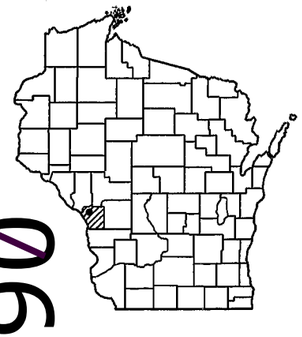
SWL JANUARY 2016

PROJECT ID: 7371-00-70
WITH: N/A

COUNTY: LA CROSSE

ORDER OF SHEETS

TOTAL SHEETS = 70



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH OT - CTH MH

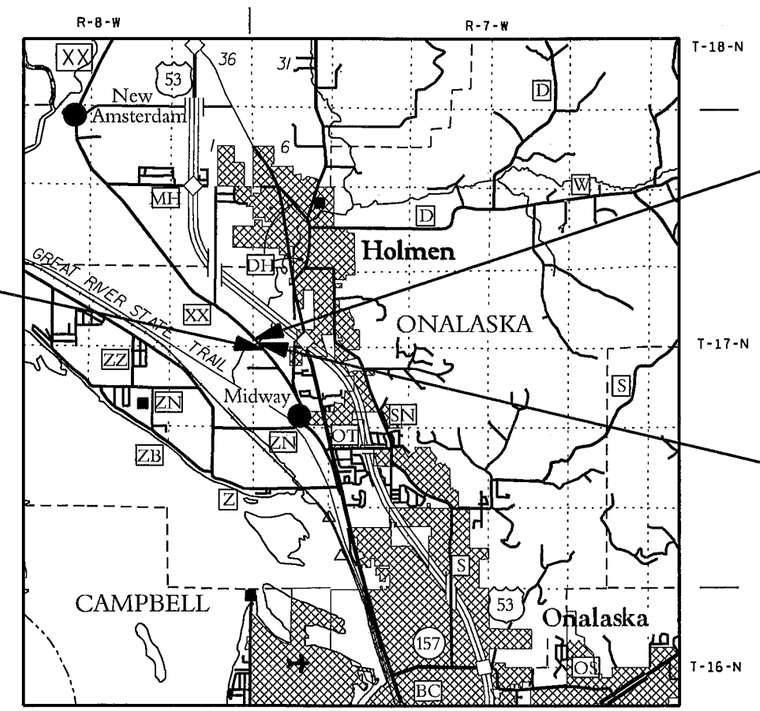
(HALFWAY CREEK BRIDGE B-32-0229)

CTH XX

LA CROSSE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7371-00-70	WISC 2016004	1

STATE PROJECT NUMBER
7371-00-70



BEGIN PROJECT
STA. 27+00
Y = 178,808.96
X = 440,658.13

END PROJECT
STA. 33+70

STRUCTURE
B-32-0229

DESIGN DESIGNATION

A.A.D.T. 2016	=	1520
A.A.D.T. 2036	=	1970
D.H.V. 2036	=	313
D.	=	59/41
T.	=	3.3%
DESIGN SPEED	=	60 mph
ESALS	=	138,700

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA
- EDGE OF STREAM
- RAILROAD
- FENCE (—X—X—)

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES
- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

LAYOUT

Scale 0 1 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.127 MI.

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

ACCEPTED FOR LA CROSSE COUNTY

7/1/15 DATE

HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY:

MSA PROFESSIONAL SERVICES

TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
1230 South Boulevard Baraboo, WI 53913
608-356-2771 1-800-362-4205 Fax 608-356-2770
© MSA PROFESSIONAL SERVICES

WISCONSIN
LEAH J. RHODES
E-41726
BARABOO
WI
PROFESSIONAL ENGINEER

6-30-2015 Date

Leah J Rhodes Signature

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	MSA Professional Services, Inc.
Designer	MSA Professional Services, Inc.
Management Consultant	KJohnson Engineers, Inc.

APPROVED FOR THE DEPARTMENT

DATE: 7/29/15 (Management Consultant Signature)

E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Planshts\9262004TS.dgn PLOT DATE : 5/7/2015 PLOT BY : lrhodes PLOT NAME : 09262004TS.DGN PLOT SCALE : 1:20000

WISDOT/CADDS SHEET 10

STANDARD ABBREVIATIONS

AC	ACRE
AGG	AGGREGATE
<	ANGLE
ASPH	ASPHALTIC
AC	ASPHALT CEMENT
ADT	AVERAGE DAILY TRAFFIC
B & B	BALLED AND BURLAPPED
BM	BENCH MARK
CB	CATCH BASIN
℄ OR C/L	CENTER LINE
C-C	CENTER TO CENTER
CONC	CONCRETE
CO	COUNTY
CTH	COUNTY TRUNK HIGHWAY
CY	CUBIC YARD
CULV	CULVERT
CP	CULVERT PIPE
CPRC	CULVERT PIPE REINFORCED CONCRETE
C & G	CURB AND GUTTER
D	DEGREE OF CURVE
DHV	DESIGN HOUR VOLUME
DIA OR ϕ	DIAMETER
DIST	DISTRICT
DWY	DRIVEWAY
E	EAST
X	EAST GRID COORDINATE
EB	EASTBOUND
ELEC	ELECTRIC
EL OR ELEV	ELEVATION
EMB	EMBANKMENT
EW	ENDWALL
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
EXIST	EXISTING
EXP	EXPANSION
F-F	FACE TO FACE
FERT	FERTILIZER
FE	FIELD ENTRANCE
F/L	FLOW LINE
FT	FOOT
GN	GRID NORTH
HR	HANDICAP RAMP
HT	HEIGHT
CWT	HUNDREDWEIGHT
HYD	HYDRANT
IN DIA	INCH DIAMETER
INL	INLET
ID	INSIDE DIAMETER
I	INTERSECTION ANGLE
IE	INVERT ELEVATION
IP	IRON PIPE OR PIN
JCT	JUNCTION
L	LENGTH OF CURVE
LF	LINEAR FOOT
LC	LONG CHORD OF CURVE
LCB	LONG CHORD BEARING
LS	LUMP SUM
MH	MANHOLE
N	NORTH
Y	NORTH GRID COORDINATE
OE	OUTLET ELEVATION
OL	OUT LOT
OD	OUTSIDE DIAMETER
OH	OVERHEAD LINES
PAVT	PAVEMENT
PLE	PERMANENT LIMITED EASEMENT
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PCC	PORTLAND CEMENT CONCRETE
LB	POUND
PE	PRIVATE ENTRANCE
R OR RAD	RADIUS
RR	RAILROAD
R	RANGE
℞ OR R/L	REFERENCE LINE
REQD	REQUIRED
RT	RIGHT
R/W	RIGHT-OF-WAY
RD	ROAD
SALV	SALVAGED
SAN	SANITARY SEWER
SECT	SECTION
SHLDR	SHOULDER
SW	SIDEWALK
S	SOUTH
SB	SOUTHBOUND
SPECS	SPECIFICATIONS
SQ	SQUARE
SF OR SQ FT	SQUARE FEET
SY	SQUARE YARD
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
STD	STANDARD
SDD	STANDARD DETAIL DRAWINGS
STH	STATE TRUNK HIGHWAYS
STA	STATION
SS	STORM SEWER
T	TANGENT
TEL	TELEPHONE
TEMP	TEMPORARY
TLE	TEMPORARY LIMITED EASEMENT
T	TON
TC	TOP OF CURB
TN	TOWN
TRANS	TRANSITION
T	TRUCKS (percent of)
TYP	TYPICAL
UNCL	UNCLASSIFIED
USH	UNITED STATES HIGHWAY
VAR	VARIABLE
VERT	VERTICAL
VC	VERTICAL CURVE
VOL	VOLUME
WM	WATER MAIN
WV	WATER VALVE
W	WEST
WB	WESTBOUND
YD	YARD

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 1.35 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.01 ACRES

DESIGN CONTACT

MSA PROFESSIONAL SERVICES, INC.
ATTN: LEAH J. RHODES, P.E.
1230 SOUTH BOULEVARD
BARABOO, WI 53913
PHONE: 608-355-8945
lrhodes@msa-ps.com

DNR LIAISON

DEPARTMENT OF NATURAL RESOURCES
KAREN KALVELAGE
ENVIRONMENTAL REVIEW AND ANALYSIS SPECIALIST
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
PHONE: 608-785-9115
karen.kalvelage@wisconsin.gov

COUNTY CONTACT

LA CROSSE COUNTY
ATTN: RON CHAMBERLAIN
301 CARLSON ROAD
WEST SALEM, WI 54669
PHONE: 608-786-3810
rchamberlain@lacrossecounty.com

UTILITIES

TELEPHONE:
CENTURYLINK
ATTN: BRIAN STELPLUGH
333 NORTH FRONT STREET
LA CROSSE, WI 54601
PHONE: (608) 796-5142
EMAIL: brian.stelplugh@centurylink.com

OVERHEAD ELECTRIC:
DAIRYLAND POWER COOPERATIVE
ATTN: KURT CHILDS
3200 EAST AVENUE SOUTH
P.O. BOX 817
LA CROSSE, WI 54602
PHONE: (608) 788-4000
EMAIL: kdc@dairynet.com

BURIED GAS & OVERHEAD ELECTRIC:
XCEL ENERGY
ATTN: SCOTT ROBERTS
3215 COMMERCE STREET
LA CROSSE, WI 54603
PHONE: (608) 789-3625 (OFFICE)
(608) 518-0806 (CELL)
EMAIL: scott.w.roberts@xcelenergy.com

SANITARY SEWER:
VILLAGE OF HOLMEN
ATTN: DEAN OLSON, DIRECTOR OF PUBLIC WORKS
605 EMPIRE STREET
HOLMEN, WI 54636
PHONE: (608) 526-6322
EMAIL: dolson@holmenwi.com

DIGGERS HOTLINE
Dial 811 or (800) 242-8511
www.DiggersHotline.com

* - NOT A MEMBER OF DIGGERS HOTLINE.

GENERAL NOTES

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED AND MULCHED AS DIRECTED BY THE ENGINEER. OVERSOW PERMANENT SEEDING AREAS WITH TEMPORARY SEED AT 3 LBS PER 1000 SQUARE FEET.

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

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

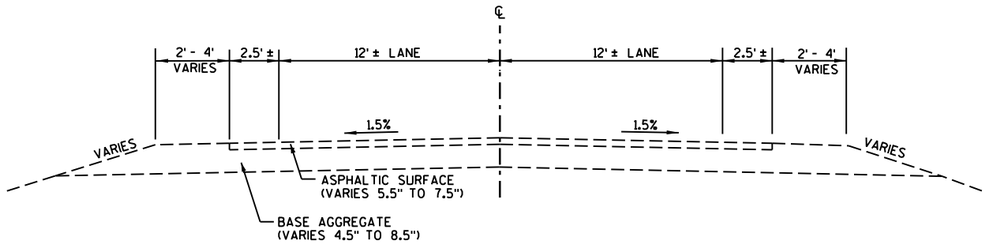
ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO USGS NAVD 88 (96 ADJUSTED). BENCHMARK REFERENCES AT THE PROJECT SITE WERE LOCATED USING GPS TECHNOLOGY.

THE 4" ASPHALTIC SURFACE SHALL CONSIST OF A 1¾" UPPER LAYER WITH 12.5MM NOMINAL SIZE AGGREGATE AND A 2¼" LOWER LAYER WITH 19.0MM NOMINAL SIZE AGGREGATE.

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

SLOPES STEEPER THAN 3:1 REQUIRE EROSION MAT.

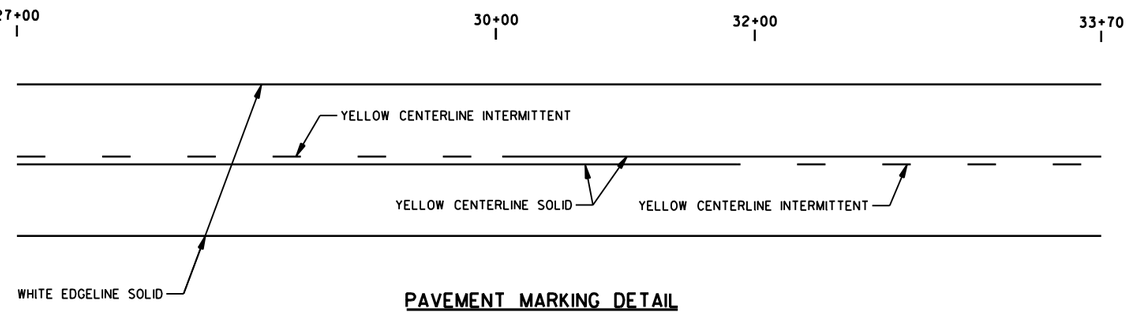
WETLANDS ARE PRESENT ON THE RIVER BANKS. AREAS OUTSIDE THE SLOPE INTERCEPTS SHALL NOT BE DISTURBED IN THIS AREA.



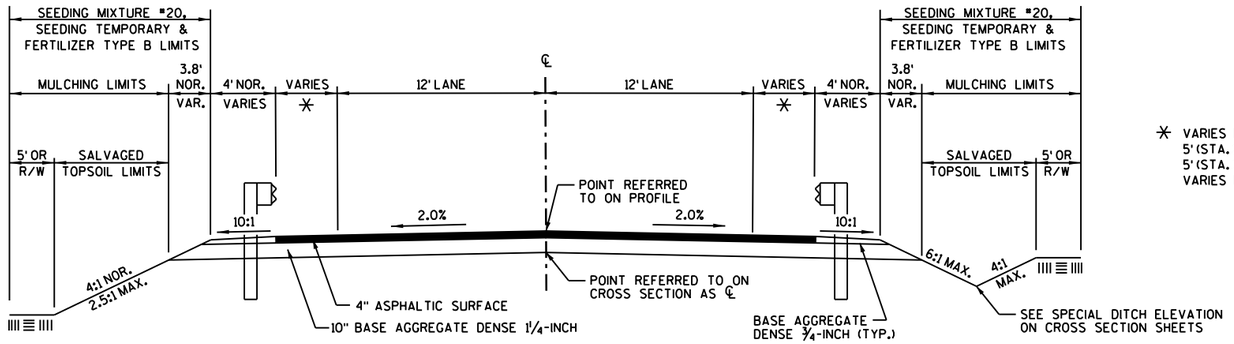
TYPICAL EXISTING SECTION

NOTE:

EXISTING PAVEMENT AND BASE THICKNESSES ARE BASED ON STRUCTURE SOIL BORINGS.



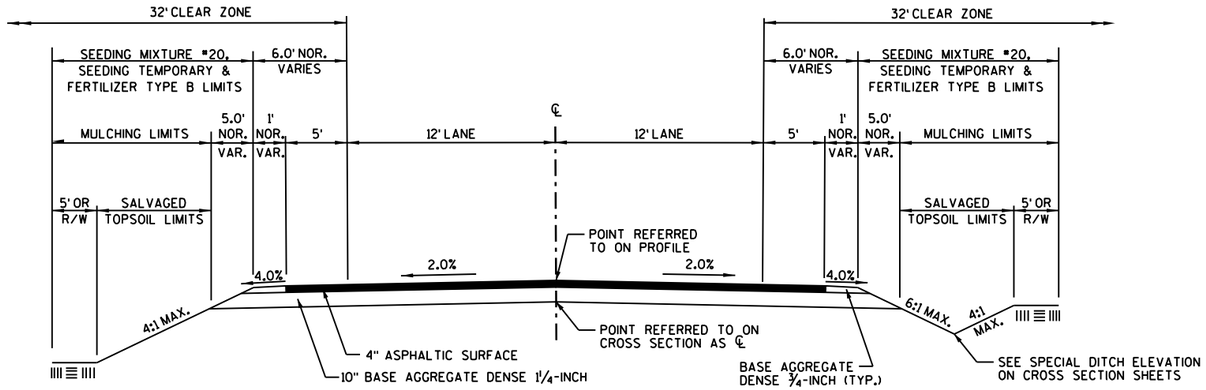
PAVEMENT MARKING DETAIL



✳ VARIES FROM 8' AT STA. 27+90 TO 5' AT STA. 28+80
5' (STA. 28+80 TO STA. 29+30)
5' (STA. 30+40 TO STA. 30+90)
VARIES FROM 5' AT STA. 30+90 TO 8' AT STA. 31+80

TYPICAL FINISHED SECTION

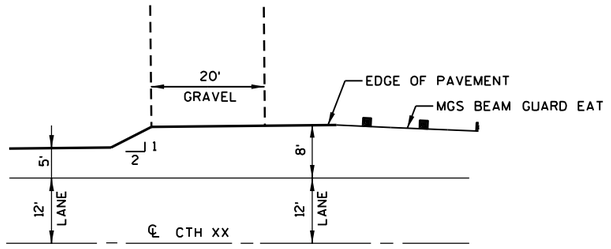
STA 27+90 - STA 32+16



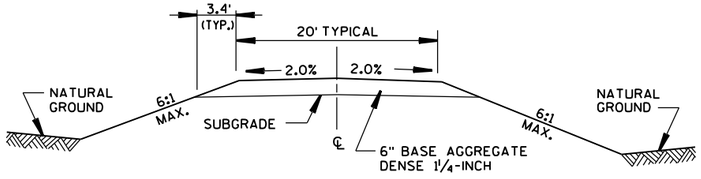
TYPICAL FINISHED SECTION

STA. 27+00 - STA. 27+90
STA. 32+16 - STA. 33+70

PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	TYPICAL SECTIONS & DETAILS	SHEET 3	E



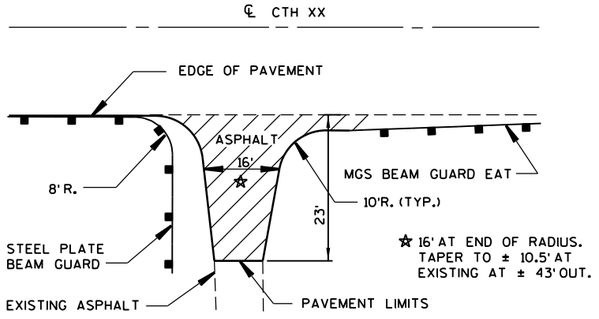
PLAN VIEW



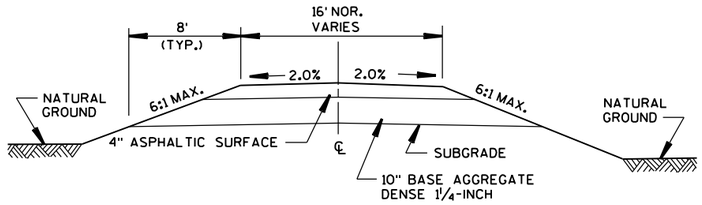
TYPICAL SECTION

FIELD ENTRANCE DETAILS

STA. 27+67, LEFT



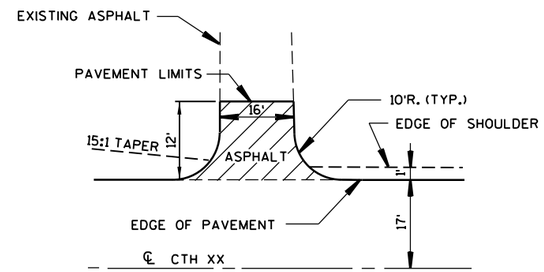
PLAN VIEW



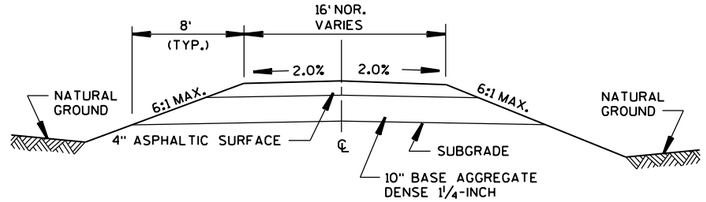
TYPICAL SECTION

PRIVATE ENTRANCE DETAILS

STA. 30+87, RIGHT



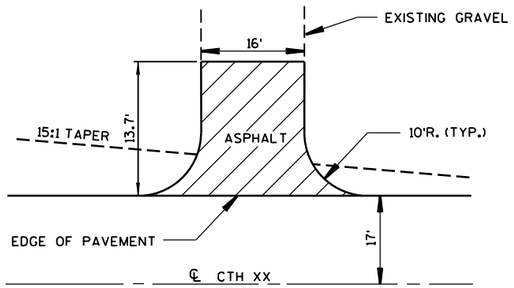
PLAN VIEW



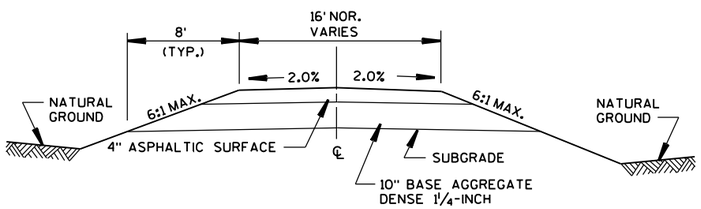
TYPICAL SECTION

PRIVATE ENTRANCE DETAILS

STA. 33+10, LEFT



PLAN VIEW

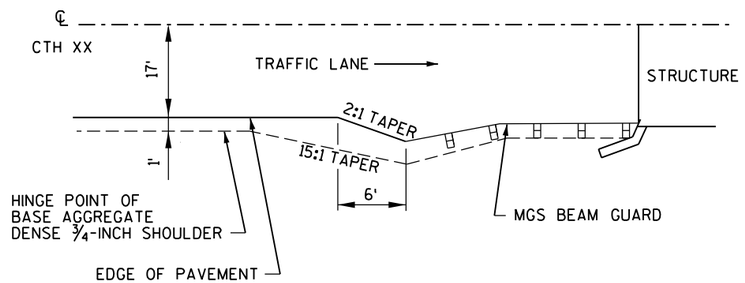


TYPICAL SECTION

PRIVATE ENTRANCE DETAILS

STA. 32+66, LEFT

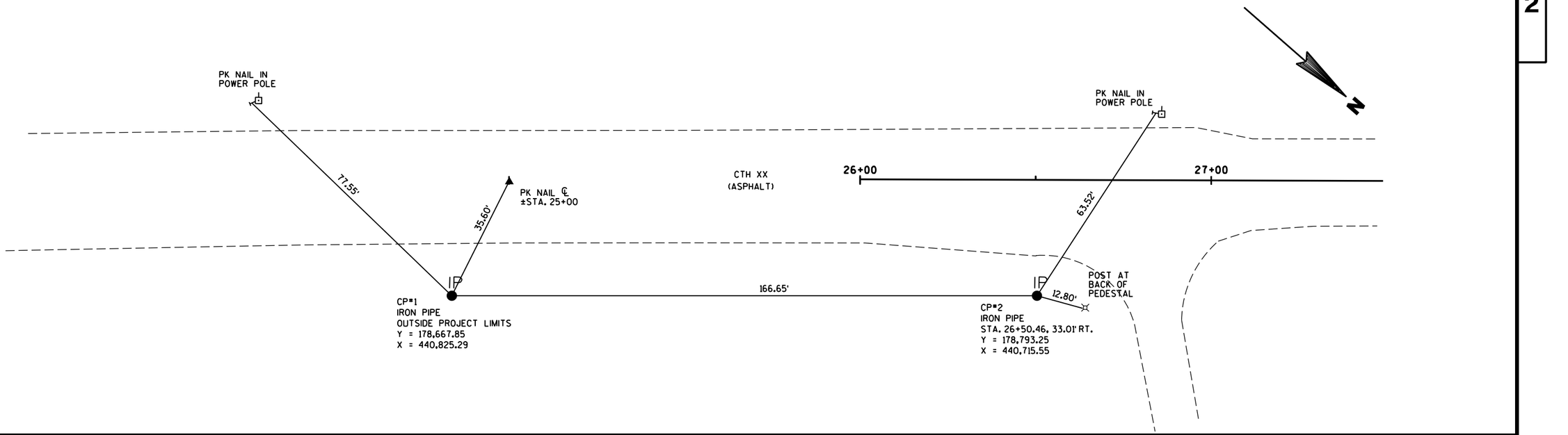
ALL DETAILS ARE
NOT TO SCALE

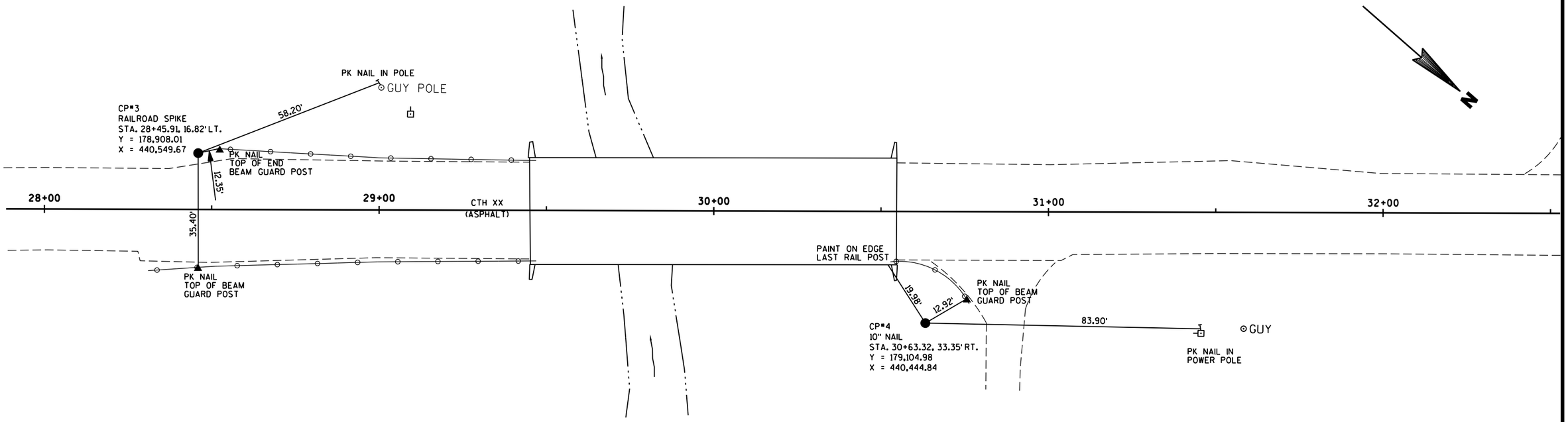


ASPHALTIC PAVEMENT SHOULDER AT BEAM GUARD DETAIL

PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	CONSTRUCTION DETAILS	SHEET 4	E

2





PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	PROJECT CONTROL POINT TIES - CTH XX	SHEET 5	E

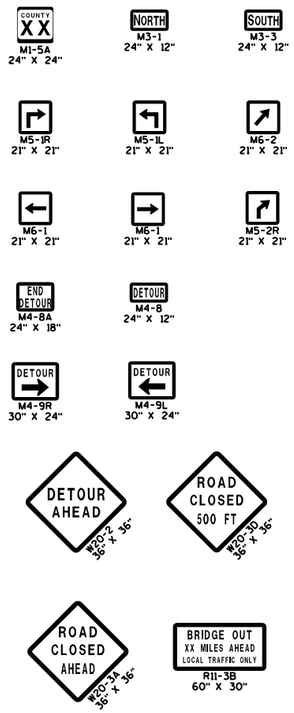
2

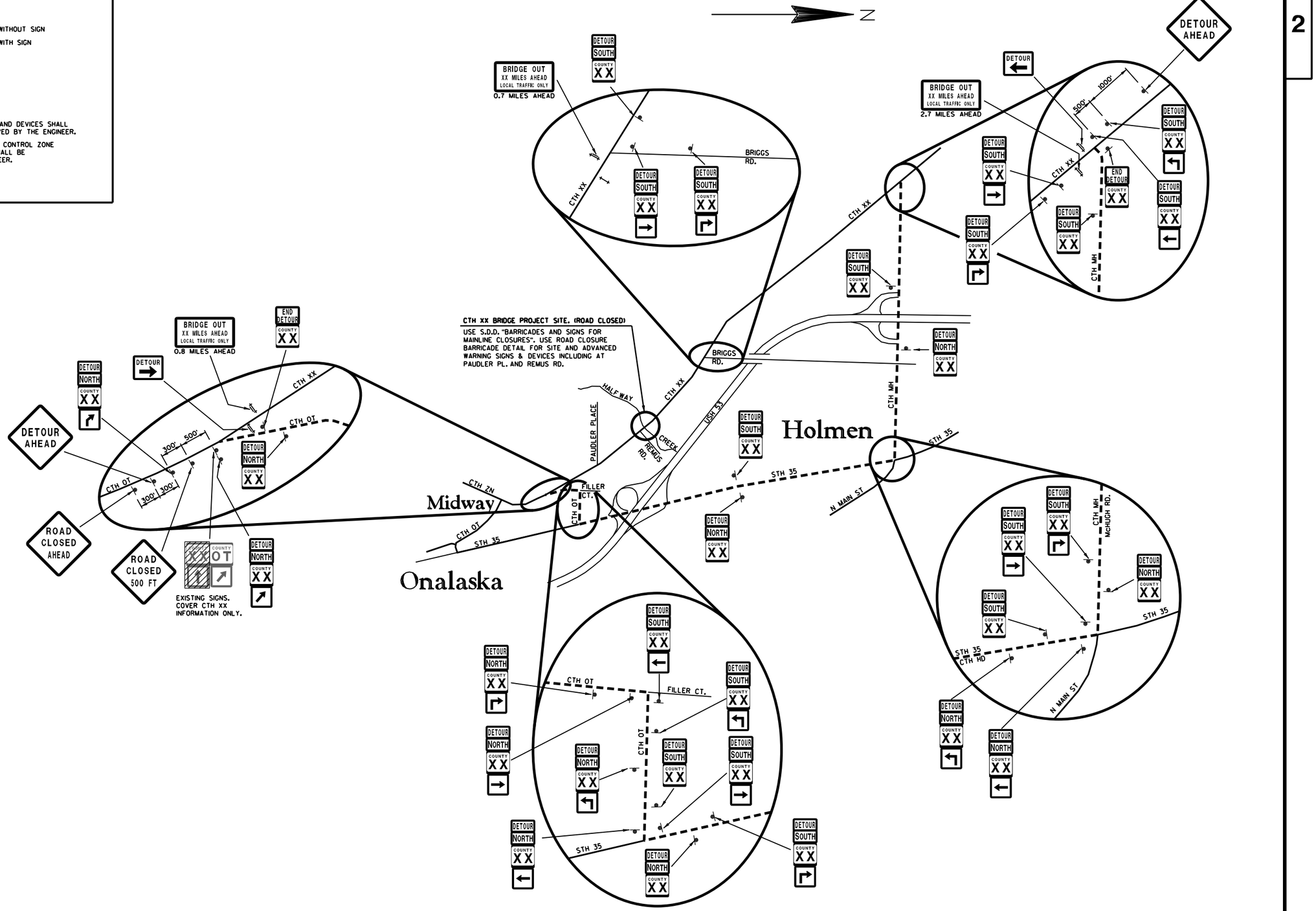
LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE AND 2 TYPE A LIGHTS WITHOUT SIGN
- TYPE III BARRICADE AND 2 TYPE A LIGHTS WITH SIGN
- DETOUR ROUTE

TRAFFIC CONTROL NOTES

1. THE EXACT LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
2. ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.





PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	DETOUR PLAN	SHEET	E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Planshts\9262004DT.dgn PLOT DATE : 5/14/2015 PLOT BY : bhalley PLOT NAME : PLOT SCALE : 1:5000

WISDOT/CADDS SHEET 42

9262004DT.dgn 5/14/2015 11:20:22 AM bhalley

DATE 30OCT15 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	7371-00-70 QUANTITY
0010	201.0105	Clearing	STA	2.000	2.000
0020	201.0205	Grubbing	STA	2.000	2.000
0030	203.0500.S	Removing Old Structure Over Waterway (station) 01. Station 30+00	LS	1.000	1.000
0040	205.0100	Excavation Common	CY	1,740.000	1,740.000
0050	206.1000	Excavation for Structures Bridges (structure) 01. B-32-0229	LS	1.000	1.000
0060	210.0100	Backfill Structure	CY	320.000	320.000
0070	213.0100	Finishing Roadway (project) 01. 7371-00-70	EACH	1.000	1.000
0080	305.0110	Base Aggregate Dense 3/4-Inch	TON	57.000	57.000
0090	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,820.000	1,820.000
0100	455.0605	Tack Coat	GAL	115.500	115.500
0110	465.0105	Asphaltic Surface	TON	493.000	493.000
0120	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	22.000	22.000
0130	502.0100	Concrete Masonry Bridges	CY	407.000	407.000
0140	502.3200	Protective Surface Treatment	SY	547.000	547.000
0150	505.0400	Bar Steel Reinforcement HS Structures	LB	5,090.000	5,090.000
0160	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	58,730.000	58,730.000
0170	513.4061	Railing Tubular Type M (structure) 01. B-32-0229	LF	225.000	225.000
0180	516.0500	Rubberized Membrane Waterproofing	SY	16.000	16.000
0190	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	1,300.000	1,300.000
0200	606.0300	Riprap Heavy	CY	90.000	90.000
0210	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	160.000	160.000
0220	614.0200	Steel Thrie Beam Structure Approach	LF	20.650	20.650
0230	614.0345	Steel Plate Beam Guard Short Radius	LF	31.250	31.250
0240	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	1.000	1.000
0250	614.2300	MGS Guardrail 3	LF	225.000	225.000
0260	614.2500	MGS Thrie Beam Transition	LF	118.200	118.200
0270	614.2610	MGS Guardrail Terminal EAT	EACH	5.000	5.000
0280	619.1000	Mobilization	EACH	1.000	1.000
0290	624.0100	Water	MGAL	91.000	91.000
0300	625.0500	Salvaged Topsoil	SY	1,105.000	1,105.000
0310	627.0200	Mulching	SY	1,840.000	1,840.000
0320	628.1504	Silt Fence	LF	1,360.000	1,360.000
0330	628.1520	Silt Fence Maintenance	LF	1,360.000	1,360.000
0340	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0350	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0360	628.2008	Erosion Mat Urban Class I Type B	SY	100.000	100.000
0370	628.6005	Turbidity Barriers	SY	310.000	310.000
0380	629.0210	Fertilizer Type B	CWT	1.550	1.550
0390	630.0120	Seeding Mixture No. 20	LB	65.000	65.000
0400	630.0200	Seeding Temporary	LB	65.000	65.000
0410	633.5100	Markers Row	EACH	7.000	7.000
0420	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0430	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	3.000	3.000
0440	637.2210	Signs Type II Reflective H	SF	13.750	13.750
0450	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0460	638.2602	Removing Signs Type II	EACH	8.000	8.000
0470	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0480	642.5001	Field Office Type B	EACH	1.000	1.000

3

DATE 30OCT15 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	7371-00-70 QUANTITY
0490	643.0100	Traffic Control (project) 01. 7371-00-70	EACH	1.000	1.000
0500	643.0420	Traffic Control Barricades Type III	DAY	1,166.000	1,166.000
0510	643.0705	Traffic Control Warning Lights Type A	DAY	1,908.000	1,908.000
0520	643.0900	Traffic Control Signs	DAY	848.000	848.000
0530	643.0920	Traffic Control Covering Signs Type II	EACH	2.000	2.000
0540	643.2000	Traffic Control Detour (project) 01. 7371-00-70	EACH	1.000	1.000
0550	643.3000	Traffic Control Detour Signs	DAY	6,413.000	6,413.000
0560	645.0120	Geotextile Fabric Type HR	SY	200.000	200.000
0570	646.0106	Pavement Marking Epoxy 4-Inch	LF	2,328.000	2,328.000
0580	650.4500	Construction Staking Subgrade	LF	560.000	560.000
0590	650.5000	Construction Staking Base	LF	560.000	560.000
0600	650.6500	Construction Staking Structure Layout (structure) 01. B-32-0229	LS	1.000	1.000
0610	650.9910	Construction Staking Supplemental Control (project) 01. 7371-00-70	LS	1.000	1.000
0620	650.9920	Construction Staking Slope Stakes	LF	560.000	560.000
0630	690.0150	Sawing Asphalt	LF	84.000	84.000
0640	715.0502	Incentive Strength Concrete Structures	DOL	2,442.000	2,442.000
0650	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	300.000	300.000
0660	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000
0670	SPV.0060	Special 01. Utility Line Opening (ULO)	EACH	2.000	2.000

3

P - PAY PLAN QUANTITY

201.0105 CLEARING
201.0205 GRUBBING

STATION	-	STATION	LOCATION	CLEARING STA	GRUBBING STA
31+00	-	33+00	LT	2	2
		TOTALS:		2	2

205.0100 EXCAVATION COMMON **P**

STATION	-	STATION	EXC. COMMON CY (3)	FILL CY (1)	EXPANDED FILL CY (2)	WASTE CY
26+55	-	29+29.75	692	22	30	662
30+40.25	-	33+70	1048	69	91	957
		TOTALS:	1740	91	121	1619

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 30%
(3) - EXISTING ASPHALTIC PAVEMENT IS INCLUDED IN COMMON EXCAVATION TOTALS. SEE EARTHWORK TABLE.

305.0110 BASE AGGREGATE DENSE 3/4-INCH
305.0120 BASE AGGREGATE DENSE 1 1/4-INCH
624.0100 WATER

STATION	-	STATION	3/4-INCH TON	1 1/4-INCH TON	WATER* MGAL
26+55	-	29+29.75	25	722	15
30+40.25	-	33+70	32	1009	21
27+67 (FE, LT)				13	0
30+87 (PE, RT)				33	1
32+66 (PE, LT)				23	0
33+10 (PE, LT)				20	0
		TOTALS:	57	1820	38

*ADDITIONAL QUANTITY INCLUDED WITH EROSION CONTROL ITEMS

455.0605 TACK COAT
465.0105 ASPHALTIC SURFACE
465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

STATION	-	STATION	TACK COAT GAL	ASPHALTIC SURFACE TON	ASPHALTIC SURFACE DW'S & FE'S TON
27+00	-	29+29.75	45.5	203	
30+40.25	-	33+70	65	290	
30+87 (PE, RT)			2		8
32+66 (PE, LT)			1.5		8
33+10 (PE, LT)			1.5		6
		TOTALS:	115.5	493	22

614.2300 MGS GUARDRAIL 3
614.2500 MGS THRIE BEAM TRANSITION
614.2610 MGS GUARDRAIL TERMINAL EAT

STATION	-	STATION	LOCATION	GUARDRAIL LF	THRIE BEAM TRANSITION LF	GUARDRAIL TERMINAL EAT EACH
27+89.75	-	29+32.25	LT	50	39.4	1
27+89.75	-	29+32.25	RT	50	39.4	1
30+37.75	-	31+80.25	LT	50	39.4	1
31+10.00	-	32+91.25	RT	75	0	2
			TOTALS:	225	118.2	5

614.0200 STEEL THRIE BEAM STRUCTURE APPROACH
614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS
614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATION	-	STATION	LOCATION	THRIE BEAM LF	SHORT RADIUS LF	TERMINAL EACH
30+37.75	-	30+72.60	RT	20.65	31.25	1
			TOTALS:	20.65	31.25	1

625.0500 SALVAGED TOPSOIL
627.0200 MULCHING
629.0210 FERTILIZER TYPE B
630.0120 SEEDING MIXTURE NO. 20
630.0200 SEEDING TEMPORARY
624.0100 WATER

STATION	-	STATION	LOCATION	SALVAGED TOPSOIL SY	MULCHING SY	FERTILIZER CWT	SEEDING #20 LB	SEEDING TEMPORARY LB	WATER* MGAL
27+00	-	29+29.75	LT	100	255	0.20	10	10	8
27+00	-	29+29.75	RT	65	195	0.20	8	8	6
29+29.75	-	30+40.25	LT & RT	275	315	0.25	11	11	9
30+40.25	-	33+70	LT	180	350	0.30	12	12	10
30+40.25	-	33+70	RT	385	555	0.45	18	18	15
UNDISTRIBUTED				100	170	0.15	6	6	5
		TOTALS:		1105	1840	1.55	65	65	53

*ADDITIONAL QUANTITY INCLUDED WITH BASE AGGREGATE ITEMS.

628.2008 EROSION MAT URBAN CLASS 1 TYPE B

STATION	-	STATION	URBAN CLASS 1 TYPE B SY
29+29.75	-	30+40.25	80
UNDISTRIBUTED			20
TOTAL:			100

628.1504 SILT FENCE
628.1520 SILT FENCE MAINTENANCE

STATION	-	STATION	LOCATION	FENCE LF	MAINT. LF
26+50	-	28+20	LT	175	175
27+00	-	29+50	RT	305	305
28+35	-	29+50	LT	160	160
29+95	-	30+75	RT	130	130
29+95	-	32+55	LT	325	325
32+75	-	33+00	LT	30	30
33+20	-	33+70	LT	55	55
UNDISTRIBUTED				180	180
			TOTALS:	1360	1360

628.1905 MOBILIZATIONS EROSION CONTROL
628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL

DESCRIPTION	MOBILIZATION EACH	EMERGENCY MOB. EACH
PROJECT 7371-00-70	2	2
TOTALS:	2	2

633.5100 MARKERS ROW

STATION	OFFSET	LOCATION	EACH
27+00	33.13'	LT	1
27+00	44'	LT	1
27+13.80	44'	RT	1
33+70	35.11'	LT	1
33+70	44'	LT	1
33+70	30.89'	RT	1
33+70	44'	RT	1
		TOTAL:	7

690.0150 SAWING ASPHALT

STATION	LF
27+00	33
30+87, RT	11
33+10, LT	16
33+70	24
TOTAL:	84

628.6005 TURBIDITY BARRIERS

LOCATION	SY
29+40	100
29+80 - 29+90	110
30+30	100
TOTALS:	310

634.0612 POSTS WOOD 4x6-INCH x 12-FT
634.0616 POSTS WOOD 4x6-INCH x 16-FT
637.2210 SIGNS TYPE II REFLECTIVE H
637.2230 SIGNS TYPE II REFLECTIVE F
638.2602 REMOVING SIGNS TYPE II
638.3000 REMOVING SMALL SIGN SUPPORTS

STATION	LOCATION	SIGN CODE	SIGN SIZE	12' WOOD POSTS EACH	16' WOOD POSTS EACH	SIGNS TYPE II REFECTIVE H SF	SIGNS TYPE II REFECTIVE F SF	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	COMMENTS
26+80	LT	D11-1	24"x18"	-	1	3.00	-	-	-	BIKE ROUTE
26+80	LT	M7-1	12"x9"	-	-	0.75	-	-	-	ARROW
26+80	LT	-	-	-	-	-	-	2	1	EXISTING BIKE ROUTE & ARROW
28+75	LT	R2-1	24"x30"	-	1	5.00	-	-	-	45 MPH SPEED LIMIT POSTING
28+75	RT	R2-1	24"x30"	-	1	5.00	-	-	-	55 MPH SPEED LIMIT POSTING
29+10	RT	-	-	-	-	-	-	1	1	EXISTING SPEED LIMIT
29+10	RT	-	-	-	-	-	-	-	-	EXISTING WEIGHT LIMIT POSTING (REMOVED BY COUNTY)
29+29	LT	W5-52L	12"x36"	1	-	-	3.00	-	-	OBJECT MARKER
29+29	RT	W5-52R	12"x36"	1	-	-	3.00	-	-	OBJECT MARKER
29+45	RT	-	-	-	-	-	-	-	-	EXISTING HALFWAY CREEK SIGN (REMOVED BY COUNTY)
29+45	LT	-	-	-	-	-	-	2	1	EXISTING OBJECT MARKER & SPEED LIMIT SIGNS
29+45	RT	-	-	-	-	-	-	1	1	EXISTING OBJECT MARKER
30+56	RT	-	-	-	-	-	-	1	1	EXISTING OBJECT MARKER
30+56	LT	-	-	-	-	-	-	1	1	EXISTING OBJECT MARKER
30+56	LT	-	-	-	-	-	-	-	-	EXISTING HALFWAY CREEK SIGN (REMOVED BY COUNTY)
30+42	LT	W5-52R	12"x36"	1	-	-	3.00	-	-	OBJECT MARKER
30+42	RT	W5-52L	12"x36"	1	-	-	3.00	-	-	OBJECT MARKER
30+66	LT	-	-	-	-	-	-	-	-	EXISTING WEIGHT LIMIT POSTING (REMOVED BY COUNTY)
		TOTALS:		4	3	13.75	12.00	8	6	

643.0420 TRAFFIC CONTROL BARRICADES TYPE III
643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A

DESCRIPTION	DAYS	TRAFFIC CONTROL BARRICADES TYPE III EACH	TRAFFIC CONTROL BARRICADES TYPE III DAYS	TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH	TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS
PROJECT 7371-00-70	53	22	1166	36	1908
TOTALS:			1166		1908

643.0900 TRAFFIC CONTROL SIGNS
643.3000 TRAFFIC CONTROL DETOUR SIGNS
643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II

DESCRIPTION	DAYS	TRAFFIC CONTROL SIGNS EACH	TRAFFIC CONTROL SIGNS DAYS	TRAFFIC CONTROL DETOUR SIGNS EACH	TRAFFIC CONTROL DETOUR SIGNS DAYS	TRAFFIC CONTROL COVERING SIGNS TYPE II EACH
PROJECT 7371-00-70	53	16	848	121	6413	2
TOTALS:			848		6413	2

646.0106 PAVEMENT MARKING EPOXY 4-INCH

STATION	-	STATION	YELLOW CENTERLINE SOLID LF	YELLOW CENTERLINE INTERMITTENT LF	WHITE EDGELINE SOLID LF	COMMENTS
27+00	-	30+00	300	75	600	SOLID YELLOW NORTHBOUND LANE
30+00	-	32+00	400	-	400	DOUBLE SOLID YELLOW
32+00	-	33+70	170	43	340	SOLID YELLOW SOUTHBOUND LANE
TOTALS			870	118	1340	

650.4500 CONSTRUCTION STAKING SUBGRADE
650.5000 CONSTRUCTION STAKING BASE
650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 7371-00-70
650.9920 CONSTRUCTION STAKING SLOPE STAKES

STATION	-	STATION	SUBGRADE LF	BASE LF	SUPPLEMENTAL CONTROL LS	SLOPE STAKES LF
27+00	-	29+29.75	230	230	-	230
30+40.25	-	33+70	330	330	-	330
		TOTALS:	560	560	1	560

PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	MISCELLANEOUS QUANTITIES	SHEET	E

FILE NAME : P:\9200s\9260s\9262\09262004\Estimate\9262004_MiscQty & Earthwork Borders.dgn PLOT DATE : 4/20/2015 PLOT BY : jsnyder PLOT NAME : PLOT SCALE : 1:20 WISDOT/CADDS SHEET 43

9262004_MiscQty & Earthwork Borders.dgn 4/20/2015 1:21:24 PM jsnyder

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
7371-00-00		
FEDERAL PROJECT NUMBER	4.01	2

PLAT OF RIGHT-OF-WAY REQUIRED FOR

CTH OT - CTH MH

(HALFWAY CREEK BRIDGE B-32-0229)

CTH XX — LA CROSSE COUNTY

CONSTRUCTION PROJECT NUMBER
7371-00-70

CONVENTIONAL ABBREVIATIONS

ACCESS POINT/ DRIVEWAY CONNECTION	AP	REFERENCE LINE	R/L
ACCESS RIGHTS	AR	RELEASE OF RIGHTS	ROR
ACRES	AC.	REMAINING	REM.
AND OTHERS	ET.AL.	RIGHT-OF-WAY	R/W
CENTERLINE	C/L	SECTION	SEC.
CERTIFIED SURVEY MAP	CSM	STATION	STA.
CORNER	COR.	TEMPORARY LIMITED EASEMENT	TLE
DOCUMENT	DOC.	VOLUME	V.
EASEMENT	EASE.		
HIGHWAY EASEMENT	H.E.		
LAND CONTRACT	LC		
MONUMENT	MON.		
PAGE	P.		
PERMANENT LIMITED EASEMENT	PLE		
PROPERTY LINE	PL		
RECORDED AS	(100')		

CURVE DATA

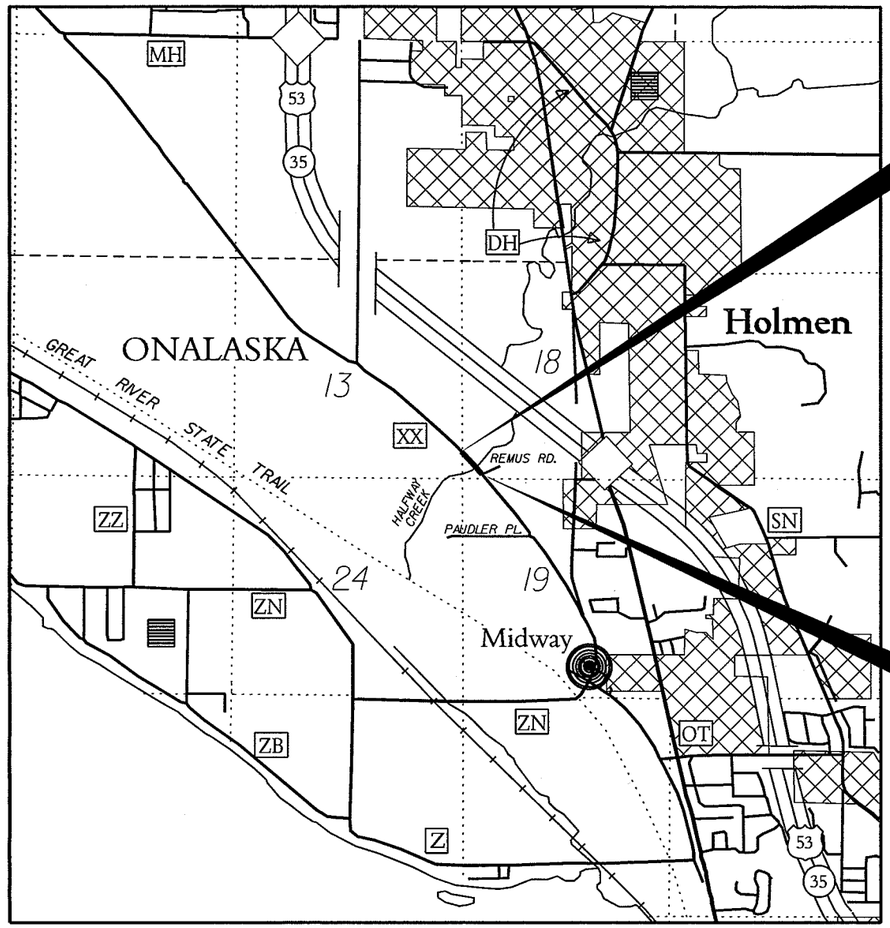
LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE OR DELTA	DELTA
LENGTH OF CURVE	L
TANGENT	TAN

CONVENTIONAL SYMBOLS

FOUND IRON PIPE/PIN	LS (1" UNLESS NOTED)	PROPOSED R/W LINE	
		EXISTING H.E. LINE	
R/W MONUMENT	●-(SET)	PROPERTY LINE	
R/W STANDARD	▲-(SET)	LOT & TIE LINES	
SIGN	SIGN	SLOPE INTERCEPTS	
SECTION CORNER MONUMENT	●	CORPORATE LIMITS	
SECTION CORNER SYMBOL	(SEC. NO.)	NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)	
HIGHWAY EASEMENT		NO ACCESS (BY ACQUISTION)	
TEMPORARY LIMITED EASEMENT		NO ACCESS (BY STATUTORY AUTHORITY)	
PERMANENT LIMITED EASEMENT		SECTION LINE	
R/W BOUNDARY POINT	RWB20	QUARTER LINE	
PARCEL NUMBER	104	SIXTEENTH LINE	
UTILITY PARCEL NUMBER	92	EXISTING CENTERLINE	
SIGN NUMBER (OFF PREMISE)	21-1	PROPOSED REFERENCE LINE	
BUILDING		PARALLEL OFFSET	

CONVENTIONAL UTILITY SYMBOLS

WATER	—W—	
GAS	—G—	
TELEPHONE	—T—	
OVERHEAD TRANSMISSION LINES ELECTRIC	—OH—	
	—E—	
CABLE TELEVISION	—TV—	
FIBER OPTIC	—FO—	
SANITARY SEWER	—SAN—	
STORM SEWER	—SS—	
	NON COMPENSABLE	COMPENSABLE
POWER POLE		
TELEPHONE POLE		
TELEPHONE PEDESTAL		
ELECTRIC TOWER		



END RELOCATION ORDER
STA. 33+70.00
24.97' WEST OF AND 658.27' NORTH OF THE SOUTHWEST CORNER OF SECTION 18, T-17-N, R-7-W.

BEGIN RELOCATION ORDER
STA. 27+00.00
414.77' EAST OF AND 152.76' NORTH OF THE SOUTHWEST CORNER OF SECTION 18, T-17-N, R-7-W.

NOTES

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, LA CROSSE COUNTY NAD 83 (2007) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPCIALLY 3/4" X 24" REBAR) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD".

N

LAYOUT
SCALE 0 — 1/2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.127 MI.

ORIGINAL PLAT PREPARED BY:

MSA PROFESSIONAL SERVICES
TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
1230 South Boulevard Baraboo, WI 53913
(608-356-2771 1-800-362-1505 Fax: (608-356-2770
© MSA PROFESSIONAL SERVICES

WISCONSIN
GREGORY P. RHINEHART
S-1478
FRIENDSHIP, WI
LAND SURVEYOR

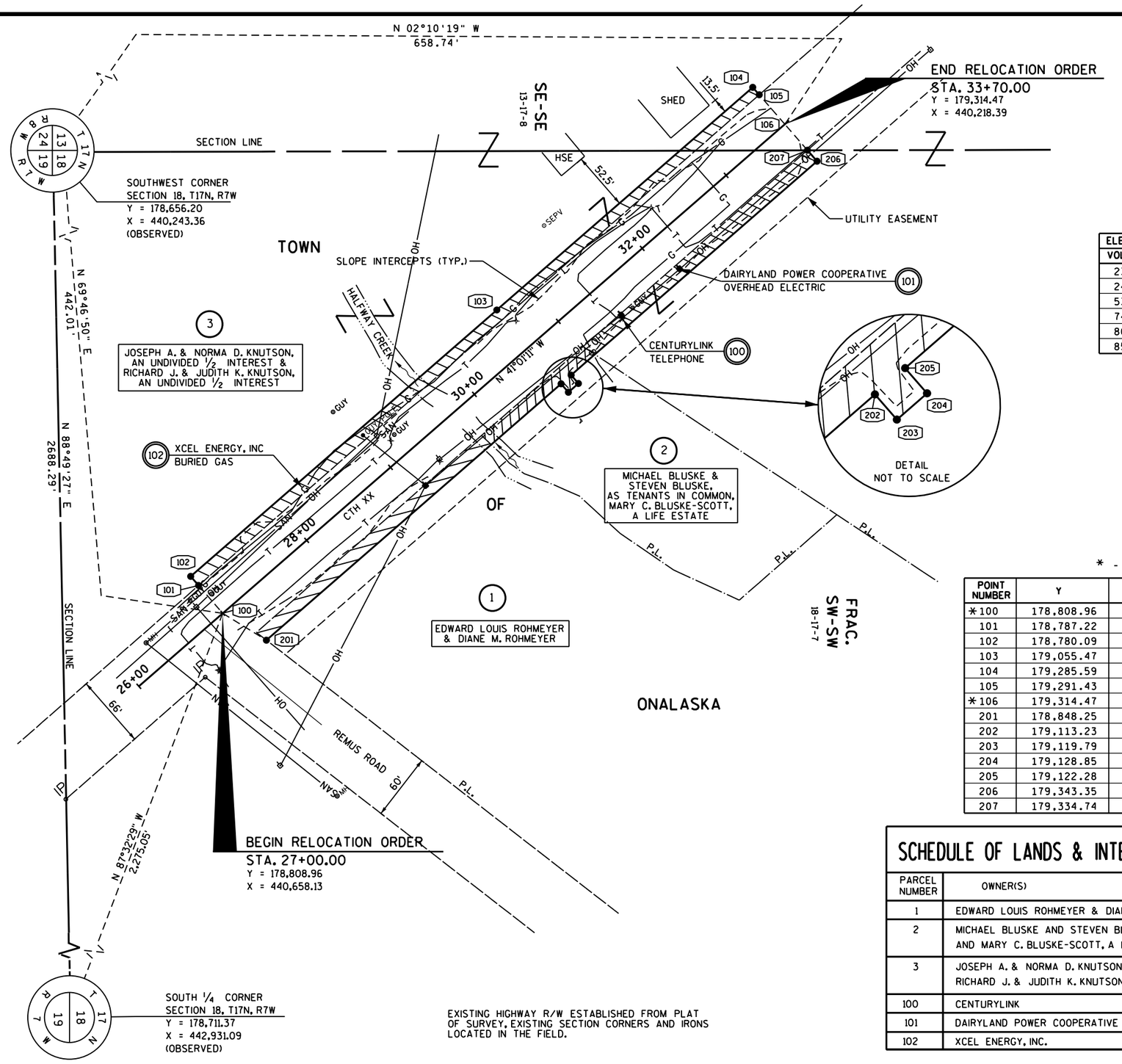
4/8/2015 — Date
Signature

REVISION DATE

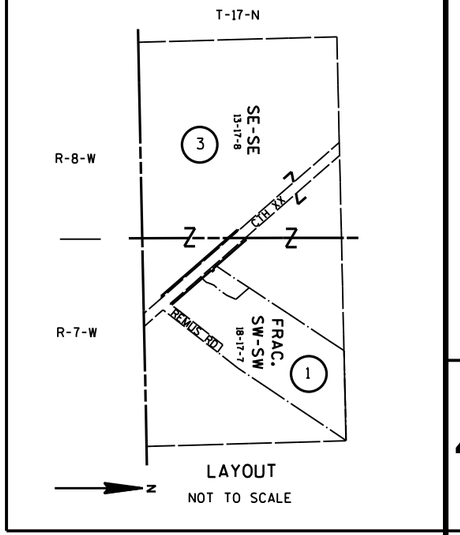
APPROVED FOR LA CROSSE COUNTY

DATE: 4/8/15 (Signature)

E



ELECTRIC UTILITY EASEMENTS	
VOLUME	PAGE(S)
233	329
247	53-55
530	405
749	791, 792
804	991, 992, 995-998
851	219 - 220



* - NON-MONUMENTED POINT

POINT NUMBER	Y	X	STATION	OFFSET
*100	178,808.96	440,658.13	27+00.00	0.00 CL
101	178,787.22	440,633.13	27+00.00	33.13 L
102	178,780.09	440,624.93	27+00.00	44.00 L
103	179,055.47	440,385.38	30+65.00	44.00 L
104	179,285.59	440,185.20	33+70.00	44.00 L
105	179,291.43	440,191.90	33+70.00	35.11 L
*106	179,314.47	440,218.39	33+70.00	0.00 CL
201	178,848.25	440,682.27	27+13.80	44.00 R
202	179,113.23	440,451.77	30+65.00	44.00 R
203	179,119.79	440,459.31	30+65.00	54.00 R
204	179,128.85	440,451.44	30+77.00	54.00 R
205	179,122.28	440,443.89	30+77.00	44.00 R
206	179,343.35	440,251.59	33+70.00	44.00 R
207	179,334.74	440,241.70	33+70.00	30.89 R

NOTE: DUE TO ROUNDING, INVERSING BETWEEN COORDINATES, IN CLOSE PROXIMITY WITH EACH OTHER, MAY NOT REPLICATE THE BEARINGS AND DISTANCES SHOWN ON THIS PLAT.

PT - PT	BEARING	DISTANCE
100-101	S 48°58'49" W	33.13'
101-102	S 48°58'49" W	10.87'
102-103	N 41°01'11" W	365.00'
103-104	N 41°01'11" W	305.00'
104-105	N 48°58'49" E	8.89'
105-106	N 48°58'49" E	35.11'
100-201	N 31°34'15" E	46.11'
201-202	N 41°01'11" W	351.20'
202-203	N 48°58'49" E	10.00'
203-204	N 41°01'11" W	12.00'
204-205	S 48°58'49" W	10.00'
205-206	N 41°01'11" W	293.00'
206-207	S 48°58'49" W	13.11'
207-106	S 48°58'49" W	30.89'

SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE COUNTY.

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	RIGHT OF WAY ACRES REQUIRED NEW	EXISTING	TOTAL
1	EDWARD LOUIS ROHMEYER & DIANE M. ROHMEYER	FEE	0.07	0.00	0.07
2	MICHAEL BLUSKE AND STEVEN BLUSKE, AS JOINT TENANTS AND MARY C. BLUSKE-SCOTT, A LIFE ESTATE	FEE	0.04	0.00	0.04
3	JOSEPH A. & NORMA D. KNUTSON, AN UNDIVIDED 1/2 INTEREST RICHARD J. & JUDITH K. KNUTSON, AN UNDIVIDED 1/2 INTEREST	FEE	0.23	0.00	0.23
100	CENTURYLINK	R O R			
101	DAIRYLAND POWER COOPERATIVE	R O R			
102	XCEL ENERGY, INC.	R O R			

REVISION DATE	DATE 4/8/2015	SCALE: FEET 0 50 100	HWY: CTH XX	STATE R/W PROJECT NUMBER 7371-00-00	PLAT SHEET 4.02	
	GRID FACTOR N/A		COUNTY: LA CROSSE	CONSTRUCTION PROJECT NUMBER 7371-00-70	PS&E SHEET	E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Plansht\ROW 01.dgn PLOT DATE : 4/8/2015 PLOT BY : bhalley PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 75

ROW 01.dgn 4/8/2015 11:18:59 AM bhalley

BENCHMARKS			
NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	29+45.69, 16.7' RT.	BRASS DISK TOP OF EAST WING	669.36
2	29+26.08, 159.7' LT.	2 POLE NAILS IN 36" Φ ELM TREE	665.45
3	31+08.75, 28.1' LT.	2 POLE NAILS IN 48" Φ ELM TREE	667.17

BEGIN PROJECT
STA. 27+00
Y = 178,808.96
X = 440,658.13

BEGIN CONSTRUCTION STA. 26+55, LEFT
VILLAGE OF HOLMEN SANITARY SEWER
CENTURYLINK TELEPHONE
XCEL ENERGY BURIED GAS
XCEL ENERGY OVERHEAD ELECTRIC
MGS BEAM GUARD
WETLANDS (TYP.)
RICHARD J. & JUDITH K. KNUTSON
HALFWAY CREEK
EXISTING STRUCTURE B-32-0096 (TO BE REMOVED)
STRUCTURE B-32-0229 REQUIRED
EROSION MAT URBAN, CLASS I, TYPE B (TYP.)
EXISTING R/W
BM#3
BM#1
SAWCUT
CTH XX (ASPHALT)
REMUS ROAD
CENTURYLINK TELEPHONE
SLOPE INTERCEPTS (TYP.)
SILT FILE (TYP.)
DAIRYLAND POWER COOPERATIVE OVERHEAD ELECTRIC-TRANSMISSION
TURBIDITY BARRIER (TYP.)
STEEL PLATE BEAM GUARD
SPECIAL DITCH
XCEL ENERGY BURIED GAS
MATCH LINE STA. 31+50
EDWARD & DIANE ROHMEYER
MICHAEL & STEVEN BLUSKE LIFE ESTATE TO MARY C. BLUSKE-SCOTT
CAUTION

STA. 30+00, STRUCTURE B-32-0096, REMOVE
TWO SPAN HAUNCHED CONCRETE SLAB BRIDGE
30 FT. CLEAR ROADWAY WIDTH
109.8 FT. OVERALL LENGTH
NO SKEW

STA. 29+85, STRUCTURE B-32-0229, REQ'D
TWO SPAN HAUNCHED CONCRETE SLAB
34 FT. CLEAR ROADWAY WIDTH
110.5 FT. OVERALL LENGTH
NO SKEW

VPI STA = 29+51.50
VPI EL = 670.53
CURVE LEN = 640.00
K = 246.15

EXISTING ℄ PROFILE
FINISHED ℄ PROFILE
-1.12%
-1.5%
-1.0%
SPECIAL DITCH RIGHT
HIGH WATER 100 EL. 665.74±
OBSERVED WATER EL. 659.19± (02-05-13)
STREAMBED EL. 658.56±
STA = 26+25.00 EL = 665.70
1.48%
VPC STA = 26+31.50 VPC EL = 665.80
-BLEND PROFILE TO MATCH EXISTING GRADE AT BEGINNING OF PROJECT.

EARTHWORK SUMMARY
STA. 27+00 - STA. 33+70
EXC. COMMON 1740 C.Y.
FILL 91 C.Y.
FILL EXPANSION 30%
WASTE 1619 C.Y.

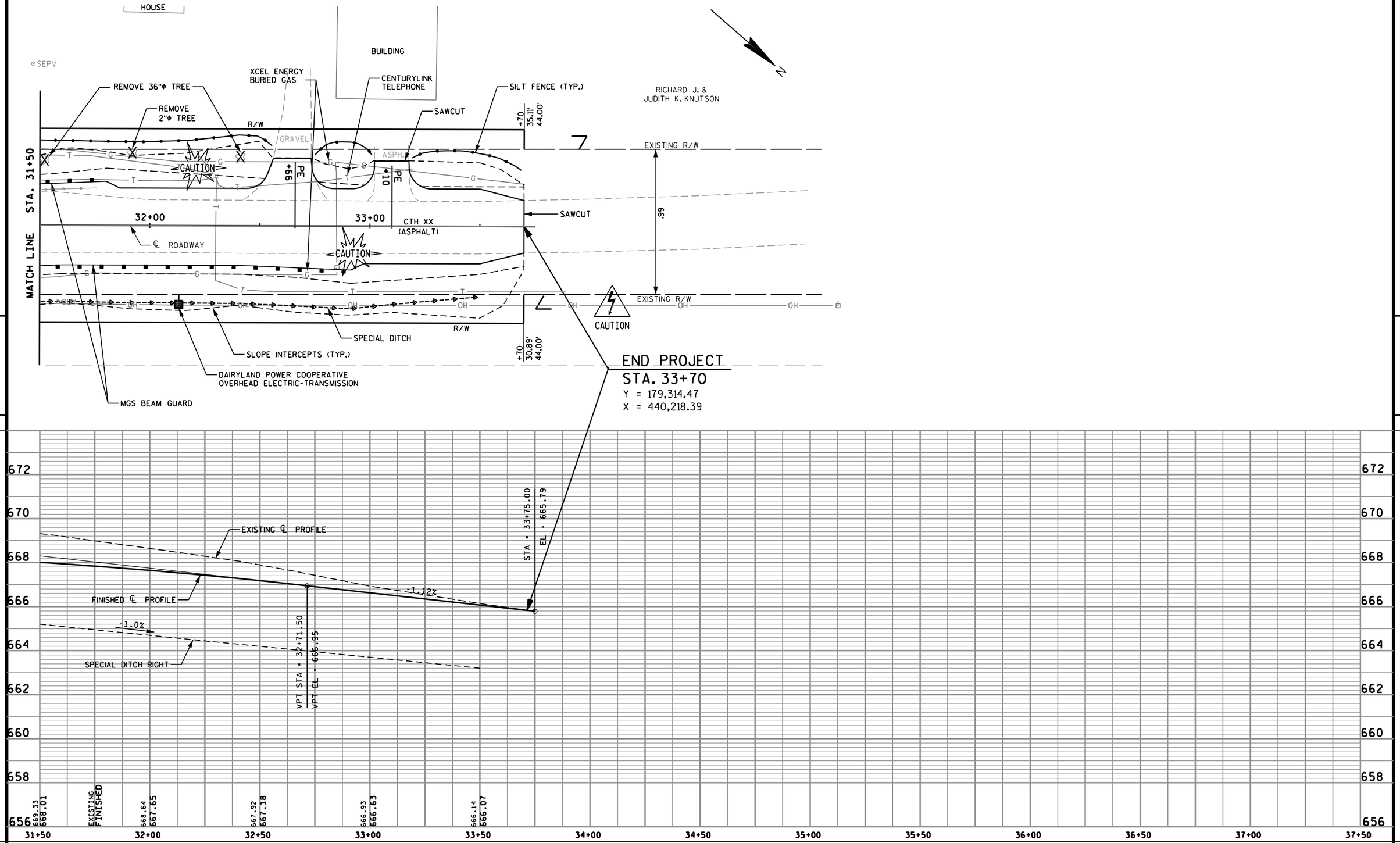
EXISTING FINISHED	665.33	666.04 / 666.06	666.77 / 666.71*	667.65 / 667.26	668.45 / 667.71	669.08 / 668.06	669.49 / 668.31	669.65 / 668.45	669.81 / 668.49	669.77 / 668.43	669.73 / 668.27	669.33 / 668.01
25+50	26+00	26+50	27+00	27+50	28+00	28+50	29+00	29+50	30+00	30+50	31+00	31+50

PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	PLAN & PROFILE - CTH XX	SHEET E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Plansht\Panp01-60.dgn PLOT DATE : 7/9/2015 PLOT BY : bhalley PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 30

Panp01-60.dgn 7/9/2015 1:49:57 PM bhalley



PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	PLAN & PROFILE - CTH XX	SHEET 15	E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Planshts\Panp02-60.dgn PLOT DATE : 7/9/2015 PLOT BY : bhalley PLOT NAME : PLOT SCALE : 1:40

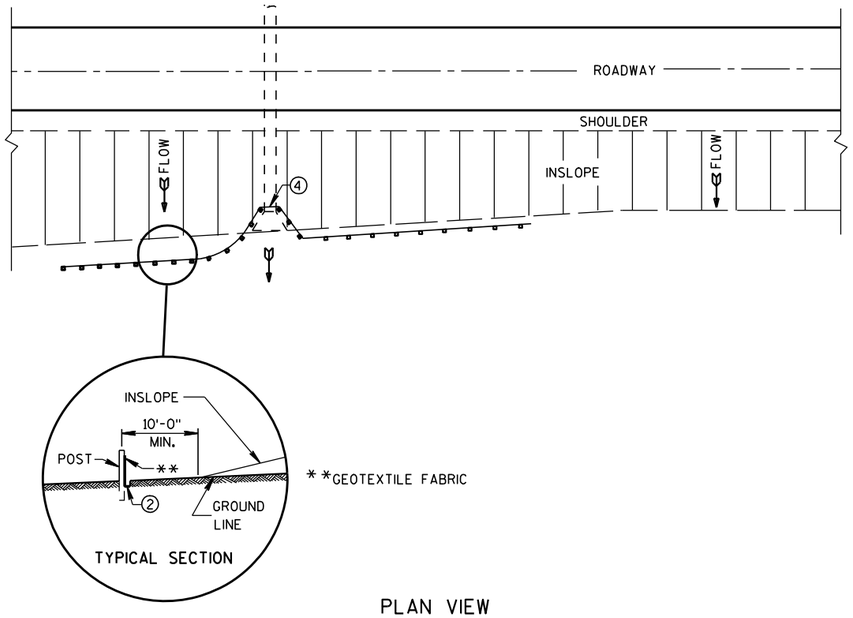
WISDOT/CADDS SHEET 30

Panp02-60.dgn 7/9/2015 12:55:50 PM bhalley

Standard Detail Drawing List

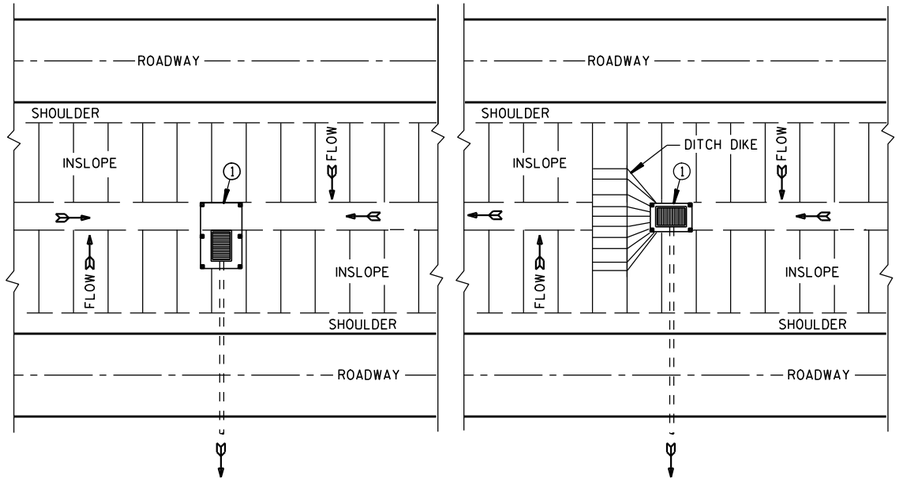
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B15-08A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-08C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A01-12A	MARKER POST FOR RIGHT-OF-WAY
15A01-12B	FLEXIBLE MARKER POST FOR RIGHT-OF-WAY
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)

6



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



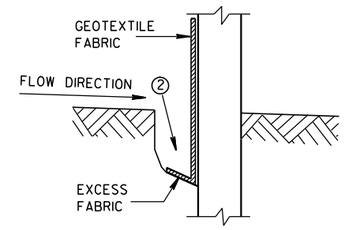
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

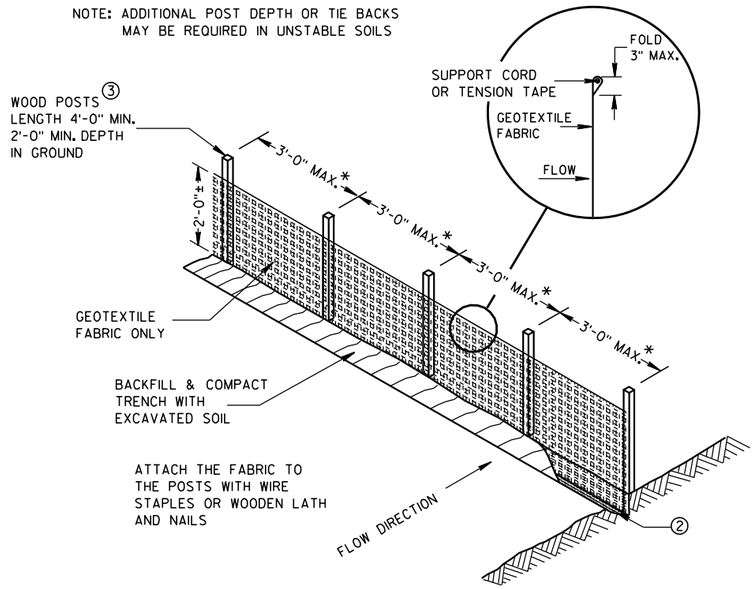
GENERAL NOTES

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

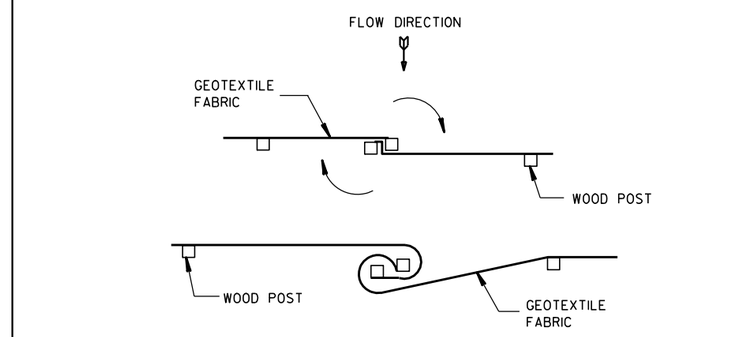
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" 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.



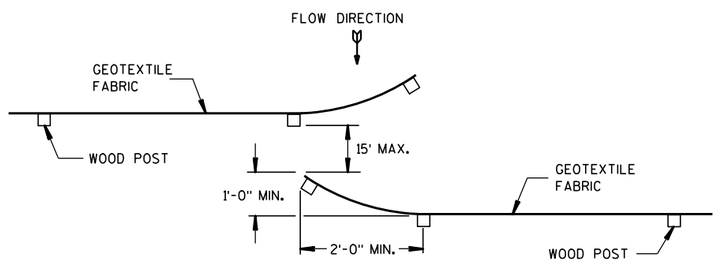
TRENCH DETAIL



SILT FENCE

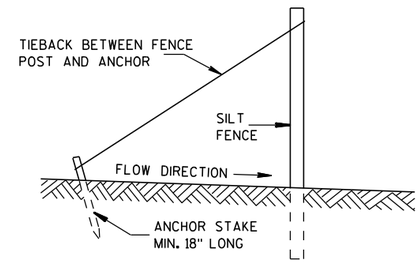


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

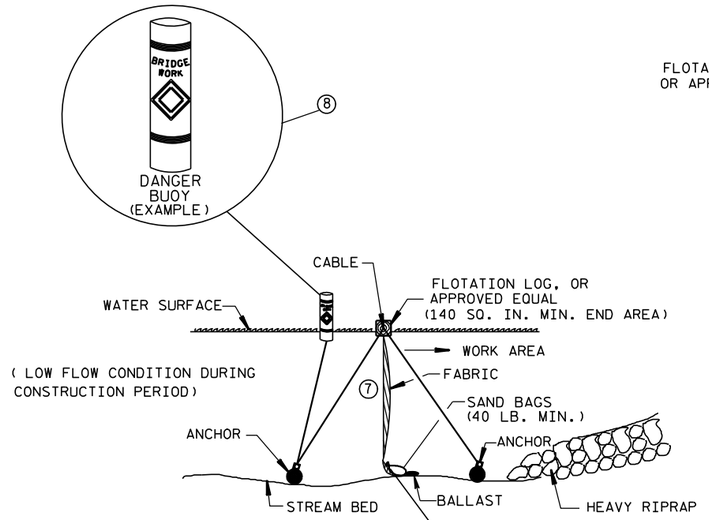
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

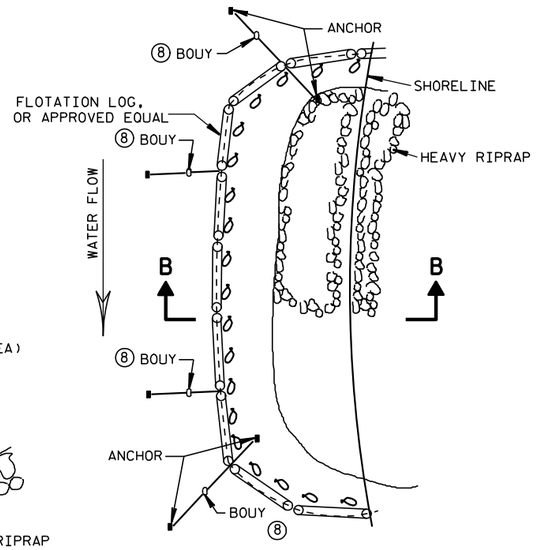
S.D.D. 8 E 9-6

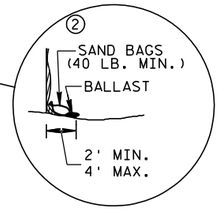
6

S.D.D. 8 E 9-6

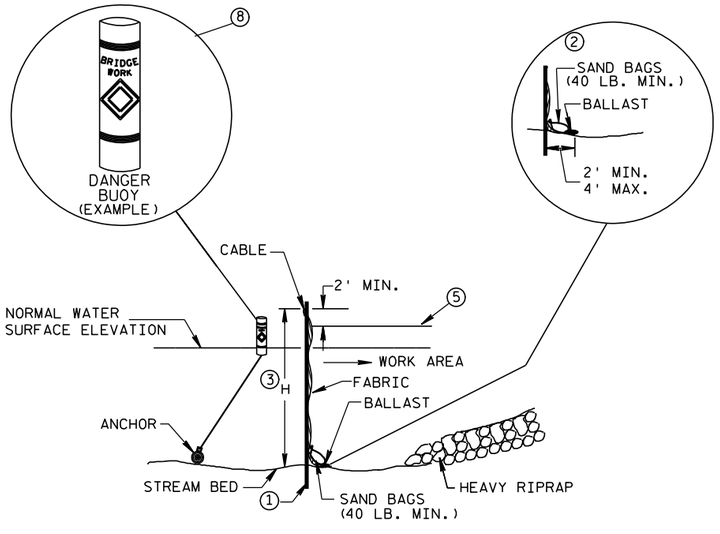


SECTION B-B

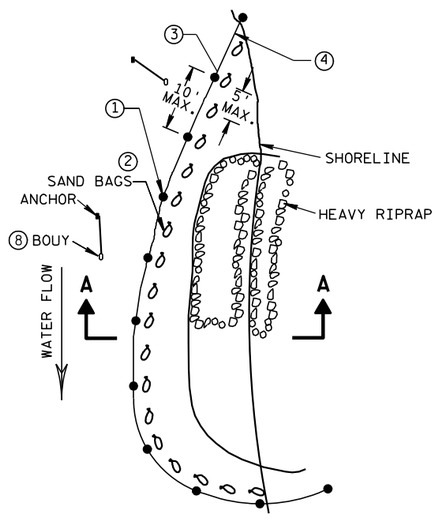




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

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.

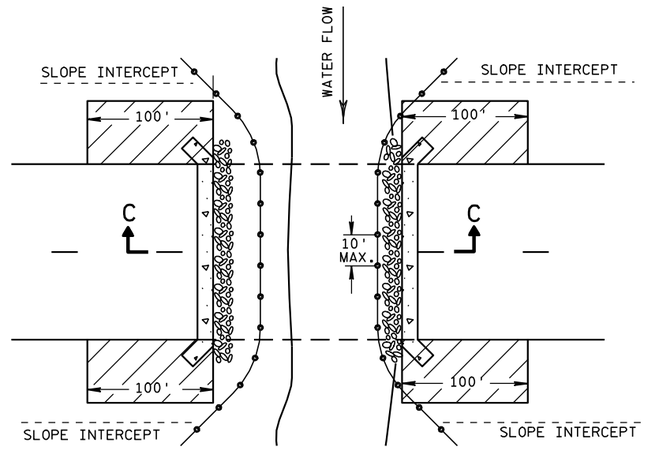
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

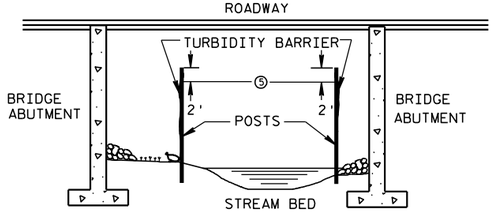
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

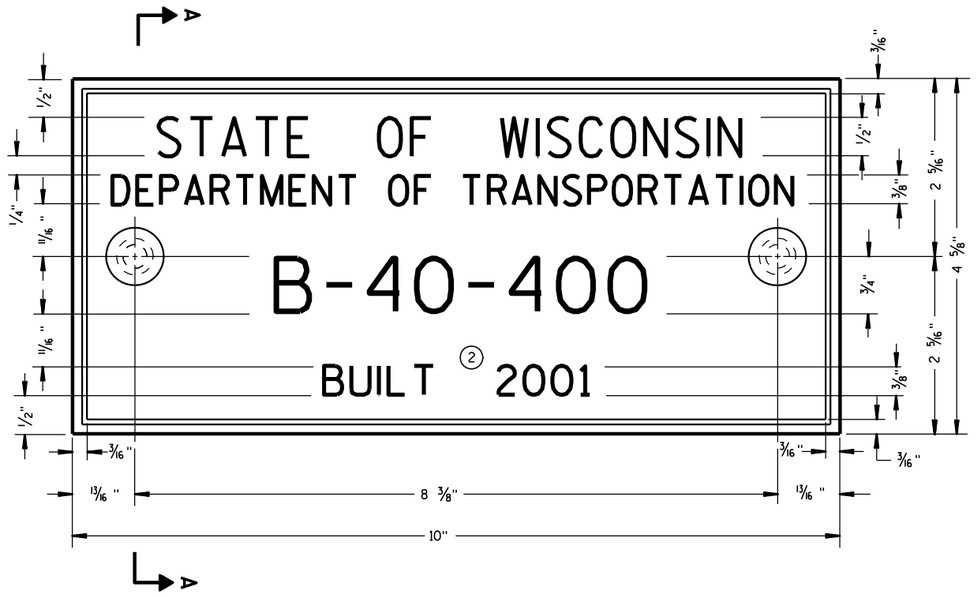
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

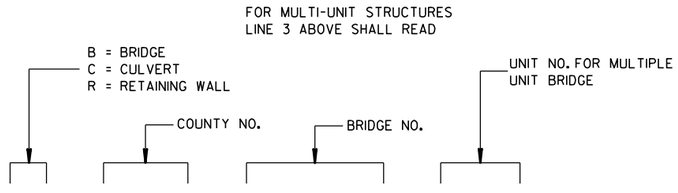
6

S.D.D. 8 E 11-2



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

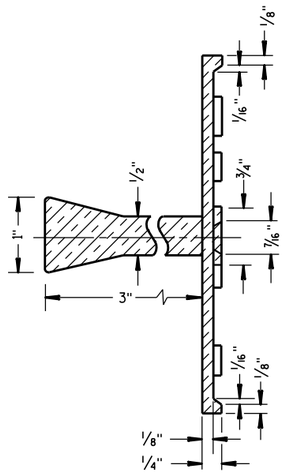
GENERAL NOTES

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.

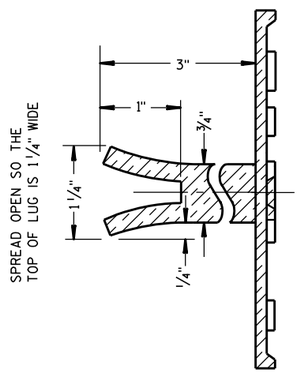
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

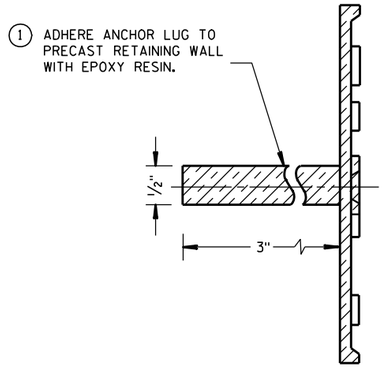
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
3/26/10 DATE	/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER
FHWA	

6

S.D.D. 12 A 3-10

6

S.D.D. 12 A 3-10

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 SPELTER 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.

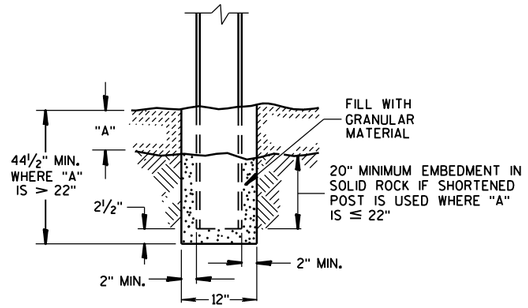
(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

(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 2½ INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN YHE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATEY.

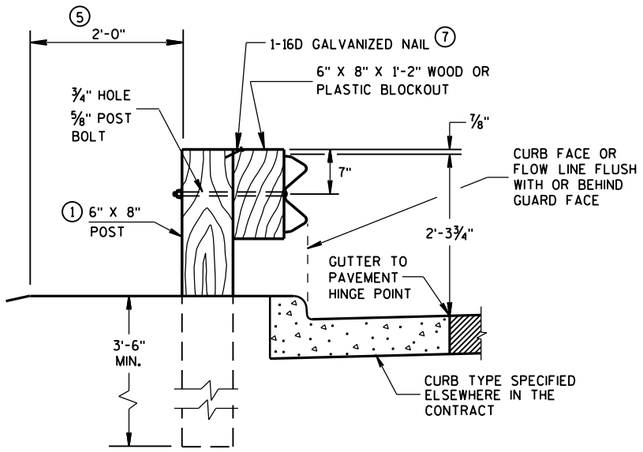
(7) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

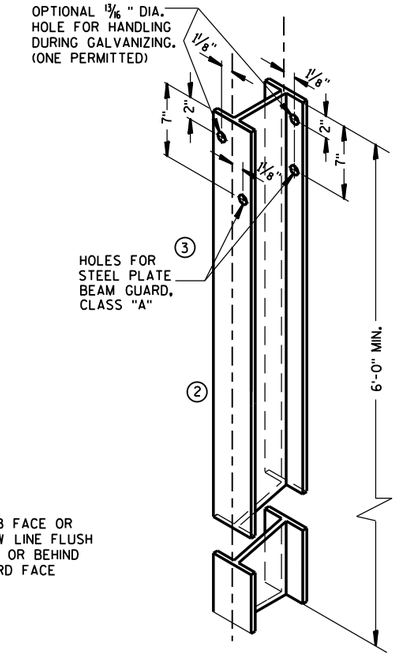
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)



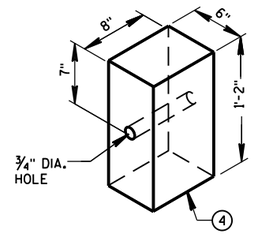
END VIEW
LOCATED ALONG A CURBED ROADWAY



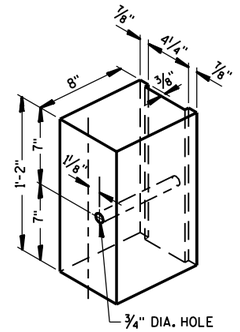
STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

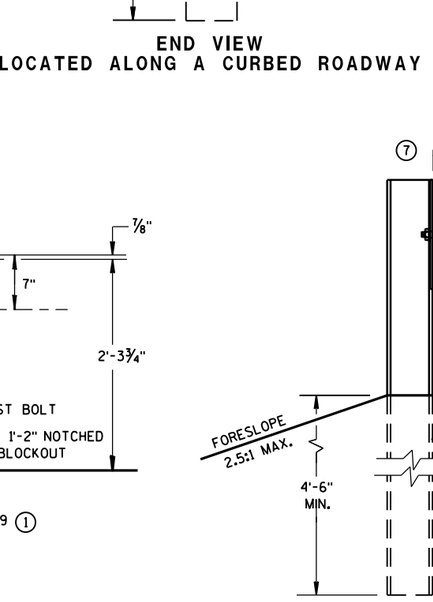
WOOD POST
(6"X8") NOMINAL



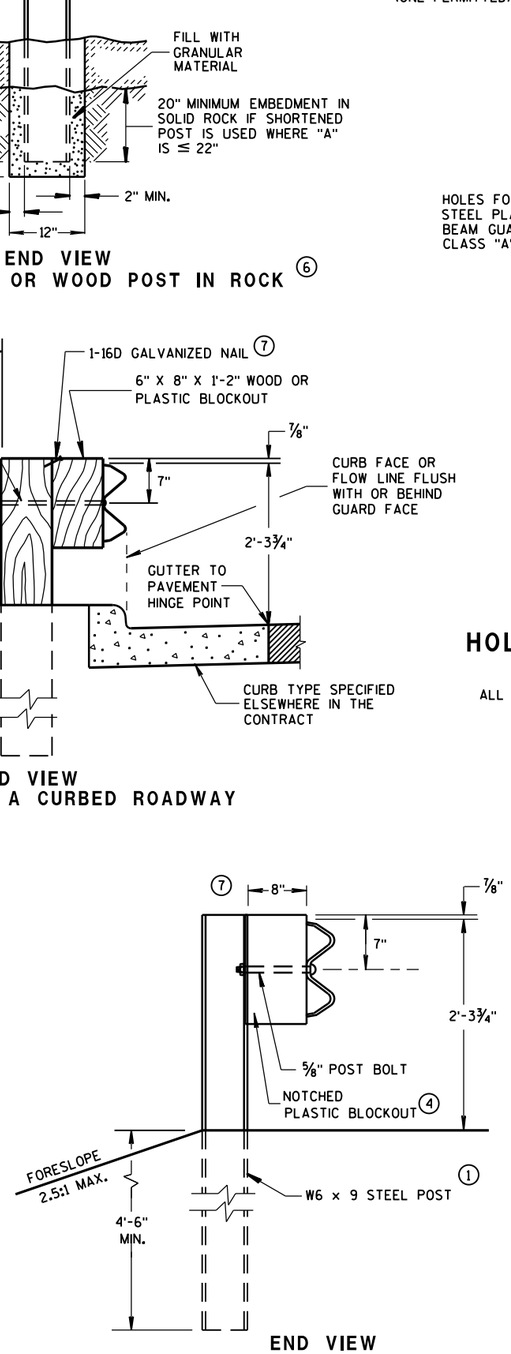
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



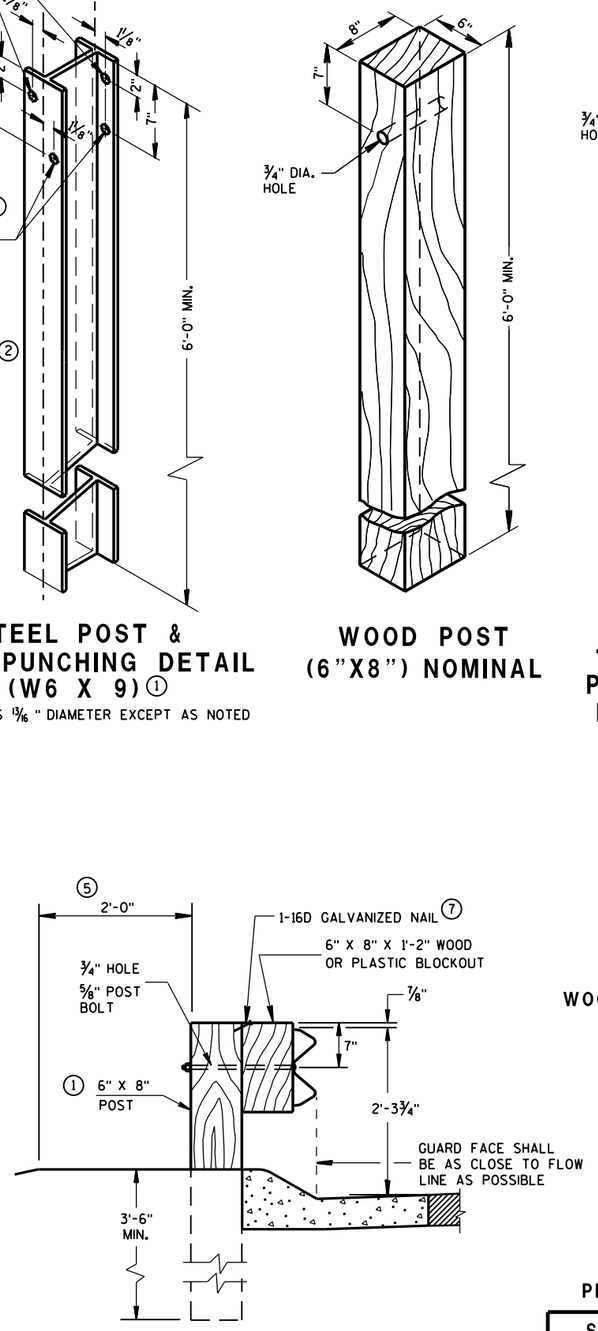
TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS (1)



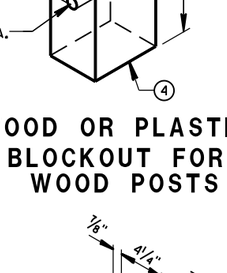
END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



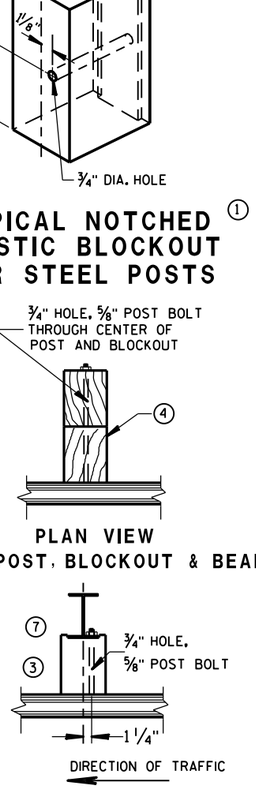
END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)



END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM

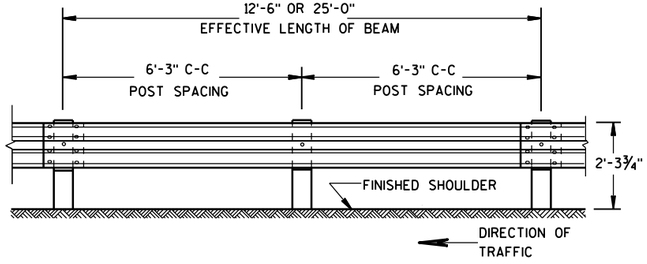
STEEL PLATE BEAM GUARD,
CLASS "A"
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 20

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

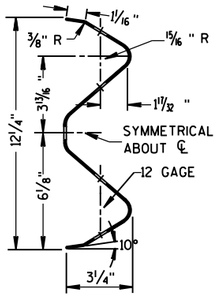
6

S.D.D. 14 B 15-8a

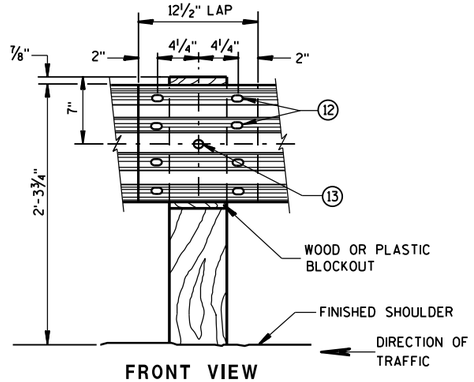


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

GENERAL NOTES

(8) PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

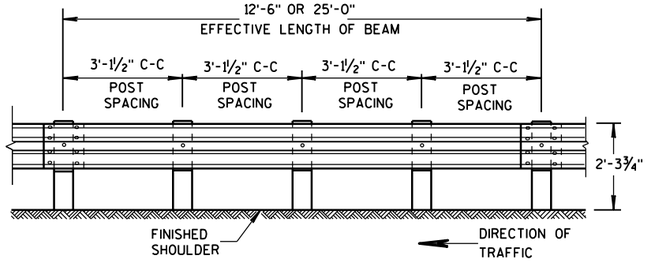
(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

(10) REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

(11) PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

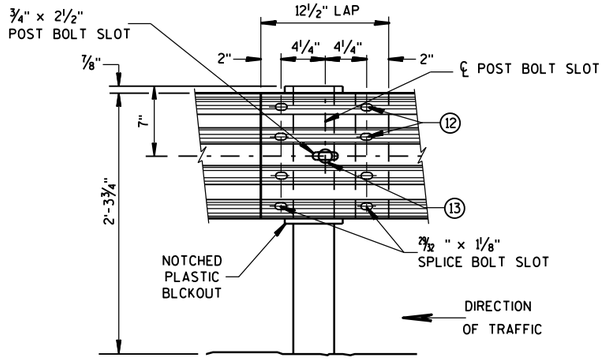
(12) 8 -⅝" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) ⅝" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH ⅝" DIA. F844 FLAT WASHER UNDER NUT.



FRONT VIEW

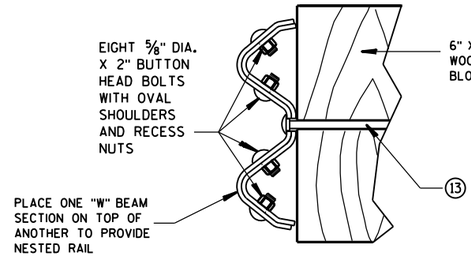
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

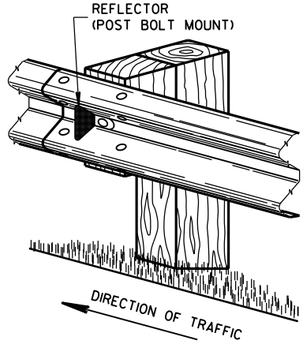


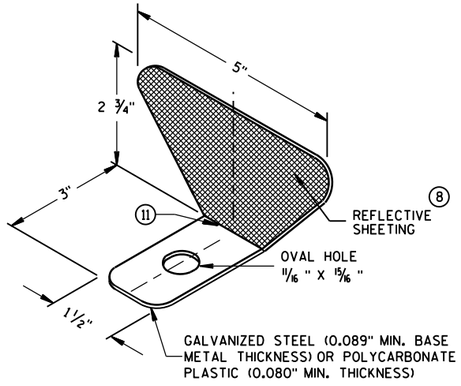
NESTED W BEAM (NW)

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

REFLECTOR SPACING (9)

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 (10) 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 (11)	3





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (8)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 15-8b

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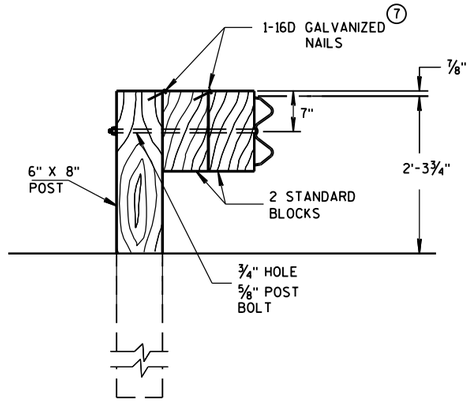
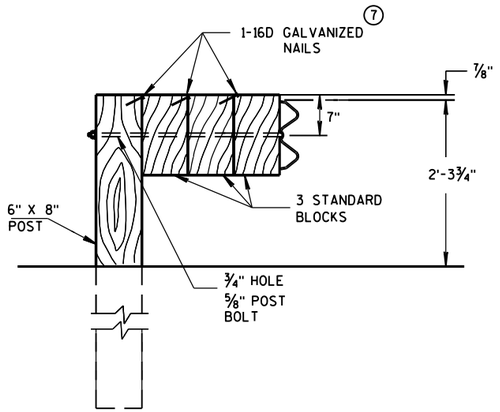
S.D.D. 14 B 15-8b



DETAIL FOR DOUBLE BLOCKS

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

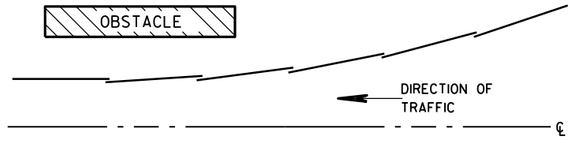


DETAIL FOR TRIPLE BLOCKS

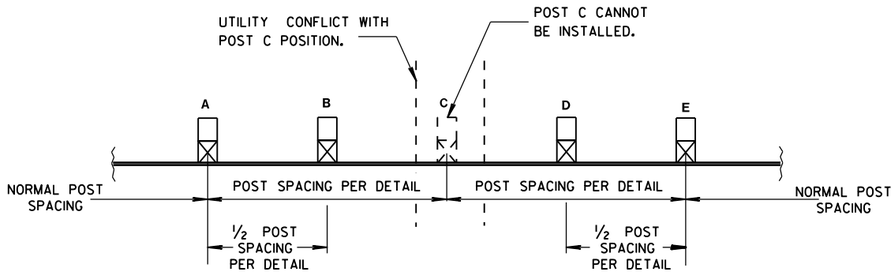
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

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
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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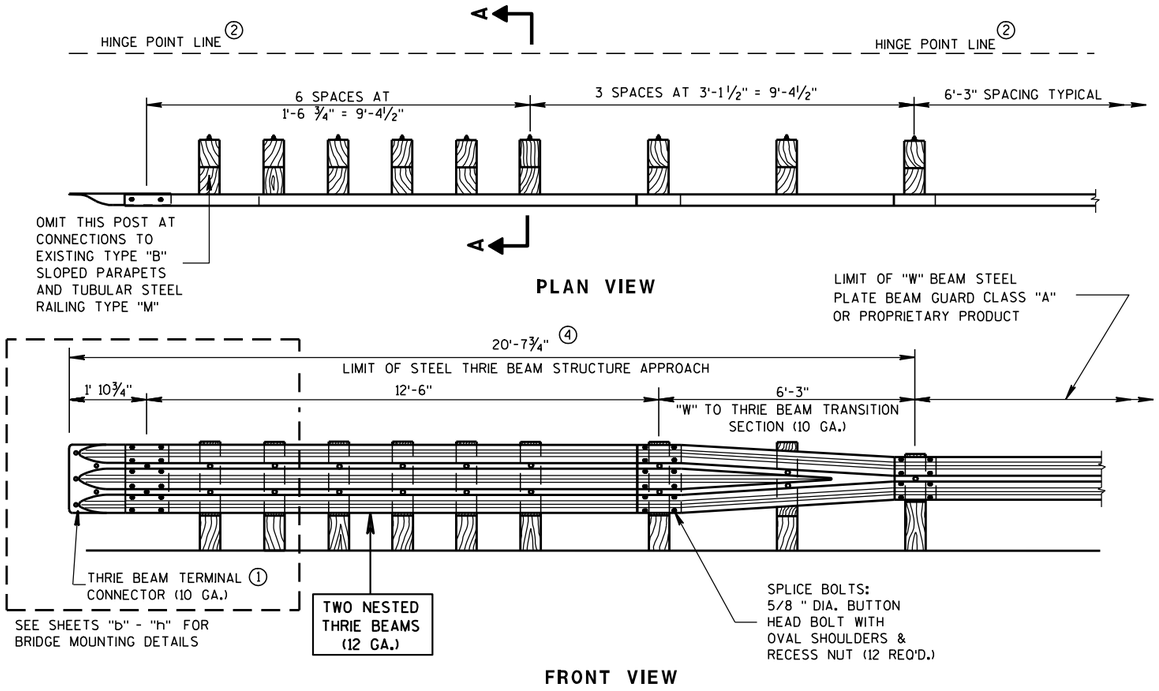
S.D.D. 14 B 15-8c



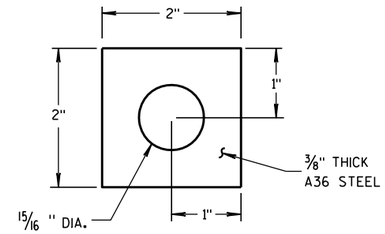


PLATE WASHER DETAIL

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.

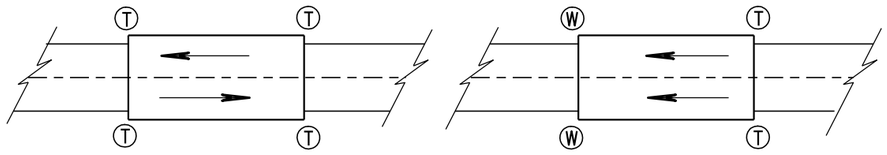
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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.



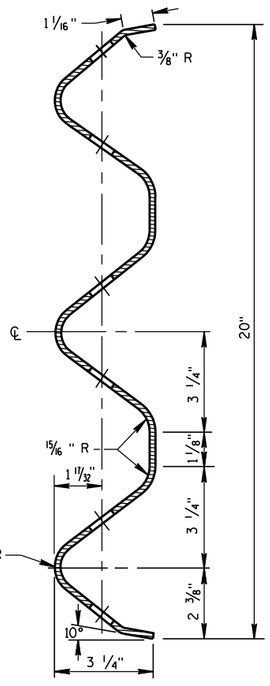
TWO WAY TRAFFIC

ONE WAY TRAFFIC

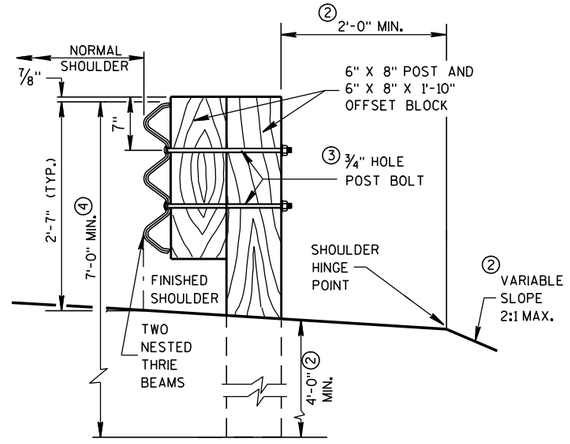
Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

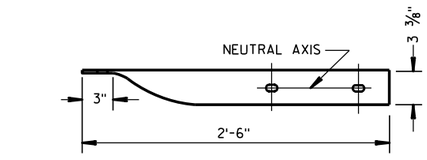
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

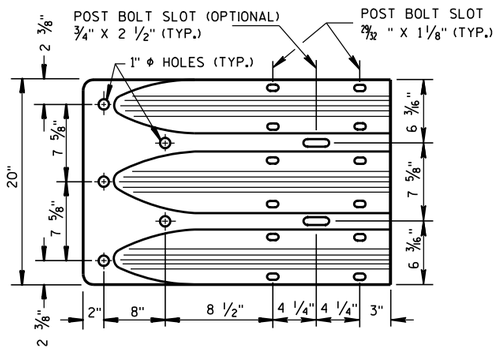


SECTION THRU THRIE BEAM RAIL ELEMENT

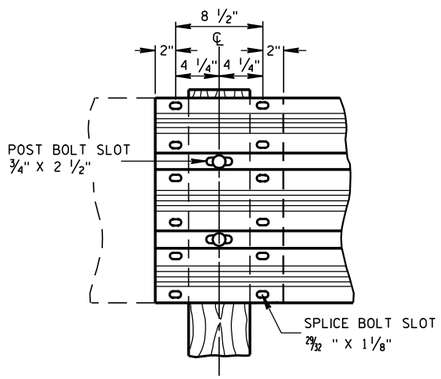


SECTION A-A





THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

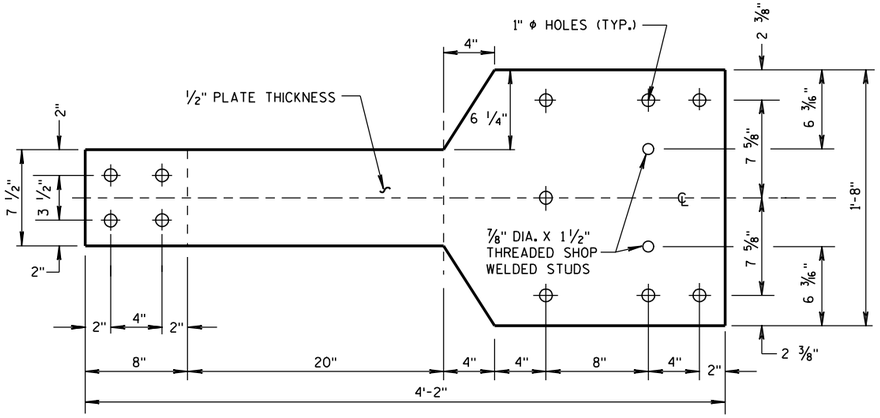
8/31/2012 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER

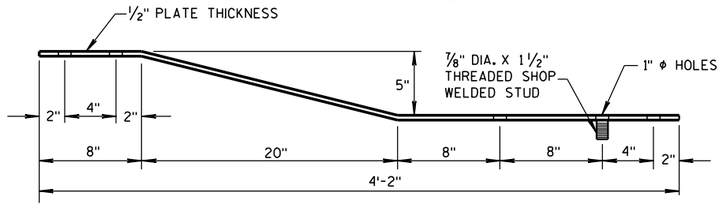
FHWA

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.

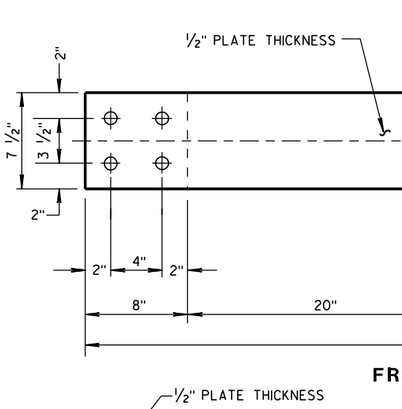


FRONT VIEW



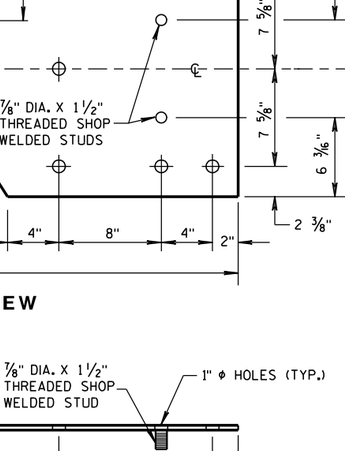
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

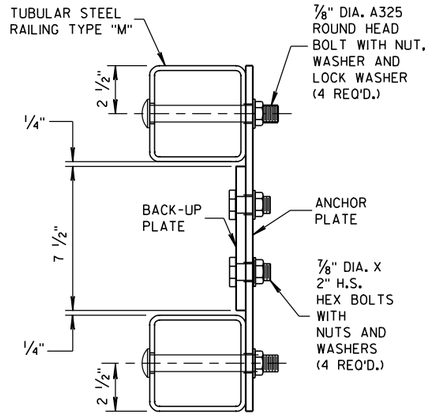


FRONT VIEW

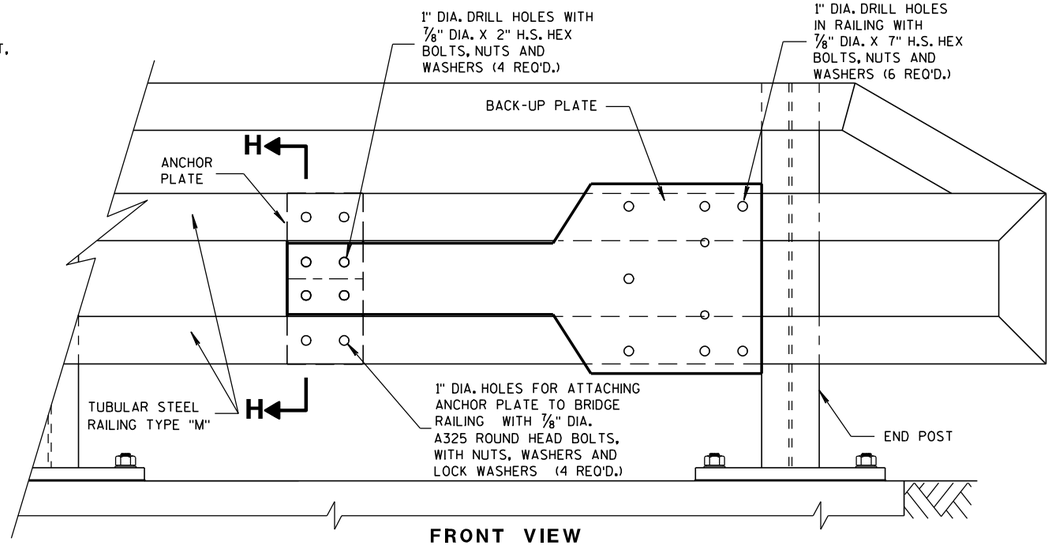
ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I

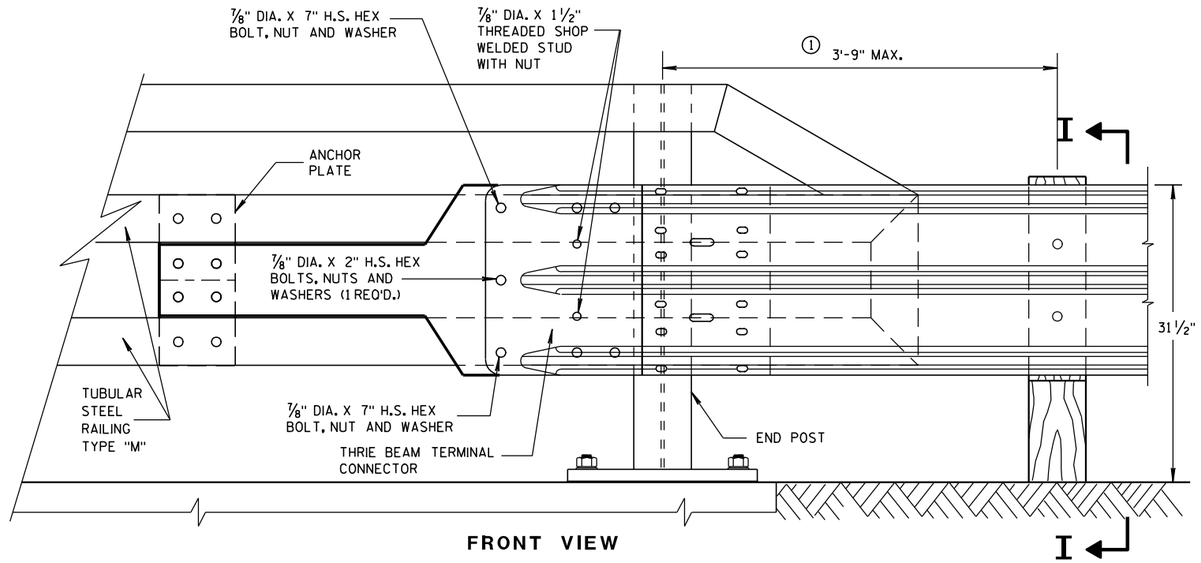


SECTION H-H

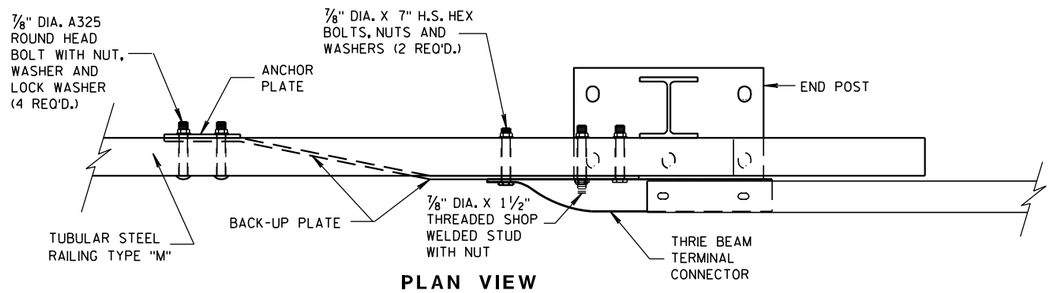


FRONT VIEW

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"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 — DATE
/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER

FHWA

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S.D.D. 14 B 20-11f

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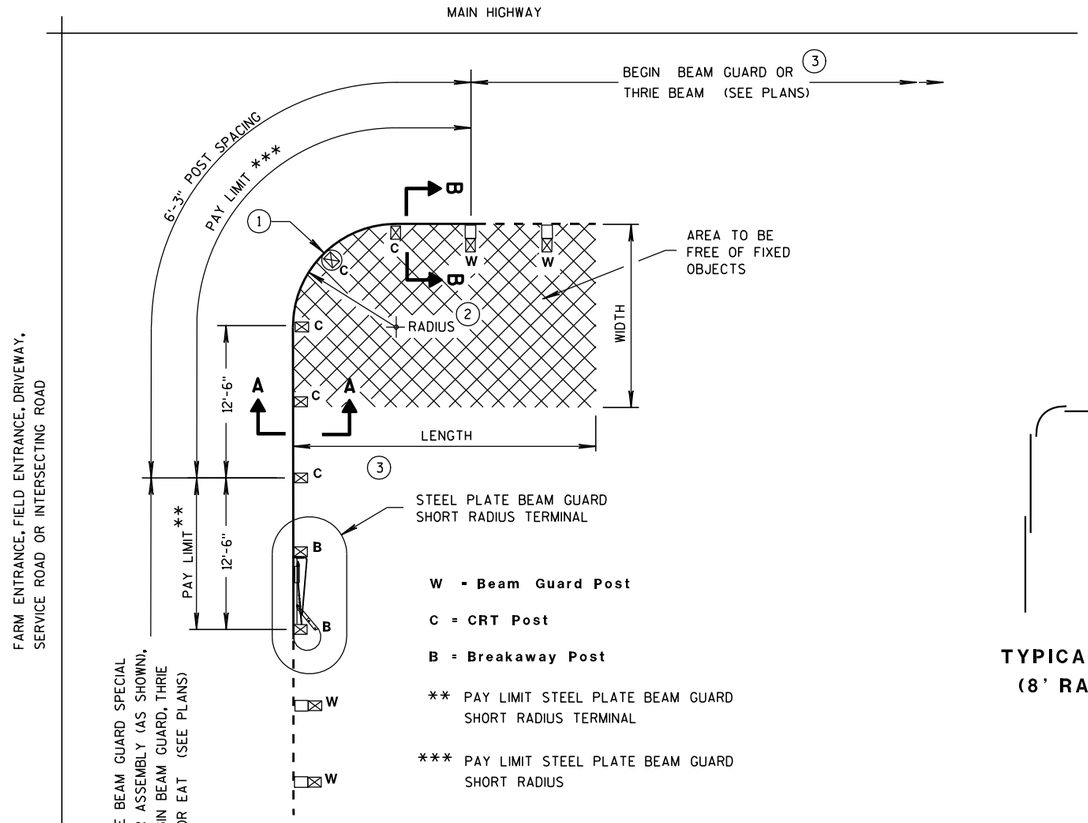
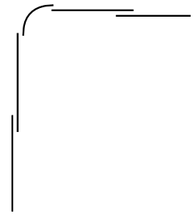
S.D.D. 14 B 20-11f



TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2. UNLESS NOTED OTHERWISE.

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

(1) ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.

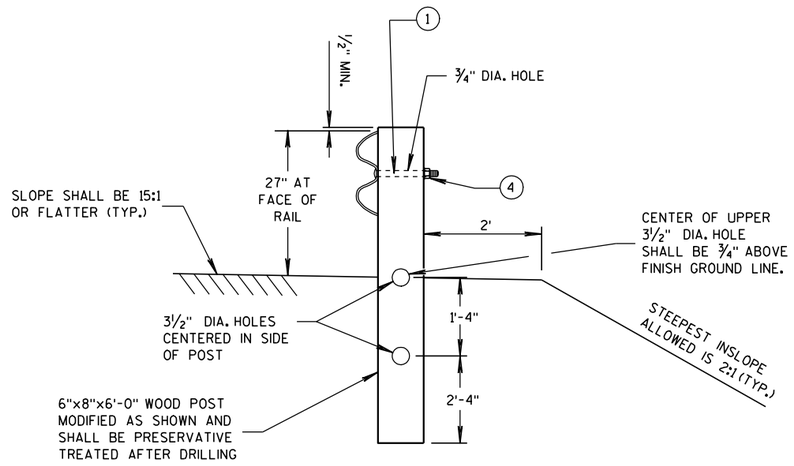
(2) RADIUS FROM 8' - 36'. SEE PLAN.

(3) HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.

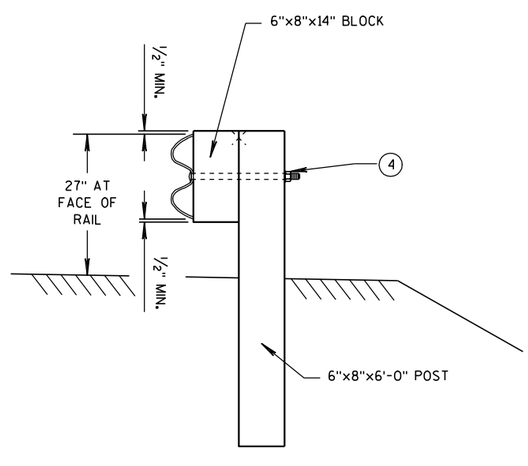
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



SECTION A-A
(CRT POST)



SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

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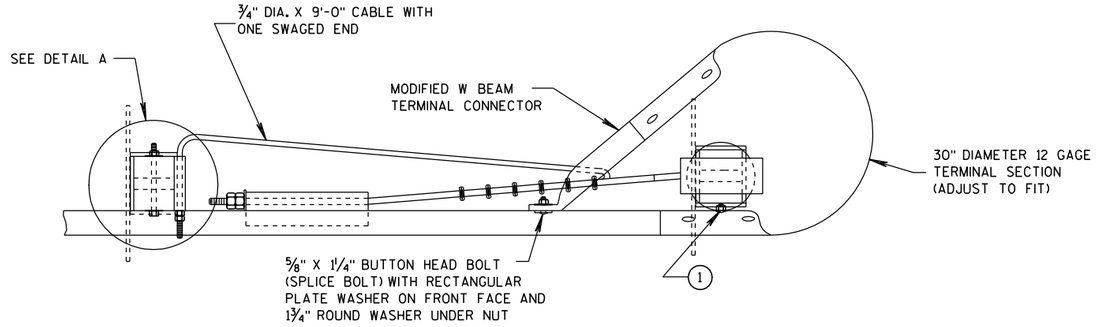
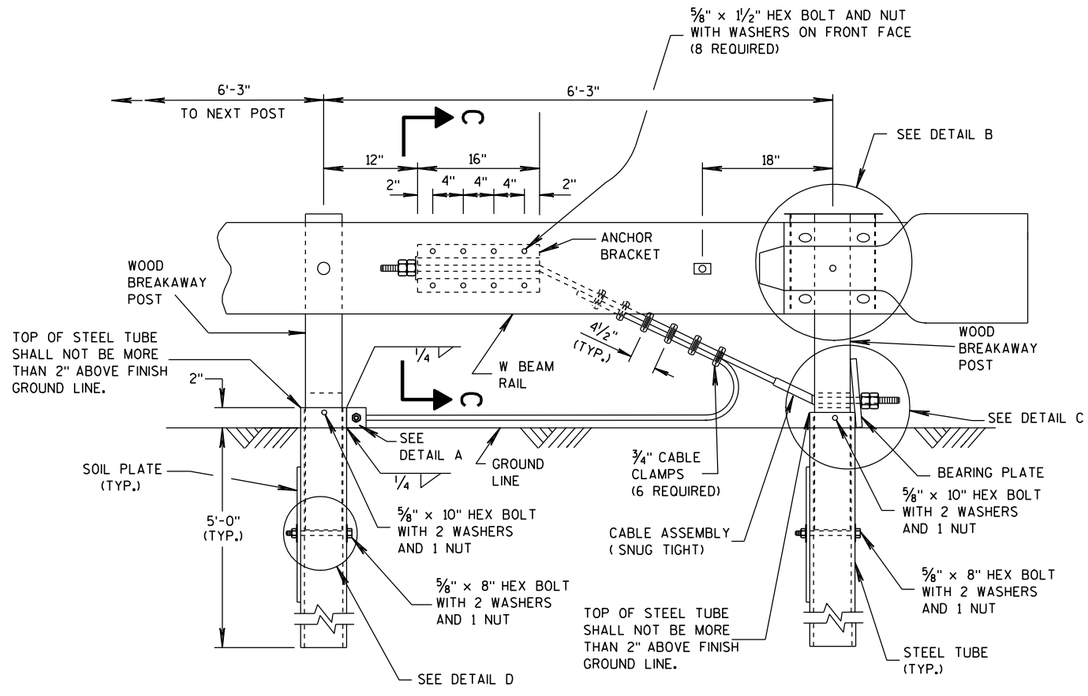
S.D.D. 14 B 27-1a



PLAN VIEW



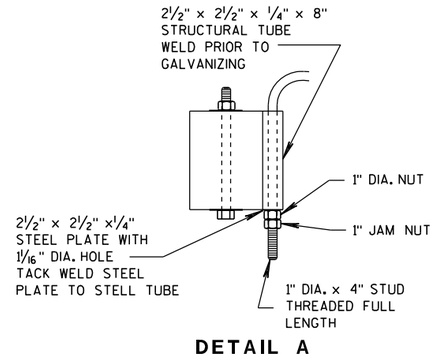
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

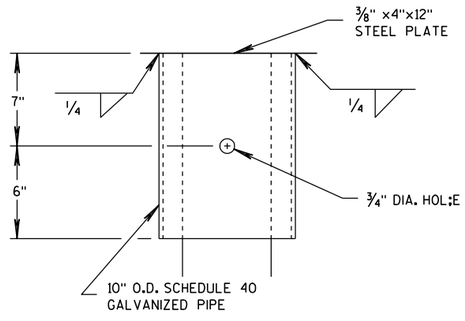
GENERAL NOTES

(1) ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A ⅝" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED ¾" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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S.D.D. 14 B 27-1b

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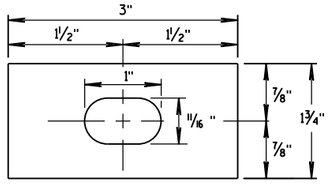
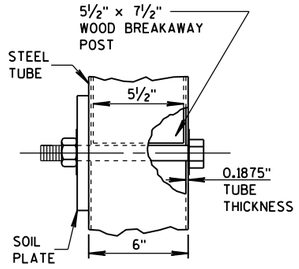
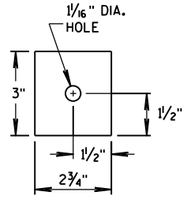
S.D.D. 14 B 27-1b



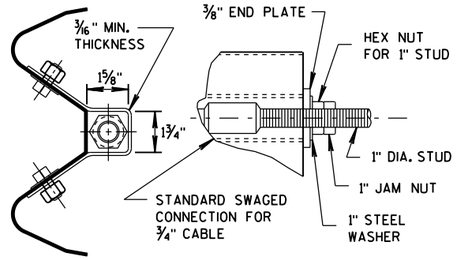
RECTANGULAR PLATE WASHER



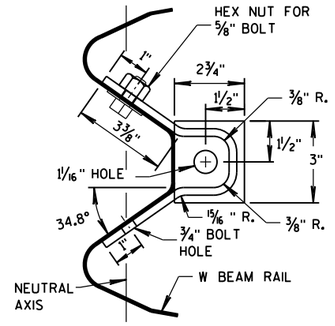
DETAIL D



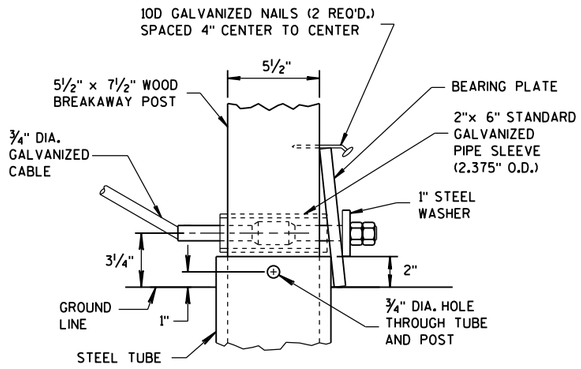
END PLATE



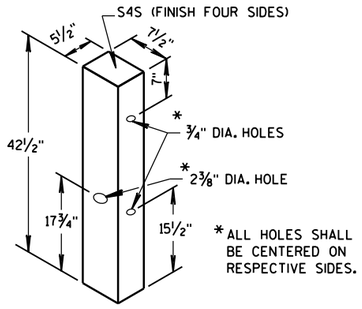
SECTION C-C
(END PLATE REMOVED)



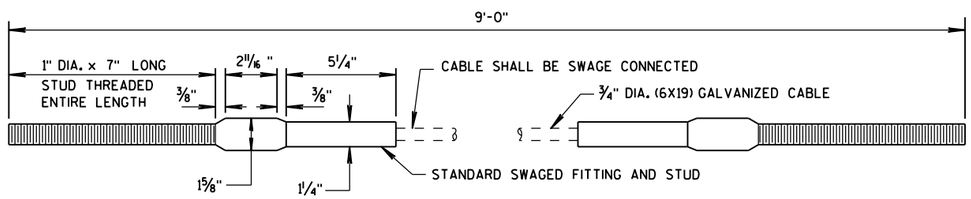
ANCHOR BRACKET



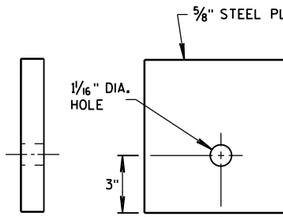
DETAIL C



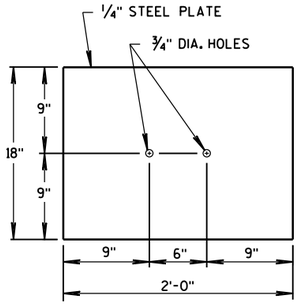
WOOD BREAKAWAY POST



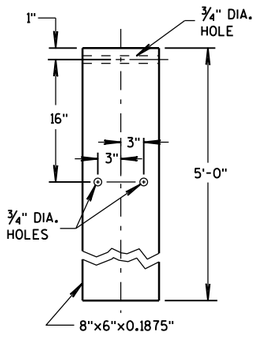
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/18/08 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 27-1c

6

S.D.D. 14 B 27-1c

GENERAL NOTES

(1) WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

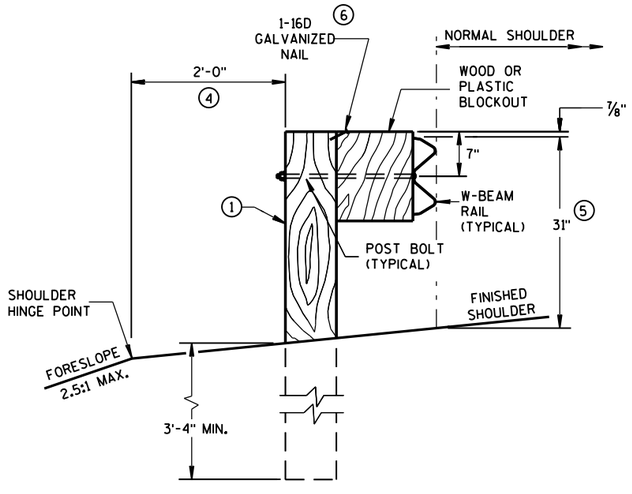
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

(4) WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

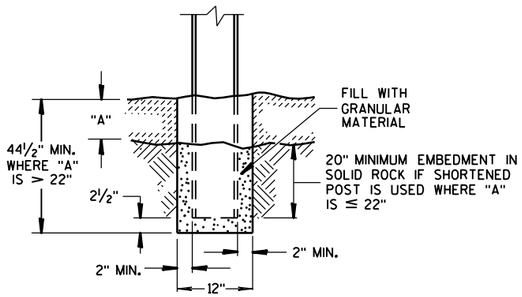
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

(6) WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



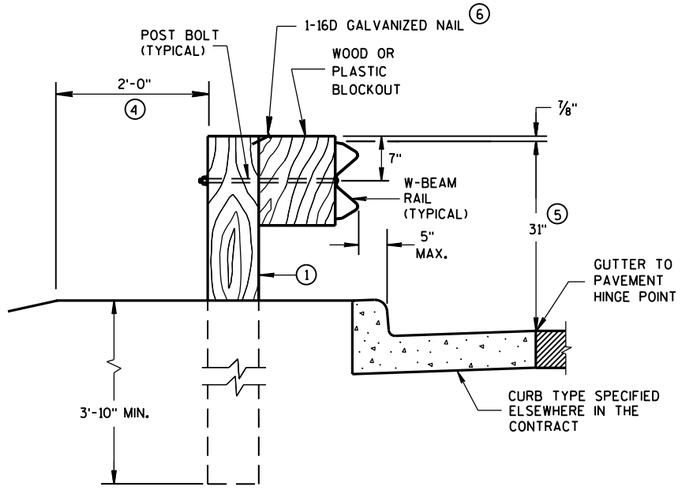
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



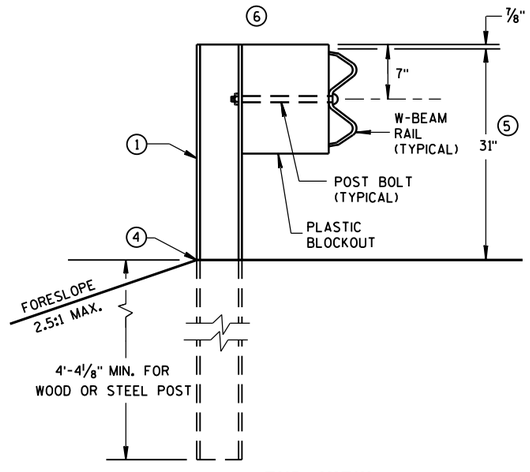
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



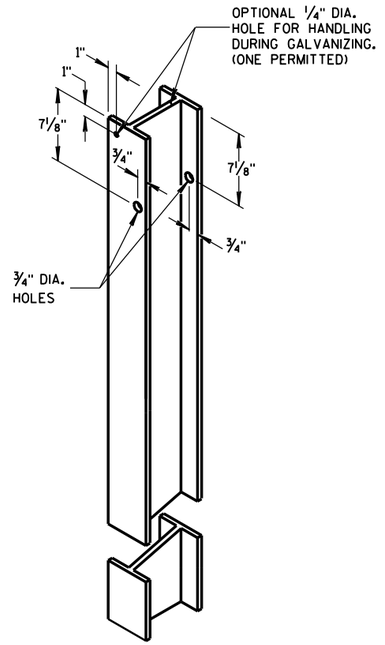
END VIEW

LOCATED ALONG A CURBED ROADWAY

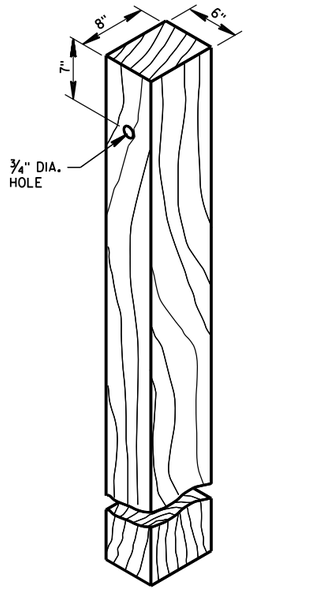


END VIEW

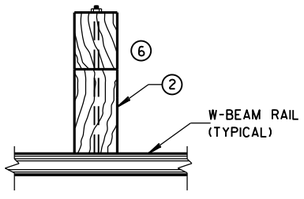
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



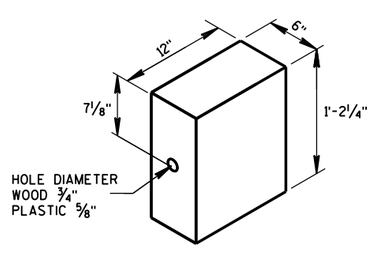
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



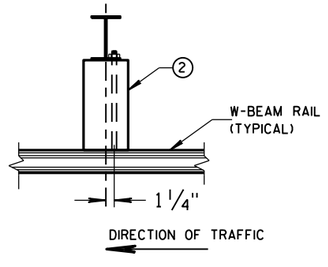
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

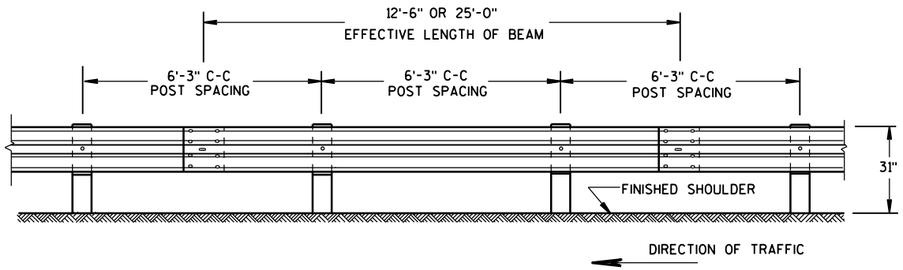


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

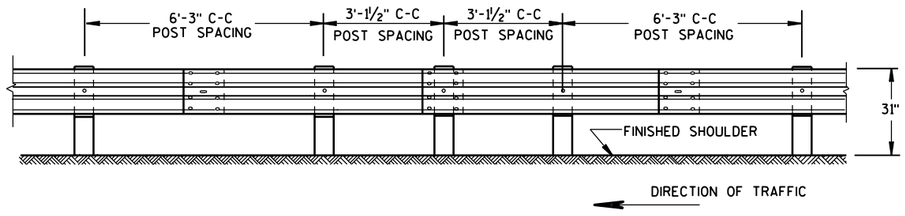
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 14 B 42-3a



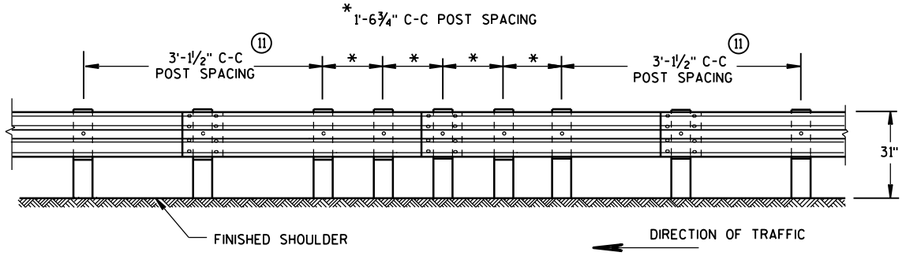
FRONT VIEW

POST SPACING STANDARD INSTALLATION



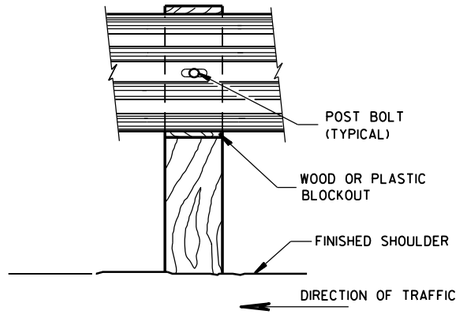
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

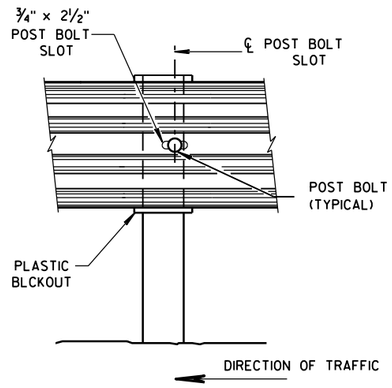


FRONT VIEW

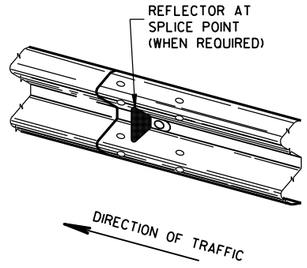
QUARTER POST SPACING (QS)

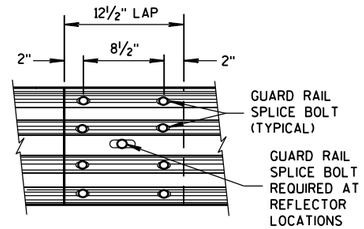


FRONT VIEW AT WOOD POST



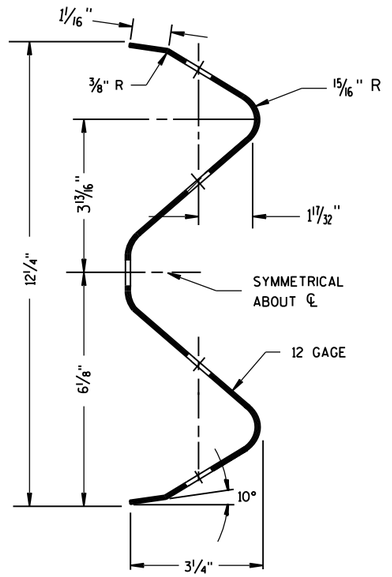
FRONT VIEW AT STEEL POST



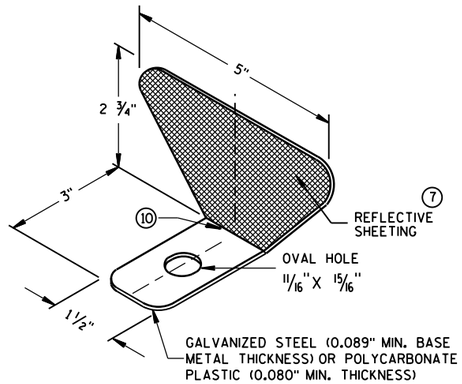


FRONT VIEW

MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

⑩ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING ⑧

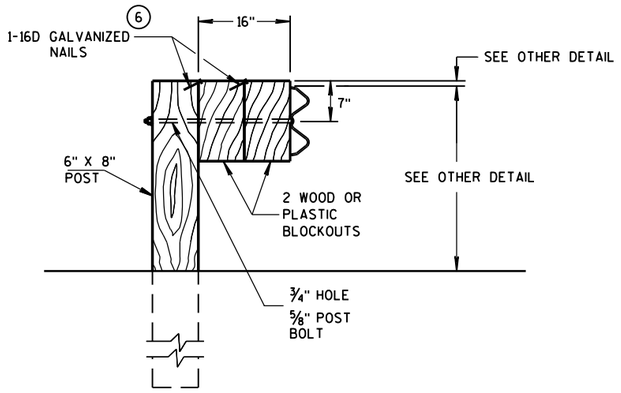
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 ⑨ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 ⑩	3

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

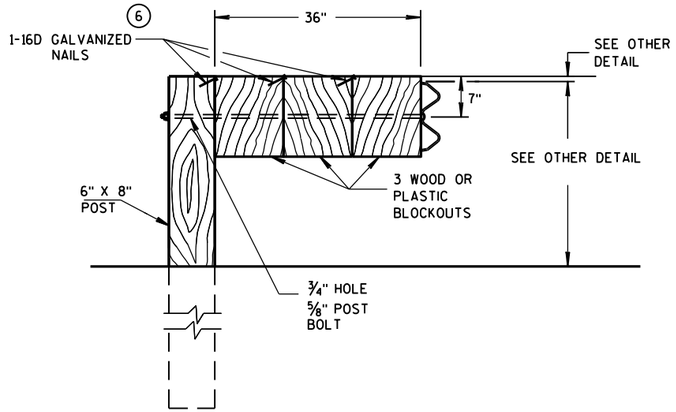
6

S.D.D. 14 B 42-3b



DETAIL FOR 16" BLOCKOUT DEPTH

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

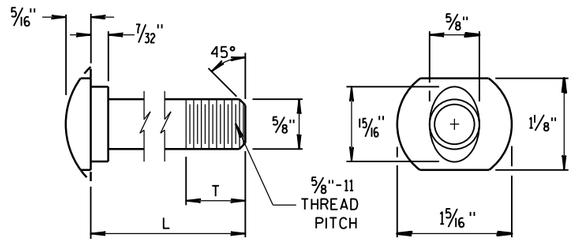


DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

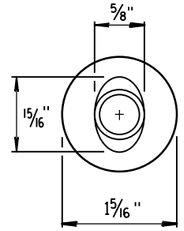
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

NOTE: 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

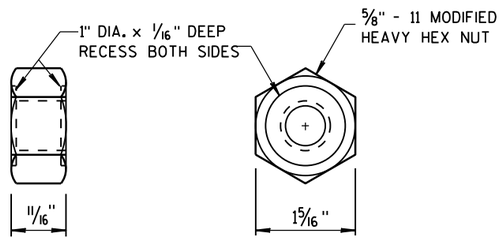


POST BOLT TABLE

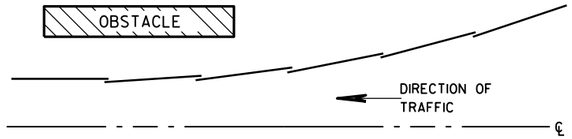
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

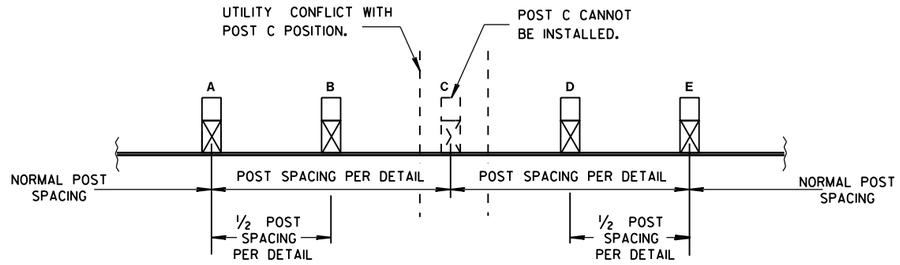


POST BOLT AND RECESS NUT

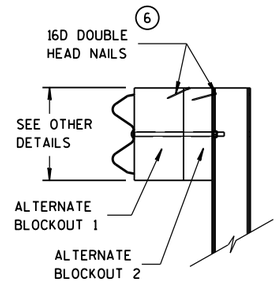


PLAN VIEW

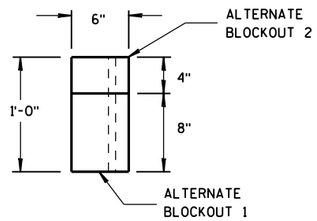
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

6
S.D.D. 14 B 42-3c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, 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) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

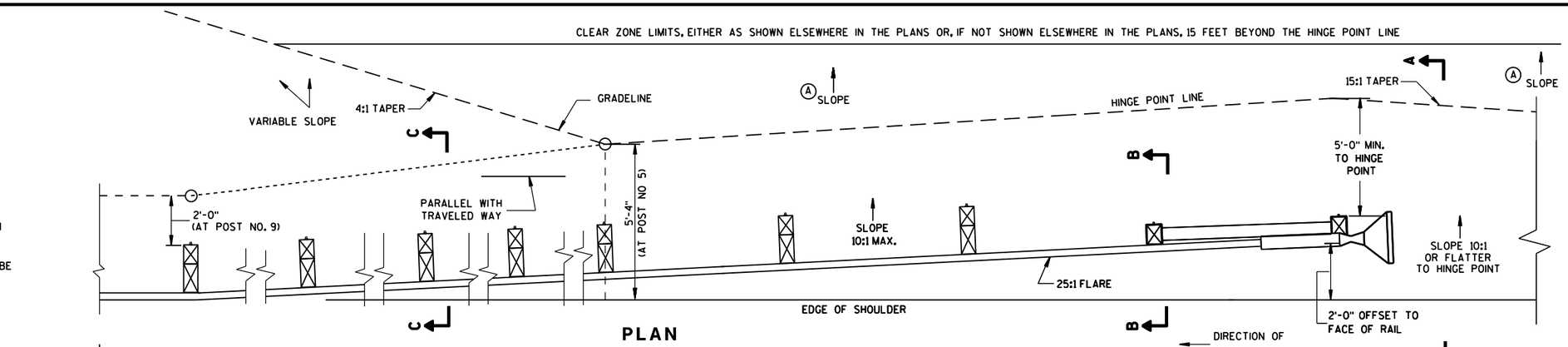
SEE SDD 14B42 FOR MORE INFORMATION.

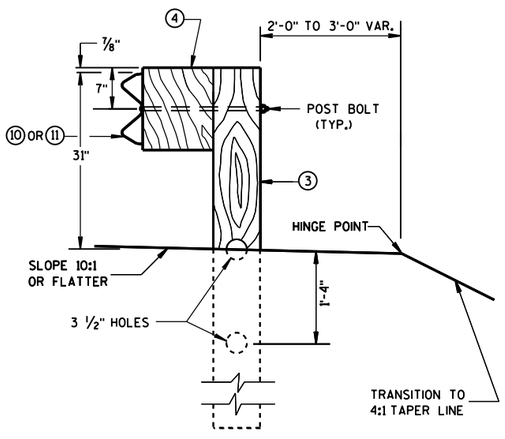
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

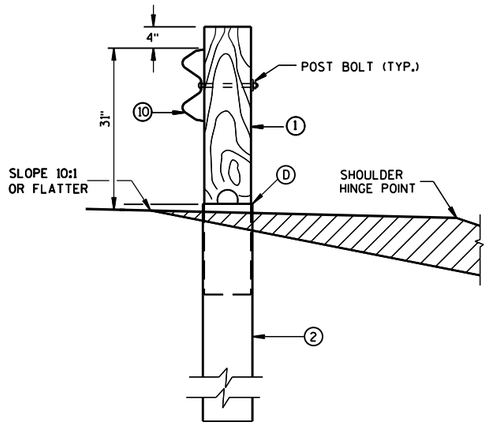
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

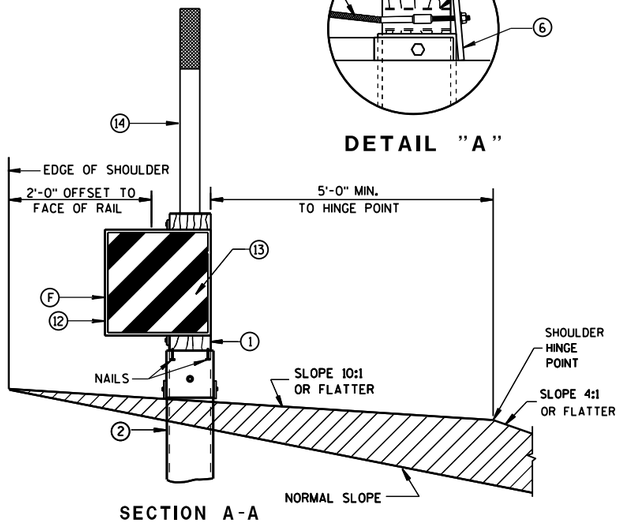




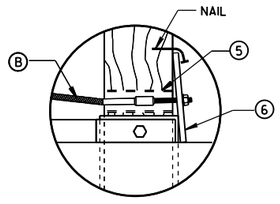
SECTION C-C
TYPICAL AT POST NOS. 3-9



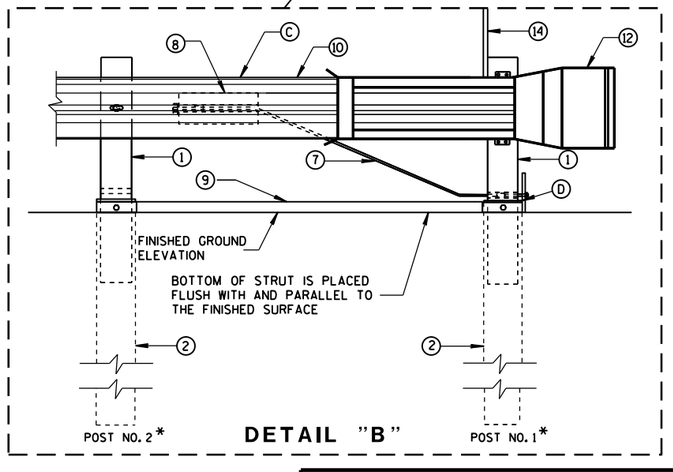
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



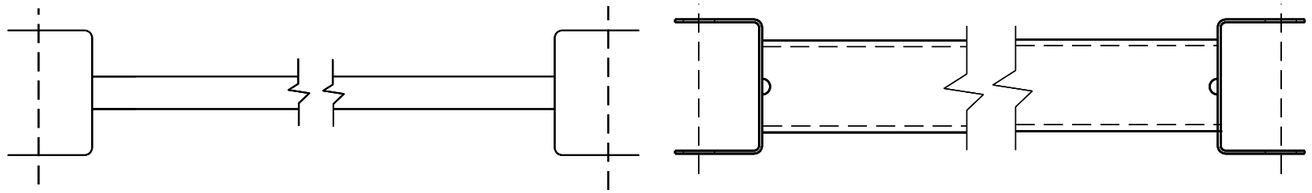
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

S.D.D. 14 B 44-2a

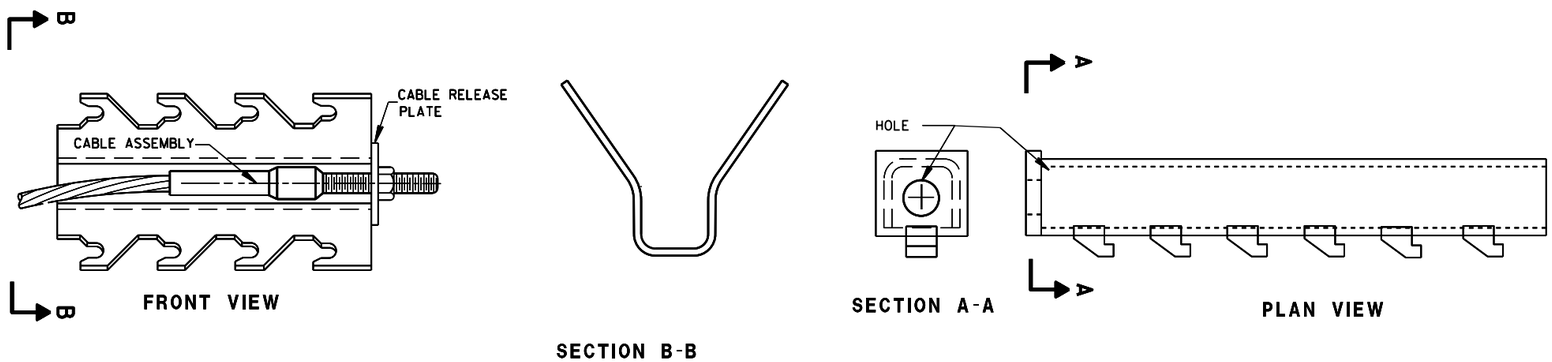
S.D.D. 14 B 44-2a



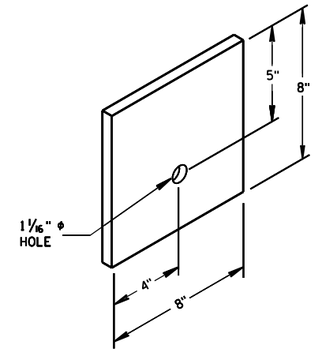
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



GENERIC ANCHOR CABLE BOX (8) (H)



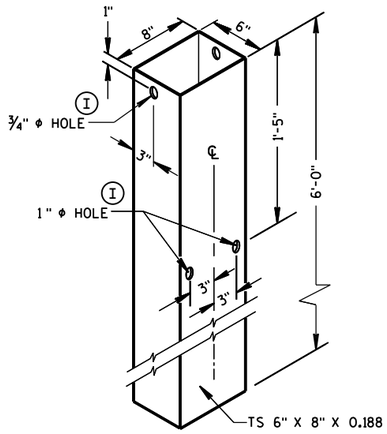
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

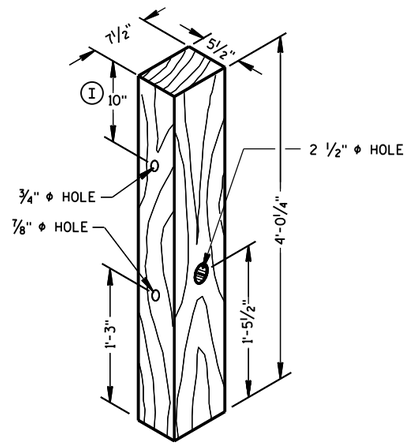
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 44-2b

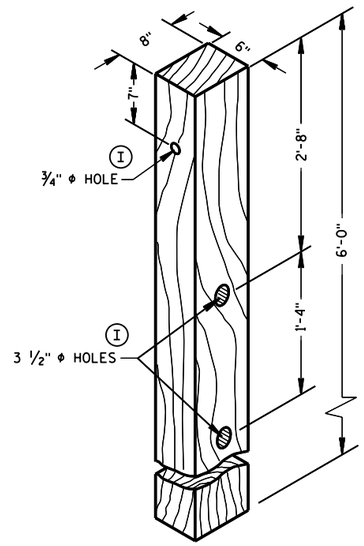


FOUNDATION TUBE (2)



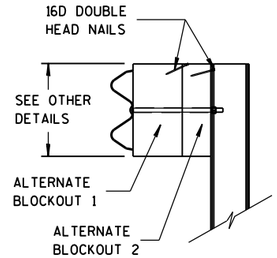
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

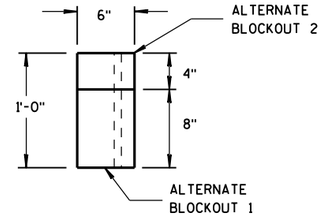


POSTS NUMBER 3-9

WOOD CRT POST (3)

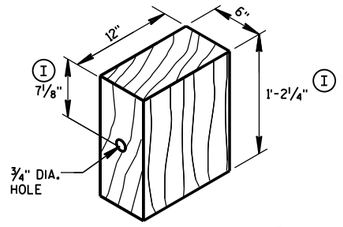


SIDE VIEW



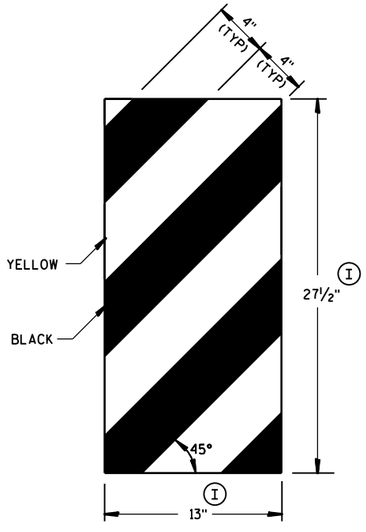
TOP VIEW

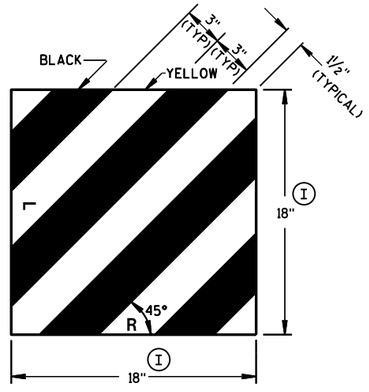
ALTERNATE WOOD BLOCKOUT DETAIL



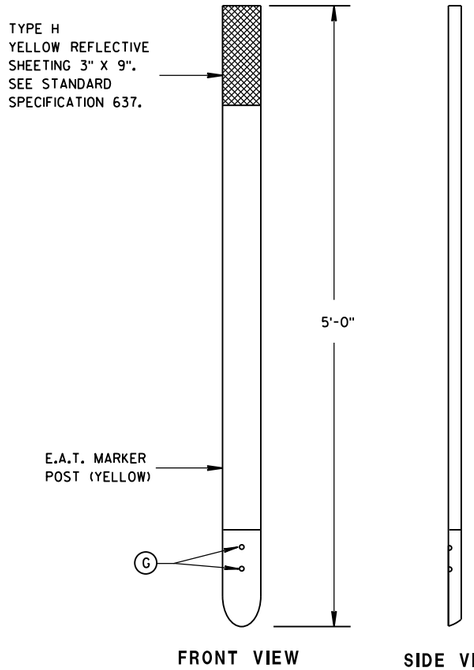
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





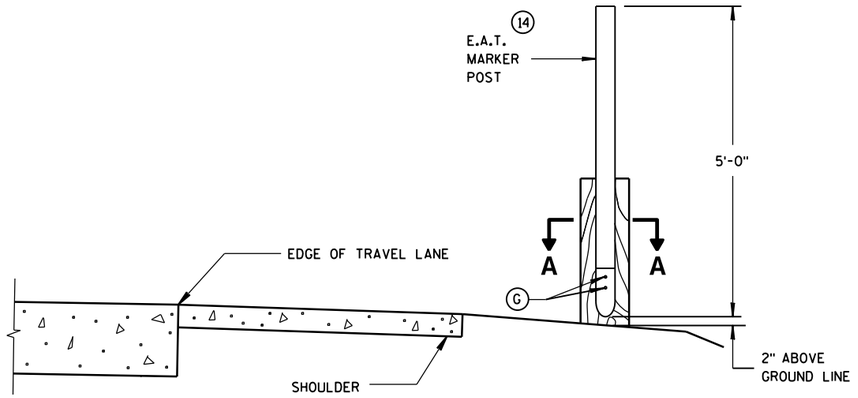
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

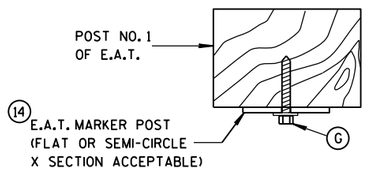
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

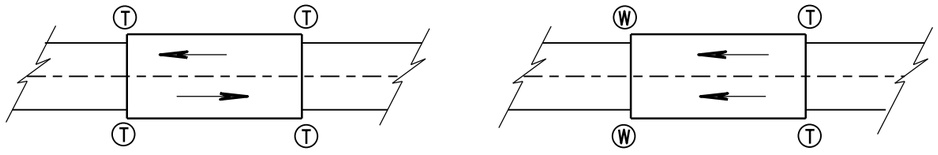
APPROVED
June 2014 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 14 B 44-2c

6

S.D.D. 14 B 44-2c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

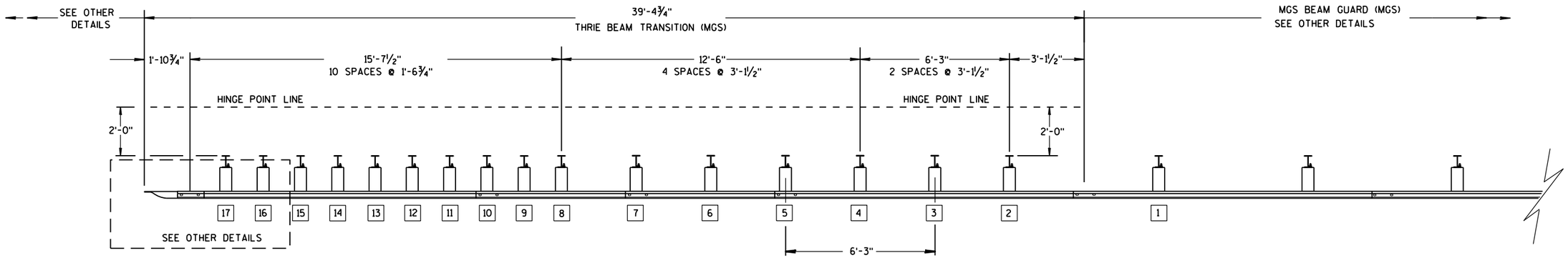
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

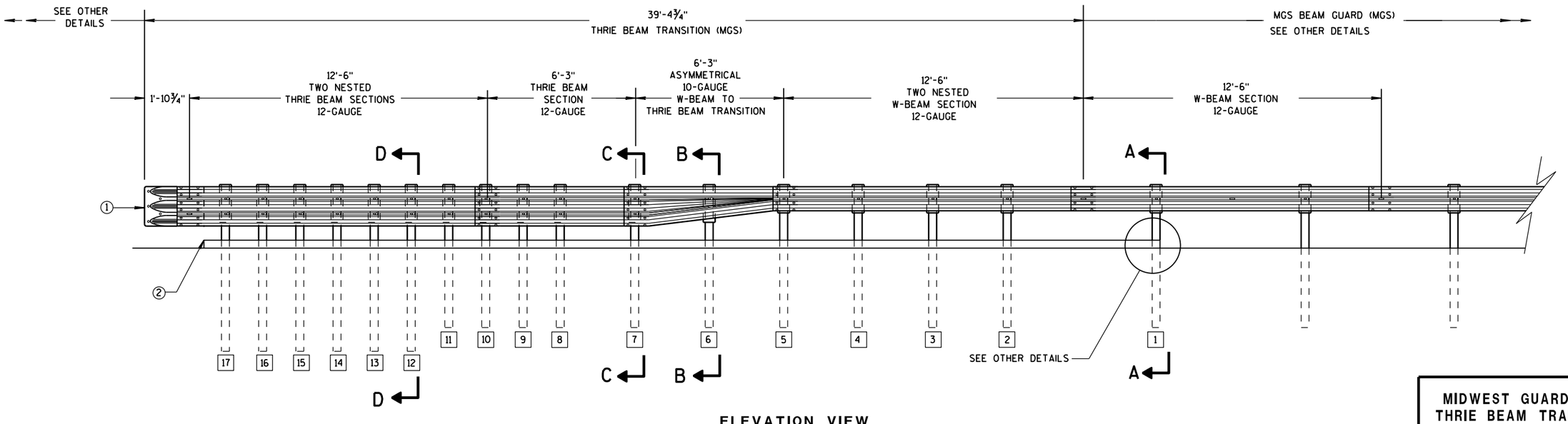
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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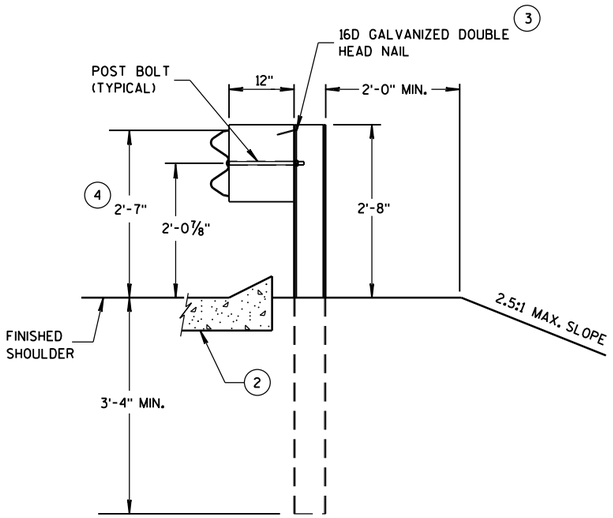
S.D.D. 14 B 45-4a

GENERAL NOTES

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

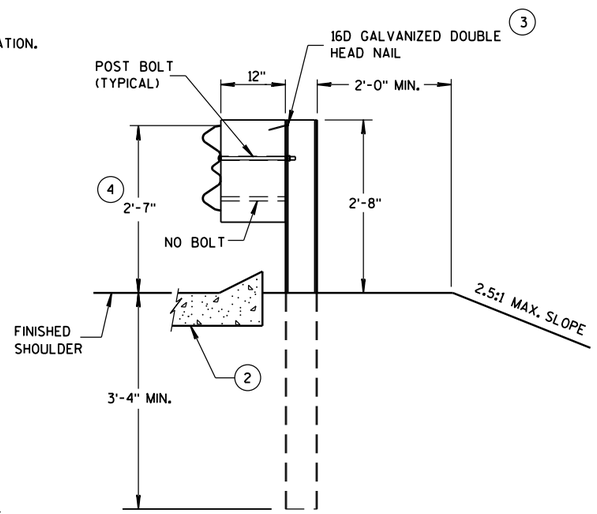
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



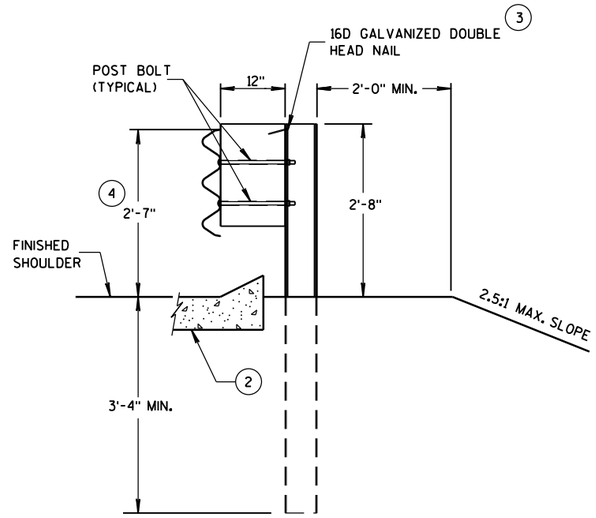
SECTION A-A

POSTS 1-5



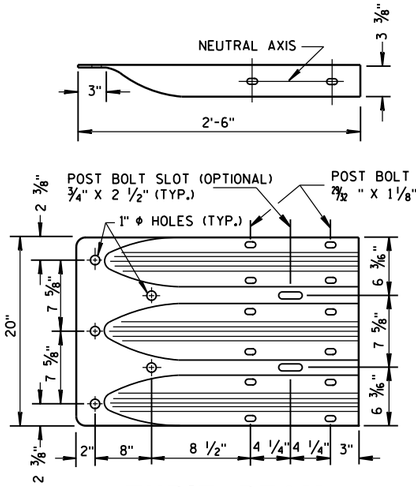
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

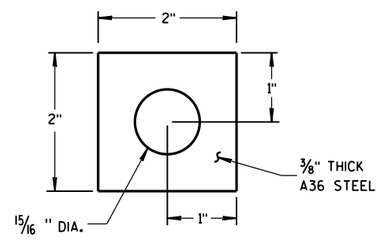
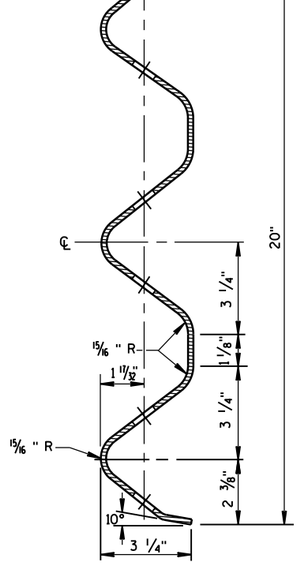
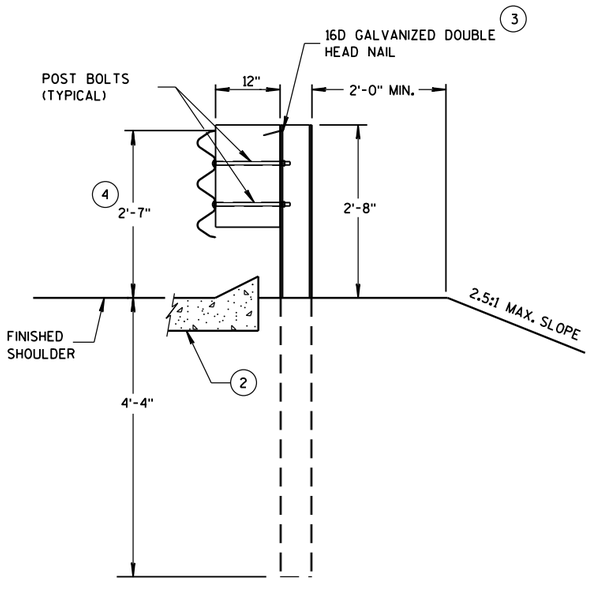


PLATE WASHER DETAIL

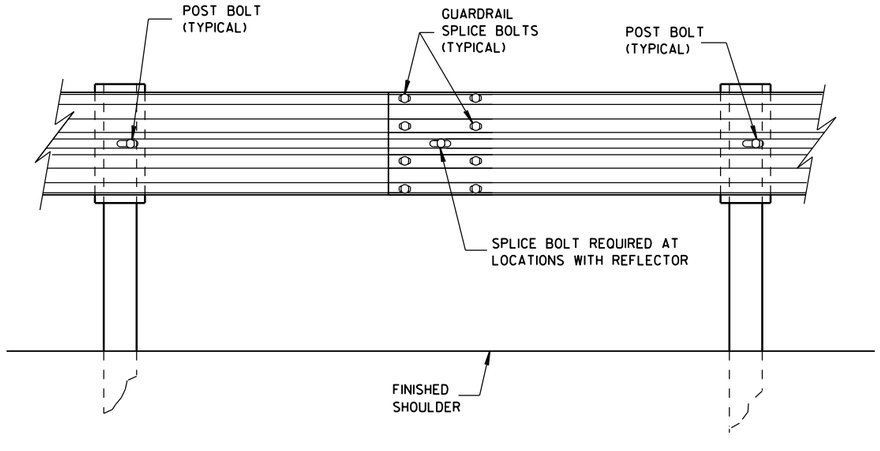


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



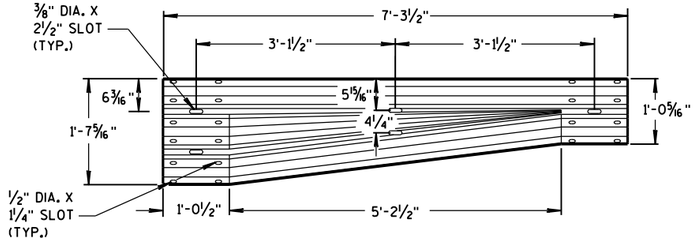
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

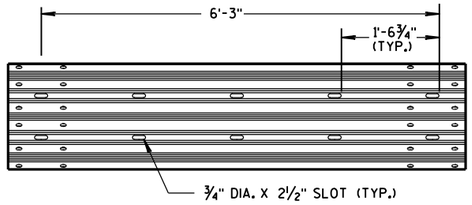
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

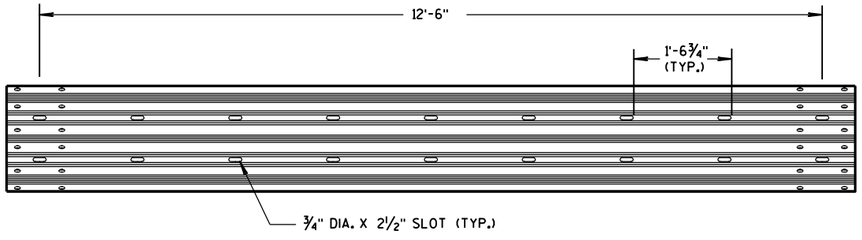
S.D.D. 14 B 45-4b



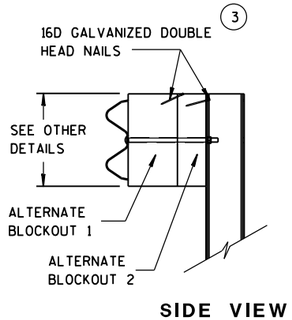
W-BEAM TO THRIE BEAM TRANSITION SECTION



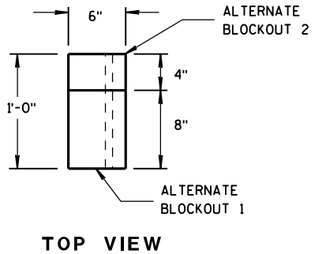
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

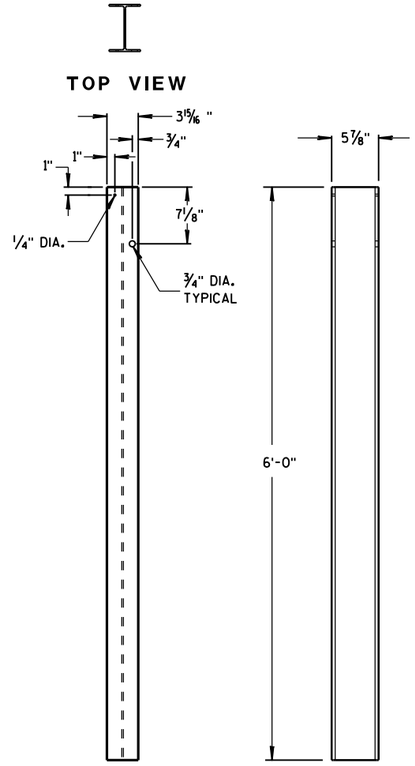


SIDE VIEW



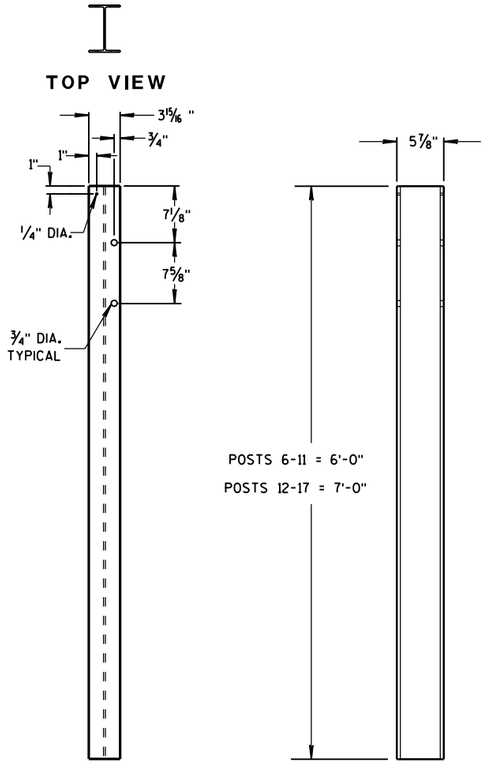
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



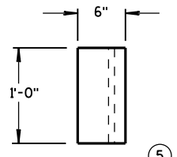
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

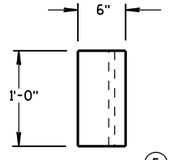


FRONT VIEW SIDE VIEW

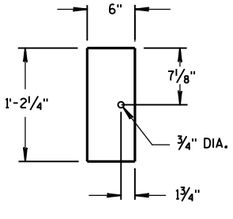
STEEL POSTS 6-17



TOP VIEW (5)

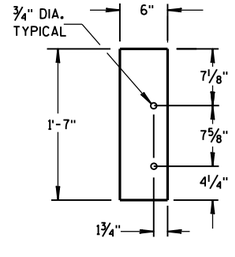


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

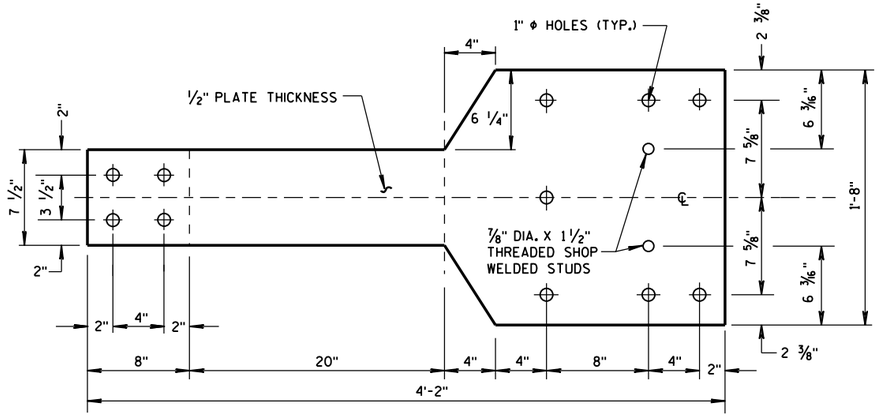
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

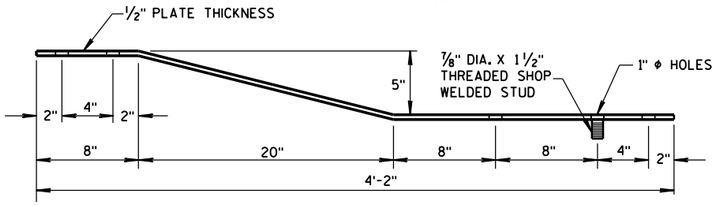
S.D.D. 14 B 45-4c

GENERAL NOTES

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

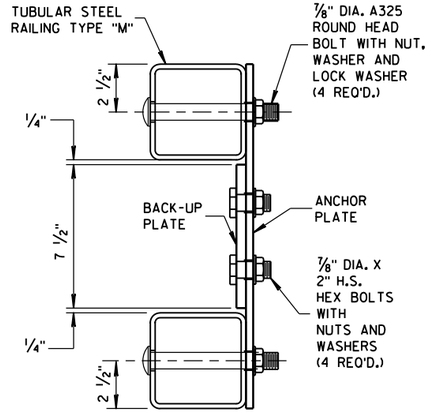


FRONT VIEW

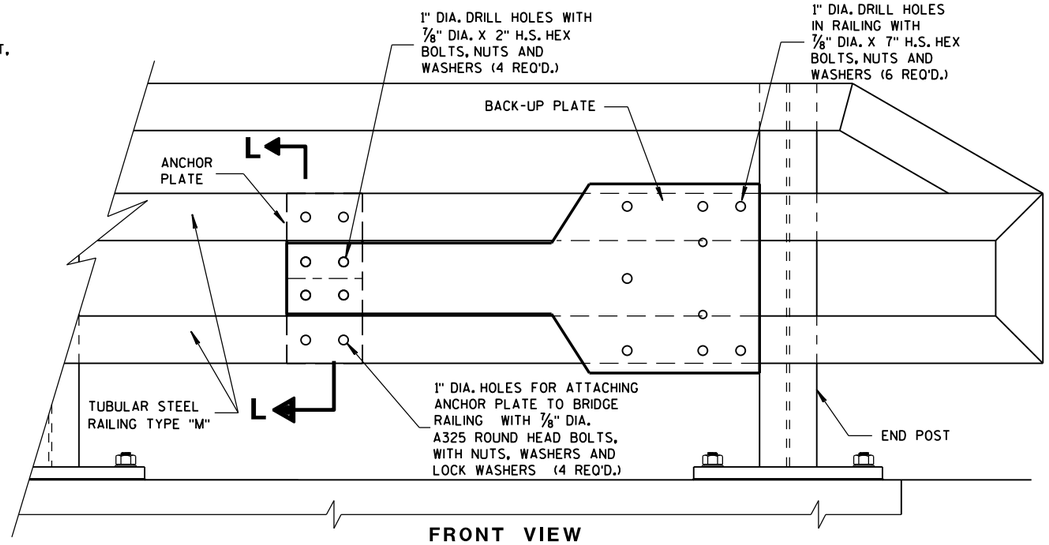


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

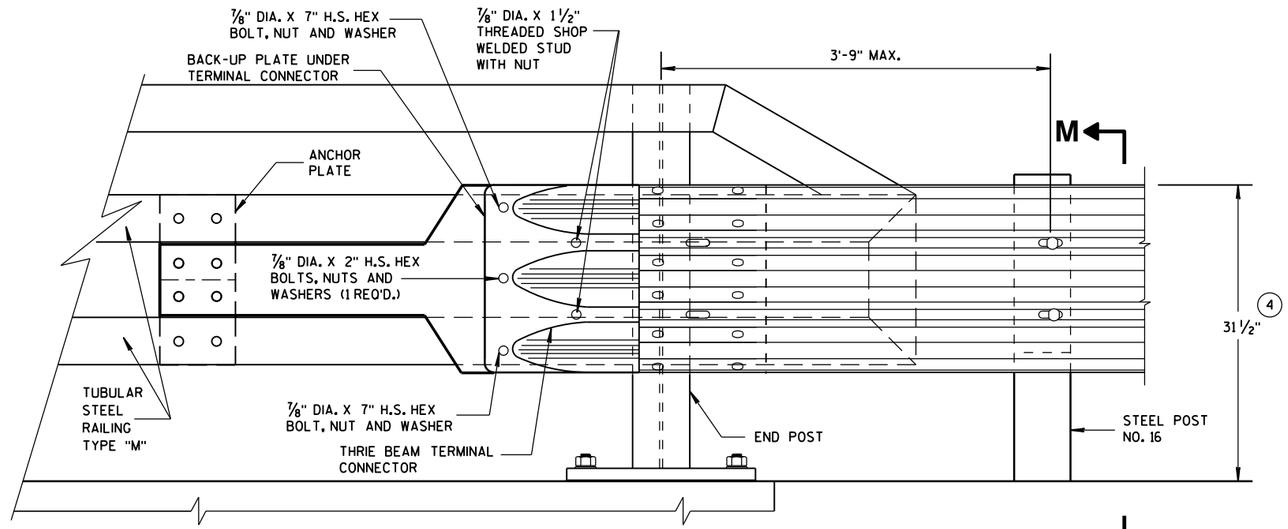


SECTION L-L

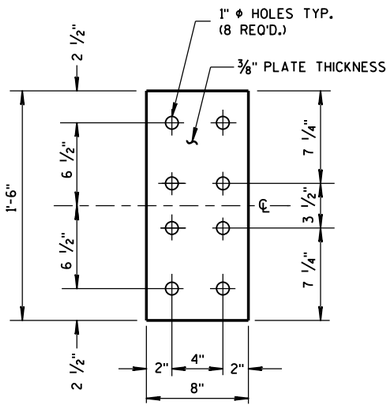


FRONT VIEW

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

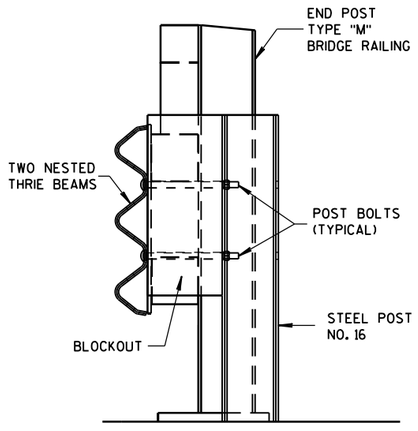


FRONT VIEW

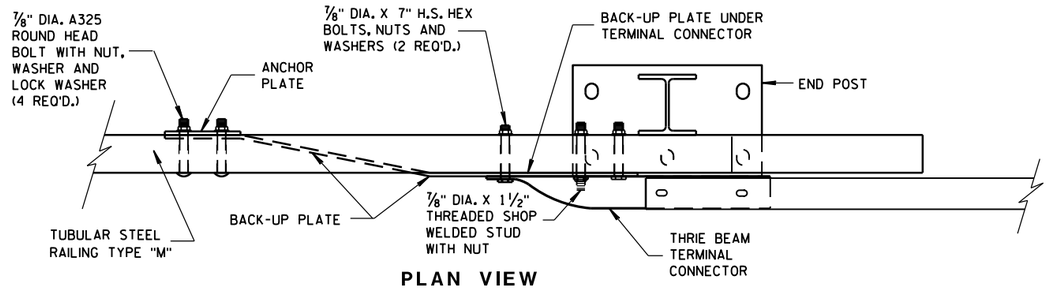


FRONT VIEW

ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

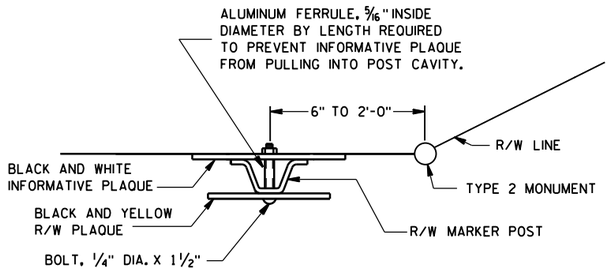
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
June, 2015	/S/ Jerry H. Zogg
DATE	ROADWAY STANDARDS ENGINEER
FHWA	

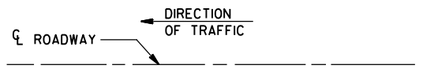
6

S.D.D. 14 B 45-4h

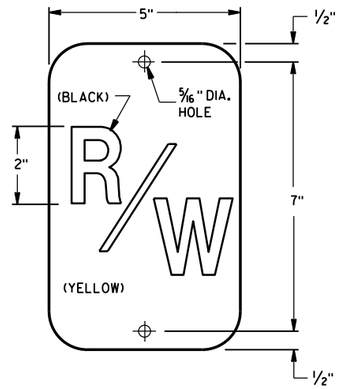
6

S.D.D. 14 B 45-4h



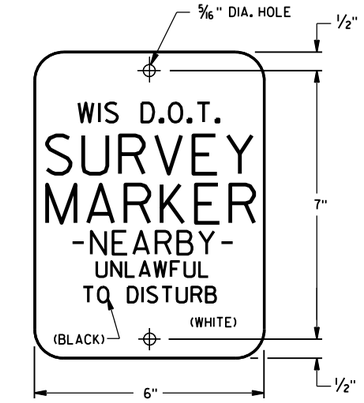


PLAN VIEW



R/W PLAQUE

THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



INFORMATIVE PLAQUE

GENERAL NOTES

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

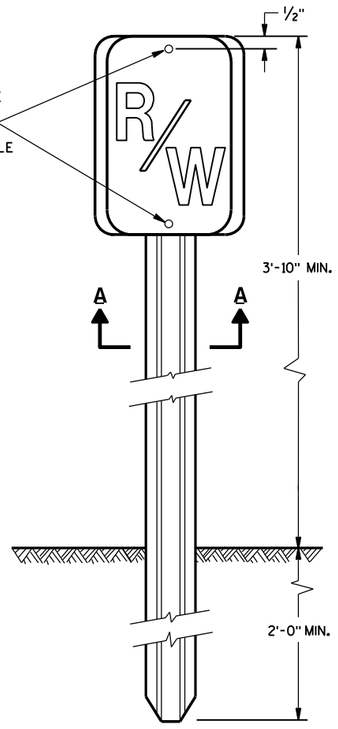
A STEEL MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE "R/W" PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. R/W AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION.

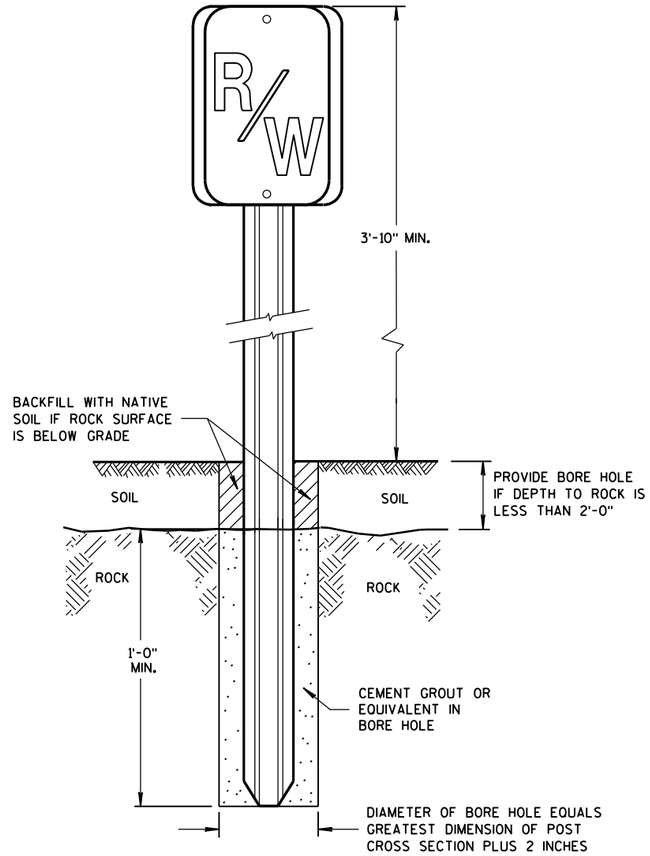
STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

(1) IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3'10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR.

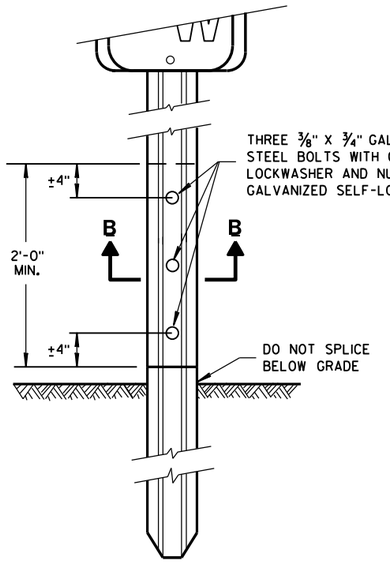
FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT. DEPENDING ON THE STABILITY OF THE ROCK.



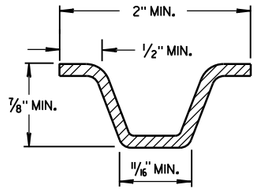
FRONT VIEW
STEEL MARKER POST



FRONT VIEW
ROCK INSTALLATION (1)

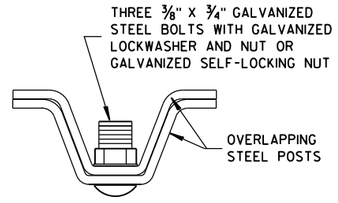


FRONT VIEW
SPLICE DETAIL



MIN. WEIGHT 1.12 LB./FT.

SECTION A-A



SECTION B-B

MARKER POST FOR RIGHT-OF-WAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

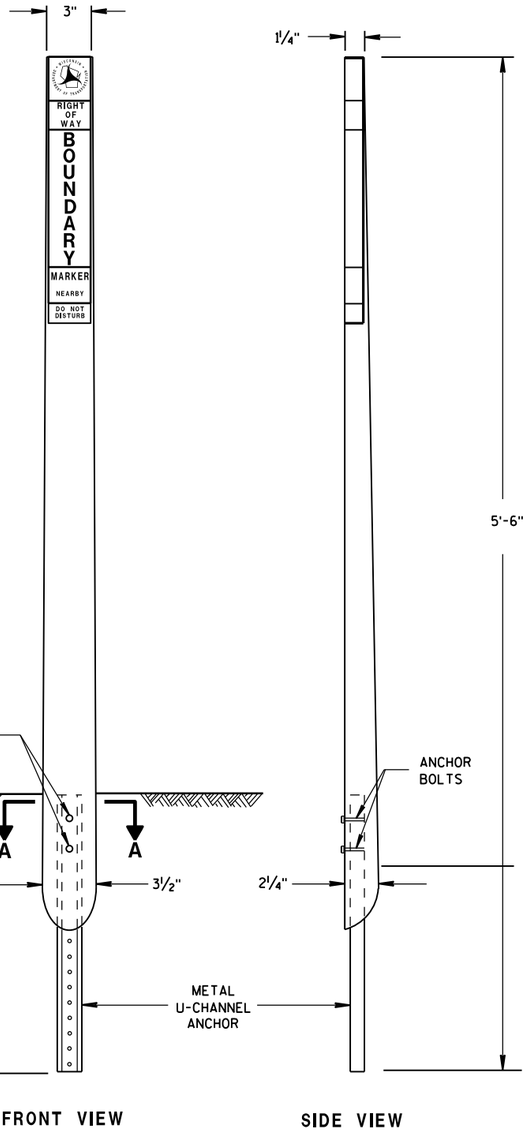
APPROVED
June, 2015 — DATE
/S/ Ray Kumapayi — CHIEF SURVEYING AND MA[illegible]INEER
FHWA

6

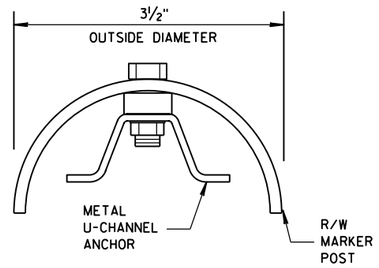
S.D.D. 15 A 1-12a

6

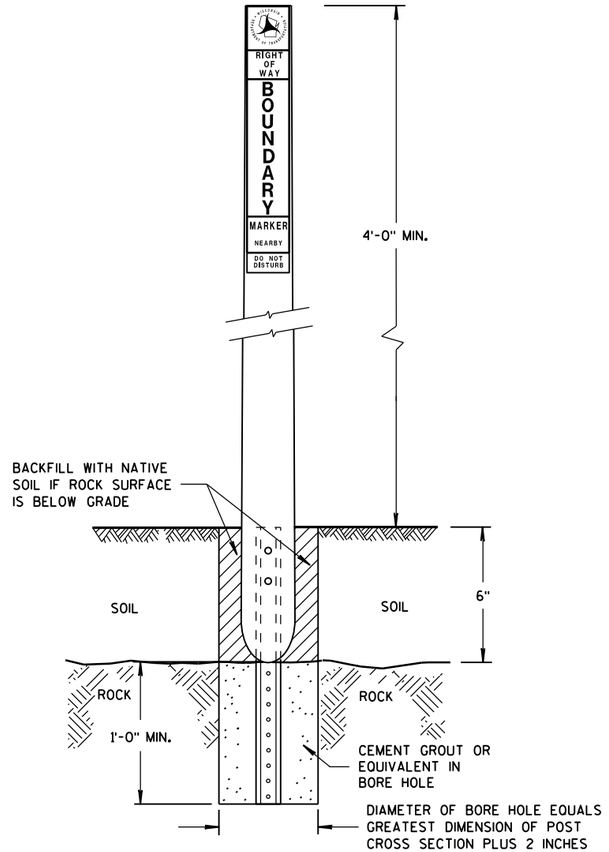
S.D.D. 15 A 1-12a



FLEXIBLE MARKER POST FOR RIGHT-OF-WAY ①

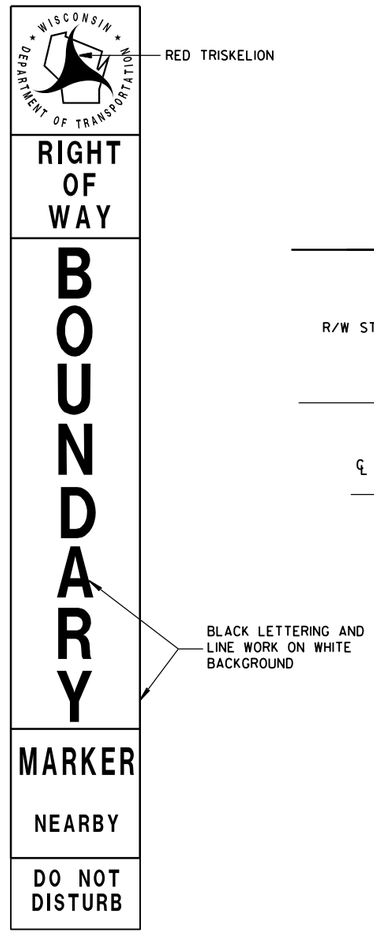


SECTION A-A



FRONT VIEW

ROCK INSTALLATION ①②



RIGHT-OF-WAY STICKER

THE RIGHT-OF-WAY STICKER WILL BE ATTACHED TO THE RIGHT-OF-WAY POST PRIOR TO DELIVERY.

GENERAL NOTES

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

A FLEXIBLE MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

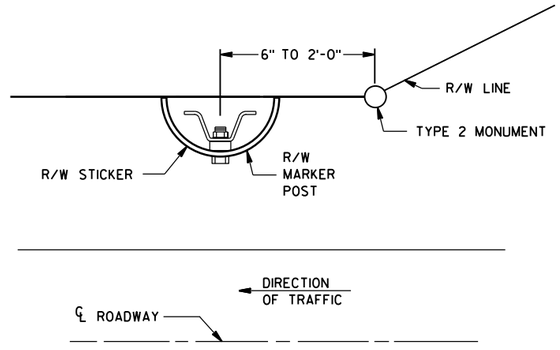
THE RIGHT-OF-WAY STICKER SHALL FACE THE ROADWAY.

INSTALL PER DEPTH OF MANUFACTURER'S RECOMMENDATIONS BUT NOT LESS THAN 18 INCHES BELOW GRADE FROM THE BOTTOM OF THE METAL U-CHANNEL ANCHOR.

① FLEXIBLE MARKER POSTS SHALL BE INCLUDED IN THE APPROVED PRODUCTS LIST FOR MARKER POSTS AND SHALL BE FEDERAL YELLOW IN COLOR.

② IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 4'-0" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR.

FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



PLAN VIEW

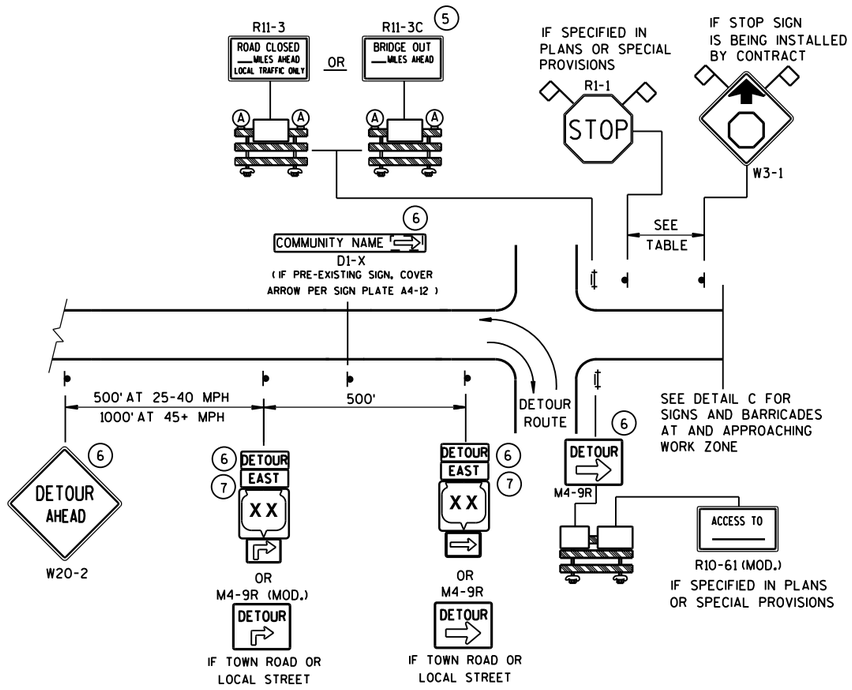
FLEXIBLE MARKER POST FOR RIGHT-OF-WAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — /S/ Ray Kumapayi
DATE — CHIEF SURVEYING AND MAPPING ENGINEER
FHWA

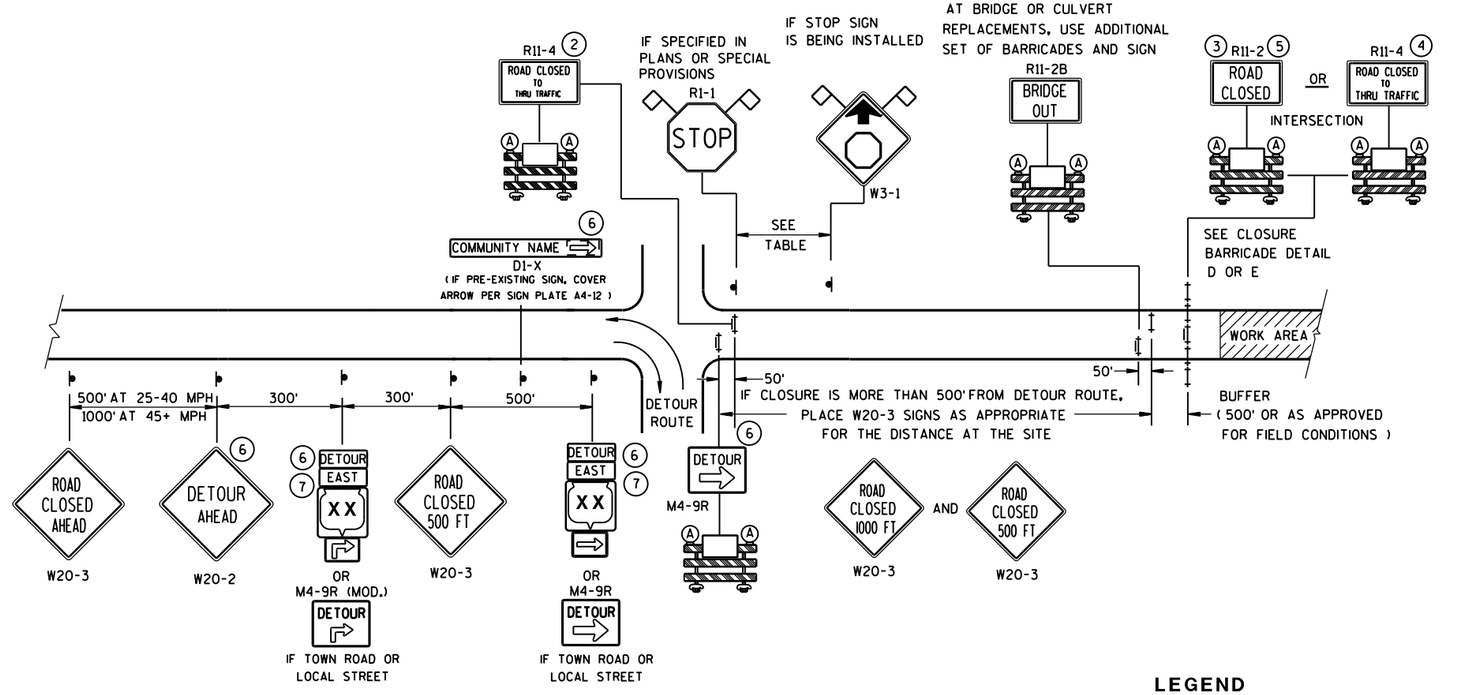
6

S.D.D. 15 A 1-12b



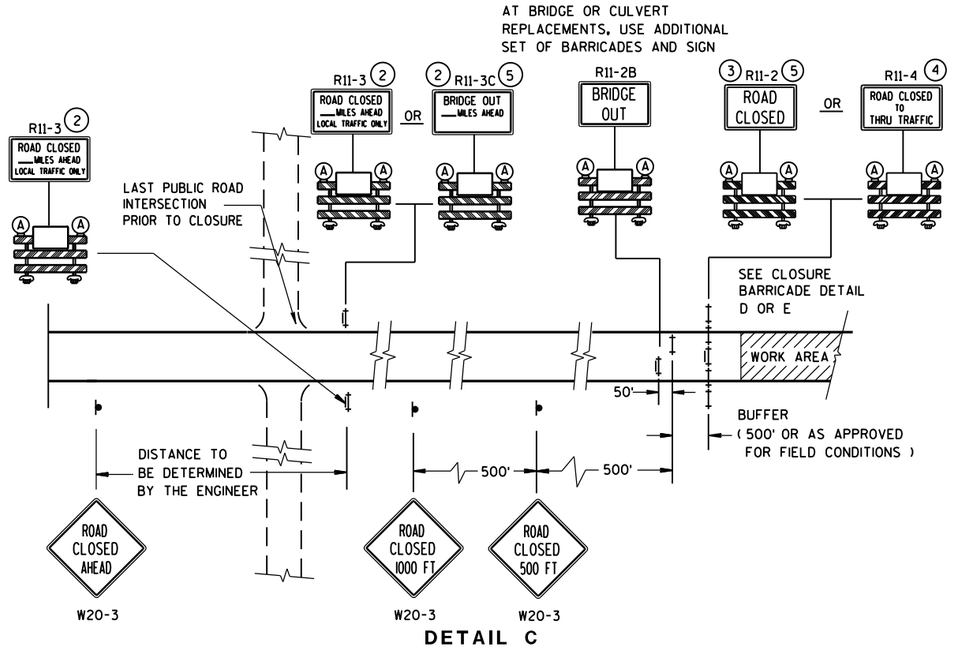
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-SHEET "**b**"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

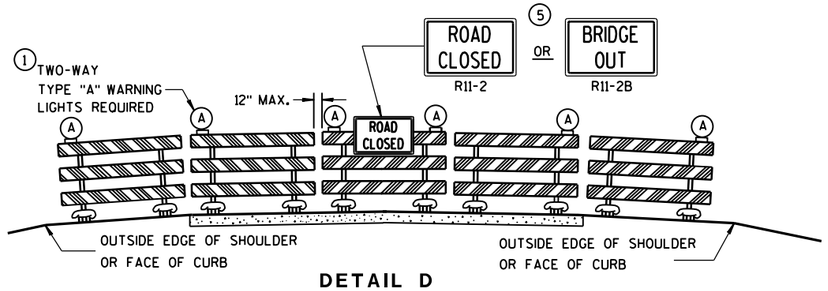
8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

6

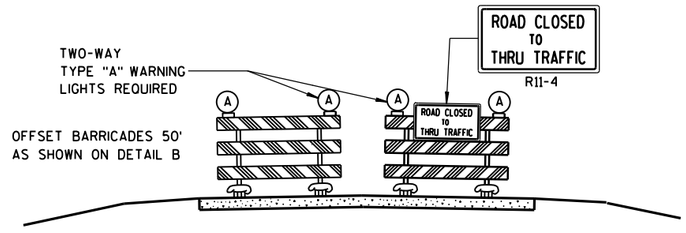
S.D.D. 15 C 2-5a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

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.

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

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 C 2-5b

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

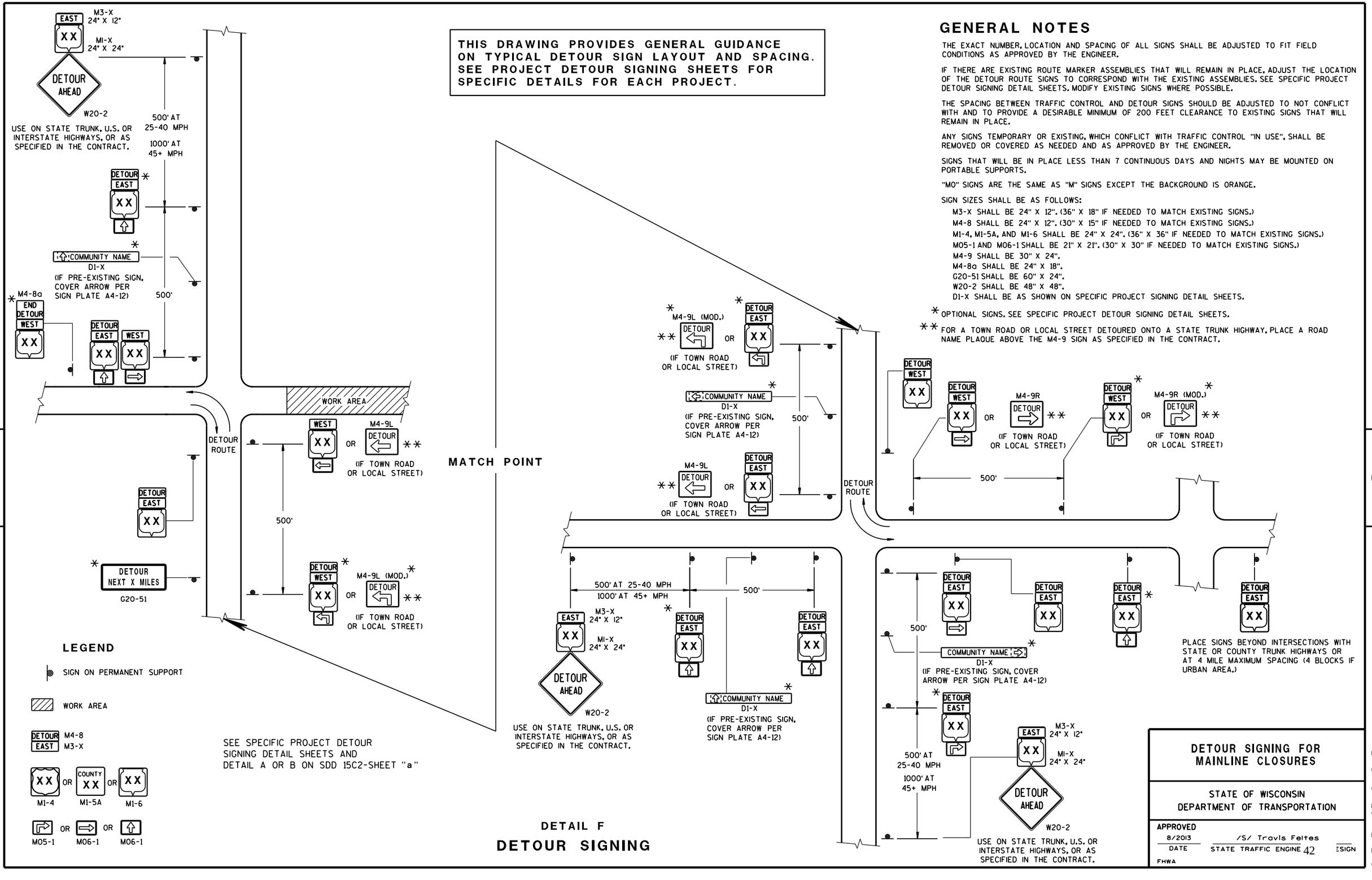
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- MO5-1 AND MO6-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



DETAIL F

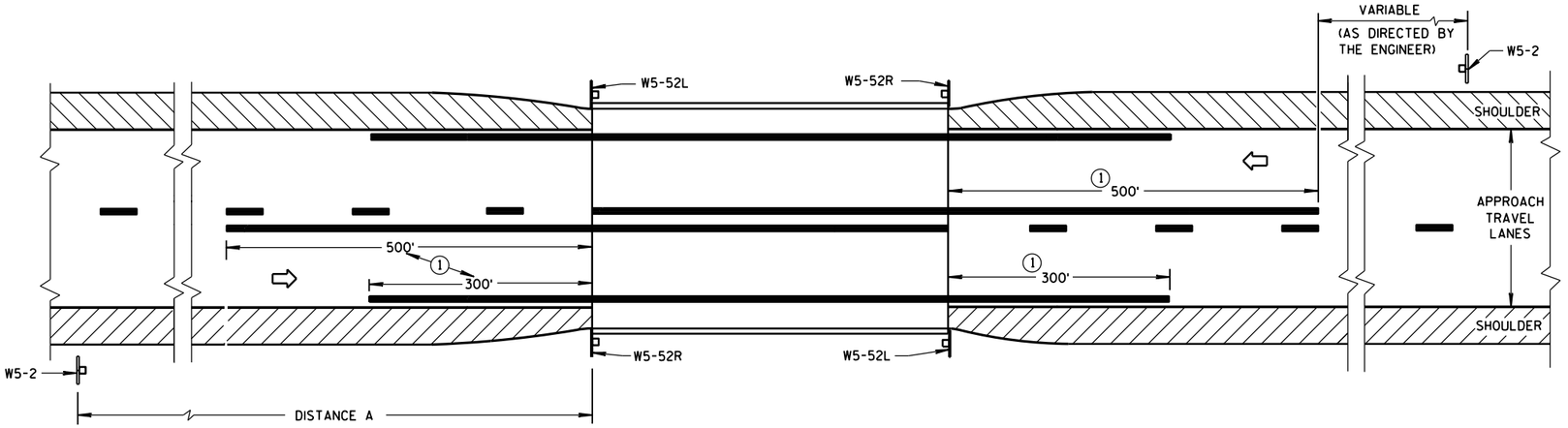
DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

S.D.D. 15 C 2-5c



GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

(1) MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

(2) FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.

(3) LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.

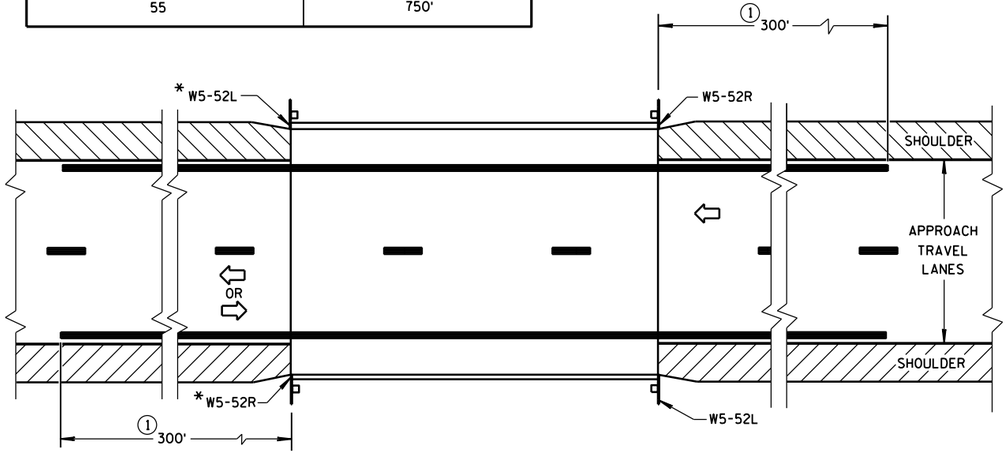
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

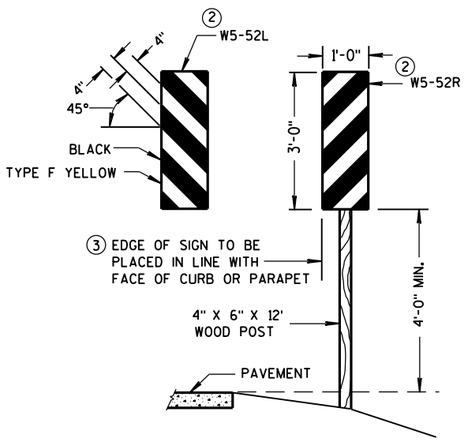


*OMIT ON ONE-WAY TRAVELLED WAYS

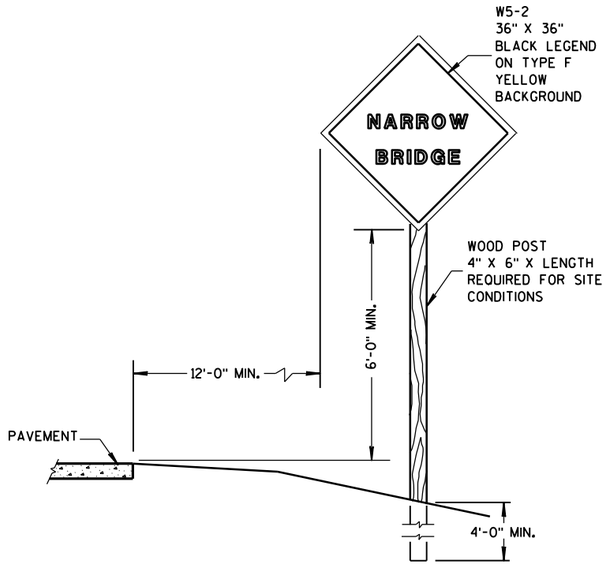
SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

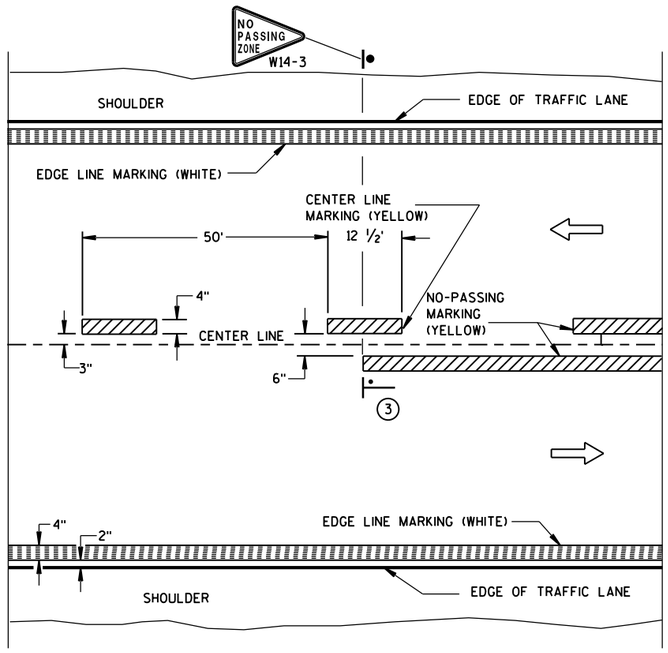
APPROVED

3-2014 DATE — /S/ Travis Feltes STATE TRAFFIC ENGINEER — SIGN

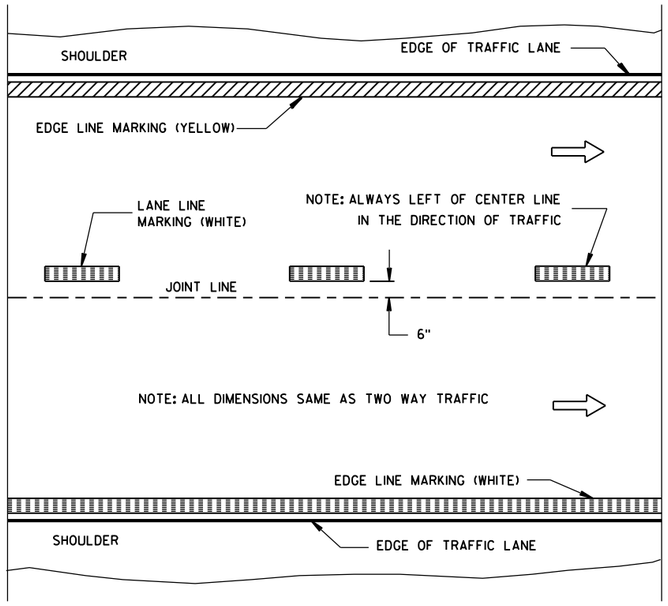
FHWA

6

S.D.D. 15 C 6-7

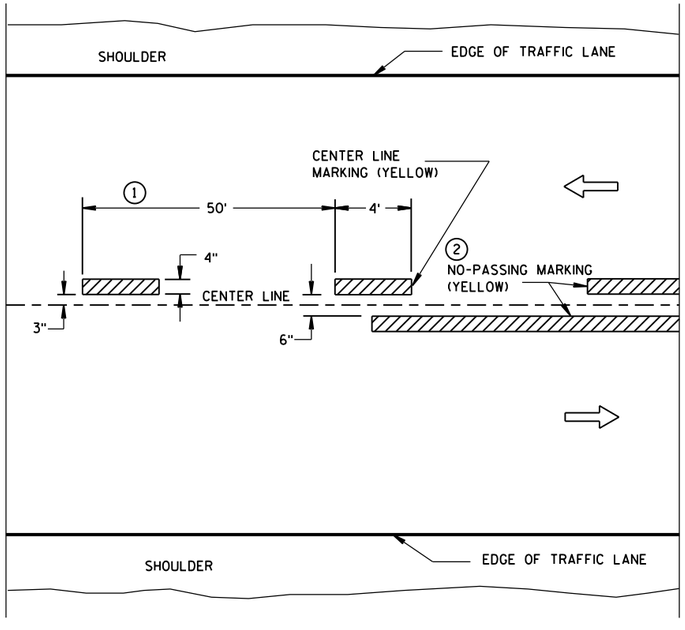


TWO WAY TRAFFIC

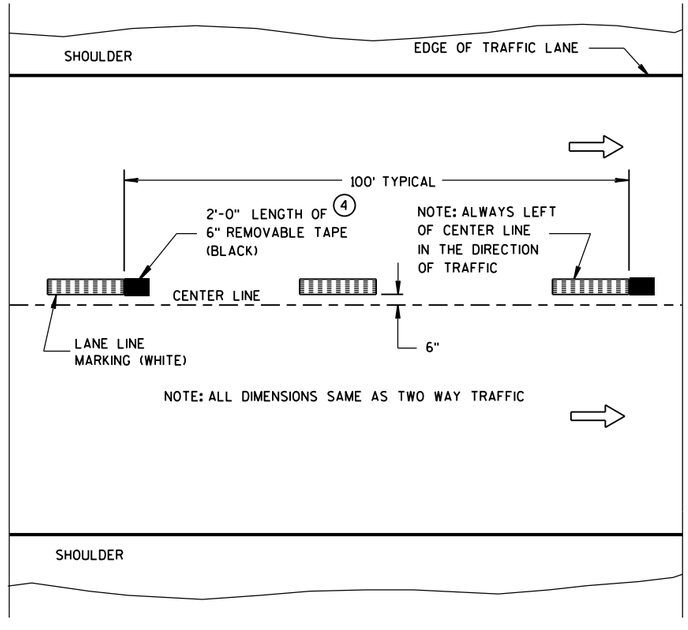


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

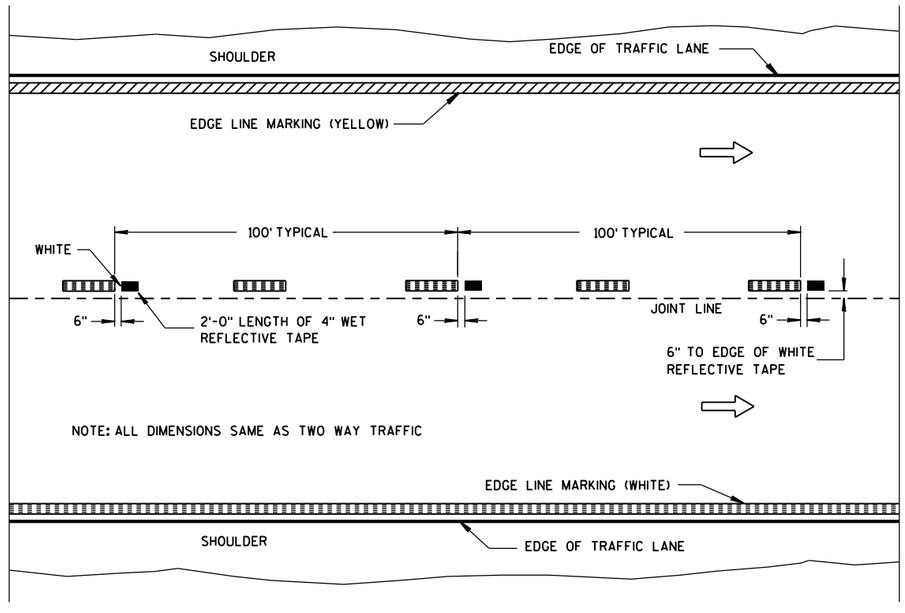
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
3. NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
4. CONCRETE ONLY.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013 DATE

/S/ Travis Feltes STATE TRAFFIC E

FHWA

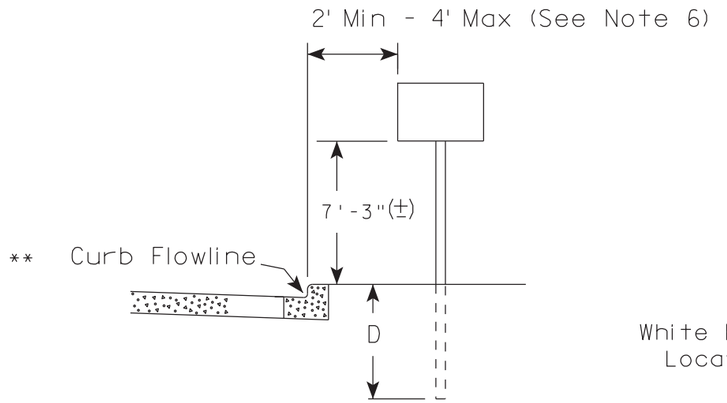
6

S.D.D. 15 C 8-16a

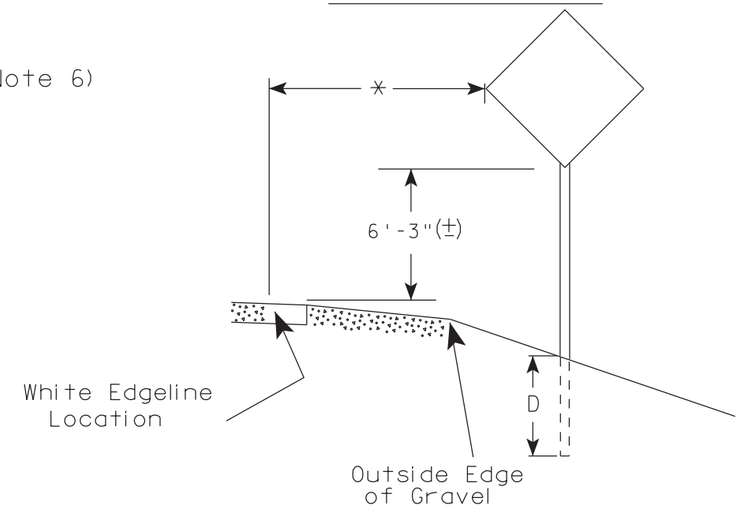
6

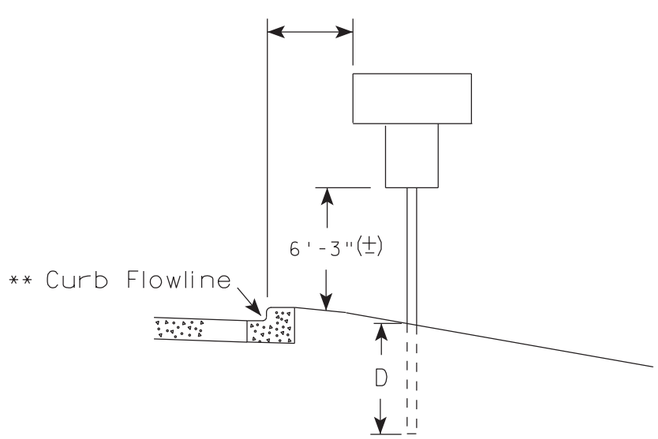
S.D.D. 15 C 8-16a

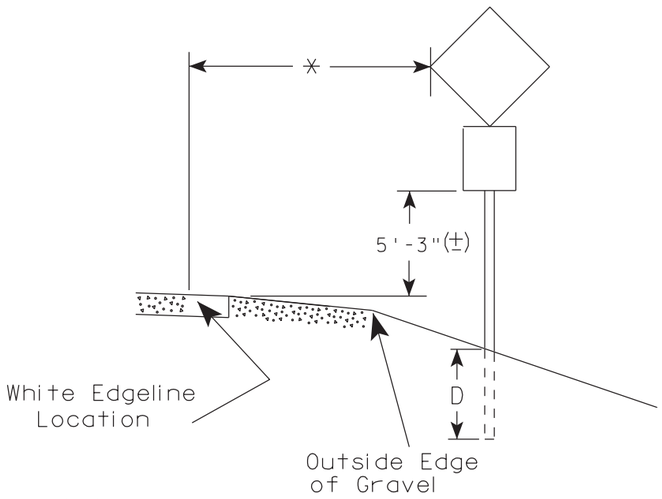
URBAN AREA



RURAL AREA (See Note 2)







GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, 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 (A2-1S) 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 signs shall be mounted at a height of 5'-3" (±) or as directd 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), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) 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.

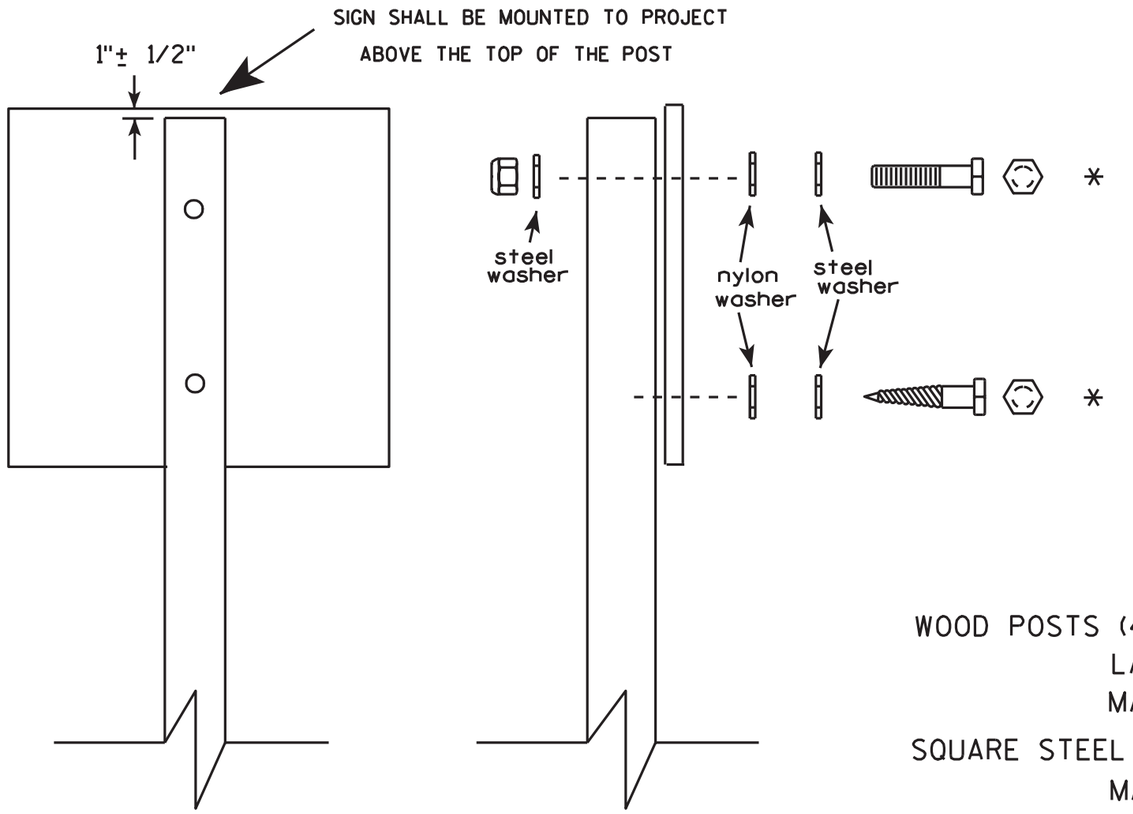
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-3.19

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



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

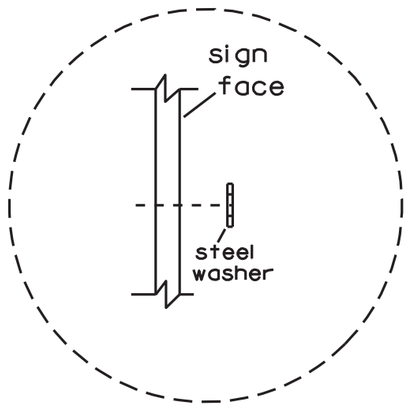
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

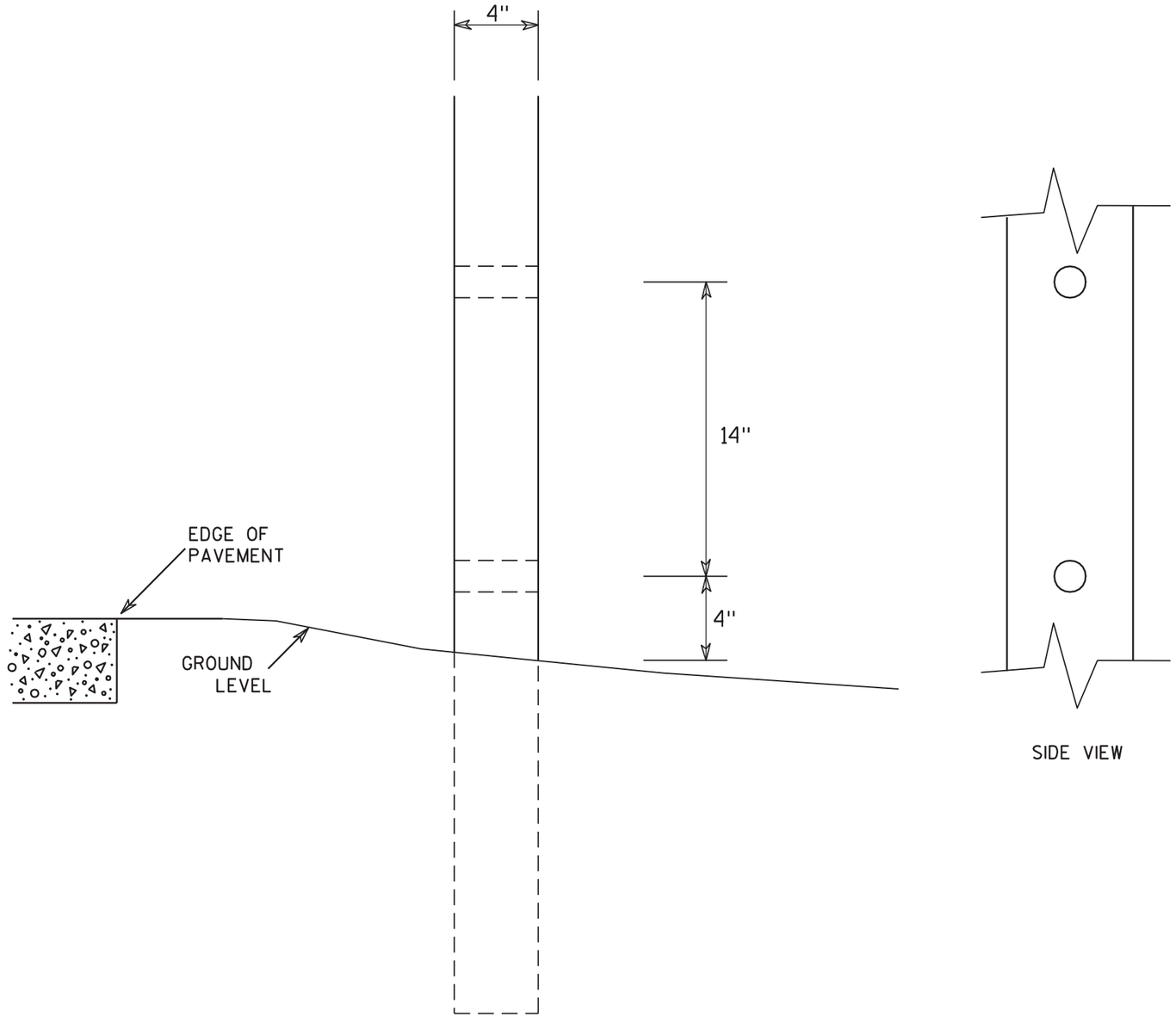
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

PROJECT NO:

SHEET NO: 46 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\A48.DGN PLOT DATE : 23-MAR-2010 10:15 PLOT BY : ditjph
WISDOT/CADDS SHEET 42



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.

7

7

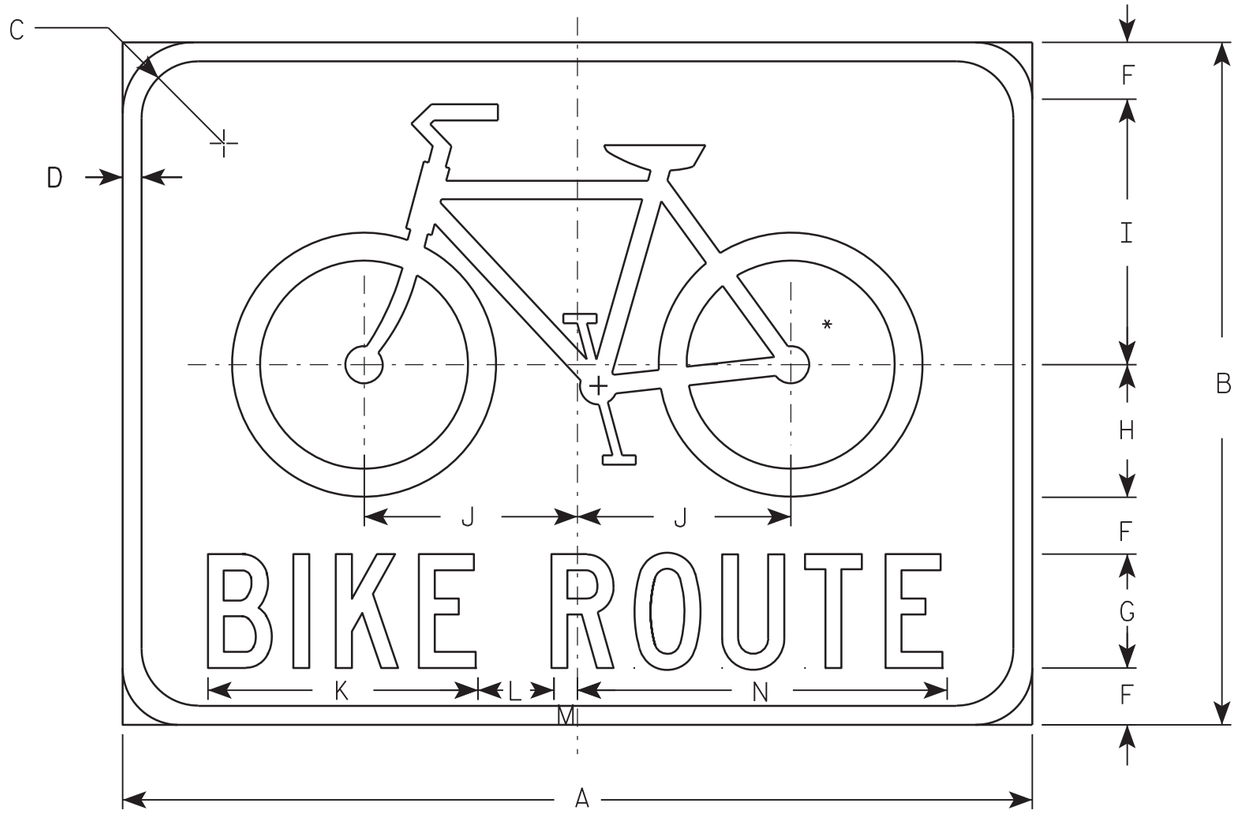
4 X 6 WOOD POST MODIFICATIONS

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: 47	E



D11-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - GREEN
   Message - WHITE
3. Message Series - C
4. 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.

* See W11-1 for symbol design

Metric equivalent for this sign is:

SIZE	
1	
2	600 mm X 450 mm
3	750 mm X 600 mm
4	
5	

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	24	18	1 1/2	1/2		1 1/2	3	3 1/2	7	5 5/8	7 1/8	2	5/8	9 3/4													3.0	0.27
3	30	24	1 1/4	5/8		2	4	4 3/4	9 1/4	7 1/2	9 1/2	2 5/8	7/8	13													5.0	0.45
4																												
5																												

STANDARD SIGN
D11-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/24/04 PLATE NO. D11-1.1

PROJECT NO:

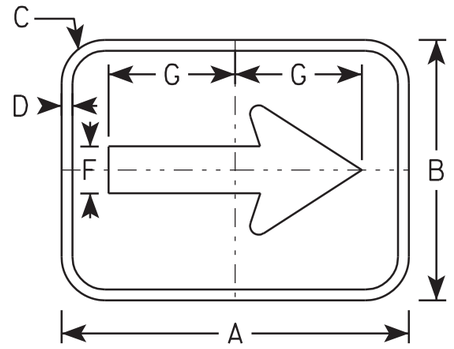
SHEET NO: 48 E

FILE NAME : C:\Users\Projects\tr_stdplate\D111.DGN PLOT DATE : 17-MAR-2005 10:38 PLOT BY : DOTDZK

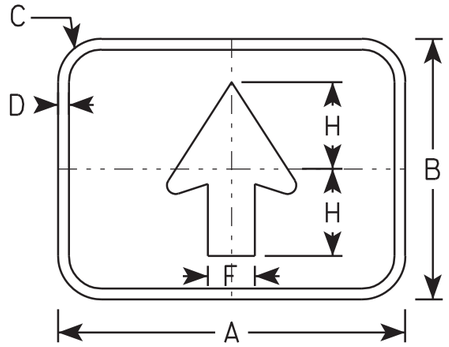
WISDOT/CADDS SHEET 42

7

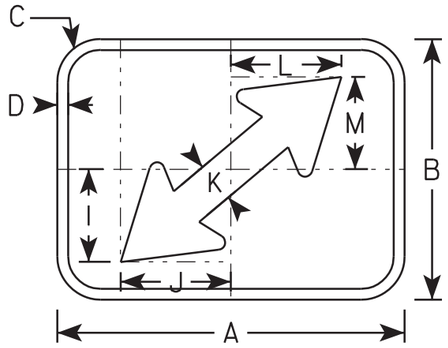
7



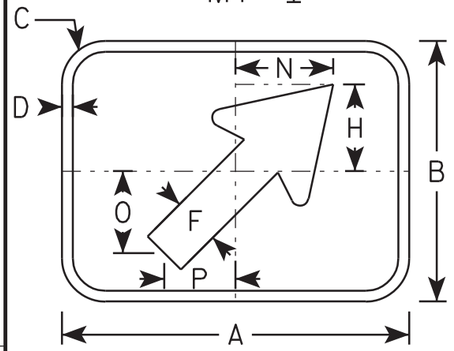
M7-1



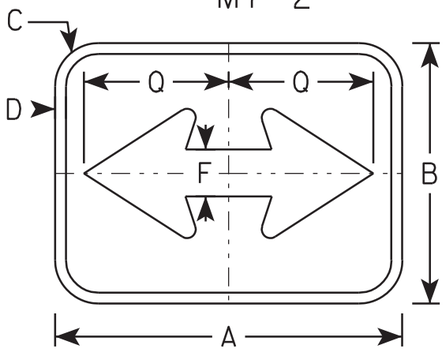
M7-2



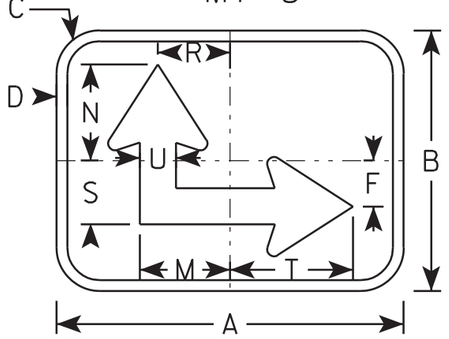
M7-3



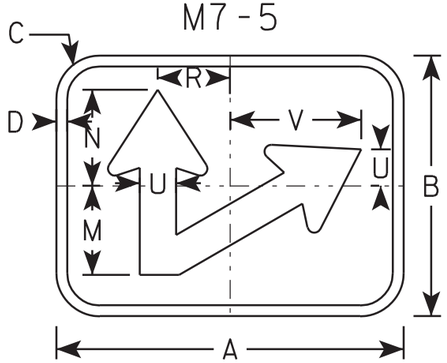
M7-4



M7-5



M7-6



M7-7

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Green
   Message -White
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.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	12	9	1 1/2	3/8		1 5/8	4 3/8	3	3 1/4	3 3/4	1 3/8	3 7/8	3 1/8	3 3/8	2 7/8	2 1/2	5	2 1/2	2 1/4	4 1/4	1 1/4	4 1/2					.75
3																											
4																											
5																											

STANDARD SIGN
M7 SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 05/04/10 PLATE NO. M7-1.1

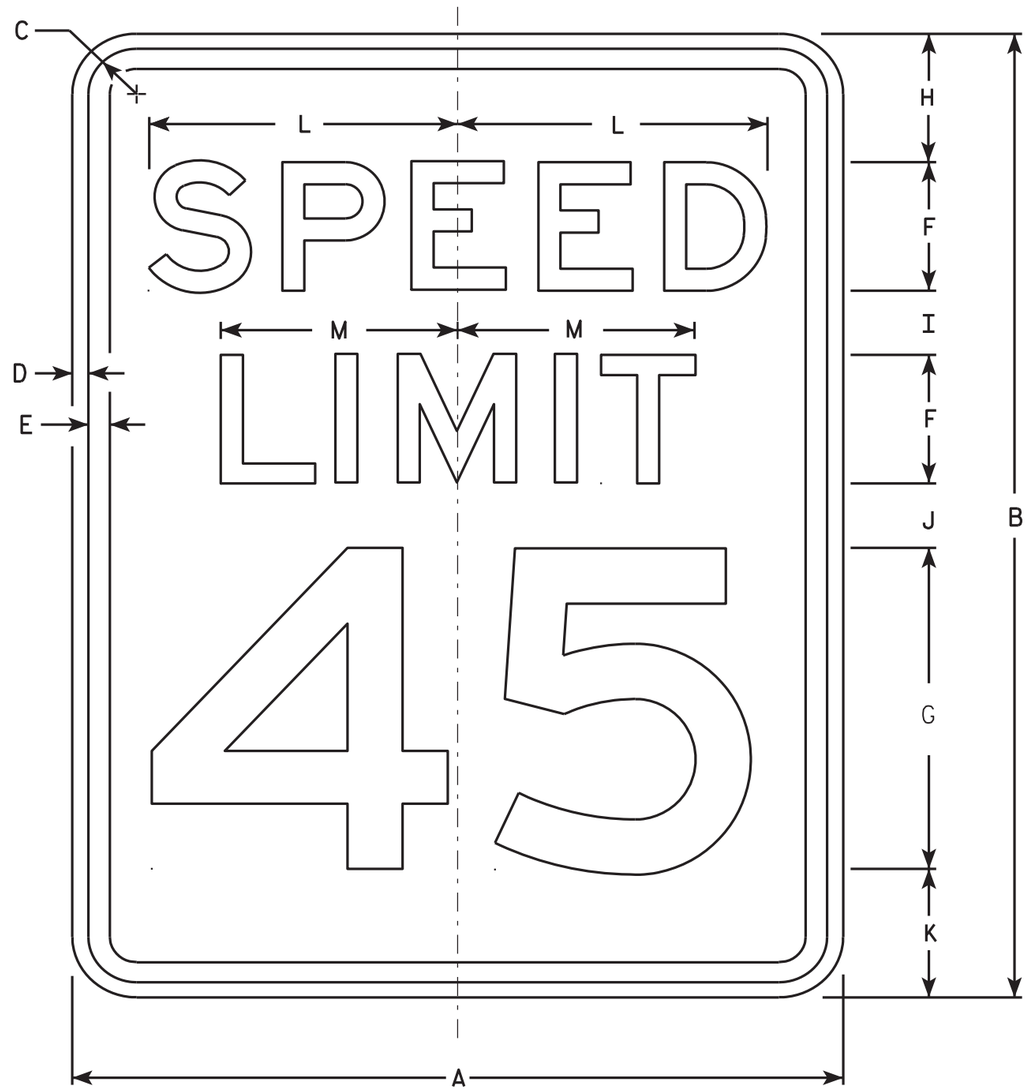
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 49	E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\M71.DGN PLOT DATE : 28-MAY-2010 08:14 PLOT BY : ditjph PLOT NAME : PLOT SCALE : 5.237442:1.000000

WISDOT/CADDS SHEET 42

7

7



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - E
4. 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.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

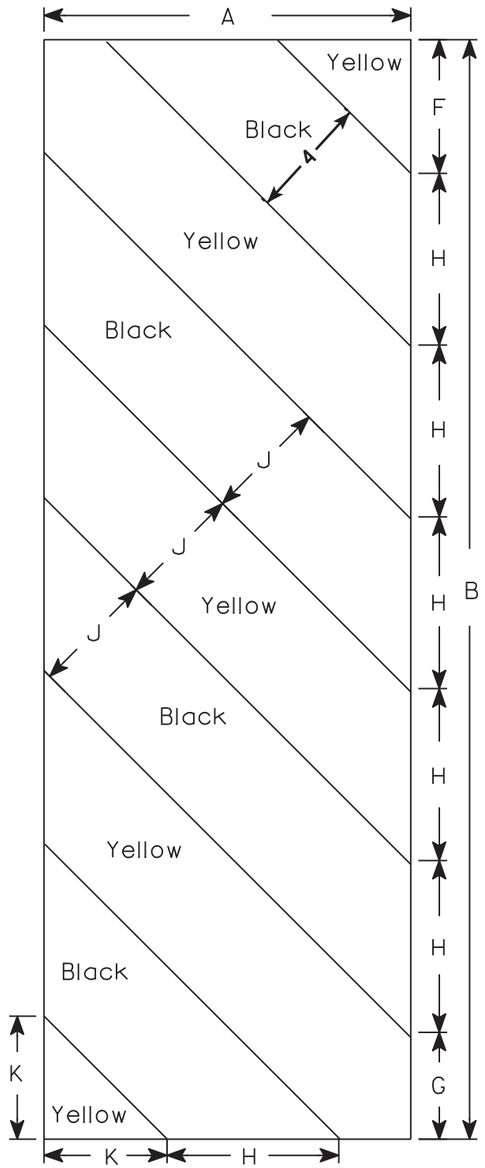
STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

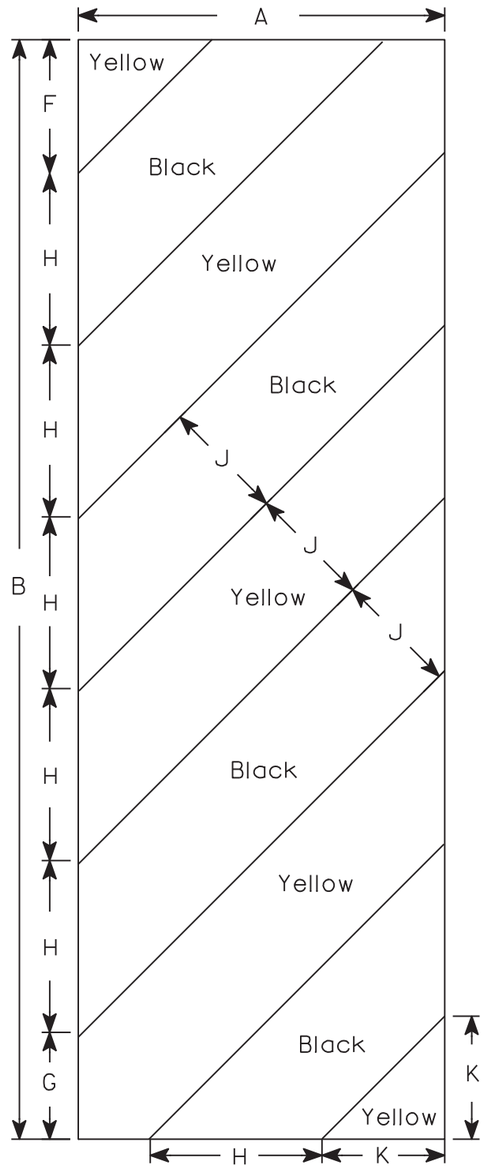
APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 50	E



W5-52L



W5-52R

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.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36				4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54				6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

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

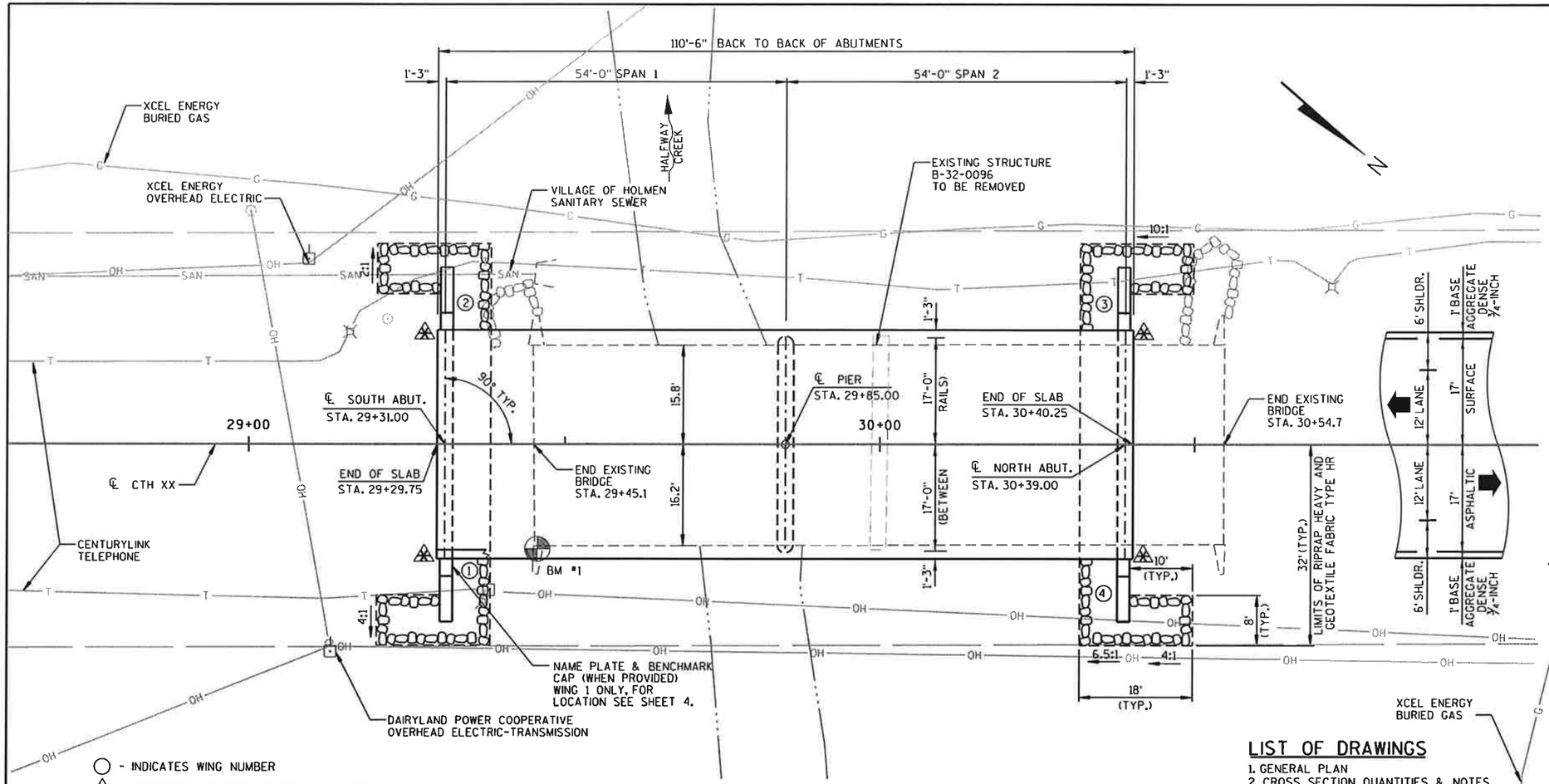
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 51 | E

STATE PROJECT NUMBER

7371-00-70

BENCHMARKS

NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	29+45.69, 16.7' RT.	BRASS DISK TOP OF EAST WING	669.36
2	29+26.08, 159.7' LT.	2 POLE NAILS IN 36" ϕ ELM TREE	665.45
3	31+08.75, 28.1' LT.	2 POLE NAILS IN 48" ϕ ELM TREE	667.17



○ - INDICATES WING NUMBER

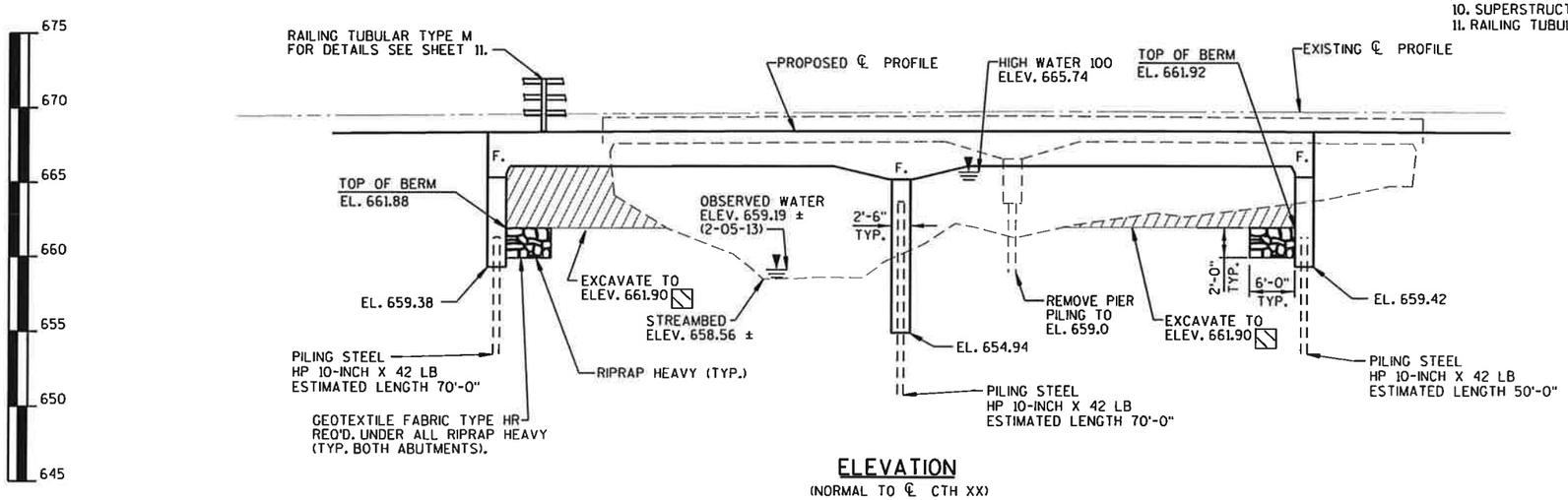
⚠ - INDICATES LOCATION OF PROVISION FOR THRIE BEAM GUARD ATTACHMENT AT WINGS.

▨ - REMOVAL OF THIS MATERIAL IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES (B-32-0229)".

▧ - UTILIZE 2½:1 MAX. SLOPES TO BLEND FROM EDGE OF BRIDGE TO SLOPE INTERCEPTS AT WINGS.

PLAN

(TWO SPAN HAUNCHED CONCRETE SLAB)



ELEVATION

(NORMAL TO ℄ CTH XX)

DESIGN DATA

LIVE LOAD;

DESIGN LOADING : HL-93
INVENTORY RATING FACTOR : 1.17
OPERATIONAL RATING FACTOR : 1.52

TRAFFIC DATA;

A.A.D.T. (2016) = 1,520
A.A.D.T. (2036) = 1,970
R.D.S. = 60 MPH

WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS.

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES;

CONCRETE MASONRY, SLAB — f'_c = 4,000 P.S.I.
ALL OTHER — f'_c = 3,500 P.S.I.

HIGH-STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 — f_y = 60,000 P.S.I.

PILING STEEL HP — f_y = 50,000 P.S.I.

FOUNDATION DATA;

ABUTMENTS AND PIER TO BE SUPPORTED ON PILING STEEL HP 10-INCH x 42 LB. DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS * PER ABUT. PILE AND 180 TONS * PER PIER PILE, AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 70'-0" AT THE SOUTH ABUT., 50'-0" AT THE NORTH ABUT., AND 70'-0" AT THE PIER.

* 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.

HYDRAULIC DATA;

100 YEAR FREQUENCY

DRAINAGE AREA	32.4 SQ. MI.
Q_{100} - TOTAL	2,850 C.F.S.
- THRU BRIDGE	2,612 C.F.S.
- OVERTOPPING ROADWAY	238 C.F.S.
VELOCITY - THRU BRIDGE	6.95 FT./SEC.
WATERWAY AREA - THRU BRIDGE	376 SQ. FT.
SCOUR CRITICAL CODE	5
HIGH WATER $_{100}$ ELEVATION	665.74
Q_2 ELEVATION (810 CFS)	664.08

ROADWAY OVERFLOW DESIGN

OVERTOPPING FREQUENCY	10 YEARS
Q_{10}	1,700 C.F.S.
HIGH WATER $_{10}$ ELEVATION	665.1

LIST OF DRAWINGS

CONSULTANT DESIGN CONTACT:
LEAH RHODES
(608) 355-8945

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608) 266-8489

WISCONSIN
LEAH J. RHODES
E-41726
BARABOO
WI
PROFESSIONAL ENGINEER

Leah J. Rhodes
10/14/2015

NO.	DATE	REVISION	BY

MSA PROFESSIONAL SERVICES
TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
1230 South Boulevard Baraboo, WI 53913
608-356-2771 1-800-362-4505 Fax: 608-356-2770

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR — CHIEF STRUCTURES DESIGN ENGINEER — 10/15/15 DATE

STRUCTURE B-32-0229

CTH XX OVER HALFWAY CREEK

COUNTY: LA CROSSE
TOWN/~~CITY/VILLAGE~~: ONALASKA

DESIGN SPEC.: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JAS	JRS	RLR	LJR/JAS

GENERAL PLAN

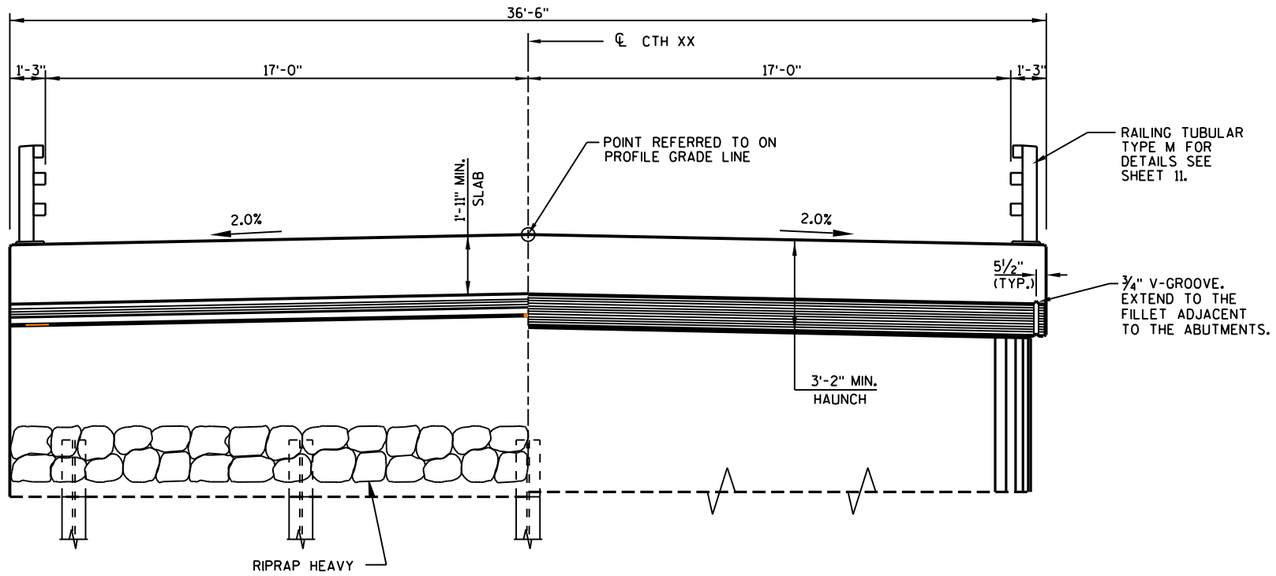
SHEET 52 11

FILE= 9262004_01.DGN
DATE= 7/14/2015

9262004_01.dgn 7/14/2015 11:19:41 AM rrabska

STATE PROJECT NUMBER

7371-00-70



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFY THE BAR SIZE.

PLACE RIPRAP HEAVY AND GEOTEXTILE FABRIC TYPE HR TO THE LIMITS SHOWN ON SHEET 1 AND ON THE ABUTMENT SHEETS.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" AT THE ABUTMENTS AND PIER.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

THIS STRUCTURE WILL REPLACE EXISTING BRIDGE, B-32-0096, A 109.8 FT. LONG, TWO SPAN, HAUNCHED CONCRETE SLAB BRIDGE ON CONCRETE SILL ABUTMENTS.

AT THE ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE. THE BACKFILL STRUCTURE ESTIMATED QUANTITY ASSUMES A 1½: 1 EXCAVATION SLOPE AT THE ABUTMENTS.

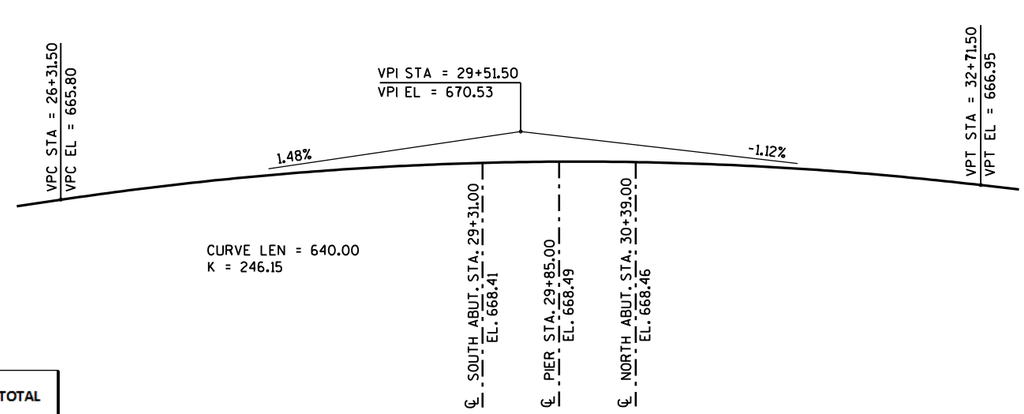
PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP AND EDGES OF SLAB, TO THE OUTSIDE 1'-0" OF THE UNDERSIDE OF SLAB, TO THE TOPS OF WINGS, AND TO THE EXPOSED FRONT FACES OF WINGS.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO NAVD 88 DATUM, 1996 ADJUSTED, AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

AT ABUTMENTS AT PIERS

CROSS SECTION THRU BRIDGE

(LOOKING NORTH)



PROFILE GRADE LINE - CTH XX

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	SOUTH ABUT.	PIER	NORTH ABUT.	SUPER	TOTAL
203.0500.S.01	REMOVING OLD STRUCTURE OVER WATERWAY STATION 30+00	LS	-	-	-	-	1
206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES B-32-0229	LS	-	-	-	-	1
210.0100	BACKFILL STRUCTURE	CY	160	-	160	-	320
502.0100	CONCRETE MASONRY BRIDGES	CY	33	32	33	309	407
502.3200	PROTECTIVE SURFACE TREATMENT	SY	13	-	13	521	547
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1735	1620	1735	-	5090
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	810	70	810	57040	58730
513.4061.01	RAILING TUBULAR TYPE M B-32-0229	LF	-	-	-	-	225
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	-	8	-	16
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	350	700	250	-	1300
606.0300	RIPRAP HEAVY	CY	45	-	45	-	90
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	80	-	80	-	160
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	100	-	100	-	200
	NON-BID ITEMS						
	PREFORMED FILLER	SIZE	-		-	-	½", ¾"

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-32-0229

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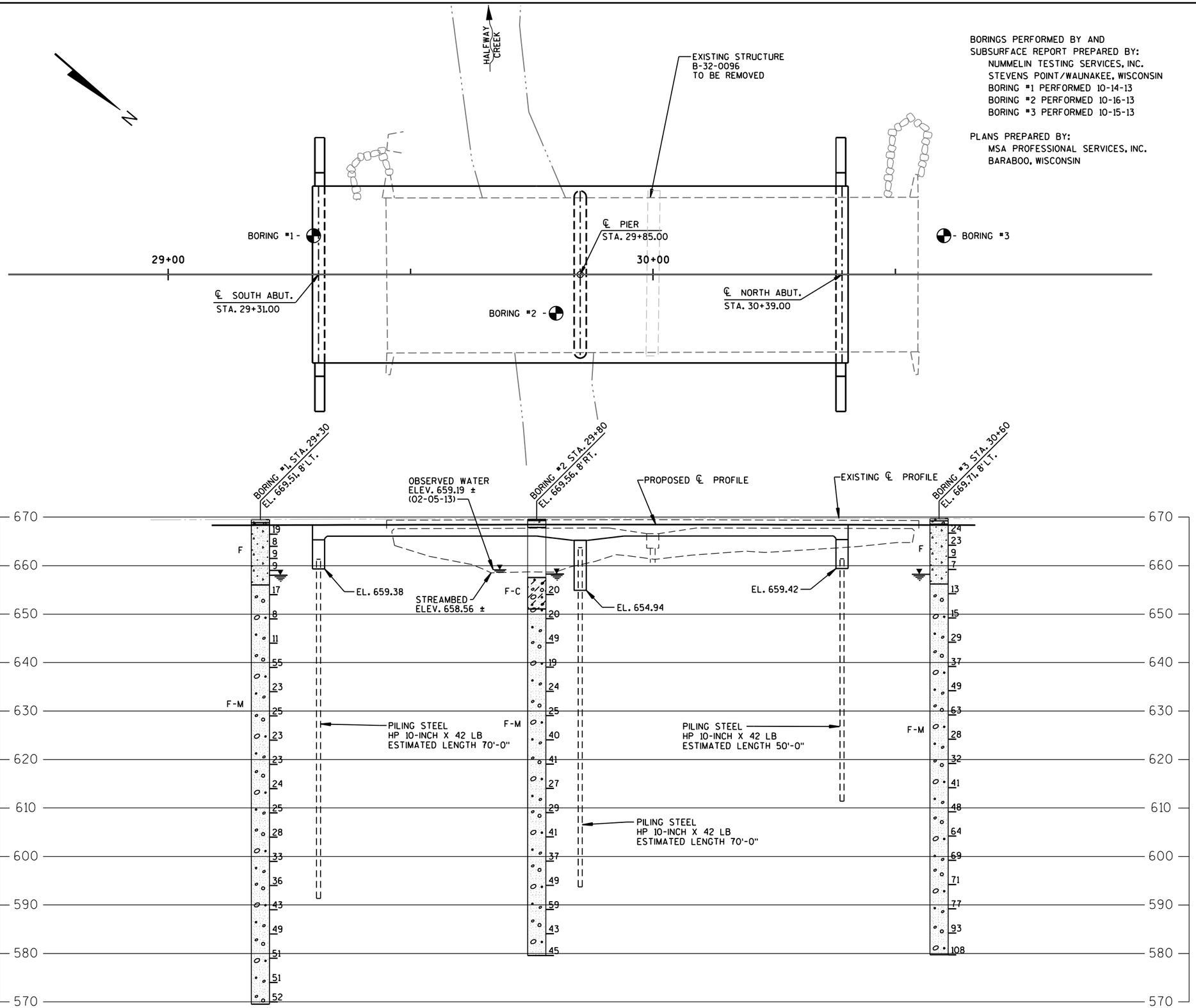
CROSS SECTION, QUANTITIES & NOTES

SHEET 2 OF 11

53

FILE= 9262004_02.DGN
DATE= 7/9/2015

9262004_02.dgn 7/9/2015 9:31:03 AM jsnyder



STATE PROJECT NUMBER

7371-00-70

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.
ELEV. STA.
UNCONFINED STRENGTH → 7.7 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.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-32-0229

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SUBSURFACE EXPLORATION

SHEET 3 OF 11
54

8

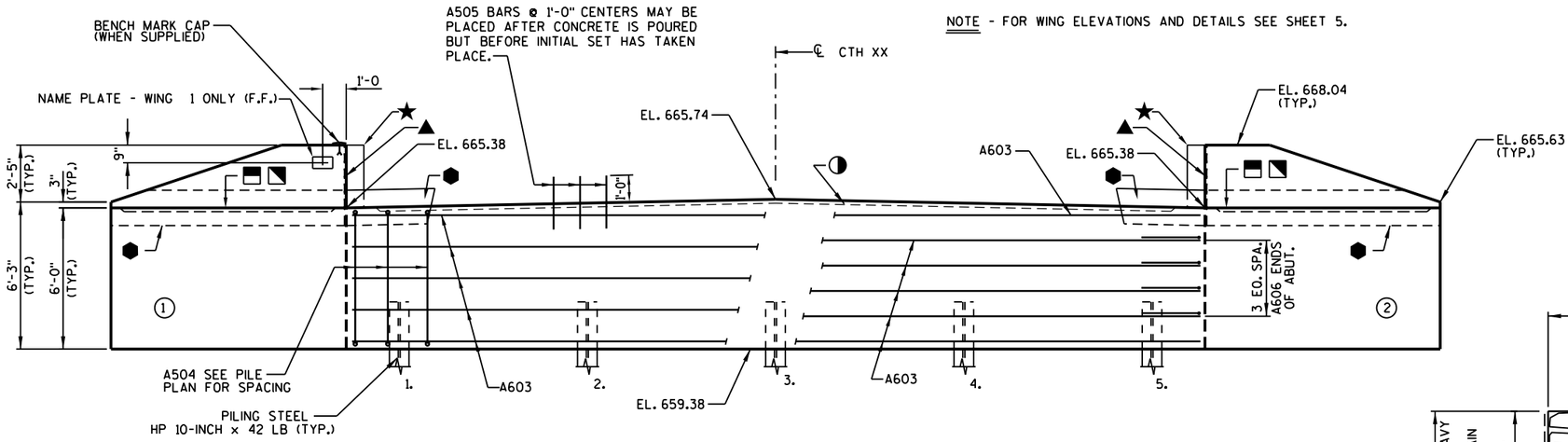
8

9262004_03.dgn 5/26/2015 8:55:30 AM rrabska

FILE=09262004_03.dgn
DATE=5/26/2015

STATE PROJECT NUMBER

7371-00-70



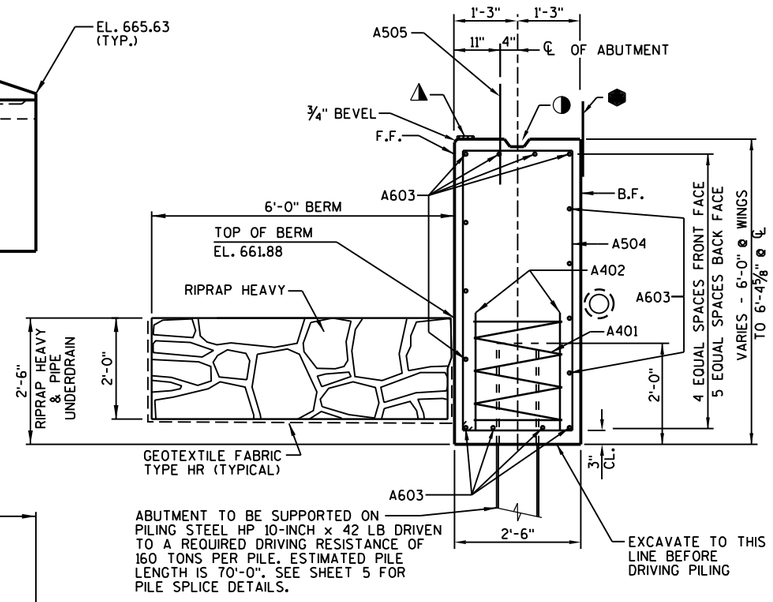
NOTE - FOR WING ELEVATIONS AND DETAILS SEE SHEET 5.

FRONT FACE BAR STEEL REINF.

BACK FACE BAR STEEL REINF.

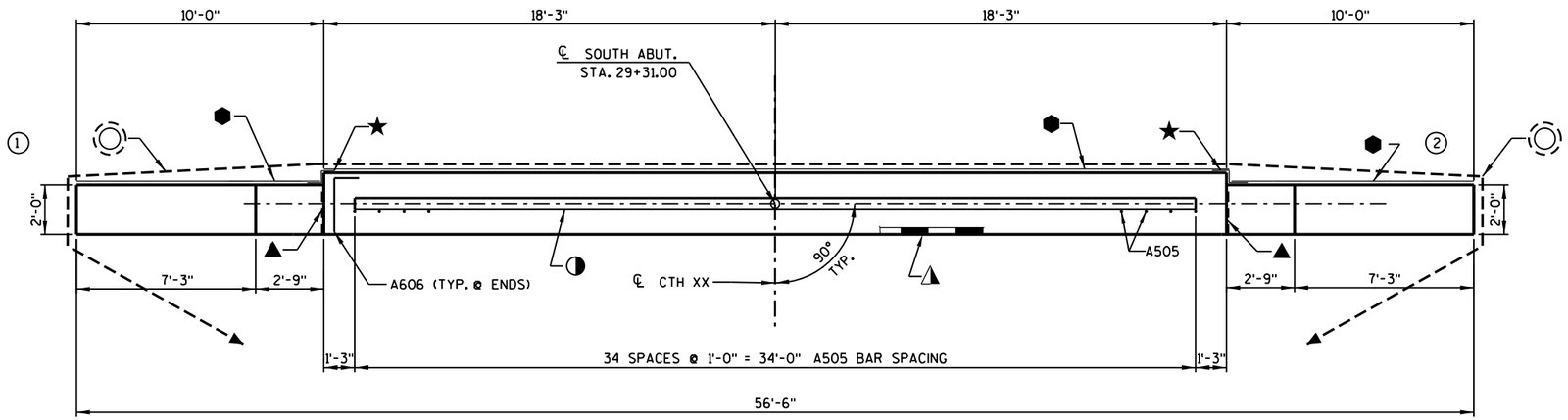
ELEVATION

(LOOKING AT FRONT FACE)

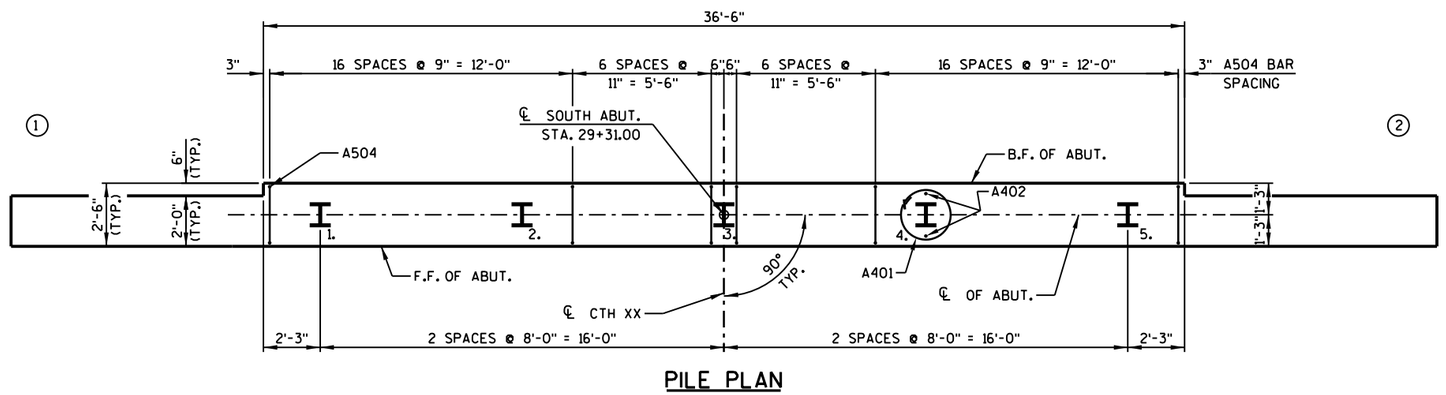


ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCH x 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE. ESTIMATED PILE LENGTH IS 70'-0". SEE SHEET 5 FOR PILE SPLICE DETAILS.

TYPICAL SECTION THRU ABUTMENT



PLAN



PILE PLAN

LEGEND

▲ – ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE).

◯ – PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE, SEE RODENT SHIELD DETAIL, SHEET 7.

⬢ – HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS.

★ – VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM BRIDGE SEAT TO TOP OF WINGS.

◑ – KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.

◹ – ¾" "V" GROOVE ON FRONT FACE OF WING WALL, REQ'D. ONLY WHERE CONSTRUCTION JOINT IS USED.

◧ – OPTIONAL KEYED CONSTRUCTION JOINT ON WING FORMED BY BEVELED 2x6. IF JOINT IS USED PLACE ⬢ ON B.F. OF WING. COST OF ⬢ IS INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES".

◭ – 4"x ¾" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.

◯ – INDICATES WING NUMBER. CL. - CLEAR

F.F. – FRONT FACE B.F. - BACK FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-32-0229

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SOUTH ABUTMENT

SHEET 4 OF 11
55

FILE= 9262004_04.DGN
DATE=5/26/2015

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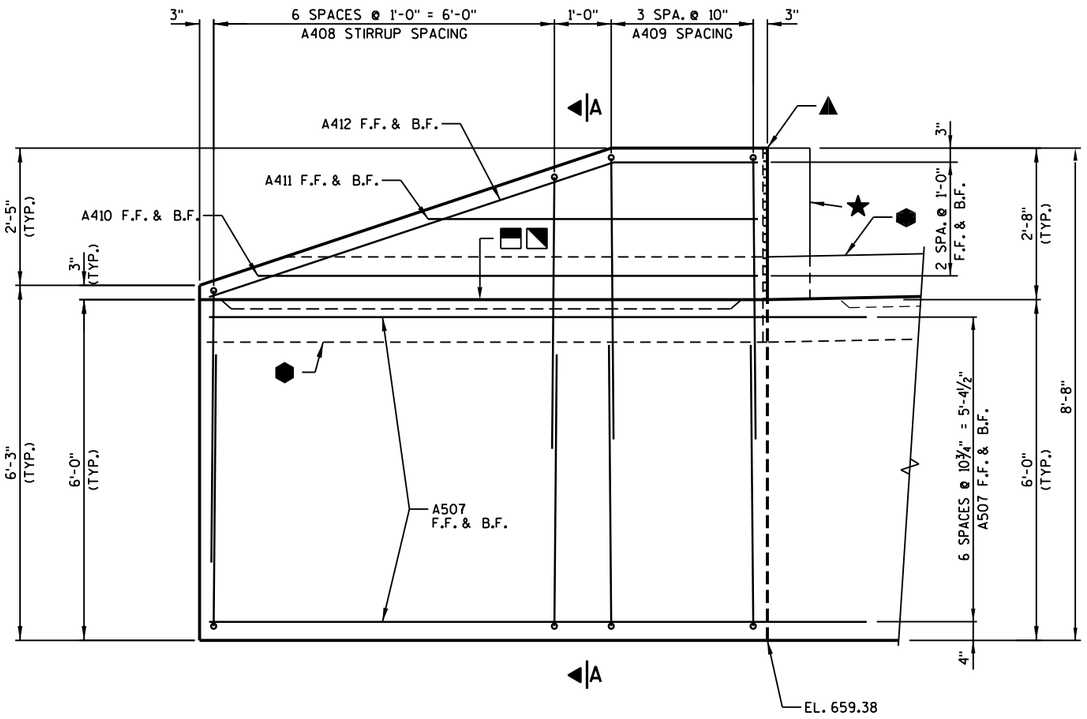
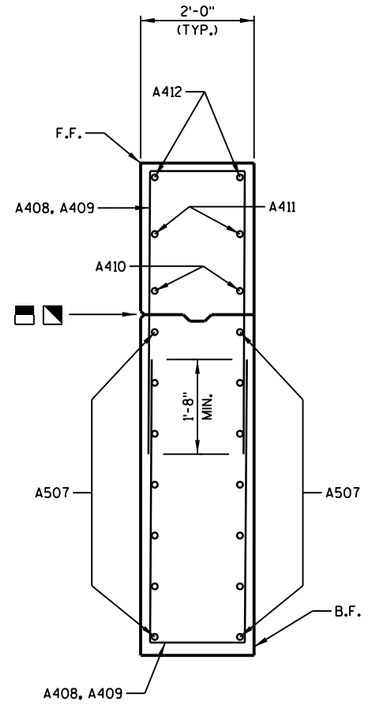
8

STATE PROJECT NUMBER

7371-00-70

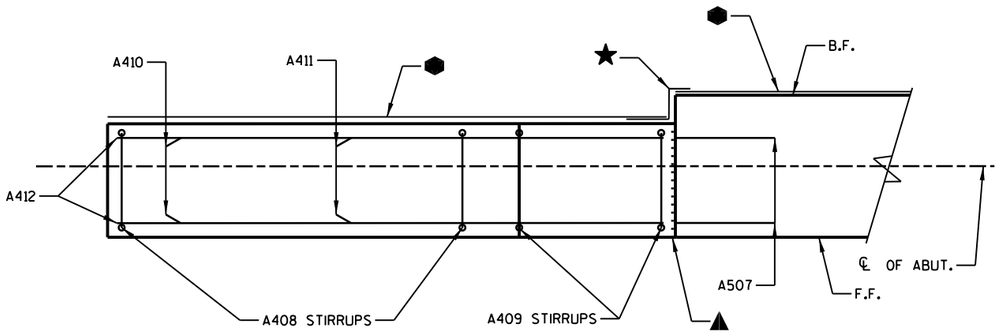


ELEVATION

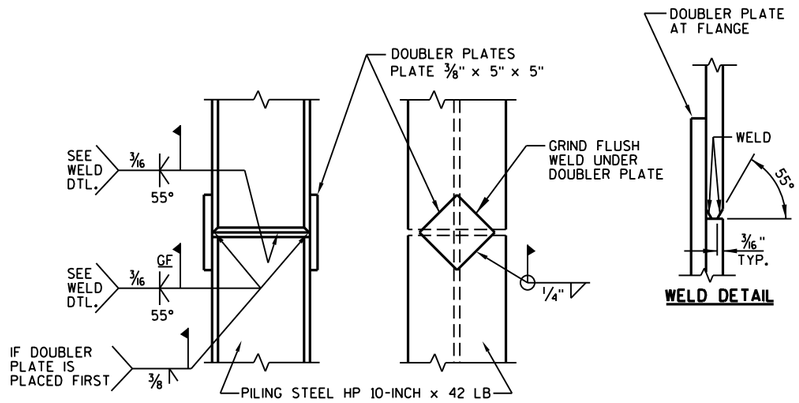


SECTION A-A THRU WING

WING 1 SHOWN
WING 2 OPPOSITE HAND



PLAN



PILE SPLICE DETAILS

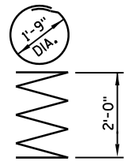
WELD DETAIL

BILL OF BARS

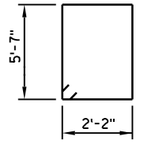
(COATED) 810 LBS.
(UNCOATED) 1735 LBS.

MARK	NUMBER REQUIRED COATED	NUMBER REQUIRED UNCOATED	LENGTH	BENT	LOCATION
A401	-	5	28'-0"	X	ABUTMENT BODY - 1 SPIRAL WRAP @ EACH PILING
A402	-	10	2'-3"		ABUTMENT BODY - 2 @ EACH PILING - VERT.
A603	-	15	36'-2"		ABUTMENT BODY - HORIZ.
A504	-	46	16'-2"	X	ABUTMENT BODY - STIRRUP - VERT.
A505	35	-	2'-0"		ABUTMENT BODY - TOP - DOWELS - VERT.
A606	-	8	3'-0"	X	ABUTMENT BODY - ENDS @ WINGS - HORIZ.
A507	28	-	11'-7"		WINGS 1 & 2 - BASE - HORIZ.
A408	28	-	11'-2"	X	WINGS 1 & 2 - STIRRUP - VERT.
A409	16	-	11'-6"	X	WINGS 1 & 2 - STIRRUP - VERT.
A410	4	-	8'-9"		WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.
A411	4	-	5'-9"		WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.
A412	4	-	10'-0"	X	WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

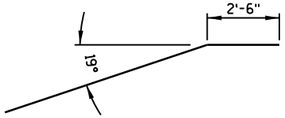


A401



A504

A606
STD. 90° HOOK



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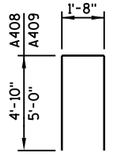


A408, A409

SEE SHEET 4 LEGEND FOR DESCRIPTION OF

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-32-0229

DRAWN BY RLR | PLANS CK'D. JAS

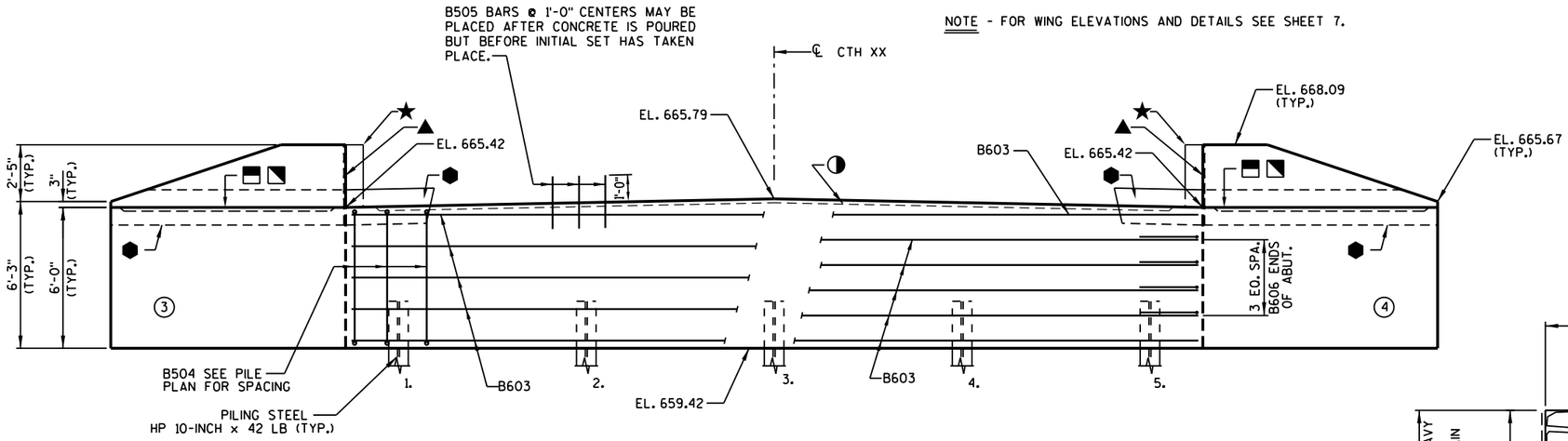
SOUTH ABUTMENT DETAILS

SHEET 5 OF 11
56

FILE= 9262004_05.DGN
DATE= 5/26/2015

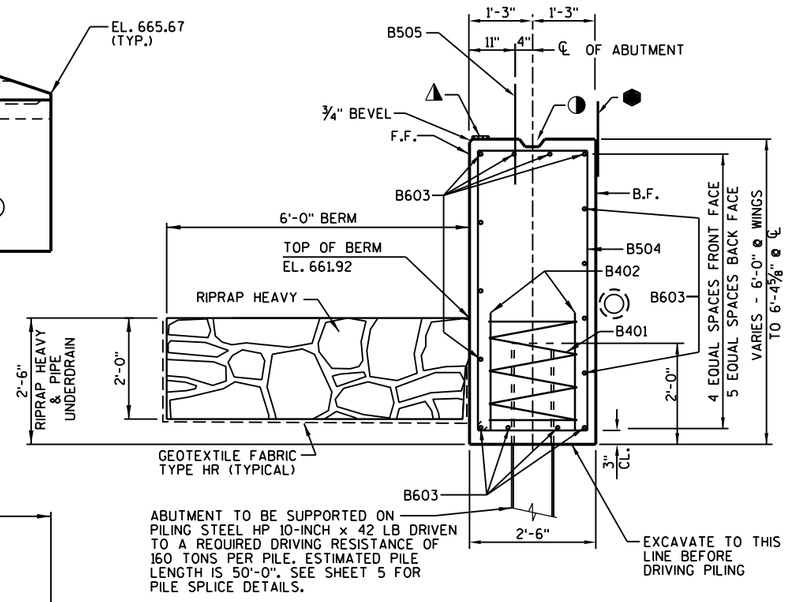
9262004_05ADET.dgn 5/26/2015 9:12:13 AM rrabska

STATE PROJECT NUMBER
7371-00-70

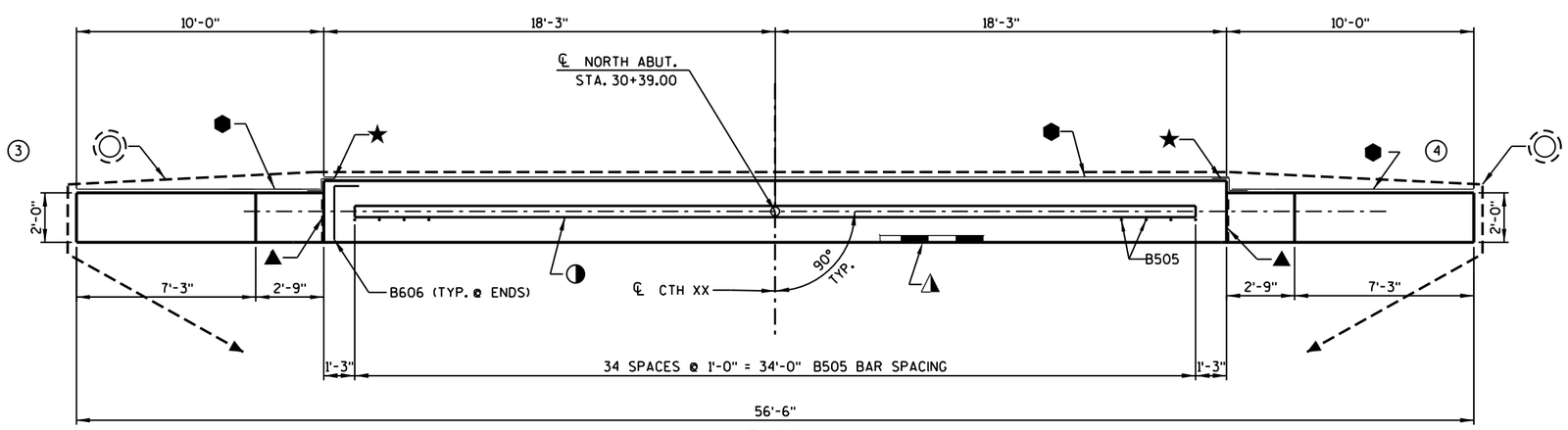


NOTE - FOR WING ELEVATIONS AND DETAILS SEE SHEET 7.

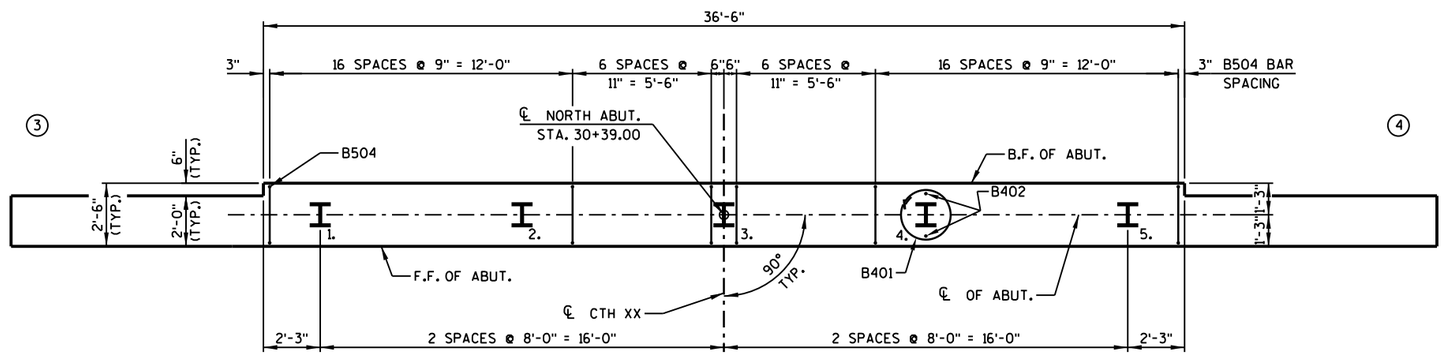
ELEVATION
(LOOKING AT FRONT FACE)



TYPICAL SECTION THRU ABUTMENT



PLAN



PILE PLAN

LEGEND

- ▲ – ½" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE).
- ◯ – PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE, SEE RODENT SHIELD DETAIL, SHEET 7.
- ⬢ – HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS.
- ★ – VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM BRIDGE SEAT TO TOP OF WINGS.
- ◑ – KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
- ◹ – ¾" "V" GROOVE ON FRONT FACE OF WING WALL, REQ'D. ONLY WHERE CONSTRUCTION JOINT IS USED.
- ◓ – OPTIONAL KEYED CONSTRUCTION JOINT ON WING FORMED BY BEVELED 2x6. IF JOINT IS USED PLACE ⬢ ON B.F. OF WING. COST OF ⬢ IS INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES".
- ◭ – 4"x ¾" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.
- ◯ – INDICATES WING NUMBER. CL. - CLEAR
- F.F. – FRONT FACE B.F. - BACK FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-32-0229

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RLR	JAS

NORTH ABUTMENT

SHEET 6 OF 11
57

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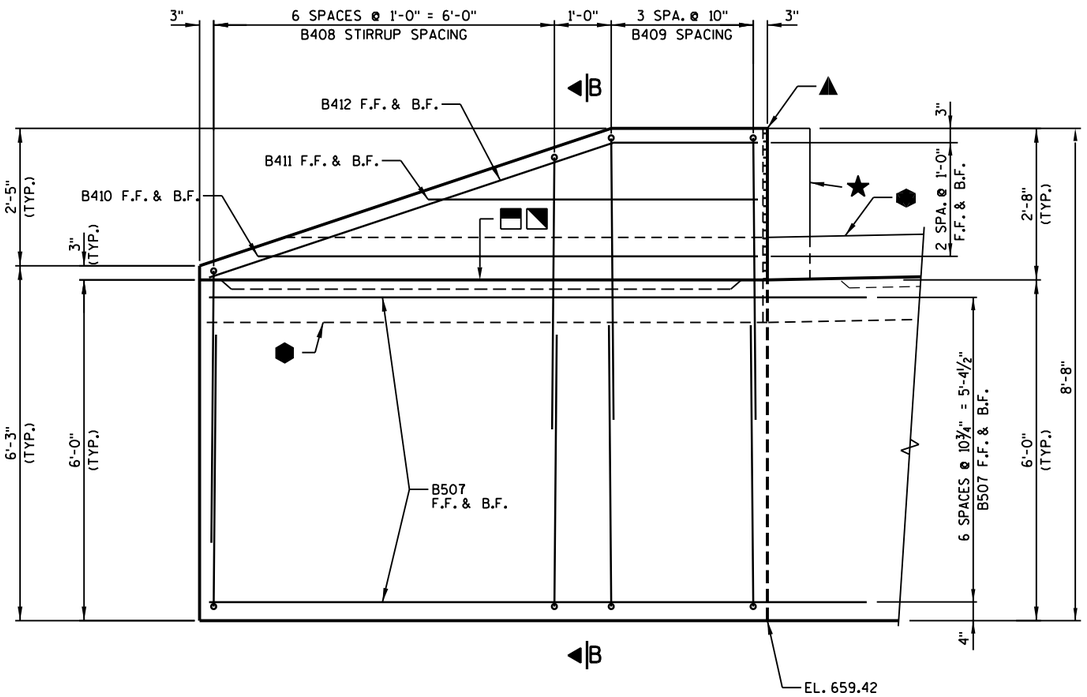
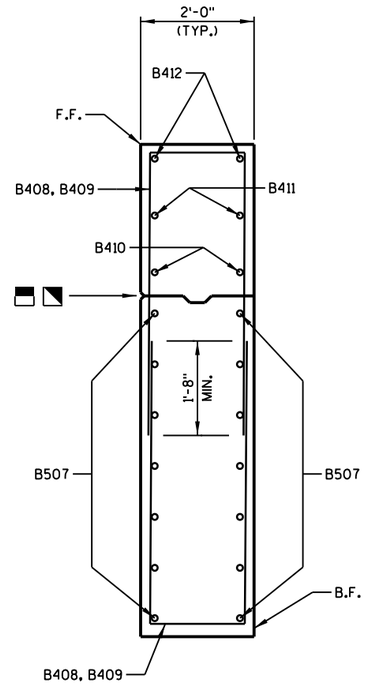
STATE PROJECT NUMBER

7371-00-70

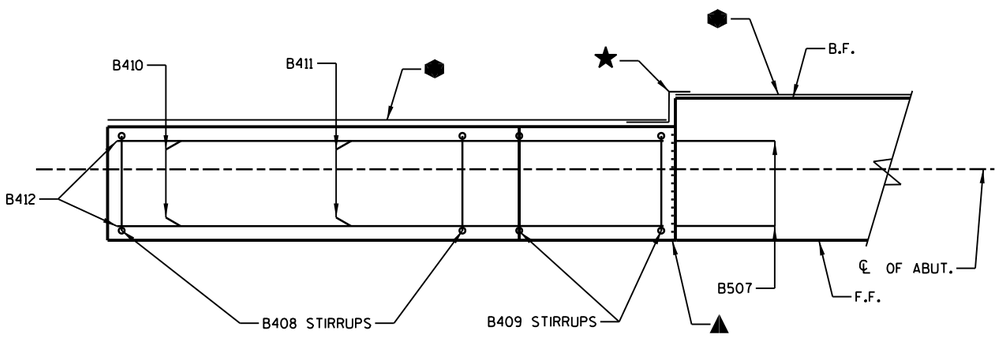


ELEVATION



SECTION B-B THRU WING

WING 3 SHOWN
WING 4 OPPOSITE HAND



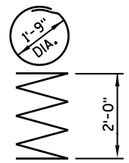
PLAN

BILL OF BARS

(COATED) 810 LBS.
(UNCOATED) 1735 LBS.

MARK	NUMBER REQUIRED COATED	NUMBER REQUIRED UNCOATED	LENGTH	BENT	LOCATION
B401	-	5	28'-0"	X	ABUTMENT BODY - 1 SPIRAL WRAP @ EACH PILING
B402	-	10	2'-3"		ABUTMENT BODY - 2 @ EACH PILING - VERT.
B603	-	15	36'-2"		ABUTMENT BODY - HORIZ.
B504	-	46	16'-2"	X	ABUTMENT BODY - STIRRUP - VERT.
B505	35	-	2'-0"		ABUTMENT BODY - TOP - DOWELS - VERT.
B606	-	8	3'-0"	X	ABUTMENT BODY - ENDS @ WINGS - HORIZ.
B507	28	-	11'-7"		WINGS 1 & 2 - BASE - HORIZ.
B408	28	-	11'-2"	X	WINGS 1 & 2 - STIRRUP - VERT.
B409	16	-	11'-6"	X	WINGS 1 & 2 - STIRRUP - VERT.
B410	4	-	8'-9"		WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.
B411	4	-	5'-9"		WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.
B412	4	-	10'-0"	X	WINGS 1 & 2 - TOP - F.F. & B.F. - HORIZ.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



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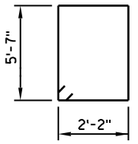
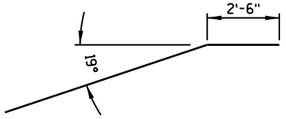


B504

B606
STD. 90° HOOK



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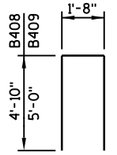
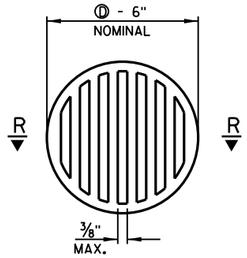
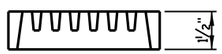


B408, B409



RODENT SHIELD

Ⓓ - DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.



SECTION R-R

SEE SHEET 6 LEGEND FOR DESCRIPTION OF ⬢ ⬒ ◹ ★ ▲

RODENT SHIELD NOTES:

ORIENT SHIELD SO SLOTS ARE VERTICAL.

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHEMENT OF THIS SHIELD TO THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURE B-32-0229

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NORTH ABUTMENT DETAILS

SHEET 7 OF 11
58

8

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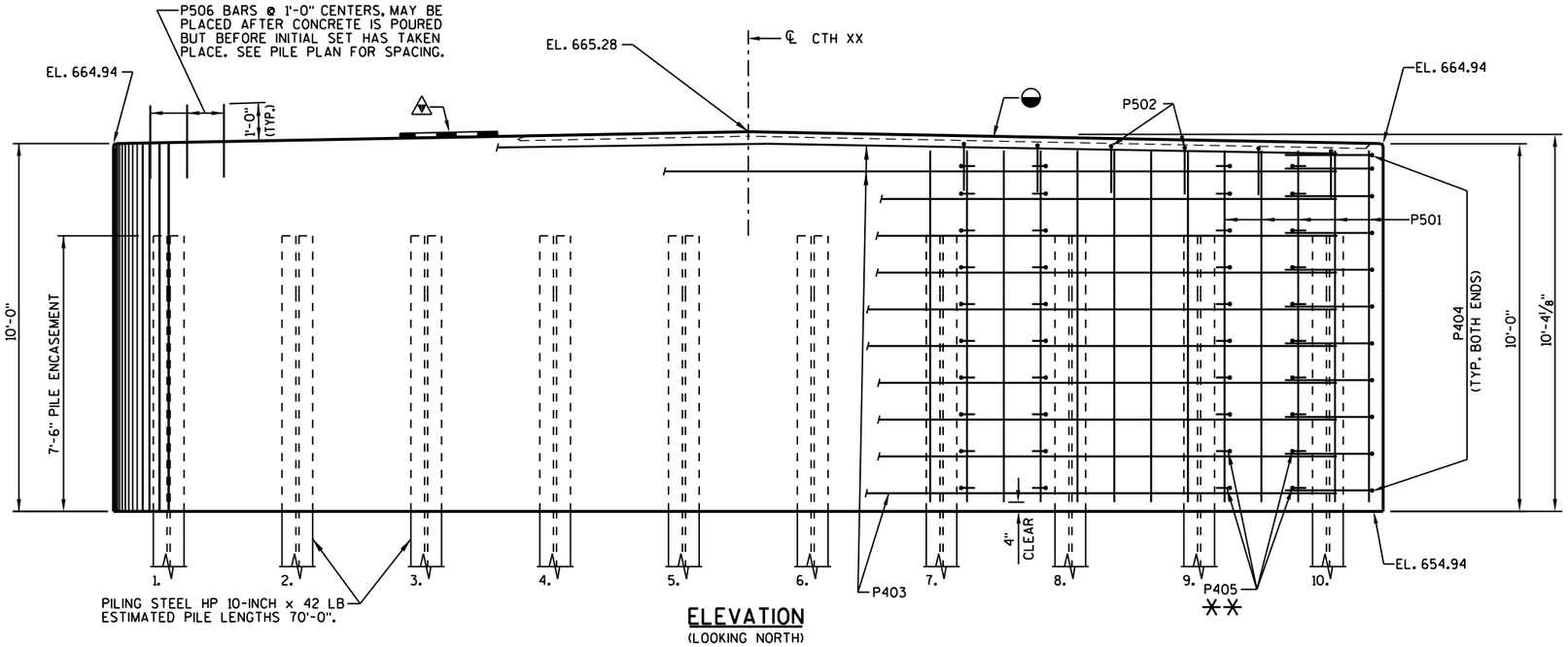
FILE= 9262004_07DET.DGN
DATE=5/26/2015

9262004_07BDET.dgn 5/26/2015 9:20:03 AM rrabska

STATE PROJECT NUMBER
7371-00-70



ELEVATION
(LOOKING NORTH)

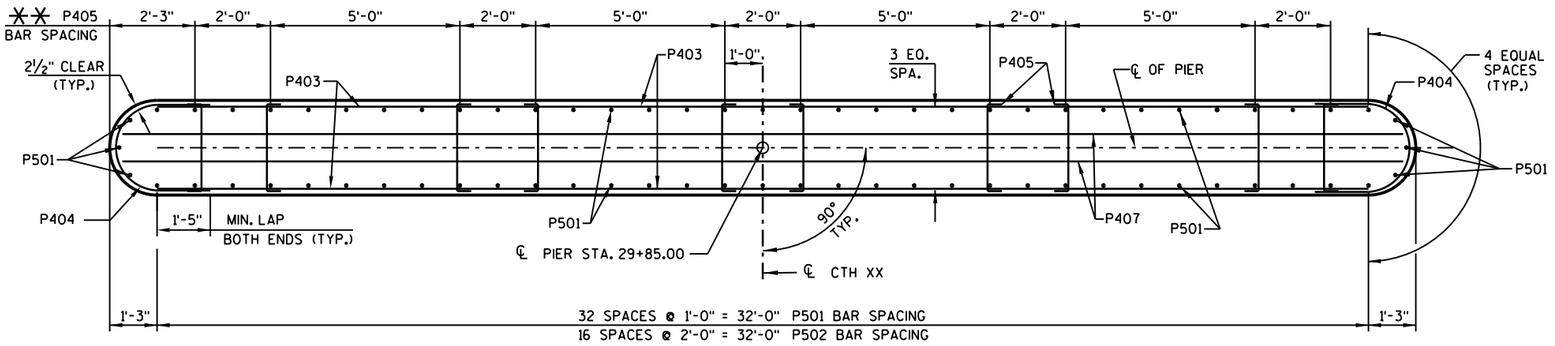
BILL OF BARS

UNCOATED 1620 LBS.
COATED 70 LBS.

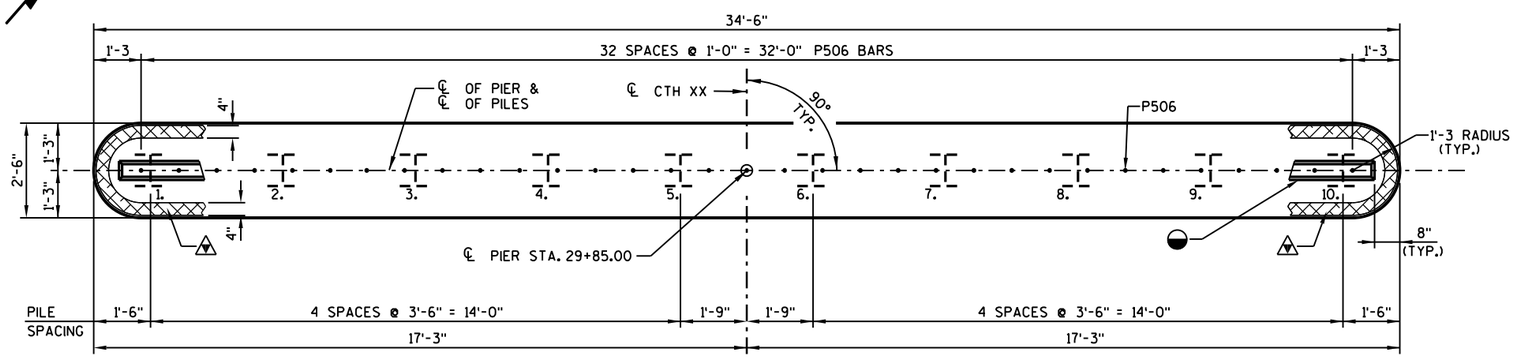
	MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
	P501	72	9'-6"		PIER - VERT.
	P502	17	4'-5"	X	PIER - STIRRUPS - TOP - VERT.
	P403	24	32'-0"		PIER - TOP & SIDES - HORIZ.
	P404	22	6'-1"	X	PIER - AT ENDS - HORIZ.
	P405	100	2'-8"	X	PIER - TIES - HORIZ.
Ⓒ	P506	33	2'-0"		PIER - DOWELS @ TOP - VERT.
	P407	2	33'-10"		PIER - TOP - HORIZ.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

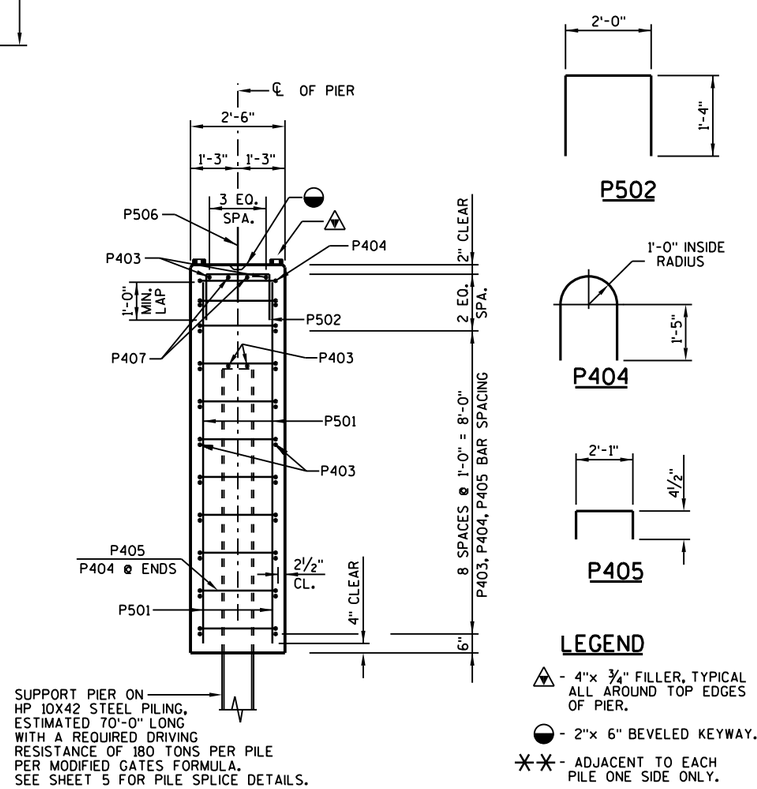
Ⓒ - THESE BARS SHALL BE EPOXY COATED.



PLAN



PILE PLAN



LEGEND

▲ - 4"x 3/4" FILLER, TYPICAL ALL AROUND TOP EDGES OF PIER.

◒ - 2"x 6" BEVELED KEYWAY.

✳✳ - ADJACENT TO EACH PILE ONE SIDE ONLY.

TYPICAL SECTION THRU PIER

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PIER

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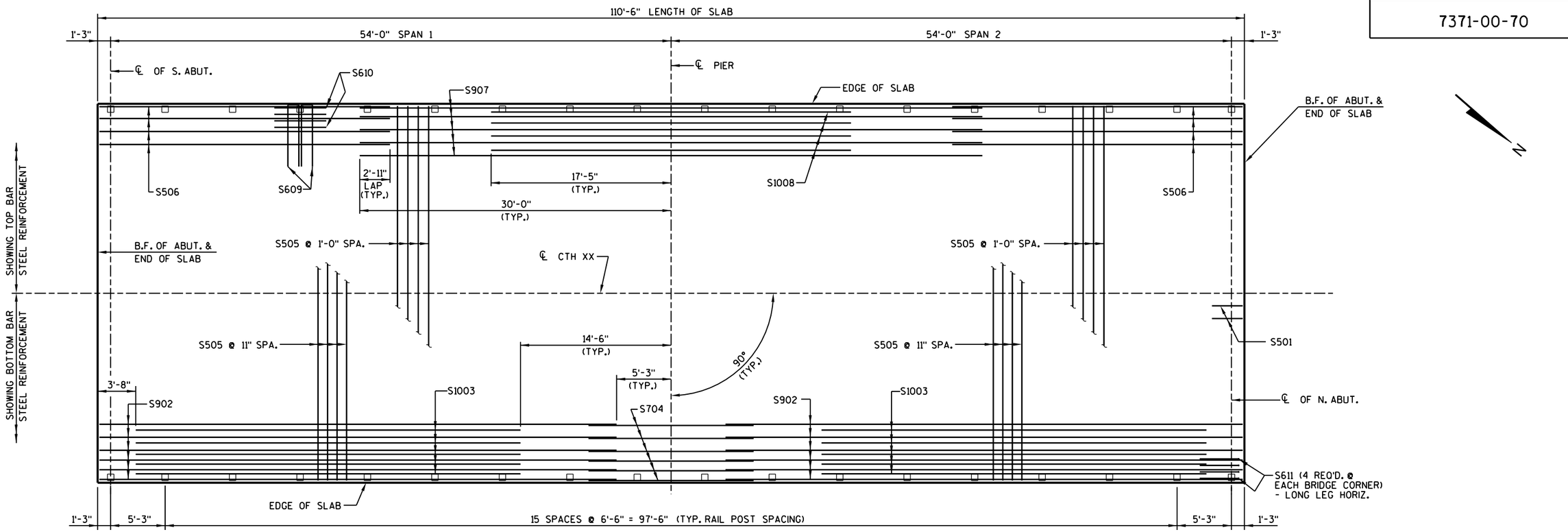
FILE= 9262004_08.DGN
DATE= 5/26/2015

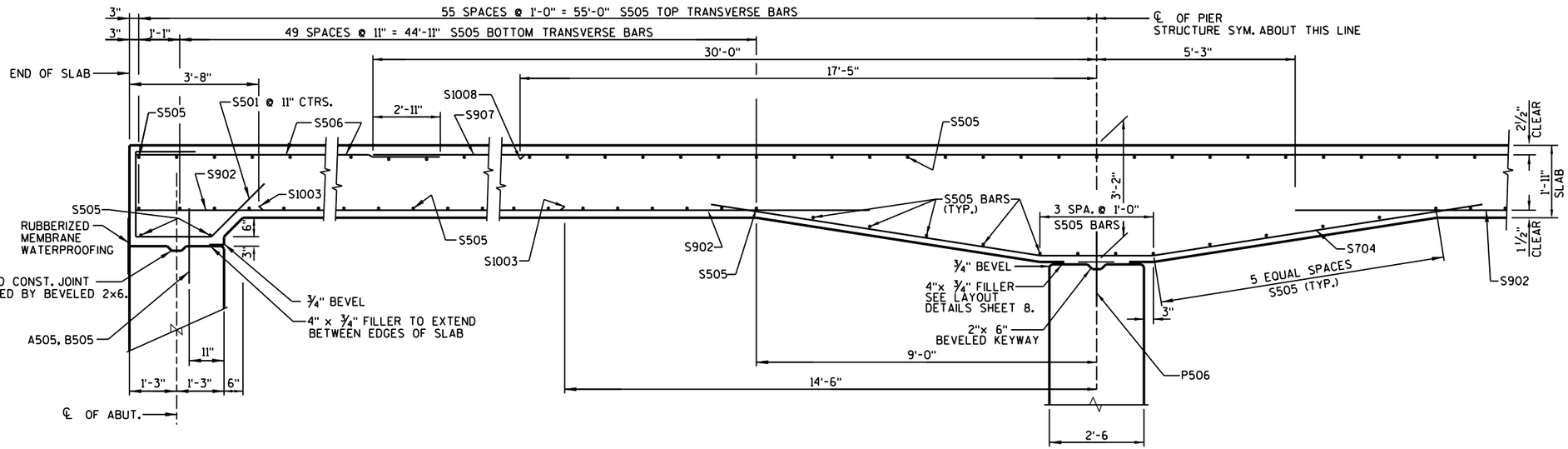
9262004_08P.dgn 5/26/2015 9:28:07 AM rrabska

STATE PROJECT NUMBER

7371-00-70



PLAN



PART LONGITUDINAL SECTION

8

8

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SUPERSTRUCTURE

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60

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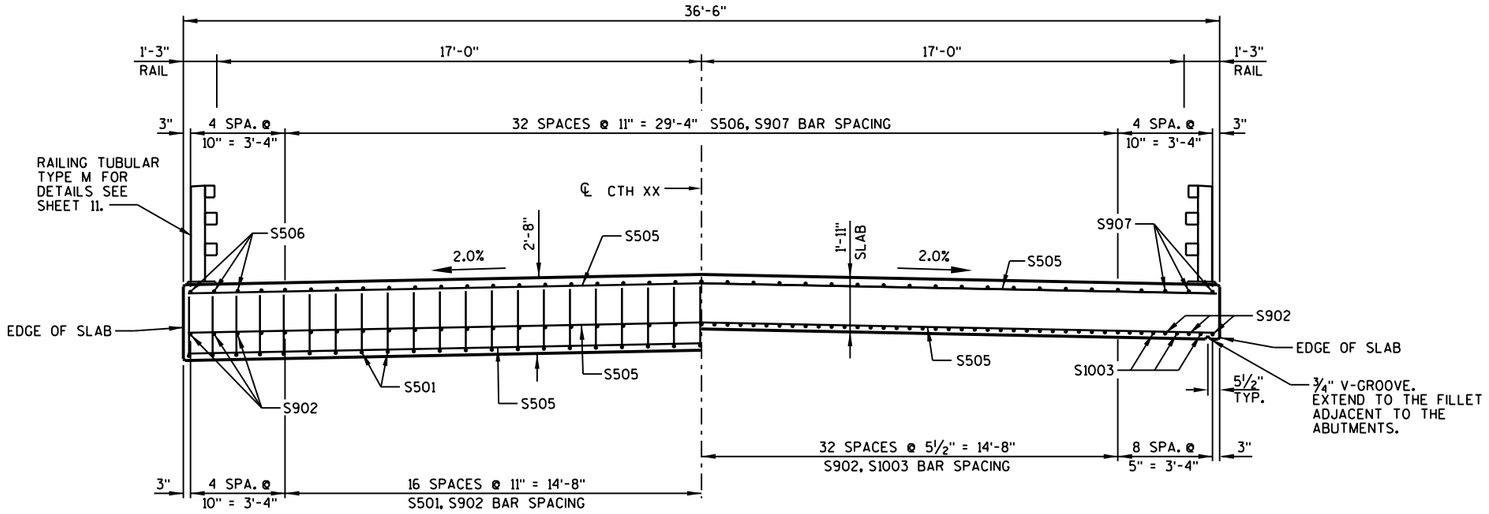
DATE= 5/14/2015

STATE PROJECT NUMBER

7371-00-70



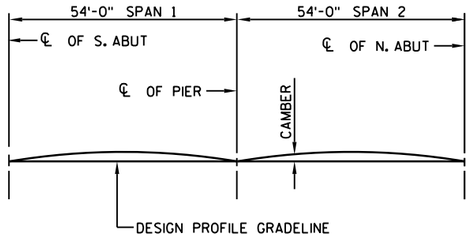
AT ABUTMENTS IN SPAN

CROSS SECTION THRU BRIDGE

(LOOKING NORTH)

SECTION THRU BRIDGE AT PIER

(LOOKING NORTH)



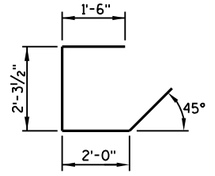
CAMBER DIAGRAM

BILL OF BARS (COATED) 57,040 LBS.

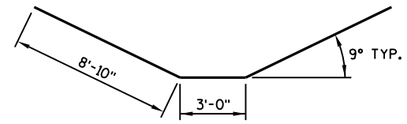
MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
S501	82	7'-8"	X	HAUNCH @ ABUTS. - VERT.
S902	82	49'-10"		SLAB - BOTTOM - @ ABUTS. & IN SPAN - LONGIT.
S1003	80	37'-1"		SLAB - BOTTOM - IN SPAN - LONGIT.
S704	41	20'-8"	X	HAUNCH OVER PIER - LONGIT.
S505	229	36'-2"		SLAB - TOP & BOTTOM - TRANS.
S506	82	28'-0"		SLAB - TOP - @ ABUTS. - LONGIT.
S907	41	60'-0"		SLAB - TOP - IN SPAN & OVER PIER - LONGIT.
S1008	40	34'-10"		SLAB - TOP - OVER PIER - LONGIT.
S609	72	12'-0"	X	SLAB @ RAIL POST, 2 PER POST
S610	128	6'-0"		SLAB @ RAIL POST, 4 PER POST
S611	16	6'-0"	X	SLAB @ RAIL POST, 4 PER CORNER POST

EPOXY COAT ALL SUPERSTRUCTURE BAR STEEL.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



S501



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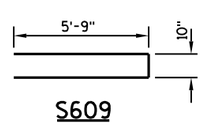

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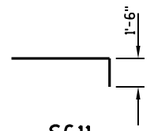

S611

TOP OF SLAB ELEVATIONS AND CAMBER VALUES

LOCATION	EAST EDGE OF SLAB ELEV.	℄ ELEV.	WEST EDGE OF SLAB ELEV.	CAMBER VALUE (INCHES)
S. ABUT.	668.04	668.41	668.04	0
1/10	668.06	668.42	668.06	1/2
2/10	668.07	668.43	668.07	7/8
3/10	668.08	668.45	668.08	1 1/8
4/10	668.09	668.46	668.09	1 1/8
5/10	668.10	668.46	668.10	1 1/8
6/10	668.11	668.47	668.11	7/8
7/10	668.11	668.48	668.11	1/2
8/10	668.12	668.48	668.12	1/4
9/10	668.12	668.49	668.12	0
PIER	668.13	668.49	668.13	0
1/10	668.13	668.49	668.13	0
2/10	668.13	668.49	668.13	1/4
3/10	668.13	668.49	668.13	1/2
4/10	668.13	668.49	668.13	7/8
5/10	668.12	668.49	668.12	1 1/8
6/10	668.12	668.48	668.12	1 1/8
7/10	668.11	668.48	668.11	1 1/8
8/10	668.11	668.47	668.11	7/8
9/10	668.10	668.46	668.10	1/2
N. ABUT.	668.09	668.46	668.09	0

GENERAL NOTES

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

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 BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0 CENTERS.

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION APPROXIMATES 1/3 OF CAMBER VALUES SHOWN.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE ℄ OF ABUTMENTS, THE ℄ OF PIER AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR ℄.

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STRUCTURE B-32-0229

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SUPERSTRUCTURE DETAILS

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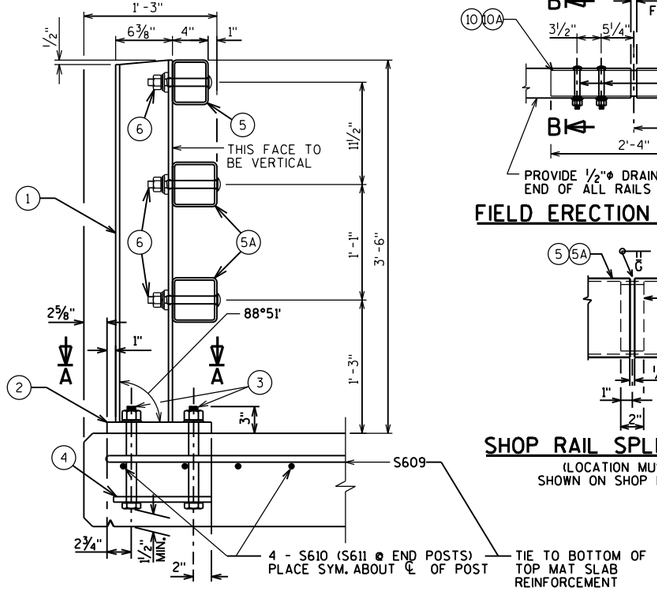
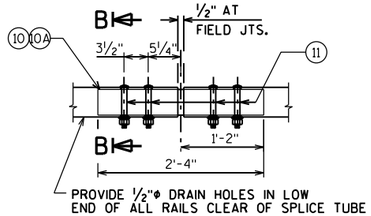
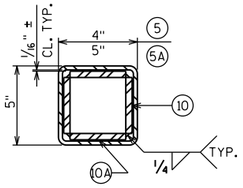


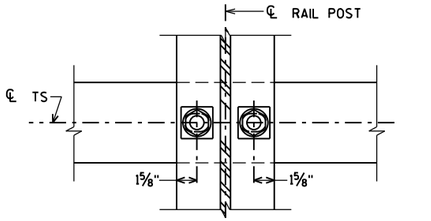
SECTION THRU RAILING ON DECK



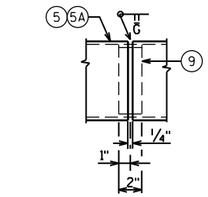
FIELD ERECTION JOINT DETAIL



SECTION B-B

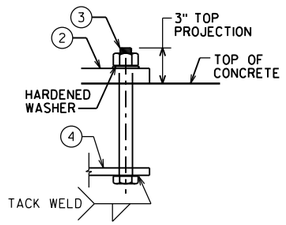


SECTION THRU POST WEB

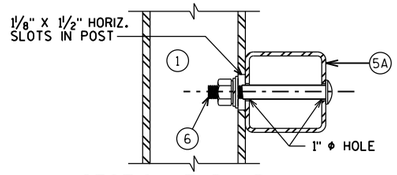


SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



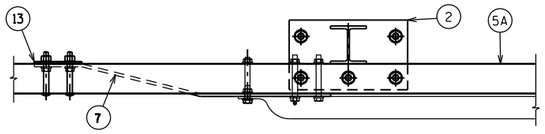
ANCHOR BOLTS



SECTION THRU RAIL

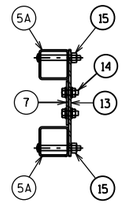
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS

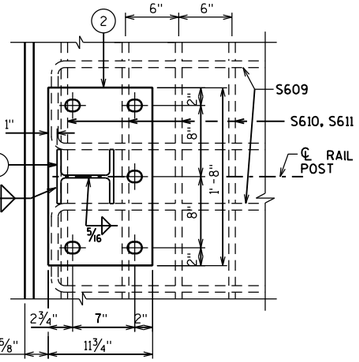


TOP VIEW AT END POST

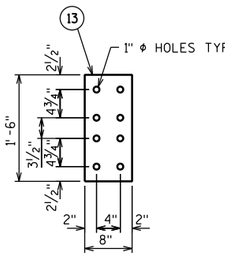
(THRIE BEAM RAIL ATTACHMENT)



SECTION C-C

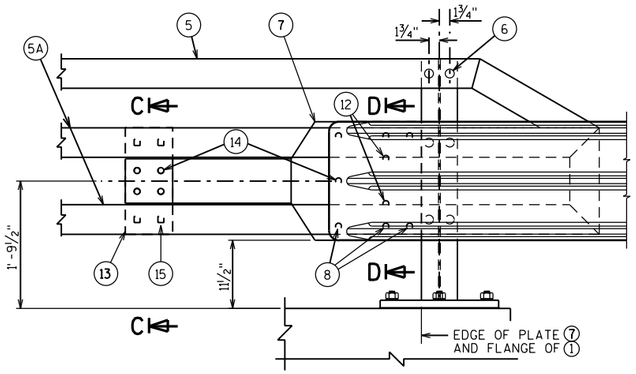


SECTION A-A



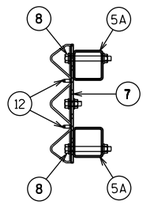
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT



DETAIL AT END POST

(THRIE BEAM RAIL ATTACHMENT)



SECTION D-D

LEGEND

① W6 x 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

② PLATE 1 1/4" x 11 3/4" x 1'-8" WITH 1 5/16" X 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

③ ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-3" LONG.

④ 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3

⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

⑨ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".

⑩ 3/8" X 3 5/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

⑩A 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 5/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

⑪ 7/8" Φ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15/16" X 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS IN PLATE NO. 10A.

⑫ 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

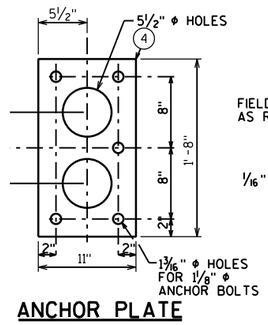
⑬ 3/8" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

⑭ 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQUIRED).

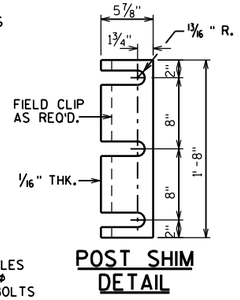
⑮ 1" Φ HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

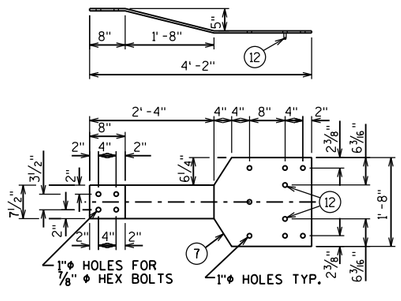
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-32-0229" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
10. PAINTING IS NOT REQUIRED.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).



ANCHOR PLATE

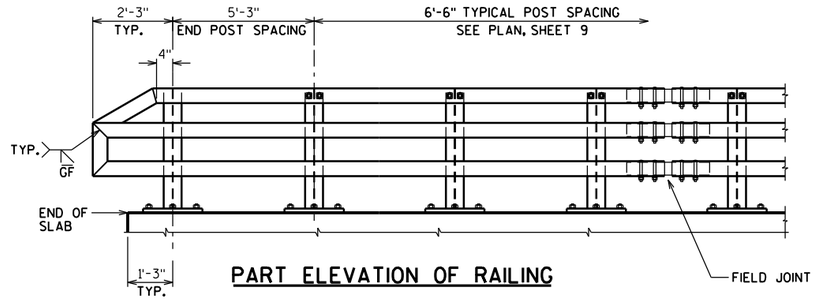


POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-32-0229

DRAWN BY RLR | PLANS CK'D. JAS

RAILING TUBULAR TYPE M

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FILE= 9262004_11.dgn
DATE=5/14/2015

9262004_11RA.dgn 5/14/2015 2:16:03 PM rrabska

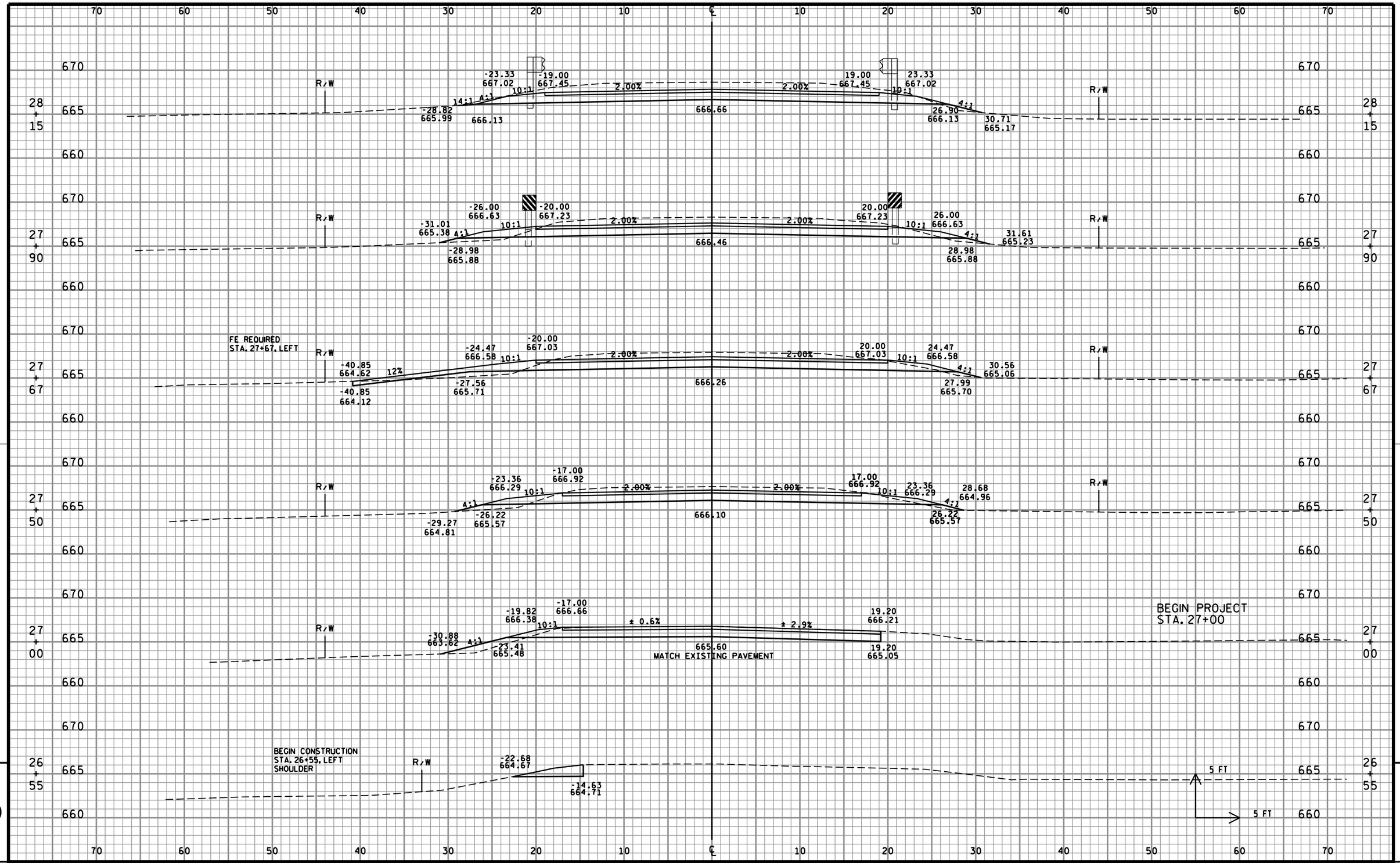
PROJECT I.D. 7371-00-70 EARTHWORK SUMMARY

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	BORROW CY
26+55.00						
	10	0	0	0	10	-10
27+00.00						
	97	0	9	12	85	-85
27+50.00						
	41	0	3	4	37	-37
27+67.00						
	62	0	4	5	57	-57
27+90.00						
	77	0	2	3	74	-74
28+15.00						
	87	0	2	3	84	-84
28+40.00						
	142	0	2	3	139	-139
28+80.00						
	70	0	0	0	70	-70
29+00.00						
	106	0	0	0	106	-106
29+29.75						
STRUCTURE B-32-0229						
30+55.67						
	11	0	0	0	11	-11
30+58.00						
	159	0	0	0	159	-159
30+90.00						
	102	0	0	0	102	-102
31+10.00						
	89	0	1	1	88	-88
31+30.00						
	20	0	0	0	20	-20
31+35.00						
	76	0	3	4	72	-72
31+55.00						
	18	0	1	1	17	-17
31+60.00						
	68	0	5	7	61	-61
31+80.00						
	193	0	16	21	172	-172
32+41.00						
	77	0	8	10	67	-67
32+66.00						
	68	0	9	12	56	-56
32+91.00						
	45	0	6	8	37	-37
33+10.00						
	88	0	15	20	68	-68
33+50.00						
	34	0	5	7	27	-27
33+70.00						
SUBTOTALS						
SOUTH APPROACH	692	0	22	30	662	-662
NORTH APPROACH	1048	0	69	91	957	-957
UNUSABLE PAVEMENT (3)						272
TOTALS	**1740**	**0**	**91**	**121**	**1619**	**-1347**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 30%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 6" OF ASPHALT PER BORING LOG.

9

9



9

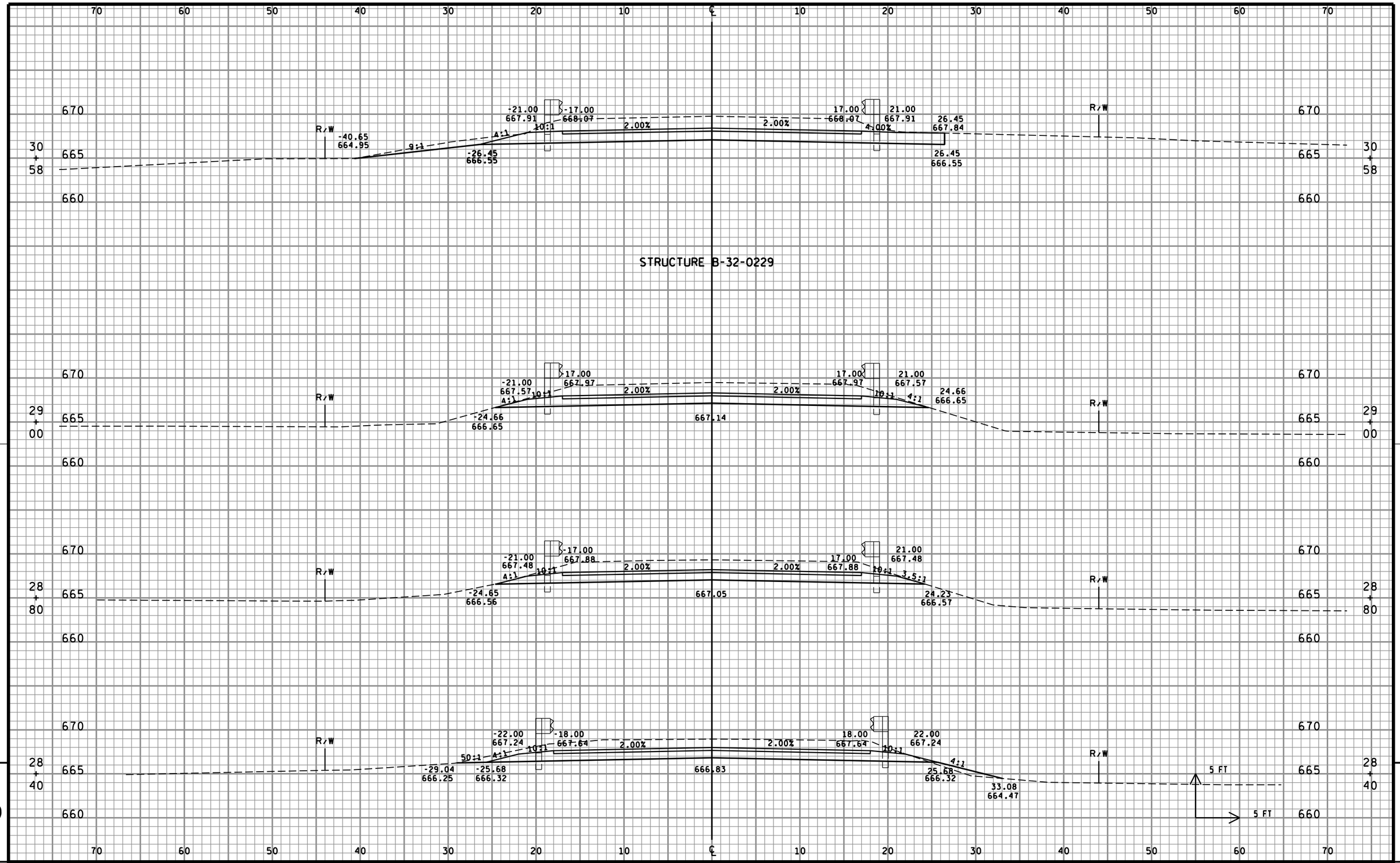
9

PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	CROSS SECTIONS: CTH XX	SHEET	E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Planshts\Xsect 01.DGN PLOT DATE : 5/26/2015 PLOT BY : lrhodes PLOT NAME : PLOT SCALE : 1:1.99999

WISDOT/CADDS SHEET 21

Xsect 01.DGN 5/26/2015 1:42:19 PM lrhodes

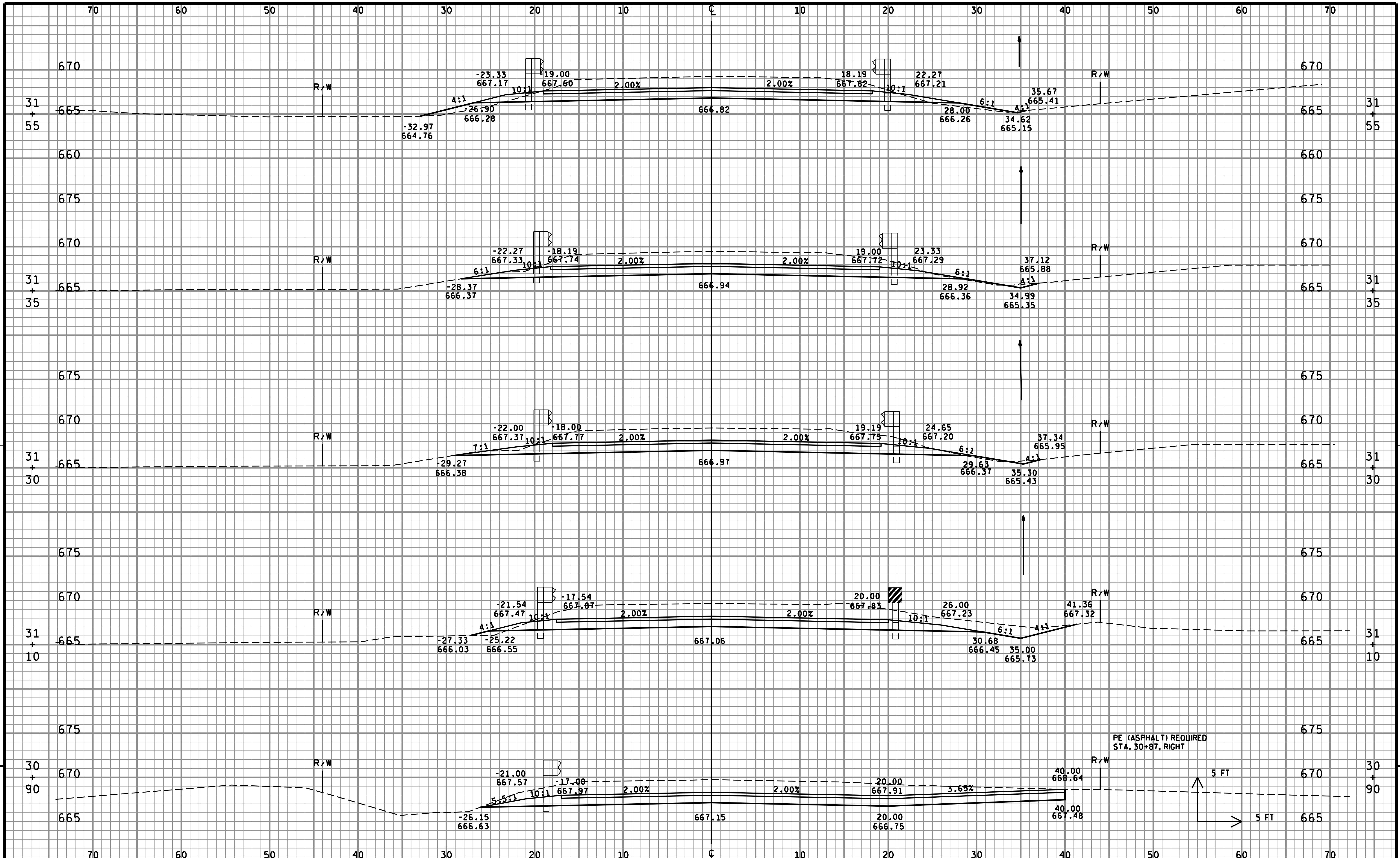


PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	CROSS SECTIONS: CTH XX	SHEET	E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Planshts\Xsect 02.DGN PLOT DATE : 5/26/2015 PLOT BY : lrhodes PLOT NAME : PLOT SCALE : 1:1.99999

WISDOT/CADDS SHEET 21

Xsect 02.DGN 5/26/2015 1:42:35 PM lrhodes

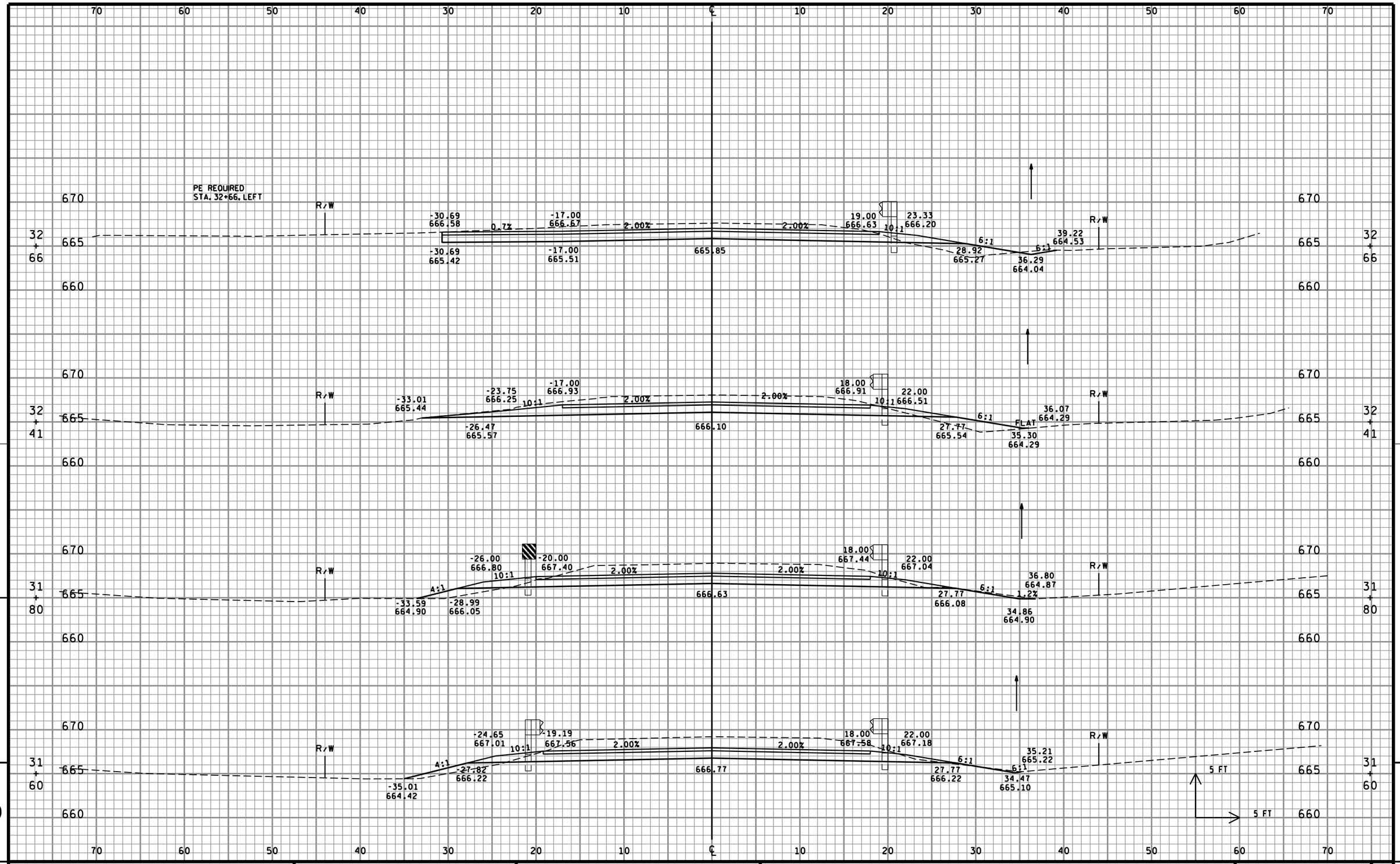


PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	CROSS SECTIONS: CTH XX	SHEET 66	E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Planshts\Xsect 03.DGN PLOT DATE : 5/14/2015 PLOT BY : lrhodes PLOT NAME : PLOT SCALE : 1:1.99999

WISDOT/CADDS SHEET 21

Xsect 03.DGN 5/14/2015 5:06:48 PM lrhodes



9

PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	CROSS SECTIONS: CTH XX	SHEET	E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Planshts\Xsect 04.DGN PLOT DATE : 4/15/2014 PLOT BY : lrhodes PLOT NAME : PLOT SCALE : 1:1.99999

WISDOT/CADDS SHEET 21

Xsect 04.DGN 4/15/2014 9:14:30 AM lrhodes

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

670 665 660

33 + 75

R/W

R/W

END PROJECT
STA. 33+70

33 + 70

R/W

R/W

-11.84
665.71

± 1.2%

± 1.1%

12.04
665.72

-18.36
664.47

664.68
MATCH EXISTING

19.93
664.48

33 + 50

R/W

-18.00
665.69

4%

-17.00
665.73

2.00%

2.00%

17.00
665.73

10:1

21.74
665.26

6:1

4:1

4.25:1

4:1

41.67
665.63

R/W

-28.93
662.96

4:1

-22.99
664.45

664.91

27.11
664.36

32.00
663.21

PE (ASPHALT) REQUIRED
STA. 33+10, LEFT

33 + 10

R/W

-17.00
666.18

-29.00
665.10

9%

2.00%

2.00%

17.00
666.18

10:1

24.64
665.41

6:1

4:1

39.16
664.50

R/W

-29.00
663.93

-16.99
665.01

665.35

28.42
664.78

35.54
663.60

32 + 91

R/W

-19.00
666.19

-17.00
666.39

-25.78
665.04

10:1

2.00%

2.00%

20.00
666.33

10:1

26.00
665.73

6:1

6:1

40.45
664.27

R/W

665.56

30.68
664.94

37.60
663.79

5 FT

5 FT

9

9

PROJECT NO: 7371-00-70	HWY: CTH XX	COUNTY: LA CROSSE	CROSS SECTIONS: CTH XX	SHEET	E

FILE NAME : P:\9200s\9260s\9262\09262004\caddWDOT\Planshts\Xsect 05.DGN PLOT DATE : 4/15/2014 PLOT BY : lrhodes PLOT NAME : PLOT SCALE : 1:1.99999

WISDOT/CADDS SHEET 21

Xsect 05.DGN 4/15/2014 9:15:06 AM lrhodes

Notes

Wisconsin Department of Transportation

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