NWL JAN 2016

PROJECT ID: 8745-00-71

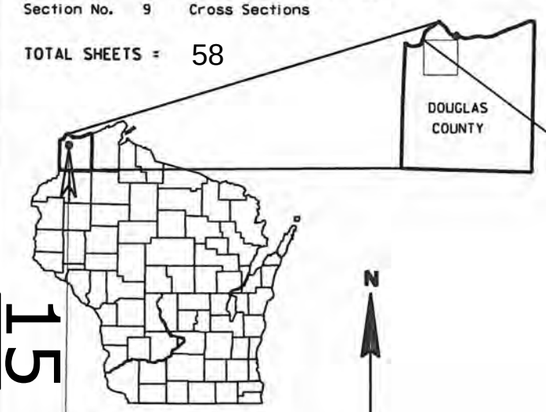
WITH: N/A

COUNTY: DOUGLAS

ORDER OF SHEETS

TOTAL SHEETS = 58

15



DESIGN DESIGNATION

A.D.T. (2014)	=	2,900
A.D.T. (2034)	=	3,700
D.H.V.	=	290
D.	=	61/39
T.	=	5.8
DESIGN SPEED	=	60 MPH
ESALS	=	N/A

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE (PL + 58.1)
- 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)
- HIGH VOLTAGE (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 35 - CTH A

(NEMADJI RIVER BRIDGE B160022)

CTH C

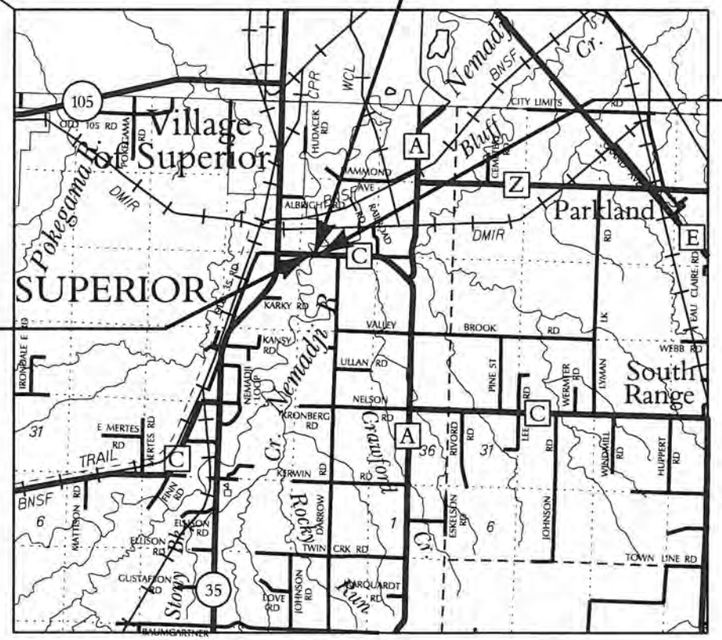
DOUGLAS COUNTY

STATE PROJECT NUMBER

8745-00-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8745-00-71	WISC 2016012	1

STRUCTURE B-16-0022



END PROJECT
STA. 27+50
Y = 273551.05
X = 149556.30

BEGIN PROJECT
STA. 23+00
Y = 273553.14
X = 149106.31

T-48-N
T-47-N

R-14-W | R-13-W

LAYOUT SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.039 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DOUGLAS COUNTY

ACCEPTED FOR

County of Douglas

6/22/2015 Date — Jason Jackman, Highway Commissioner

ORIGINAL PLANS PREPARED BY

AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

WISCONSIN — DANIEL N. SYDOW E-38363 WI — PROFESSIONAL ENGINEER

DATE 6/19/2015

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

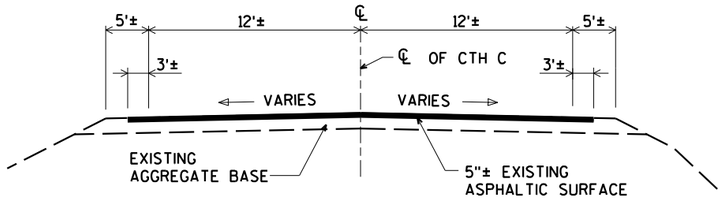
PREPARED BY

Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Management Consultant	KNIGHT E/A INC.
C.O. Examiner	

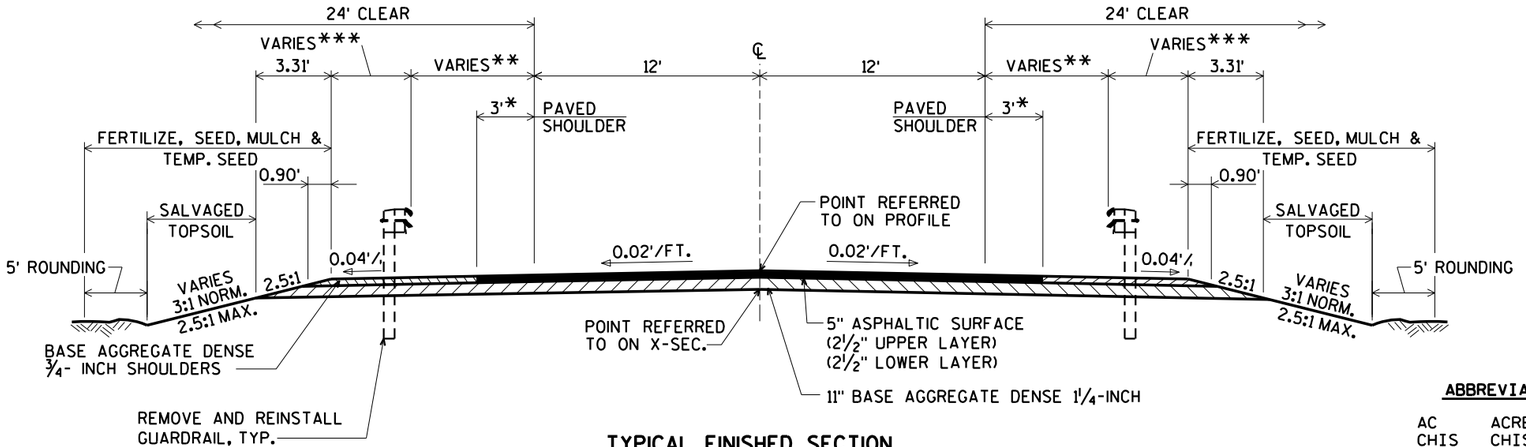
APPROVED FOR THE DEPARTMENT

DATE: 7/23/15 — Management Consultant Signature

E



TYPICAL EXISTING SECTION

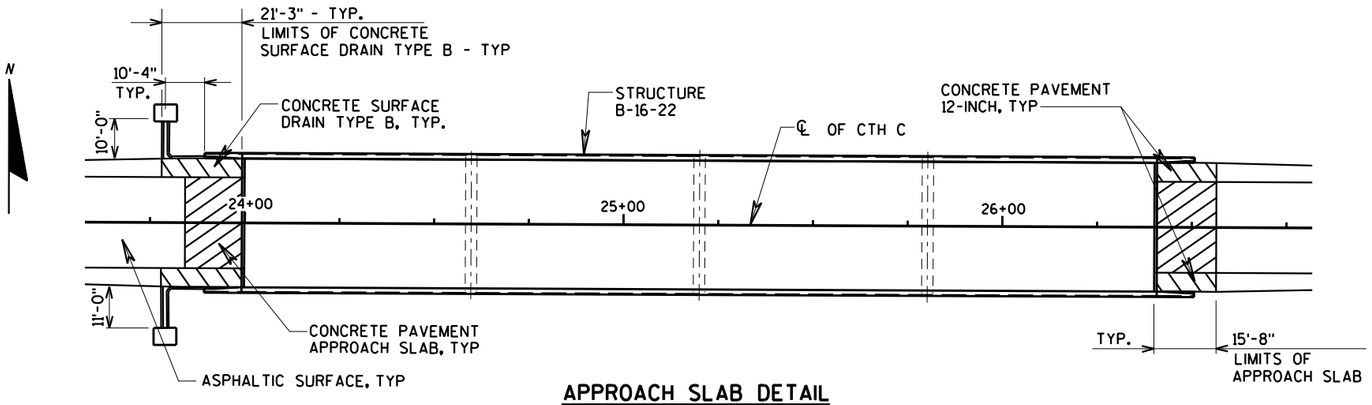


TYPICAL FINISHED SECTION

* 3.0' MIN. AT BEGINNING/END OF PROJECT
5.0' MAX. AT END OF APPROACH SLAB

** 5.0' TYPICAL
7.0' AT END TERMINALS

*** 3.67' TYPICAL
6.0' AT END TERMINALS



APPROACH SLAB DETAIL

GENERAL NOTES

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

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

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCLUSIVE OF THE ROADBED, SHALL BE FERTILIZED, SEEDED, AND MULCHED AS DIRECTED BY THE ENGINEER.

SEED MIXTURE NO. 20 AND SEEDING TEMPORARY SHALL BE USED IN THE PROJECT AND SHALL BE PLACED AS SHOWN IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.

ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 2½" UPPER LAYER AND A 2½" LOWER LAYER. ASPHALTIC SURFACE SHALL USE 12.5 mm NOMINAL AGGREGATE SIZE.

UTILITIES

CENTURYLINK
P.O. BOX 518
OSCEOLA, WI 54020
ATTN: MIKE VANDENBOS
715-294-2463
mike.vandenbos@centurylink.com

EAST CENTRAL ENERGY
P.O. BOX 39
BRAHAM, MN 55006
ATTN: DAVID WALETSKI
763-691-2037
612-390-0792 (cell)
dave.waletski@ecemn.com

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

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

ABBREVIATIONS

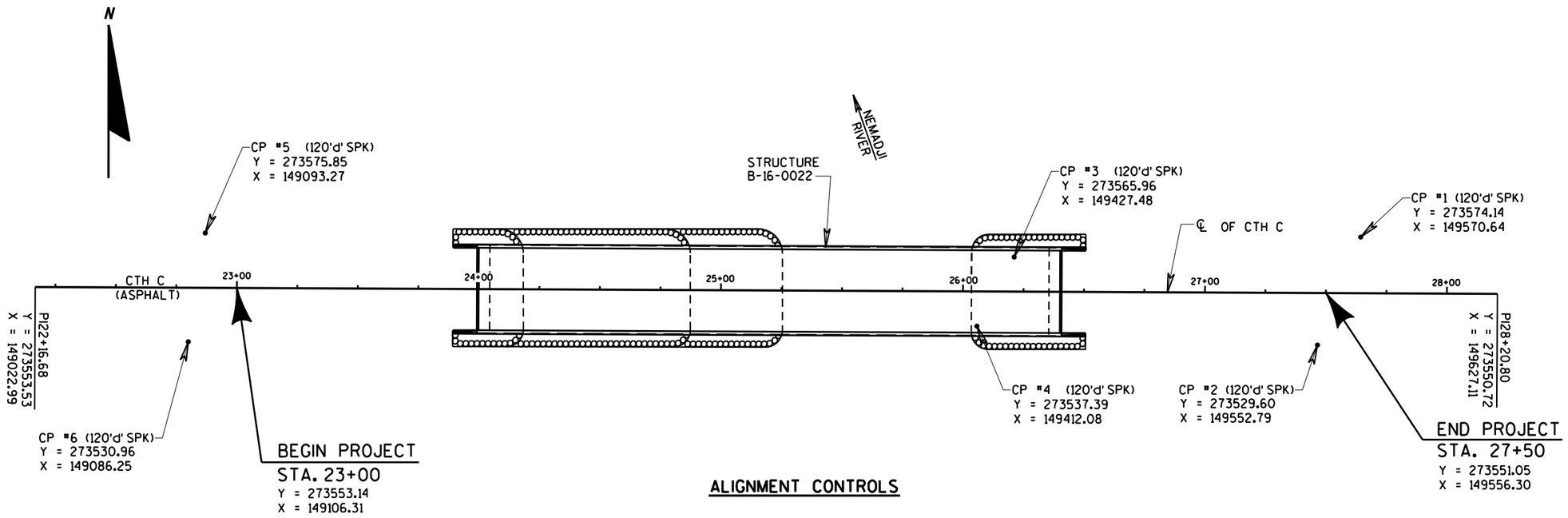
AC	ACRES
CHIS	CHISELED
℄	CENTERLINE
COR	CORNER
CWT	COUNT
CY	CUBIC YARD
EL	ELEVATION
GAL	GALLON
H	HOUSE
IP	IRON PIPE
LB	POUND
LF	LINEAR FEET
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
MON	MONUMENT
NORM	NORMAL
OAL	OVERALL LENGTH
PC	POINT OF CURVATURE
PD	PEDESTAL
PI	POINT OF INTERSECTION
PK	PARKER-KALON
PL	PROPERTY LINE
PLE	PERMANENT LIMITED EASEMENT
PP	POWER POLE
PT	POINT OF TANGENCY
R	RADIUS
REQ'D	REQUIRED
RT	RIGHT
R/W	RIGHT-OF-WAY
SF	SQUARE FEET
SHLDR	SHOULDER
STA	STATION
SY	SQUARE YARD
TLE	TEMPORARY LIMITED EASEMENT
VAR	VARIES
WL	WELL

WISCONSIN DEPARTMENT OF
NATURAL RESOURCES CONTACT:
AMY CRONK
810 WEST MAPLE STREET
SPOONER, WI. 54801
715-635-4229
amy.cronk@wisconsin.gov

DESIGNER
AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
ATTN: DANIEL N. SYDOW
715-834-3161
sydowd@AyresAssociates.com

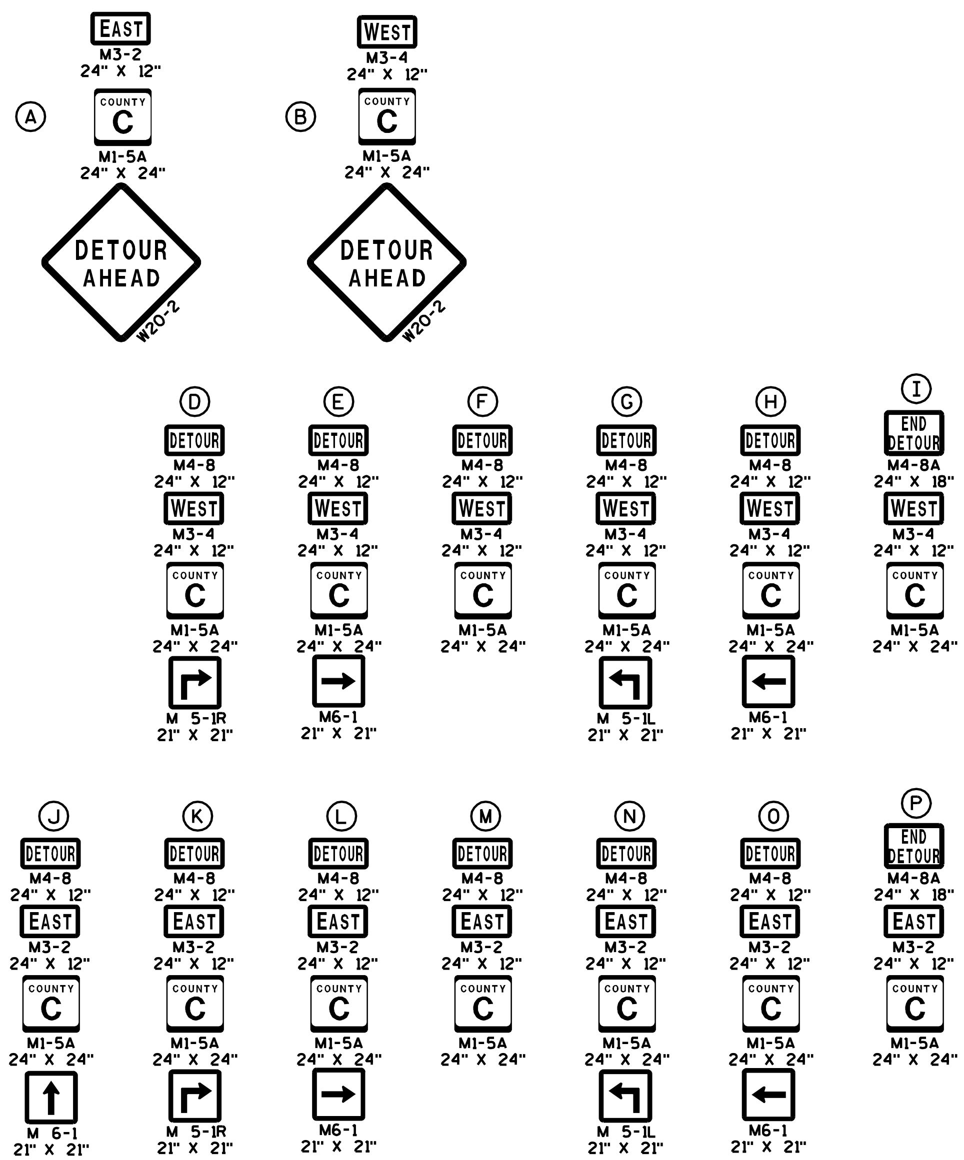
PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 2	E

2



ALIGNMENT CONTROLS

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	ALIGNMENT CONTROLS	SHEET 3	E



N

LEGEND

- ○ POST WITH ATTACHED SIGN
- TYPE III BARRICADE WTIH/WITHOUT ATTACHED SIGN
- CONSTRUCTION ZONE

NOTE:
SEE TRAFFIC CONTROL LAYOUT FOR ADDITIONAL TRAFFIC CONTROL REQ'D.

NOTES

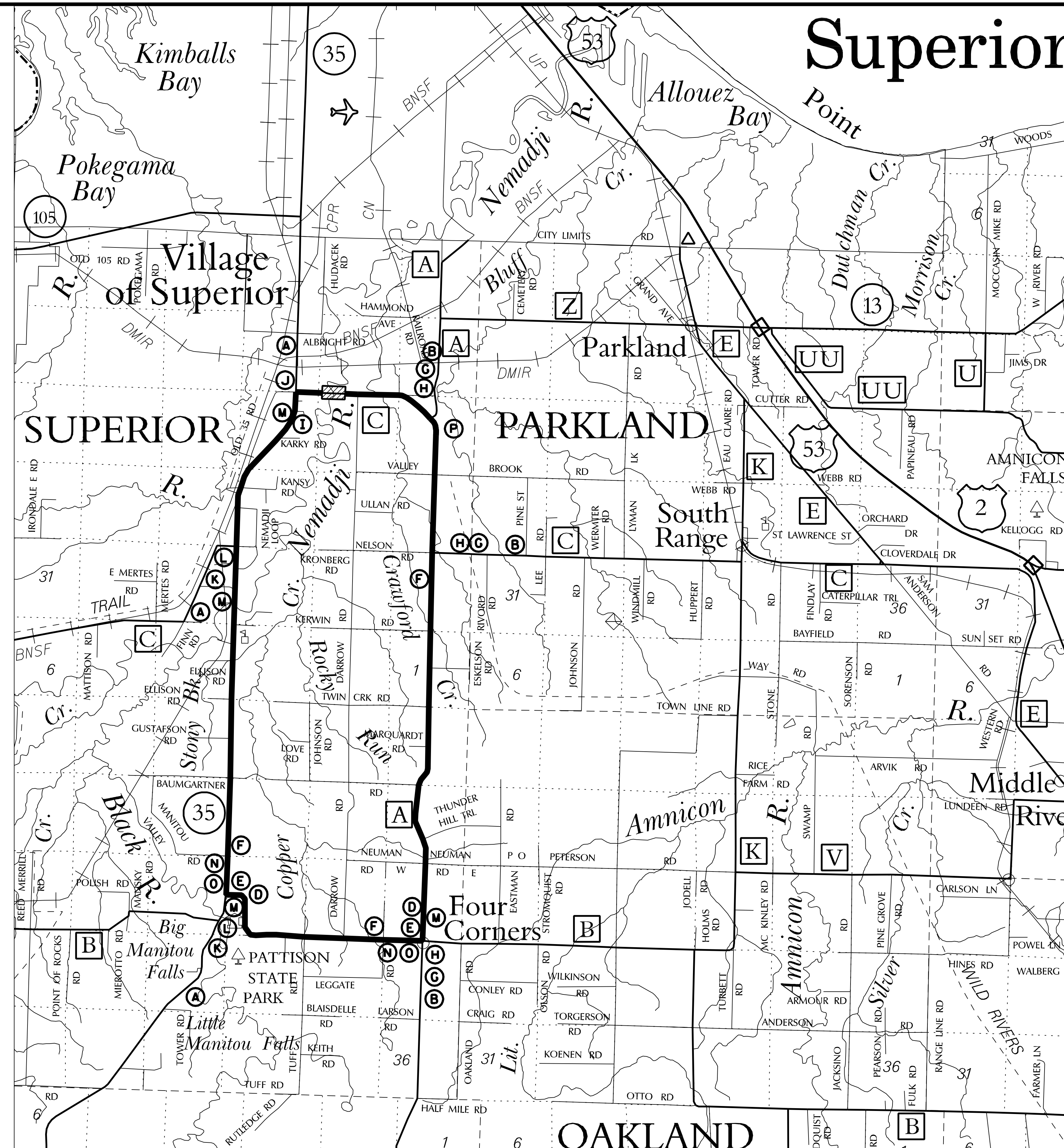
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED

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

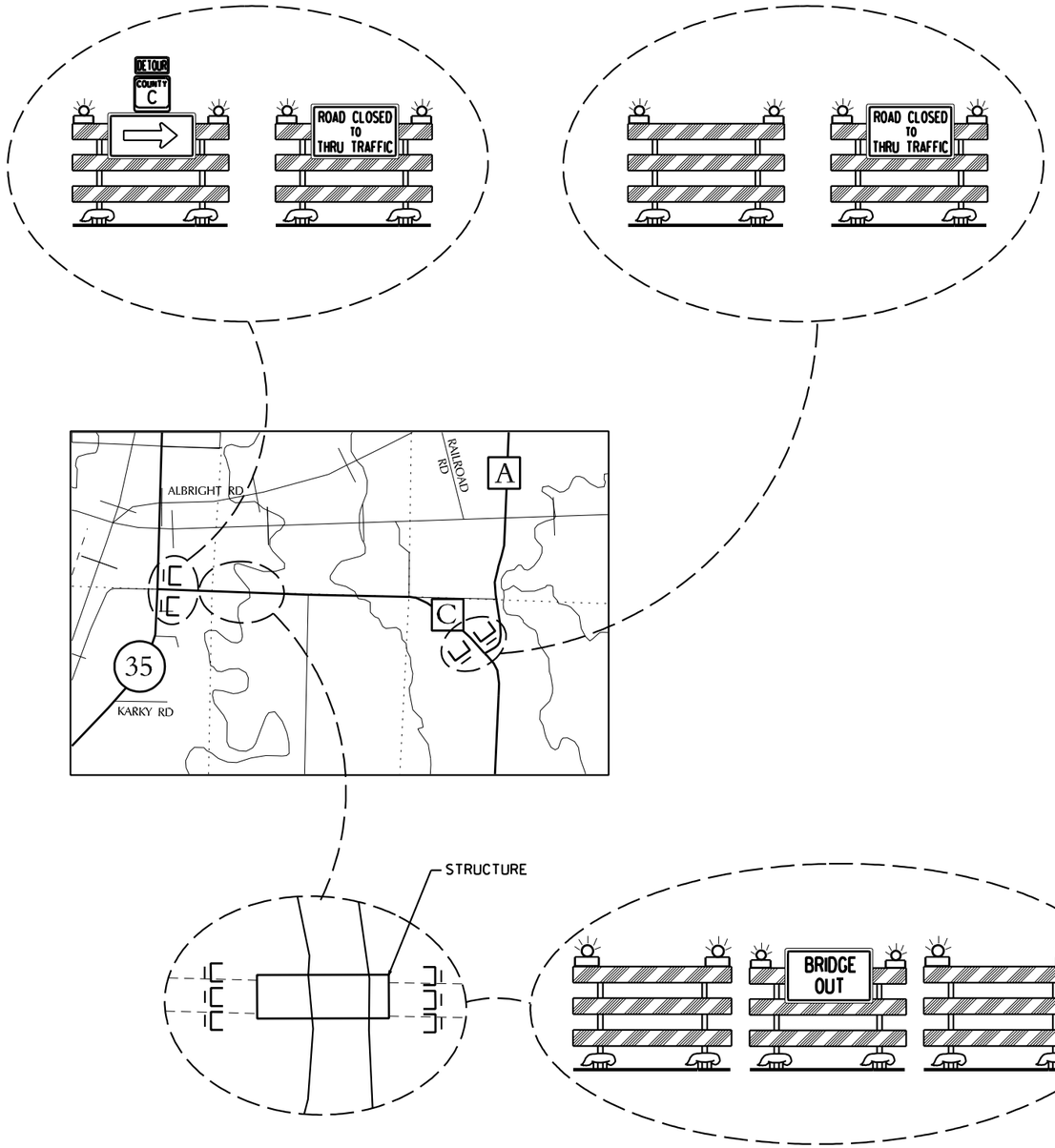
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL IN USE SHALL BE REMOVED OR COVERED AS NEEDED AND IS INCIDENTAL TO THE ITEM OF "TRAFFIC CONTROL DETOUR".

TRAFFIC CONTROL FOR ROAD CLOSURES SHALL BE INSTALLED IN ACCORDANCE WITH S.D.D. "BARRICADES AND SIGNS FOR MAINLINE CLOSURES".

TRAFFIC CONTROL AT ALL INTERSECTIONS IN CONSTRUCTION ZONE SHALL BE INSTALLED IN ACCORDANCE WITH S.D.D. "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES" (DETAIL NO. 4)



PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	DETOUR PLAN LAYOUT	SHEET 4	E



GENERAL NOTES

1. DRAWINGS SHOW TRAFFIC CONTROL FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING ON CONTRACTORS METHODS OR SEQUENCE OF OPERATION.
2. ALL SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. SIGN FACE LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS. UNLESS OTHERWISE PROVIDED IN THE PLAN
4. ROAD MACHINERY, TRUCK ENTRANCE, FLAGMAN AHEAD, ETC., SIGNS SHALL BE USED AS NEEDED AND SHALL BE REMOVED OR COVERED AT NIGHT, WEEKENDS OR WHEN THE ACTIVITY OR CONDITION DOES NOT EXIST. NO FLASHER SHALL BE USED WITH A COVERED SIGN.
5. ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.
6. EXISTING TRAFFIC SIGNS MAY REQUIRE RELOCATION DURING STAGES OF CONSTRUCTION AND SHALL BE LOCATED AS REQUIRED BY THE ENGINEER IN THE FIELD.
7. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
8. BARRICADE LAYOUT FOR ROAD CLOSURE SHALL MEET THE REQUIREMENTS OF SDD 15C2-5b.

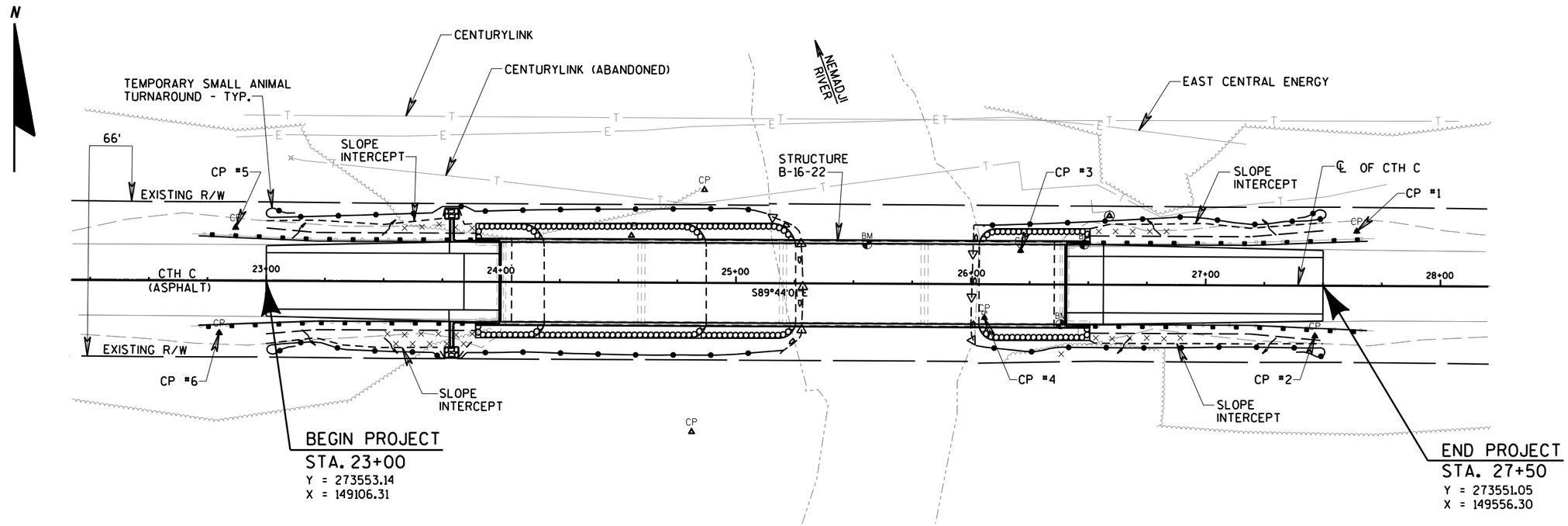
LEGEND

IC TYPE III BARRICADE WITH TWO (2) TYPE "A" FLASHING LIGHTS

BRIDGE OUT	R11-2B 48" x 30"
ROAD CLOSED TO THRU TRAFFIC	R11-4 60" x 30"
COUNTY C	M1-5a 24" x 24"
DETOUR	M4-8 24" x 12"

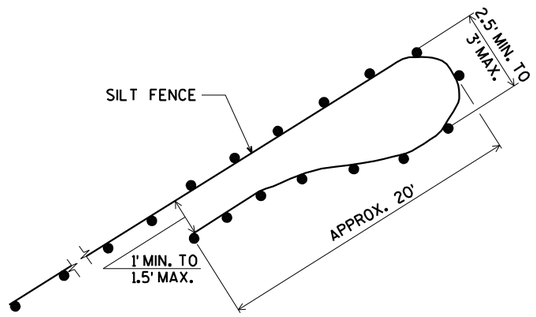
2

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	TRAFFIC CONTROL LAYOUT	SHEET 5	E



	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 = 0.682 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.519 ACRES



TEMPORARY SMALL ANIMAL TURN-AROUND

SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.

LEGEND

- EROSION MAT CLASS II TYPE B
- TEMPORARY DITCH CHECKS (UNDISTRIBUTED)
- SILT FENCE
- RIPRAP HEAVY
- RIPRAP LIGHT (WITH GEOTEXTILE FABRIC TYPE R)
- TURBIDITY BARRIER

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	EROSION CONTROL	SCALE, FEET 0 25 50	SHEET 6	E

DATE 03NOV15 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	8745-00-71 QUANTITY
0010	201.0105	Clearing	STA	4.000	4.000
0020	201.0205	Grubbing	STA	4.000	4.000
0030	203.0210.S	Abatement of Asbestos Containing Material (structure) 01. B-16-0022	LS	1.000	1.000
0040	203.0700.S	Removing Old Structure Over Waterway With Debris Capture System (station) 01. 25+20	LS	1.000	1.000
0050	205.0100	Excavation Common	CY	392.000	392.000
0060	206.1000	Excavation for Structures Bridges (structure) 01. B-16-0022	LS	1.000	1.000
0070	210.0100	Backfill Structure	CY	110.000	110.000
0080	213.0100	Finishing Roadway (project) 01. 8745-00-71	EACH	1.000	1.000
0090	305.0110	Base Aggregate Dense 3/4-Inch	TON	65.000	65.000
0100	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	510.000	510.000
0110	415.0120	Concrete Pavement 12-Inch	SY	20.000	20.000
0120	415.0410	Concrete Pavement Approach Slab	SY	84.000	84.000
0130	416.1010	Concrete Surface Drains	CY	8.000	8.000
0140	455.0605	Tack Coat	GAL	32.000	32.000
0150	465.0105	Asphaltic Surface	TON	185.000	185.000
0160	502.0100	Concrete Masonry Bridges	CY	327.000	327.000
0170	502.3200	Protective Surface Treatment	SY	913.000	913.000
0180	502.3210	Pigmented Surface Sealer	SY	216.000	216.000
0190	502.5002	Masonry Anchors Type L No. 4 Bars	EACH	240.000	240.000
0200	502.5005	Masonry Anchors Type L No. 5 Bars	EACH	112.000	112.000
0210	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	78,520.000	78,520.000
0220	506.4000	Steel Diaphragms (structure) 01. B-16-0022	EACH	16.000	16.000
0230	509.1500	Concrete Surface Repair	SF	20.000	20.000
0240	514.0445	Floor Drains Type GC	EACH	4.000	4.000
0250	514.2625	Downspout 6-Inch	LF	12.000	12.000
0260	606.0100	Riprap Light	CY	4.000	4.000
0270	606.0300	Riprap Heavy	CY	605.000	605.000
0280	614.0010	Barrier System Grading Shaping Finishing	EACH	4.000	4.000
0290	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0300	619.1000	Mobilization	EACH	1.000	1.000
0310	624.0100	Water	MGAL	9.000	9.000
0320	625.0500	Salvaged Topsoil	SY	245.000	245.000
0330	627.0200	Mulching	SY	715.000	715.000
0340	628.1504	Silt Fence	LF	1,090.000	1,090.000
0350	628.1520	Silt Fence Maintenance	LF	2,180.000	2,180.000
0360	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0370	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0380	628.2023	Erosion Mat Class II Type B	SY	120.000	120.000
0390	628.6005	Turbidity Barriers	SY	190.000	190.000
0400	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0410	629.0210	Fertilizer Type B	CWT	0.700	0.700
0420	630.0120	Seeding Mixture No. 20	LB	25.000	25.000
0430	630.0200	Seeding Temporary	LB	20.000	20.000
0440	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0450	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0460	638.2602	Removing Signs Type II	EACH	4.000	4.000
0470	638.3000	Removing Small Sign Supports	EACH	4.000	4.000

3

DATE 03NOV15 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	8745-00-71 QUANTITY
0480	642.5001	Field Office Type B	EACH	1.000	1.000
0490	643.0100	Traffic Control (project) 01. 8745-00-71	EACH	1.000	1.000
0500	643.0420	Traffic Control Barricades Type III	DAY	600.000	600.000
0510	643.0705	Traffic Control Warning Lights Type A	DAY	1,200.000	1,200.000
0520	643.0900	Traffic Control Signs	DAY	240.000	240.000
0530	643.2000	Traffic Control Detour (project) 01. 8745-00-71	EACH	1.000	1.000
0540	643.3000	Traffic Control Detour Signs	DAY	7,440.000	7,440.000
0550	645.0120	Geotextile Fabric Type HR	SY	970.000	970.000
0560	645.0130	Geotextile Fabric Type R	SY	16.000	16.000
0570	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,015.000	1,015.000
0580	650.4500	Construction Staking Subgrade	LF	178.000	178.000
0590	650.5000	Construction Staking Base	LF	178.000	178.000
0600	650.6500	Construction Staking Structure Layout (structure) 01. B-16-0022	LS	1.000	1.000
0610	650.9910	Construction Staking Supplemental Control (project) 01. 8745-00-71	LS	1.000	1.000
0620	650.9920	Construction Staking Slope Stakes	LF	178.000	178.000
0630	690.0150	Sawing Asphalt	LF	62.000	62.000
0640	715.0502	Incentive Strength Concrete Structures	DOL	1,962.000	1,962.000
0650	ASP.1T0A	On-the-Job Training Apprentice at $5. 00/HR	HRS	1,200.000	1,200.000
0660	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000
0670	SPV.0090	Special 01. REMOVE AND REINSTALL GUARDRAIL	LF	480.000	480.000
0680	SPV.0195	Special 01. SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR	TON	43.000	43.000

3

3

CLEARING AND GRUBBING (CATEGORY 0010)

STATION TO STATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
Sta. 23+00 to Sta. 27+00	4	4

213.0100 FINISHING ROADWAY (CATEGORY 0010)

LOCATION	EACH
PROJECT 8745-00-71	1

EARTHWORK SUMMARY (CATEGORY 0010)

DIVISION	STATION TO STATION	LOCATION	205.0100 EXCAVATION COMMON CUT (2) CY	SALVAGED/ UNUSABLE PAVEMENT MATERIAL CY	AVAILABLE MATERIAL (6) CY	UNEXPANDED FILL (3) CY	EXPANDED FILL (4) CY	MASS ORDINATE ±(5) CY	WASTE CY	208.0100 BORROW CY	COMMENTS:
1	Sta. 23+00 to Sta. 24+00	CTH C	190	0	190	65	85	106	106	0	
	Sta. 26+40 to Sta. 27+50	CTH C	202	0	202	91	118	84	84	0	
	GRANDTOTAL		392	0	392	156	203	189	189	0	

TOTAL EXCAVATION COMMON 392 CY

TOTAL BORROW 0 CY

NOTES:
1) EXCAVATION COMMON IS THE SUM OF THE CUT COLUMN. ITEM NUMBER 205.0100
2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
3) DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUME.
4) EXPANDED FILL FACTOR = 1.30
EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
5) THE MASS ORDINATE ± QTY CALCUTATED FOR THE DIVISION.
PLUS (+) QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION.
MINUS (-) QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
6) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSEABLE PAVEMENT MATERIAL

BASE AGGREGATE DENSE (CATEGORY 0010)

STATION TO STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON
Sta. 23+00 to Sta. 23+89 LT	Shoulders	15	---
Sta. 26+51 to Sta. 27+50 RT	Shoulders	15	---
Sta. 23+00 to Sta. 23+89	Mainline	---	240
Sta. 26+56 to Sta. 27+50	Mainline	35	270
TOTALS		65	510

CONCRETE ITEMS

STATION TO STATION	LOCATION	415.0120 CONCRETE PAVEMENT 12-INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	416.1010 CONCRETE SURFACE DRAINS CY
Sta. 23+78 to Sta. 24+00	RT & LT	--	--	8.0
Sta. 26+40 to Sta. 26+56	SHOULDER	20	--	--
Sta. 23+84 to Sta. 24+00	MAINLINE	--	42	--
Sta. 26+40 to Sta. 26+56	MAINLINE	--	42	--
TOTALS		20	84	8.0

455.0605 TACK COAT (CATEGORY 0010)

STATION TO STATION	LOCATION	GAL
Sta. 23+00 to Sta.23+84	Mainline	15
Sta. 26+56 to Sta. 27+50	Mainline	17
TOTAL		32

465.0105 ASPHALTIC SURFACE (CATEGORY 0010)

STATION TO STATION	LOCATION	TON
Sta. 23+00 to Sta.23+84	Mainline	90
Sta. 26+56 to Sta. 27+50	Mainline	95
TOTAL		185

606.0100 RIPRAP LIGHT (CATEGORY 0010)

STATION TO STATION	LOCATION	CY
Sta. 23+76 to Sta. 23+82	RT	2
Sta. 23+76 to Sta. 23+82	LT	2
TOTAL		4

614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING (CATEGORY 0010)

STATION TO STATION	LOCATION	EACH
Sta. 22+71	LT	1
Sta. 22+71	RT	1
Sta. 27+69	LT	1
Sta. 27+69	RT	1
TOTAL		4

619.1000 MOBILIZATION

LOCATION	EACH
PROJECT 8745-00-71 (CATEGORY 0010)	0.2
PROJECT 8745-00-71 (CATEGORY 0020)	0.8
TOTAL	1

624.0100 WATER

LOCATION	MGAL
PROJECT 8745-00-71	9

SALVAGED TOPSOIL, MULCHING, FERTILIZER, SEED & TEMPORARY SEED (CATEGORY 0010)

STATION TO STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING NO. 20 LB	630.0200 SEEDING TEMPORARY LB
Sta. 23+00 to Sta. 27+50	Mainline	245	460	0.5	19	15
Undistributed		---	255	0.2	6	5
TOTALS		245	715	0.7	25	20

SILT FENCE & SILT FENCE MAINTENANCE (CATEGORY 0010)

STATION TO STATION	LOCATION	628.1504 LF	628.1520 MAINTENANCE LF
Sta. 23+00 to Sta. 25+30	LT&RT	510	1,020
Sta. 26+00 to Sta. 27+50	LT&RT	360	720
Undistributed		220	440
TOTALS		1,090	2,180

MOBILIZATIONS EROSION CONTROL & EMERGENCY EROSION CONTROL (CATEGORY 0010)

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT 8745-00-71	4	2

628.2023 EROSION MAT CLASS II TYPE B (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 23+50 to Sta. 23+89	RT	35
Sta. 23+50 to Sta. 23+89	LT	20
Sta. 26+50 to Sta. 27+90	LT & RT	40
Undistributed		25
TOTAL		120

628.6005 TURBIDITY BARRIERS (CATEGORY 0010)

LOCATION	SY
Sta. 25+28	65
Sta. 26+01	85
Undistributed	40
TOTAL	190

628.7504 TEMPORARY DITCH CHECKS (CATEGORY 0010)

LOCATION	LF
UNDISTRIBUTED	50

634.0612 WOOD POSTS 4X6 INCH X 12 FT (CATEGORY 0010)

STATION	LOCATION	EACH
Sta. 23+89	LT (Object Marker)	1
Sta. 23+89	RT (Object Marker)	1
Sta. 26+50	LT (Object Marker)	1
Sta. 26+50	RT (Object Marker)	1
TOTAL		4

637.2230 SIGNS TYPE II REFLECTIVE F (CATEGORY 0010)

STATION			SF
Sta. 23+89	LT (Object Marker)	W5-52L	3
Sta. 23+89	RT (Object Marker)	W5-52R	3
Sta. 26+50	LT (Object Marker)	W5-52R	3
Sta. 26+50	RT (Object Marker)	W5-52L	3
TOTAL			12

SIGN REMOVAL CATEGORIES

STATION	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
Sta. 23+89 LT (Object Marker) W5-52L	1	1
Sta. 23+89 RT (Object Marker) W5-52R	1	1
Sta. 26+50 LT (Object Marker) W5-52R	1	1
Sta. 26+50 RT (Object Marker) W5-52L	1	1
TOTAL	4	4

642.5001 FIELD OFFICE TYPE B (CATEGORY 0010)

LOCATION	EACH
PROJECT 8745-00-71	1

643.0100 TRAFFIC CONTROL (CATEGORY 0010)

LOCATION	EACH
PROJECT 8745-00-71	1

TRAFFIC CONTROL BARRICADES, LIGHTS, AND SIGNS (CATEGORY 0010)

LOCATION	643.0420 BARRICADES TYPE III EACH	643.0420 BARRICADES TYPE III DAYS	643.0705 WARNING LIGHTS TYPE A EACH	643.0705 WARNING LIGHTS TYPE A DAYS	643.0900 SIGNS EACH	643.0900 SIGNS DAYS
PROJECT 8745-00-71	10	60	20	60	4	60
TOTAL		600		1,200		240

643.2000 TRAFFIC CONTROL DETOUR (CATEGORY 0010)

LOCATION	EACH
PROJECT 8745-00-71	1

3

643.3000 TRAFFIC CONTROL DETOUR SIGNS (CATEGORY 0010)

LOCATION	EACH	DAYS
PROJECT 8745-00-71	124	60
TOTAL		7,440

CONSTRUCTION STAKING

CATEGORY	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTARY CONTROL LS	650.9920 SLOPE STAKES LF
0010	Sta. 23+00 TO Sta. 27+50	178	178	---	1	178
0020	B-16-0022	---	---	1	---	---
TOTALS		178	178	1	1	178

645.0130 GEOTEXTILE FABRIC TYPE R (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 23+76 to Sta. 23+82	RT	8
Sta. 23+76 to Sta. 23+82	LT	8
TOTAL		16

690.0150 SAWING ASPHALT (CATEGORY 0010)

STATION	LOCATION	LF
Sta. 23+00	Mainline	31
Sta. 27+50	Mainline	31
TOTAL		62

646.0106 PAVEMENT MARKING EPOXY 4-INCH

STATION	DESCRIPTION	LF
Sta. 23+00 TO Sta. 27+50	YELLOW DASHED CENTERLINE	115
	WHITE EDGELINE	900
TOTAL		1,015

SPV.0090 REMOVE AND REINSTALL GUARDRAIL(CATEGORY 0010)

STATION TO STATION	LOCATION	LF
STA. 22+71 TO STA. 23+92	LT	120
STA. 22+71 TO STA. 23+92	RT	120
STA. 26+48 TO STA. 27+69	LT	120
STA. 26+48 TO STA. 27+69	RT	120
TOTAL		480

NOTE: PROVIDE POSTS WITH 4'-6" MIN. EMBEDMENT AT 3'-1 1/2" POST SPACING FROM STATION 23+21 TO STATION 23+71 RIGHT.

		BENCH MARKS	
NO.	STA.	DESCRIPTION	ELEV.
1	25+56	CHIS. SQ. ON CURB, 17' LT.	632.82
2	26+38	CHIS. SQ. SE COR. OF BRIDGE, 17' RT.	633.02
3	26+48	CHIS. SQ. NE COR. OF BRIDGE, 17' LT.	633.01
4	26+60	USGS DISK, 29' LT.	628.66

N

GREENWOOD CEMETERY ASSN.

CENTURYLINK

EAST CENTRAL ENERGY

CENTURYLINK (ABANDONED)

REMOVE AND REINSTALL GUARDRAIL - TYP. EACH CORNER

SLOPE INTERCEPT

NEMADJI RIVER

SUPERIOR PAINTBALL

℄ OF CTH C

66'

EXISTING R/W

EXISTING R/W

CP #5

CP #6

CP #1

CP #2

CP #3

CP #4

BM #1

BM #2

BM #3

BM #4

SLOPE INTERCEPT

SLOPE INTERCEPT

SLOPE INTERCEPT

STRUCTURE B-16-0022

CTH C

(ASPHALT)

23+00

24+00

25+00

26+00

27+00

28+00

S89°44'01"E

P0822+16.68

P122+16.68

P0828+20.80

P128+20.80

ENBRIDGE ENERGY LP

ENBRIDGE ENERGY LP

BEGIN PROJECT
STA. 23+00
(SAWCUT REQUIRED)
Y = 273553.14
X = 149106.31

END PROJECT
STA. 27+50
(SAWCUT REQUIRED)
Y = 273551.05
X = 149556.30

ORIGIN OF LEVELS
NGS MONUMENT 9P37
DESCRIPTION:
EL. 673.03 (NAVD 88)

EARTHWORK SUMMARY
STA. 23+00 TO STA. 23+99.88
EXC. COMMON 190 C.Y.
FILL 65 C.Y.
SHR. = 30%
WASTE 106 C.Y.

EARTHWORK SUMMARY
STA. 26+40.13 TO STA. 27+50
EXC. COMMON 202 C.Y.
FILL 91 C.Y.
SHR. = 30%
WASTE 84 C.Y.

PI STA 23+00.00
PI EL 631.50

PI STA 23+99.21
PI EL 632.22

PI STA 26+40.79
PI EL 632.90

PI STA 27+50.00
PI EL 632.11

+0.73%

+0.28%

-0.73%

EXISTING ℄ PROFILE

FINISHED ℄ PROFILE

WATER EL. 605.5
(7-16-13)

STREAM BED
EL. 600.3

STA. 25+20
STRUCTURE B-16-0022 REHABILITATION REQ'D.
FOUR SPAN PRESTRESSED CONCRETE GIRDER BRIDGE
34'-0" CLEAR RDWY x 241'-7" O.A.L.
0° SKEW

REMOVING OLD STRUCTURE OVER WATERWAY
WITH DEBRIS CAPTURE SYSTEM
STA. 25+20 FOR DECK REMOVAL OF STRUCTURE B-16-0022
FOUR SPAN PRESTRESSED CONCRETE GIRDER BRIDGE
33'-0" CLEAR RDWY x 241'-7" O.A.L.
0° SKEW

640 630 620 610 590 580

631.38 631.50 MATCH 631.70 631.86 631.34 632.22 617.60 632.36 609.97 632.50 600.52 632.65 604.05 632.79 632.53 632.84 632.32 632.47 632.11 MATCH 632.11

22+00 22+50 23+00 23+50 24+00 24+50 25+00 25+50 26+00 26+50 27+00 27+50 28+00 28+50

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	PLAN AND PROFILE	SCALE, FEET 0 25 50	SHEET 13	E

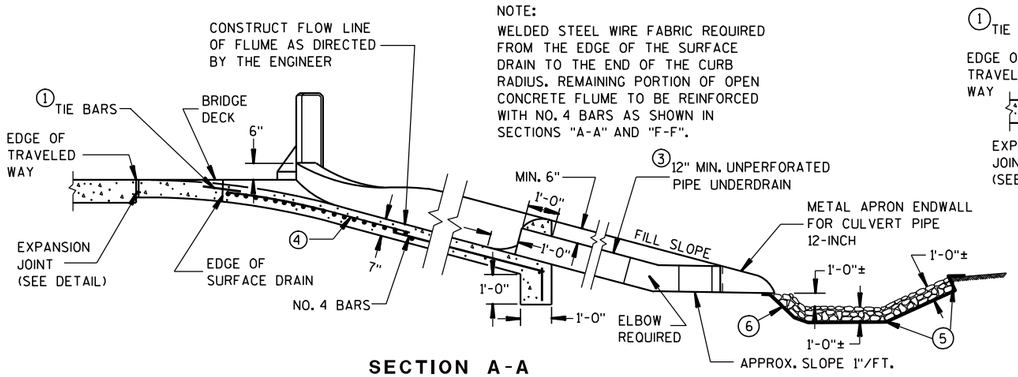
U:\42-0899.00 - Douglas Co, CTH C Re-deck\RDWY\420899 pp.dgn 10/27/2015 PENTABLE:BReau_shd_util.tbl BRIDGE 1:49.9999

WISDOT/CADDS SHEET 40

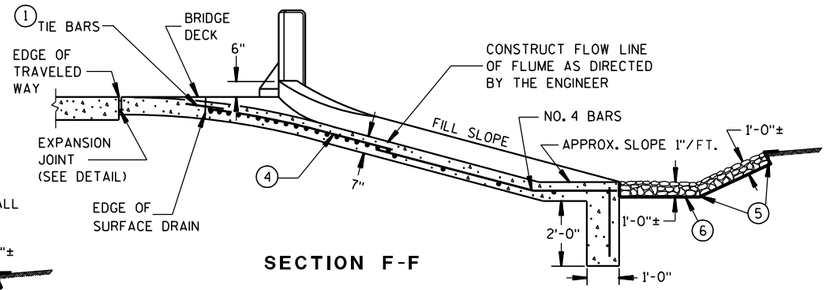
Standard Detail Drawing List

08D02-06	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
13B02-08B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
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
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B24-07A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-02	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)

6



SECTION A-A



SECTION F-F

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.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

(1) NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" CENTERS TO BE USED ONLY WHEN ADJACENT TO P.C. CONCRETE.

(2) NO. 4 X 2'-0" TIE BARS SPACED AT 12" CENTERS TO BE PLACED BY BRIDGE CONTRACTOR, OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.

(3) PIPE UNDERDRAIN MAY BE ANY OF THE MATERIALS LISTED IN SECTION 612.2 OF THE STANDARD SPECIFICATIONS EXCEPT DRAIN TILE.

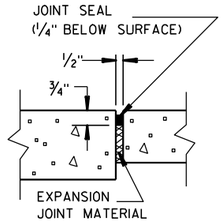
(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

(5) LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.

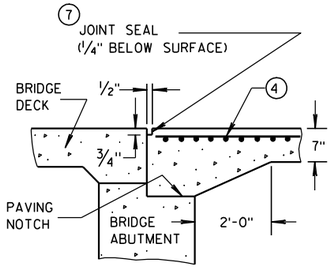
(6) GEOTEXTILE FABRIC, TYPE 'R"

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

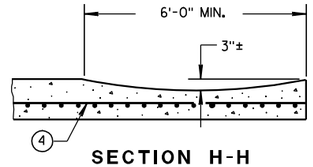
(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".



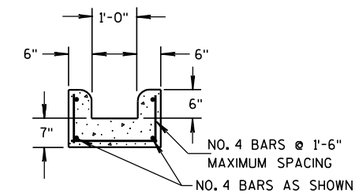
EXPANSION JOINT DETAIL



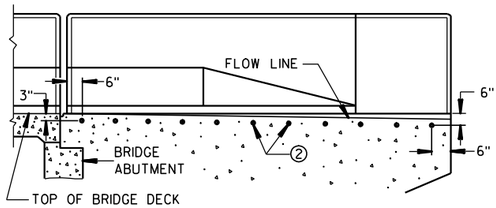
SECTION D-D



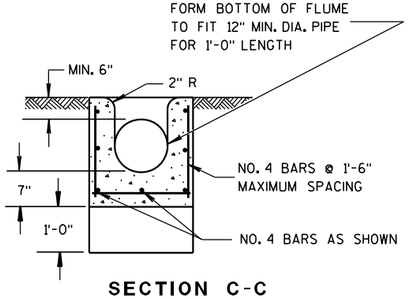
SECTION H-H



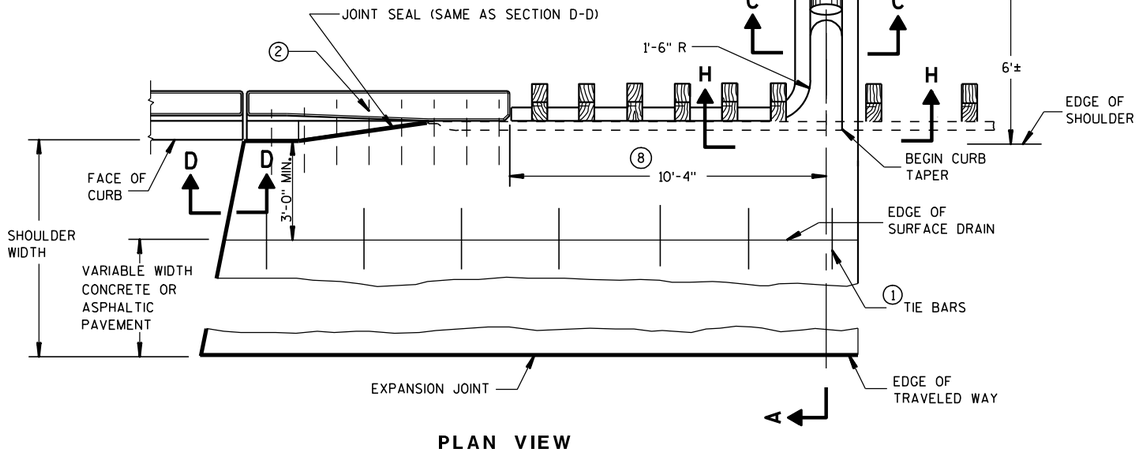
SECTION E-E



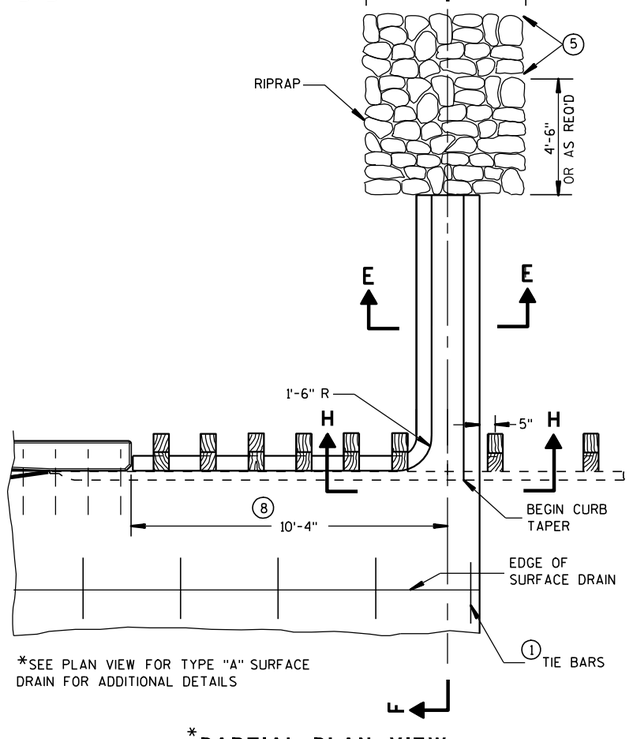
LOCATION OF TIE BARS IN WINGWALL



SECTION C-C



PLAN VIEW
SURFACE DRAIN WITH PIPE
TYPE "A"



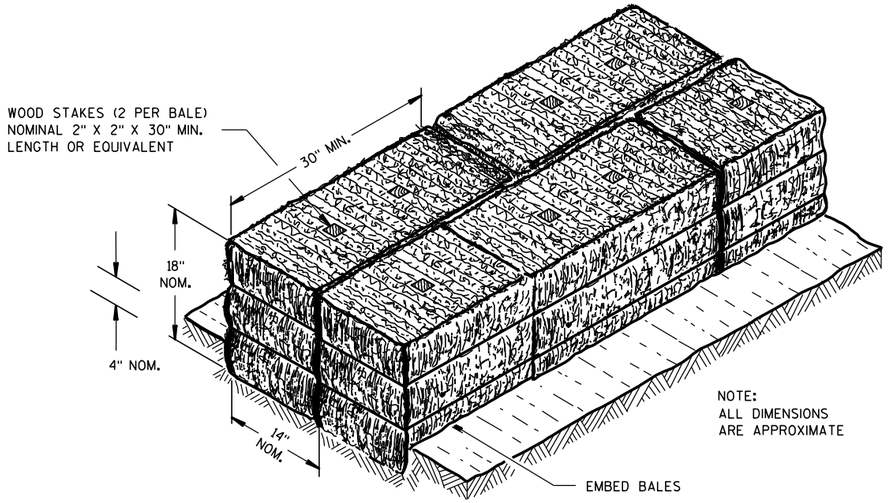
*SEE PLAN VIEW FOR TYPE "A" SURFACE DRAIN FOR ADDITIONAL DETAILS

*PARTIAL PLAN VIEW
SURFACE DRAIN WITHOUT PIPE
TYPE "B"

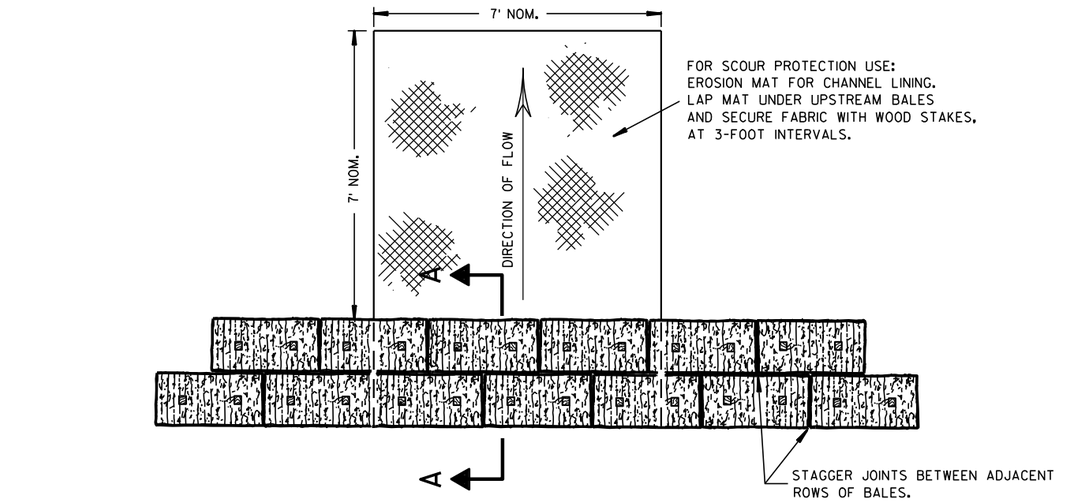
CONCRETE SURFACE DRAINS
FLUME TYPE
AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

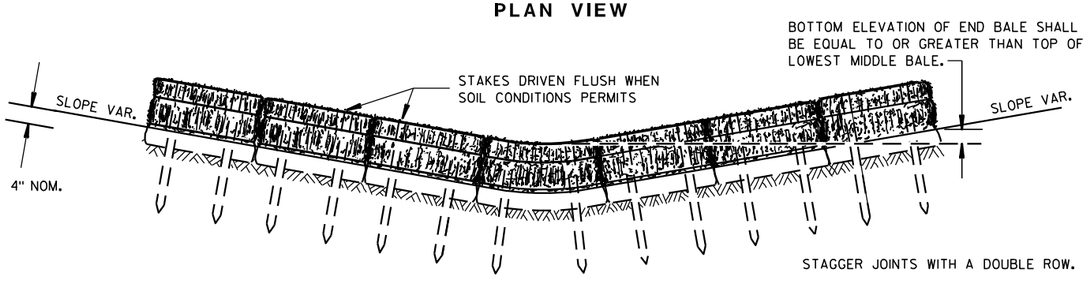
APPROVED
9/4/08 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA



SECTION A-A



PLAN VIEW



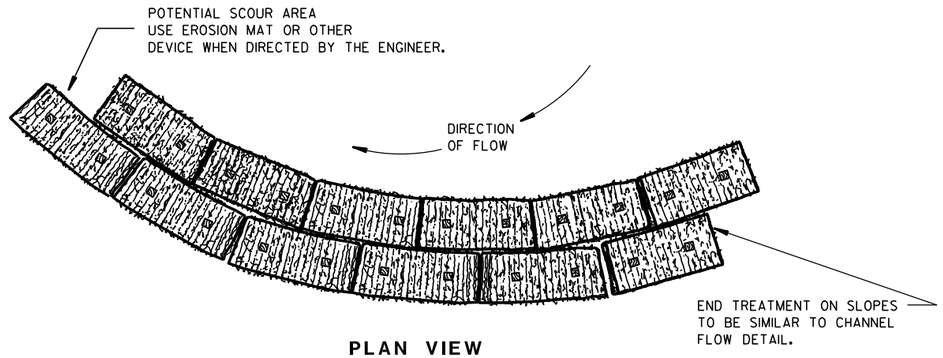
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

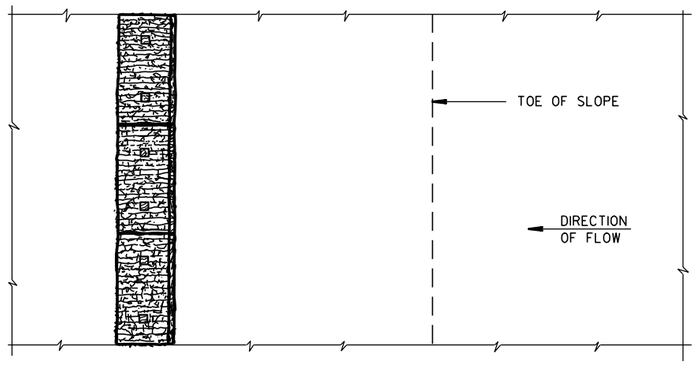
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(1) TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

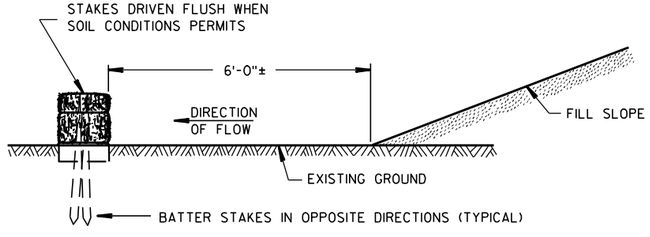


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

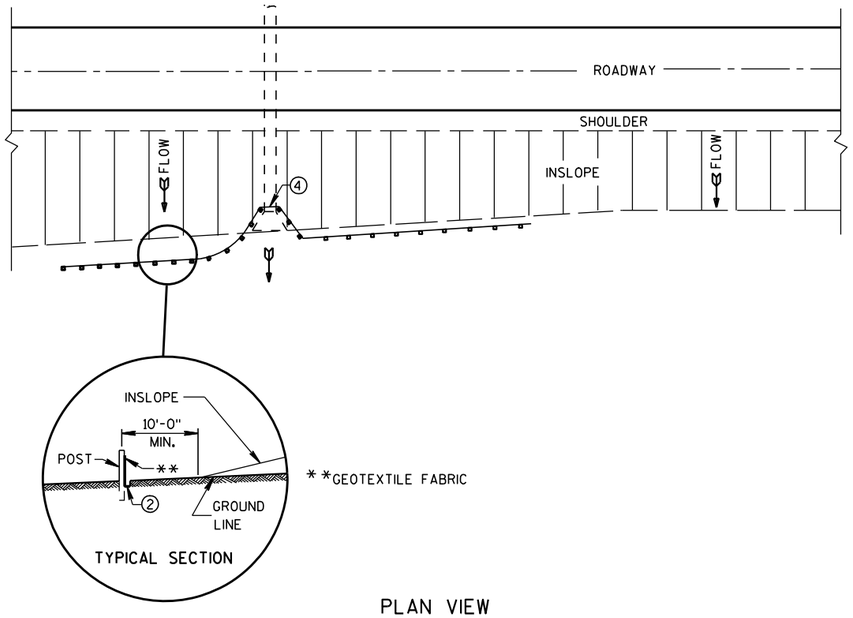
FHWA

6

S.D.D. 8 E 8-3

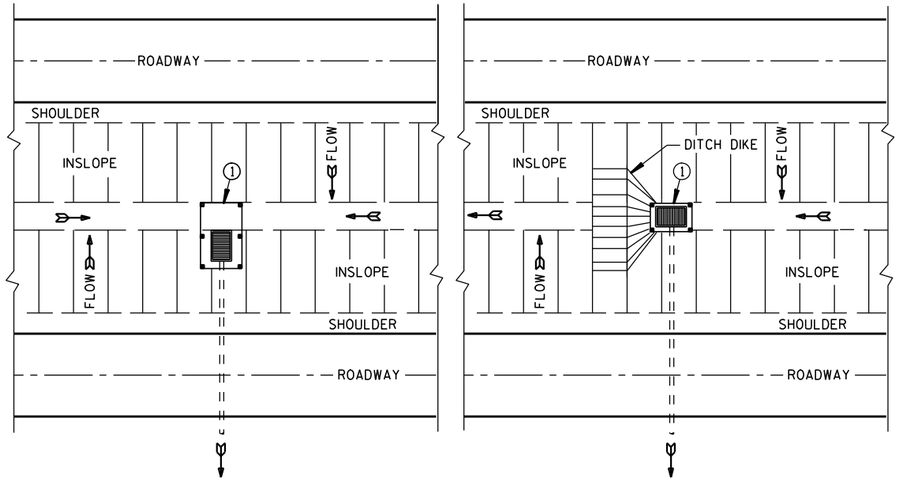
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



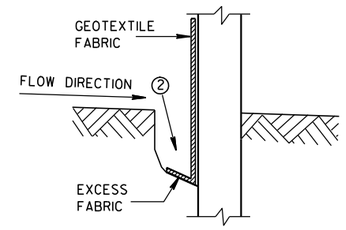
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

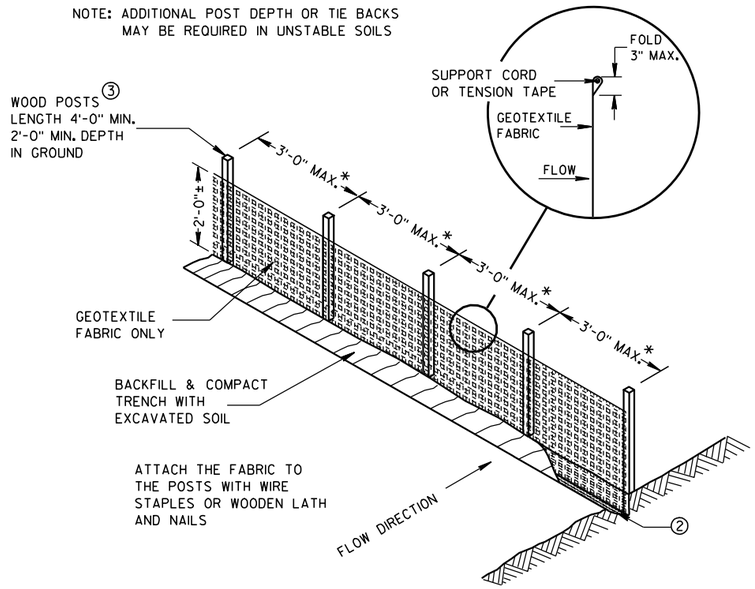
GENERAL NOTES

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

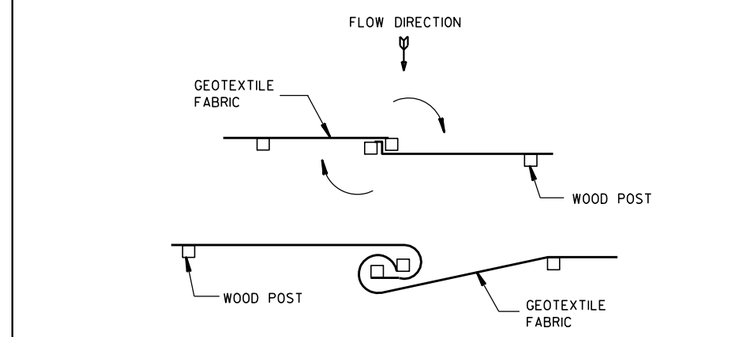
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



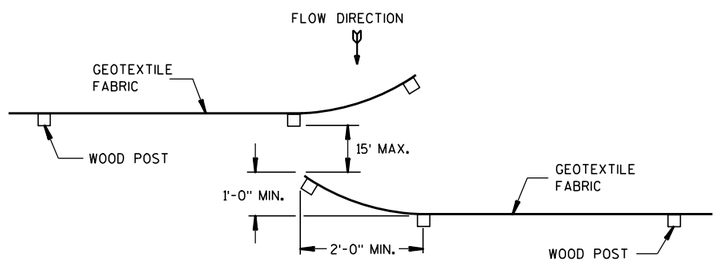
TRENCH DETAIL



SILT FENCE

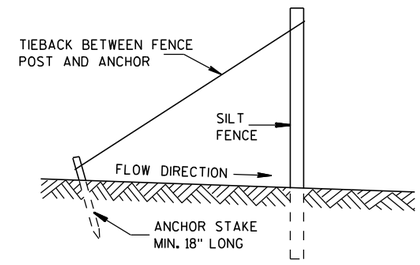


TWIST METHOD



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

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S.D.D. 8 E 9-6

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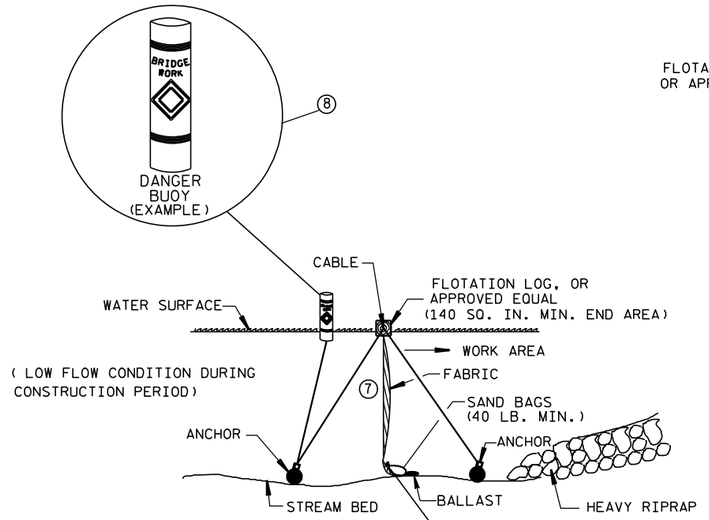
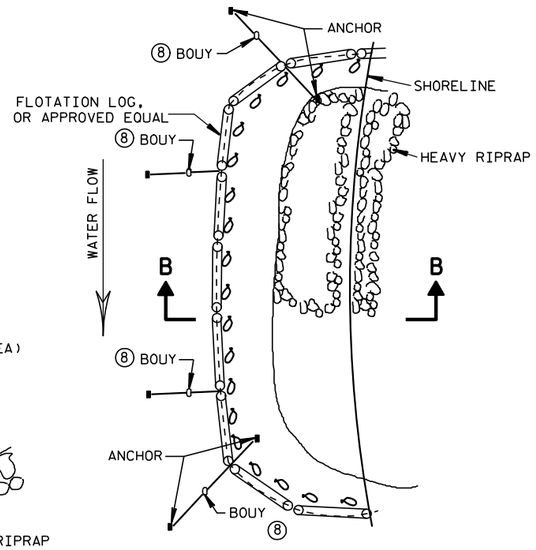
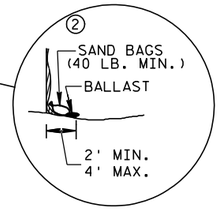
S.D.D. 8 E 9-6

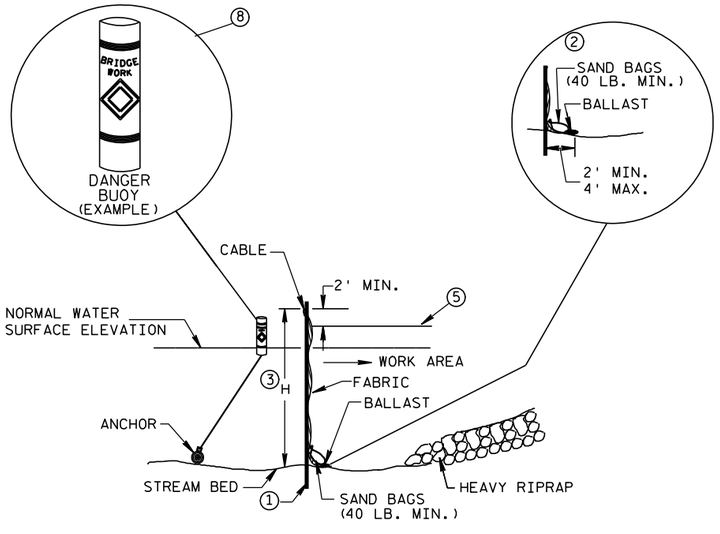


SECTION B-B

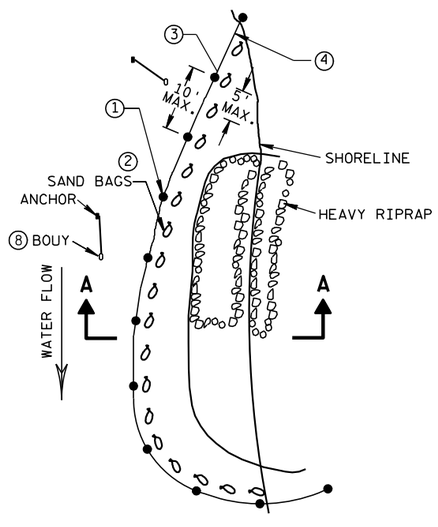




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

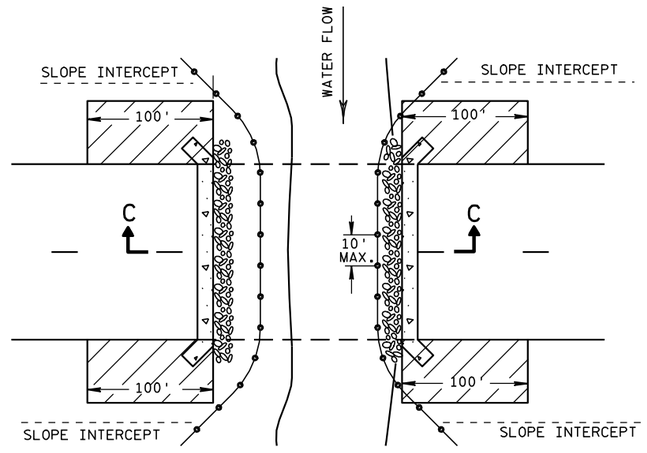
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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.

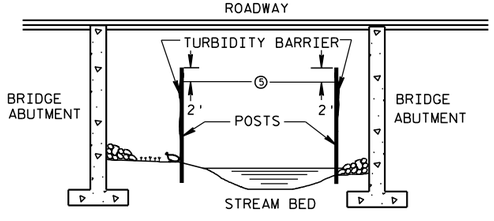
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

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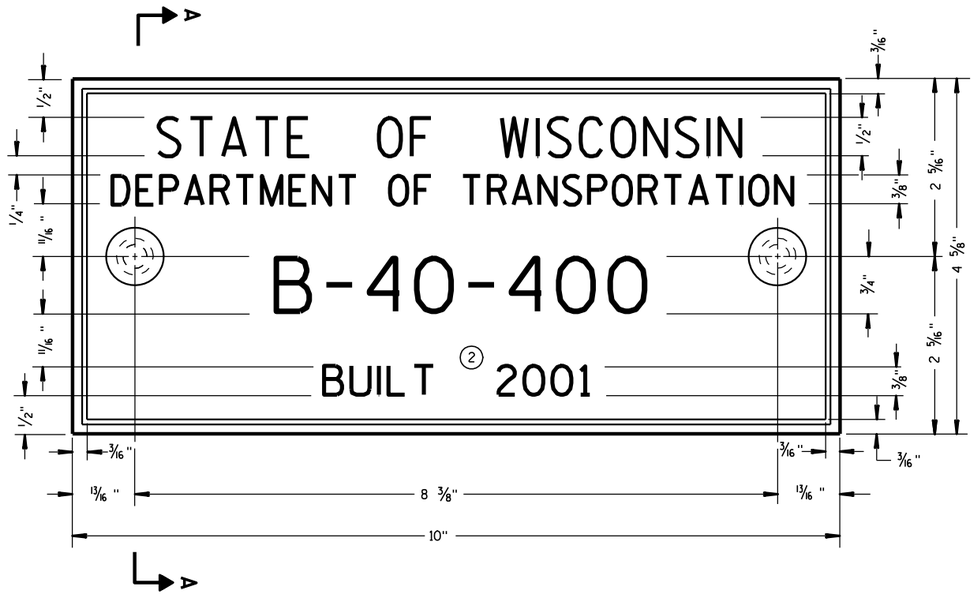
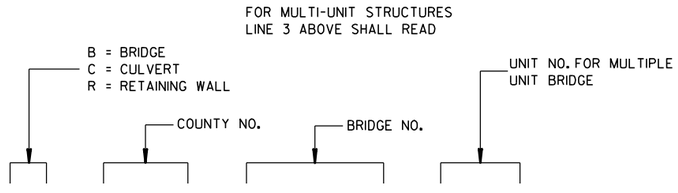
S.D.D. 8 E 11-2



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

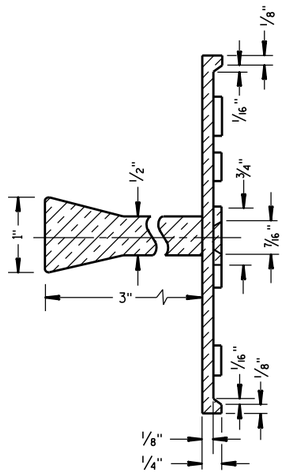
GENERAL NOTES

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.

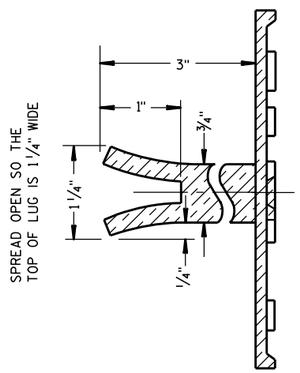
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

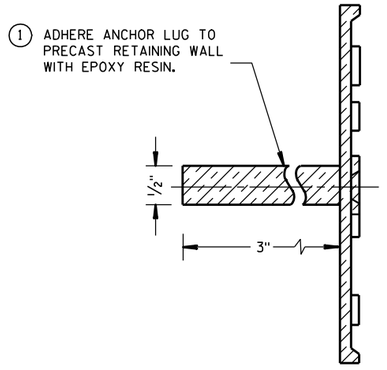
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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	

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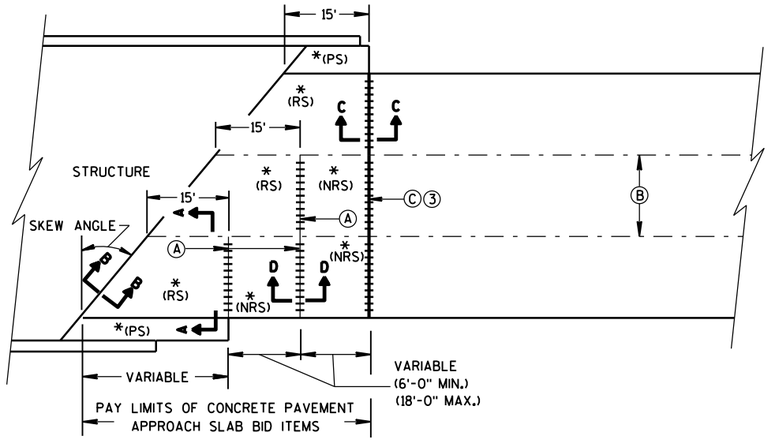
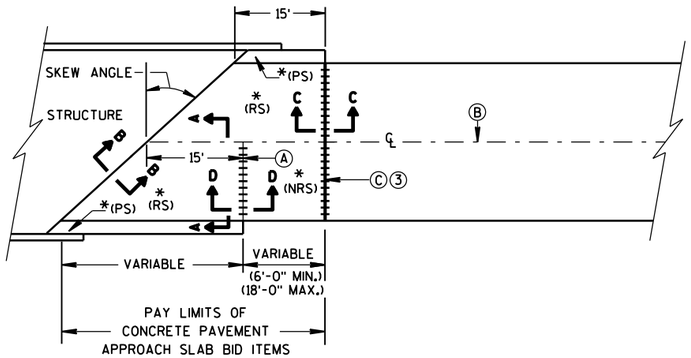
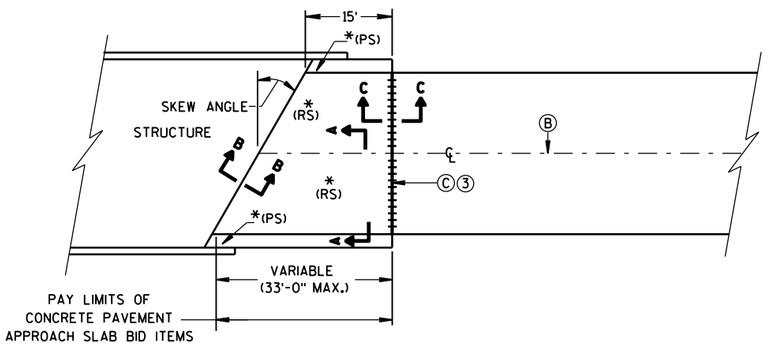
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

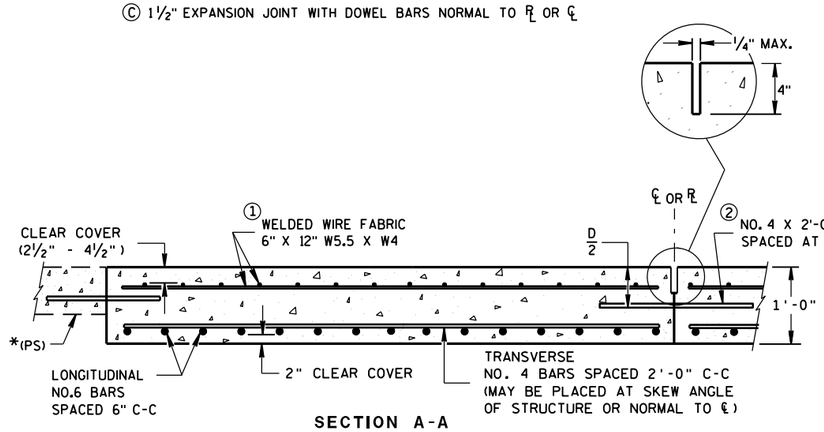
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

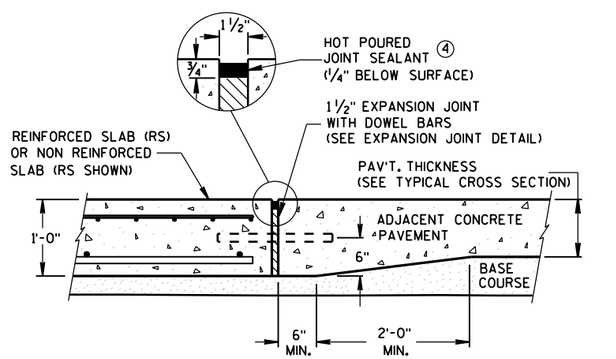
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄

Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.

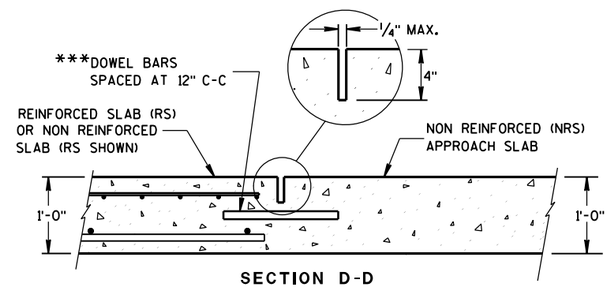
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

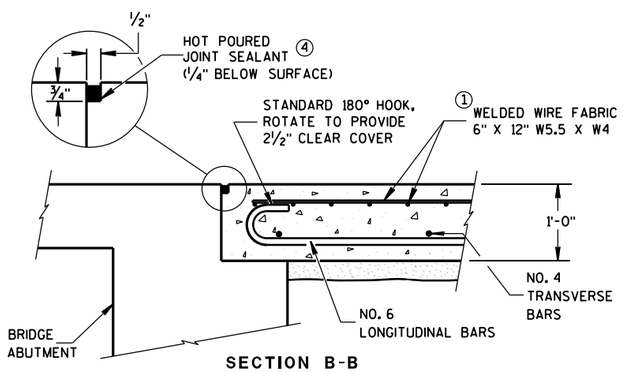
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

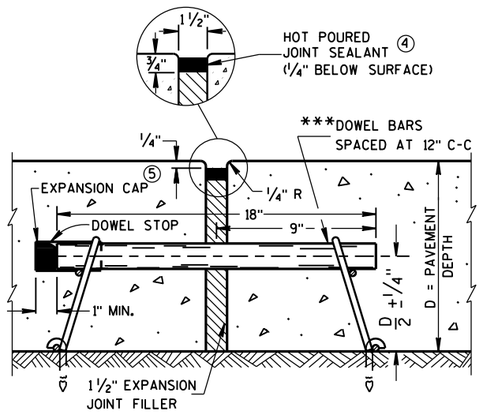
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPER
FHWA

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S.D.D. 13 B 2-8a

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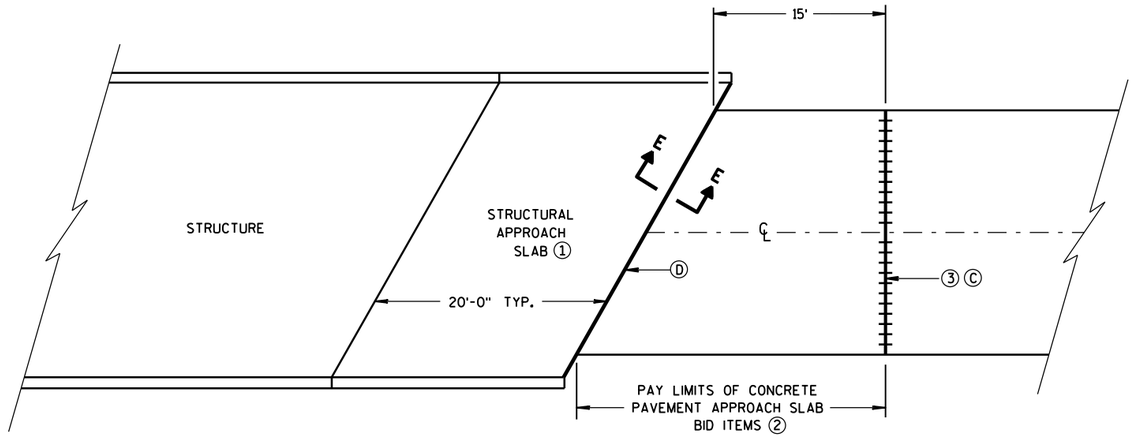
S.D.D. 13 B 2-8a

BRIDGE APPROACHES



GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

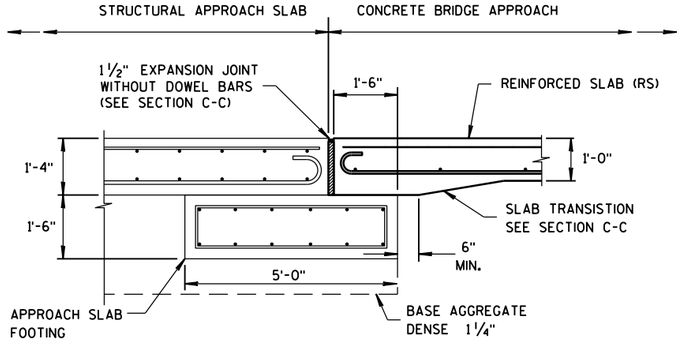
① SEE BRIDGE PLAN.

② CONFORM TO SHEET 13 B 2(A) FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS.

③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄

Ⓓ 1½" EXPANSION JOINT (NO DOWELS)



SECTION E-E

FOOTING DETAIL

STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2015
DATE

/S/ Peter Kemp, P.E.
PAVEMENT SUPERV

FHWA

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S.D.D. 13 B 2-8b

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.

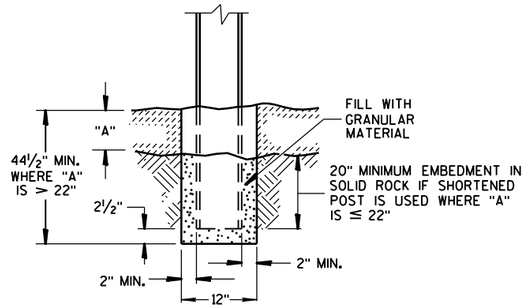
(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

(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.

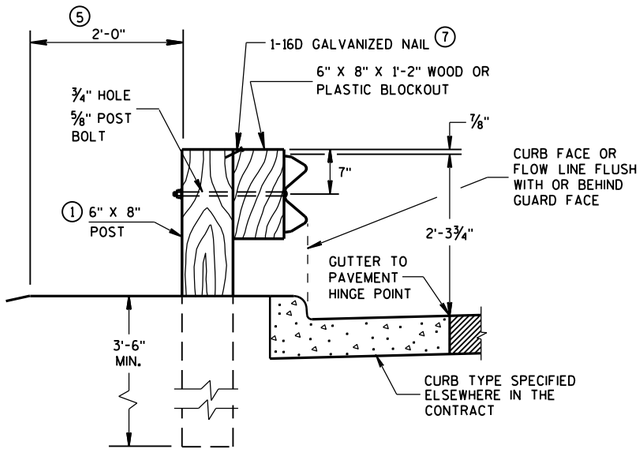
(7) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

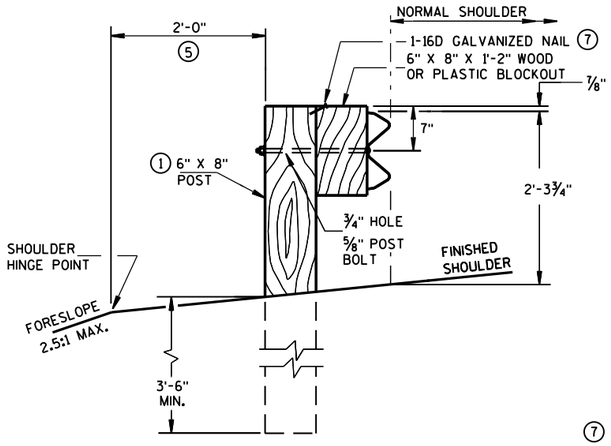
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



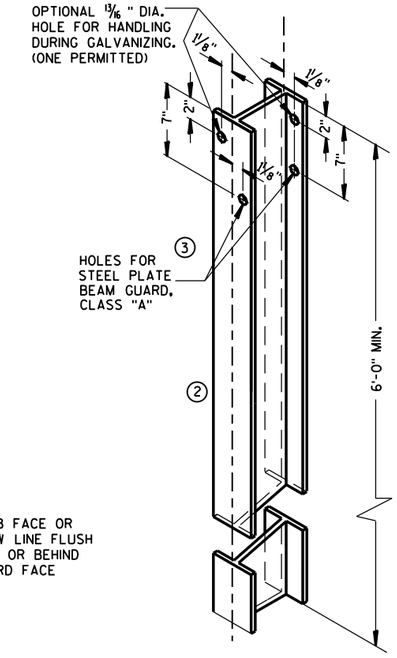
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)



END VIEW
LOCATED ALONG A CURBED ROADWAY

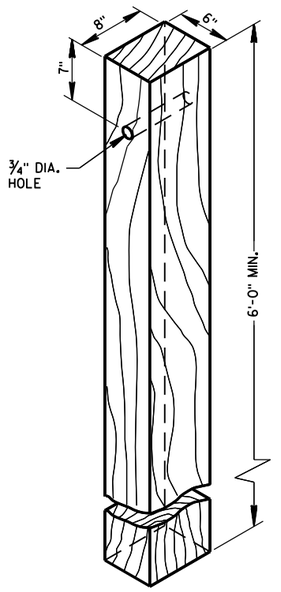


END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION

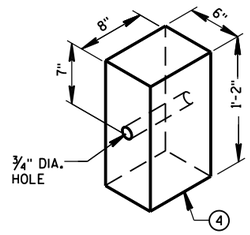


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

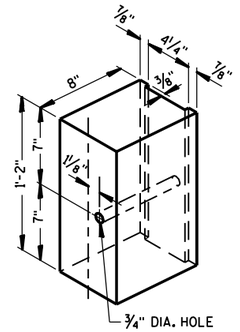
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



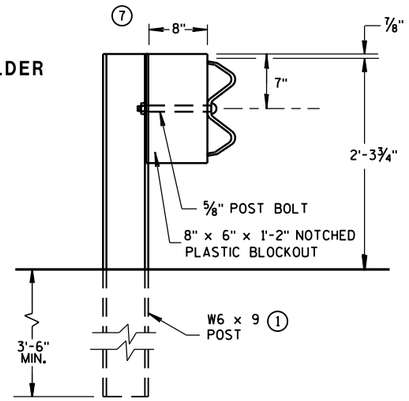
WOOD POST
(6"X8") NOMINAL



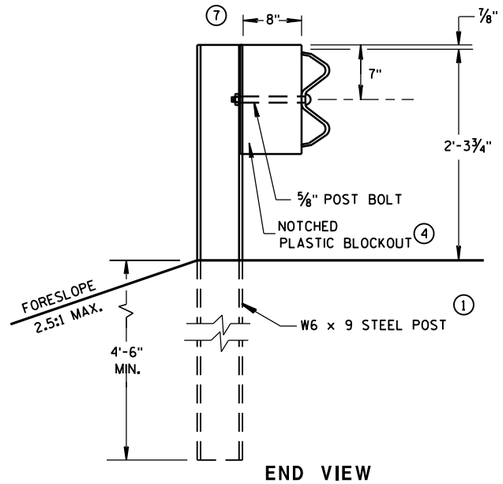
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



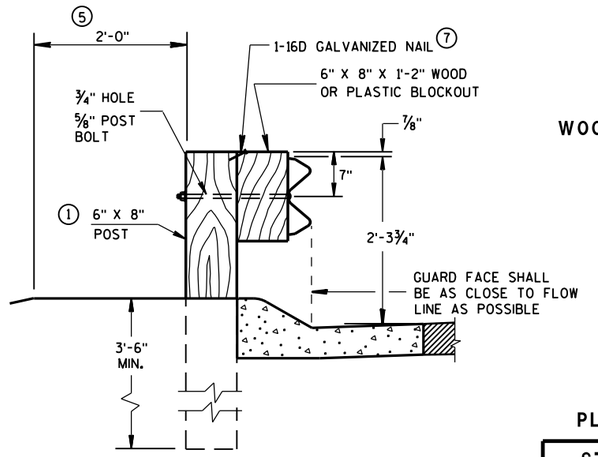
TYPICAL NOTCHED (1)
PLASTIC BLOCKOUT
FOR STEEL POSTS



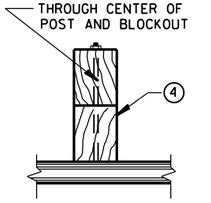
END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



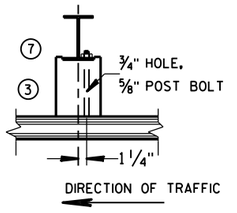
END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)



END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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

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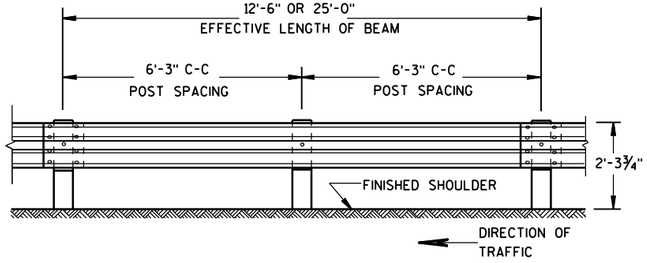
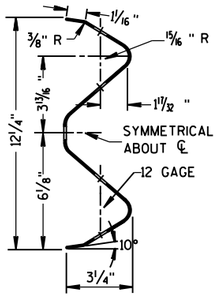
S.D.D. 14 B 15-8a

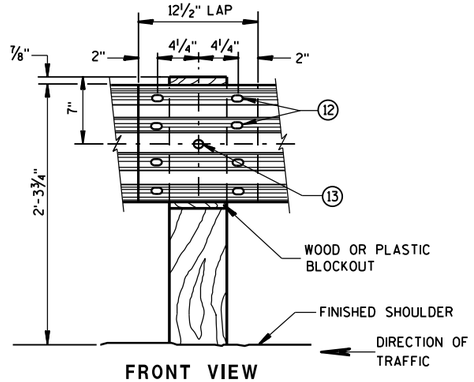


FRONT VIEW

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.

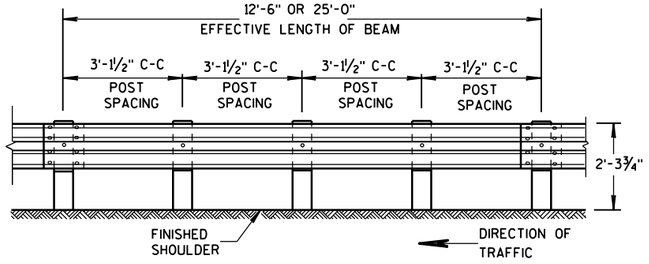
(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

(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.

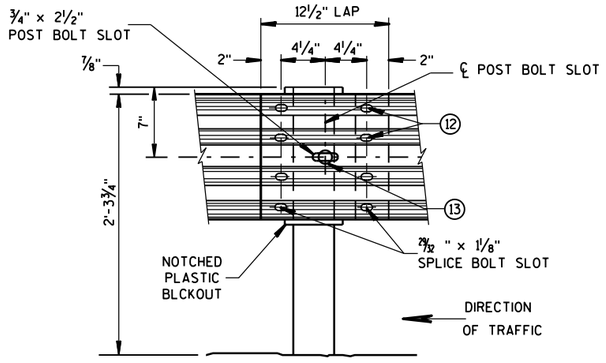
(12) 8 -⅝" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

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



FRONT VIEW

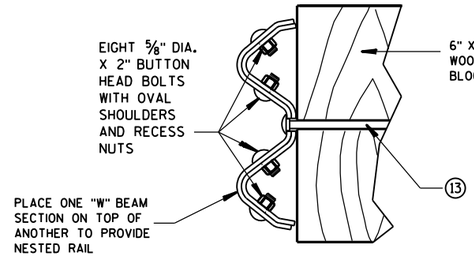
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

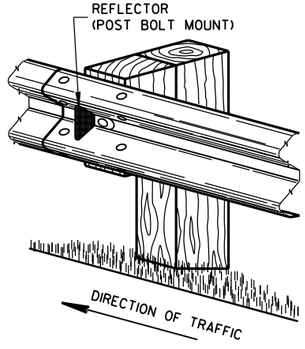


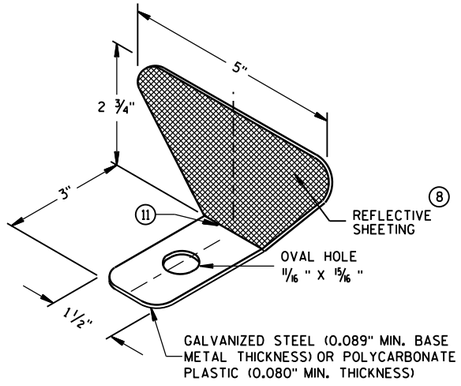
NESTED W BEAM (NW)

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'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 (10)	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 (11)	3
	> 200'	100' C-C	2	





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (8)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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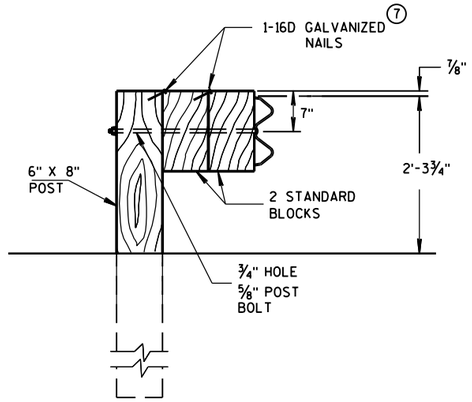
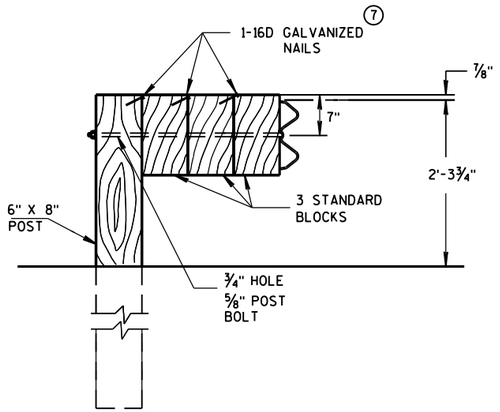


DETAIL FOR DOUBLE BLOCKS

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

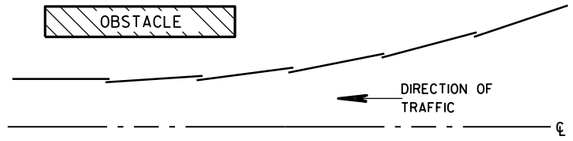


DETAIL FOR TRIPLE BLOCKS

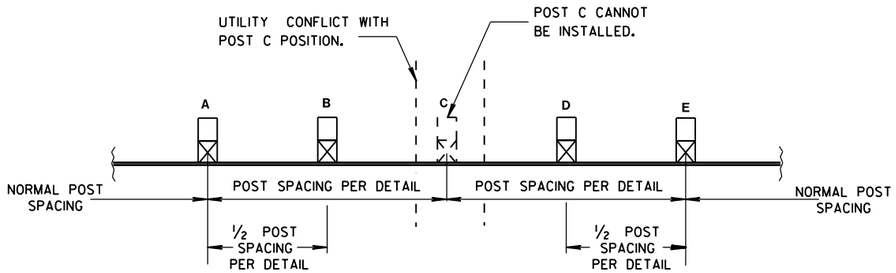
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

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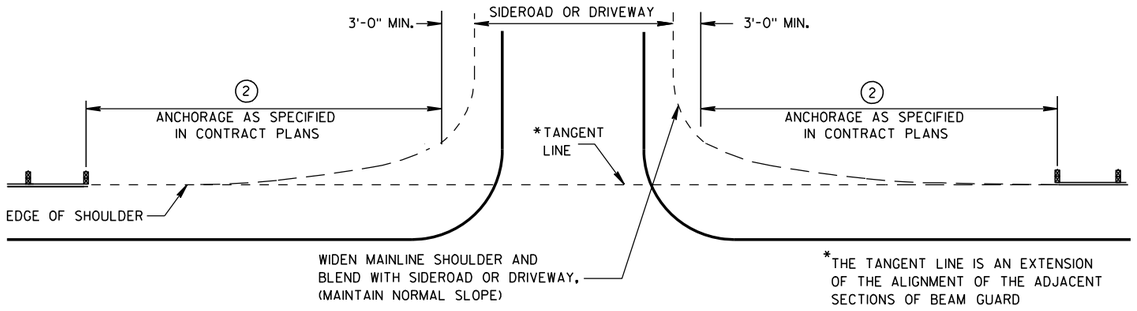
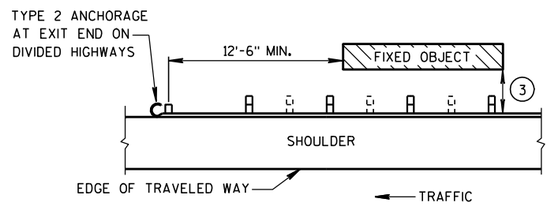
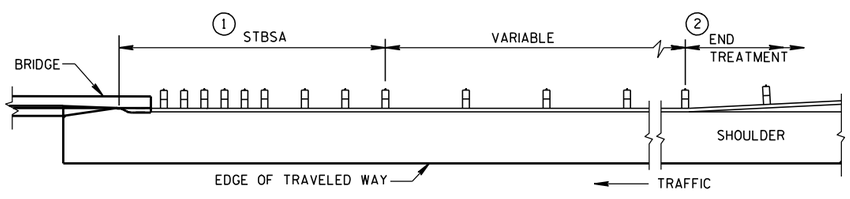
S.D.D. 14 B 15-8c



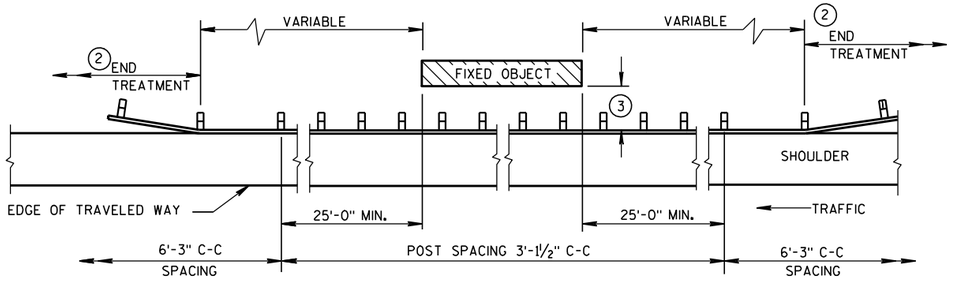
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

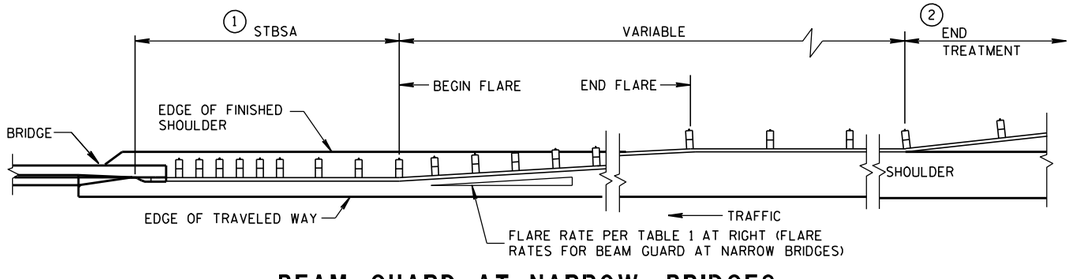


BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

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



BEAM GUARD AT NARROW BRIDGES

(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

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

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

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

(1) STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.

(2) USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

(3)

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1½"
4'-6"	6' - 3"

TABLE 1
FLARE RATES FOR BEAM GUARD AT NARROW BRIDGES

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-21-07
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

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S.D.D. 14 B 18-6a

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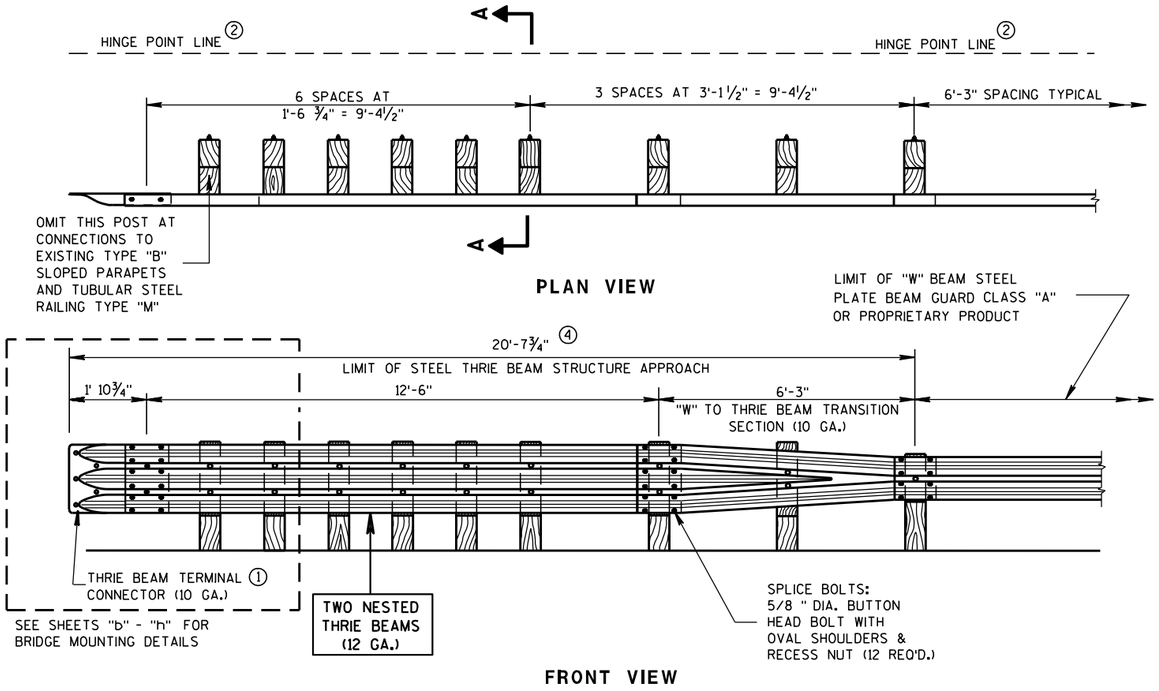
S.D.D. 14 B 18-6a



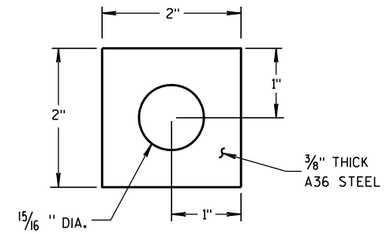


PLATE WASHER DETAIL

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.

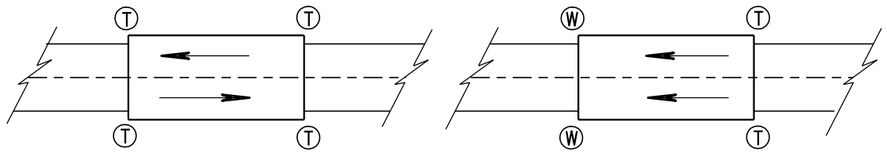
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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.



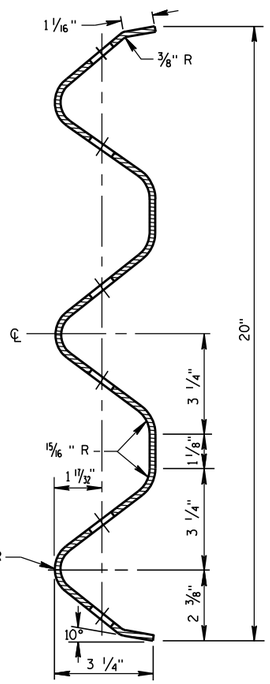
TWO WAY TRAFFIC

ONE WAY TRAFFIC

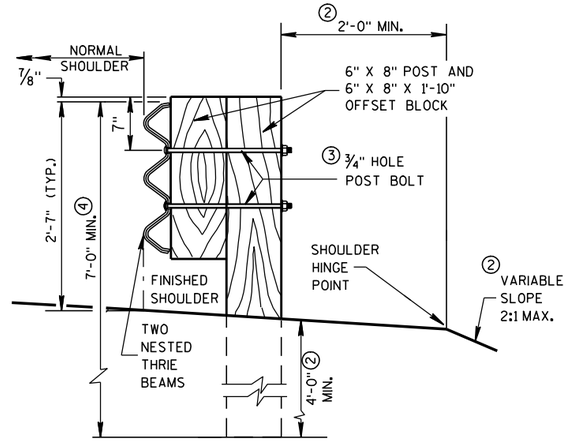
T THRIE BEAM CONNECTION

W W-BEAM CONNECTION WHEN REQUIRED

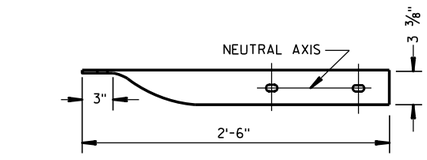
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

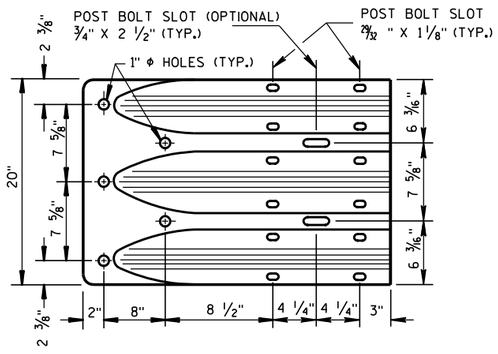


SECTION THRU THRIE BEAM RAIL ELEMENT

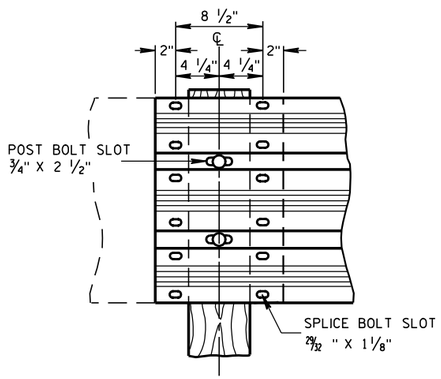


SECTION A-A





THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

STEEL THRIE BEAM STRUCTURE APPROACH

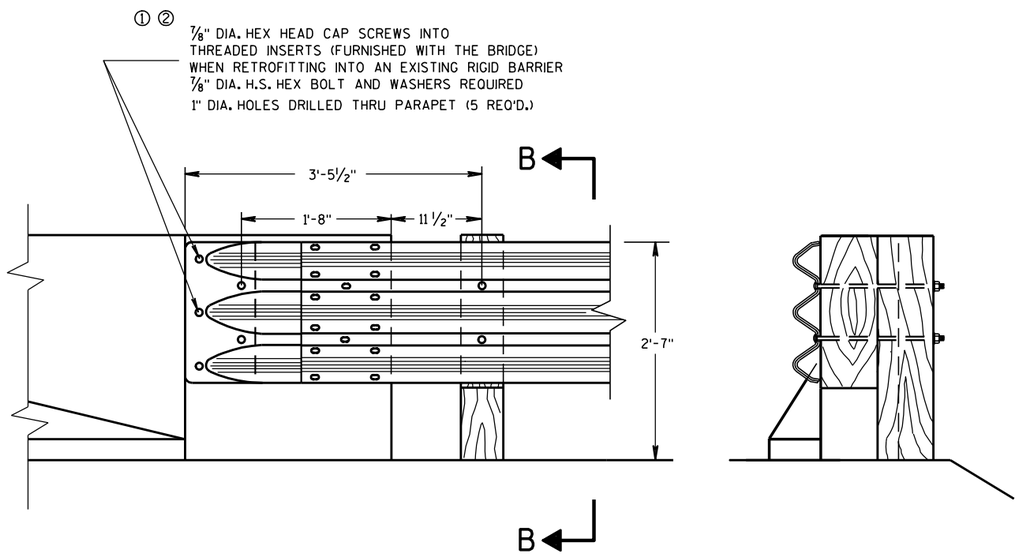
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER

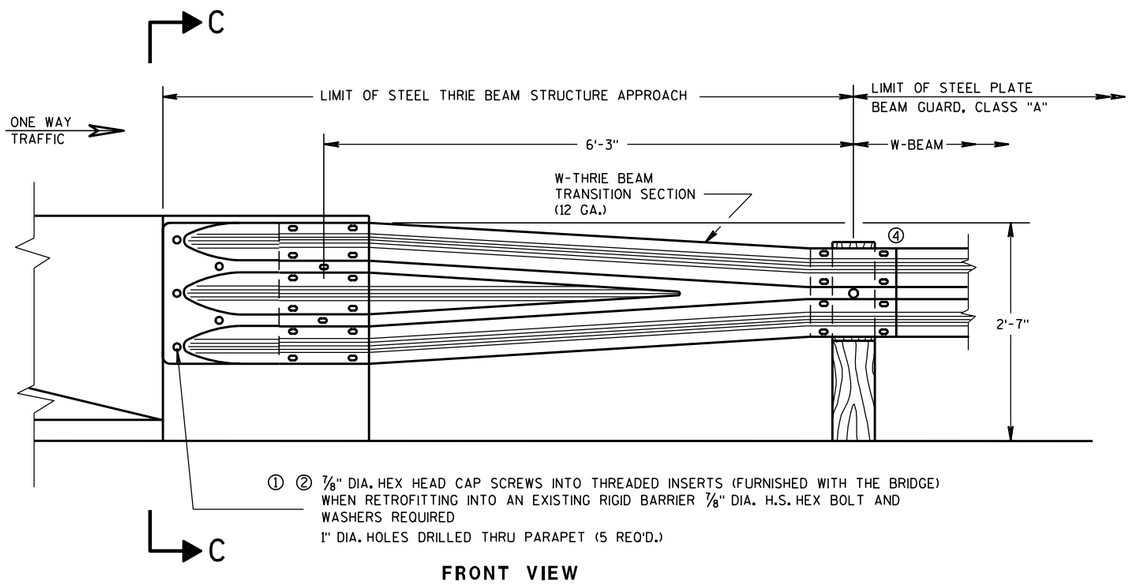
FHWA



FRONT VIEW

SECTION B-B

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



① ② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER ⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET (5 REQ'D.)

FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

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

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

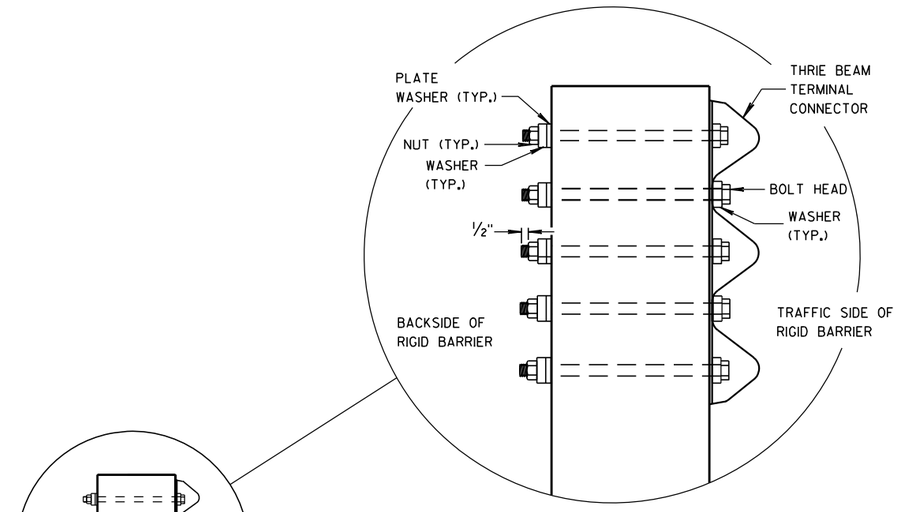
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

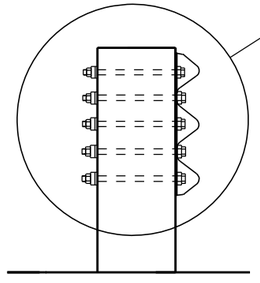
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

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





SECTION C-C

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

BILL OF MATERIALS

NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5½" X 7½" X 3'-9"
②	**	STEEL TUBE: OPTION 1 - QUANITY OF 4 TS 8" X 6" X 0.188", 4'-6" LONG OR OPTION 2 - QUANITY OF 2 TS 8" X 6" X 0.188", 6'-0" AND 2 TS 8" X 6" X 0.188", 4'-6" LONG
③	2	SOIL PLATE: 2'-0" X 1'-6" X ¼" **
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA. 13'-6½" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
⑫	3	STEEL PLATE BEAM: 12 GA. 13'-6½"
⑬	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	REFLECTIVE SHEETING TYPE H: 18" X 18"
⑮	1	E.A.T. MARKER POST

GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS. IF NONE ARE AVAILABLE, INSTALL ⅝" ϕ X 1'-6" BUTTON HEAD BOLTS AT ALL POSTS EXCEPT FOR POST 1.

(A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), THE HINGE POINT LINE (HPL),AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) THE 13 SLOT FIRST RAIL PANEL MAY BE USED IN LIEU OF THE 3 SLOT RAIL PANEL ON SKT-350 ONLY.

(D) THE TOP OF THE STEEL TUBE ON POSTS 1 THROUGH 4 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(E) THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST 5 THROUGH 8 SHALL BE ¾" ABOVE THE FINISHED GROUND LINE.

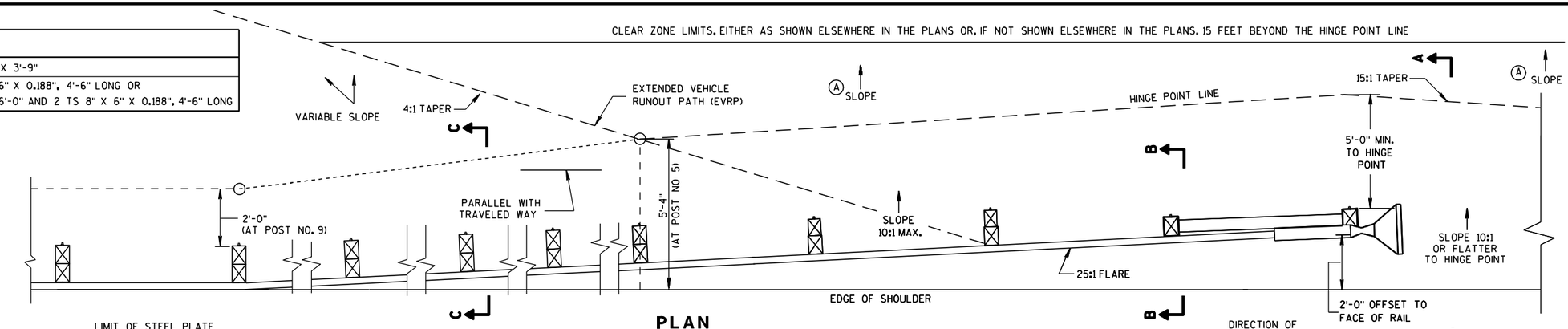
(F) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.

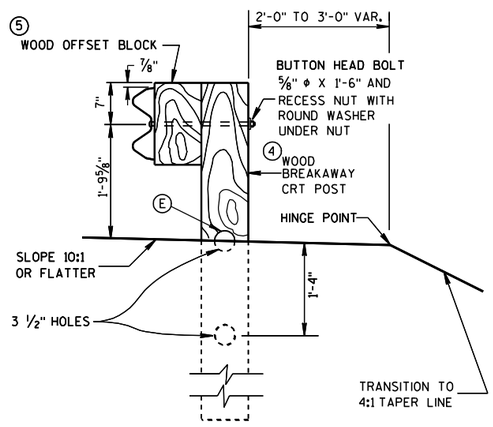
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

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

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

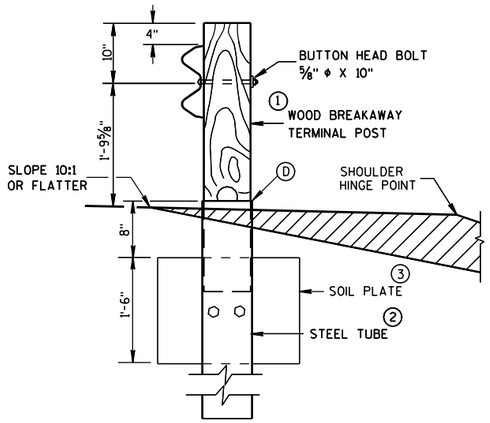
** SDD SHOWS 4 - 54 INCH STEEL TUBES WITH SOIL PLATES INSTALLED ON POST 1 AND POST 2. POST 3 AND 4 DO NOT NEED SOIL PLATES. AN ALTERNATIVE INSTALLATION WOULD CONSIST OF 2 - 72 INCH STEEL TUBES ON POST 1 AND POST 2 AND 54 INCH SOIL TUBES ON POSTS 3 AND 4. THE ALTERNATIVE INSTALLATION DOES NOT REQUIRE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





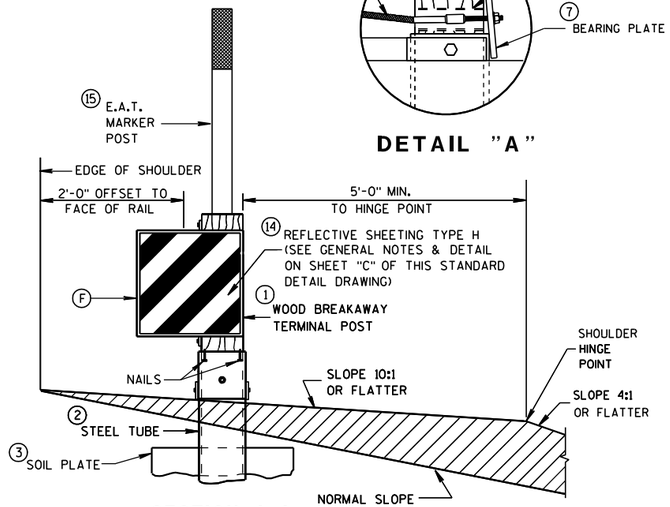
SECTION C-C

TYPICAL AT POST NOS. 6, 8



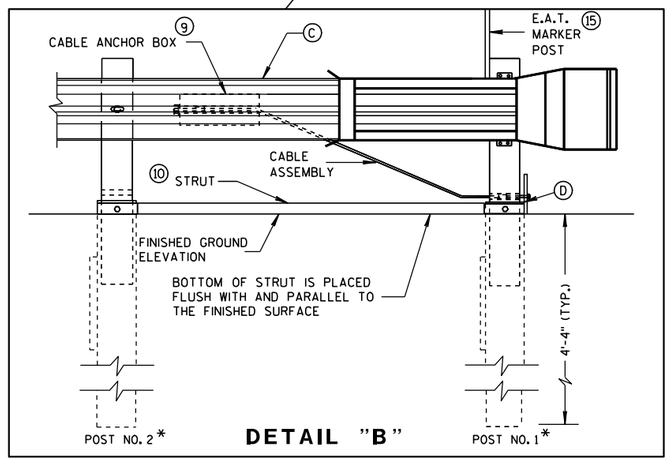
SECTION B-B

TYPICAL AT POST NO. 2*



SECTION A-A

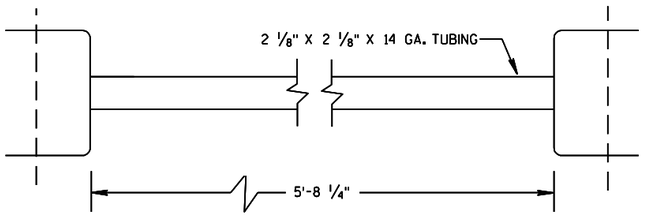
TYPICAL AT POST NO. 1*



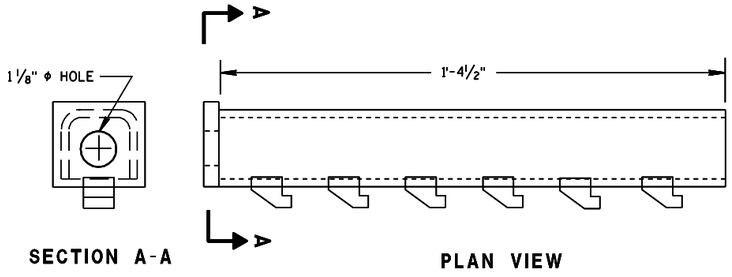
STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

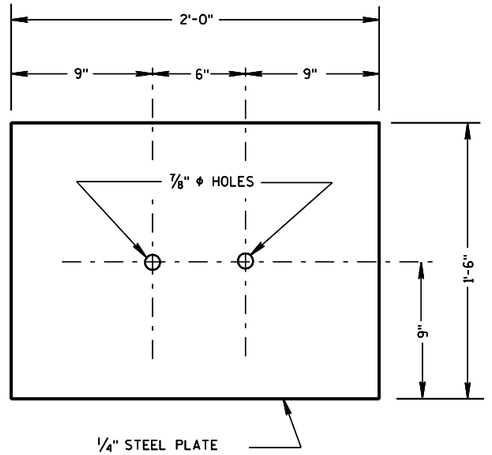
6
S.D.D. 14 B 24-7a



⑩ STRUT DETAIL (SKT-350)

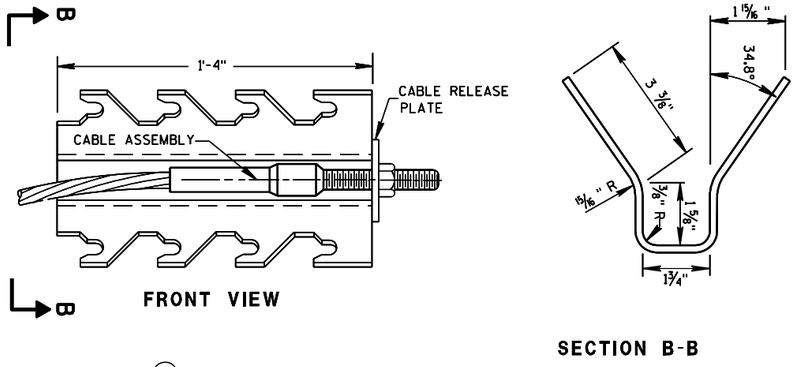


⑨ CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



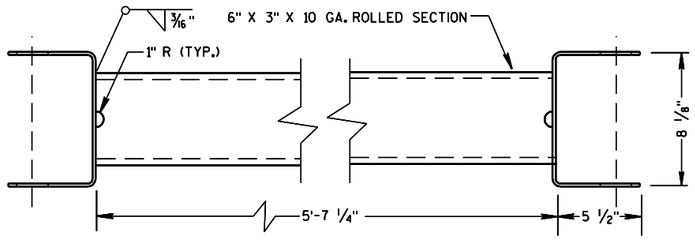
③ SOIL PLATE

(SKT-350, ET-2000/ET-2000 PLUS)



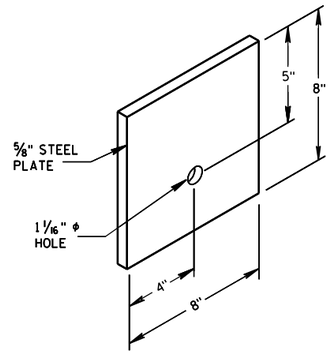
⑨ CABLE ANCHOR BOX (SKT-350)

(SKT-350)



⑩ STRUT DETAIL (ET-2000/ET-2000 PLUS)

(ET-2000/ET-2000 PLUS)



⑦ STEEL BEARING PLATE

(SKT-350, ET-2000/ET-2000 PLUS)

6

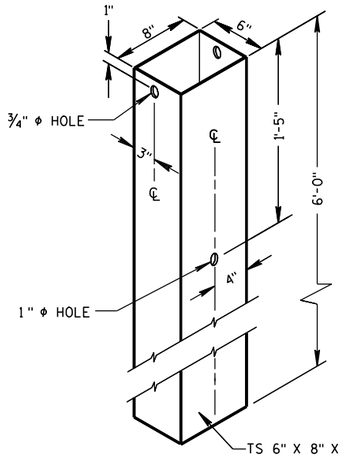
6

S.D.D. 14 B 24-7b

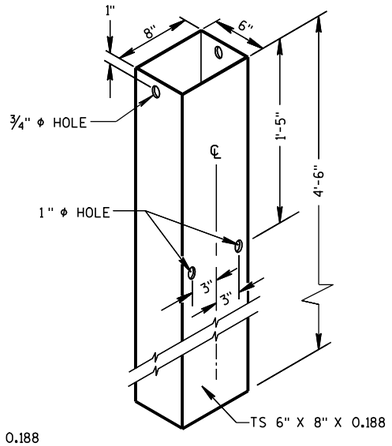
S.D.D. 14 B 24-7b

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

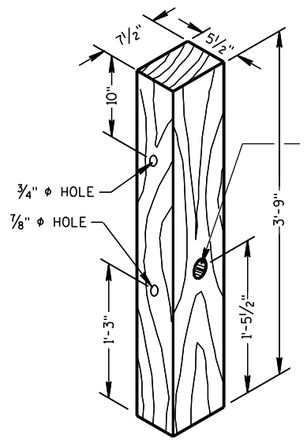
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



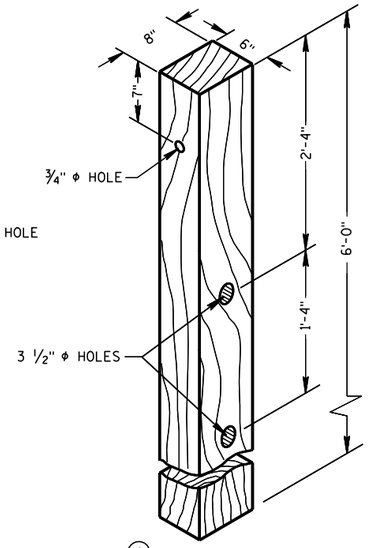
② 72" STEEL TUBE
(POSTS NO. 1-4



② 54" STEEL TUBE
(POSTS NO. 1-4



① TERMINAL POST
(POSTS NO. 1-4



④ CRT POST
(POSTS NO'S 5-8

WOOD BREAKAWAY POSTS

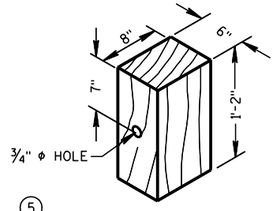
GENERAL NOTES

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

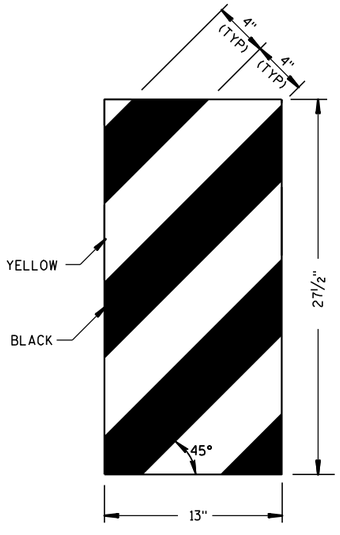
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 ½" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

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

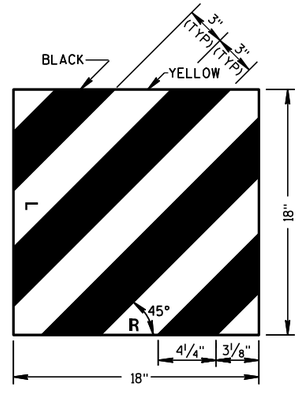
(G) ½" DIA. X 3" LAG BOLT WITH WASHER.



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

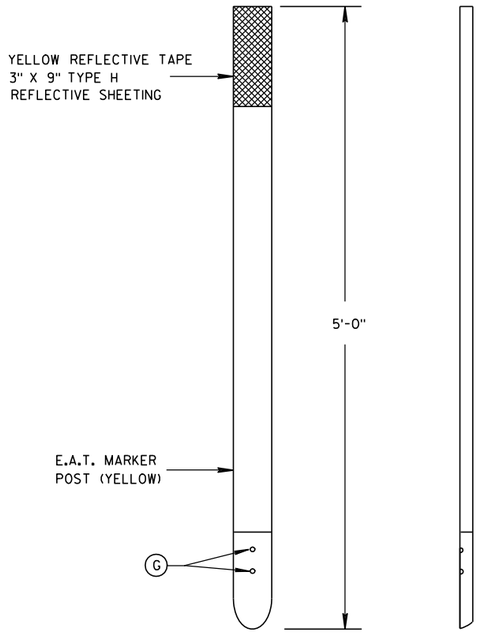


ET-2000 PLUS ONLY



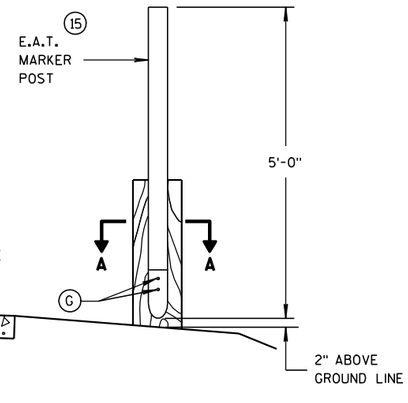
ET-2000 AND SKT-350

⑭ REFLECTIVE SHEETING DETAILS

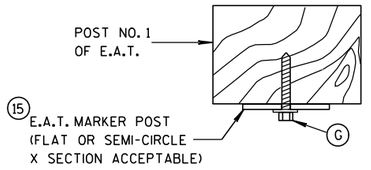


FRONT VIEW SIDE VIEW

⑮ E.A.T. MARKER POST



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



SECTION A-A

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

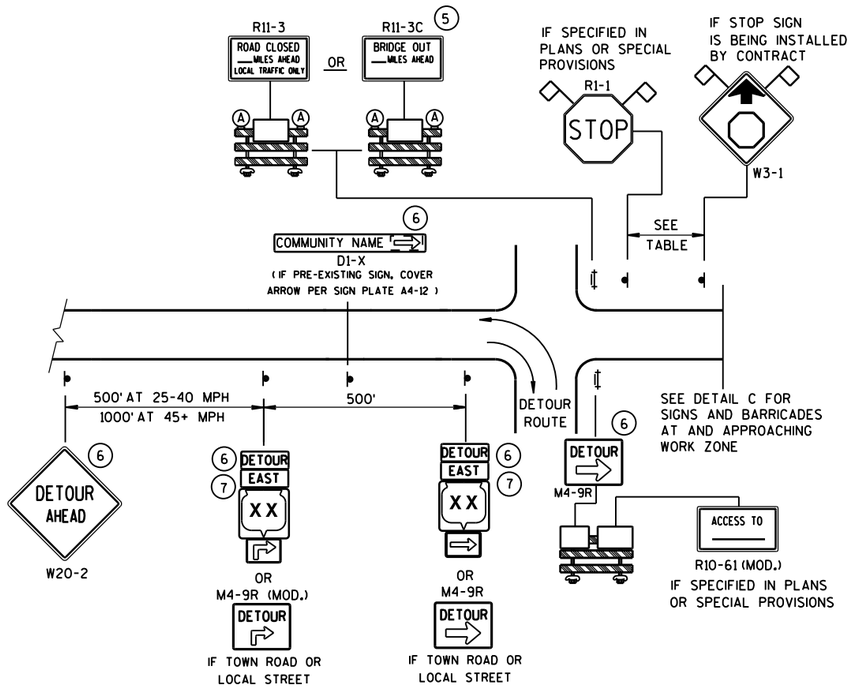
APPROVED
4-12-10 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
[illegible]ENT
FHWA

6

S.D.D. 14 B 24-7c

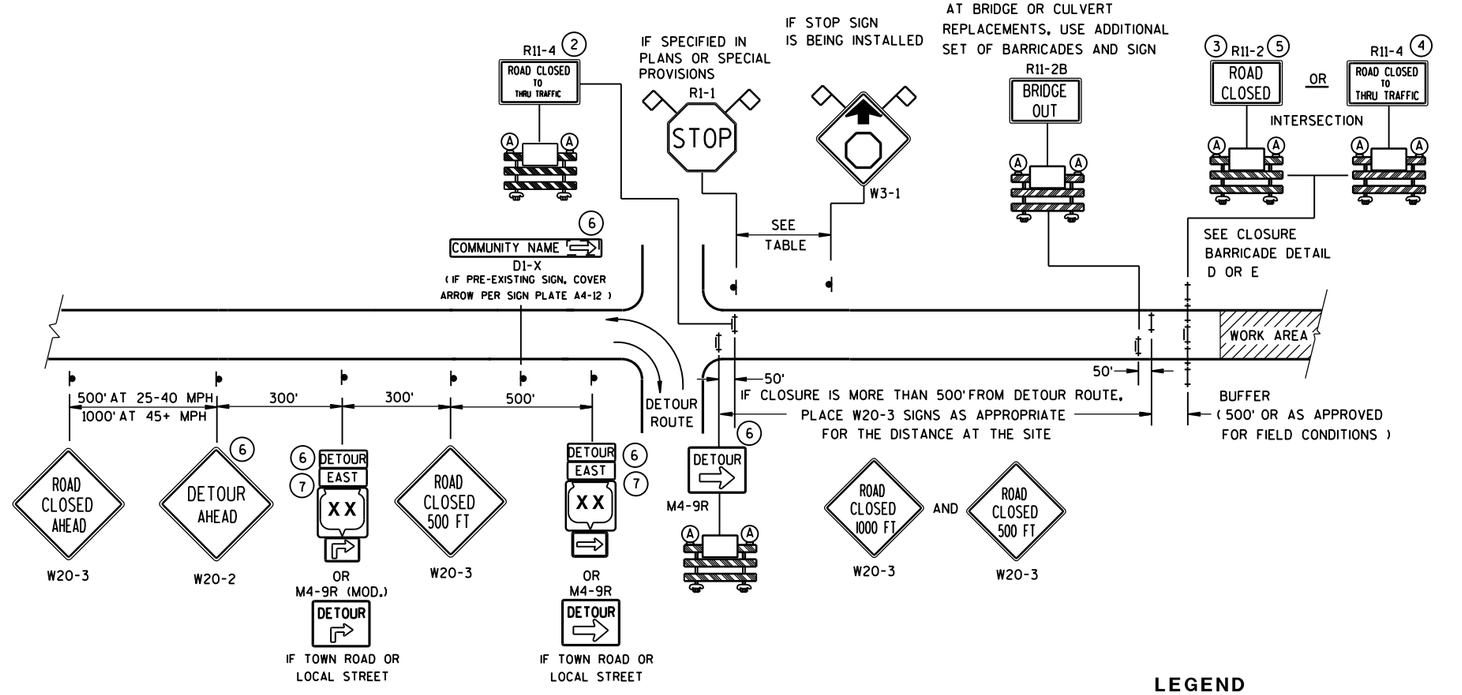
6

S.D.D. 14 B 24-7c



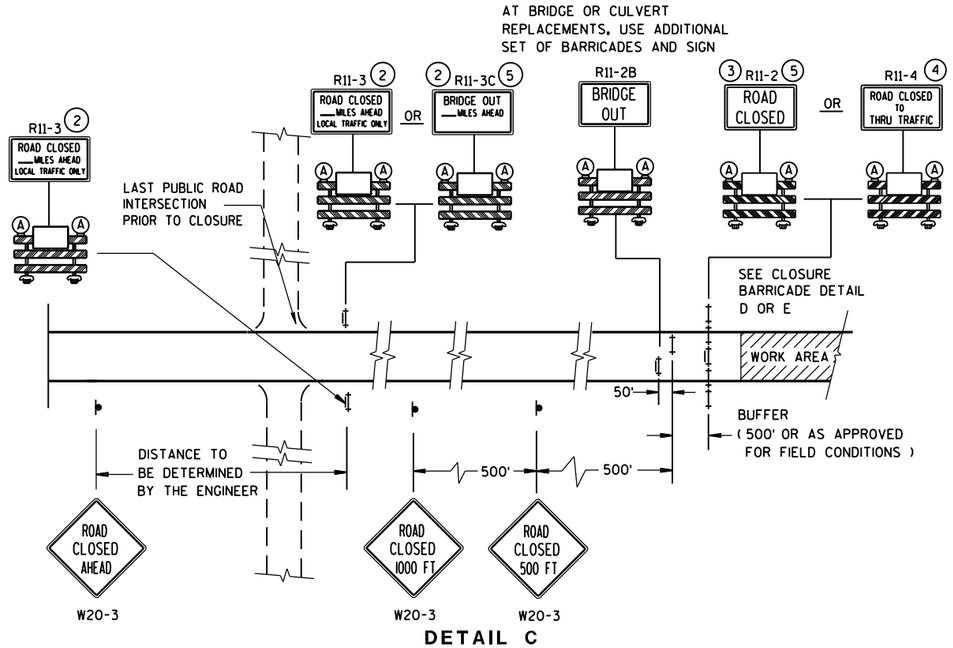
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

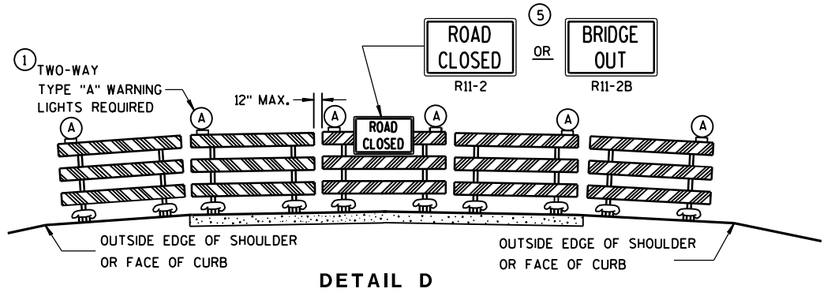
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 DATE — /S/ Travis Feltes STATE TRAFFIC ENGINEER — DESIGN

FHWA

6

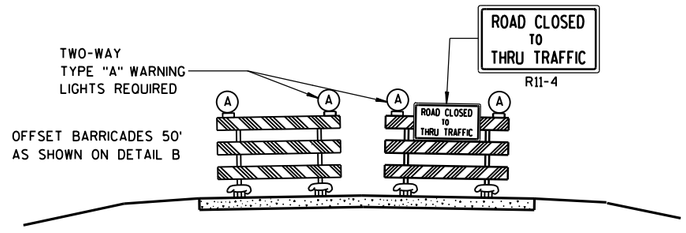
S.D.D. 15 C 2-5a



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.

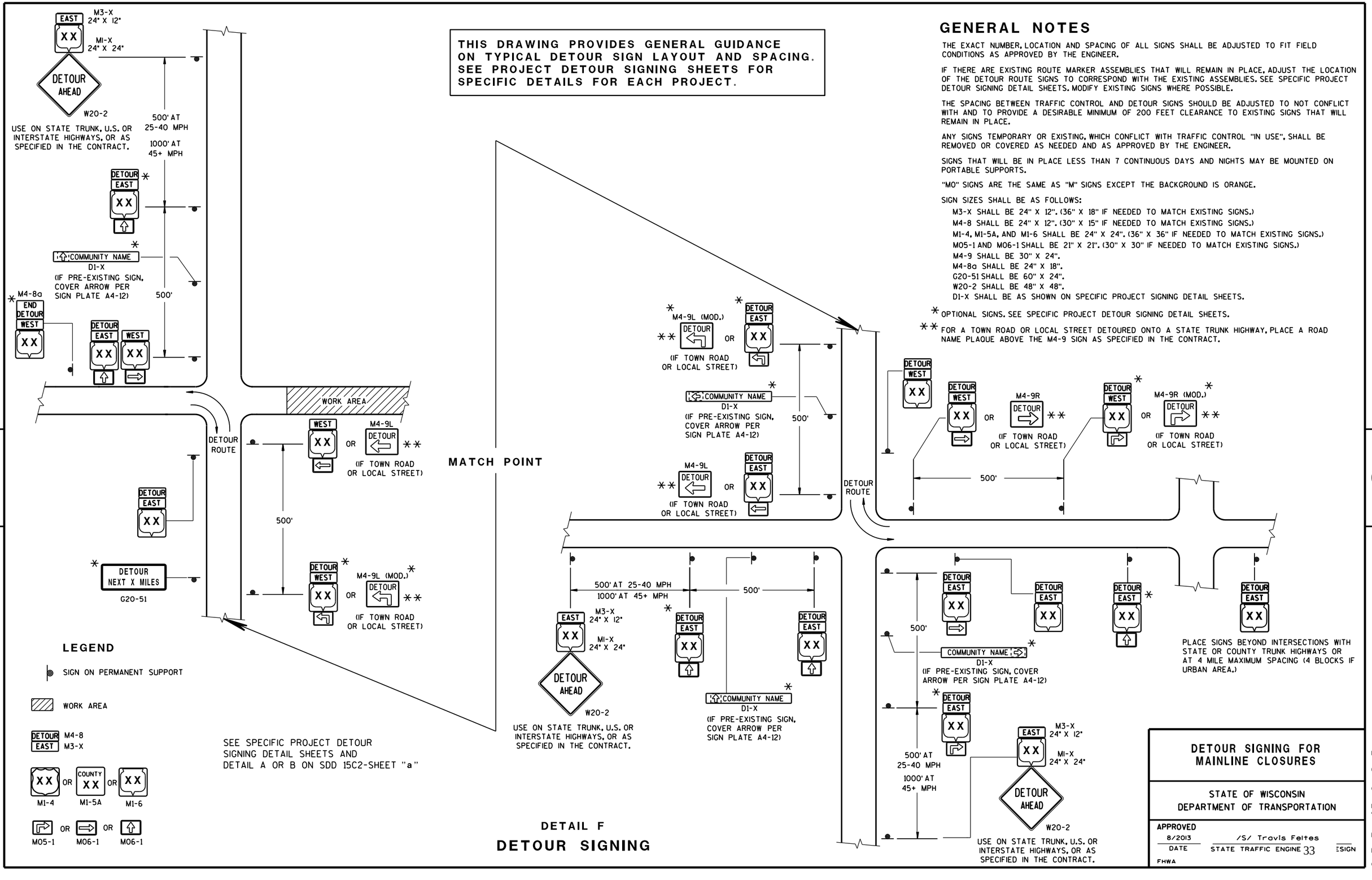
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

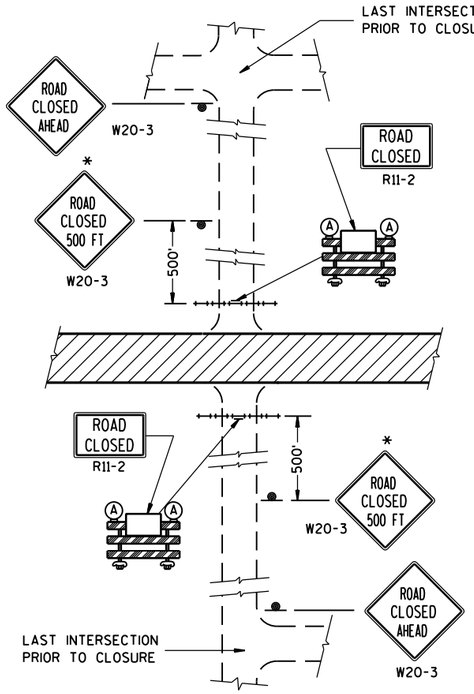
DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

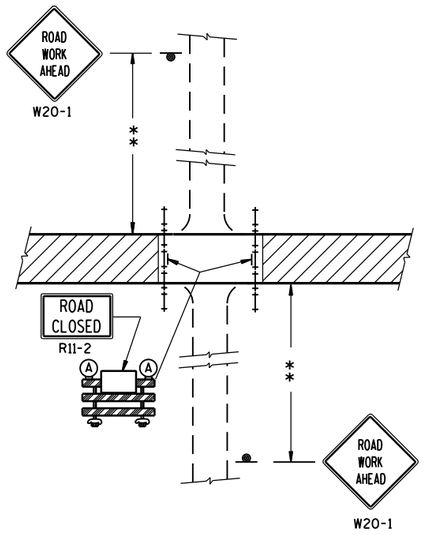
FHWA

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



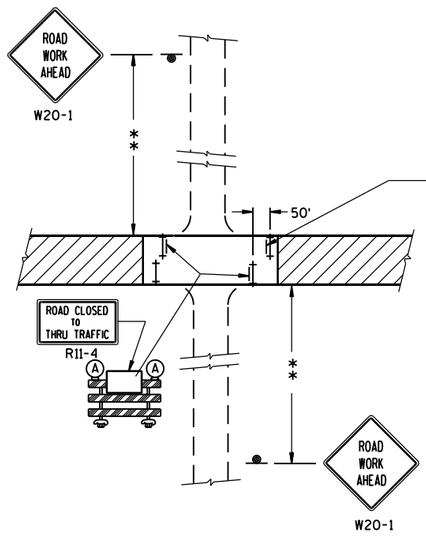
DETAIL 1

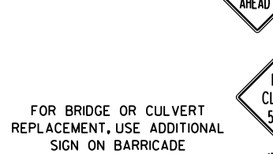
(NO ACCESS TO PROJECT)



DETAIL 2

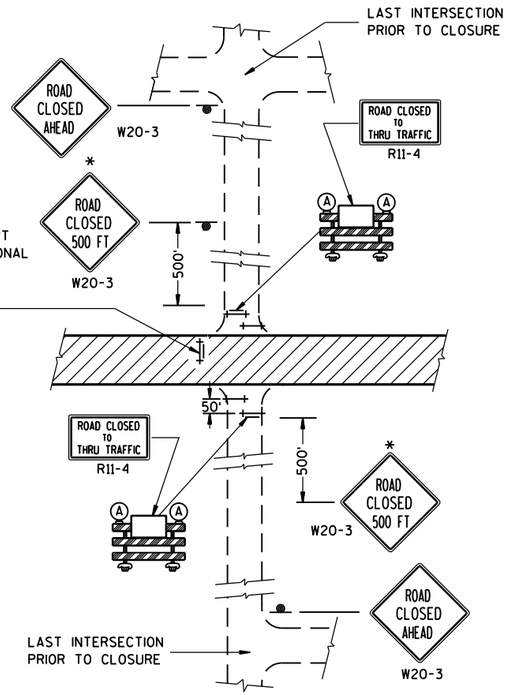
(PUBLIC CROSS-TRAFFIC MAINTAINED. NO ACCESS TO PROJECT).





DETAIL 3

(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS).



DETAIL 4

(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

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.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

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 AND R11-4 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.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

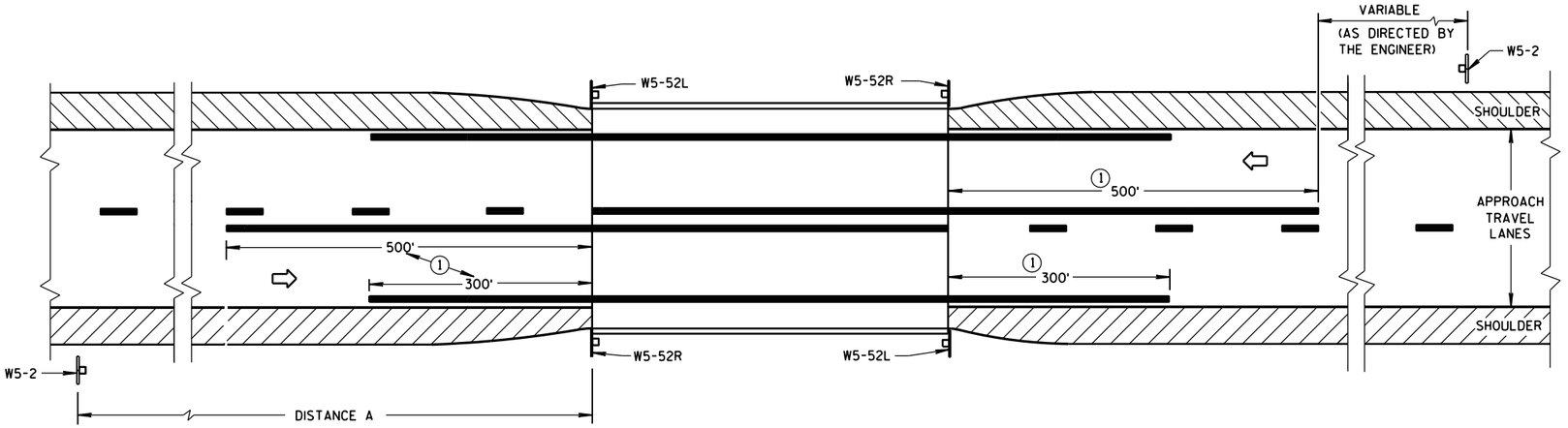
APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 15 C 3-2

6

S.D.D. 15 C 3-2



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.

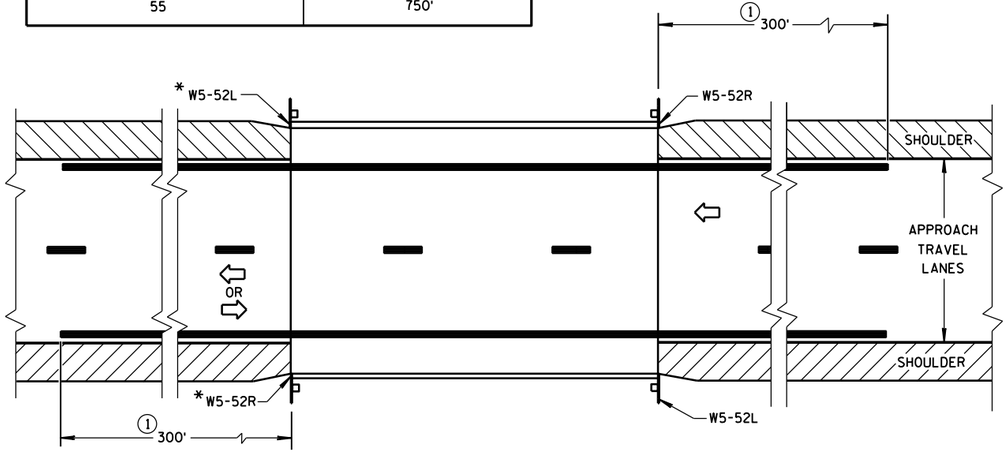
DISTANCE TABLE

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

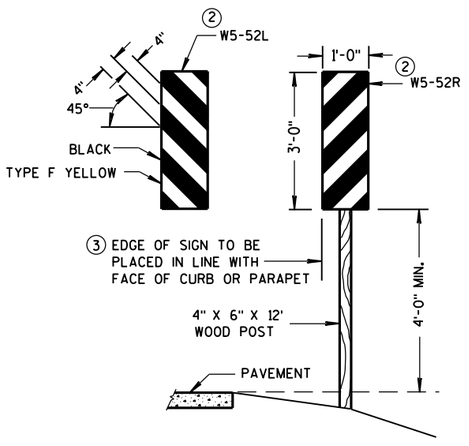


*OMIT ON ONE-WAY TRAVELLED WAYS

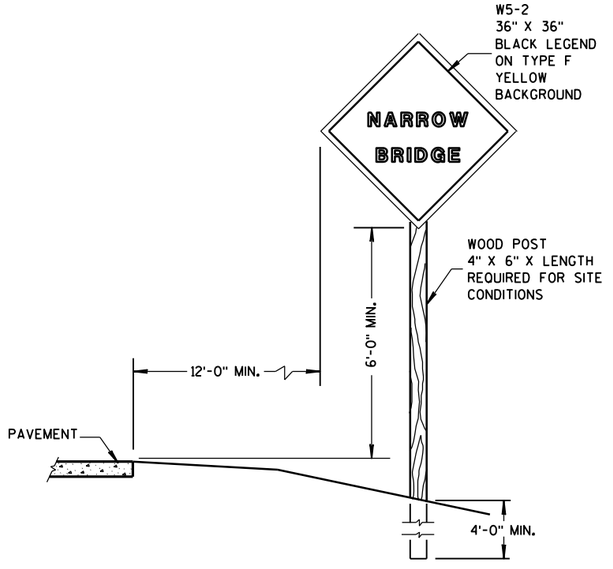
SITUATION 2

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

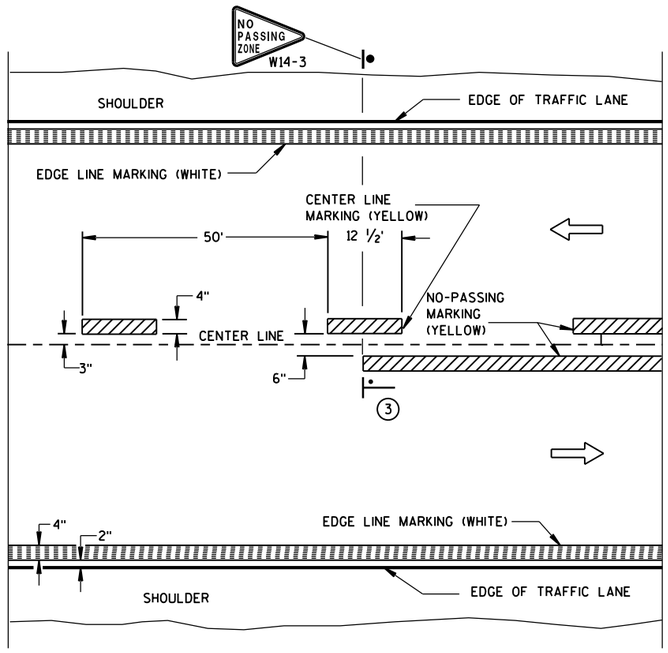
3-2014 DATE

/S/ Travis Feltes STATE TRAFFIC ENGINEER

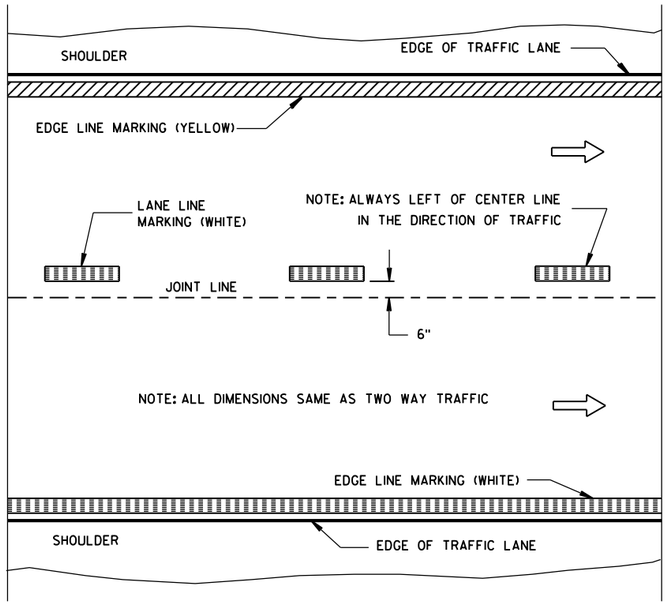
FHWA

6

S.D.D. 15 C 6-7

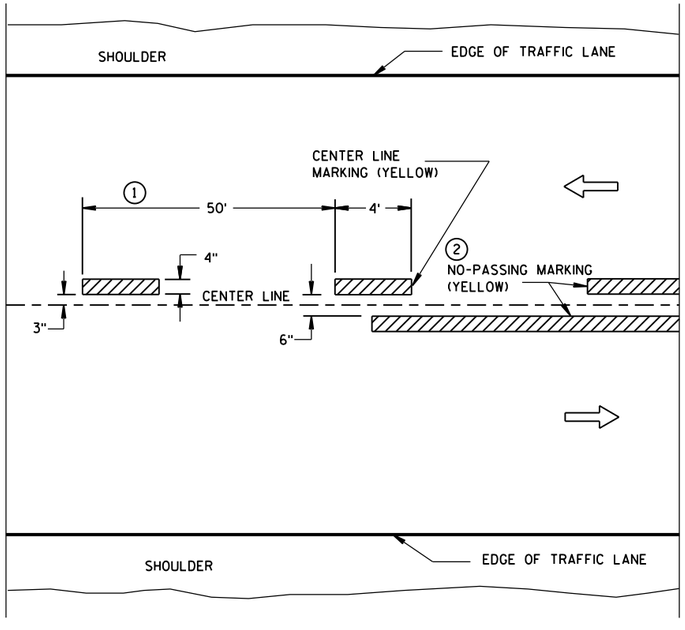


TWO WAY TRAFFIC

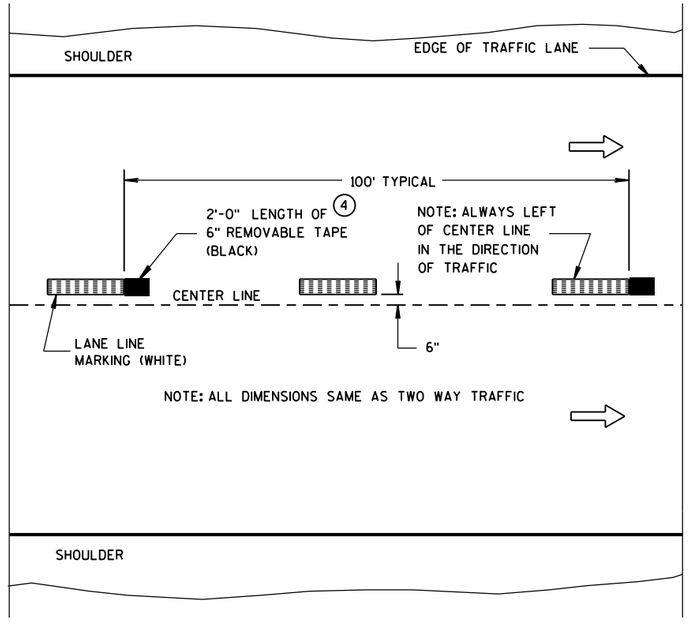


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

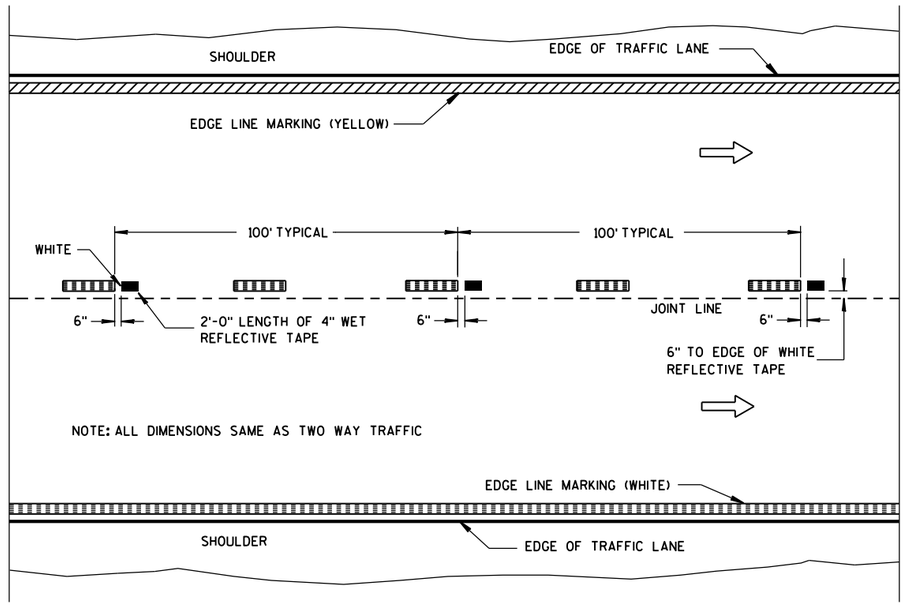
GENERAL NOTES

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

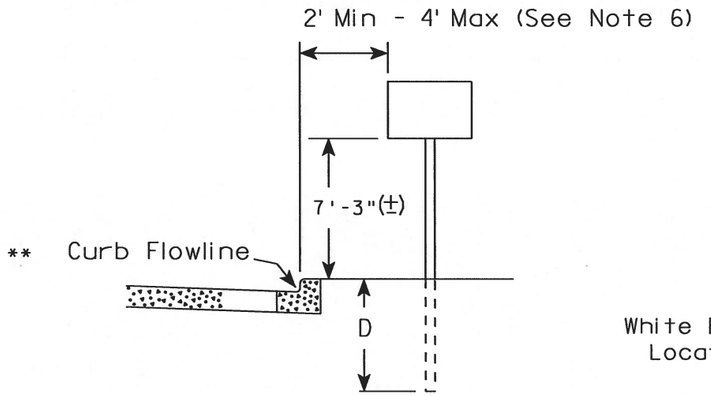
6

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

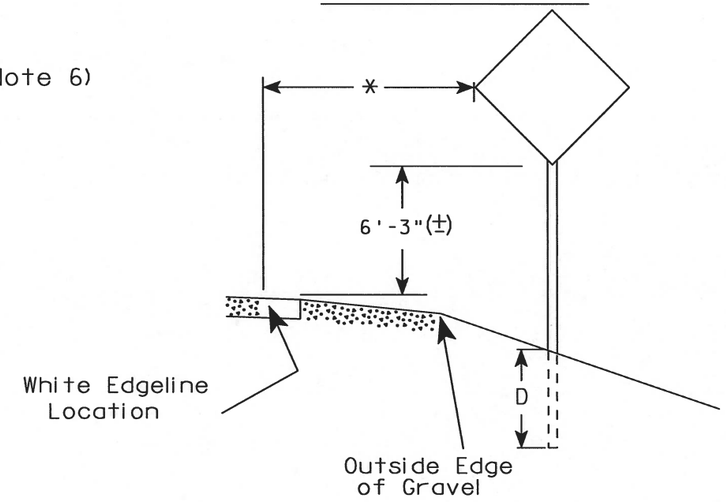
6

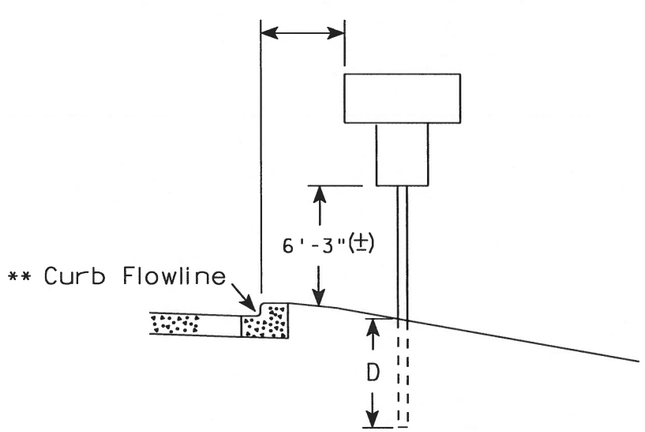
S.D.D. 15 C 8-16a

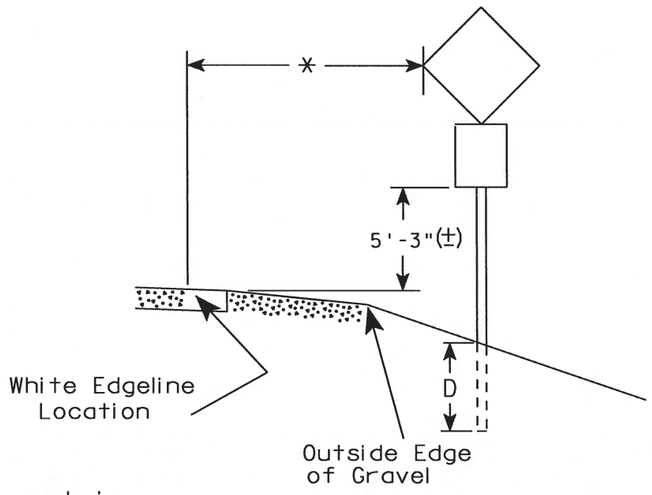
URBAN AREA



RURAL AREA (See Note 2)







** 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.

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'

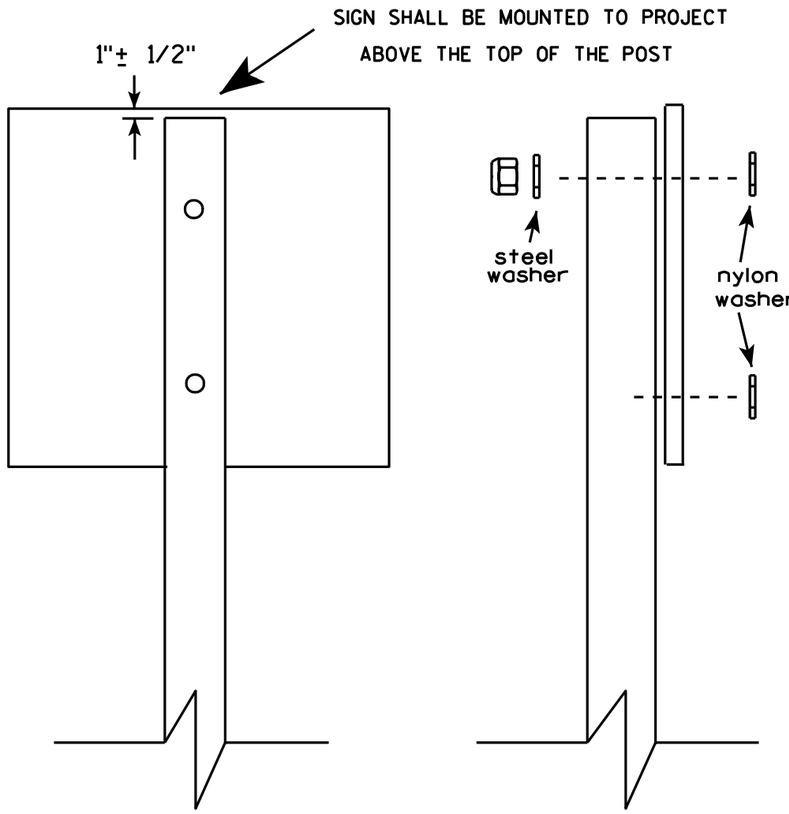
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

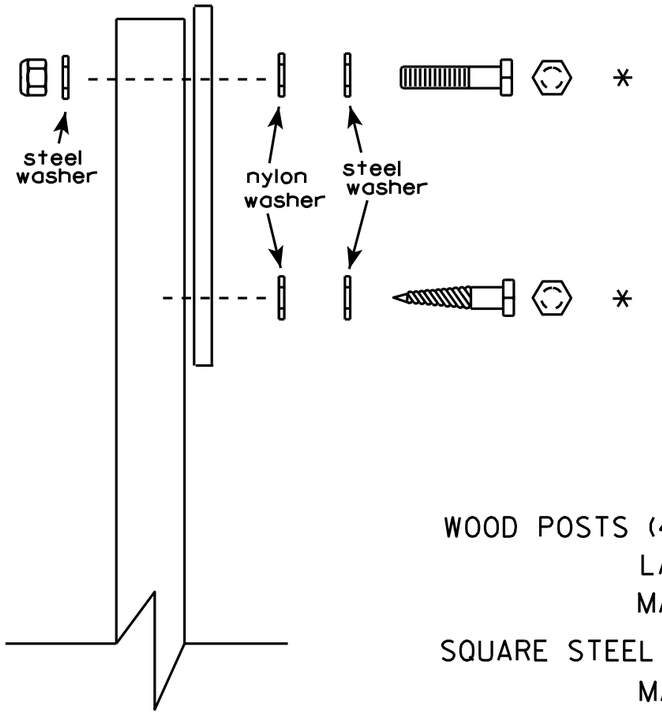
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS		SHEET NO: 37	E





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

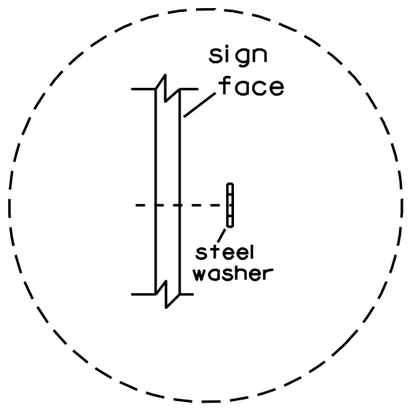
a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

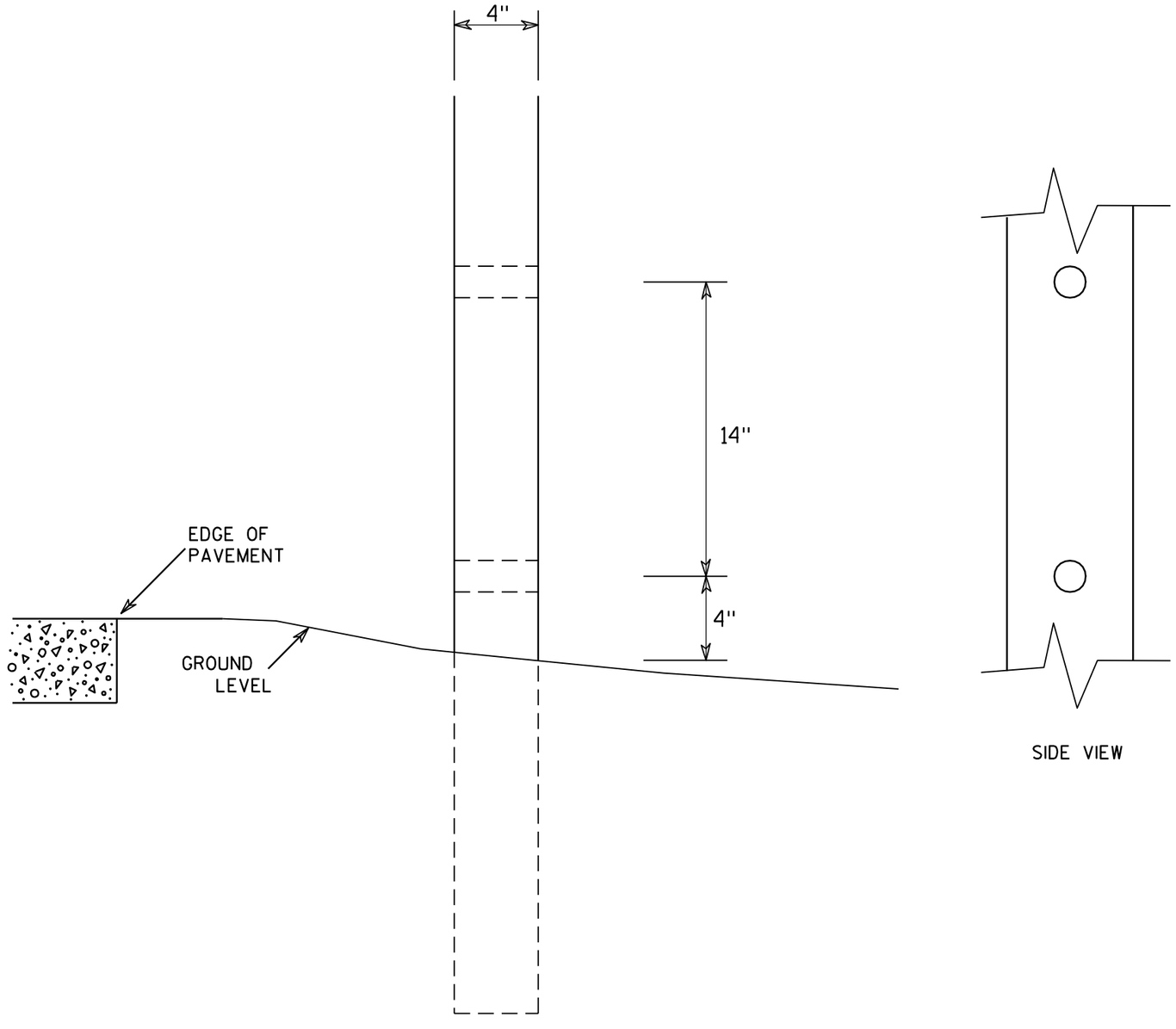
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: 8745-00-71	HWY : CTH C	COUNTY: DOUGLAS		SHEET NO: 38	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

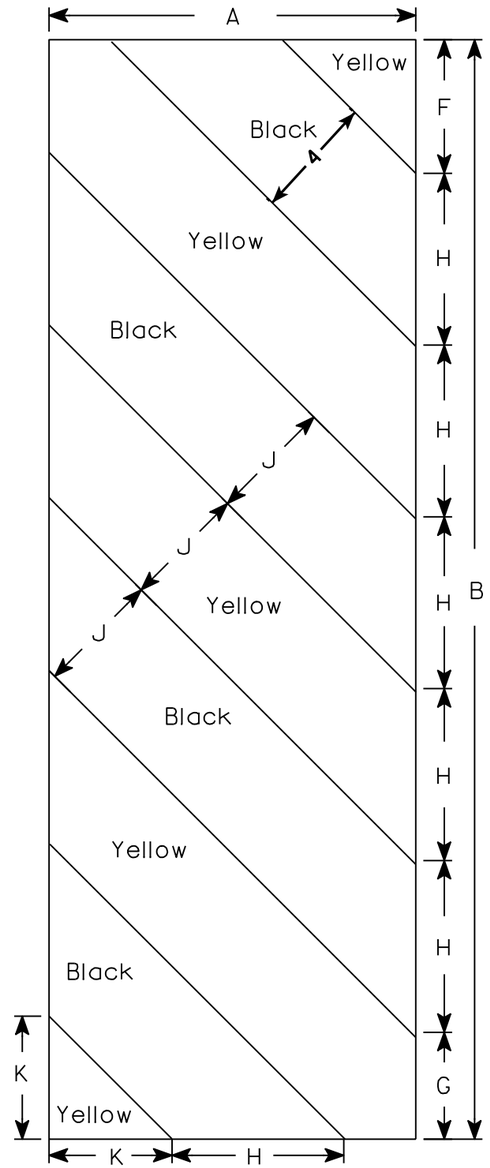
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

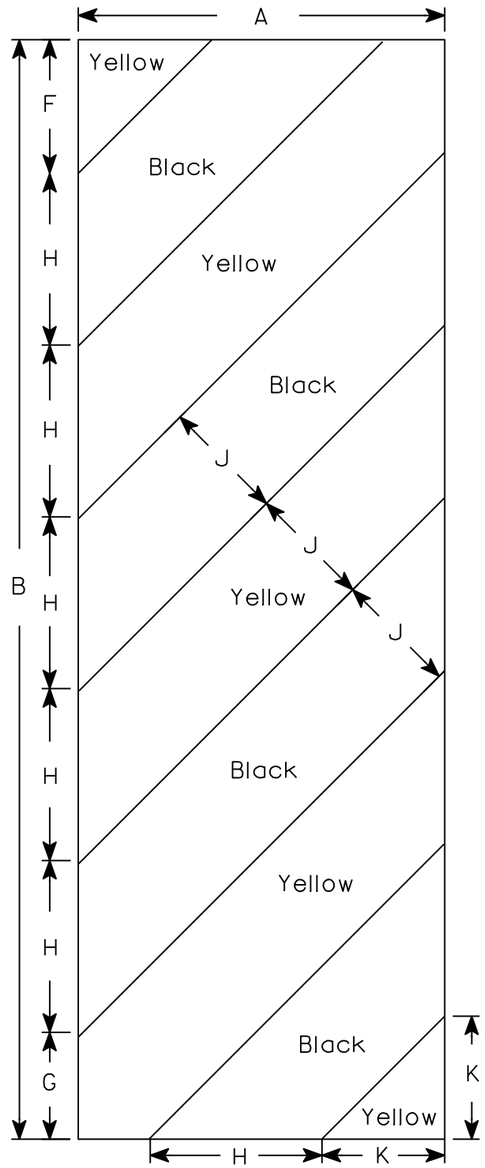
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/27/97 PLATE NO. A4-11.2

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS		SHEET NO: 39	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

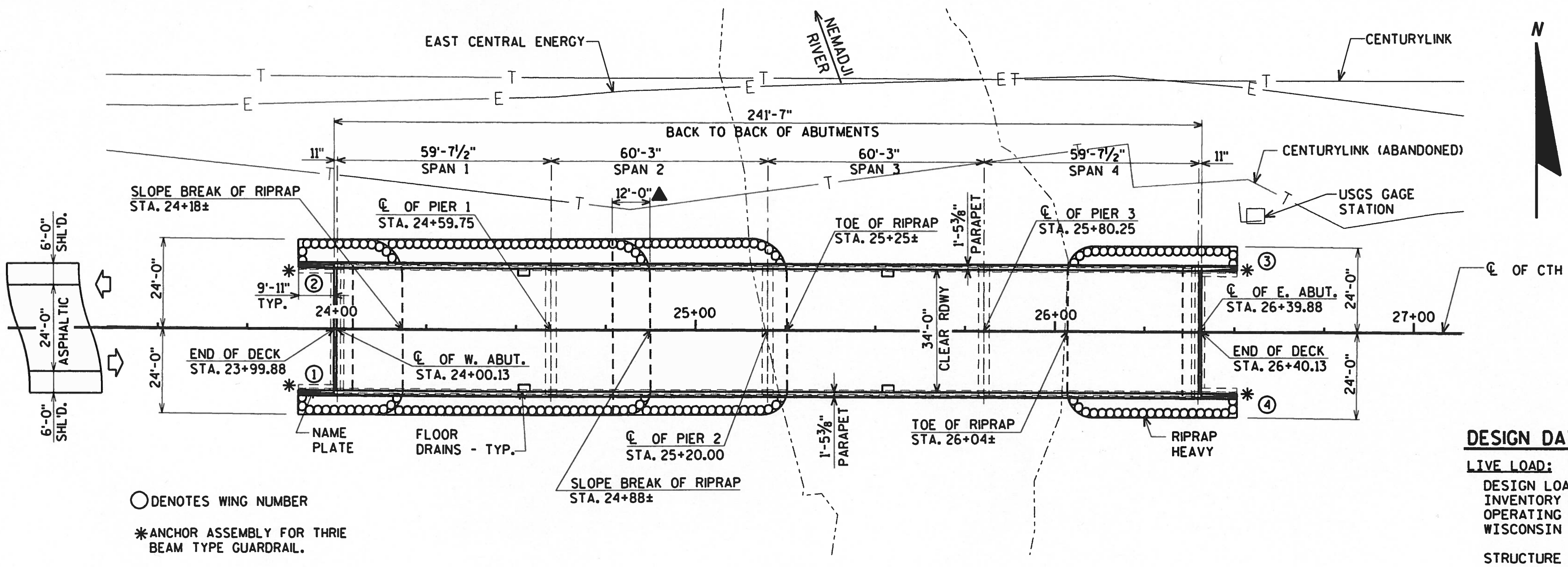
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS		SHEET NO: 40	E

STATE PROJECT NUMBER

8745-00-71



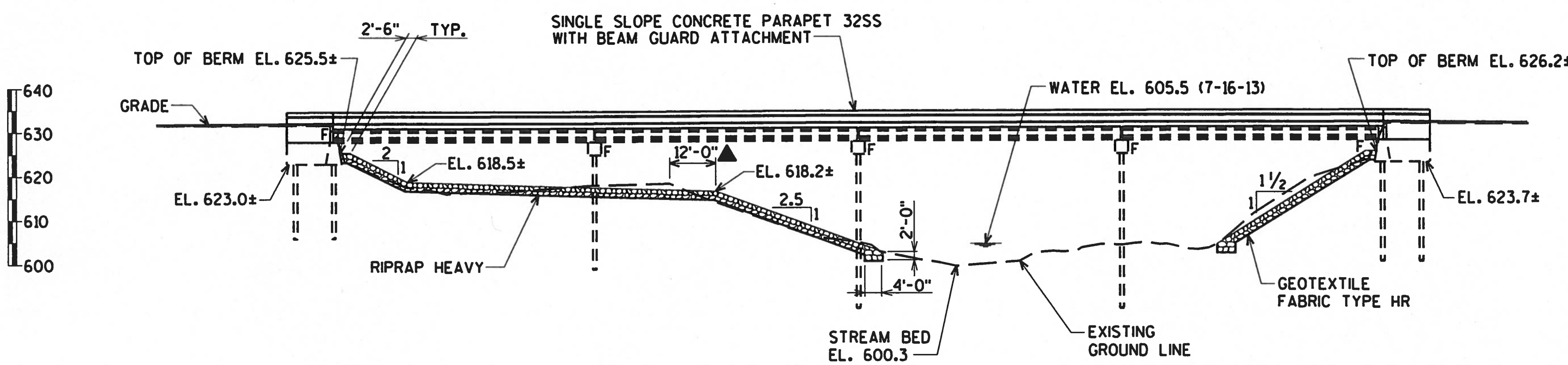
◯ DENOTES WING NUMBER

✱ ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

▲ FILL VOIDS IN HEAVY RIPRAP WITH "SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR"

PLAN

FOUR SPAN PRESTRESSED CONCRETE GIRDER BRIDGE
(DECK REPLACEMENT)



ELEVATION

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-12
OPERATING RATING: HS-20
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 190 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 #/S.F.

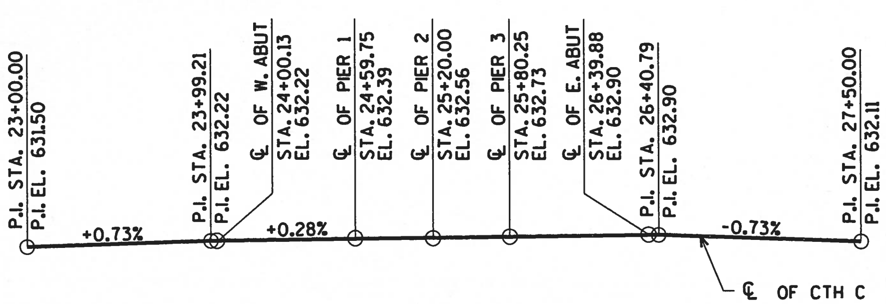
MATERIAL PROPERTIES:

CONCRETE MASONRY { SUPERSTRUCTURE ——— f'c = 4,000 p.s.i.
ALL OTHER ——— f'c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) ——— fy = 60,000 p.s.i.

TRAFFIC DATA:

A.D.T. = 2,900 (2014)
A.D.T. = 3,700 (2034)
R.D.S. = 60 M.P.H.

FOR TYPICAL SECTION, GENERAL NOTES, AND QUANTITIES SEE SHEET 2



PROFILE GRADE LINE

(CTH C)

BENCH MARK:
USGS DISK NEAR NE CORNER OF BRIDGE
STA. 26+60, 29' LT.
EL. 628.66

LIST OF DRAWINGS

1. GENERAL PLAN
2. QUANTITIES AND NOTES
3. WEST ABUTMENT
4. EAST ABUTMENT
5. SUPERSTRUCTURE
6. SUPERSTRUCTURE DETAILS
7. SUPERSTRUCTURE ELEVATIONS
8. FLOOR DRAIN TYPE 'GC'
9. SINGLE SLOPE PARAPET 32SS
10. INTERMEDIATE STEEL DIAPHRAGMS

WISCONSIN
DANIEL N. SYDOW
E-38363
WI
PROFESSIONAL ENGINEER
7/31/2015

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

CONSULTANT CONTACT:
DAN SYDOW
(715)-834-3161

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher 08/05/15
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-16-22

CTH C OVER NEMADJI RIVER

COUNTY DOUGLAS — TOWN/~~CITY/VILLAGE~~ SUPERIOR

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY JWZ/CJM — DESIGN CK'D. AEB — DRAWN BY KAH/CLS — PLANS CK'D. DNS

GENERAL PLAN

SHEET 1 OF 10

8

8

$PRFNAME$
U:±42-0899.00 - Douglas Co, CTH C Re-deck±BRIDGE±420899 gp.dgn

DATE:
DATE:
DATE:

CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

7/31/2015

PENTABLE:BRoSu_sbd_util.tbl

STATE PROJECT NUMBER

8745-00-71

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	PIER 1	PIER 2	PIER 3	E. ABUT.	SUPER.	TOTAL
203.0210.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL STRUCTURE B-16-22	LS	-----	-----	-----	-----	-----	-----	1
203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM STATION 25+20	LS	-----	-----	-----	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-16-22	LS	-----	-----	-----	-----	-----	-----	1
210.0100	BACKFILL STRUCTURE	CY	55	-----	-----	-----	55	-----	110
502.0100	CONCRETE MASONRY BRIDGES	CY	8	-----	-----	-----	8	311	327
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	-----	-----	-----	913	913
502.3210	PIGMENTED SURFACE SEALER	SY	8	-----	-----	-----	8	200	216
502.5002	MASONRY ANCHOR TYPE L NO. 4 BARS	EACH	-----	-----	-----	-----	-----	240	240
502.5005	MASONRY ANCHOR TYPE L NO. 5 BARS	EACH	56	-----	-----	-----	56	-----	112
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,270	-----	-----	-----	1,250	76,000	78,520
506.4000	STEEL DIAPHRAGMS B-16-22	EACH	-----	-----	-----	-----	-----	16	16
◨ 509.1500	CONCRETE SURFACE REPAIR	SF	10	-----	-----	-----	10	-----	20
514.0445	FLOOR DRAINS TYPE GC	EACH	-----	-----	-----	-----	-----	4	4
514.2625	DOWNSPOUT 6-INCH	LF	-----	-----	-----	-----	-----	12	12
⊗ 606.0300	RIPRAP HEAVY	CY	460	-----	-----	-----	145	-----	605
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2	-----	-----	-----	2	-----	4
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	730	-----	-----	-----	240	-----	970
SPV.0195	SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR	TON	43	-----	-----	-----	-----	-----	43
	NON-BID ITEMS								
	FILLER	SIZE	-----	-----	-----	-----	-----	-----	1/2" & 3/4"

◨ UNDISTRIBUTED QUANTITY FOR REPAIRS AT ABUTMENTS AS DIRECTED BY THE ENGINEER.

⊗ INCLUDES EXCAVATION OF EXISTING SLOPE AND RIPRAP UNDER AND ADJACENT TO THE EXISTING BRIDGE.

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 NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

AT ABUTMENTS ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP OF DECK. PIGMENTED SURFACE SEALER IS TO BE APPLIED TO THE TOP AND INSIDE FACES OF PARAPETS.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK.

DIMENSIONS ARE BASED ON ORIGINAL PLANS.

ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT.

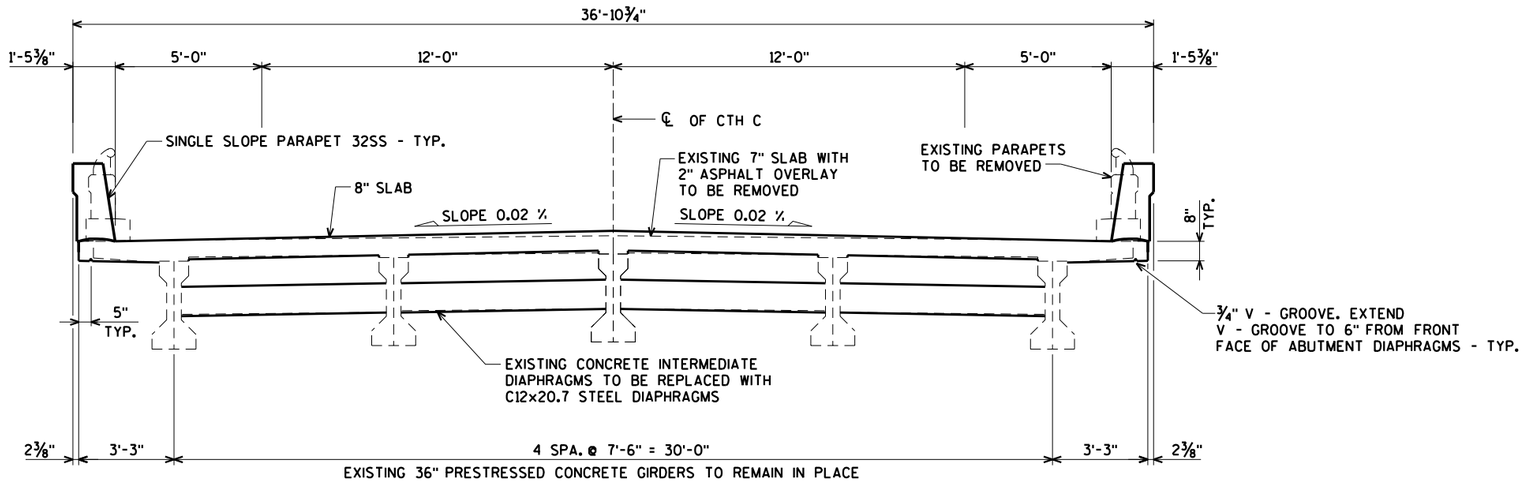
VARIATIONS TO THE NEW GRADE LINE OVER 1/4" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR.

ORIGINAL CONSTRUCTION YEAR IS 1968.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE FABRIC TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.



TYPICAL SECTION THRU BRIDGE

(LOOKING EAST)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-22

DRAWN BY CLS | PLANS CK'D. CJM

QUANTITIES AND NOTES

SHEET 2 OF 10
42

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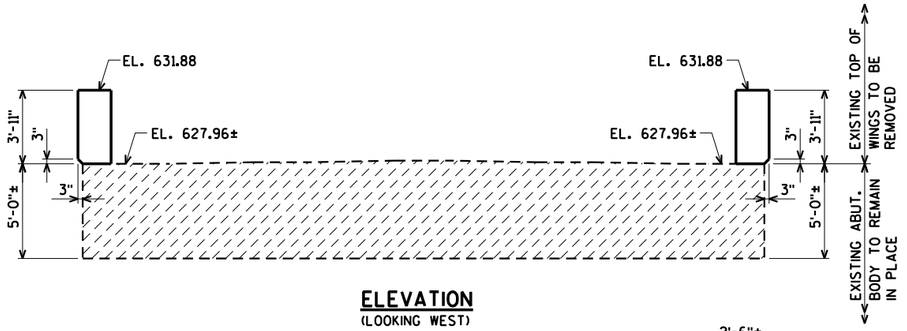
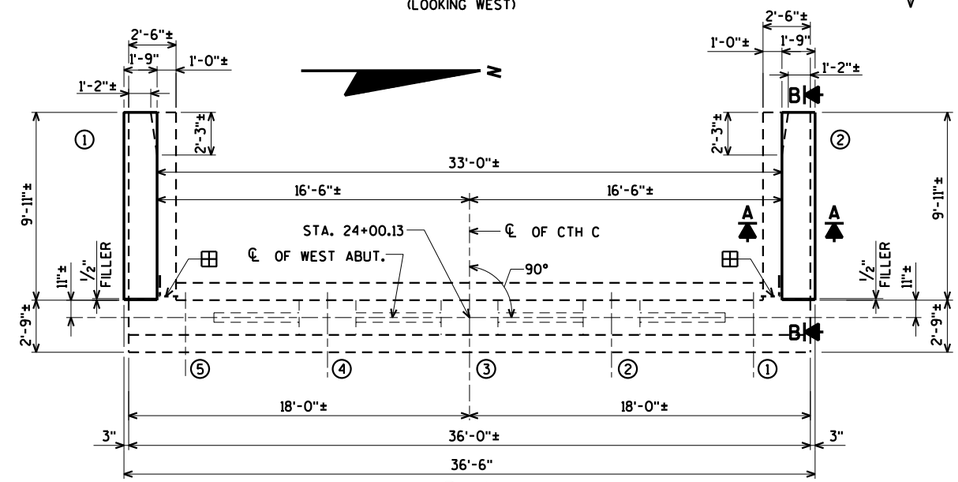
STATE PROJECT NUMBER

8745-00-71

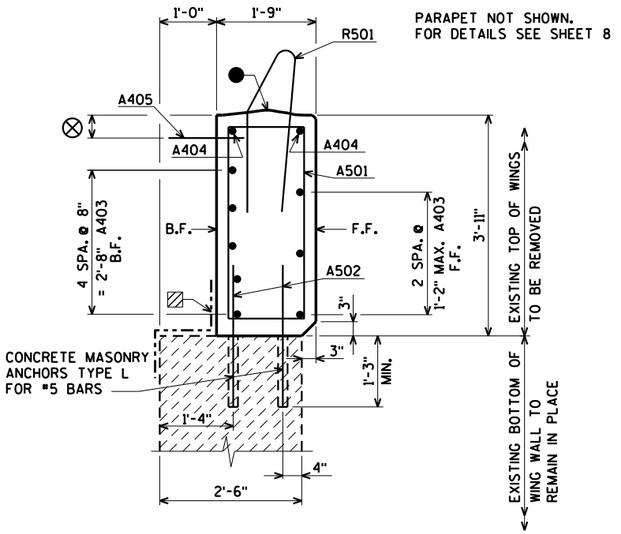
NOTE:
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)



ELEVATION
(LOOKING WEST)

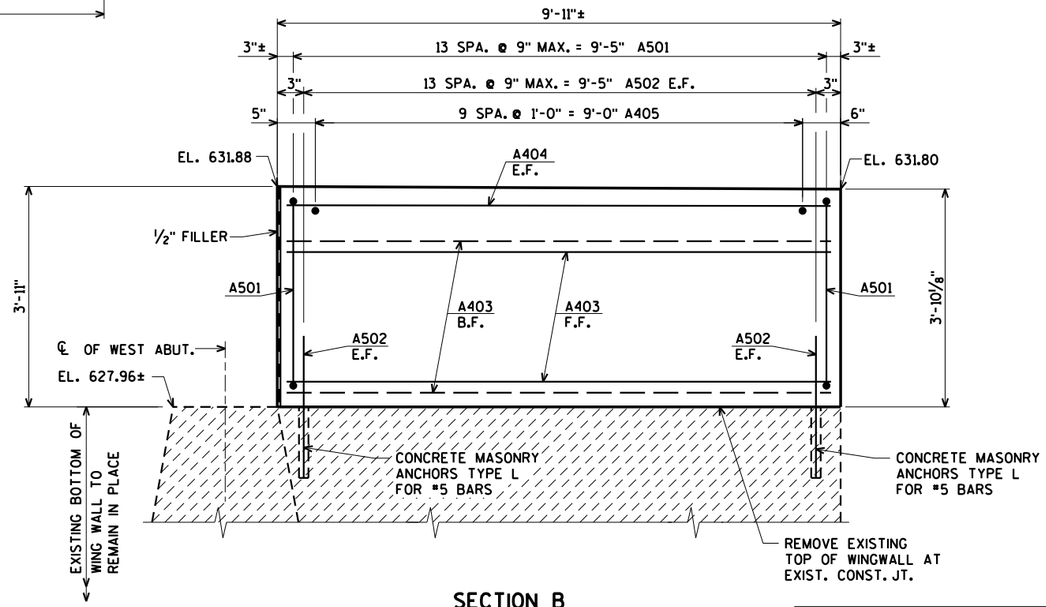


PLAN



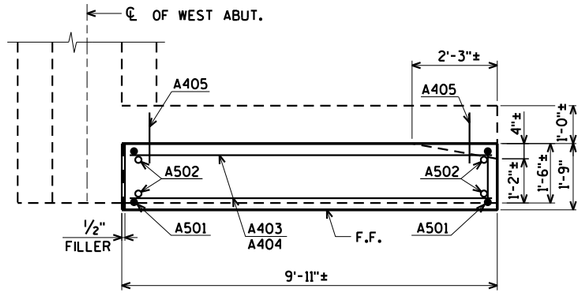
PARAPET NOT SHOWN.
FOR DETAILS SEE SHEET 8

SECTION A



SECTION B

SINGLE SLOPE PARAPET 32SS
NOT SHOWN. FOR DETAILS
SEE SHEET 9



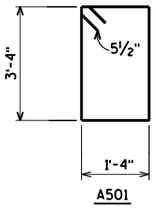
PLAN - WING 2
(WING 2 SHOWN, WING 1 SIMILAR)

BILL OF BARS

WEIGHTS INCLUDE PARAPET STEEL SHOWN ON SHEET 9

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1.270" COATED LOCATION
A501	X	28	9-9	X		WINGS 1 & 2 VERT.
A502	X	56	3-10			WINGS 1 & 2 VERT. DOWELS E.F.
A403	X	16	9-7			WINGS 1 & 2 HORIZ. E.F.
A404	X	4	9-7			WINGS 1 & 2 HORIZ. TOP E.F.
A405	X	20	2-0			WINGS 1 & 2 HORIZ. DOWELS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



⊗ 3" MIN. TO 6" MAX. SEE CONCRETE SURFACE DRAIN STANDARD DETAIL DRAWING.

● STRIKE OFF AND LEAVE ROUGH.

▨ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING FROM BRIDGE SEAT TO TOP OF WING.

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-22

DRAWN BY CLS | PLANS CK'D. CJM

WEST ABUTMENT

SHEET 3 OF 10
43

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$PRFNAME$
U:\42-0899.00 - Douglas Co. CTH C Re-deck\BRIDGE\420899 abut.dgn

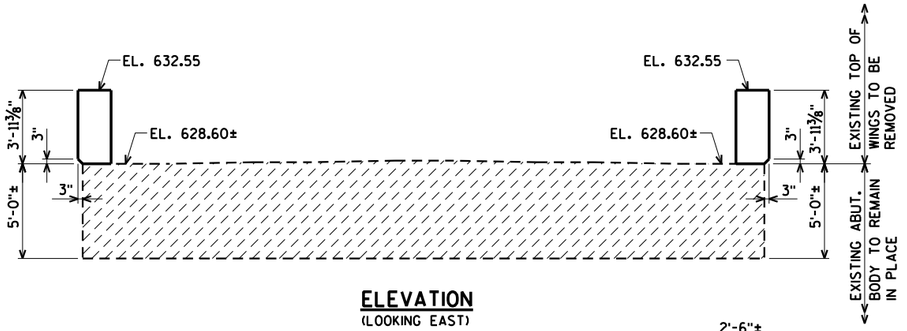
7/31/2015

PENTABLE:BReau_shd_util.tbl

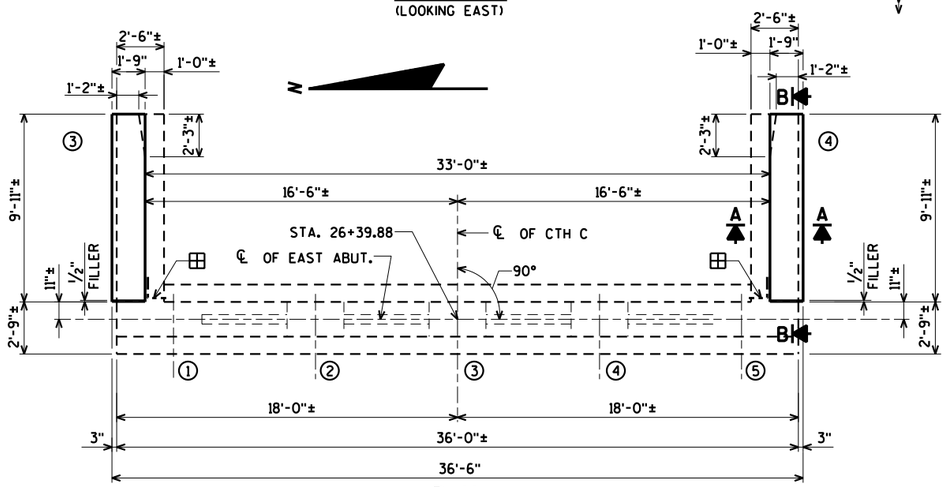
STATE PROJECT NUMBER

8745-00-71

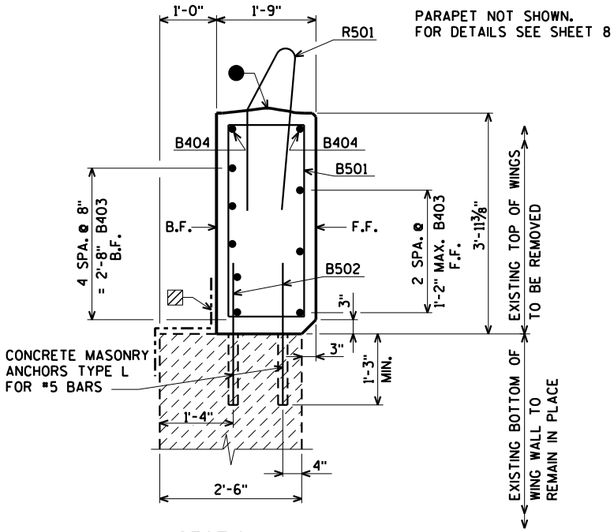
NOTE:
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)



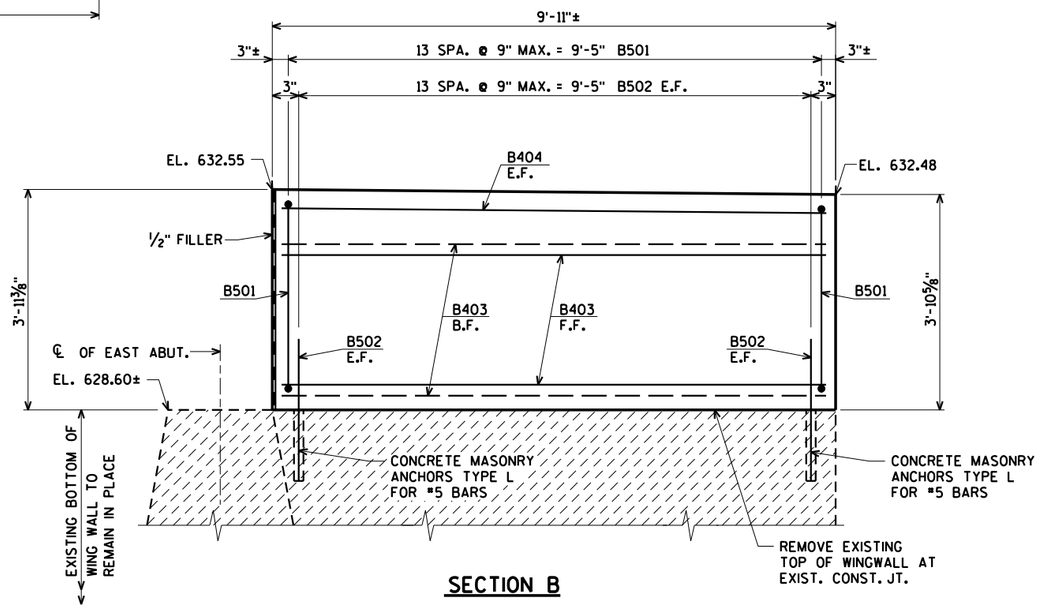
ELEVATION
(LOOKING EAST)



PLAN

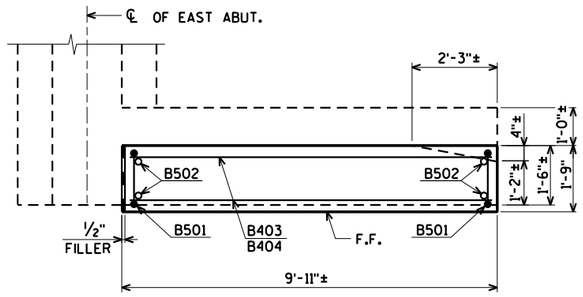


SECTION A



SECTION B

SINGLE SLOPE PARAPET 32SS
NOT SHOWN. FOR DETAILS
SEE SHEET 9



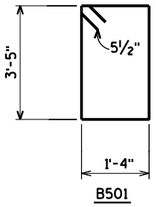
PLAN - WING 4
(WING 4 SHOWN, WING 3 SIMILAR)

BILL OF BARS

WEIGHTS INCLUDE PARAPET STEEL SHOWN ON SHEET 9

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1.250" COATED LOCATION
B501	X	28	9-11	X		WINGS 3 & 4 VERT.
B502	X	56	3-10			WINGS 3 & 4 VERT. DOWELS F.F.
B403	X	16	9-7			WINGS 3 & 4 HORIZ. E.F.
B404	X	4	9-7			WINGS 3 & 4 HORIZ. TOP E.F.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



- STRIKE OFF AND LEAVE ROUGH.
- 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT.
- 18" RUBBERIZED MEMBRANE WATERPROOFING FROM BRIDGE SEAT TO TOP OF WING.

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-22

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EAST ABUTMENT

SHEET 4 OF 10
44

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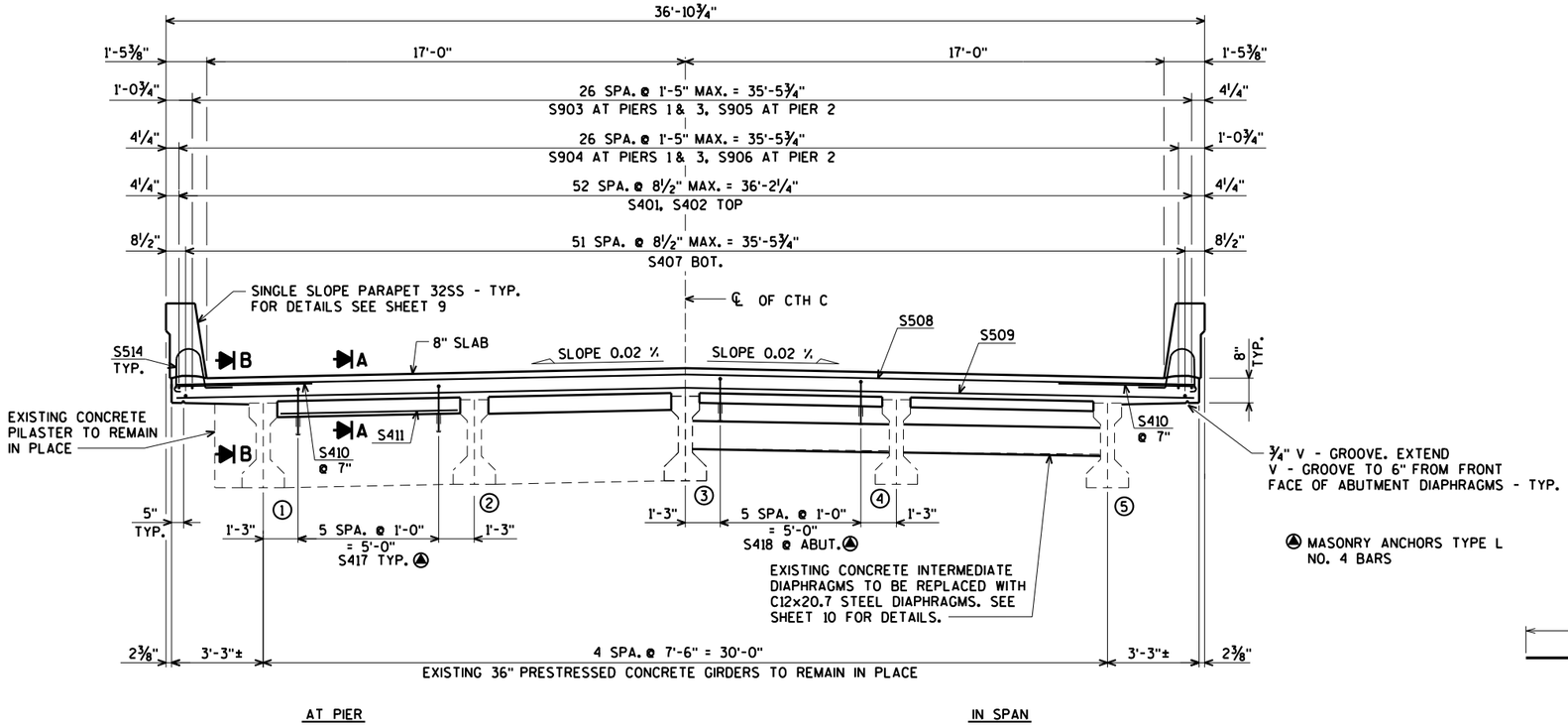


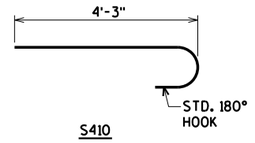
TYPICAL CROSS SECTION THRU ROADWAY

(LOOKING EAST)

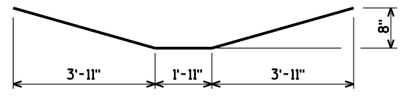
BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	76,000# COATED LOCATION
S401	X	212	26-7			SLAB LONG. TOP SPAN 1 & 4
S402	X	106	39-3			SLAB LONG. TOP SPAN 2 & 3
S903	X	54	28-6			SLAB LONG. TOP PIERS 1 & 3
S904	X	54	27-1			SLAB LONG. TOP PIERS 1 & 3
S905	X	27	28-7			SLAB LONG. TOP PIER 2
S906	X	27	28-7			SLAB LONG. TOP PIER 2
S407	X	364	35-11			SLAB LONG. BOT.
S508	X	412	36-2			SLAB TRANS. TOP
S509	X	411	36-2			SLAB TRANS. BOT.
S410	X	822	4-9	X		SLAB TRANS. TOP @ SLAB EDGE
S411	X	72	5-8			SLAB TRANS. AT PIERS
S412	X	84	10-0	X		SLAB LONG. AT PIER HAUNCHES
S513	X	8	5-10	X		SLAB @ PARAPET VERT. AT ENDS
S514	X	724	4-5	X		SLAB @ PARAPET VERT.
S515	X	724	5-0	X		PARAPET VERT.
S516	X	60	50-4			PARAPET HORIZ.
S417	X	144	2-6	X		VERT. DOWEL BAR @ PIER
S418	X	96	2-4	X		VERT. DOWEL BAR @ ABUT.
S519	X	16	5-0			SLAB LONG. TOP @ FLOOR DRAINS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



S410



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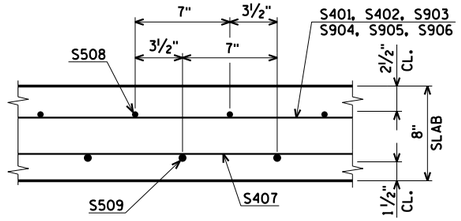
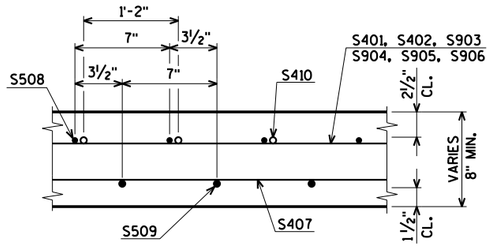
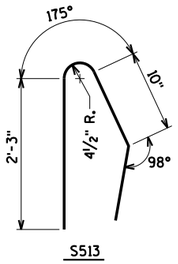


SECTION A



SECTION B



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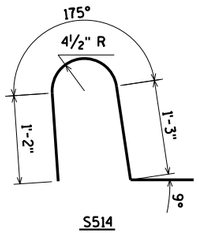

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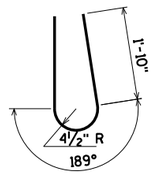

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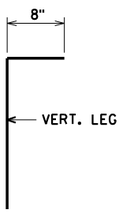
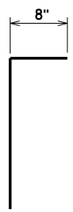


S417



S418

NOTE:
DAMAGE TO THE EXISTING GIRDERS CAUSED DURING DECK REMOVAL OPERATIONS WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-22

DRAWN BY CLS | PLANS CK'D. CJM

SUPERSTRUCTURE

SHEET 5 OF 10
45

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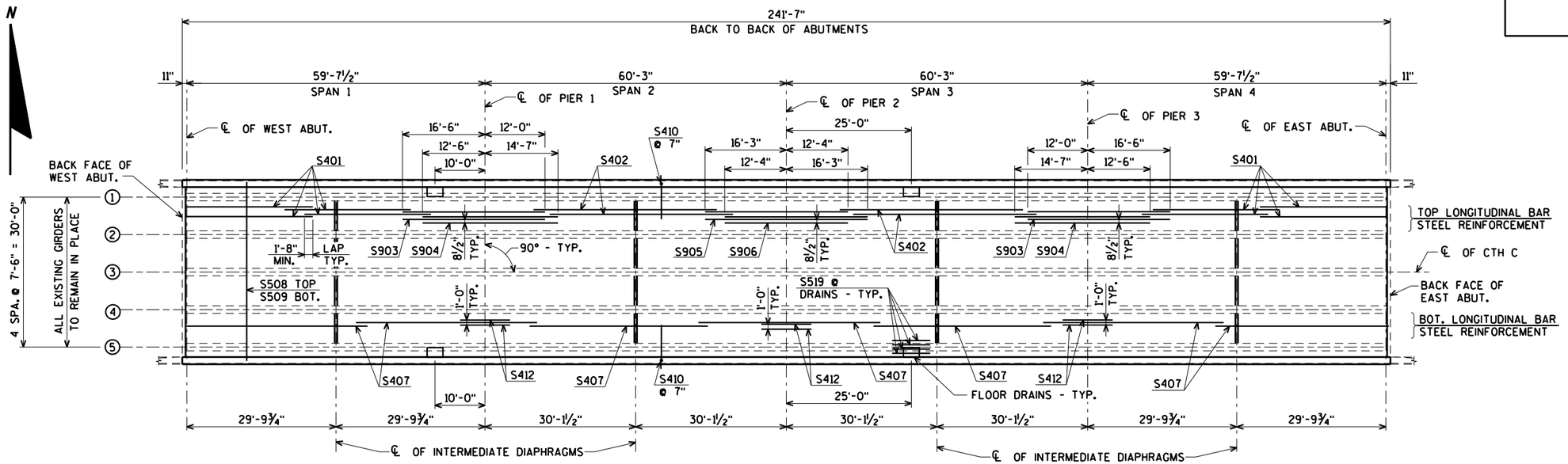
STATE PROJECT NUMBER

8745-00-71



PLAN

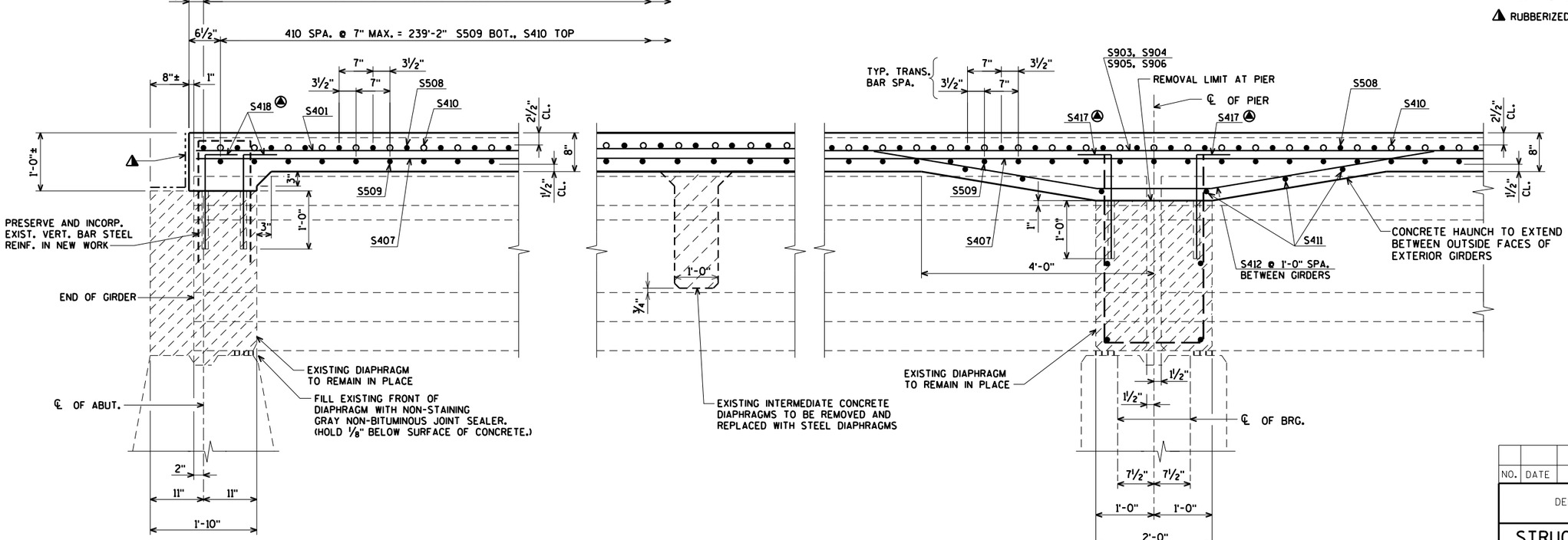
SEE SHEET 8 FOR S519 BARS

NOTES:

EXISTING CONCRETE PILASTERS AT PIERS TO REMAIN IN PLACE.

▲ MASONRY ANCHORS TYPE L NO. 4 BARS

▲ RUBBERIZED MEMBRANE WATERPROOFING



PART LONGITUDINAL SECTION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-22

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SUPERSTRUCTURE DETAILS

SHEET 6 OF 10
46

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8

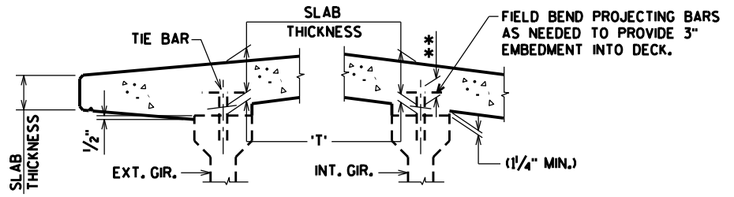
TOP OF DECK ELEVATIONS

SPAN 1	WEST ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	PIER 1
NORTH EDGE OF DECK	631.88	631.90	631.91	631.93	631.95	631.96	631.98	632.00	632.01	632.03	632.05
GIRDER 1	631.92	631.94	631.95	631.97	631.99	632.00	632.02	632.04	632.05	632.07	632.09
GIRDER 2	632.07	632.09	632.10	632.12	632.14	632.15	632.17	632.19	632.20	632.22	632.24
℄ CTH C - GIRDER 3	632.22	632.24	632.25	632.27	632.29	632.30	632.32	632.34	632.35	632.37	632.39
GIRDER 4	632.07	632.09	632.10	632.12	632.14	632.15	632.17	632.19	632.20	632.22	632.24
GIRDER 5	631.92	631.94	631.95	631.97	631.99	632.00	632.02	632.04	632.05	632.07	632.09
SOUTH EDGE OF DECK	631.88	631.90	631.91	631.93	631.95	631.96	631.98	632.00	632.01	632.03	632.05

SPAN 2	PIER 1	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	PIER 2
NORTH EDGE OF DECK	632.05	632.06	632.08	632.10	632.11	632.13	632.15	632.17	632.18	632.20	632.22
GIRDER 1	632.09	632.10	632.12	632.14	632.15	632.17	632.19	632.21	632.22	632.24	632.26
GIRDER 2	632.24	632.25	632.27	632.29	632.30	632.32	632.34	632.36	632.37	632.39	632.41
℄ CTH C - GIRDER 3	632.39	632.40	632.42	632.44	632.45	632.47	632.49	632.51	632.52	632.54	632.56
GIRDER 4	632.24	632.25	632.27	632.29	632.30	632.32	632.34	632.36	632.37	632.39	632.41
GIRDER 5	632.09	632.10	632.12	632.14	632.15	632.17	632.19	632.21	632.22	632.24	632.26
SOUTH EDGE OF DECK	632.05	632.06	632.08	632.10	632.11	632.13	632.15	632.17	632.18	632.20	632.22

SPAN 3	PIER 2	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	PIER 3
NORTH EDGE OF DECK	632.22	632.23	632.25	632.27	632.28	632.30	632.32	632.33	632.35	632.37	632.38
GIRDER 1	632.26	632.27	632.29	632.31	632.32	632.34	632.36	632.37	632.39	632.41	632.42
GIRDER 2	632.41	632.42	632.44	632.46	632.47	632.49	632.51	632.52	632.54	632.56	632.57
℄ CTH C - GIRDER 3	632.56	632.57	632.59	632.61	632.62	632.64	632.66	632.67	632.69	632.71	632.72
GIRDER 4	632.41	632.42	632.44	632.46	632.47	632.49	632.51	632.52	632.54	632.56	632.57
GIRDER 5	632.26	632.27	632.29	632.31	632.32	632.34	632.36	632.37	632.39	632.41	632.42
SOUTH EDGE OF DECK	632.22	632.23	632.25	632.27	632.28	632.30	632.32	632.33	632.35	632.37	632.38

SPAN 4	PIER 3	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	EAST ABUT.
NORTH EDGE OF DECK	632.38	632.40	632.42	632.43	632.45	632.47	632.49	632.50	632.52	632.54	632.55
GIRDER 1	632.42	632.44	632.46	632.47	632.49	632.51	632.53	632.54	632.56	632.58	632.59
GIRDER 2	632.57	632.59	632.61	632.62	632.64	632.66	632.68	632.69	632.71	632.73	632.74
℄ CTH C - GIRDER 3	632.72	632.74	632.76	632.77	632.79	632.81	632.83	632.84	632.86	632.88	632.89
GIRDER 4	632.57	632.59	632.61	632.62	632.64	632.66	632.68	632.69	632.71	632.73	632.74
GIRDER 5	632.42	632.44	632.46	632.47	632.49	632.51	632.53	632.54	632.56	632.58	632.59
SOUTH EDGE OF DECK	632.38	632.40	632.42	632.43	632.45	632.47	632.49	632.50	632.52	632.54	632.55



SLAB HAUNCH DETAIL

IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEAD LOAD DEFLECTION
- SLAB THICKNESS
= HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 3½" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

DEAD LOAD DEFLECTIONS

UNITS ARE INCHES	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.
SPAN 1	0.3	0.5	0.8	0.9	0.9	0.9	0.8	0.5	0.3
SPAN 2	0.3	0.5	0.7	0.9	0.9	0.9	0.7	0.5	0.3
SPAN 3	0.3	0.5	0.7	0.9	0.9	0.9	0.7	0.5	0.3
SPAN 4	0.3	0.5	0.7	0.9	0.9	0.9	0.7	0.5	0.3

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-22

DRAWN BY CLS | PLANS CK'D. CJM

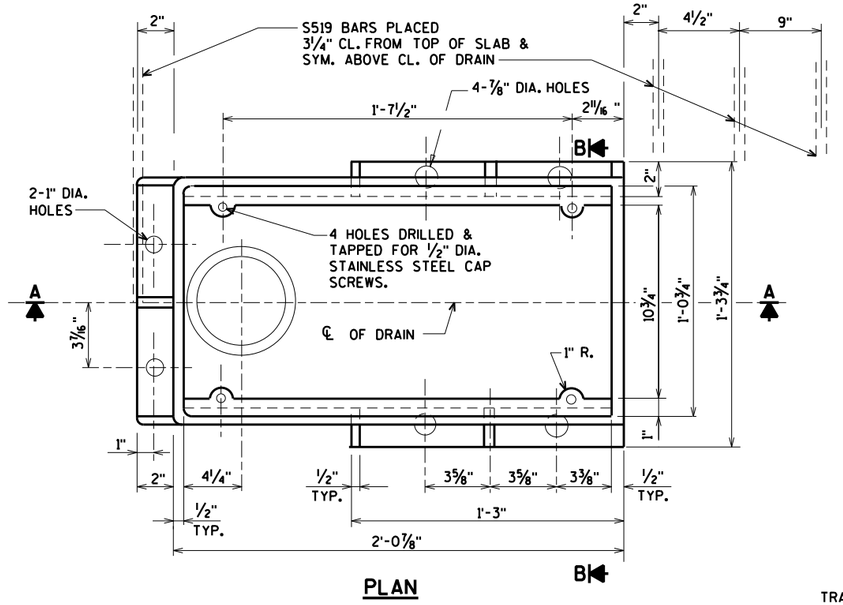
SUPERSTRUCTURE ELEVATIONS

SHEET 7 OF 10
47

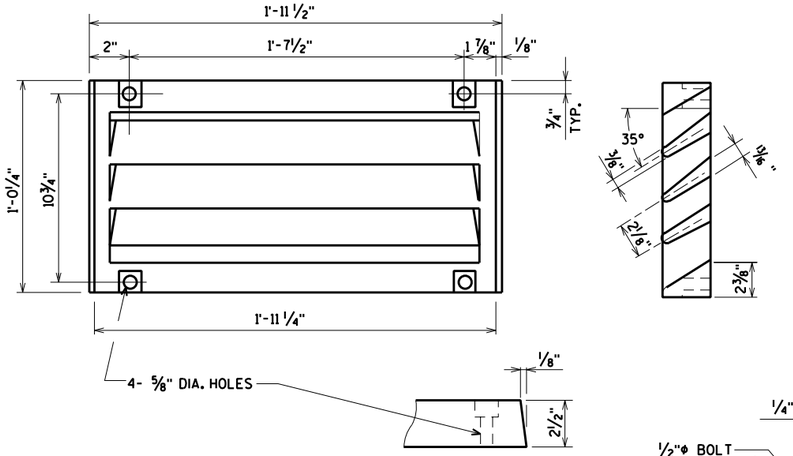
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE PROJECT NUMBER

8745-00-71



PLAN



GRATE CASTING DETAIL

ATTACH GRATE TO FRAME FOR SHIPMENT

GENERAL NOTES

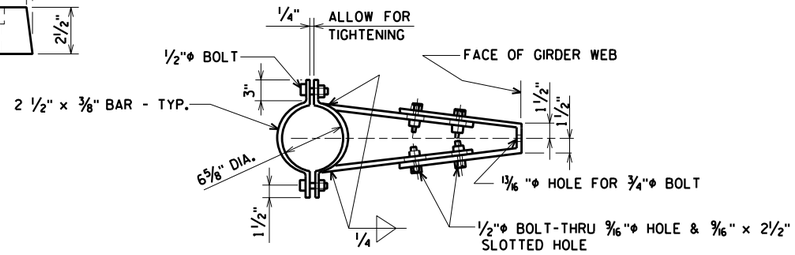
ALL MATERIAL FOR TYPE "GC" CASTING, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48, CLASS 30. (APPROX. WEIGHT = 225#)

MATERIAL FOR BRACKETS SHALL CONFORM TO A.S.T.M. A36.

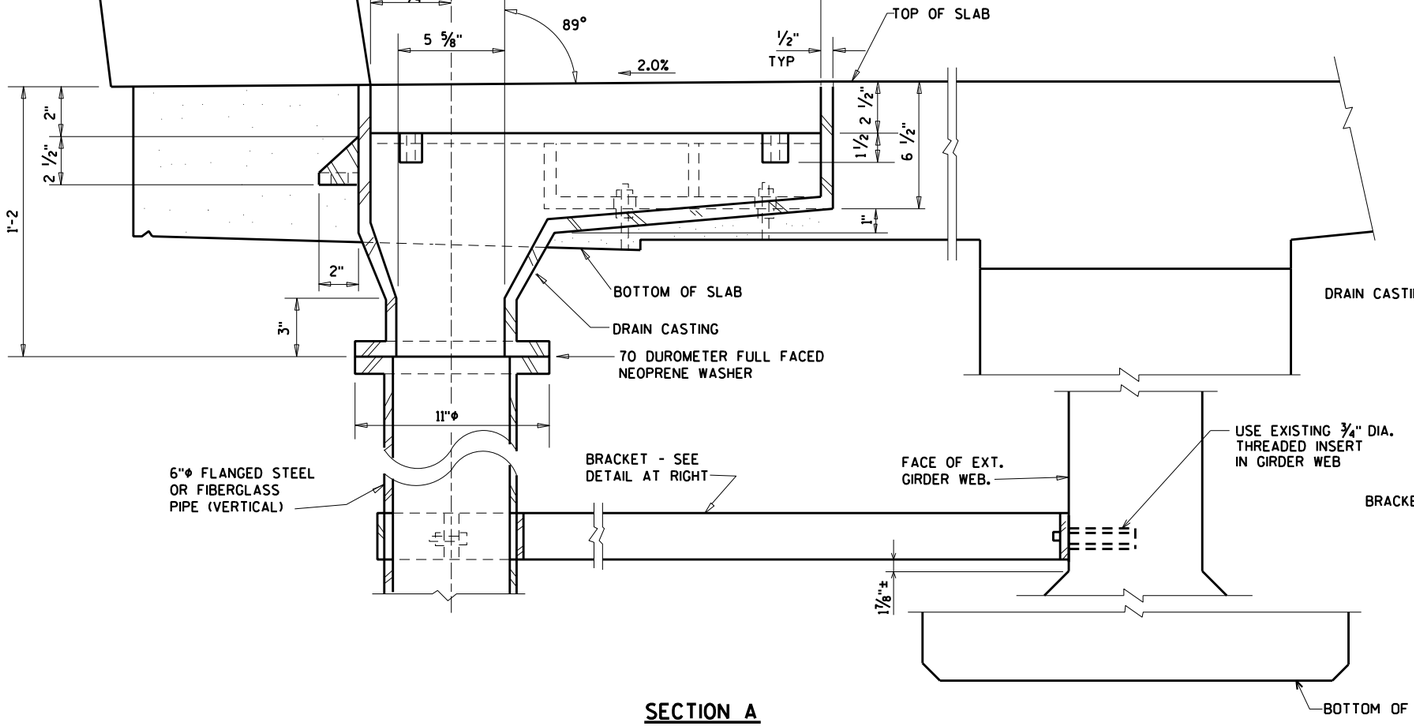
THE CONTRACTOR MAY PROPOSE AN ALTERNATE TYPE OF BRACKET. THE PROPOSED ALTERNATE DETAILS SHALL BE SUBMITTED AND SUBJECT TO THE APPROVAL OF THE ENGINEER.

FLANGED 6" DIA. DOWNSPOUTS SHALL BE EITHER STEEL OR REINFORCED THERMOSETTING RESIN PIPE CONFORMING TO SECTION 514 OF THE STANDARD SPECIFICATIONS.

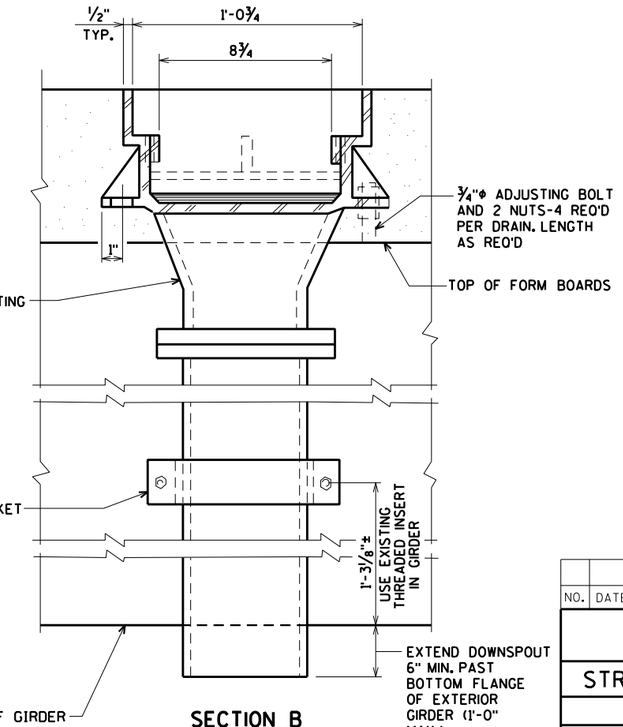
TRANS. AND LONGIT. SLAB BAR REINF. TO BE CUT A MAX. 1" CL. FROM DRAIN FRAME. DISPLACE BARS WHERE POSSIBLE



BRACKET DETAIL



SECTION A



SECTION B

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-22

DRAWN BY CLS | PLANS CK'D. CJM

FLOOR DRAIN TYPE 'GC'

SHEET 8 OF 10
48

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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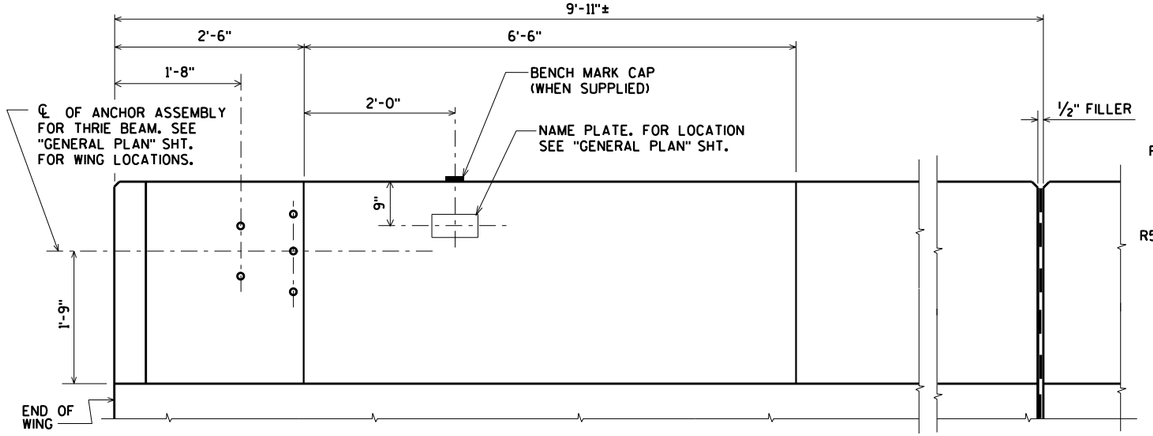
$PRFNAME$
U:\42-0899.00 - Douglas Co, CTH C Re-deck\BRIDGE\420899 drain GC.dgn

7/31/2015

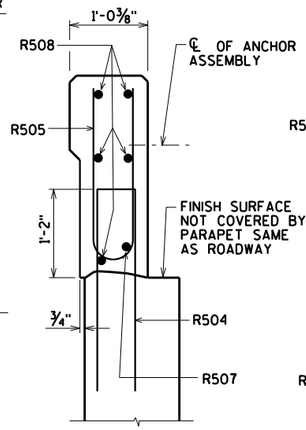
PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

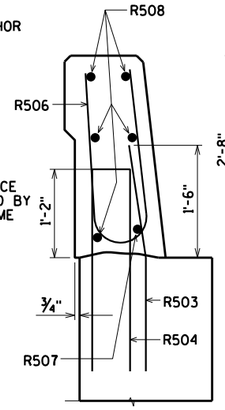
8745-00-71



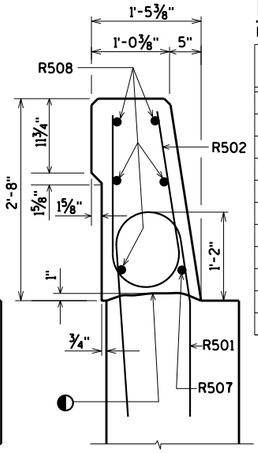
INSIDE ELEVATION



SECTION A



SECTION B

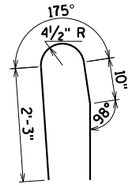


SECTION C

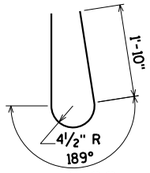
BILL OF BARS

FOR ABUTMENT PARAPETS WEIGHTS SHOWN ON SHEETS 3 & 4

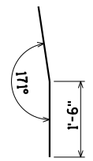
BAR MARK	COAT	WEST ABUT.	EAST ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	4	4	5-10	X		PARAPET VERT.
R502	X	4	4	5-0	X		PARAPET VERT.
R503	X	24	24	3-0	X		PARAPET VERT.
R504	X	34	34	5-7	X		PARAPET VERT.
R505	X	22	22	4-9	X		PARAPET VERT.
R506	X	12	12	4-10	X		PARAPET VERT.
R507	X	2	2	9-7	X		PARAPET HORIZ.
R508	X	10	10	9-7			PARAPET HORIZ.



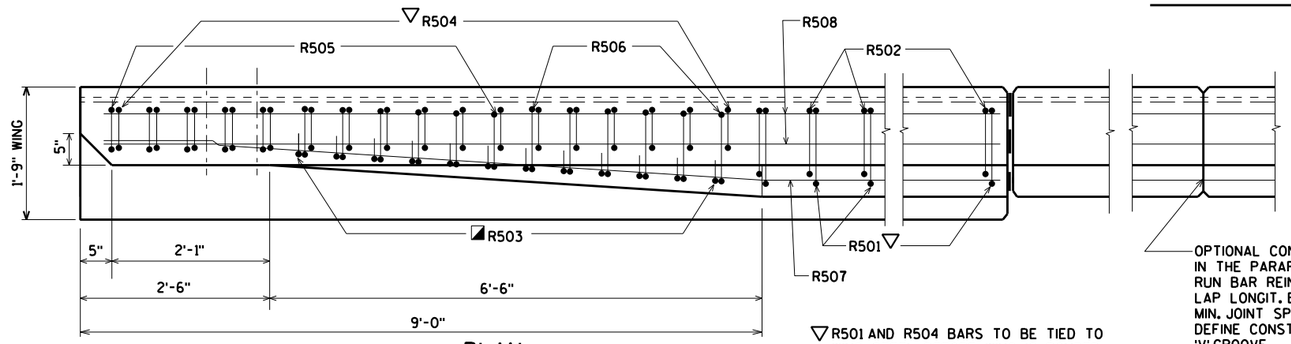
R501



R502



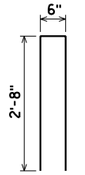
R503



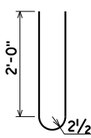
PLAN

▽R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

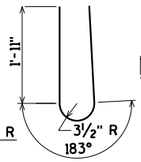
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.



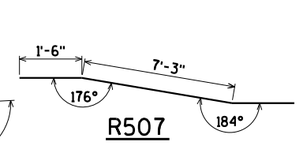
R504



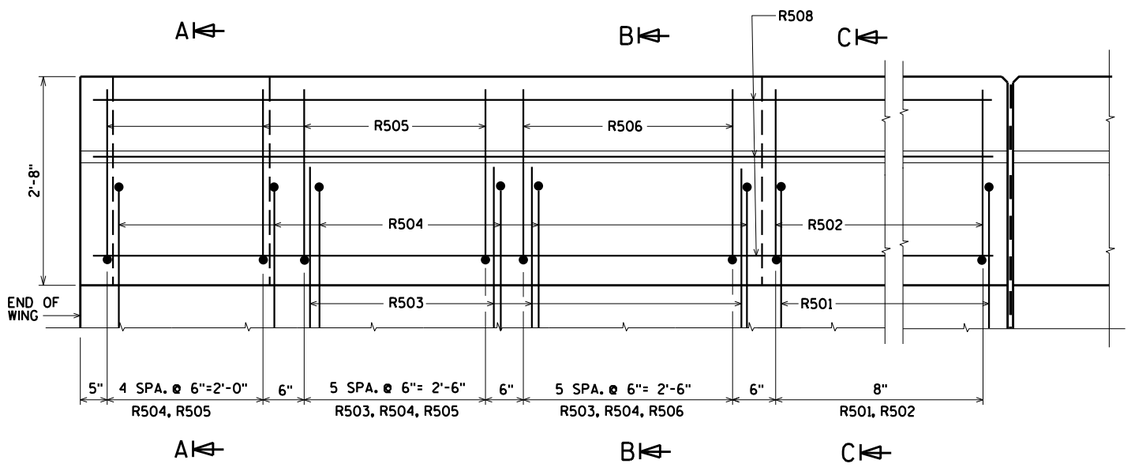
R505



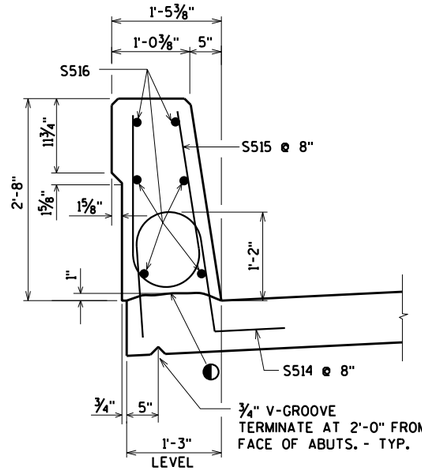
R506



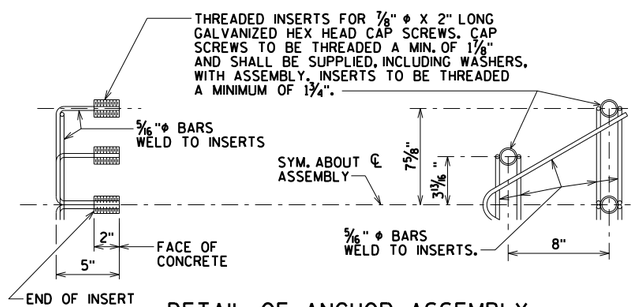
R507



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

◐CONST. JOINT - STRIKE OFF AS SHOWN.

◪R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-22

DRAWN BY CLS | PLANS CK'D. CJM

SINGLE SLOPE PARAPET 32SS

SHEET 9 OF 10
49

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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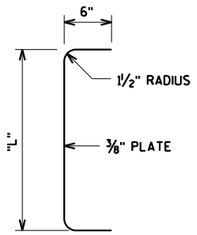
8

8

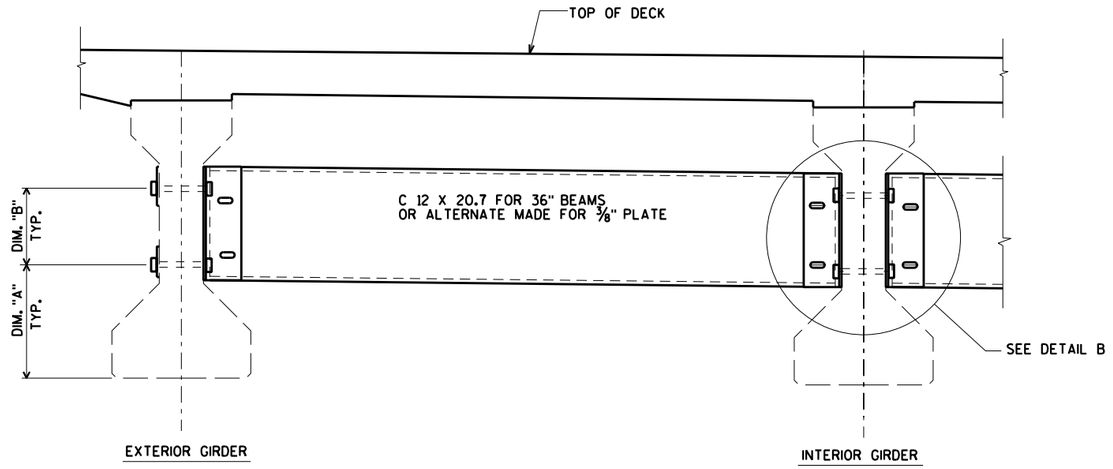
TABLE

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	* DIM. "X"
36"	1'-2 7/8"	9 7/8"	1'-1 1/2"	3 1/4"



SECTION THRU ALTERNATE DIAPHRAGM

*DIM "X" = 2½" FOR ALTERNATE PLATE DIAPHRAGM



PART TRANSVERSE SECTION AT DIAPHRAGM

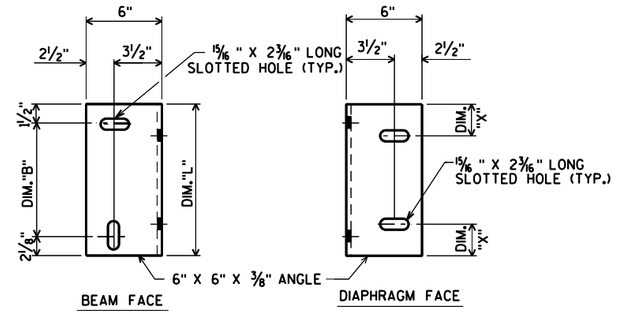
NOTES

ALL DIAPHRAGM MATERIAL AND CORED HOLES SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-16-22", EACH.

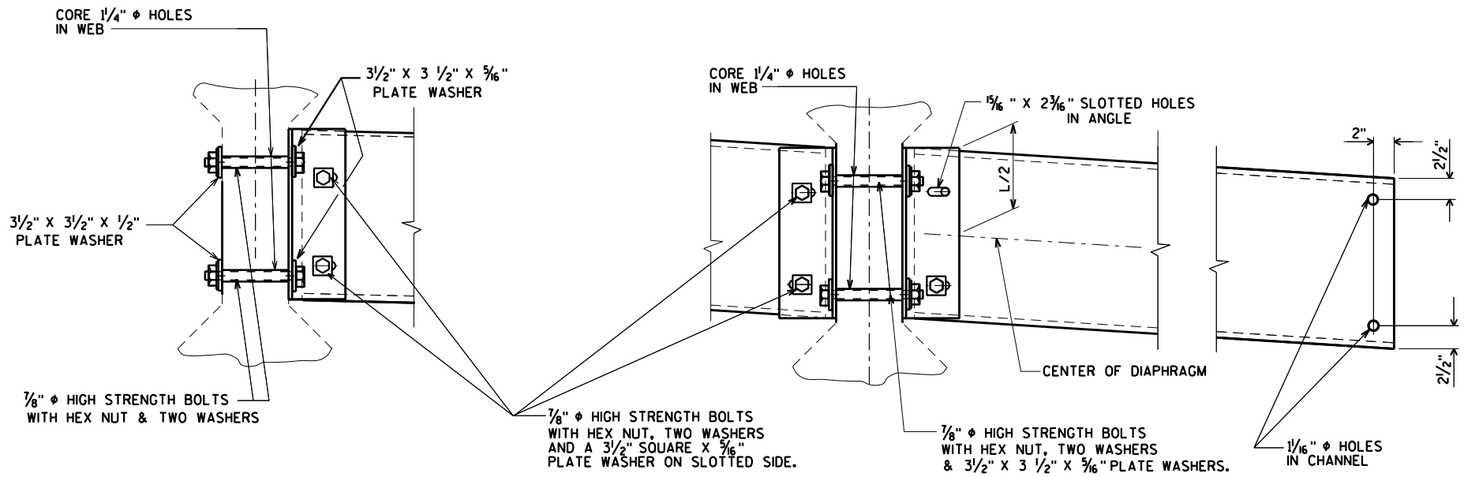
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.



DIAPHRAGM SUPPORT



DETAIL B

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-22

DRAWN BY CJM | PLANS CK'D. DNS

INTERM. STEEL DIAPH. DETAILS

SHEET 10 OF 10
50

ORIGINAL PLANS PREPARED BY
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Eau Claire, WI 54701
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EARTHWORK SUMMARY (CATEGORY 0010)

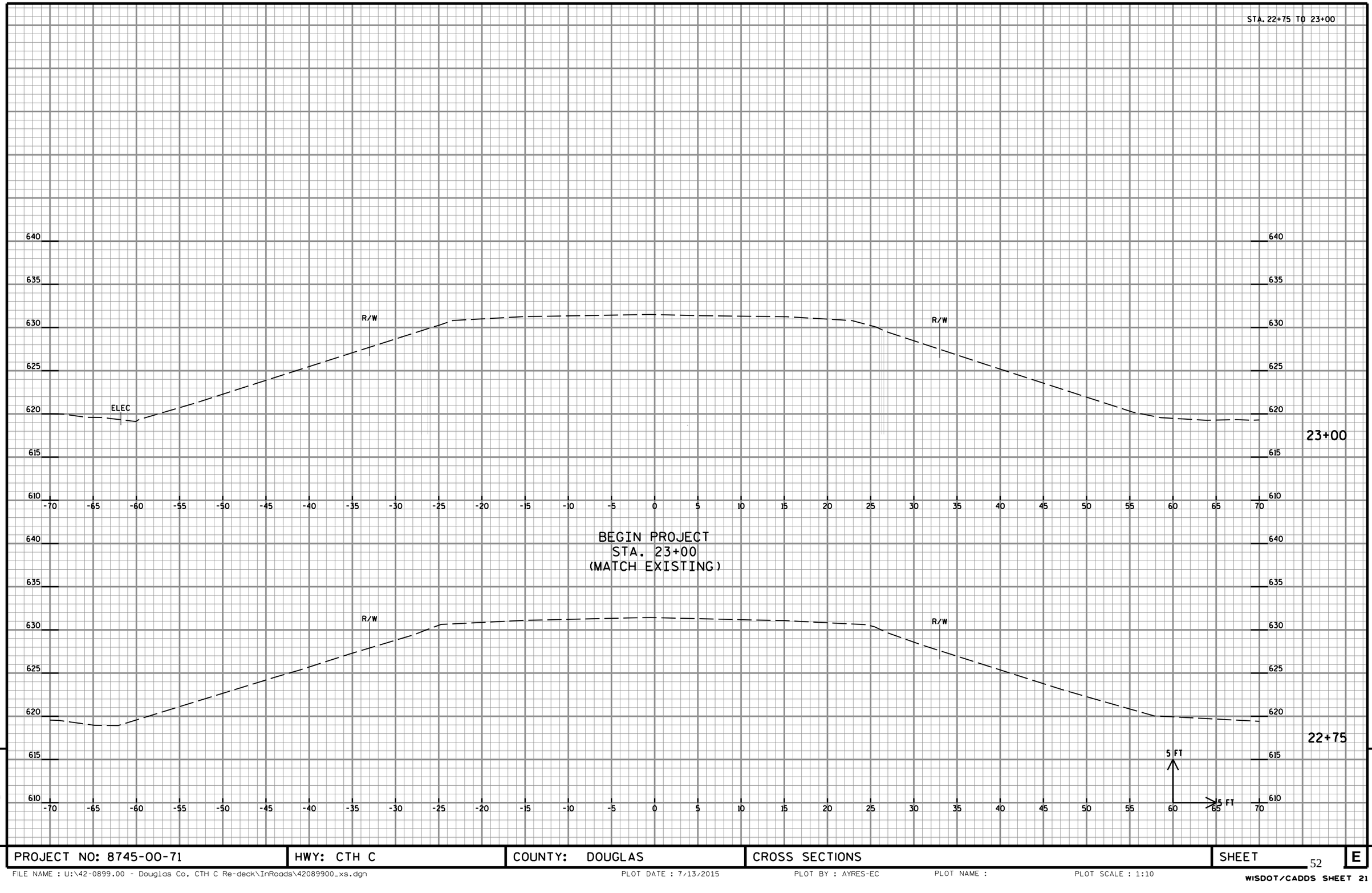
		AREA			INCREMENTAL VOLUME			CUMULATIVE VOLUME		
DIVISION	STATION	CUT SF	SALVAGED/ UNUSABLE PAVEMENT MATERIAL SF	FILL SF	CUT (1) CY	SALVAGED/ UNUSABLE PAVEMENT MATERIAL (2) CY	FILL (3) CY	CUT (1) 1.00 CY	EXPANDED FILL (4) 1.30 CY	MASS ORDINATE ±(5) CY
1	23+00	63	0	0						
CTH C	23+21	60	0	0	48	0	0	48	0	48
	23+25	59	0	0	9	0	0	57	0	57
	23+50	52	0	0	51	0	0	108	0	108
	23+75	46	0	0	45	0	0	153	0	153
	24+00	34	0	140	37	0	65	190	85	106
	STRUCTURE (B-16-22)									
	26+40	35	0	140	52	0	91	52	118	-66
	26+75	46	0	0	45	0	0	97	118	-21
	27+00	51	0	1	37	0	0	134	118	16
	27+19	55	0	0	12	0	0	146	118	28
	27+25	57	0	0	56	0	0	202	118	84
	27+50	64	0	0						
TOTALS					392	0	156			189

205.0100 EXCAVATION COMMON = SAY 392

NOTES:
1) EXCAVATION COMMON IS THE SUM OF THE CUT COLUMN. ITEM NUMBER 205.0100
2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
3) DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUME.
4) EXPANDED FILL FACTOR = 1.30 EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
5) THE MASS ORDINATE ± QTY CALCULATED FOR THE DIVISION.

PLUS (+) QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION.
MINUS (-) QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

STA. 22+75 TO 23+00



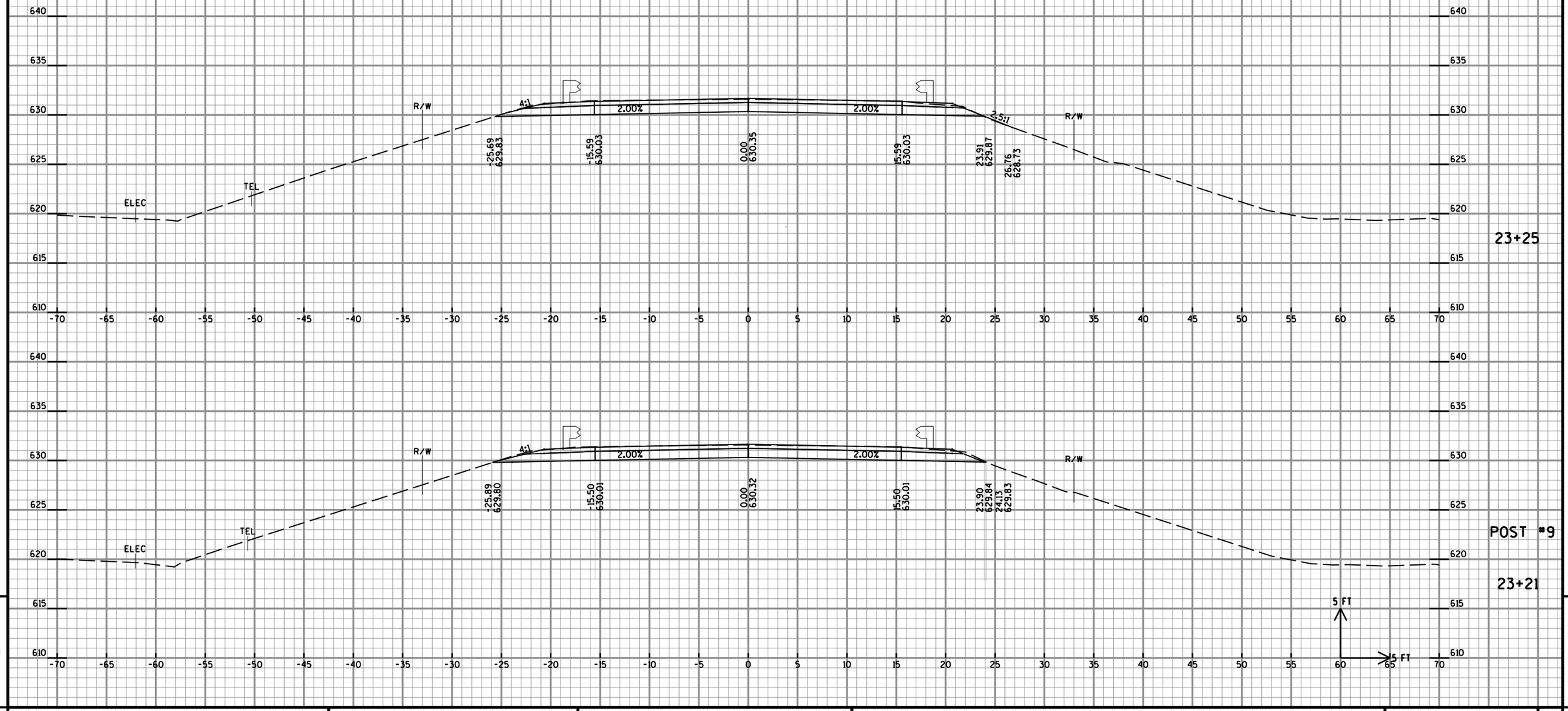
9 9

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0899.00 - Douglas Co, CTH C Re-deck\InRoads\42089900_xs.dgn PLOT DATE : 7/13/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 23+21 TO 23+25



23+25

POST #9

23+21

9 9

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

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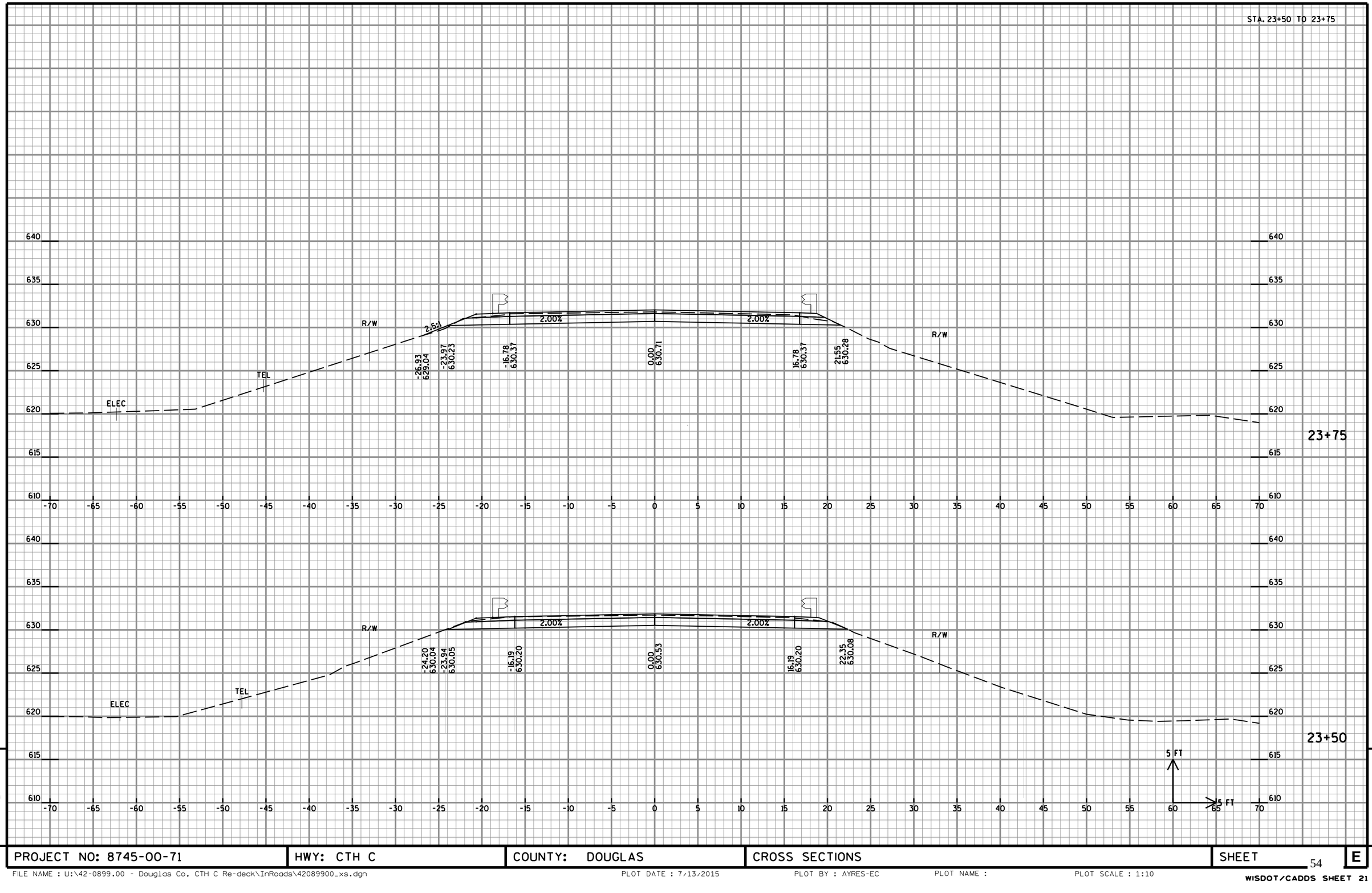
WISDOT/CADDS SHEET 21

STA. 23+50 TO 23+75



9 9

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

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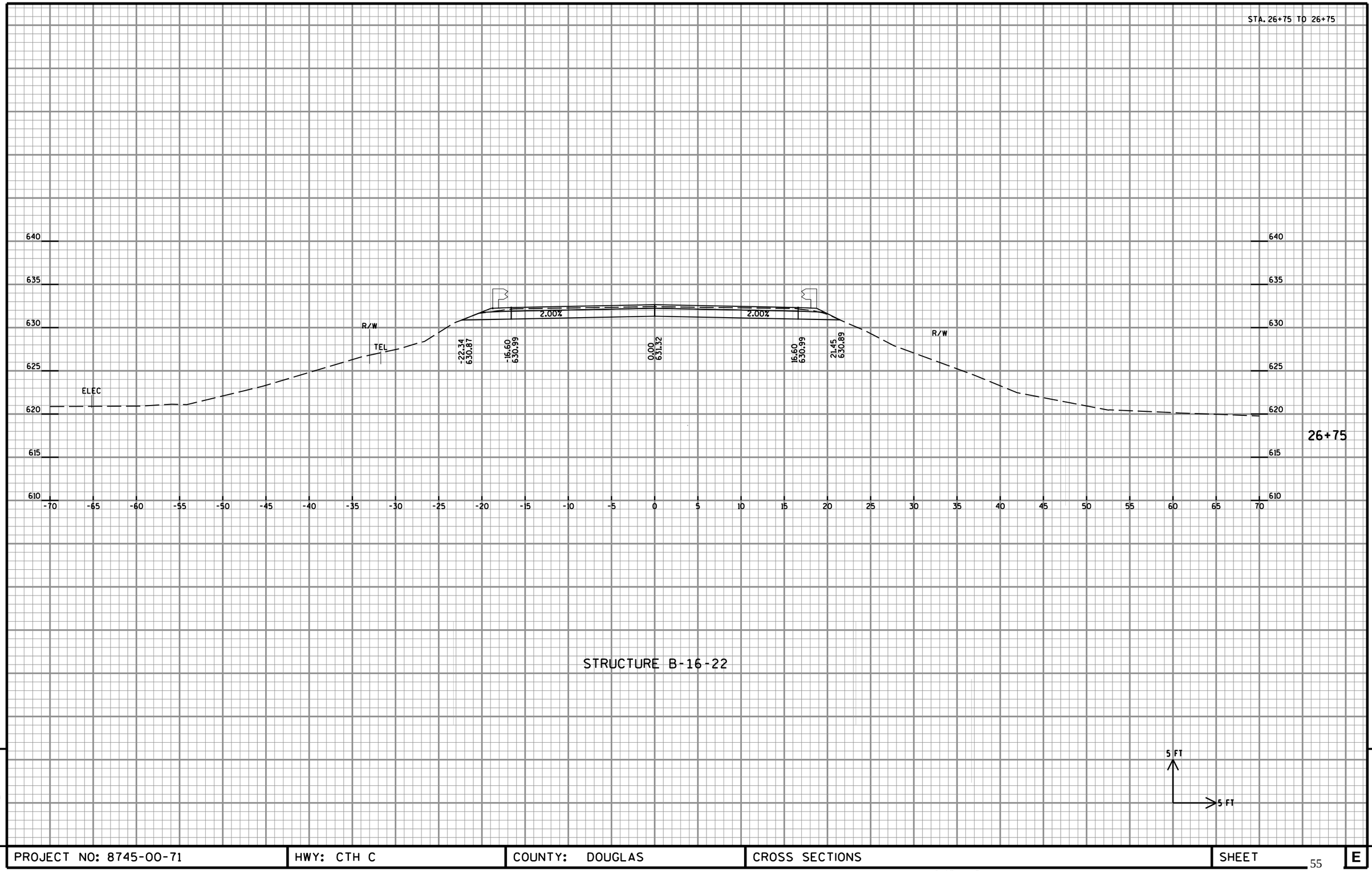
WISDOT/CADDS SHEET 21

STA. 26+75 TO 26+75



STRUCTURE B-16-22

5 FT
5 FT

9

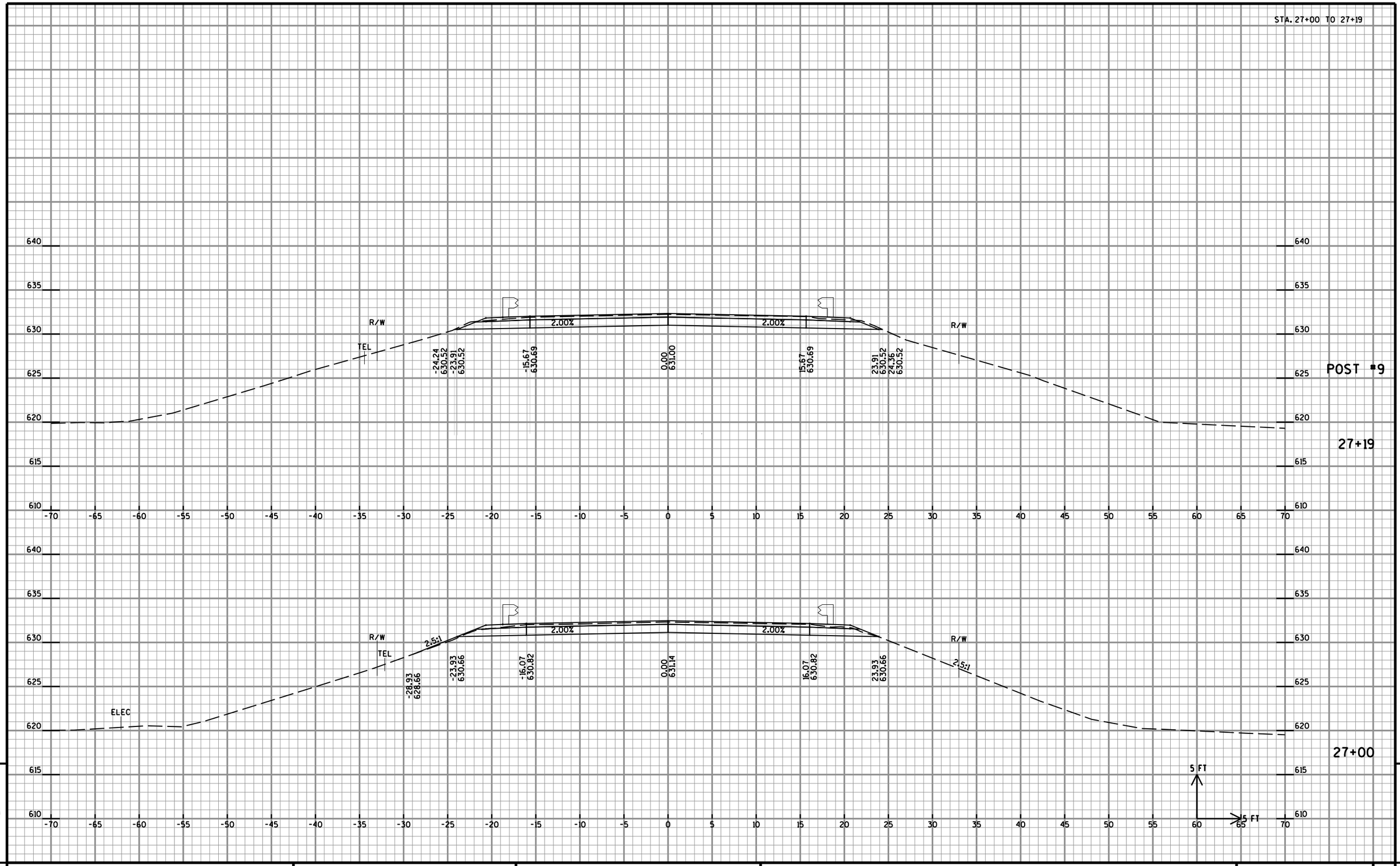
9

PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0899.00 - Douglas Co, CTH C Re-deck\InRoads\42089900_xs.dgn PLOT DATE : 7/13/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 27+00 TO 27+19



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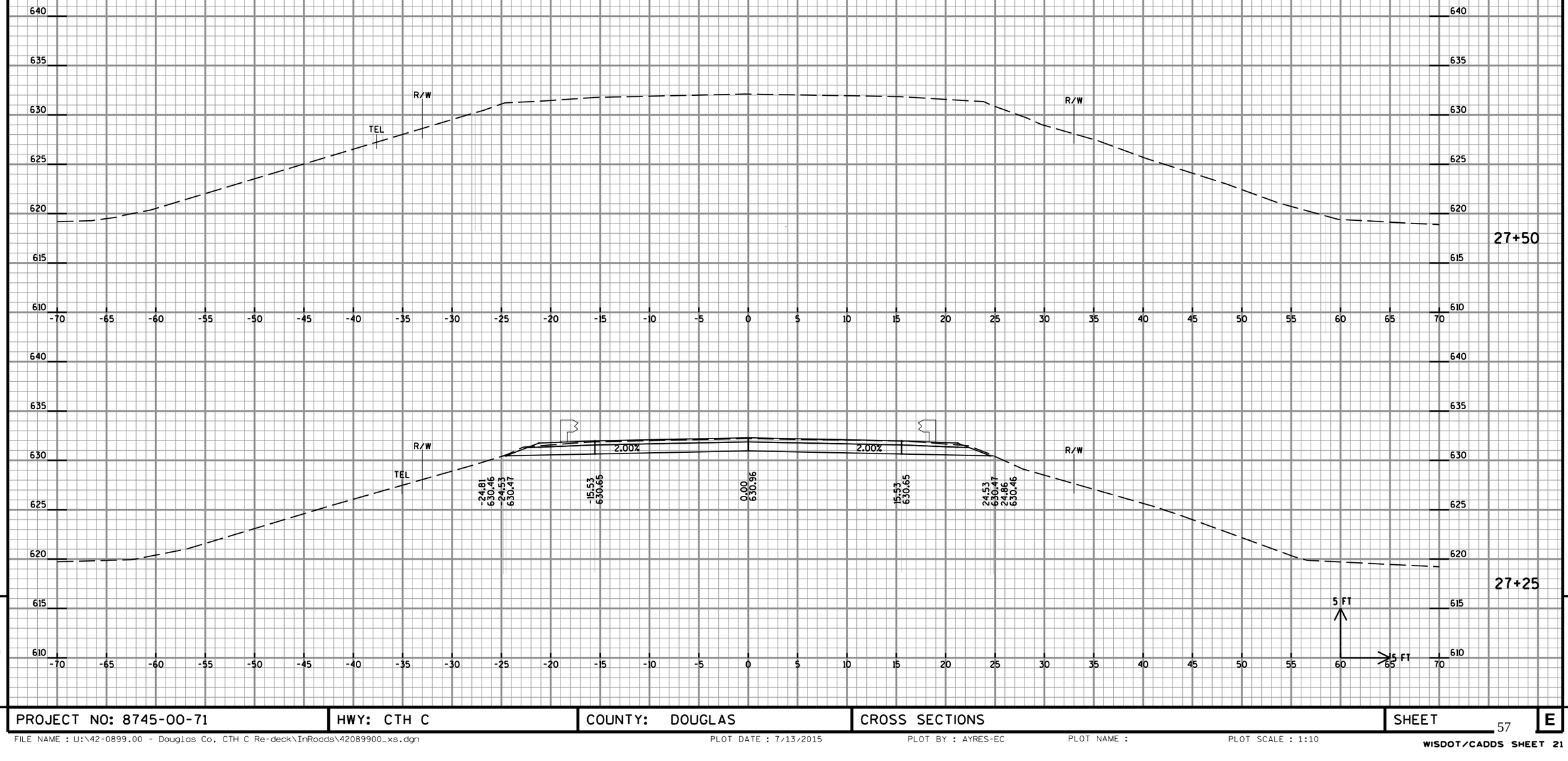
PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0899.00 - Douglas Co, CTH C Re-deck\InRoads\42089900_xs.dgn PLOT DATE : 7/13/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 27+25 TO 27+50

END PROJECT
STA. 27+50
(MATCH EXISTING)



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PROJECT NO: 8745-00-71	HWY: CTH C	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET 57	E

FILE NAME : U:\42-0899.00 - Douglas Co, CTH C Re-deck\InRoads\42089900_xs.dgn PLOT DATE : 7/13/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

Wisconsin Department of Transportation

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