EAU

MARCH 2019

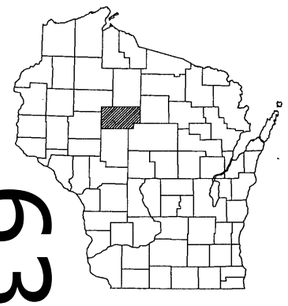
PROJECT ID: 9535-00-70

COUNTY: TAYLOR

63

ORDER OF SHEETS

TOTAL SHEETS = 56



N

DESIGN DESIGNATION

A.A.D.T.	2010	= 820
A.A.D.T.	2029	= 1010
D.H.V.		= 95
D.D.		= 60/40
T.		= 13.8%
DESIGN SPEED		= 60 MPH
ESALS		= 5033

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STRATFORD - GOODRICH

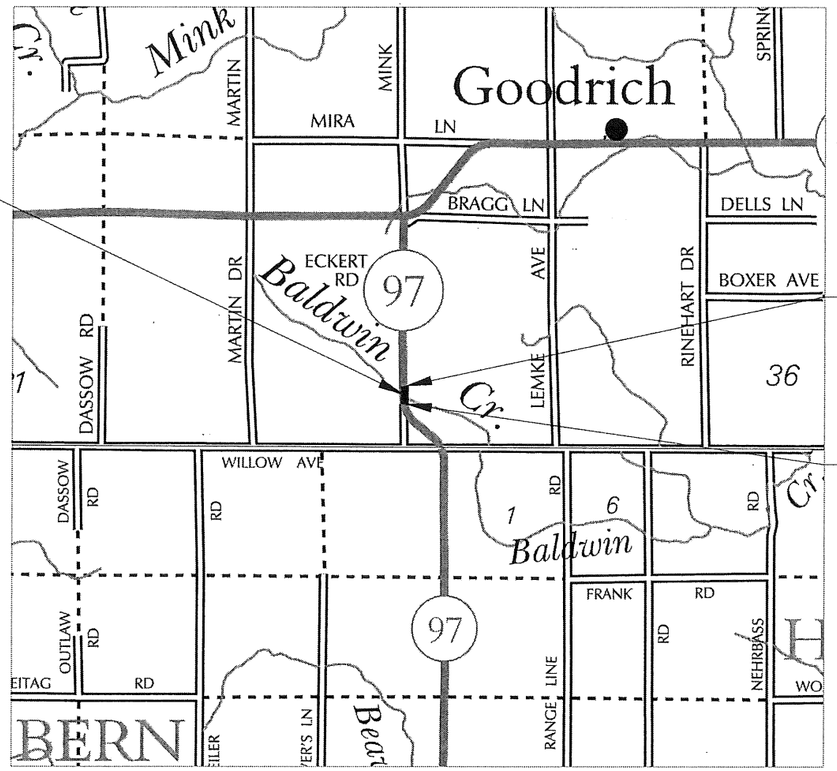
BALDWIN CREEK BRIDGE B-60-0138

STH 97

TAYLOR COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9535-00-70	—	—

STATE PROJECT NUMBER
9535-00-70



B-60-0138
STA. 32+36 TO
STA. 32+50

END PROJECT
STA. 35+13.13

BEGIN PROJECT
STA. 29+66.88

y = 334354.73
x= 711609.73

LAYOUT

SCALE 0 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.07

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, COUNTY COUNTY, NAD83 (YEAR), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	GREMMER & ASSOCIATES, INC.
Designer	AARON CHRIST
Project Manager	MATTHEW THORNSEN
Regional Examiner	TOU YANG
Regional Supervisor	WILLIAM G. KURTZ

APPROVED FOR THE DEPARTMENT

DATE: 12/7/18 (Signature)

E

FILE NAME : \\EAURTOPFLPPI01\N3PUBLIC\PDS\STATEPROGRAM\9535-00-31,70\DATASHARE\TITLE PAGE\010101_TI_9-8-18.DWG
-

PLOT DATE : 12/7/2018 6:00 AM

PLOT BY : CHRIST, AARON D

PLOT NAME :

WISDOT/CADDS SHEET 10

GENERAL NOTES:

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

THE EROSION CONTROL ITEMS SHOWN ON THE PLAN ARE AT SUGGESTED LOCATIONS. THE ENGINEER MAY MODIFY LOCATIONS AS NEEDED. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

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

TEMPORARY STORAGE OF ANY EXCAVATED MATERIAL WILL NOT BE PERMITTED IN WETLANDS.

PAVEMENT MARKING SHALL BE EPOXY.

CONVENTIONAL SYMBOLS AND ABBREVIATIONS

STATE, COUNTY, or TOWN LINE	
SECTION LINE	
QUARTER LINE	
SIXTEENTH LINE	
PROPOSED REFERENCE LINE	
PROPOSED R/W LINE	
EXISTING H.E. LINE	
PROPERTY LINE	
EASEMENT LINE	
CORPORATE LIMITS	
EXISTING CENTERLINE	
LOT & TIE LINES	
UTILITIES (TELEPHONE,GAS,ELECTRIC,CABLE TV,FIBER OPTIC)	FO (TYPE)
NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)	
NO ACCESS (BY ACQUISITION)	
NO ACCESS (BY STATUTORY AUTHORITY)	
FEE (HATCH VARIES)	
TEMPORARY LIMITED EASEMENT	
PERMANENT LIMITED EASEMENT	
PARCEL NUMBER	102
UTILITY PARCEL NUMBER	92
SIGN NUMBER (OFF PREMISE)	21-1
BUILDING	
FOUND IRON PIPE/PIN	(1" UNLESS NOTED)
R/W MONUMENT	●(SET)
R/W STANDARD	▲(SET)
SIGN	ISIGN
SECTION CORNER SYMBOL	

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

CURVE DATA

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

	NON COMPENSABLE	COMPENSABLE
POWER POLE		
TELEPHONE POLE		
TELEPHONE PEDESTAL		

DIGGERS HOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com

ELECTRIC - DESTRIBUTION

TAYLOR COUNTY COOPERATIVE
KEVIN COMSTOCK
N1831 STH 13
MEDFORD, WI 54551
800-862-2407 (OFFICE)
(715) 678-2411 (MOBILE)
kevin@taylorelectric.org

COMMUNICATION LINE

TDS TELECOM
STEVE JAKUBIEC
10 COLLEGE AVENUE, SUITE 218A
APPLETON, WI 54911
920-882-4166 (OFFICE)
(920)-562-7221 (MOBILE)
steve.jakubiec@tdstelecom.com

STATE - DOT/STORM WATER:

DAVID LARSON
718 W. CLAIREMONT
EAU CLAIRE, WI 54701
(715) 836-2067

STATE - DOT/REC:

AMY ADRIHAN
1701 N. 4TH ST.
SUPERIOR, WI 54880
(715) 392-7972

STATE - DNR:

WENDY HENNIGES
107 SUTLIFF
RHINELANDER, WI 54501
(715) 365-8916

ORDER OF SECTION 2 SHEETS

2

2

N

64

64

END PROJECT
STA. 35+13.13

Baldwin

97

Cr.

BEGIN PROJECT
STA. 29+66.88

STRUCTURE B-60-0062

97

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	PROJECT OVERVIEW	SHEET 3	E

FILE NAME : \\EAURTOPFLPPI01\N3PUBLIC\PDS\STATEPROGRAM\9535-00-31.70\DATASHARE\PROJECT OVERVIEW\020201_PO.DWG
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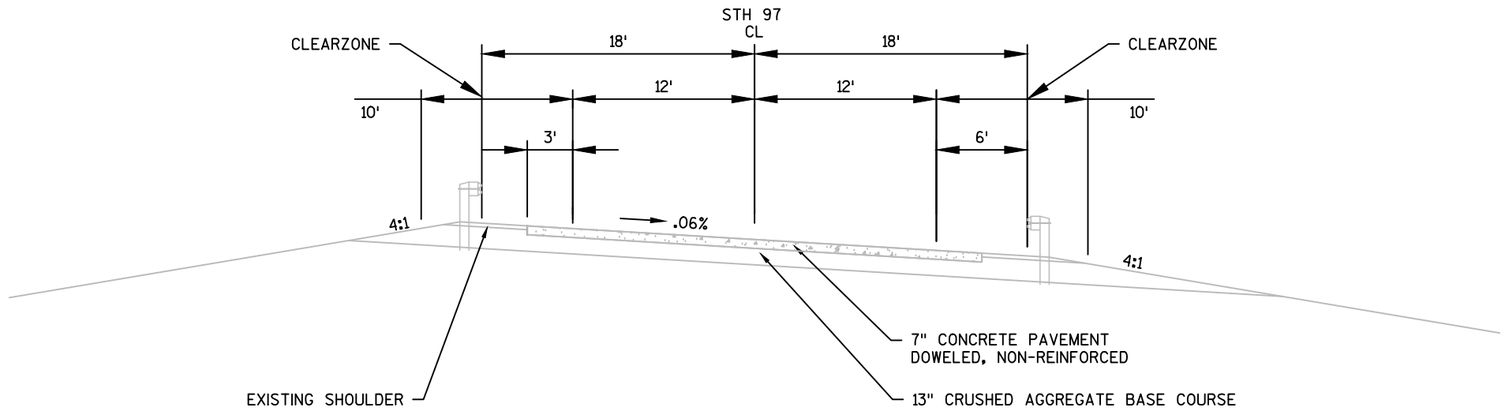
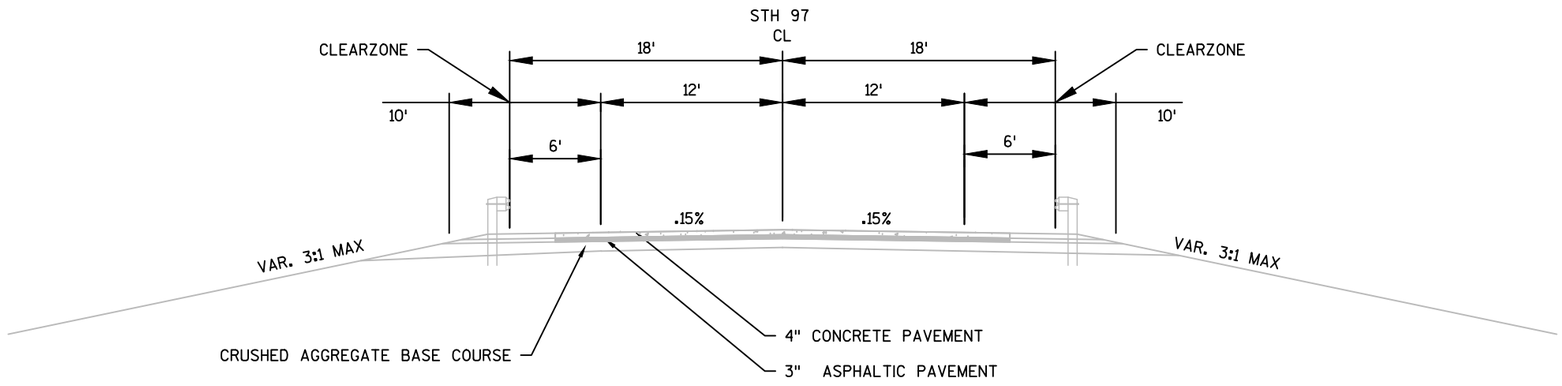
PLOT DATE : 10/22/2018 6:05 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:1 MI

WISDOT/CADDS SHEET 42



EXISTING TYPICAL SUPERELEVATED SECTION

STA. 32+09 - STA. 32+50



EXISTING TYPICAL SECTION

STA. 32+50 - STA. 32+81

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	EXISTING TYPICAL SECTIONS	SHEET 4	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\TYPICAL SECTIONS\020301_TS_9-13-18.DWG
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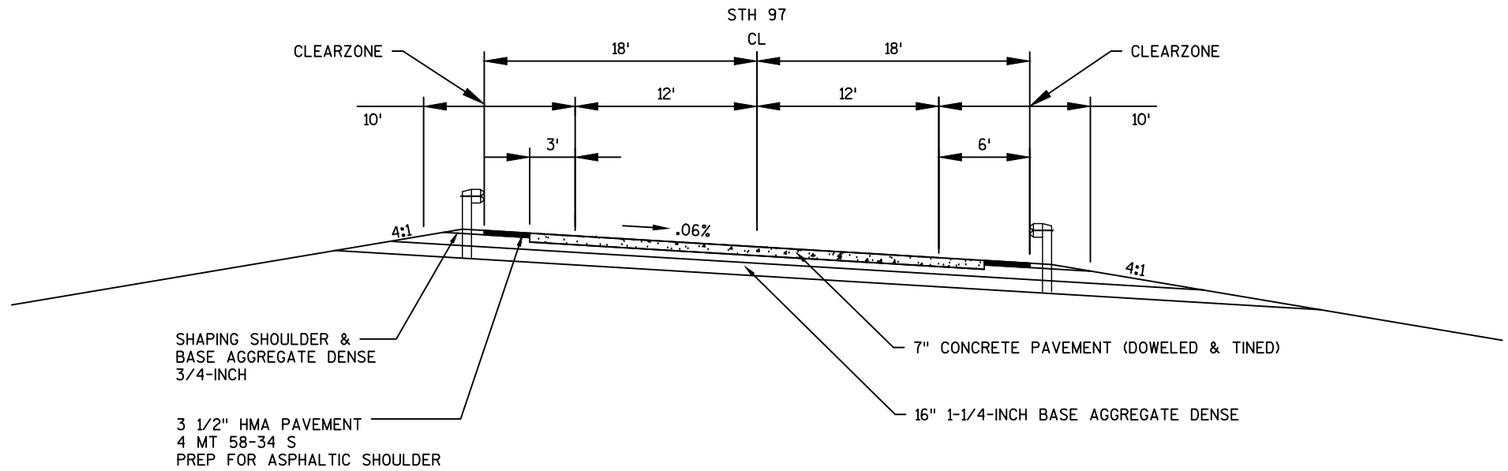
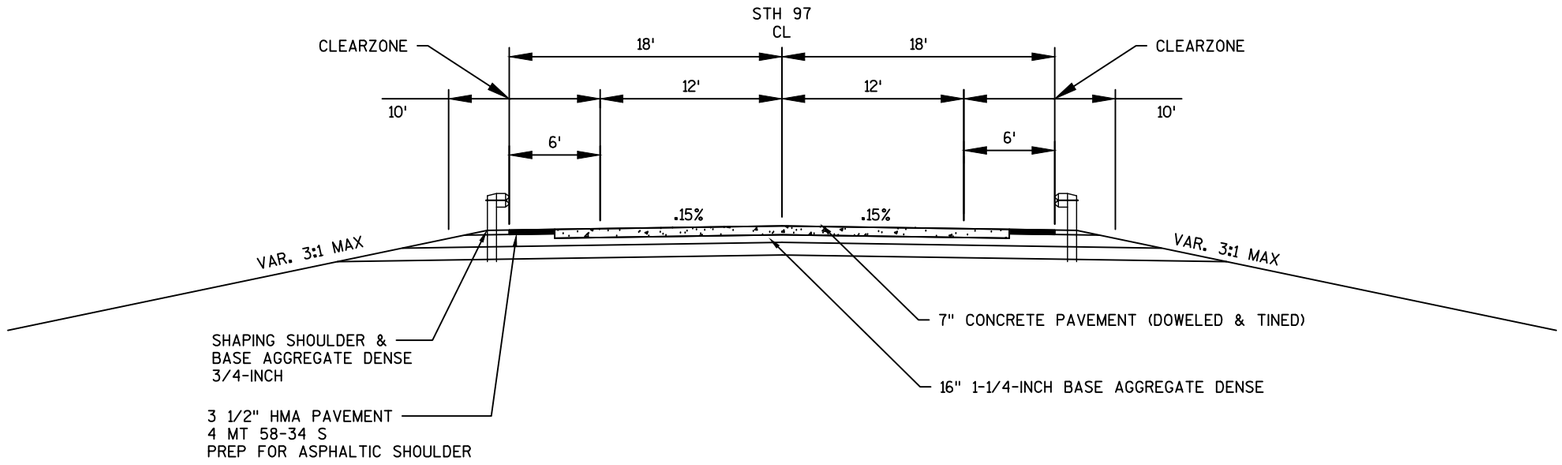
PLOT DATE : 10/1/2018 6:19 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 42



FINSHED TYPICAL SUPERELEVATED SECTION

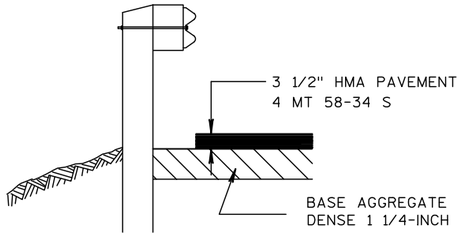
STA. 32+09 - STA. 32+50

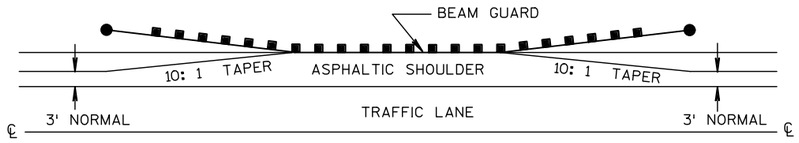


FINISHED TYPICAL SECTION

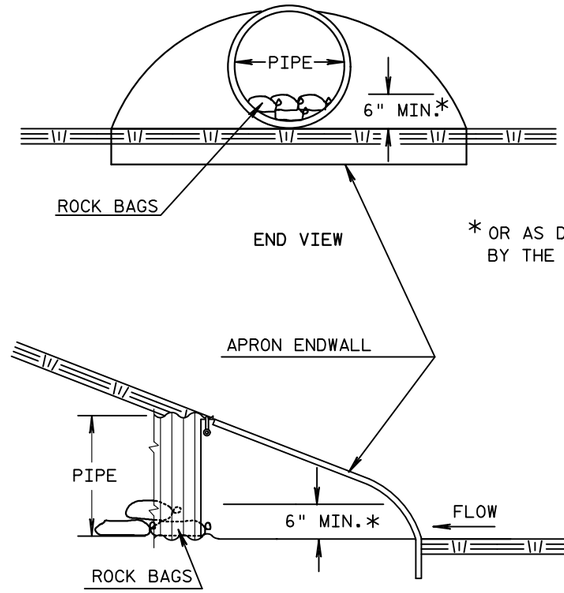
STA. 32+50 - STA. 32+81

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	FINISHED TYPICAL SECTIONS	SHEET 5	E

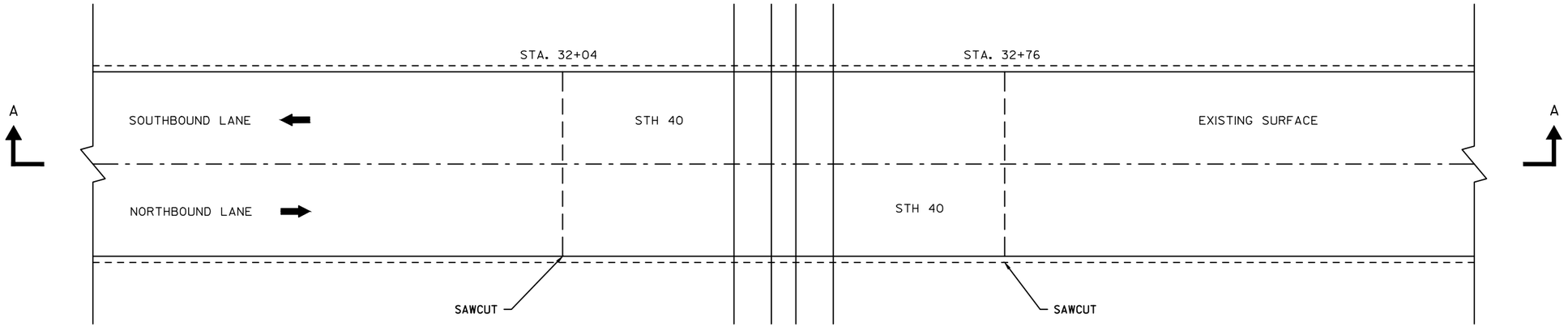




DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD

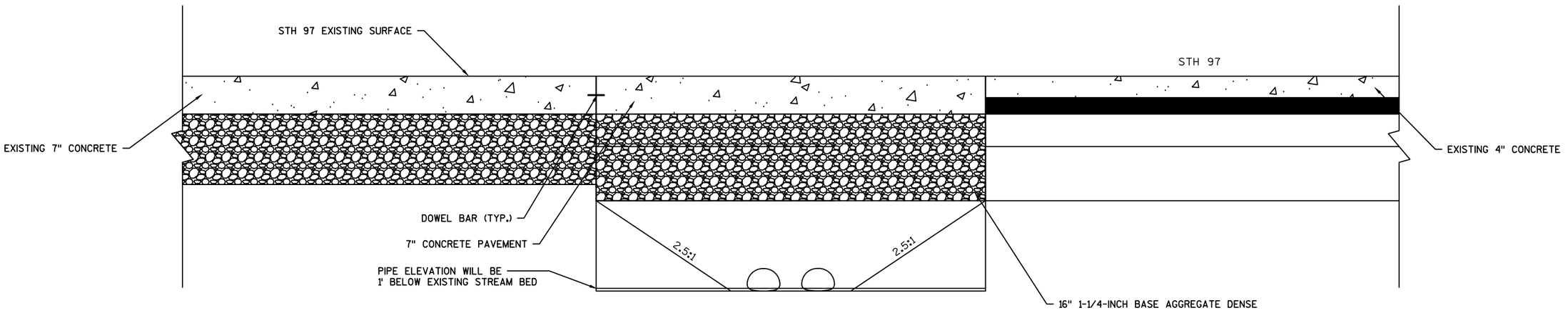


CULVERT PIPE CHECK



PLAN VIEW

CULVERT PIPE REPLACEMENT DETAIL



SECTION A-A

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CONSTRUCTION DETAILS	SHEET 7	E

2

2

LEGEND

EROSION MAT CLASS I, TYPE B

SILT FENCE

CULVERT PIPE CHECK

SURFACE WATER FLOW

STA. 32+36
REMOVE 78" x 90" CMCE REQ'D
72' - 68" x 106" CPRCHE REQ'D
2 - APRON ENDWALLS REQ'D
2 - MARKERS CULVERT END REQ'D
SET INLET EL. = 1437.7'
SET OUTLET EL. = 1437.5'

NOTE: LIMITS OF EROSION MAT AND SEED BEHIND GUARDRAIL AT THE DISCRETION OF THE ENGINEER.

STA. 32+50
REMOVE 78" x 90" CMCE REQ'D
72' - 68" x 106" CPRCHE REQ'D
2 - APRON ENDWALLS REQ'D
2 - MARKERS CULVERT END REQ'D
SET INLET EL. = 1437.7'
SET OUTLET EL. = 1437.5'

EROSION MAT URBAN CLASS I, TYPE B

SLOPE INTERCEPT

SEED, FERTILIZE, AND MULCH

WETLAND

SLOPE INTERCEPT

EROSION MAT CLASS I, TYPE B

EROSION MAT URBAN CLASS I, TYPE B

WETLAND

BALDWIN CREEK

STH 97

30+00 31+00 32+00 33+00 34+00 35+00

EROSION MAT CLASS I, TYPE B

SEED, FERTILIZE, AND MULCH

EROSION MAT URBAN CLASS I, TYPE B

WETLAND

SLOPE INTERCEPT

WETLAND

SLOPE INTERCEPT

EROSION MAT URBAN CLASS I, TYPE B

N

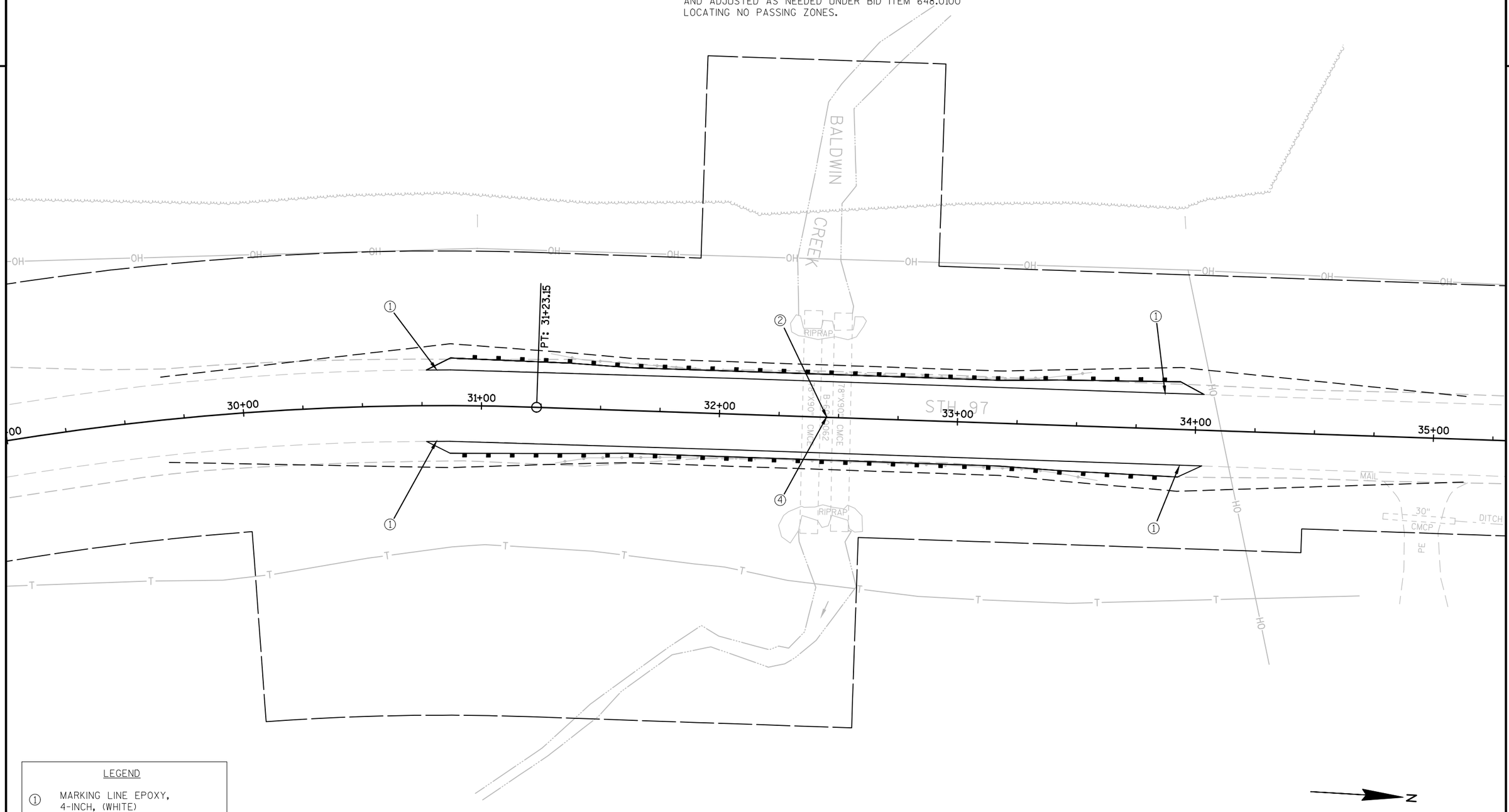
PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	EROSION CONTROL	SHEET 8	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\EROSION CONTROL\022001_EC_12-7-18.DWG
LAYOUT NAME - 03

PLOT DATE : 12/7/2018 9:42 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

NOTE: CENTERLINE MARKINGS ARE APPROXIMATE AND "NO PASSING ZONE MARKINGS" WILL BE LOCATED AND ADJUSTED AS NEEDED UNDER BID ITEM 648.0100 LOCATING NO PASSING ZONES.



LEGEND

① MARKING LINE EPOXY, 4-INCH, (WHITE)

② MARKING LINE EPOXY, 4-INCH, (YELLOW)

③ MARKING LINE EPOXY, 4-INCH, (YELLOW SKIP)

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	PAVMENT MARKINGS	SHEET 9	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\PAVEMENT MARKINGS\024501_PM_9-8-18.DWG
LAYOUT NAME - 03

PLOT DATE : 9/29/2018 6:38 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

HWY 97 SOUTH
CLOSED TO ATHENS
USE DETOUR

HWY 97 SOUTH
CLOSED TO ATHENS
USE DETOUR

HWY 97 CLOSED
NORTH OF ATHENS
ROAD OPEN
TO ATHENS

HWY 97 CLOSED
NORTH OF ATHENS
ROAD OPEN
TO ATHENS

HWY 97 CLOSED
NORTH OF ATHENS
ROAD OPEN
TO ATHENS

BLOW-UP #1

BLOW-UP #2

BLOW-UP #3

BLOW-UP #4

BLOW-UP #5

M4-8 24"X12" DETOUR SOUTH
M3-3 24"X12"
M1-6 24"X24"
97

M4-8 36"X18" DETOUR NORTH
M3-2 36"X18"
M1-6 36"X36"
97
M06-2 30"X30"

M4-8 36"X18" DETOUR NORTH
M3-2 36"X18"
M1-6 36"X36"
97
M05-2R 30"X30"

M4-8 36"X18" DETOUR NORTH
M3-3 36"X18"
M1-6 36"X36"
97

M4-8 36"X18" DETOUR NORTH
M3-3 36"X18"
M1-6 36"X36"
97

M4-8 36"X18" DETOUR NORTH
M3-2 36"X18"
M1-6 36"X36"
97
M06-1 30"X30"

NORTH
M3-2 36"X18"
M1-6 36"X36"
97

DETOUR AHEAD
W20-2-A

M4-8 36"X18" DETOUR SOUTH
M3-2 36"X18"
M1-6 36"X36"
97

M4-8 36"X18" DETOUR SOUTH
M3-2 36"X18"
M1-6 36"X36"
97

M4-8 36"X18" DETOUR SOUTH
M3-2 36"X18"
M1-6 36"X36"
97

M4-8 36"X18" DETOUR SOUTH
M3-2 36"X18"
M1-6 36"X36"
97

EXIT 132

EXIT 145

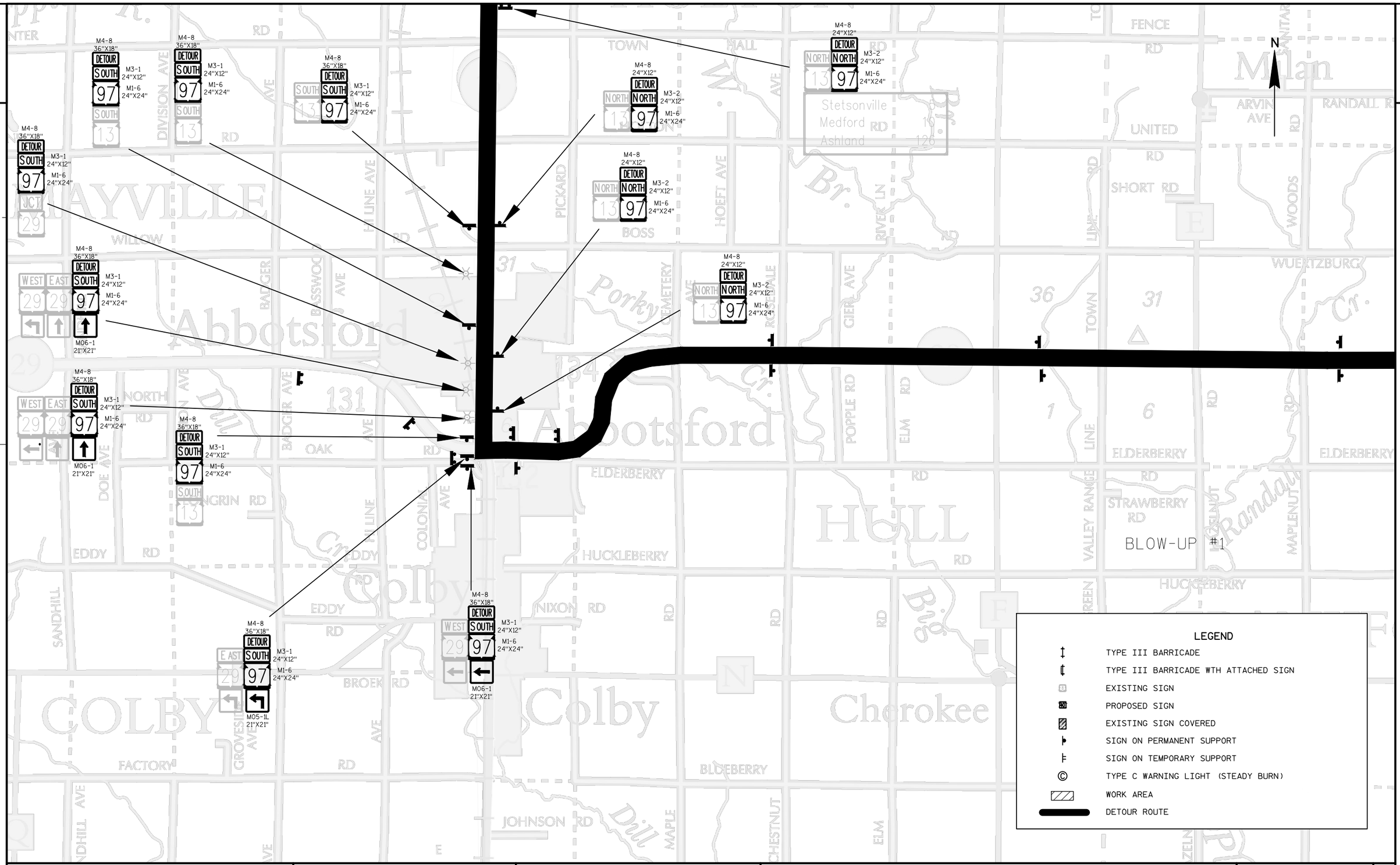
1 MILE

N

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WTH ATTACHED SIGN
- EXISTING SIGN
- PROPOSED SIGN
- EXISTING SIGN COVERED
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TYPE C WARNING LIGHT (STEADY BURN)
- WORK AREA
- DETOUR ROUTE

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	DETOUR	SHEET 10	E



PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	BLOW-UP #1	SHEET 11	E

FILE NAME : \\EAURTOPFLPPI01\N3PUBLIC\PDS\STATEPROGRAM\9535-00-31,70\DATASHARE\TRAFFIC CONTROL\027005_DT_FINAL UPDATED 7-23-18.DWG PLOT DATE : 7/25/2018 7:34 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:1 MI
**** - ****
WISDOT/CADDS SHEET 42

2

2

HWY 97 SOUTH
CLOSED TO ATHENS
USE DETOUR

HWY 97 SOUTH
CLOSED TO ATHENS
USE DETOUR

M4-8 24"X12" DETOUR SOUTH
M3-3 24"X12"
M1-6 24"X24" 97
M06-1 21"X21"

M4-8 24"X12" DETOUR SOUTH
M3-3 24"X12"
M1-6 24"X24" 97
M06-1 21"X21"

M4-8 24"X12" DETOUR SOUTH
M3-3 24"X12"
M1-6 24"X24" 97
M05-1L 21"X21"

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-6 24"X24" 97

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-6 24"X24" 97

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-6 24"X24" 97
M06-1 21"X21"

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-6 24"X24" 97
M05-1R 21"X21"

M4-8 24"X12" DETOUR NORTH
M3-1 24"X12"
M1-6 24"X24" 97

M4-8 24"X12" DETOUR SOUTH
M3-3 24"X12"
M1-6 24"X24" 97
USE LEFT LANE

BLOW-UP #2

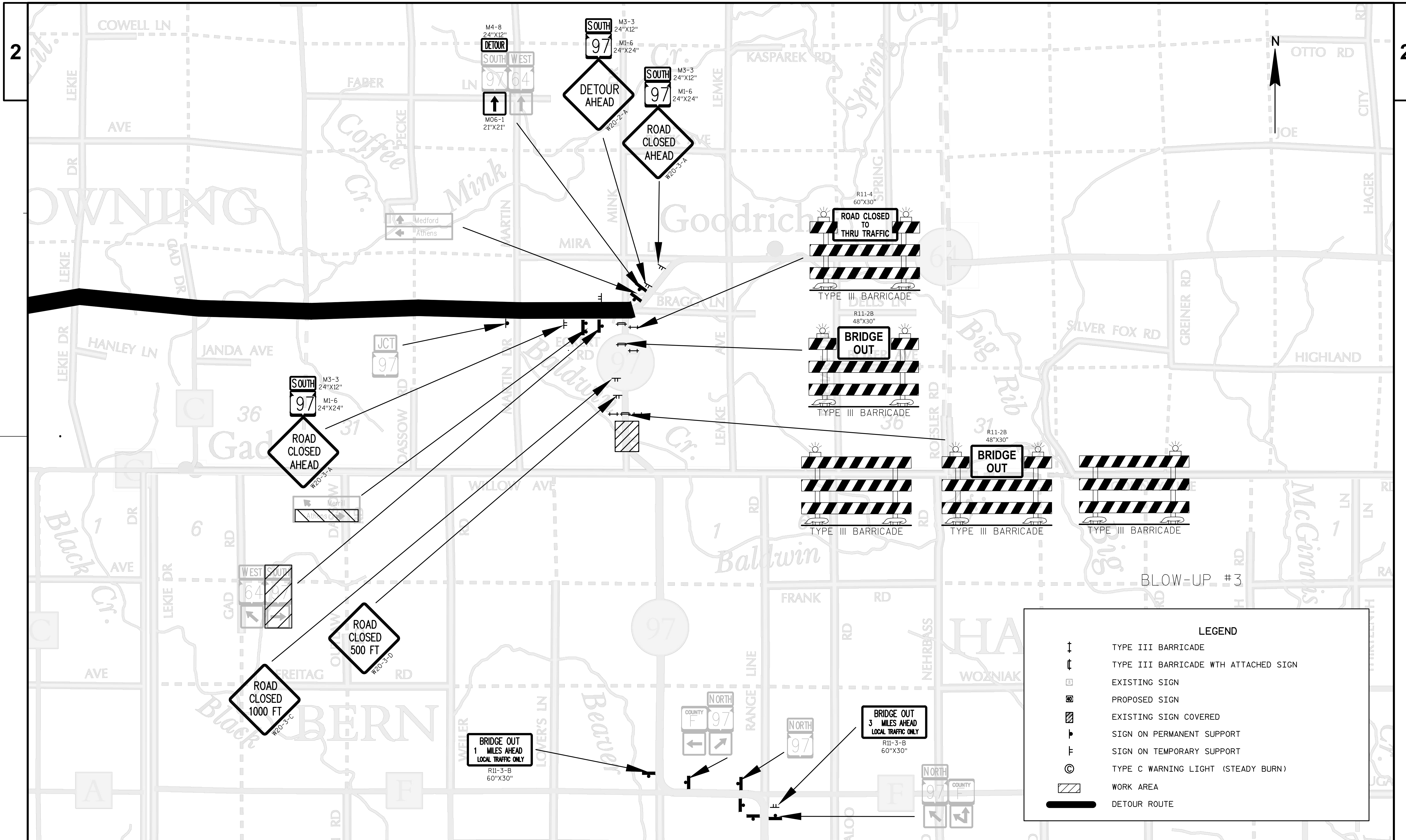
N

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WTH ATTACHED SIGN
- EXISTING SIGN
- PROPOSED SIGN
- EXISTING SIGN COVERED
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TYPE C WARNING LIGHT (STEADY BURN)
- WORK AREA
- DETOUR ROUTE

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	BLOW-UP #2	SHEET	E

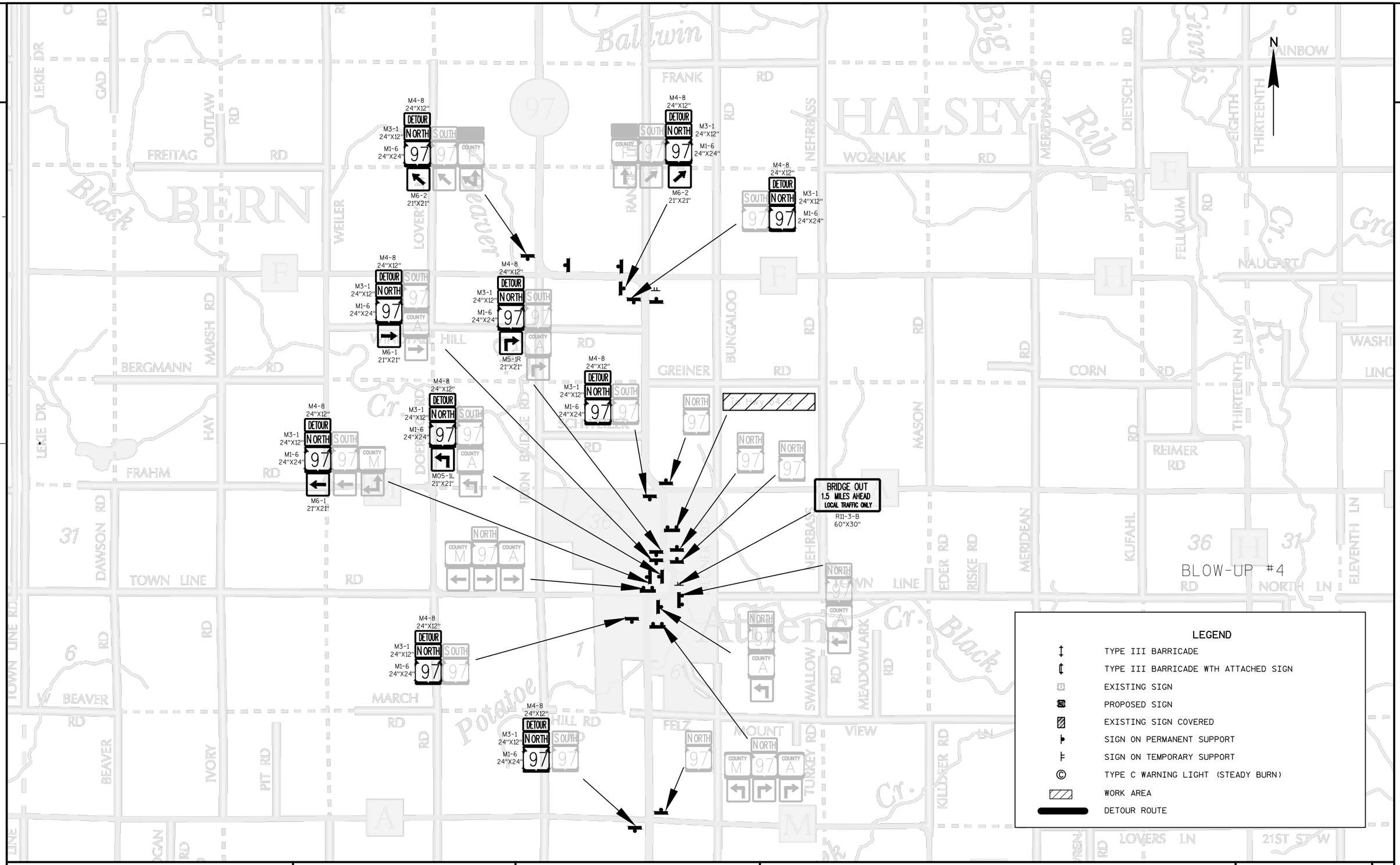
FILE NAME : \\EAURTOPFLPPI01\N3PUBLIC\PDS\STATEPROGRAM\9535-00-31,70\DATASHARE\TRAFFIC CONTROL\027005_DT_FINAL UPDATED 7-23-18.DWG PLOT DATE : 7/25/2018 7:34 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:1 MI
**** - ****
WISDOT/CADDS SHEET 42



2
M4-8
24"X12"
DETOUR
SOUTH
WEST
97
64
M06-1
21"X21"
SOUTH
97
M3-3
24"X12"
M1-6
24"X24"
DETOUR
AHEAD
W20-2-A
ROAD
CLOSED
AHEAD
W20-3-A
N
R11-4
60"X30"
ROAD CLOSED
TO
THRU TRAFFIC
TYPE III BARRICADE
R11-2B
48"X30"
BRIDGE
OUT
JCT
ROAD
CLOSED
500 FT
W20-3-D
ROAD
CLOSED
1000 FT
W20-3-C
BRIDGE OUT
1 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3-B
60"X30"
BRIDGE OUT
3 MILES AHEAD
LOCAL TRAFFIC ONLY
NORTH
COUNTY
F
BLOW-UP #3
LEGEND
TYPE III BARRICADE
TYPE III BARRICADE WTH ATTACHED SIGN
EXISTING SIGN
PROPOSED SIGN
EXISTING SIGN COVERED
SIGN ON PERMANENT SUPPORT
SIGN ON TEMPORARY SUPPORT
TYPE C WARNING LIGHT (STEADY BURN)
WORK AREA
DETOUR ROUTE

PROJECT NO:9535-00-70	HWY:STH 97	COUNTY:TAYLOR	BLOW-UP #3	SHEET 13	E

FILE NAME : \\EAURTOPFLPPI01\N3PUBLIC\PDS\STATEPROGRAM\9535-00-31,70\DATASHARE\TRAFFIC CONTROL\027005_DT_FINAL UPDATED 7-23-18.DWG PLOT DATE : 7/25/2018 7:35 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:1 MI WISDOT/CADDS SHEET 42

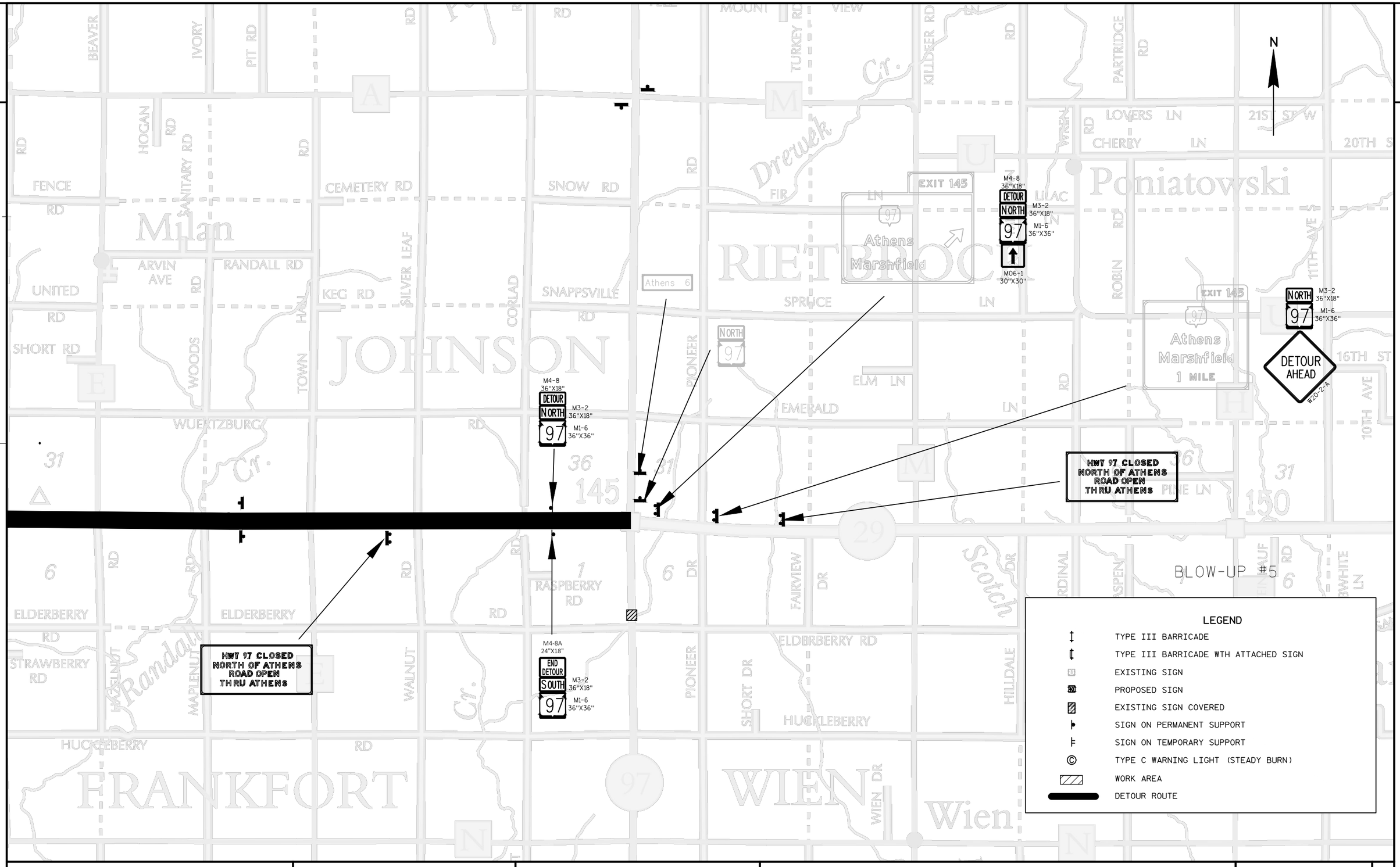


PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	BLOW-UP #4	SHEET 14	E

FILE NAME : \\EAURTOPFLPPI01\N3PUBLIC\PDS\STATEPROGRAM\9535-00-31,70\DATASHARE\TRAFFIC CONTROL\027005_DT_FINAL UPDATED 7-23-18.DWG PLOT DATE : 7/25/2018 7:35 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:1 MI

**** - ****

WISDOT/CADDS SHEET 42



PROJECT NO: 9535-00-70	HWY: 97	COUNTY: RUSK	BLOW-UP #5	SHEET 15	E

FILE NAME : \\EAURTOPFLPPI01\N3PUBLIC\PDS\STATEPROGRAM\9535-00-31,70\DATASHARE\TRAFFIC CONTROL\027005_DT_FINAL UPDATED 7-23-18.DWG PLOT DATE : 7/25/2018 7:35 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:1 MI
**** - ****
WISDOT/CADDS SHEET 42

Alignment: STH97
Description: STH 97
Layer: P_ALI_20

Tangent	N		333180.806	E	712582.4	Z	
	Distance	744.573'		Bearing	N 50° 19' 35.16 W"		
Arc							
	PC N		333656.151	E	712009.3		
	CC N		334538.156	E	712740.9		
	PI N		333988.997	E	711608		
		TAN	521.364'				
		DB	N 50° 19' 35.16 W"'				
		DA	N 1° 23' 51.43 W"'				
		LChord Distance	949.111'	Bearing	N 25° 51' 43.3 W"		
		External Distance	113.030'				
		Middle Ordinate	102.882'				
		Radius	1145.916'				
		DEG	5° 0' 0"'				
		DELTA	48° 55' 43.73"'				
		LENGTH	978.576'				
	PT N		334510.206	E	711595.3		
Tangent	N		334510.206	E	711595.3	Z	
	Distance	726.850'		Bearing	N 1° 23' 51.43 W"		
End	N		335236.84	E	711577.6	Z	

Alignment Length = 2450.00'

9535-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 32+40	LS	1.000	1.000
0004	204.0100	Removing Pavement	SY	240.000	240.000
0006	206.2000	Excavation for Structures Culverts (structure) 01. B-60-138	LS	1.000	1.000
0008	206.5000	Cofferdams (structure) 01. B-60-138	LS	1.000	1.000
0010	211.0500	Prepare Foundation for Base Aggregate	STA	1.000	1.000
0012	213.0100	Finishing Roadway (project) 01. 9535-00-70	EACH	1.000	1.000
0014	305.0110	Base Aggregate Dense 3/4-Inch	TON	100.000	100.000
0016	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	427.000	427.000
0018	415.0070	Concrete Pavement 7-Inch	SY	240.000	240.000
0020	416.0620	Drilled Dowel Bars	EACH	16.000	16.000
0022	455.0605	Tack Coat	GAL	6.000	6.000
0024	460.2000	Incentive Density HMA Pavement	DOL	20.000	20.000
0026	460.6244	HMA Pavement 4 MT 58-34 S	TON	55.000	55.000
0028	522.2368	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 68x106-Inch	LF	144.000	144.000
0030	522.2668	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 68x106-Inch	EACH	4.000	4.000
0032	614.0010	Barrier System Grading Shaping Finishing	EACH	4.000	4.000
0034	614.0920	Salvaged Rail	LF	310.000	310.000
0036	614.2300	MGS Guardrail 3	LF	400.000	400.000
0038	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0040	618.0100	Maintenance And Repair of Haul Roads (project) 01. 9535-00-70	EACH	1.000	1.000
0042	619.1000	Mobilization	EACH	1.000	1.000
0044	624.0100	Water	MGAL	0.010	0.010
0046	625.0500	Salvaged Topsoil	SY	2,497.000	2,497.000
0048	627.0200	Mulching	SY	2,497.000	2,497.000
0050	628.1504	Silt Fence	LF	1,355.000	1,355.000
0052	628.1520	Silt Fence Maintenance	LF	1,355.000	1,355.000
0054	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0056	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0058	628.2004	Erosion Mat Class I Type B	SY	1,185.000	1,185.000
0060	628.2008	Erosion Mat Urban Class I Type B	SY	1,080.000	1,080.000
0062	628.7555	Culvert Pipe Checks	EACH	48.000	48.000
0064	629.0210	Fertilizer Type B	CWT	2.000	2.000
0066	630.0130	Seeding Mixture No. 30	LB	54.000	54.000
0068	630.0200	Seeding Temporary	LB	82.000	82.000
0070	633.5200	Markers Culvert End	EACH	4.000	4.000
0072	642.5001	Field Office Type B	EACH	1.000	1.000

9535-00-70

Line	Item	Item Description	Unit	Total	Qty
0074	643.0300	Traffic Control Drums	DAY	340.000	340.000
0076	643.0420	Traffic Control Barricades Type III	DAY	210.000	210.000
0078	643.0705	Traffic Control Warning Lights Type A	DAY	280.000	280.000
0080	643.0715	Traffic Control Warning Lights Type C	DAY	70.000	70.000
0082	643.0900	Traffic Control Signs	DAY	6,335.000	6,335.000
0084	643.0920	Traffic Control Covering Signs Type II	EACH	3.000	3.000
0086	643.1000	Traffic Control Signs Fixed Message	SF	132.000	132.000
0088	643.5000	Traffic Control	EACH	1.000	1.000
0090	646.1020	Marking Line Epoxy 4-Inch	LF	995.000	995.000
0092	648.0100	Locating No-Passing Zones	MI	0.104	0.104
0094	650.4500	Construction Staking Subgrade	LF	306.000	306.000
0096	650.5000	Construction Staking Base	LF	306.000	306.000
0098	650.6500	Construction Staking Structure Layout (structure) 01. B-60-138	LS	1.000	1.000
0100	650.8000	Construction Staking Resurfacing Reference	LF	306.000	306.000
0102	650.9910	Construction Staking Supplemental Control (project) 01. 9535-00-70	LS	1.000	1.000
0104	650.9920	Construction Staking Slope Stakes	LF	306.000	306.000
0106	690.0250	Sawing Concrete	LF	60.000	60.000
0108	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000

3

REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (32+40)

CATEGORY	STATION	TO	STATION	LOCATION	203.0600.S LS
0020	32+04			1	1
				TOTAL 0010	1

REMOVING PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	204.0100 SY
0010	32+04	-	32+76		240
				TOTAL 0010	240

PREPARE FOUNDATION FOR BASE AGGREGATE

CATEGORY	STATION	TO	STATION	LOCATION	211.0500 STA
0010	32+04	-	32+76		1
				TOTAL 0010	1

BASE AGGREGATE DENSE 3/4-INCH

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 TON
0010	29+67	-	35+00	LT	45
0010	29+67	-	34+80	RT	54
				TOTAL 0010	100

EXCAVATION FOR STRUCTURES CULVERTS (B-60-138)

CATEGORY	STATION	LOCATION	206.2000 LS
0020	32+50		1
		TOTAL 0010	1

COFFERDAMS (B-60-138)

CATEGORY	STATION	LOCATION	206.5000 LS
0020	32+50		1
		TOTAL 0010	1

FINISHING ROADWAY (9535-00-70)

CATEGORY	STATION	TO	STATION	LOCATION	213.0100 EACH
0010	32+04	-	32+76		1
				TOTAL 0010	1

BASE AGGREGATE DENSE 1 1/4-INCH

CATEGORY	STATION	TO	STATION	LOCATION	305.0120 TON
0010	32+04	-	32+76	LT	213
0010	32+04	-	32+76	RT	213
				TOTAL 0010	427

3

CONCRETE PAVEMENT 7-INCH

CATEGORY	STATION	TO	STATION	LOCATION	415.0070 SY
0010	32+04	-	32+76		240
				TOTAL 0010	240

TACK COAT

CATEGORY	STATION	TO	STATION	LOCATION	455.0605 GAL
0010	30+87	-	33+93	LT	3
0010	30+87	-	33+93	RT	3
				TOTAL 0010	6

HMA PAVEMENT 4 MT 58-34 S

CATEGORY	STATION	TO	STATION	LOCATION	460.6244 TON
0010	30+87	-	33+93	LT	28
0010	30+87	-	33+93	RT	28
				TOTAL 0010	55

APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 68X106-INCH

CATEGORY	STATION	LOCATION	522.2668 EACH	REMARKS
0020	32+36		2	Pipe #1
0020	32+50		2	Pipe #2
		TOTAL 0010	4	

DRILLED DOWEL BARS

CATEGORY	STATION	LOCATION	416.0620 EACH
0010	32+81	LT	8
0010	32+81	RT	8
		TOTAL 0010	16

INCENTIVE DENSITY HMA PAVEMENT

CATEGORY	STATION	LOCATION	460.2000 DOL
0010	PROJECT		20
		TOTAL 0010	20

CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 68X106-INCH

CATEGORY	STATION	TO	STATION	LOCATION	522.2368 LF	* JOINT TIES EACH
0020	32+36				72	12
0020	32+50				72	12
				TOTAL 0010	144	24

* ITEMS AND QUANTITIES FOR INFORMATION ONLY.

3

SALVAGED RAIL

CATEGORY	STATION	TO	STATION	LOCATION	614.0920 LF
0010	31+60	-	33+20	LT	155
0010	31+60	-	33+20	RT	155
				TOTAL 0010	310

MGS GUARDRAIL 3

CATEGORY	STATION	TO	STATION	LOCATION	614.2300 LF
0010	31+40	-	33+40		200
0010	31+40	-	33+40		200
				TOTAL 0010	400

3

BARRIER SYSTEM GRADING SHAPING FINISHING

CATEGORY	STATION	TO	STATION	LOCATION	614.0010 EACH	* BORROW CY	* COMMON CY	* SALVAGED TOPSOIL SY	* MULCHING SY	* FERTILIZER TYPE B CWT	* SEEDING MIX NO. 30 LB
0010	29+94	-	32+26	LT	1	214	109	619	619	0.50	14
0010	29+76	-	32+13	RT	1	57	91	632	632	0.50	13
0010	32+56	-	35+13	LT	1	143	147	685	685	0.50	14
0010	32+68	-	34+76	RT	1	89	115	555	555	0.50	13
				TOTAL 0010	4	503	462	2491	2491	2	54

* INFORMATIONAL ONLY

MGS GUARDRAIL TERMINAL EAT

CATEGORY	STATION	LOCATION	614.2610 EACH
0010	30+87	LT	1
0010	30+87	RT	1
0010	33+93	LT	1
0010	33+93	RT	1
		TOTAL 0010	4

MAINTENANCE AND REPAIR OF HAUL ROADS (9535-00-70)

CATEGORY	STATION	TO	STATION	LOCATION	618.0100 EACH
0010	32+04	-	32+76		1
				TOTAL 0010	1

MOBILIZATION

CATEGORY	STATION	LOCATION	619.1000 EACH
0010	PROJECT		1
		TOTAL 0010	1

MULCHING

CATEGORY	STATION	TO	STATION	LOCATION	627.0200 SY
0010	29+94	-	32+26	LT	619
0010	29+76	-	32+13	RT	632
0010	32+56	-	35+13	LT	685
0010	32+68	-	34+76	RT	555
				TOTAL 0010	2491

SILT FENCE MAINTENANCE

CATEGORY	STATION	TO	STATION	LOCATION	628.1520 LF
0010	29+67	-	35+13	LT	570
0010	29+67	-	34+80	RT	515
0010	UNDISTRIBUTED				270
				TOTAL 0010	1355

MOBILIZATIONS EMERGENCY EROSION CONTROL

CATEGORY	STATION	LOCATION	628.1910 EACH
0010	PROJECT		1
		TOTAL 0010	1

WATER

CATEGORY	STATION	LOCATION	624.0100 MGAL
0010	PROJECT		0.01
		TOTAL 0010	0.01

SILT FENCE

CATEGORY	STATION	TO	STATION	LOCATION	628.1504 LF
0010	29+67	-	35+15	LT	570
0010	29+67	-	34+80	RT	515
0010	UNDISTRIBUTED				270
				TOTAL 0010	1355

MOBILIZATIONS EROSION CONTROL

CATEGORY	STATION	LOCATION	628.1905 EACH
0010	PROJECT		1
		TOTAL 0010	1

EROSION MAT CLASS I TYPE B

CATEGORY	STATION	TO	STATION	LOCATION	628.2004 SY
0010	29+67	-	35+13	LT	490
0010	29+68	-	34+20	RT	455
0010	UNDISTRIBUTED				240
				TOTAL 0010	1185

EROSION MAT URBAN CLASS I TYPE B

CATEGORY	STATION	TO	STATION	LOCATION	628.2008 SY	REMARKS
0010	29+94	-	32+26	LT	220	BEHIND GUARDRAIL
0010	29+76	-	32+13	RT	216	BEHIND GUARDRAIL
0010	32+56	-	35+13	LT	239	BEHIND GUARDRAIL
0010	32+68	-	34+76	RT	188	BEHIND GUARDRAIL
0010	UNDISTRIBUTED				217	
				TOTAL 0010	1080	

3

CULVERT PIPE CHECKS

CATEGORY	STATION	LOCATION	628.7555 EACH
0010	32+36	LT	24
0010	32+50	LT	24
		TOTAL 0010	48

SEEDING TEMPORARY

CATEGORY	STATION	TO	STATION	LOCATION	630.0200 LB
0010	29+67	-	35+13	LT	40
0010	29+67	-	34+76	RT	43
				TOTAL 0010	82

MARKERS CULVERT END

CATEGORY	STATION	LOCATION	633.5200 EACH
0010	32+40		4
		TOTAL 0010	4

FIELD OFFICE TYPE B

CATEGORY	STATION	LOCATION	642.5001 EACH
0010	PROJECT		1
		TOTAL 0010	1

TRAFFIC CONTROL DRUMS

CATEGORY	STATION	TO	STATION	LOCATION	643.0300 DAY
0010	29+67	-	35+13		340
				TOTAL 0010	340

3

TRAFFIC CONTROL BARRICADES TYPE III

CATEGORY	STATION	TO	STATION	LOCATION	643.0420 DAY
0010	29+67	-	35+13		210
				TOTAL 0010	210

TRAFFIC CONTROL WARNING LIGHTS TYPE A

CATEGORY	STATION	LOCATION	643.0705 DAY	REMARKS
0010	PROJECT	DETOUR	280	6 Barricades
		TOTAL 0010	280	

3

TRAFFIC CONTROL WARNING LIGHTS TYPE C

CATEGORY	STATION	TO	STATION	LOCATION	643.0715 DAY
0010	32+04	-	32+76	PROJECT	70
				TOTAL 0010	70

TRAFFIC CONTROL SIGNS

CATEGORY	STATION	LOCATION	643.0900 DAY
0010	PROJECT	DETOUR	6335
		TOTAL 0010	6335

TRAFFIC CONTROL COVERING SIGNS TYPE II

CATEGORY	STATION	LOCATION	643.0920 EACH	REMARKS
0010	PROJECT		3	1 CYCLE
		TOTAL 0010	3	

TRAFFIC CONTROL SIGNS FIXED MESSAGE

CATEGORY	LOCATION	643.1000 SF	MESSAGE	REMARKS
0010	DETOUR	42.00	HWY 97 CLOSED NORTH OF ATHENS	Detour Route Page
0010	DETOUR	22.50	HWY 97 SOUTH CLOSED TO ATHENS FOLLOW DETOUR	BLOW-UP #2
0010	DETOUR	22.50	HWY 97 SOUTH CLOSED TO ATHENS FOLLOW DETOUR	BLOW-UP #2
0010	DETOUR	22.50	HWY 97 SOUTH CLOSED TO ATHENS FOLLOW DETOUR	BLOW-UP #3
0010	DETOUR	22.50	HWY 97 SOUTH CLOSED TO ATHENS FOLLOW DETOUR	BLOW-UP #3
	TOTAL 0010	132.00		

TRAFFIC CONTROL

CATEGORY	STATION	LOCATION	643.5000 DOL
0010	PROJECT		1
		TOTAL 0010	1

MARKING LINE EPOXY 4-INCH

CATEGORY	STATION	TO	STATION	LOCATION	646.1020 LF	REMARKS
0010	30+87	-	33+93		306	LEFT EDGE LINE
0010	30+87	-	33+93		306	RIGHT EDGE LINE
0010	30+87	-	33+93		383	CENTERLINE (SOLID - SKIP)
				TOTAL 0010	995	

LOCATING NO-PASSING ZONES

CATEGORY	STATION		STATION	LOCATION	648.0100 MI
0010	29+67	-	35+13		0.104
				TOTAL 0010	0.104

CONSTRUCTION STAKING SUBGRADE

CATEGORY	STATION	TO	STATION	LOCATION	650.4500 LF
0010	30+87	-	33+93		306
				TOTAL 0010	306

CONSTRUCTION STAKING BASE

CATEGORY	STATION	TO	STATION	LOCATION	650.5000 LF
0010	30+87	-	33+93		306
				TOTAL 0010	306

CONSTRUCTION STAKING STRUCTURE LAYOUT (B-60-138)

CATEGORY	STATION	LOCATION	650.6500 LS
0020	32+50		1
		TOTAL 0010	1

CONSTRUCTION STAKING RESURFACING REFERENCE

CATEGORY	STATION	TO	STATION	LOCATION	650.8000 LF
0010	30+87	-	33+93		306
				TOTAL 0010	306

3

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (9535-00-70)

CATEGORY	STATION	TO	STATION	LOCATION	650.9910 LS
0010	30+87	-	33+93		1
				TOTAL 0010	1

CONSTRUCTION STAKING SLOPE STAKES

CATEGORY	STATION	TO	STATION	LOCATION	650.9920 LF
0010	30+87	-	33+93		306
				TOTAL 0010	306

3

SAWING CONCRETE

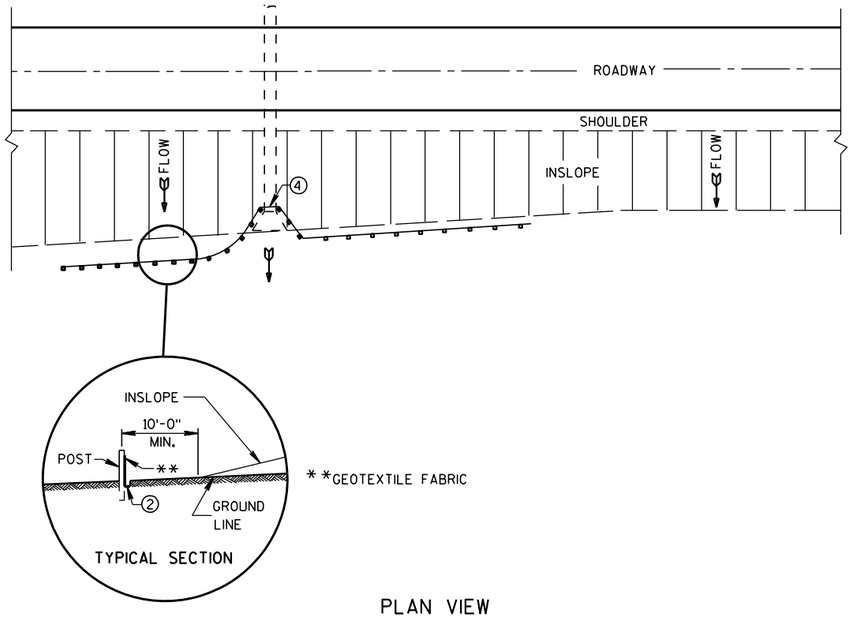
CATEGORY	STATION	LOCATION	690.0250 LF
0010	32+04		30
0010	32+76		30
		TOTAL 0010	60

INCENTIVE STRENGTH CONCRETE PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	715.0415 DOL
0010	32+04	-	32+76		1
				TOTAL 0010	1

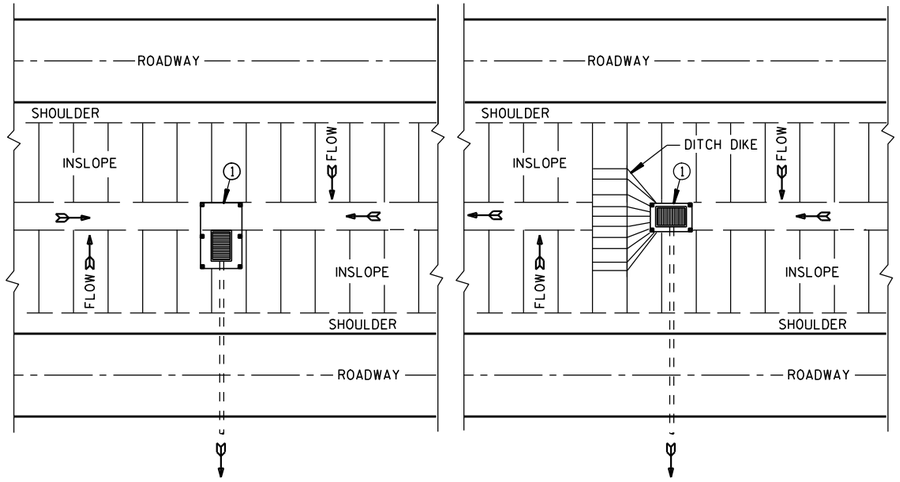
Standard Detail Drawing List

08E09-06	SILT FENCE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C11-12A	RURAL DOWELED CONCRETE PAVEMENT
13C11-12B	RURAL DOWELED CONCRETE PAVEMENT
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



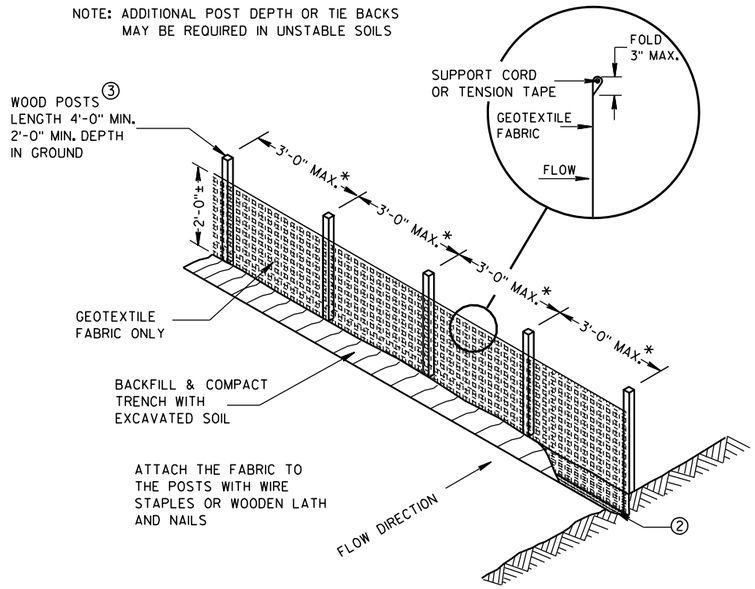
PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



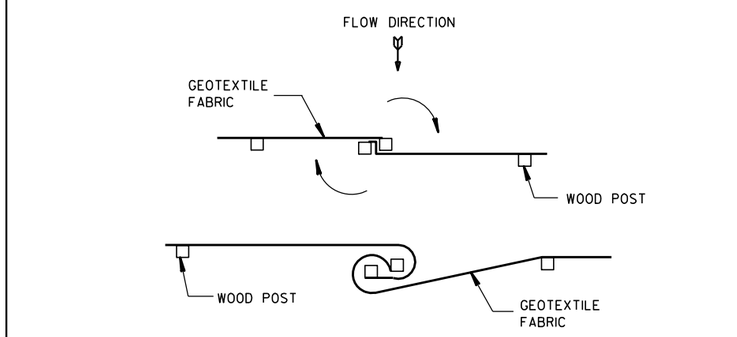
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

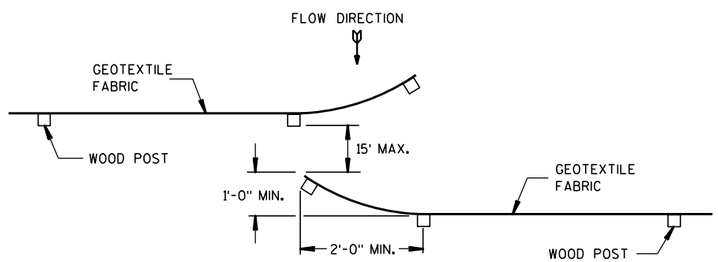


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE



TWIST METHOD



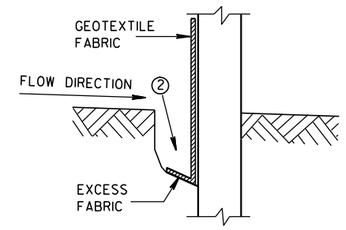
HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5

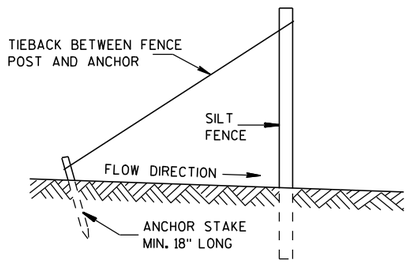
GENERAL NOTES

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 TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

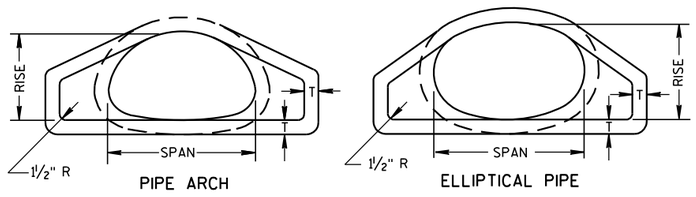
SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

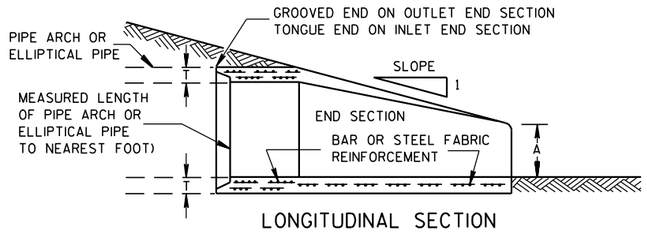
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

S.D.D. 8 E 9-6

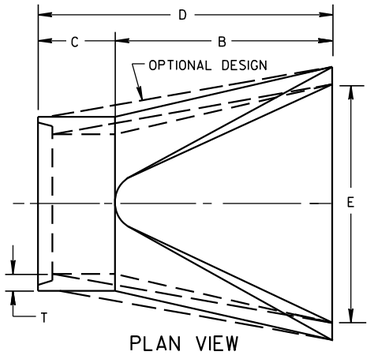
6



END VIEW

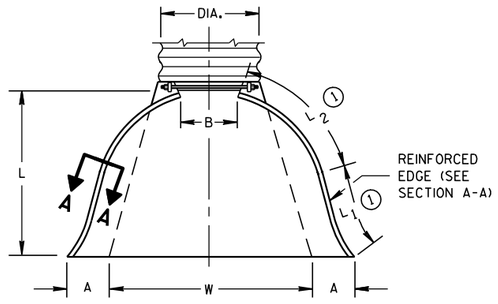


LONGITUDINAL SECTION

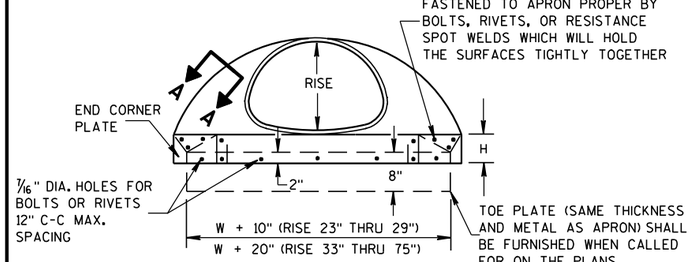


PLAN VIEW

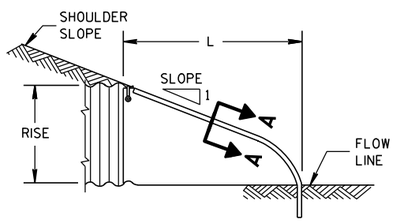
CONCRETE ENDWALLS



PLAN VIEW

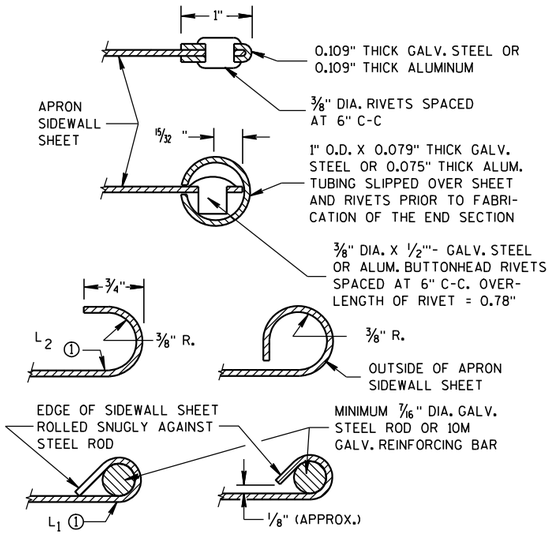


END VIEW



SIDE ELEVATION

METAL ENDWALLS



SECTION A-A

2- 2/3" X 1/2" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches) SPAN	(Inches) RISE	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
15	17	13	.064	.060	7	9	6	19	14	16	30	2½ to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19⅜	36	2½ to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21¾	42	2½ to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27½	48	2½ to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37⅝	60	2½ to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45⅜	75	2½ to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54¾	85	2½ to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2½ to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72¾	102	2¼ to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82¼	114	2¼ to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches) SPAN	(Inches) RISE	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
48	53	41	.109	.105	18	26	12	63	24	72¾	90	2½ to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82¼	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1½ to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1½ to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1½ to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1½ to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1½ to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1½ to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL SEE GENERAL NOTES

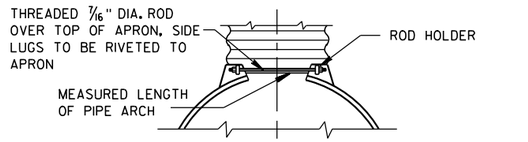
REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	29	18	3	8½	39	33	72	48	3 to 1
30	36	22	3½	9½	50	46	96	60	3 to 1
36	44	27	4	11⅛	60	36	96	72	3 to 1
42	51	31	4½	15 13/16	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5½	25½	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28½	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

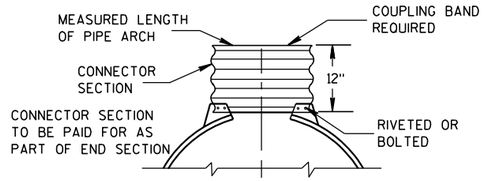
EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅛	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48	6½	30	60	36	96	96	2½ to 1

**NOMINAL SIZE



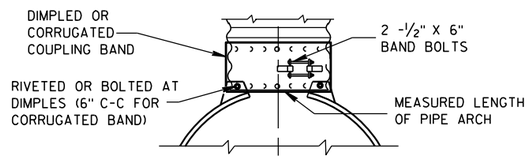
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION 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.

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH 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 ARCH 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 77" X 52" THROUGH 112" X 75" 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 ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/94 — DATE

/S/ Rory L. Rhinesmith — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

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S.D.D. 8 F 2-1

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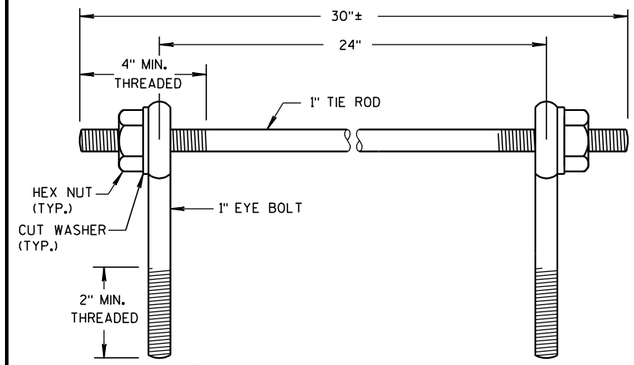
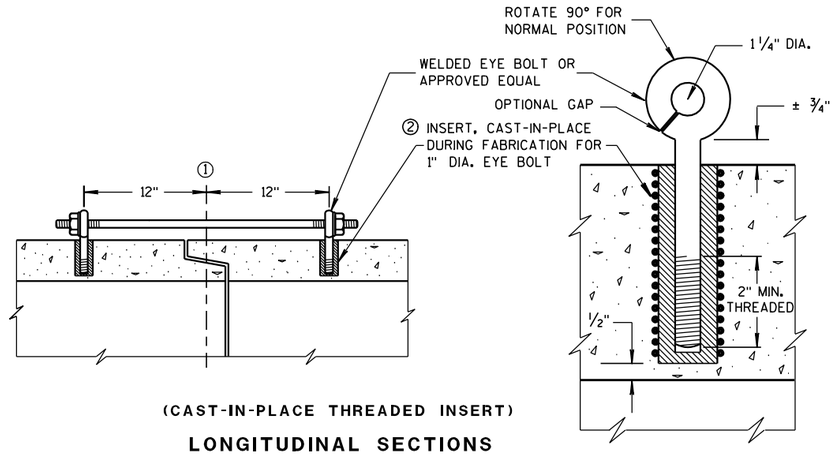
S.D.D. 8 F 2-1



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.

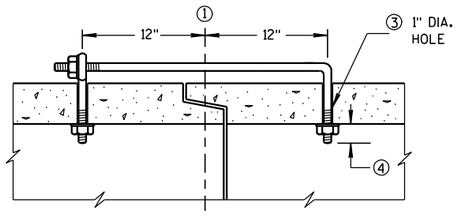
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

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

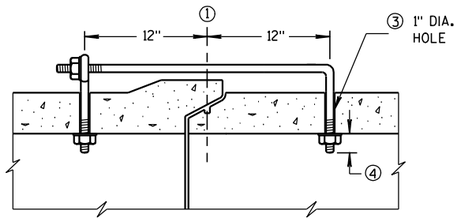
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

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)

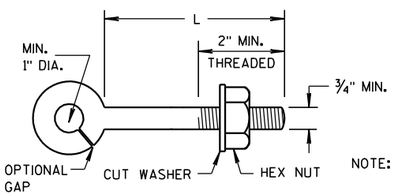


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

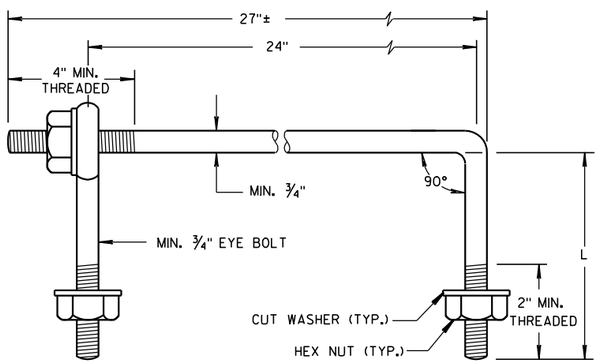
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



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

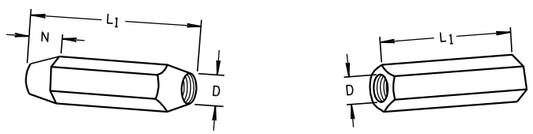
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

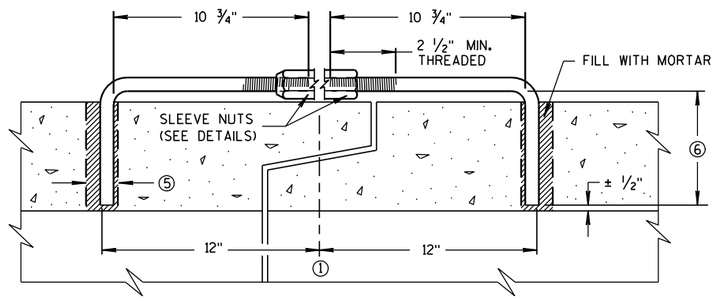
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

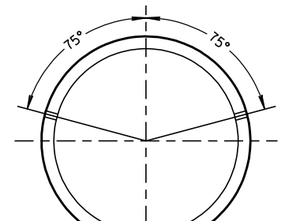
SLEEVE NUTS



LONGITUDINAL SECTION

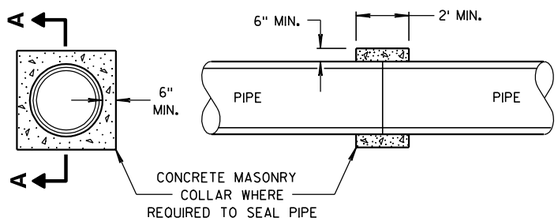
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

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
30
FHWA

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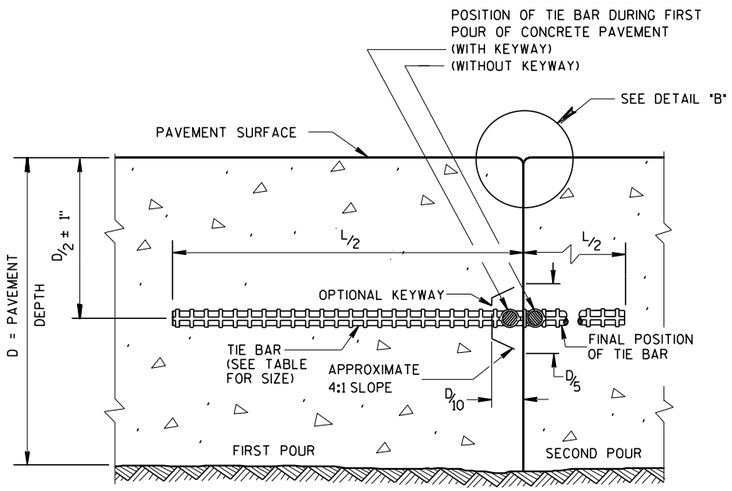
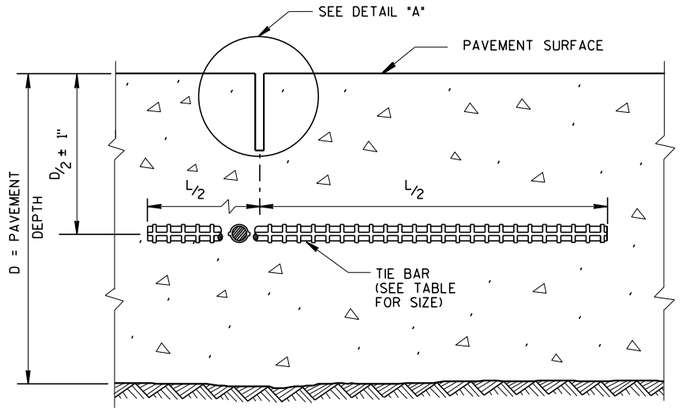


CONSTRUCTION JOINT



SAWED JOINT

GENERAL NOTES

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

(2) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

PLAN VIEW

SECTION A-A

LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT

DETAIL "A"

DETAIL "B"

DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPE
FHWA

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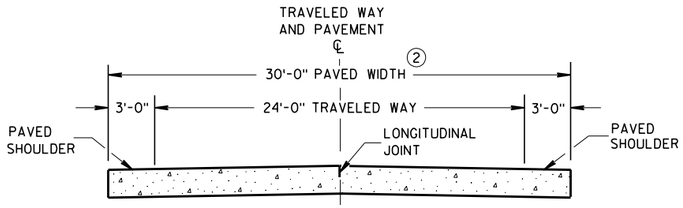
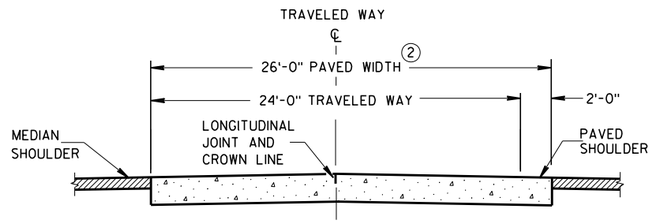
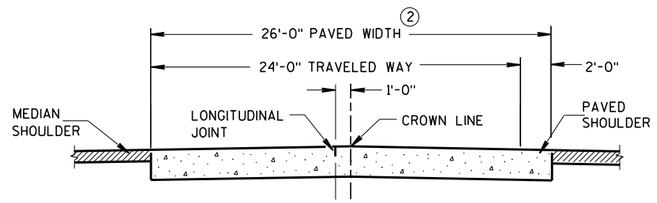
S.D.D. 13 C 1-19



SECTION A-A
TWO-LANE TWO-WAY HIGHWAY (1)



SECTION B-B



ALTERNATIVE SECTION B-B
(1)
DIVIDED HIGHWAY

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

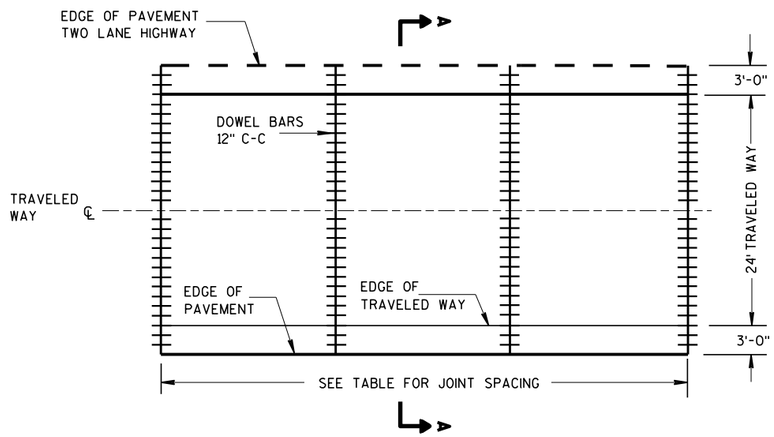
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

(1) REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.

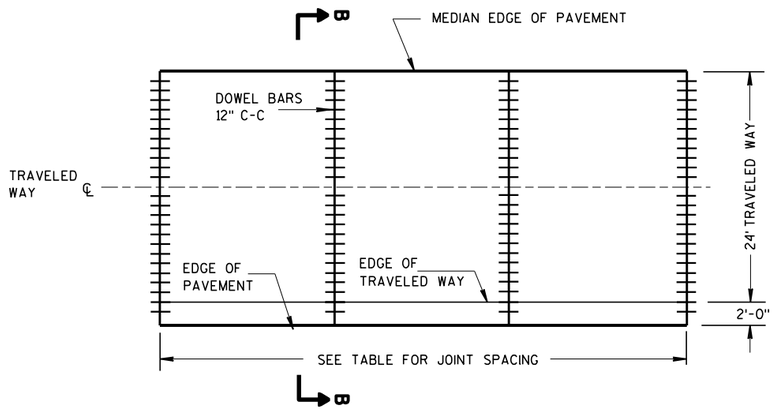
(2) MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



CONTRACTION JOINT LAYOUT
FOR TWO-LANE TWO-WAY HIGHWAY



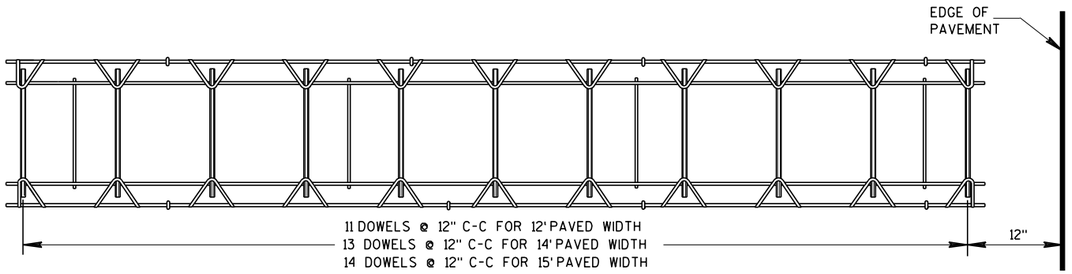
CONTRACTION JOINT LAYOUT
FOR DIVIDED HIGHWAY

RURAL DOWELED CONCRETE PAVEMENT

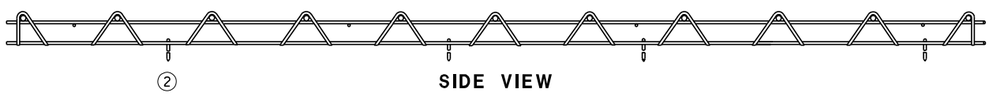
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 13 C 11-12a



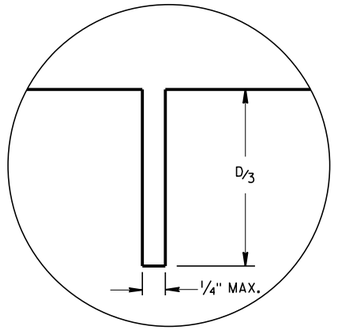
PLAN VIEW



SIDE VIEW

(NORMAL TO CENTERLINE)

CONTRACTION JOINT DOWEL ASSEMBLY ①



JOINT DETAIL

GENERAL NOTES

① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

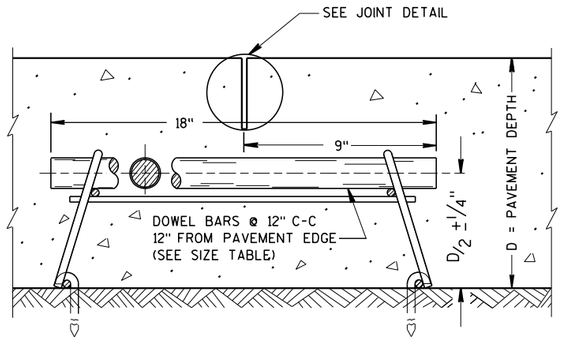
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

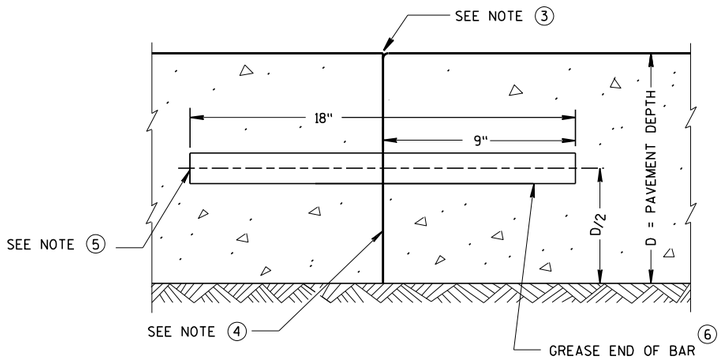
⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

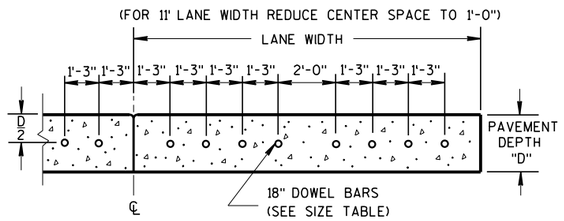
⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

RURAL DOWELED CONCRETE PAVEMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018 DATE FHWA	/S/ Peter Kemp P.E. PAVEMENT SUP

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S.D.D. 13 C 11-12b

(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.

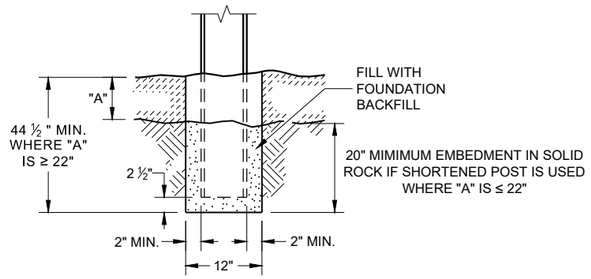
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL 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).

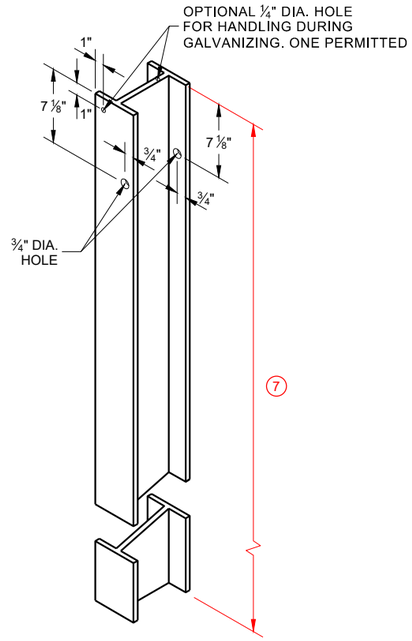
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

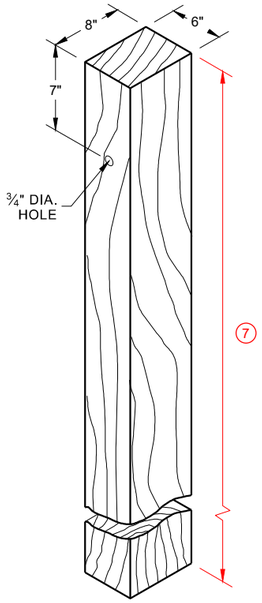
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



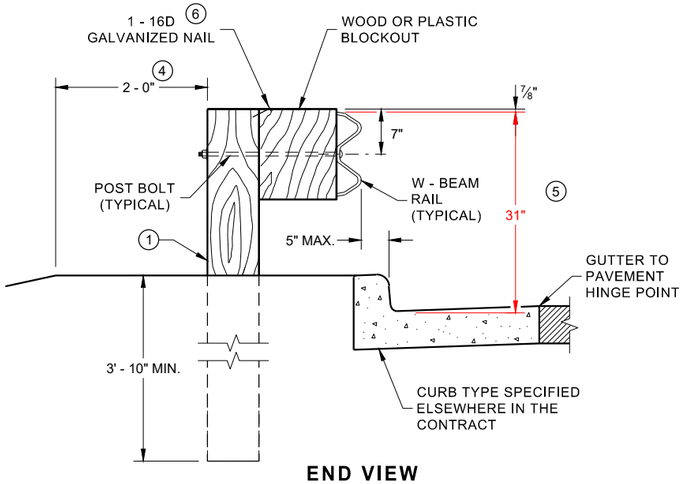
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



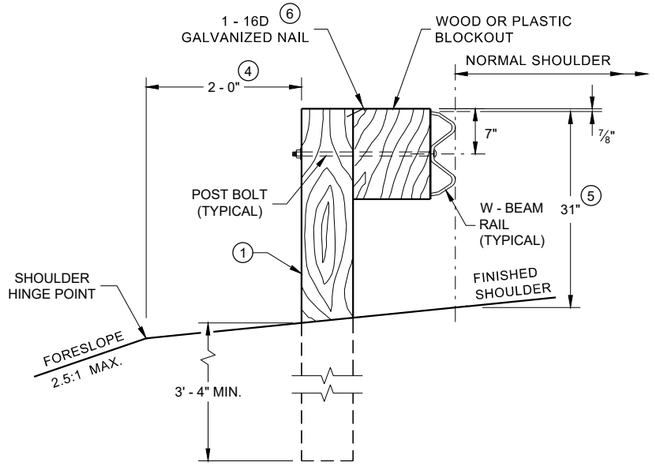
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



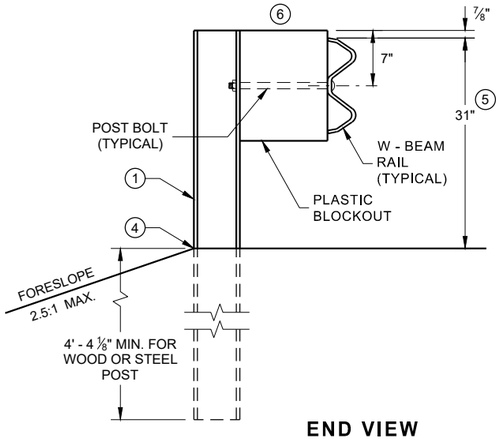
WOOD POST (6" X 8") NOMINAL (1)



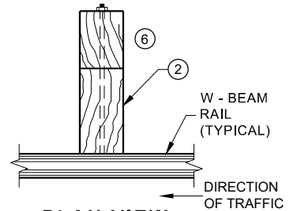
END VIEW
LOCATED ALONG A CURBED ROADWAY



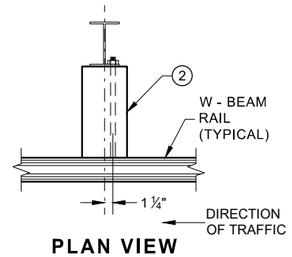
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



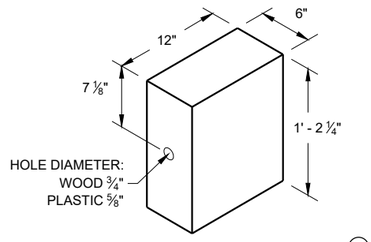
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT (2)

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B42 - 06a

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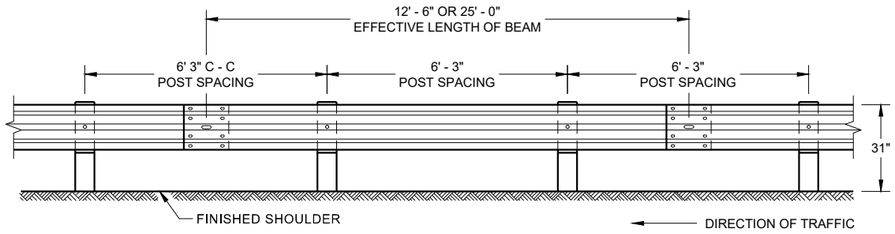
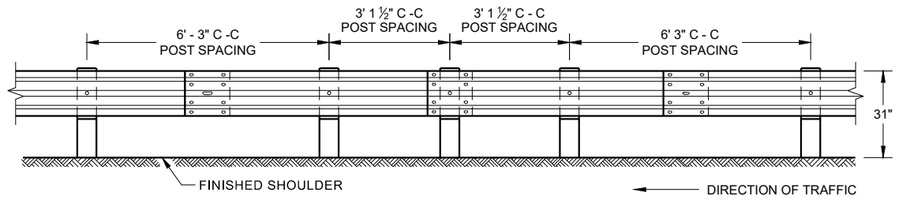
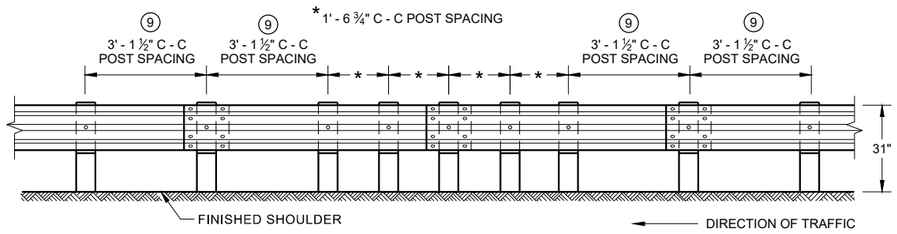
SDD 14B42 - 06a



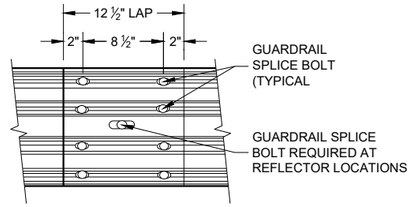
FRONT VIEW
POST SPACING STANDARD INSTALLATION



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



FRONT VIEW
QUARTER POST SPACING (QS)



FRONT VIEW
MID-SPAN BEAM SPLICE

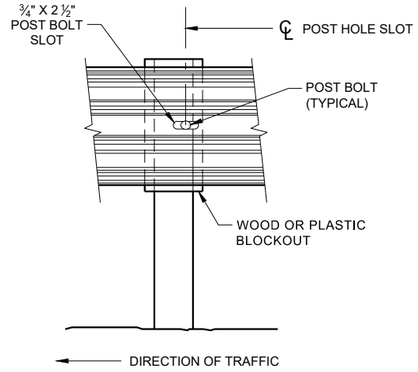
GENERAL NOTES

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.

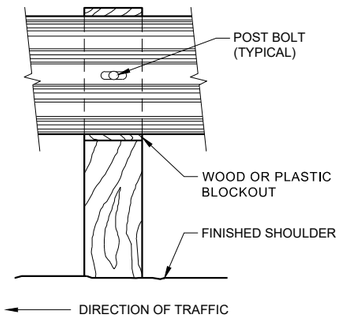
⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ¾" 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.

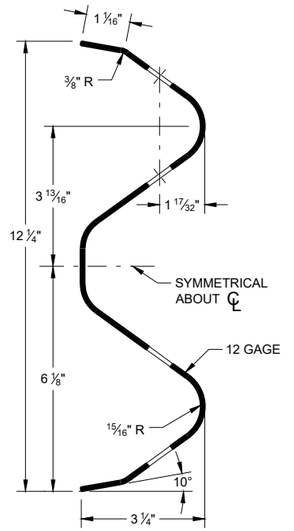
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



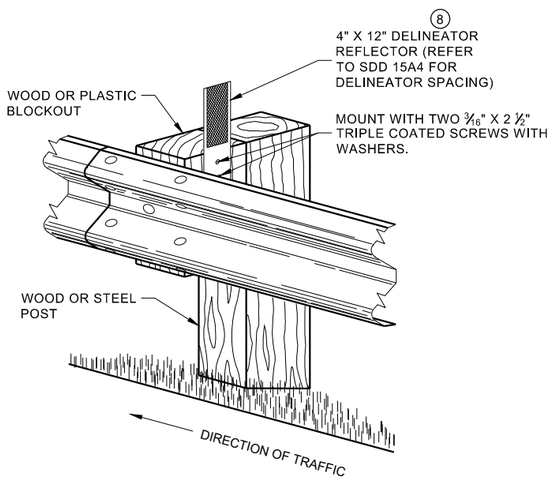
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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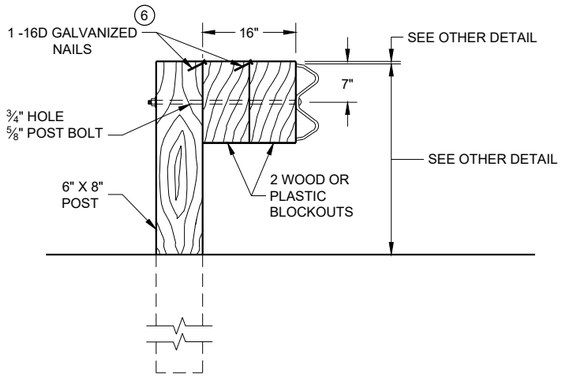
SDD 14B42 - 06b

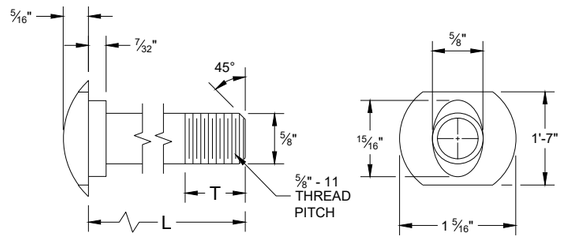


DETAIL FOR 16" BLOCKOUT DEPTH

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.

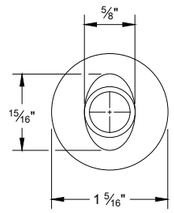
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

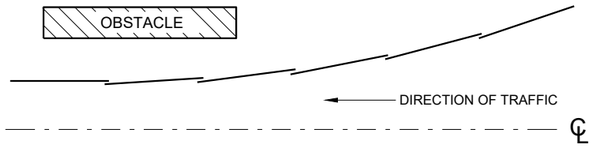


POST BOLT TABLE

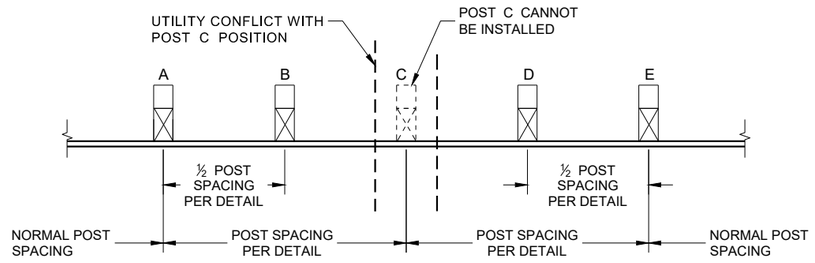
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



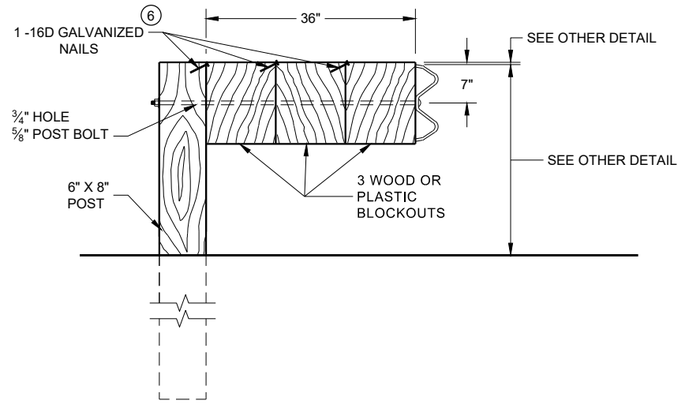
ALTERNATE BOLT HEAD



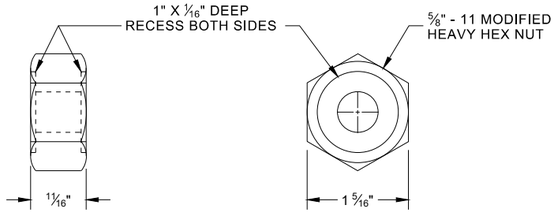
PLAN VIEW
BEAM LAPPING DETAIL



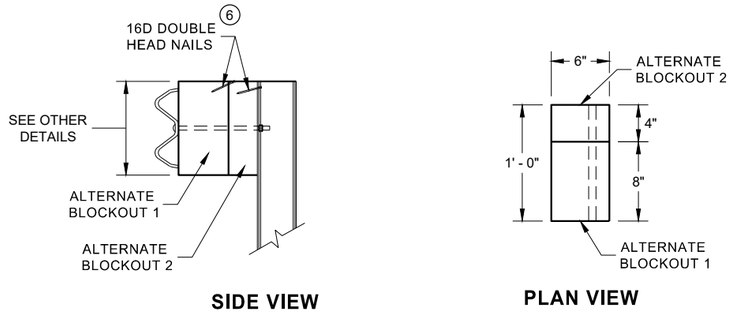
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW

PLAN VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

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.

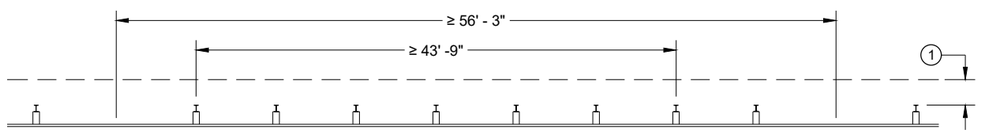
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

(6) WHEN USING STEEL POST AD 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.

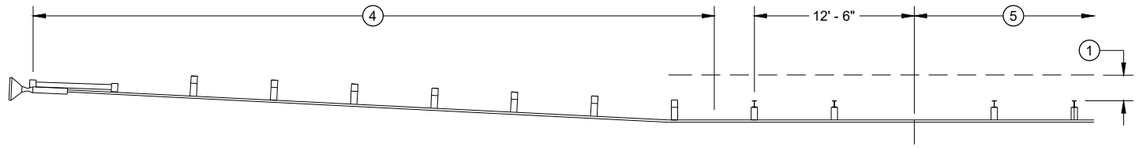
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

6

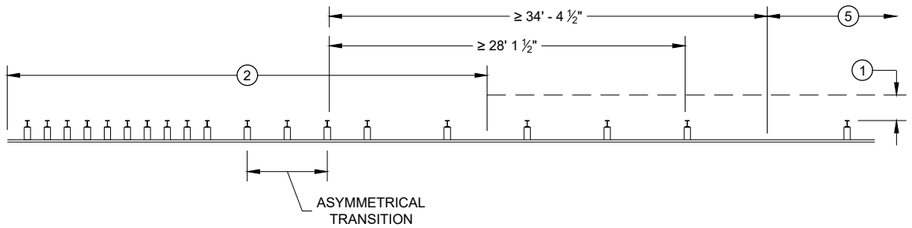
SDD 14B42 - 06c



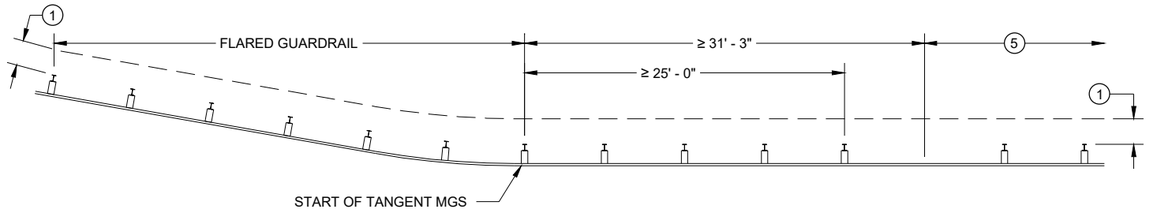
MISSING POST IN NORMAL BEAM GUARD RUN



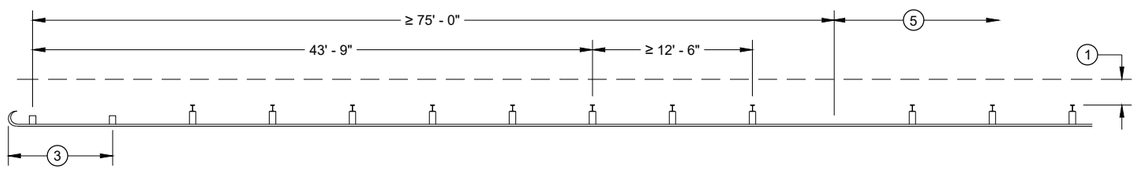
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



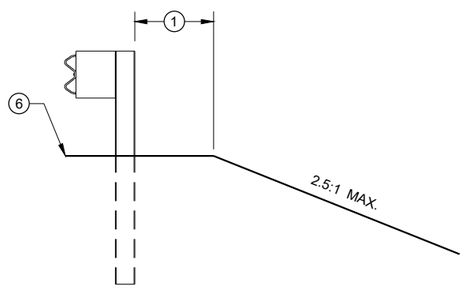
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

1. MINIMUM OF 2 FEET OF GRADING BEHIND POST.
2. SEE SDD 14B45 FOR MORE DETAILS.
3. SEE SDD 14B47 FOR MORE DETAILS.
4. SEE SDD 14B44 FOR MORE DETAILS.
5. SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
6. SEE PLAN FOR SHOULDER DESIGN.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR

FHWA

SDD 14B42 - 06d

SDD 14B42 - 06d

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 MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.

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

(E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

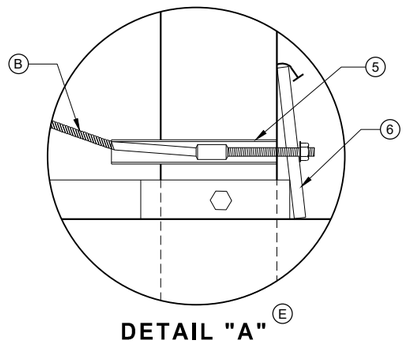
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

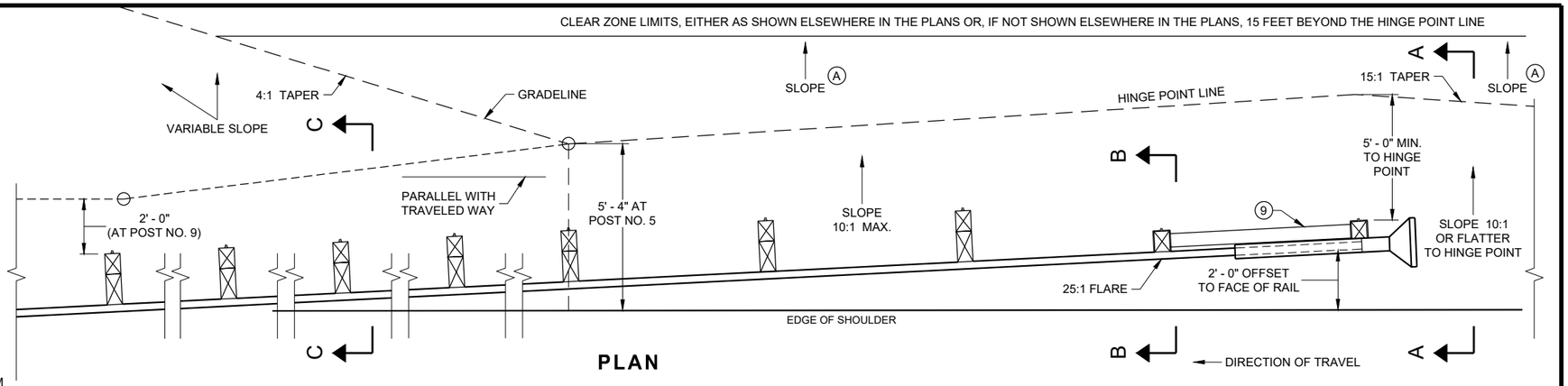
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

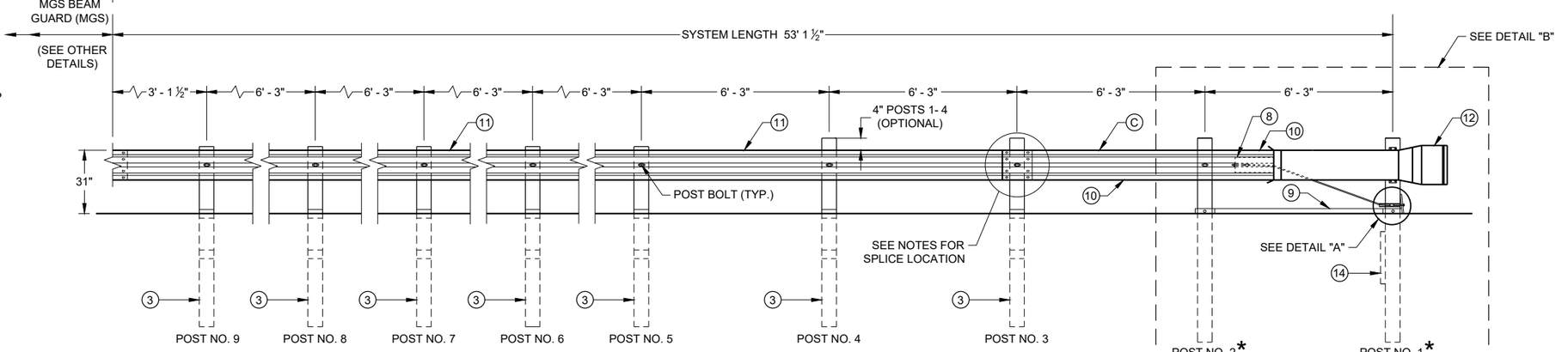
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



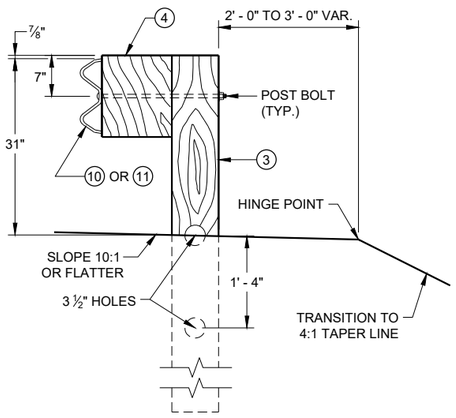
DETAIL "A" (E)



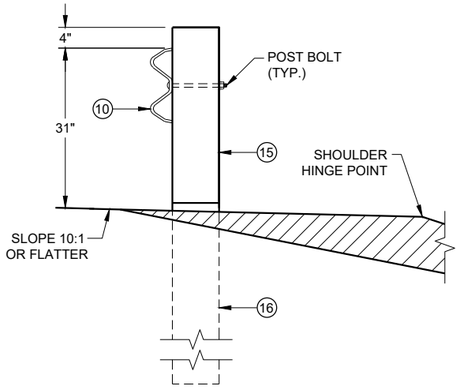
PLAN



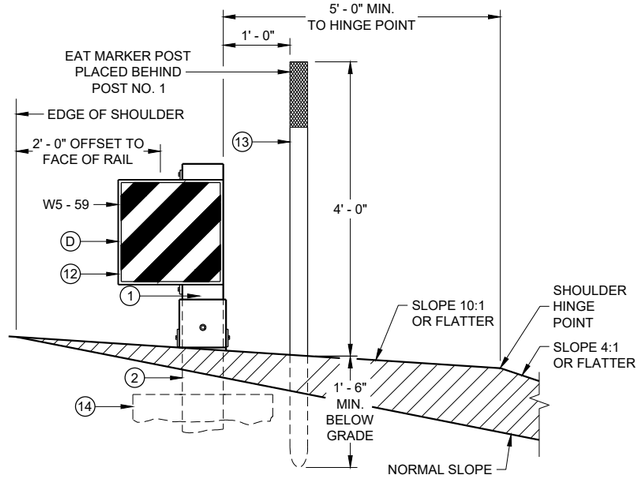
ELEVATION



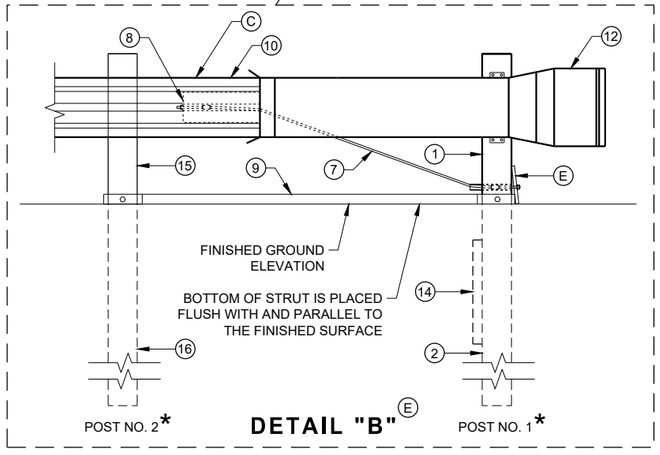
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



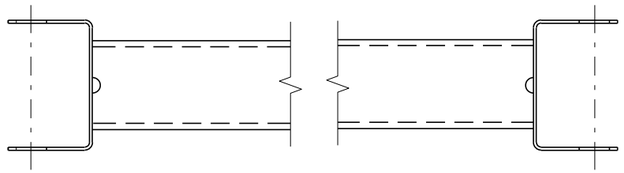
DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

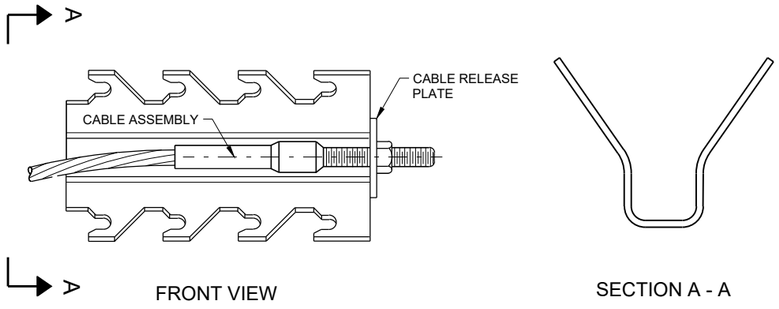
SDD 14B44 - 04a



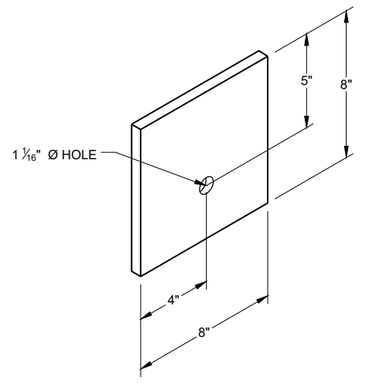
GENERIC GROUND STRUT ⑨ Ⓔ

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUGACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
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	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



GENERIC ANCHOR CABLE BOX ⑨ Ⓔ



BEARING PLATE ⑥ Ⓔ

6

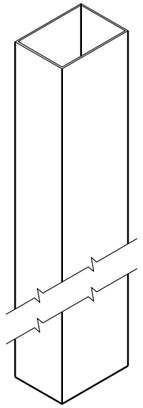
6

SDD 14B45 - 04b

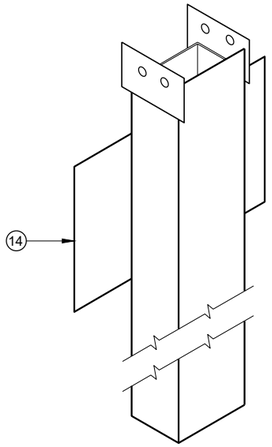
SDD 14B45 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

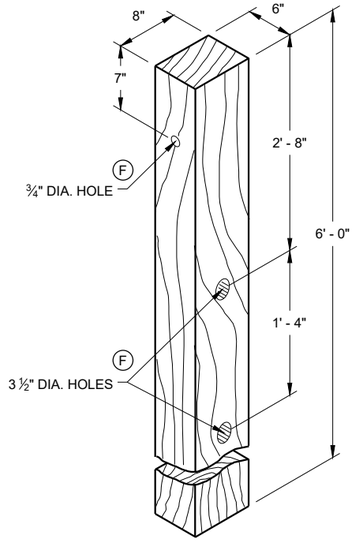
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



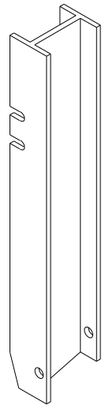
UPPER POST NO. 1 (1) (E)



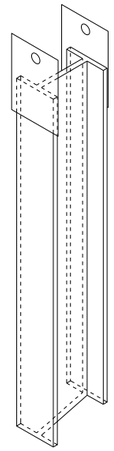
LOWER POST NO. 1 (2) (E)



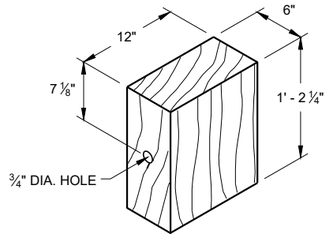
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



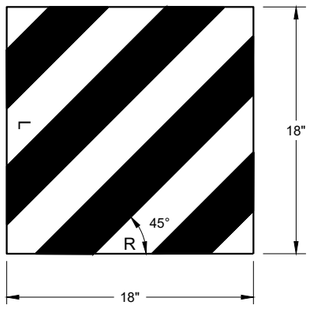
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

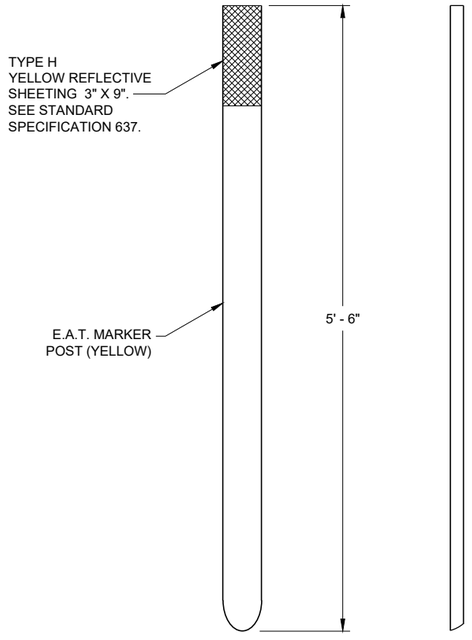


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



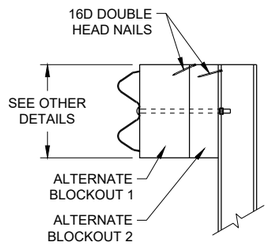
W5 - 59

REFLECTIVE SHEETING DETAIL (E)

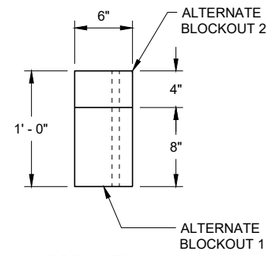


FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR

FHWA

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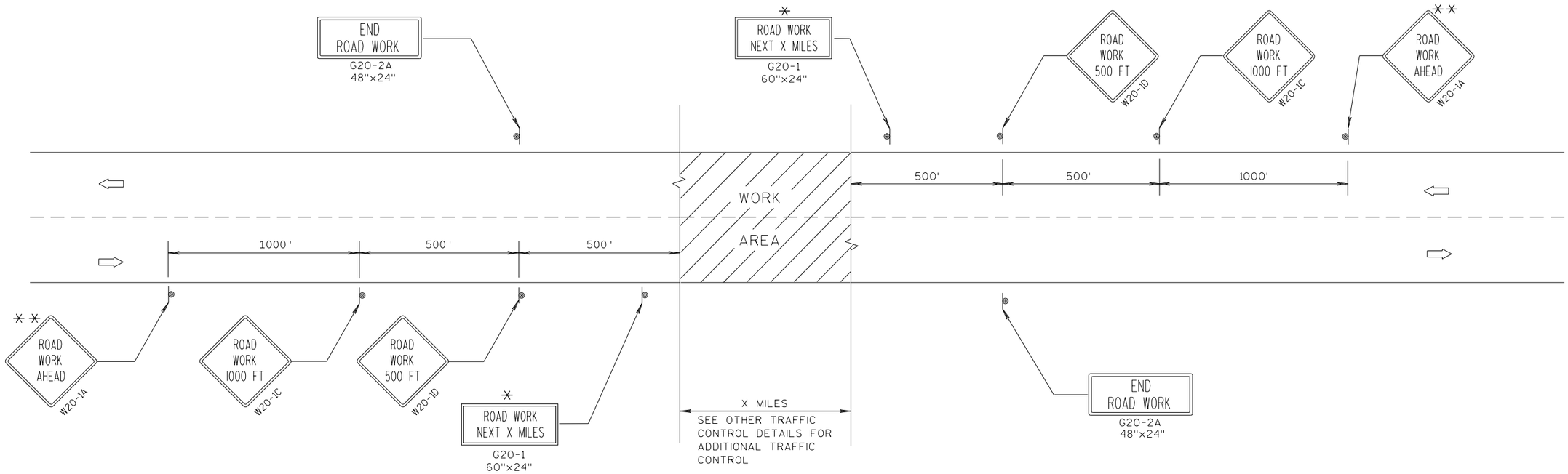
SDD 14B44 - 04c

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

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

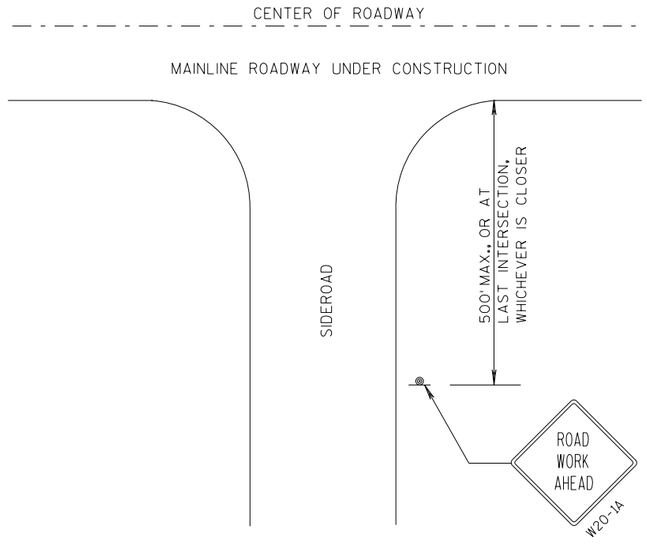
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

** PLACE ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

/S/ Andrew Heldtke
WORK ZONE ENGI

FHWA

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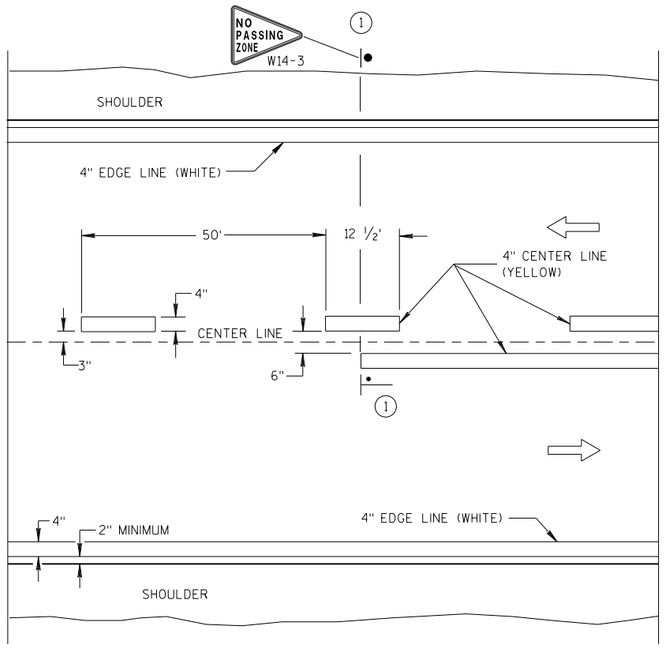
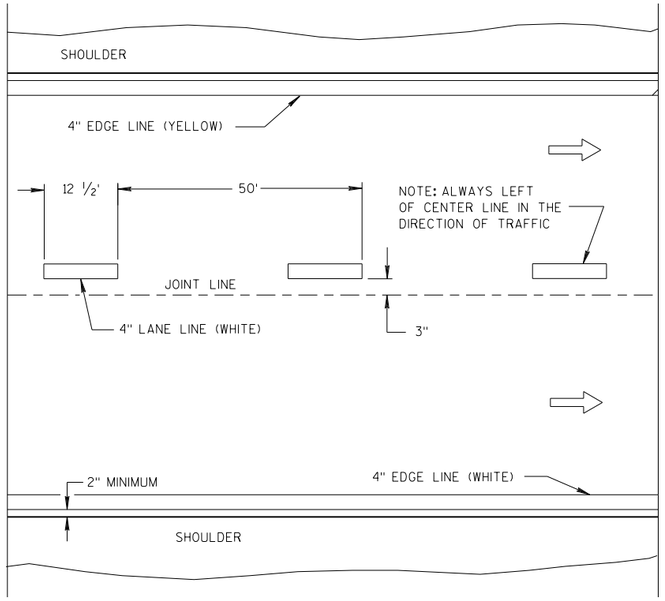
S.D.D. 15 C 4-5



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

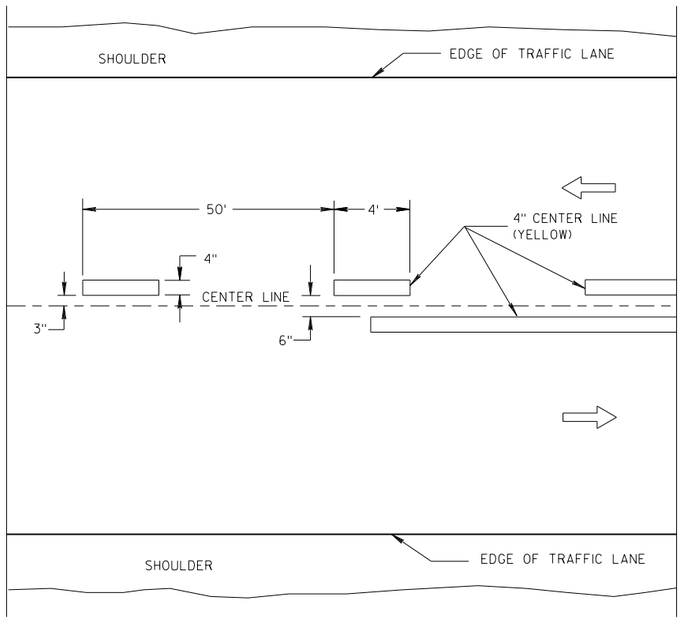
GENERAL NOTES

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

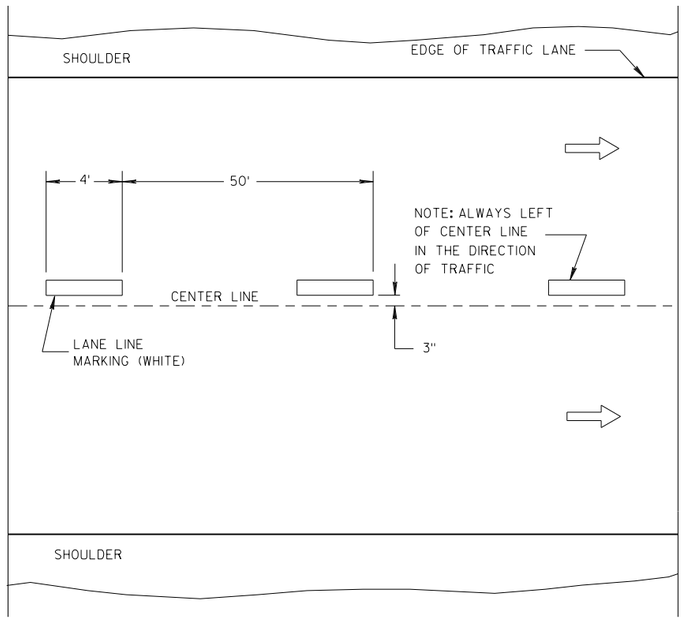
(1) LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LEGEND

"T" MARKING

POST MOUNTED SIGN

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018 — DATE

/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER

FHWA

6

S.D.D. 15 C 8-19a

6

S.D.D. 15 C 8-19a

LEGEND

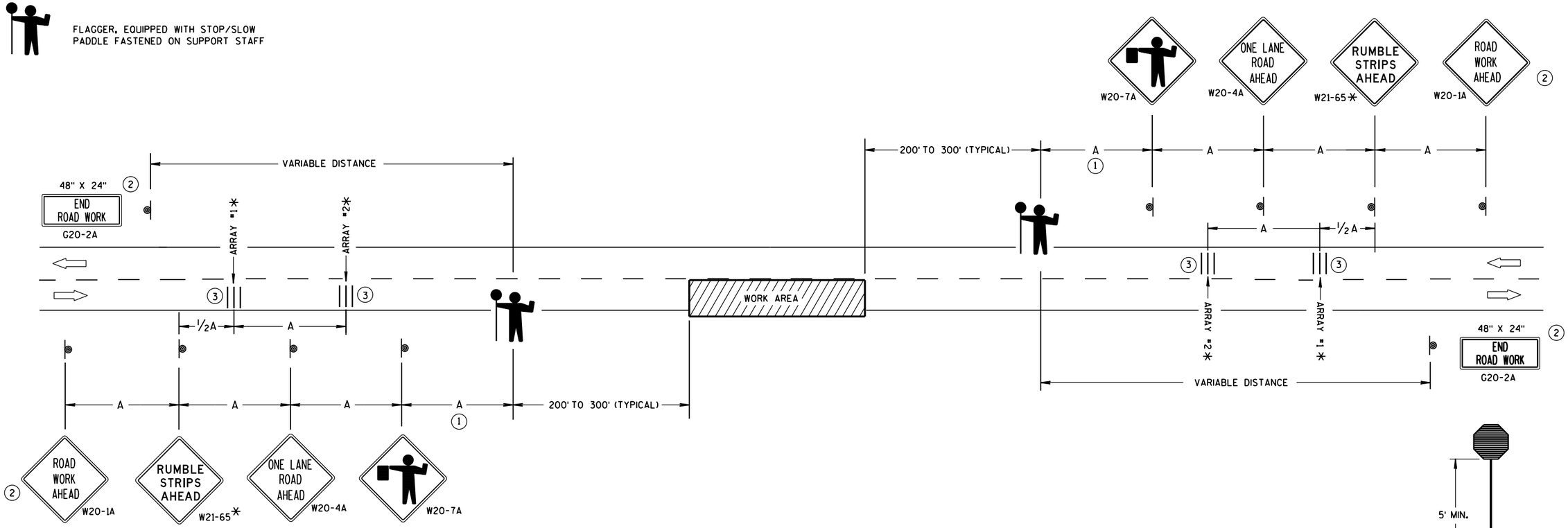
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

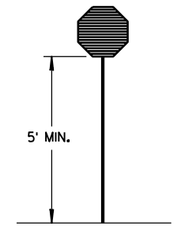
SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING A
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

W03-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING A.





STOP/SLOW PADDLE ON SUPPORT STAFF

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

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.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

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

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

(1) FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

(3) EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

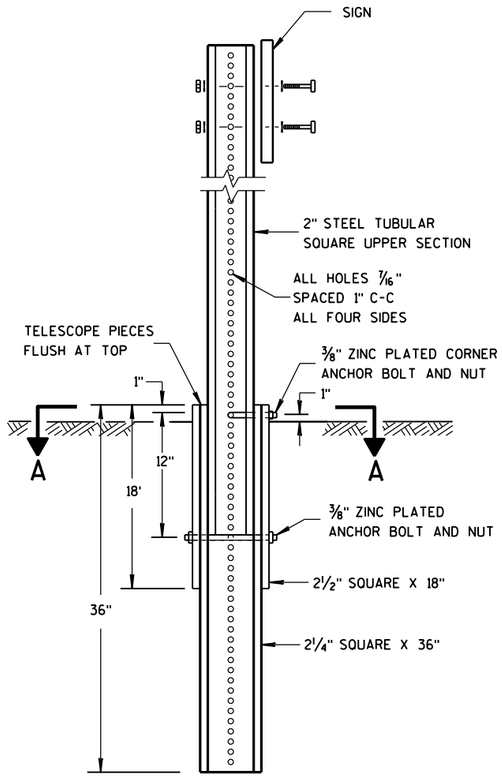
TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

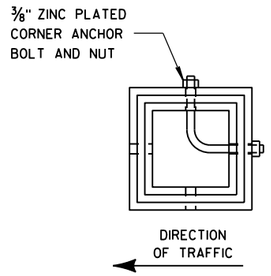
APPROVED
June 2017 — DATE
/S/ Andrew Heldtke — WORK ZONE ENG
FHWA

6

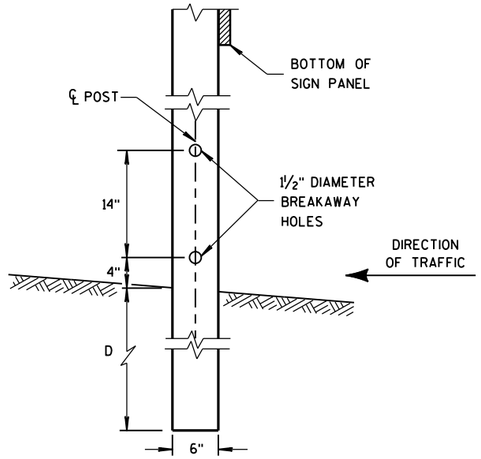
S.D.D. 15 C 12-6



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



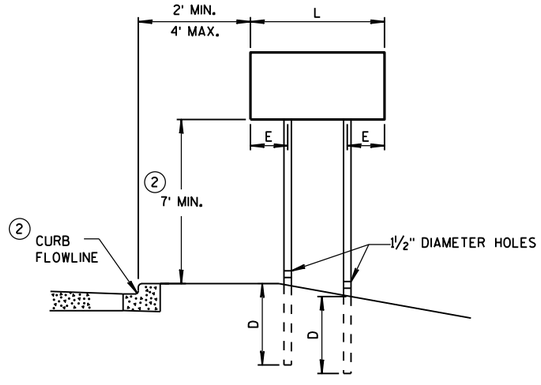
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

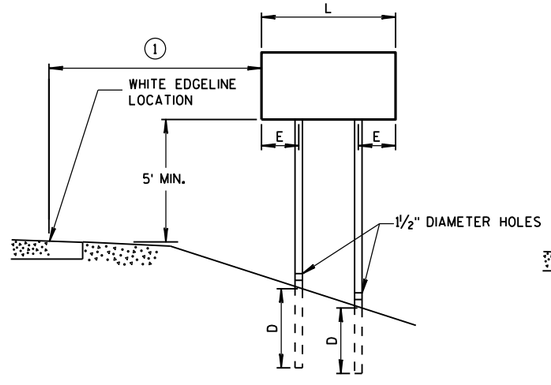
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

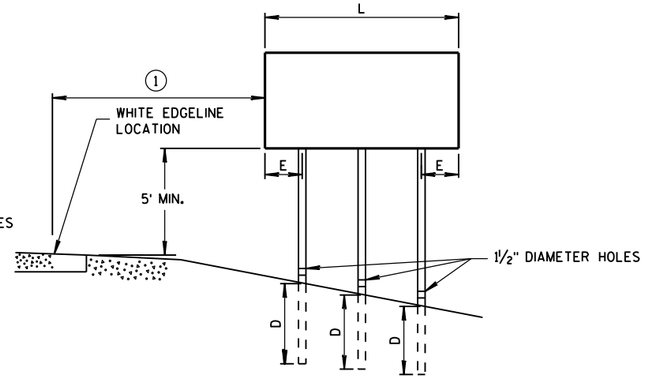
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

(3) FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL 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).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

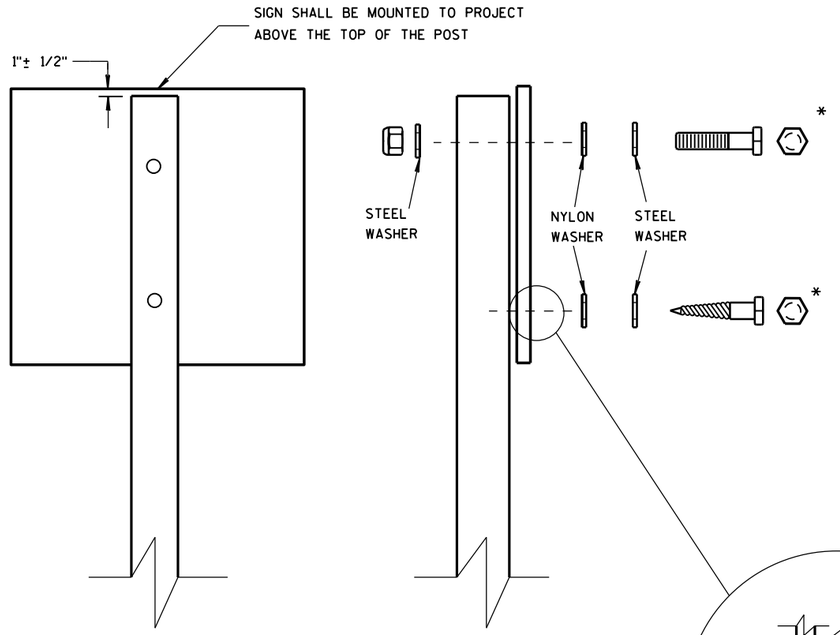
SEE NOTE (3)

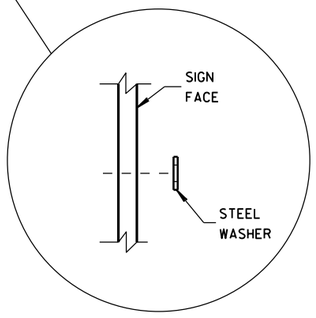
TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 15 D 38-2a
S.D.D. 15 D 38-2a





WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

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

* 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. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

6

6

S.D.D. 15 D 38-2b

S.D.D. 15 D 38-2b

ATTACHMENT OF SIGNS TO POSTS

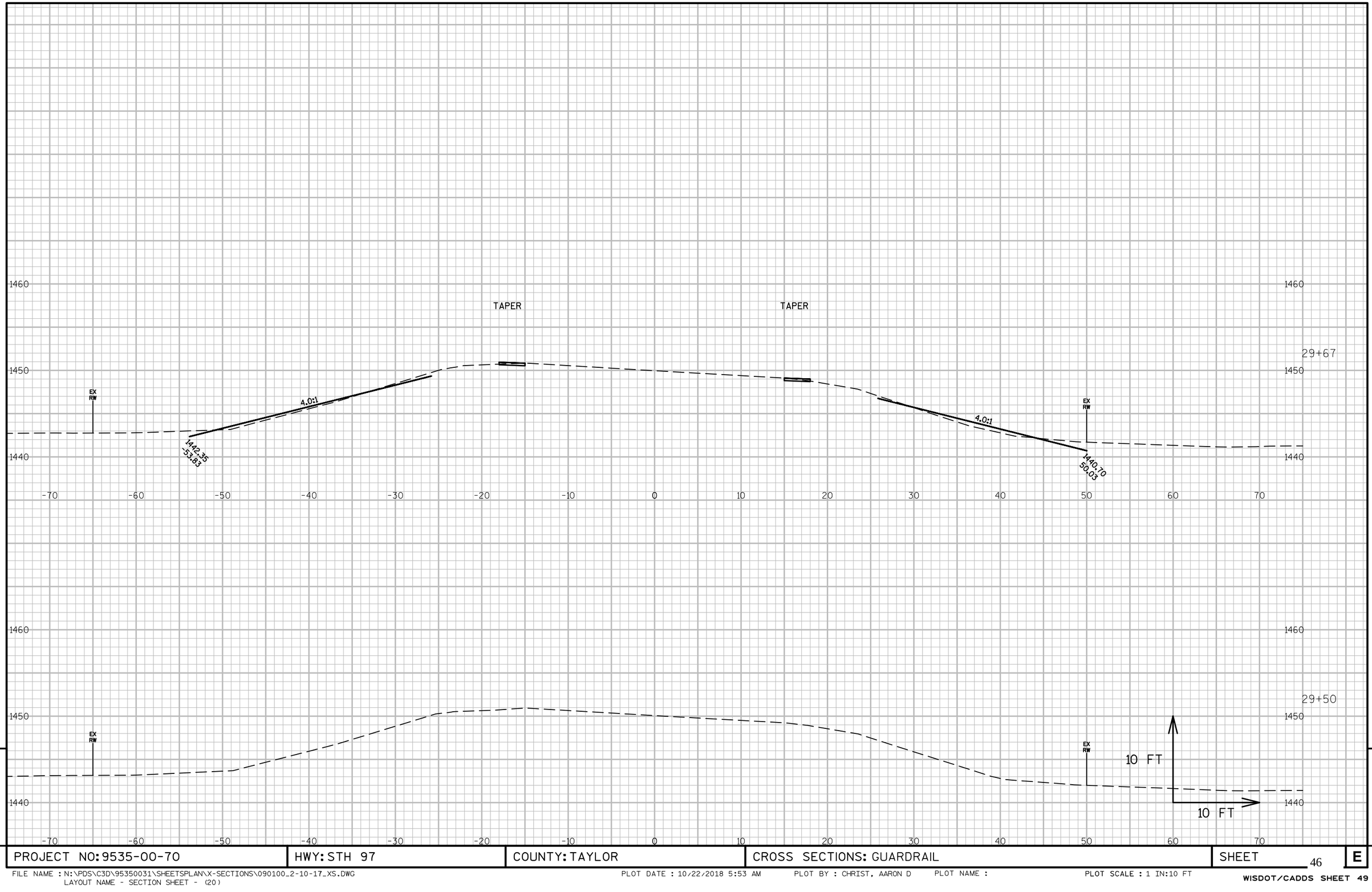
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017
DATE

/S/ Andrew Heldtke
WORK ZONE ENG

FHWA



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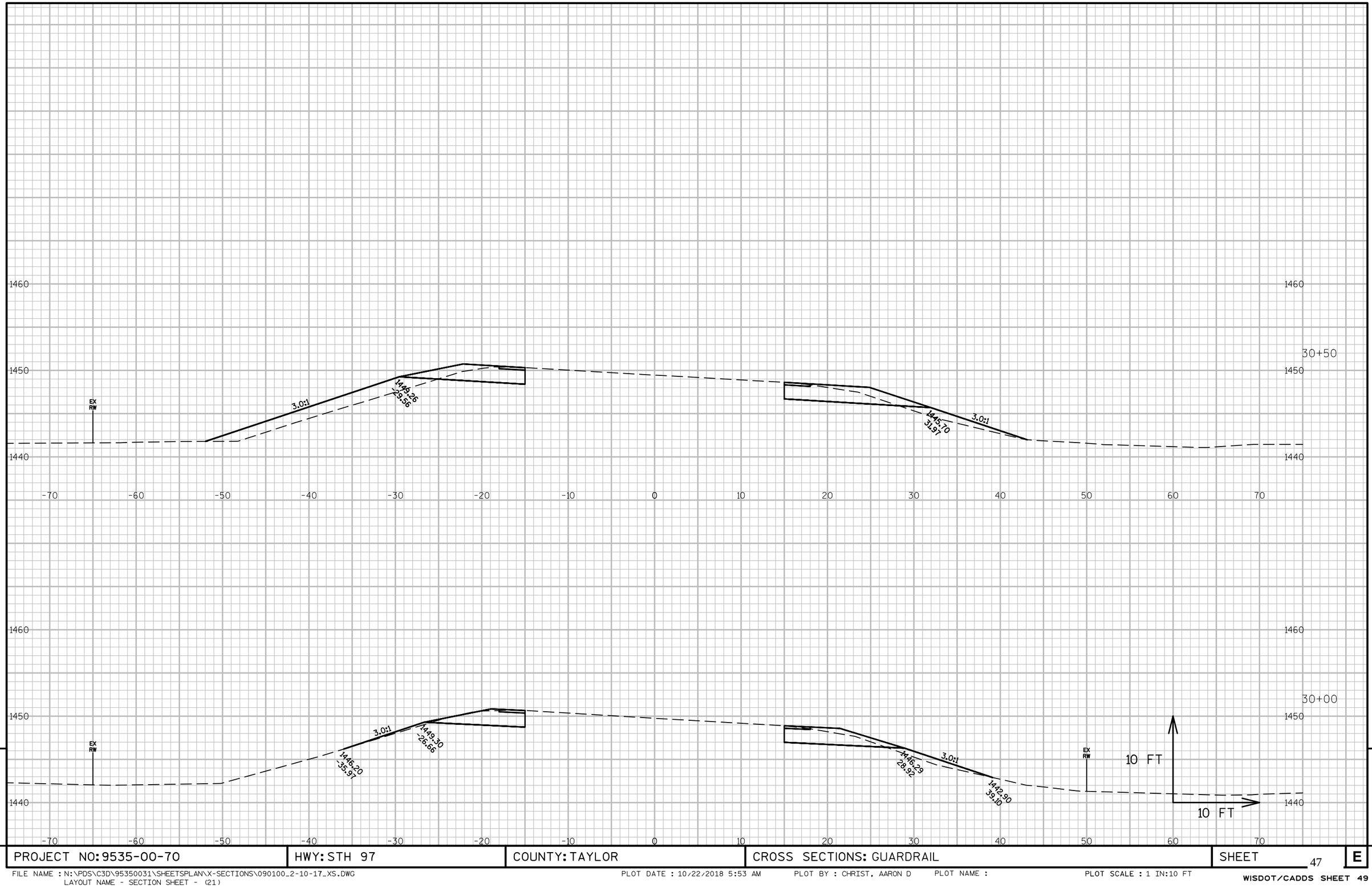
9

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 46	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (20)
PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 49



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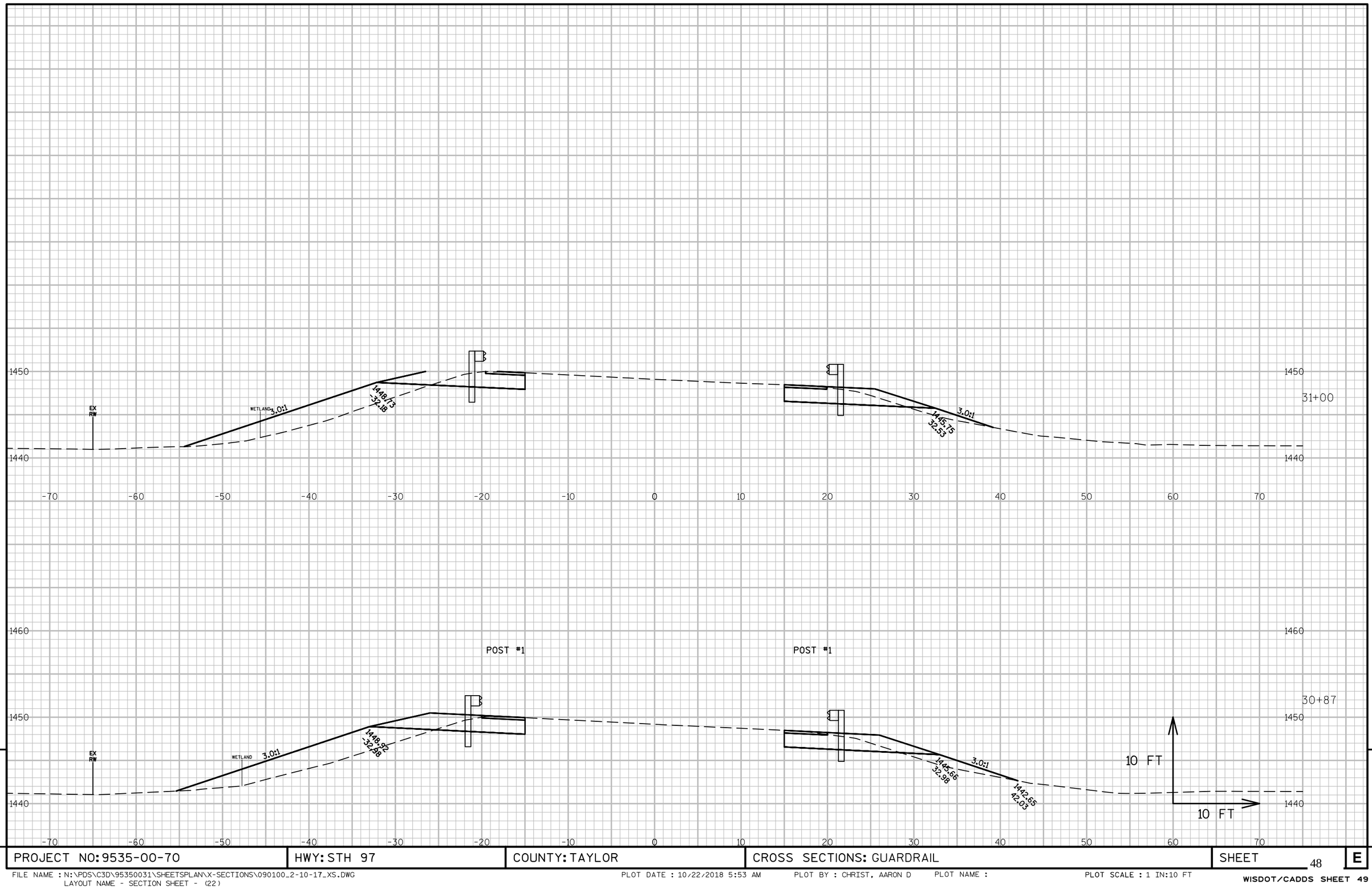
PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 47	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (21)

PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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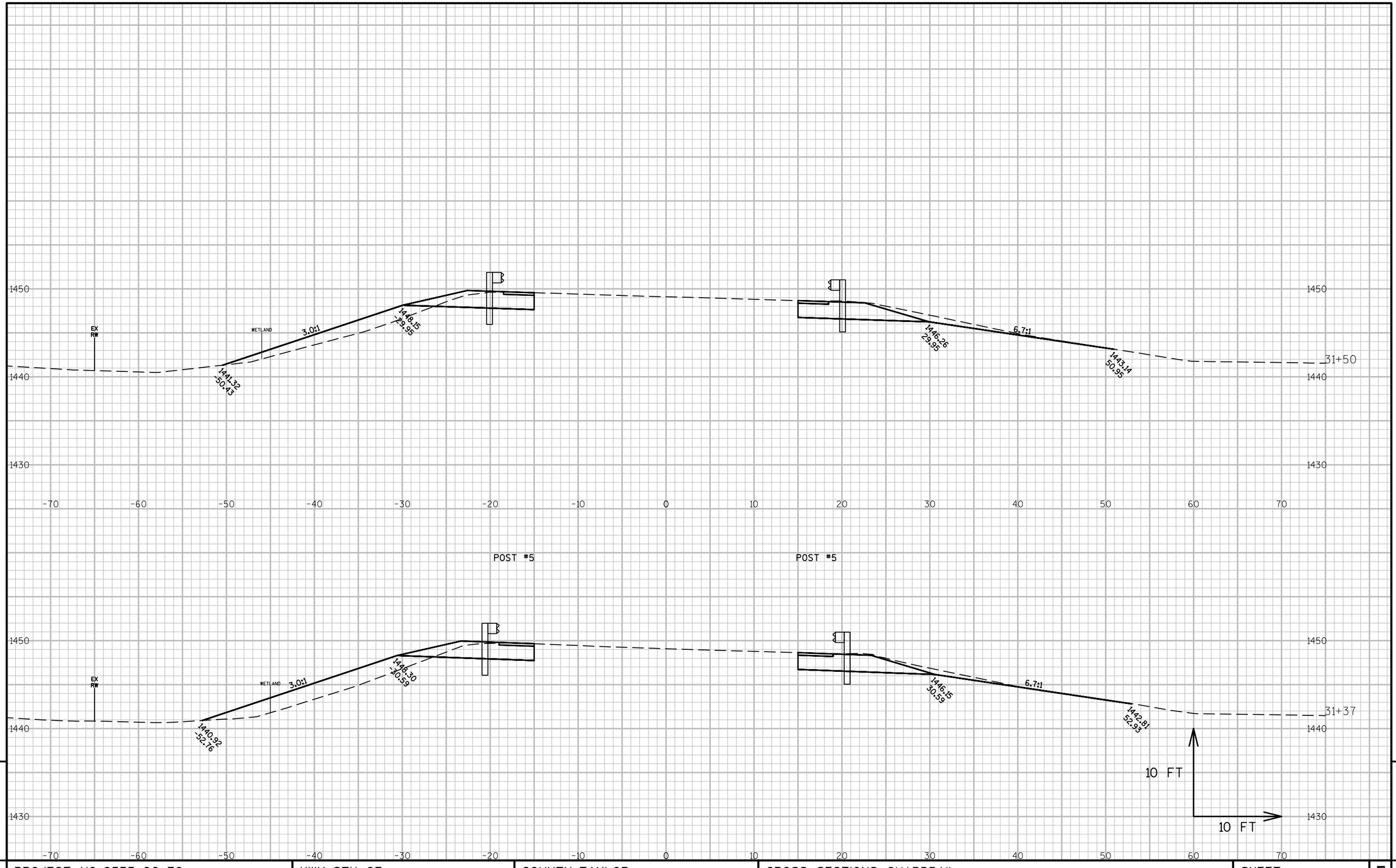
9

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 48	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (22)

PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT

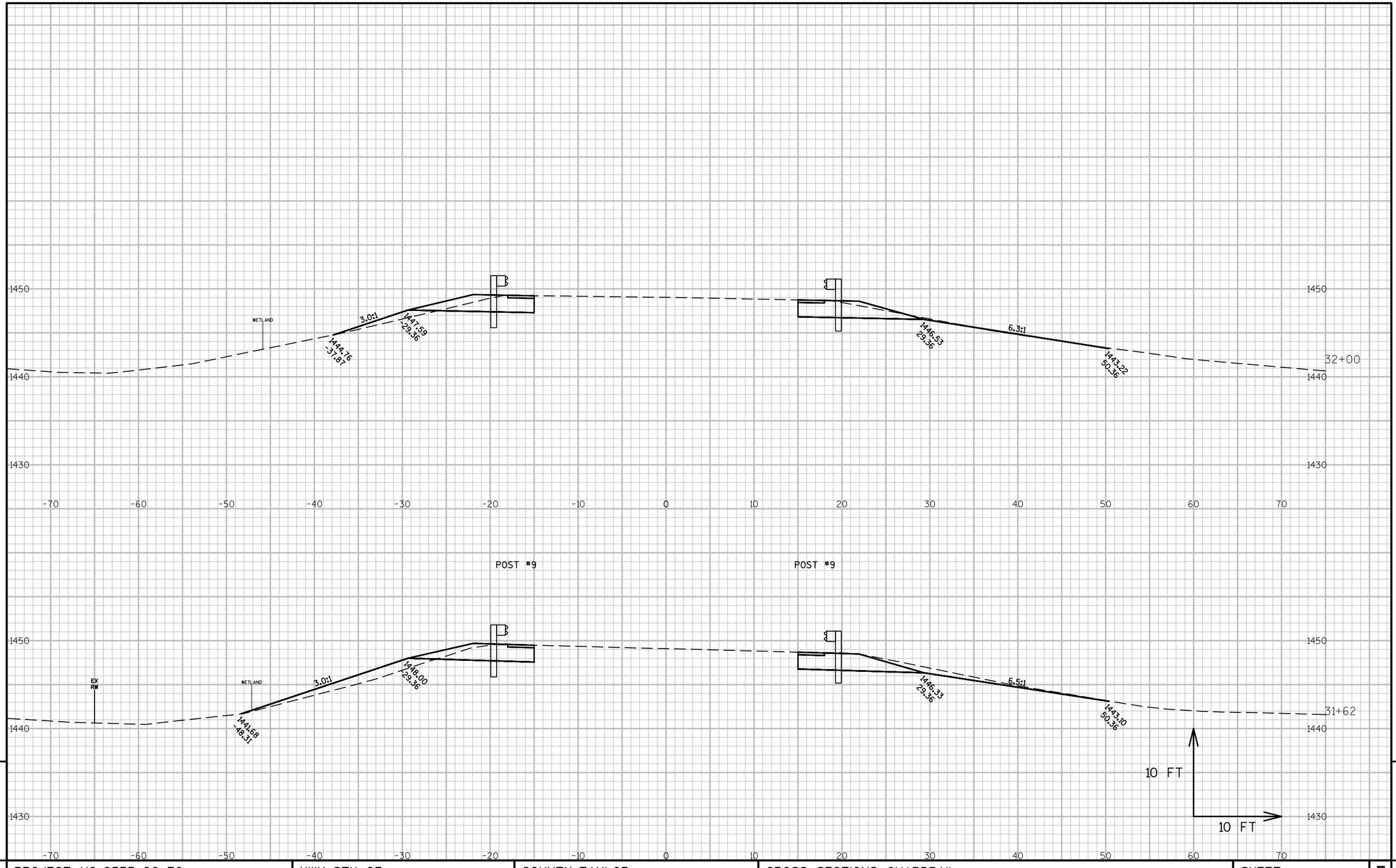
WISDOT/CADDS SHEET 49



PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 49	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (23)

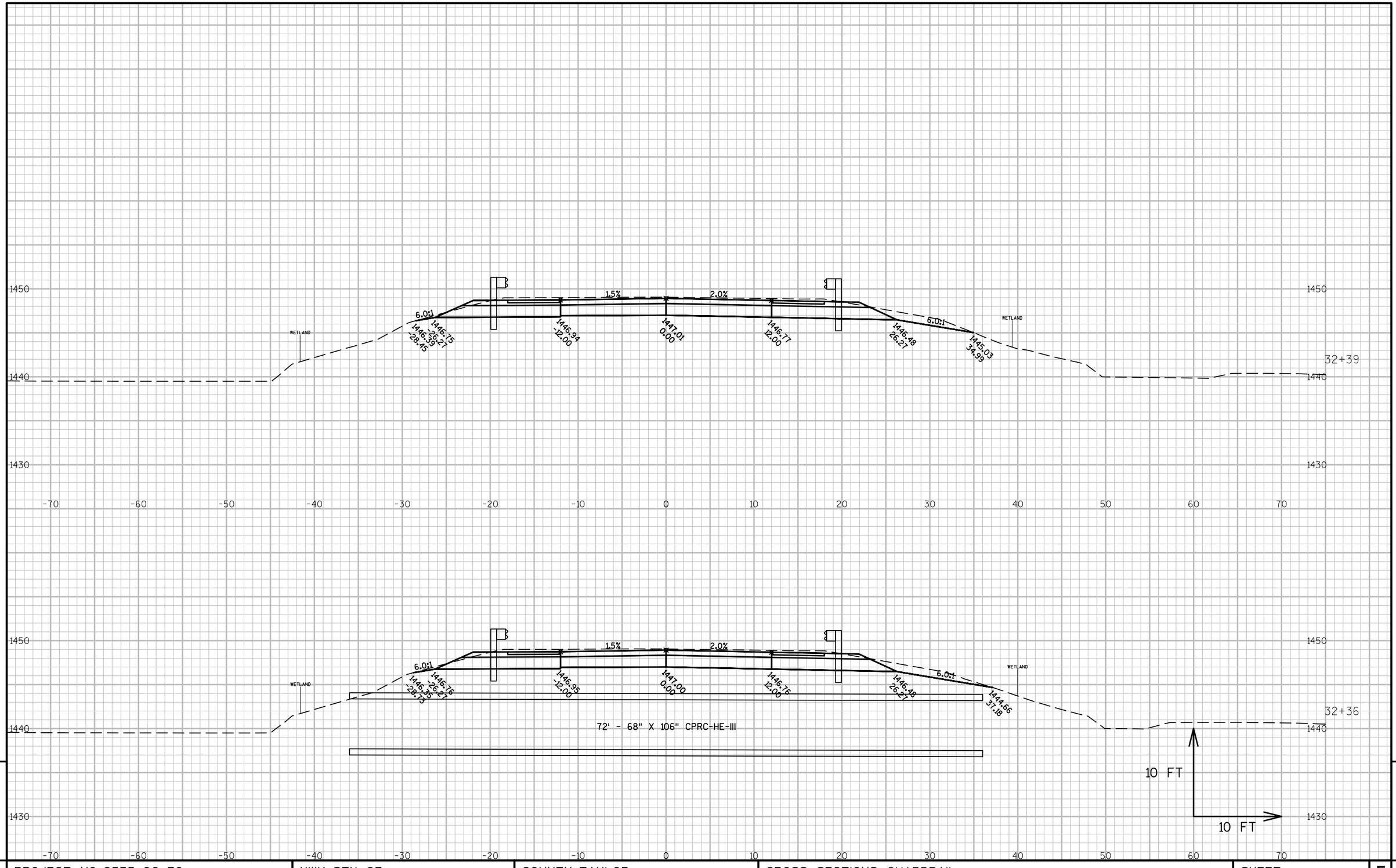
PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT



PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 50	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (24)

PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT



PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 51	E

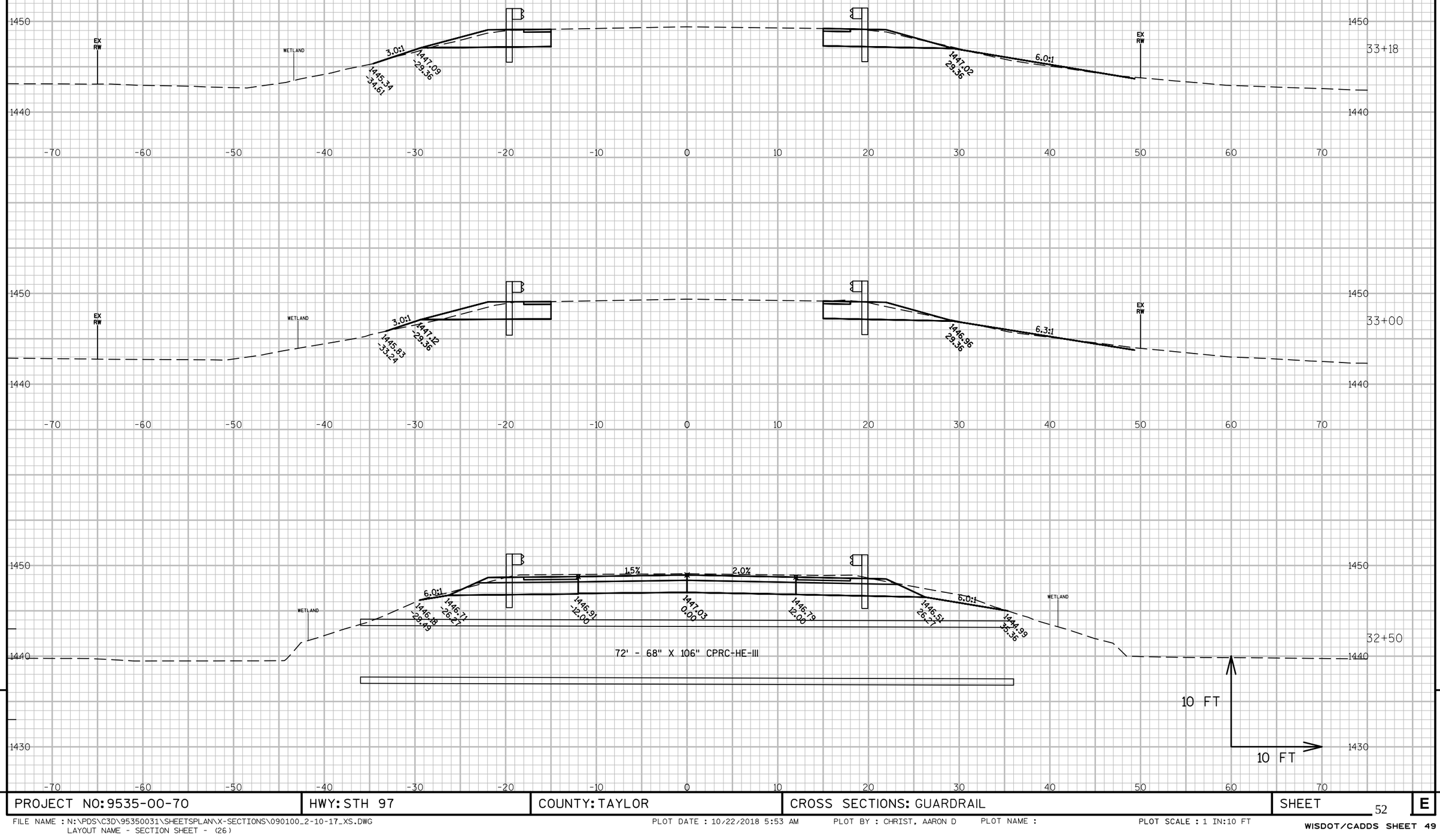
FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (25)

PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

POST #9

POST #9

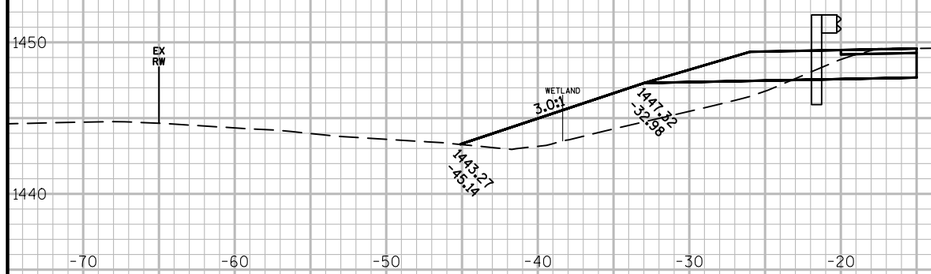


PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 52	E

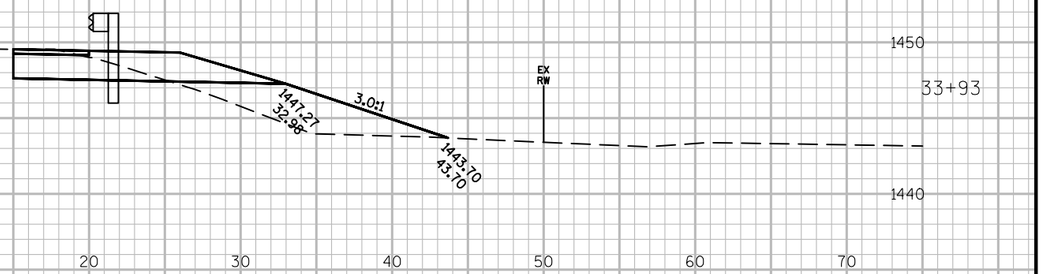
FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (26)

PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT

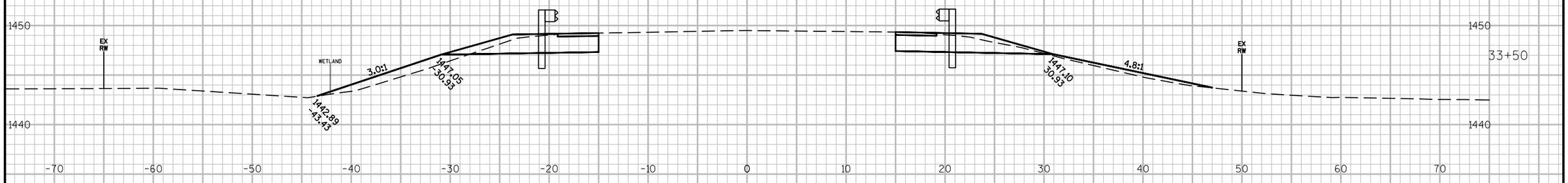
POST #1



POST #1

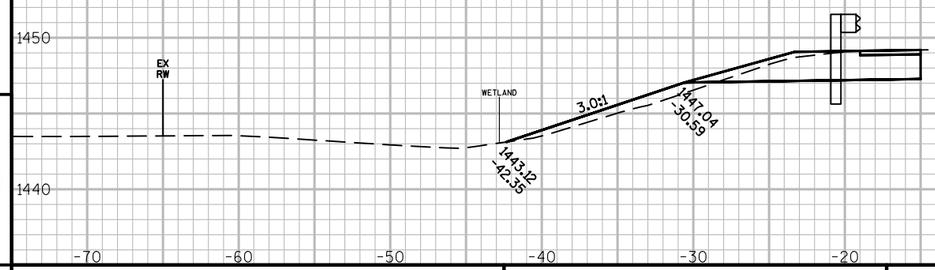


33+93

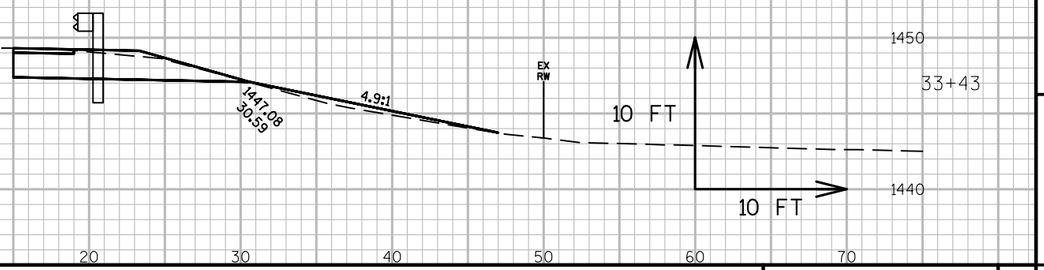


33+50

POST #5



POST #5



33+43

9

9

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 53	E

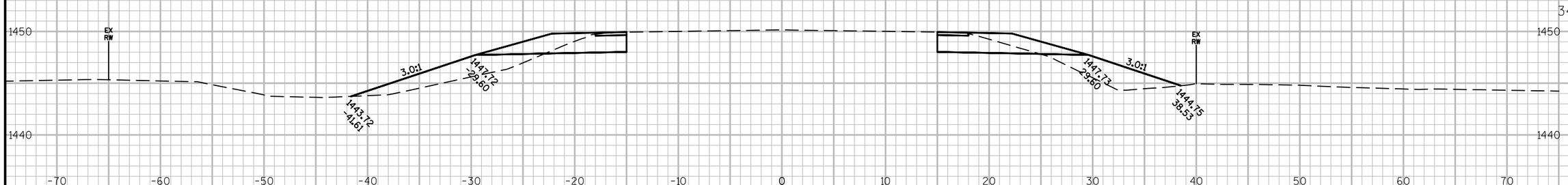
FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (27)

PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT

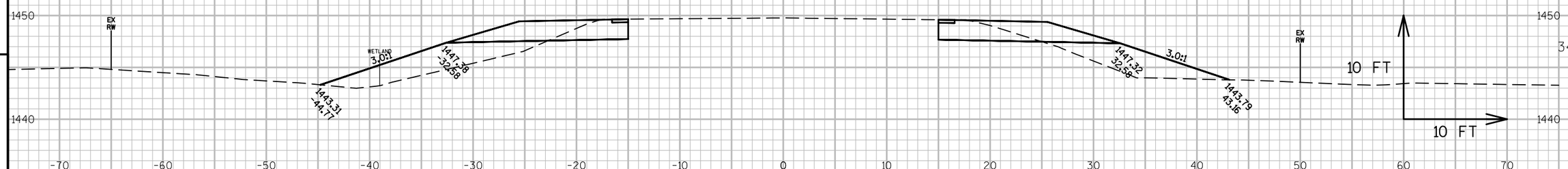
1460

1460

34+50



34+00



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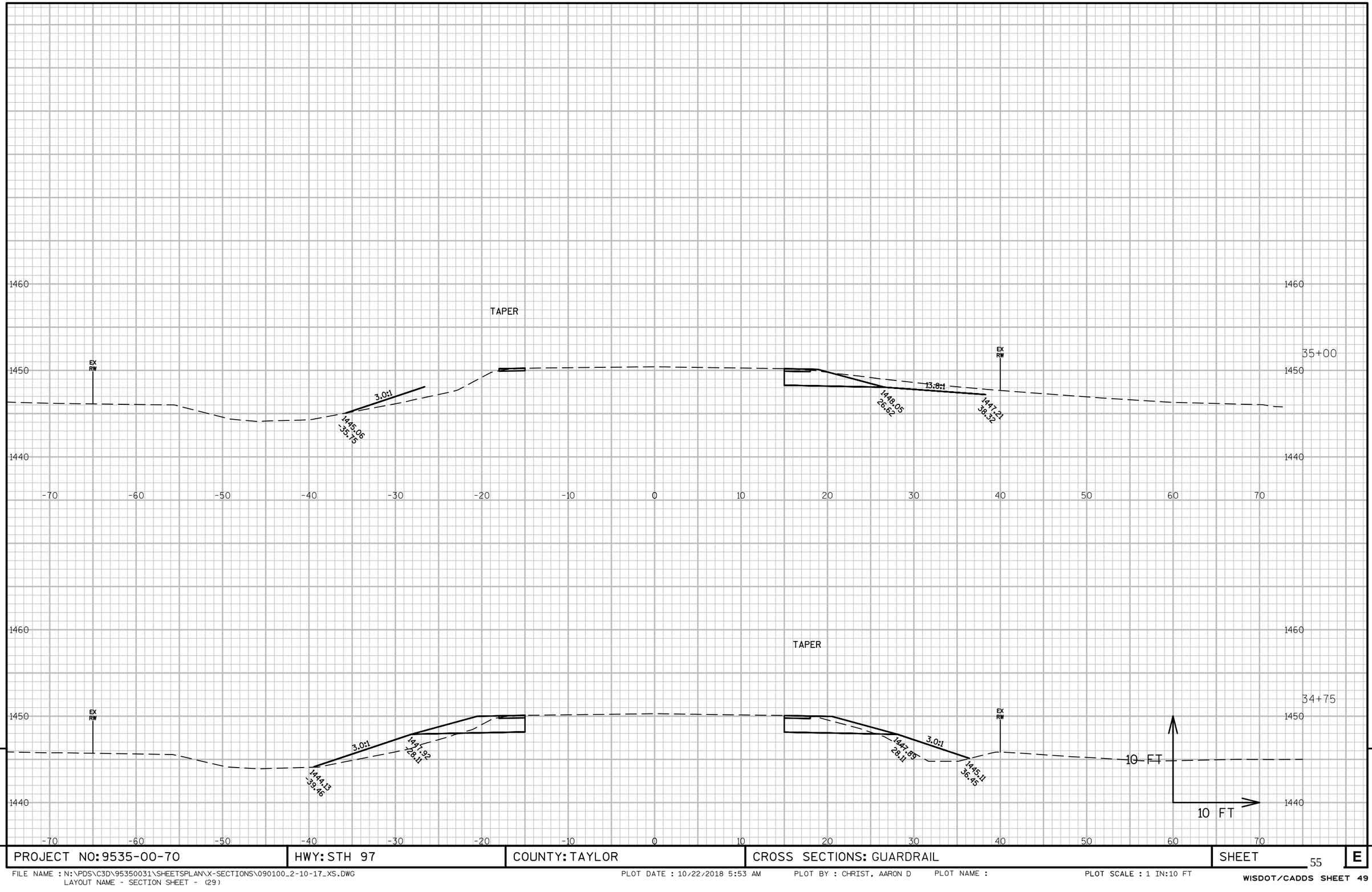
9

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 54	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (28)

PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 9535-00-70	HWY: STH 97	COUNTY: TAYLOR	CROSS SECTIONS: GUARDRAIL	SHEET 55	E

FILE NAME : N:\PDS\C3D\95350031\SHEETSPLAN\X-SECTIONS\090100_2-10-17_XS.DWG
LAYOUT NAME - SECTION SHEET - (29)

PLOT DATE : 10/22/2018 5:53 AM PLOT BY : CHRIST, AARON D PLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

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