SUP

PROJECT ID: 8180-02-70

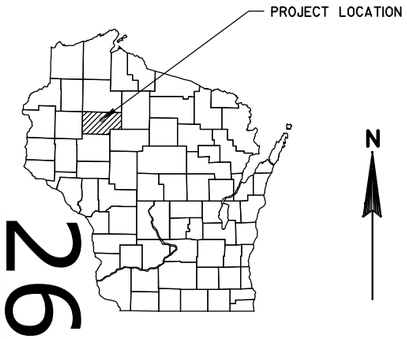
WITH:

COUNTY: RUSK

DEC 2015

ORDER OF SHEETS

TOTAL SHEETS = 112



26

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

LADYSMITH - OJIBWA

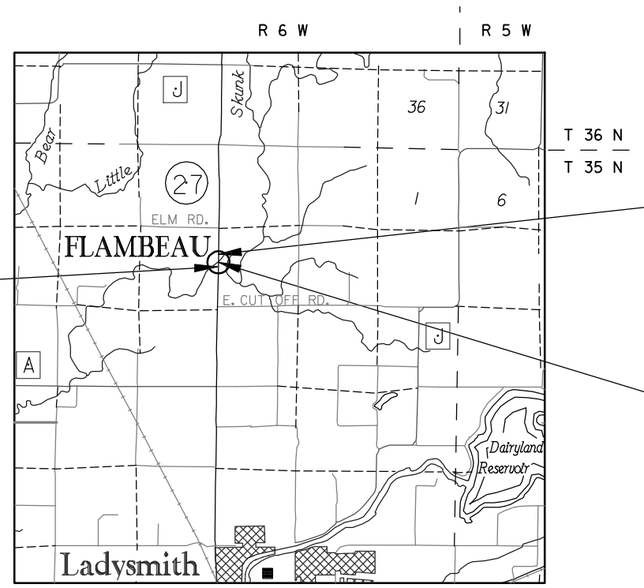
(THORNAPPLE RIVER BRIDGE B-54-0120)

STH 27

RUSK COUNTY

STATE PROJECT NUMBER
8180-02-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8180-02-70	WISC 2015018	1



BEGIN PROJECT
STA. 3+00.00
Y = 586994.839
X = 810484.360

END PROJECT
STA. 16+50.00
Y = 588344.782
X = 810495.078

STRUCTURE B-54-0120

DESIGN DESIGNATION

A.A.D.T.	2015	=	2500
A.A.D.T.	2035	=	3050
D.H.V.		=	450
D.D.		=	61/39
T.		=	18.0%
DESIGN SPEED		=	60 MPH
ESALS		=	1,095,000

CONVENTIONAL SYMBOLS

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

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

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

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.256 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS). RUSK COUNTY

ORIGINAL PLANS PREPARED BY
FAA CONSULTING ENGINEERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	FAA, INC.
Designer	FAA, INC.
Project Manager	MATTHEW DICKENSON
Regional Examiner	CHRISTINE KOSKI
Regional Supervisor	DAVID OSTROWSKI
C.O. Examiner	

APPROVED FOR THE DEPARTMENT

DATE: 7/24/2015

E

STANDARD ABBREVIATIONS

ABUT	ABUTMENT
AC	ACRE
AGG	AGGREGATE
ASPH	ASPHALTIC
AVG	AVERAGE
ADT	AVERAGE DAILY TRAFFIC
BAH	BEARING AHEAD
BBK	BEARING BACK
BF	BACK FACE
BM	BENCH MARK
BR	BRIDGE
C/L	CENTER LINE
△	CENTRAL ANGLE OR DELTA
CE	COMMERCIAL ENTRANCE
CMP	CORRIGATED METAL PIPE
CONC	CONCRETE
CP	CULVERT PIPE
CP	CONTROL POINT
CPCP	CULVERT PIPE CORRUGATED POLYETHYLENE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III
CR	CREEK
CWT	HUNDREDWEIGHT
CY	CUBIC YARD
C & G	CURB AND GUTTER
D	DEGREE OF CURVE/BOX DEPTH
DHV	DESIGN HOUR VOLUME
DD	DIRECTIONAL DISTRIBUTION
DISCH	DISCHARGE
DG	DITCH GRADE
DWY	DRIVEWAY
E	EAST
EL/ELEV	ELEVATION
ENT	ENTRANCE
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
EXIST	EXISTING
FE	FIELD ENTRANCE
FERT	FERTILIZE
FF	FACE TO FACE
FL	FLOW LINE
FO	FIBER OPTIC
FS	FULL SUPER ELEVATION
FT	FOOT
G	GRADE
HMA	HOT MIX ASPHALT
HYD	HYDRANT
ID	INSIDE DIAMETER
INV	INVERT
IP	IRON PIPE OR PIN
K	RATE OF VERTICAL CURVATURE
LHF	LEFT-HAND FORWARD
L	LENGTH OF CURVE
LB	POUND
LF	LINEAR FOOT
LCB	LONG CHORD BEARING
LC	LONG CHORD
LN	LANE
LT	LEFT
LN	LANE
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MI	MILE
ML	MAINLINE
N	NORTH
NC	NORMAL CROWN
NO	NUMBER
NOR	NORMAL
OBLIT	OBLITERATE
PAVT	PAVEMENT
PC	POINT OF CURVATURE
PE	PRIVATE ENTRANCE
PI	POINT OF INTERSECTION
POB	POINT OF BEGINNING
POE	POINT OF ENDING
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVRC	POINT OF VERTICAL REVERSE CURVATURE
PVT	POINT OF VERTICAL TANGENCY
R/RAD	RADIUS
RCCP	REINFORCED CONCRETE CULVERT PIPE
REQ'D	REQUIRED
RES	RESIDENCE OR RESIDENTIAL
RHF	RIGHT-HAND FORWARD
R/W	RIGHT OF WAY
RD	ROAD
RDWY	ROADWAY
RR	RAILROAD
RT	RIGHT
SALV	SALVAGED
SAN S	SANITARY SEWER
S	SOUTH
SQ	SQUARE
SF	SQUARE FEET
SY	SQUARE YARD
SDD	STANDARD DETAIL DRAWINGS
STH	STATE TRUNK HIGHWAYS
STA	STATION
SS	STORM SEWER
SE	SUPERELEVATION
T	TANGENT LENGTH
T.	TRUCKS (PERCENT OF)
TC	TOP OF CURB
T OR TN	TOWN
TLE	TEMPORARY LIMITED EASEMENT
†	TON
TYP.	TYPICAL
VAR	VARIABLE
VC	VERTICAL CURVE
W	WEST
X	EAST GRID COORDINATE
Y	NORTH GRID COORDINATE
YD	YARD

GENERAL NOTES

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO USGS DATUM.

THE LOCATION 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. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING UTILITIES AND DIGGERS HOTLINE AND FIELD VERIFYING UTILITIES PRIOR TO THE START OF WORK.

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

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE SALVAGED TOPSOILED, FERTILIZED, SEEDED AND MULCHED OR SODDED

BEARINGS SHOWN ON THE PLANS ARE COUNTY BEARINGS TO THE NEAREST SECOND.

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

SIGN PLATE DETAILS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" UNLESS OTHERWISE PROVIDED FOR IN THE PLAN.

CURVE DATA IS BASED ON THE ARC DEFINITION.

SEED MIXTURE NO. 20 SHALL BE USED THROUGHOUT THE PROJECT.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE COUNTY LAND SURVEYOR CONCERNING MONUMENT AND PROPERTY CORNER PRESERVATION. LANDMARK REFERENCE MONUMENTS SHALL BE PERPETUATED BY THE COUNTY SURVEYOR.

RADIUS DIMENSIONS ARE SHOWN TO FLAGLINE OF CURB & GUTTER OR EDGE OF PAVEMENT.

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

6-INCH ASPHALTIC SURFACE SPECIAL SHALL BE CONSTRUCTED WITH A 2-INCH UPPER LAYER AND TWO LOWER LAYERS THAT ARE BOTH 2-INCH

UTILITIES

JUMP RIVER ELECTRIC COOPERATIVE
HANK LEW
1102 W. 9TH STREET N.
LADYSMITH, WI 54848
OFFICE: 715-532-5524
MOBILE: 715-403-3325
HLEW@JREC.COM

CENTURYLINK COMMUNICATIONS
JIM ARQUETTE
20 S WILSON AVENUE
RICE LAKE, WI 54868
OFFICE: 715-452-5168
MOBILE: 715-563-8295
JIM.ARQUETTE@CENTURYLINK.NET

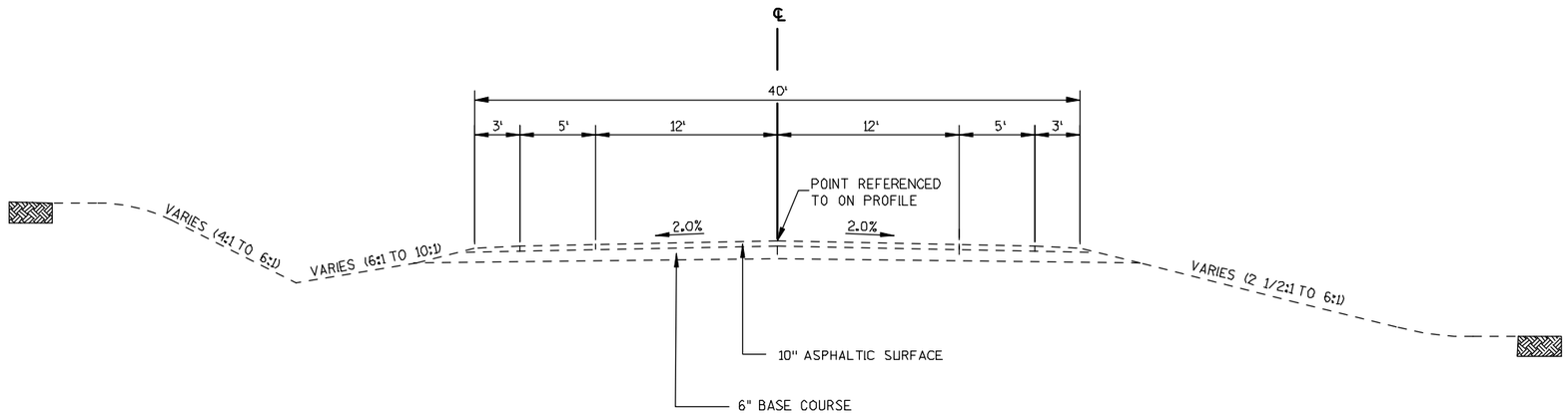
DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

DESIGN CONTACT

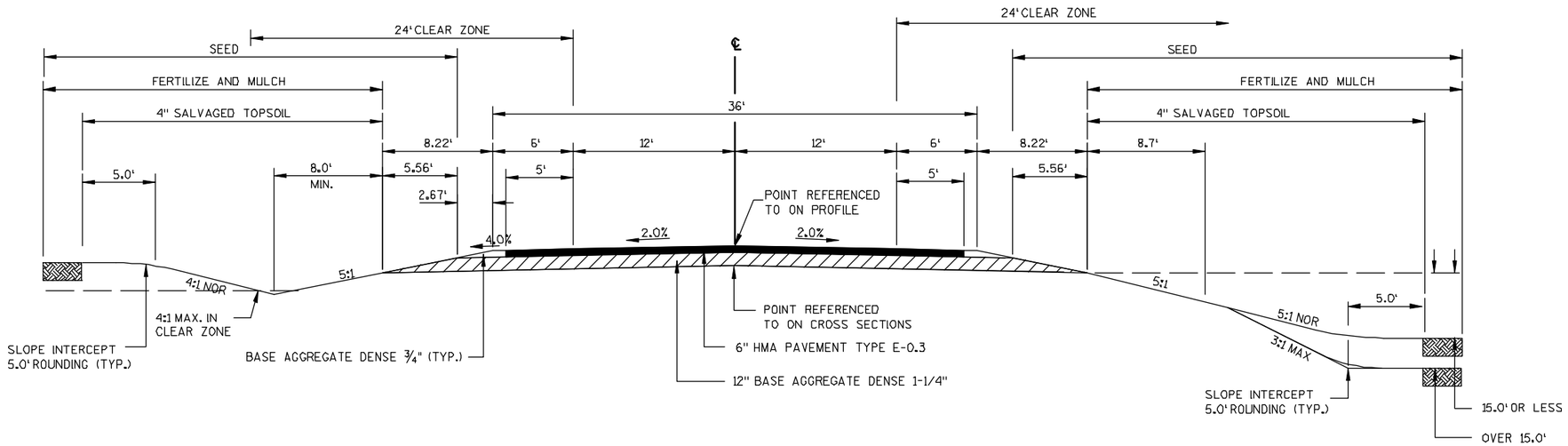
FLEMING, ANDRE & ASSOCIATES, INC.
3615 N. HASTINGS WAY
SUITE 100
EAU CLAIRE, WI. 54703-0474
ATTENTION: MATT GUNDRY
PHONE: 715-832-8400

W.D.N.R. CONTACT

DEPARTMENT OF NATURAL RESOURCES WEST CENTRAL REGION
810 W. MAPLE STREET
SPOONER, WI. 54801
ATTENTION: AMY CRONK
PHONE: 715-635-4229



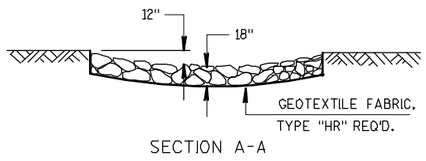
EXISTING TYPICAL SECTION - STH 27



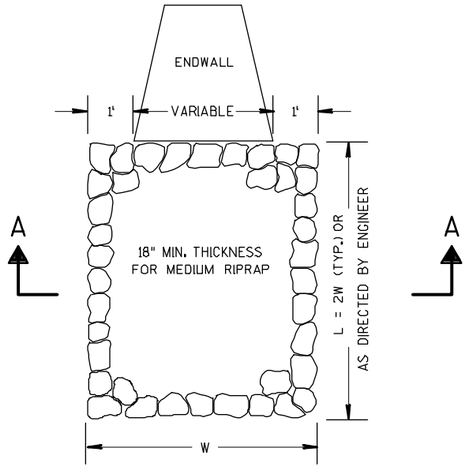
FINISHED TYPICAL SECTION - STH 27

STA 3+00 TO STA 9+37.47
STA 10+62.53 TO STA 16+50

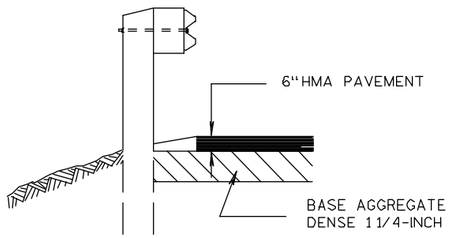
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	TYPICAL SECTIONS	SHEET 3	E

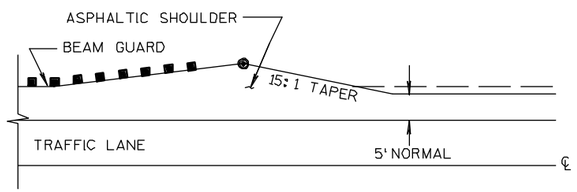


SECTION A-A

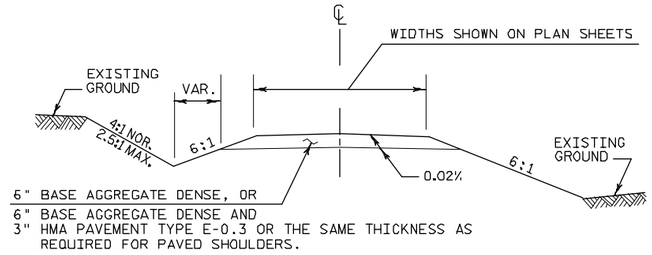


MEDIUM RIPRAP TREATMENT AT CULVERTS

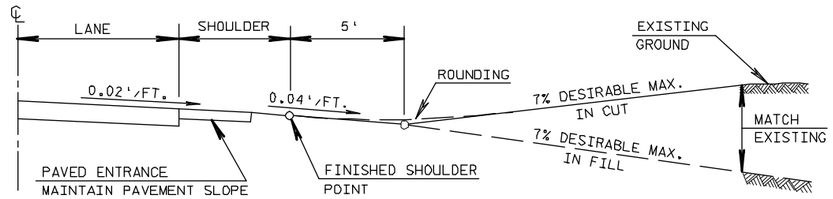




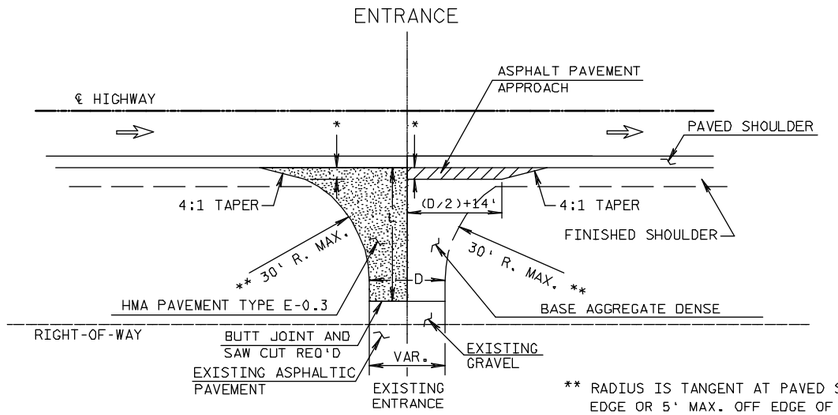
DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD



TYPICAL CROSS SECTION



PROFILE VIEW



L=VARIABLE, EXACT LENGTH TO BE DETERMINED IN THE FIELD BY THE ENGINEER. BLEND BACK ON THE ENTRANCE FAR ENOUGH TO GET A SMOOTH PROFILE.

D=DRIVEWAY WIDTH
D=20'TYP.(PE's & FE's) (16'MIN.-24'MAX.)

** RADIUS IS TANGENT AT PAVED SHOULDER EDGE OR 5' MAX. OFF EDGE OF MAIN LINE PAVEMENT WHICH EVER IS LESS.

* 3' MAX. OR TO FINISHED SHOULDER WHICH EVER IS LESS.

PLAN VIEW

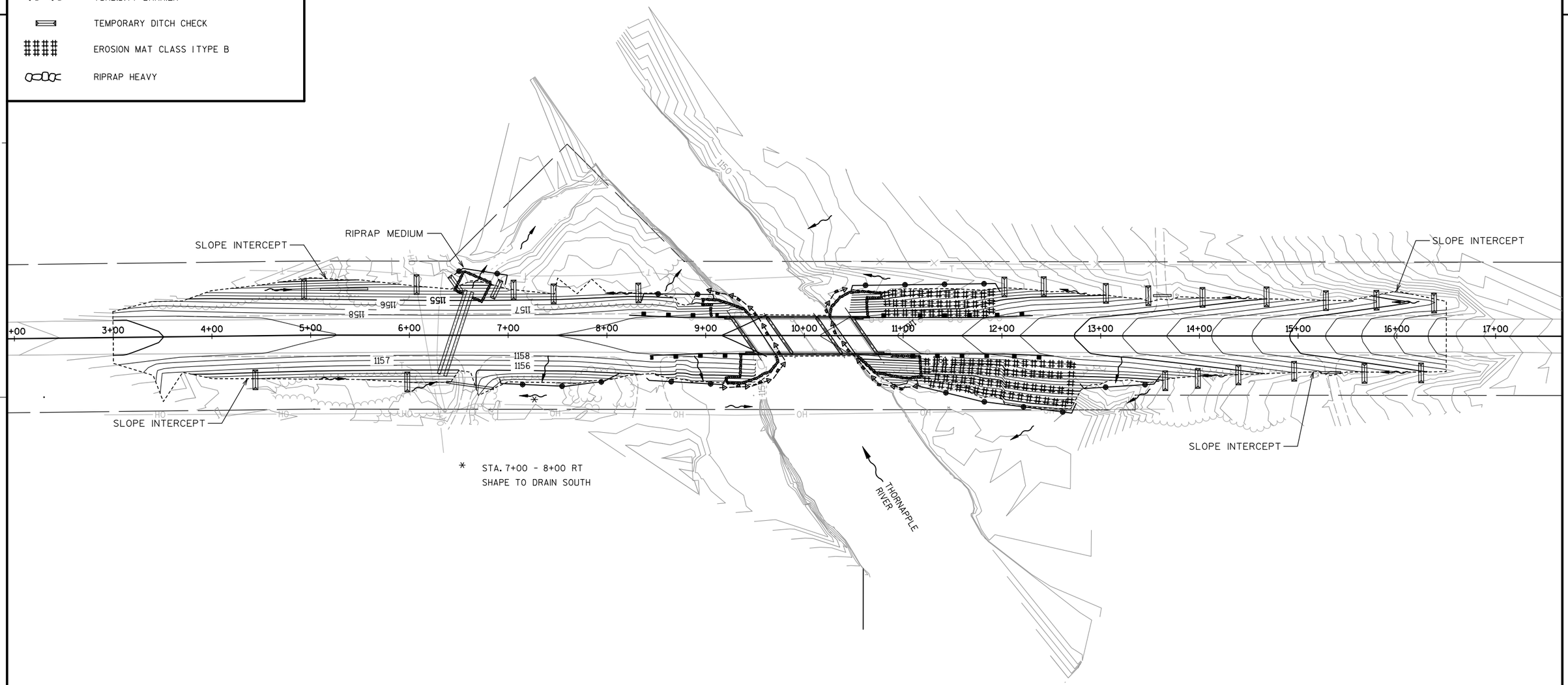
RURAL DRIVEWAY INTERSECTION DETAIL
(PE's, FE's & CE'S)
(FOR NEW CONSTRUCTION)

2

LEGEND

- SURFACE WATER FLOW
- SILT FENCE
- TURBIDITY BARRIER
- TEMPORARY DITCH CHECK
- EROSION MAT CLASS I TYPE B
- RIPRAP HEAVY

N

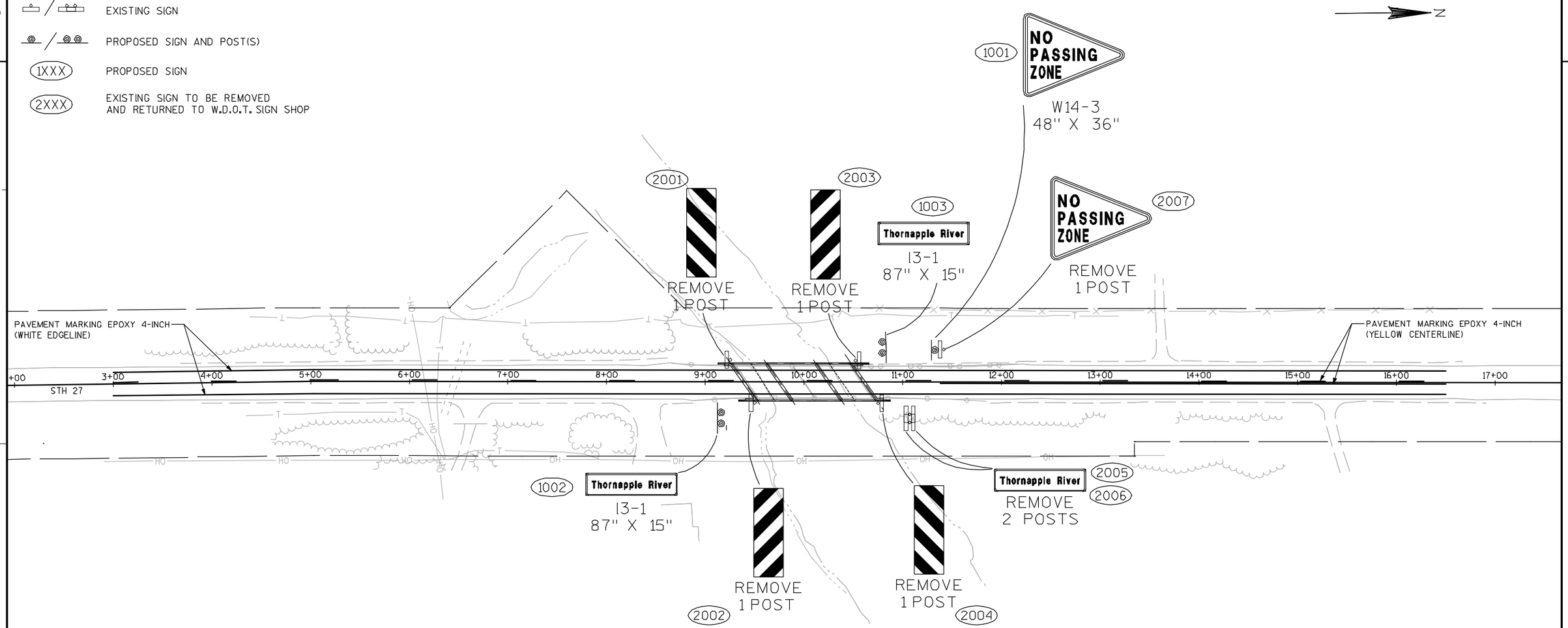


2

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	EROSION CONTROL PLAN	SHEET 5	E

LEGEND

- EXISTING SIGN
- PROPOSED SIGN AND POST(S)
- (1XXX) PROPOSED SIGN
- (2XXX) EXISTING SIGN TO BE REMOVED AND RETURNED TO W.D.O.T. SIGN SHOP



PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	PAVEMENT MARKING AND SIGNING PLAN	SHEET 6	E

2

DETOUR
M4-8
24" X 12"
27
M1-6
24" X 24"
M06-4
21" X 21"

(A)

END DETOUR
M4-8A
24" X 18"
NORTH
M3-1
24" X 12"
27
M1-6
24" X 24"

(B)

END DETOUR
M4-8A
24" X 18"
SOUTH
M3-3
24" X 12"
27
M1-6
24" X 24"

(C)

DETOUR
M4-8
24" X 12"
NORTH
M3-1
24" X 12"
27
M1-6
24" X 24"
M05-1L 21" X 21"
M06-1 21" X 21"
M06-1 21" X 21"
M05-1R 21" X 21"
M06-1 21" X 21"
M06-4 21" X 21"

(D)

SOUTH
M3-3
24" X 12"
27
M1-6
24" X 24"
DETOUR AHEAD
W20-2

(G)

DETOUR
M4-8
24" X 12"
SOUTH
M3-3
24" X 12"
27
M1-6
24" X 24"
M05-1L 21" X 21"
M06-1 21" X 21"
M06-1 21" X 21"
M05-1R 21" X 21"
M06-1 21" X 21"
M06-4 21" X 21"

(E)

DETOUR
M4-8
24" X 12"
NORTH
M3-1
24" X 12"
27
M1-6
24" X 24"

(H)

DETOUR
M4-8
24" X 12"
SOUTH
M3-3
24" X 12"
27
M1-6
24" X 24"

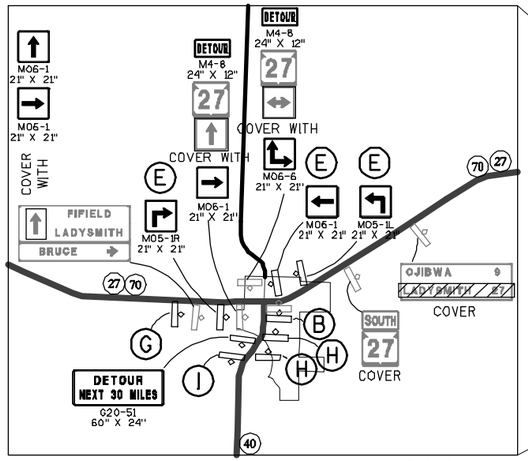
(I)

NORTH
M3-1
24" X 12"
27
M1-6
24" X 24"
DETOUR AHEAD
W20-2

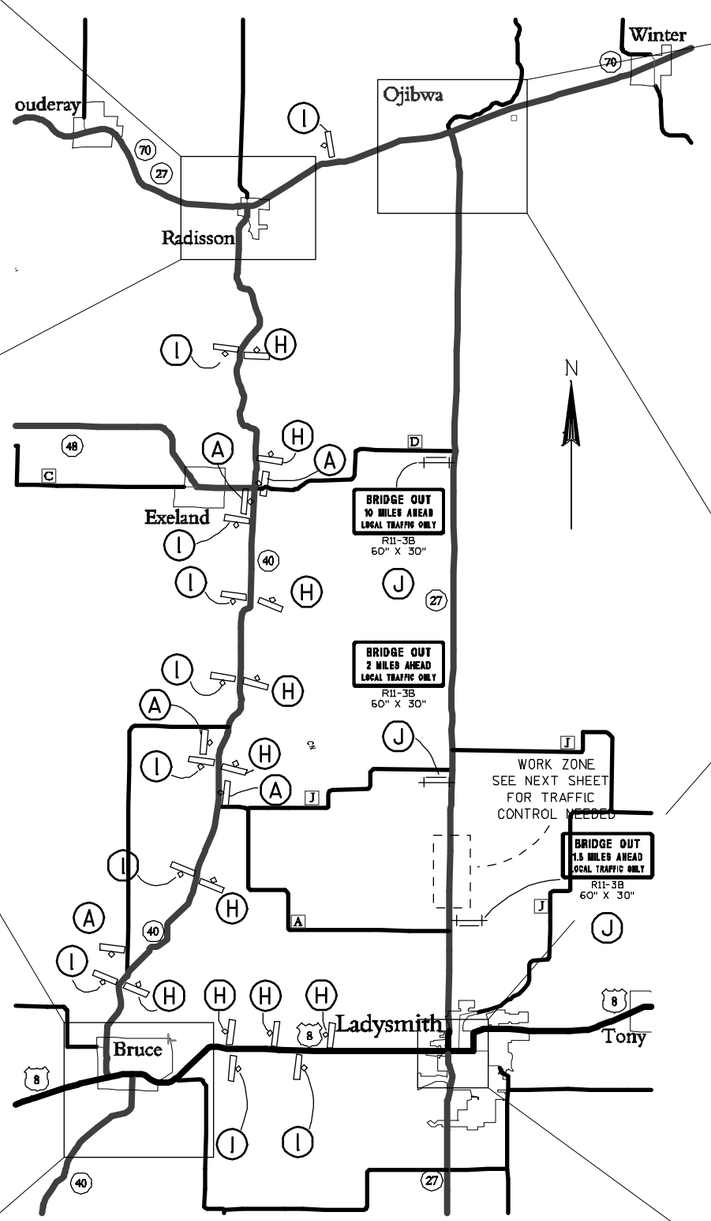
(F)

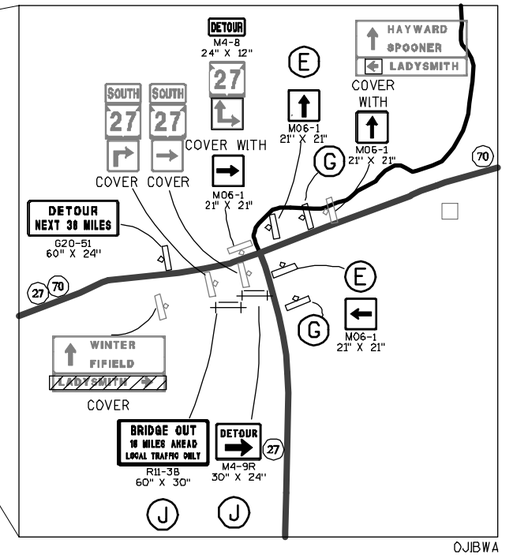
TYPE III BARRICADE

(J)

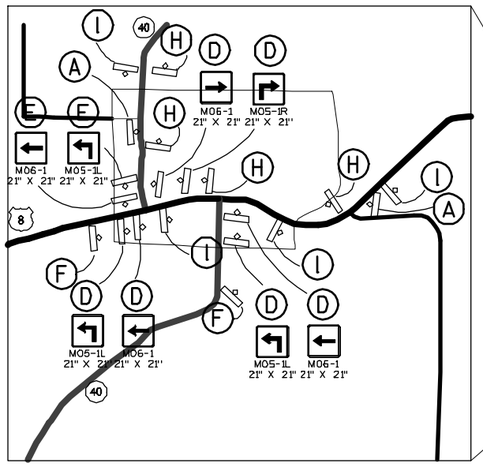


RADISSON

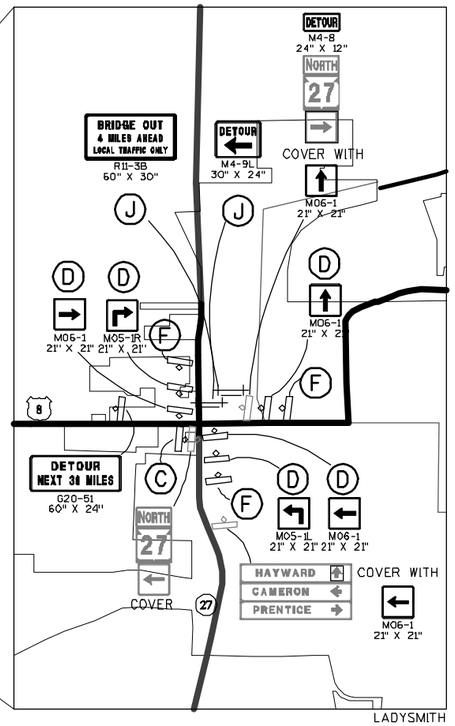




OJIBWA



BRUCE



LADYSMITH

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	TRAFFIC CONTROL DETOUR	SHEET 7	E

2

N

STH 27

ROAD CLOSED AHEAD
W20-3

ROAD CLOSED 1000 FT
W20-3

W. ELM RD

ROAD CLOSED 500 FT
W20-3

BRIDGE OUT
0.3 MILES AHEAD
R11-3C
60" X 24"
TYPE III BARRICADE

ROAD CLOSED
0.3 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"
TYPE III BARRICADE

BRIDGE OUT
R11-2B
48" X 30"
TYPE III BARRICADE
TYPE III BARRICADE

ROAD CLOSED TO THRU TRAFFIC
R11-4
60" X 30"
TYPE III BARRICADE
TYPE III BARRICADE

BRIDGE OUT
R11-2B
48" X 30"
TYPE III BARRICADE
TYPE III BARRICADE

ROAD CLOSED 500 FT
W20-3

ROAD CLOSED 1000 FT
W20-3

E. CUT OFF RD.

BRIDGE OUT
0.5 MILES AHEAD
R11-3C
60" X 24"
TYPE III BARRICADE

ROAD CLOSED AHEAD
W20-3

ROAD CLOSED
0.5 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3
60" X 30"
TYPE III BARRICADE

STH 27

LEGEND

- TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL BARRICADES TYPE III
- Ⓐ TRAFFIC CONTROL WARNING LIGHTS TYPE A

PROJECT LIMITS

NOT TO SCALE

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	TRAFFIC CONTROL PROJECT	SHEET 8	E

DATE 23SEP15 — 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	8180-02-70 QUANTITY
0010	201.0105	Clearing	STA	12.000	12.000
0020	201.0205	Grubbing	STA	12.000	12.000
0030	203.0100	Removing Small Pipe Culverts	EACH	4.000	4.000
0040	203.0210.S	Abatement of Asbestos Containing Material (structure) 01. B-54-079	LS	1.000	1.000
0050	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00	LS	1.000	1.000
0060	204.0110	Removing Asphaltic Surface	SY	4,645.000	4,645.000
0070	205.0100	Excavation Common	CY	560.000	560.000
0080	206.1000	Excavation for Structures Bridges (structure) 01. B-54-0120	LS	1.000	1.000
0090	208.1100	Select Borrow	CY	5,180.000	5,180.000
0100	210.0100	Backfill Structure	CY	290.000	290.000
0110	213.0100	Finishing Roadway (project) 02. 8180-02-70	EACH	1.000	1.000
0120	305.0110	Base Aggregate Dense 3/4-Inch	TON	230.000	230.000
0130	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	4,350.000	4,350.000
0140	415.0410	Concrete Pavement Approach Slab	SY	130.000	130.000
0150	416.1010	Concrete Surface Drains	CY	22.000	22.000
0160	455.0605	Tack Coat	GAL	490.000	490.000
0170	460.2000	Incentive Density HMA Pavement	DOL	1,040.000	1,040.000
0180	465.0315	Asphaltic Flumes	SY	20.000	20.000
0190	502.0100	Concrete Masonry Bridges	CY	629.000	629.000
0200	502.3200	Protective Surface Treatment	SY	700.000	700.000
0210	505.0405	Bar Steel Reinforcement HS Bridges	LB	6,000.000	6,000.000
0220	505.0605	Bar Steel Reinforcement HS Coated Bridges	LB	110,440.000	110,440.000
0230	516.0500	Rubberized Membrane Waterproofing	SY	22.000	22.000
0240	521.0124	Culvert Pipe Corrugated Steel 24-Inch	LF	148.000	148.000
0250	521.1024	Apron Endwalls for Culvert Pipe Steel 24-Inch	EACH	8.000	8.000
0260	522.0136	Culvert Pipe Reinforced Concrete Class III 36-Inch	LF	164.000	164.000
0270	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	4.000	4.000
0280	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	2,700.000	2,700.000
0290	606.0200	Riprap Medium	CY	48.000	48.000
0300	606.0300	Riprap Heavy	CY	590.000	590.000
0310	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	180.000	180.000
0320	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0330	614.0920	Salvaged Rail	LF	390.000	390.000
0340	614.2300	MGS Guardrail 3	LF	150.000	150.000
0350	614.2500	MGS Thrie Beam Transition	LF	158.000	158.000
0360	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0370	618.0100	Maintenance And Repair of Haul Roads (project) 02. 8180-02-70	EACH	1.000	1.000
0380	619.1000	Mobilization	EACH	1.000	1.000
0390	625.0500	Salvaged Topsoil	SY	5,900.000	5,900.000
0400	627.0200	Mulching	SY	6,000.000	6,000.000
0410	628.1504	Silt Fence	LF	980.000	980.000
0420	628.1520	Silt Fence Maintenance	LF	980.000	980.000
0430	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0440	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0450	628.2004	Erosion Mat Class I Type B	SY	1,550.000	1,550.000

3

DATE 23SEP15 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	8180-02-70 QUANTITY
0460	628.6005	Turbidity Barriers	SY	400.000	400.000
0470	628.7504	Temporary Ditch Checks	LF	480.000	480.000
0480	629.0210	Fertilizer Type B	CWT	4.000	4.000
0490	630.0120	Seeding Mixture No. 20	LB	130.000	130.000
0500	633.5200	Markers Culvert End	EACH	2.000	2.000
0510	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	3.000	3.000
0520	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	2.000	2.000
0530	637.2210	Signs Type II Reflective H	SF	20.000	20.000
0540	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0550	638.2602	Removing Signs Type II	EACH	7.000	7.000
0560	638.3000	Removing Small Sign Supports	EACH	7.000	7.000
0570	642.5401	Field Office Type D	EACH	1.000	1.000
0580	643.0100	Traffic Control (project) 02. 8180-02-70	EACH	1.000	1.000
0590	643.0420	Traffic Control Barricades Type III	DAY	1,425.000	1,425.000
0600	643.0705	Traffic Control Warning Lights Type A	DAY	2,850.000	2,850.000
0610	643.0900	Traffic Control Signs	DAY	1,575.000	1,575.000
0620	643.0920	Traffic Control Covering Signs Type II	EACH	6.000	6.000
0630	643.2000	Traffic Control Detour (project) 01. 8180-02-70	EACH	1.000	1.000
0640	643.3000	Traffic Control Detour Signs	DAY	17,625.000	17,625.000
0650	645.0120	Geotextile Fabric Type HR	SY	825.000	825.000
0660	646.0106	Pavement Marking Epoxy 4-Inch	LF	3,550.000	3,550.000
0670	648.0100	Locating No-Passing Zones	MI	0.260	0.260
0680	650.4500	Construction Staking Subgrade	LF	1,225.000	1,225.000
0690	650.5000	Construction Staking Base	LF	1,225.000	1,225.000
0700	650.6000	Construction Staking Pipe Culverts	EACH	2.000	2.000
0710	650.6500	Construction Staking Structure Layout (structure) 02. B-54-0120	LS	1.000	1.000
0720	650.9910	Construction Staking Supplemental Control (project) 02. 8180-02-70	LS	1.000	1.000
0730	650.9920	Construction Staking Slope Stakes	LF	1,225.000	1,225.000
0740	690.0150	Sawing Asphalt	LF	68.000	68.000
0750	715.0415	Incentive Strength Concrete Pavement	DOL	250.000	250.000
0760	715.0502	Incentive Strength Concrete Structures	DOL	3,774.000	3,774.000
0770	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,200.000	1,200.000
0780	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000
0790	SPV.0060	Special 01. Salvaging Dry Hydrant	EACH	1.000	1.000
0800	SPV.0195	Special 01. Asphaltic Surface Special	TON	1,620.000	1,620.000

3

3

CLEARING AND GRUBBING					
				201.0105 CLEARING	201.0205 GRUBBING
STATION	TO	STATION	LOCATION	STA.	STA.
3+00	TO	6+00	LT	3	3
4+15	TO	6+50	RT	2	2
6+80	TO	8+25	RT	1	1
7+15	TO	8+70	LT	2	2
10+75	TO	14+85	RT	4	4
ITEM TOTAL				12	12

REMOVING ASPHALTIC SURFACE				204.0110
STATION	TO	STATION	LOCATION	S.Y.
3+00	TO	9+37	STH 27	2425
10+63	TO	16+50	STH 27	2220
ITEM TOTAL				4645

REMOVING SMALL PIPE CULVERTS			203.0100
STATION	TO	STATION	LOCATION	EACH
5+33			F.E. LT	1
6+46			STH 27	2
6+62			P.E. RT	1
ITEM TOTAL				4

SELECT BORROW				208.1100
STATION	TO	STATION	LOCATION	C.Y.
3+00	TO	9+37	STH 27	2019
10+63	TO	16+50	STH 27	3161
ITEM TOTAL				5180

FINISHING ROADWAY (PROJECT)				213.0100
STATION	TO	STATION	LOCATION	EACH
3+00	TO	16+50	MAINLINE	1
ITEM TOTAL				1

BASE AGGREGATE DENSE 3/4-INCH				305.0110
STATION	TO	STATION	LOCATION	TON
3+00	TO	9+37	SHOULDERS	120
10+62	TO	16+50	SHOULDERS	110
ITEM TOTAL				230

BASE AGGREGATE DENSE 1 1/4-INCH				305.0120
STATION	TO	STATION	LOCATION	TON
3+00	TO	9+37	STH 27	2200
10+62	TO	16+50	STH 27	2000
6+62			P.E. RT	30
8+29			P.E. RT	30
8+29			DRY HYD. ENTRANCE	40
13+61			P.E. LT	25
15+33			F.E. RT	25
ITEM TOTAL				4350

TACK COAT				455.0605
STATION	TO	STATION	LOCATION	GAL.
3+00	TO	9+37	STH 27	250
10+63	TO	16+50	STH 27	230
7+78	TO	12+97	EAT FLARES	10
ITEM TOTAL				490

ASPHALTIC SURFACE SPECIAL				SPV.0195.01
STATION	TO	STATION	LOCATION	TON
3+00	TO	9+37	STH 27	830
10+63	TO	16+50	STH 27	770
7+78	TO	12+97	EAT FLARES	20
ITEM TOTAL				1620

CONCRETE PAVEMENT APPROACH SLAB				415.0410
STATION	TO	STATION	LOCATION	S.Y.
9+13	TO	9+38	MAINLINE	65
10+63	TO	10+99	MAINLINE	65
ITEM TOTAL				130

CONCRETE SURFACE DRAINS			416.1010
STATION	TO	STATION	LOCATION	C.Y.
9+02			APPROACH SLAB LT	5.2
9+25			APPROACH SLAB RT	5.4
10+75			APPROACH SLAB LT	5.2
10+98			APPROACH SLAB RT	6.2
ITEM TOTAL				22

ASPHALTIC FLUMES				465.0315
STATION	TO	STATION	LOCATION	S.Y.
9+02			SURFACE DRAIN LT	5
9+25			SURFACE DRAIN RT	5
10+75			SURFACE DRAIN LT	5
10+98			SURFACE DRAIN RT	5
ITEM TOTAL				20

SALVAGED RAIL				614.0920
STATION	TO	STATION	LOCATION	L.F.
8+85	TO	9+30	LT	45
8+90	TO	9+50	RT	60
10+48	TO	12+18	LT	170
10+70	TO	11+85	RT	115
ITEM TOTAL				390

SALVAGING DRY HYDRANT				SPV. 0060.01
STATION	TO	STATION	LOCATION	EACH
9+00			LT	1
ITEM TOTAL				1

DIVISION	FROM/TO STATION	LOCATION	COMMON EXCAVATION (ITEM *205.0100)		SALVAGED/ UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL (6)	EXPANDED FILL (13)	MASS ORDINATE +/- (14)
			CUT (2)	EBS EXCAVATION (3)				FACTOR 1.25	
1	3+00 - 9+25	MAINLINE	425	0	666	425	1955	2444	-2019
2	10+75 - 16+50	MAINLINE	135	0	614	135	2637	3296	-3161
GRAND TOTAL			560	0	1280	560	4592	5740	-5180
TOTAL COMMON EXC			560						

CULVERT PIPE AND APRON ENDWALLS					
STATION	LOCATION	521.0124 CULVERT PIPE CORRUGATED STEEL 24-INCH (0.064 WALL) L.F.	522.0136 CPRC CLASS III 36-INCH L.F.	521.1024 APRON ENDWALLS CULVERT PIPE STEEL 24-INCH EACH	522.1036 APRON ENDWALLS FOR CPRC 36-INCH EACH
6+42.5	STH 27	-	82	-	2
6+49.5	STH 27	-	82	-	2
5+33	F.E. LT	50	-	2	-
6+62	P.E. RT	50	-	2	-
13+61	P.E. LT	28	-	2	-
15+33	F.E. RT	20	-	2	-
ITEM TOTAL		148	164	8	4

GUARDRAIL SUMMARY						
STATION	TO	STATION	LOCATION	614.2300 MGS 3 GUARDRAIL L.F.	614.2500 MGS THRIE BEAM TRANSITION L.F.	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
8+22.9	TO	9+15.4	LT	-	39.4	1
8+44.1	TO	9+36.6	RT	-	39.4	1
10+63.4	TO	12+30.9	LT	75.0	39.4	1
10+84.7	TO	12+52.2	RT	75.0	39.4	1
ITEM TOTAL				150	158	4

2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS NOT INCLUDED IN CUT. REMOVAL IS PAID FOR UNDER REMOVING ASPHALTIC SURFACE.

3) EBS EXCAVATION TO BE BACKFILLED WITH SELECT BORROW MATERIAL.
NOTE: THIS IS DESIGNERS CHOICE, CAN BE BACKFILLED WITH BORROW, OR CUT AS WELL.

4) SALVAGED/UNUSABLE PAVEMENT MATERIAL

5) AVAILABLE MATERIAL = CUT (NO SALVAGED IS INCLUDED IN CUT)

(6) MATERIAL NECESSARY TO BACKFILL REMOVED PAVEMENT VOLUME BELOW SUBGRADE IS INCLUDED IN FILL

13) EXPANDED FILL. FACTOR = 1.25

14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE ENGINEER ESTIMATE CATEGORY 010 UNLESS OTHERWISE NOTED.

RIPRAP MEDIUM		606.0200
STATION TO STATION	LOCATION	C.Y.
6+60	CULVERT DISCH. LT.	48
ITEM TOTAL		48

MOBILIZATION		619.1000	
STATION TO STATION	LOCATION	EACH	CATEGORY
3+00 TO 16+50	MAINLINE	0.3	010
10+00	B-54-0120	0.7	020
ITEM TOTAL		1.0	

SILT FENCE & SILT FENCE MAINTENANCE			
STATION TO STATION	LOCATION	628.1504 SILT FENCE L.F.	628.1520 SILT FENCE MAINTENANCE L.F.
6+40 TO 7+00	LT	70.0	70.0
6+90 TO 8+20	RT	140.0	140.0
8+40 TO 9+20	EAT, LT	85.0	85.0
8+40 TO 9+20	EAT, RT	85.0	85.0
10+50 TO 12+00	EAT, LT	165.0	165.0
11+10 TO 13+60	EAT, RT	275.0	275.0
UNDISTRIBUTED		160.0	160.0
ITEM TOTAL		980	980

MOBILIZATIONS EROSION CONTROL		628.1905
STATION TO STATION	LOCATION	EACH
3+00 TO 16+50	PROJECT	2
ITEM TOTAL		2

MOBILIZATIONS EMERGENCY EROSION CONTROL		628.1910
STATION TO STATION	LOCATION	EACH
3+00 TO 16+50	PROJECT	2
ITEM TOTAL		2

SALVAGED TOPSOIL, MULCHING, FERTILIZING, & SEEDING					
STATION TO STATION	LOCATION	625.0500 SALVAGED TOPSOIL S.Y.	627.0200 MULCHING S.Y.	629.0210 FERTILIZER TYPE B C.W.T.	630.0120 SEEDING MIXTURE NO. 20 LB
3+00 TO 9+37	LT & RT	2800	3150	2.0	64
10+63 TO 16+50	LT & RT	2450	2200	1.4	46
UNDISTRIBUTED		650	650	0.6	20
ITEM TOTAL		5900	6000	4	130

TRAFFIC CONTROL ITEMS								
	LOCATION	643.0100 TRAFFIC CONTROL (PROJECT) 8180-02-70 EACH	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0900 TRAFFIC CONTROL SIGNS DAY	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	643.2000 TRAFFIC CONTROL DETOUR (PROJECT) 8180-02-70 EACH	643.0900 TRAFFIC CONTROL DETOUR SIGNS DAY
STH 27	SEE TRAFFIC CONTROL SHEETS	1	1425	2850	1575	--		--
DETOUR	SEE TRAFFIC CONTROL SHEETS	--	--	--	--	6	1	17625
ITEM TOTAL		1	1425	2850	1575	6	1	17625

EROSION MAT CLASS I TYPE B		628.2004
STATION TO STATION	LOCATION	S.Y.
10+80 TO 11+90	LT	390
11+20 TO 12+75	RT	910
UNDISTRIBUTED		250
ITEM TOTAL		1550

TURBIDITY BARRIER		628.6005
STATION TO STATION	LOCATION	S.Y.
9+15 TO 9+65	SOUTH ABUT.	200
10+30 TO 11+15	NORTH ABUT.	200
UNDISTRIBUTED		50
ITEM TOTAL		400

TEMPORARY DITCH CHECKS		628.7504
STATION TO STATION	LOCATION	L.F.
3+00 TO 6+00	DITCH RT	105
3+00 TO 8+50	DITCH LT	30
12+00 TO 16+50	DITCH LT	135
13+50 TO 16+50	DITCH RT	90
UNDISTRIBUTED		120
ITEM TOTAL		480

MARKERS CULVERT END		633.5200
STATION TO STATION	LOCATION	EACH
6+30	RT	1
6+60	LT	1
ITEM TOTAL		2

FIELD OFFICE TYPE D		642.5401
STATION TO STATION	LOCATION	EACH
3+00 TO 16+50	PROJECT	1.0
ITEM TOTAL		1.0

GEOTEXTILE FABRIC TYPE HR		645.0120
STATION TO STATION	LOCATION	S.Y.
6+60	CULVERT DISCH. LT.	95
ITEM TOTAL		95

PAVEMENT MARKING EPOXY 4-INCH		646.0106
STATION TO STATION	LOCATION	L.F.
3+00 TO 16+50	CNTRLN YLW SKIPS	340
11+40 TO 16+50	CNTRLN YLW SOLID	510
3+00 TO 16+50	EDGE WHT	2700
ITEM TOTAL		3550

LOCATING NO-PASSING ZONES		648.0100
STATION TO STATION	LOCATION	MI
3+00 TO 16+50	MAINLINE C/L	0.26
ITEM TOTAL		0.26

SAWING ASPHALT		690.0150
STATION TO STATION	LOCATION	L.F.
3+00	MAINLINE	34
16+50	MAINLINE	34
ITEM TOTAL		68

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE ENGINEER ESTIMATE CATEGORY 010 UNLESS OTHERWISE NOTED.

3

CONSTRUCTION STAKING								
STATION TO STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE L.F.	650.5000 CONSTRUCTION STAKING BASE L.F.	650.6000 CONSTRUCTION STAKING PIPE CULVERTS EACH	650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (CAT. 0020) L.S.	650.9910 CONSTRUCTION STAKING SUPPLIMENTAL CONTROL (PROJECT) L.S.	650.9920 CONSTRUCTION STAKING SLOPE STAKES L.F.	CATEGORY
3+00 TO 16+50	PROJECT	1225	1225	--	--	1	1225	010
6+43	MAINLINE	--	--	1	--	--	--	010
6+50	MAINLINE	--	--	1	--	--	--	010
9+12 TO 10+88	B-54-0120	--	--	--	1	--	--	020
ITEM TOTAL		1225	1225	2	1	1	1225	

PERMANENT SIGNING									
SIGN NUMBER	STATION	LOCATION	SIGN CODE	SIGN DESCRIPTION	637.2210 SIGNS, TYPE II, REFLECTIVE H (S.F.)	637.2230 SIGNS, TYPE II, REFLECTIVE F (S.F.)	634.0616 WOOD POSTS, 4X6-INCH X 16 FT (EACH)	634.0618 WOOD POSTS, 4X6-INCH X 18 FT (EACH)	638.2602 REMOVING SIGNS TYPE II (EACH)	638.3000 REMOVING SMALL SIGN SUPPORTS (EACH)
1001	11+40	LT	W14-3	NO PASSING ZONE	--	12.00	1	--	--	--
1002	9+20	RT	I3-1	THORNAPPLE RIVER	10.00	--	1	1	--	--
1003	10+80	LT	I3-1	THORNAPPLE RIVER	10.00	--	1	1	--	--
2001	9+26	LT	W5-52L	CLEARANCE STRIPER DOWN LEFT	--	--	--	--	1	1
2002	9+51	RT	W5-52R	CLEARANCE STRIPER DOWN RIGHT	--	--	--	--	1	1
2003	10+47	LT	W5-52R	CLEARANCE STRIPER DOWN RIGHT	--	--	--	--	1	1
2004	10+73	RT	W5-52L	CLEARANCE STRIPER DOWN LEFT	--	--	--	--	1	1
2005	11+00	RT	I3-1	THORNAPPLE RIVER	--	--	--	--	1	2
2006	11+00	RT	I3-1	THORNAPPLE RIVER	--	--	--	--	1	0
2007	11+40	LT	W14-3	NO PASSING ZONE	--	--	--	--	1	1
GRAND TOTAL					20.00	12.00	3	2	7	7

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE ENGINEER ESTIMATE CATEGORY 010 UNLESS OTHERWISE NOTED.

BENCHMARKS (NAVD 88)			
NO.	STA./OFFSET	DESCRIPTION	ELEV.
BM 1	10+47, 18' LT	NORTH ABUT.	1157.79

P.I. STA. = 5+03.11
Y = 587197.95
X = 810483.71
D = 0°45'0"

POB STA. = 0+99.97
Y = 586794.81
X = 810485.00

STA. 6+60 LT
INSTALL MEDIUM RIPRAP TREATMENT AT CULVERT
48 C.Y. - RIPRAP MEDIUM REQ'D
95 S.Y. - GEOTEXTILE FABRIC TYPE HR

STA. 9+13 - 9+37.5
CONSTRUCT CONCRETE PAVEMENT APPROACH SLAB

STA. 10+62.5 - 10+86
CONSTRUCT CONCRETE PAVEMENT APPROACH SLAB

N

STA. 9+00, LT
SALVAGING DRY HYDRANT

STA. 5+33 LT
CONSTRUCT F.E. LT (GRASS - MATCH EXIST.)
50 L.F. - CULVERT PIPE CORRUGATED STEEL 24-INCH REQ'D
2 EA. - APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH REQ'D

STA. 5+33 LT
1 EA. - REMOVING SMALL CULVERT PIPES
24" CMCP

STA. 8+22.9 - 9+15.4 LT
39.4 L.F. - MGS THRIE BEAM TRANSITION REQ'D
1 EA. - MGS GUARDRAIL TERMINAL EAT REQ'D

STA. 8+85 - 9+30 LT
45 L.F. - SALVAGED RAIL

STA. 10+63.4 - 12+30.9 LT
75 L.F. - MGS GUARDRAIL 3 REQ'D
39.4 L.F. - MGS THRIE BEAM TRANSITION REQ'D
1 EA. - MGS GUARDRAIL TERMINAL EAT REQ'D

STA. 10+48 - 12+18 LT
170 L.F. - SALVAGED RAIL

STA. 13+61 LT
CONSTRUCT P.E. LT (AGG. - MATCH EXIST.)
28 L.F. - CULVERT PIPE CORRUGATED STEEL 24-INCH REQ'D
2 EA. - APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH REQ'D

POB STA. 0+99.97
75'
EXIST. R/W
CENTURYLINK
PROPOSED STRUCTURE B-54-0120
EXISTING STRUCTURE B-54-079
SLOPE INTERCEPT
1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00
N0°10'56"W 403.14'
N0°34'04"E 1546.89'
STH 27 (ASPHALT)
N0°34'04"E 1546.89'
35° R.H.F. SKEW
SLOPE INTERCEPT
PROPOSED DRY HYDRANT (BY OTHERS)
JUMP RIVER ELECTRIC COOPERATIVE
60'
EXIST. R/W
75'
EXIST. R/W

BEGIN PROJECT
STA. 3+00.00
Y = 586994.839
X = 810484.360
MATCH EXISTING

STA. 3+00
34 L.F. - SAWING ASPHALT

PI STA. 5+03.11

STA. 6+46
2 EA. - REMOVING SMALL CULVERT PIPES
36" CMCP

STA. 8+29 RT
CONSTRUCT P.E. RT (24' AGG.)
W/ 16' X 70' ACCESS TO DRY HYDRANT

THORNAPPLE RIVER

CONCRETE SURFACE DRAINS REQ'D
STA. 9+02 LT
STA. 9+25 RT
STA. 10+75 LT
STA. 10+98 RT

STA. 10+84.7 - 12+52.2 RT
75 L.F. - MGS GUARDRAIL 3 REQ'D
39.4 L.F. - MGS THRIE BEAM TRANSITION REQ'D
1 EA. - MGS GUARDRAIL TERMINAL EAT REQ'D

STA. 10+70 - 11+85 RT
115 L.F. - SALVAGED RAIL

STA. 6+62 RT
CONSTRUCT P.E. RT (AGG. - MATCH EXIST.)
50 L.F. - CULVERT PIPE CORRUGATED STEEL 24-INCH REQ'D
2 EA. - APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH REQ'D

STA. 6+62 RT
1 EA. - REMOVING SMALL CULVERT PIPES
24" CONC./30" IRON

STA. 8+44.1 - 9+36.6 RT
39.4 L.F. - MGS THRIE BEAM TRANSITION REQ'D
1 EA. - MGS GUARDRAIL TERMINAL EAT REQ'D

STA. 8+90 - 9+50 RT
60 L.F. - SALVAGED RAIL

L =1400.00'
G1 =-0.74%
G2 =3.60%
K =322.34

PVI 3+00.00 EL 1160.46
PVC 4+00.00 EL 1159.71
-0.74%
PROPOSED PROFILE
LOW POINT STA. 6+40.01 EL. 1158.82
PVI 11+00.00 EL 1154.50
EXISTING PROFILE

1190 1180 1170 1160 1150 1140 1130 1120

1+00	2+00	3+00	4+00	5+00	6+00	7+00	8+00	9+00	10+00	11+00	12+00	13+00	14+00	15+00
1162.2	1161.8	1161.4	1161.0	1160.5 / 1160.46	1160.0 / 1160.08	1159.5 / 1159.71	1159.2 / 1159.38	1158.9 / 1159.12	1158.6 / 1158.94	1158.2 / 1158.84	1157.8 / 1158.82	1157.5 / 1158.87	1157.2 / 1159.01	1157.1 / 1159.22	1157.1 / 1159.50	1157.1 / 1159.87	1152.8 / 1160.31	1141.6 / 1160.83	1152.5 / 1161.43	1159.1 / 1162.10	1159.8 / 1162.85	1160.7 / 1163.68	1161.9 / 1164.59	1163.2 / 1165.58	1164.5 / 1166.64	1166.0 / 1167.78	1167.7 / 1169.00	1169.5 / 1170.29

STA. 6+44.10
82 L.F. - CPRC CLASS III 36-INCH REQ'D
2 EA. - APRON ENDWALLS FOR CPRC 36-INCH REQ'D
SKEW 18° L.H.F.

STA. 6+47.90
82 L.F. - CPRC CLASS III 36-INCH REQ'D
2 EA. - APRON ENDWALLS FOR CPRC 36-INCH REQ'D
SKEW 18° L.H.F.

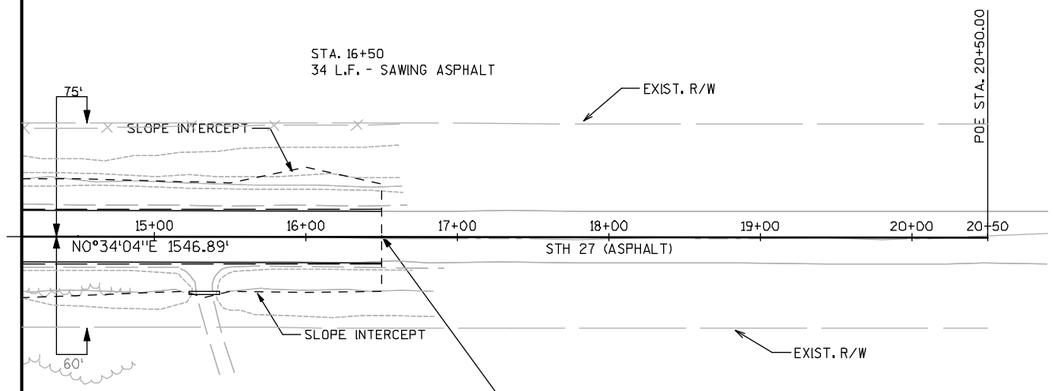
STA. 10+00
STRUCTURE B-54-0120 REQ'D.
THREE SPAN REINFORCED CONCRETE HAUNCHED SLAB BRIDGE
36' CLEAR WIDTH x 125'-0⅝" BACK-TO-BACK OF ABUTS.
SKEW 35° R.H.F.

STA. 10+00
EXISTING STRUCTURE B-54-79 TO BE REMOVED
TWO SPAN STEEL GIRDER BRIDGE
31'-3" CLEAR WIDTH x 119'-4½" BACK-TO-BACK OF ABUTS.

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	PLAN AND PROFILE	SHEET 14	E

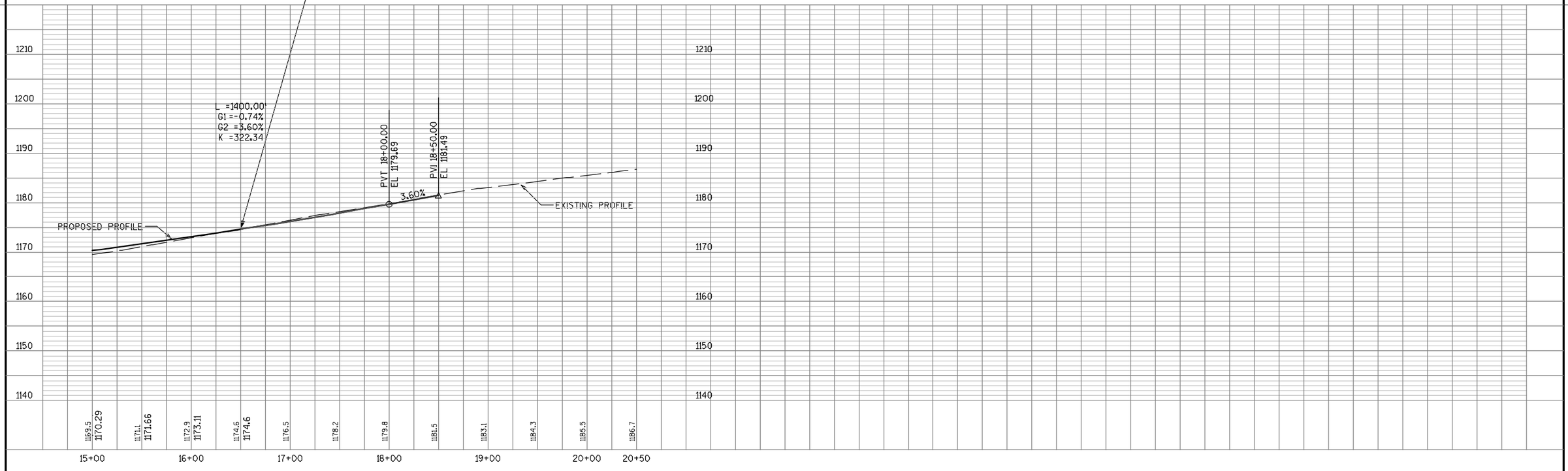
POE STA. = 20+50.00
Y = 588744.76
X = 810499.04

N



STA. 15+33 RT
CONSTRUCT F.E. RT (AGG. - MATCH EXIST.)
20 L.F. - CULVERT PIPE CORRUGATED STEEL 24-INCH
2 EA. - APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH

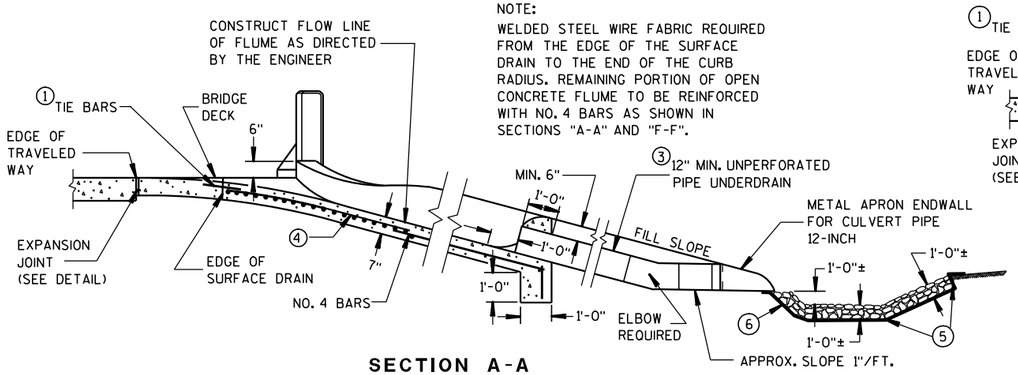
END PROJECT
STA. 16+50.00
Y = 588344.782
X = 810495.078
MATCH EXISTING



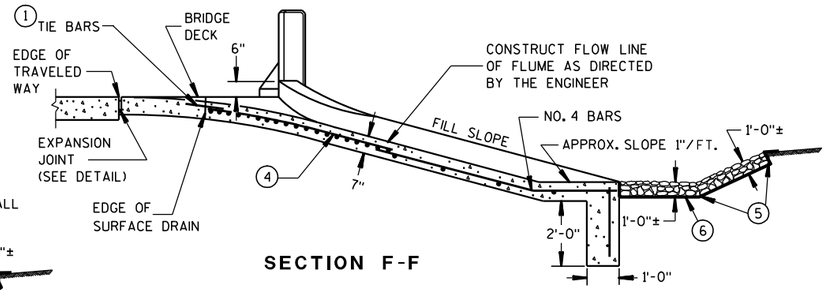
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	PLAN AND PROFILE	SHEET 15	E

Standard Detail Drawing List

08D02-06	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F10-01	CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH
12A03-10	NAME PLATE (STRUCTURES)
13B02-07A	CONCRETE BRIDGE APPROACH
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-03A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-03J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)
16A01-06	LANDMARK REFERENCE MONUMENTS AND COVERS



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.

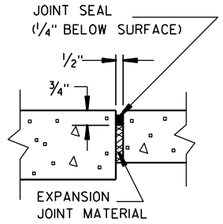
(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

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

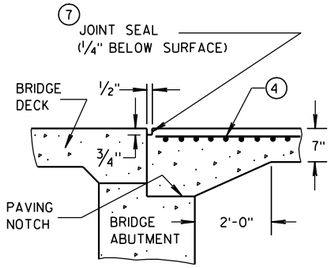
(6) GEOTEXTILE FABRIC, TYPE 'R"

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

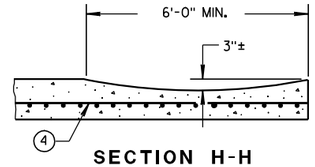
(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".



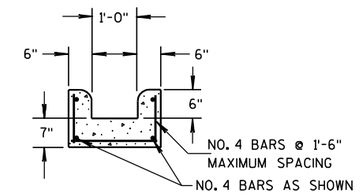
EXPANSION JOINT DETAIL



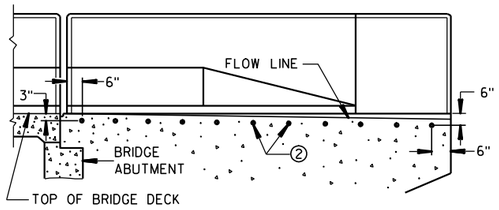
SECTION D-D



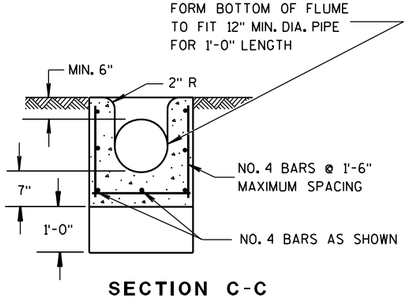
SECTION H-H



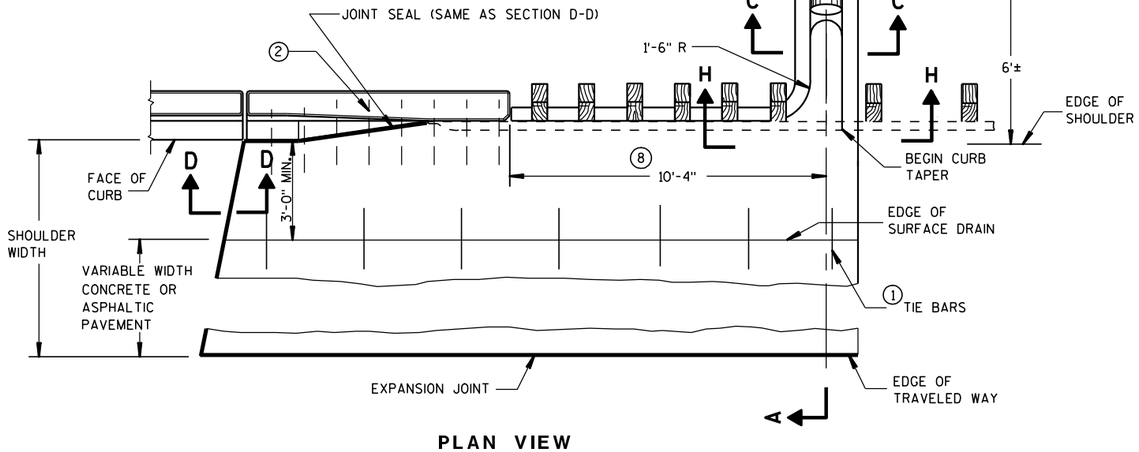
SECTION E-E



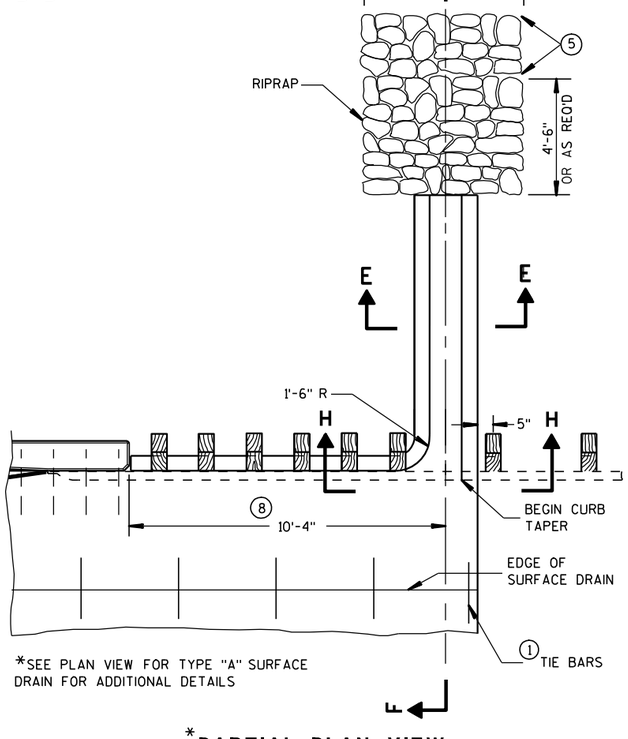
LOCATION OF TIE BARS IN WINGWALL



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"

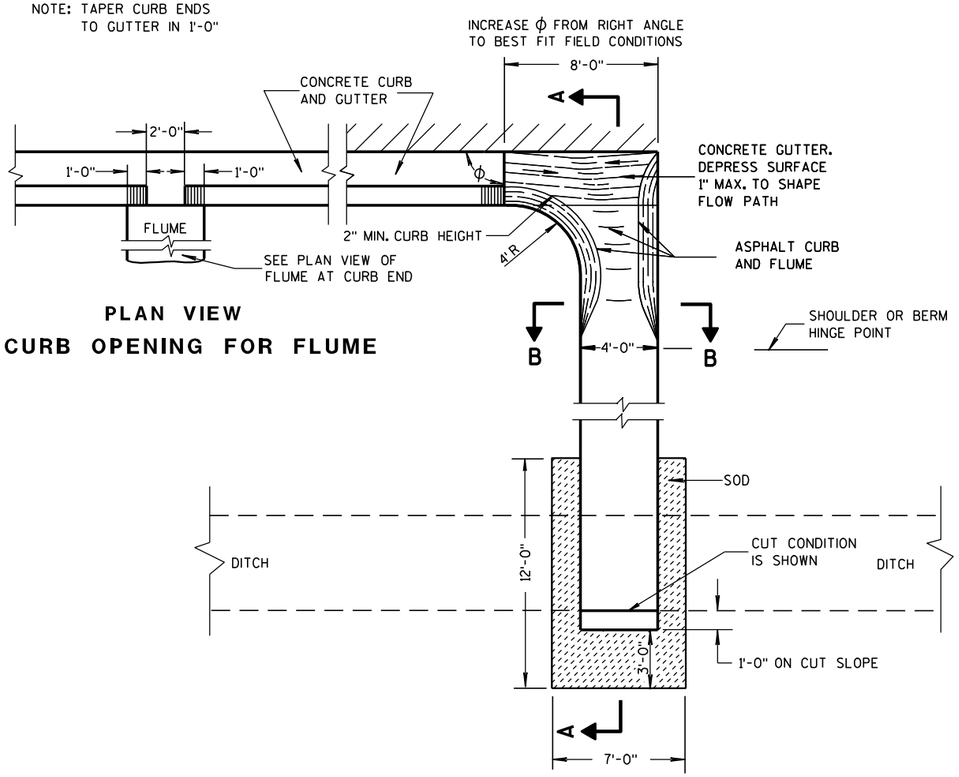
CONCRETE SURFACE DRAINS
FLUME TYPE
AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

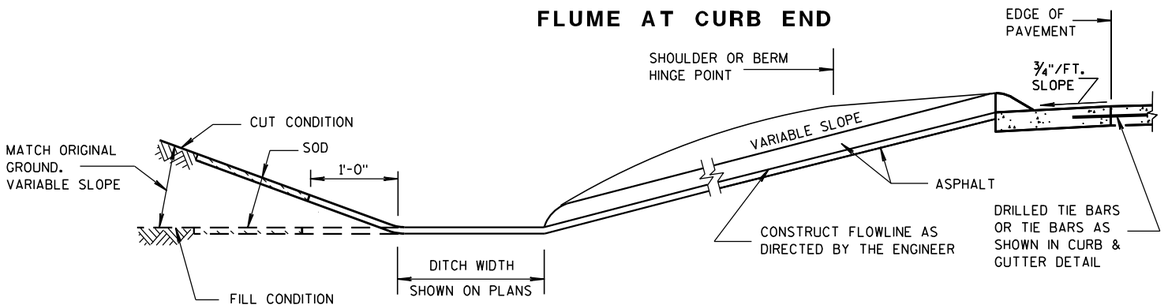
6
S.D.D. 8 D 2-6

ASPHALTIC FLUME

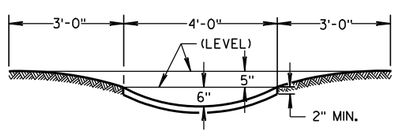


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

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

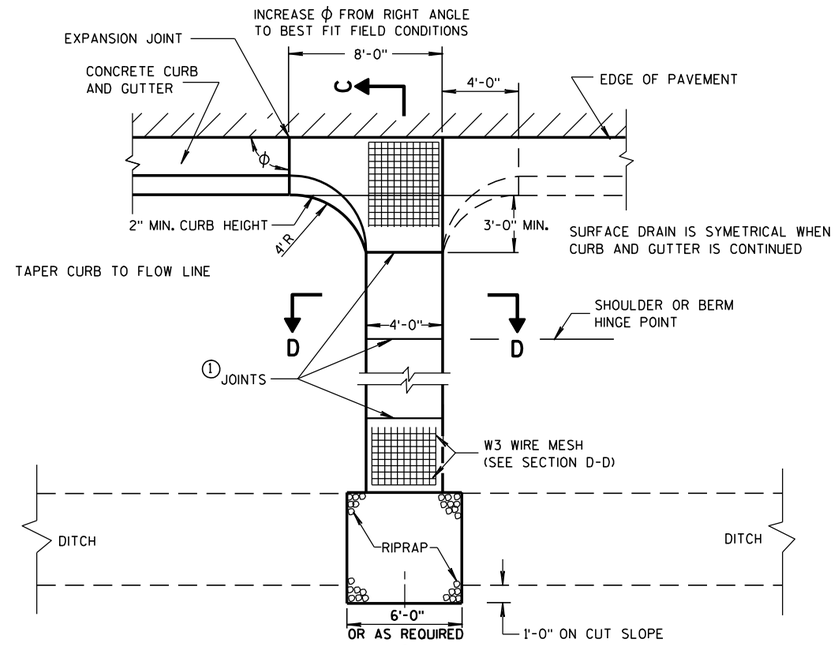
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.

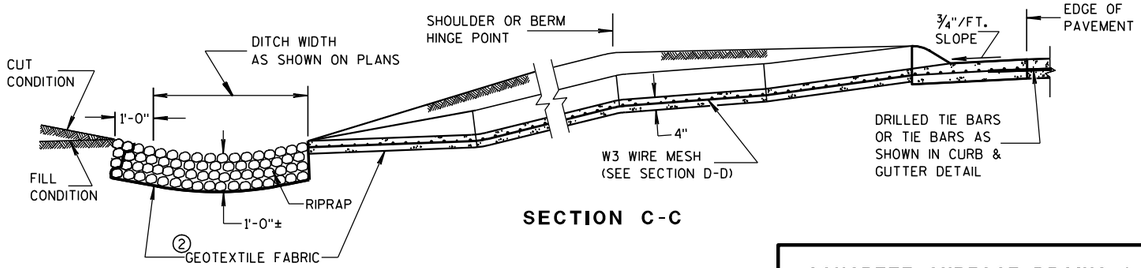
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

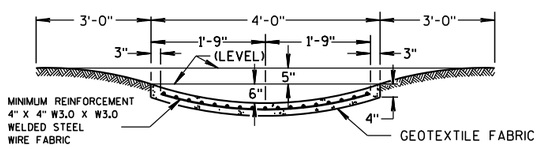
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9-4-08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
MENT

FHWA

6

S.D.D. 8 D 4-5

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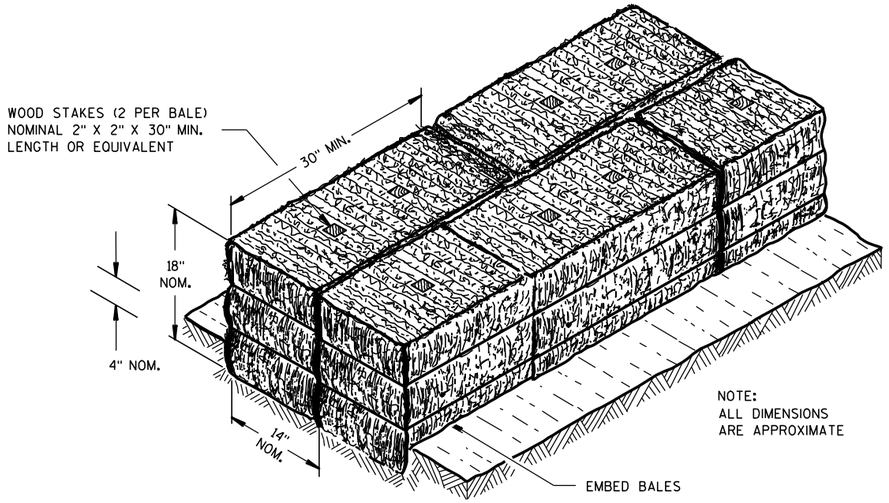
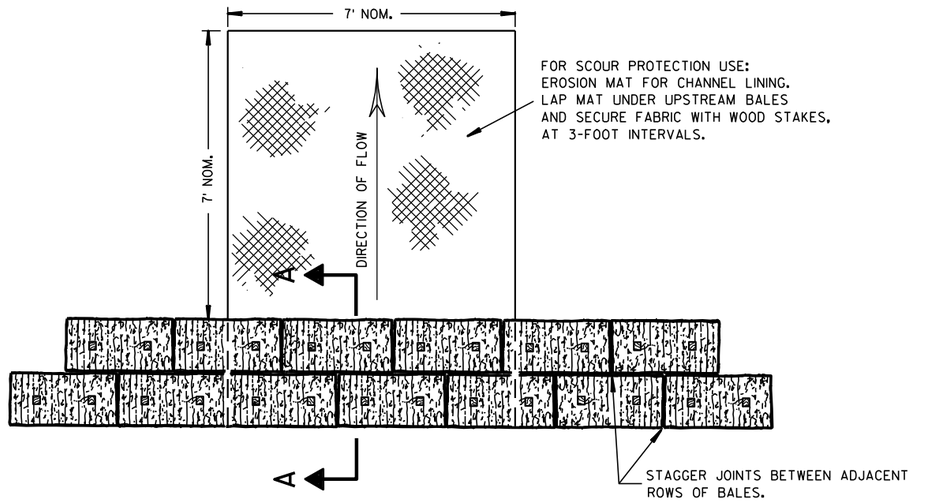
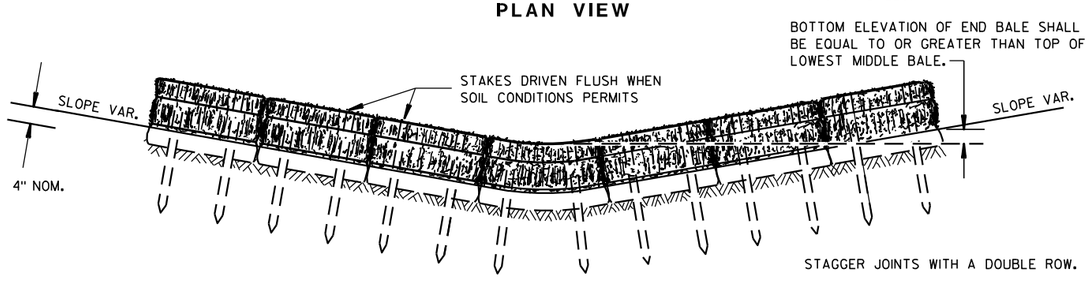
S.D.D. 8 D 4-5



SECTION A-A



PLAN VIEW



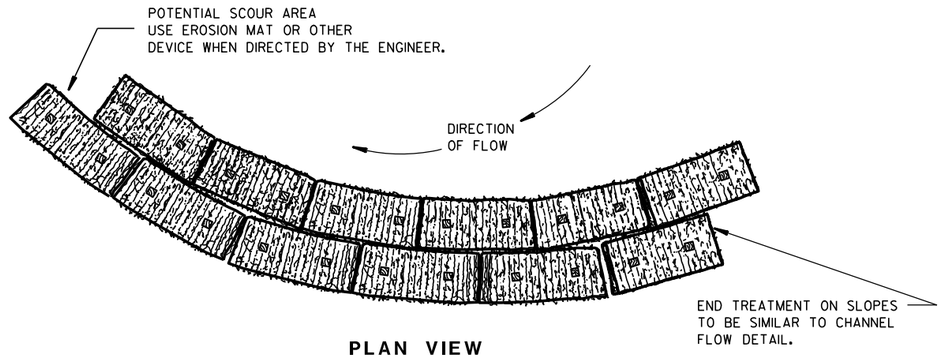
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

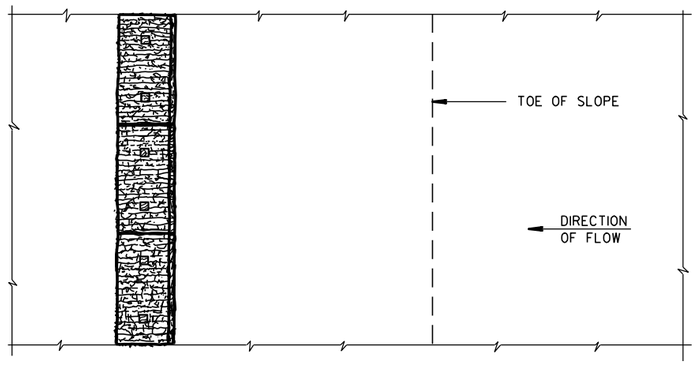
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(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.

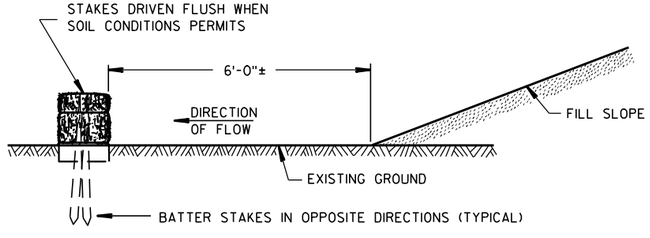


PLAN VIEW

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

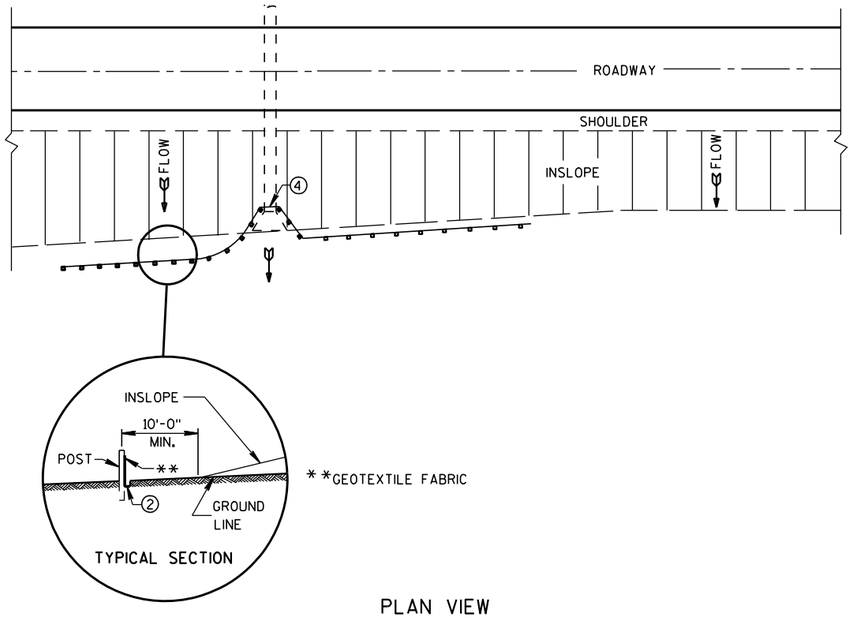
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

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

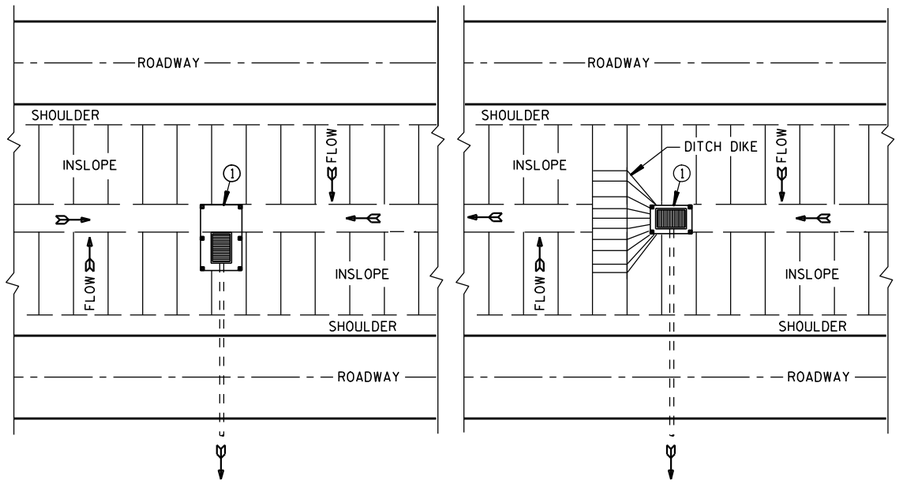
FHWA

6
S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



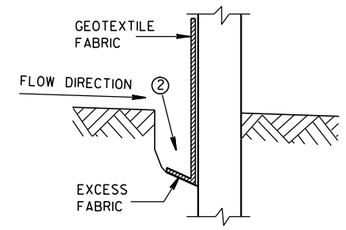
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

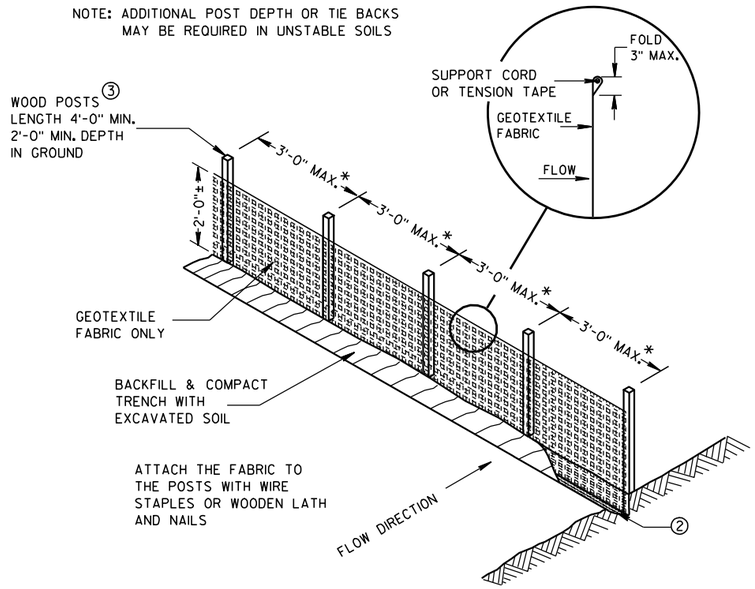
GENERAL NOTES

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

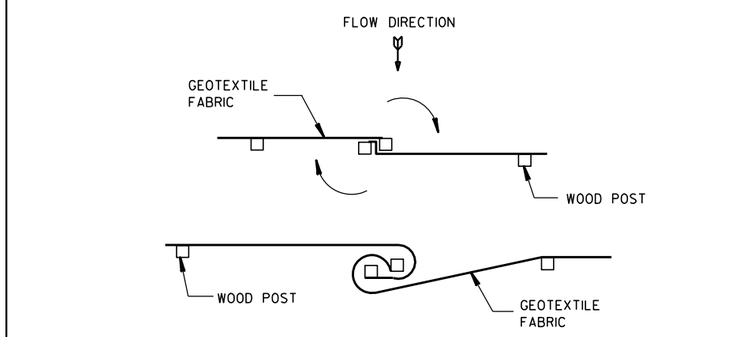
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



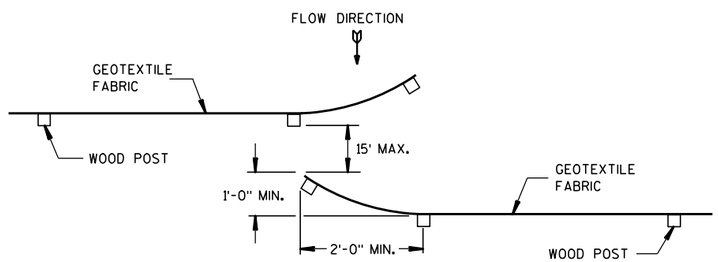
TRENCH DETAIL



SILT FENCE

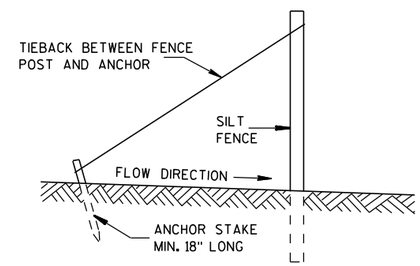


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

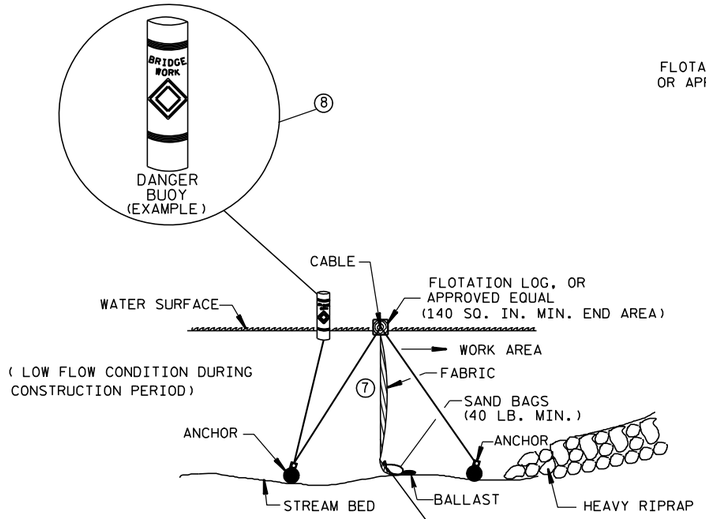
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

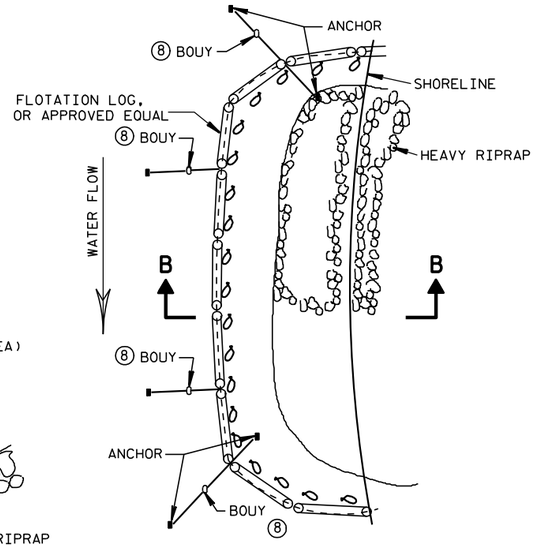
S.D.D. 8 E 9-6

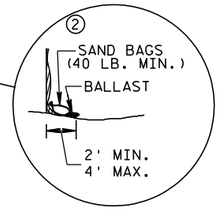
6

S.D.D. 8 E 9-6

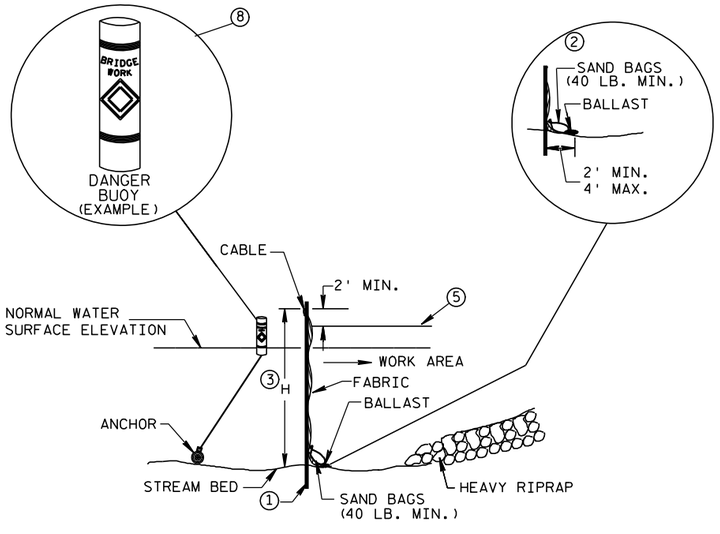


SECTION B-B

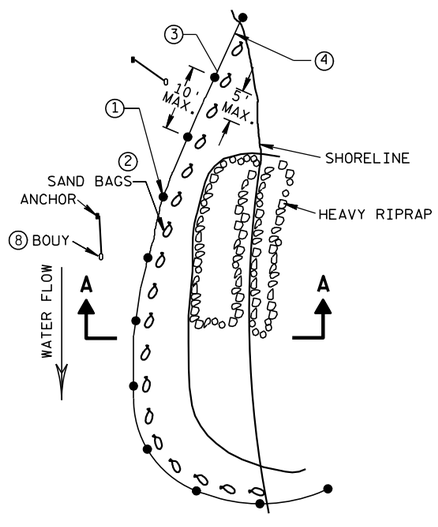




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

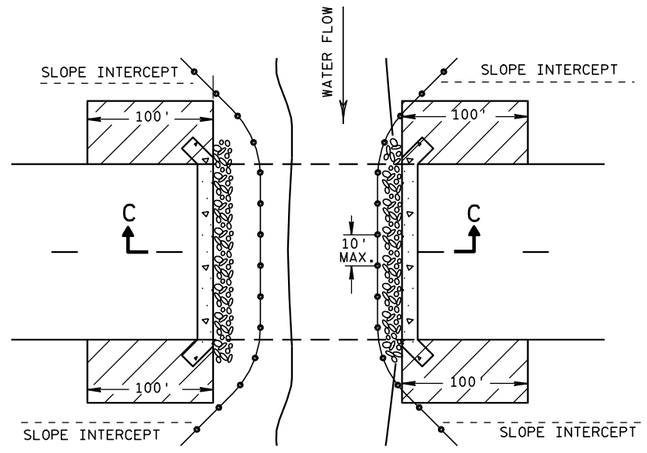
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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

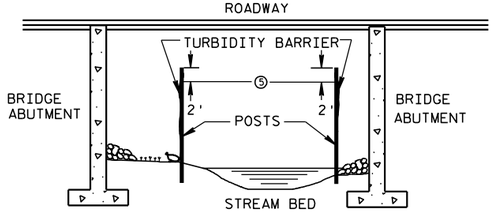
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 8 E 11-2

6

S.D.D. 8 E 11-2

METAL APRON ENDWALLS

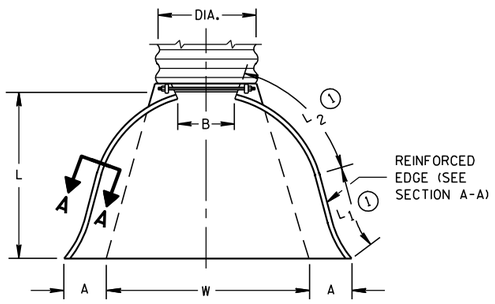
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

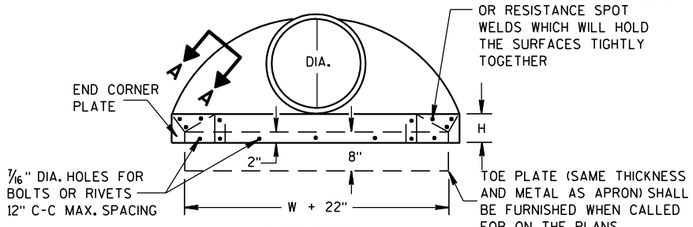
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

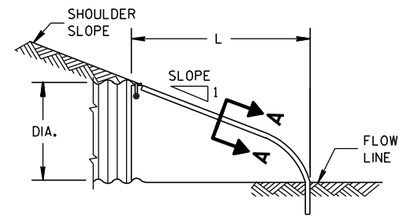
*MINIMUM
**MAXIMUM



PLAN VIEW

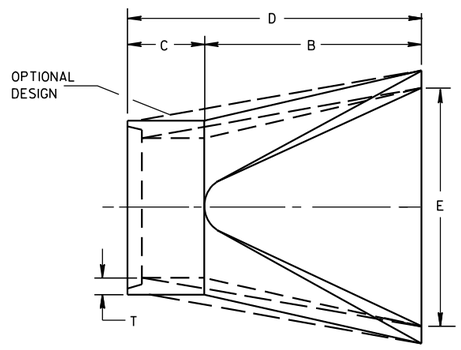


END VIEW

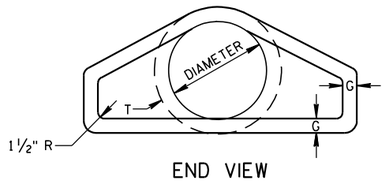


SIDE ELEVATION

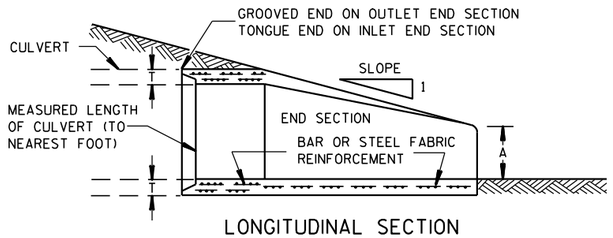
METAL ENDWALLS



PLAN

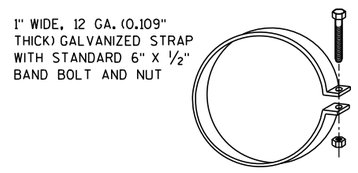


END VIEW



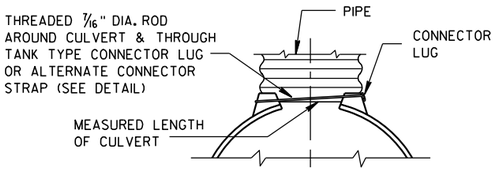
LONGITUDINAL SECTION

CONCRETE ENDWALLS

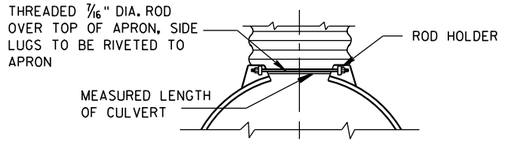


ALTERNATE FOR TYPE 1 CONNECTION

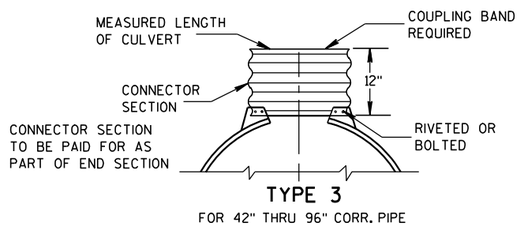
END SECTION CONNECTOR STRAP



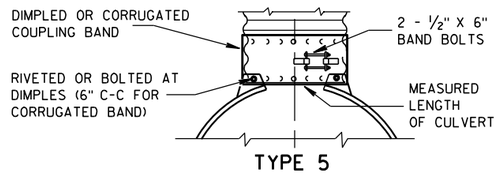
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

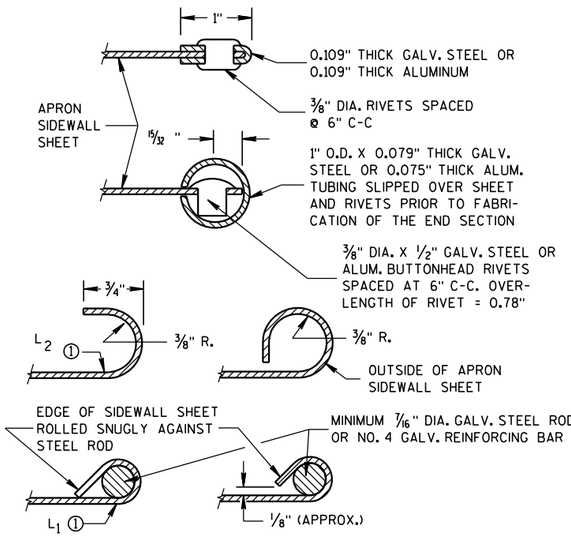
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

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.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

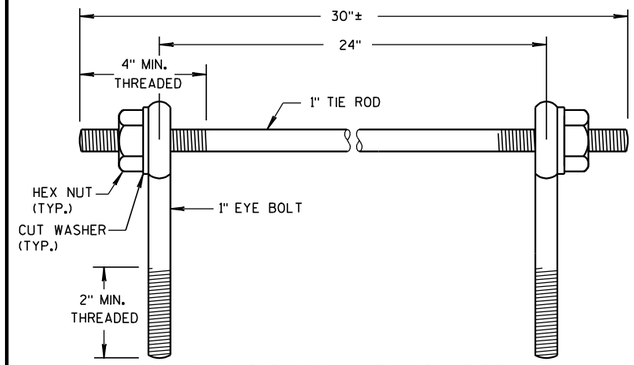
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

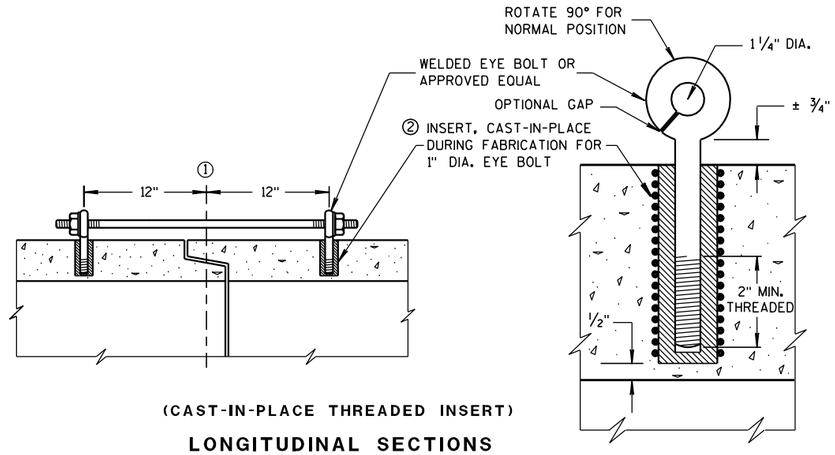
APPROVED
11/30/94 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 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 APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

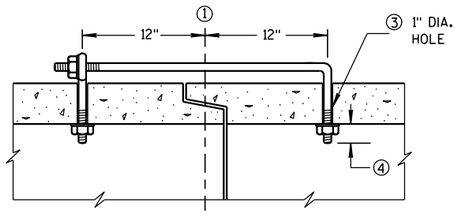
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

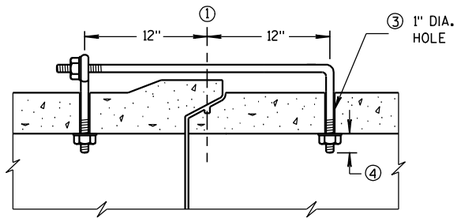
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

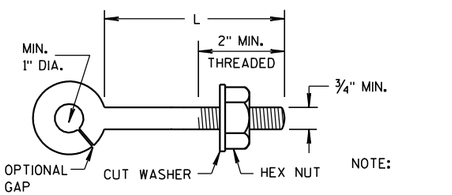


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

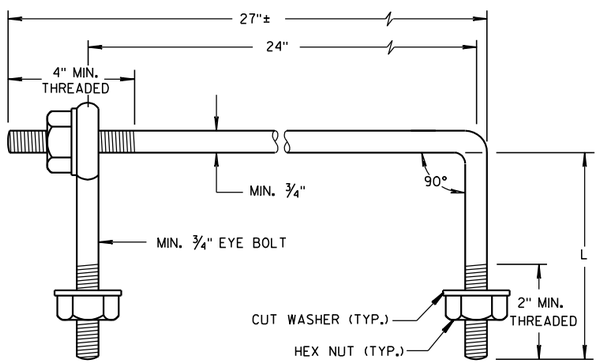
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

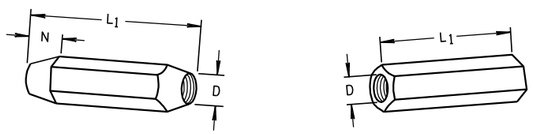
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

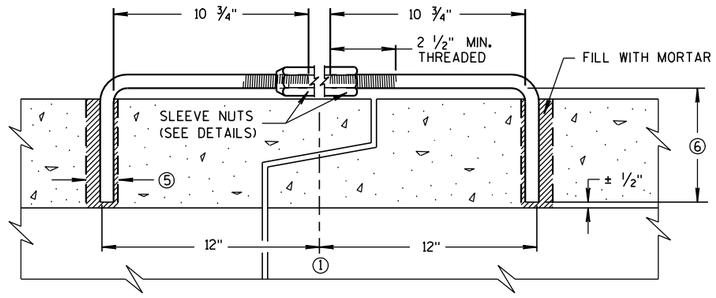
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

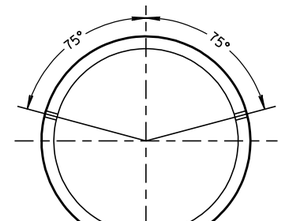
SLEEVE NUTS



LONGITUDINAL SECTION

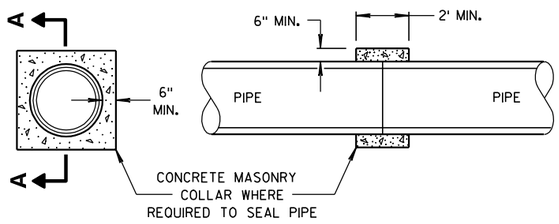
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

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S.D.D. 8 F 4-7

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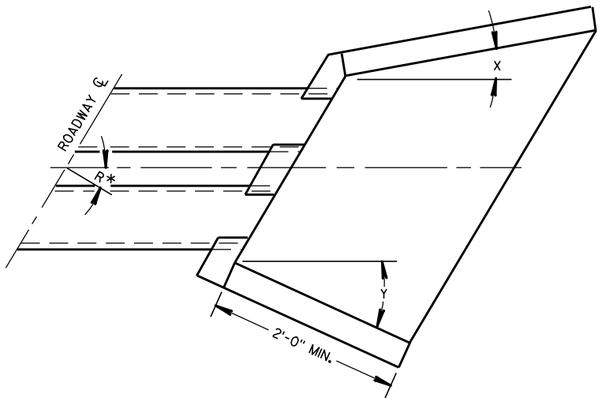
S.D.D. 8 F 4-7



WINGWALL ANGLE DETAILS

INLET			OUTLET		
R*	X	Y	R*	X	Y
0 - 7°	30°	30°	0 - 15°	15°	15°
8 - 22°	25°	"	16 - 45°	10°	"
23 - 37°	20°	"	46 - 75°	5°	"
38 - 52°	15°	"	OVER 75°	0°	"
53 - 67°	10°	"			
68 - 82°	5°	"			
OVER 82°	0°	"			

*R = NUMBER OF DEGREES RIGHT OR LEFT HAND FORWARD

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.

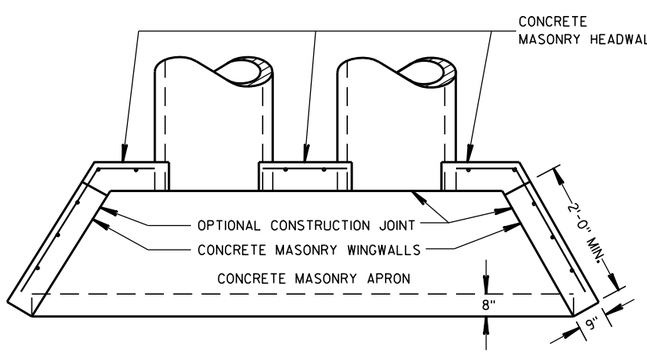
FILL SLOPES FLATTER THAN 2 ½:1 SHALL BE WARPED TO MEET THE TOP OF THE WINGWALLS.

ALL STEEL REINFORCEMENT AND WELDED STEEL WIRE FABRIC SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE NOTED.

(1) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS SPACED 12" C-C IN BOTH DIRECTIONS.

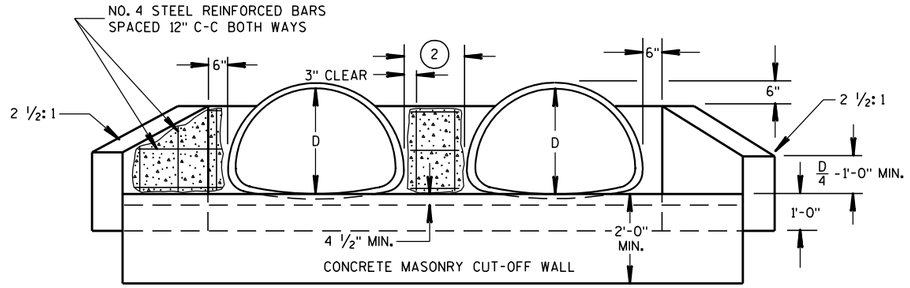
(2) THE SPACE BETWEEN PIPES SHALL BE AS FOLLOWS:

DIAMETER OR SPAN	SPACE
UP TO AND INCLUDING 48"	2'-0"
OVER 48" TO 72"	½ DIA. OR SPAN
OVER 72"	3'-0"



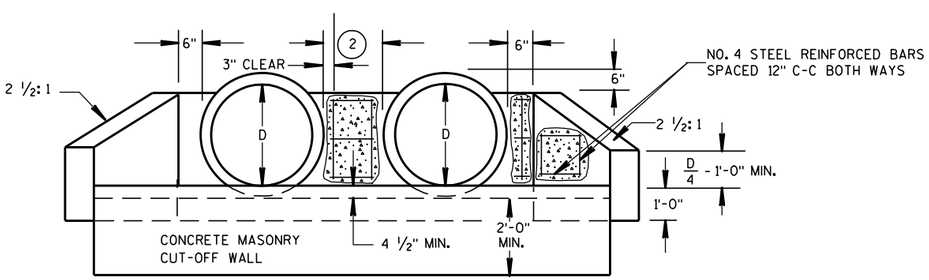
PLAN VIEW

CULVERT PIPE AND PIPE ARCH



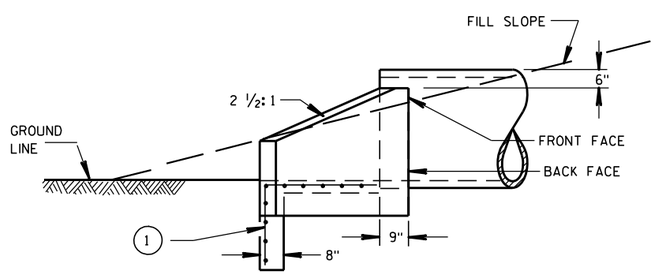
END ELEVATION

PIPE ARCH



END ELEVATION

CULVERT PIPE



SIDE ELEVATION

CULVERT PIPE AND PIPE ARCH

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/98 DATE
/S/ Rory L. Rhinehart
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

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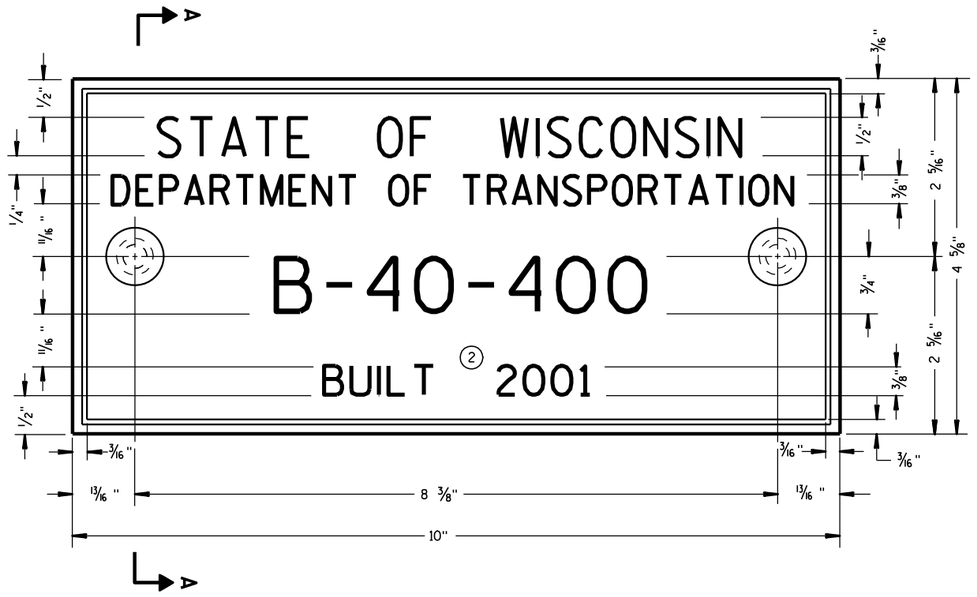
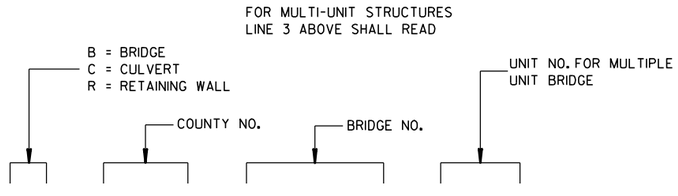
S.D.D. 8 F 10-1



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

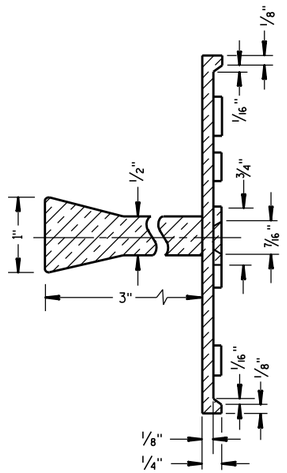
GENERAL NOTES

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.

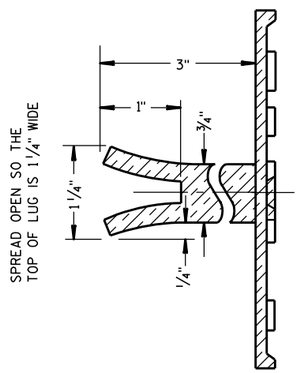
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

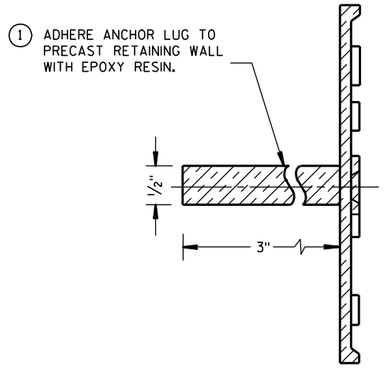
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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

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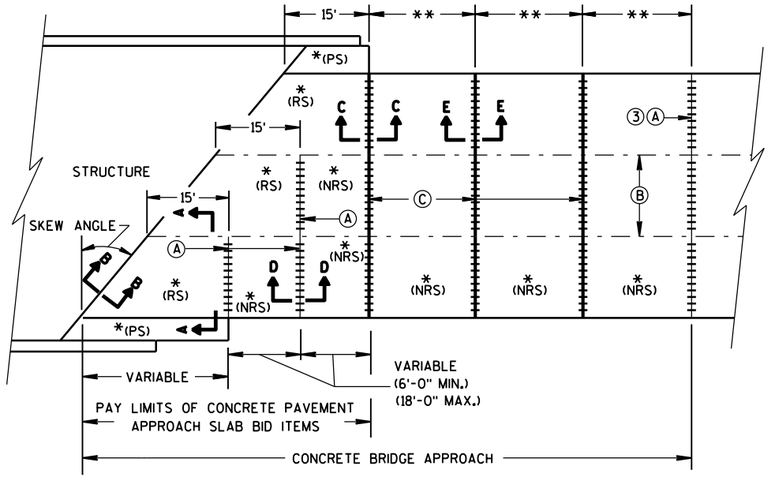
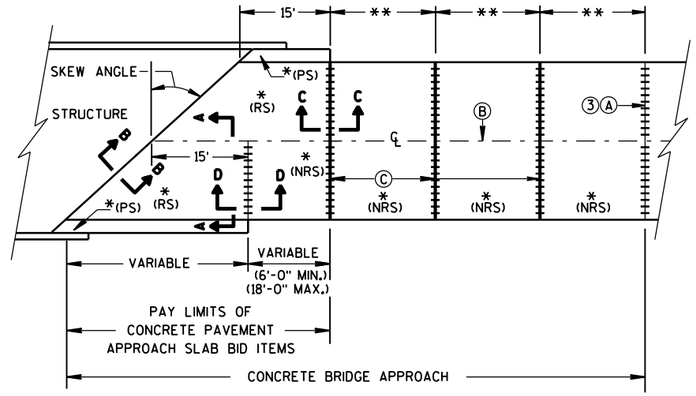
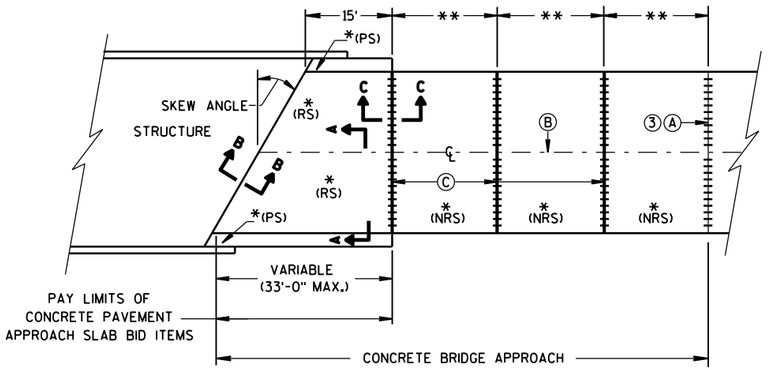
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >30°
(PAVEMENT WIDTH ≤30')



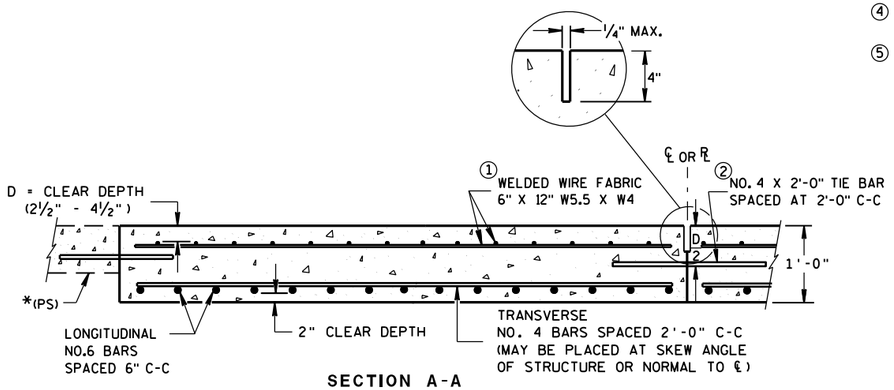
SKEWS ≤30°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

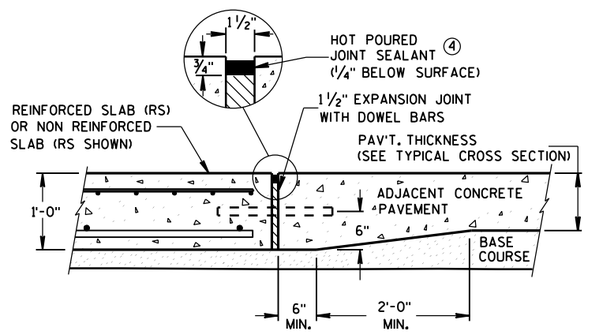
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN (SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

**STANDARD TRANSVERSE JOINT SPACING (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
***STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11, & SDD 13C13)

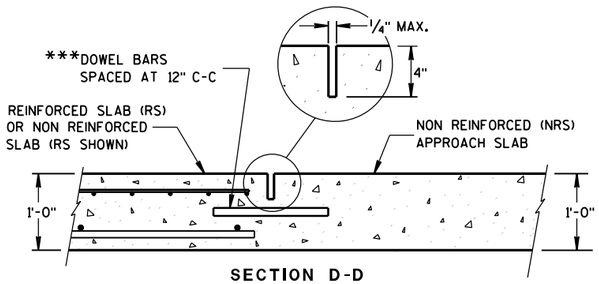
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
Ⓑ STANDARD LONGITUDINAL JOINT AND TIE BARS.
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



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.

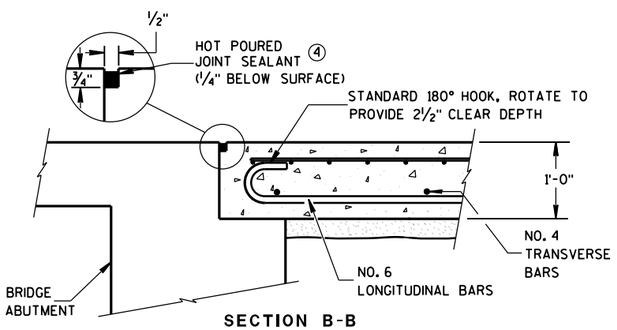
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

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

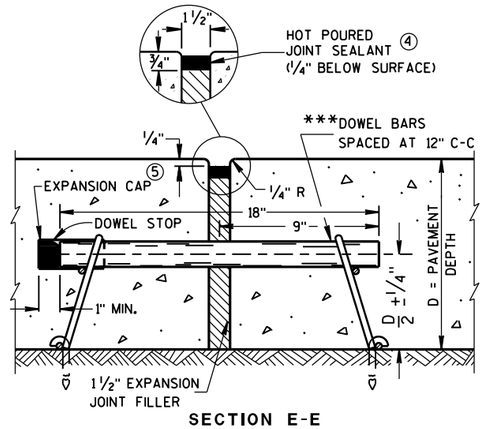
③ DO NOT DOWEL A CONTRACTION JOINT THAT ABUTS AN HMA PAVEMENT.

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



SECTION E-E
EXPANSION JOINT

CONCRETE BRIDGE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2014 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & DE
EER
FHWA

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S.D.D. 13 B 2-7a

GENERAL NOTES

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

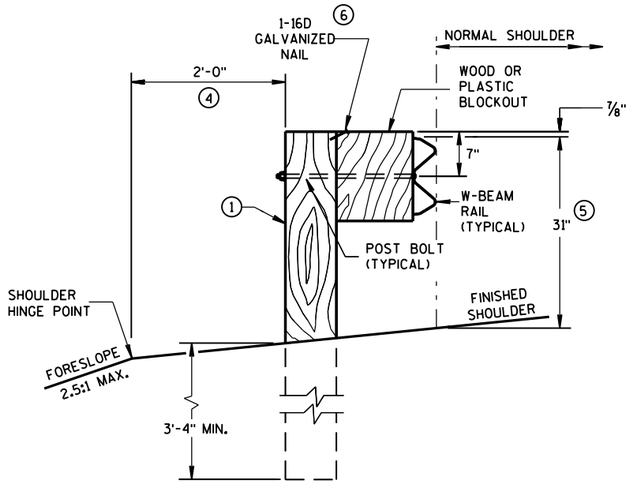
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

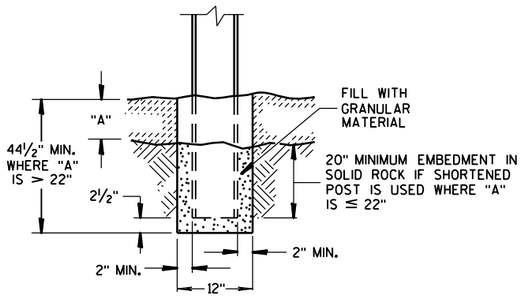
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



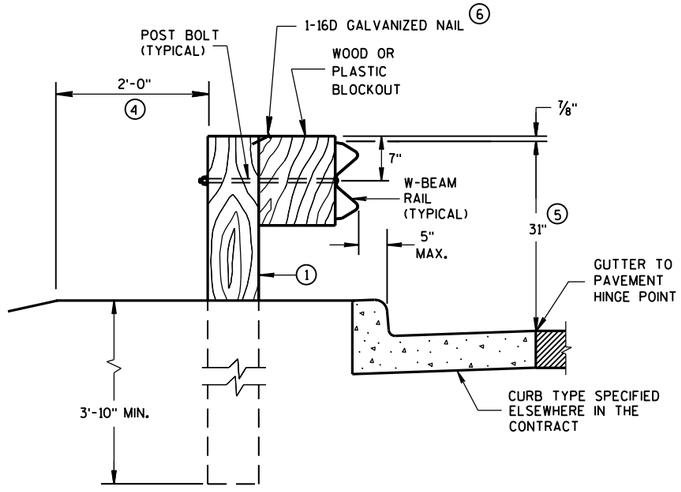
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



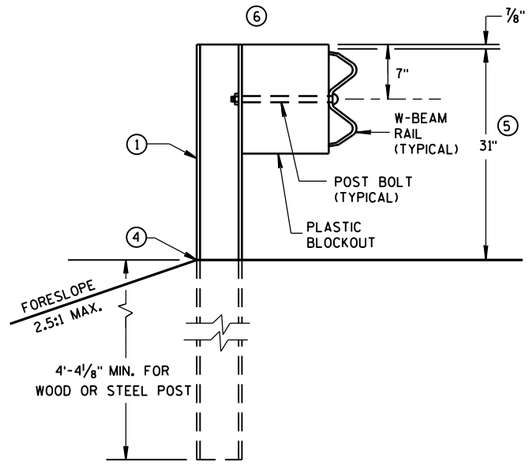
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



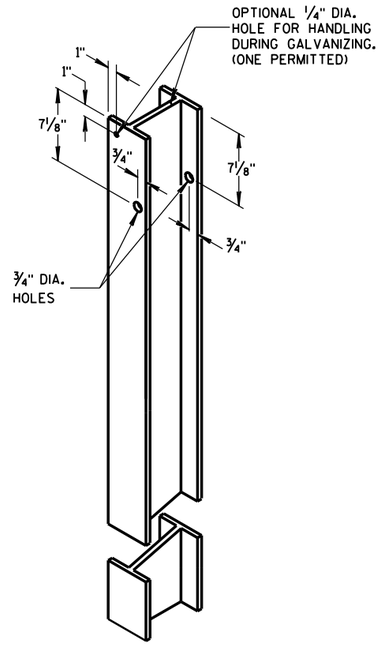
END VIEW

LOCATED ALONG A CURBED ROADWAY

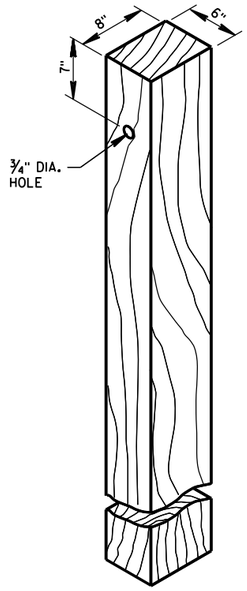


END VIEW

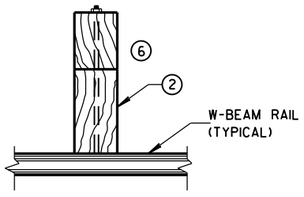
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



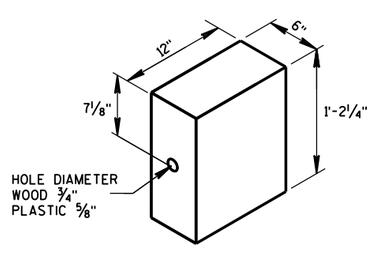
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



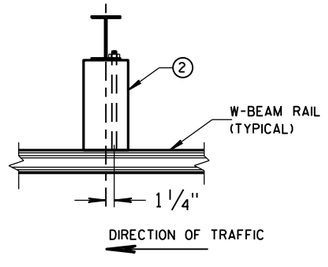
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)



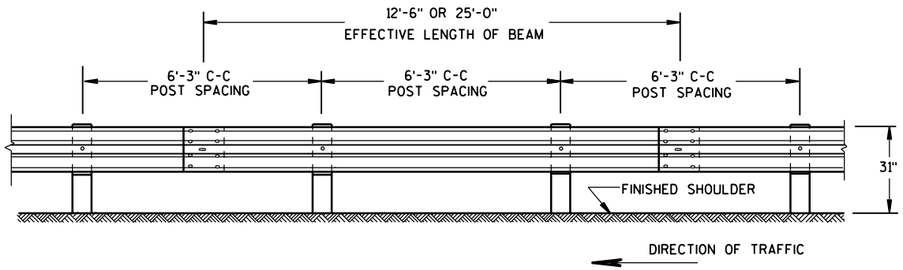
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

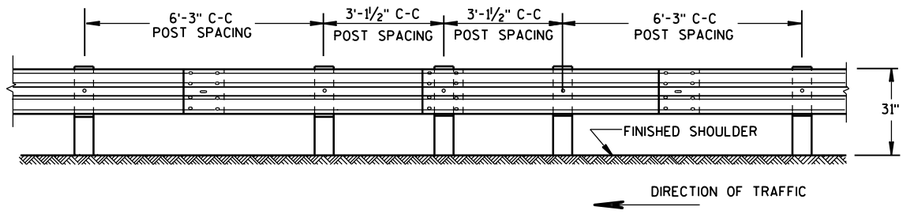
6

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



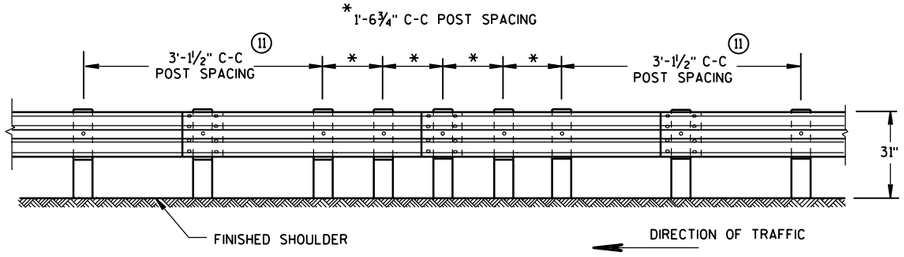
FRONT VIEW

POST SPACING STANDARD INSTALLATION



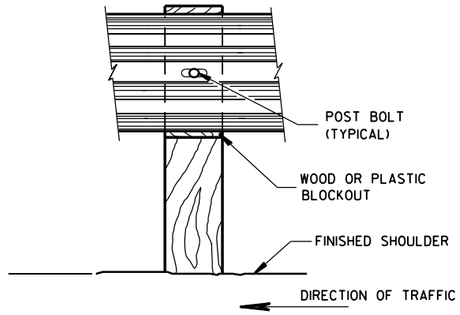
FRONT VIEW

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

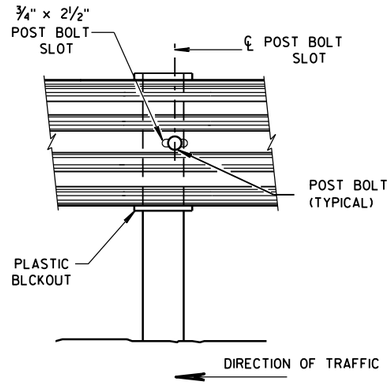


FRONT VIEW

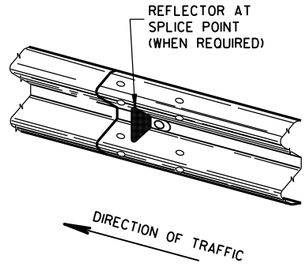
QUARTER POST SPACING (QS)

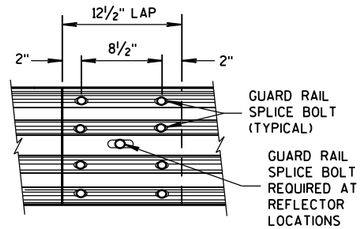


FRONT VIEW AT WOOD POST



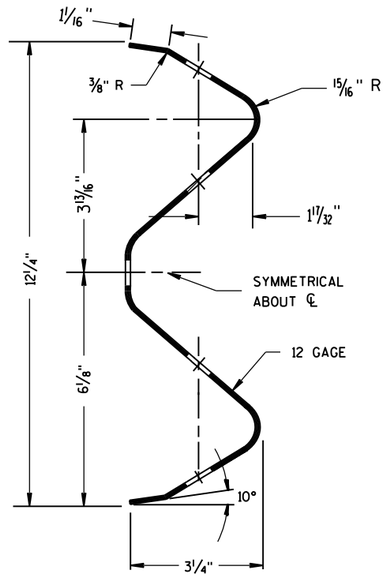
FRONT VIEW AT STEEL POST



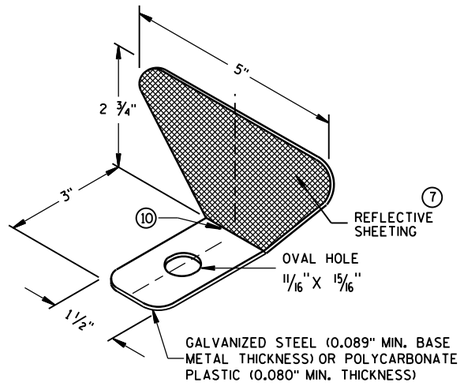


FRONT VIEW

MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

GENERAL NOTES

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

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

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

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

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

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

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

REFLECTOR SPACING ⑧

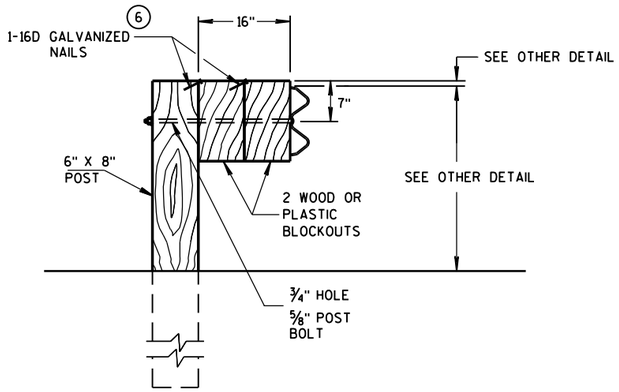
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ⑨	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 ⑩	

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

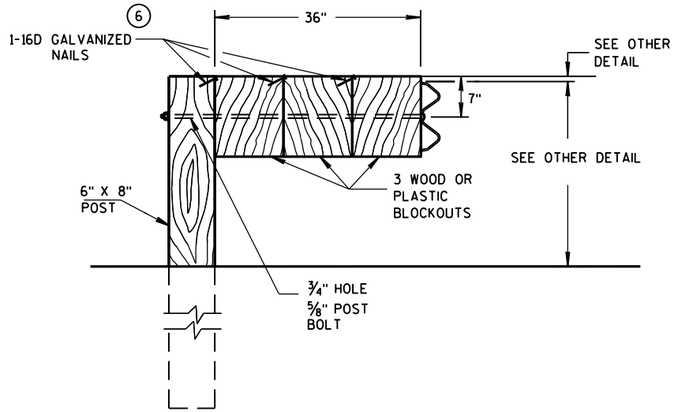
6

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



DETAIL FOR 16" BLOCKOUT DEPTH

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

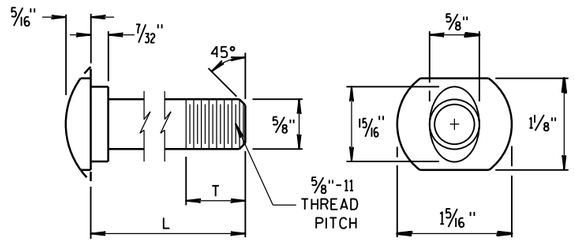


DETAIL FOR 36" BLOCKOUT DEPTH

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

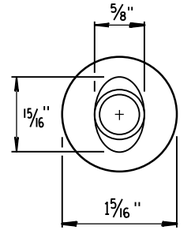
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

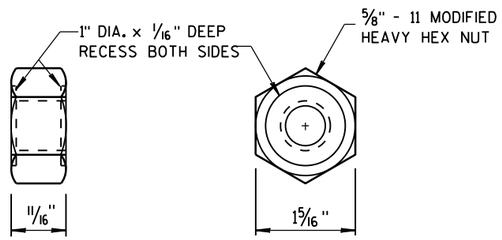


POST BOLT TABLE

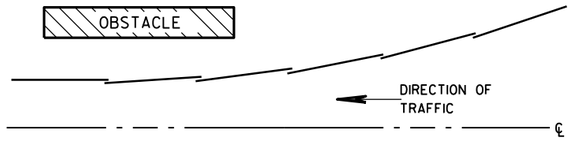
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

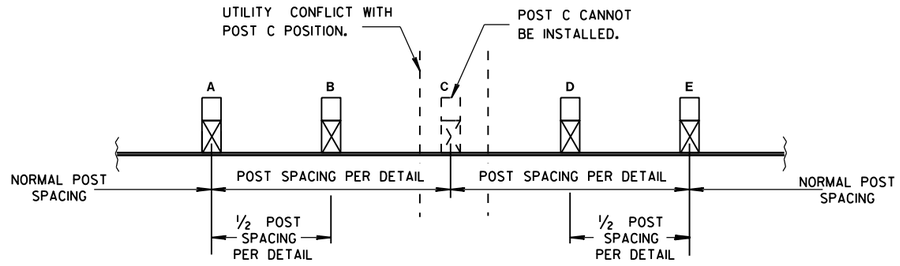


POST BOLT AND RECESS NUT

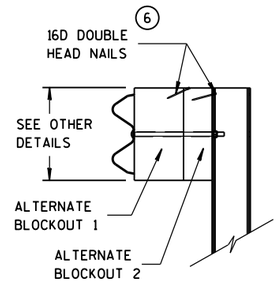


PLAN VIEW

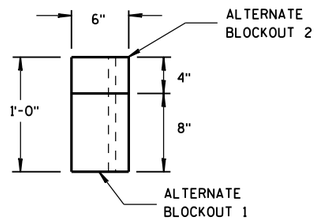
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

GENERAL NOTES

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

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

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

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

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

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

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

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

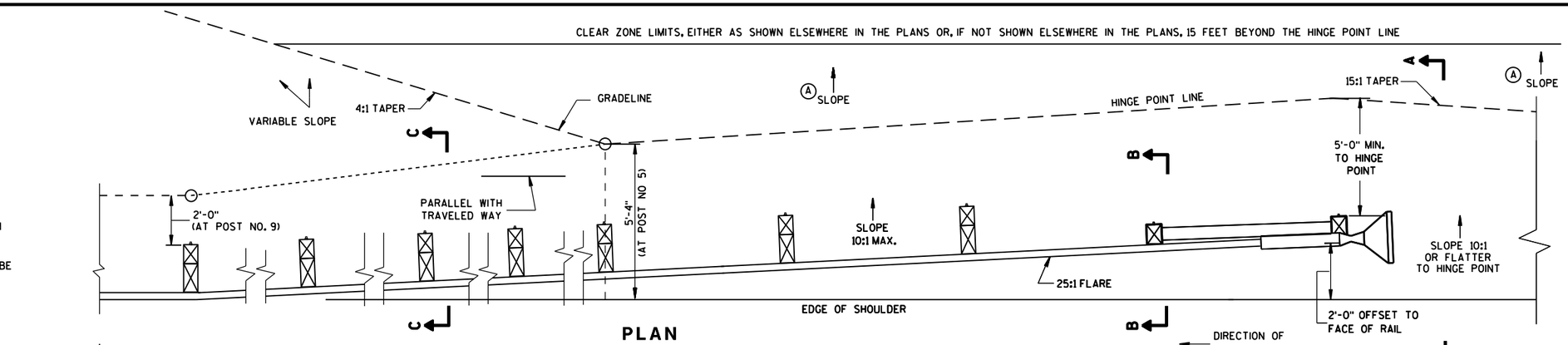
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

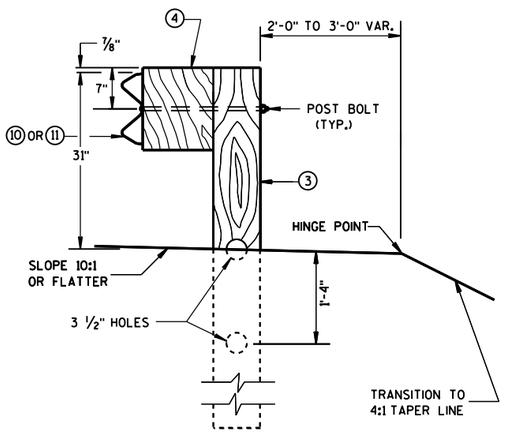
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

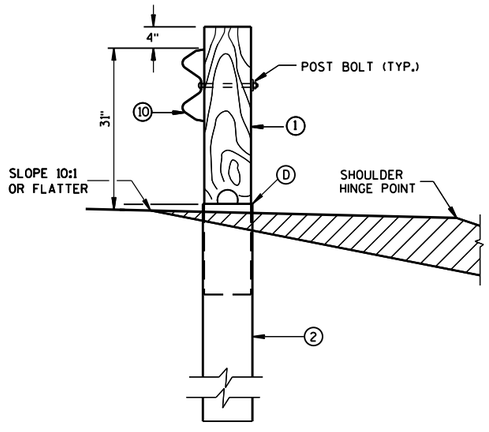
THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



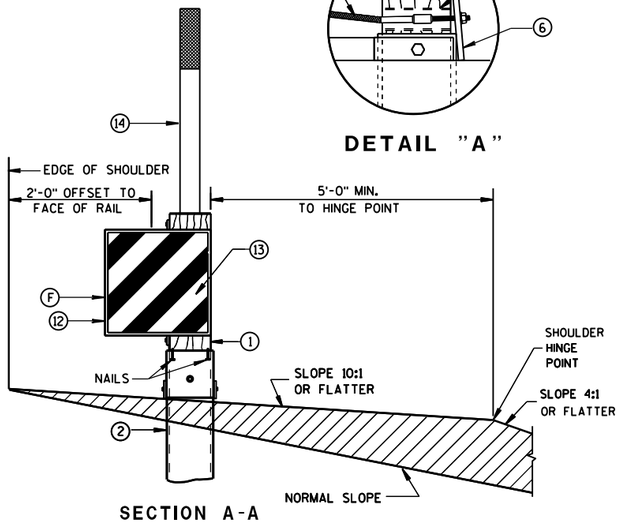
ELEVATION



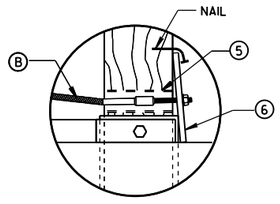
SECTION C-C
TYPICAL AT POST NOS. 3-9



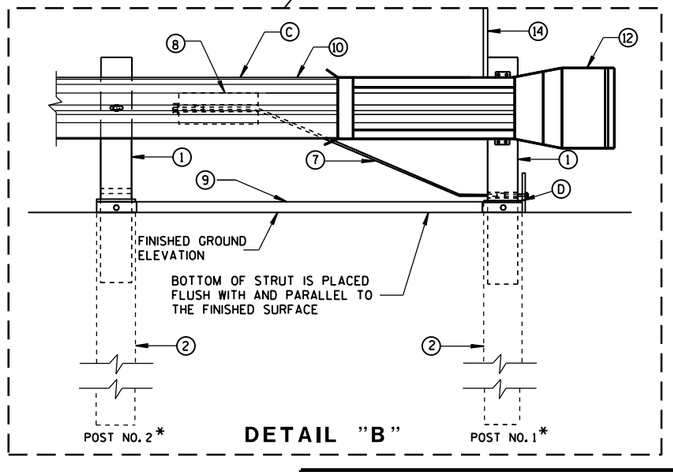
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



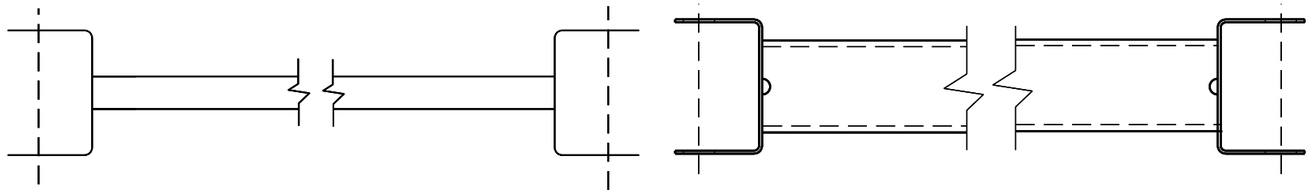
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

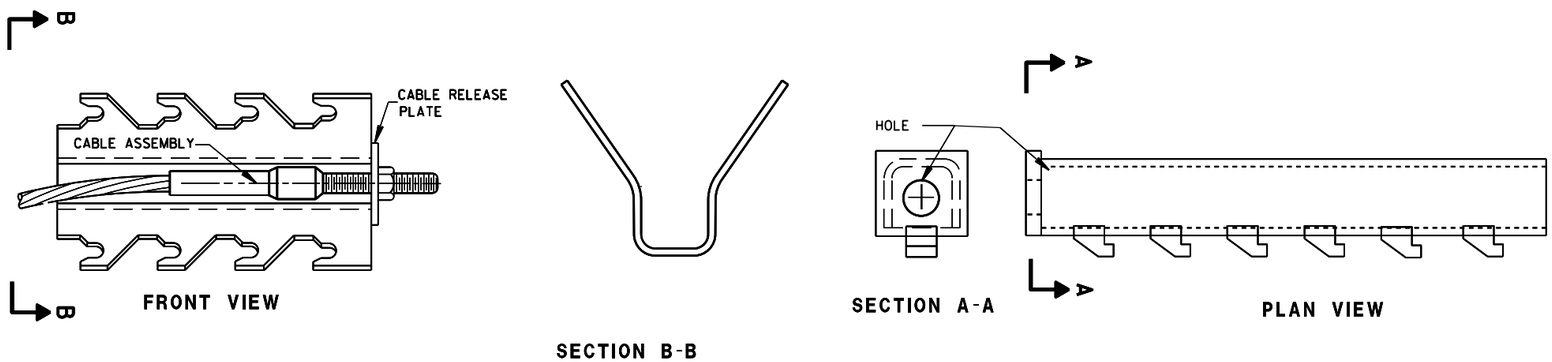
S.D.D. 14 B 44-2a



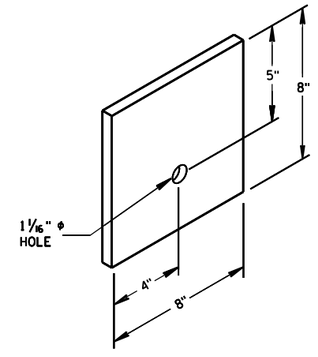
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)

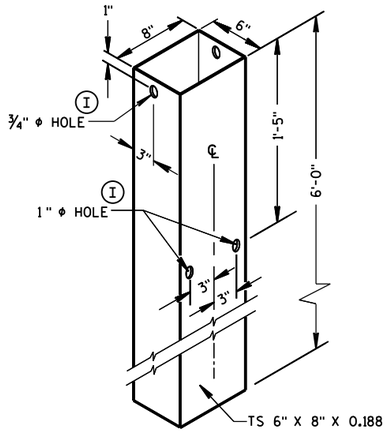


BEARING PLATE (6)

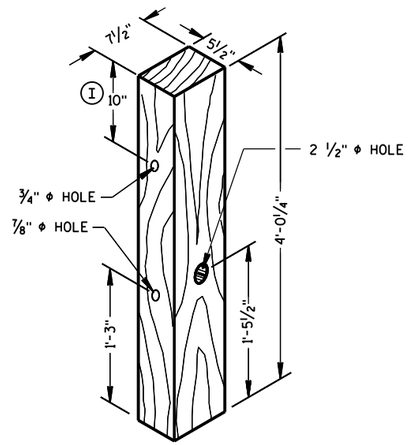
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 44-2b

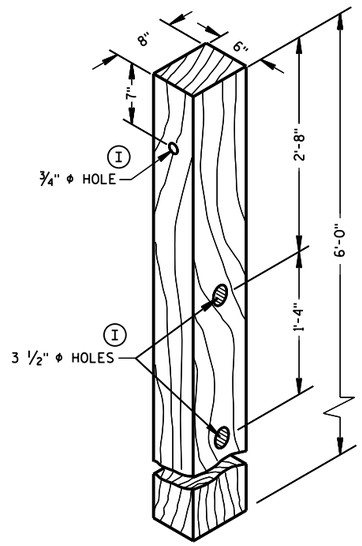


FOUNDATION TUBE (2)



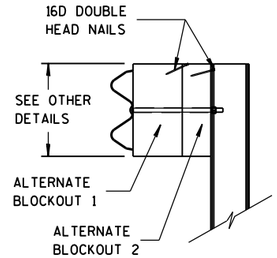
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

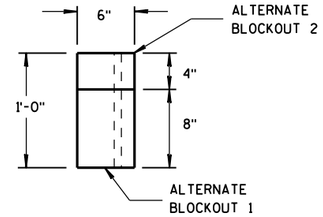


POSTS NUMBER 3-9

WOOD CRT POST (3)

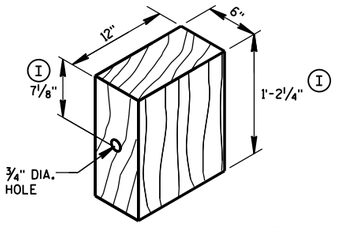


SIDE VIEW



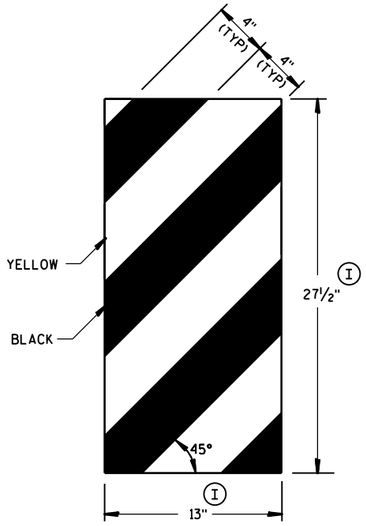
TOP VIEW

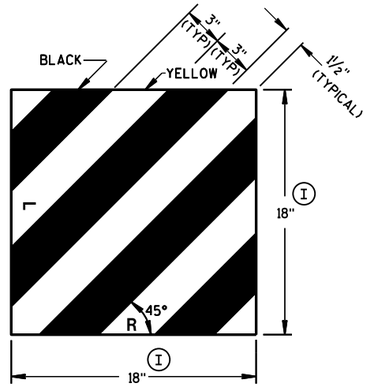
ALTERNATE WOOD BLOCKOUT DETAIL



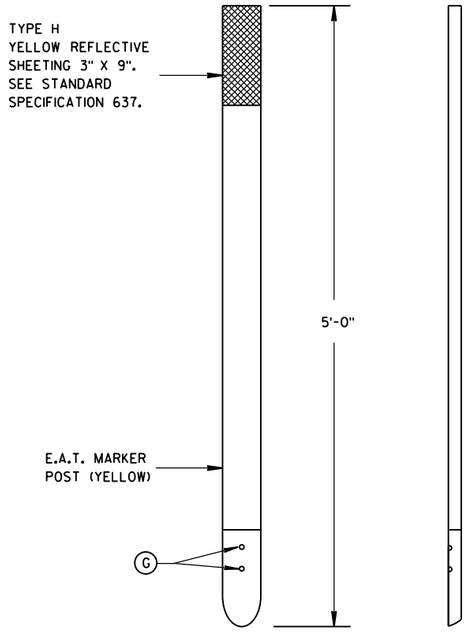
WOOD BLOCKOUT (4)

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





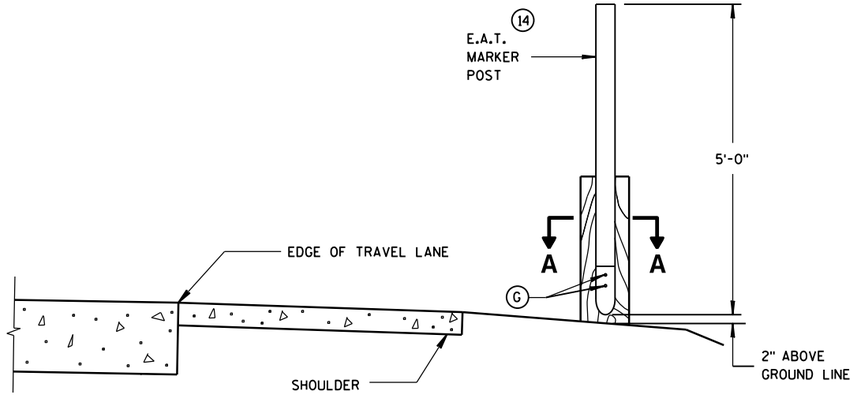
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

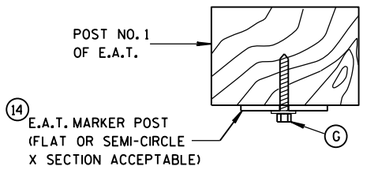
SIDE VIEW

E.A.T. MARKER POST (14)



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

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

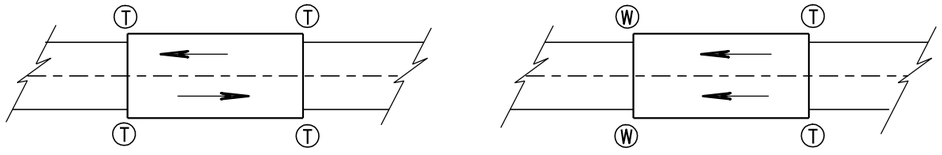


SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

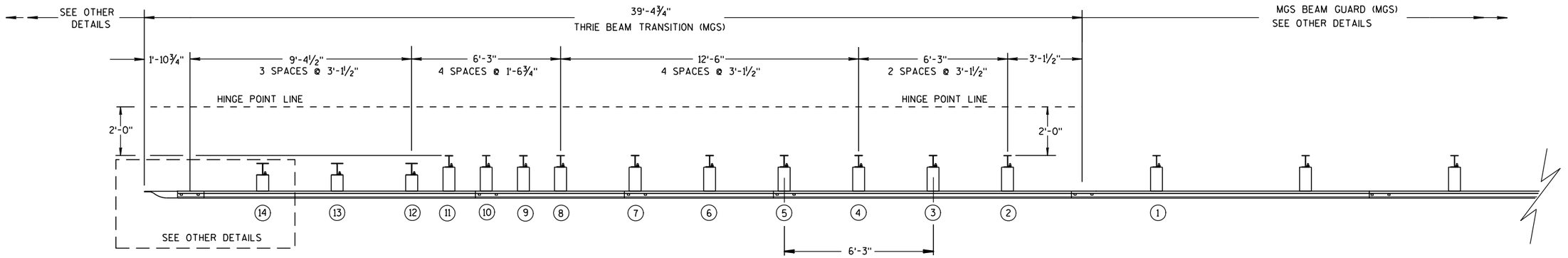
BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3.

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

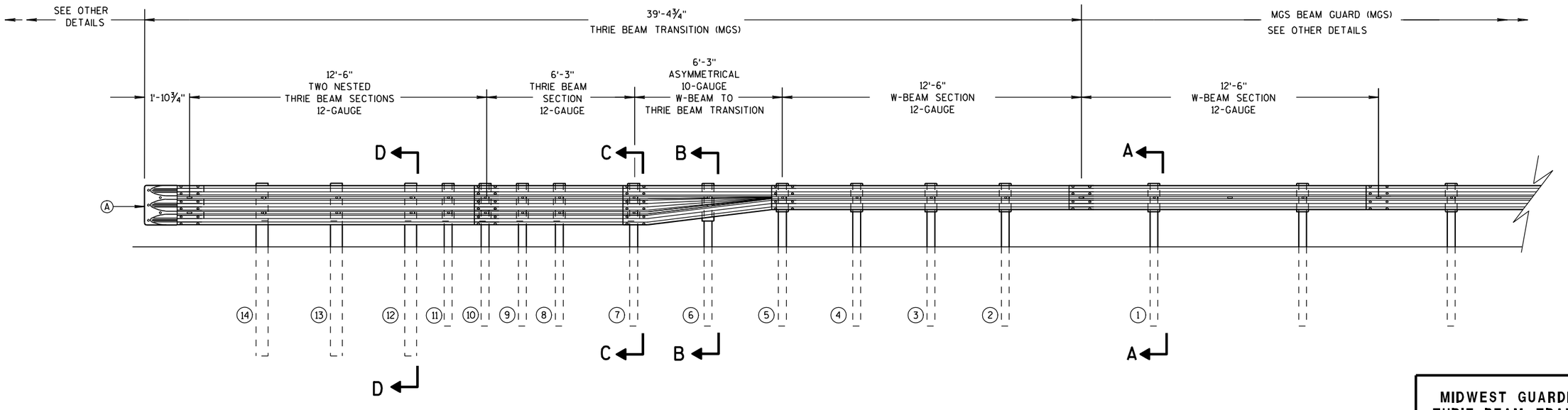
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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



PLAN VIEW



ELEVATION VIEW

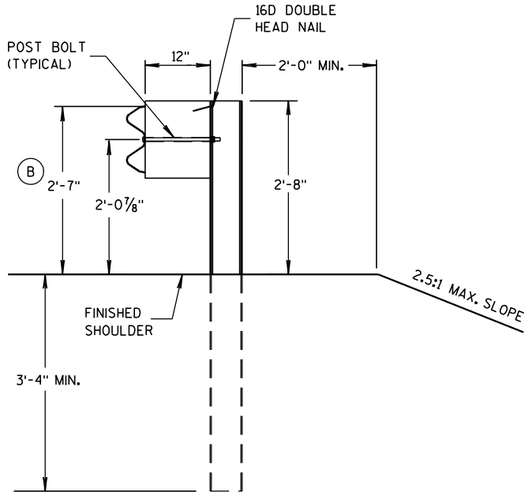
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 45-3a

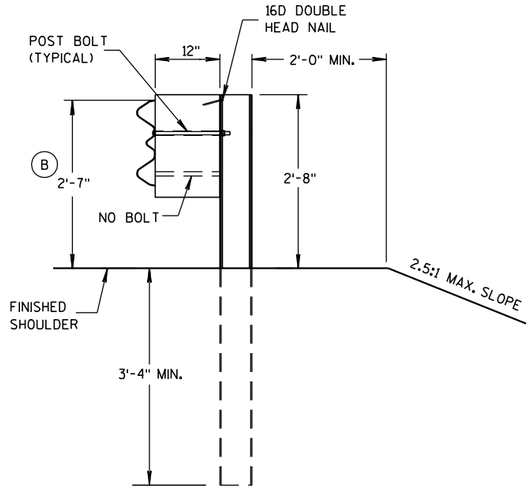
GENERAL NOTES

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



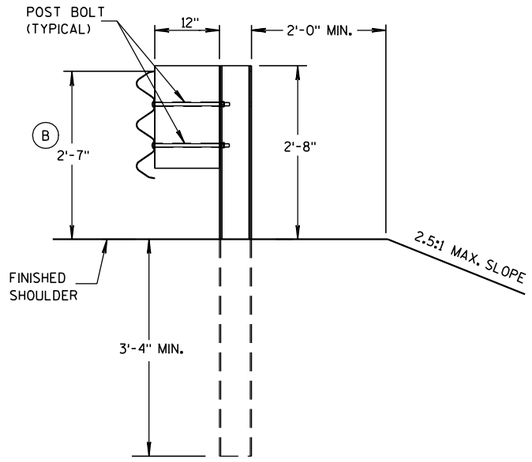
SECTION A-A

POSTS 1-5



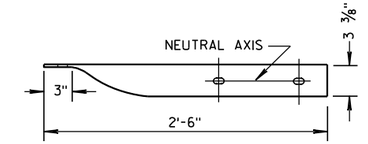
SECTION B-B

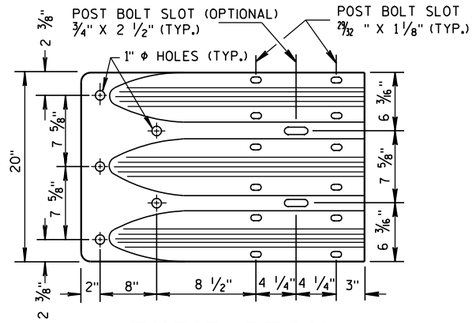
POST 6



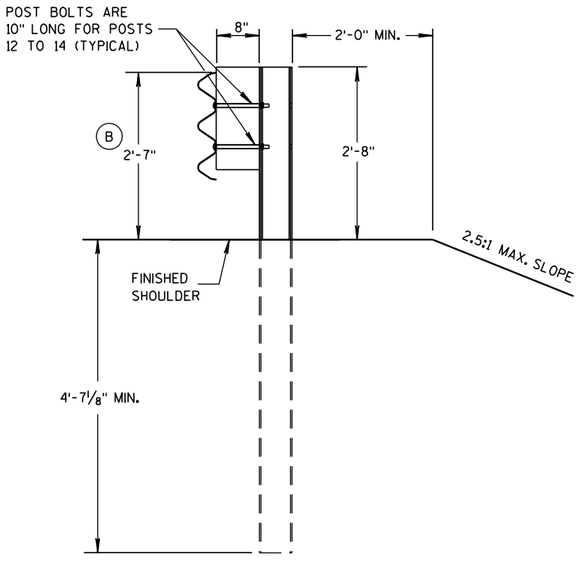
SECTION C-C

POSTS 7-11



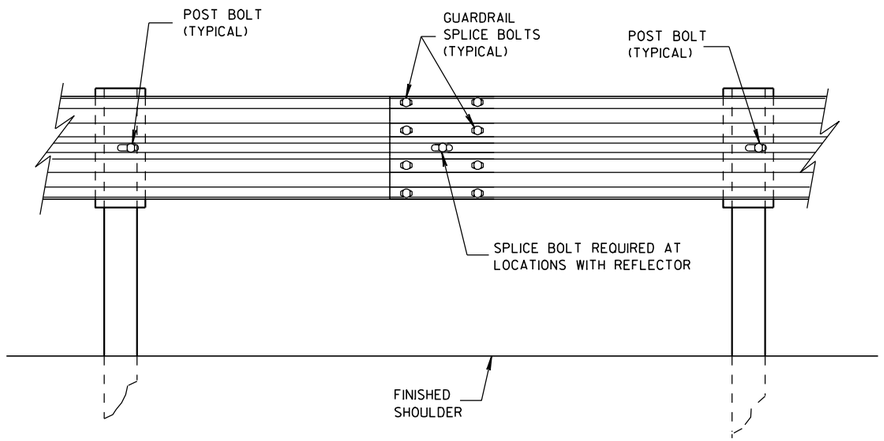


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-14



SPLICE DETAIL

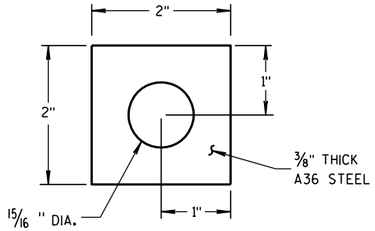
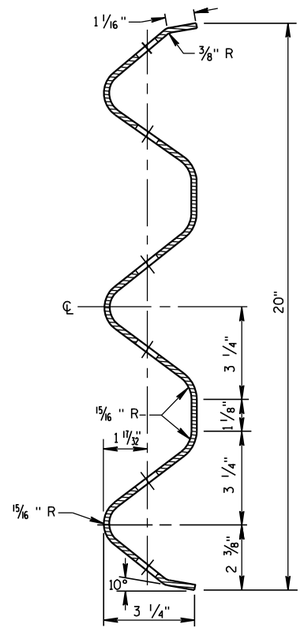


PLATE WASHER DETAIL

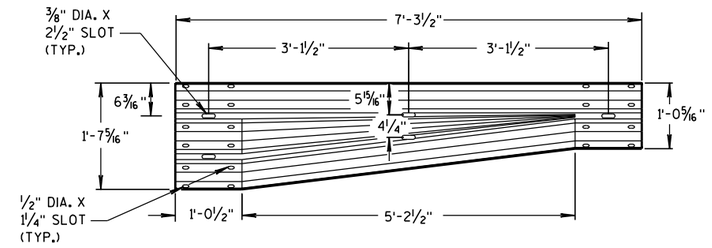


SECTION THRU THRIE BEAM RAIL ELEMENT

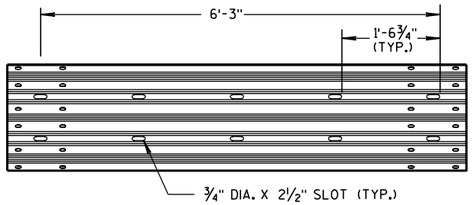
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

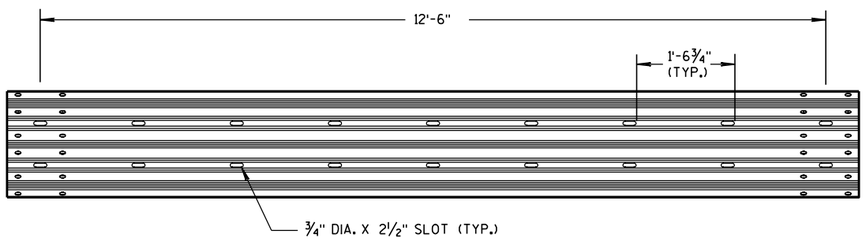
6
S.D.D. 14 B 45-3b



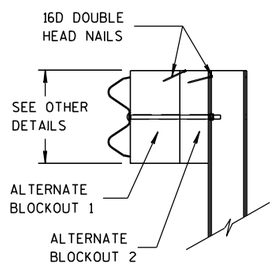
W-BEAM TO THRIE BEAM TRANSITION SECTION



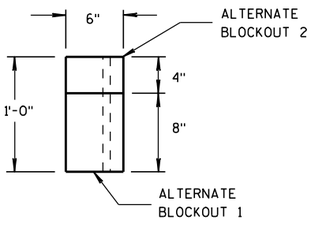
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

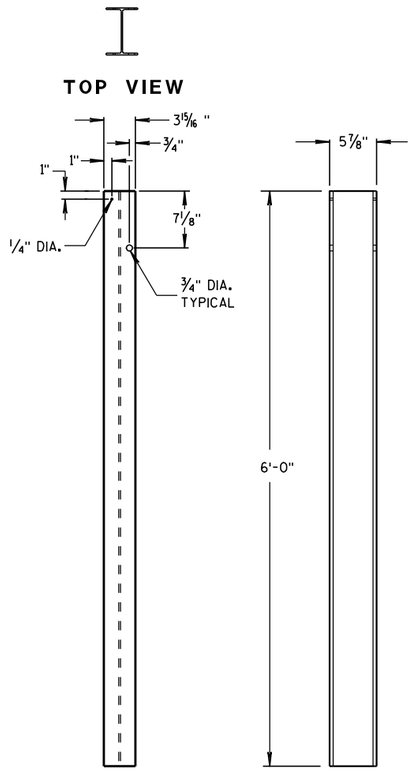


SIDE VIEW



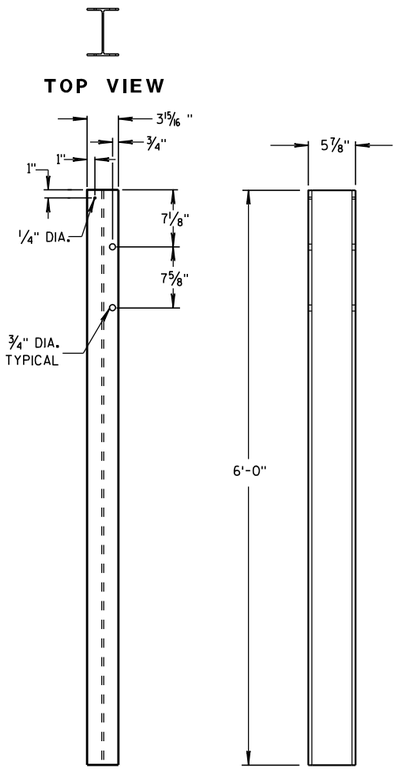
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



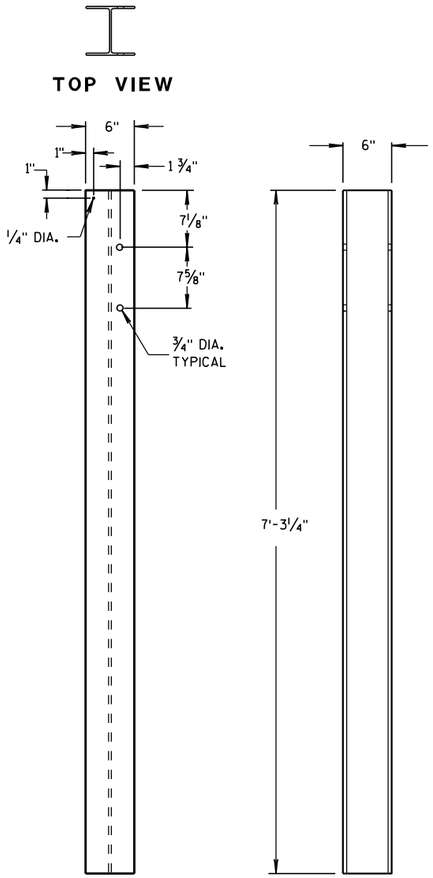
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5



FRONT VIEW SIDE VIEW

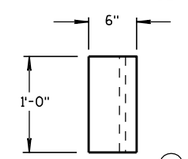
STEEL POSTS 6-11



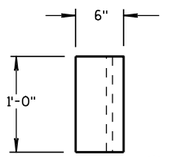
FRONT VIEW SIDE VIEW

STEEL POSTS 12-14

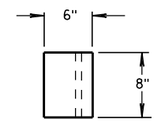
(1) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.



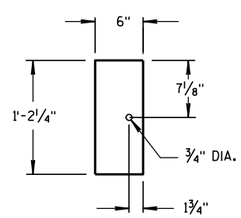
TOP VIEW (1)



TOP VIEW (1)

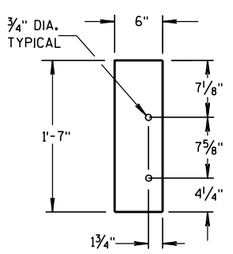


TOP VIEW



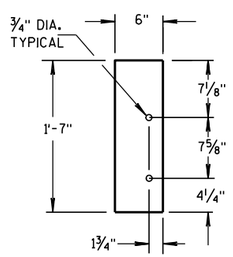
FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-11



FRONT VIEW

BLOCKOUT POSTS 12-14

STEEL POST SIZES

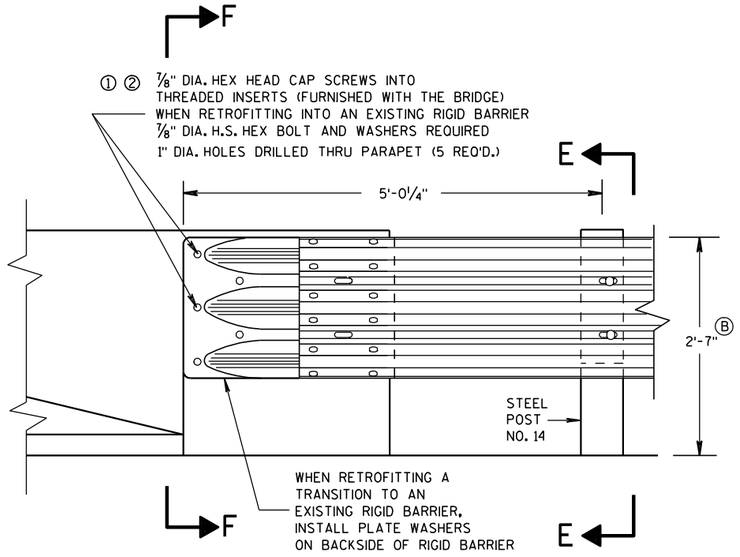
POST NUMBER	SECTION TYPE	LENGTH
1	W6x9	72"
2	W6x9	72"
3	W6x9	72"
4	W6x9	72"
5	W6x9	72"
6	W6x9	72"
7	W6x9	72"
8	W6x9	72"
9	W6x9	72"
10	W6x9	72"
11	W6x9	72"
12	W6x15	87 1/8"
13	W6x15	87 1/8"
14	W6x15	87 1/8"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

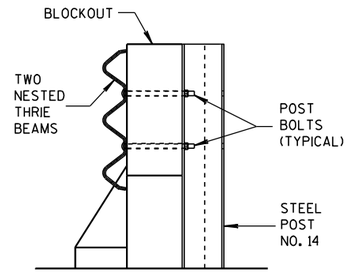
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 45-3c



FRONT VIEW



SECTION E-E

GENERAL NOTES

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

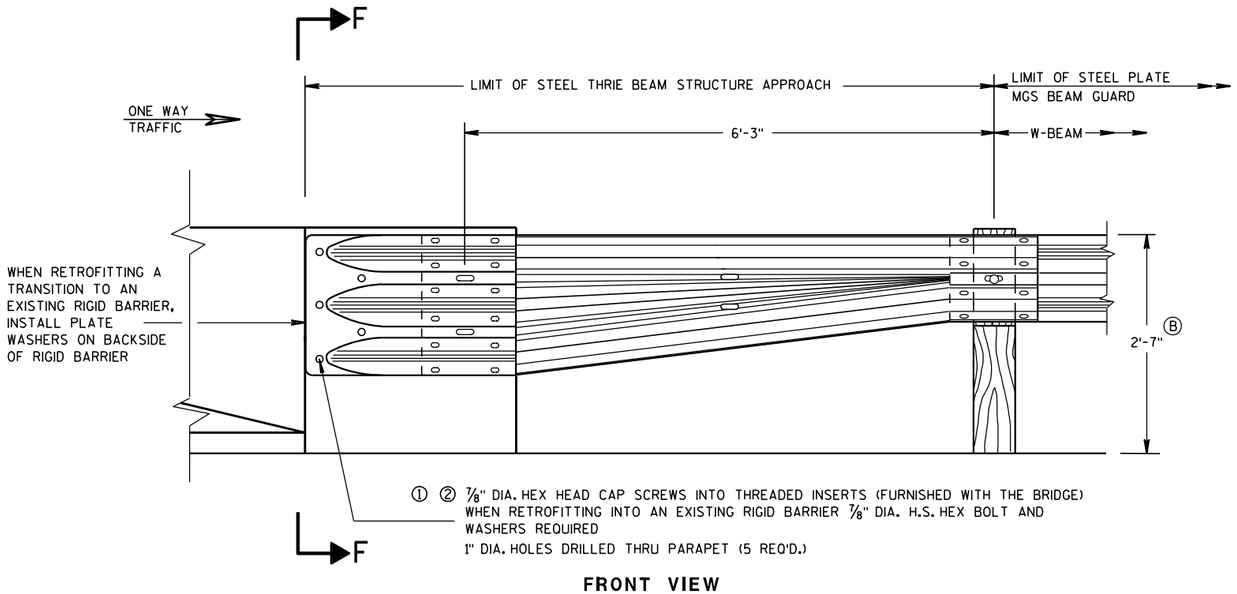
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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 CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

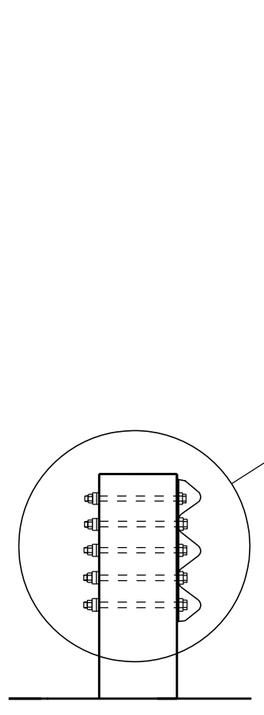
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

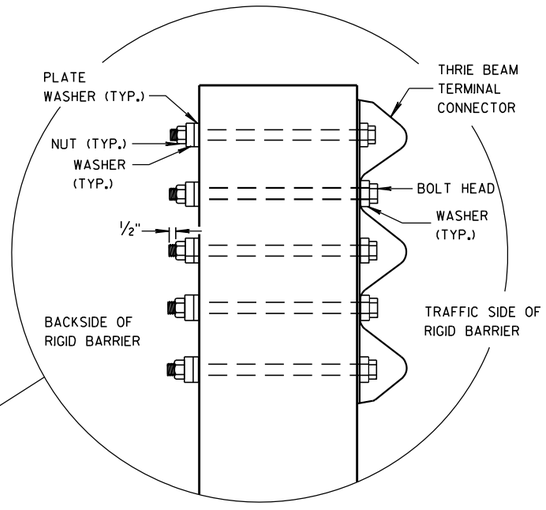
THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



FRONT VIEW



SECTION F-F



W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

/S/ Jerry H. [illegible] — ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

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S.D.D. 14 B 45-3d

GENERAL NOTES

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

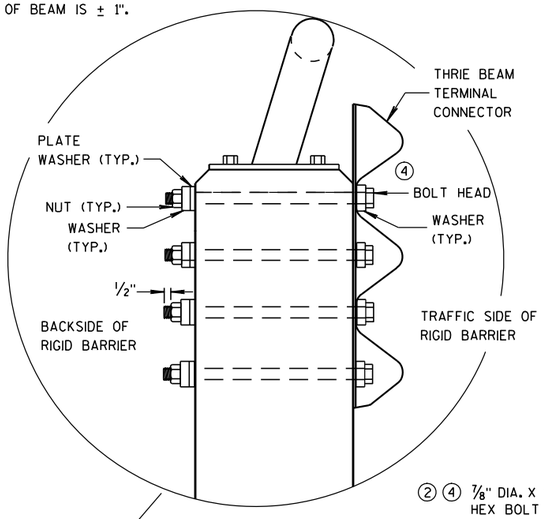
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

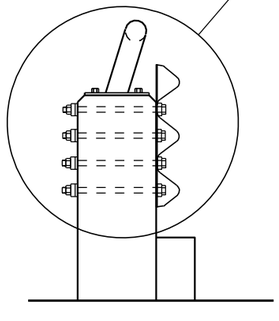
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

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

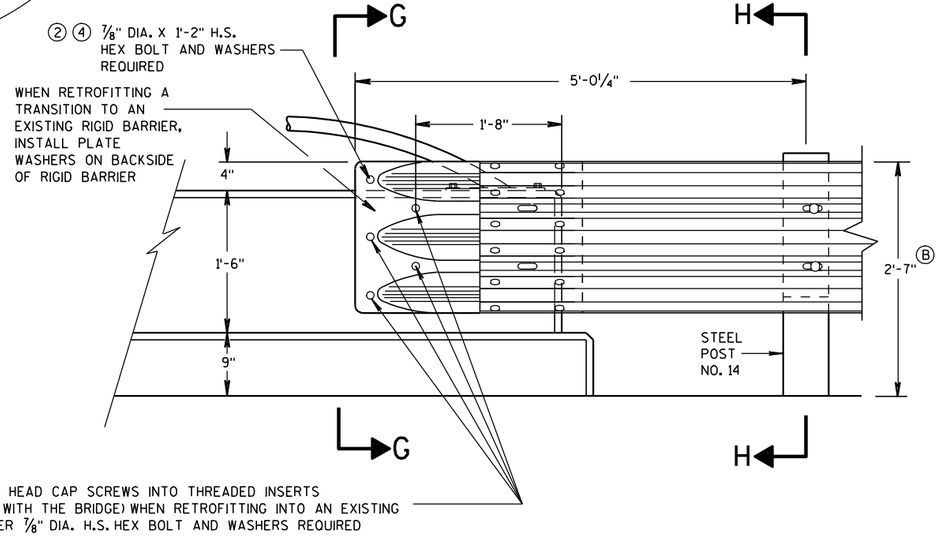
④ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".

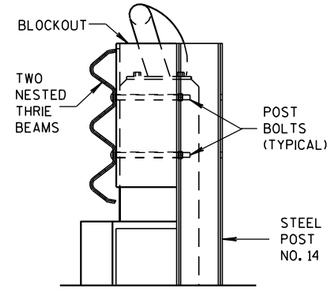




SECTION G-G

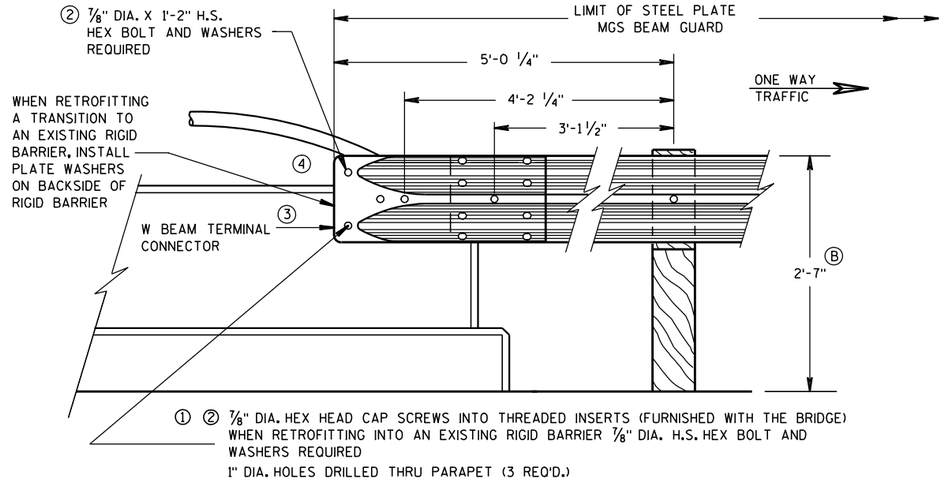


FRONT VIEW



SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-31-2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

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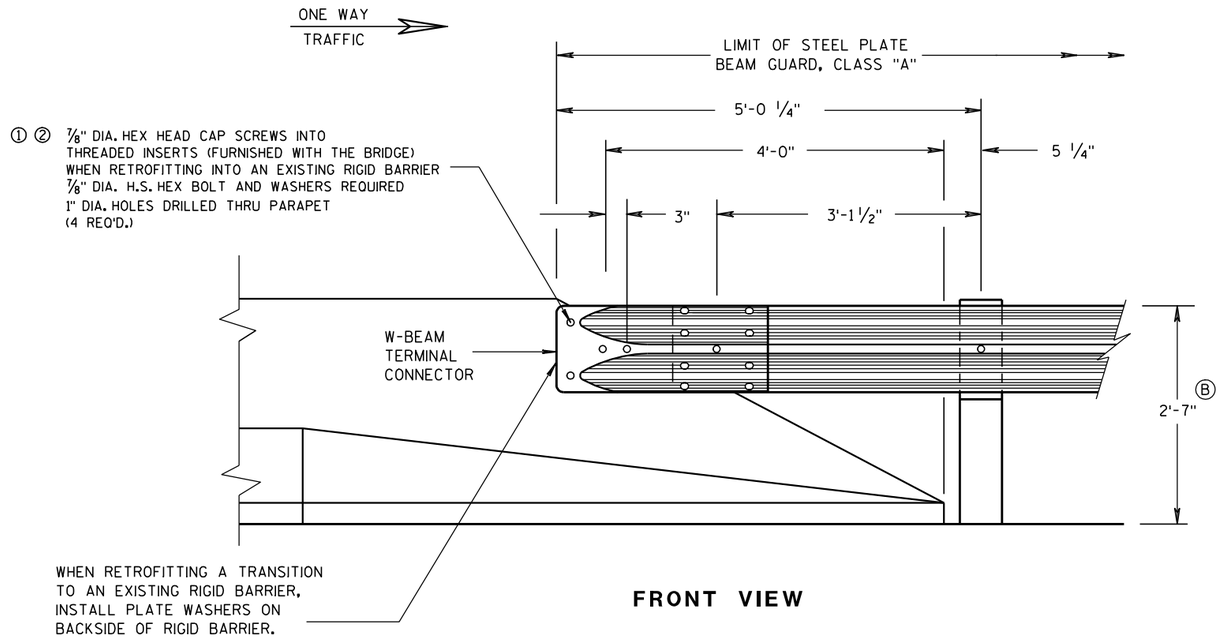


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

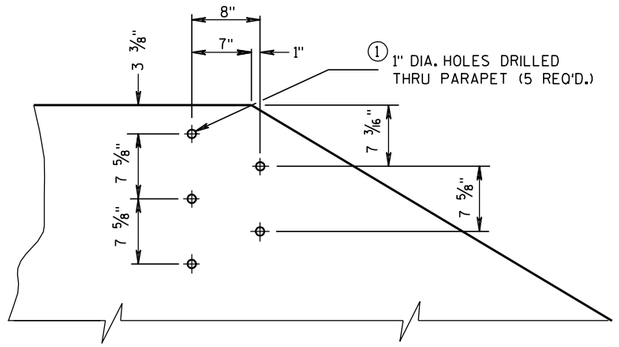
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

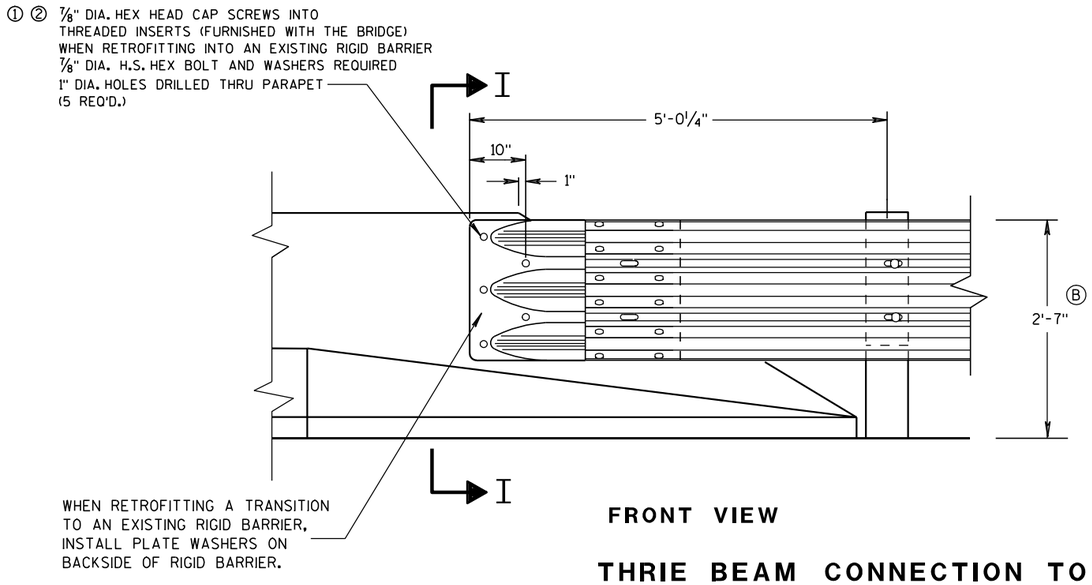
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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 CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

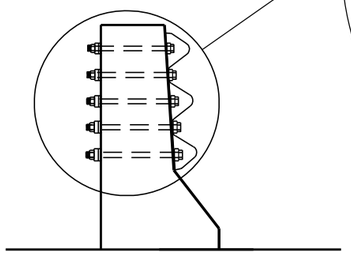
Ⓑ TOLERANCE FOR TOP OF BEAM IS ± 1".



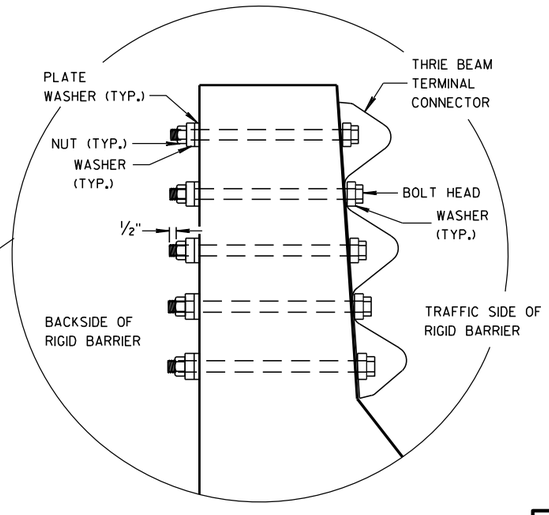
DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012 — DATE

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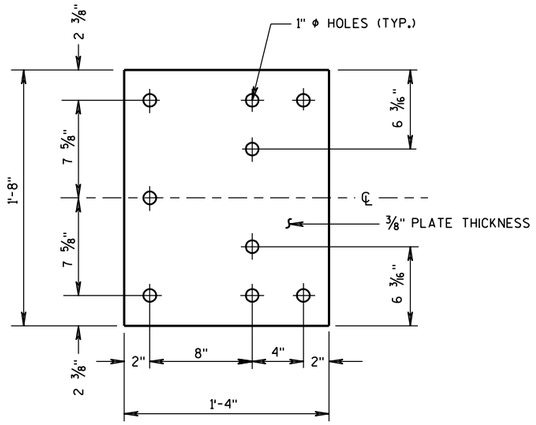
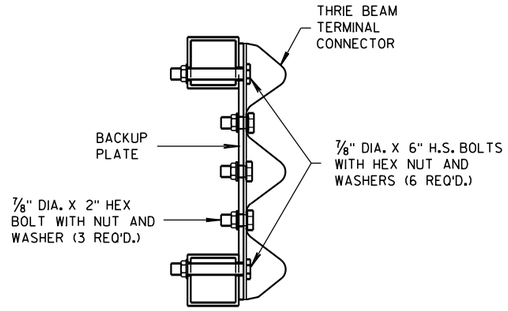
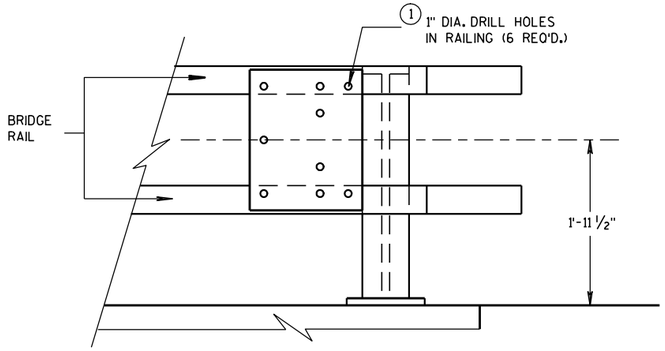
S.D.D. 14 B 45-3f



BACK-UP PLATE DETAIL



SECTION J-J

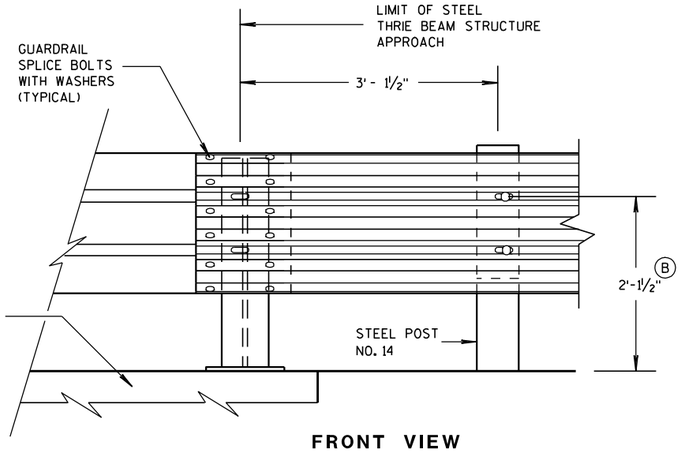


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

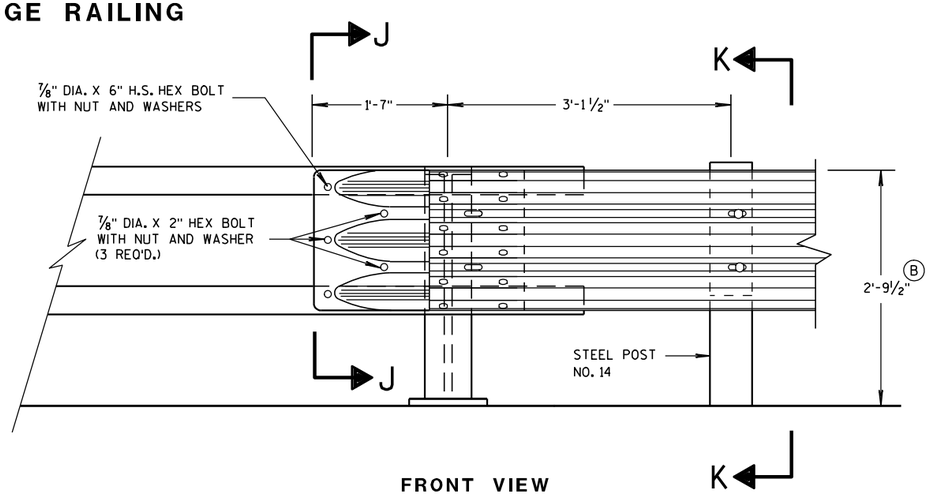
1. DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

B. TOLERANCE FOR TOP OF BEAM IS ± 1".

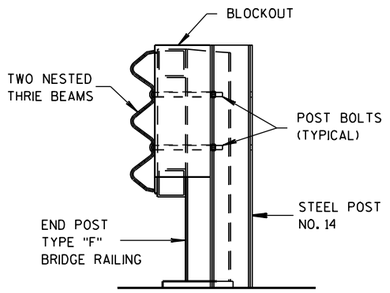


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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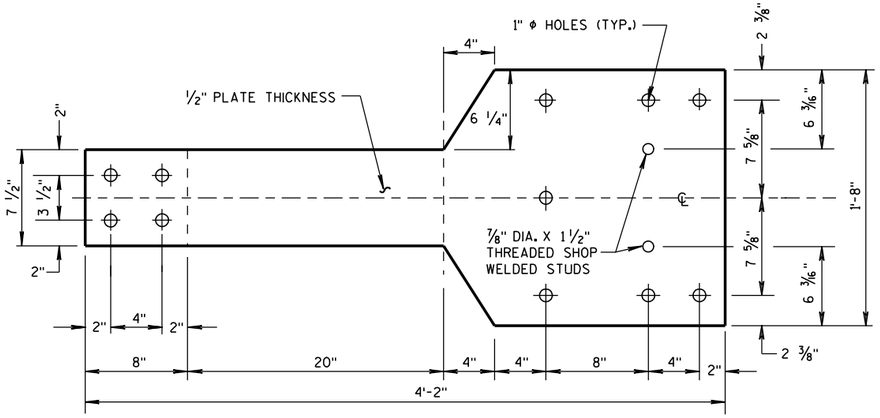
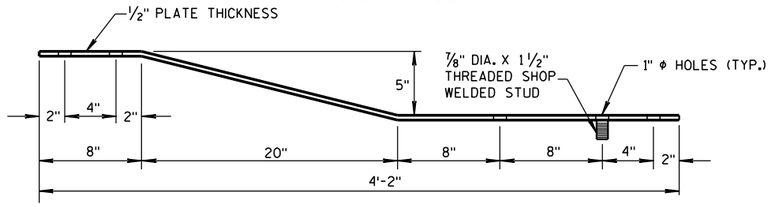
GENERAL NOTES

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

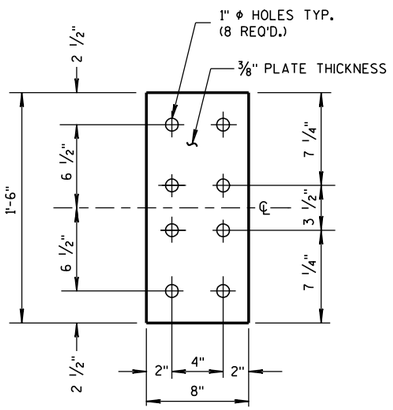


FRONT VIEW



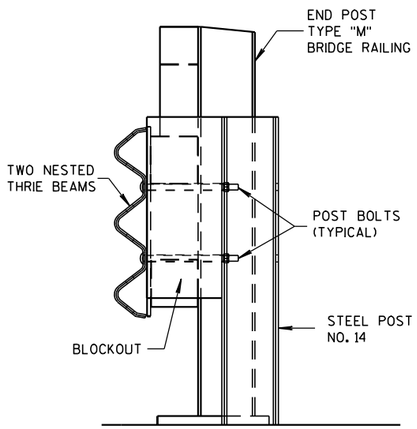
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

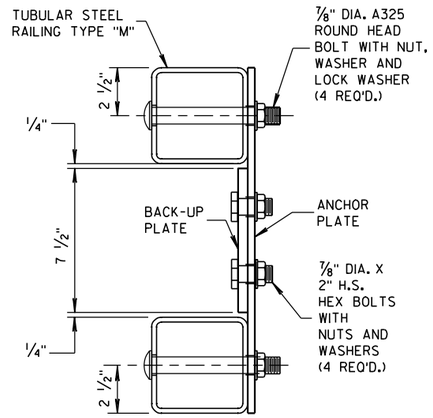


FRONT VIEW

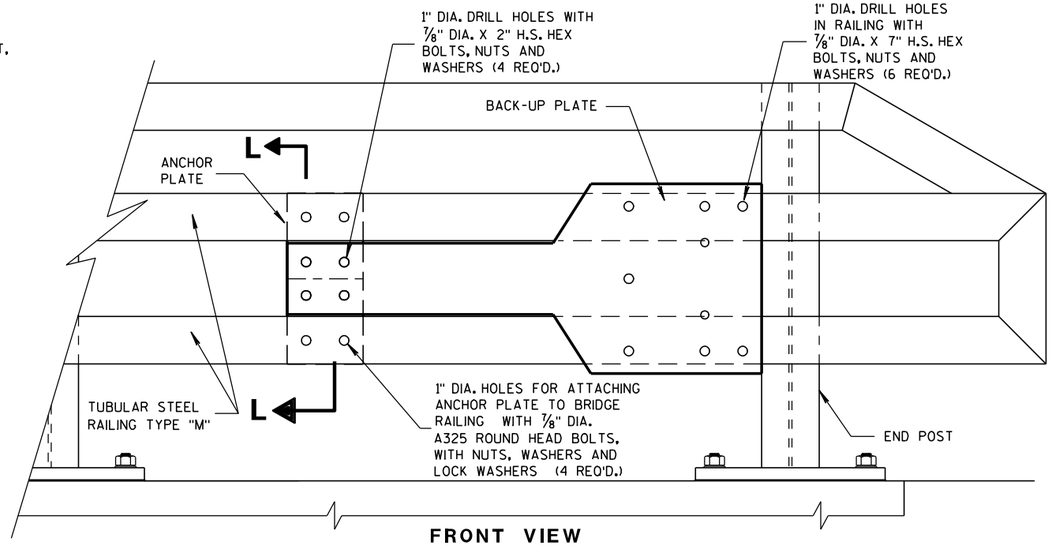
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

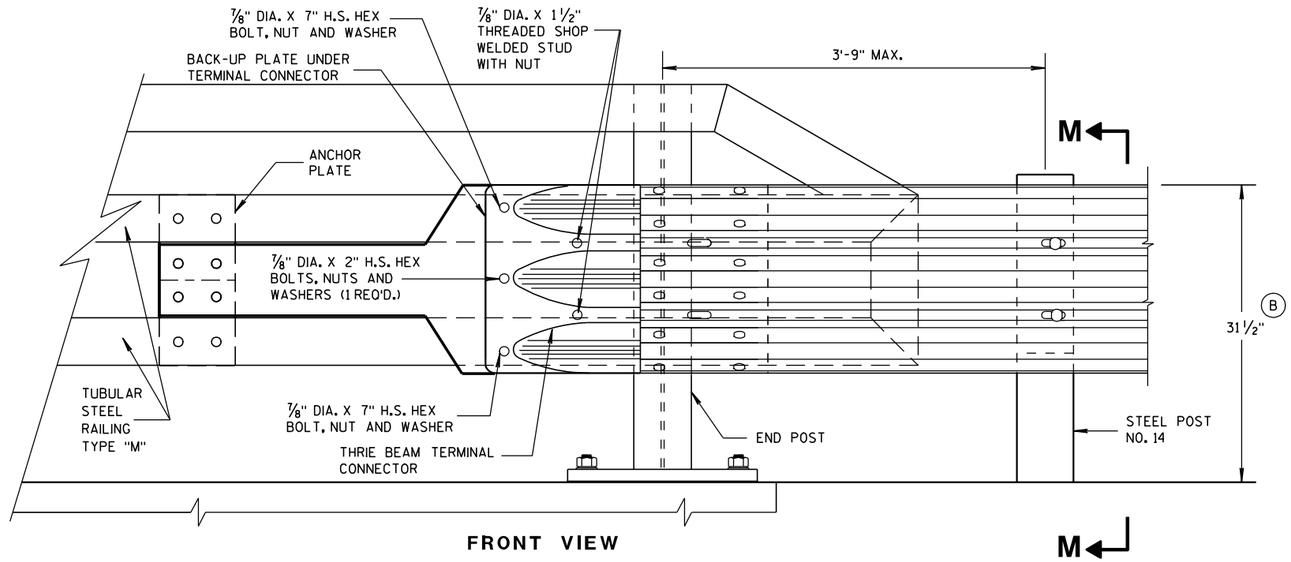


SECTION L-L

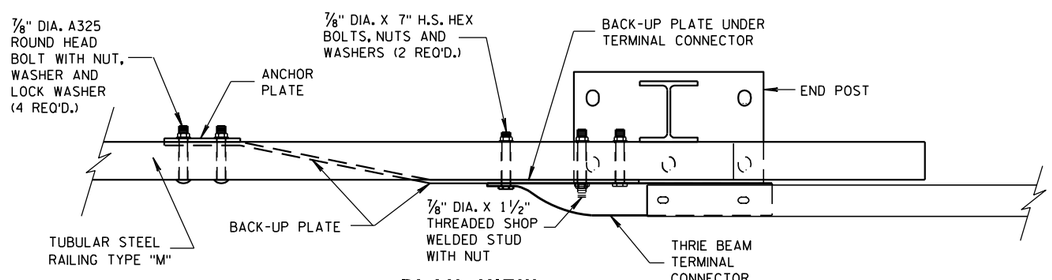


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-31-2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

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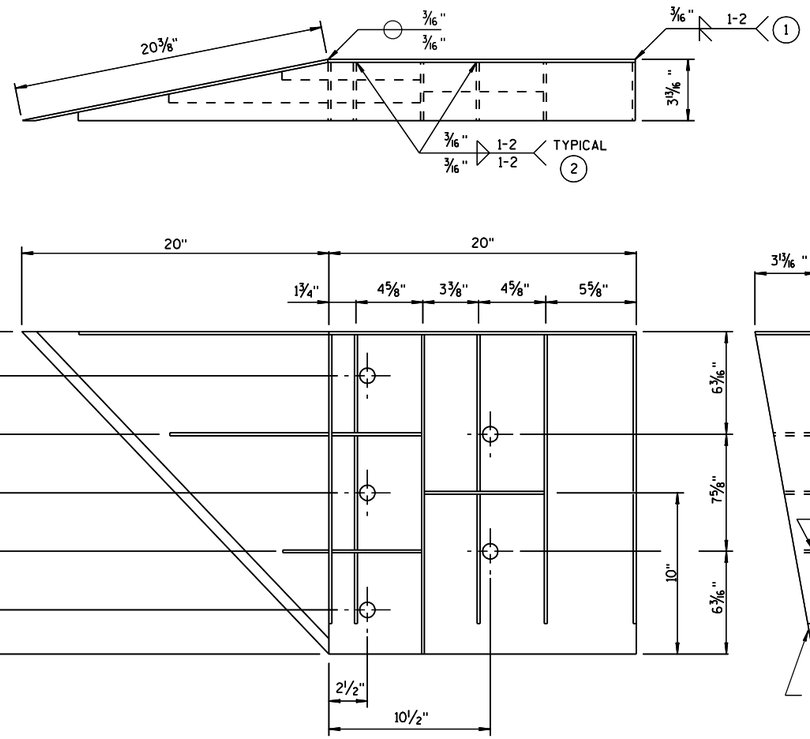
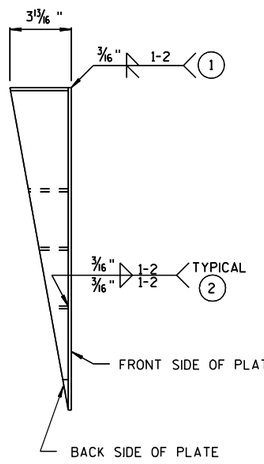




WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

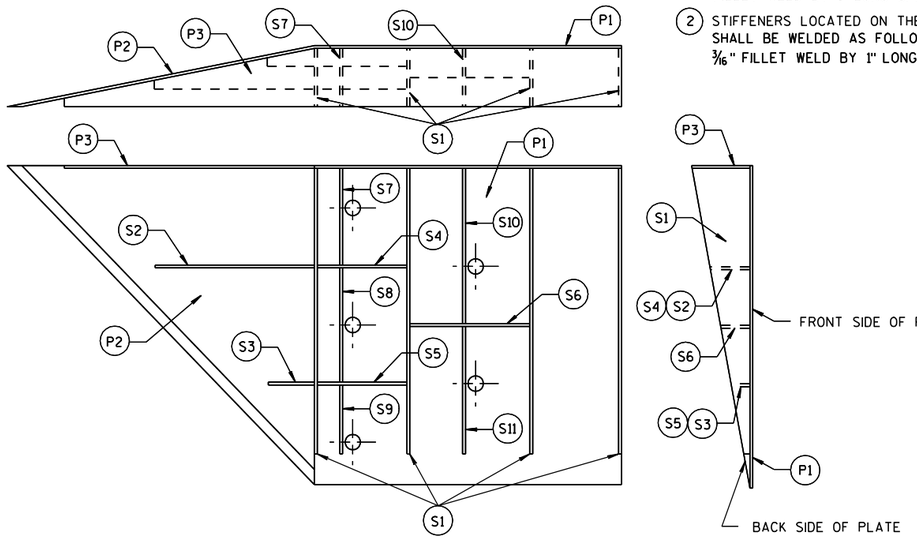


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE ⅜" THICK.

ALL STIFFENERS ARE ¼" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

① STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND ⅜" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

② STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
⅜" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	⅜"
P2	1		20" x 20" x 28⁹⁄₁₆"	⅜"
P3	1		39" x 3⅝" x 20" x 19⁵⁄₁₆"	⅜"
S1	4		18⁷⁄₁₆" x 3⅝" x 18¾"	¼"
S2	1		10¼" x 2⁷⁄₁₆" x 10⅜" x ½"	¼"
S3	1		3" x 1⁹⁄₁₆" x 3⅛" x ½"	¼"
S4	1		6⅛" x 2⁷⁄₁₆"	¼"
S5	1		6⅛" x 1⁹⁄₁₆"	¼"
S6	1		7¾" x 1¾"	¼"
S7	1		2⁹⁄₁₆" x 6" x 3⅝" x 5⅞"	¼"
S8	1		1⁵⁄₃₂" x 7½" x 2½" x 7⅜"	¼"
S9	1		6¹⁄₁₆" x 6⅜" x 1³⁄₃₂"	¼"
S10	1		1⅞" x 9⅞" x 3⅝" x 9¹¹⁄₁₆"	¼"
S11	1		8½" x 8¾" x 1¹³⁄₁₆"	¼"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

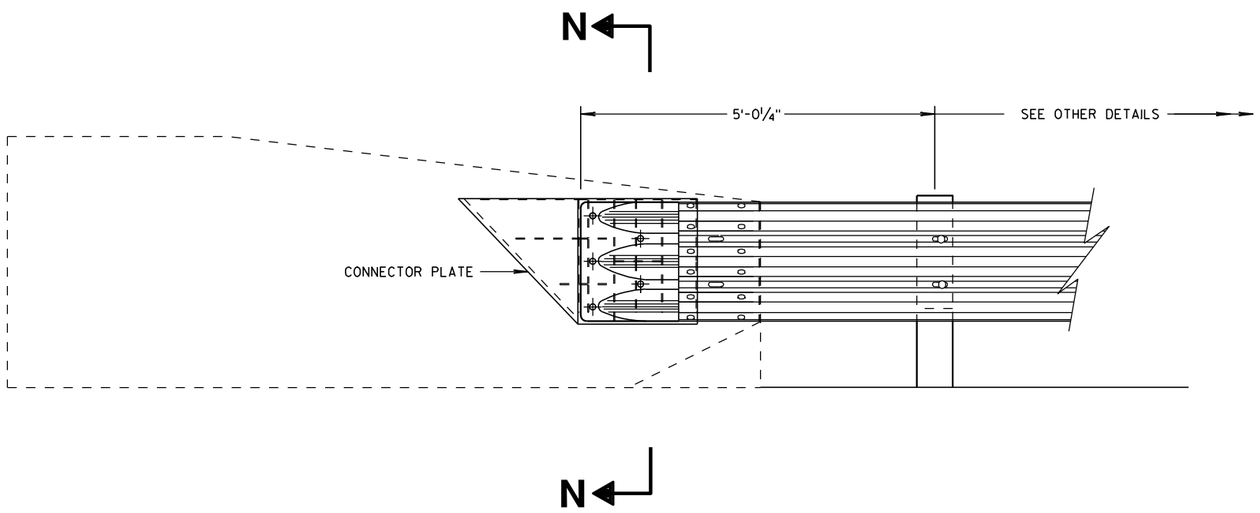
APPROVED
8/31/2012 DATE
/S/ Jerry H ---- ROADWAY STANDARDS ENGINEER
FHWA

6

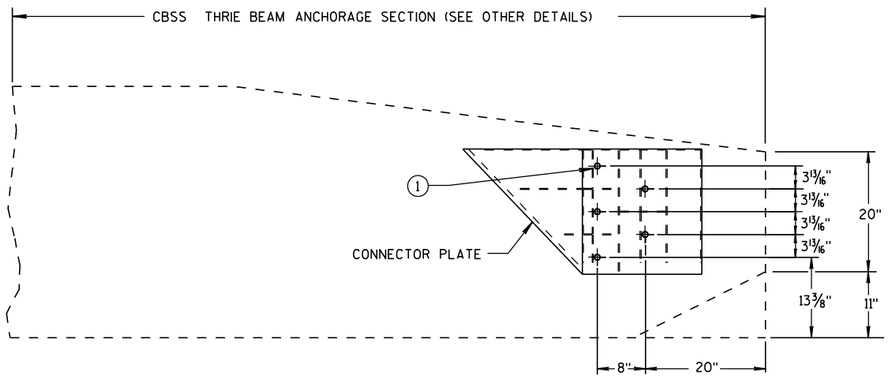
S.D.D. 14 B 45-3i

6

S.D.D. 14 B 45-3i



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER

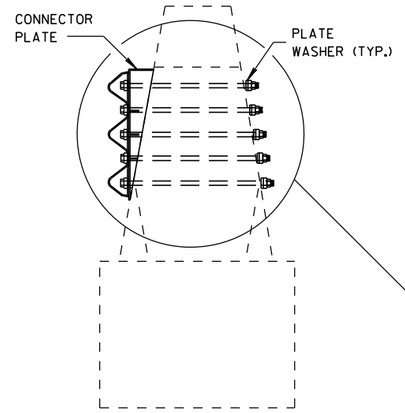


SINGLE SLOPE CONNECTION PLATE PLACEMENT

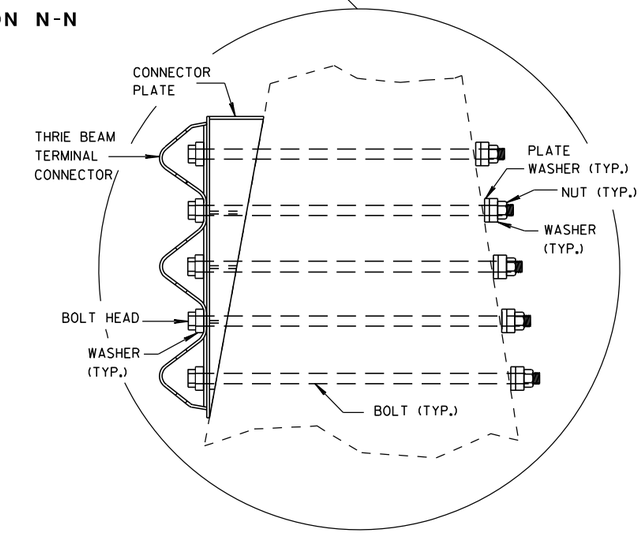
GENERAL NOTES

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

(1) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

FHWA

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S.D.D. 14 B 45-3j

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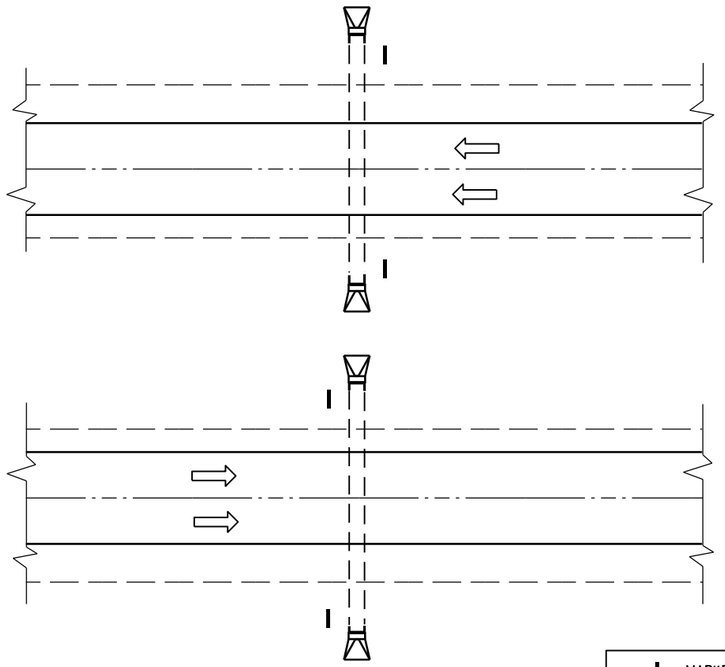
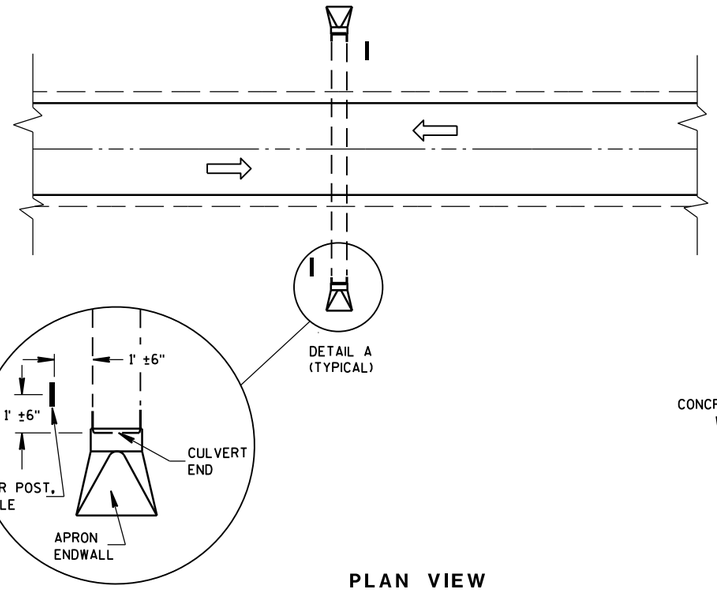
S.D.D. 14 B 45-3j



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

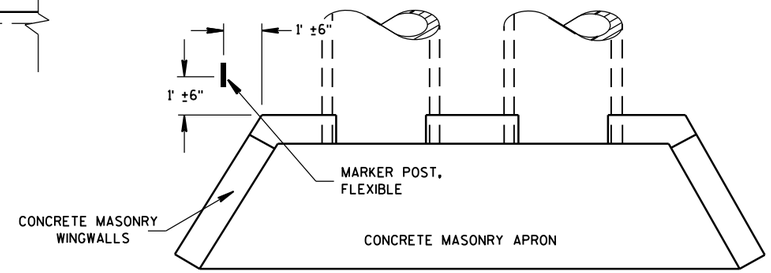
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

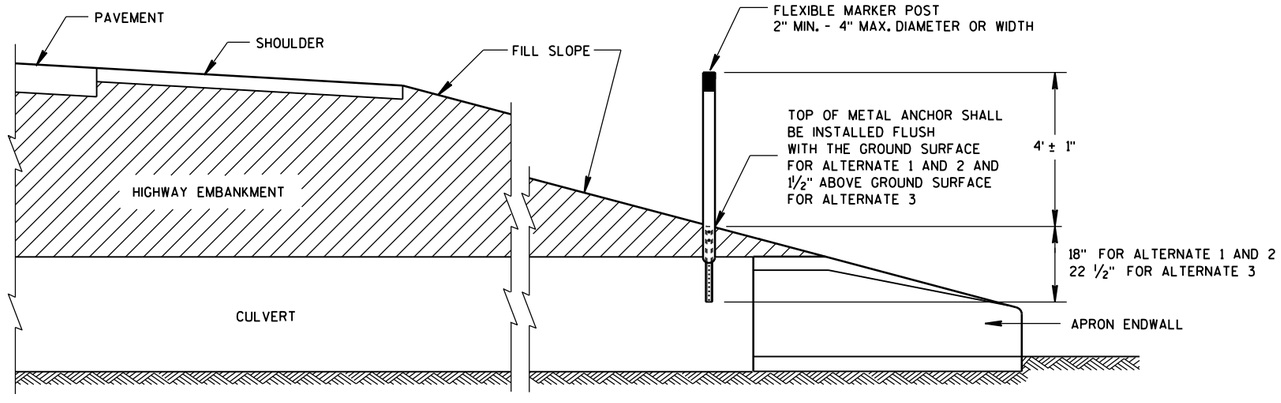
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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S.D.D. 15 A 3-2a

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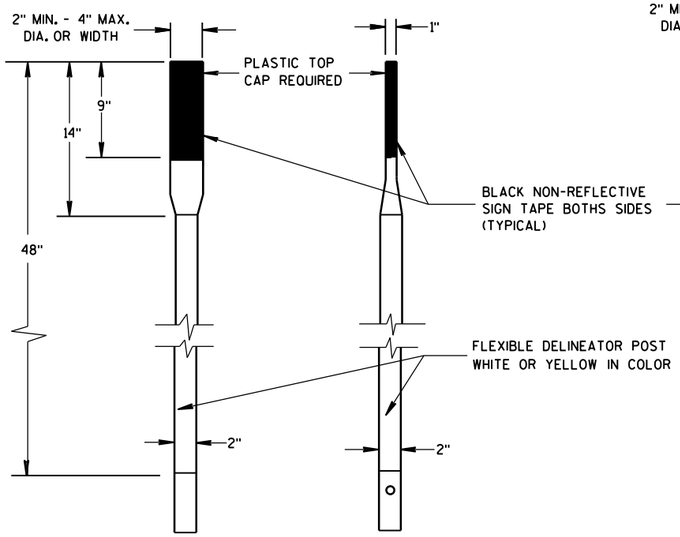
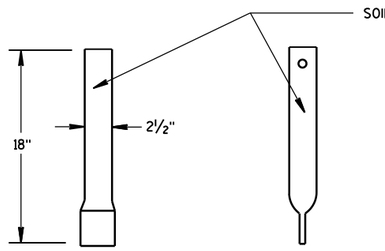
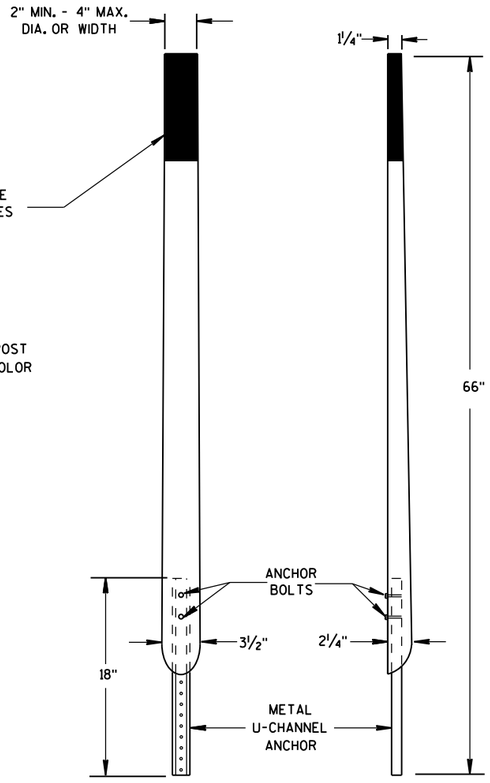
S.D.D. 15 A 3-2a





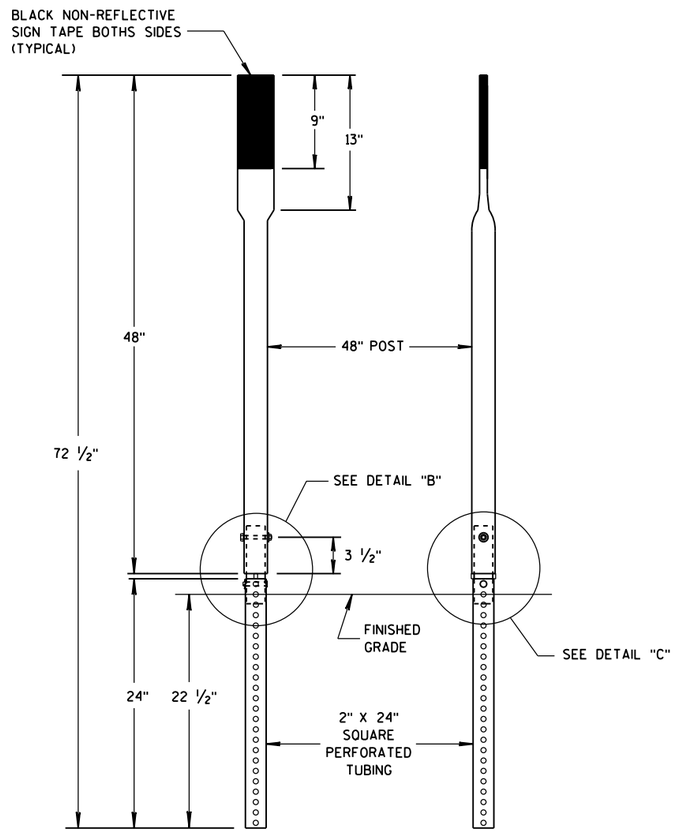
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

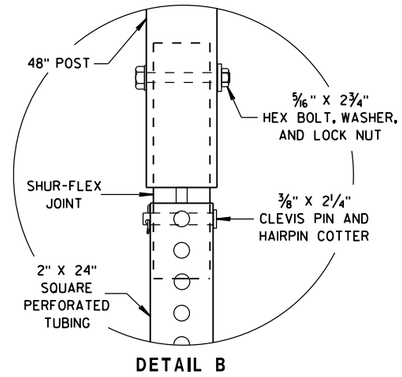
ALTERNATE 2



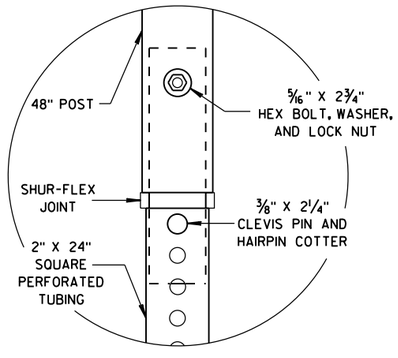
FRONT VIEW SIDE VIEW

ALTERNATE 3

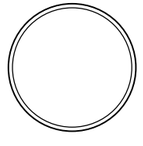
FLEXIBLE MARKER POSTS



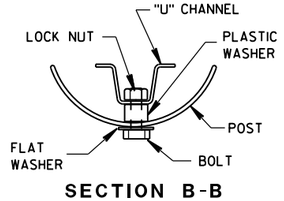
DETAIL B



DETAIL C



SECTION A-A



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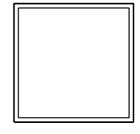
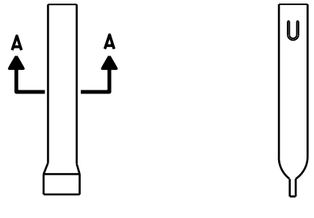
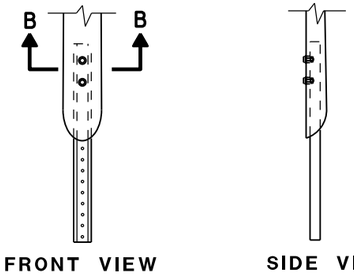


SECTION C-C



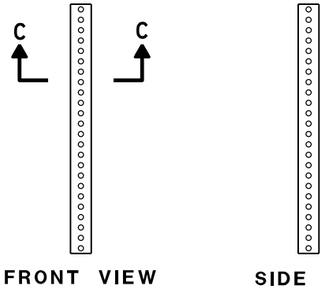
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

ALTERNATE 2



FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

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S.D.D. 15 A 3-2b

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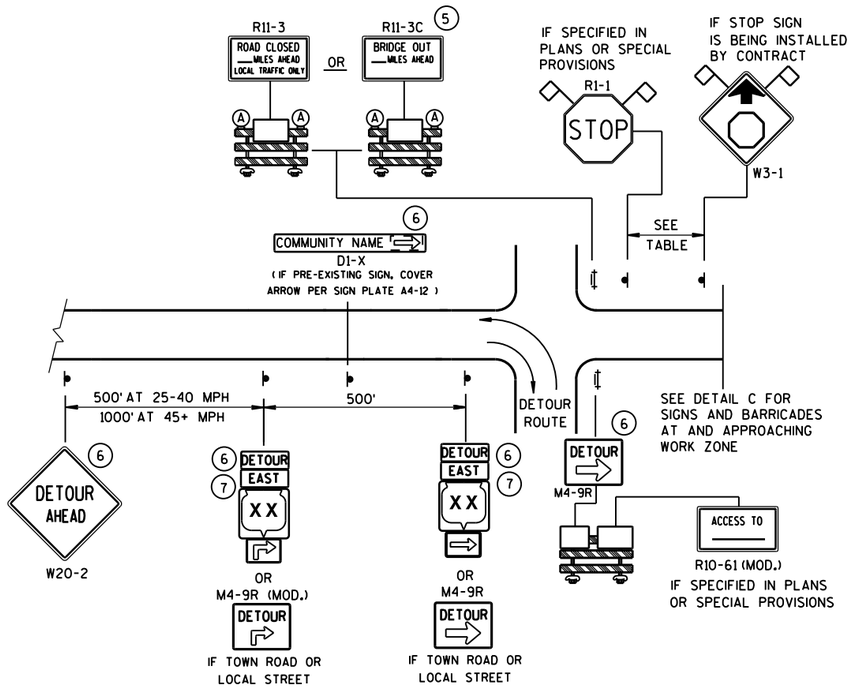
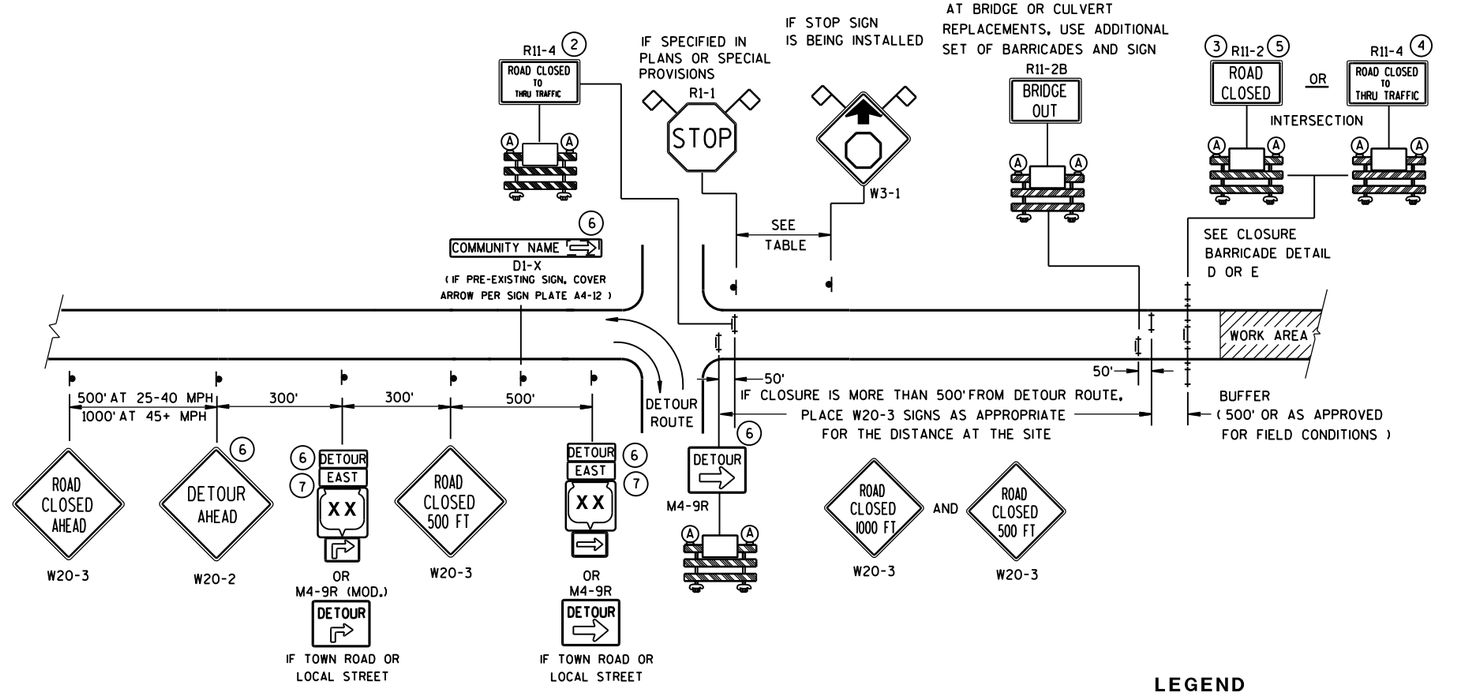
S.D.D. 15 A 3-2b



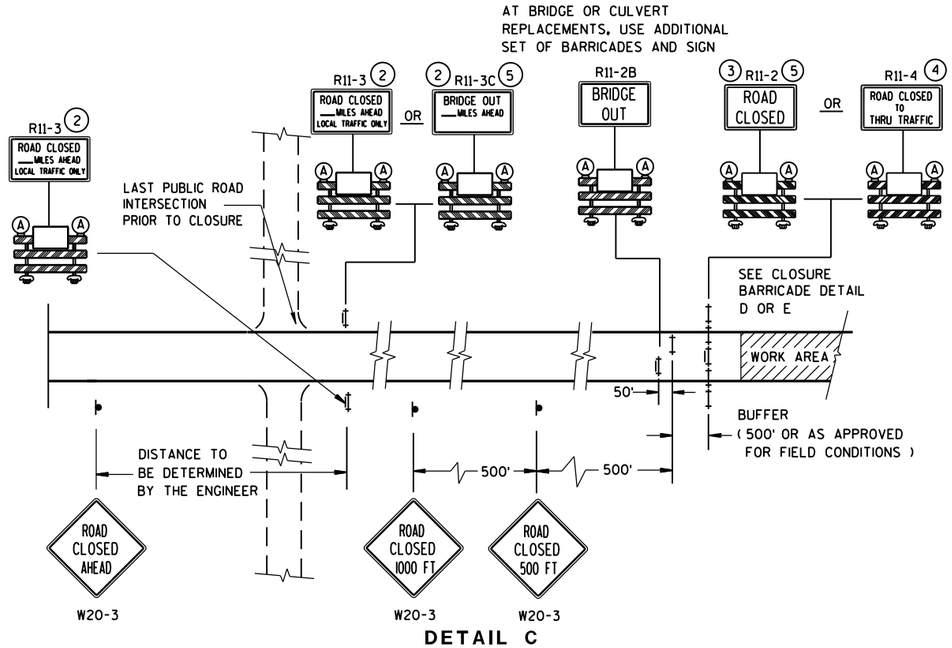
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

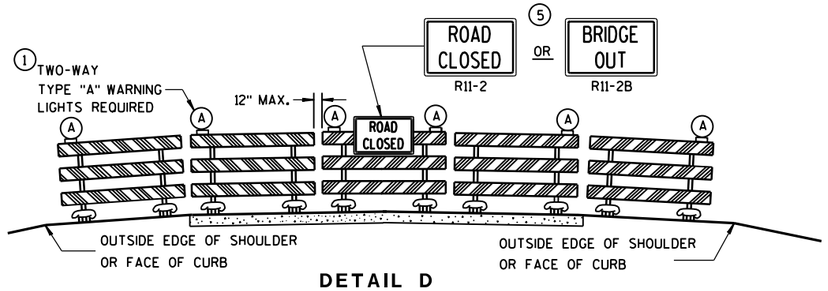
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

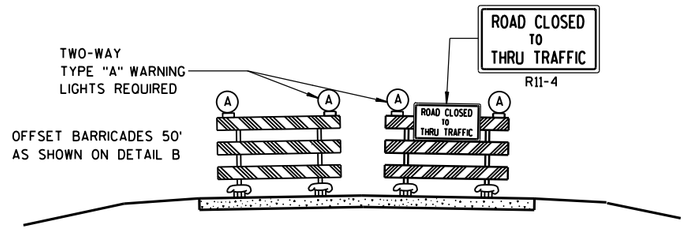
S.D.D. 15 C 2-5a



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.

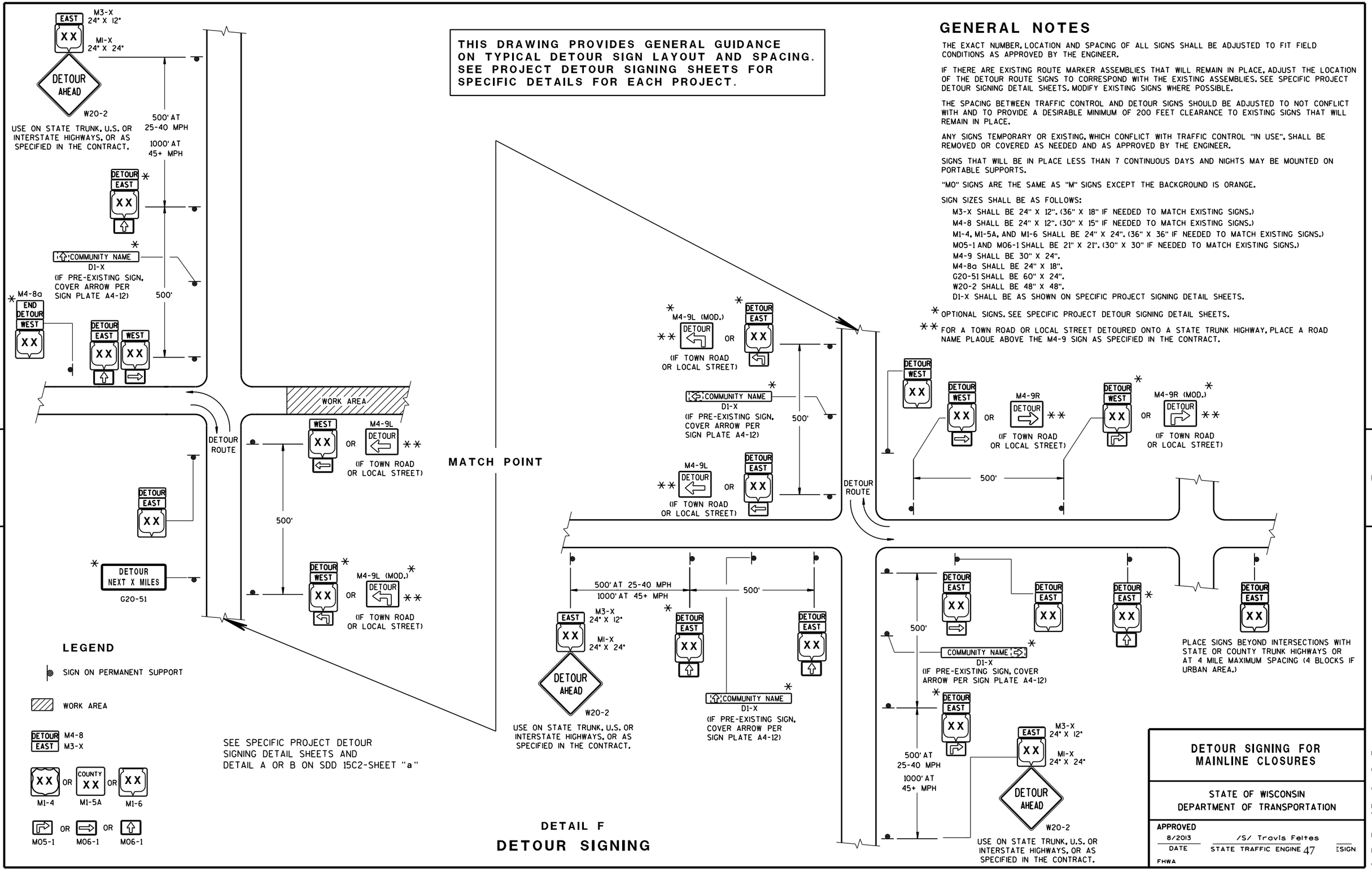
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

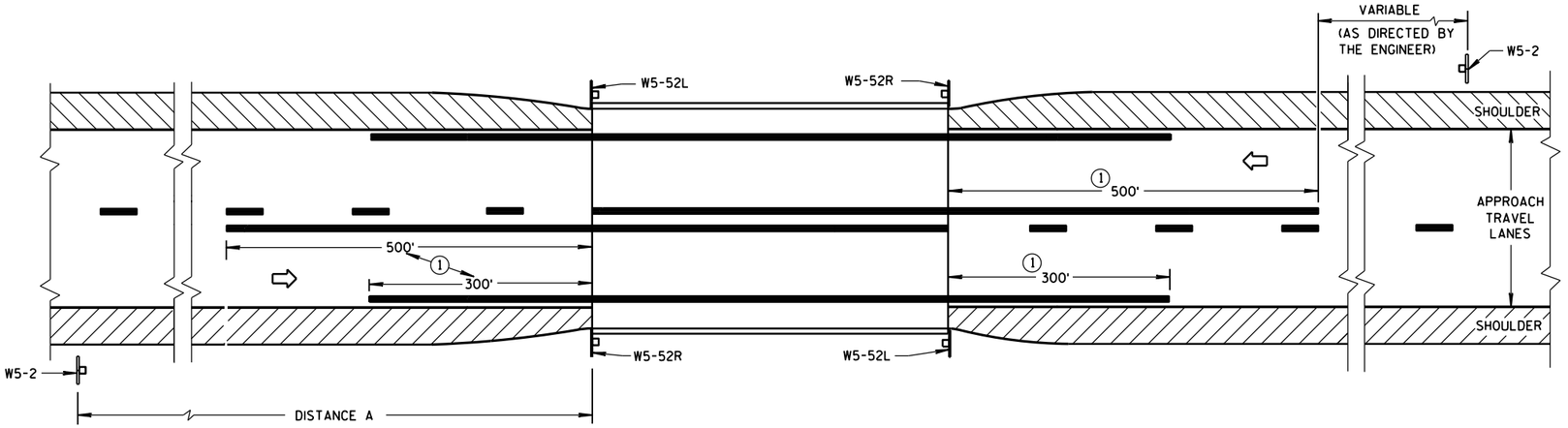
DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

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



GENERAL NOTES

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

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

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

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

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

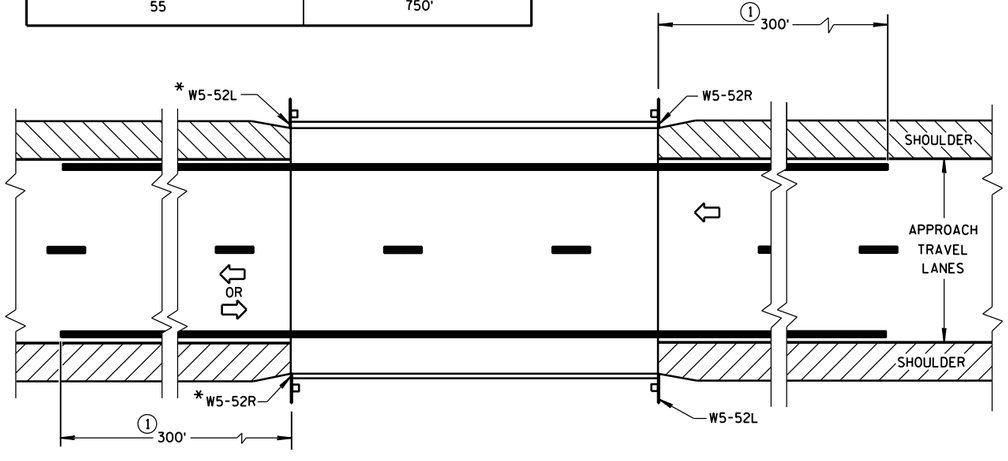
DISTANCE TABLE

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

SITUATION 1

WARRANTING CRITERIA:

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

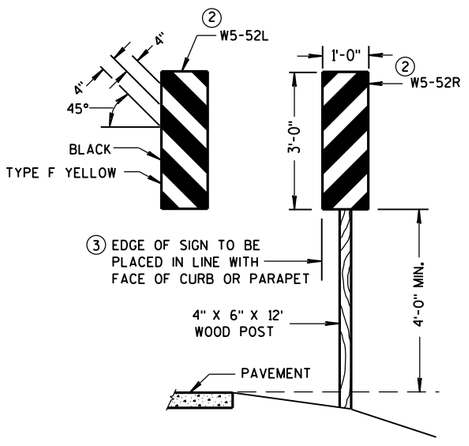


*OMIT ON ONE-WAY TRAVELLED WAYS

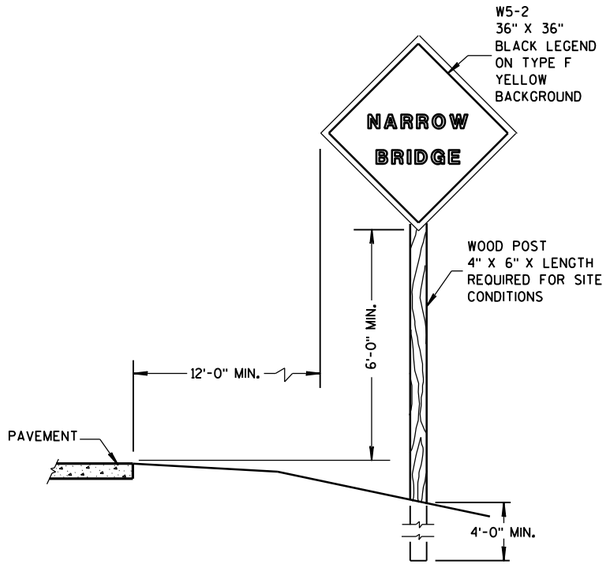
SITUATION 2

WARRANTING CRITERIA:

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



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING
FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

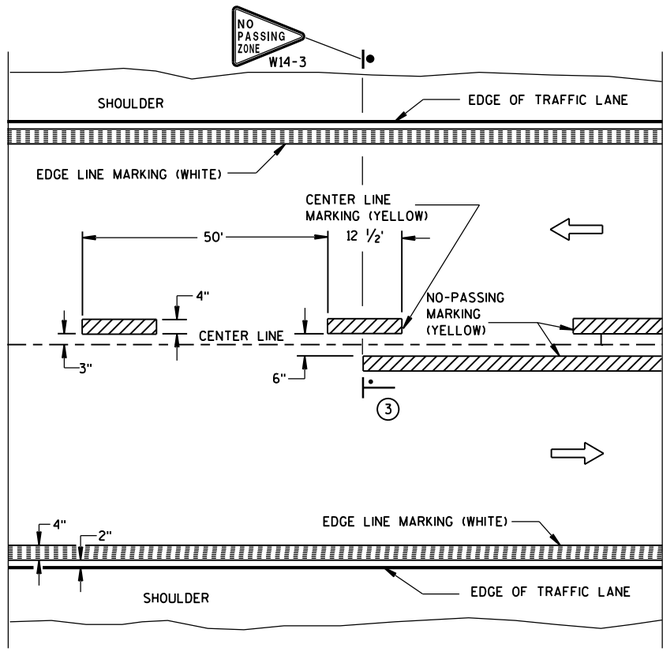
3-2014 DATE

/S/ Travis Feltes STATE TRAFFIC ENGINEER

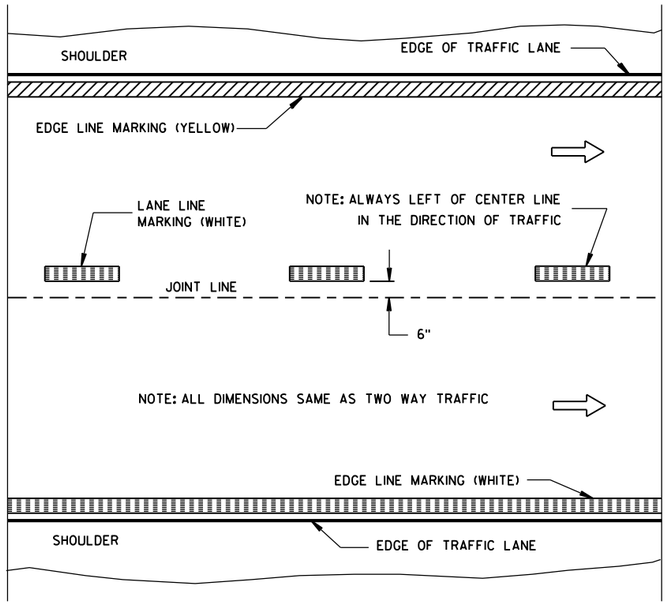
FHWA

6

S.D.D. 15 C 6-7

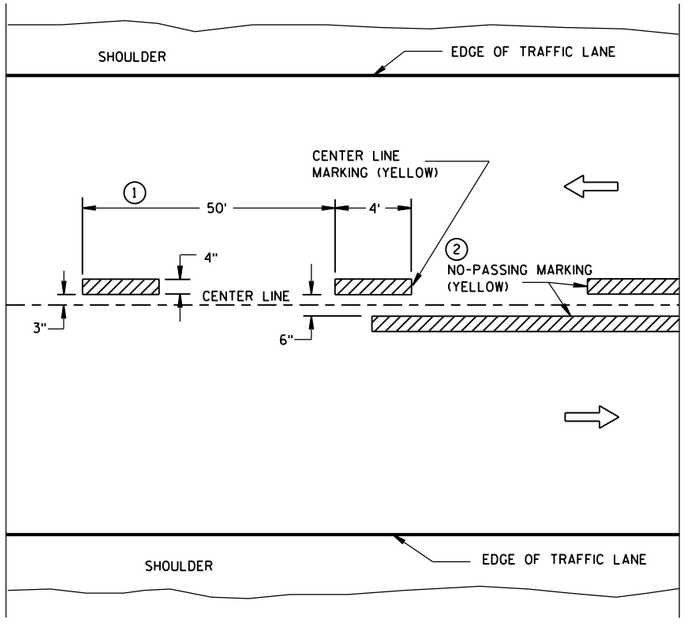


TWO WAY TRAFFIC

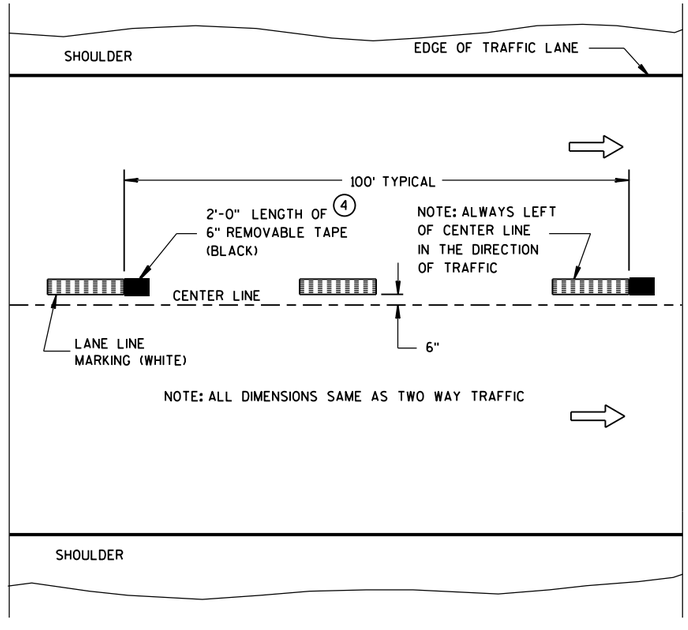


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

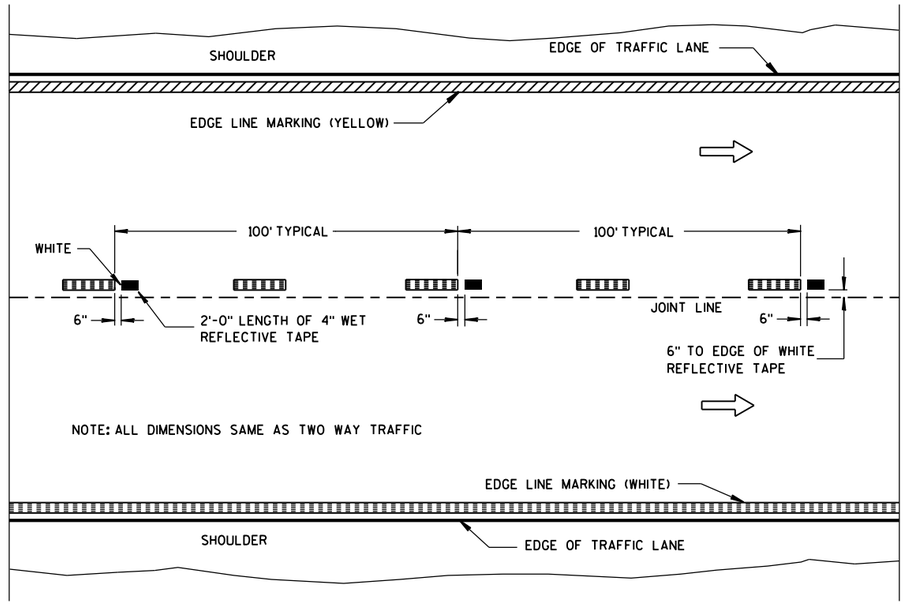
GENERAL NOTES

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

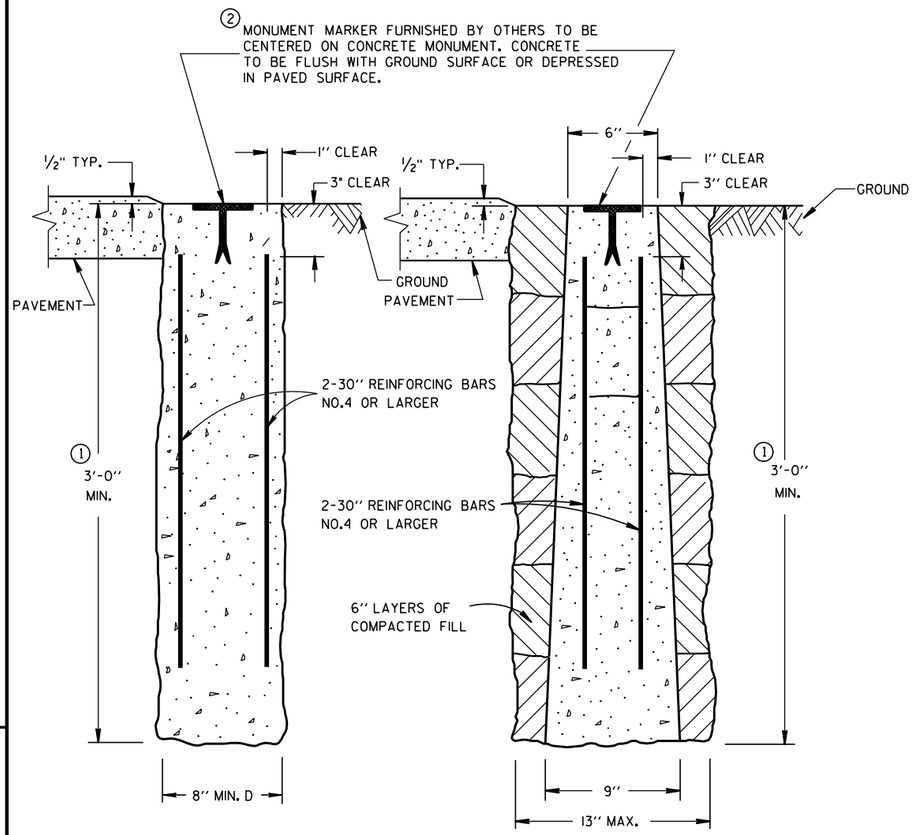
FHWA

6

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

6

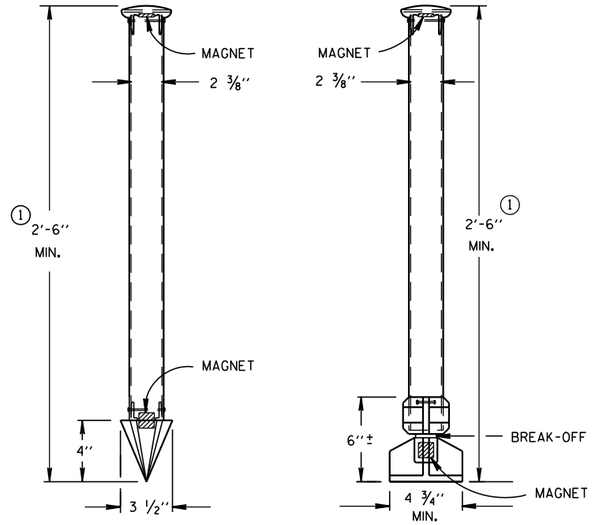
S.D.D. 15 C 8-16a



CAST-IN-PLACE PRECAST

CONCRETE MONUMENTS

TYPE A



TYPE C TYPE D

DRIVE-IN MONUMENT BREAK-OFF MONUMENT

ALUMINUM MONUMENTS

(INCLUDES MARKER)

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.

DETAILED DRAWINGS OF PROPOSED ALTERNATE DESIGNS FOR METAL MONUMENTS OR MONUMENT COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

INSTALLED METAL MONUMENTS MUST BE EASILY DETECTED WITH A DIP NEEDLE. INSERT PERMANENT MAGNETS SHALL BE ATTACHED NEAR THE TOP AND BOTTOM OF THOSE MONUMENTS CONSTRUCTED OF A METAL ALLOY WHICH IS NOT ATTRACTIVE TO A DIP NEEDLE.

THE CAST IRON MONUMENT COVER SHALL BE A "NON-ROCKING" TYPE. ADJUSTMENT OF THE COVER TO GRADE MAY BE ACCOMPLISHED BY THE USE OF MORTAR AND BRICK, OR BY EITHER PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE GRADE RINGS.

MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

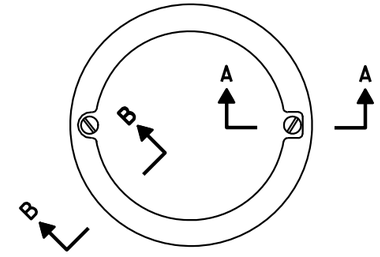
ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

THE MONUMENT COVERS DETAILED ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.

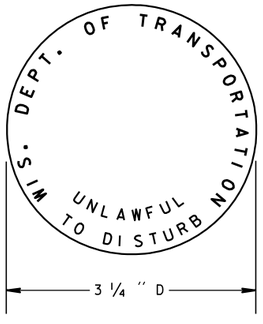
MONUMENT SHALL BE CAST-IN-PLACE CONCRETE UNLESS PRECAST CONCRETE OR ALUMINUM MONUMENTS ARE SPECIFIED IN THE CONTRACT OR PERMITTED BY THE ENGINEER.

① MINIMUM LENGTH SHALL BE 4'-0" FOR MONUMENTS INSTALLED IN PAVED AREAS.

② AN OFFICIAL COUNTY MONUMENT MARKER SUPPLIED BY A COUNTY MAY BE REQUIRED FOR SOME SECTION CORNERS AND WITNESS MONUMENTS INSTEAD OF THIS WIS DOT MARKER.

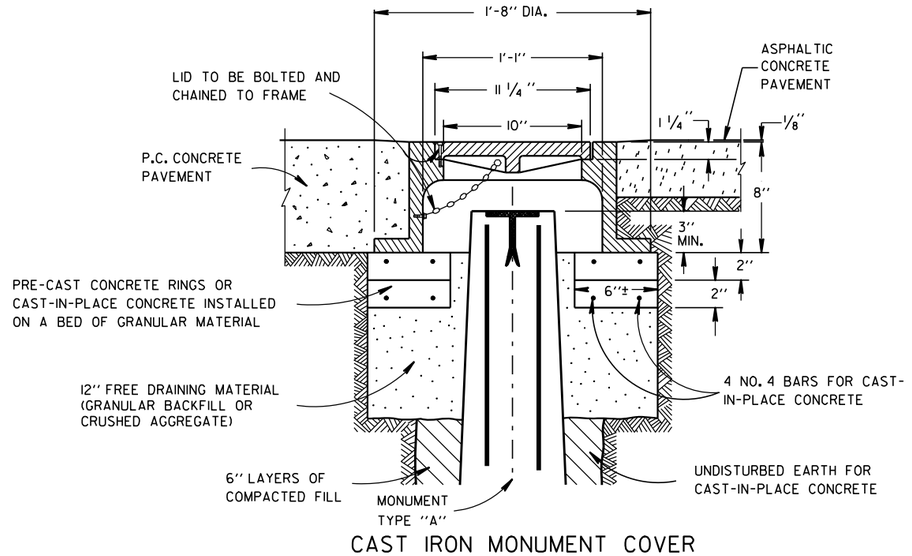


TOP VIEW



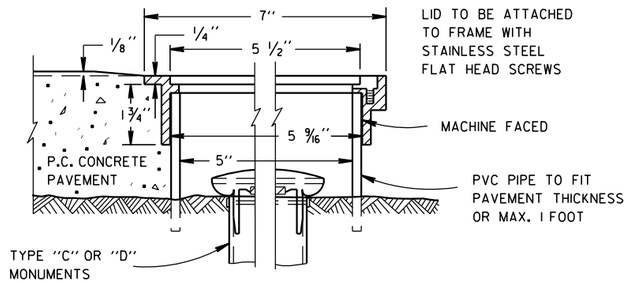
② WIS DOT MONUMENT MARKER LOGO

FOR TYPES "A", "C" & "D"



CAST IRON MONUMENT COVER

(APPROXIMATE WEIGHT - 95 LBS.)



SECTION B-B SECTION A-A

ALUMINUM MONUMENT COVER

(APPROXIMATE WEIGHT 2 LBS)

(FOR CONCRETE PAVEMENT ONLY)

LANDMARK REFERENCE MOUNMENTS AND COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/22/1999 DATE

/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

6

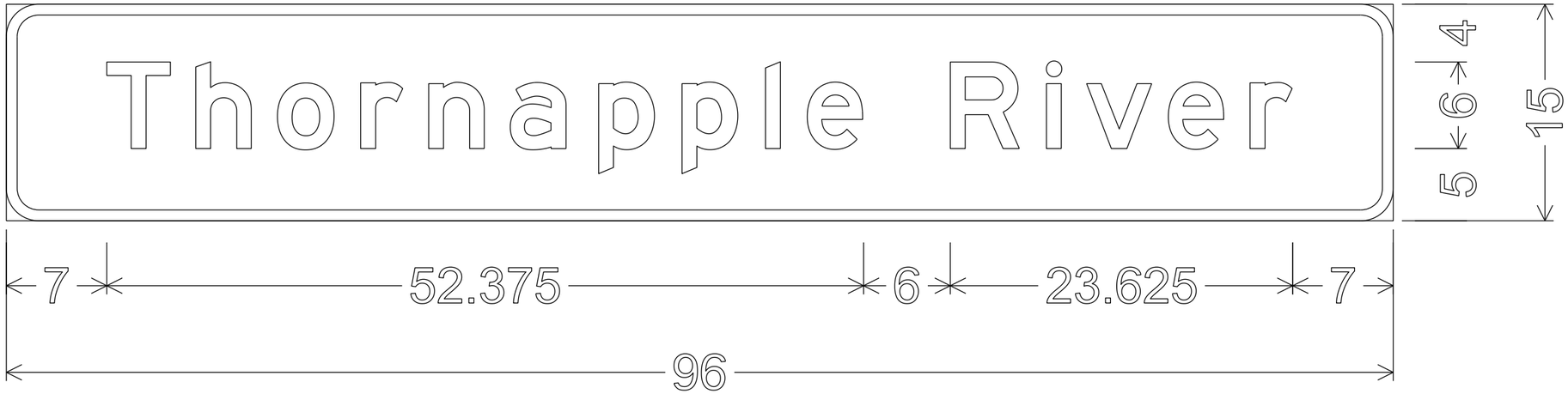
S.D.D. 16 A 1-6

6

S.D.D. 16 A 1-6

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - Green
   Message - White
3. Message Series - E



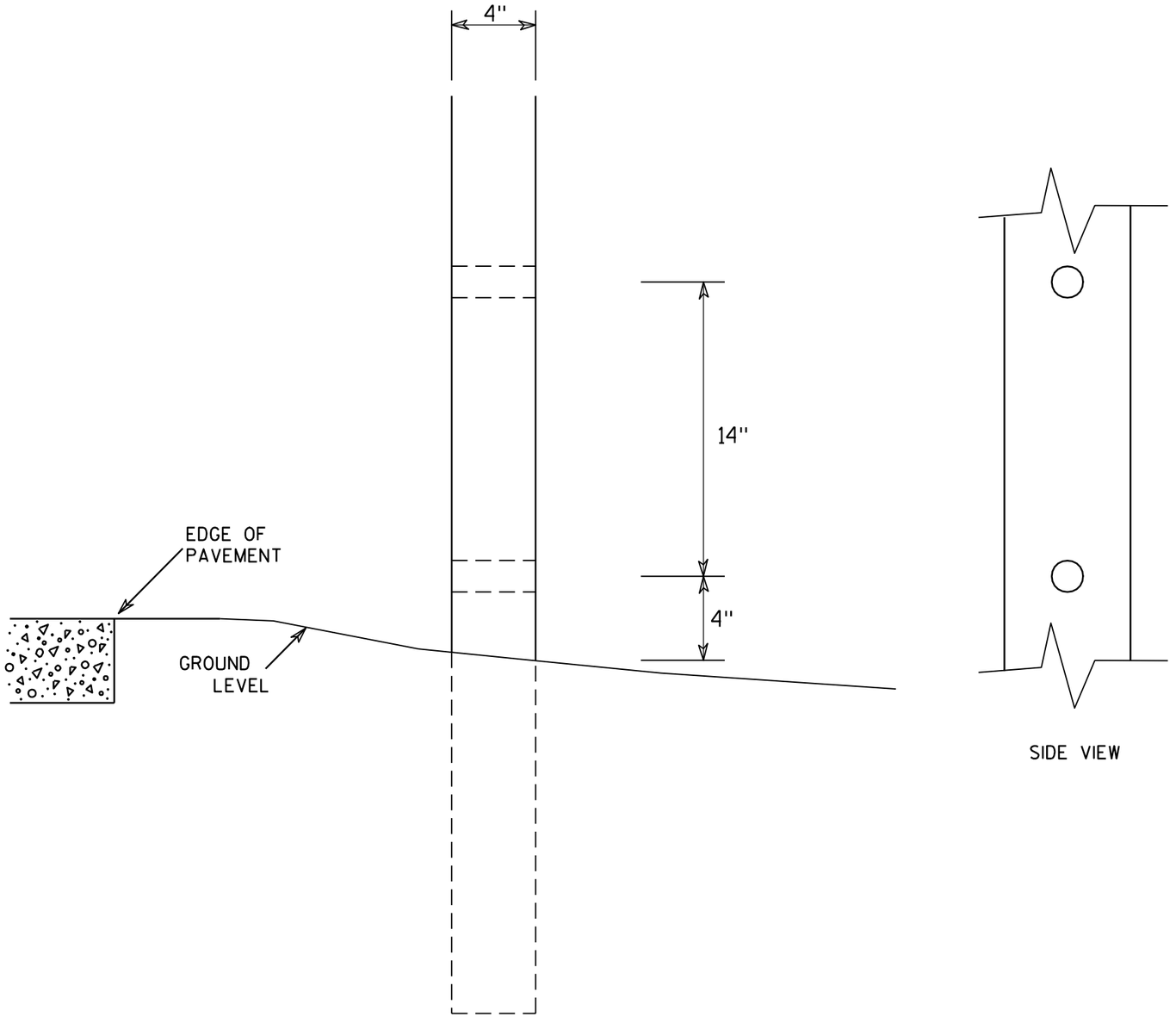
7

7

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	PERMANENT SIGNING	SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_d8\ThornappleRiver.dgn PLOT DATE : 10-FEB-2015 09:33 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 13.515007:1.000000

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.

4 X 6 WOOD POST MODIFICATIONS

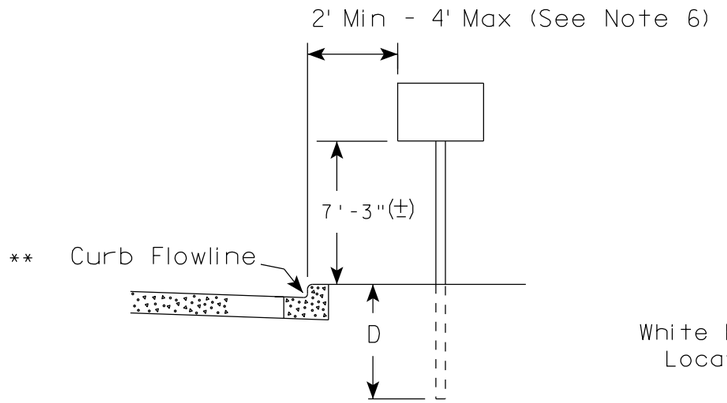
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

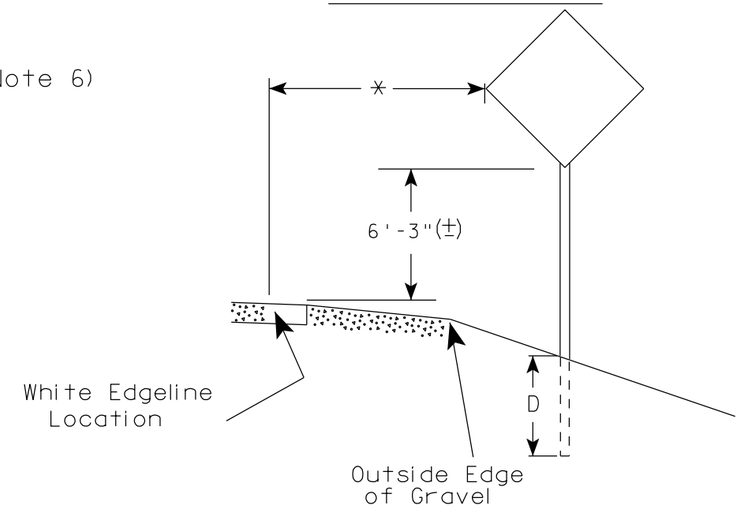
DATE 3/27/97 PLATE NO. A4-11.2

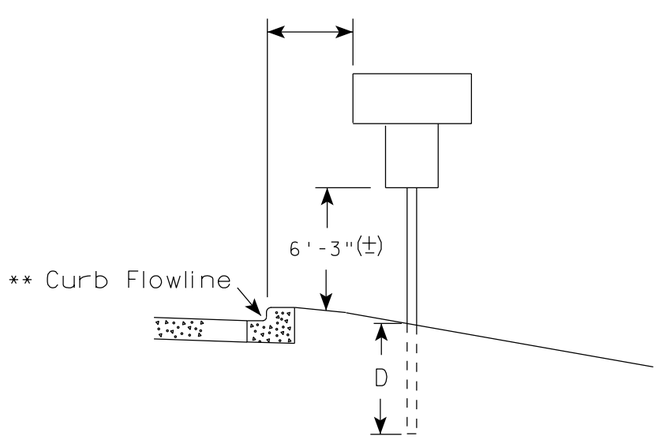
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 52	E

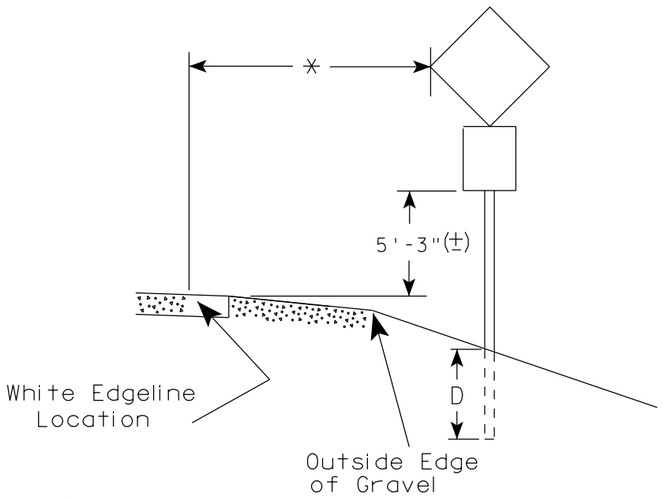
URBAN AREA



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.

POST EMBEDMENT DEPTH

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

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" (±).

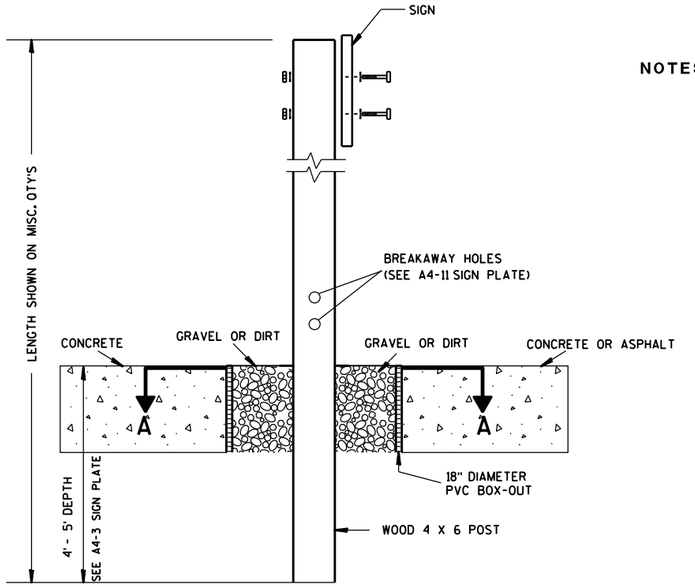
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

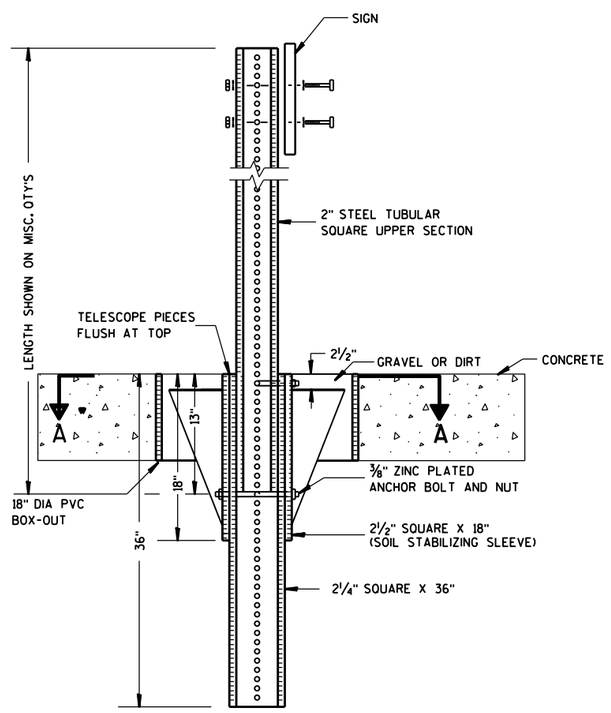
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



ELEVATION VIEW

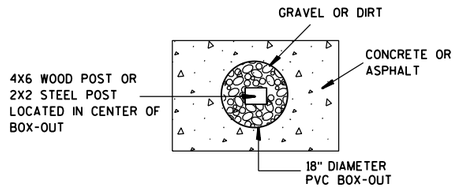
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

NOTES:
1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

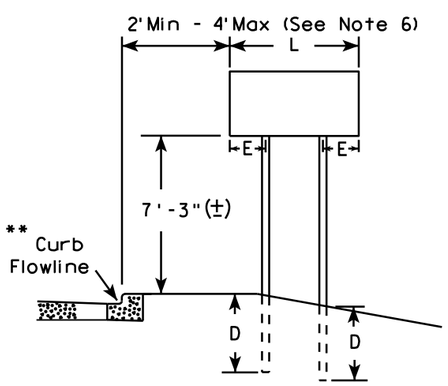
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

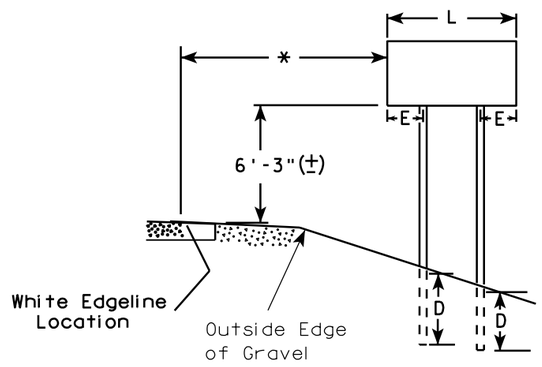
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

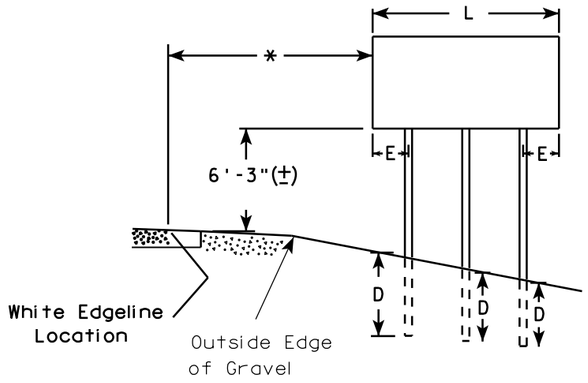
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

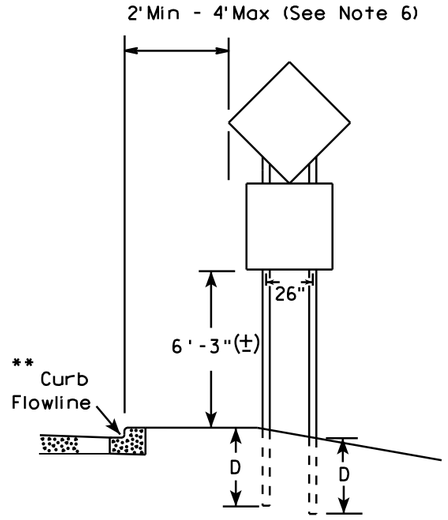
URBAN AREA



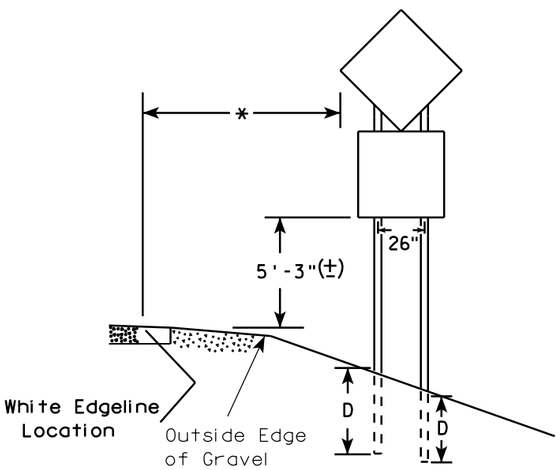
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

* 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.

** 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.

*** See A4-3 sign plate for signs 4' or less in width or less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

***

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

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

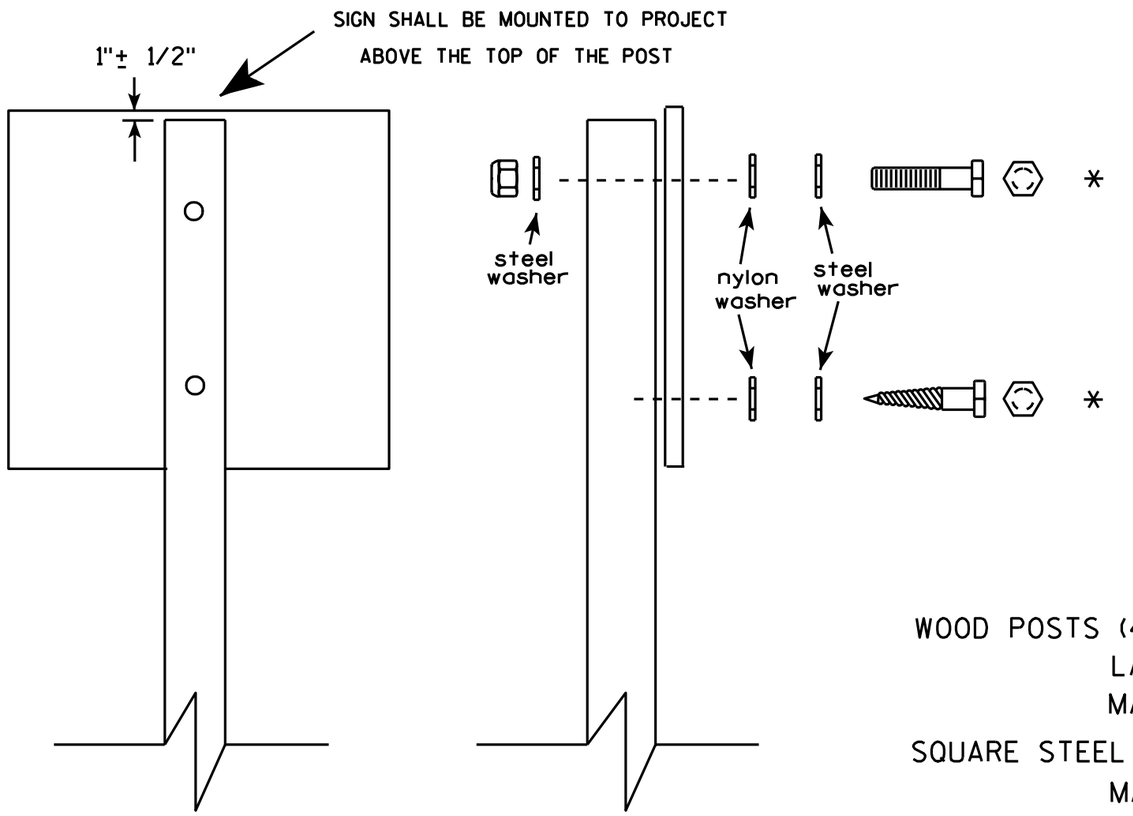
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-4 13-55

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



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

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

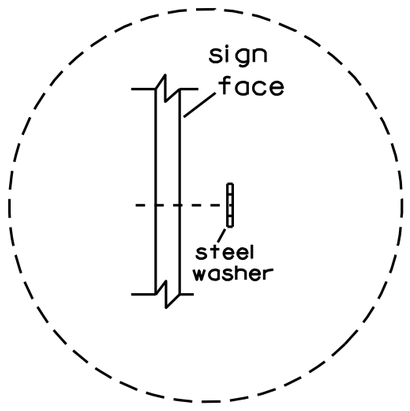
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32 " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

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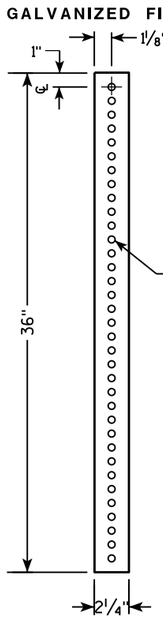
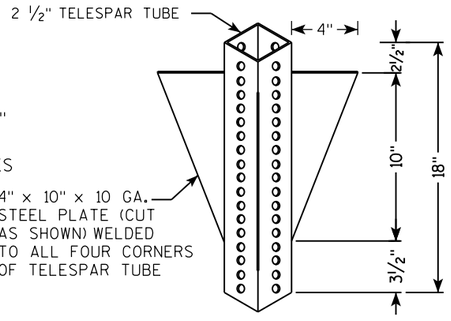
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

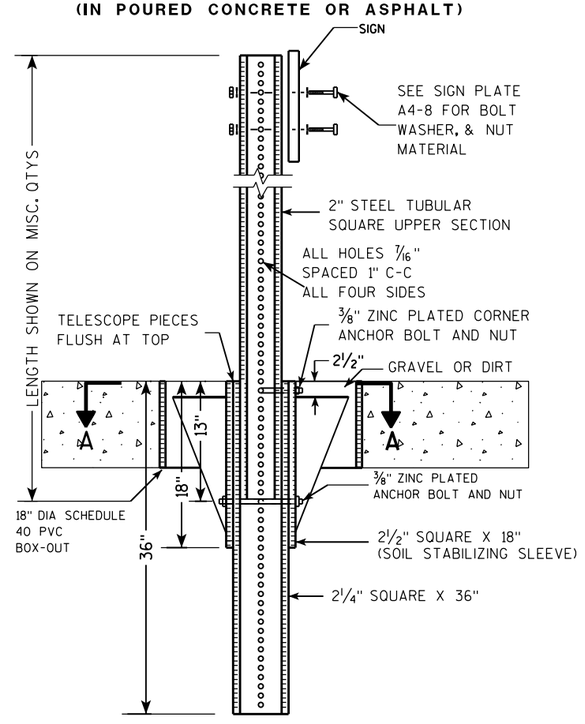
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



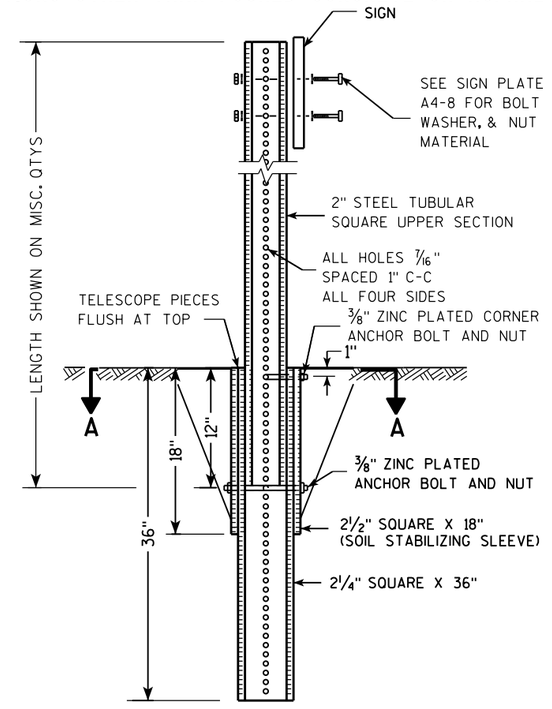
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

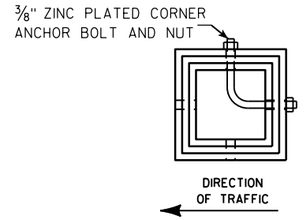


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)





SECTION A-A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

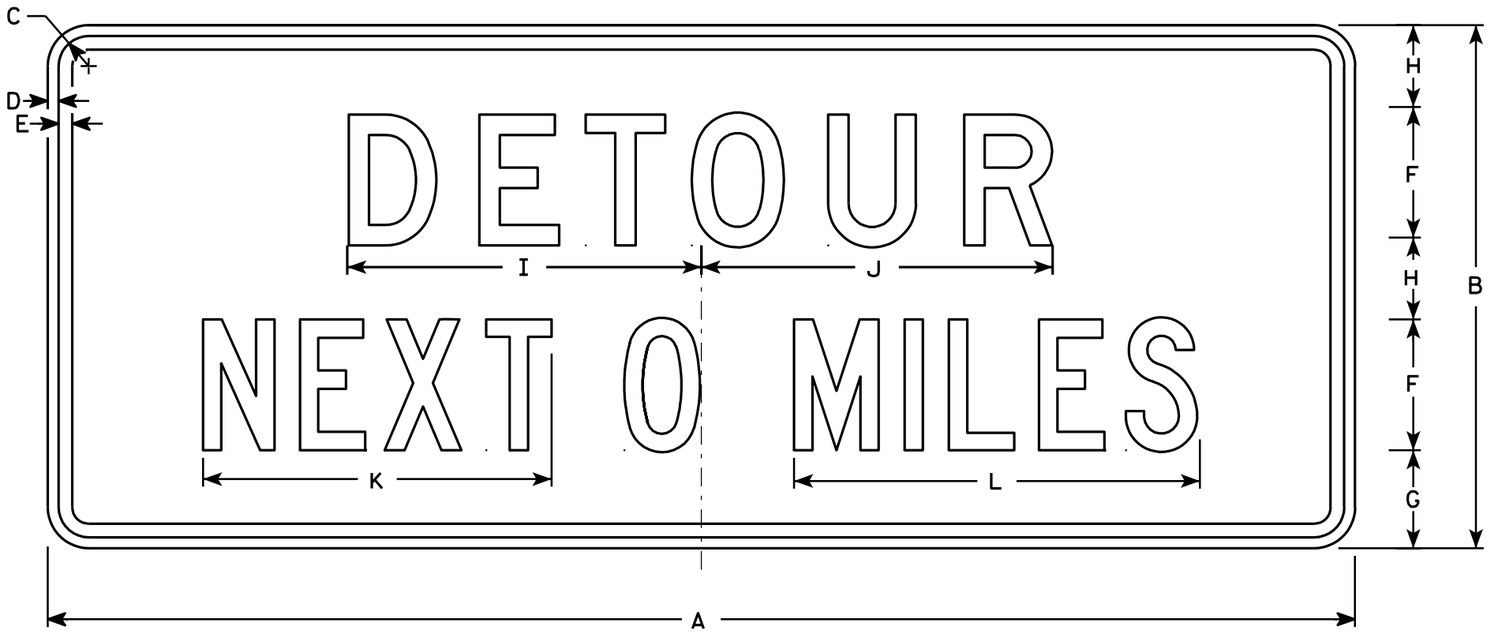
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 57 A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



G20-51

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - Line 1 is D and Line 2 is C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

Metric equivalent for this sign is:

SIZE	
1	
2	1500 mm X 600 mm
3	
4	1500 mm X 600 mm
5	

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	60	24	1 3/8	1/2	5/8	6	4 1/2	3 3/4	16 1/4	16 1/8	16	18 5/8															10	.90
3																												
4	60	24	1 3/8	1/2	5/8	6	4 1/2	3 3/4	16 1/4	16 1/8	16	18 5/8															10	.90
5																												

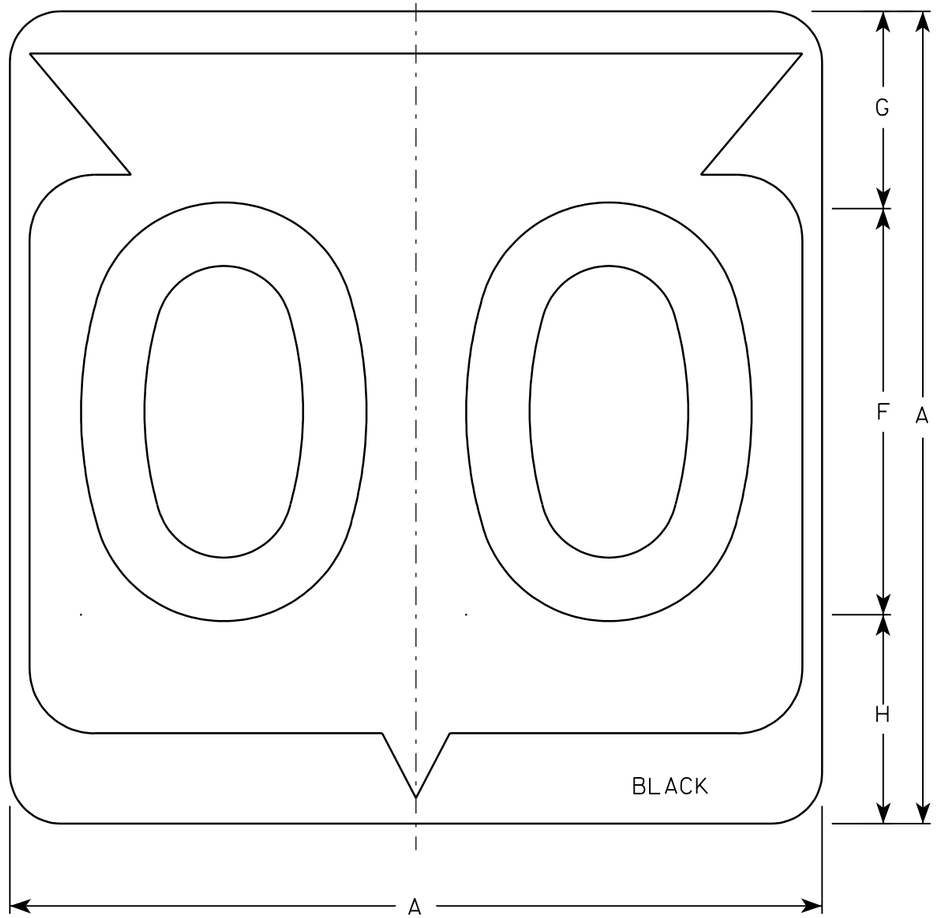
STANDARD SIGN
G20-51

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/20/02 PLATE NO. G20-51.1

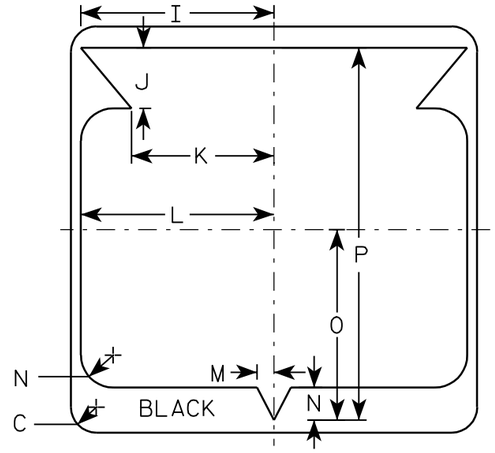
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 58	E



M1-6

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 6
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
6. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective



Metric equivalent for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

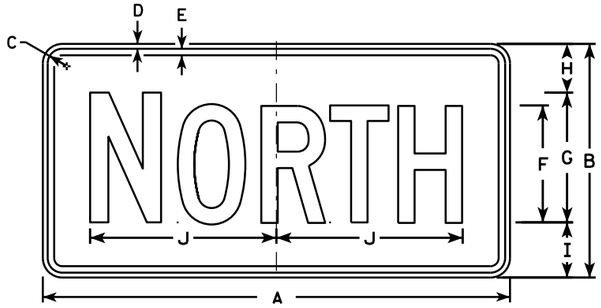
STATE ROUTE MARKER M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

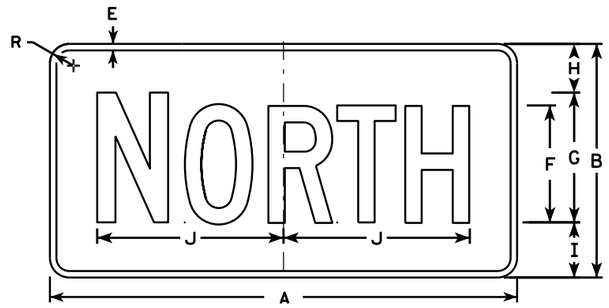
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/20/02 PLATE NO. M1-6.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 59	E

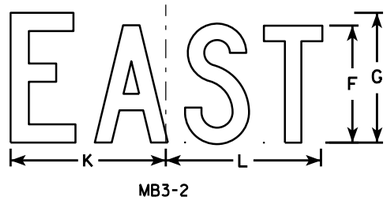


M3-1
MK3-1
MM3-1
MN3-1

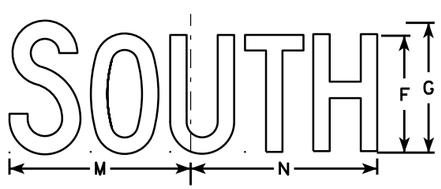


MB3-1

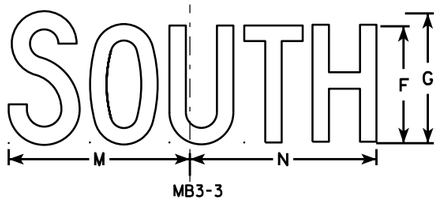
M3-2
MK3-2
MM3-2
MN3-2



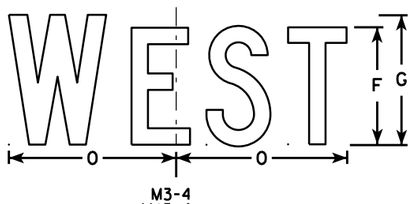
MB3-2



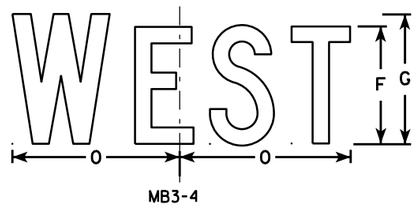
M3-3
MK3-3
MM3-3
MN3-3



MB3-3



M3-4
MK3-4
MM3-4
MN3-4



MB3-4

NOTES

1. All Signs Type II - Type H
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White
   MK3-1 thru MK3-4 Background - Green
   Message - White
   MM3-1 thru MM3-4 Background - White
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White
6. Note the first letter of each direction is larger than the remainder of the message.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thur M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 6/30/14 PLATE NO M3-1.13

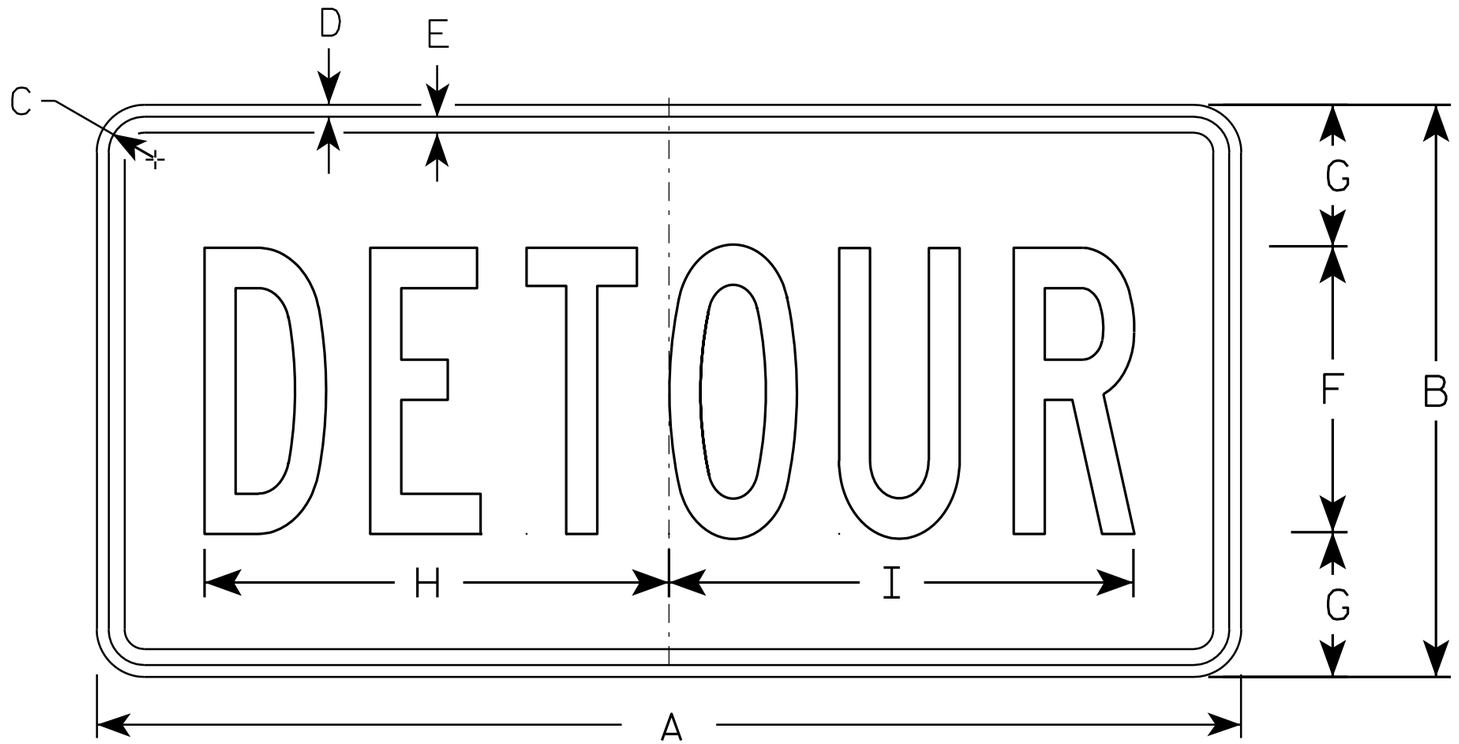
PROJECT NO: | HWY: | COUNTY: | | SHEET NO: E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\M31.DGN PLOT DATE : 30-JUN-2014 12:53 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 11.675051:1.000000

WISDOT/CADDS SHEET 42

7

7



M4-8

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

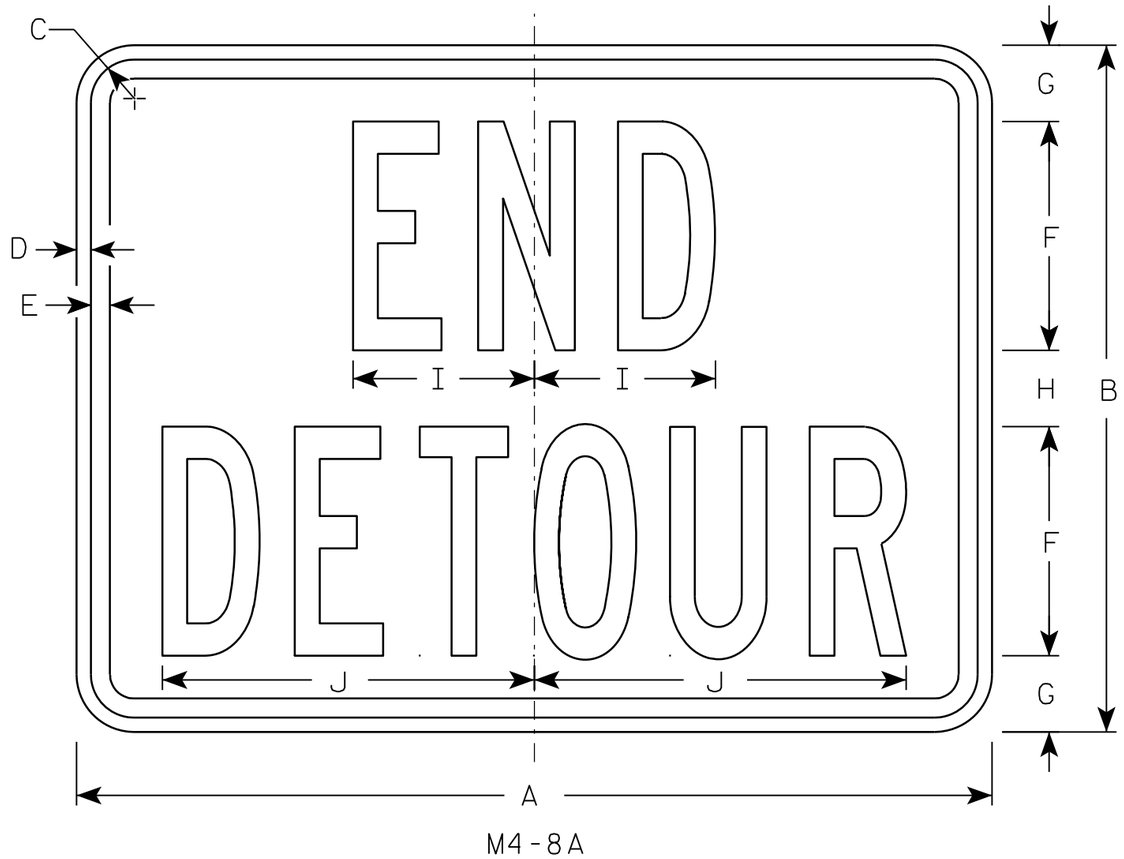
STANDARD SIGN
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 61	E



M4-8A

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

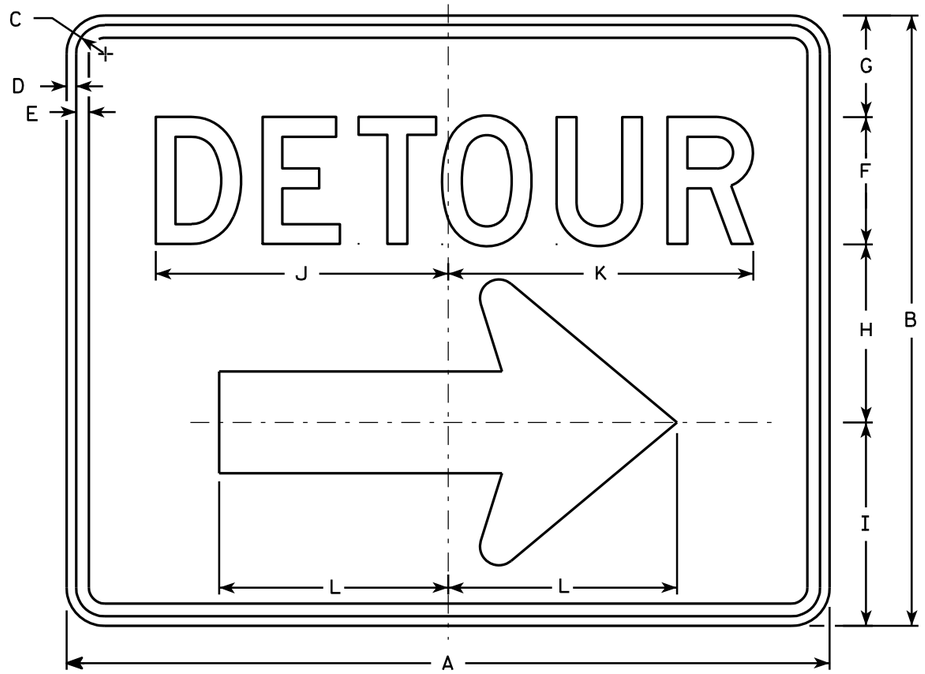
STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2

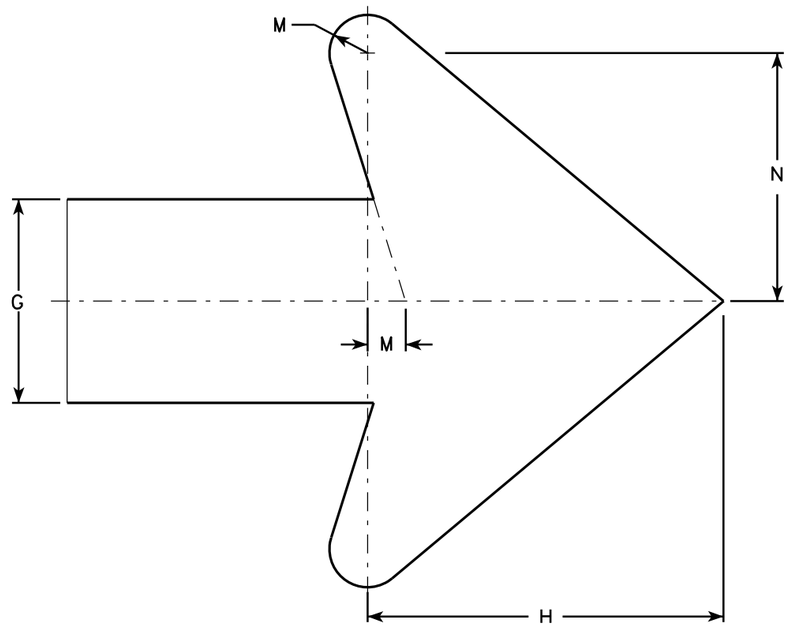
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 62	E



M4-9R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

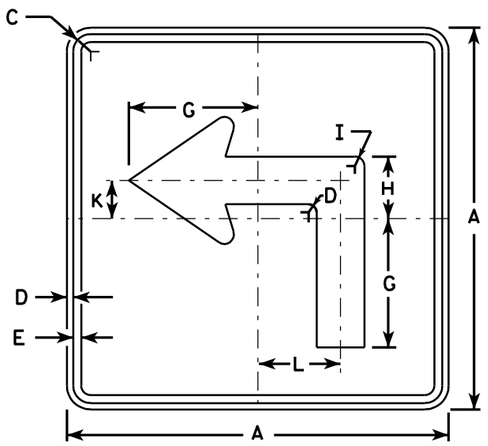
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

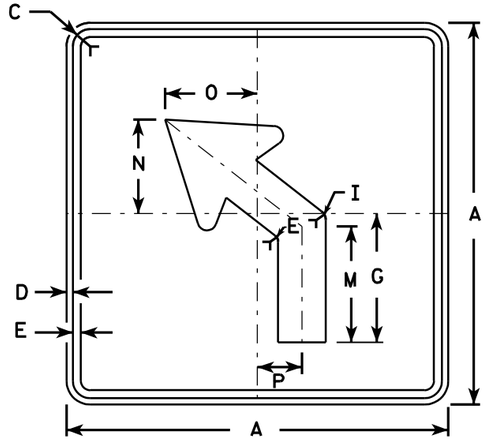
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-9R.4

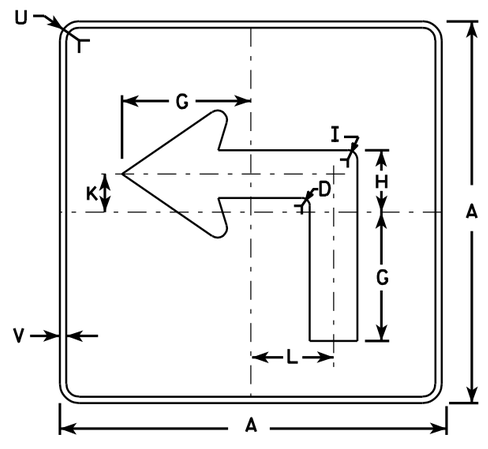
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 63 | E



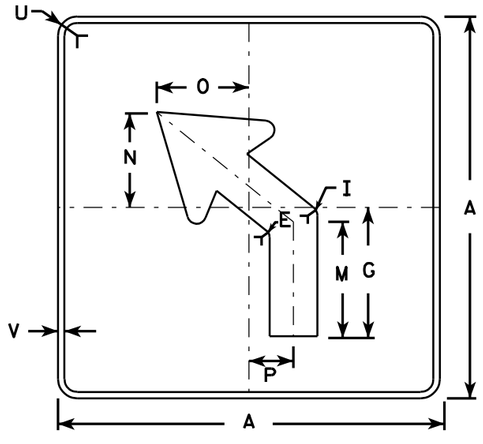
M5-1L
MK5-1L
MM5-1L
MO5-1L
MP5-1L
MR5-1L



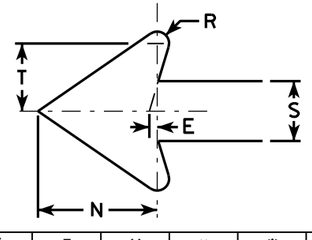
M5-2L
MK5-2L
MM5-2L
MO5-2L
MP5-2L
MR5-2L



MB5-1L
MG5-1L
MN5-1L



MB5-2L
MG5-2L
MN5-2L



NOTES

1. Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See note 4
   Message - See note 4
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. M5-1 and M5-2 Background - White - Type H Reflective
   Message - Black
   MB5-1 and MB5-2 Background - Blue
   Message - White - Type H Reflective
   MG5-1 and MG5-2 Background - Green
   Message - White - Type H Reflective
   MK5-1 and MK5-2 Background - Green
   Message - White Type H Reflective
   MM5-1 and MM5-2 Background - White - Type H Reflective
   Message - Green
   MN5-1 and MN5-2 Background - Brown
   Message - White - Type H Reflective
   MO5-1 and MO5-2 Background - Orange - Type F Reflective
   Message - Black
   MP5-1 and MP5-2 Background - White - Type H Reflective
   Message - Blue
   MR5-1 and MR5-2 Background - Brown
   Message - Yellow - Type H Reflective
5. M5-1R same as M5-1L except arrow points right.
6. M5-2R same as M5-2L except arrow tilts right.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 1/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 1/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 1/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

STANDARD SIGN
M5-1 & M5-2

WISCONSIN DEPT OF TRANSPORTATION

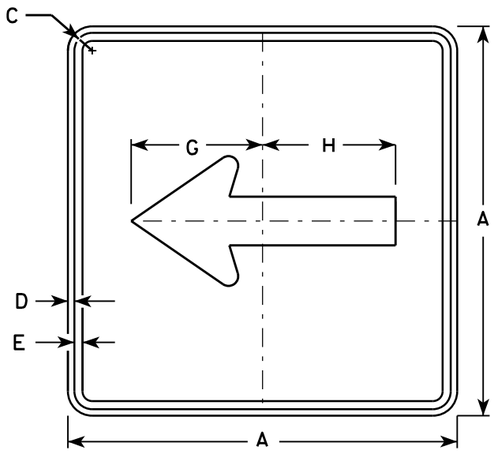
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/29/13 PLATE NO. M5-1.12

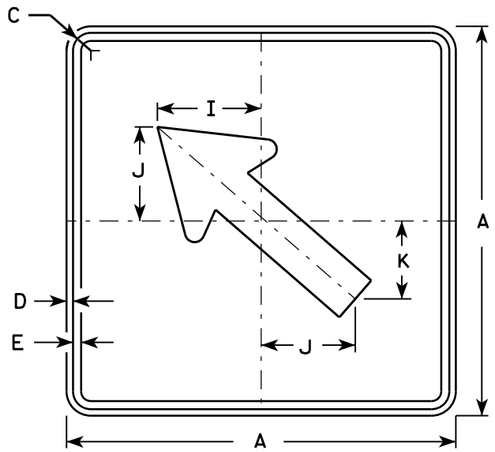
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 64	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\M51.DGN PLOT DATE : 29-JUL-2013 13:34 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 11.908552:1.000000

WISDOT/CADDS SHEET 42



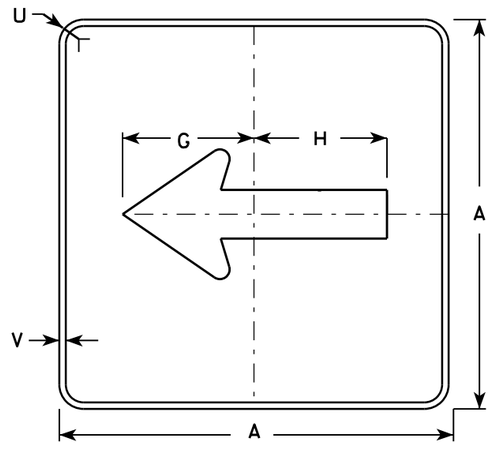
M6-1
MK6-1
MM6-1
MN6-1
MO6-1
MP6-1
MR6-1



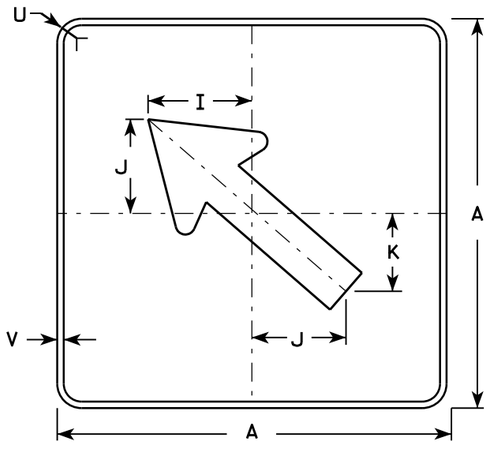
M6-2
MK6-2
MM6-2
MN6-2
MO6-2
MP6-2
MR6-2

NOTES

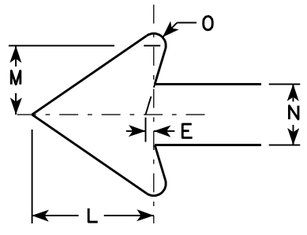
1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-1 and M6-2 Background - White
   Message - Black
   MB6-1 and MB6-2 Background - Blue
   Message - White
   MG6-1 and MG6-2 Background - Green
   Message - White
   MK6-1 and MK6-2 Background - Green
   Message - White
   MM6-1 and MM6-2 Background - White
   Message - Green
   MN6-1 and MN6-2 Background - Brown
   Message - White
   MO6-1 and MO6-2 Background - Orange - Type F Reflective
   Message - Black
   MP6-1 and MP6-2 Background - White
   Message - Blue
   MR6-1 and MR6-2 Background - Brown
   Message - Yellow



MB6-1



MB6-2



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2						3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25

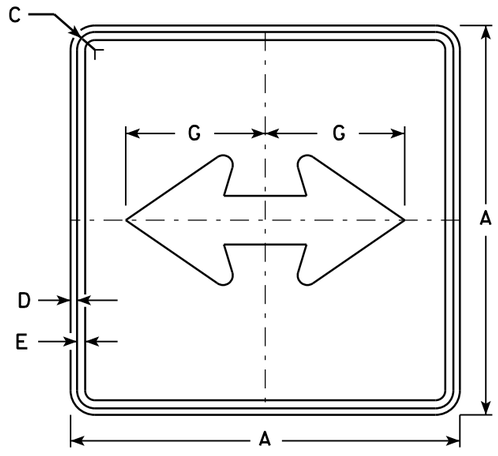
STANDARD SIGN
M6-1 & M6-2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

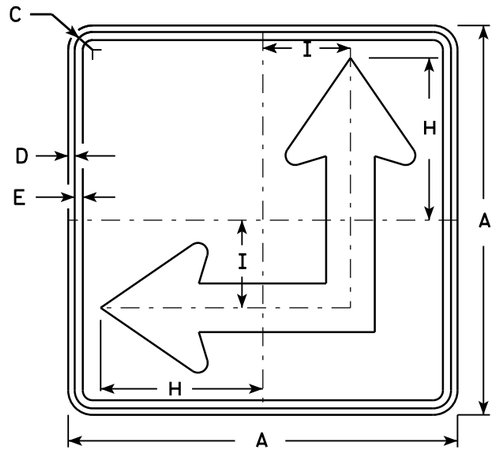
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/03/14 PLATE 65 M6-1.14

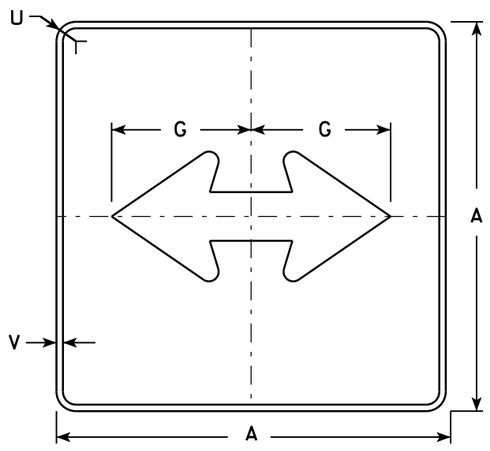
PROJECT NO: | HWY: | COUNTY: | | SHEET NO: E



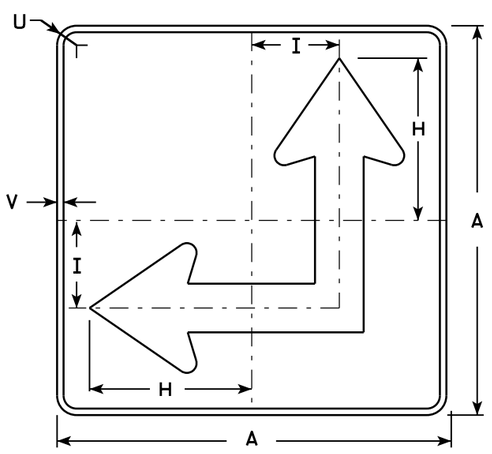
M6-4
MK6-4
MM6-4
MN6-4
MO6-4
MP6-4
MR6-4



M6-6
MK6-6
MM6-6
MN6-6
MO6-6
MP6-6
MR6-6



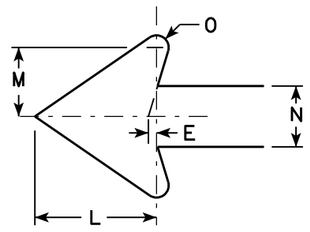
MB6-4



MB6-6

NOTES

1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See Note 4
   Message - See Note 4
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. M6-4 and M6-6 Background - White
   Message - Black
   MB6-4 and MB6-6 Background - Blue
   Message - White
   MK6-4 and MK6-6 Background - Green
   Message - White
   MM6-4 and MM6-6 Background - White
   Message - Green
   MN6-4 and MN6-6 Background - Brown
   Message - White
   MO6-4 and MO6-6 Background - Orange - Type F Reflective
   Message - Black
   MP6-4 and MP6-6 Background - White
   Message - Blue
   MR6-4 and MR6-6 Background - Brown
   Message - Yellow
5. M6-6R same as M6-6L except arrow points ahead and right.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

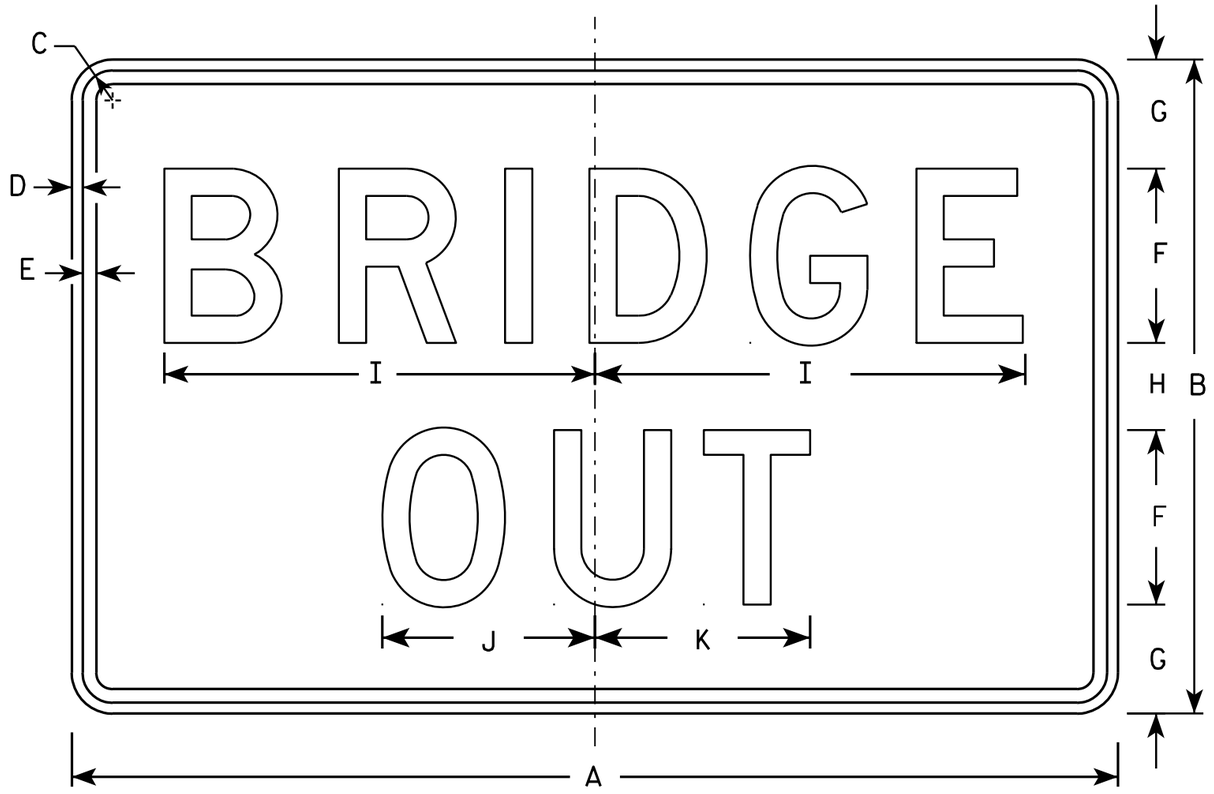
STANDARD SIGN M6-4 & M6-6 SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 7/03/14 PLATE 66 M6-4.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



R11-2B

NOTES

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

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	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

STANDARD SIGN
R11-2B

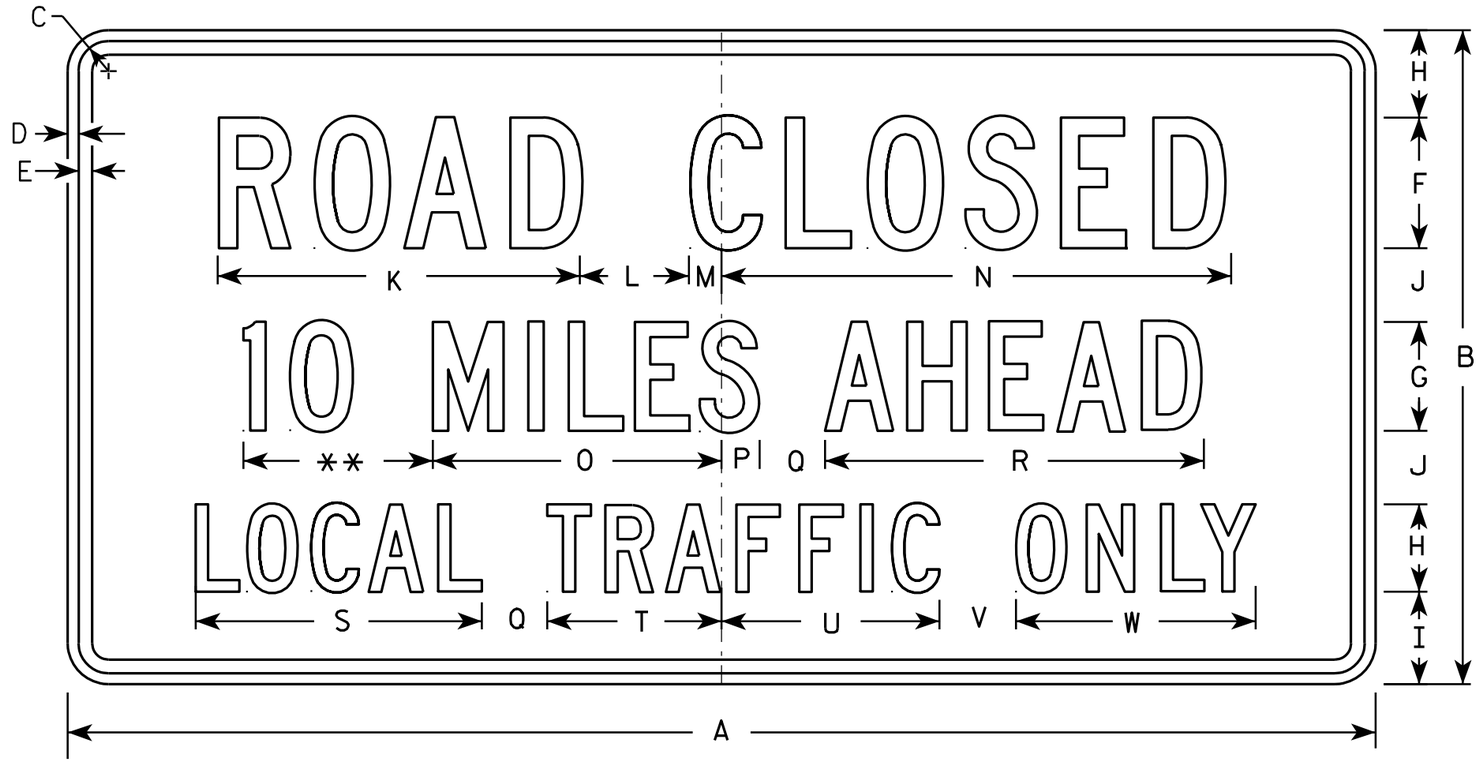
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO:

SHEET NO: 67 E



R11-3

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	11 1/8	3	1 1/8	15 1/4	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4				4.5
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
3																											
4																											
5																											

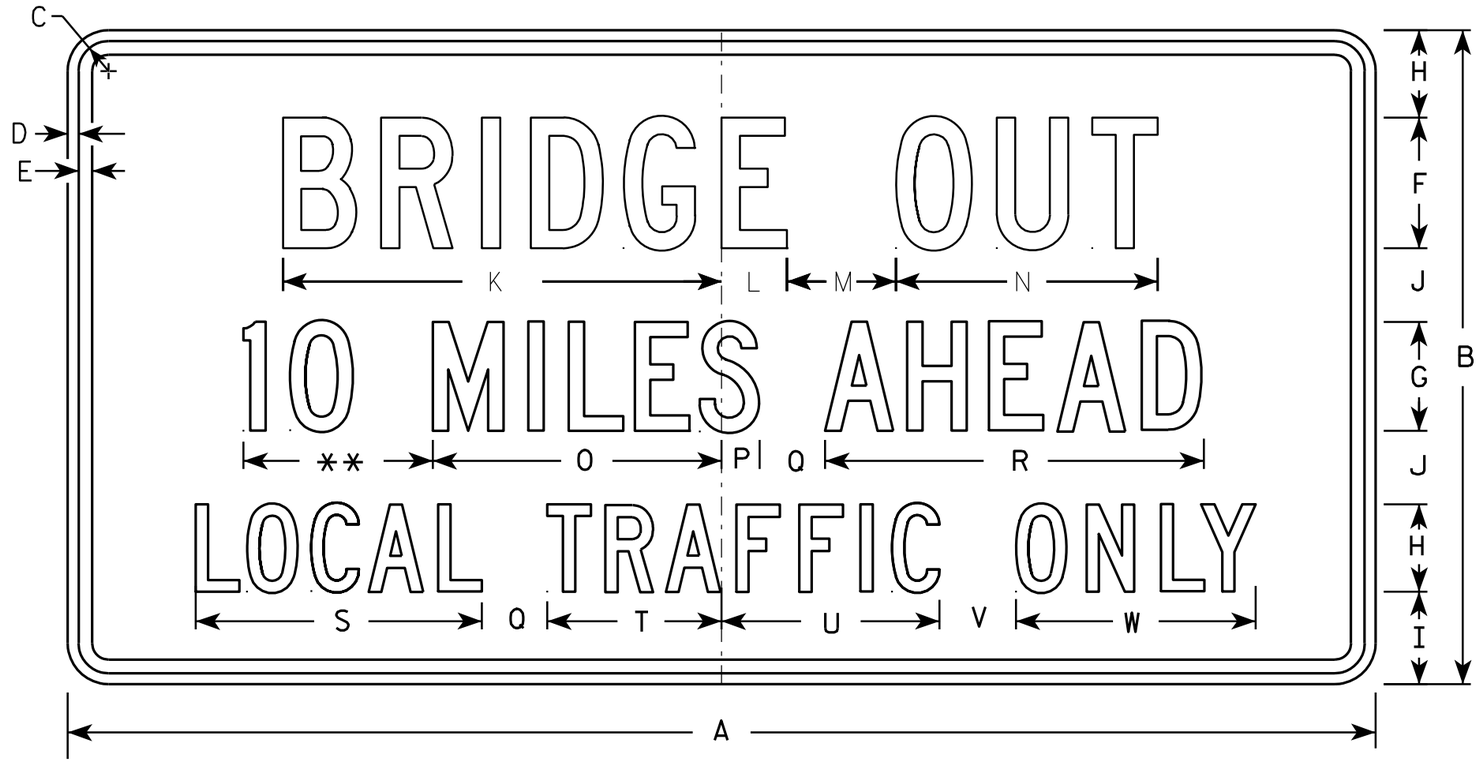
STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-3.6

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 68 | E



R11-3B

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4				4.5
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
3																											
4																											
5																											

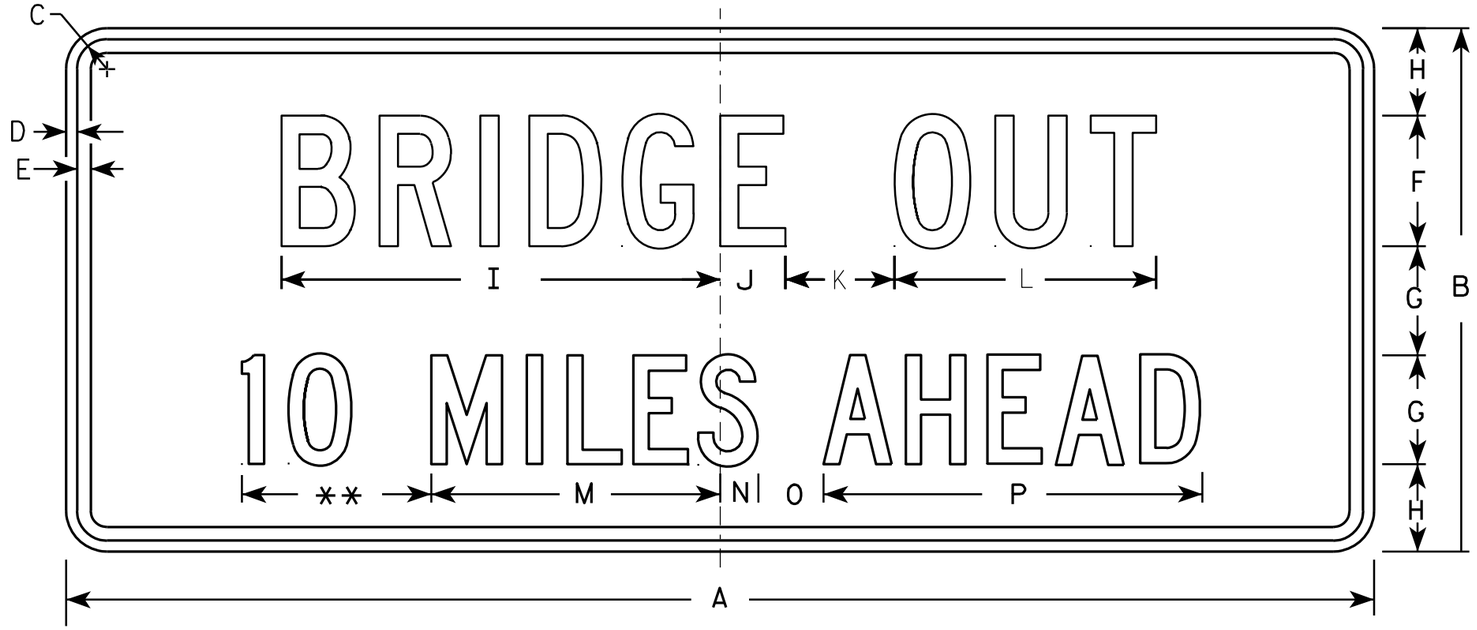
STANDARD SIGN
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-3B.2

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 69 | E



R11-3C

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	15	1 3/8	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4											3.75
2S	60	24	1 3/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8											10.0
2M	60	24	1 3/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8											10.0
3																											
4																											
5																											

STANDARD SIGN
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-3C.2

PROJECT NO:

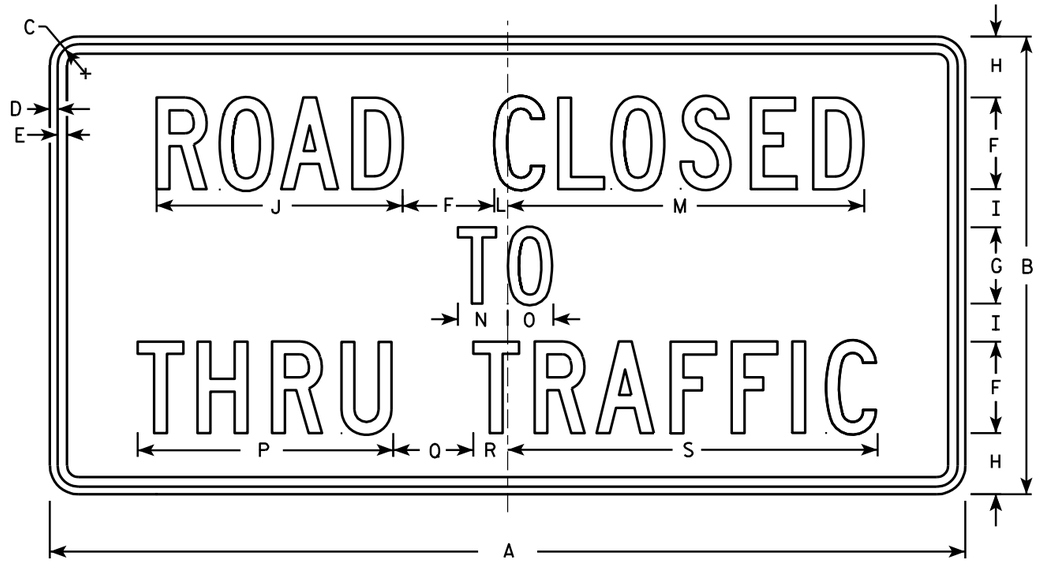
SHEET NO: 70 E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R113C.DGN PLOT DATE : 01-APR-2011 14:15 PLOT BY : mscj9h

WISDOT/CADDS SHEET 42

7

7



R11-4

NOTES

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

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	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
3																											
4																											
5																											

STANDARD SIGN
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

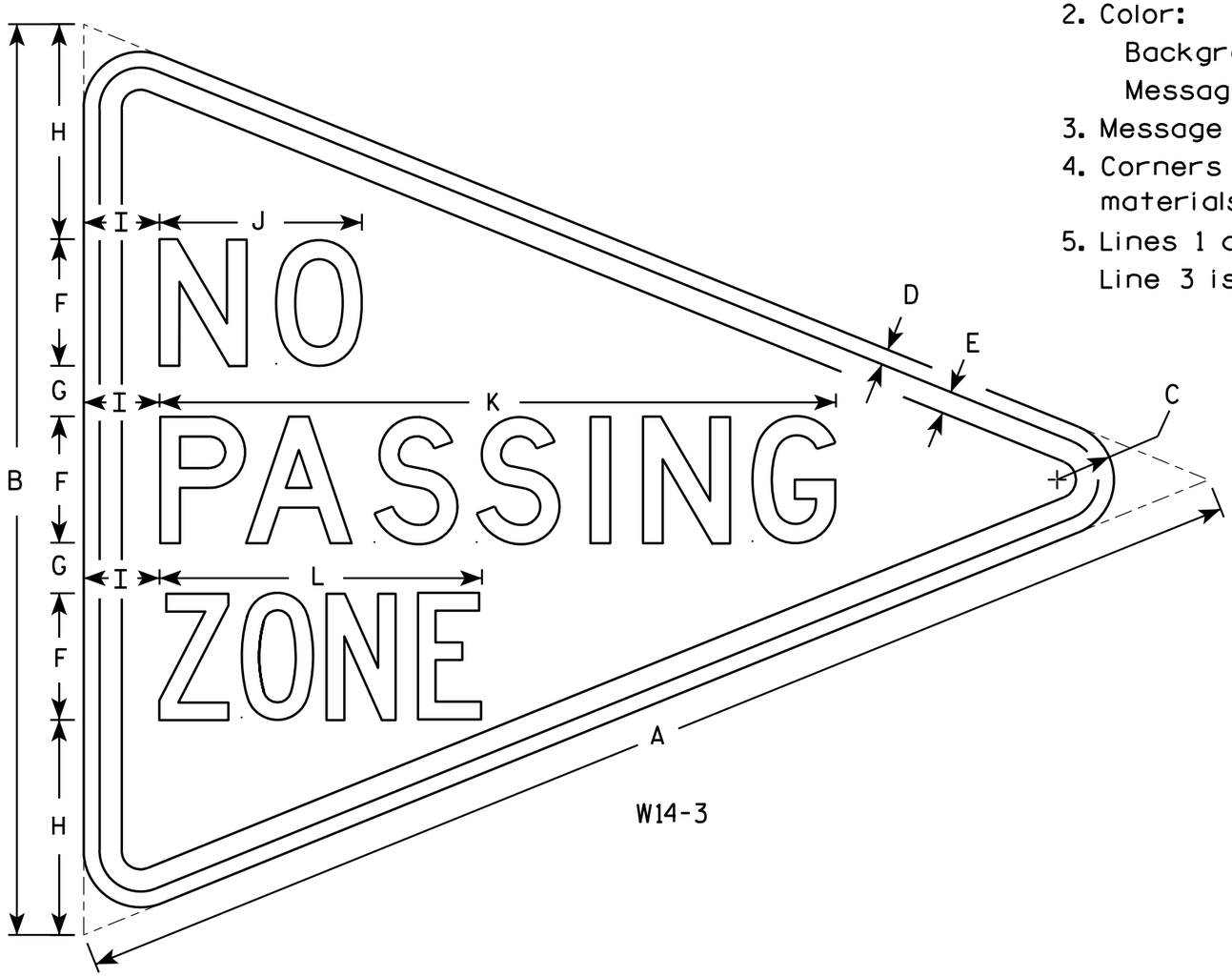
APPROVED Matthew R Rauch for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 71 | E

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. Message Series - See note 5
4. Corners and borders shall be rounded on all base materials for this sign.
5. Lines 1 and 2 are Series D.
   Line 3 is series C.



W14-3

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
2M	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
3	64	48	3	3/4	1 1/4	6	3	12	4	10 3/4	33 5/8	16 1/2															10.7
4																											
5																											

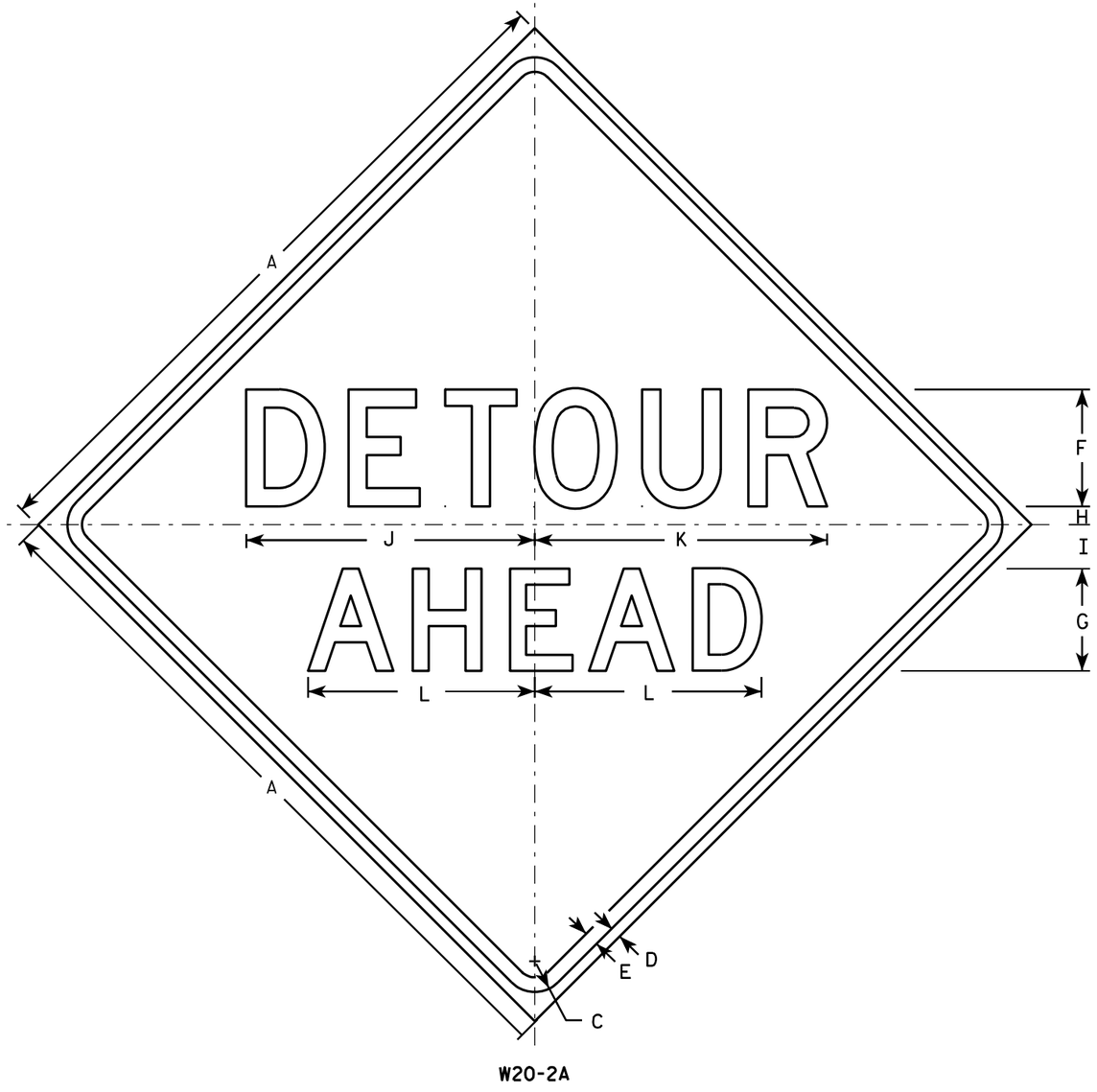
STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

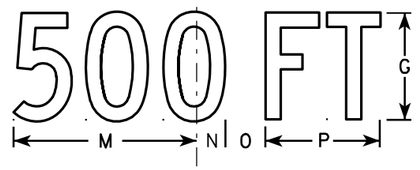
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W14-3.9

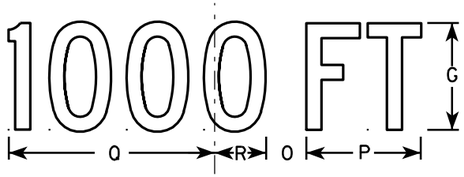
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 72	E



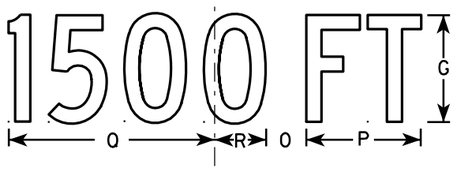
W20-2A



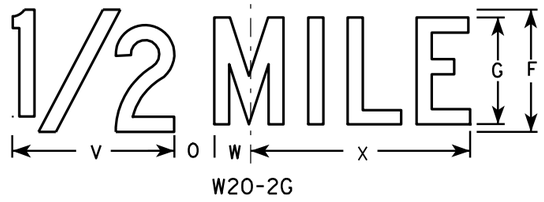
W20-2D



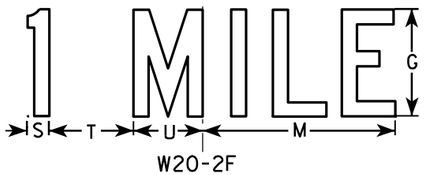
W20-2C



W20-2B



W20-2G



W20-2F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
   Line 2 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN
W20-2A,B,C,D,F & G

WISCONSIN DEPT OF TRANSPORTATION

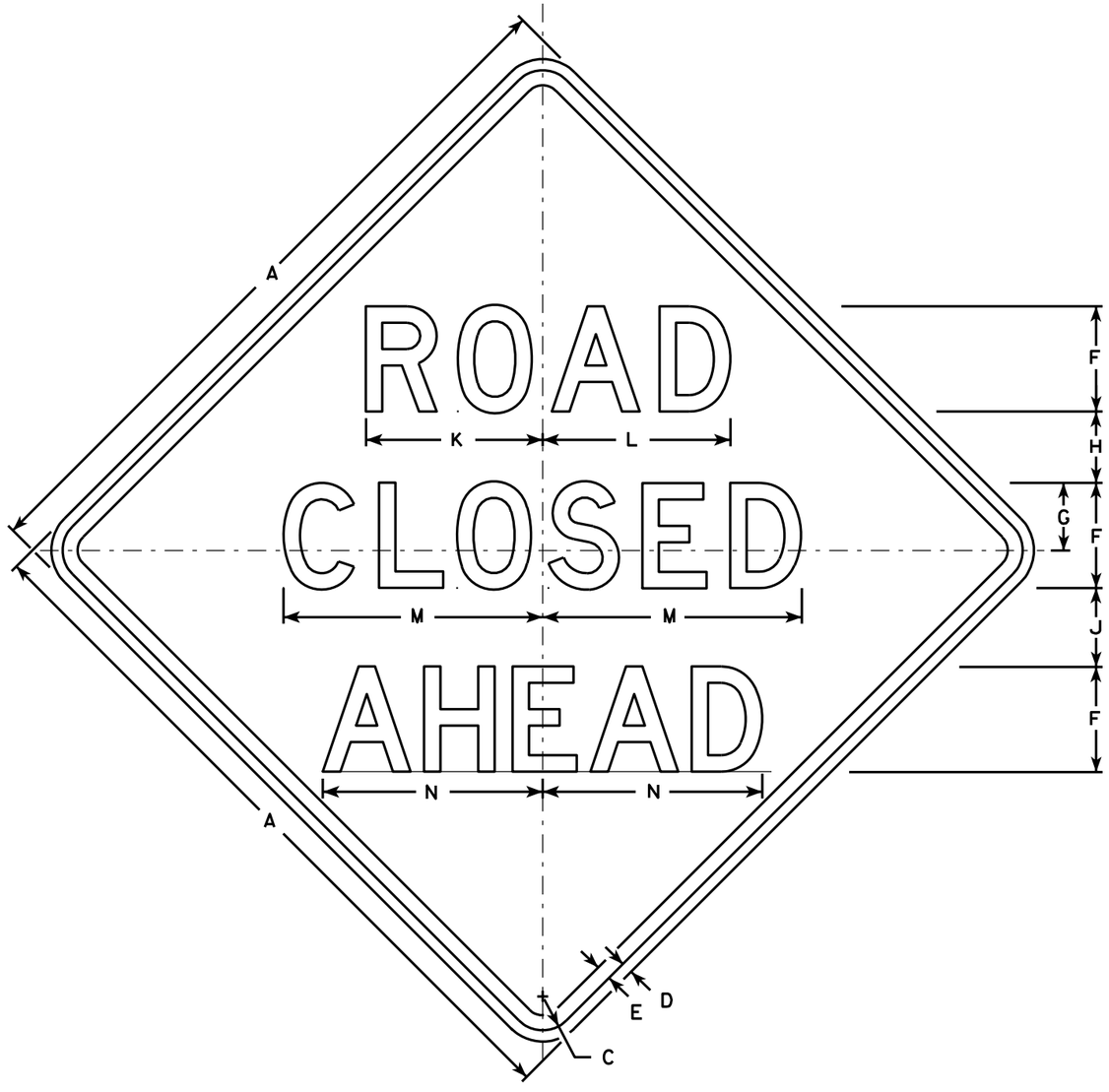
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

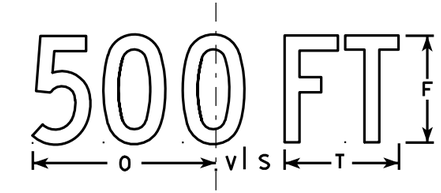
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 73 | E

7

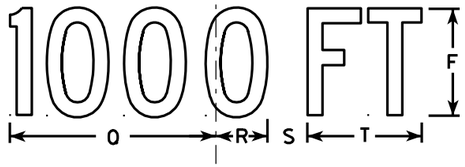
FILE NAME : C:\Users\PROJECTS\tr_stdplate\W202.DGN PLOT DATE : 18-MAR-2011 10:00 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 9.931739:1.000000
WISDOT/CADDS SHEET 42



W20-3A



W20-3D



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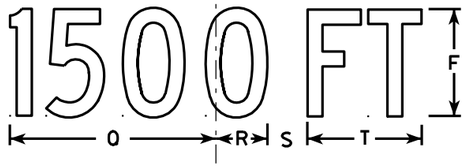
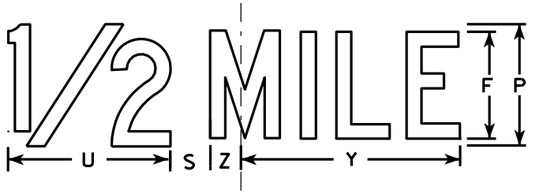
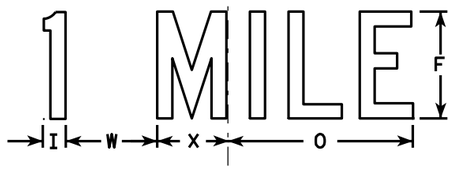


W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
   Line 3 is Series D for AHEAD and Series C for all other distances.

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	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

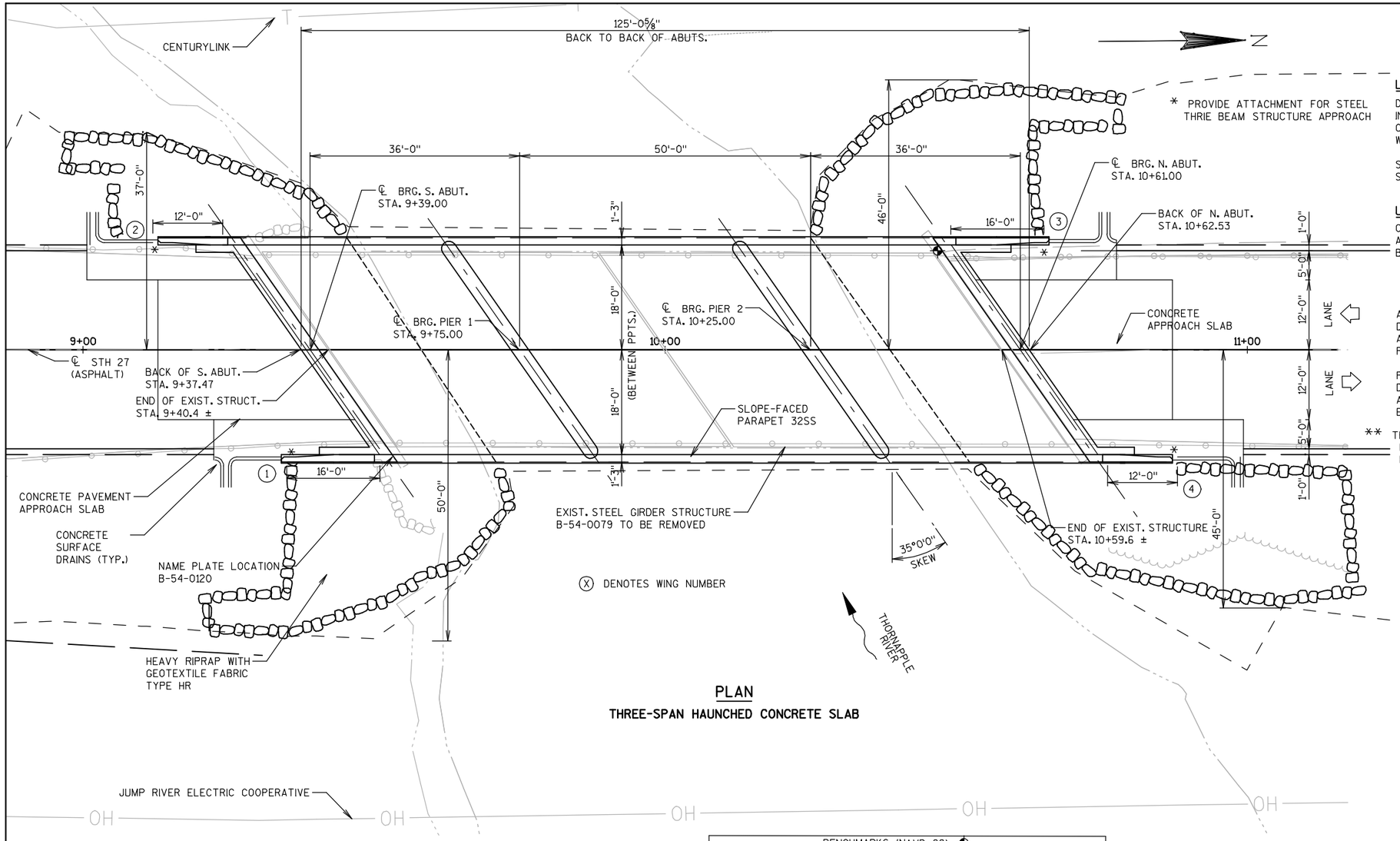
STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 74 | E

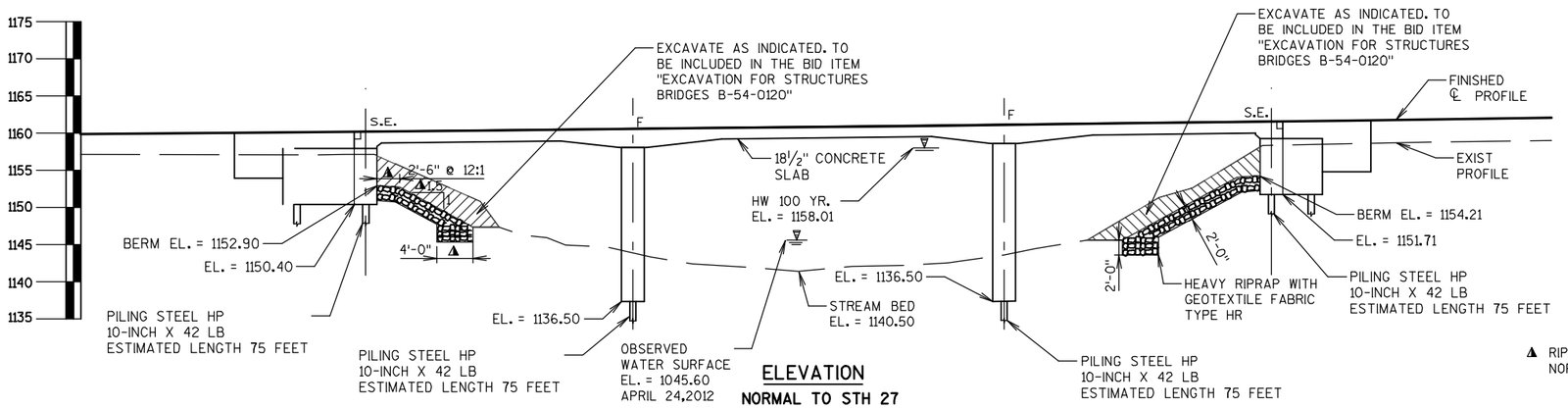
STATE PROJECT NUMBER
8180-02-70



PLAN

THREE-SPAN HAUNCHED CONCRETE SLAB

BENCHMARKS (NAVD 88)			
NO.	STA./OFFSET	DESCRIPTION	ELEV.
BM 1	10+47, 18' LT	NORTH ABUT.	1157.79



ELEVATION

NORMAL TO STH 27

▲ RIPRAP DIMENSIONS MEASURED NORMAL TO ABUTMENTS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING; HL-93
INVENTORY RATING FACTOR; RF = 1.04
OPERATING RATING FACTOR; RF = 1.35
WISCONSIN STANDARD PERMIT VEHICLE LOAD (Wis-SPV) = 250 KIPS

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

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY SLAB ---------- f'c = 4000 P.S.I.
ALL OTHER CONCRETE MASONRY ---------- f'c = 3500 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60 ---------- fy = 60,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 75' IN BOTH ABUTMENTS.

PIERS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 75' IN BOTH PIERS.

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

LIST OF DRAWINGS

HYDRAULIC DATA

100 YEAR FREQUENCY

Q (100) = 9500 C.F.S.
VEL. = 10.82 F.P.S.
HW. EL. = 1158.01
WATERWAY AREA = 878 SQ. FT.
DRAINAGE AREA = 159 SQ. MI.
OVERTOPPING MIN. EL. = 1158.82
SCOUR CRITICAL CODE = 5

2 YEAR FREQUENCY

Q 2 = 2890 C.F.S.
HW. EL. = 1151.13

TRAFFIC DATA

A.D.T. (2035) = 3050
R.D.S. = 60 MPH

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

CONSULTANT CONTACT:
MATT GUNDRY (715) 832-8400

ORIGINAL PLANS PREPARED BY:
FLEMING, ANDRE AND ASSOC., INC.
3615 N. HASTINGS WAY, EAU CLAIRE, WI 54703
715-832-8400 FAX: 715-832-1367

WISCONSIN
MATTHEW J. GUNDRY
36317
EAU CLAIRE
WI
3-25-15
PROFESSIONAL ENGINEER

NO.	DATE	REVISION	BY

FAA CONSULTING ENGINEERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 09/23/15
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-54-0120

S.T.H. 27 OVER THORNAPPLE RIVER

COUNTY	TOWN/CITY/VILLAGE
RUSK	FLAMBEAU

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	RMJ	DESIGN CK'D.	MJG	DRAWN BY	RMJ	PLANS CK'D.	MJG

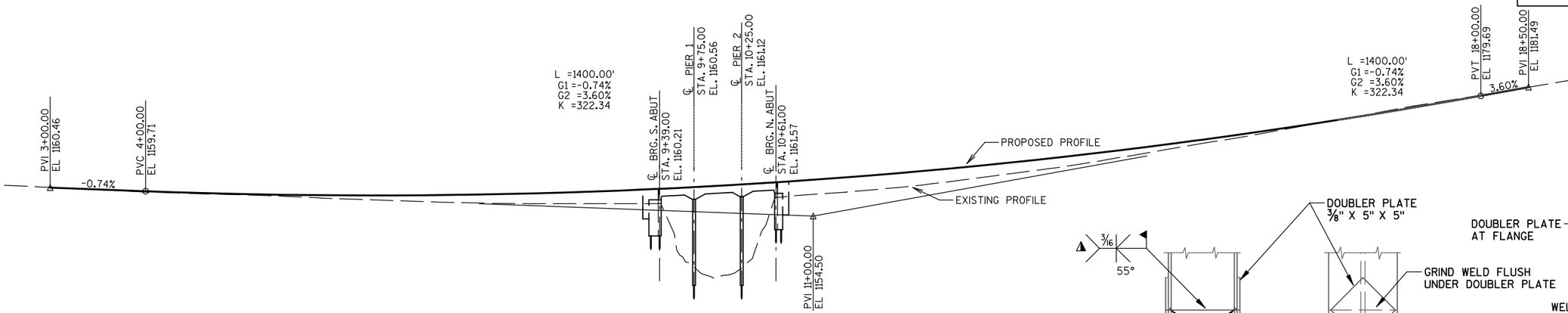
GENERAL PLAN

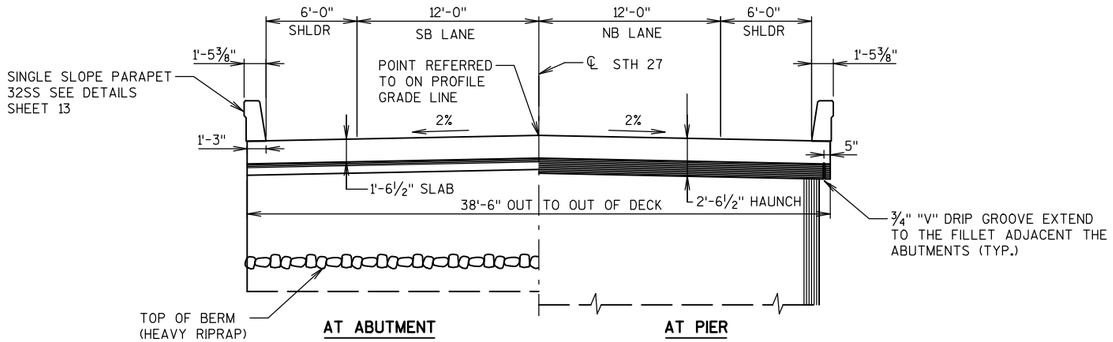
SHEET 1 OF 13
75

8

8

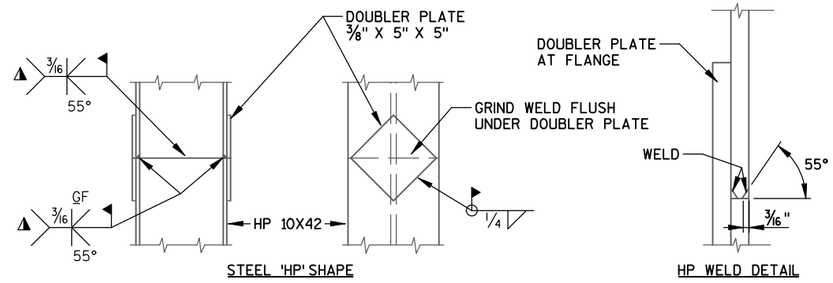
STATE PROJECT NUMBER
8180-02-70





CROSS SECTION THRU BRIDGE

LOOKING NORTH



PILE SPLICE DETAIL

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE FABRIC HR TO THE LIMITS SHOWN ON SHEET 1 OR AS DIRECTED BY THE ENGINEER

AT THE BACKFACE OF ABUTMENT, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL

THE EXISTING GROUND LINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES"

THIS STRUCTURE WILL REPLACE AN EXISTING BRIDGE, B-54-079, A 119.4-FOOT LONG BY 31.3 CLEAR ROADWAY WIDTH, TWO-SPAN STEEL GIRDER STRUCTURE SET ON CONCRETE ABUTMENTS.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP OF BRIDGE DECK, INSIDE FACE OF PARAPETS, TOP OF PARAPETS, AND PARAPET ENDS.

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

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	PIER 1	PIER 2	TOTALS
203.0210.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL (B-54-079)	LS	-	-	-	-	-	1
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 10+00	LS	-	-	-	-	-	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES (B-54-0120)	LS	-	-	-	-	-	1
210.0100	BACKFILL STRUCTURE	CY	-	145	145	-	-	290
502.0100	CONCRETE MASONRY BRIDGES	CY	343	54	54	88	90	629
502.3200	PROTECTIVE SURFACE TREATMENT	SY	675	12.5	12.5	-	-	700
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	-	2970	3030	-	-	6000
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	99160	1330	1330	4280	4340	110440
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-	11	11	-	-	22
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	-	675	675	675	675	2700
606.0300	RIPRAP HEAVY	CY	-	255	335	-	-	590
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-	90	90	-	-	180
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	-	2	2	-	-	4
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	-	320	410	-	-	730
	NON-BID ITEMS							
	FILLER	SIZE	-	-	-	-	-	½" & ¾"

8

8

ORIGINAL PLANS PREPARED BY:
FLEMING, ANDRE AND ASSOC., INC.
3615 N. HASTINGS WAY, EAU CLAIRE, WI 54703
715-832-8400 FAX: 715-832-1367

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-0120

DRAWN BY	RMJ	PLANS CK'D.	MJG

CROSS SECTION & QUANTITIES

SHEET 2 OF 13

76

SOIL BORINGS

BY: MIDWEST ENGINEERING SERVICES, INC.
EAU CLAIRE, WI

ON: 11/08/2012 - 11/09/2012

GEOTECHNICAL REPORT

BY: MIDWEST ENGINEERING SERVICES, INC.
EAU CLAIRE, WI

ON: 11/23/2012

N

CENTURYLINK

℄ OF PIER 1
STA. 9+75.00

℄ OF PIER 2
STA. 10+25.00

℄ OF N. ABUT.
STA. 10+61.00

BORING NO. 1

STH 27
(ASPHALT)

9+00 10+00 11+00 12+00 13+00

℄ OF S. ABUT.
STA. 9+39.00

BORING NO. 3

BORING NO. 2

THORNAPPLE RIVER

NOTE:
BORINGS WERE TAKEN AFTER THE ORIGINAL TOPO SURVEY WAS COMPLETED.

JUMP RIVER ELECTRIC COOPERATIVE

OH OH OH OH OH OH OH OH OH OH OH

BORING NO. 1 EL. 1156.9
STA. 9+25, 8' LT

℄ BRG. SOUTH ABUT.
STA. 9+39.00
EL. 1160.21

℄ BRG. PIER 1
STA. 9+75.00
EL. 1160.56

℄ BRG. PIER 2
STA. 10+25
EL. 1161.12

℄ BRG. NORTH ABUT.
STA. 10+61.00
EL. 1161.57

BORING NO. 2 EL. 1157.8
STA 10+25, 8' RT

BORING NO. 3 EL. 1158.5
STA. 10+75, 8' RT

1170
1160
1150
1140
1130
1120
1110
1100
1090
1080

9½" ASPHALT PAVEMENT
5" BASE COURSE
BROWN SAND, WITH GRAVEL, LITTLE CLAY, DAMP — 11
BROWN CLAYEY SAND, TRACE GRAVEL, MOIST — 5
LIGHT BROWN SAND, TRACE CLAY AND GRAVEL, MOIST — 9
BROWN CLAYEY SAND, TRACE GRAVEL, MOIST — 8
BROWN SAND, LITTLE CLAY, TRACE GRAVEL, VERY MOIST — 7
BROWN SAND, TRACE SILT, GRAVEL, WOOD, MOIST — 7
BROWN SAND, TRACE SILT, GRAVEL, WOOD, WET — 12
REDDISH BROWN CLAYEY SAND, WITH COURSE SAND LAYERS, LITTLE GRAVEL, WET — 50/4"
REDDISH BROWN TO BROWN CLAYEY SAND, LITTLE GRAVEL, OCCASIONAL COBBLES, WET — 13, 12, 12, 22, 35, 26
END OF BORING @ 61.5' ±

PILING STEEL HP
10-INCH X 42 LB
ESTIMATED LENGTH 75 FEET

PILING STEEL HP
10-INCH X 42 LB
ESTIMATED LENGTH 75 FEET

10+00.00

PILING STEEL HP
10-INCH X 42 LB
ESTIMATED LENGTH 75 FEET

7" CONCRETE BRIDGE DECK
CLEAR SPACE BETWEEN BRIDGE DECK AND WATER SURFACE
WATER
BROWN SAND, LITTLE GRAVEL, TRACE SILT, WET — 34, 24
REDDISH BROWN TO BROWN CLAYEY SAND, LITTLE GRAVEL, OCCASIONAL COBBLES, WET — 2, 3, 16, 16, 17, 11, 18
END OF BORING @ 61.5' ±

11" ASPHALT PAVEMENT
7" BASE COURSE
BROWN SAND, WITH GRAVEL, LITTLE CLAY, DAMP — 22
REDDISH BROWN SAND, LITTLE CLAY, TRACE GRAVEL, MOIST — 22
REDDISH BROWN CLAYEY SAND, LITTLE GRAVEL, MOIST — 11
LIGHT BROWN SAND, TRACE SILT AND GRAVEL, MOIST — 10, 27
GRAYISH BROWN SAND, WITH GRAVEL, LITTLE CLAY, TRACE COBBELS AND ORGANICS, WET — 24
LIGHT BROWN SAND, LITTLE GRAVEL, TRACE SILT AND COBBELS, WET — 12, 17
REDDISH BROWN CLAYEY SAND, LITTLE GRAVEL, OCCASIONAL COBBELS, WET — 16, 10
REDDISH BROWN TO BROWN CLAYEY SAND, LITTLE GRAVEL, OCCASIONAL COBBLES, WET — 15, 17, 11, 17
END OF BORING @ 61.5' ±

PROJECT NUMBER

8180-02-70

ABBREVIATIONS

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

MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
95/6=95 BLOWS FOR 6" PENETRATION PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

LEGEND OF BORING

BORING NO.
STA.
ELEV.
UNCONFINED STRENGTH → 7.7 7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION
SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-54-0120

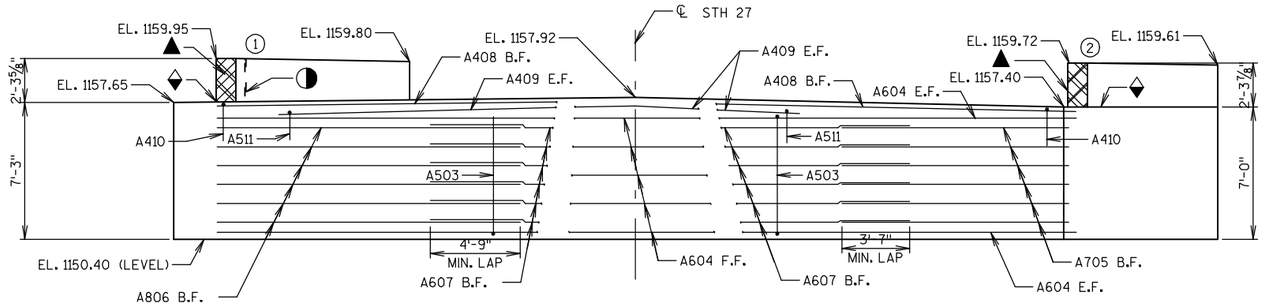
DRAWN BY RMJ | PLANS CK'D. MJG

SUBSURFACE EXPLORATION

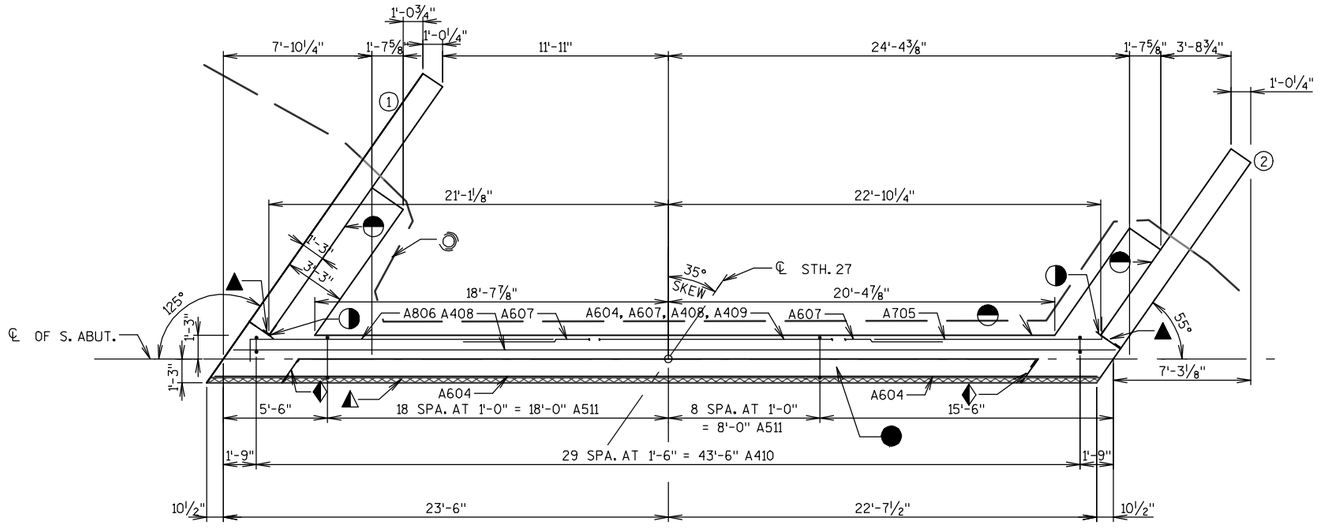
SHEET 3 OF 13
77

FILE=
SCALE =

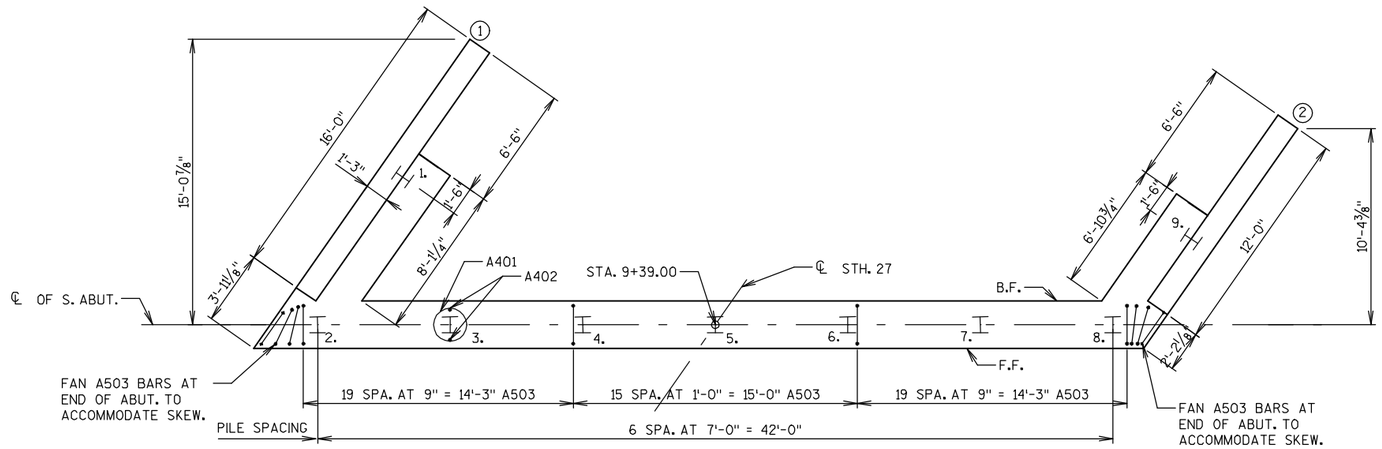
STATE PROJECT NUMBER
8180-02-70



ELEVATION
(S. ABUT. LOOKING SOUTH)



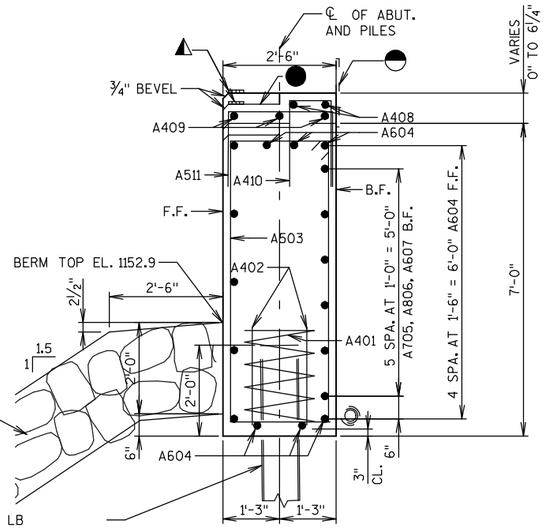
PLAN



PILE LAYOUT

LEGEND

- (#) WING NUMBER.
- SEMI-EXPANSIVE STEP FROM F.F. TO ℄ OF ABUT. CONSTRUCT 3" DEEPER THAN BACKWALL. STEEL TROWEL TOP SURFACE OF ABUT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUT. TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- 4" X¾" FILLER TO EXTEND LENGTH OF ABUT.
- OPT. KEYED CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE. PROVIDE¾" V-GROOVE AT F.F. OF WALL IF OPTIONAL CONSTRUCTION JOINT IS USED.
- HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO SEAL ALL HORIZ. JOINTS ON BACKFACE.
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL. TO SEAL ALL VERT. JOINTS ON BACKFACE.
- ½" FILLER TO EXTEND FROM BIRDGE SEAT TO TOP OF PARAPET. FILLER INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD⅛" BELOW SURFACE OF CONRETE.)
- ¾" CORK FILLER (SIDE VERTICAL FACES ONLY)
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACHED RODENT SHEILD AT ENDS OF PIPE UNDERDRAIN, DETAILED ON SHEET 8.



PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A MIN. DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 75' LONG.

SECTION THRU ABUTMENT BODY

E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

ORIGINAL PLANS PREPARED BY:
FLEMING, ANDRE AND ASSOC., INC.
3615 N. HASTINGS WAY, EAU CLAIRE, WI 54703
715-832-8400 FAX: 715-832-1367

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-0120

DRAWN BY RMJ | PLANS CK'D. MJG

SOUTH ABUTMENT DETAILS

SHEET 4 OF 13
78

8

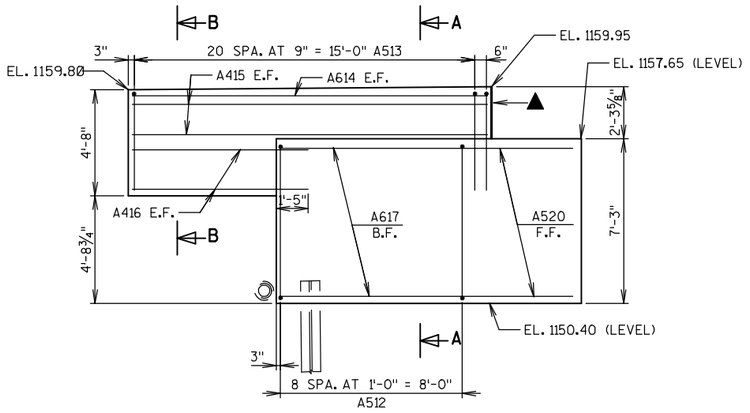
8

STATE PROJECT NUMBER

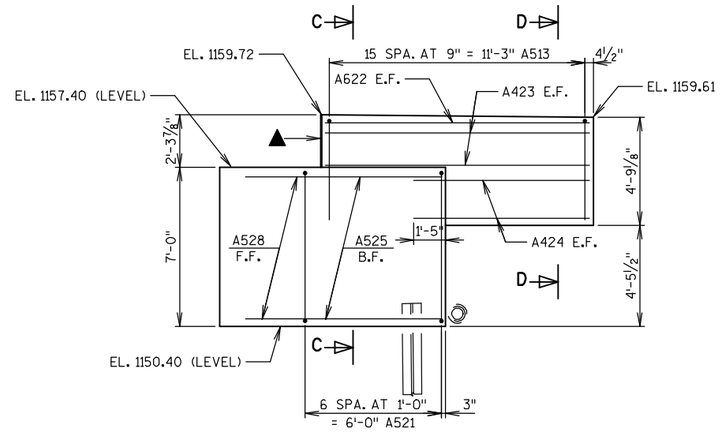
8180-02-70

LEGEND

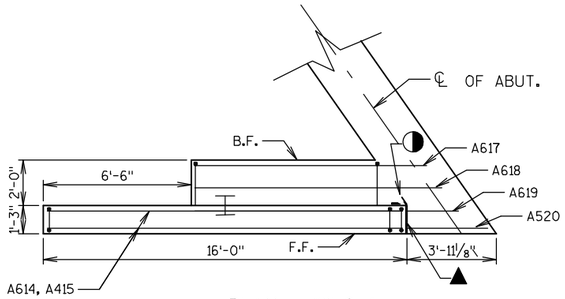
- OPT. KEYED CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE. PROVIDE 3/4" V-GROOVE AT F.F. OF WALL IF OPTIONAL CONSTRUCTION JOINT IS USED.
- HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO SEAL ALL HORIZ. JOINTS ON BACKFACE.
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL. TO SEAL ALL VERT. JOINTS ON BACKFACE.
- 1/2" FILLER TO EXTEND FROM BIRDGE SEAT TO TOP OF PARAPET. FILLER INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONRETE.)
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACHED RODENT SHEILD AT ENDS OF PIPE UNDERDRAIN, DETAILED ON SHEET 6.



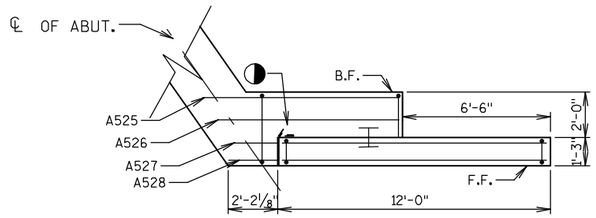
ELEVATION - WING 1



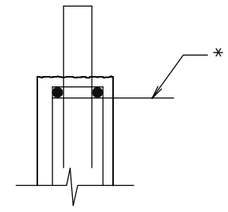
ELEVATION - WING 2



PLAN - WING 1

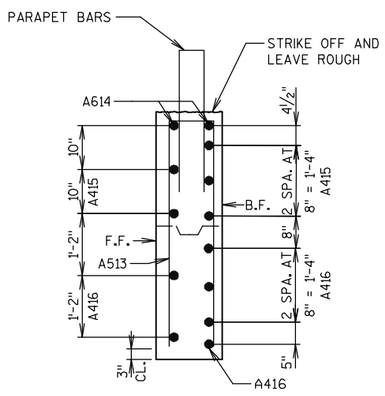


PLAN - WING 2

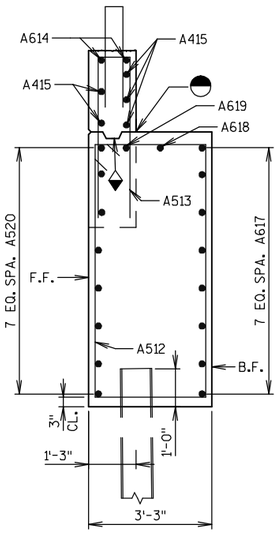


SURFACE DRAIN ANCHOR BAR PLACEMENT

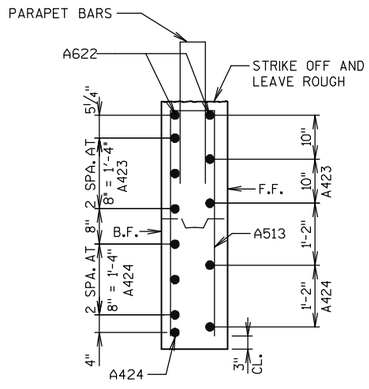
* #4 DOWELS (COATED) 2'-0" LONG SPACED AT 1'-0" ALONG ENTIRE WING LENGTH. (INCIDENTAL TO "CONCRETE SURFACE DRAINS")



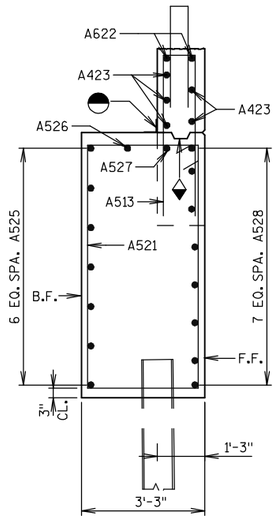
SECTION B-B



SECTION A-A



SECTION D-D



SECTION C-C

E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

ORIGINAL PLANS PREPARED BY:
FLEMING, ANDRE AND ASSOC., INC.
3615 N. HASTINGS WAY, EAU CLAIRE, WI 54703
715-832-8400 FAX: 715-832-1367

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-0120

DRAWN BY: RMJ | PLANS CK'D.: MJG

SOUTH ABUTMENT WING DETAILS

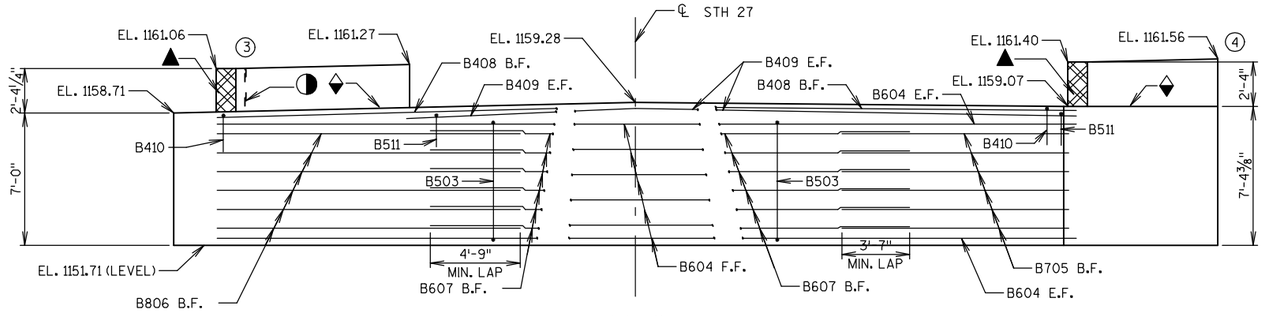
SHEET 5 OF 13

79

8

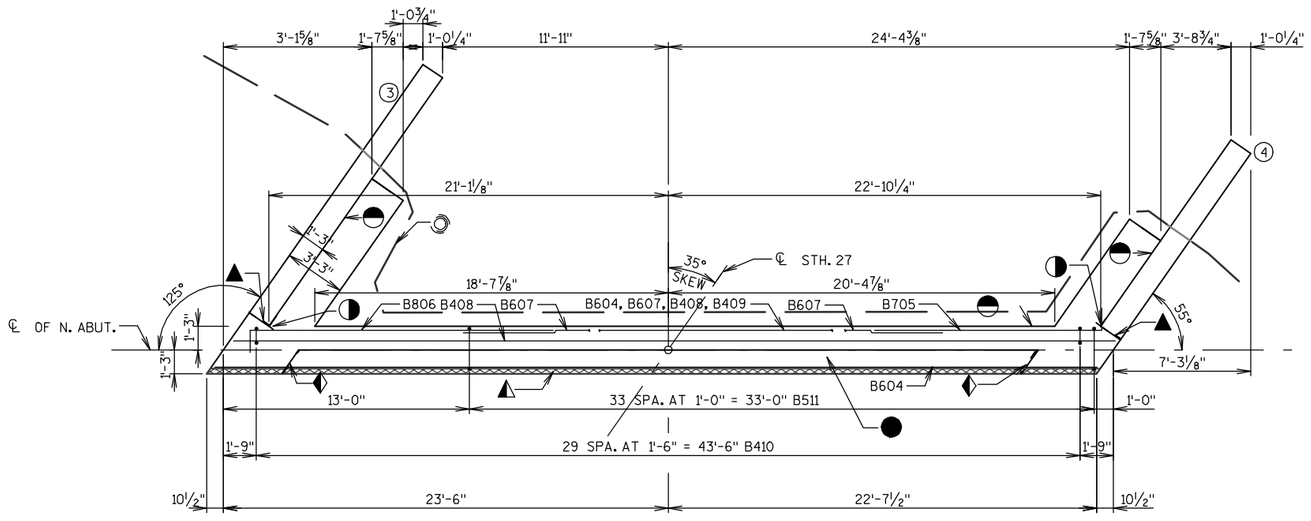
8

STATE PROJECT NUMBER
8180-02-70

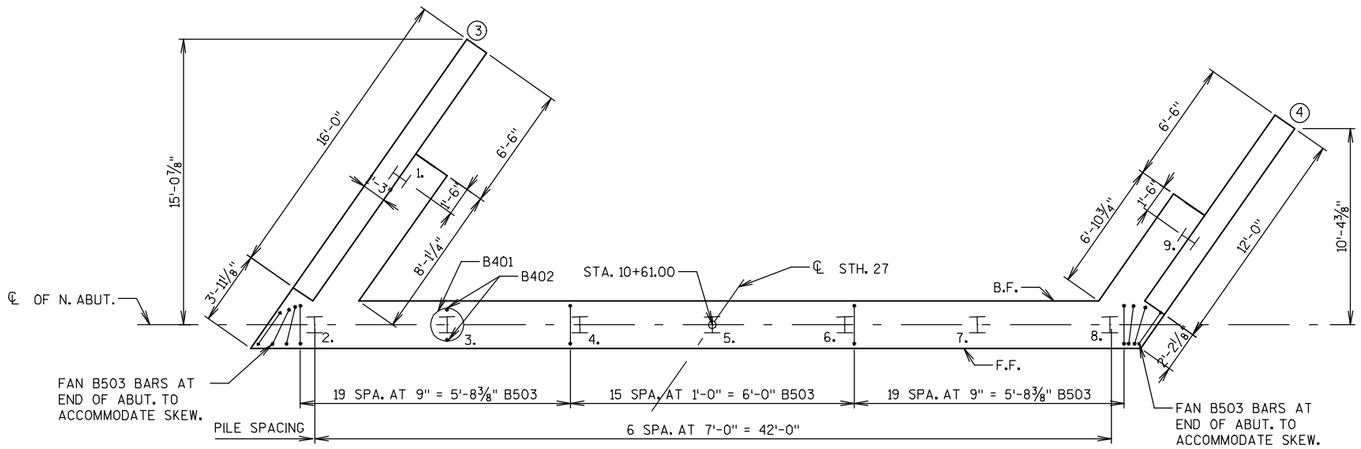


ELEVATION

(N. ABUT. LOOKING NORTH)



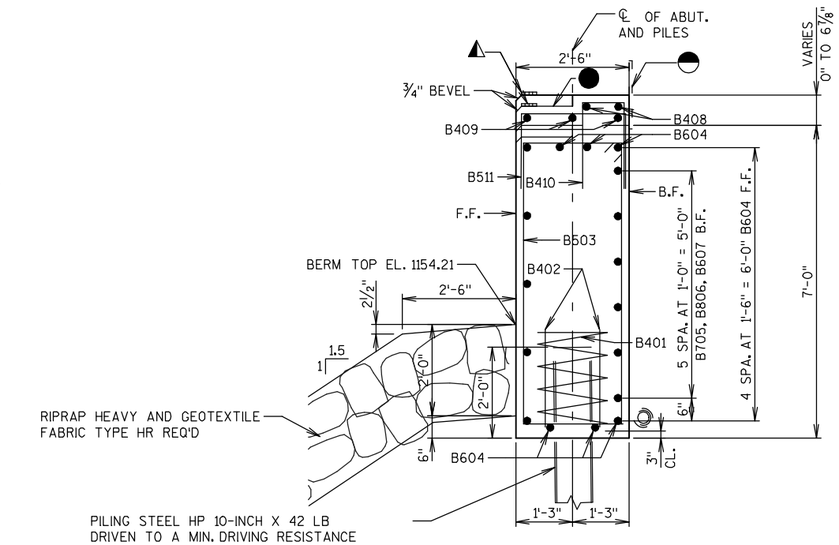
PLAN



PILE LAYOUT

LEGEND

- (#) WING NUMBER.
- SEMI-EXPANSIVE STEP FROM F.F. TO ℄ OF ABUT. CONSTRUCT 3" DEEPER THAN BACKWALL. STEEL TROWEL TOP SURFACE OF ABUT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUT. TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- 4" X ¾" FILLER TO EXTEND LENGTH OF ABUT.
- OPT. KEYED CONST. JOINT FORMED BY BEVELED 2" × 6" KEYWAY WITH MEMBRANE ON BACKFACE. PROVIDE ¾" V-GROOVE AT F.F. OF WALL IF OPTIONAL CONSTRUCTION JOINT IS USED.
- HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO SEAL ALL HORIZ. JOINTS ON BACKFACE.
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL. TO SEAL ALL VERT. JOINTS ON BACKFACE.
- ½" FILLER TO EXTEND FROM BIRDGE SEAT TO TOP OF PARAPET. FILLER INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONRETE.)
- ¾" CORK FILLER (SIDE VERTICAL FACES ONLY)
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACHED RODENT SHEILD AT ENDS OF PIPE UNDERDRAIN, DETAILED ON SHEET 8.



SECTION THRU ABUTMENT BODY

E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

ORIGINAL PLANS PREPARED BY:
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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-0120

DRAWN BY RMJ | PLANS CK'D. MJG

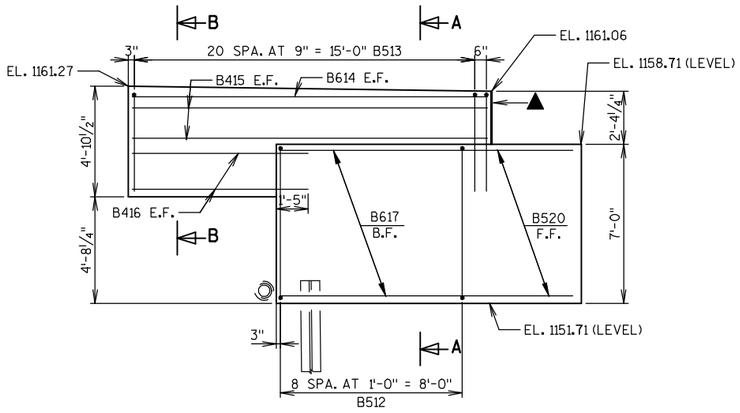
NORTH ABUTMENT DETAILS

SHEET 6 OF 13
80

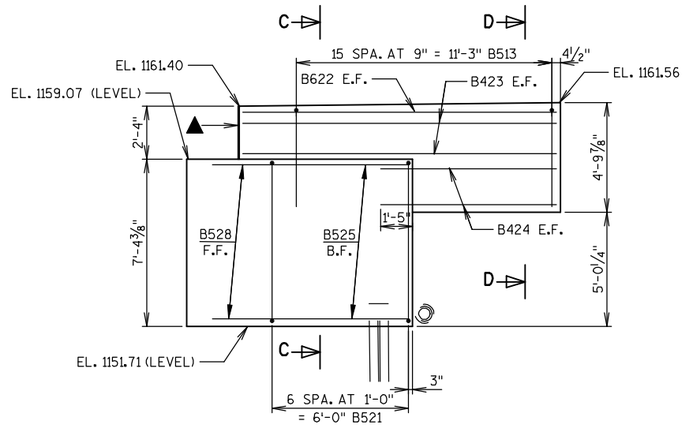
8

8

STATE PROJECT NUMBER
8180-02-70



ELEVATION - WING 3



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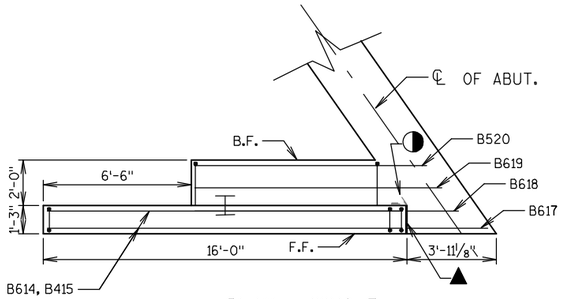
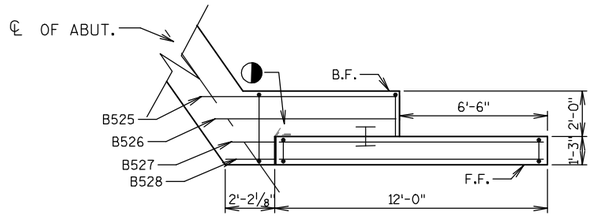
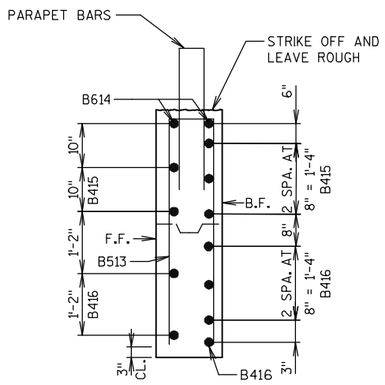


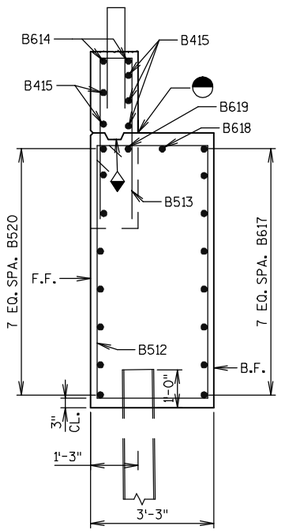
PLAN - WING 3



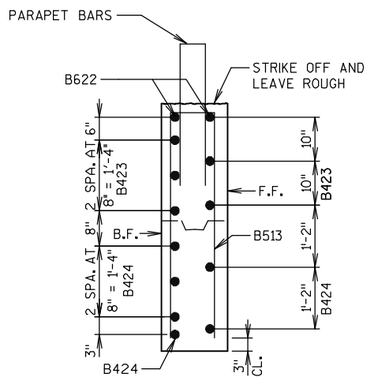
PLAN - WING 4



SECTION B-B



SECTION A-A



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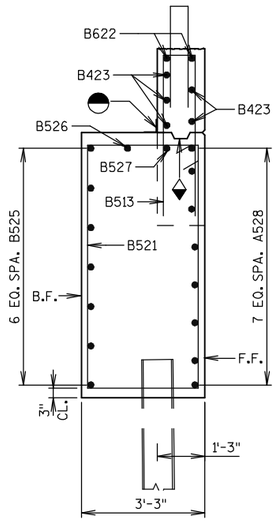

SECTION C-C

LEGEND

- OPT. KEYED CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE. PROVIDE ¾" V-GROOVE AT F.F. OF WALL IF OPTIONAL CONSTRUCTION JOINT IS USED.
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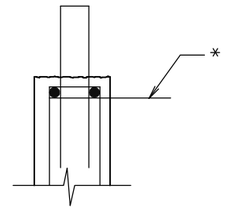
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACHED RODENT SHEILD AT ENDS OF PIPE UNDERDRAIN, DETAILED ON SHEET 8.



SURFACE DRAIN ANCHOR BAR PLACEMENT

* #4 DOWELS (COATED) 2'-0" LONG SPACED AT 1'-0" ALONG ENTIRE WING LENGTH. (INCIDENTAL TO "CONCRETE SURFACE DRAINS")

E.F. DENOTES EACH FACE

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

ORIGINAL PLANS PREPARED BY:
FLEMING, ANDRE AND ASSOC., INC.
3615 N. HASTINGS WAY, EAU CLAIRE, WI 54703
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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-0120

DRAWN BY	RMJ	PLANS CK'D.	MJG

NORTH ABUTMENT WING DETAILS

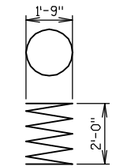
SHEET 7 OF 13
81

8

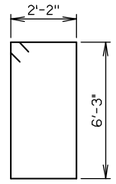
8

STATE PROJECT NUMBER

8180-02-70

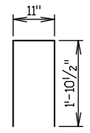


A501, B501

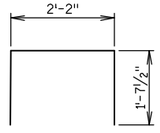


A503, B503

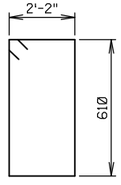
MARK	DIM. A
A705	1'-2"
A806	1'-4"
B705	1'-2"
B806	1'-4"



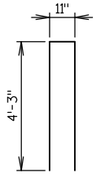
A410, B410



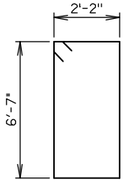
A511, B511



A512, B521



A513, B513



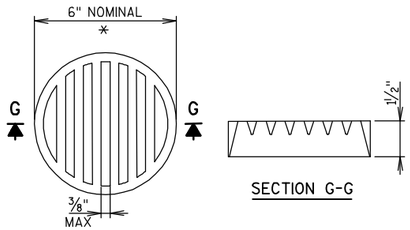
A521, B512

MARK	NO. REQ'D	LENGTH	SERIES	COAT	BENT	LOCATION
A401	7	28 - 0			X	BODY AT PILES
A402	14	2 - 3				BODY AT PILES
A503	58	17 - 5			X	BODY VERT.
A604	11	46 - 7				BODY HORIZ. E.F.
A705	6	13 - Ø			X	BODY HORIZ. B.F.
A806	6	17 - 2			X	BODY HORIZ. B.F.
A607	6	25 - 4				BODY HORIZ. B.F.
A408	2	46 - 7				BODY HORIZ. TOP
A409	3	27 - 0				BODY HORIZ. TOP
A410	30	3 - 6			X	BODY VERT.
A511	27	5 - 3			X	BODY VERT.
A512	9	2Ø - 1		X	X	WING 1 VERT.
A513	38	9 - 2		X	X	WINGS 1 & 2 VERT.
A614	2	15 - 7		X		WING 1 HORIZ. E.F.
A415	5	15 - 7		X		WING 1 HORIZ. E.F.
A416	6	7 - 9		X		WING 1 HORIZ. E.F.
A617	8	10 - 3		X		WING 1 HORIZ. B.F.
A618	1	10 - 11		X		WING 1 HORIZ.
A619	1	11 - 7		X		WING 1 HORIZ.
A520	8	12 - 10		X		WING 1 HORIZ. F.F.
A521	7	19 - 7		X	X	WING 2 VERT.
A622	2	11 - 7		X		WING 2 HORIZ. E.F.
A423	5	11 - 7		X		WING 2 HORIZ. E.F.
A424	6	7 - 9		X		WING 2 HORIZ. E.F.
A525	7	8 - 8		X		WING 2 HORIZ. B.F.
A526	1	8 - 0		X		WING 2 HORIZ.
A527	1	7 - 3		X		WING 2 HORIZ.
A528	8	7 - 5		X		WING 2 HORIZ. F.F.
TOTAL WEIGHT (S. ABUT.) - COATED						1330 LBS
TOTAL WEIGHT (S. ABUT.) - UNCOATED						2970 LBS

SOUTH ABUTMENT - BILL OF BARS

MARK	NO. REQ'D	LENGTH	SERIES	COAT	BENT	LOCATION
B401	7	28 - 0			X	BODY AT PILES
B402	14	2 - 3				BODY AT PILES
B503	58	17 - 5			X	BODY VERT.
B604	11	46 - 7				BODY HORIZ. E.F.
B705	6	13 - Ø			X	BODY HORIZ. B.F.
B806	6	17 - 2			X	BODY HORIZ. B.F.
B607	6	25 - 4				BODY HORIZ. B.F.
B408	2	46 - 7				BODY HORIZ. TOP
B409	3	35 - 4				BODY HORIZ. TOP
B410	30	3 - 6			X	BODY VERT.
B511	34	5 - 3			X	BODY VERT.
B512	9	19 - 7		X	X	WING 3 VERT.
B513	38	9 - 2		X	X	WINGS 3 & 4 VERT.
B614	2	15 - 7		X		WING 3 HORIZ. E.F.
B415	5	15 - 7		X		WING 3 HORIZ. E.F.
B416	6	7 - 9		X		WING 3 HORIZ. E.F.
B617	8	10 - 3		X		WING 3 HORIZ. B.F.
B618	1	10 - 11		X		WING 3 HORIZ.
B619	1	11 - 7		X		WING 3 HORIZ.
B520	8	12 - 10		X		WING 3 HORIZ. F.F.
B521	7	2Ø - 1		X	X	WING 4 VERT.
B622	2	11 - 7		X		WING 4 HORIZ. E.F.
B423	5	11 - 7		X		WING 4 HORIZ. E.F.
B424	6	7 - 9		X		WING 4 HORIZ. E.F.
B525	7	8 - 8		X		WING 4 HORIZ. B.F.
B526	1	8 - 0		X		WING 4 HORIZ.
B527	1	7 - 3		X		WING 4 HORIZ.
B528	8	7 - 5		X		WING 4 HORIZ. F.F.
TOTAL WEIGHT (N. ABUT.) - COATED						1330 LBS
TOTAL WEIGHT (N. ABUT.) - UNCOATED						3030 LBS

NORTH ABUTMENT - BILL OF BARS



* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH SHEET METAL SCREWS.

RODENT SHIELD DETAIL

NOTES

DIMENSIONS ARE OUT TO OUT OF BARS.

ORIGINAL PLANS PREPARED BY:
FLEMING, ANDRE AND ASSOC., INC.
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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-0120

DRAWN BY RMJ | PLANS CK'D. MJG

ABUTMENT DETAILS

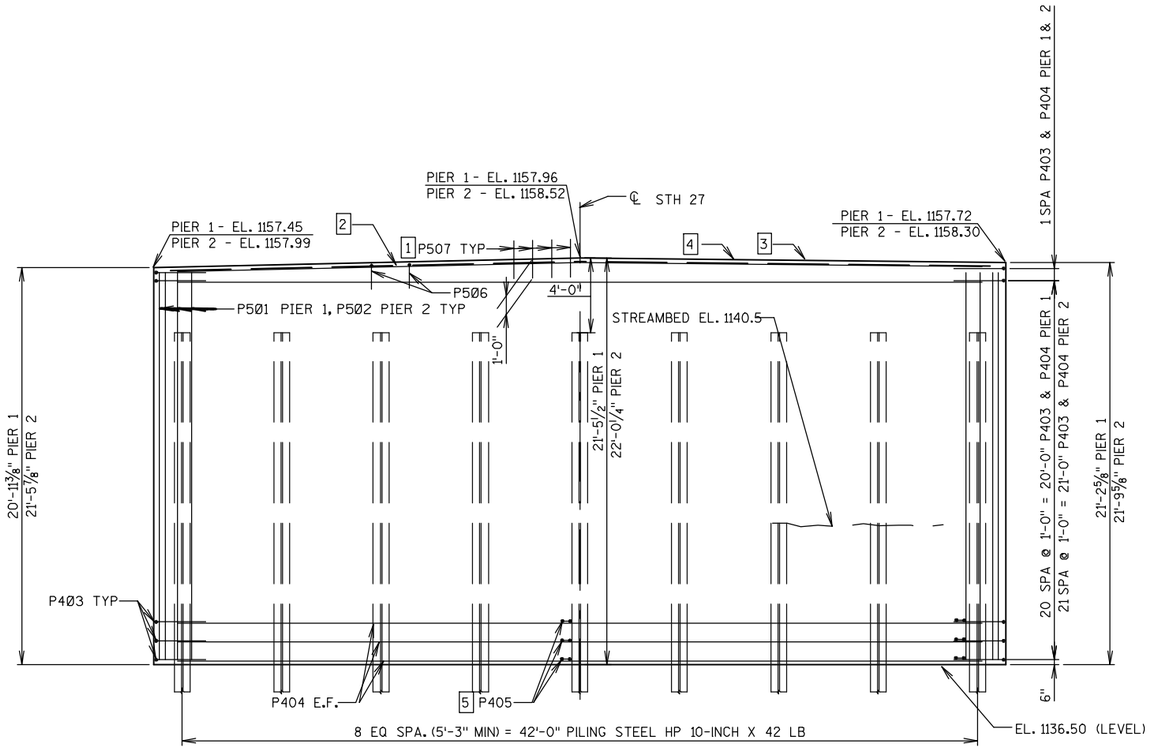
SHEET 8 OF 13

82

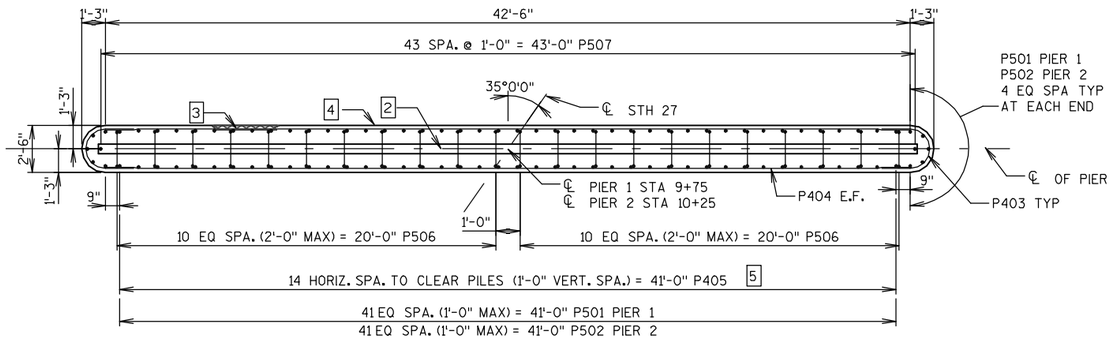
8

8

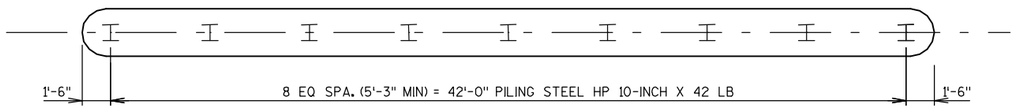
STATE PROJECT NUMBER
8180-02-70



ELEVATION
(LOOKING NORTH)



PLAN



PLAN - PILE LAYOUT

NOTES

PIER TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE. ESTIMATED 75' LONG.

FOR PILE SPLICE DETAILS SEE SHEET 2

1. P507 BARS AT 1'-0" MAX CENTERS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. EMBED 1'-0" INTO CONCRETE.
2. KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"X6" KEYWAY
3. 4" X ¾" FILLER TO EXTEND AROUND TOP EDGES OF PIER
4. ¾" BEVEL TO EXTEND AROUND TOP EDGES OF PIER
5. ALTERNATE THE POSITION OF 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES. ADJACENT TO EACH PILE, ONE SIDE ONLY.

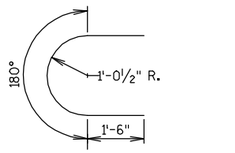
BILL OF BARS PIERS 1 & 2

COATED 8620 LBS

MARK	NO. REQ'D	LENGTH	COAT	BENT	LOCATION
P501	94	20 - 3	X		PIER 1 COLUMN VERT.
P502	94	20 - 9	X		PIER 2 COLUMN VERT.
P403	90	6 - 4	X	X	COLUMN - HORIZ. AT END
P404	90	42 - 6	X		COLUMN - HORIZ.
P405	645	2 - 11	X	X	COLUMN BODY TIES
P506	44	4 - 9	X	X	COLUMN TOP
P507	88	2 - 0	X		DOWELS

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS

THE FIRST DIGIT OF A 3 DIGIT BAR MARK OR THE FIRST 2 DIGITS OF A 4 DIGIT BAR MARK SIGNIFIES THE BAR SIZE



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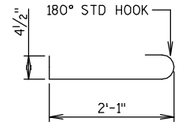

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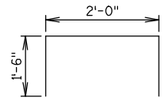

P506

E.F. DENOTES EACH FACE

DIMENSIONS ARE NORMAL TO ℄ OF SUBSTRUCTURE, UNLESS SPECIFIED OTHERWISE.

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3615 N. HASTINGS WAY, EAU CLAIRE, WI 54703
715-832-8400 FAX: 715-832-1367

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-0120

DRAWN BY	MJG	PLANS CK'D.	DDB

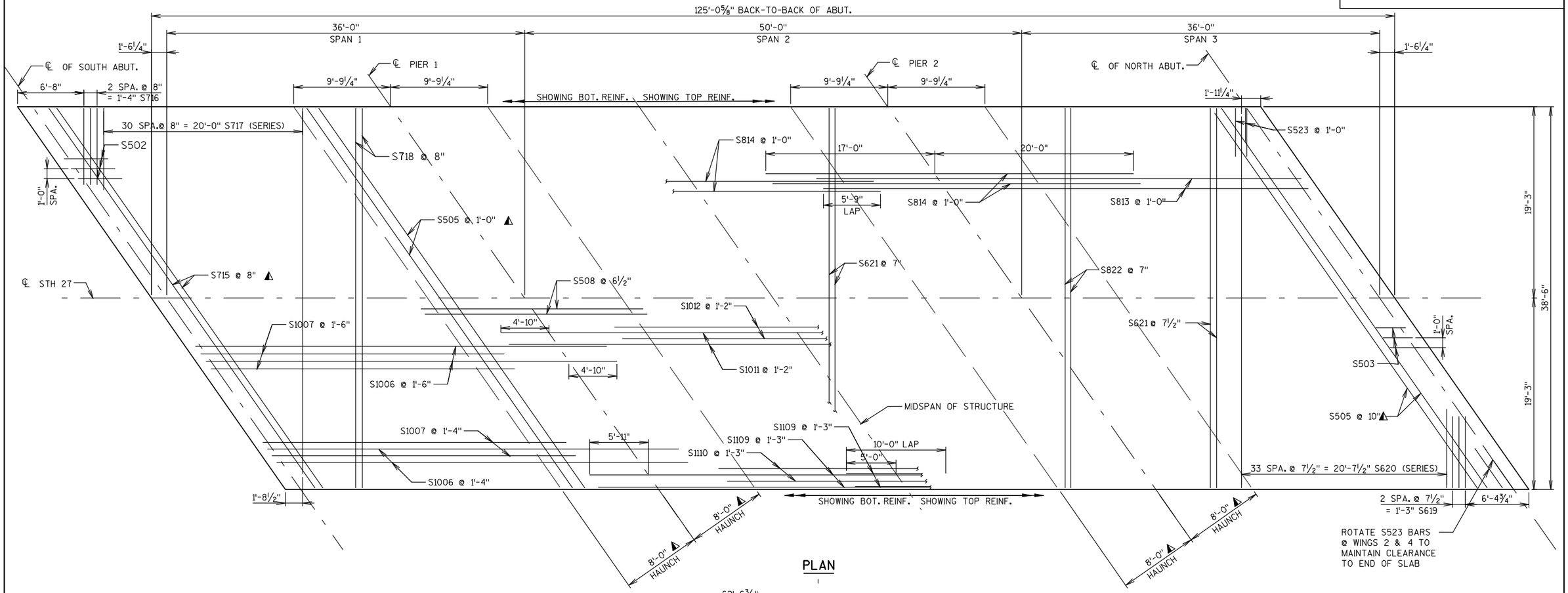
PIER DETAILS

SHEET 9 OF 13
83

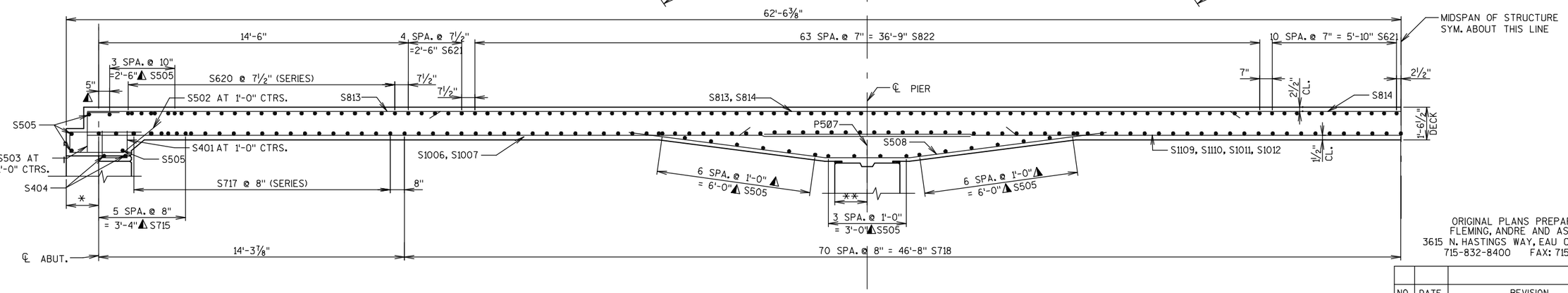
8

8

STATE PROJECT NUMBER
8180-02-70



PLAN



LONGITUDINAL HALF-SECTION

LEGEND

* SEE SHEET 11 FOR SLAB DIMENSIONS AT ABUT.
** SEE SHEET 11 FOR SLAB DIMENSIONS AT PIER.
◭ MEASURED NORMAL TO ℄ OF SUBSTRUCTURE

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-0120

DRAWN BY	RMJ	PLANS CK'D.	MJG

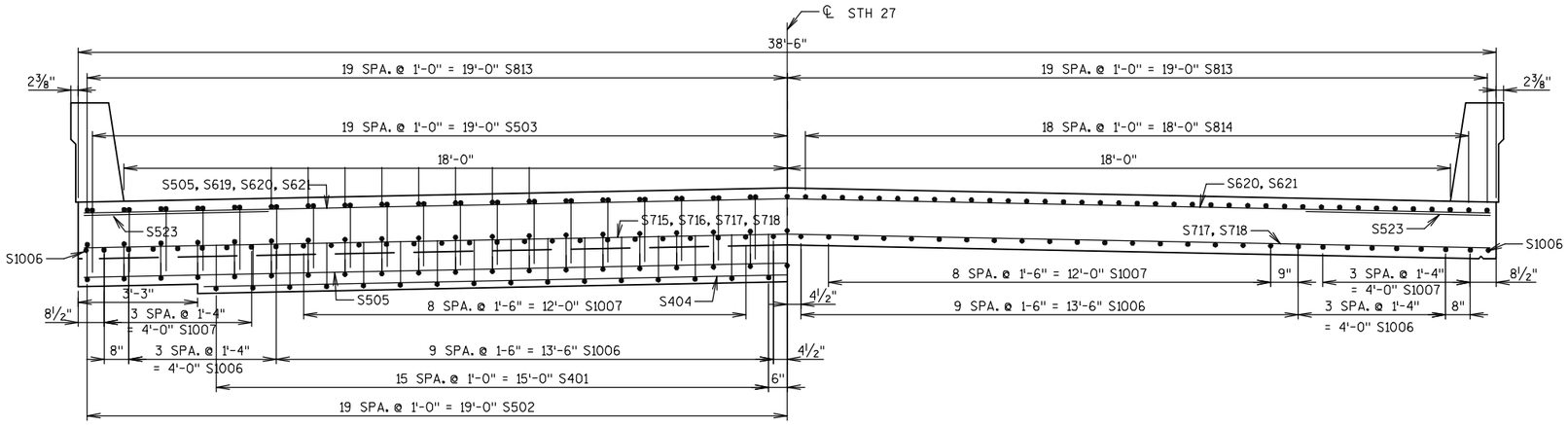
SUPERSTRUCTURE DETAILS

SHEET 10 OF 13
84

8

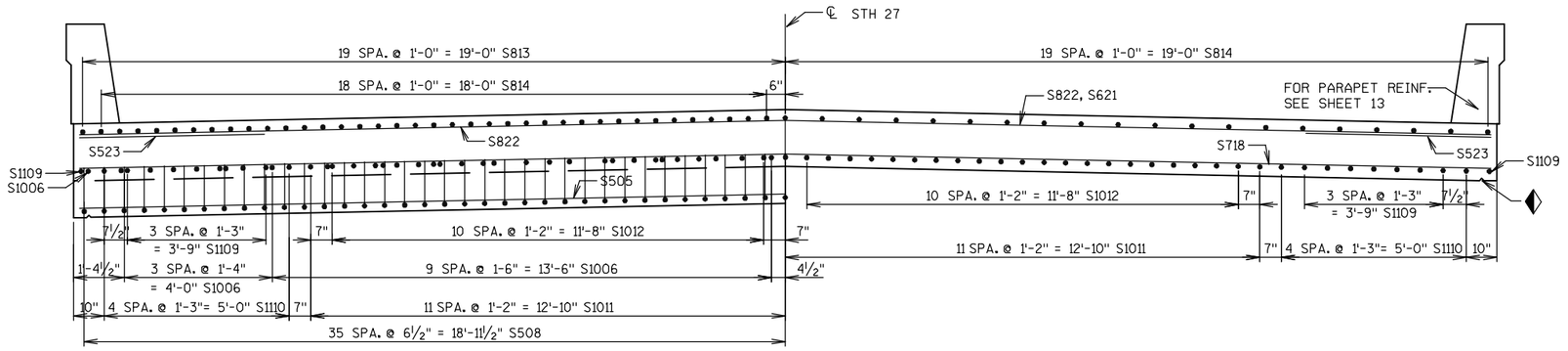
8

STATE PROJECT NUMBER
8180-02-70



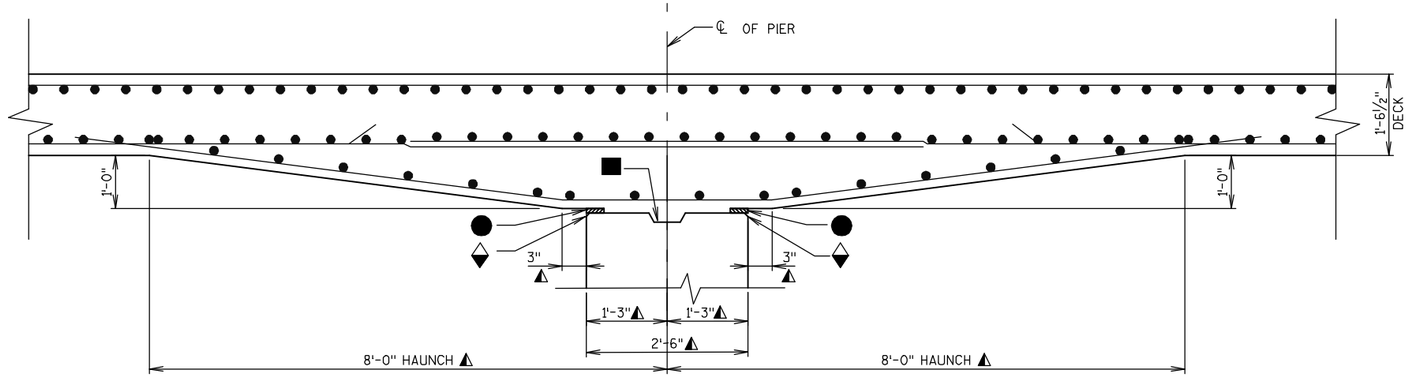
AT ABUTMENTS **IN SPANS 1& 3**

SECTION THRU DECK



AT PIERS **IN SPANS 2**

SECTION THRU DECK



SLAB AT PIER

NOTES

DIMENSIONS ARE OUT TO OUT OF BARS.

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

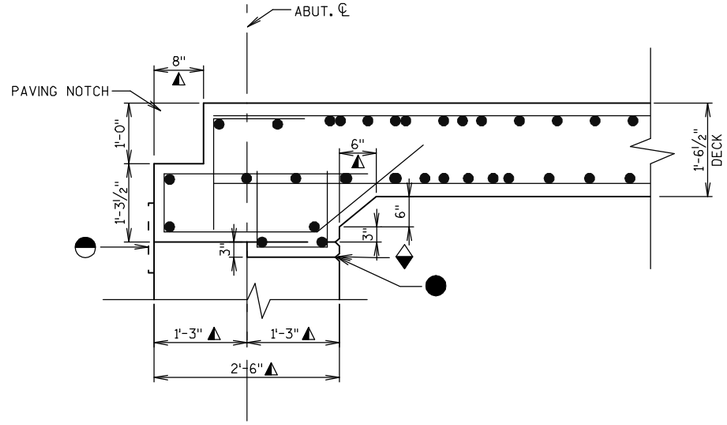
TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

PARAPETS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED, EXCEPT FOR STAGED CONSTRUCTION.

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

LEGEND

- HORIZONTAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO SEAL ALL HORIZ. JOINTS ON BACKFACE.
- 4" x ¾" FILLER TO EXTEND BETWEEN EDGES OF SLAB
- ¾" BEVEL
- ¾" CONT. DRIP GROOVE TO END 6" FROM F.F. OF ABUT.
- 2" x 6" BEVELED KEYWAY
- MEASURED NORMAL TO ℄ OF SUBSTRUCTURE



SLAB AT ABUTMENT

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-54-0120

DRAWN BY	RMJ	PLANS CK'D.	MJG

SUPERSTRUCTURE DETAILS

SHEET 11 OF 13
85

8

8

STATE PROJECT NUMBER
8180-02-70

BILL OF BARS - SUPERSTRUCTURE

MARK	NO. REQ'D	LENGTH	SERIES	COAT	BENT	LOCATION
S401	64	3 - 6		X	X	SEMI-EXP. NOTCH @ ABUT. - VERT.
S502	78	8 - 5		X	X	SLAB BOT. @ ABUT. - VERT.
S503	78	3 - 3		X	X	SLAB TOP. @ ABUT. - VERT.
S404	4	38 - 7		X		SEMI-EXP. NOTCH @ ABUT. - TRANS.
S505	52	46 - 7		X		SKEWED - TRANS.
S1006	56	41 - 3		X		SLAB BOT. - SPANS 1& 3 - LONG.
S1007	52	30 - 6		X		SLAB BOT. - SPANS 1& 3 - LONG.
S508	142	22 - 7		X	X	HAUNCH BOT. @ PIER - LONG.
S1109	20	35 - 11		X		SLAB EDGE BOT. - SPAN 2 - LONG.
S1110	10	35 - 0		X		SLAB EDGE BOT. - SPAN 2 - LONG.
S1011	23	59 - 8		X		SLAB BOT. - SPAN 2 - LONG.
S1012	22	36 - 0		X		SLAB BOT. - SPAN 2 - LONG.
S813	78	48 - 9		X		SLAB TOP - SPANS 1& 3 - LONG.
S814	115	37 - 0		X		SLAB TOP - LONG.
S715	12	46 - 7		X		SLAB BOT. @ ABUT. (SKEWED) - TRANS.
S716	6	7 - 8		X		SLAB BOT. - SPANS 1& 3 - TRANS.
S717	62	22 - 6	Ⓧ	X		SLAB BOT. - SPANS 1& 3 - TRANS.
S718	141	38 - 2		X		SLAB BOT. - TRANS.
S619	6	7 - 0		X		SLAB TOP. - SPANS 1& 3 - TRANS.
S620	68	22 - 8	Ⓧ	X		SLAB TOP. - SPANS 1& 3 - TRANS.
S621	32	38 - 2		X		SLAB TOP. - TRANS.
S822	128	38 - 2		X		SLAB TOP. - TRANS.
S523	246	5 - 0		X		SLAB TOP @ EDGE - TRANS.
S524	36	42 - 5		X		PARAPET - LONG.
S525	366	5 - 0		X	X	PARAPET - VERT.
S526	366	4 - 5		X	X	PARAPET - VERT.
						TOTAL WEIGHT (COATED) - 99,160 LBS

Ⓧ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE ADJACENT BAR SERIES TABLE FOR ACTUAL LENGTHS.

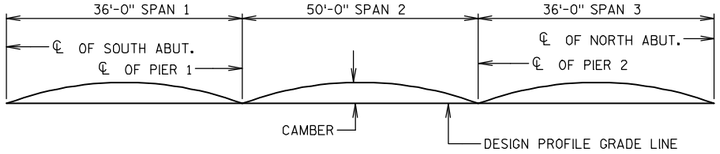
BAR SERIES TABLE

MARK	NO. REQ'D	LENGTH
S717	2 SERIES OF 31	8-2 TO 36-9
S620	2 SERIES OF 34	7-11 TO 37-4

BUNDLE AND TAG EACH SERIES SEPARATELY.

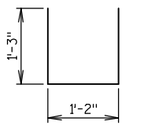
TOP OF SLAB ELEVATIONS AND CAMBER VALUES

SPAN POINT	LEFT EDGE			BRIDGE ℄			RIGHT EDGE		
	STA.	ELEV.	CAMBER (INCHES)	STA.	ELEV.	CAMBER (INCHES)	STA.	ELEV.	CAMBER (INCHES)
S. ABUT. ℄	9+25.52	1159.70	0	9+39.00	1160.21	0	9+52.48	1159.95	0
0.1	9+29.12	1159.74	1/8	9+42.60	1160.24	1/8	9+56.08	1159.99	0
0.2	9+32.72	1159.77	3/8	9+46.20	1160.27	1/4	9+59.68	1160.02	0
0.3	9+36.32	1159.80	1/2	9+49.80	1160.31	1/4	9+63.28	1160.06	0
0.4	9+39.92	1159.83	1/2	9+53.40	1160.34	1/4	9+66.88	1160.10	0
0.5	9+43.52	1159.87	1/2	9+57.00	1160.38	1/4	9+70.48	1160.13	0
0.6	9+47.12	1159.90	1/2	9+60.60	1160.41	1/8	9+74.08	1160.17	0
0.7	9+50.72	1159.94	3/8	9+64.20	1160.45	1/8	9+77.68	1160.21	0
0.8	9+54.32	1159.97	1/4	9+67.80	1160.49	0	9+81.28	1160.25	0
0.9	9+57.92	1160.01	1/8	9+71.40	1160.52	0	9+84.88	1160.28	0
PIER 1 ℄	9+61.52	1160.04	0	9+75.00	1160.56	0	9+88.48	1160.32	0
0.1	9+66.52	1160.09	0	9+80.00	1160.61	1/8	9+93.48	1160.38	1/4
0.2	9+71.52	1160.14	0	9+85.00	1160.66	1/4	9+98.48	1160.43	1/2
0.3	9+76.52	1160.20	1/4	9+90.00	1160.72	1/2	10+03.48	1160.49	5/8
0.4	9+81.52	1160.25	3/8	9+95.00	1160.77	5/8	10+08.48	1160.54	3/4
0.5	9+86.52	1160.30	5/8	10+00.00	1160.83	3/4	10+13.48	1160.60	5/8
0.6	9+91.52	1160.36	3/4	10+05.00	1160.89	5/8	10+18.48	1160.66	3/8
0.7	9+96.52	1160.41	5/8	10+10.00	1160.94	1/2	10+23.48	1160.72	1/4
0.8	10+01.52	1160.47	1/2	10+15.00	1161.00	1/4	10+28.48	1160.78	0
0.9	10+06.52	1160.52	1/4	10+20.00	1161.06	1/8	10+33.48	1160.84	0
PIER 2 ℄	10+11.52	1160.58	0	10+25.00	1161.12	0	10+38.48	1160.90	0
0.1	10+15.12	1160.62	0	10+28.60	1161.16	0	10+42.08	1160.95	1/8
0.2	10+18.72	1160.66	0	10+32.20	1161.20	0	10+45.68	1160.99	1/4
0.3	10+22.32	1160.71	0	10+35.80	1161.25	1/8	10+49.28	1161.04	3/8
0.4	10+25.92	1160.75	0	10+39.40	1161.29	1/8	10+52.88	1161.08	1/2
0.5	10+29.52	1160.79	0	10+43.00	1161.34	1/4	10+56.48	1161.13	1/2
0.6	10+33.12	1160.84	0	10+46.60	1161.38	1/4	10+60.08	1161.18	1/2
0.7	10+36.72	1160.88	0	10+50.20	1161.43	1/4	10+63.68	1161.22	1/2
0.8	10+40.32	1160.92	0	10+53.80	1161.47	1/4	10+67.28	1161.27	3/8
0.9	10+43.92	1160.97	0	10+57.40	1161.52	1/8	10+70.88	1161.32	1/8
N. ABUT. ℄	10+47.52	1161.01	0	10+61.00	1161.57	0	10+74.48	1161.37	0



CAMBER DIAGRAM

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION AND FUTURE CREEP. SEE CAMBER VALUES IN ADJACENT TABLE. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. DEADLOAD DEFLECTION COMPRISES APPROXIMATELY 1/3 OF THE FULL CAMBER VALUE GIVEN.



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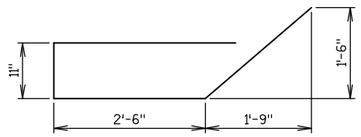
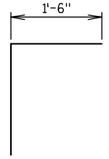


S502



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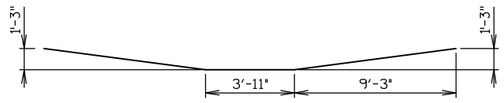

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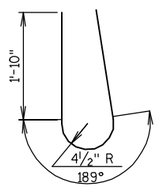

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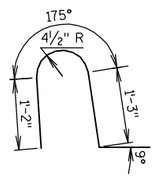

S526

NOTES

DIMENSIONS ARE OUT TO OUT OF BARS.

PARAPETS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED, EXCEPT FOR STAGED CONSTRUCTION.

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

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURE B-54-0120

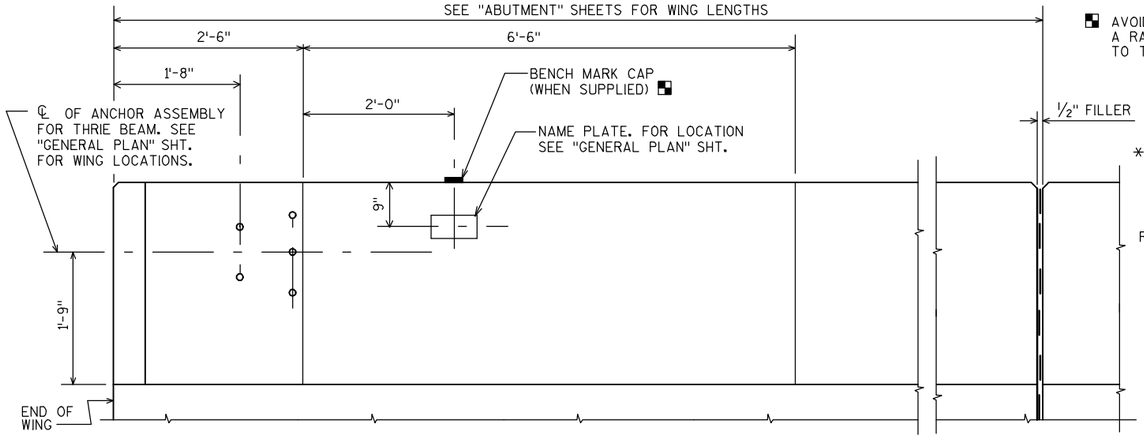
DRAWN BY	RMJ	PLANS CK'D.	MJG

SUPERSTRUCTURE DETAILS

8

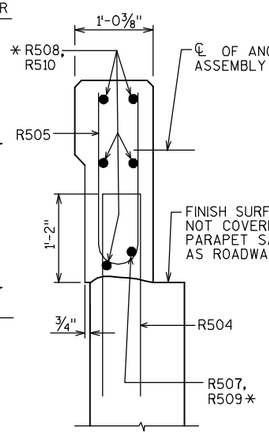
8

STATE PROJECT NUMBER
8180-02-70

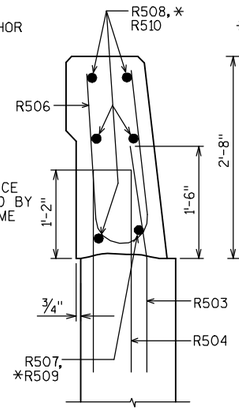


AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

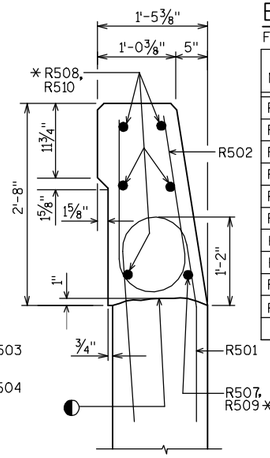
INSIDE ELEVATION



SECTION A



SECTION B

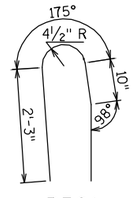


SECTION C

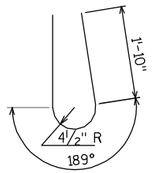
BILL OF BARS

FOR ABUTMENT PARAPETS

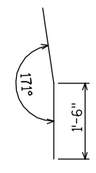
BAR MARK	COAT	NORTH ABUT.	SOUTH ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	16	16	5-10	X		PARAPET VERT.
R502	X	16	16	5-0	X		PARAPET VERT.
R503	X	24	24	3-0	X		PARAPET VERT.
R504	X	34	34	5-7	X		PARAPET VERT.
R505	X	22	22	4-9	X		PARAPET VERT.
R506	X	12	12	4-10	X		PARAPET VERT.
R507	X	1	1	15-6	X		PARAPET HORIZ.
R508	X	5	5	15-6			PARAPET HORIZ.
R509	X	1	1	11-6	X		PARAPET HORIZ
R510	X	5	5	11-6			PARAPET HORIZ



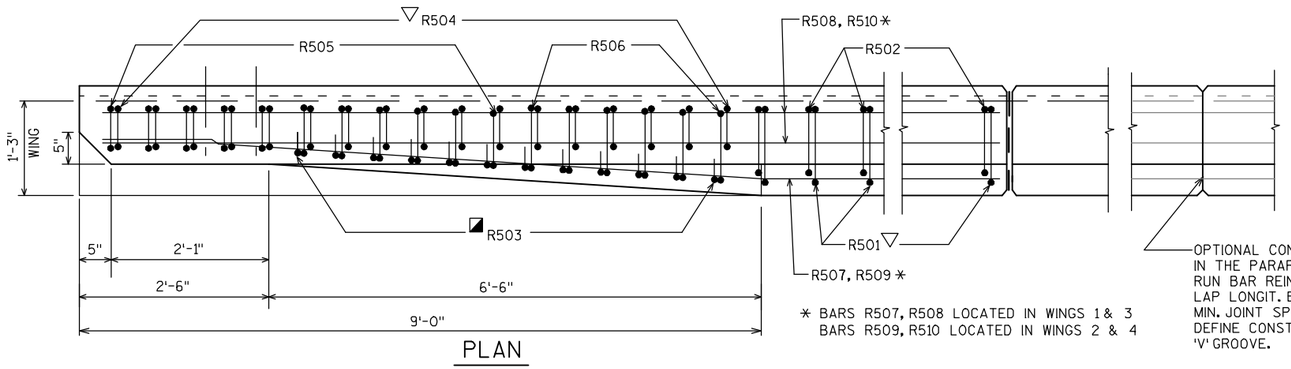
R501



R502



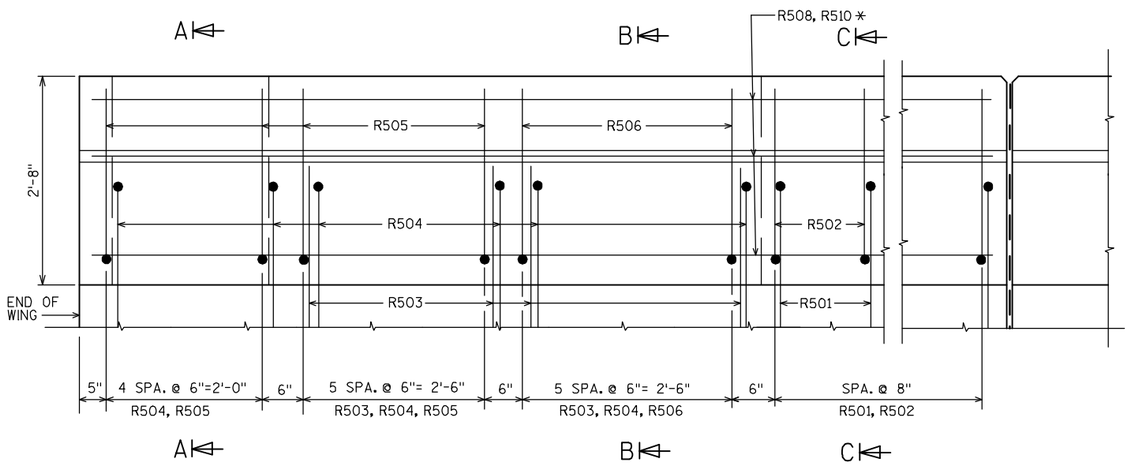
R503



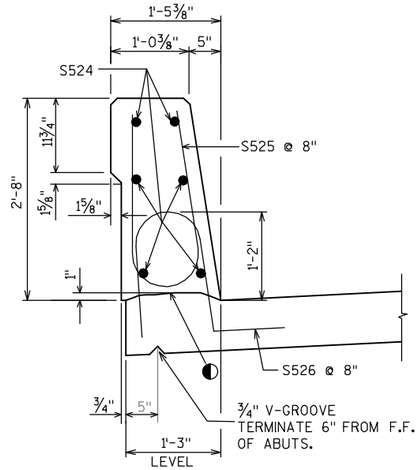
PLAN

* BARS R507, R508 LOCATED IN WINGS 1 & 3
BARS R509, R510 LOCATED IN WINGS 2 & 4

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.



OUTSIDE ELEVATION



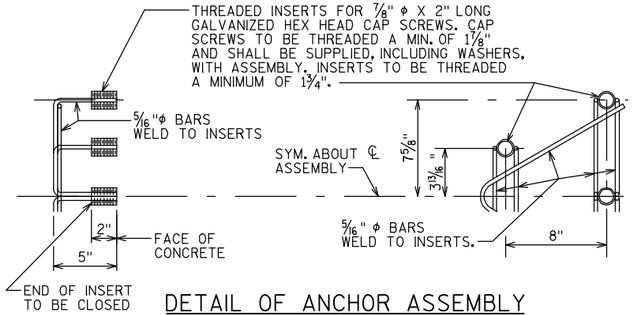
SECTION THRU PARAPET ON BRIDGE

R504

R505

R506

R507
R509



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 OR S503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-54-0120

DRAWN BY	RMJ	PLANS CK'D.	MJG

SINGLE SLOPE PARAPET 32SS

SHEET 13 OF 13
87

8

1 2 3 4 7 9 12

SCALE = 1

32SSWIN
1-14

STATION	REAL STATION	DISTANCE	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		MASS ORD.
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXP. FILL 1.25	Note 8
3+00	300		42	28	0	0	0	0	0	0	0
3+50	350	50	33	28	24	69	52	22	69	28	42
4+00	400	50	29	28	44	57	52	63	126	106	20
4+50	450	50	39	28	22	63	52	61	189	183	6
5+00	500	50	57	28	42	89	52	59	278	256	21
5+33	533	33	29	28	25	53	35	41	331	308	22
5+50	550	17	49	28	45	24	18	22	355	335	19
6+00	600	50	9	28	67	53	52	103	408	464	-56
6+46	646	46	5	28	159	12	48	192	420	704	-284
6+50	650	4	5	28	63	1	4	16	421	724	-304
6+62	662	12	2	28	92	2	13	34	423	766	-344
7+00	700	38	0	28	104	1	40	138	424	939	-516
7+48	748	48	0	28	123	0	50	201	424	1190	-767
7+50	750	2	3	28	120	0	2	9	424	1201	-778
7+69	769	19	1	28	128	1	20	88	425	1311	-887
7+84	784	15	0	28	133	0	16	74	425	1404	-979
8+00	800	16	0	28	134	0	16	77	425	1500	-1075
8+07	807	7	0	28	134	0	7	33	425	1541	-1117
8+23	823	16	0	28	116	0	17	75	425	1635	-1210
8+29	829	6	0	28	116	0	6	26	425	1668	-1243
8+44	844	15	0	28	120	0	16	66	425	1750	-1325
8+48	848	4	0	28	118	0	4	17	425	1771	-1347
8+50	850	2	0	28	118	0	2	9	425	1783	-1358
8+69	869	19	0	28	140	0	20	91	425	1896	-1472
8+73	873	4	0	28	132	0	4	19	425	1920	-1495
8+94	894	21	0	28	178	0	22	122	425	2073	-1648
9+00	900	6	0	28	186	0	6	40	425	2123	-1698
9+13	913	13	0	28	261	0	14	107	425	2256	-1832
9+34	934	21	0	28	95	0	22	140	425	2431	-2007
9+37	937	3	0	28	73	0	4	10	425	2444	-2019
						425	666	1955			

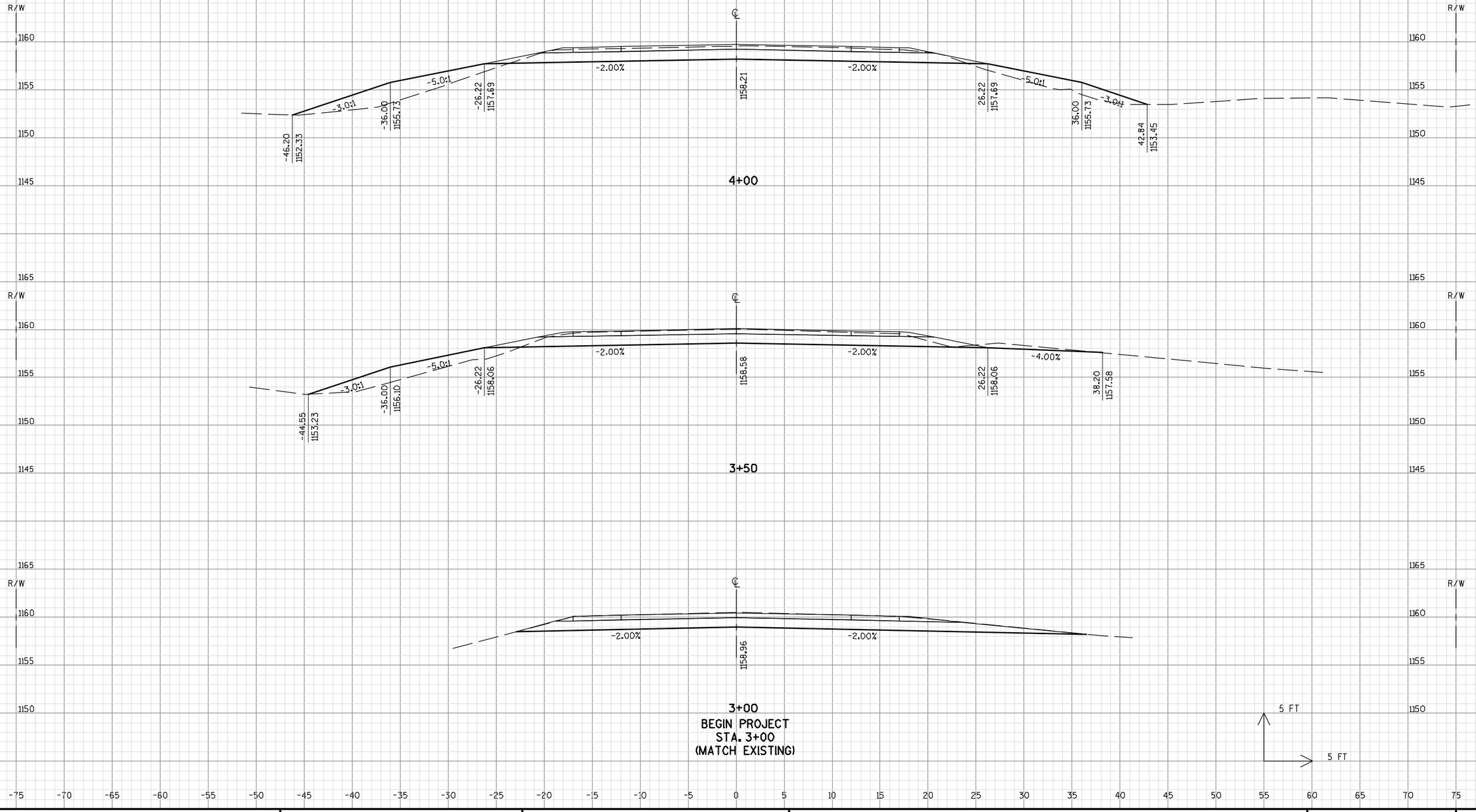
STATION	REAL STATION	DISTANCE	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		MASS ORD.
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXP. FILL 1.25	Note 8
10+63	1063		0	28	68	0	0	0	0	0	0
10+66	1066	3	0	28	103	0	4	11	0	14	-14
10+87	1087	21	0	28	250	0	22	138	0	186	-186
11+00	1100	13	0	28	204	0	14	108	0	321	-321
11+50	1150	50	0	28	200	0	52	374	0	789	-789
11+81	1181	31	0	28	218	0	32	239	0	1088	-1088
12+00	1200	19	0	28	229	0	20	158	0	1285	-1285
12+02	1202	2	0	28	230	0	2	19	0	1309	-1309
12+06	1206	4	0	28	240	0	4	32	0	1349	-1349
12+27	1227	21	0	28	311	0	22	217	0	1620	-1620
12+31	1231	4	0	28	302	0	4	42	0	1673	-1673
12+50	1250	19	0	28	258	0	20	198	0	1920	-1920
12+52	1252	2	0	28	254	0	2	21	0	1946	-1946
12+68	1268	16	0	28	229	0	17	145	0	2128	-2128
12+90	1290	21	1	28	176	1	22	160	1	2328	-2327
13+00	1300	10	0	28	162	0	11	65	1	2409	-2408
13+06	1306	6	0	28	149	0	6	34	1	2451	-2450
13+27	1327	21	0	28	136	0	22	112	1	2591	-2590
13+50	1350	23	5	28	115	2	24	106	3	2724	-2721
13+61	1361	11	0	28	106	1	12	45	4	2780	-2776
14+00	1400	39	0	28	87	0	41	139	4	2954	-2950
14+50	1450	50	0	28	53	0	52	130	4	3116	-3112
15+00	1500	50	12	28	27	11	52	74	15	3209	-3194
15+33	1533	33	18	28	14	18	35	25	33	3240	-3207
15+50	1550	17	11	28	12	9	18	8	42	3250	-3208
16+00	1600	50	25	28	14	35	52	24	77	3280	-3204
16+50	1650	50	38	28	0	58	52	13	135	3296	-3162
						135	614	2637			

1- Cut	Cut does not include Salvaged Pavement material (paid with Removing Asphaltic Surface)
2 - Salvaged/Unusable Pavement Material	This does not show up in cross sections
3 - Fill	Includes volume to backfill removed pavement

9

9

PROJECT NO: 8180-20-70 | HWY: STH 27 | COUNTY: RUSK | EARTHWORK | SHEET 88 | E



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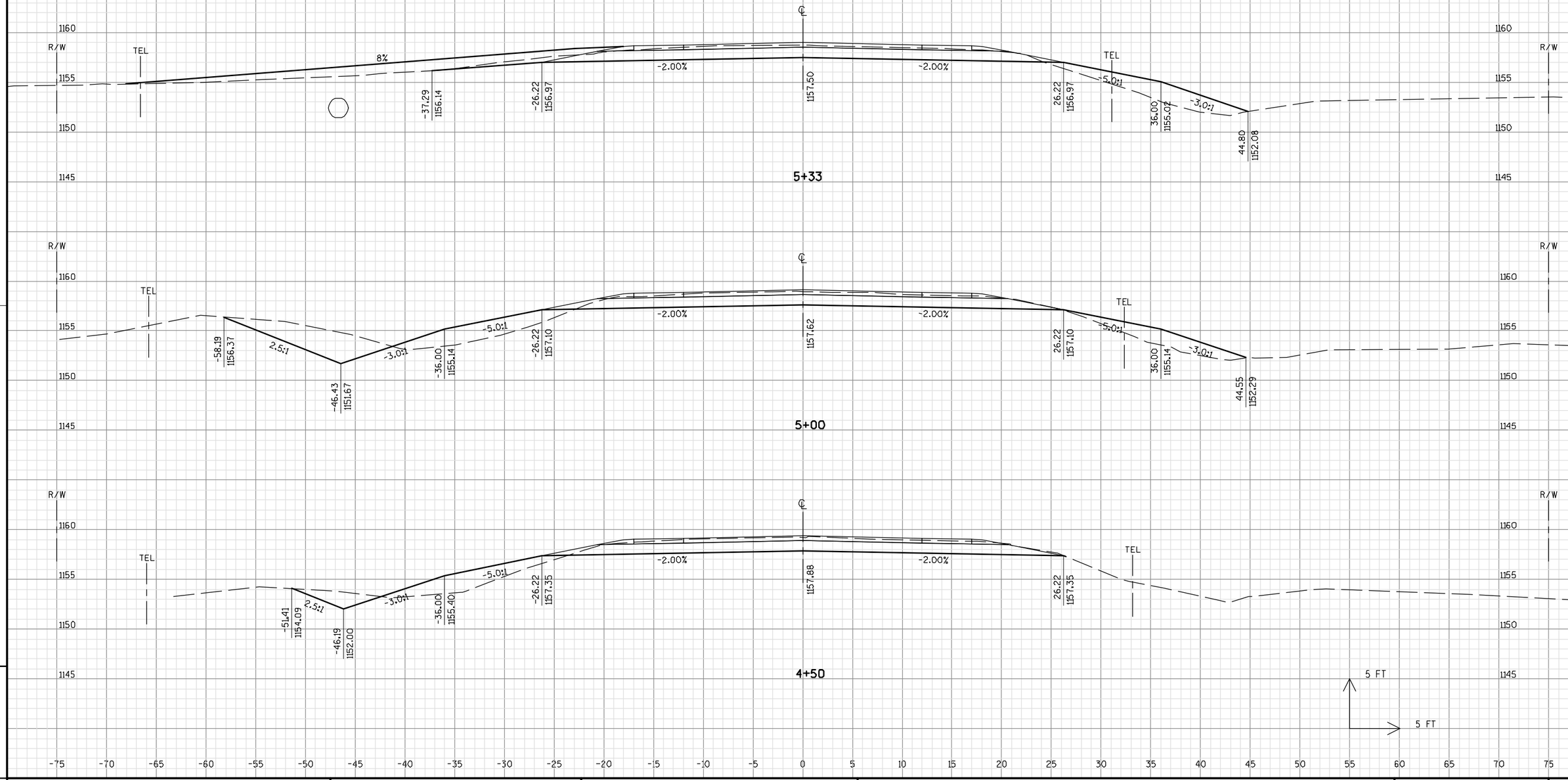
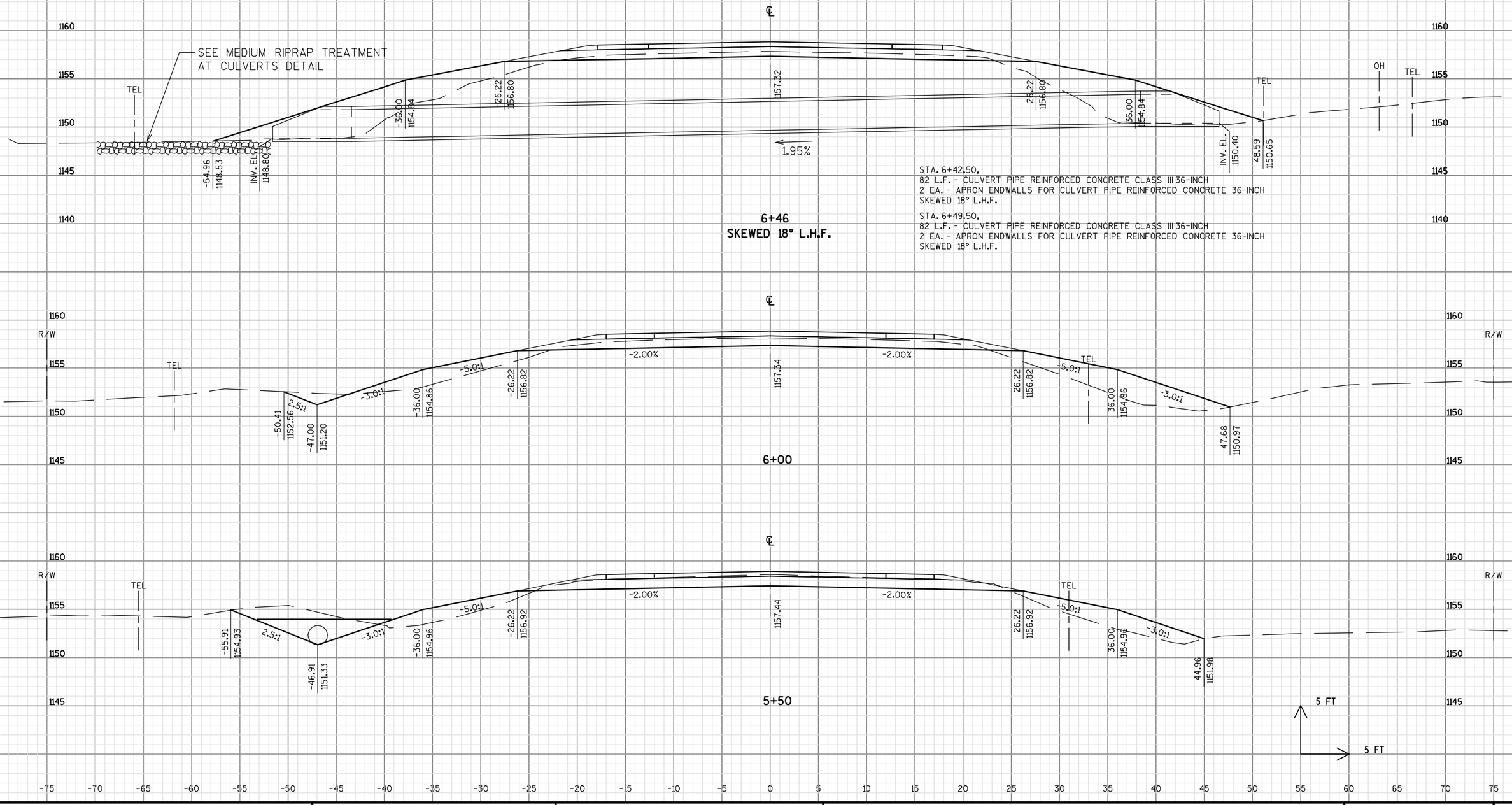
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 89	E

STA. 5+33 LT
CONSTRUCT F.E. LT (GRASS - MATCH EXIST.)
50 L.F. - CULVERT PIPE CORRUGATED STEEL 24-INCH
2 EA. - APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH



PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



STA. 6+42.50,
82 L.F. - CULVERT PIPE REINFORCED CONCRETE CLASS III 36-INCH
2 EA. - APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH
SKEWED 18° L.H.F.

STA. 6+49.50,
82 L.F. - CULVERT PIPE REINFORCED CONCRETE CLASS III 36-INCH
2 EA. - APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH
SKEWED 18° L.H.F.

9

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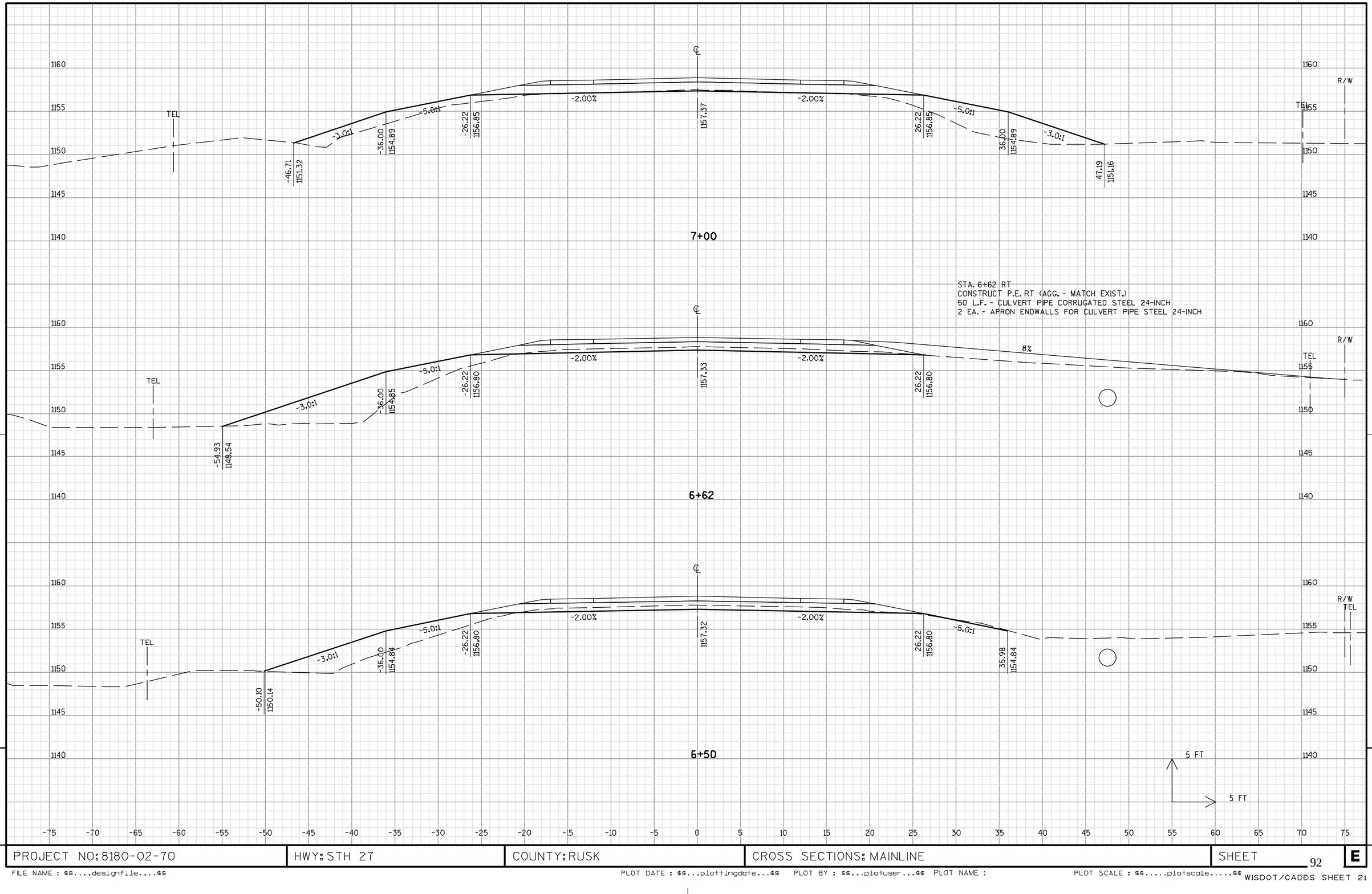
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



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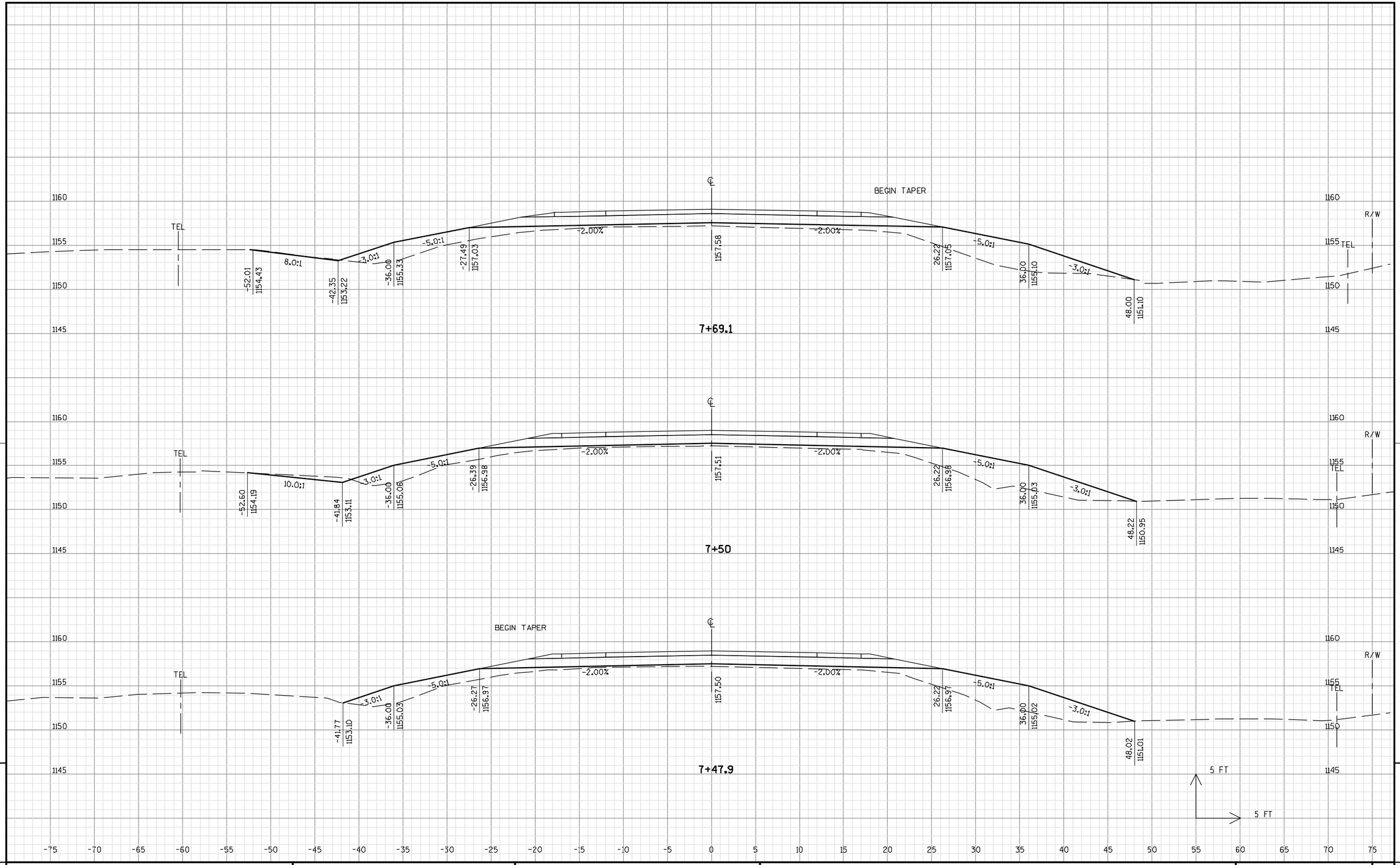
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



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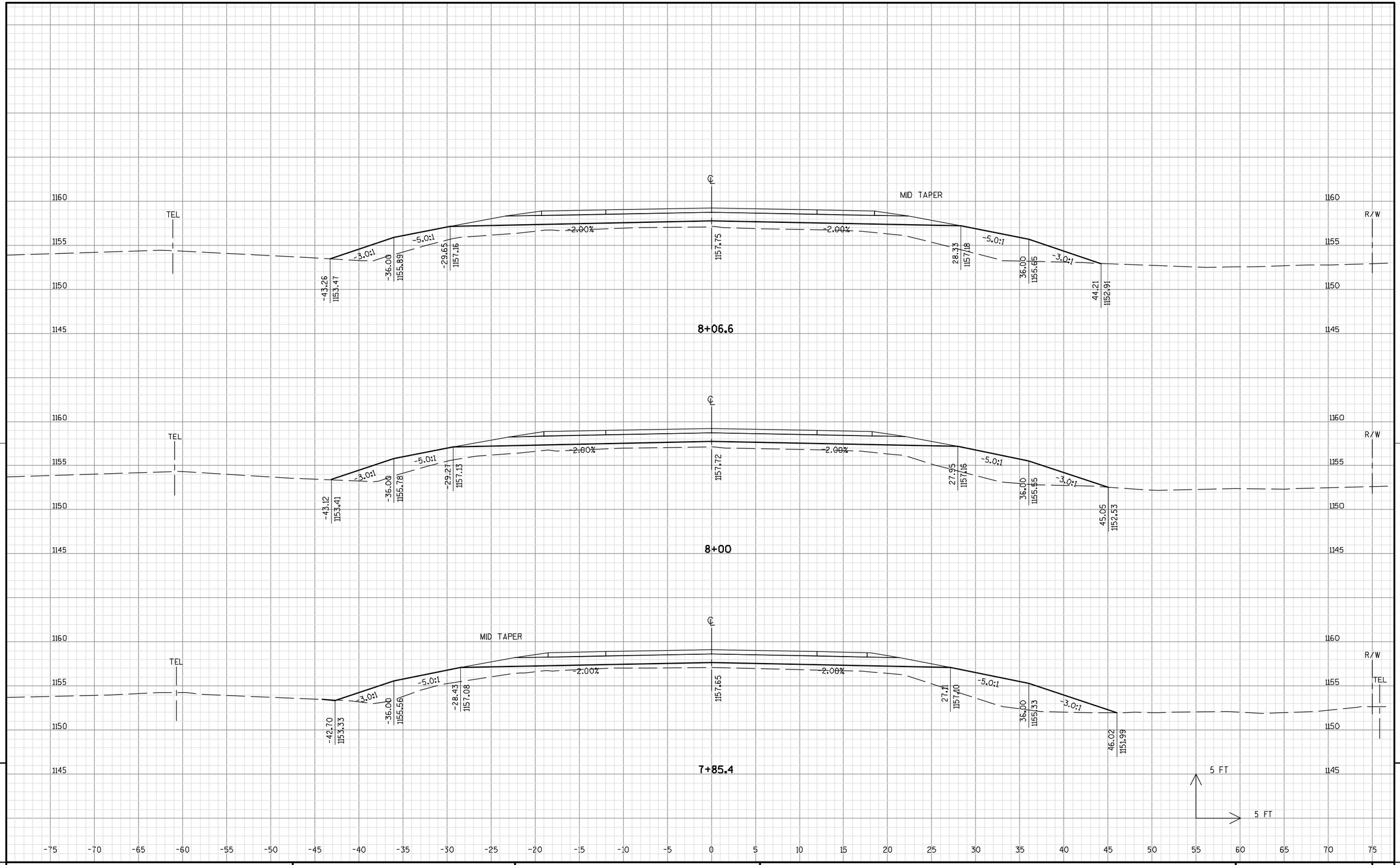
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



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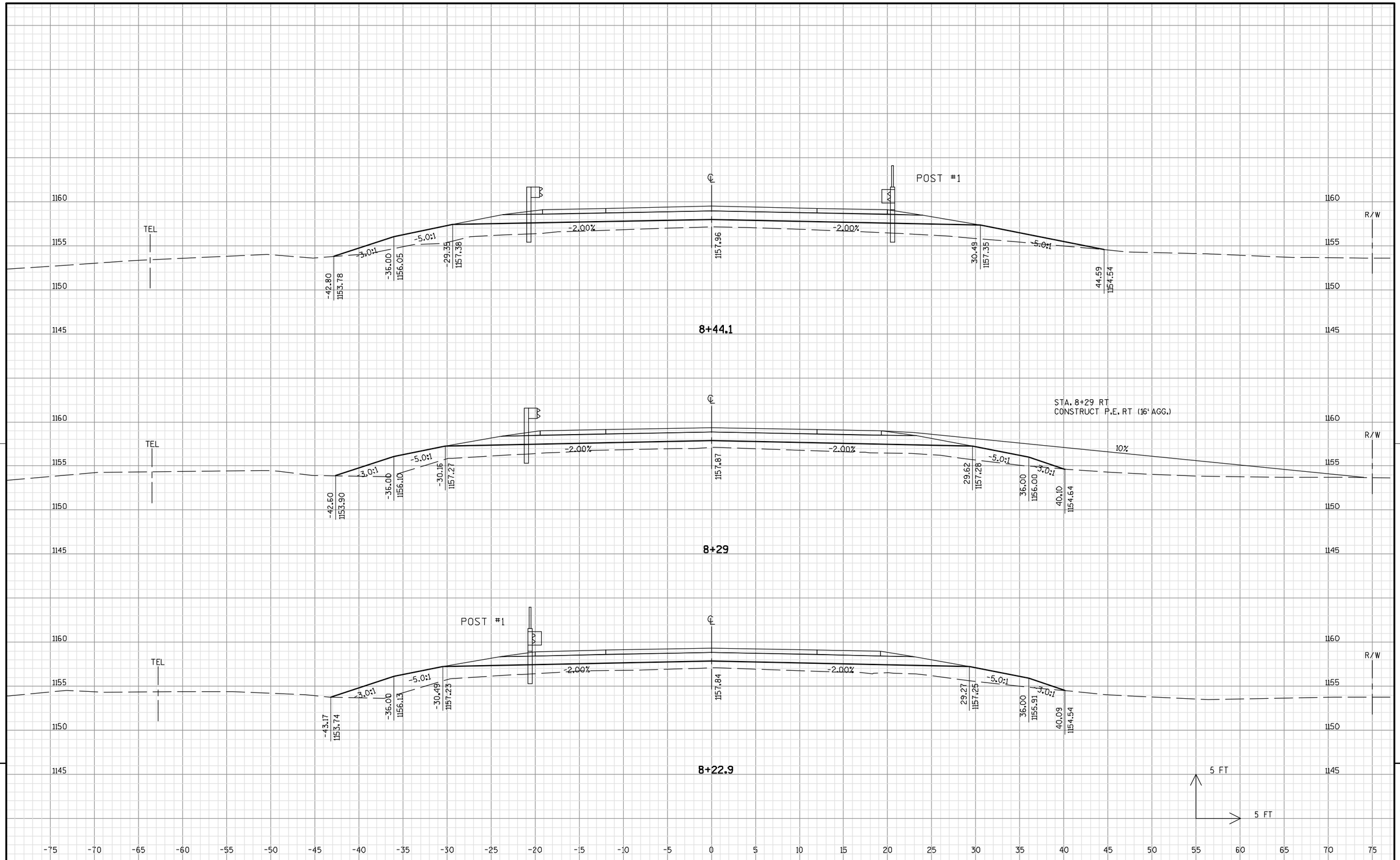
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



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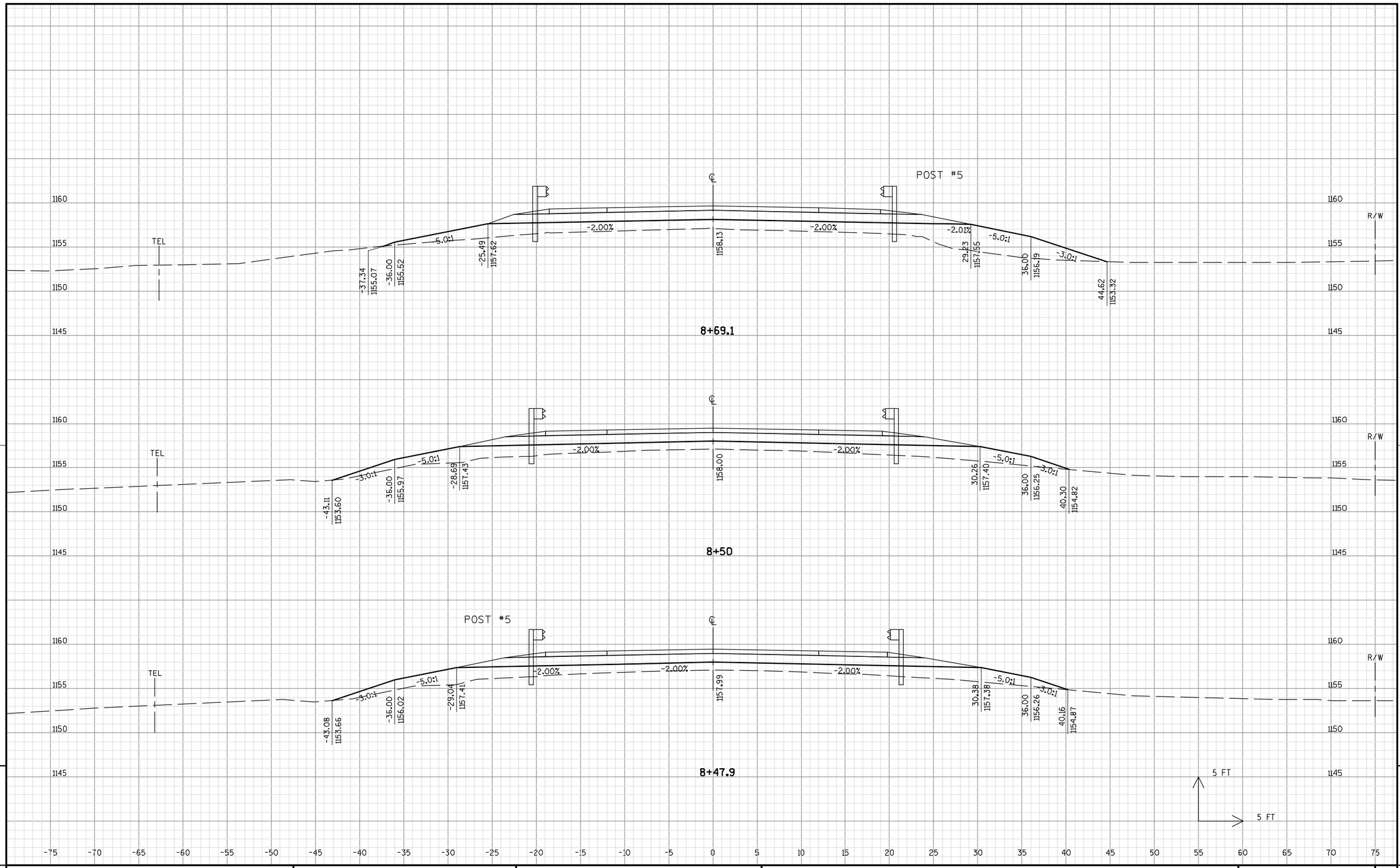
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



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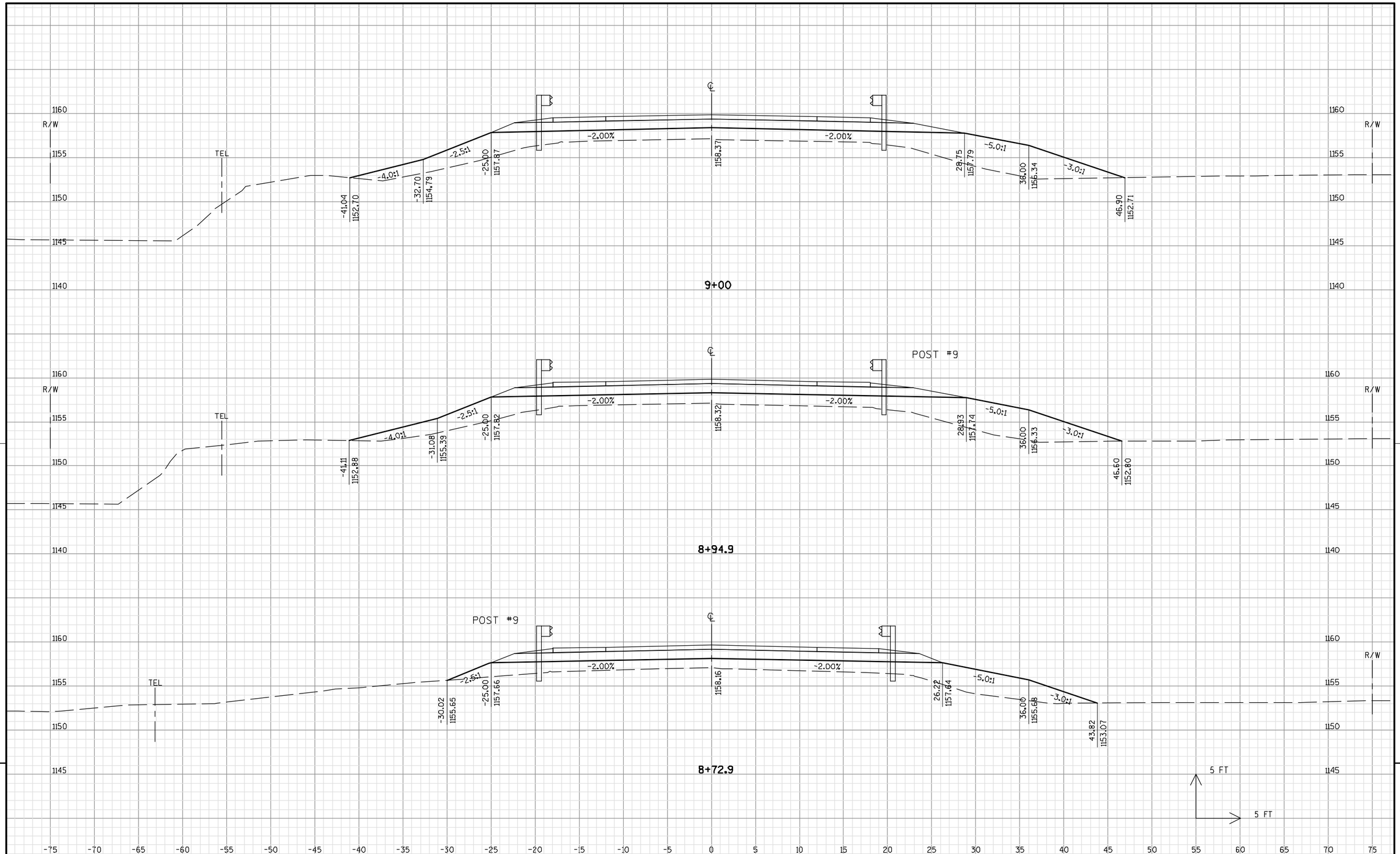
9

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



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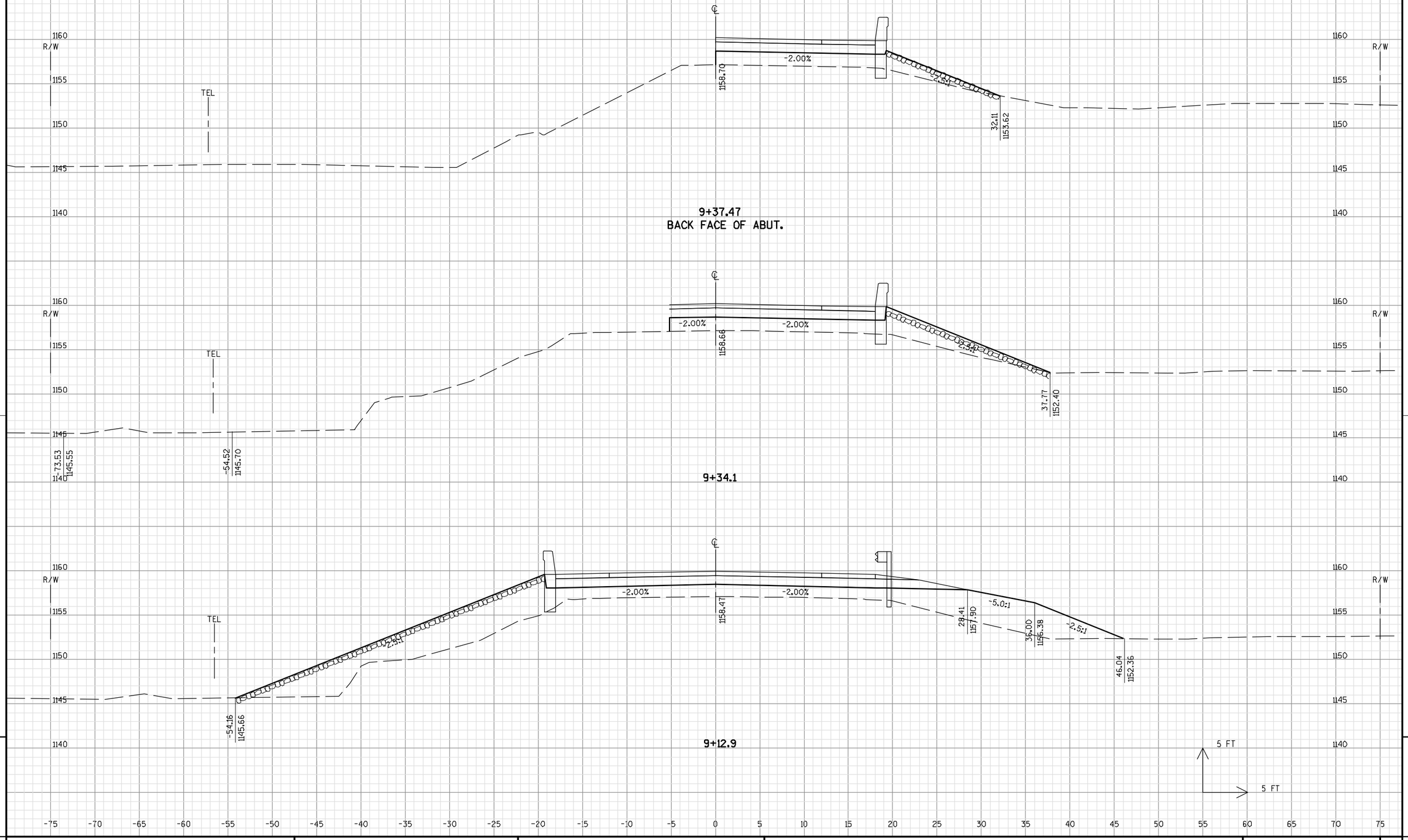
9

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 97	E

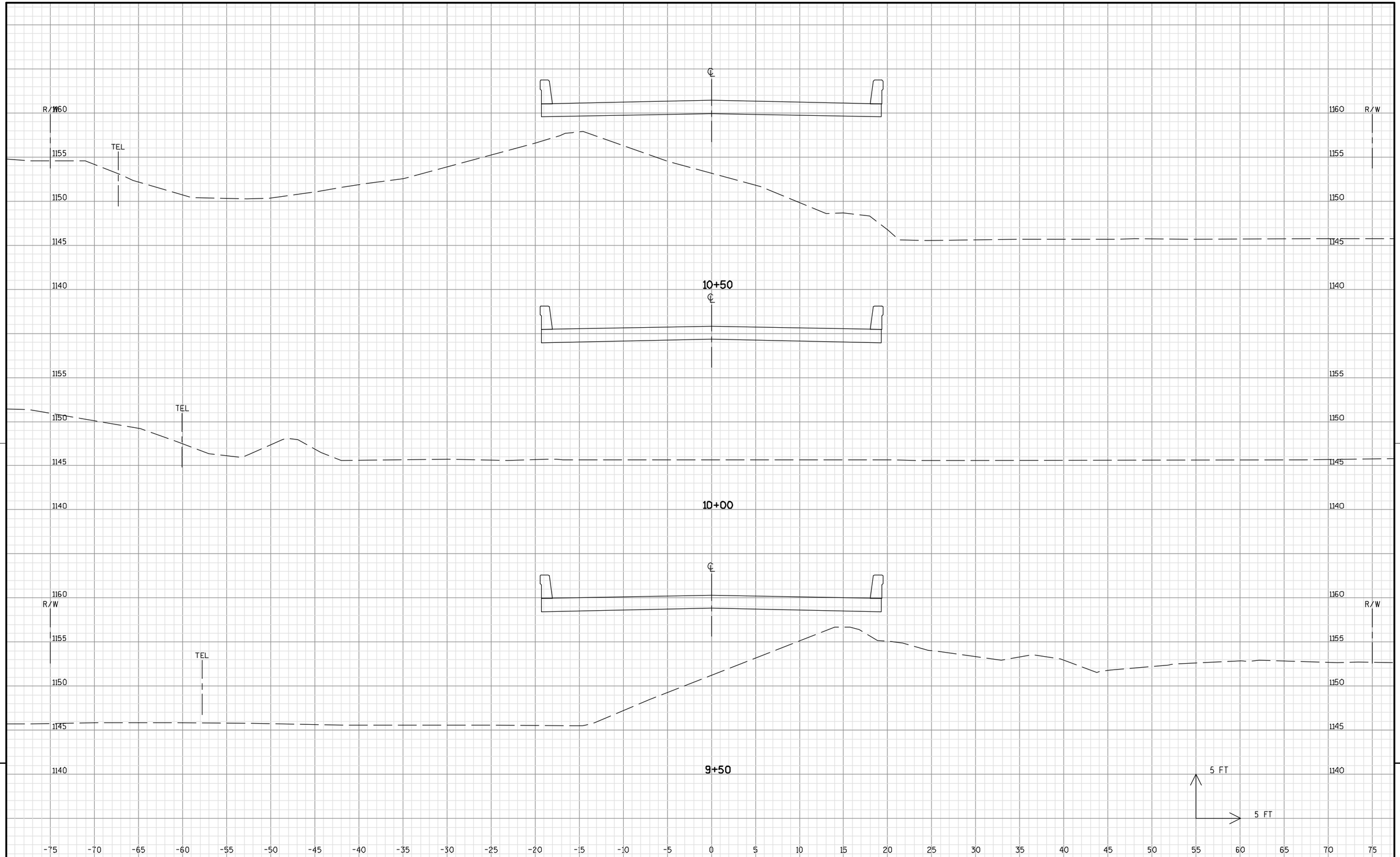
FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



9

9

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 98 E



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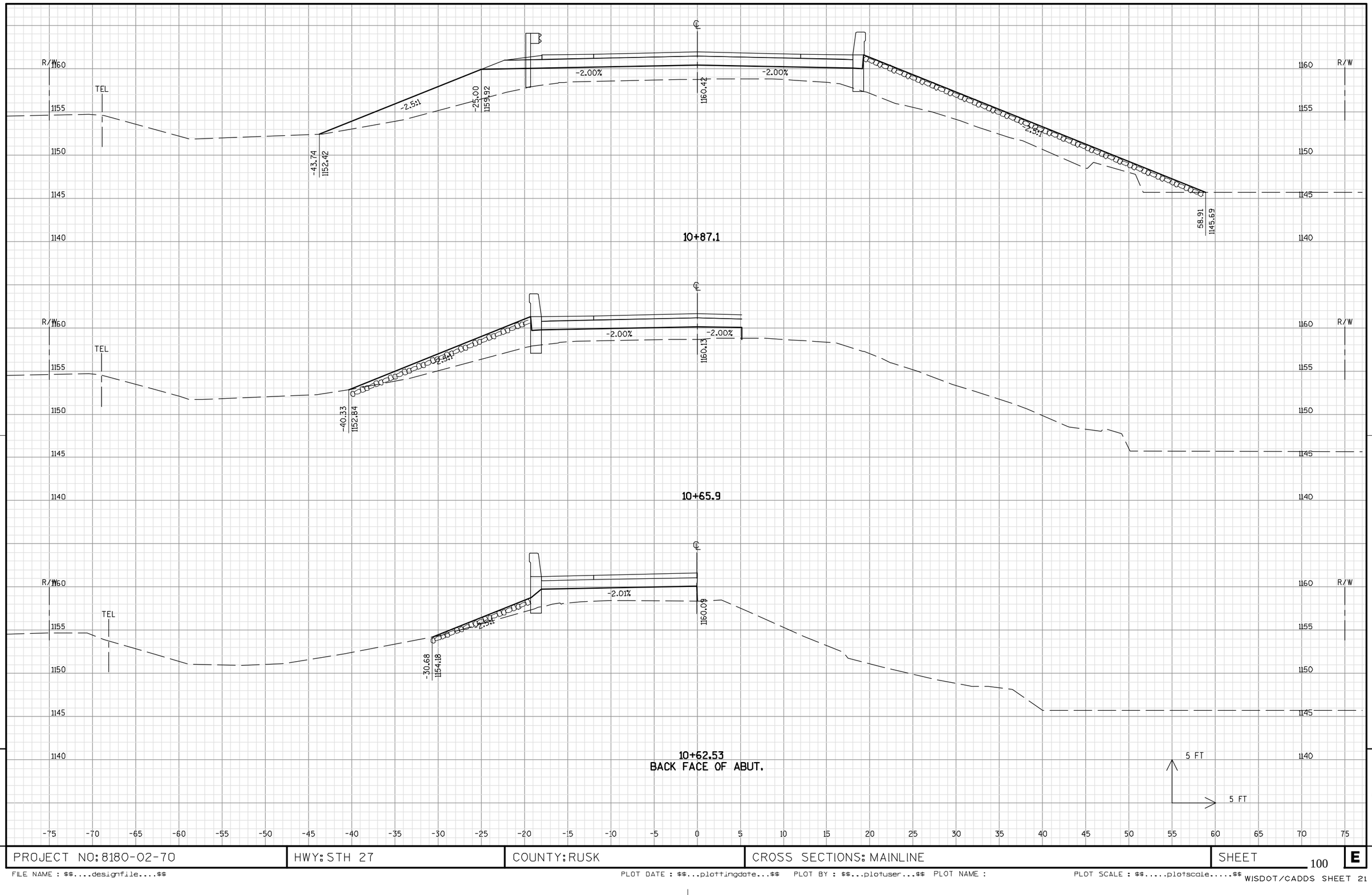
9

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 99	E

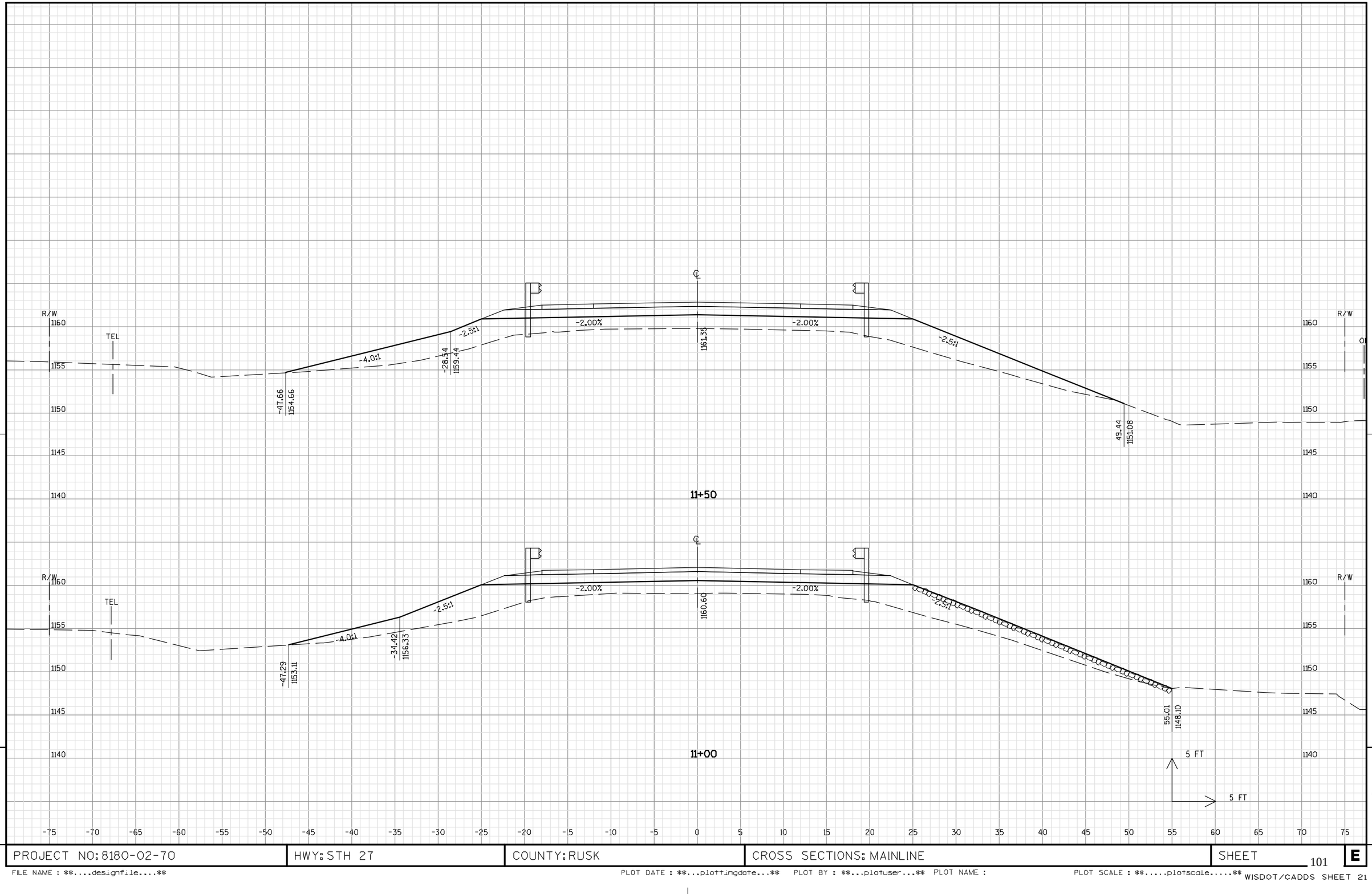
FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

WISDOT/CADDS SHEET 21



9 9

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 100	E



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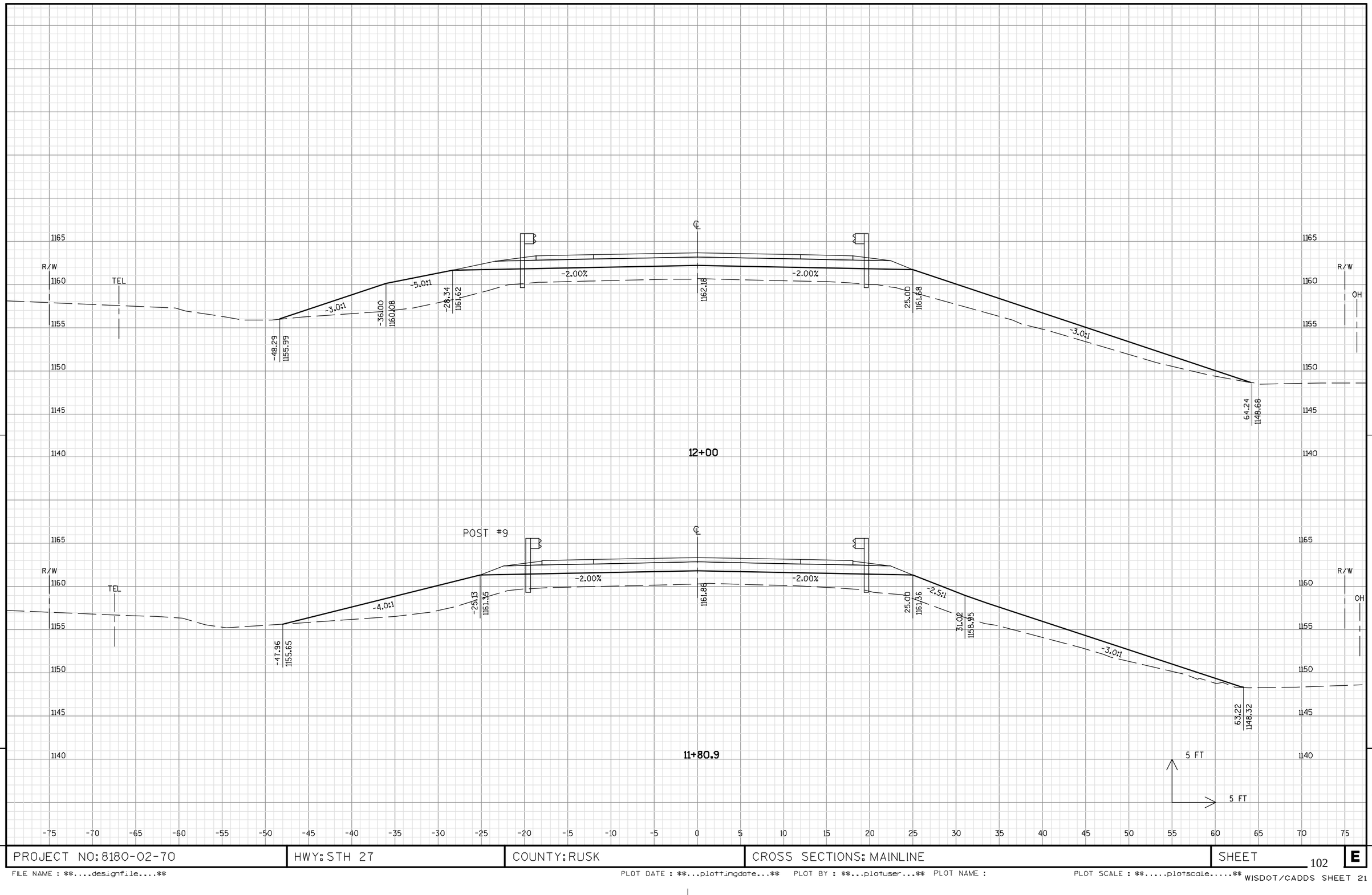
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 101	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 21



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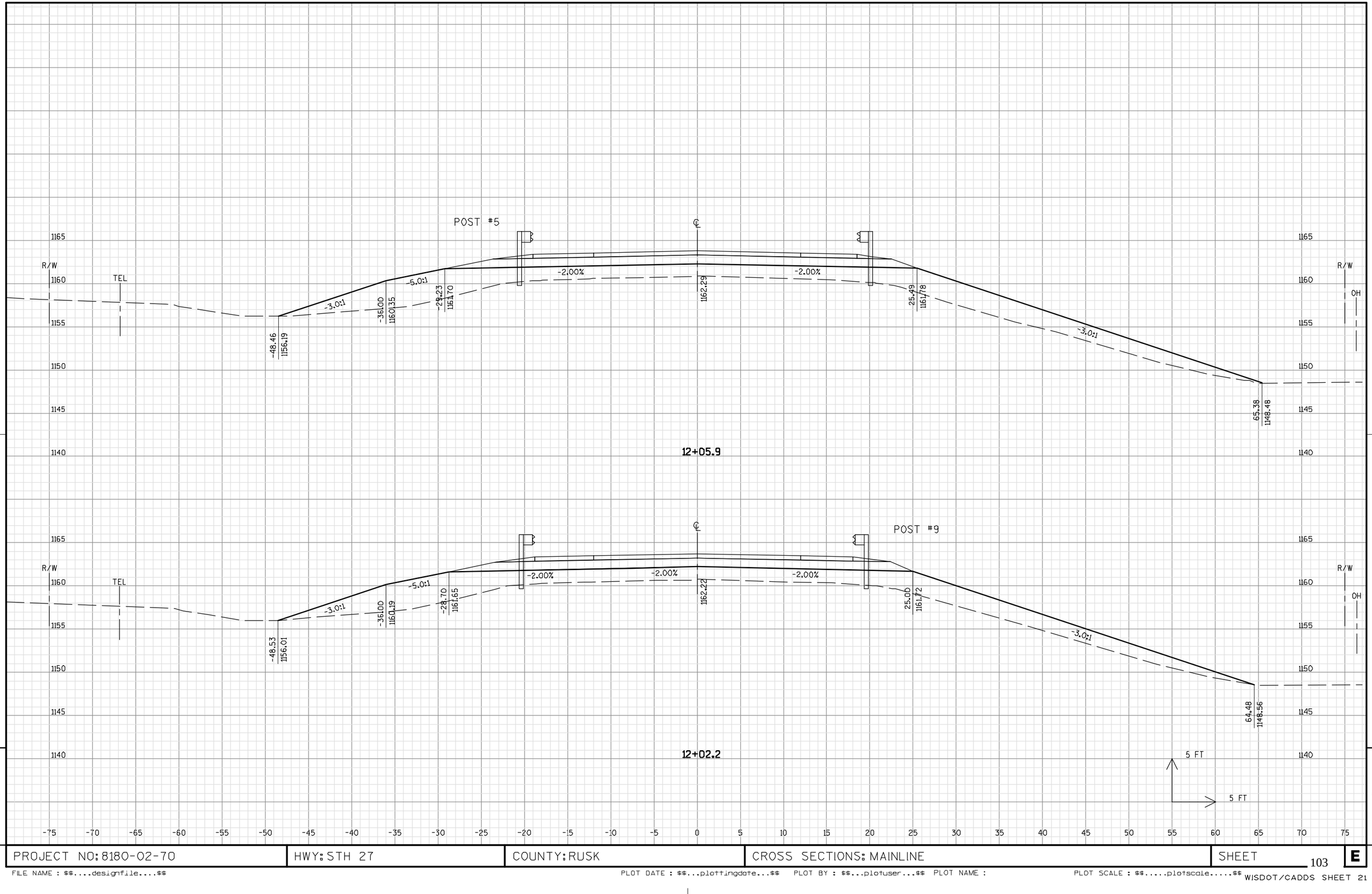
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 102	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

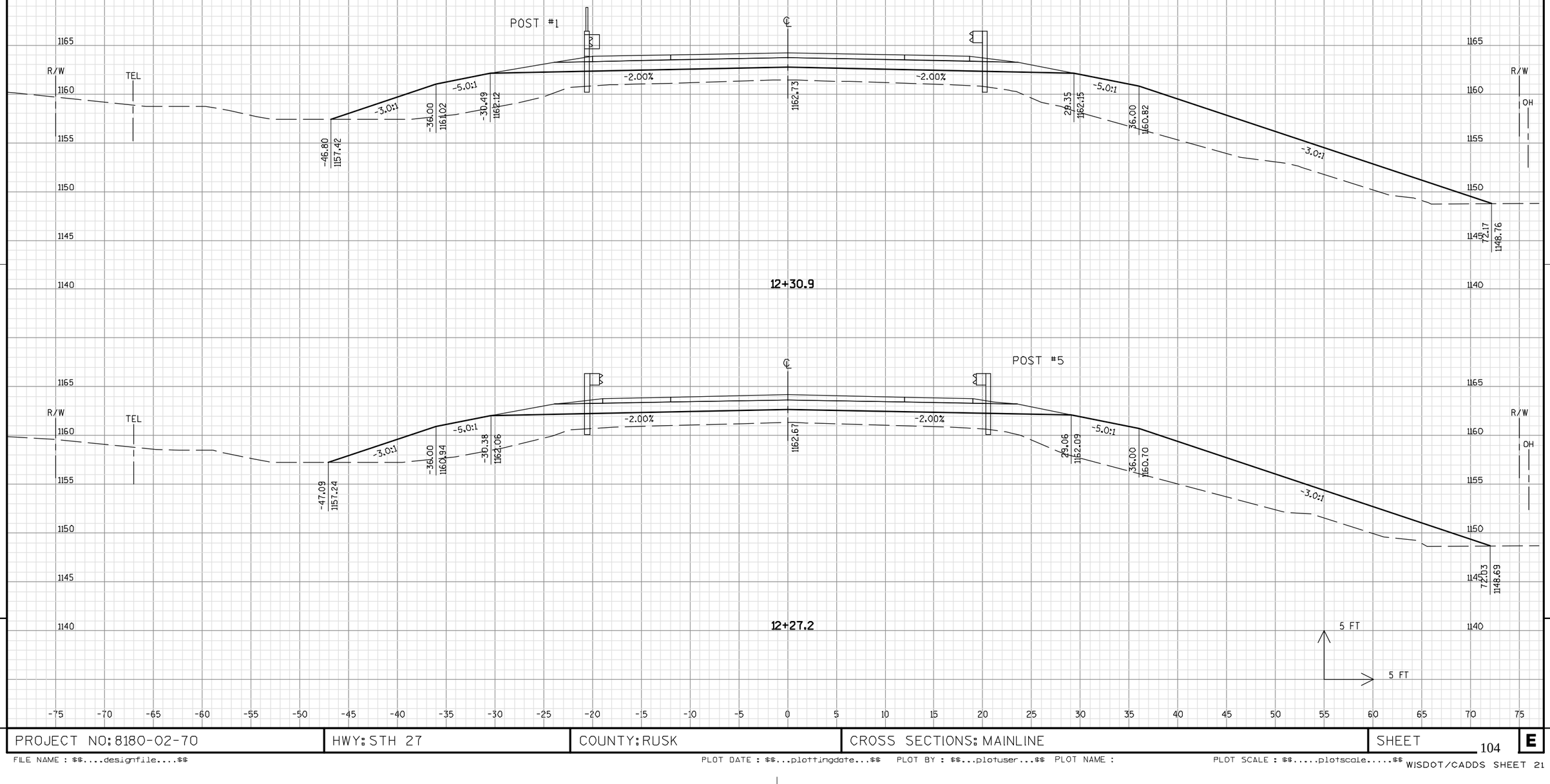
WISDOT/CADDS SHEET 21



9

9

PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 103	E



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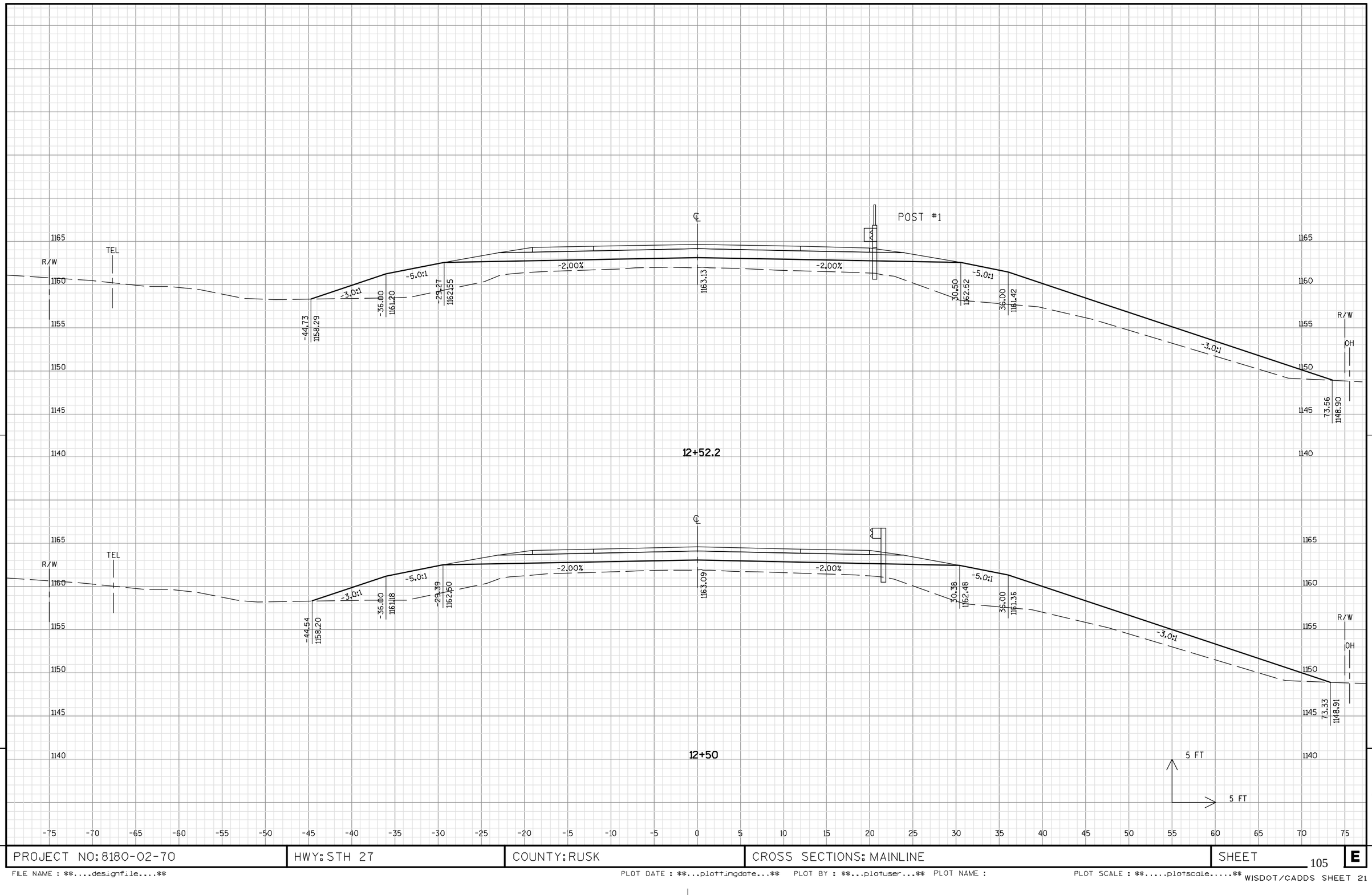
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 104	E



9

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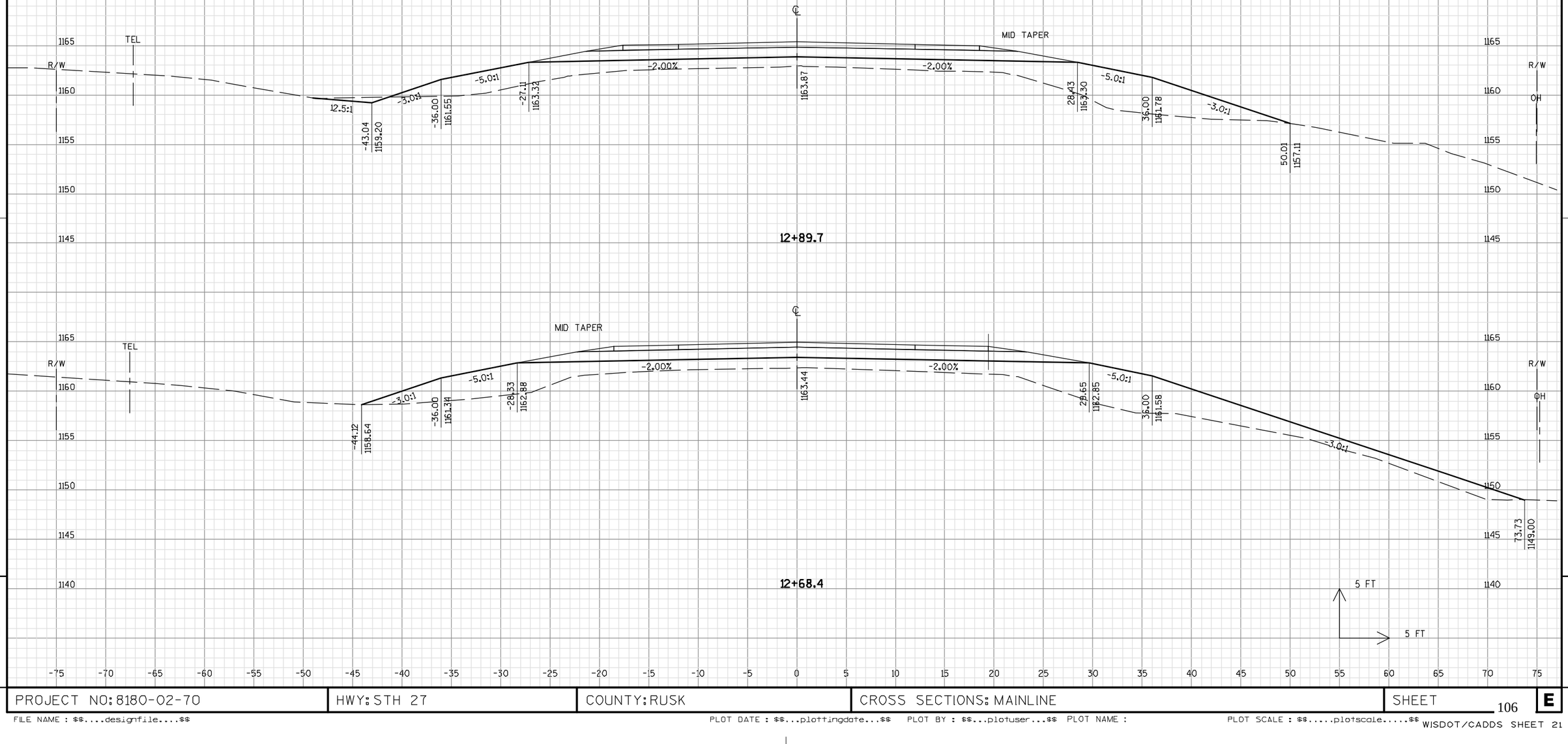
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 105	E

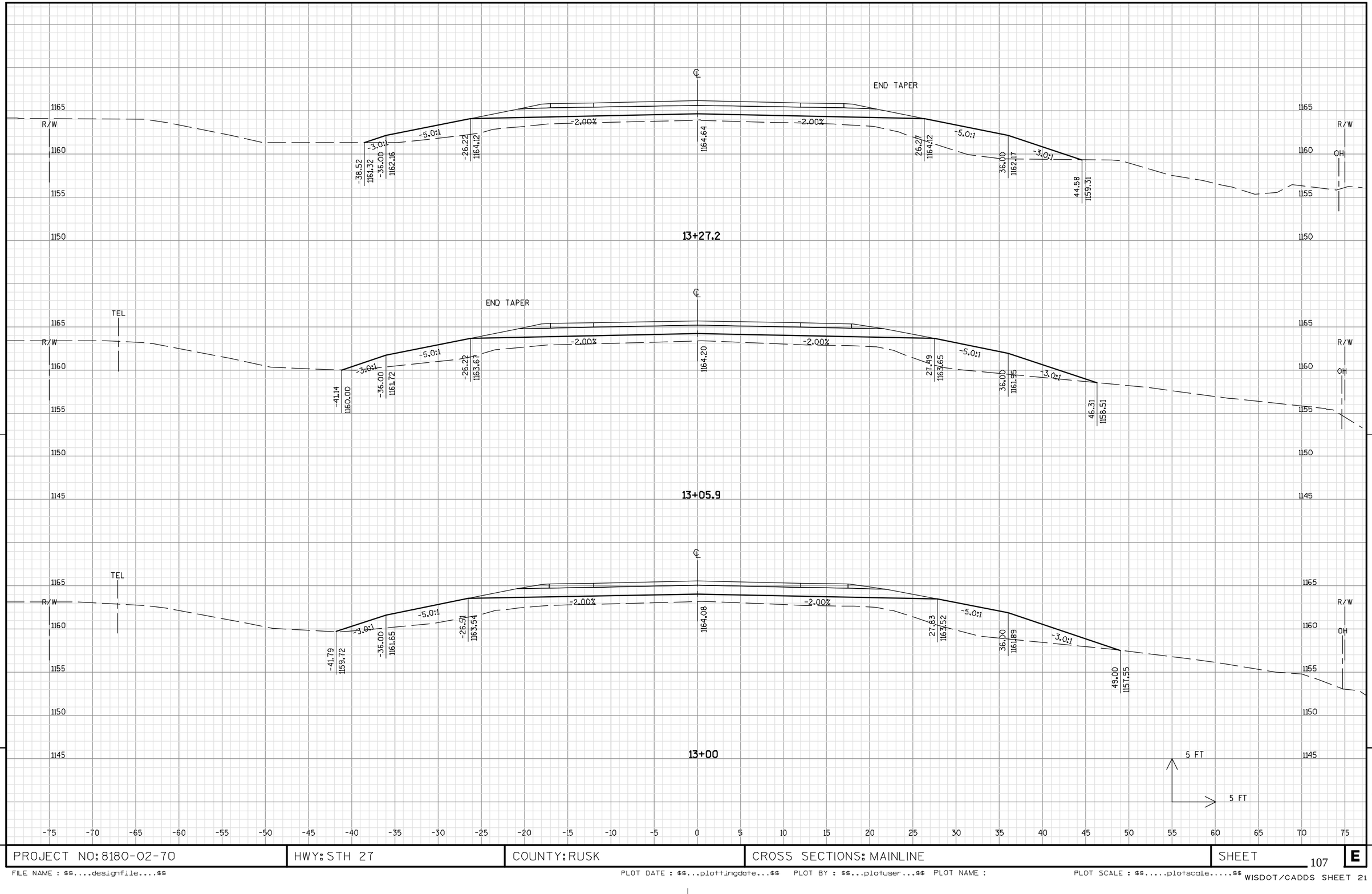


9

9

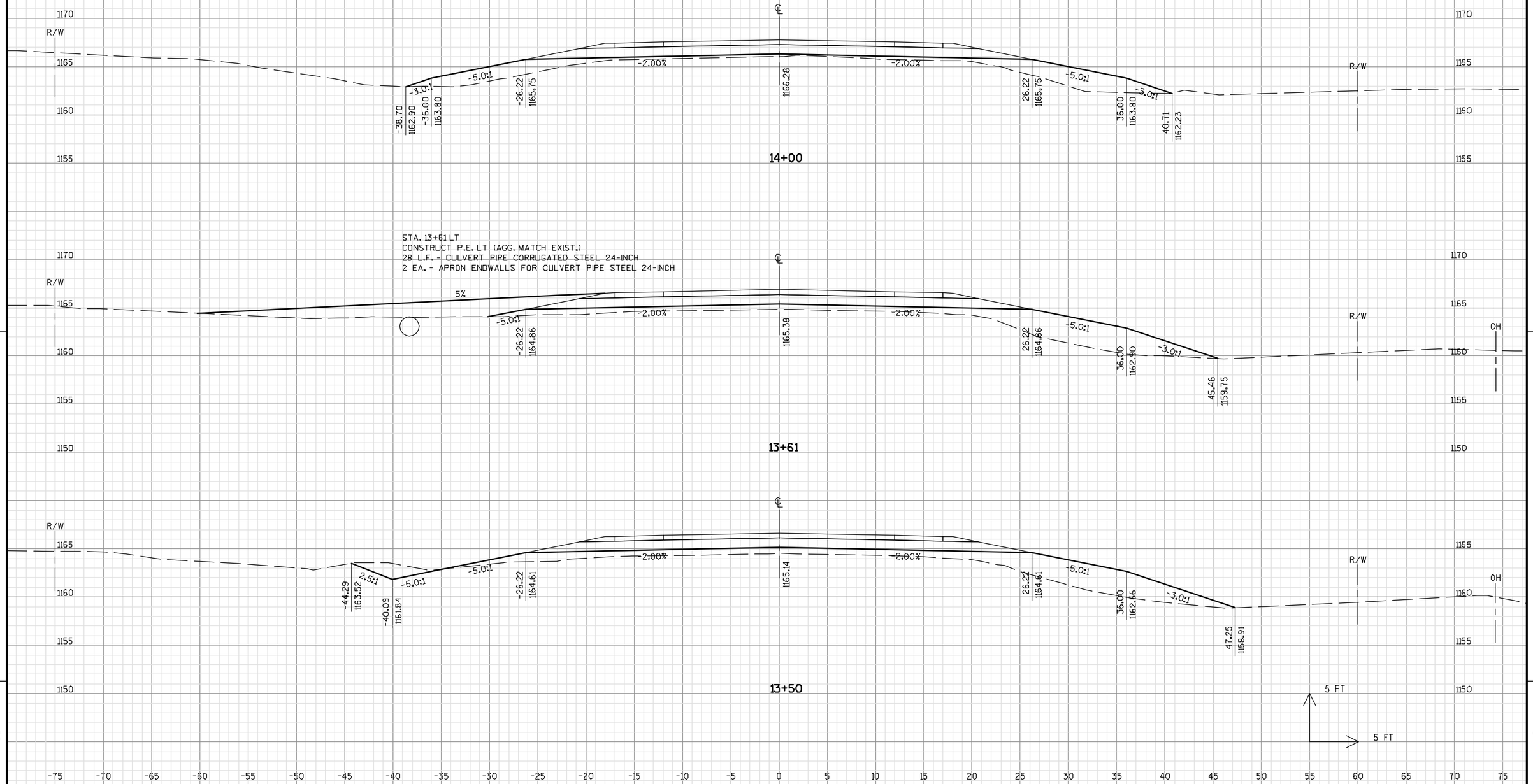
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 107	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 21

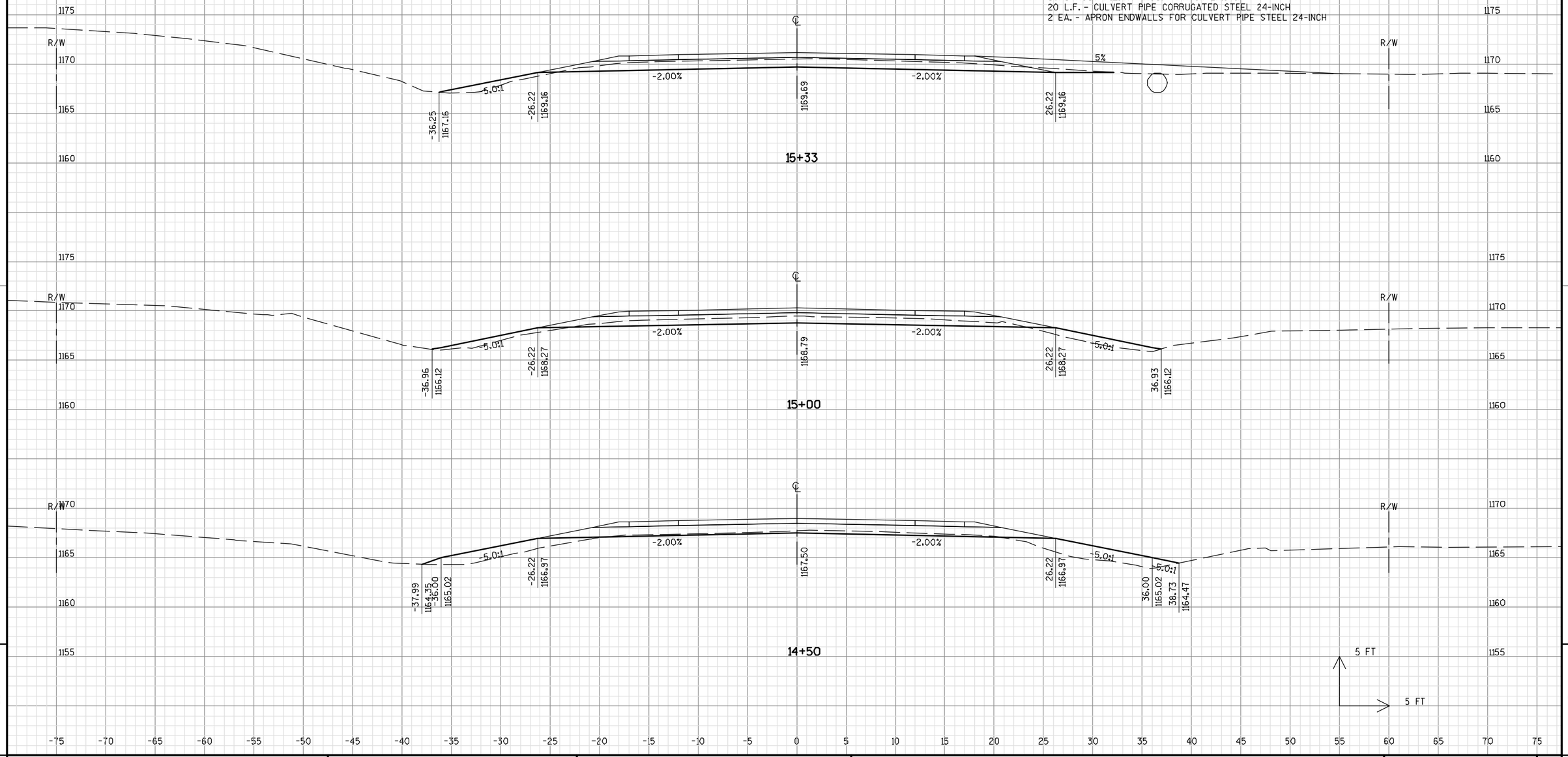


9

9

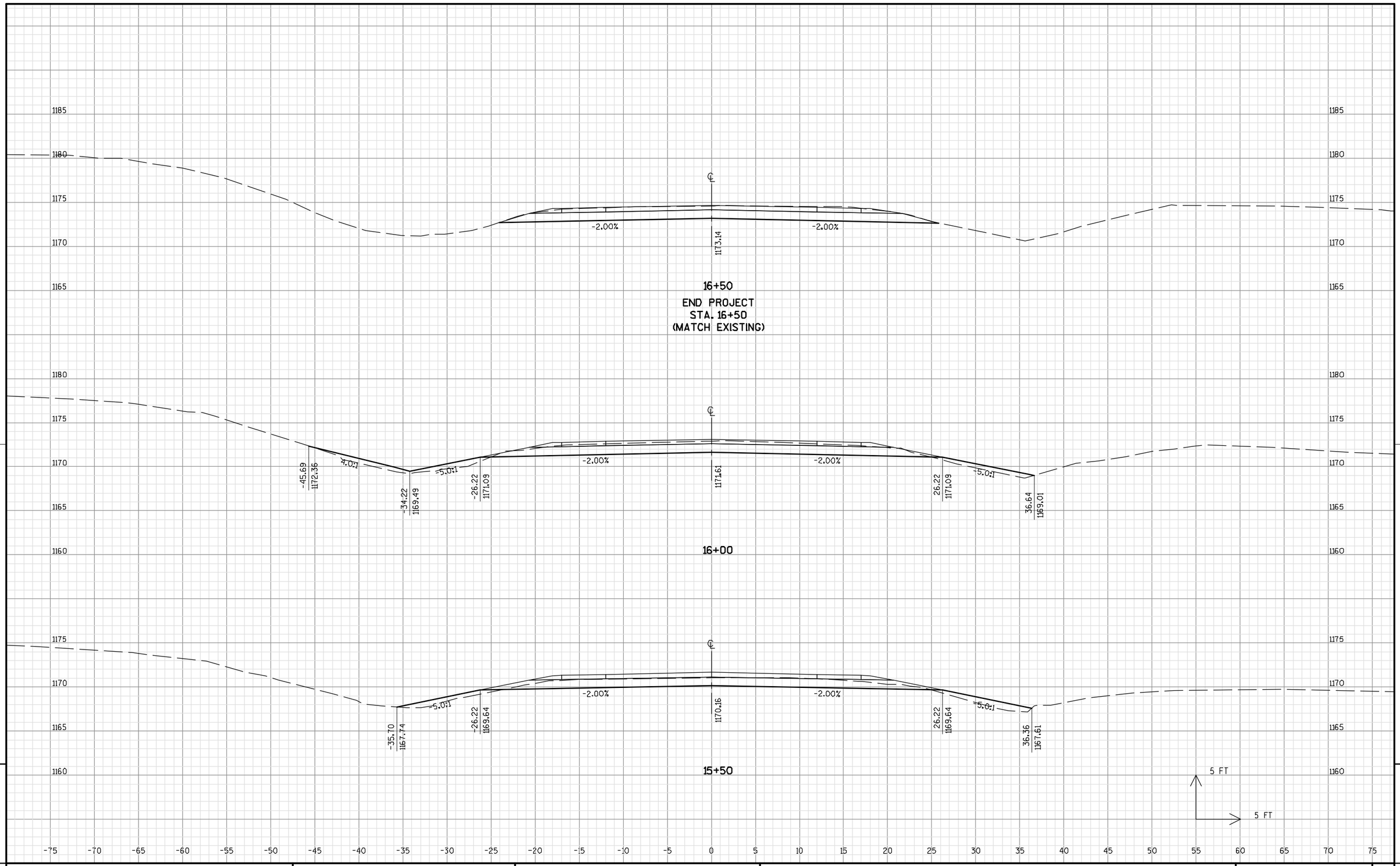
PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 108	E

STA. 15+33 RT
CONSTRUCT F.E. RT (AGG. - MATCH EXIST.)
20 L.F. - CULVERT PIPE CORRUGATED STEEL 24-INCH
2 EA. - APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH



PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



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PROJECT NO: 8180-02-70	HWY: STH 27	COUNTY: RUSK	CROSS SECTIONS: MAINLINE	SHEET 110	E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

WISDOT/CADDS SHEET 21

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov