LAX

FEBRUARY 2020

PROJECT ID: 5730-00-60

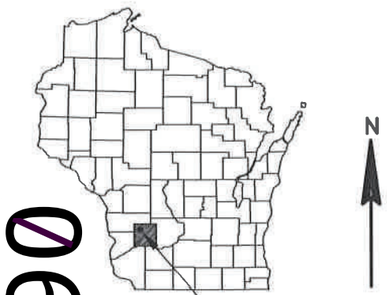
WITH: N/A

COUNTY: RICHLAND

ORDER OF SHEETS

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

TOTAL SHEETS = 212



DESIGN DESIGNATION 5730-00-60

A.A.D.T.	2021	=	1200
A.A.D.T.	2041	=	1300
D.H.V.		=	173
D.D.		=	60/40
T.		=	9.8%
DESIGN SPEED		=	55 MPH
ESALS		=	190,000

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

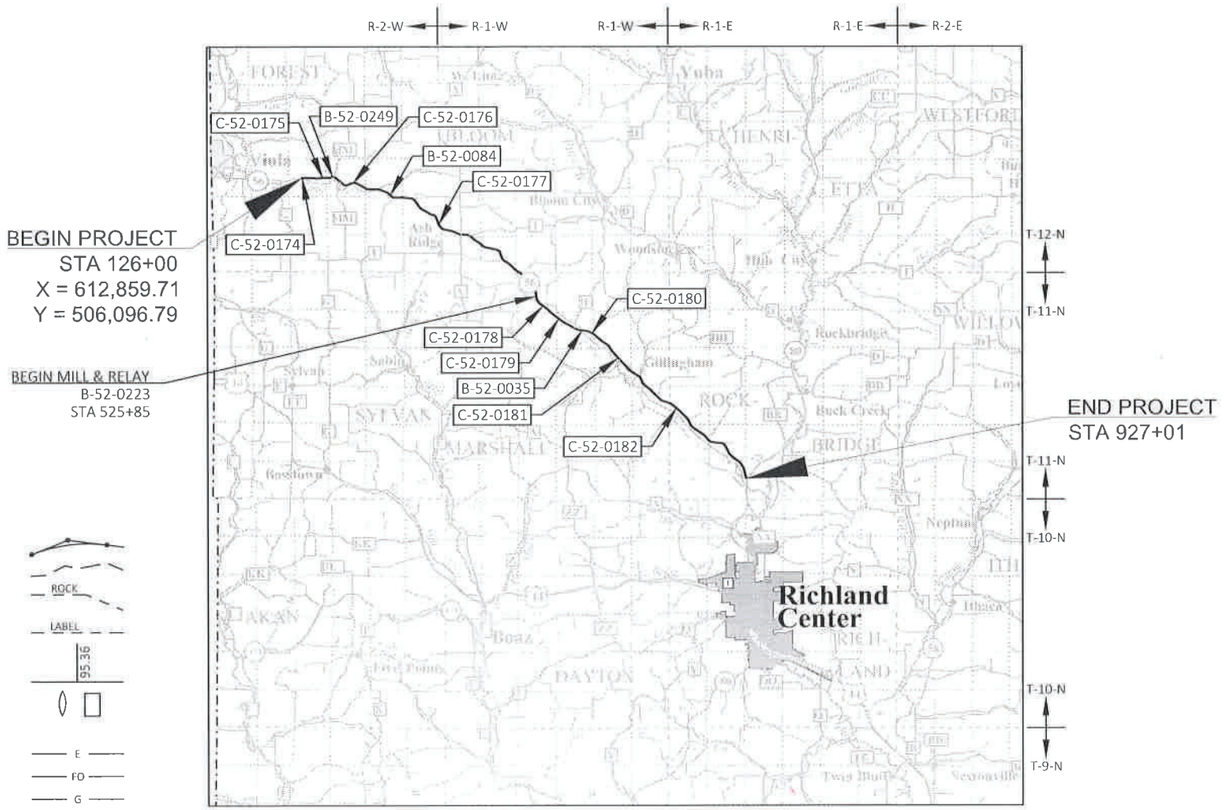
PLAN OF PROPOSED IMPROVEMENT

VIROQUA - RICHLAND CENTER

CAMP CREEK BRIDGE TO STH 80

STH 56
RICHLAND COUNTY

STATE PROJECT NUMBER
5730-00-60



BEGIN PROJECT
STA 126+00
X = 612,859.71
Y = 506,096.79

BEGIN MILL & RELAY
B-52-0223
STA 525+85

END PROJECT
STA 927+01

LAYOUT

SCALE 0 4.0 MI

TOTAL NET LENGTH OF CENTERLINE = 15.171 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, RICHLAND COUNTY, NAD83 (2012), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5730-00-60	—	—

ORIGINAL PLANS PREPARED BY

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
www.msa-ps.com



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WISDOT
Designer	MSA PROFESSIONAL SERVICES, INC
Project Manager	DANIEL KLEINERTZ
Regional Examiner	SW REGION
Regional Supervisor	JOSEPH GREGAS

APPROVED FOR THE DEPARTMENT

DATE: 7/11/19 David M. Kleinertz (Signature)

E

CONVENTIONAL SYMBOLS

PLAN		PROFILE	
CORPORATE LIMITS		GRADE LINE	
PROPERTY LINE		ORIGINAL GROUND	
LOT LINE		MARSH OR ROCK PROFILE (To be noted as such)	ROCK
LIMITED HIGHWAY EASEMENT		SPECIAL DITCH	LABEL
EXISTING RIGHT OF WAY		GRADE ELEVATION	95.36
PROPOSED OR NEW R/W LINE		CULVERT (Profile View)	
SLOPE INTERCEPT		UTILITIES	
REFERENCE LINE	SURVEY	ELECTRIC	E
EXISTING CULVERT		FIBER OPTIC	FO
PROPOSED CULVERT (Box or Pipe)		GAS	G
COMBUSTIBLE FLUIDS	CAUTION	SANITARY SEWER	SAN
		STORM SEWER	SS
		TELEPHONE	T
MARSH AREA		WATER	W
		UTILITY PEDESTAL	
		POWER POLE	
WOODED OR SHRUB AREA		TELEPHONE POLE	

2

GENERAL NOTES

MISCELLANEOUS

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

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

R/W APPROXIMATED ON PLAN SHEETS BASED ON AS-BUILTS/GIS DATA.

REMOVALS

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

MAINTAIN NORMAL MILLING & PAVING WIDTH THROUGH DRIVEWAYS AND INTERSECTIONS.

GRADING AND EROSION CONTROL

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

DO NOT STORE EQUIPMENT OR MATERIALS IN, NOR IMPACT ANY WETLANDS OR WATERWAYS OUTSIDE THE SLOPE INTERCEPTS SHOWN.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY ARE TO BE FERTILIZED, TOPSOILED, PERMANENT SEEDED, TEMPORARILY SEEDED, AND MULCH OR EMAT PLACED AS DIRECTED BY THE ENGINEER.

EXCAVATION BELOW SUBGRADE (EBS) WHICH IS NOT INDICATED ON THE CROSS SECTIONS AND WHICH IS REQUIRED BY THE ENGINEER SHALL BE MEASURED AND PAID FOR AS COMMON EXCAVATION. EBS IS NOT USED TO BALANCE YARDAGE.

THE EROSION CONTROL ITEMS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATION OF EROSION CONTROL ITEMS. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY. REMOVE ITEMS AT ENGINEER'S DIRECTION.

FILL EXPANSION IS ESTIMATED AT 1.25.

PAVING

SUPERELEVATION RATES ARE BASED ON BEST FIT CURVE RADII AND MAY NOT BE FULLY OBTAINABLE. GRADE CURVES FROM HIGH SIDE TO LOW SIDE AND UTILIZE ¾" BAD TO CORRECT SUPERELEVATION WHILE MAINTAINING THE TYPICAL SECTION.

HMA WEIGHT CALCULATIONS BASED ON 112 LBS/SY/IN.

THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING, OR PARKING LANE.

UTILITIES

ELECTRIC:
DAIRYLAND POWER COOPERATIVE
ATTN: ROB MALY
3200 EAST AVE S
P.O. BOX 817
LA CROSSE, WI 54602-0817
608-788-4000
ROB.MALY@DAIRYLANDPOWER.COM

COMMUNICATION:
FRONTIER COMMUNICATIONS OF WI LLC
ATTN: RUSS RYAN
107 PLEASANTVIEW DR
PLYMOUTH, WI 53070
920-583-3275
RUSSEL.W.RYAN@FTR.COM

ELECTRIC:
RICHLAND ELECTRIC COOPERATIVE
ATTN: LARRY HALLETT
1027 N JEFFERSON ST
P.O. BOX 439
RICHLAND CENTER, WI 53581
608-647-3173
LHALLETT@REC.COOP

COMMUNICATION:
VERNON COMMUNICATIONS COOPERATIVE
ATTN: SCOTT FREDERICK
103 N MAIN ST
WESTBY, WI 54667
608-632-0607
SFREDERICK@VERNONCOM.COOP

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

DOT DESIGN CONTACT

WISDOT SW REGION
ATTN: DAN KLEINERTZ, PE
3550 MORMON COULEE RD
LA CROSSE, WI 54601
608-789-5709
DANIEL.KLEINERTZ@DOT.WI.GOV

MSA DESIGN CONTACT

MSA PROFESSIONAL SERVICES, INC.
ATTN: BOBBI MAXWELL, PE
1230 SOUTH BOULEVARD
BARABOO, WI 53913
608-355-8861
BMAXWELL@MSA-PS.COM

DNR LIAISON

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
ATTN: ANDY BARTA
DNR SOUTH CENTRAL REGION HQ
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
608-275-3308
ANDY.BARTA@WISCONSIN.GOV

ORDER OF TYPICAL SECTION & DETAIL SHEETS

1. GENERAL NOTES
2. PROJECT OVERVIEW
3. EXISTING TYPICAL SECTIONS
4. FINISHED TYPICAL SECTIONS
5. CONTROL POINTS
6. CONSTRUCTION DETAILS
7. PLAN DETAILS
8. EROSION CONTROL
9. TRAFFIC CONTROL/DETOUR

ABBREVIATIONS

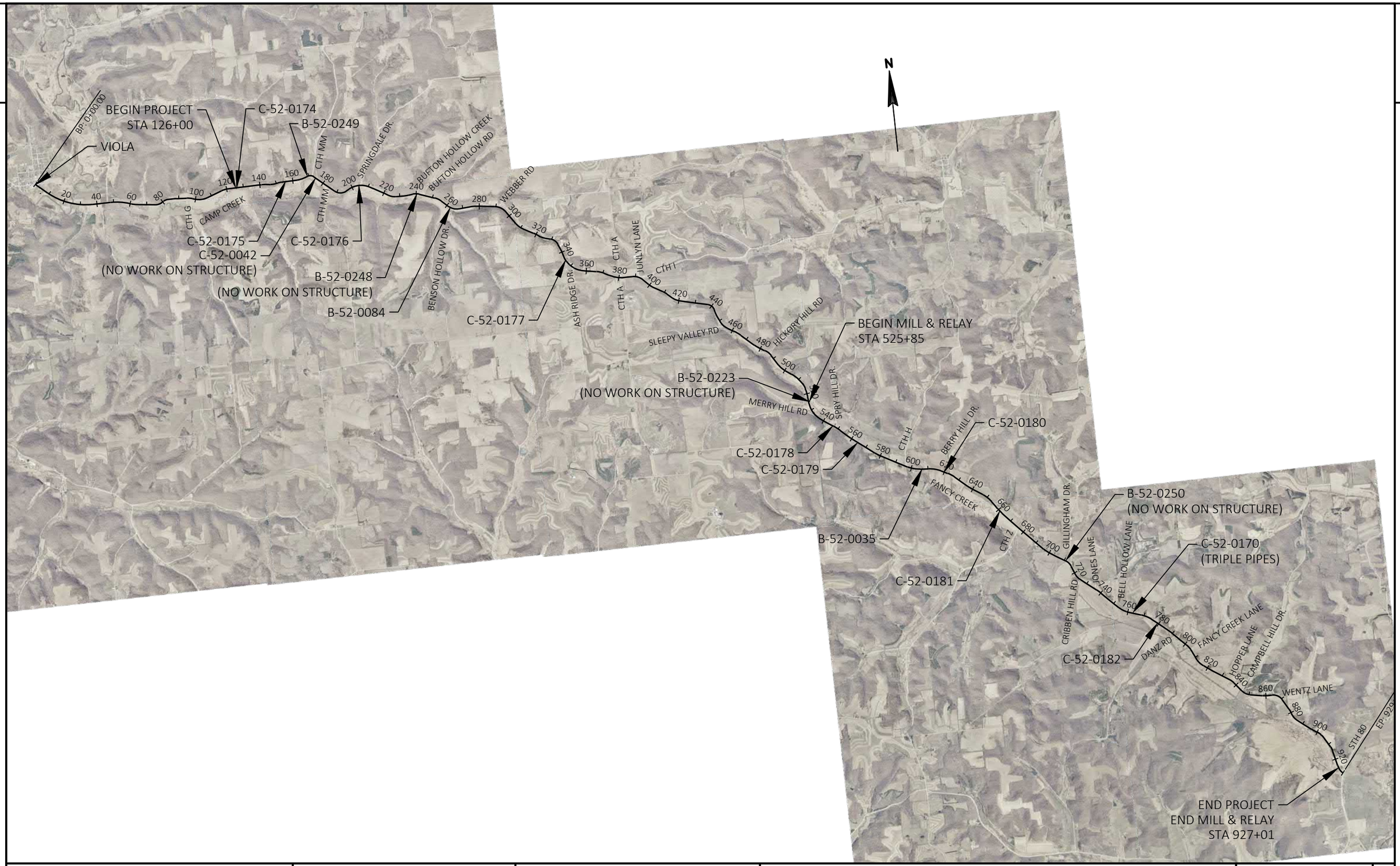
AC	ACRES
AC	ASPHALT CEMENT
AEW	APRON ENDWALL
ASPH	ASPHALT
AVG	AVERAGE
ADT	AVERAGE DAILY TRAFFIC
BAD	BASE AGGREGATE DENSE
BM	BENCHMARK
CL	CENTERLINE
CC	CENTER TO CENTER
CONC	CONCRETE
CPRC	CULVERT PIPE REINFORCED CONCRETE
CSCP	CORRUGATED STEEL CULVERT PIPE
CSM	CERTIFIED SURVEY MAP
CTH	COUNTY TRUNK HIGHWAY
CULV	CULVERT
CP	CULVERT PIPE
C&G	CURB & GUTTER
D	DEGREE OF CURVE
DHV	DESIGN HOURLY VOLUME
DIA	DIAMETER
DWY	DRIVEWAY
E	EAST
X	EAST GRID COORDINATE
ELEV	ELEVATION
EW	ENDWALL
ENT	ENTRANCE
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
EXIST	EXISTING
FF	FACE TO FACE
FERT	FERTILIZER
FE	FIELD ENTRANCE
FG	FINISHED GRADE
FT	FOOT
G.V.	GAS VALVE
INV	INVERT
IP	IRON PIPE
JCT	JUNCTION
LHF	LEFT HAND FORWARD
L	LENGTH
LS	LUMP SUM
NC	NORMAL CROWN
N	NORTH
Y	NORTH GRID COORDINATE
PACS	PIPE ARCH CORRUGATED STEEL
PT	POINT
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PL	PROPERTY LINE
PE	PRIVATE ENTRANCE
R	RADIUS
REQ'D	REQUIRED
R/W	RIGHT-OF-WAY
RHF	RIGHT HAND FORWARD
SALV	SALVAGED
SHLDR	SHOULDER
SDD	STANDARD DETAIL DRAWING
STA	STATION
SE	SUPERELEVATION
TAN	TANGENT
TLE	TEMPORARY LIMITED EASEMENT
T	TRUCKS
TYP	TYPICAL
VERT	VERTICAL
VC	VERTICAL CURVE
VOL	VOLUME
WV	WATER VALVE
W	WELL

ROADWAY BORING SUMMARY

BORING NO.	STATION	OFFSET	ASPHALT DEPTH IN INCHES	UNDERLYING MATERIAL
B-43	529+12	9' LT	4.5	6" CRUSHED BASE
B-44	539+21	6' RT	4	4" REGROUND BASE 7" CRUSHED BASE
B-45	550+40	9' RT	5	3" REGROUND BASE 10" CRUSHED BASE
B-46	559+75	12' RT	6	4" REGROUND BASE 4" CRUSHED BASE
B-47	569+35	9' RT	4.5	7" CRUSHED BASE
B-48	579+71	6' RT	8	7" CRUSHED BASE
B-49	589+47	6' LT	6.5	10" CRUSHED BASE
B-50	598+87	9' LT	4	11" CRUSHED BASE
B-51	583+80	12' LT	3.5	7" CRUSHED BASE
B-52	619+20	9' LT	3	3.5" CRUSHED BASE, 3.5" REGROUND BASE, 3" CRUSHED BASE
B-53	629+71	6' LT	5	4" CRUSHED BASE, 4" REGROUND BASE 3" CRUSHED BASE, 4" REGROUND BASE
B-54	641+17	6' RT	5	4" CRUSHED BASE, 3" REGROUND BASE, 3" CRUSHED BASE
B-55	650+72	9' RT	7	7" CRUSHED BASE
B-56	661+02	12' RT	3.5	3" REGROUND BASE, 6" CRUSHED BASE, 3" REGROUND BASE
B-57	669+15	9' RT	6	3" REGROUND BASE, 5" CRUSHED BASE 3.5" REGROUND BASE, 5" CRUSHED BASE
B-58	679+97	6' RT	4.5	5" CRUSHED BASE, 4" REGROUND BASE, 5" CRUSHED BASE
B-59	690+53	6' LT	4	5" CRUSHED BASE, 2.5" REGROUND BASE, 4" CRUSHED BASE
B-60	697+50	9' LT	5.5	3" CRUSHED BASE, 4" REGROUND BASE, 4" CRUSHED BASE
B-61	708+54	12' LT	3.5	14" CRUSHED BASE
B-62	718+99	9' LT	4	3" REGROUND BASE, 2" CRUSHED BASE, 6" CONCRETE

BORING NO.	STATION	OFFSET	ASPHALT DEPTH IN INCHES	UNDERLYING MATERIAL
B-63	728+66	6' RT	6.5	2" CRUSHED BASE, 2" REGROUND BASE, 6" CRUSHED BASE
B-64	737+58	9' RT	4.5	2" REGROUND BASE 4" CRUSHED BASE
B-65	748+77	12' RT	8	2" REGROUND BASE, 2" CRUSHED BASE, 2" REGROUND BASE
B-66	756+95	9' RT	5.5	3" CRUSHED BASE, 2" REGROUND BASE, 2" CRUSHED BASE
B-67	769+36	6' RT	5.5	2" CRUSHED BASE, 2.5" REGROUND BASE, 6" SAND & CRUSHED BASE
B-68	779+87	3' LT	3	8" CRUSHED BASE, 3" REGROUND BASE, 5" CRUSHED BASE
B-69	789+79	6' LT	3	1" CRUSHED BASE, 2" REGROUND BASE, 2" CRUSHED BASE
B-70	800+93	9' LT	3.5	5" CRUSHED BASE, 4" REGROUND BASE, 4" SAND & CRUSHED BASE
B-71	811+55	12' LT	8	3" REGROUND BASE
B-72	823+11	9' LT	5	2.5" REGROUND BASE, 2" CRUSHED BASE, 2" REGROUND BASE, 4" CRUSHED BASE
B-73	834+20	6' LT	3.5	2.5" REGROUND BASE, 3" CRUSHED BASE, 2" REGROUND BASE, 3" CRUSHED BASE
B-74	844+34	6' RT	3	4" CRUSHED BASE, REGROUND BASE, 7" CRUSHED BASE
B-75	853+42	9' RT	5.5	5" REGROUND BASE, 7" CRUSHED BASE
B-76	863+71	6' RT	7	7" REGROUND BASE
B-77	874+22	12' RT	7	5.5" REGROUND BASE, 3" CRUSHED BASE, 3" REGROUND BASE, 5" CRUSHED BASE
B-78	882+77	9' RT	4.5	3" REGROUND BASE, 3" CRUSHED BASE, 3" REGROUND BASE, 3" CRUSHED BASE
B-79	896+77	6' LT	6	3" CRUSHED BASE, 2" REGROUND BASE
B-80	906+38	9' LT	7.5	4.5" CRUSHED BASE, 3" REGROUND BASE, 4" CRUSHED BASE
B-81	914+98	12' LT	5	3" REGROUND BASE, 5" CRUSHED BASE, 3" REGROUND BASE, 3" CRUSHED BASE
B-82	922+90	6' LT	3.5	14" CRUSHED BASE

2



PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PROJECT OVERVIEW	SHEET 3	E

FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\020201_PO.DWG
LAYOUT NAME - 020201_po

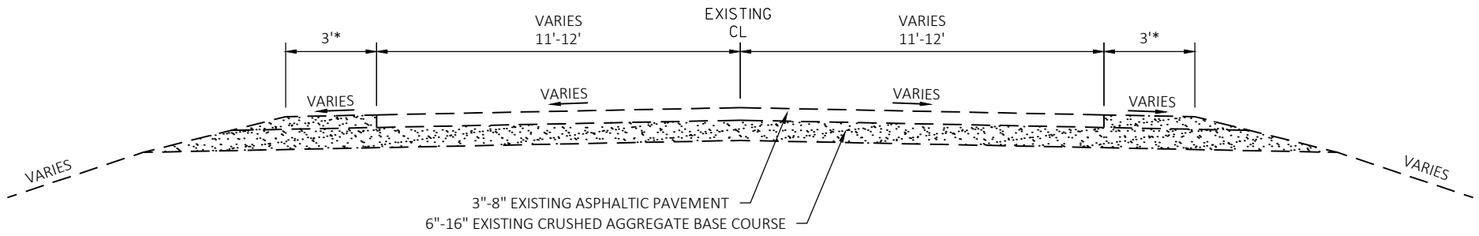
PLOT DATE : 6/27/2019 1:47 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : ############

2

NOTES:

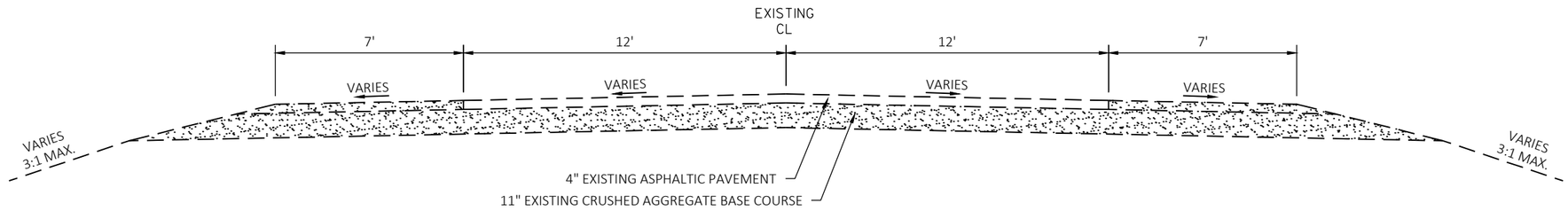
* ASSUMED WIDTH AFTER WORK BY OTHERS PRIOR TO CONSTRUCTION.

SEE BORING TABLE ON THE GENERAL NOTES SHEET FOR EXISTING ASPHALT THICKNESSES.



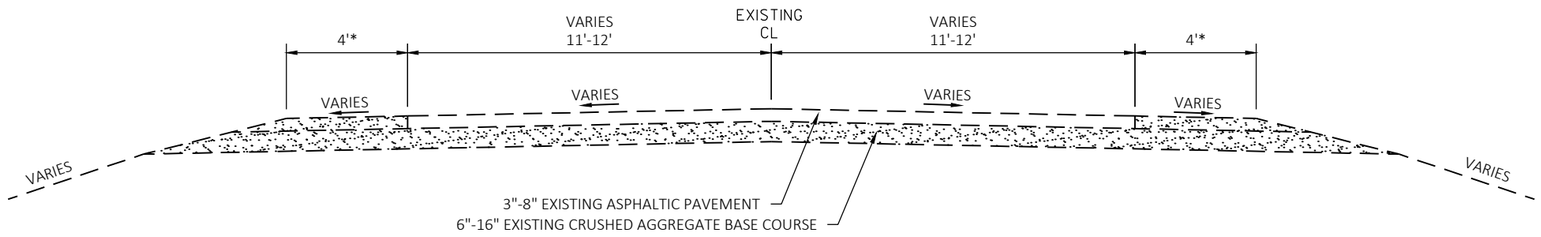
EXISTING TYPICAL SECTION

STH 56
STA 126+00 - STA 597+00
STA 676+50 - STA 927+01



EXISTING TYPICAL SECTION

STH 56
STA 597+00 - STA 620+00



EXISTING TYPICAL SECTION

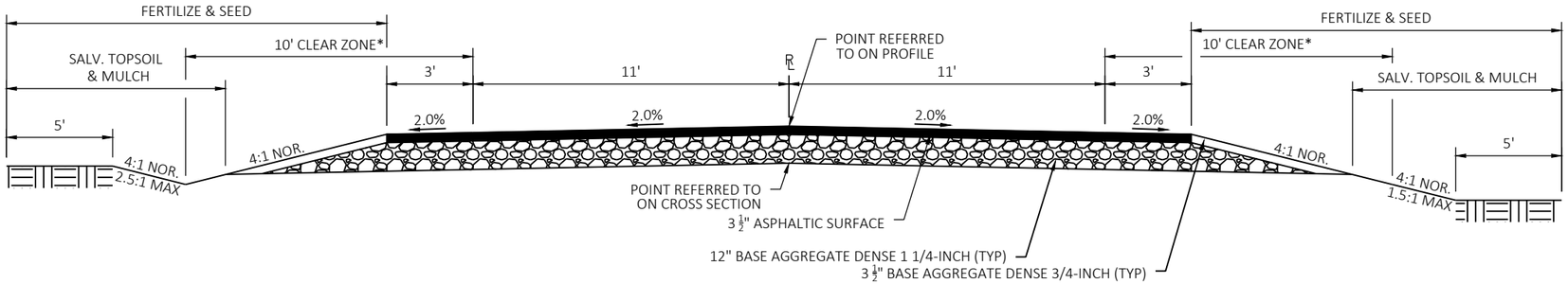
STH 56
STA 620+00 - STA 676+50

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	TYPICAL SECTION	SHEET 4	E

NOTE:

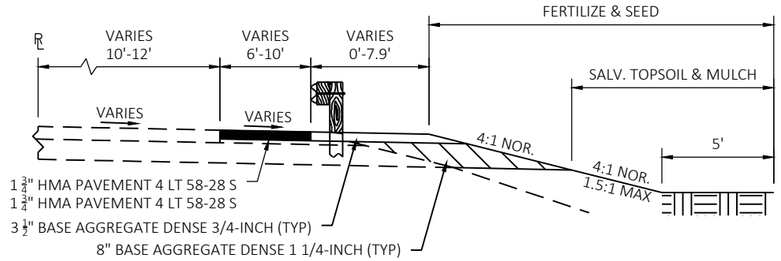
* 10' CLEAR ZONE MATCHES EXISTING CONDITIONS, ASSUMED AS-BUILT BY OTHERS PRIOR TO CONSTRUCTION.

** USE 4' SHOULDERS AT STRUCTURES C-52-0180 AND C-52-0181



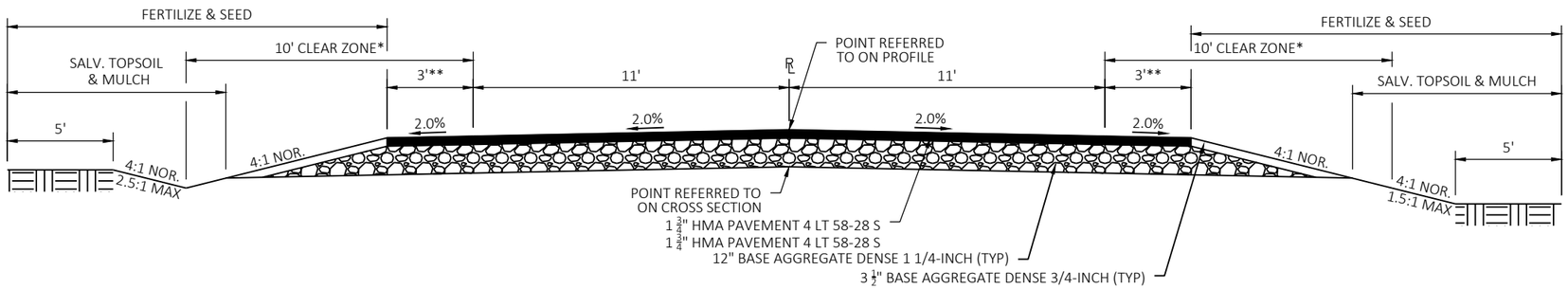
FINISHED TYPICAL SECTION

STH 56
CULVERT REPLACEMENTS
STA 126+85 - STA 127+35
STA 155+89 - STA 156+39
STA 203+62 - STA 204+12
STA 344+38 - STA 344+88



FINISHED TYPICAL SECTION BEAM GUARD

STH 56
STA 259+99.35 - STA 262+14.38
STA 260+13.34 - STA 262+30.72 (REVERSED)
STA 262+54.12 - STA 263+26.33
STA 262+72.35 - STA 264+90.92 (REVERSED)



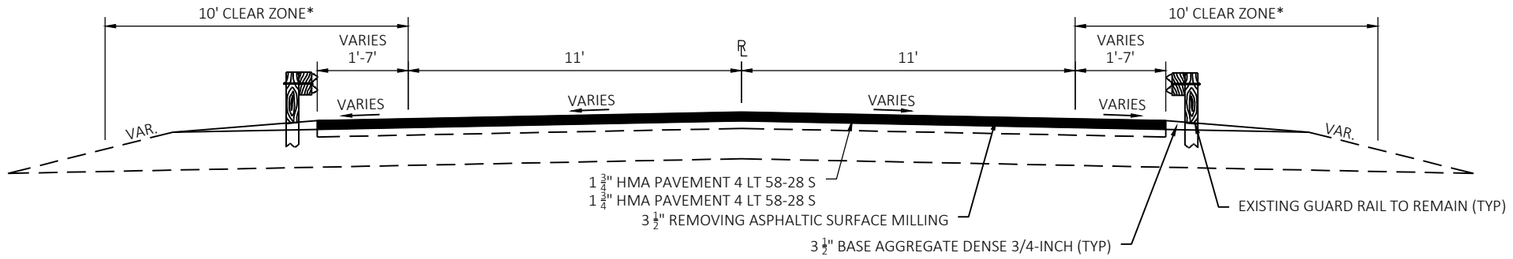
FINISHED TYPICAL SECTION

STH 56
CULVERT REPLACEMENTS
STA 543+05 - STA 543+55
STA 563+95 - STA 564+45
STA 620+08 - STA 620+58
STA 660+56 - STA 661+06
STA 762+12 - STA 762+62
STA 779+03 - STA 779+53

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	TYPICAL SECTION	SHEET 5	E

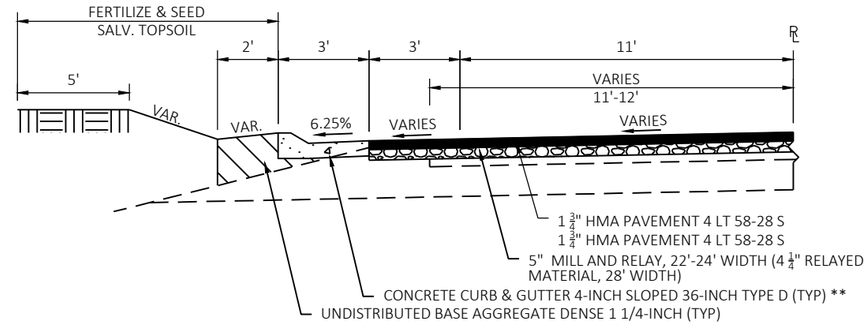
* 10' CLEAR ZONE MATCHES EXISTING CONDITIONS, ASSUMED AS-BUILT BY OTHERS PRIOR TO CONSTRUCTION.

** USE 6.25% SLOPE FOR GUTTER



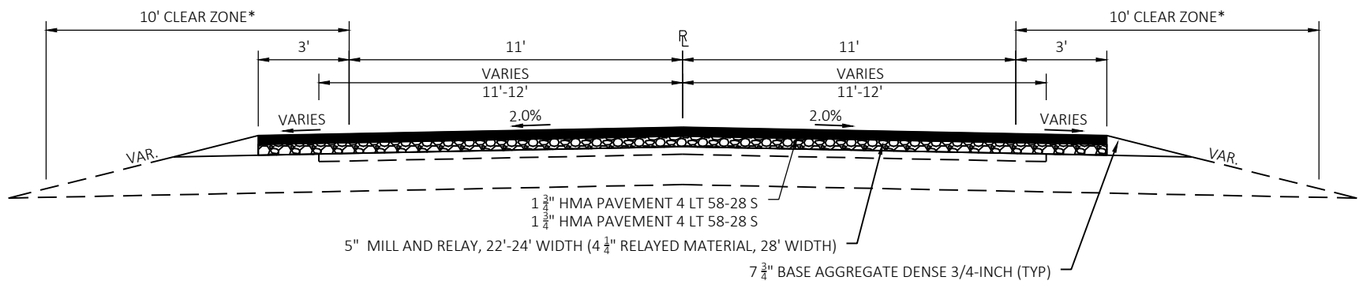
FINISHED TYPICAL SECTION

STH 56
STA 525+85 - STA 529+00



FINISHED TYPICAL SECTION CURB & GUTTER

STH 56
STA 693+00 - STA 696+54 (REVERSED)
STA 697+04 - STA 707+58
STA 755+48 - STA 762+00
STA 795+44 - STA 800+13
STA 811+18 - STA 816+48



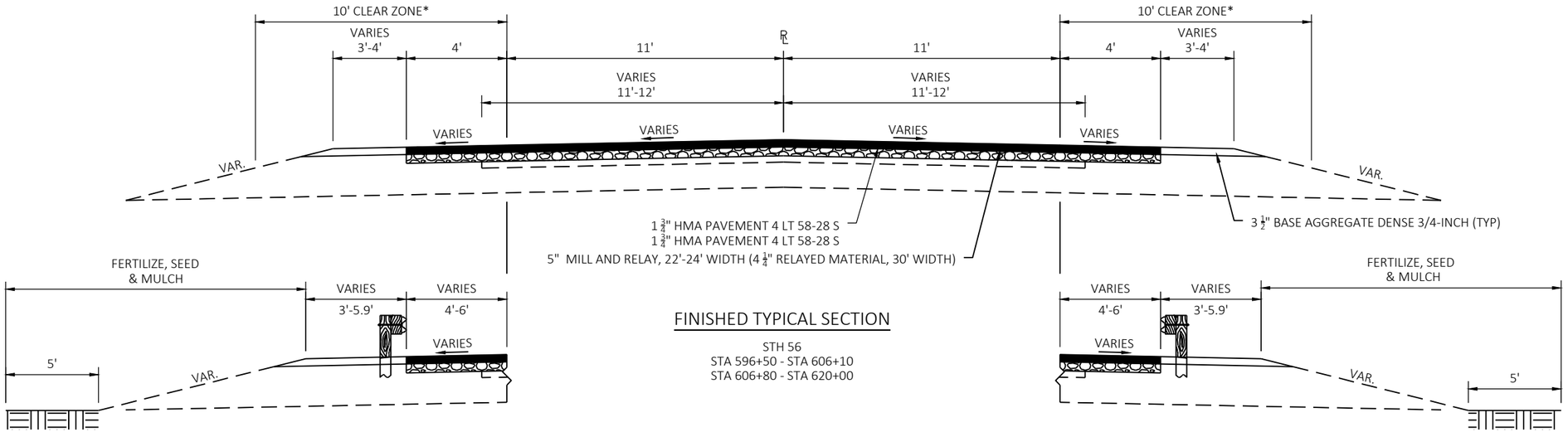
FINISHED TYPICAL SECTION

STH 56
STA 529+00 - STA 543+05
STA 543+55 - STA 563+95
STA 564+45 - STA 596+50
STA 676+50 - STA 762+12
STA 762+62 - STA 779+03
STA 779+53 - STA 927+01

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	TYPICAL SECTION	SHEET 6	E

NOTE:

* 10' CLEAR ZONE MATCHES EXISTING CONDITIONS, ASSUMED AS-BUILT BY OTHERS PRIOR TO CONSTRUCTION.



FINISHED TYPICAL SECTION

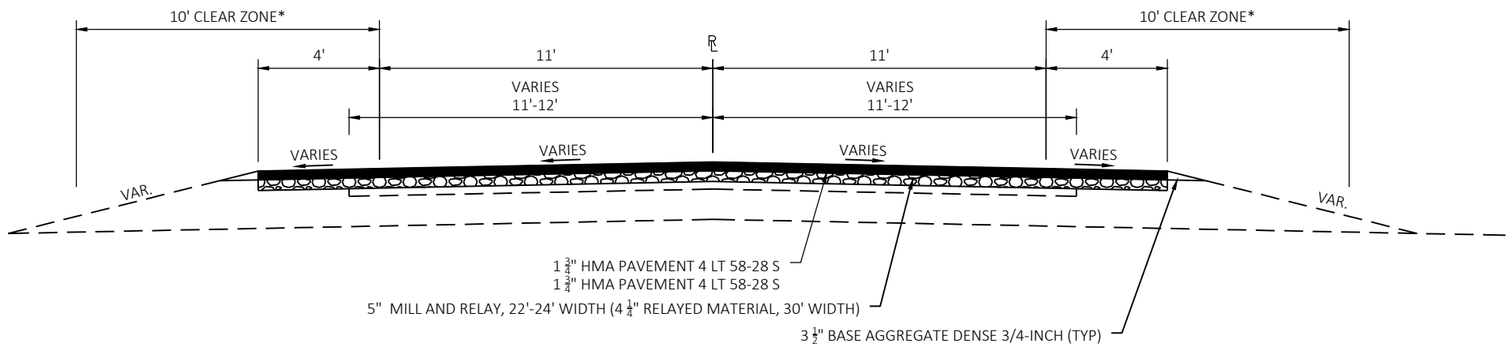
STH 56
STA 596+50 - STA 606+10
STA 606+80 - STA 620+00

FINISHED TYPICAL SECTION BEAM GUARD

STH 56
STA 604+39.32 - STA 608+43.47

FINISHED TYPICAL SECTION BEAM GUARD

STH 56
STA 604+48.87 - STA 608+51.11



FINISHED TYPICAL SECTION

STH 56
STA 620+00 - STA 620+08
STA 620+58 - STA 660+56
STA 661+06 - STA 676+50

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	TYPICAL SECTION	SHEET 7	E

2

CP 901
2" ALUMINUM CAPPED
FENO MONUMENT
STA 156+23.96
15.6' LT
Y = 506,165.24
X = 615,873.31

FENCE POST
STA 156+34.42
34.6' LT

NE CORNER OF
BOX CULVERT
STA 156+14.00
14.7' LT

CP 901

EDGE OF PAVEMENT
STA 156+24.05
11.3' LT

21.7'
10.0'
4.3'

156+00

C-52-0064

STH 56

FO
OH

CP 903
MAG NAIL
STA 162+94.43
10.9' LT
Y = 506,177.64
X = 616,543.24

PC: 162+56.52

CP 903

163+00

STH 56

62.6'
28.3'
54.1'
10.0'

CP 902

JCT CTH MM SIGN
STA 162+97.43
25.6' RT

POWER POLE
STA 162+51.15
34.1' RT

CP 902
2" ALUMINUM CAPPED
FENO MONUMENT
STA 163+01.57
16.5' RT
Y = 506,150.75
X = 616,552.08

263+00

STH 56

EXISTING CL
STA 263+96.18
0.9' LT

264+00

BENSON HOLLOW DR
SIGN
STA 263+73.62
37.9' RT

26.0'
26.5'

BENSON HOLLOW DR

104.4'

CP 907

CP 907
2" ALUMINUM CAPPED
FENO MONUMENT
STA 263+95.95
25.1' RT
Y = 503,468.90
X = 625,592.78

FIBER OPTIC MANHOLE
STA 263+36.54
107.5' RT

CP 909
MAG NAIL
STA 268+89.75
10.4' LT
Y = 503,454.14
X = 626,087.18

CP 909

269+00

STH 56

28.8'
9.3'
6.9'

CP 908

EDGE OF PAVEMENT
STA 268+89.02
11.4' RT

FENCE
STA 268+89.02
27.6' RT

CP 908
2" ALUMINUM CAPPED
FENO MONUMENT
STA 268+88.96
18.3' RT
Y = 503,425.39
X = 626,088.50

2

CTH H

STH 56 WEST SIGN
STA 595+95.33
19.5' LT

STH 56 SIGN
STA 596+35.32
37.7' LT

CP 925

33.4'
16.3'

596+00

23.0'

CP 925
2" ALUMINUM CAPPED
FENO MONUMENT
STA 596+28.56
22.8' LT
Y = 485,325.11
X = 650,947.87

EXISTING CL
STA 596+28.33
0.2' RT

STH 56

597+00

NE CORNER OF
BRIDGE
STA 606+76.07
17.2' LT

JCT CTH H SIGN
STA 607+35.34
25.7' LT

CP 929
2" ALUMINUM CAPPED
FENO MONUMENT
STA 609+36.72
20.9' LT
Y = 485,028.20
X = 652,196.46

201.4'
260.7'

CP 929

607+00
608+00
609+00

STH 56

20.6'

B-52-0035

EXISTING CL
STA 609+36.76
0.3 LT

CP 935
2" ALUMINUM CAPPED
FENO MONUMENT
STA 775+58.51
33.3' LT
Y = 474,629.86
X = 664,698.92

JAZZALILLY LN SIGN
STA 775+72.91
29.6' LT

MAILBOX POST
STA 775+58.46
18.9' LT

CP 935

14.4'
14.9'
POST
16.7'

CULVERT END
STA 775+70.85
22.0' LT

776+00

STH 56

CP 936
MAG NAIL
STA 778+70.59
10.7' LT
Y = 474,415.75
X = 664,928.26

CP 936

10.4'
54.5'

779+00

EXISTING CL
STA 778+70.57
0.3 LT

NW CORNER OF
BOX CULVERT
STA 779+24.98
14.0' LT

PI: 779+65.37

C-52-0071

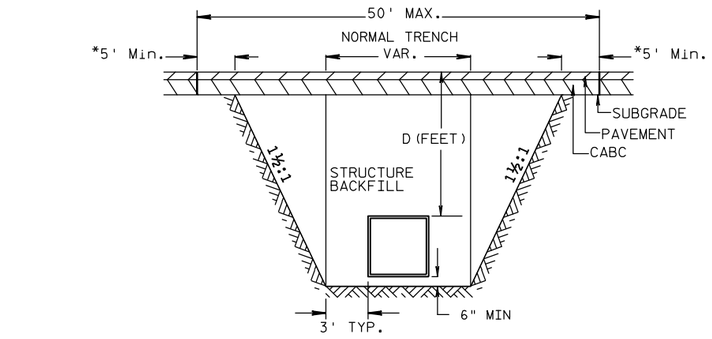
176.7'

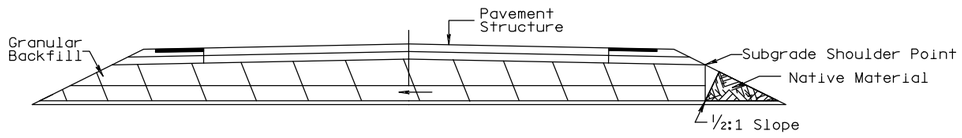
STH 56

780+00

NO PASSING SIGN
STA 780+44.24
22.4' RT

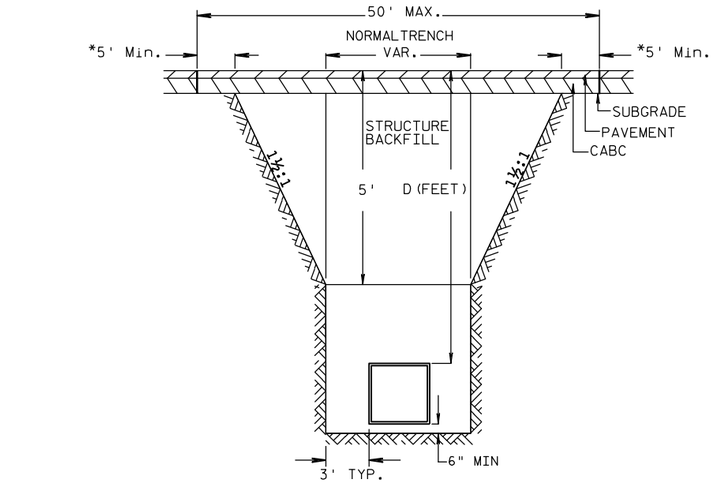
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CONTROL POINTS	SHEET 8	E

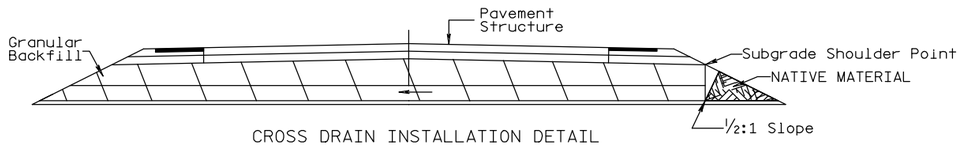




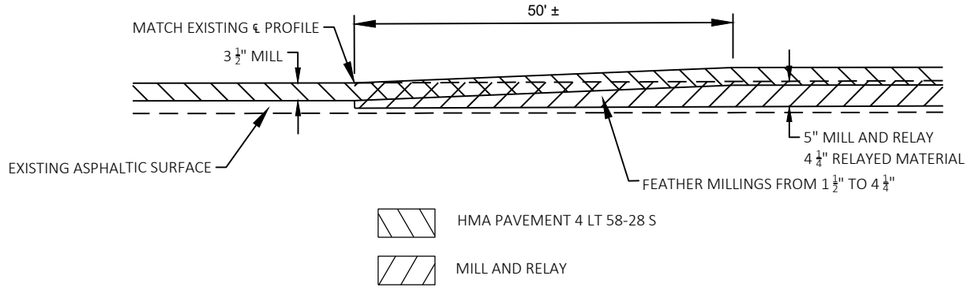
CROSS DRAIN INSTALLATION DETAIL
FOR D ≤ 5'

* Pavement Removal Limits (Typical)

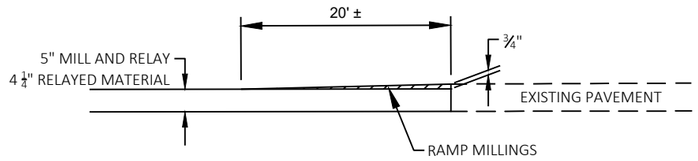




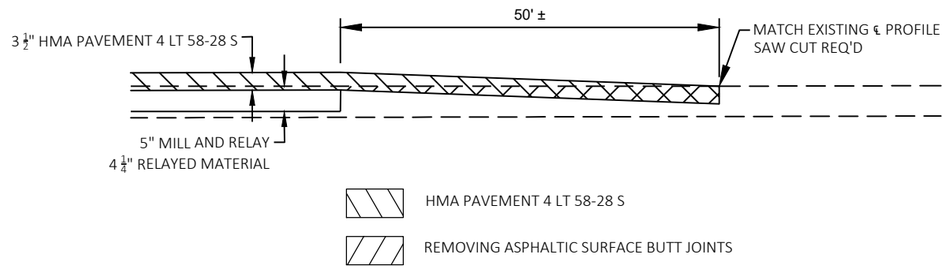
CROSS DRAIN INSTALLATION DETAIL
FOR D ≥ 5'



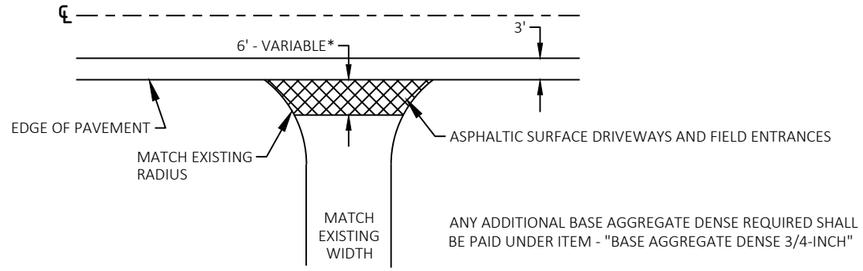
MILLING TRANSITION DETAIL
STA 529+00 - STA 529+50



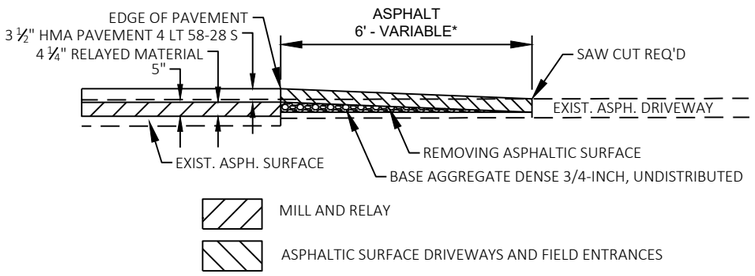
END OF DAY PAVEMENT TRANSITION DETAIL



BUTT JOINT DETAIL
STA 605+60 - STA 606+10
STA 606+80 - STA 607+30
STA 926+51 - STA 927+01



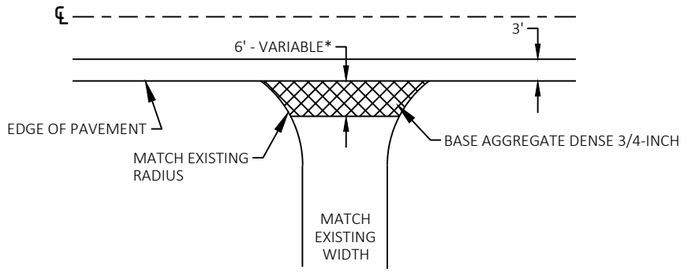
PLAN VIEW



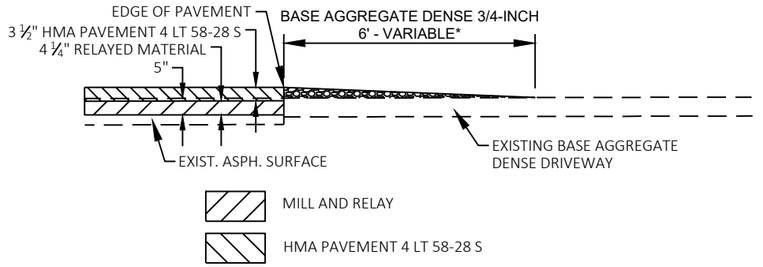
ELEVATION VIEW

ASPHALTIC DRIVEWAY DETAIL

* EXACT DIMENSIONS TO BE DETERMINED
BY ENGINEER IN THE FIELD



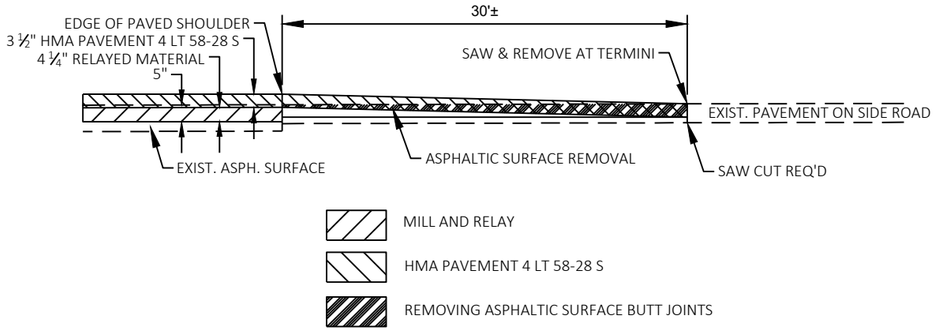
PLAN VIEW

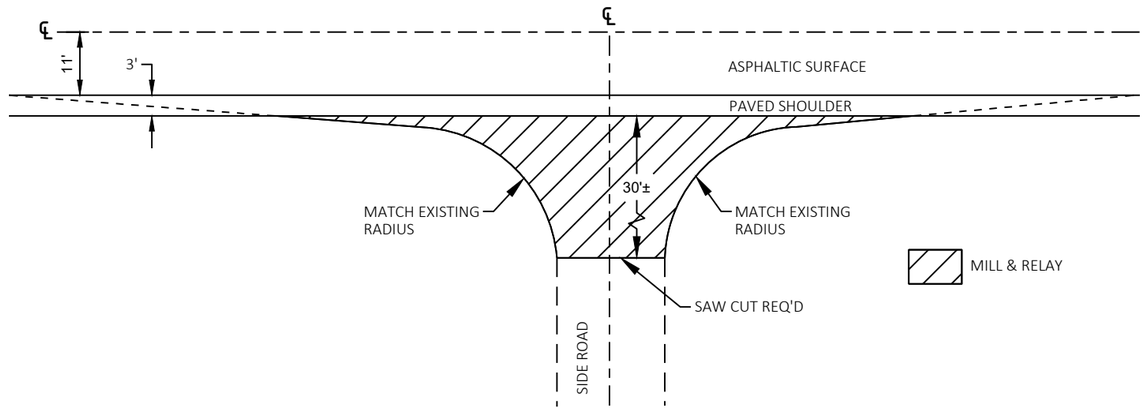


ELEVATION VIEW

BASE AGGREGATE DRIVEWAY DETAIL

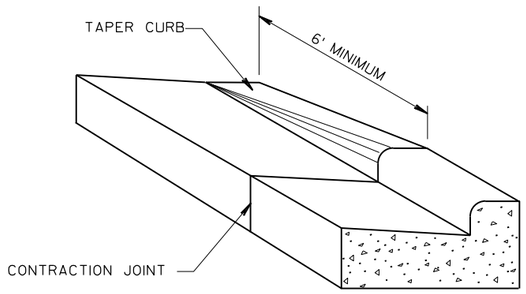
* EXACT DIMENSIONS TO BE DETERMINED
BY ENGINEER IN THE FIELD



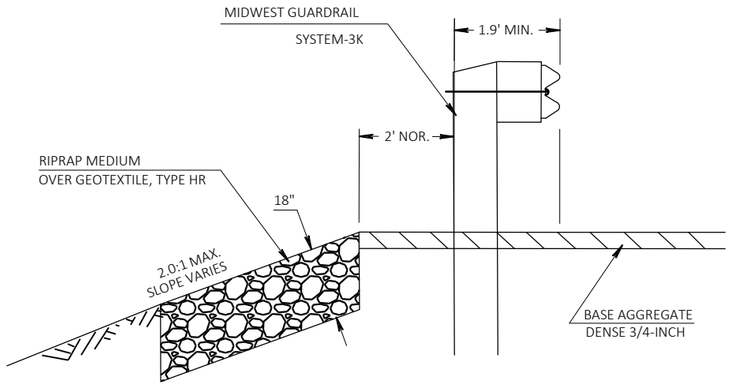


SIDE ROAD DETAIL

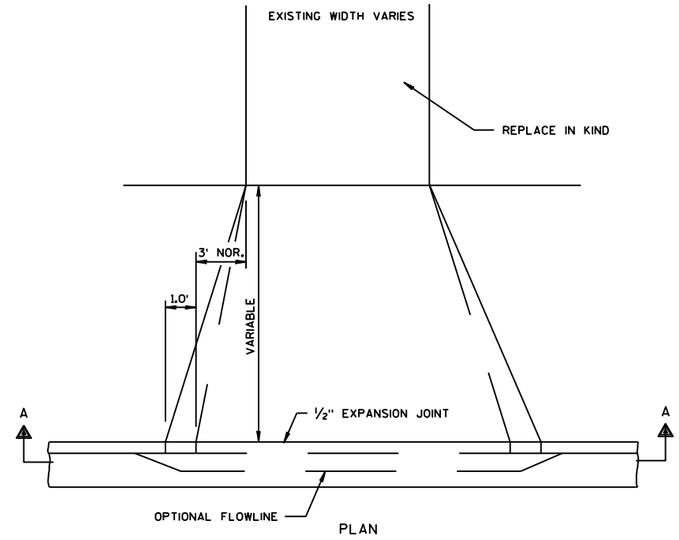
(PAID FOR AS "REMOVING ASPHALTIC SURFACE BUTT JOINTS")

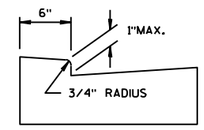


DETAIL OF CURB & GUTTER TERMINI

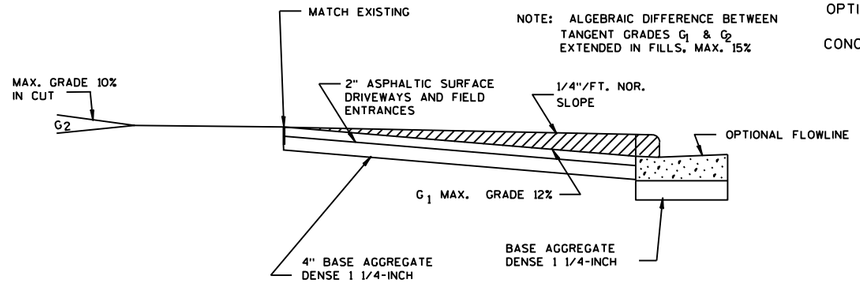


RIPRAP BEHIND GUARD RAIL IN AREAS STEEPER THAN 2.5:1

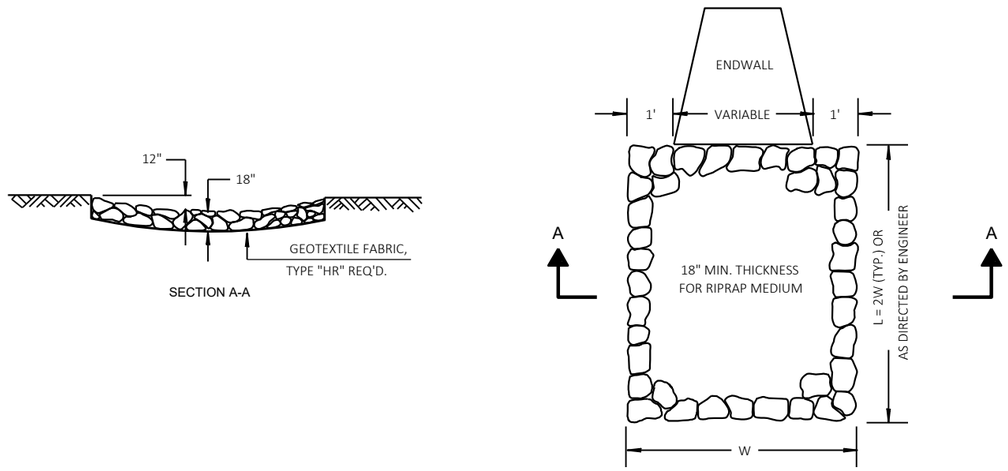




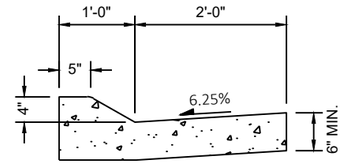
OPTIONAL METHOD
FOR
CONCRETE GUTTER



RURAL DRIVEWAY DETAIL WITH CURB & GUTTER



RIPRAP MEDIUM TREATMENT AT CULVERTS



CONCRETE CURB & GUTTER
4-INCH SLOPED 36-INCH TYPE D
(6.25% SLOPE)

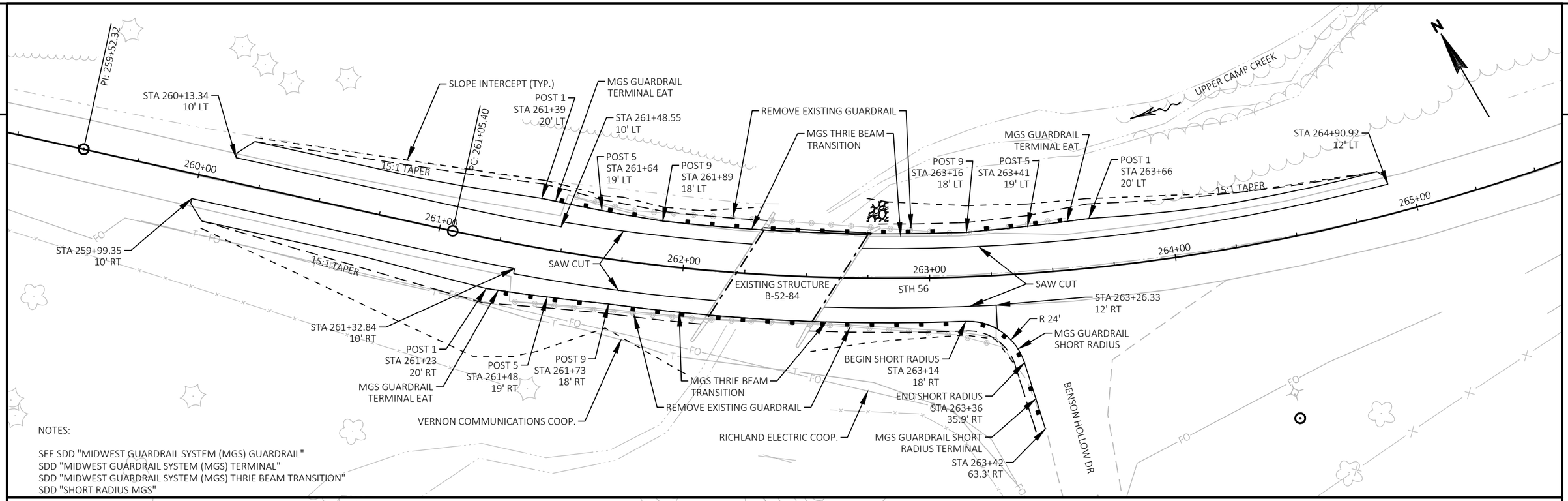
RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 30.04 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 30.04 ACRES

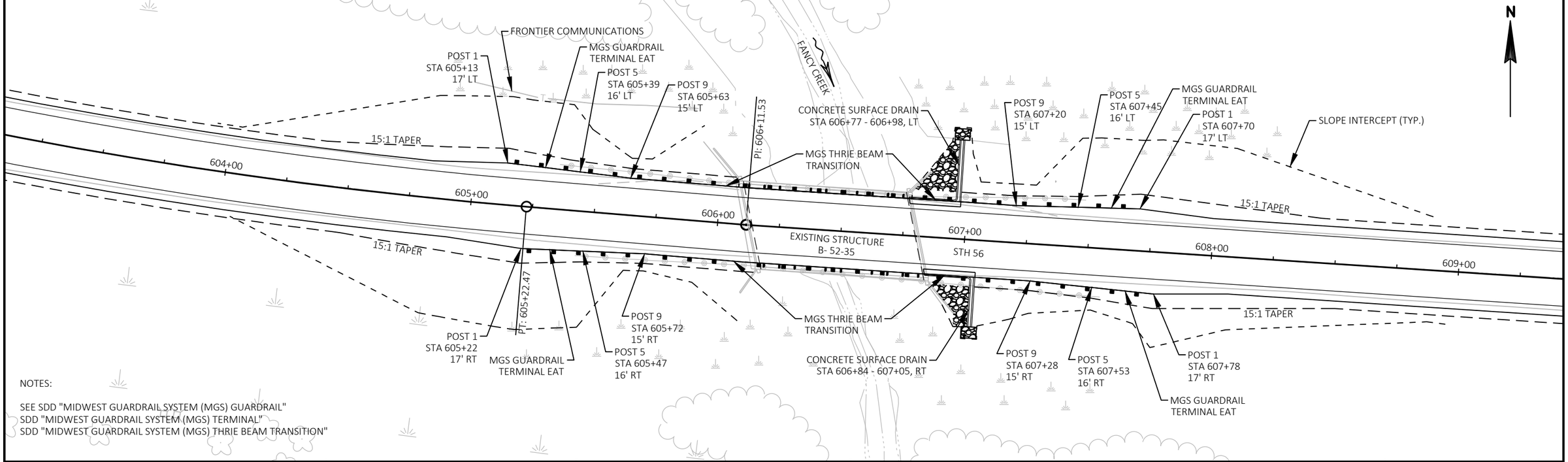
PERCENT WITHIN LIMITS (PWL) MIXTURE USE TABLE

LOCATION	STATION	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS (INCHES)	QMP MANAGEMENT PROGRAM TO BE USED FOR: MIXTURE ACCEPTANCE	QMP MANAGEMENT PROGRAM TO BE USED FOR: DENSITY ACCEPTANCE
11 FOOT DRIVING LANE	525+85 TO 529+00	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	76	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
11 FOOT DRIVING LANE	525+85 TO 529+00	LOWER LAYER	EXISTING HMA SURFACE	4 LT 58-28 S	76	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2006
VARYING SHOULDER WIDTH	525+85 TO 529+00	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	21	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
VARYING SHOULDER WIDTH	525+85 TO 529+00	LOWER LAYER	EXISTING HMA SURFACE	4 LT 58-28 S	21	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
11 FOOT DRIVING LANE	529+00 TO 596+50	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	1,617	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
11 FOOT DRIVING LANE	529+00 TO 596+50	LOWER LAYER	MILLED & RELAYED SURFACE	4 LT 58-28 S	1,617	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2006
3 FOOT SHOULDER	529+00 TO 596+50	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	441	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR
3 FOOT SHOULDER	529+00 TO 596+50	LOWER LAYER	MILLED & RELAYED SURFACE	4 LT 58-28 S	441	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
11 FOOT DRIVING LANE	596+50 TO 606+10	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	230	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
11 FOOT DRIVING LANE	596+50 TO 606+10	LOWER LAYER	MILLED & RELAYED SURFACE	4 LT 58-28 S	230	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2006
4 FOOT SHOULDER	596+50 TO 606+10	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	84	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR
4 FOOT SHOULDER	596+50 TO 606+10	LOWER LAYER	MILLED & RELAYED SURFACE	4 LT 58-28 S	84	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
11 FOOT DRIVING LANE	606+80 TO 676+50	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	1,670	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
11 FOOT DRIVING LANE	606+80 TO 676+50	LOWER LAYER	MILLED & RELAYED SURFACE	4 LT 58-28 S	1,670	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2006
4 FOOT SHOULDER	606+80 TO 676+50	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	608	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR
4 FOOT SHOULDER	606+80 TO 676+50	LOWER LAYER	MILLED & RELAYED SURFACE	4 LT 58-28 S	608	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
11 FOOT DRIVING LANE	676+50 TO 927+01	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	6,002	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
11 FOOT DRIVING LANE	676+50 TO 927+01	LOWER LAYER	MILLED & RELAYED SURFACE	4 LT 58-28 S	6,002	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2006
3 FOOT SHOULDER	676+50 TO 927+01	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	1,637	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR
3 FOOT SHOULDER	676+50 TO 927+01	LOWER LAYER	MILLED & RELAYED SURFACE	4 LT 58-28 S	1,637	1.75	PWL INCENTIVE AIR VOIDS HMA PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE



NOTES:

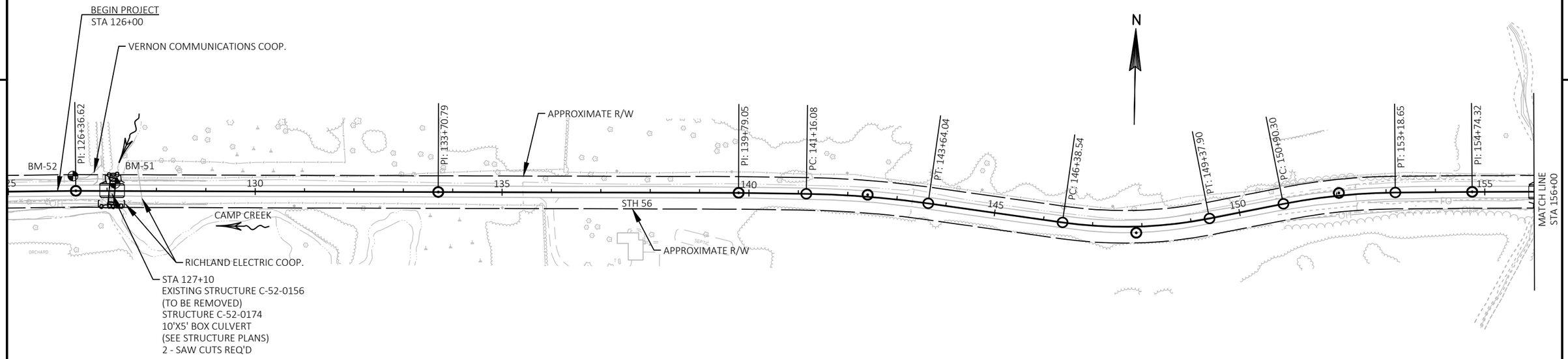
SEE SDD "MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL"
SDD "MIDWEST GUARDRAIL SYSTEM (MGS) TERMINAL"
SDD "MIDWEST GUARDRAIL SYSTEM (MGS) THRIE BEAM TRANSITION"
SDD "SHORT RADIUS MGS"



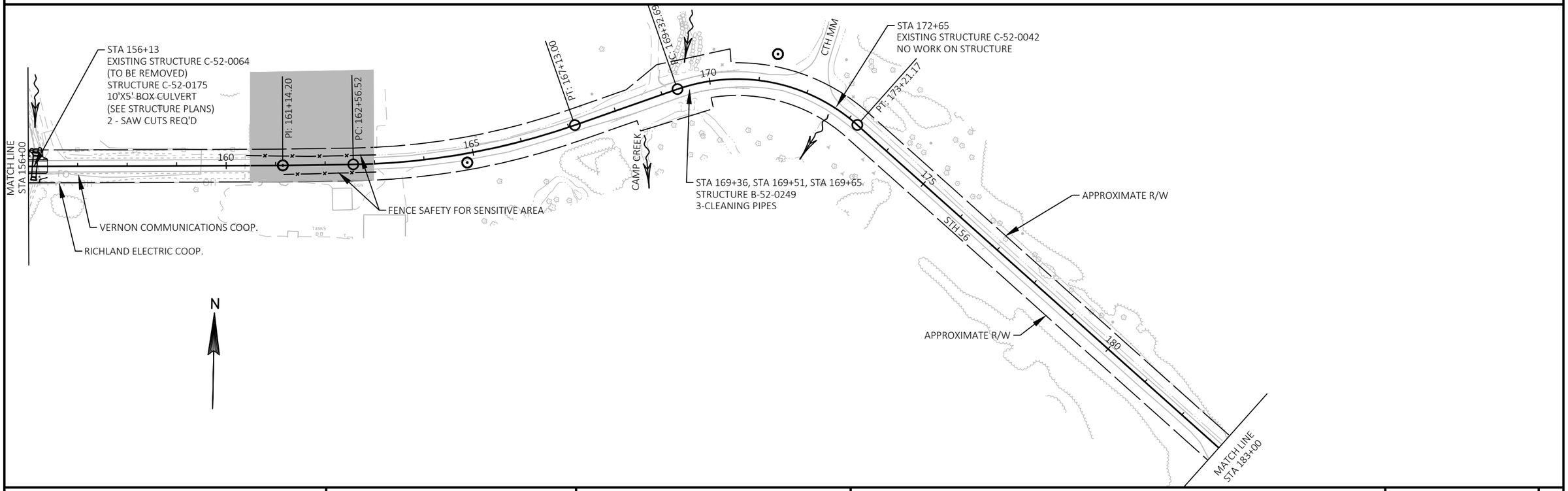
NOTES:

SEE SDD "MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL"
SDD "MIDWEST GUARDRAIL SYSTEM (MGS) TERMINAL"
SDD "MIDWEST GUARDRAIL SYSTEM (MGS) THRIE BEAM TRANSITION"

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CONSTRUCTION DETAILS: GUARDRAIL DETAILS	SHEET 14	E

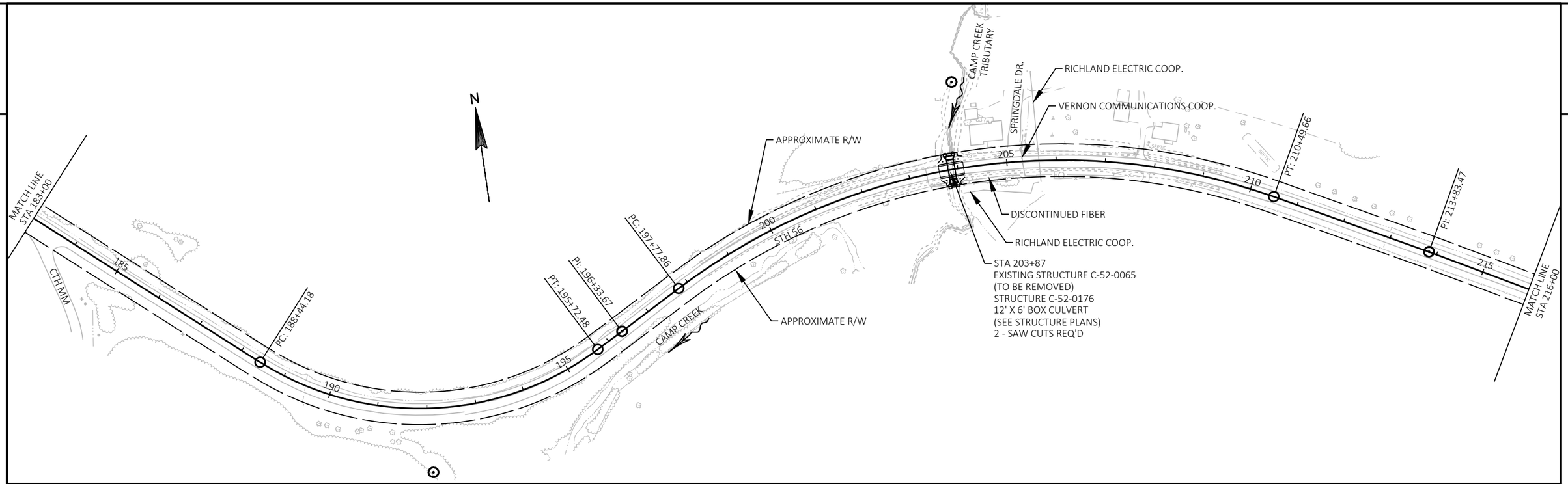


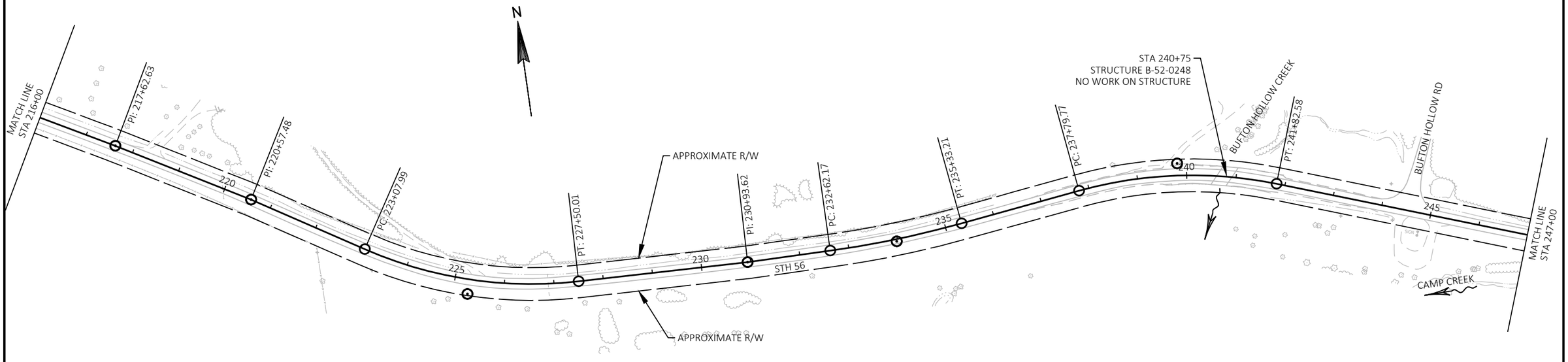
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
51	127+16.07	810.60	CHISELED CROSS ON BOX, 15.1' LT
52	126+31.00	810.46	2-16D IN 4X4 AT UTILITY VAULT, 30.3' LT



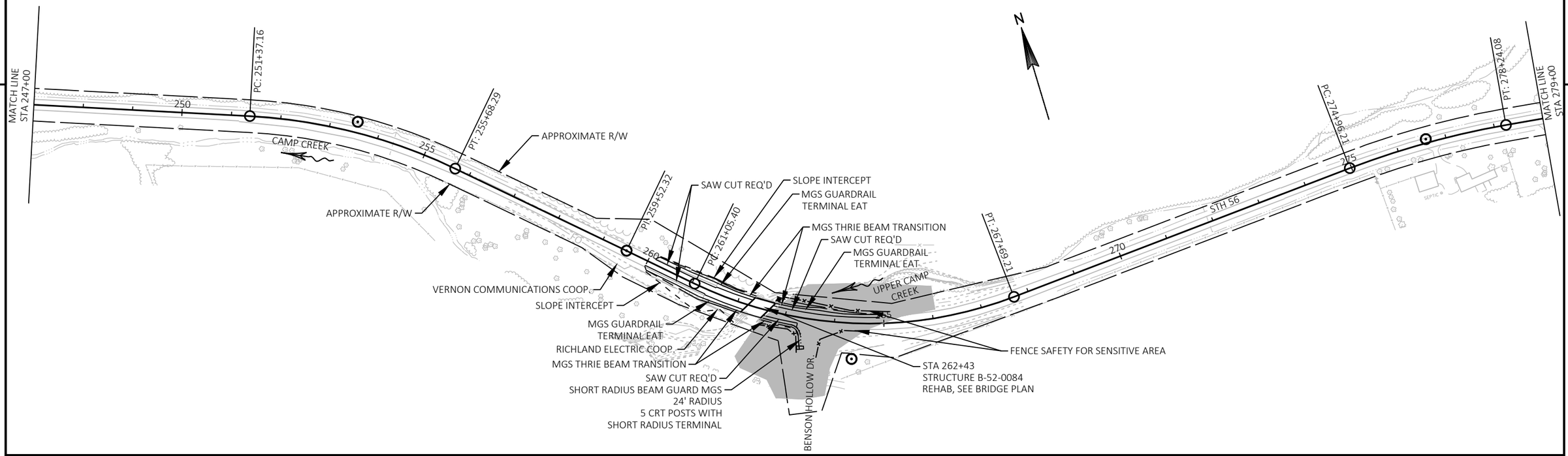
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 15	E

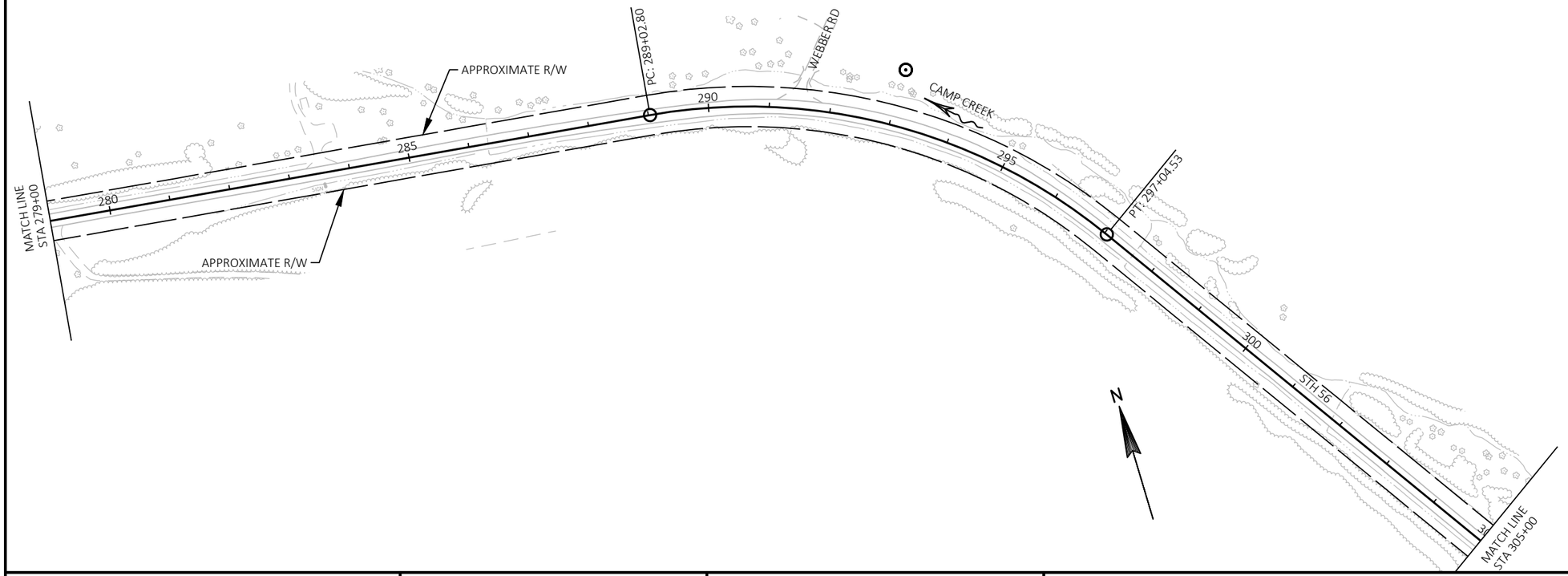
2





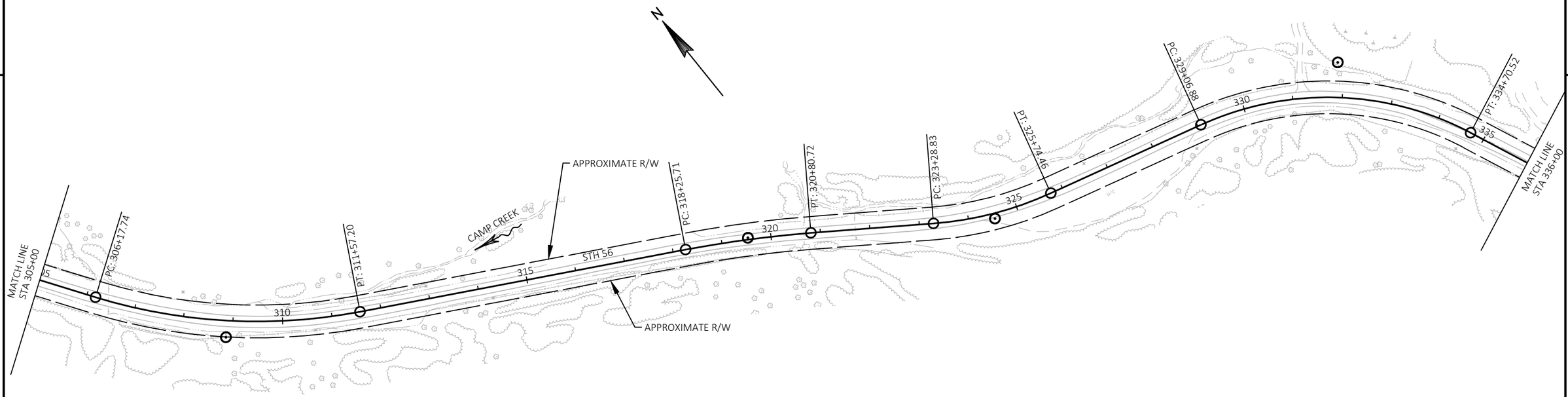
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 16	E

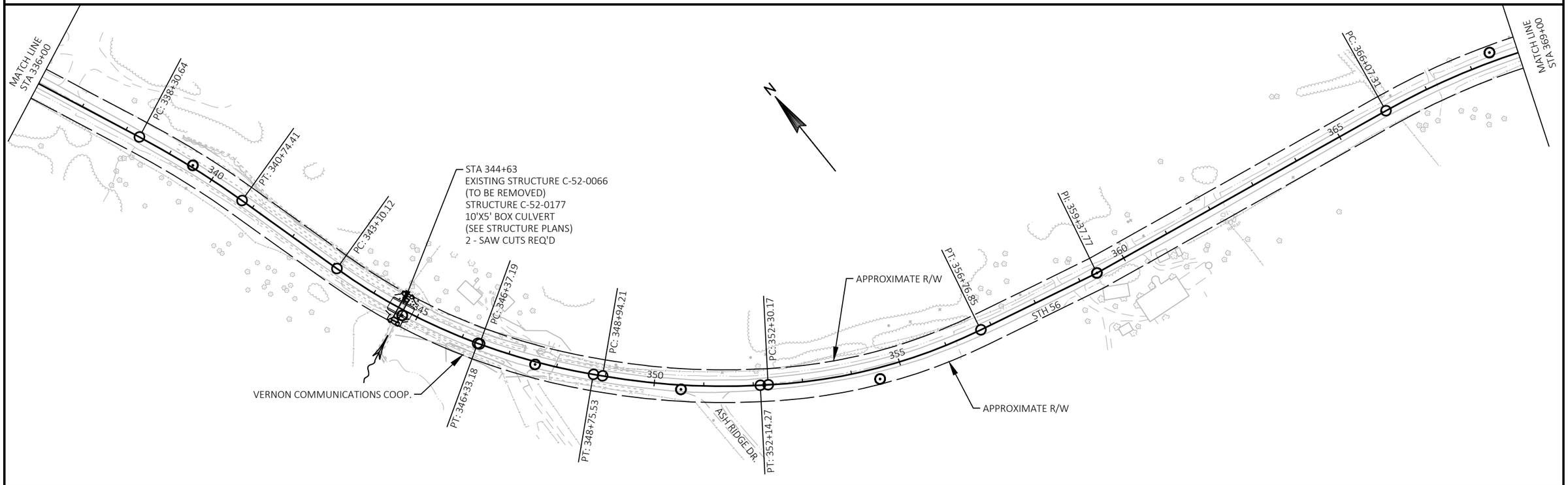




PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 17	E

2

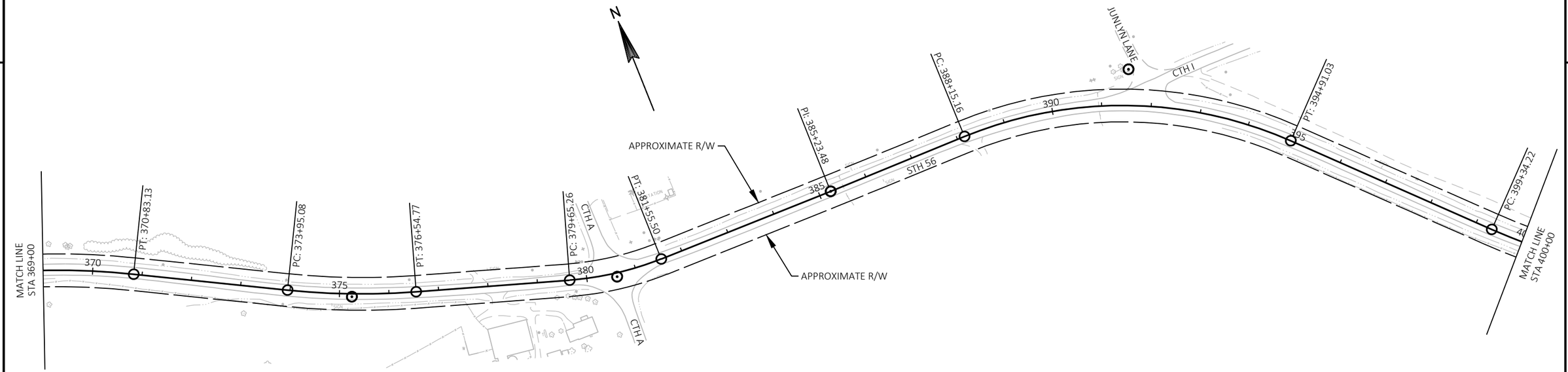


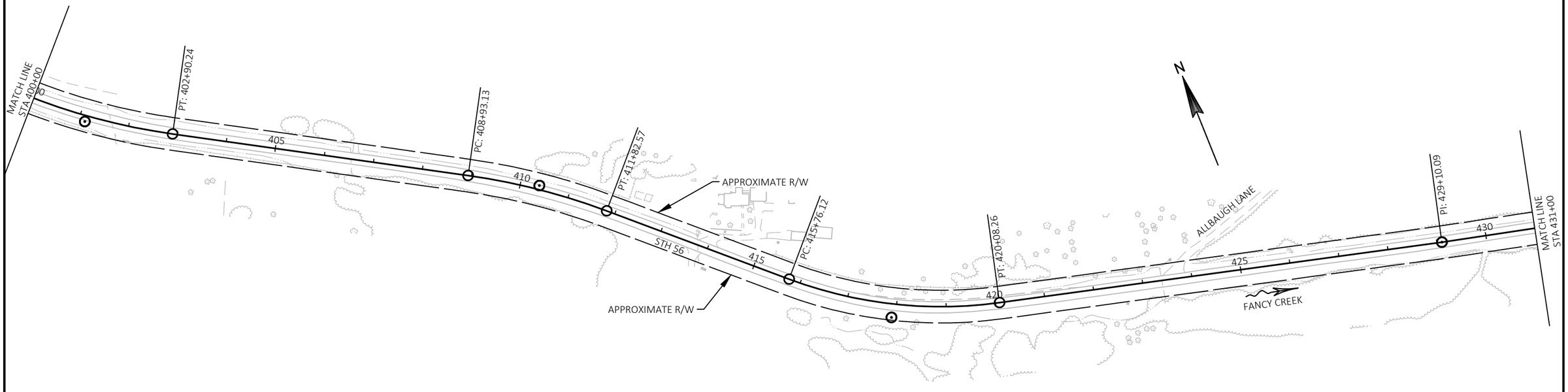


PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 18	E

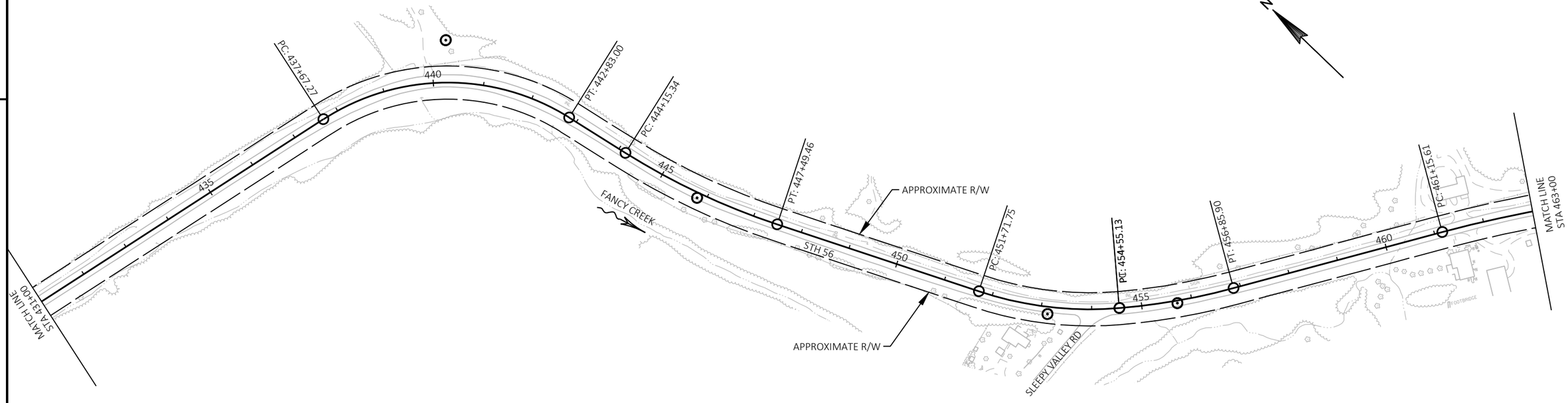
FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\021201-PD.DWG
LAYOUT NAME - 04
PLOT DATE : 7/1/2019 1:38 PM
PLOT BY : BOBBI MAXWELL
PLOT NAME :
PLOT SCALE : 1 IN:200 FT
WISDOT/CADDS SHEET 44

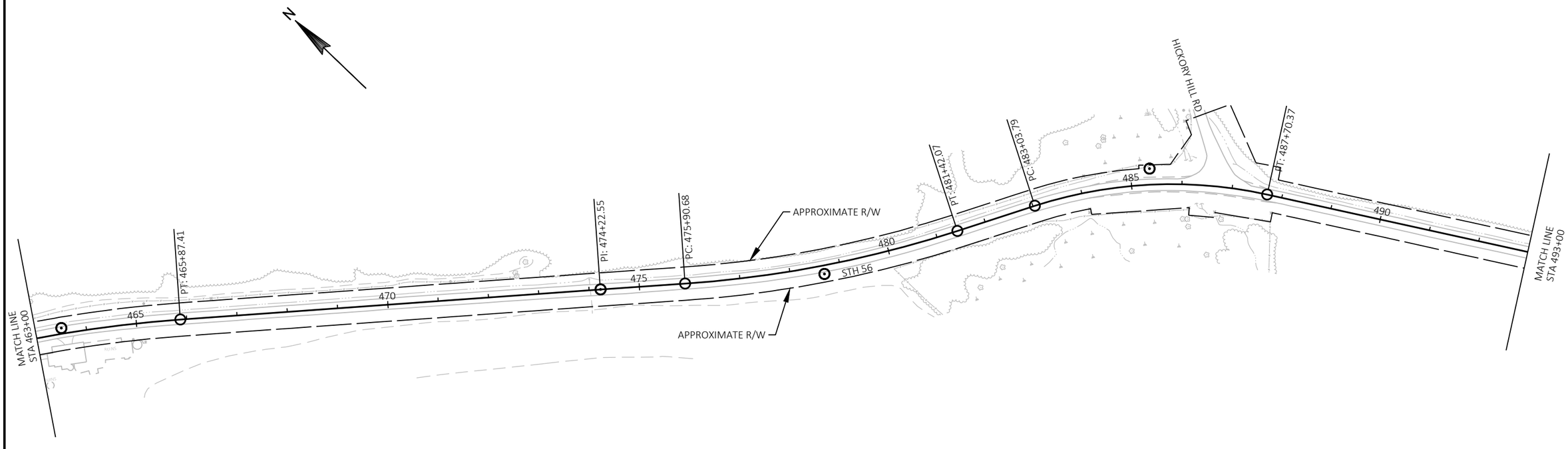
2





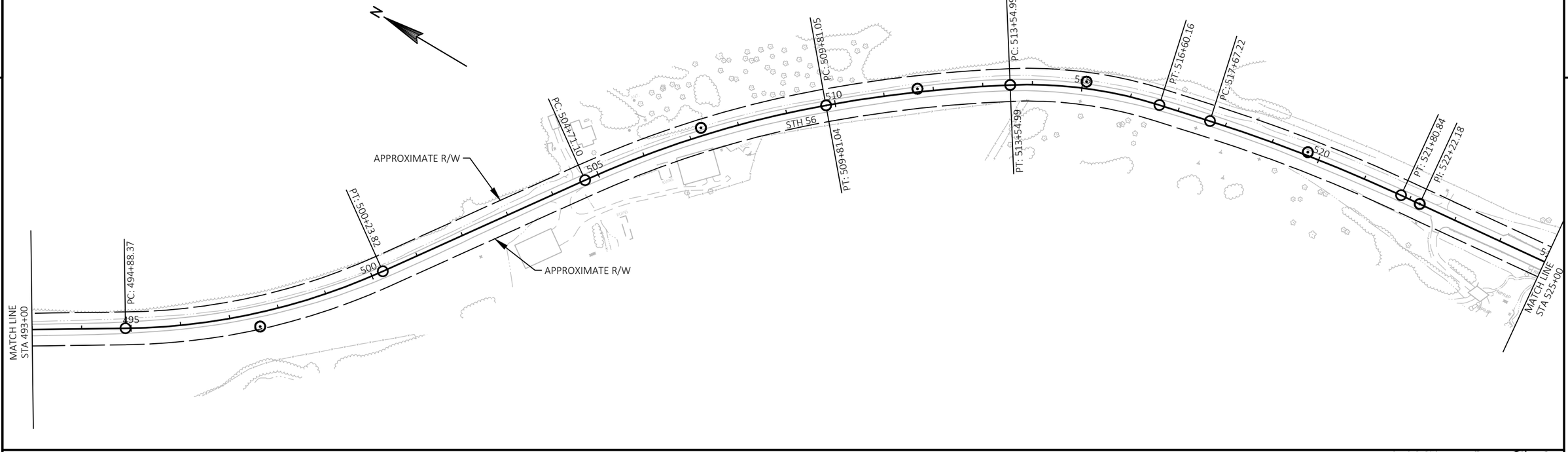
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 19	E



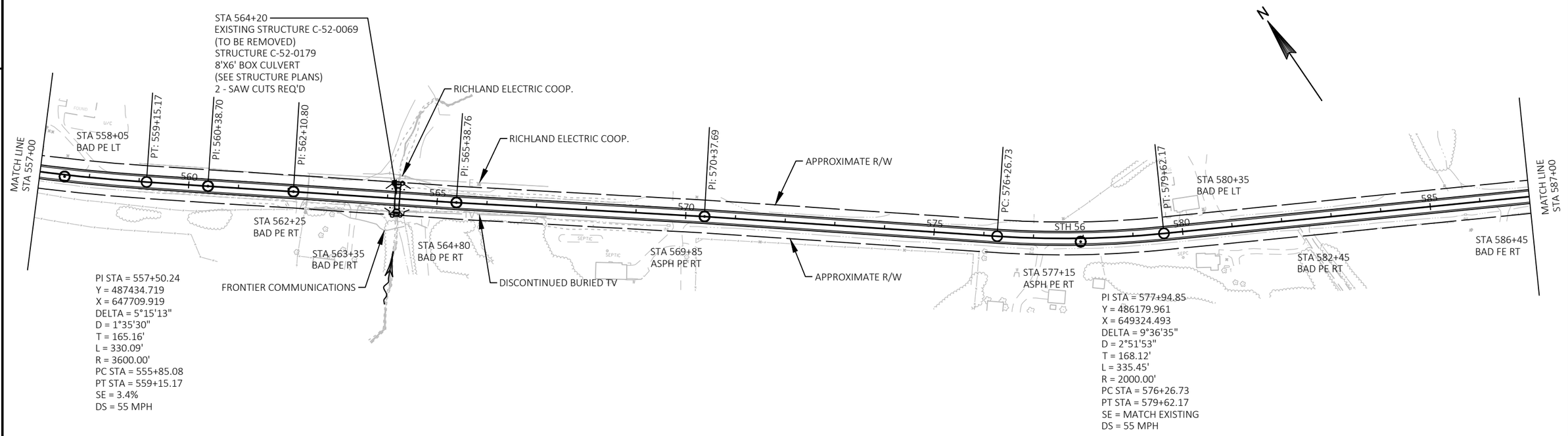


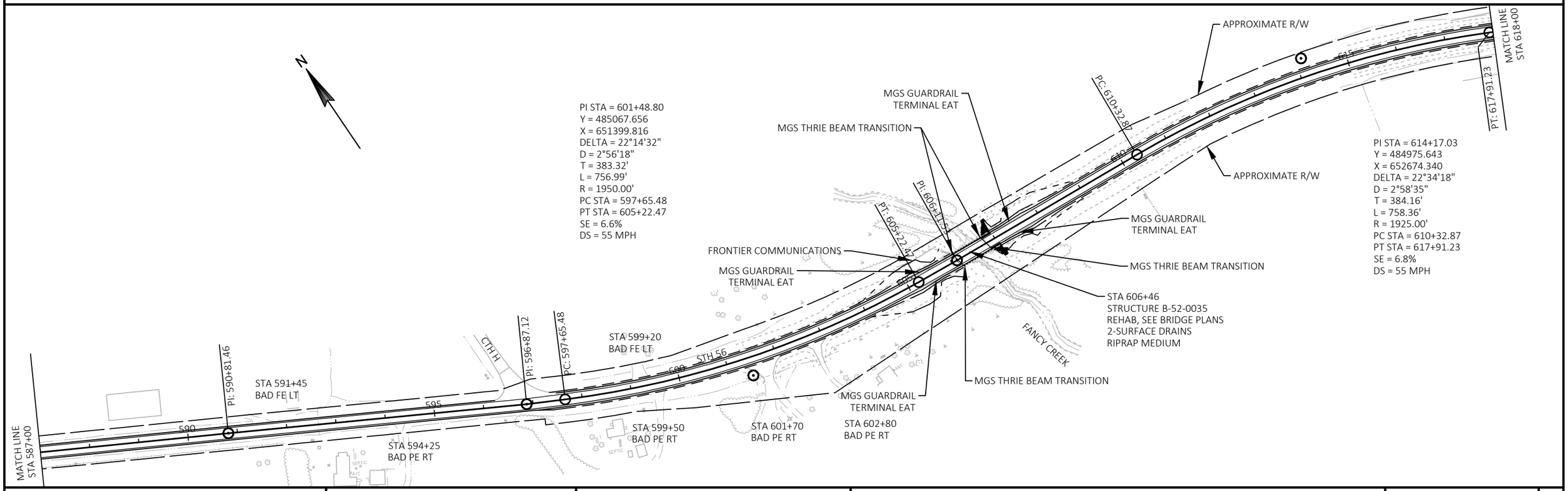
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 20	E

2



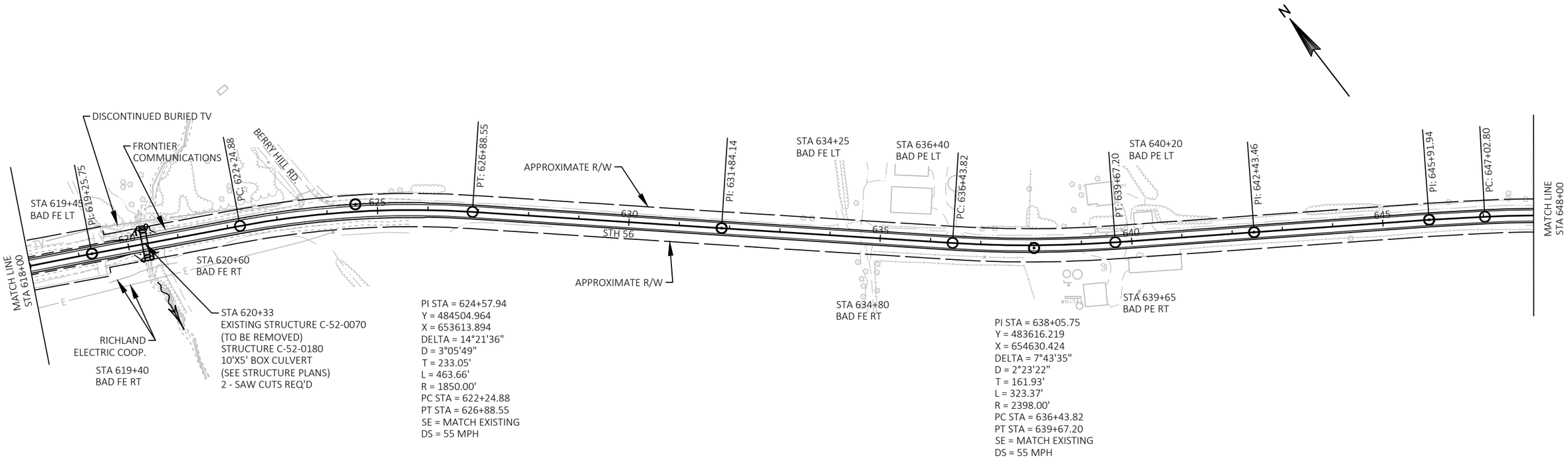
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 21	E

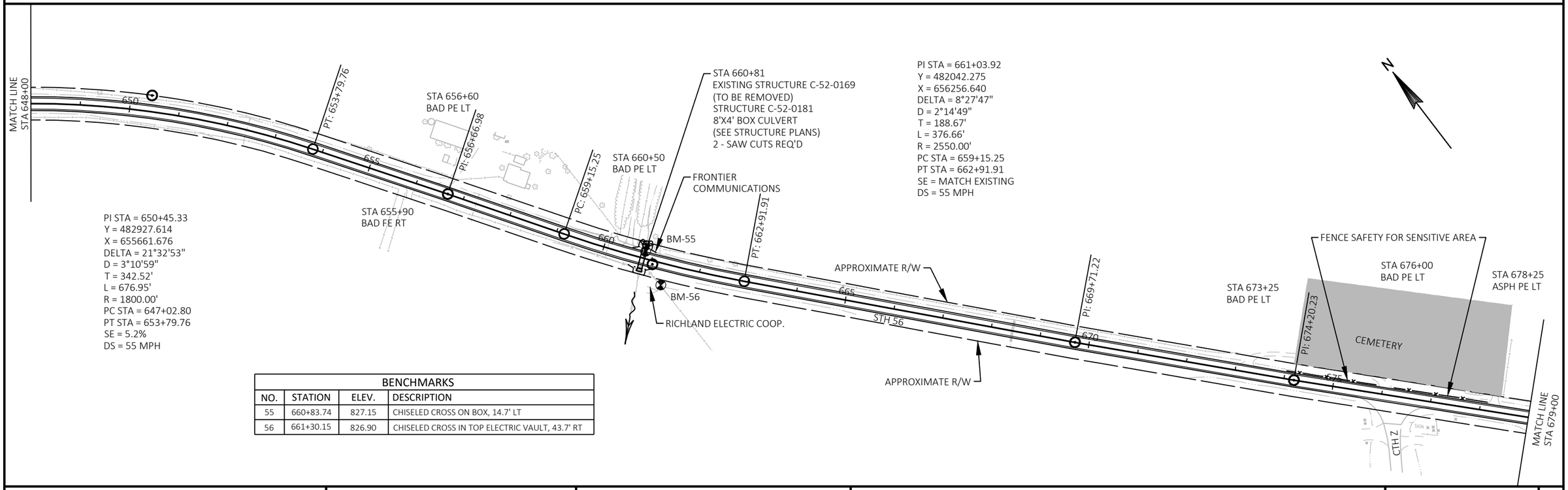




PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 22	E

2





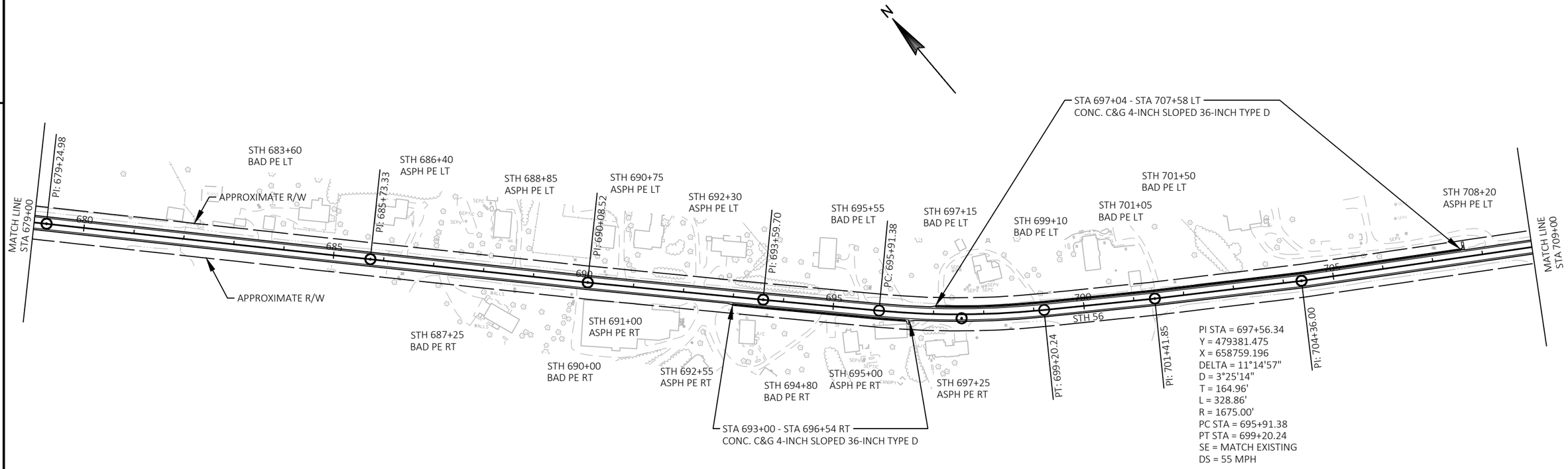
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
55	660+83.74	827.15	CHISELED CROSS ON BOX, 14.7' LT
56	661+30.15	826.90	CHISELED CROSS IN TOP ELECTRIC VAULT, 43.7' RT

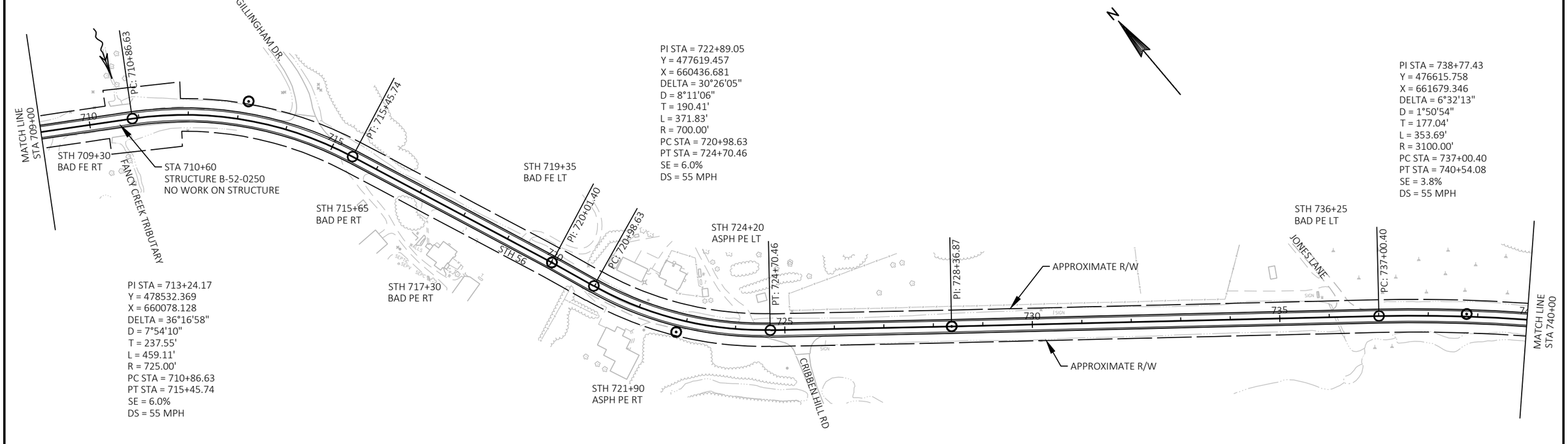
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 23	E

FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\021201-PD.DWG
LAYOUT NAME - 09

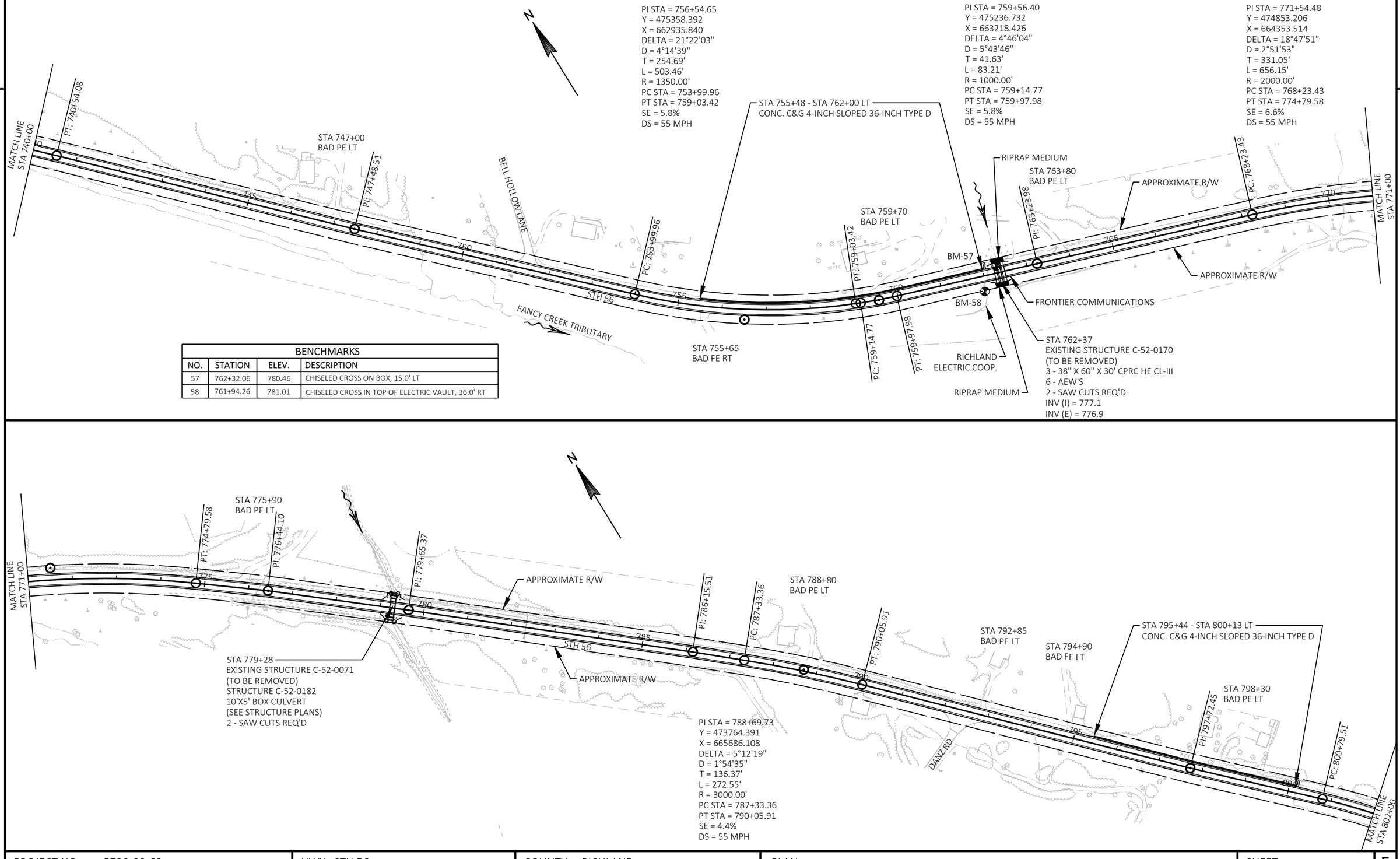
PLOT DATE : 7/1/2019 1:41 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:200 FT

2



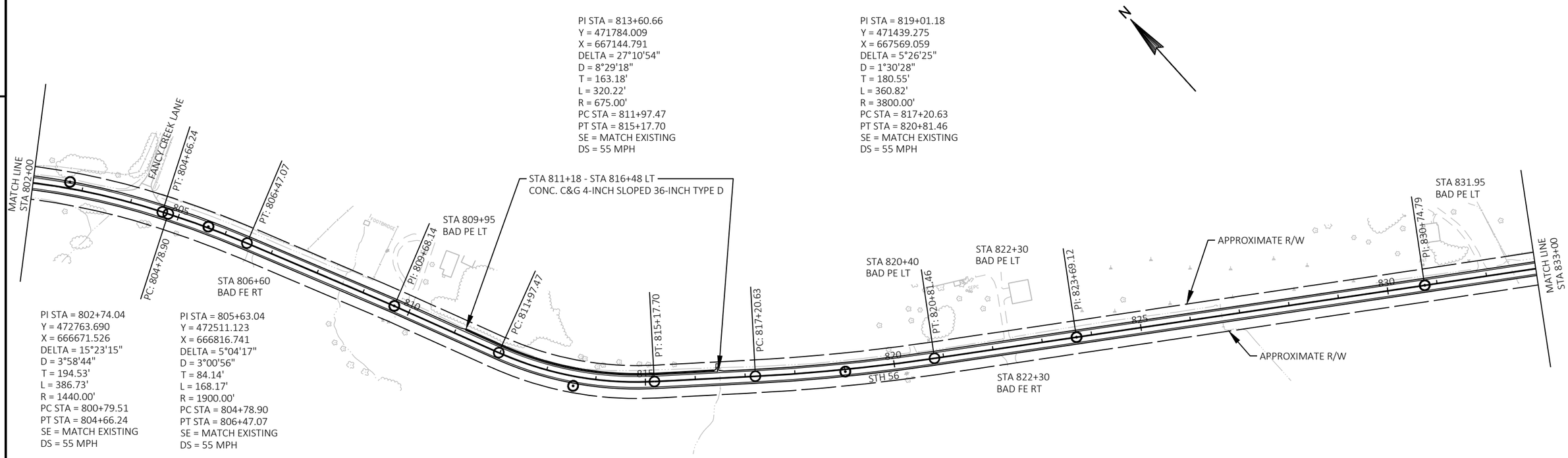


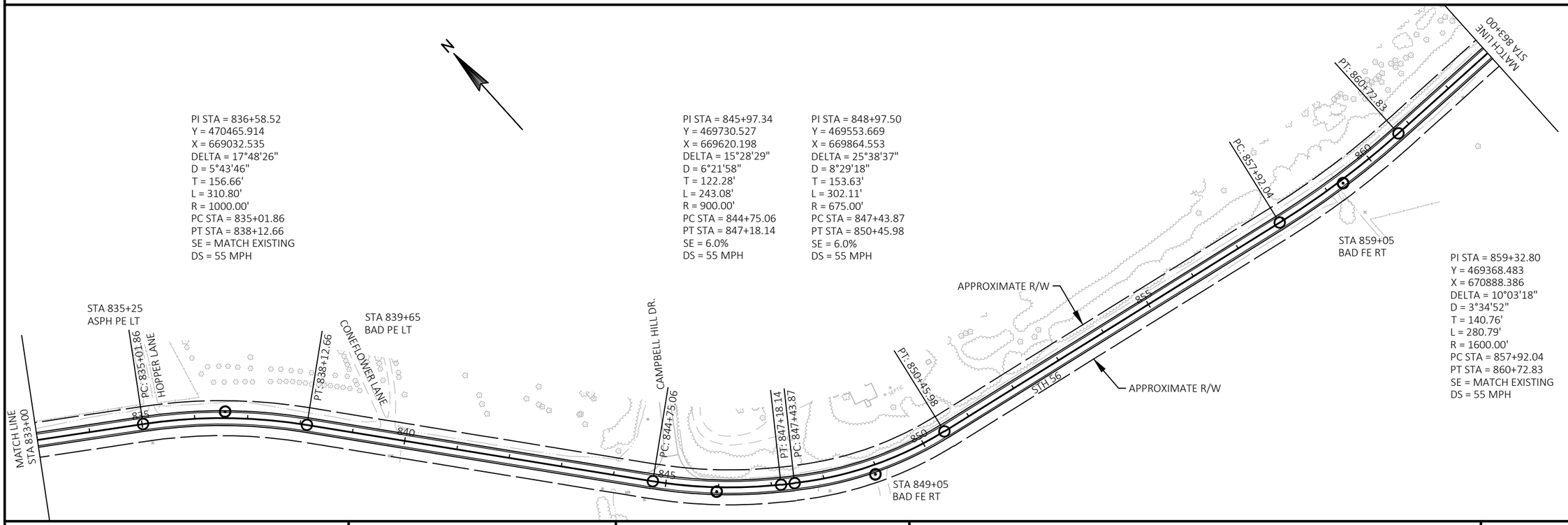
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 24	E



BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
57	762+32.06	780.46	CHISELED CROSS ON BOX, 15.0' LT
58	761+94.26	781.01	CHISELED CROSS IN TOP OF ELECTRIC VAULT, 36.0' RT

2





PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 26	E

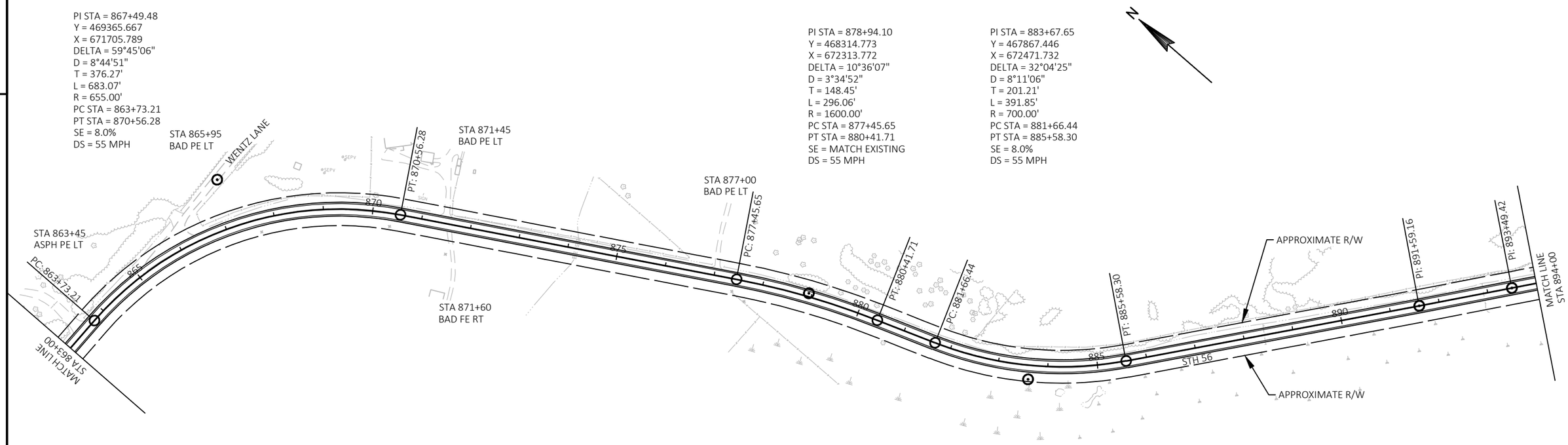
FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\021201-PD.DWG
LAYOUT NAME - 12

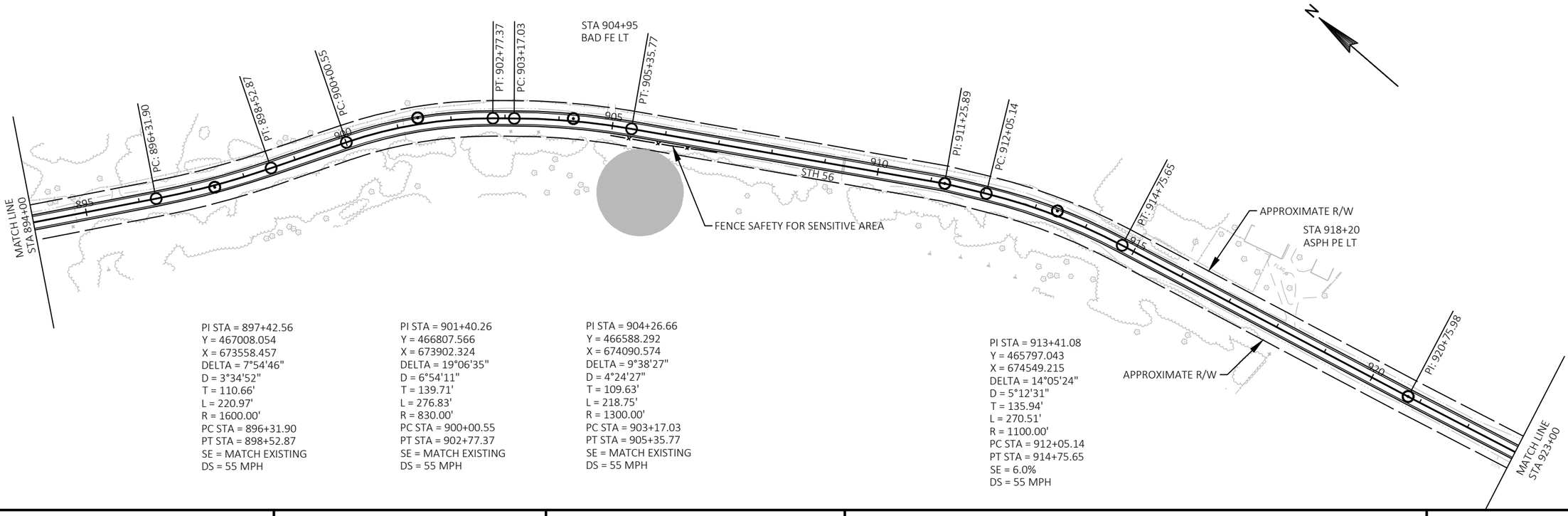
PLOT DATE : 7/1/2019 1:43 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:200 FT

PI STA = 867+49.48
Y = 469365.667
X = 671705.789
DELTA = 59°45'06"
D = 8°44'51"
T = 376.27'
L = 683.07'
R = 655.00'
PC STA = 863+73.21
PT STA = 870+56.28
SE = 8.0%
DS = 55 MPH

PI STA = 878+94.10
Y = 468314.773
X = 672313.772
DELTA = 10°36'07"
D = 3°34'52"
T = 148.45'
L = 296.06'
R = 1600.00'
PC STA = 877+45.65
PT STA = 880+41.71
SE = MATCH EXISTING
DS = 55 MPH

PI STA = 883+67.65
Y = 467867.446
X = 672471.732
DELTA = 32°04'25"
D = 8°11'06"
T = 201.21'
L = 391.85'
R = 700.00'
PC STA = 881+66.44
PT STA = 885+58.30
SE = 8.0%
DS = 55 MPH





PI STA = 897+42.56
Y = 467008.054
X = 673558.457
DELTA = 7°54'46"
D = 3°34'52"
T = 110.66'
L = 220.97'
R = 1600.00'
PC STA = 896+31.90
PT STA = 898+52.87
SE = MATCH EXISTING
DS = 55 MPH

PI STA = 901+40.26
Y = 466807.566
X = 673902.324
DELTA = 19°06'35"
D = 6°54'11"
T = 139.71'
L = 276.83'
R = 830.00'
PC STA = 900+00.55
PT STA = 902+77.37
SE = MATCH EXISTING
DS = 55 MPH

PI STA = 904+26.66
Y = 466588.292
X = 674090.574
DELTA = 9°38'27"
D = 4°24'27"
T = 109.63'
L = 218.75'
R = 1300.00'
PC STA = 903+17.03
PT STA = 905+35.77
SE = MATCH EXISTING
DS = 55 MPH

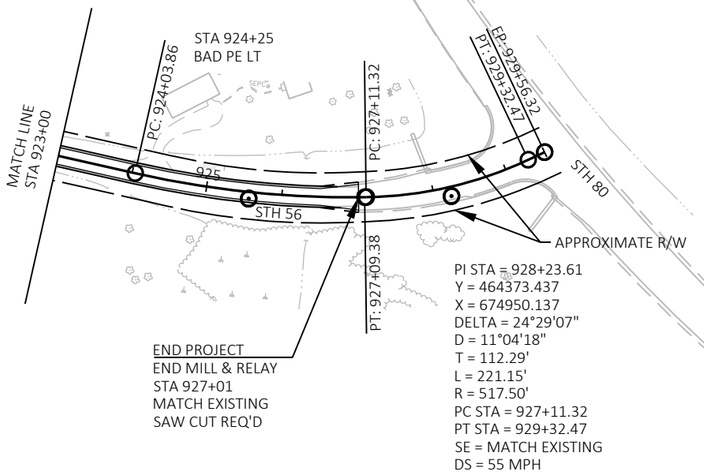
PI STA = 913+41.08
Y = 465797.043
X = 674549.215
DELTA = 14°05'24"
D = 5°12'31"
T = 135.94'
L = 270.51'
R = 1100.00'
PC STA = 912+05.14
PT STA = 914+75.65
SE = 6.0%
DS = 55 MPH

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 27	E

FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\021201-PD.DWG
LAYOUT NAME - 13
PLOT DATE : 7/1/2019 1:43 PM
PLOT BY : BOBBI MAXWELL
PLOT NAME :
PLOT SCALE : 1 IN:200 FT

2

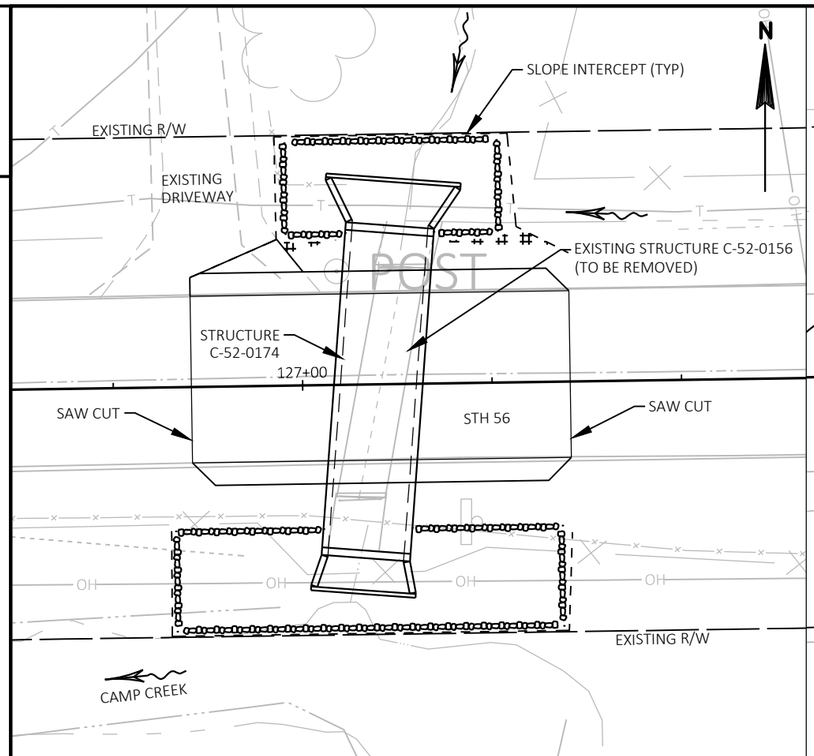
PI STA = 925+57.33
Y = 464611.889
X = 674828.473
DELTA = 13°27'55"
D = 4°24'27"
T = 153.47'
L = 305.52'
R = 1300.00'
PC STA = 924+03.86
PT STA = 927+09.38
SE = MATCH EXISTING
DS = 55 MPH

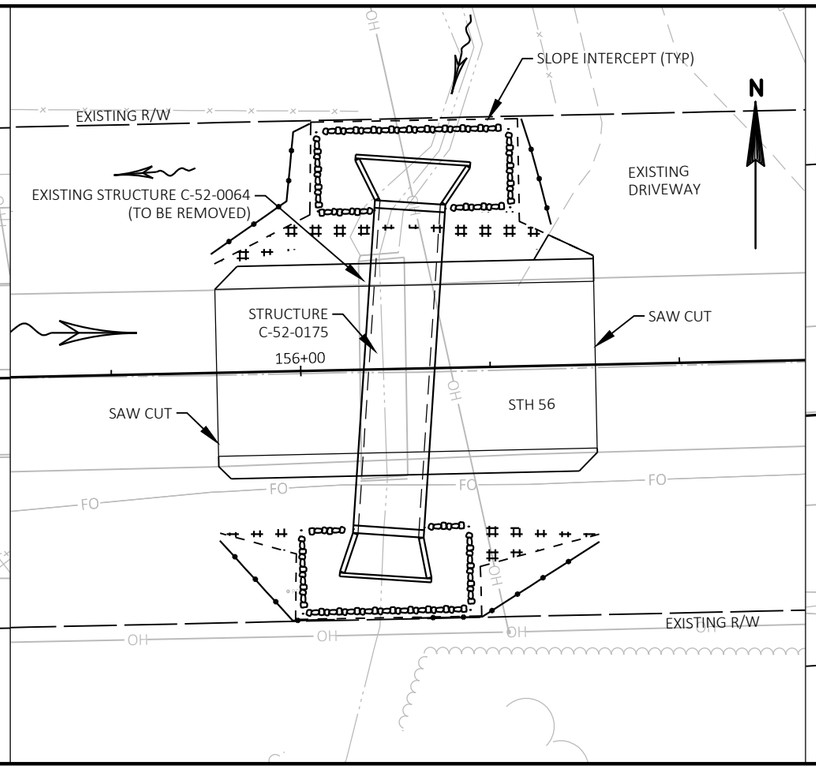


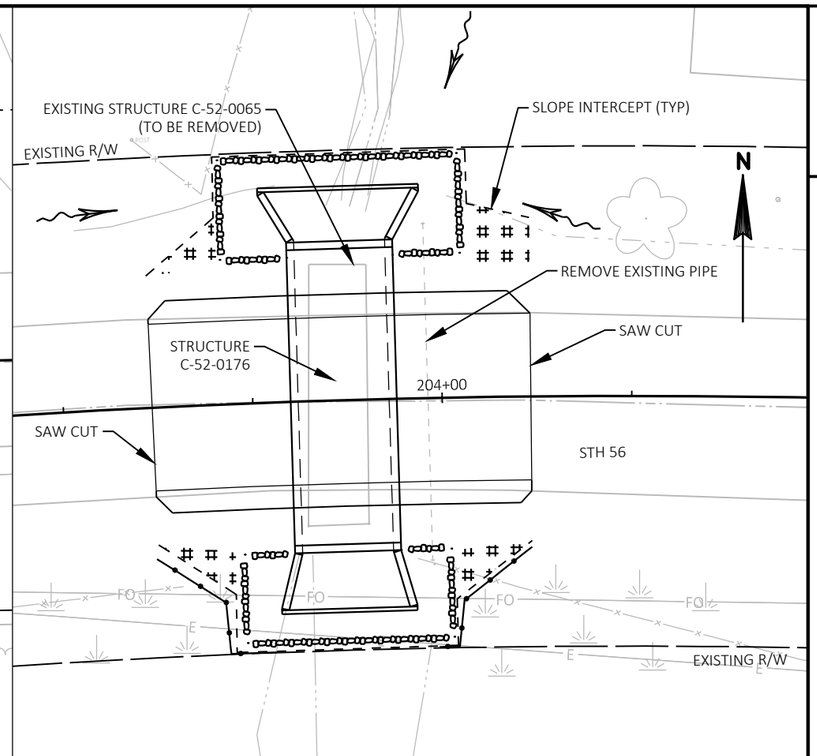
END PROJECT
END MILL & RELAY
STA 927+01
MATCH EXISTING
SAW CUT REQ'D

PI STA = 928+23.61
Y = 464373.437
X = 674950.137
DELTA = 24°29'07"
D = 11°04'18"
T = 112.29'
L = 221.15'
R = 517.50'
PC STA = 927+11.32
PT STA = 929+32.47
SE = MATCH EXISTING
DS = 55 MPH

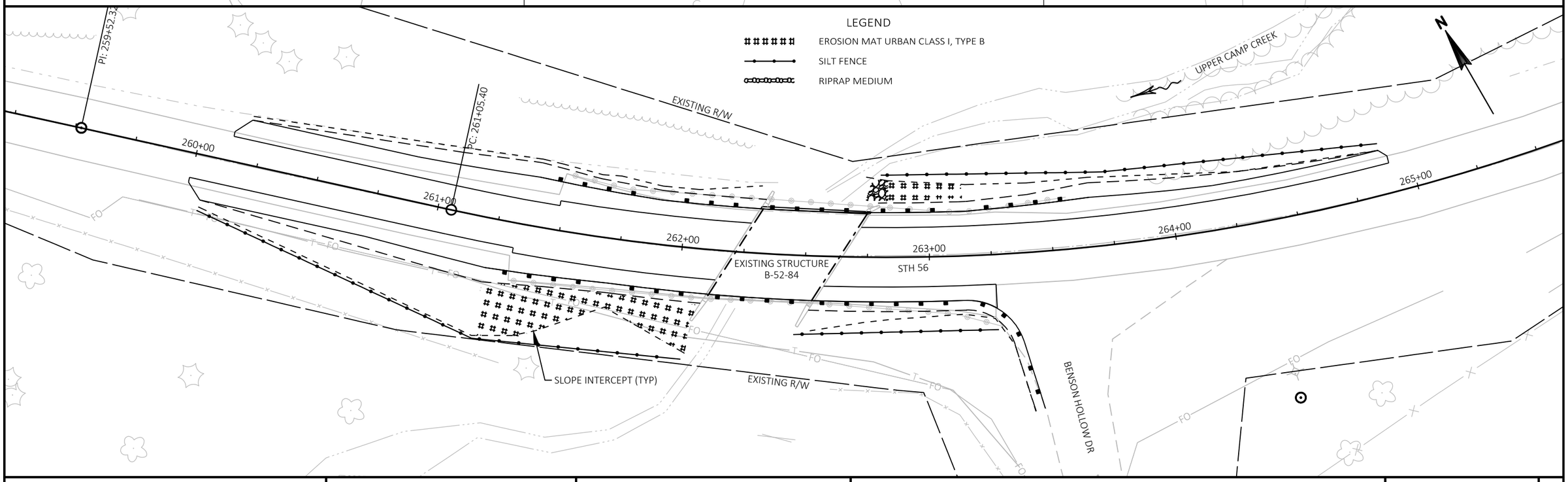
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	PLAN	SHEET 28	E







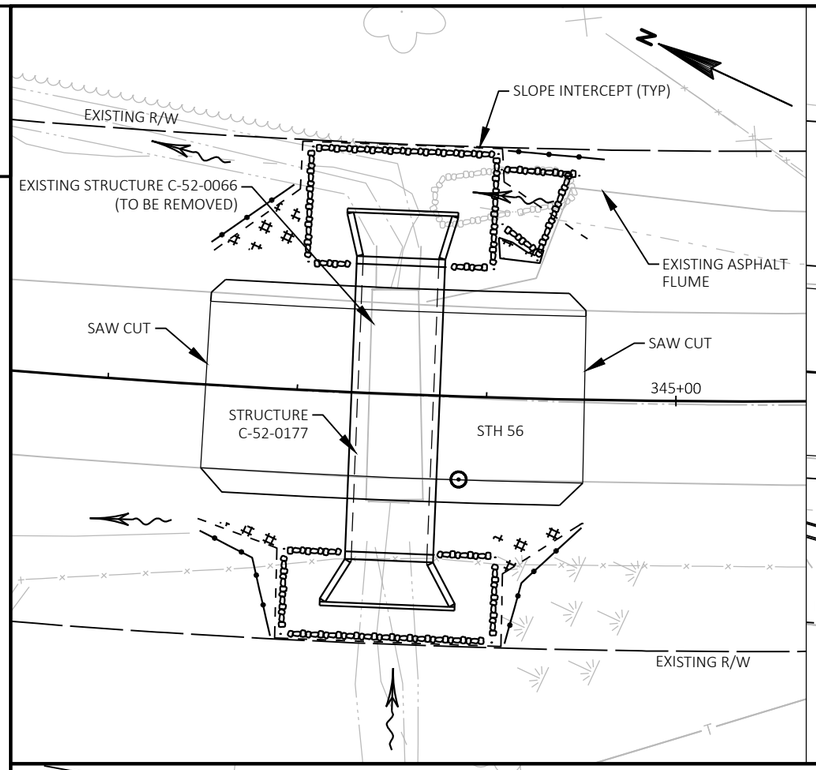
2

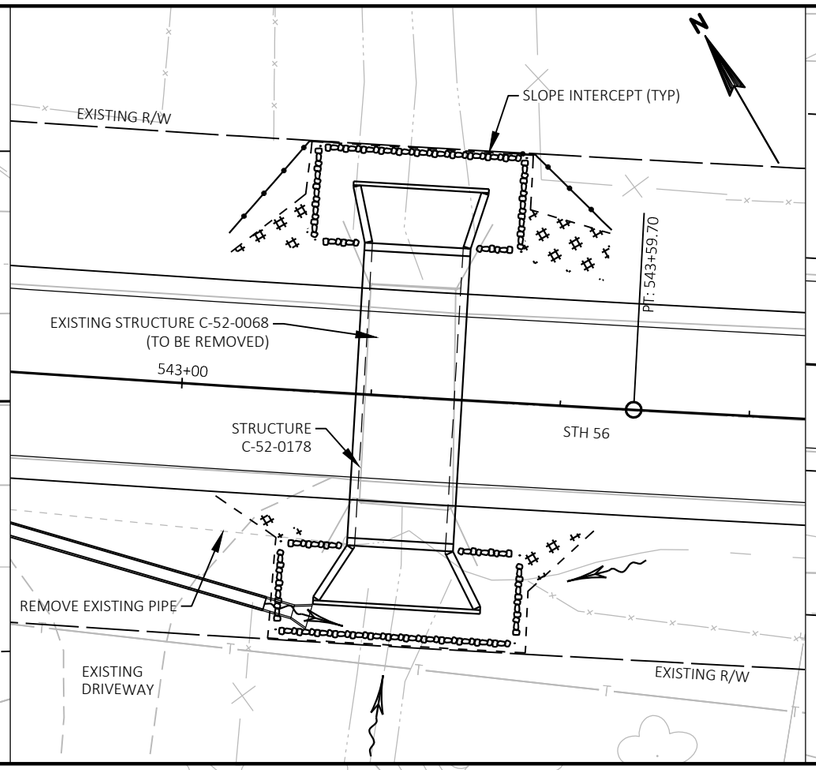


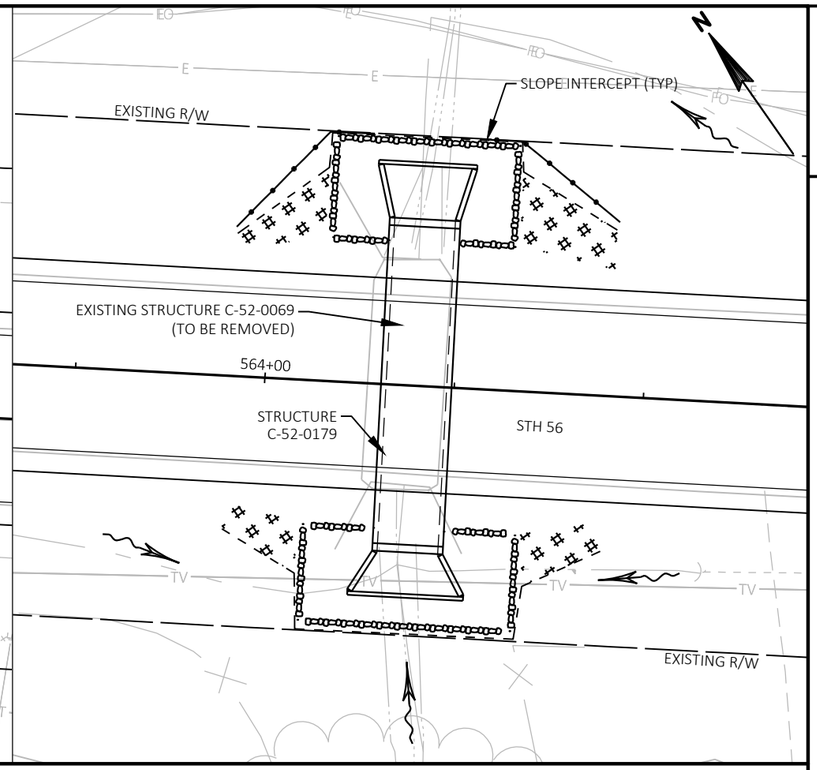
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	EROSION CONTROL	SHEET 29	E

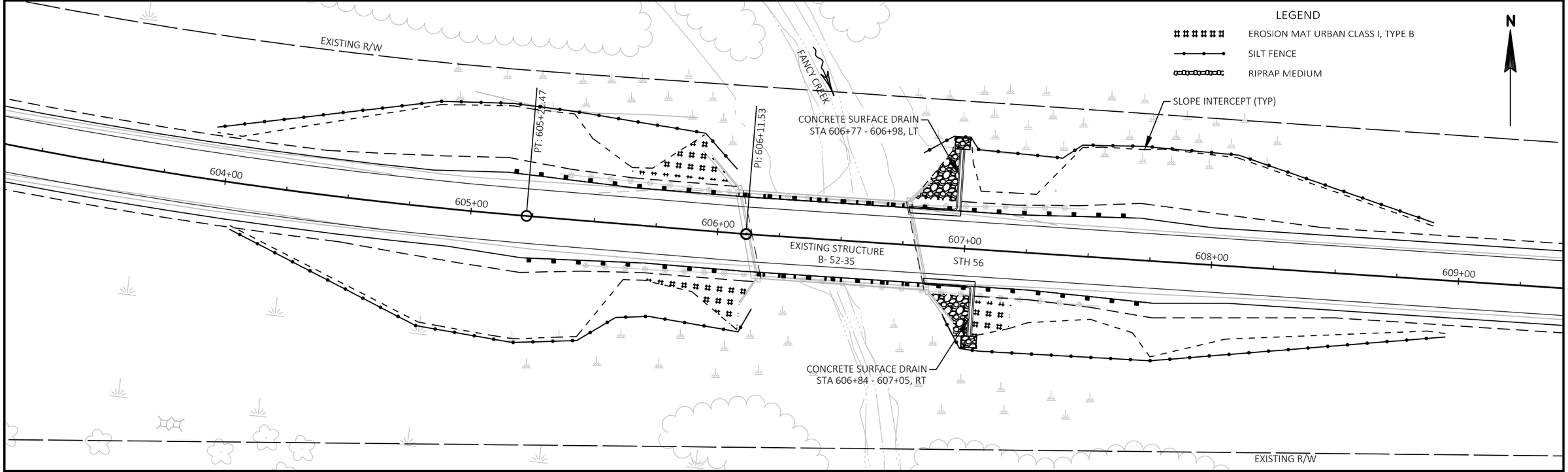
FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022001-ec

PLOT DATE : 7/1/2019 1:55 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:40 FT

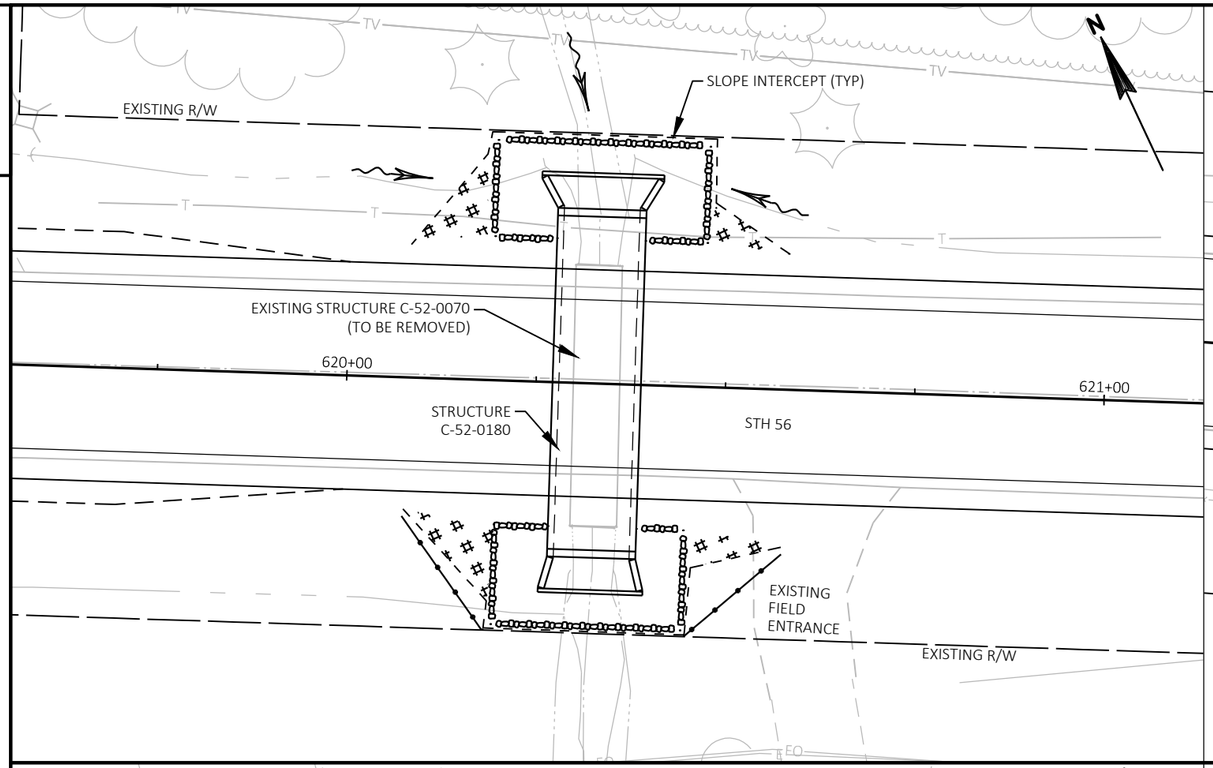


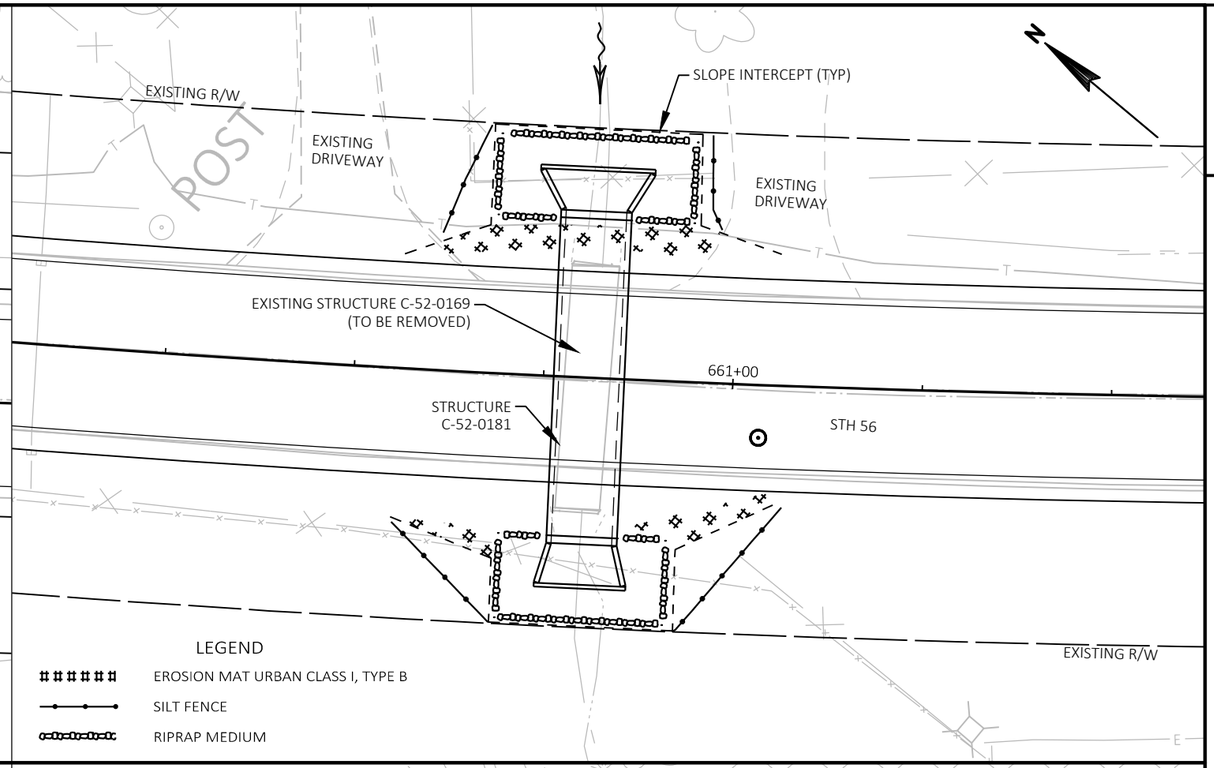


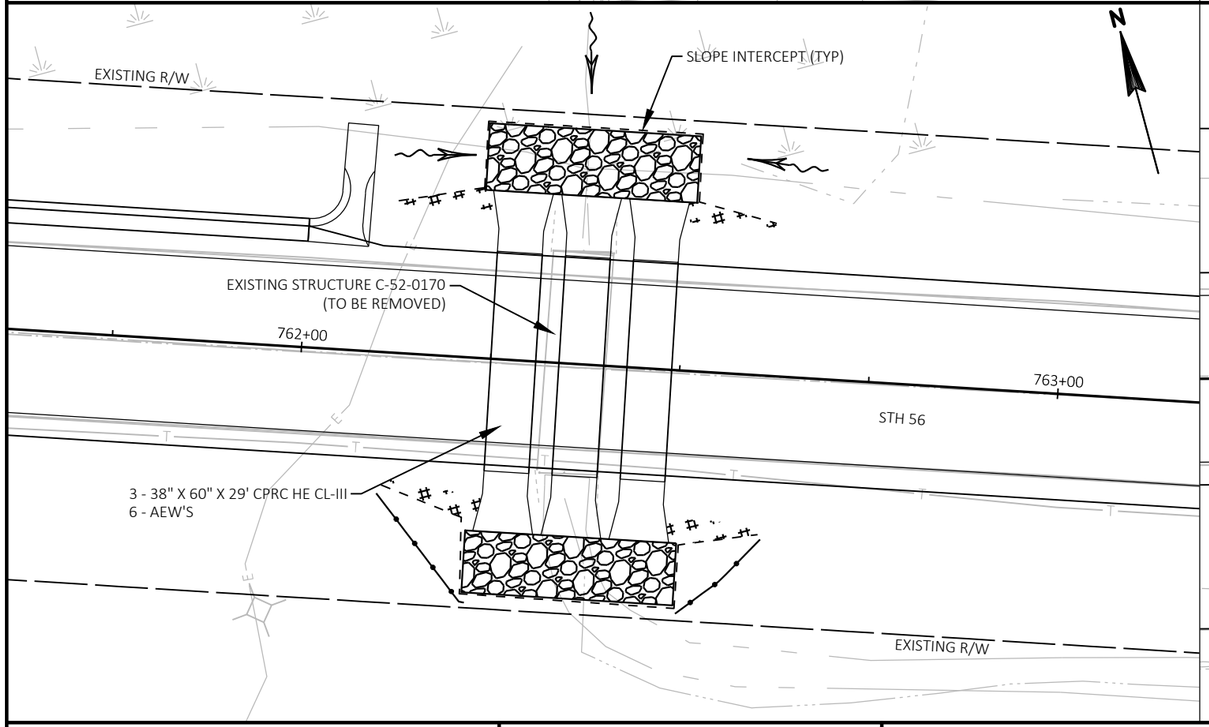


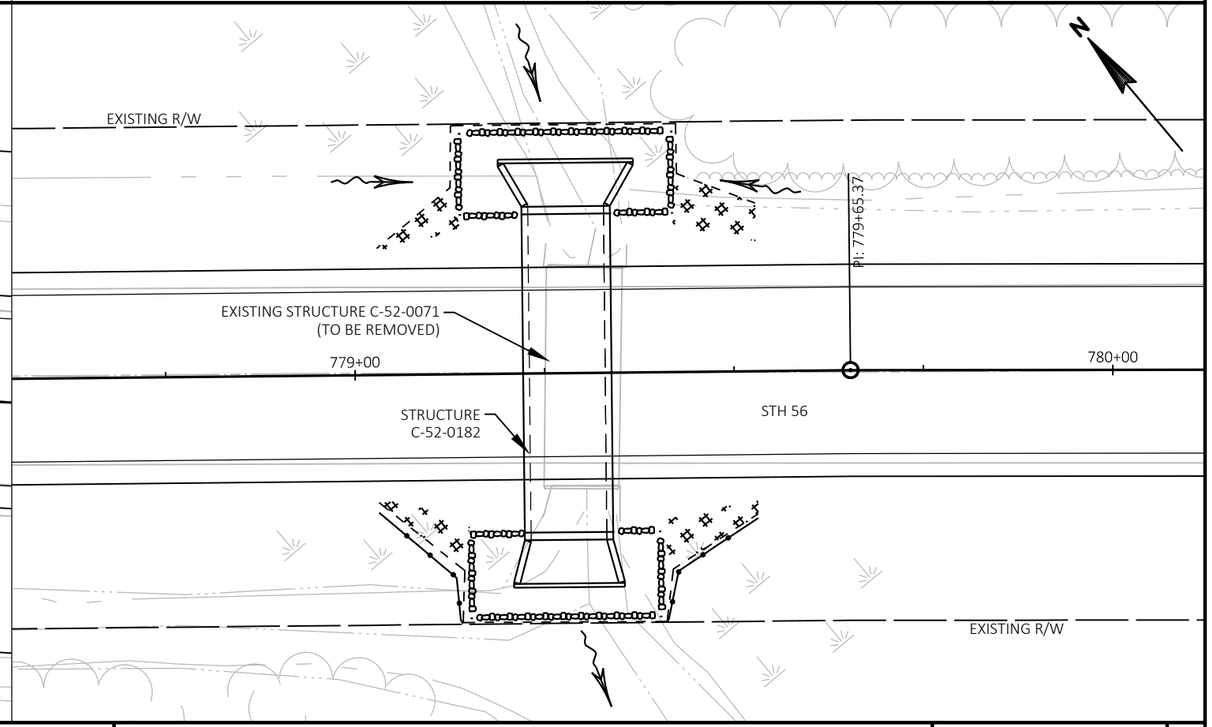


PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	EROSION CONTROL	SHEET 30	E

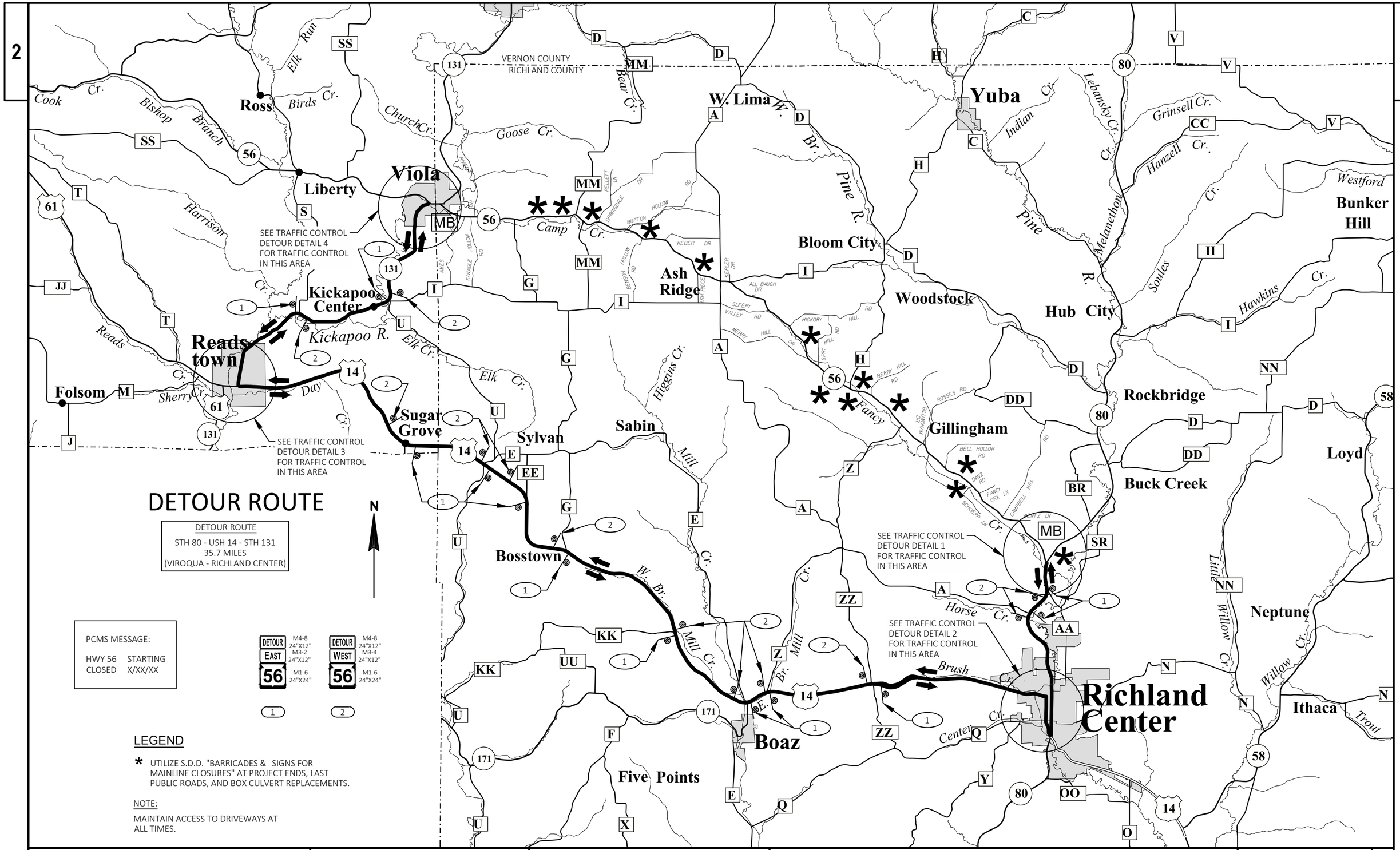








PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	EROSION CONTROL	SHEET 31	E



PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	TRAFFIC CONTROL DETOUR ROUTE	SHEET 32 E

FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\027001_DT.DWG
LAYOUT NAME - 027001_dt
PLOT DATE : 6/27/2019 2:33 PM
PLOT BY : BOBBI MAXWELL
PLOT NAME :
PLOT SCALE : 1 IN:2 MI



1



2



3



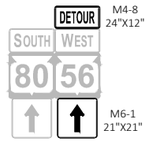
4



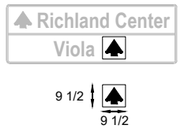
5



6



7



8



9



10



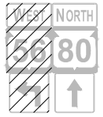
11



12



13



14



15



16



17



18



19



20



21



22



23



24



25



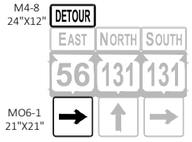
26



27



28



29



30



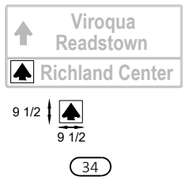
31



32



33



34



35



36



37



38



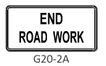
39



40



41



42



43

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WTH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TYPE A WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- MB — PORTABLE CHANGEABLE MESSAGE BOARD
- 56 — EXISTING SIGN
- 36 — EXISTING SIGN TO BE COVERED

TRAFFIC CONTROL AND DETOUR GENERAL NOTES

1. DRAWINGS SHOW TRAFFIC CONTROL DETOUR FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING ON SITE CONDITIONS AS DIRECTED BY THE ENGINEER. ALL CHANGES TO THE TRAFFIC CONTROL DETOUR PLAN SHALL BE REVIEWED WITH THE PROJECT ENGINEER.
2. CONSIDER GEOMETRICS WHEN LOCATING TRAFFIC CONTROL SIGNS PCMS SO TRAFFIC HAS A CLEAR VIEW OF THE BOARD FOR A MINIMUM OF 1000 FEET IN FRONT OF MESSAGE BOARD.
3. PLACE TRAFFIC CONTROL SIGNS PCMS AND DISPLAY THE "PRIOR TO CONSTRUCTION" MESSAGE 7 DAYS PRIOR TO THE EXPECTED START OF THE PROPOSED WORK THAT WILL REQUIRE BRIDGE CLOSURE, ADJUST THE MESSAGE DATE ACCORDINGLY.
4. ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
5. LOCATION AND SPACING OF SIGNS MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE FIELD ENGINEER.
6. "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THAT THE BACKGROUND IS ORANGE.
7. COVER, REMOVE, OR ALTER ANY EXISTING SIGNS THAT DISPLAY A CONFLICTING MESSAGE WITH THE PROPOSED DETOUR ROUTE.

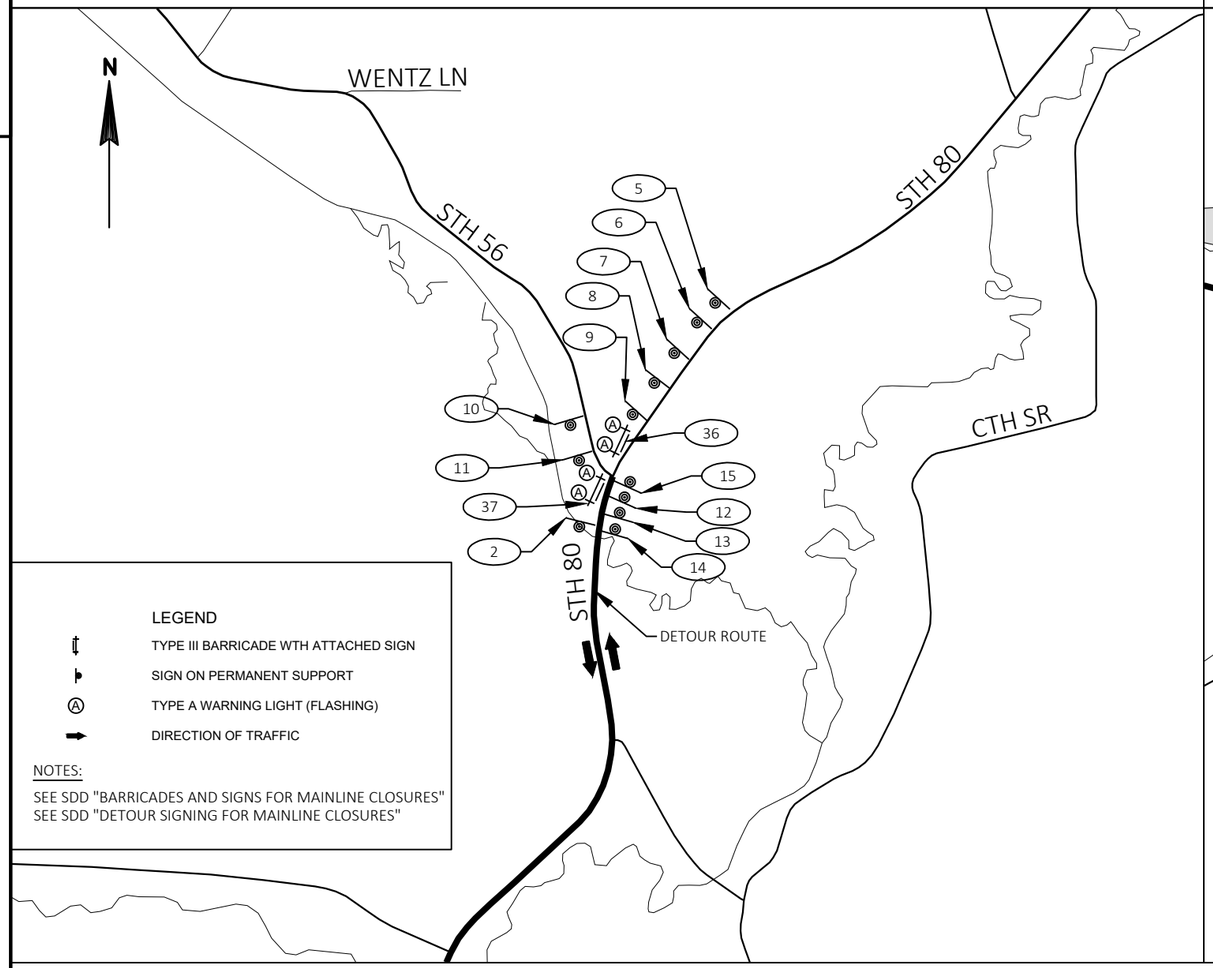
2

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	TRAFFIC CONTROL DETOUR LEGEND & NOTES	SHEET 33	E

FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\027001_DT.DWG
LAYOUT NAME - 027002_dt
PLOT DATE : 6/27/2019 2:33 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 42

2

TRAFFIC CONTROL DETOUR DETAIL 1



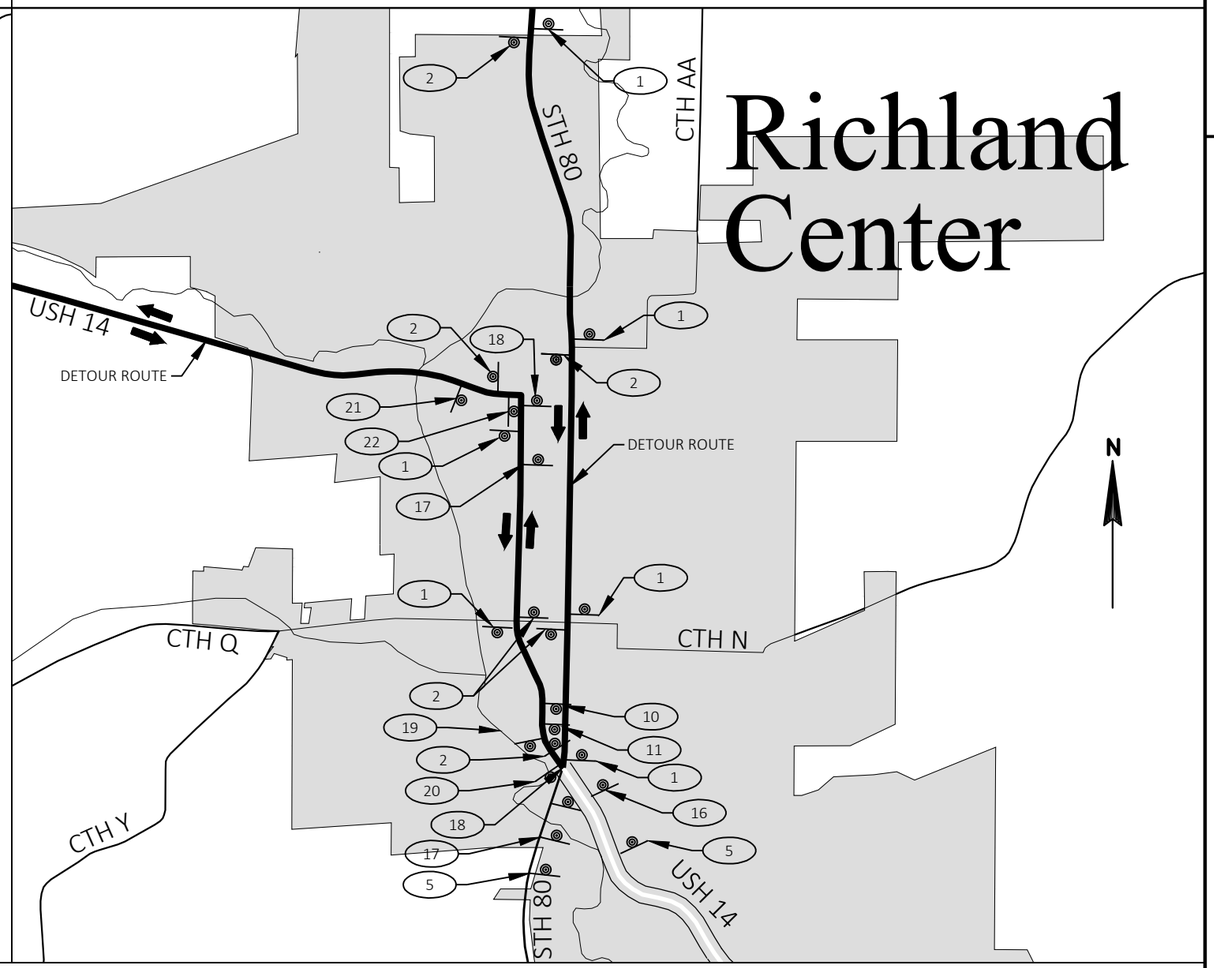
LEGEND

- TYPE III BARRICADE WTH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- (A) TYPE A WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

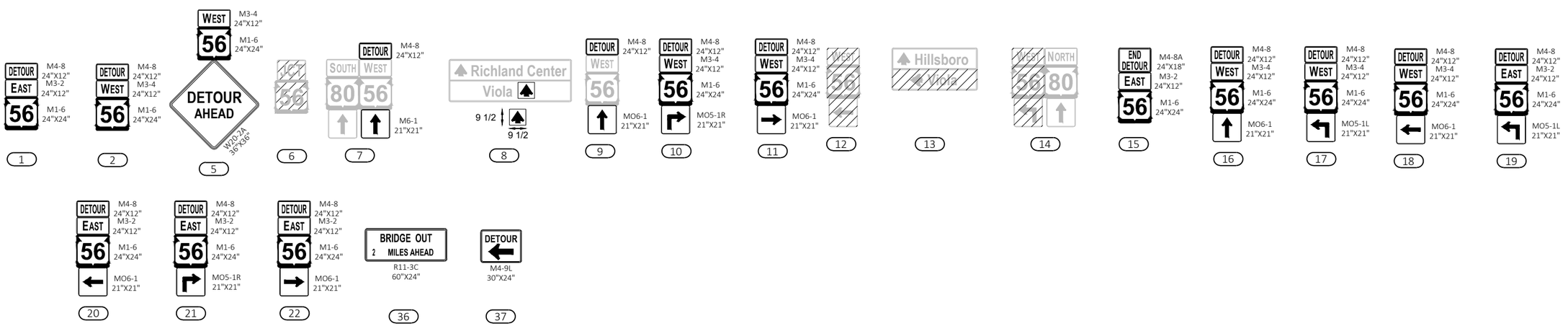
NOTES:

SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES"
SEE SDD "DETOUR SIGNING FOR MAINLINE CLOSURES"

TRAFFIC CONTROL DETOUR DETAIL 2



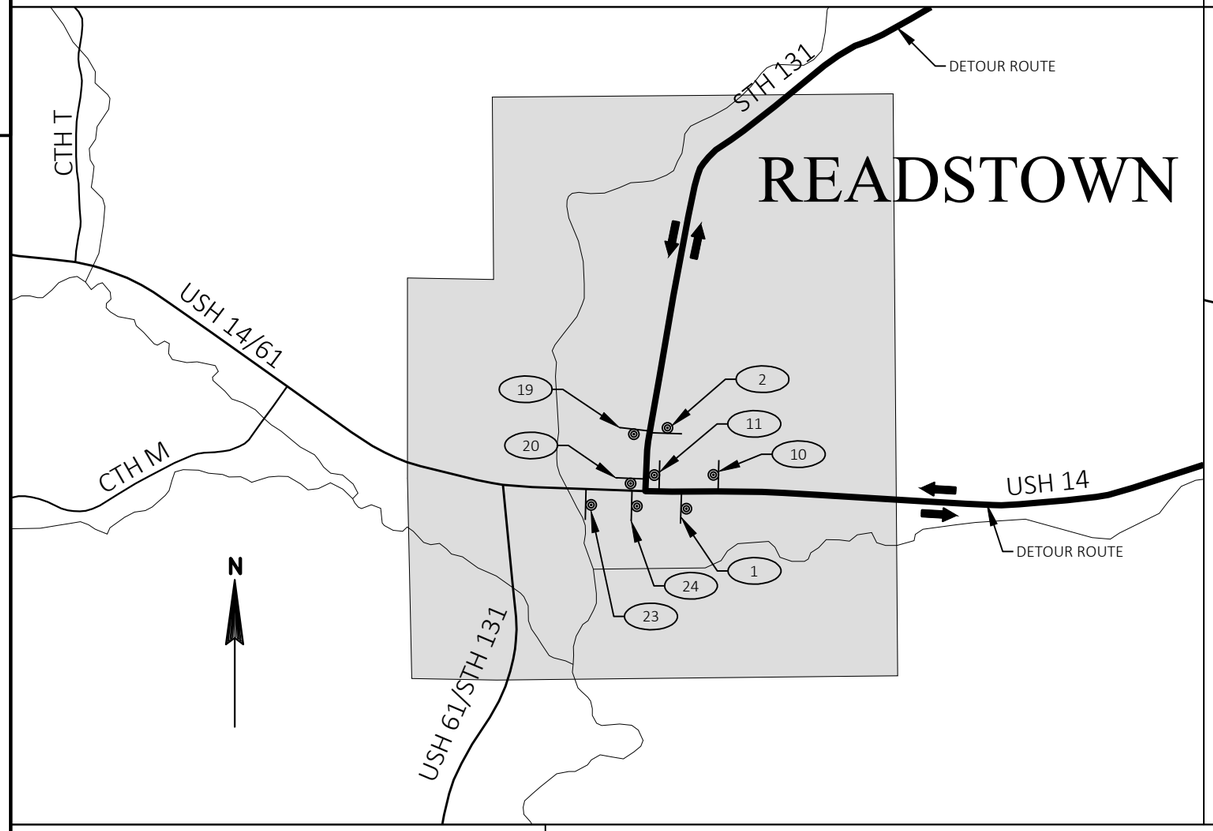
2



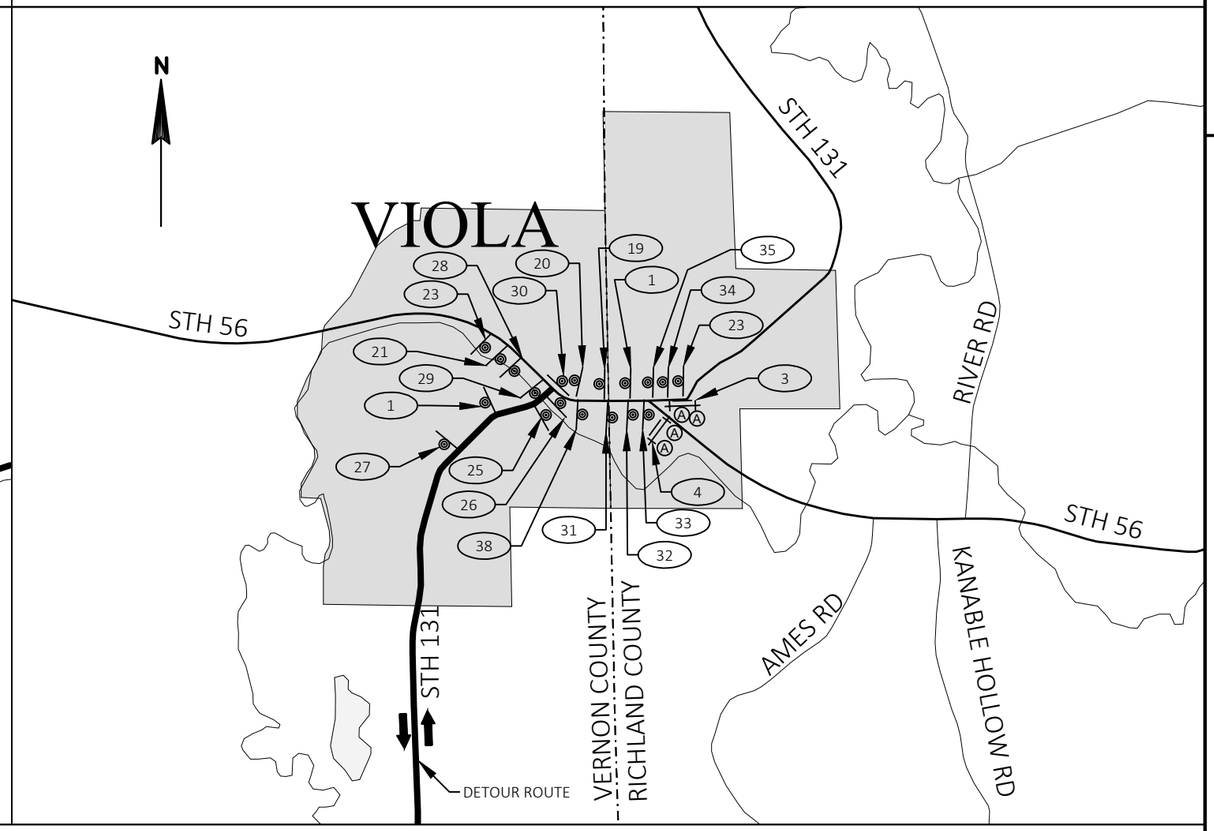
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	TRAFFIC CONTROL DETOUR DETAILS 1 & 2	SHEET 34	E

2

TRAFFIC CONTROL DETOUR DETAIL 3



TRAFFIC CONTROL DETOUR DETAIL 4



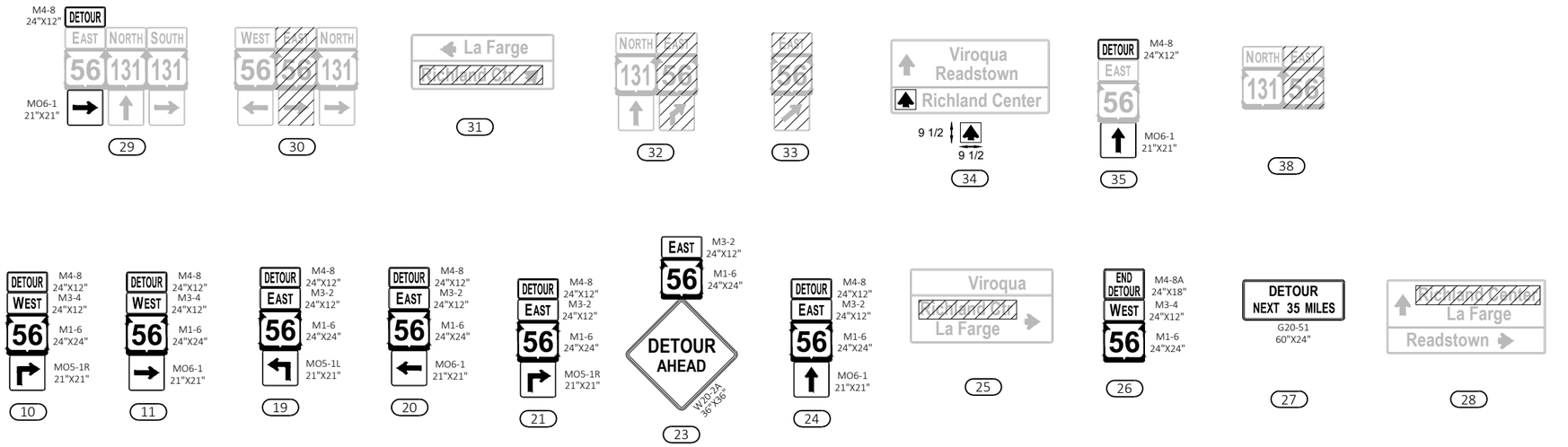
2

LEGEND

- TYPE III BARRICADE WTH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- (A) TYPE A WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

NOTES:

SEE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES"
SEE SDD "DETOUR SIGNING FOR MAINLINE CLOSURES"

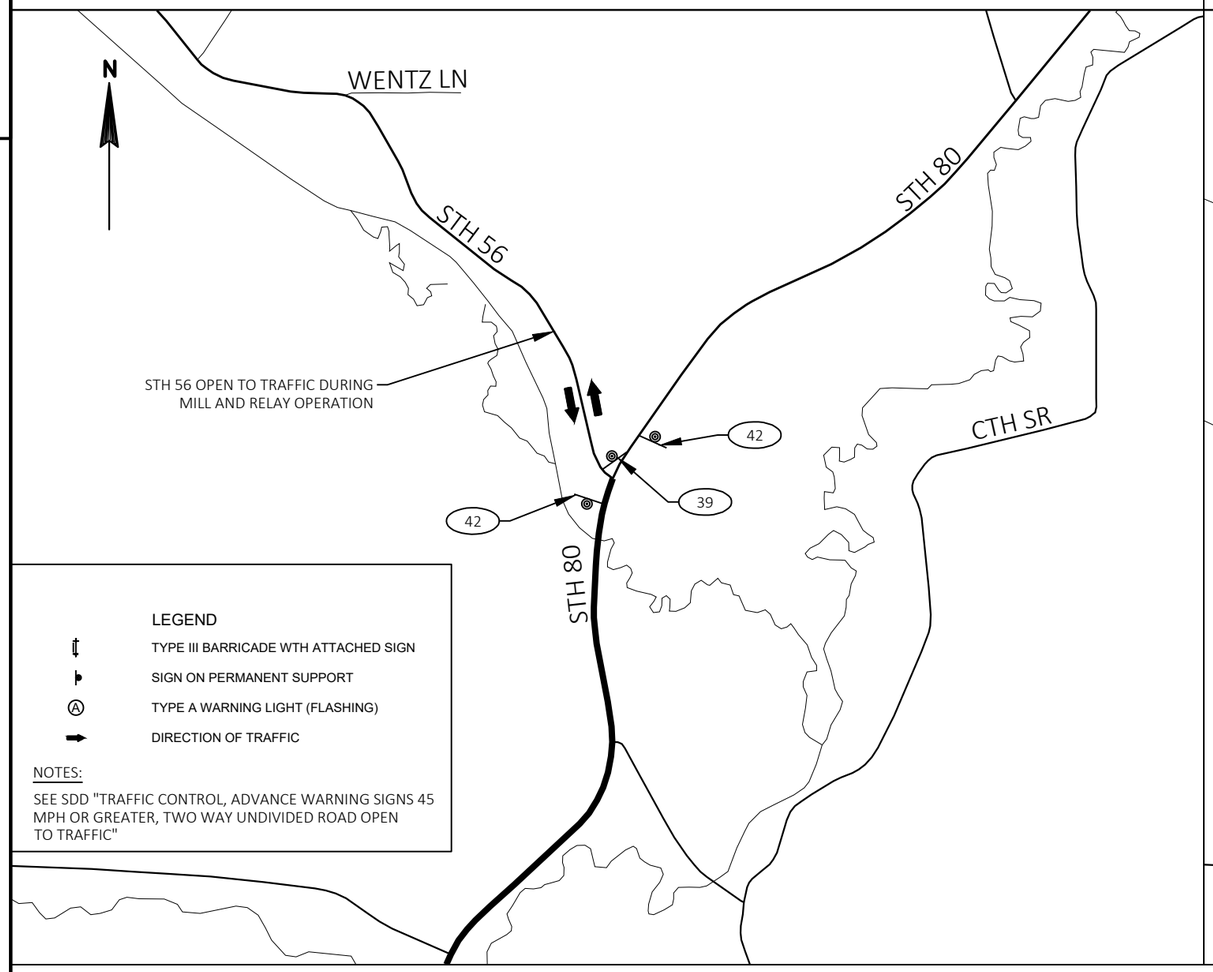


PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	TRAFFIC CONTROL DETOUR DETAILS 3 & 4	SHEET 35	E

FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\027001_DT.DWG
LAYOUT NAME - 027004_dt
PLOT DATE : 6/27/2019 2:33 PM
PLOT BY : BOBBI MAXWELL
PLOT NAME :
PLOT SCALE : 1 IN:2000 FT
WISDOT/CADDS SHEET 42

2

TRAFFIC CONTROL DETOUR DETAIL 5



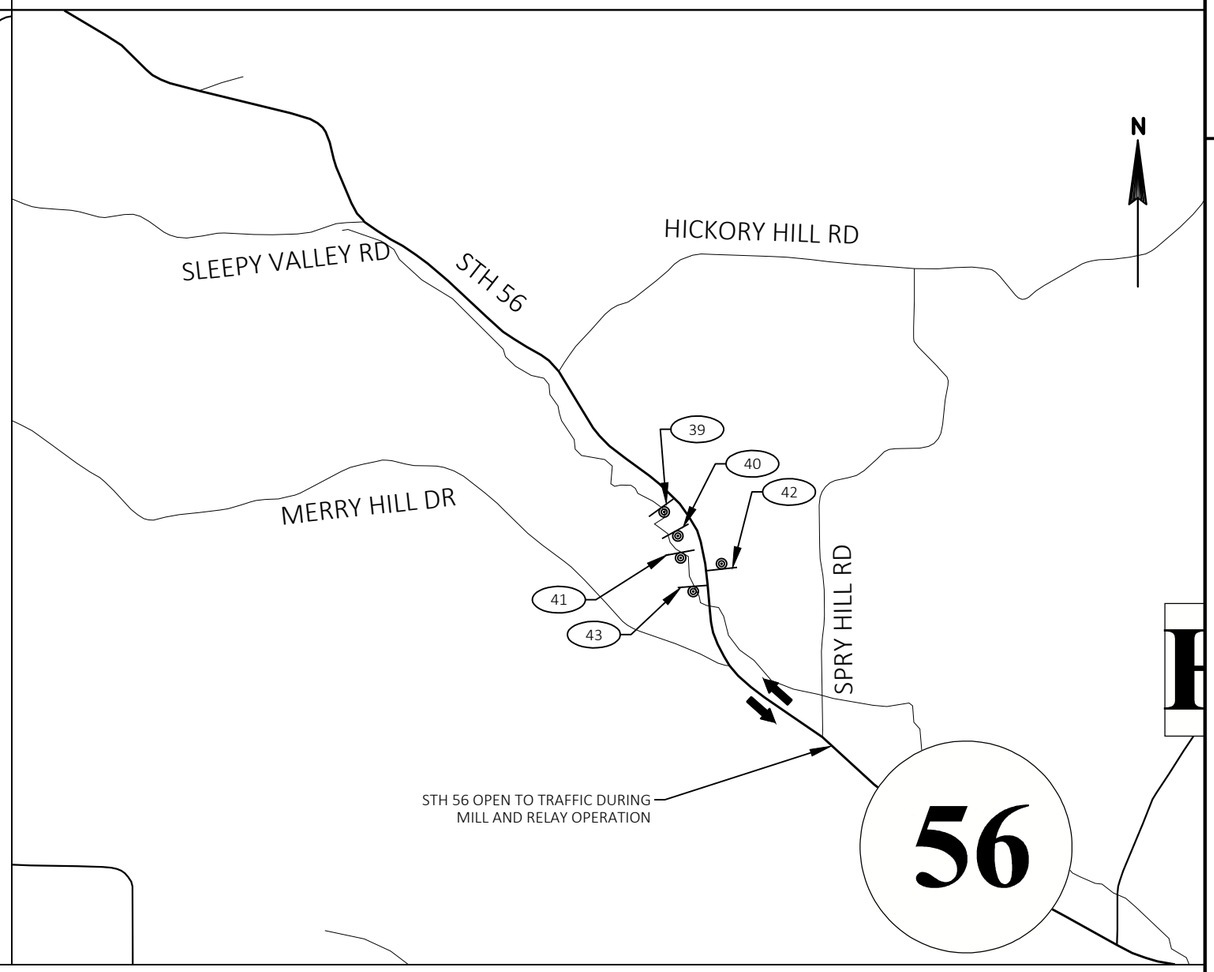
LEGEND

- TYPE III BARRICADE WTH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- (A) TYPE A WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

NOTES:

SEE SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 MPH OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC"

TRAFFIC CONTROL DETOUR DETAIL 6





39



40



41



G20-2A
48"X24"

42



G20-1
60"X24"

43

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	TRAFFIC CONTROL DETOUR DETAILS 5 & 6	SHEET 36	E

5730-00-60

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	2.000	2.000
0004	201.0205	Grubbing	STA	2.000	2.000
0006	203.0100	Removing Small Pipe Culverts	EACH	2.000	2.000
0008	203.0200	Removing Old Structure (station) 01. 762+37	LS	1.000	1.000
0010	203.0500.S	Removing Old Structure Over Waterway (station) 01. 127+11.5	LS	1.000	1.000
0012	203.0500.S	Removing Old Structure Over Waterway (station) 02. 156+12.3	LS	1.000	1.000
0014	203.0500.S	Removing Old Structure Over Waterway (station) 03. 203+88.2	LS	1.000	1.000
0016	203.0500.S	Removing Old Structure Over Waterway (station) 04. 344+62.9	LS	1.000	1.000
0018	203.0500.S	Removing Old Structure Over Waterway (station) 05. 543+34.3	LS	1.000	1.000
0020	203.0500.S	Removing Old Structure Over Waterway (station) 06. 564+19.2	LS	1.000	1.000
0022	203.0500.S	Removing Old Structure Over Waterway (station) 07. 620+33.9	LS	1.000	1.000
0024	203.0500.S	Removing Old Structure Over Waterway (station) 08. 660+81.0	LS	1.000	1.000
0026	203.0500.S	Removing Old Structure Over Waterway (station) 09. 779+30.6	LS	1.000	1.000
0028	204.0110	Removing Asphaltic Surface	SY	581.000	581.000
0030	204.0115	Removing Asphaltic Surface Butt Joints	SY	2,527.000	2,527.000
0032	204.0120	Removing Asphaltic Surface Milling	SY	1,145.000	1,145.000
0034	204.0165	Removing Guardrail	LF	600.000	600.000
0036	205.0100	Excavation Common	CY	1,644.000	1,644.000
0038	206.1000	Excavation for Structures Bridges (structure) 01. B-52-84	LS	1.000	1.000
0040	206.2000	Excavation for Structures Culverts (structure) 01. C-52-174	LS	1.000	1.000
0042	206.2000	Excavation for Structures Culverts (structure) 02. C-52-175	LS	1.000	1.000
0044	206.2000	Excavation for Structures Culverts (structure) 03. C-52-176	LS	1.000	1.000
0046	206.2000	Excavation for Structures Culverts (structure) 04. C-52-177	LS	1.000	1.000
0048	206.2000	Excavation for Structures Culverts (structure) 05. C-52-178	LS	1.000	1.000
0050	206.2000	Excavation for Structures Culverts (structure) 06. C-52-179	LS	1.000	1.000
0052	206.2000	Excavation for Structures Culverts (structure) 07. C-52-180	LS	1.000	1.000

5730-00-60

Line	Item	Item Description	Unit	Total	Qty
0054	206.2000	Excavation for Structures Culverts (structure) 08. C-52-181	LS	1.000	1.000
0056	206.2000	Excavation for Structures Culverts (structure) 09. C-52-182	LS	1.000	1.000
0058	206.5000	Cofferdams (structure) 01. C-52-174	LS	1.000	1.000
0060	210.2500	Backfill Structure Type B	TON	4,692.000	4,692.000
0062	211.0400	Prepare Foundation for Asphaltic Shoulders 01. 5730-00-60	STA	1.000	1.000
0064	213.0100	Finishing Roadway (project) 01. 5730-00-60	EACH	1.000	1.000
0066	305.0110	Base Aggregate Dense 3/4-Inch	TON	12,512.000	12,512.000
0068	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,994.000	1,994.000
0070	311.0110	Breaker Run	TON	782.000	782.000
0072	312.0110	Select Crushed Material	TON	500.000	500.000
0074	330.0100	Mill and Relay	SY	124,081.000	124,081.000
0076	374.1010.S	QMP Mill and Relay Compaction	SY	124,081.000	124,081.000
0078	416.1010	Concrete Surface Drains	CY	6.000	6.000
0080	455.0605	Tack Coat	GAL	30,972.000	30,972.000
0082	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0084	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	2.000	2.000
0086	460.2005	Incentive Density PWL HMA Pavement	DOL	19,366.000	19,366.000
0088	460.2010	Incentive Air Voids HMA Pavement	DOL	25,218.000	25,218.000
0090	460.5224	HMA Pavement 4 LT 58-28 S	TON	25,218.000	25,218.000
0092	465.0105	Asphaltic Surface	TON	228.000	228.000
0094	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	153.000	153.000
0096	465.0315	Asphaltic Flumes	SY	73.000	73.000
0098	504.0100	Concrete Masonry Culverts	CY	54.000	54.000
0100	504.1000.S	Precast Concrete Wingwalls (structure) 01. C-52-174	LS	1.000	1.000
0102	504.1000.S	Precast Concrete Wingwalls (structure) 02. C-52-175	LS	1.000	1.000
0104	504.1000.S	Precast Concrete Wingwalls (structure) 03. C-52-176	LS	1.000	1.000
0106	504.1000.S	Precast Concrete Wingwalls (structure) 04. C-52-177	LS	1.000	1.000
0108	504.1000.S	Precast Concrete Wingwalls (structure) 05. C-52-178	LS	1.000	1.000
0110	504.1000.S	Precast Concrete Wingwalls (structure) 06. C-52-179	LS	1.000	1.000
0112	504.1000.S	Precast Concrete Wingwalls (structure) 07. C-52-180	LS	1.000	1.000
0114	504.1000.S	Precast Concrete Wingwalls (structure) 08. C-52-181	LS	1.000	1.000
0116	504.1000.S	Precast Concrete Wingwalls (structure) 09. C-52-182	LS	1.000	1.000
0118	504.2000.S	Precast Concrete Box Culvert (ft X ft) 01. 10 ft X 5 ft	LF	174.000	174.000
0120	504.2000.S	Precast Concrete Box Culvert (ft X ft) 02. 8 ft X 4 ft	LF	88.000	88.000
0122	504.2000.S	Precast Concrete Box Culvert (ft X ft) 03. 12 ft X 6 ft	LF	81.000	81.000
0124	504.2000.S	Precast Concrete Box Culvert (ft X ft) 04. 8 ft X 6 ft	LF	44.000	44.000
0126	505.0400	Bar Steel Reinforcement HS Structures	LB	1,720.000	1,720.000

5730-00-60

Line	Item	Item Description	Unit	Total	Qty
0128	509.1200	Curb Repair	LF	70.000	70.000
0130	509.1500	Concrete Surface Repair Special	SF	61.000	61.000
0132	516.0500	Rubberized Membrane Waterproofing	SY	31.000	31.000
0134	520.8700	Cleaning Culvert Pipes	EACH	3.000	3.000
0136	522.0118	Culvert Pipe Reinforced Concrete Class III 18-Inch	LF	42.000	42.000
0138	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	2.000	2.000
0140	522.2338	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 38x60-Inch	LF	90.000	90.000
0142	522.2638	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 38x60-Inch	EACH	6.000	6.000
0144	601.0553	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D	LF	3,439.000	3,439.000
0146	606.0200	Riprap Medium	CY	51.000	51.000
0148	606.0300	Riprap Heavy	CY	350.000	350.000
0150	614.2300	MGS Guardrail 3	LF	46.900	46.900
0152	614.2350	MGS Guardrail Short Radius	LF	31.300	31.300
0154	614.2500	MGS Thrie Beam Transition	LF	300.000	300.000
0156	614.2610	MGS Guardrail Terminal EAT	EACH	7.000	7.000
0158	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000
0160	616.0700.S	Fence Safety	LF	1,330.000	1,330.000
0162	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5730-00-60	EACH	1.000	1.000
0164	619.1000	Mobilization	EACH	1.000	1.000
0166	624.0100	Water	MGAL	955.000	955.000
0168	625.0500	Salvaged Topsoil	SY	3,419.000	3,419.000
0170	627.0200	Mulching	SY	1,496.000	1,496.000
0172	628.1504	Silt Fence	LF	2,208.000	2,208.000
0174	628.1520	Silt Fence Maintenance	LF	2,208.000	2,208.000
0176	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0178	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0180	628.2004	Erosion Mat Class I Type B	SY	782.000	782.000
0182	628.2008	Erosion Mat Urban Class I Type B	SY	1,276.000	1,276.000
0184	628.7555	Culvert Pipe Checks	EACH	49.000	49.000
0186	629.0210	Fertilizer Type B	CWT	3.060	3.060
0188	630.0110	Seeding Mixture No. 10	LB	10.000	10.000
0190	630.0120	Seeding Mixture No. 20	LB	101.000	101.000
0192	630.0140	Seeding Mixture No. 40	LB	8.000	8.000
0194	630.0200	Seeding Temporary	LB	10.000	10.000
0196	630.0300	Seeding Borrow Pit	LB	15.000	15.000
0198	630.0500	Seed Water	MGAL	272.000	272.000
0200	633.5200	Markers Culvert End	EACH	26.000	26.000

5730-00-60

Line	Item	Item Description	Unit	Total	Qty
0202	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	19.000	19.000
0204	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	16.000	16.000
0206	637.2230	Signs Type II Reflective F	SF	210.000	210.000
0208	638.2602	Removing Signs Type II	EACH	8.000	8.000
0210	638.3000	Removing Small Sign Supports	EACH	8.000	8.000
0212	642.5001	Field Office Type B	EACH	1.000	1.000
0214	643.0300	Traffic Control Drums	DAY	620.000	620.000
0216	643.0420	Traffic Control Barricades Type III	DAY	5,319.000	5,319.000
0218	643.0705	Traffic Control Warning Lights Type A	DAY	7,194.000	7,194.000
0220	643.0900	Traffic Control Signs	DAY	22,296.000	22,296.000
0222	643.0920	Traffic Control Covering Signs Type II	EACH	28.000	28.000
0224	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0226	643.5000	Traffic Control	EACH	1.000	1.000
0228	645.0105	Geotextile Type C	SY	1,000.000	1,000.000
0230	645.0120	Geotextile Type HR	SY	1,069.000	1,069.000
0232	646.1020	Marking Line Epoxy 4-Inch	LF	80,611.000	80,611.000
0234	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	69,070.000	69,070.000
0236	648.0100	Locating No-Passing Zones	MI	7.600	7.600
0238	649.0105	Temporary Marking Line Paint 4-Inch	LF	69,070.000	69,070.000
0240	650.5000	Construction Staking Base	LF	1,390.000	1,390.000
0242	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	3,439.000	3,439.000
0244	650.6000	Construction Staking Pipe Culverts	EACH	4.000	4.000
0246	650.6500	Construction Staking Structure Layout (structure) 01. C-52-174	LS	1.000	1.000
0248	650.6500	Construction Staking Structure Layout (structure) 02. C-52-175	LS	1.000	1.000
0250	650.6500	Construction Staking Structure Layout (structure) 03. C-52-176	LS	1.000	1.000
0252	650.6500	Construction Staking Structure Layout (structure) 04. C-52-177	LS	1.000	1.000
0254	650.6500	Construction Staking Structure Layout (structure) 05. C-52-178	LS	1.000	1.000
0256	650.6500	Construction Staking Structure Layout (structure) 06. C-52-179	LS	1.000	1.000
0258	650.6500	Construction Staking Structure Layout (structure) 07. C-52-180	LS	1.000	1.000
0260	650.6500	Construction Staking Structure Layout (structure) 08. C-52-181	LS	1.000	1.000
0262	650.6500	Construction Staking Structure Layout (structure) 09. C-52-182	LS	1.000	1.000
0264	650.8000	Construction Staking Resurfacing Reference	LF	39,331.000	39,331.000

5730-00-60

Line	Item	Item Description	Unit	Total	Qty
0266	650.9910	Construction Staking Supplemental Control (project) 01. 5730-00-30	LS	1.000	1.000
0268	650.9920	Construction Staking Slope Stakes	LF	1,392.000	1,392.000
0270	690.0150	Sawing Asphalt	LF	2,330.000	2,330.000
0272	715.0502	Incentive Strength Concrete Structures	DOL	4,500.000	4,500.000
0274	740.0440	Incentive IRI Ride	DOL	30,340.000	30,340.000
0276	SPV.0090	Special 01. Remove Guard Rail and Wood Posts B-52-35	LF	140.000	140.000
0278	SPV.0090	Special 02. Replace Guard Rail and Wood Posts B-52-35	LF	140.000	140.000
0280	SPV.0090	Special 04. Remove and Replace Steel Thrie Railing on Existing Posts B-52-84	LF	88.000	88.000

3

CLEARING AND GRUBBING

CATEGORY	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
0010	127+10	LT	1	1
	779+00 - 780+00	LT	1	1
	TOTAL PROJECT 5730-00-60		2	2

REMOVING STRUCTURES

CATEGORY	STATION	STRUCTURE	LOCATION	203.0200 REMOVING OLD STRUCTURE STA 762+37 LS
0010	762+37	C-52-0170	CROSS	1
	TOTAL PROJECT 5730-00-60			1

REMOVING ASPHALT

CATEGORY	STATION	LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY
0010	533+50	MERRY HILL RD	---	289
	548+80	SPRY HILL DR	---	143
	569+85	DRIVEWAY RT	19	---
	577+15	DRIVEWAY RT	14	---
	596+75	CTH H	---	236
	605+60 - 606+10	MAINLINE	---	158
	606+80 - 607+30	MAINLINE	---	169
	623+75	BERRY HILL RD	---	122
	676+25	CTH Z	---	263
	678+25	DRIVEWAY LT	16	---
	686+40	DRIVEWAY LT	9	---
	688+70	DRIVEWAY LT	8	---
	690+75	DRIVEWAY LT	13	---
	690+05 - 692+96	DRIVEWAY RT	191	---
	692+30	DRIVEWAY LT	14	---
	695+00	DRIVEWAY RT	14	---
	697+40	DRIVEWAY RT	59	---
	708+20	DRIVEWAY LT	18	---
	714+25	GILLINGHAM DR	0	193
	720+77 - 723+09	DRIVEWAY RT	137	---
	724+20	DRIVEWAY LT	20	---
	725+25	CRIBBEN HILL RD	---	197
	751+50	BELL HOLLOW LN	---	74
	792+50	DANZ RD	---	182
	804+10	FANCY CREEK LN	---	145
	835+25	DRIVEWAY LT	17	---
	845+00	CAMPBELL HILL DR	0	211
	863+45	DRIVEWAY LT	19	---
	918+20	DRIVEWAY LT	13	---
	926+51 - 927+01	MAINLINE	---	145
	TOTAL PROJECT 5730-00-60		581	2,527

REMOVING CULVERTS

CATEGORY	STATION	SIZE	203.0100 REMOVING SMALL PIPE CULVERTS EACH
0010	203+98	48" CMP X 44'	1
	542+95	18" CMP X 59'	1
	TOTAL PROJECT 5730-00-60		2

REMOVING GUARDRAIL

CATEGORY	STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF
0010	261+33 - 262+08	RT	75
	262+53 - 263+28	RT	75
	261+49 - 262+32	LT	75
	262+75 - 263+57	LT	75
	605+43 - 606+18	RT	75
	606+81 - 607+56	RT	75
	605+34 - 606+09	LT	75
	606+73 - 607+48	LT	75
	TOTAL PROJECT 5730-00-60		600

Division	From/To Station	Location	Common Excavation (1) (item # 205.0100)		Salvaged/ Unusable Pavement Material (4)	Available Material (5)	Unexpanded Fill	Expanded Fill (13)	Mass Ordinate +/- (14)	Borrow
			Cut (2)	EBS Excavation (3)				Factor 1.25		(item #208.0100)
1	126+85 - 127+35	Mainline	69	0	35	34	33	41	-8	
	155+89 - 156+39	Mainline	82	0	30	52	18	23	30	
	203+62 - 204+12	Mainline	71	0	33	38	17	22	16	
	260+05.35 - 264+87.82	Mainline	48	0	48	0	154	192	-192	
	344+38 - 344+88	Mainline	78	0	22	56	11	14	42	
	543+05 - 543+55	Mainline	56	0	26	30	42	53	-23	
	563+95 - 564+45	Mainline	44	0	31	13	52	65	-52	
	603+94.03 - 608+96.11	Mainline	213	0	112	101	287	358	-257	
	620+08 - 620+58	Mainline	55	0	35	20	12	16	4	
	660+56 - 661+06	Mainline	60	0	28	32	2	2	30	
	693+00 - 696+54	C&G RT	30	0	0	30	5	6	24	
	697+04 - 707+58	C&G LT	210	0	0	210	15	19	191	
	755+48 - 762+00	C&G LT	90	0	0	90	5	6	84	
	762+12 - 762+62	Mainline	59	0	20	39	0	0	39	
	779+06 - 779+56	Mainline	56	0	29	27	24	31	-4	
	795+44 - 800+13	C&G LT	115	0	0	115	10	13	103	
	811+18 - 816+48	C&G LT	45	0	0	45	20	25	20	
	PROJECT EBS	Mainline	---	263	0	0	0	0	0	
Grand Total			1381	263	449	932	707	885	47	
			Total Common Exc	1644						

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) EBS Excavation to be backfilled with Select Borrow material.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusable Pavement Material
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: Curb & Gutter earthwork estimated using county Lidar data

*ALL ITEMS ARE CATEGORY 0010

3

BASE AGGREGATE ITEMS

CATEGORY	STATION - STATION	LOCATION	** 305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	** 624.0100 WATER MGAL	312.0110 SELECT CRUSHED MATERIAL TON	650.5000 CONSTRUCTION STAKING BASE LF
0010	126+85 - 127+35	BOX	11	120	2	—	50
	155+89 - 156+39	BOX	11	120	2	—	50
	203+62 - 204+12	BOX	11	120	2	—	50
	260+05 - 264+88	BRIDGE	162	—	2	—	460
	344+38 - 344+88	BOX	11	120	2	—	50
	525+85 - 529+00	GUARDRAIL	34	—	0.5	—	—
	529+00 - 543+05	SHLDS	199	—	3	—	—
	543+05 - 543+55	BOX	11	120	2	—	50
	543+55 - 563+95	SHLDS	289	—	4	—	—
	563+95 - 564+45	BOX	11	120	2	—	50
	564+45 - 596+50	SHLDS	454	—	7	—	—
	596+50 - 603+94	SHLDS	140	—	2	—	—
	603+94 - 608+96	BRIDGE	173	—	3	—	430
	608+96 - 620+08	SHLDS	209	—	3	—	—
	620+08 - 620+58	BOX	11	120	2	—	50
	620+58 - 660+56	SHLDS	118	—	2	—	—
	660+56 - 661+06	BOX	11	120	2	—	50
	661+06 - 676+50	SHLDS	46	—	1	—	—
	676+50 - 762+12	SHLDS	1212	—	18	—	—
	693+00 - 696+54	C&G - RT	—	46	—	—	—
	697+04 - 707+58	C&G - LT	—	137	—	—	—
	755+48 - 762+00	C&G - LT	—	85	—	—	—
	762+12 - 762+62	BOX	11	120	2	—	50
	762+62 - 779+03	SHLDS	232	—	3	—	—
	779+03 - 779+53	BOX	11	120	2	—	50
	779+53 - 927+01	SHLDS	2088	67	32	—	—
	795+44 - 800+13	C&G - LT	—	61	—	—	—
	811+18 - 816+48	C&G - LT	—	69	—	—	—
	UNDISTRIBUTED		1094	332	20	—	—
	525+85 - 927+01	SUPER CORRECTION	5698	—	85	—	—
	525+85 - 927+01	EBS AREAS	—	—	—	500	—
	TOTAL PROJECT 5730-00-60		12,260	1,994	207	500	1,390

**ADDITIONAL QUANTITIES LISTED ELSEWHERE

MILLING

CATEGORY	STATION	DEPTH	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	330.0100 MILL AND RELAY SY	374.1010.S QMP MILL AND RELAY COMPACTION SY	** 624.0100 WATER MGAL	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE LF
0010	525+85 - 529+00	3.5"	1,145	—	—	—	—
	529+00 - 543+05	5"	—	4,371	4,371	26	1,405
	543+55 - 563+95	5"	—	6,347	6,347	38	2,040
	564+45 - 596+50	5"	—	9,971	9,971	60	3,205
	596+50 - 605+60	5"	—	3,033	3,033	18	910
	607+30 - 620+08	5"	—	4,260	4,260	26	1,278
	620+58 - 660+56	5"	—	13,327	13,327	80	3,998
	661+06 - 676+50	5"	—	5,147	5,147	31	1,544
	676+50 - 762+12	5"	—	26,637	26,637	160	8,562
	762+62 - 779+03	5"	—	5,105	5,105	31	1,641
	779+53 - 927+01	5"	—	45,883	45,883	275	14,748
	TOTAL PROJECT 5730-00-60		1,145	124,081	124,081	744	39,331

**ADDITIONAL QUANTITIES LISTED ELSEWHERE
NOTE: WATER WAS CALCULATED FOR THE QMP MILL AND RELAY COMPACTION ITEM
NOTE: MILL AND RELAY IS CALCULATED USING A TOTAL WIDTH OF 28' EXCEPT AT THE 4' SHLD AREAS, THEN 30' WIDTH

ASPHALT PAVEMENT ITEMS

CATEGORY	STATION - STATION	LOCATION	THICKNESS INCH	455.0605 TACK COAT GAL	460.5224 HMA PAVEMENT 4 LT 58-28 S TON	465.0105 ASPHALTIC SURFACE TON
0010	126+85 - 127+35	PIPE REPLACEMENT	3.5	16	—	30
	155+89 - 156+39	PIPE REPLACEMENT	3.5	16	—	30
	203+62 - 204+12	PIPE REPLACEMENT	3.5	16	—	30
	260+05.35 - 264+87.82	BEAM GUARD	3.5	58	—	108
	344+38 - 344+88	PIPE REPLACEMENT	3.5	16	—	30
	525+85 - 529+00	MAINLINE, UPPER	1.75	116	113	—
	525+85 - 529+00	MAINLINE, LOWER	1.75	116	113	—
	529+00 - 596+50	MAINLINE, UPPER	1.75	2,100	2,058	—
	529+00 - 596+50	MAINLINE, LOWER	1.75	2,940	2,058	—
	596+50 - 606+11	MAINLINE, UPPER	1.75	324	316	—
	596+50 - 606+11	MAINLINE, LOWER	1.75	452	316	—
	606+80 - 676+50	MAINLINE, UPPER	1.75	2,324	2,277	—
	606+80 - 676+50	MAINLINE, LOWER	1.75	3,254	2,277	—
	676+50 - 927+01	MAINLINE, UPPER	1.75	7,794	7,638	—
	676+50 - 927+01	MAINLINE, LOWER	1.75	10,912	7,638	—
	MERRY HILL RD	SIDE ROAD, UPPER	1.75	30	29	—
	MERRY HILL RD	SIDE ROAD, LOWER	1.75	42	29	—
	SPRY HILL RD	SIDE ROAD, UPPER	1.75	16	15	—
	SPRY HILL RD	SIDE ROAD, LOWER	1.75	22	15	—
	CTH H	SIDE ROAD, UPPER	1.75	24	24	—
	CTH H	SIDE ROAD, LOWER	1.75	34	24	—
	BERRY HILL RD	SIDE ROAD, UPPER	1.75	14	12	—
	BERRY HILL RD	SIDE ROAD, LOWER	1.75	18	12	—
	CTH Z	SIDE ROAD, UPPER	1.75	28	26	—
	CTH Z	SIDE ROAD, LOWER	1.75	38	26	—
	GILLINGHAM DR	SIDE ROAD, UPPER	1.75	20	19	—
	GILLINGHAM DR	SIDE ROAD, LOWER	1.75	28	19	—
	CRIBBEN HILL RD	SIDE ROAD, UPPER	1.75	20	20	—
	CRIBBEN HILL RD	SIDE ROAD, LOWER	1.75	28	20	—
	BELL HOLLOW LN	SIDE ROAD, UPPER	1.75	8	8	—
	BELL HOLLOW LN	SIDE ROAD, LOWER	1.75	12	8	—
	DANZ RD	SIDE ROAD, UPPER	1.75	20	18	—
	DANZ RD	SIDE ROAD, LOWER	1.75	26	18	—
	FANCY CREEK LN	SIDE ROAD, UPPER	1.75	16	15	—
	FANCY CREEK LN	SIDE ROAD, LOWER	1.75	22	15	—
	CAMPBELL HILL DR.	SIDE ROAD, UPPER	1.75	22	21	—
	CAMPBELL HILL DR.	SIDE ROAD, LOWER	1.75	30	21	—
	UNDISTRIBUTED			—	0	—
	TOTAL PROJECT 5730-00-60			30,972	25,218	228

NOTE: TACK COAT CALCULATED AT 0.05 GALLONS PER SQUARE YARD FOR UPPER LAYER
NOTE: TACK COAT CALCULATED AT 0.07 GALLONS PER SQUARE YARD FOR LOWER LAYER

HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP

CATEGORY	STATION - STATION	LOCATION	460.0105.S HMA PERCENT WITHIN LMITS (PWL) TEST STRIP VOLUMETRICS EACH	460.0110.S HMA PERCENT WITHIN LMITS (PWL) TEST STRIP DENSITY EACH
0010	525+85 - 927+01	UPPER LAYER MAINLINE	1	1
	525+85 - 927+01	LOWER LAYER MAINLINE	—	1
	TOTAL PROJECT 5730-00-60		1	2

*ALL ITEMS ARE CATEGORY 0010

CONTINUED FROM PREVIOUS COLUMN

DRIVEWAYS

CATEGORY	STATION	LOCATION	** 305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON	** 624.0100 WATER MGAL
0010	542+95	RT	8	---	0.12
	554+20	LT	4	---	0.06
	558+05	LT	4	---	0.06
	562+25	RT	2	---	0.03
	563+35	RT	2	---	0.03
	564+80	RT	3	---	0.05
	569+85	RT	---	4	---
	577+15	RT	---	3	---
	580+35	LT	11	---	0.17
	582+45	RT	2	---	0.03
	586+45	RT	3	---	0.05
	591+45	LT	4	---	0.06
	594+25	RT	2	---	0.03
	599+20	LT	4	---	0.06
	599+50	RT	4	---	0.06
	601+70	RT	8	---	0.12
	602+80	RT	5	---	0.08
	619+45	LT	2	---	0.03
	619+40	RT	2	---	0.03
	620+60	RT	2	---	0.03
	634+25	LT	2	---	0.03
	634+80	RT	1	---	0.02
	636+40	LT	4	---	0.06
	639+65	RT	9	---	0.14
	640+20	LT	6	---	0.09
	655+90	RT	2	---	0.03
	656+60	LT	2	---	0.03
	660+50	LT	2	---	0.03
	661+05	LT	2		0.03
	673+25	LT	2	---	0.03
	676+00	LT	3	---	0.05
	678+25	LT	---	3	---
	683+60	LT	3	---	0.05
	686+40	LT	---	2	---
	687+25	RT	2	---	0.03
	688+85	LT	---	2	---
	690+00	RT	2	---	0.03
	690+75	LT	---	3	---
	691+00	RT	---	37	---
	692+30	LT	---	3	---
	694+90	RT	---	4	---
	695+55	LT	2	---	0.03
	697+15	LT	---	2	---
	697+25	RT	---	11	---
	699+10	LT	---	2	---
	701+05	LT	---	3	---
	701+50	LT	---	2	---
	708+20	LT	---	3	---
	709+30	RT	3	---	0.05
	715+65	RT	6	---	0.09
	717+30	RT	3	---	0.05
	719+35	LT	2	---	0.03
	721+90	RT	---	26	---
	724+20	LT	---	4	---
	736+25	LT	6	---	0.09
	747+00	LT	3	---	0.05
	755+65	RT	2	---	0.03
	759+70	LT	8	---	0.12
	763+80	LT	3	---	0.05
	775+90	LT	3	---	0.05
	788+80	LT	6	---	0.09
	792+85	LT	2	---	0.03
	794+90	LT	2	---	0.03
	798+30	LT	---	3	---
	806+60	RT	1	---	0.02

CONTINUED IN NEXT COLUMN

DRIVEWAYS

CATEGORY	STATION	LOCATION	** 305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON	** 624.0100 WATER MGAL
	809+95	LT	2	---	0.03
	820+40	LT	2	---	0.03
	822+30	LT	1	---	0.02
	822+30	RT	3	---	0.05
	831+95	LT	2	---	0.03
	835+25	LT	---	3	---
	839+65	LT	4	---	0.06
	849+05	RT	3	---	0.05
	859+05	RT	1	---	0.02
	863+45	LT	---	4	---
	865+95	LT	12	---	0.18
	871+45	LT	2	---	0.03
	871+60	RT	1	---	0.02
	877+00	LT	2	---	0.03
	895+50	LT	2	---	0.03
	904+95	LT	2	---	0.03
	918+20	LT	---	3	---
	924+25	LT	5	---	0.08
	UNDISTRIBUTED		42	26	1
	TOTAL PROJECT 5730-00-60		252	153	4

**ADDITIONAL QUANTITIES LISTED ELSEWHERE

CONCRETE CURB & GUTTER

CATEGORY	STATION	LOCATION	416.1010 CONCRETE SURFACE DRAINS CY	465.0315 ASPHALTIC FLUMES SY	601.0553 CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D LF	650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF
0010	693+00 - 696+44	RT	---	---	344	344
	696+44 - 696+52	RT	---	6	---	---
	697+04 - 707+58	LT	---	---	1054	1054
	707+58 - 707+66	LT	---	9	---	---
	755+48 - 762+00	LT	---	---	652	652
	762+00 - 762+08	LT	---	9	---	---
	795+44 - 800+13	LT	---	---	469	469
	800+13 - 800+21	LT	---	9	---	---
	811+18 - 816+38	LT	---	---	520	520
	816+38 - 816+46	LT	---	9	---	---
	606+84 - 607+05	RT, TYPE B	2.73	---	---	---
	606+77 - 606+98	LT, TYPE B	3.04	---	---	---
	UNDISTRIBUTED		---	30	400	400
	TOTAL PROJECT 5730-00-60		6	73	3,439	3,439

NOTE: USE 3/4" PER FOOT (=6.25%) GUTTER CROSS SLOPE FOR THE 4-INCH SLOPED 36-INCH TYPE D CURB & GUTTER

CULVERT SUMMARY

CATEGORY	STATION	LOCATION	INVERT	520.8700 CLEANING CULVERT PIPES EACH	522.0118 CULVERT PIPE REINFORCED CONCRETE CLASS III 18-INCH LF	522.1018 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH EACH	522.2638 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 38 X 60-INCH EACH	522.2338 CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 38 X 60-INCH LF	633.5200 MARKERS CULVERT END EACH	650.6000 CONSTRUCTION STAKING PIPE CULVERTS EACH
0010	169+36	---	---	1	---	---	---	---	---	---
	169+51	---	---	1	---	---	---	---	---	---
	169+65	---	---	1	---	---	---	---	---	---
	542+66	17.9' RT	910.2	---	42	1	---	---	1	1
	543+19	29.7' RT	904.9	---	---	1	---	---	1	---
	762+28	22.2' LT	777.1	---	---	---	1	30	1	1
	762+28	22.8' RT	776.9	---	---	---	1	---	1	---
	762+37	22.2' LT	777.1	---	---	---	1	30	1	1
	762+37	22.8' RT	776.9	---	---	---	1	---	1	---
	762+46	22.2' LT	777.1	---	---	---	1	30	1	1
	762+46	22.8' RT	776.9	---	---	---	1	---	1	---
	127+10	RT & LT	---	---	---	---	---	---	2	---
	156+13	RT & LT	---	---	---	---	---	---	2	---
	203+87	RT & LT	---	---	---	---	---	---	2	---
	344+63	RT & LT	---	---	---	---	---	---	2	---
	543+30	RT & LT	---	---	---	---	---	---	2	---
	564+20	RT & LT	---	---	---	---	---	---	2	---
	620+33	RT & LT	---	---	---	---	---	---	2	---
	660+81	RT & LT	---	---	---	---	---	---	2	---
	779+28	RT & LT	---	---	---	---	---	---	2	---
	TOTAL PROJECT 5730-00-60			3	42	2	6	90	26	4

RIPRAP ITEMS

CATEGORY	STATION	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
0010	262+74 - 262+85	LT	4	13
	344+76 - 344+82	LT	5	15
	606+78 - 607+00	LT	13	38
	606+88 - 607+07	RT	11	33
	762+23 - 762+51	LT	14	40
	762+23 - 762+51	RT	13	38
	TOTAL PROJECT 5730-00-60		51	149

*ALL ITEMS ARE CATEGORY 0010

3

ROADWAY BARRIER ITEMS

CATEGORY	STATION - STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2350 MGS GUARDRAIL SHORT RADIUS LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2630 MGS GUARDRAIL SHORT RADIUS TERMINAL EACH
0010	261+23 - 262+12	RT	—	—	37.5	1	—
	261+39 - 262+31	LT	—	—	37.5	1	—
	262+53 - 263+42	RT	46.9	31.3	37.5	—	1
	262+74 - 263+66	LT	—	—	37.5	1	—
	605+13 - 606+04	LT	—	—	37.5	1	—
	606+79 - 607+70	LT	—	—	37.5	1	—
	605+22 - 606+12	RT	—	—	37.5	1	—
	606+87 - 607+78	RT	—	—	37.5	1	—
	TOTAL PROJECT 5730-00-60		46.9	31.3	300	7	1

SAFETY FENCE

CATEGORY	STATION	LOCATION	REMARKS	616.0700.S LF
0010	262+60 - 266+00	RT & LT	BENSON HOLLOW DR	680
	674+00 - 679+00	LT	FANCY CREEK CEMETERY	450
	905+00 - 907+00	RT	HOUCK SITE	200
	TOTAL PROJECT 5730-00-60			1330

EROSION CONTROL ITEMS

CATEGORY	STATION - STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2004 EROSION MAT CLASS I TYPE B SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.7555 CULVERT PIPE CHECKS EACH
0010	126+85 - 127+35	LT & RT	—	—	—	4	—
	155+89 - 156+39	LT & RT	90	90	—	30	—
	203+62 - 204+12	LT & RT	45	45	—	38	—
	260+05 - 264+88	LT & RT	490	490	—	163	—
	344+38 - 344+88	LT & RT	70	70	—	11	—
	542+55 - 543+18	RT	—	—	19	—	2
	543+05 - 543+55	LT & RT	40	40	—	42	—
	563+95 - 564+45	LT & RT	45	45	—	53	—
	603+94 - 606+11	LT & RT	450	450	—	89	—
	606+75 - 608+96	LT & RT	430	430	—	22	—
	620+08 - 620+58	LT & RT	35	35	—	26	—
	660+56 - 661+06	LT & RT	70	70	—	22	—
	693+00 - 696+44	RT	—	—	—	67	—
	697+04 - 707+58	LT	—	—	—	424	—
	755+48 - 762+00	LT	—	—	202	—	—
	762+12 - 762+62	LT & RT	35	35	—	24	39
	779+06 - 779+56	LT & RT	40	40	—	48	—
	795+44 - 800+13	LT	—	—	203	—	—
	811+18 - 816+38	LT	—	—	228	—	—
	UNDISTRIBUTED		368	368	130	213	8
	TOTAL PROJECT 5730-00-60		2,208	2,208	782	1,276	49

3

RESTORATION ITEMS

CATEGORY	STATION - STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0110 SEEDING MIXTURE #10 LB	630.0120 SEEDING MIXTURE #20 LB	630.0140 SEEDING MIXTURE #40 LB	630.0200 SEEDING TEMPORARY LB	630.0300 SEEDING BORROW PIT LB	630.0500 SEED WATER MGAL
0010	126+85 - 127+35	LT & RT	4	—	0.03	0.7	—	—	—	—	3
	155+89 - 156+39	LT & RT	30	—	0.05	—	2.0	—	—	—	4
	203+62 - 204+12	LT & RT	38	—	0.04	0.9	—	—	—	—	4
	260+05 - 264+88	LT & RT	531	311	0.35	—	14.9	—	—	—	31
	344+38 - 344+88	LT & RT	27	—	0.04	0.9	—	—	—	—	4
	543+05 - 543+55	LT & RT	61	—	0.06	1.3	—	—	—	—	5
	563+95 - 564+45	LT & RT	53	—	0.05	1.0	—	—	—	—	4
	603+94 - 606+11	LT & RT	636	531	0.46	—	19.9	—	—	—	41
	606+75 - 608+96	LT & RT	436	405	0.34	—	14.6	—	—	—	30
	620+08 - 620+58	LT & RT	26	—	0.03	0.7	—	—	—	—	3
	660+56 - 661+06	LT & RT	24	—	0.04	0.8	—	—	—	—	3
	693+00 - 696+44	RT	67	—	0.09	—	—	2.4	—	—	8
	697+04 - 707+58	LT	212	—	0.27	—	5.7	3.8	—	—	24
	755+48 - 762+00	LT	202	—	0.22	—	9.3	—	—	—	19
	762+12 - 762+62	LT & RT	24	—	0.04	0.9	—	—	—	—	4
	779+06 - 779+56	LT & RT	48	—	0.05	1.0	—	—	—	—	4
	795+44 - 800+13	LT	203	—	0.19	—	8.3	—	—	—	17
	811+18 - 816+38	LT	228	—	0.21	—	9.2	—	—	—	19
	UNDISTRIBUTED		570	249	0.51	1.6	16.8	1.3	10	15	45
	TOTAL PROJECT 5730-00-60		3,419	1,496	3.06	10	101	8	10	15	272

MOBILIZATION EROSION CONTROL

CATEGORY	LOCATION	628.1905 MOBILIZATION EROSION CONTROL EACH	628.1910 MOBILIZATION EMERGENCY EROSION CONTROL EACH
0010	5730-00-60	3	2
	TOTAL PROJECT 5730-00-60	3	2

*ALL ITEMS ARE CATEGORY 0010

PERMANENT SIGNING

CATEGORY	STATION	SIGN CODE	SIGN SIZE IN X IN	637.2230 SIGNS TYPE II REFLECTIVE F SF	634.0614 4X6 INCH 14 FT EACH	634.0616 4X6 INCH 16 FT EACH	MESSAGE
0010	262+10	W5-52R	12 X 36	3	---	1	BRIDGE HASH MARKS
	262+10	W5-52L	12 X 36	3	---	1	BRIDGE HASH MARKS
	262+70	W5-52R	12 X 36	3	---	1	BRIDGE HASH MARKS
	262+70	W5-52L	12 X 36	3	---	1	BRIDGE HASH MARKS
	606+10	W5-52R	12 X 36	3	---	1	BRIDGE HASH MARKS
	606+10	W5-52L	12 X 36	3	---	1	BRIDGE HASH MARKS
	606+80	W5-52R	12 X 36	3	---	1	BRIDGE HASH MARKS
	606+80	W5-52L	12 X 36	3	---	1	BRIDGE HASH MARKS
	388+20	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	389+70	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	391+20	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	392+70	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	394+20	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	415+70	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	417+20	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	418+70	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	420+20	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	437+50	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	439+00	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	440+50	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	442+00	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	443+50	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	445+00	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	452+20	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	453+70	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	455+20	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	456+70	W1-8	18 X 24	3	1	---	CHEVRON
		W1-8	18 X 24	3	---	---	CHEVRON
	386+20	W1-1R	36 X 36	9	---	1	CURVE RIGHT
	396+20	W1-1L	36 X 36	9	---	1	CURVE LEFT
	413+70	W1-1L	36 X 36	9	---	1	CURVE LEFT
	422+20	W1-1R	36 X 36	9	---	1	CURVE RIGHT
	435+50	W1-1R	36 X 36	9	---	1	CURVE RIGHT
	447+00	W1-1L	36 X 36	9	---	1	CURVE LEFT
	450+20	W1-1L	36 X 36	9	---	1	CURVE LEFT
	458+70	W1-1R	36 X 36	9	---	1	CURVE RIGHT
TOTAL PROJECT 5730-00-60				210	19	16	

REMOVING SIGNS

CATEGORY	STATION	LOCATION	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	MESSAGE
0010	262+10	RT & LT	2	2	BRIDGE HASH MARK SIGN
	262+70	RT & LT	2	2	BRIDGE HASH MARK SIGN
	606+10	RT & LT	2	2	BRIDGE HASH MARK SIGN
	606+80	RT & LT	2	2	BRIDGE HASH MARK SIGN
TOTAL PROJECT 5730-00-60			8	8	

*ALL ITEMS ARE CATEGORY 0010

TRAFFIC CONTROL ITEMS

CATEGORY	LOCATION	DAYS	TRAFFIC CONTROL DRUMS EACH	643.0300 TRAFFIC CONTROL DRUMS DAYS	TRAFFIC CONTROL BARRICADES TYPE III EACH	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS	TRAFFIC CONTROL SIGNS EACH	643.0900 TRAFFIC CONTROL SIGNS DAYS	TRAFFIC CONTROL SIGNS PCMS EACH	643.1050 TRAFFIC CONTROL SIGNS PCMS DAYS
0010	STH 131 / STH 56 INTERSECTION EAST	7	—	—	—	—	—	—	—	—	1	7
	STH 56 / STH 80 INTERSECTION	7	—	—	—	—	—	—	—	—	1	7
	STRUCTURE C-52-0174	4	—	—	14	56	16	64	4	16	—	—
	STRUCTURE C-52-0175	4	—	—	14	56	16	64	4	16	—	—
	STRUCTURE C-52-0176	4	—	—	14	56	16	64	4	16	—	—
	STRUCTURE C-52-0177	4	—	—	14	56	16	64	4	16	—	—
	STRUCTURE C-52-0178	3	—	—	14	42	16	48	4	12	—	—
	STRUCTURE C-52-0179	3	—	—	14	42	16	48	4	12	—	—
	STRUCTURE C-52-0180	3	—	—	14	42	16	48	4	12	—	—
	STRUCTURE C-52-0181	3	—	—	14	42	16	48	4	12	—	—
	STA 762+37 PIPES	3	—	—	14	42	16	48	4	12	—	—
	STRUCTURE C-52-0182	3	—	—	14	42	16	48	4	12	—	—
	CTH MM NORTH	66	—	—	3	198	4	264	4	264	—	—
	CTH MM SOUTH	66	—	—	3	198	4	264	4	264	—	—
	SPRINGDALE DR.	66	—	—	3	198	4	264	4	264	—	—
	BUFTON HOLLOW DR	66	—	—	3	198	4	264	4	264	—	—
	BENSON HOLLOW RD	66	—	—	3	198	4	264	4	264	—	—
	WEBER DR	66	—	—	3	198	4	264	4	264	—	—
	ASH RIDGE	66	—	—	3	198	4	264	4	264	—	—
	CTH A	66	—	—	6	396	8	528	8	528	—	—
	CTH I	66	—	—	3	198	4	264	4	264	—	—
	SLEEPY VALLEY RD	66	—	—	3	198	4	264	4	264	—	—
	HICKORY RD	66	—	—	3	198	4	264	4	264	—	—
	MERRY HILL DR	66	—	—	3	198	4	264	4	264	—	—
	SPRY HILL RD	66	—	—	3	198	4	264	4	264	—	—
	CTH H	66	—	—	3	198	4	264	4	264	—	—
	BERRY HILL DR	66	—	—	3	198	4	264	4	264	—	—
	CTH Z	66	—	—	3	198	4	264	4	264	—	—
	GILLINGHAM DR	66	—	—	3	198	4	264	4	264	—	—
	CRIBBEN HILL RD	66	—	—	3	198	4	264	4	264	—	—
	BELL HOLLOW LN	66	—	—	3	198	4	264	4	264	—	—
	DANZ RD	66	—	—	3	198	4	264	4	264	—	—
	FANCY CREEK LN	66	—	—	3	198	4	264	4	264	—	—
	CAMPBELL HILL DR	66	—	—	3	198	4	264	4	264	—	—
	TC DETOUR DETAIL 1	66	—	—	2	132	4	264	24	1584	—	—
	STH 80 / CTH AA INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	STH 80 / CTH A INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	TC DETOUR DETAIL 2	66	—	—	—	—	—	—	83	5478	—	—
	USH 14 / CTH ZZ INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	USH 14 / CTH Z INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	USH 14 / CTH E INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	USH 14 / CTH KK INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	USH 14 / CTH G INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	USH 14 / CTH EE INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	USH 14 / CTH U INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	USH 14 / CTH X INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	TC DETOUR DETAIL 3	66	—	—	—	—	—	—	29	1914	—	—
	STH 131 / CTH S INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	STH 131 / CTH U INTERSECTION	66	—	—	—	—	—	—	6	396	—	—
	TC DETOUR DETAIL 4	66	—	—	2	132	4	264	35	2310	—	—
	STRUCTURE B-52-0084 (GUARDRAIL)	4	15	60	—	—	—	—	—	—	—	—
	STRUCTURE B-52-0035 (GUARDRAIL)	4	15	60	—	—	—	—	—	—	—	—
	BEGINNING OF PROJECT	76	—	—	—	—	—	—	3	—	—	—
	END OF PROJECT	76	—	—	—	—	—	—	5	—	—	—
	MILL AND RELAY OPERATION	76	—	—	—	—	—	—	—	—	—	—
	UNDISTRIBUTED	5	100	500	5	25	10	50	10	50	—	—
	TOTAL PROJECT 5730-00-60			620		5,319		7,194		22,296		14

*ALL ITEMS ARE CATEGORY 0010

3

COVERING SIGNS

STAGE	STATION	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	NUMBER OF CYCLES	NUMBER OF SIGNS
STAGE 1	TC DETOUR DETAIL 1	9	1	9
STAGE 1	TC DETOUR DETAIL 4	14	1	14
STAGE 1	UNDISTRIBUTED	5	1	5
TOTAL PROJECT 5730-00-60				28

PAVEMENT MARKING

CATEGORY	STATION - STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH YELLOW LF	646.1020 MARKING LINE EPOXY 4-INCH WHITE LF	649.0105 TEMPORARY MARKING LINE PAINT 4-INCH YELLOW LF	646.4520 MARKING LINE SAME DAY EPOXY 4-INCH YELLOW LF	REMARKS
0010	126+85 - 127+35	CENTERLINE	62	---	---	---	EASTBOUND PASSING
	126+85 - 127+35	RT & LT	---	100	---	---	EDGELINES
	155+89 - 156+39	CENTERLINE	100	---	---	---	NO PASSING
	155+89 - 156+39	RT & LT	---	100	---	---	EDGELINES
	203+62 - 204+12	CENTERLINE	100	---	---	---	NO PASSING
	203+62 - 204+12	RT & LT	---	100	---	---	EDGELINES
	260+00 - 264+91	RT & LT	865	---	---	---	EDGELINES
	262+27 - 262+58	BRIDGE CL	35	---	---	---	CENTERLINE
	344+38 - 344+88	CENTERLINE	100	---	---	---	NO PASSING
	344+38 - 344+88	RT & LT	---	100	---	---	EDGELINES
	525+75 - 532+88	RT	---	719	---	---	EDGELINE
	525+85 - 556+50	CENTERLINE	---	---	6,132	6,132	NO PASSING
	525+94 - 548+28	LT	---	2,230	---	---	EDGELINE
	534+57 - 675+43	RT	---	14,087	---	---	EDGELINE
	549+38 - 596+18	LT	---	4,680	---	---	EDGELINE
	556+50 - 564+55	CENTERLINE	---	---	1,010	1,010	EASTBOUND PASSING
	564+55 - 570+25	CENTERLINE	---	---	145	145	PASSING BOTH DIRECTIONS
	570+25 - 578+40	CENTERLINE	---	---	1,020	1,020	WESTBOUND PASSING
	578+40 - 660+25	CENTERLINE	---	---	16,370	16,370	NO PASSING
	597+50 - 623+33	LT	---	2,584	---	---	EDGELINE
	624+19 - 713+80	LT	---	8,965	---	---	EDGELINE
	660+25 - 668+30	CENTERLINE	---	---	1,006	1,006	EASTBOUND PASSING
	668+30 - 676+15	CENTERLINE	---	---	982	982	WESTBOUND PASSING
	677+00 - 724+57	RT	---	4,759	---	---	EDGELINE
	676+15 - 676+95	CENTERLINE	---	---	160	160	NO PASSING
	676+85 - 683+55	CENTERLINE	---	---	840	840	EASTBOUND PASSING
	683+55 - 685+20	CENTERLINE	---	---	330	330	NO PASSING
	685+20 - 690+95	CENTERLINE	---	---	719	719	WESTBOUND PASSING
	690+95 - 722+65	CENTERLINE	---	---	6,340	6,340	NO PASSING
	722+65 - 732+20	CENTERLINE	---	---	1,194	1,194	EASTBOUND PASSING
	715+00 - 751+15	LT	---	3,613	---	---	EDGELINE
	732+20 - 738+05	CENTERLINE	---	---	732	732	WESTBOUND PASSING
	725+78 - 791+90	RT	---	6,610	---	---	EDGELINE
	738+05 - 739+40	CENTERLINE	---	---	34	34	PASSING BOTH DIRECTIONS
	739+40 - 746+00	CENTERLINE	---	---	825	825	EASTBOUND PASSING
	746+00 - 747+20	CENTERLINE	---	---	30	30	PASSING BOTH DIRECTIONS
	747+20 - 756+80	CENTERLINE	---	---	1,200	1,200	WESTBOUND PASSING
	756+80 - 772+30	CENTERLINE	---	---	3,100	3,100	NO PASSING
	772+30 - 781+00	CENTERLINE	---	---	1,088	1,088	EASTBOUND PASSING
	781+00 - 787+65	CENTERLINE	---	---	832	832	WESTBOUND PASSING
	787+65 - 789+90	CENTERLINE	---	---	56	56	PASSING BOTH DIRECTIONS
	751+85 - 803+55	LT	---	5,172	---	---	EDGELINE
	789+90 - 795+70	CENTERLINE	---	---	725	725	EASTBOUND PASSING
	795+70 - 803+55	CENTERLINE	---	---	981	981	WESTBOUND PASSING
	792+98 - 927+01	RT	---	13,405	---	---	EDGELINE
	803+55 - 817+70	CENTERLINE	---	---	2,830	2,830	NO PASSING
	804+63 - 844+55	LT	---	3,990	---	---	EDGELINE
	817+70 - 826+45	CENTERLINE	---	---	1,094	1,094	EASTBOUND PASSING
	826+45 - 827+05	CENTERLINE	---	---	15	15	PASSING BOTH DIRECTIONS
	827+05 - 836+55	CENTERLINE	---	---	1,188	1,188	WESTBOUND PASSING
	836+55 - 927+01	CENTERLINE	---	---	18,092	18,092	NO PASSING
	845+70 - 927+01	LT	---	8,135	---	---	EDGELINE
	SUBTOTALS		1,262	79,349	69,070	69,070	
	TOTAL PROJECT 5730-00-60			80,611	69,070	69,070	

NO PASSING ZONES

CATEGORY	STATION	648.0100 LOCATING NO PASSING ZONES MI
0010	525+85 - 927+01	7.6
	TOTAL PROJECT 5730-00-60	7.6

CONSTRUCTION STAKING

CATEGORY	LOCATION	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
0010	PROJECT 5730-00-60	---
	126+85 - 127+35	50
	155+89 - 156+39	50
	203+62 - 204+12	50
	260+00 - 262+27	227
	262+58 - 264+91	233
	344+38 - 344+88	50
	543+05 - 543+55	50
	563+95 - 564+45	50
	603+94 - 606+10	216
	606+80 - 608+96	216
	620+08 - 620+58	50
	660+56 - 661+06	50
	762+12 - 762+62	50
	779+06 - 779+56	50
	TOTAL PROJECT 5730-00-60	1,392

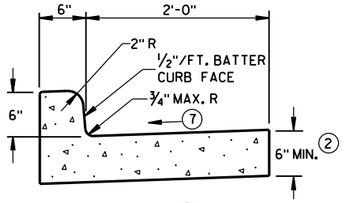
SAWING PAVEMENT ITEMS

CATEGORY	STATION	LOCATION	690.0150 SAWING ASPHALT LF
0010	126+85	C-52-0174	22
	127+35	C-52-0174	22
	155+89	C-52-0175	23
	156+39	C-52-0175	23
	203+62	C-52-0176	23
	204+12	C-52-0176	23
	260+00 - 262+14	RT	222
	260+13 - 262+27	LT	216
	262+58 - 263+26	RT	70
	262+72 - 264+91	LT	218
	344+38	C-52-0177	23
	344+88	C-52-0177	23
	533+50	MERRY HILL RD	46
	543+05	C-52-0178	23
	543+55	C-52-0178	23
	548+80	SPRY HILL DR	20
	563+95	C-52-0179	23
	564+45	C-52-0179	23
	569+85	DRIVEWAY RT	25
	577+15	DRIVEWAY RT	15
	596+75	CTH H	37
	620+08	C-52-0180	25
	620+58	C-52-0180	25
	623+75	BERRY HILL RD	20
	660+56	C-52-0181	24
	661+06	C-52-0181	24
	676+25	CTH Z	50
	678+25	DRIVEWAY LT	18
	686+40	DRIVEWAY LT	11
	688+85	DRIVEWAY LT	11
	690+75	DRIVEWAY LT	17
	691+00	DRIVEWAY RT	269
	692+30	DRIVEWAY LT	19
	695+00	DRIVEWAY RT	18
	697+25	DRIVEWAY RT	83
	708+20	DRIVEWAY LT	21
	714+25	GILLINGHAM DR	41
	721+90	DRIVEWAY RT	160
	724+20	DRIVEWAY LT	27
	725+25	CRIBBEN HILL RD	32
	751+50	BELL HOLLOW LN	24
	762+12	MAINLINE	23
	762+62	MAINLINE	23
	779+03	C-52-0182	23
	779+53	C-52-0182	23
	792+50	DANZ RD	25
	804+10	FANCY CREEK LN	21
	835+25	DRIVEWAY LT	19
	845+00	CAMPBELL HILL DR	34
	863+45	DRIVEWAY LT	25
	918+20	DRIVEWAY LT	18
	927+01	MAINLINE	34
	TOTAL PROJECT 5730-00-60		2,330

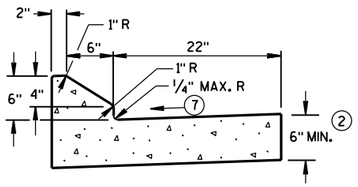
*ALL ITEMS ARE CATEGORY 0010

Standard Detail Drawing List

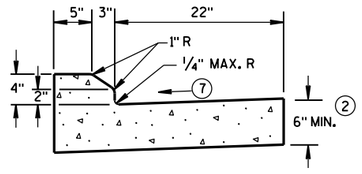
08D01-20A	CONCRETE CURB & GUTTER
08D02-06	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
12A03-10	NAME PLATE (STRUCTURES)
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)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B53-01A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-07A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-07B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-07C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C11-07A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C35-03A	PAVEMENT MARKING (INTERSECTIONS)
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



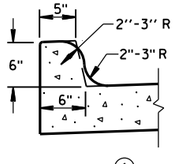
TYPES A (1) & D



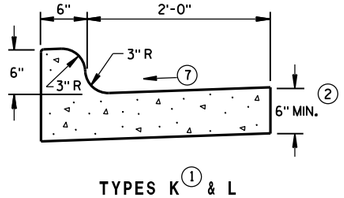
6" SLOPED CURB TYPES G (1) & J



4" SLOPED CURB TYPES G (1) & J

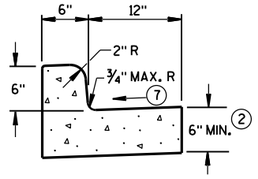


TYPES K (1) & L
(OPTIONAL CURB SHAPE)



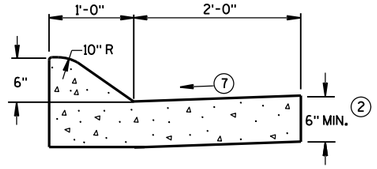
TYPES K (1) & L

CONCRETE CURB & GUTTER 30"

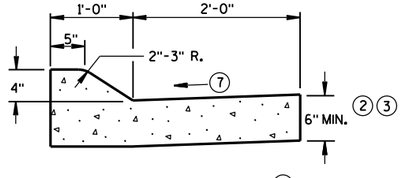


TYPES A (1) & D

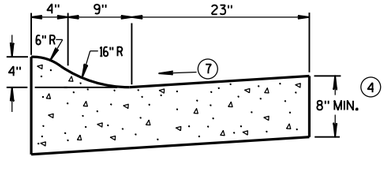
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A (1) & D

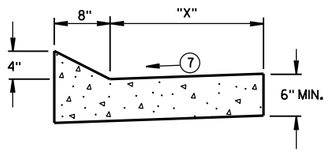


4" SLOPED CURB TYPES A (1) & D



4" SLOPED CURB TYPES R (1) & T (5)

CONCRETE CURB & GUTTER 36"



TYPES TBT & TBTT (1)

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"

GENERAL NOTES

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

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(3) USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

(4) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(5) THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

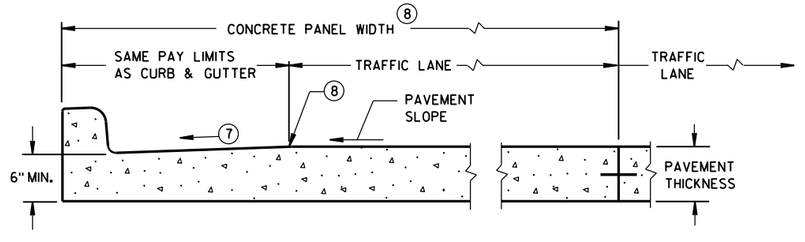
(6) WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

(7) USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.

(8) INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

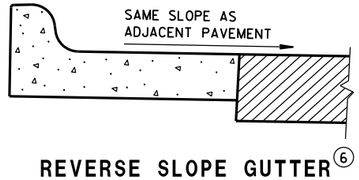
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



PARTIAL SECTION OF PAVEMENT * WITH INTEGRAL CURB & GUTTER

* BIKE LANE IS NOT SHOWN.

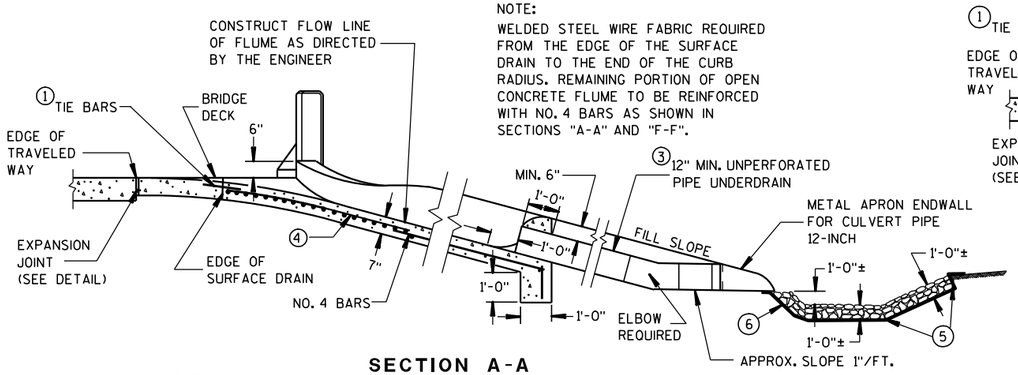


REVERSE SLOPE GUTTER (6)
(TYPICAL FOR ALL CURB & GUTTER TYPES)

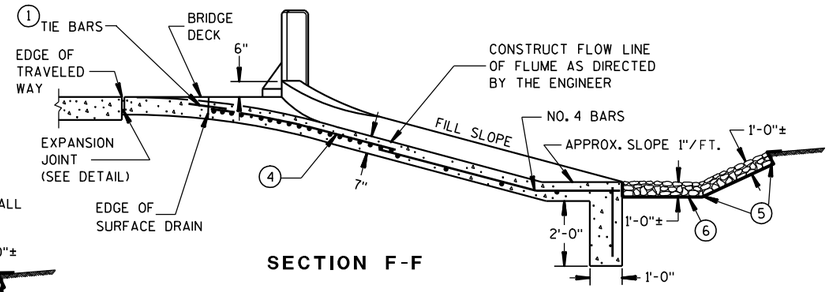
CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

S.D.D. 8 D 1-20a



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.

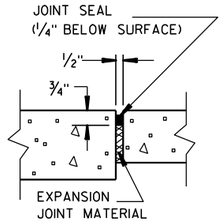
(4) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.

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

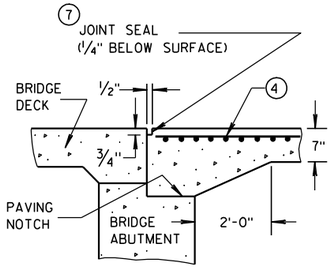
(6) GEOTEXTILE FABRIC, TYPE 'R"

(7) HOT POURED SEALANT UNLESS OTHERWISE SPECIFIED.

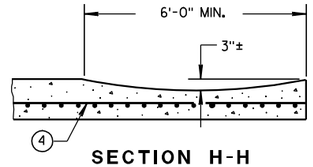
(8) THIS DIMENSION MAY VARY DEPENDING ON THE SPACING OF POSTS FOR THE STEEL PLATE BEAM GUARD. THE TYPICAL LOCATION FOR THE SURFACE DRAIN IS WHERE THE POST SPACING WIDENS TO 3'-1½".



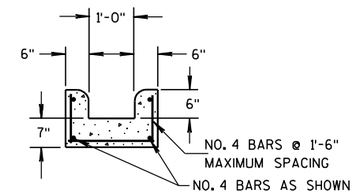
EXPANSION JOINT DETAIL



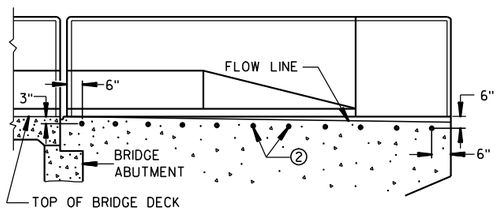
SECTION D-D



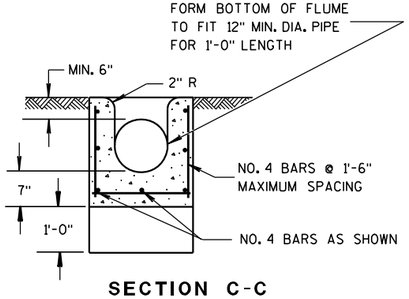
SECTION H-H



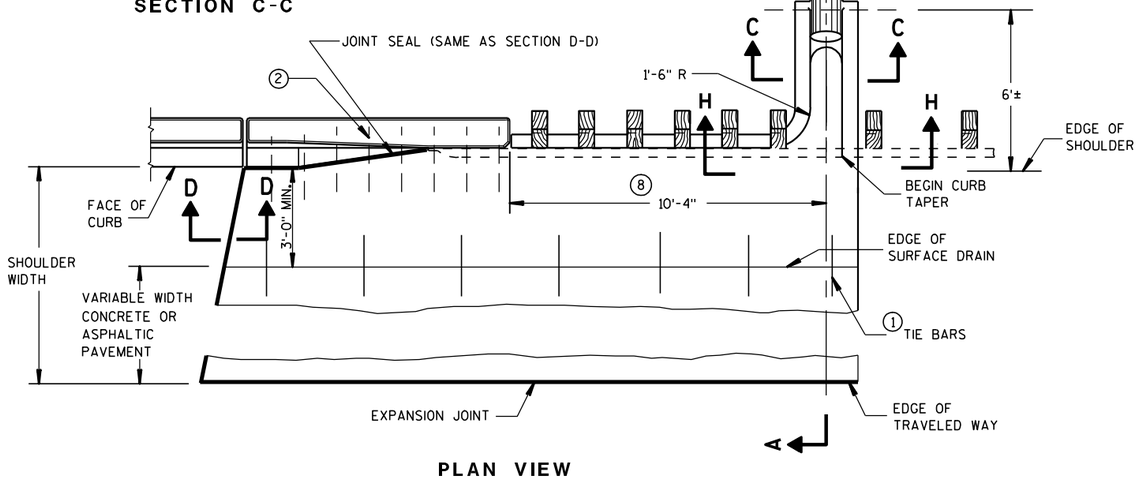
SECTION E-E



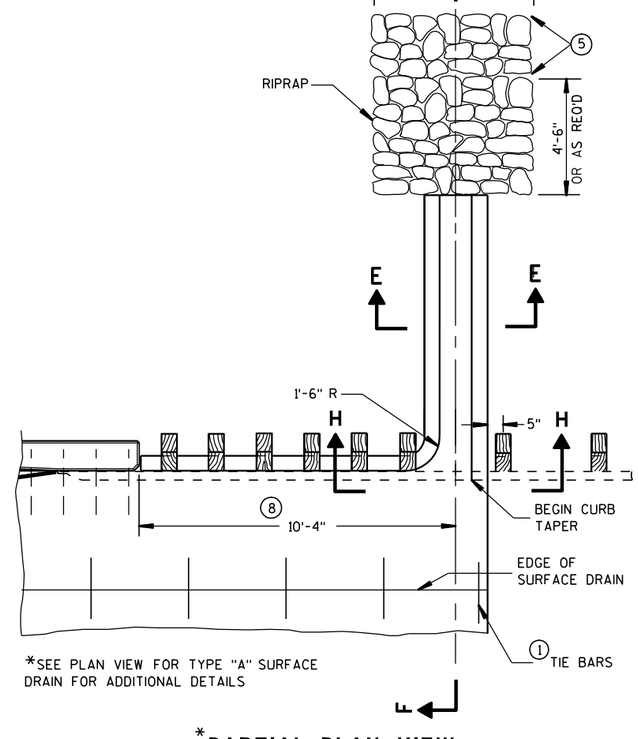
LOCATION OF TIE BARS IN WINGWALL



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

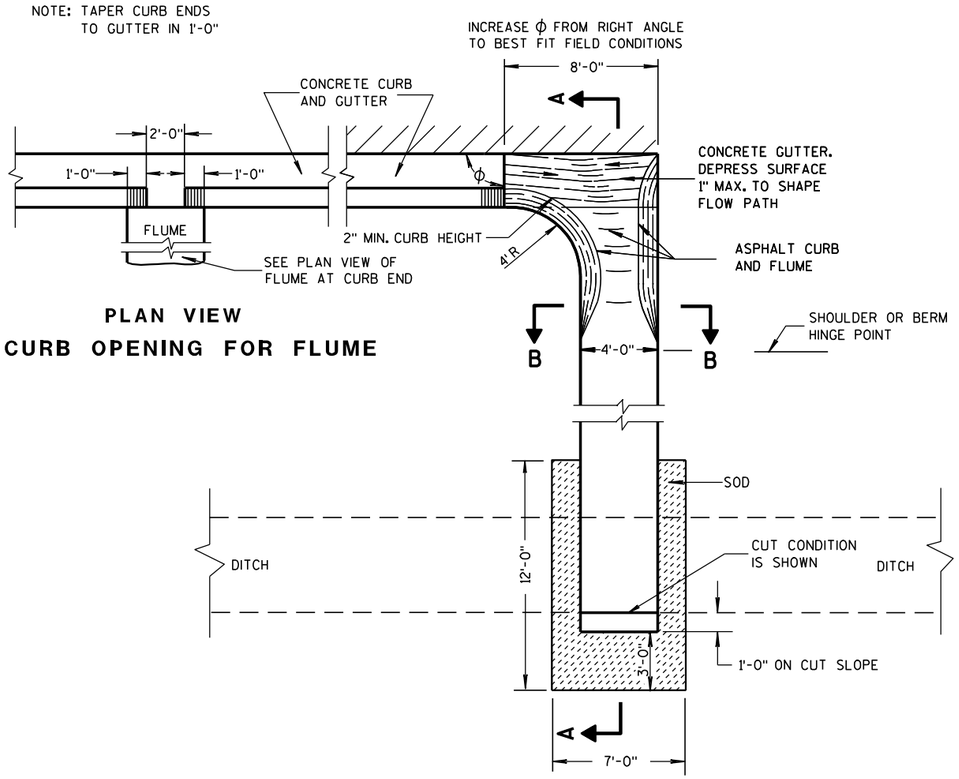
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

S.D.D. 8 D 2-6

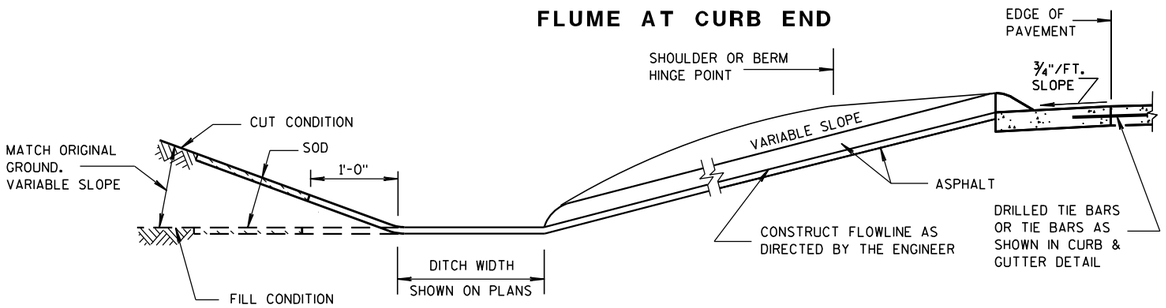
6

ASPHALTIC FLUME

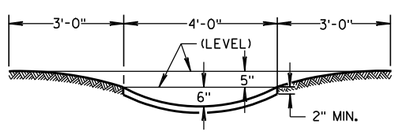


PLAN VIEW
CURB OPENING FOR FLUME

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.

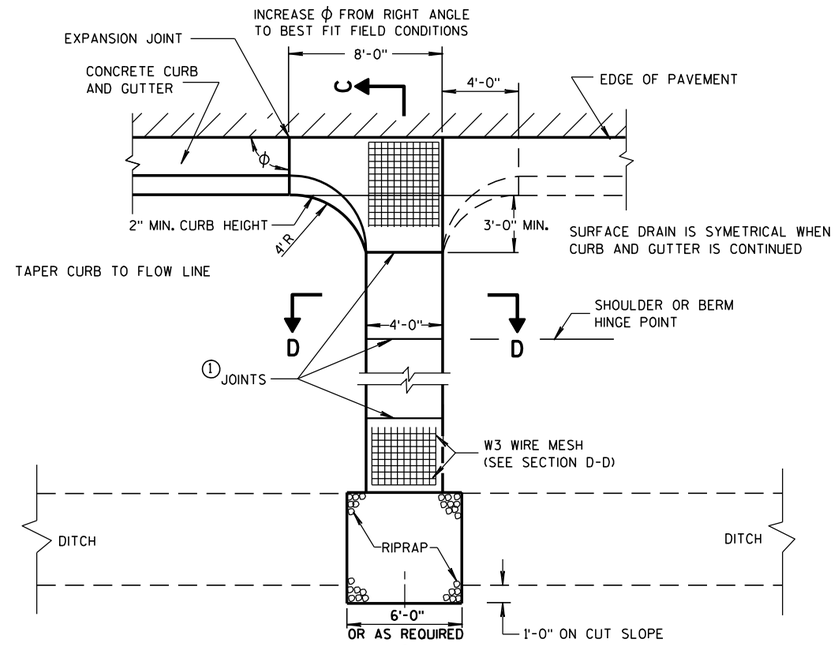
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

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.

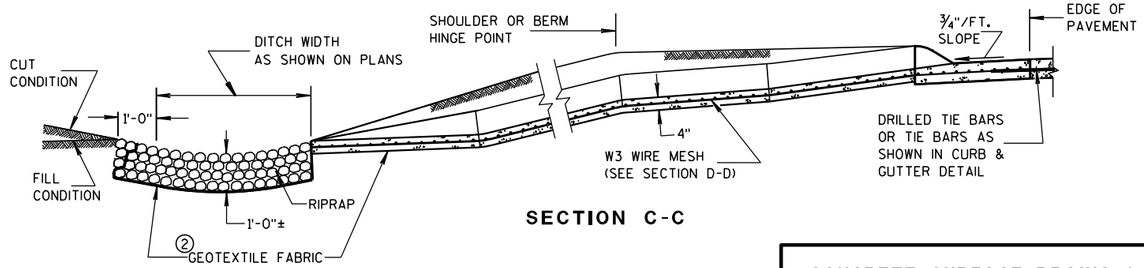
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

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

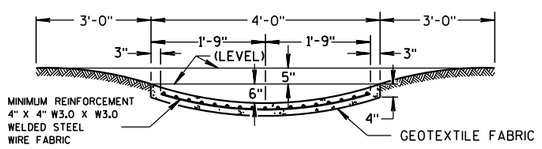
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

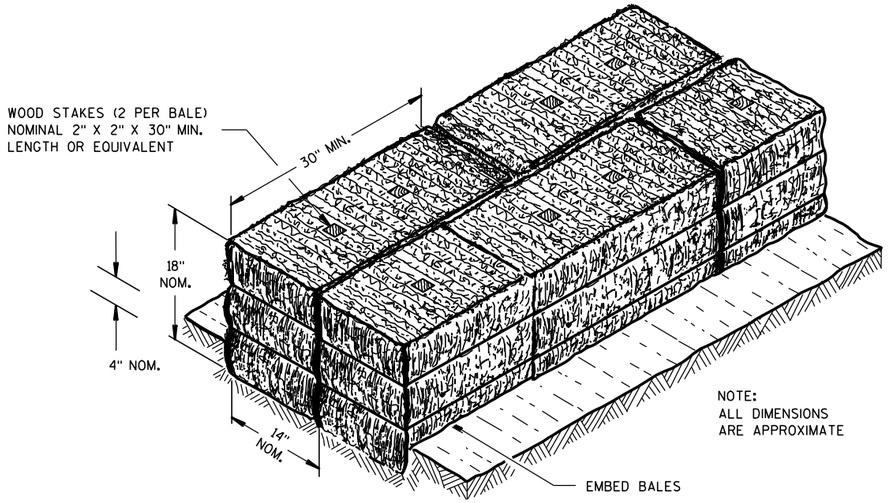
APPROVED
9-4-08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
52
FHWA

6

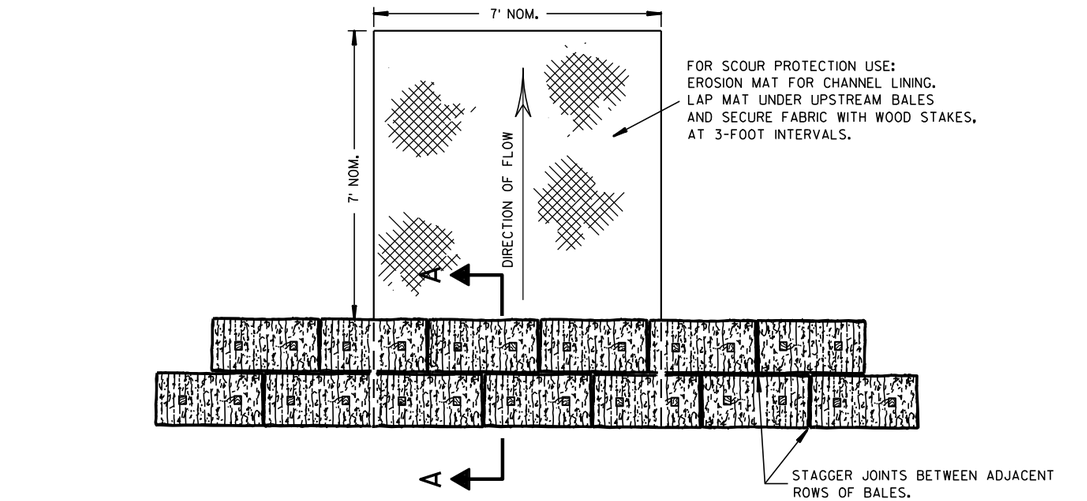
S.D.D. 8 D 4-5

6

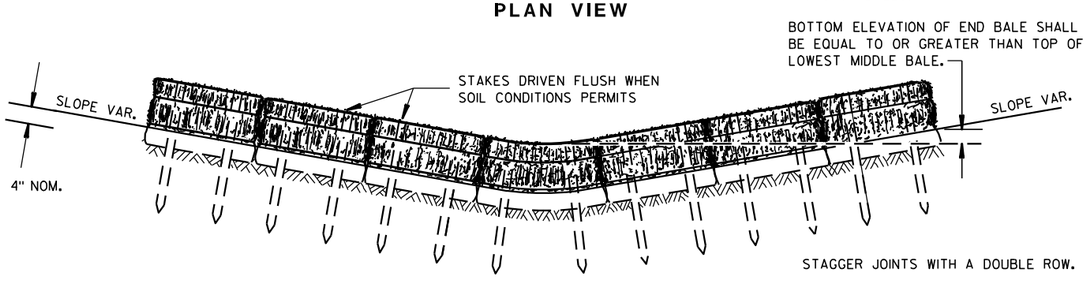
S.D.D. 8 D 4-5



SECTION A-A



PLAN VIEW



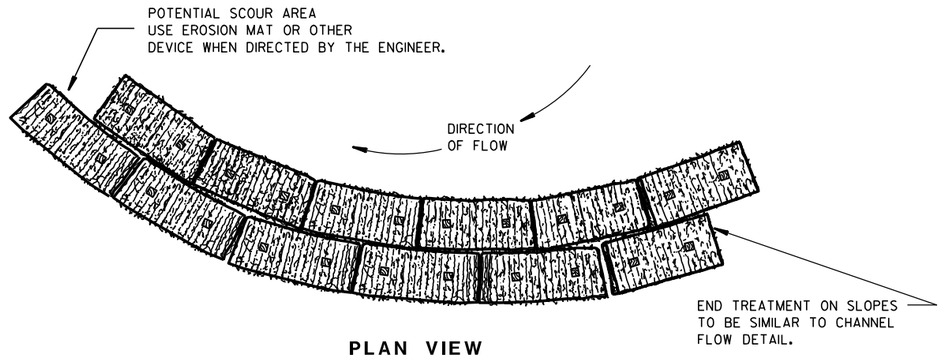
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

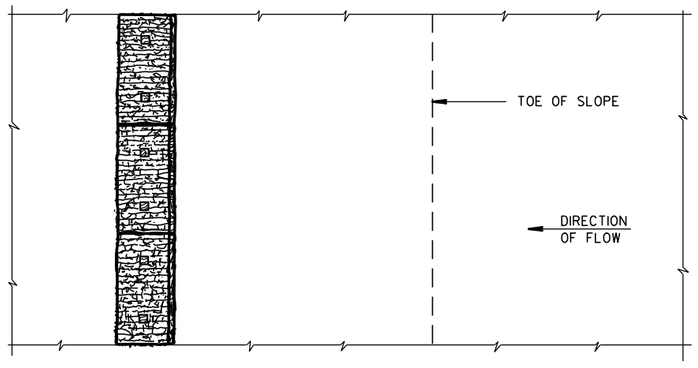
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(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.

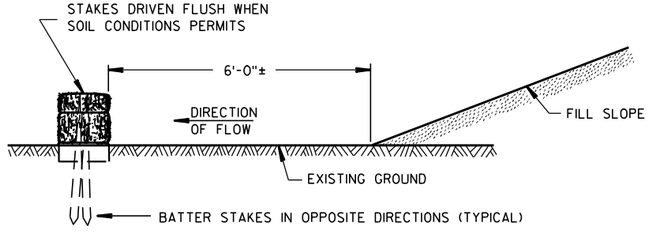


PLAN VIEW

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

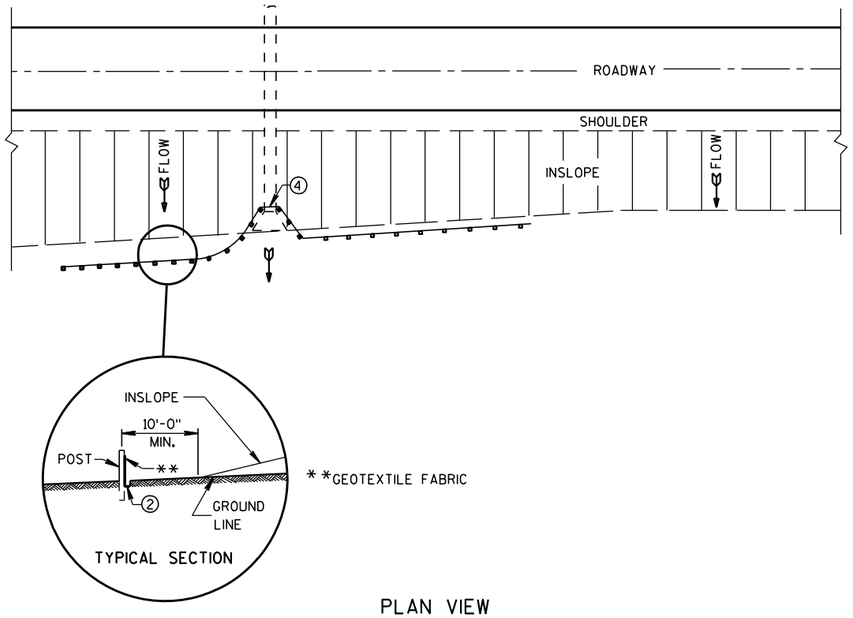
6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

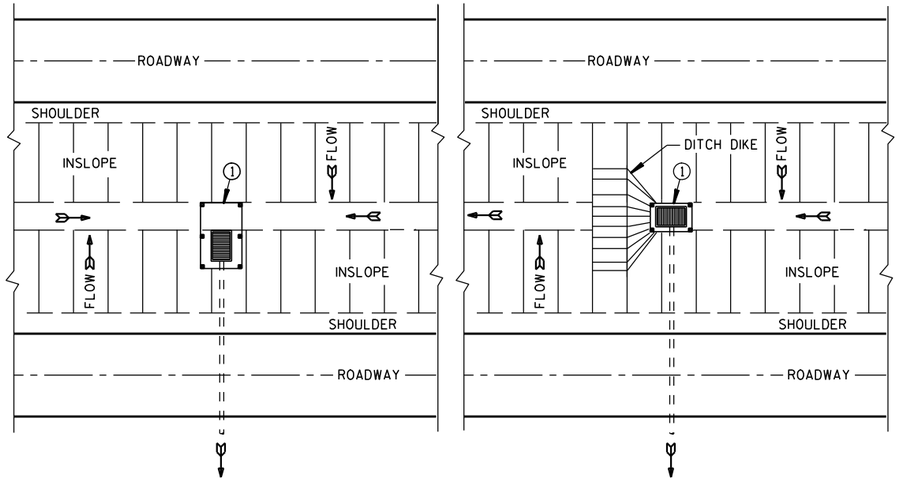
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



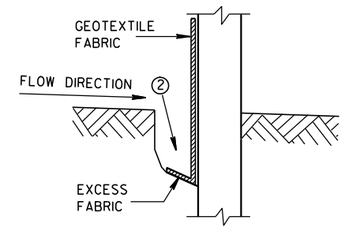
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

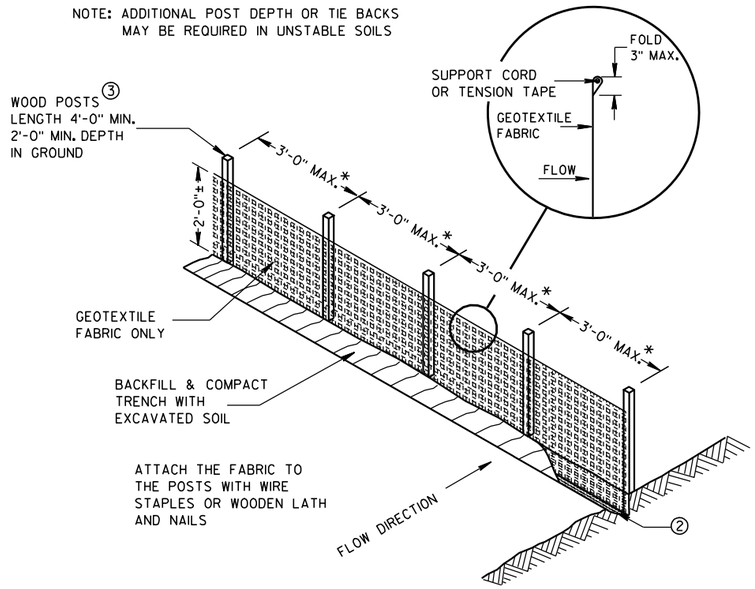
GENERAL NOTES

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.

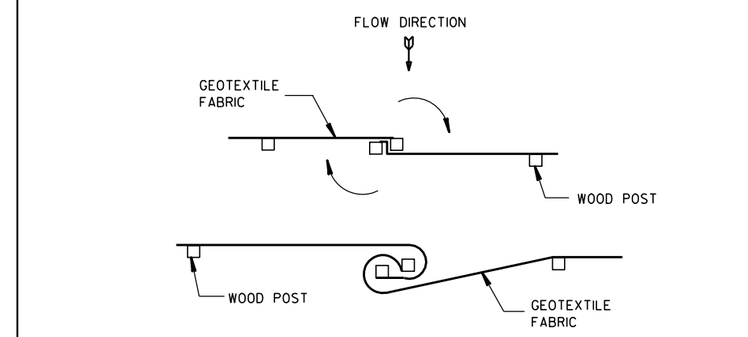


TRENCH DETAIL

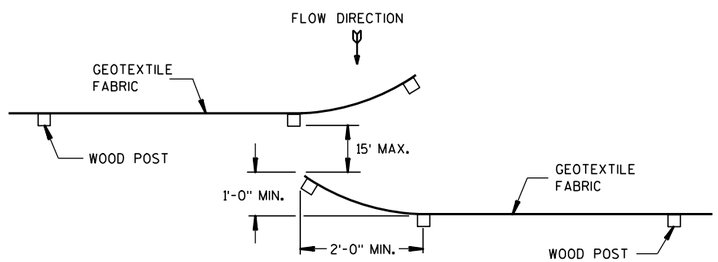


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

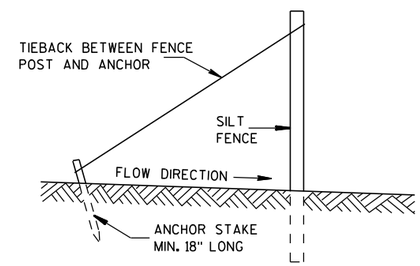


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

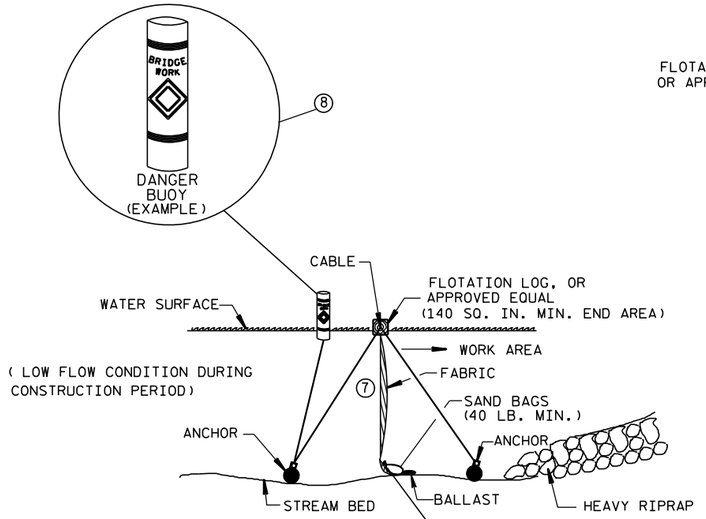
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

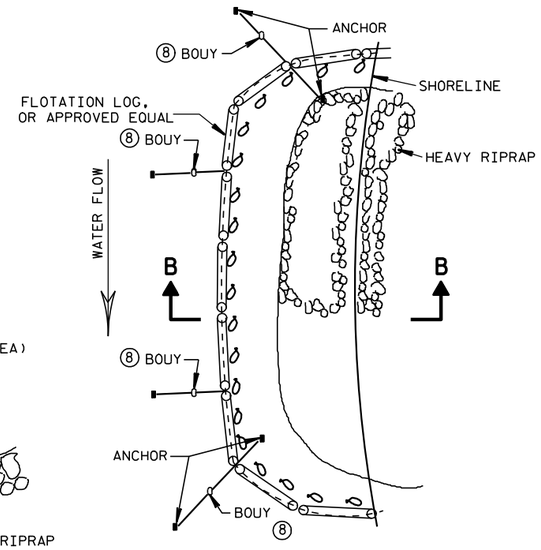
S.D.D. 8 E 9-6

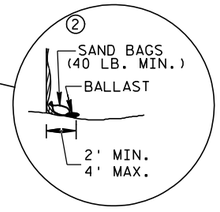
6

S.D.D. 8 E 9-6

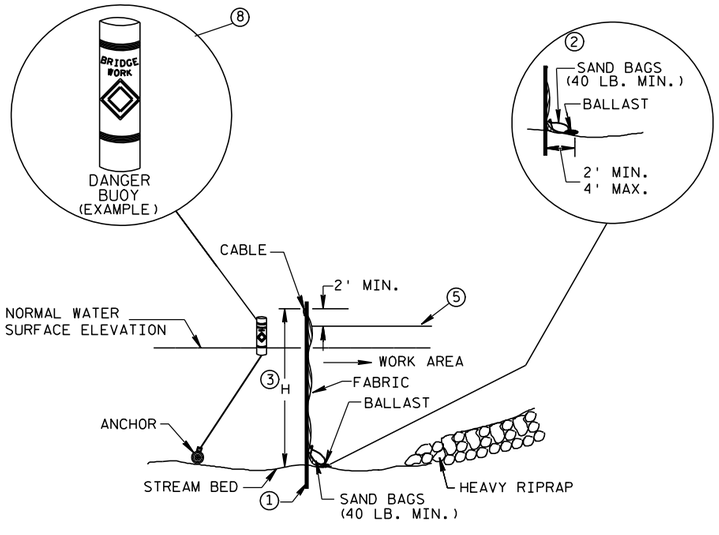


SECTION B-B

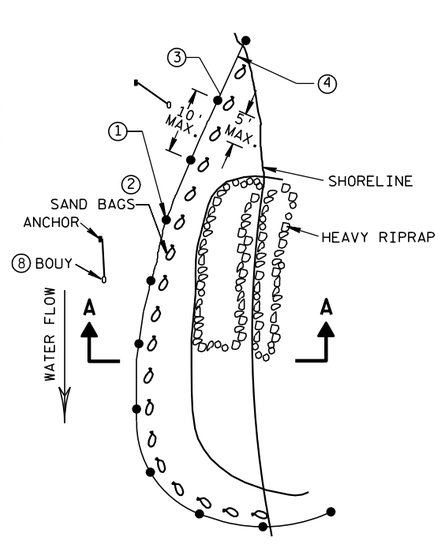




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

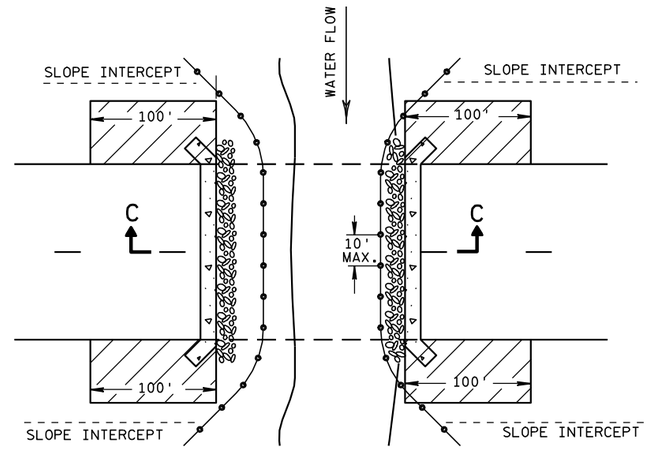
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

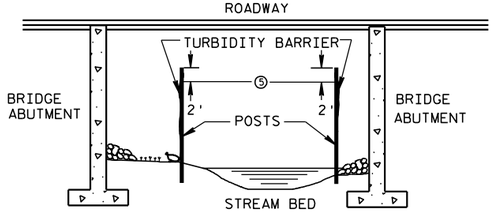
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

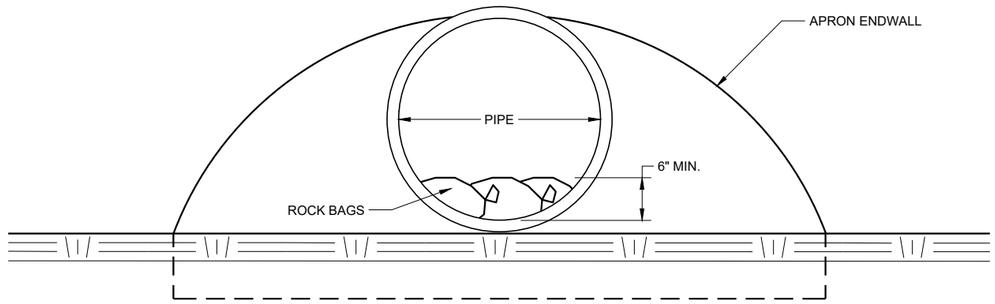
APPROVED
6/04/02 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

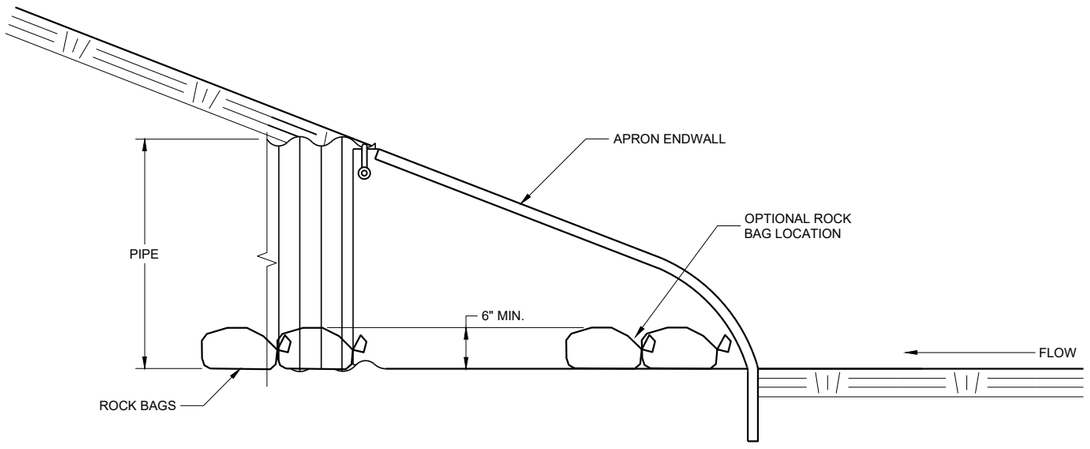
S.D.D. 8 E 11-2

6

S.D.D. 8 E 11-2



END VIEW



SIDE VIEW

CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

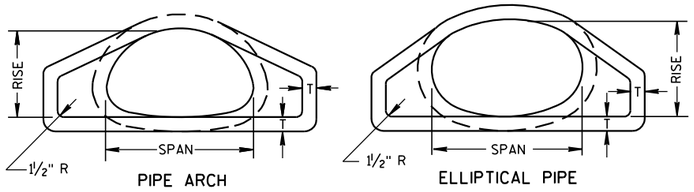
APPROVED
May 2019 — DATE
/S/ Daniel Schave — EROSION CONTROL ENGI
FHWA

6

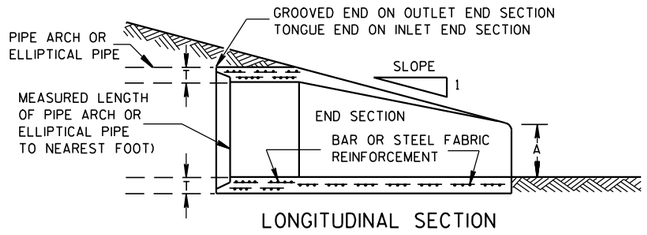
SDD 08E15 - 01

6

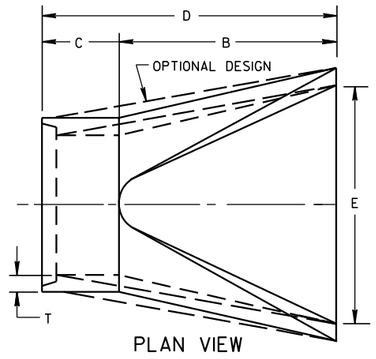
SDD 08E15 - 01



END VIEW

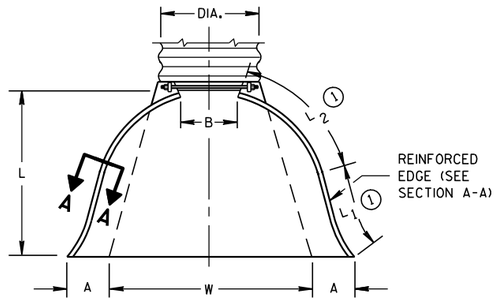


LONGITUDINAL SECTION

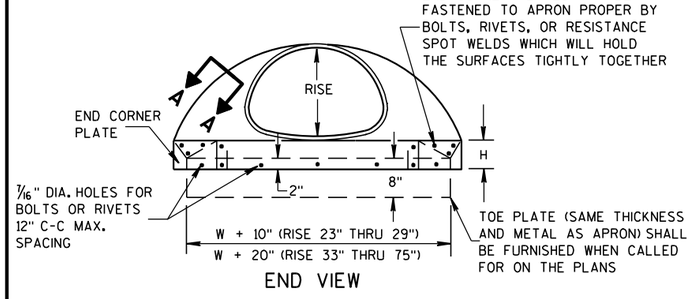


PLAN VIEW

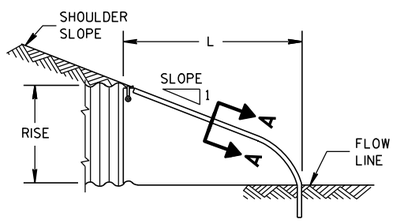
CONCRETE ENDWALLS



PLAN VIEW

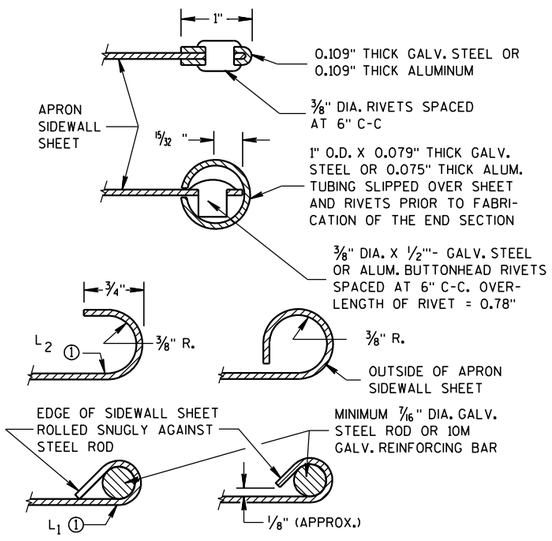


END VIEW



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

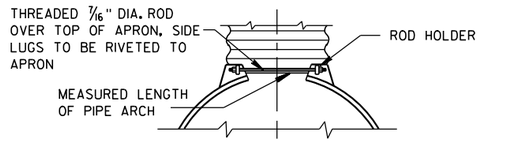
REINFORCED CONCRETE PIPE ARCH

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

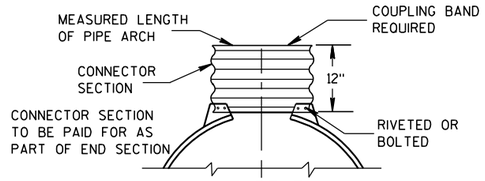
EQUIV. DIA. (Inches)	DIMENSIONS (Inches) ** SPAN	** RISE	T	A	B	C	D	E	APPROX. SLOPE
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅛	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48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

**NOMINAL SIZE



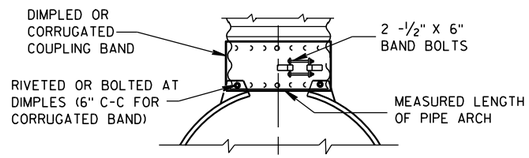
TYPE 2

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

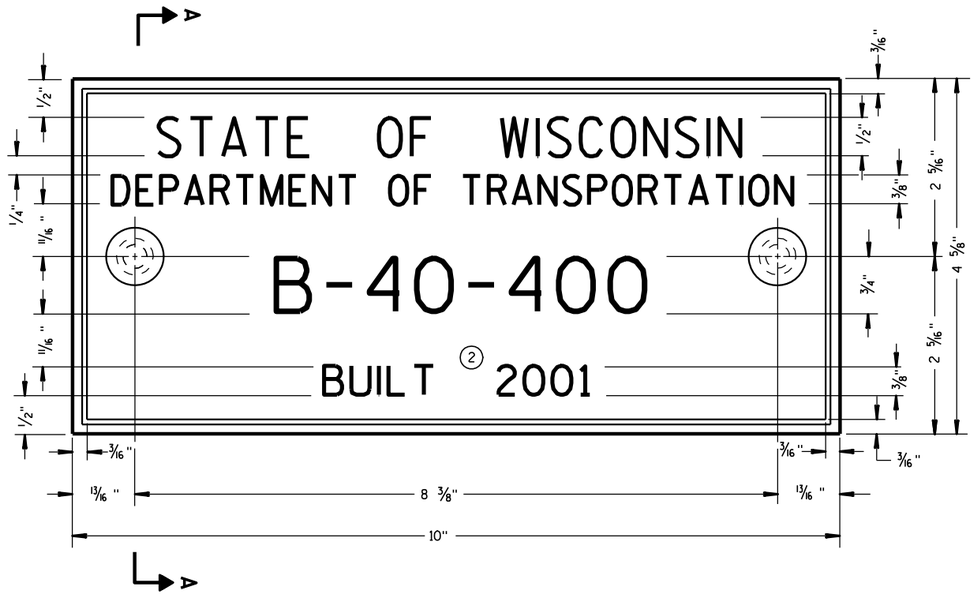
FHWA

6

S.D.D. 8 F 2-1

6

S.D.D. 8 F 2-1



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

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

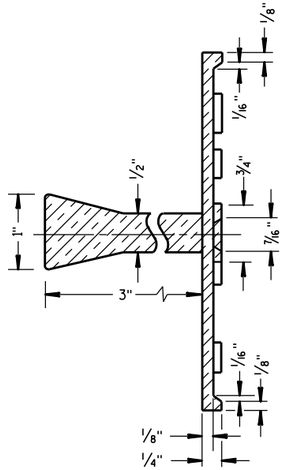
GENERAL NOTES

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

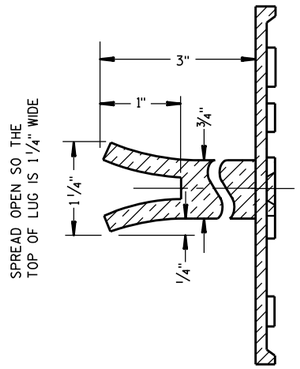
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

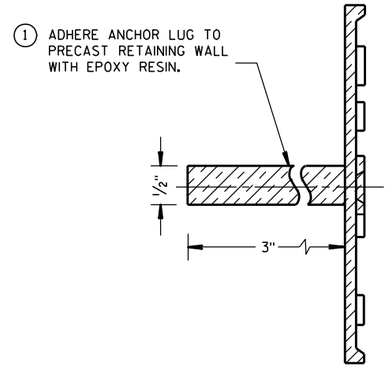
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER

FHWA

6

S.D.D. 12 A 3-10

6

S.D.D. 12 A 3-10

(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.

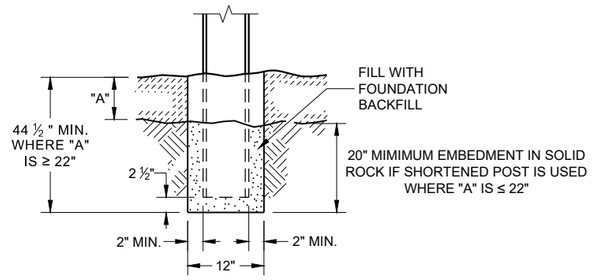
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL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

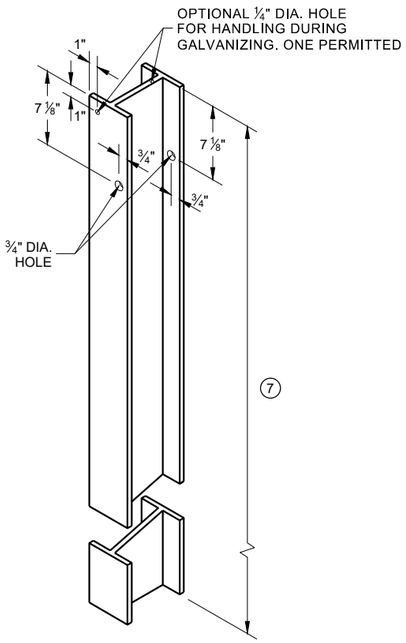
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS +1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

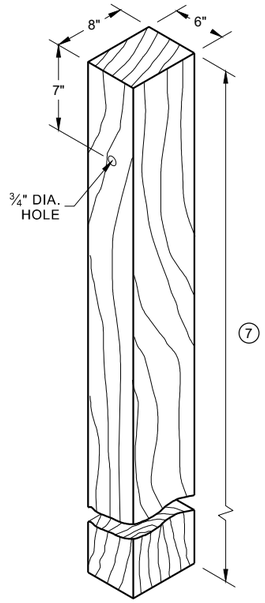
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



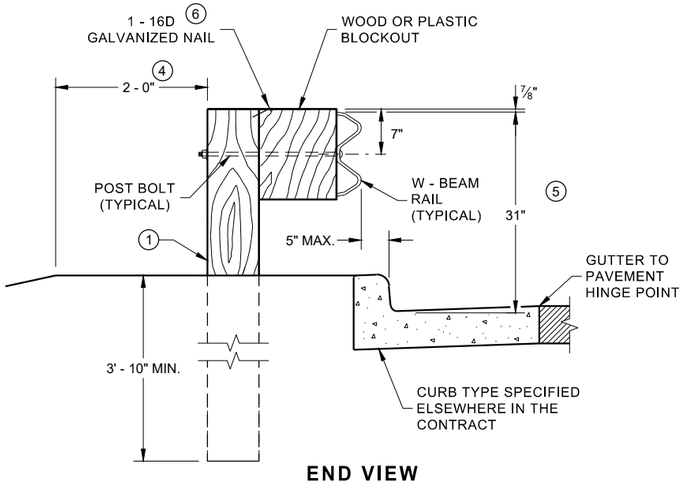
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



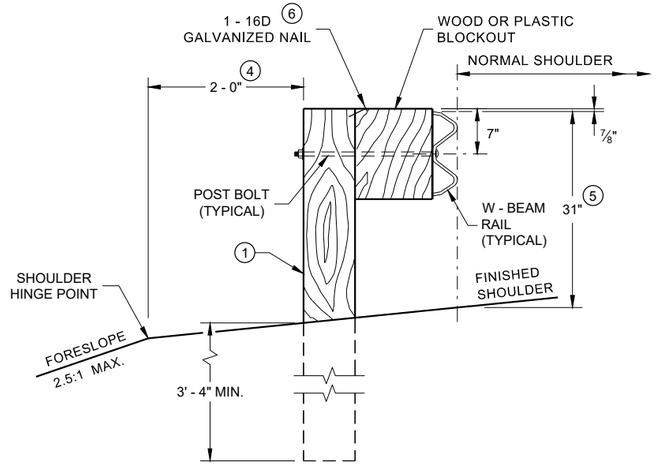
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



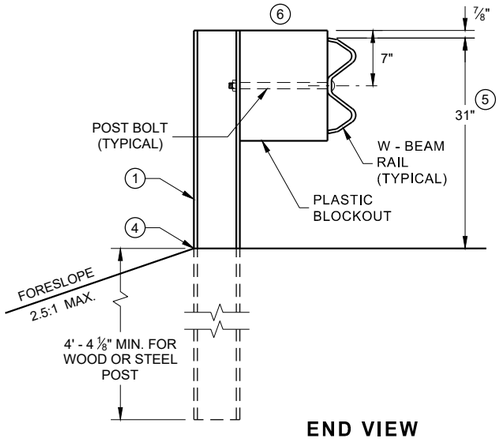
WOOD POST (6" X 8") NOMINAL (1)



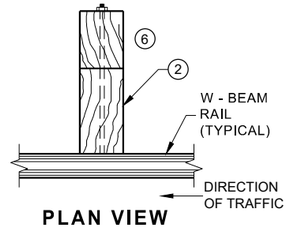
END VIEW
LOCATED ALONG A CURBED ROADWAY



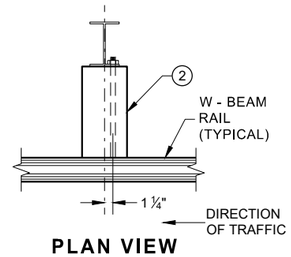
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



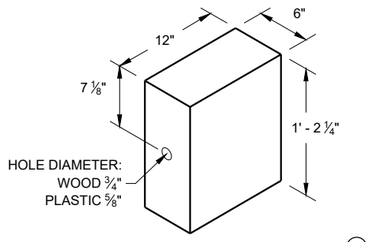
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT (2)

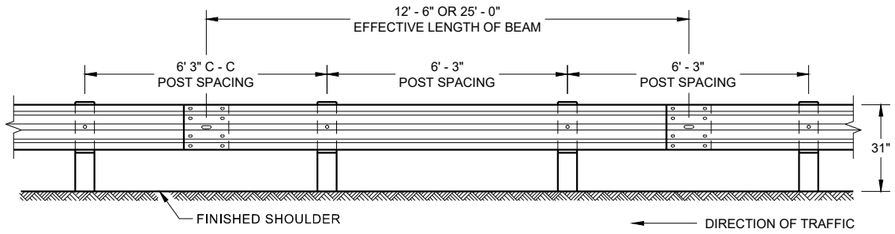
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

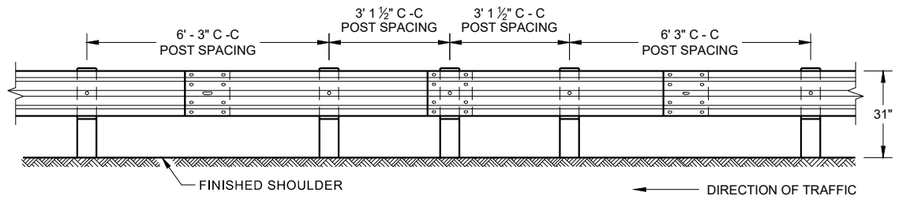
SDD 14B42 - 06a

6

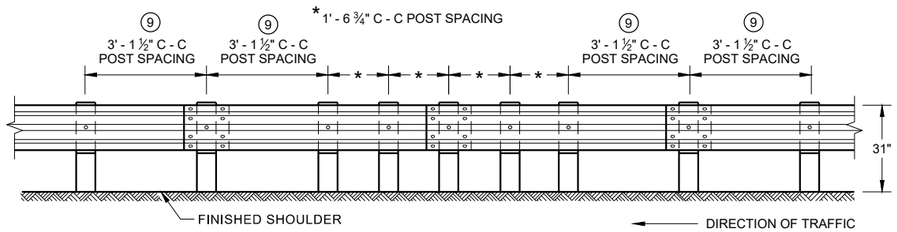
SDD 14B42 - 06a



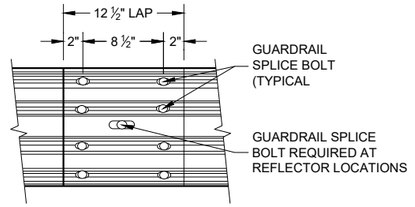
FRONT VIEW
POST SPACING STANDARD INSTALLATION



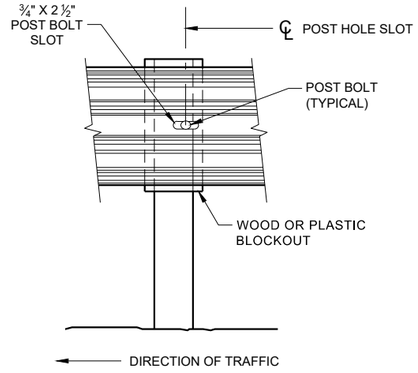
FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)



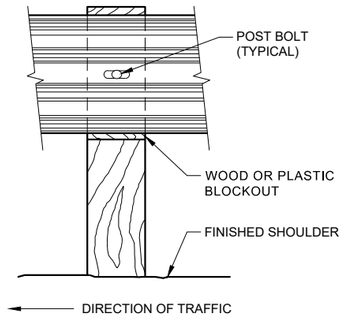
FRONT VIEW
QUARTER POST SPACING (QS)



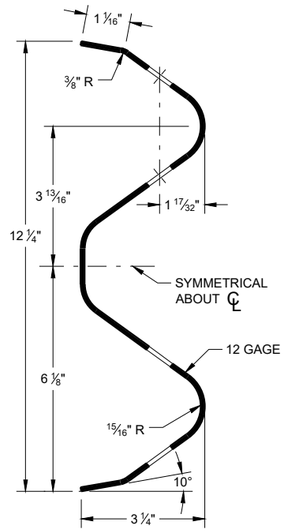
FRONT VIEW
MID-SPAN BEAM SPLICE



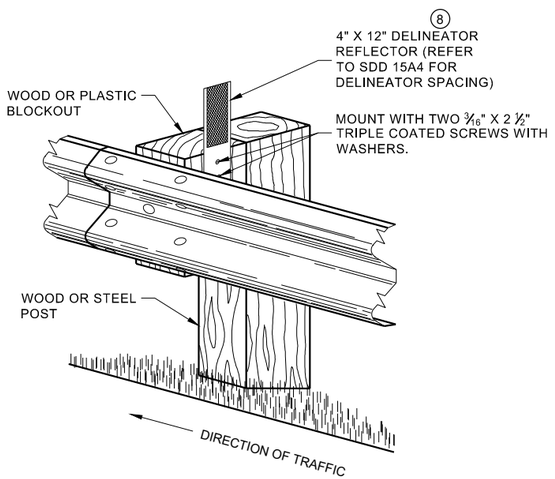
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

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.

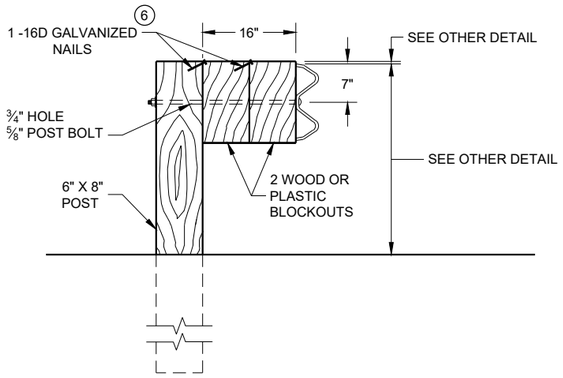
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B42 - 06b

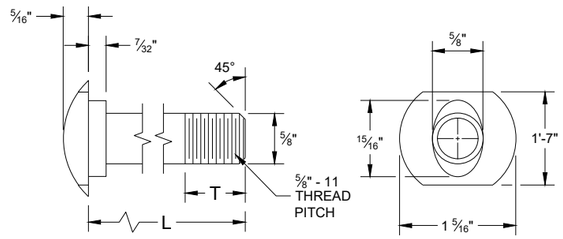


DETAIL FOR 16" BLOCKOUT DEPTH

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.

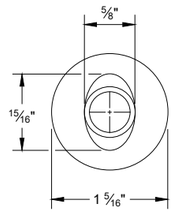
NOTE:

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.

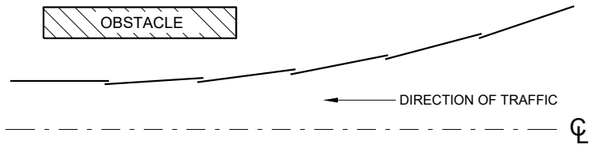


POST BOLT TABLE

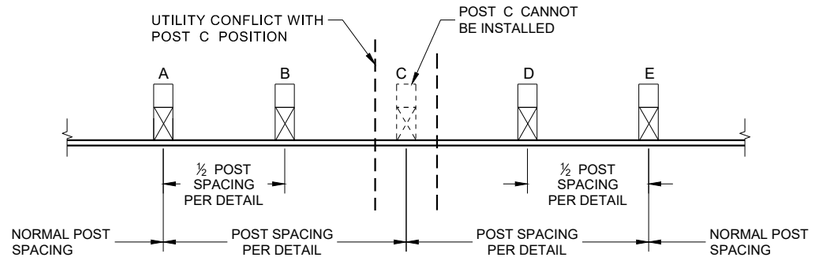
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



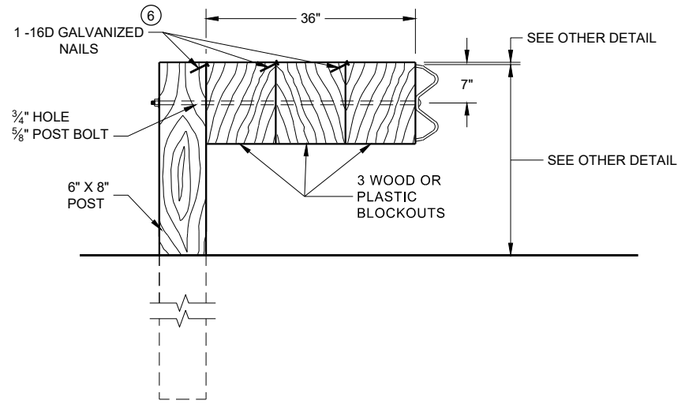
ALTERNATE BOLT HEAD



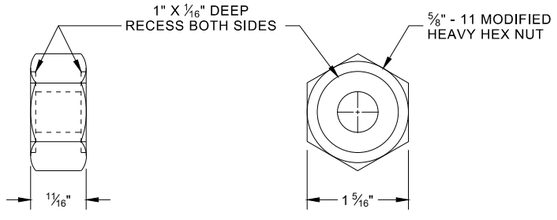
PLAN VIEW
BEAM LAPPING DETAIL



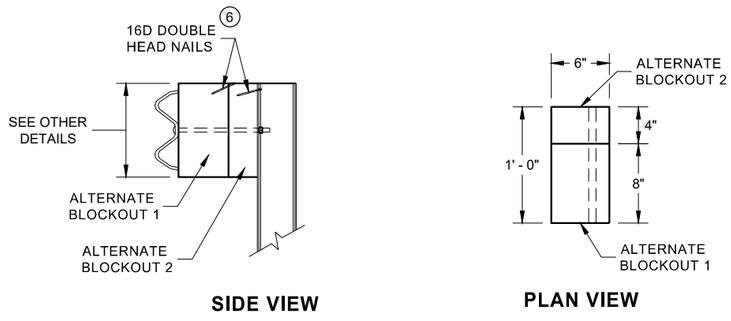
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



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.

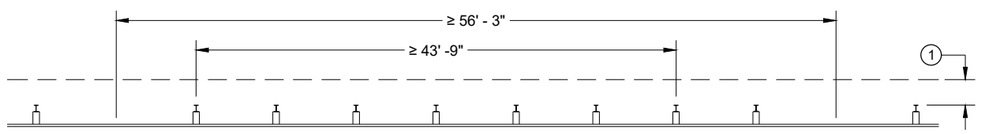
(6) WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

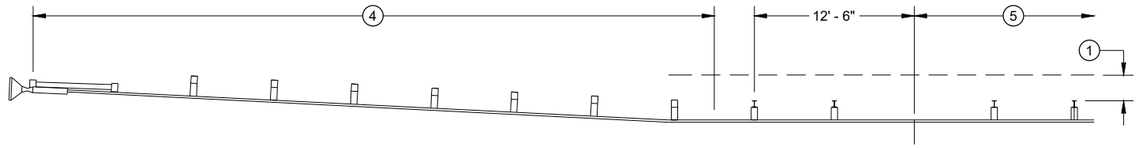
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

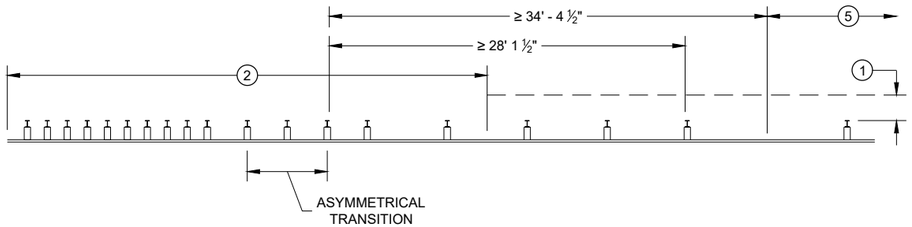
SDD 14B42 - 06c



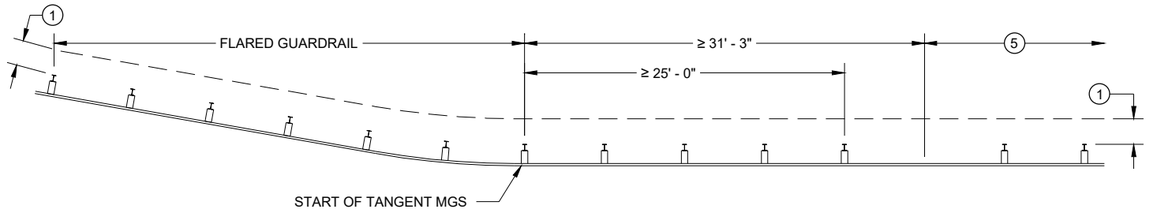
MISSING POST IN NORMAL BEAM GUARD RUN



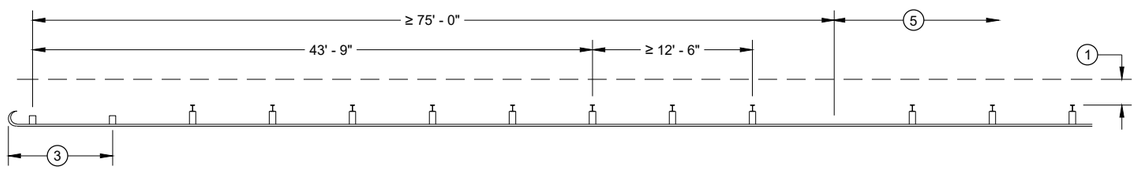
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



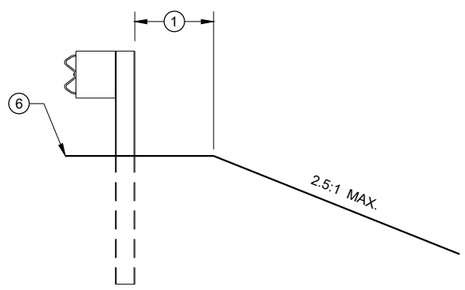
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



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

6

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.

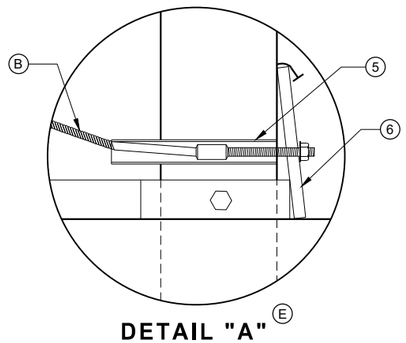
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

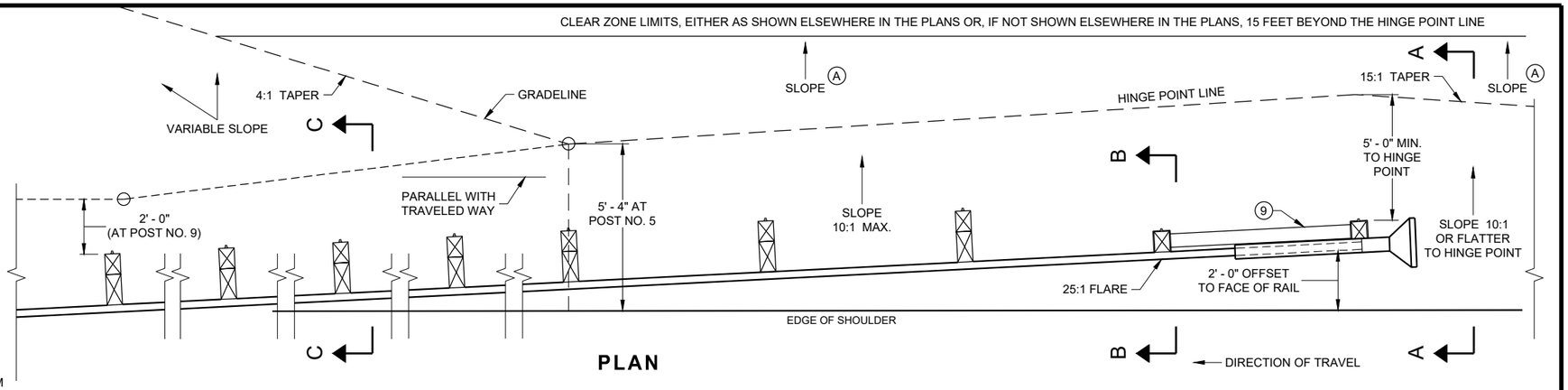
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

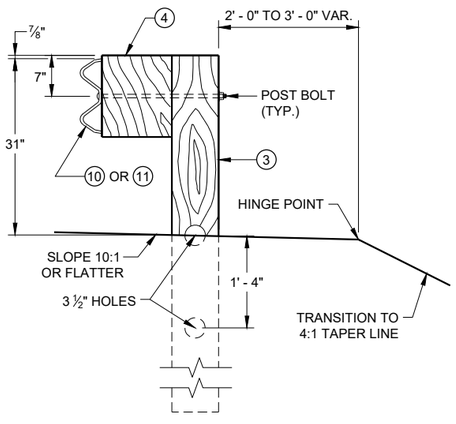
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

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.

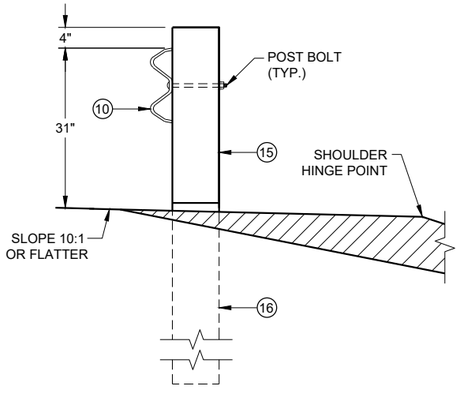


DETAIL "A" (E)

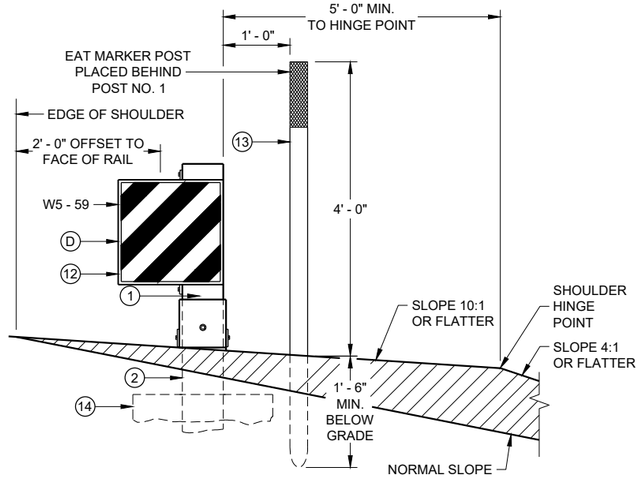




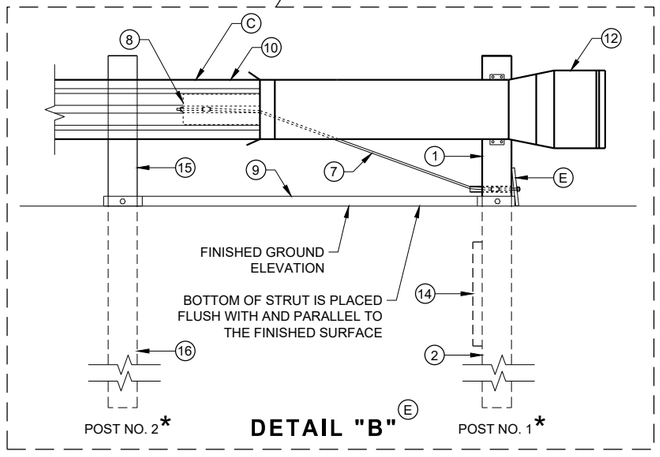
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



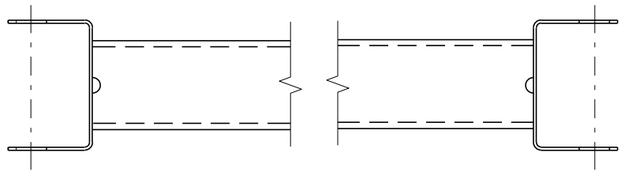
DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

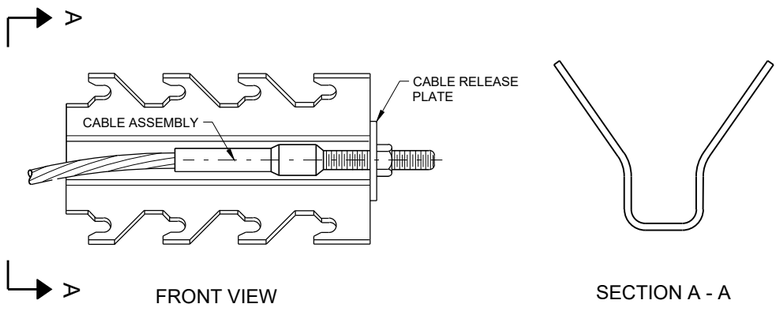
SDD 14B44 - 04a



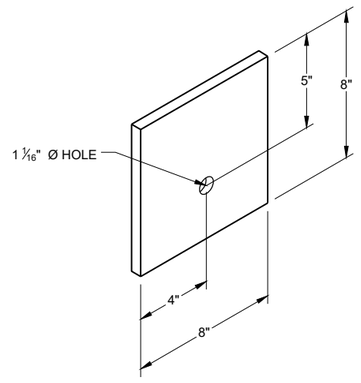
GENERIC GROUND STRUT ⑨ Ⓔ

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 ⑧ Ⓔ



BEARING PLATE ⑥ Ⓔ

6

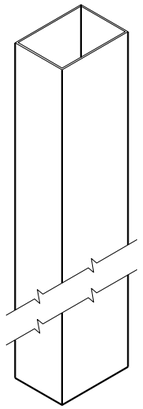
6

SDD 14B44 - 04b

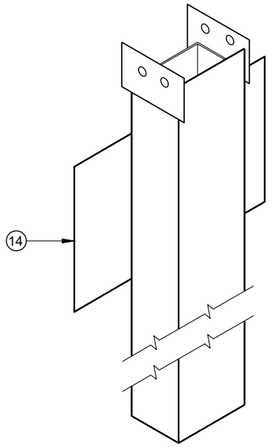
SDD 14B44 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

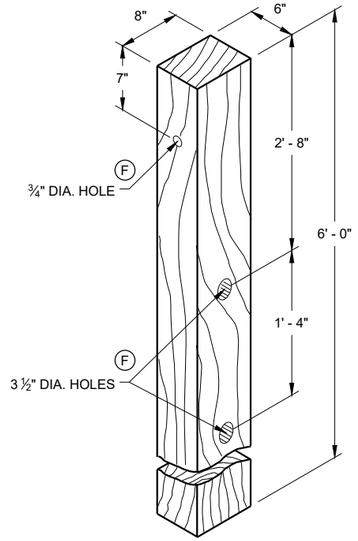
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



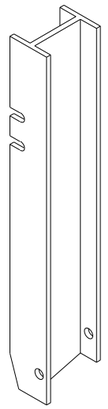
UPPER POST NO. 1 (1) (E)



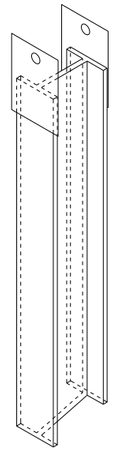
LOWER POST NO. 1 (2) (E)



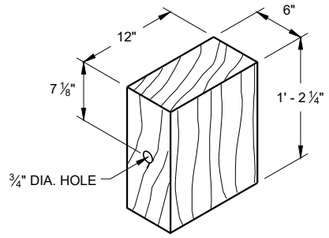
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



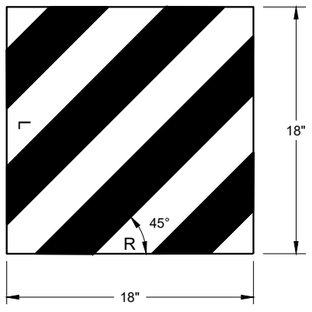
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

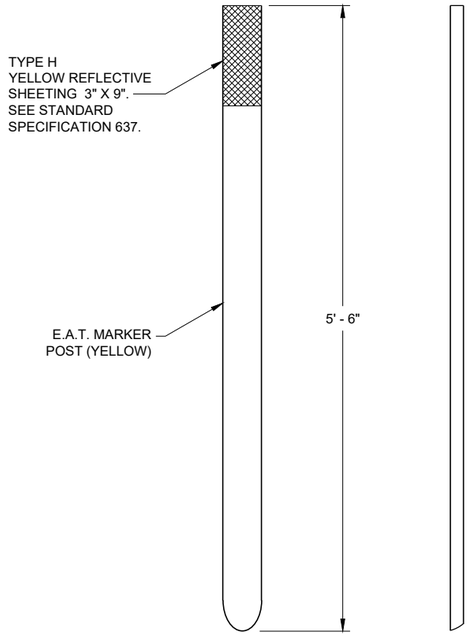


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



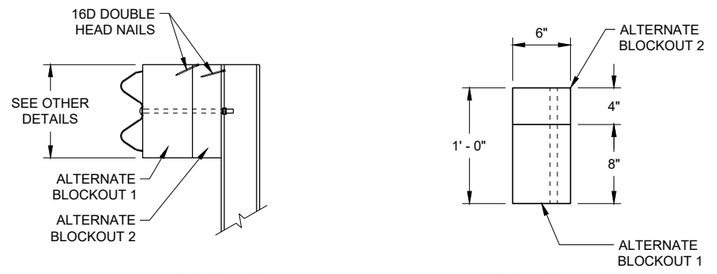
W5 - 59

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)

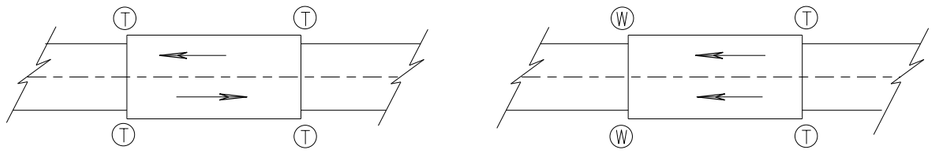
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

SDD 14B44 - 04c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

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

TRANSITION USES STEEL POSTS ONLY.

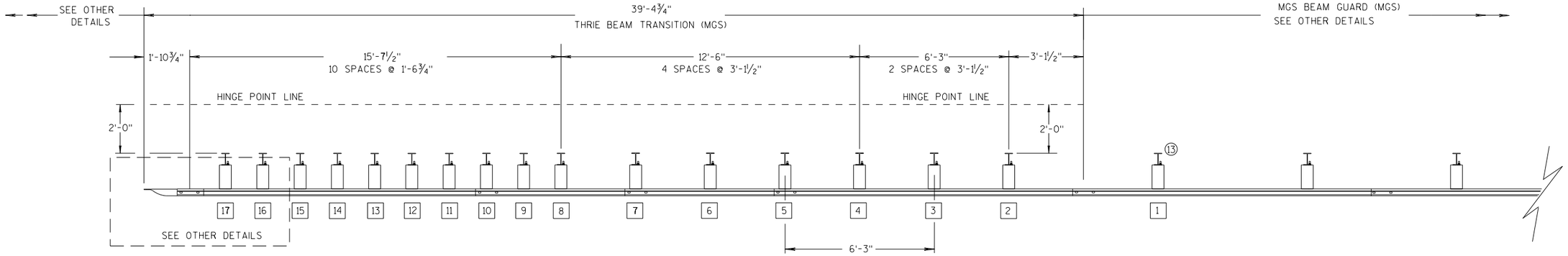
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

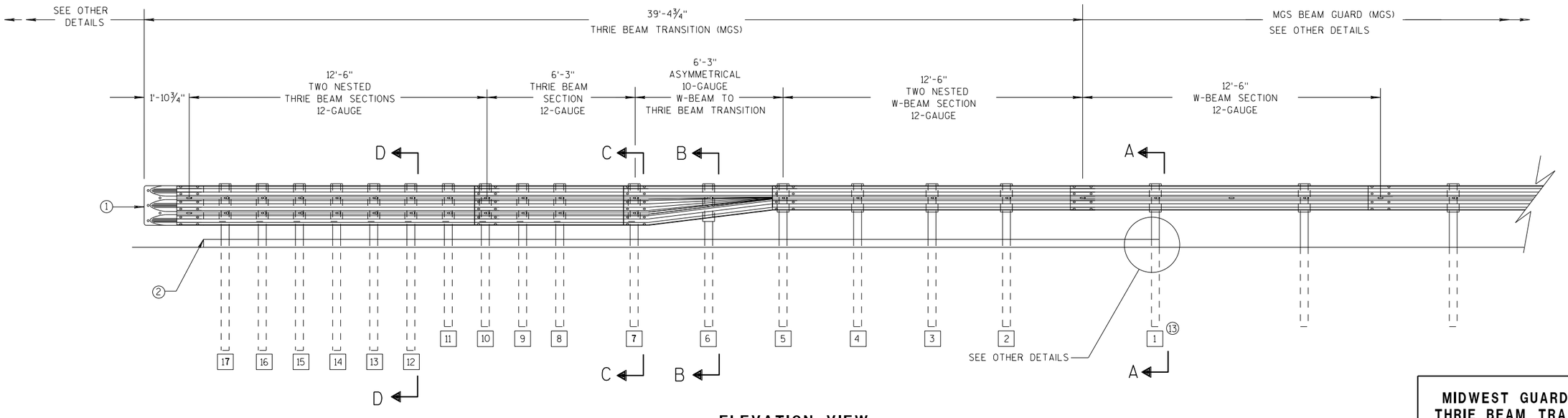
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 45-5a

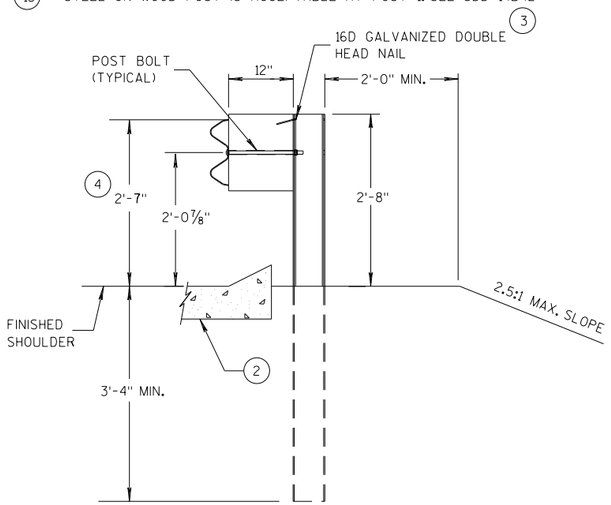
GENERAL NOTES

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

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

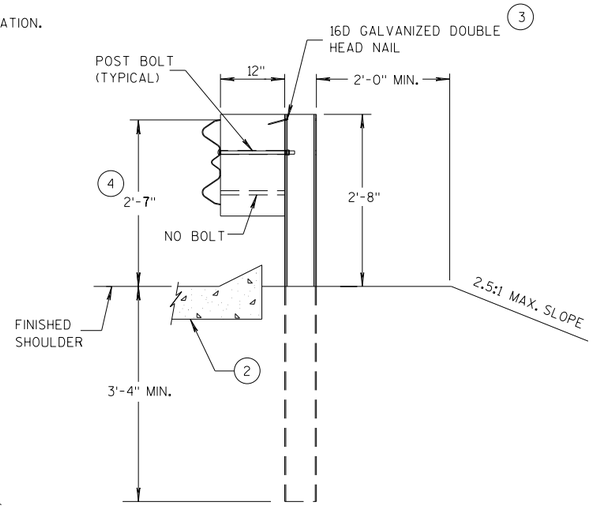
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



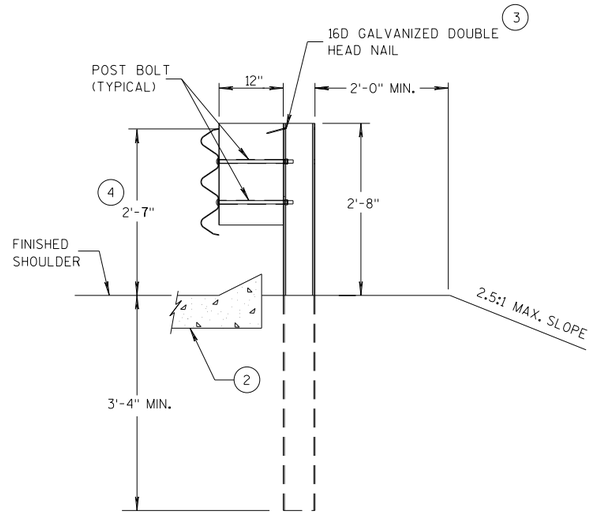
SECTION A-A (13)

POSTS 1-5



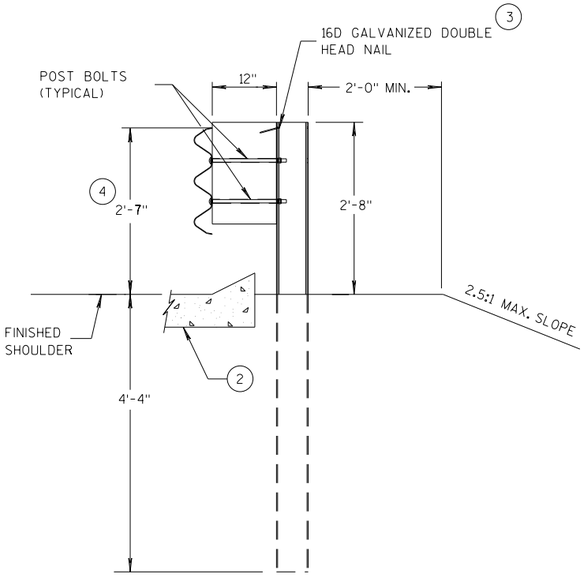
SECTION B-B

POST 6



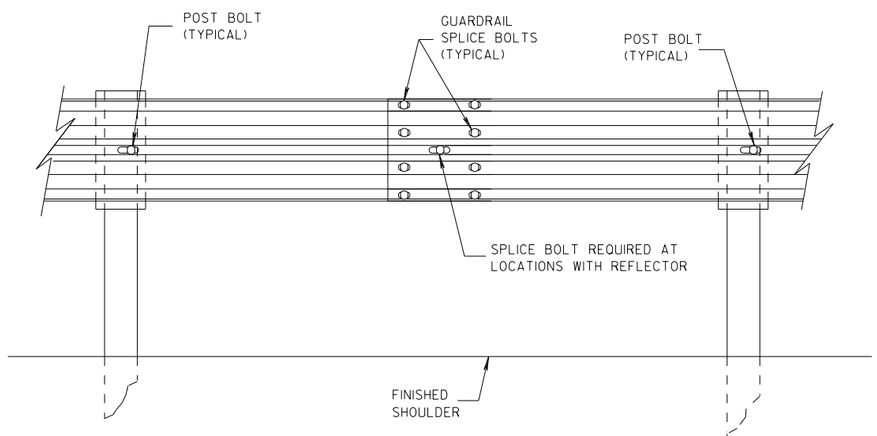
SECTION C-C

POSTS 7-11



SECTION D-D

POSTS 12-17



SPLICE DETAIL

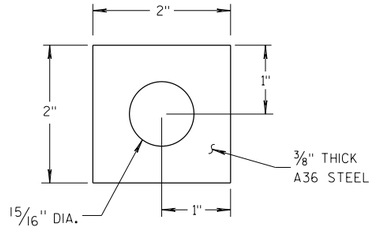
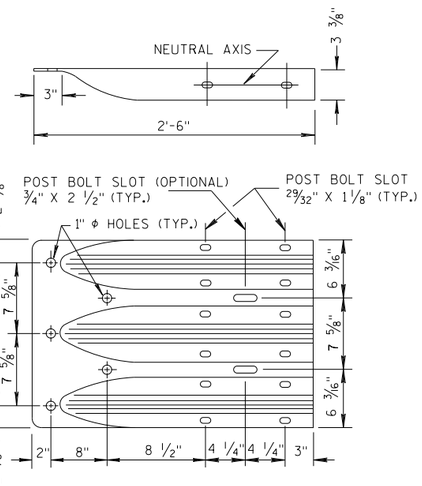
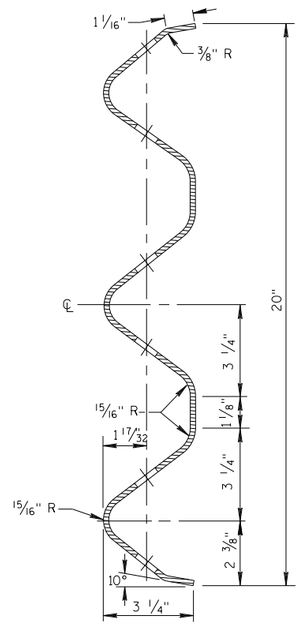


PLATE WASHER DETAIL



THRIE BEAM TERMINAL CONNECTOR



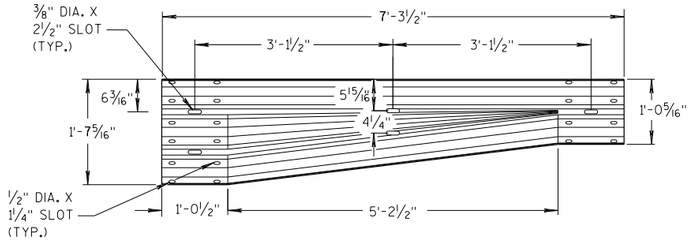
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

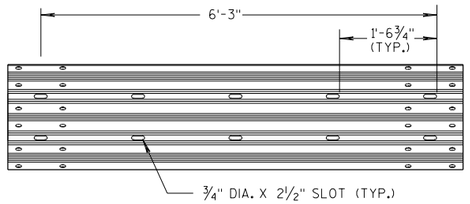
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

6

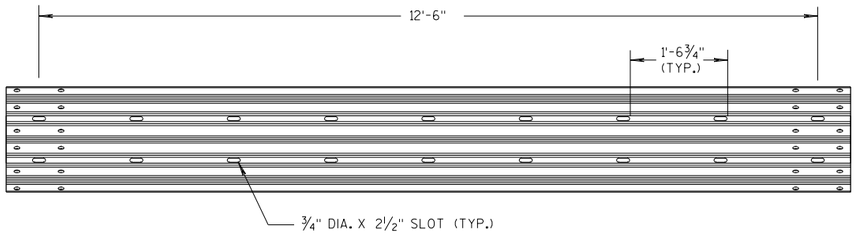
S.D.D. 14 B 45-5b



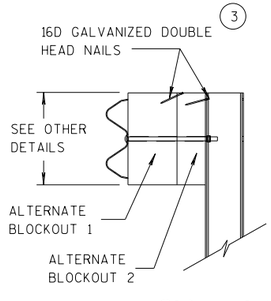
W-BEAM TO THRIE BEAM TRANSITION SECTION



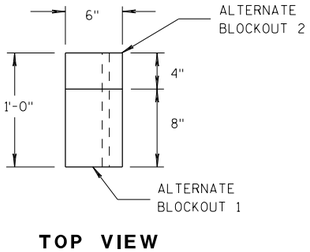
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

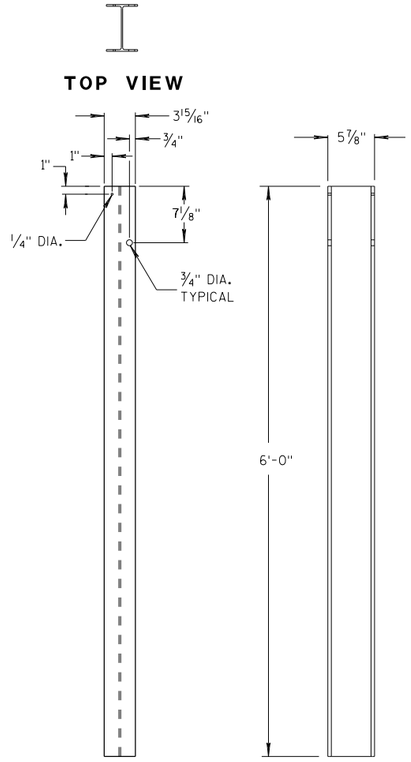


SIDE VIEW



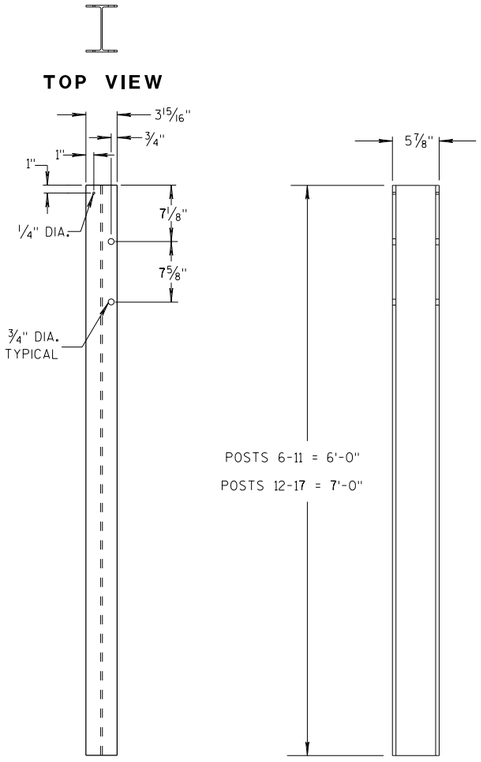
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



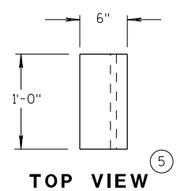
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

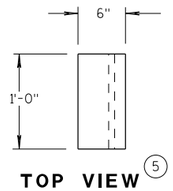


FRONT VIEW SIDE VIEW

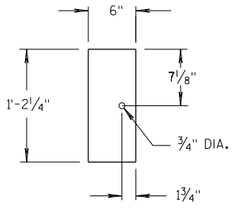
STEEL POSTS 6-17



TOP VIEW (5)

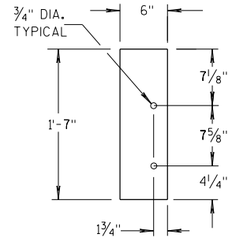


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

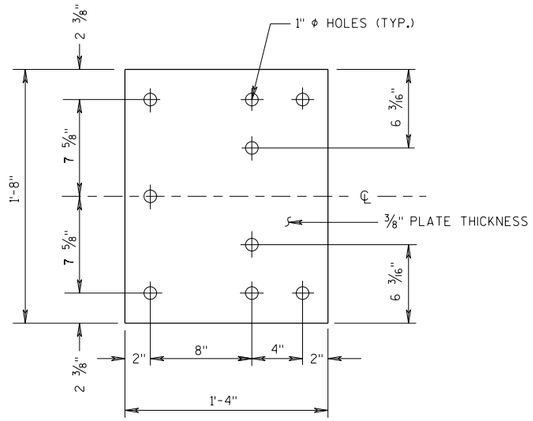
(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

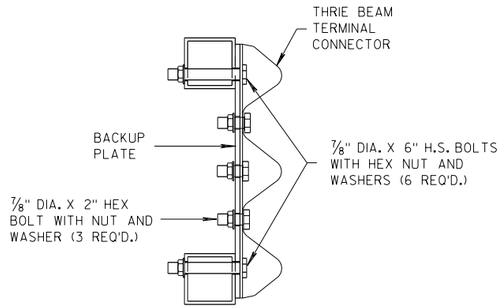
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

6

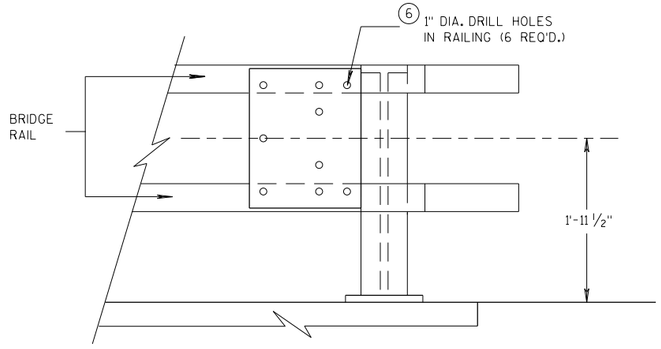
S.D.D. 14 B 45-5c



BACK-UP PLATE DETAIL



SECTION J-J

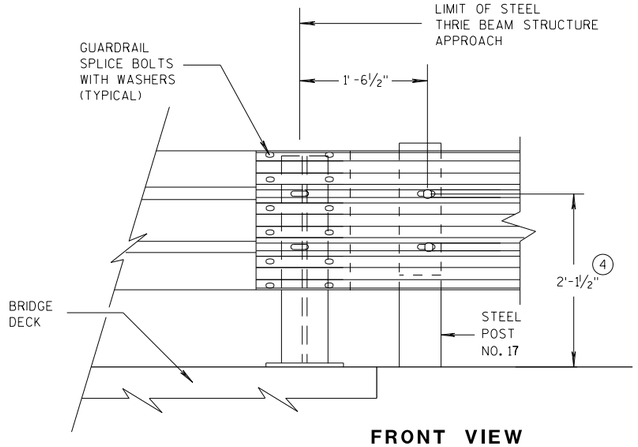


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

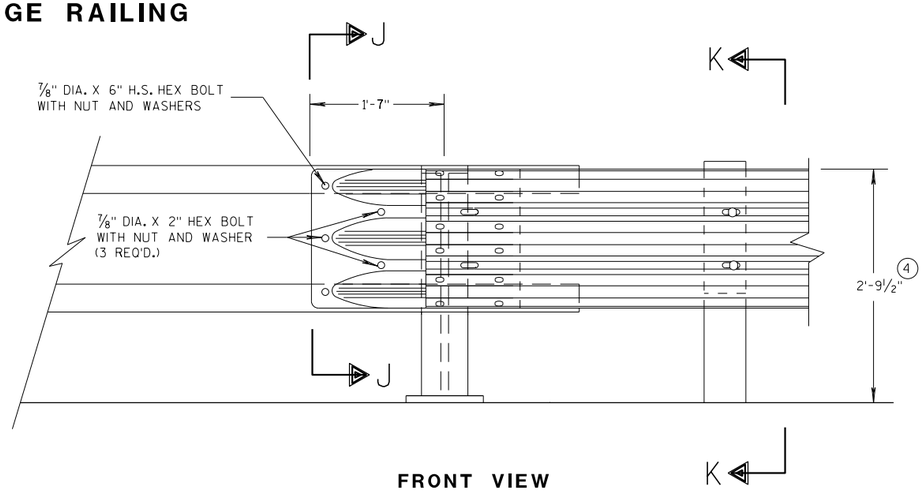
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

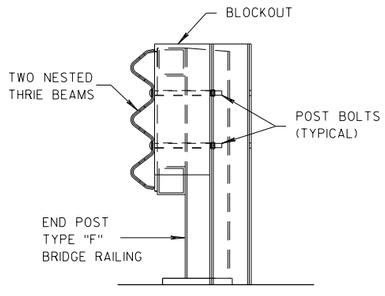


FRONT VIEW

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 07/2018 — DATE — FHWA

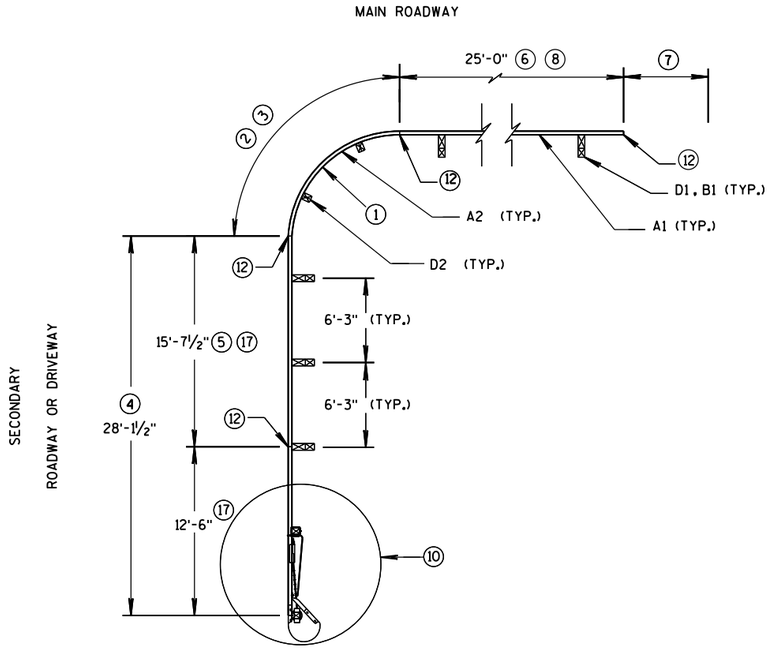
/S/ Rodney Taylor 69 — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

6

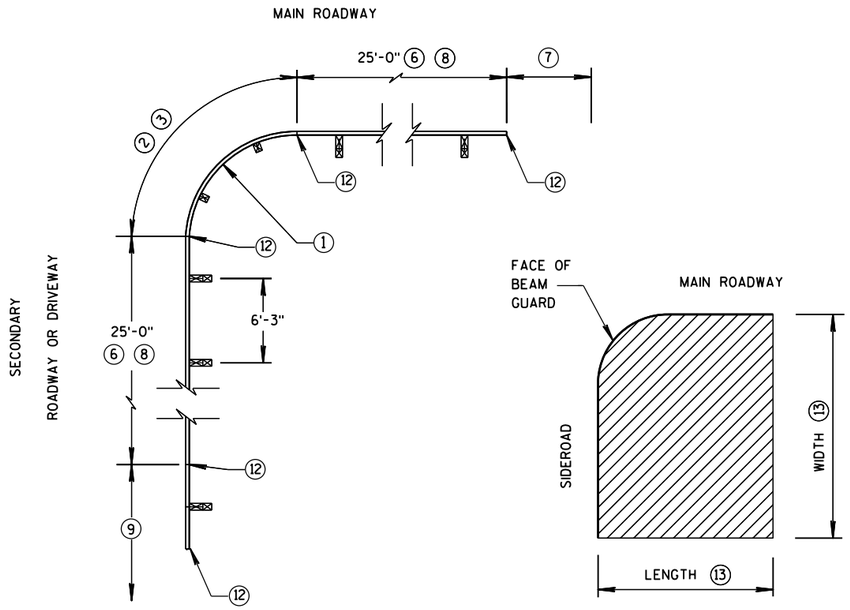
S.D.D. 14 B 45-5g

6

S.D.D. 14 B 45-5g



SHORT RADIUS BEAM GUARD WITH SHORT RADIUS TERMINAL ON SECONDARY ROAD OR DRIVEWAY PLAN VIEW



SHORT RADIUS BEAM GUARD WITH EAT, ADDITIONAL BEAM GUARD OR TRANSITION TO RIGID BARRIER ON SECONDARY ROAD OR DRIVEWAY PLAN VIEW

AREA FREE OF FIXED OBJECTS FOR RADIUS 32' AND LESS (16)

TABLE FOR RADIUS OF 32' AND LESS

RADIUS FT	LENGTH FT	WIDTH FT
8	25	15
16	30	15
24	40	20
32	50	30

GENERAL NOTES

SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.

SEE 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.

GALVANIZE PARTS AFTER FABRICATION.

WELDING IS TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1

UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.

UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERITCAL.

ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUTS.

UNLESS NOTED OTHERWISE CUT OR PROVIDE BOLTS THAT ARE ¼" TO ½" BEYOND THE NUT

DRAWINGS ARE NOT TO SCALE.

(1) RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.

(2) CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6'-3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE TERMINAL (CRT) POSTS.

(3) WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAILS RESTED ON TOP OF LAG SCREW.

(4) MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID FOR WITH BEAM GUARD ITEM.

(5) ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.

(6) MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.

(7) BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. SEE PLAN.

(8) TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.

(9) ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.

(10) SHORT RADIUS TERMINAL (SEE OTHER DETAILS)

(11) HEIGHT VARIES. SEE NOTE (8) AND (17).

(12) BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRE PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.

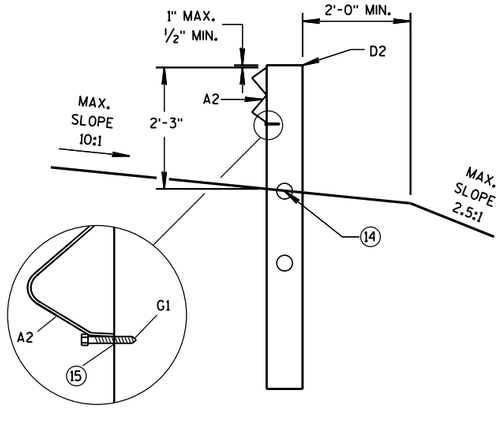
(13) SEE TABLE FOR VALUES.

(14) MAXIMUM HEIGHT FOR CENTER OF HOLE IS ¾" ABOVE FINISHED GROUND ±1".

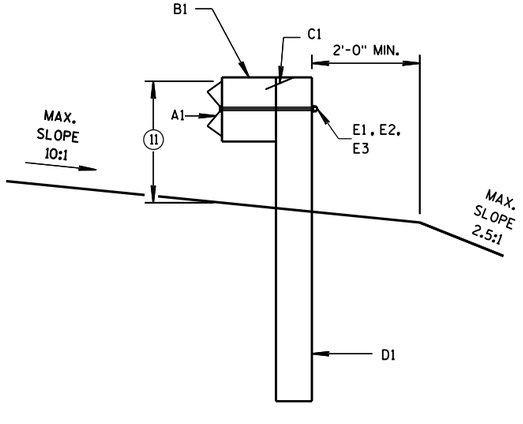
(15) DRILL 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.

(16) SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.

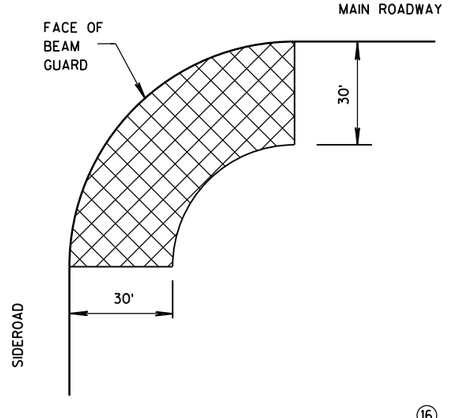
(17) TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL.



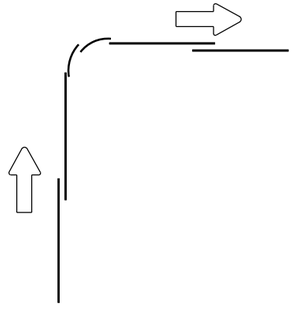
CONTROLLED RELEASE TERMINAL POST (CRT) IN RADIUS



BEAM GUARD POSTS IN HEIGHT TRANSITION



AREA FREE OF FIXED OBJECTS (16) RADIUS GREATER THAN 32'



LAP SPLICE DETAIL

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

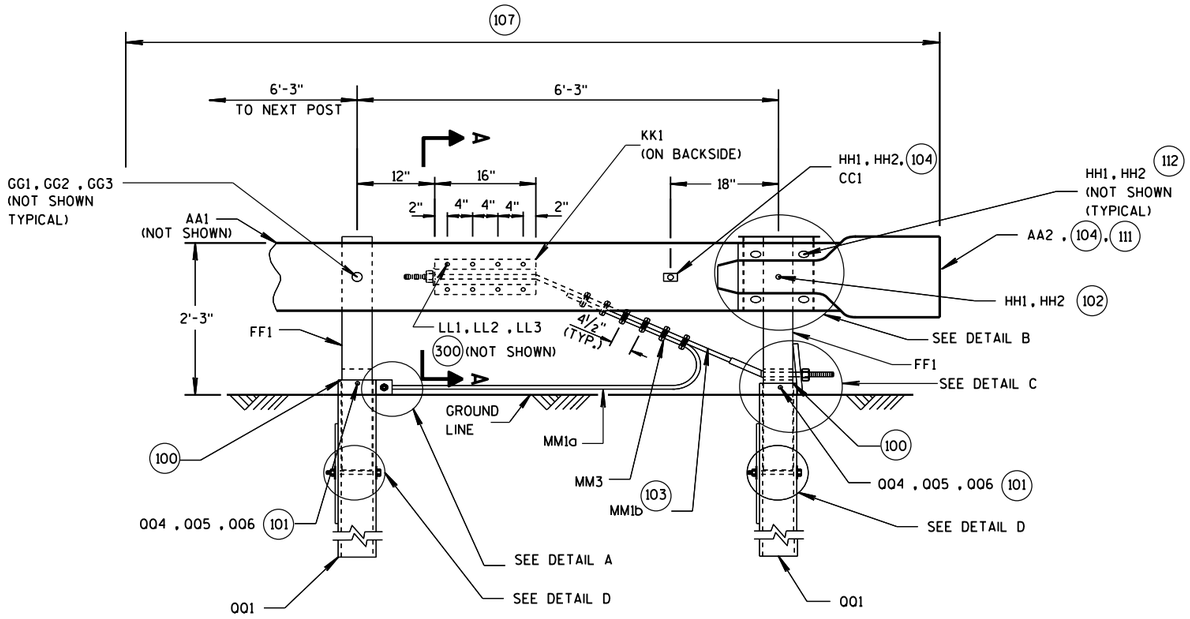
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 70

6

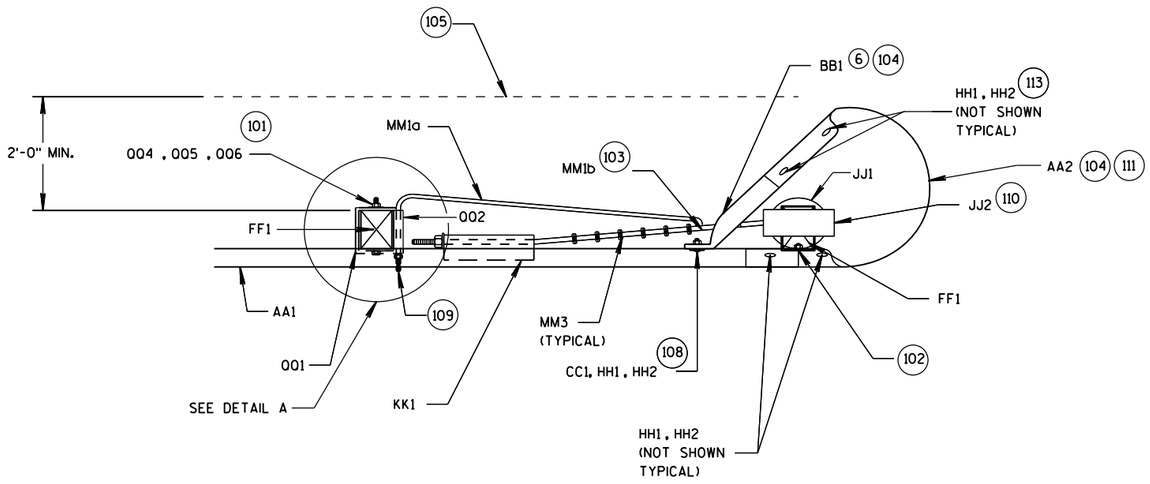
S.D.D. 14 B 53-1a

6

S.D.D. 14 B 53-1a



SHORT RADIUS TERMINAL
PROFILE VIEW



SHORT RADIUS TERMINAL
TOP VIEW

(100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.

(101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.

(102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM END SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL B.

(103) CABLE IS TAUT.

(104) ADJUST AA2 AND BB1 TO FIT.

(105) BREAK POINT OF SHOULDER.

(106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL A PROFILE VIEW.

(107) PAY LIMIT FOR BEAM GUARD.

(108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.

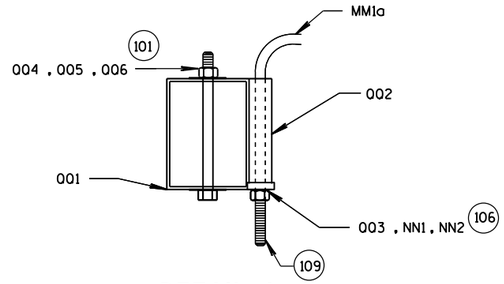
(109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.

(110) SEE STEEL PIPE ASSEMBLY DETAILS.

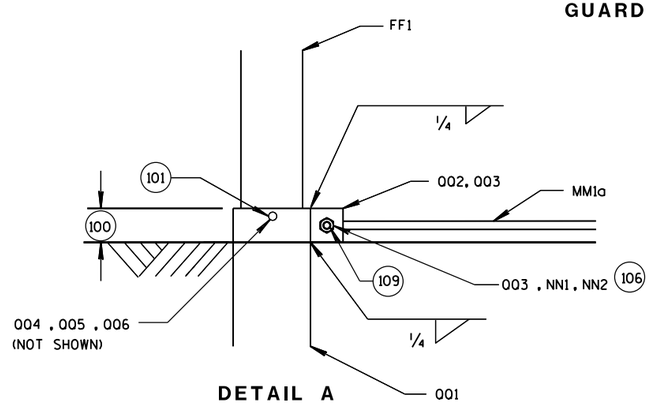
(111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.

(112) FOUR HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.

(113) FOUR HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.



DETAIL A
TOP VIEW
(WOOD BREAKAWAY AND BEAM GUARD RAIL POSTS NOT SHOWN)



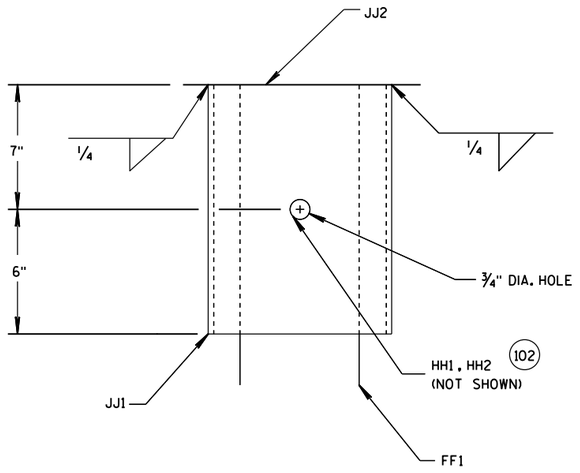
DETAIL A
PROFILE VIEW

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL
MGS

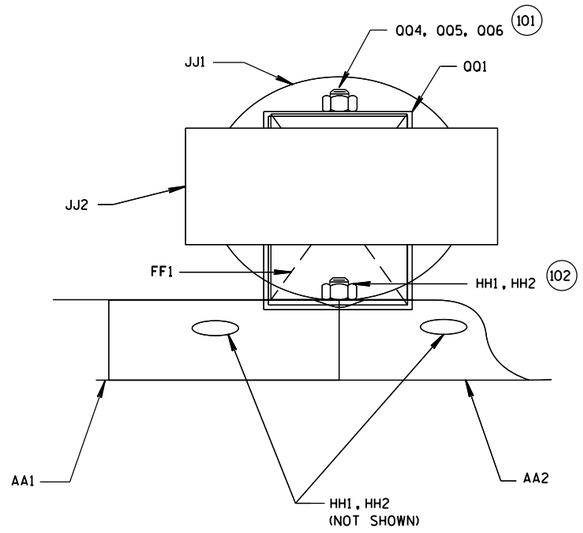
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 53-1b

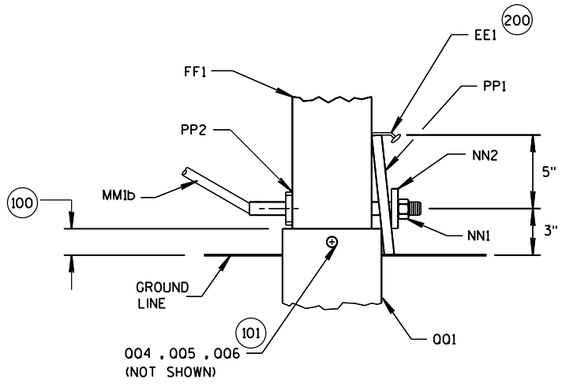


DETAIL B
PROFILE VIEW OF STEEL PIPE ASSEMBLY
(BEAM GUARD AND W-BEAM
END SECTION NOT SHOWN)

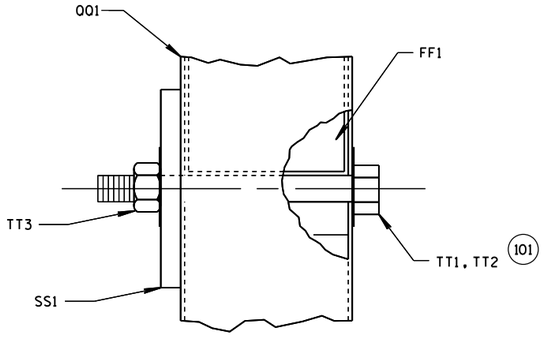


DETAIL B
PLAN VIEW OF STEEL PIPE ASSEMBLY

200 2 NAILS SPACED 4 INCHES CENTER TO CENTER.



DETAIL C
PROFILE VIEW



DETAIL D
PROFILE VIEW

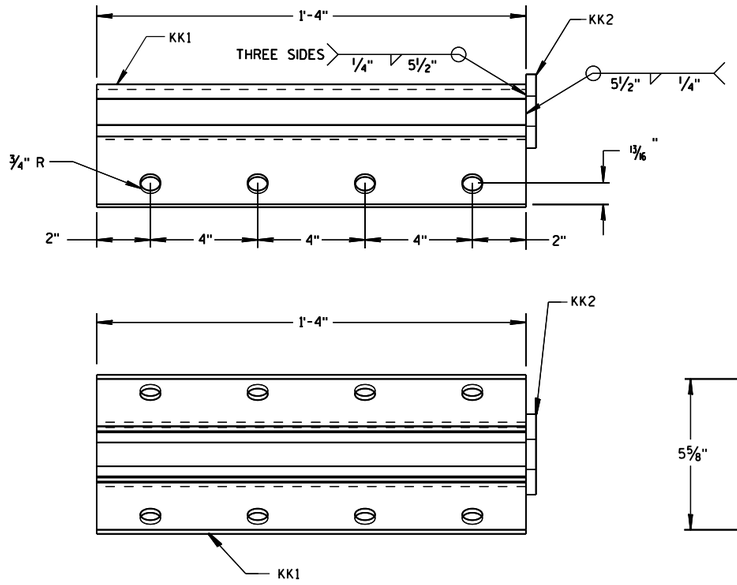
SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

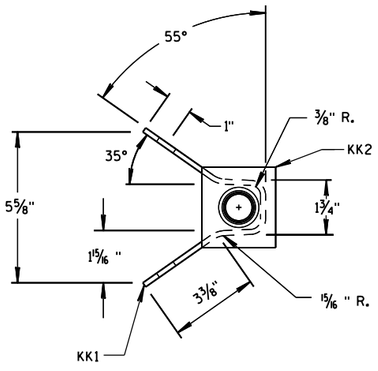
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

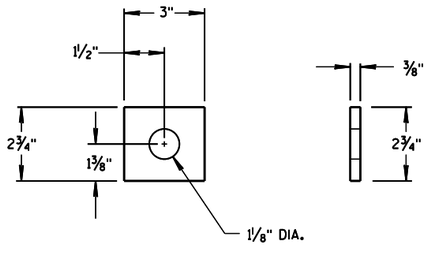
S.D.D. 14 B 53-1c

(300) WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT LL1 AND LL3 REQUIRED. SIXTEEN LL2 REQUIRED.

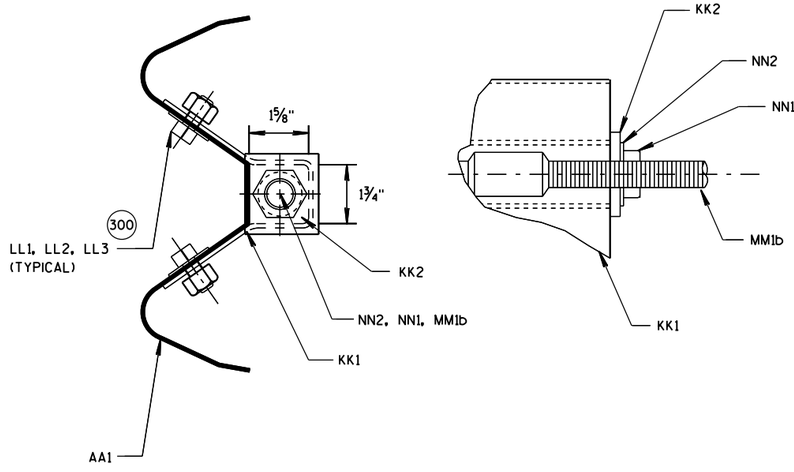




ANCHOR BRACKET (KK1, KK2)



ANCHOR BRACKET BEARING PLATE (KK2)

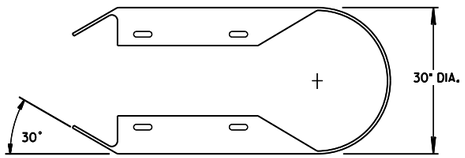


SECTION A-A

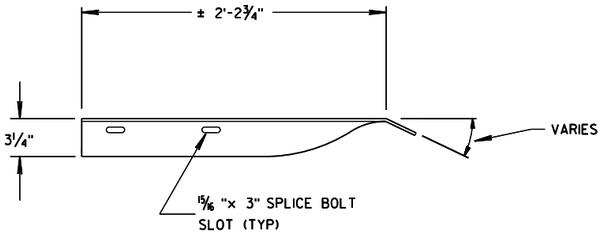
SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 53-1d



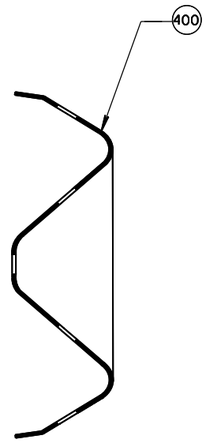
TOP VIEW



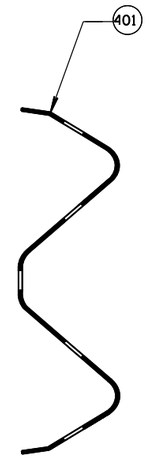
TOP VIEW

(400) CROSS SECTON OF PART IS TO FIT OVER AA1.

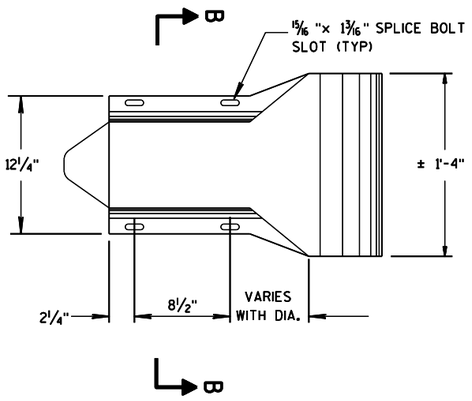
(401) CROSS SECTON OF PART IS TO FIT OVER OR UNDER AA1.



SECTION B-B

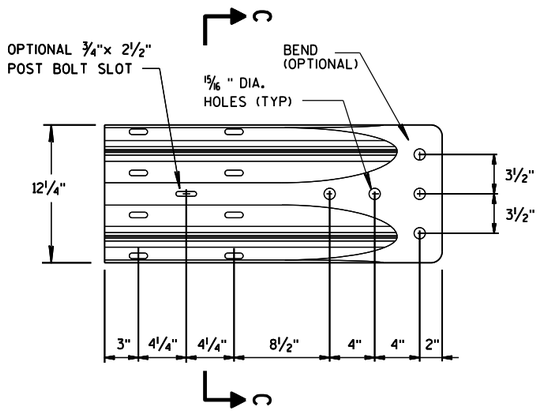


SECTION C-C



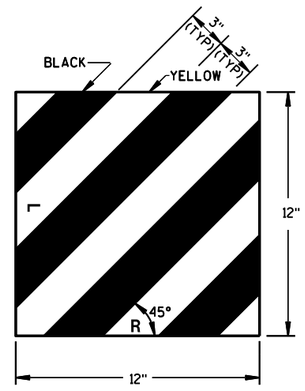
W-BEAM
END SECTION BUFFER (AA2)

PROFILE VIEW



W-BEAM
TERMINAL CONNECTOR (BB1)

PROFILE VIEW



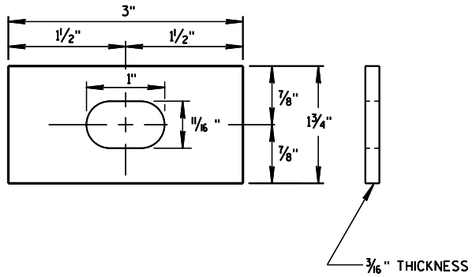
REFLECTIVE SHEETING
(UU1, UU2)

SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

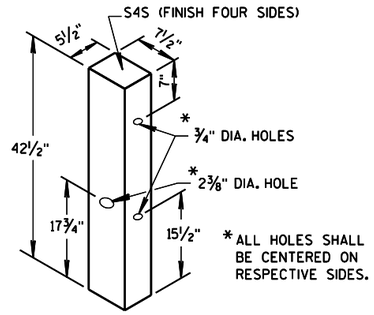
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

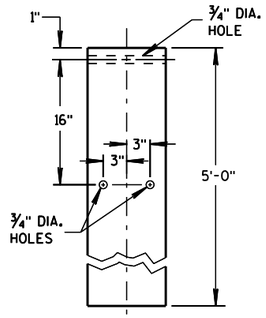
S.D.D. 14 B 53-1e



RECTANGULAR PLATE WASHER (CC1)



WOOD BREAKAWAY POST (FF1)



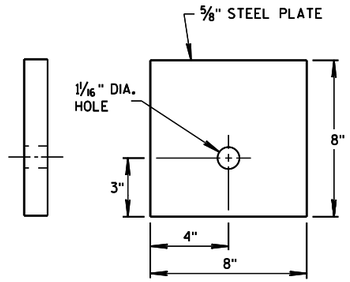
FOUNDATION TUBE (QQ1) (500)

(500) SEE DETAIL "D" FOR LOCATION AND ATTACHING SS1.

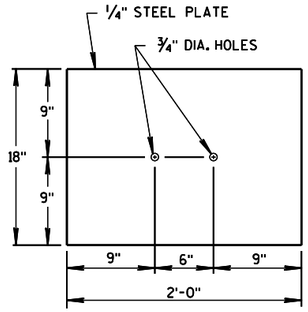
(501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.

(502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.

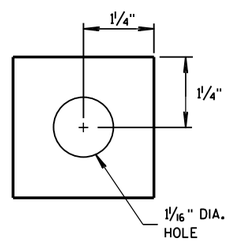
(503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).



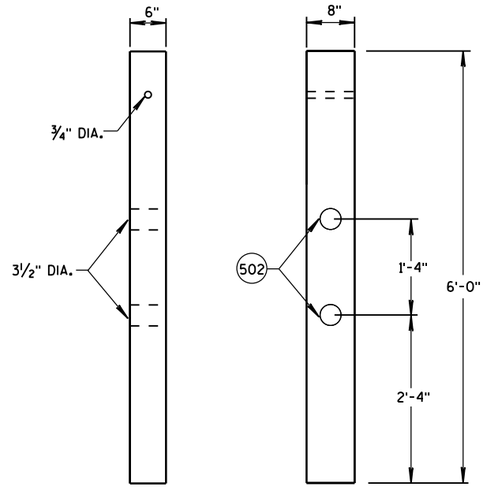
BEARING PLATE (PP1)



SOIL PLATE (SS1)

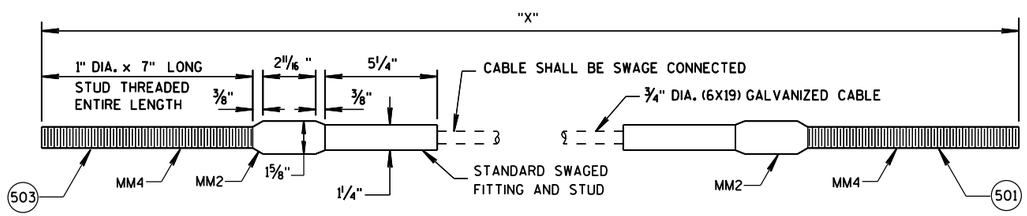


TUBE END PLATE (QQ3)



FRONT VIEW SIDE VIEW

CONTROLLED RELEASE TERMINAL POST (CRT) (D2)



"X" LENGTH	
MM1a	9'-0"
MM1b	6'-8"

CABLE ASSEMBLY (MM1a , MM1b)

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 53-1f

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT-WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111/ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329	
E3	POST BOLT - NUT		5/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291/ ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR GEOMETRY AND OTHER INFORMATION
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291/ ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	3/8" DIA. 3" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO 76

6

S.D.D. 14 B 53-1g

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	SEE 14B42 FOR GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE 14B42 FOR GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	SEE 14B42 FOR GEOMETRY
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 3/8" X 4" X 1'-0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
		UNC	
NN2	ANCHOR CABLE - NUT - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	1" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
PP1	BEARING PLATE AT POST	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	

6

S.D.D. 14 B 53-1h

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
003	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2½" X 2½" X ¼"
		GALV. AASHTO M111 / ASTM A123	
004	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	⅝" DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
005	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	⅝" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
006	GROUND STRUT AND YOKE - NUT	HEAVY HEX	⅝" DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
SS1	SOIL PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	⅝" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	⅝" DIA.
		GALV. AASHTO M111 / ASTM A123 OR5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	⅝" DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING SHEETING TYPE FOR MARKER
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

6

S.D.D. 14 B 53-1i

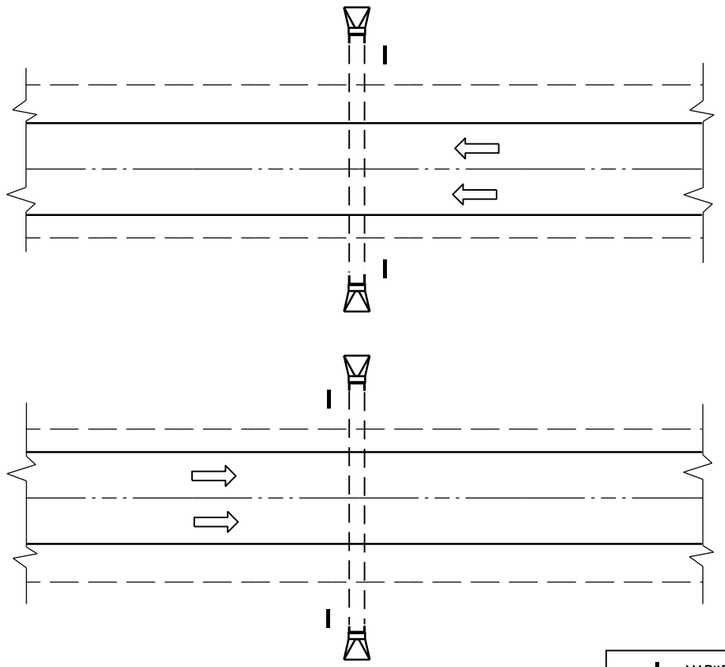
6

S.D.D. 14 B 53-1i

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

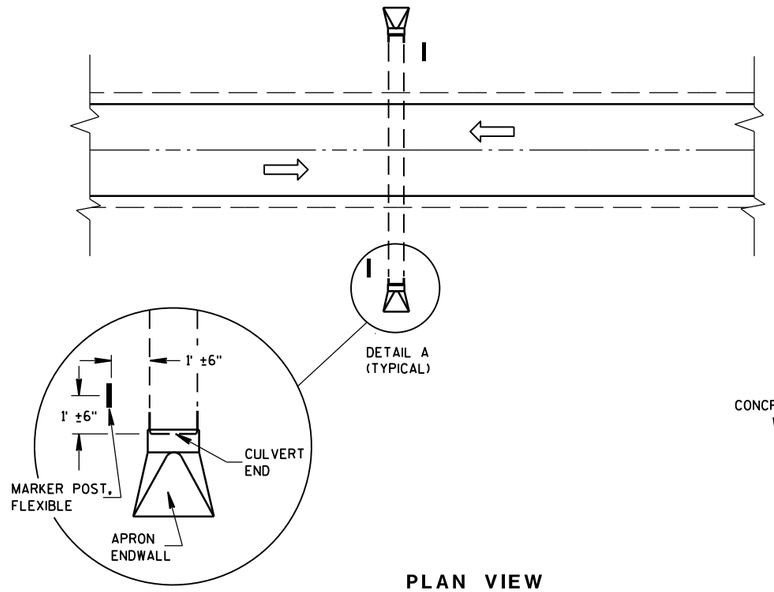
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D
UNIT SUPERVI
FHWA



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

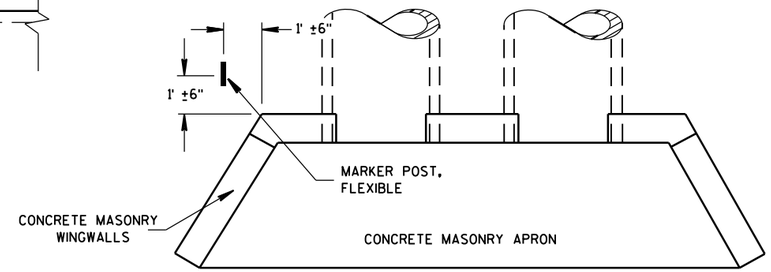
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

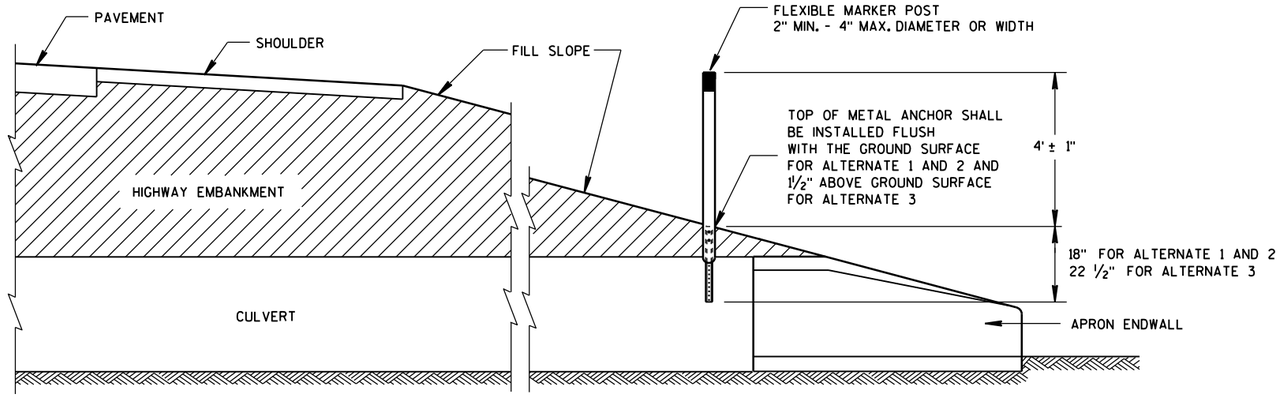
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



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

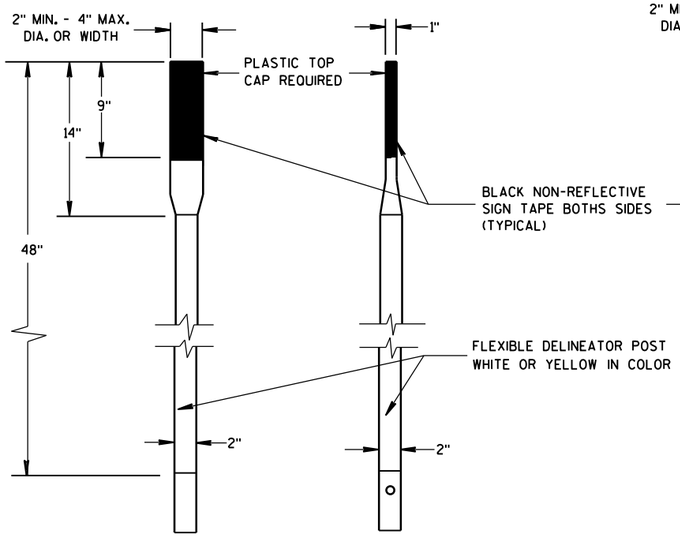
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

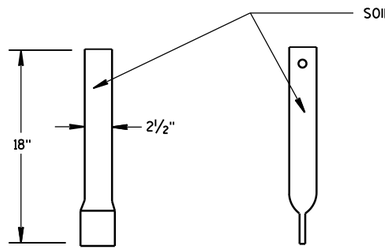
6

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

6

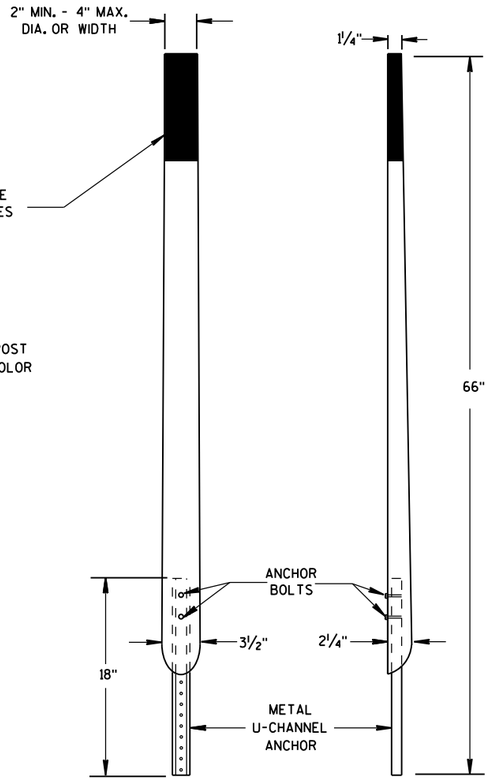
S.D.D. 15 A 3-2a





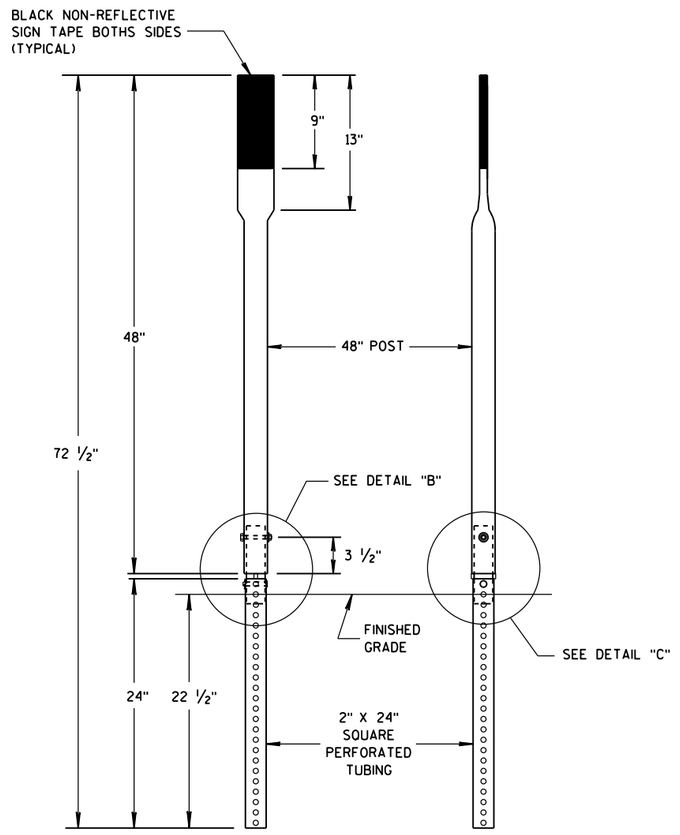
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

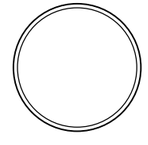
ALTERNATE 2



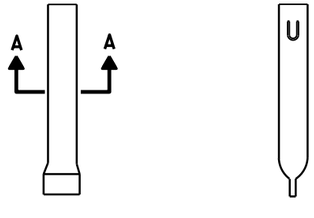
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POSTS

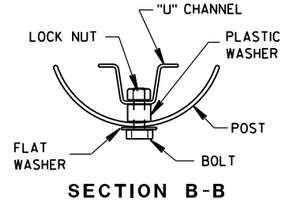


SECTION A-A

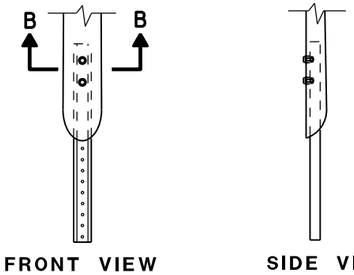


FRONT VIEW SIDE VIEW

ALTERNATE 1

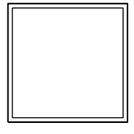


SECTION B-B

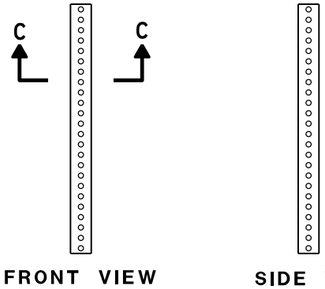


FRONT VIEW SIDE VIEW

ALTERNATE 2



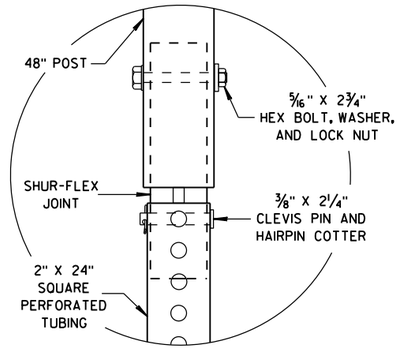
SECTION C-C



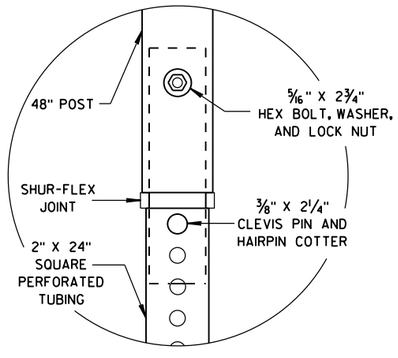
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

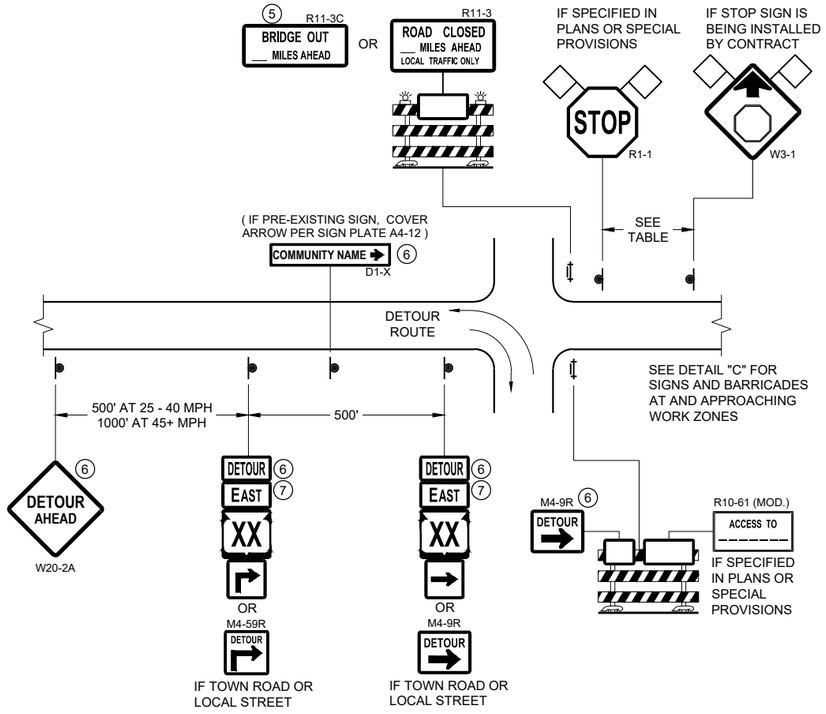
APPROVED
10/1/2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

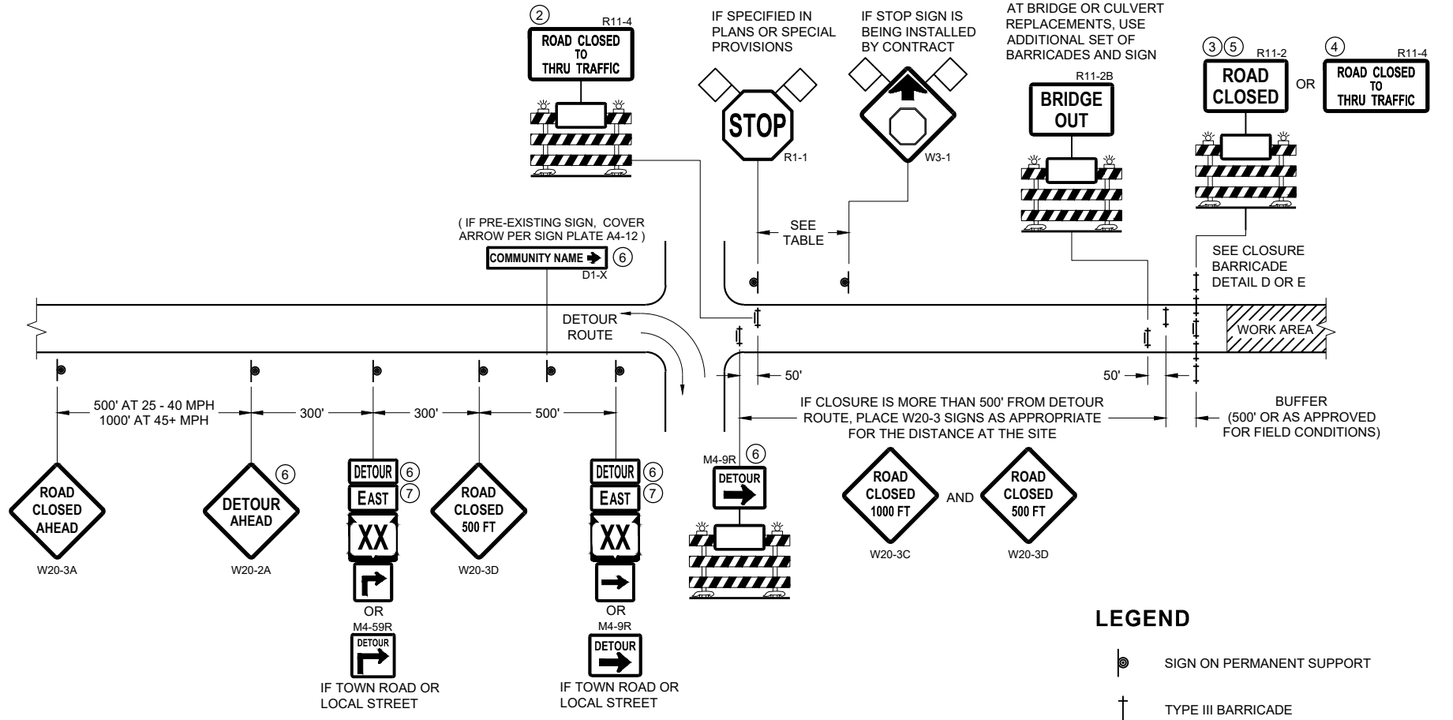
6

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

6

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





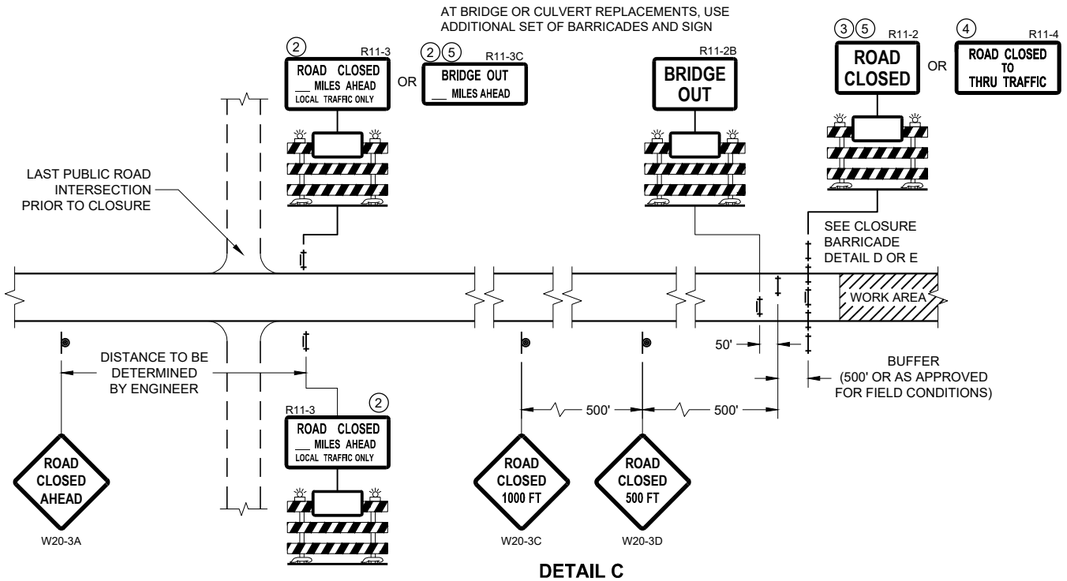
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

DETOUR M4 - 8
EAST M3 - X
XX M1 - 4 OR XX M1 - 6 OR COUNTY X M1 - 5A
M05 - 1 OR M06 - 1



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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

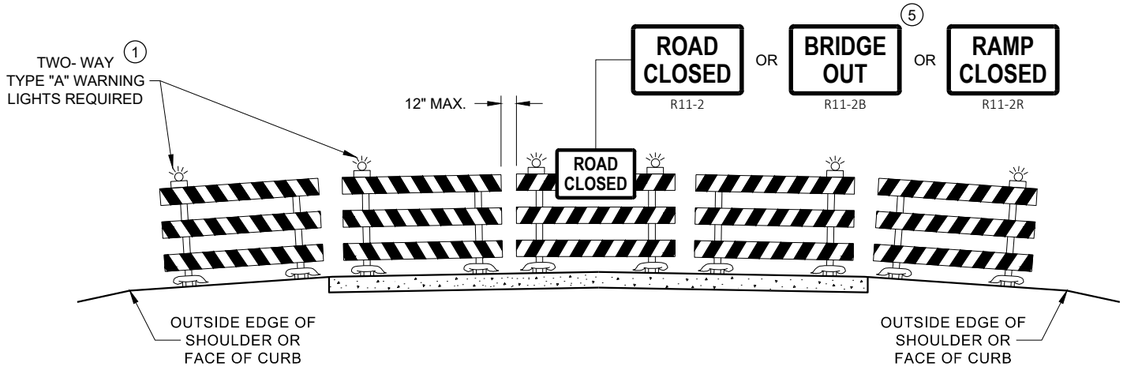
APPROVED
November 2018
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

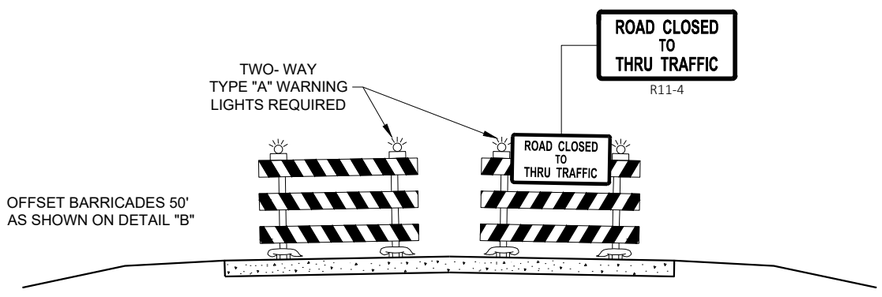
6

SDD 15C02 - 07a

SDD 15C02 - 07a



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 THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL 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 SHALL, 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" (36" X 18" 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)
- 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 AN 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 ROAD 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 VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER
FHWA

6

SDD 15C02 - 07b

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR — M4 - 8
- EAST — M3 - X
- XX — M1 - 4 OR XX — M1 - 6 OR COUNTY X — M1 - 5A
- M05 - 1 OR M06 - 1 OR M06 - 1

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" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (30" X 30" 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)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A 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.

M3-X 24" X 12"
M1-X 24" X 24"
DETOUR AHEAD
W20-2A
USE ON STATE TRUNK, U.S. OR INTERSTATE HIGHWAYS, OR AS SPECIFIED IN THE CONTRACT

500' AT 25-40 MPH
1000' AT 45+ MPH

500'

DETOUR EAST XX *

D1-X COMMUNITY NAME *
(IF PRE-EXISTING SIGN, COVER ARROW PER SIGN PLATE A4-12)

M4-8a END DETOUR WEST XX *

DETOUR EAST XX / WEST XX

DETOUR ROUTE

WORK AREA

DETOUR EAST XX

WEST XX OR M4-9L DETOUR ** IF TOWN ROAD OR LOCAL STREET

500'

DETOUR NEXT X MILES * G20-51

DETOUR WEST XX * OR M4-59L DETOUR ** IF TOWN ROAD OR LOCAL STREET

SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

MATCH POINT

* M4-59L DETOUR ** OR DETOUR EAST XX * IF TOWN ROAD OR LOCAL STREET

D1-X COMMUNITY NAME * (IF PRE-EXISTING SIGN, COVER ARROW PER SIGN PLATE A4-12)

500'

M4-9L DETOUR ** OR DETOUR EAST XX IF TOWN ROAD OR LOCAL STREET

DETOUR WEST XX

DETOUR WEST XX * M4-9R OR DETOUR ** IF TOWN ROAD OR LOCAL STREET

DETOUR WEST XX * M4-59R * DETOUR ** OR IF TOWN ROAD OR LOCAL STREET

500'

DETOUR ROUTE

500' AT 25 - 40 MPH
1000' AT 45+ MPH

500'

M3-X 24" X 12"
M1-X 24" X 24"
DETOUR AHEAD
W20-2A
USE ON STATE TRUNK, U.S. OR INTERSTATE HIGHWAYS, OR AS SPECIFIED IN THE CONTRACT

DETOUR EAST XX *

D1-X COMMUNITY NAME *
(IF PRE-EXISTING SIGN, COVER ARROW PER SIGN PLATE A4-12)

DETOUR EAST XX

500'

DETOUR EAST XX

D1-X COMMUNITY NAME *
(IF PRE-EXISTING SIGN, COVER ARROW PER SIGN PLATE A4-12)

DETOUR EAST XX *

PLACE SIGNS BEYOND INTERSECTIONS WITH STATE OR COUNTY TRUNK HIGHWAYS OR AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF URBAN AREA)

500' AT 25 - 40 MPH
1000' AT 45+ MPH

DETOUR EAST XX *

M3-X 24" X 12"
M1-X 24" X 24"
DETOUR AHEAD
W20-2A
USE ON STATE TRUNK, U.S. OR INTERSTATE HIGHWAYS, OR AS SPECIFIED IN THE CONTRACT

DETAIL F
DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018
DATE

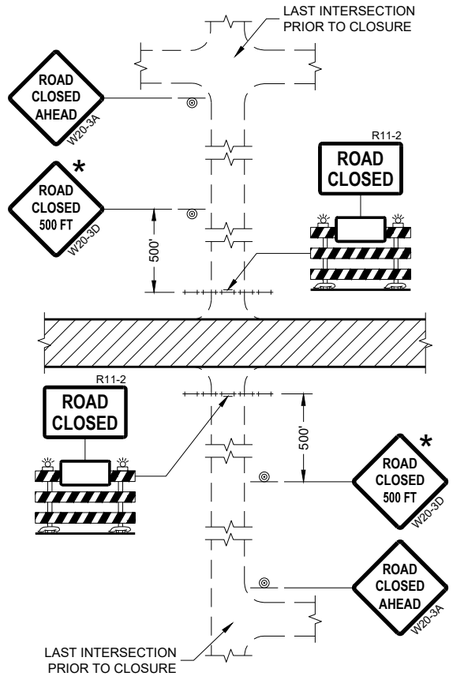
/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

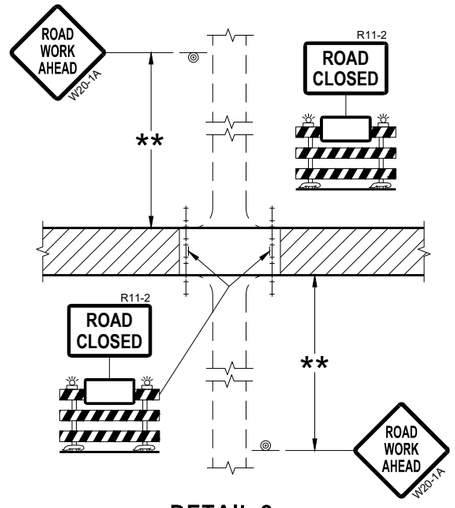
SDD 15C02 - 07c

6

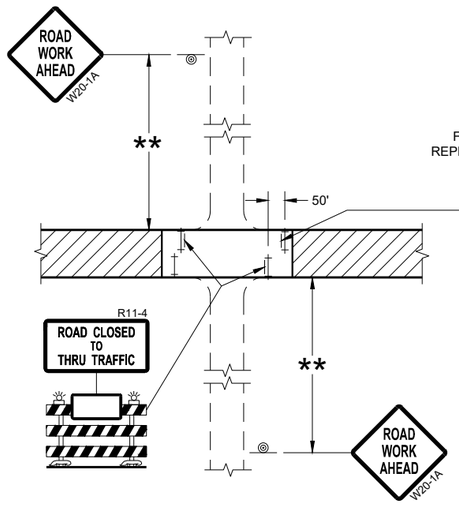
SDD 15C02 - 07c



DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15C03 - 05

6

SDD 15C03 - 05

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.

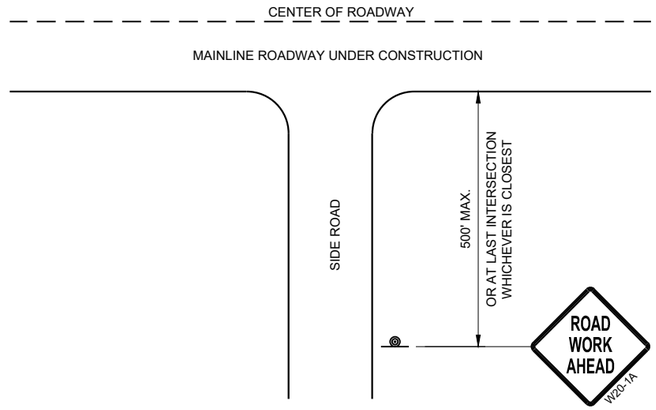
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN 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 REESTABLISHED.

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

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



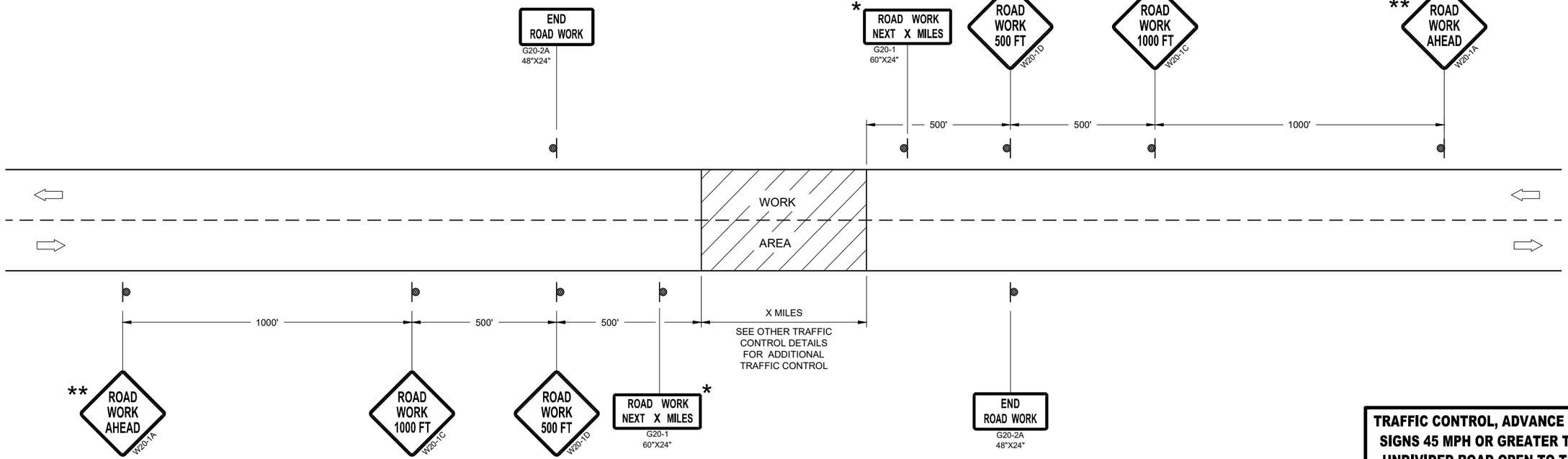
TYPICAL SIDE ROAD APPROACH WARNING SIGN DETAIL

LEGEND

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 MPH OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

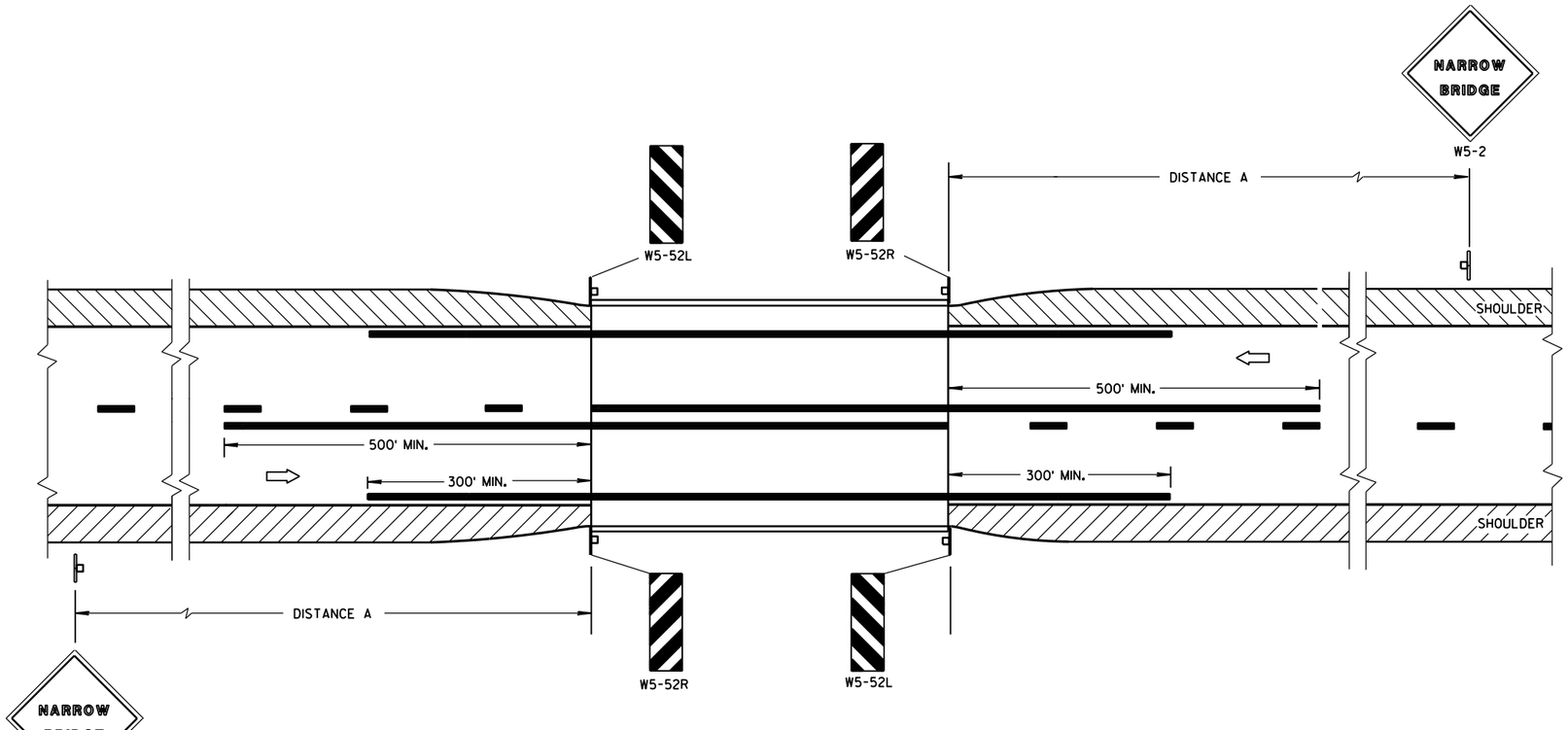
APPROVED
July 2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15C04 - 05



SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

DISTANCE TABLE

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

GENERAL NOTES

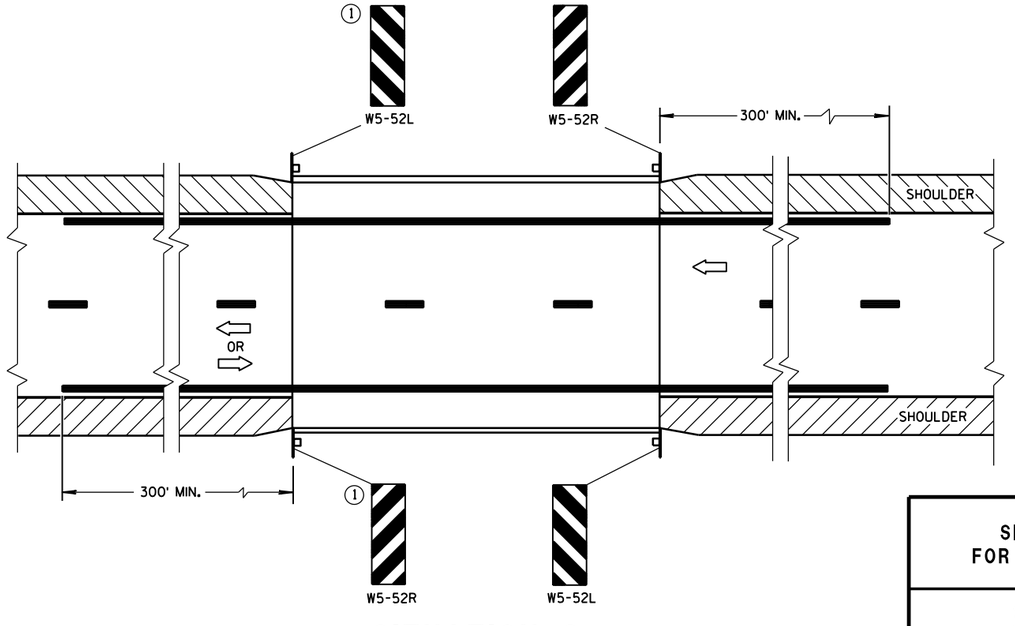
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

(1) OMIT ON ONE-WAY TRAVELLED WAYS.

⇨ DIRECTION OF TRAFFIC



SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

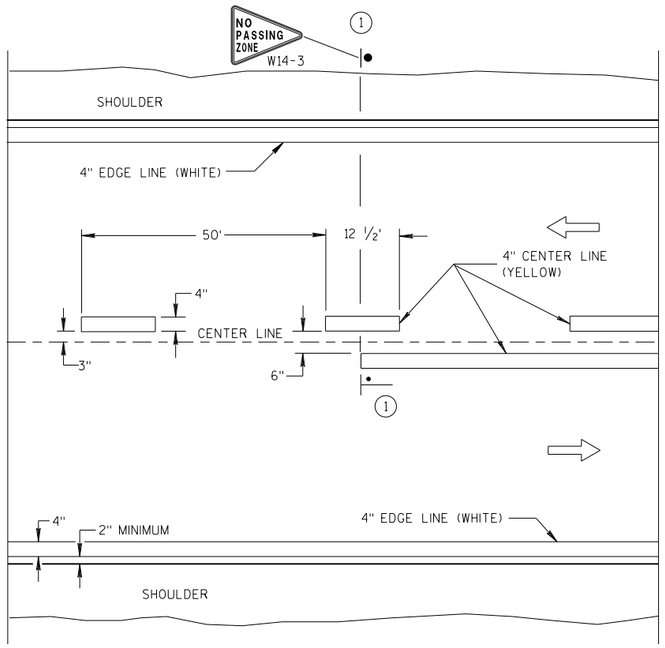
APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR ...IEER
FHWA

6

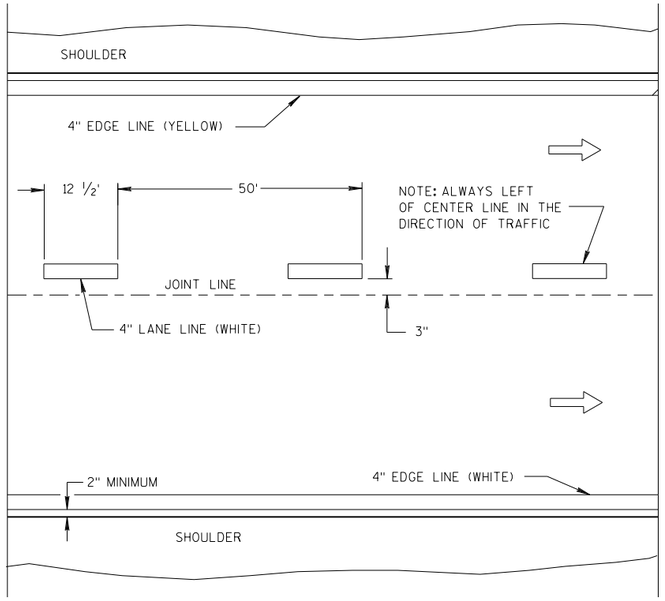
S.D.D. 15 C 6-9

6

S.D.D. 15 C 6-9



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.

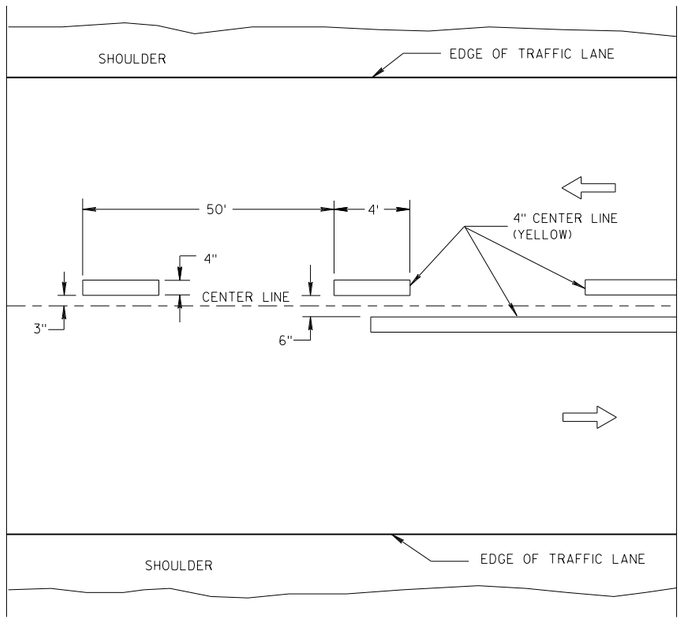
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

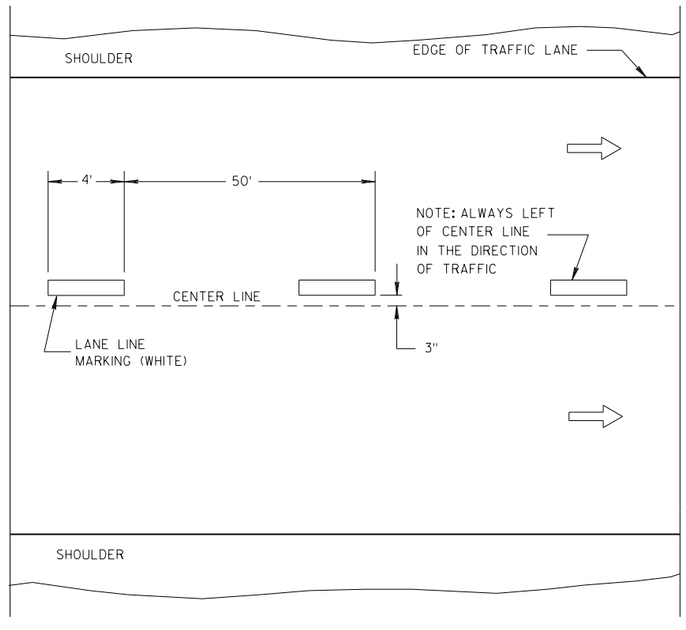
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018 DATE

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

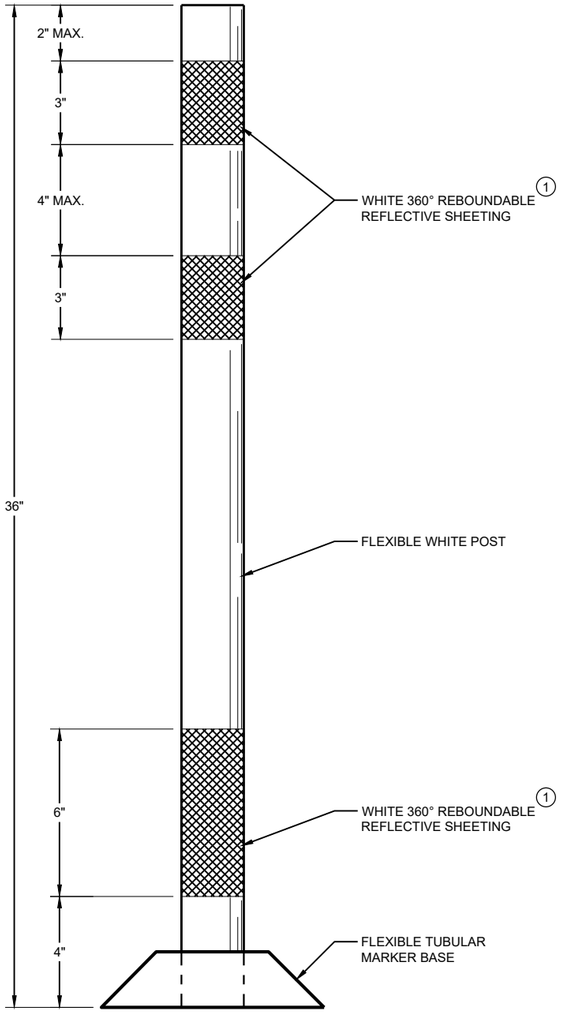
FHWA

6

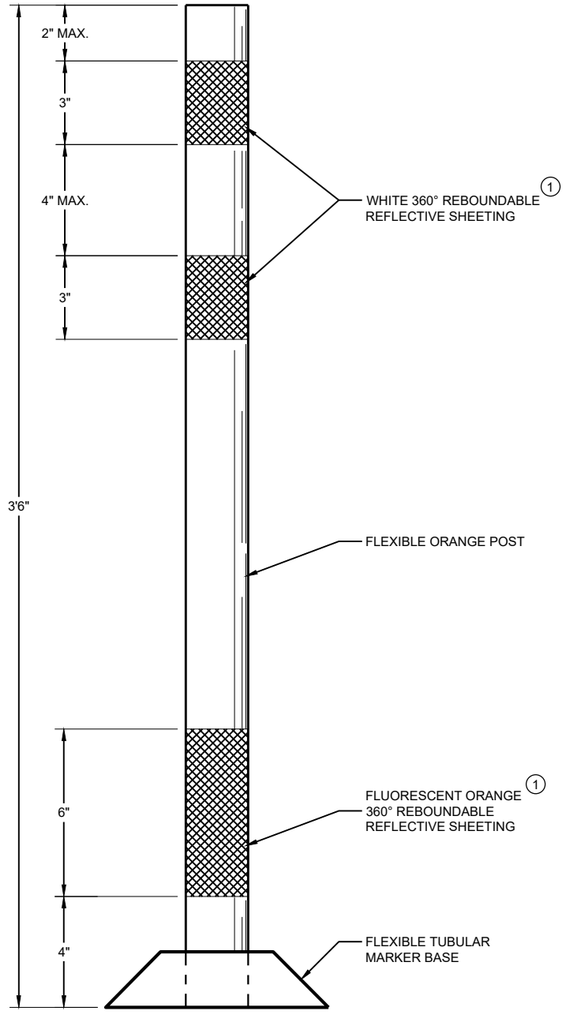
S.D.D. 15 C 8-19a

6

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



FLEXIBLE TUBULAR MARKER POST PERMANENT CROSSOVER



FLEXIBLE TUBULAR MARKER POST WORK ZONE

GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

(1) REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

6

SDD 15C11 - 07a

CHANNELIZING DEVICES
FLEXIBLE TUBULAR MARKER POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

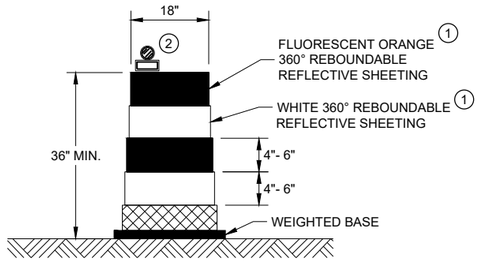
FHWA

6

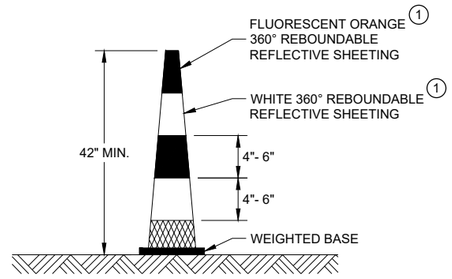
SDD 15C11 - 07a

GENERAL NOTES

1. REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
2. LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

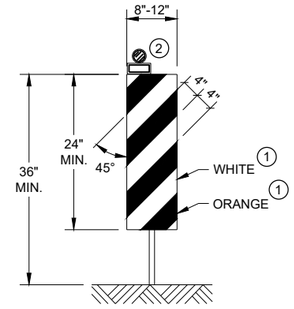


DRUM



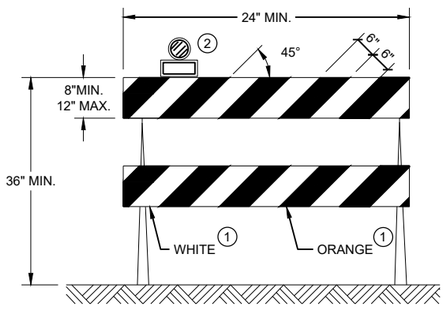
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



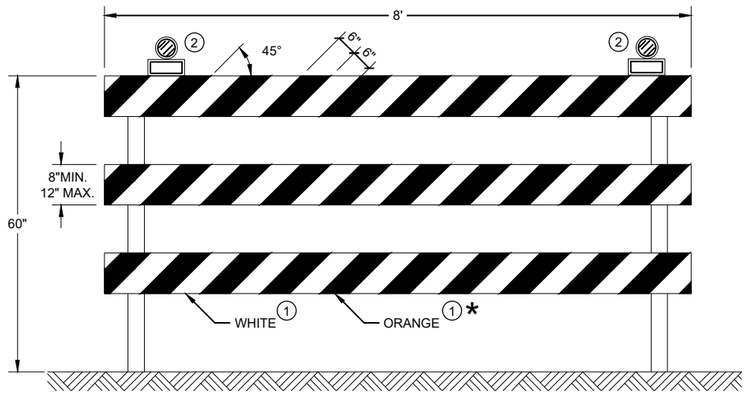
VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD
TO THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15C11 - 07b

6

SDD 15C11 - 07b

LEGEND

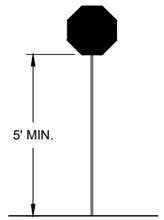
SIGN ON PORTABLE OR PERMANENT SUPPORT

TEMPORARY PORTABLE RUMBLE STRIP ARRAY

DIRECTION OF TRAFFIC

WORK AREA

FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF



STOP/SLOW PADDLE ON SUPPORT STAFF

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.

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

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

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND 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.

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.

FLAGGING

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 PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

(1) FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' 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.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

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

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

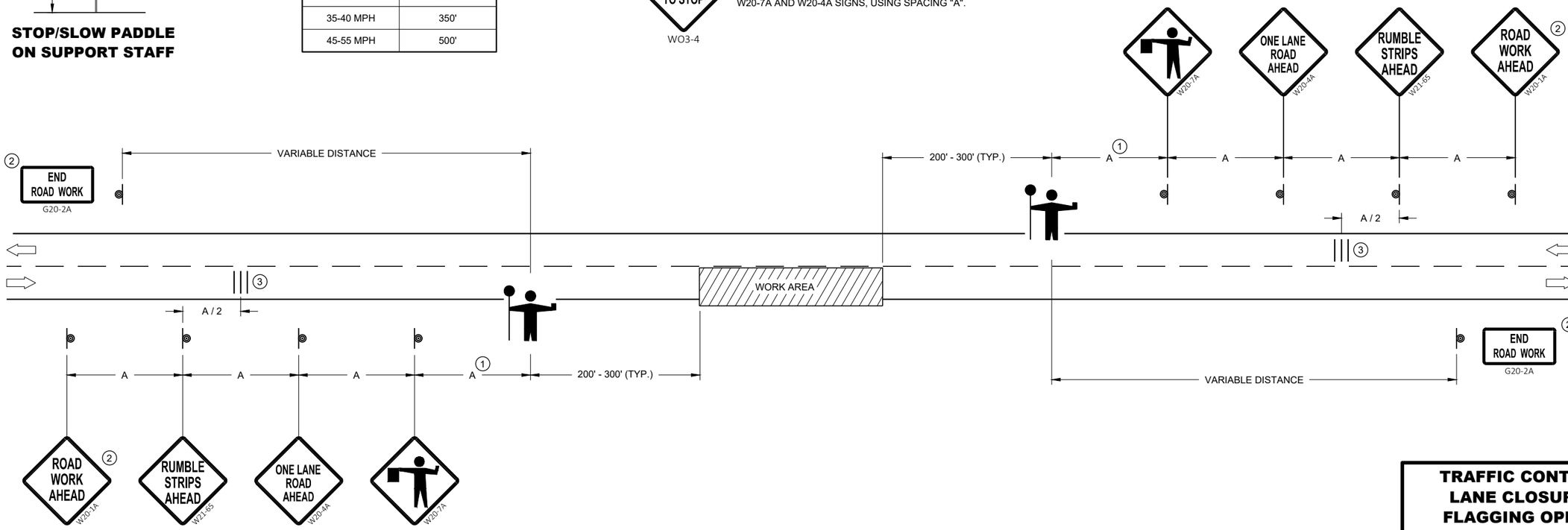
SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



WO3-4

USE OF WO3-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

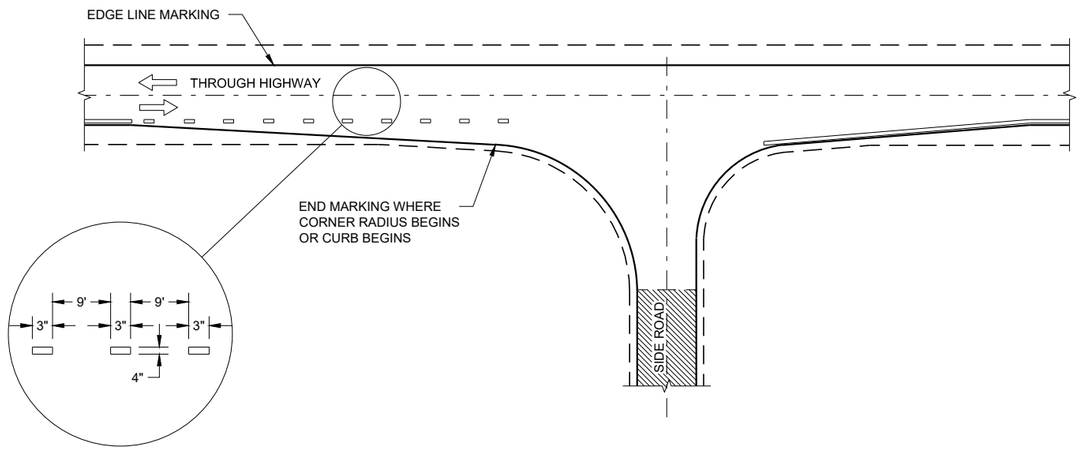
APPROVED
May 2019
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

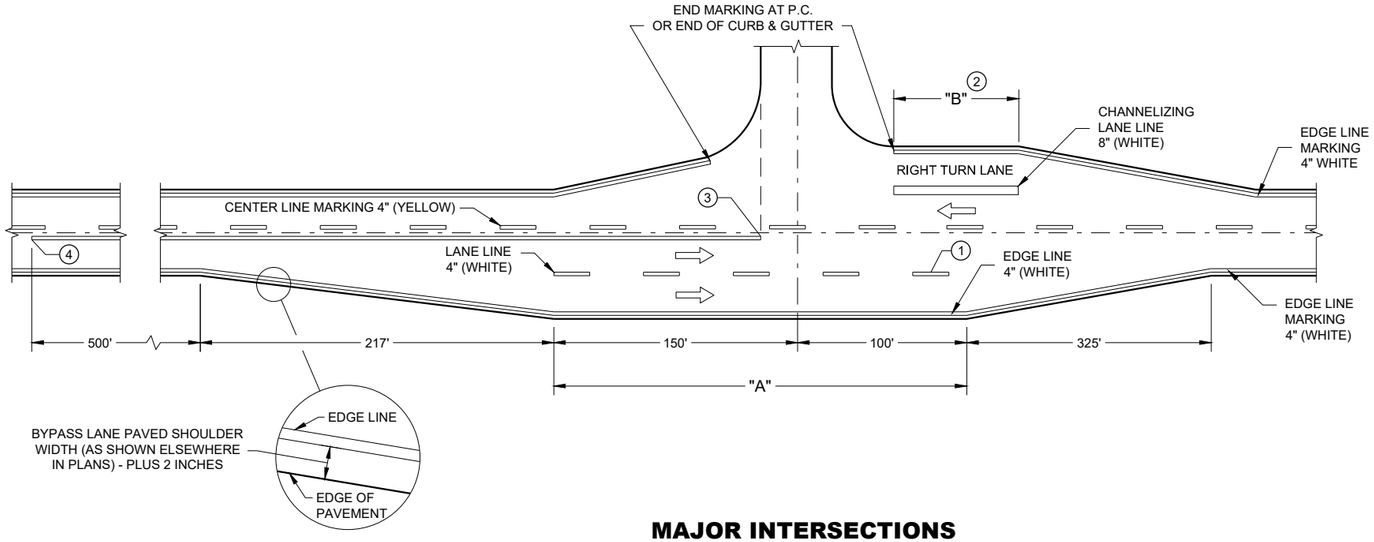
FHWA

6

SDD 15C12 - 07



MINOR INTERSECTION



MAJOR INTERSECTIONS

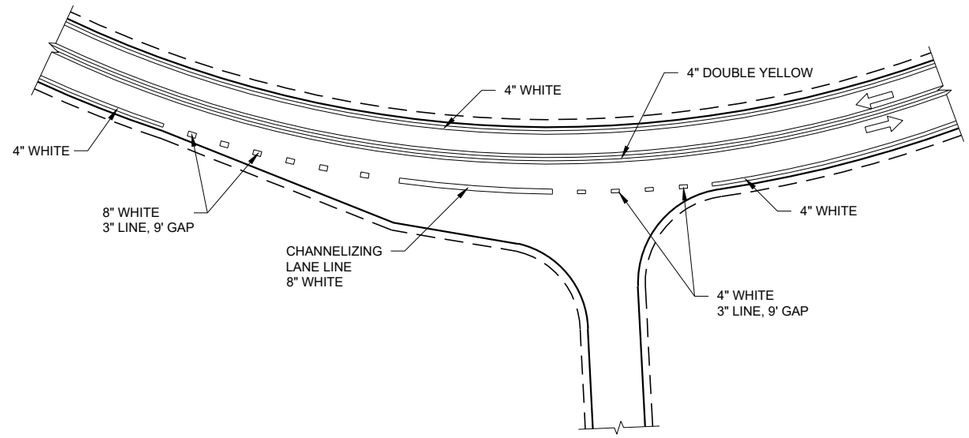
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

1. WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
2. WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
3. BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
4. BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



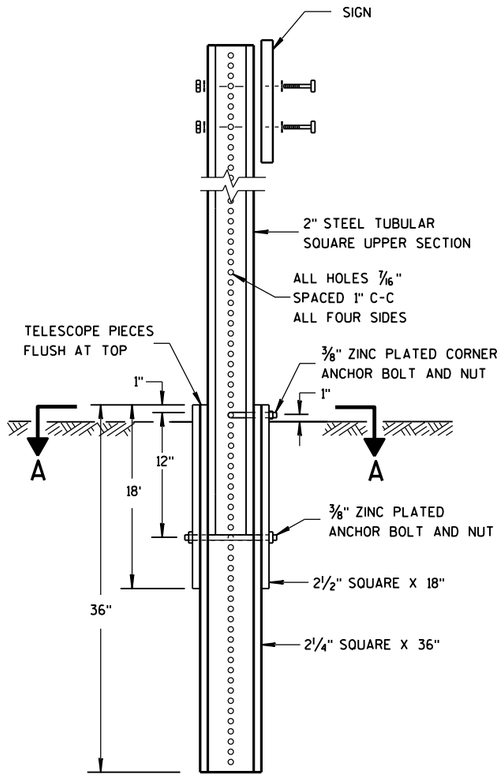
INTERSECTION ON OUTSIDE OF CURVE

6

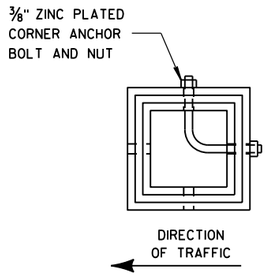
SDD 15C35 - 03a

PAVEMENT MARKING (INTERSECTIONS)

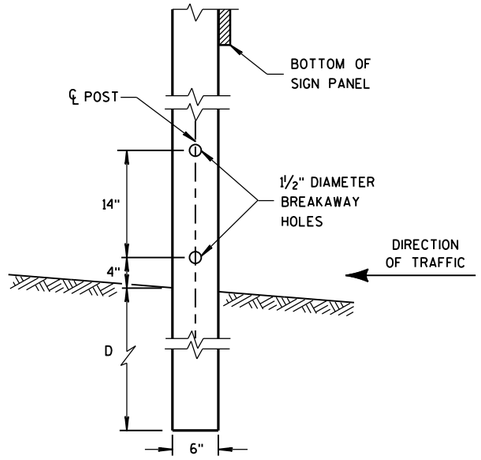
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



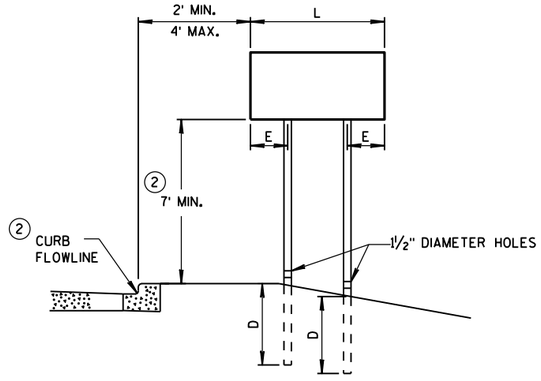
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

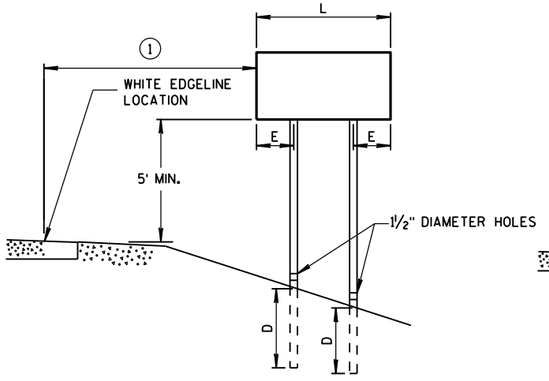
1. 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

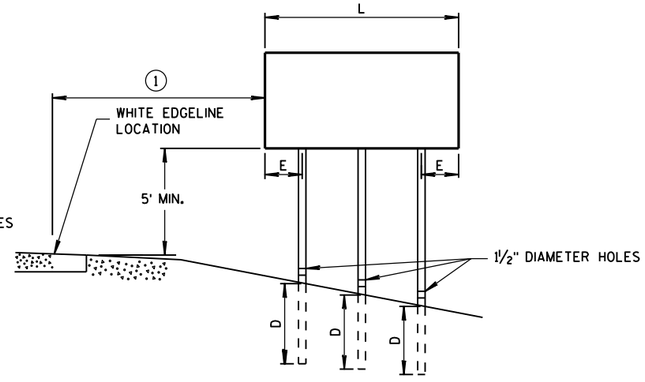
2. THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK 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

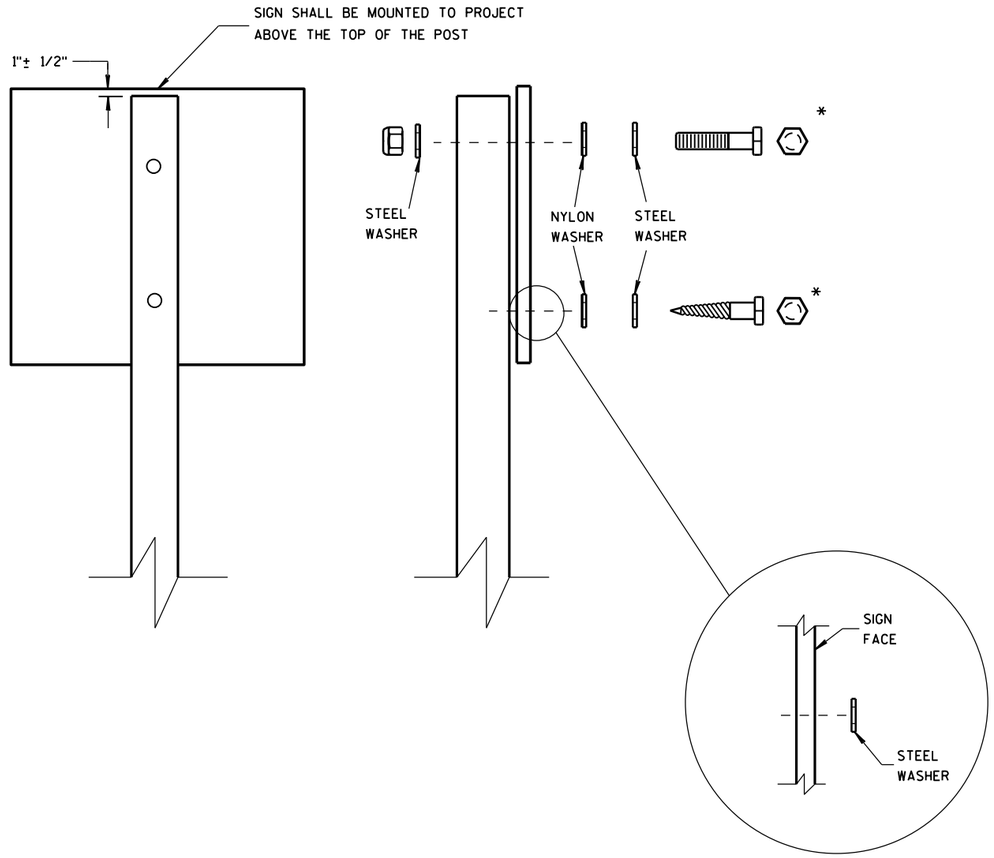
SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

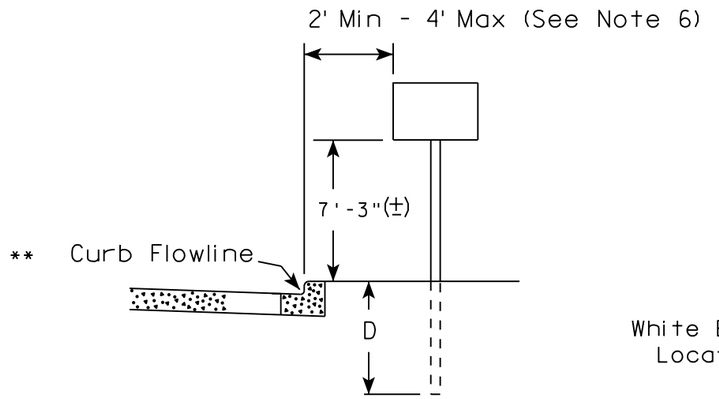
APPROVED

June 2017
DATE

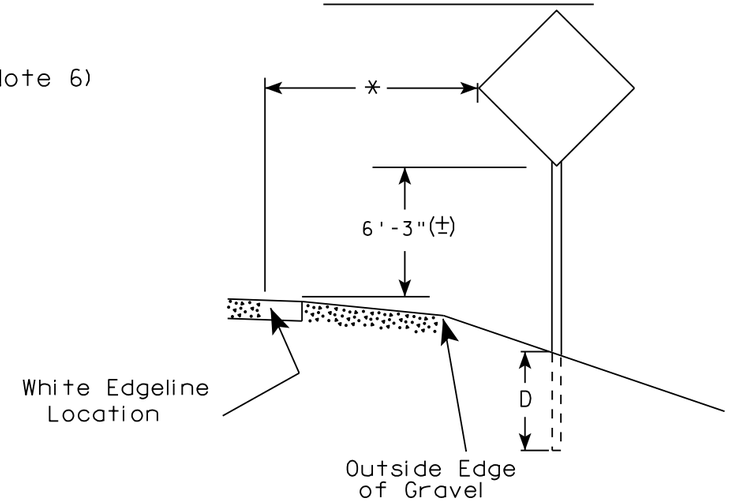
/S/ Andrew Heldtke
WORK ZONE ENG

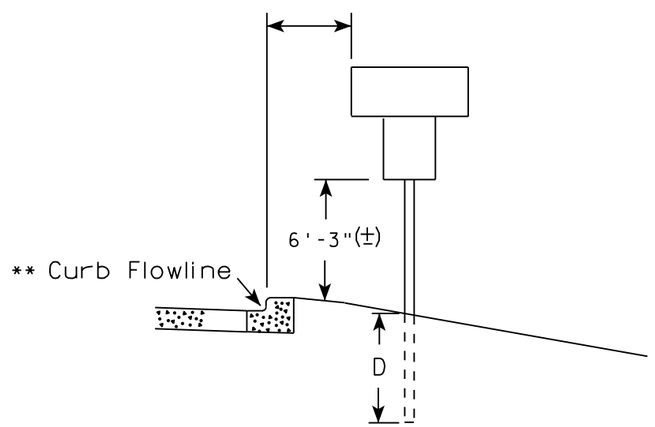
FHWA

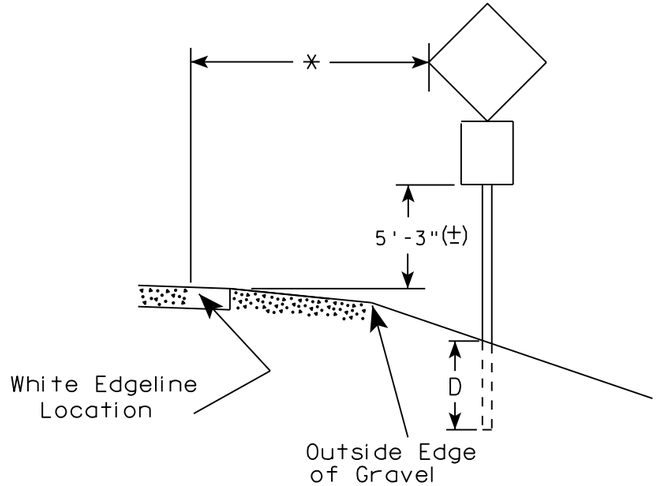
URBAN AREA



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

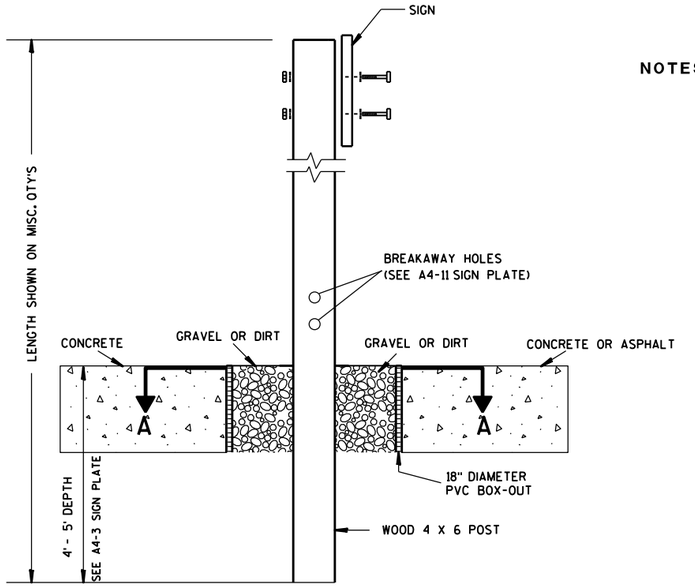
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. J-Assemblies are considered to be one sign for mounting height.
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

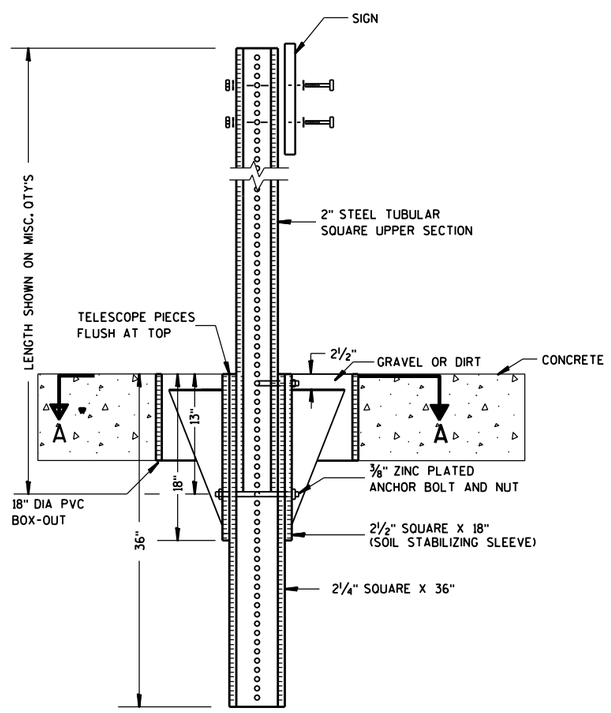
DATE 8/21/17 PLATE NO. A4-3.21



ELEVATION VIEW

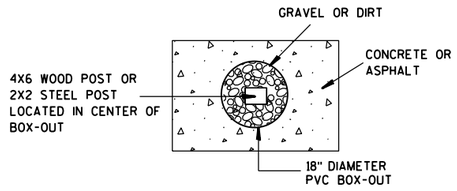
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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

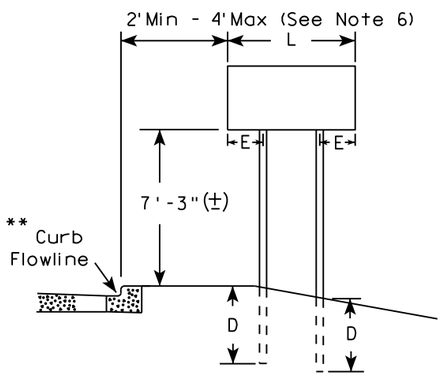
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

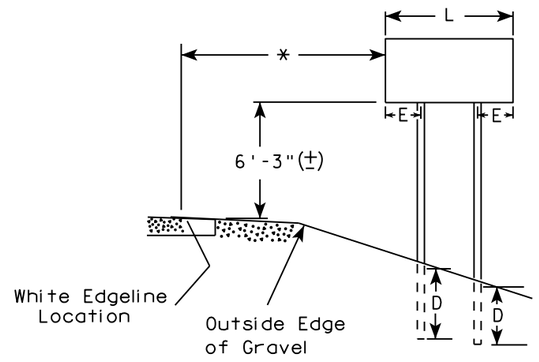
DATE 1/27/14 PLATE NO. A4-3B.1

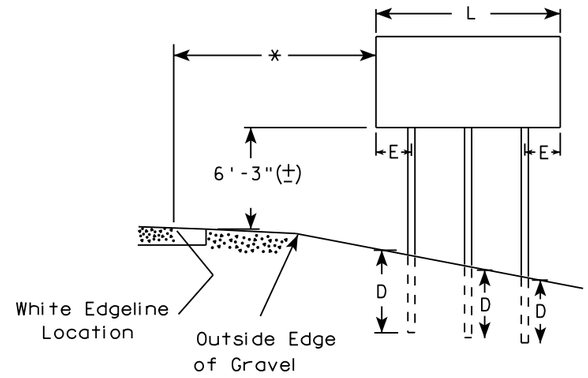
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

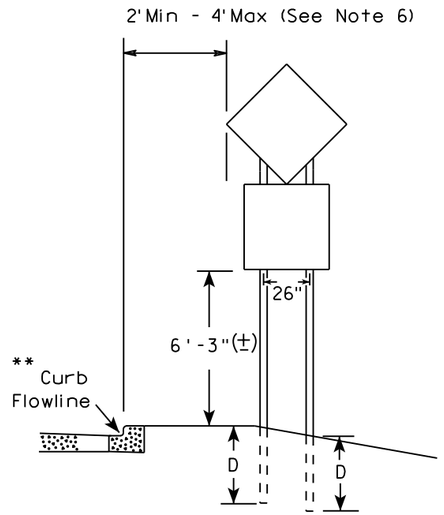
URBAN AREA



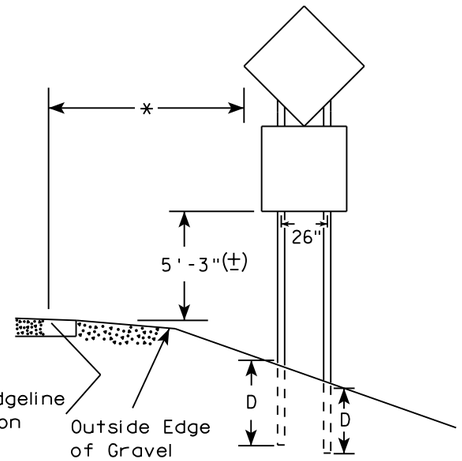
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)		
	L	E
***	Greater than 48" Less than 60"	12"
	60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

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. J-Assemblies are considered to be one sign for mounting height.
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 and less than 20 S.F. in area.

POST EMBEDMENT DEPTH

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

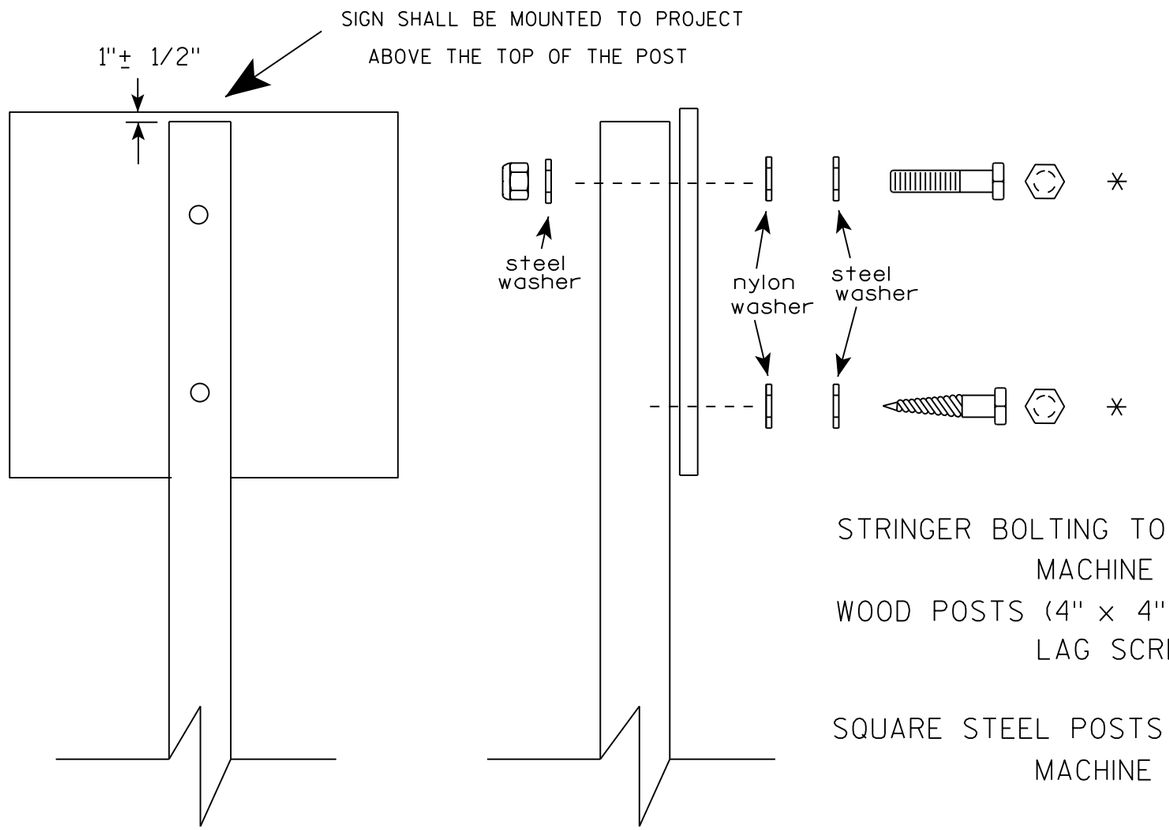
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 96	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.

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

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

* 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 8/11/16 PLATE NO. A4-8.8

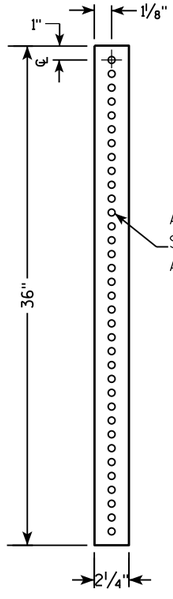
7

PROJECT NO: SHEET NO: E

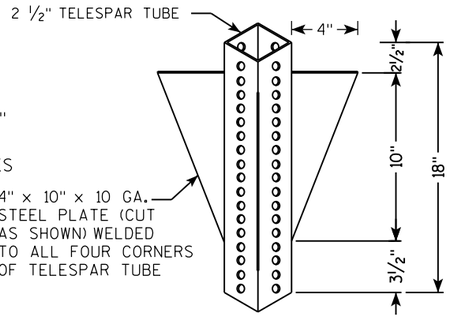
FILE NAME : C:\CADfiles\Projects\tr_stdplate\A48.DGN PLOT DATE : 11-AUG-2016 11:35 PLOT BY : $$ plotuser $$

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

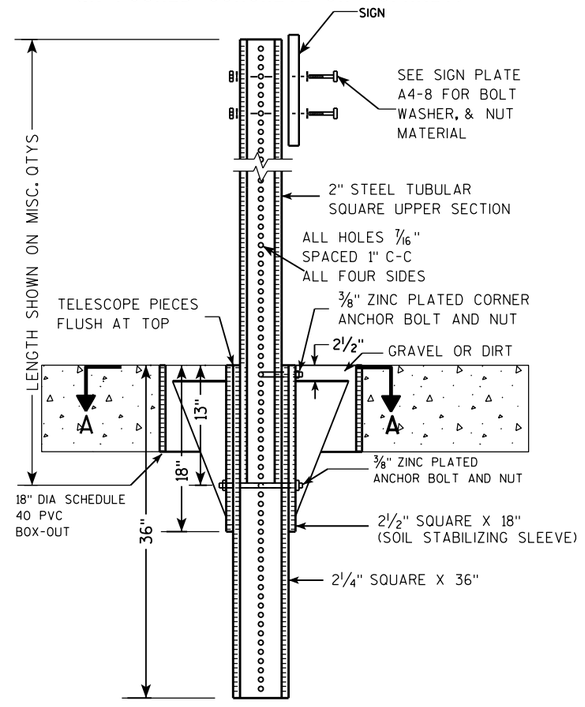
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



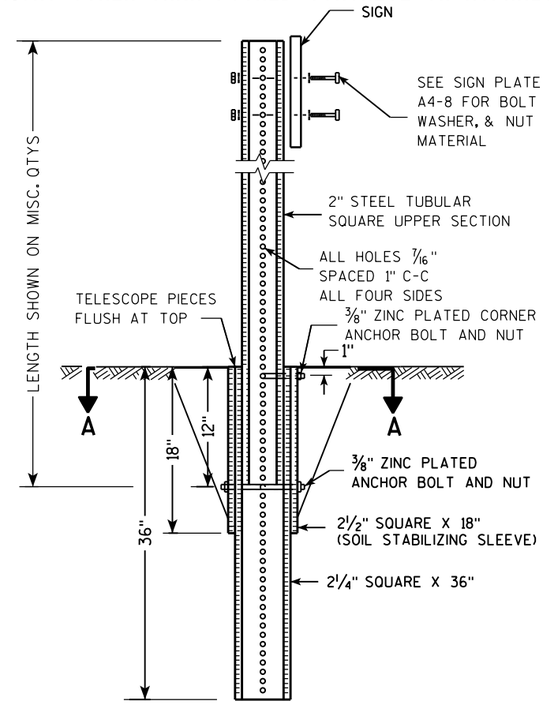
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

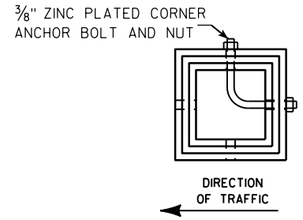


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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).

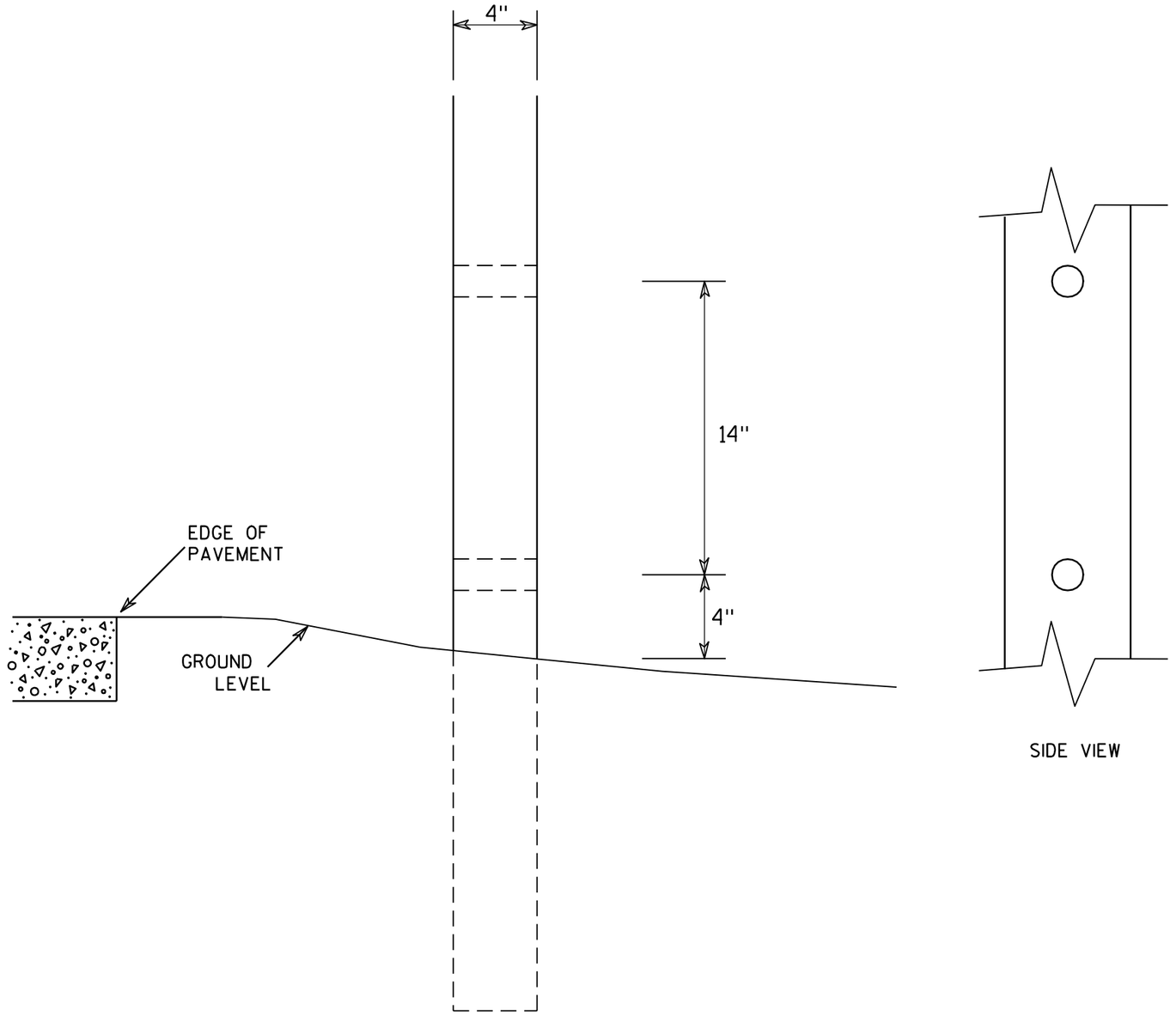
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 98 A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



SIDE VIEW

GENERAL NOTES

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

7

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

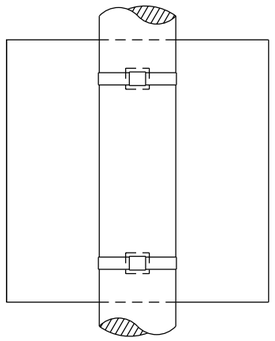
APPROVED Chester J Spang for State Traffic Engineer

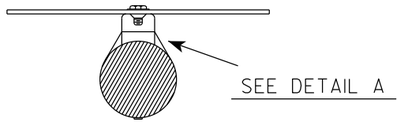
DATE 3/27/97 PLATE NO. A4-11.2

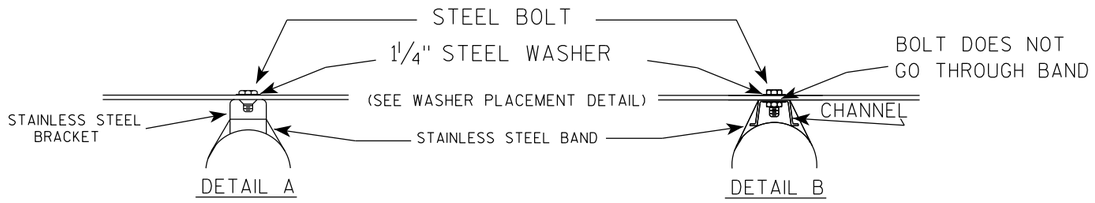
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 99	E

BANDING

SINGLE SIGN



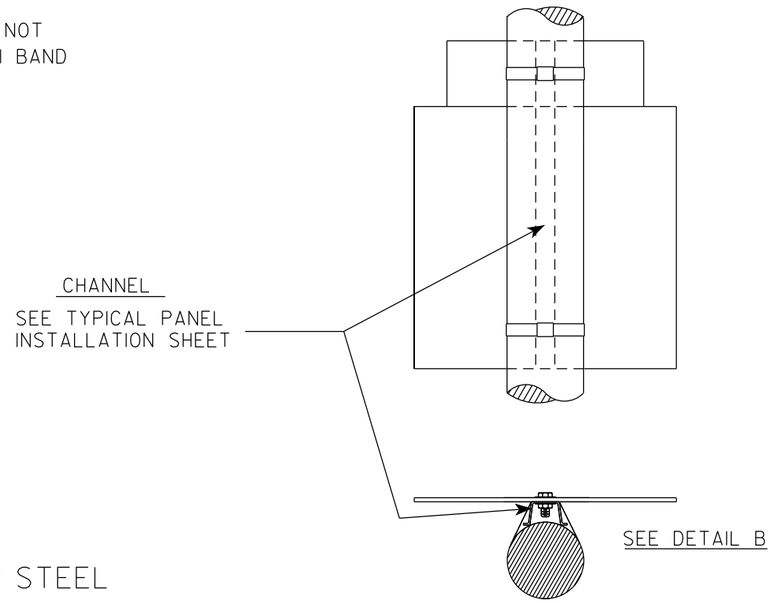




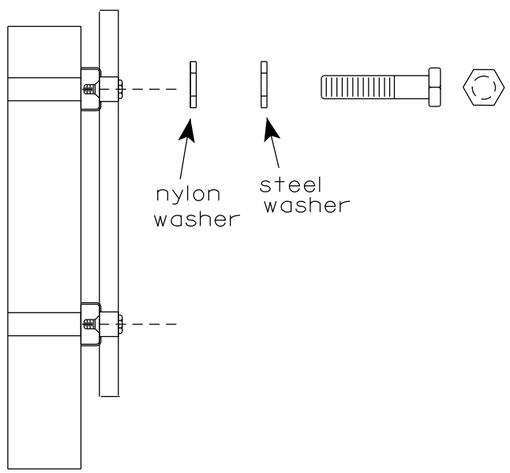
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be ¾" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



WASHER PLACEMENT



WASHERS (ALL POSTS) -
1-1/4" O.D. X ⅜" I.D. X 1/16" STEEL
1-1/4" O.D. X ⅜" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

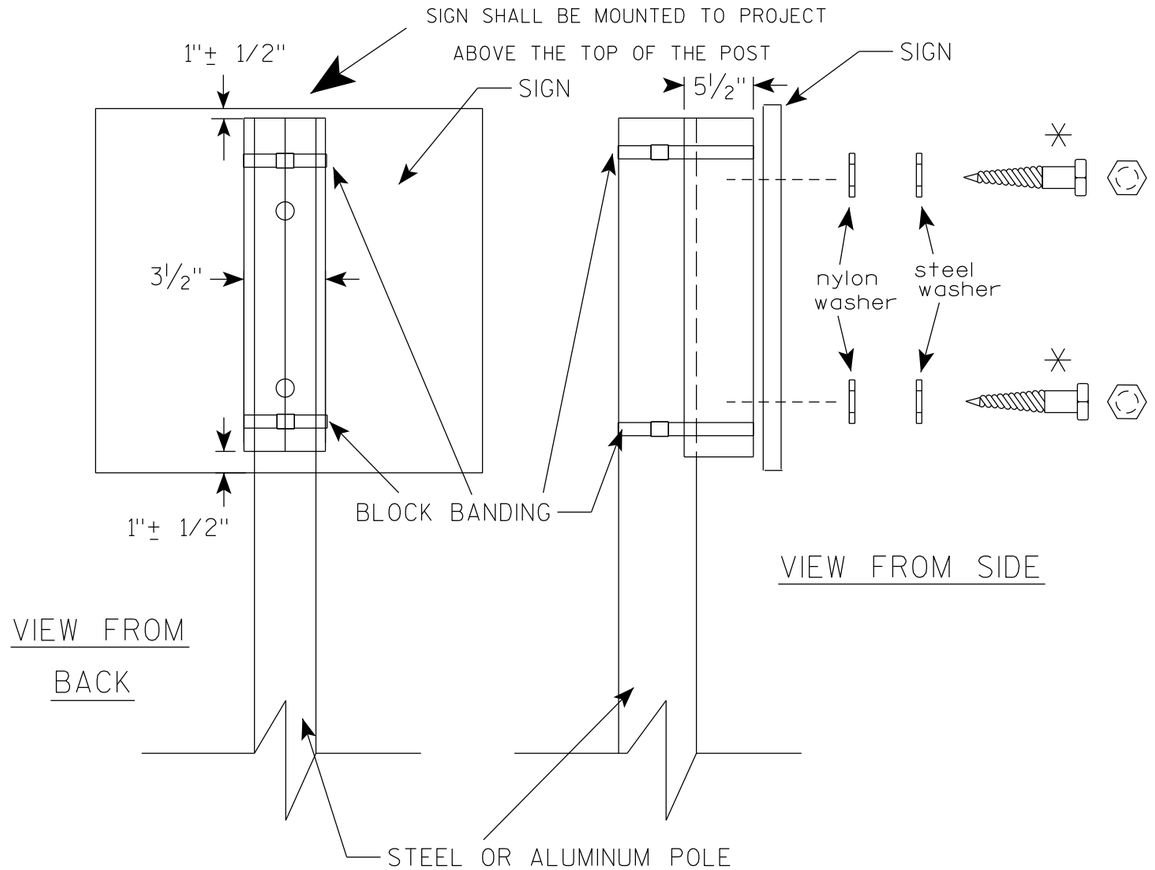
WISCONSIN DEPT OF TRANSPORTATION

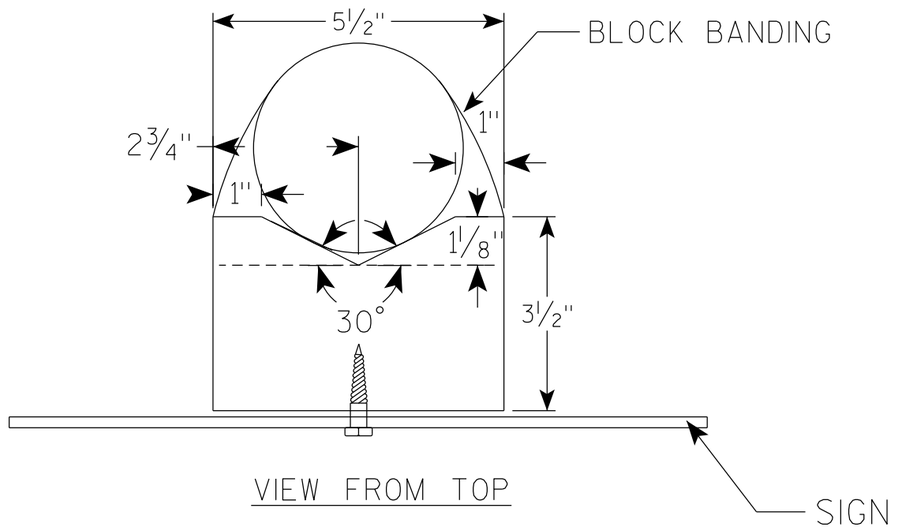
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-9.4

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 100	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A59.dgn PLOT DATE : 10-JUN 2019 4:10 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : $$.....plotscale.....$$





GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, ¾" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORNALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✳ LAG BOLTS SHALL BE ⅜" X 2½"

BLOCK BANDING DETAIL (V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

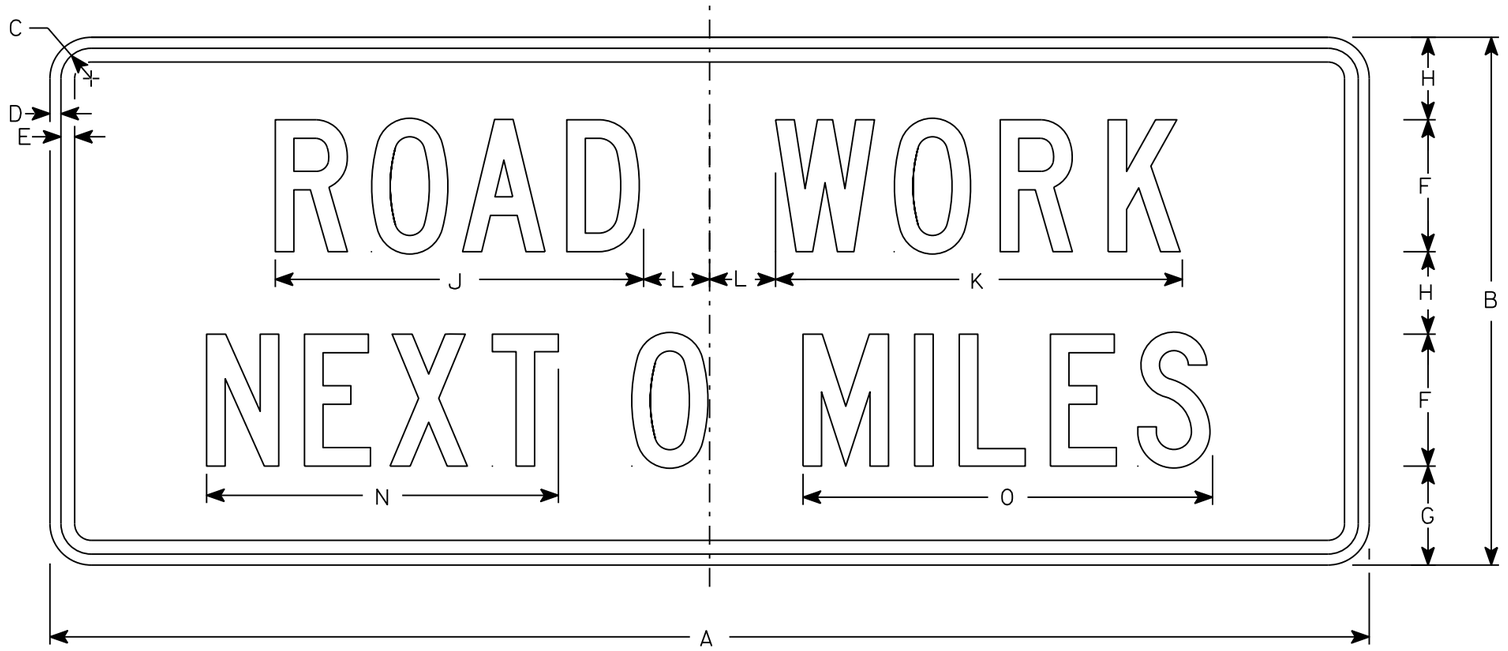
DATE 6/10/19 PLATE NO. A5-10.2

PROJECT NO: | SHEET NO: 101 | E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A510.dgn PLOT DATE : 10-JUN 2019 4:15 PLOT BY : mscj9h

WISDOT/CADDS SHEET 42

7 7



G20-1

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   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. Round distance to nearest whole Mile and substitute appropriate numerals and optically adjust spacing to achieve proper balance

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

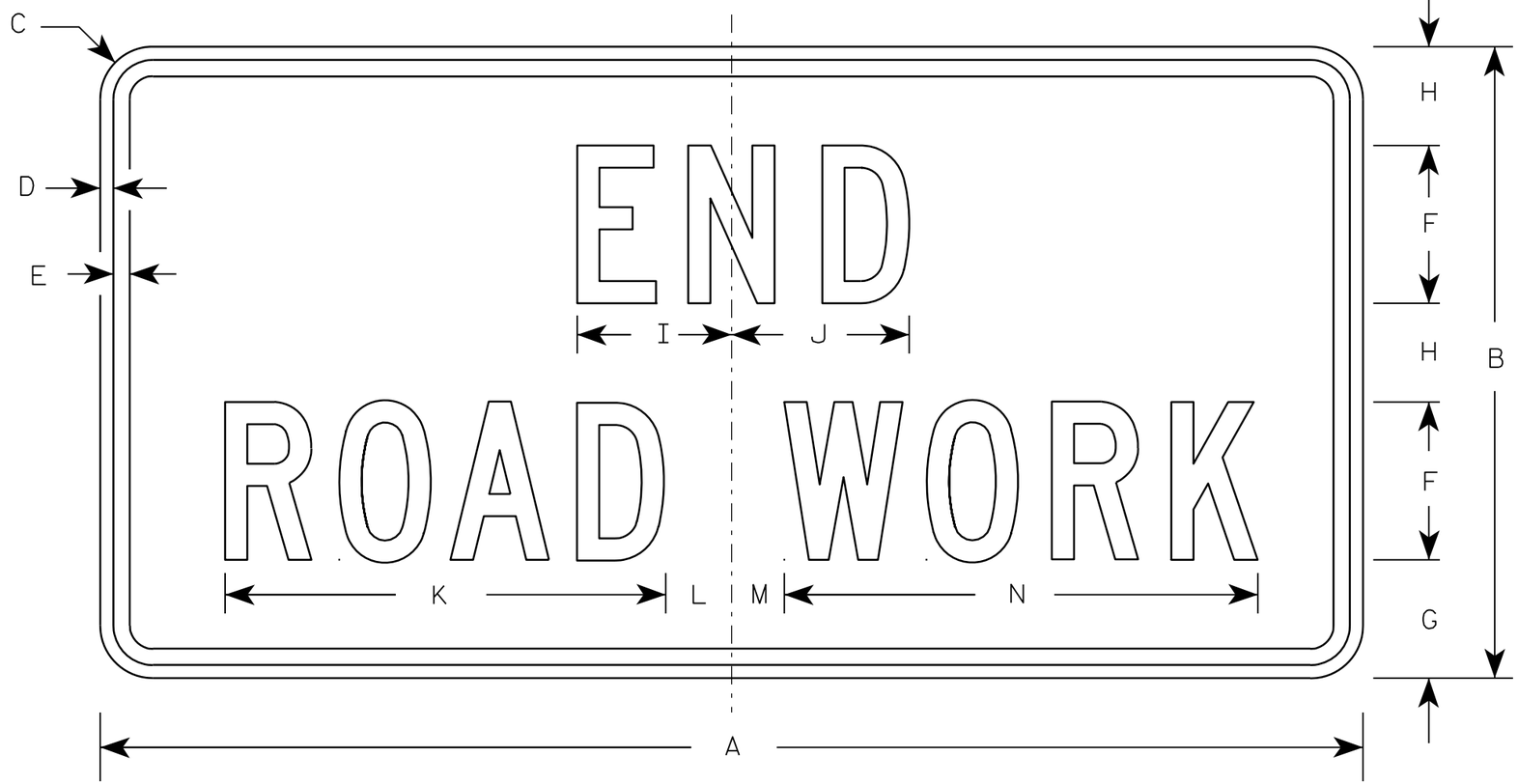
STANDARD SIGN
G20-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/14/17 PLATE NO. G20-1.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 102 | E



G20-2A

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 - 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.

Metric equivalent for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 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	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

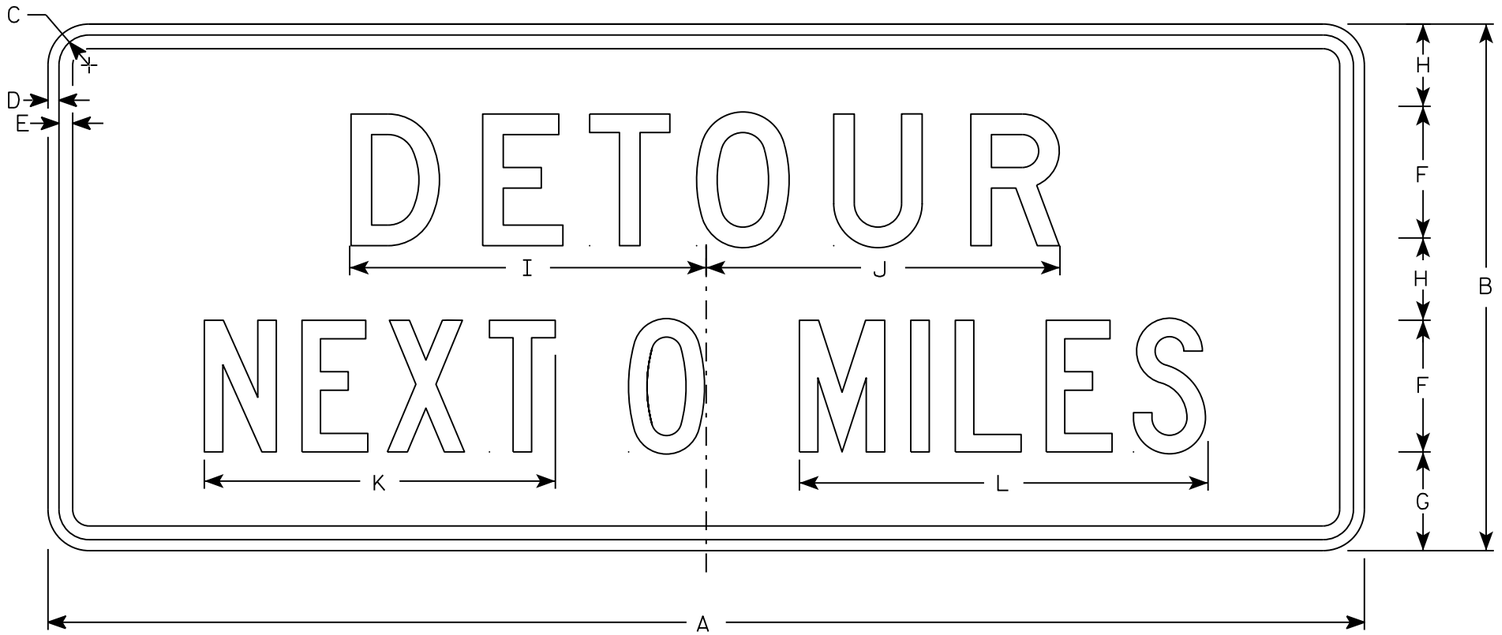
STANDARD SIGN
G20-2A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/30/09 PLATE NO. G20-2A.8

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 103	E



G20-51

NOTES

1. Sign is Type II - Type F Reflective
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. Round distance to nearest whole Mile and substitute appropriate numerals and optically adjust spacing to achieve proper balance

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
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
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
5																											

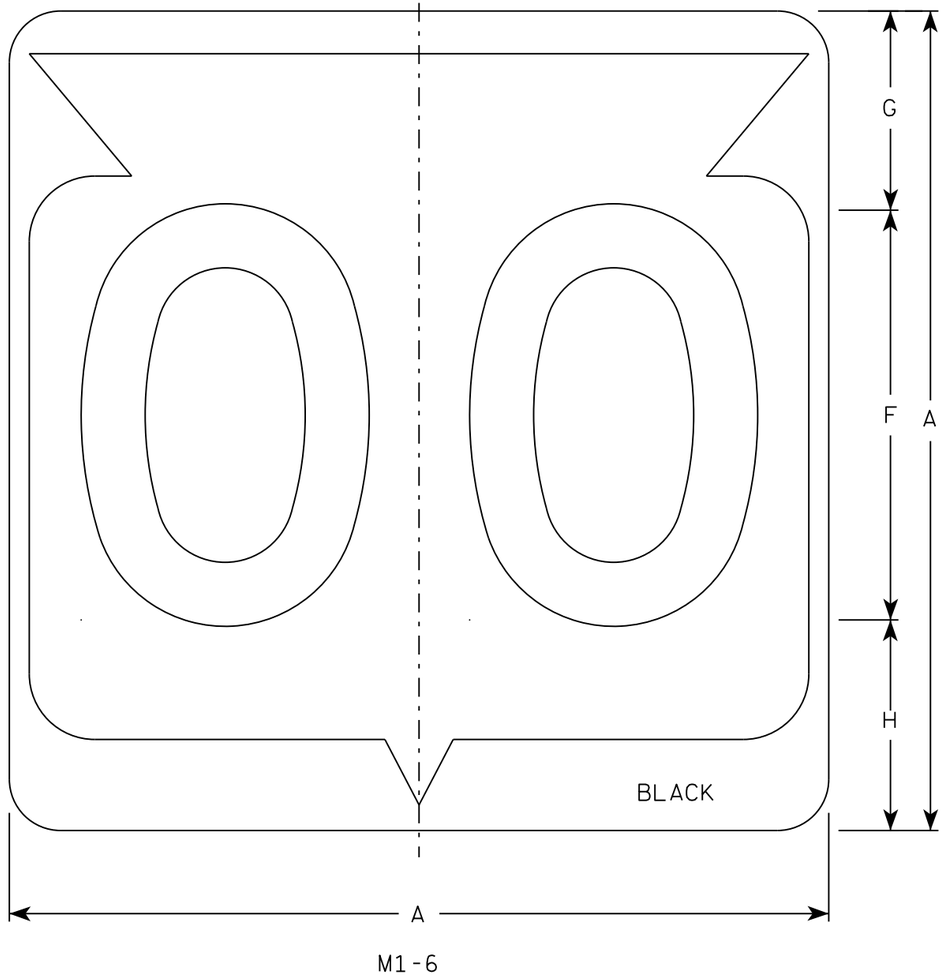
STANDARD SIGN
G20-51

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/14/17 PLATE NO. G20-51.2

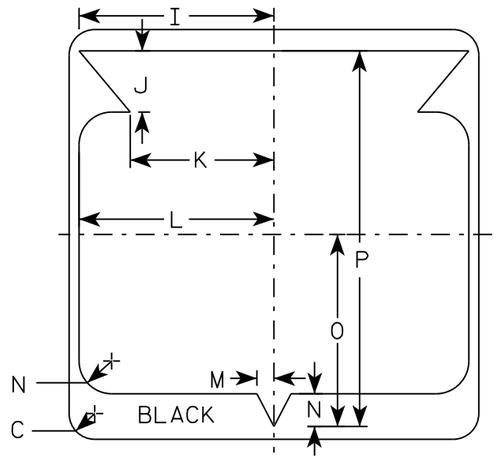
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 104 | E



M1-6

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - D except 3 number signs 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																											
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
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
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
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

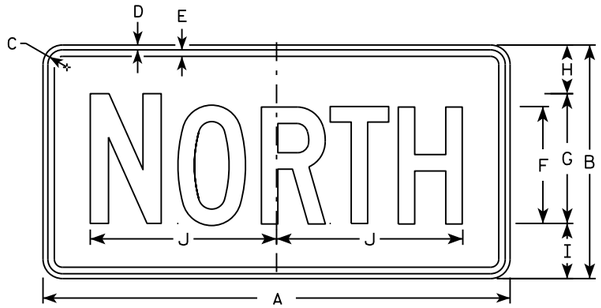
STATE ROUTE MARKER M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

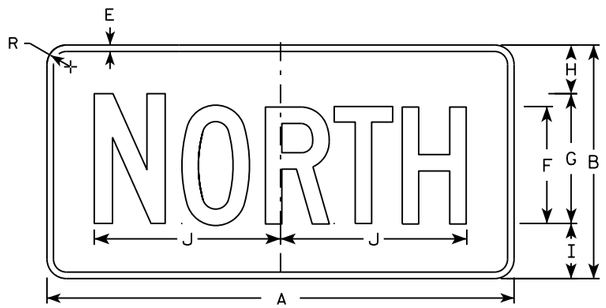
APPROVED Matthew R Rauch for State Traffic Engineer

DATE 3/16/18 PLATE NO. M1-6.10

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 105	E



M3-1
MM3-1
MP3-1



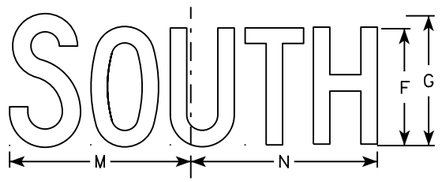
MB3-1
MK3-1
MN3-1



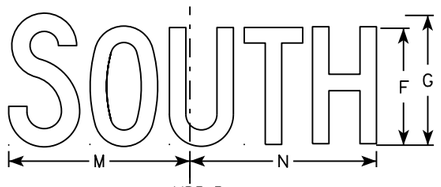
M3-2
MM3-2
MP3-2



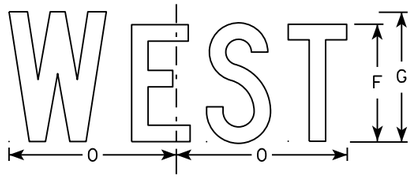
MB3-2
MK3-2
MN3-2



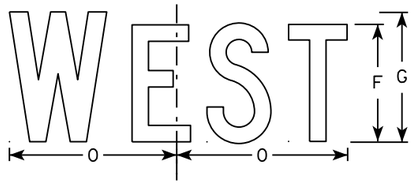
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

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
   MP3-1 thru MP3-4 Background - White
   Message - Blue
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

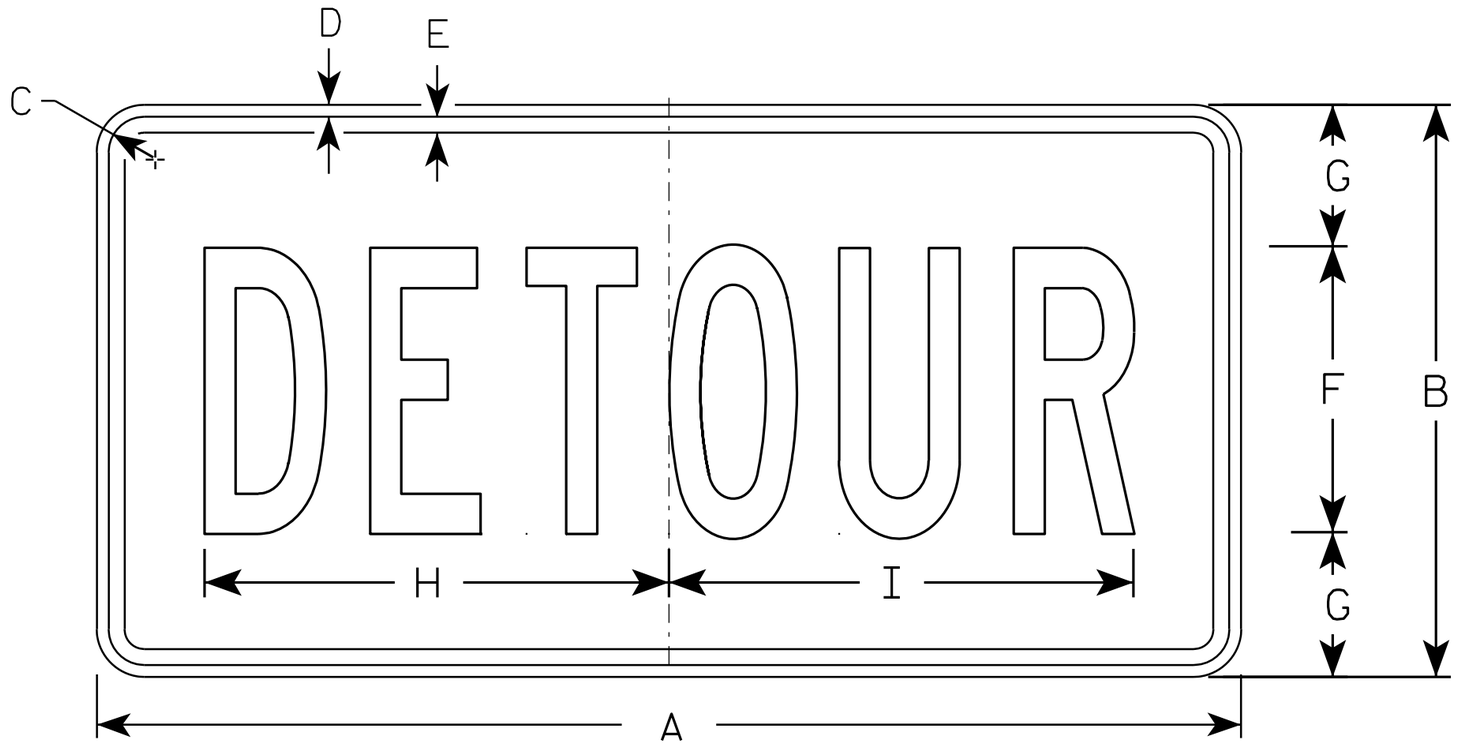
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew P Rauch for State Traffic Engineer

DATE 10/15/15 PLATE NO M3-1.14

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

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M31.DGN PLOT DATE : 01-DEC-2015 17:54 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 11.675051:1.000000



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																											

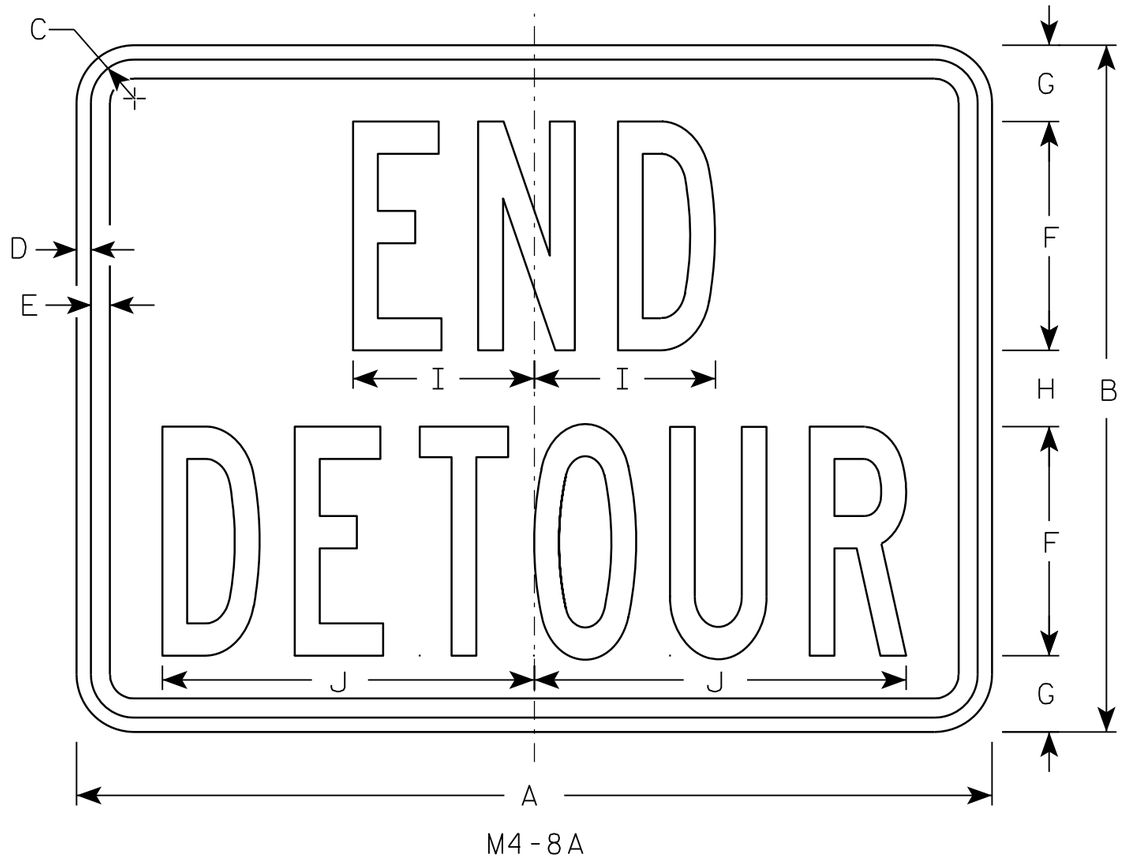
STANDARD SIGN
M4-8

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: 107	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																											

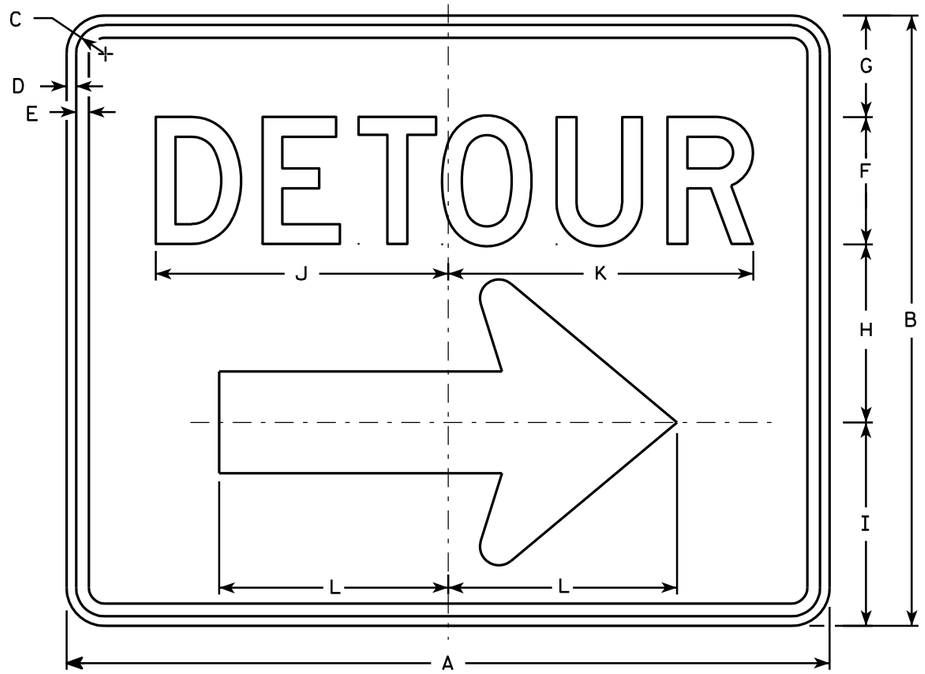
STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

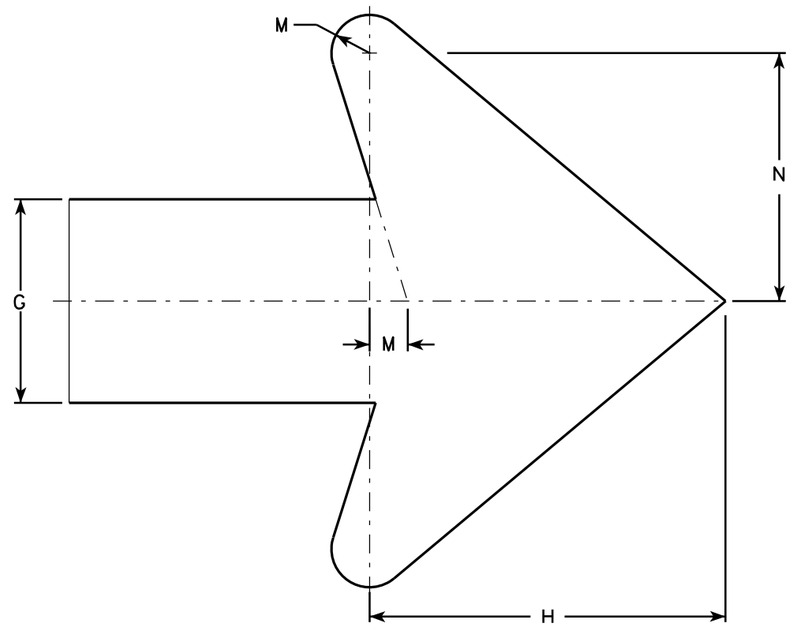
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 108	E



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

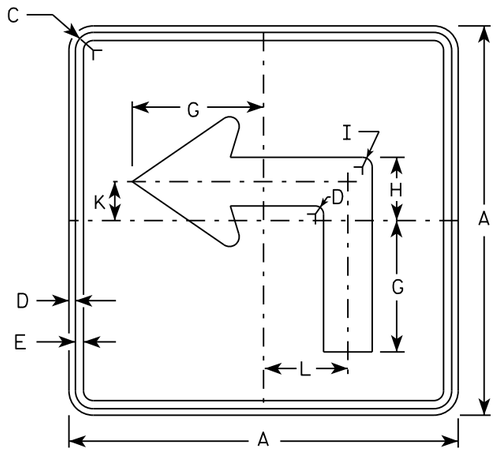
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

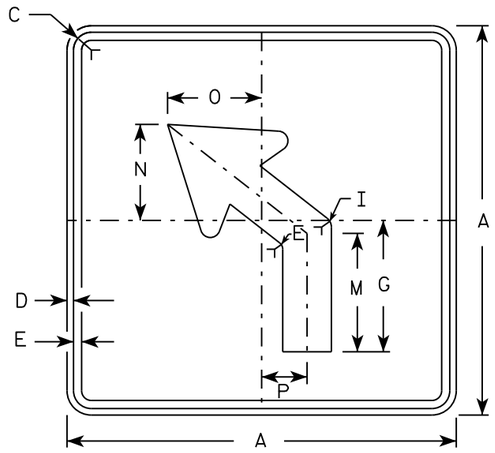
APPROVED Matthew R Rauch
for State Traffic Engineer

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

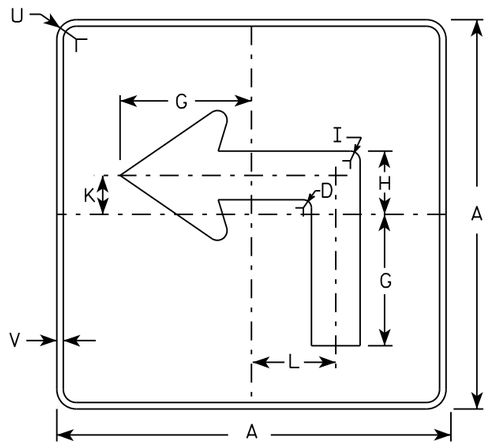
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 109	E



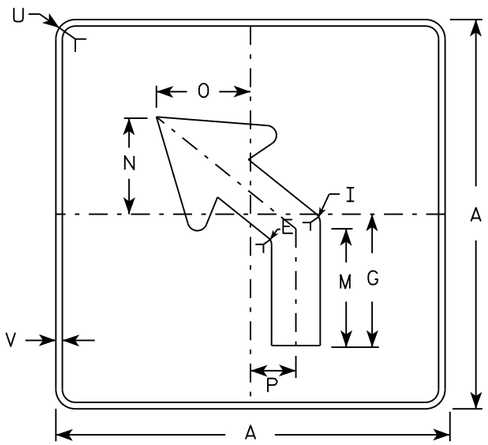
M5-1L
MM5-1L
MO5-1L
MP5-1L



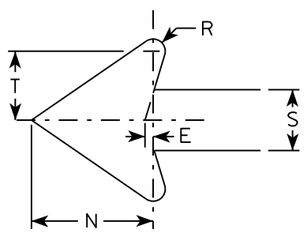
M5-2L
MM5-2L
MO5-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



NOTES

1. Signs are Type II - Type H reflective 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. M5-1 and M5-2 Background - White
   Message - Black
   MB5-1 and MB5-2 Background - Blue
   Message - White
   MK5-1 and MK5-2 Background - Green
   Message - White
   MM5-1 and MM5-2 Background - White
   Message - Green
   MN5-1 and MN5-2 Background - Brown
   Message - White
   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
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 7/8	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 7/8	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 7/8	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

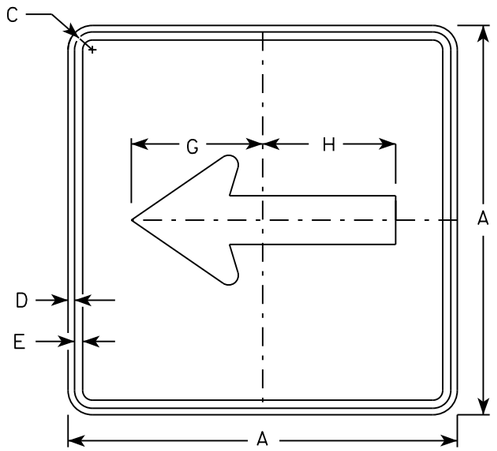
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

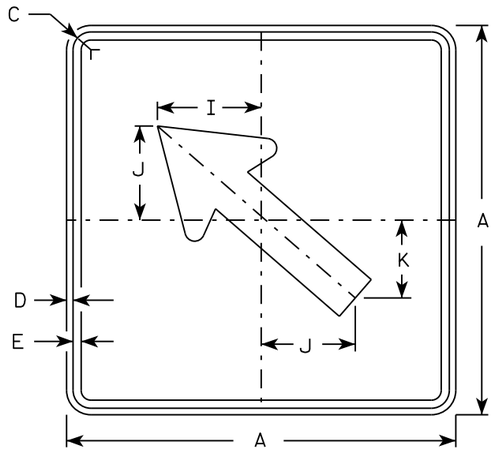
DATE 10/15/15 PLATE NO. M5-1.13

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

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M51.DGN PLOT DATE : 01-DEC-2015 18:07 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 11.675051:1.000000



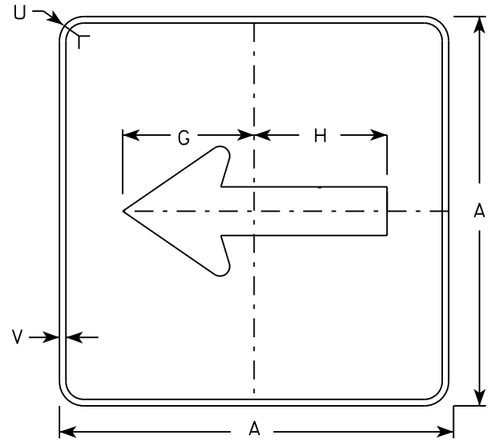
M6-1
MM6-1
MO6-1
MP6-1



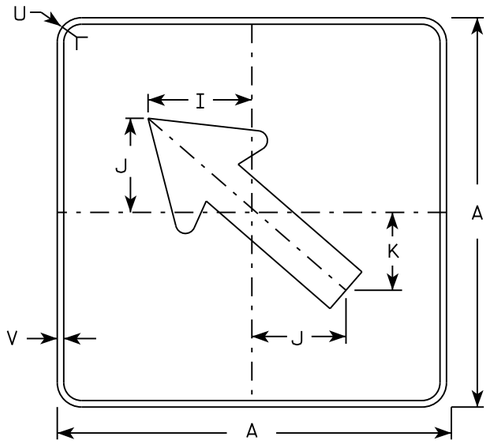
M6-2
MM6-2
MO6-2
MP6-2

NOTES

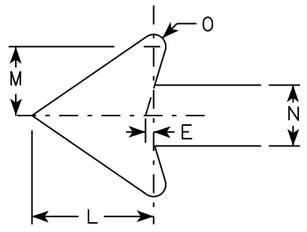
1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-1 and M6-2 Background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



MB6-2
MK6-2
MN6-2
MR6-2



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

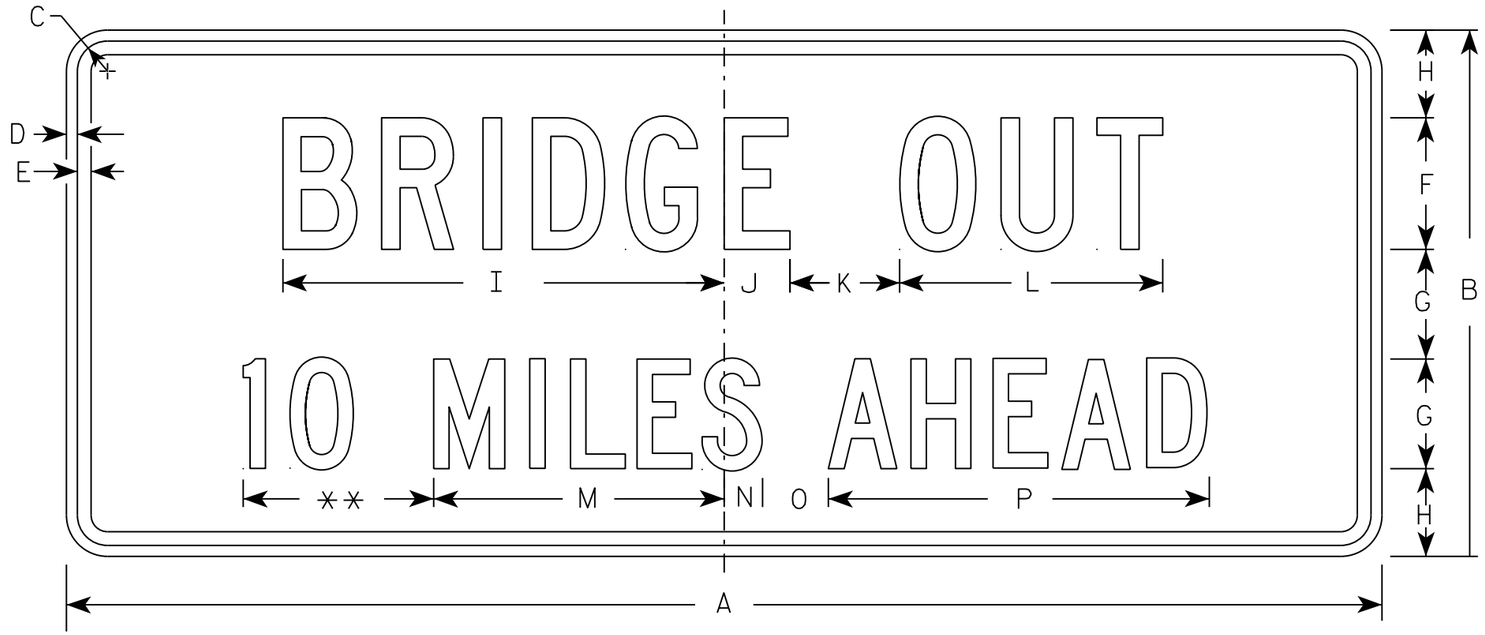
DATE 10/15/15 PLATE 111 M6-1.15

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M61.DGN PLOT DATE : 01-DEC-2015 17:57 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 11.675051:1.000000

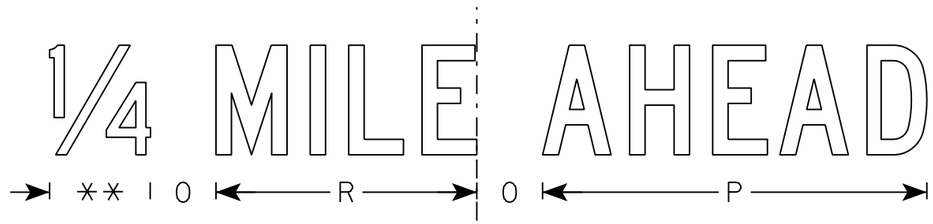
NOTES

1. Sign is Type II - Type H Reflective
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 to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3C

** 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		7 1/8									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		11 7/8									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		11 7/8									10.0
3																											
4																											
5																											

STANDARD SIGN
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/28/16 PLATE NO. R11-3C.3

PROJECT NO:

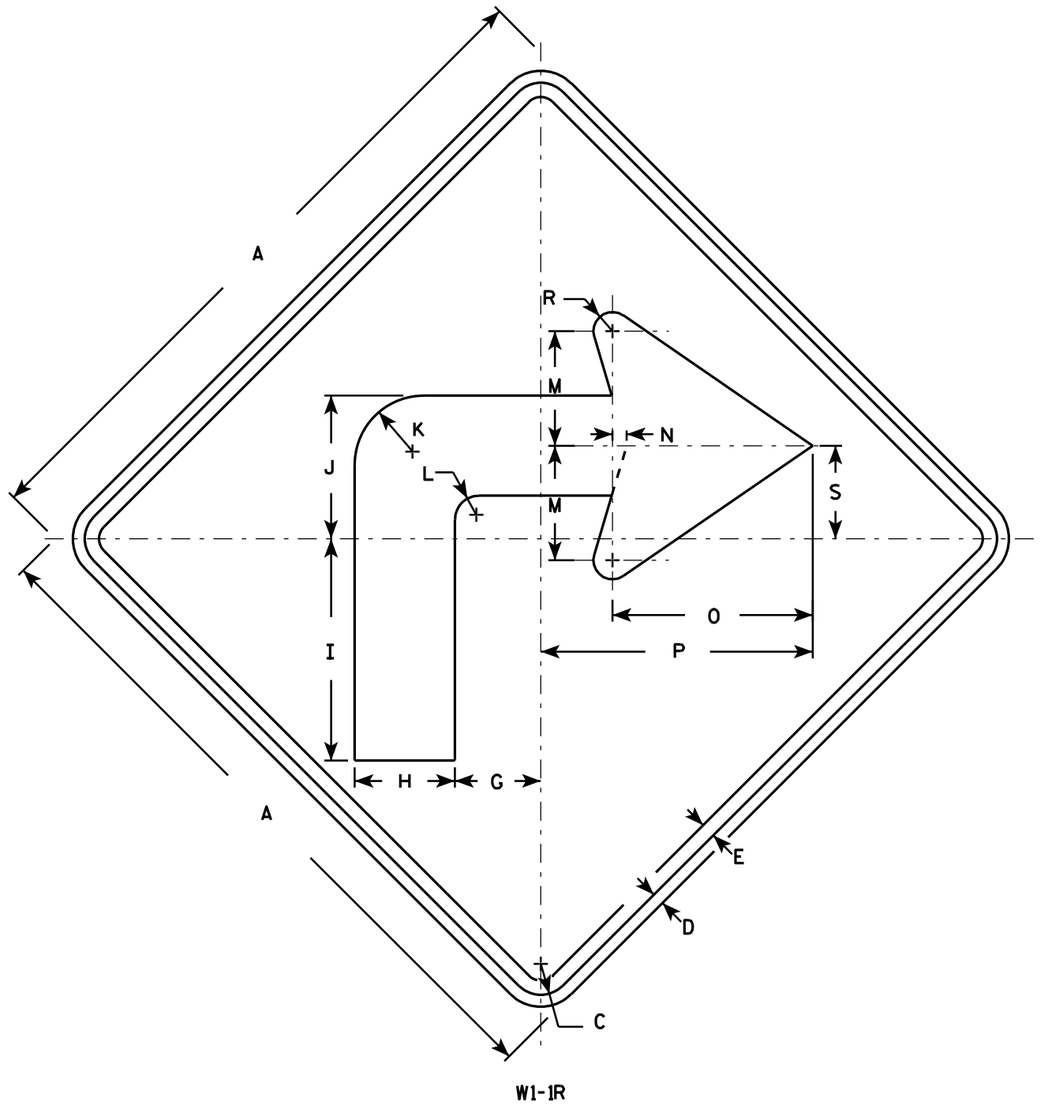
SHEET NO: 112 E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\R113C.DGN PLOT DATE : 15-MAR-2017 15:33 PLOT BY : $$...plotuser...$$

WISDOT/CADDS SHEET 42

7

7



W1-1R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W1-1L is the same as W1-1R except the arrow is reversed along the vertical centerline.

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	24		1 1/8	3/8	1/2		3	3 1/2	7 3/4	5	2 1/2	7/8	4	1/2	7	9 1/2		5/8	3 1/4								4.0
2S	36		1 5/8	5/8	3/4		4 1/2	5 1/4	11 5/8	7 1/2	3 5/8	1 1/4	6	3/4	10 1/2	14 1/4		1	4 7/8								9.0
2M	36		1 5/8	5/8	3/4		4 1/2	5 1/4	11 5/8	7 1/2	3 5/8	1 1/4	6	3/4	10 1/2	14 1/4		1	4 7/8								9.0
3	36		1 5/8	5/8	3/4		4 1/2	5 1/4	11 5/8	7 1/2	3 5/8	1 1/4	6	3/4	10 1/2	14 1/4		1	4 7/8								9.0
4	48		2 1/4	3/4	1		6	7	15 1/2	10	4 7/8	1 5/8	8	1	14	19		1 1/4	6 1/2								16.0
5	48		2 1/4	3/4	1		6	7	15 1/2	10	4 7/8	1 5/8	8	1	14	19		1 1/4	6 1/2								16.0

STANDARD SIGN
W1-1

WISCONSIN DEPT OF TRANSPORTATION

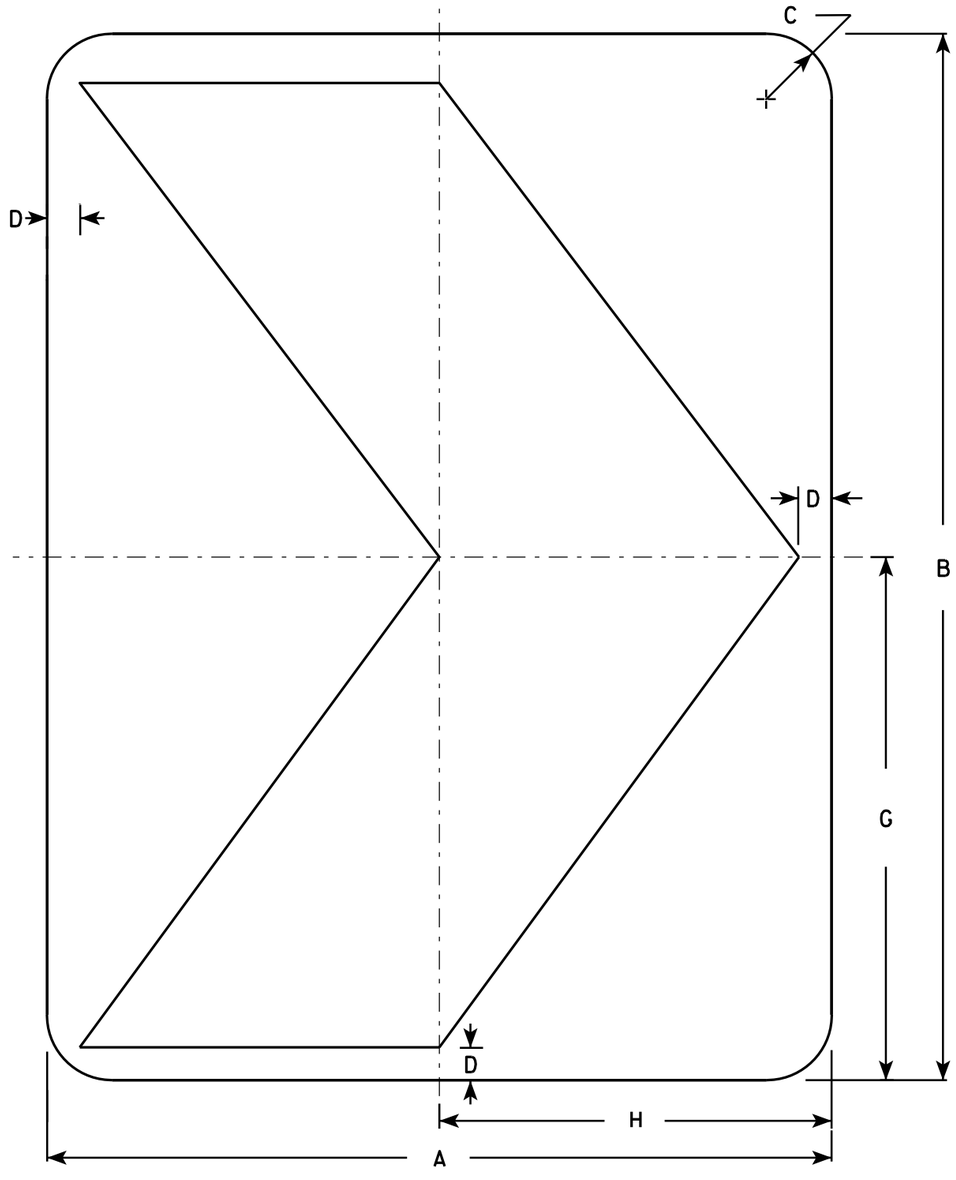
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/15/12 PLATE NO. W1-1.11

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 113 | E

7

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W11.DGN PLOT DATE : 15-MAY-2012 13:47 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 7.939035:1.000000
WISDOT/CADDS SHEET 42



W1-8

NOTES

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

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	12	18	1 ½	½			9	6																			1.5
2S	18	24	1 ½	¾			12	9																			3.0
2M	18	24	1 ½	¾			12	9																			3.0
3	24	30	1 ½	1			15	12																			5.0
4	30	36	1 ⅞	1 ¼			18	15																			7.5
5	36	48	2 ¼	1 ½			24	18																			12.0

STANDARD SIGN
W1-8

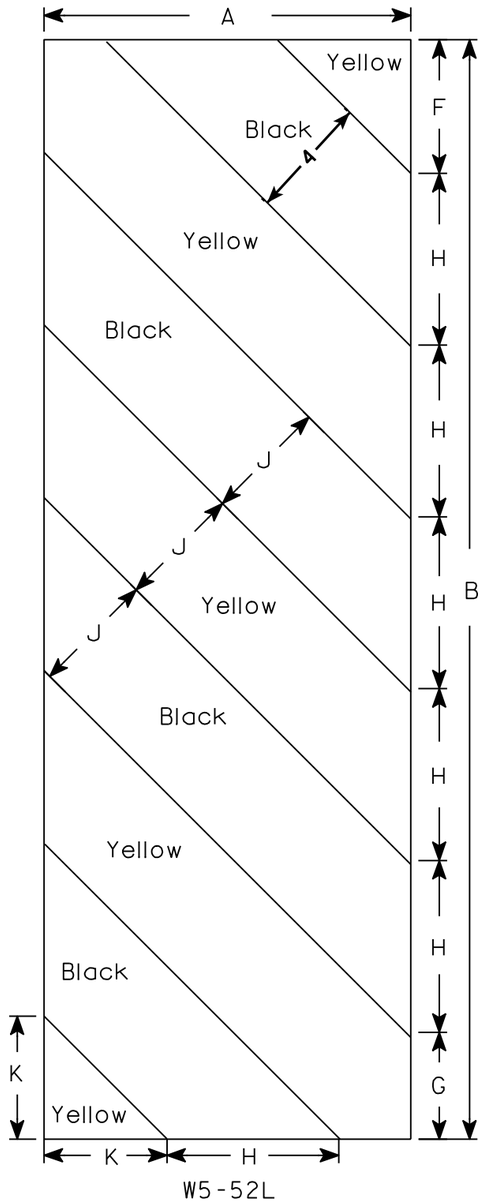
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

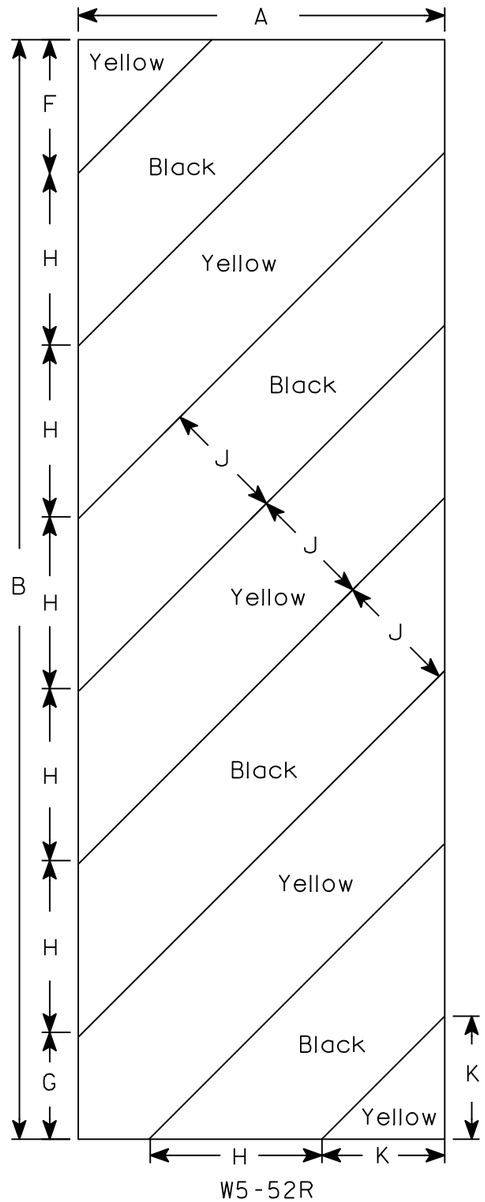
DATE 6/7/10 PLATE NO. W1-8.6

PROJECT NO:

SHEET NO: 114 E



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

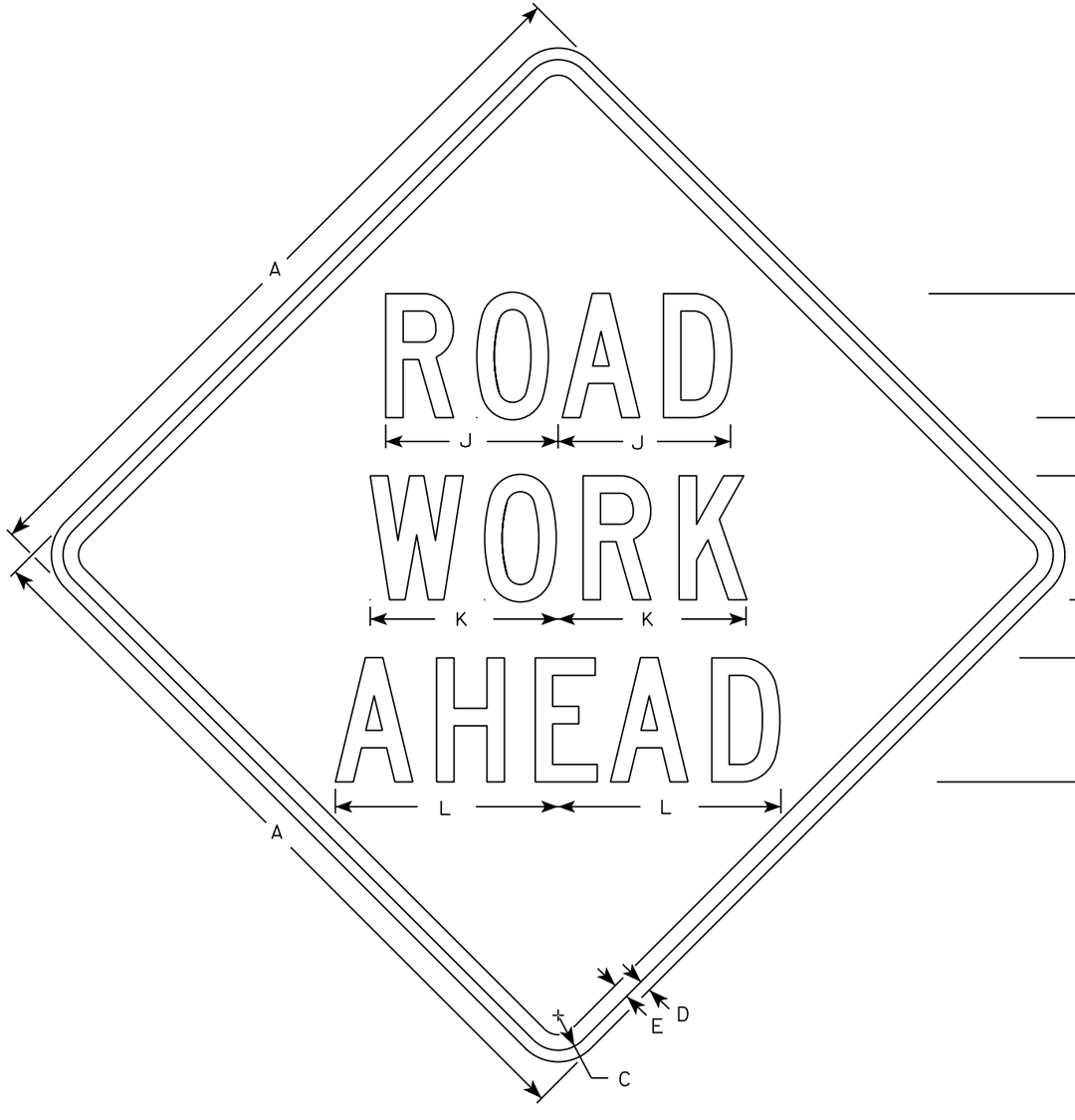
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

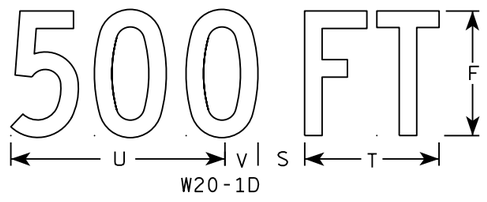
APPROVED Matthew R Rauch
for State Traffic Engineer

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

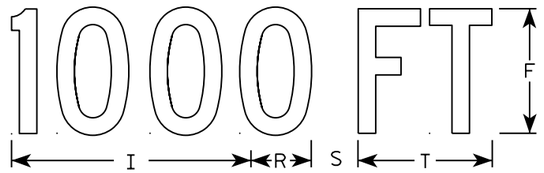
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 115 | E



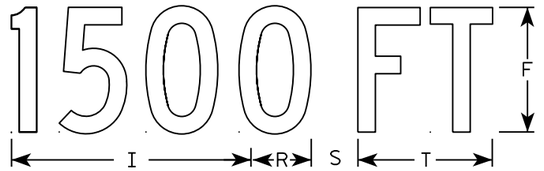
W20-1A



W20-1D



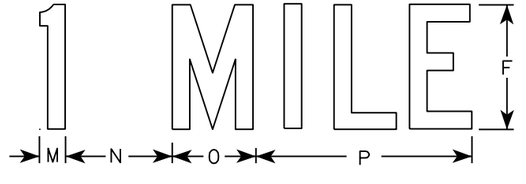
W20-1C



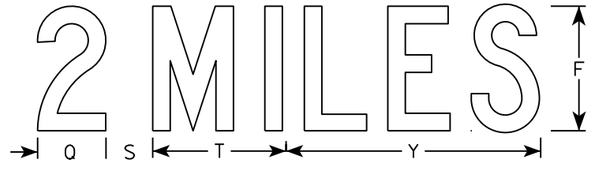
W20-1B



W20-1G



W20-1F



W20-1E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   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	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

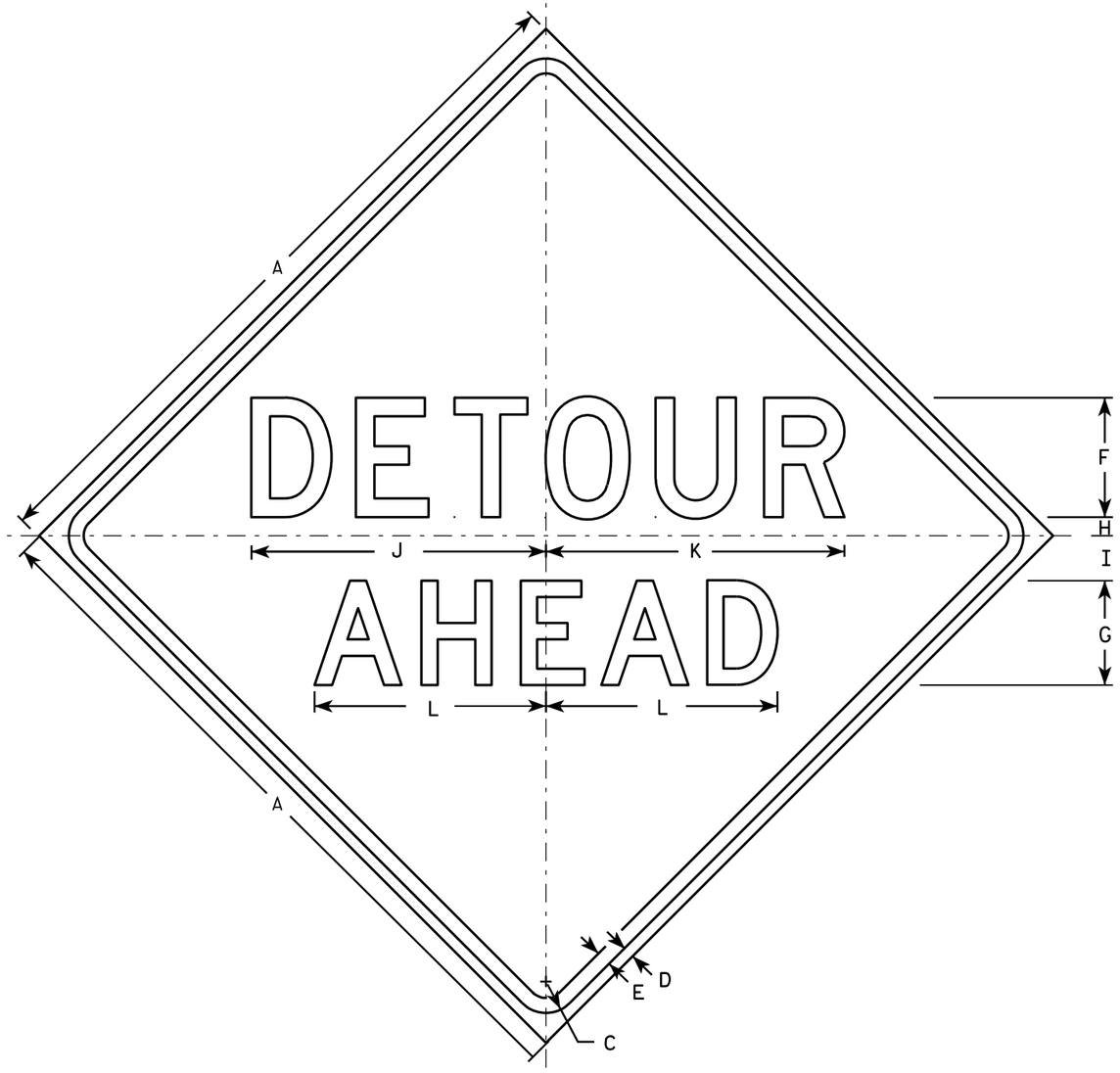
DATE 5/07/15 PLATE NO. W20-1.10

PROJECT NO:

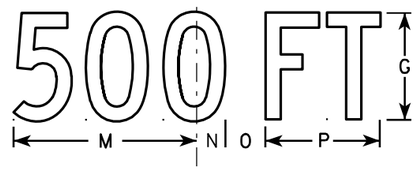
SHEET NO: E

7

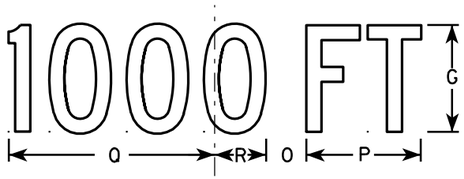
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W201.DGN PLOT DATE : 01-DEC-2015 18:24 PLOT BY : $$ plotuser $$



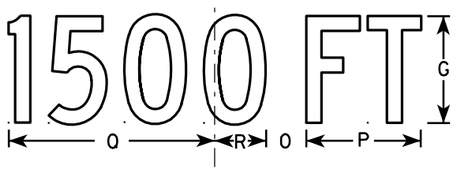
W20-2A



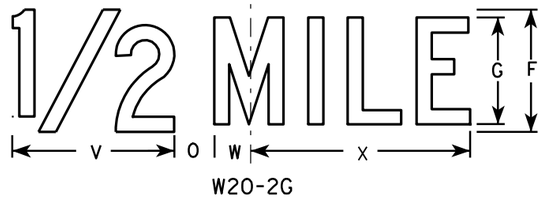
W20-2D



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

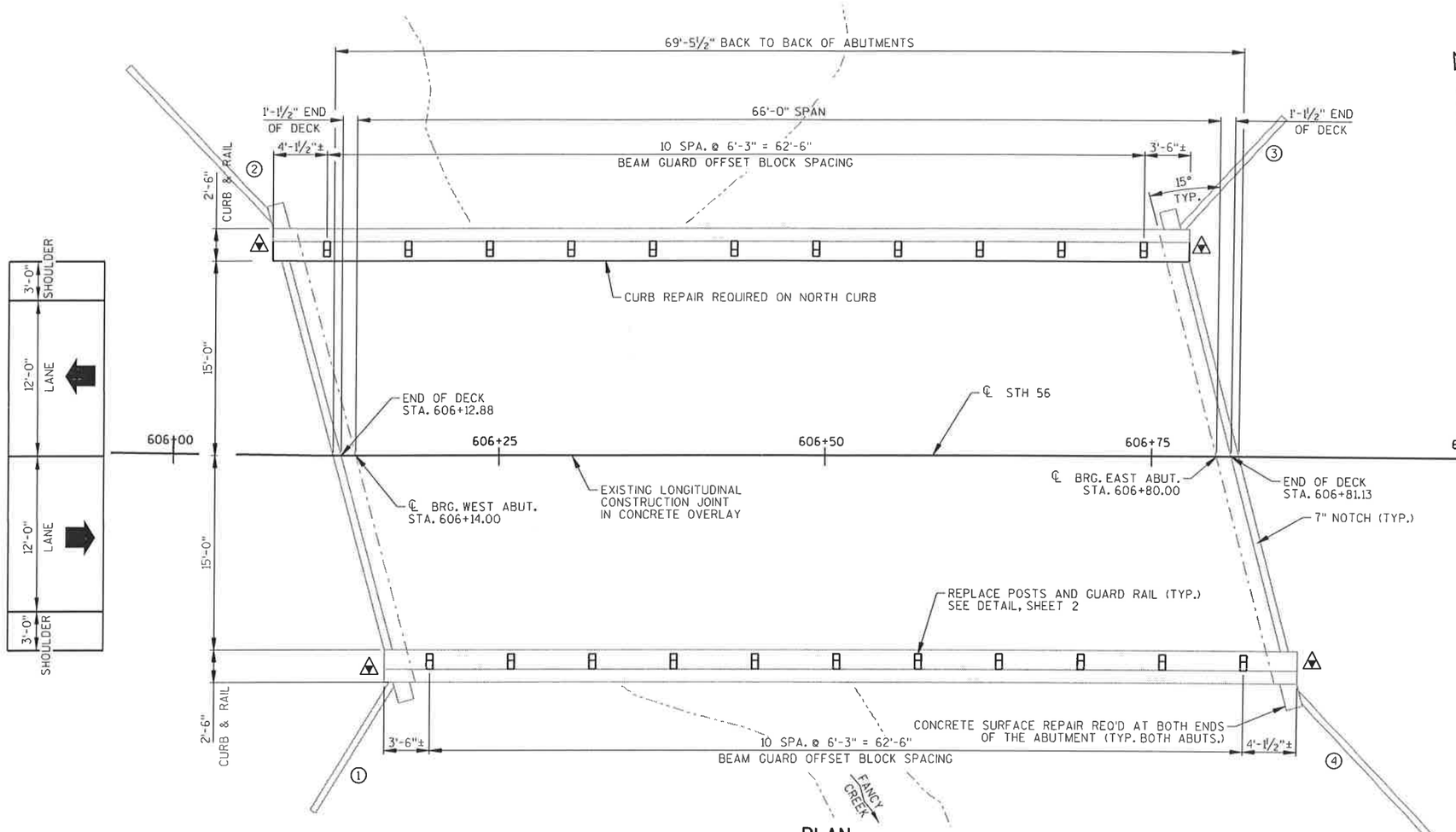
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 117 | E

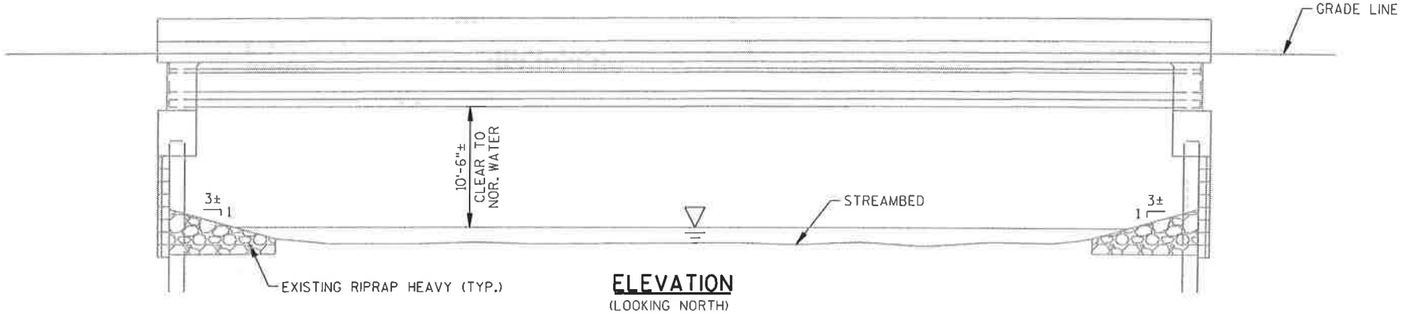
STATE PROJECT NUMBER

5730-00-60



PLAN

(REHAB - MISC. REPAIRS ON EXISTING SINGLE SPAN PRESTRESSED CONCRETE GIRDER)



ELEVATION

(LOOKING NORTH)

DESIGN DATA

LIVE LOAD:
- DESIGN LOADING: HS20 ★
- INVENTORY RATING: HS14 ★
- OPERATING RATING: HS38 ★
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 KIPS ★

★ — TAKEN FROM HSI 5/15/2019

TRAFFIC DATA:
- A.D.T. (2021) = 1,200
- A.D.T. (2041) = 1,300
- R.D.S. = 55 MPH

MATERIAL PROPERTIES:
- CONCRETE MASONRY BRIDGES ——— f'c = 4,000 P.S.I.

LIST OF DRAWINGS

1. REHAB PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS

LEGEND

◯ — INDICATES WING NUMBER.

△ — INDICATES LOCATION OF PROVISION FOR THRIE BEAMGUARD ATTACHMENT

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE
WI
PROFESSIONAL ENGINEER
6/11/19

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

NO.	DATE	REVISION	BY

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com

© MSA Professional Services, Inc

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/21/19
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-52-35

STH 56 OVER FANCY CREEK

COUNTY	TOWN/~~CITY/VILLAGE~~
RICHLAND	MARSHALL

DESIGN SPEC.
REHABILITATION - N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JRS	JLM	CAR	JRS

REHAB PLAN

SHEET 118 OF 2

8

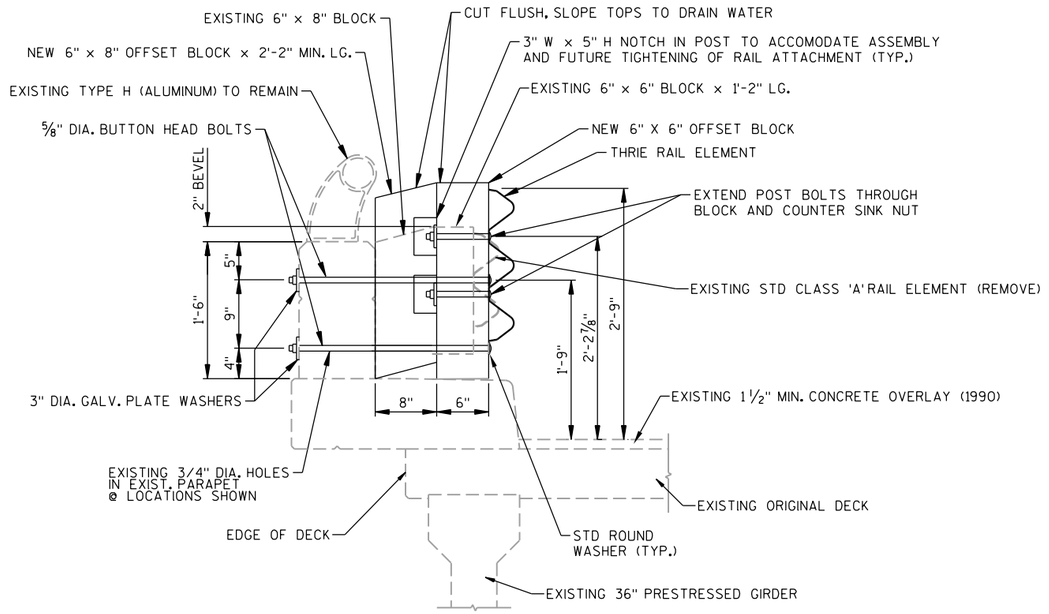
8

FILE= 93452_B-52-35_01.DGN
DATE= 6/9/2019

93452_B-52-35_01.dgn 6/9/2019 6:36:53 AM jsweno

STATE PROJECT NUMBER

5730-00-60



OFFSET BLOCK DETAIL

NOTES

DRAWINGS SHALL NOT BE SCALED.

SEE ROAD PLANS FOR TRAFFIC CONTROL.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

THIS PROJECT WILL REHABILITATE THE EXISTING STRUCTURE, B-52-35, A SINGLE SPAN, 68.3' LONG, 36" PRESTRESSED CONCRETE GIRDER BRIDGE SET ON STEEL PILE AND TIMBER BACKED ABUTMENTS.

IMPROVEMENTS INCLUDE CONCRETE SURFACE REPAIR, CURB REPAIR, AND REPLACEMENT OF THE WOOD POSTS AND STEEL GUARD RAIL AS SHOWN IN THE PLANS.

"CURB REPAIR" REQUIRED ON THE NORTH CURB, AND AS DIRECTED BY THE ENGINEER.

"CONCRETE SURFACE REPAIR" REQUIRED AT THE ENDS OF BOTH ABUTMENTS, AND AS DIRECTED BY THE ENGINEER.

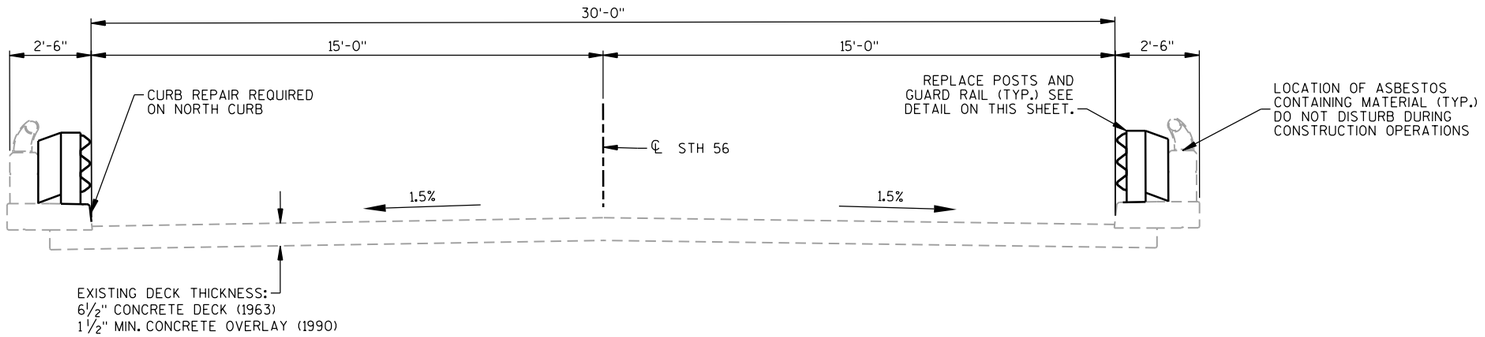
ASBESTOS CONTAINING MATERIAL WAS FOUND ON THIS STRUCTURE IN THE CAULK AROUND THE BOLTS IN THE RAILING ATTACHMENT TO THE CONCRETE PARAPET (0.5 SQ. FT.) AND THE GASKETS UNDER THE RAILING ATTACHMENT PLATE ON THE CONCRETE PARAPET (7 SQ. FT.). SEE LOCATION NOTED BELOW AND SPECIAL PROVISIONS FOR ADDITIONAL DETAILS.

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0090

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
*	509.1200	CURB REPAIR	LF	70
*	509.1500	CONCRETE SURFACE REPAIR	SF	15
	SPV.0090.01	REMOVE GUARD RAIL AND WOOD POSTS B-52-35	LF	140
	SPV.0090.02	REPLACE GUARD RAIL AND WOOD POSTS B-52-35	LF	140

* - COORDINATE THE FIELD IDENTIFICATION OF ALL SURFACE REPAIR AND CURB REPAIR LOCATIONS WITH THE ENGINEER.



CROSS SECTION THRU BRIDGE

(LOOKING EAST)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-52-35

DRAWN BY CAR | PLANS CK'D. JRS

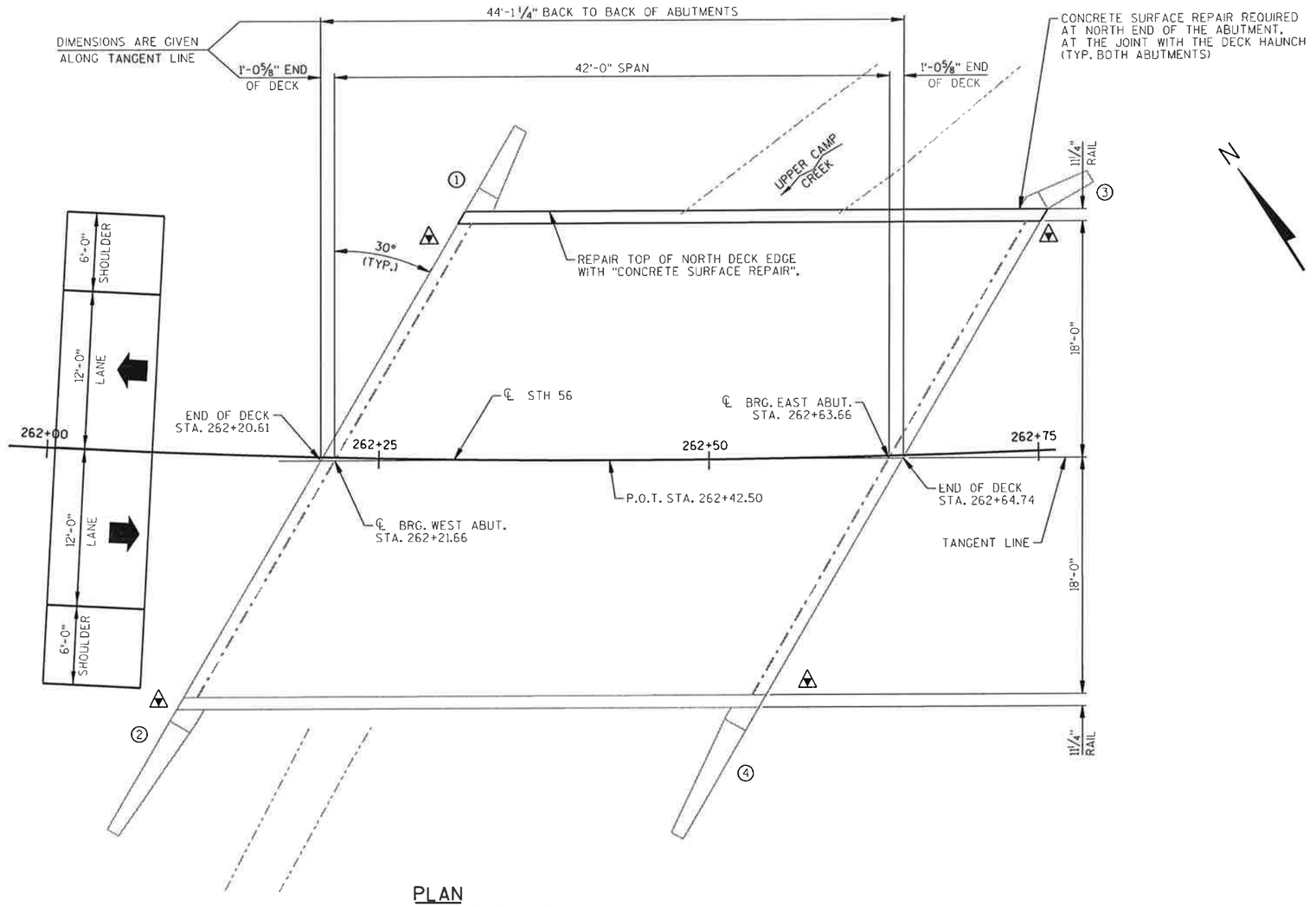
CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 2

119

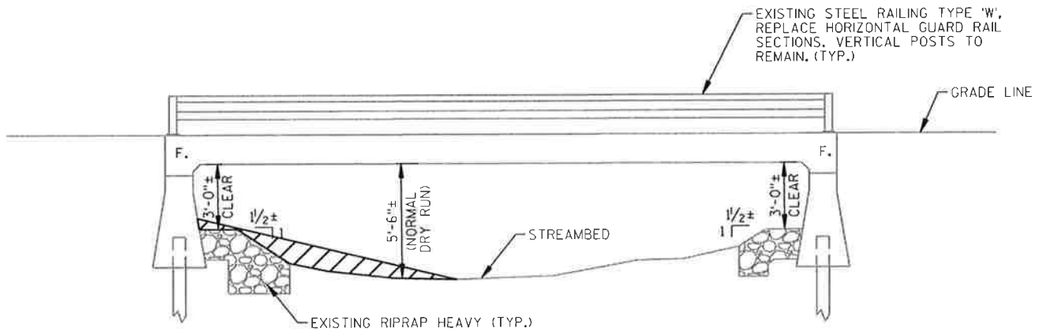
FILE= 93452_B-52-35_02.DGN
DATE= 6/9/2019

93452_B-52-35_02.dgn 6/9/2019 6:29:29 AM jsweno



PLAN

(REHAB ON EXISTING SINGLE SPAN FLAT CONCRETE SLAB)



ELEVATION

(LOOKING NORTH)

STATE PROJECT NUMBER
5730-00-60

DESIGN DATA

LIVE LOAD:

★ — TAKEN FROM HSI 6/13/2019

- DESIGN LOADING: HS20 ★
- INVENTORY RATING: HS22 ★
- OPERATING RATING: HS37 ★
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 KIPS ★

TRAFFIC DATA:

- A.D.T. (2021) = 1,200
- A.D.T. (2041) = 1,300
- R.D.S. = 55 MPH

MATERIAL PROPERTIES:

- CONCRETE MASONRY BRIDGES ——— f'c = 4,000 P.S.I.

LIST OF DRAWINGS

1. REHAB GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS

LEGEND

- ◯ — INDICATES WING NUMBER.
- ⧋ — INDICATES LOCATION OF PROVISION FOR THRIE BEAMGUARD ATTACHMENT
- ▨ — REMOVE SEDIMENT BUILD-UP PRESENT IN THE CHANNEL UNDER THE BRIDGE AND BETWEEN THE ABUTMENT WINGS. WORK COVERED UNDER "EXCAVATION FOR STRUCTURES BRIDGES B-52-84".

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE
WI
PROFESSIONAL ENGINEER

6/13/19

NO.	DATE	REVISION	BY

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/21/19
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-52-84

STH 56 OVER UPPER CAMP CREEK

COUNTY	TOWN ~~CITY/VILLAGE~~
RICHLAND	FOREST

DESIGN SPEC.
REHABILITATION - N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
DHW	JRS	CAR	JRS

REHAB GENERAL PLAN

SHEET 1 OF 2
120

8

8

93452_B-52-84_01.dgn 6/13/2019 9:48:54 AM rrabska

FILE= 93452_B-52-84_01.DGN
DATE= 6/13/2019

STATE PROJECT NUMBER
5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0050

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES B-52-84	LS	1
*	509.1500	CONCRETE SURFACE REPAIR	SF	46
	SPV.0090.04	REMOVE AND REPLACE STEEL THRIE RAILING ON EXISTING POSTS B-52-84	LF	88

* - COORDINATE THE FIELD IDENTIFICATION OF ALL CONCRETE SURFACE REPAIR LOCATIONS WITH THE ENGINEER.

NOTES

DRAWINGS SHALL NOT BE SCALED.

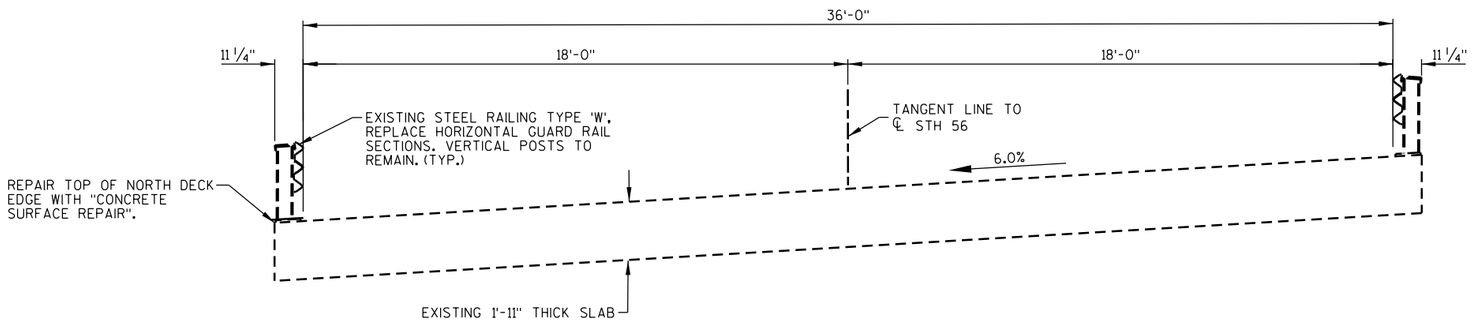
SEE ROAD PLANS FOR TRAFFIC CONTROL.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

THIS PROJECT WILL REHABILITATE THE EXISTING STRUCTURE, B-52-84, A SINGLE SPAN, 44.1' LONG, FLAT CONCRETE SLAB BRIDGE SET ON CONCRETE SILL ABUTMENTS.

IMPROVEMENTS INCLUDE CONCRETE SURFACE REPAIRS TO THE NORTH EDGE OF THE SLAB AND ABUTMENTS, RAILING REPLACEMENT AND CHANNEL REPAIR.

"CONCRETE SURFACE REPAIR" REQUIRED ON THE NORTH EDGE OF THE DECK, THE NORTH END OF BOTH ABUTMENTS AT THE JOINT WITH THE DECK HAUNCH AND AS REQUIRED BY THE ENGINEER.



CROSS SECTION THRU BRIDGE

(LOOKING EAST)

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-52-84

DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

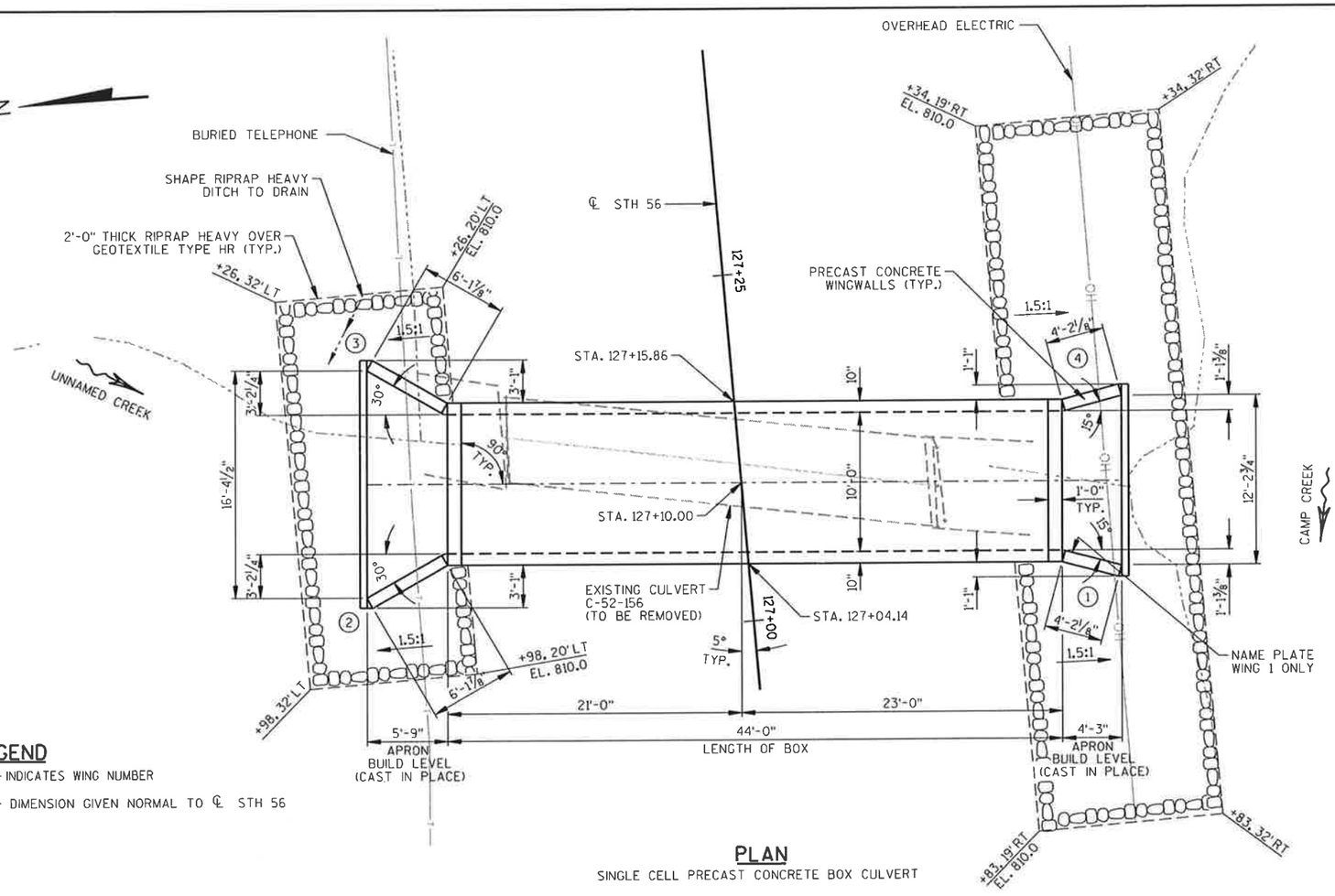
SHEET 2 OF 2
121

FILE= 93452_B-52-84_02.DGN
DATE=6/13/2019

93452_B-52-84_02.dgn 6/13/2019 10:01:33 AM rrabska

STATE PROJECT NUMBER

5730-00-60



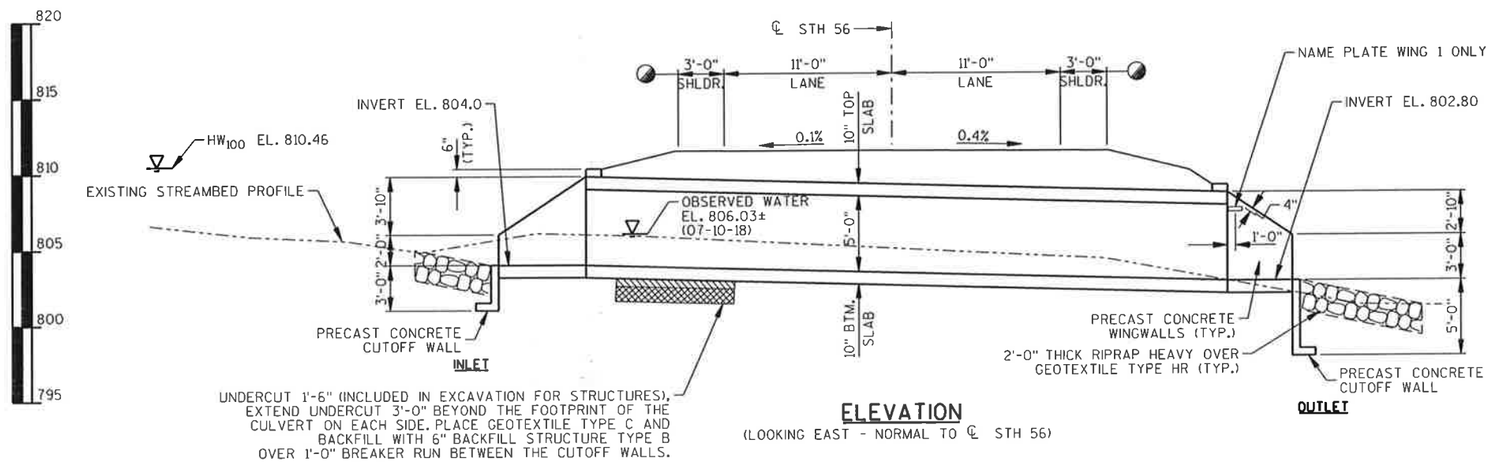
LEGEND

◯ – INDICATES WING NUMBER

◪ - DIMENSION GIVEN NORMAL TO ℄ STH 56

PLAN

SINGLE CELL PRECAST CONCRETE BOX CULVERT



ELEVATION

(LOOKING EAST - NORMAL TO ℄ STH 56)

DESIGN DATA

LIVE LOAD:
- DESIGN LOAD : HL-93
- INVENTORY RATING FACTOR : 1.05
- OPERATIONAL RATING FACTOR : 1.35
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) : 255 KIPS

TRAFFIC DATA (STH 56):
- A.D.T. (2021) = 1200
- A.D.T. (2041) = 1300
- R.D.S. = 55 MPH

EARTH LOAD:
- DESIGNED FOR FILL HEIGHT RANGE OF 1.5 TO 2.5 FEET

MATERIAL PROPERTIES:
- CONCRETE MASONRY ——— f'c = 3,500 P.S.I.
- CONCRETE MASONRY (PRECAST BARREL)- f'c = 5,000 P.S.I.
- CONCRETE MASONRY (PRECAST OTHER) — f'c = 4,000 P.S.I.
- BAR STEEL REINFORCEMENT ——— fy = 60,000 P.S.I.
- WELDED WIRE FABRIC ——— fy = 65,000 P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA = 0.29 SQ. MI
Q_{100} = 300 C.F.S.
VELOCITY = 8.57 F.P.S.
WATERWAY AREA = 35 SQ. FT.
HIGH $WATER_{100}$ ELEVATION = EL. 810.46
OVERTOPPING RDWAY. = > 100 YEARS
SCOUR CODE = 8

2 YEAR FREQUENCY

Q_2 = 30 C.F.S.
HIGH $WATER_2$ ELEVATION = EL. 808.59
VEL_2 = 4.59 F.P.S.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS
3. PRECAST CONCRETE BARREL DETAILS
4. PRECAST WINGS & CUTOFF WALL
5. SUBSURFACE EXPLORATION

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE
WI
PROFESSIONAL ENGINEER
6/7/19

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

NO.	DATE	REVISION	BY

MSA ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/06/19
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-52-174

STH 56 OVER UNNAMED CREEK

COUNTY	TOWN ~~CITY/VILLAGE~~
RICHLAND	FOREST

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JLM	JRS	RLR	JRS

GENERAL PLAN

SHEET 1 OF 5
122

8

8

93452_C-52-174_01.dgn 5/25/2019 6:55:08 AM jsweno

FILE= 93452_C-52-174_01.DGN
DATE= 5/25/2019

STATE PROJECT NUMBER

5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0020

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	203.0500.S.01	REMOVING OLD STRUCTURE OVER WATERWAY STATION 127+11.5	LS	1
	206.2000.01	EXCAVATION FOR STRUCTURES CULVERTS C-52-174	LS	1
	206.5000.01	COFFERDAMS C-52-174	LS	1
◭	210.2500	BACKFILL STRUCTURE TYPE B	TON	522
	311.0110	BREAKER RUN	TON	66
	504.0100	CONCRETE MASONRY CULVERTS	CY	5
*	504.1000.S.01	PRECAST CONCRETE WINGWALLS C-52-174	LS	1
	504.2000.S.01	PRECAST CONCRETE BOX CULVERT, 10 FT X 5 FT	LF	44
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	170
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	4
	606.0300	RIPRAP HEAVY	CY	65
	645.0105	GEOTEXTILE TYPE C	SY	110
	645.0120	GEOTEXTILE TYPE HR	SY	155
		NON-BID ITEMS		
		PREFORMED FILLER	SIZE	¾"

* ALL WORK ASSOCIATED WITH THE PRECAST CUTOFF WALLS IS INCLUDED WITH "PRECAST CONCRETE WINGWALLS C-52-174."

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THIS STRUCTURE WILL REPLACE AN EXISTING 6' WIDE X 3.75' HIGH, 32' LONG SINGLE CELL REINFORCED CONCRETE BOX CULVERT.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-52-174" SHALL BE THE EXISTING GROUNDLINE.

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY CONTRACTOR.

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD 88 (2012 ADJUSTED), AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

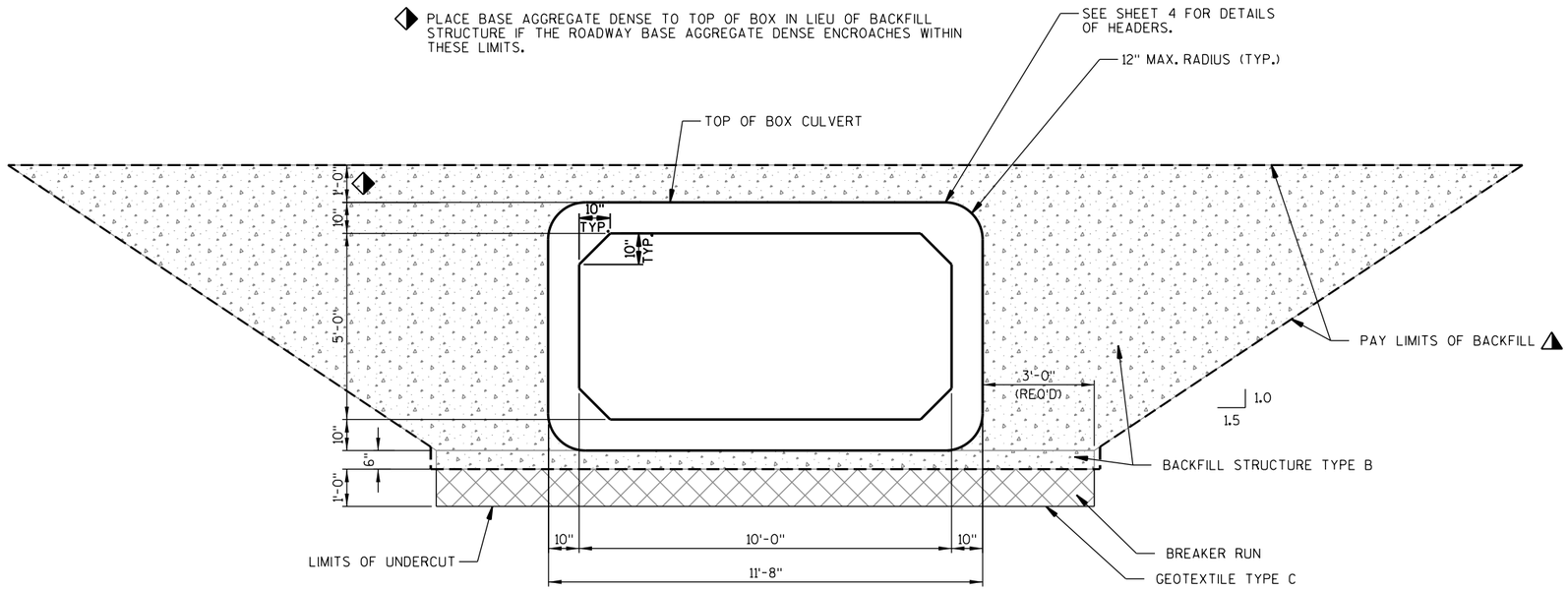
PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR.

THE APRONS SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

COFFERDAMS REQUIRED FOR DRY CONSTRUCTION CONDITIONS ALONG THE BANKS OF CAMP CREEK AT THE OUTLET OF THE STRUCTURE.

CONSTRUCTION OF DIVERSION CHANNEL TO BE PER STANDARD SPECIFICATION AND INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES CULVERTS C-52-174".

◭ PLACE BASE AGGREGATE DENSE TO TOP OF BOX IN LIEU OF BACKFILL STRUCTURE IF THE ROADWAY BASE AGGREGATE DENSE ENCROACHES WITHIN THESE LIMITS.



SECTION THRU CULVERT

(PAVEMENT STRUCTURE NOT SHOWN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-174

DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 5

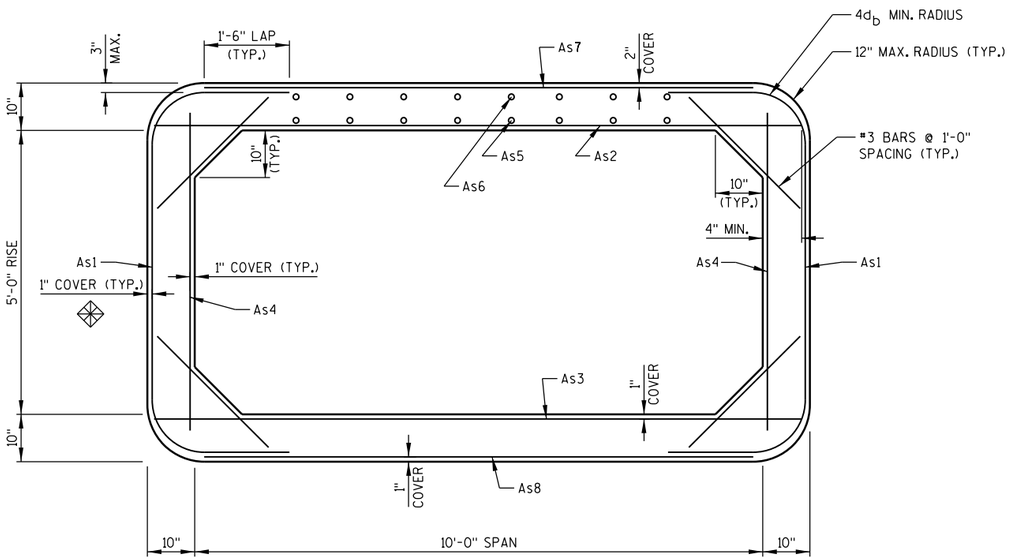
123

FILE= 93452_C-52-174_02.dgn
DATE=6/7/2019

93452_C-52-174_02.dgn 6/7/2019 7:25:08 AM jsweno

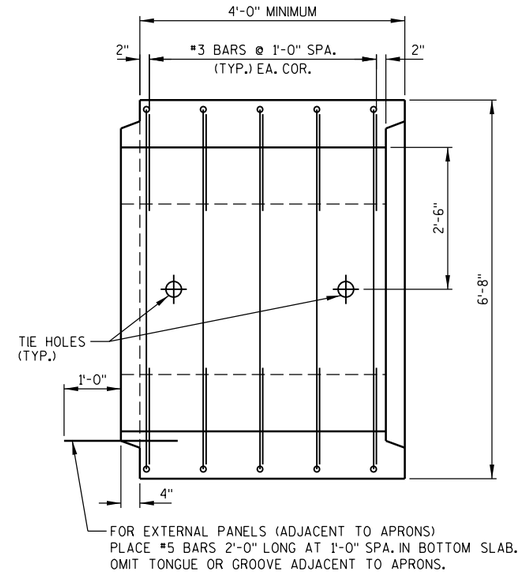
STATE PROJECT NUMBER

5730-00-60



SECTION THRU BARREL

FOR LESS THAN 2'-0" OF COVER



LONGITUDINAL SECTION

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

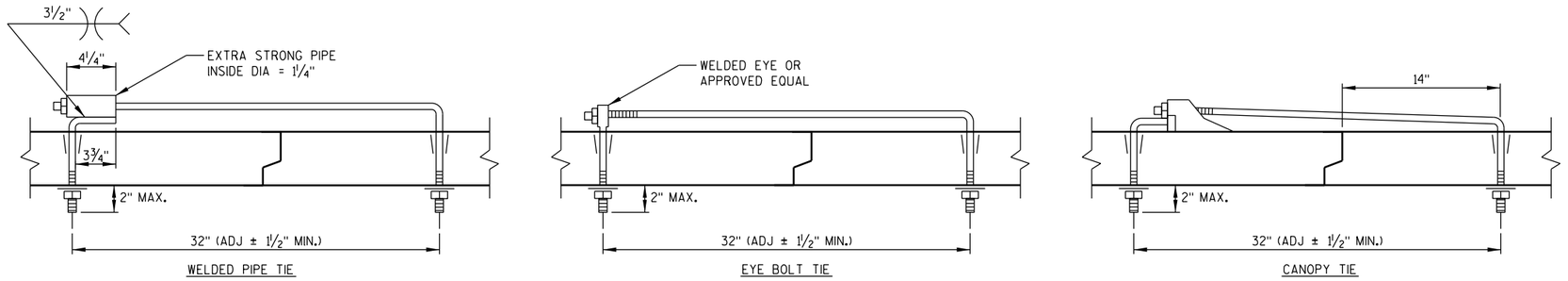
THE COVER OF CONCRETE OVER THE REINFORCEMENT ON ALL PRECAST ELEMENTS SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -$\frac{3}{8}$" TO +$\frac{1}{2}$".

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED, HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

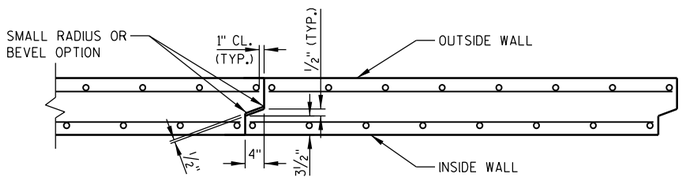
THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A.



JOINT TIES★

REINFORCEMENT SCHEDULE

REINFORCEMENT	AREA (IN.2/FT.)
As1	0.30
As2	0.36
As3	0.30
As4	0.24
As5	0.24
As6	0.24
As7	0.24
As8	0.24



JOINT DETAIL AND BARREL SECTION

◈ 1" OR 3 X WIRE DIAMETER WHICHEVER IS GREATER.

★ CONCRETE JOINT TIE:

FOR CONCRETE BOXES AND APRONS PIPE TIES SHALL BE REQUIRED AT ALL JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR IN THE SPECIAL PROVISIONS. TIES TO BE USED ONLY TO HOLD SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. TIES ARE TO BE 1" DIAMETER RODS. EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED, TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. TIE ROD THREADS SHALL PROJECT TO THE INSIDE OF PIPE EXCEPT AS NOTED IN PLANS. TIE ROD ENDS MAY PROJECT TO OUTSIDE OF BOX CULVERT PIPE IN MULTIPLE PIPELINE INSTALLATIONS, FACE CONNECTION DOWNSTREAM. HOLES FOR TIES SHALL BE CAST OR DRILLED FROM CENTERLINE OF JOINT (2 TIES REQ'D PER JOINT.) (TIES TO BE GALVANIZED.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-174

DRAWN BY RLR | PLANS CK'D. JRS

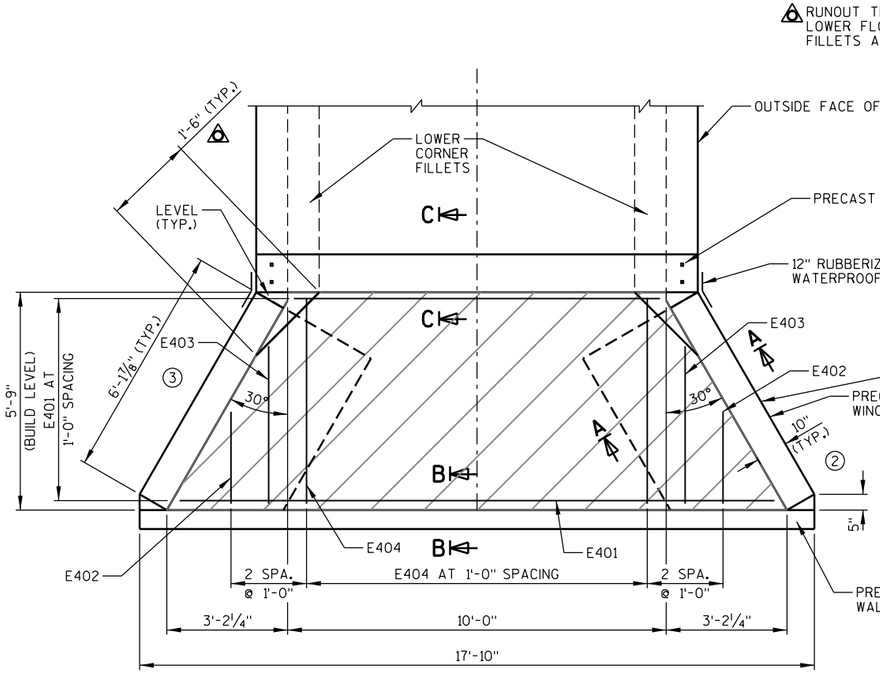
PRECAST CONCRETE BARREL DETAILS

SHEET 3 OF 5
124

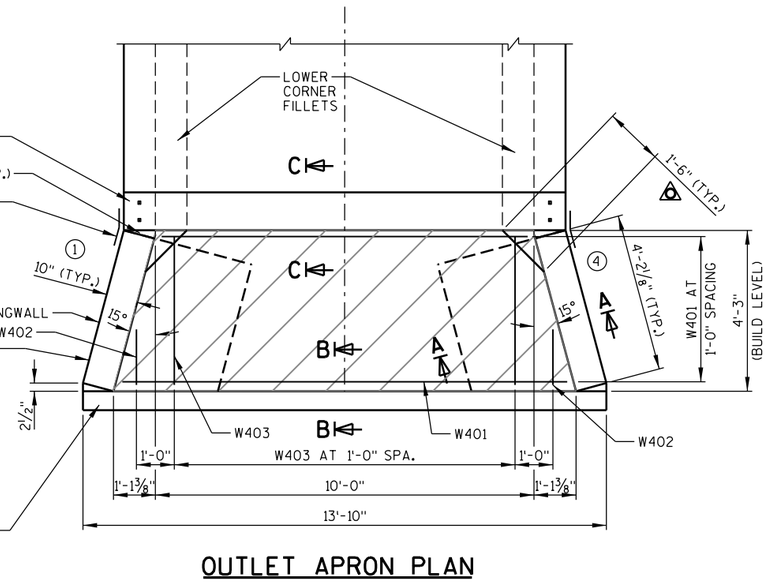
FILE= 93452_C-52-174_03.dgn
DATE=5/23/2019

93452_C-52-174_03.dgn 5/23/2019 12:32:10 PM jsweno

STATE PROJECT NUMBER
5730-00-60



INLET APRON PLAN



OUTLET APRON PLAN

NOTES

CONCRETE COVER ON ALL REINFORCEMENT IN THE PRECAST ELEMENTS SHALL BE 2" UNLESS SHOWN OR NOTED OTHERWISE.

THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5.

THE 7/8" DIA. ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENT OF ASTM A575.

ALL EXPOSED CORNERS SHALL BE BEVELED 3/4" ON THE SIDES OR TOOL EDGED WITH A 1/2" MINIMUM RADIUS EDGER.

PRECAST CUTOFF WALLS MAY BE FIELD SPLICED BY EXTENDING THE REINFORCING STEEL FROM BOTH SEGMENTS TO BE SPLICED 1'-6" INTO THE SPLICE ZONE, LAPPING THE STEEL ± 1'-6" AND FIELD POURING A SECTION OF THE CUTOFF WALL 1'-6" LONG.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF ENGINEER.

APRON SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

ALTERNATE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

B.F. - BACK FACE

◯ - INDICATES WING NUMBER

FIELD PLACE BAR STEEL REINFORCEMENT AND CONCRETE MASONRY CULVERTS

BILL OF BARS (APRONS) UNCOATED: 170 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
W401	5	10'-8"		Ⓢ	OUTLET APRON - TRANS.
W402	2	1'-5"			OUTLET APRON - LONGIT.
W403	10	3'-11"			OUTLET APRON - LONGIT.
E401	7	12'-8"		Ⓢ	INLET APRON - TRANS.
E402	2	2'-5"			INLET APRON - LONGIT.
E403	2	4'-2"			INLET APRON - LONGIT.
E404	10	5'-5"			INLET APRON - LONGIT.

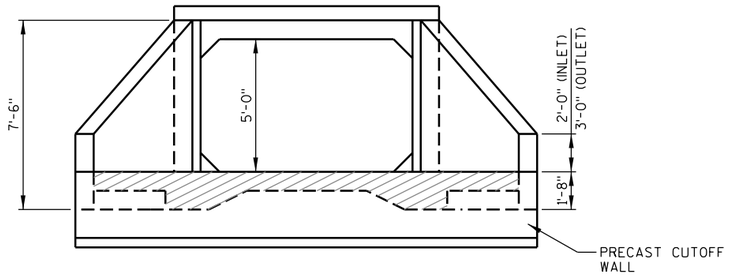
NOTES: BILL OF BARS FOR FIELD PLACED REINFORCEMENT ONLY.

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

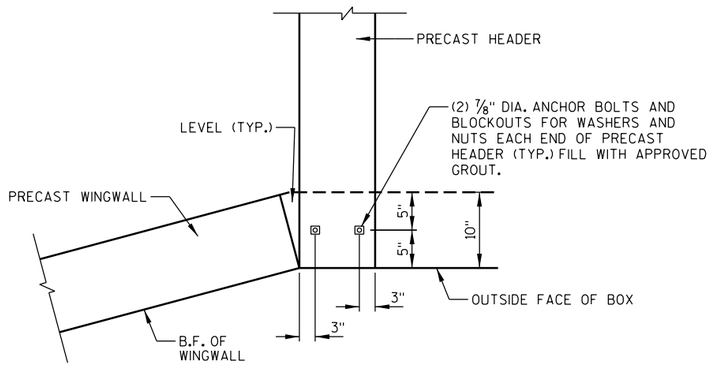
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES

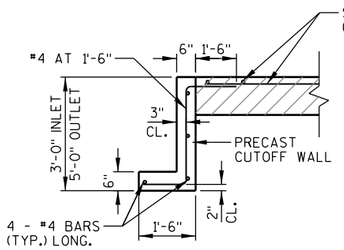
MARK	NUMBER REQUIRED	LENGTH
W401	1 SERIES OF 5	9'-8" TO 11'-8"
E401	1 SERIES OF 7	9'-8" TO 15'-8"



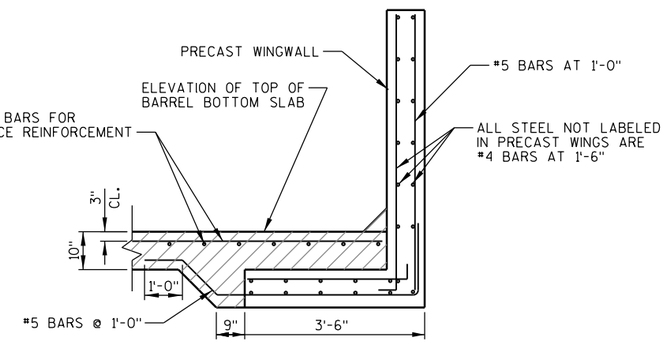
END VIEW



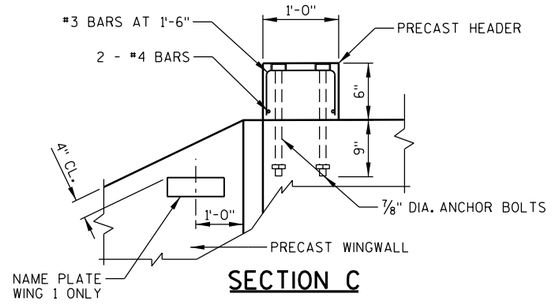
PLAN AT HEADER CORNER



SECTION B



SECTION A



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-174

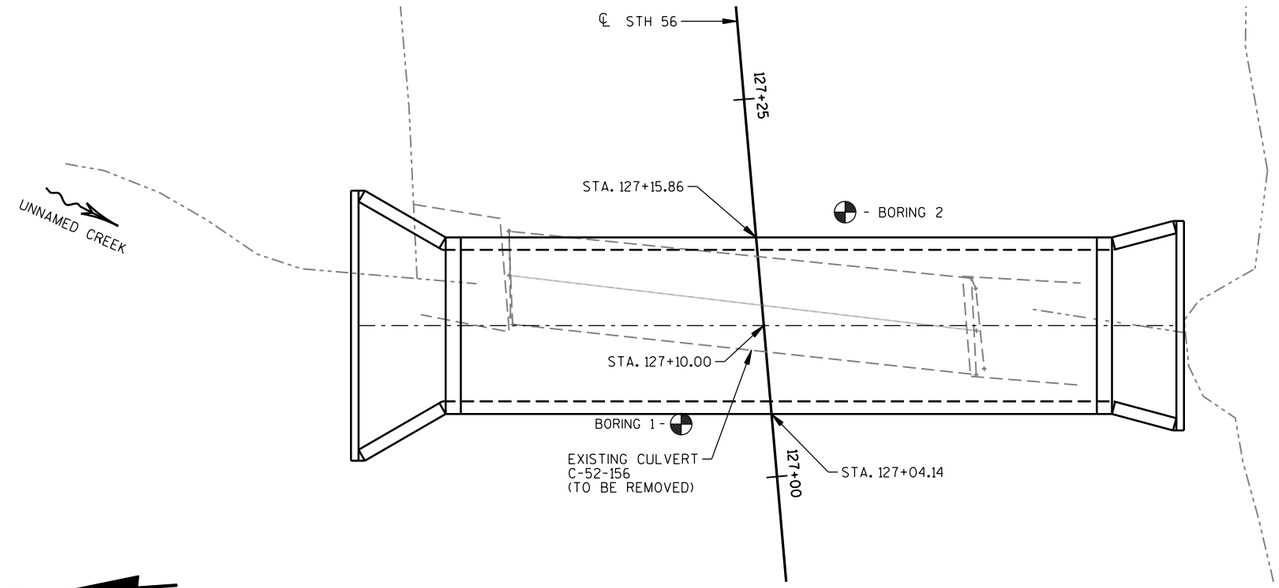
DRAWN BY RLR | PLANS CK'D. JRS

PRECAST WINGS & CUTOFF WALL

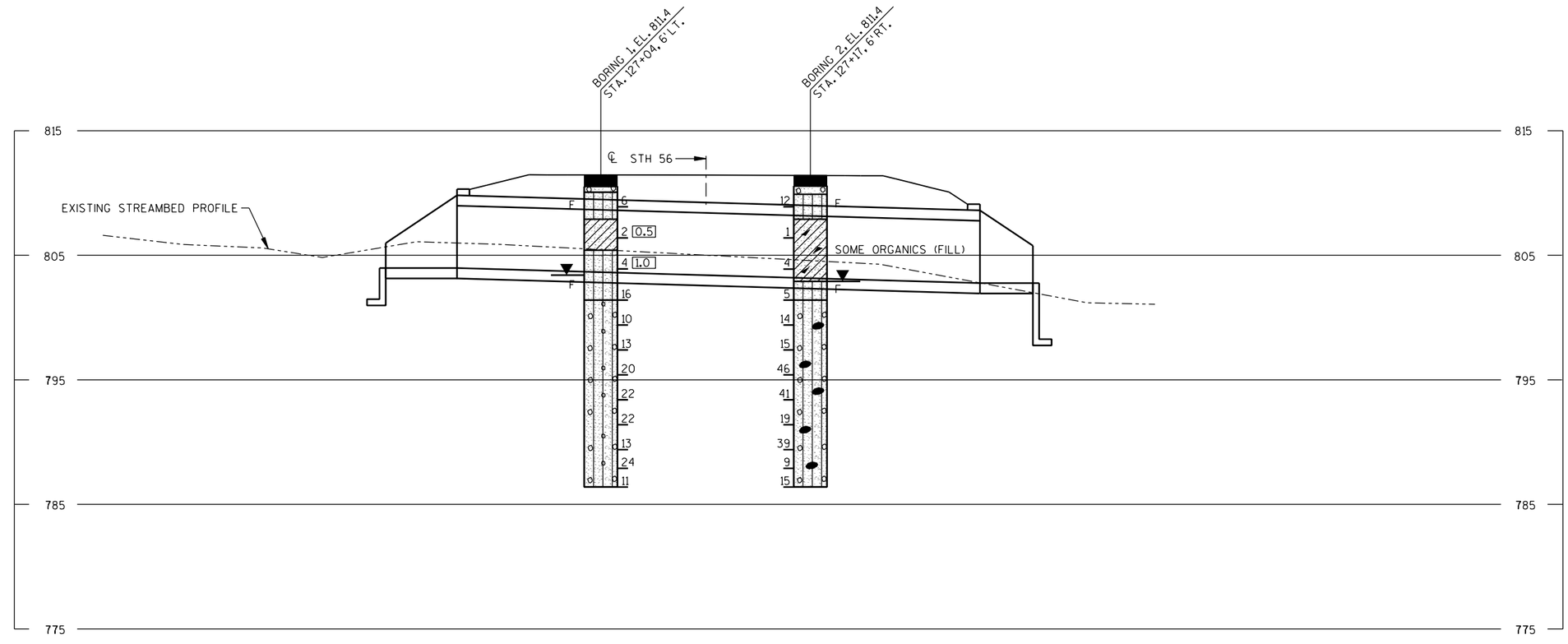
SHEET 4 OF 5
125

FILE= 93452_C-52-174_04.dgn
DATE= 5/21/2019

93452_C-52-174_04.dgn 5/21/2019 10:21:10 AM trabska



BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	10-31-2018	506,104.9	612,963.6
2	10-31-2018	506,093.0	612,976.8
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(12) RICHLAND COUNTY			



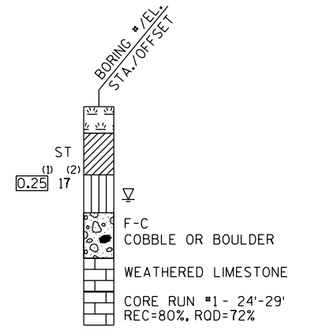
STATE PROJECT NUMBER

5730-00-60

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-174

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

SHEET 5 OF 5

126

8

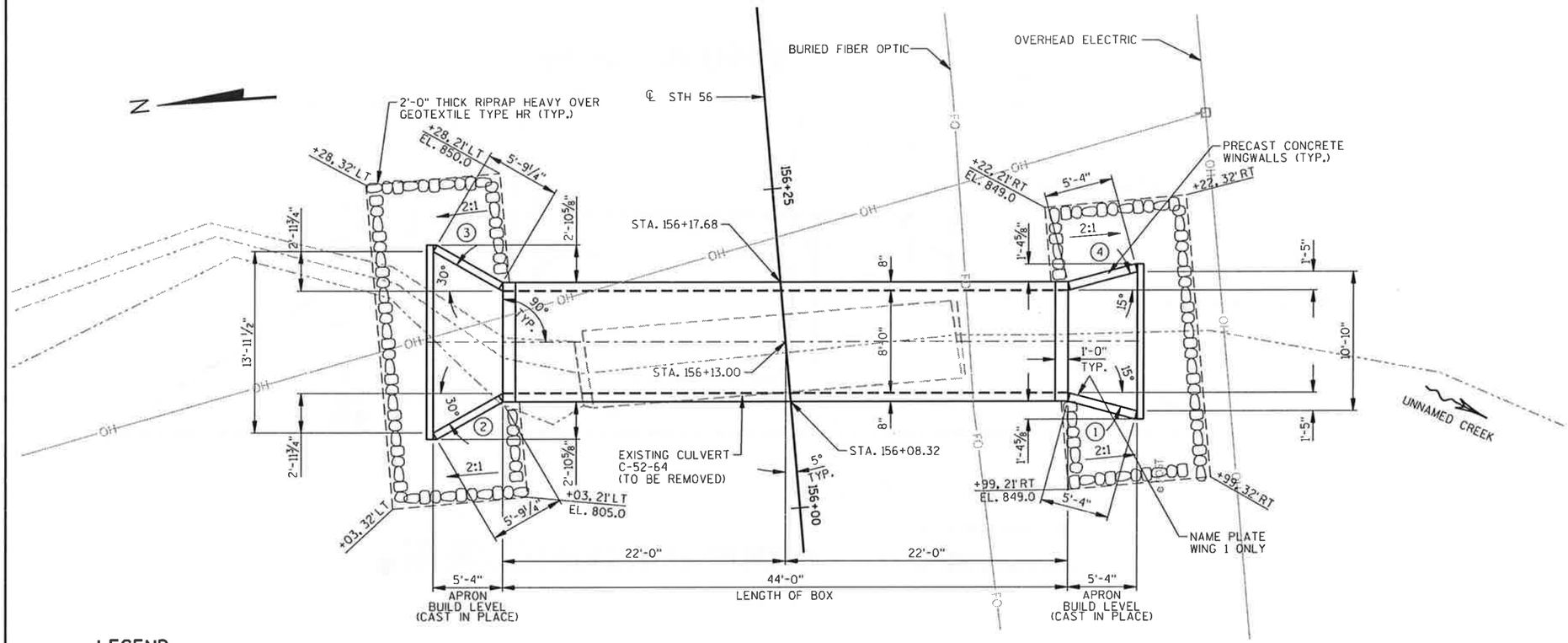
8

FILE= 93452_C-52-174_05.DGN

93452_C-52-174_05.dgn 1/15/2019 7:52:17 AM rrabska

STATE PROJECT NUMBER

5730-00-60



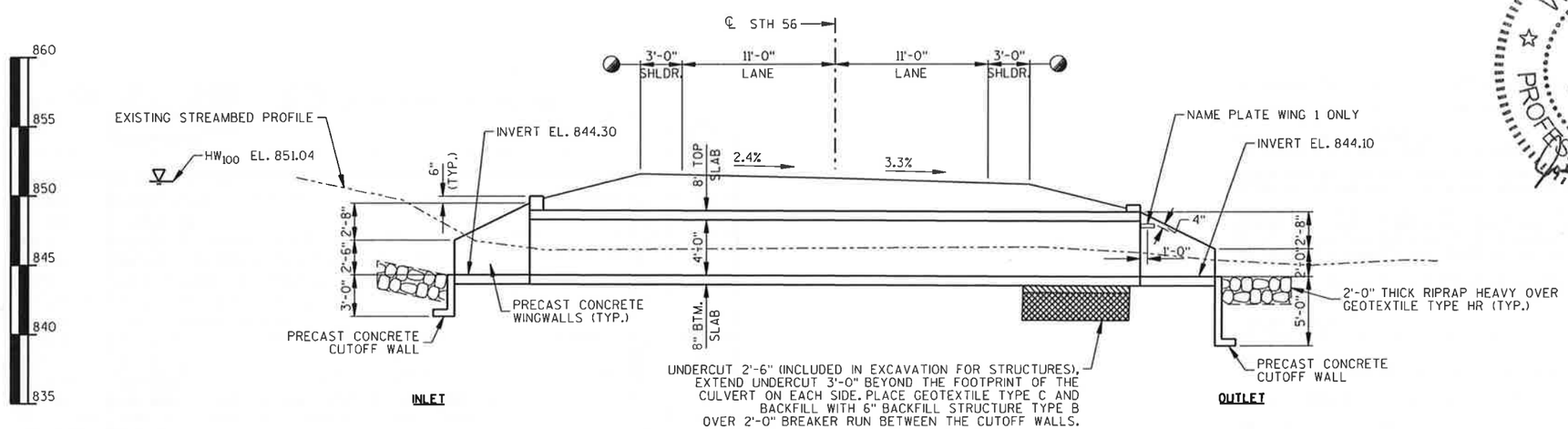
LEGEND

◯ – INDICATES WING NUMBER

◪ - DIMENSION GIVEN NORMAL TO ℄ STH 56

PLAN

SINGLE CELL PRECAST CONCRETE BOX CULVERT



ELEVATION

(LOOKING EAST - NORMAL TO ℄ STH 56)

DESIGN DATA

LIVE LOAD:
- DESIGN LOAD : HL-93
- INVENTORY RATING FACTOR : 1.05
- OPERATIONAL RATING FACTOR : 1.35
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) : 255 KIPS

TRAFFIC DATA (STH 56):
- A.D.T. (2021) = 1200
- A.D.T. (2041) = 1300
- R.D.S. = 55 MPH

EARTH LOAD:
- DESIGNED FOR FILL HEIGHT RANGE OF 2.0 TO 2.5 FEET

MATERIAL PROPERTIES:
- CONCRETE MASONRY ——— f'c = 3,500 P.S.I.
- CONCRETE MASONRY (PRECAST BARREL)- f'c = 5,000 P.S.I.
- CONCRETE MASONRY (PRECAST OTHER)— f'c = 4,000 P.S.I.
- BAR STEEL REINFORCEMENT ——— fy = 60,000 P.S.I.
- WELDED WIRE FABRIC ——— fy = 65,000 P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA = 0.11 SQ. MI
Q_{100} = 220 C.F.S.
VELOCITY = 12.28 F.P.S.
WATERWAY AREA = 18 SQ. FT.
HIGH $WATER_{100}$ ELEVATION = EL. 851.04
OVERTOPPING RDWAY. = > 100 YEARS
SCOUR CODE = 8

2 YEAR FREQUENCY

Q_2 = 20 C.F.S.
HIGH $WATER_2$ ELEVATION = EL. 847.93
VEL_2 = 4.32 F.P.S.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS
3. PRECAST CONCRETE BARREL DETAILS
4. PRECAST WINGS & CUTOFF WALL
5. SUBSURFACE EXPLORATION

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE
WI
PROFESSIONAL ENGINEER
6/7/19

NO.	DATE	REVISION	BY

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com

© MSA Professional Services, Inc

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SCR 08/06/19
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-52-175

STH 56 OVER UNNAMED CREEK

COUNTY	TOWN ~~CITY/VILLAGE~~
RICHLAND	FOREST

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JLM	JRS	RLR	JRS

GENERAL PLAN

SHEET 1 OF 5
127

8

8

93452_C-52-175_01.dgn 5/25/2019 6:56:40 AM jsweno

FILE= 93452_C-52-175_01.DGN
DATE= 5/25/2019

STATE PROJECT NUMBER

5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0030

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	203.0500.S.02	REMOVING OLD STRUCTURE OVER WATERWAY STATION 156+12.3	LS	1
	206.2000.02	EXCAVATION FOR STRUCTURES CULVERTS C-52-175	LS	1
◭	210.2500	BACKFILL STRUCTURE TYPE B	TON	390
	311.0110	BREAKER RUN	TON	115
	504.0100	CONCRETE MASONRY CULVERTS	CY	4
*	504.1000.S.02	PRECAST CONCRETE WINGWALLS C-52-175	LS	1
	504.2000.S.02	PRECAST CONCRETE BOX CULVERT, 8 FT X 4 FT	LF	44
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	140
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	3
	606.0300	RIPRAP HEAVY	CY	31
	645.0105	GEOTEXTILE TYPE C	SY	100
	645.0120	GEOTEXTILE TYPE HR	SY	80
		NON-BID ITEMS		
		PREFORMED FILLER	SIZE	¾"

* ALL WORK ASSOCIATED WITH THE PRECAST CUTOFF WALLS IS INCLUDED WITH "PRECAST CONCRETE WINGWALLS C-52-175."

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THIS STRUCTURE WILL REPLACE AN EXISTING 6'WIDE X 4'HIGH, 29'LONG SINGLE CELL REINFORCED CONCRETE BOX CULVERT.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-52-175" SHALL BE THE EXISTING GROUNDLINE.

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY CONTRACTOR.

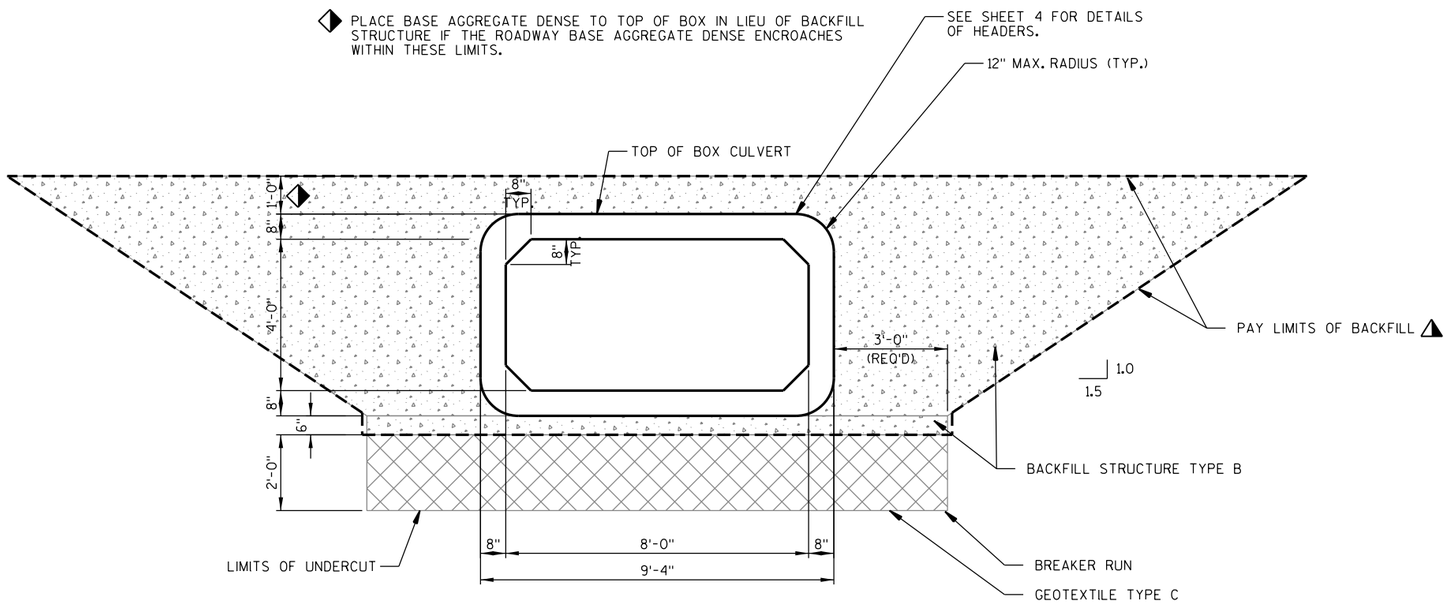
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD 88 (2012 ADJUSTED), AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR.

THE APRONS SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.



SECTION THRU CULVERT

(PAVEMENT STRUCTURE NOT SHOWN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-175

DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 5

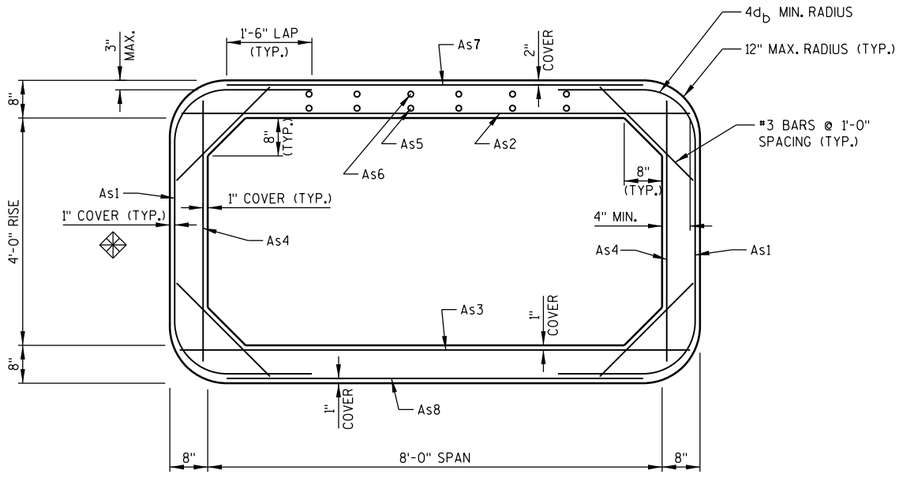
128

FILE= 93452_C-52-175_02.dgn
DATE=6/11/2019

93452_C-52-175_02.dgn 6/11/2019 2:37:07 PM jsweno

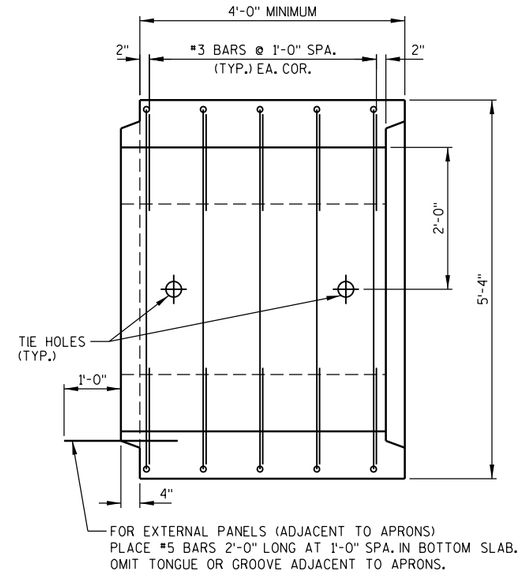
STATE PROJECT NUMBER

5730-00-60



SECTION THRU BARREL

FOR LESS THAN 2'-0" OF COVER



LONGITUDINAL SECTION

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

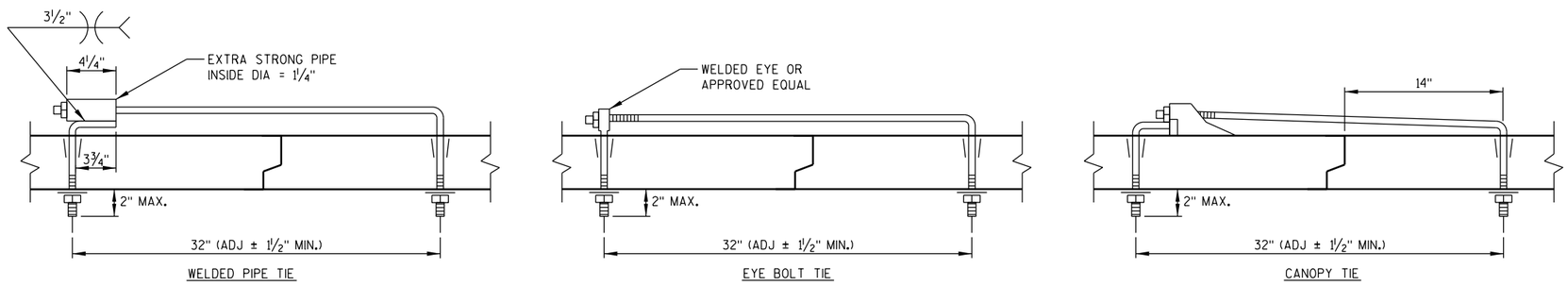
THE COVER OF CONCRETE OVER THE REINFORCEMENT ON ALL PRECAST ELEMENTS SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -$\frac{3}{8}$" TO +$\frac{1}{2}$".

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED, HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

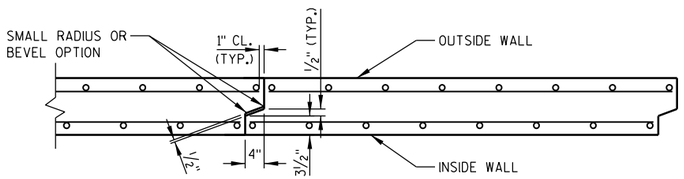
THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A.



JOINT TIES★

REINFORCEMENT SCHEDULE

REINFORCEMENT	AREA (IN.2/FT.)
As1	0.27
As2	0.38
As3	0.29
As4	0.19
As5	0.19
As6	0.19
As7	0.19
As8	0.19



JOINT DETAIL AND BARREL SECTION

◈ 1" OR 3 X WIRE DIAMETER WHICHEVER IS GREATER.

★ CONCRETE JOINT TIE:

FOR CONCRETE BOXES AND APRONS PIPE TIES SHALL BE REQUIRED AT ALL JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR IN THE SPECIAL PROVISIONS. TIES TO BE USED ONLY TO HOLD SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. TIES ARE TO BE 1" DIAMETER RODS. EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED, TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. TIE ROD THREADS SHALL PROJECT TO THE INSIDE OF PIPE EXCEPT AS NOTED IN PLANS. TIE ROD ENDS MAY PROJECT TO OUTSIDE OF BOX CULVERT PIPE IN MULTIPLE PIPELINE INSTALLATIONS, FACE CONNECTION DOWNSTREAM. HOLES FOR TIES SHALL BE CAST OR DRILLED FROM CENTERLINE OF JOINT (2 TIES REQ'D PER JOINT.) (TIES TO BE GALVANIZED.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-175

DRAWN BY RLR | PLANS CK'D. JRS

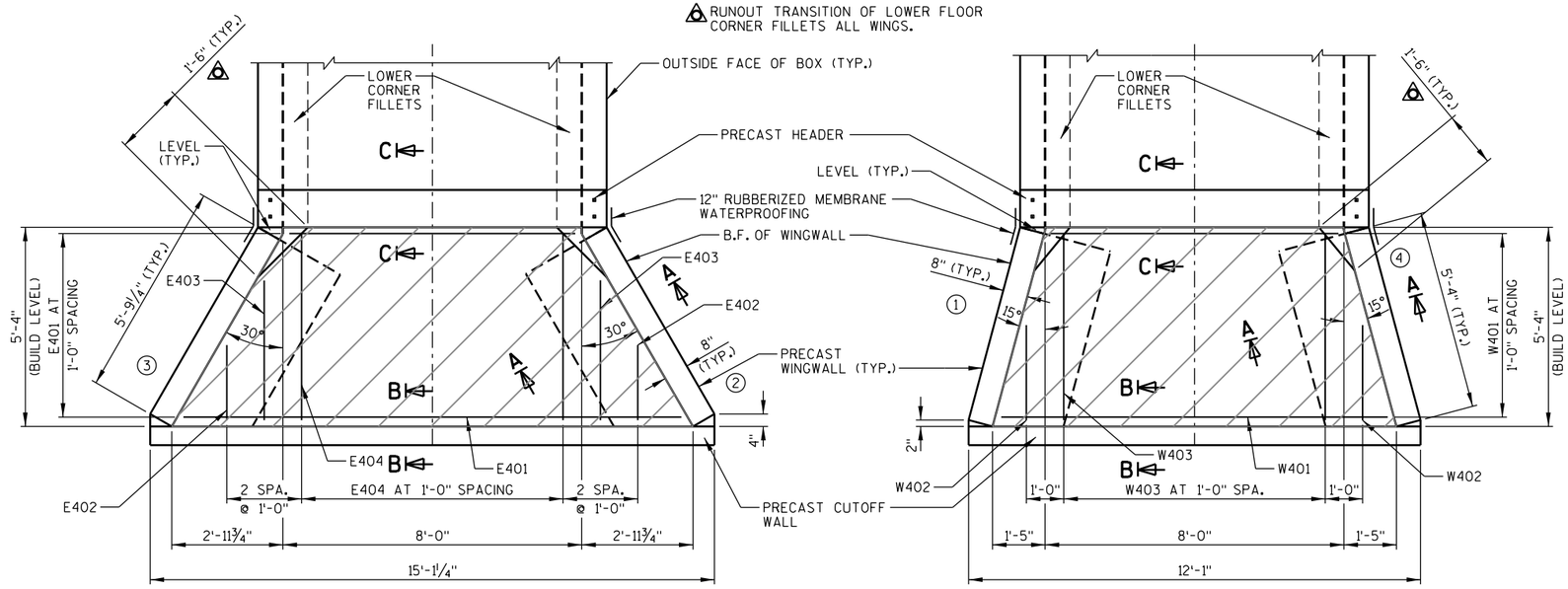
PRECAST CONCRETE BARREL DETAILS

SHEET 3 OF 5
129

FILE= 93452_C-52-175_03.dgn
DATE= 5/23/2019

93452_C-52-175_03.dgn 5/23/2019 12:39:54 PM jsweno

STATE PROJECT NUMBER
5730-00-60



INLET APRON PLAN

OUTLET APRON PLAN

NOTES

CONCRETE COVER ON ALL REINFORCEMENT IN THE PRECAST ELEMENTS SHALL BE 2" UNLESS SHOWN OR NOTED OTHERWISE.

THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5.

THE 7/8" DIA. ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENT OF ASTM A575.

ALL EXPOSED CORNERS SHALL BE BEVELED 3/4" ON THE SIDES OR TOOL EDGED WITH A 1/2" MINIMUM RADIUS EDGER.

PRECAST CUTOFF WALLS MAY BE FIELD SPLICED BY EXTENDING THE REINFORCING STEEL FROM BOTH SEGMENTS TO BE SPLICED 1'-6" INTO THE SPLICE ZONE, LAPPING THE STEEL ± 1'-6" AND FIELD POURING A SECTION OF THE CUTOFF WALL 1'-6" LONG.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF ENGINEER.

APRON SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

ALTERNATE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

B.F. - BACK FACE

◯ - INDICATES WING NUMBER

FIELD PLACE BAR STEEL REINFORCEMENT AND CONCRETE MASONRY CULVERTS

BILL OF BARS (APRONS) UNCOATED: 140 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
W401	6	9'-0"		Ⓢ	OUTLET APRON - TRANS.
W402	2	2'-6"			OUTLET APRON - LONGIT.
W403	8	5'-0"			OUTLET APRON - LONGIT.
E401	6	10'-5"		Ⓢ	INLET APRON - TRANS.
E402	2	2'-0"			INLET APRON - LONGIT.
E403	2	3'-9"			INLET APRON - LONGIT.
E404	8	5'-0"			INLET APRON - LONGIT.

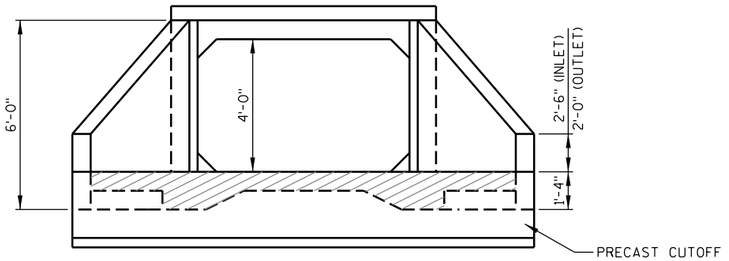
NOTES: BILL OF BARS FOR FIELD PLACED REINFORCEMENT ONLY.

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

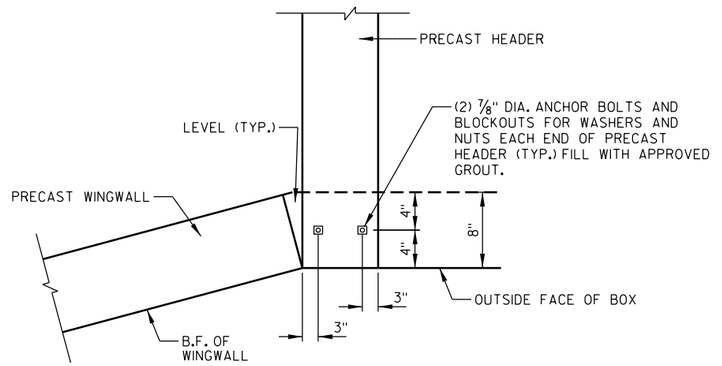
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES

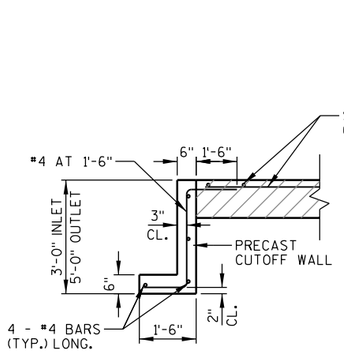
MARK	NUMBER REQUIRED	LENGTH
W401	1 SERIES OF 6	7'-8" TO 10'-4"
E401	1 SERIES OF 6	7'-7" TO 13'-4"



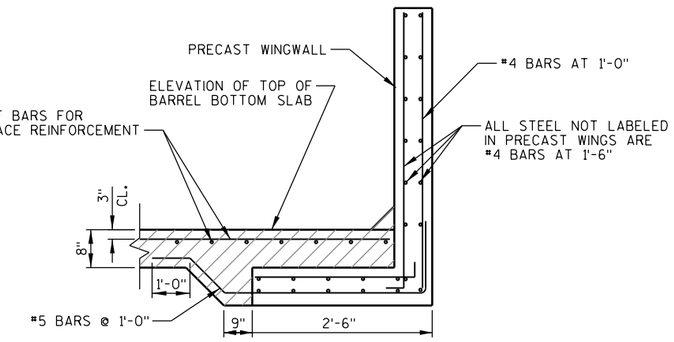
END VIEW



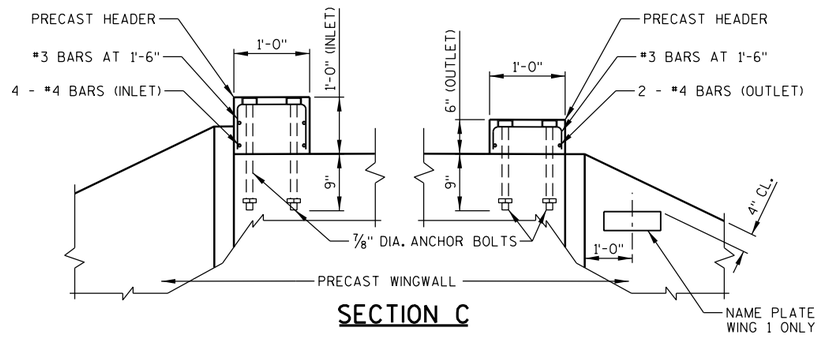
PLAN AT HEADER CORNER



SECTION B



SECTION A



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-175

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST WINGS & CUTOFF WALL

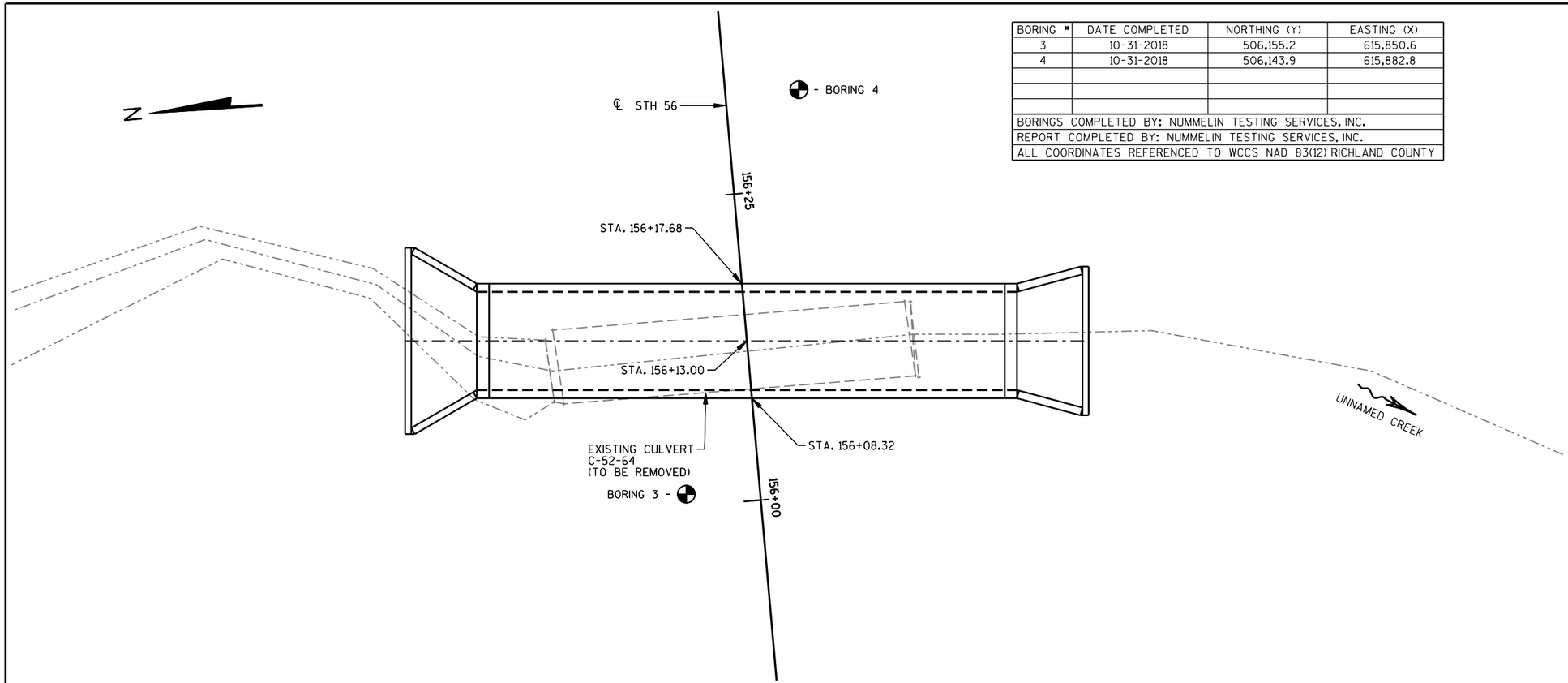
SHEET 4 OF 5
130

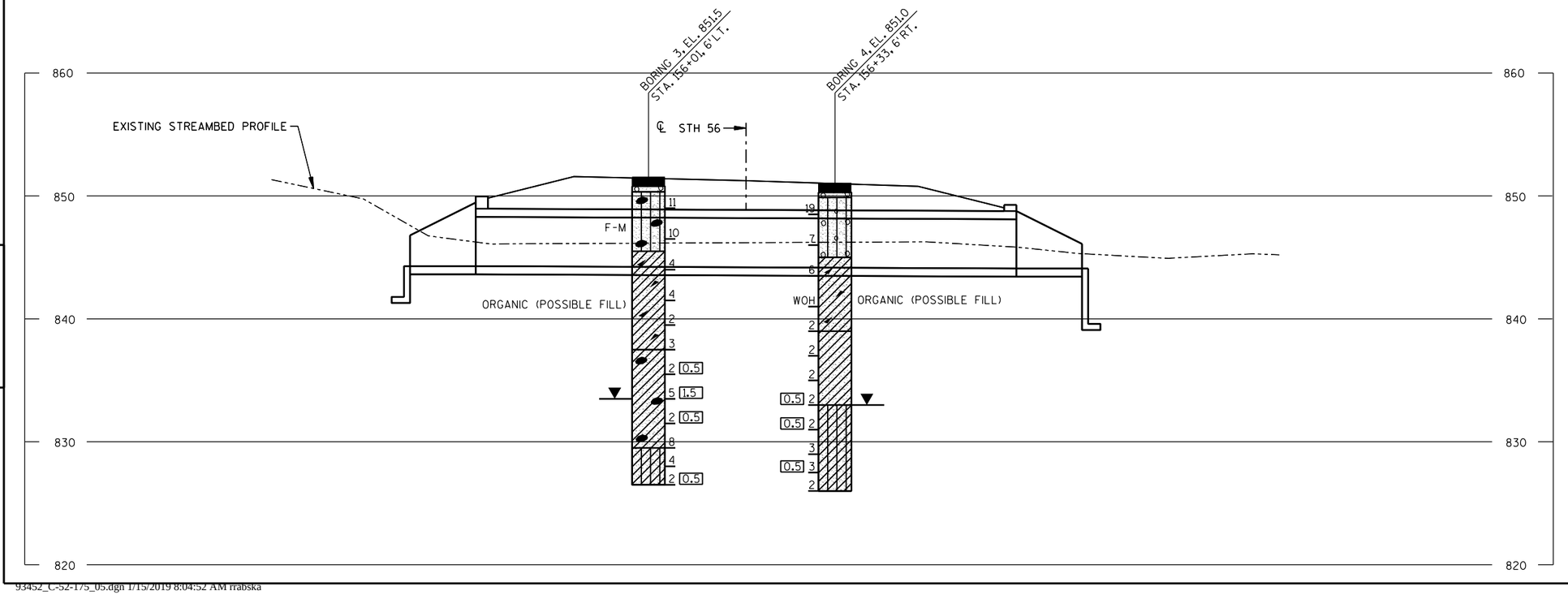
FILE= 93452_C-52-175_04.dgn
DATE= 6/3/2019

8

8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
3	10-31-2018	506,155.2	615,850.6
4	10-31-2018	506,143.9	615,882.8
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(12) RICHLAND COUNTY			





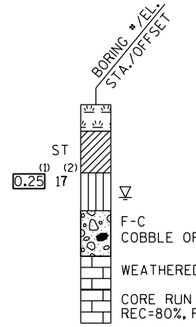
STATE PROJECT NUMBER

5730-00-60

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▽ AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-175

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

SHEET 5 OF 5

131

8

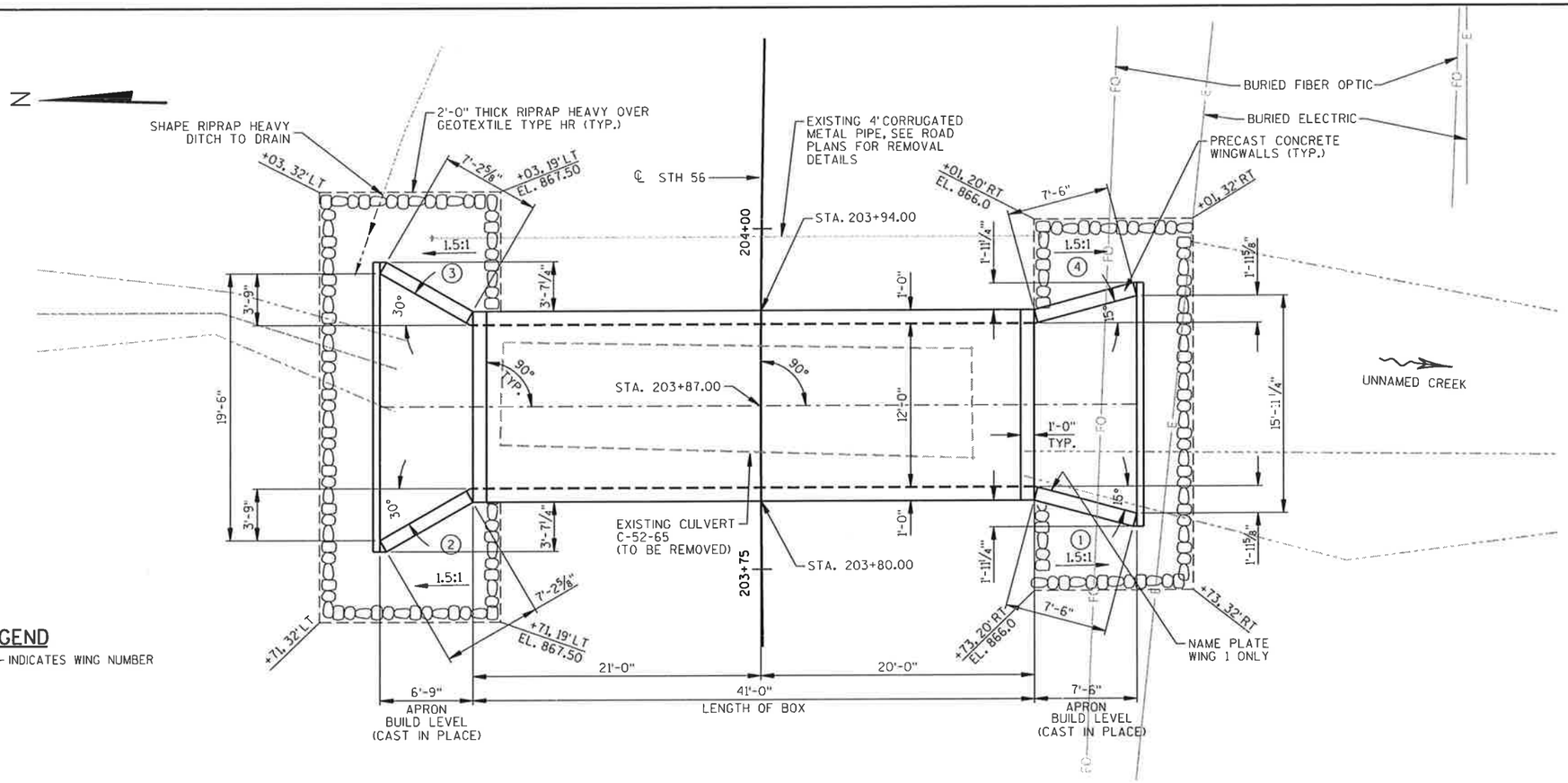
8

93452_C-52-175_05.dgn 1/15/2019 8:04:52 AM rrabska

FILE= 93452_C-52-175_05.DGN

STATE PROJECT NUMBER

5730-00-60

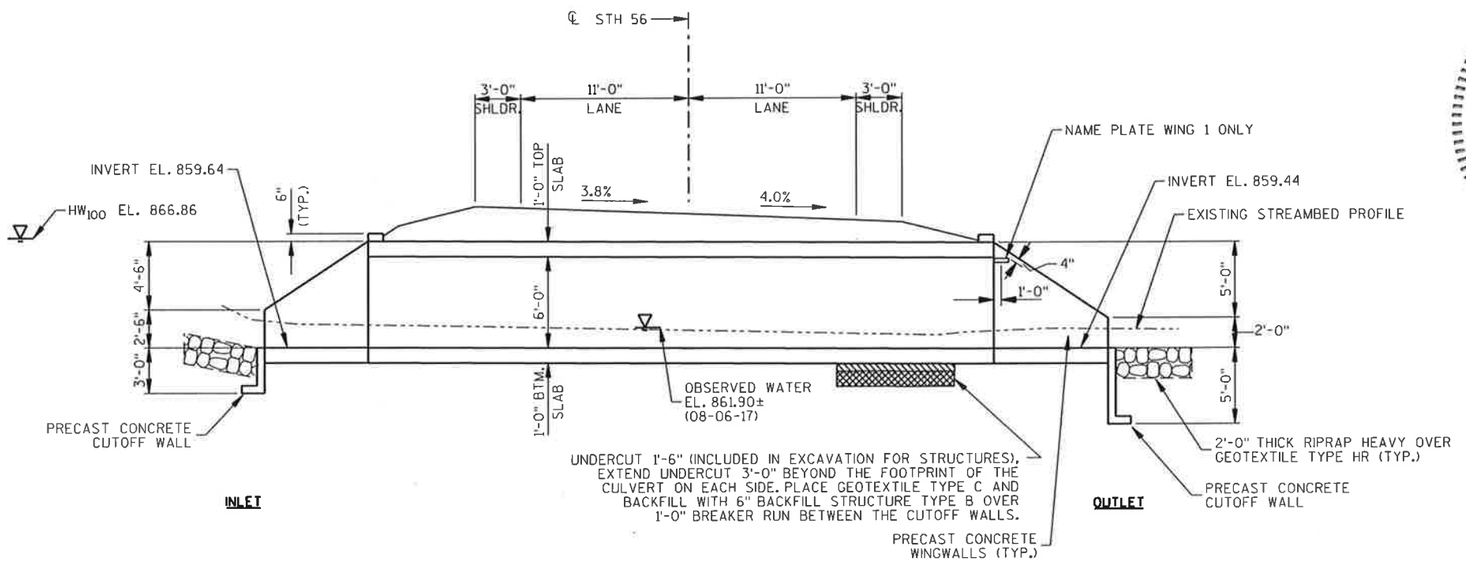


LEGEND

◯ – INDICATES WING NUMBER

PLAN

SINGLE CELL PRECAST CONCRETE BOX CULVERT



ELEVATION

(LOOKING EAST - NORMAL TO BOX)

875 870 865 860 855 850

DESIGN DATA

LIVE LOAD:
- DESIGN LOAD : HL-93
- INVENTORY RATING FACTOR : 1.05
- OPERATIONAL RATING FACTOR : 1.35
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) : 255 KIPS

TRAFFIC DATA (STH 56):
- A.D.T. (2021) = 1200
- A.D.T. (2041) = 1300
- R.D.S. = 55 MPH

EARTH LOAD:
- DESIGNED FOR FILL HEIGHT RANGE OF 1.5 TO 2.5 FEET

MATERIAL PROPERTIES:
- CONCRETE MASONRY ——— f'c = 3,500 P.S.I.
- CONCRETE MASONRY (PRECAST BARREL) - f'c = 5,000 P.S.I.
- CONCRETE MASONRY (PRECAST OTHER) — f'c = 4,000 P.S.I.
- BAR STEEL REINFORCEMENT ——— fy = 60,000 P.S.I.
- WELDED WIRE FABRIC ——— fy = 65,000 P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA = 1.62 SQ. MI
Q_{100} = 530 C.F.S.
VELOCITY = 8.45 F.P.S.
WATERWAY AREA = 63 SQ. FT.
HIGH $WATER_{100}$ ELEVATION = EL. 866.86
OVERTOPPING RDWAY. = > 100 YEARS
SCOUR CODE = 8

2 YEAR FREQUENCY

Q_2 = 90 C.F.S.
HIGH $WATER_2$ ELEVATION = EL. 863.62
VEL_2 = 3.06 F.P.S.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS
3. PRECAST CONCRETE BARREL DETAILS
4. PRECAST WINGS & CUTOFF WALL
5. SUBSURFACE EXPLORATION

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE
WI
PROFESSIONAL ENGINEER
6/7/19

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

NO.	DATE	REVISION	BY

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/06/19
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE C-52-176

STH 56 OVER UNNAMED CREEK

COUNTY	TOWN/~~CITY/VILLAGE~~
RICHLAND	FOREST

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JLM	JRS	CAR	JRS

GENERAL PLAN

SHEET 1 OF 5
132

8

8

FILE= 93452_C-52-176_01.DGN
DATE= 6/7/2019

93452_C-52-176_01.dgn 6/7/2019 8:21:14 AM jsweno

STATE PROJECT NUMBER
5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0040

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	203.0500.S.03	REMOVING OLD STRUCTURE OVER WATERWAY STATION 203+88.2	LS	1
	206.2000.03	EXCAVATION FOR STRUCTURES CULVERTS C-52-176	LS	1
◭	210.2500	BACKFILL STRUCTURE TYPE B	TON	636
	311.0110	BREAKER RUN	TON	77
	504.0100	CONCRETE MASONRY CULVERTS	CY	10
*	504.1000.S.03	PRECAST CONCRETE WINGWALLS C-52-176	LS	1
	504.2000.S.03	PRECAST CONCRETE BOX CULVERT, 12 FT X 6 FT	LF	41
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	280
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	4
	606.0300	RIPRAP HEAVY	CY	39
	645.0105	GEOTEXTILE TYPE C	SY	130
	645.0120	GEOTEXTILE TYPE HR	SY	105
		NON-BID ITEMS		
		PREFORMED FILLER	SIZE	¾"

* ALL WORK ASSOCIATED WITH THE PRECAST CUTOFF WALLS IS INCLUDED WITH "PRECAST CONCRETE WINGWALLS C-52-176."

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THIS STRUCTURE WILL REPLACE AN EXISTING 8' WIDE X 6' HIGH, 33'-10" LONG SINGLE CELL REINFORCED CONCRETE BOX CULVERT.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-52-176" SHALL BE THE EXISTING GROUNDLINE.

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY CONTRACTOR.

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

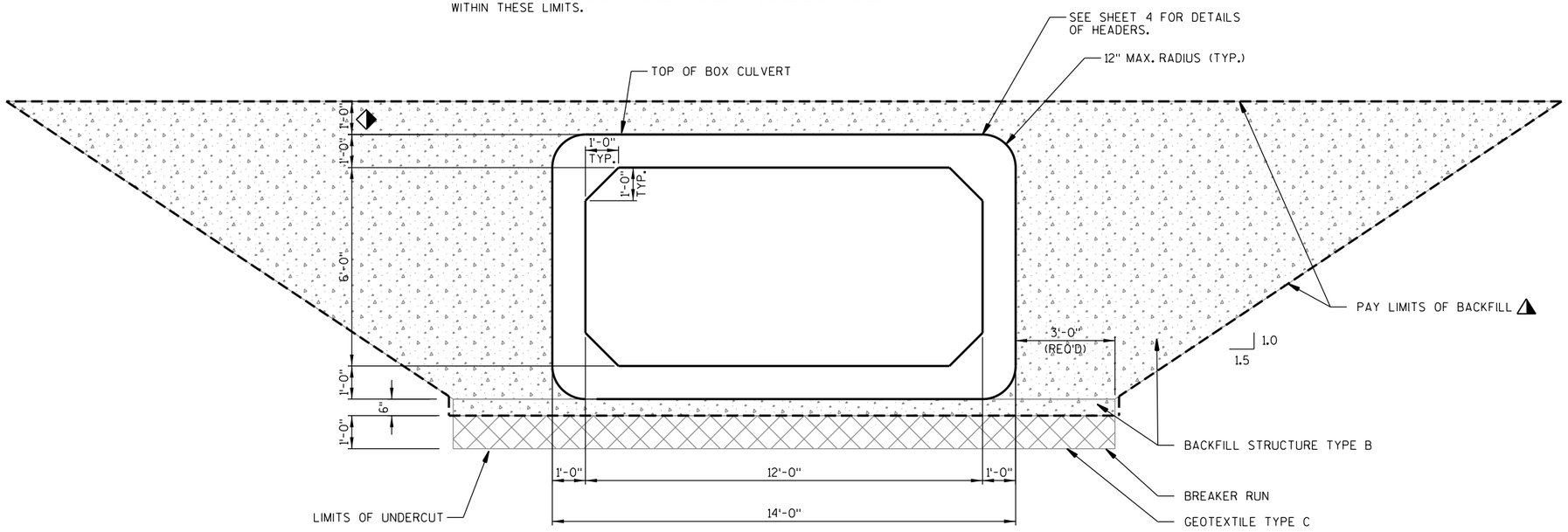
ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD 88 (2012 ADJUSTED), AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR.

THE APRONS SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

◭ PLACE BASE AGGREGATE DENSE TO TOP OF BOX IN LIEU OF BACKFILL STRUCTURE IF THE ROADWAY BASE AGGREGATE DENSE ENCROACHES WITHIN THESE LIMITS.



SECTION THRU CULVERT

(PAVEMENT STRUCTURE NOT SHOWN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-176

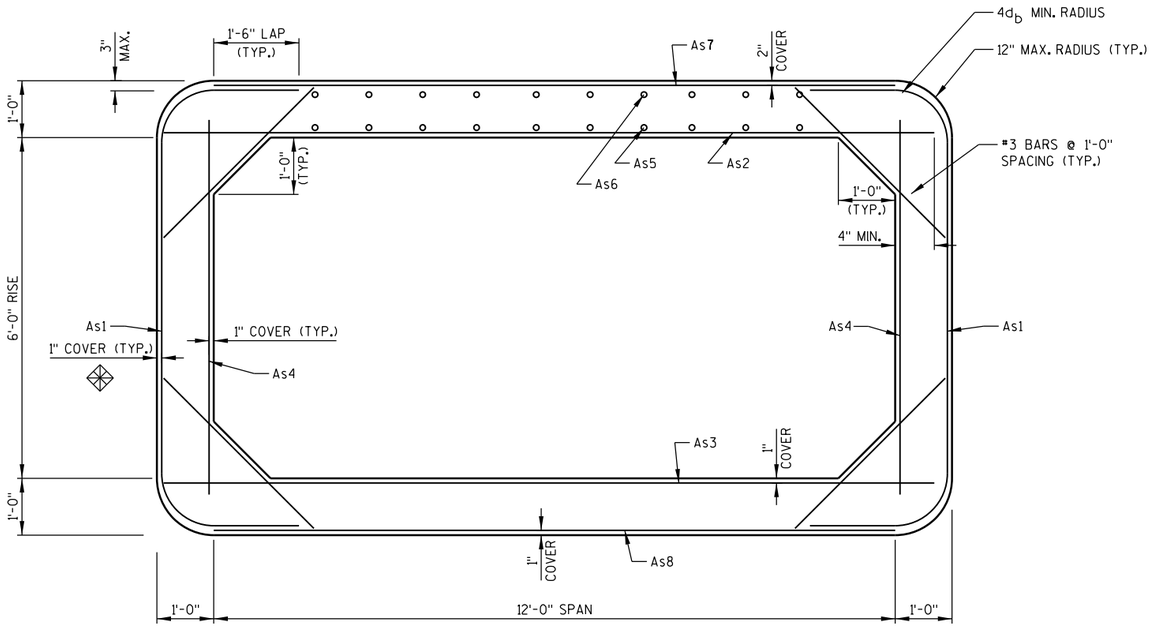
DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 5
133

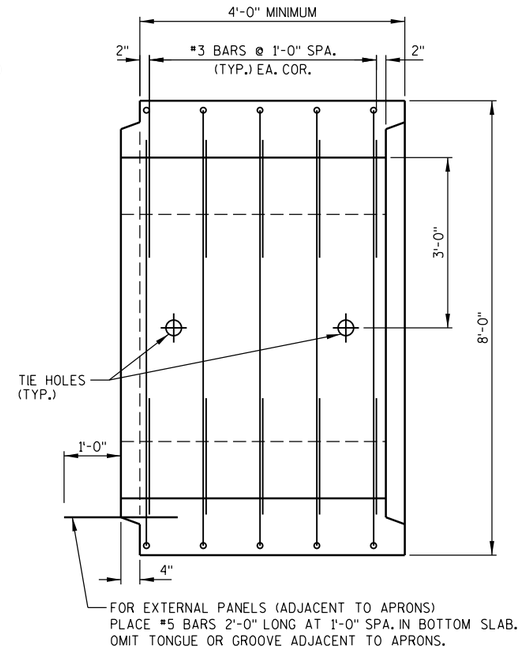
FILE= 93452_C-52-176_02.dgn
DATE=6/11/2019

93452_C-52-176_02.dgn 6/11/2019 2:39:28 PM jsweno

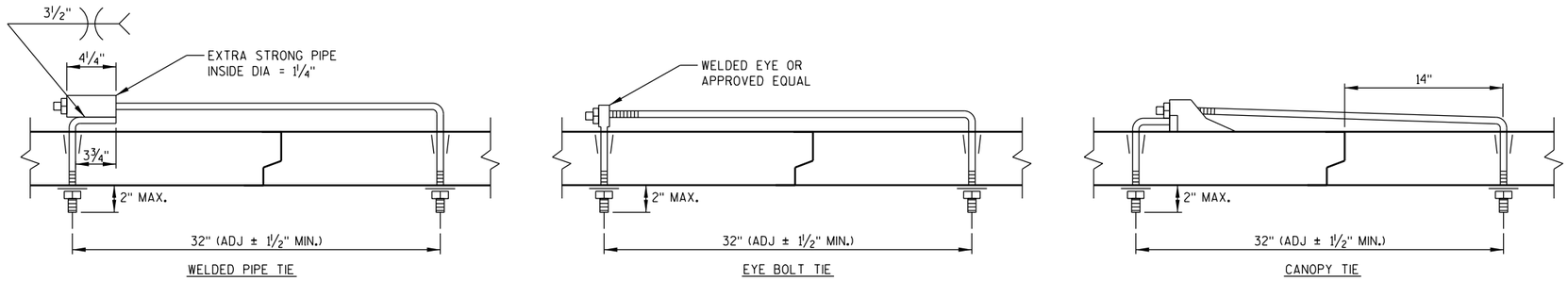


SECTION THRU BARREL

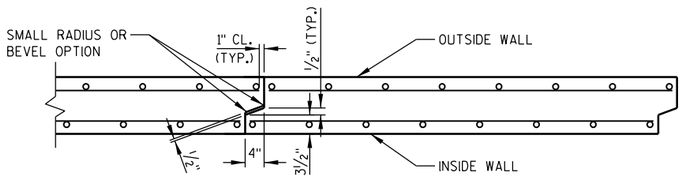
FOR LESS THAN 2'-0" OF COVER



LONGITUDINAL SECTION



JOINT TIES★



JOINT DETAIL AND BARREL SECTION

◈ 1" OR 3 X WIRE DIAMETER WHICHEVER IS GREATER.

★ CONCRETE JOINT TIE:

FOR CONCRETE BOXES AND APRONS PIPE TIES SHALL BE REQUIRED AT ALL JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR IN THE SPECIAL PROVISIONS. TIES TO BE USED ONLY TO HOLD SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. TIES ARE TO BE 1" DIAMETER RODS. EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED, TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. TIE ROD THREADS SHALL PROJECT TO THE INSIDE OF PIPE EXCEPT AS NOTED IN PLANS. TIE ROD ENDS MAY PROJECT TO OUTSIDE OF BOX CULVERT PIPE IN MULTIPLE PIPELINE INSTALLATIONS, FACE CONNECTION DOWNSTREAM. HOLES FOR TIES SHALL BE CAST OR DRILLED FROM CENTERLINE OF JOINT (2 TIES REQ'D PER JOINT.) (TIES TO BE GALVANIZED.)

STATE PROJECT NUMBER

5730-00-60

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

THE COVER OF CONCRETE OVER THE REINFORCEMENT ON ALL PRECAST ELEMENTS SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -⅜" TO +½".

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED, HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A.

REINFORCEMENT SCHEDULE

REINFORCEMENT	AREA (IN.2/FT.)
As1	0.32
As2	0.36
As3	0.32
As4	0.29
As5	0.29
As6	0.29
As7	0.29
As8	0.29

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-176

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST CONCRETE BARREL DETAILS

SHEET 3 OF 5
134

FILE= 93452.C-52-176_03.dgn
DATE=5/21/2019

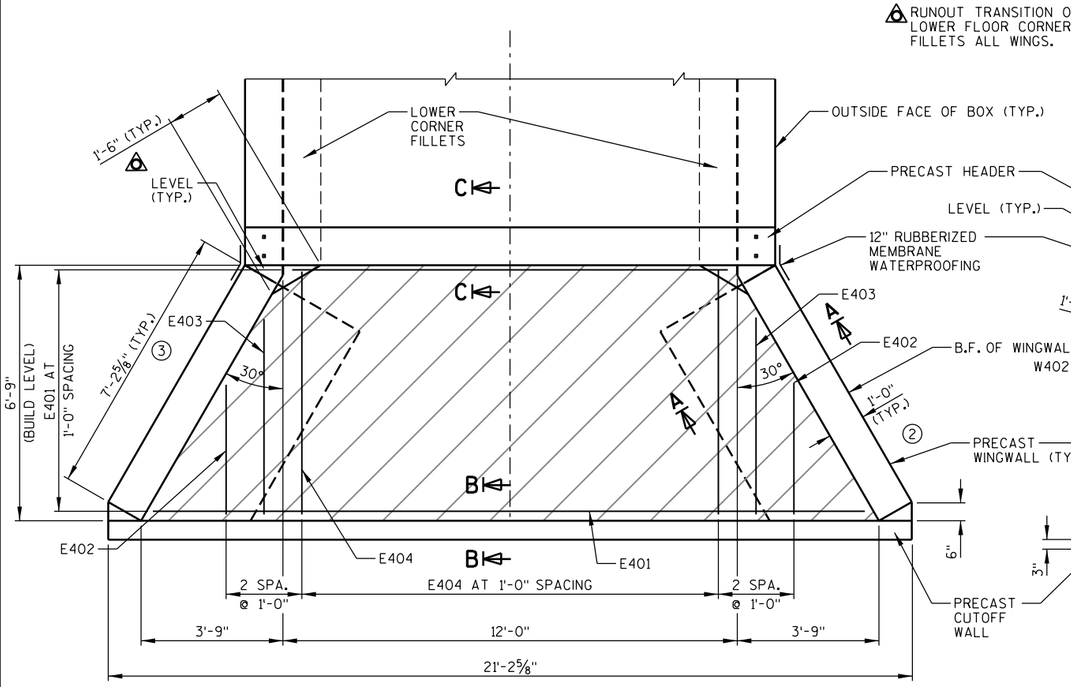
8

8

93452_C-52-176_03.dgn 5/21/2019 12:54:08 PM rrabska

STATE PROJECT NUMBER

5730-00-60



INLET APRON PLAN

OUTLET APRON PLAN

NOTES

CONCRETE COVER ON ALL REINFORCEMENT IN THE PRECAST ELEMENTS SHALL BE 2" UNLESS SHOWN OR NOTED OTHERWISE.

THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5.

THE 7/8" DIA. ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENT OF ASTM A575.

ALL EXPOSED CORNERS SHALL BE BEVELED 3/4" ON THE SIDES OR TOOL EDGED WITH A 1/2" MINIMUM RADIUS EDGER.

PRECAST CUTOFF WALLS MAY BE FIELD SPLICED BY EXTENDING THE REINFORCING STEEL FROM BOTH SEGMENTS TO BE SPLICED 1'-6" INTO THE SPLICE ZONE, LAPPING THE STEEL ± 1'-6" AND FIELD POURING A SECTION OF THE CUTOFF WALL 1'-6" LONG.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF ENGINEER.

APRON SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

ALTERNATE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

B.F. - BACK FACE

◯ - INDICATES WING NUMBER

▨ FIELD PLACE BAR STEEL REINFORCEMENT AND CONCRETE MASONRY CULVERTS

BILL OF BARS (APRONS) UNCOATED: 280 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
W401	8	13'-6"		Ⓢ	OUTLET APRON - TRANS.
W402	2	4'-8"			OUTLET APRON - LONGIT.
W403	12	7'-2"			OUTLET APRON - LONGIT.
E401	8	15'-2"		Ⓢ	INLET APRON - TRANS.
E402	2	3'-5"			INLET APRON - LONGIT.
E403	2	5'-2"			INLET APRON - LONGIT.
E404	12	6'-5"			INLET APRON - LONGIT.

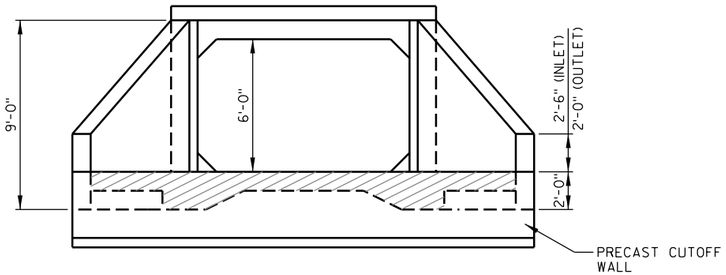
NOTES: BILL OF BARS FOR FIELD PLACED REINFORCEMENT ONLY.

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

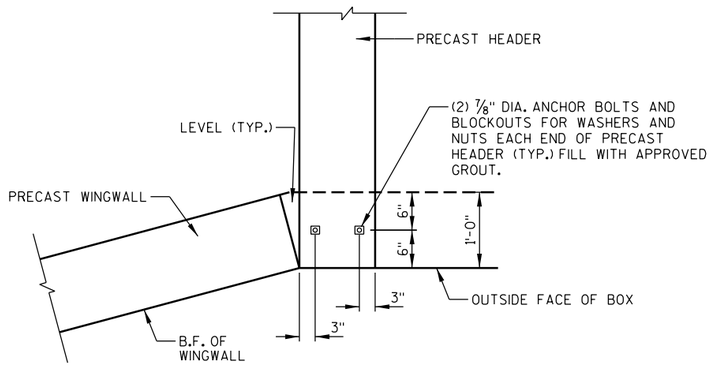
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES

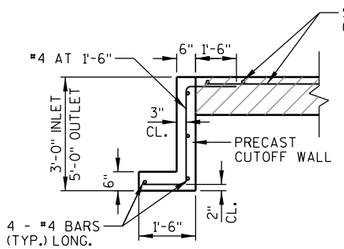
MARK	NUMBER REQUIRED	LENGTH
W401	1 SERIES OF 8	11'-7" TO 15'-5"
E401	1 SERIES OF 8	11'-6" TO 18'-10"



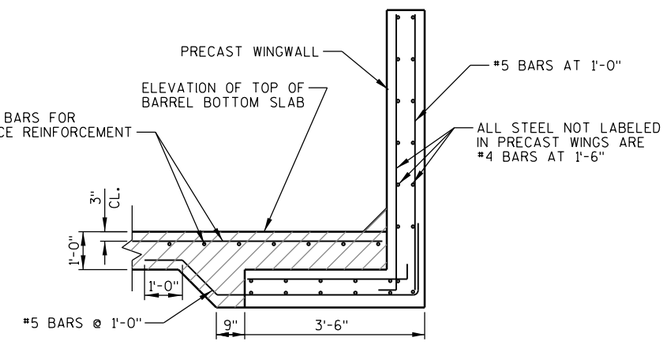
END VIEW



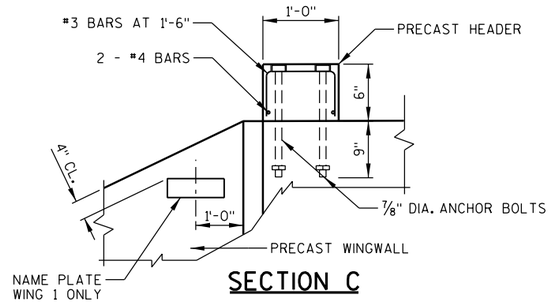
PLAN AT HEADER CORNER



SECTION B



SECTION A



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-176

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST WINGS & CUTOFF WALL

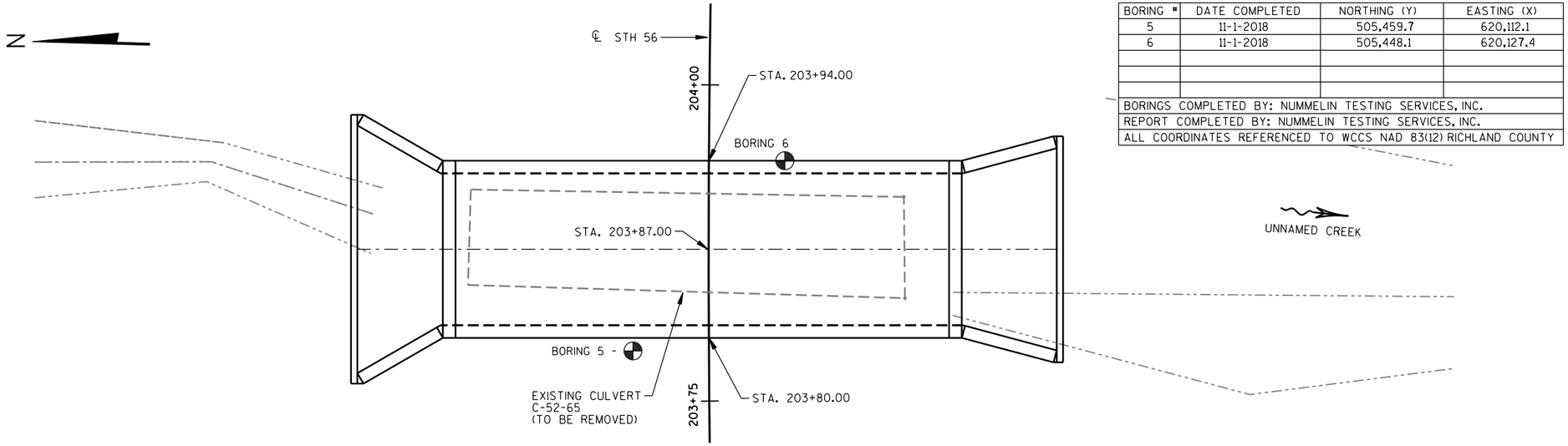
SHEET 4 OF 5
135

FILE= 93452_C-52-176_04.dgn
DATE= 6/7/2019

8

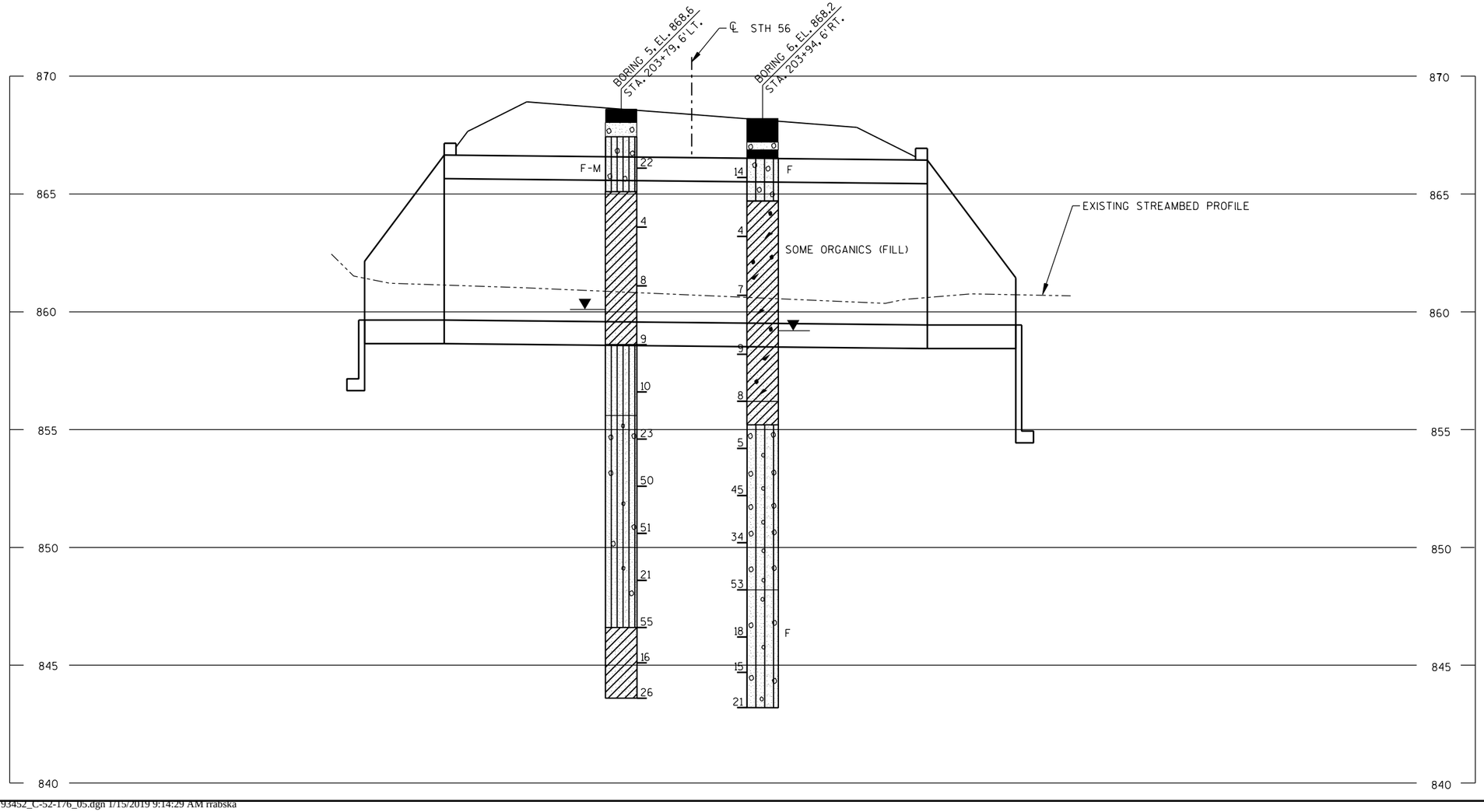
8

93452_C-52-176_04.dgn 6/7/2019 8:22:44 AM jsweno



BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
5	11-1-2018	505,459.7	620,112.1
6	11-1-2018	505,448.1	620,127.4

BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.
ALL COORDINATES REFERENCED TO WCCS NAD 83(12) RICHLAND COUNTY



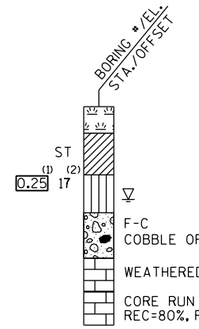
STATE PROJECT NUMBER

5730-00-60

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▽ AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-176

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

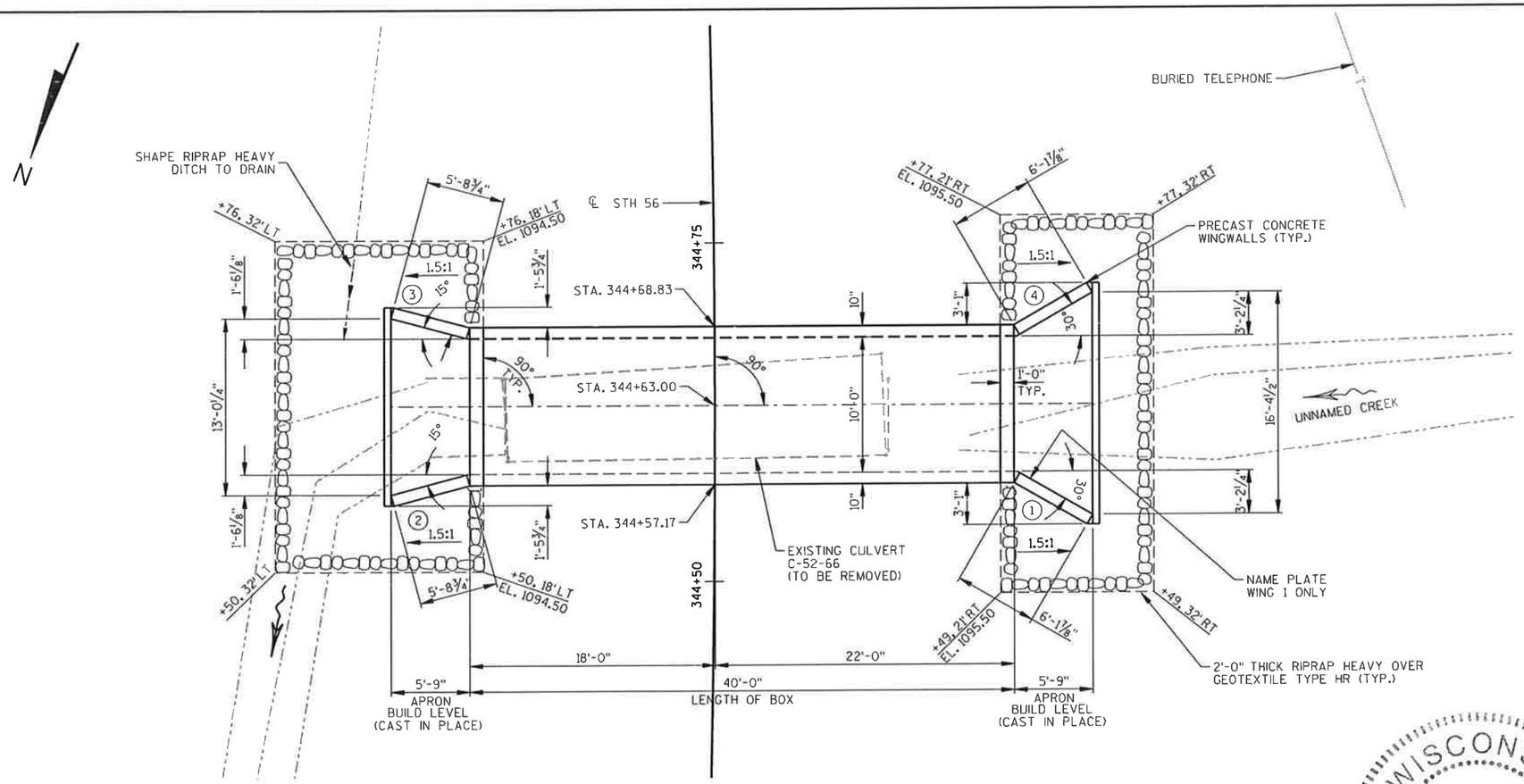
SHEET 5 OF 5
136

8

8

93452_C-52-176_05.dgn 1/15/2019 9:14:29 AM rrabska

FILE= 93452_C-52-176_05.DGN

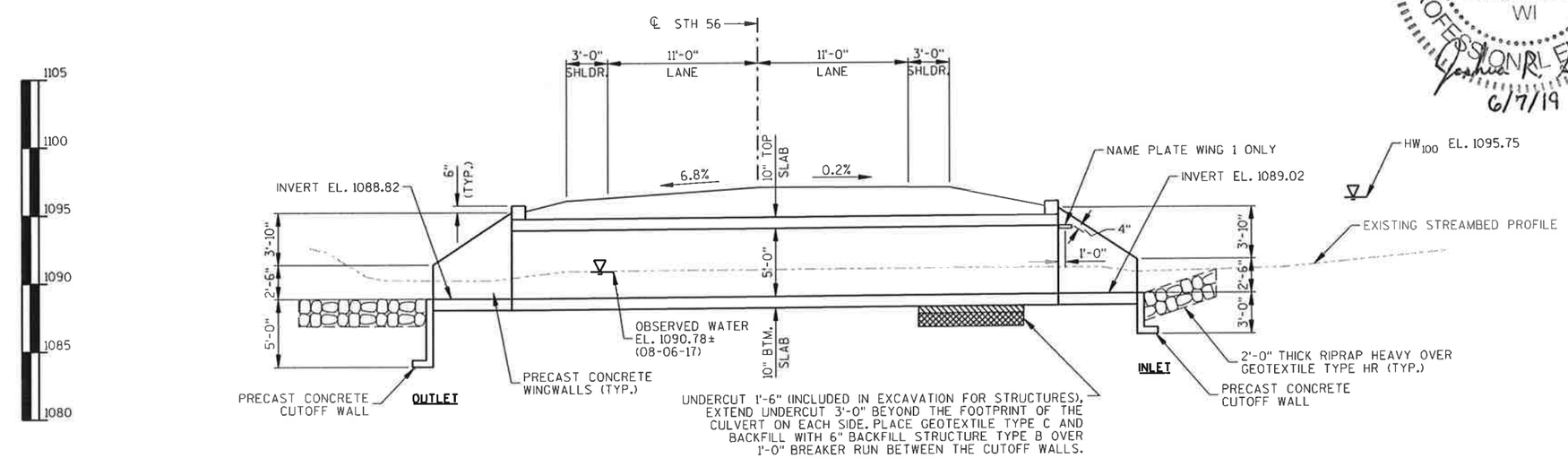


PLAN

SINGLE CELL PRECAST CONCRETE BOX CULVERT

LEGEND

◯ – INDICATES WING NUMBER



ELEVATION

(LOOKING SOUTH - NORMAL TO BOX)

STATE PROJECT NUMBER

5730-00-60

DESIGN DATA

LIVE LOAD:

DESIGN LOAD : HL-93
INVENTORY RATING FACTOR : 1.05
OPERATIONAL RATING FACTOR : 1.35
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) : 255 KIPS

TRAFFIC DATA (STH 56):

A.D.T. (2021) = 1200
A.D.T. (2041) = 1300
R.D.S. = 55 MPH

EARTH LOAD:

DESIGNED FOR FILL HEIGHT RANGE OF 1.5 TO 2.5 FEET

MATERIAL PROPERTIES:

CONCRETE MASONRY — f'c = 3,500 P.S.I.
CONCRETE MASONRY (PRECAST BARREL) - f'c = 5,000 P.S.I.
CONCRETE MASONRY (PRECAST OTHER) — f'c = 4,000 P.S.I.
BAR STEEL REINFORCEMENT — fy = 60,000 P.S.I.
WELDED WIRE FABRIC — fy = 65,000 P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA — 0.33 SQ. MI.
Q_{100} - TOTAL — 435 C.F.S.
- THRU BRIDGE — 354 C.F.S.
- THRU WEST DITCH — 81 C.F.S.
VELOCITY - THRU BRIDGE — 7.07 F.P.S.
WATERWAY AREA - THRU BRIDGE — 50 SQ. FT.
SCOUR CRITICAL CODE — 8
HIGH WATER$_{100}$ ELEVATION — 1095.75
OVERTOPPING ROADWAY — > 100 YEARS
ROAD ELEVATION AT BRIDGE — 1096.79

WEST DITCH FLOW

OVERTOPPING FREQUENCY — 50 YEARS
OVERTOPPING DISCHARGE — 300 C.F.S.
LOW DITCH SADDLE ELEV. — 1094.74

2 YEAR FREQUENCY

Q_2 = 70 C.F.S.
HIGH WATER$_2$ ELEVATION = EL. 1092.93
VEL$_2$ = 1.95 F.P.S.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS
3. PRECAST CONCRETE BARREL DETAILS
4. PRECAST WINGS & CUTOFF WALL
5. SUBSURFACE EXPLORATION

WISCONSIN JOSHUA R. SWENO E-44384 WAUNAKEE WI PROFESSIONAL ENGINEER
Joshua R. Sweno
6/7/19

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

NO.	DATE	REVISION	BY

MSA ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com
© MSA Professional Services, Inc

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR — 08/06/19
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE C-52-177

STH 56 OVER UNNAMED CREEK

COUNTY	TOWN ~~CITY/VILLAGE~~
RICHLAND	FOREST

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JLM	JRS	CAR	JRS

GENERAL PLAN

SHEET 1 OF 5
137

8

8

FILE= 93452_C-52-177_01.DGN
DATE= 5/26/2019

93452_C-52-177_01.dgn 5/26/2019 5:34:41 AM jsweno

STATE PROJECT NUMBER

5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0060

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	203.0500.S.04	REMOVING OLD STRUCTURE OVER WATERWAY STATION 344+62.9	LS	1
	206.2000.04	EXCAVATION FOR STRUCTURES CULVERTS C-52-177	LS	1
⚠	210.2500	BACKFILL STRUCTURE TYPE B	TON	480
	311.0110	BREAKER RUN	TON	63
	504.0100	CONCRETE MASONRY CULVERTS	CY	6
*	504.1000.S.04	PRECAST CONCRETE WINGWALLS C-52-177	LS	1
	504.2000.S.01	PRECAST CONCRETE BOX CULVERT, 10 FT X 5 FT	LF	40
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	200
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	3
	606.0300	RIPRAP HEAVY	CY	39
	645.0105	GEOTEXTILE TYPE C	SY	105
	645.0120	GEOTEXTILE TYPE HR	SY	100
		NON-BID ITEMS		
		PREFORMED FILLER	SIZE	¾"

* ALL WORK ASSOCIATED WITH THE PRECAST CUTOFF WALLS IS INCLUDED WITH "PRECAST CONCRETE WINGWALLS C-52-177."

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THIS STRUCTURE WILL REPLACE AN EXISTING 6'WIDE X 4'HIGH, 28'LONG SINGLE CELL REINFORCED CONCRETE BOX CULVERT.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-52-177" SHALL BE THE EXISTING GROUNDLINE.

⚠ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY CONTRACTOR.

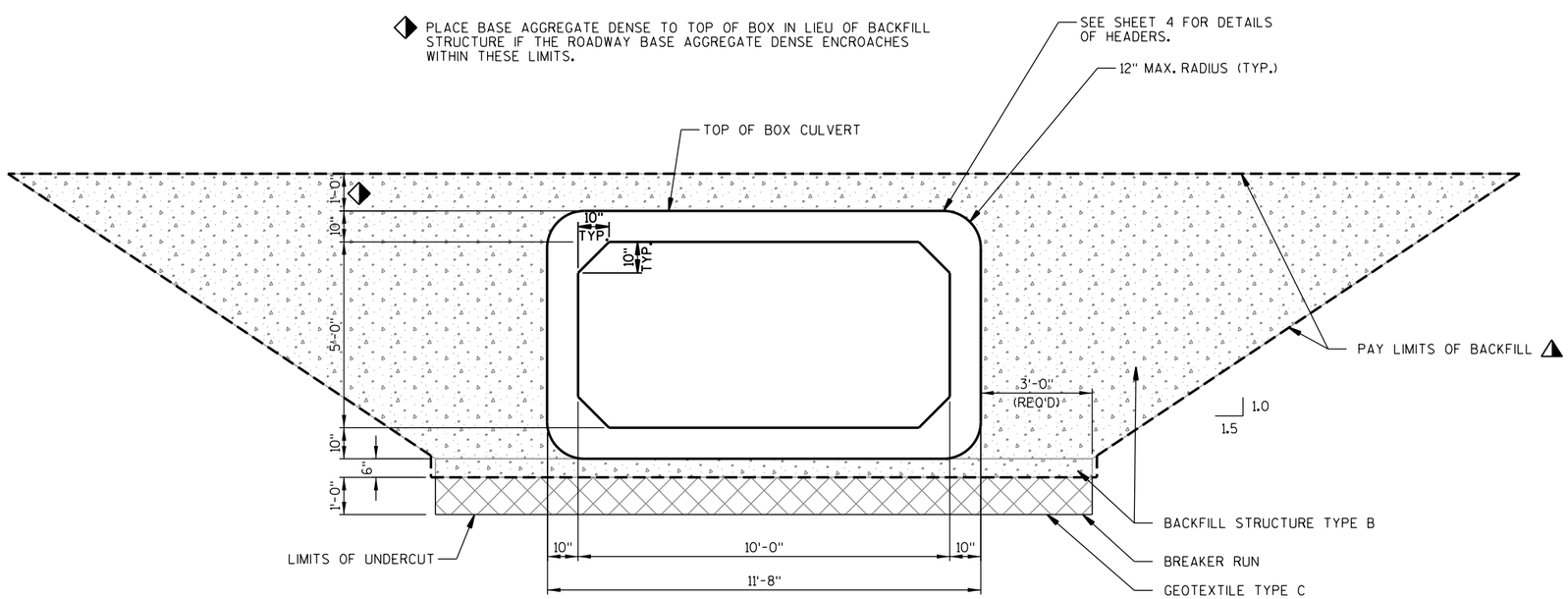
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD 88 (2012 ADJUSTED), AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR.

THE APRONS SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.



SECTION THRU CULVERT

(PAVEMENT STRUCTURE NOT SHOWN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-177

DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 5

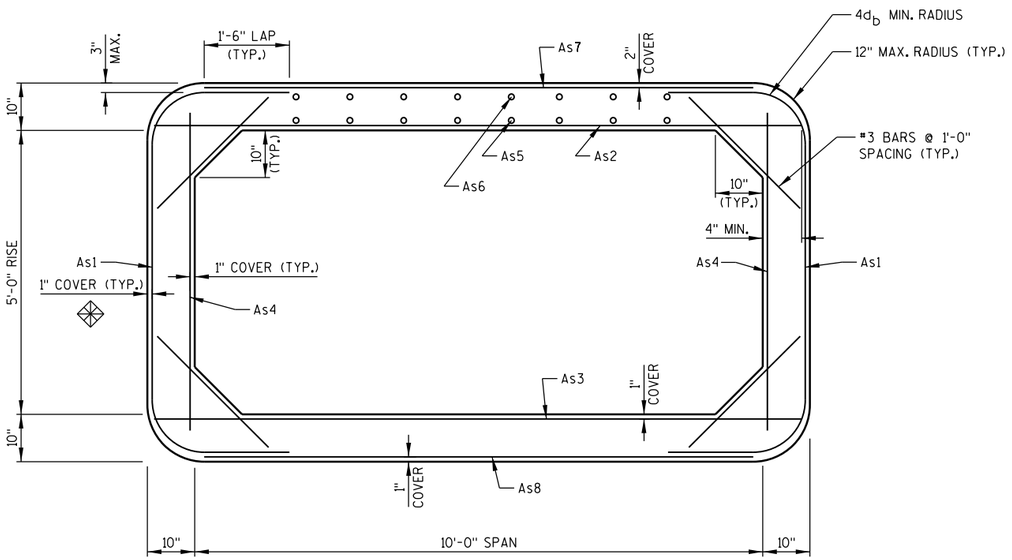
138

FILE= 93452_C-52-177_02.dgn
DATE= 6/11/2019

93452_C-52-177_02.dgn 6/11/2019 3:09:30 PM jsweno

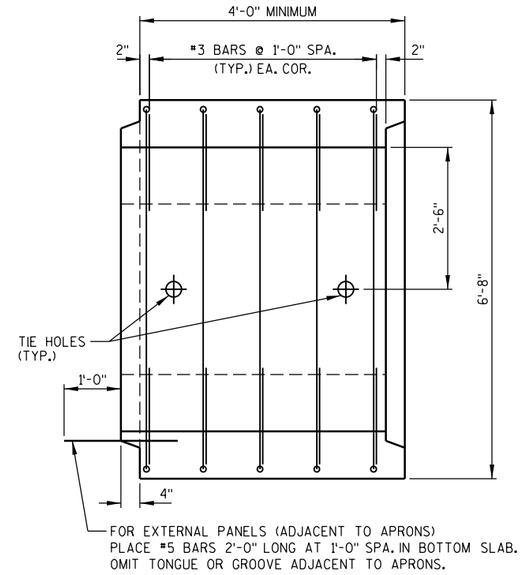
STATE PROJECT NUMBER

5730-00-60



SECTION THRU BARREL

FOR LESS THAN 2'-0" OF COVER



LONGITUDINAL SECTION

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

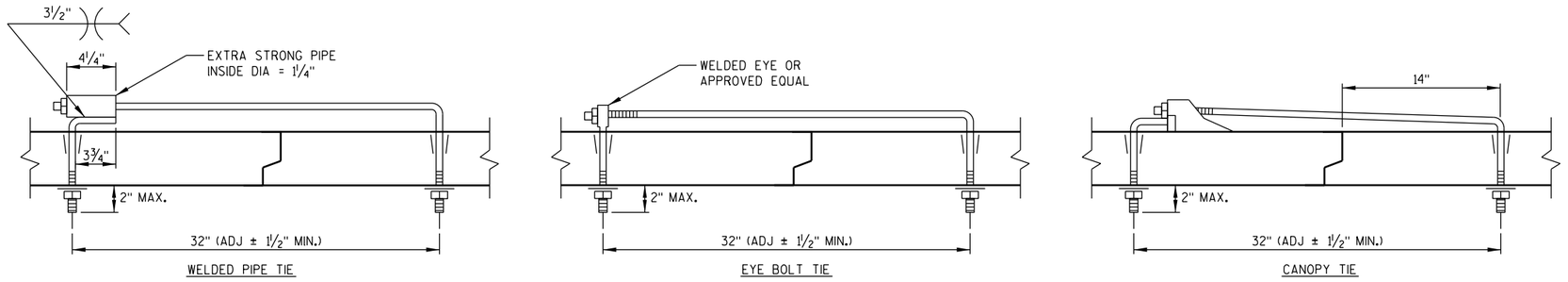
THE COVER OF CONCRETE OVER THE REINFORCEMENT ON ALL PRECAST ELEMENTS SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -$\frac{3}{8}$" TO +$\frac{1}{2}$".

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED, HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

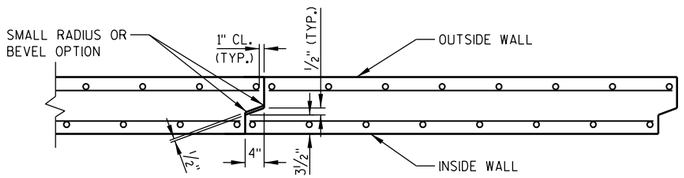
THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A.



JOINT TIES★

REINFORCEMENT SCHEDULE

REINFORCEMENT	AREA (IN.2/FT.)
As1	0.30
As2	0.36
As3	0.30
As4	0.24
As5	0.24
As6	0.24
As7	0.24
As8	0.24



JOINT DETAIL AND BARREL SECTION

◈ 1" OR 3 X WIRE DIAMETER WHICHEVER IS GREATER.

★ CONCRETE JOINT TIE:

FOR CONCRETE BOXES AND APRONS PIPE TIES SHALL BE REQUIRED AT ALL JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR IN THE SPECIAL PROVISIONS. TIES TO BE USED ONLY TO HOLD SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. TIES ARE TO BE 1" DIAMETER RODS. EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED, TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. TIE ROD THREADS SHALL PROJECT TO THE INSIDE OF PIPE EXCEPT AS NOTED IN PLANS. TIE ROD ENDS MAY PROJECT TO OUTSIDE OF BOX CULVERT PIPE IN MULTIPLE PIPELINE INSTALLATIONS, FACE CONNECTION DOWNSTREAM. HOLES FOR TIES SHALL BE CAST OR DRILLED FROM CENTERLINE OF JOINT (2 TIES REQ'D PER JOINT.) (TIES TO BE GALVANIZED.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-177

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST CONCRETE BARREL DETAILS

SHEET 3 OF 5
139

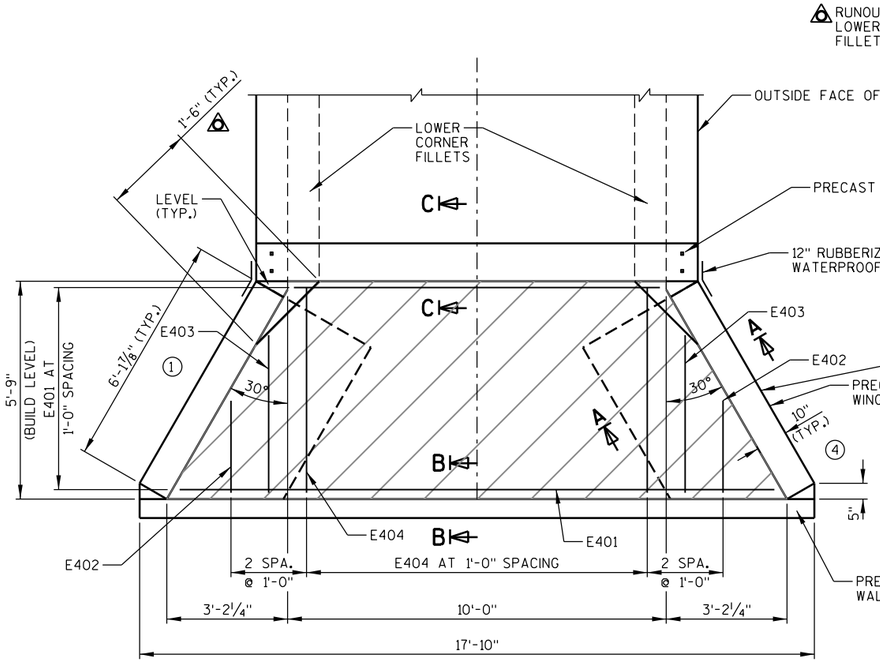
FILE= 93452_C-52-177_03.dgn
DATE= 5/26/2019

8

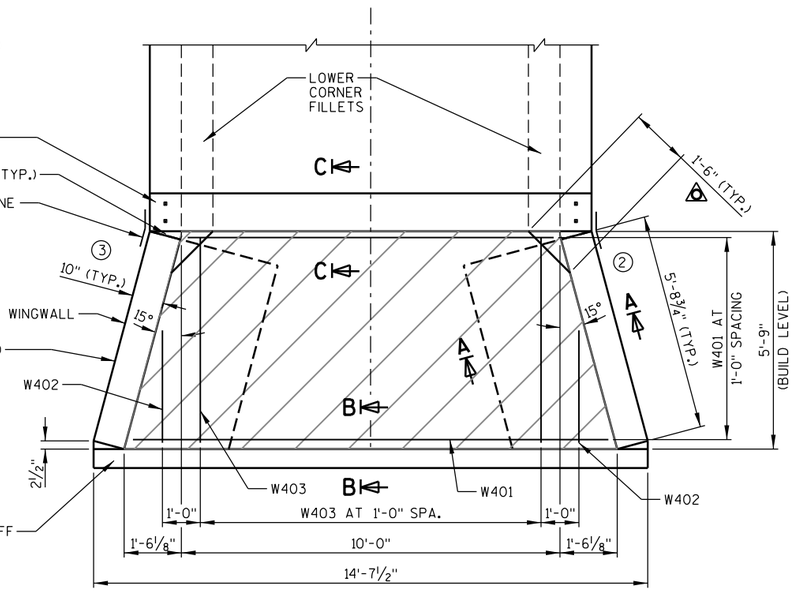
8

93452_C-52-177_03.dgn 5/26/2019 5:43:40 AM jsweno

STATE PROJECT NUMBER
5730-00-60



INLET APRON PLAN



OUTLET APRON PLAN

NOTES

CONCRETE COVER ON ALL REINFORCEMENT IN THE PRECAST ELEMENTS SHALL BE 2" UNLESS SHOWN OR NOTED OTHERWISE.

THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5.

THE 7/8" DIA. ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENT OF ASTM A575.

ALL EXPOSED CORNERS SHALL BE BEVELED 3/4" ON THE SIDES OR TOOL EDGED WITH A 1/2" MINIMUM RADIUS EDGER.

PRECAST CUTOFF WALLS MAY BE FIELD SPLICED BY EXTENDING THE REINFORCING STEEL FROM BOTH SEGMENTS TO BE SPLICED 1'-6" INTO THE SPLICE ZONE, LAPPING THE STEEL ± 1'-6" AND FIELD POURING A SECTION OF THE CUTOFF WALL 1'-6" LONG.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF ENGINEER.

APRON SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

ALTERNATE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

B.F. - BACK FACE

◯ - INDICATES WING NUMBER

FIELD PLACE BAR STEEL REINFORCEMENT AND CONCRETE MASONRY CULVERTS

BILL OF BARS (APRONS) UNCOATED: 200 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
W401	7	11'-1"		Ⓢ	OUTLET APRON - TRANS.
W402	2	2'-11"			OUTLET APRON - LONGIT.
W403	10	5'-5"			OUTLET APRON - LONGIT.
E401	7	12'-8"		Ⓢ	INLET APRON - TRANS.
E402	2	2'-5"			INLET APRON - LONGIT.
E403	2	4'-2"			INLET APRON - LONGIT.
E404	10	5'-5"			INLET APRON - LONGIT.

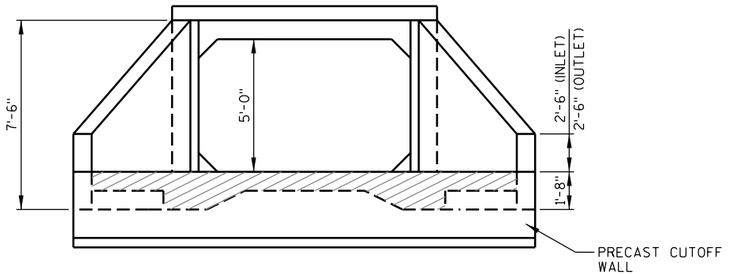
NOTES: BILL OF BARS FOR FIELD PLACED REINFORCEMENT ONLY.

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

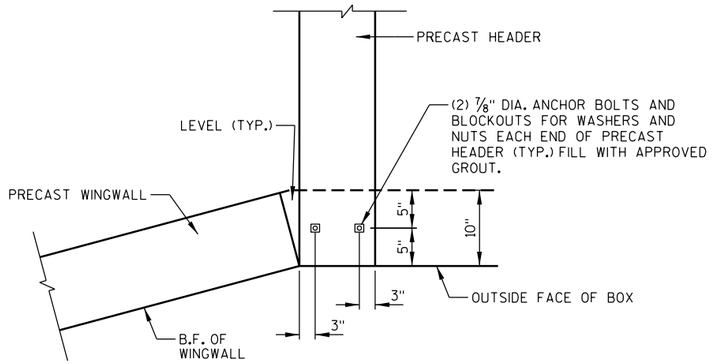
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES

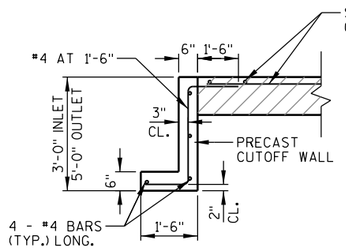
MARK	NUMBER REQUIRED	LENGTH
W401	1 SERIES OF 7	9'-8" TO 12'-6"
E401	1 SERIES OF 7	9'-8" TO 15'-8"



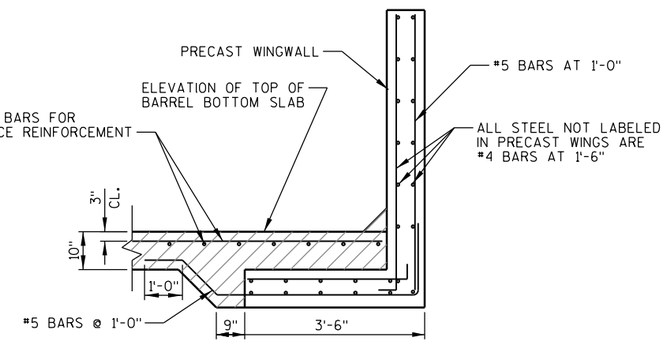
END VIEW



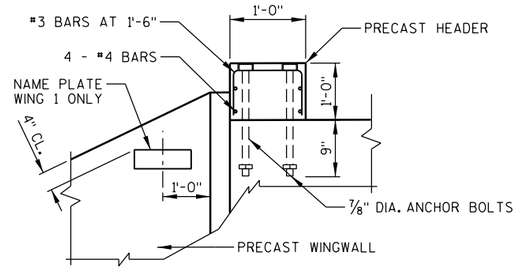
PLAN AT HEADER CORNER



SECTION B



SECTION A



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-177

DRAWN BY RLR | PLANS CK'D. JRS

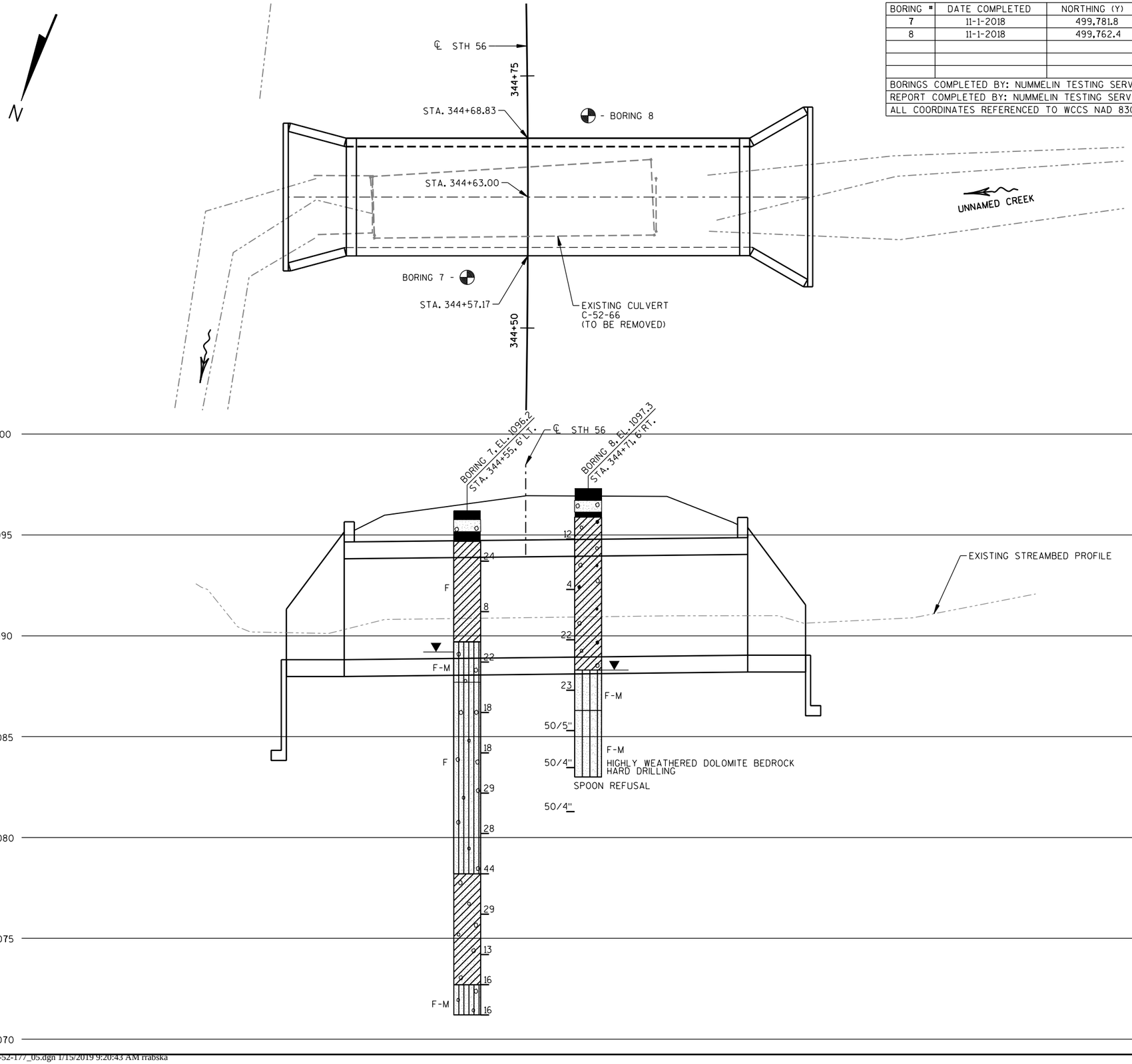
PRECAST WINGS & CUTOFF WALL

SHEET 4 OF 5
140

FILE= 93452_C-52-177_04.dgn
DATE= 6/7/2019

93452_C-52-177_04.dgn 6/7/2019 8:27:13 AM jsweno

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
7	11-1-2018	499,781.8	631,966.1
8	11-1-2018	499,762.4	631,961.2
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(12) RICHLAND COUNTY			



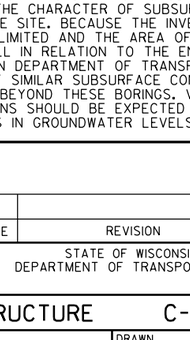
STATE PROJECT NUMBER

5730-00-60

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-177

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

SHEET 5 OF 5

141

8

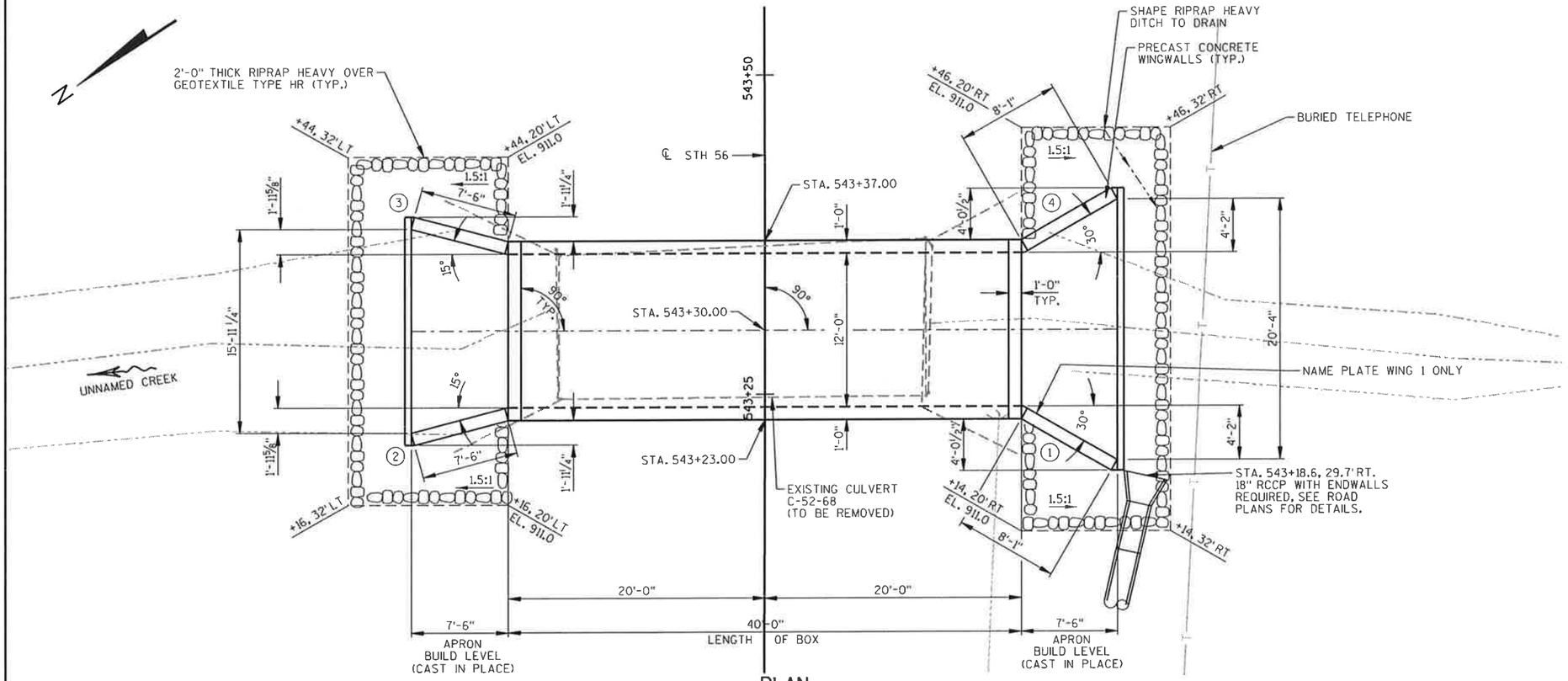
8

FILE= 93452_C-52-177_05.DGN

93452_C-52-177_05.dgn 1/15/2019 9:20:43 AM rrabska

STATE PROJECT NUMBER

5730-00-60



PLAN

SINGLE CELL PRECAST CONCRETE BOX CULVERT

LEGEND

◯ – INDICATES WING NUMBER

DESIGN DATA

LIVE LOAD:
- DESIGN LOAD : HL-93
- INVENTORY RATING FACTOR : 1.05
- OPERATIONAL RATING FACTOR : 1.35
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) : 255 KIPS

TRAFFIC DATA (STH 56):
- A.D.T. (2021) = 1200
- A.D.T. (2041) = 1300
- R.D.S. = 55 MPH

EARTH LOAD:
- DESIGNED FOR FILL HEIGHT RANGE OF 1.0 TO 2.0 FEET

MATERIAL PROPERTIES:
- CONCRETE MASONRY ——— f'c = 3,500 P.S.I.
- CONCRETE MASONRY (PRECAST BARREL)- f'c = 5,000 P.S.I.
- CONCRETE MASONRY (PRECAST OTHER)— f'c = 4,000 P.S.I.
- BAR STEEL REINFORCEMENT ——— fy = 60,000 P.S.I.
- WELDED WIRE FABRIC ——— fy = 65,000 P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY

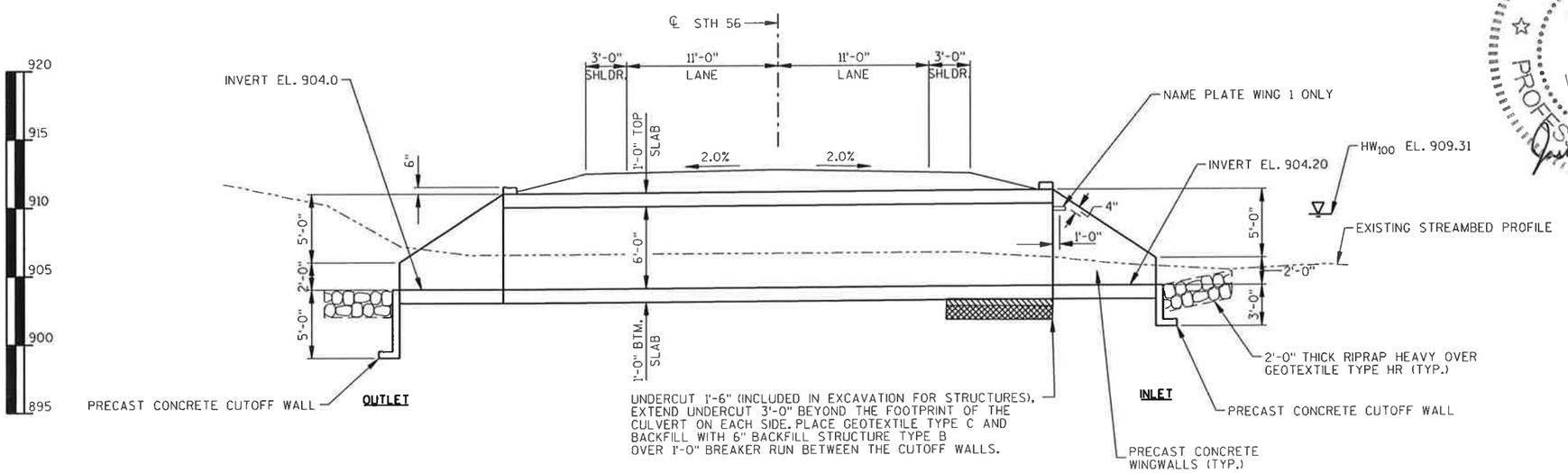
DRAINAGE AREA = 0.25 SQ. MI
Q_{100} = 260 C.F.S.
VELOCITY = 8.5 F.P.S.
WATERWAY AREA = 31 SQ. FT.
HIGH $WATER_{100}$ ELEVATION = EL. 909.31
OVERTOPPING RDWAY. = > 100 YEARS
SCOUR CODE = 8

2 YEAR FREQUENCY

Q_2 = 40 C.F.S.
HIGH $WATER_2$ ELEVATION = EL. 906.82
VEL_2 = 3.17 F.P.S.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS
3. PRECAST CONCRETE BARREL DETAILS
4. PRECAST WINGS & CUTOFF WALL
5. SUBSURFACE EXPLORATION



ELEVATION

(LOOKING SOUTHEAST - NORMAL TO BOX)

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE
WI
PROFESSIONAL ENGINEER

6/7/19

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

NO.	DATE	REVISION	BY

MSA ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/06/19
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-52-178

STH 56 OVER UNNAMED CREEK

COUNTY	TOWN/~~CITY/VILLAGE~~
RICHLAND	MARSHALL

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JLM	JRS	CAR	JRS

GENERAL PLAN

SHEET 1 OF 5
142

8

8

FILE= 93452_C-52-178_01.DGN
DATE= 5/26/2019

93452_C-52-178_01.dgn 5/26/2019 5:57:32 AM jsweno

STATE PROJECT NUMBER

5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0070

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	203.0500.S.05	REMOVING OLD STRUCTURE OVER WATERWAY STATION 543+34.3	LS	1
	206.2000.05	EXCAVATION FOR STRUCTURES CULVERTS C-52-178	LS	1
⚠	210.2500	BACKFILL STRUCTURE TYPE B	TON	623
	311.0110	BREAKER RUN	TON	77
	504.0100	CONCRETE MASONRY CULVERTS	CY	10
*	504.1000.S.05	PRECAST CONCRETE WINGWALLS C-52-178	LS	1
	504.2000.S.03	PRECAST CONCRETE BOX CULVERT, 12 FT X 6 FT	LF	40
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	290
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	4
	606.0300	RIPRAP HEAVY	CY	36
	645.0105	GEOTEXTILE TYPE C	SY	130
	645.0120	GEOTEXTILE TYPE HR	SY	100
		NON-BID ITEMS		
		PREFORMED FILLER	SIZE	¾"

* ALL WORK ASSOCIATED WITH THE PRECAST CUTOFF WALLS IS INCLUDED WITH "PRECAST CONCRETE WINGWALLS C-52-178."

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THIS STRUCTURE WILL REPLACE AN EXISTING 12'WIDE X 6'HIGH, 29'LONG SINGLE CELL REINFORCED CONCRETE BOX CULVERT.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-52-178" SHALL BE THE EXISTING GROUNDLINE.

⚠ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY CONTRACTOR.

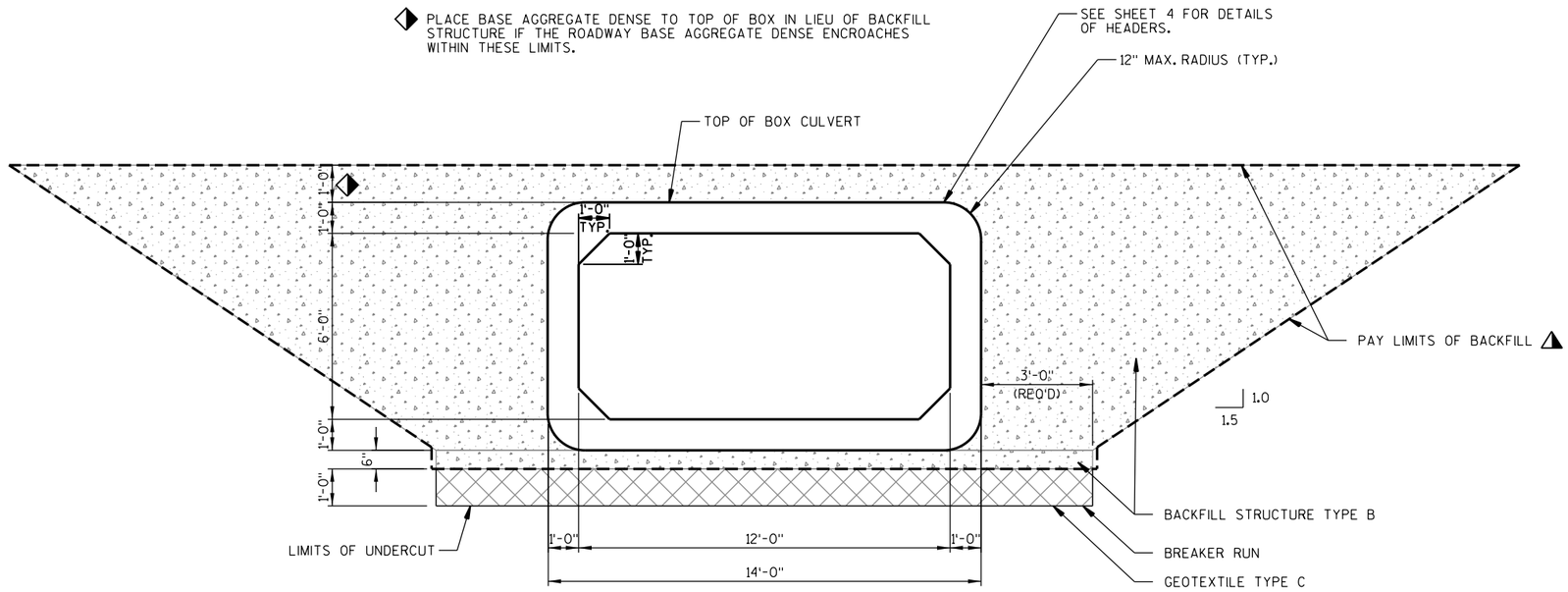
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD 88 (2012 ADJUSTED), AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR.

THE APRONS SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.



SECTION THRU CULVERT

(PAVEMENT STRUCTURE NOT SHOWN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-178

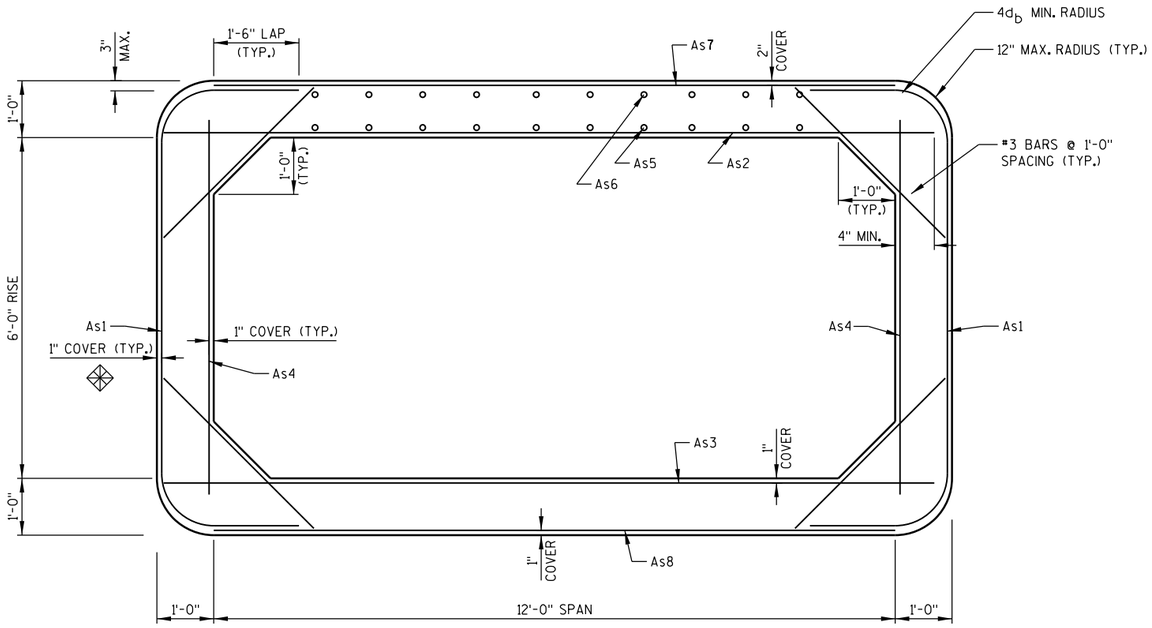
DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 5
143

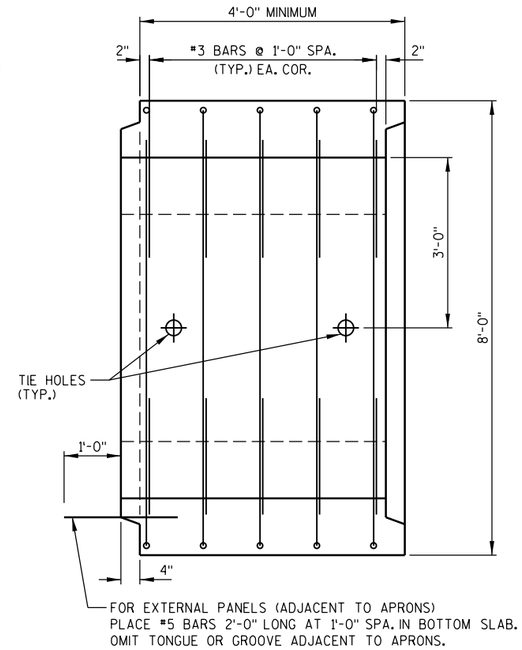
FILE= 93452_C-52-178_02.dgn
DATE=6/11/2019

93452_C-52-178_02.dgn 6/11/2019 3:15:28 PM jsweno

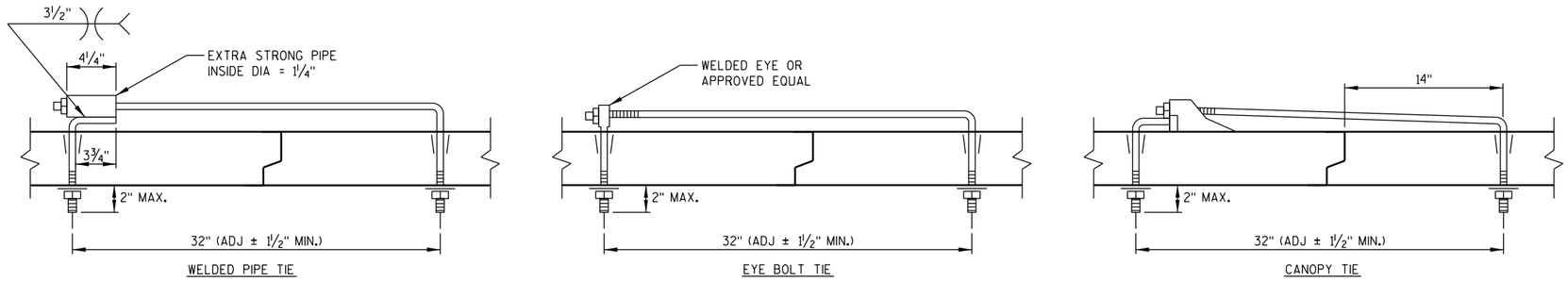


SECTION THRU BARREL

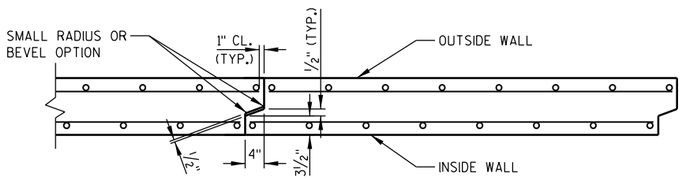
FOR LESS THAN 2'-0" OF COVER



LONGITUDINAL SECTION



JOINT TIES★



JOINT DETAIL AND BARREL SECTION

◈ 1" OR 3 X WIRE DIAMETER WHICHEVER IS GREATER.

★ CONCRETE JOINT TIE:

FOR CONCRETE BOXES AND APRONS PIPE TIES SHALL BE REQUIRED AT ALL JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR IN THE SPECIAL PROVISIONS. TIES TO BE USED ONLY TO HOLD SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. TIES ARE TO BE 1" DIAMETER RODS. EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED, TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. TIE ROD THREADS SHALL PROJECT TO THE INSIDE OF PIPE EXCEPT AS NOTED IN PLANS. TIE ROD ENDS MAY PROJECT TO OUTSIDE OF BOX CULVERT PIPE IN MULTIPLE PIPELINE INSTALLATIONS, FACE CONNECTION DOWNSTREAM. HOLES FOR TIES SHALL BE CAST OR DRILLED FROM CENTERLINE OF JOINT (2 TIES REQ'D PER JOINT.) (TIES TO BE GALVANIZED.)

STATE PROJECT NUMBER

5730-00-60

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

THE COVER OF CONCRETE OVER THE REINFORCEMENT ON ALL PRECAST ELEMENTS SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -⅜" TO +½".

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED, HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A.

REINFORCEMENT SCHEDULE

REINFORCEMENT	AREA (IN.2/FT.)
As1	0.32
As2	0.36
As3	0.32
As4	0.29
As5	0.29
As6	0.29
As7	0.29
As8	0.29

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-178

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST CONCRETE BARREL DETAILS

SHEET 3 OF 5
144

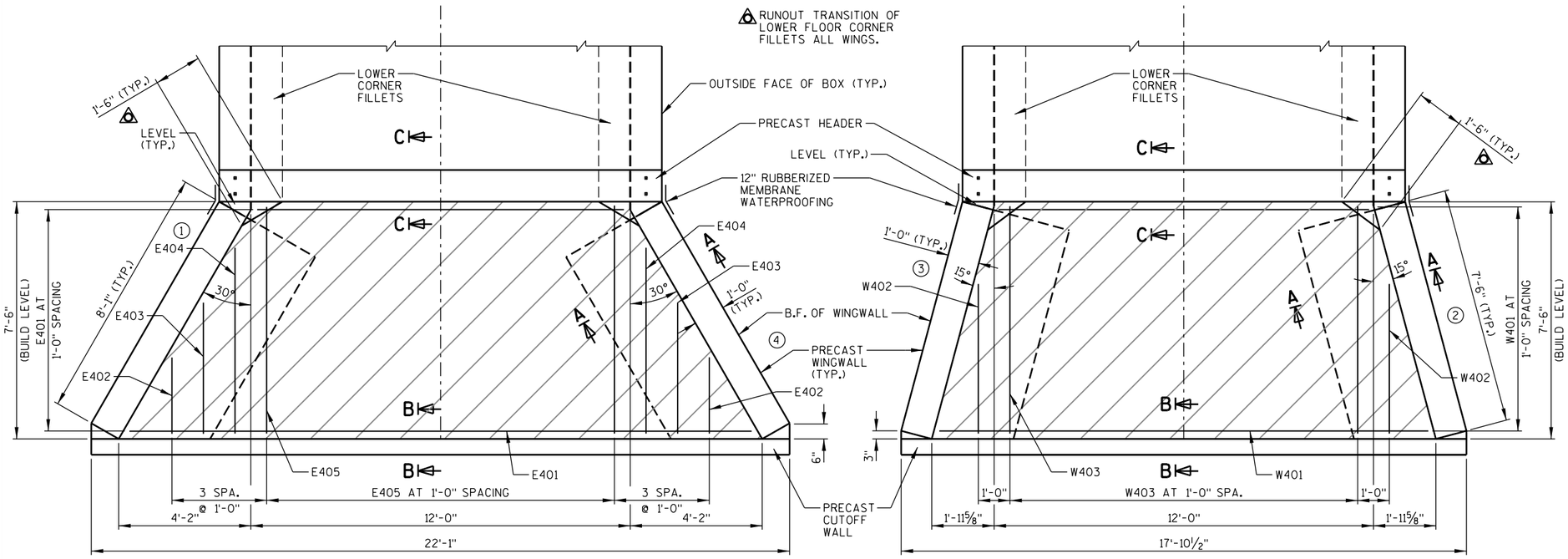
8

8

FILE= 93452_C-52-178_03.dgn
DATE= 5/21/2019

93452_C-52-178_03.dgn 5/21/2019 3:48:36 PM lrabska

STATE PROJECT NUMBER
5730-00-60



INLET APRON PLAN

OUTLET APRON PLAN

NOTES

CONCRETE COVER ON ALL REINFORCEMENT IN THE PRECAST ELEMENTS SHALL BE 2" UNLESS SHOWN OR NOTED OTHERWISE.

THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5.

THE 7/8" DIA. ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENT OF ASTM A575.

ALL EXPOSED CORNERS SHALL BE BEVELED 3/4" ON THE SIDES OR TOOL EDGED WITH A 1/2" MINIMUM RADIUS EDGER.

PRECAST CUTOFF WALLS MAY BE FIELD SPLICED BY EXTENDING THE REINFORCING STEEL FROM BOTH SEGMENTS TO BE SPLICED 1'-6" INTO THE SPLICE ZONE, LAPPING THE STEEL ± 1'-6" AND FIELD POURING A SECTION OF THE CUTOFF WALL 1'-6" LONG.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF ENGINEER.

APRON SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

ALTERNATE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

B.F. - BACK FACE

◯ - INDICATES WING NUMBER

FIELD PLACE BAR STEEL REINFORCEMENT AND CONCRETE MASONRY CULVERTS

BILL OF BARS (APRONS) UNCOATED: 290 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
W401	8	13'-6"		Ⓢ	OUTLET APRON - TRANS.
W402	2	4'-8"			OUTLET APRON - LONGIT.
W403	12	7'-2"			OUTLET APRON - LONGIT.
E401	8	15'-7"		Ⓢ	INLET APRON - TRANS.
E402	2	2'-4"			INLET APRON - LONGIT.
E403	2	4'-1"			INLET APRON - LONGIT.
E404	2	5'-10"			INLET APRON - LONGIT.
E405	12	7'-2"			INLET APRON - LONGIT.

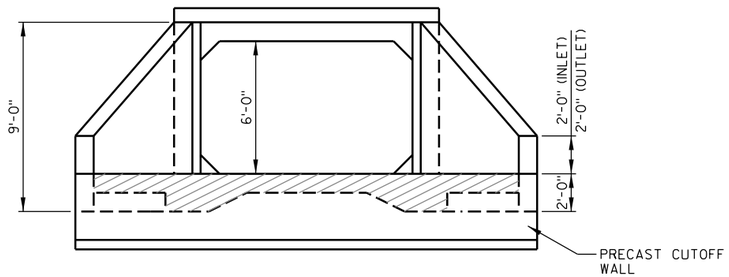
NOTES: BILL OF BARS FOR FIELD PLACED REINFORCEMENT ONLY.

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

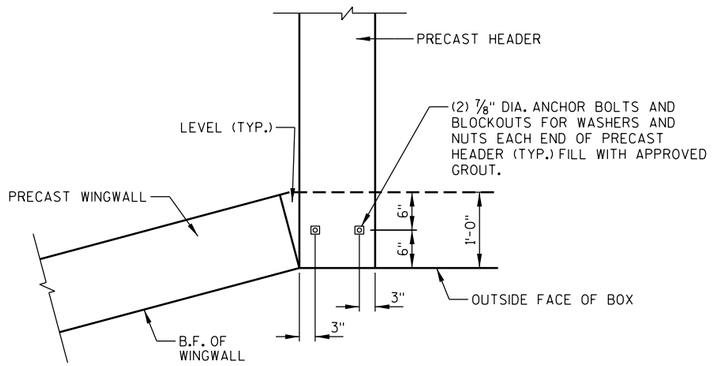
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES

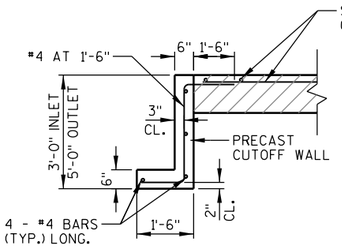
MARK	NUMBER REQUIRED	LENGTH
W401	1 SERIES OF 8	11'-8" TO 15'-4"
E401	1 SERIES OF 8	11'-7" TO 19'-7"



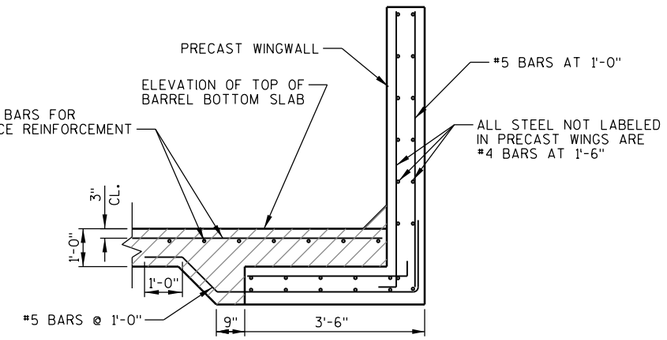
END VIEW



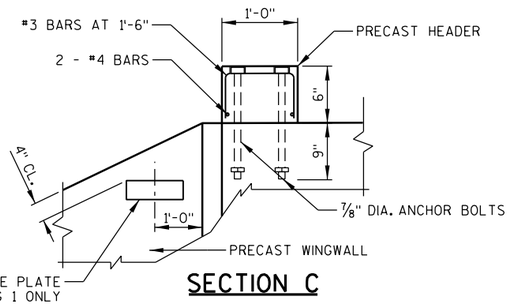
PLAN AT HEADER CORNER



SECTION B



SECTION A



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-178

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST WINGS & CUTOFF WALL

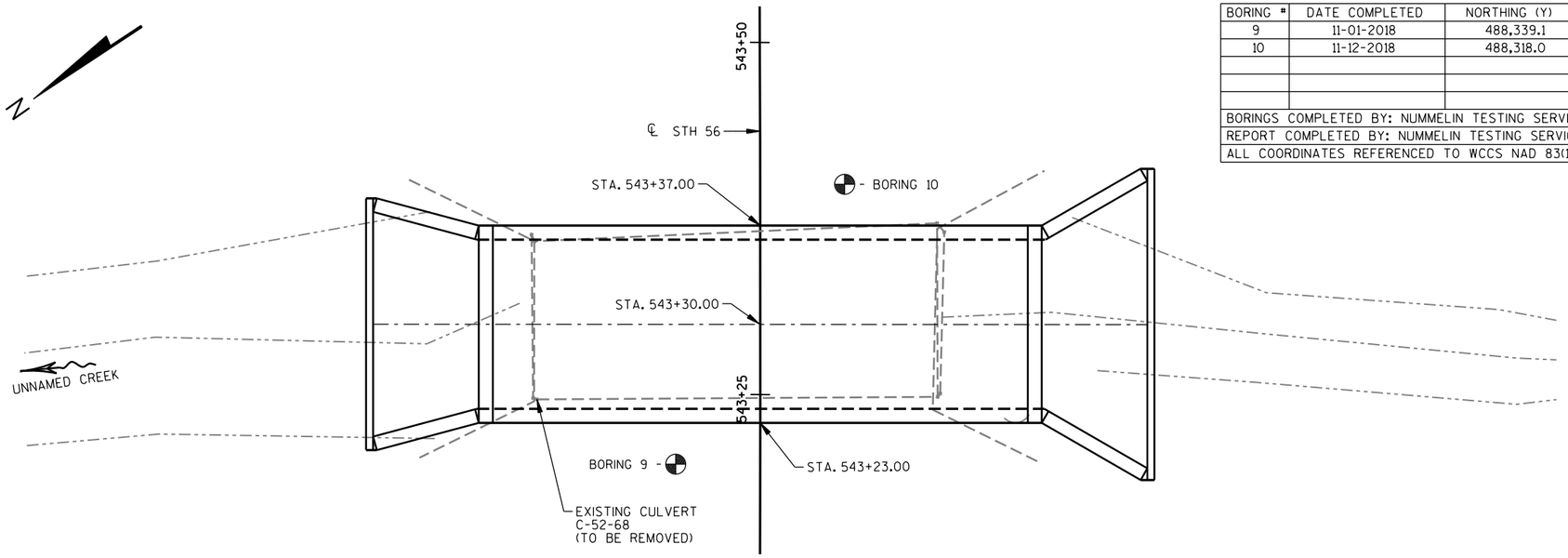
SHEET 4 OF 5
145

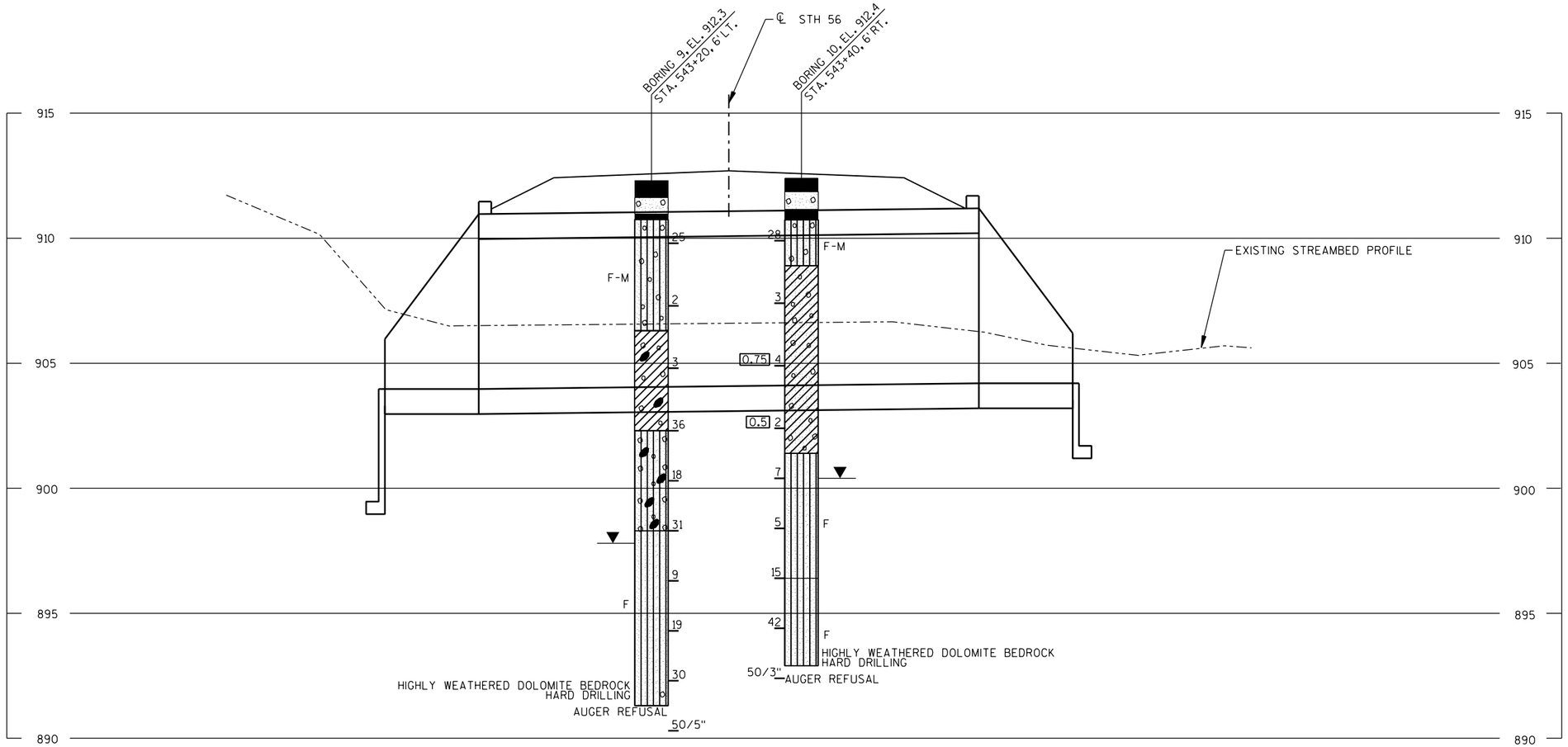
FILE= 93452_C-52-178_04.dgn
DATE= 6/4/2019

8

8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
9	11-01-2018	488,339.1	646,606.5
10	11-12-2018	488,318.0	646,616.6
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(12) RICHLAND COUNTY			





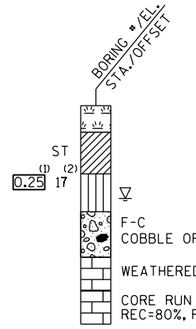
STATE PROJECT NUMBER

5730-00-60

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▽ AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-178

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

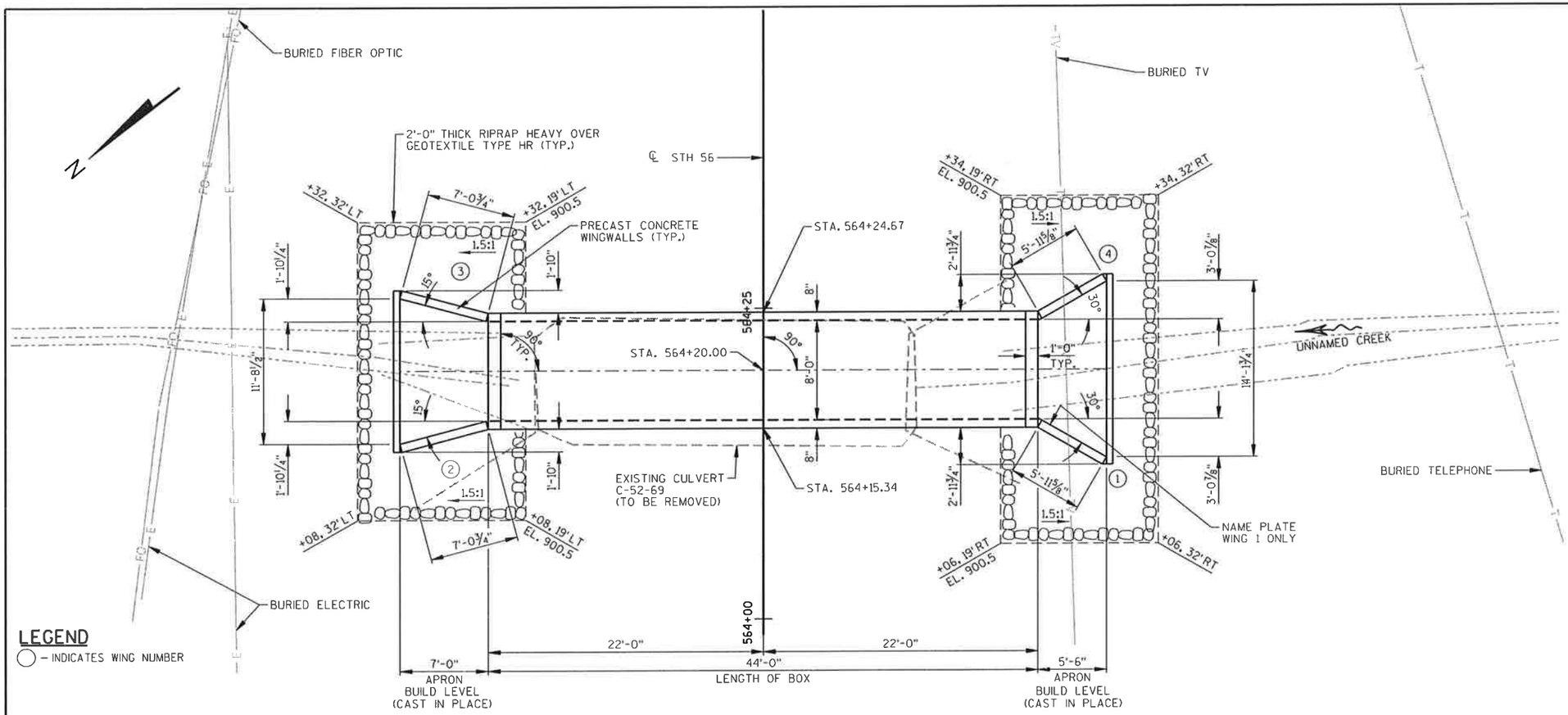
SHEET 5 OF 5
146

8

8

FILE= 93452_C-52-178_05.DGN

93452_C-52-178_05.dgn 1/15/2019 11:01:18 AM rrabska

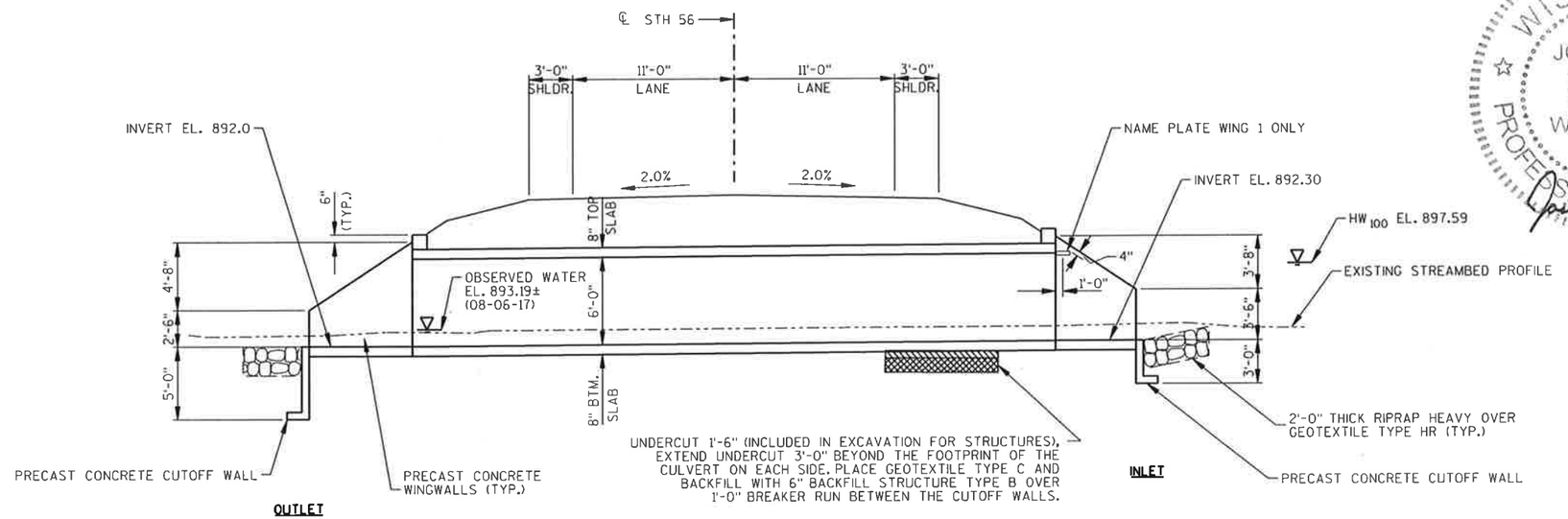


LEGEND

◯ – INDICATES WING NUMBER

PLAN

SINGLE CELL PRECAST CONCRETE BOX CULVERT



ELEVATION

(LOOKING SOUTHEAST - NORMAL TO BOX)

STATE PROJECT NUMBER

5730-00-60

DESIGN DATA

LIVE LOAD:
- DESIGN LOAD : HL-93
- INVENTORY RATING FACTOR : 1.05
- OPERATIONAL RATING FACTOR : 1.35
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) : 255 KIPS

TRAFFIC DATA (STH 56):
- A.D.T. (2021) = 1200
- A.D.T. (2041) = 1300
- R.D.S. = 55 MPH

EARTH LOAD:
- DESIGNED FOR FILL HEIGHT RANGE OF 2.0 TO 3.5 FEET

MATERIAL PROPERTIES:
- CONCRETE MASONRY ——— f'c = 3,500 P.S.I.
- CONCRETE MASONRY (PRECAST BARREL)- f'c = 5,000 P.S.I.
- CONCRETE MASONRY (PRECAST OTHER) — f'c = 4,000 P.S.I.
- BAR STEEL REINFORCEMENT ——— fy = 60,000 P.S.I.
- WELDED WIRE FABRIC ——— fy = 65,000 P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA = 0.16 SQ. MI
Q_{100} = 195 C.F.S.
VELOCITY = 9.23 F.P.S.
WATERWAY AREA = 21 SQ. FT.
HIGH $WATER_{100}$ ELEVATION = EL. 897.59
OVERTOPPING RDWAY. = > 100 YEARS
SCOUR CODE = 8

2 YEAR FREQUENCY

Q_2 = 30 C.F.S.
HIGH $WATER_2$ ELEVATION = EL. 894.26
VEL_2 = 4.9 F.P.S.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS
3. PRECAST CONCRETE BARREL DETAILS
4. PRECAST WINGS & CUTOFF WALL
5. SUBSURFACE EXPLORATION

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE
WI
PROFESSIONAL ENGINEER
6/7/19

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

NO.	DATE	REVISION	BY

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com
© MSA Professional Services, Inc

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William C. Dreher SDR 08/06/19
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-52-179

STH 56 OVER UNNAMED CREEK

COUNTY	TOWN ~~CITY/VILLAGE~~
RICHLAND	MARSHALL

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JLM	JRS	CAR	JRS

GENERAL PLAN

SHEET 1 OF 5
147

8

8

FILE= 93452_C-52-179_01.DGN
DATE= 5/26/2019

93452_C-52-179_01.dgn 5/26/2019 6:14:43 AM jsweno

STATE PROJECT NUMBER

5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0080

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	203.0500.S.06	REMOVING OLD STRUCTURE OVER WATERWAY STATION 564+19.2	LS	1
	206.2000.06	EXCAVATION FOR STRUCTURES CULVERTS C-52-179	LS	1
⚠	210.2500	BACKFILL STRUCTURE TYPE B	TON	585
	311.0110	BREAKER RUN	TON	60
	504.0100	CONCRETE MASONRY CULVERTS	CY	5
*	504.1000.S.06	PRECAST CONCRETE WINGWALLS C-52-179	LS	1
	504.2000.S.04	PRECAST CONCRETE BOX CULVERT, 8 FT X 6 FT	LF	44
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	170
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	4
	606.0300	RIPRAP HEAVY	CY	39
	645.0105	GEOTEXTILE TYPE C	SY	100
	645.0120	GEOTEXTILE TYPE HR	SY	105
		NON-BID ITEMS		
		PREFORMED FILLER	SIZE	¾"

* ALL WORK ASSOCIATED WITH THE PRECAST CUTOFF WALLS IS INCLUDED WITH "PRECAST CONCRETE WINGWALLS C-52-179."

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THIS STRUCTURE WILL REPLACE AN EXISTING 8' WIDE X 6' HIGH, 29' LONG SINGLE CELL REINFORCED CONCRETE BOX CULVERT.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-52-179" SHALL BE THE EXISTING GROUNDLINE.

⚠ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY CONTRACTOR.

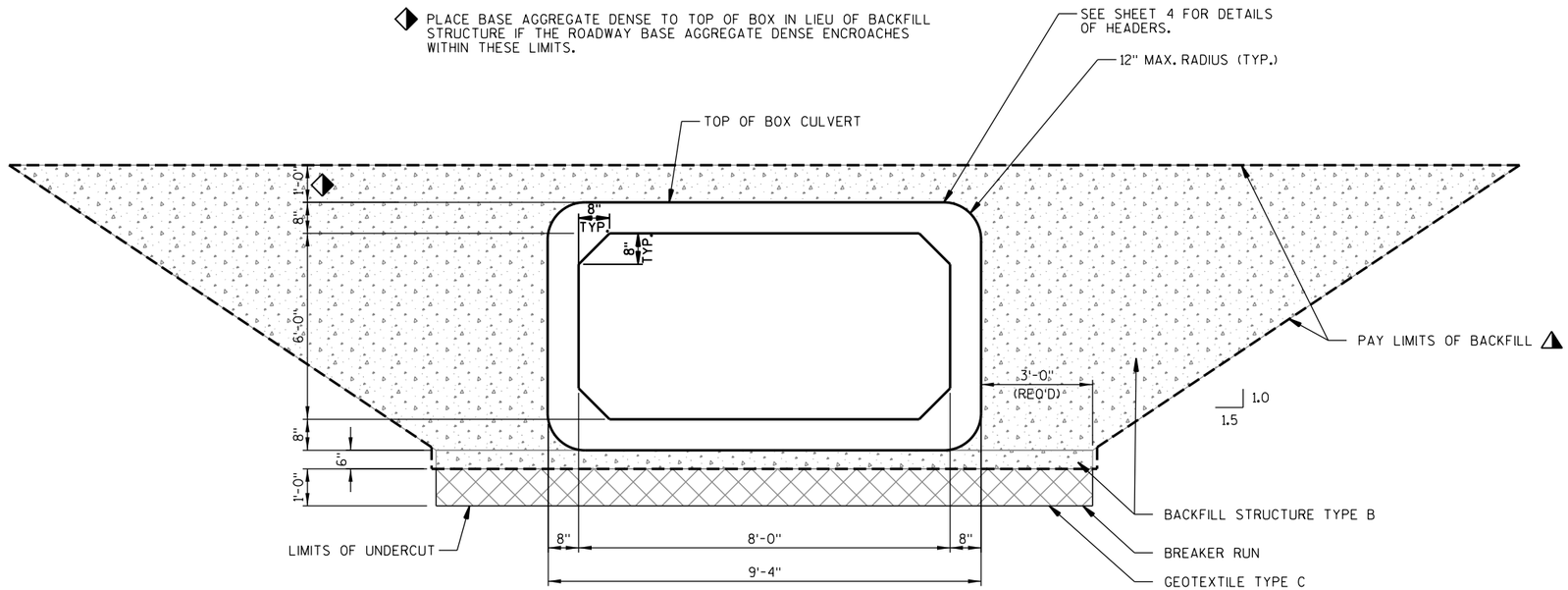
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD 88 (2012 ADJUSTED), AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR.

THE APRONS SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.



SECTION THRU CULVERT

(PAVEMENT STRUCTURE NOT SHOWN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-179

DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 5

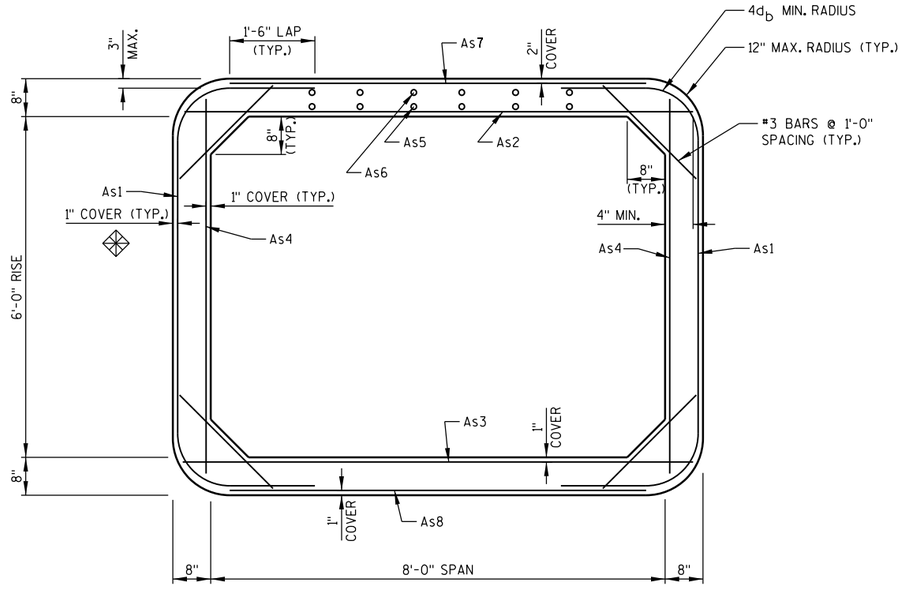
148

FILE= 93452_C-52-179_02.dgn
DATE=6/11/2019

93452_C-52-179_02.dgn 6/11/2019 3:20:08 PM jsweno

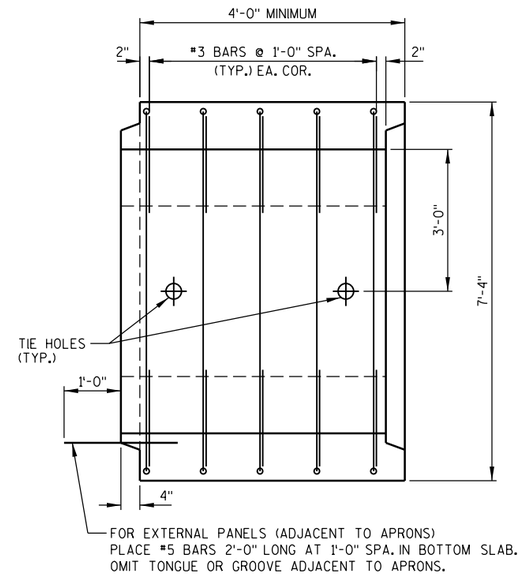
STATE PROJECT NUMBER

5730-00-60



SECTION THRU BARREL

FOR LESS THAN 2'-0" OF COVER



LONGITUDINAL SECTION

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

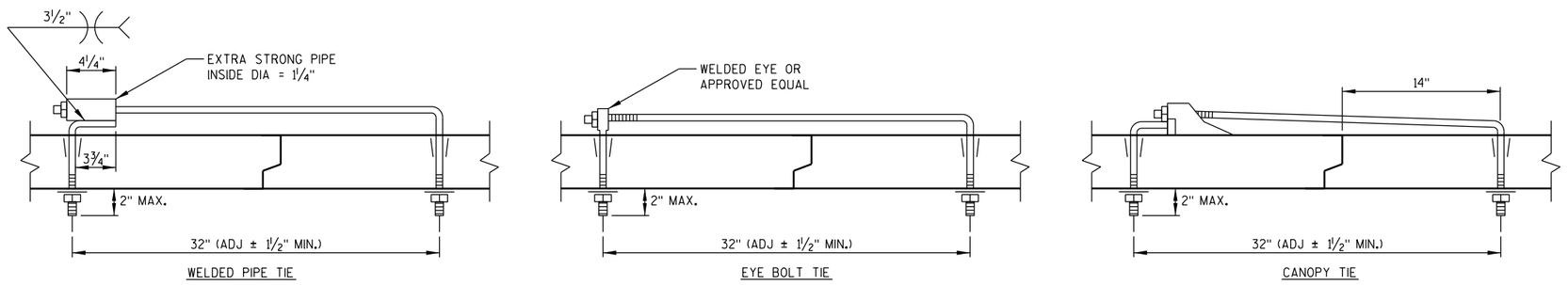
THE COVER OF CONCRETE OVER THE REINFORCEMENT ON ALL PRECAST ELEMENTS SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -$\frac{3}{8}$" TO +$\frac{1}{2}$".

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED, HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

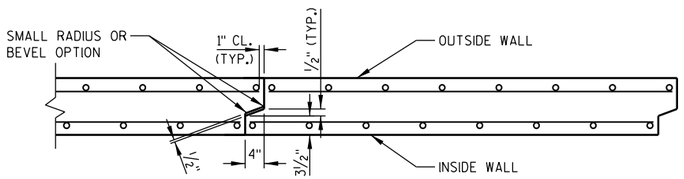
THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A.



JOINT TIES★

REINFORCEMENT SCHEDULE

REINFORCEMENT	AREA (IN.2/FT.)
As1	0.22
As2	0.42
As3	0.35
As4	0.19
As5	0.19
As6	0.19
As7	0.19
As8	0.19



JOINT DETAIL AND BARREL SECTION

◈ 1" OR 3 X WIRE DIAMETER WHICHEVER IS GREATER.

★ CONCRETE JOINT TIE:

FOR CONCRETE BOXES AND APRONS PIPE TIES SHALL BE REQUIRED AT ALL JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR IN THE SPECIAL PROVISIONS. TIES TO BE USED ONLY TO HOLD SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. TIES ARE TO BE 1" DIAMETER RODS. EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED, TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. TIE ROD THREADS SHALL PROJECT TO THE INSIDE OF PIPE EXCEPT AS NOTED IN PLANS. TIE ROD ENDS MAY PROJECT TO OUTSIDE OF BOX CULVERT PIPE IN MULTIPLE PIPELINE INSTALLATIONS, FACE CONNECTION DOWNSTREAM. HOLES FOR TIES SHALL BE CAST OR DRILLED FROM CENTERLINE OF JOINT (2 TIES REQ'D PER JOINT.) (TIES TO BE GALVANIZED.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-179

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST CONCRETE BARREL DETAILS

SHEET 3 OF 5
149

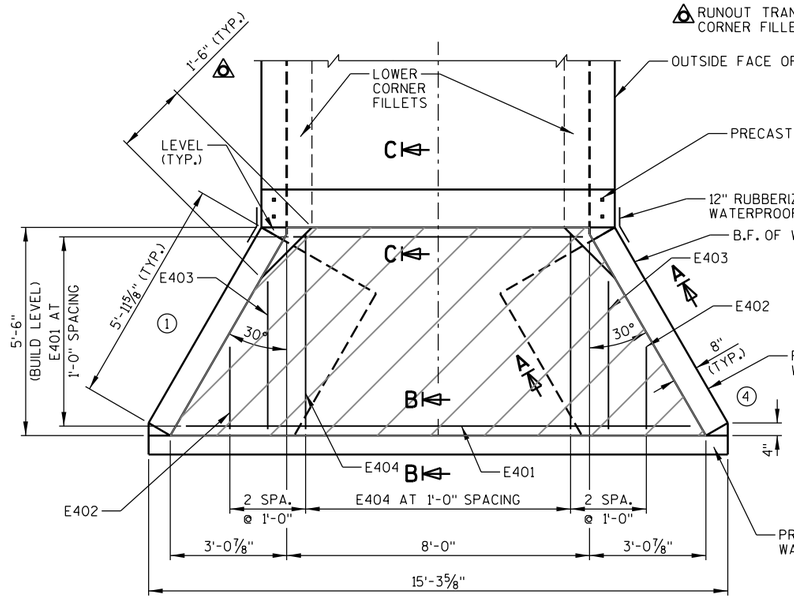
FILE= 93452_C-52-179_03.dgn
DATE=5/21/2019

8

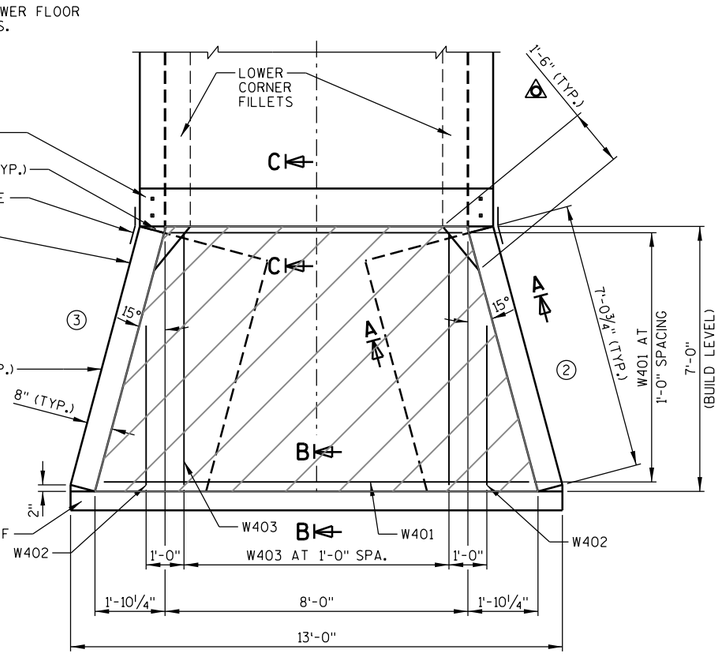
8

STATE PROJECT NUMBER

5730-00-60



INLET APRON PLAN



OUTLET APRON PLAN

NOTES

CONCRETE COVER ON ALL REINFORCEMENT IN THE PRECAST ELEMENTS SHALL BE 2" UNLESS SHOWN OR NOTED OTHERWISE.

THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5.

THE 7/8" DIA. ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENT OF ASTM A575.

ALL EXPOSED CORNERS SHALL BE BEVELED 3/4" ON THE SIDES OR TOOL EDGED WITH A 1/2" MINIMUM RADIUS EDGER.

PRECAST CUTOFF WALLS MAY BE FIELD SPLICED BY EXTENDING THE REINFORCING STEEL FROM BOTH SEGMENTS TO BE SPLICED 1'-6" INTO THE SPLICE ZONE, LAPPING THE STEEL ± 1'-6" AND FIELD POURING A SECTION OF THE CUTOFF WALL 1'-6" LONG.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF ENGINEER.

APRON SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

ALTERNATE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

B.F. - BACK FACE

◯ - INDICATES WING NUMBER

FIELD PLACE BAR STEEL REINFORCEMENT AND CONCRETE MASONRY CULVERTS

BILL OF BARS (APRONS) UNCOATED: 170 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
W401	8	9'-5"		Ⓢ	OUTLET APRON - TRANS.
W402	2	4'-2"			OUTLET APRON - LONGIT.
W403	8	6'-8"			OUTLET APRON - LONGIT.
E401	6	10'-6"		Ⓢ	INLET APRON - TRANS.
E402	2	2'-2"			INLET APRON - LONGIT.
E403	2	3'-11"			INLET APRON - LONGIT.
E404	8	5'-2"			INLET APRON - LONGIT.

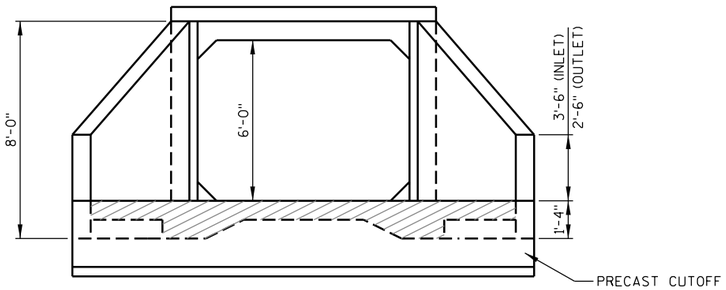
NOTES: BILL OF BARS FOR FIELD PLACED REINFORCEMENT ONLY.

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

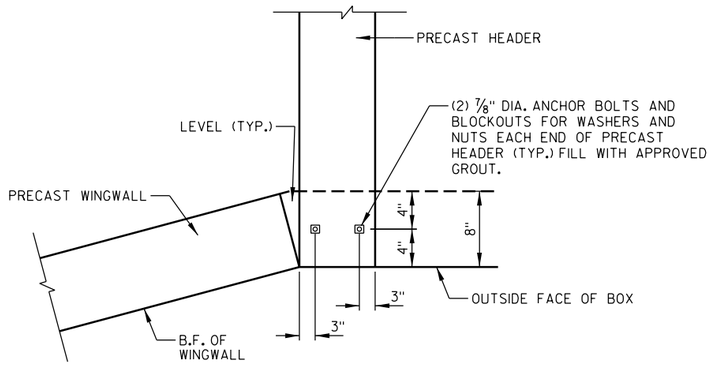
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES

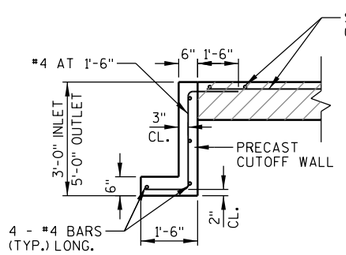
MARK	NUMBER REQUIRED	LENGTH
W401	1 SERIES OF 8	7'-8" TO 11'-2"
E401	1 SERIES OF 6	7'-8" TO 13'-4"



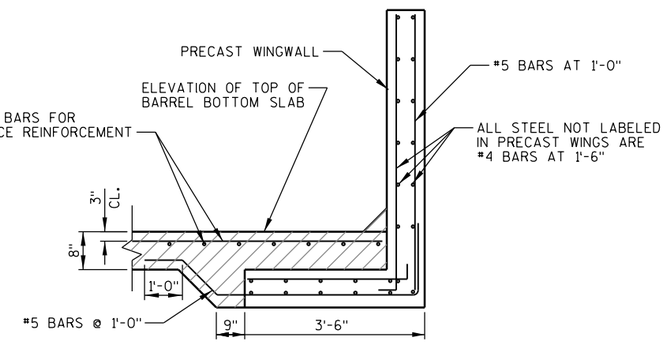
END VIEW



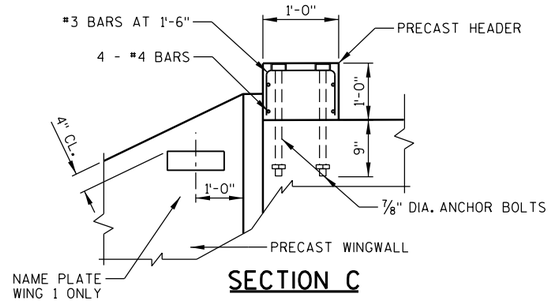
PLAN AT HEADER CORNER



SECTION B



SECTION A



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-179

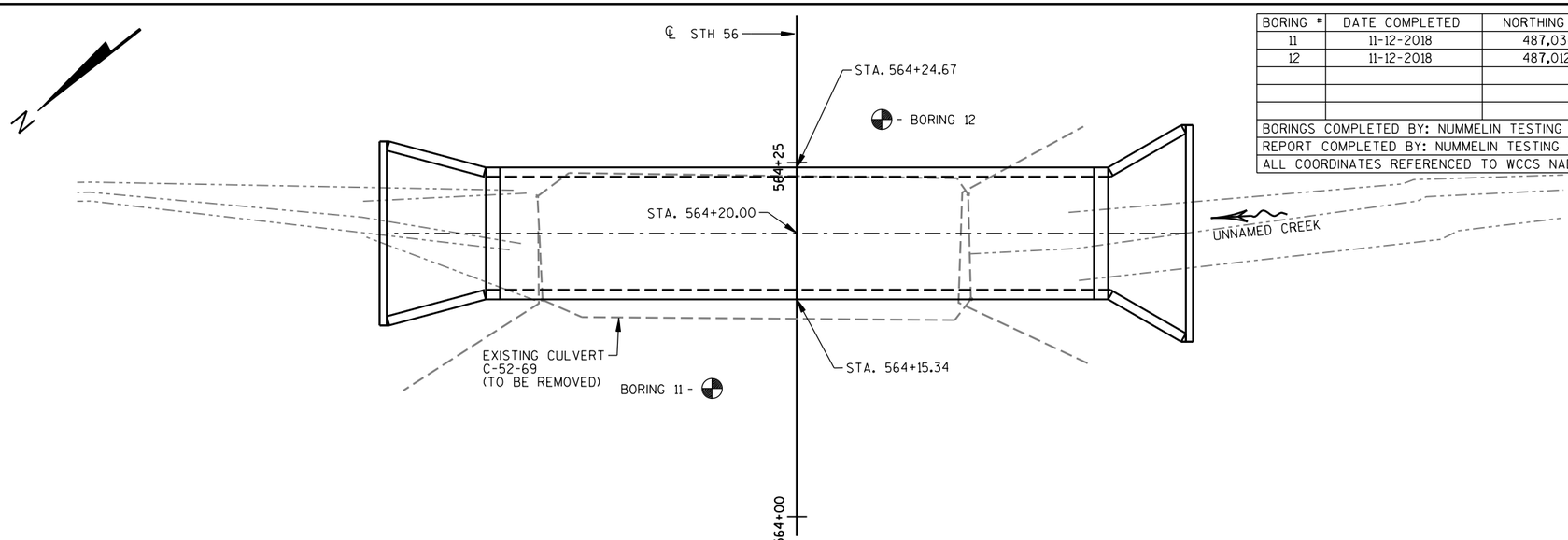
DRAWN BY RLR | PLANS CK'D. JRS

PRECAST WINGS & CUTOFF WALL

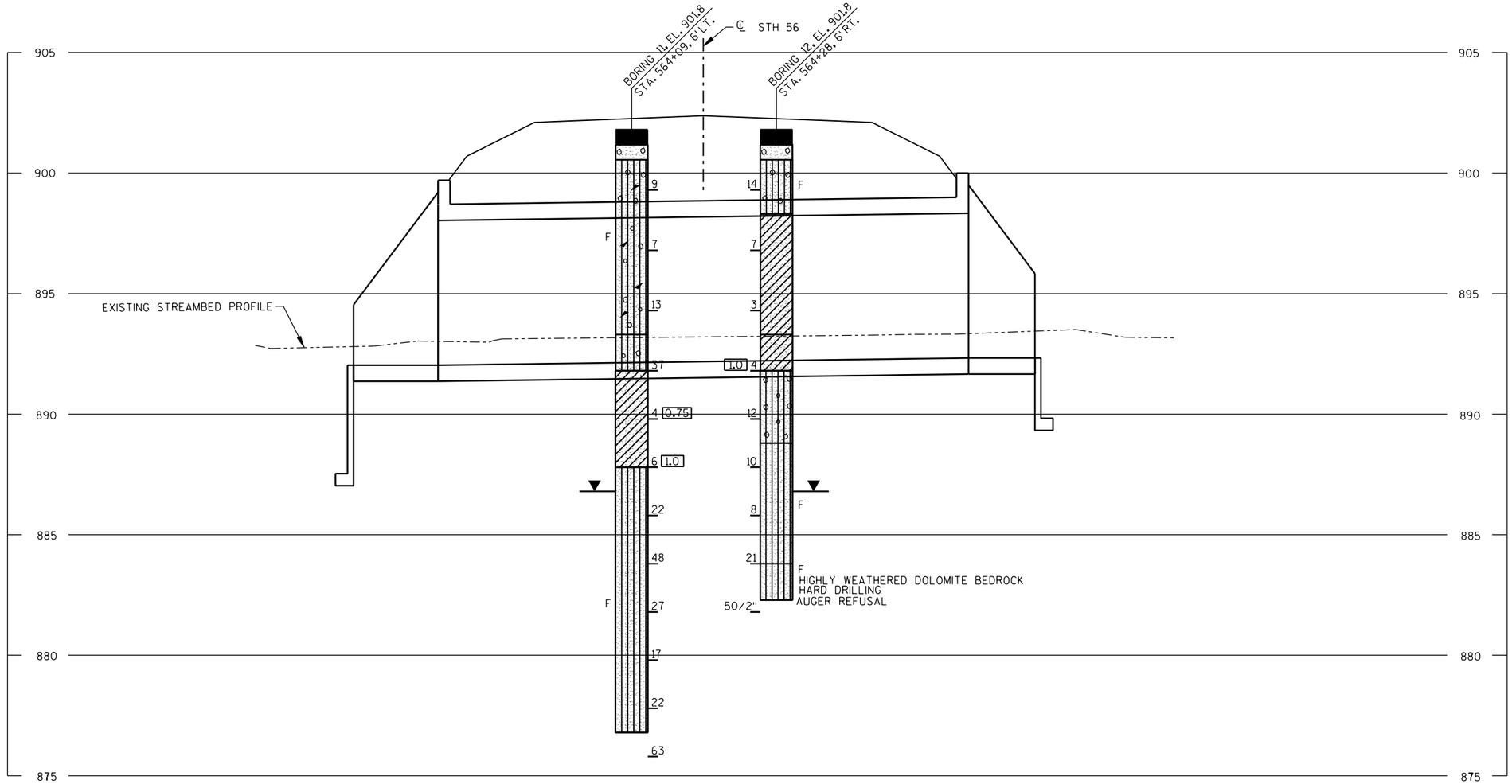
SHEET 4 OF 5
150

FILE= 93452_C-52-179_04.dgn
DATE= 6/4/2019

93452_C-52-179_04.dgn 6/4/2019 7:07:50 AM frabska



BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
11	11-12-2018	487,034.0	648,233.1
12	11-12-2018	487,012.8	648,240.7
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(12) RICHLAND COUNTY			



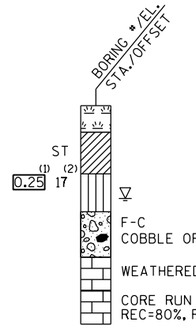
STATE PROJECT NUMBER

5730-00-60

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-179

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

SHEET 5 OF 5

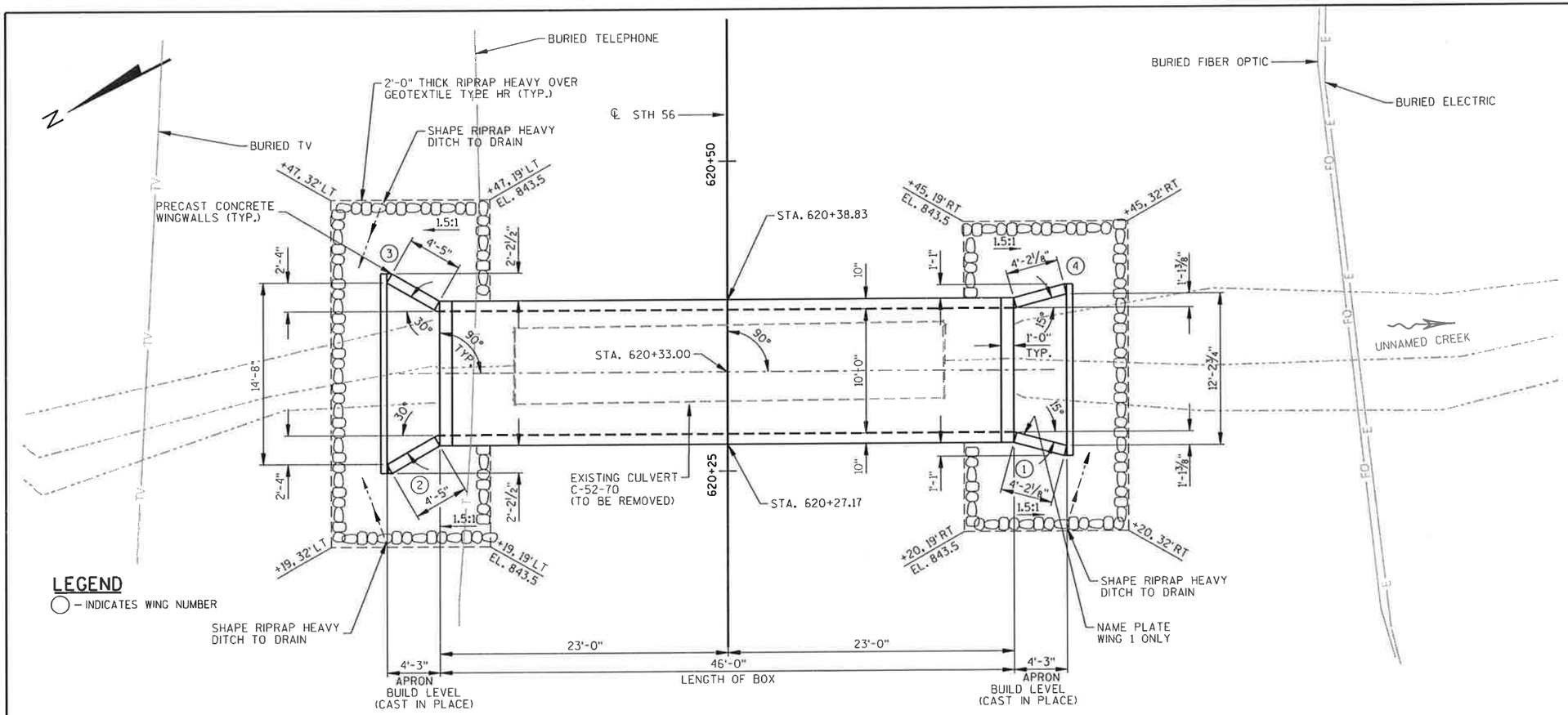
151

8

8

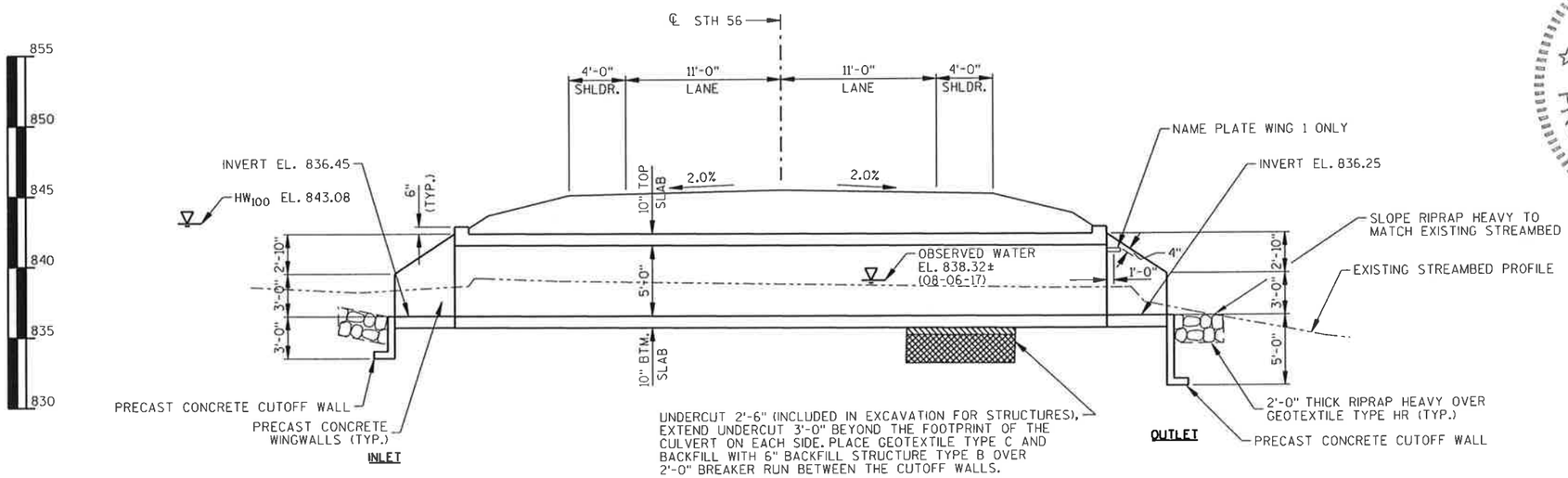
FILE= 93452_C-52-179_05.DGN

93452_C-52-179_05.dgn 1/15/2019 11:07:03 AM rrabska



PLAN

SINGLE CELL PRECAST CONCRETE BOX CULVERT



ELEVATION

(LOOKING SOUTHEAST - NORMAL TO BOX)

STATE PROJECT NUMBER

5730-00-60

DESIGN DATA

LIVE LOAD:
- DESIGN LOAD : HL-93
- INVENTORY RATING FACTOR : 1.05
- OPERATIONAL RATING FACTOR : 1.35
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) : 255 KIPS

TRAFFIC DATA (STH 56):
- A.D.T. (2021) = 1200
- A.D.T. (2041) = 1300
- R.D.S. = 55 MPH

EARTH LOAD:
- DESIGNED FOR FILL HEIGHT RANGE OF 2.0 TO 3.0 FEET

MATERIAL PROPERTIES:
- CONCRETE MASONRY ——— f'c = 3,500 P.S.I.
- CONCRETE MASONRY (PRECAST BARREL)- f'c = 5,000 P.S.I.
- CONCRETE MASONRY (PRECAST OTHER) — f'c = 4,000 P.S.I.
- BAR STEEL REINFORCEMENT ——— fy = 60,000 P.S.I.
- WELDED WIRE FABRIC ——— fy = 65,000 P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA = 0.61 SQ. MI
Q_{100} = 320 C.F.S.
VELOCITY = 8.49 F.P.S.
WATERWAY AREA = 38 SQ. FT.
HIGH $WATER_{100}$ ELEVATION = EL. 843.08
OVERTOPPING RDWAY. = > 100 YEARS
SCOUR CODE = 8

2 YEAR FREQUENCY

Q_2 = 50 C.F.S.
HIGH $WATER_2$ ELEVATION = EL. 840.03
VEL_2 = 3.48 F.P.S.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS
3. PRECAST CONCRETE BARREL DETAILS
4. PRECAST WINGS & CUTOFF WALL
5. SUBSURFACE EXPLORATION

WISCONSIN JOSHUA R. SWENO E-44384 WAUNAKEE WI PROFESSIONAL ENGINEER

6/7/19

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

NO.	DATE	REVISION	BY

MSA ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/06/19
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-52-180

STH 56 OVER UNNAMED CREEK

COUNTY	TOWN ~~CITY/VILLAGE~~
RICHLAND	MARSHALL

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JLM	JRS	CAR	JRS

GENERAL PLAN

SHEET 1 OF 5
152

8

8

FILE= 93452_C-52-180_01.DGN
DATE= 6/4/2019

93452_C-52-180_01.dgn 6/4/2019 7:12:41 AM rrabska

STATE PROJECT NUMBER

5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0100

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	203.0500.S.07	REMOVING OLD STRUCTURE OVER WATERWAY STATION 620+33.9	LS	1
	206.2000.07	EXCAVATION FOR STRUCTURES CULVERTS C-52-180	LS	1
◭	210.2500	BACKFILL STRUCTURE TYPE B	TON	543
	311.0110	BREAKER RUN	TON	131
	504.0100	CONCRETE MASONRY CULVERTS	CY	4
*	504.1000.S.07	PRECAST CONCRETE WINGWALLS C-52-180	LS	1
	504.2000.S.01	PRECAST CONCRETE BOX CULVERT, 10 FT X 5 FT	LF	46
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	130
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	3
	606.0300	RIPRAP HEAVY	CY	38
	645.0105	GEOTEXTILE TYPE C	SY	110
	645.0120	GEOTEXTILE TYPE HR	SY	100
		NON-BID ITEMS		
		PREFORMED FILLER	SIZE	¾"

* ALL WORK ASSOCIATED WITH THE PRECAST CUTOFF WALLS IS INCLUDED WITH "PRECAST CONCRETE WINGWALLS C-52-180."

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THIS STRUCTURE WILL REPLACE AN EXISTING 6' WIDE X 4' HIGH, 34' LONG SINGLE CELL REINFORCED CONCRETE BOX CULVERT.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-52-180" SHALL BE THE EXISTING GROUNDLINE.

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY CONTRACTOR.

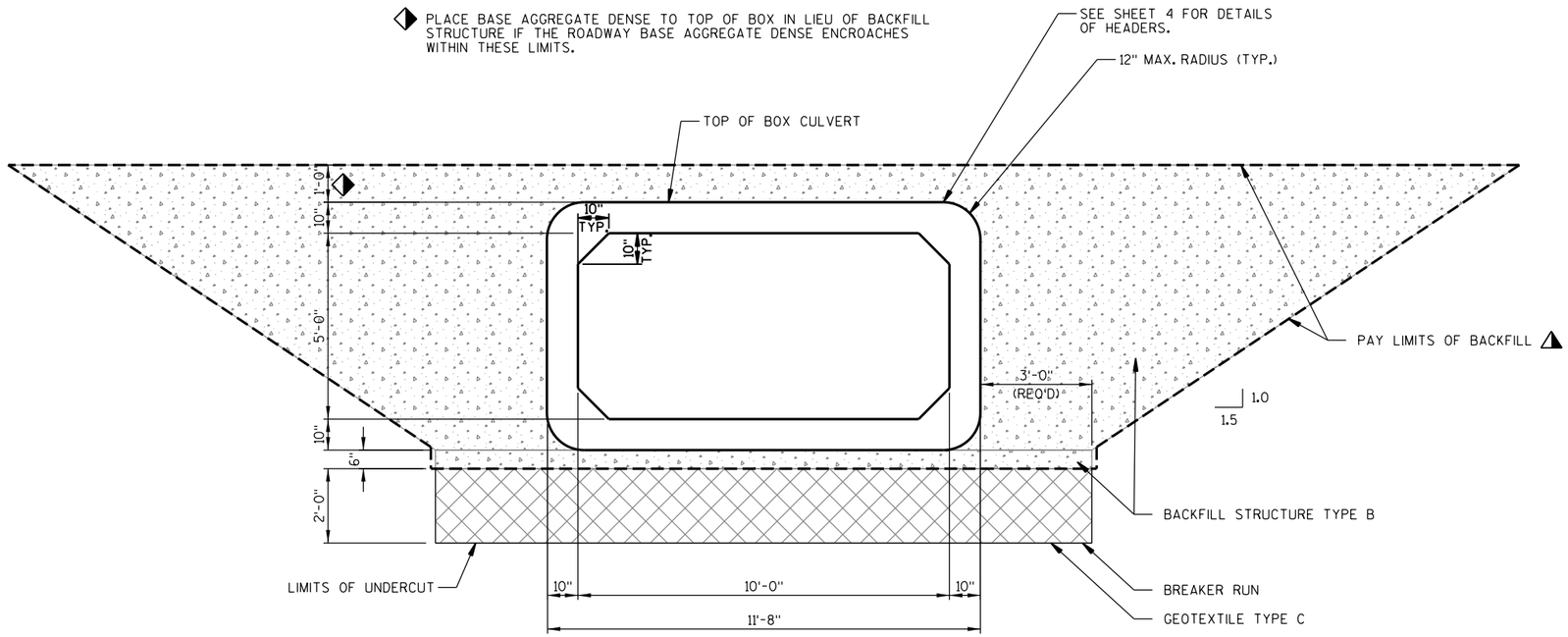
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD 88 (2012 ADJUSTED), AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR.

THE APRONS SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.



SECTION THRU CULVERT

(PAVEMENT STRUCTURE NOT SHOWN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-180

DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 5

153

8

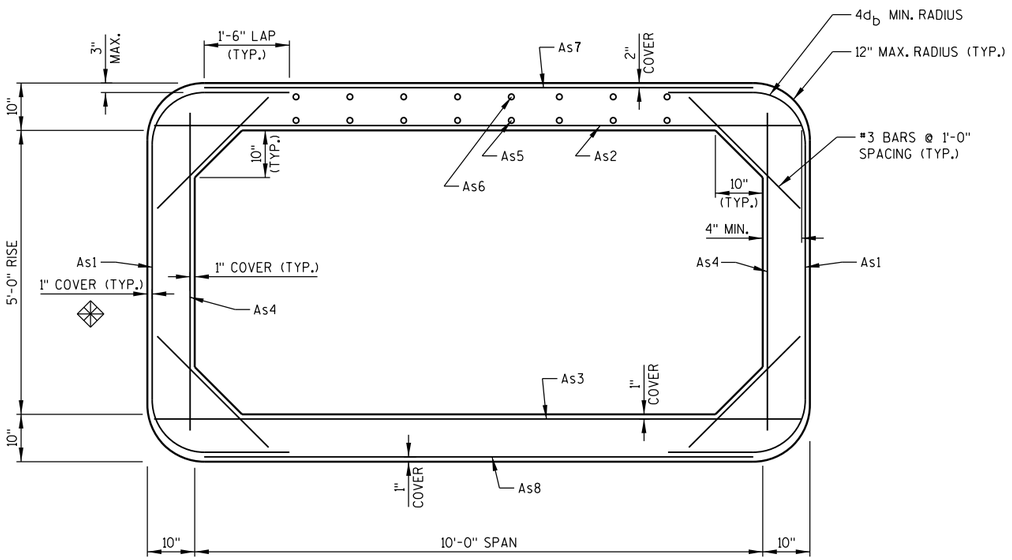
8

FILE= 93452_C-52-180_02.dgn
DATE= 6/11/2019

93452_C-52-180_02.dgn 6/11/2019 2:47:43 PM jsweno

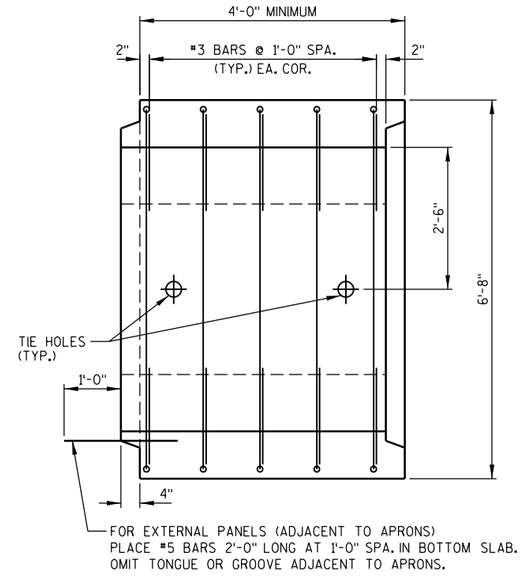
STATE PROJECT NUMBER

5730-00-60



SECTION THRU BARREL

FOR LESS THAN 2'-0" OF COVER



LONGITUDINAL SECTION

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

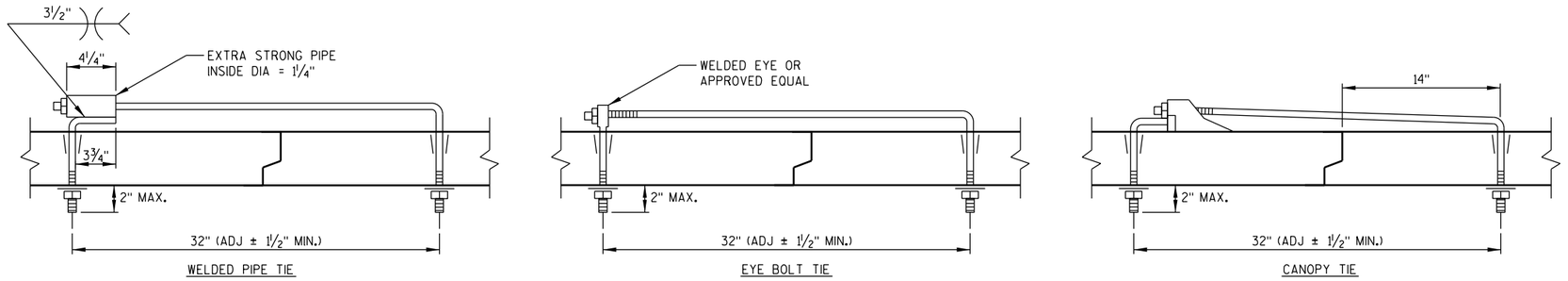
THE COVER OF CONCRETE OVER THE REINFORCEMENT ON ALL PRECAST ELEMENTS SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -$\frac{3}{8}$" TO +$\frac{1}{2}$".

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED, HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

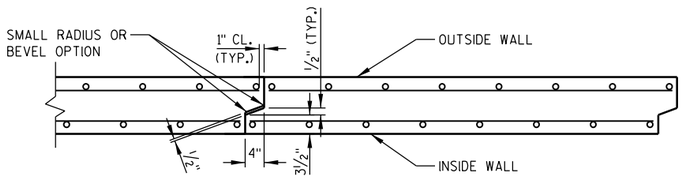
THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A.



JOINT TIES ★

REINFORCEMENT SCHEDULE

REINFORCEMENT	AREA (IN.2/FT.)
As1	0.30
As2	0.36
As3	0.30
As4	0.24
As5	0.24
As6	0.24
As7	0.24
As8	0.24



JOINT DETAIL AND BARREL SECTION

◈ 1" OR 3 X WIRE DIAMETER WHICHEVER IS GREATER.

★ CONCRETE JOINT TIE:

FOR CONCRETE BOXES AND APRONS PIPE TIES SHALL BE REQUIRED AT ALL JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR IN THE SPECIAL PROVISIONS. TIES TO BE USED ONLY TO HOLD SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. TIES ARE TO BE 1" DIAMETER RODS. EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED, TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. TIE ROD THREADS SHALL PROJECT TO THE INSIDE OF PIPE EXCEPT AS NOTED IN PLANS. TIE ROD ENDS MAY PROJECT TO OUTSIDE OF BOX CULVERT PIPE IN MULTIPLE PIPELINE INSTALLATIONS, FACE CONNECTION DOWNSTREAM. HOLES FOR TIES SHALL BE CAST OR DRILLED FROM CENTERLINE OF JOINT (2 TIES REQ'D PER JOINT.) (TIES TO BE GALVANIZED.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-180

DRAWN BY RLR | PLANS CK'D. JRS

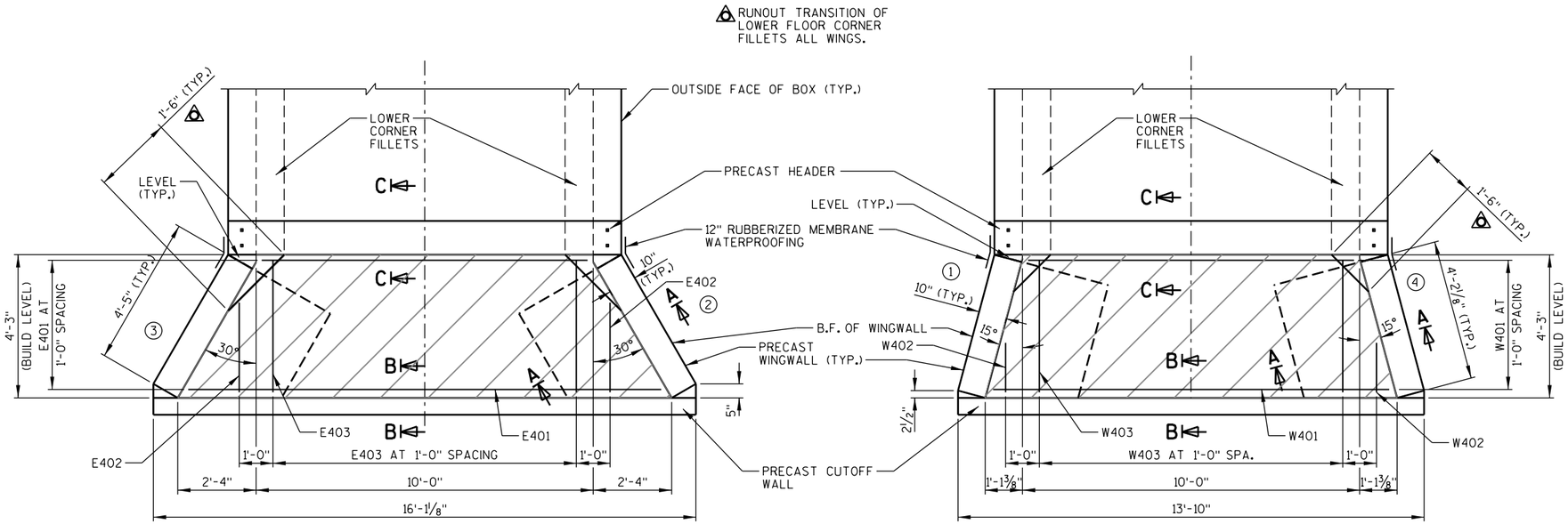
PRECAST CONCRETE BARREL DETAILS

SHEET 3 OF 5
154

FILE= 93452_C-52-180_03.dgn
DATE= 5/21/2019

93452_C-52-180_03.dgn 5/21/2019 4:55:55 PM lrabska

STATE PROJECT NUMBER
5730-00-60



INLET APRON PLAN

OUTLET APRON PLAN

NOTES

CONCRETE COVER ON ALL REINFORCEMENT IN THE PRECAST ELEMENTS SHALL BE 2" UNLESS SHOWN OR NOTED OTHERWISE.

THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5.

THE 7/8" DIA. ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENT OF ASTM A575.

ALL EXPOSED CORNERS SHALL BE BEVELED 3/4" ON THE SIDES OR TOOL EDGED WITH A 1/2" MINIMUM RADIUS EDGER.

PRECAST CUTOFF WALLS MAY BE FIELD SPLICED BY EXTENDING THE REINFORCING STEEL FROM BOTH SEGMENTS TO BE SPLICED 1'-6" INTO THE SPLICE ZONE, LAPPING THE STEEL ± 1'-6" AND FIELD POURING A SECTION OF THE CUTOFF WALL 1'-6" LONG.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF ENGINEER.

APRON SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

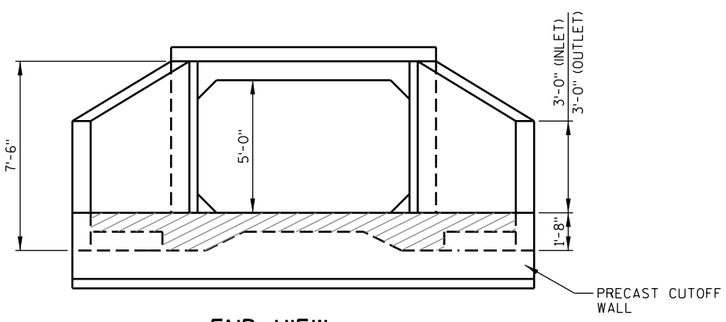
ALTERNATE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

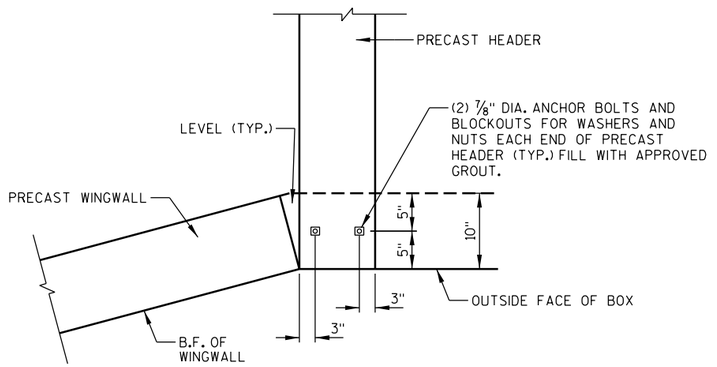
B.F. - BACK FACE

◯ - INDICATES WING NUMBER

FIELD PLACE BAR STEEL REINFORCEMENT AND CONCRETE MASONRY CULVERTS



END VIEW



PLAN AT HEADER CORNER

BILL OF BARS (APRONS) UNCOATED: 130 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
W401	5	10'-8"		Ⓢ	OUTLET APRON - TRANS.
W402	2	1'-5"			OUTLET APRON - LONGIT.
W403	10	3'-11"			OUTLET APRON - LONGIT.
E401	5	11'-10"		Ⓢ	INLET APRON - TRANS.
E402	2	2'-8"			INLET APRON - LONGIT.
E403	10	3'-11"			INLET APRON - LONGIT.

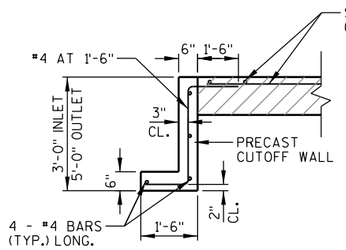
NOTES: BILL OF BARS FOR FIELD PLACED REINFORCEMENT ONLY.

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

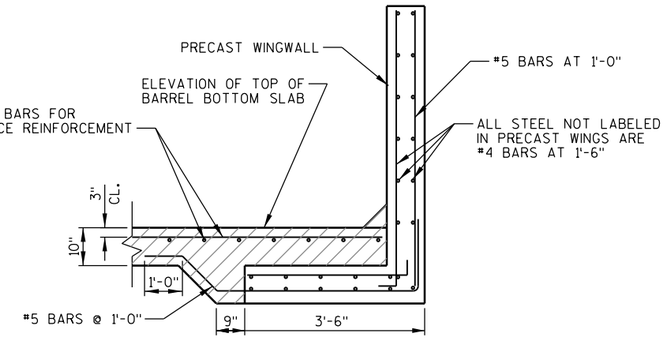
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES

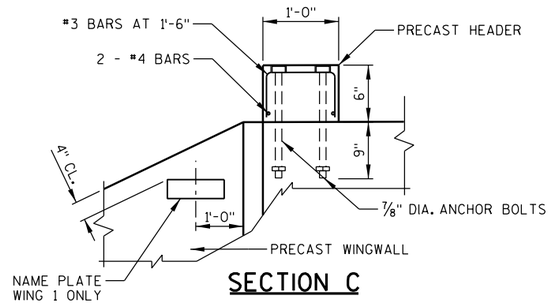
MARK	NUMBER REQUIRED	LENGTH
W401	1 SERIES OF 5	9'-8" TO 11'-8"
E401	1 SERIES OF 5	9'-8" TO 14'-0"



SECTION B



SECTION A



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-180

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST WINGS & CUTOFF WALL

SHEET 4 OF 5
155

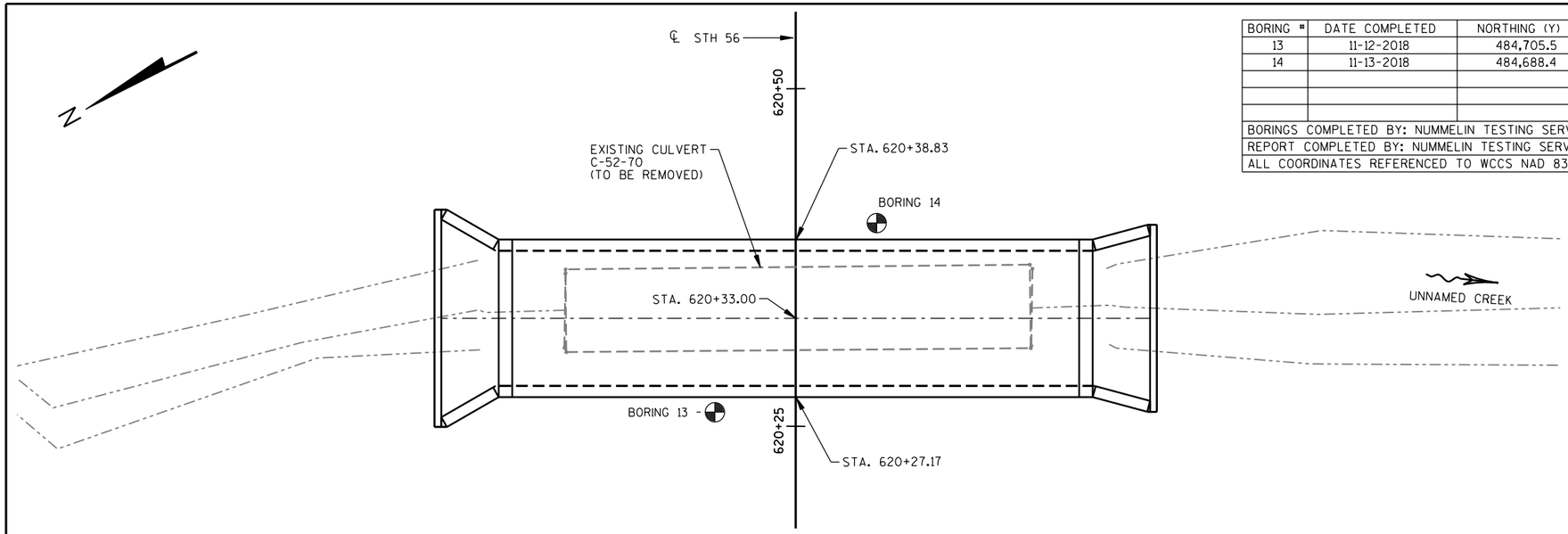
8

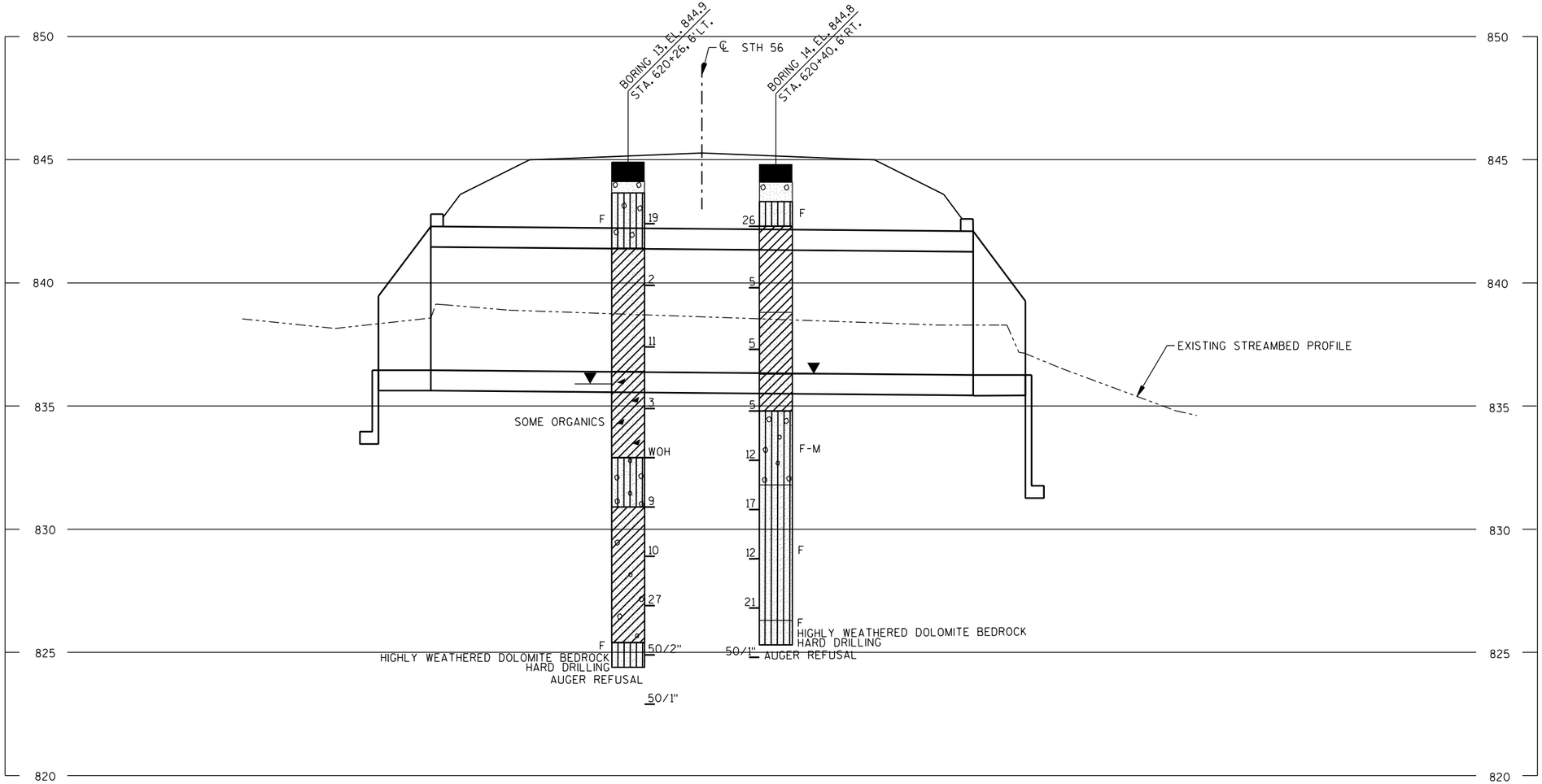
8

93452_C-52-180_04.dgn 5/26/2019 6:41:14 AM jsweno

FILE= 93452_C-52-180_04.dgn
DATE=5/26/2019

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
13	11-12-2018	484,705.5	653,231.3
14	11-13-2018	484,688.4	653,238.3
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(12) RICHLAND COUNTY			





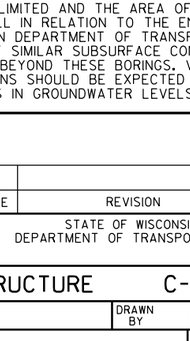
STATE PROJECT NUMBER

5730-00-60

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▽ AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-180

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

SHEET 5 OF 5

156

8

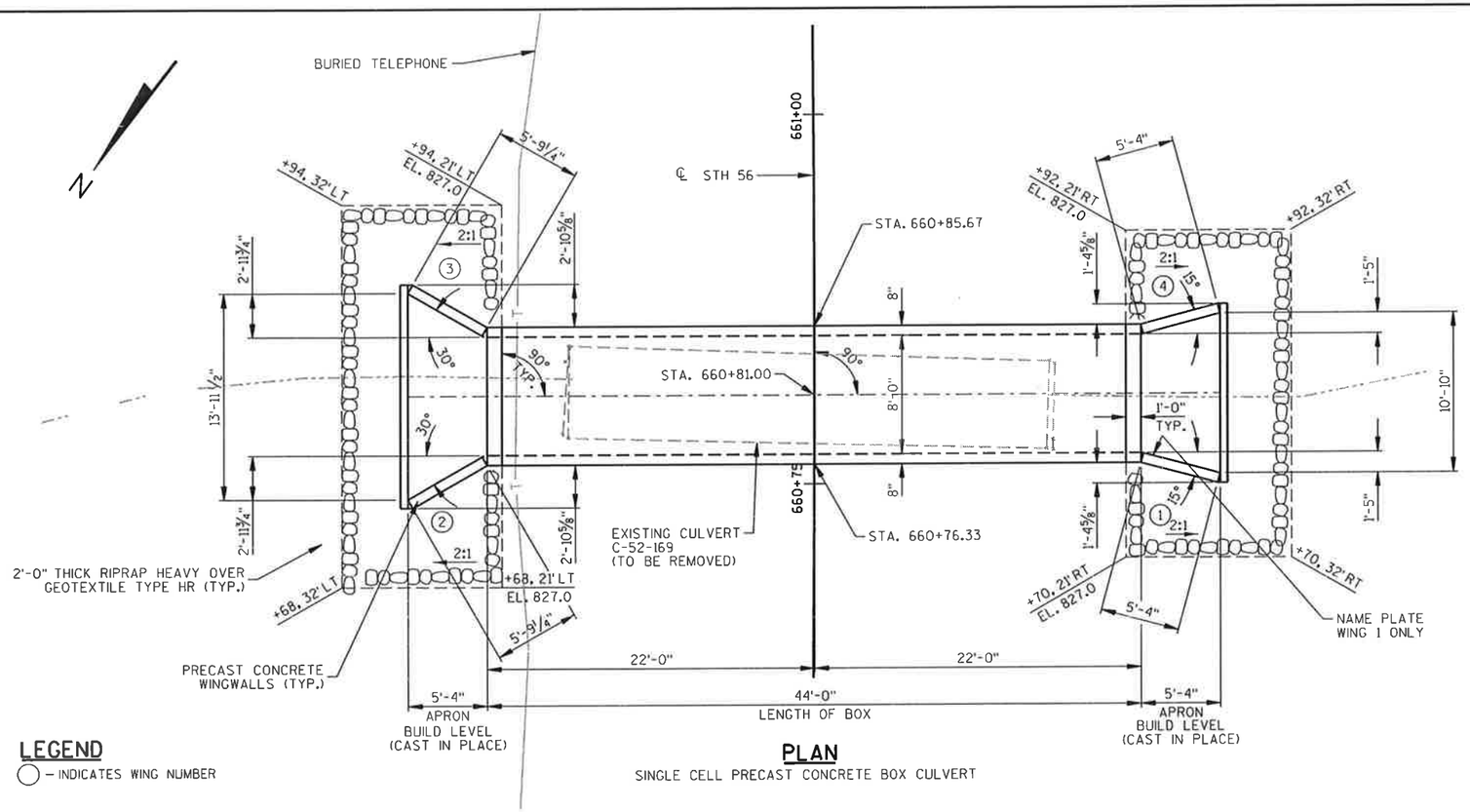
8

FILE= 93452_C-52-180_05.DGN

93452_C-52-180_05.dgn 1/15/2019 2:52:46 PM jsweno

STATE PROJECT NUMBER

5730-00-60

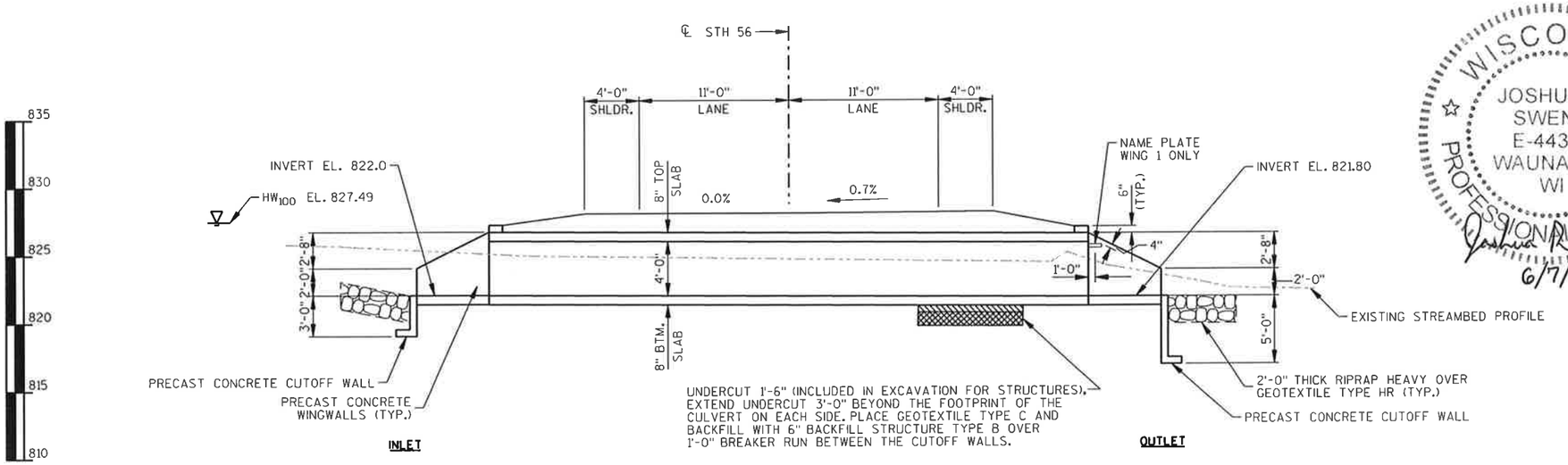


LEGEND

◯ – INDICATES WING NUMBER

PLAN

SINGLE CELL PRECAST CONCRETE BOX CULVERT



ELEVATION

(LOOKING SOUTHEAST - NORMAL TO BOX)

DESIGN DATA

LIVE LOAD:
- DESIGN LOAD : HL-93
- INVENTORY RATING FACTOR : 1.05
- OPERATIONAL RATING FACTOR : 1.35
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) : 255 KIPS

TRAFFIC DATA (STH 56):
- A.D.T. (2021) = 1200
- A.D.T. (2041) = 1300
- R.D.S. = 55 MPH

EARTH LOAD:
- DESIGNED FOR FILL HEIGHT RANGE OF 1.0 TO 1.5 FEET

MATERIAL PROPERTIES:
- CONCRETE MASONRY — f'c = 3,500 P.S.I.
- CONCRETE MASONRY (PRECAST BARREL) — f'c = 5,000 P.S.I.
- CONCRETE MASONRY (PRECAST OTHER) — f'c = 4,000 P.S.I.
- BAR STEEL REINFORCEMENT — fy = 60,000 P.S.I.
- WELDED WIRE FABRIC — fy = 65,000 P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY
- DRAINAGE AREA — 0.13 SQ. MI.
- Q_{100} - TOTAL — 170 C.F.S.
  - THRU BRIDGE — 141 C.F.S.
  - OVERTOPPING ROADWAY — 29 C.F.S.
- VELOCITY - THRU BRIDGE — 5.87 F.P.S.
- WATERWAY AREA - THRU BRIDGE — 24 SQ. FT.
- SCOUR CRITICAL CODE — 8
- HIGH WATER$_{100}$ ELEVATION — 827.49

ROADWAY OVERFLOW DESIGN
- OVERTOPPING FREQUENCY — 25 YEARS
- Q_{25} — 108 C.F.S.
- HIGH WATER$_{25}$ ELEVATION — 826.87

2 YEAR FREQUENCY
- Q_2 = 20 C.F.S.
- HIGH WATER$_2$ ELEVATION = EL. 826.51
- VEL_2 = 1.08 F.P.S.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS
3. PRECAST CONCRETE BARREL DETAILS
4. PRECAST WINGS & CUTOFF WALL
5. SUBSURFACE EXPLORATION

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE
WI
PROFESSIONAL ENGINEER
6/7/19

NO.	DATE	REVISION	BY

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com
© MSA Professional Services, Inc

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR — CHIEF STRUCTURES DESIGN ENGINEER — DATE 08/06/19

STRUCTURE C-52-181

STH 56 OVER UNNAMED CREEK

COUNTY	TOWN ~~CITY / VILLAGE~~
RICHLAND	MARSHALL

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JLM	JRS	CAR	JRS

GENERAL PLAN

SHEET 1 OF 5
157

8

8

FILE= 93452_C-52-181_01.DGN
DATE= 5/26/2019

93452_C-52-181_01.dgn 5/26/2019 6:48:44 AM jsweno

STATE PROJECT NUMBER

5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0110

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	203.0500.S.08	REMOVING OLD STRUCTURE OVER WATERWAY STATION 660+81.0	LS	1
	206.2000.08	EXCAVATION FOR STRUCTURES CULVERTS C-52-181	LS	1
⚠	210.2500	BACKFILL STRUCTURE TYPE B	TON	390
	311.0110	BREAKER RUN	TON	58
	504.0100	CONCRETE MASONRY CULVERTS	CY	4
*	504.1000.S.08	PRECAST CONCRETE WINGWALLS C-52-181	LS	1
	504.2000.S.02	PRECAST CONCRETE BOX CULVERT, 8 FT X 4 FT	LF	44
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	140
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	3
	606.0300	RIPRAP HEAVY	CY	31
	645.0105	GEOTEXTILE TYPE C	SY	100
	645.0120	GEOTEXTILE TYPE HR	SY	85
		NON-BID ITEMS		
		PREFORMED FILLER	SIZE	¾"

* ALL WORK ASSOCIATED WITH THE PRECAST CUTOFF WALLS IS INCLUDED WITH "PRECAST CONCRETE WINGWALLS C-52-181."

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THIS STRUCTURE WILL REPLACE AN EXISTING 6'WIDE X 3'HIGH, 32'LONG SINGLE CELL REINFORCED CONCRETE BOX CULVERT.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-52-181" SHALL BE THE EXISTING GROUNDLINE.

⚠ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY CONTRACTOR.

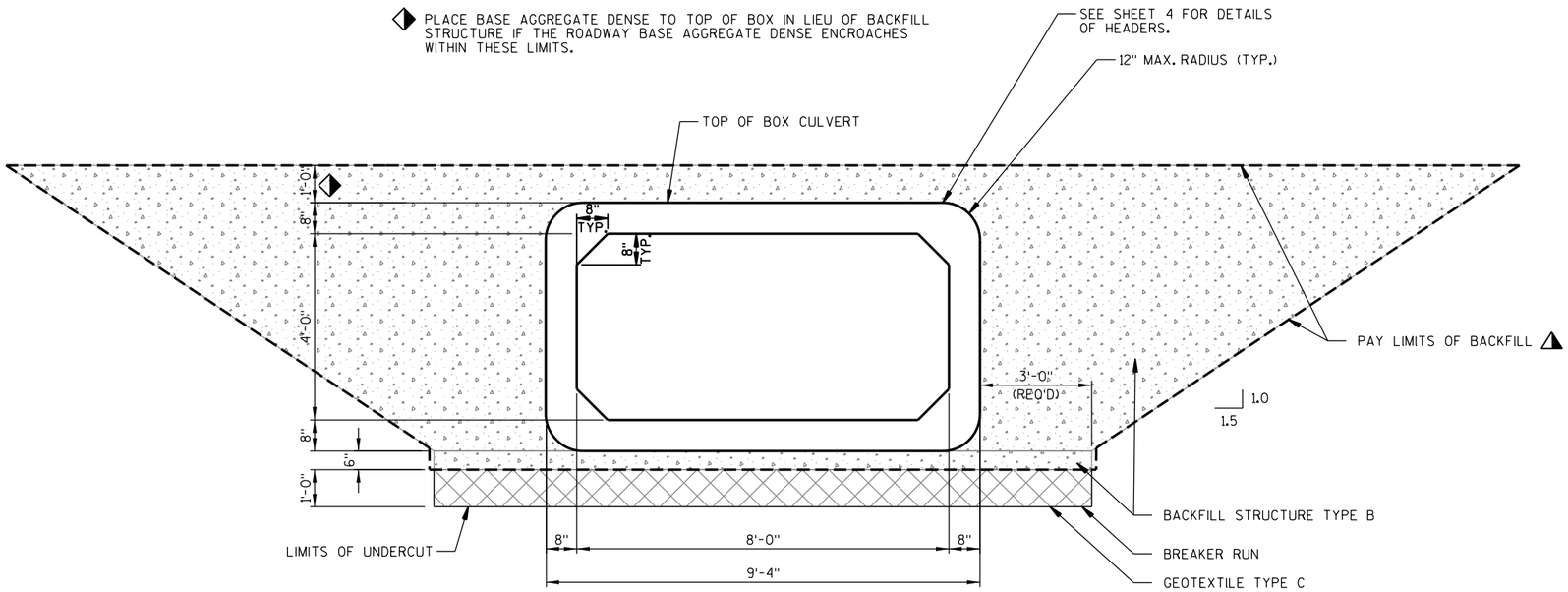
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD 88 (2012 ADJUSTED), AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR.

THE APRONS SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.



SECTION THRU CULVERT

(PAVEMENT STRUCTURE NOT SHOWN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-181

DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 5

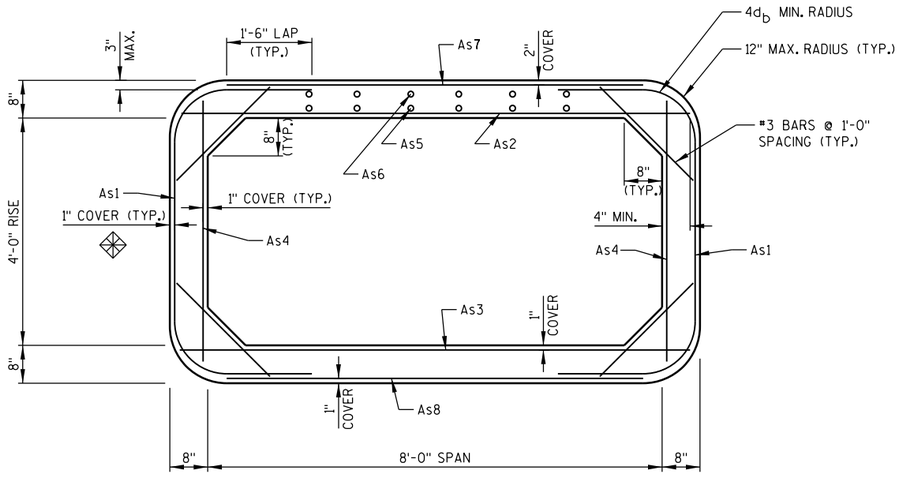
158

FILE= 93452_C-52-181_02.dgn
DATE=6/11/2019

93452_C-52-181_02.dgn 6/11/2019 3:23:26 PM jsweno

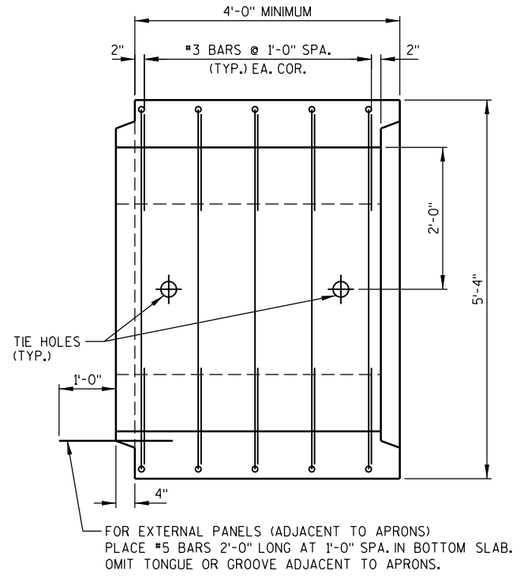
STATE PROJECT NUMBER

5730-00-60



SECTION THRU BARREL

FOR LESS THAN 2'-0" OF COVER



LONGITUDINAL SECTION

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

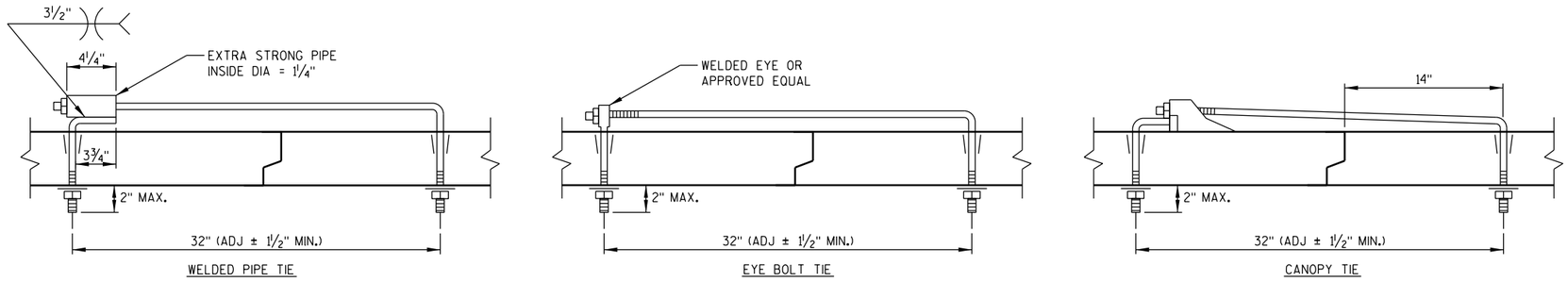
THE COVER OF CONCRETE OVER THE REINFORCEMENT ON ALL PRECAST ELEMENTS SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -$\frac{3}{8}$" TO +$\frac{1}{2}$".

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED, HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

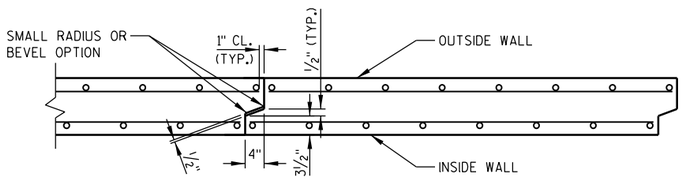
THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A.



JOINT TIES★

REINFORCEMENT SCHEDULE

REINFORCEMENT	AREA (IN.2/FT.)
As1	0.27
As2	0.38
As3	0.29
As4	0.19
As5	0.19
As6	0.19
As7	0.19
As8	0.19



JOINT DETAIL AND BARREL SECTION

◈ 1" OR 3 X WIRE DIAMETER WHICHEVER IS GREATER.

★ CONCRETE JOINT TIE:

FOR CONCRETE BOXES AND APRONS PIPE TIES SHALL BE REQUIRED AT ALL JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR IN THE SPECIAL PROVISIONS. TIES TO BE USED ONLY TO HOLD SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. TIES ARE TO BE 1" DIAMETER RODS. EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED, TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. TIE ROD THREADS SHALL PROJECT TO THE INSIDE OF PIPE EXCEPT AS NOTED IN PLANS. TIE ROD ENDS MAY PROJECT TO OUTSIDE OF BOX CULVERT PIPE IN MULTIPLE PIPELINE INSTALLATIONS, FACE CONNECTION DOWNSTREAM. HOLES FOR TIES SHALL BE CAST OR DRILLED FROM CENTERLINE OF JOINT (2 TIES REQ'D PER JOINT.) (TIES TO BE GALVANIZED.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-181

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST CONCRETE BARREL DETAILS

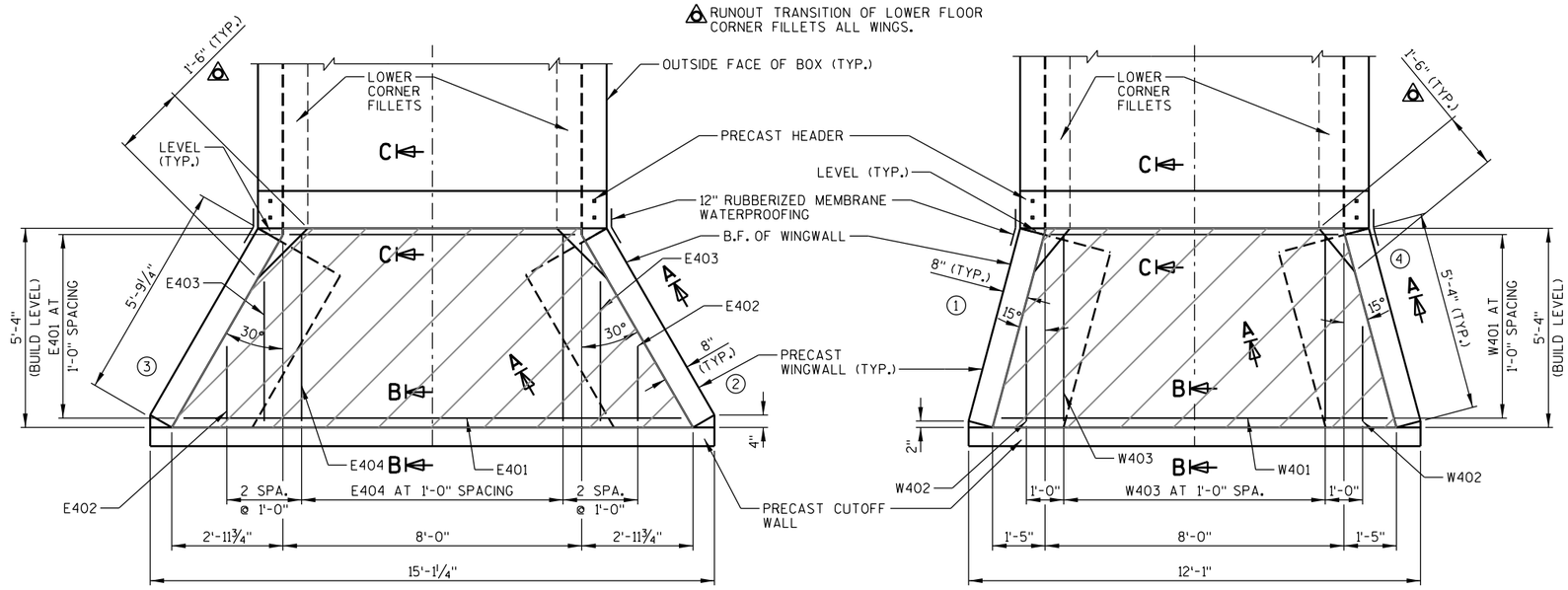
SHEET 3 OF 5
159

FILE= 93452_C-52-181_03.dgn
DATE=5/22/2019

93452_C-52-181_03.dgn 5/22/2019 7:31:21 AM rrabska

STATE PROJECT NUMBER

5730-00-60



INLET APRON PLAN

OUTLET APRON PLAN

NOTES

CONCRETE COVER ON ALL REINFORCEMENT IN THE PRECAST ELEMENTS SHALL BE 2" UNLESS SHOWN OR NOTED OTHERWISE.

THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5.

THE 7/8" DIA. ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENT OF ASTM A575.

ALL EXPOSED CORNERS SHALL BE BEVELED 3/4" ON THE SIDES OR TOOL EDGED WITH A 1/2" MINIMUM RADIUS EDGER.

PRECAST CUTOFF WALLS MAY BE FIELD SPLICED BY EXTENDING THE REINFORCING STEEL FROM BOTH SEGMENTS TO BE SPLICED 1'-6" INTO THE SPLICE ZONE, LAPPING THE STEEL ± 1'-6" AND FIELD POURING A SECTION OF THE CUTOFF WALL 1'-6" LONG.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF ENGINEER.

APRON SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

ALTERNATE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

B.F. - BACK FACE

◯ - INDICATES WING NUMBER

FIELD PLACE BAR STEEL REINFORCEMENT AND CONCRETE MASONRY CULVERTS

BILL OF BARS (APRONS) UNCOATED: 140 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
W401	6	9'-0"		Ⓢ	OUTLET APRON - TRANS.
W402	2	2'-6"			OUTLET APRON - LONGIT.
W403	8	5'-0"			OUTLET APRON - LONGIT.
E401	6	10'-5"		Ⓢ	INLET APRON - TRANS.
E402	2	2'-0"			INLET APRON - LONGIT.
E403	2	3'-9"			INLET APRON - LONGIT.
E404	8	5'-0"			INLET APRON - LONGIT.

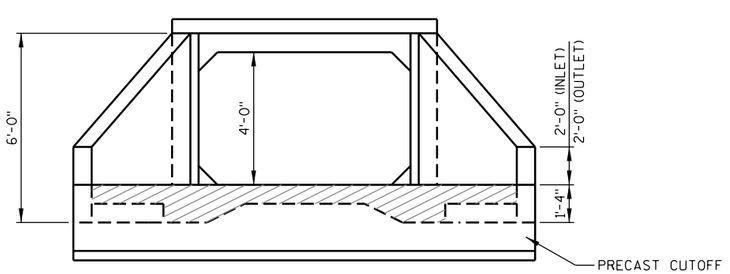
NOTES: BILL OF BARS FOR FIELD PLACED REINFORCEMENT ONLY.

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

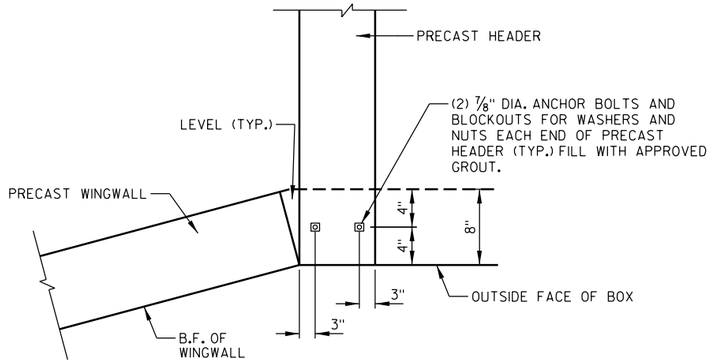
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES

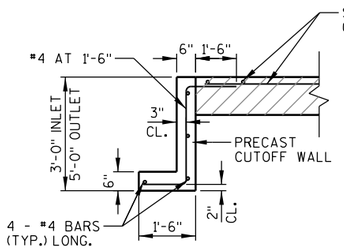
MARK	NUMBER REQUIRED	LENGTH
W401	1 SERIES OF 6	7'-8" TO 10'-4"
E401	1 SERIES OF 6	7'-7" TO 13'-4"



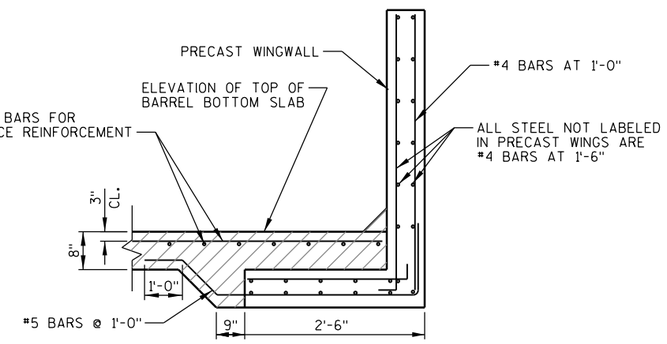
END VIEW



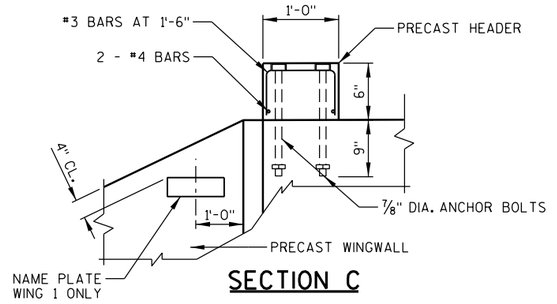
PLAN AT HEADER CORNER



SECTION B



SECTION A



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-181

DRAWN BY RLR | PLANS CK'D. JRS

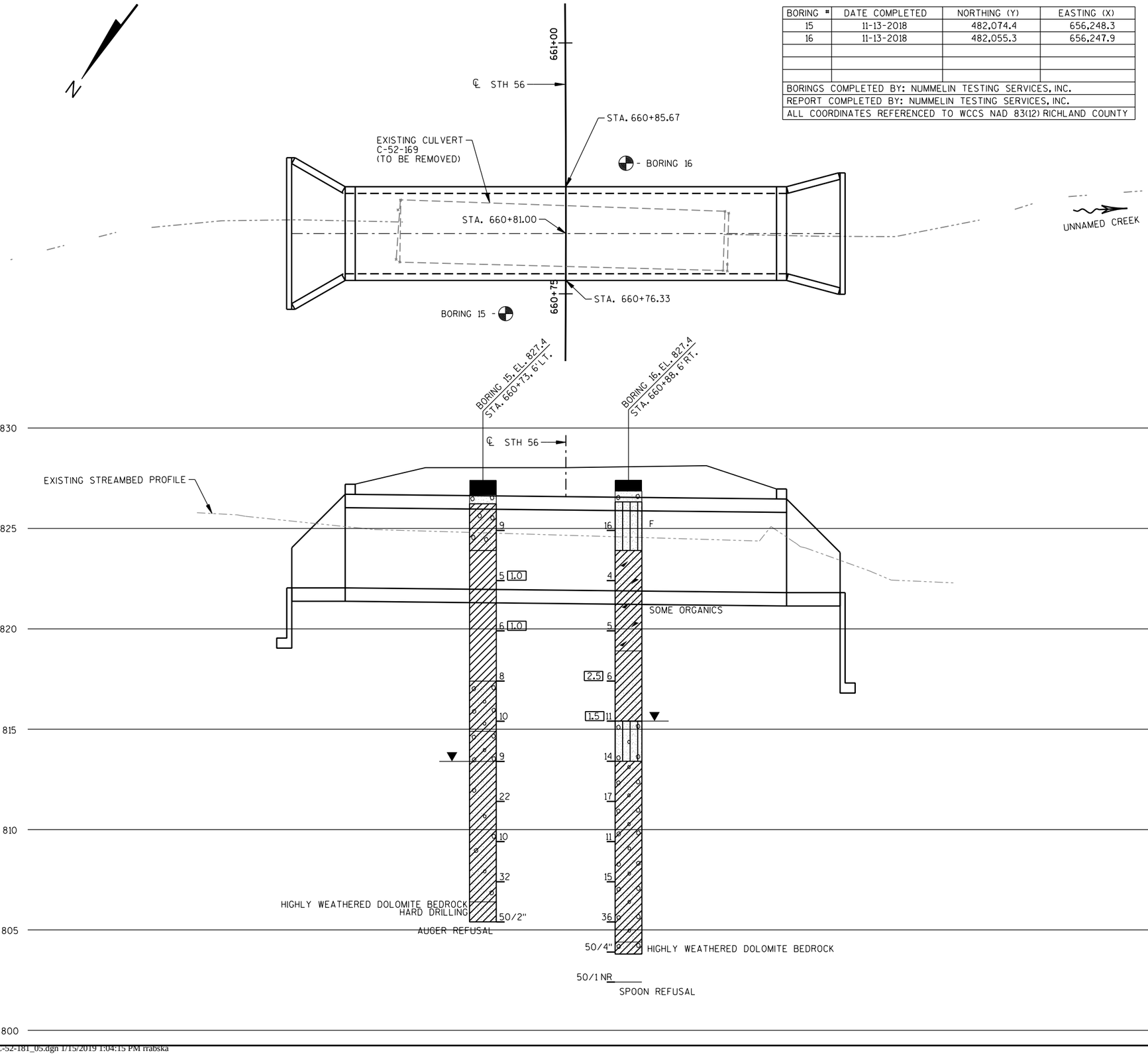
PRECAST WINGS & CUTOFF WALL

SHEET 4 OF 5
160

FILE= 93452_C-52-181_04.dgn
DATE= 5/26/2019

93452_C-52-181_04.dgn 5/26/2019 6:55:19 AM jsweno

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
15	11-13-2018	482,074.4	656,248.3
16	11-13-2018	482,055.3	656,247.9
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(12) RICHLAND COUNTY			



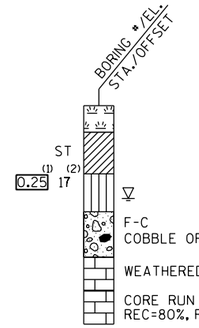
STATE PROJECT NUMBER

5730-00-60

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-181

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

SHEET 5 OF 5

161

8

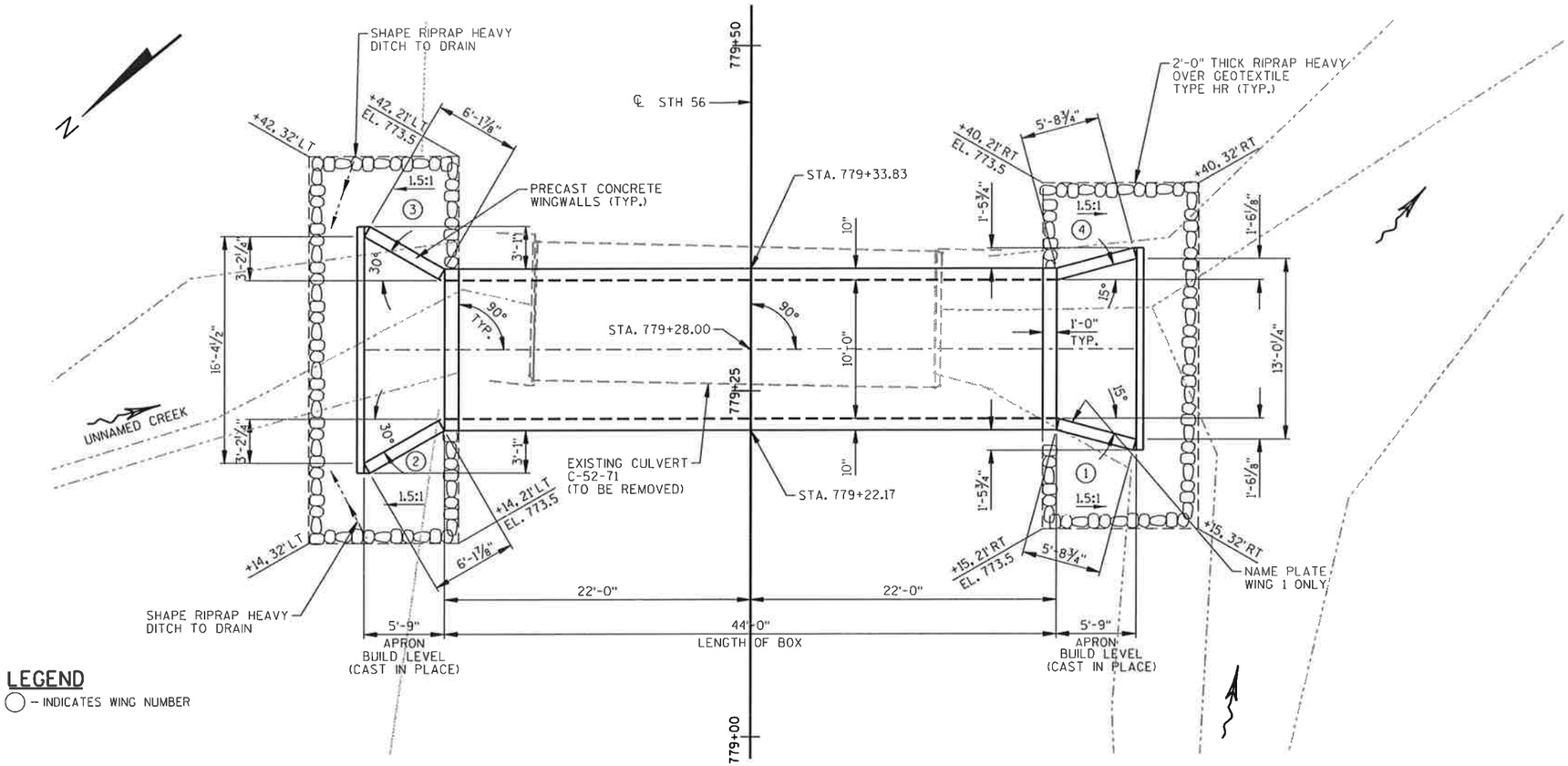
8

93452_C-52-181_05.dgn 1/15/2019 1:04:15 PM rrabska

FILE= 93452_C-52-181_05.DGN

STATE PROJECT NUMBER

5730-00-60

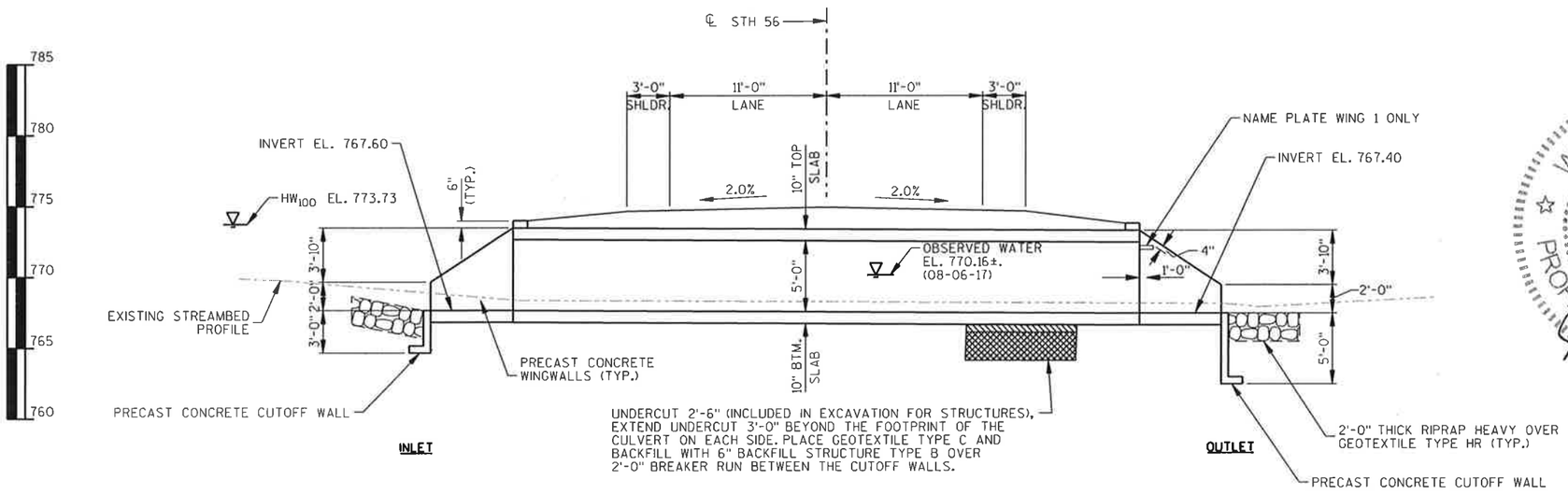


LEGEND

◯ – INDICATES WING NUMBER

PLAN

SINGLE CELL PRECAST CONCRETE BOX CULVERT



ELEVATION

(LOOKING SOUTHEAST - NORMAL TO BOX)

DESIGN DATA

LIVE LOAD:
- DESIGN LOAD : HL-93
- INVENTORY RATING FACTOR : 1.05
- OPERATIONAL RATING FACTOR : 1.35
- WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) : 255 KIPS

TRAFFIC DATA (STH 56):
- A.D.T. (2021) = 1200
- A.D.T. (2041) = 1300
- R.D.S. = 55 MPH

EARTH LOAD:
- DESIGNED FOR FILL HEIGHT RANGE OF 1.0 TO 1.5 FEET

MATERIAL PROPERTIES:
- CONCRETE MASONRY ——— f'c = 3,500 P.S.I.
- CONCRETE MASONRY (PRECAST BARREL)- f'c = 5,000 P.S.I.
- CONCRETE MASONRY (PRECAST OTHER)— f'c = 4,000 P.S.I.
- BAR STEEL REINFORCEMENT ——— fy = 60,000 P.S.I.
- WELDED WIRE FABRIC ——— fy = 65,000 P.S.I.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA = 0.35 SQ. MI
Q_{100} = 270 C.F.S.
VELOCITY = 7.7 F.P.S.
WATERWAY AREA = 35 SQ. FT.
HIGH $WATER_{100}$ ELEVATION = EL. 773.73
OVERTOPPING RDWAY. = > 100 YEARS
SCOUR CODE = 8

2 YEAR FREQUENCY

Q_2 = 40 C.F.S.
HIGH $WATER_2$ ELEVATION = EL. 770.07
VEL_2 = 2.75 F.P.S.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, NOTES & DETAILS
3. PRECAST CONCRETE BARREL DETAILS
4. PRECAST WINGS & CUTOFF WALL
5. SUBSURFACE EXPLORATION

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

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

WISCONSIN
JOSHUA R. SWENO
E-44384
WAUNAKEE
WI
PROFESSIONAL ENGINEER
6/7/19

NO.	DATE	REVISION	BY

MSA ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1230 SOUTH BLVD., BARABOO WI 53913
(608) 356-2771 www.msa-ps.com
© MSA Professional Services, Inc

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/06/19
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-52-182

STH 56 OVER UNNAMED CREEK

COUNTY	TOWN ~~CITY/VILLAGE~~
RICHLAND	ROCKBRIDGE

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPEC.

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JLM	JRS	CAR	JRS

GENERAL PLAN

SHEET 162 OF 5

8

8

FILE= 93452_C-52-182_01.DGN
DATE= 5/26/2019

93452_C-52-182_01.dgn 5/26/2019 7:03:34 AM jsweno

STATE PROJECT NUMBER

5730-00-60

ESTIMATED QUANTITIES

ALL ITEMS ARE CATEGORY 0120

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	203.0500.S.09	REMOVING OLD STRUCTURE OVER WATERWAY STATION 779+30.6	LS	1
	206.2000.09	EXCAVATION FOR STRUCTURES CULVERTS C-52-182	LS	1
◭	210.2500	BACKFILL STRUCTURE TYPE B	TON	523
	311.0110	BREAKER RUN	TON	135
	504.0100	CONCRETE MASONRY CULVERTS	CY	6
*	504.1000.S.09	PRECAST CONCRETE WINGWALLS C-52-182	LS	1
	504.2000.S.01	PRECAST CONCRETE BOX CULVERT, 10 FT X 5 FT	LF	44
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	200
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	3
	606.0300	RIPRAP HEAVY	CY	32
	645.0105	GEOTEXTILE TYPE C	SY	115
	645.0120	GEOTEXTILE TYPE HR	SY	90
		NON-BID ITEMS		
		PREFORMED FILLER	SIZE	¾"

* ALL WORK ASSOCIATED WITH THE PRECAST CUTOFF WALLS IS INCLUDED WITH "PRECAST CONCRETE WINGWALLS C-52-182."

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THIS STRUCTURE WILL REPLACE AN EXISTING 10' WIDE X 4' HIGH, 29' LONG SINGLE CELL REINFORCED CONCRETE BOX CULVERT.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-52-180" SHALL BE THE EXISTING GROUNDLINE.

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY CONTRACTOR.

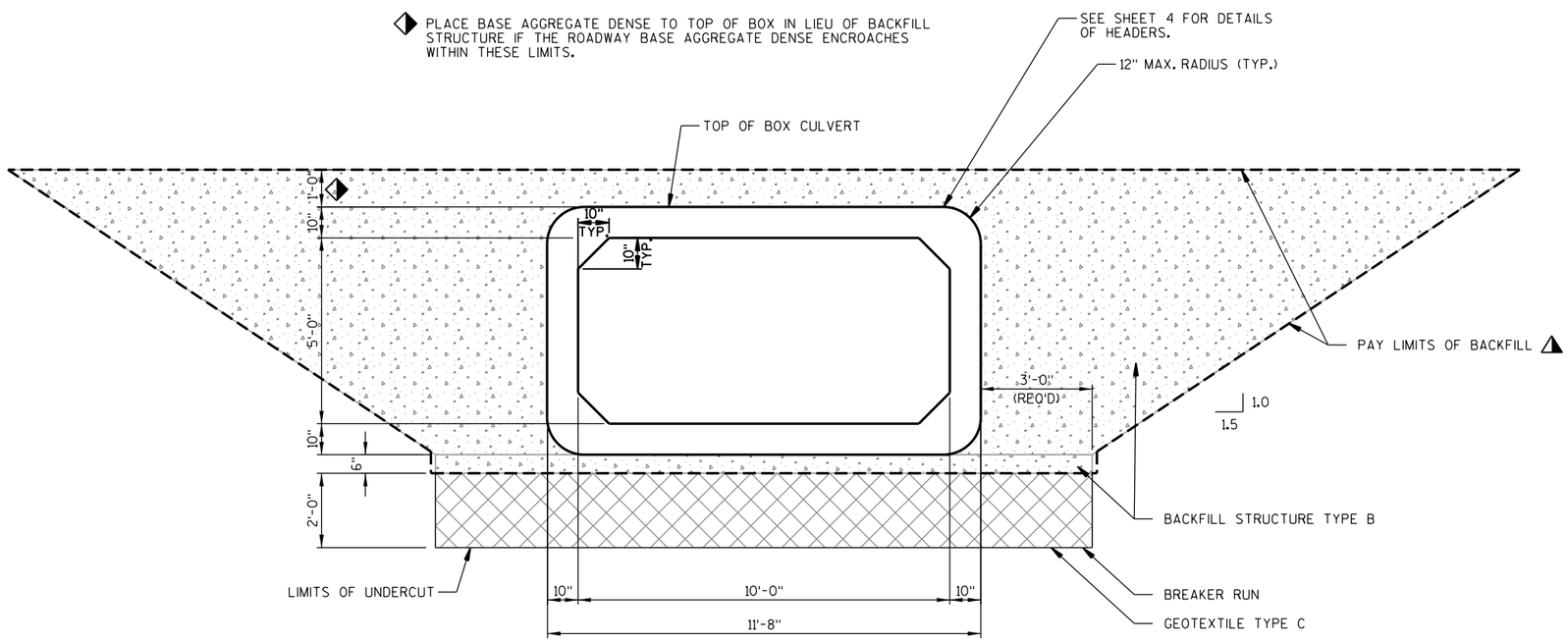
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO NAVD 88 (2012 ADJUSTED), AND WERE ESTABLISHED AT THE SITE USING GPS TECHNOLOGY.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR.

THE APRONS SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.



SECTION THRU CULVERT

(PAVEMENT STRUCTURE NOT SHOWN)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-182

DRAWN BY CAR | PLANS CK'D. JRS

CROSS SECTION, QUANTITIES, NOTES & DETAILS

SHEET 2 OF 5

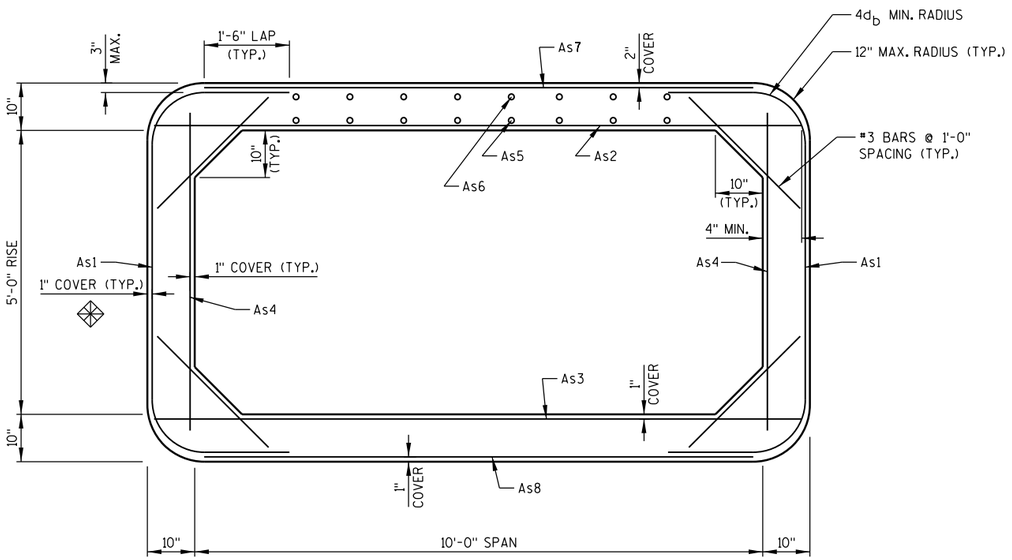
163

FILE= 93452_C-52-182_02.dgn
DATE= 6/11/2019

93452_C-52-182_02.dgn 6/11/2019 2:50:17 PM jsweno

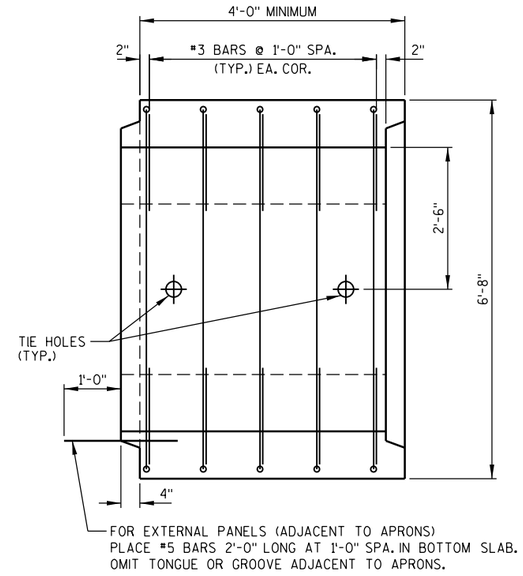
STATE PROJECT NUMBER

5730-00-60



SECTION THRU BARREL

FOR LESS THAN 2'-0" OF COVER



LONGITUDINAL SECTION

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

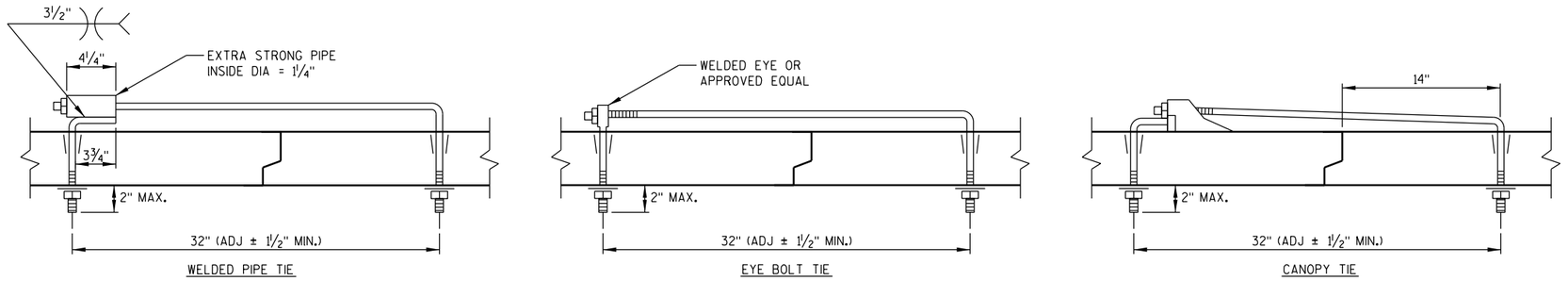
THE COVER OF CONCRETE OVER THE REINFORCEMENT ON ALL PRECAST ELEMENTS SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -$\frac{3}{8}$" TO +$\frac{1}{2}$".

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED, HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

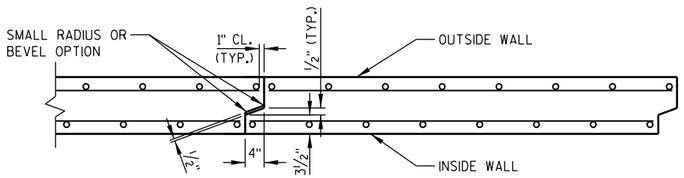
THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A.



JOINT TIES★

REINFORCEMENT SCHEDULE

REINFORCEMENT	AREA (IN.2/FT.)
As1	0.30
As2	0.36
As3	0.30
As4	0.24
As5	0.24
As6	0.24
As7	0.24
As8	0.24



JOINT DETAIL AND BARREL SECTION

◈ 1" OR 3 X WIRE DIAMETER WHICHEVER IS GREATER.

★ CONCRETE JOINT TIE:

FOR CONCRETE BOXES AND APRONS PIPE TIES SHALL BE REQUIRED AT ALL JOINTS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR IN THE SPECIAL PROVISIONS. TIES TO BE USED ONLY TO HOLD SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. TIES ARE TO BE 1" DIAMETER RODS. EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED, TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. TIE ROD THREADS SHALL PROJECT TO THE INSIDE OF PIPE EXCEPT AS NOTED IN PLANS. TIE ROD ENDS MAY PROJECT TO OUTSIDE OF BOX CULVERT PIPE IN MULTIPLE PIPELINE INSTALLATIONS, FACE CONNECTION DOWNSTREAM. HOLES FOR TIES SHALL BE CAST OR DRILLED FROM CENTERLINE OF JOINT (2 TIES REQ'D PER JOINT.) (TIES TO BE GALVANIZED.)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-182

DRAWN BY RLR | PLANS CK'D. JRS

PRECAST CONCRETE BARREL DETAILS

SHEET 3 OF 5

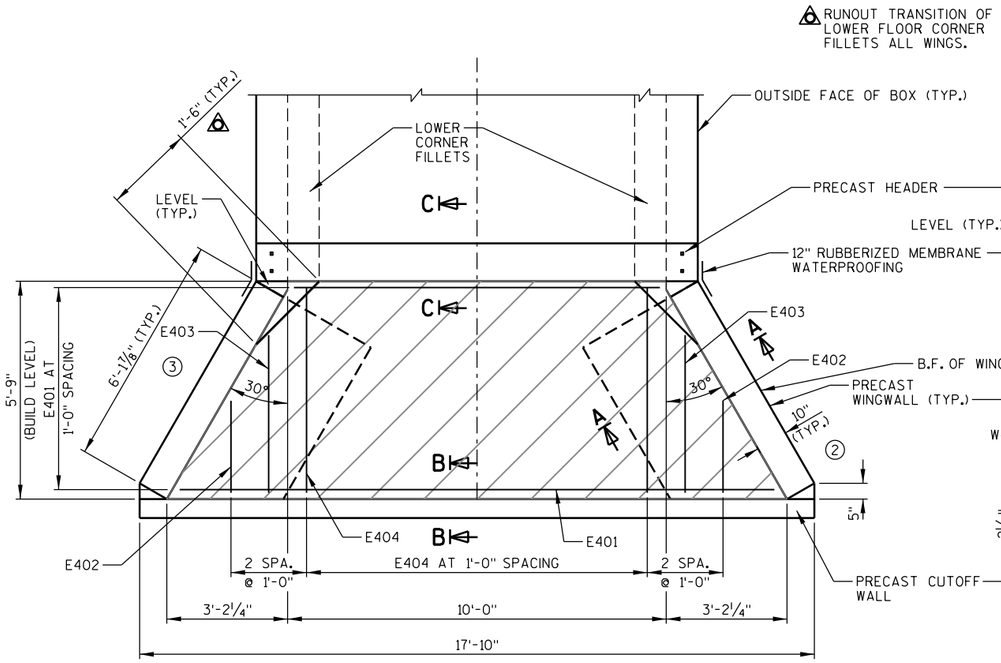
164

FILE= 93452_C-52-182_03.dgn
DATE=5/22/2019

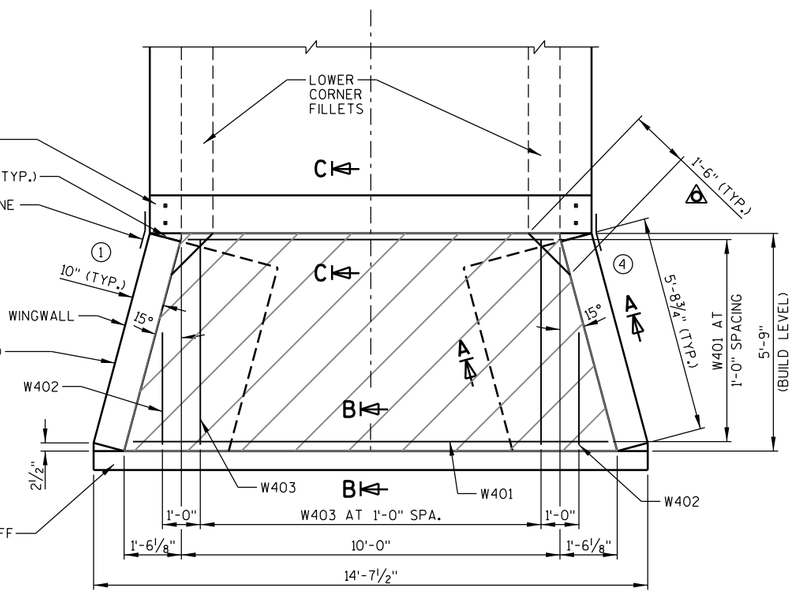
93452_C-52-182_03.dgn 5/22/2019 8:17:05 AM rrabska

STATE PROJECT NUMBER

5730-00-60



INLET APRON PLAN



OUTLET APRON PLAN

NOTES

CONCRETE COVER ON ALL REINFORCEMENT IN THE PRECAST ELEMENTS SHALL BE 2" UNLESS SHOWN OR NOTED OTHERWISE.

THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5.

THE 7/8" DIA. ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO THE REQUIREMENT OF ASTM A575.

ALL EXPOSED CORNERS SHALL BE BEVELED 3/4" ON THE SIDES OR TOOL EDGED WITH A 1/2" MINIMUM RADIUS EDGER.

PRECAST CUTOFF WALLS MAY BE FIELD SPLICED BY EXTENDING THE REINFORCING STEEL FROM BOTH SEGMENTS TO BE SPLICED 1'-6" INTO THE SPLICE ZONE, LAPPING THE STEEL ± 1'-6" AND FIELD POURING A SECTION OF THE CUTOFF WALL 1'-6" LONG.

PRECAST ELEMENTS MAY BE POURED IN PLACE AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF ENGINEER.

APRON SHALL BE POURED AND CURED PRIOR TO BACKFILLING WINGWALLS.

ALTERNATE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

B.F. - BACK FACE

◯ - INDICATES WING NUMBER

FIELD PLACE BAR STEEL REINFORCEMENT AND CONCRETE MASONRY CULVERTS

BILL OF BARS (APRONS) UNCOATED: 200 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION
W401	7	11'-1"		Ⓢ	OUTLET APRON - TRANS.
W402	2	2'-11"			OUTLET APRON - LONGIT.
W403	10	5'-5"			OUTLET APRON - LONGIT.
E401	7	12'-8"		Ⓢ	INLET APRON - TRANS.
E402	2	2'-5"			INLET APRON - LONGIT.
E403	2	4'-2"			INLET APRON - LONGIT.
E404	10	5'-5"			INLET APRON - LONGIT.

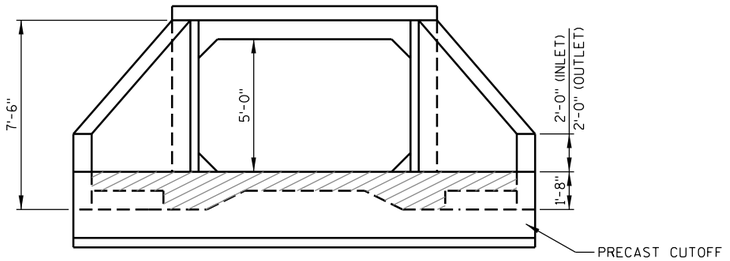
NOTES: BILL OF BARS FOR FIELD PLACED REINFORCEMENT ONLY.

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE BAR SIZE.

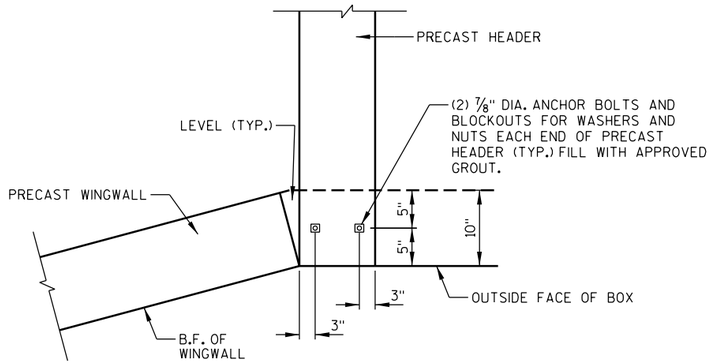
Ⓢ - LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES

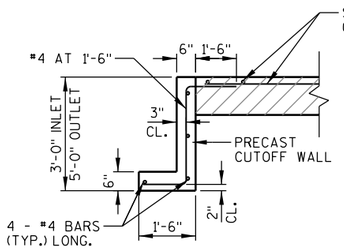
MARK	NUMBER REQUIRED	LENGTH
W401	1 SERIES OF 7	9'-8" TO 12'-6"
E401	1 SERIES OF 7	9'-8" TO 15'-8"



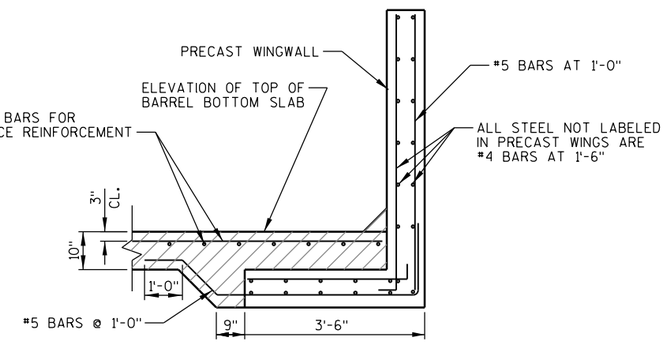
END VIEW



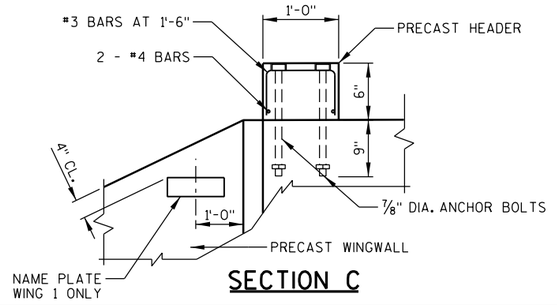
PLAN AT HEADER CORNER



SECTION B



SECTION A



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-182

DRAWN BY RLR | PLANS CK'D. JRS

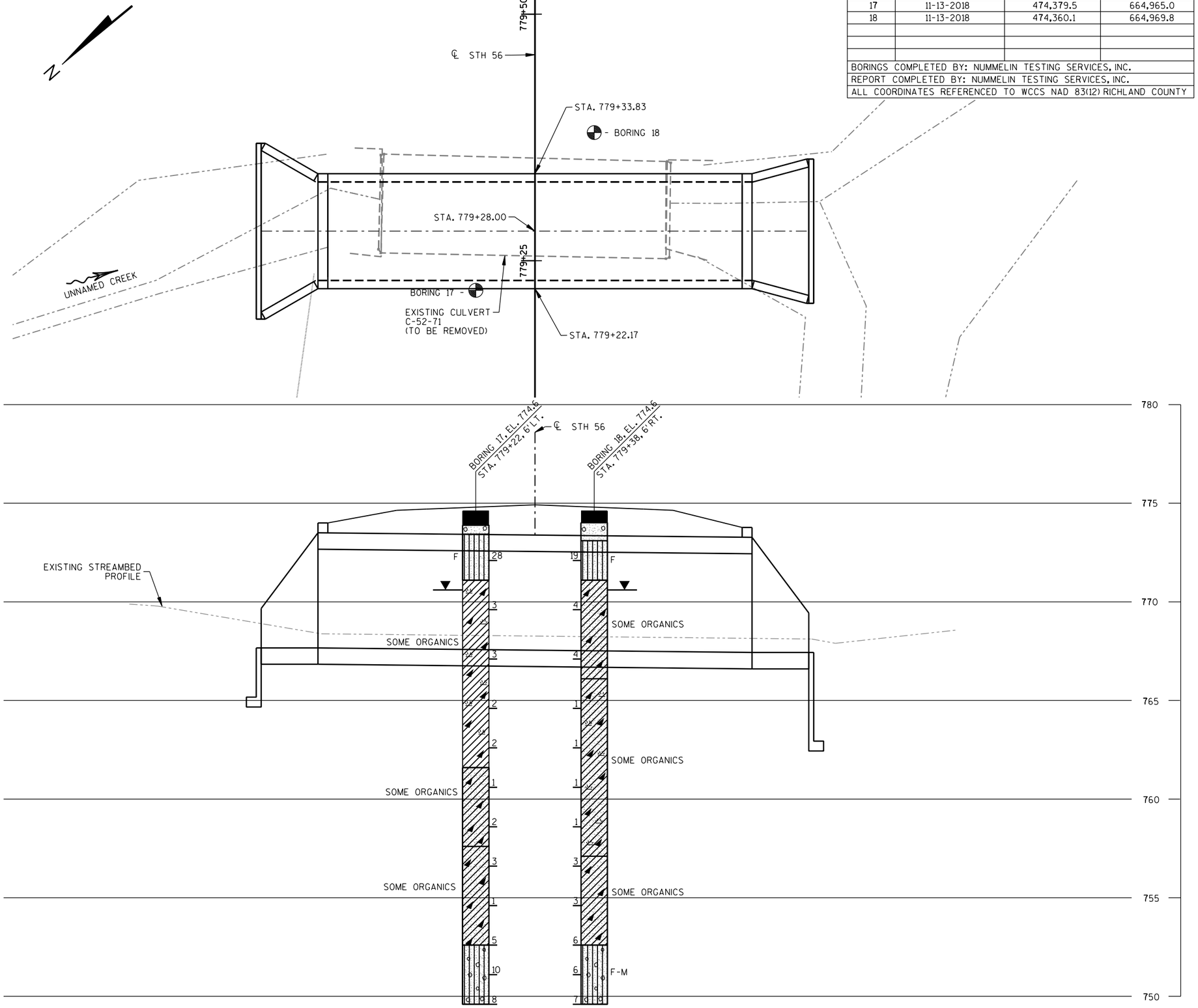
PRECAST WINGS & CUTOFF WALL

SHEET 4 OF 5
165

FILE= 93452_C-52-182_04.dgn
DATE= 5/22/2019

93452_C-52-182_04.dgn 5/22/2019 8:25:02 AM rrabska

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
17	11-13-2018	474,379.5	664,965.0
18	11-13-2018	474,360.1	664,969.8
BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(12) RICHLAND COUNTY			



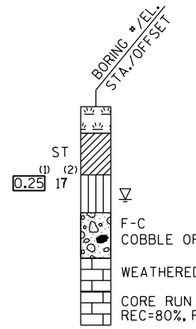
STATE PROJECT NUMBER

5730-00-60

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-52-182

DRAWN BY RLR | PLANS CK'D. JRS

SUBSURFACE EXPLORATION

SHEET 5 OF 5

166

8

8

93452_C-52-182_05.dgn 1/15/2019 1:11:49 PM rrabska

FILE= 93452_C-52-182_05.DGN

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	BORROW CY
126+85.00						
	27	0	14	18	9	-9
127+05.00						
	7	0	3	4	3	-3
127+10.00						
	7	0	3	4	3	-3
127+15.00						
	28	0	13	16	12	-12
127+35.00						
SUBTOTALS	69	0	33	42	27	-27
UNUSABLE PAVEMENT (3)						35
TOTALS	**69**	**0**	**33**	**42**	**27**	**8**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 10.25" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY
155+89.00					
	31	0	12	15	16
156+06.43					
	13	0	5	6	7
156+13.91					
	8	0	0	0	8
156+19.57					
	30	0	1	1	29
156+39.00					
SUBTOTALS	82	0	18	22	60
UNUSABLE PAVEMENT (3)					30
TOTALS	**82**	**0**	**18**	**22**	**30**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 8.5" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY
203+62.00					
	19	0	3	4	15
203+75.00					
	16	0	3	4	12
203+87.00					
	18	0	5	6	12
204+00.00					
	18	0	6	8	10
204+12.00					
SUBTOTALS	71	0	17	22	49
UNUSABLE PAVEMENT (3)					33
TOTALS	**71**	**0**	**17**	**22**	**16**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 9.25" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	BORROW CY
260+05.35	1	0	1	1	0	0
260+19.34	9	0	81	101	-92	92
261+23.20	2	0	17	21	-19	19
261+38.59	1	0	5	6	-5	5
261+47.56	3	0	5	6	-3	3
261+64.10	2	0	1	1	1	-1
261+71.99	3	0	3	4	-1	1
261+89.62	3	0	4	5	-2	2
262+05.00	3	0	5	6	-3	3
262+30.94	1	0	2	3	-2	2
262+52.77	2	0	9	11	-9	9
262+74.10	1	0	5	6	-5	5
262+83.33	5	0	5	6	-1	1
263+13.90	0	0	0	0	0	0
263+15.59	2	0	2	3	-1	1
263+41.16	2	0	2	3	-1	1
263+66.71	8	0	7	9	-1	1
264+87.82						
SUBTOTALS	48	0	154	192	-144	144
UNUSABLE PAVEMENT (3)						48
TOTALS	**48**	**0**	**154**	**192**	**-144**	**192**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 5.5" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY
344+38.00	22	0	1	1	21
344+52.00	16	0	1	1	15
344+63.00	13	0	3	4	9
344+72.00	27	0	6	8	19
344+88.00					
SUBTOTALS	78	0	11	14	64
UNUSABLE PAVEMENT (3)					22
TOTALS	**78**	**0**	**11**	**14**	**42**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 6" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	BORROW CY
543+05.00	17	0	12	15	2	-2
543+20.00	10	0	8	10	0	0
543+30.00	10	0	8	10	0	0
543+40.00	19	0	14	18	1	-1
543+55.00						
SUBTOTALS	56	0	42	53	3	-3
UNUSABLE PAVEMENT (3)						26
TOTALS	**56**	**0**	**42**	**53**	**3**	**23**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 7.25" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	BORROW CY
563+95.00	14	0	17	21	-7	7
564+10.00	8	0	11	14	-6	6
564+20.00	8	0	9	11	-3	3
564+30.00	14	0	15	19	-5	5
564+45.00						
SUBTOTALS	44	0	52	65	-21	21
UNUSABLE PAVEMENT (3)						31
TOTALS	**44**	**0**	**52**	**65**	**-21**	**52**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 8.5" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	BORROW CY
603+94.03						
	3	0	0	0	3	-3
604+04.31						
	31	0	18	23	8	-8
604+83.30						
	4	0	5	6	-2	2
604+91.85						
	9	0	25	31	-22	22
605+13.44						
	3	0	13	16	-13	13
605+21.66						
	7	0	24	30	-23	23
605+38.52						
	3	0	8	10	-7	7
605+46.66						
	7	0	8	10	-3	3
605+63.52						
	3	0	1	1	2	-2
605+71.66						
	7	0	7	9	-2	2
605+91.59						
	3	0	21	26	-23	23
606+11.11						
	4	0	61	76	-72	72
606+81.62						
	2	0	5	6	-4	4
606+92.63						
	13	0	11	14	-1	1
607+19.97						
	5	0	1	1	4	-4
607+27.61						
	13	0	5	6	7	-7
607+44.97						
	5	0	5	6	-1	1
607+52.61						
	12	0	14	18	-6	6
607+69.97						
	5	0	8	10	-5	5
607+77.61						
	15	0	18	23	-8	8
607+99.97						
	5	0	4	5	0	0
608+07.61						
	51	0	25	31	20	-20
608+88.47						
	3	0	0	0	3	-3
608+96.11						
SUBTOTALS	213	0	287	358	-145	145
UNUSABLE PAVEMENT (3)						112
TOTALS	**213**	**0**	**287**	**358**	**-145**	**257**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 3.25" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY
620+08.00					
	14	0	4	5	9
620+20.00					
	13	0	4	5	8
620+33.00					
	12	0	2	3	9
620+45.00					
	16	0	2	3	13
620+58.00					
SUBTOTALS	55	0	12	16	39
UNUSABLE PAVEMENT (3)					35
TOTALS	**55**	**0**	**12**	**16**	**4**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 9" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY
660+56.00					
	23	0	1	1	22
660+73.00					
	10	0	0	0	10
660+81.00					
	9	0	0	0	9
660+89.00					
	18	0	1	1	17
661+06.00					
SUBTOTALS	60	0	2	2	58
UNUSABLE PAVEMENT (3)					28
TOTALS	**60**	**0**	**2**	**2**	**30**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 7.5" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY
762+12.00					
	28	0	0	0	28
762+37.00					
	31	0	0	0	31
762+62.00					
SUBTOTALS	59	0	0	0	59
UNUSABLE PAVEMENT (3)					20
TOTALS	**59**	**0**	**0**	**0**	**39**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 5.5" ASPHALT PER BORING LOG.

STA	EXCAVATION COMMON CY	EXCAVATION ROCK CY	FILL (1) CY	EXPANDED FILL (2) CY	WASTE CY	BORROW CY
779+06.00						
	11	0	3	4	7	-7
779+15.00						
	12	0	4	5	7	-7
779+28.00						
	12	0	7	9	3	-3
779+40.00						
	21	0	10	13	8	-8
779+56.00						
SUBTOTALS	56	0	24	31	25	-25
UNUSABLE PAVEMENT (3)						29
TOTALS	**56**	**0**	**24**	**31**	**25**	**4**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY.
(2) - FILL EXPANSION 25%
(3) - EXISTING PAVEMENT BASED ON AVERAGE THICKNESS OF 8" ASPHALT PER BORING LOG.

9

9

PROJECT NO: 5730-00-60 | HWY: STH 56 | COUNTY: RICHLAND | EARTHWORK | SHEET 170 | E

FILE NAME : P:\90S\93\00093452\CADD\SHEETSPLAN\090101-EW.DWG
LAYOUT NAME - 04

PLOT DATE : 6/27/2019 2:47 PM PLOT BY : BOBBI MAXWELL PLOT NAME :

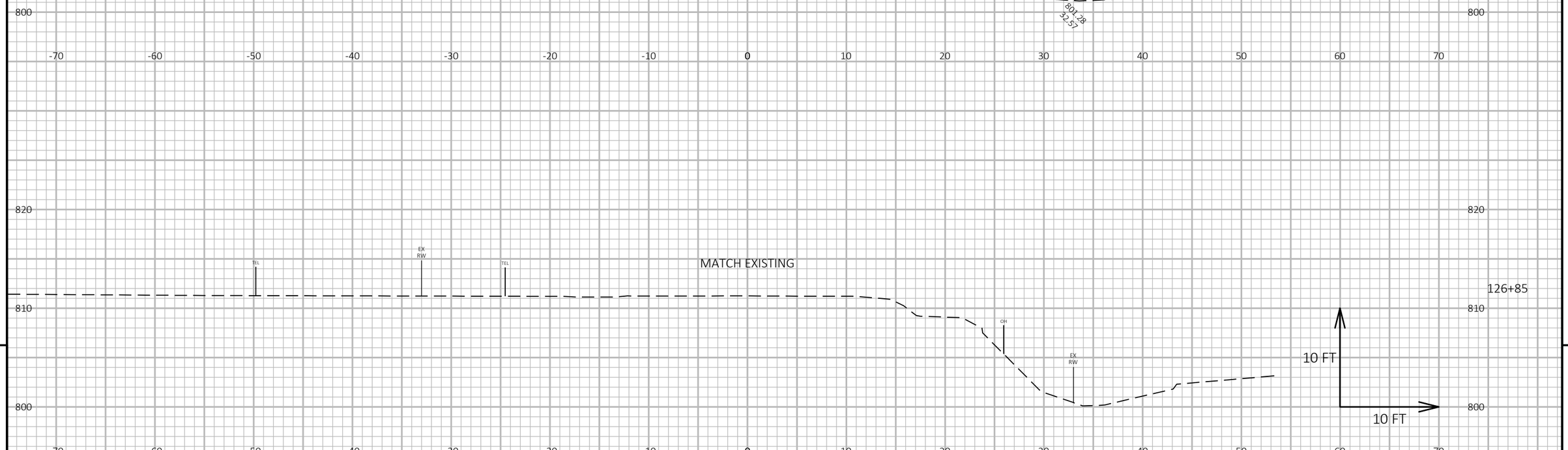
WISDOT/CADDS SHEET 42

NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.

STRUCTURE C-52-174



127+10



126+85

9

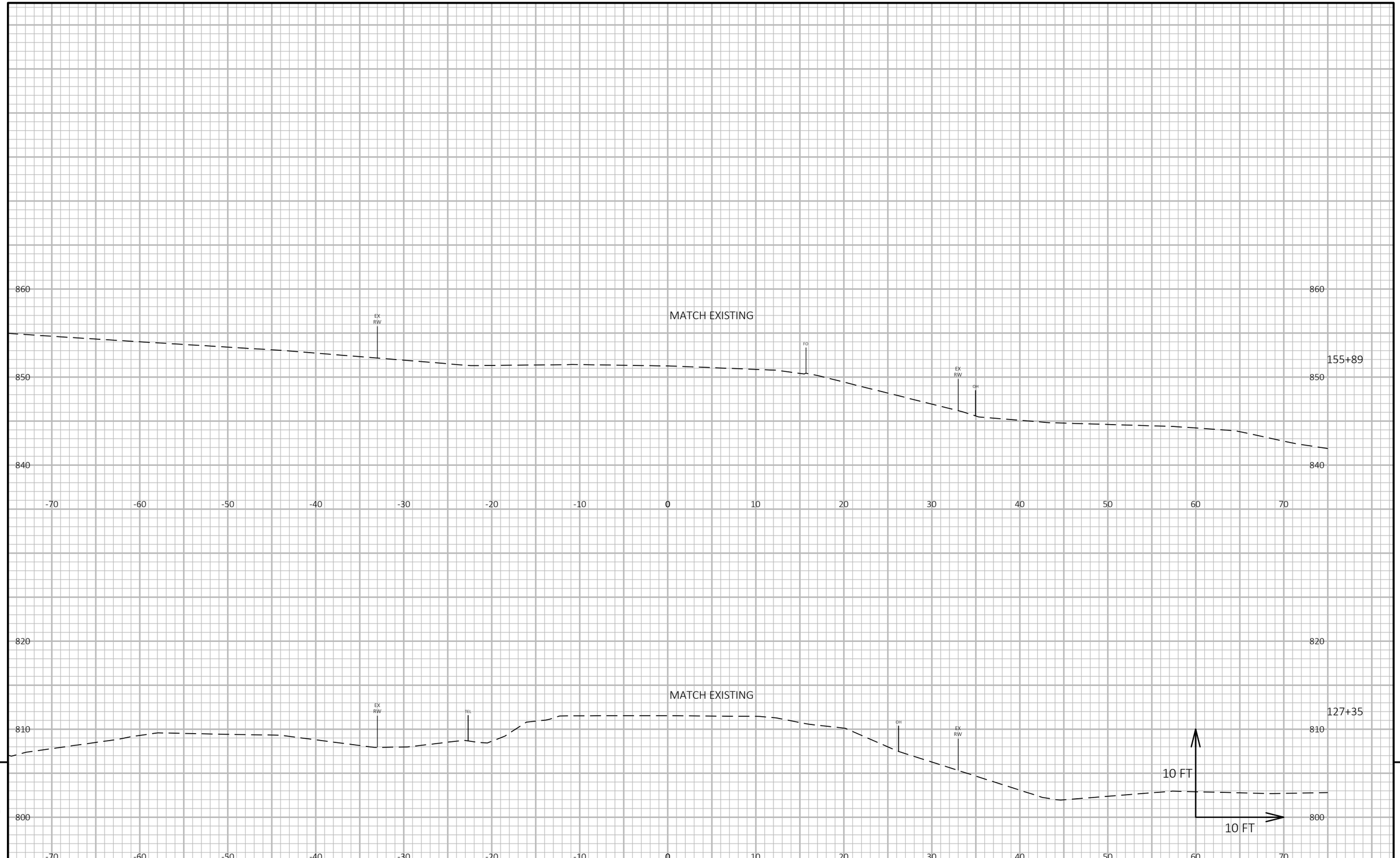
9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 171	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090201_xs

PLOT DATE : 7/1/2019 2:33 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 172	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090202_xs

PLOT DATE : 7/1/2019 2:33 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.

MATCH EXISTING

STRUCTURE C-52-175

156+39

156+13

860
850
840

-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

EX RW
FO
EX RW
OH
EX RW
OH

2.5% 2.1% 3.1%

2.0:1
2.0:1

847.28
26.23
849.84
21.08
850.21
11.04
849.98
0.00
849.63
11.04
849.09
21.08
845.12
29.08

10 FT
10 FT

9 9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 173	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090203_xs

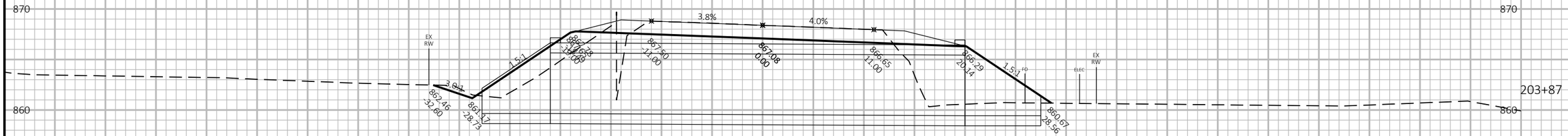
PLOT DATE : 7/1/2019 2:33 PM PLOT BY : BOBBI MAXWELL PLOT NAME :

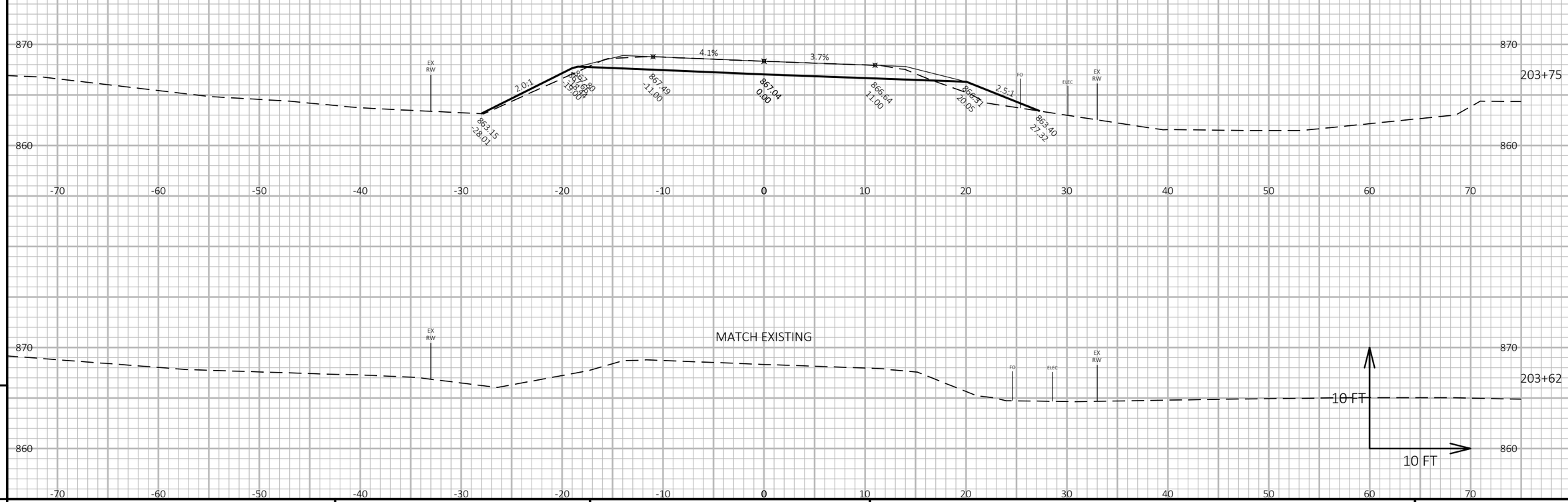
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.

STRUCTURE C-52-176





9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 174	E

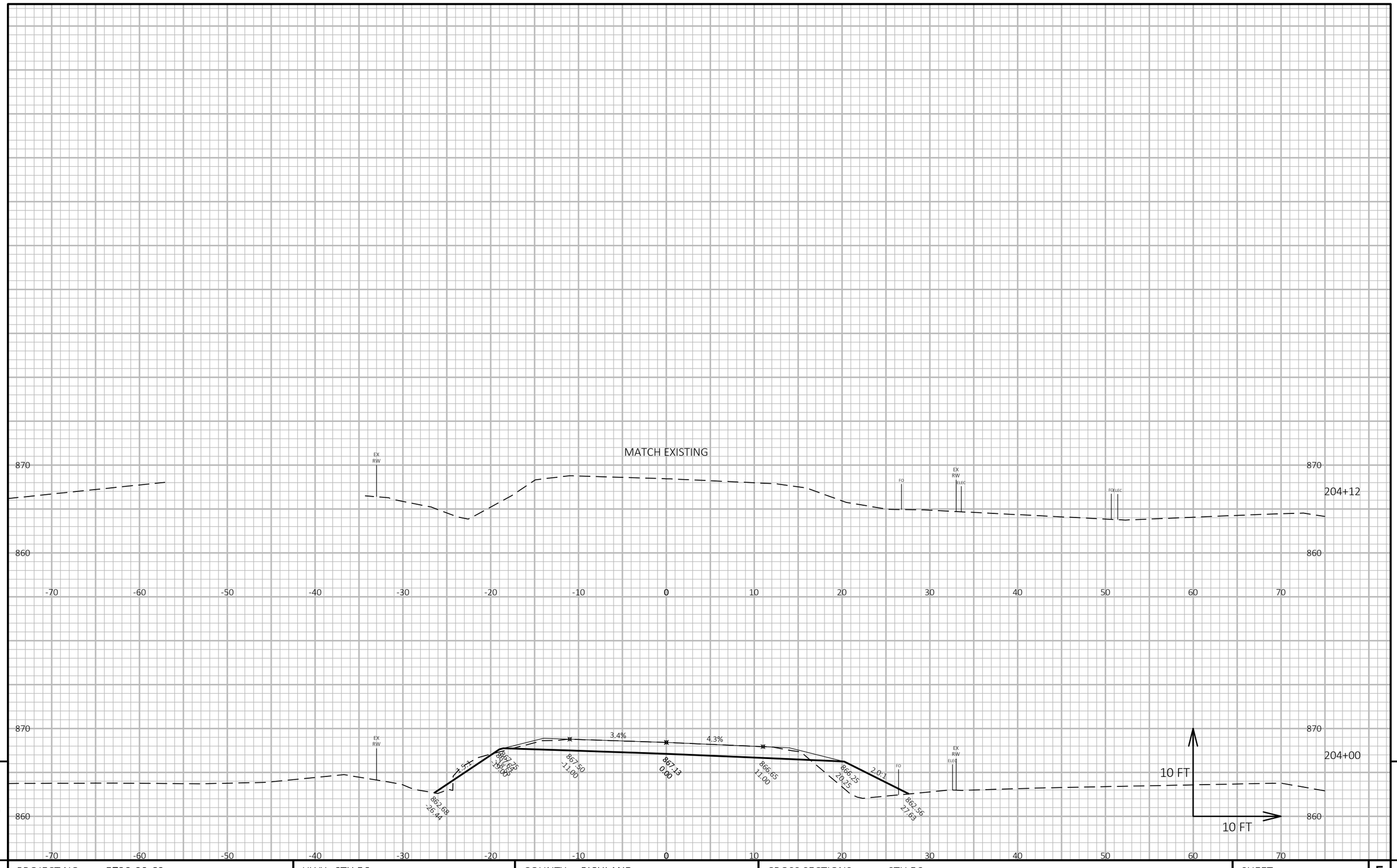
FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090204_xs

PLOT DATE : 7/1/2019 2:34 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 175	E

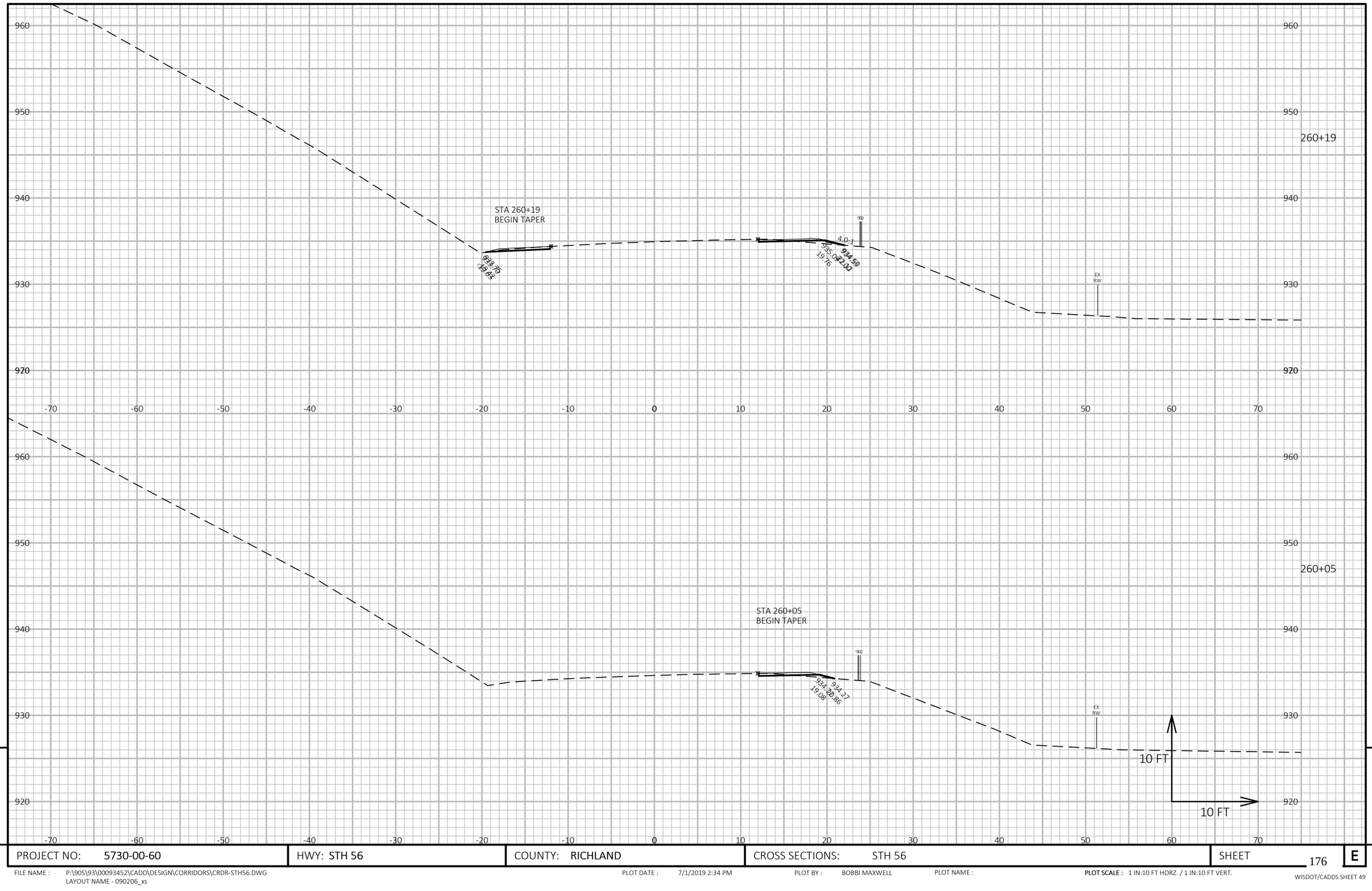
FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090205_xs

PLOT DATE : 7/1/2019 2:34 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



9

9

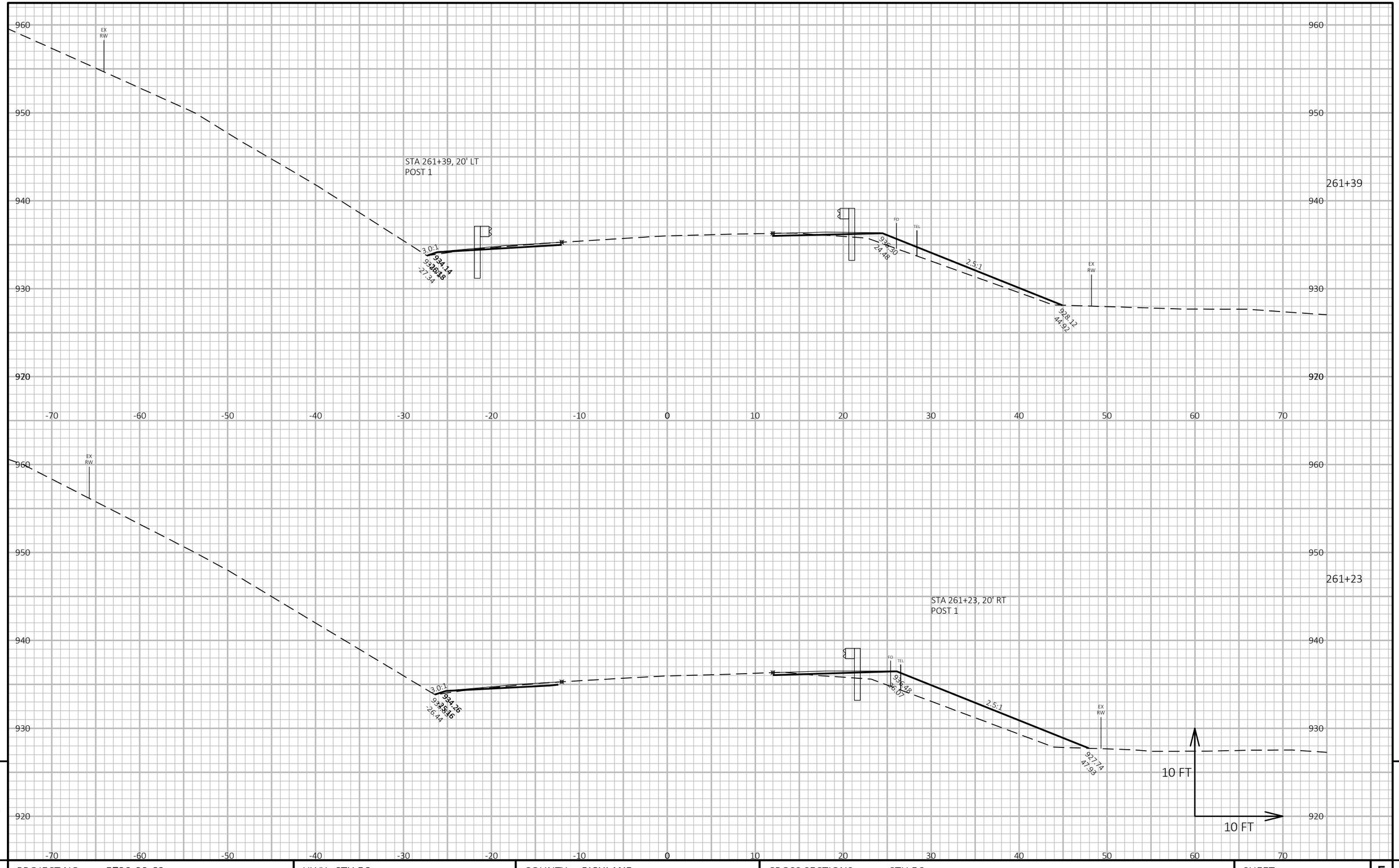
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 176	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090206_xs

PLOT DATE : 7/1/2019 2:34 PM PLOT BY : BOBBI MAXWELL PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

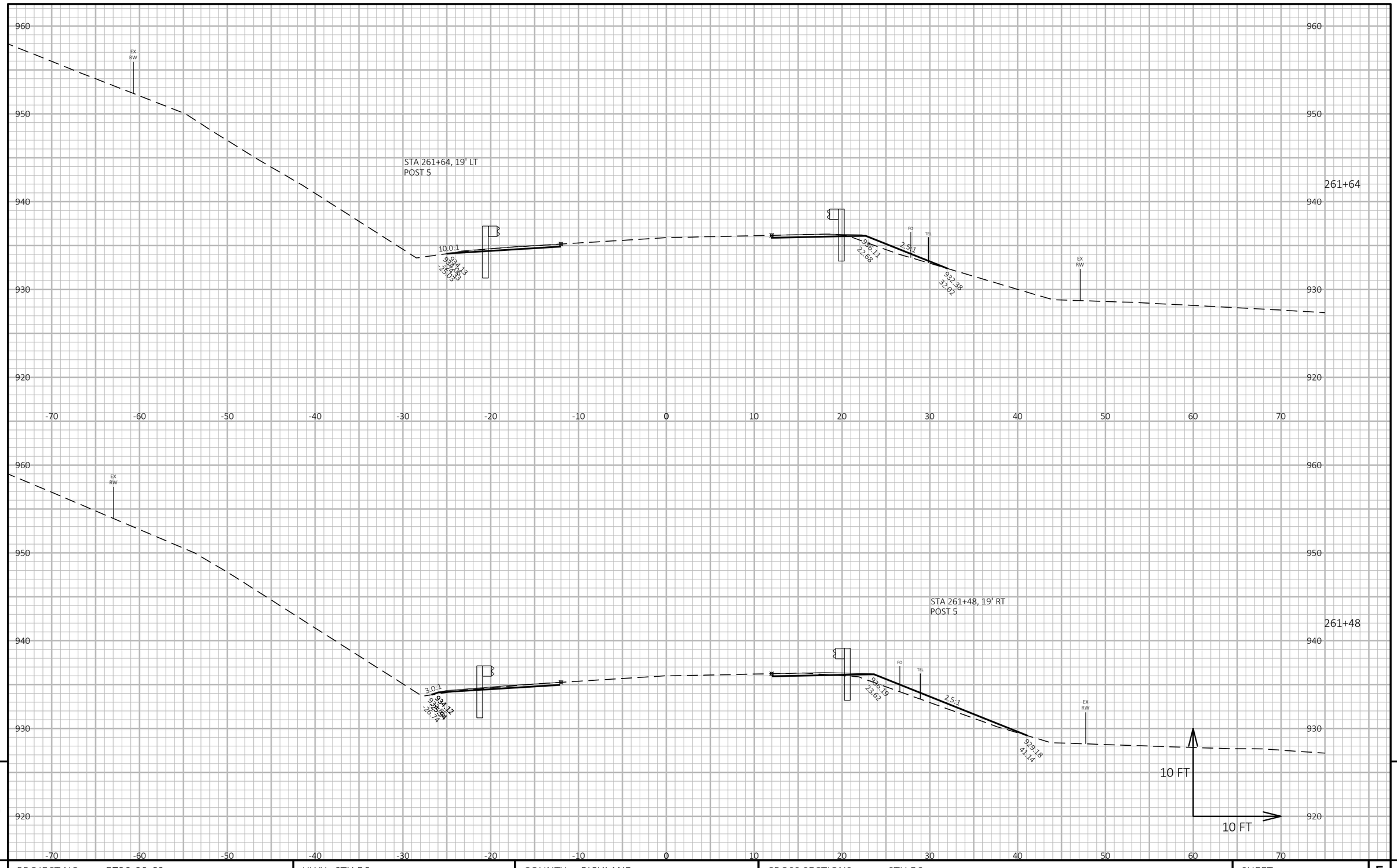


PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 177	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090207_xs

PLOT DATE : 7/1/2019 2:34 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

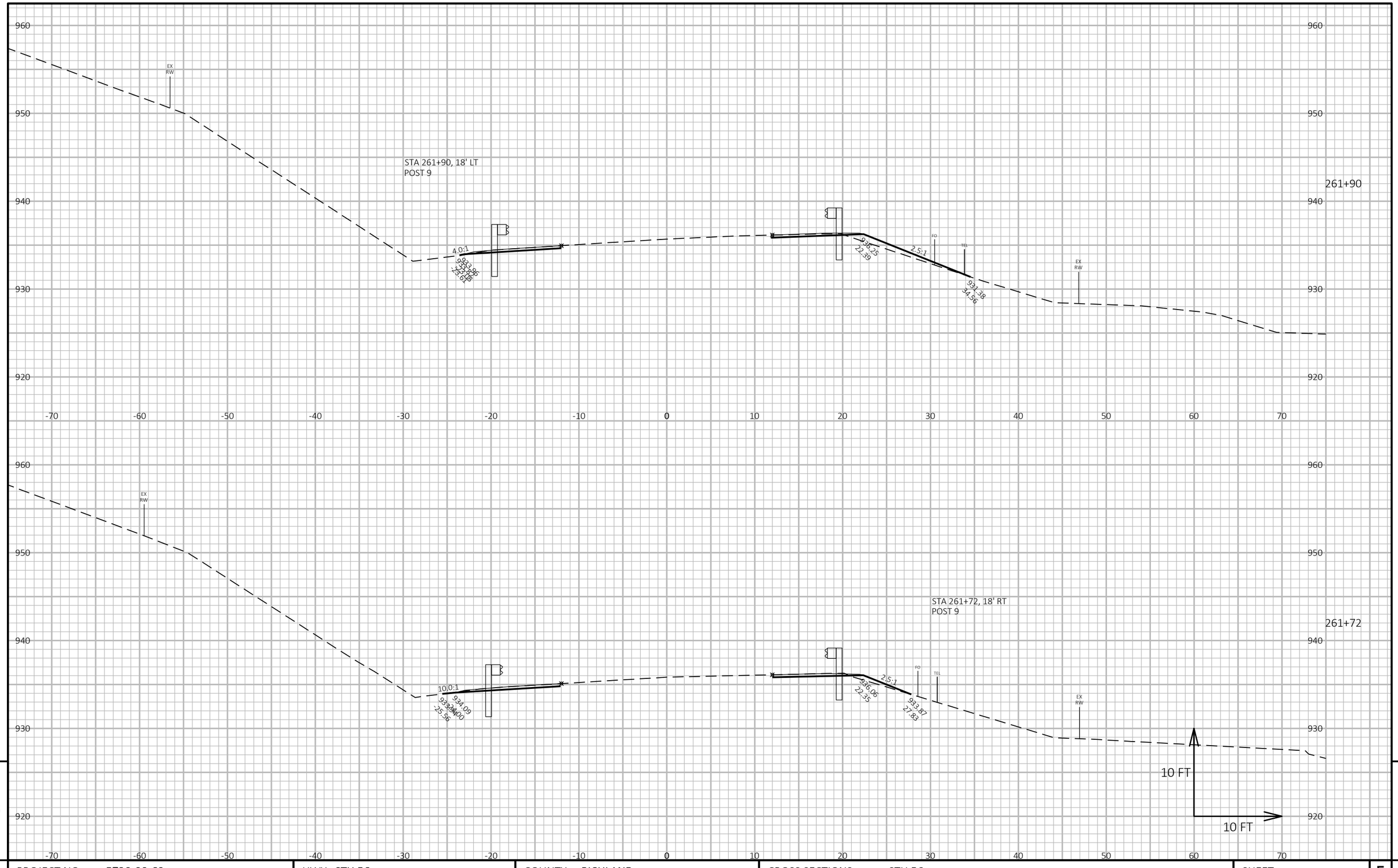


PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 178	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090208_xs

PLOT DATE : 7/1/2019 2:35 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 179	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090209_xs

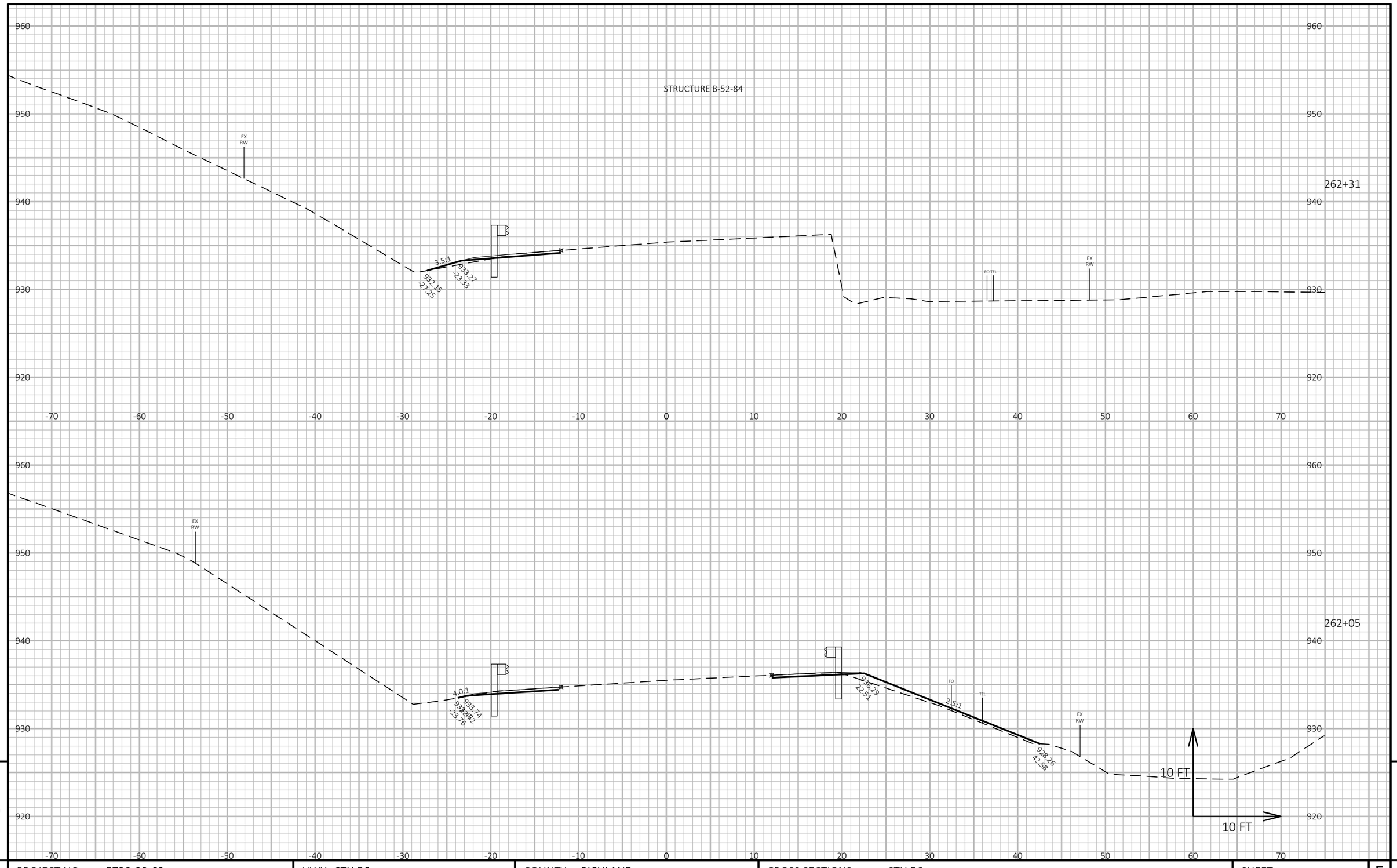
PLOT DATE : 7/1/2019 2:35 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 180	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090210_xs

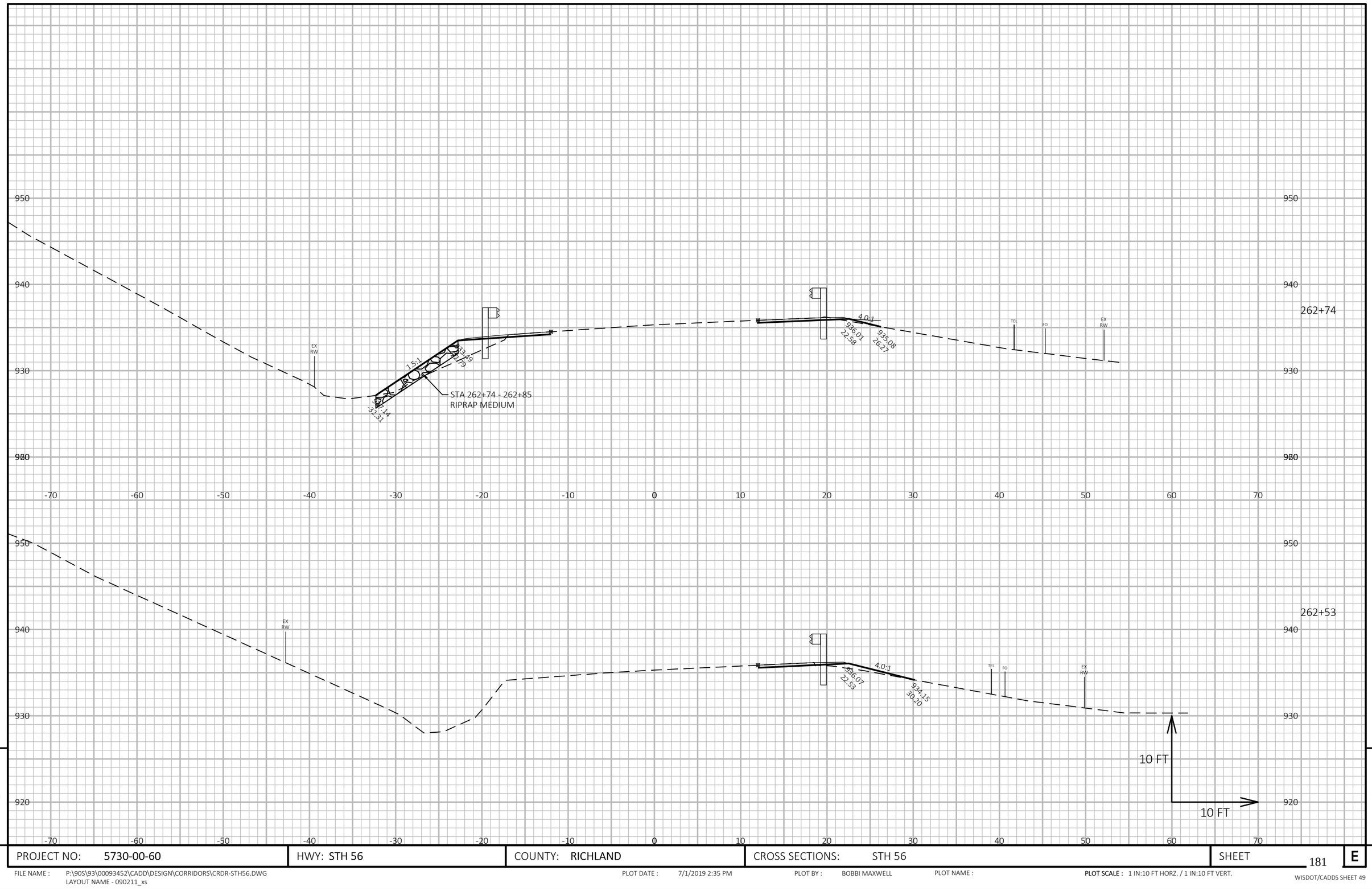
PLOT DATE : 7/1/2019 2:35 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



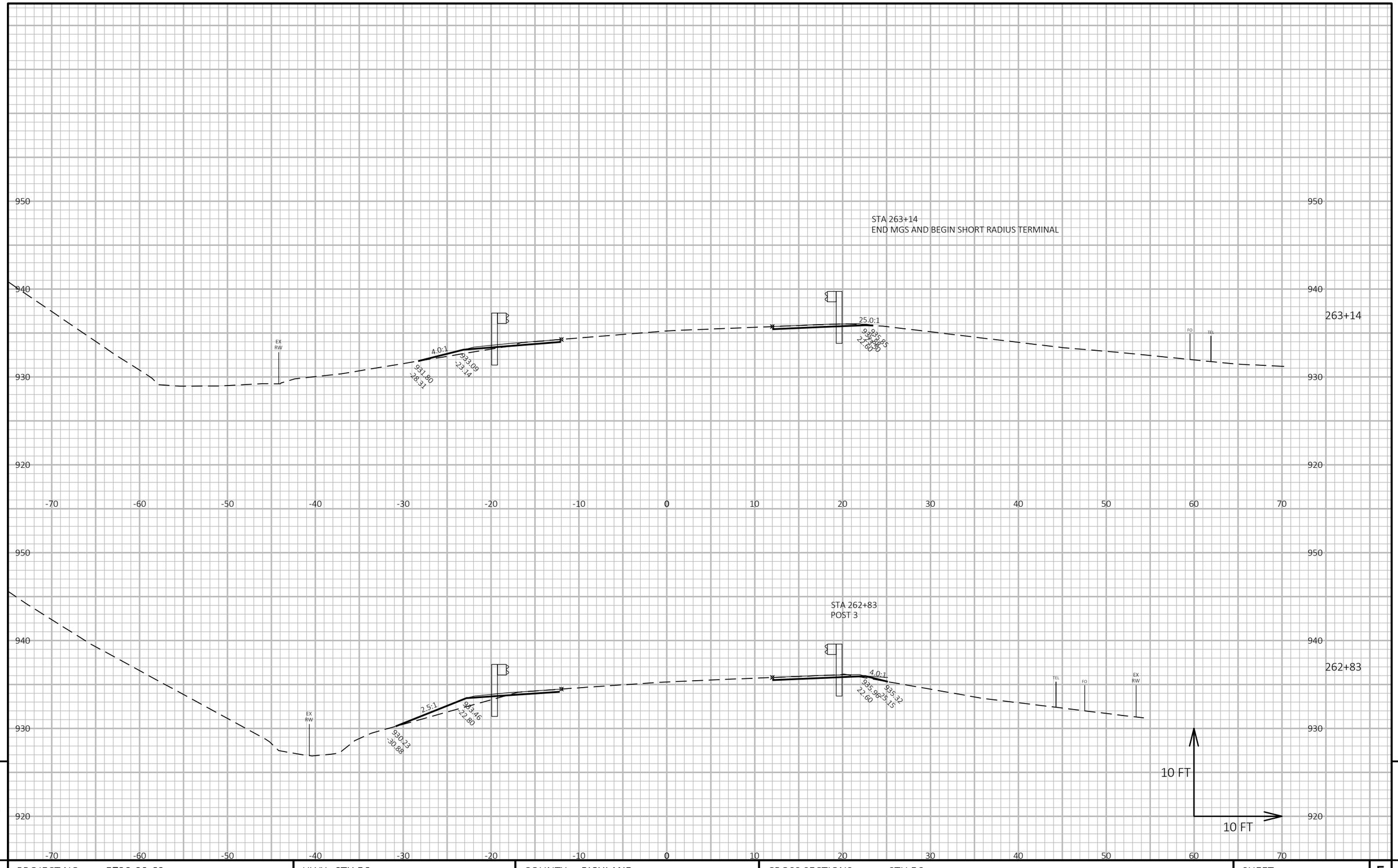
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 181	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090211_xs

PLOT DATE : 7/1/2019 2:35 PM PLOT BY : BOBBI MAXWELL PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 182	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090212_xs

PLOT DATE : 7/1/2019 2:35 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

STA 263+41, 19' LT
POST 5

940
930
920

EX RW

4.0:1
933.06
24.97
932.15
-28.01

263+41

-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

950

STA 263+16, 18' LT
POST 9

940
930
920

EX RW

4.0:1
933.09
-23.14
931.69
-28.74

263+16

FO
TEL

10 FT
10 FT

-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

950

9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 183	E

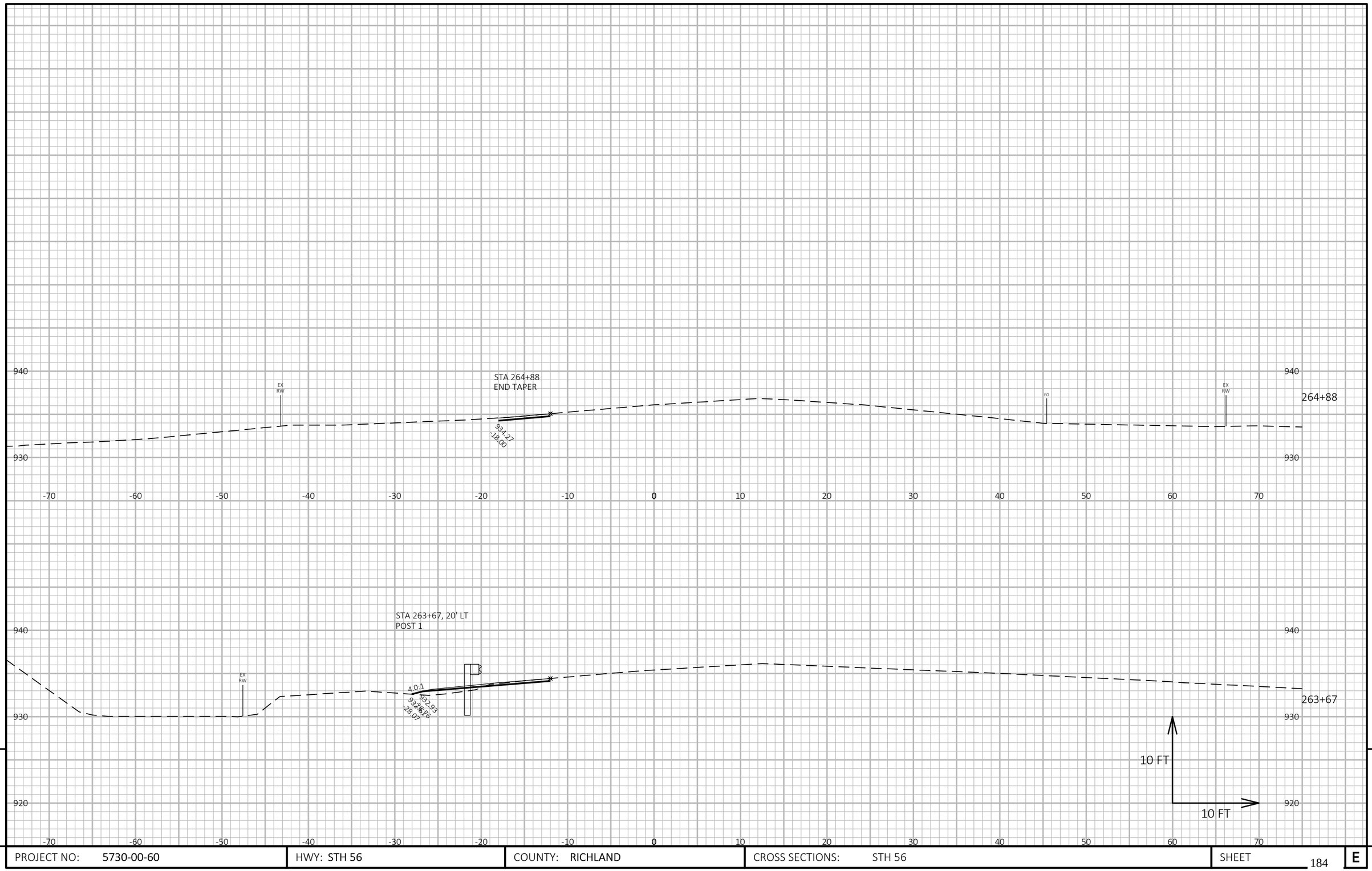
FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090213_xs

PLOT DATE : 7/1/2019 2:36 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



9

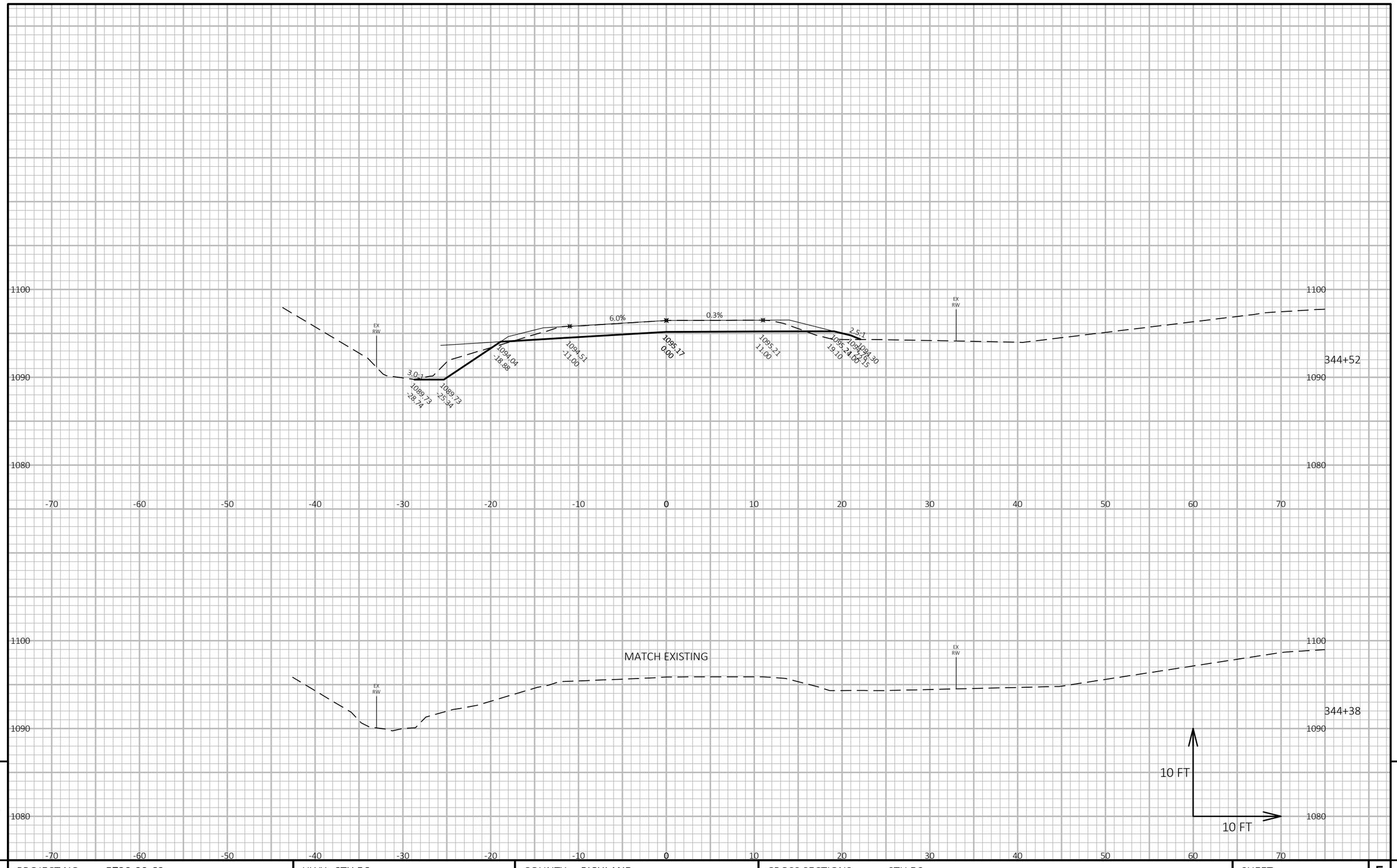
9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 184	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090214_xs

PLOT DATE : 7/1/2019 2:36 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 185	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090215_xs

PLOT DATE : 7/1/2019 2:36 PM

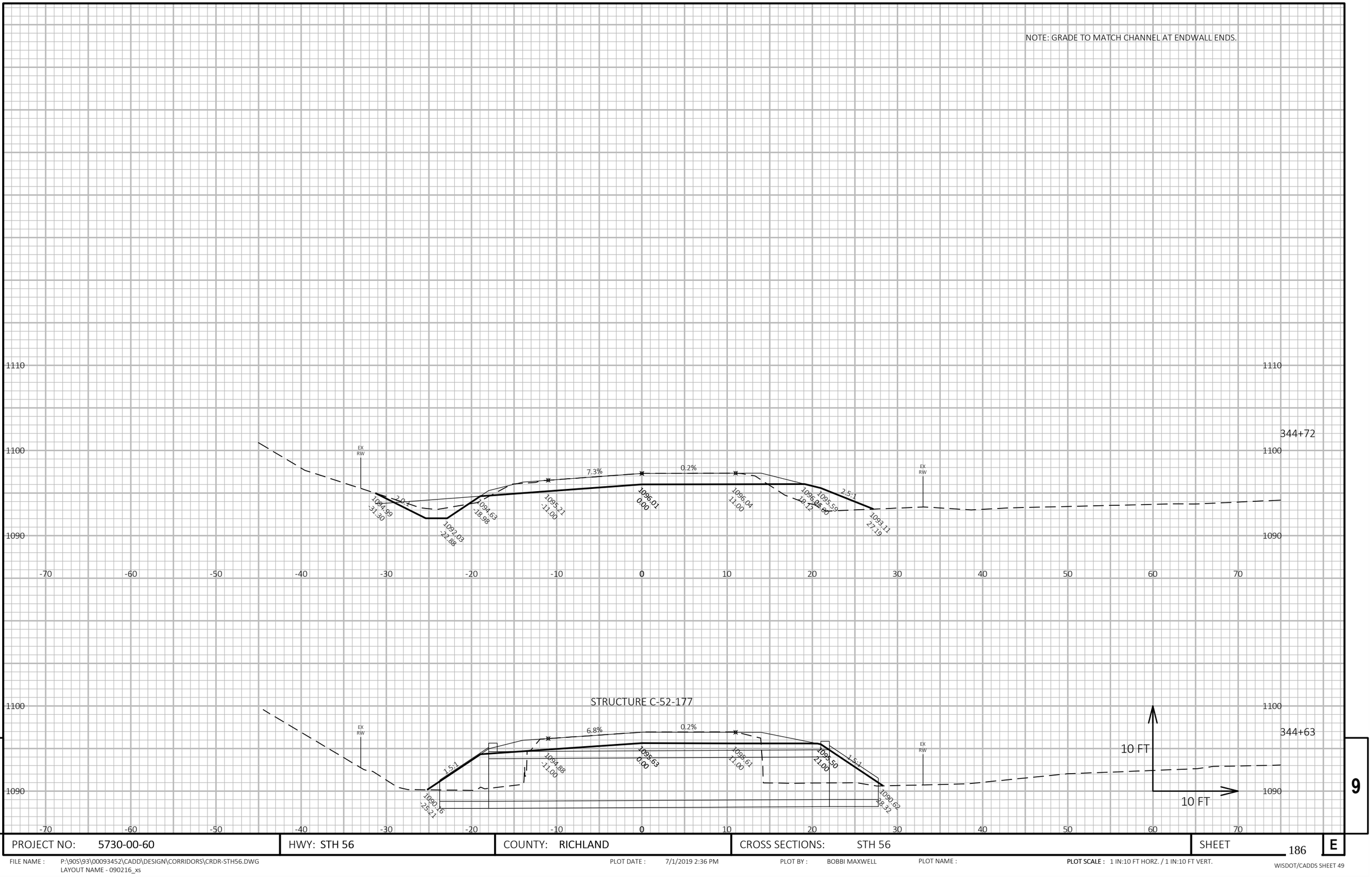
PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.



STRUCTURE C-52-177

9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 186	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090216_xs

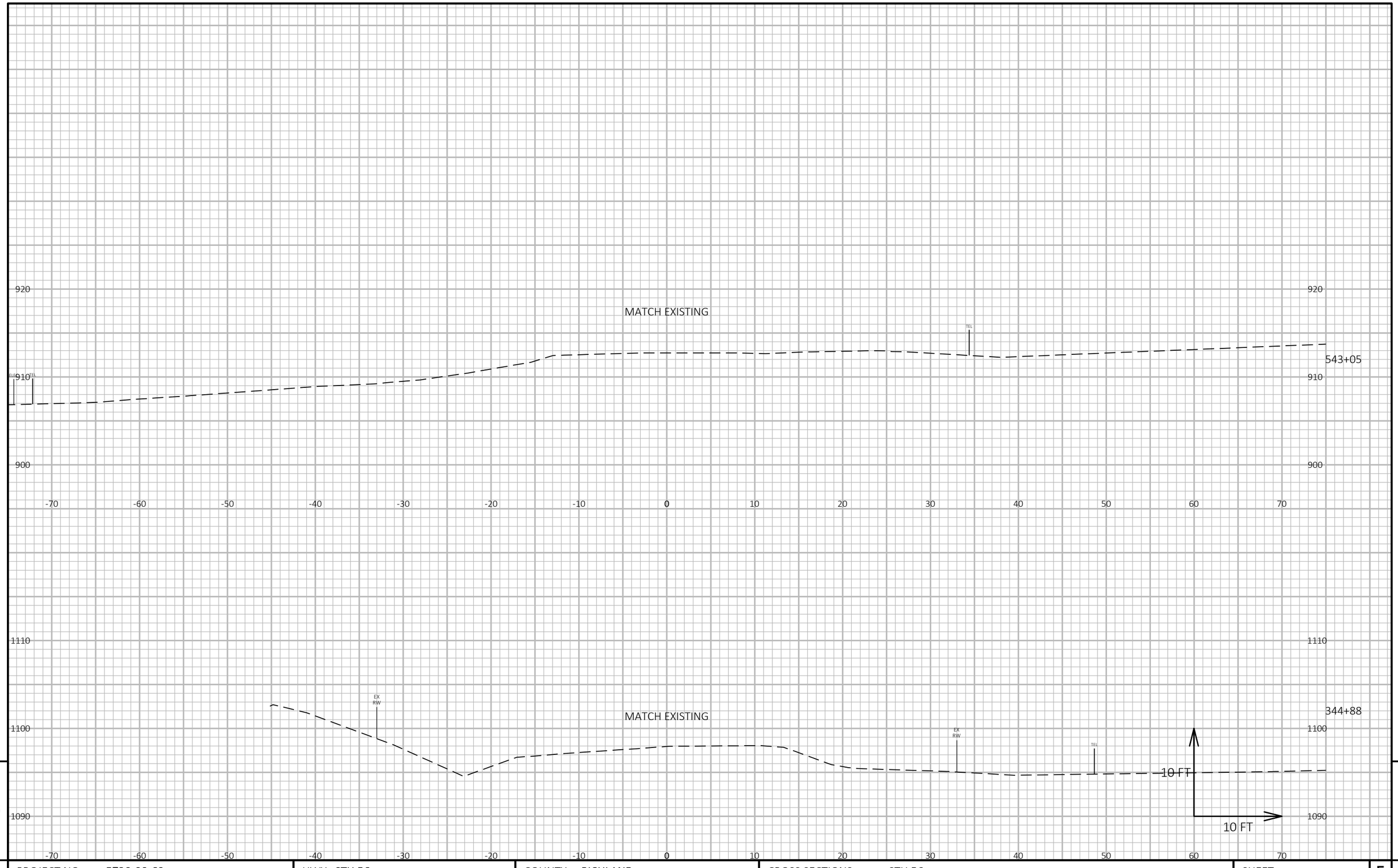
PLOT DATE : 7/1/2019 2:36 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 187	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090217_xs

PLOT DATE : 7/1/2019 2:36 PM

PLOT BY : BOBBI MAXWELL

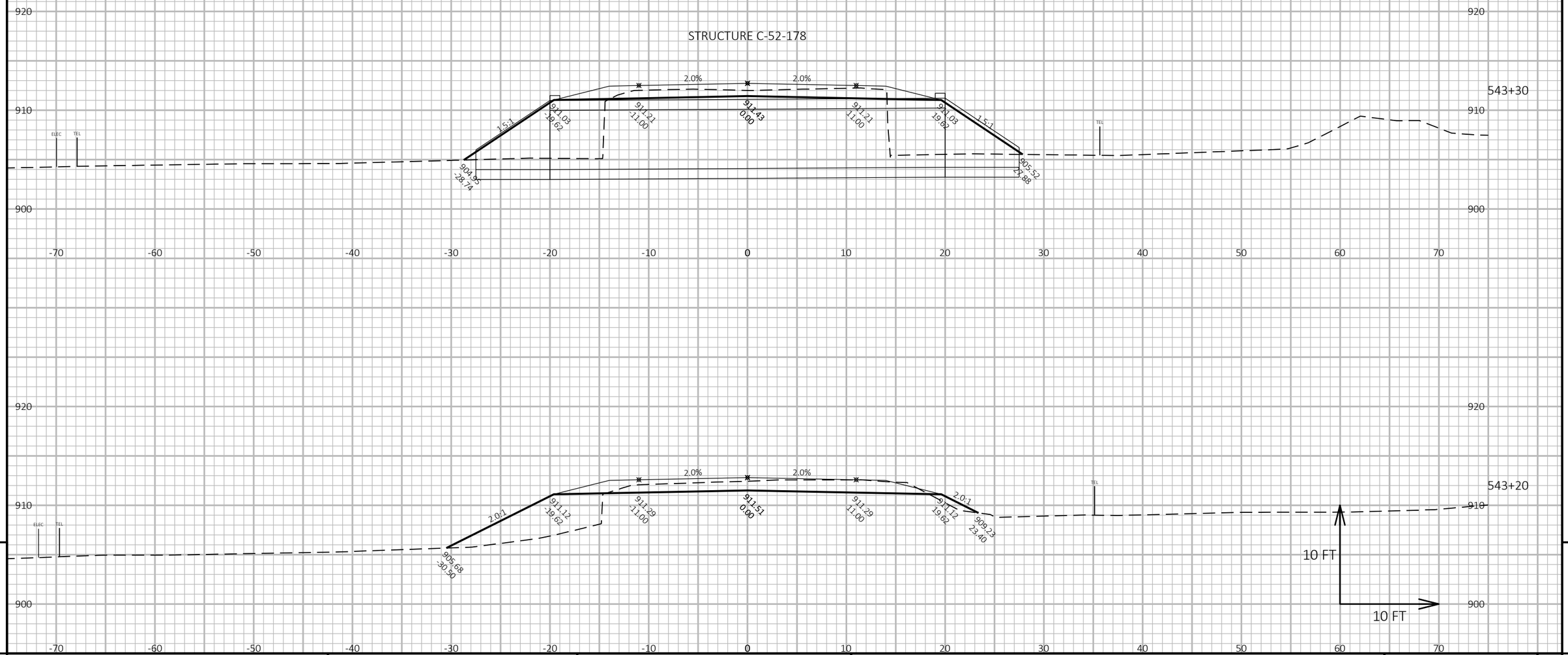
PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.

STRUCTURE C-52-178



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 188	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090218_xs

PLOT DATE : 7/1/2019 2:37 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

MATCH EXISTING

920
910
900

-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

ELEC
TEL
TEL

543+55

2.0%
2.0%
2.0%
2.0%

907.43
-26.66
910.96
-19.62
911.13
-11.00
911.35
0.00
911.13
11.00
910.96
19.62
906.38
26.49
908.31
31.99

543+40

10 FT
10 FT

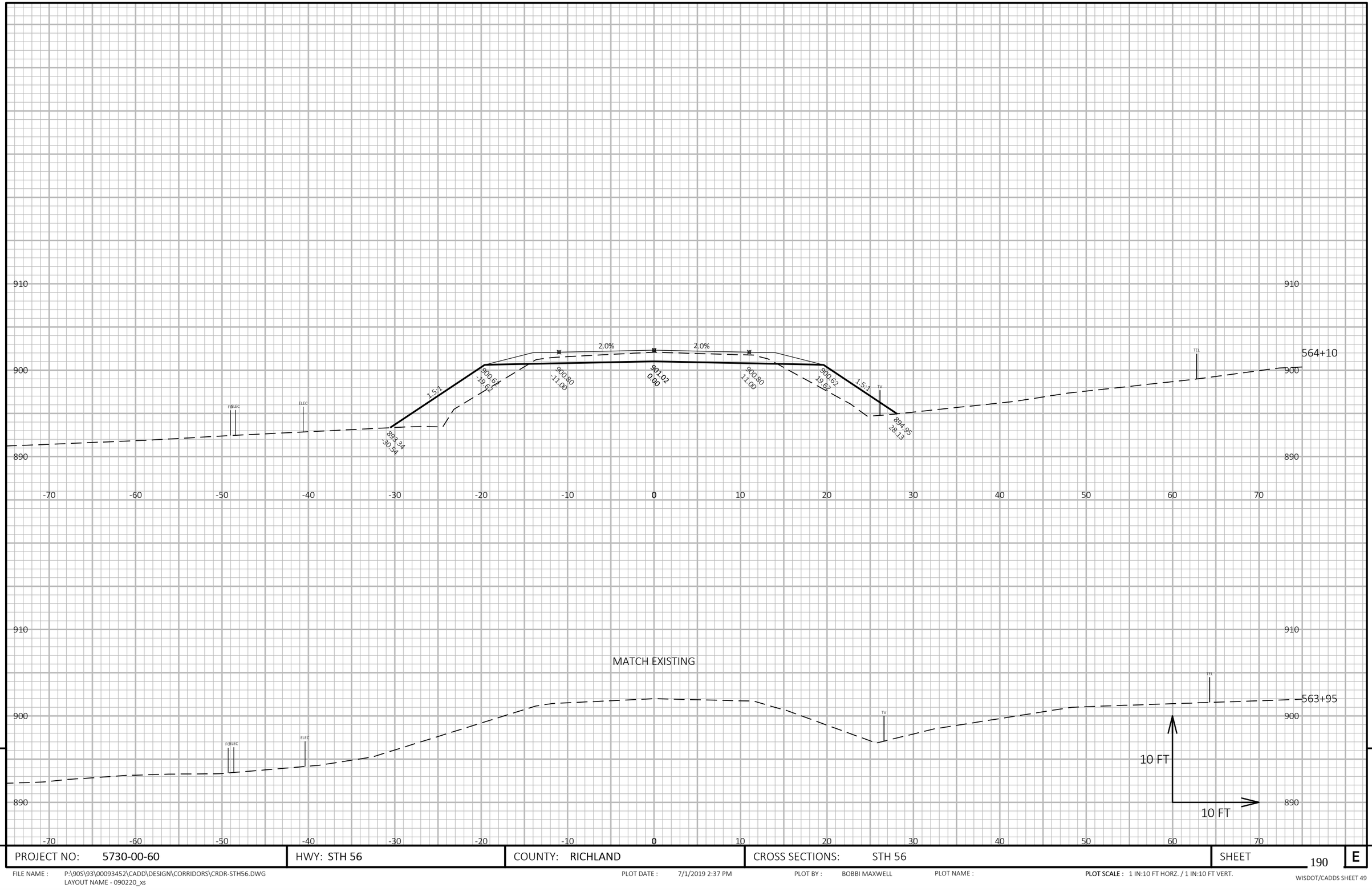
9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 189	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090219_xs

PLOT DATE : 7/1/2019 2:37 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



9

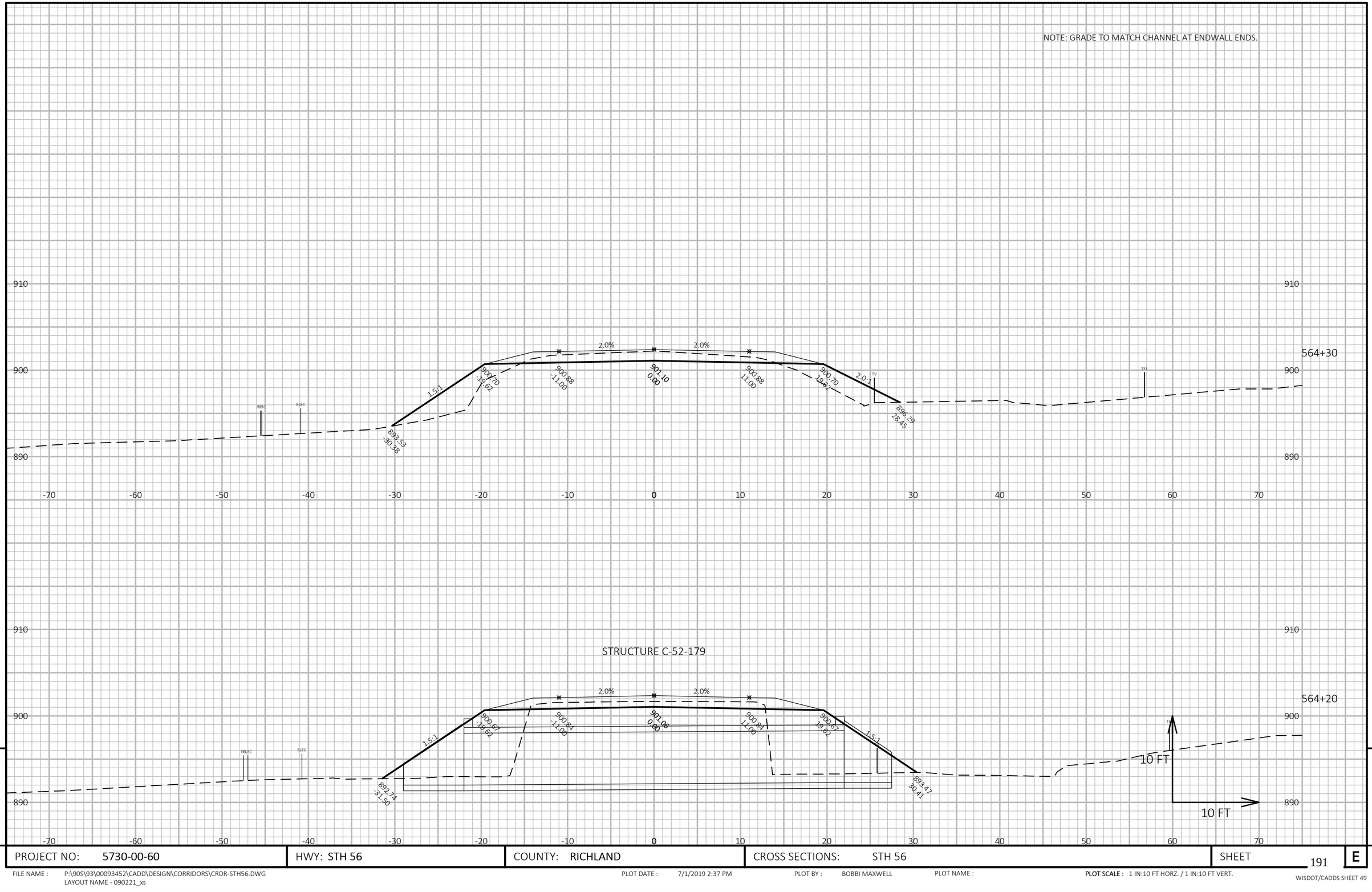
9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 190	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090220_xs

PLOT DATE : 7/1/2019 2:37 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.



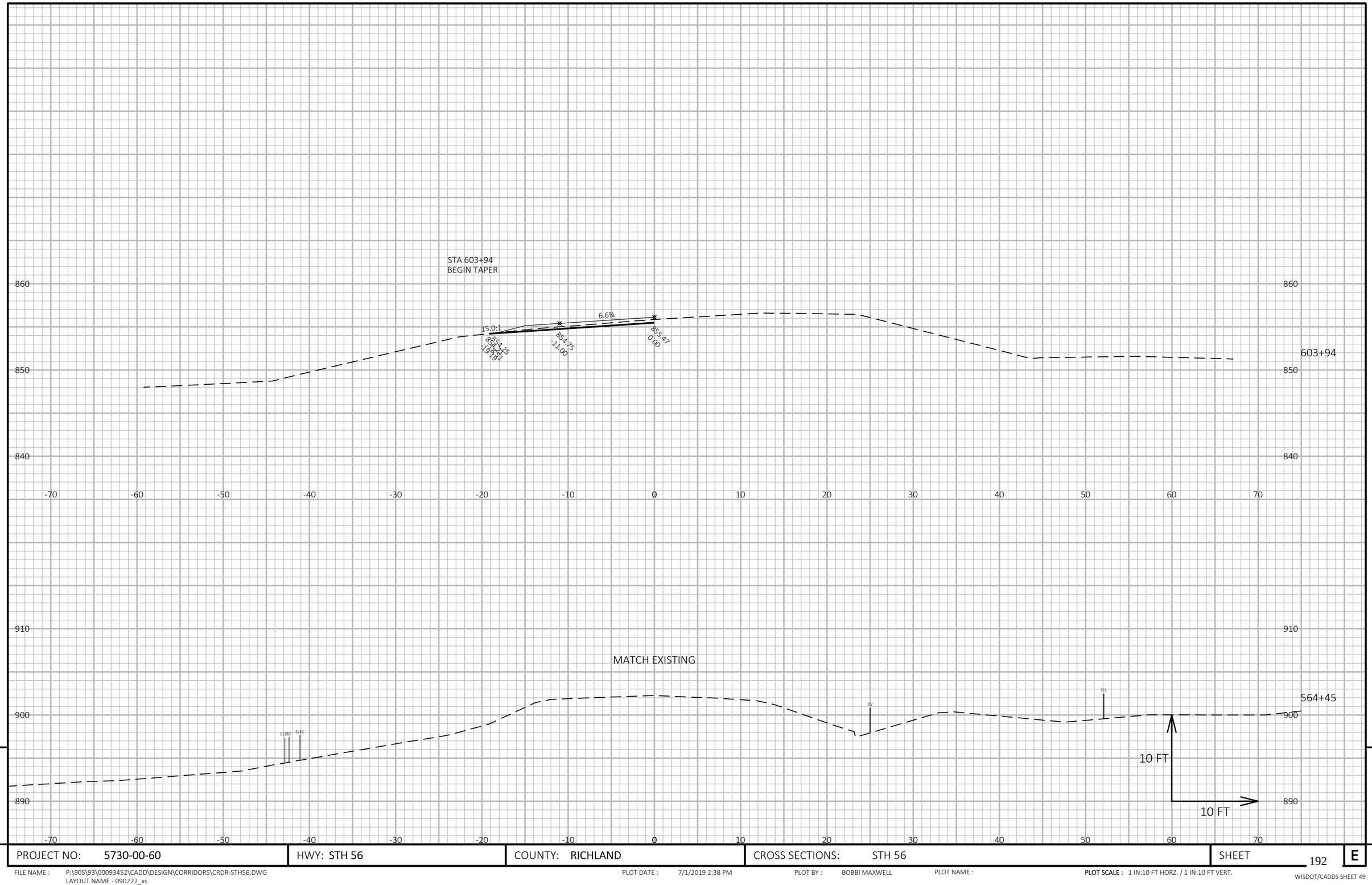
9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 191	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090221_xs

PLOT DATE : 7/1/2019 2:37 PM PLOT BY : BOBBI MAXWELL PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 192	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090222_xs

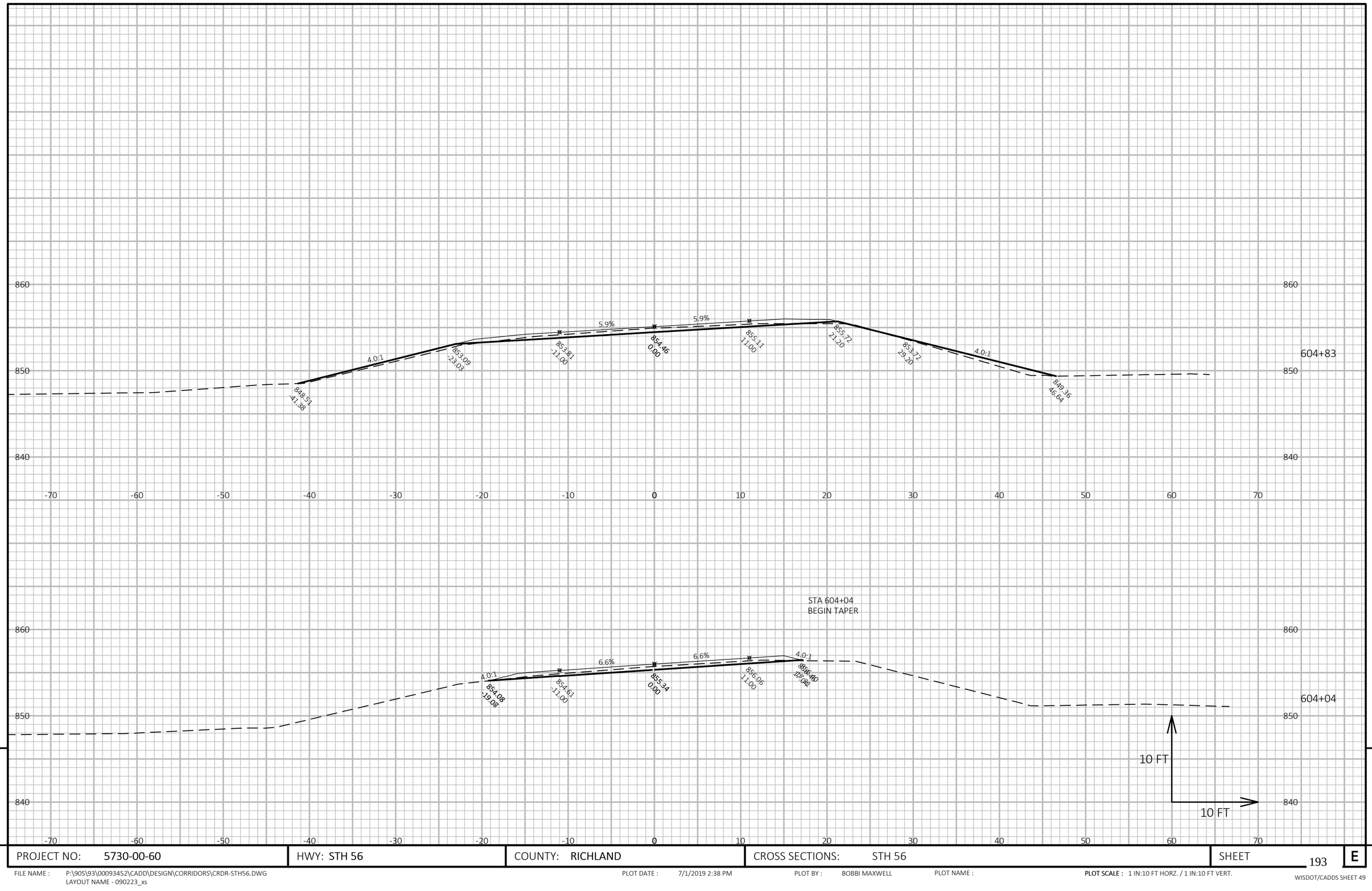
PLOT DATE : 7/1/2019 2:38 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

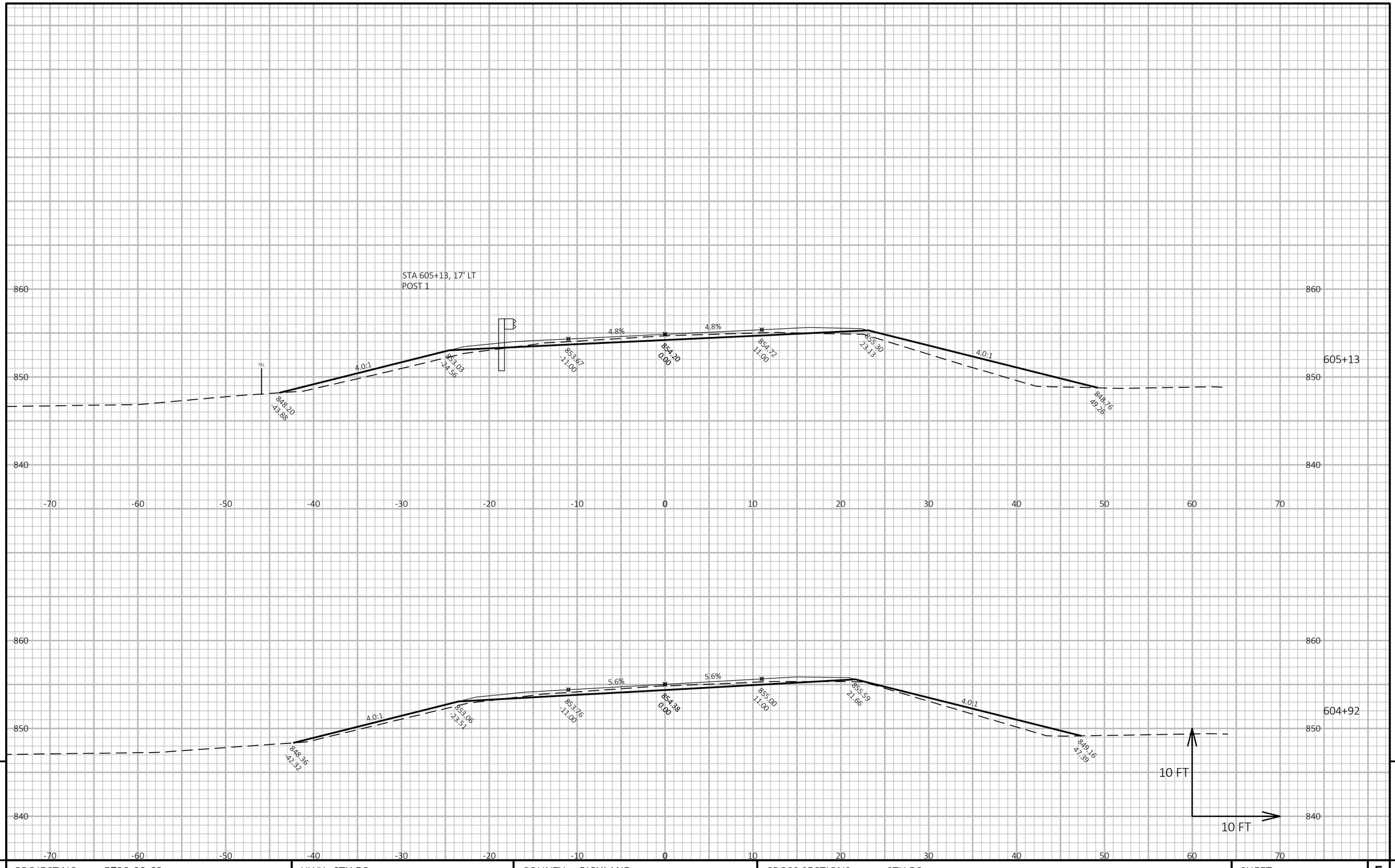


PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 193	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090223_xs

PLOT DATE : 7/1/2019 2:38 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



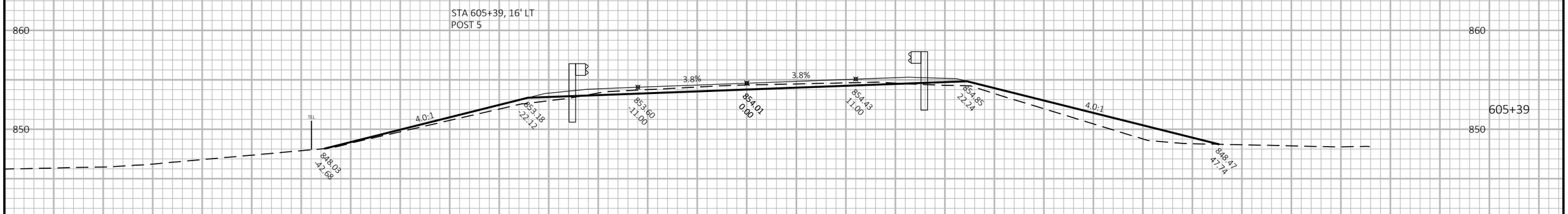
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 194	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090224_xs

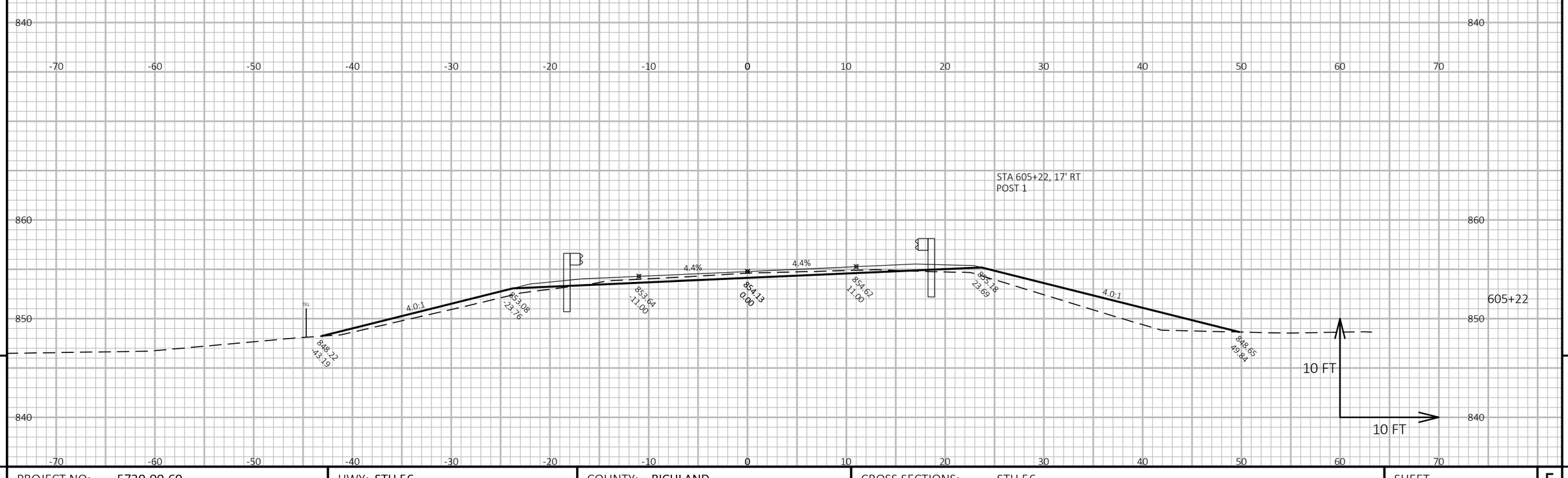
PLOT DATE : 7/1/2019 2:38 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

STA 605+39, 16' LT
POST 5



STA 605+22, 17' RT
POST 1



9

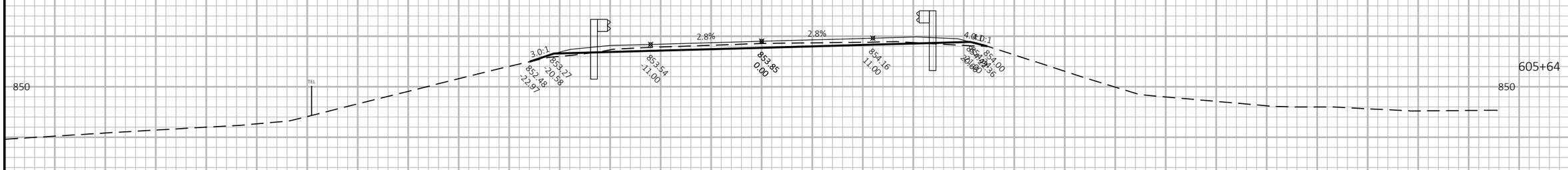
9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 195	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090225_xs

PLOT DATE : 7/1/2019 2:38 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

STA 605+64, 15' LT
POST 9



STA 605+47, 16' RT
POST 5

9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 196	E

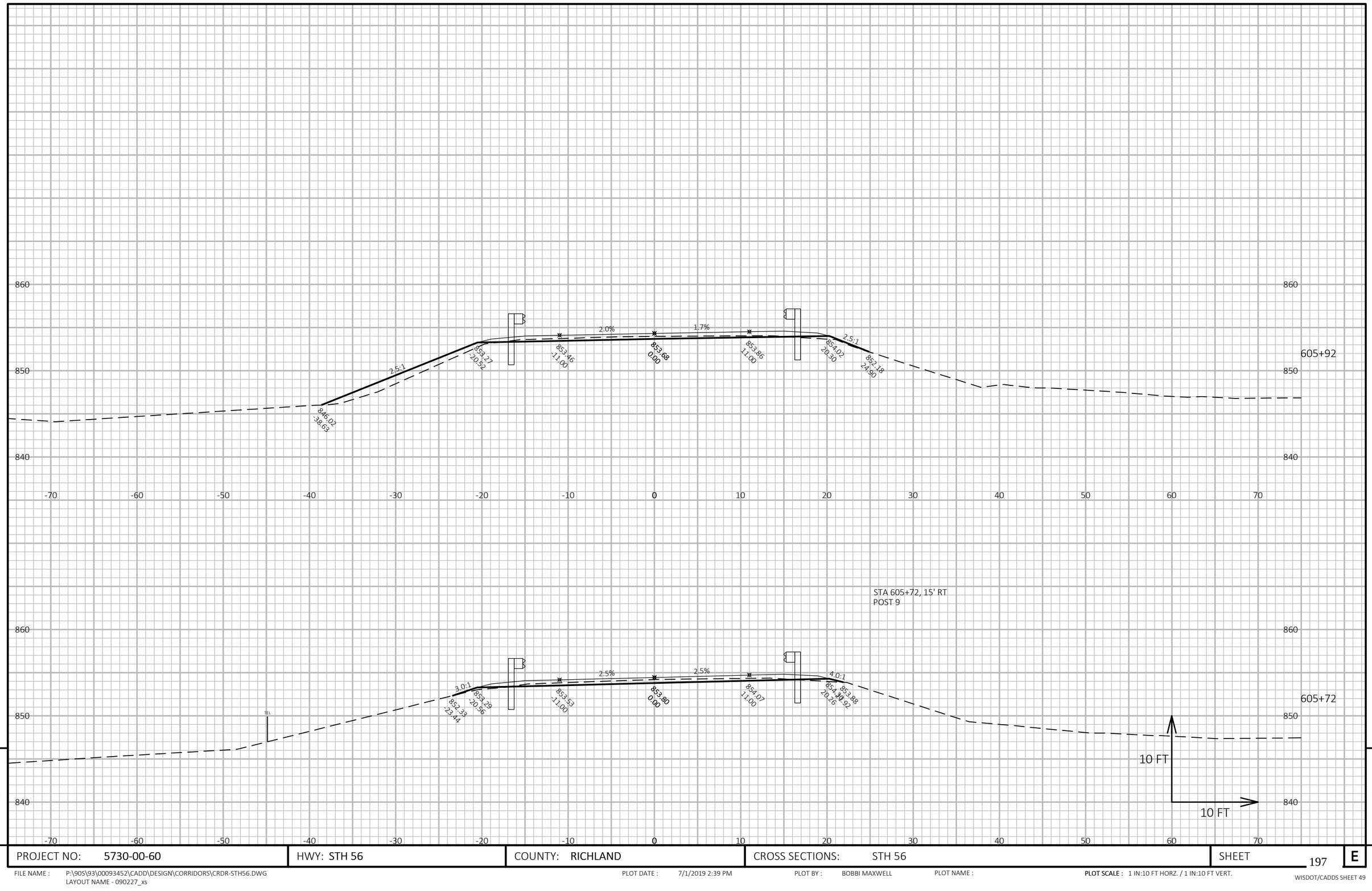
FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090226_xs

PLOT DATE : 7/1/2019 2:38 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 197	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090227_xs

PLOT DATE : 7/1/2019 2:39 PM PLOT BY : BOBBI MAXWELL PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

STA 606+77 - 606+98, LT
1-CONC. SURFACE DRAIN

STA 606+84 - 607+05 RT,
1-CONC. SURFACE DRAIN

STA 606+78 - 607+00
RIPRAP MEDIUM

STRUCTURE B-52-35

606+82

606+11

10 FT

10 FT

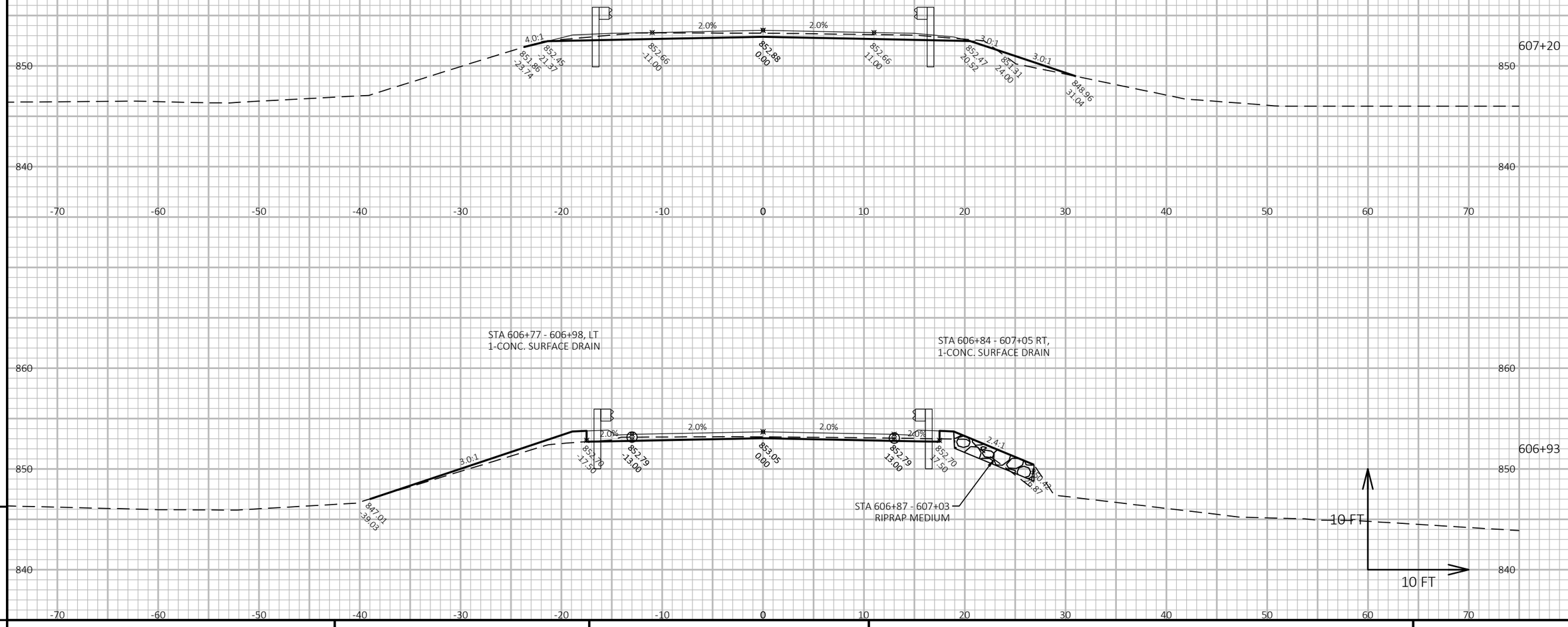
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 198	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090228_xs

PLOT DATE : 7/1/2019 2:39 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

STA 607+20, 15' LT
POST 9



STA 606+77 - 606+98, LT
1-CONC. SURFACE DRAIN

STA 606+84 - 607+05 RT,
1-CONC. SURFACE DRAIN

STA 606+87 - 607+03
RIPRAP MEDIUM

9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 199	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090229_xs

PLOT DATE : 7/1/2019 2:39 PM

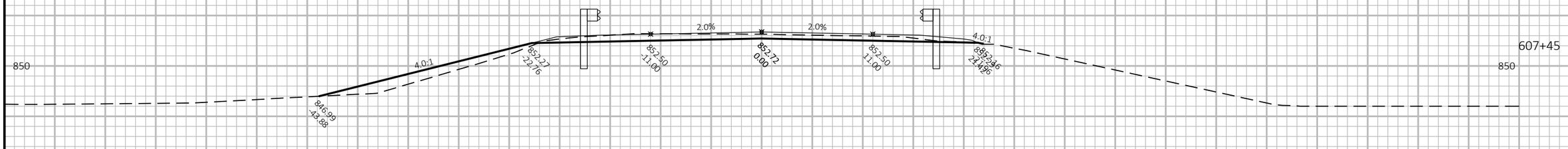
PLOT BY : BOBBI MAXWELL

PLOT NAME :

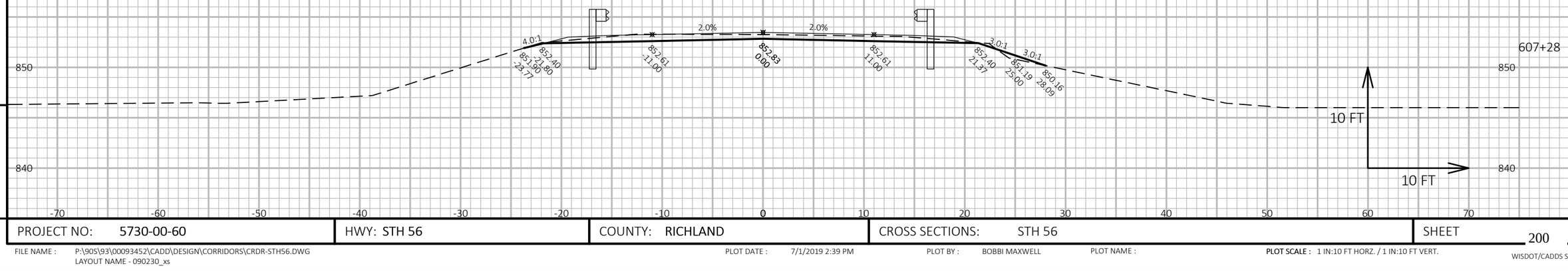
PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

STA 607+45, 16' LT
POST 5



STA 607+28, 15' RT
POST 9



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 200	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090230_xs

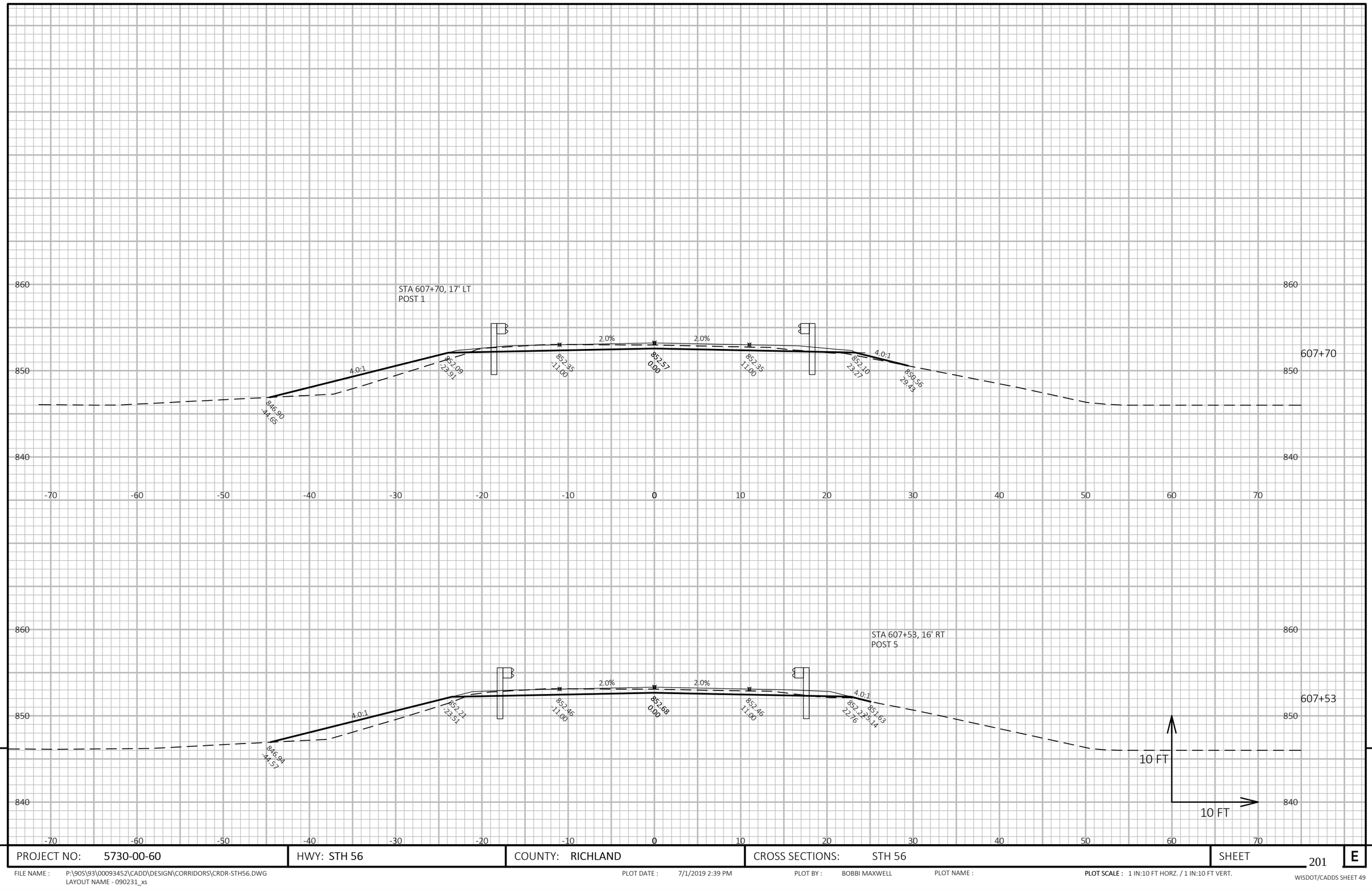
PLOT DATE : 7/1/2019 2:39 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 201	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090231_xs

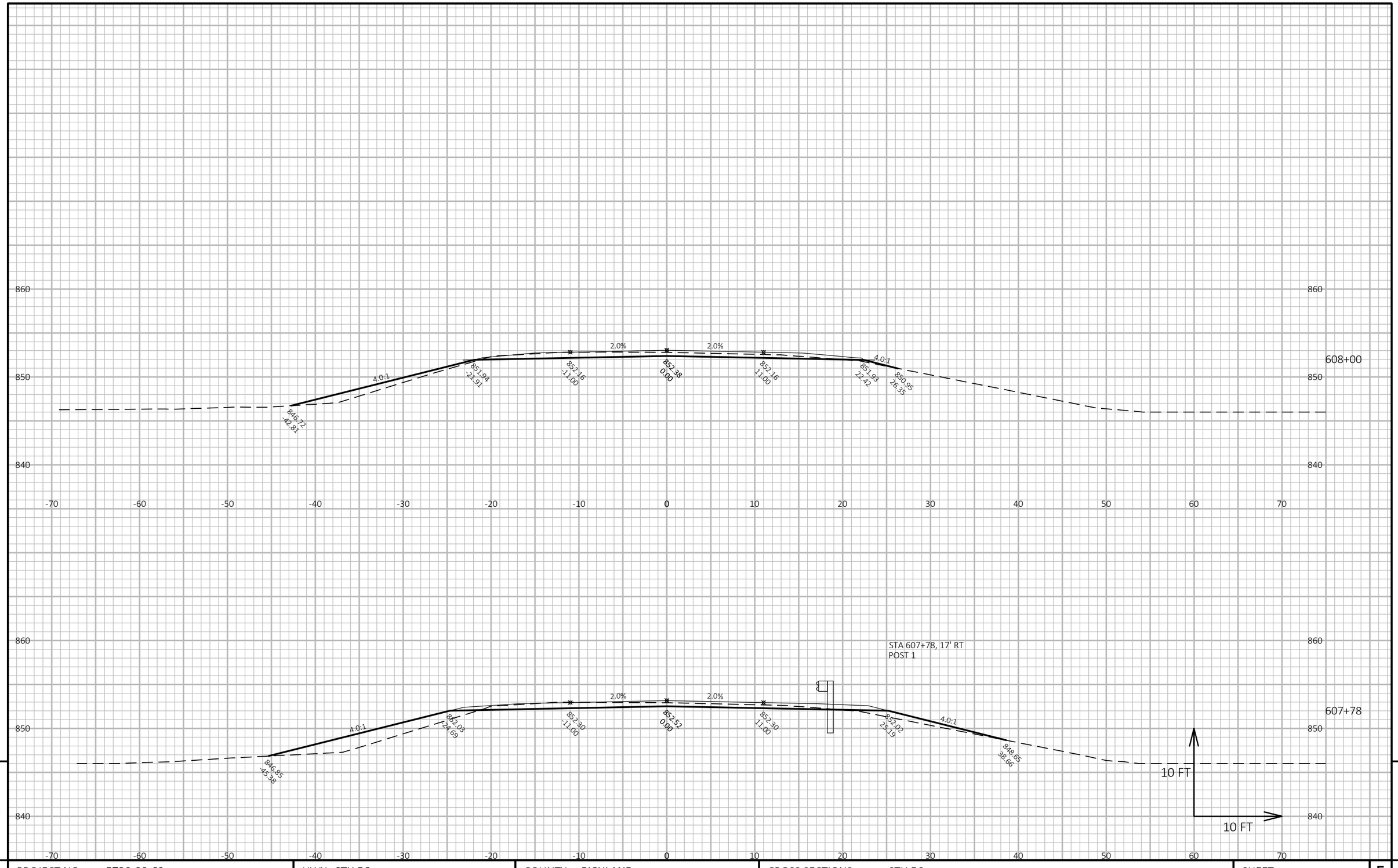
PLOT DATE : 7/1/2019 2:39 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 202	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090232_xs

PLOT DATE : 7/1/2019 2:40 PM

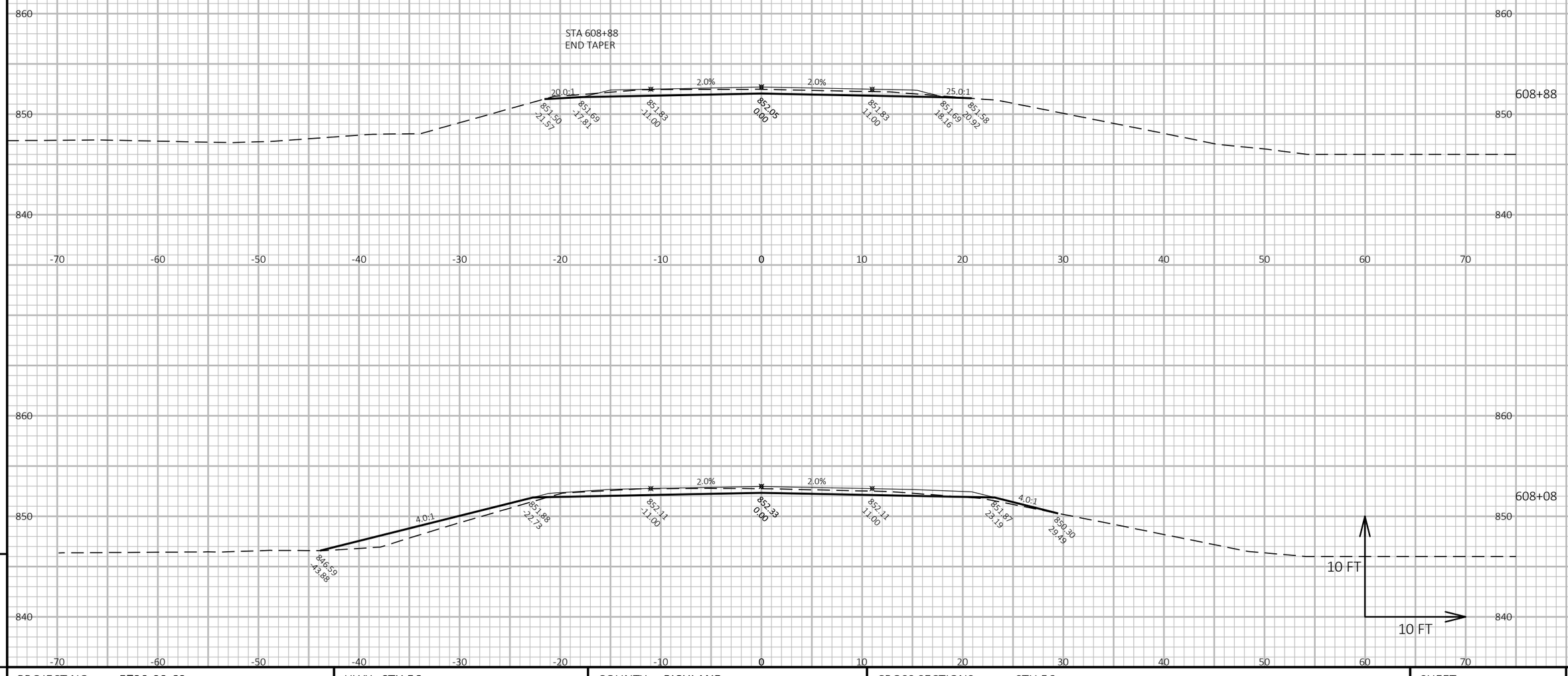
PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

STA 608+88
END TAPER



PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 203	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090233_xs

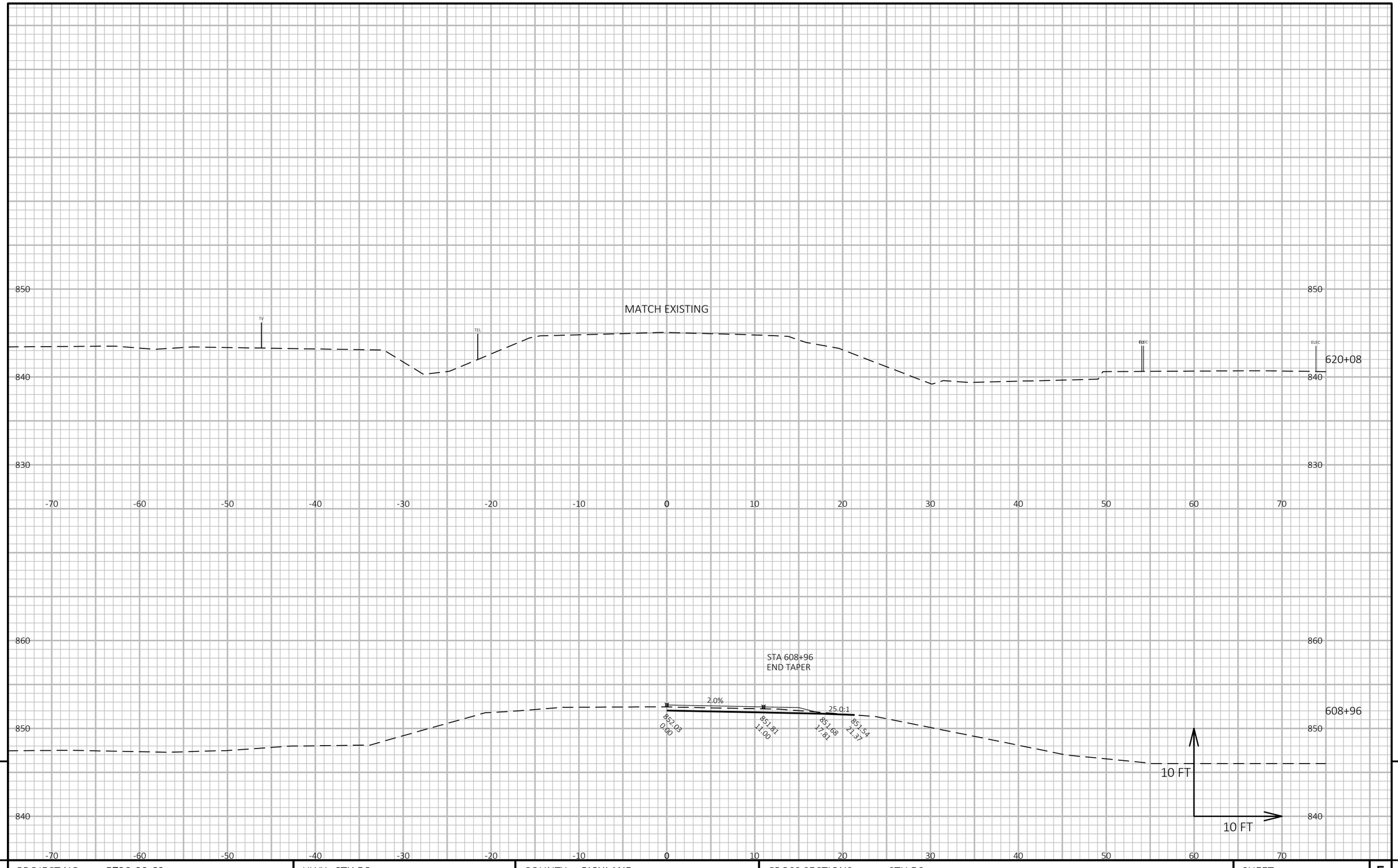
PLOT DATE : 7/1/2019 2:40 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

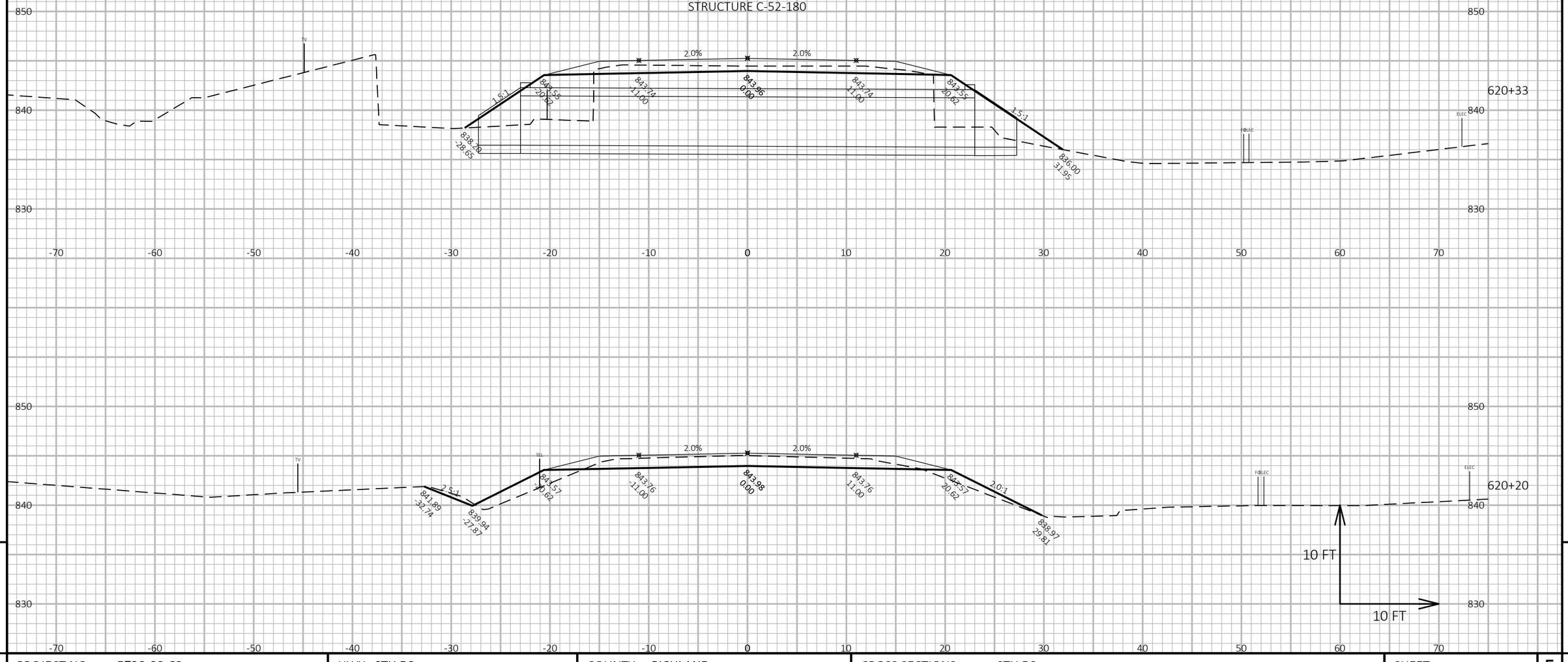
PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 204	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090234_xs

PLOT DATE : 7/1/2019 2:40 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.

STRUCTURE C-52-180

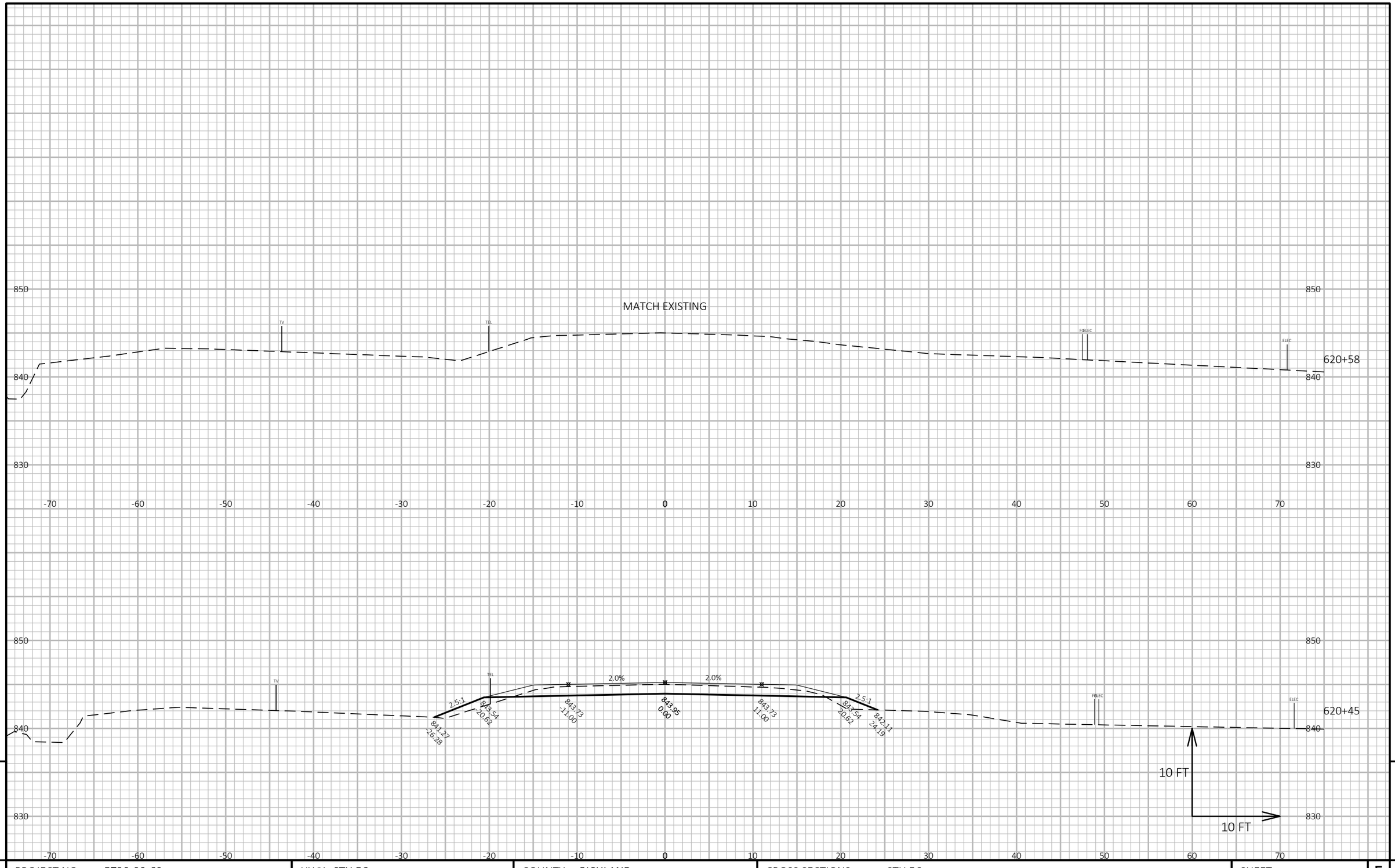


PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 205	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090235_xs

PLOT DATE : 7/1/2019 2:40 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 206	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090236_xs

PLOT DATE : 7/1/2019 2:40 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.

MATCH EXISTING

661+06

TEL

ELEC

840
830
820

-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

STRUCTURE C-52-181

660+81

TEL

0.0% 0.7%

2.0:1 826.72 21.94 825.23 24.92

826.72 11.00

826.72 0.00

826.80 11.00

826.80 21.56 2.0:1

823.17 28.56

MATCH EXISTING

660+56

TEL

10 FT

10 FT

9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 207	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090237_xs

PLOT DATE : 7/1/2019 2:41 PM PLOT BY : BOBBI MAXWELL PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

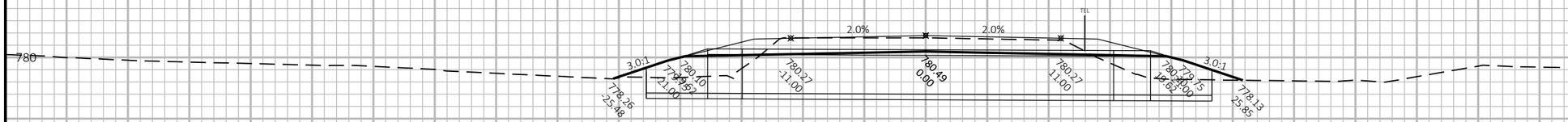
WISDOT/CADDS SHEET 49

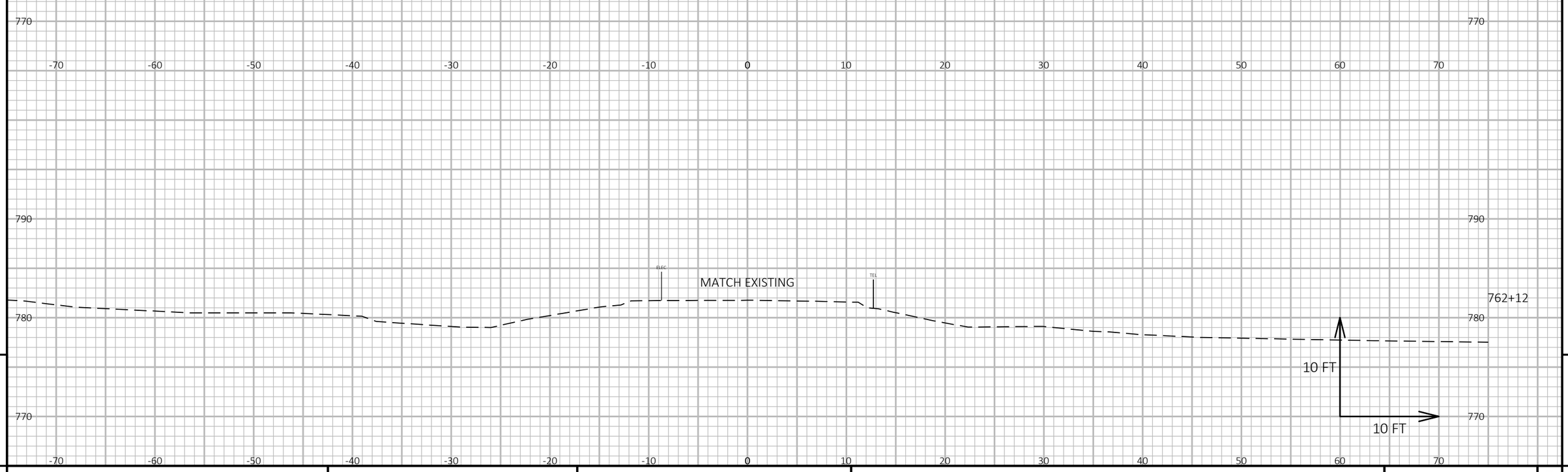
NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.

STA 762+28
1 - 38" X 60" X 30' CPRC HE CL-III
23.3' RT, IE = 776.90
22.7' LT, IE = 777.10
2 - AEW'S

STA 762+37
1 - 38" X 60" X 30' CPRC HE CL-III
23.3' RT, IE = 776.90
22.7' LT, IE = 777.10
2 - AEW'S

STA 762+46
1 - 38" X 60" X 30' CPRC HE CL-III
23.3' RT, IE = 776.90
22.7' LT, IE = 777.10
2 - AEW'S





9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 208	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090238_xs

PLOT DATE : 7/1/2019 2:41 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

780

MATCH EXISTING

780

779+03

770

770

760

760

-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

790

790

MATCH EXISTING

TEL

762+62

780

780

10 FT

10 FT

770

770

-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 209	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090239_xs

PLOT DATE : 7/1/2019 2:41 PM

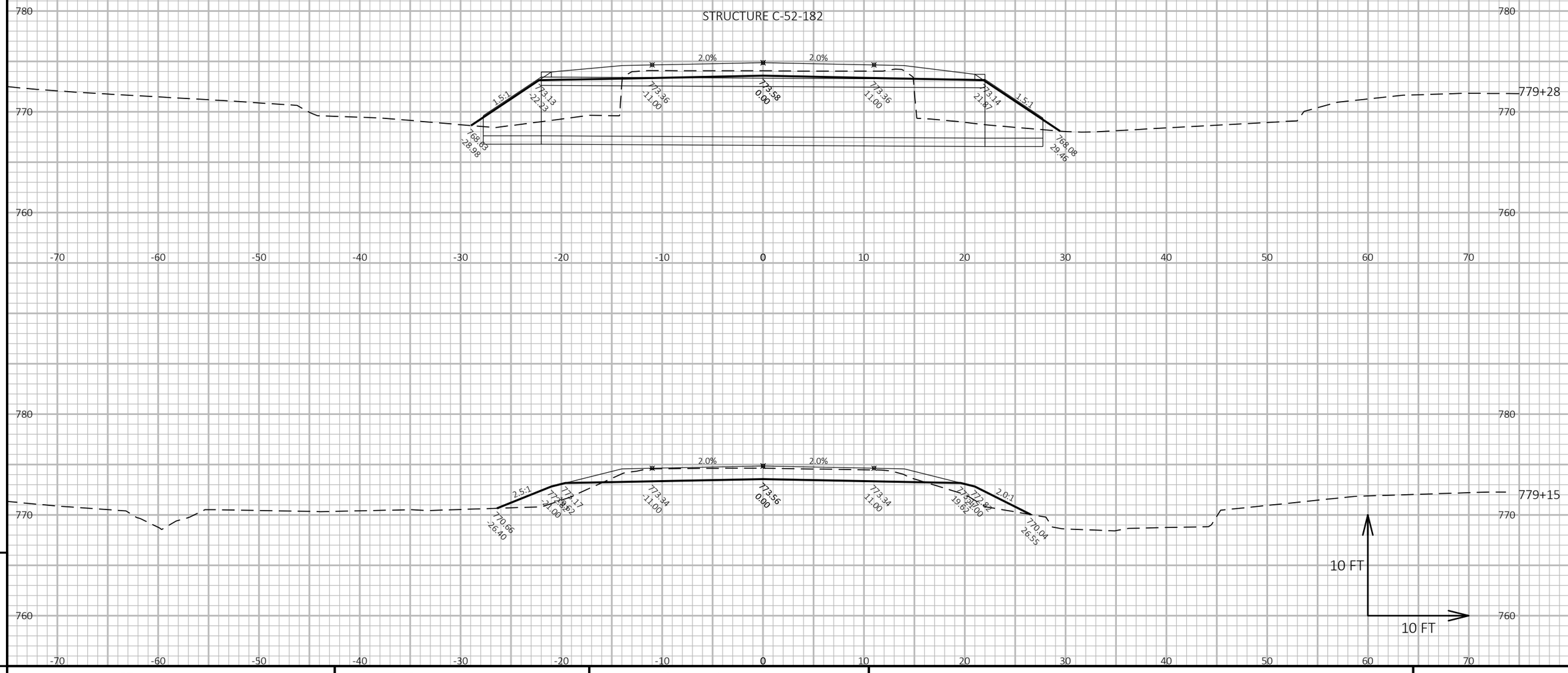
PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

NOTE: GRADE TO MATCH CHANNEL AT ENDWALL ENDS.

STRUCTURE C-52-182



9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 210	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090240_xs

PLOT DATE : 7/1/2019 2:41 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

780
770
760
-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

MATCH EXISTING

779+53

779+40

2.0%
2.0%
2.5:1
2.5:1
7.5:1
7.5:1
773.20
772.62
-21.00
773.37
-11.00
773.59
0.00
773.37
11.00
772.62
-21.00
772.45
-19.62
770.37
-27.20
770.41
-27.10

10 FT
10 FT

9

9

PROJECT NO: 5730-00-60	HWY: STH 56	COUNTY: RICHLAND	CROSS SECTIONS: STH 56	SHEET 211	E

FILE NAME : P:\90S\93\00093452\CADD\DESIGN\CORRIDORS\CRDR-STH56.DWG
LAYOUT NAME - 090241_xs

PLOT DATE : 7/1/2019 2:41 PM

PLOT BY : BOBBI MAXWELL

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov