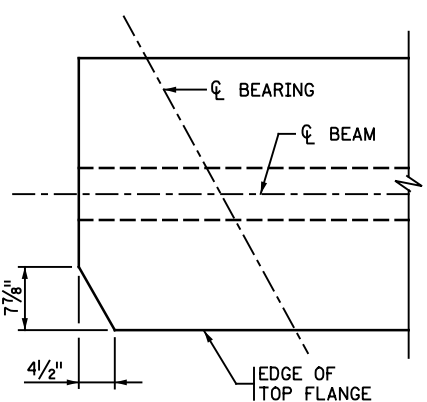
END VIEW

CUT STRANDS FLUSH WITH CONCRETE. COVER ENDS WITH SEALANT PER APPROVED PRODUCTS LIST "BRIDGE-PRESTRESSED BEAMS-CUT STRAND SEALANT."

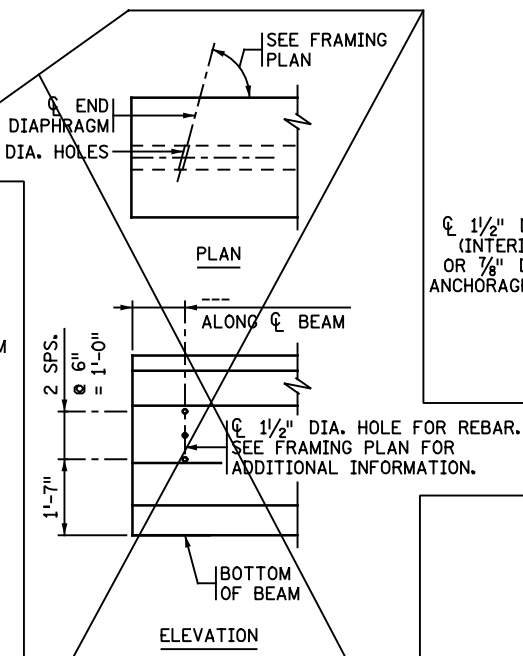
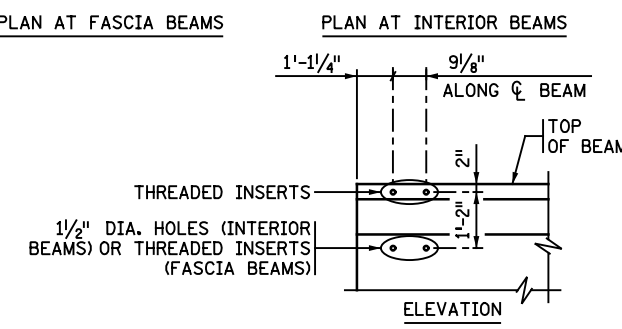
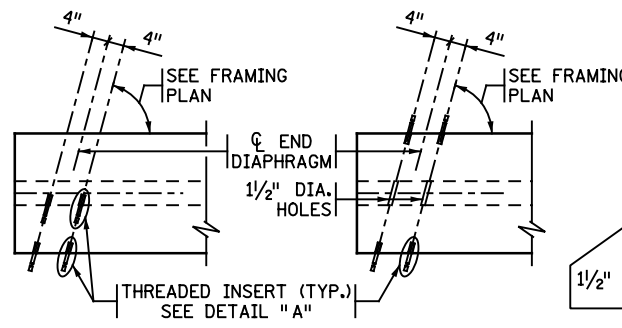
CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	25.9 KSI
LONG TERM LOSSES	26.0 KSI
TOTAL LOSSES	51.9 KSI

MINIMUM CONCRETE STRENGTH - K.S.I.	
① f'ci	② f'c
8 KSI	9 KSI

BEAM ELEVATION

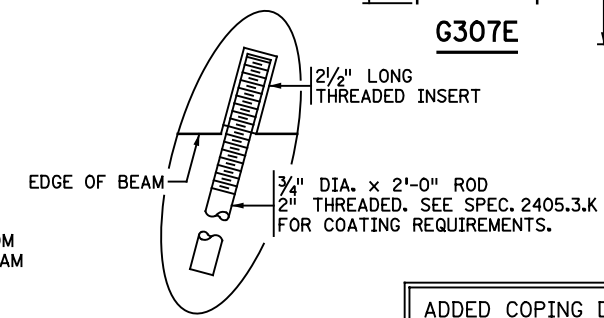


TOP FLANGE COPING DETAIL



STEEL INTERMEDIATE DIAPHRAGM

(SEE DETAIL B403 FOR DIAPHRAGM DETAILS)



ADDED COPING DETAIL. MOVED TABLES

GENERAL NOTES

- PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.
- MARK EACH BEAM SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. MARK FASCIA BEAMS ON THE INSIDE FACE. ENSURE ALL MARKINGS ARE STENCILED AND CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET IS INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE SPEC. 2405.
- SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.
- AS AN ALTERNATE TO THE END DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.
- APPLY AN APPROVED SEALER TO THE SIDES OF THE BEAM NEAR EACH END PER THE SPECIAL PROVISIONS.
- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ USE 0.6" DIA. 7-WIRE LOW RELAXATION PRESTRESSING STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ FOR INTEGRAL ABUTMENT, SOLE PLATE CAN BE ELIMINATED OR REPLACED WITH AN APPROVED PROTECTION PLATE. BEAMS DETAILED TO INCLUDE A TAPERED PLATE PER STANDARD FIGURE B309 MUST INCLUDE SOLE PLATE.
- ⑦ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.
- ⑧ DIMENSION DETERMINED BY CONTRACTOR. MAINTAIN 2" MINIMUM CLEAR FROM STRANDS.
- ⑨ TWO INSIDE BARS MAY BE PLACED ADJACENT TO VERTICAL STIRRUP FOR TYING CONVENIENCE.
- ⑩ STEEL TROWEL TO SMOOTH FINISH AND APPLY BOND BREAKER PER APPROVED PRODUCTS LIST.
- ⑪ ROUGH FLOAT AND BROOM TRANSVERSELY FOR BOND PER SPEC. 2405.3.D.
- ⑫ OPTIONAL: 3" MAX. DIA. SLEEVE FOR HAULING (AFTER INSTALLATION, COAT WITH APPROVED EPOXY BONDING AGENT & FILL WITH APPROVED NON-SHRINK GROUT).
- ⑬ TYP. CLR. FOR ENTIRE BOTTOM FLANGE.

(MODIFIED)

REVISED: DECEMBER 02, 2015

APPROVED: JANUARY 13, 2015

Nancy S. Rubenberger
 STATE BRIDGE ENGINEER

BEAMS B1-B5

FIG. 5-397.507

CERTIFIED BY _____ DATE _____
 LICENSED PROFESSIONAL ENGINEER

NAME: _____ LIC. NO. _____

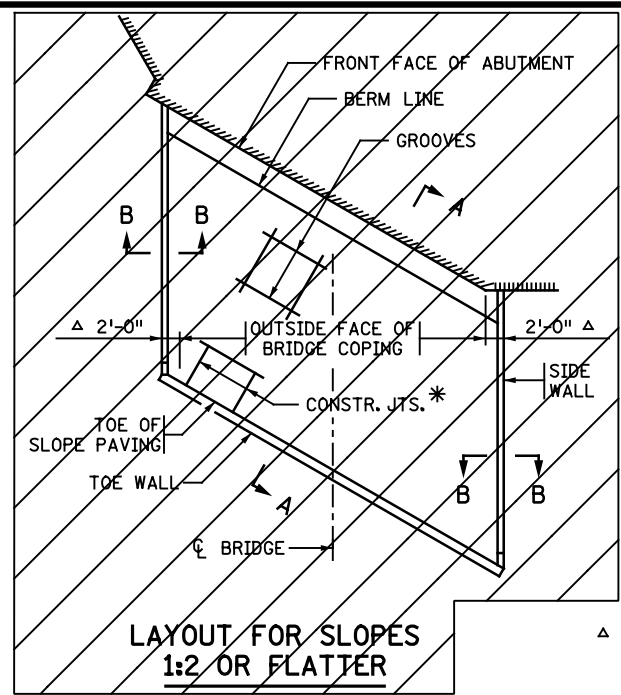
TITLE: **MN45" PRESTRESSED CONCRETE BEAM (PRETENSIONED) MN45-115**

DES: DRS	DR: JN	APPROVED:
CHK: REM	CHK: DRS	

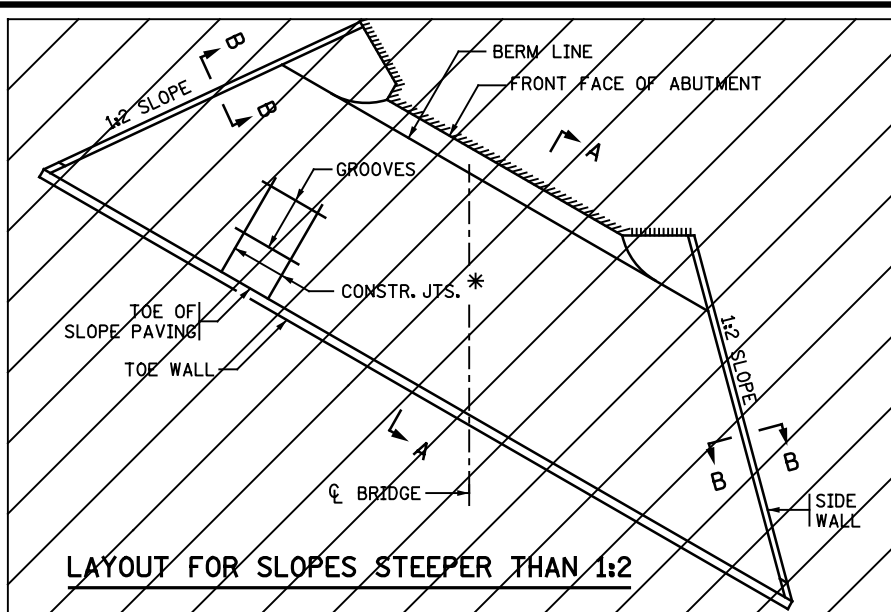
SHEET NO. 23 OF 40 SHEETS

BRIDGE NO. 52016

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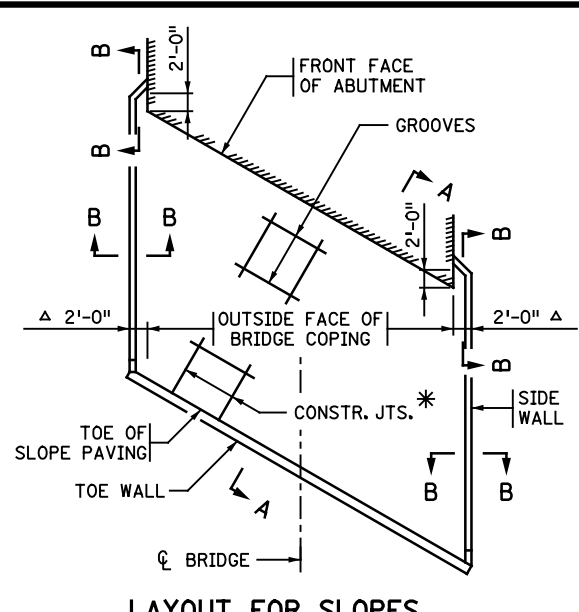
LAYOUT FOR SLOPES 1:2 OR FLATTER



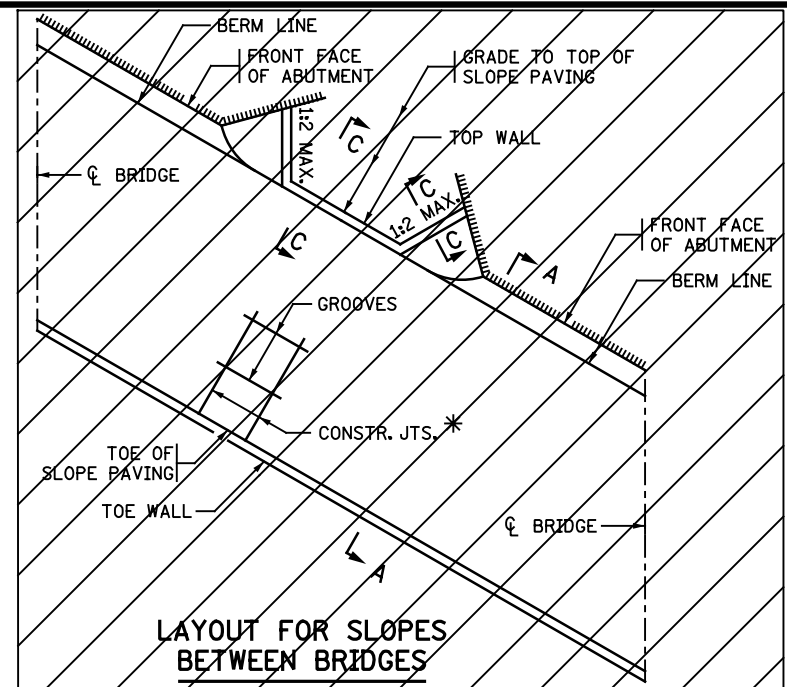
LAYOUT FOR SLOPES STEEPER THAN 1:2

Δ 2'-0" FOR TANGENT BRIDGE SUPERSTRUCTURES. VARIES 2'-0" MINIMUM. SEE GENERAL PLAN AND ELEVATION FOR LAYOUT.

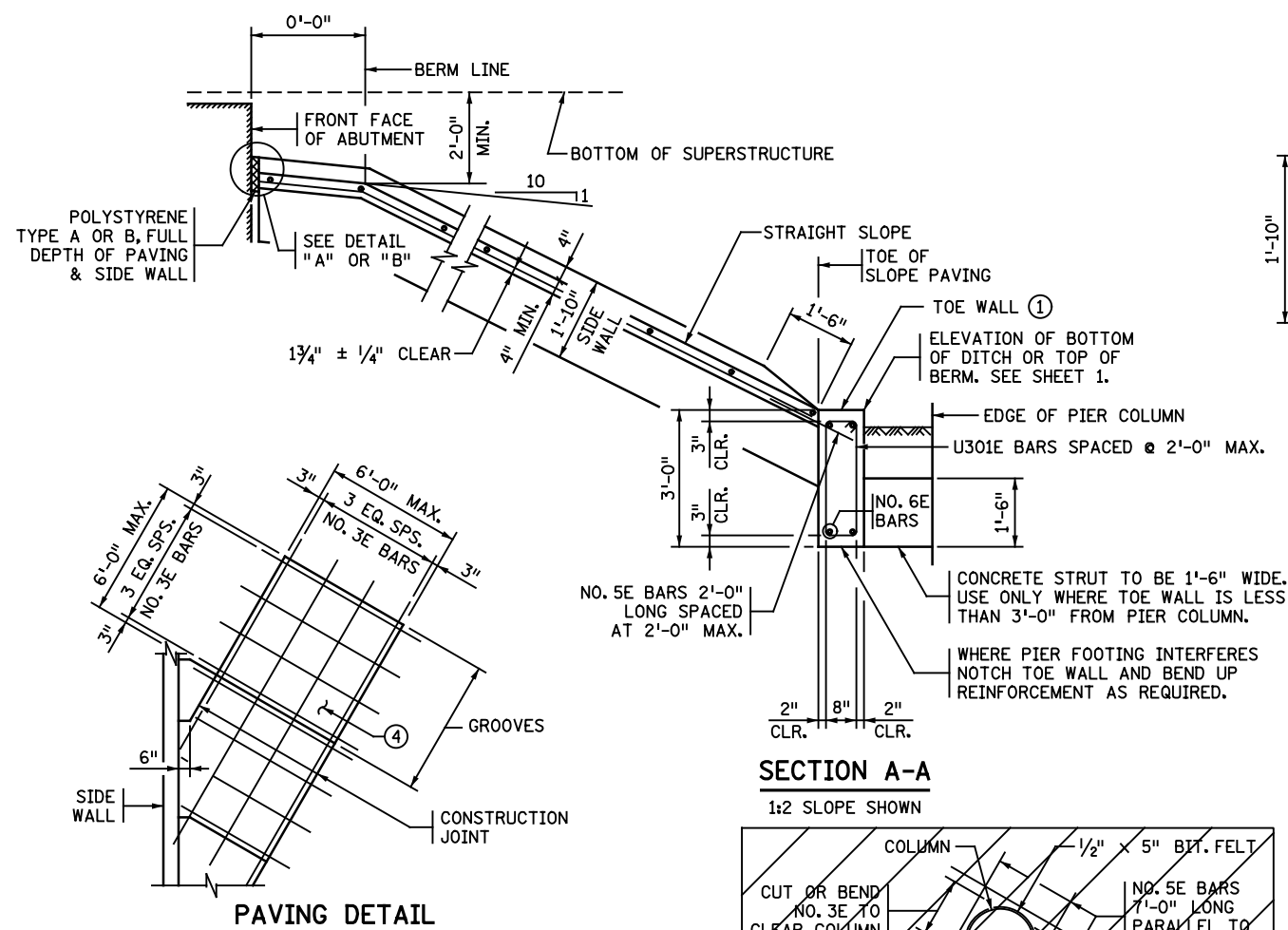
* VERTICAL CONSTRUCTION JOINTS MAY BE CONSTRUCTED PARALLEL TO CL OF BRIDGE FOR SKEWS TO 10° ONLY.



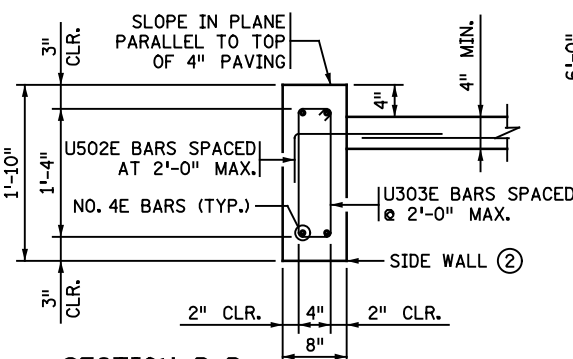
LAYOUT FOR SLOPES AT ABUTMENTS WITH 8' OR GREATER EXPOSURE



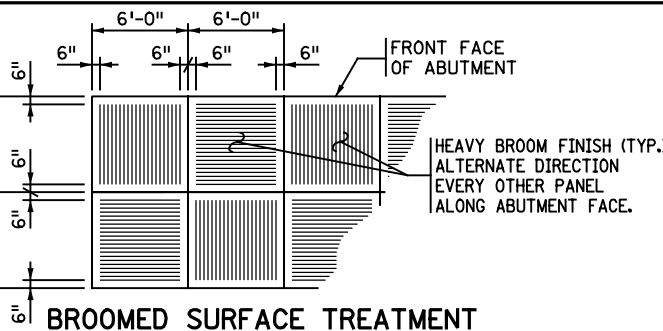
LAYOUT FOR SLOPES BETWEEN BRIDGES



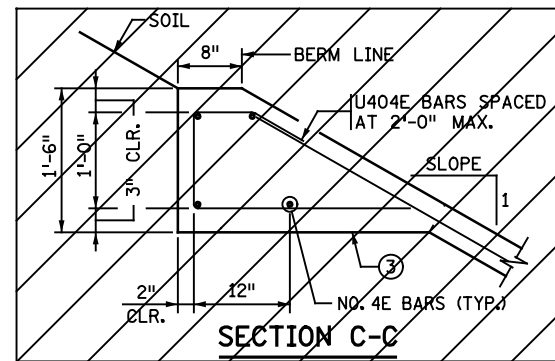
SECTION A-A
1:2 SLOPE SHOWN



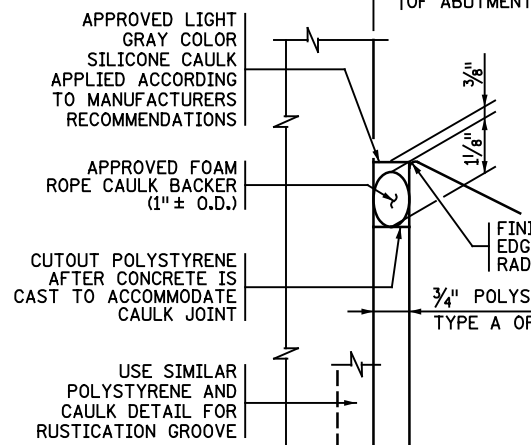
SECTION B-B
NORMAL TO SLOPE



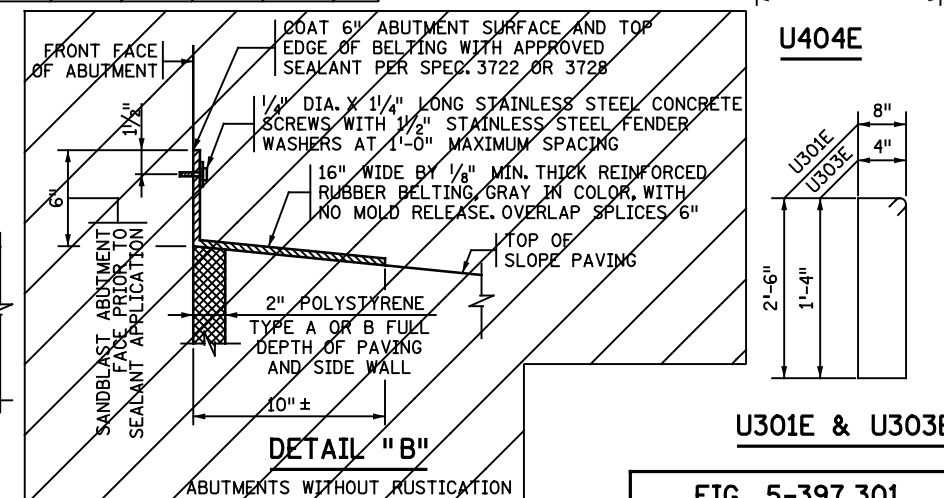
BROOMED SURFACE TREATMENT



SECTION C-C



DETAIL "A"
ABUTMENTS WITH RUSTICATION



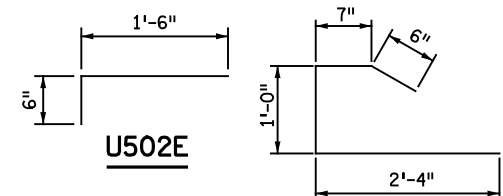
DETAIL "B"
ABUTMENTS WITHOUT RUSTICATION

CONCRETE & REINFORCEMENT UNIT QUANTITIES

- ① 0.111 CU. YD. OF CONCRETE/LIN. FT.
8.55 LBS. OF REINFORCEMENT/LIN. FT.
- ② 0.046 CU. YD. OF CONCRETE/LIN. FT.
4.08 LBS. OF REINFORCEMENT/LIN. FT.
- ③ 0.116 CU. YD. OF CONCRETE/LIN. FT.
5.62 LBS. OF REINFORCEMENT/LIN. FT.
BASED ON A SLOPE OF 1:2.
- ④ 0.111 CU. YD. OF CONCRETE/SQ. YD.
9.02 LBS. OF REINFORCEMENT/SQ. YD.

GENERAL NOTE

SLOPES ARE EXPRESSED AS A RATIO OF VERTICAL DISTANCE: HORIZONTAL DISTANCE.
SLOPE PAVING PER SPEC. 2514.



U502E

U404E

U301E & U303E

REVISION: 05-25-2016
APPROVED: SEPTEMBER 26, 2003
Samuel A. Anderson
STATE BRIDGE ENGINEER

CERTIFIED BY _____ DATE _____
LICENSED PROFESSIONAL ENGINEER
NAME: _____ LIC. NO. _____

TITLE: **CONCRETE SLOPE PAVING UNDER BRIDGES**

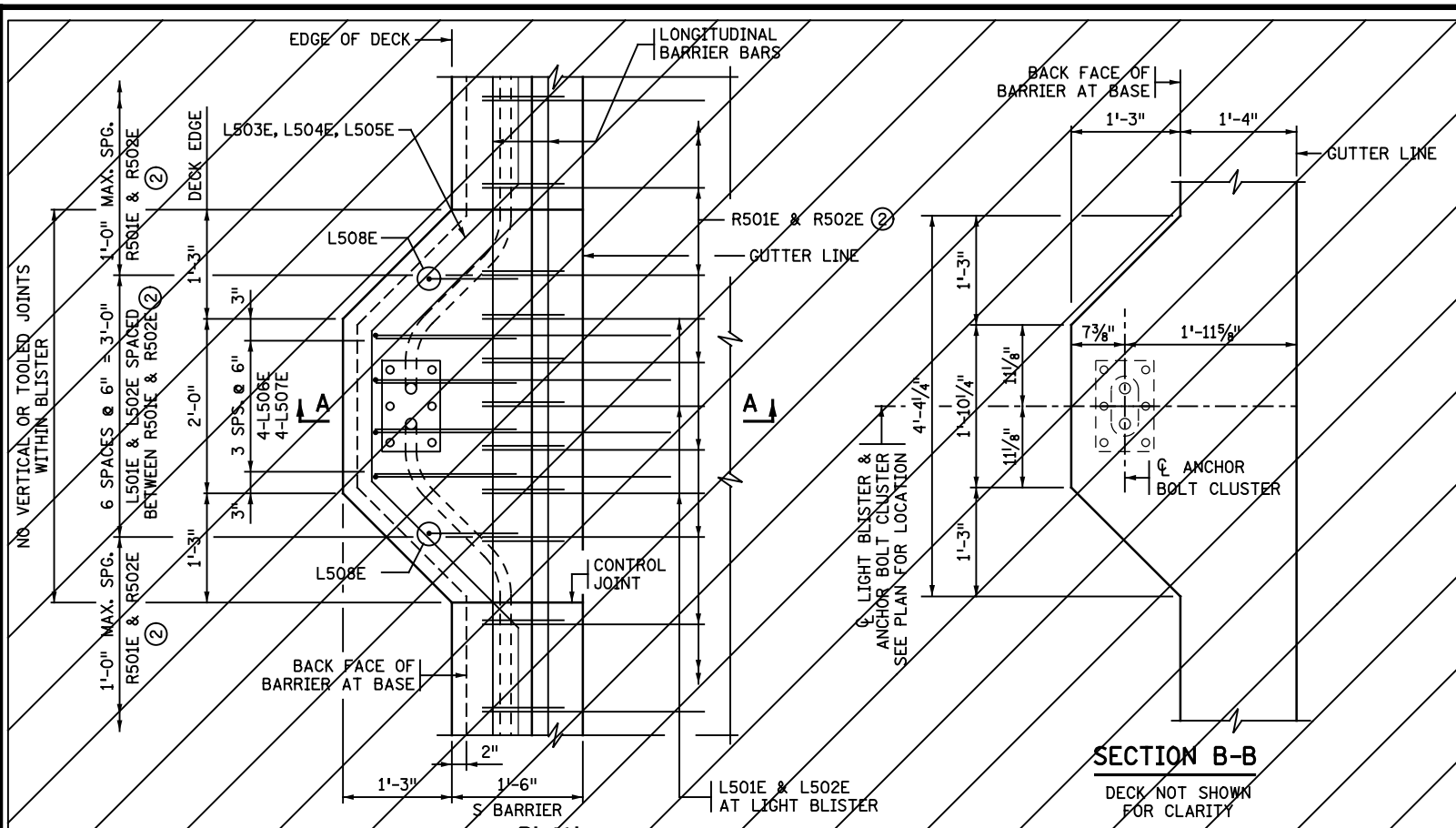
DES: DRS DR: JN
CHK: LPR CHK: DRS
APPROVED: _____
SHEET NO. 29 OF 40 SHEETS

BRIDGE NO. 52016

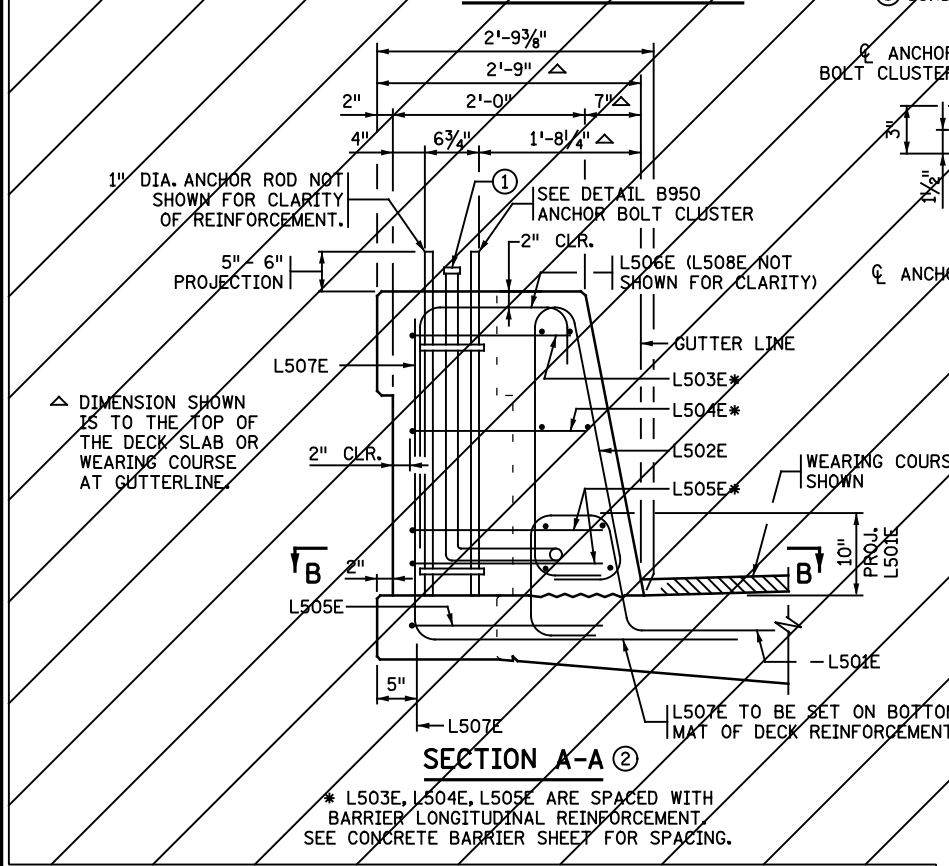
FIG. 5-397.301

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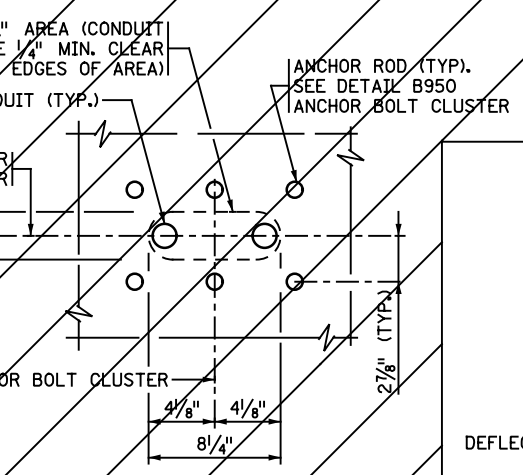


LIGHT POLE ANCHORAGE ON TYPE S BARRIER

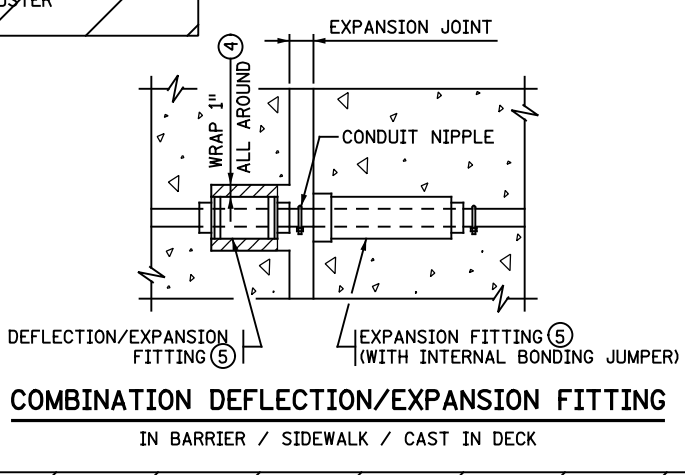
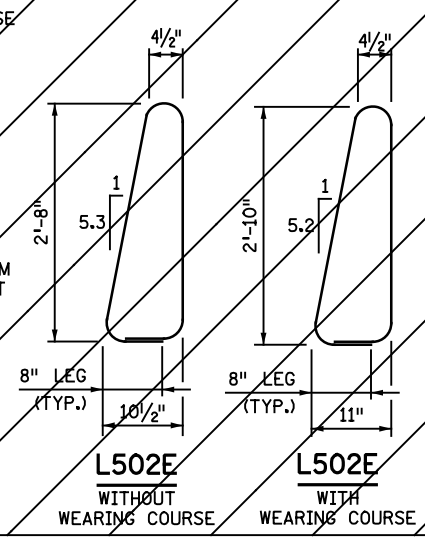


SECTION A-A

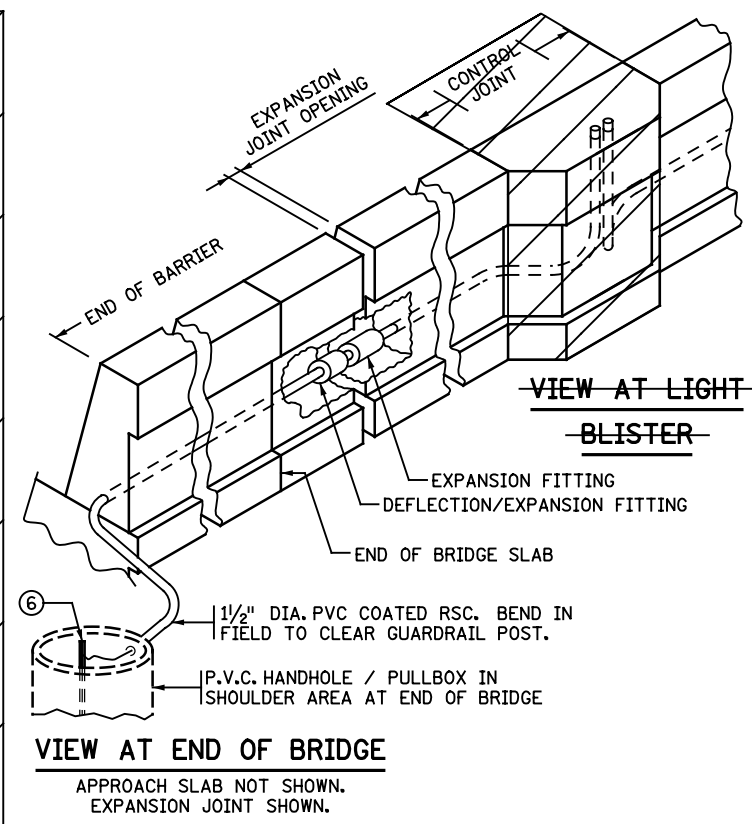
* L503E, L504E, L505E ARE SPACED WITH BARRIER LONGITUDINAL REINFORCEMENT. SEE CONCRETE BARRIER SHEET FOR SPACING.



CONDUIT PLACEMENT DETAIL



COMBINATION DEFLECTION/EXPANSION FITTING IN BARRIER / SIDEWALK / CAST IN DECK



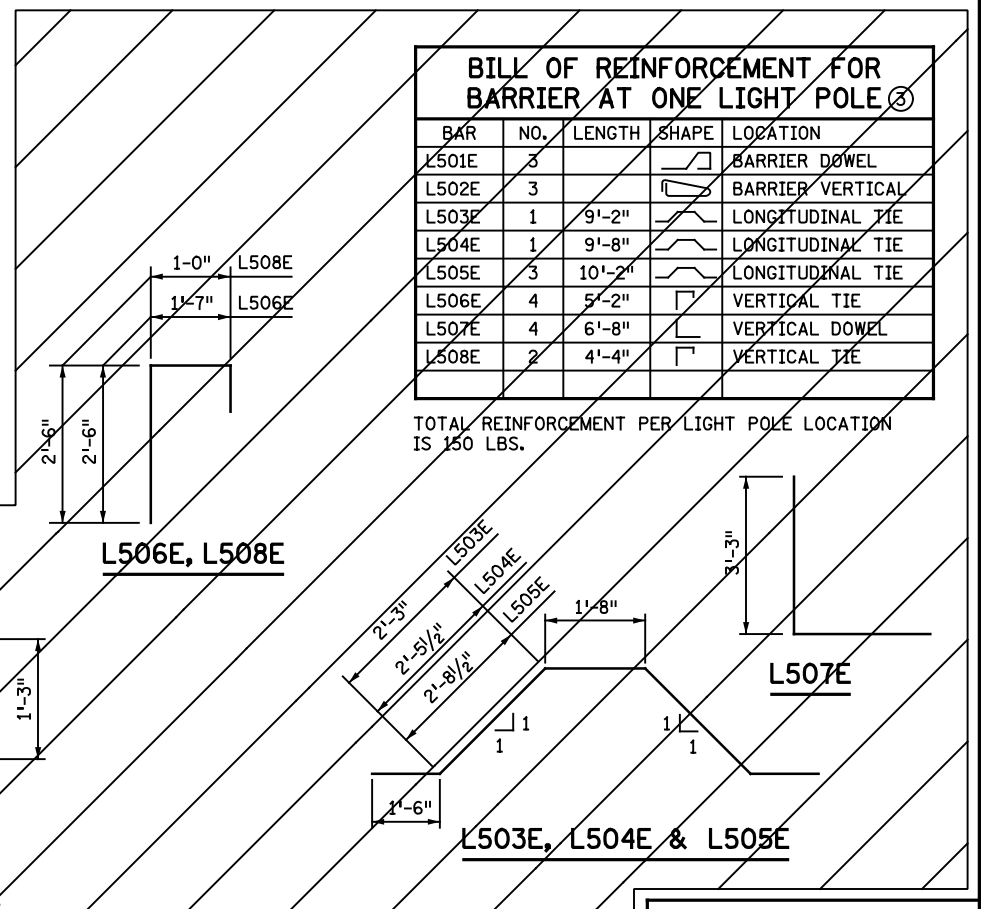
GENERAL NOTES

- BOND AND GROUND THE CONDUIT SYSTEM (LIGHTING) IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SPEC. 2545.3.R.
- ADDITIONAL BARRIER AND DECK CONCRETE REQUIRED TO CONSTRUCT THE LIGHT POLE ANCHORAGE IS INCIDENTAL TO THE CONCRETE BARRIER AND DECK CONCRETE PAY ITEMS, RESPECTIVELY.
- ANCHOR BOLT CLUSTER IS INCLUDED IN PRICE BID FOR "CONDUIT SYSTEM".
- EXTEND THE 1/2" DIA. PVC COATED RIGID STEEL CONDUIT 3" ABOVE THE BARRIER AND INSTALL CAP.
- SEE CONCRETE BARRIER SHEETS FOR TYPICAL BARRIER REINFORCEMENT. WEIGHT OF REINFORCEMENT IS INCLUDED IN PRICE BID FOR "REINFORCEMENT BARS (EPOXY COATED)".
- BARS SHOWN ARE FOR ONE LIGHT BLISTER.
- WRAP PER SPEC. 2565.3.D.7.
- PROVIDE COMBINATION DEFLECTION/EXPANSION FITTING PER SPEC. 3839.
- PLACE GROUND ROD IN EACH HANDHOLE WITH EXOTHERMIC WELD FROM ROD TO WIRE.

BILL OF REINFORCEMENT FOR BARRIER AT ONE LIGHT POLE

BAR NO.	NO.	LENGTH	SHAPE	LOCATION
L501E	3			BARRIER DOWEL
L502E	3			BARRIER VERTICAL
L503E	1	9'-2"		LONGITUDINAL TIE
L504E	1	9'-8"		LONGITUDINAL TIE
L505E	3	10'-2"		LONGITUDINAL TIE
L506E	4	5'-2"		VERTICAL TIE
L507E	4	6'-8"		VERTICAL DOWEL
L508E	2	4'-4"		VERTICAL TIE

TOTAL REINFORCEMENT PER LIGHT POLE LOCATION IS 150 LBS.



REVISION:
 APPROVED: AUGUST 24, 2016
Kevin Westcott
 STATE BRIDGE ENGINEER

CERTIFIED BY _____ DATE _____
 LICENSED PROFESSIONAL ENGINEER
 NAME: _____ LICENSE NO. _____

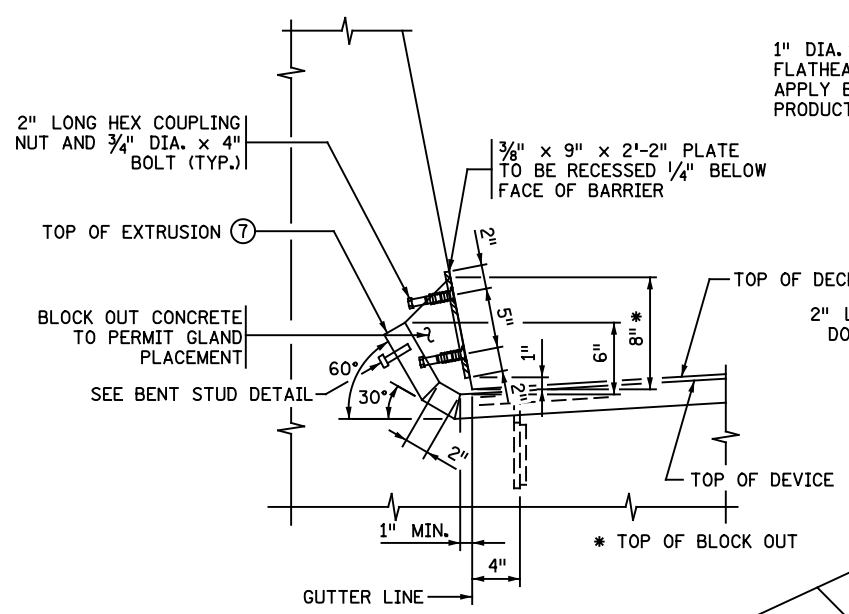
TITLE: **CONDUIT SYSTEM (LIGHTING)**
 36" TYPE S CONCRETE BARRIER BLISTER, WITH OR WITHOUT WEARING COURSE

DES: DRS DR: JN
 CHK: LPR CHK: DRS
 APPROVED: _____
 SHEET NO. 30 OF 40 SHEETS

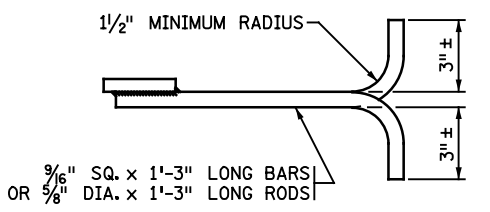
FIG. 5-397.406(B)

BRIDGE NO. 52016

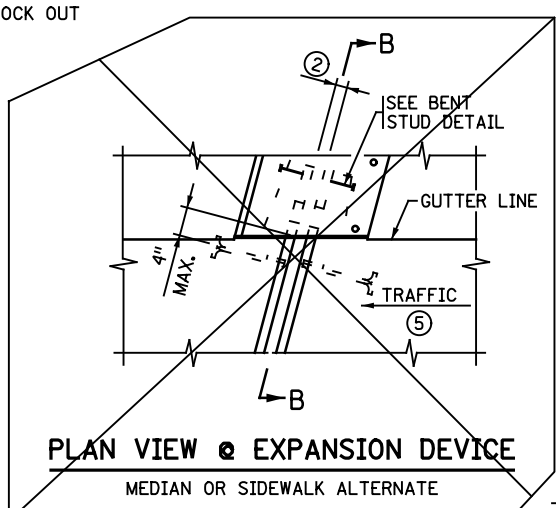
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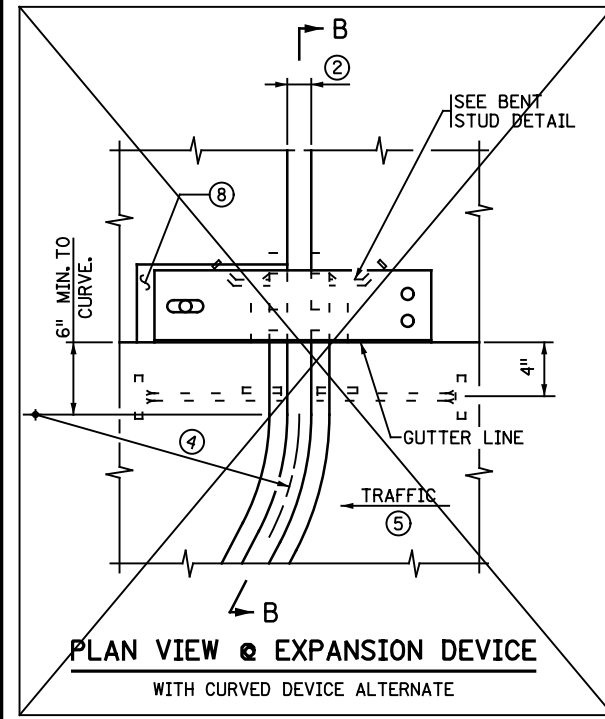
SECTION THROUGH BARRIER
TYPE S BARRIER



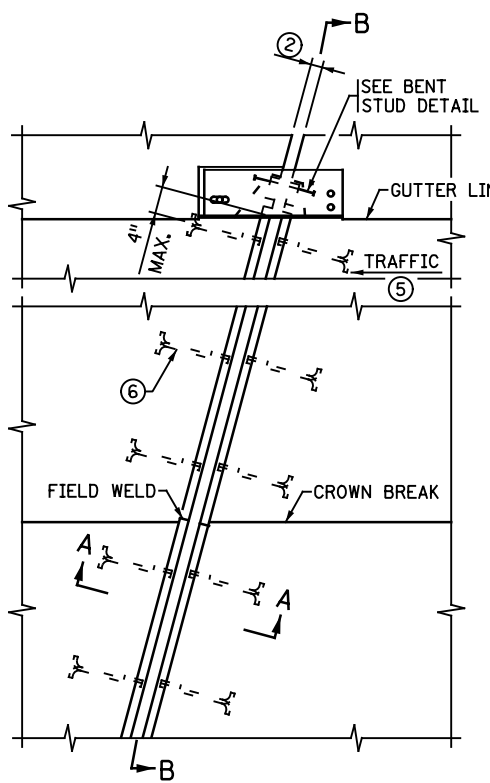
BAR-ROD DETAIL



PLAN VIEW @ EXPANSION DEVICE
MEDIAN OR SIDEWALK ALTERNATE

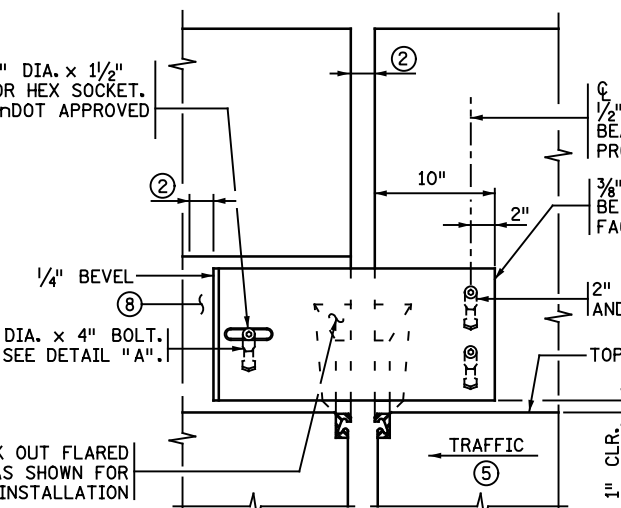


PLAN VIEW @ EXPANSION DEVICE
WITH CURVED DEVICE ALTERNATE

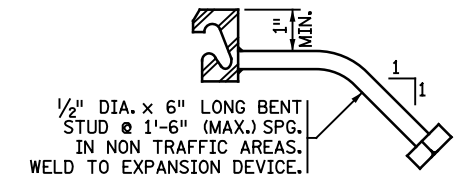


PLAN VIEW @ EXPANSION DEVICE
WITH STRAIGHT DEVICE

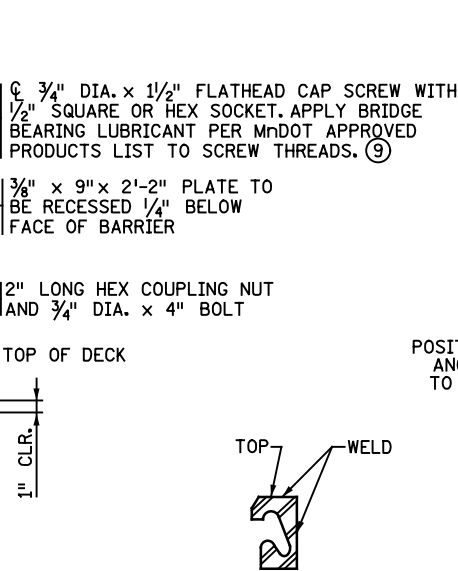
1" DIA. x 6" LONG SLOTTED HOLE FOR 3/4" DIA. x 1/2" FLATHEAD CAP SCREW WITH 1/2" SQUARE OR HEX SOCKET. APPLY BRIDGE BEARING LUBRICANT PER MNDOT APPROVED PRODUCTS LIST TO SCREW THREADS. ⑨



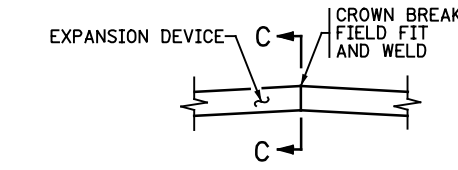
BARRIER ELEVATION



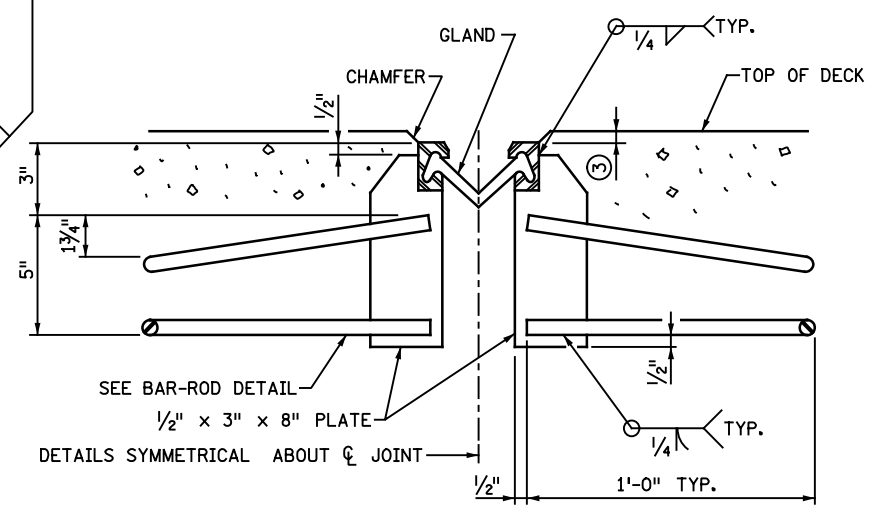
BENT STUD DETAIL



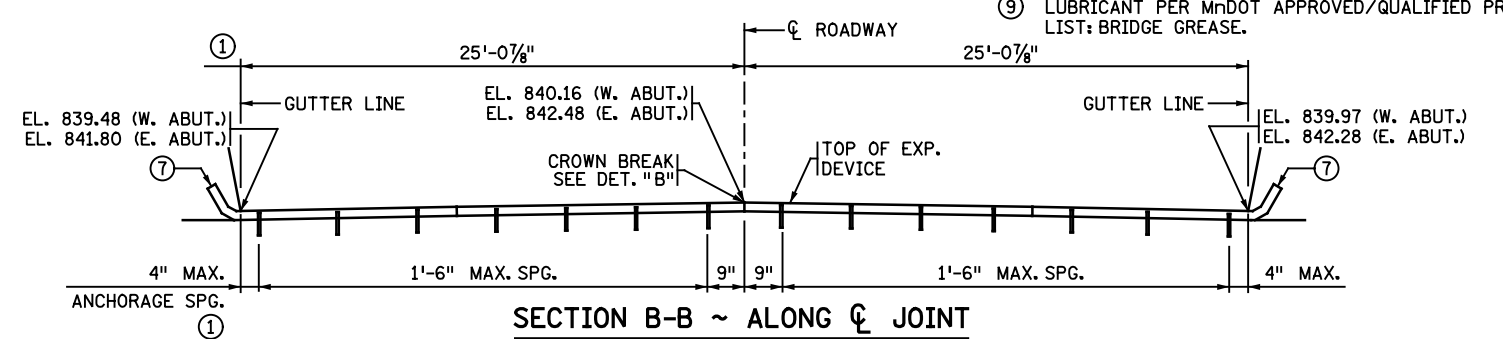
SECTION C-C



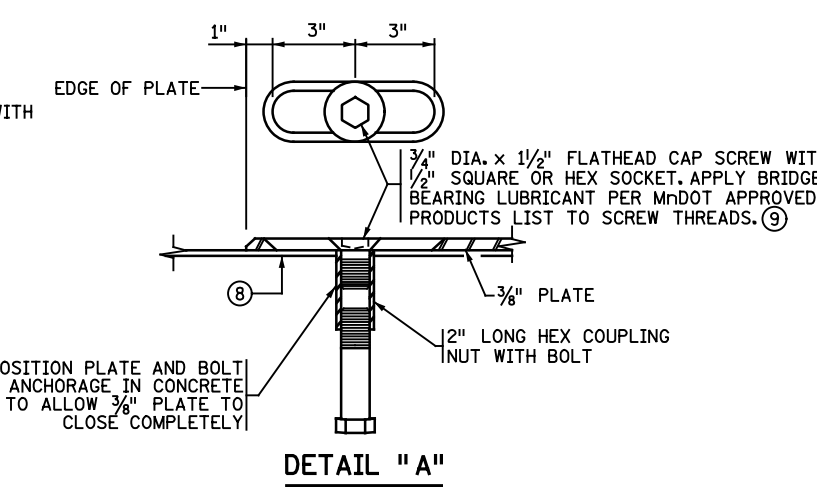
DETAIL "B"



SECTION A-A



SECTION B-B ~ ALONG Q JOINT



DETAIL "A"

GENERAL NOTES

- GALVANIZE STRUCTURAL STEEL AFTER FABRICATION PER SPEC. 3394. GALVANIZE FASTENERS PER SPEC. 3392.
- LOCATE JOINTS IN EXTRUSION AT BREAKS IN TRANSVERSE PROFILE AND AS OTHERWISE REQUIRED, WITH CLOSE FIT, WELDED JOINTS. REPAIR AFTER WELDING PER SPEC. 2471.3.L.
- PROVIDE STRUCTURAL STEEL PER SPEC. 3306 OR SPEC. 3309.
- STRAIGHTEN EXPANSION DEVICE TO A TOLERANCE OF 1/8" IN 10 FT.
- 3/4" DIA. X 1/2" FLATHEAD CAP SCREW WITH 1/2" SQUARE OR HEX SOCKET PER SPEC 3391. COUNTERSINK CAP SCREWS 1/16" BELOW TOP OF PLATE. APPLY BRIDGE BEARING LUBRICANT PER MNDOT APPROVED PRODUCTS LIST TO SCREW THREADS. ⑨
- PAYMENT LENGTH IS BASED ON THE HORIZONTAL DISTANCE BETWEEN THE OUTSIDE EDGES OF THE DECK MEASURED ALONG THE CENTERLINE OF JOINT.

- ① DIMENSIONS ARE ALONG CENTERLINE OF JOINT.
- ② --AT 45°F; -- AT 90°F. 2" AT ALL TEMPS.
- ③ 1/2" (1/2" MAX.)
1/2" (5/8" MAX.) WHEN SNOWPLOW FINGERS ARE USED. SNOWPLOW FINGERS ARE REQUIRED FOR SKEWS OVER 15° AND LESS THAN 50°.
- ④ SEE SUPERSTRUCTURE DETAILS FOR RADIUS.
- ⑤ SEE SHEET NO. 1 FOR DIRECTION OF TRAFFIC.
- ⑥ PLACE BAR-ROD NORMAL TO JOINT ON NEW BRIDGES AND JOINT REPLACEMENTS. ON JOINT REPLACEMENTS WHEN SKEW IS OVER 15° AND LESS THAN 50° BEND RODS PARALLEL TO Q ROADWAY.
- ⑦ EXTEND GLAND 1" MIN. BEYOND THE TOP OF THE EXTRUSION.
- ⑧ PROVIDE SMOOTH CONCRETE FINISH BENEATH PLATE WITH 0" MIN. TO 1/8" MAX. GAP BETWEEN CONCRETE AND UNDERSIDE OF PLATE. PROVIDE BOND BREAKER (DUCT TAPE, ETC.) TO UNDERSIDE OF COVER PLATE.
- ⑨ LUBRICANT PER MNDOT APPROVED/QUALIFIED PRODUCTS LIST: BRIDGE GREASE.

REVISIONS:
 APPROVED: AUGUST 24, 2016
 Kevin Westrom
 STATE BRIDGE ENGINEER

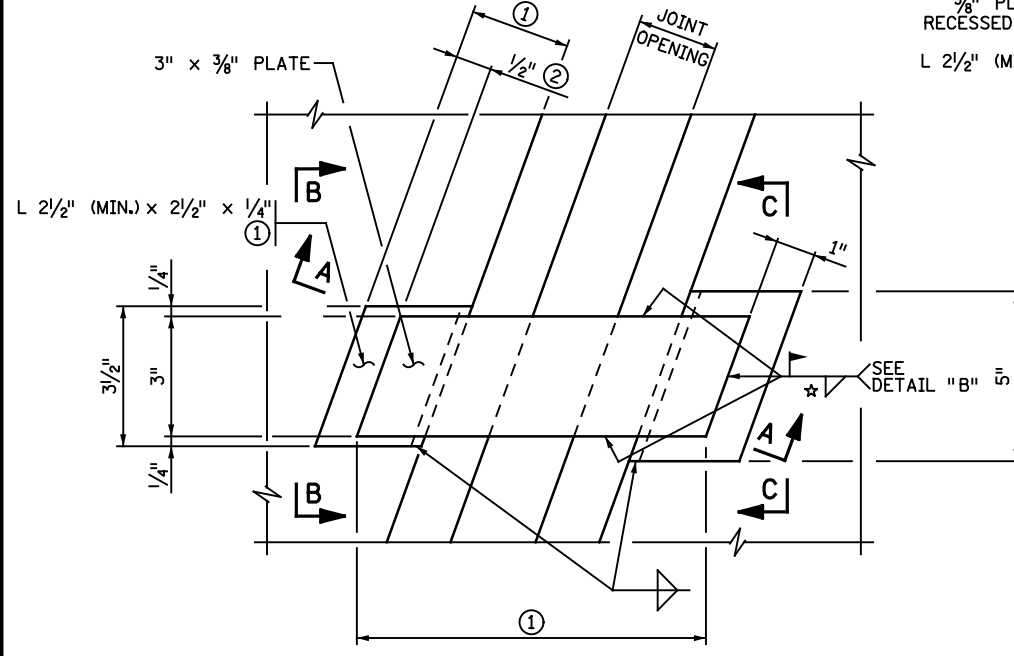
CERTIFIED BY _____ DATE _____
 LICENSED PROFESSIONAL ENGINEER
 NAME: _____ LIC. NO. _____

TITLE: **WATERPROOF EXPANSION DEVICE**
 (WITH TYPE S BARRIER)

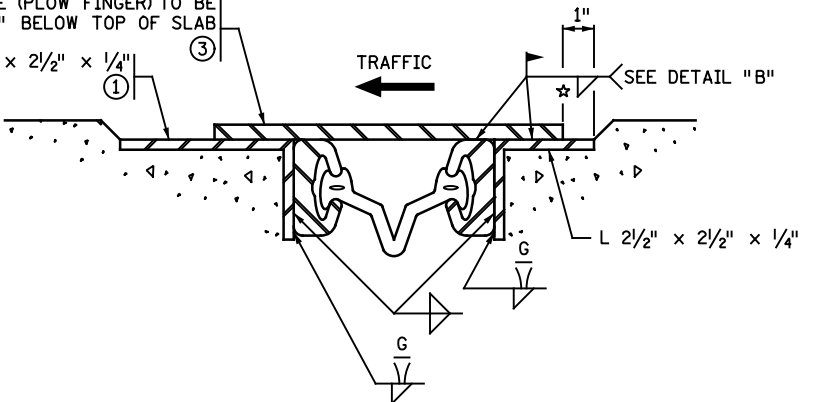
DES: DRS DR: JN
 CHK: LPR CHK: DRS
 APPROVED: _____
 SHEET NO. 31 OF 40 SHEETS
 BRIDGE NO. 52016

FIG. 5-397.627(B)

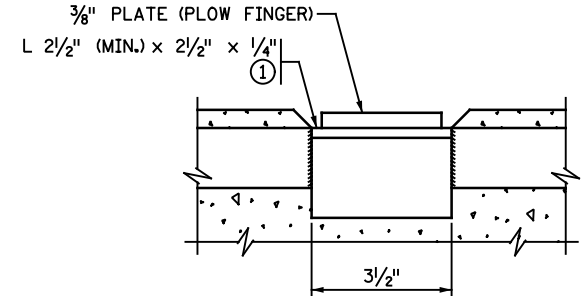
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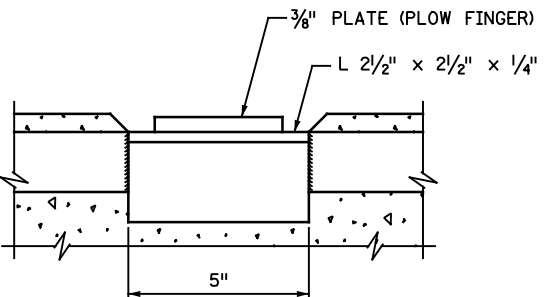
DETAIL "A"



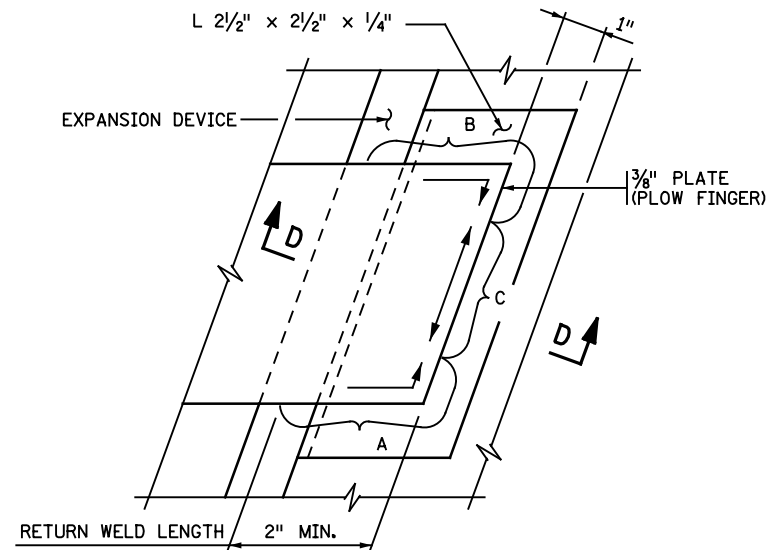
SECTION A-A



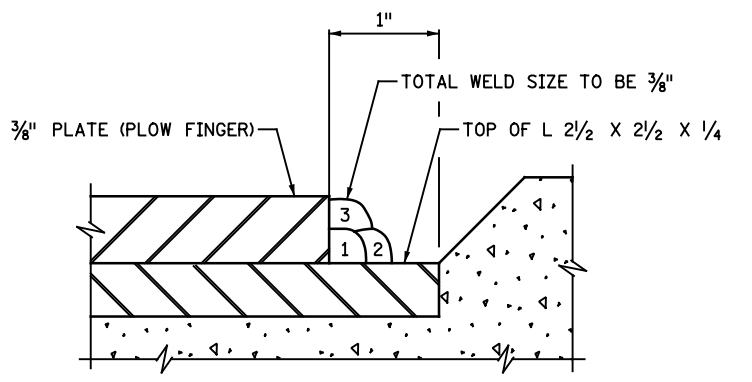
VIEW B-B



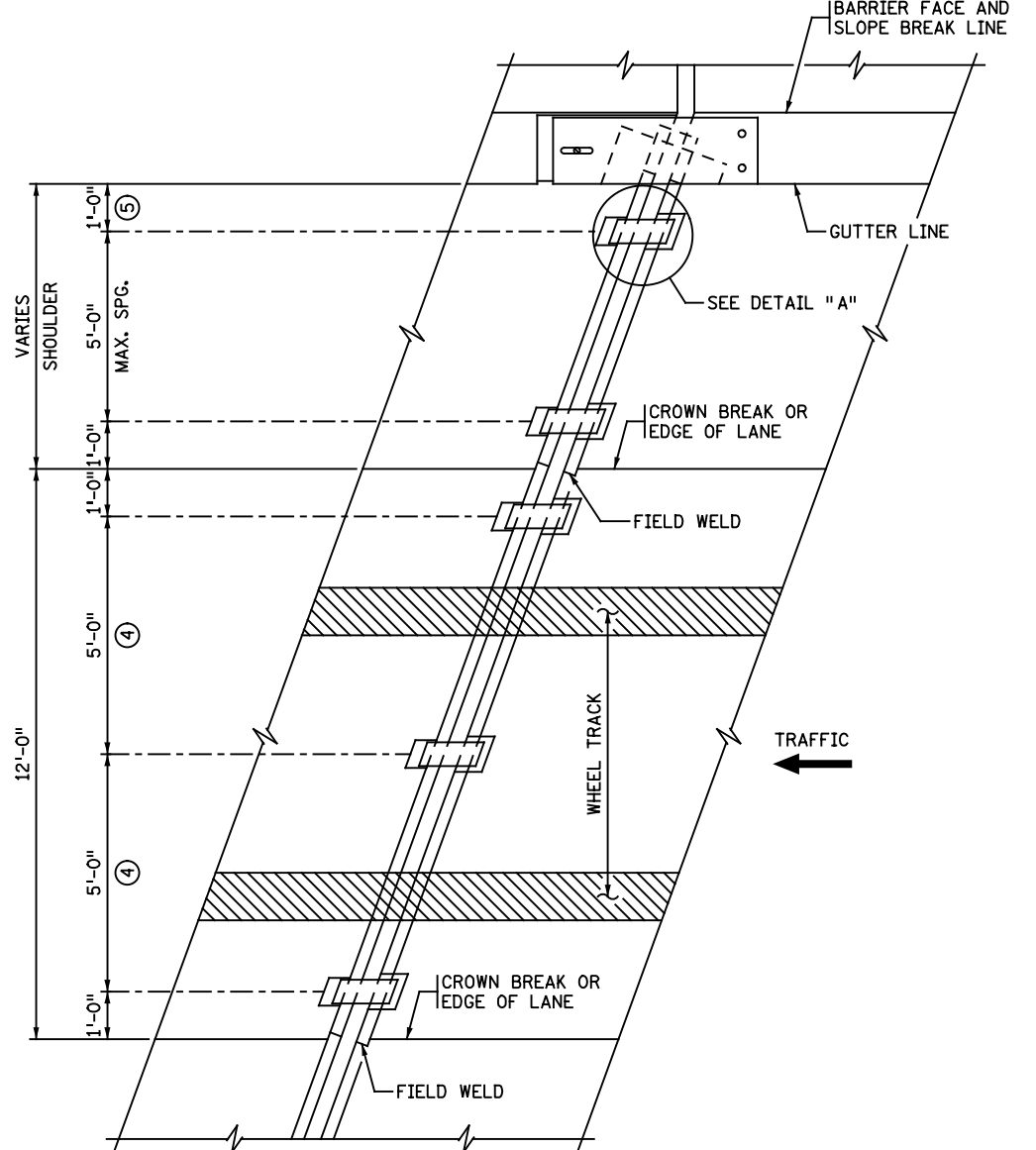
VIEW C-C



DETAIL "B"



SECTION D-D



PLAN VIEW AT EXPANSION DEVICE

☆ WELDING PROCEDURE FOR PLOW FINGERS

- I. ALL WELDING SHALL BE DONE WITH 1/8" DIAMETER LOW HYDROGEN SMAW ELECTRODES TYPE E7016 OR E7018.
- II. PRIOR TO WELDING, REMOVE THE GALVANIZED COATING IN THE WELD AREA BY GRINDING.
- III. WELD PASS ONE IN AREAS A AND B FIRST, THEN AREA C, FOLLOW WITH PASSES TWO AND THREE IN SAME ORDER, AS SHOWN IN DETAIL "B".
- IV. REMOVE ALL WELD SLAG AND OTHER RESIDUE BETWEEN PASSES.
- V. ALLOW AT LEAST 5 MINUTES COOLING TIME BETWEEN EACH OF THE NINE WELDING PASSES.

GENERAL NOTES

- DO NOT GALVANIZE PLOW FINGERS.
- ① VARIES WITH SKEW AND EXPANSION OPENING.
 - ② MINIMUM IN CLOSED POSITION.
 - ③ EVERY SNOW PLOW FINGER SHALL HAVE FULL AND DIRECT BEARING ON THE PLATE THAT IS LOCATED UNDER THE MOVEMENT SIDE OF THE FINGER. NO CLICKING NOISE WILL BE ALLOWED.
 - ④ MODIFY IF LANE WIDTH DIFFERS FROM 12 FT.
 - ⑤ OMIT LAST PLOW FINGER ON DEVICE WITH CURVED END.

REVISION: 11-06-2013
 APPROVED: SEPTEMBER 26, 2003

 STATE BRIDGE ENGINEER

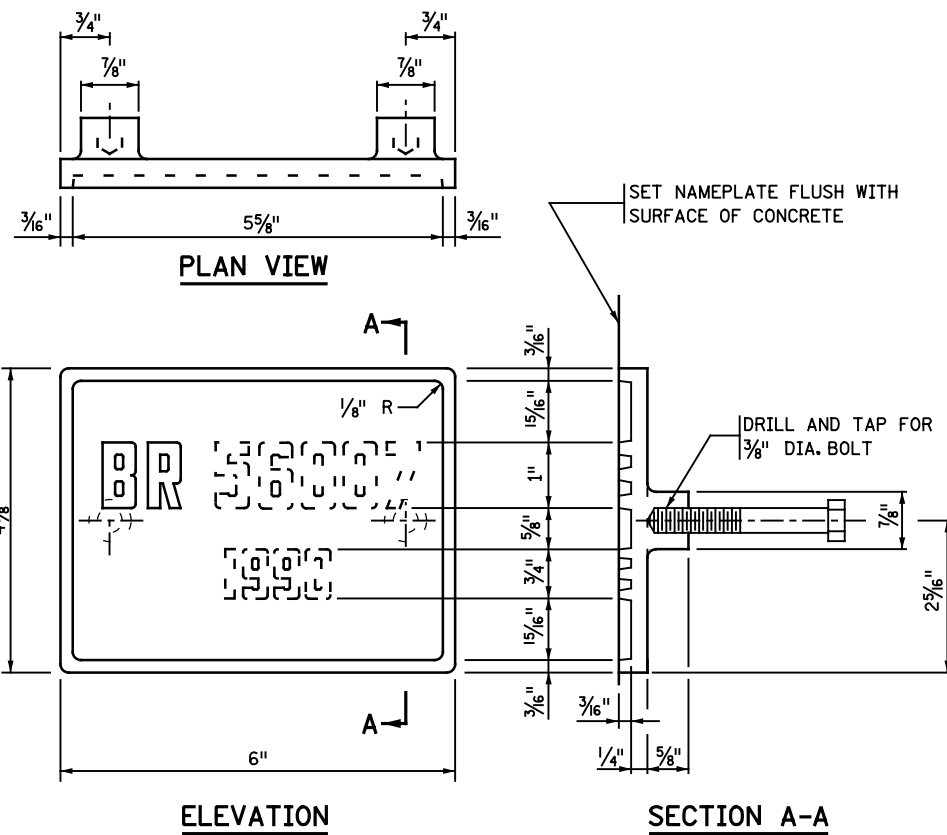
CERTIFIED BY _____ DATE _____
 LICENSED PROFESSIONAL ENGINEER
 NAME: _____ LIC. NO. _____

TITLE: **WATERPROOF EXPANSION DEVICE
 SNOW PLOW PROTECTION**
 (USE ON SKEWS OVER 15° AND LESS THAN 50°)

DES: JN	DR: JN	APPROVED:
CHK: DRS	CHK: DRS	

SHEET NO. 32 OF 40 SHEETS

FIG. 5-397.628
BRIDGE NO. 52016



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

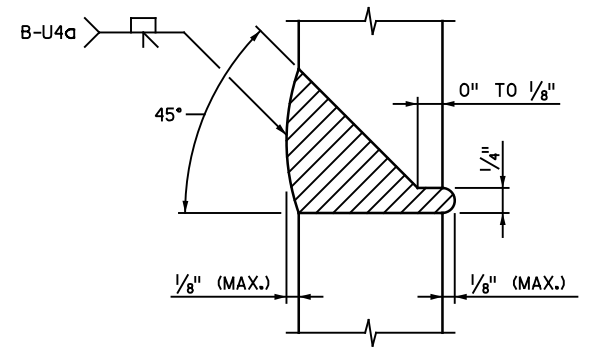
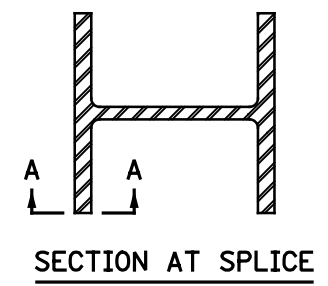
BRIDGE 52016
YEAR 2018



NUMBERS FOR NAMEPLATE

NOTES:

- MATERIAL SHALL COMPLY WITH SPEC. 3327.
- LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
- DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
- HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
- TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
- FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.
- ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.



SECTION A-A
100% BUTT WELDED PILE SPLICE

NOTES:

- CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011 SHALL BE USED FOR 100% BUTT WELDED SPLICES.
- ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.
- WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION 09-11-2014	DETAIL NO. B101
 STATE BRIDGE ENGINEER		BRIDGE NAMEPLATE (FOR NEW BRIDGES)	

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION: 11-06-2013	DETAIL NO. B202
 STATE BRIDGE ENGINEER		PILE SPLICE (STEEL H BEARING PILES 10" TO 14")	

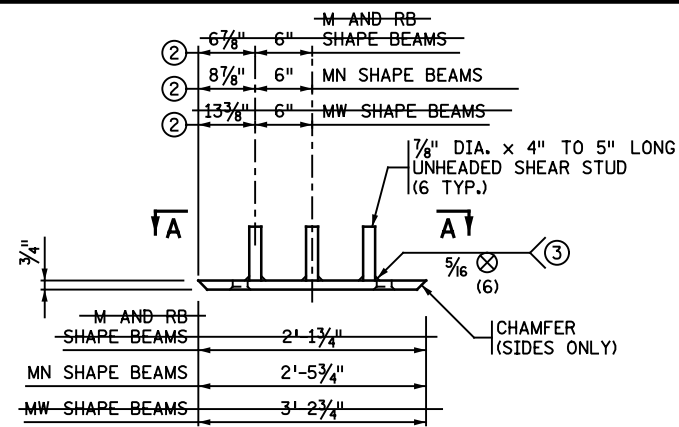
NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

CERTIFIED BY: _____
LICENSED PROFESSIONAL ENGINEER DATE _____
NAME: _____ LIC. NO. _____

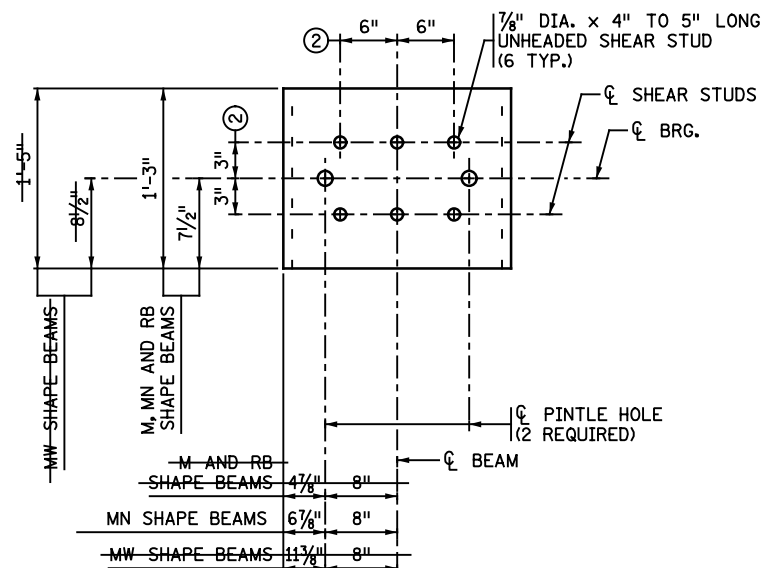
TITLE: **BRIDGE DETAILS 1**

DES: JN	DR: JN	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 33 OF 40 SHEETS		
BRIDGE NO.		52016

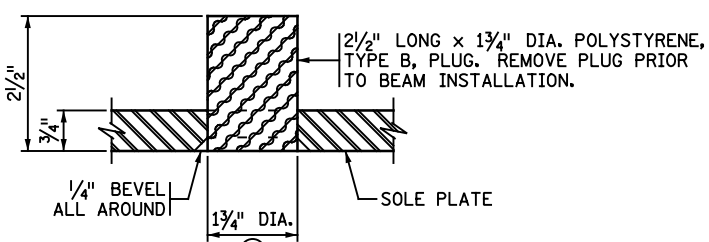
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FRONT ELEVATION



SECTION A-A



PINTLE HOLE DETAIL

NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER MNDOT SPEC. 3306.

WELDED STUDS TO BE WELDABLE CARBON STEEL PER MNDOT SPEC. 3391.2D.

SOLE PLATE FOR BEARING ASSEMBLY TO BE GALVANIZED PER MNDOT SPEC. 3394 AFTER FABRICATION.

PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.

SOLE PLATES ARE INCIDENTAL TO PRESTRESSED CONCRETE BEAMS.

- ① FOR 1/2" DIA. PINTLES.
- ② THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.
- ③ THE REQUIREMENTS FOR WELDING STUDS SHALL COMPLY WITH AASHTO/AWS D1.1.

APPROVED: SEPTEMBER 22, 2011

Nancy Dubenberger
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

SOLE PLATE
(PRESTRESSED CONCRETE BEAMS)
(FOR BEARINGS WITH PINTLES)

REVISED

DETAIL NO.

B303

CERTIFIED BY: _____
LICENSED PROFESSIONAL ENGINEER DATE
NAME: _____ LIC. NO. _____

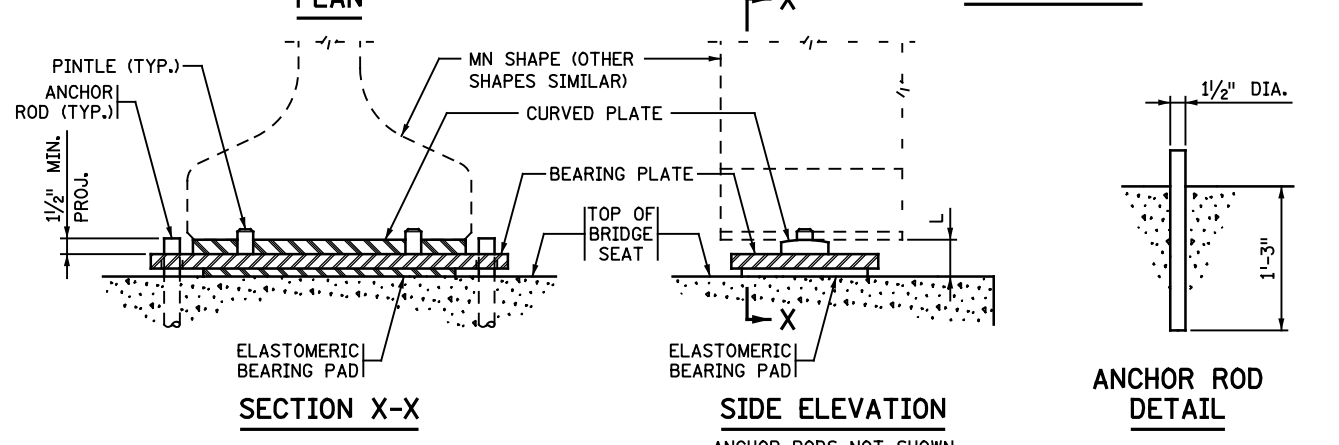
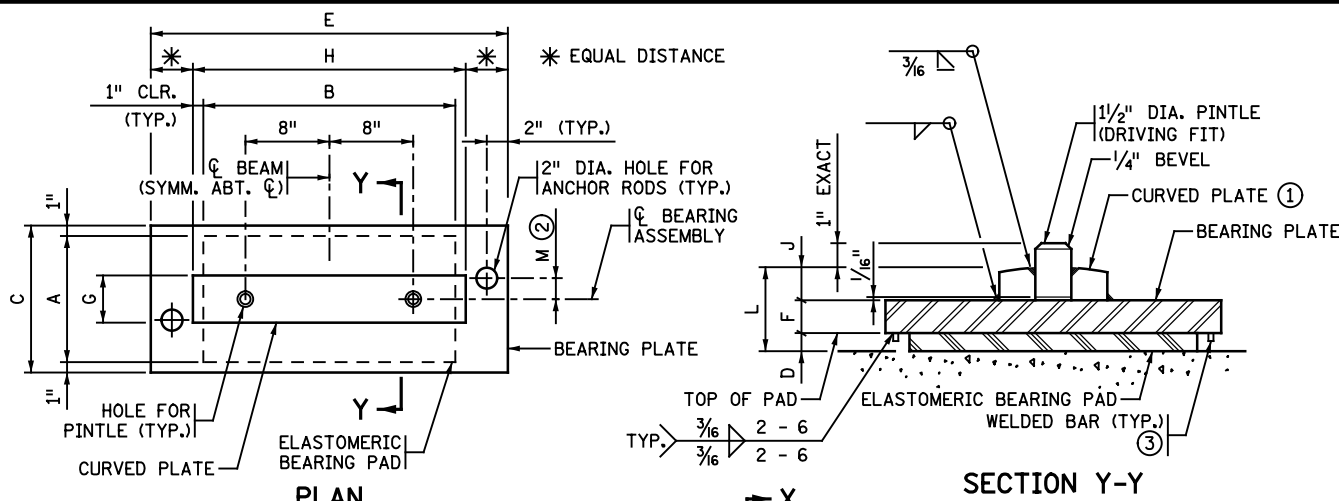
TITLE: **BRIDGE DETAILS 2**

DES: JN	DR: JN	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 34 OF 40 SHEETS		

BRIDGE NO.
52016

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ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			ANCHOR ROD OFFSET		ASSY. HEIGHT	CURVED PLATE
			A	B	D		C	E	F	G	H	J	+/- (2)	M		
F1	W ABUT.	MN45	12"	24"	1/2"	8.0	14"	38"	1 1/2"	4 1/2"	26"	1 1/4"		0	3 1/4"	16"

NOTES:

PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER SPEC. 3741.

PROVIDE STEEL PLATES PER SPEC. 3306.

PROVIDE ANCHOR RODS PER SPEC. 3385, TYPE A. GALVANIZE PER SPEC. 3392.

PROVIDE PINTLES PER SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394, EXCEPT AS NOTED.

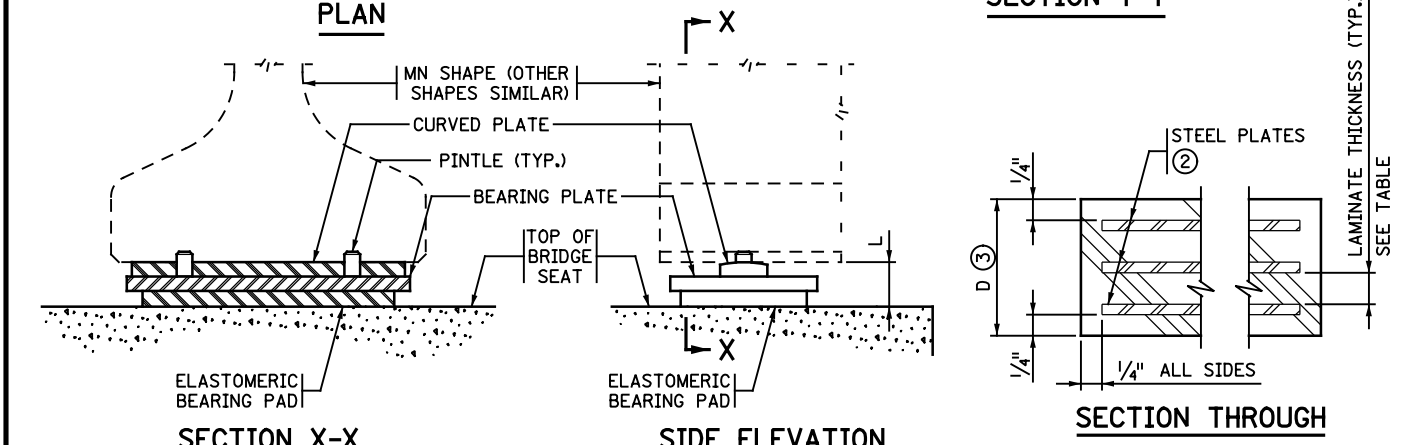
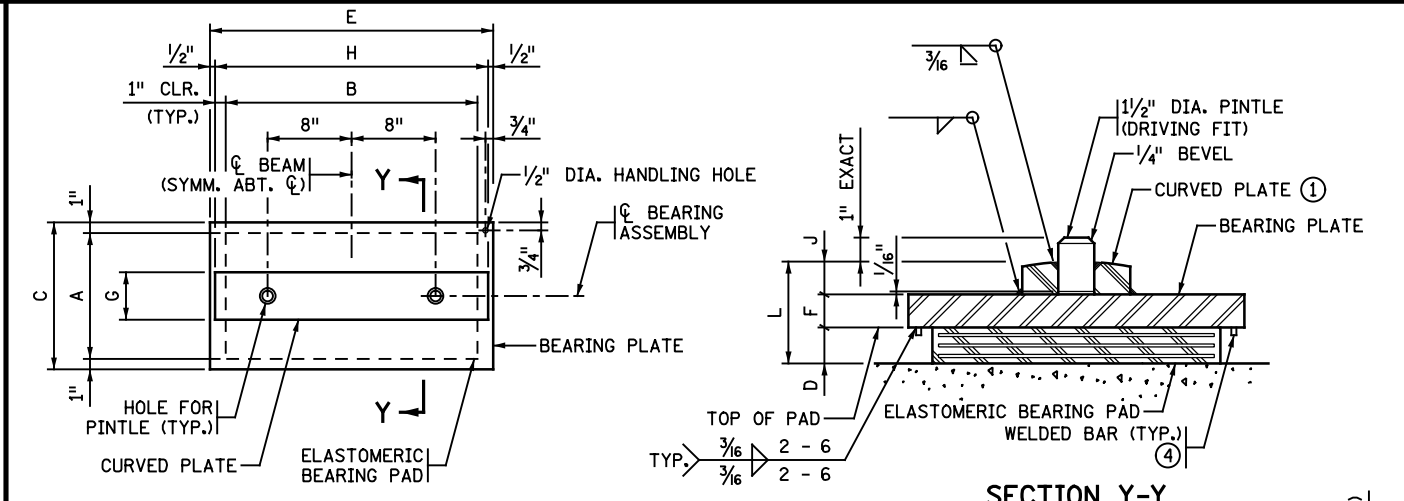
PAYMENT FOR BEARING ASSEMBLY INCLUDES ALL MATERIAL ON THIS DETAIL.

(1) THE MIN. RADIUS IS 16" UNLESS OTHERWISE SPECIFIED IN THE TABLE. THE MAX. RADIUS IS 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

(2) "+" DENOTES OFFSET AS SHOWN. "-" DENOTES OFFSET OPPOSITE OF SHOWN.

(3) 3/8" X 3/8" BAR INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. BAR LENGTH IS 2" LESS THAN ADJACENT PAD DIMENSION, CENTERED ON PAD. CENTERLINE OF BAR TO EDGE OF PAD DIMENSION = 1/2".

DESIGN DATA:
 MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1 1/2" PINTLES.



ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			STEEL PLATES		LAMINATES		SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			ASSY. HEIGHT	CURVED PLATE
			A	B	D	NO.	THICK.	NO.	THICK.		C	E	F	G	H	J		
E1	E ABUT.	MN45	12"	24"	2 1/2"	4	1/8"	3	1/2"	8.0	14"	27"	1 1/2"	4 1/2"	26"	1 1/4"	5 1/4"	16"

NOTES:

PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER SPEC. 3741.

PROVIDE STEEL PLATES PER SPEC. 3306.

PROVIDE PINTLES PER SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394, EXCEPT AS NOTED.

PAYMENT FOR BEARING ASSEMBLY INCLUDES ALL MATERIAL ON THIS DETAIL.

(1) THE MIN. RADIUS IS 16" UNLESS OTHERWISE SPECIFIED IN THE TABLE. THE MAX. RADIUS IS 24". FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

(2) DO NOT GALVANIZE THESE PLATES.

(3) THE TOTAL THICKNESS SHOWN INCLUDES THE STEEL PLATES.

(4) 3/8" X 3/8" BAR INSTALLED ON BEARING PLATE AROUND PERIMETER OF BEARING PAD. BAR LENGTH IS 2" LESS THAN ADJACENT PAD DIMENSION, CENTERED ON PAD. CENTERLINE OF BAR TO EDGE OF PAD DIMENSION = 1/2".

DESIGN DATA:
 MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1 1/2" PINTLES.

APPROVED: SEPTEMBER 22, 2011

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION

Nancy Dubenberger
 STATE BRIDGE ENGINEER

CURVED PLATE BEARING ASSEMBLY
 (PRESTRESSED CONCRETE BEAMS)
 (FIXED)

REVISED
 11-06-2013
 11-03-2015

DETAIL NO.
B310

APPROVED: SEPTEMBER 22, 2011

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION

Nancy Dubenberger
 STATE BRIDGE ENGINEER

CURVED PLATE BEARING ASSEMBLY
 (PRESTRESSED CONCRETE BEAMS)
 (EXPANSION)

REVISED
 11-03-2015

DETAIL NO.
B311

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

HR

CERTIFIED BY: _____
 LICENSED PROFESSIONAL ENGINEER DATE _____

NAME: _____ LIC. NO. _____

TITLE:
BRIDGE DETAILS 3

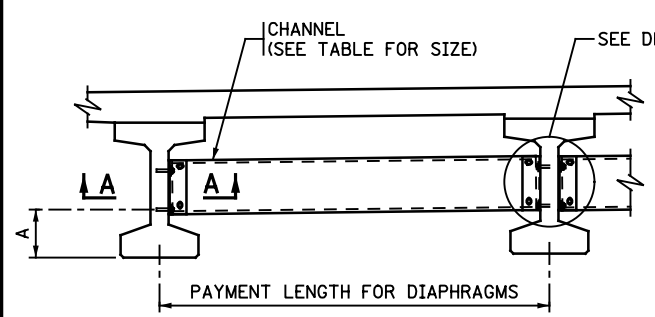
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STATE PROJECT NO. 0804-52016

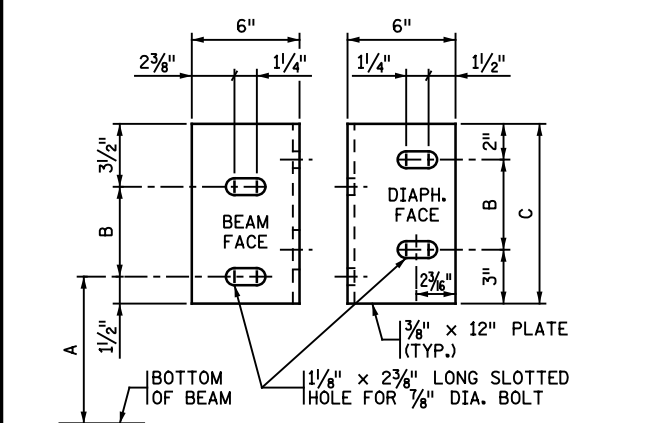
SHEET NO. 35 OF 40 SHEETS

BRIDGE NO. 52016

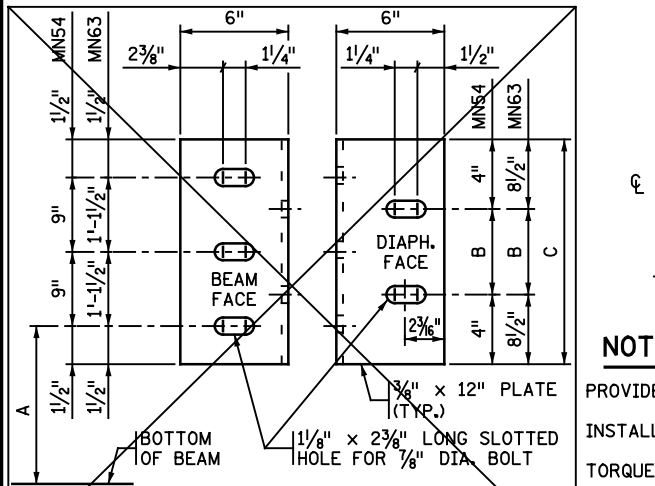
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PART TRANSVERSE SECTION AT DIAPHRAGM

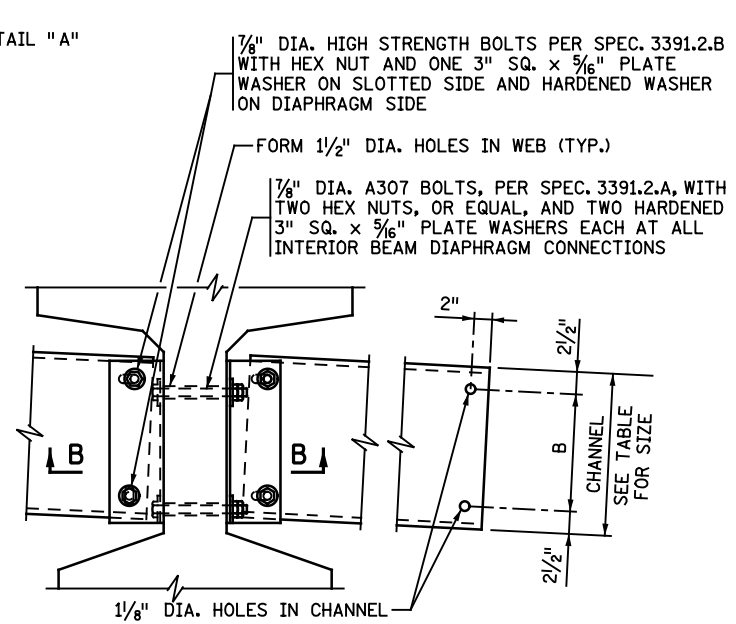


DIAPHRAGM CONNECTION FOR 36M, AND MN45 BEAMS

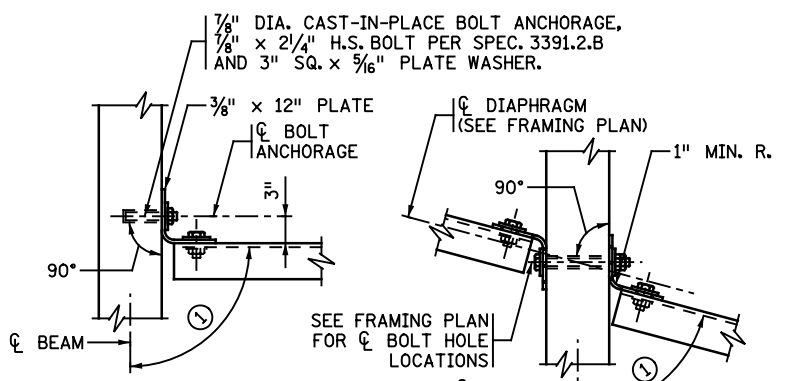


DIAPHRAGM CONNECTION FOR MN54 AND MN63 BEAMS

BEAM HEIGHT	DISTANCE			CHANNEL SIZE
	A	B	C	
36M	1'-3"	7"	1'-0"	C12x20.7
MN45	1'-7 3/4"	7"	1'-0"	C12x20.7
MN54	1'-7 3/4"	1'-1"	1'-9"	MC18x42.7
MN63	1'-7 3/4"	1'-1"	2'-6"	MC18x42.7

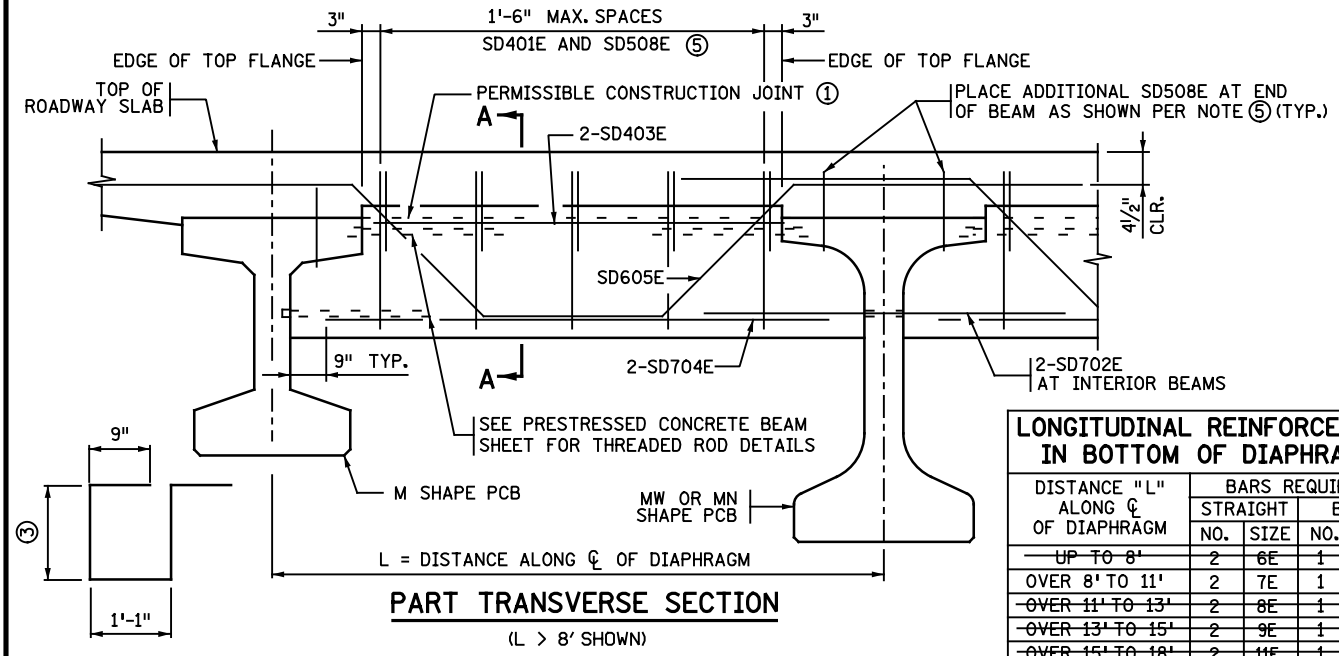


DETAIL "A" INTERIOR BEAM WITH CONTINUOUS LINE OF DIAPHRAGMS



SECTION A-A TYPICAL SECTION AT ALL FASCIA BEAMS
SECTION B-B TYPICAL SECTION AT INTERIOR BEAM WITH CONTINUOUS OR STAGGERED INTERMEDIATE DIAPHRAGMS

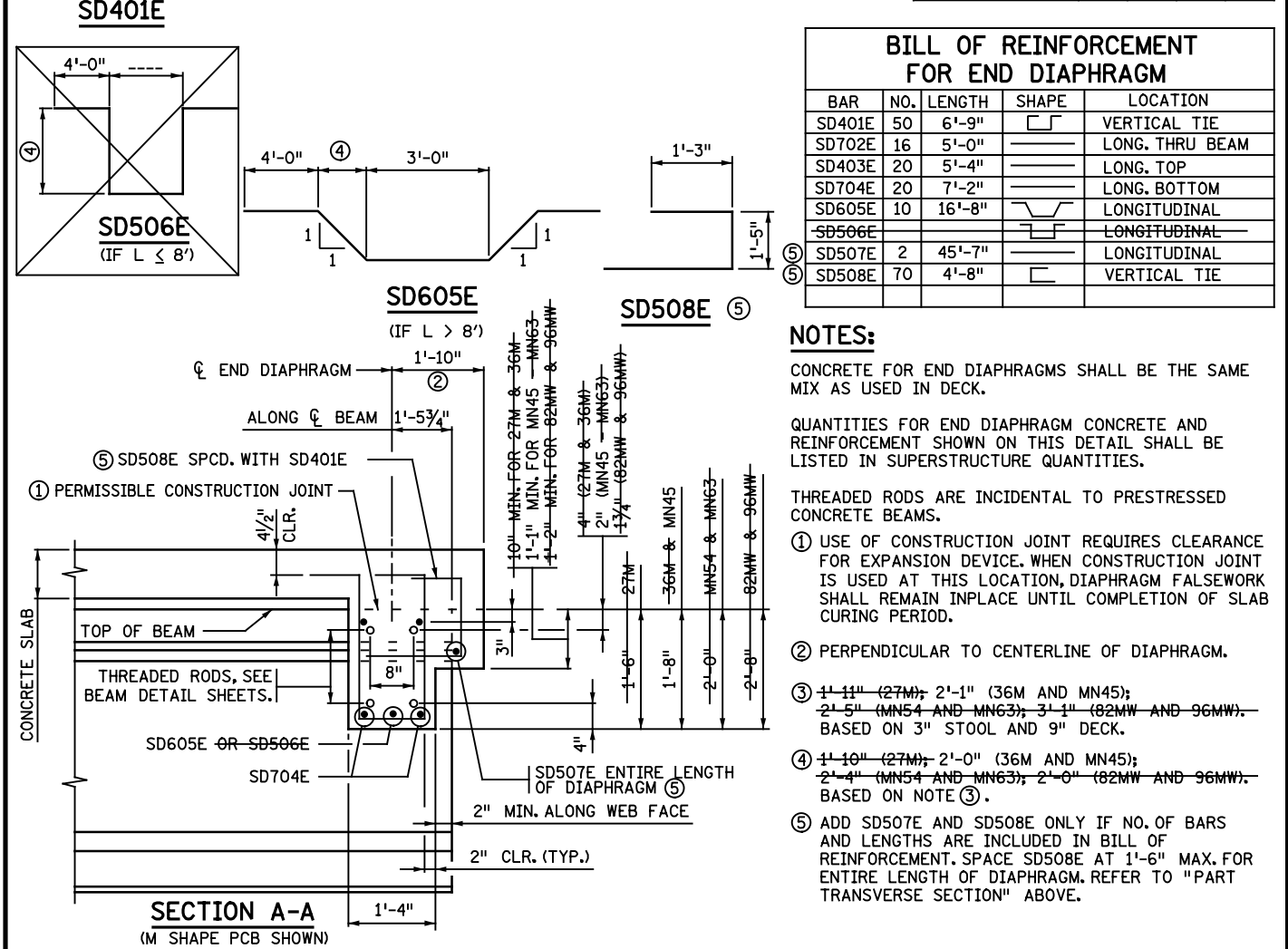
- NOTES:**
- PROVIDE STEEL PER SPEC. 3306.
 - INSTALL PER SPEC. 2405.3.K.
 - TORQUE ALL BOLTS, INCLUDING ANCHOR BOLTS TO 80 FT.-LBS.
 - SHOP BEND THE LEG OF THE 12" PLATE TO CONFORM TO THE DIAPHRAGM. A 3/8" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.
 - INCLUDE ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, IN UNIT PRICE BID FOR PRESTRESSED BEAMS.
 - BENT PLATES MAY BE USED IN PLACE OF CHANNELS IF THE BENT PLATES HAVE THE SAME HEIGHT AS THE CHANNELS THEY REPLACE, ARE 5/16" IN THICKNESS, AND HAVE LEGS 5" LONG.
 - GALVANIZE STEEL PLATES AND SHAPES PER SPEC. 3394.
 - GALVANIZE BOLTS, NUTS AND WASHERS PER SPEC. 3392.
 - ① FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. FOR SKEW ANGLES OVER 20°, USE 90°.



PART TRANSVERSE SECTION (L > 8' SHOWN)

LONGITUDINAL REINFORCEMENT IN BOTTOM OF DIAPHRAGM

DISTANCE "L" ALONG CL OF DIAPHRAGM	BARS REQUIRED	
	STRAIGHT NO.	BENT NO.
UP TO 8'	2 6E	1 5E
OVER 8' TO 11'	2 7E	1 6E
OVER 11' TO 13'	2 8E	1 8E
OVER 13' TO 15'	2 9E	1 10E
OVER 15' TO 18'	2 11E	1 11E



SECTION A-A (M SHAPE PCB SHOWN)

BILL OF REINFORCEMENT FOR END DIAPHRAGM

BAR	NO.	LENGTH	SHAPE	LOCATION
SD401E	50	6'-9"		VERTICAL TIE
SD702E	16	5'-0"		LONG. THRU BEAM
SD403E	20	5'-4"		LONG. TOP
SD704E	20	7'-2"		LONG. BOTTOM
SD605E	10	16'-8"		LONGITUDINAL
SD506E				LONGITUDINAL
SD507E	2	45'-7"		LONGITUDINAL
SD508E	70	4'-8"		VERTICAL TIE

- NOTES:**
- CONCRETE FOR END DIAPHRAGMS SHALL BE THE SAME MIX AS USED IN DECK.
 - QUANTITIES FOR END DIAPHRAGM CONCRETE AND REINFORCEMENT SHOWN ON THIS DETAIL SHALL BE LISTED IN SUPERSTRUCTURE QUANTITIES.
 - THREADED RODS ARE INCIDENTAL TO PRESTRESSED CONCRETE BEAMS.
 - ① USE OF CONSTRUCTION JOINT REQUIRES CLEARANCE FOR EXPANSION DEVICE. WHEN CONSTRUCTION JOINT IS USED AT THIS LOCATION, DIAPHRAGM FALSEWORK SHALL REMAIN IN PLACE UNTIL COMPLETION OF SLAB CURING PERIOD.
 - ② PERPENDICULAR TO CENTERLINE OF DIAPHRAGM.
 - ③ 1'-11" (27M); 2'-1" (36M AND MN45); 2'-5" (MN54 AND MN63); 3'-1" (82MM AND 96MM). BASED ON 3" STOOL AND 9" DECK.
 - ④ 1'-10" (27M); 2'-0" (36M AND MN45); 2'-4" (MN54 AND MN63); 2'-0" (82MM AND 96MM). BASED ON NOTE ③.
 - ⑤ ADD SD507E AND SD508E ONLY IF NO. OF BARS AND LENGTHS ARE INCLUDED IN BILL OF REINFORCEMENT. SPACE SD508E AT 1'-6" MAX. FOR ENTIRE LENGTH OF DIAPHRAGM. REFER TO "PART TRANSVERSE SECTION" ABOVE.

APPROVED: NOVEMBER 03, 2015
Kevin A. J. Sanaker
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
STEEL INTERMEDIATE DIAPHRAGM
(FOR 36M, MN45 - MN63 PRESTRESSED CONCRETE BEAMS)
REVISED
DETAIL NO. **B403**

APPROVED: SEPTEMBER 22, 2011
Nancy Subenberger
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
CONCRETE END DIAPHRAGM
(27M & 36M, MN45 - MN63, 82MM & 96MM PRESTRESSED CONCRETE BEAMS)
(PARAPET ABUTMENT)
REVISED
04-17-2013
11-06-2013
DETAIL NO. **B814**

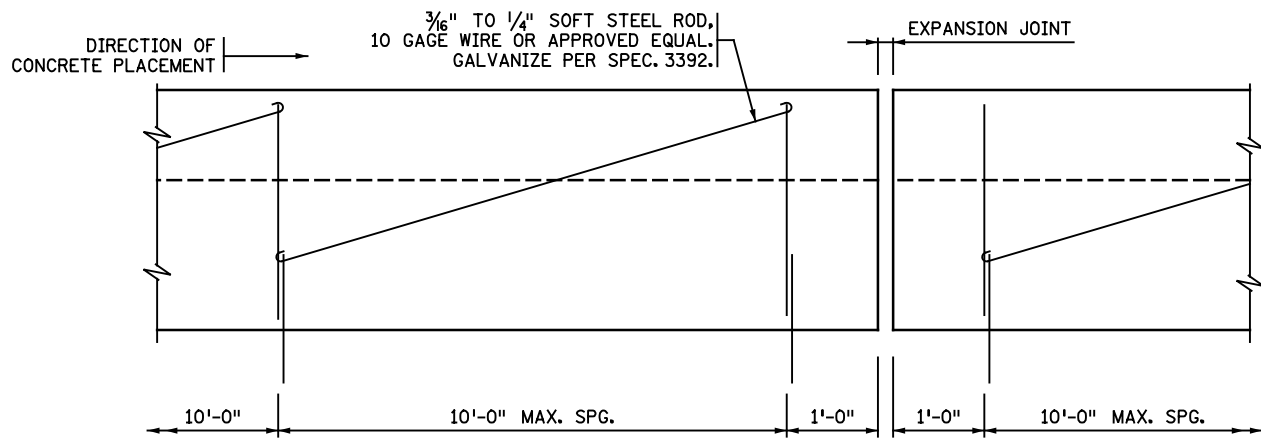
NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

CERTIFIED BY: _____
LICENSED PROFESSIONAL ENGINEER
DATE: _____
NAME: _____
LIC. NO. _____

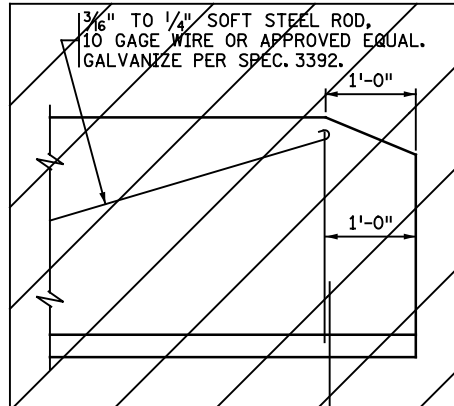
TITLE: **BRIDGE DETAILS 4**

DES: DRS DR: JN APPROVED:
CHK: LPR CHK: DRS
STATE PROJECT NO. 0804-52016
SHEET NO. 36 OF 40 SHEETS
BRIDGE NO. 52016

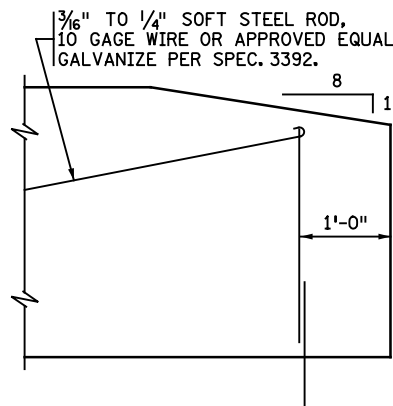
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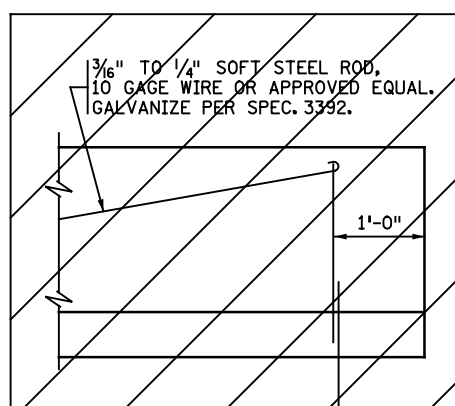
INSIDE ELEVATION OF BARRIER OR PARAPET



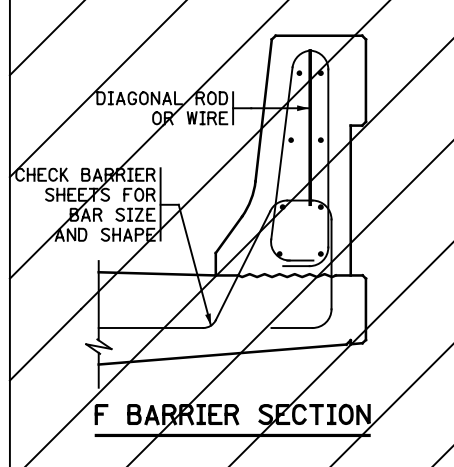
INSIDE ELEVATION OF F BARRIER AT END OF BARRIER



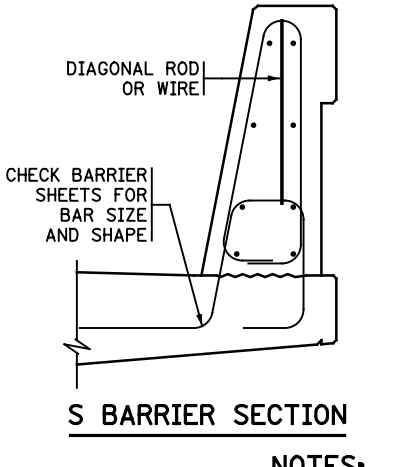
INSIDE ELEVATION OF S BARRIER AT END OF BARRIER



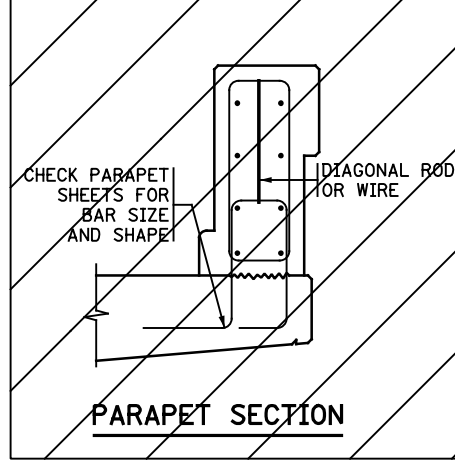
INSIDE ELEVATION OF PARAPET AT END OF PARAPET



F BARRIER SECTION



S BARRIER SECTION



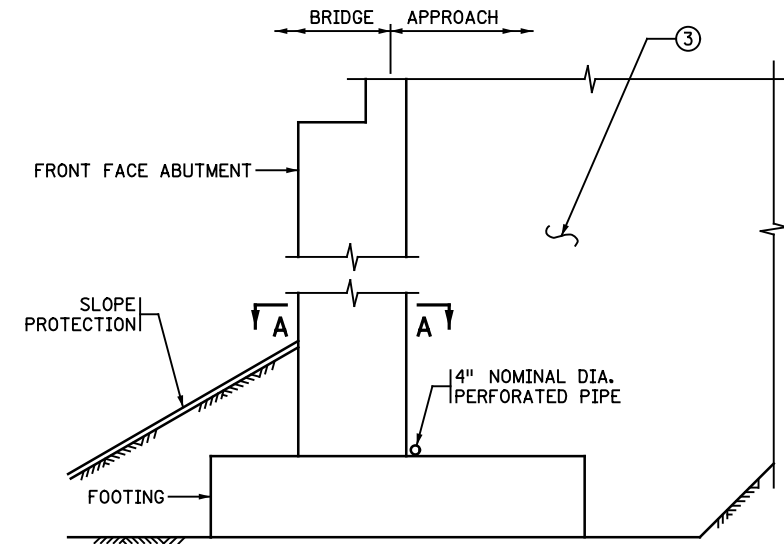
PARAPET SECTION

NOTES:

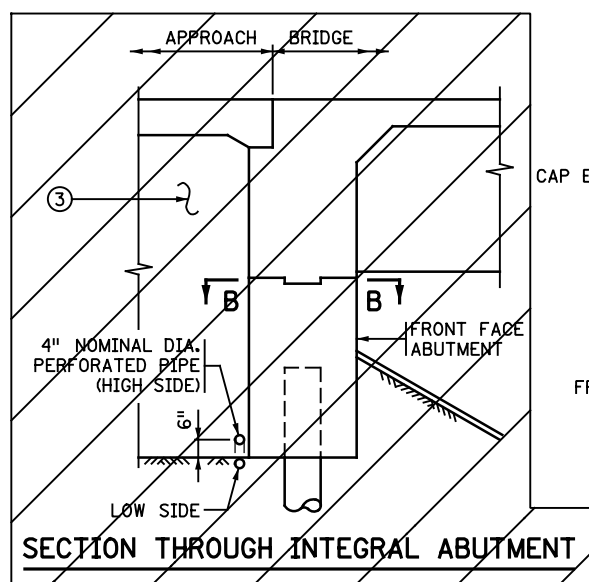
FOR ADDITIONAL DIMENSIONS, DETAILS, REINFORCEMENT, NOTES, AND CONTROL JOINT SPACING SEE BARRIER OR PARAPET SHEET.

PAY QUANTITIES WILL NOT BE ADJUSTED AS A RESULT OF SELECTING SLIPFORM ALTERNATE.

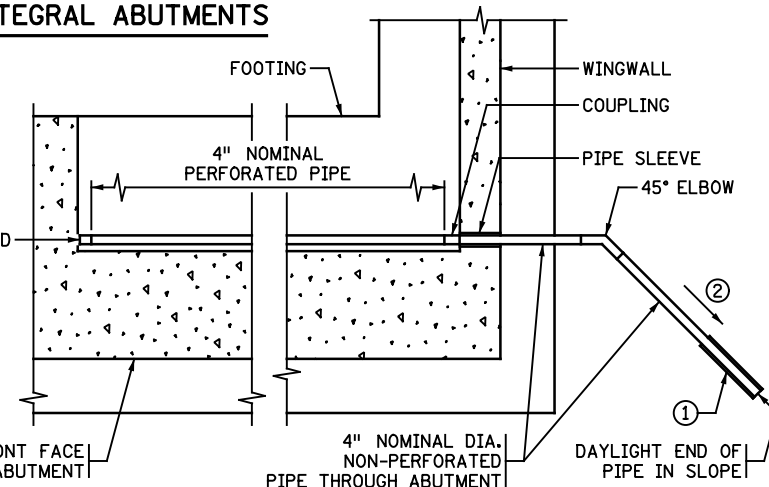
USE A SIMILAR METHOD FOR TALLER BARRIERS OR MODIFIED VERSIONS OF THIS BARRIER.



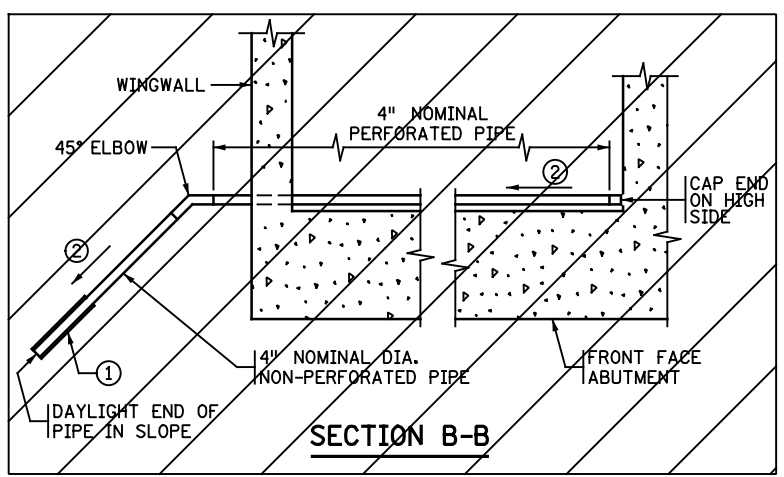
SECTION THROUGH PARAPET AND SEMI-INTEGRAL ABUTMENTS



SECTION THROUGH INTEGRAL ABUTMENT



SECTION A-A



SECTION B-B

NOTES:

PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR "DRAINAGE SYSTEM TYPE (B910)", INCLUDES BUT IS NOT LIMITED TO 4" DIAMETER PERFORATED AND NON-PERFORATED PIPE, ELBOWS, END CAPS, COUPLINGS, SLEEVES AND PRECAST CONCRETE HEADWALLS.

ALL PIPE TO COMPLY WITH SPEC. 3245.

WRAP PERFORATED PIPE WITH GEOTEXTILE PER SPEC. 3733, TYPE 1. ATTACH TO PIPE PER SPEC. 2502.

① AT CONTRACTOR'S OPTION, MAY TIE APPROACH PANEL DRAINAGE SYSTEM AND ABUTMENT DRAINAGE SYSTEM INTO A SINGLE PRECAST CONCRETE HEADWALL OR INTO A CATCH BASIN AS LONG AS A MINIMUM OF 1% POSITIVE SLOPE CAN BE MAINTAINED.

USE PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.

② 1/8" PER FT. MINIMUM SLOPE.

③ REFER TO GRADING PLANS FOR ABUTMENT BACKFILL REQUIREMENTS.

APPROVED: AUGUST 24, 2016

Kim Weston
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CONCRETE BARRIER OR PARAPET
(SLIPFORM ALTERNATE)

REVISION DETAIL NO.

B830

APPROVED: JANUARY 13, 2015

Nancy Subenberger
STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

DRAINAGE SYSTEM

REVISED 12-02-2015 DETAIL NO.

B910

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.



CERTIFIED BY: _____
LICENSED PROFESSIONAL ENGINEER DATE

NAME: _____ LIC. NO. _____

TITLE: **BRIDGE DETAILS 5**

DES: DRS DR: JN APPROVED: _____
CHK: LPR CHK: DRS

STATE PROJECT NO. 0804-52016

SHEET NO. 37 OF 40 SHEETS

BRIDGE NO. 52016

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CONCRETE WEARING COURSE

LOW SLUMP
 OTHER _____
 TYPE OR MANUFACTURER _____

EXPANSION JOINTS

JOINT MANUFACTURER _____
 MANUFACTURER'S IDENTIFICATION _____
 MFR'S No. AND/OR LETTER DESIGNATION FOR JOINT USED _____
 GLAND MANUFACTURER _____
 NAME AND ADDRESS (CITY, STATE) _____
 SIZE OF GLAND _____
 MANUFACTURER'S IDENTIFICATION _____
 MFR'S No. AND/OR LETTER DESIGNATION FOR GLAND USED _____

ELASTOMERIC BEARING PADS

PAD MANUFACTURER _____
 NAME AND ADDRESS (CITY, STATE) _____

SPECIAL SURFACE FINISH

SYSTEM: _____ COLOR: _____

FINISHING ROADWAY FACES OF BARRIER RAILING

TYPE: _____ COLOR: _____

ANTI-GRAFFITI COATING

MANUFACTURER _____
 NAME AND ADDRESS (CITY, STATE) _____
 PRODUCT NAME: _____ LOCATION: _____

PAINT SYSTEM

Mn/DOT SPECIFICATION NUMBER _____
 2478 OR 2479 OR OTHER _____
 MANUFACTURER _____
 NAME AND ADDRESS (CITY, STATE) _____
 PRIME COAT _____
 Mn/DOT MATERIAL SPECIFICATION NUMBER _____
 INTERMEDIATE COAT _____
 Mn/DOT MATERIAL SPECIFICATION NUMBER _____
 FINISH COAT _____
 Mn/DOT MATERIAL SPECIFICATION NUMBER _____ COLOR _____

PLAN QUALITY

RATE 1 (AGREE), 2 (NEUTRAL), OR 3 (DISAGREE, PLEASE COMMENT BELOW)

DIMENSIONING AND DETAILING ADEQUATELY DESCRIBED REQUIRED CONSTRUCTION. _____
 BAR LISTS AND QUANTITIES WERE TYPICALLY COMPLETE AND FREE OF ERRORS. _____
 SCALE OF DRAWINGS AND OVERALL LEGIBILITY OF LINES AND TEXT WAS GOOD. _____
 (SB) SPECIAL PROVISIONS ADEQUATELY DESCRIBED SPECIAL WORK AND PAYMENT. _____

COMMENTS: _____

NUMBER OF BRIDGE SUPPLEMENTAL AGREEMENTS: _____ COST: \$ _____

LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.

BRIDGE REMOVAL / BRIDGE OPENING

NUMBER OF AND DATE OLD BRIDGE WAS REMOVED (IF APPLICABLE): _____
 BRIDGE NUMBER _____ DATE REMOVED _____
 DATE NEW BRIDGE WAS OPENED TO TRAFFIC _____
 NOTIFY THE BRIDGE OFFICE BRIDGE MANAGEMENT UNIT WITH THIS INFORMATION AS SOON AS POSSIBLE. (651) 366-4557

OTHER ITEMS ①

① UTILITIES ADDED DURING CONSTRUCTION AND SPECIALTY ITEMS.

FINAL QUANTITIES ENTERED ON SCHEDULE OF QUANTITIES: YES NO

SUMMARY OF SIGNIFICANT AS-BUILT CHANGES

THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY:

INSPECTOR(S) SIGNATURE _____ DATE _____
 CHECKED BY: PROJECT ENGINEER/SUPERVISOR SIGNATURE _____ DATE _____

AT THE TIME OF THE FINAL, THIS COMPLETED AS-BUILT BRIDGE DATA SHEET MUST BE SUBMITTED TO THE BRIDGE OFFICE - ATTN: REGIONAL CONSTRUCTION ENGINEER (MS610).

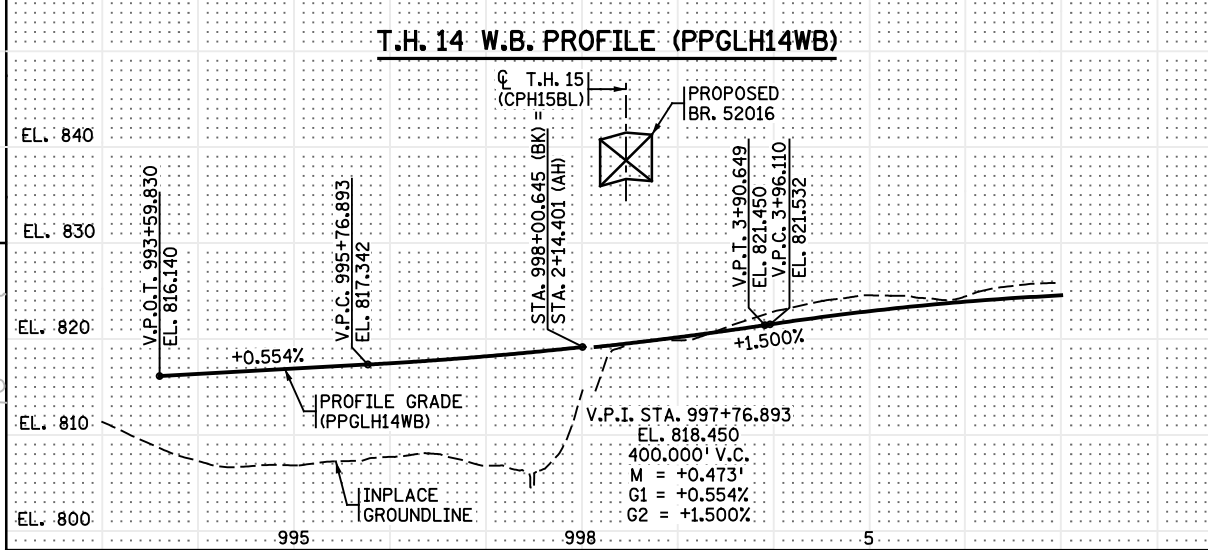
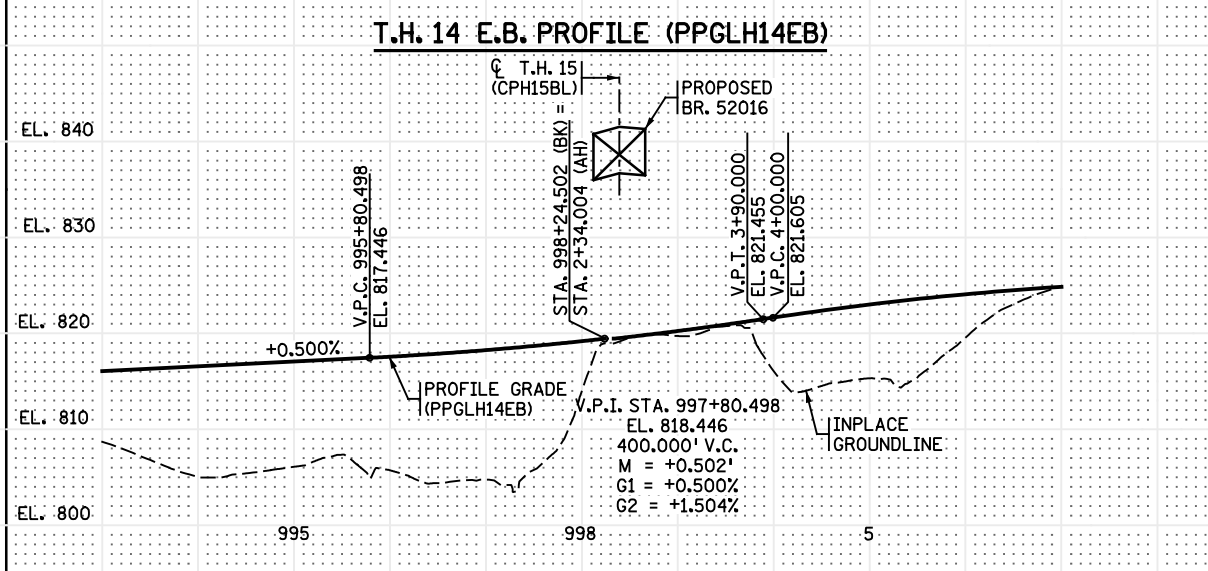
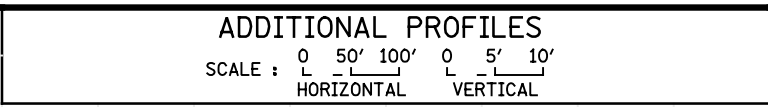
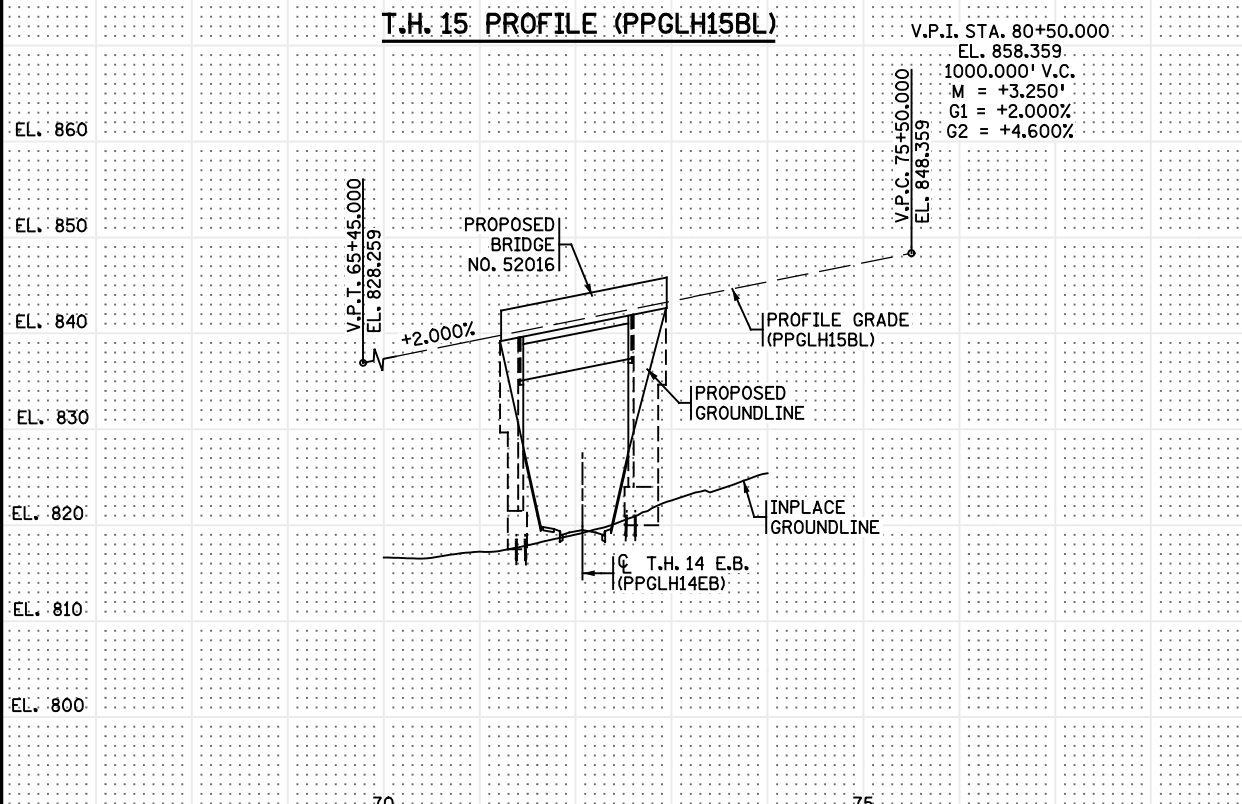
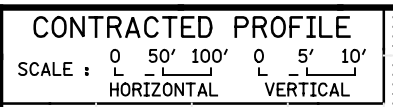
REVISION: 10-28-2008
 APPROVED: SEPTEMBER 26, 2003

 STATE BRIDGE ENGINEER

AS-BUILT DETAILS
 (AS NEEDED)

TITLE: AS-BUILT PLAN	DES:	DR:	APPROVED: _____ BRIDGE NO. 52016
	CHK:	CHK:	
SHEET NO. 38 OF 40 SHEETS			FIG. 5-397.900

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LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

- SPECIAL FEATURES: WATERFALLS, DAMS, FLOODS, ICE, DEBRIS, SLIDING BANKS, RECREATIONAL BOATING.
- OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM (PARTICULARLY STRUCTURES WHICH CARRY HIGH WATER WITHOUT OVERFLOW OF ROADWAY): GIVEN LOCATION, TYPE, LENGTH, HEIGHT ABOVE HIGH WATER, CROSS-SECTIONAL AREA ETC.
- APPARENT HIGHWATER ELEVATION OBTAINED FROM:
- OTHER DATA: APPROX. VELOCITY OF WATER AT TIME OF SURVEY.

HYDRAULIC ENGINEERS RECOMMENDATION
 DATE: XX-XX-XX

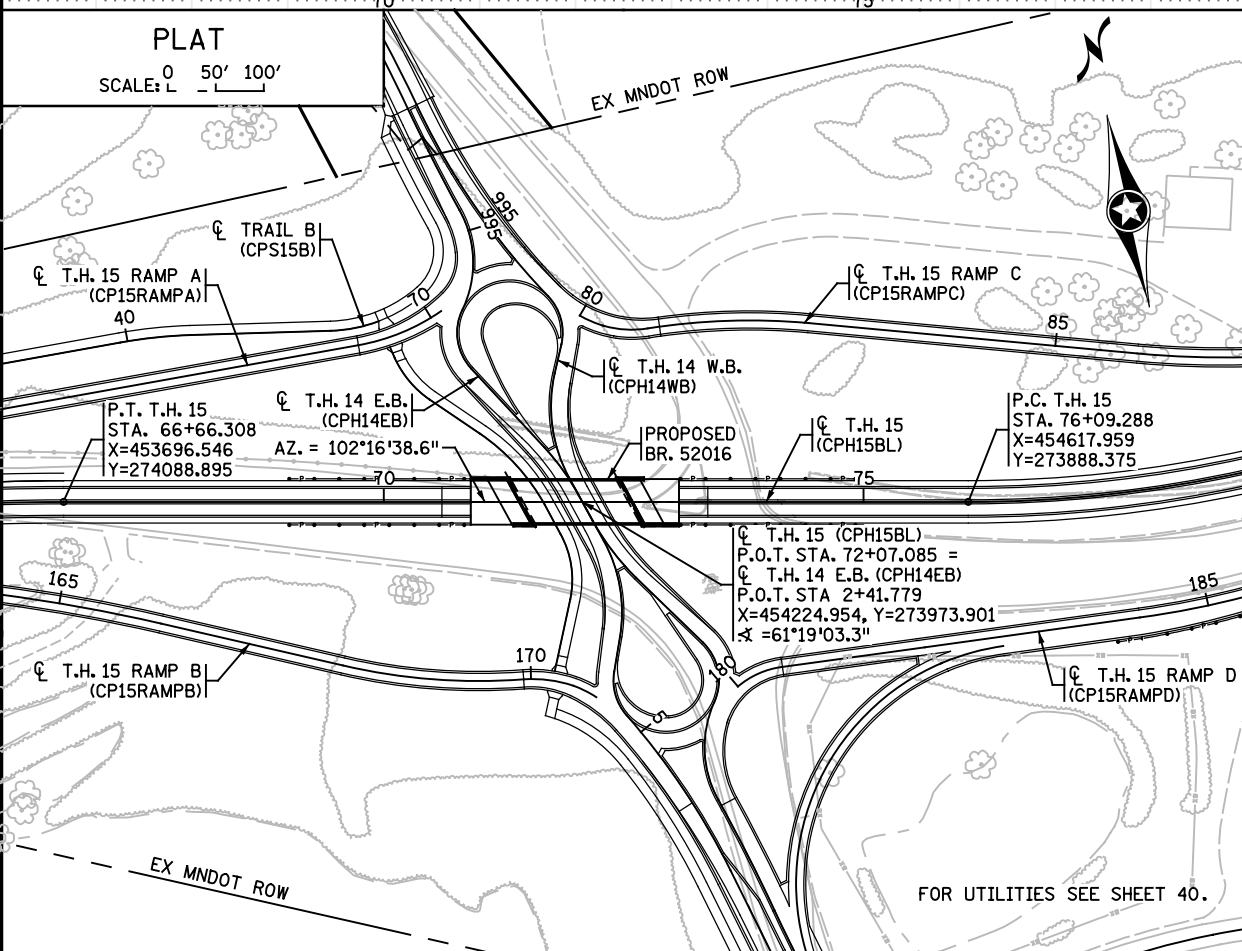
STREAM OR DITCH DESIGNATION: XXX
 DRAINAGE AREA: XXX SQ. MI.
 MAX. FLOOD ON RECORD: XXX C.F.S. (XX-XX-XX)
 MAXIMUM OBSERVED HIGHWATER ELEVATION: XXX.X FT.
 DESIGN FLOOD (XX YR. FREQ.): XXX C.F.S.
 HEADWATER ELEVATION: XXX.X FT.
 DESIGN MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
 TOTAL STAGE INCREASE: XX.X FT.
 LOW MEMBER AT OR ABOVE ELEVATION: XXX.X FT.
 WATERWAY AREA REQUIRED BELOW ELEV. XXX.X = XXX SQ. FT. AT RIGHT ANGLES TO CHANNEL
 BASIC FLOOD (100 YR. FREQ.): XXXX C.F.S.
 HEADWATER ELEVATION: XXX.X FT.
 TOTAL STAGE INCREASE: X.X FT.
 MEAN VELOCITY THROUGH STRUCTURE: X.X F.P.S.
 FLOWLINE ELEVATION: XXX.X FT. SKEW ANGLE: XX
 ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. XXX.X (500 OR 01 YR. FREQ.)

SCOUR CONFIRMATION RECOMMENDATION
 DATE: XX-XX-XX

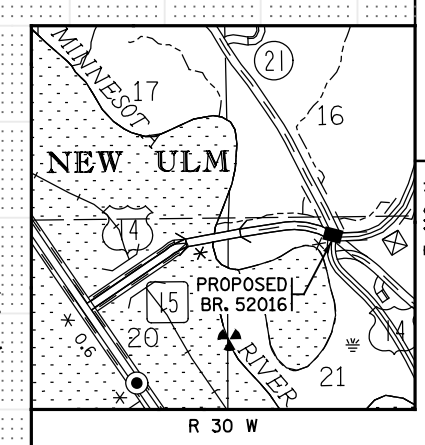
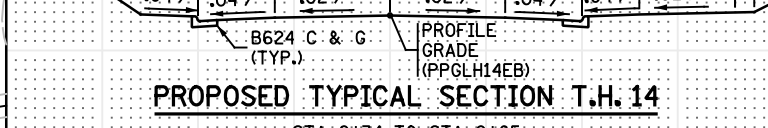
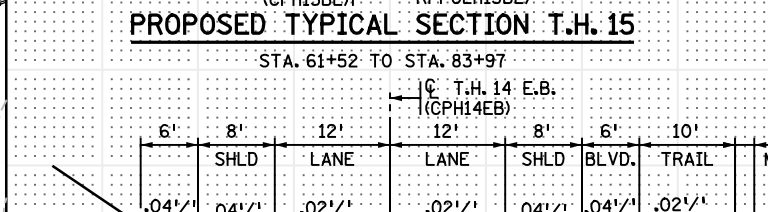
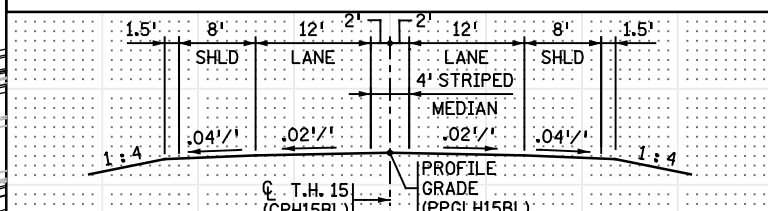
TOTAL SCOUR AT PIER EL. XXX.XX (500 OR 01 YR. FREQ.)
 SCOUR CODE: OBTAIN FROM HYDRAULIC ENGINEER

BRIDGE SURVEY SHEETS MADE FROM :
 FILES:
 JOB081.GPK, 080481.ALL.TIN, CD080481.AL100.DGN,
 CD080481.CP.DGN, CD080481.PR.DGN, CD080481.TPO.DGN

BENCH MARK ELEVATION 847.751 (NAVD 88)
 GSD STATION #94068, MNDOT NAME: 5202 C RESET
 X=454924.270, Y=273986.045 NICOLLET COUNTY COORDS. (1996 ADJ.)



TYPICAL SECTIONS & PERTINENT DATA
 SCALE: 0 5' 10'



MINNESOTA
 DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY
 T.H. 15 OVER T.H. 14
 1.4 MILES NORTHEAST OF
 SOUTHWEST JCT. T.H. 14 AND T.H. 15

SEC. 21 TWP. 110 N. R. 30 W.
 COURTLAND TWP. NICOLLET COUNTY, MN

NO.	DATE	REVISION DESCRIPTION	DR.	CHK.	APP'D.

HR

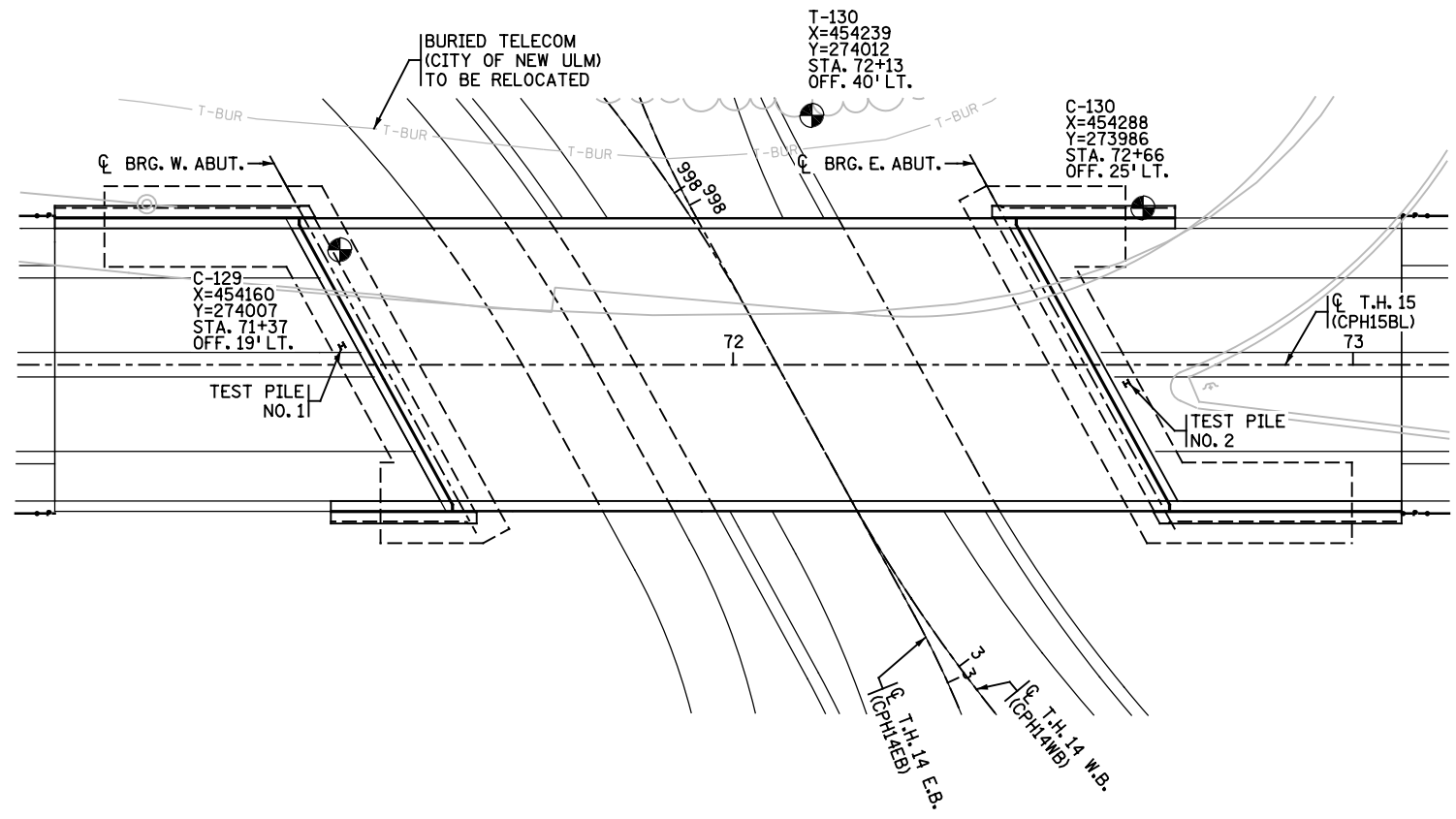
TITLE: **BRIDGE SURVEY**

DES: DJR DR: DJR APPROVED: [Signature]
 CHK: DRS CHK: DRS

STATE PROJECT NO. 0804-81
 SHEET NO. 39 OF 40 SHEETS

BRIDGE NO. 52016

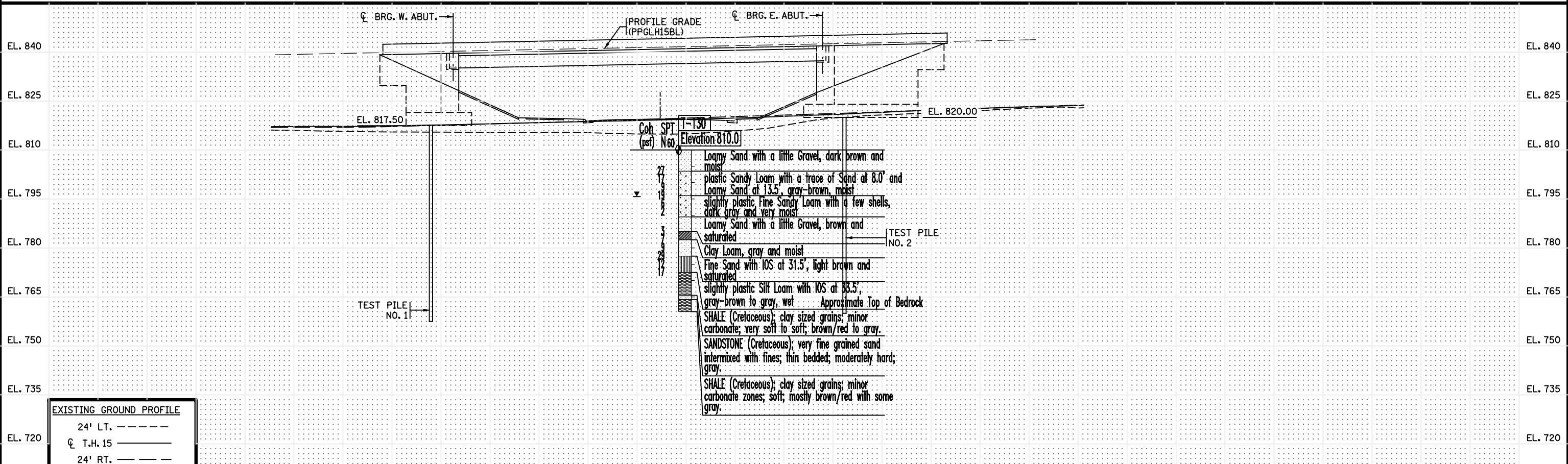
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NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

CONE PENETROMETER TEST (CPT) SOUNDING LOCATIONS ARE NOTED IN THE PLAN VIEW. CPT SOUNDING INFORMATION IS NOT SHOWN IN THE BRIDGE PROFILE DUE TO THE AMOUNT OF DATA ASSOCIATED WITH THIS INVESTIGATION TECHNIQUE. THE COMPLETE SOUNDING LOGS MAY BE FOUND ON THE MNDOT WEBSITE AT: <http://www.dot.state.mn.us/geotechnical/foundations/borings/borings.asp> OR ARE AVAILABLE IN PRINT ON REQUEST. THESE LOGS ARE CONSIDERED A PORTION OF THE CONTRACT DOCUMENTS.



EXISTING GROUND PROFILE	
24' LT.	-----
☉ T.H. 15	-----
24' RT.	-----

NO.	DATE	REVISION		
		DESCRIPTION	DR.	CHK.

TITLE: **BORINGS**

DES: DJR	DR: DJR	APPROVED:
CHK: DRS	CHK: DRS	
STATE PROJECT NO. 0804-52016		
SHEET NO. 40 OF 40 SHEETS		

BRIDGE NO. **52016**

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