

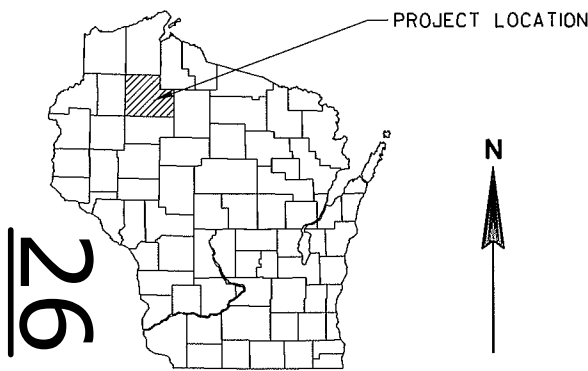
NWL

PROJECT ID: 8451-00-70
WITH: N/A

COUNTY: SAWYER

MAR 2014		
ORDER OF SHEETS		
Section No. 1	Title	
Section No. 2	Typical Sections and Details	
Section No. 3	Estimate of Quantities	
Section No. 3	Miscellaneous Quantities	
Section No. 4	Right of Way Plat	
Section No. 5	Plan and Profile	
Section No. 6	Standard Detail Drawings	
Section No. 7	Sign Plates	
Section No. 8	Structure Plans	
Section No. 9	Computer Earthwork Data	
Section No. 9	Cross Sections	

TOTAL SHEETS = 92



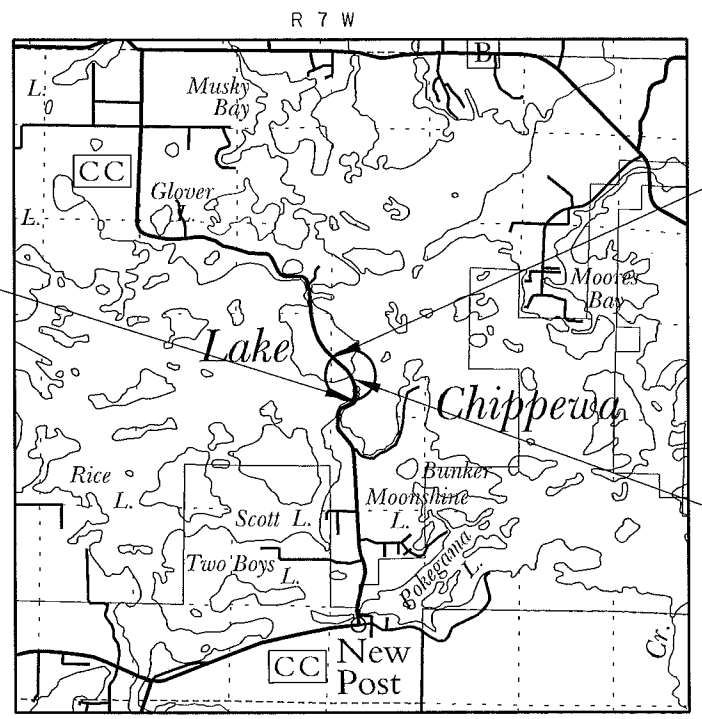
DESIGN DESIGNATION		
A.A.D.T. 2014	=	570
A.A.D.T. 2034	=	765
D.H.V.	=	128
D.D.	=	60/40
T.	=	4%
DESIGN SPEED	=	30 MPH
ESALS	=	51,100

CONVENTIONAL SYMBOLS

COUNTY LINE		COMBUSTIBLE FLUIDS	
CORPORATE LIMITS		UNDERGROUND UTILITIES	
PROPERTY LINE		GAS	
LOT LINE		ELECTRIC	
LIMITED EASEMENT		TELEPHONE OR TELEGRAPH	
EARTHWORK BALANCE POINT		TV/CABLE	
EXISTING RIGHT OF WAY		SERVICE PEDESTAL	
PROPOSED OR NEW R/W LINE		POWER POLE	
SURVEY LINE		TELEPHONE POLE	
SLOPE INTERCEPT		RAILROAD	
ORIGINAL GROUND		SANITARY SEWER	
MARSH OR ROCK PROFILE (To be noted as such)		STORM SEWER	
MARSH AREA		WATER	
WOODED OR SHRUB AREA		EXISTING CULVERT	
		PROPOSED CULVERT (Box or Pipe)	
		CULVERT (Profile View)	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
CTH B - CTH H
(CHIPPEWA FLOWAGE BRIDGE B-57-0082)
CTH CC
SAWYER COUNTY

STATE PROJECT NUMBER
8451-00-70



BEGIN PROJECT
STA 7+00.00
Y = 407474.682
X = 692870.156

END PROJECT
STA 13+00.00

STRUCTURE B-57-0082
STA 10+00.00

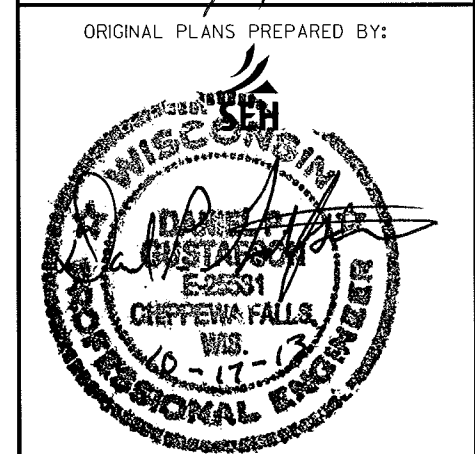
LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.114 MI.

Coordinates on this plan are referenced to the Wisconsin County Coordinate System (WCCS), Sawyer County.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8451-00-70	WISC 2014082	1

ACCEPTED FOR
COUNTY of SAWYER
10/23/13
DATE:



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PREPARED BY
Surveyor: SEH
Designer: SEH
Management Consultant: KJOHNSON ENGINEERS
C.O. Examiner:

APPROVED FOR DISTRICT OFFICE
DATE: 10/31/13
(Management Consultant Signature)

E

STANDARD ABBREVIATIONS

ABU	ABUTMENT
AC	ACRE
AGG	AGGREGATE
AECPRC	APRON ENDWALL FOR CULVERT
PIPE	REINFORCED CONCRETE
ASPH	ASPHALTIC
AVG	AVERAGE
ADT	AVERAGE DAILY TRAFFIC
BF	BACK FACE
BM	BENCH MARK
BR	BRIDGE
CE	COMMERCIAL ENTRANCE
CL OR C/L OR ☉	CENTER LINE
	CENTRAL ANGLE OR DELTA
CONC	CONCRETE
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE
	HORIZONTAL ELLIPTICAL
CR	CREEK
CY	CUBIC YARD
C&G	CURB AND GUTTER
D	DEGREE OF CURVED
HV	DESIGN HOUR VOLUME
DISCH	DISCHARGE
DG	DITCH GRADE
DWY	DRIVEWAY
XEA	ST GRID COORDINATE
EAT	STEEL PLATE BEAM GUARD
	ENERGY ABSORBING TERMINAL
EOR	END POINT OF RADIUS
EL	ELEVATION
ENT	ENTRANCE
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
EXIST	EXISTING
FC	FACE OF CURB
FF	FACE TO FACE
FERT	FERTILIZE
FE	FIELD ENTRANCE
FL	FLOW LINE
FO	FIBER OPTIC
CWT	HUNDREDWEIGHT
HYD	HYDRANT
ID	INSIDE DIAMETER
INV	INVERT
IP	IRON PIPE ON PIN
LHF	LEFT-HAND FORWARD
L	LENGTH OF CURVE
LF	LINEAR FOOT
LC	LONG CHORD OF CURVE
LS	LUMP SUM
MH	MANHOLE
MOR	MID POINT OF RADIUS
NC	NORMAL CROWN
NO	NUMBER
OBLIT	OBLITERATE
PAVT	PAVEMENT
PE	PRIVATE ENTRANCE
PVRC	POINT OF VERTICAL REVERSE CURVE
QOR	QUARTER POINT OF RADIUS
R	RADIUS
REQ'D	REQUIRED
RES	RESIDENCE OR RESIDENTIA
LRHF	RIGHT-HAND FORWARD
R/W	RIGHT-OF-WAY
R	RIVER
RDWY	ROADWAY
R/L OR ☉	REFERENCE LINE
SALV	SALVAGED
SAN	SANITARY SEWER
SF	SQUARE FEET
SY	SQUARE YARD
SDD	STANDARD DETAIL DRAWINGS
STA	STATION
SS	STORM SEWER
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
SE	SUPERELEVATION RATE
TC	TOP OF CURB
T OR TN	TOWN
T	TRUCKS (PERCENT OF)
TYP	TYPICAL
VAR	VARIABLE
VC	VERTICAL CURVE
YNORTH	GRID COORDINATE
YD	YARD

GENERAL NOTES

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE APPROXIMATE USGS DATUM.

WHEN THE QUANTITY OF BASE AGGREGATE OR ASPHALTIC SURFACE IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

THE EXACT LOCATION OF THE EROSION CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, ARE TO BE 4-INCH TOPSOILED, FERTILIZED, AND SEEDED AND MULCHED. FINISHED SODDED/AND/SEEDED SURFACE SHALL BE 1-INCH BELOW THE TOP OF ADJACENT CONCRETE.

THE LOCATION OF ALL DRIVEWAYS WILL BE DETERMINED BY THE ENGINEER.

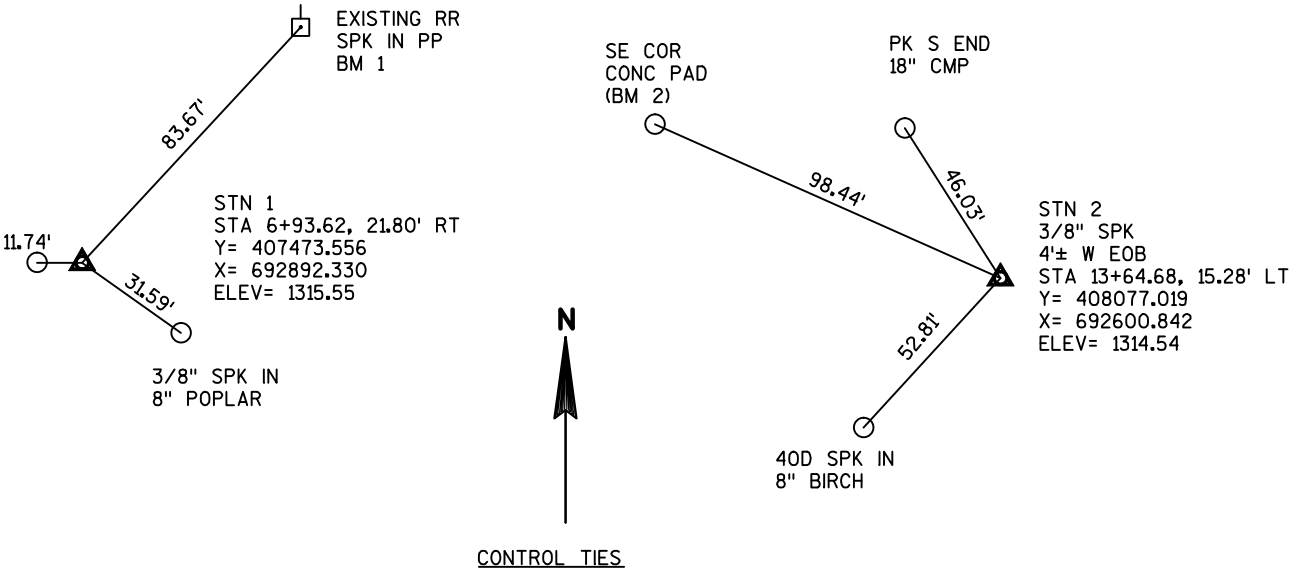
A VERTICAL SAWCUT SHALL BE MADE THROUGH EXISTING DRIVEWAYS AND PAVEMENTS AT REMOVAL LIMITS.

SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND IN PLACE PRIOR TO BRIDGE REMOVAL.

WISDOT MONUMENTS WILL BE SUPPLIED BY THE STATE AND INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

BEARINGS SHOWN ON THE PLAN ARE REFERENCED TO THE EXISTING ROADWAY CENTERLINE AND ARE ASSUMED.

3.5-INCH ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 1.75 INCH UPPER LAYER AND A 1.75 INCH LOWER LAYER. 12.5-MM NOMINAL SIZE AGGREGATE REQUIRED.



UTILITY CONTACTS

JUMP RIVER ELECTRIC
PO BOX 689
HAYWARD, WI 54843
TELEPHONE: 715.634.4575
ATTENTION: GUY LONG
EMAIL: GLONG@JREC.NET

CENTURYLINK
400 W 9TH ST N, SUITE #5
LADYSMITH, WI 54848
TELEPHONE: 715.532.0023
ATTENTION: BRIAN HUHN
EMAIL: BRIAN.HUHN@CENTURYLINK.COM



TOLL FREE (800) 242-8511
HEARING IMPAIRED TDD (800) 542-2289
www.DiggersHotline.com

** NOT A MEMBER OF DIGGERS HOTLINE

DESIGN CONTACT

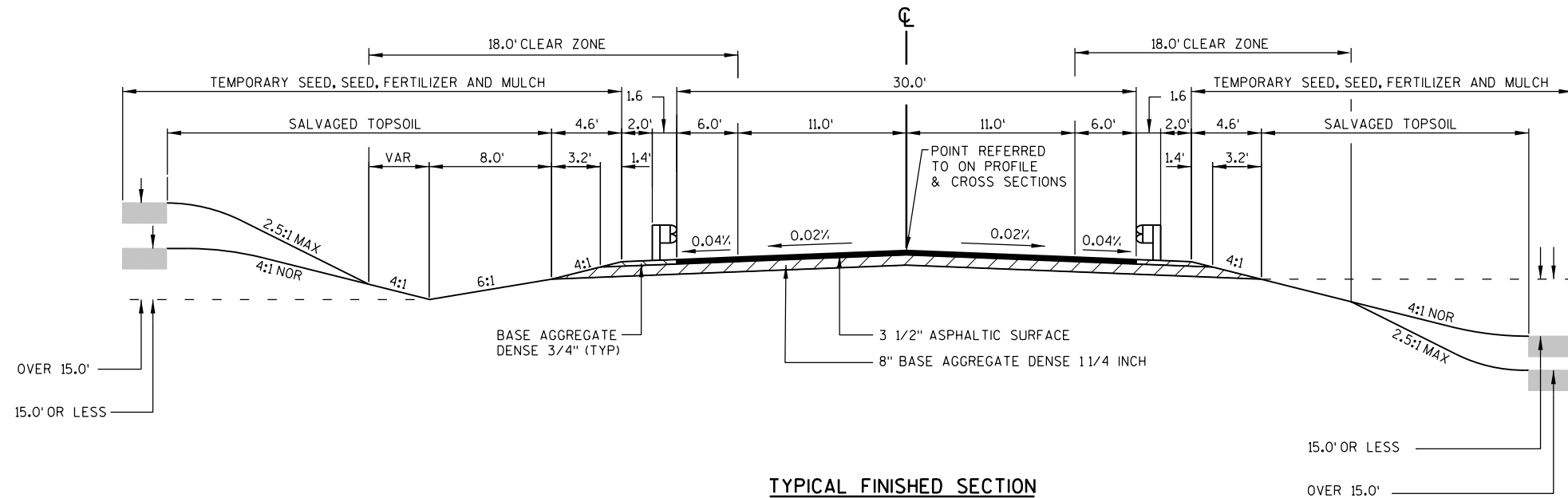
SEH INC
421 FRENETTE DRIVE
CHIPPEWA FALLS, WI 54729
TELEPHONE: 715.720.6267
ATTENTION: DAN GUSTAFSON
EMAIL: DGUSTAFSON@SEHINC.COM

WDNR CONTACT

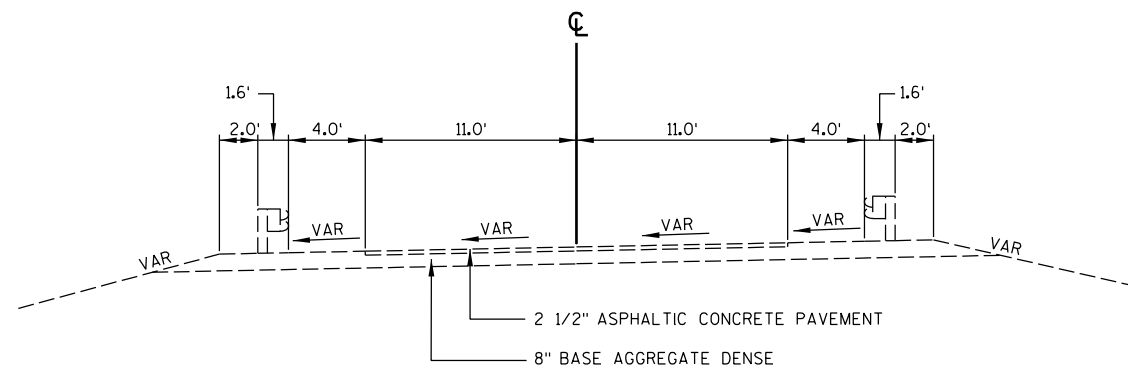
DEPT. OF NATURAL RESOURCES
810 WEST MAPLE STREET
SPOONER, WI 54801
TELEPHONE: 715.635.4228
ATTENTION: SHAWN HASELEU
EMAIL: SHAWN.HASELEU@WISCONSIN.GOV

MUNICIPALITY CONTACT

SAWYER COUNTY HIGHWAY DEPARTMENT
14688 WEST CTH B
HAYWARD, WI 54843
TELEPHONE: 715.634.2691
ATTENTION: GARY GEDART
EMAIL: HIGHWAY@SAWYERCOUNTYGOV.ORG



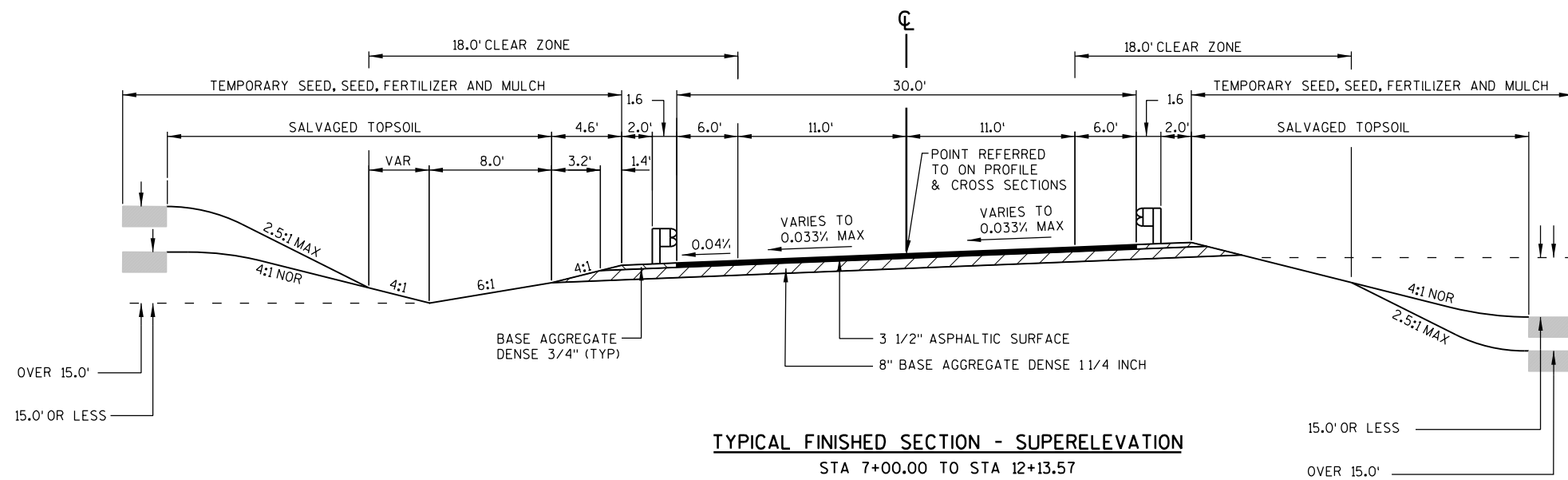
TYPICAL FINISHED SECTION
STA 12+13.57 TO STA 13+00.00



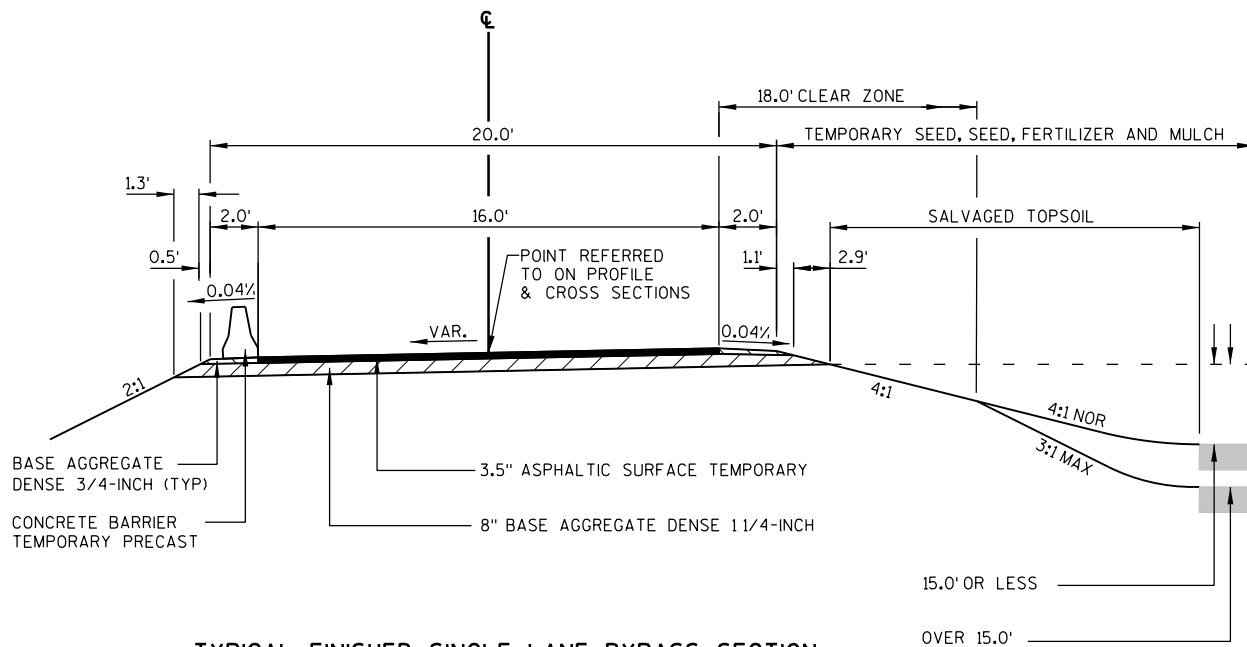
TYPICAL EXISTING SECTION
STA 7+00.00 TO STA 13+00.00

MAINLINE SUPERELEVATION TABLE					
STATION	TYPE	LEFT	RIGHT	SHLDRLEFT	SHLDRRIGHT
3+46.45	Begin FS	-0.032901	0.032901	-0.040000	0.032901
11+17.41	End FS	-0.032901	0.032901	-0.040000	0.032901
11+40.86	Rev. Crown	-0.020000	0.020000	-0.040000	0.020000
11+77.22	Zero Super	-0.020000	0.000000	-0.040000	0.000000
12+13.57	Begin NC	-0.020000	-0.020000	-0.040000	-0.020000
12+49.92	Sh. Begin NC	-0.020000	-0.020000	-0.040000	-0.040000

NORMAL CROWN SUPERELEVATION RATE = 0.020
SHOULDER NORMAL CROWN SUPERELEVATION RATE = 0.04



TYPICAL FINISHED SECTION - SUPERELEVATION
STA 7+00.00 TO STA 12+13.57



TYPICAL FINISHED SINGLE LANE BYPASS SECTION

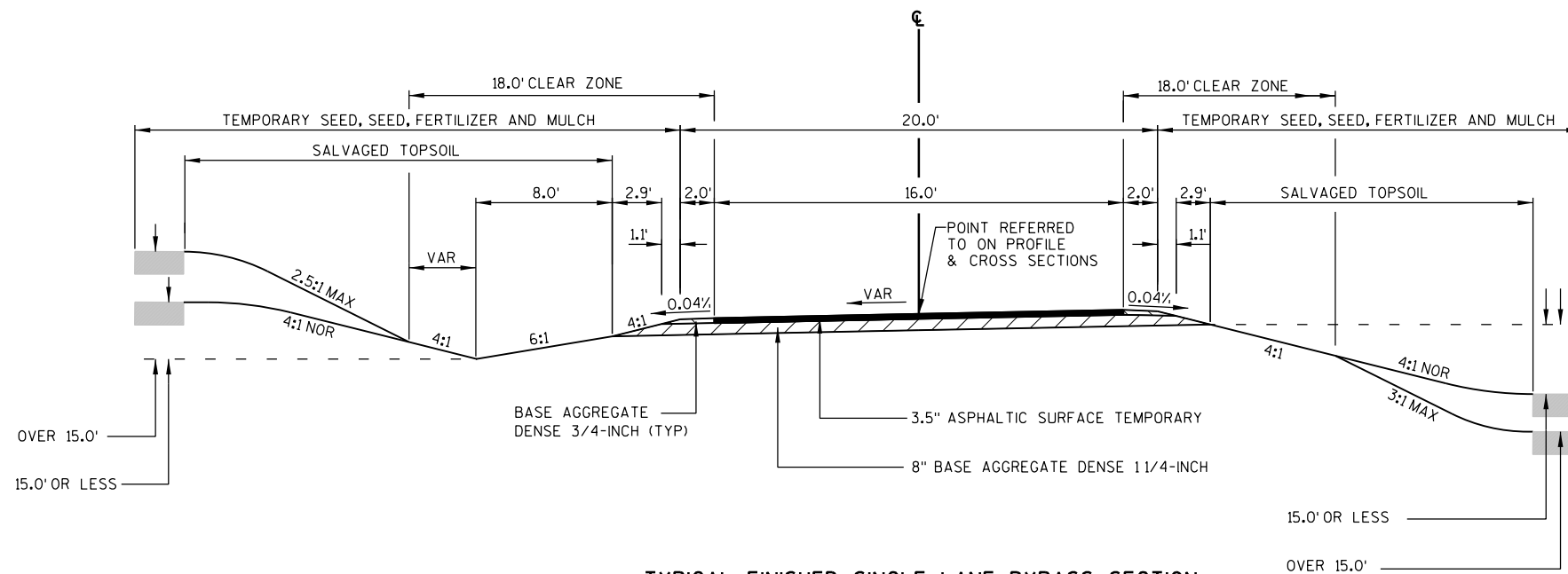
STA 36+00.00 TO STA 38+00.00
STA 41+25.00 TO STA 42+00.00

BYPASS SUPERELEVATION TABLE

STATION	TYPE	LEFT	RIGHT	SHLDRLEFT	SHLDRRIGHT
33+44.46	Rev. Crown	-0.020000	0.020000	-0.040000	0.020000
33+55.47	Begin FS	-0.026401	0.026401	-0.040000	0.026401
35+59.06	End FS	-0.026401	0.026401	-0.040000	0.026401
35+59.26	Begin FS	-0.044095	0.044095	-0.044095	0.044095
37+08.11	End FS	-0.044095	0.044095	-0.044095	0.044095
37+15.09	Sh. Trans.	-0.040000	0.040000	-0.040000	0.040000
37+49.19	Rev. Crown	-0.020000	0.020000	-0.040000	0.020000
37+85.50	Zero Super	-0.020000	0.000000	-0.040000	0.000000
38+17.40	Begin NC	-0.020000	-0.020000	-0.040000	-0.020000
38+51.50	Sh. Begin NC	-0.020000	-0.020000	-0.040000	-0.040000
40+20.14	Sh. End NC	-0.020000	-0.020000	-0.040000	-0.040000
40+54.64	End NC	-0.020000	-0.020000	-0.020000	-0.040000
40+89.13	Zero Super	0.000000	-0.020000	0.000000	-0.040000
41+23.63	Rev. Crown	0.020000	-0.020000	0.020000	-0.040000
41+46.25	Begin FS	0.033114	-0.033114	0.033114	-0.040000
42+38.63	End FS	0.033114	-0.033114	0.033114	-0.040000
42+76.71	Begin FS	-0.033114	0.033114	-0.040000	0.033114
44+53.94	End FS	-0.033114	0.033114	-0.040000	0.033114
44+76.56	Rev. Crown	-0.020000	0.020000	-0.040000	0.020000
45+11.06	Zero Super	-0.020000	0.000000	-0.040000	0.000000
45+45.55	Begin NC	-0.020000	-0.020000	-0.040000	-0.020000
45+80.05	Sh. Begin NC	-0.020000	-0.020000	-0.040000	-0.040000

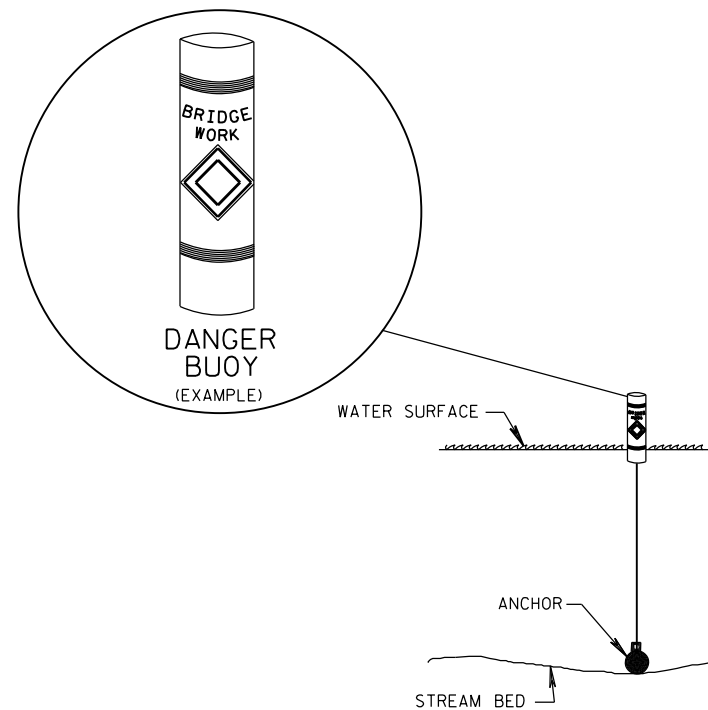
NORMAL CROWN SUPERELEVATION RATE = 0.020

SHOULDER NORMAL CROWN SUPERELEVATION RATE = 0.04



TYPICAL FINISHED SINGLE LANE BYPASS SECTION

STA 42+00.00 TO STA 44+00.00



DANGER BUOY PLACEMENT DETAIL
USE AS DIRECTED BY COAST GUARD OR DNR PERMIT

DATE 09JAN14		E S T I M A T E O F Q U A N T I T I E S			
LINE					8451-00-70
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	CLEARING	STA	5.000	5.000
0020	201.0205	GRUBBING	STA	5.000	5.000
0030	203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM (STATION) 01. 10+03	LS	1.000	1.000
0040	205.0100	EXCAVATION COMMON	CY	2,125.000	2,125.000
0050	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-57-0082	LS	1.000	1.000
0060	206.5000	COFFERDAMS (STRUCTURE) 01. B-57-0082	LS	1.000	1.000
0070	208.0100	BORROW	CY	1,685.000	1,685.000
0080	210.0100	BACKFILL STRUCTURE	CY	259.000	259.000
0090	213.0100	FINISHING ROADWAY (PROJECT) 01. 8451-00-70	EACH	1.000	1.000
0100	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	209.000	209.000
0110	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	1,710.000	1,710.000
0120	455.0605	TACK COAT	GAL	64.000	64.000
0130	465.0105	ASPHALTIC SURFACE	TON	326.000	326.000
0140	465.0125	ASPHALTIC SURFACE TEMPORARY	TON	171.000	171.000
0150	502.0100	CONCRETE MASONRY BRIDGES	CY	770.000	770.000
0160	502.1100	CONCRETE MASONRY SEAL	CY	146.000	146.000
0170	502.3200	PROTECTIVE SURFACE TREATMENT	SY	815.000	815.000
0180	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	11,990.000	11,990.000
0190	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	101,610.000	101,610.000
0200	513.4052	RAILING TUBULAR TYPE F-4 MODIFIED (STRUCTURE) 01. B-57-0082	LS	1.000	1.000
0210	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	21.000	21.000
0220	526.0100	TEMPORARY STRUCTURE (STATION) 01. 40+00	LS	1.000	1.000
0230	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	540.000	540.000
0240	550.1140	PILING STEEL HP 14-INCH X 73 LB	LF	900.000	900.000
0250	603.8000	CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	LF	275.000	275.000
0260	603.8125	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	LF	275.000	275.000
0270	606.0300	RIPRAP HEAVY	CY	1,365.000	1,365.000
0280	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	60.000	60.000
0290	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	116.000	116.000
0300	614.0010	BARRIER SYSTEM GRADING SHAPING FINISHING	EACH	1.000	1.000
0310	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	83.000	83.000
0320	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	388.000	388.000
0330	614.0370	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	EACH	4.000	4.000
0340	619.1000	MOBILIZATION	EACH	1.000	1.000
0350	625.0100	TOPSOIL	SY	3,501.000	3,501.000
0360	627.0200	MULCHING	SY	3,795.000	3,795.000
0370	628.1504	SILT FENCE	LF	220.000	220.000
0380	628.1520	SILT FENCE MAINTENANCE	LF	440.000	440.000
0390	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	1.000	1.000
0400	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	1.000	1.000
0410	628.2006	EROSION MAT URBAN CLASS I TYPE A	SY	2,640.000	2,640.000
0420	628.6005	TURBIDITY BARRIERS	SY	1,600.000	1,600.000
0430	629.0205	FERTILIZER TYPE A	CWT	3.000	3.000
0440	630.0120	SEEDING MIXTURE NO. 20	LB	102.000	102.000
0450	630.0200	SEEDING TEMPORARY	LB	102.000	102.000
0460	633.1100	DELINEATORS TEMPORARY	EACH	24.000	24.000

DATE 09JAN14		E S T I M A T E O F Q U A N T I T I E S			
LINE				8451-00-70	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0470	634.0612	POSTS WOOD 4X6-INCH X 12-FT	EACH	4.000	4.000
0480	637.2230	SIGNS TYPE II REFLECTIVE F	SF	12.000	12.000
0490	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0500	643.0100	TRAFFIC CONTROL (PROJECT) 01. 8451-00-70	EACH	1.000	1.000
0510	643.0300	TRAFFIC CONTROL DRUMS	DAY	3,068.000	3,068.000
0520	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	2,360.000	2,360.000
0530	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	944.000	944.000
0540	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	1,888.000	1,888.000
0550	643.0900	TRAFFIC CONTROL SIGNS	DAY	3,776.000	3,776.000
0560	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	1,605.000	1,605.000
0570	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	1,712.000	1,712.000
0580	649.0100	TEMPORARY PAVEMENT MARKING 4-INCH	LF	1,900.000	1,900.000
0590	649.1100	TEMPORARY PAVEMENT MARKING STOP LINE 18-INCH	LF	32.000	32.000
0600	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	902.000	902.000
0610	650.5000	CONSTRUCTION STAKING BASE	LF	902.000	902.000
0620	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-57-0082	LS	1.000	1.000
0630	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 02. TEMPORARY BYPASS	LS	1.000	1.000
0640	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 8451-00-70	LS	1.000	1.000
0650	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	902.000	902.000
0660	661.0100	TEMPORARY TRAFFIC SIGNALS FOR BRIDGES (STRUCTURE) 01. TEMPORARY BYPASS	LS	1.000	1.000
0670	690.0150	SAWING ASPHALT	LF	310.000	310.000
0680	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	1,200.000	1,200.000
0690	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR	HRS	300.000	300.000
0700	SPV.0105	SPECIAL 01. REMOVE AND REINSTALL HISTORICAL MARKER	LS	1.000	1.000

3

CLEARING/GRUBBING				
STATION - STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA	
CTH CC				
7+00 - 9+00	LT & RT	2	2	
11+00 - 12+00	LT & RT	1	1	
TEMPORAY BYPASS				
41+00 - 43+00	LT & RT	2	2	
TOTALS		5	5	

BASE AGGREGATE DENSE				
STATION - STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON	REMARKS
CTH CC				
7+00 - 9+13.75	~	-	360	MAINLINE
7+00 - 9+13.75	LT & RT	54	184	SHOULDERS
10+86.25 - 13+00	~	-	360	MAINLINE
10+86.25 - 13+00	LT & RT	54	184	SHOULDERS
15+03.62 - 16+19.06	RT	37	-	BEAM GUARD
TEMPORAY BYPASS				
36+00 - 38+00	~	-	159	MAINLINE
36+00 - 38+00	LT & RT	26	96	SHOULDERS
41+25 - 42+00	~	-	60	MAINLINE
41+25 - 42+00	LT & RT	10	36	SHOULDERS
42+00 - 44+00	~	-	158	MAINLINE
42+00 - 44+00	LT & RT	28	113	SHOULDERS
TOTALS		209	1710	

STEEL PLATE BEAM GUARD				
STATION - STATION*	LOCATION	614.0305 CLASS A LF	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0370 ENERGY ABSORBING TERMINAL EACH
CTH CC				
8+31.89 - 8+95.33	LT	62.5	-	-
8+21.97 - 8+95.87	RT	75.0	-	-
11+04.67 - 11+67.65	LT	62.5	-	-
11+04.13 - 12+91.13	RT	187.5	-	-
8+95.33 - 9+16.29	LT	-	20.6	-
8+95.87 - 9+16.21	RT	-	20.6	-
10+83.71 - 11+04.67	LT	-	20.6	-
10+88.79 - 11+04.13	RT	-	20.6	-
7+81.14 - 8+31.89	RT	-	-	1
7+72.70 - 8+21.97	RT	-	-	1
11+67.65 - 12+17.65	LT	-	-	1
15+17.31 - 15+67.00	RT	-	-	1
TOTALS		388	83	4
* STATION RANGE IS APPROXIMATE. CONNECT TO EXISTING BEAMGUARD.				

3

<u>EXCAVATION</u>						
STATION - STATION	LOCATION	205.0100 COMMON CY	AIR FILL CY	EXPANDED FILL CY	208.0100 BORROW CY	REMARKS
CTH CC						
7+00 - 9+13.75		811	538	700	-	INCLUDES REMOVAL OF TEMPORARY BYPASS
10+86.25 - 13+00		1249	575	748	-	INCLUDES REMOVAL OF TEMPORARY BYPASS
TEMPORAY BYPASS						
35+00 - 38+00		40	515	670	630	
41+25 - 45+00		25	931	1080	1055	
TOTALS		2125	2459	3198	1685	
NOTE: EXPANSION FACTOR = 1.3						

TEMPORARY STRUCTURE (STA 40+00)	
PROJECT	526.0100 EA
CTH CC	
38+00 - 41+25	1
TOTAL	1

BARRIER SYSTEM GRADING SHAPING FINISHING		
STATION	LOCATION	614.0010 EACH
CTH CC		
15+03.62 - 16+19.06	RT	1
TOTAL		1

FINISHING ROADWAY (8451-00-70)	
PROJECT	213.0100 EA
CTH CC	
7+00 - 13+00	1
TOTAL	1
ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE.	

ASPHALTIC PAVEMENT ITEMS				
STATION - STATION	LOCATION	465.0105 ASPHALTIC SURFACE TON	465.0125 ASPHALTIC SURFACE TEMPORARY TON	455.0605 TACK COAT GAL
CTH CC				
7+00 - 9+13.67	~	163	-	21
10+86.33 - 13+00	~	163	-	21
TEMPORAY BYPASS				
36+00 - 38+00	~	-	72	9
41+25 - 44+00	~	-	99	13
TOTALS		326	171	64

MOBILIZATION	
STATION - STATION	619.1000 EACH
CTH CC	
7+00 - 13+00	0.4
TOTAL	0.4

CONCRETE BARRIER			
STATION - STATION	LOCATION	603.8000 TEMPORARY PRECAST DELIVERED LF	603.8125 TEMPORARY PRECAST INSTALLED LF
TEMPORAY BYPASS			
36+00 - 38+00	LT	200	200
41+25 - 42+00	LT	75	75
TOTALS		275	275

TOPSOIL & SEEDING						
STATION - STATION	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCHING SY	629.0205 FERTILIZER TYPE A CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB
CTH CC						
7+00 - 9+13.75	LT & RT	1398	1544	1	42	42
10+86.25 - 13+00.00	LT & RT	2103	2251	2	60	60
	TOTALS	3501	3795	3	102	102

3

EROSION CONTROL							
STATION - STATION	LOCATION	606.0300* RIPRAP HEAVY CY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2006 EROSION MAT URBAN CLASS I TYPE A SY	628.6005 TURBIDITY BARRIERS SY	645.0120* GEOTEXTILE FABRIC TYPE HR SY
CTH CC							
6+50 - 9+16	LT & RT	620	110	220	876	760	645
10+75 - 13+00	RT	650	110	220	1050	550	780
TEMPORAY BYPASS							
36+50 - 38+00.00	LT	-	-	-	294	190	-
41+25.00 - 43+50	LT	-	-	-	420	100	-
TOTALS		1270	220	440	2640	1600	1425
*QUANTITY SHOWN ELSEWHERE ON PLANS							

TRAFFIC CONTROL (8451-00-70)	
PROJECT	643.0100 EA
CTH CC	
7+00 - 13+00	1
TOTAL	1

TRAFFIC CONTROL BYPASS							
STATION - STATION	LOCATION	633.1100 DELINEATORS TEMPORARY EACH	643.0300 TRAFFIC CONTROL DRUMS DAYS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAYS	643.0900 TRAFFIC CONTROL SIGNS DAYS
TEMPORAY BYPASS 36+00 - 42+00		24	3068	2360	944	1888	3776
	TOTALS	24	3068	2360	944	1888	3776

3

MOBILIZATION EROSION CONTROL				
STATION - STATION	LOCATION	628.1905 MOBILIZATION EROSION CONTROL EACH	628.1910 MOBILIZATION EROSION CONTROL EACH	
CTH CC		1	1	
TOTALS		1	1	

PAVEMENT MARKING					
STATION - STATION	LOCATION	646.0106 EPOXY 4-INCH LF	649.0100 TEMPORARY 4-INCH LF	649.1100 TEMPORARY STOP LINE 18-INCH LF	REMARKS
CTH CC					
7+00 - 9+13.67	~	428	-	-	DOUBLE YELLOW
7+00 - 9+13.67	LT & RT	428	-	-	WHITE EDGELINE
10+86.33 - 13+00	~	428	-	-	DOUBLE YELLOW
10+86.33 - 13+00	LT & RT	428	-	-	WHITE EDGELINE
TEMPORAY BYPASS					
36+00 - 38+00	~	-	400	-	DOUBLE YELLOW
36+00 - 38+00	LT & RT	-	400	-	WHITE EDGELINE
36+50	~	-	-	16	
41+25 - 44+00	~	-	550	-	DOUBLE YELLOW
41+25 - 44+00	LT & RT	-	550	-	WHITE EDGELINE
43+50	~	-	-	16	
TOTALS		1,712	1900	32	

TEMPORARY TRAFFIC SIGNALS FOR BRIDGES (TEMPORARY BYPASS)	
STATION	661.0100 LS
Temporary Bypass	
36+00 - 44+00	1
TOTAL	1

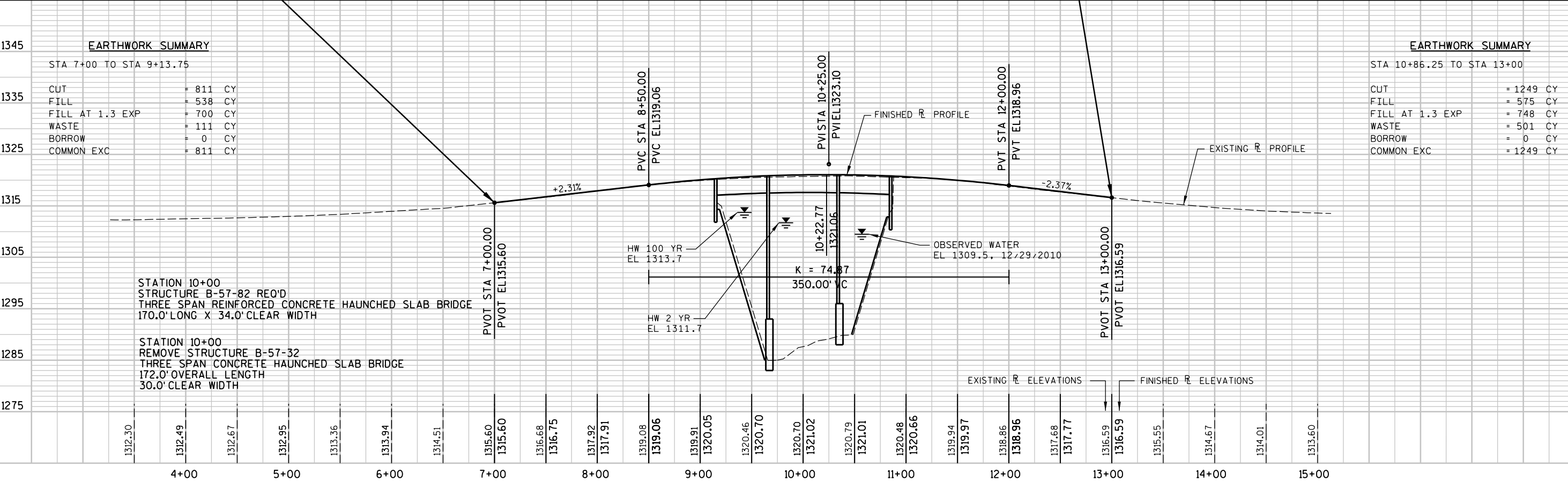
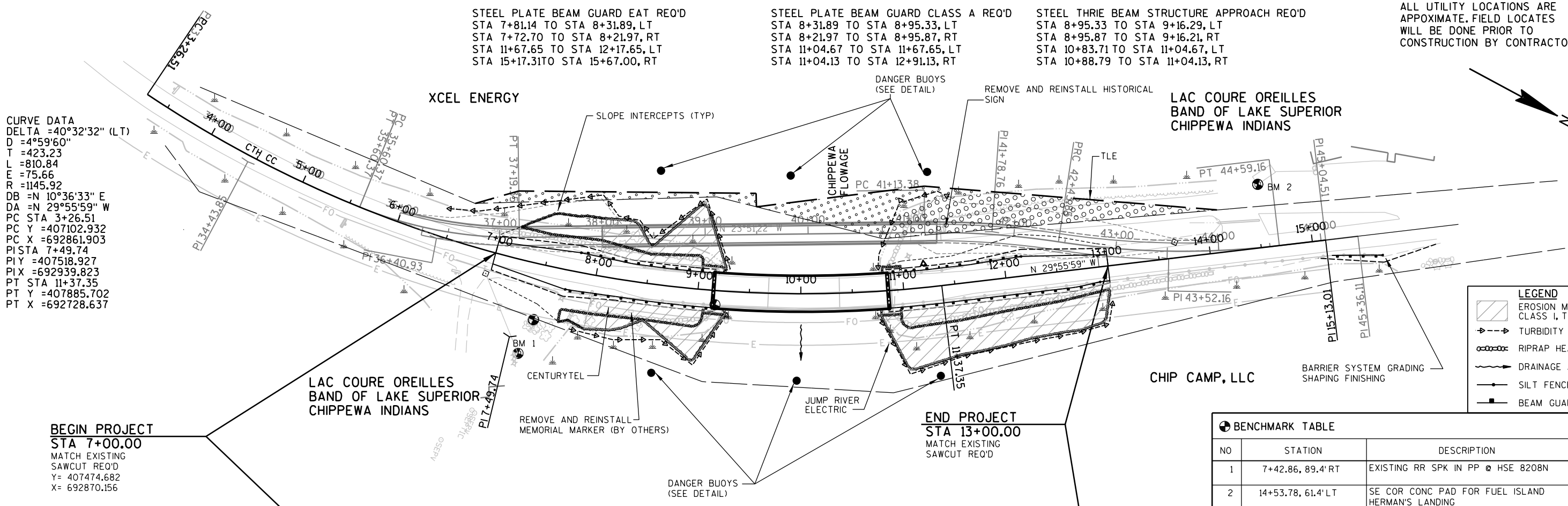
PERMANENT SIGNING						
SIGN GROUP CODE	SIGN CODE	MESSAGE	TYPE II SIZE	637.2230 SIGNS TYPE II REFLECTIVE F SF	634.0612 POSTS WOOD 4X6-INCH 12-FT EACH	REMARKS
1-1	W5-52L	CLEARANCE STRIPER	12" X 36"	3	1	INSTALL SIGN & POST
1-2	W5-52R	CLEARANCE STRIPER	12" X 36"	3	1	INSTALL SIGN & POST
1-3	W5-52R	CLEARANCE STRIPER	12" X 36"	3	1	INSTALL SIGN & POST
1-4	W5-52L	CLEARANCE STRIPER	12" X 36"	3	1	INSTALL SIGN & POST
TOTALS				12	4	

CONSTRUCTION STAKING						
TATION - STATION	650.4500 SUBGRADE LF	650.5000 BASE LF	*650.6500.01 STRUCTURE LAYOUT (B-57-82) LS	*650.6500.02 STRUCTURE LAYOUT (TEMPORARY BYPASS) LS	650.9910 SUPPLEMENTAL CONTROL LS	650.9920 SLOPE STAKES LF
CTH CC						
7+00 - 13+00	427	427	-	-	-	427
9+13.67 - 10+86.33	-	-	1	-	1	-
TEMPORARY BYPASS						
36+00 - 44+00	475	475	-	-	-	475
38+00 - 41+25	-	-	-	1	-	-
TOTALS	902	902	1	1	1	902
* CATEGORY 0020						

SAWING ASPHALT		
STATION	LOCATION	690.0150 LF
CTH CC		
7+00	LT & RT	34
13+00	LT & RT	34
TEMPORAY BYPASS		
36+00	LT	8
36+00 - 36+25	~	25
36+25	RT	8
36+25 - 37+00	RT	75
42+90 - 43+50	RT	60
43+50	RT	8
43+50 - 44+00	~	50
44+00	LT	8
TOTAL		310

FIELD OFFICE TYPE B	
PROJECT	642.5001 EA
CTH CC	
7+00 - 13+00	1
TOTAL	1
ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE.	

HISTORICAL MARKER		
STATION	LOCATION	SPV.0105.01 REMOVE AND REINSTALL HISTORICAL MARKER LS
CTH CC		
11+45	LT	1
TOTAL		1



CURVE DATA
DELTA =22°46'19" (LT)
D =14°19'26"
T =80.55
L =158.98
E =8.03
R =400.00
DB =N 1°05'03" W
DA =N 23°51'22" W
PC STA 35+60.37
PC Y =407335.586
PC X =692881.286
PISTA 36+40.93
PI Y =407416.125
PI X =692879.762
PT STA 37+19.35
PT Y =407489.795
PT X =692847.183
SE = 4.4

CURVE DATA
DELTA =11°41'36" (LT)
D =4°59'60"
T =117.34
L =233.87
E =5.99
R =1145.92
DB =N 10°36'33" E
DA =N 1°05'03" W
PC STA 33+26.51
PC Y =407102.932
PC X =692861.903
PISTA 34+43.85
PI Y =407218.267
PI X =692883.506
PT STA 35+60.37
PT Y =407335.586
PT X =692881.286
SE = 2.6

BASIS OF EXISTING RW	
CTH CC	R/W PROJECT 8777-02-00
	CSM NO. 5858
	DOC. NO. 191348

BEGIN BYPASS CONSTRUCTION
STA 35+50.00
MATCH EXISTING
SAWCUT REQ'D
Y= 407326.029
X= 692882.821

SCHEDULE OF LANDS AND INTERESTS REQUIRED								
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TOTAL ACRES	R/W NEW	ACRES REQUIRED EXISTING	TOTAL	AC. REM.	TLE
1	XCEL ENERGY	TLE	-	-	-	-	-	0.15
2	LAC COURE OREILLES BAND OF LAKE SUPERIOR CHIPPEWA INDIANS	TLE	-	-	-	-	-	0.16

SEC. 24 - T40N - R7W
TOWN OF HUNTER

CURVE DATA
DELTA =9°20'38" (RT)
D =7°09'43"
T =65.38
L =130.47
E =2.67
R =800.00
DB =N 23°51'22" W
DA =N 14°30'44" W
PC STA 41+13.38
PC Y =407850.160
PC X =692687.821
PISTA 41+78.76
PI Y =407909.952
PT STA 42+43.85
PT Y =407973.244
PT X =692644.997
SE = 3.3

CURVE DATA
DELTA =15°25'15" (LT)
D =7°09'43"
T =108.31
L =215.31
E =7.30
R =800.00
DB =N 14°30'44" W
DA =N 29°55'59" W
PC STA 42+43.85
PC Y =407973.244
PC X =692644.997
PISTA 43+52.16
PI Y =408078.100
PT STA 44+59.16
PT Y =408171.965
PT X =692563.809
SE = 3.3

LEGEND	
	EROSION MAT, CLASS I, TYPE A
	TURBIDITY BARRIERS
	RIPRAP HEAVY
	DRAINAGE ARROW
	SILT FENCE
	BEAM GUARD

BENCHMARK TABLE			
NO	STATION	DESCRIPTION	ELEV
1	7+42.86, 89.4'RT	EXISTING RR SPK IN PP @ HSE 8208N	1312.57
2	14+53.78, 61.4'LT	SE COR CONC PAD FOR FUEL ISLAND HERMAN'S LANDING	1312.37

ALL UTILITY LOCATIONS ARE APPROXIMATE. FIELD LOCATES WILL BE DONE PRIOR TO CONSTRUCTION BY CONTRACTOR

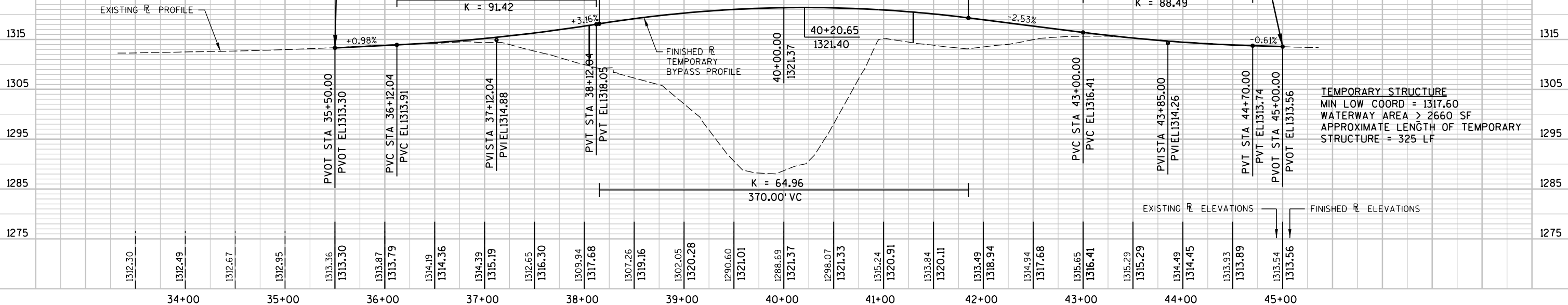
COORDINATES AND BEARINGS ON THIS PLAN ARE ORIENTED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, SAWYER COUNTY (ENGLISH) NAD 83, 1991 ADJUSTMENT. ALL DISTANCES ARE GROUND LENGTH.

EARTHWORK SUMMARY

STA 35+50 TO STA 38+00		
CUT	=40	CY
FILL	=515	CY
FILL AT 1.3 EXP	=670	CY
BORROW	=630	CY
WASTE	=0	CY
COMMON EXC	=40	CY

EARTHWORK SUMMARY

STA 41+25 TO STA 45+00		
CUT	=25	CY
FILL	=831	CY
FILL AT 1.3 EXP	=1080	CY
BORROW	=1055	CY
WASTE	=0	CY
COMMON EXC	=25	CY



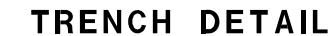
TEMPORARY STRUCTURE
MIN LOW COORD = 1317.60
WATERWAY AREA > 2660 SF
APPROXIMATE LENGTH OF TEMPORARY STRUCTURE = 325 LF

Standard Detail Drawing List

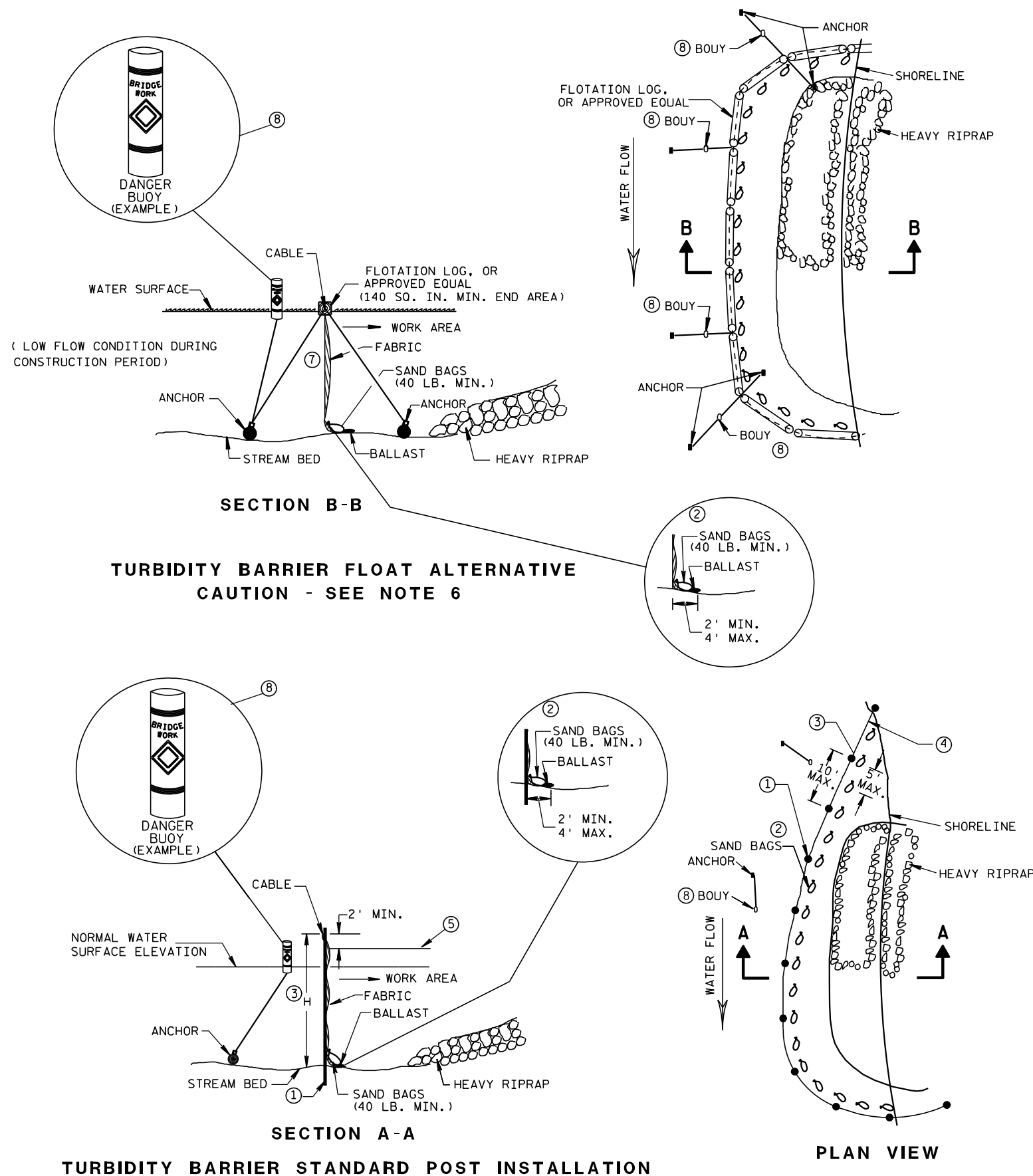
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
09G02-03A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-03C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
12A03-10	NAME PLATE (STRUCTURES)
14B07-13A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-13H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B15-07A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-11C	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS
14B20-11D	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS
14B20-11E	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B20-11G	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B20-11H	STEEL THRIE BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT
14B24-07A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14C02-02	HISTORICAL MARKER CONSTRUCTION
15D31-02	TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY
15D33-03	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>4-29-05</u> DATE	<u>/S/ Beth Canestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER

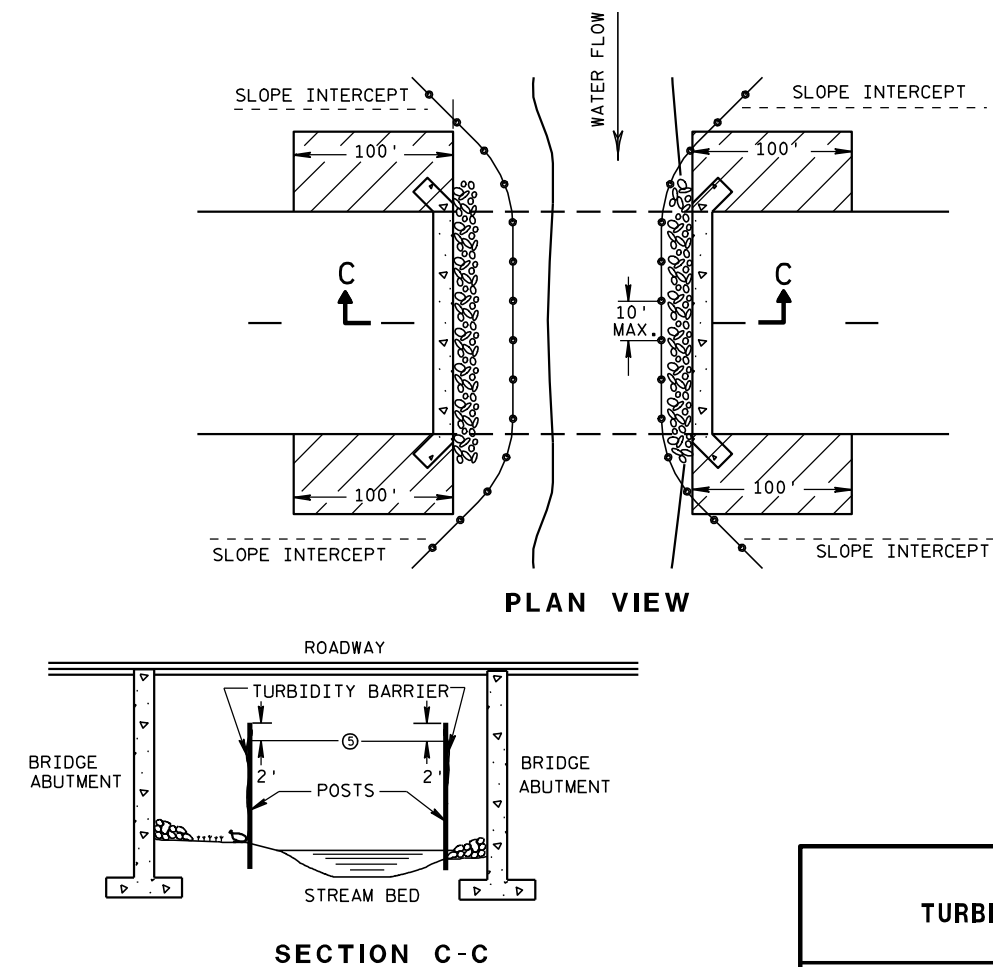


GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

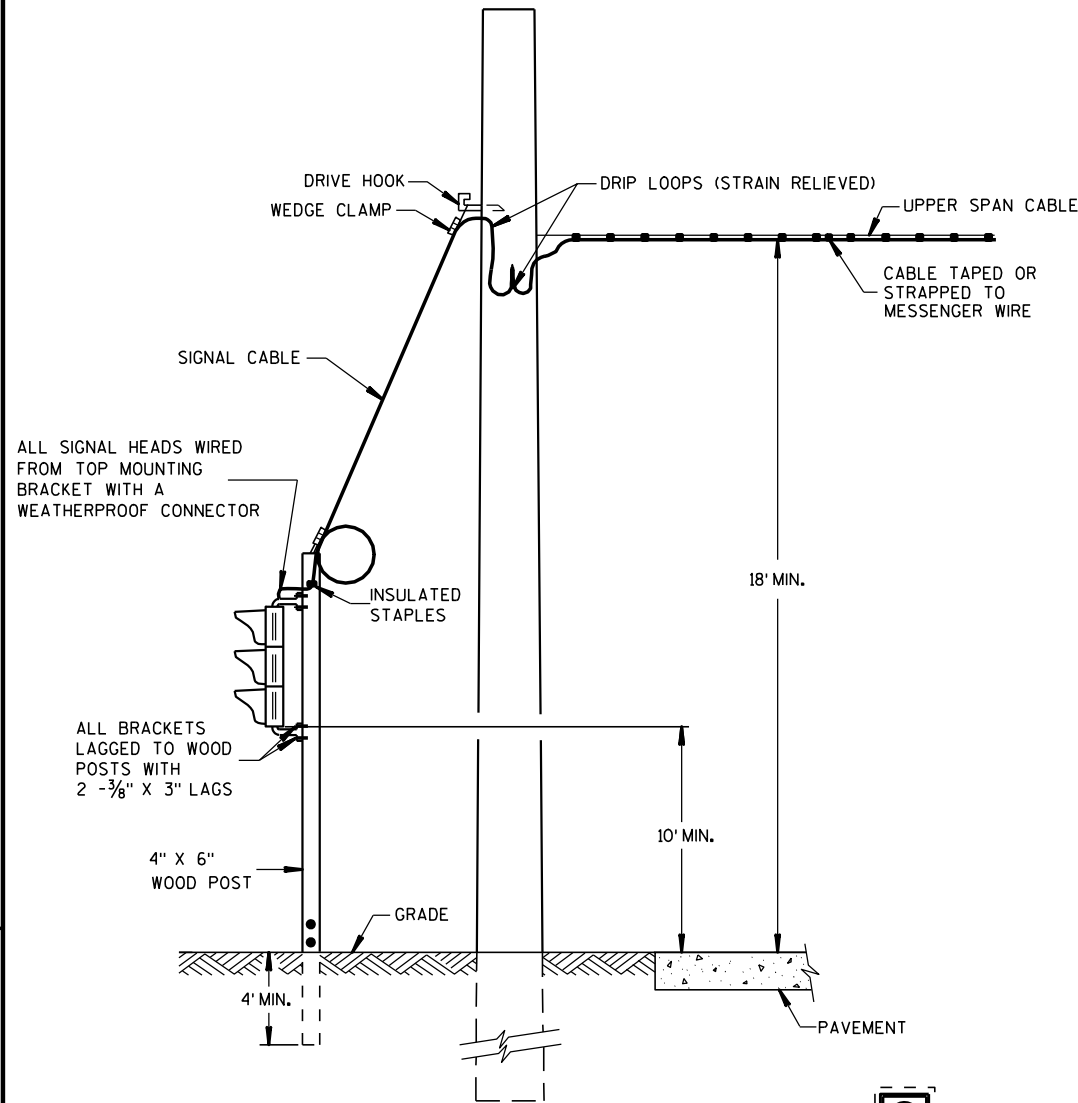
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

FHWA

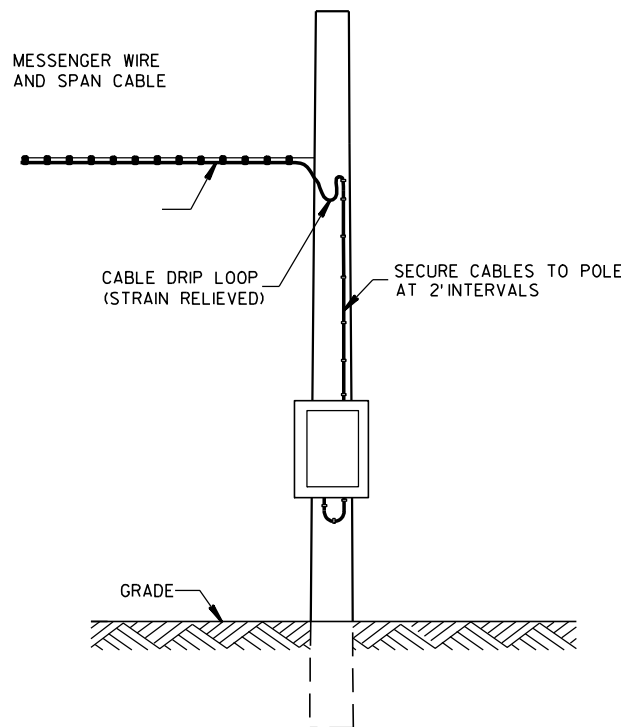
/S/ Beth Connestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



TYPICAL DROP TO TRAFFIC SIGNAL FACE

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE**
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/ CURBS	2 FT
**NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.	

MINIMUM POLE LENGTHS	CLASS	MINIMUM BURIAL DEPTHS
25 FEET	Ⅴ	5 FEET
30 FEET	Ⅴ	6 FEET
35 FEET	Ⅳ	7 FEET
40 FEET	Ⅳ	8 FEET
45 FEET	Ⅳ	9 FEET



POLE MOUNT CABINET INSTALLATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAYBE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.

WHEN UTILITY POLES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.

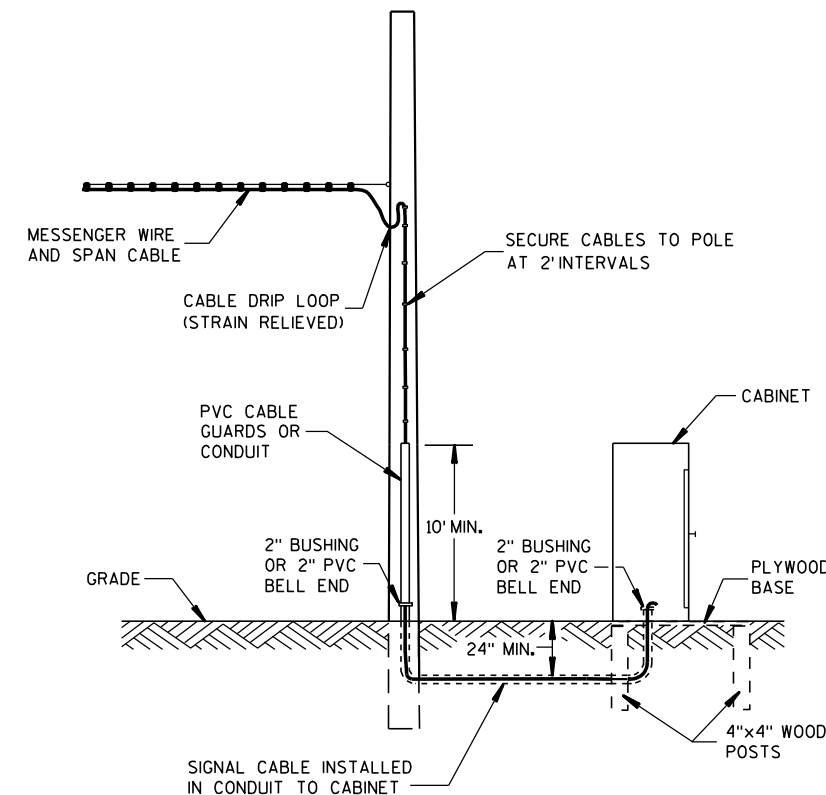
WOOD POLES (NONBREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAMGUARD, ETC.).

WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

VERTICAL CLEARANCE ETC. PER NEC.

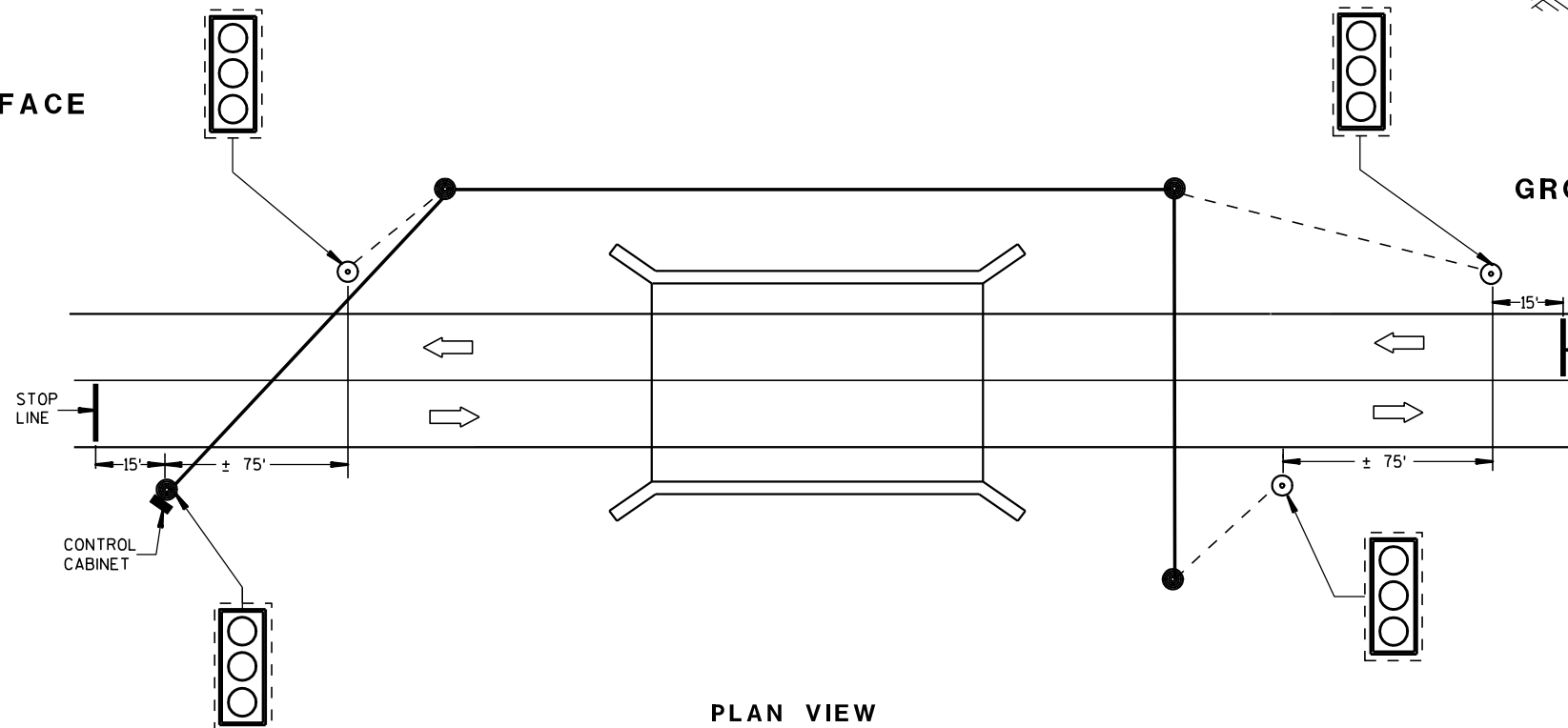
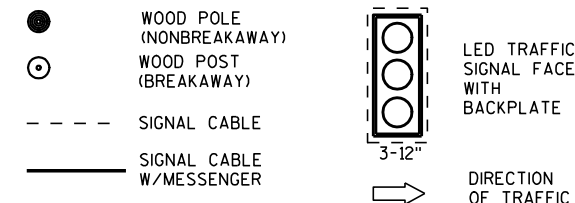
TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

EACH TRAFFIC SIGNAL FACE SHALL HAVE A BACKPLATE.



GROUND MOUNT CABINET INSTALLATION

LEGEND

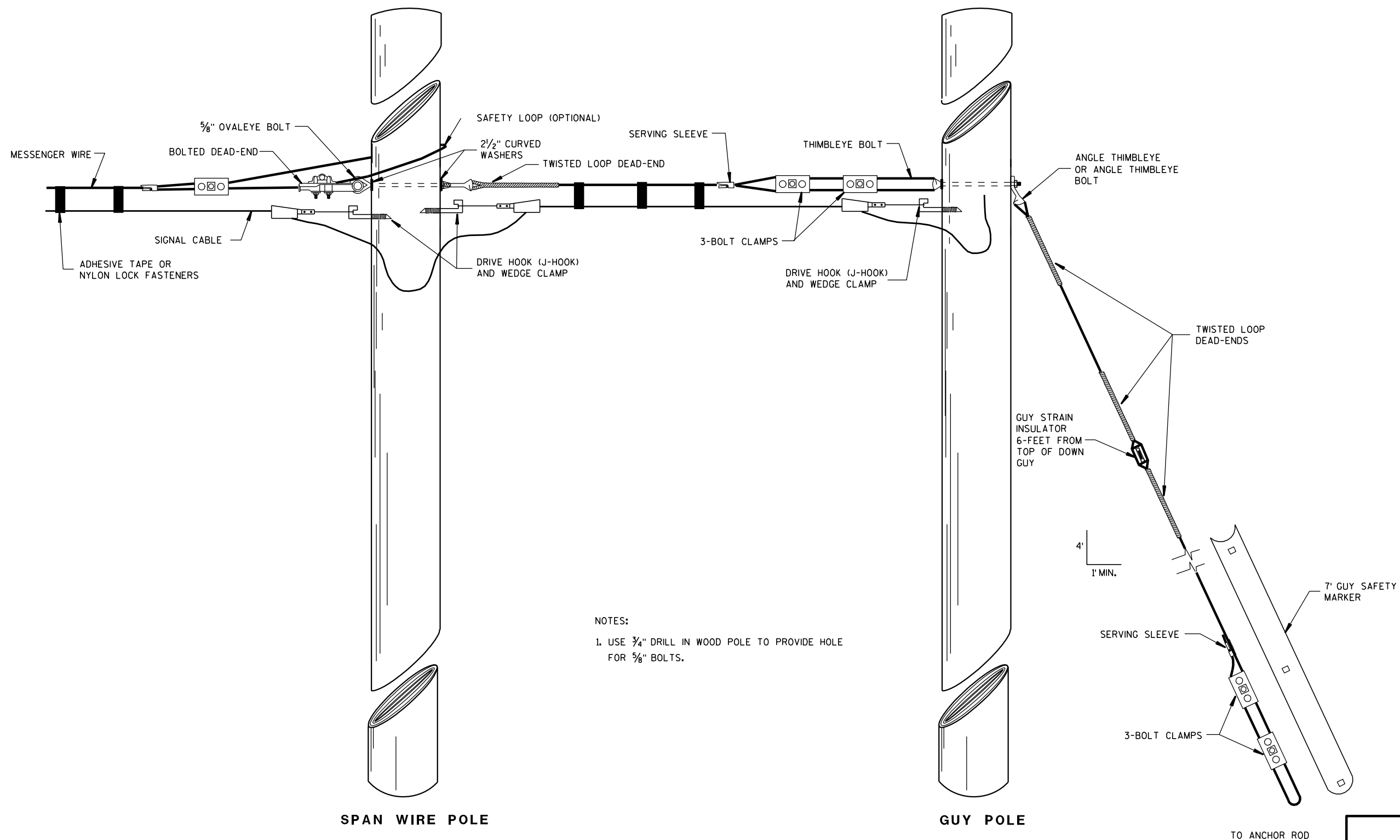


PLAN VIEW
TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/2/2011 DATE /S/ Thomas J. Goring
STATE ELECTRICAL ENGINEER FOR HWYS
FHWA



NOTES:

1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE HOLE FOR 5/8" BOLTS.

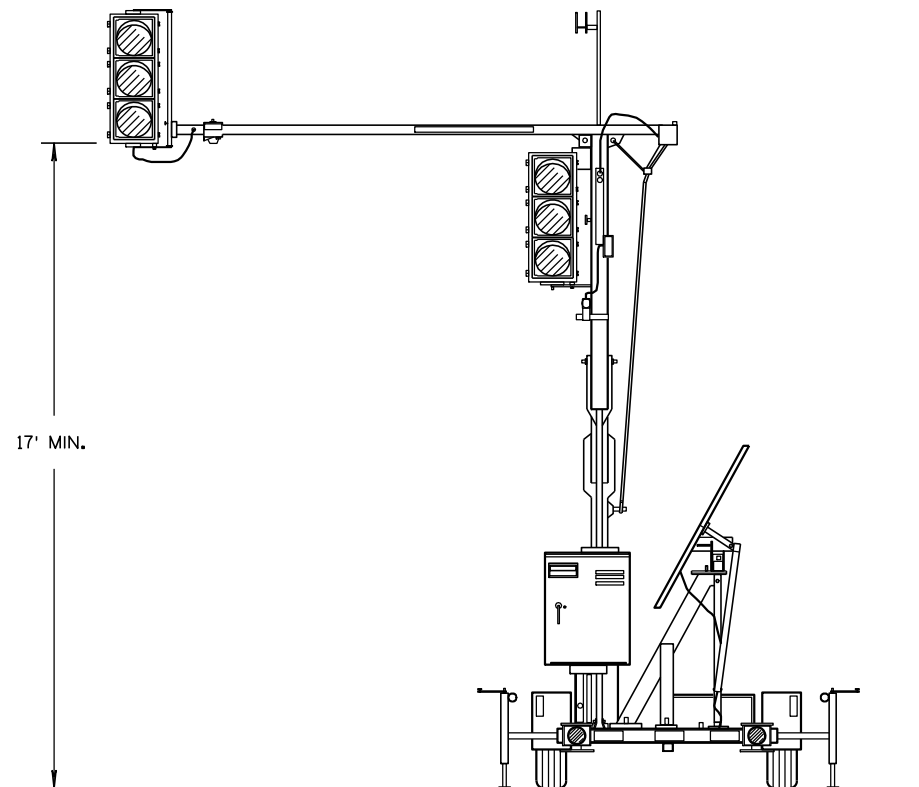
TYPICAL DEAD-ENDINGS OR GUYING

BRIDGE TEMPORARY
TRAFFIC SIGNAL INSTALLATIONSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011
DATE/S/ Thomas J. Goring
STATE ELECTRICAL ENGINEER FOR HWYS

FHWA

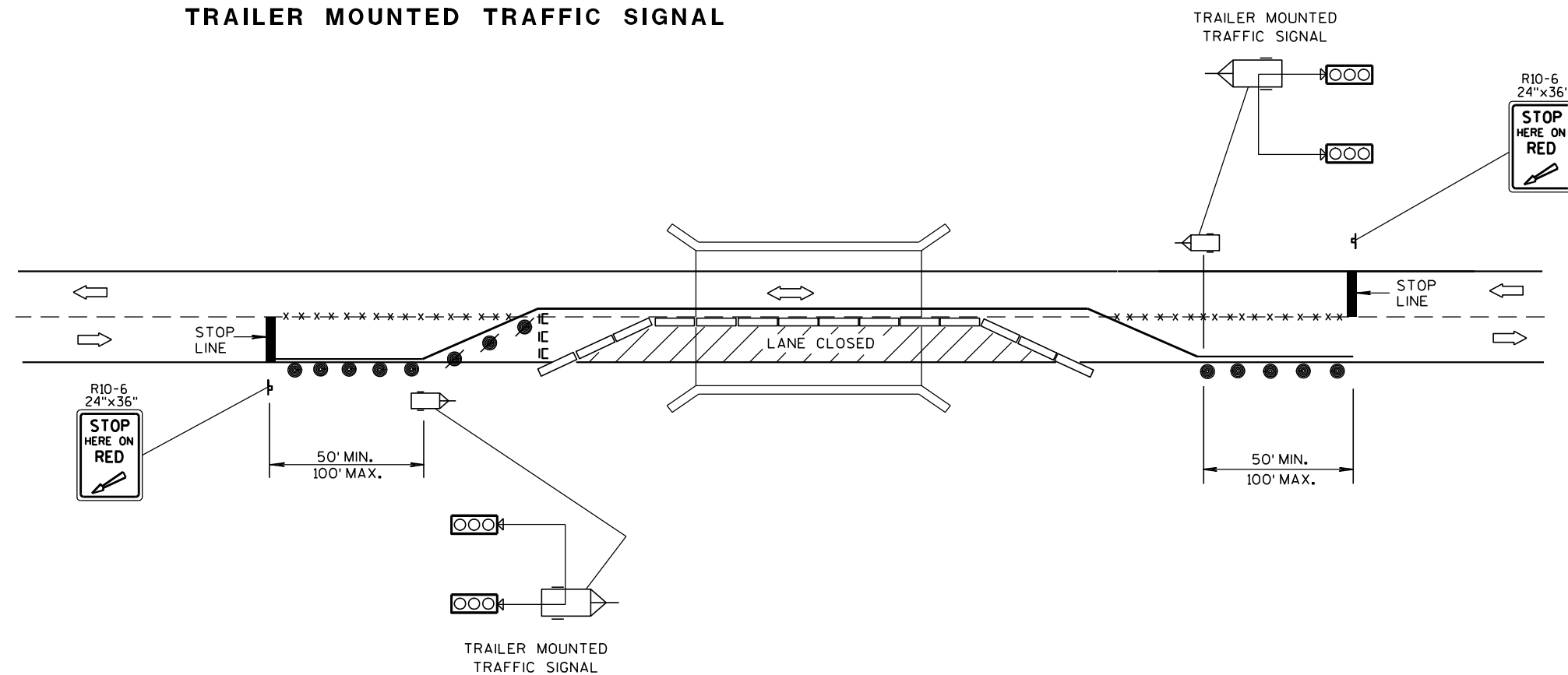


TRAILER MOUNTED TRAFFIC SIGNAL

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15 D 33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

LEGEND

- POST MOUNTED SIGN
- *-x-* REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH SIGN
- DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- TEMPORARY PRECAST CONCRETE BARRIER
- TRAILER MOUNTED TRAFFIC SIGNAL
- DIRECTION OF TRAFFIC FLOW

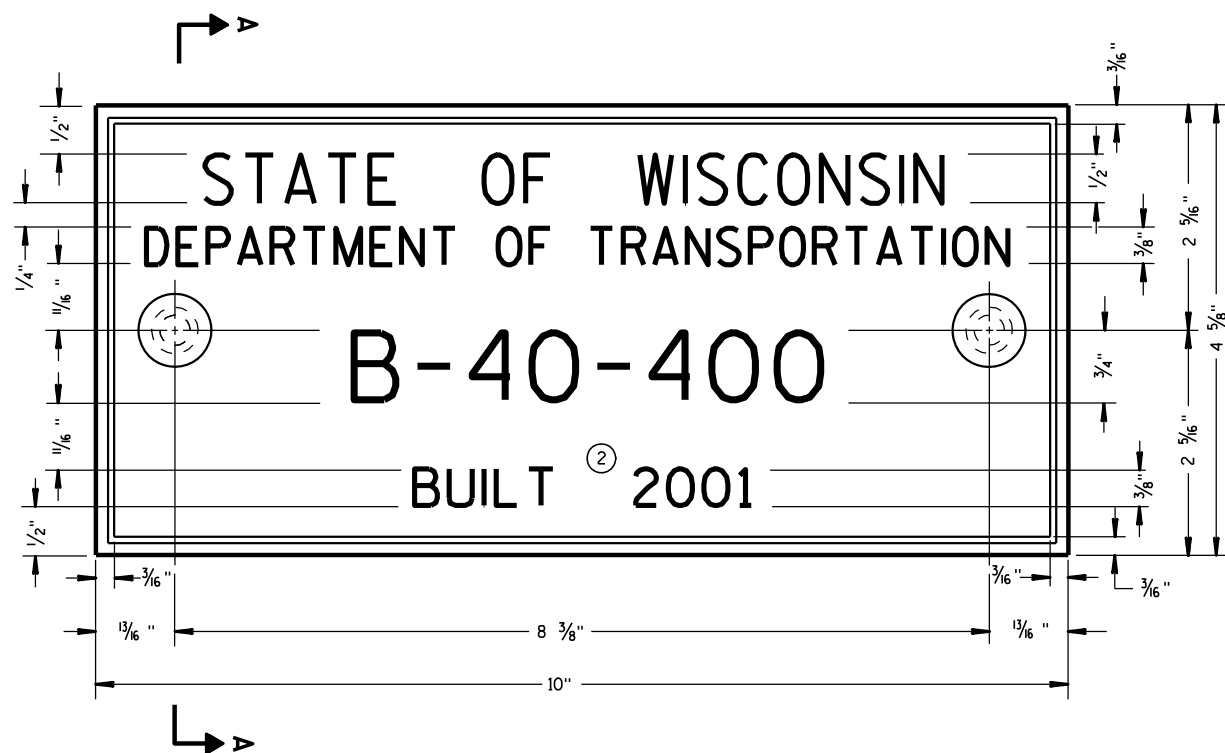
BRIDGE TEMPORARY
TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

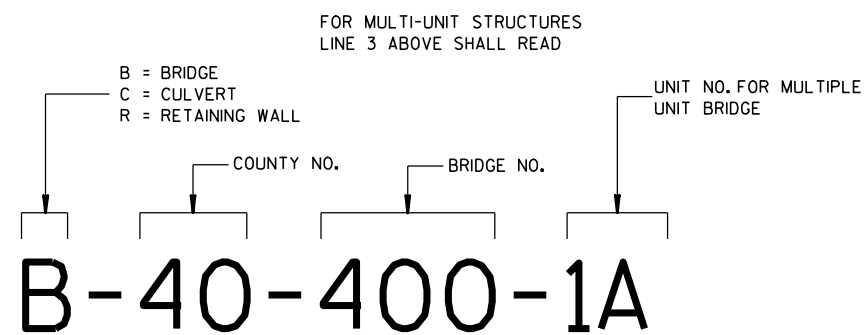
APPROVED

3/2/2011
DATE/S/ Thomas J. Goring
STATE ELECTRICAL ENGINEER FOR HWYS

FHWA



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



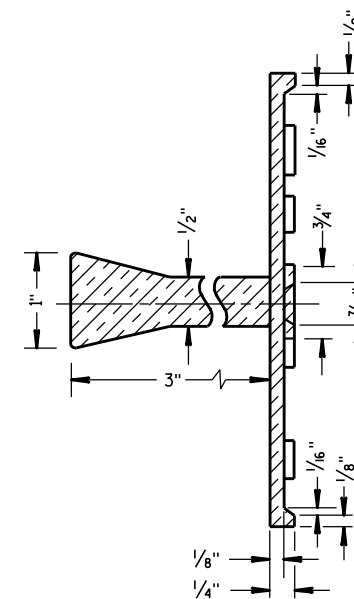
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

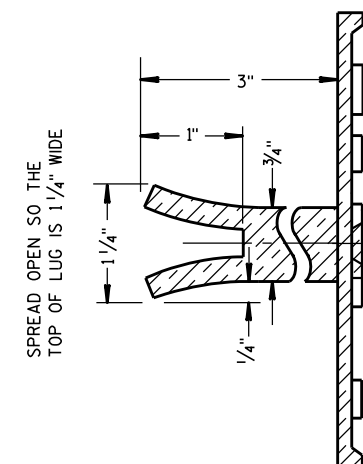
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

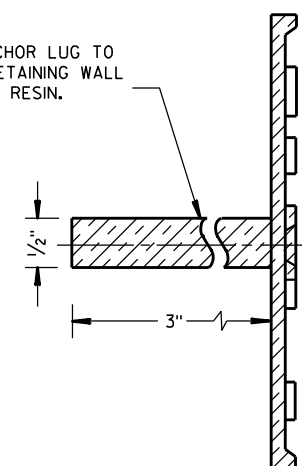


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

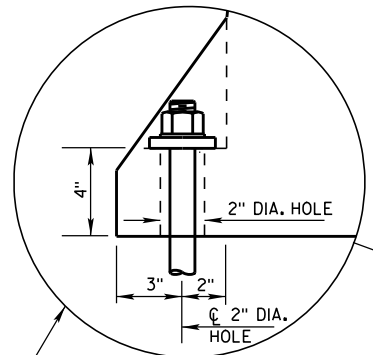
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

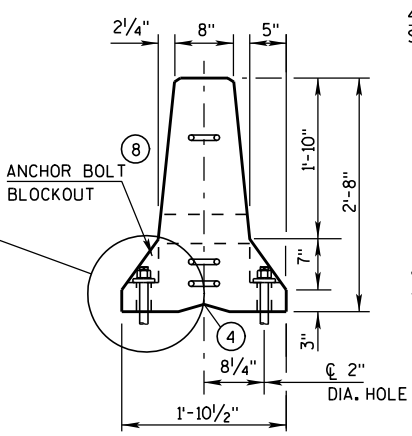
3/26/10
DATE

FHWA

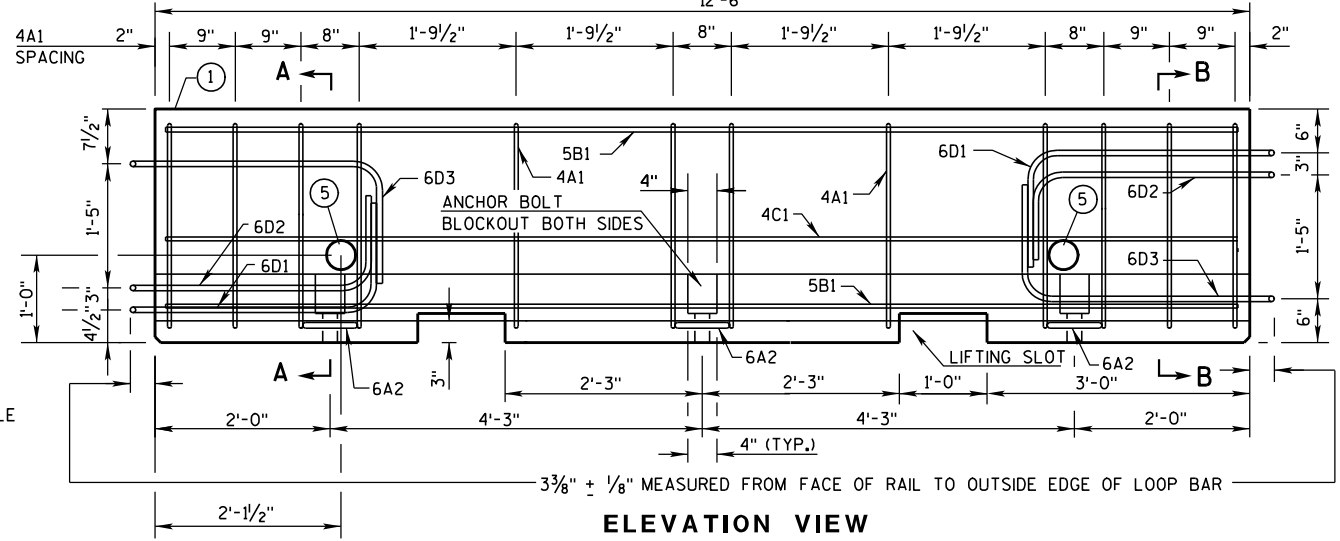
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



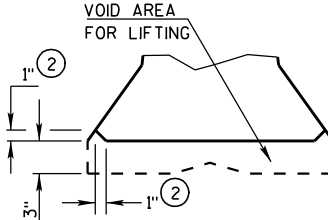
ANCHOR ON TRAFFIC SIDE ONLY WHEN REQUIRED (SEE SHEET D FOR ADDITIONAL ANCHOR DETAIL)



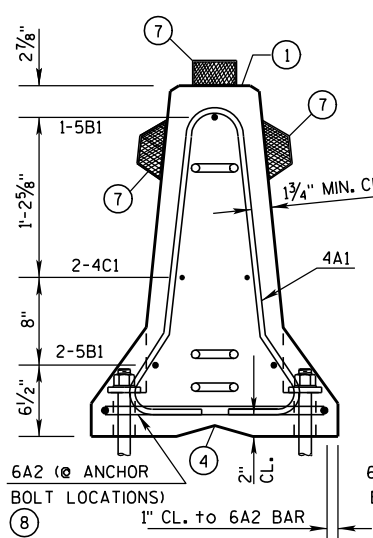
END VIEW



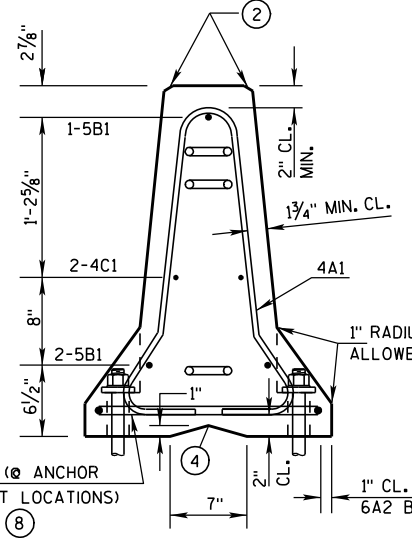
ELEVATION VIEW



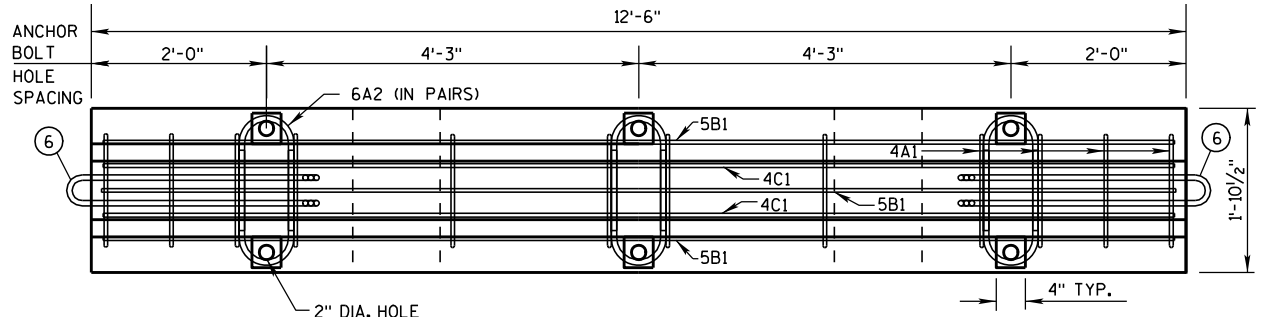
DETAIL "B" LIFTING SLOT DETAIL



SECTION A-A (STIRRUP PLACEMENT)

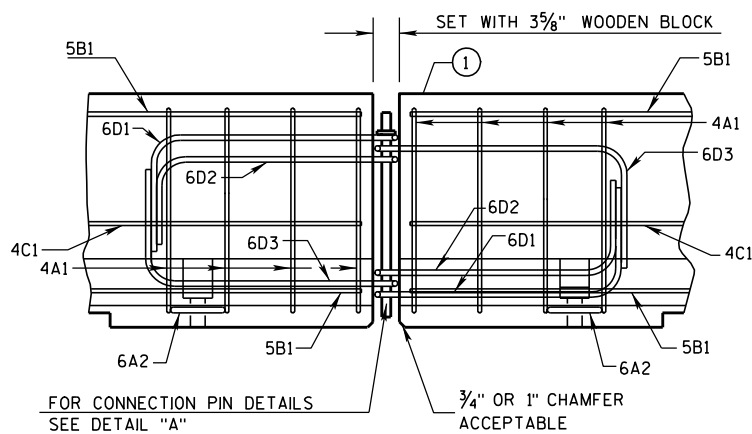


SECTION B-B (STIRRUP PLACEMENT)

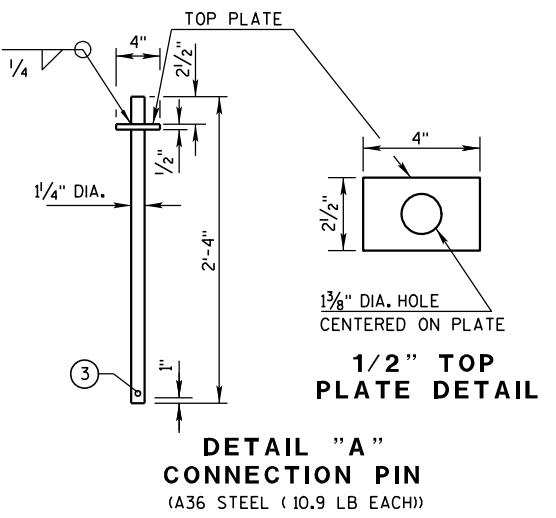


PLAN VIEW

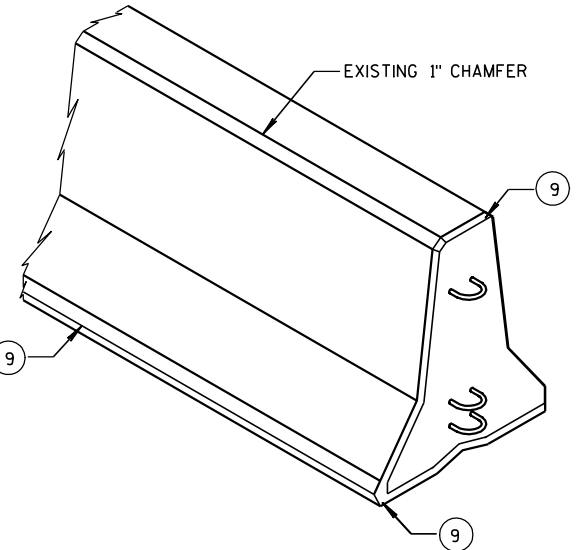
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



DETAIL "A" CONNECTION PIN (A36 STEEL (10.9 LB EACH))



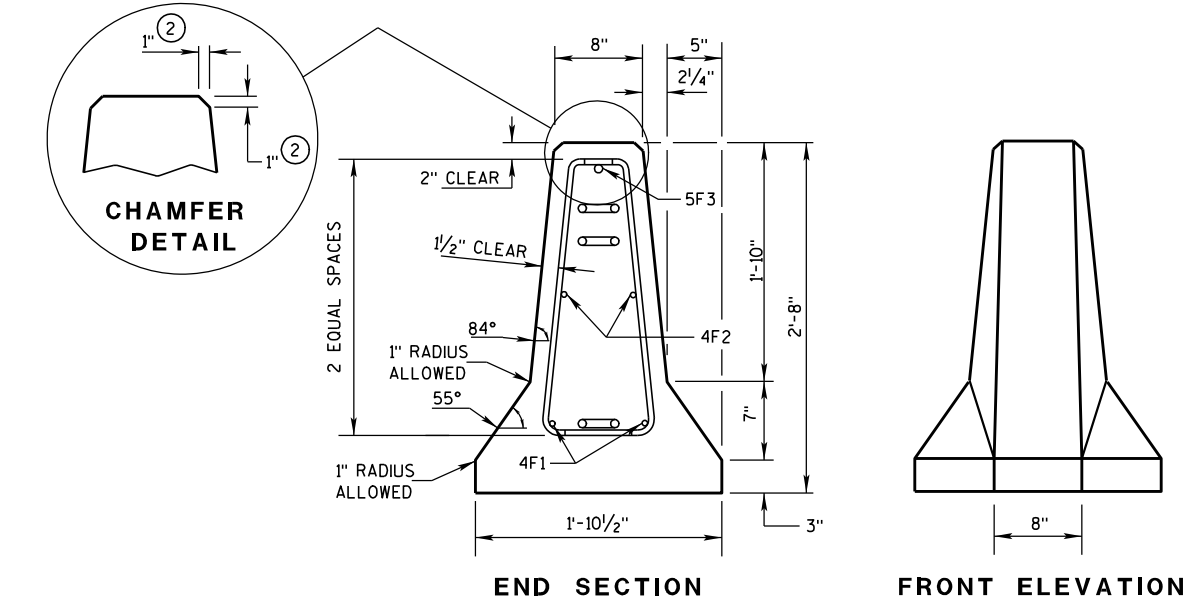
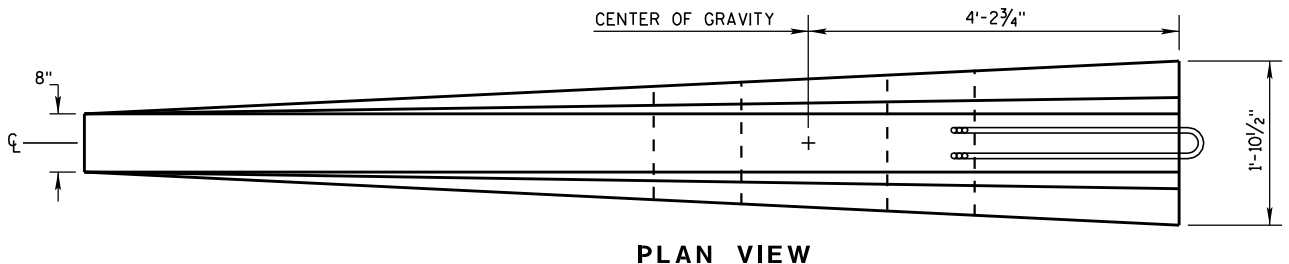
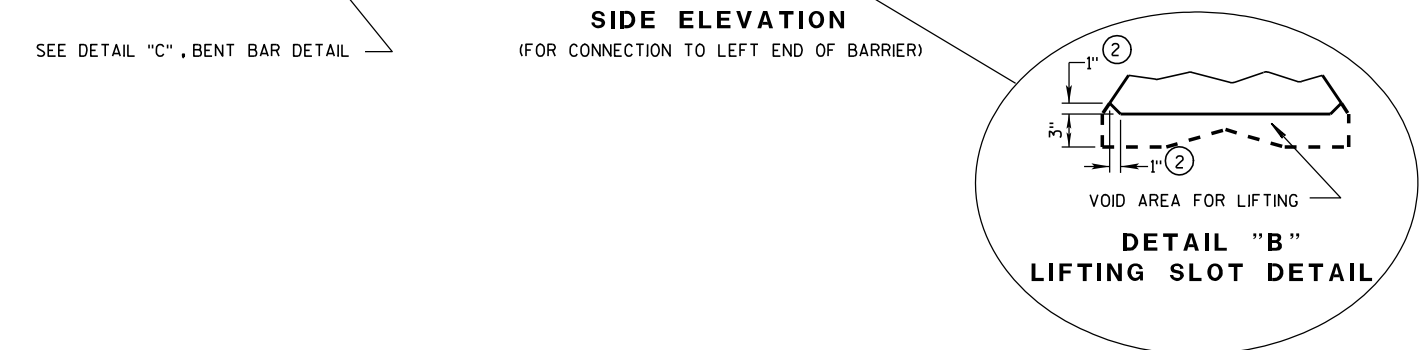
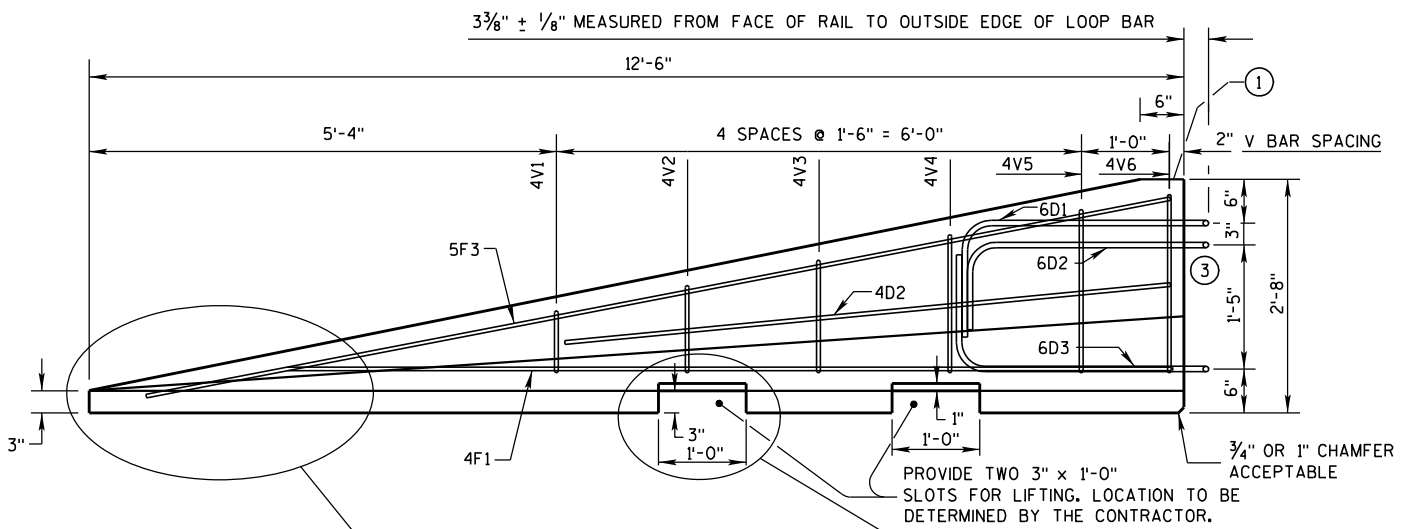
EXISTING 1" CHAMFER

GENERAL NOTES

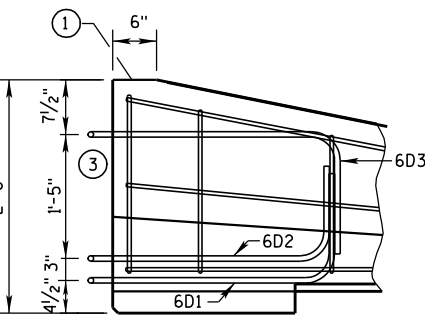
- THESE GENERAL NOTES APPLY TO SHEETS 14B7-13(g) THRU 14B7-13(h).
- DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.
- USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.
- LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.
- CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.
- PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.
- INSTALL MECHANICAL OR EPOXY ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.
- MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - TYPE: WICBTP
 - MANUFACTURER
 - DATE MANUFACTURED (MONTH AND YEAR)
 - 1" CHAMFER TO PREVENT SPALLING.
 - A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
 - "V" NOTCH IS OPTIONAL.
 - THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
 - NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
 - USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
 - SEE SHEET D FOR ANCHORING CRITERIA.
 - 1" CHAMFER OPTIONAL.

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



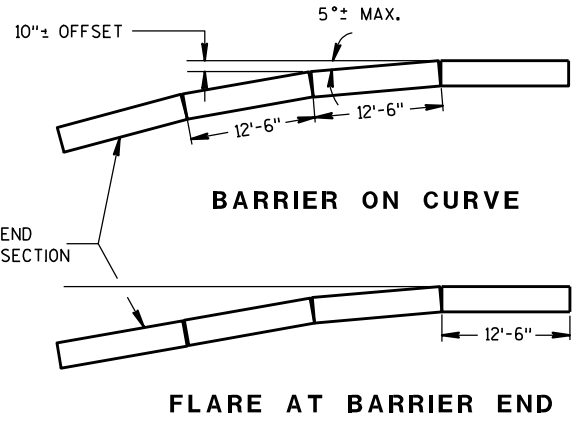
DETAILS OF BARRIER TAPER SECTION



SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE W/CBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

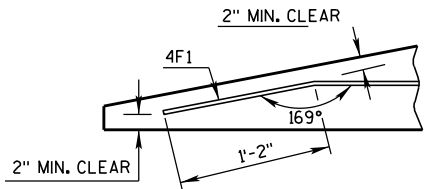
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

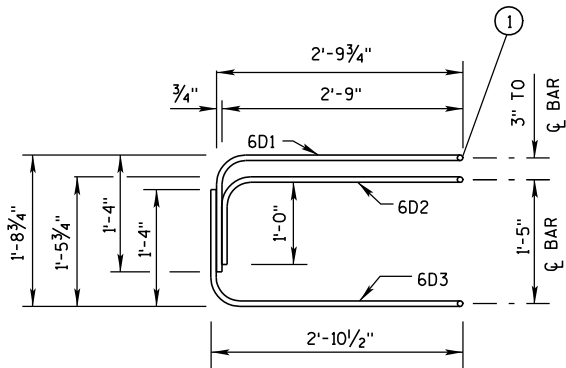
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

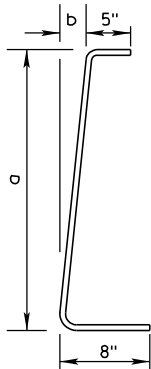
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

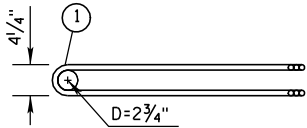
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION
BILL OF MATERIALS

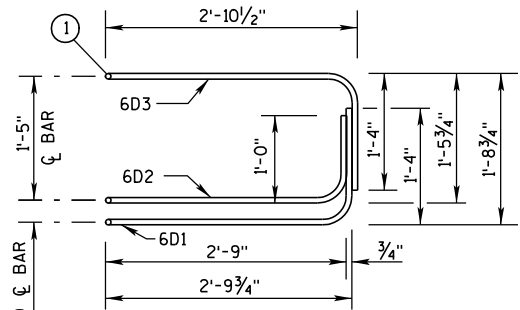
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"

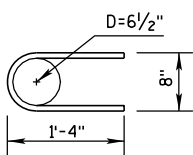


PLAN VIEW
LOOP BAR ASSEMBLY

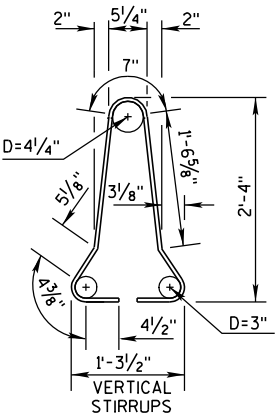
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

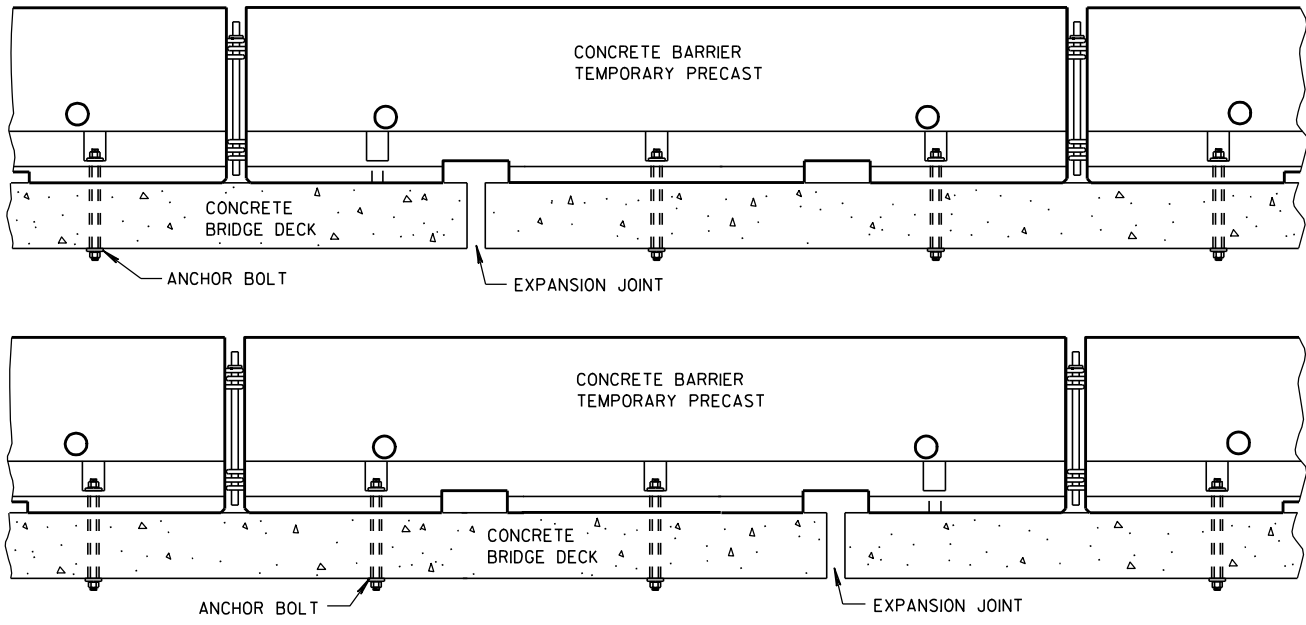


4A1

BARRIER SECTION

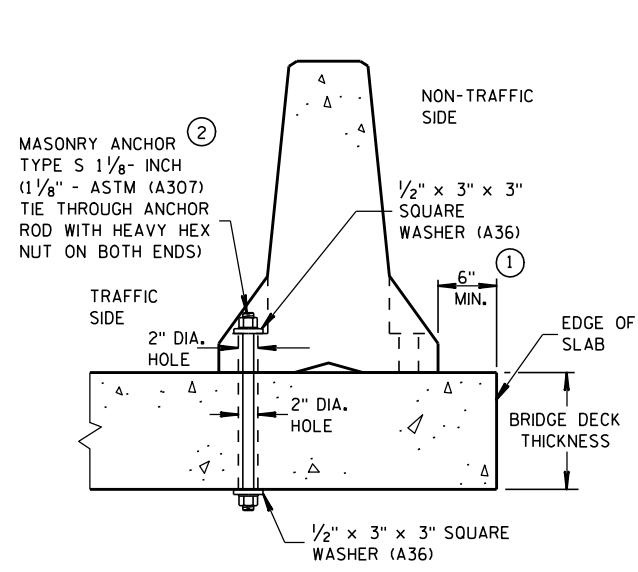
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



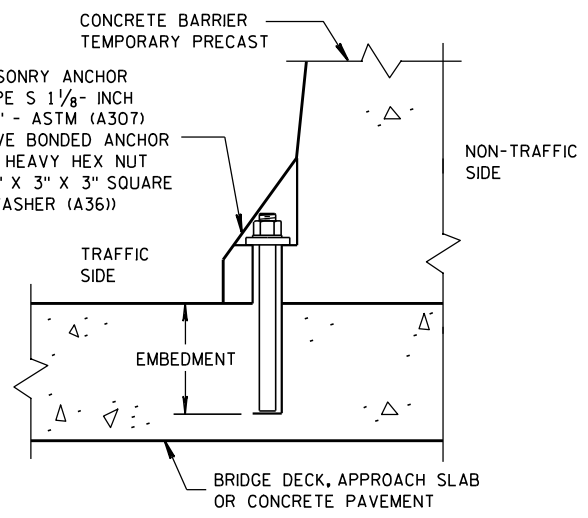
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



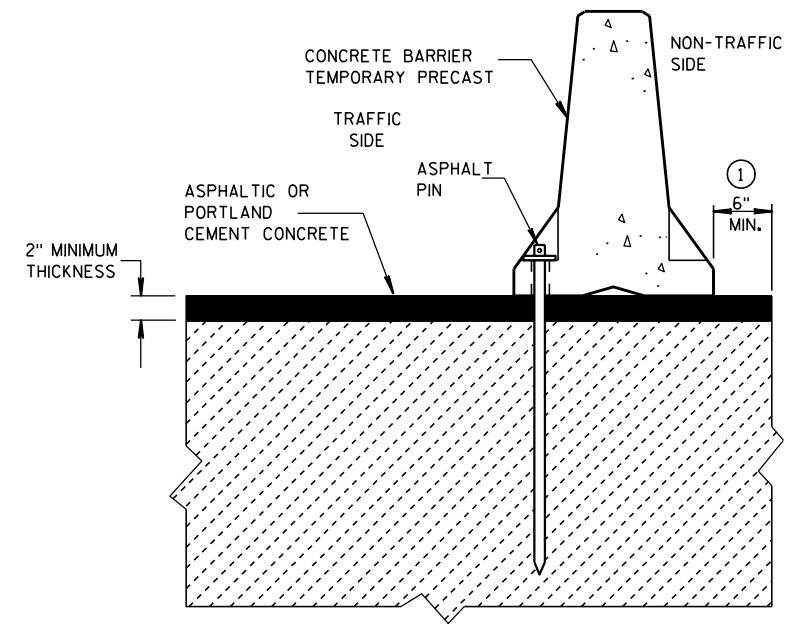
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



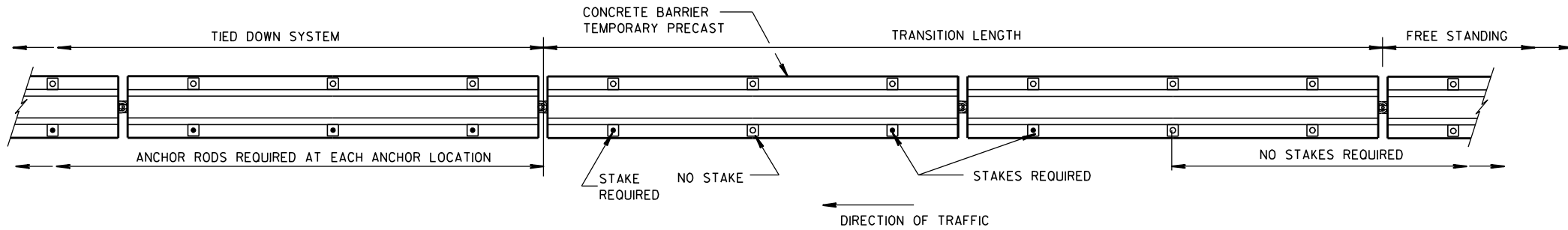
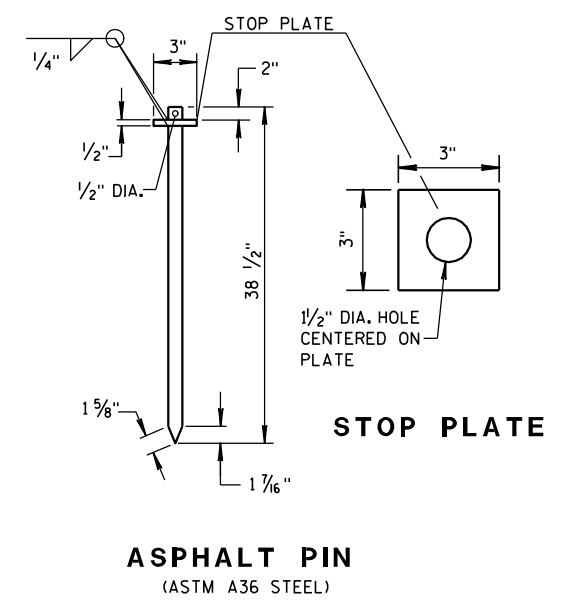
REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

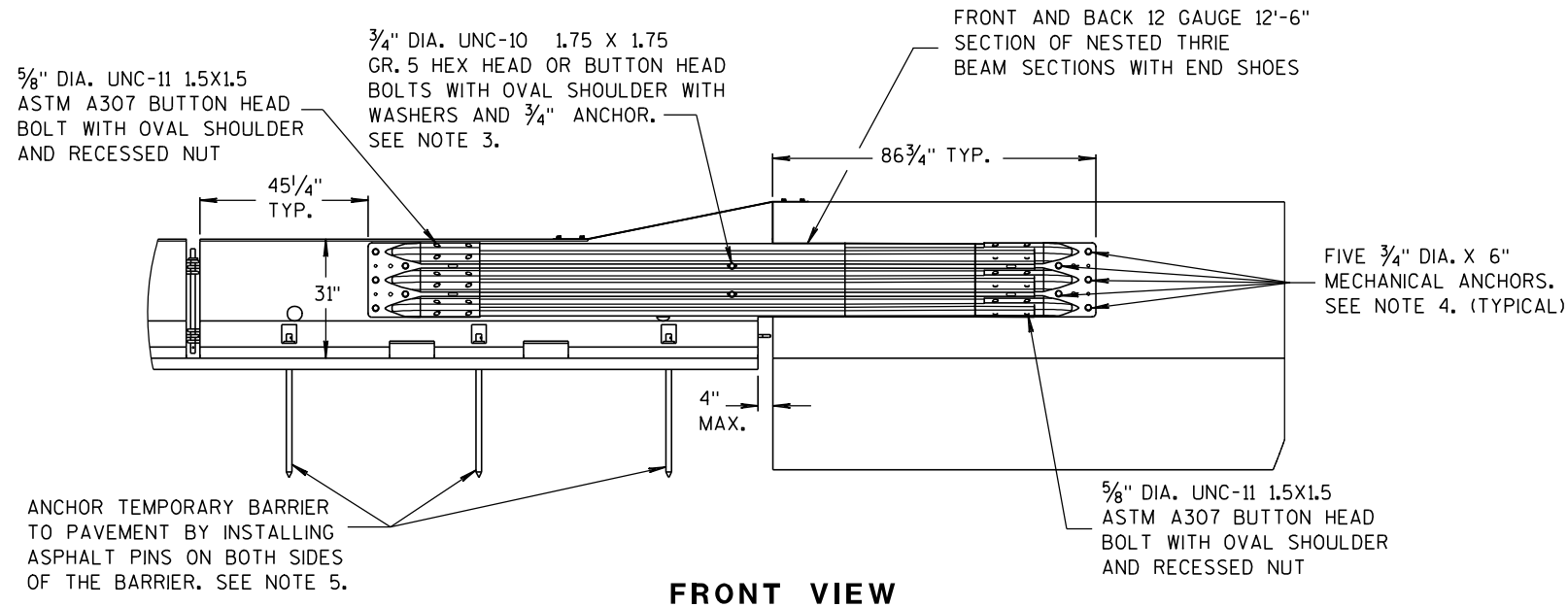
GENERAL NOTES

- 1 CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.
- 2 ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

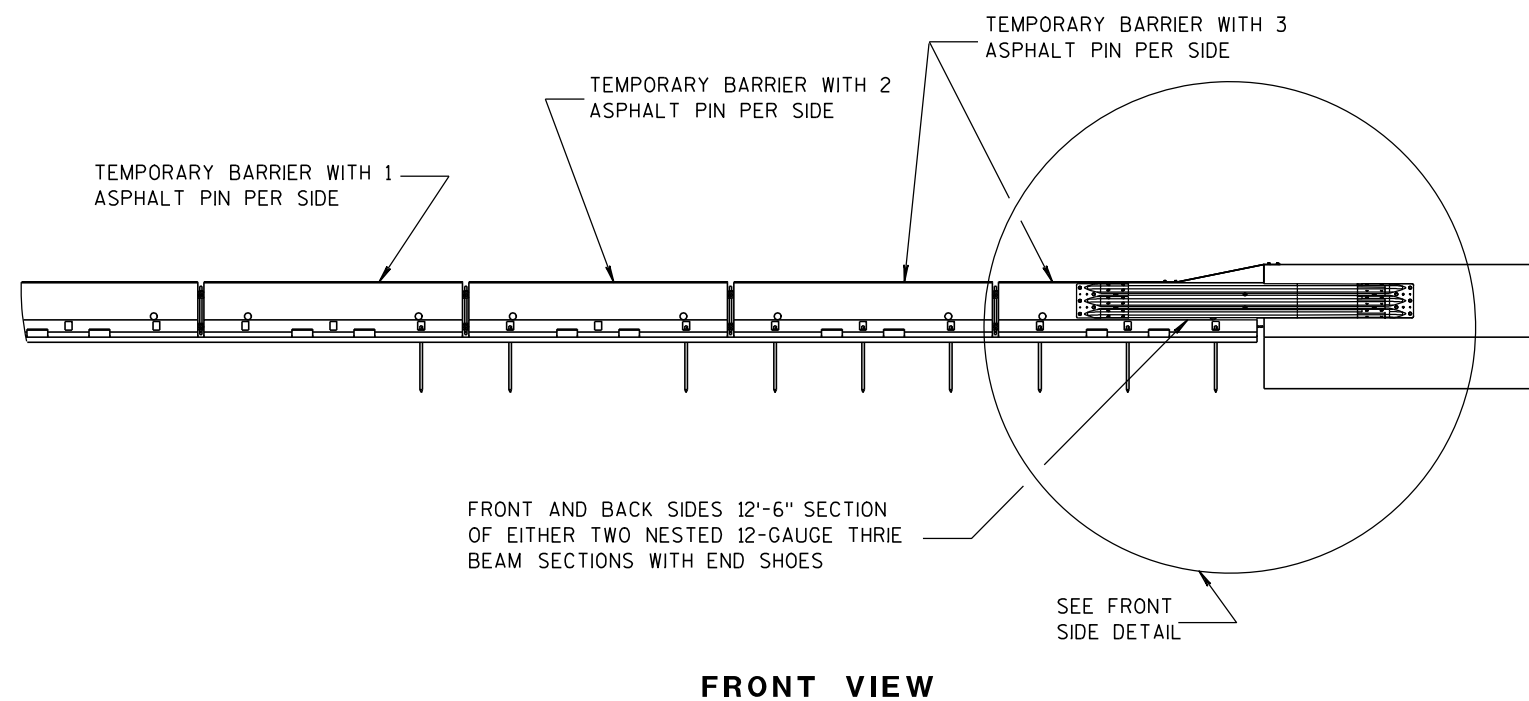
WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED (EPOXY) ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1 1/8-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERCIAL GROUT OR EPOXY MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.

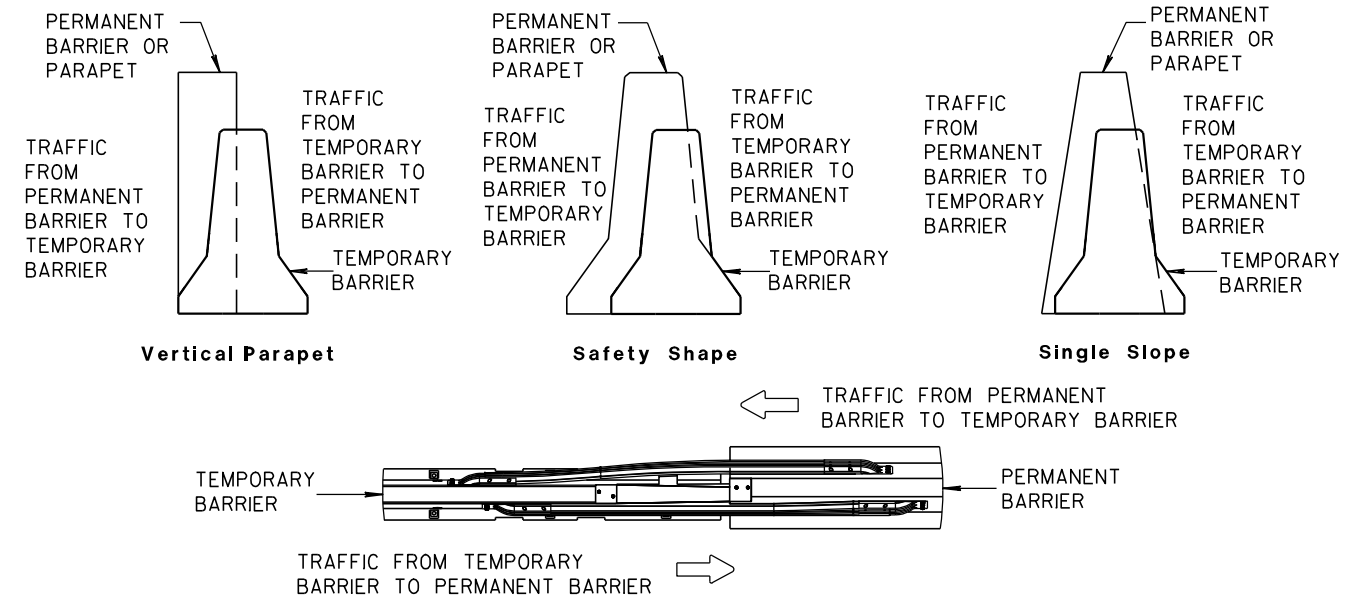


NOTES

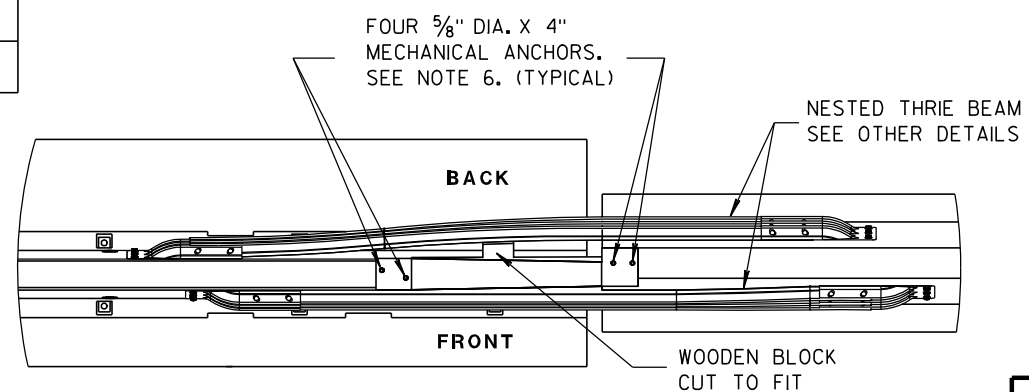
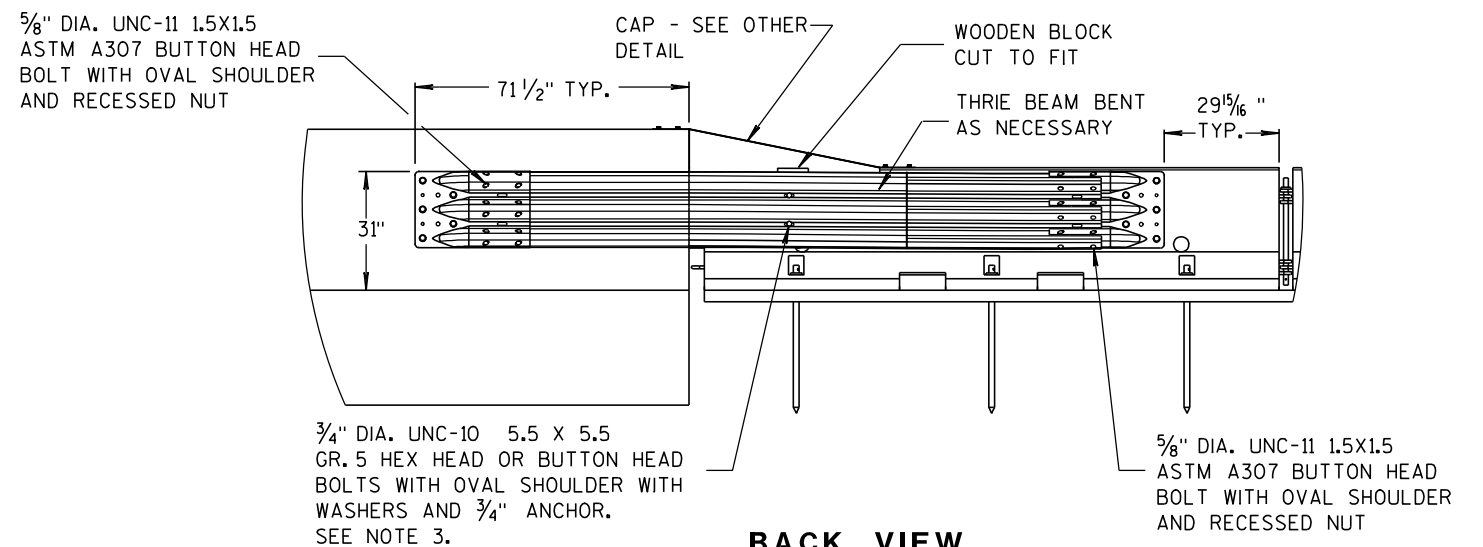
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR EPOXY ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

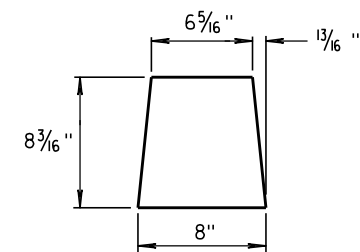


TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

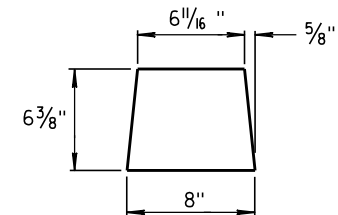


CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

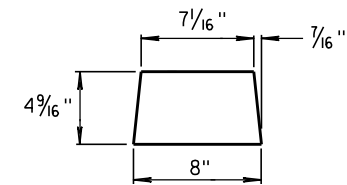
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



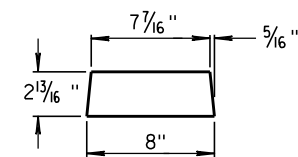
GUSSET 1



GUSSET 2

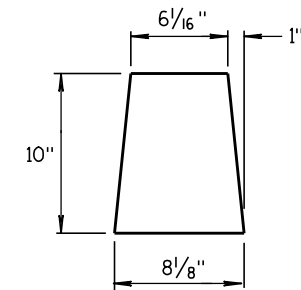


GUSSET 3

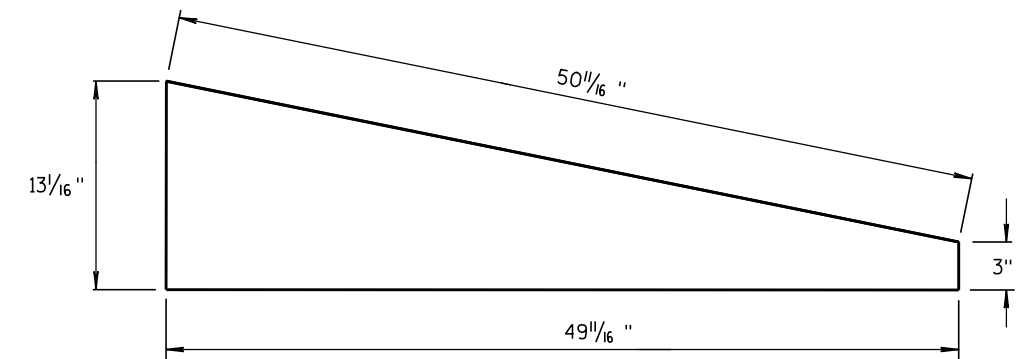


GUSSET 4

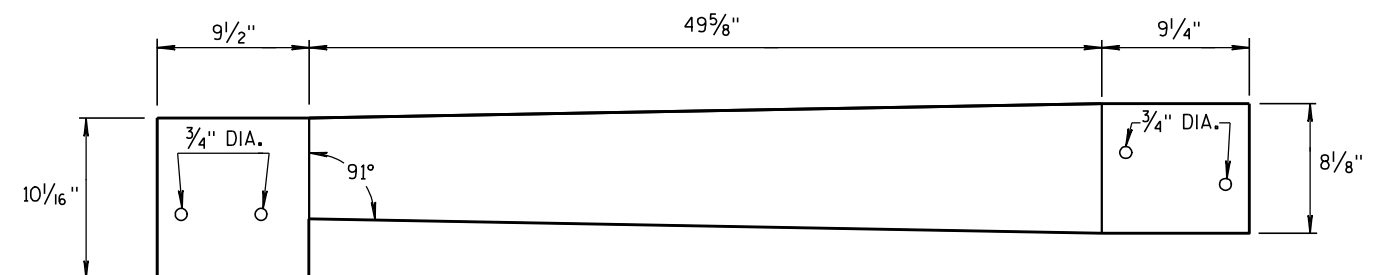
GUSSETS



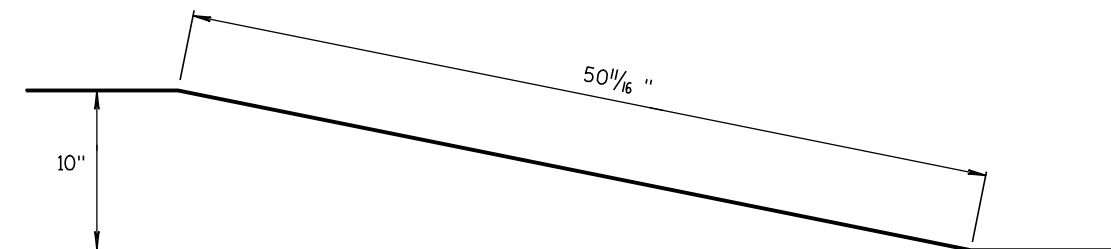
END PLATE



SIDE PLATE

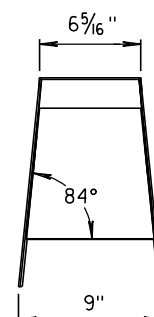


TOP PLATE

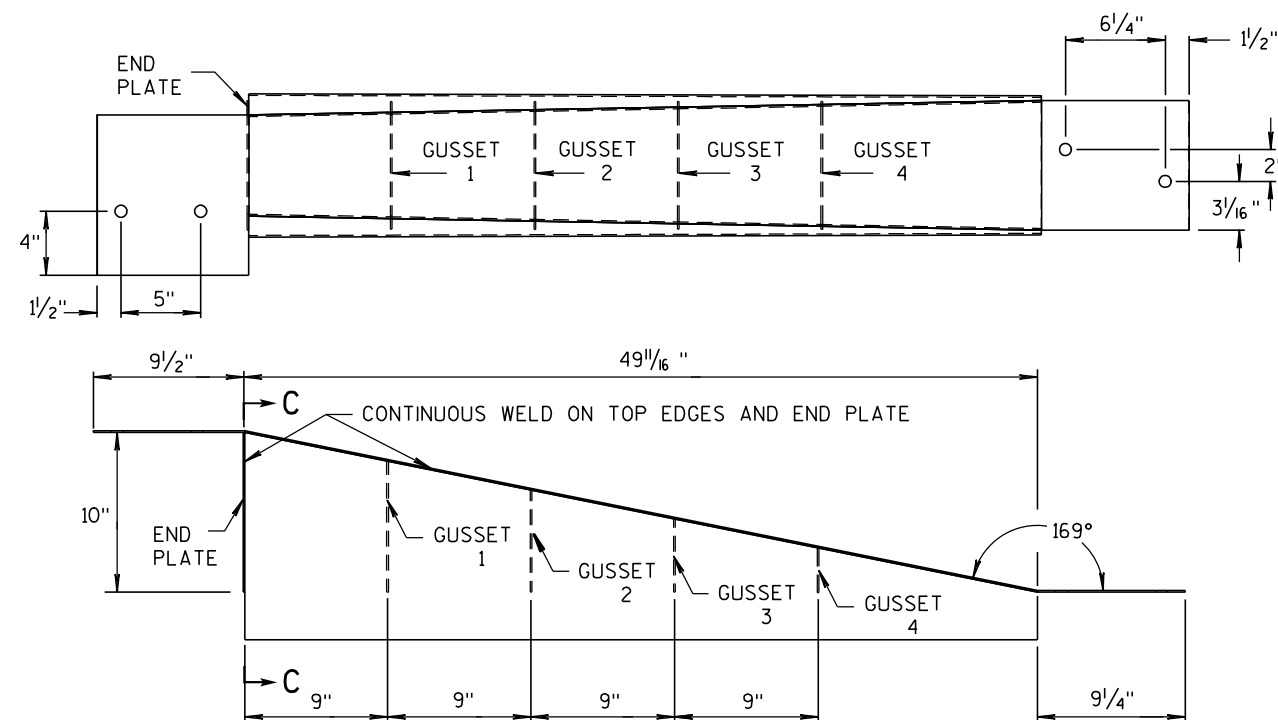


**SIDE, TOP AND END PLATES FOR CAP
FROM TEMPORARY CONCRETE BARRIER
TO 42" PERMANENT CONCRETE BARRIER**

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C



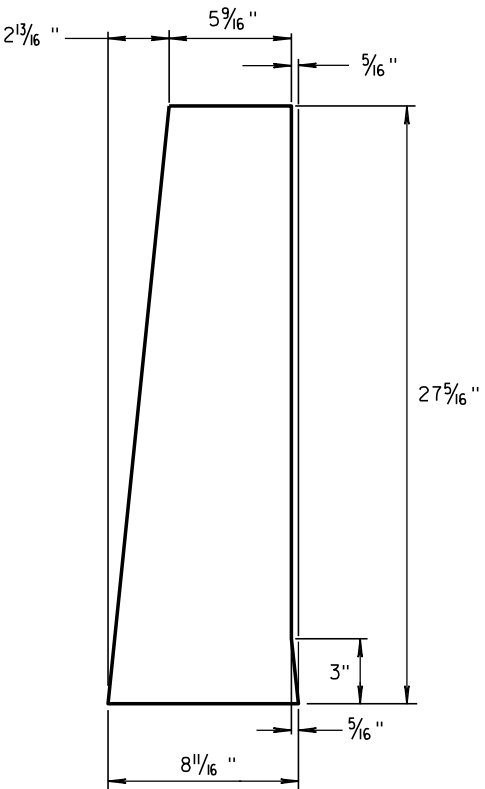
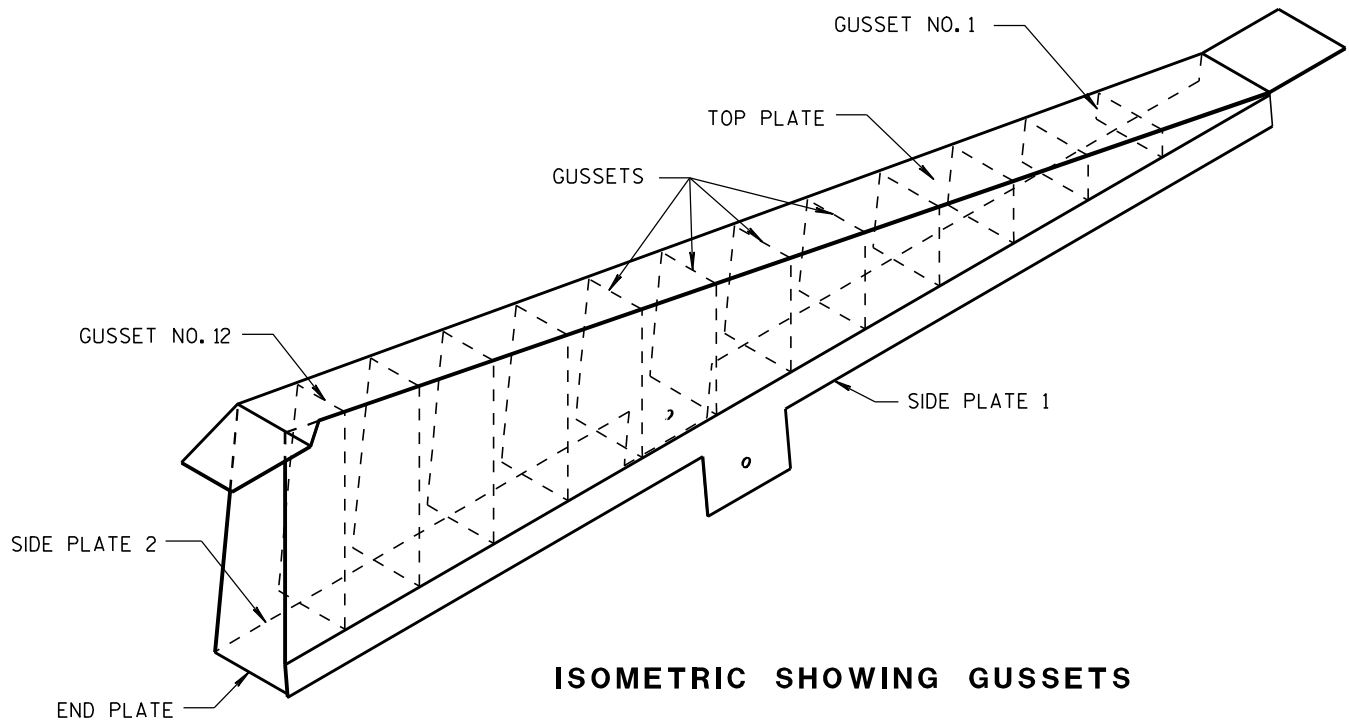
**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

NOTES

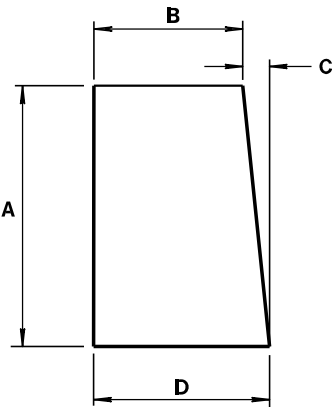
1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
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1/8" STEEL PLATE

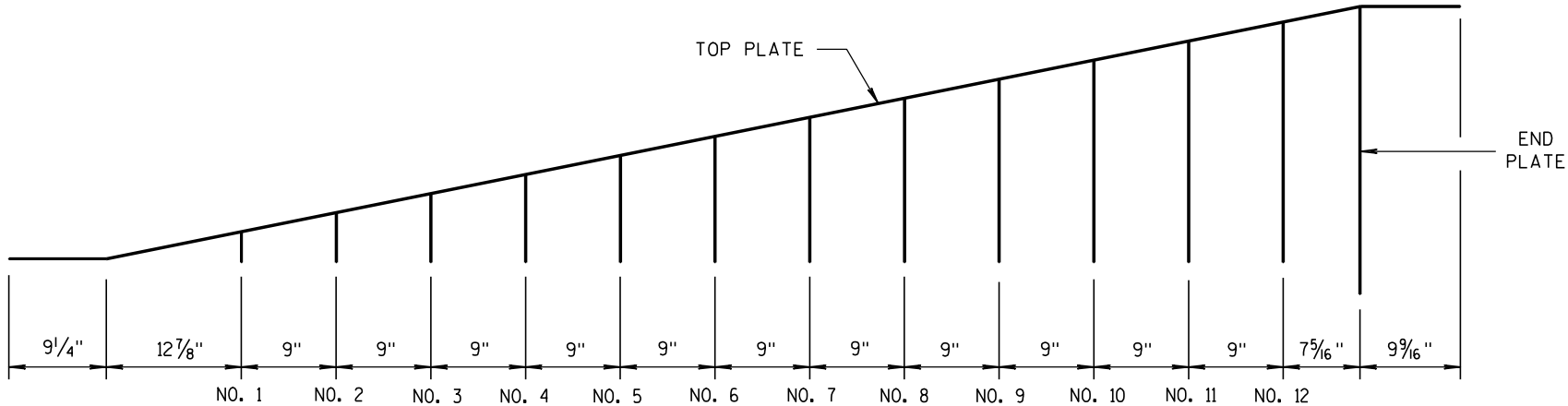


ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 11/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8"	11/16 "	8 1/16 "
4	8 5/16 "	7 3/16 "	7/8"	8 1/16 "
5	10 1/8 "	7"	1 1/16 "	8 1/16 "
6	11 5/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8"	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16 "	6 1/16 "	1 15/16 "	8 1/16 "
11	21"	5 7/8"	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

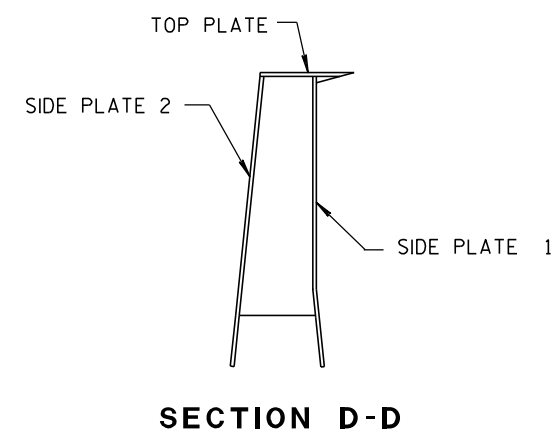
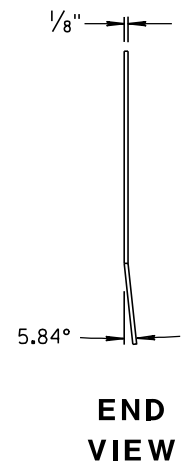
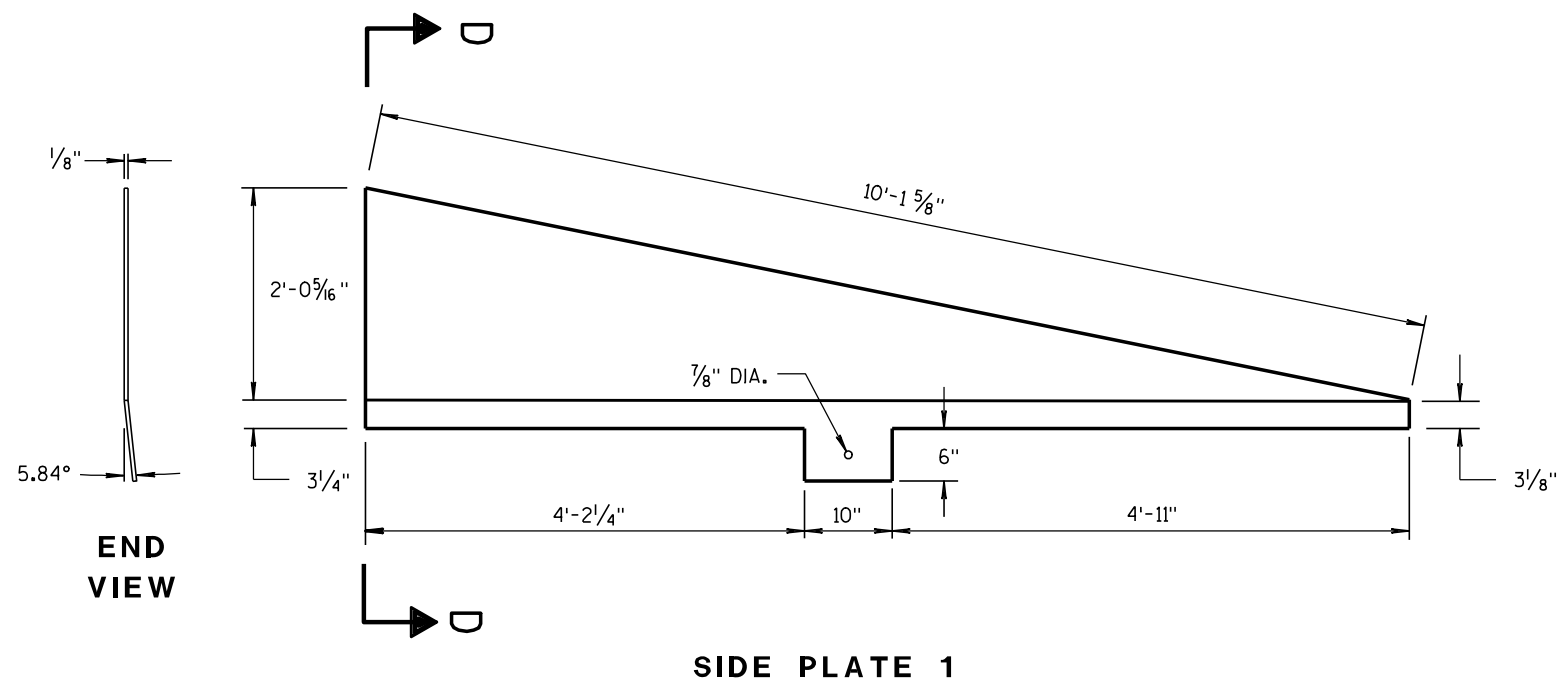
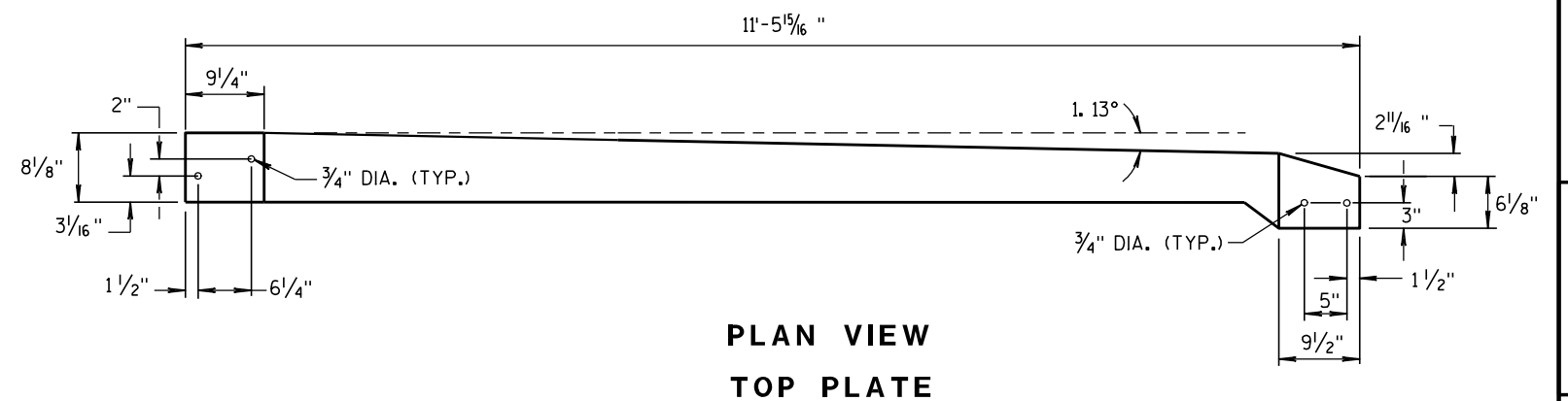
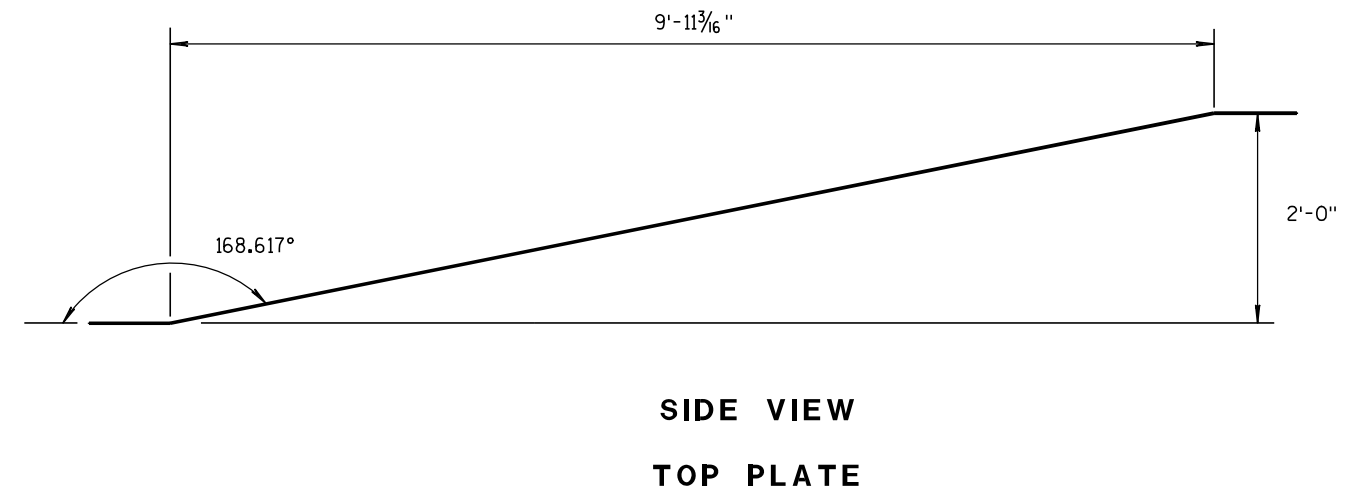
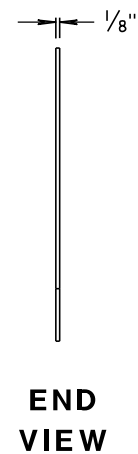
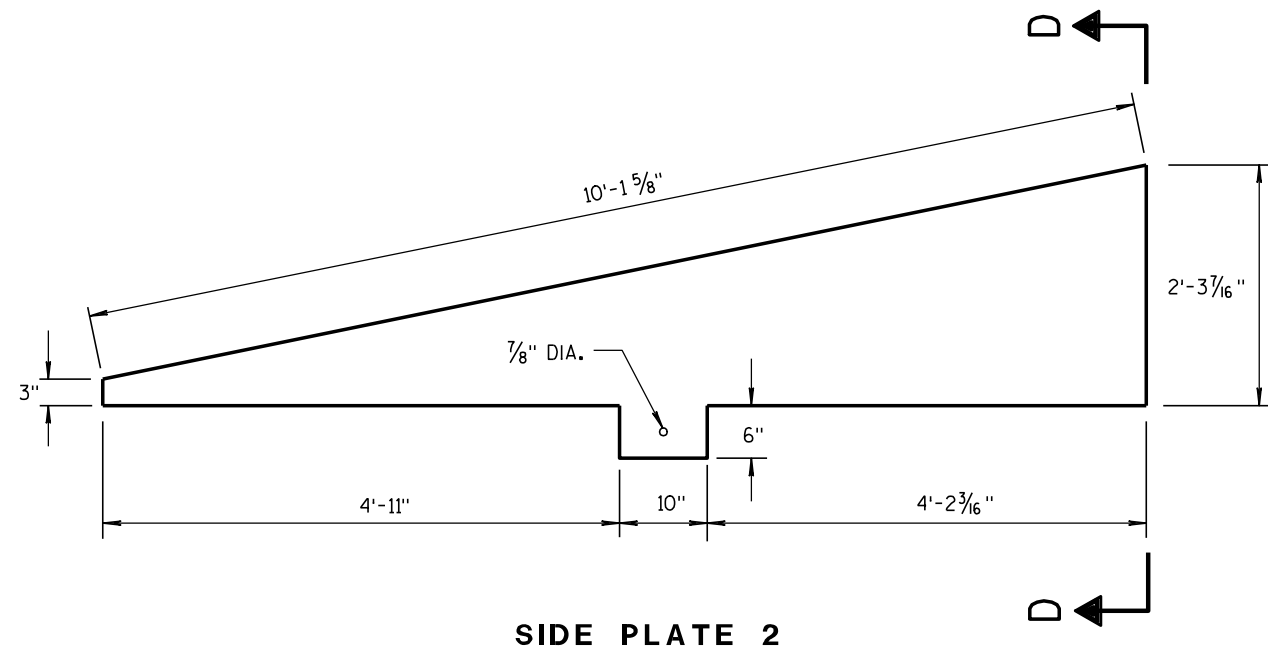
GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

DATE

FHWA

/S/ Jerry H. Zogg

ROADWAY STANDARD DEVELOPMENT

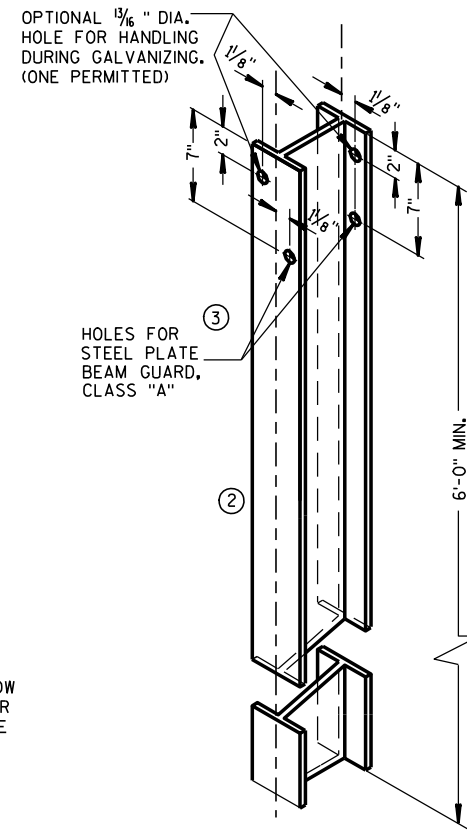
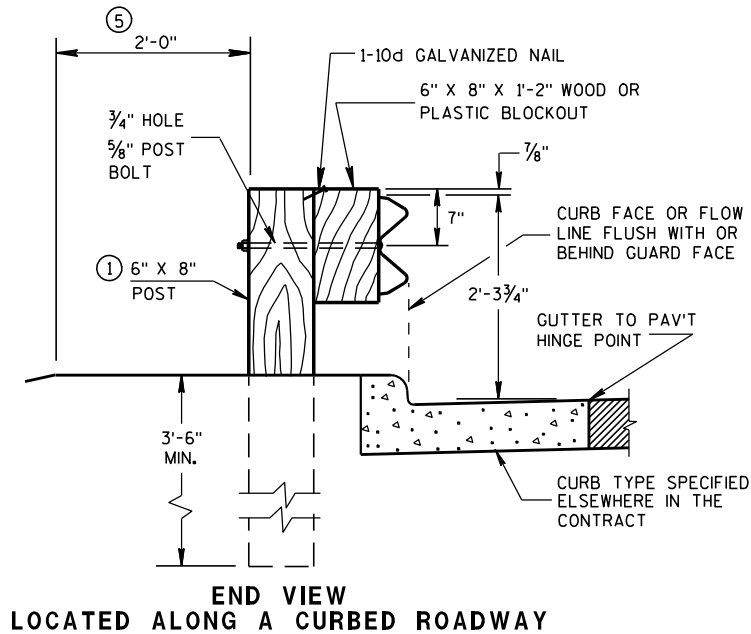
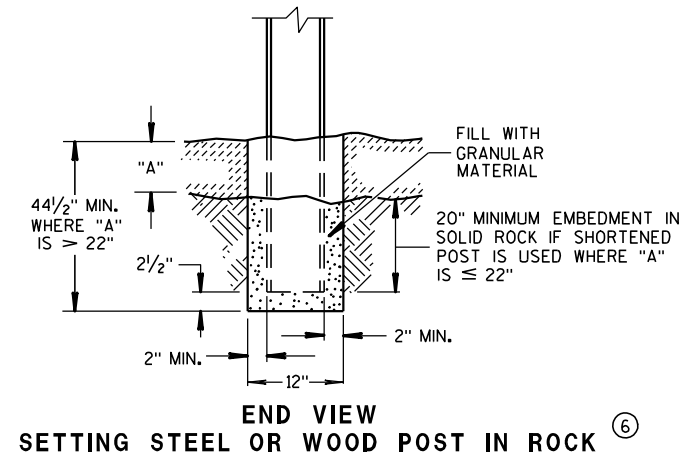
ENGINEER

GENERAL NOTES

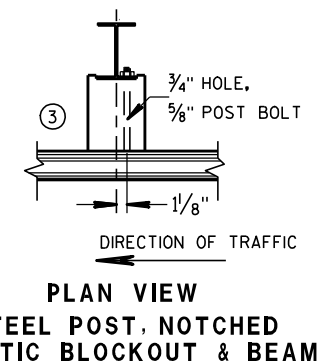
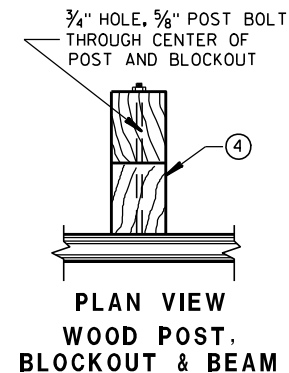
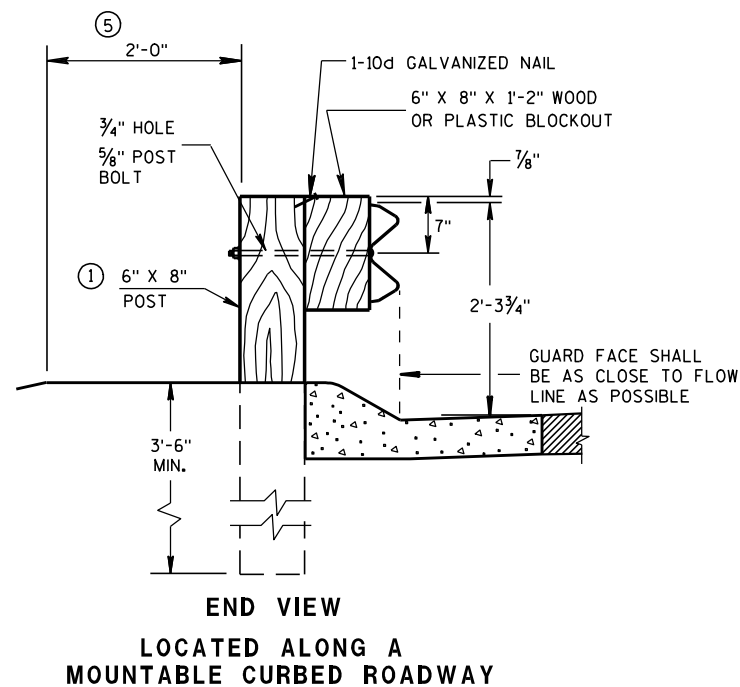
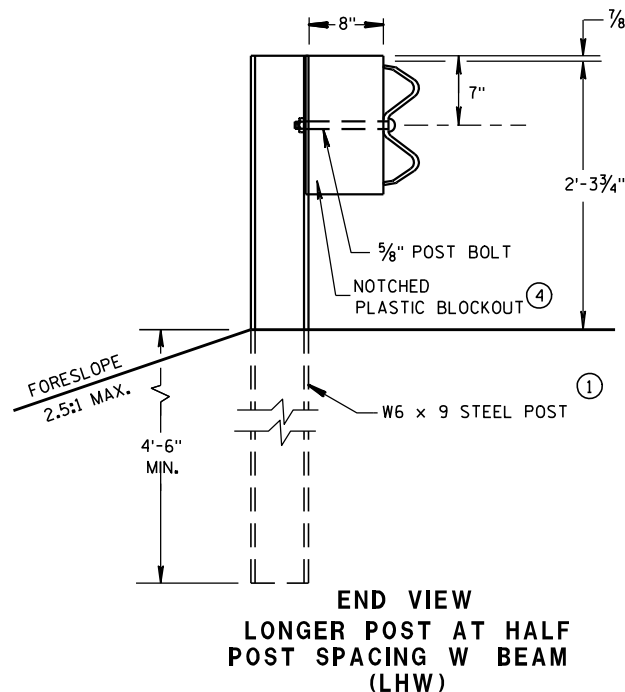
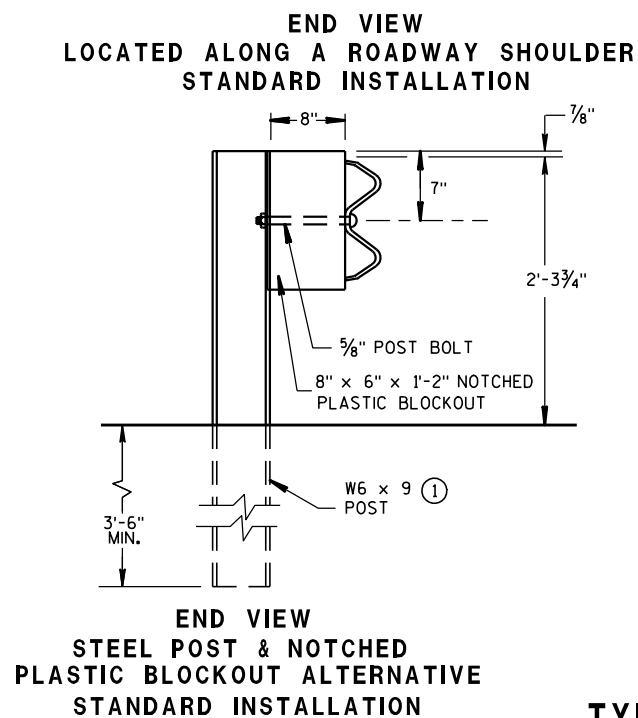
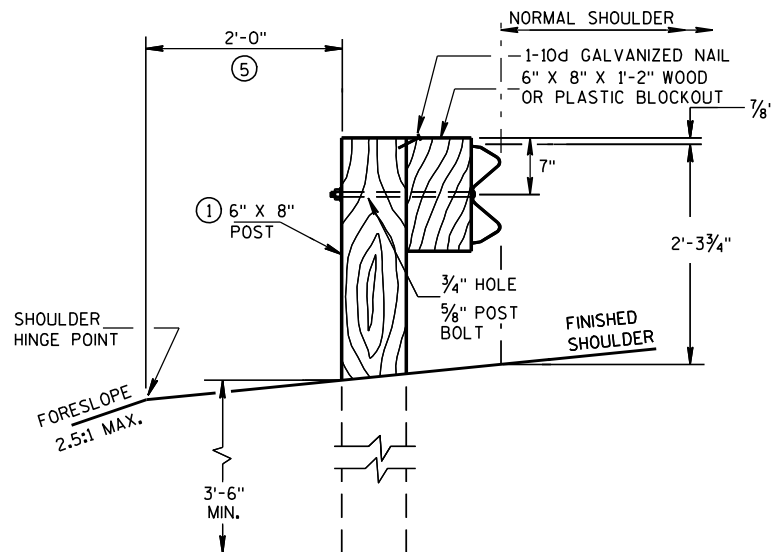
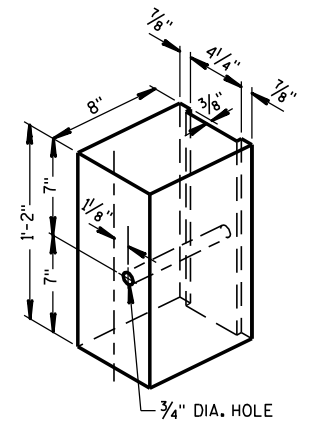
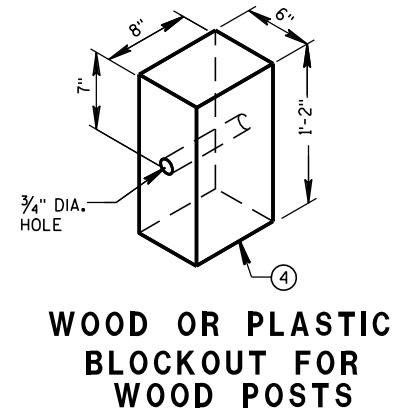
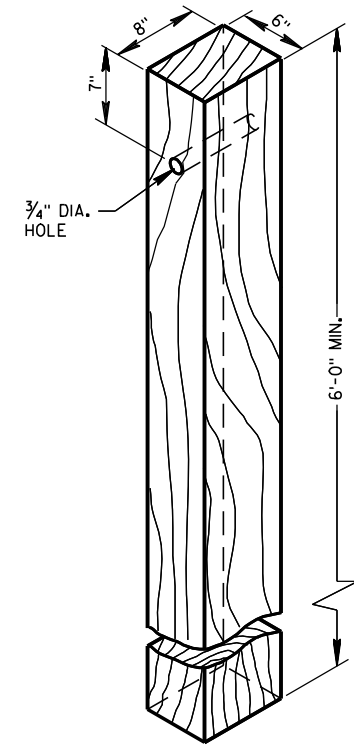
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, AND THE APPLICABLE SPECIAL PROVISIONS.

- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.
DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111 EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPALTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.

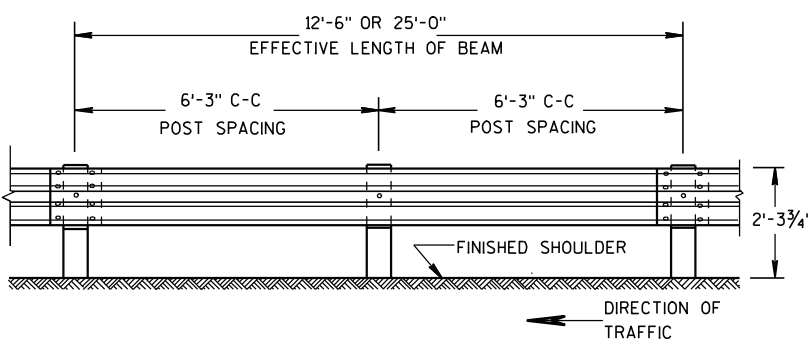


ALL HOLES 1 3/8" DIAMETER EXCEPT AS NOTED



STEEL PLATE BEAM GUARD,
CLASS "A"
INSTALLATION & ELEMENTS

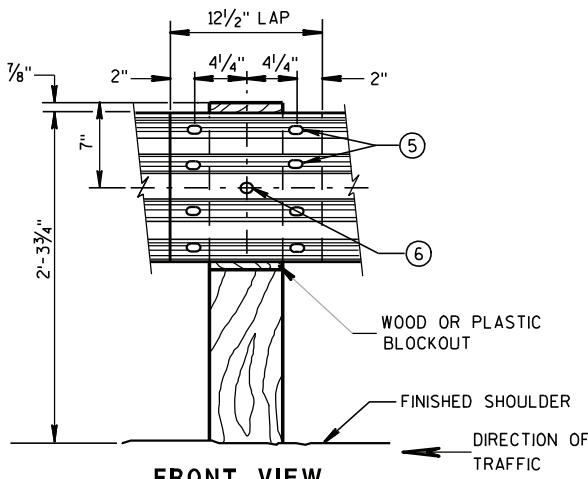
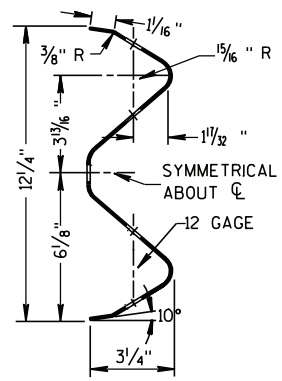
STATE OF WISCONSIN
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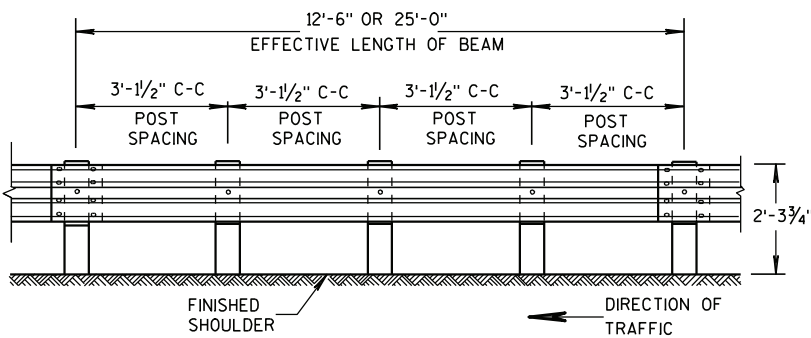
FRONT VIEW

POST SPACING STANDARD INSTALLATION

SECTION THRU W BEAM

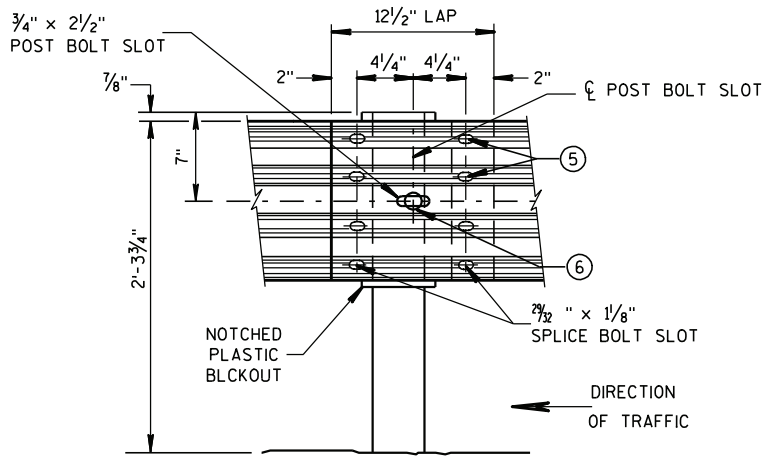


FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



FRONT VIEW

POST SPACING FOR LONGER POST
AT HALF POST SPACING W BEAM (LHW)

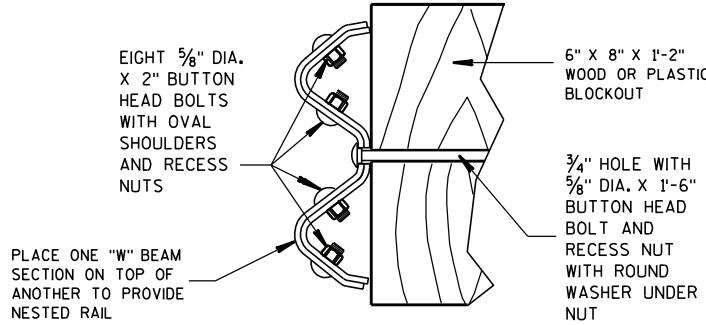


FRONT VIEW
BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS
OF STEEL PLATE BEAM GUARD

GENERAL NOTES

- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
- ⑤ 8 - $\frac{5}{8}$ " ϕ X 2 " BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑥ $\frac{5}{8}$ " ϕ X 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.

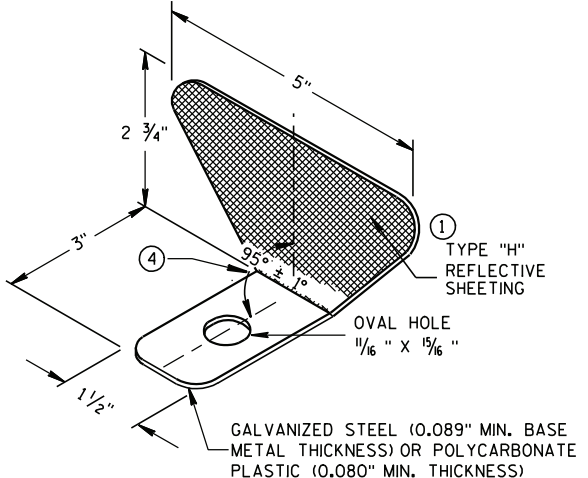
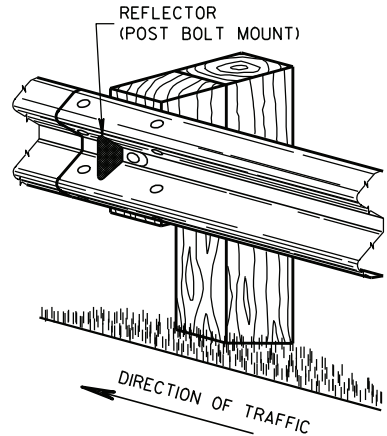


NESTED W BEAM (NW)

USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

REFLECTOR SPACING^②

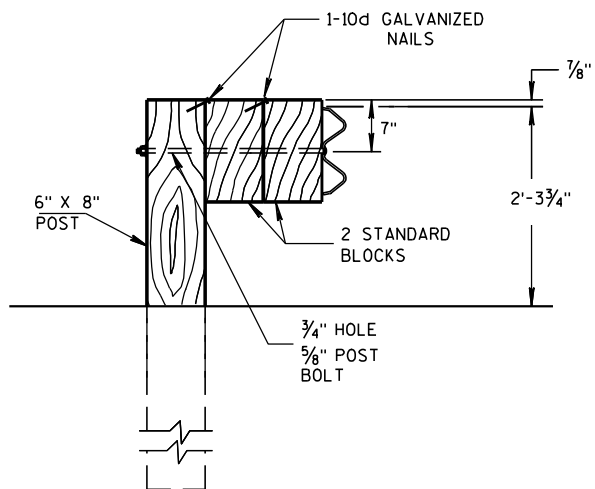
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

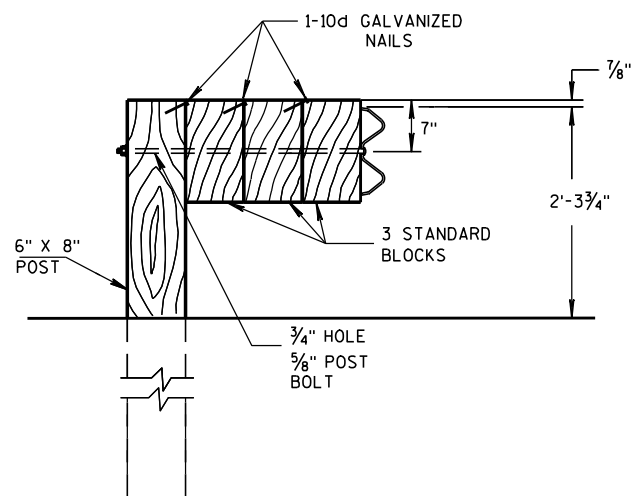
STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS
WITHIN A BARRIER RUN IS UNLIMITED

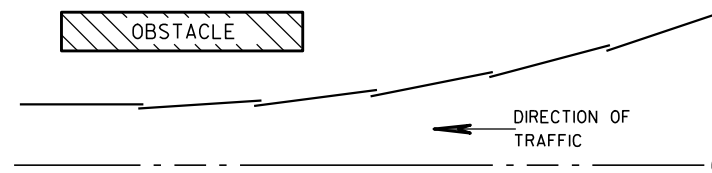


DETAIL FOR TRIPLE BLOCKS

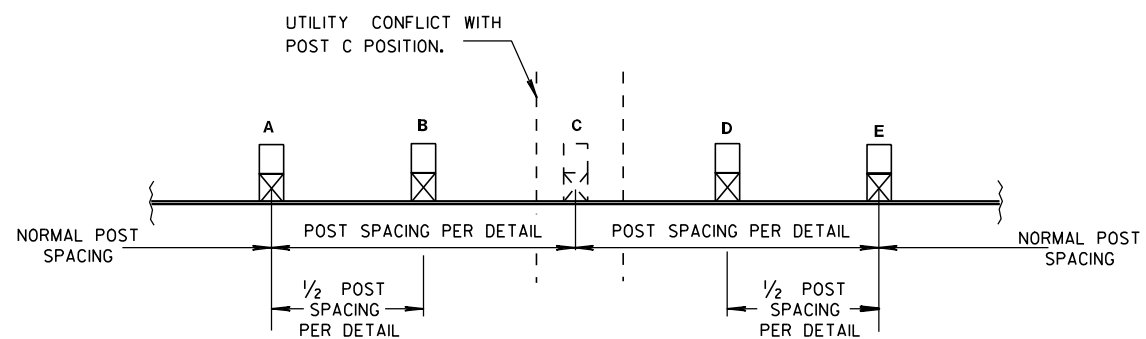
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES
PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND
SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION
DISTANCE OF THE BARRIER.



PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/23/11

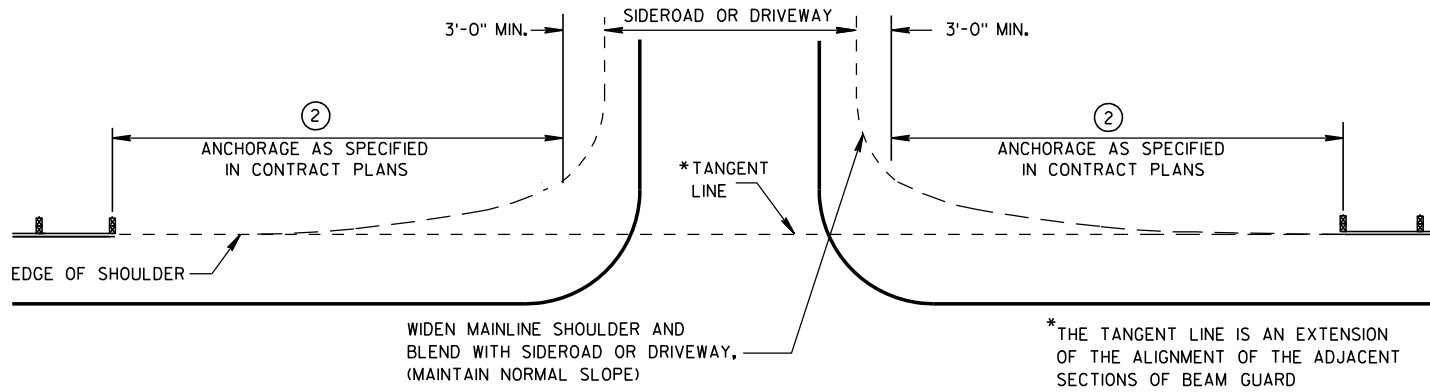
DATE

FHWA

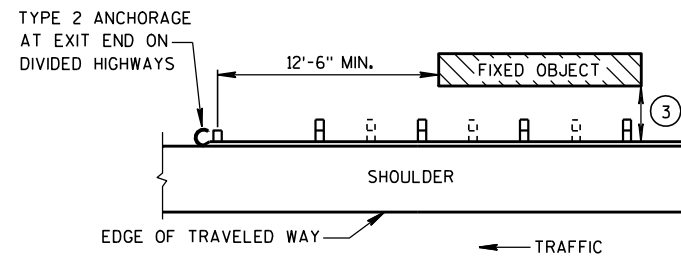
/S/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

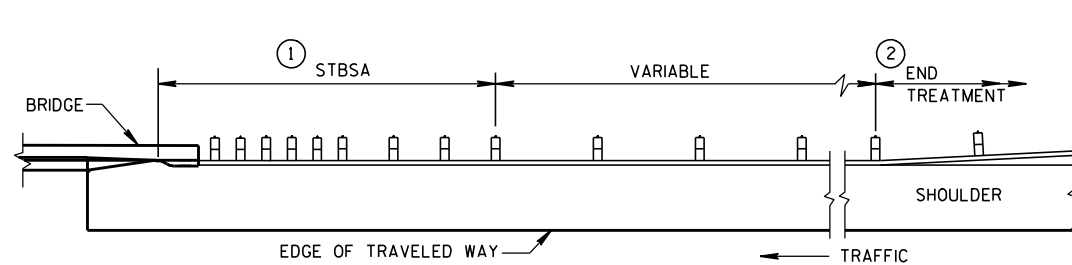
ENGINEER



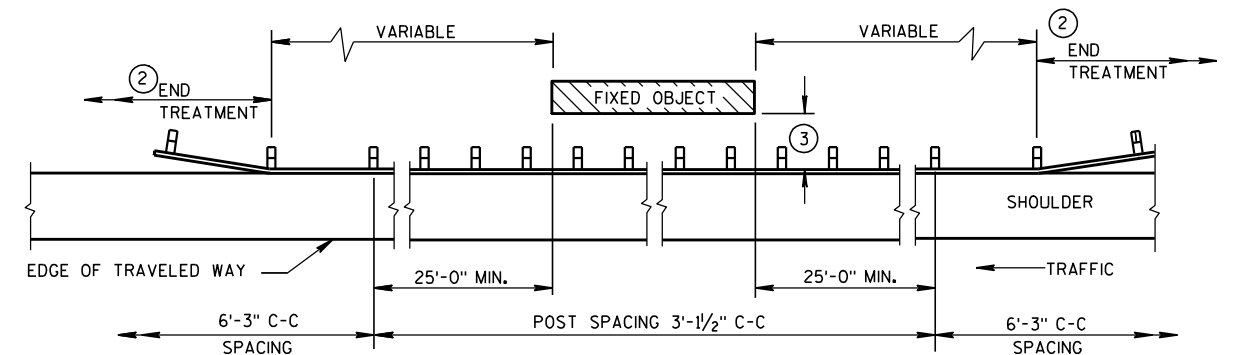
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES

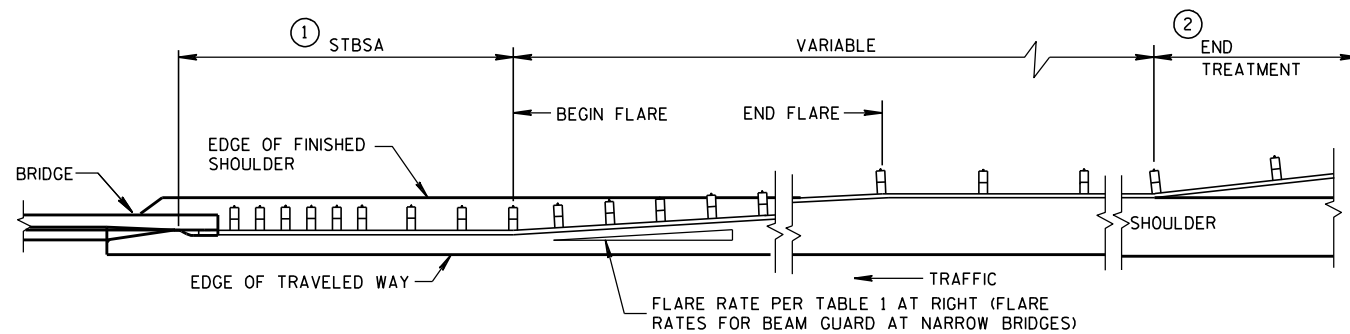


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"

STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
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APPROVED
8-21-07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

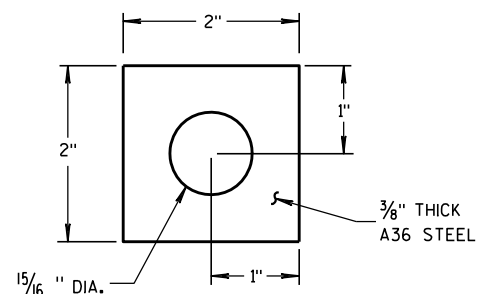
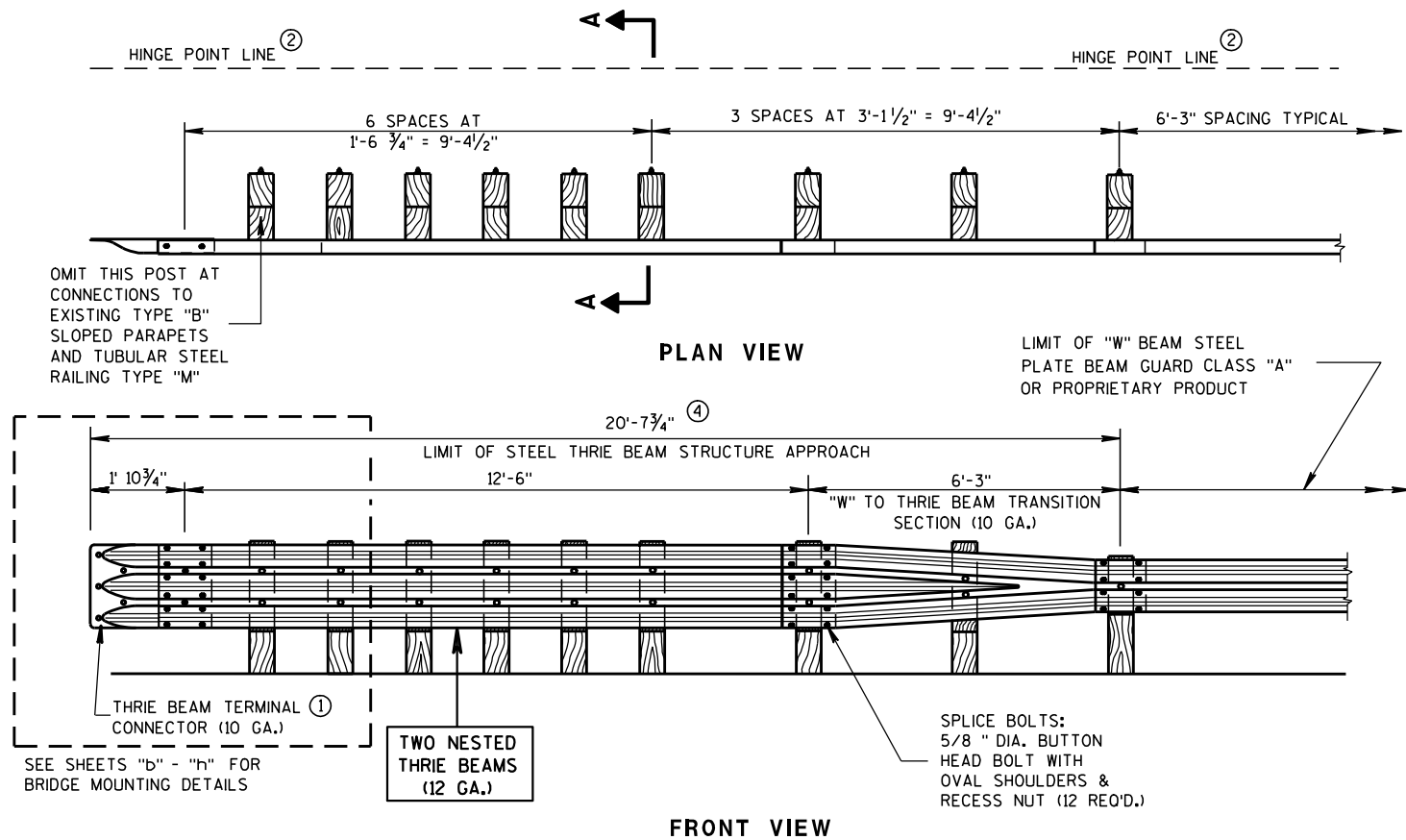


PLATE WASHER DETAIL

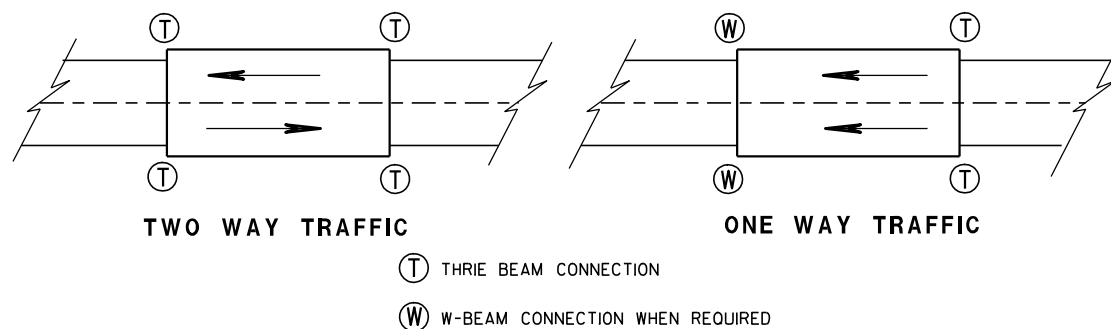
GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

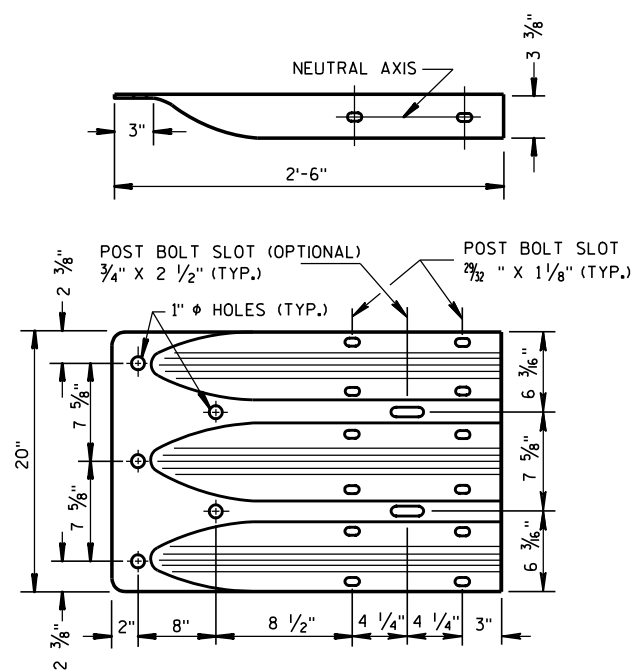
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

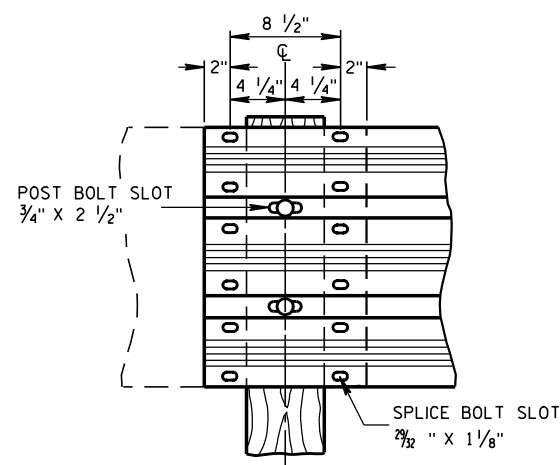
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



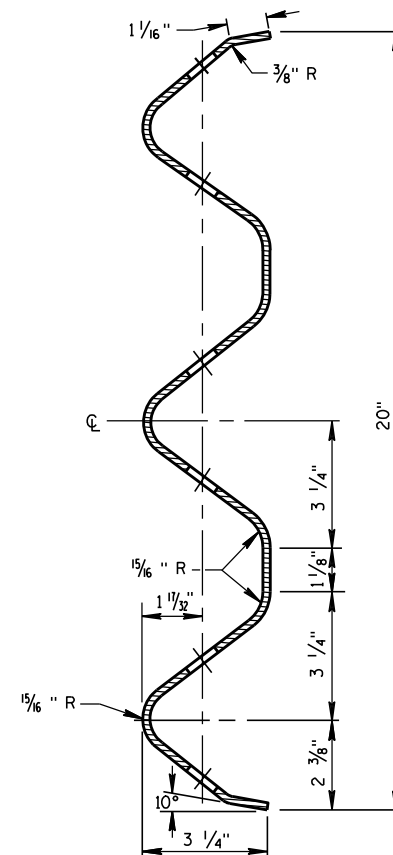
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



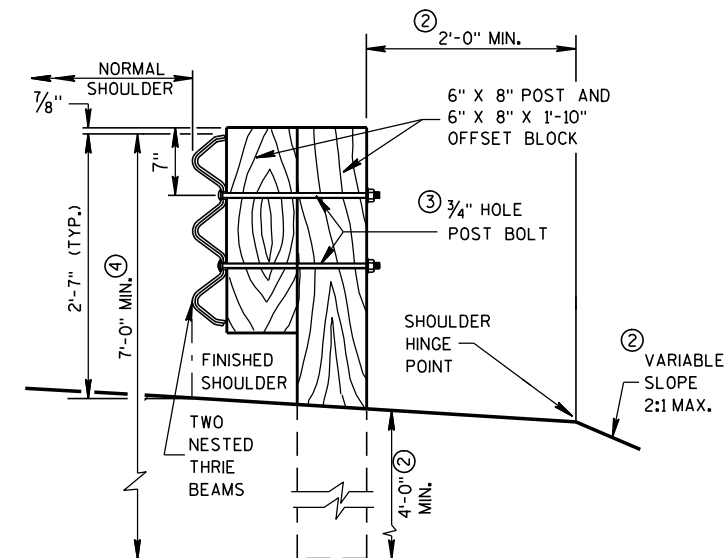
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

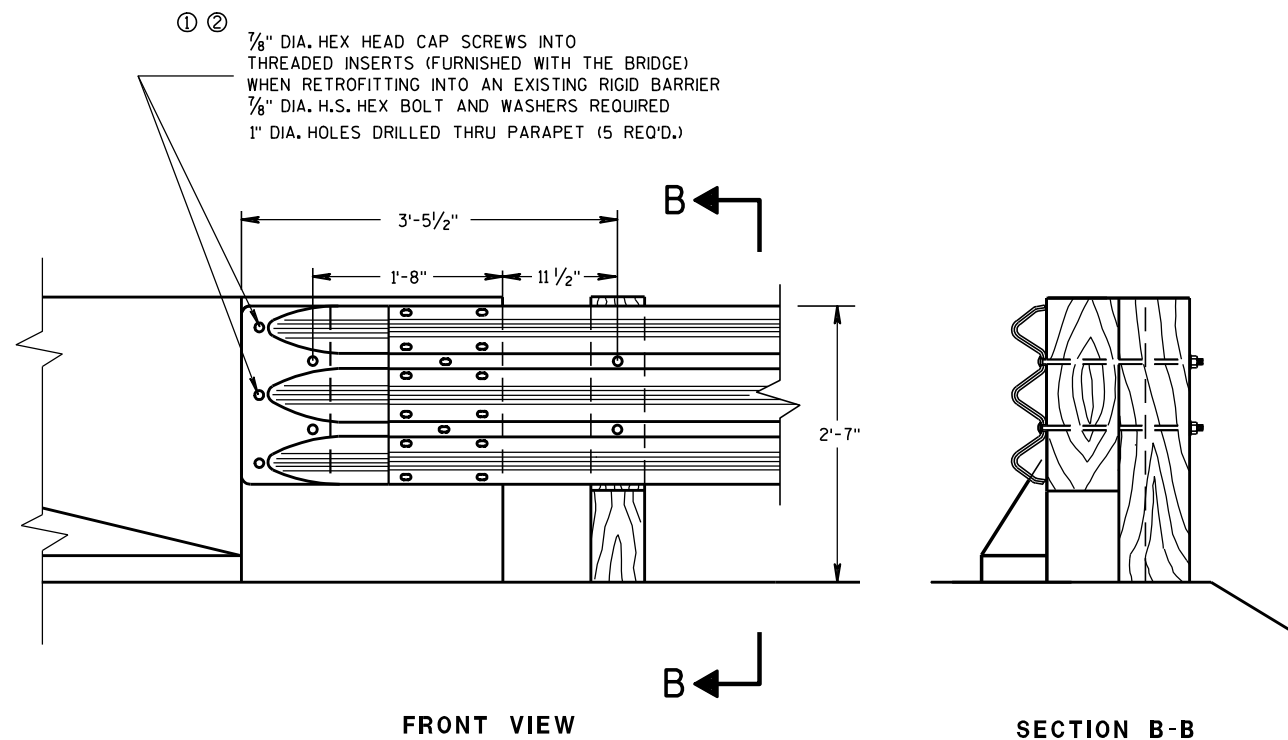
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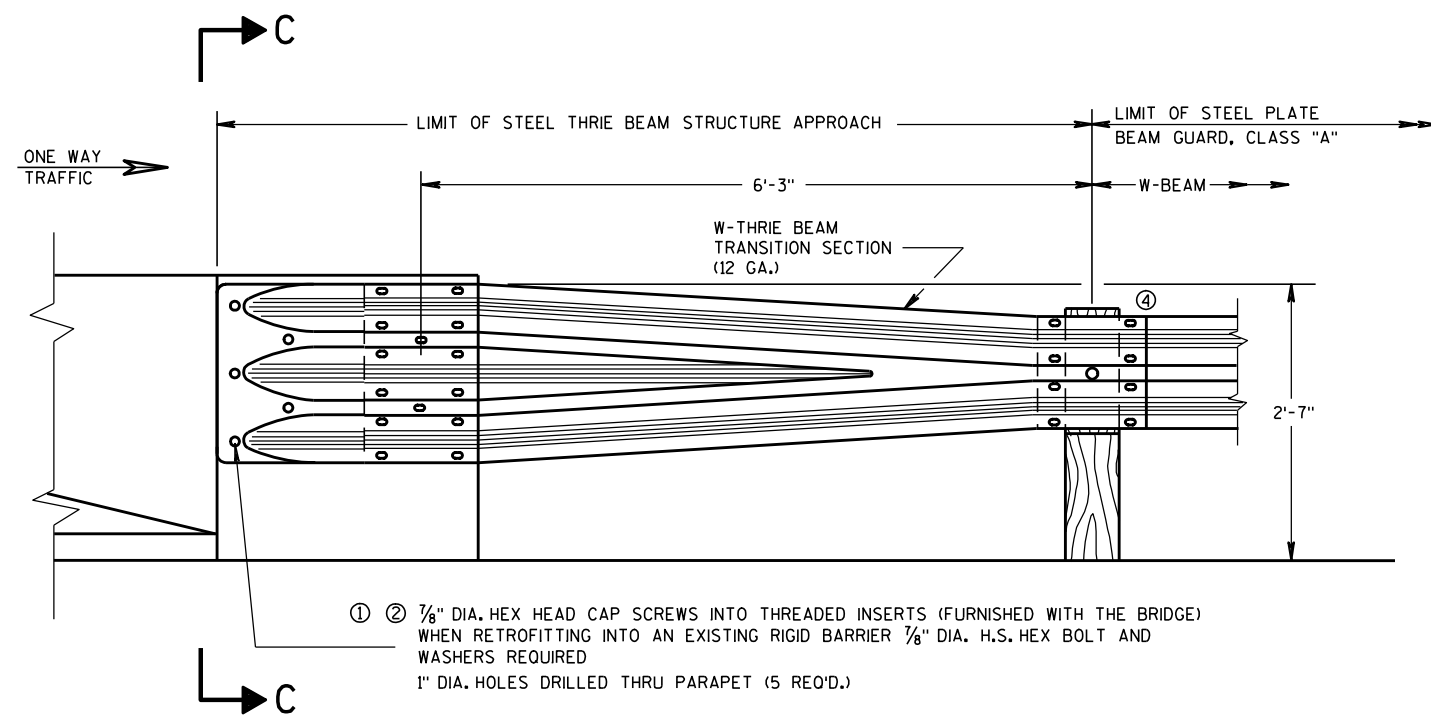
/s/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER



THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS



W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

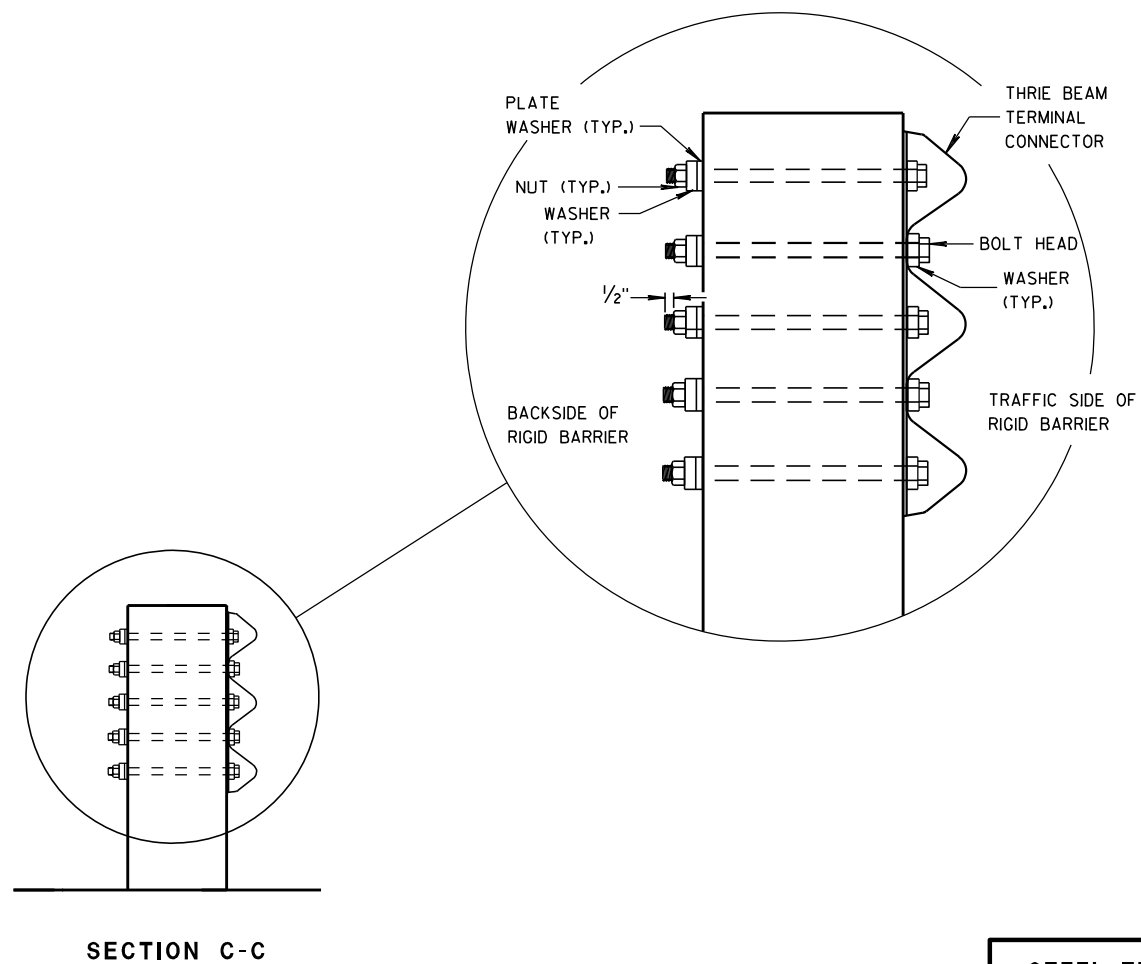
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

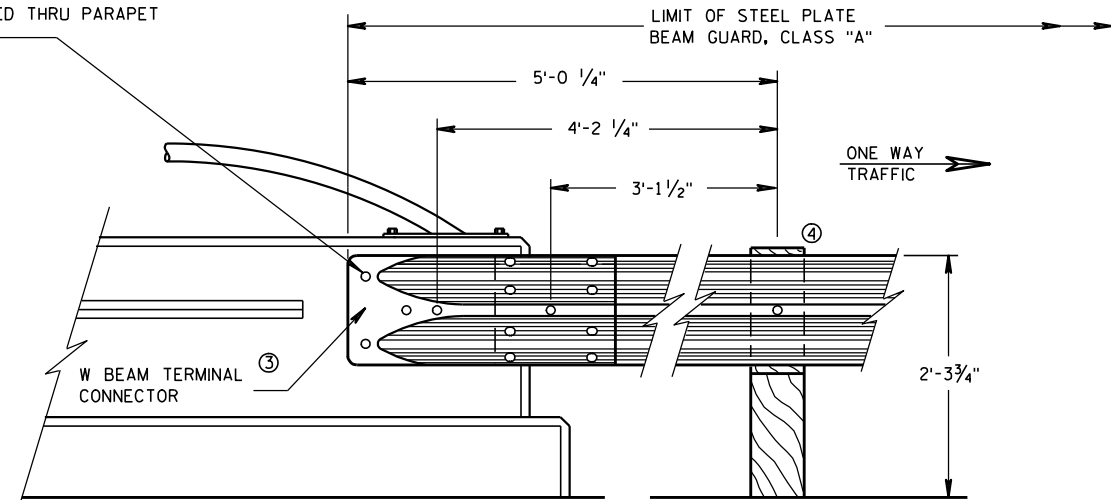
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X $\frac{5}{8}$ " THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 $\frac{1}{2}$ ".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
- ⑤ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

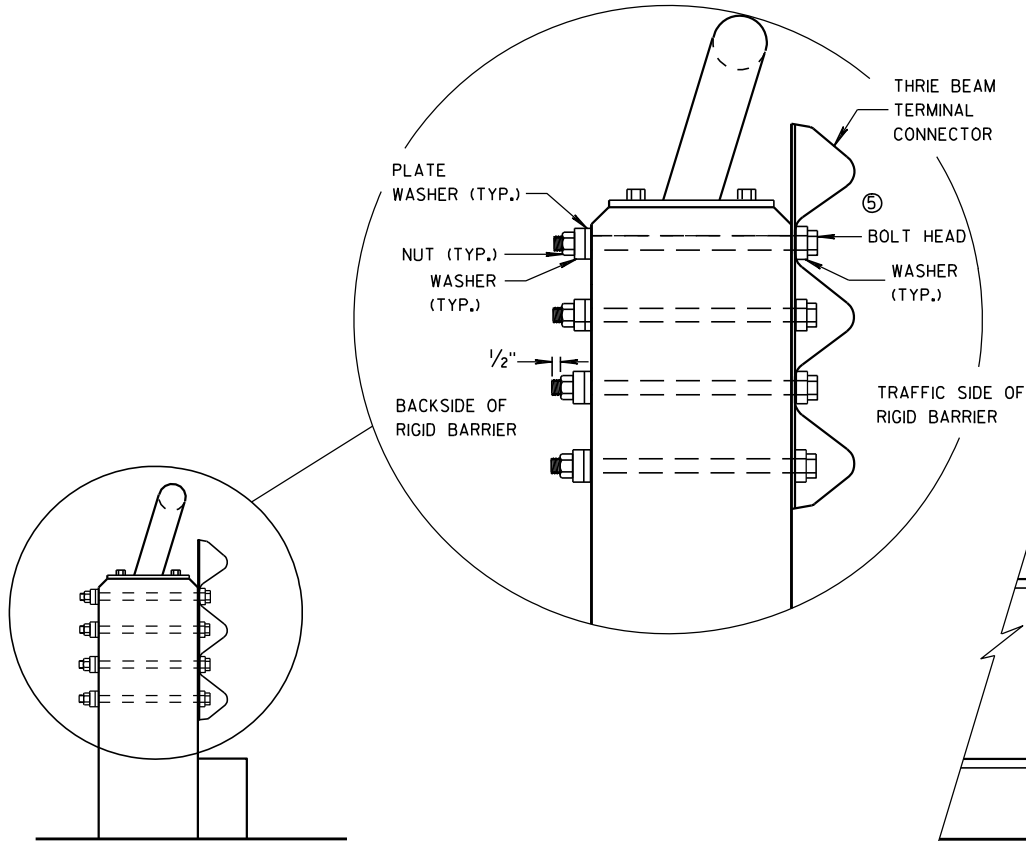
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

- ① ② $\frac{7}{8}$ " DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER $\frac{7}{8}$ " DIA. H.S. HEX BOLT AND WASHERS REQUIRED
- 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

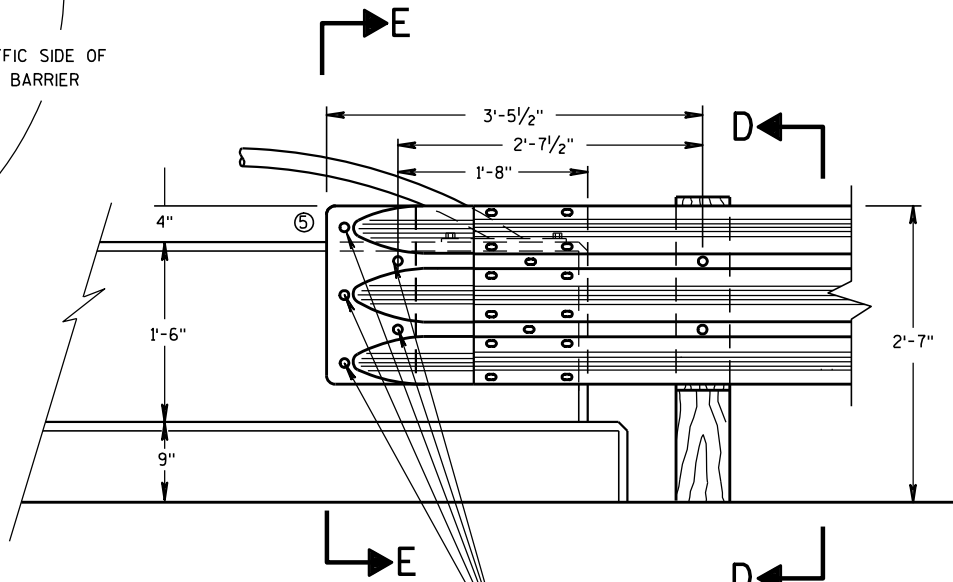


FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



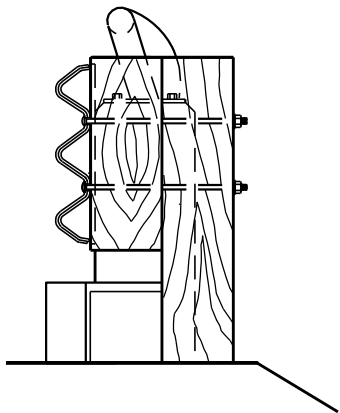
SECTION E-E



FRONT VIEW

- ① ② $\frac{7}{8}$ " DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER $\frac{7}{8}$ " DIA. H.S. HEX BOLT AND WASHERS REQUIRED
- 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

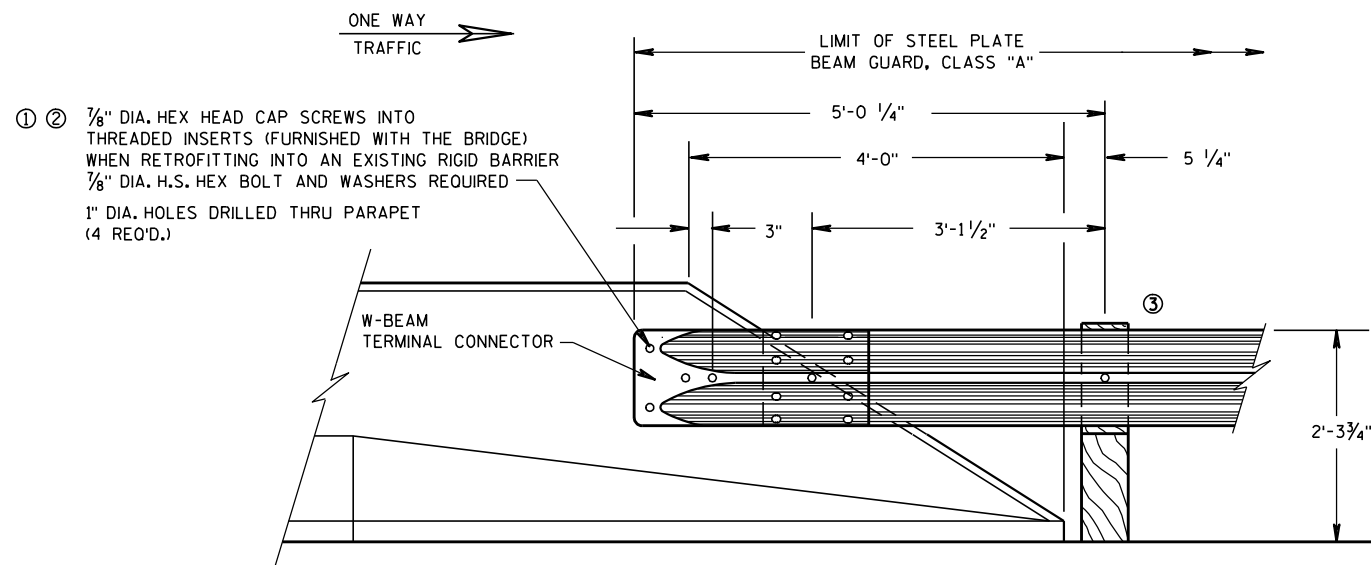


SECTION D-D

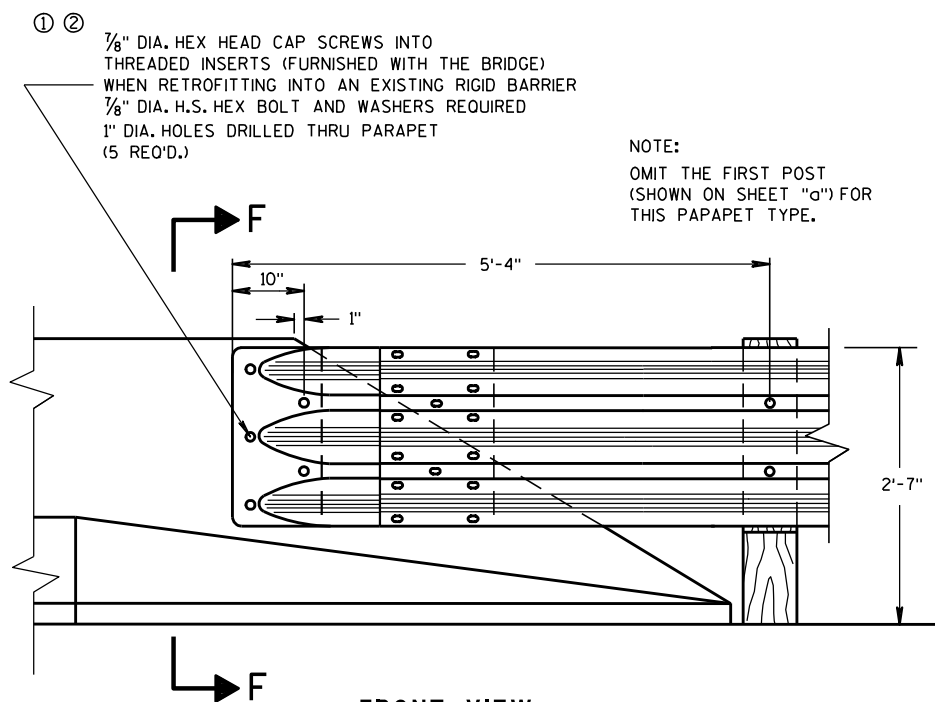
STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
VERTICAL FACED PARAPETS

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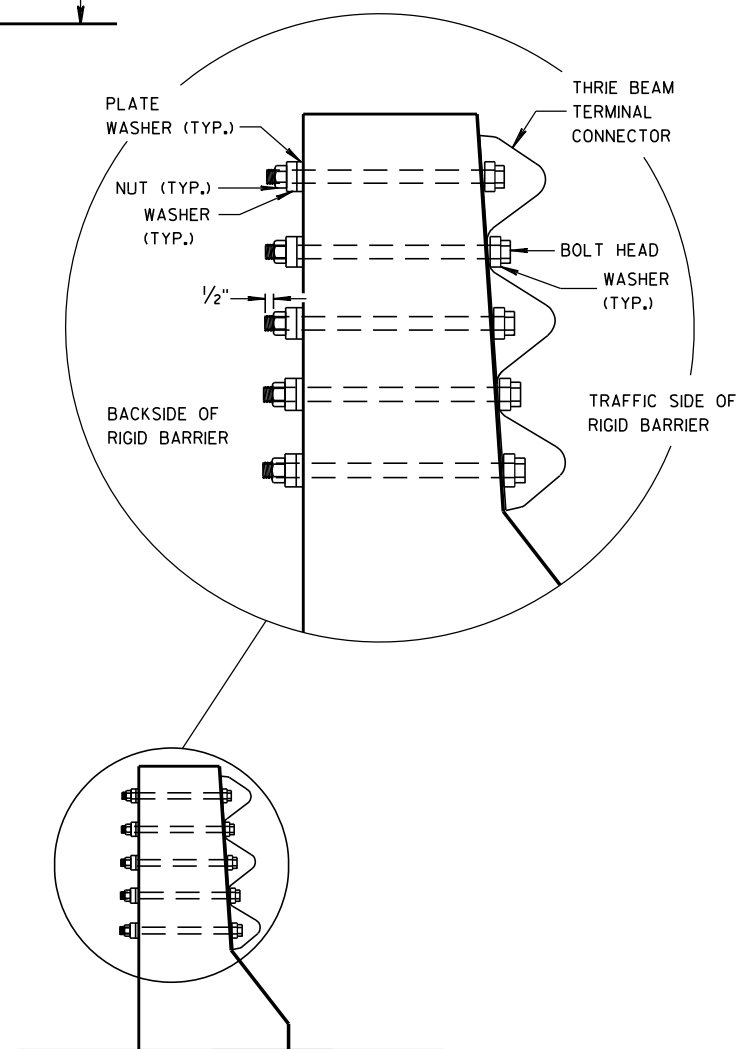
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8/31/2012
DATE
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ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



FRONT VIEW
W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS
 (USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)



FRONT VIEW
THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS



SECTION F-F

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

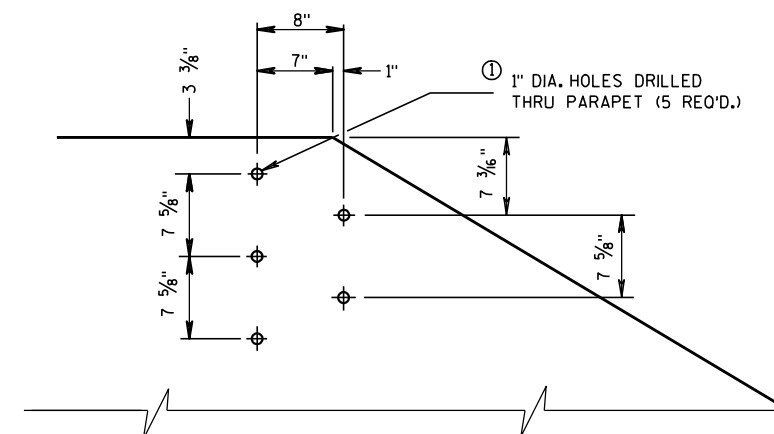
BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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③ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION

STEEL THRIE BEAM STRUCTURE APPROACH CONNECTION TO SLOPED END PARAPETS

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

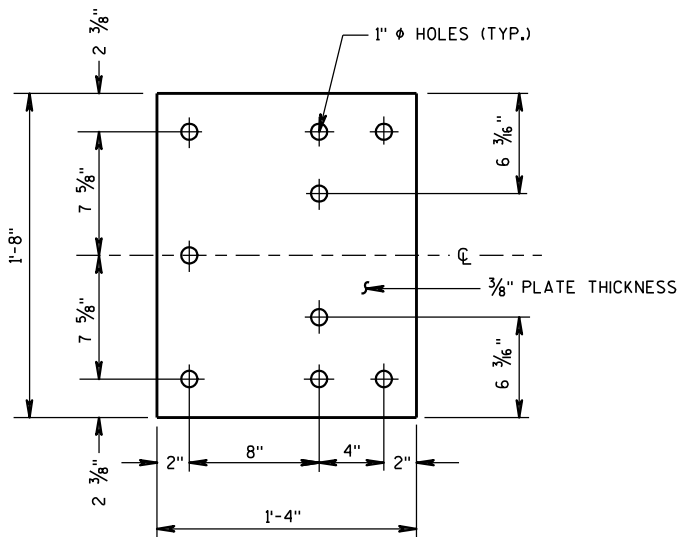
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8/31/2012

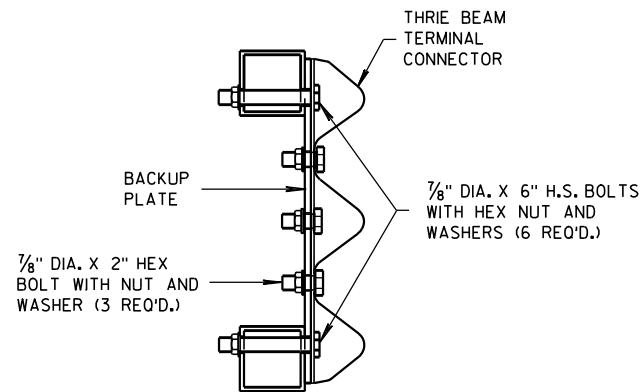
DATE

FHWA

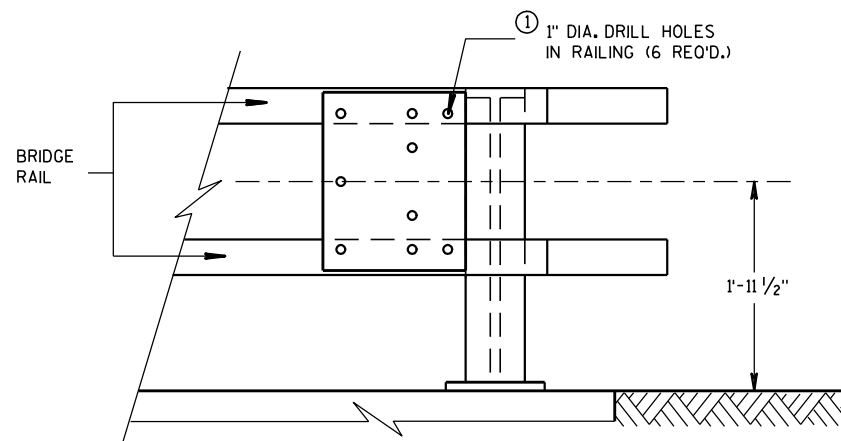
/S/ Jerry H. Zogg
 ROADWAY STANDARDS DEVELOPMENT
 ENGINEER



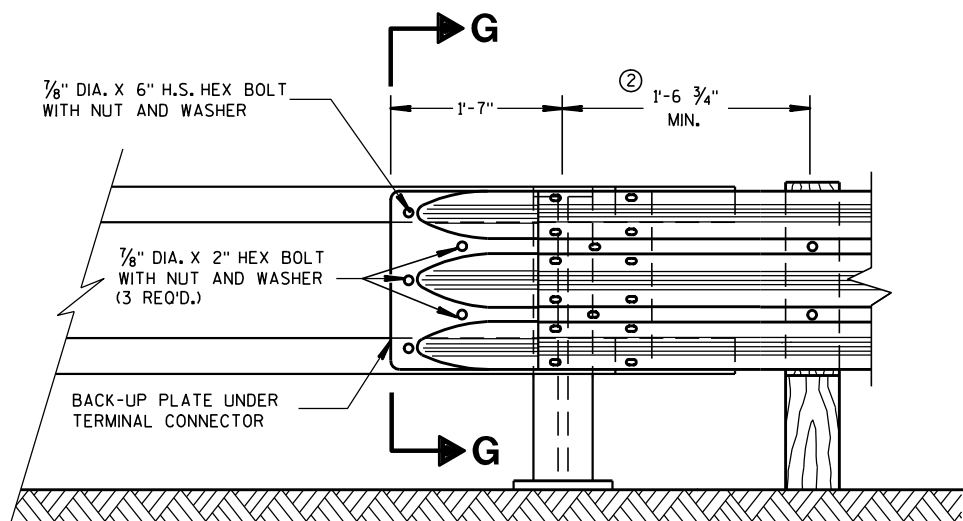
BACK-UP PLATE DETAIL



SECTION G-G

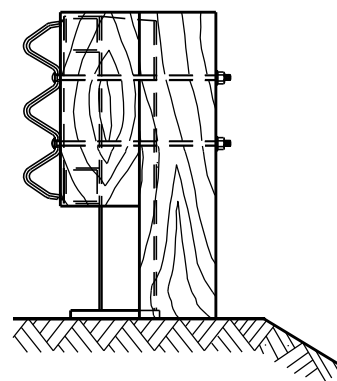


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

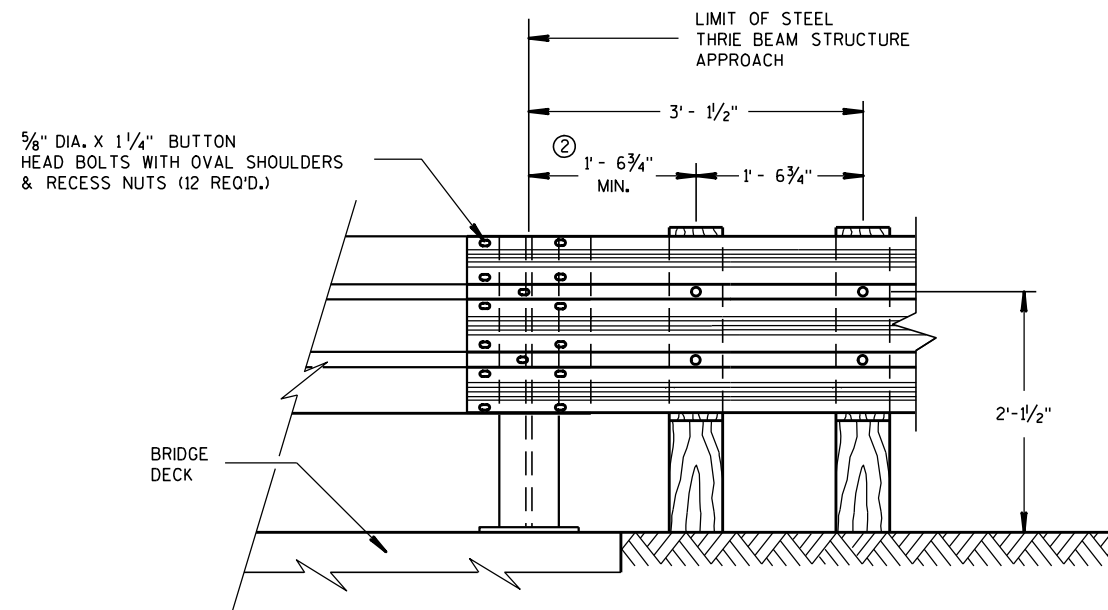


END VIEW

GENERAL NOTES

BOLTS, PLATES, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 325 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL AS CLOSE AS FEASIBLE TO THE STEEL END POST.



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO BRIDGE
RAILING TYPES "F" AND "W"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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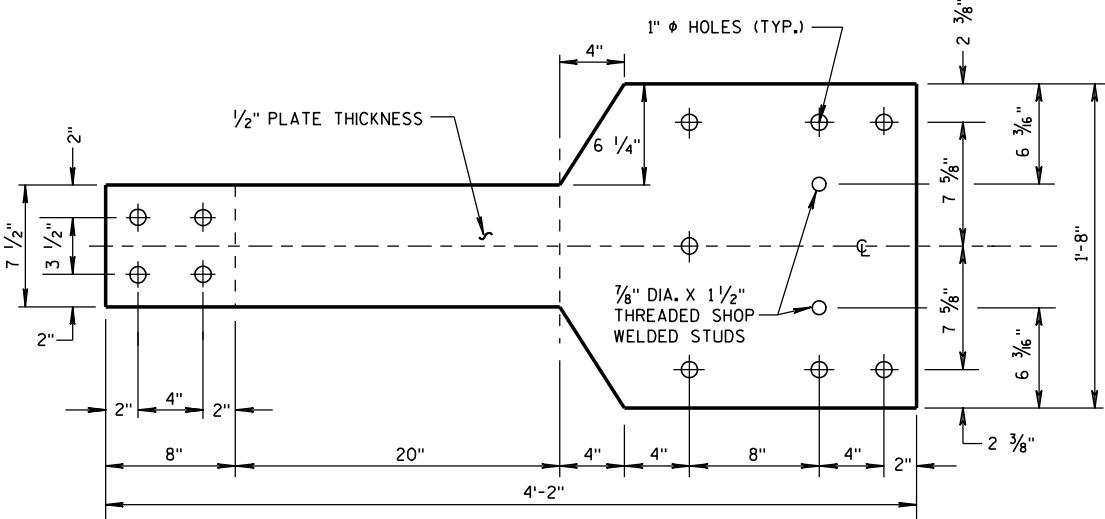
8/31/2012
DATE

FHWA

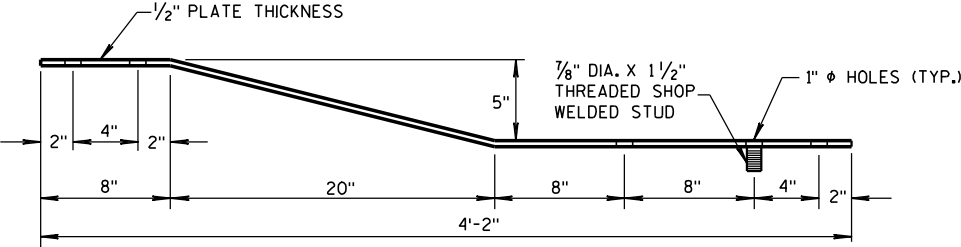
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ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

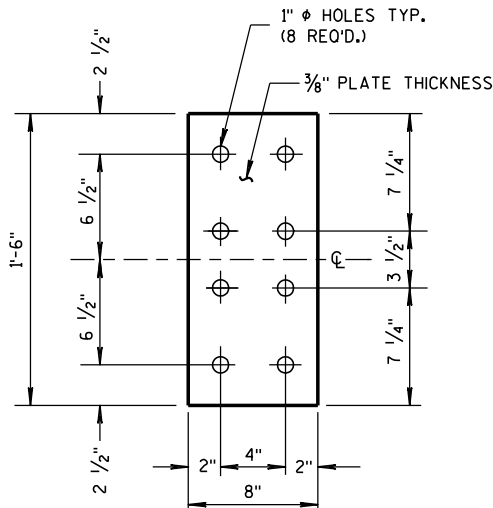
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



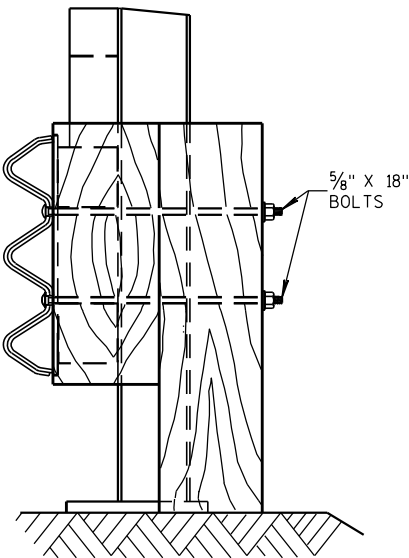
FRONT VIEW



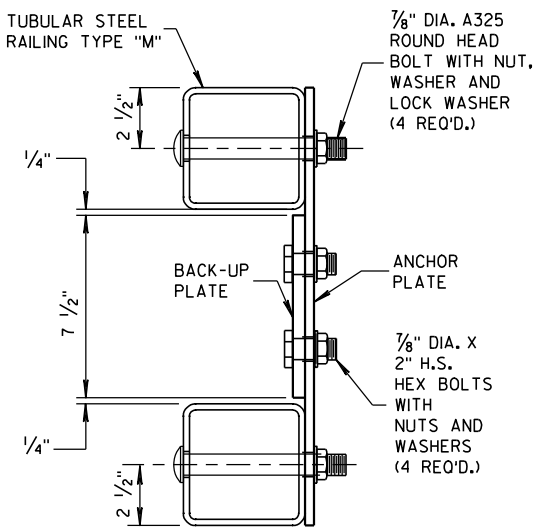
**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**



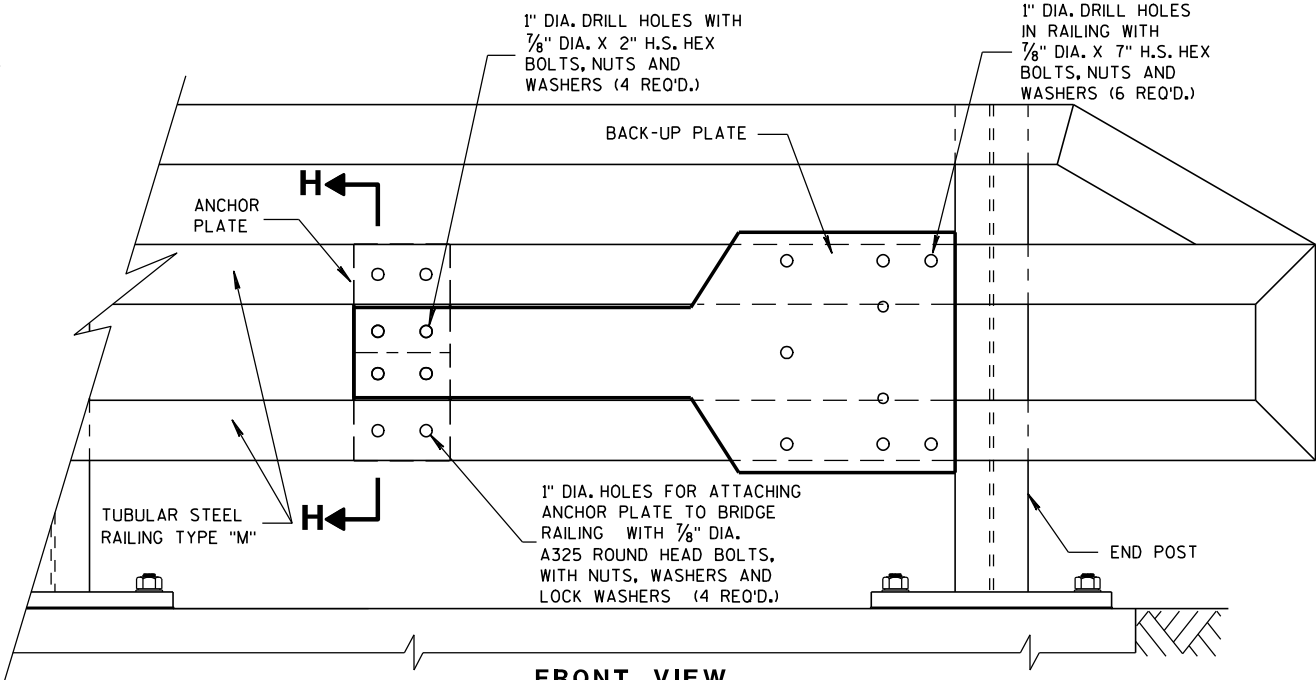
**FRONT VIEW
ANCHOR PLATE DETAIL,
TYPE "M"**



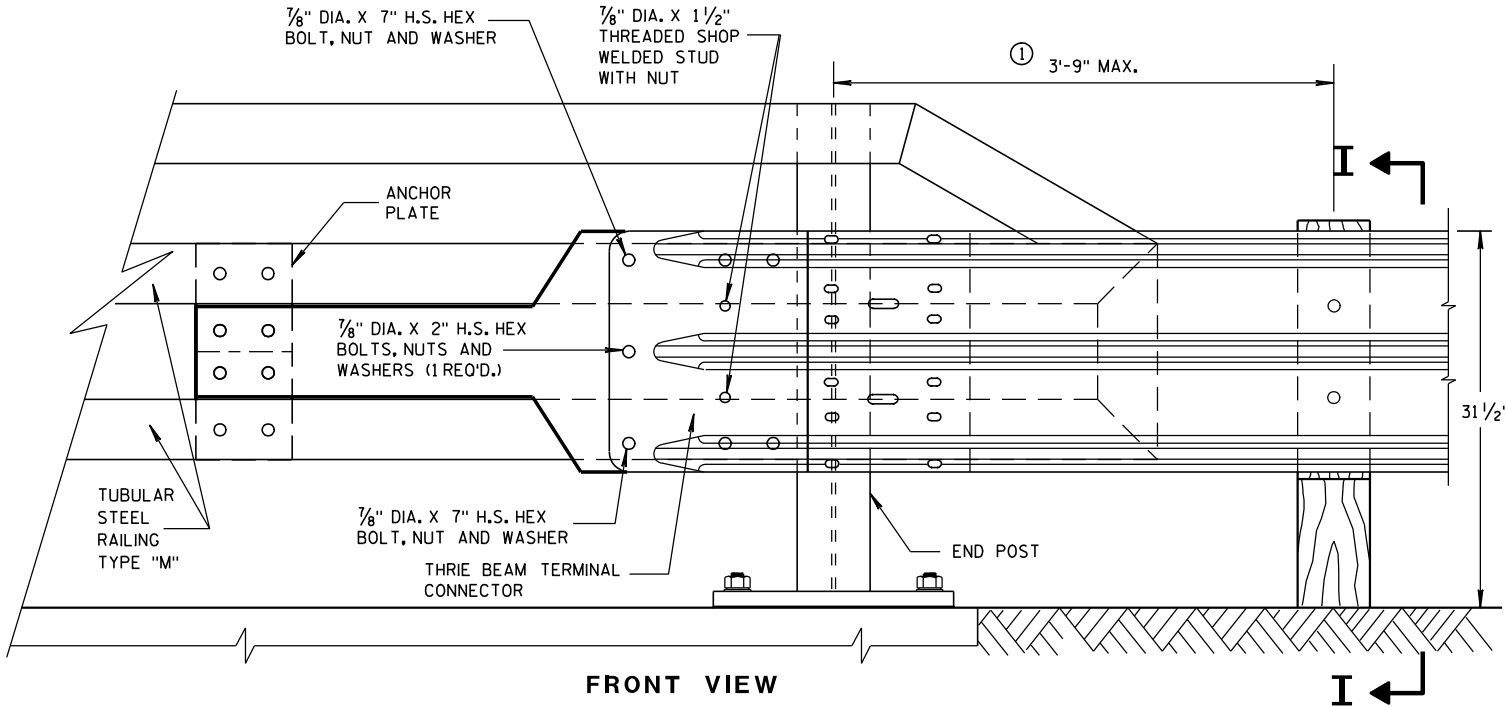
SECTION I-I



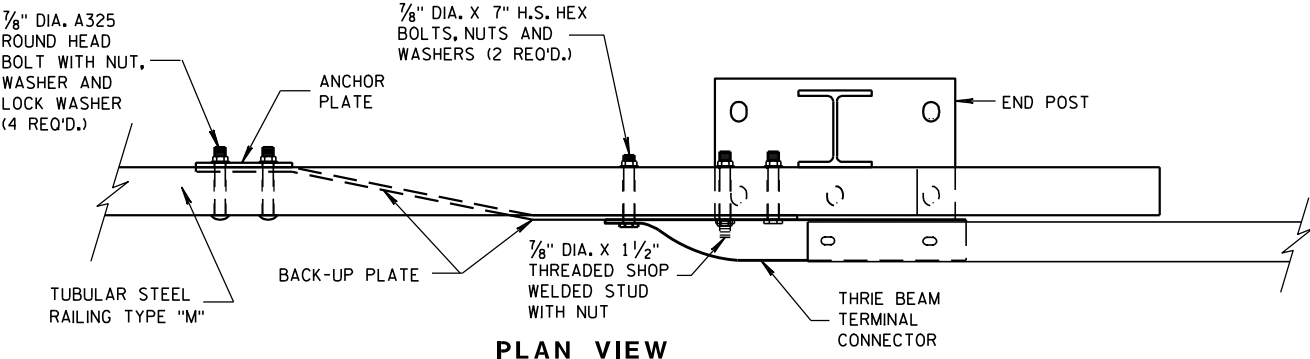
SECTION H-H



ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



PLAN VIEW

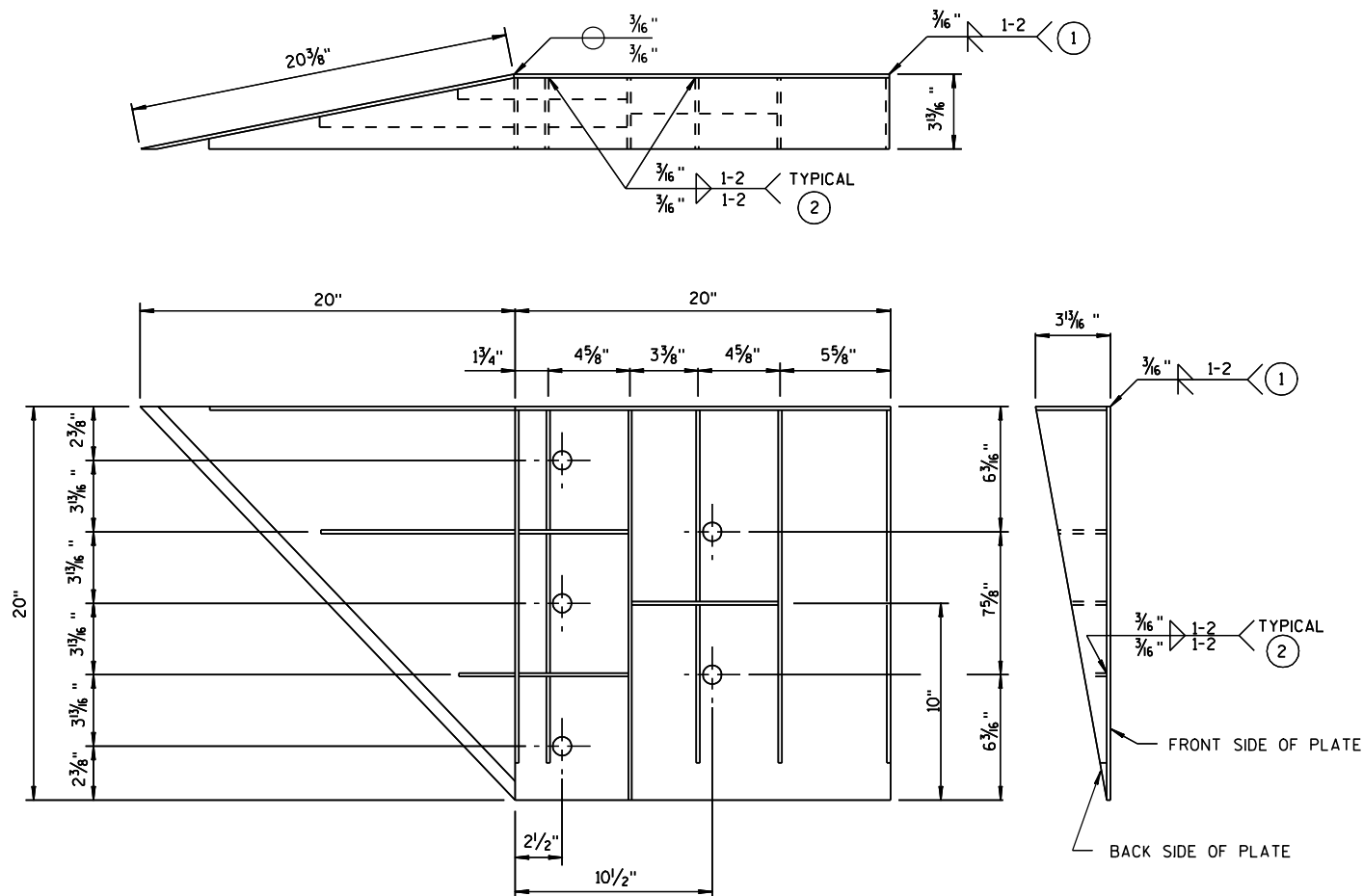
THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

**STEEL THRIE BEAM STRUCTURE
APPROACH CONNECTION TO
BRIDGE RAILING TYPE "M"**

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ROADWAY STANDARDS DEVELOPMENT
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WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 1/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 7/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 1/16"	1/4"

STEEL THRIE BEAM STRUCTURE APPROACH

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- 1 STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- 2 STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

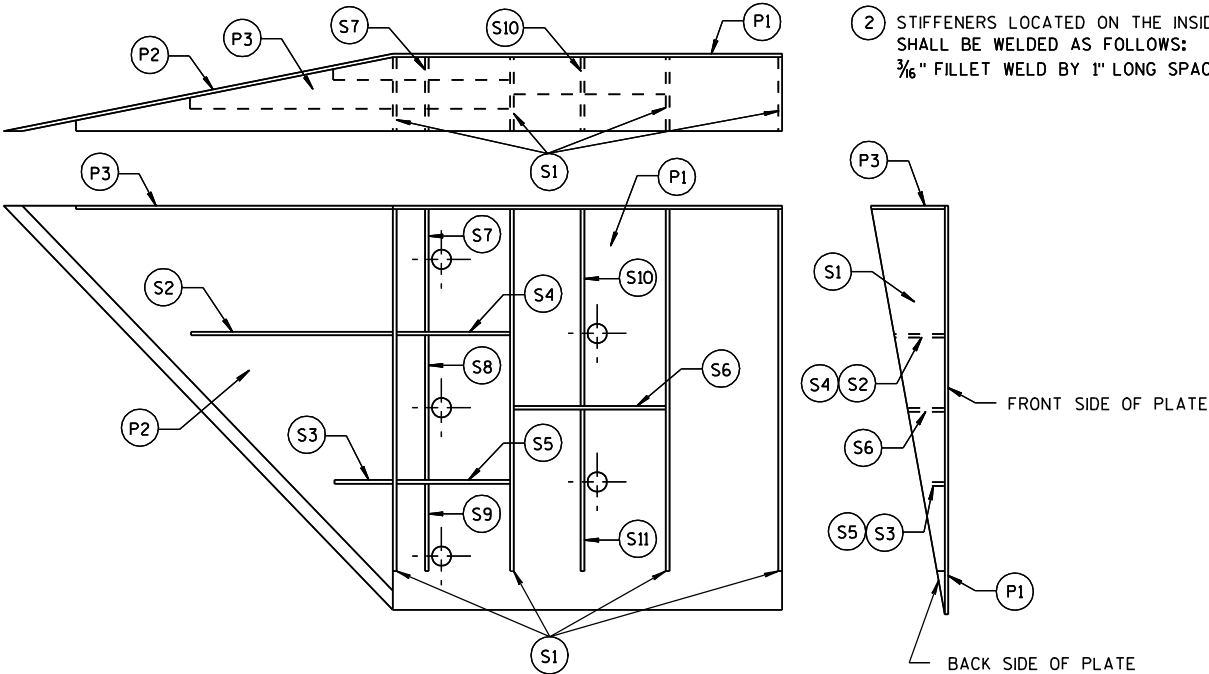


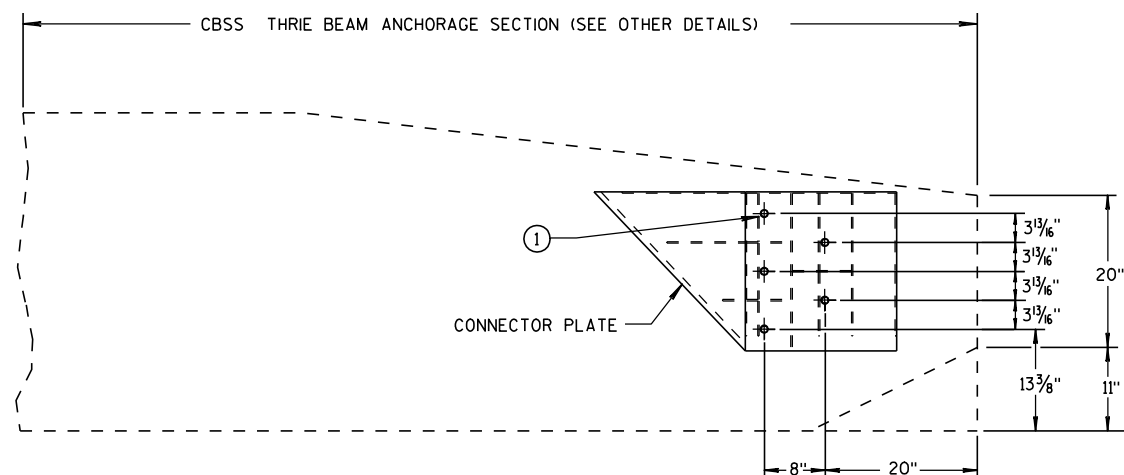
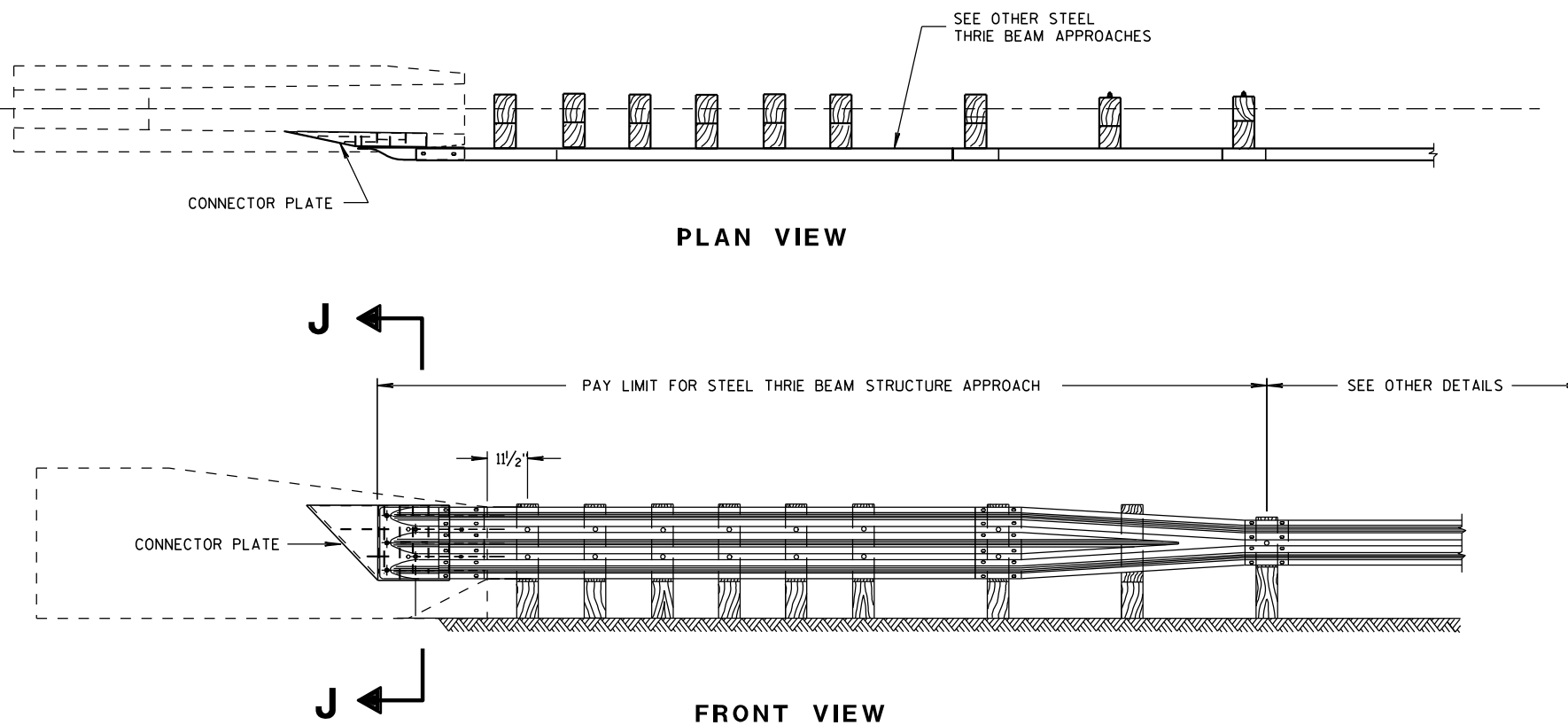
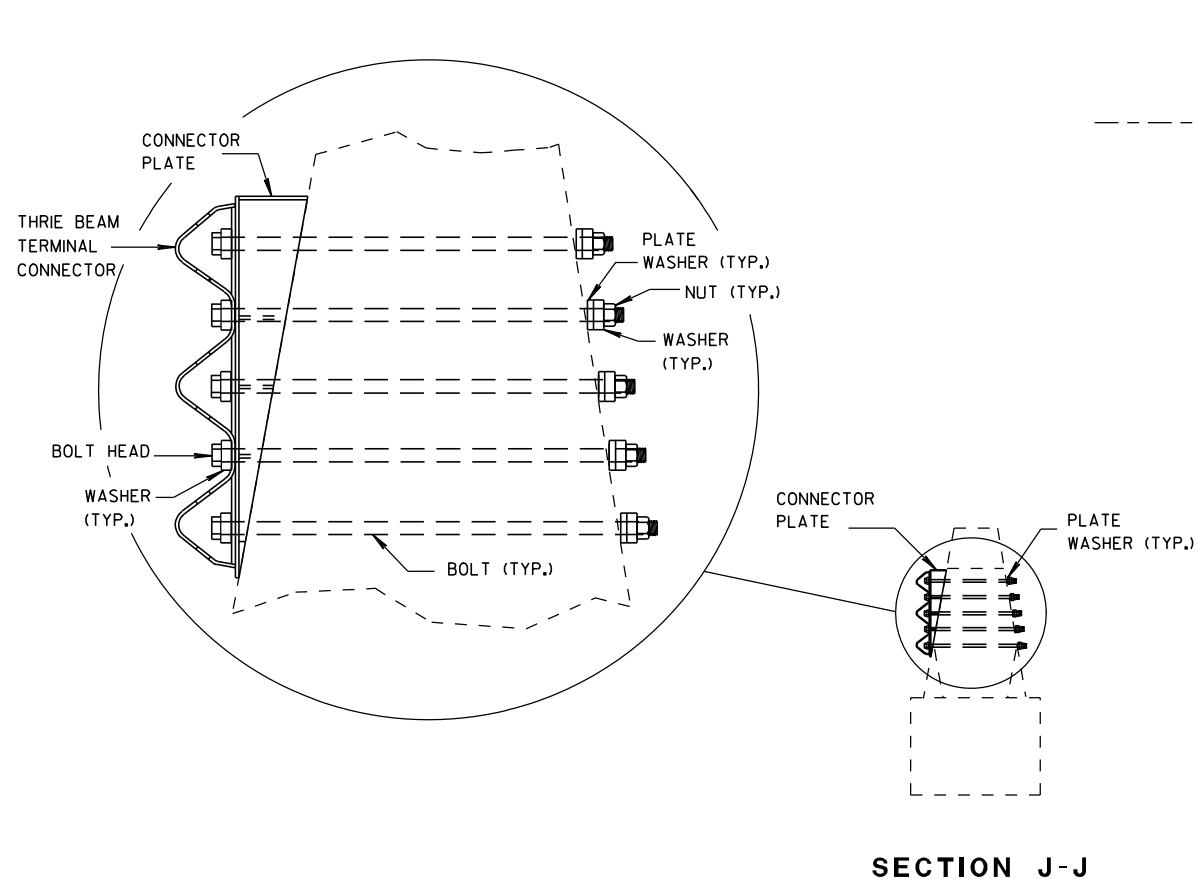
PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

STEEL THRIE BEAM
STRUCTURE APPROACH,
CONNECTOR PLATE DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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8/31/2012
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



STEEL THRIE BEAM STRUCTURE APPROACH

GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 614.

CONNECTOR PLATE, DRILLING HOLES THROUGH PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

- ① BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X $\frac{5}{16}$ " THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

**STEEL THRIE BEAM
STRUCTURE APPROACH,
SINGLE SLOPE ATTACHMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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8/31/2012

DATE

FHWA

/S/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER

BILL OF MATERIALS

NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	**	STEEL TUBE: OPTION 1 - QUANTITY OF 4 TS 8" X 6" X 0.188", 4'-6" LONG OR OPTION 2 - QUANTITY OF 2 TS 8" X 6" X 0.188", 6'-0" AND 2 TS 8" X 6" X 0.188", 4'-6" LONG
③	2	SOIL PLATE: 2'-0" X 1'-6" X 1/4" **
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA, 13'-6 1/2" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
⑫	3	STEEL PLATE BEAM: 12 GA, 13'-6 1/2"
⑬	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	REFLECTIVE SHEETING TYPE H: 18" X 18"
⑮	1	E.A.T. MARKER POST

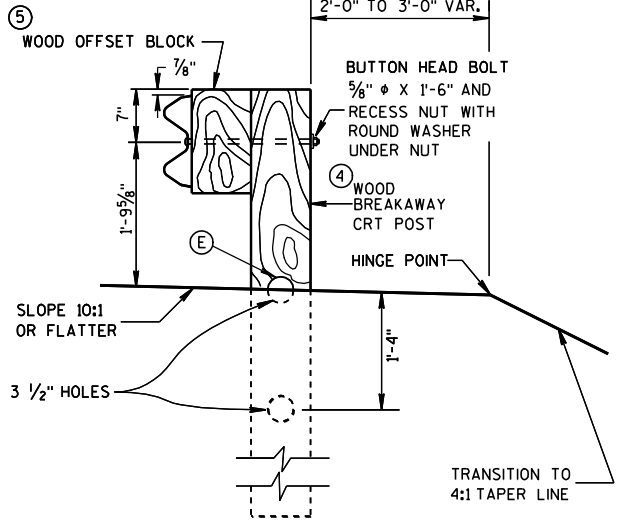
GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS. IF NONE ARE AVAILABLE, INSTALL 5/8" Ø X 1'-6" BUTTON HEAD BOLTS AT ALL POSTS EXCEPT FOR POST 1.

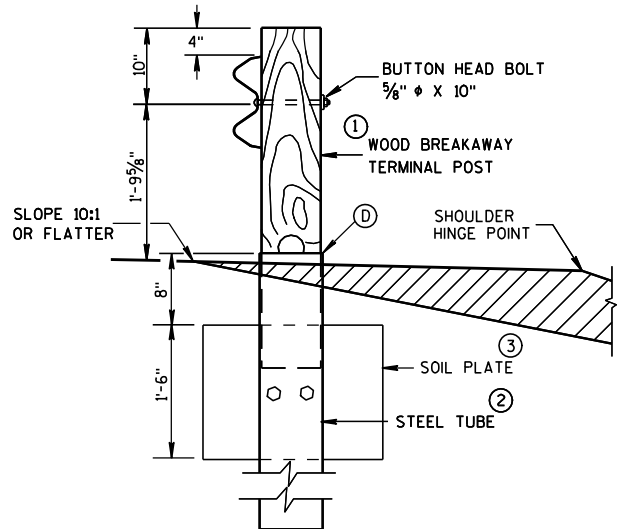
- (A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) THE 13 SLOT FIRST RAIL PANEL MAY BE USED IN LIEU OF THE 3 SLOT RAIL PANEL ON SKT-350 ONLY.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 THROUGH 4 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST 5 THROUGH 8 SHALL BE 3/4" ABOVE THE FINISHED GROUND LINE.
- (F) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER OF E.A.T. STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.
- DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

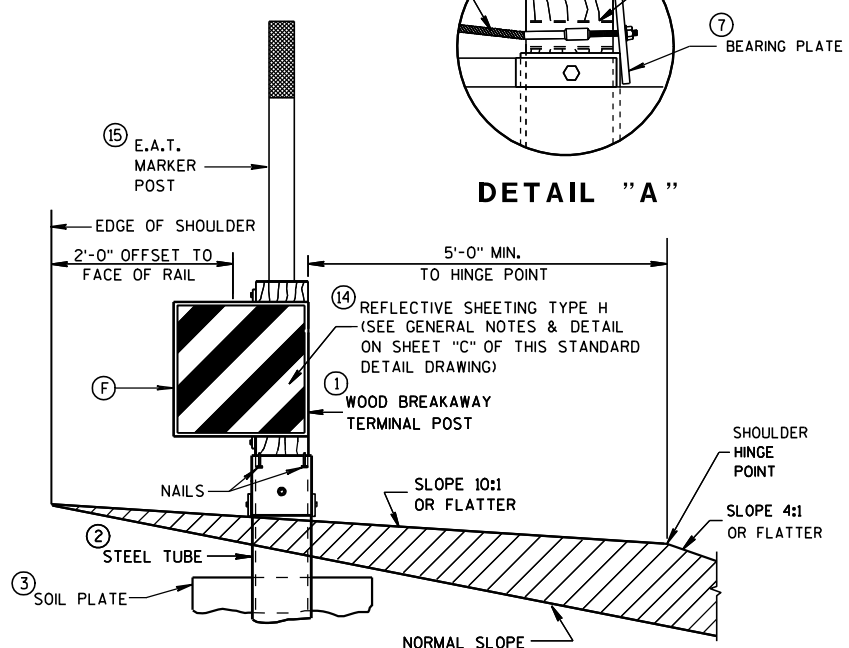
** SDD SHOWS 4 - 54 INCH STEEL TUBES WITH SOIL PLATES INSTALLED ON POST 1 AND POST 2. POST 3 AND 4 DO NOT NEED SOIL PLATES. AN ALTERNATIVE INSTALLATION WOULD CONSIST OF 2 - 72 INCH STEEL TUBES ON POST 1 AND POST 2 AND 54 INCH TUBES ON POSTS 3 AND 4. THE ALTERNATIVE INSTALLATION DOES NOT REQUIRE SOIL PLATES.



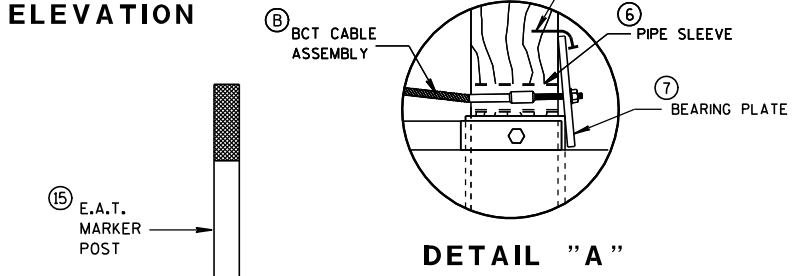
SECTION C-C
TYPICAL AT POST NOS. 6, 8



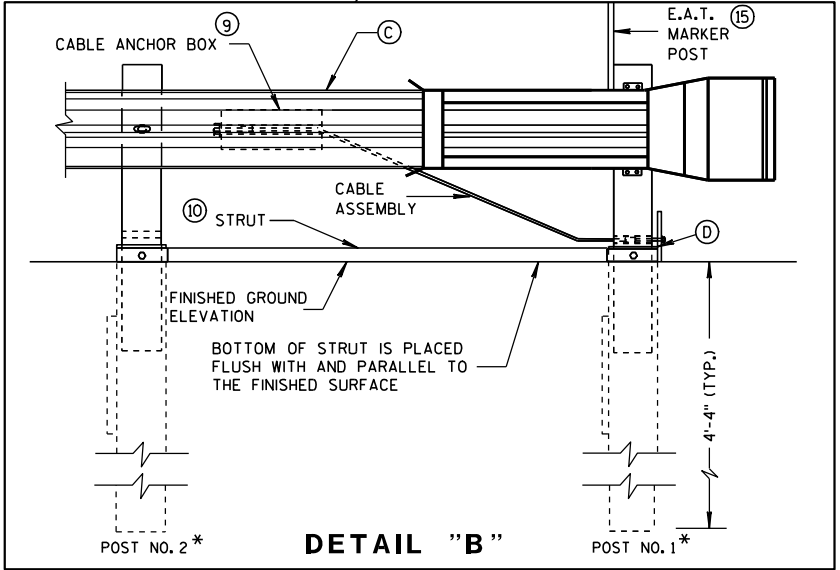
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



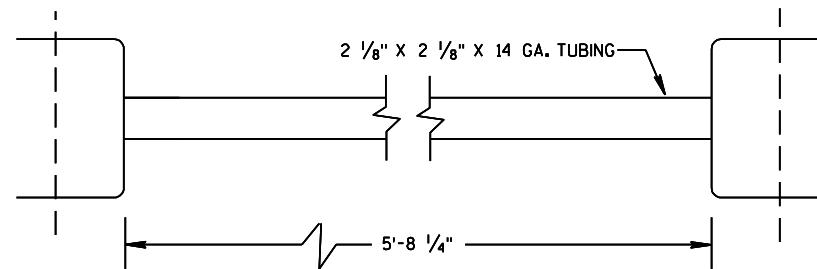
DETAIL "A"



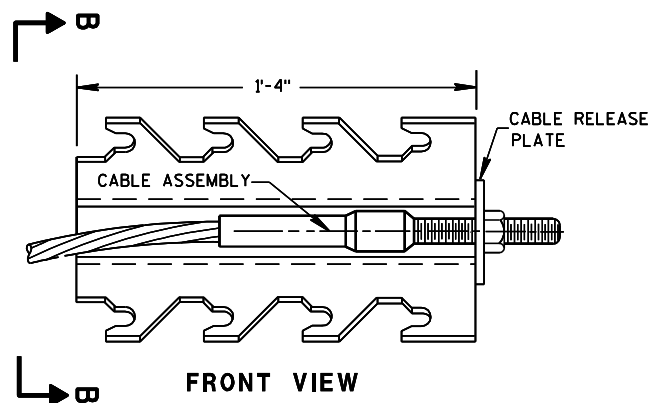
DETAIL "B"

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

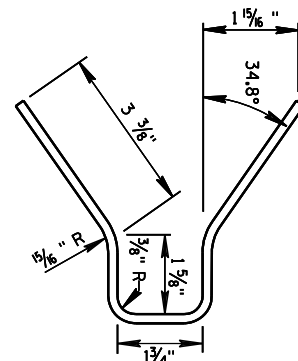
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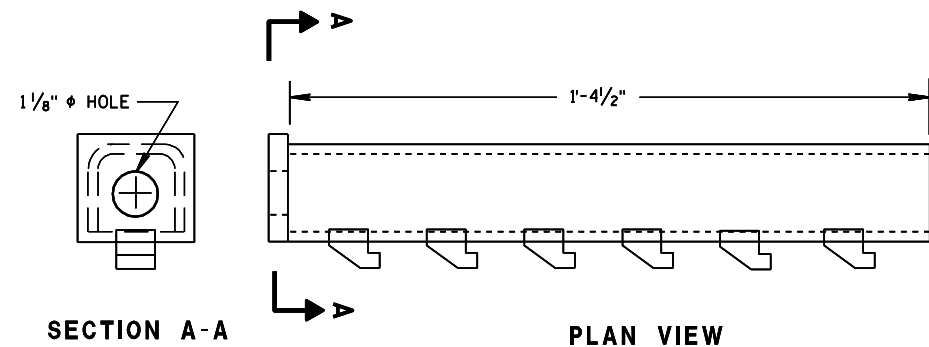
⑩ STRUT DETAIL (SKT-350)



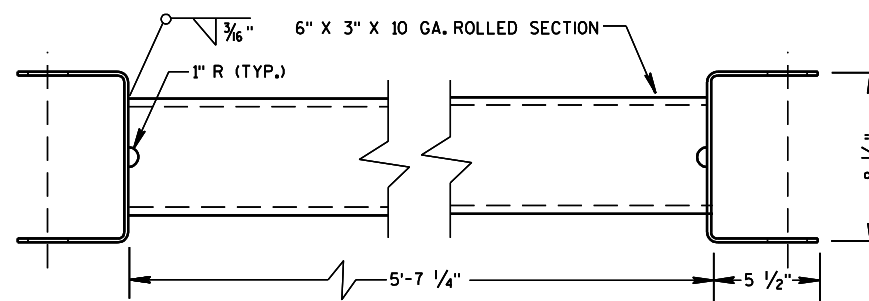
⑨ CABLE ANCHOR BOX (SKT-350)
(SKT-350)



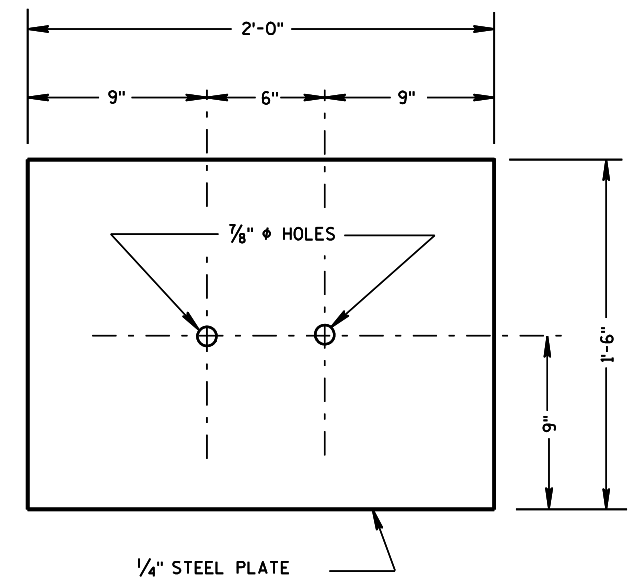
SECTION B-B



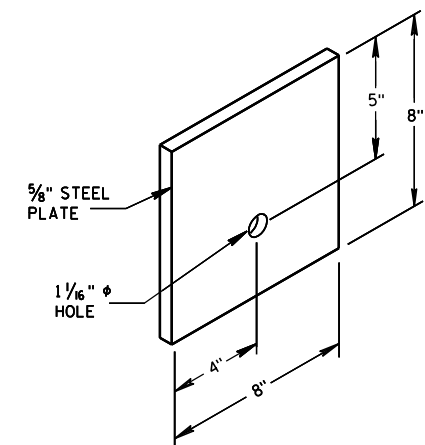
⑨ CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



⑩ STRUT DETAIL (ET-2000/ET-2000 PLUS)
(ET-2000/ET-2000 PLUS)



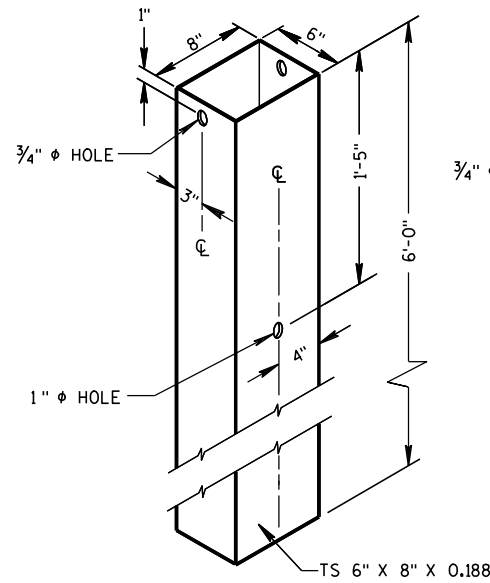
③ SOIL PLATE
(SKT-350, ET-2000/ET-2000 PLUS)



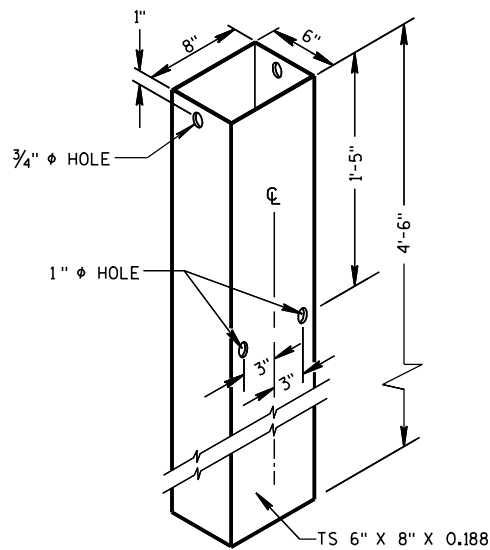
⑦ STEEL BEARING PLATE
(SKT-350, ET-2000/ET-2000 PLUS)

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

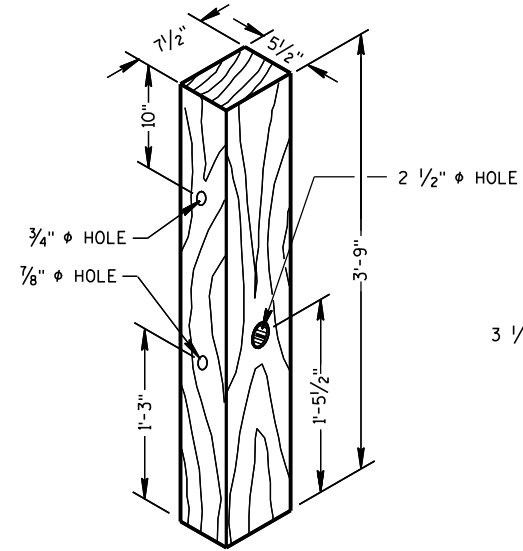
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



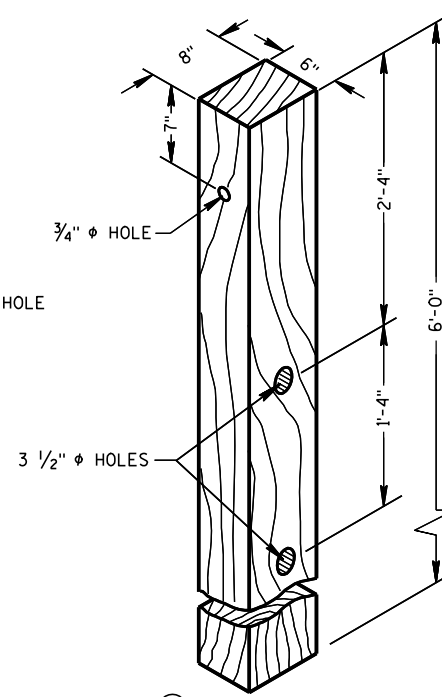
② **72" STEEL TUBE**
(POSTS NO. 1-4)



② **54" STEEL TUBE**
(POSTS NO. 1-4)

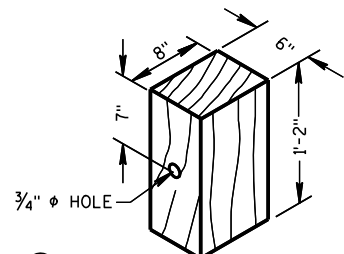


① **TERMINAL POST**
(POSTS NO. 1-4)

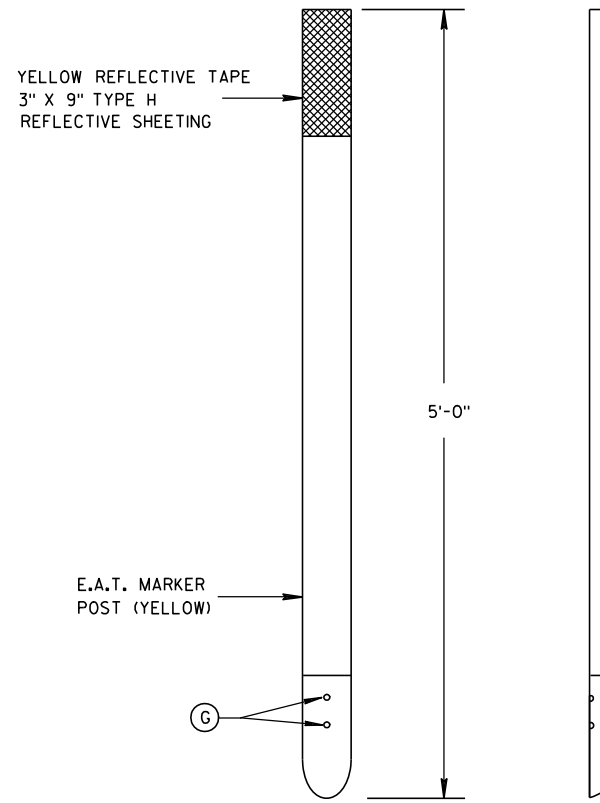


④ **CRT POST**
(POSTS NO'S 5-8)

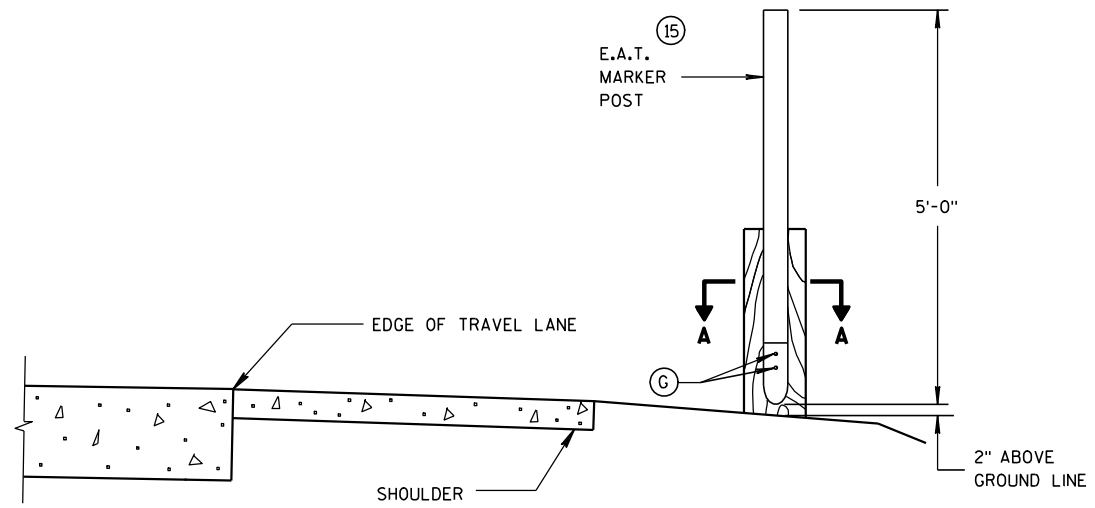
WOOD BREAKAWAY POSTS



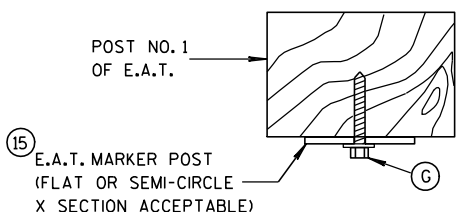
⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



FRONT VIEW SIDE VIEW
⑮ **E.A.T. MARKER POST**



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1
(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

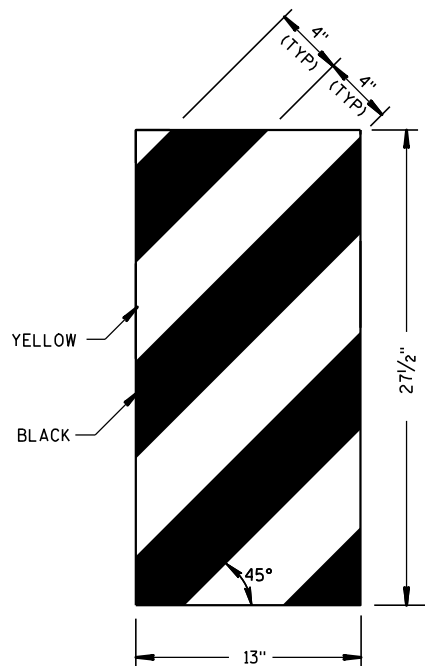
GENERAL NOTES

STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH SHALL INCLUDE HARDWARE, STEEL PLATE BEAM GUARD, POSTS, REFLECTIVE SHEETING AND INSTALLATION AS SHOWN.

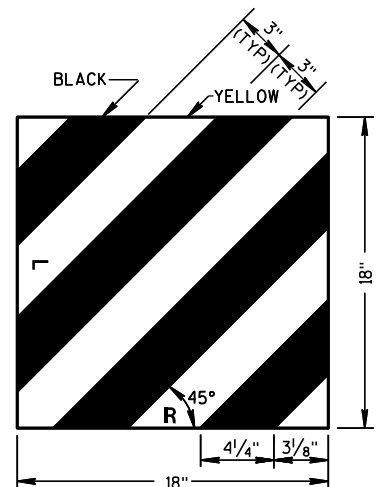
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

SEE APPROVED PRODUCTS LIST FOR ACCEPTABLE E. A. T. MARKER POST.

⑮ 1/2" DIA. X 3" LAG BOLT WITH WASHER.



ET-2000 PLUS ONLY



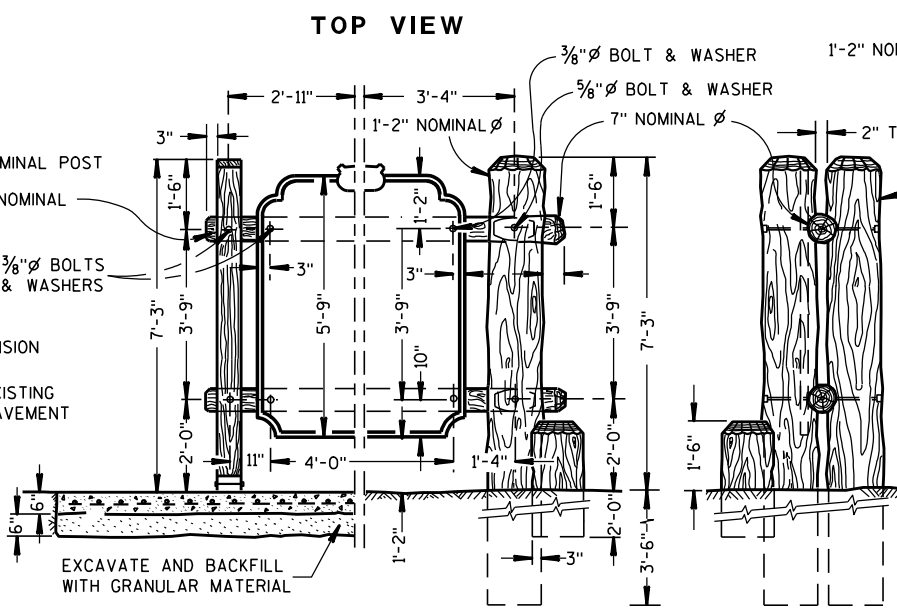
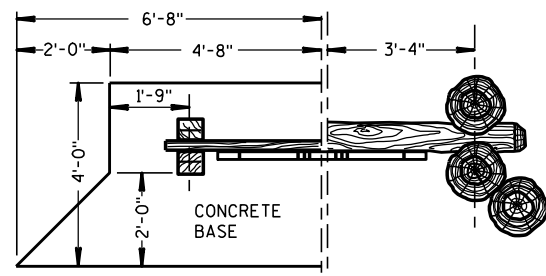
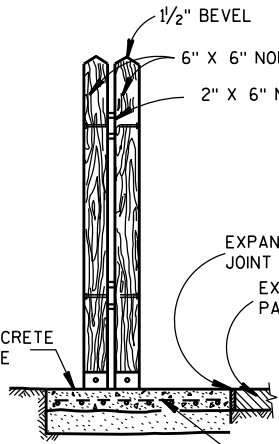
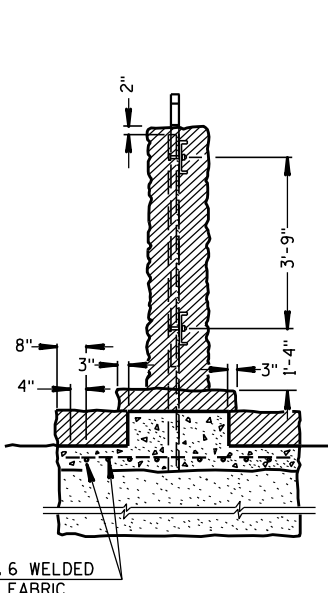
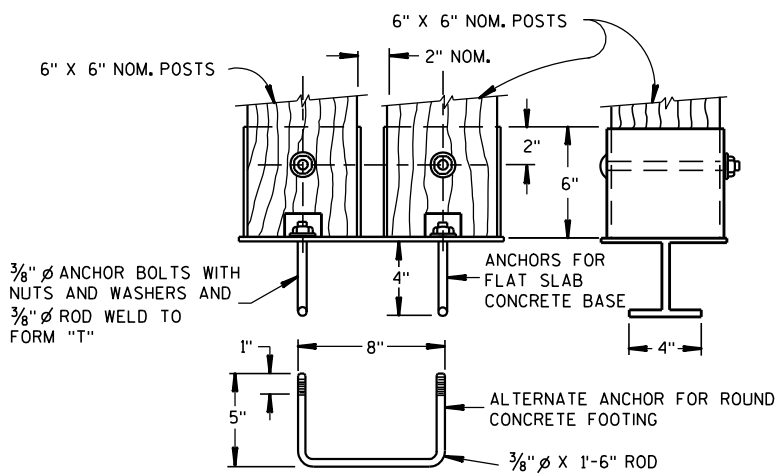
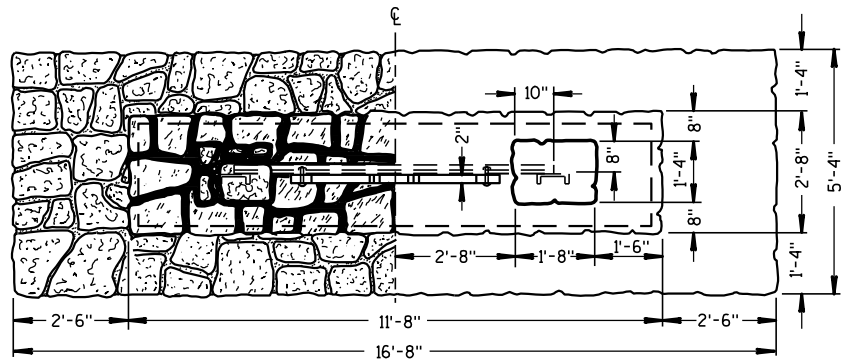
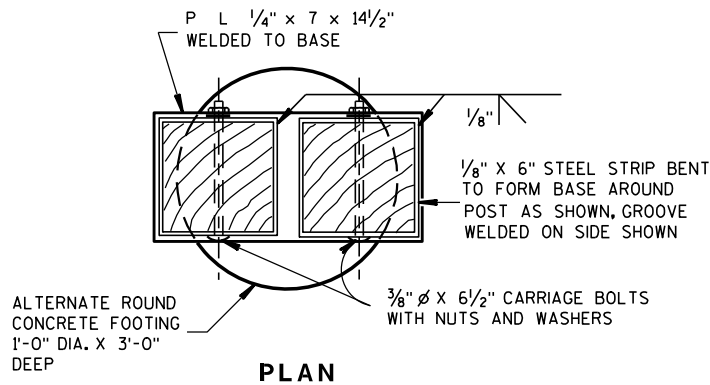
ET-2000 AND SKT-350

⑭ **REFLECTIVE SHEETING DETAILS**

**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-12-10 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



BILL OF MATERIALS

DIMENSIONED POST CONSTRUCTION

ITEM	UNIT	QUANTITY
CONCRETE (FLAT SLAB)	CY	0.80
WIRE FABRIC (FLAT SLAB)	SY	4.6
STEEL POST BASES	EA	2
POSTS	6" X 6" X 7'-3"	4
LUMBER	2" X 6" X 6'-10"	2
ANCHOR BOLTS (FLAT SLAB)	3/8" X 5"	4
CARRIAGE BOLTS	3/8" X 4"	4
CARRIAGE BOLTS	3/8" X 14"	4
CARRIAGE BOLTS	3/8" X 6 1/2"	4
ANCHOR BOLTS (ROUND FOOTING)	3/8" x "U"	2
CONCRETE (ROUND FOOTING)	CY	0.17

RUSTIC POST CONSTRUCTION

ITEM	UNIT	QUANTITY
POSTS	1'-2" x 10'-9"	4
POSTS	1'-2" x 3'-6"	2
RAILS	7" x 8'-10"	2
CARRIAGE BOLTS	3/8" x 8"	4
CARRIAGE BOLTS	5/8" x 27"	4

MASONRY CONSTRUCTION

ITEM	UNIT	QUANTITY
CONCRETE	CY	2.3
ASHLAR MASONRY	CY	3.5
WIRE FABRIC	SY	9.8
CHANNEL STEEL	LBS	396
CARRIAGE BOLTS	3/8" x 2 3/4"	4

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CAST ALUMINUM PLAQUE SHALL BE STATE FURNISHED.

ALL CARRIAGE BOLTS USED IN CONSTRUCTION SHALL BE CUT OFF FLUSH WITH THE NUTS AND ALL NUTS SHALL BE COUNTER SUNK, EXCEPT FOR THOSE FASTENED TO THE PLAQUE. BOLT HEADS AND NUTS SHALL BE PAINTED WITH DARK BROWN PAINT.

DIMENSIONED POSTS & RAILS

POSTS SHALL BE DOUGLAS FIR, CONSTRUCTION GRADE. CROSS MEMBERS SHALL BE DOUGLAS FIR, FINISHED LUMBER, GRADE "C" SELECT OR BETTER. POSTS AND CROSS MEMBERS SHALL BE PAINTED WITH TWO COATS OF BROWN WOOD STAIN.

WELDED STEEL POST BASES SHALL BE FABRICATED. BASES SHALL BE PAINTED WITH DARK BROWN PAINT. POST BASE CAULKING SHALL BE USED.

RUSTIC POSTS AND RAILS

POSTS AND CROSS MEMBERS MAY BE FROM ONE OF THE FOLLOWING SPECIES (SALVAGED UTILITY POLES OR TREATED TIMBER PILINGS MAY BE USED).

WHITE PINE
RED (NORWAY) PINE
NORTHERN WHITE CEDAR
NORTHERN HEMLOCK OR OAK

BUTTS OF UNTREATED POSTS SHALL BE TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE "COLD-DIPPED TREATMENT", STANDARD SPECIFICATION.

THE ABOVE-GROUND PORTION OF THE TREATED AND UNTREATED POSTS AND RAILS SHALL BE PAINTED WITH TWO COATS OF BROWN WOOD STAIN.

HISTORICAL MARKER CONSTRUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

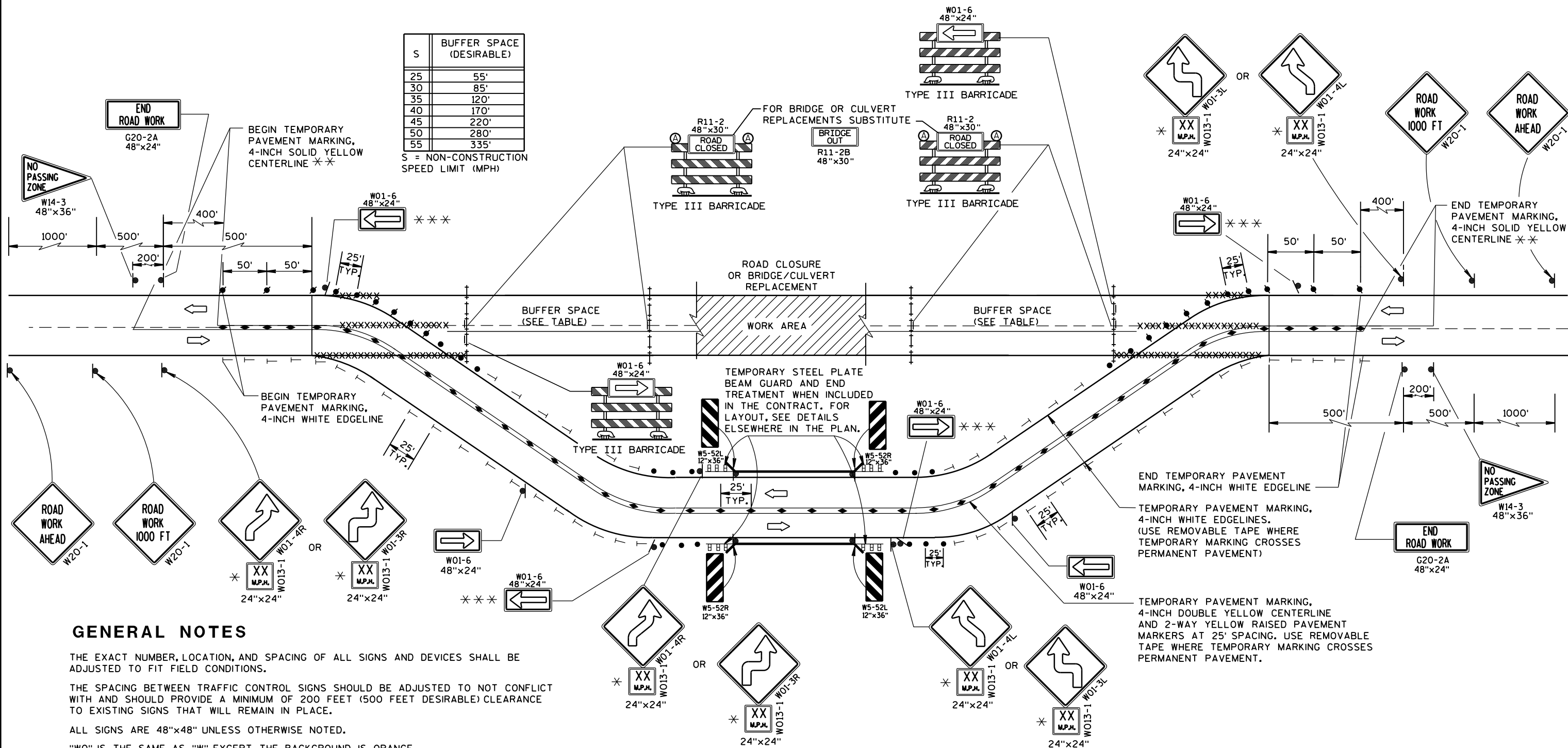
APPROVED
10/16/75
DATE

/S/ H. FIELDER
STATE HIGHWAY ENGINEER

FHWA

S	BUFFER SPACE (DESIRABLE)
25	55'
30	85'
35	120'
40	170'
45	220'
50	280'
55	335'

S = NON-CONSTRUCTION
SPEED LIMIT (MPH)



GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED.

EQUIPMENT, VEHICLES, OR MATERIAL SHOULD NOT BE STORED IN BUFFER SPACE.

* IF ADVISORY SPEED IS GREATER THAN 30 MPH, USE THE W01-4 SIGN. IF ADVISORY SPEED IS 30 MPH OR LESS, USE THE W01-3 SIGN.

** WHEN THE DISTANCE TO/FROM THE NEXT CLOSEST NO-PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.

*** OMIT THESE W01-6 SIGNS IF THE ADVISORY SPEED OF THE CURVE IS GREATER THAN 30 MPH.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY-BURN LIGHT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- Ⓐ TYPE "A" WARNING LIGHT (FLASHING)
- TEMPORARY DELINEATOR, (WHITE) (SINGLE DELINEATOR)
- ◆ TEMPORARY RAISED PAVEMENT MARKERS (TWO-WAY YELLOW)
- XXX REMOVE PAVEMENT MARKING
- ➡ DIRECTION OF TRAFFIC
- ▤ TEMPORARY STEEL PLATE BEAM GUARD AND END TREATMENT
- ▨ WORK AREA

TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH ATTACHED SIGN
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16" x 16" MIN., (ORANGE)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC PAVEMENT WIDENING
- DIRECTION OF TRAFFIC
- 4" X 6" WOOD POST
- TEMPORARY SIGNAL WITH BACKPLATE AND 12-INCH LENSES ON BREAKAWAY POLE



INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET.)

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

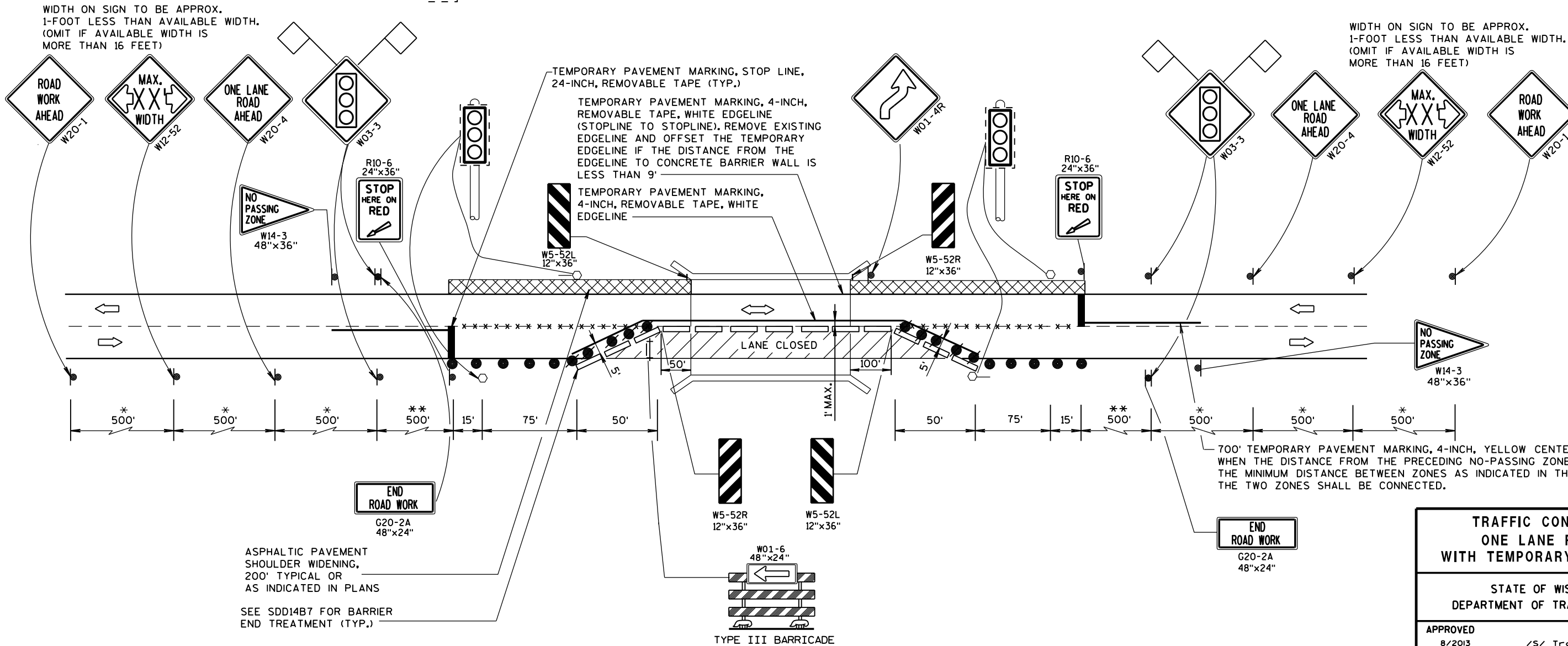
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

* 500-FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350-FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200-FOOT TYPICAL SPACING.

** USE 300' SPACING IF PRE-CONSTRUCTION REGULATORY SPEED LIMIT IS 35 MPH OR LESS.

6



6

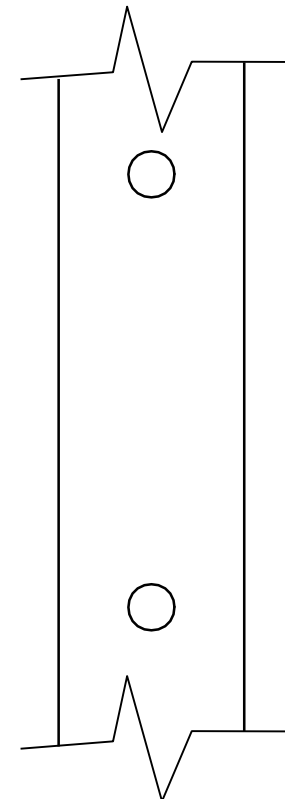
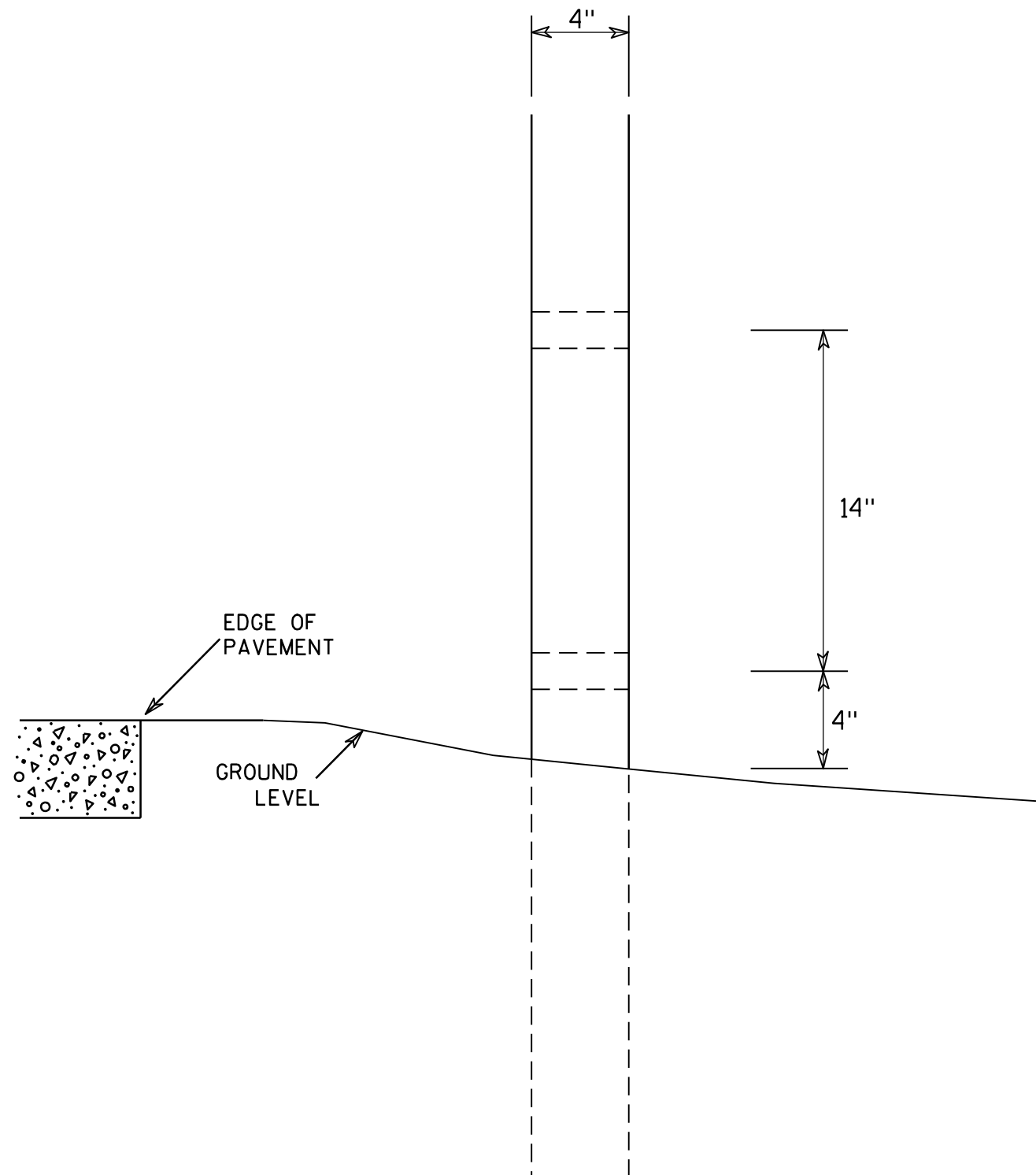
TRAFFIC CONTROL,
ONE LANE ROAD
WITH TEMPORARY SIGNALS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013
DATE
/S/ Travis Feltes
STATE TRAFFIC ENGINEER OF DESIGN
FHWA

S.D.D. 15 D 33-3

S.D.D. 15 D 33-3



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

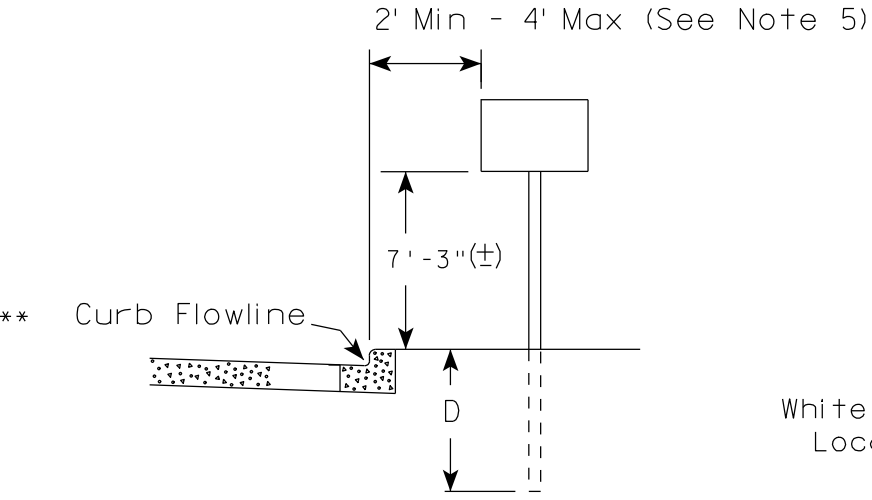
HWY:

COUNTY:

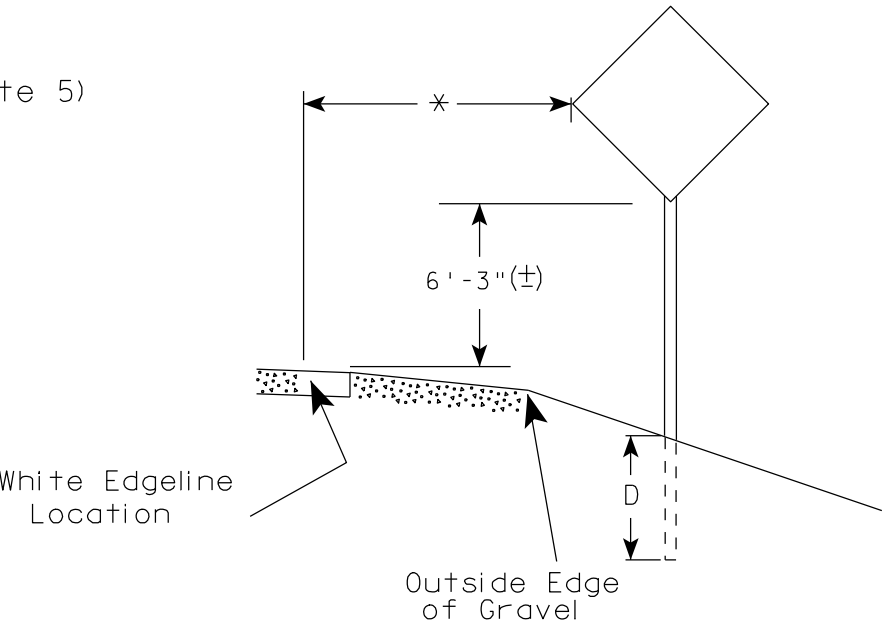
SHEET NO:

E

URBAN AREA

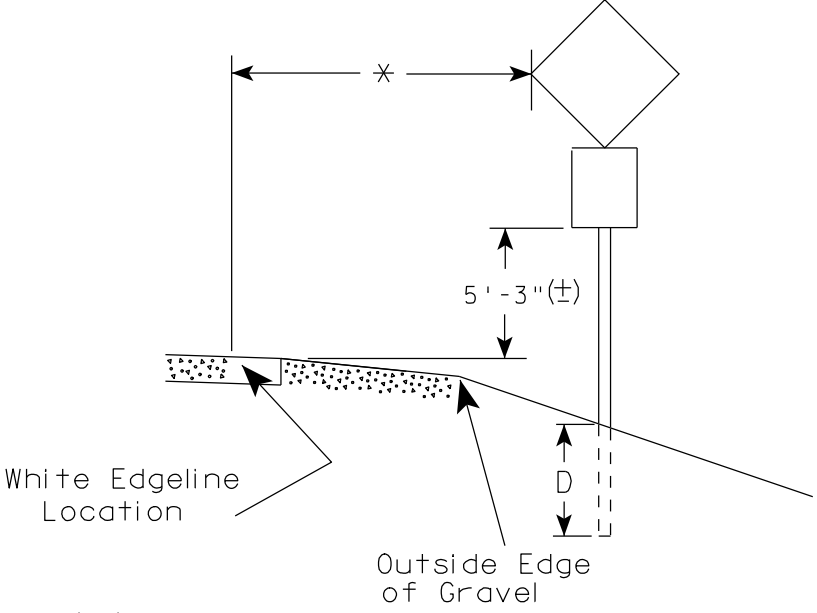
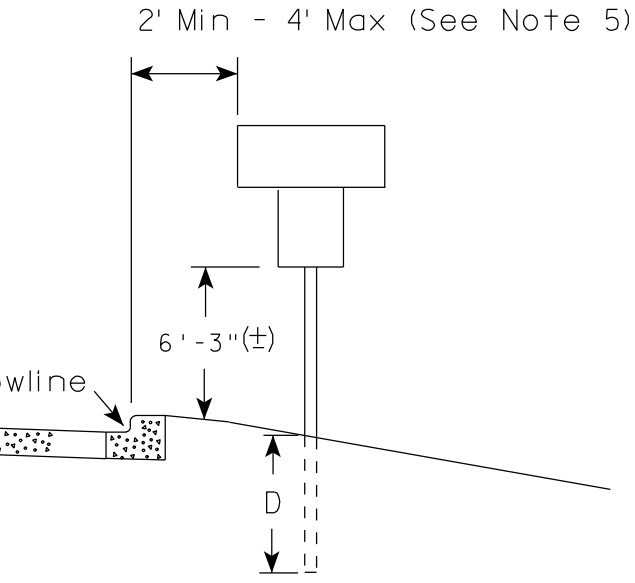


RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).



POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

✱✱ The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

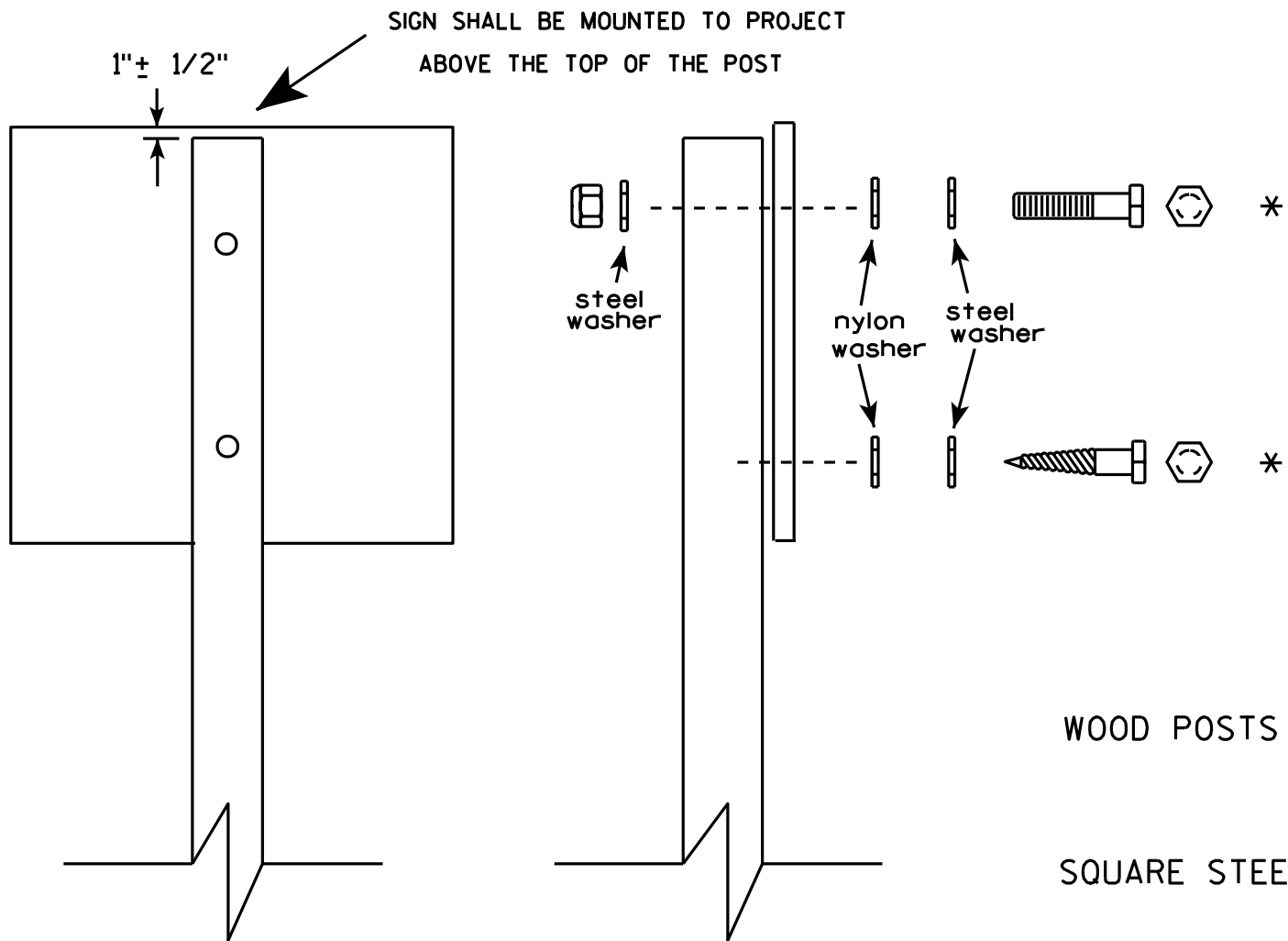
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-3.16

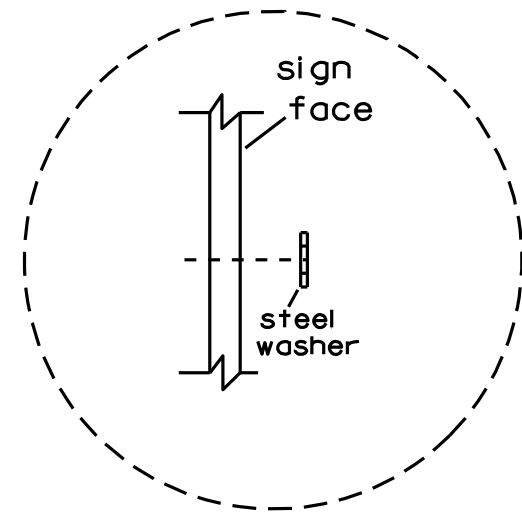


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

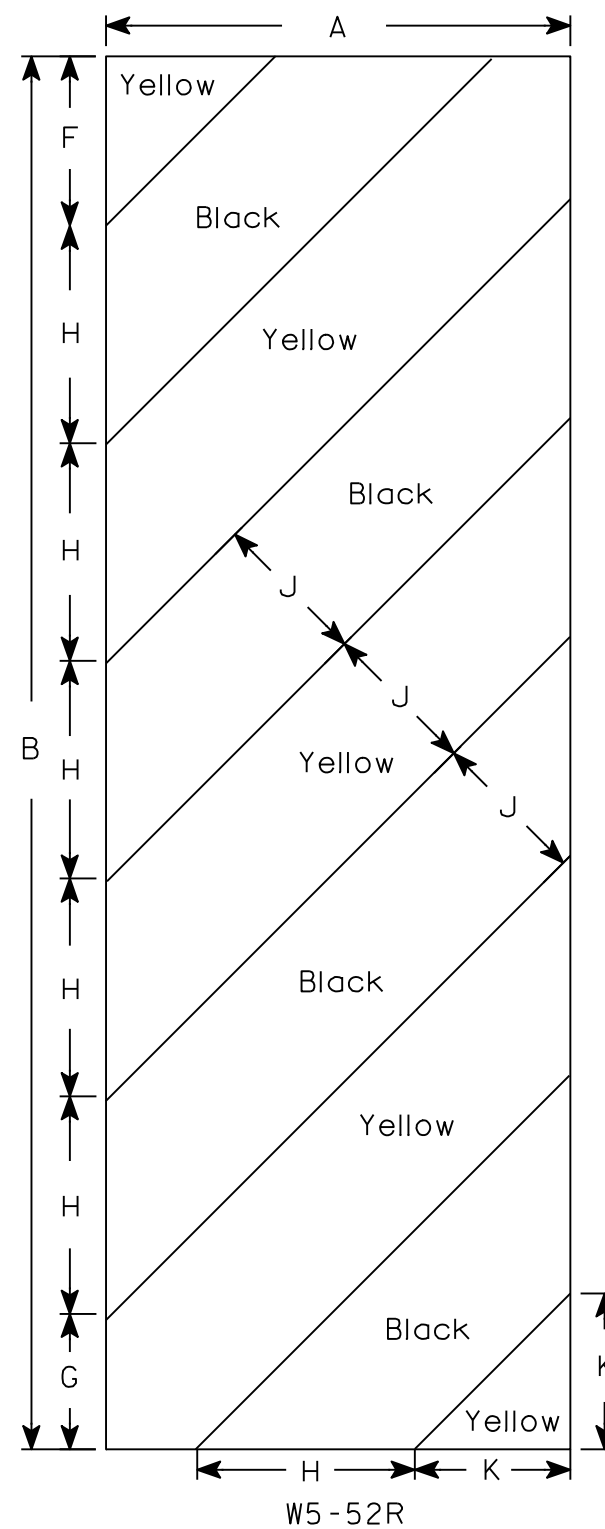
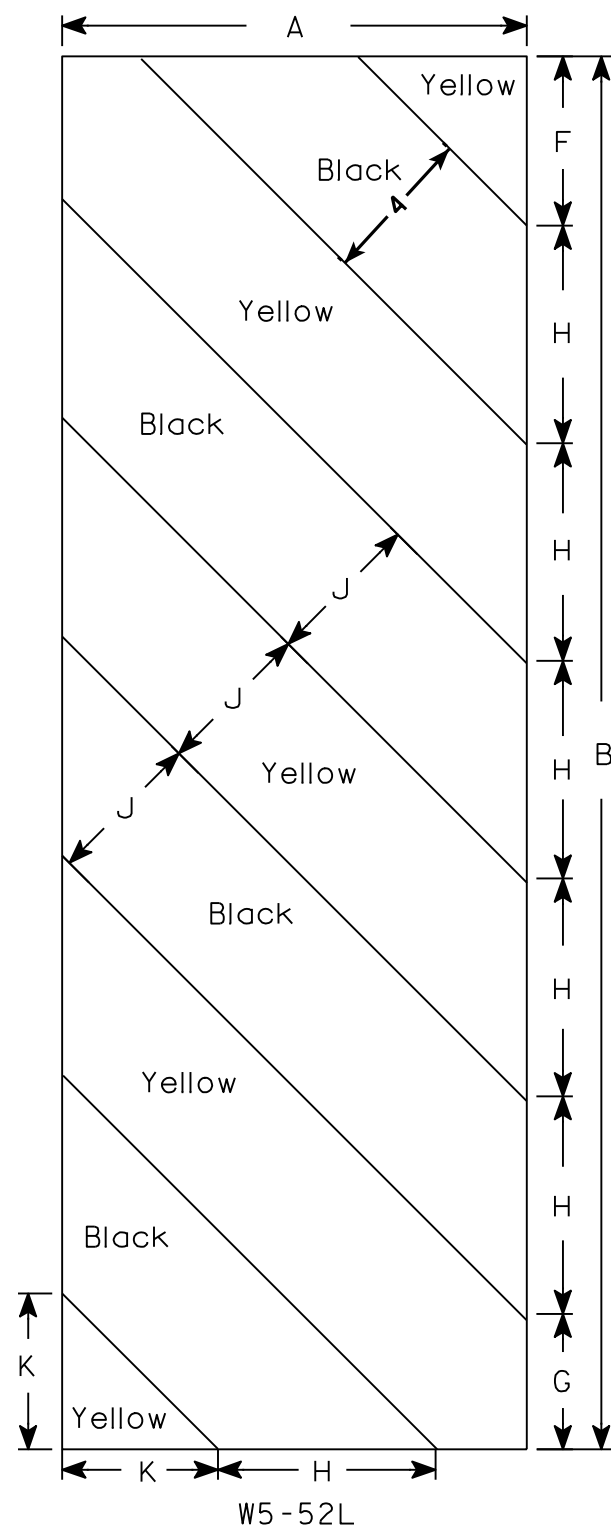
- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



Washer Placement when Sign Has Other Than Type H or Type F Face

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
 - Background - Yellow
 - Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Alternate colors of stripes as shown.

[illegible]

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO:

HWY:

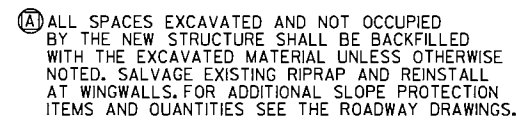
COUNTY:

SHEET NO:

E

172'-6" BACK OF ABUTMENT TO BACK OF ABUTMENT

1'-3" 51'-0" SPAN 1 68'-0" SPAN 2 51'-0" SPAN 3 1'-3" MEASURED ALONG TANGENT LINE



(3-SPAN REINFORCED CONCRETE HAUNCHED SLAB BRIDGE)

DELTA =40°32'32" (LT)
D =5°00'00"
T =423.23
L =810.84
E =75.66
R =1145.92
PC STA 3+26.51
PI STA 7+49.74
PT STA 11+37.35

HIGH STRENGTH BAR STEEL REINFORCEMENT	
AASHTO GRADE 60	$f_y = 60,000$ psi
STEEL PILING	$f_y = 50,000$ psi

*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

100 YEAR FREQUENCY		
Q ₁₀₀	4,000	CFS
Q ₁₀₀ THRU BRIDGE	4,000	CFS
VELOCITY	1.5	FPS
HIGH WATER EL	1313.7	FT
WATERWAY AREA	2660	SQ FT
DRAINAGE AREA	55.9	SQ MI

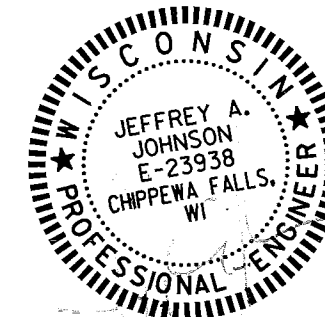
ADT (2012)	=	550
ADT (2032)	=	750
DHV	=	128
D	=	60/40 %
T	=	3.4 %
DESIGN SPEED	=	30 MPH

Q2	-	CFS
HIGH WATER EL	1311.7	FT
SCOUR CODE	5	

1	GENERAL PLAN
2	CROSS SECTION AND QUANTITIES
3	SUBSURFACE EXPLORATION
4-11	SOUTH & NORTH ABUTMENT DETAILS
12	SOUTH & NORTH BILL OF BARS
13-15	PIER 1 & 2 DETAILS
16-18	SUPERSTRUCTURE DETAILS
19	TUBULAR STEEL RAILING TYPE F-4 MODIFIED

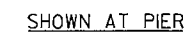


BENCHMARK (DATUM = NAVD 88)			
NO	STATION	DESCRIPTION	ELEV
1	7+42.86, 89.4' RT	EXISTING RR SPK IN PP @ HSE 8208N	1312.57
2	14+53.78, 61.4' LT	SE COR CONC PAD FOR FUEL ISLAND HERMAN'S LANDING	1312.37



SEH CONTACT: DAN GUSTAFSON, PE, 715.720.6267
WISDOT BRIDGE OFFICE CONTACT: BILL DREHER, PE, 608.266.8489

NO.	DATE	REVISION	BY
 SHORT ELLIOTT HENDRICKSON INC.			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	 CHIEF STRUCTURES DESIGN ENGINEER		KAR 01/09/14 DATE
STRUCTURE		B-57-82	
CTH CC OVER THE CHIPPEWA FLOWAGE			
COUNTY	SAWYER	TOWN/CITY/VILLAGE	HUNTER
DESIGN SPEC.			
AASHTO LRFD	BRIDGE DESIGN	SPECIFICATIONS	
DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
NCK	JAJ	DLF	NCK
GENERAL PLAN		SHEET 1 OF 19	



TOTAL ESTIMATED QUANTITIES - B-57-82

[illegible]

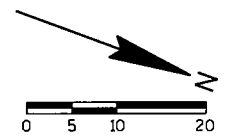
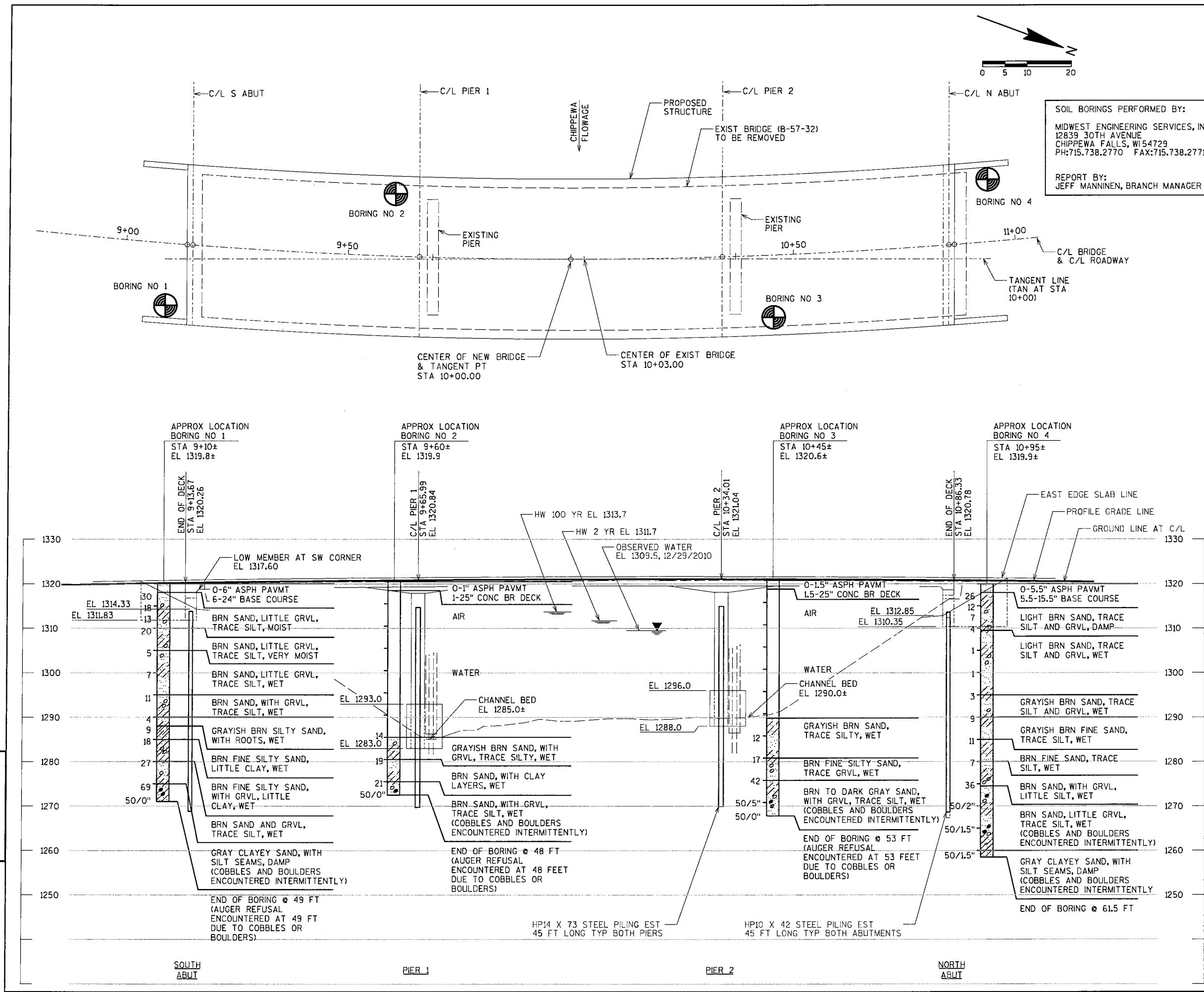
FOR EXISTING STRUCTURE SEE PROFILE GRADE LINE THIS SHEET.

PLOT TIME: 11:35:36 AM

PLOT DATE: 1/8/2014

FILE NAME : S:\PT\SS\04209\5-dgn\51-cadd\Structure\brd\082b1.dgn

8



SOIL BORINGS PERFORMED BY:
MIDWEST ENGINEERING SERVICES, INC
12839 30TH AVENUE
CHIPPEWA FALLS, WI 54729
PH:715.738.2770 FAX:715.738.2771

REPORT BY:
JEFF MANNINEN, BRANCH MANAGER

STATE PROJECT NUMBER

8451-00-70

ABBREVIATIONS

F— FINE M— MEDIUM C— COARSE
WS— WEATHERED SO— SOUND

MATERIAL SYMBOLS

	TOPSOIL		SILT		SANDSTONE
	SAND		PEAT		LIMESTONE
	GRAVEL		CLAY		IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

95/6=95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

LEGEND OF BORING

BORING NO.
STA.
ELEV.
UNCONFINED STRENGTH 7.7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE— S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION

SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO
LIMESTONE

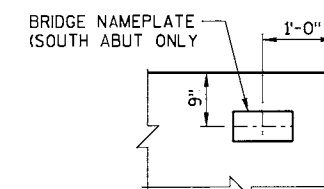
UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

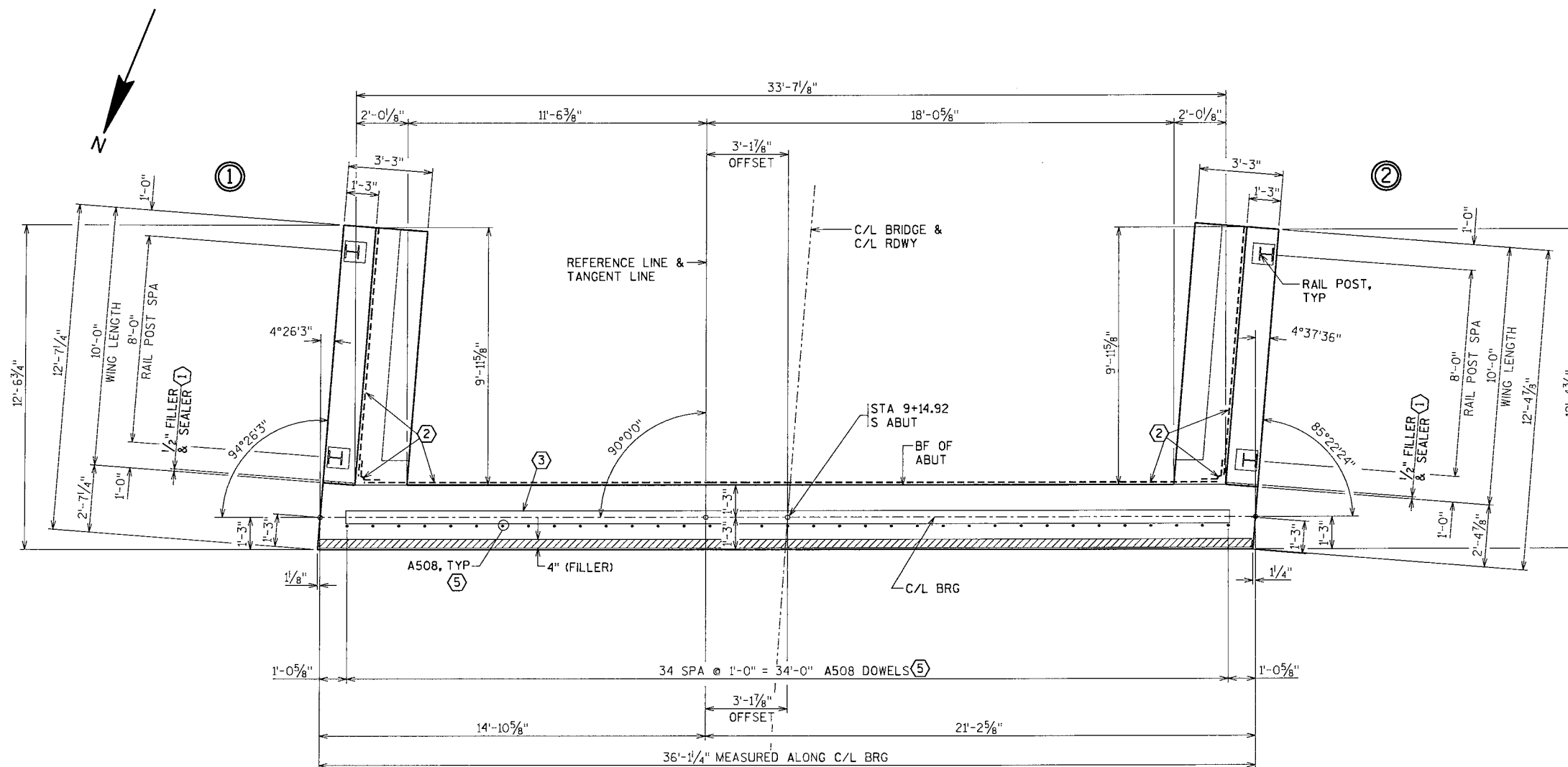
8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY		DLF	PLANS CKD. NCK
SUBSURFACE EXPLORATION			SHEET 3 OF 19



NAMEPLATE LOCATION DETAIL
(ON WING 1 SOUTH ABUTMENT ONLY)

FRONT ELEVATION



PLAN

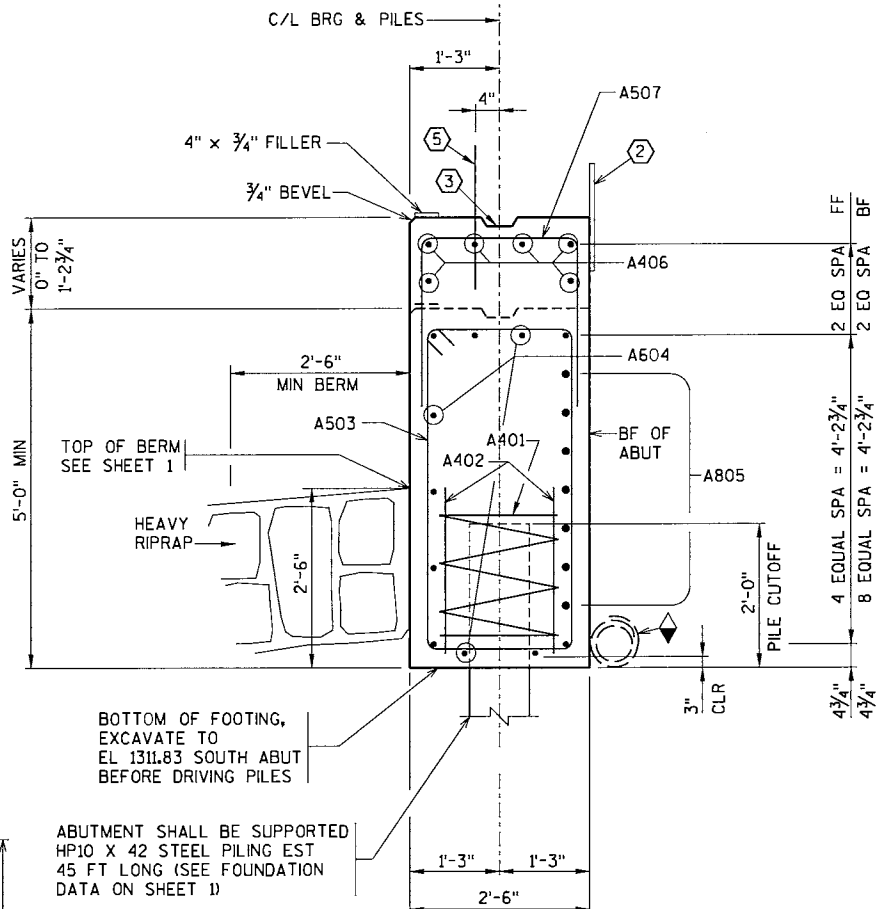
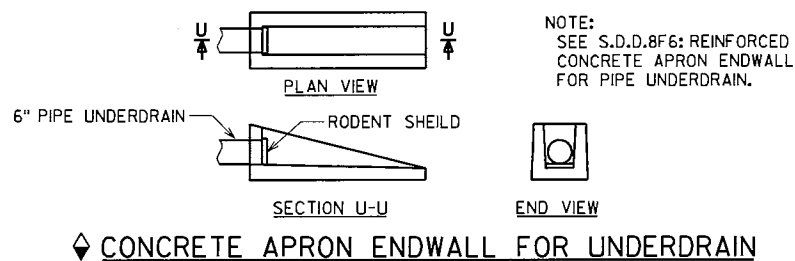
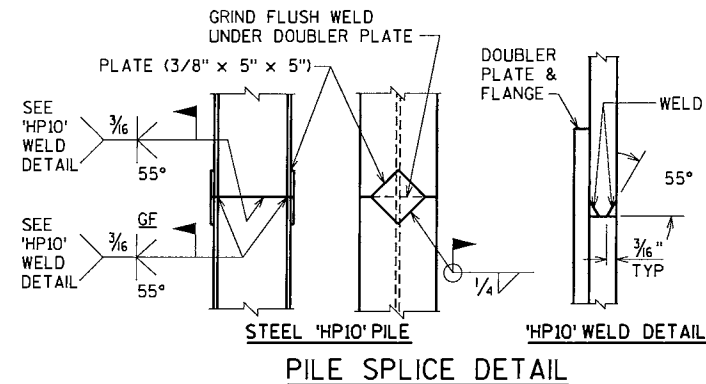
ABUTMENT NOTES

- ① SEAL ALL EXPOSED HORIZ. AND VERTICAL SURFACES OF $\frac{1}{2}$ " FILLER WITH NON-STAINING GRAY NON-ASPHALTIC JOINT SEALER. (1" DEEP AND HOLD $\frac{1}{8}$ " BELOW SURFACE). FILLER INCLUDED IN WING LENGTH.
 - ② 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ & VERT JOINTS ON BACKFACE. VERTICAL WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
 - ③ KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2" X 6".
 - ④ OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2" X 6" WITH MEMBRANE ON BACKFACE.
 - ⑤ *5 DOWEL BARS MAY BE PLACED AFTER CONC HAS BEEN POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- ▲ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN BEHIND ABUTMENT BODY AND WINGS. PIPE UNDERDRAIN UNPERFORATED TO BE PLACED OUTSIDE WINGS.

S ABUT = SOUTH ABUTMENT
N ABUT = NORTH ABUTMENT

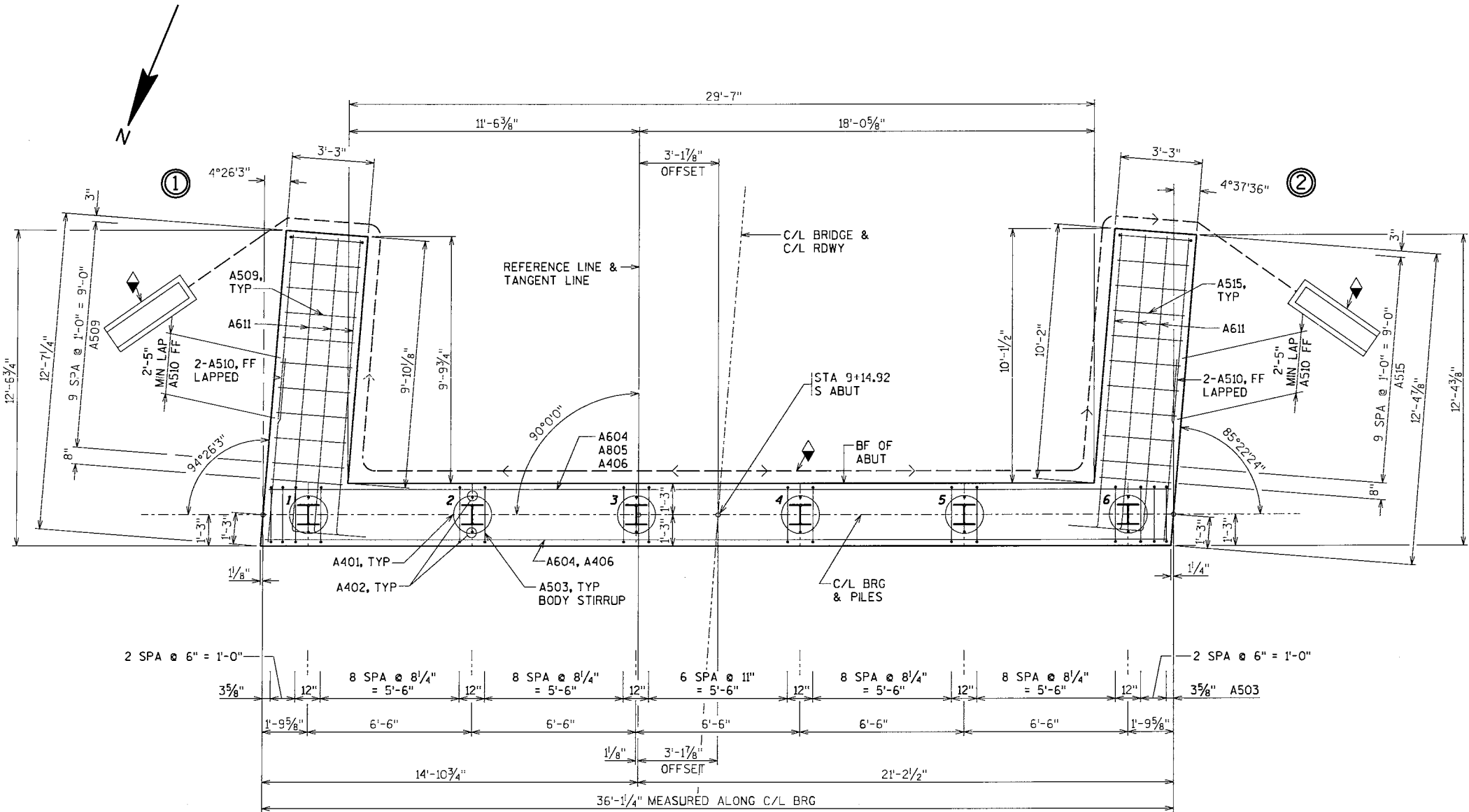
FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY		DLF	PLANS CKD. NCK
SOUTH ABUTMENT DETAILS			SHEET 4 OF 1



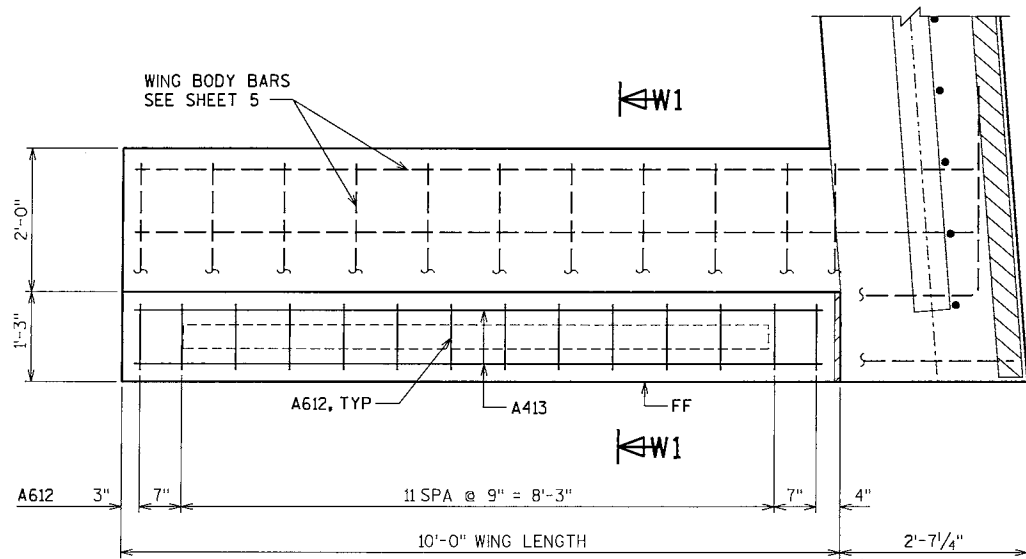
TYPICAL SECTION THRU BODY
ALL HORIZ BARS TO BE A604 UNLESS OTHERWISE SHOWN OF NOTED

NOTES:
SEE SHEET 4 FOR ABUTMENT
NOTES AND SYMBOLS.
SEE SHEET 1 FOR GENERAL NOTES.

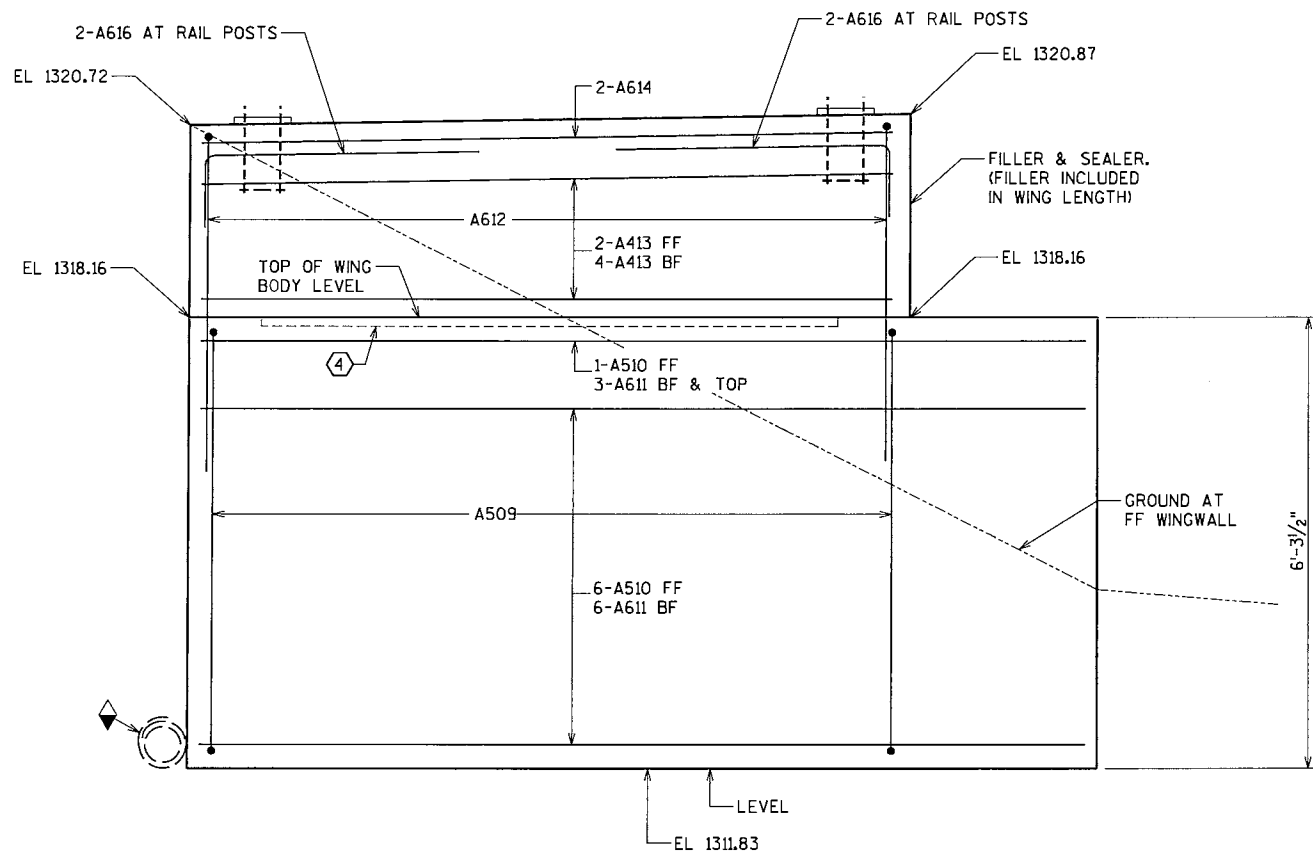


FOOTING LAYOUT

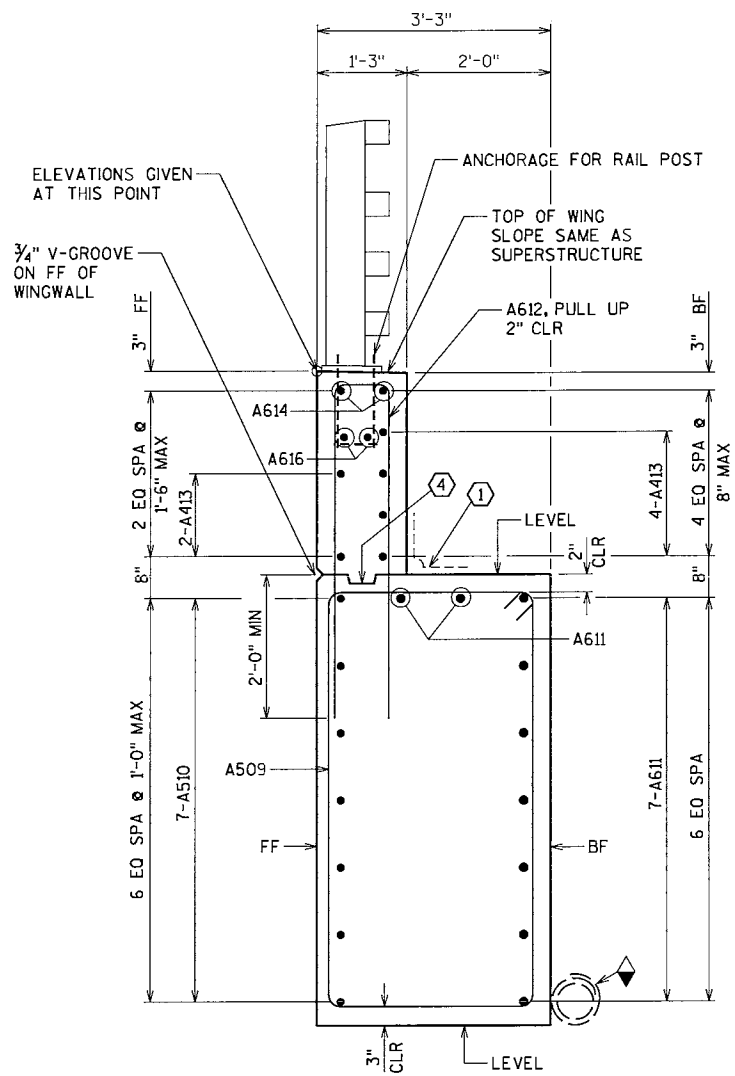
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY DLF		PLANS CK'D. NCK	
SOUTH ABUTMENT DETAILS			SHEET 5 OF 19



PLAN WING 1



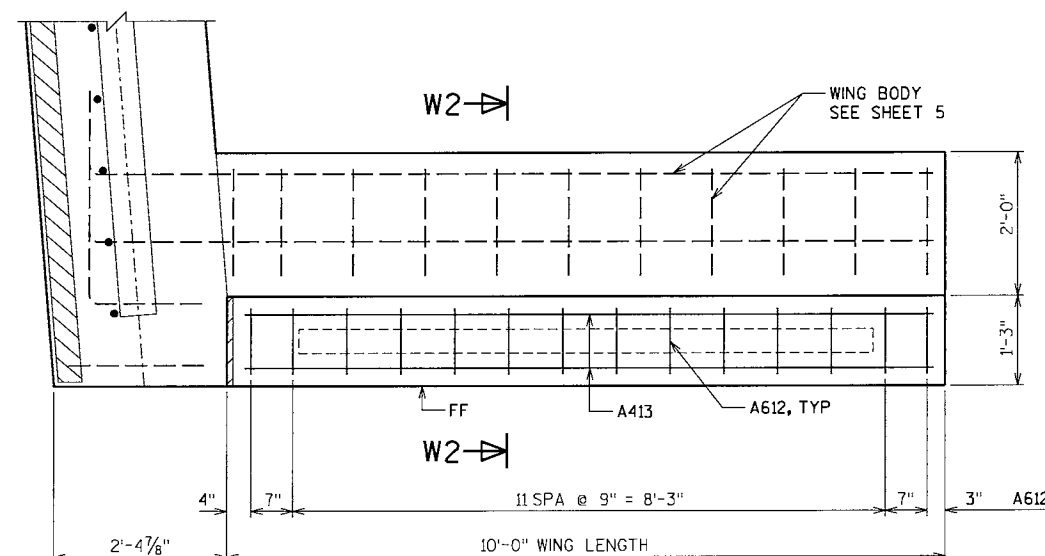
ELEVATION WING 1



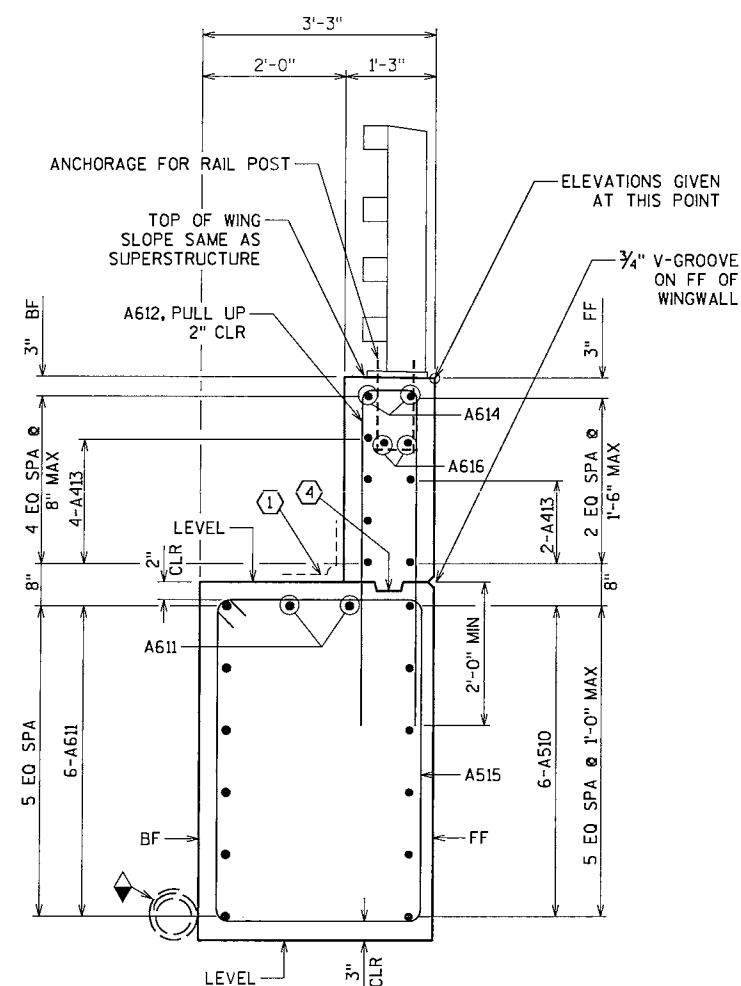
TYP SECTION THRU WINGWALL 1
SECTION W1-W1

NOTES:
SEE SHEET 4 FOR ABUTMENT NOTES AND SYMBOLS.
SEE SHEET 1 FOR GENERAL NOTES.

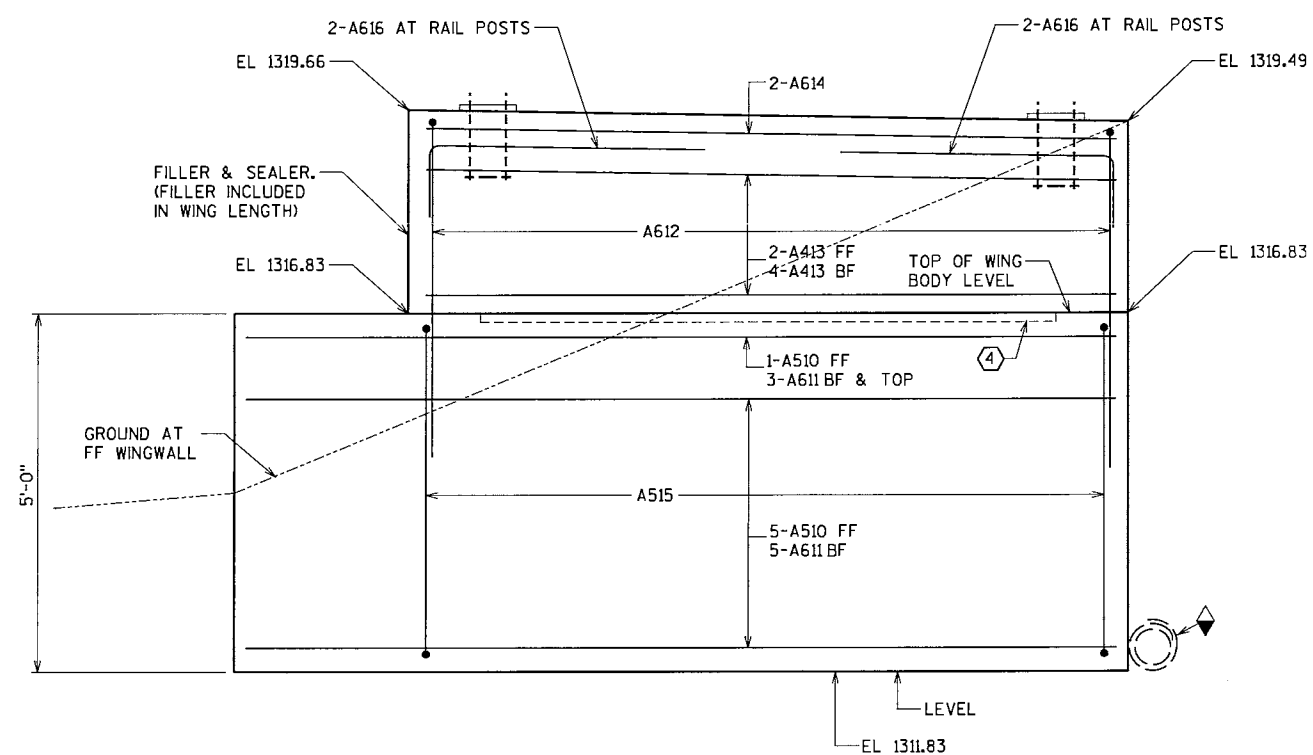
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY DLF		PLANS CKD. NCK	
SOUTH ABUTMENT WING 1			SHEET 6 OF 19



PLAN WING 2



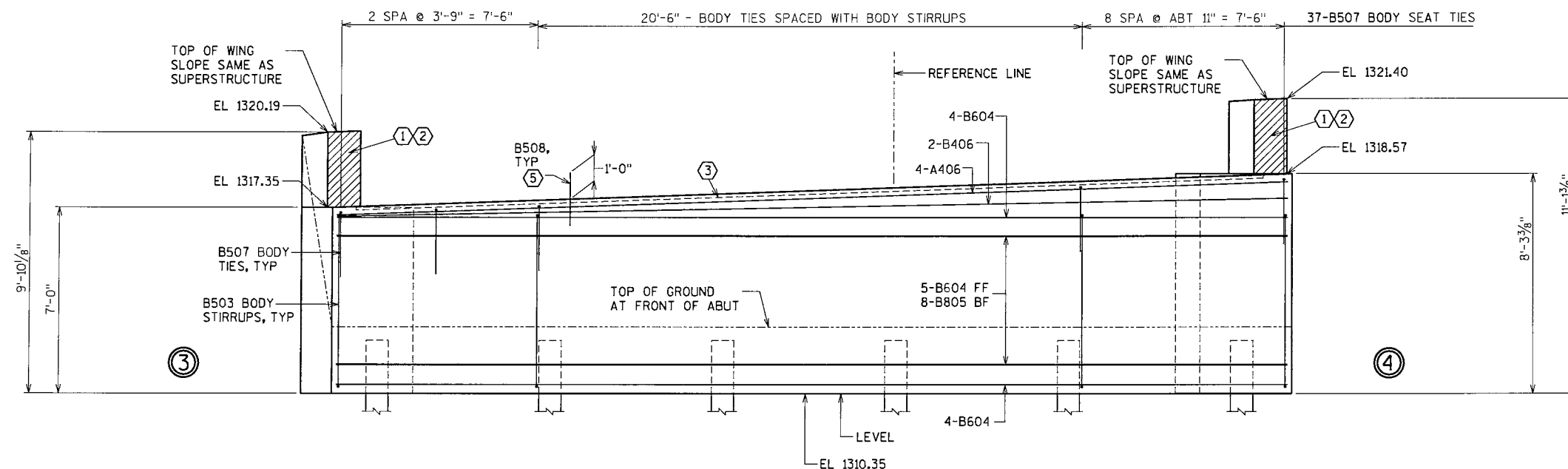
TYP SECTION THRU WINGWALL 2
SECTION W2-W2



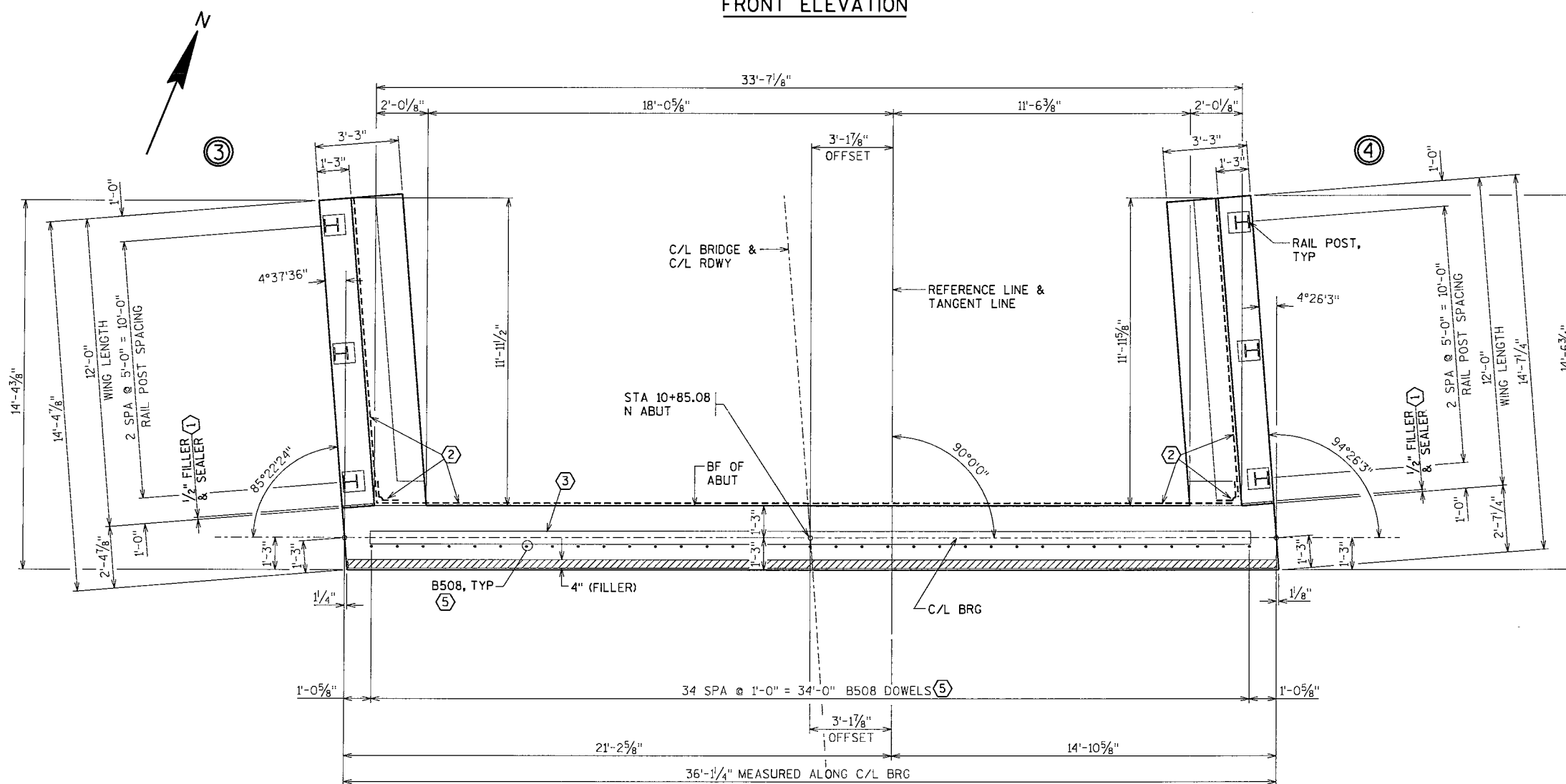
ELEVATION WING 2

SEE SHEET 1 FOR GENERAL NOTES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
		DRAWN BY DLF	PLANS CK'D. NCK
SOUTH ABUTMENT WING 2		SHEET 7 OF 1	



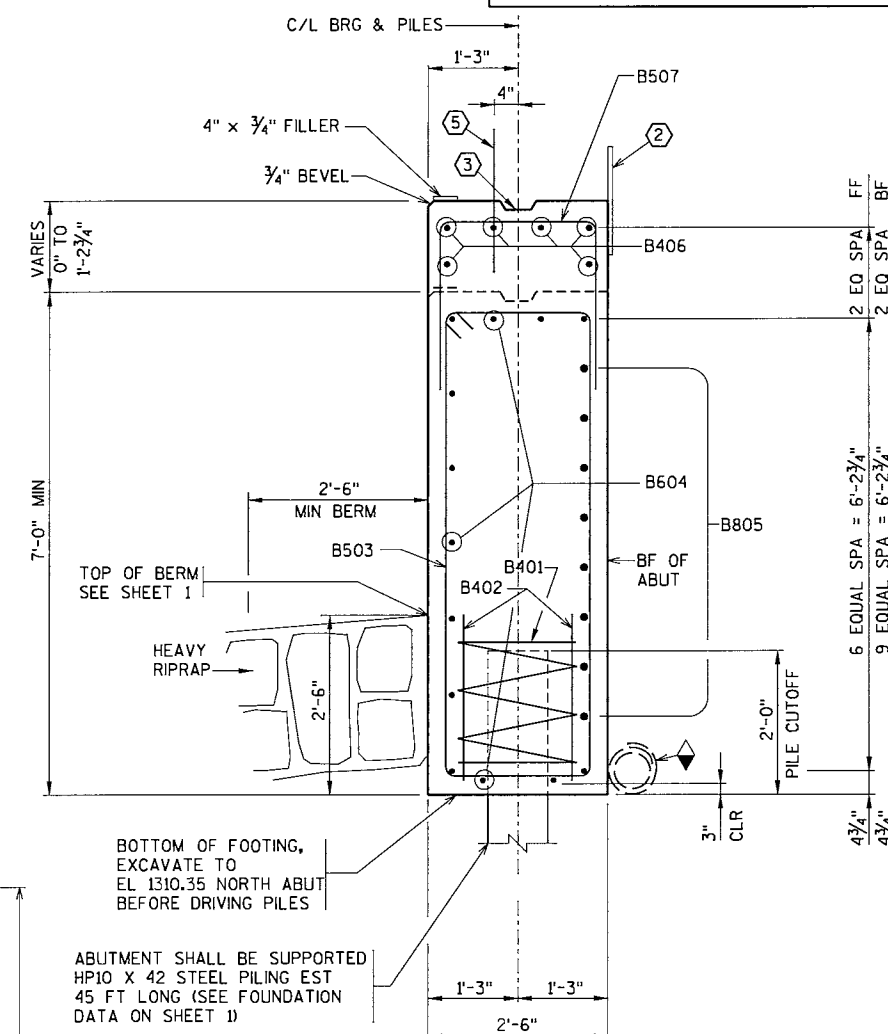
FRONT ELEVATION



PLAN

SEE SHEET 1 FOR GENERAL NOTES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY		DLF	PLANS CK'D. NCK
NORTH ABUTMENT DETAILS			SHEET 8 OF 1



TYPICAL SECTION THRU BODY
ALL HORIZ BARS TO BE B604 UNLESS OTHERWISE SHOWN OF NOTED

NOTES:

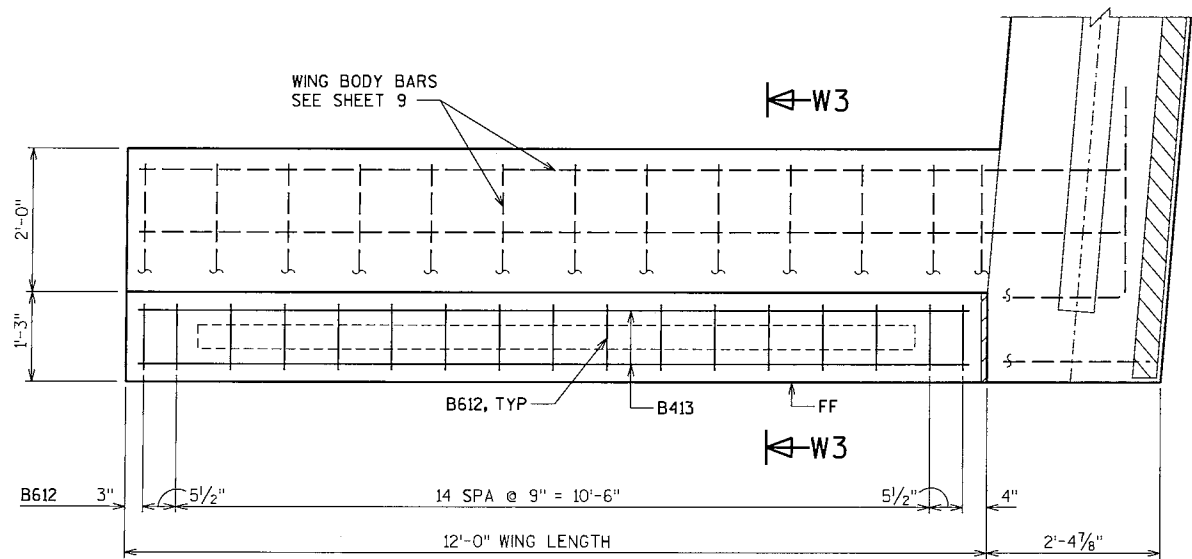
SEE SHEET 4 FOR ABUTMENT
NOTES AND SYMBOLS.

SEE SHEET 1 FOR GENERAL NOTES.

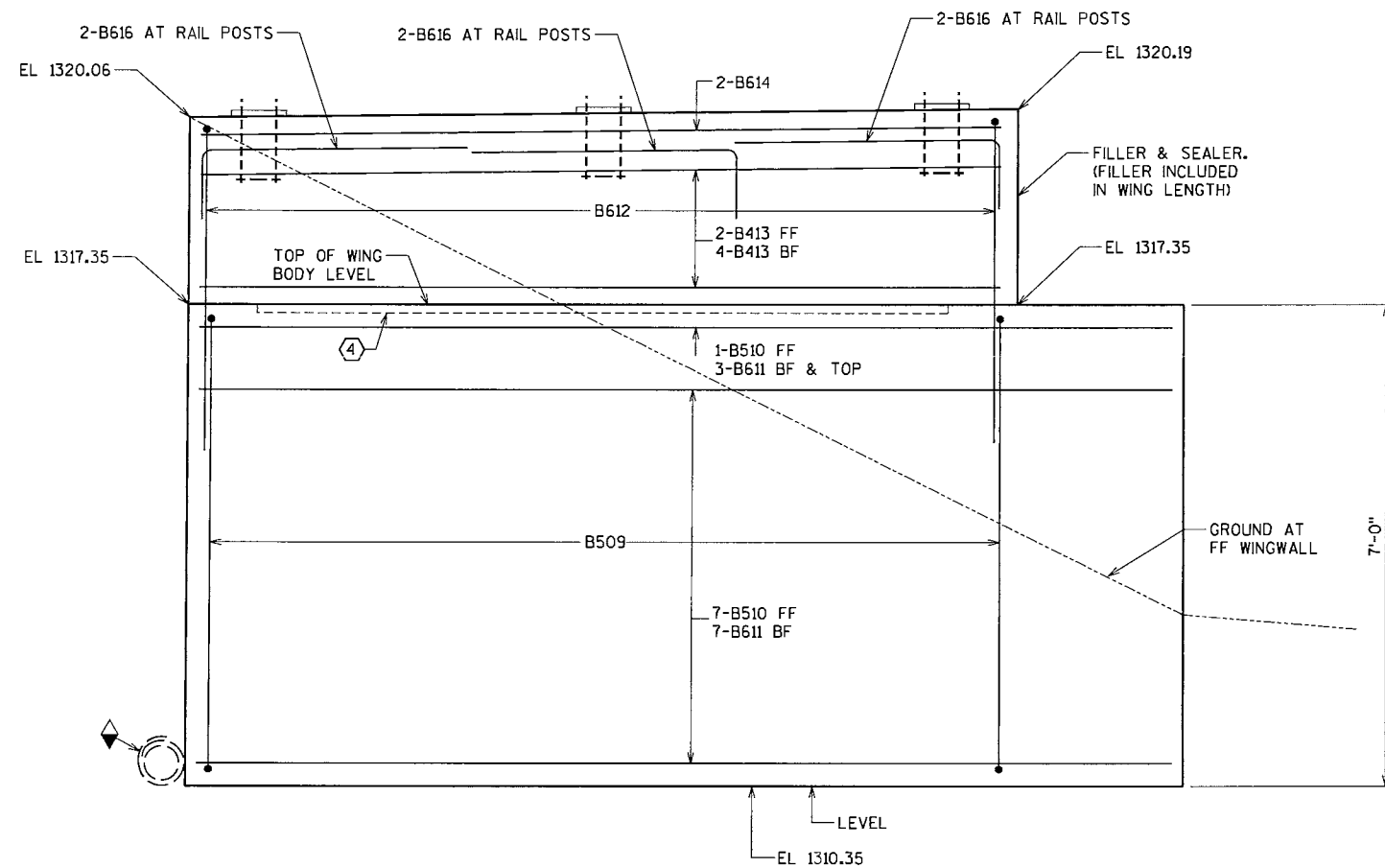
SEE SOUTH ABUTMENT DETAILS FOR
"PILE SPICE DETAIL" IF REQUIRED.

SEE SOUTH ABUTMENT DETAILS FOR
"CONCRETE APRON ENDWALL FOR
UNDERDRAIN" DETAIL.

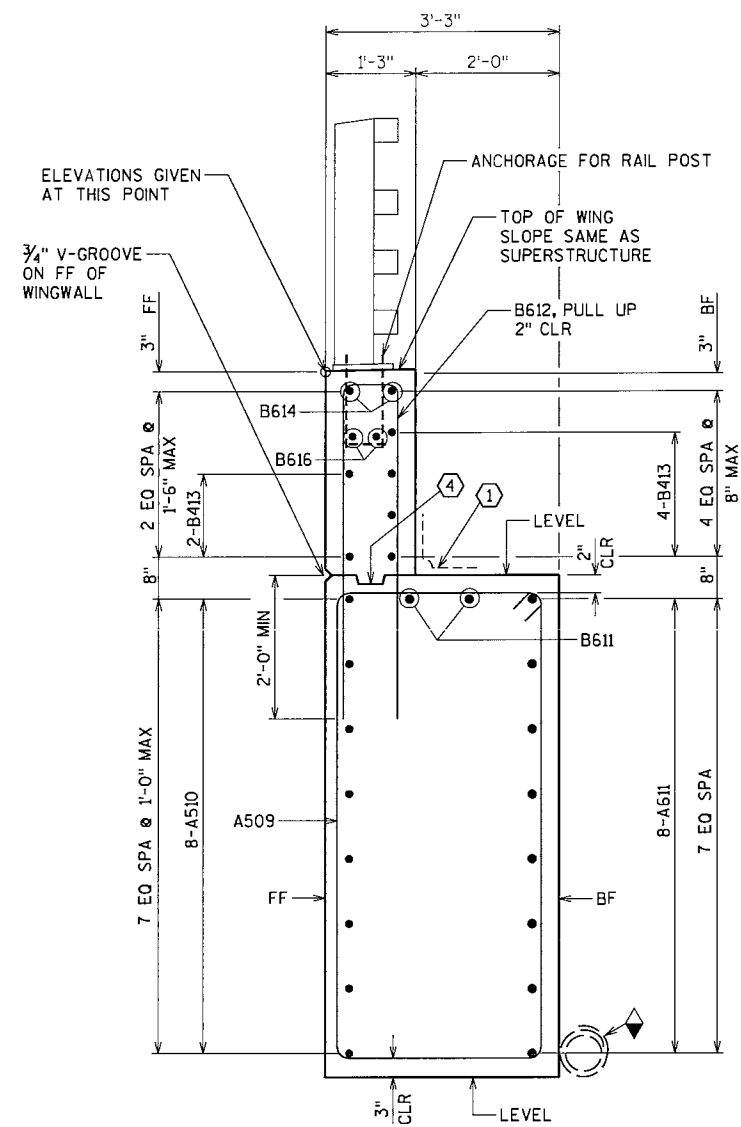
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY		DLF	PLANS CHK'D. NCK
NORTH ABUTMENT DETAILS			SHEET 9 OF 1



PLAN WING 3



ELEVATION WING 3

TYP SECTION THRU WINGWALL 3
SECTION W3-W3**NOTES:**SEE SHEET 4 FOR ABUTMENT
NOTES AND SYMBOLS.

SEE SHEET 1 FOR GENERAL NOTES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY		DLF	PLANS CKD. NCK
NORTH ABUTMENT WING 3			SHEET 10 OF 19



SEE SHEET 1 FOR GENERAL NOTES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY		DLF	PLANS CK'D. NCK
NORTH ABUTMENT WING 4		SHEET 11 OF 1	

FILE NAME : S:\PT\15\sewye\14209\5-dsgn\5i-cadd\5trructural\bridge\57082a9.dgn

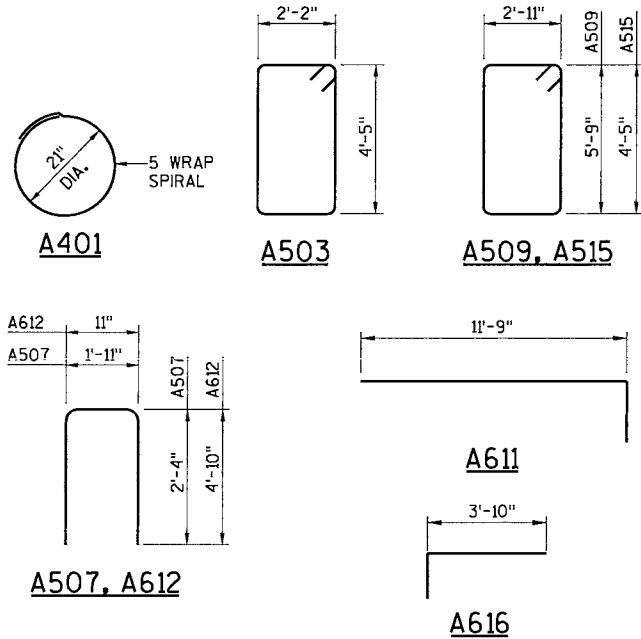
PLOT DATE: 1/8/2014

PLOT TIME: 11:38:45 AM

NOTE: THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE ENGLISH BAR DIAMETER SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

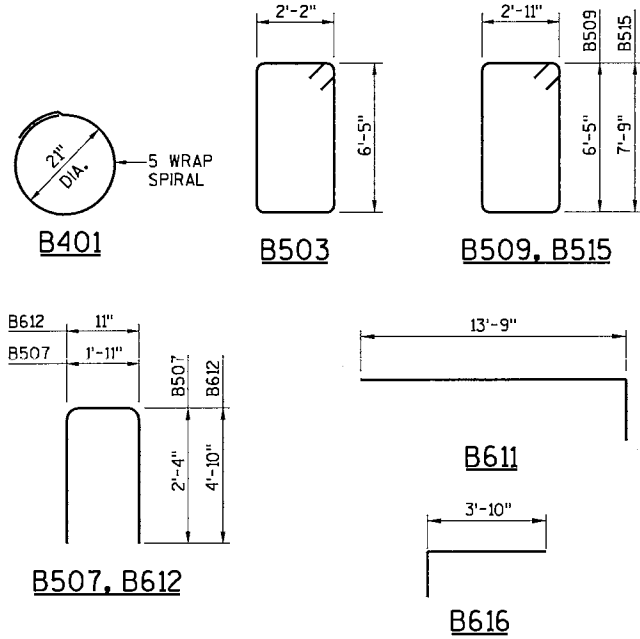
BILL OF BARS						SOUTH ABUTMENTS	
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	
A401		6	28 - 0		X	BODY AT PILES	
A402		12	2 - 3			BODY AT PILES	
A503		49	13 - 9		X	BODY STIRRUPS	
A604		11	35 - 9			BODY HORIZ	
A805		7	35 - 9			BODY HORIZ BF	
A406		6	35 - 9			BODY HORIZ	
A507		37	6 - 4		X	BODY SEAT TIE	
A508	X	35	2 - 0			BODY DOWELS	
A509	X	11	17 - 11		X	W1 STIRRUPS	
A510	X	26	7 - 5			W1 & W2 BODY FF	
A611	X	17	12 - 9		X	W1 & W2 BODY BF & TOP	
A612	X	28	10 - 3		X	W1 & W2 VERT	
A413	X	12	9 - 7			W1 & W2 HORIZ EF	
A614	X	4	9 - 7			W1 & W2 HORIZ EF TOP	
A515	X	11	15 - 3		X	W2 STIRRUPS	
A616	X	8	4 - 8		X	W1 & W2 AT RAIL POST	



NOTE: THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE ENGLISH BAR DIAMETER SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

BILL OF BARS						NORTH ABUTMENTS	
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	
B401		6	28 - 0		X	BODY AT PILES	
B402		12	2 - 3			BODY AT PILES	
B503		49	17 - 9		X	BODY STIRRUPS	
B604		13	35 - 9			BODY HORIZ	
B805		8	35 - 9			BODY HORIZ BF	
B406		6	35 - 9			BODY HORIZ	
B507		37	6 - 4		X	BODY SEAT TIE	
B508	X	35	2 - 0			BODY DOWELS	
B509	X	13	19 - 3		X	W3 STIRRUPS	
B510	X	34	8 - 5			W3 & W4 BODY FF	
B611	X	21	14 - 9		X	W3 & W4 BODY BF & TOP	
B612	X	34	10 - 3		X	W3 & W4 VERT	
B413	X	12	11 - 7			W3 & W4 HORIZ EF	
B614	X	4	11 - 7			W3 & W4 HORIZ EF TOP	
B515	X	13	21 - 11		X	W4 STIRRUPS	
B616	X	12	4 - 8		X	W3 & W4 AT RAIL POST	



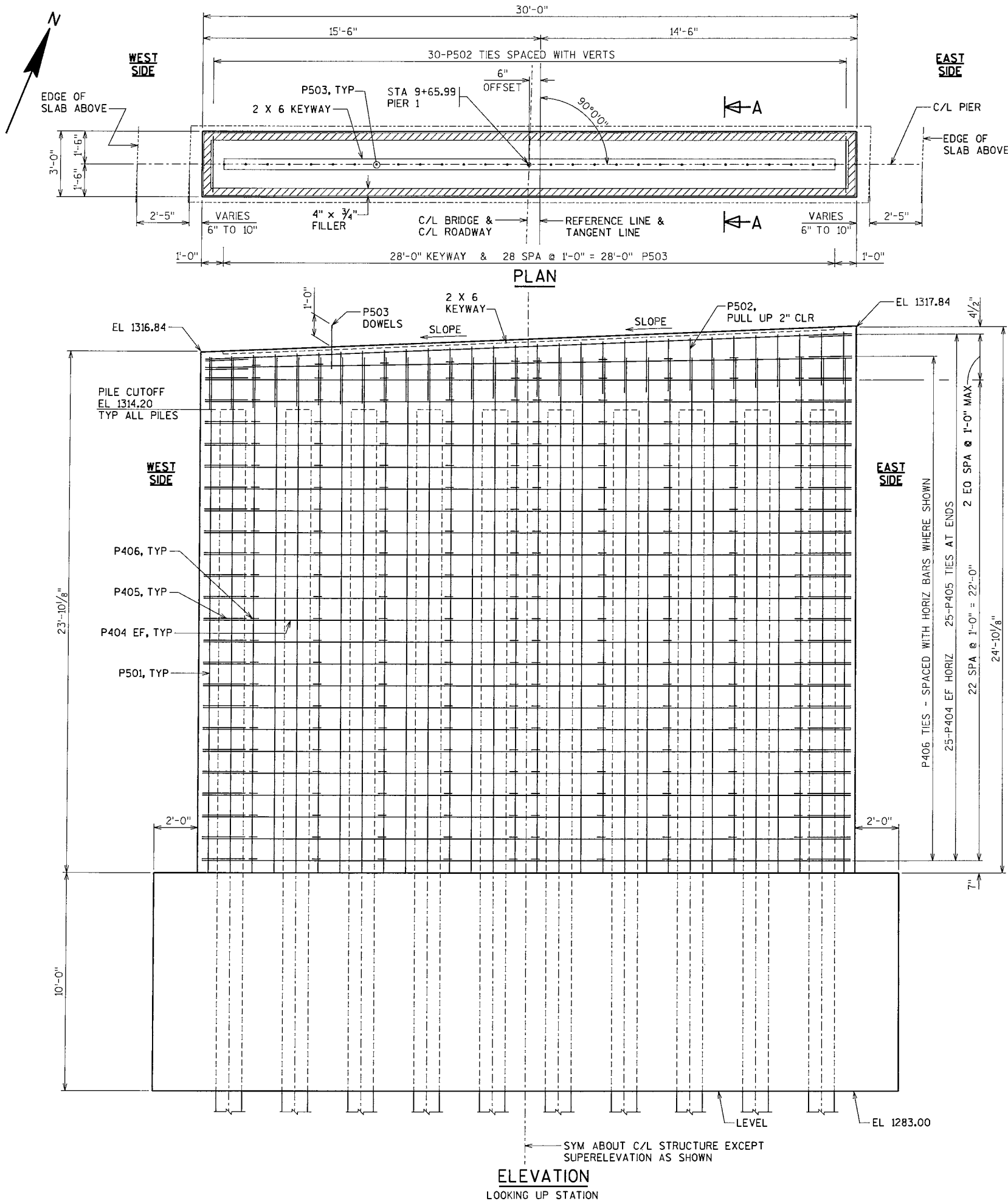
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY		DLF	PLANS CK'D. NCK
SOUTH & NORTH ABUTMENT BILL OF BARS			SHEET 12 OF 19

PLOT TIME: 11:38:46 AM

PLOT DATE: 1/8/2014

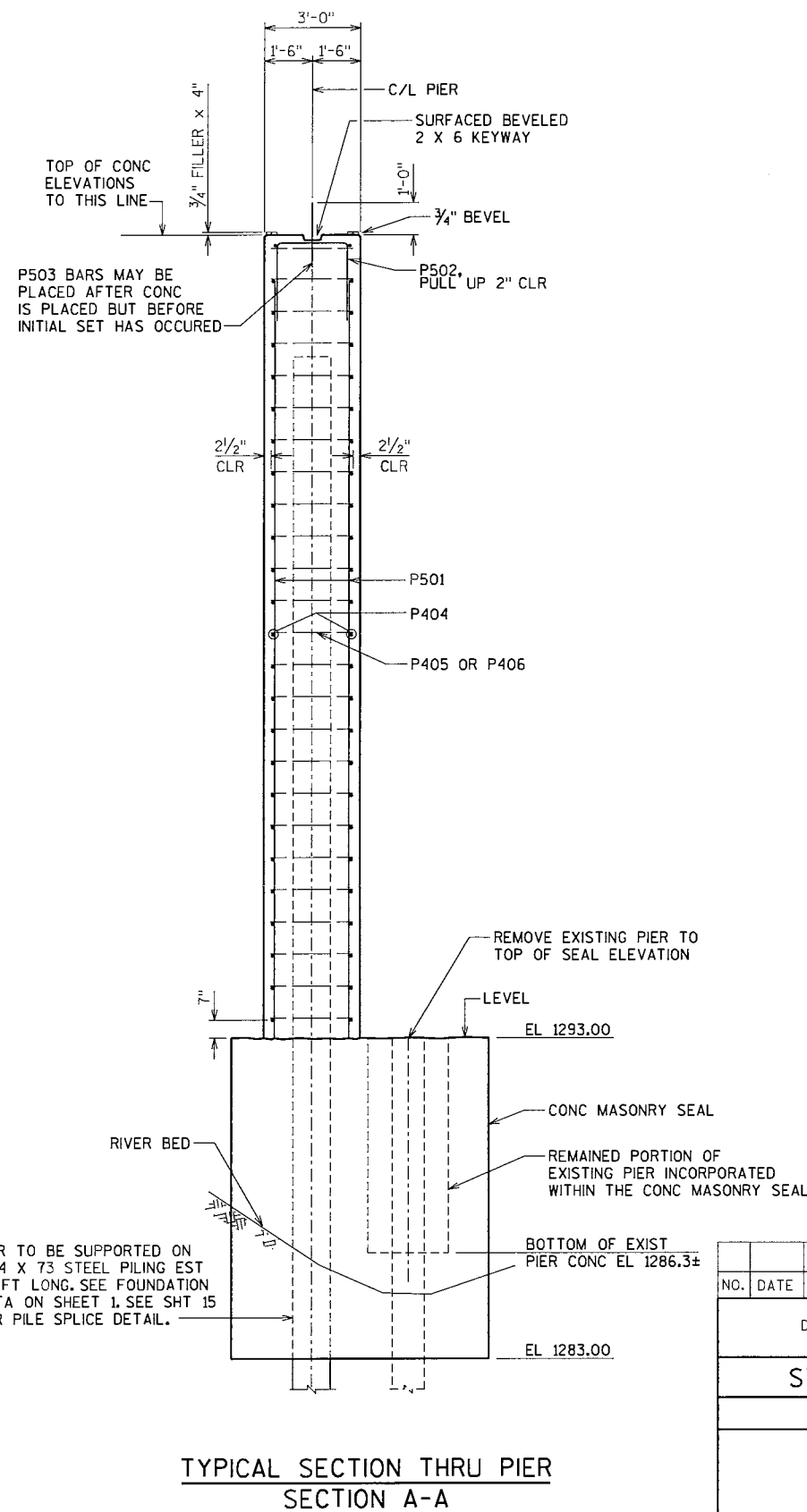
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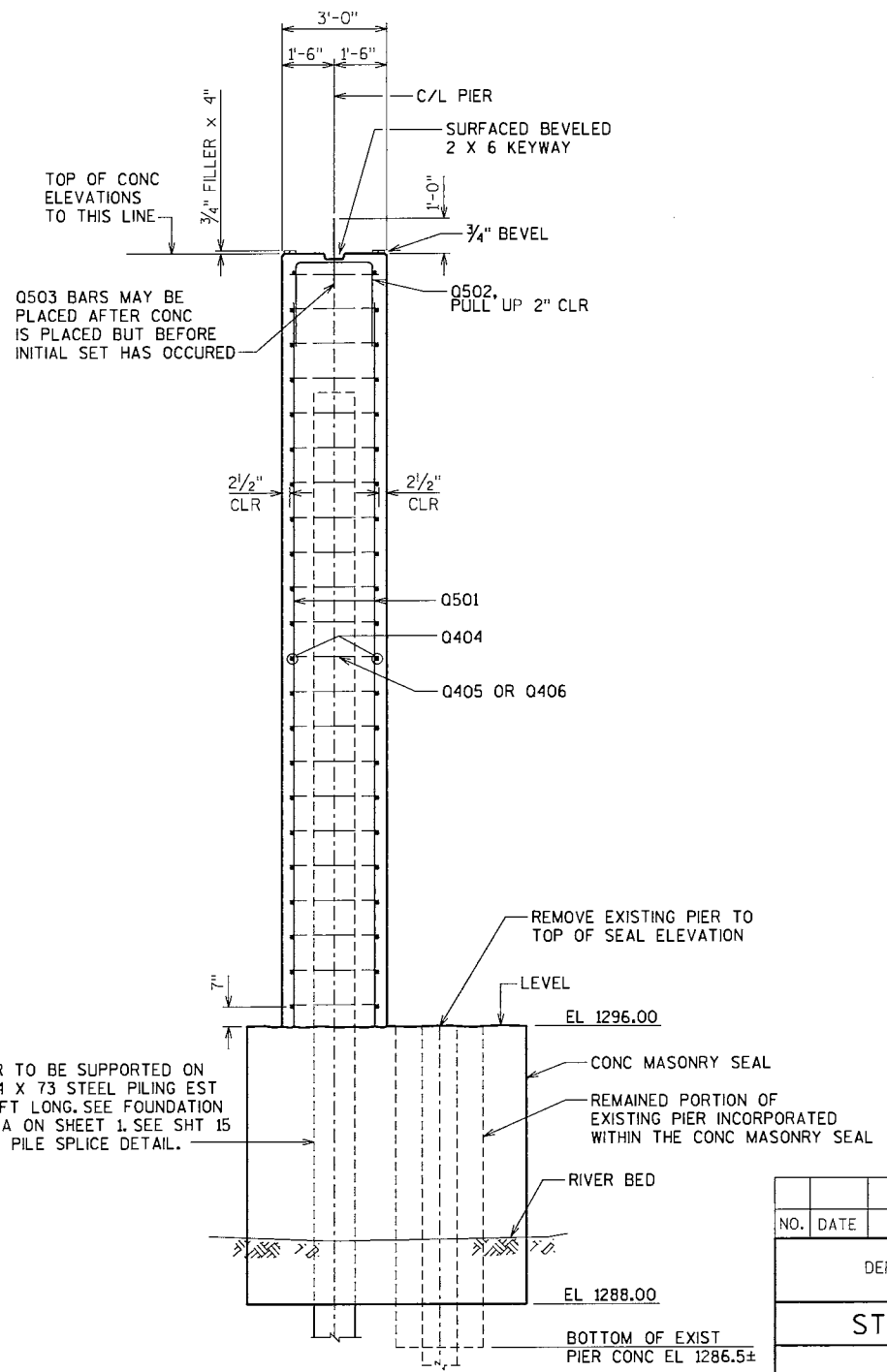
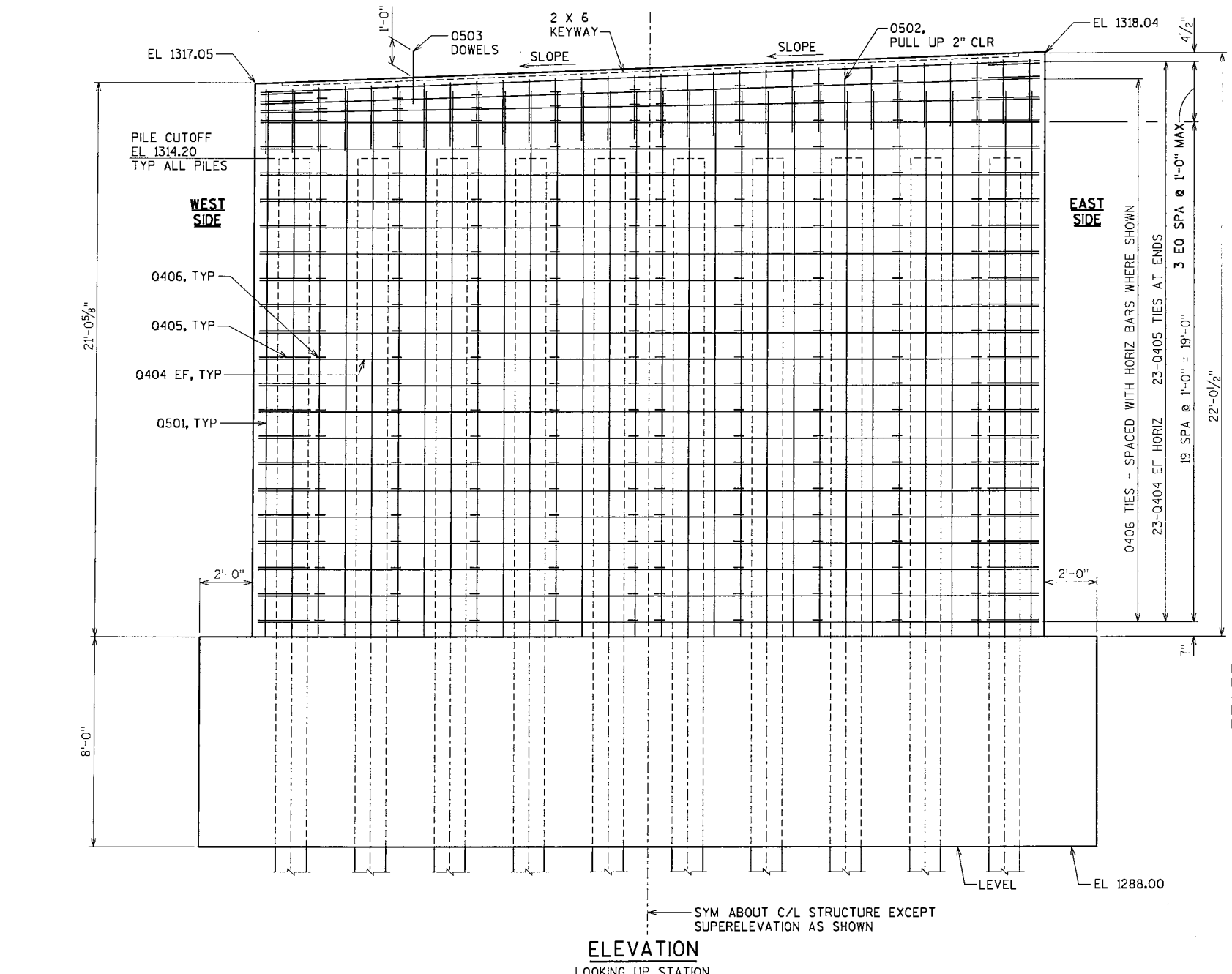
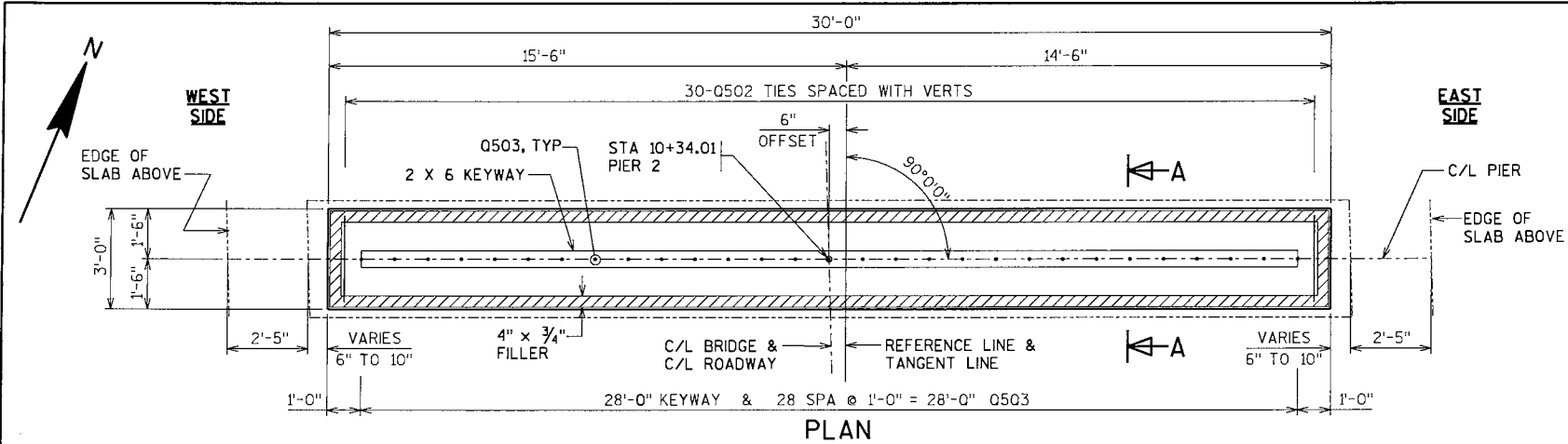
STATE PROJECT NUMBER

8451-00-70



FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY		DLF	PLANS CKD. NCK
PIER 1 DETAILS			SHEET 13 OF 19



FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE

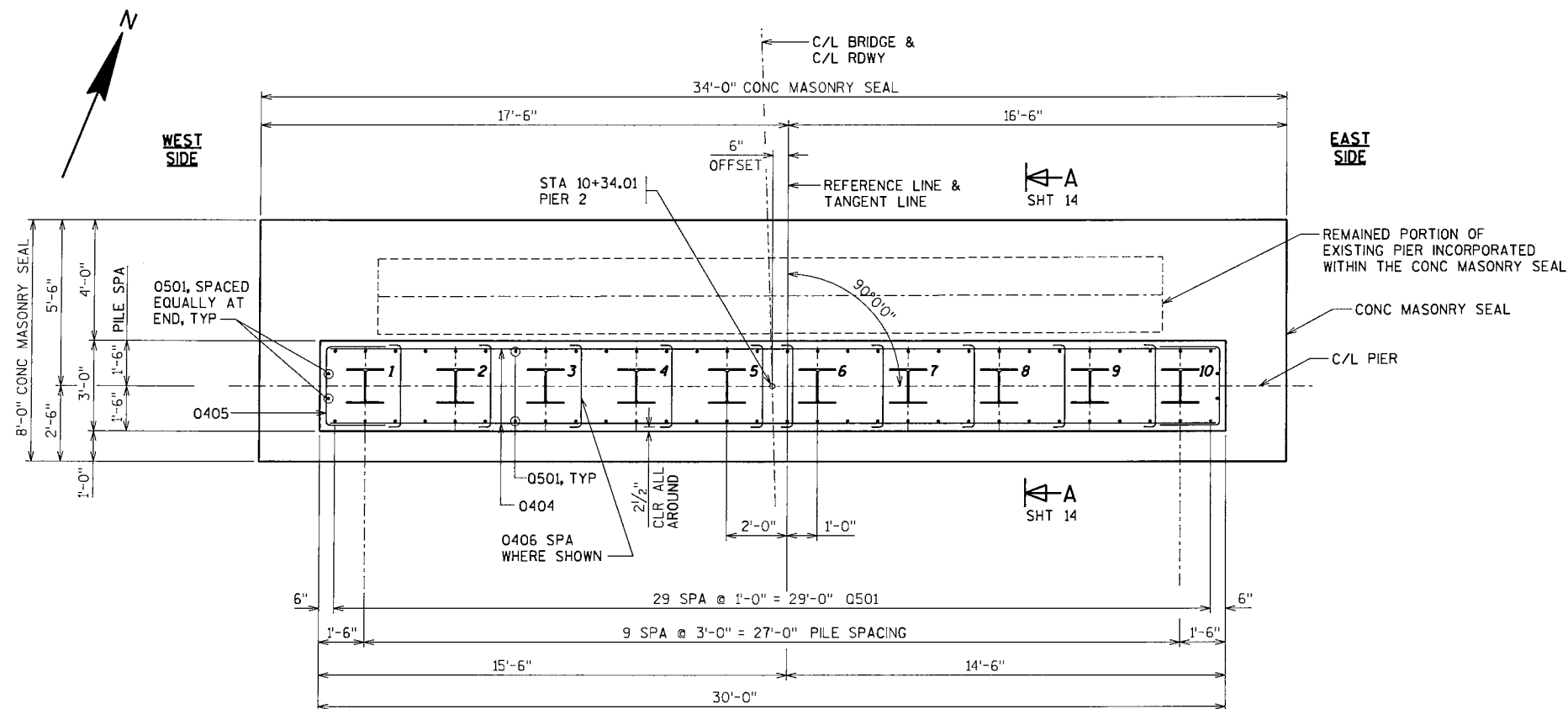
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 2 DETAILS			SHEET 14 OF 19

PLOT TIME: 11:38:48 AM

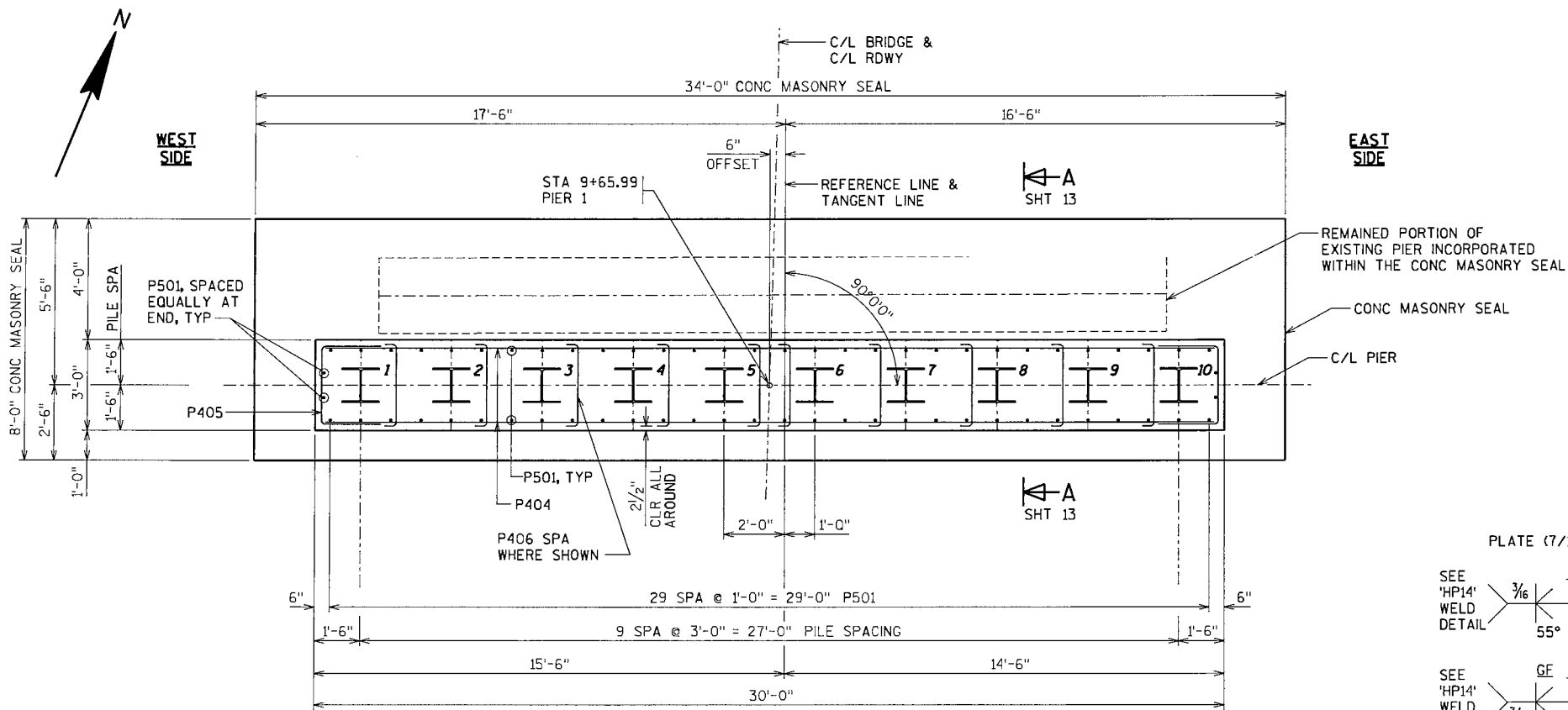
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8



FOOTING LAYOUT
PIER 2



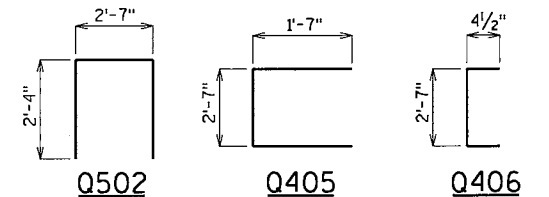
FOOTING LAYOUT
PIER 1

FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE

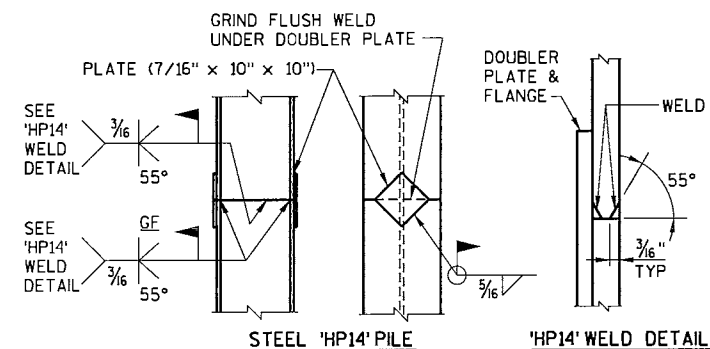
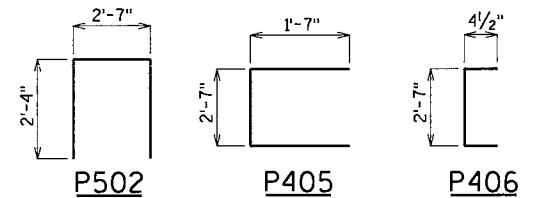
NOTE: THE FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE
ENGLISH BAR DIAMETER SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

BILL OF BARS						PIER 2
BAR MARK	CONT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
Q501		64	20 - 9			SHAFT VERT
Q502		30	7 - 0		X	CAP TIE
Q503	X	29	2 - 0			DOWEL
Q404		46	29 - 6			SHAFT HORIZ
Q405		46	5 - 7		X	SHAFT TIE
Q406		220	3 - 2		X	SHAFT TIE

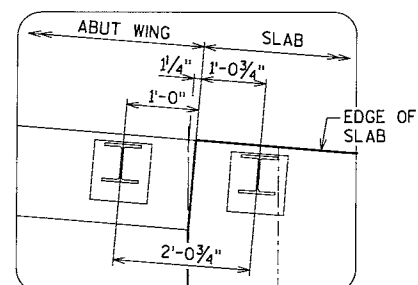


BILL OF BARS						PIER 1
BAR MARK	CONT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
P501		64	23 - 7			SHAFT VERT
P502		30	7 - 0		X	CAP TIE
P503	X	29	2 - 0			DOWEL
P404		50	29 - 6			SHAFT HORIZ
P405		50	5 - 7		X	SHAFT TIE
P406		240	3 - 2		X	SHAFT TIE



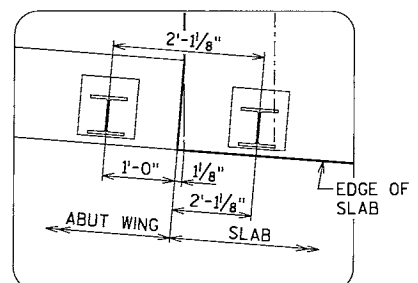
PILE SPLICE DETAIL AT PIERS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & PIER 2 DETAILS			SHEET 15 OF 19



AND

WING 2 AND WING 3 SIMILAR EXCEPT OPPOSITE HAND

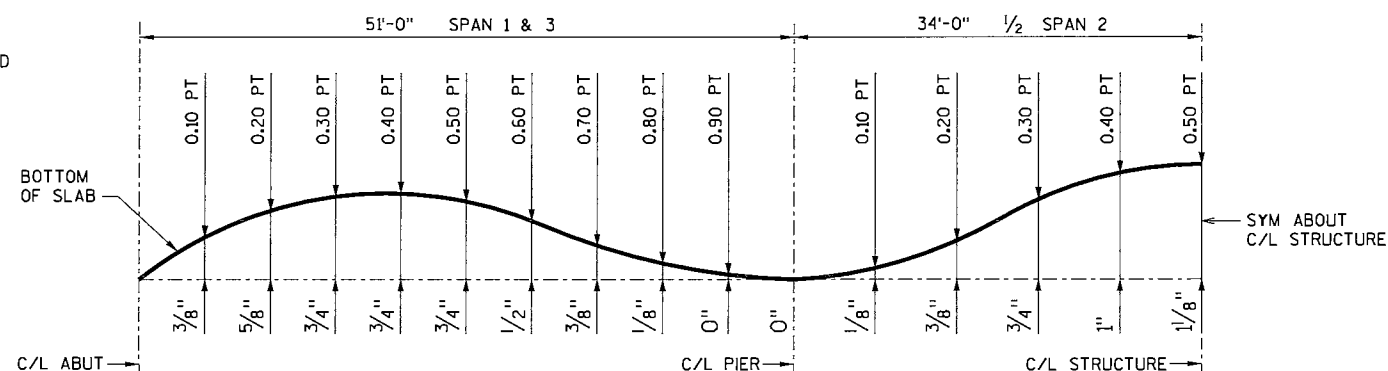


AND

WING 1 AND WING 4 SIMILAR EXCEPT OPPOSITE HAND

(NOTE: SEE SHEET 1 FOR C/L CURVE DATA)

POINT	-80	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80
DIM "A" (FT)	2.796	2.140	1.572	1.091	0.698	0.393	0.175	0.044	0.000	0.044	0.175	0.393	0.698	1.091	1.572	2.140	2.796
DIM "B" (FT)	20.841	20.174	19.597	19.109	18.710	18.399	18.177	18.044	18.000	18.044	18.177	18.399	18.710	19.109	19.597	20.174	20.841
DIM "C" (FT)	15.247	15.893	16.453	16.926	17.313	17.613	17.828	17.957	18.000	17.957	17.828	17.613	17.313	16.926	16.453	15.893	15.247
ELEV "A"	1320.35	1320.48	1320.59	1320.70	1320.79	1320.87	1320.93	1320.98	1321.02	1321.04	1321.05	1321.05	1321.03	1321.00	1320.96	1320.90	1320.83
ELEV "B"	1319.73	1319.87	1319.99	1320.10	1320.19	1320.27	1320.33	1320.39	1320.42	1320.45	1320.46	1320.45	1320.44	1320.41	1320.36	1320.30	1320.23
ELEV "C"	1320.96	1321.08	1321.20	1321.30	1321.39	1321.46	1321.53	1321.58	1321.61	1321.64	1321.65	1321.64	1321.63	1321.60	1321.56	1321.50	1321.44



CAMBER SPAN AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE VERTICAL ROADWAY PROFILE OR ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION ONLY EQUALS APPROXIMATELY 1/3 OF CAMBER VALUES SHOWN.

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

TRANSVERSE BARS SHALL BE PLACED PLACED PARALLEL TO THE C/L OF SUBSTRUCTURE UNITS.

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED ON CONTINUOUS BAR CHAIRS APPROXIMATELY 4'-0" CENTERS.

☒ COAT WITH "PROTECTIVE SURFACE TREATMENT"
PER THE STANDARD SPECIFICATIONS.

———— INDICATES TOP LONGITUDINAL BAR STEEL REINFORCEMENT
— — — INDICATES BOTTOM LONGITUDINAL BAR STEEL REINFORCEMENT

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY		DLF	PLANS CKD. NCK
SUPERSTRUCTURE DETAILS			SHEET 16 OF 1

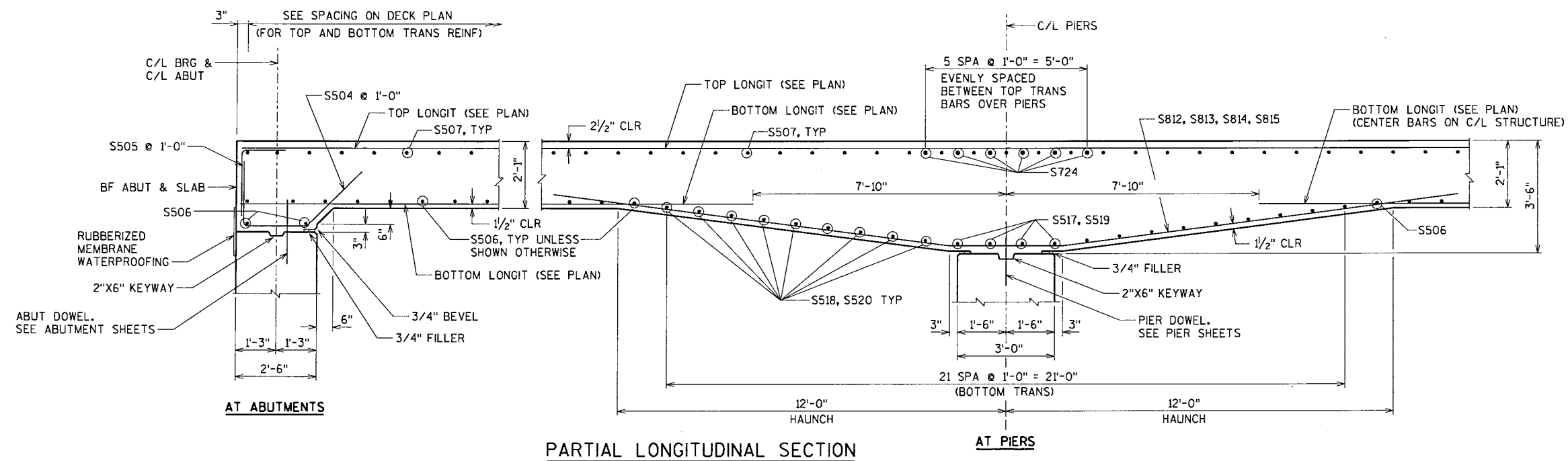
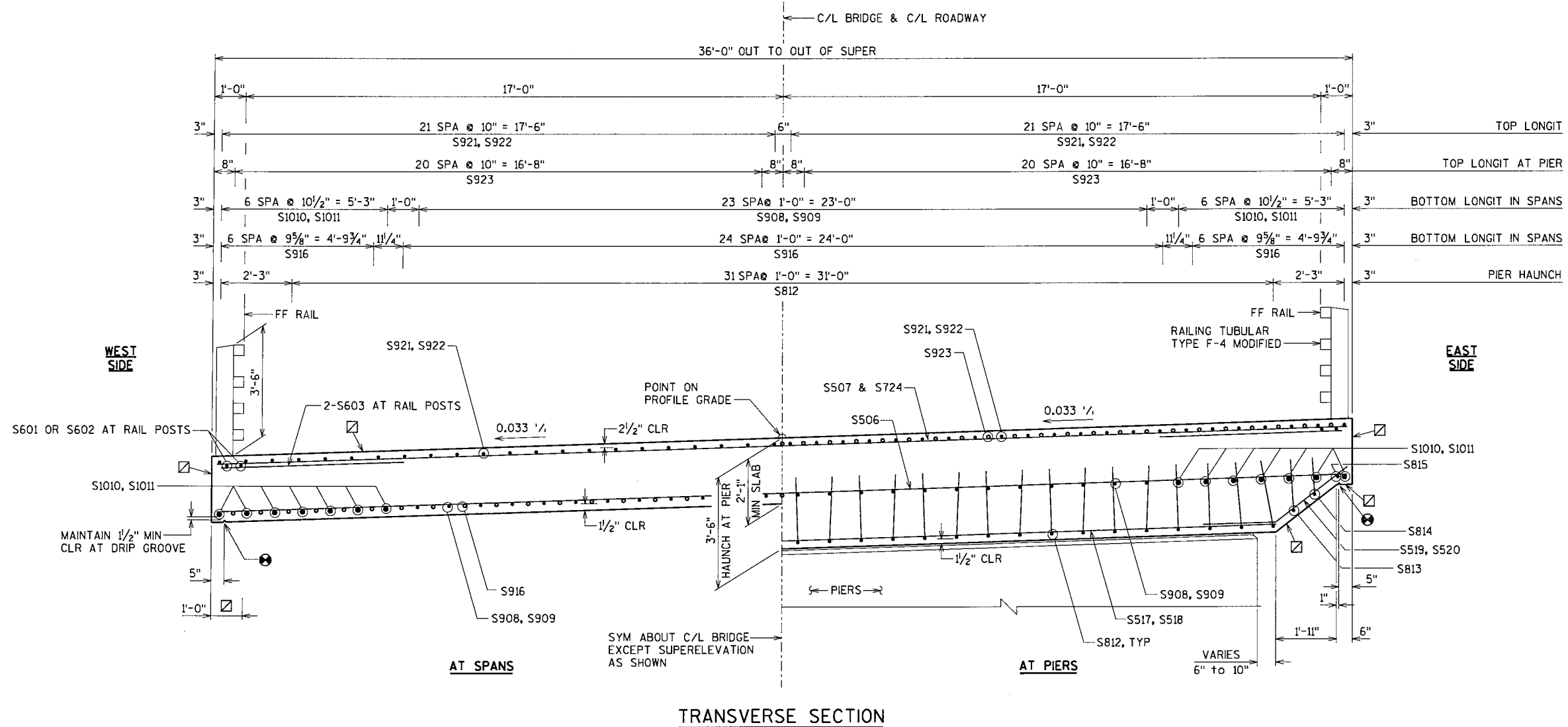
PLOT TIME: 11:38:50 AM

PLOT DATE: 1/8/2014

FILE NAME : S:\PT\51\504\114209\5-dsgn\51-cadd\51-structural\bridge\51082s2.dgn

STATE PROJECT NUMBER

8451-00-70



NOTES

- ⊗ 3/4" V-GROOVE, EXTEND V-GROOVE TO THE FILLET ADJACENT TO THE ABUTMENTS.
- ☒ COAT WITH "PROTECTIVE SURFACE TREATMENT" PER THE STANDARD SPECIFICATIONS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE DETAILS			SHEET 17 OF 19

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

Technical drawings of various structural components, including beams, columns, and girders, with dimensions and labels.

S502: Beam with dimensions 3'-10" and 5'-9".

S603: Beam with dimensions 3'-10" and 5'-9".

S504: Column with dimensions 2'-0", 1'-11", and 12".

S505: Column with dimensions 1'-5" and 12".

S812: Girder with dimensions 12'-5", 3'-5", and 12'-5".

S813: Girder with dimensions 10'-2", 7'-9", and 10'-2".

S814: Girder with dimensions 5'-7", 17'-0", and 5'-7".

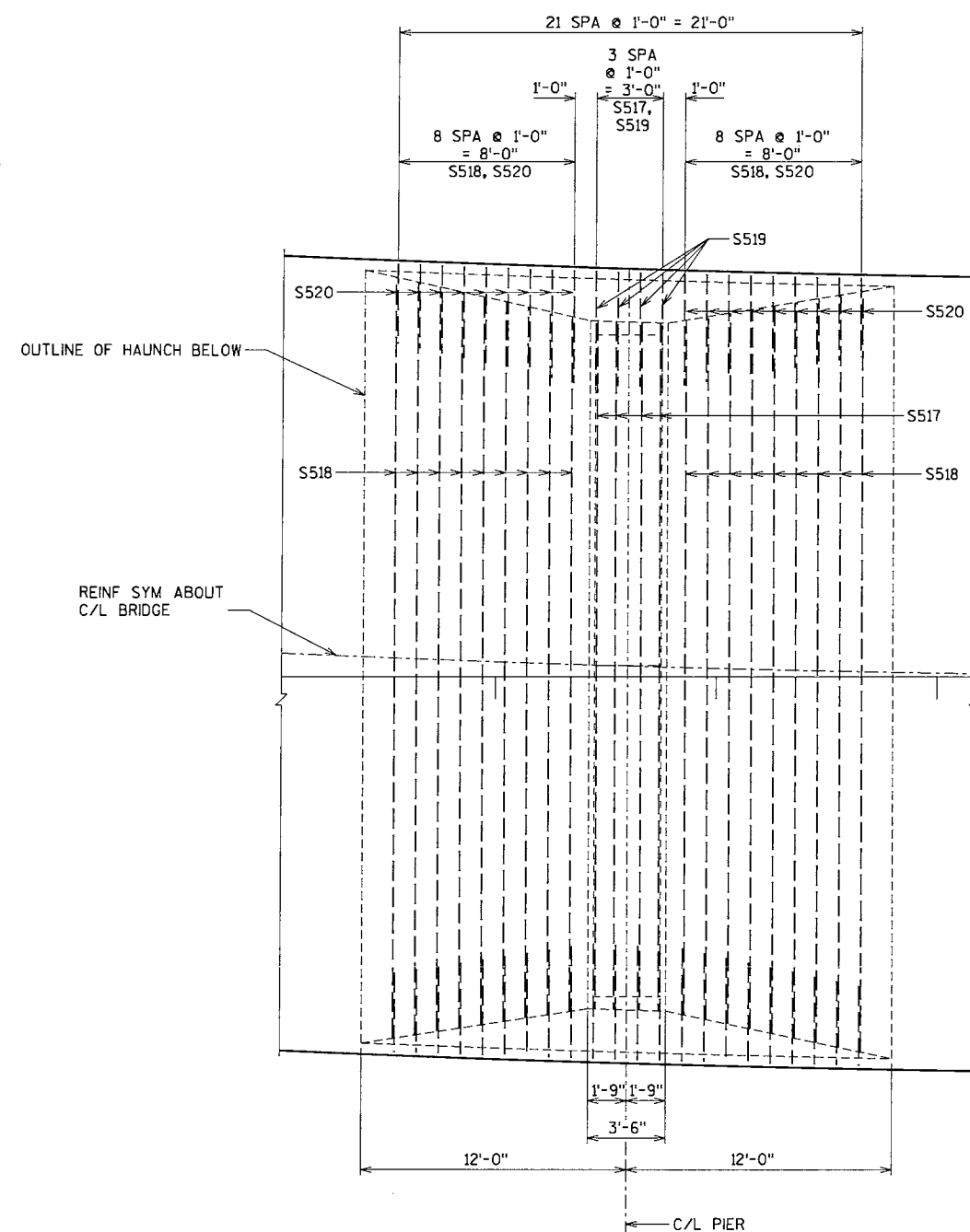
S519: Column with dimensions 2'-11" and 2'-9".

S520: Column with dimensions 2'-11" and 8".

BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
S601	X	84	4 - 0			AT RAIL POSTS - INT
S602	X	8	4 - 8		X	AT RAIL POSTS - EN
S603	X	92	12 - 0		X	AT RAIL POSTS - AL
S504	X	74	6 - 3		X	END OF DECK
S505	X	74	3 - 9		X	END OF DECK
S506	X	132	35 - 8			BOT TRANS
S507	X	173	35 - 8			TOP TRANS
S908	X	48	44 - 3			BOT LONG SPAN 1 &
S909	X	24	52 - 4			BOT LONG SPAN 2
S1010	X	28	44 - 4			BOT LONG
S1011	X	14	52 - 4			BOT LONG
S812	X	64	28 - 3		X	BOT LONG HAUNCH
S813	X	4	28 - 1		X	BOT LONG HAUNCH
S814	X	4	28 - 2		X	BOT LONG HAUNCH
S815	X	4	28 - 0			BOT LONG HAUNCH
S916	X	117	35 - 0			BOT LONG
S517	X	8	31 - 2			BOT TRANS HAUNCH
S518	X	36	33 - 0	▲		BOT TRANS HAUNCH
S519	X	16	5 - 8		X	BOT TRANS HAUNCH
S520	X	72	4 - 3	▲	X	BOT TRANS HAUNCH
S921	X	132	28 - 0			TOP LONG
S922	X	88	60 - 0			TOP LONG
S923	X	86	35 - 0			TOP LONG AT PIER
S724	X	12	35 - 8			TOP TRANS AT PIER

BAR MARK	BENT	NO. REQ'D.	LENGTH
S518		4 SERIES OF 9	31'-6" TO 34'-6"
S520	X	8 SERIES OF 9	3'-7" TO 4'-11"

BUNDLE AND TAG EACH SERIES SEPARATELY



DETAIL H
BOTTOM SLAB REINFORCEMENT AT PIER HAUNCH

PLOT TIME: 11:38:52 AM

PLOT DATE: 1/8/2014

FILE NAME : S:\PT\5\5049\14209\5-dsgn\51-cadd\51-structural\bridge\517082r1.dgn

STATE PROJECT NUMBER

8451-00-70

LEGEND

- ① W6X25 WITH $\frac{1}{4}$ " DIA. HOLES ON EACH SIDE OF POST FOR STUD NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1" X $9\frac{1}{2}$ " X 10", WITH $\frac{1}{16}$ " X $\frac{1}{2}$ " SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ A325 - $\frac{7}{8}$ " DIA. HEX BOLTS (GALVANIZED) WITH A325 NUT & WASHER. 14" LONG AT END POSTS AND AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 15 ". USE 8" LONG AT ALL OTHER LOCATIONS. 4 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.
- ④ $\frac{1}{4}$ " X 8" X 8" FLAT BAR, WITH $\frac{5}{16}$ " DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- ⑤ TS 4 X 4 X 0.25 STRUCTURAL TUBING, CONFORMING TO ASTM DESIGNATION A501 OR A500 GRADE B. ATTACH TO NO. 1 WITH TWO NO. 6 STUDS.
- ⑥ $\frac{5}{8}$ " DIA. X $\frac{1}{2}$ " LG. SHOP WELDED STUDS WITH HEX NUT AND 2" WASHERS.
- ⑦ $\frac{3}{8}$ " X 1'-7" X 1'-8" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACED SYM. ABOUT TUBES NO. 5.
- ⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5 FOR $\frac{7}{8}$ " DIA. A325 BOLTS W/HEX NUTS AND WASHERS.
- ⑨ SQUARE SLEEVE FABRICATED FROM $\frac{1}{4}$ " PLATE. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 3 $\frac{1}{2}$ ".
- ⑩ TS 3 X 3 X 0.25 X (2'-4" AT EXPANSION JOINTS) & (1'-10" AT FIELD JOINTS) LONG. PROVIDE $\frac{1}{2}$ " DIA. SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 5. PROVIDE $\frac{3}{8}$ " DIA. X $\frac{1}{2}$ " WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.
- ⑪ $\frac{7}{8}$ " X $\frac{1}{2}$ " LG. THR'D. STUD/HEX HEAD NUT & WASHER. SHOP WELD TO PLATE NO. 7.

GENERAL NOTES

BID ITEM SHALL BE "RAILING TUBULAR TYPE F-4 MODIFIED B-57-82", WHICH INCLUDES ALL ITEMS SHOWN.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS

POST BASE PLATES, NO. 2, SHALL BE FLAT WITH ALL SURFACES SMOOTH, STRAIGHT AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

ALL MATERIAL, EXCEPT ANCHORAGE DETAIL NO. 4 SHALL BE GALVANIZED AFTER FABRICATION.

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL MATERIALS USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM DESIGNATION A709 GRADE 36 UNLESS NOTED OTHERWISE.

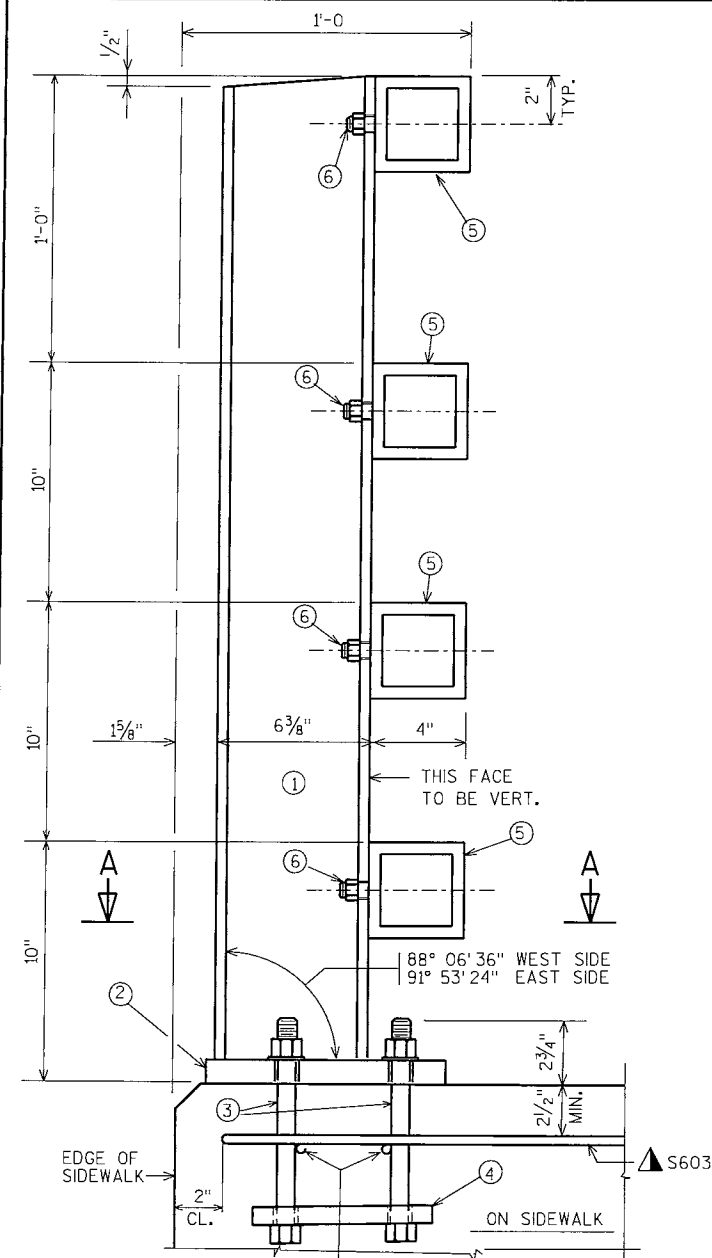
STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.

PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.

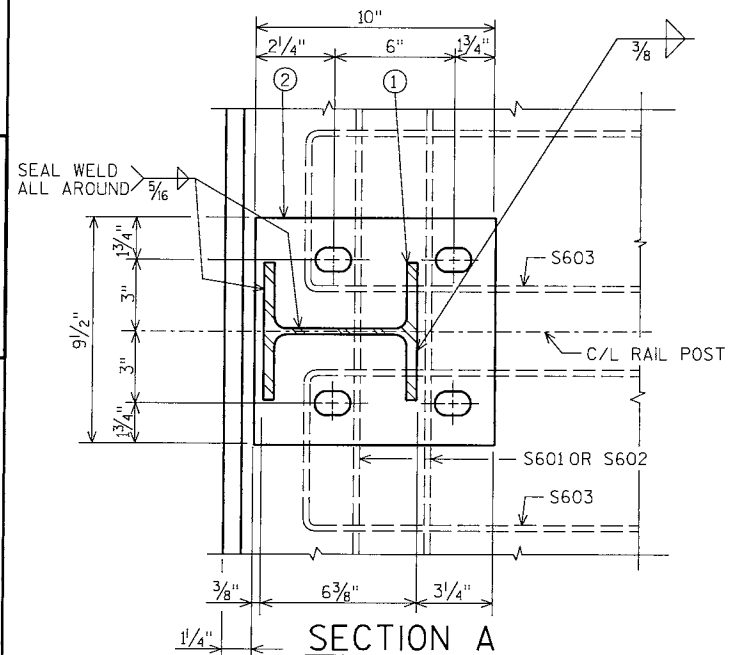
PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

RDWY. OPENING OR $\frac{2}{2}$ " MIN. FOR STRIP SEAL EXP. JOINT & $\frac{1}{2}$ " OPENING FOR A1 ABUTMENT.

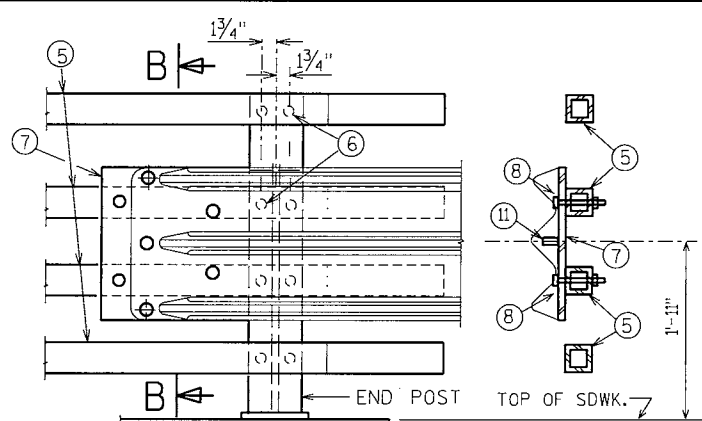
TIE TO TOP MAT OF STEEL.



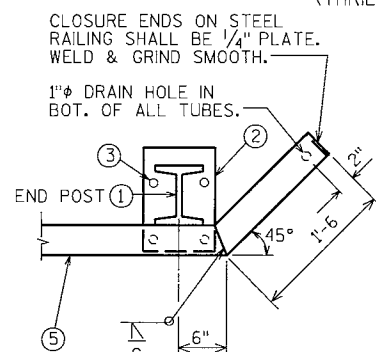
SECTION THRU RAILING ON



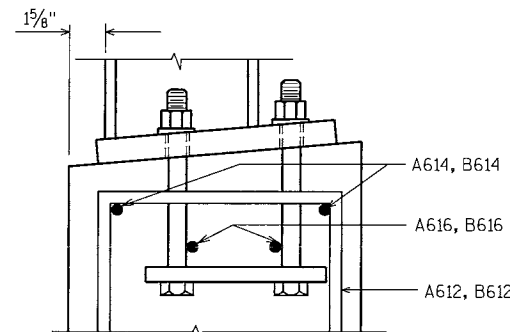
SECTION A



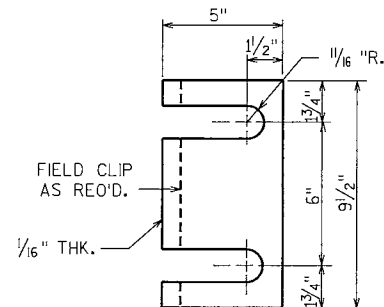
SECTION B
DETAIL AT END POST
(THRIE BEAM RAIL ATTACHMENT)



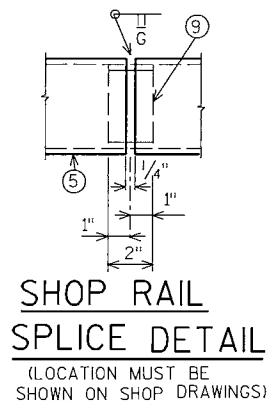
DETAIL FOR END POSTS



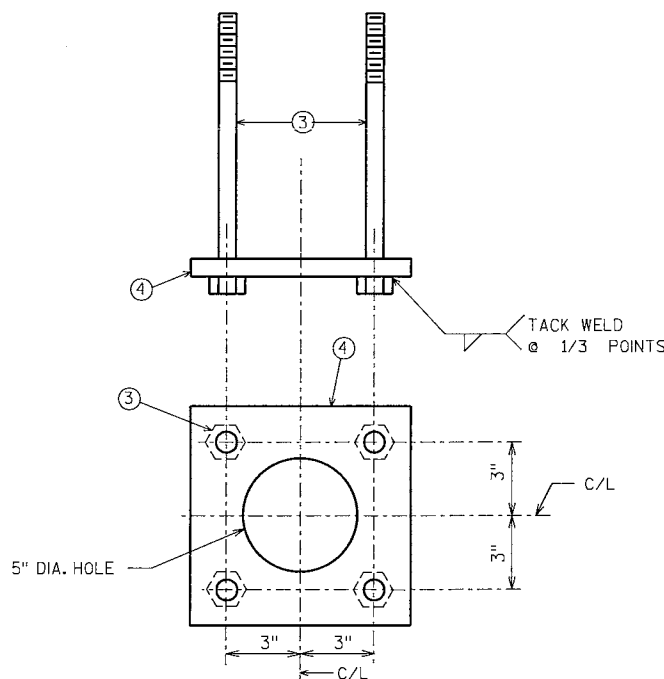
SECTION AT TOP OF WING



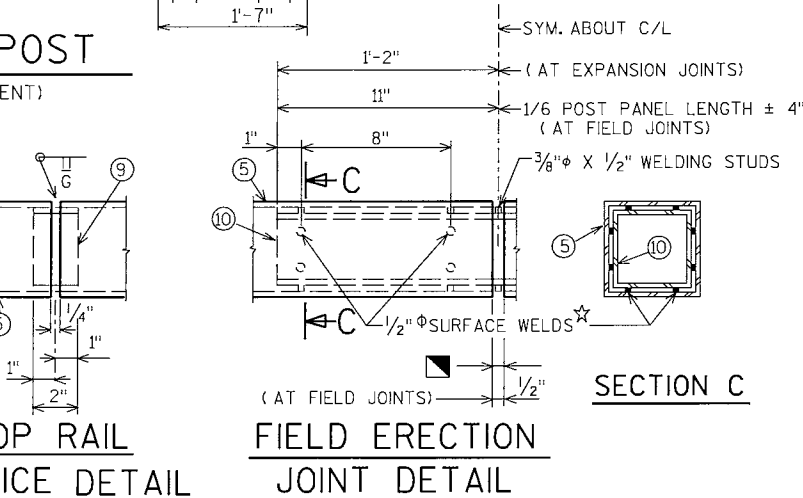
POST SHIM
DETAIL
4 PER POST



SHOP RAIL
SPLICE DETAIL
(LOCATION MUST BE
SHOWN ON SHOP DRAWINGS)



ANCHORAGE DETAIL



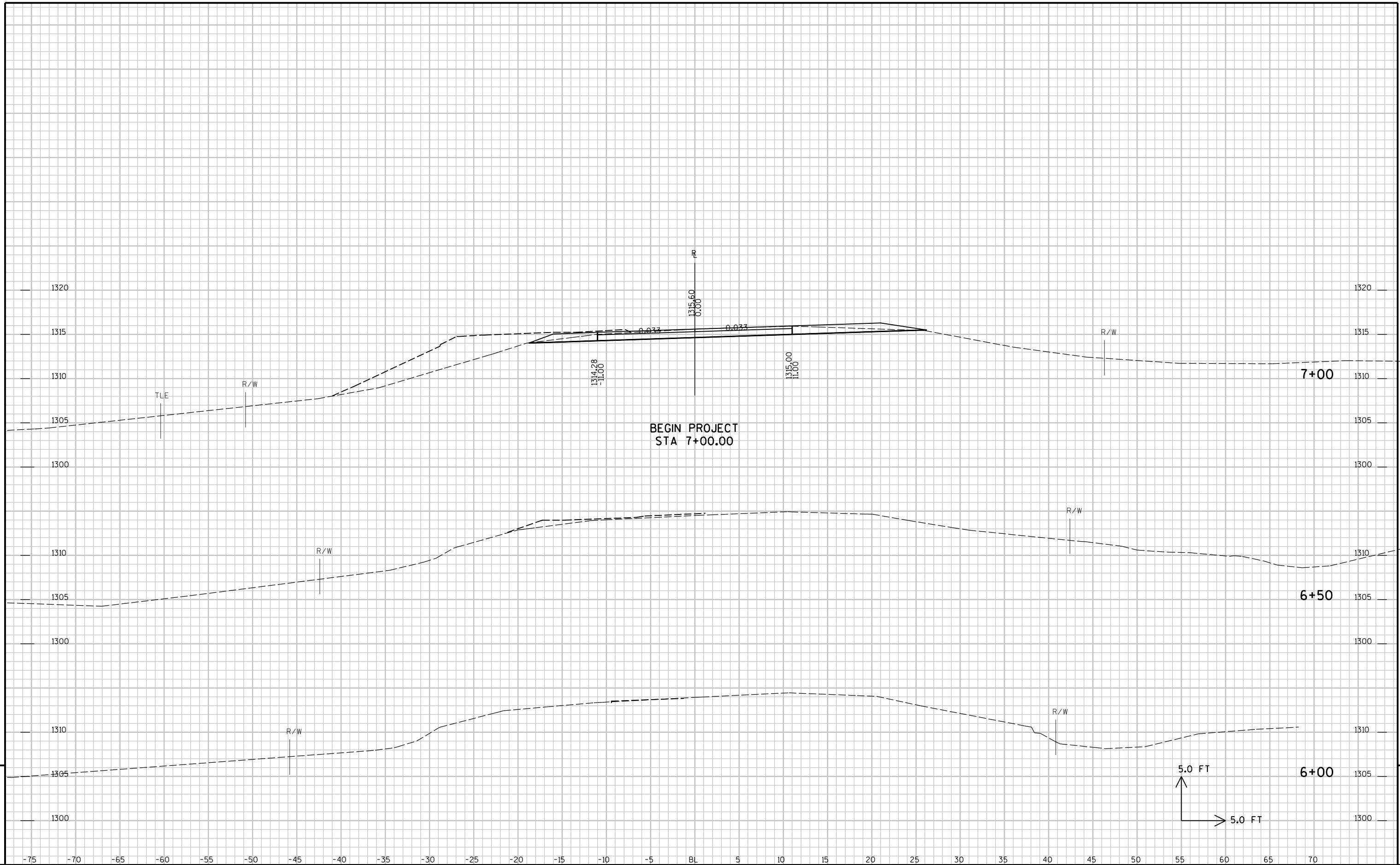
FIELD ERECTION
JOINT DETAIL

☆ MIN. $\frac{5}{16}$ " FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-57-82			
DRAWN BY DLF		PLANS CK'D. NCK	
TUBULAR RAILING TYPE 'F-4' MODIFIED		SHEET 19 OF 19	

CTH CC, TEMPORARY BYPASS						* EXPANDED 30%			
STATION	END AREA		VOLUME		CUM VOLUME		MASS HAUL		
	CUT (SF)	FILL (SF)	CUT (CY)	*FILL (CY)	CUT (CY)	FILL (CY)	(CY)		
	35+50	0	0	0	0	0	0	0	
	36+00	2.7	0	3	0	3	0	3	
	36+50	15	0	16	0	19	0	19	
	37+00	4.2	26.6	18	32	37	32	5	
	37+50	0.6	121.1	4	178	41	210	-169	
	38+00	0	262.4	1	462	42	671	-630	
Bypass									
	41+25	0	182.8	0	0	0	0	0	
	41+50	0	183.5	0	220	0	220	-220	
	42+00	0	163.3	0	417	0	638	-638	
	42+50	1	87.1	1	301	1	939	-938	
	43+00	4.6	14.6	5	122	6	1062	-1056	
	43+50	4.5	0	8	18	15	1079	-1065	
	44+00	2.7	0	7	0	21	1079	-1058	
	44+50	0	0	3	0	24	1079	-1056	
	45+00	0	0	0	0	24	1079	-1056	

CTH CC									* EXPANDED 30%									CTH CC								
									BYPASS																	
END AREA									ADDITIONAL AREA									FINAL AREA								
VOLUME									CUM VOLUME									FINAL VOLUME								
CUM VOLUME									MASS HAUL									CUM VOLUME								
MASS HAUL																		MASS HAUL								
STATION	CUT (SF)	FILL (SF)	CUT (CY)	*FILL (CY)	CUT (CY)	FILL (CY)	(CY)		CUT (SF)	FILL (SF)			STATION	CUT (SF)	FILL (SF)	CUT (CY)	*FILL (CY)	CUT (CY)	FILL (CY)	(CY)						
6+50	0	0	0	0	0	0	0	0	6	0			6+50	6	0	0	0	0	0	0	0	0	0			
7+00	29	0	27	0	27	0	27	0	47	0			7+00	76	0	76	0	76	0	76	0	76	76			
7+50	29.5	50	54	60	81	60	21		115	-41			7+50	145	9	204	11	280	11	269			269			
7+73	31.5	84.5	26	74	107	134	-27		156	-53			7+73	188	32	140	22	420	33	387			387			
7+81	32.8	85.5	10	35	117	168	-52		175	-61			7+81	208	25	62	11	481	44	437			437			
7+97	35.2	84.6	20	66	137	234	-97		228	-60			7+97	263	25	141	19	622	63	559			559			
8+00	35.6	83.7	4	11	141	245	-105		251	-59			8+00	287	25	28	3	650	67	583			583			
8+07	36.5	82.5	9	26	149	272	-122		0	0			8+07	37	83	39	17	689	84	606			606			
8+22	38	72.7	21	58	171	329	-159		0	0			8+22	38	73	21	58	710	141	569			569			
8+32	37.8	63	14	32	185	362	-177		0	0			8+32	38	63	14	32	724	174	551			551			
8+50	35.5	12.4	25	33	209	394	-185		0	0			8+50	36	12	25	33	749	206	543			543			
9+00	25.2	315.8	56	395	265	790	-524		0	0			9+00	25	316	56	395	805	601	204			204			
9+13	0	0	6	99	271	888	-617		0	0			9+13	0	0	6	99	811	700	111			111			
Mainline													Mainline													
10+86	0	0	0	0	0	0	0	0	0	0			10+86	0	0	0	0	0	0	0	0	0	0			
11+00	22.5	161.1	6	54	6	54	-48		0	0			11+00	23	161	6	54	6	54	-48			-48			
11+50	28.4	76	47	285	53	340	-287		207	0			11+50	235	76	239	285	245	340	-95			-95			
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12+00	29.3	66.4	8	24	107	503	-396		187	-8			12+00	216	58	60	22	671	502	169			169			
12+18	30.3	65.9	19	56	127	559	-432		174	-14			12+18	204	52	137	47	808	548	260			260			
12+50	30.4	69.4	36	105	163	665	-501		129	-8			12+50	159	61	218	88	1026	637	389			389			
12+66	30.7	66.5	18	53	182	717	-536		105	-2			12+66	136	65	88	49	1114	686	429			429			
12+91	31.5	29.5	29	58	210	775	-565		63	0			12+91	95	30	107	57	1221	742	479			479			
13+00	31.8	0	10	6	221	781	-561		48	0			13+00	80	0	29	6	1249	748	501			501			



PROJECT NO : 8451-00-70

HWY : CTH CC

COUNTY : SAWYER

CROSS SECTIONS -

SHEET NO:

E

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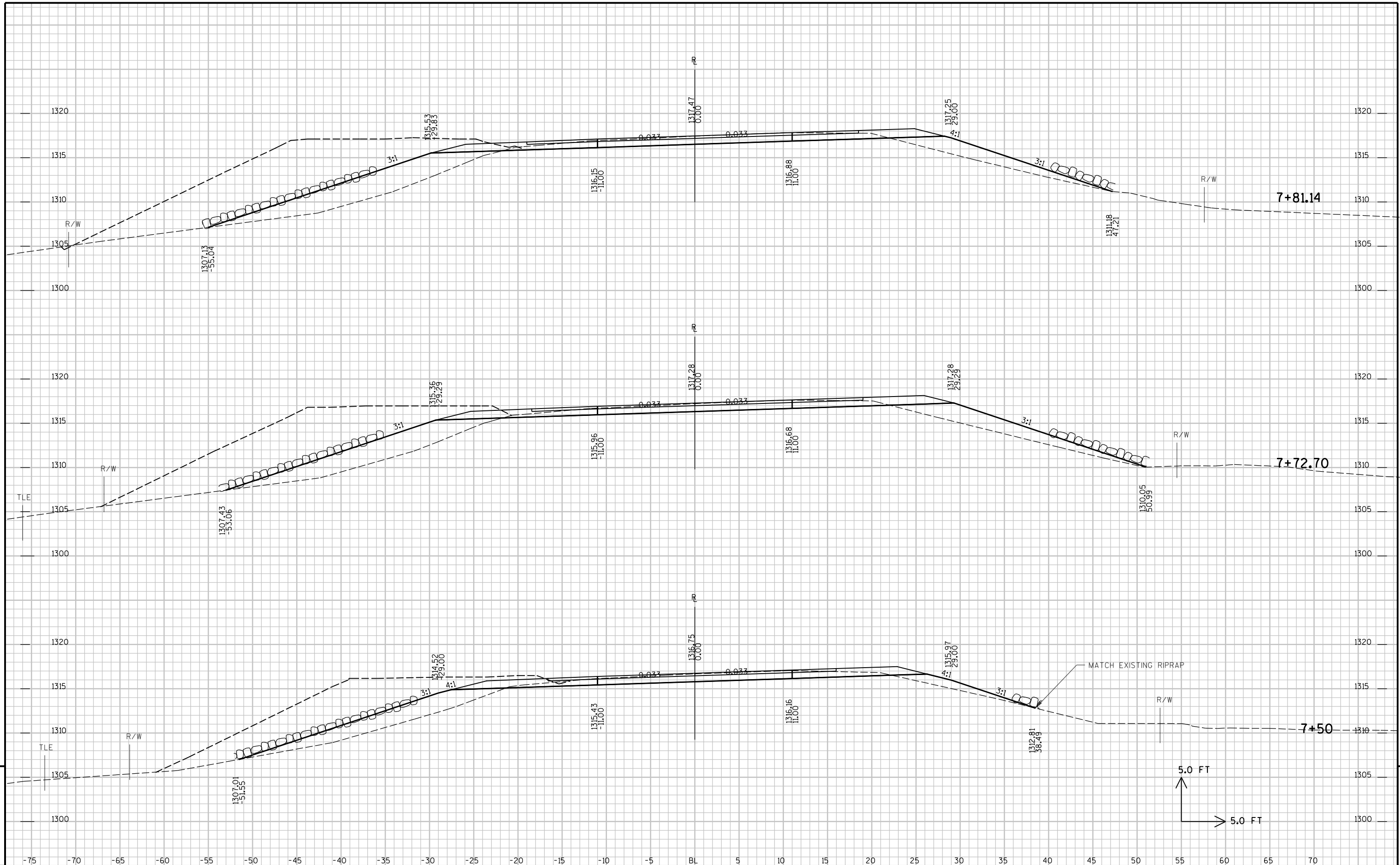
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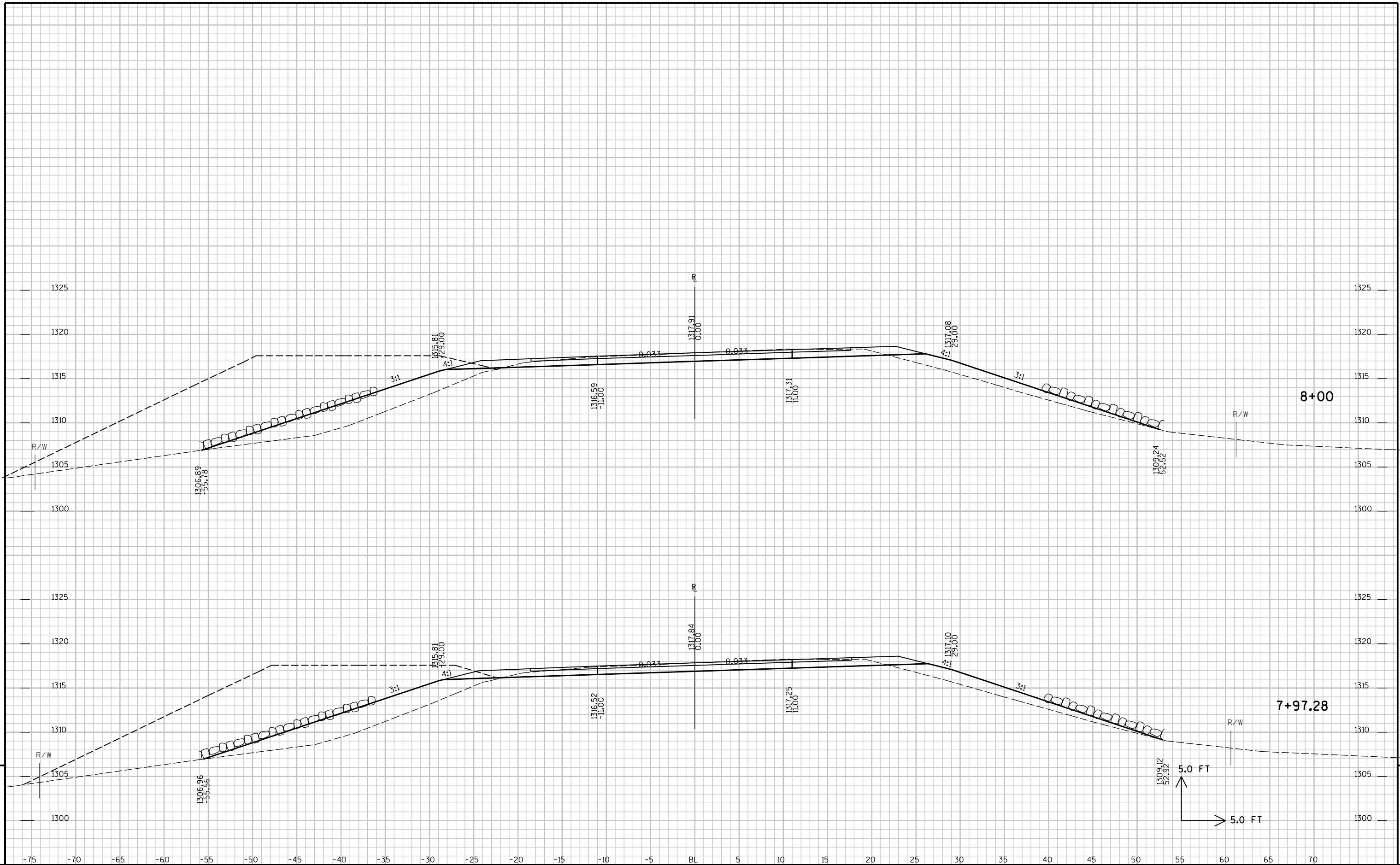
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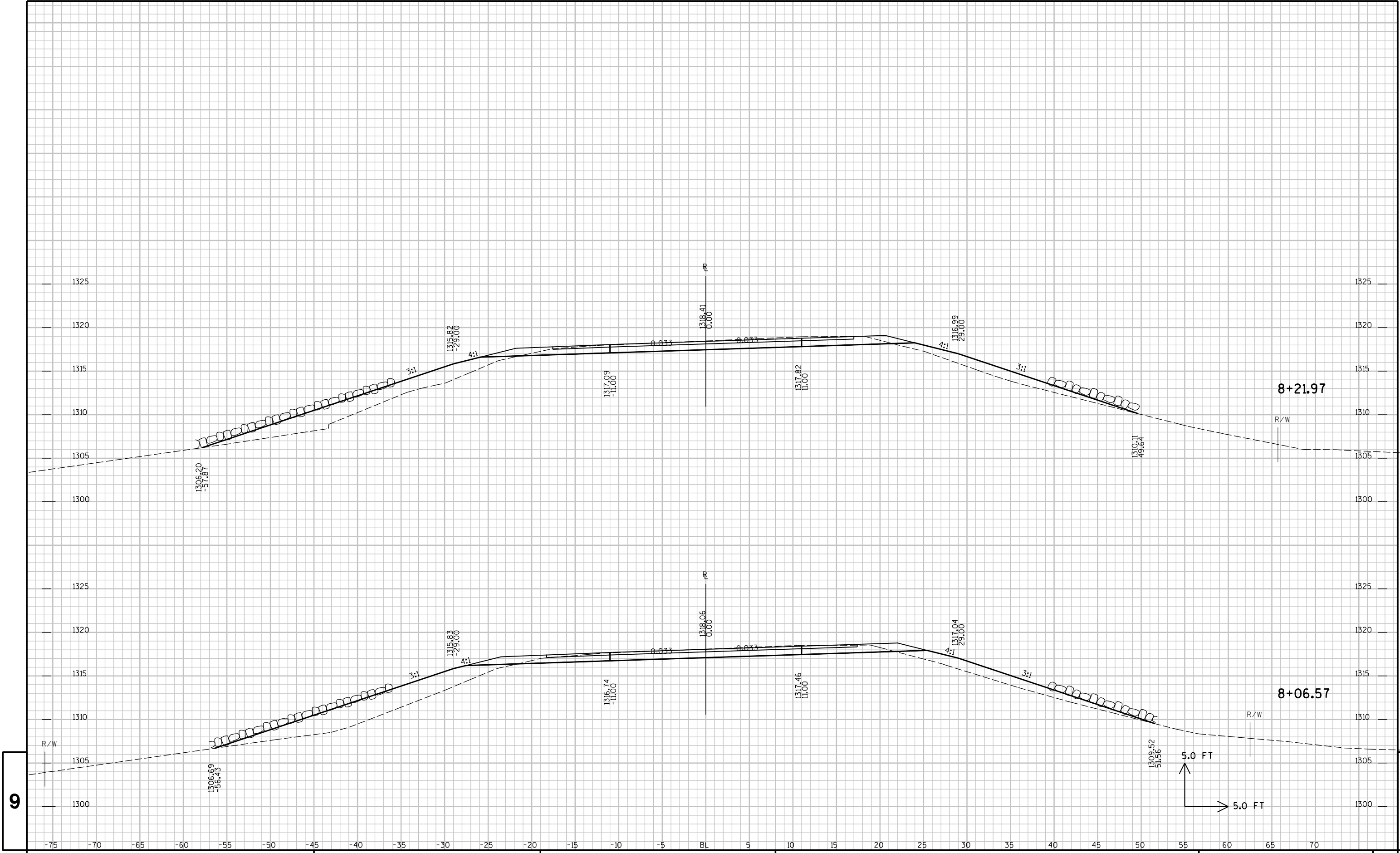
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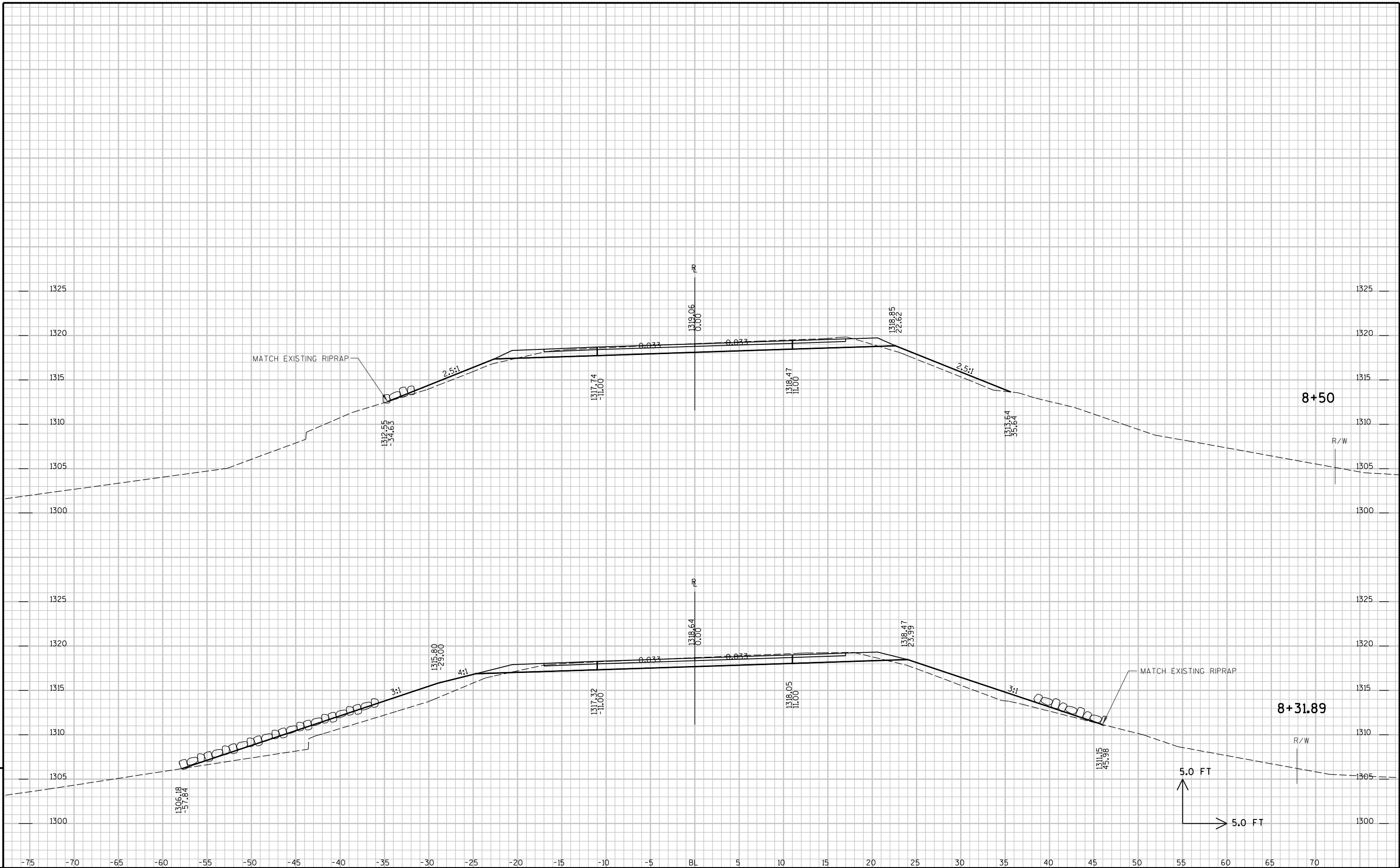
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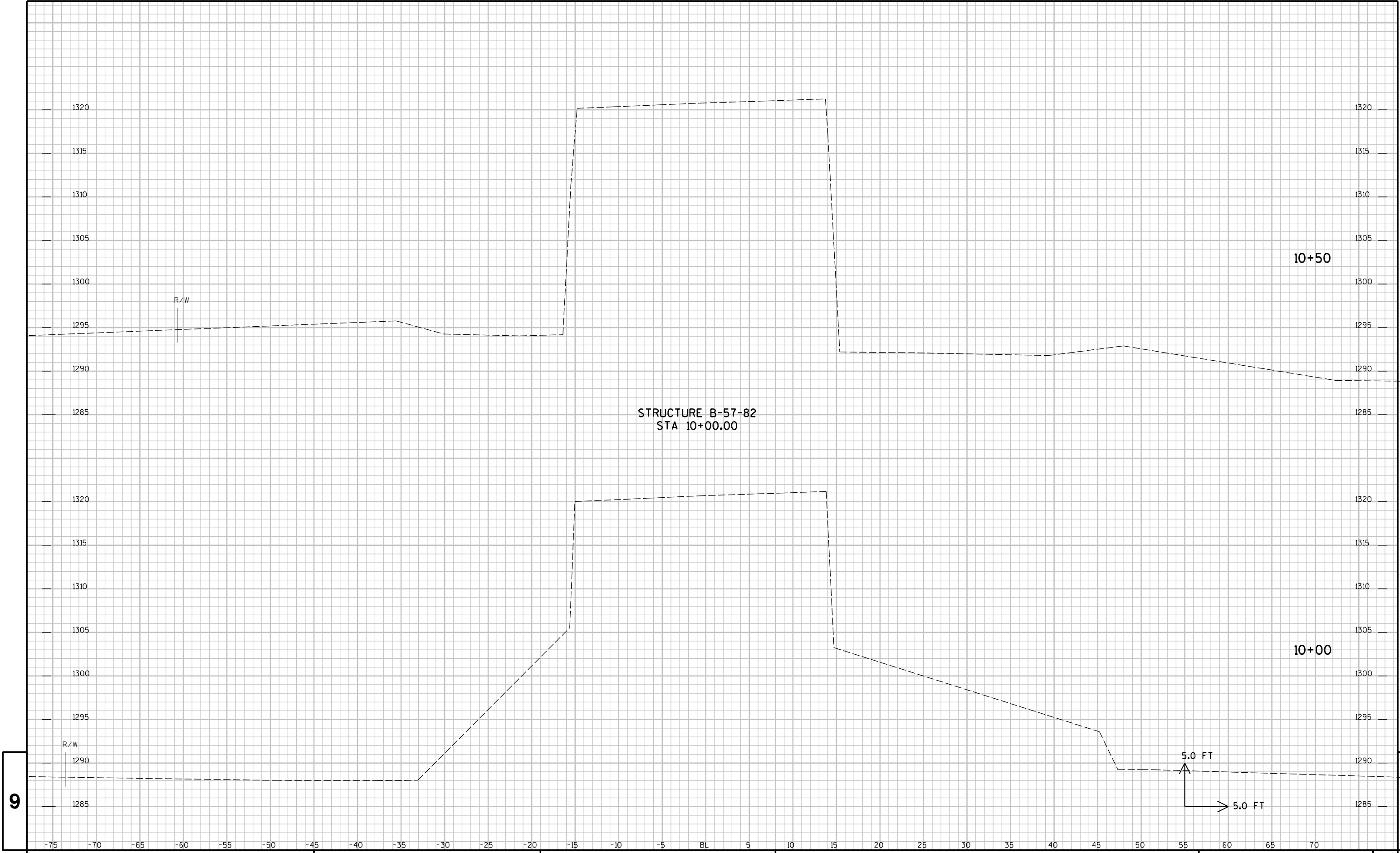


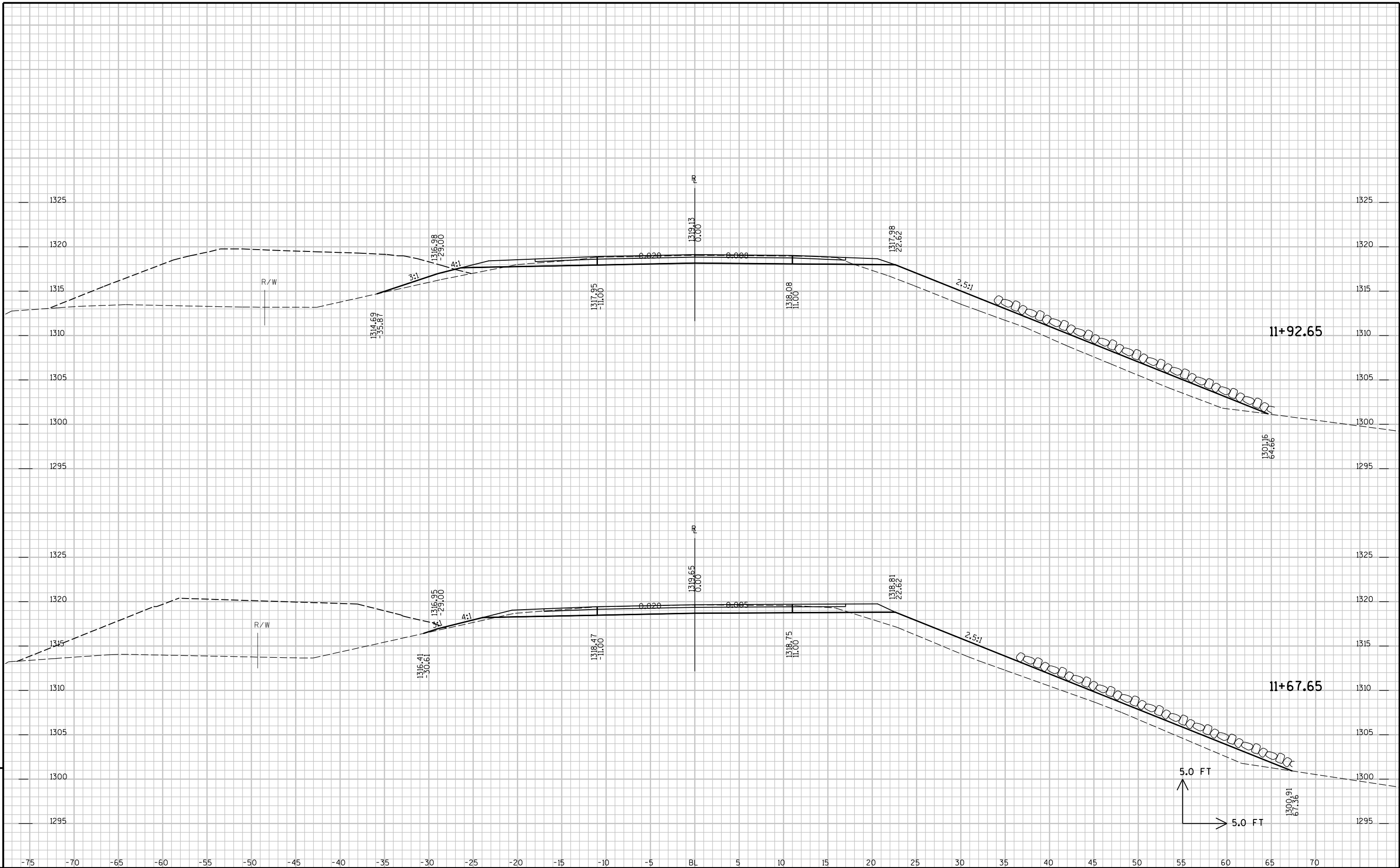




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PROJECT NO : 8451-00-70

HWY : CTH CC

COUNTY : SAWYER

CROSS SECTIONS -

SHEET NO:

E

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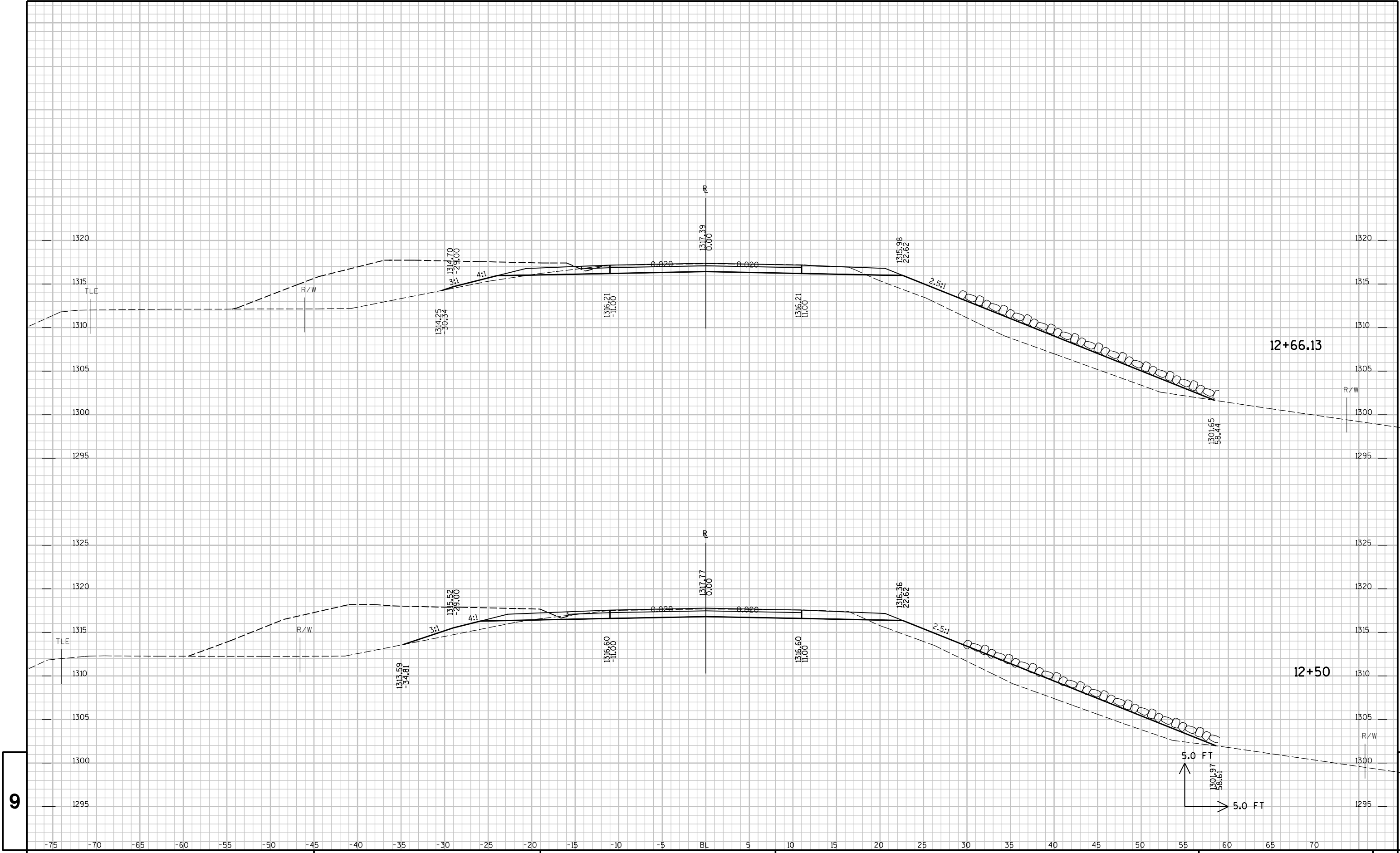
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PLOT DATE : 10/30/2013

PLOT BY : SEH

PLOT NAME :

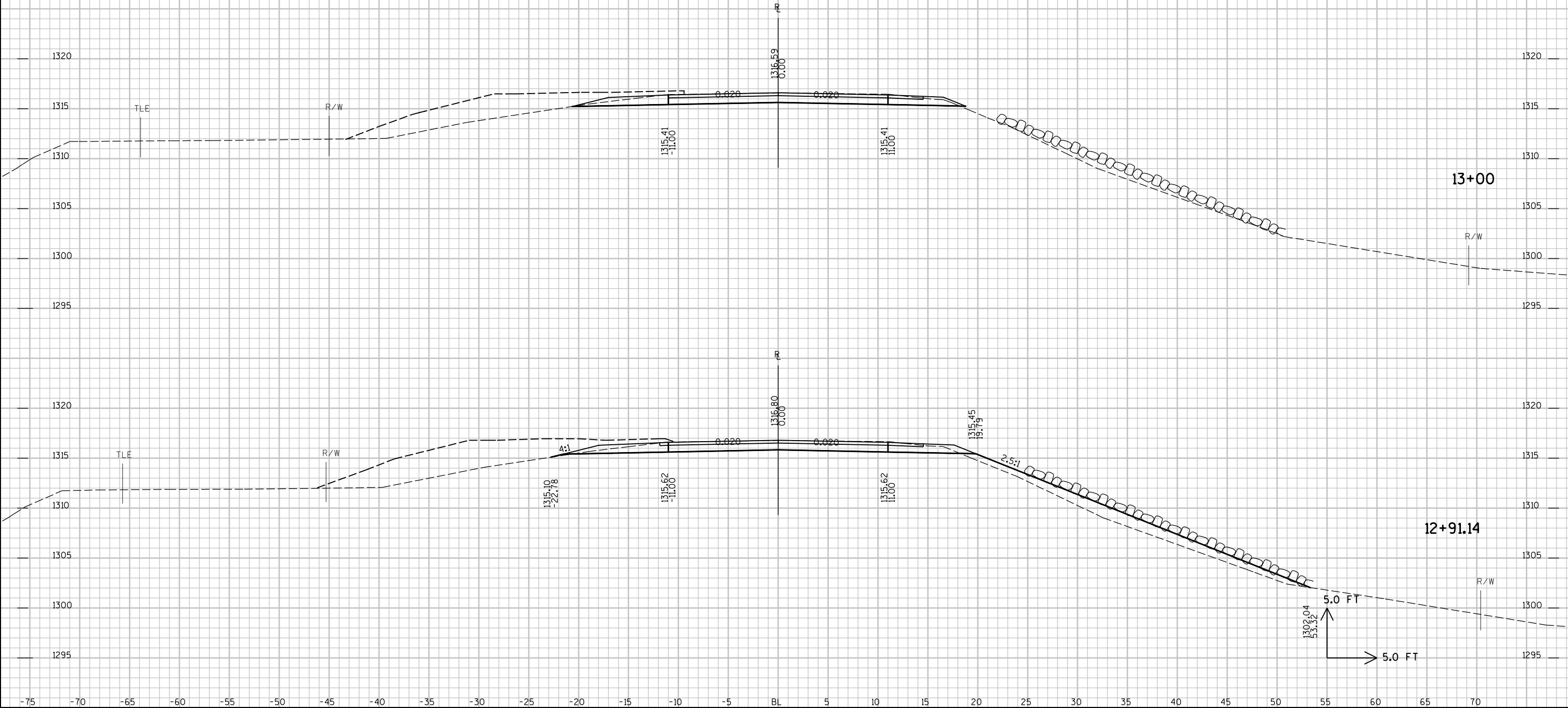
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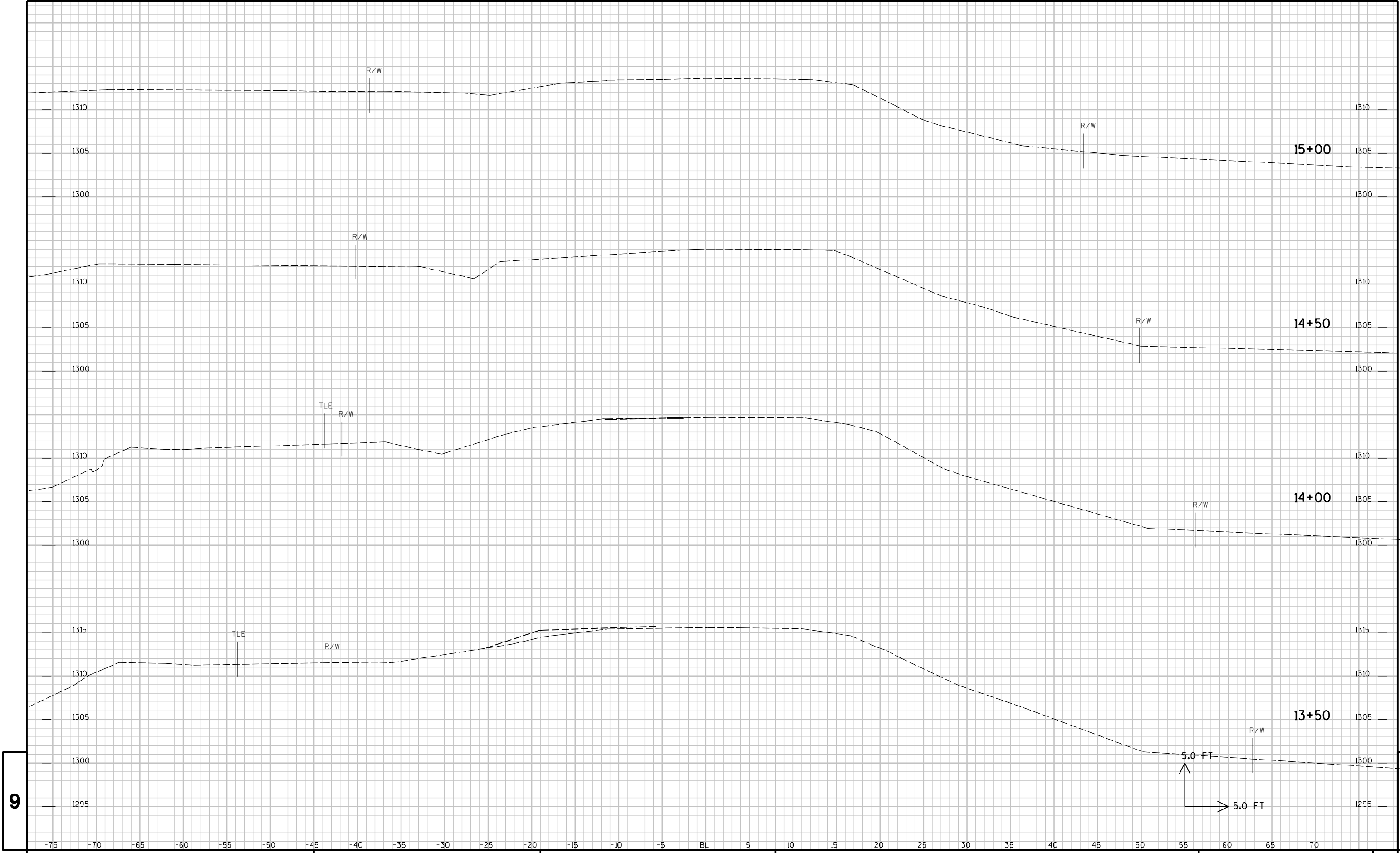
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END PROJECT
STA 13+00.00



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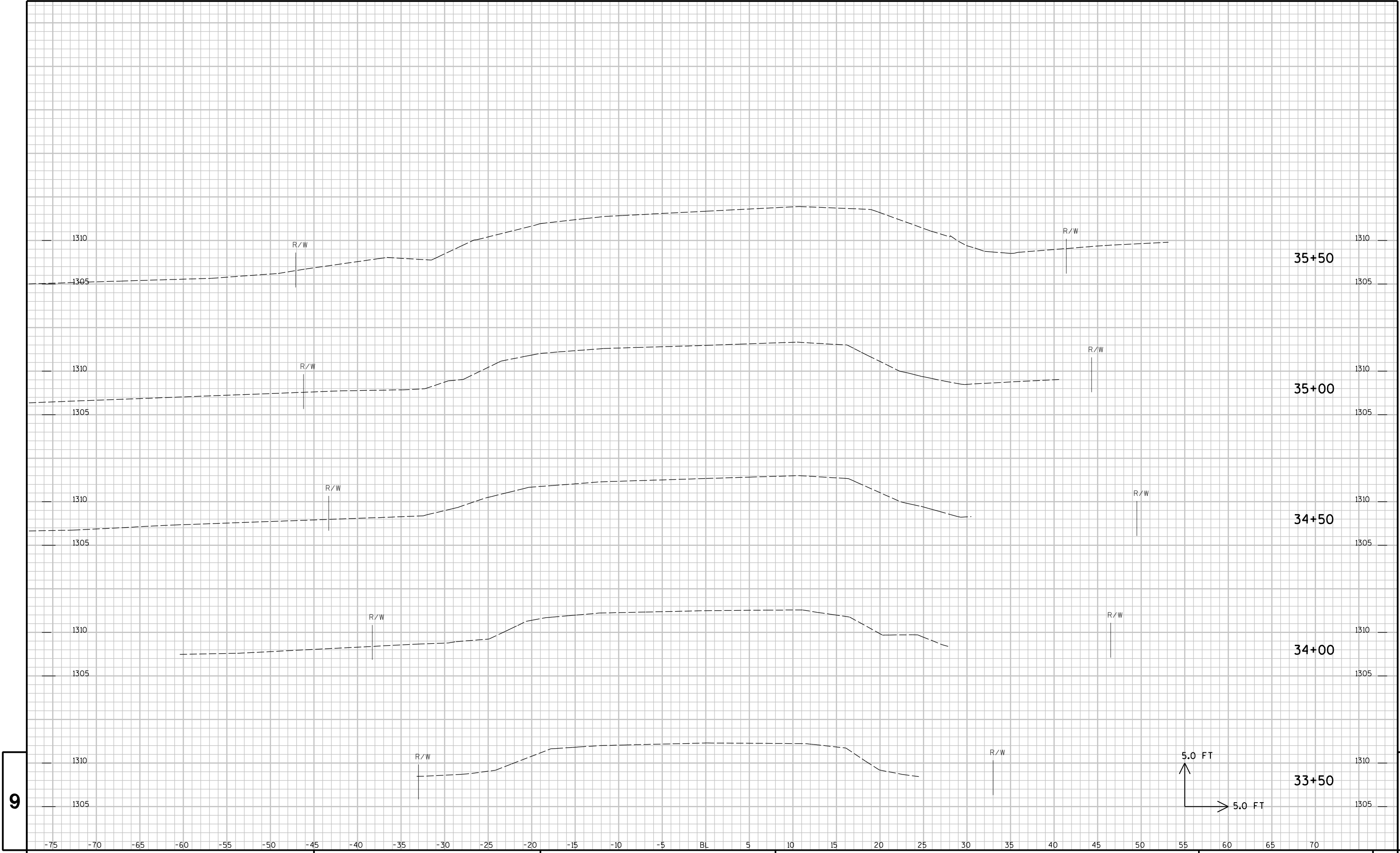


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PROJECT NO : 8451-00-70	HWY : CTH CC	COUNTY : SAWYER	CROSS SECTIONS -	SHEET NO:	E
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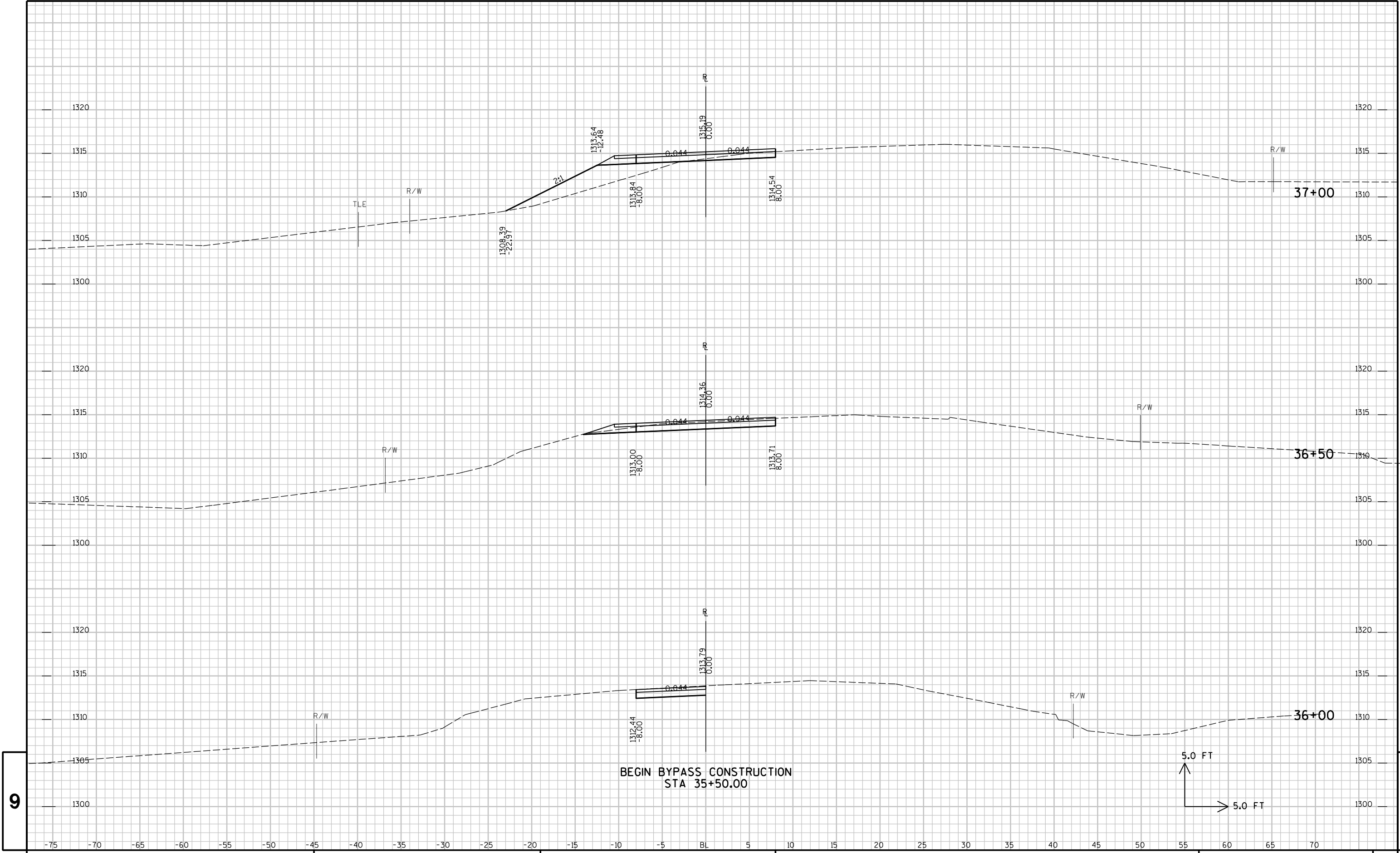


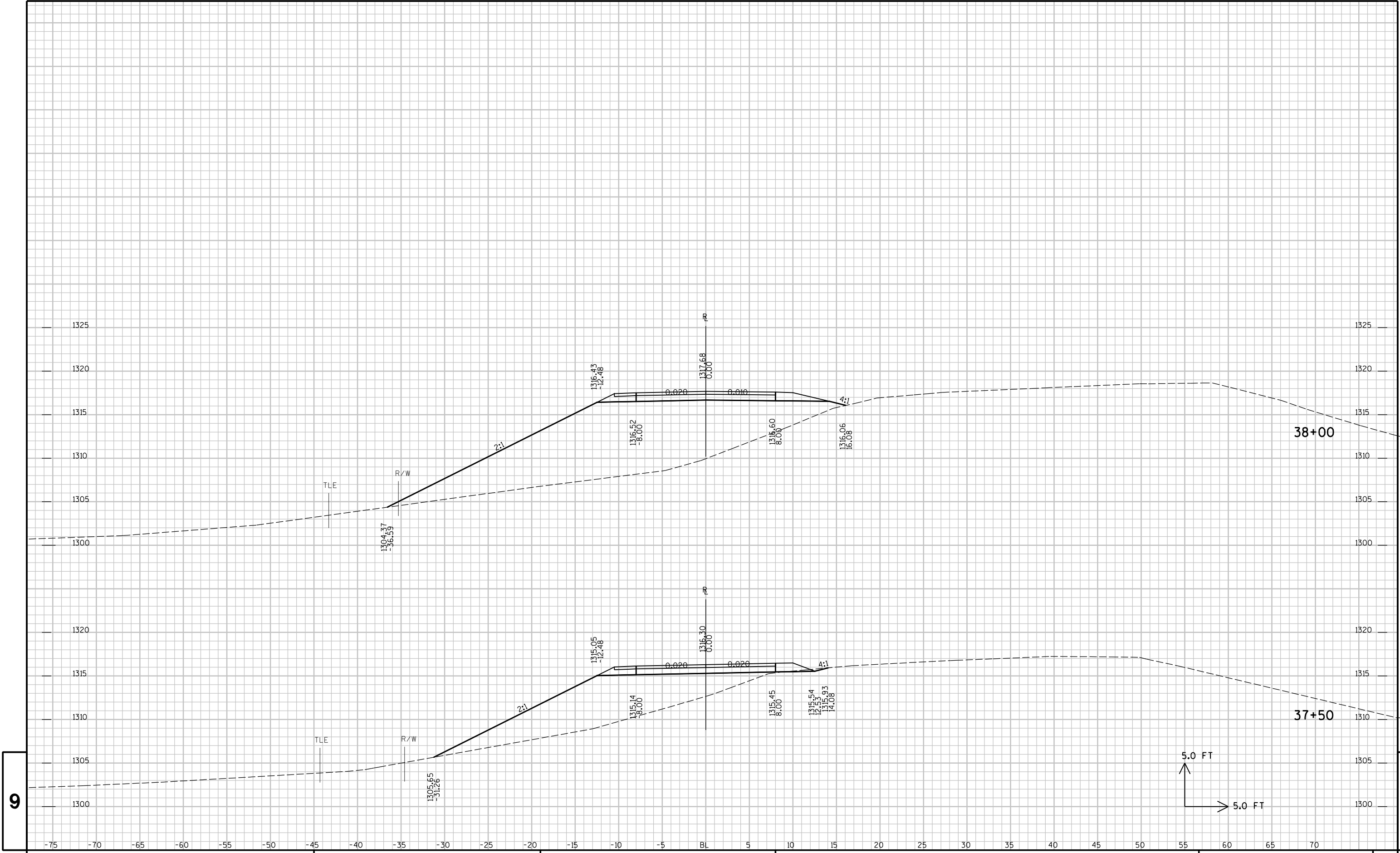
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PROJECT NO : 8451-00-70	HWY : CTH CC	COUNTY : SAWYER	CROSS SECTIONS -	SHEET NO:	E
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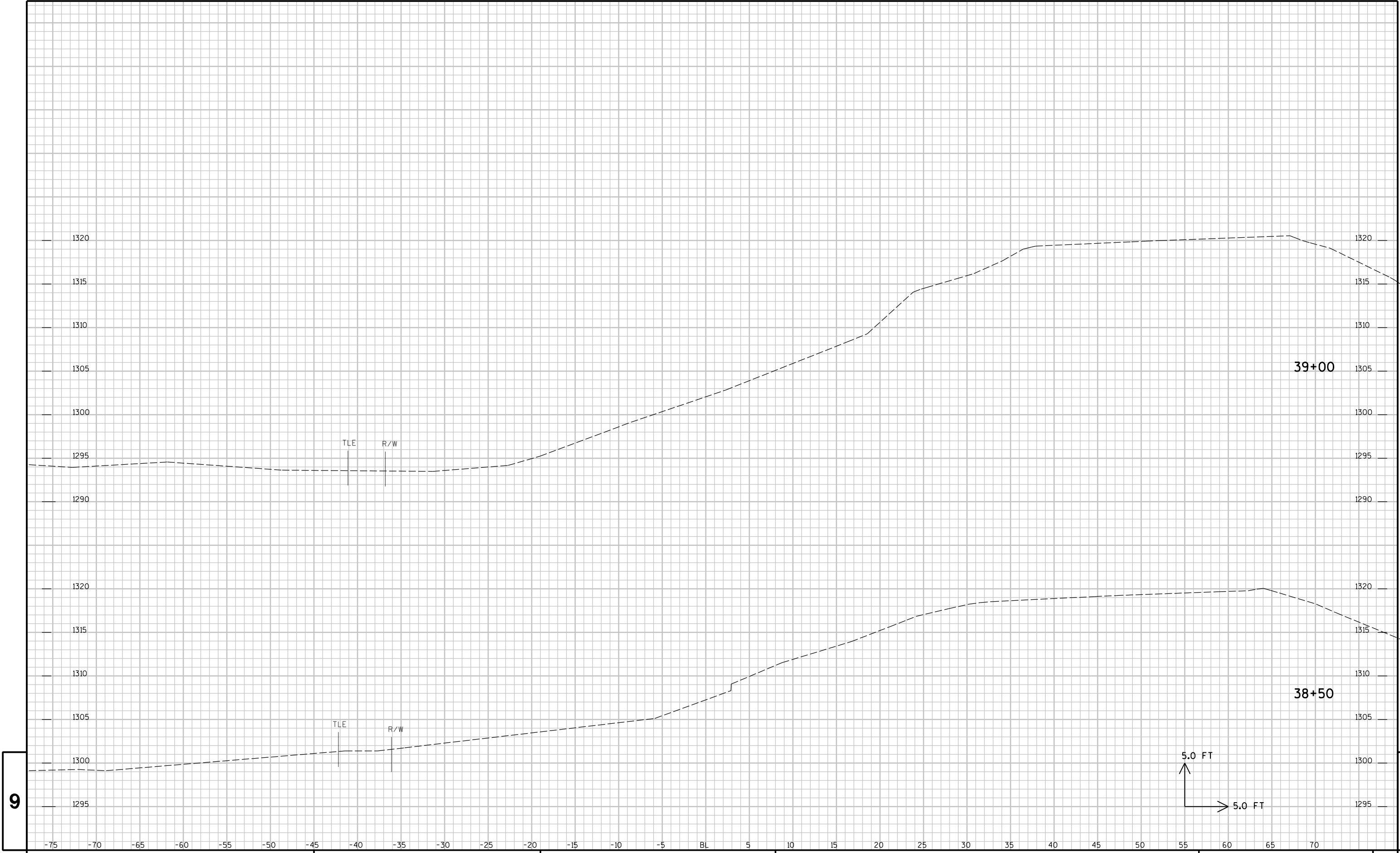
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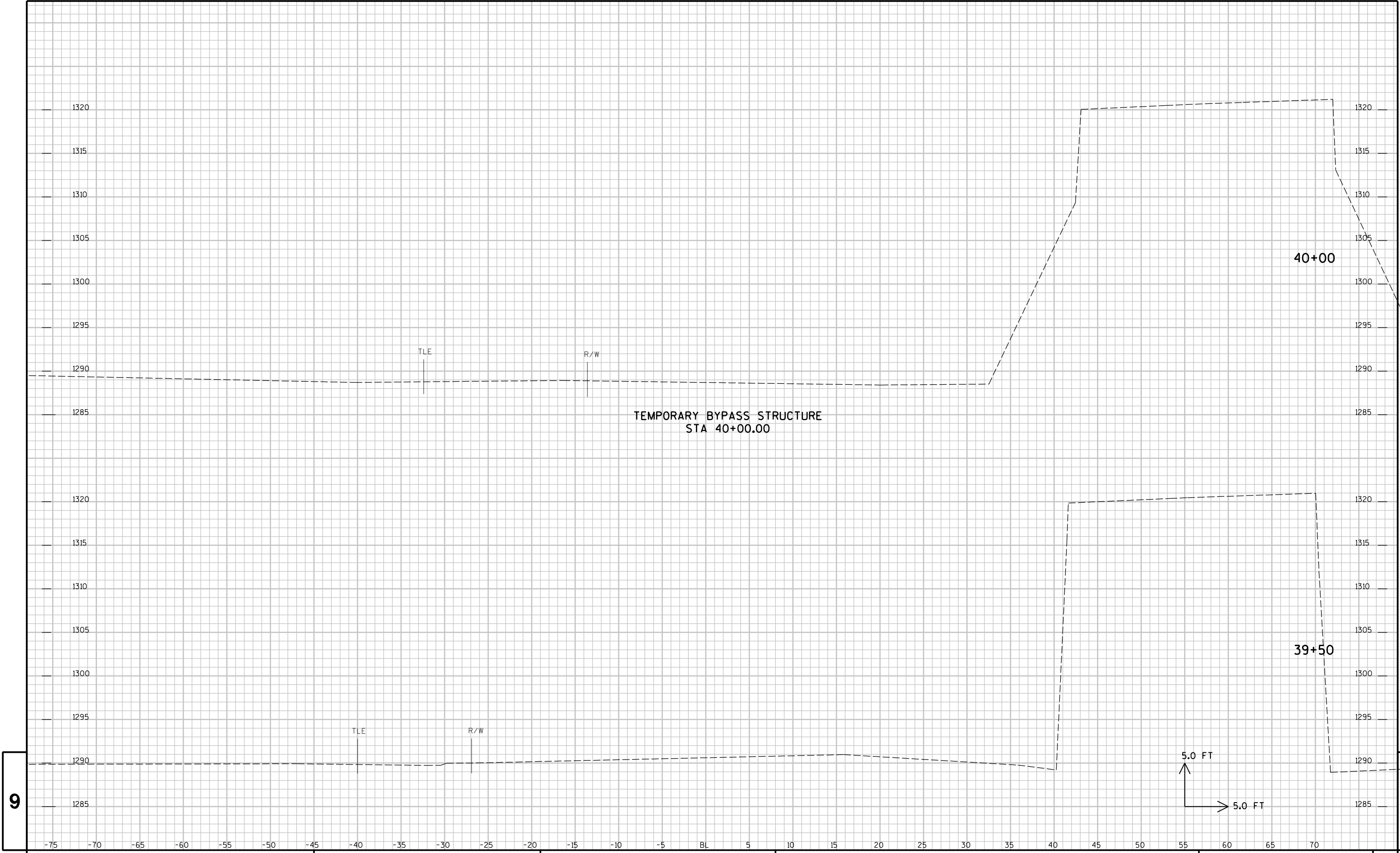


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PROJECT NO : 8451-00-70	HWY : CTH CC	COUNTY : SAWYER	CROSS SECTIONS -	SHEET NO:	E
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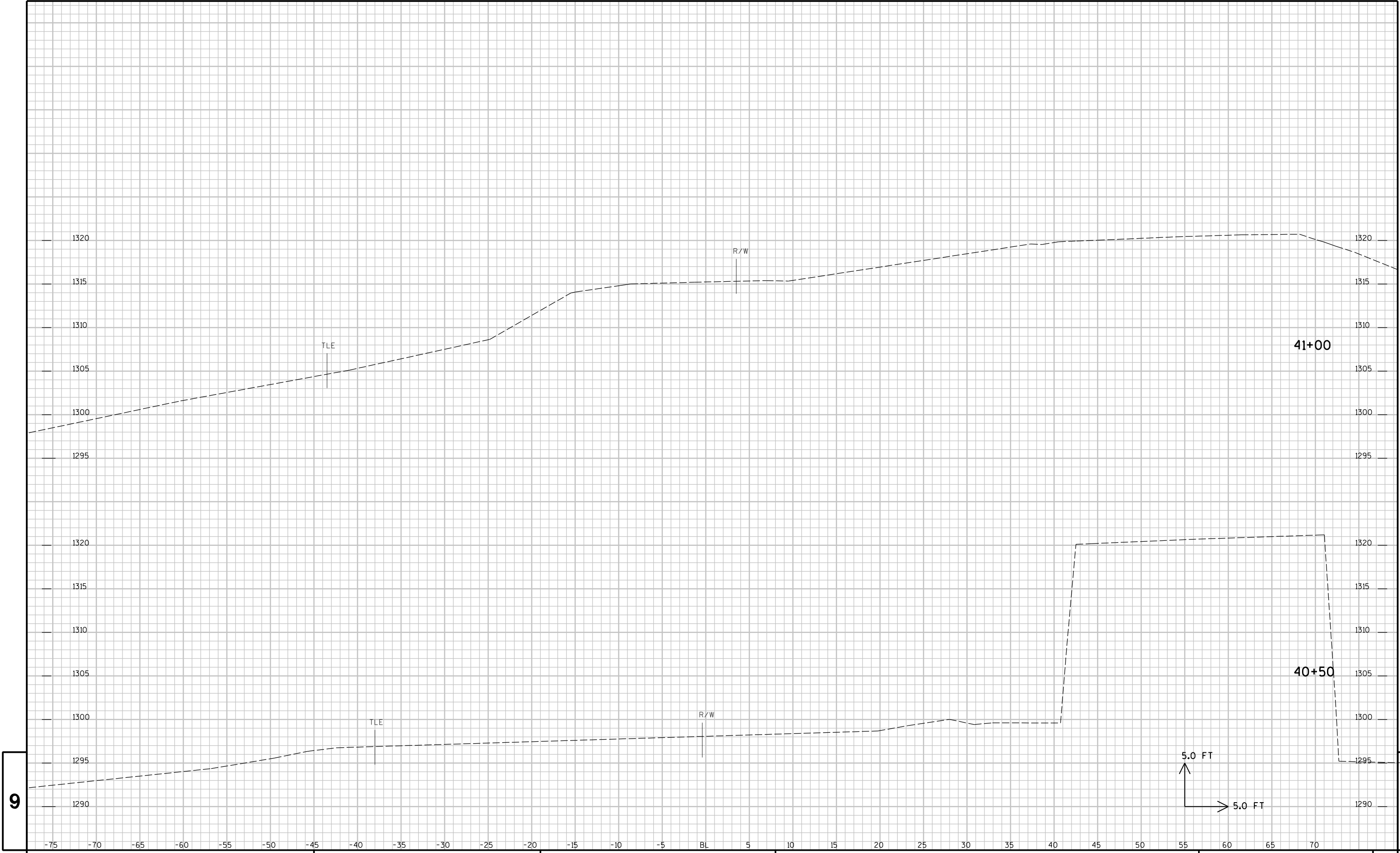
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PROJECT NO : 8451-00-70	HWY : CTH CC	COUNTY : SAWYER	CROSS SECTIONS -	SHEET NO:	E
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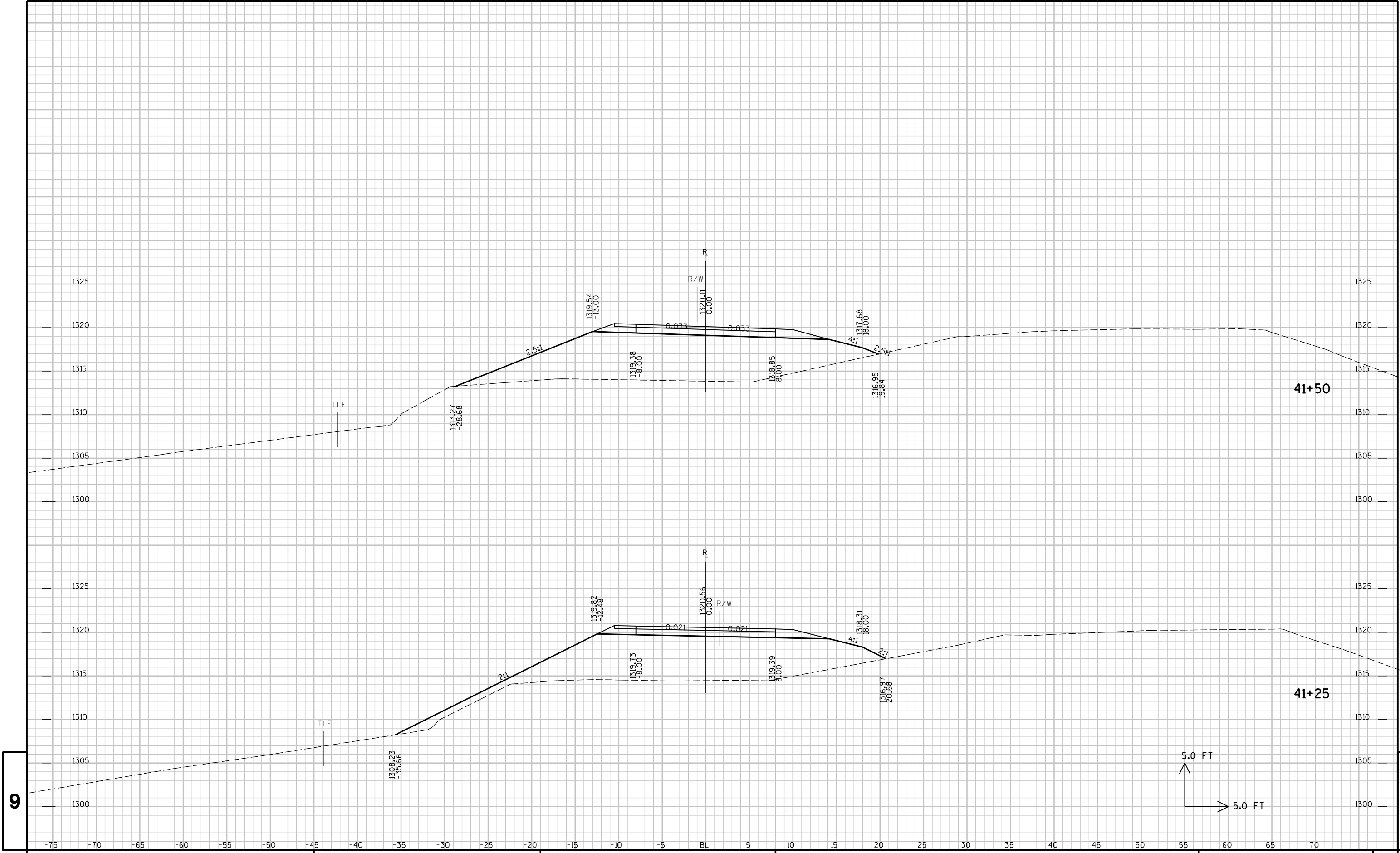


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PROJECT NO : 8451-00-70	HWY : CTH CC	COUNTY : SAWYER	CROSS SECTIONS -	SHEET NO:	E
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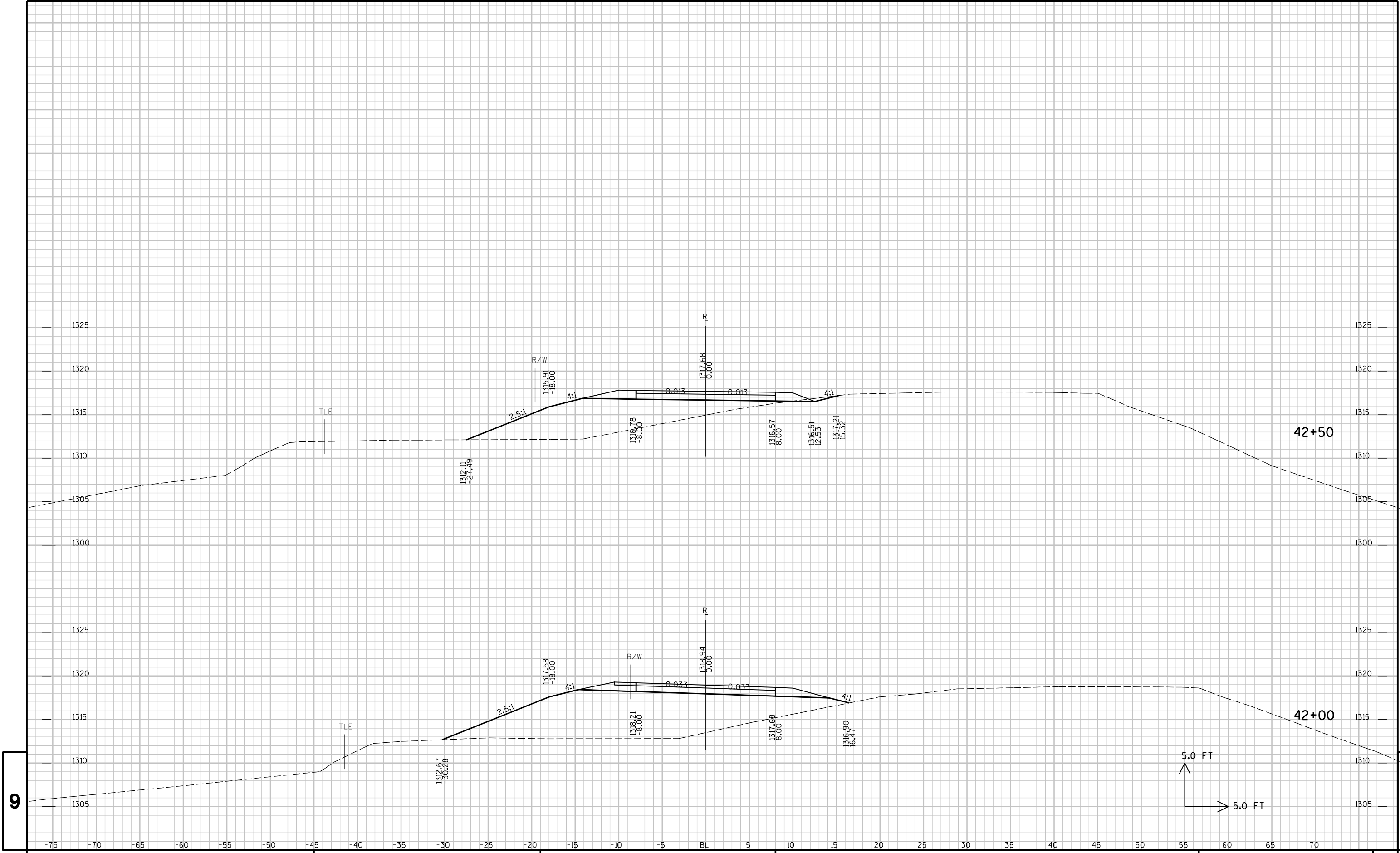


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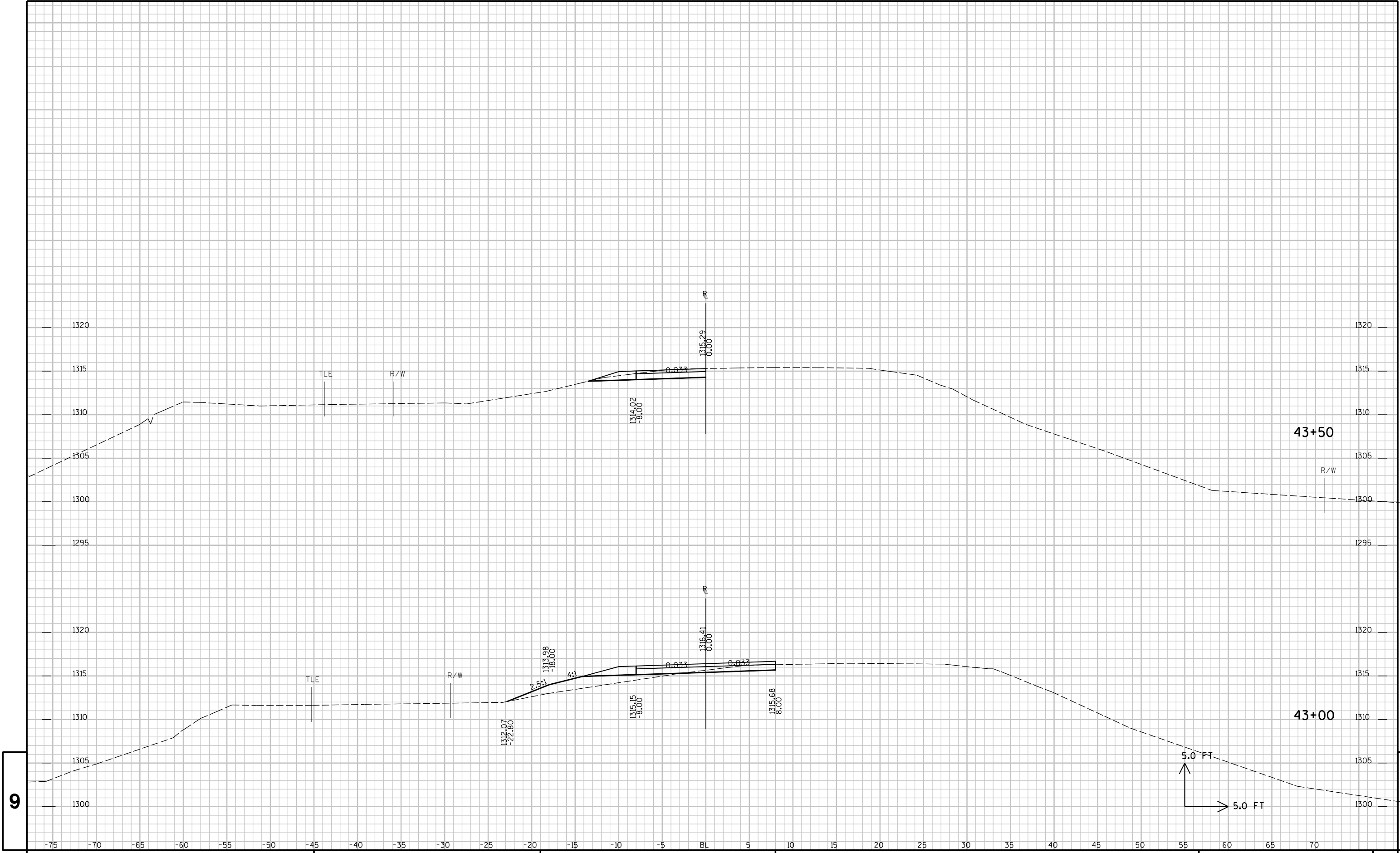
PROJECT NO : 8451-00-70	HWY : CTH CC	COUNTY : SAWYER	CROSS SECTIONS -	SHEET NO:	E
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FILE NAME : P:\PT\SAWYER\114209\CAD\XBSA\WCCBYPS01.dgn PLOT TIME : 3:25:37 PM PLOT DATE : 10/30/2013 PLOT BY : SEH PLOT NAME : PLOT SCALE : N/A



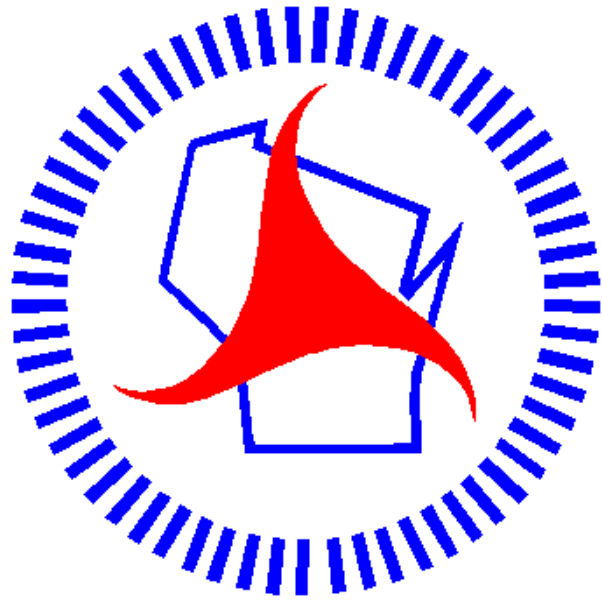
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