MAD

APRIL 2022

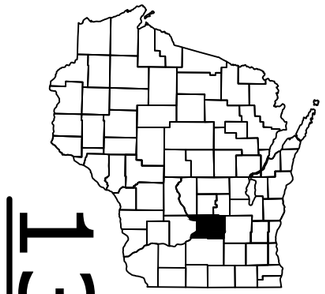
PROJECT ID: 6040-00-65

WITH: N/A

COUNTY: COLUMBIA

ORDER OF SHEETS

TOTAL SHEETS = 116



13

N

DESIGN DESIGNATION

A.A.D.T.	2026	=	8500
A.A.D.T.	2046	=	9800
D.H.V.		=	1050
D.D.		=	60/40
T.		=	22.8%
DESIGN SPEED		=	60 MPH
ESALS		=	3,300,000

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE (300'EB')
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

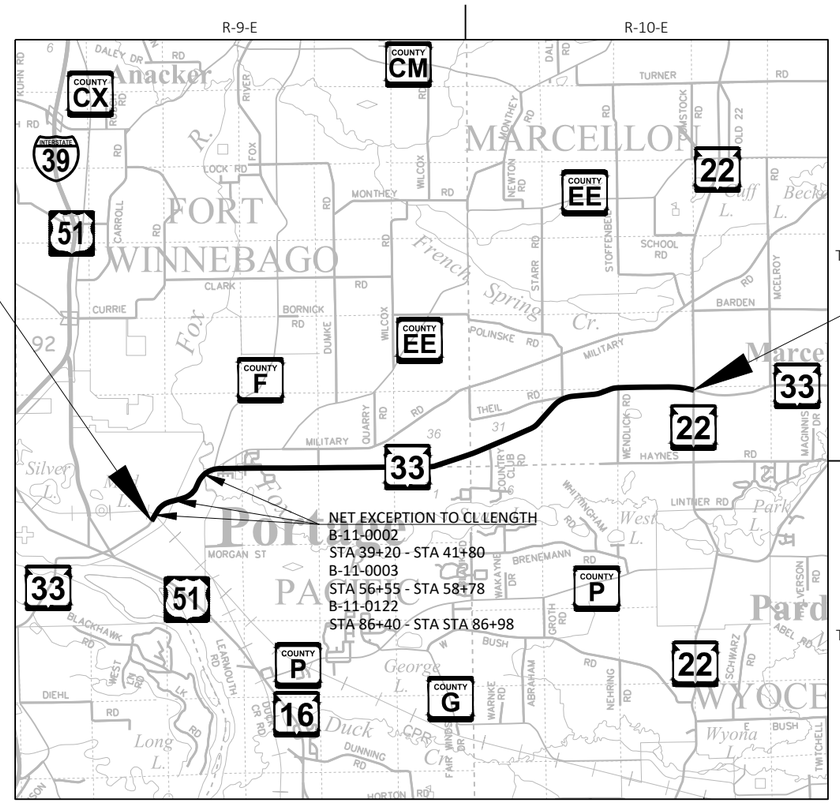
PORTAGE - FOX LAKE

0.13 MI E OF JACKSON ST TO STH 22

STH 33
COLUMBIA COUNTY

STATE PROJECT NUMBER
6040-00-65

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6040-00-65	WISC 2022294	1



LAYOUT

SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 7.614 MI

NET EXCEPTION TO CENTERLINE LENGTH = 0.102 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), COLUMBIA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

ORIGINAL PLANS PREPARED BY

DAAR ENGINEERING, INC.
www.daarcorp.com
Portage, WI 53901
608-566-1370

WISCONSIN PROFESSIONAL ENGINEER
TERESA A. SCHOPP
E-35843
JOHNSON CREEK
WISCONSIN

10/11/2021
(DATE) (SIGNATURE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	DAAR ENGINEERING INC
Designer	DAAR ENGINEERING INC
Project Manager	MAHESH SHRESTHA, P.E.
Regional Examiner	SW REGION
Regional Supervisor	MARC SCHWEIGER, P.E.

APPROVED FOR THE DEPARTMENT Mahesh Shrestha Digitally signed by Mahesh Shrestha Date: 2021.10.08 12:05:58 -05'00'

DATE: (Signature)

E

2

STANDARD ABBREVIATIONS

AC	ACRE	NC	NORMAL CROWN
ADJ	ADJUST	N	NORTH
AH	AHEAD	NTS	NOT TO SCALE
ASPH	ASPHALT	Y	NORTH GRID COORDINATE
AVG	AVERAGE	NB	NORTHBOUND
ADT	AVERAGE DAILY TRAFFIC	NO	NUMBER
AMC	ADJUSTING MANHOLE COVER	OD	OUTSIDE DIAMETER
ASMC	ADJUSTING SANITARY MANHOLE COVER	PAVT	PAVEMENT
AWV	ADJUSTING WATER VALVE	PLE	PERMANENT LIMITED EASEMENT
BK	BACK	PT	POINT
BAD	BASE AGGREGATE DENSE	PC	POINT OF CURVATURE
BM	BENCHMARK	PI	POINT OF INTERSECTION
BMP	BEST MANAGEMENT PRACTICE	PT	POINT OF TANGENCY
CB	CATCH BASIN	PVC	POLYVINYL CHLORIDE
C/L	CENTER LINE	PCC	PORTLAND CEMENT CONCRETE
Δ	CENTRAL ANGLE OR DELTA	LB	POUND
CIR	CIRCULAR	PSF	POUNDS PER SQUARE FOOT
CL	CLASS	PSI	POUNDS PER SQUARE INCH
CONC	CONCRETE	PE	PRIVATE ENTRANCE
CONST	CONSTRUCTION	PGL	PROFILE GRADE LINE
CABC	CRUSHED AGGREGATE BASE SOURSE	PL	PROPERTY LINE
CE	COMMERCIAL ENTRANCE	R	RADIUS
CFS	CUBIC FEET PER SECOND	R	RANGE
CY	CUBIC YARD	R/L	REFERENCE LINE
C&G	CURB AND GUTTER	REINF	REINFORCING OR REINFORCEMENT
D	DEGREE OF CURVE	REQD	REQUIRED
DHV	DESIGN HOUR VOLUME	RT	RIGHT
DIA	DIAMETER	R/W	RIGHT-OF-WAY
DD	DIRECTIONAL DISTRIBUTION	RD	ROAD
DWY	DRIVEWAY	RDWY	ROADWAY
E	EAST	SEC	SECTION
X	EAST GROUND COORDINATE	SHLDR	SHOULDER
EB	EASTBOUND	S	SOUTH
EL	ELEVATION	SB	SOUTHBOUND
ESALS	EQUIVALENT SINGLE AXLE LOADS	SCH	SCHEDULE
EXC	EXCAVATION	SQ	SQUARE
EBS	EXCAVATION BEYOND SUBGRADE	SF	SQUARE FEET
EX	EXISTING	SW	SIDEWALK
FPS	FEET PER SECOND	SY	SQUARE YARD
FERT	FERTILIZE	SDD	STANDARD DETAIL DRAWINGS
FL	FLOWLINE	STH	STATE TRUNK HIGHWAYS
FT	FOOT	STA	STATION
HES	HIGH EARLY STRENGTH	SS	STORM SEWER
HP	HIGH POINT	SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
HMA	HOT MIX ASPHALT	ST	STREET
CWT	HUNDREDWEIGHT	STR	STRUCTURE OR STRUCTURAL
HYD	HYDRANT	SE	SUPERELEVATION
INL	INLET	T	TANGENT
IC	INLET COVERS TYPE H	TEMP	TEMPORARY
IS	INLTES 2X3 AND INLET COVERS TYPE H	TI	TEMPORARY INTEREST
ID	INSIDE DIAMETER	TLE	TEMPORARY LIMITED EASEMENT
I	INTERSECTION ANGLE	T	TOWN
INV	INVERT	T%	TRUCKS (PERCENT OF)
IP	IRON PIPE OR PIN	TYP	TYPICAL
LT	LEFT	VAR	VARIABLE
LP	LOW POINT	VERT	VERTICAL
LS	LUMP SUM	V	DESIGN SPEED
MH	MANHOLE	VOL	VOLUME
MAX	MAXIMUM	WM	WATERMAIN
MGAL	MEGAGALLON	WV	WATER VALVE
MPH	MILES PER HOUR	W	WEST
MIN	MINIMUM	WB	WESTBOUND
MON	MONUMENT	YD	YARD

GENERAL NOTES

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

2 THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPALITY OR PUBLIC AGENCY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

3 DIMENSIONS GIVEN FOR EXISTING FEATURES SHALL BE CONSIDERED AS APPROXIMATE AND MEASURED IN FIELD FOR MATCHING PURPOSES.

4 EXISTING ALIGNMENT FROM SURVEY DATA

5 NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

6 TRAFFIC CONTROL SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER. NO WORK MAY BEGIN UNTIL PROPER TRAFFIC CONTROL DEVICES ARE PLACED AND APPROVED BY THE ENGINEER.

7 HMA PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND GRADATIONS:

PAVEMENT DEPTH	LAYERS
2"	2" 4 MT 58-28 S - UPPER LAYER
6"	6" ASPHALTIC SURFACE *MATCH SURFACE MIX DESIGN (4 MT 58-28 S)

8 CONTRACTOR MUST CONTACT THE PROJECT ENGINEER AND SWRPC, AT LEAST TWO WEEKS PRIOR TO WORK NEAR A PUBLIC SURVEY MONUMENT.

9 HMA PAVEMENT WEIGHT CALCULATIONS BASED ON 112 LB/SY/IN

10 STH 33 IS A HIGH CLEARANCE ROUTE. ALLOW FOR 20' VERTICAL CLEARANCE FOR ADDED OR ADJUSTED VERTICAL OBSTRUCTIONS OR UTILITIES.

11 APPLY TACK COAT AT A RATE OF 0.07 GAL/SY TO MILLED PAVEMENT SURFACES AND 0.05 GAL/SY BETWEEN LAYERS OF HMA PAVEMENT.

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

ORDER OF DETAIL SHEETS

2

UTILITY CONTACTS

ATC MANAGEMENT, INC. - ELECTRICITY-TRANSMISSION
DOUG VOSBERG
2489 RINDEN ROAD
COTTAGE GROVE, WI 53527
(608) 877-7650
dvosberg@atcllc.com

ALLIANT ENERGY - ELECTRIC
STEVE KOHLHAGEN
2777 COLUMBIA DRIVE
PORTAGE, WI 53901
(608) 742-0830
stevekohlhagen@alliantanergy.com

ALLIANT ENERGY - GAS/PETROLEUM
STEVE KOHLHAGEN
2777 COLUMBIA DRIVE
PORTAGE, WI 53901
(608) 742-0830
stevekohlhagen@alliantanergy.com

CITY OF PORTAGE UTITLIES - SEWER
JERAD ROYAL
115 WEST PLEASANT STREET
PORTAGE, WI 53901
(608) 742-2176
jerad.royal@portagewi.gov

ENBRIDGE ENERGY - GAS/PETROLEUM
CRAIG GUTTENBERG
803 HIGHLAND RD
FORT ATKINSON, WI 53538
(920) 691-6827
craig.guttenberg@enbridge.com

PORTAGE MUNICIPAL AIRPORT - AIRPORT FACILITY
JERAD ROYAL
115 WEST PLEASANT STREET
PORTAGE, WI 53901
(608) 742-2176
jerad.royal@portagewi.gov

ADAMS-COLUMBIA ELECTRIC COOPERATIVE - ELECTRICITY
SHAWN PIETRZAK
P.O. BOX 70
FRIENDSHIP, WI 53934-0070
(800) 831-8629
spietrzak@acecwi.com

CHARTER COMMUNICATIONS
GLEN JAKUSZ
2701 DANIELS ST.
MADISON, WI 53718
(608) 209-3202
glen.jakusz@charter.com

CITY OF PORTAGE UTITLIES - WATER
JERAD ROYAL
115 WEST PLEASANT STREET
PORTAGE, WI 53901
(608) 742-2176
jerad.royal@portagewi.gov

FRONTIER COMMUNICATIONS OF WI LLC - COMMUNICATION LINE
JERRY MOORE
2222 WEST WISCONSIN ST.
PORTAGE, WI 53901
(608) 742-9507
jerad.r.moore@ftr.com

WINDSTREAM KDL, LLC - COMMUNICATION LINE
ERIC BECKER
314 N DANZ AVE
GREEN BAY, WI 54302-3526
(920) 461-9825
eric.becker@windstream.com

OTHER CONTACTS

DAAR ENGINEERING, INC
TERI SCHOPP
151 E COOK STREET
PORTAGE, WI 53901
(920) 342-2176
teri.schopp@daarcorp.com

WISDOT CONTACTS

WISDOT PROJECT MANAGER
MAHESH SHRESTHA
2101 WRIGHT ST.
MADISON WI 53704-2559
(608) 245-2674

WDNR CONTACT

ERIC HEGGELUND
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
(608) 228-7927
eric.heggelund@wisconsin.gov

COLUMBIA COUNTY CONTACT

CHRIS HARDY, PE
HIGHWAY COMMISSIONER
338 WEST OLD HWY. 16
WYOCENA, WI 53969
(608) 429-3750

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

2

N

END PROJECT
STA 442+89
Y = 405142.13
X = 578444.93

GUARDRAIL EXISTING
STA 35+89 - STA 39+44
GUARDRAIL REPLACEMENT
STA 41+55 - STA 55+49

GUARDRAIL REPLACEMENT
STA 55+93 - STA 56+55
GUARDRAIL EXISTING
STA 56+44 - STA 59+42

ARCH/HISTORICAL SITE

CULVERT REPLACEMENT
STA 263+69

CTH EE
CTH F
MILITARY RD
FOOTE DR
CARIMAUNEE DR
STONE HAVEN DR
PACIFIC ESTATES RD
GARRISON RD
QUARRY RD
STH 33
THEIL RD
POLINSKE RD
ASHLEY RD
WENDLICK RD
HAYNES RD
STH 22
SADDLE RIDGE
COUNTRY CLUB LN
FOX RIVER
SWAN LAKE
CENTRAL WISCONSIN PORTAGE CANAL AGENCY HOUSE RD
WAUOMA TRAIL
SUPERIOR ST
ALBERT ST
CANADIAN PACIFIC RAILROAD

GUARDRAIL EXISTING
STA 85+45 - STA 87+87

NET EXCEPTION TO CL LENGTH
B-11-0002
STA 39+20 - STA 41+80
B-11-0003
STA 56+55 - STA 58+78
B-11-0122
STA 86+40 - STA 86+98

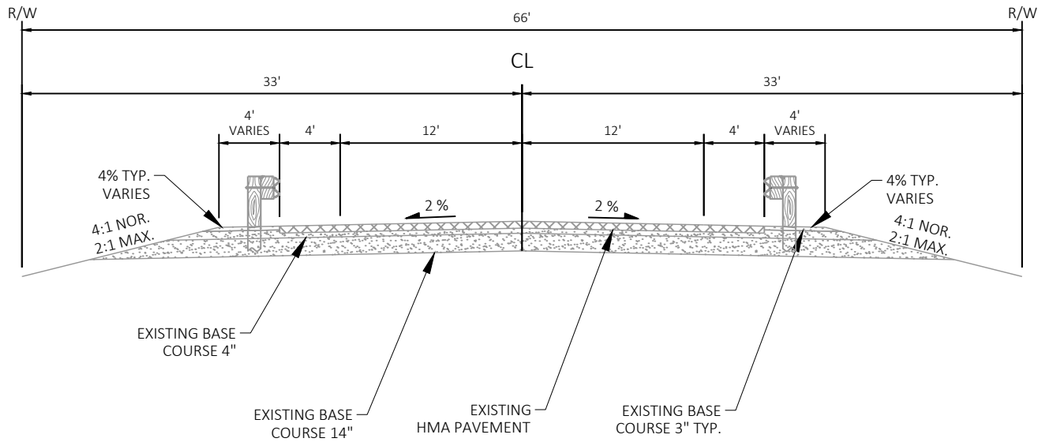
BEGIN PROJECT
STA 35+40
Y = 396289.59
X = 540657.61

PORTAGE CITY LIMITS

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PROJECT OVERVIEW	SHEET 4	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\020201-PO.DWG
LAYOUT NAME - 01
PLOT DATE : 7/16/2021 11:46 AM
PLOT BY : JAMES GOLDEN
PLOT NAME :
PLOT SCALE : 1 IN:0.5 MI
WISDOT/CADDS SHEET 42

BRIDGE		
BRIDGE ID	STATION RANGE	CLEAR WIDTH
B-11-0002	39+20 - 41+80	30'-0"

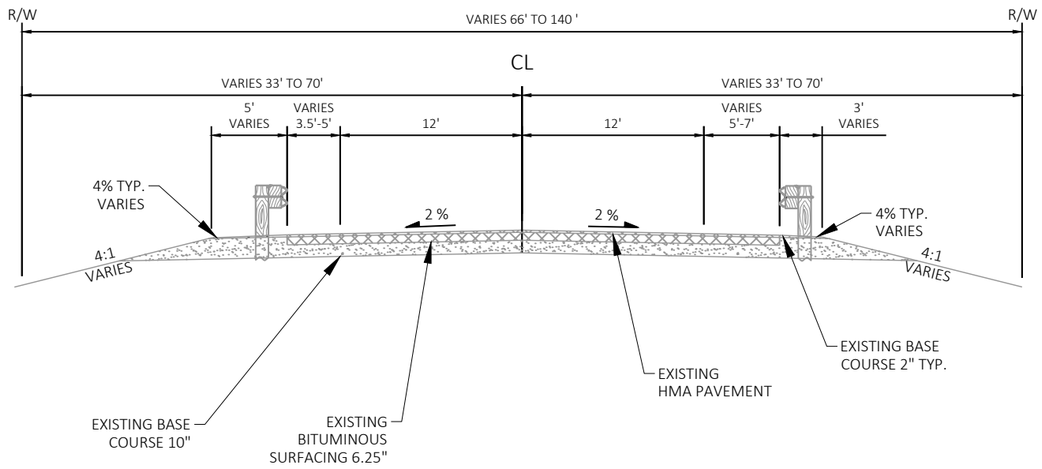


EXISTING GUARDRAIL TO REMAIN			
BRIDGE ID	SIDE OF BRIDGE	LEFT OFFSET	RIGHT OFFSET
B-11-0002	WEST	16'-0"	16'-0"

EXISTING TYPICAL SECTION - STH 33

STA 35+40 TO 39+20

BRIDGE		
BRIDGE ID	STATION RANGE	CLEAR WIDTH
B-11-0002	39+20 - 41+80	30'-0"

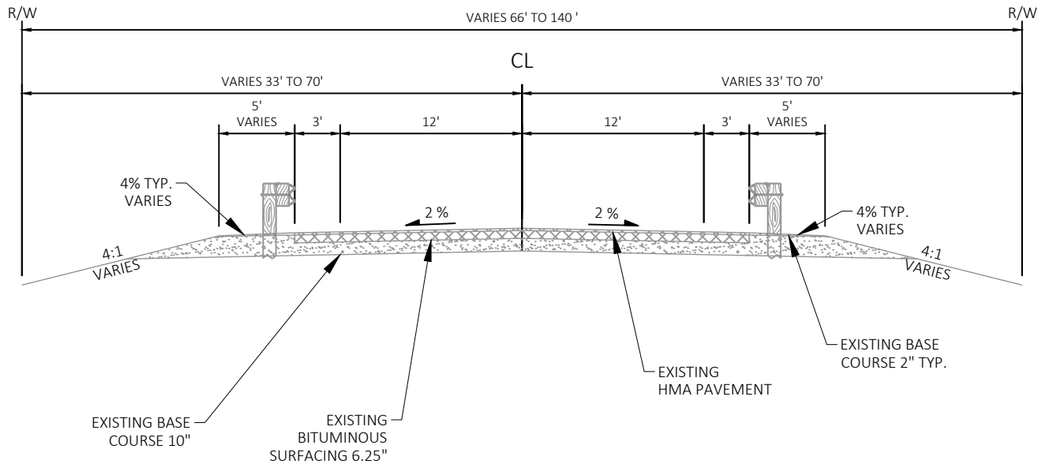


EXISTING GUARDRAIL			
BRIDGE ID	SIDE OF BRIDGE	LEFT OFFSET	RIGHT OFFSET
B-11-0002	EAST	17'-0"	19'-0"

EXISTING TYPICAL SECTION - STH 33

STA 41+79 TO 55+50

BRIDGE		
BRIDGE ID	STATION RANGE	CLEAR WIDTH
B-11-0003	56+55 - 58+78	30'-0"

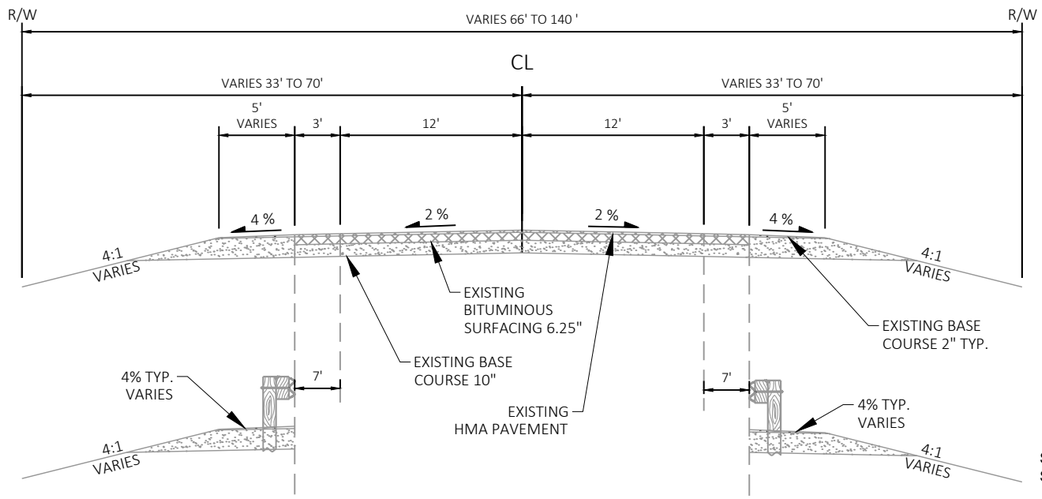


EXISTING GUARDRAIL TO REMAIN			
BRIDGE ID	SIDE OF BRIDGE	LEFT OFFSET	RIGHT OFFSET
B-11-0003	WEST	15'-0"	15'-0"
B-11-0003	EAST	15'-0"	15'-0"

EXISTING TYPICAL SECTION - STH 33

STA 55+50 TO 56+55
STA 58+78 TO 59+41

BRIDGE		
BRIDGE ID	STATION RANGE	CLEAR WIDTH
B-11-0122	86+40 - 86+98	39'-0"



STA 85+74 TO 86+40
STA 86+98 TO 87+90

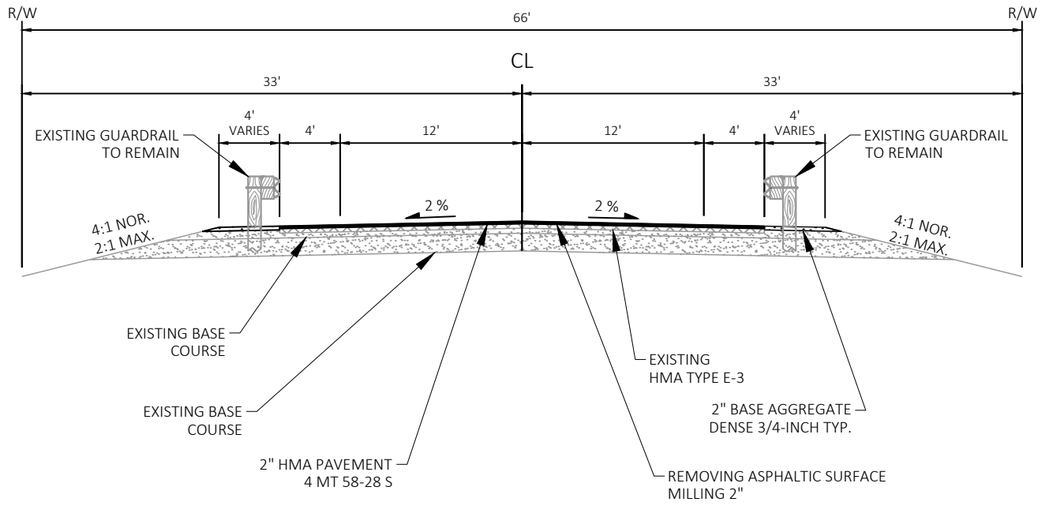
STA 85+44 TO 86+30
STA 86+98 TO 87+69

EXISTING GUARDRAIL TO REMAIN			
BRIDGE ID	SIDE OF BRIDGE	LEFT OFFSET	RIGHT OFFSET
B-11-0122	WEST	19'-0"	19'-0"
B-11-0122	EAST	19'-0"	19'-0"

EXISTING TYPICAL SECTION - STH 33

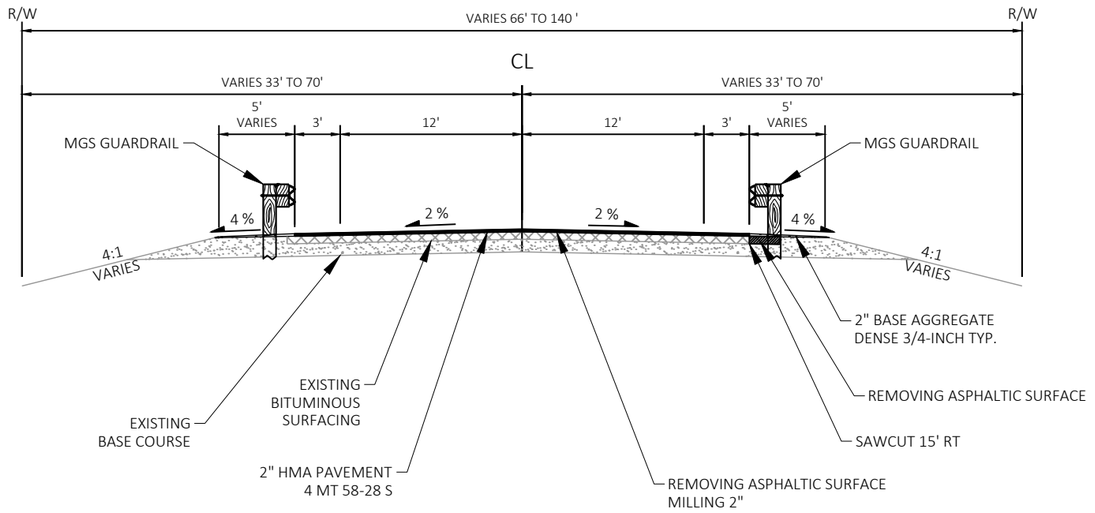
STA 59+41 TO 86+40
STA 86+98 TO 442+89

2



FINISHED TYPICAL SECTION - STH 33

STA 35+40 TO 39+20



FINISHED TYPICAL SECTION - STH 33

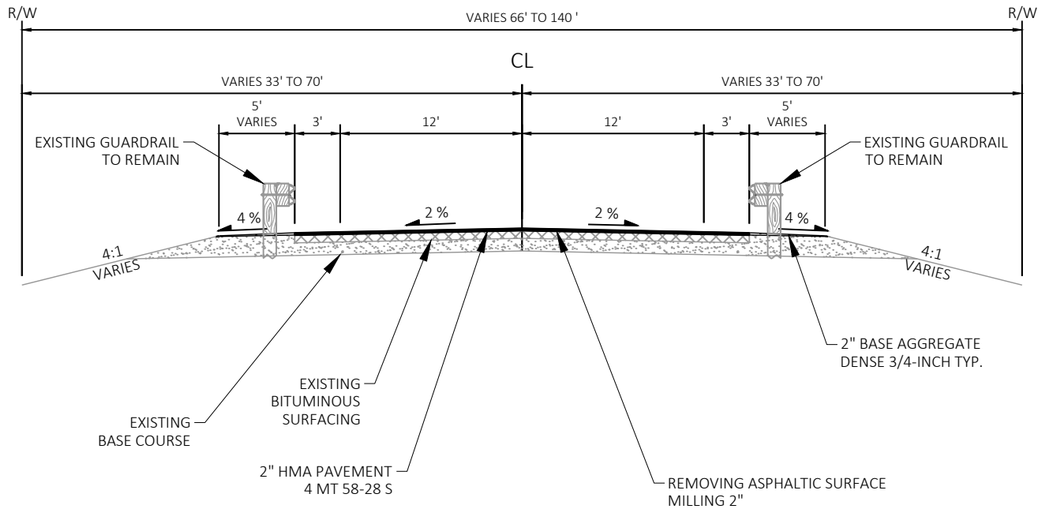
STA 41+80 TO 55+50

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	TYPICAL SECTIONS	SHEET 7	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\020301-TS.DWG
LAYOUT NAME - 03

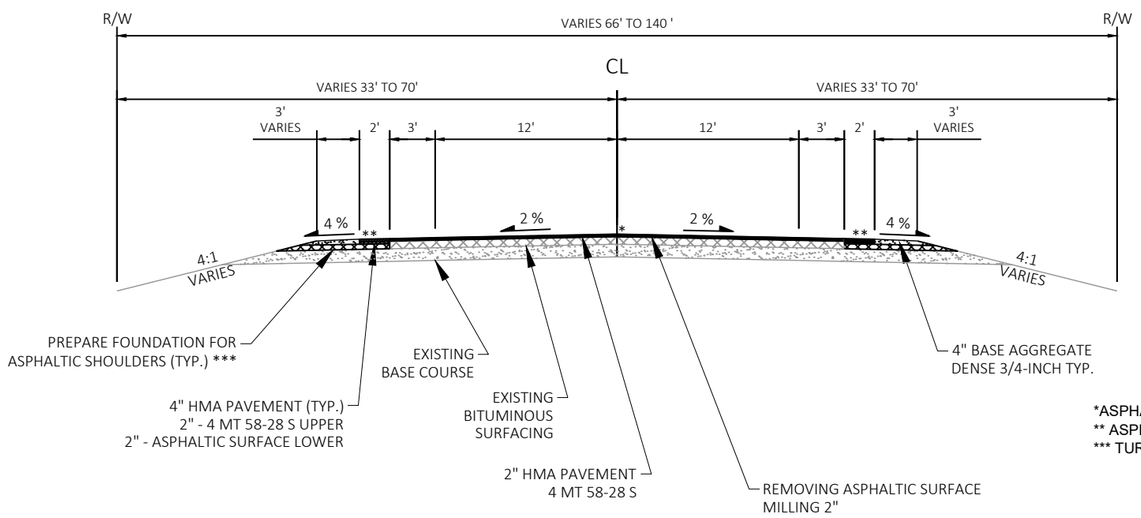
PLOT DATE : 9/14/2021 4:40 PM PLOT BY : ETHAN HEROUX PLOT NAME : PLOT SCALE : 1 IN:10 FT

2



FINISHED TYPICAL SECTION - STH 33

STA 55+50 TO 56+55
STA 58+78 TO 59+41



FINISHED TYPICAL SECTION - STH 33

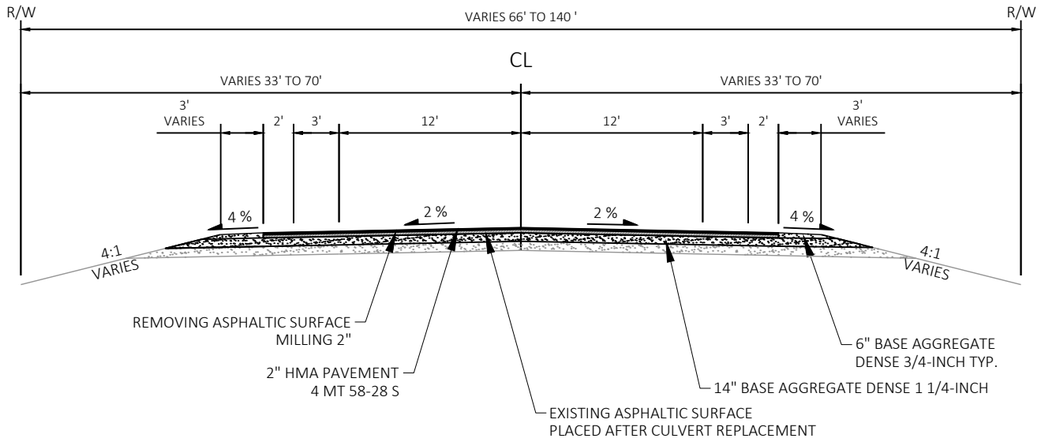
STA 59+41 TO 86+40
STA 86+98 TO 442+89

NOTES:

1. THE FOLLOWING STATION RANGES ARE FOR TURN LANES AND BYPASS LANES TO BE PAVED TO EXISTING WIDTHS:
   - 1.1. STA 68+00 - 73+50 LT
   - 1.2. STA 93+00 - 101+00 RT
   - 1.3. STA 95+00 - 97+50 LT
   - 1.4. STA 143+00 - 145+50 RT
   - 1.5. STA 223+00 - 225+50 RT
   - 1.6. STA 238+50 - 243+00 LT
2. SEE PLANS FOR TOTAL PAVEMENT WIDTHS

*ASPHALTIC CENTERLINE RUMBLE STRIPS, SINUSOIDAL STA 86+98 TO 442+89
** ASPHALTIC SHOULDER RUMBLE STRIPS, SINUSOIDAL STA 133+50 TO 442+89
*** TURN LANES AND BYPASS LANES WIDER THAN 17' TO BE PAVED TO MATCH EXISTING WIDTH

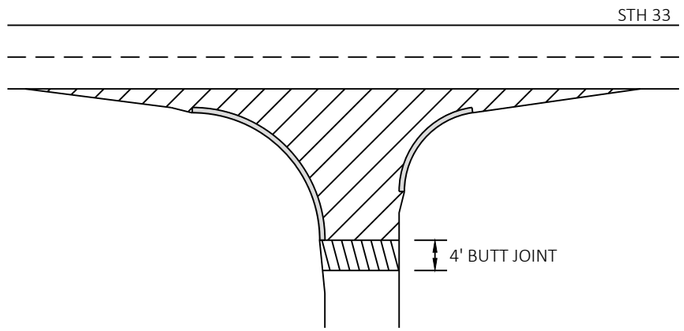
2



FINISHED TYPICAL SECTION - CULVERT PIPE

STA 263+69

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	TYPICAL SECTIONS	SHEET 9	E



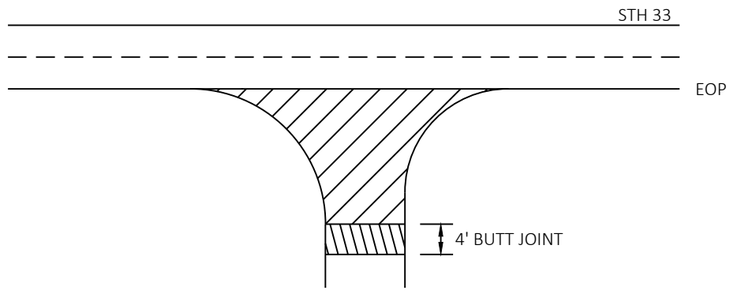
REMOVING ASPHALTIC SURFACE MILLING

REMOVING ASPHALTIC SURFACE BUTT JOINTS
SEE BUTT JOINT DETAIL

NOTE: WHEN MATCHING TO AN UNPAVED SURFACE
BUTT JOINT IS NOT REQUIRED

SIDE ROADS

WITH CURB AND GUTTER



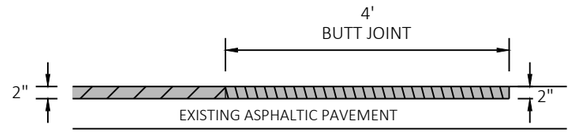
REMOVING ASPHALTIC SURFACE MILLING

REMOVING ASPHALTIC SURFACE BUTT JOINTS
SEE BUTT JOINT DETAIL

NOTE: WHEN MATCHING TO AN UNPAVED SURFACE
BUTT JOINT IS NOT REQUIRED

SIDE ROADS

WITHOUT CURB AND GUTTER



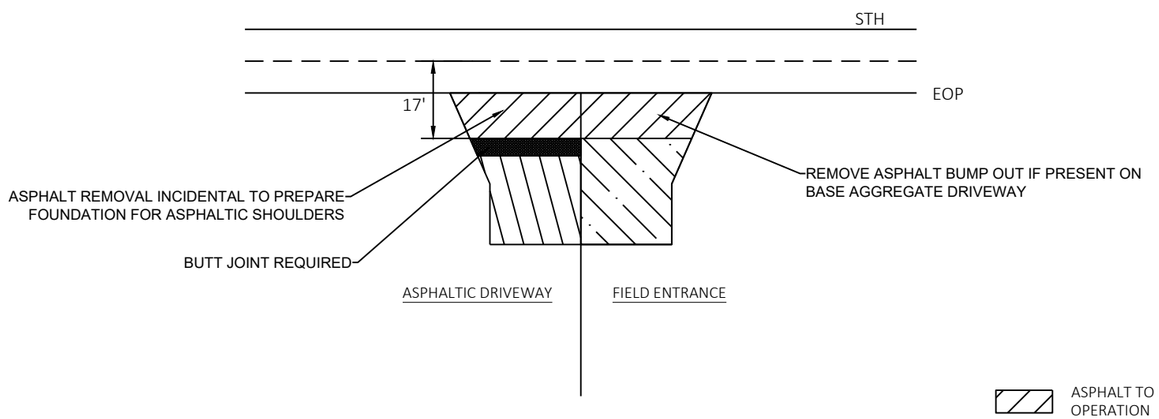
HMA PAVEMENT

REMOVING ASPHALTIC SURFACE MILLING

REMOVING ASPHALTIC SURFACE BUTT JOINTS

BUTT JOINT

MAINLINE AND SIDE ROADS



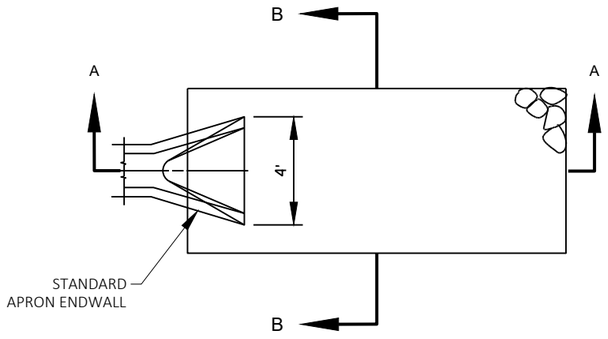
ASPHALT TO BE REMOVED IN SHOULDER OPERATION

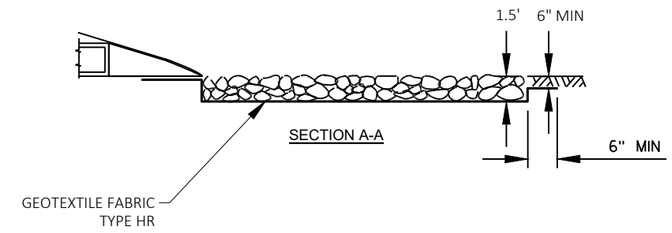
EXISTING ASPHALTIC DRIVEWAY

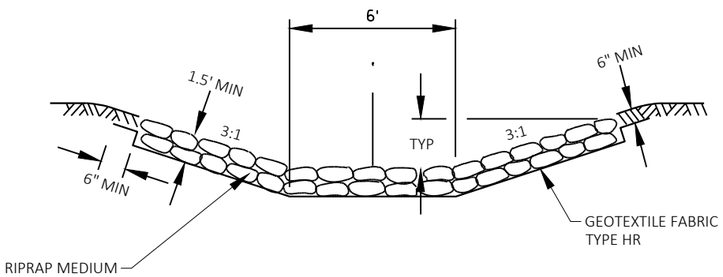
EXISTING BASE AGGREGATE DRIVEWAY

NOTE: LIMITS OF DRIVEWAYS TO BE DETERMINED BY THE ENGINEER

DETAIL FOR RURAL DRIVEWAY

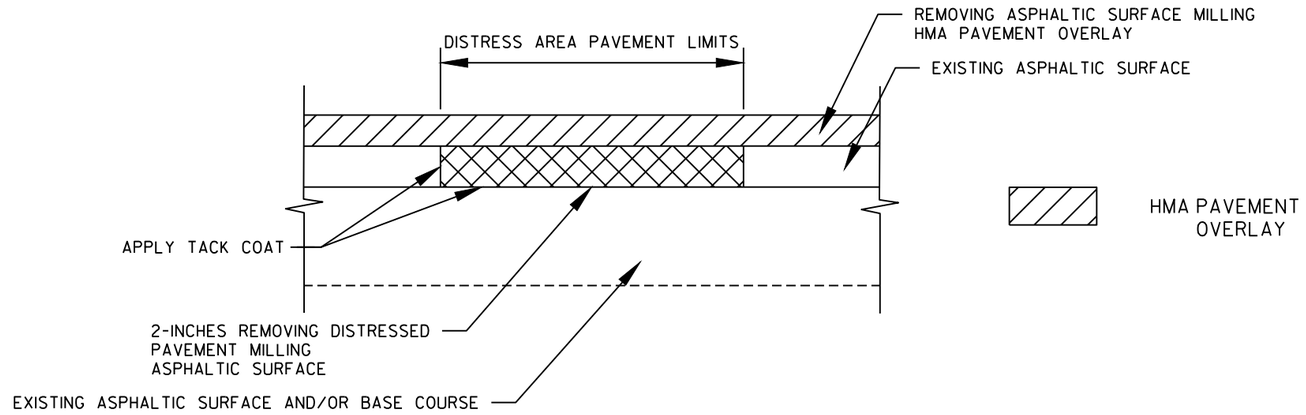




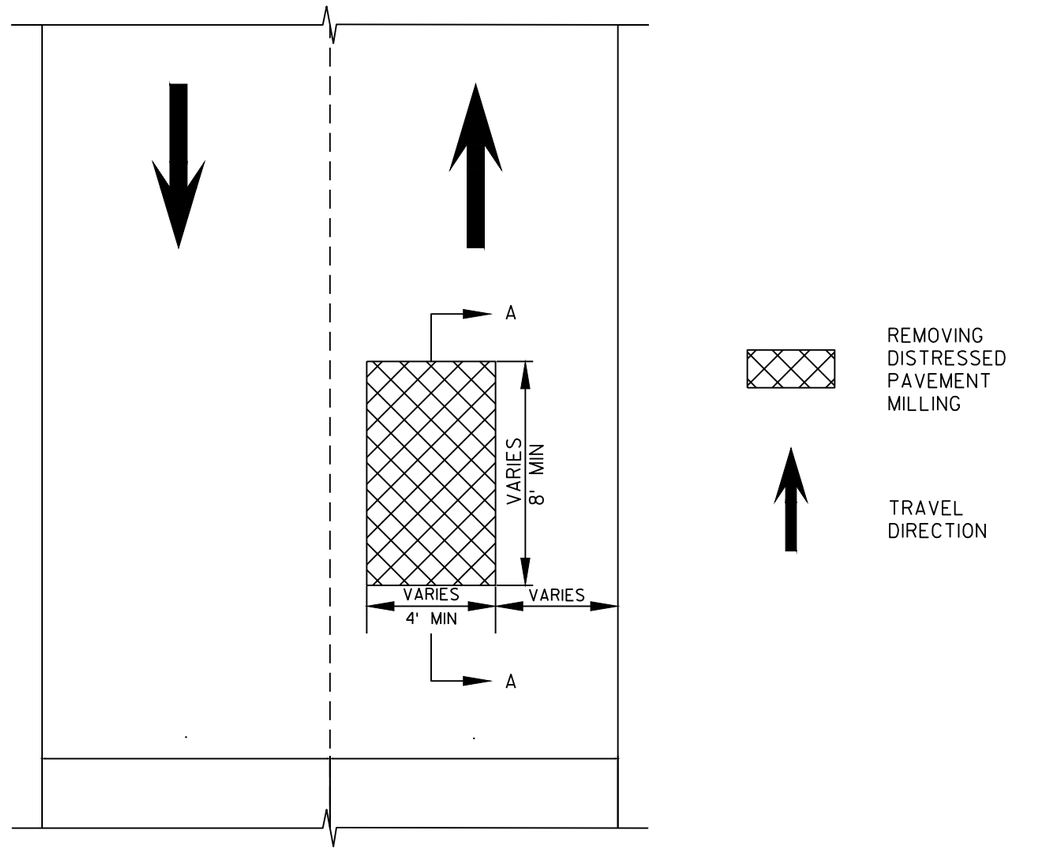


SECTION B-B

RIP RAP AND GEOTEXTILE

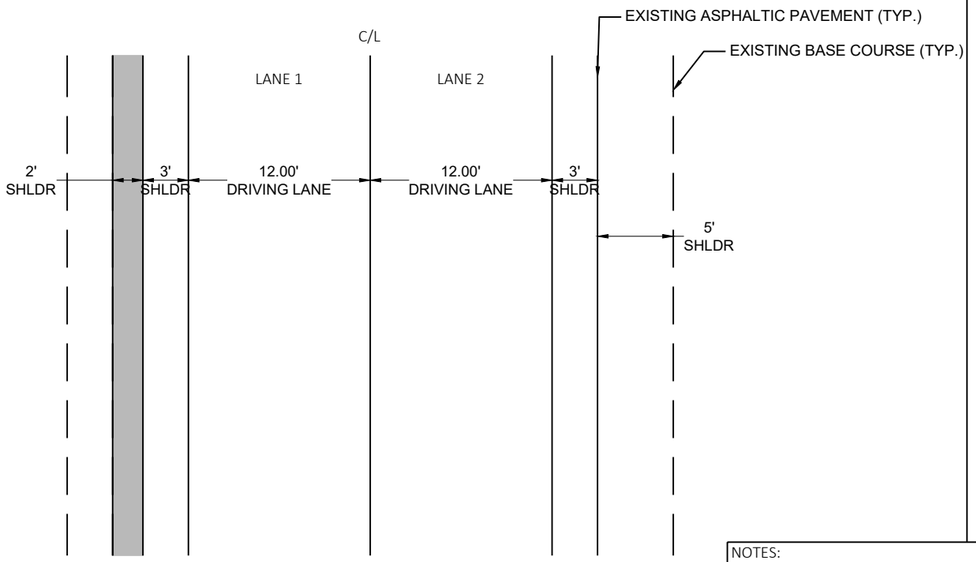


REMOVING DISTRESSED PAVEMENT MILLING
SECTION A-A



PLANVIEW

EXACT LOCATION AND LIMITS OF REMOVING DISTRESSED PAVEMENT MILLING TO BE DETERMINED BY THE ENGINEER IN THE FIELD



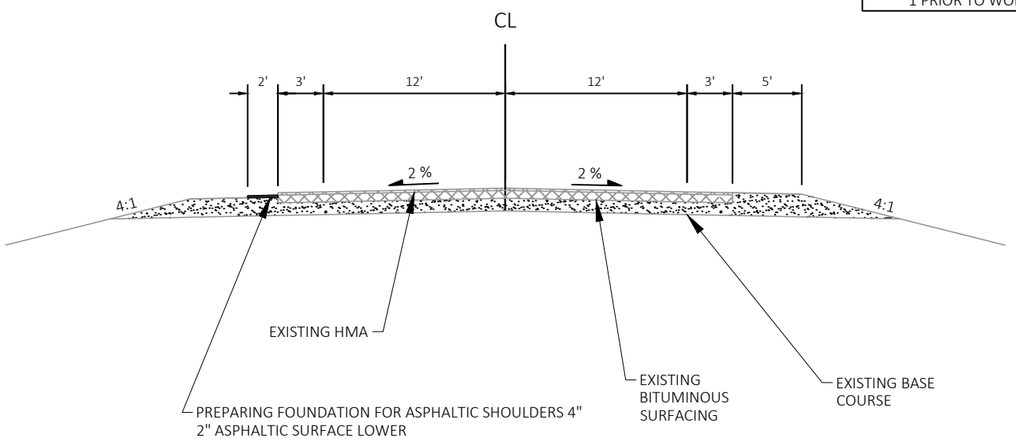
PLAN VIEW

2' PREPARING FOUNDATION FOR ASPHALTIC SHOULDERS
PAVE 2' - 2" ASPHALTIC SURFACE* (LOWER LIFT)

* MATCH SURFACE PAVEMENT MIX DESIGN

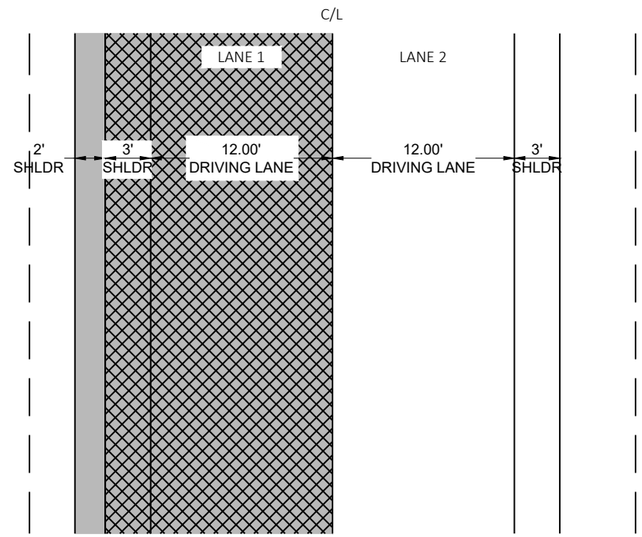
NOTES:

1. DETAIL SHOWS EASTBOUND LANE COMPLETED FIRST. MIRROR OPERATIONS FOR WESTBOUND LANE. ORDER OF PAVING EASTBOUND OR WESTBOUND LANE TO BE DETERMINED BY THE CONTRACTOR. THE LANE IN WHICH WORK IS COMPLETED FIRST IS TO BE NOTED AS LANE 1, WHILE THE LANE IN WHICH WORK WILL BE COMPLETED SECOND IS TO BE NOTED AS LANE 2.
2. TEMPORARY MARKING LINE PAINT 4-INCH TO BE PLACED AS DOUBLE YELLOW CENTERLINE MARKING ON EXISTING PAVEMENT OF LANE 2 PRIOR TO WORK STARTING ON LANE 1.
3. TEMPORARY MARKING LINE EPOXY 4-INCH TO BE PLACED AS TEMPORARY CENTERLINE SKIPS ON THE NEW PAVEMENT OF LANE 1 PRIOR TO WORK STARTING ON LANE 2.



FIRST PASS DETAIL - STH 33

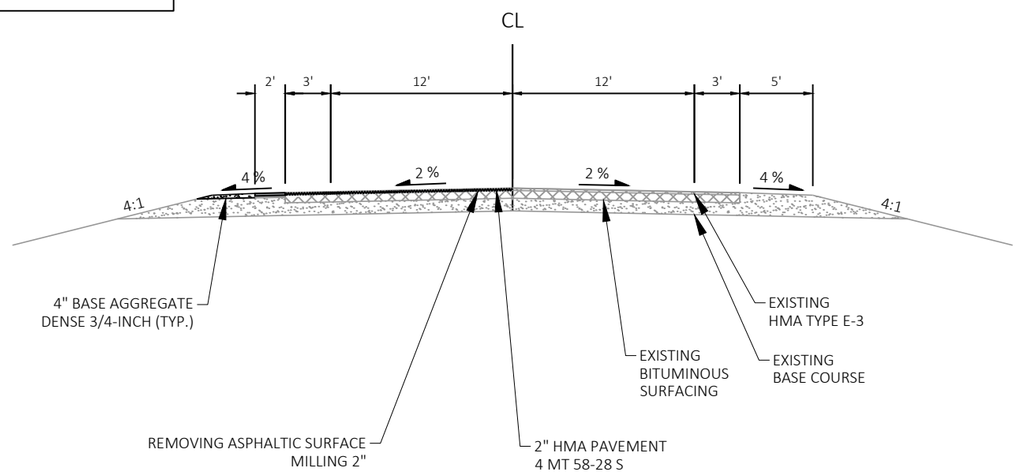
STA 59+41 TO 442+89



PLAN VIEW

MILL 15' - REMOVING ASPHALTIC SURFACE MILLING VARIABLE DEPTH MILL 2"

PAVE 17' - 2" HMA PAVEMENT 4 MT 58-28 S (SURFACE LIFT)

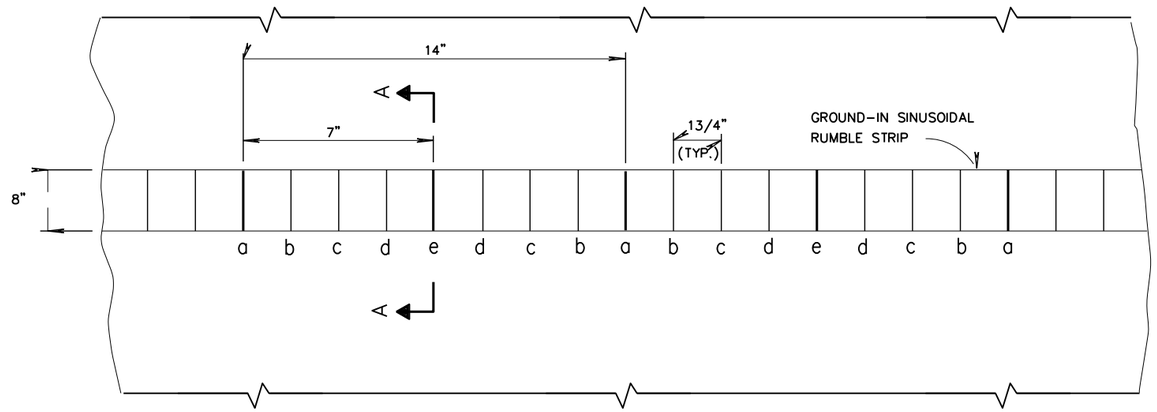


SECOND PASS DETAIL - STH 33

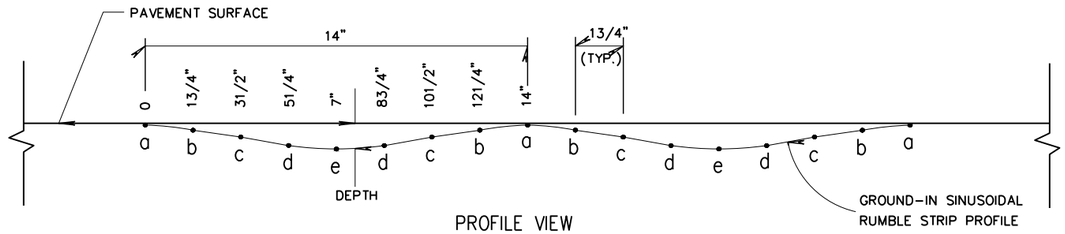
STA 59+41 TO 442+89

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CONSTRUCTION DETAILS	SHEET 12	E

FILE NAME : C:\USERS\ETHAN.HEROUX\ONEDRIVE - DAAR CORPORATION\DOCUMENTS - SW PORTAGE DESIGN (O)\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\021001-CD.DWG PLOT DATE : 1/24/2022 2:37 PM PLOT BY : ETHAN HEROUX PLOT NAME : PLOT SCALE : 1 IN:10 FT
LAYOUT NAME - 03
WISDOT/CADDS SHEET 42



PLAN VIEW
CENTER LINE WITH GROUND-IN SINUSOIDAL RUMBLE STRIP



PROFILE VIEW
GROUND-IN SINUSOIDAL RUMBLE STRIP

LOCATION	DEPTH INCHES
a	1/16"
b	5/32"
c	9/32"
d	7/16"
e	1/2"

GENERAL NOTES

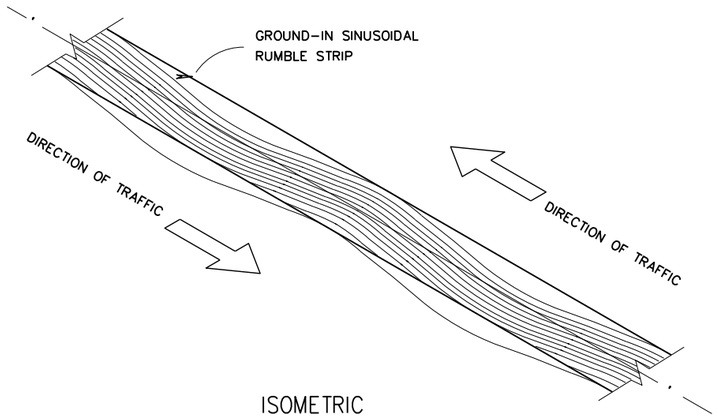
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL CENTER LINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

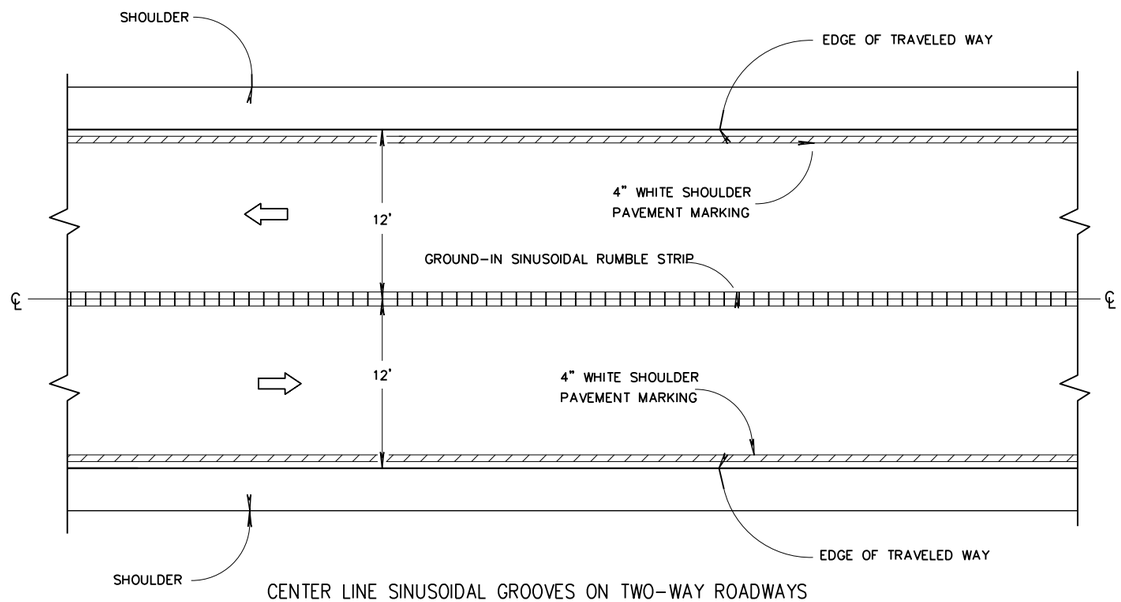
INSTALL TEMPORARY PAVEMENT MARKINGS BEFORE THE GROOVES ARE INSTALLED AND PERMANENT PAVEMENT MARKINGS AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

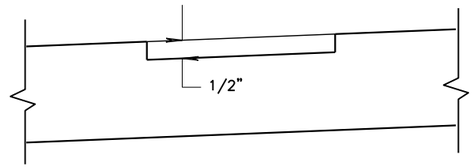
(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



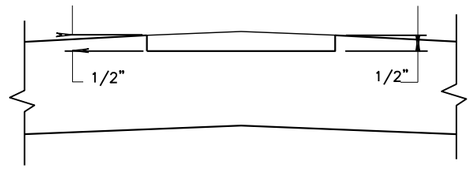
ISOMETRIC



CENTER LINE SINUSOIDAL GROOVES ON TWO-WAY ROADWAYS



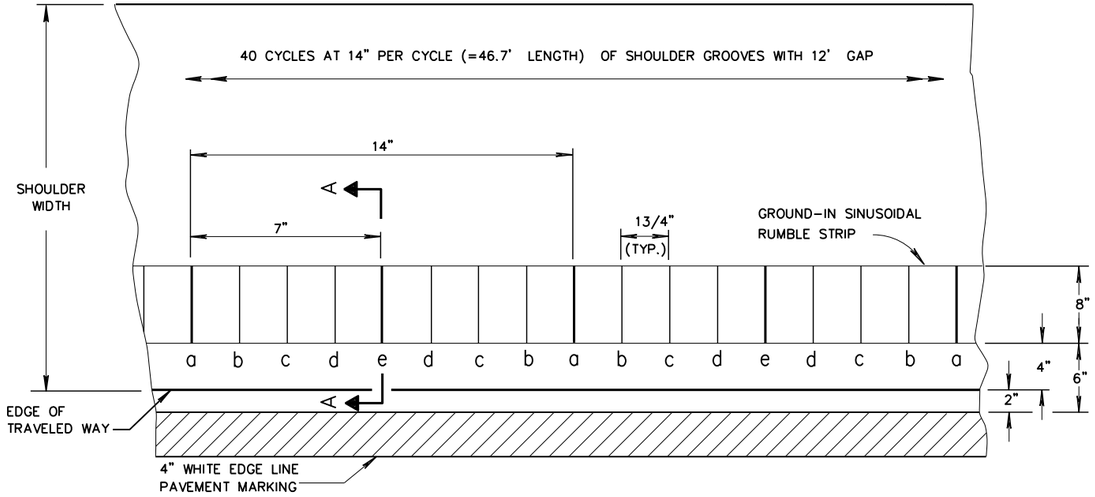
SECTION A-A
SUPERELEVATED ROADWAY



SECTION A-A
CROWNED ROADWAY

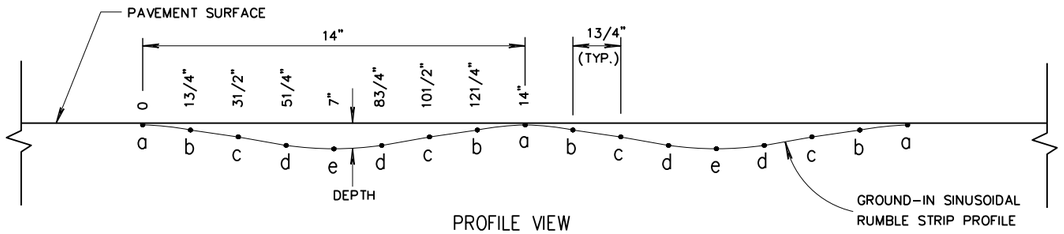
ASPHALTIC CENTERLINE RUMBLE STRIPS, SINUSOIDAL, 2-LANE RURAL

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CONSTRUCTION DETAILS	SHEET 13	E



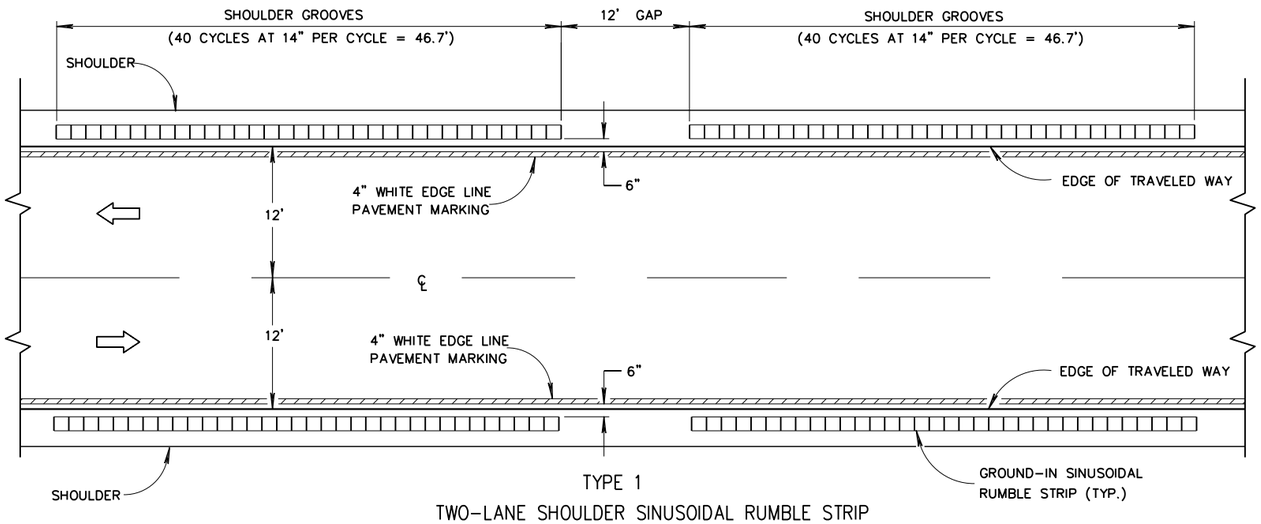
PLAN VIEW

SHOULDER WITH GROUND-IN SINUSOIDAL RUMBLE STRIP



PROFILE VIEW

GROUND-IN SINUSOIDAL RUMBLE STRIP



TYPE 1

TWO-LANE SHOULDER SINUSOIDAL RUMBLE STRIP

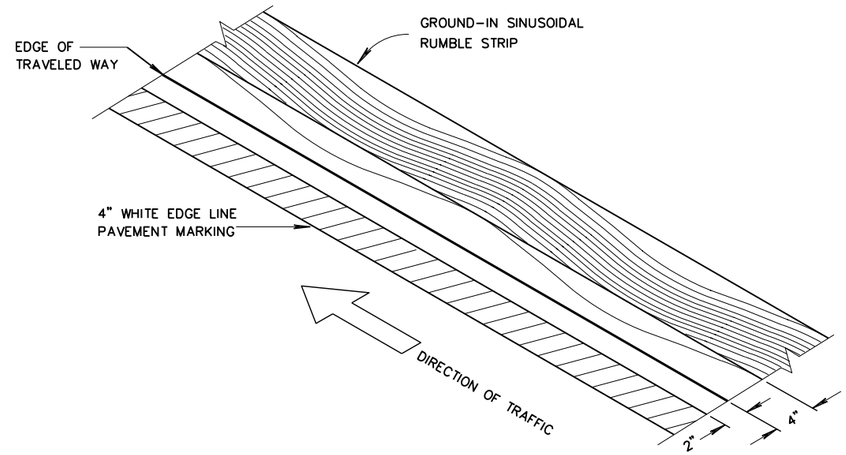
LOCATION	DEPTH INCHES
a	1/16"
b	5/32"
c	9/32"
d	7/16"
e	1/2"

GENERAL NOTES

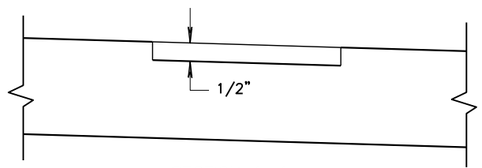
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

(1) SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



ISOMETRIC



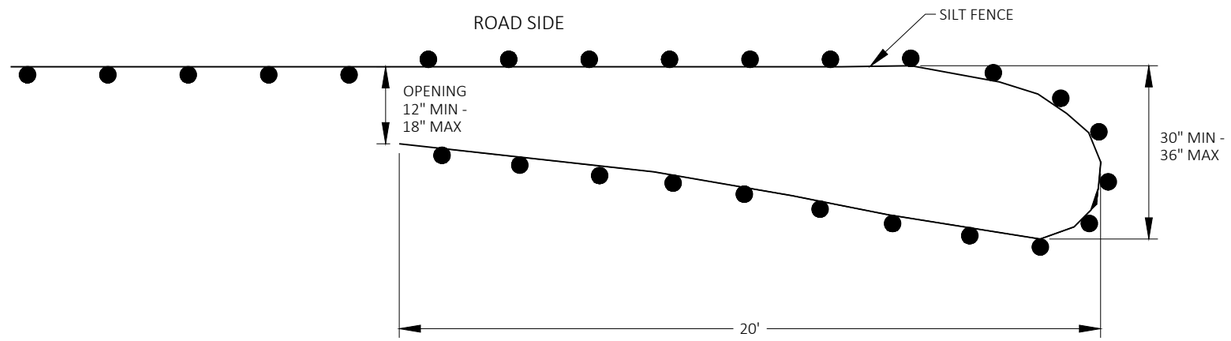
SECTION A-A

ASPHALTIC SHOULDER RUMBLE STRIPS, SINUSOIDAL, 2-LANE RURAL

Revision Date: 11/15/2017

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CONSTRUCTION DETAILS	SHEET 14	E

2

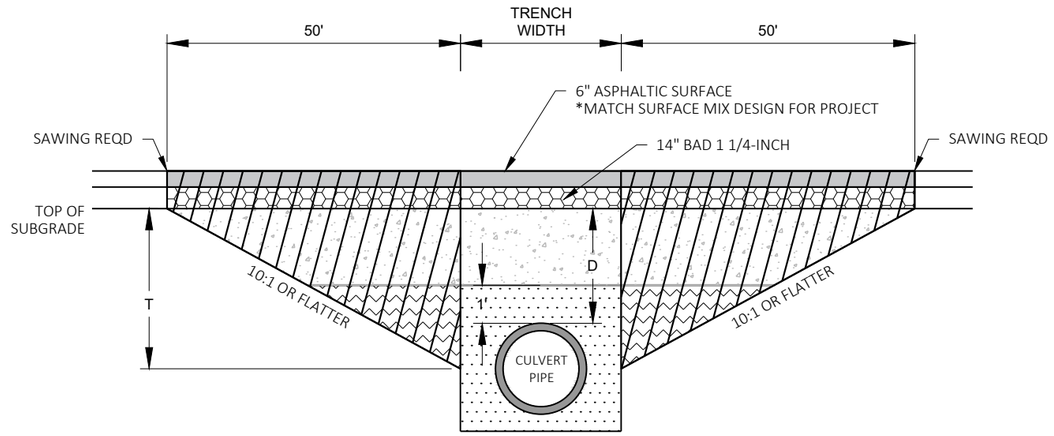


PLAN VIEW

TEMPORARY SMALL ANIMAL TURN-AROUND

GENERAL NOTES:
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND. AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS. "TEMPORARY SMALL ANIMAL TURN-AROUND" IS PAID FOR AS SILT FENCE.

2



DEPTH D < 6 FT

KEY

- PROPOSED SURFACE
- PROPOSED BASE
- TRENCH BACKFILL
- TRENCH OR FOUNDATION BACKFILL
- FOUNDATION BACKFILL
- TRANSITION CUT

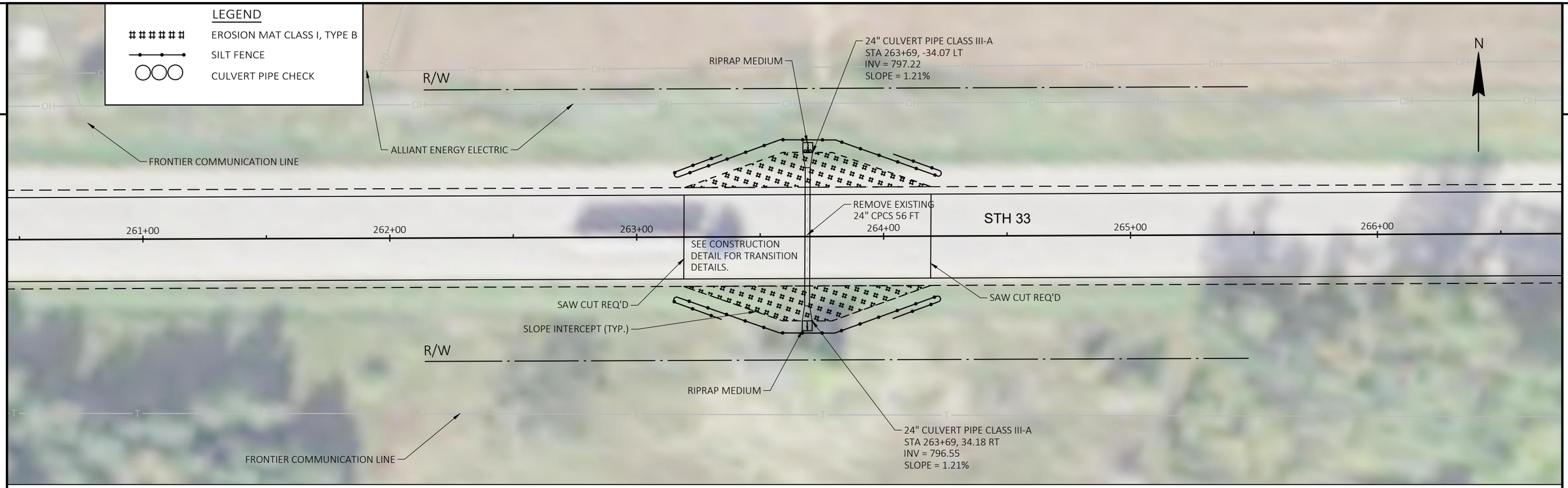
NOTES

TRANSITION CUT IS PAID AS EXCAVATION COMMON.
TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.
BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.
PERFORM CULVERT PIPE INSTALLATION BEFORE MILLING AND PAVING.

CULVERT PIPE TRANSITION

ROUTE	STA (CL)	*DEPTH D (FT)	PIPE DIA (IN)	*DEPTH T (FT)	REMARKS
STH 33	263+69	3.86	24	4.11	

*DEPTH MEASURED AT CENTERLINE



NOTE:
CULVERT WORK TO BE COMPLETED ONE LANE AT A TIME UTILIZING FLAGGING OPERATION. AREA MUST BE OPENED TO TWO LANES OF TRAFFIC BY THE END OF THE WORKING DAY. TRAFFIC MAY BE OPENED ON BASE AGGREGATE SURFACE FLUSH WITH EXISTING PAVEMENT ON A TEMPORARY BASIS. INSTALL PIPE AND RESTORE WITH 6" ASPHALTIC SURFACE WITHIN 3 CALENDAR DAYS.

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CONSTRUCTION DETAILS	SHEET 17	E

2

LEGEND

EROSION MAT CLASS I, TYPE B

SILT FENCE

CULVERT PIPE CHECK

STA 41+55 - 55+49 LT
REMOVE EXISTING GUARDRAIL

STA 41+55 - 55+49 LT
INSTALL NEW GUARDRAIL
MGS GUARDRAIL TERMINAL EAT
MGS GUARDRAIL
MGS THRIE BEAM TRANSITION
(SEE STANDARD DETAIL DRAWINGS)

ALLIANT ENERGY ELECTRIC

SLOPE INTERCEPT

POST 9
STA. 54+99, 15.0' LT

POST 1
STA. 55+49, 17.0' LT

POST 1
STA 55+40, 17.0' RT

POST 9
STA 54+90, 15' RT

PT: 54+04.96

BRIDGE B-11-0003
FOX RIVER CANAL

AGENCY HOUSE ROAD

47CO330 PORTAGE CANAL
SEE SPECIALS

FRONTIER COMMUNICATIONS

N

ALLIANT ENERGY ELECTRIC

SLOPE INTERCEPT

PC: 43+14.53

STA 41+55 - 55+40 RT
REMOVE EXISTING GUARDRAIL

STA 41+55 - 55+40 RT
INSTALL NEW GUARDRAIL
MGS GUARDRAIL TERMINAL EAT
MGS GUARDRAIL
MGS THRIE BEAM TRANSITION
(SEE STANDARD DETAIL DRAWINGS)

NOTE:
DO NOT STORE MATERIAL OR EQUIPMENT BEYOND THE SLOPE INTERCEPTS BETWEEN BRIDGE B-11-0002 AND AGENCY HOUSE ROAD. DO NOT USE THIS AREA FOR STAGING OF PERSONNEL, EQUIPMENT, OR SUPPLIES.

BRIDGE B-11-0002
SOO LINE RAILROAD

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	GUARDRAIL DETAILS AND EROSION CONTROL	SHEET 18	E

O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 02

10/28/2021 2:54 PM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2

LEGEND

EROSION MAT CLASS I, TYPE B

SILT FENCE

CULVERT PIPE CHECK

N

47CO330 PORTAGE CANAL
SEE SPECIALS

STA 56+19 - 56+55 LT
REMOVE EXISTING GUARDRAIL

STA 56+19 - 56+55 LT
INSTALL NEW GUARDRAIL
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
STEEL PLATE BEAM GUARD SHORT RADIUS
STEEL PLATE BEAM GUARD CLASS A
(SEE STANDARD DETAIL DRAWINGS)

ALLIANT ENERGY ELECTRIC

EXISTING GUARDRAIL TO REMAIN

AGENCY HOUSE ROAD

E ALBERT STREET

STEEL PLATE BEAM
GUARD SHORT RADIUS
STA 56+55, 16.0' LT

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL
STA 56+19, 70.9' LT

EXISTING THRIE BEAM TO REMAIN
NEW GUARDRAIL STARTS AFTER TRANSITION

R32

BRIDGE B-11-0003
PORTAGE CANAL

60+00

59+00

58+00

57+00

56+00

55+00

STEEL PLATE BEAM
GUARD SHORT RADIUS
STA 56+23, 43.1' LT

STEEL PLATE BEAM
GUARD SHORT RADIUS
STA 56+23, 16.0' RT

STEEL PLATE BEAM
GUARD CLASS A
STA 56+44, 16.0' RT

EXISTING THRIE BEAM TO REMAIN
NEW GUARDRAIL STARTS AFTER TRANSITION

EXISTING GUARDRAIL TO REMAIN

SUPERIOR STREET

47CO330 PORTAGE CANAL
SEE SPECIALS

R30

FRONTIER COMMUNICATIONS

ALLIANT ENERGY GAS

STA 55+93 - 56+44 RT
REMOVE EXISTING GUARDRAIL

STEEL PLATE BEAM
GUARD SHORT RADIUS
STA 55+93, 40.3' RT

STA 55+93 - 56+44 RT
INSTALL NEW GUARDRAIL
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
STEEL PLATE BEAM GUARD SHORT RADIUS
STEEL PLATE BEAM GUARD CLASS A
(SEE STANDARD DETAIL DRAWINGS)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL
STA 55+88, 68.0' RT

AGENCY HOUSE ROAD

2

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	GUARDRAIL	SHEET 19	E

O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 03

10/28/2021 2:54 PM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

LEGEND

#	TC SIGN NUMBER
	POST MOUNTED SIGN
MB	PCMS

1 — ROAD WORK AHEAD (W20-1A) — 2 — END ROAD WORK (G20-1, 48"X24")

GENERAL NOTES:

DRAWINGS SHOW TRAFFIC CONTROL FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING ON AFIELD CONDITIONS AND THE CONTRACTOR'S METHODS OF OPERATION.

MAP SHOWN IS NOT TO SCALE.

SEE SDD "TRAFFIC CONTROL FOR LANE CLOSURES WITH FLAGGING OPERATION" FOR ADDITIONAL DETAILS.

SEE SDD "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY"

ALL TRAFFIC CONTROL SIGNS ARE 48" X 48" UNLESS OTHERWISE STATED

N

2

FRAME 1	FRAME 2
ROAD WORK BEGINS	(DAY) (DATE)

PLACE PCMS 7 CALENDAR DAYS PRIOR TO WORK OR AS DIRECTED BY THE ENGINEER

BEGIN PROJECT
STA 35+40
Y = 396289.59
X = 540657.61

E ALBERT ST

AGENCY HOUSE RD

CENTRAL WISCONSIN PORTAGE CANAL

CTH F

CTH EE

FOOTE DR

MILITARY RD

CTH EE

QUARRY RD

GARRISON RD

STH 33

SADDLE RIDGE

PACIFIC ESTATES RD

CARIMAUNEE DR

STONE HAVEN DR

SUPERIOR ST

MAUNA TRAIL

FOX RIVER

MB

CANADIAN PACIFIC RAILROAD

PORTAGE CITY LIMITS

NET EXCEPTION TO CENTERLINE LENGTH
B-11-0002
STA 39+20 - STA 41+80
B-11-0003
STA 56+55 TO 58+78
B-11-0122
STA 86+40 TO 86+98

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	TRAFFIC CONTROL	SHEET 20	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\025001-TC.DWG
LAYOUT NAME - 01

PLOT DATE : 8/27/2021 2:46 PM PLOT BY : ETHAN HEROUX PLOT NAME : PLOT SCALE : 1 IN:0.5 MI

WISDOT/CADDS SHEET 44

2

LEGEND

#	TC SIGN NUMBER
	POST MOUNTED SIGN
MB	PCMS

1 — ROAD WORK AHEAD (W20-1A)

2 — END ROAD WORK (G20-1, 48"X24")

GENERAL NOTES:

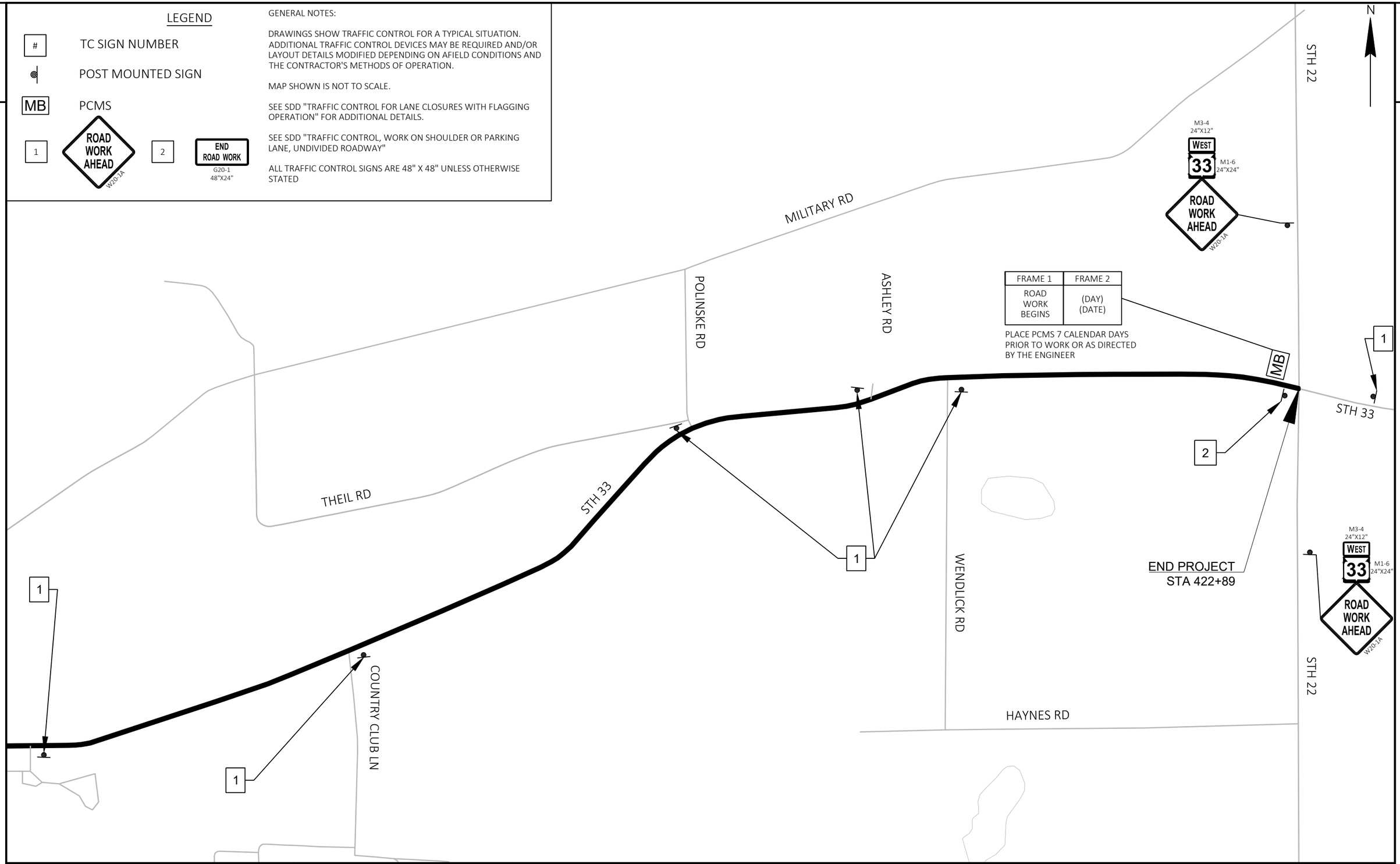
DRAWINGS SHOW TRAFFIC CONTROL FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING ON AFIELD CONDITIONS AND THE CONTRACTOR'S METHODS OF OPERATION.

MAP SHOWN IS NOT TO SCALE.

SEE SDD "TRAFFIC CONTROL FOR LANE CLOSURES WITH FLAGGING OPERATION" FOR ADDITIONAL DETAILS.

SEE SDD "TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY"

ALL TRAFFIC CONTROL SIGNS ARE 48" X 48" UNLESS OTHERWISE STATED



PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	TRAFFIC CONTROL	SHEET 21	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\025001-TC.DWG
LAYOUT NAME - 02

PLOT DATE : 8/27/2021 2:46 PM PLOT BY : ETHAN HEROUX PLOT NAME : PLOT SCALE : 1 IN:0.5 MI

WISDOT/CADDS SHEET 44

Estimate Of Quantities

6040-00-65

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0004	204.0100	Removing Concrete Pavement	SY	78.000	78.000
0006	204.0110	Removing Asphaltic Surface	SY	310.000	310.000
0008	204.0115	Removing Asphaltic Surface Butt Joints	SY	745.000	745.000
0010	204.0120	Removing Asphaltic Surface Milling	SY	125,160.000	125,160.000
0012	204.0165	Removing Guardrail	LF	3,000.000	3,000.000
0014	205.0100	Excavation Common	CY	600.000	600.000
0016	208.0100	Borrow	CY	1,500.000	1,500.000
0018	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	768.000	768.000
0020	213.0100	Finishing Roadway (project) 01. 6040-00-65	EACH	1.000	1.000
0022	305.0110	Base Aggregate Dense 3/4-Inch	TON	8,270.000	8,270.000
0024	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	350.000	350.000
0026	455.0605	Tack Coat	GAL	11,120.000	11,120.000
0028	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0030	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0032	460.2005	Incentive Density PWL HMA Pavement	DOL	12,200.000	12,200.000
0034	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	32,600.000	32,600.000
0036	460.2010	Incentive Air Voids HMA Pavement	DOL	15,760.000	15,760.000
0038	460.6224	HMA Pavement 4 MT 58-28 S	TON	17,660.000	17,660.000
0040	465.0105	Asphaltic Surface	TON	2,270.000	2,270.000
0042	465.0315	Asphaltic Flumes	SY	28.000	28.000
0044	465.0450	Asphaltic Intersection Rumble Strips	SY	81.000	81.000
0046	520.1024	Apron Endwalls for Culvert Pipe 24-Inch	EACH	2.000	2.000
0048	520.3324	Culvert Pipe Class III-A 24-Inch	LF	56.000	56.000
0050	606.0200	Riprap Medium	CY	8.000	8.000
0052	614.0305	Steel Plate Beam Guard Class A	LF	79.000	79.000
0054	614.0345	Steel Plate Beam Guard Short Radius	LF	88.000	88.000
0056	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	2.000	2.000
0058	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	1,684.000	1,684.000
0060	614.2300	MGS Guardrail 3	LF	2,588.000	2,588.000
0062	614.2500	MGS Thrie Beam Transition	LF	80.000	80.000
0064	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
0066	618.0100	Maintenance And Repair of Haul Roads (project) 01. 6040-00-65	EACH	1.000	1.000
0068	619.1000	Mobilization	EACH	1.000	1.000
0070	624.0100	Water	MGAL	85.000	85.000
0072	625.0100	Topsoil	SY	920.000	920.000
0074	628.1504	Silt Fence	LF	2,281.000	2,281.000
0076	628.1520	Silt Fence Maintenance	LF	2,281.000	2,281.000
0078	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0080	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0082	628.2008	Erosion Mat Urban Class I Type B	SY	920.000	920.000
0084	628.7555	Culvert Pipe Checks	EACH	4.000	4.000
0086	629.0210	Fertilizer Type B	CWT	0.800	0.800
0088	630.0130	Seeding Mixture No. 30	LB	18.000	18.000
0090	630.0500	Seed Water	MGAL	4.200	4.200
0092	633.5200	Markers Culvert End	EACH	2.000	2.000
0094	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	15.000	15.000
0096	638.2102	Moving Signs Type II	EACH	15.000	15.000
0098	638.3000	Removing Small Sign Supports	EACH	15.000	15.000

6040-00-65

Line	Item	Item Description	Unit	Total	Qty
0100	642.5001	Field Office Type B	EACH	1.000	1.000
0102	643.0300	Traffic Control Drums	DAY	1,512.000	1,512.000
0104	643.0900	Traffic Control Signs	DAY	3,690.000	3,690.000
0106	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0108	643.5000	Traffic Control	EACH	1.000	1.000
0110	645.0120	Geotextile Type HR	SY	16.000	16.000
0112	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	81,500.000	81,500.000
0114	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	50,300.000	50,300.000
0116	646.6120	Marking Stop Line Epoxy 18-Inch	LF	294.000	294.000
0118	648.0100	Locating No-Passing Zones	MI	7.720	7.720
0120	649.0105	Temporary Marking Line Paint 4-Inch	LF	81,500.000	81,500.000
0122	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	3,300.000	3,300.000
0124	649.0770	Temporary Marking Raised Pavement Marker Type II	EACH	815.000	815.000
0126	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0128	650.8000	Construction Staking Resurfacing Reference	LF	40,749.000	40,749.000
0130	650.9910	Construction Staking Supplemental Control (project) 01. 6040-00-65	LS	1.000	1.000
0132	650.9920	Construction Staking Slope Stakes	LF	2,942.000	2,942.000
0134	690.0150	Sawing Asphalt	LF	1,430.000	1,430.000
0136	690.0250	Sawing Concrete	LF	24.000	24.000
0138	740.0440	Incentive IRI Ride	DOL	32,000.000	32,000.000
0140	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	2,000.000	2,000.000
0142	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	1,320.000	1,320.000
0144	SPV.0060	Special 01. Verify Landmark Reference Monuments	EACH	8.000	8.000
0146	SPV.0090	Special 01. Asphaltic Centerline Rumble Strips, Sinusoidal, 2-Lane Rural	LF	30,940.000	30,940.000
0148	SPV.0090	Special 02. Asphaltic Shoulder Rumble Strips, Sinusoidal	LF	61,880.000	61,880.000
0150	SPV.0180	Special 01. Removing Distressed Pavement Milling	SY	2,530.000	2,530.000

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REMOVAL ITEMS

	ROADWAY	STA	TO	STA	203.0100 REMOVING SMALL PIPE CULVERTS EACH	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	204.0165 REMOVING GUARDRAIL LF	SPV.0180.01 REMOVING DISTRESSED PAVEMENT MILLING SY	REMARKS
CAT 0010	STH 33	35+40	-	39+20	-	-	-	28	1,350	-	30	
	STH 33	41+79	-	56+55	-	-	310	27	5,360	3000	110	
	STH 33	58+78	-	59+41	-	-	-	13	220	-	10	
	STH 33	59+41	-	86+40	-	-	-	13	10,150	-	210	
	STH 33	86+98	-	442+89	-	-	-	27	108,080	-	2170	
	E Albert Street	56+00	-	-	-	-	-	15	-	-	-	
	Agency House Road	56+00	-	-	-	-	-	8	-	-	-	
	Superior Street	60+00	-	-	-	-	-	11	-	-	-	
	Waucona Trail	71+00	-	-	-	-	-	11	-	-	-	
	CTH F	95+00	-	-	-	-	-	13	-	-	-	
	CTH EE	101+25	-	-	-	-	-	14	-	-	-	
	Pacific Estates Road	101+25	-	-	-	-	-	13	-	-	-	
	Carimaunee Drive	116+50	-	-	-	-	-	19	-	-	-	
	Carimaunee Drive	116+50	-	-	-	-	-	11	-	-	-	
	Foote Drive	127+50	-	-	-	-	-	17	-	-	-	
	Stone Haven Drive	128+00	-	-	-	-	-	10	-	-	-	
	Garrison Road	167+60	-	-	-	-	-	10	-	-	-	
	Saddle Ridge E	225+75	-	-	-	-	-	32	-	-	-	
	Saddle Ridge E	240+50	-	-	-	-	-	10	-	-	-	
	Country Club Lane	289+25	-	-	-	-	-	13	-	-	-	
	Polinske Road	352+75	-	-	-	-	-	13	-	-	-	
	Ashley Road	377+50	-	-	-	-	-	7	-	-	-	
	Wendlick Road	391+00	-	-	-	-	-	10	-	-	-	
	STH 33	263+69	-	-	1	-	-	-	-	-	-	
	STH 33	426+29	-	426+54	-	39	-	-	-	-	-	
	STH 33	431+29	-	431+53	-	39	-	-	-	-	-	
	STH 33	35+40	-	442+89	-	-	-	400	-	-	-	DRIVEWAYS
	TOTALS				**1**	**78**	**310**	**745**	**125,160**	**3,000**	**2,530**	

EXCAVATION COMMON - PIPE TRANSITIONS

ROADWAY	SIDE	STA	TO	STA	205.0100 EXCAVATION COMMON CY
STH 33		263+19	-	264+19	600
TOTAL					**600**

BORROW - GUARDRAIL

ROADWAY	SIDE	STA	TO	STA	208.0100 BORROW CY
STH 33	LT/RT	54+90	-	55+75	1500
TOTAL					**1,500**

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SHOULDER ITEMS

						211.0400
						PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS
	ROADWAY	STA	TO	STA		STA
CAT 0020	STH 33	59+41	-	442+89	LT/RT	768
	TOTAL					**768**

AGGREGATE ITEMS

						305.0110	305.0120	624.0100
						BASE AGGREGATE DENSE 3/4-INCH	BASE AGGREGATE DENSE 1 1/4-INCH	WATER
	ROADWAY	STA	TO	STA		TON	TON	MGAL
CAT 0010	STH 33	35+40	-	39+20		40	-	1
	STH 33	41+79	-	56+55		200	-	2
	STH 33	58+78	-	59+41		10	-	1
	STH 33	59+41	-	86+40		510	-	5
	STH 33	86+98	-	442+89		6,760	-	68
	STH 33	263+69	-	-		-	350	
	STH 33	UNDISTRIBUTED (DRIVEWAYS)				750	-	8
	TOTAL					**8,270**	**350**	**85**

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ASPHALT ITEMS

					455.0605	460.6224	465.0105	465.0450	460.0105.S	460.0110.S	465.0315	SPV.0090.01	SPV.0090.02	
					TACK COAT	HMA PAVEMENT 4 MT 58-28 S	* ASPHALTIC SURFACE	ASPHALTIC INTERSECTION RUMBLE STRIPS	HMA PAVEMENT PWL TEST STRIP VOLUMETRICS	HMA PAVEMENT PWL TEST STRIP DENSITY	ASPHALTIC FLUMES	ASPHALTIC CENTERLINE RUMBLE STRIPS, SINUSOIDAL, 2-LANE RURAL	ASPHALTIC SHOULDER RUMBLE STRIPS, SINUSOIDAL	
	ROADWAY	STA	TO	STA	GAL	TON	TON	SY	EA	EA	SY	LF	LF	COMMENTS
CAT 0010	STH 33	35+40	-	39+20	90	150	-	-	-	-	-	-	-	SURFACE
	STH 33	41+79	-	56+55	380	600	-	-	-	-	-	-	-	SURFACE
	STH 33	58+78	-	59+41	20	20	-	-	-	-	-	-	-	SURFACE
	STH 33	59+41	-	86+40	710	1,140	-	-	-	-	-	-	-	SURFACE
	STH 33	86+98	-	442+89	8,660	13,850	-	-	-	-	-	30,940	-	SURFACE
	STH 33	263+69	-		50	-	30	-	-	-	-	-	-	CULVERT REPLACEMENT
	STH 33	426+25	-	426+50	10	-	10	-	-	-	-	-	-	RUMBLE STRIP REMOVAL
	STH 33	431+30	-	431+55	10	-	10	-	-	-	-	-	-	RUMBLE STRIP REMOVAL
	STH 33	433+70	-	-	-	-	-	27	-	-	-	-	-	INTERSECTION RUMBLE STRIPS
	STH 33	437+20	-	-	-	-	-	27	-	-	-	-	-	INTERSECTION RUMBLE STRIPS
	STH 33	439+45	-	-	-	-	-	27	-	-	-	-	-	INTERSECTION RUMBLE STRIPS
	STH 33	35+40	-	442+89	-	-	320	-	-	-	-	-	-	DISTRESSED MILLING
	STH 33	42+00	-		-	-	-	-	-	-	28	-	-	ASPHALTIC FLUMES
	SUBTOTALS (CAT 0010)				**9,930**	**15,760**	**370**	**81**	**1**	**1**	**28**	**30,940**	--	
CAT 0020	STH 33	133+50	-	442+89	-	-	-	-	-	-	-		61880	LT AND RT
	STH 33	59+41	-	86+40	80	130	130	-	-	-	-	-	-	
	STH 33	86+98	-	442+89	1110	1770	1770	-	-	-	-	-	-	LT AND RT SHOULDER WIDENING
	SUBTOTALS (CAT 0020)				**1,190**	**1,900**	**1,900**	--	--	--	--	--	**61,880**	
				TOTAL	**11,120**	**17,660**	**2,270**	**81**	**1**	**1**	**28**	**30,940**	**61,880**	

* MATCH SURFACE MIX DESIGN FOR PROJECT

HMA PAVEMENT PWL QMP MIXTURE ACCEPTANCE TABLE

LOCATION	STATIONING	MIXTURE USE	UNDERLYING SURFACE	BID ITEM	TONS	THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
12 FOOT DRIVING LANE	35+40 TO 442+89 RT/LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	12460	2.00-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	INCENTIVE DENSITY PWL HMA PAVEMENT 460.2005
4 FOOT SHOULDER	35+40 TO 39+20 RT/LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	150	2.00-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
3 FOOT SHOULDER	41+80 TO 442+89 RT/LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	3000	2.00-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE
2 FOOT SHOULDER WIDENING	59+41 TO 442+89 RT/LT	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 MT 58-28 S	1900	2.00-INCHES	PWL INCENTIVE AIR VOIDS HMA PAVEMENT PAVEMENT 460.2010	ACCEPTANCE TESTING BY THE DEPARTMENT; NOT ELIGIBLE FOR INCENTIVE

CULVERT ITEMS

		*520.3324	520.1024	633.5200
		CULVERT PIPE CLASS III-A 24-INCH	APRON ENDWALLS FOR CULVERT PIPE 24-INCH	MARKERS CULVERT END
ROADWAY	STA	LF	EACH	EACH
STH 33	263+69	56	2	2
TOTAL		**56**	**2**	**2**

*LENGTH BASED ON CONCRETE PIPE WITH CONCRETE ENDWALLS. ADJUST ACCORDINGLY IF PIPE MATERIAL OTHER THAN CONCRETE IS USED.

RIPRAP

				606.0200	645.0120
				RIPRAP MEDIUM	GEOTEXTILE TYPE HR
ROADWAY	STA	TO	STA	CY	SY
STH 33	263+69	-		8	16
TOTAL				**8**	**16**

GUARDRAIL ITEMS

ROADWAY	STA	TO	STA		614.0305 STEEL PLATE BEAM GUARD CLASS A LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL EACH	614.0397 GUARDRAIL MOW STRIP EMULSIFIED ASPHALT SY	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
STH 33	35+89	-	39+44	LT	-	-	-	140	-	-	-
STH 33	35+89		39+44	RT	-	-	-	140	-	-	-
STH 33	41+55	-	55+49	LT	-	-	-	550	1313	40	1
STH 33	41+55	-	55+40	RT	-	-	-	540	1275	40	1
STH 33	56+19	-	56+55	LT	29	46	1	41	-	-	-
STH 33	55+93	-	56+44	RT	50	42	1	47	-	-	-
STH 33	56+55	-	59+41	LT	-	-	-	49	-	-	-
STH 33	56+44	-	59+15	RT	-	-	-	42	-	-	-
STH 33	85+72	-	86+57	LT	-	-	-	34	-	-	-
STH 33	85+45	-	86+32	RT	-	-	-	34	-	-	-
STH 33	87+04	-	87+87	LT	-	-	-	33	-	-	-
STH 33	86+84	-	87+70	RT	-	-	-	34	-	-	-
TOTAL					**79**	**88**	**2**	**1,684**	**2,588**	**80**	**2**

EROSION CONTROL

ROADWAY	STA	TO	STA		625.0100 TOPSOIL SY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.7555 CULVERT PIPE CHECKS EACH	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO.30 LB	630.0500 SEED WATER MGAL
STH 33	42+50	-	55+54	LT	430	868	868	-	-	430	-	0.3	8	2.0
STH 33	42+50	-	55+45	RT	250	733	733	-	-	250	-	0.2	5	1.0
STH 33	263+69	-	263+69	LT/RT	50	220	220	-	-	50	3	0.1	1	0.3
STH 33	PROJECT		UNDISTRIBUTED		190	460	460	2	2	190	1	0.2	4	0.9
TOTAL					**920**	**2,281**	**2,281**	**2**	**2**	**920**	**4**	**0.8**	**18**	**4.2**

TRAFFIC CONTROL ITEMS

		643.0300		643.0900		643.1050		643.5000
		*TRAFFIC CONTROL DRUMS		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL SIGNS PCMS		TRAFFIC CONTROL
LOCATION	DURATION DAYS	NO.	DAY	NO.	DAY	NO.	DAY	EACH
STH 33	90	108	1512	41	3690	2	14	1
TOTAL			**1,512**		**3,690**		**14**	**1**

*DRUMS FOR GUARDRAIL INSTALLATION, 14 DAY DURATION

SIGN ITEMS

				634.0614	638.2102	638.3000	
				POSTS WOOD 4X6-INCH X 14-FT	MOVING SIGNS TYPE II	REMOVING SMALL SIGN SUPPORTS	
ROADWAY	STATION	TO	STATION	EACH	EACH	EACH	COMMENTS
STH 33	35+40	-	442+89	15	15	15	NO PASSING ZONE SIGNS
TOTAL				**15**	**15**	**15**	

CONSTRUCTION STAKING ITEMS

				650.6000	650.8000	650.9910	650.9920
				CONSTRUCTION STAKING PIPE CULVERTS	CONSTRUCTION STAKING RESURFACING REFERENCE	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 6040-00-65	CONSTRUCTION STAKING SLOPE STAKES
ROADWAY	STATION	TO	STATION	EACH	LF	LS	LF
STH 33	35+40	-	442+89	-	40,749	1	--
STH 33	41+55	-	55+49	-	--	--	1,394
STH 33	41+55	-	55+40	-	--	--	1,385
STH 33	56+19	-	57+00	-	--	--	81
STH 33	55+93	-	56+75	-	--	--	82
STH 33	263+69	-	-	1	--	--	--
TOTAL				**1**	**40,749**	**1**	**2,942**

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PAVEMENT MARKING ITEMS

				646.1040	646.4520	646.6120	648.0100	649.0105	649.0120	649.0770
				MARKING LINE						
ROADWAY	STATION	TO	STATION	GROOVED WET REF EPOXY 4-INCH WHITE LF	***SAME DAY EPOXY 4-INCH YELLOW LF	MARKING STOP LINE EPOXY 18-INCH WHITE LF	LOCATING NO-PASSING ZONES MI	TEMPORARY MARKING LINE PAINT 4-INCH * YELLOW LF	TEMPORARY MARKING LINE EPOXY 4-INCH ** YELLOW LF	TEMPORARY RAISED PAVEMENT MARKERS, TYPE II EACH
STH 33	35+40	-	116+60	16,240	16,240	-	1.54	16,240	650	162
STH 33	116+60	-	123+88	1,456	910	-	.14	1,456	58	15
STH 33	123+88	-	155+89	6,402	800	-	.61	6,402	256	64
STH 33	155+89	-	165+61	1,944	1,215	-	.18	1,944	78	19
STH 33	165+61	-	167+01	280	280	-	.03	280	11	3
STH 33	167+01	-	177+93	2,184	1,365	-	.21	2,184	87	22
STH 33	177+93	-	215+66	7,546	943	-	.71	7,546	302	75
STH 33	215+66	-	236+46	4,160	2,600	-	.39	4,160	166	42
STH 33	236+46	-	247+51	2,210	2,210	-	.21	2,210	88	22
STH 33	247+51	-	258+93	2,284	1,428	-	.22	2,284	91	23
STH 33	258+93	-	278+39	3,892	487	-	.37	3,892	156	39
STH 33	278+39	-	300+96	4,514	2,821	-	.43	4,514	181	45
STH 33	300+96	-	311+82	2,172	272	-	.21	2,172	87	22
STH 33	311+82	-	323+08	2,252	1,408	-	.21	2,252	90	23
STH 33	323+08	-	326+08	600	600	-	.06	600	24	6
STH 33	326+08	-	347+20	4,224	2,640	-	.40	4,224	169	42
STH 33	347+20	-	354+80	1,520	1,520	-	.14	1,520	61	15
STH 33	354+80	-	376+70	4,380	2,738	-	.41	4,380	175	44
STH 33	376+70	-	397+70	4,200	4,200	-	.40	4,200	168	42
STH 33	397+70	-	408+55	2,170	1,356	-	.21	2,170	87	22
STH 33	408+55	-	419+77	2,244	281	-	.21	2,244	90	22
STH 33	419+77	-	429+49	1,944	1,215	-	.18	1,944	78	19
STH 33	429+49	-	442+89	2,680	2,680	-	.25	2,680	107	27
E Albert Street	56+00	-	-	-	-	17	-	--	-	-
Agency House Rd	56+00	-	-	-	-	20	-	--	-	-
Superior St	60+00	-	-	-	-	20	-	--	-	-
Wauona Trail	71+00	-	-	-	-	21	-	--	-	-
CTH F	95+13	-	-	-	-	16	-	--	-	-
CTH EE	101+20	-	-	-	-	15	-	--	-	-
Pacific Estates Rd	101+16	-	-	-	-	15	-	--	-	-
Carimaunee Dr	116+50	-	-	-	-	30	-	--	-	-
Foote Dr	127+50	-	-	-	-	15	-	--	-	-
Stone Haven Dr	128+00	-	-	-	-	15	-	--	-	-
Garrison Rd	167+75	-	-	-	-	15	-	--	-	-
Saddle Ridge E	226+00	-	-	-	-	15	-	--	-	-
Saddle Ridge	240+50	-	-	-	-	15	-	--	-	-
Country Club Ln	289+25	-	-	-	-	20	-	--	-	-
Polinske Rd	352+00	-	-	-	-	15	-	--	-	-
Ashley Rd	377+50	-	-	-	-	15	-	--	-	-
Wendlick Rd	391+00	-	-	-	-	15	-	--	-	-
TOTAL				**81,500**	**50,300**	**294**	**7.72**	**81,500**	**3,300**	**815**

*Temporary Marking Line Paint 4-Inch to be placed as double yellow centerline marking on existing pavement of lane 2 prior to work starting on lane 1.

**Temporary Marking Line Epoxy 4-Inch to be placed as temporary centerline skips on new pavement of lane 1 prior to work starting on lane 2.

***Same Day Epoxy 4-inch to be placed after centerline rumble strip installation.

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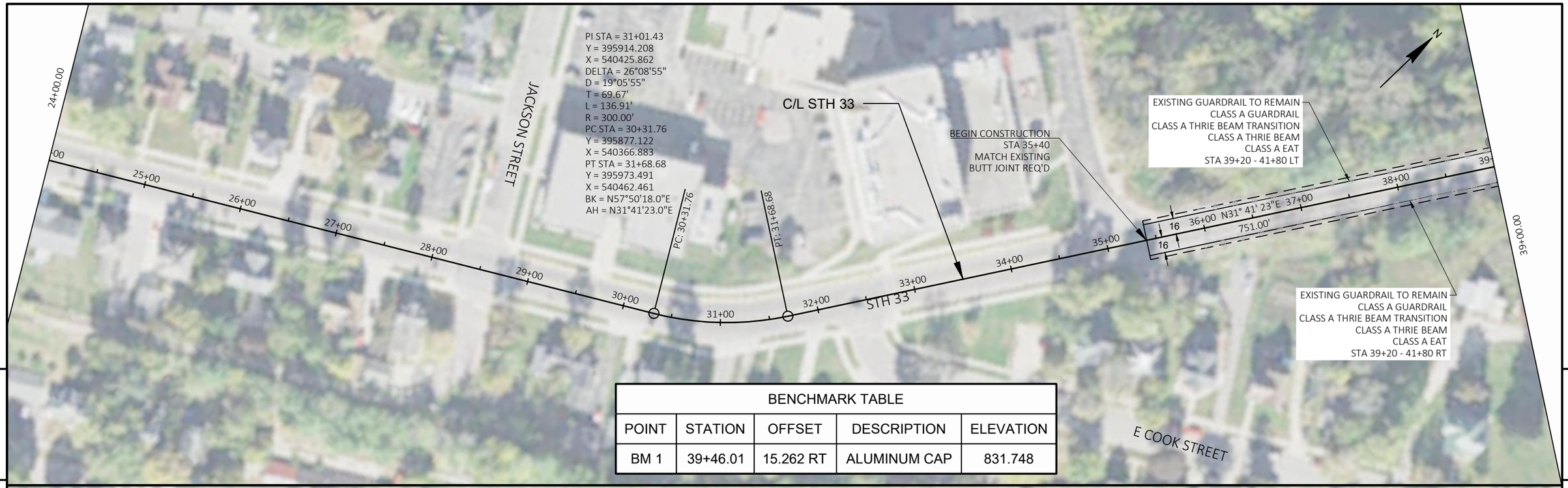
SAWING ITEMS

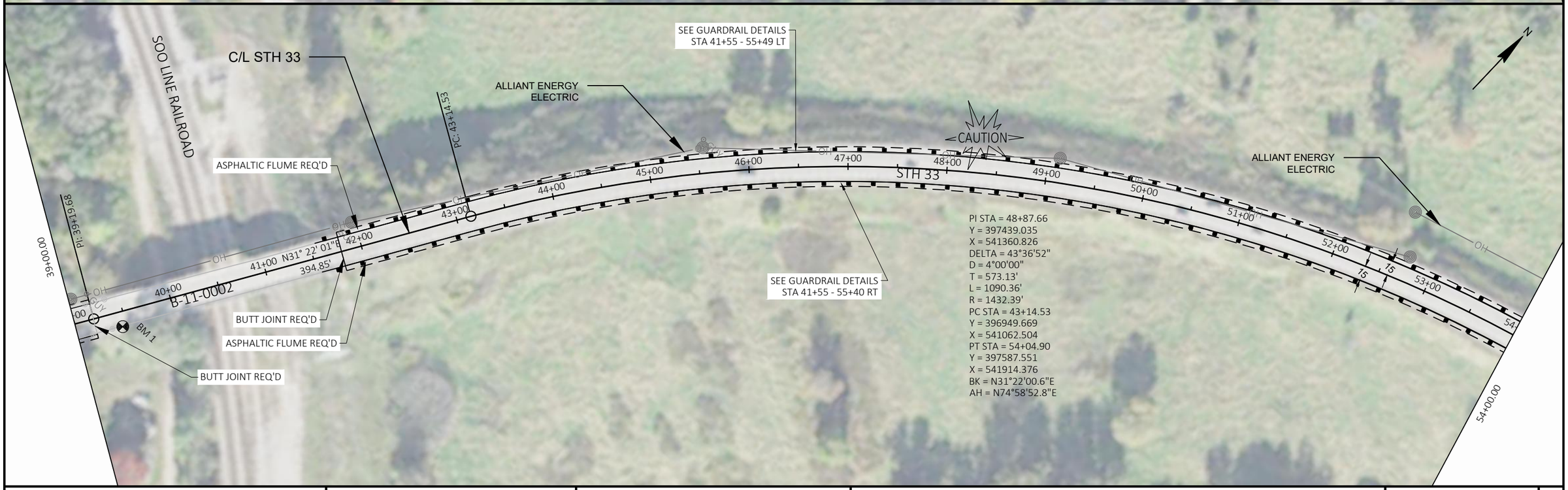
ROADWAY	STA	TO	STA	690.015 SAWING ASPHALT LF	690.025 SAWING CONCRETE LF	REMARKS
STH 33	41+80	-	55+50	1370	-	EXISTING ASPHALTIC SURFACE
STH 33	426+25	-	426+50	-	12	CONCRETE RUMBLE STRIPS
STH 33	431+30	-	431+55	-	12	CONCRETE RUMBLE STRIPS
STH 33	263+69	-	-	60	-	CULVERT PIPE
TOTAL				**1,430**	**24**	

LANDMARK REFERENCE MONUMENTS

ROADWAY	STATION	OFFSET	TOWNSHIP	RANGE	SPV.0060.01 VERIFY LANDMARK REFERENCE MONUMENTS EACH
STH 33	114+25	4.8' RT	T13N/T12N	R9E	1
STH 33	140+81	2.8' RT	T13N/T12N	R9E	1
STH 33	167+36	2.7' RT	T13N/T12N	R9E	1
STH 33	193+93	7.6' RT	T13N/T12N	R9E	1
STH 33	220+50	0.0'	T13N/T12N	R9E	1
STH 33	247+02	14.6' RT	T13N/T12N	R9E	1
STH 33	390+97	1.3' RT	T13N	R10E	1
STH 33	417+21	3.0' RT	T13N	R10E	1
TOTAL					**8**



BENCHMARK TABLE				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM 1	39+46.01	15.262 RT	ALUMINUM CAP	831.748

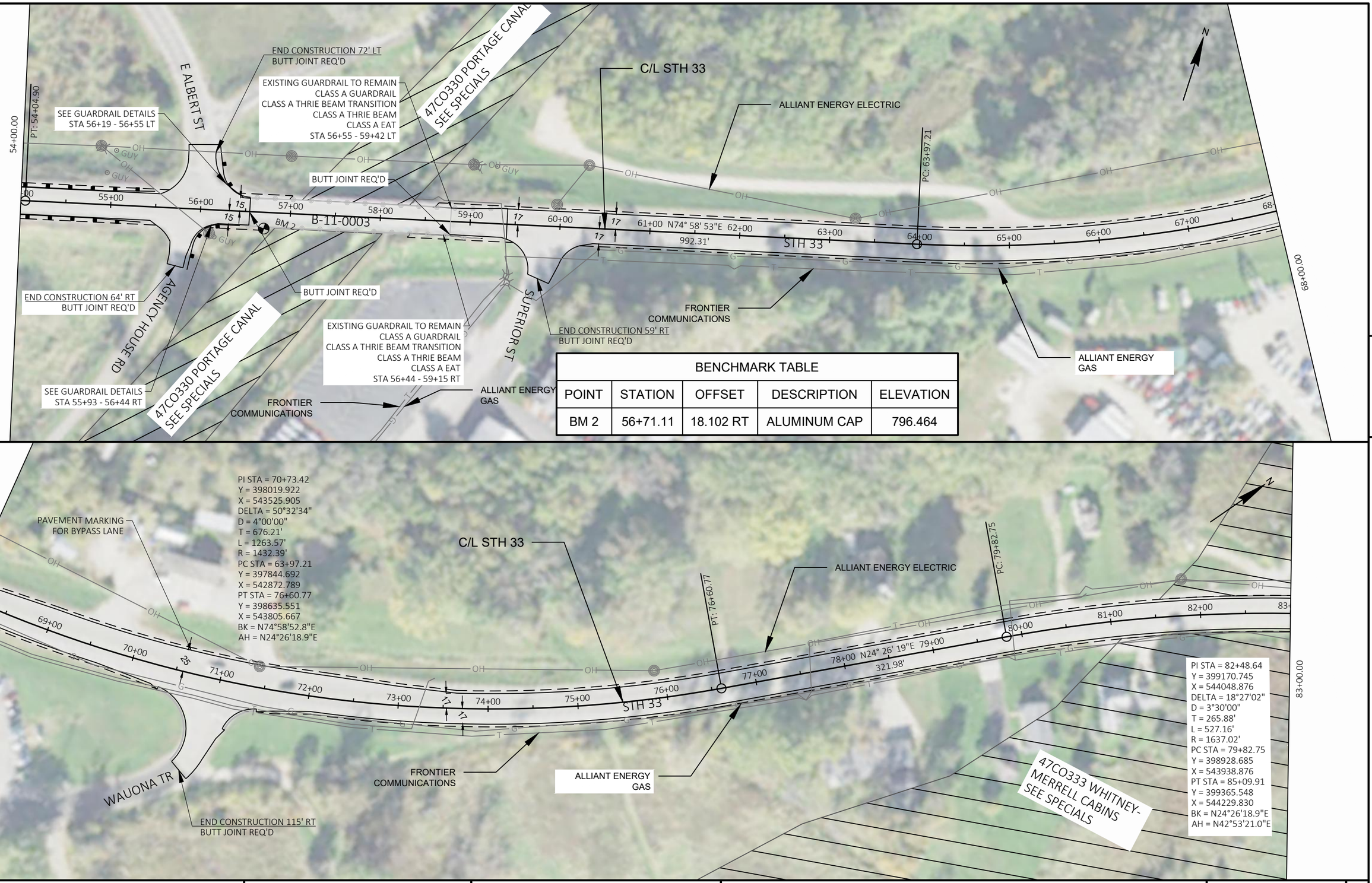


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 31	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 01

PLOT DATE : 10/31/2021 11:58 AM PLOT BY : GREG BUBOLZ PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



BENCHMARK TABLE				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM 2	56+71.11	18.102 RT	ALUMINUM CAP	796.464

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 32	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 02

PLOT DATE : 10/7/2021 7:21 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44

EXISTING GUARDRAIL TO REMAIN
CLASS A GUARDRAIL
CLASS A THRIE BEAM TRANSITION
CLASS A THRIE BEAM
CLASS A EAT
STA 85+74 - 86+58 LT

EXISTING GUARDRAIL TO REMAIN
CLASS A GUARDRAIL
CLASS A THRIE BEAM TRANSITION
CLASS A THRIE BEAM
CLASS A EAT
STA 87+06 - 87+90 LT

FOX RIVER

47CO25 FORT WINNEBAGO VILLAGE
47CO210 FORT WINNEBAGO
SEE SPECIALS

ALLIANT ENERGY ELECTRIC
CHARTER COMMUNICATIONS

C/L STH 33

FRONTIER COMMUNICATIONS

END CONSTRUCTION 81' LT
BUTT JOINT REQ'D

CTH F

BUTT JOINT REQ'D

PT: 85+60.91
PC: 86+14.13
PT: 88+21.03
PC: 88+61.68

ALLIANT ENERGY ELECTRIC

B-11-0122

BM 3

85+00 32.40'
N42° 53' 21"E

40.65'
N55° 10' 24"E

STH 33

CAUTION

FRONTIER COMMUNICATIONS

EXISTING GUARDRAIL TO REMAIN
CLASS A GUARDRAIL
CLASS A THRIE BEAM TRANSITION
CLASS A THRIE BEAM
CLASS A EAT
STA 86+83 - 87+69 RT

47CO25 FORT WINNEBAGO VILLAGE
47CO210 FORT WINNEBAGO
SEE SPECIALS

PI STA = 93+66.96
Y = 399883.454
X = 544910.074
DELTA = 34°18'24"
D = 3°30'00"
T = 505.28'
L = 980.19'
R = 1637.02'
PC STA = 88+61.68
Y = 399594.890
X = 544495.296
PT STA = 98+41.87
Y = 399888.039
X = 545415.336
BK = N55°10'24.3"E
AH = N89°28'48.3"E

PAVEMENT MARKING
FOR BYPASS LANE

EXISTING GUARDRAIL TO REMAIN
CLASS A GUARDRAIL
CLASS A THRIE BEAM TRANSITION
CLASS A THRIE BEAM
CLASS A EAT
STA 85+44 - 86+30 RT

ALLIANT ENERGY GAS

BUTT JOINT REQ'D

PI STA = 86+82.21
Y = 399491.782
X = 544347.089
DELTA = 12°17'03"
D = 4°24'27"
T = 139.90'
L = 278.72'
R = 1300.00'
PC STA = 85+42.31
Y = 399389.283
X = 544251.878
PT STA = 88+21.03
Y = 399571.676
X = 544461.928
BK = N42°53'21.0"E
AH = N55°10'24.3"E

47CO330 WHITNEY-MERRELL CABINS
SEE SPECIALS

BENCHMARK TABLE				
POINT	STATION	OFFSET	DESCRIPTION	ELEVATION
BM 3	86+27.14	20.602 RT	ALUMINUM CAP	785.528

5

5

FRONTIER COMMUNICATIONS

47CO25 FORT WINNEBAGO VILLAGE
SEE SPECIALS

C/L STH 33

END CONSTRUCTION 73' LT
BUTT JOINT REQ'D

ALLIANT ENERGY ELECTRIC
CHARTER COMMUNICATIONS

CTH EE

PT: 98+41.87

98+00.00

99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 N89° 28' 48"E 107+00 108+00 109+00 110+00 111+00 112+00 113

STH 33

1659.62'

47CO25 FORT WINNEBAGO VILLAGE
SEE SPECIALS

END CONSTRUCTION 78' RT
BUTT JOINT REQ'D

PACIFIC ESTATES RD

FRONTIER COMMUNICATIONS

ALLIANT ENERGY GAS

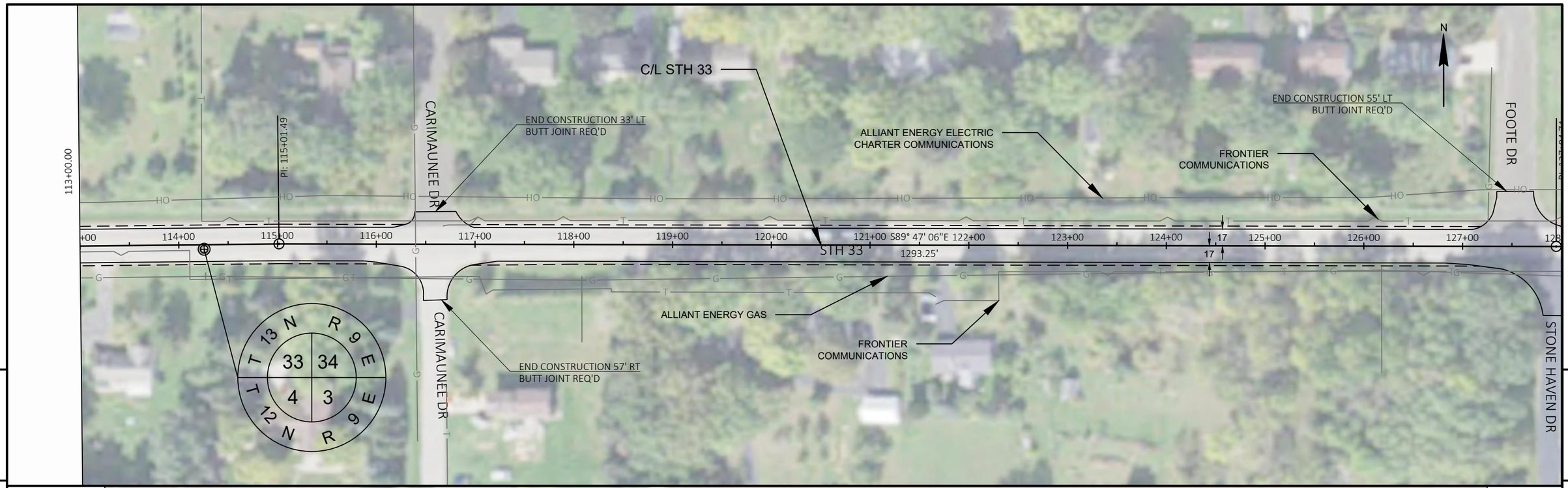
113+00.00

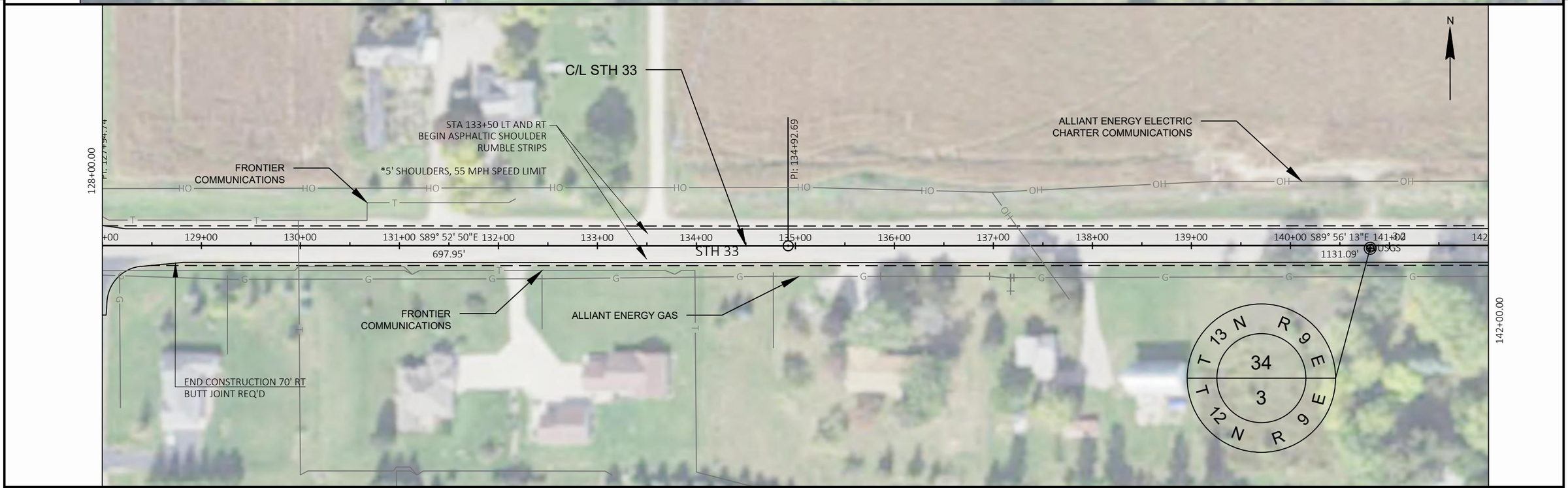
PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 33 E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 03

PLOT DATE : 10/31/2021 12:00 PM PLOT BY : GREG BUBOLZ PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



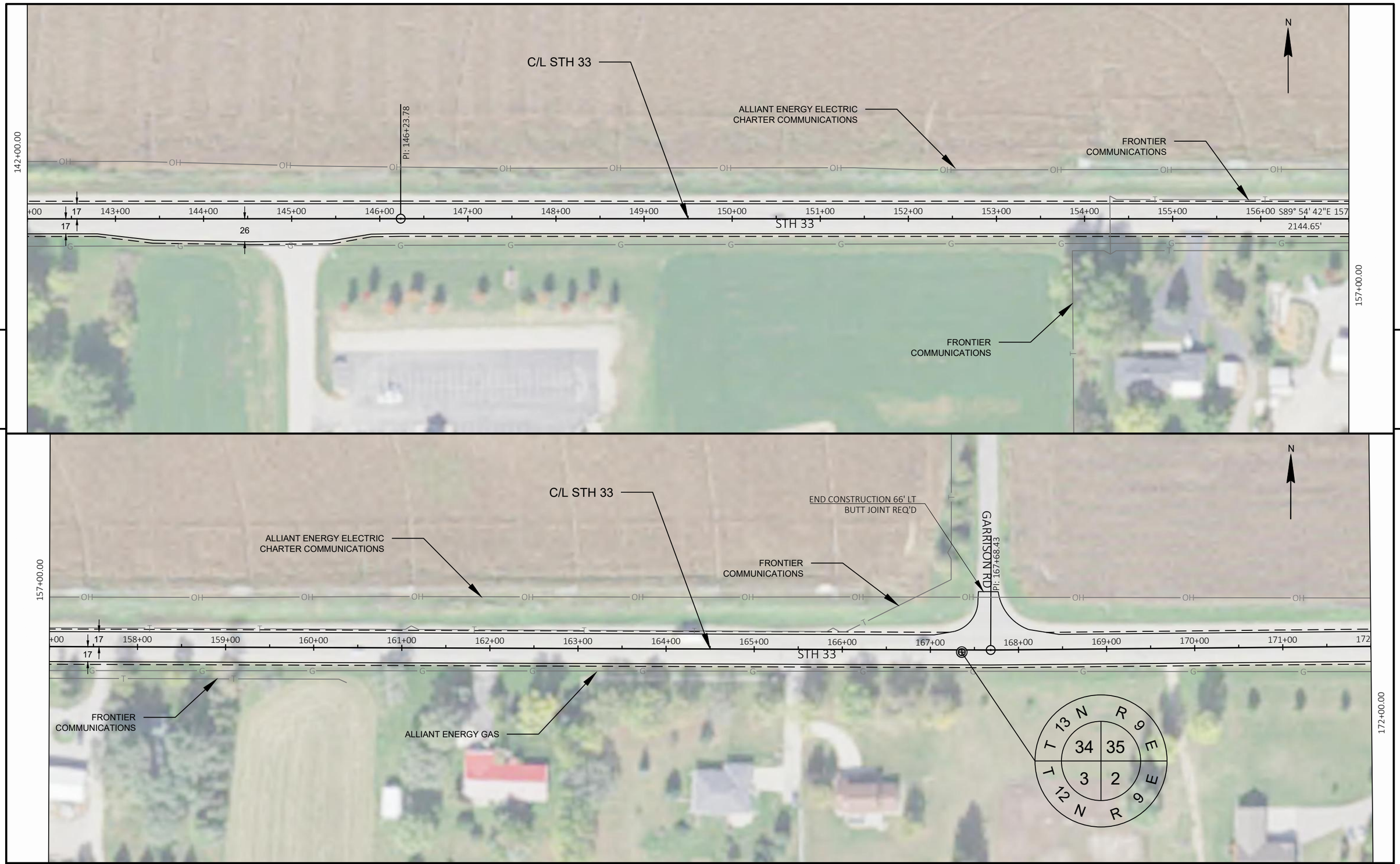


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 34	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 04

PLOT DATE : 10/7/2021 7:21 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44

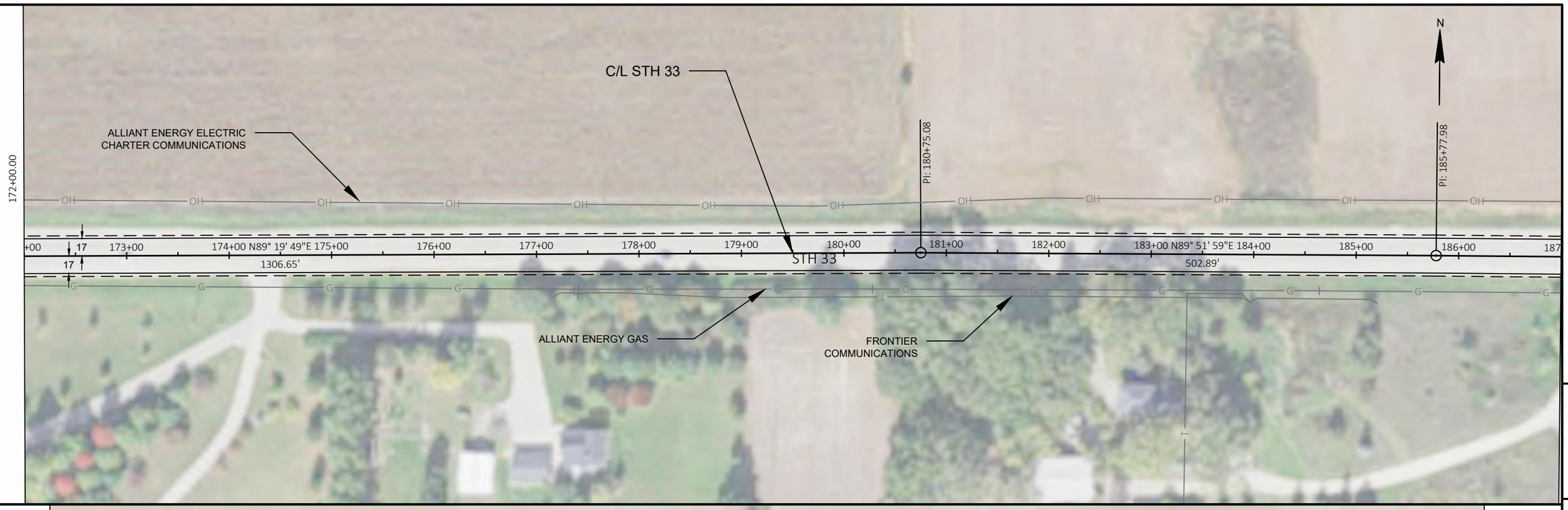


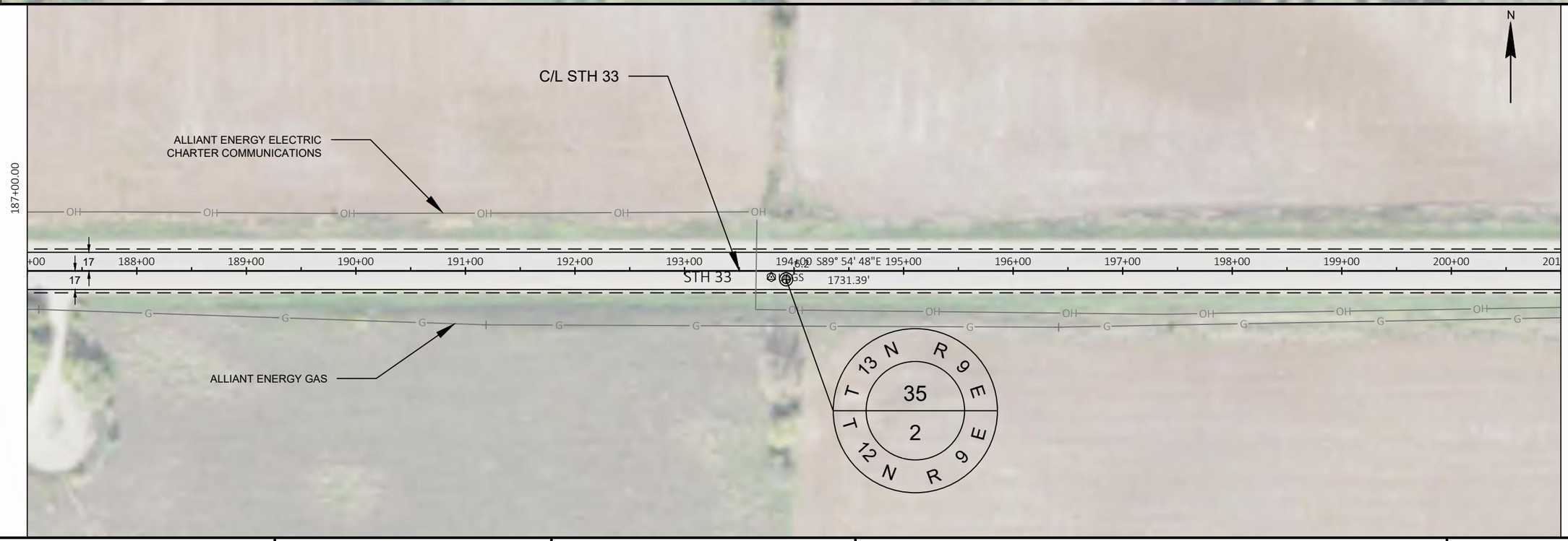
PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 35	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 05

PLOT DATE : 10/7/2021 7:21 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



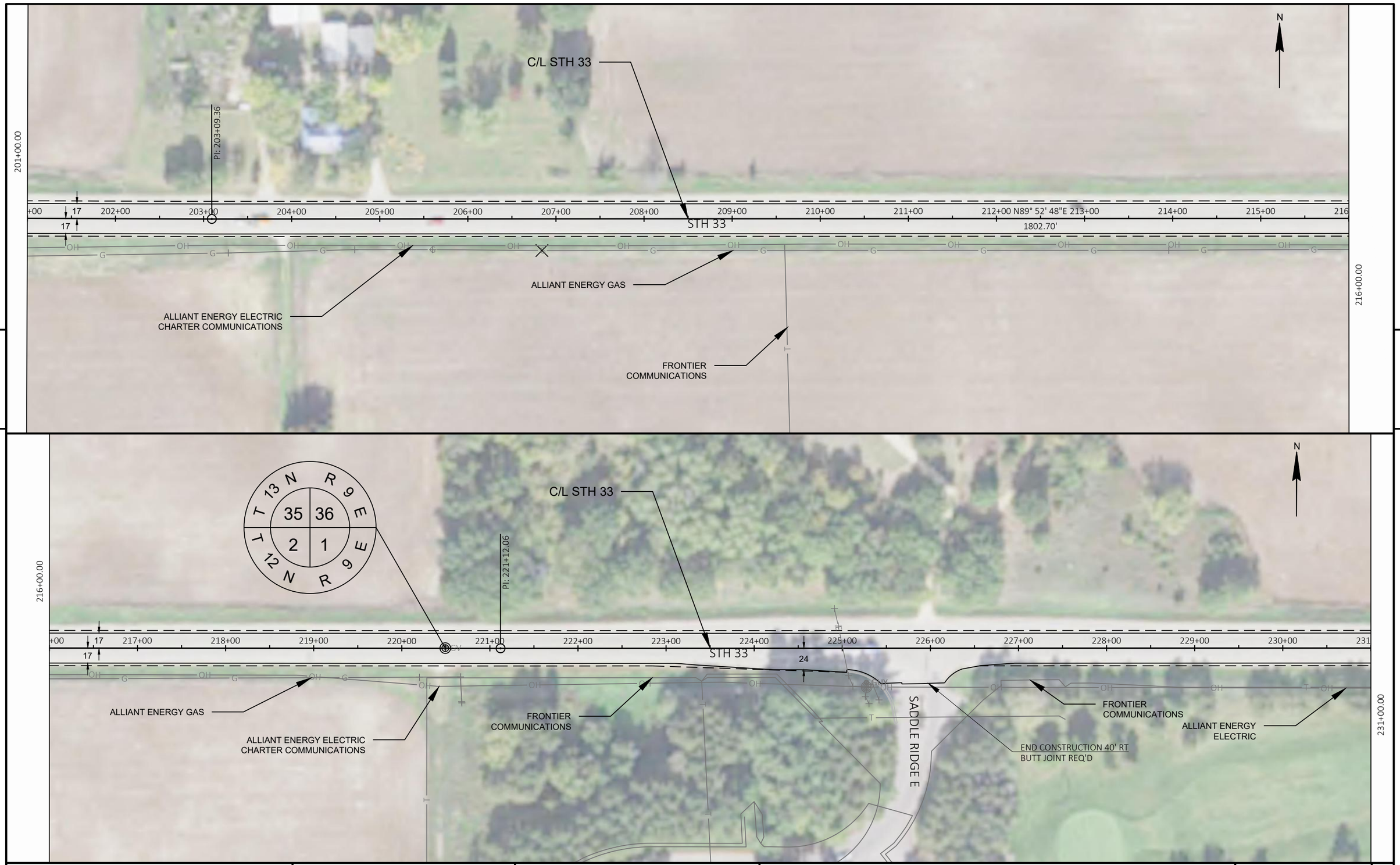


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 36	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 06

PLOT DATE : 10/7/2021 7:21 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



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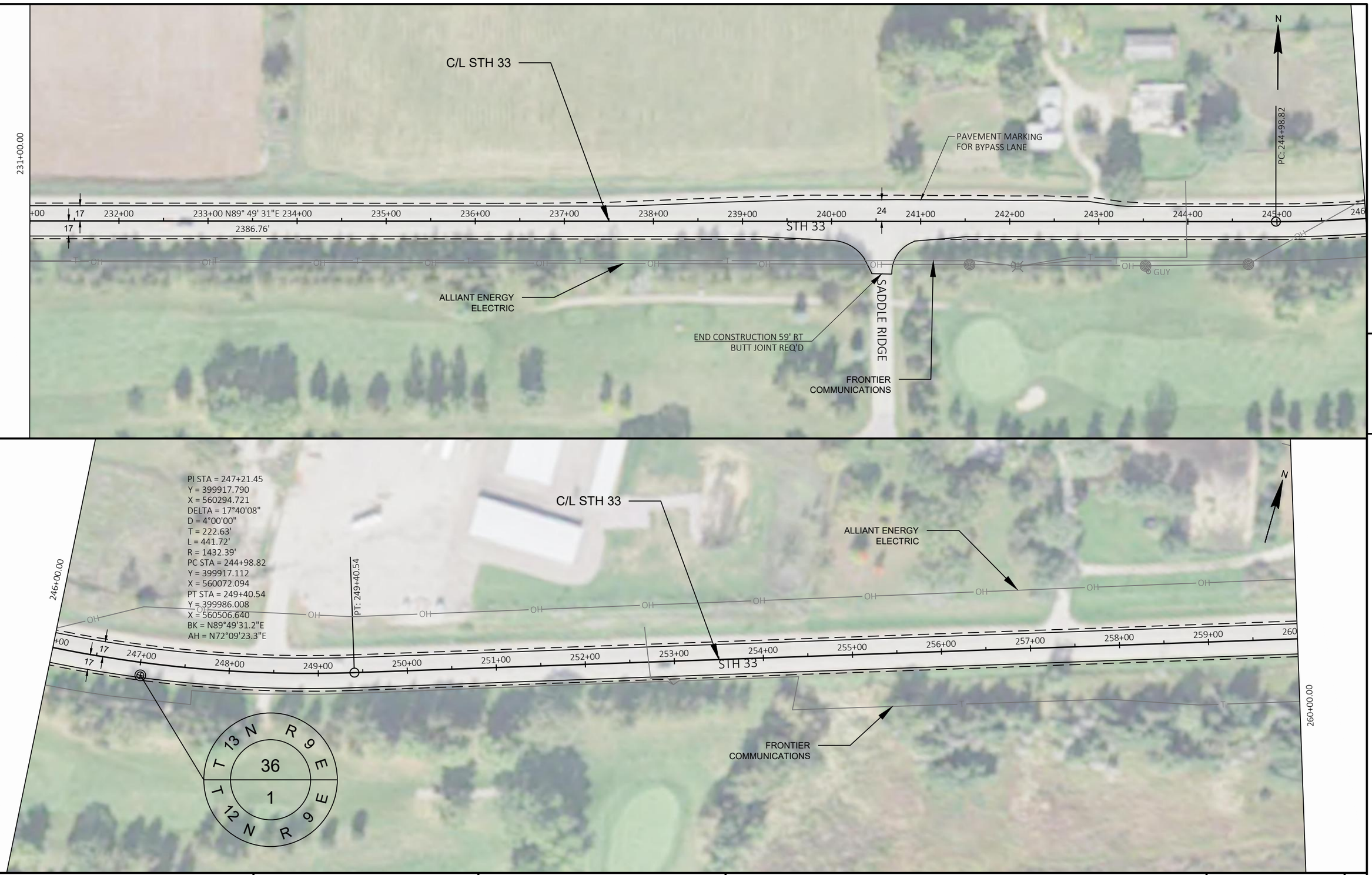
PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 37	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 07

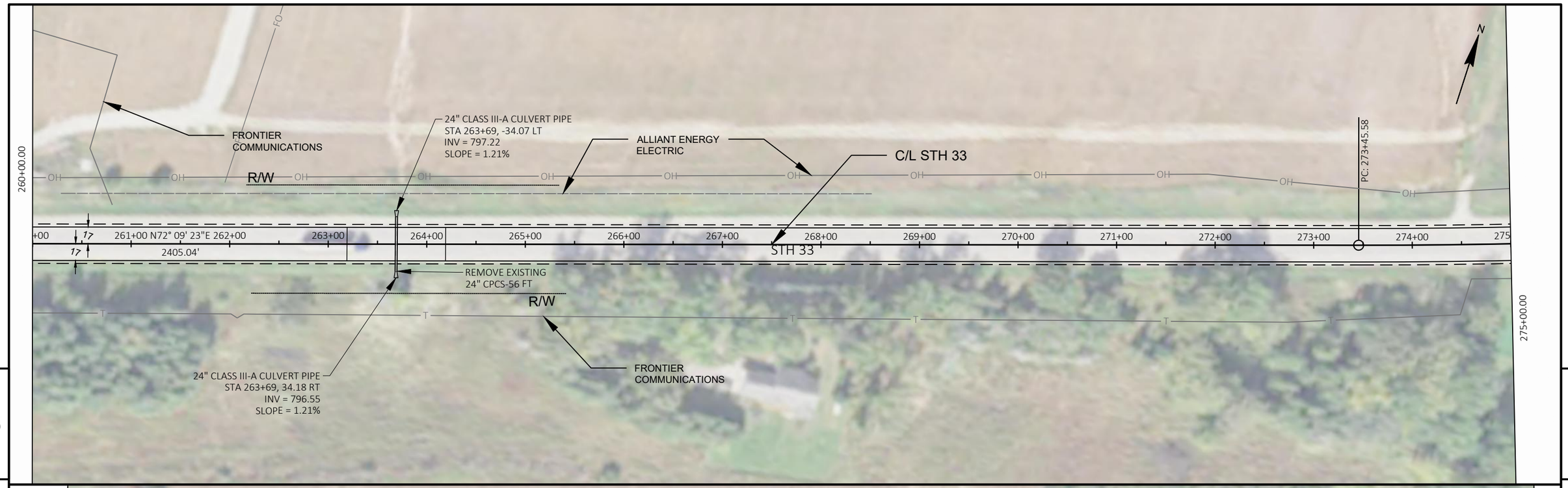
PLOT DATE : 10/7/2021 7:22 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

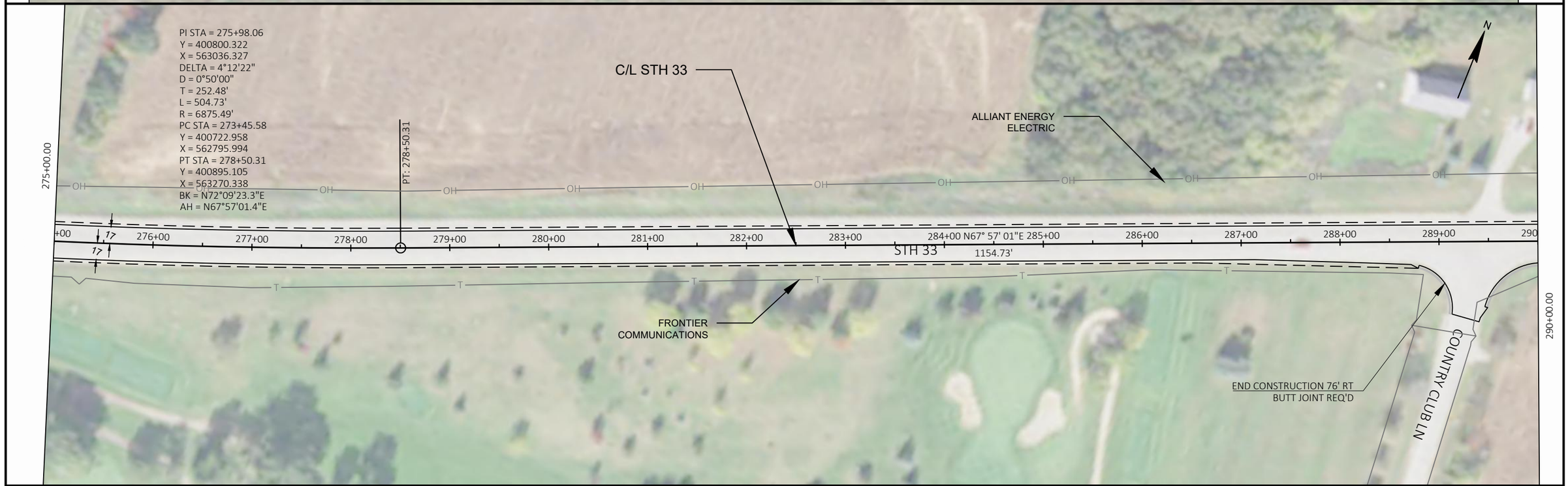


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 38	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 08

PLOT DATE : 10/7/2021 7:22 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

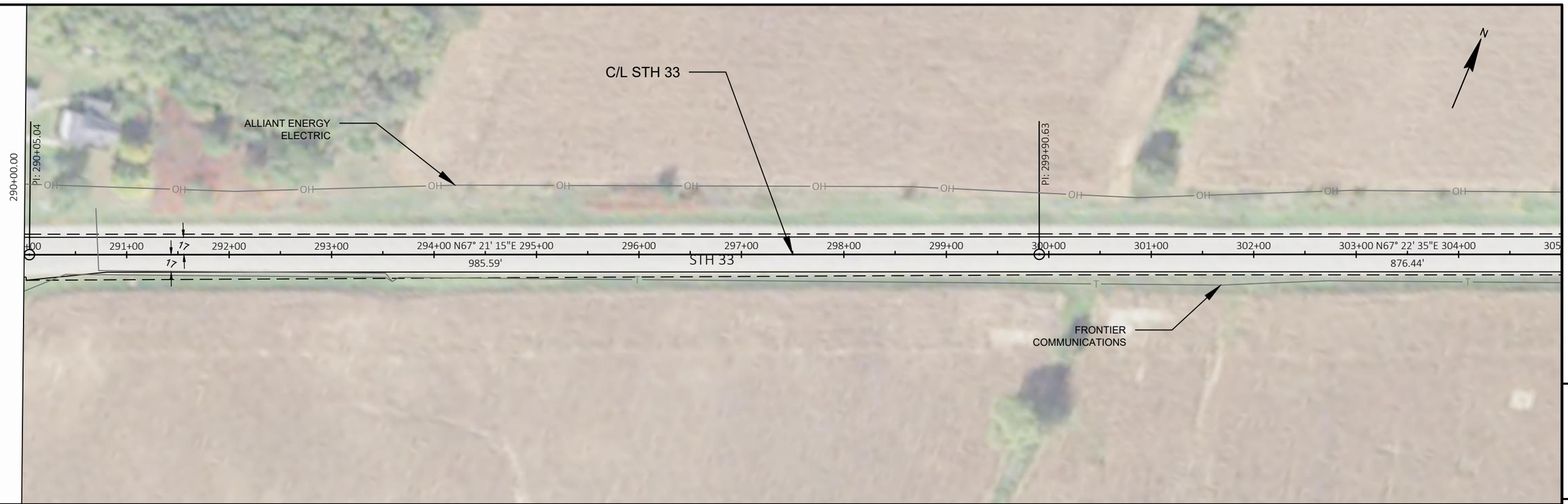


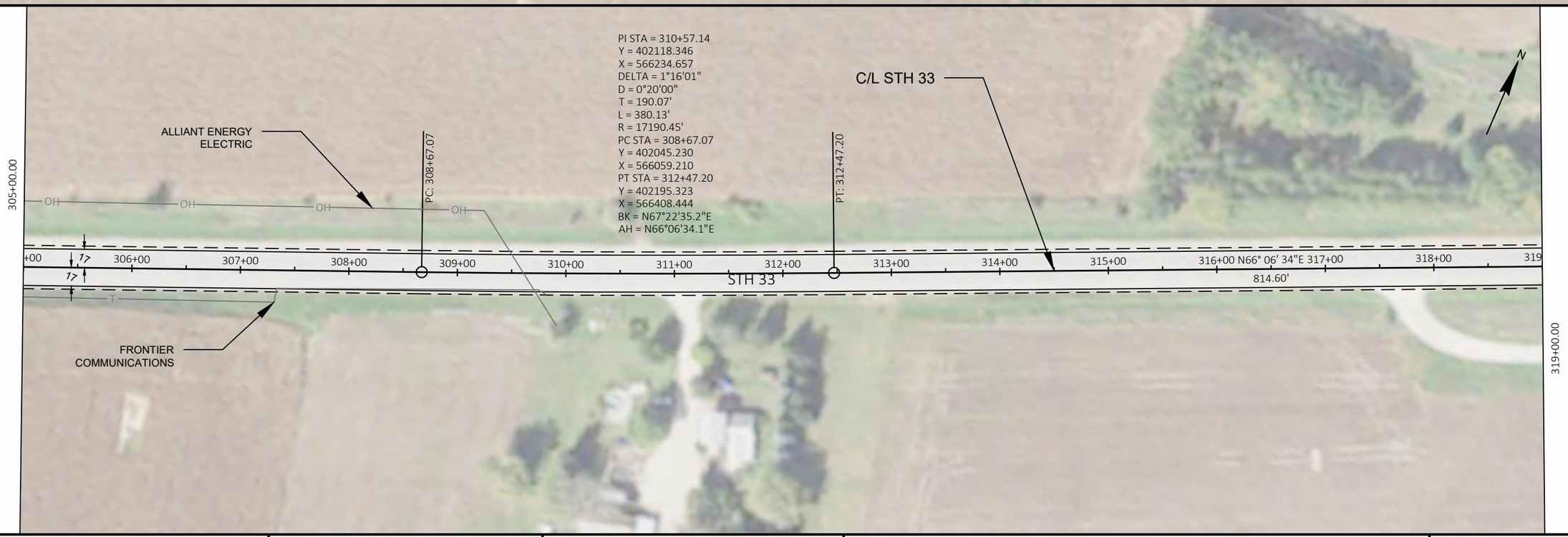


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 39	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 09

PLOT DATE : 10/7/2021 7:22 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT





PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 40	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 10

PLOT DATE : 10/7/2021 7:22 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44

PI STA = 323+87.73
Y = 402657.229
X = 567451.258
DELTA = 24°05'03"
D = 3°45'00"
T = 325.93'
L = 642.24'
R = 1527.89'
PC STA = 320+61.80
Y = 402525.228
X = 567153.250
PT STA = 327+04.04
Y = 402899.348
X = 567669.458
BK = N66°06'34.1"E
AH = N42°01'31.5"E

C/L STH 33

PC: 320+61.80

PT: 327+04.04

STH 33

319+00.00

334+00.00

ATC MANAGEMENT

ENBRIDGE ENERGY
GAS/PETROLEUM

PIPL

OH

C/L STH 33

FRONTIER
COMMUNICATIONS

PC: 342+87.63

STH 33

334+00.00

349+00.00

335+00 N42° 01' 32"E 336+00
1583.59'

ADAMS COLUMBIA ELECTRIC

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 41	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 11

PLOT DATE : 10/7/2021 7:22 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

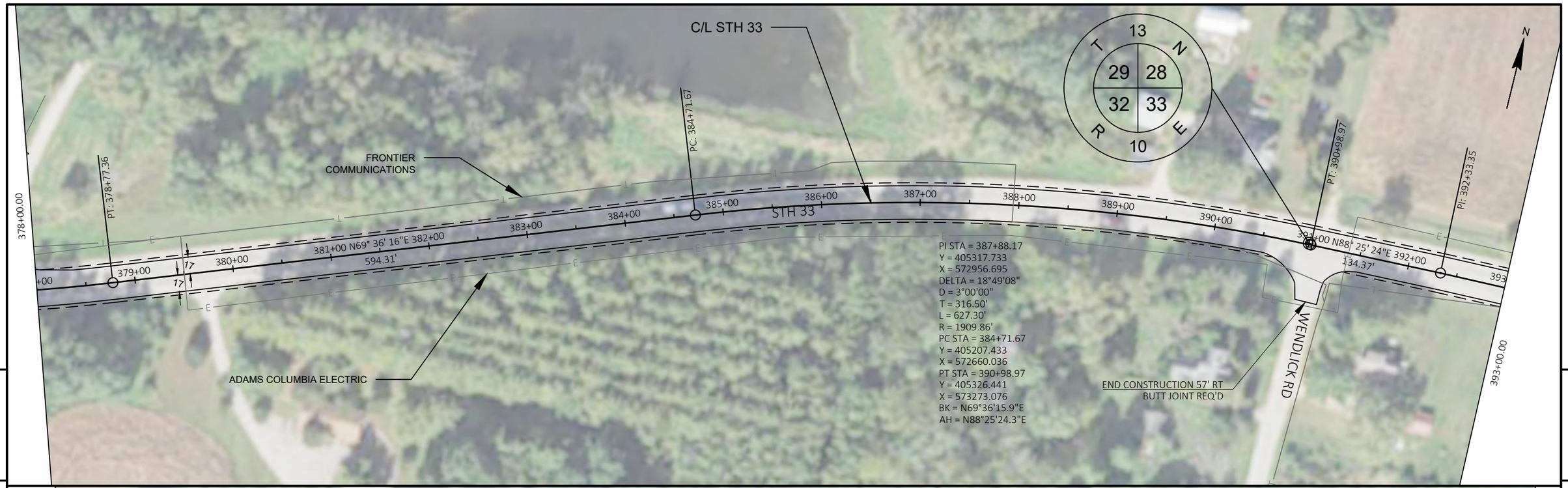
WISDOT/CADDS SHEET 44

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 42	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 12

PLOT DATE : 10/7/2021 7:22 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



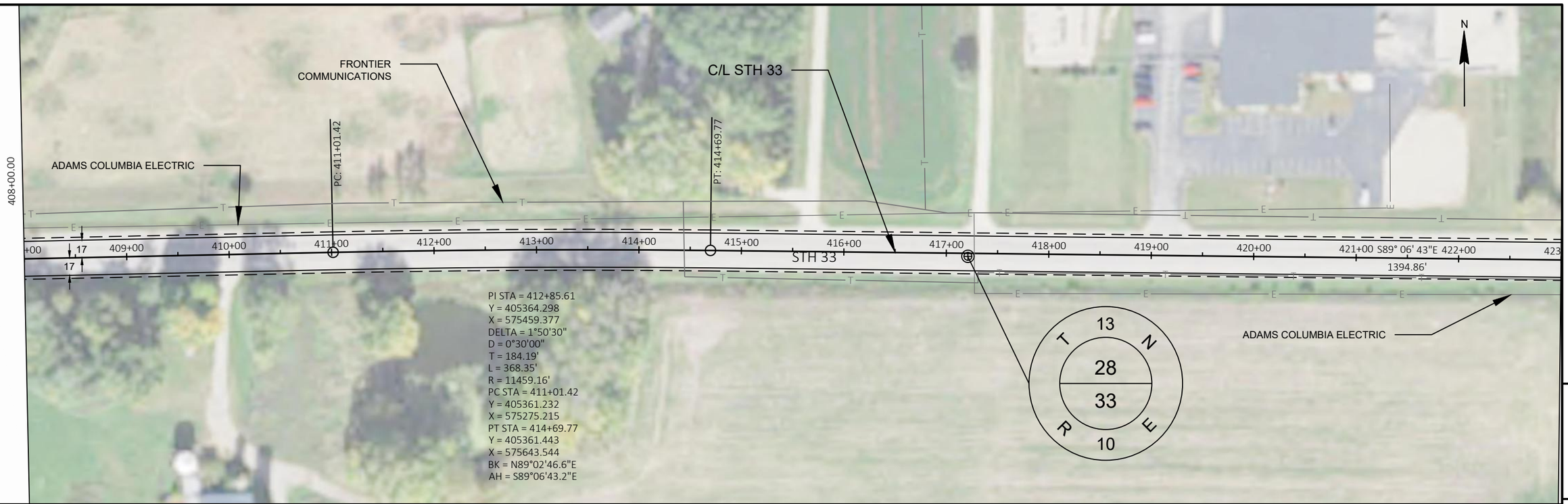
5 5

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 43	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 13

PLOT DATE : 10/7/2021 7:23 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

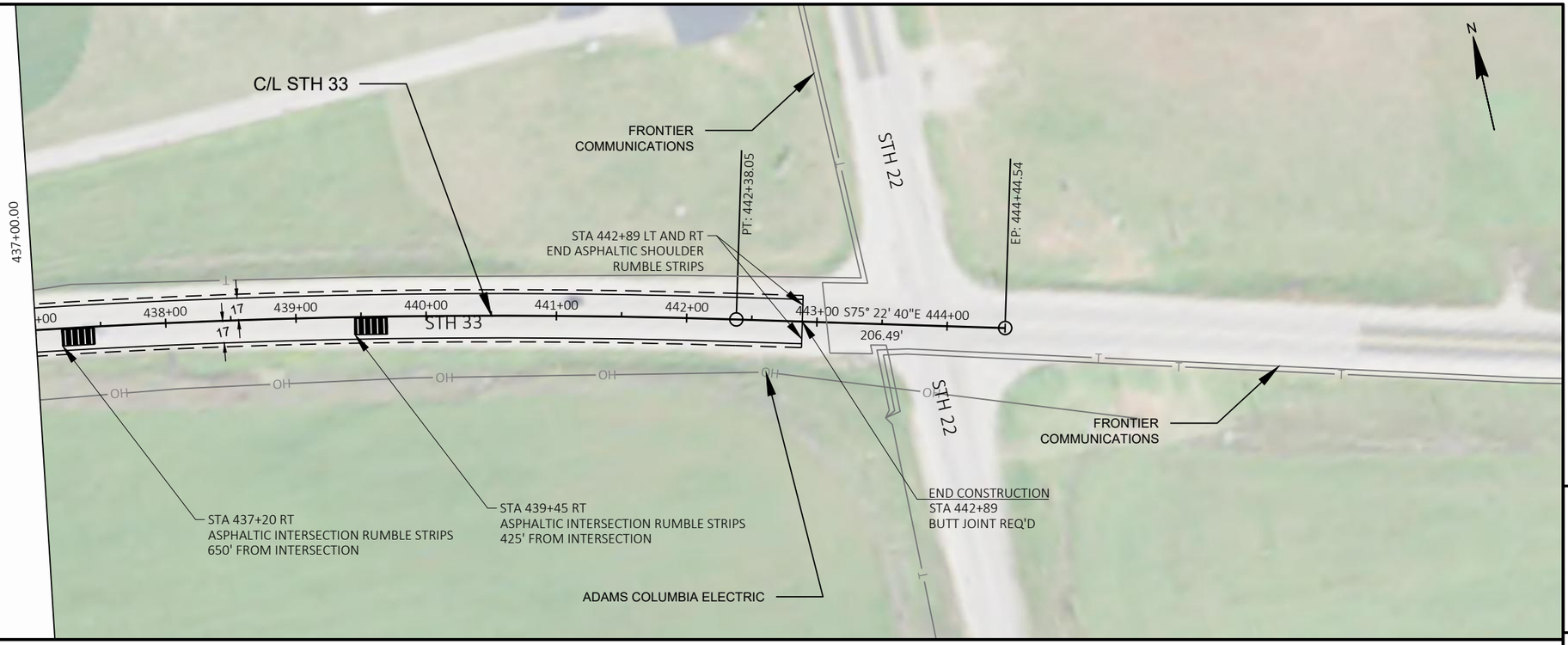
WISDOT/CADDS SHEET 44



PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 44	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 14

PLOT DATE : 10/7/2021 7:23 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT



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5

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	PLAN	SHEET 45	E

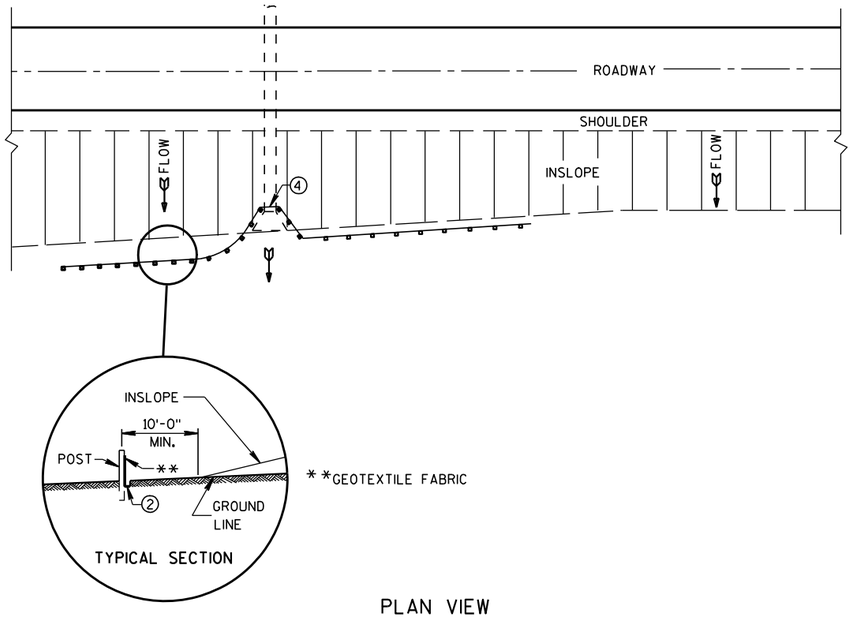
FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 15

PLOT DATE : 10/7/2021 7:23 AM PLOT BY : JAMES GOLDEN PLOT NAME : PLOT SCALE : 1 IN:100 FT

Standard Detail Drawing List

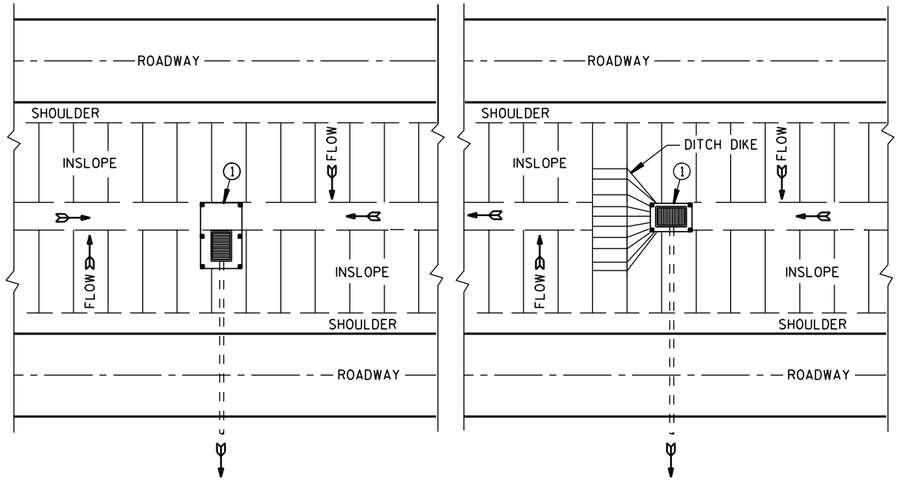
08E09-06	SILT FENCE
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F06-04	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-13B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
13A08-01	ASPHALTIC RUMBLE STRIPS AT INTERSECTION
13C19-03	HMA LONGITUDINAL JOINTS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B16-04A	ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2
14B16-04B	ANCHORAGE FOR STEEL PLATE BEAM GUARD TYPE 2
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	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)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C08-20B	PAVEMENT MARKING (TURN LANES)
15C08-20C	PAVEMENT MARKING (TURN LANES)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-06A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-04A	PAVEMENT MARKING (INTERSECTIONS)
15C35-04B	PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE)
15C35-04C	PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE)
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING
15D44-02	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES
15D45-03	TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH LOOSE GRAVEL
15D51-01	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY

6



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



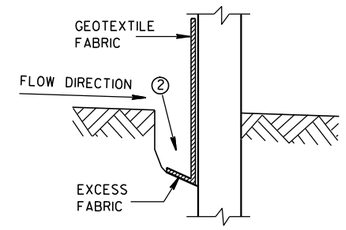
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

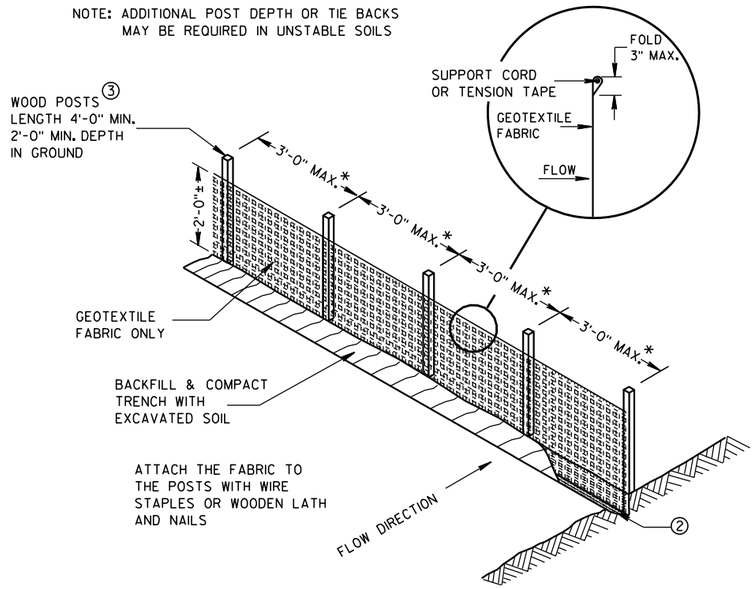
GENERAL NOTES

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

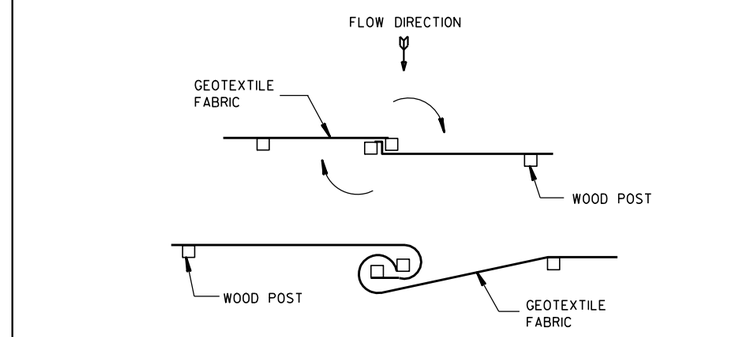
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



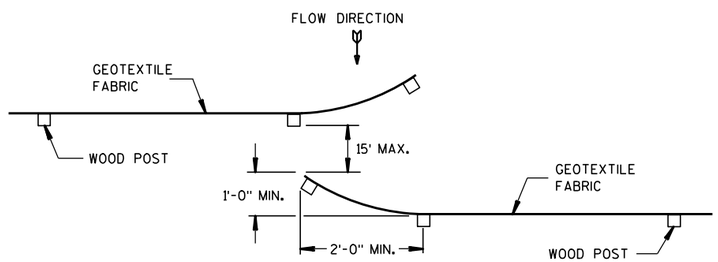
TRENCH DETAIL



SILT FENCE

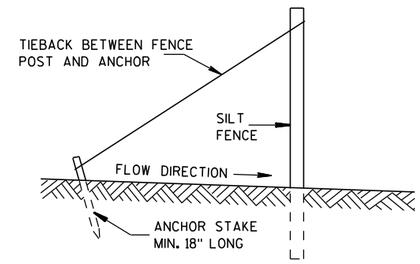


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

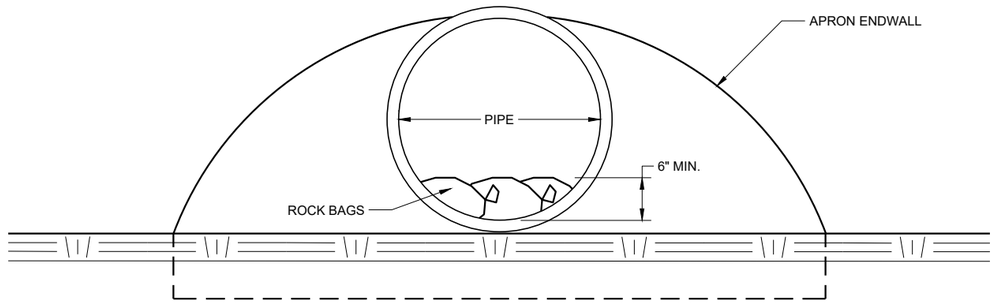
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
4-29-05 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

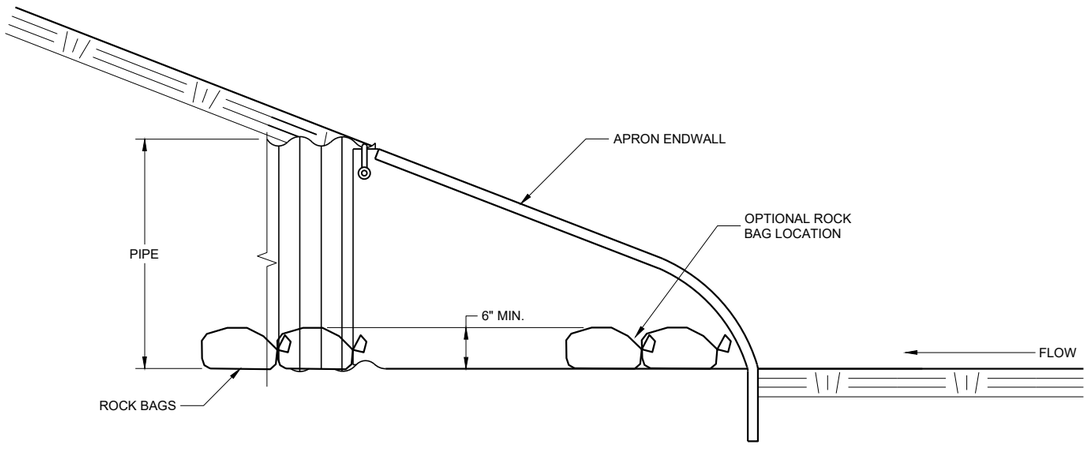
S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6



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

METAL APRON ENDWALLS

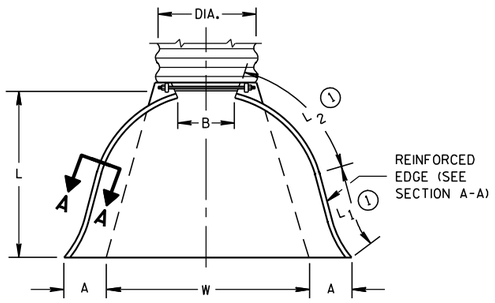
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

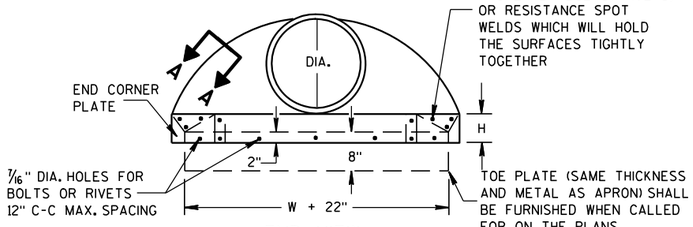
REINFORCED CONCRETE APRON ENDWALLS

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

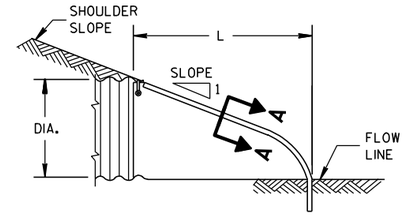
*MINIMUM
**MAXIMUM



PLAN VIEW

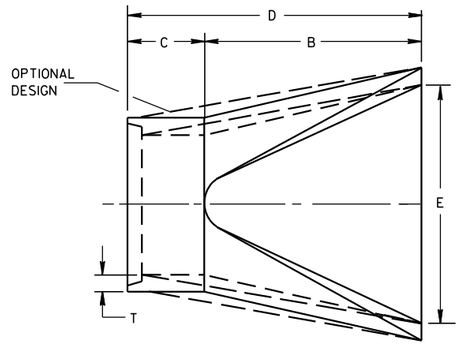


END VIEW

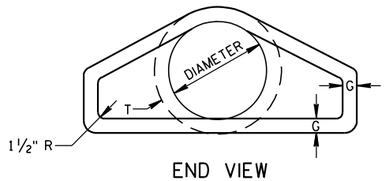


SIDE ELEVATION

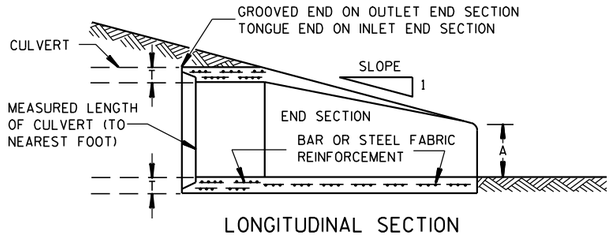
METAL ENDWALLS



PLAN

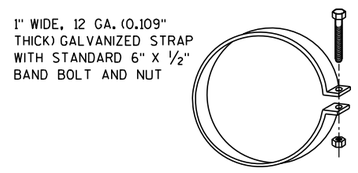


END VIEW



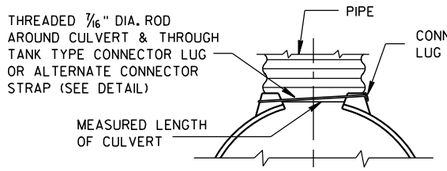
LONGITUDINAL SECTION

CONCRETE ENDWALLS

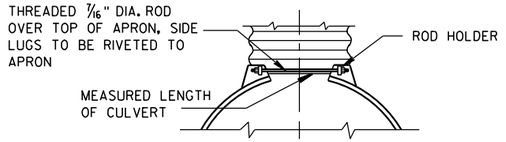


ALTERNATE FOR TYPE 1 CONNECTION

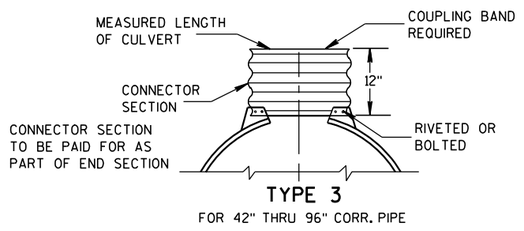
END SECTION CONNECTOR STRAP



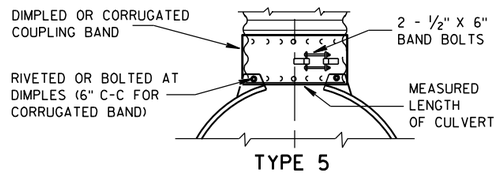
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

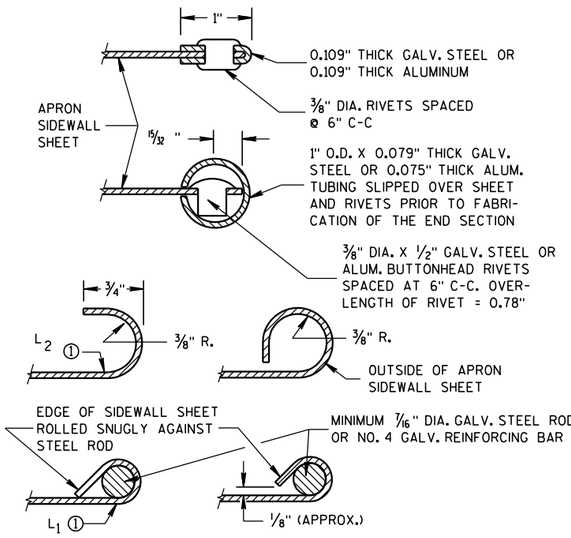
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

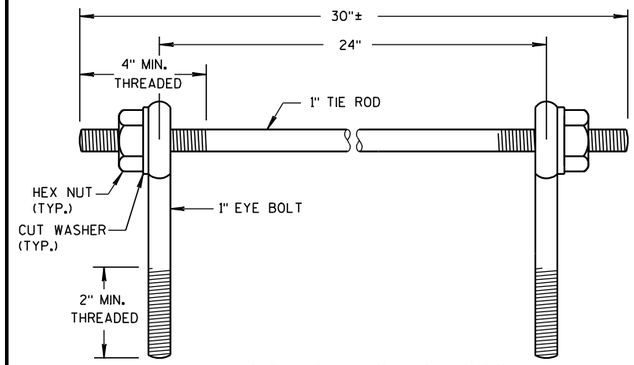
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

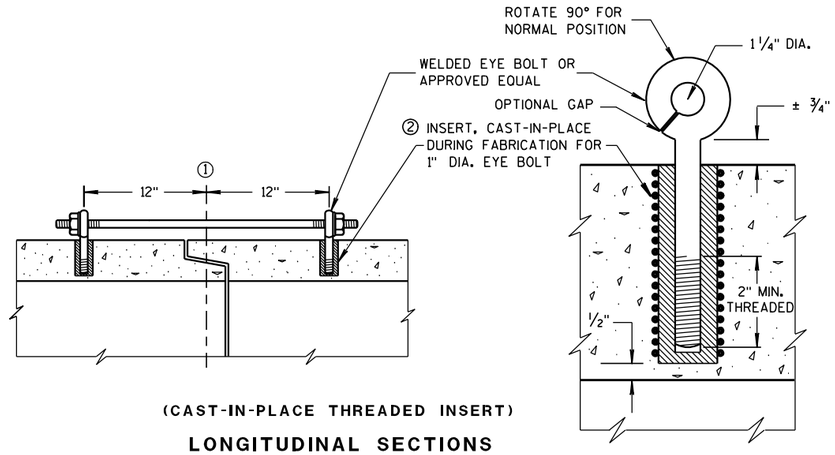
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)

GENERAL NOTES

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

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

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

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

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

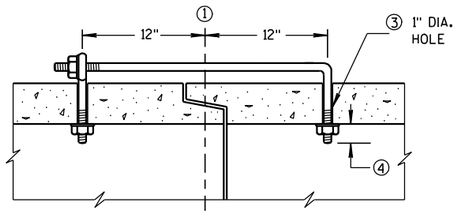
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

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

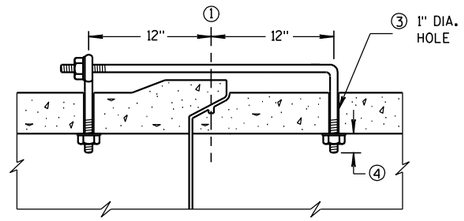
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

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



(TONGUE & GROOVE PIPE)

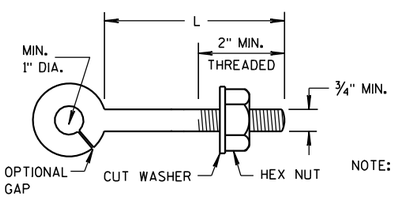


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

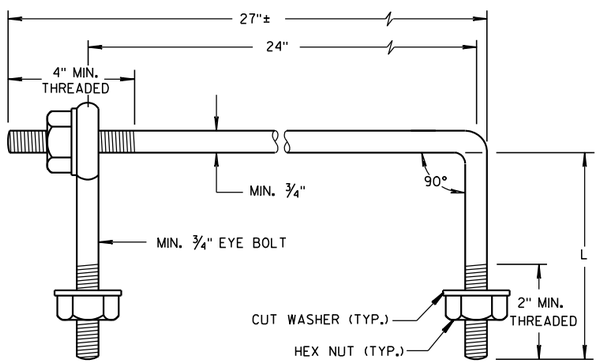
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

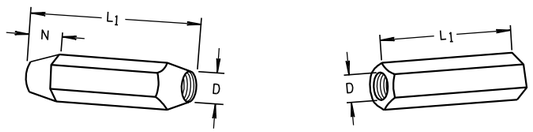
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

ADJUSTABLE TIE ROD TABLE

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

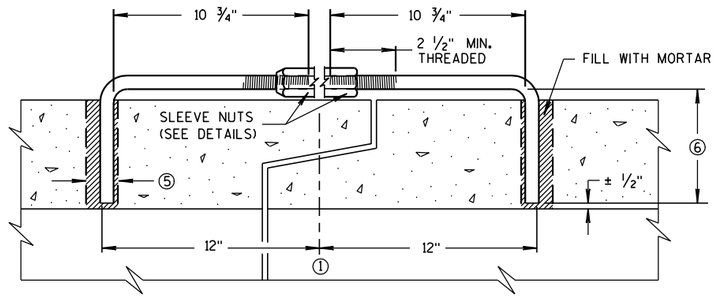
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

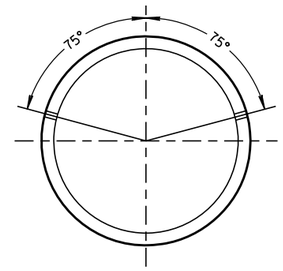
SLEEVE NUTS



LONGITUDINAL SECTION

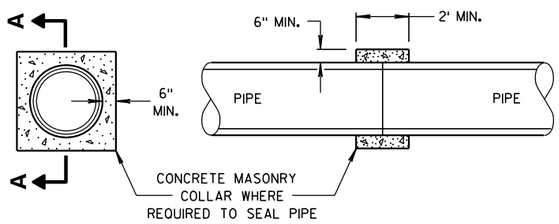
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
50
FHWA

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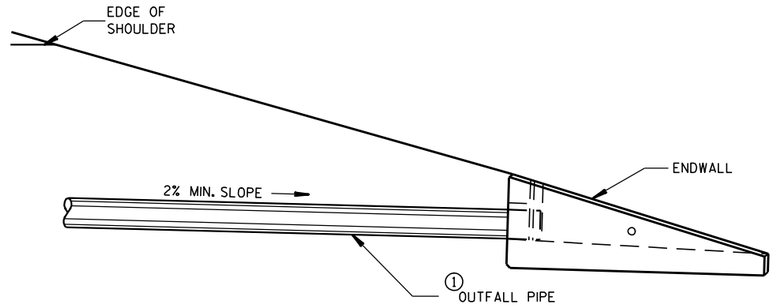
S.D.D. 8 F 4-7

DIMENSIONS IN INCHES											
PIPE DIA.	A	B	C	D	E	F	G	H	J	L	Z
**4	6	12	5 1/4	9	8	32	36	11	2 3/8	6 1/2	4
6	8	14	7 1/4	11	10	42	44	13	3 5/8	8 1/2	6

**APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



INSTALLATION DETAIL

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.

ALTERNATIVE DESIGNS WHICH PROVIDE EQUIVALENT CAPACITY AND STRENGTH MAY BE USED WHEN APPROVED BY THE ENGINEER. ENDWALL MAY BE EITHER PRECAST OR CAST-IN-PLACE CONCRETE.

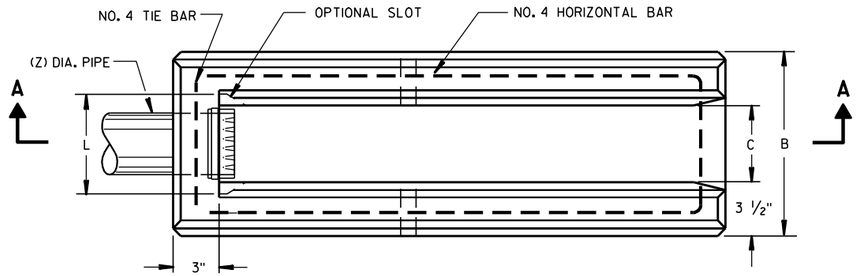
THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

THE UPPERMOST POINT OF THE ENDWALL SHALL BE PLACED FLUSH WITH THE ROADWAY SLOPE. ADJACENT EMBANKMENT SLOPES SHALL BE SHAPED TO FIT THE SIDES AND TOE OF THE ENDWALL. EXACT PLACEMENT OF THE OUTFALL PIPE AND ENDWALL SHALL BE DETERMINED BY THE ENGINEER TO MATCH THE ELEVATIONS AND FLOW DIRECTION OF THE ROADSIDE DITCH.

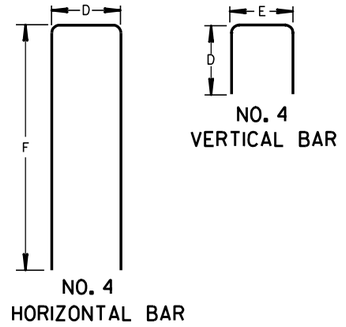
① THE OUTFALL PIPE UNDERDRAIN AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION FOR POLY (VINYL CHORIDE) (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM DESIGNATION: D 2665, SCHEDULE 40 PVC OR THE STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHORIDE) (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION: D 3034, TYPE PSM SDR 23.5 PVC SEWER PIPE, ALL JOINTS SHALL BE SOLVENT WELDED.

THE OUTFALL PIPE INCLUDING ALL FITTINGS AND THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

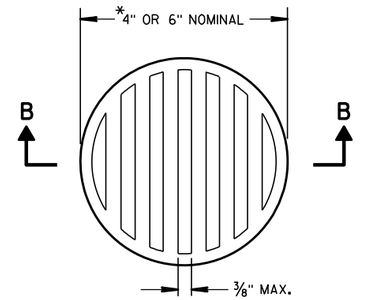
② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

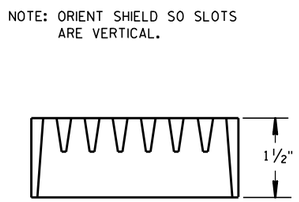


PLAN VIEW



BAR STEEL REINFORCEMENT DETAILS

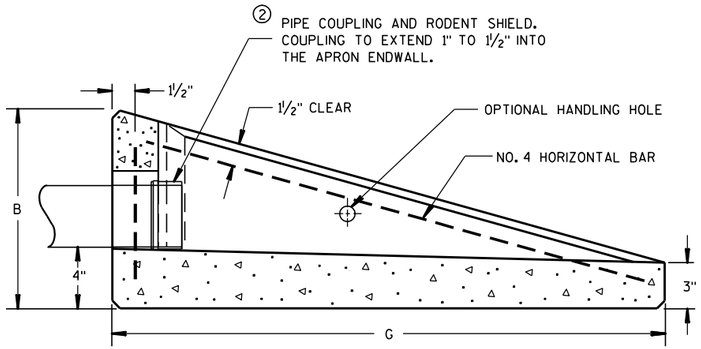




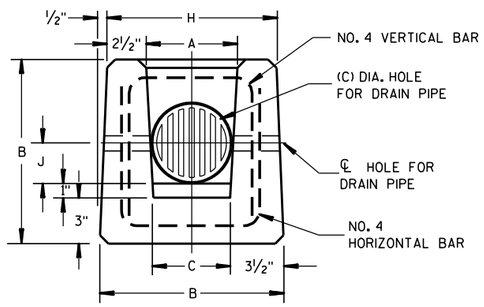
SECTION B-B

② RODENT SHIELD

*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.



SECTION A-A



END VIEW

CONCRETE APRON ENDWALL FOR UNDERDRAIN

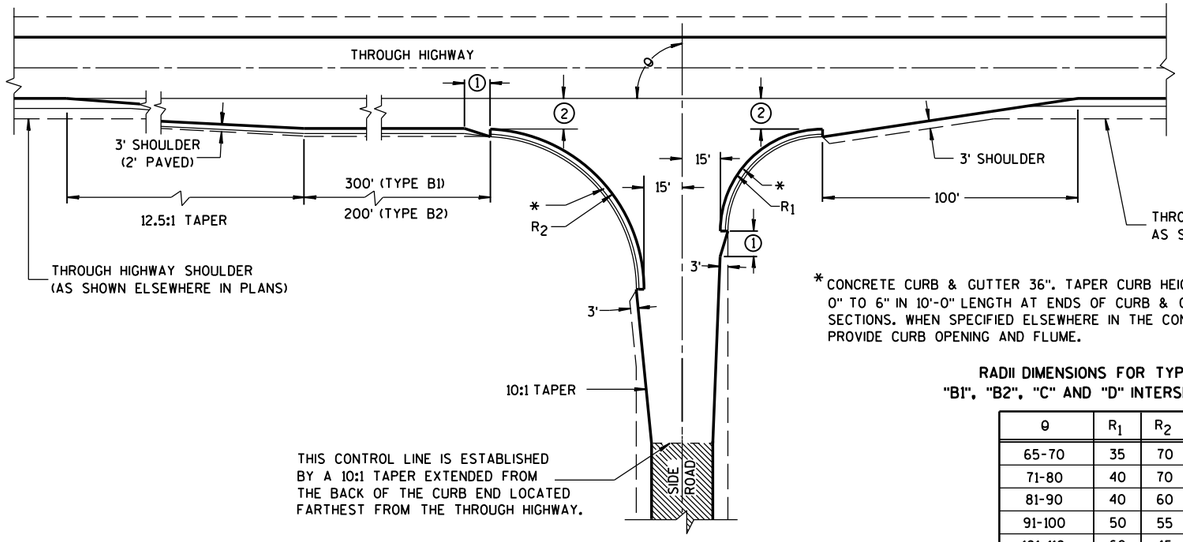
REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/10/98 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 6-4

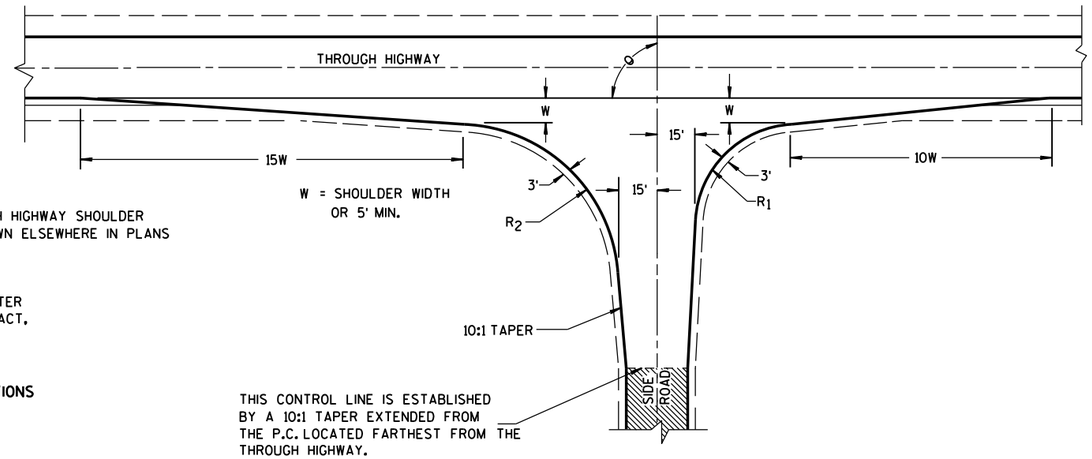


TYPE "B1" AND "B2"

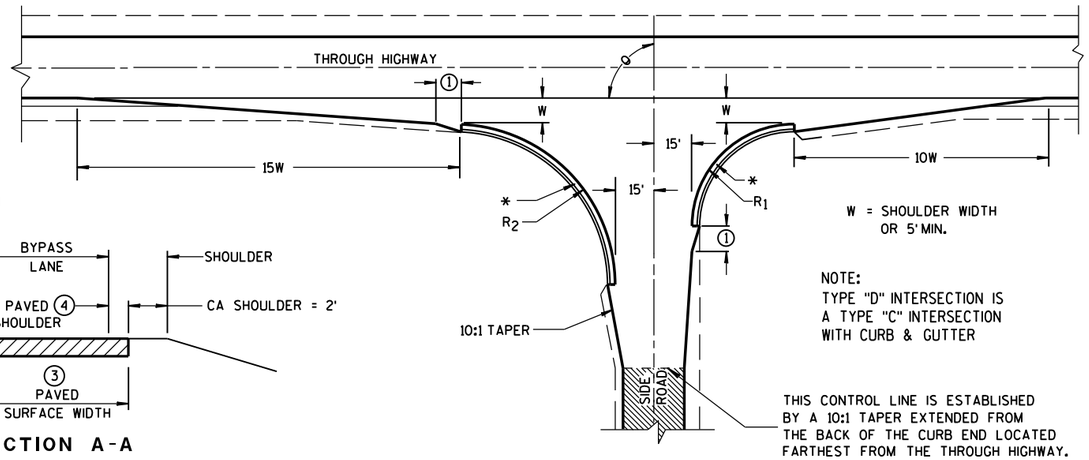
*CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



TYPE "C"



TYPE "D"

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING PAVED SURFACE

BYPASS LANE

(1) 10-FT TYPICAL.

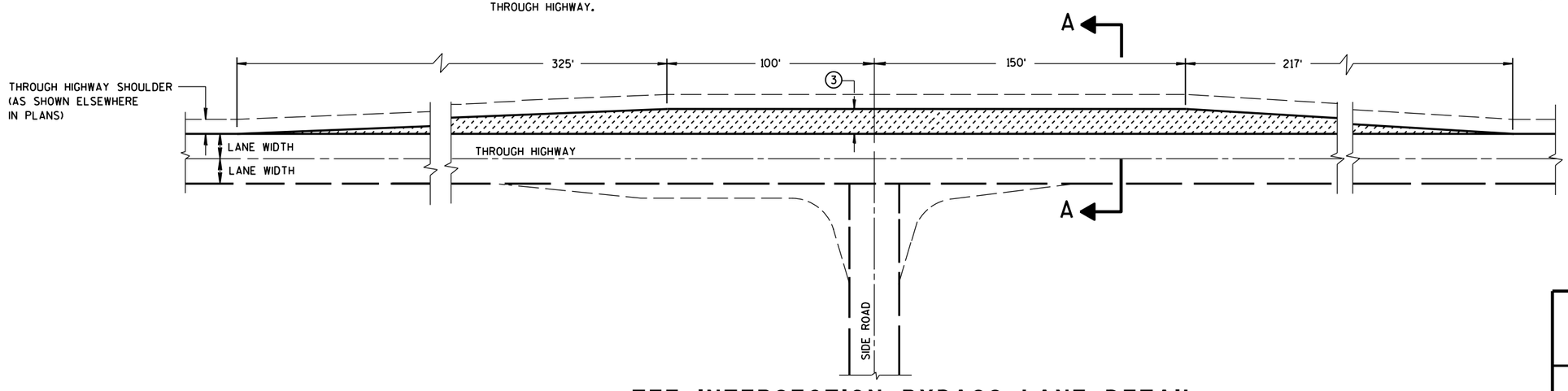
(2) 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.

(3) BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.

(4) BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.

SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)

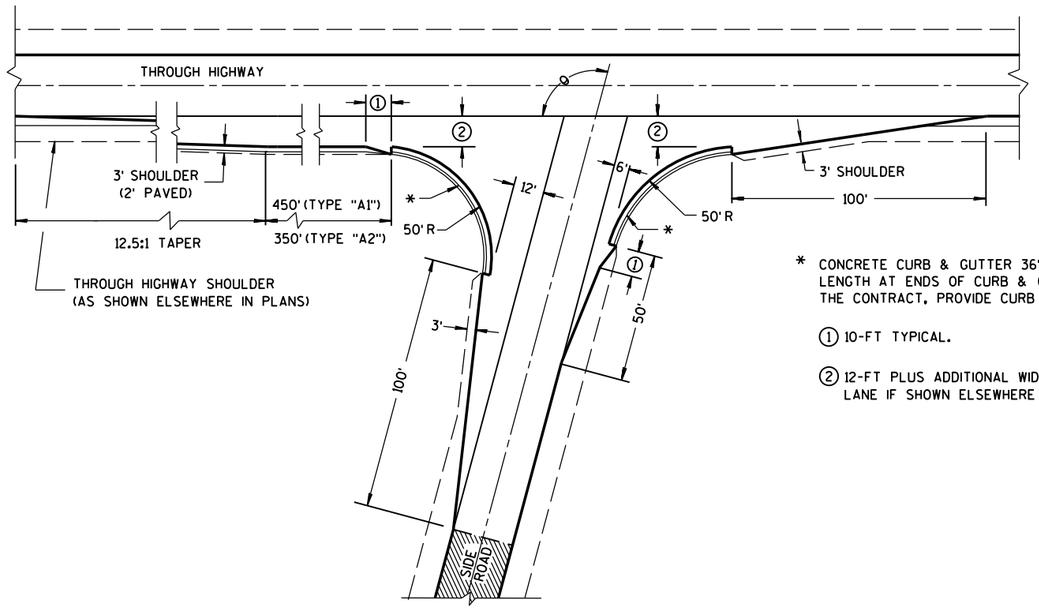


TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND "D" AND TEE INTERSECTION BYPASS LANE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6
S.D.D. 9 A 1-13a

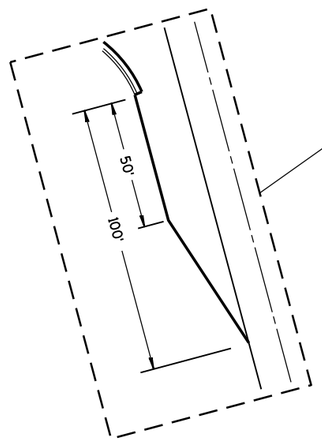


θ = MORE THAN 80°

* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

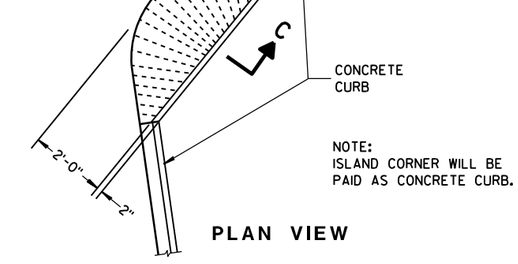
① 10-FT TYPICAL.

② 12-FT PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLANS.



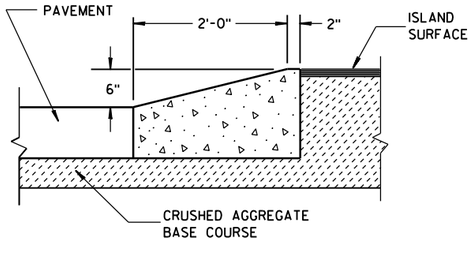
θ = ACUTE ANGLES 80° OR LESS

SIDE ROAD WIDENING AND TAPER REQUIRED WHERE
THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
θ = ACUTE ANGLES 70° OR LESS



NOTE:
ISLAND CORNER WILL BE
PAID AS CONCRETE CURB.

PLAN VIEW



SECTION C-C

ISLAND CORNER DETAIL

(TO BE CONSTRUCTED AT ALL ISLAND CORNERS)

TABLE OF DIMENSIONS FOR
VARIABLE SIDE ROAD INTERSECTION ANGLES
(INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT "O") X / Y								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7 / -14.0	44.9 / -12.0	46.4 / -72.4	41.9 / 0.0	205.0 / 0.0	104.6 / -12.0	64.0 / -75.5	85.0 / -147.1	32.3	67.4	4.9	85.9	169.9
65	10.9 / -14.0	39.0 / -12.0	37.8 / -71.6	39.4 / 0.0	196.1 / 0.0	95.7 / -12.0	54.1 / -71.5	70.5 / -151.3	28.2	63.6	8.5	80.9	166.9
70	9.4 / -14.0	33.9 / -12.0	29.8 / -70.1	37.4 / 0.0	188.3 / 0.0	87.8 / -12.0	45.6 / -67.5	56.1 / -154.2	24.6	59.7	11.5	76.1	164.1
75	7.9 / -14.0	29.3 / -12.0	22.3 / -67.9	35.7 / 0.0	181.2 / 0.0	80.7 / -12.0	38.2 / -63.4	41.8 / -155.9	21.5	55.8	13.8	71.4	161.4
80	6.5 / -14.0	25.4 / -12.0	15.6 / -65.2	34.4 / 0.0	174.8 / 0.0	74.4 / -12.0	31.8 / -59.3	27.6 / -156.5	18.9	52.0	15.6	66.9	158.9

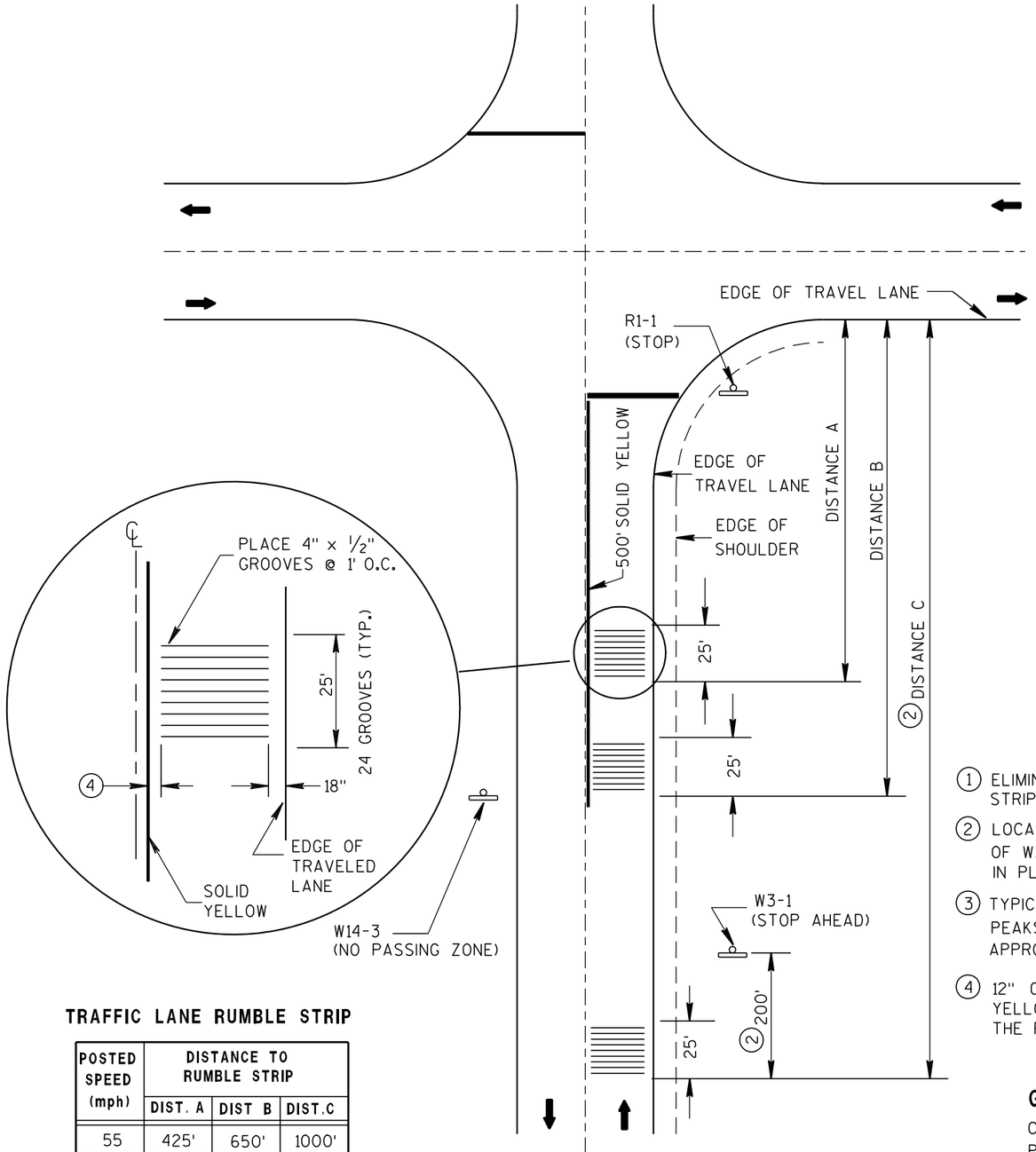
TYPE "A1" & "A2" SIDE ROAD INTERSECTION DETAILS

AT-GRADE SIDE ROAD
INTERSECTION, TYPE "A1" & "A2"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 9 A 1-13b



ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

PLAN VIEW

RUMBLE STRIP LOCATION

TRAFFIC LANE RUMBLE STRIP

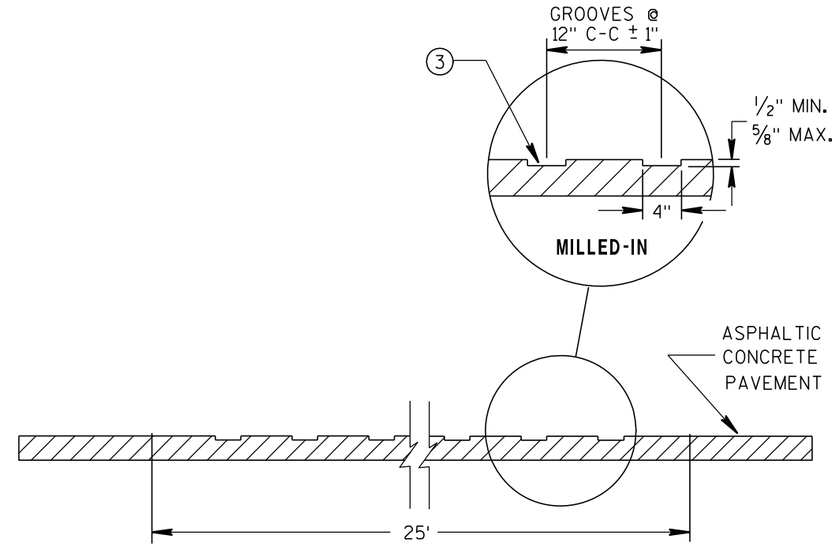
POSTED SPEED (mph)	DISTANCE TO RUMBLE STRIP		
	DIST. A	DIST B	DIST.C
55	425'	650'	1000'
50	325'	450'	800'
45	275'	400'	650'
40	225'	(1)	550'
35	175'	(1)	475'
≤ 30	125'	(1)	425'

(1) ELIMINATE THE MIDDLE SET OF RUMBLE STRIPS.

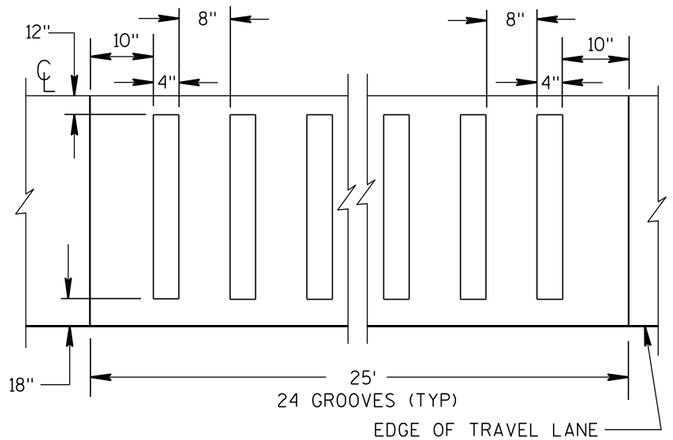
(2) LOCATE RUMBLE STRIP 200' IN ADVANCE OF W3-1 SIGN AS SHOWN. IF W3-1 IS NOT IN PLACE, USE DISTANCE C.

(3) TYPICAL VERTICAL VARIATION BETWEEN PEAKS AND VALLEYS WITHIN THE CUT APPROXIMATELY 1/16"

(4) 12" CLEAR BETWEEN THE SOLID YELLOW LINE AND THE EDGE OF THE RUMBLE.



ELEVATION VIEW



PLAN VIEW

ASPHALTIC PAVEMENT MILLED-IN

GENERAL NOTES

CONTRACTOR SHALL CONFIRM RUMBLE STRIP LOCATION WITH THE ENGINEER PRIOR TO INSTALLATION. THE ENGINEER MAY MODIFY THE RUMBLE STRIP LOCATION AS FIELD CONDITIONS DICTATE.

WHEN ASPHALTIC PAVEMENT IS NEW IN THE RUMBLE AREA THE CONTRACTOR SHALL ALLOW THE PAVEMENT TO CURE A MINIMUM OF 7 DAYS PRIOR TO RUMBLE INSTALLATION.

PAVEMENT MARKING AND SIGNING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

ASPHALTIC RUMBLE STRIPS AT INTERSECTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

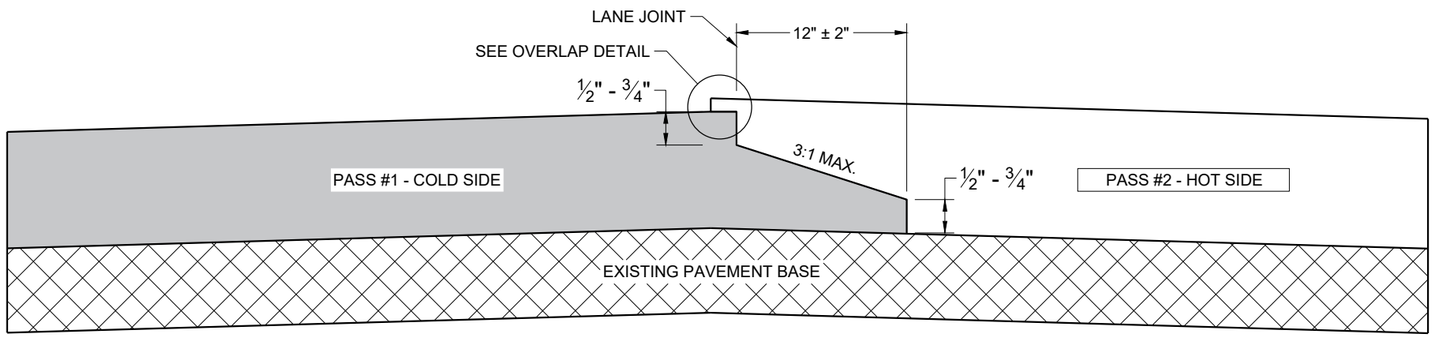
8/17/2011
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS 154
ENGINEER

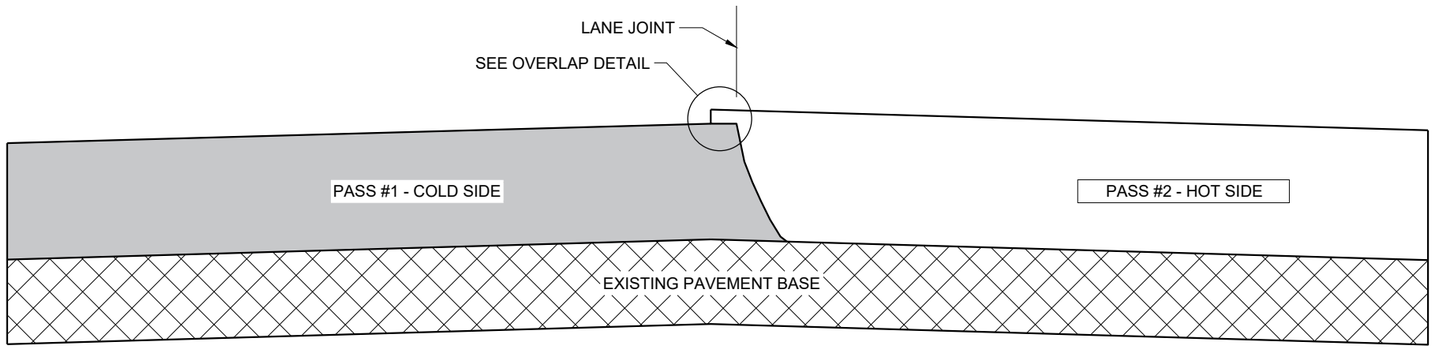
FHWA

6

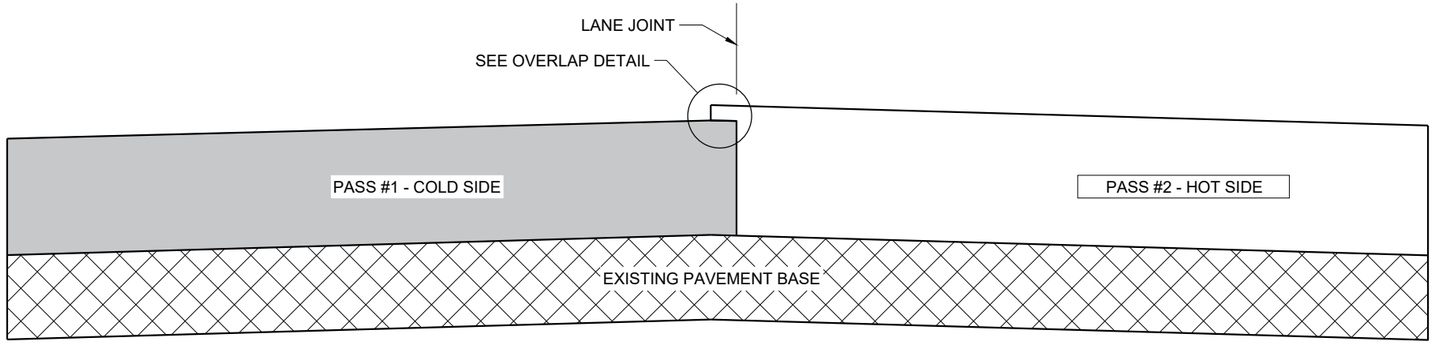
S.D.D. 13 A 8-1



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

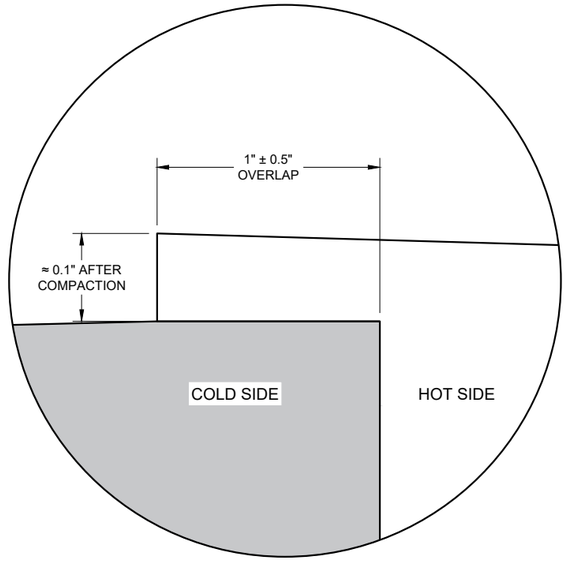
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY 1" ± 0.5" AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2020 DATE	/S/ Steven Hefel HMA PAVEMENT ENGIN

FHWA

6

6

SDD 13C19 - 03

SDD 13C19 - 03

GENERAL NOTES

(1) W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.

DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.

(2) USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.

(3) INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

(4) USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.

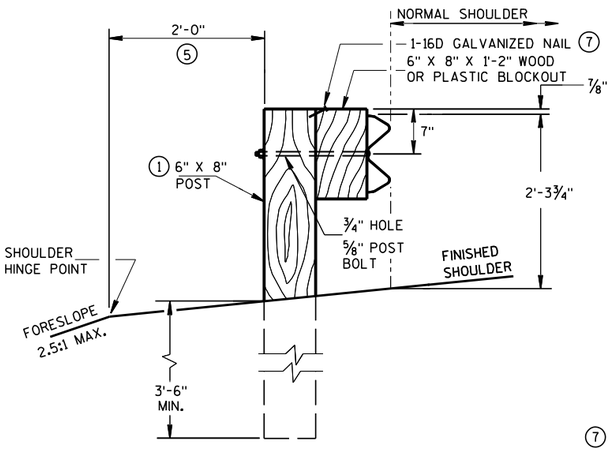
(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

(6) IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2½ INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN YHE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATEY.

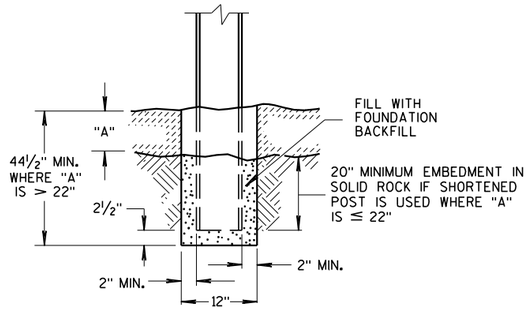
(7) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

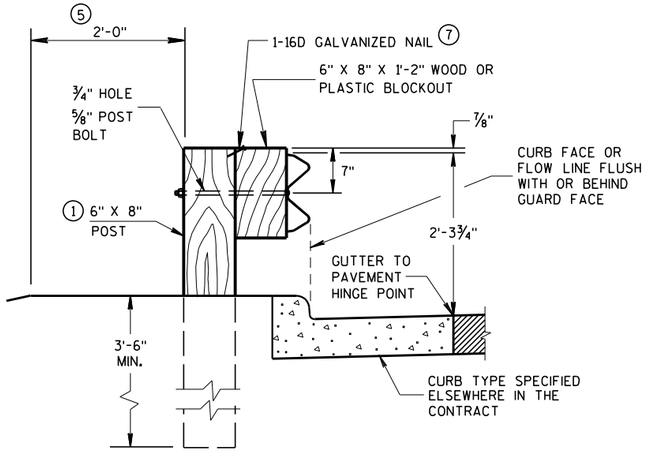
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



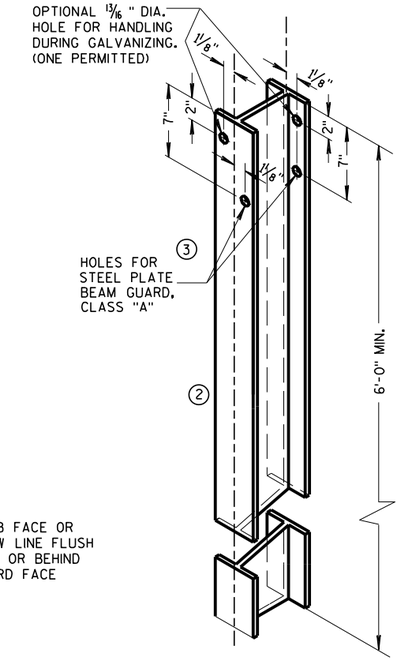
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



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

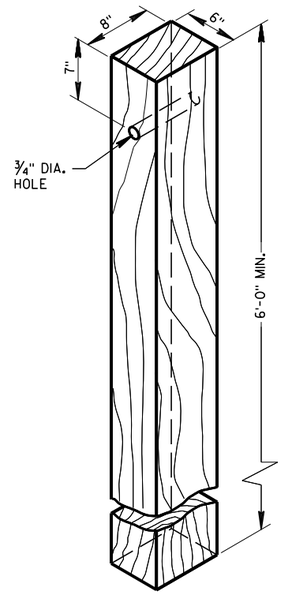


END VIEW
LOCATED ALONG A CURBED ROADWAY

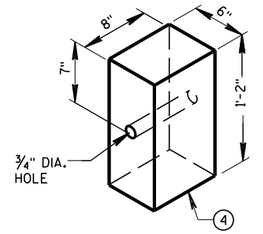


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

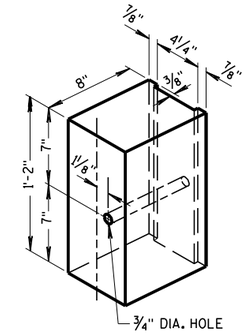
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



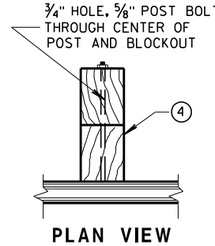
WOOD POST
(6"X8") NOMINAL



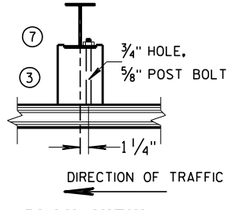
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



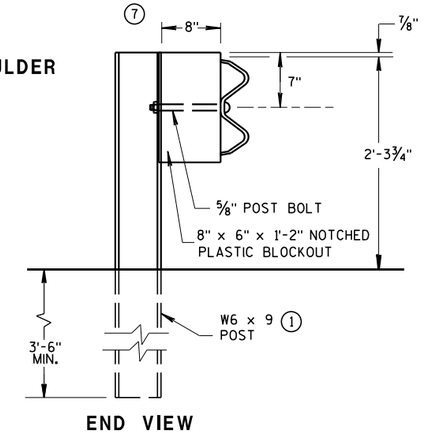
TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS (1)



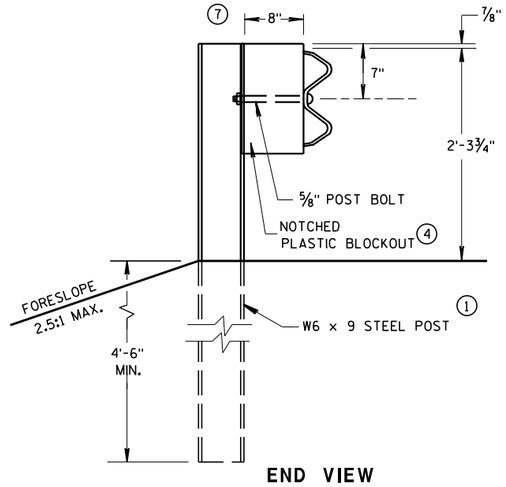
PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



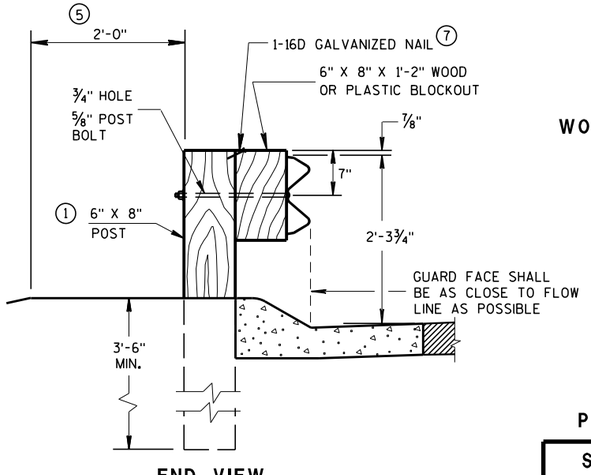
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



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



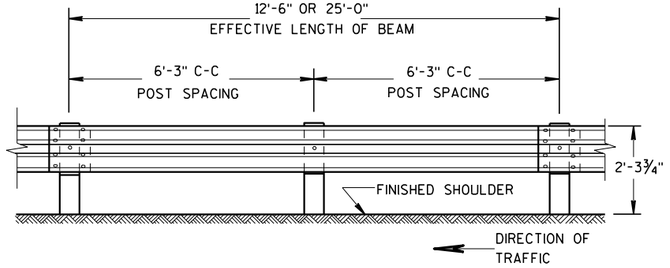
END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

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

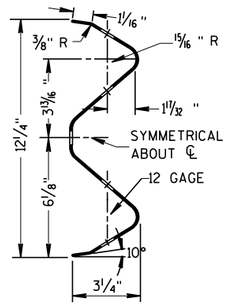
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 15-11a

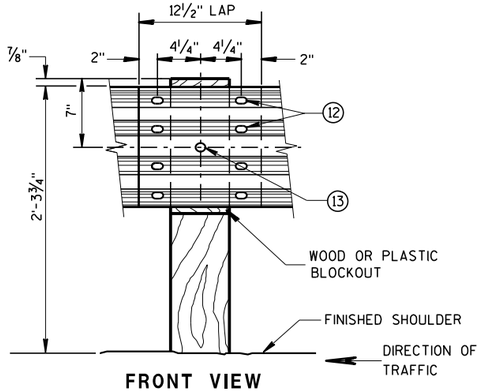


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

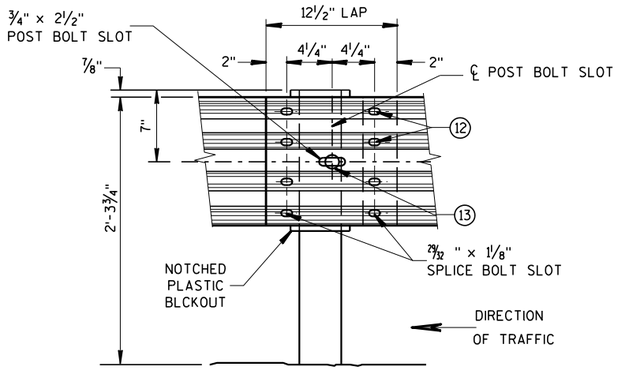
(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.

(12) 8 -5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.

FRONT VIEW

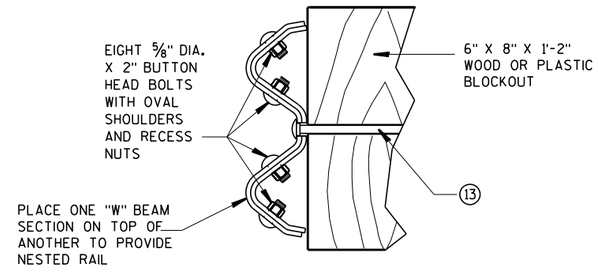
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

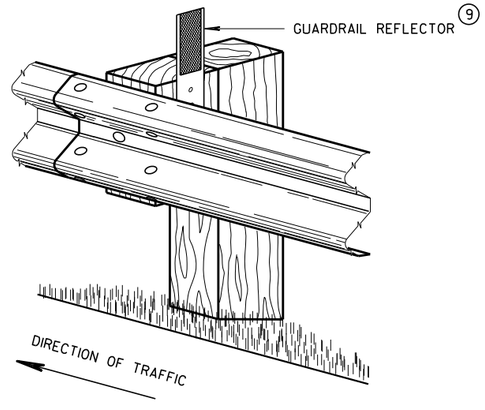
TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD



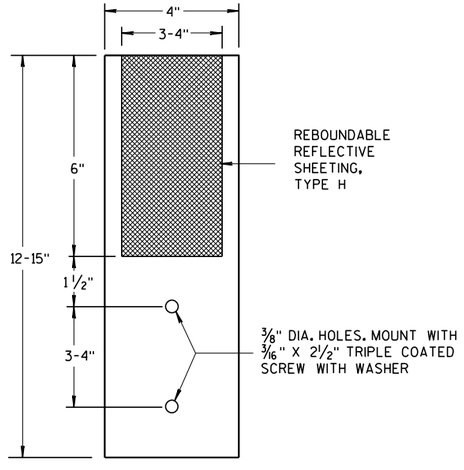
NESTED W BEAM (NW)

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

* USE DOUBLE SIDED WHITE GUADRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



4" X 12" GUARDRAIL REFLECTOR DETAIL AND TYPICAL INSTALLATION *



4"x 12" GUARDRAIL REFLECTOR

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

STATE OF WISCO 57
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 15-11b

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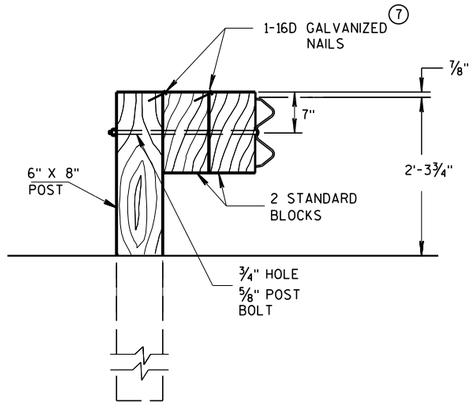
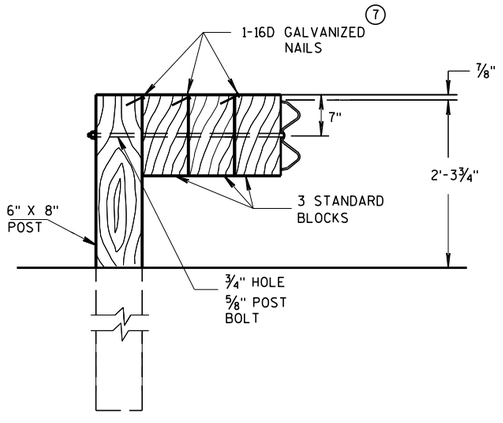
S.D.D. 14 B 15-11b



DETAIL FOR DOUBLE BLOCKS

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

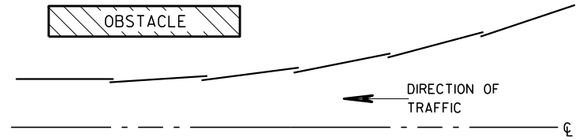


DETAIL FOR TRIPLE BLOCKS

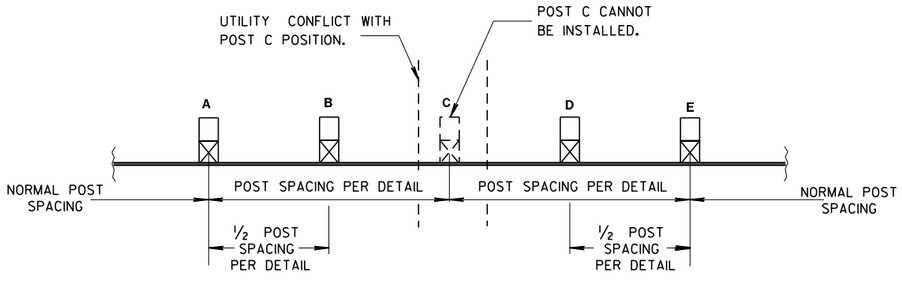
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES PREVENT THE POST FROM BEING INSTALLED.

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



PLAN VIEW
BEAM LAPPING DETAIL



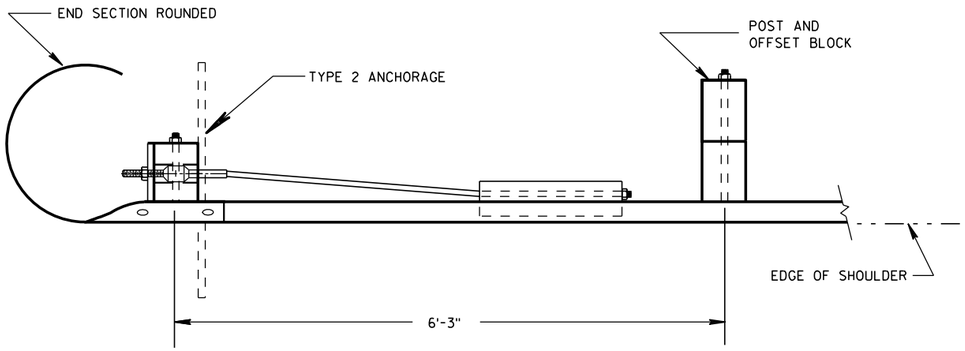
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

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

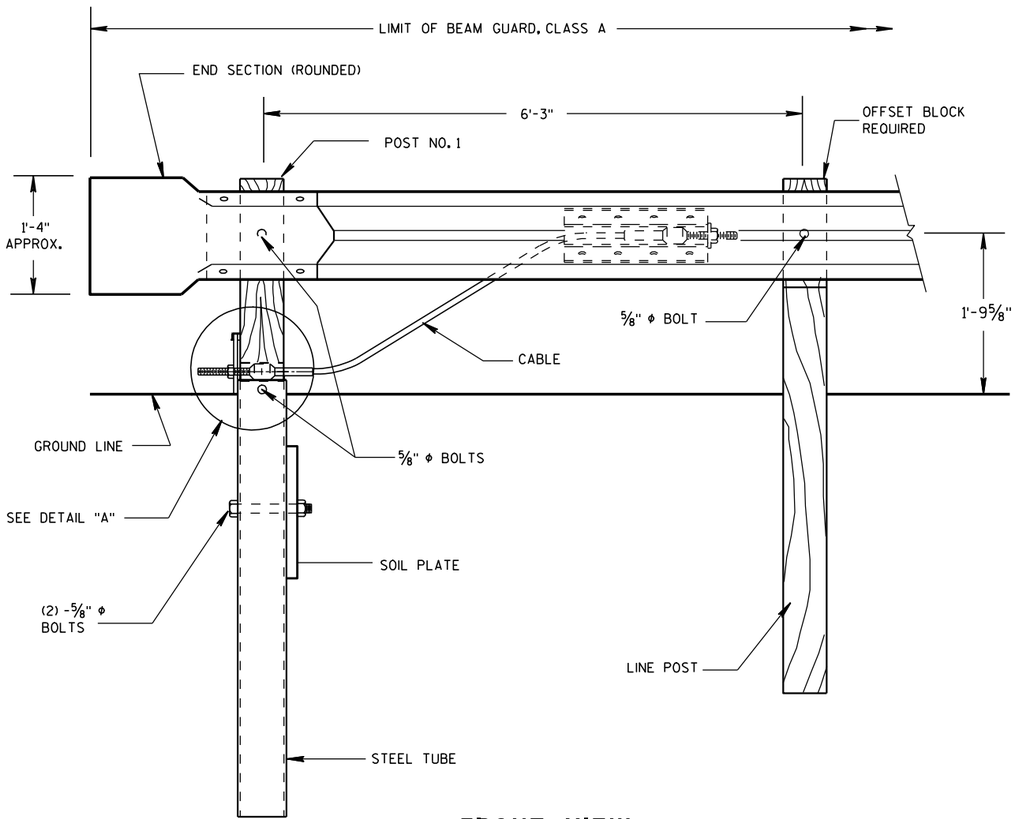
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
FHWA

6
S.D.D. 14 B 15-11c



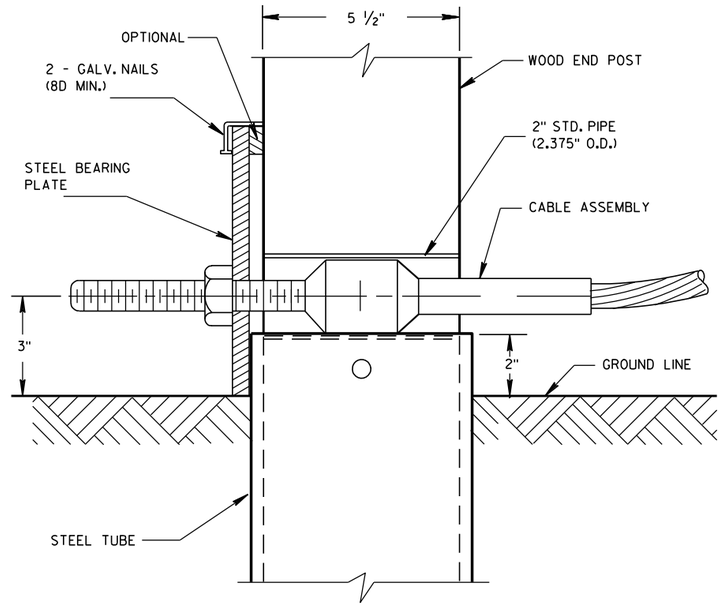
PLAN VIEW



FRONT VIEW

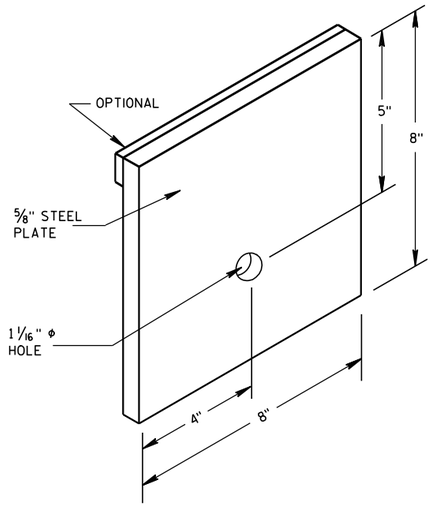
END TREATMENT WITH TYPE 2 ANCHORAGE

(USE ON ONE-WAY ROADWAYS ONLY - DEPARTING END)



DETAIL "A"

POST NO. 1



STEEL BEARING PLATE

ANCHORAGE FOR STEEL
PLATE BEAM GUARD
TYPE 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 16-4a

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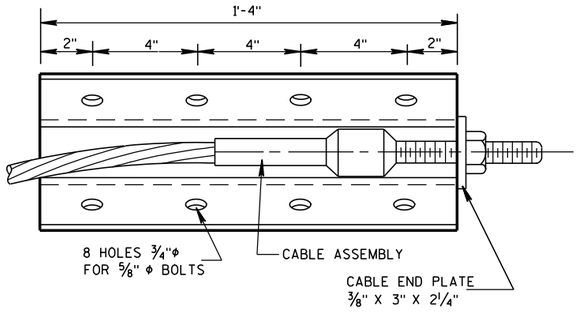
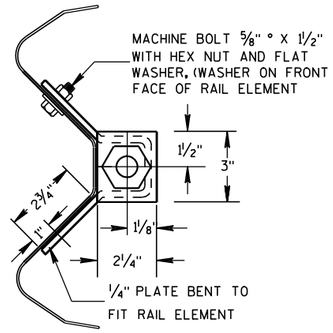
S.D.D. 14 B 16-4a

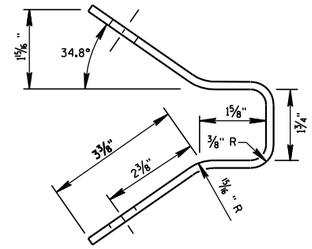


FRONT VIEW

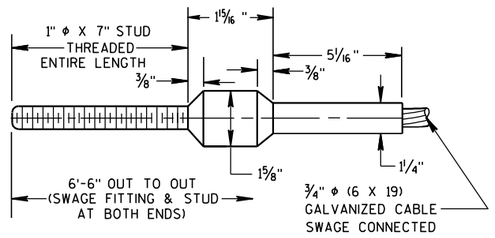


END VIEW

ANCHOR PLATE DETAIL



END VIEW OF BRACKET



CABLE ASSEMBLY

CABLE, SWAGE FITTING, STUD AND NUT SHALL DEVELOP
A MINIMUM BREAKING STRENGTH OF 40,000 LB
(TIGHTEN UNTIL TAUT)

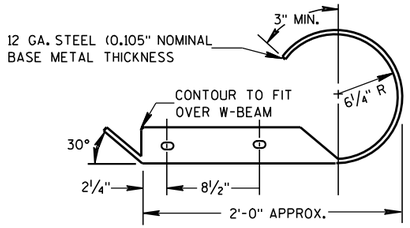
GENERAL NOTES

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

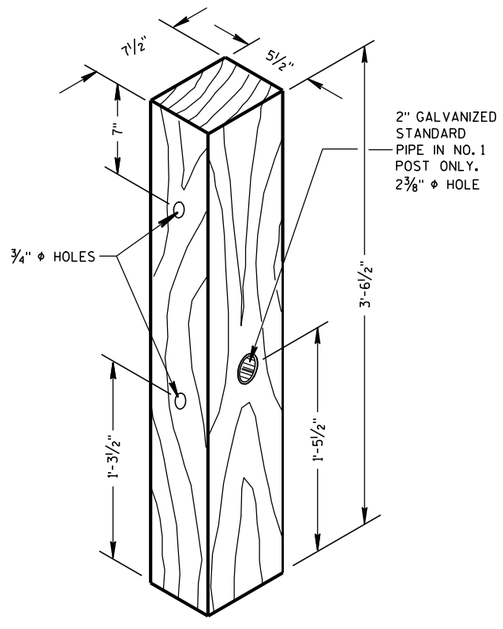
STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-500 GRADE B OR ASTM A-501.

POST NO. 1 SHALL BE WOOD BREAKAWAY POST INSERTED AND BOLTED INTO STEEL TUBE.

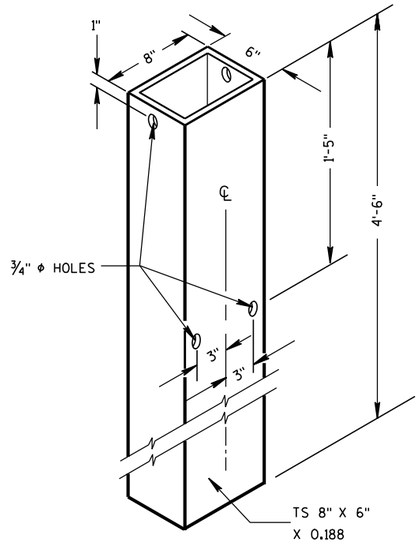
TYPE 2 ANCHORAGE SHALL CONSIST OF A STEEL TUBE, SOIL PLATE WOOD BREAKAWAY POST, BEARING PLATE, ANCHOR PLATE, CABLE ASSEMBLY AND ALL ASSOCIATED HARDWARE, ALL STEEL PARTS SHALL BE GALVANIZED.



PLAN VIEW

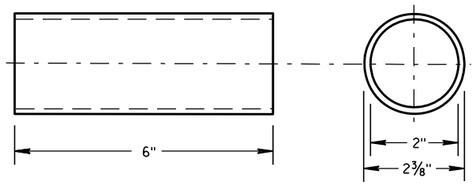


WOOD BREAKAWAY POST



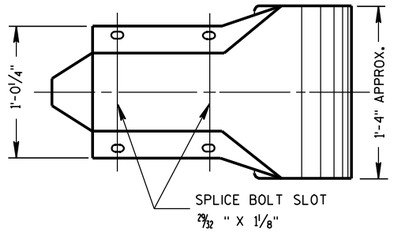
STEEL TUBE

STEEL TUBE SHALL CONFORM TO
REQUIREMENTS OF ASTM A500

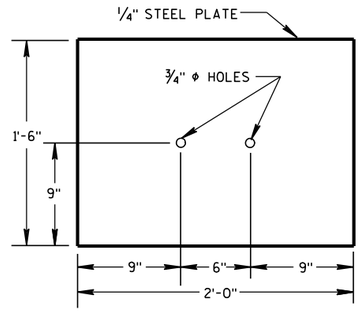


BREAKAWAY TERMINAL POST SLEEVE

GALVANIZED STANDARD STRENGTH STEEL PIPE, ASTM 53 GRADE "B"



FRONT VIEW
W BEAM END SECTION ROUNDED



SOIL PLATE

ANCHORAGE FOR STEEL
PLATE BEAM GUARD
TYPE 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/21/2007
DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
ENT
FHWA

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S.D.D. 14 B 16-4b

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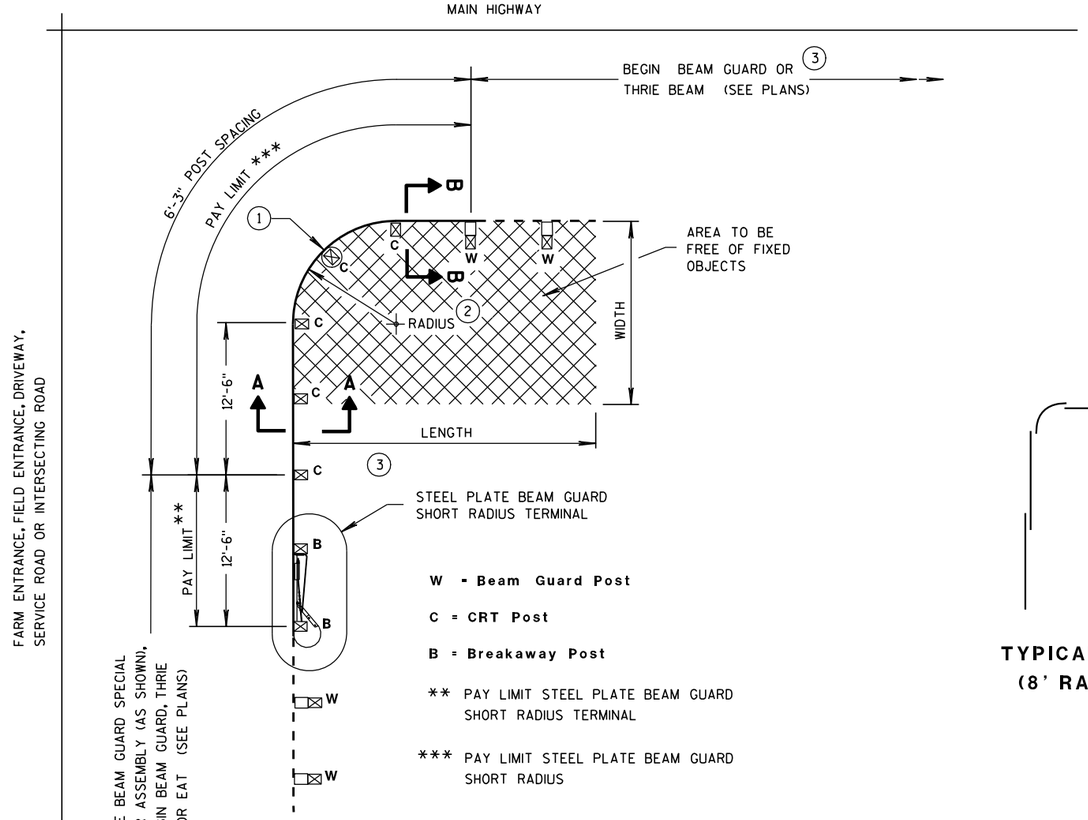
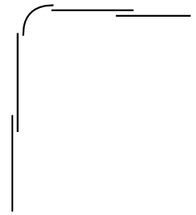
S.D.D. 14 B 16-4b



TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

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

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

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

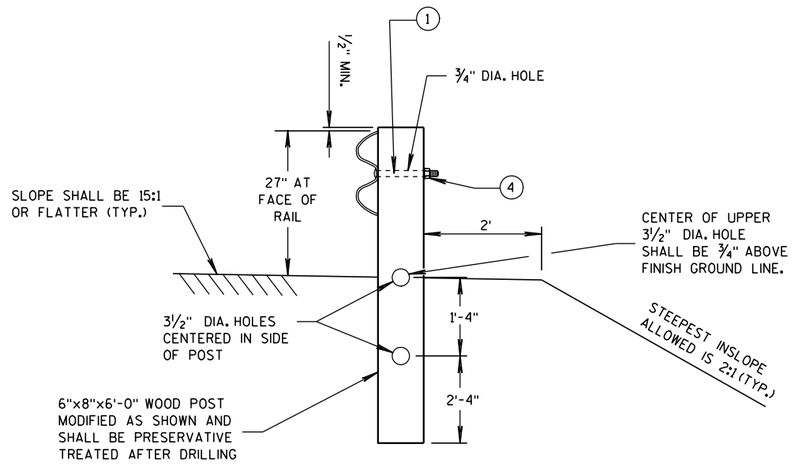
(2) RADIUS FROM 8' - 36'. SEE PLAN.

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

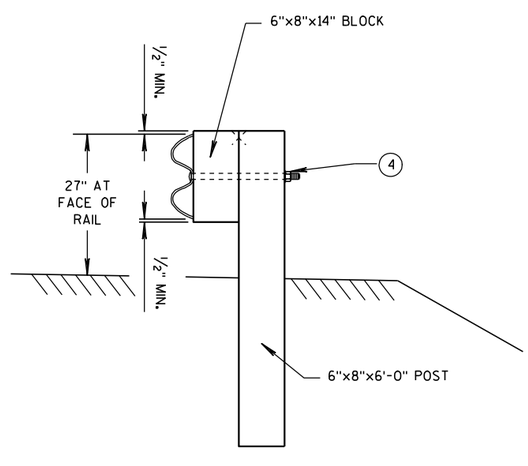
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

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

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



SECTION A-A
(CRT POST)



SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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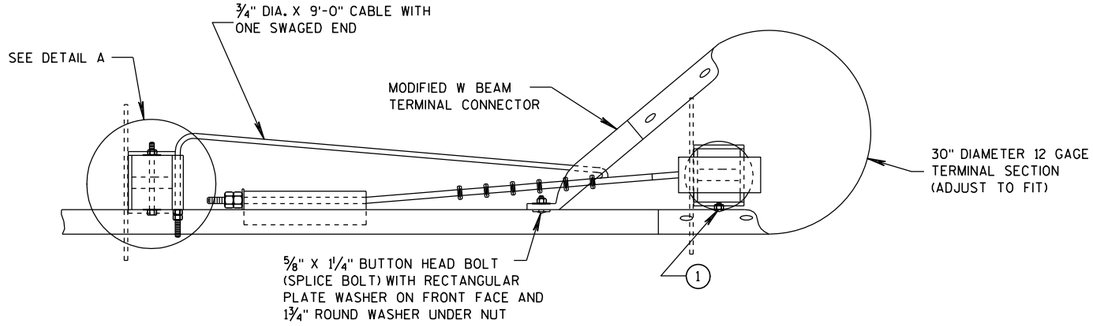
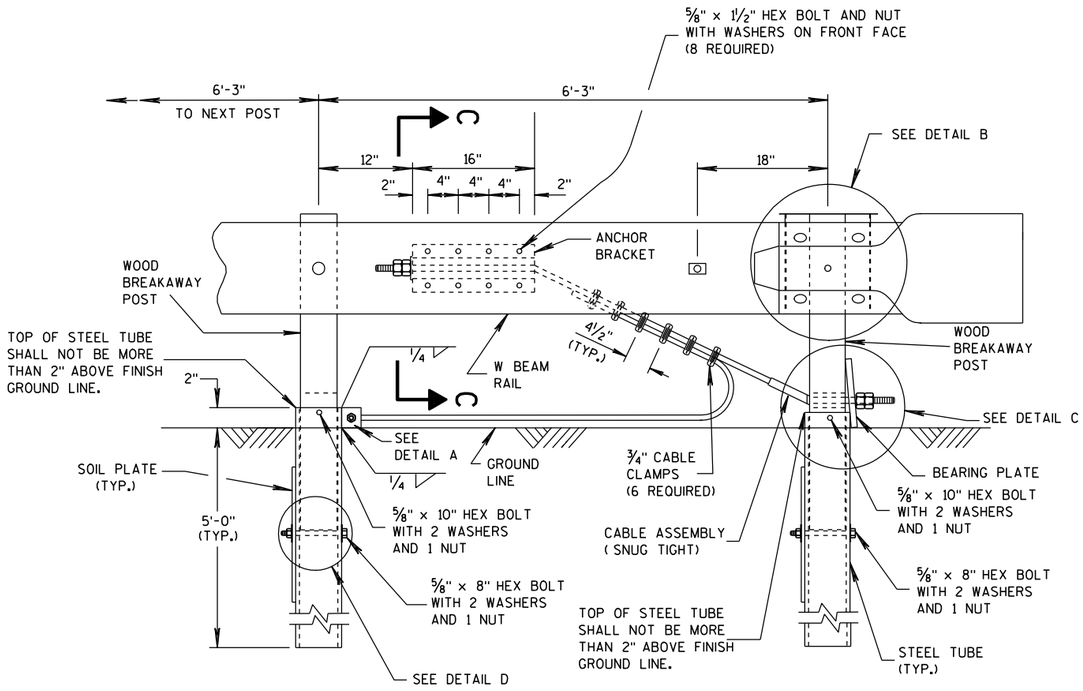
S.D.D. 14 B 27-1a

6

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



PLAN VIEW



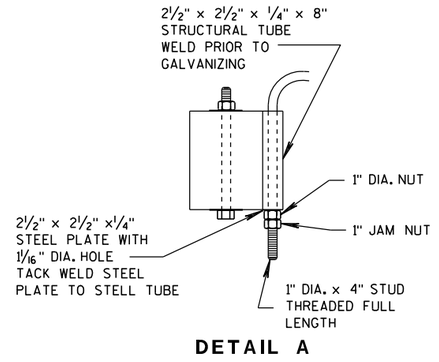
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

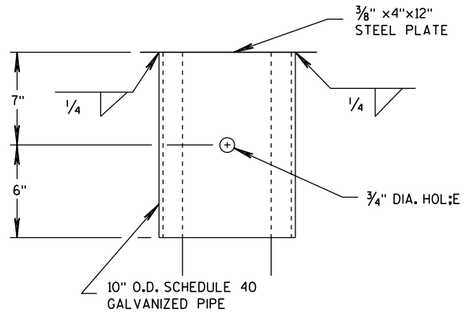
GENERAL NOTES

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

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



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

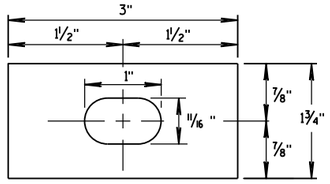
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

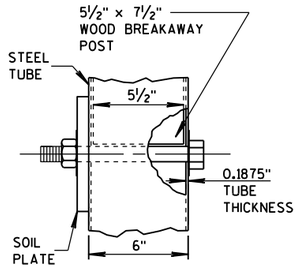
S.D.D. 14 B 27-1b

6

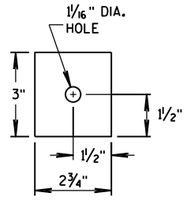
S.D.D. 14 B 27-1b



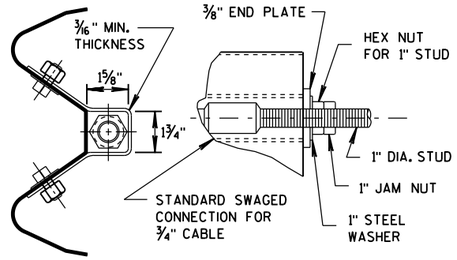
RECTANGULAR PLATE WASHER



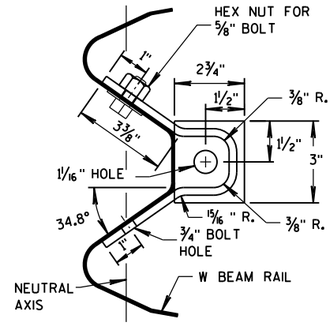
DETAIL D



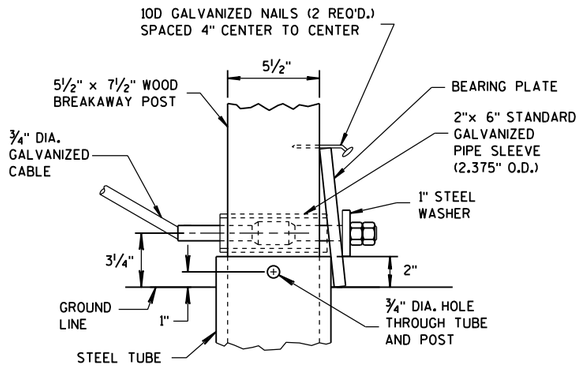
END PLATE



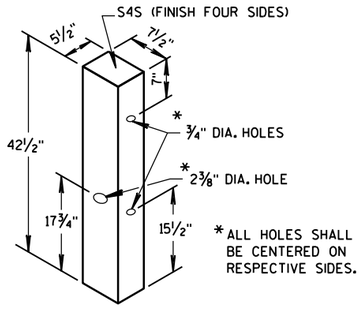
SECTION C-C
(END PLATE REMOVED)



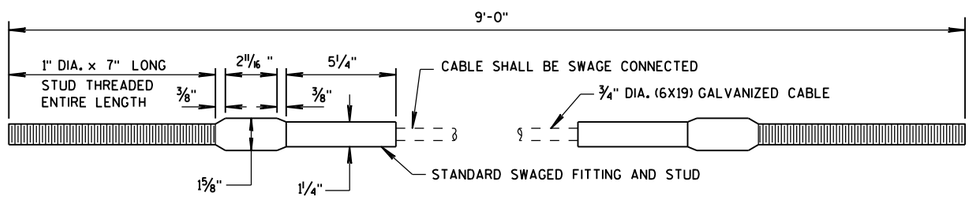
ANCHOR BRACKET



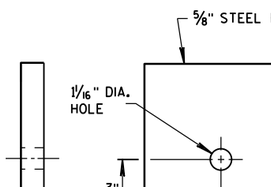
DETAIL C



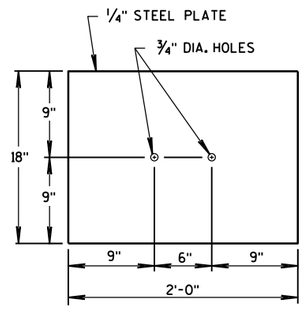
WOOD BREAKAWAY POST



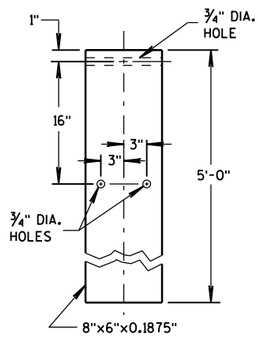
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 14 B 27-1c

(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.

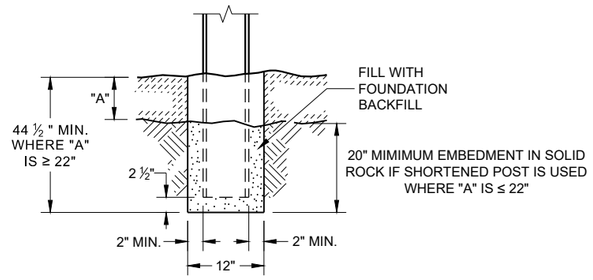
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL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

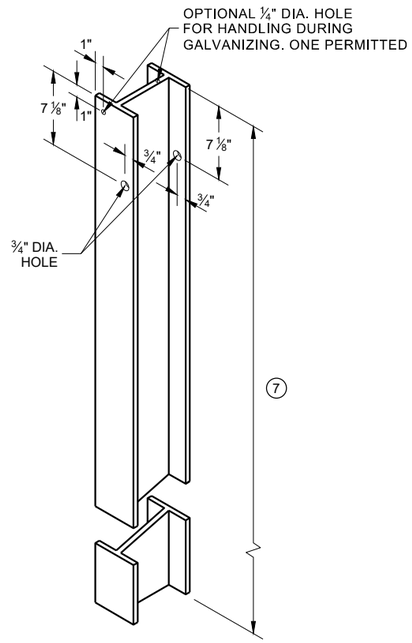
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

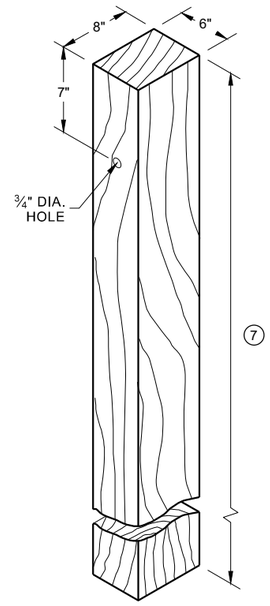
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



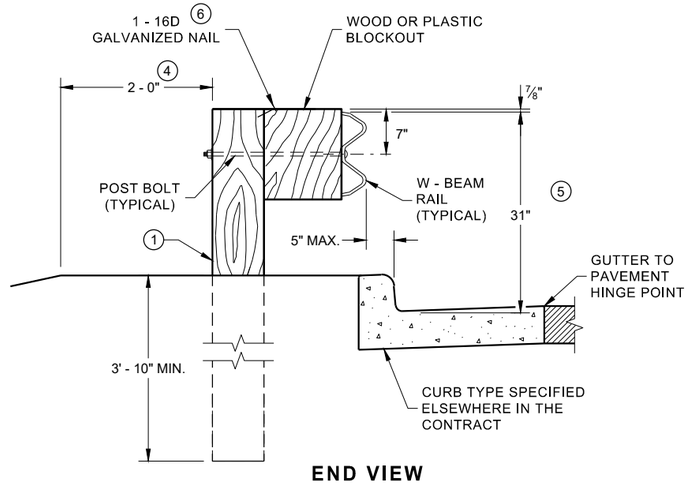
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



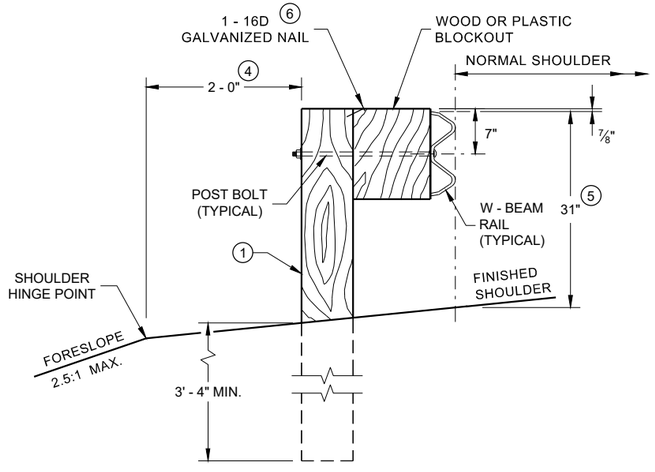
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



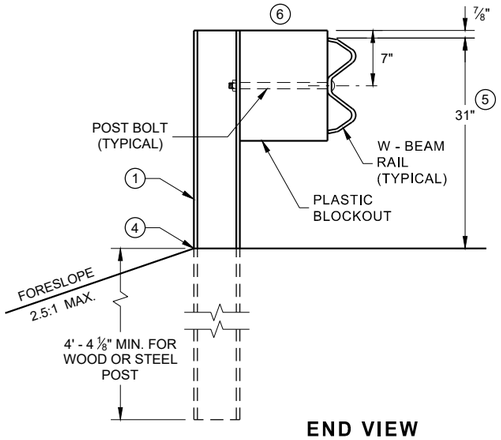
WOOD POST (6" X 8") NOMINAL (1)



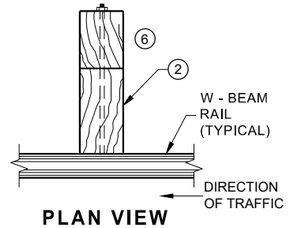
END VIEW
LOCATED ALONG A CURBED ROADWAY



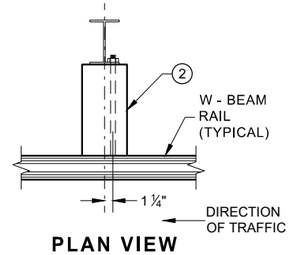
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



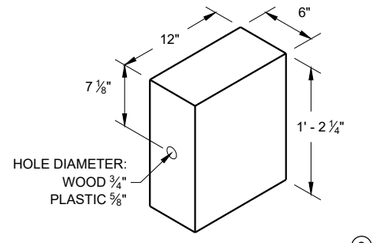
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



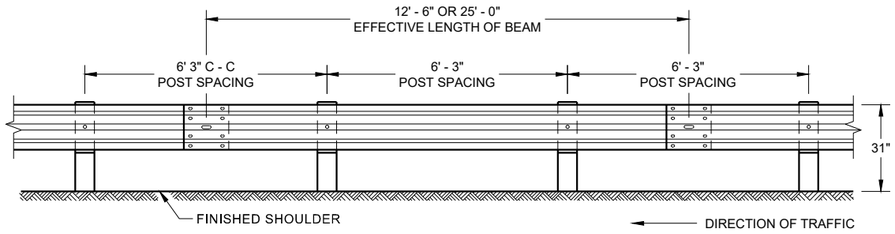
WOOD OR PLASTIC BLOCKOUT (2)

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

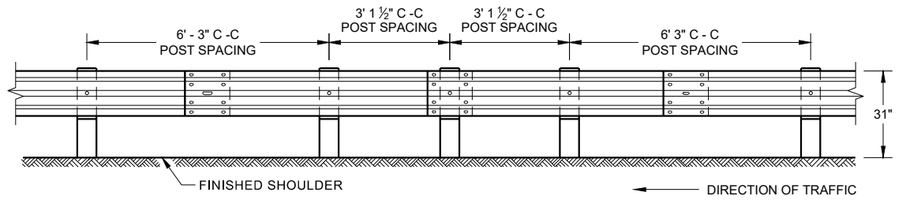
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B42 - 07a

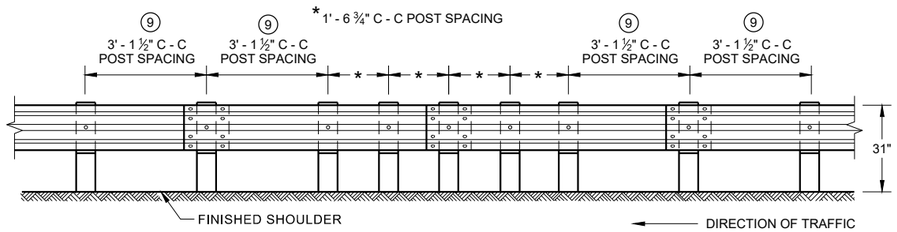
SDD 14B42 - 07a



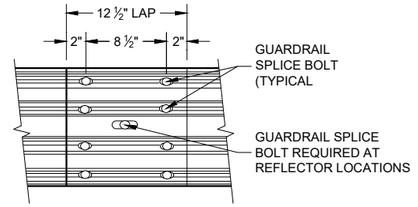
FRONT VIEW
POST SPACING STANDARD INSTALLATION



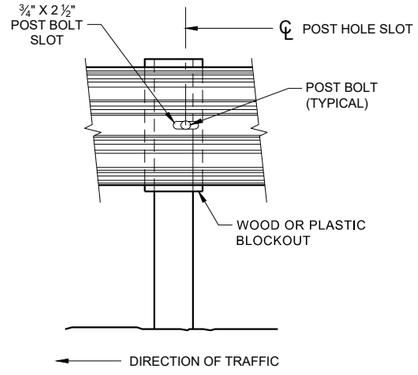
FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)



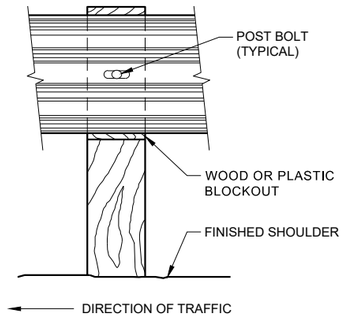
FRONT VIEW
QUARTER POST SPACING (QS)



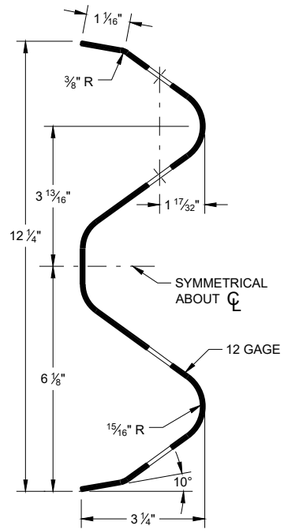
FRONT VIEW
MID-SPAN BEAM SPLICE



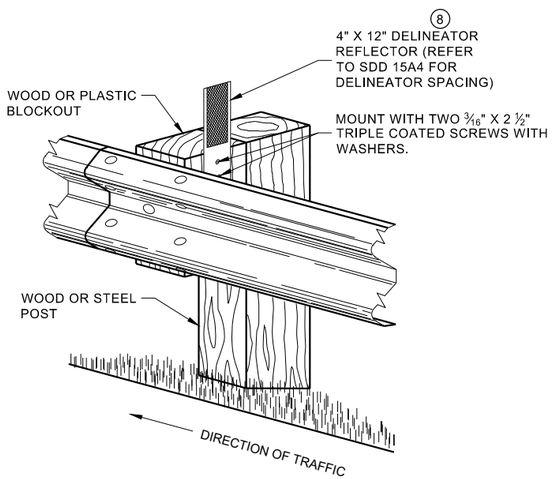
FRONT VIEW AT STEEL POST



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.

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

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

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

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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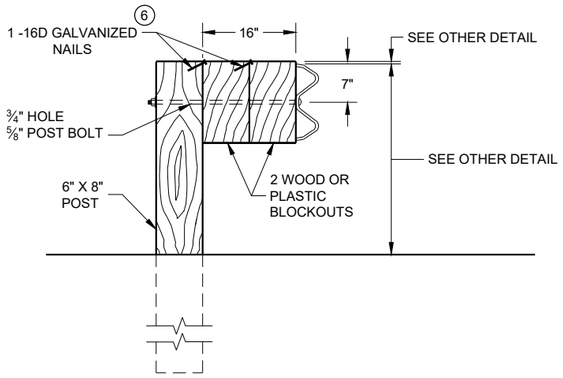
SDD 14B42 - 07b
SDD 14B42 - 07b

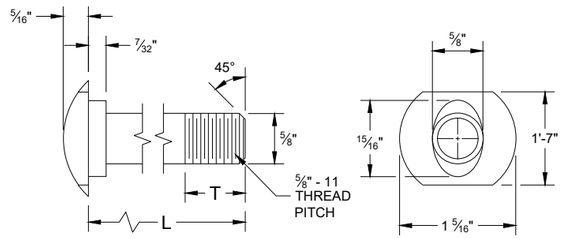


DETAIL FOR 16" BLOCKOUT DEPTH

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.

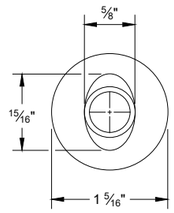
NOTE:

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.

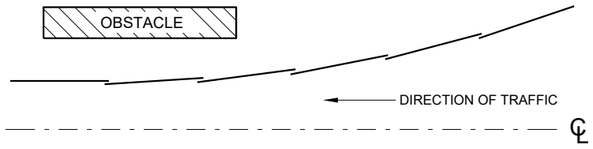


POST BOLT TABLE

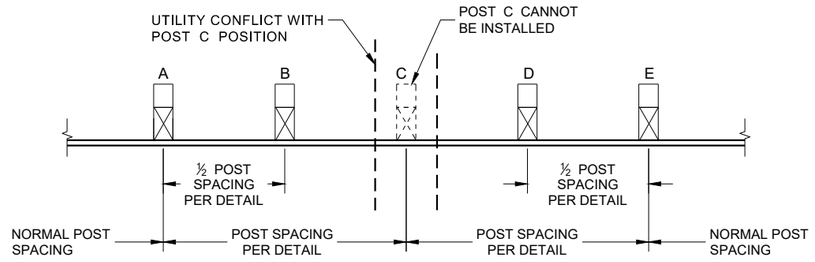
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



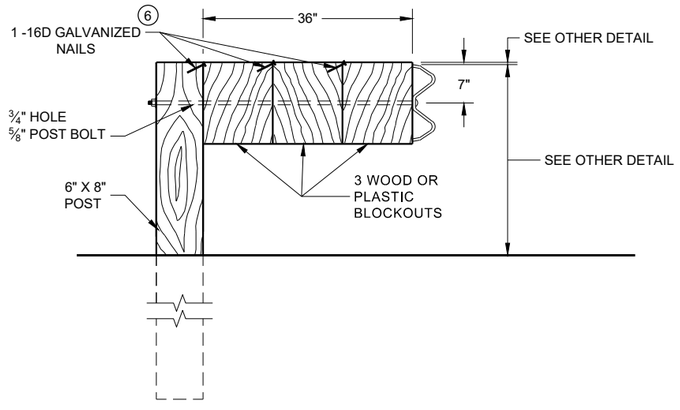
ALTERNATE BOLT HEAD



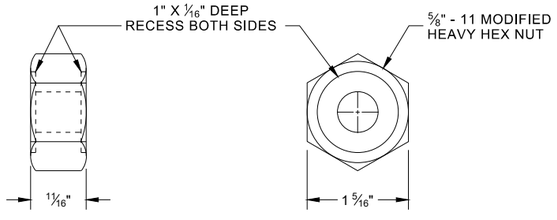
PLAN VIEW
BEAM LAPPING DETAIL



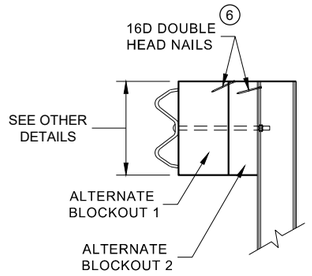
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



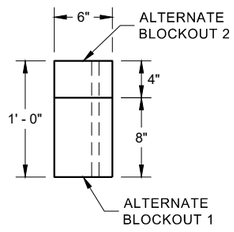
DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



PLAN VIEW

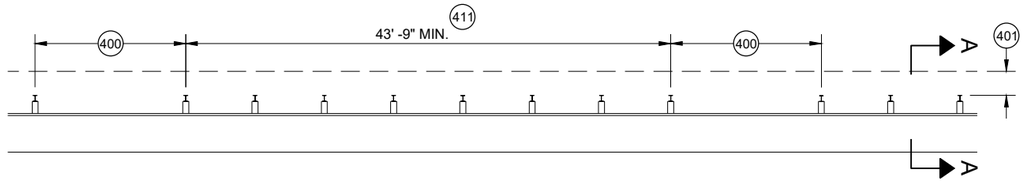
ALTERNATE WOOD BLOCKOUT DETAIL

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.

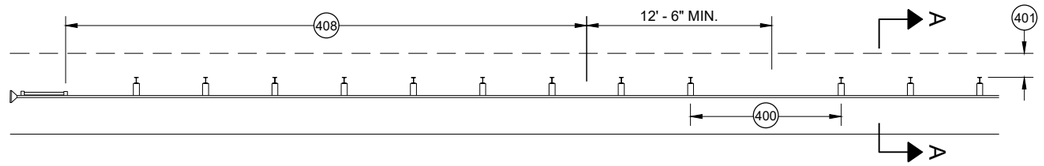
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

(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.

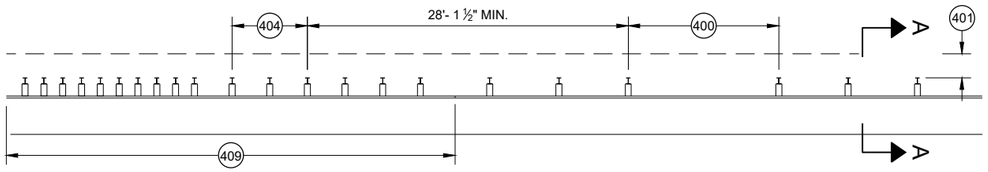
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL



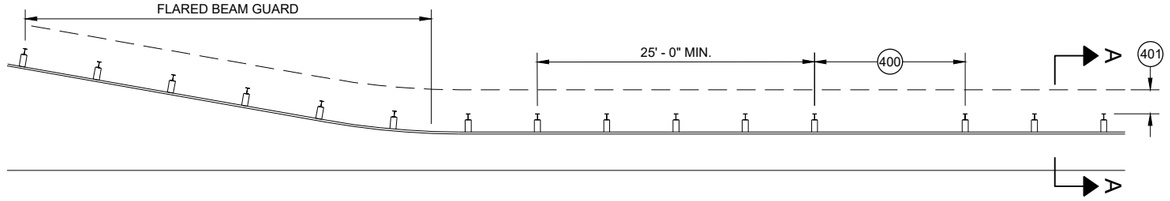
MISSING POST IN MGS GUARDRAIL



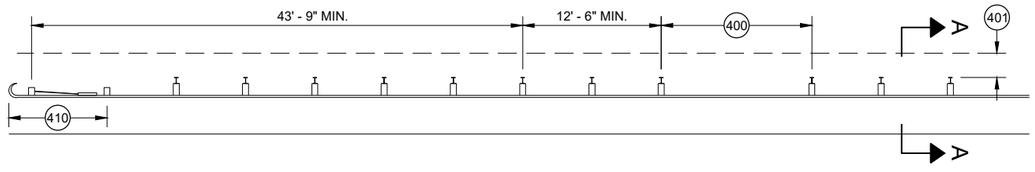
MISSING POST IN MGS GUARDRAIL NEAR EAT



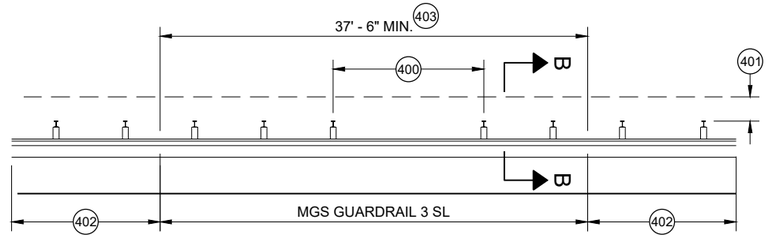
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

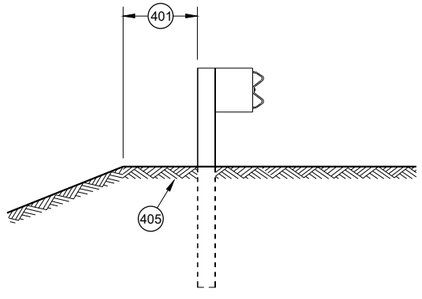


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

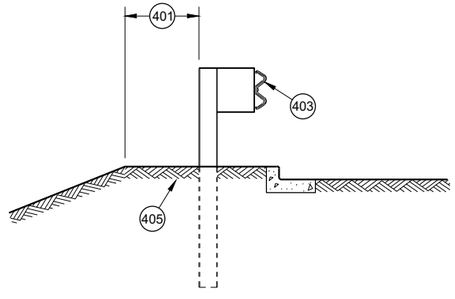


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) 407

(400) MAX SPAN 12' - 6"
(401) 2' MIN.
(402) MGS GUARDRAIL 3
(403) NESTING BEAM GUARD
(404) ASYMMETRIC TRANSITION
(405) SOIL WELL DRAINED AND COMPACTED
(406) SEE OTHER DRAWINGS IN THIS SDD
(407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
(408) SEE SDD 14B44
(409) SEE SDD 14B45
(410) SEE SDD 14B47
(411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A 406



SECTION B - B 406

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVE
UNIT SUPERVISOR

FHWA

6

SDD 14B42 - 07d

SDD 14B42 - 07d

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.

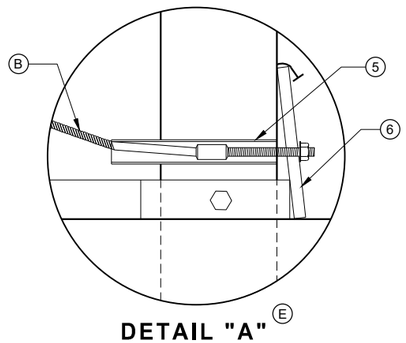
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

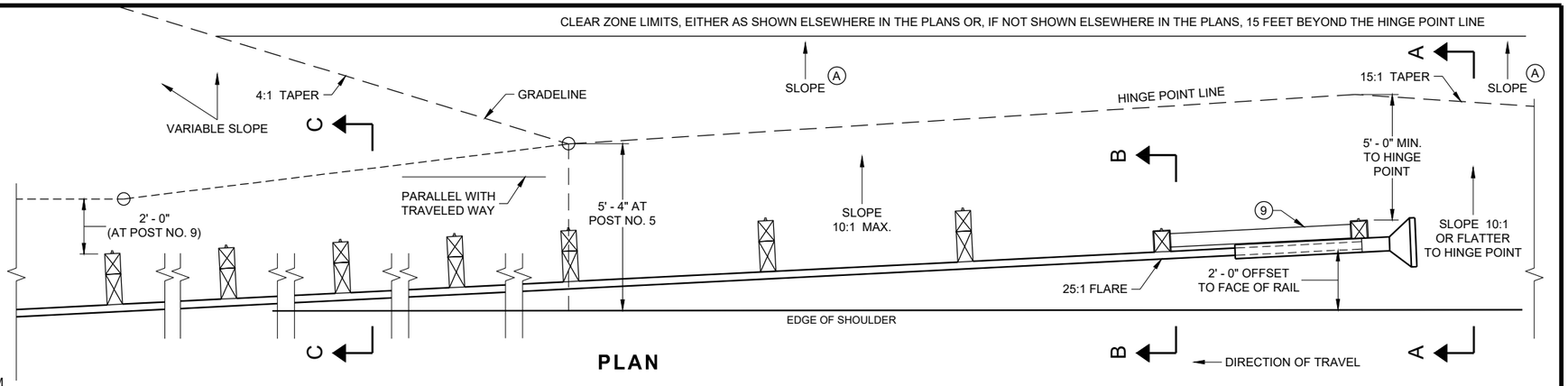
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

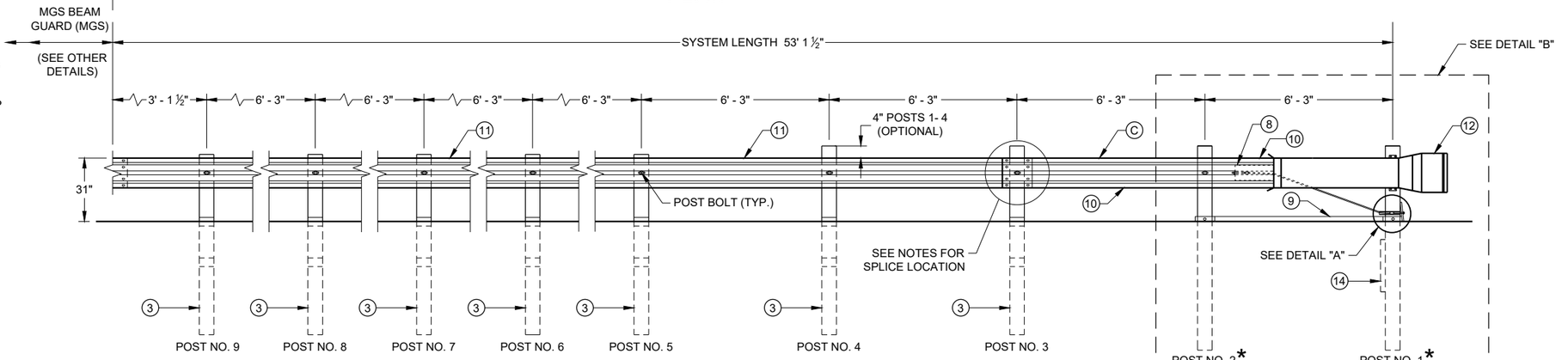
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

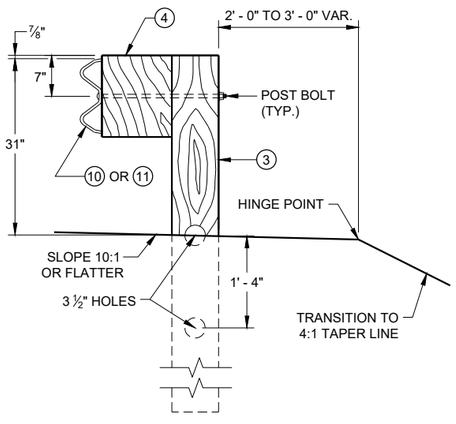
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



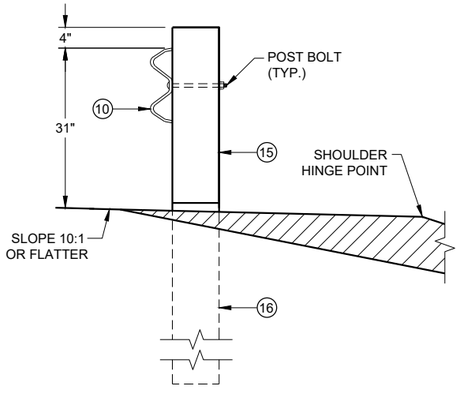
DETAIL "A" (E)



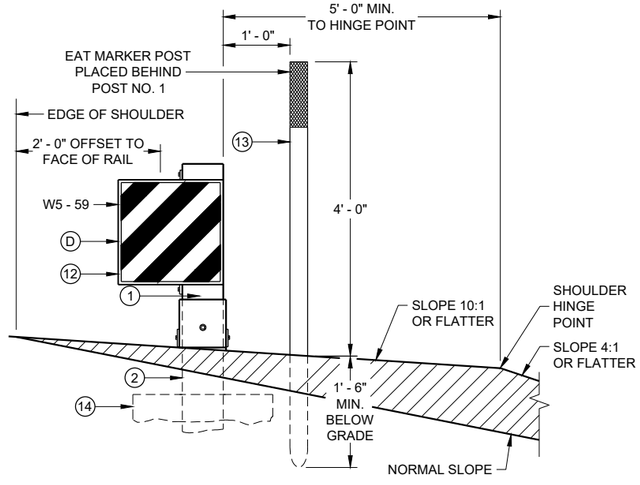




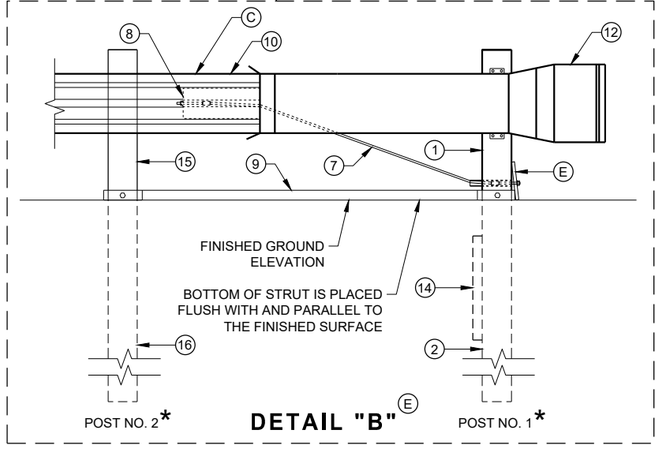
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*

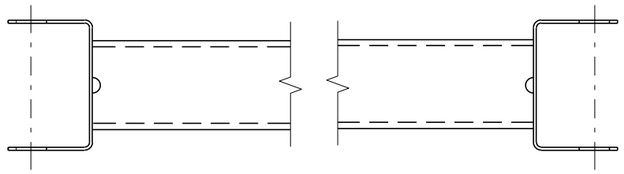


MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

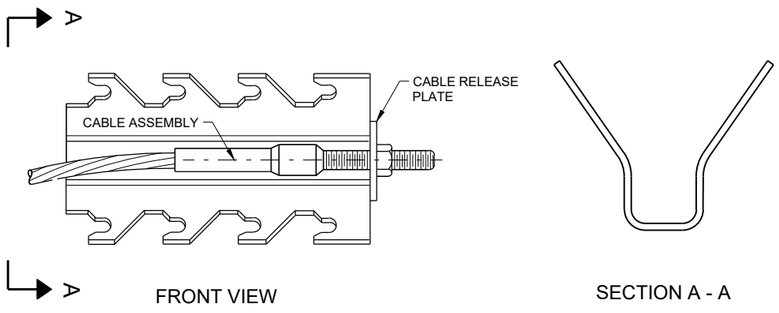
SDD 14B44 - 04a



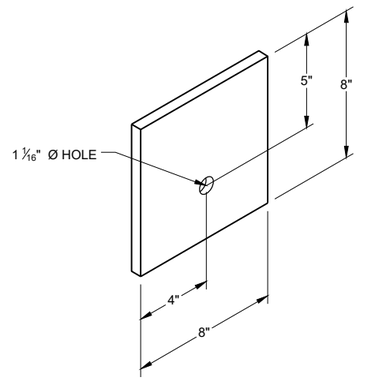
GENERIC GROUND STRUT ⑨ Ⓔ

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

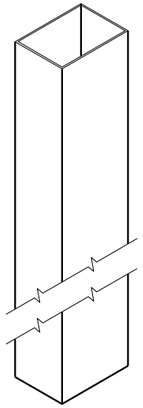
6

SDD 14B44 - 04b

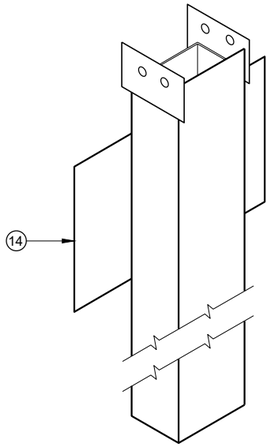
SDD 14B44 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

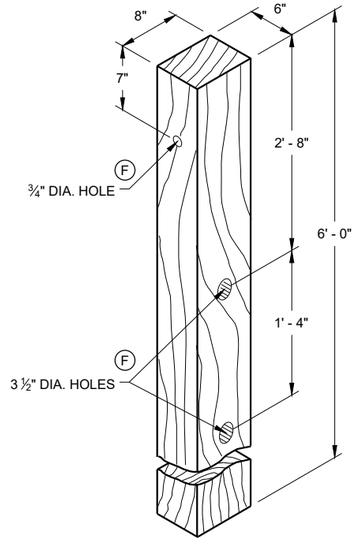
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



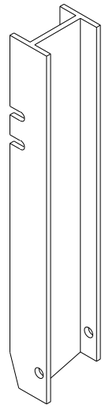
UPPER POST NO. 1 (1) (E)



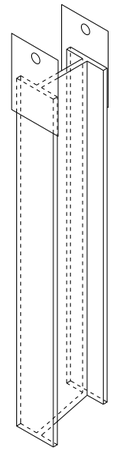
LOWER POST NO. 1 (2) (E)



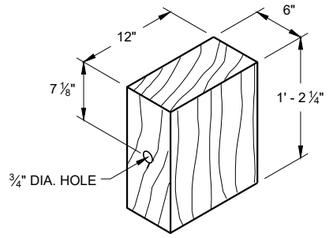
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



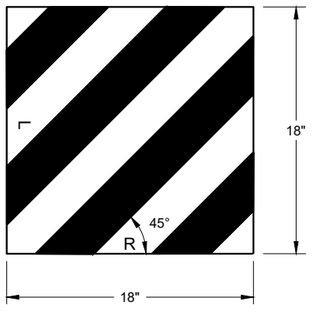
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

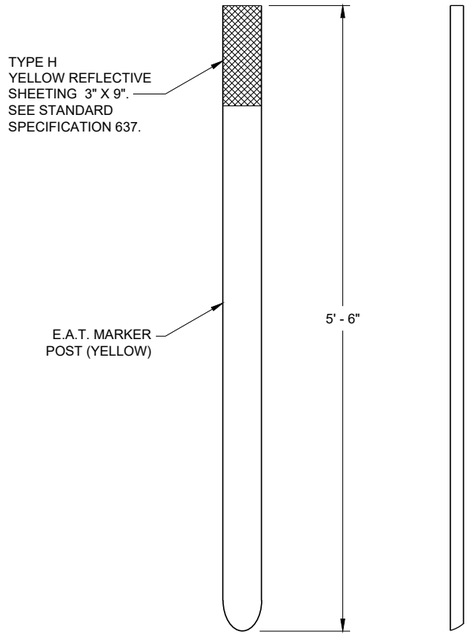


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



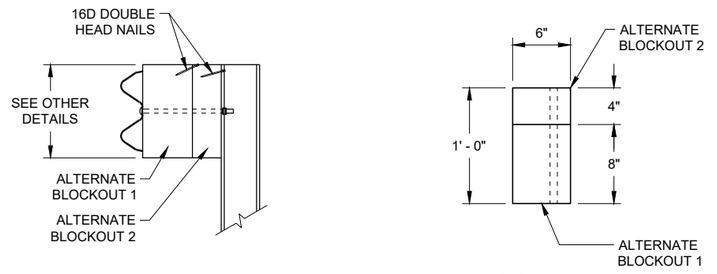
W5 - 59

REFLECTIVE SHEETING DETAIL (E)



FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

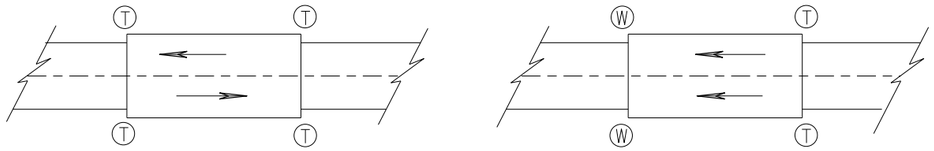
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

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.

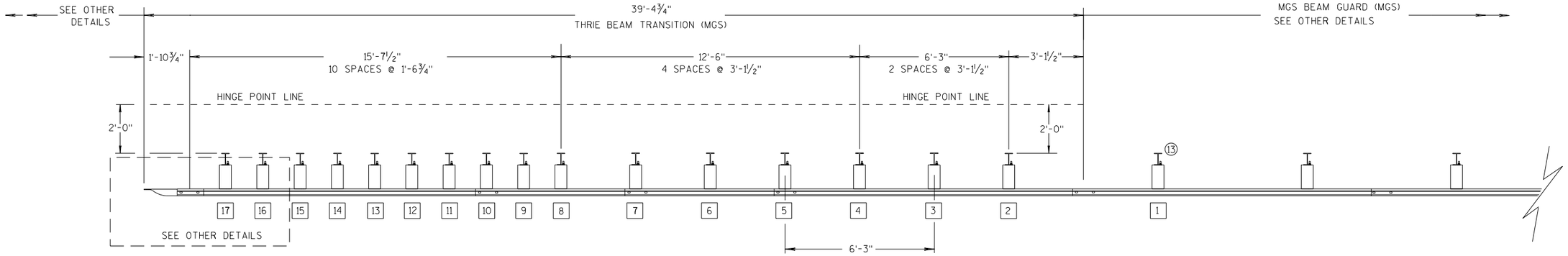
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

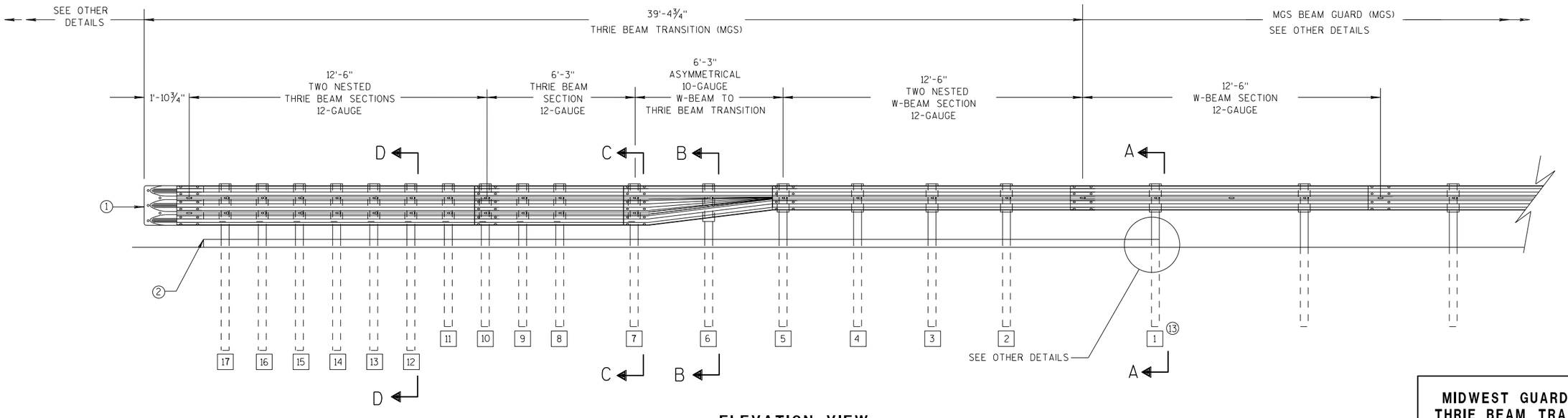
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

(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

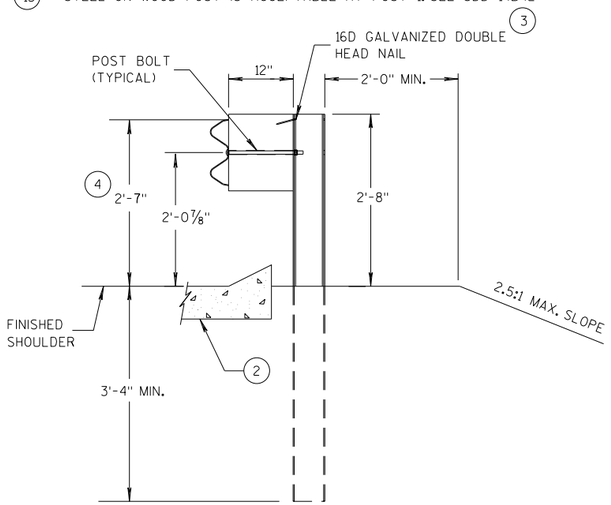
GENERAL NOTES

(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.

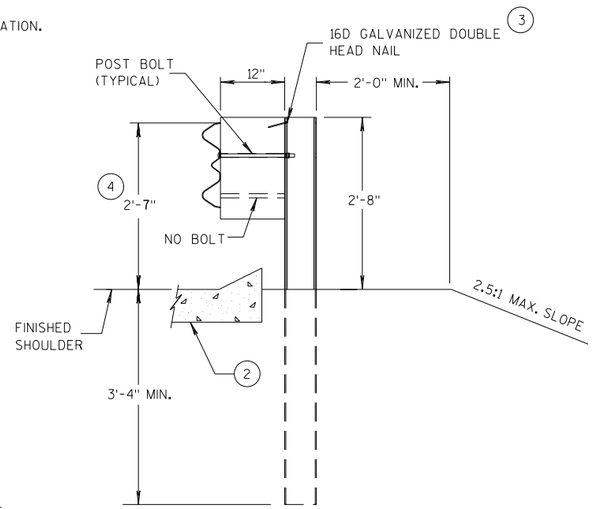
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

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



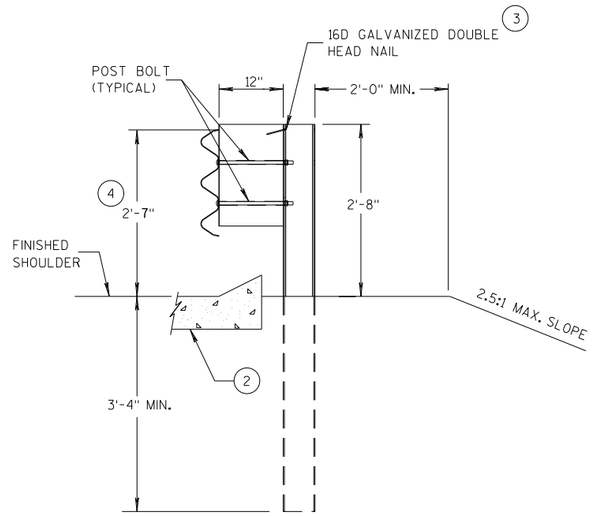
SECTION A-A (13)

POSTS 1-5



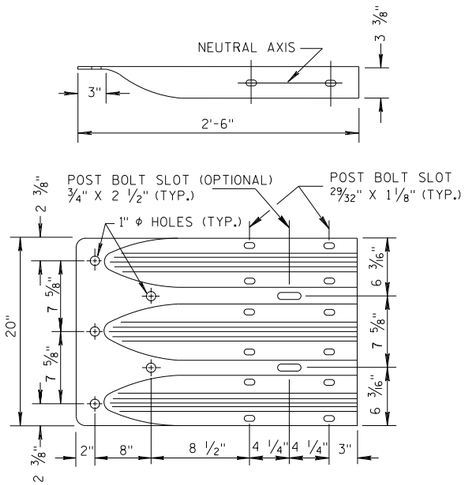
SECTION B-B

POST 6

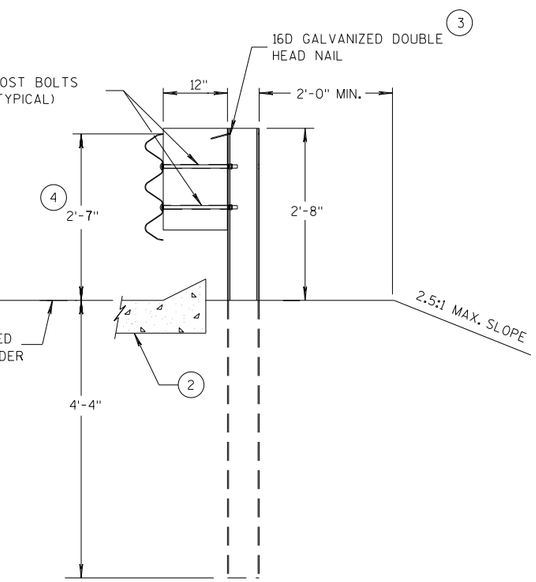


SECTION C-C

POSTS 7-11

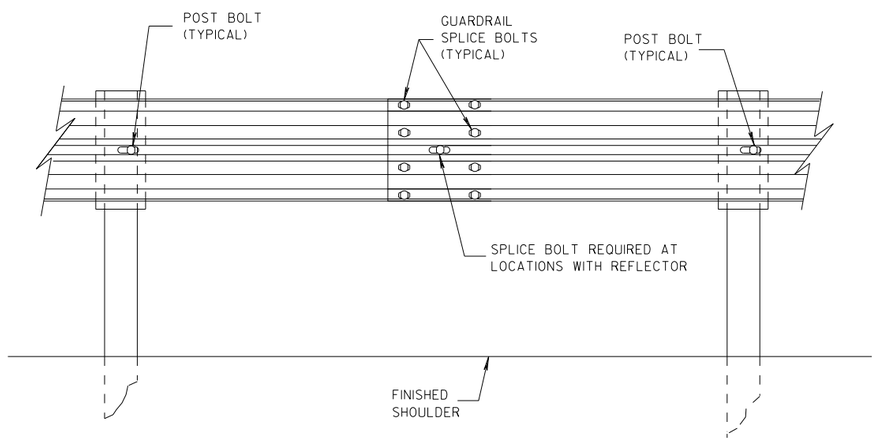


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

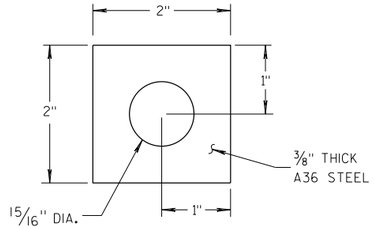
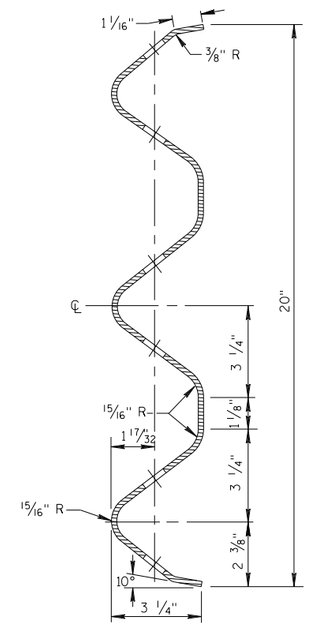


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

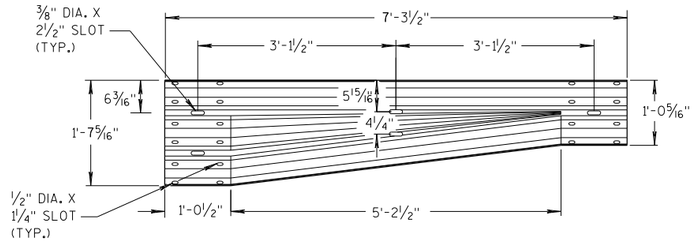
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

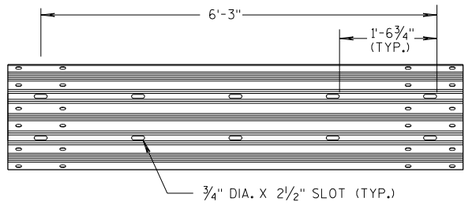
S.D.D. 14 B 45-5b

6

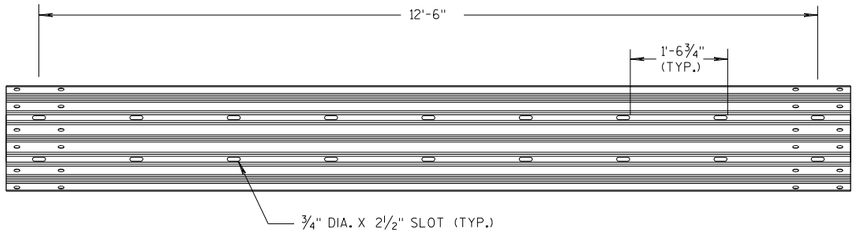
S.D.D. 14 B 45-5b



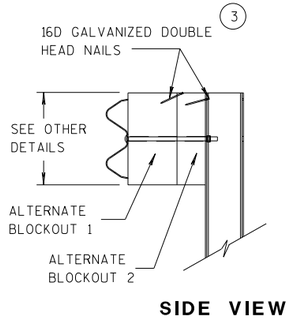
W-BEAM TO THRIE BEAM TRANSITION SECTION



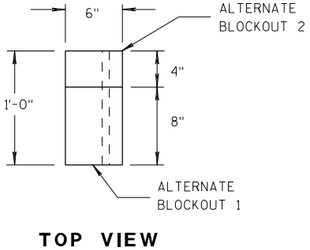
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

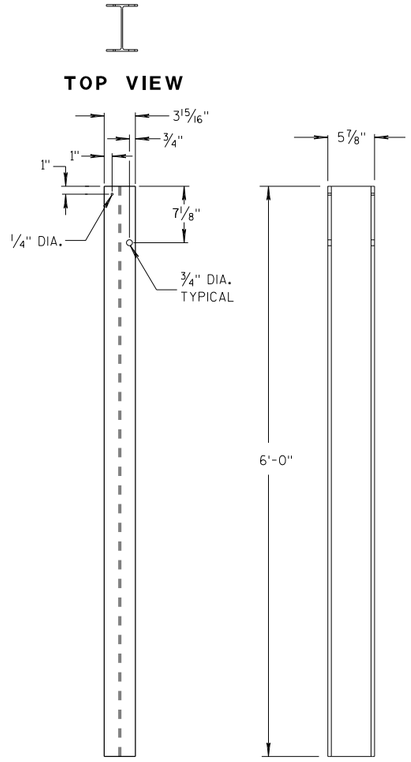


SIDE VIEW



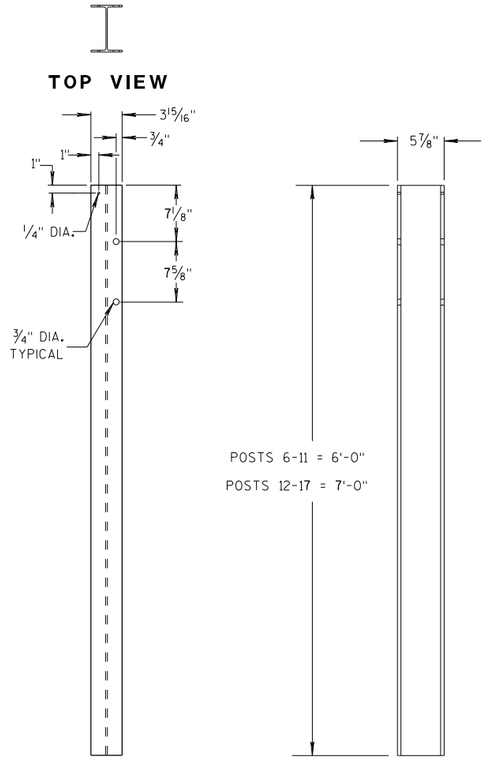
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



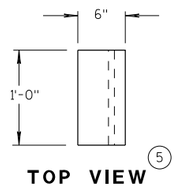
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

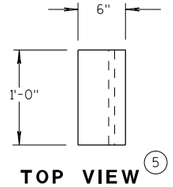


FRONT VIEW SIDE VIEW

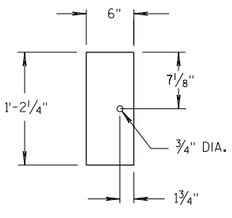
STEEL POSTS 6-17



TOP VIEW (5)

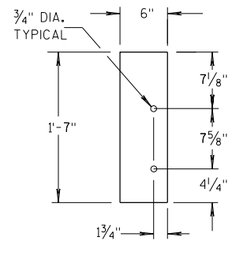


TOP VIEW (5)



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.

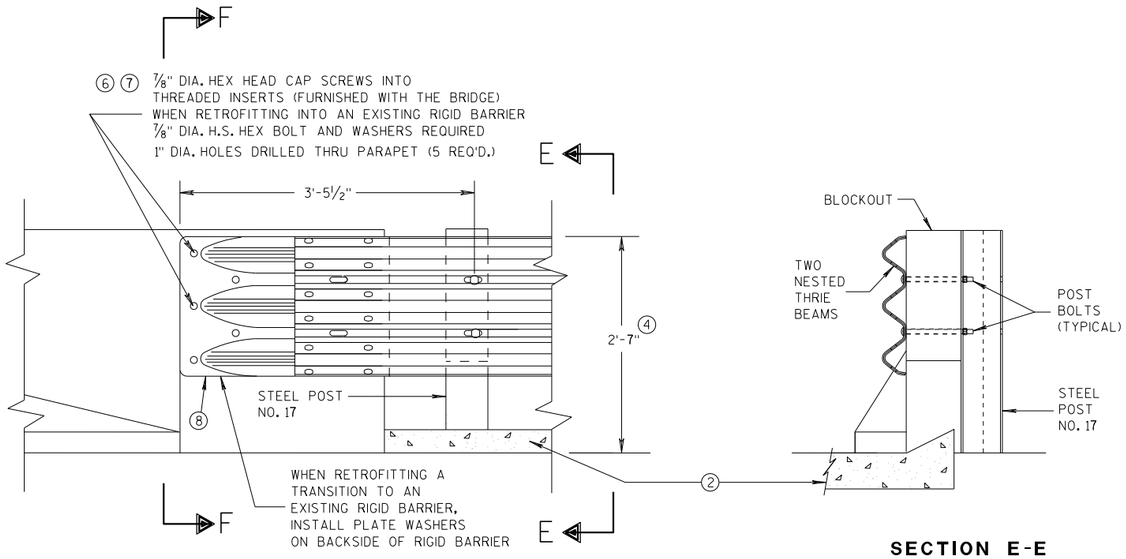
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

(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 TRANSPOR

6
S.D.D. 14 B 45-5c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

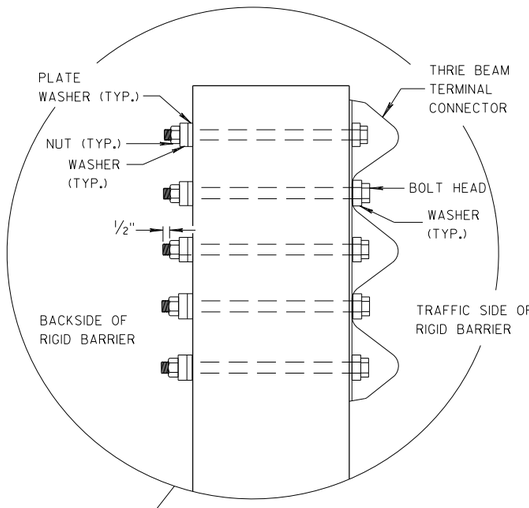
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

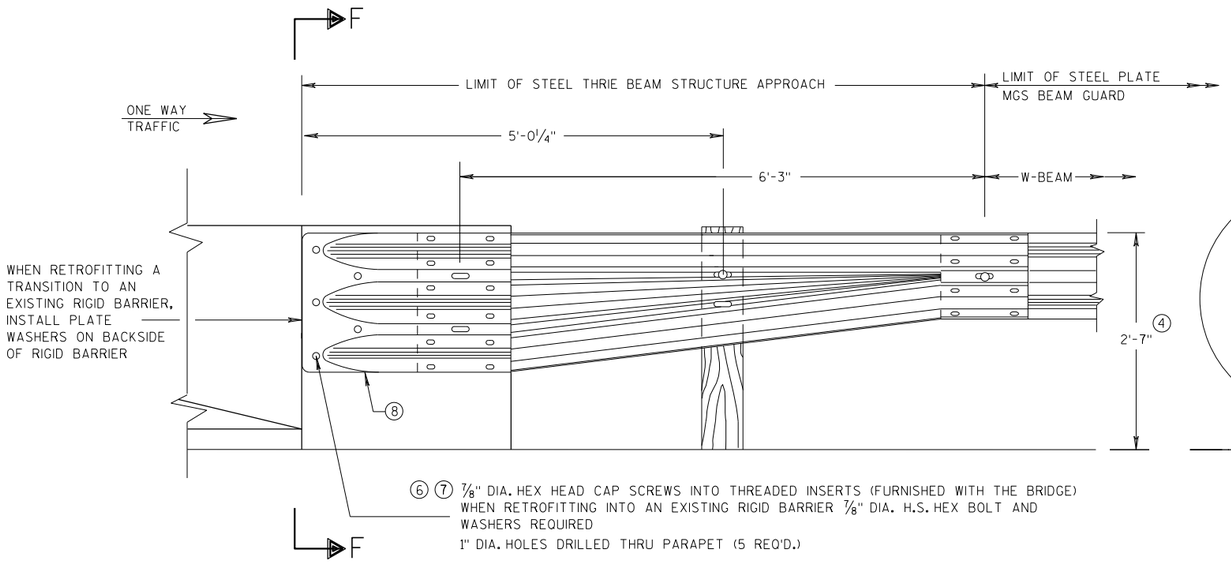
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

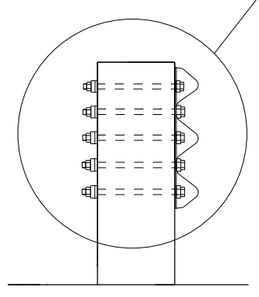
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

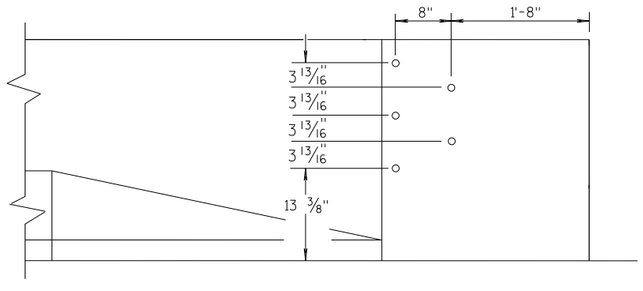




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 — DATE
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GENERAL NOTES

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

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

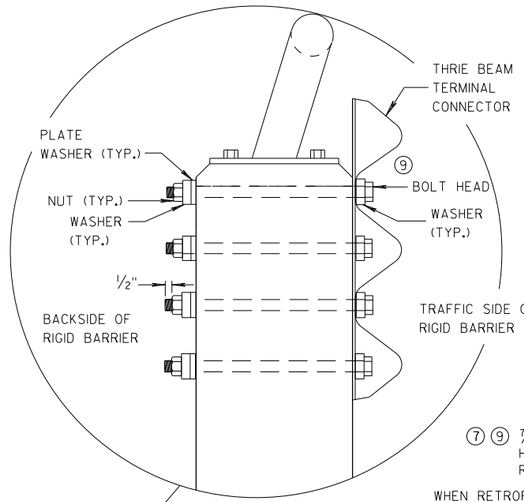
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

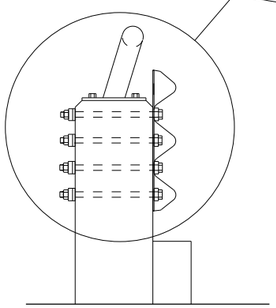
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

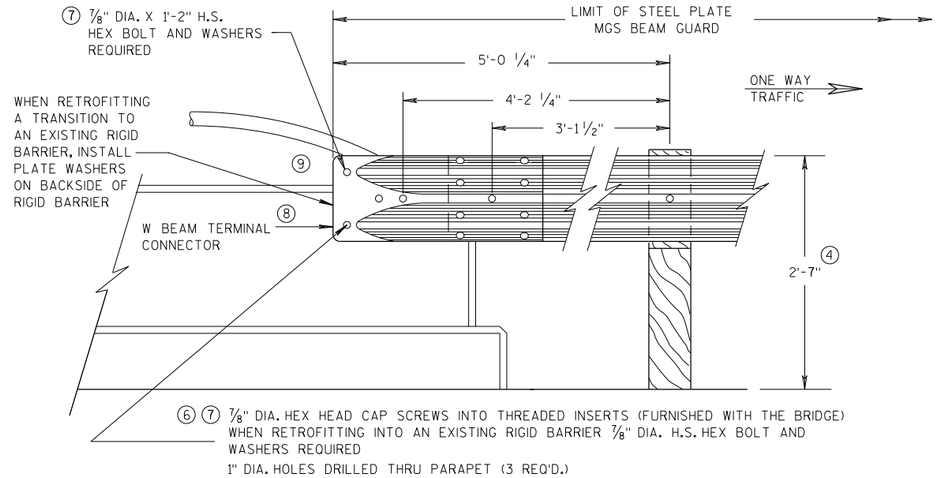
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

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





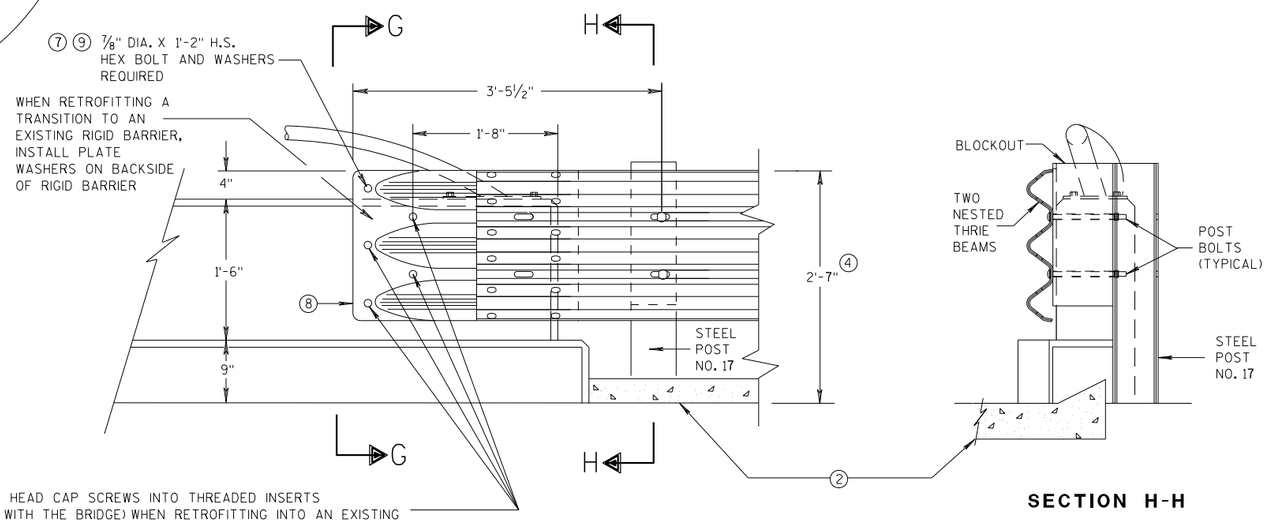
SECTION G-G



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

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



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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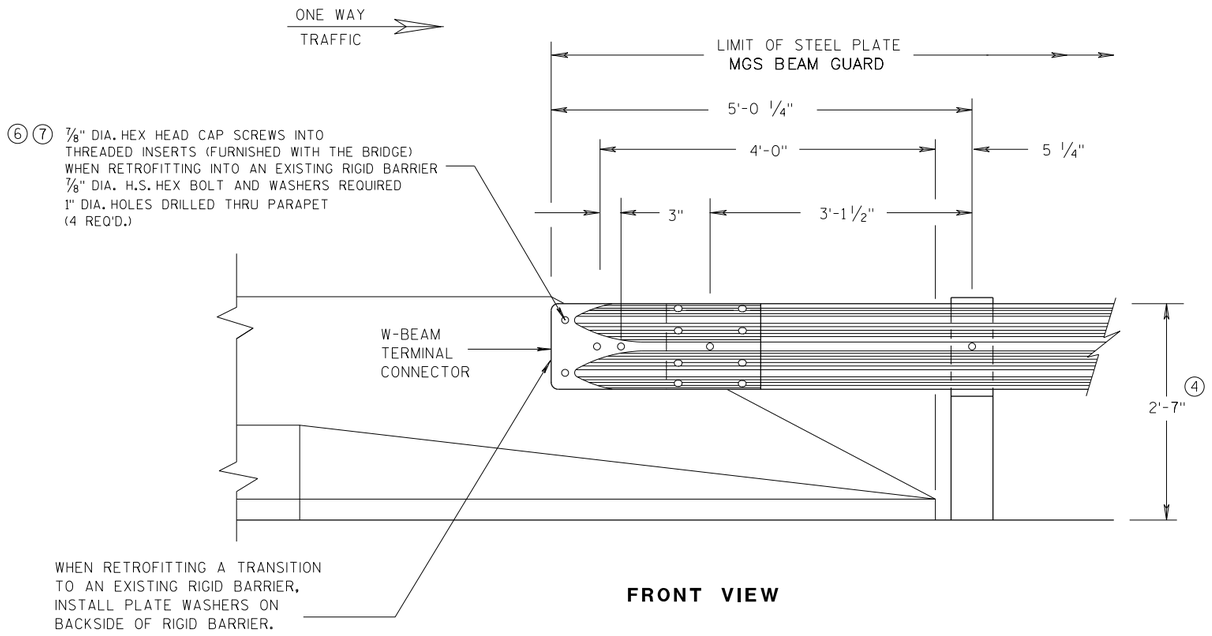


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

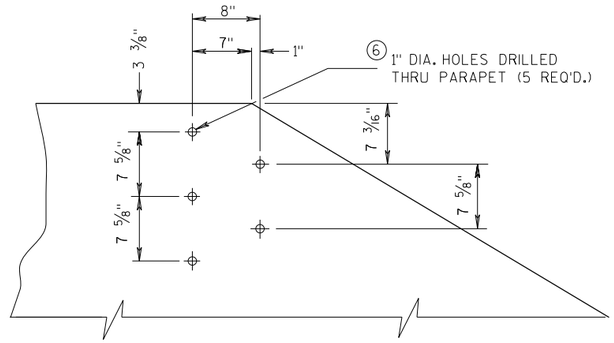
GENERAL NOTES

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

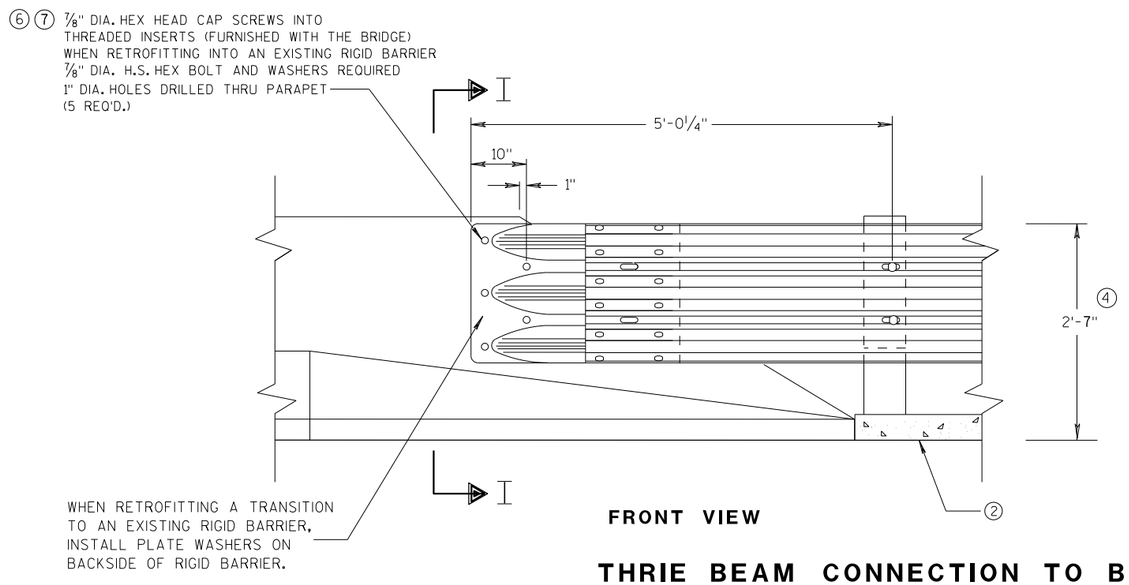
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

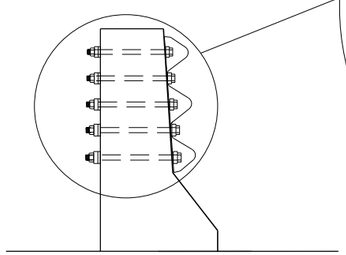
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



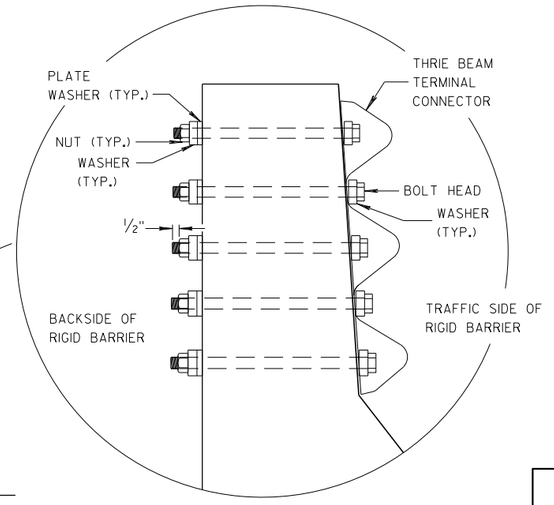
DRILL HOLE LOCATION AND PATTERN FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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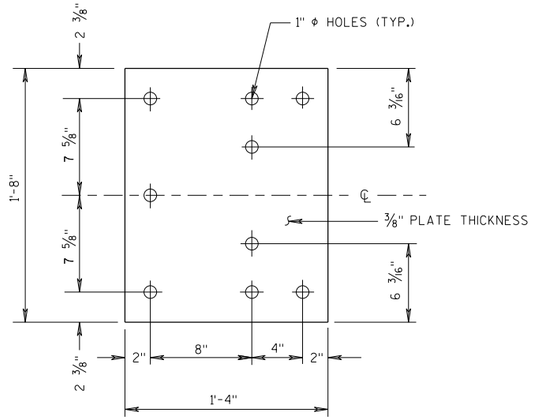
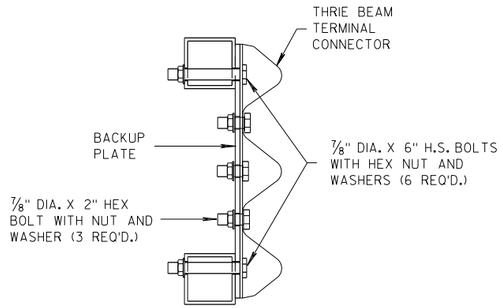
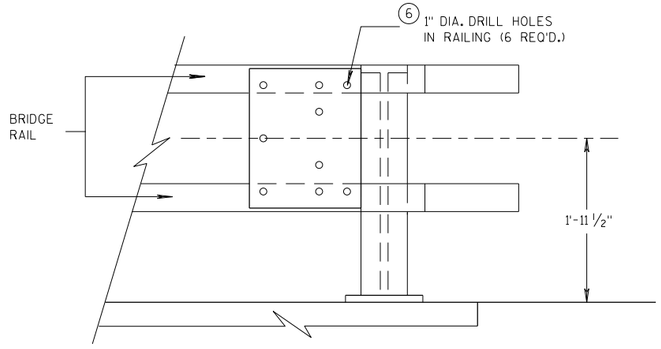


BACK-UP PLATE DETAIL



SECTION J-J

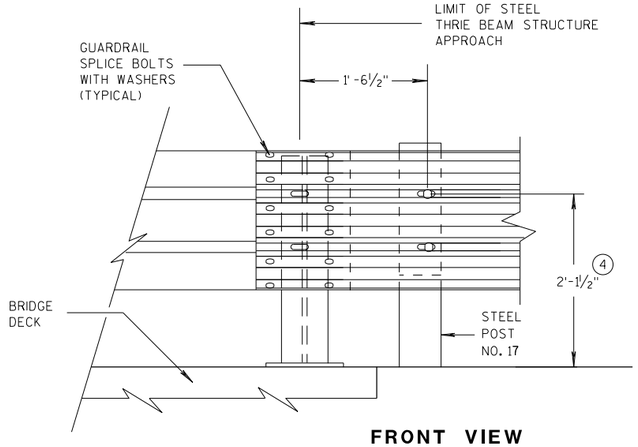


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

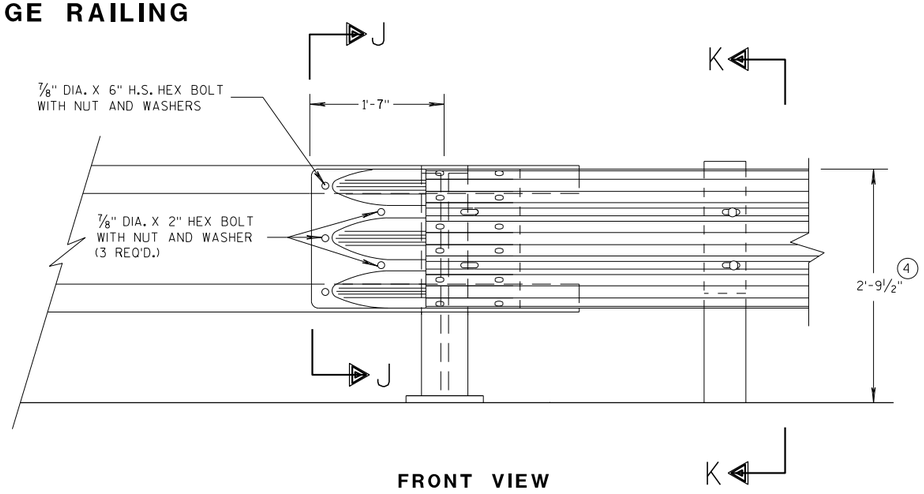
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

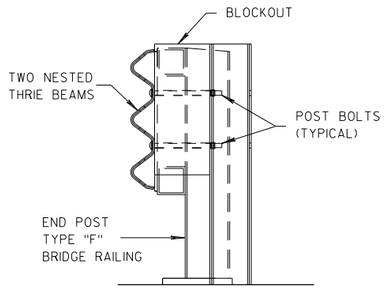


FRONT VIEW

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

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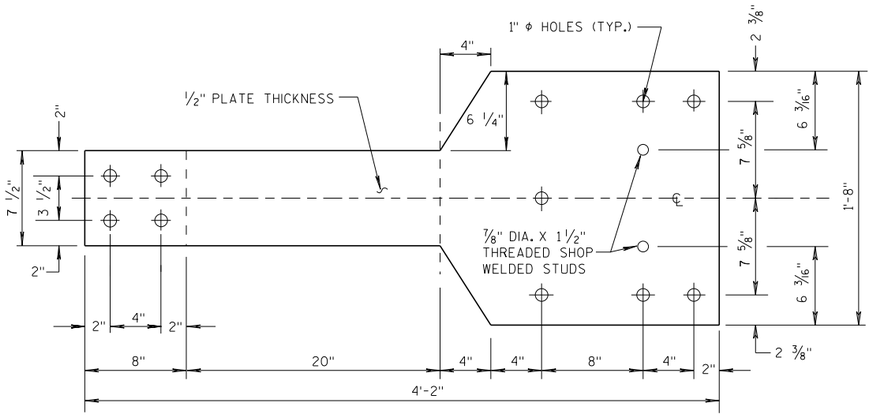
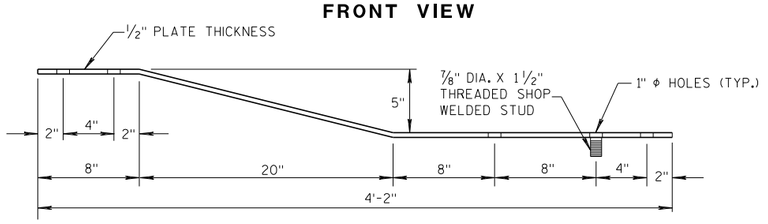
GENERAL NOTES

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

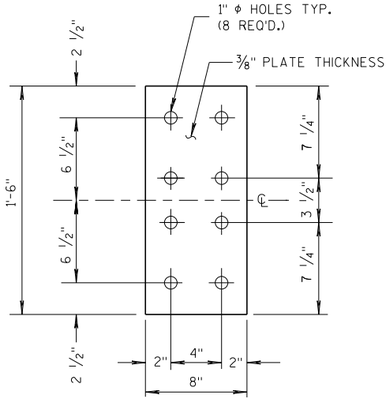


FRONT VIEW



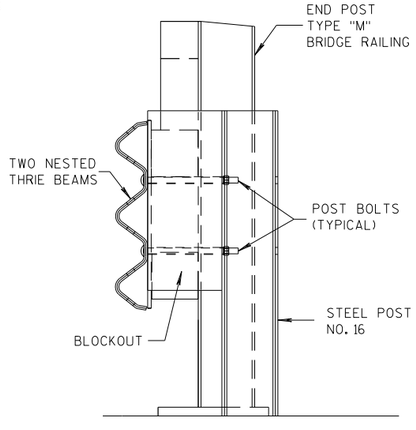
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

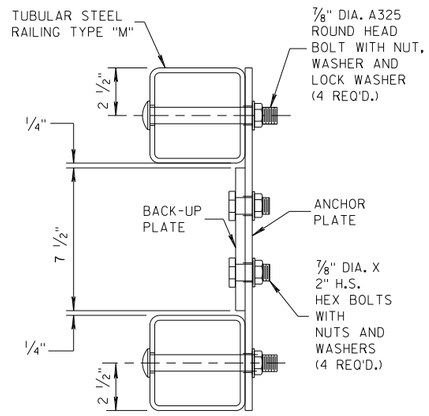


FRONT VIEW

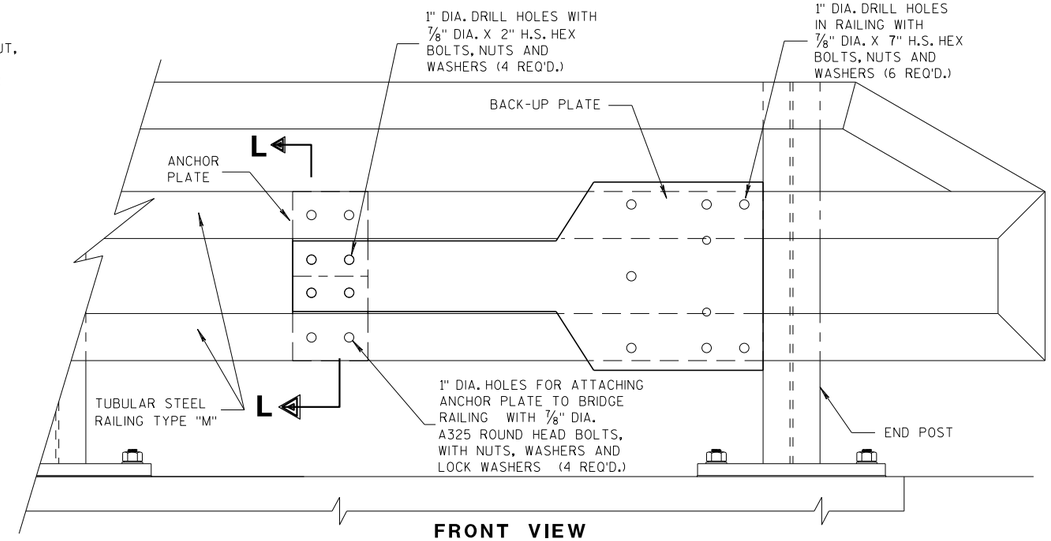
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

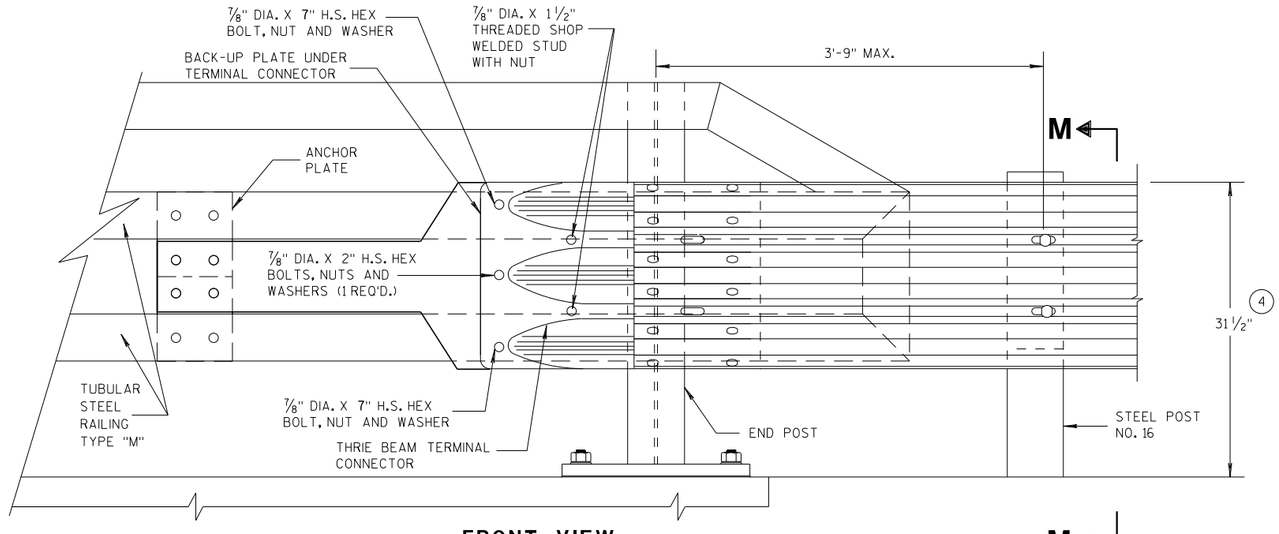


SECTION L-L

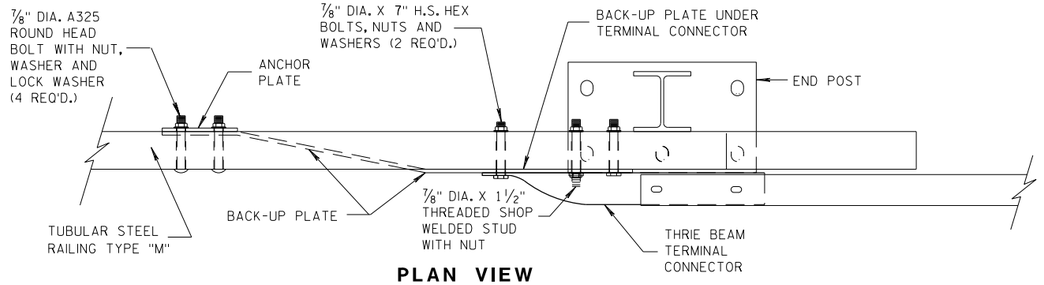


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

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

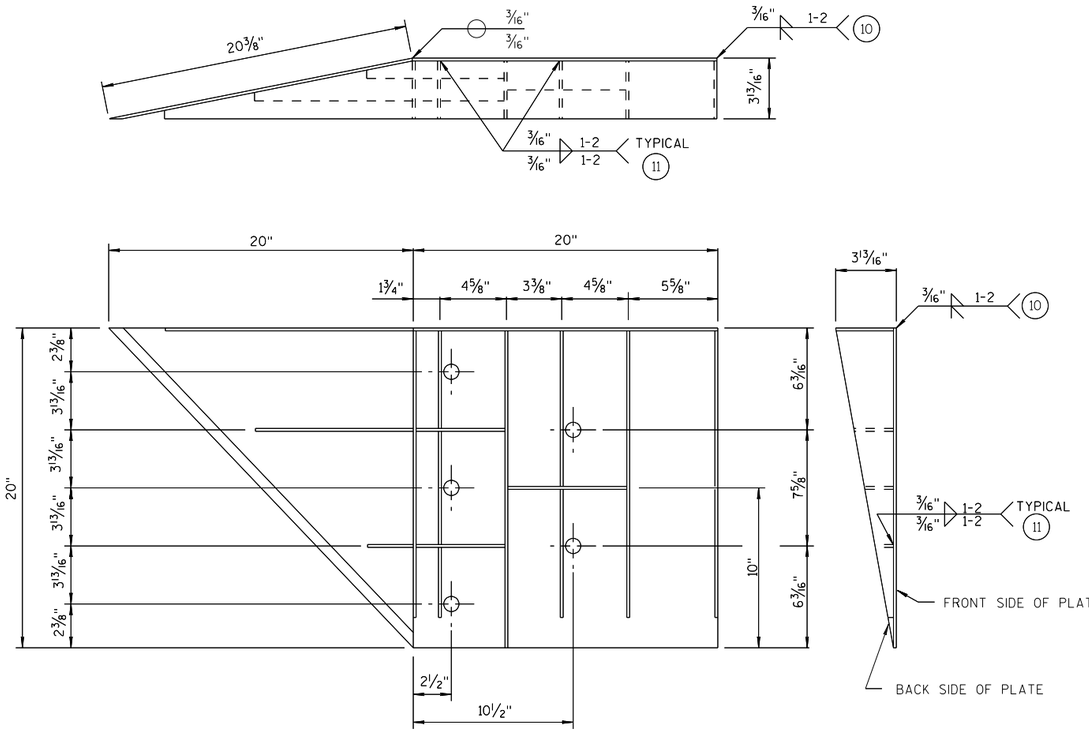
FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

(10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

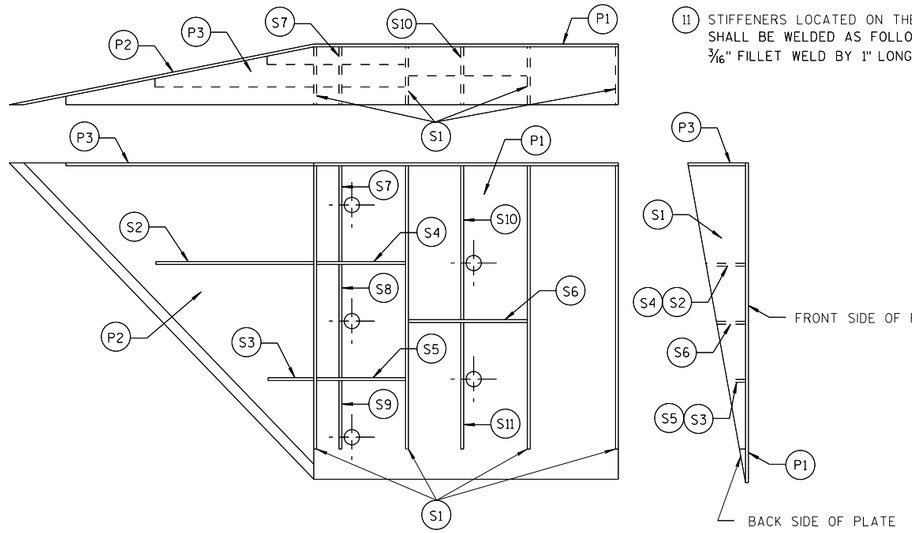


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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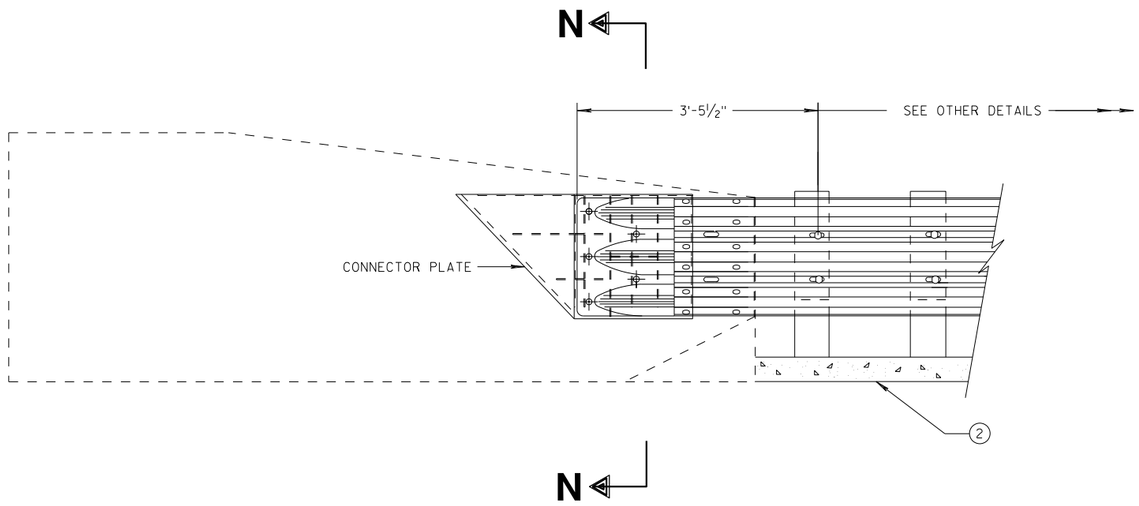
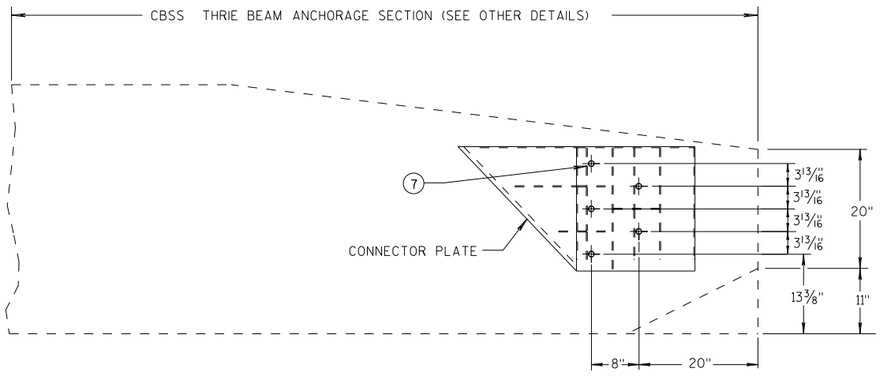


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



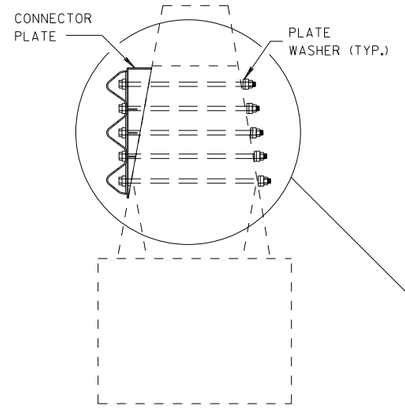
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

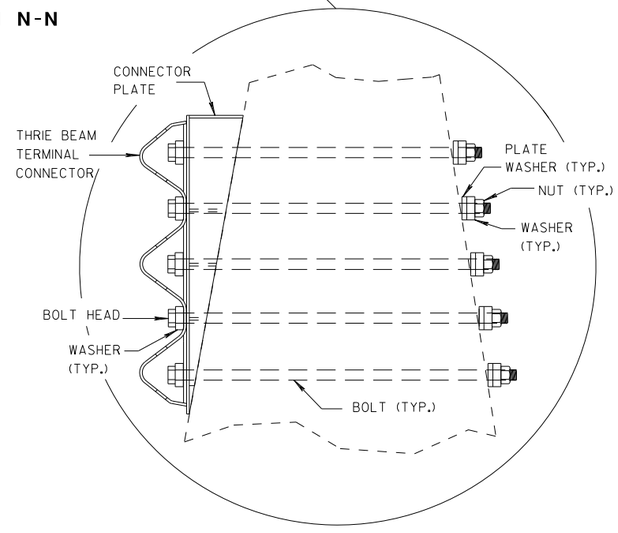
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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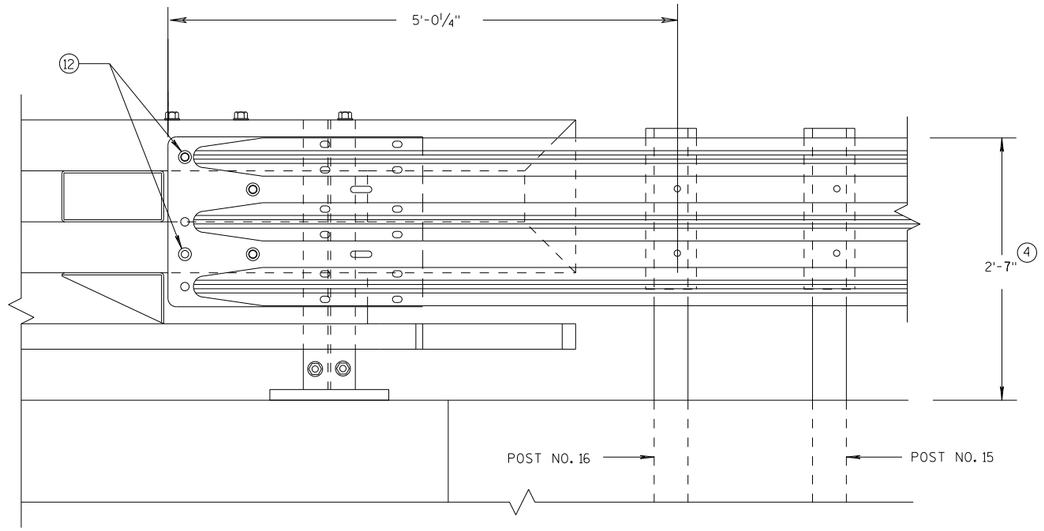
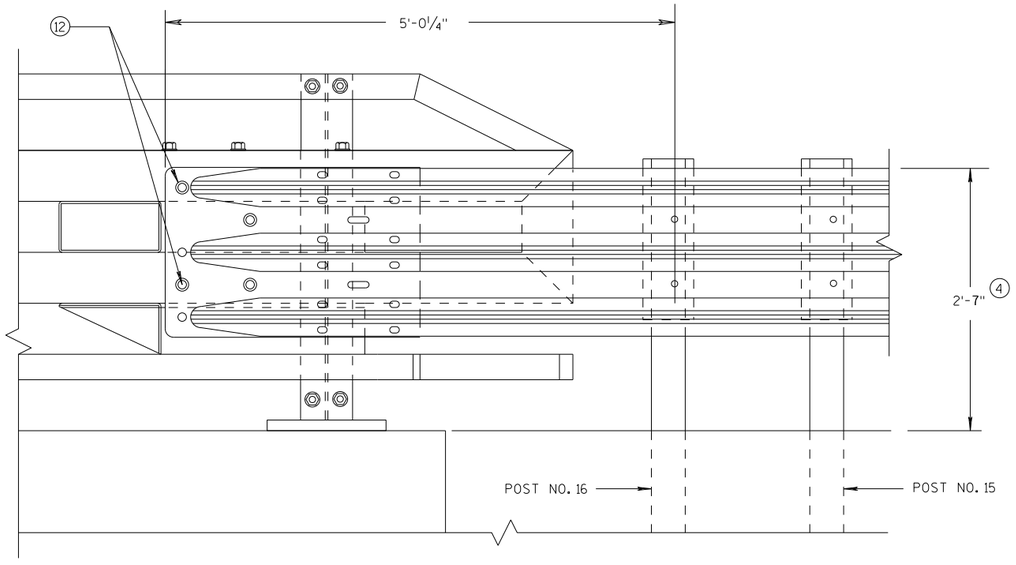


ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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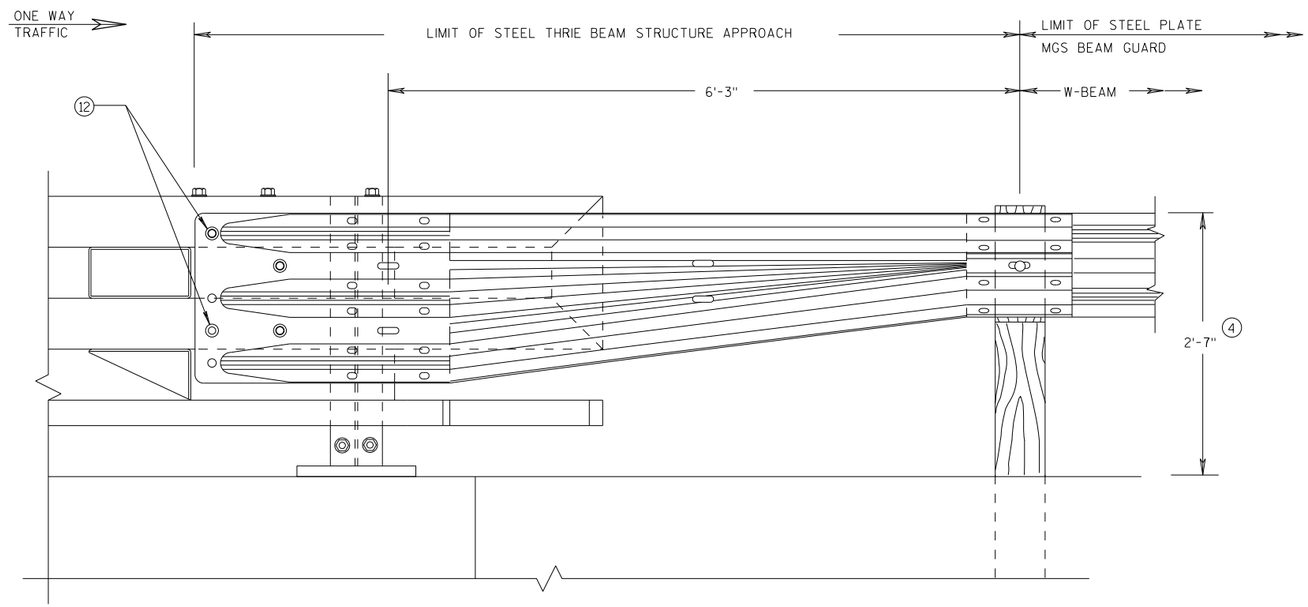


FRONT VIEW

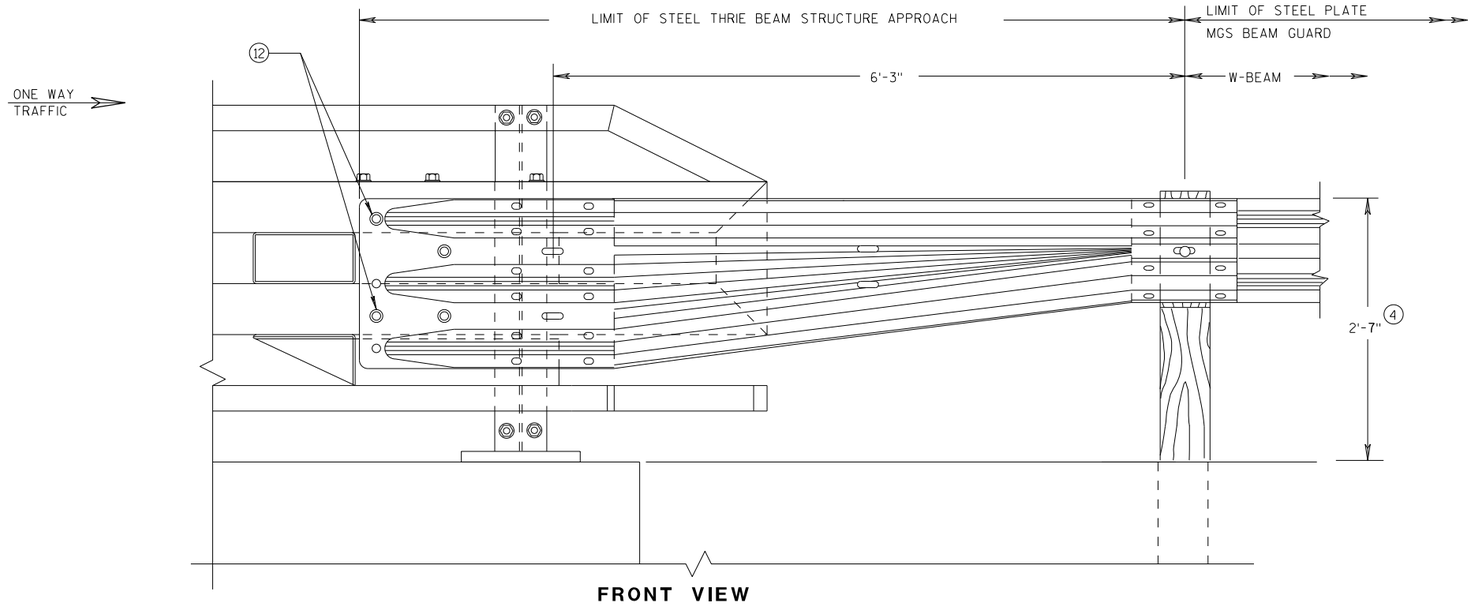
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

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

GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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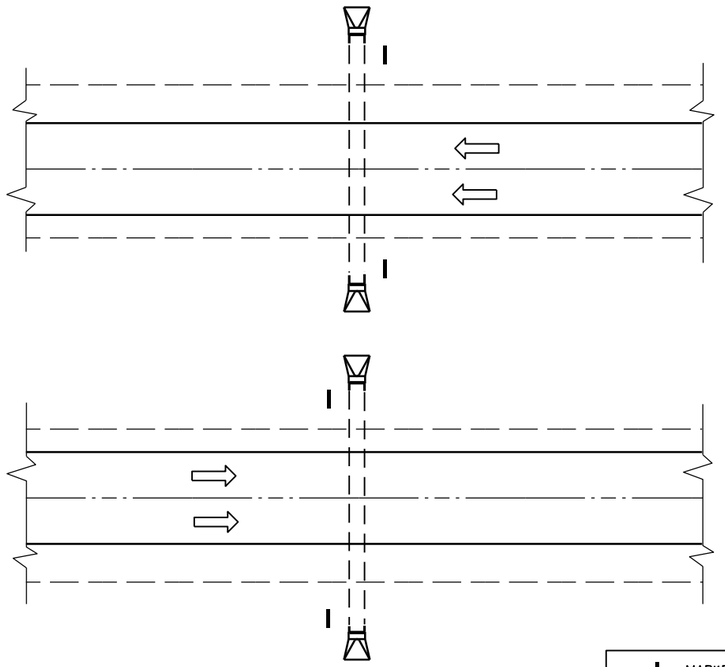
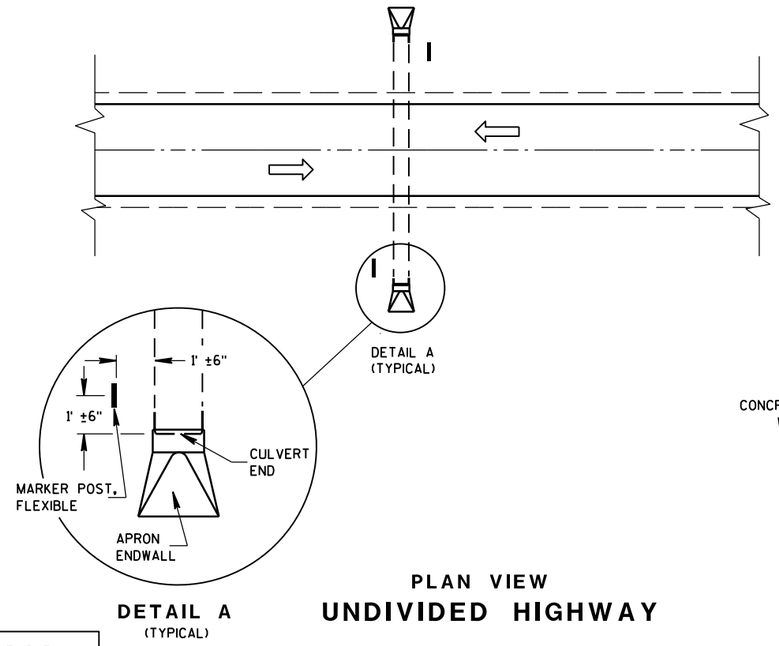
S.D.D. 14 B 45-5L



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

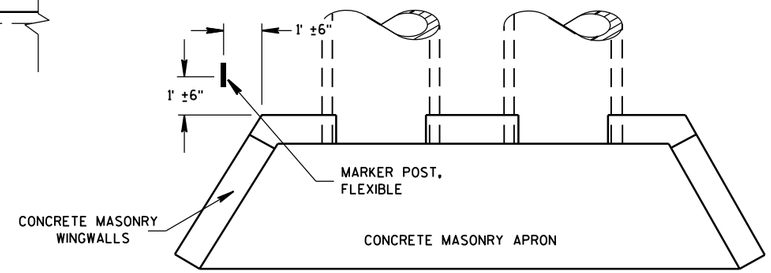
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

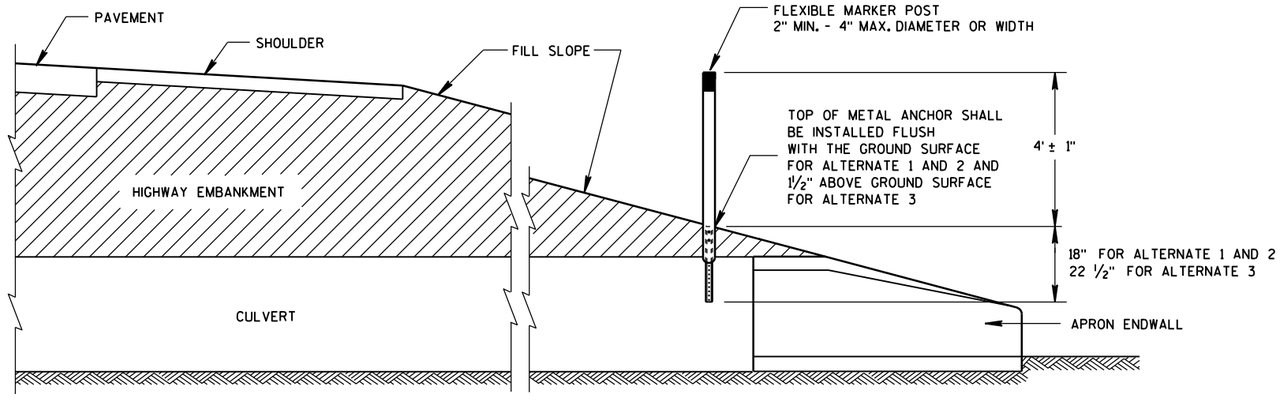
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



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

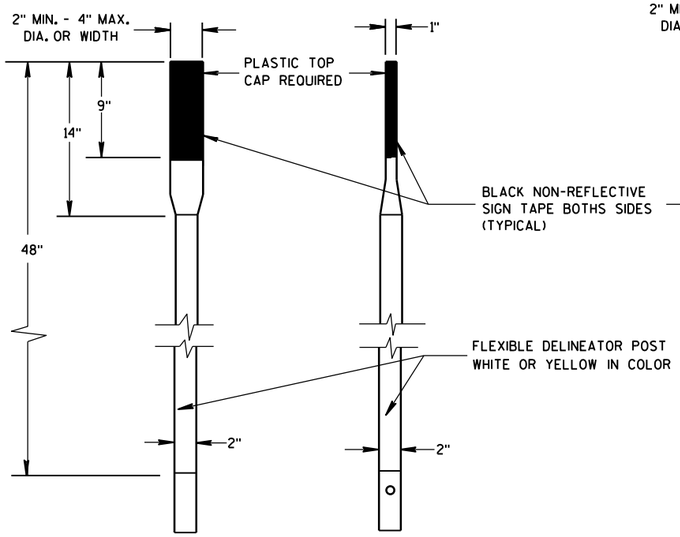
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

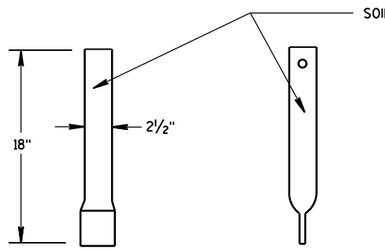
6

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

6

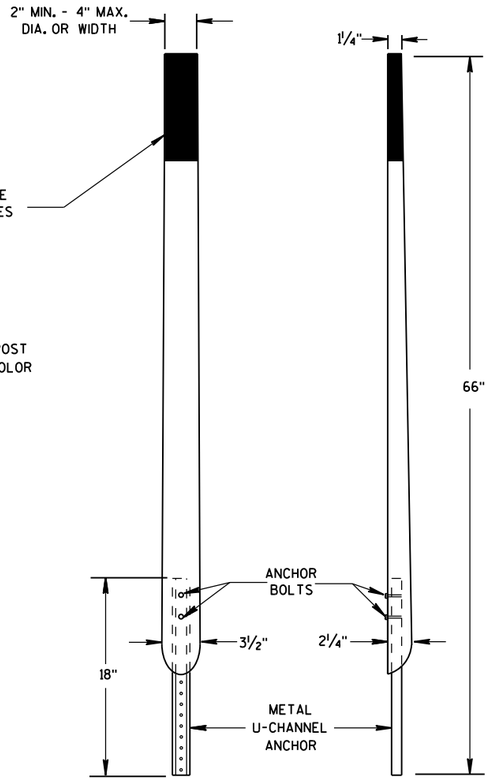
S.D.D. 15 A 3-2a





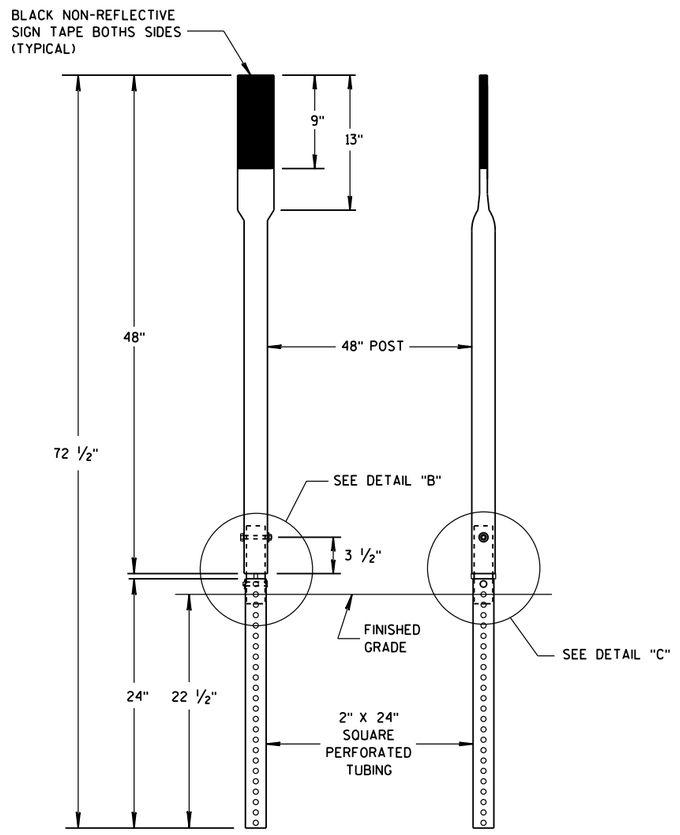
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

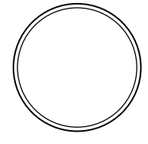
ALTERNATE 2



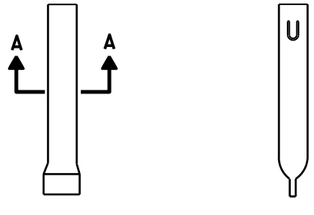
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POSTS

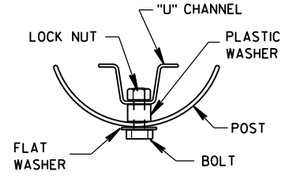


SECTION A-A

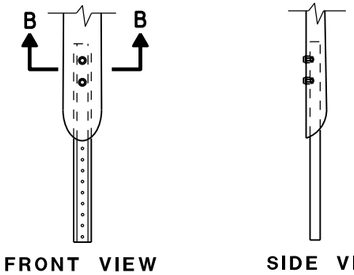


FRONT VIEW SIDE VIEW

ALTERNATE 1

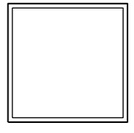


SECTION B-B

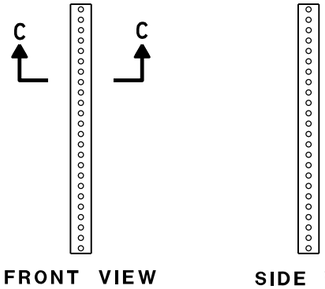


FRONT VIEW SIDE VIEW

ALTERNATE 2



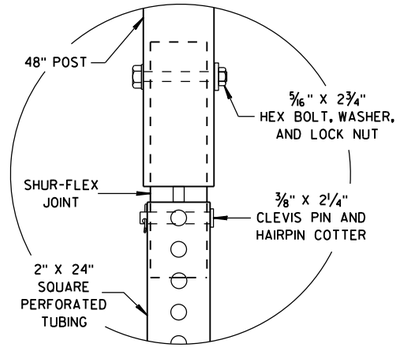
SECTION C-C



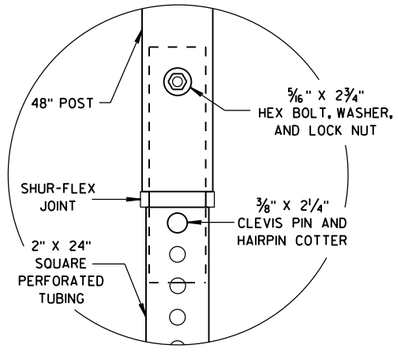
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

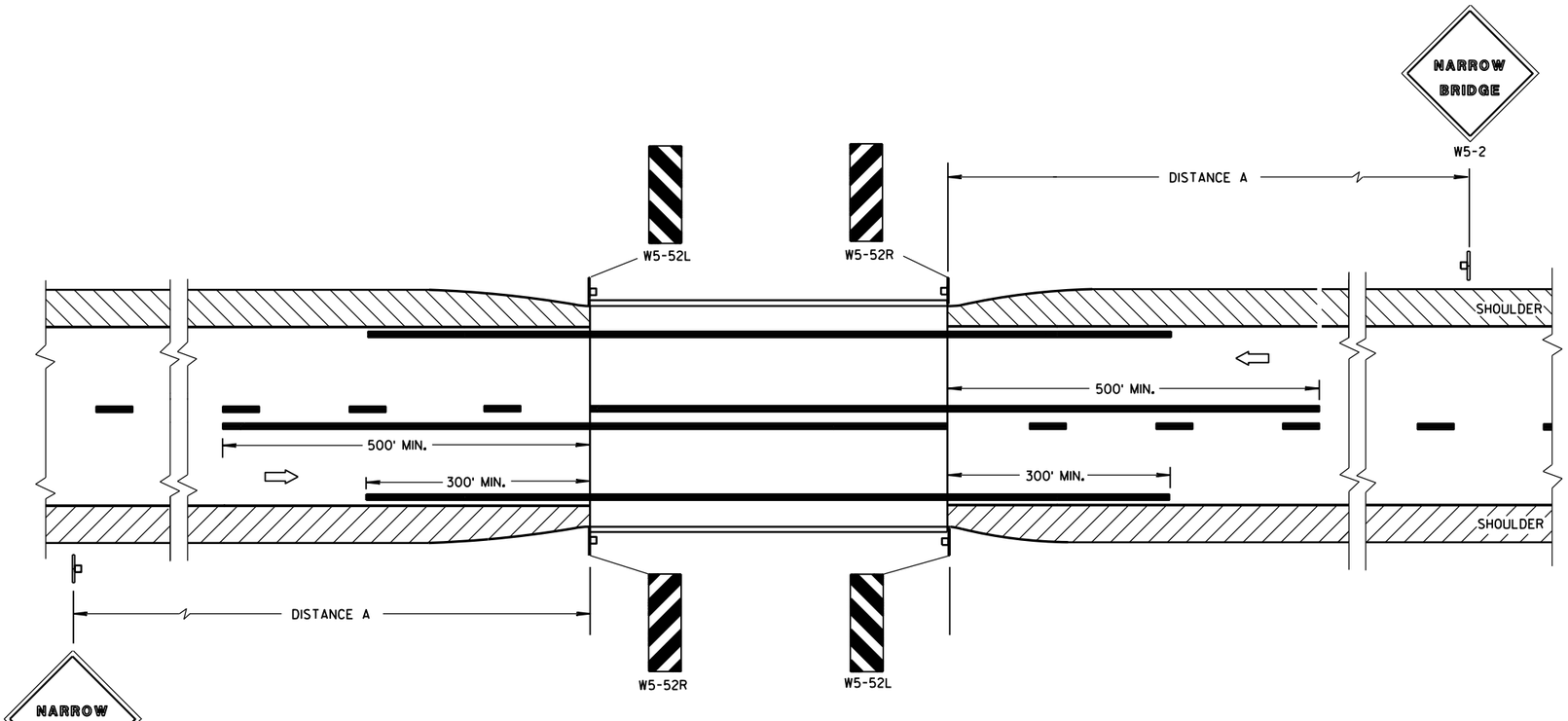
APPROVED
10/1/2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

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

6

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



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

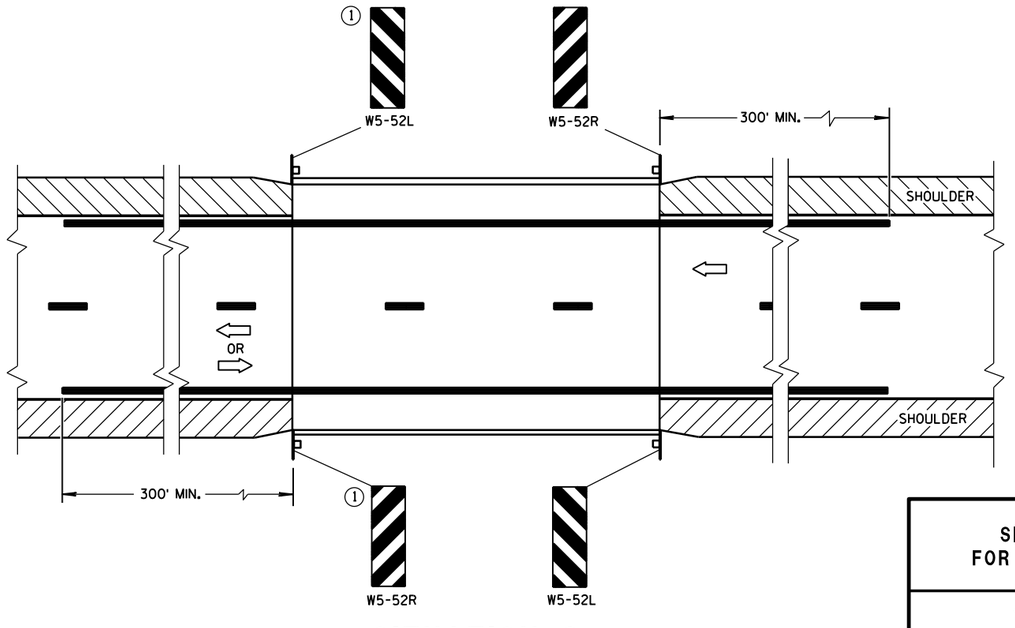
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

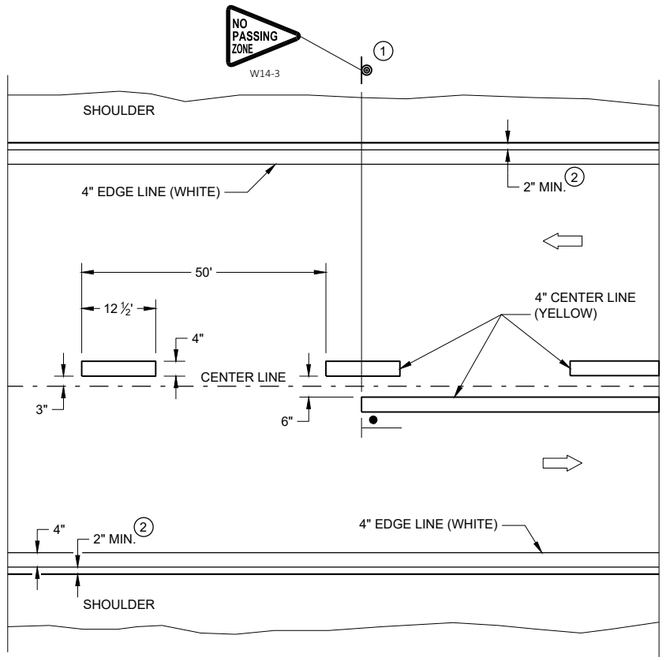
APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER
FHWA

6

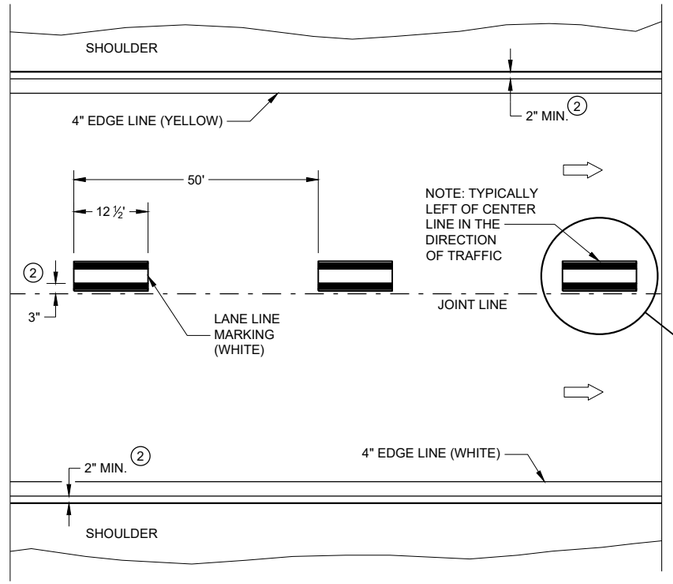
S.D.D. 15 C 6-9

6

S.D.D. 15 C 6-9

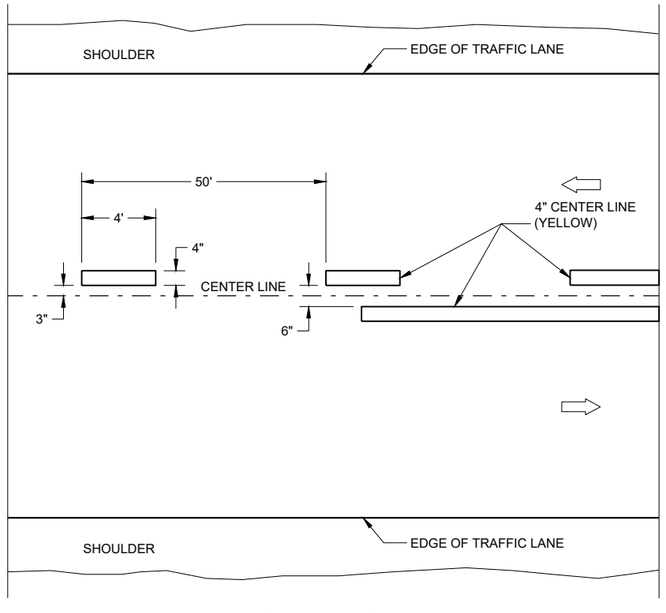


TWO WAY TRAFFIC

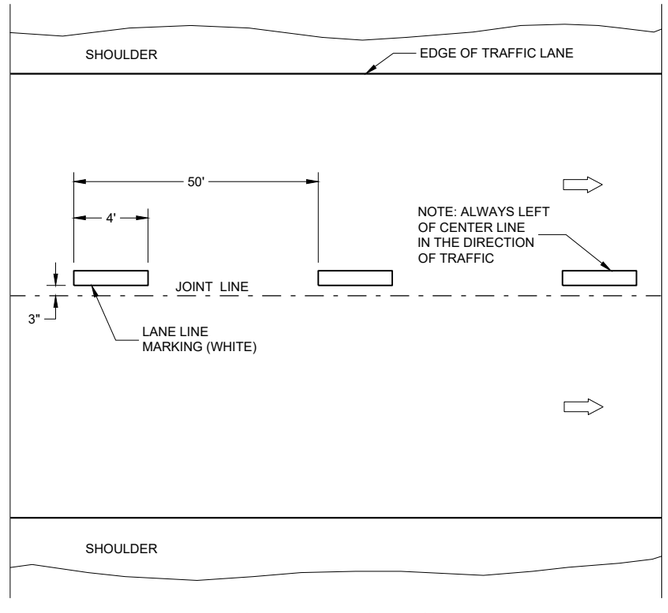


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

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

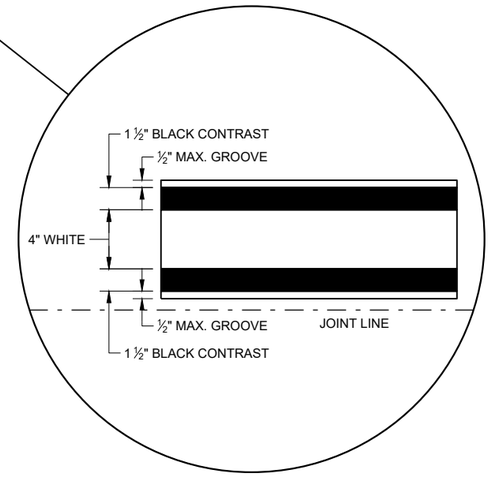
1. LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
2. MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

"T" MARKING

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC



LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 — DATE
/S/ Matthew Rauch — STATEWIDE SIGNING AND M ENGINEER

FHWA

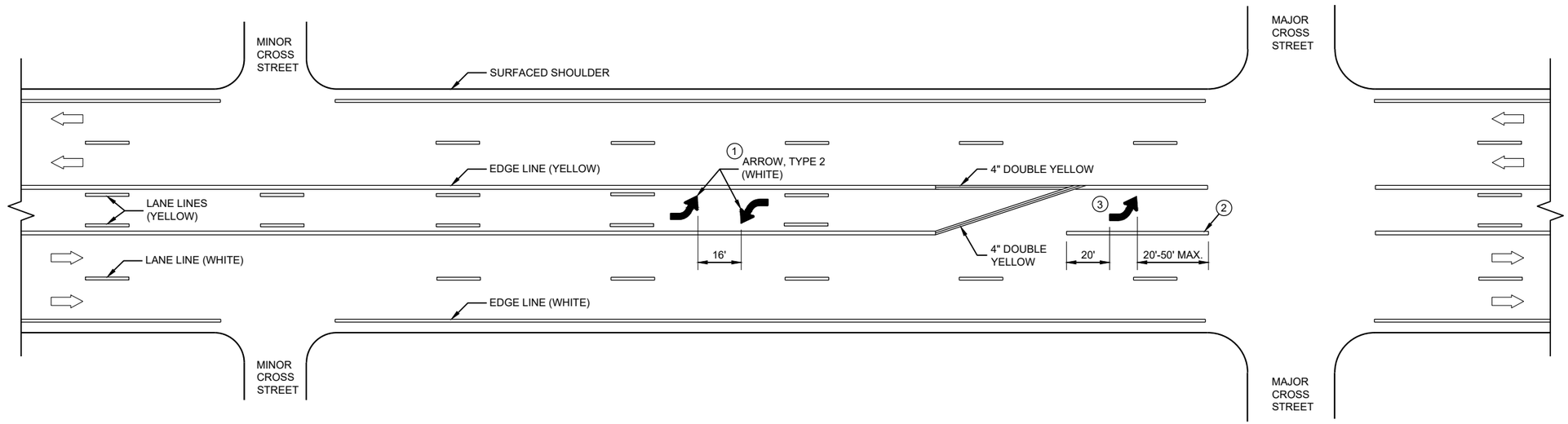
SDD 15C08 - 20a

SDD 15C08 - 20a

GENERAL NOTES

1. A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
2. 8" WHITE
3. TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

DIRECTION OF TRAFFIC



TWO WAY LEFT TURN LANE

6

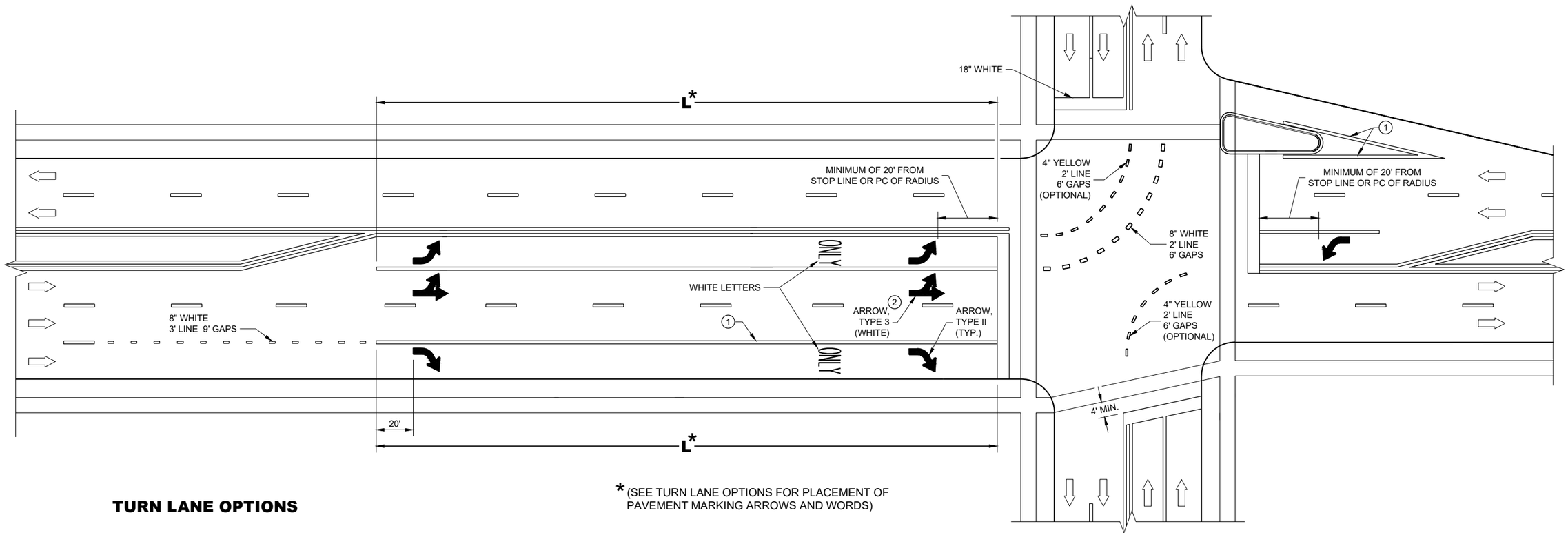
6

SDD 15C08 - 20b

SDD 15C08 - 20b

PAVEMENT MARKING (TURN LANES)

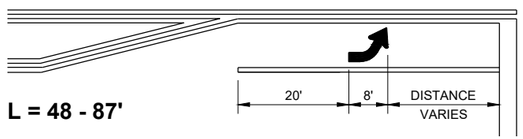
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



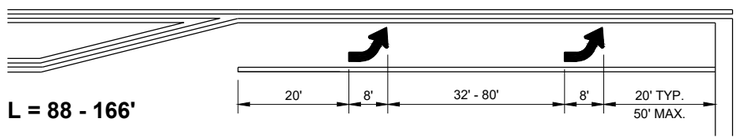
* (SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

TURN LANE OPTIONS

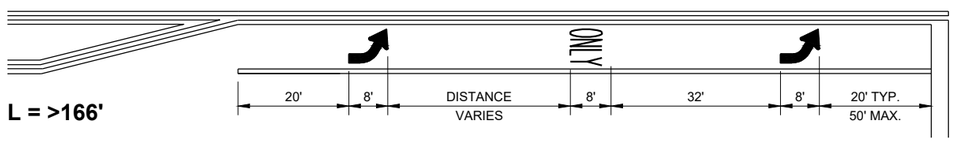
LENGTH OF TURN BAY (**L**) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



L = 48 - 87'



L = 88 - 166'



L = >166'

GENERAL NOTES

1. 8" WHITE
2. QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

PAVEMENT MARKING (TURN LANES)

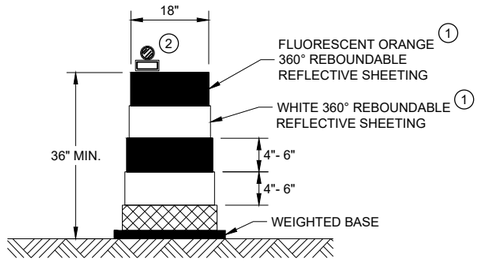
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

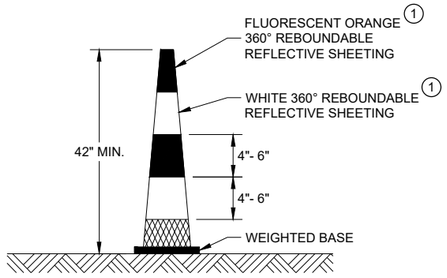
SDD 15C08 - 20c

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.

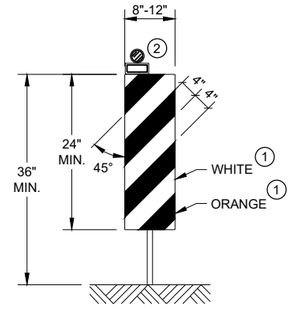


DRUM



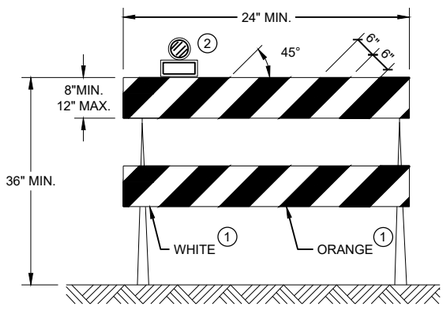
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



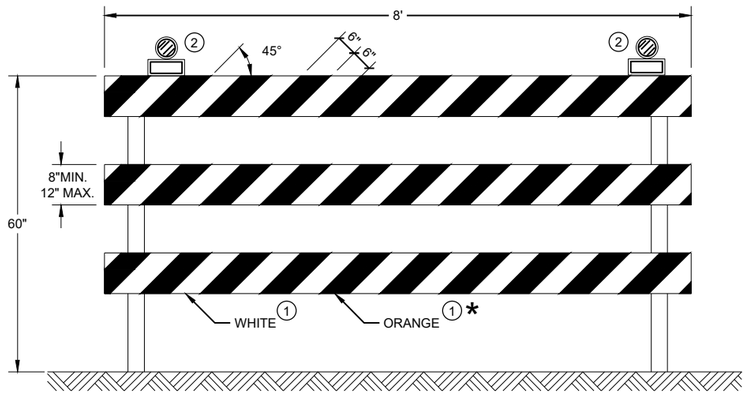
VERTICAL PANEL

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
May 2021
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15C11 - 09b

6

SDD 15C11 - 09b

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

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.

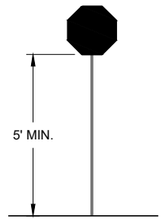
(3) EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

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.



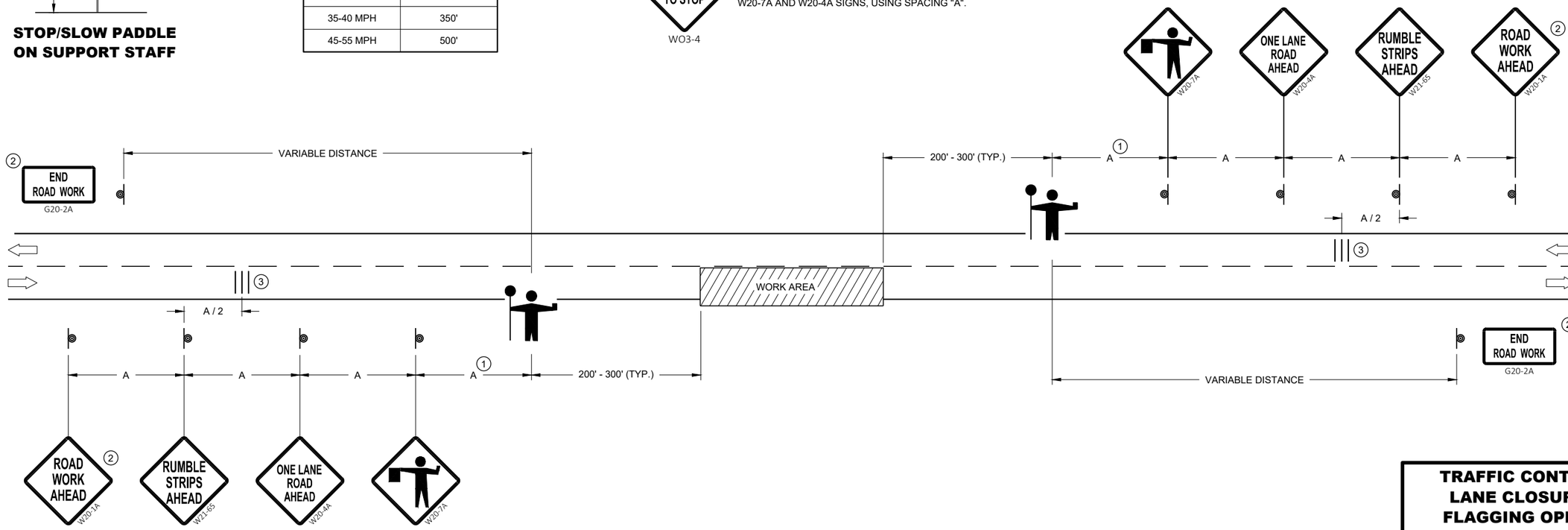
STOP/SLOW PADDLE ON SUPPORT STAFF

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

LEGEND

V1 LEAD VEHICLE

V2 MARKING VEHICLE

V3 SHADOW VEHICLE

TRUCK MOUNTED ATTENUATOR (TMA)

SIGN ON TEMPORARY SUPPORT

DIRECTION OF TRAFFIC

FLASHING ARROW PANEL (CAUTION)

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

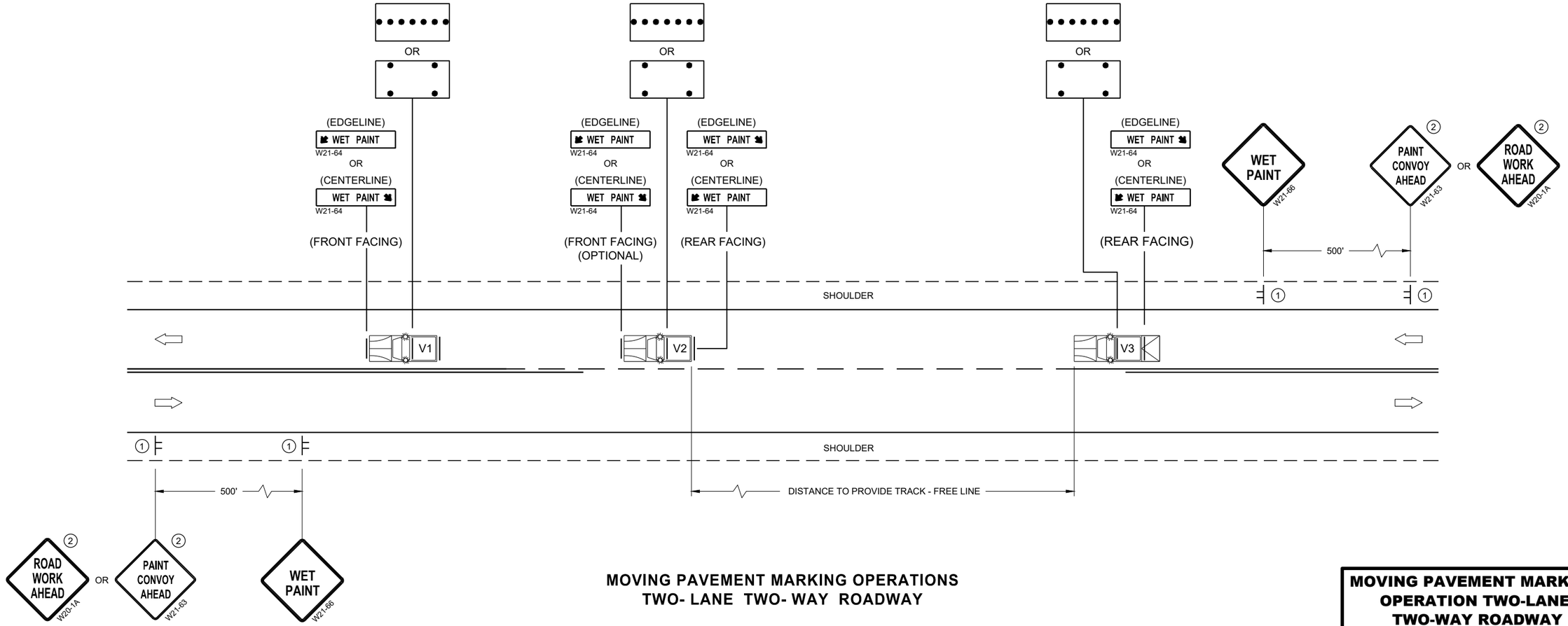
WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING .

(1) SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

(2) IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.



MOVING PAVEMENT MARKING OPERATIONS TWO- LANE TWO- WAY ROADWAY

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

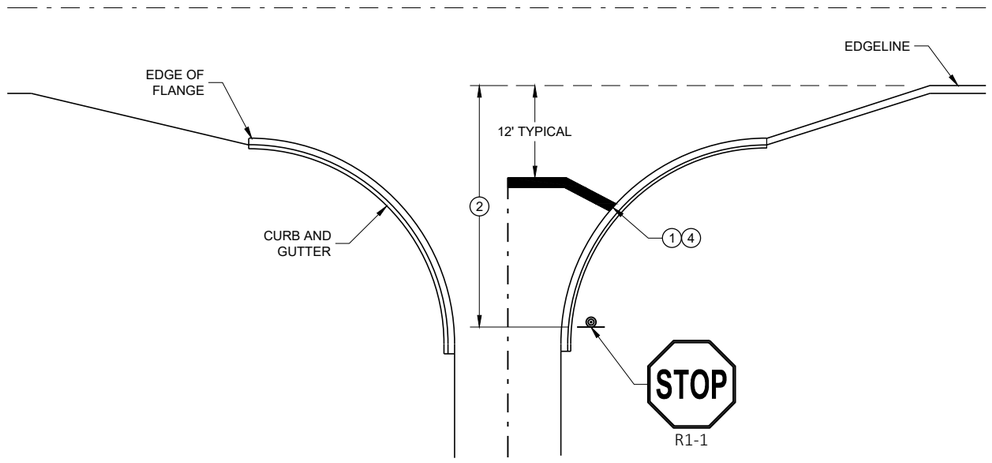
SDD 15C19 - 06a

SDD 15C19 - 06a

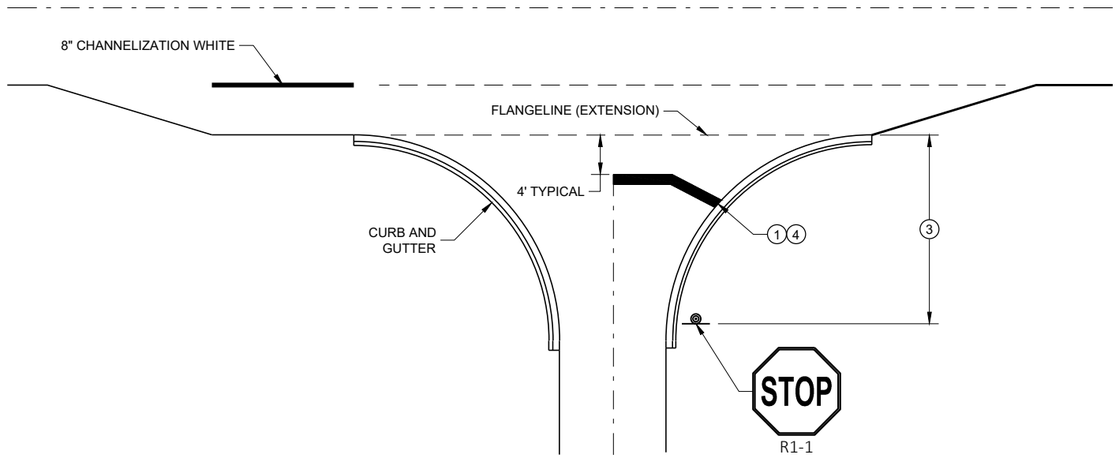
GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

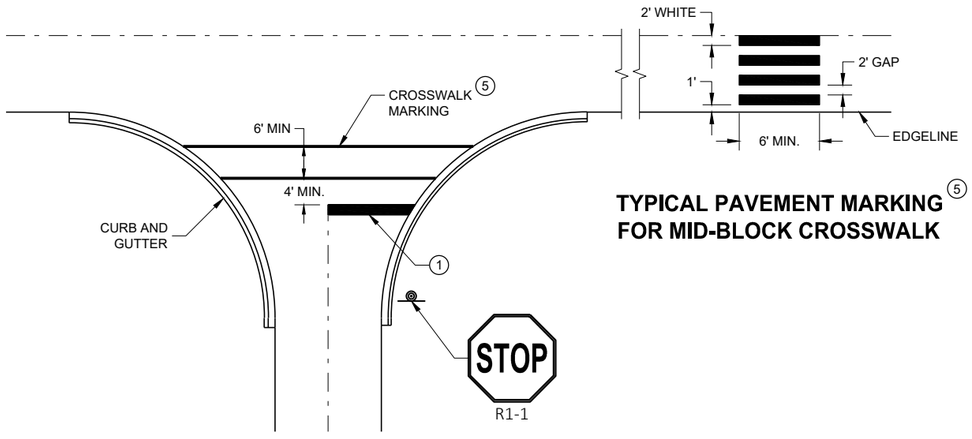
1. 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
2. NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
3. NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
4. MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
5. LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.



TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER

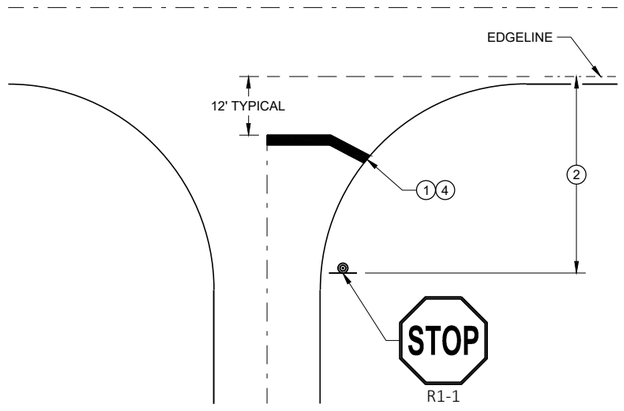


TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK 5

TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

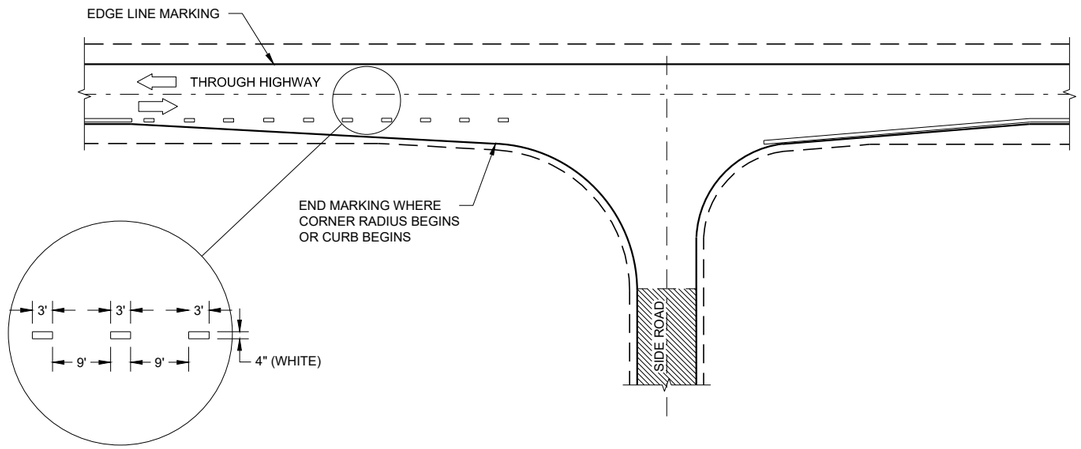
APPROVED
November 2019 — DATE
/S/ Matthew Rauch — STATE SIGNING AND MARKING ENGINEER
FHWA

6

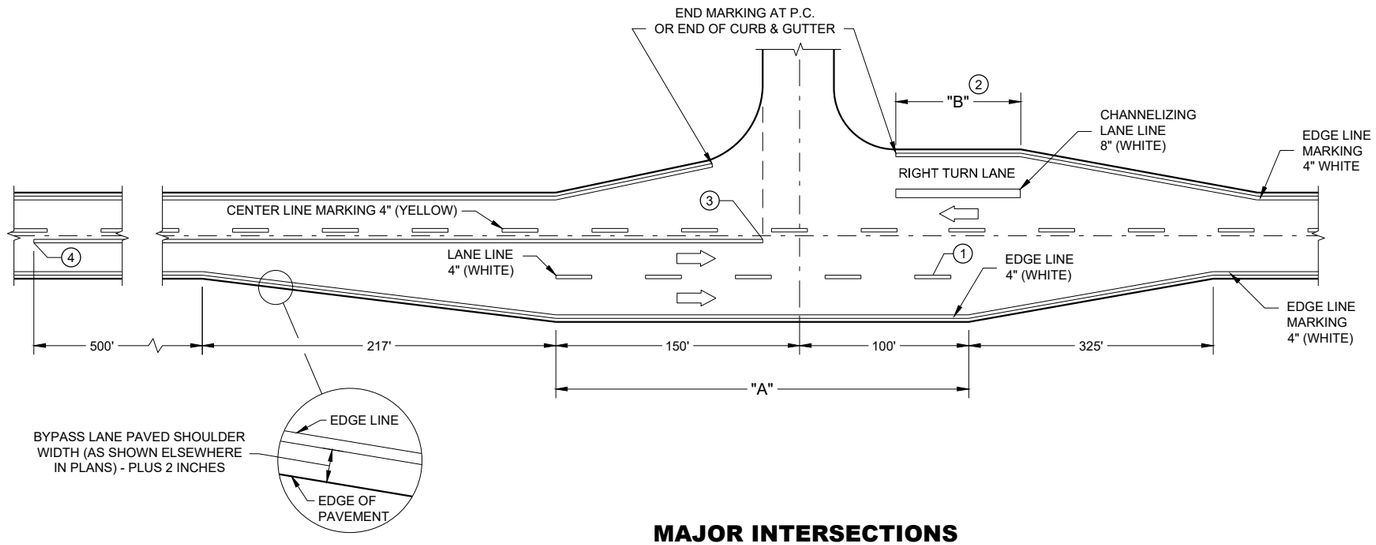
SDD 15C33 - 04

6

SDD 15C33 - 04



MINOR INTERSECTION



MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

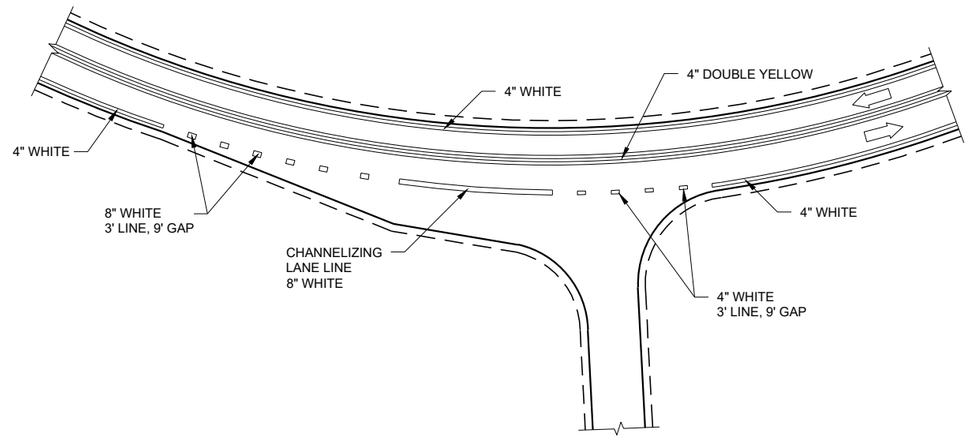
GENERAL NOTES

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.

LEGEND

DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING (INTERSECTIONS)

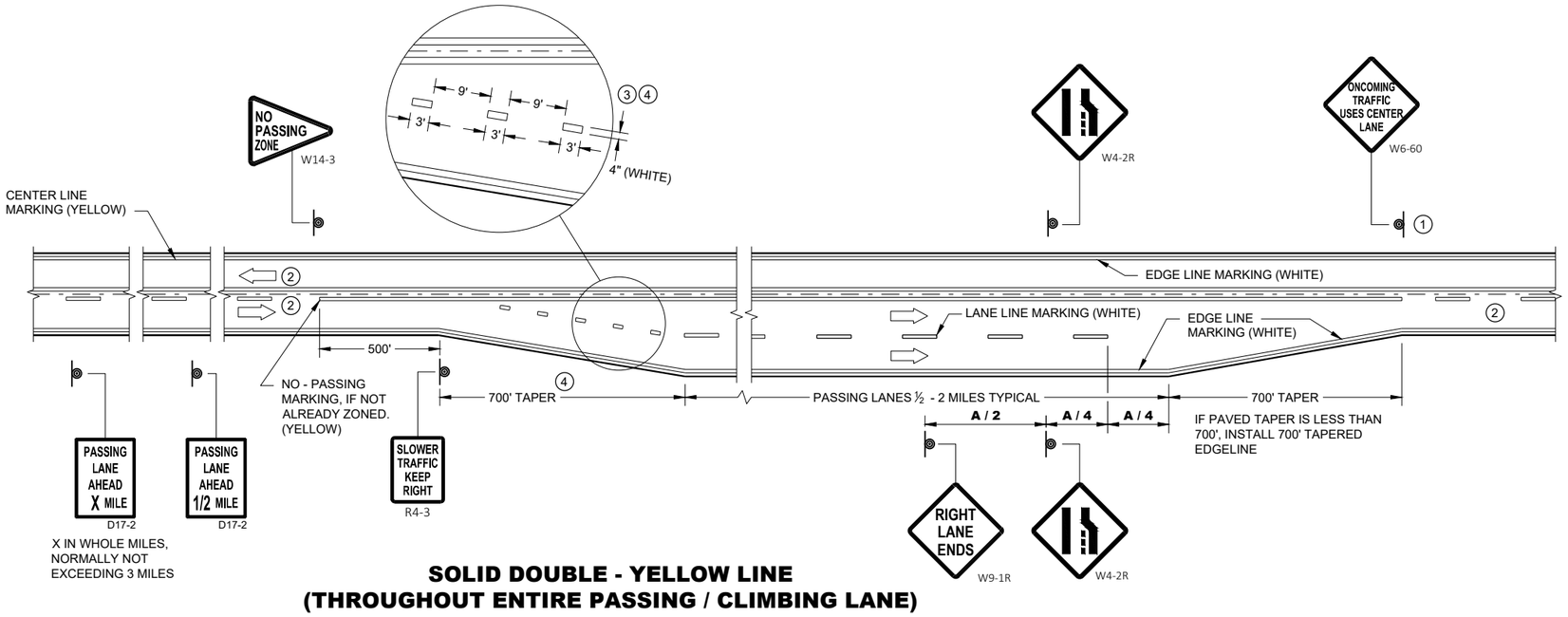
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

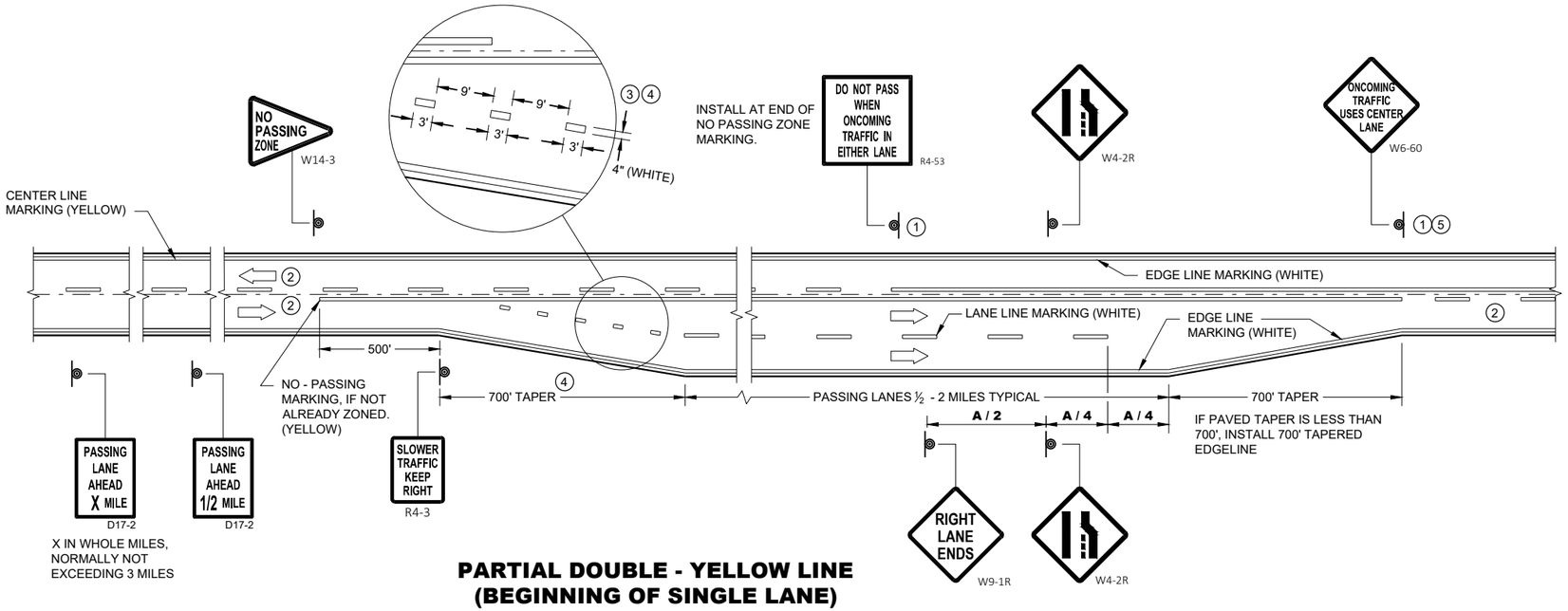
SDD 15C35 - 04a

6

SDD 15C35 - 04a



SOLID DOUBLE - YELLOW LINE
(THROUGHOUT ENTIRE PASSING / CLIMBING LANE)



PARTIAL DOUBLE - YELLOW LINE
(BEGINNING OF SINGLE LANE)

GENERAL NOTES

1. SIGN SHALL BE REPEATED AT 1 MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
2. THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
3. THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3' LINE, 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
4. WHEN THE ENTRANCE TAPER IS LESS THAN 700 FEET OR THE SHOULDER WIDTH IN THE PASSING / CLIMBING LANE IS LESS THAN THE ADJACENT HIGHWAY, DO NOT INSTALL DOTTED LINE PAVEMENT MARKING.
5. REPEAT EVERY 1 MILE UP UNTIL R4-53.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	775
50	885
55	990

PAVEMENT MARKING & SIGNING (CLIMBING LANE & PASSING LANE)

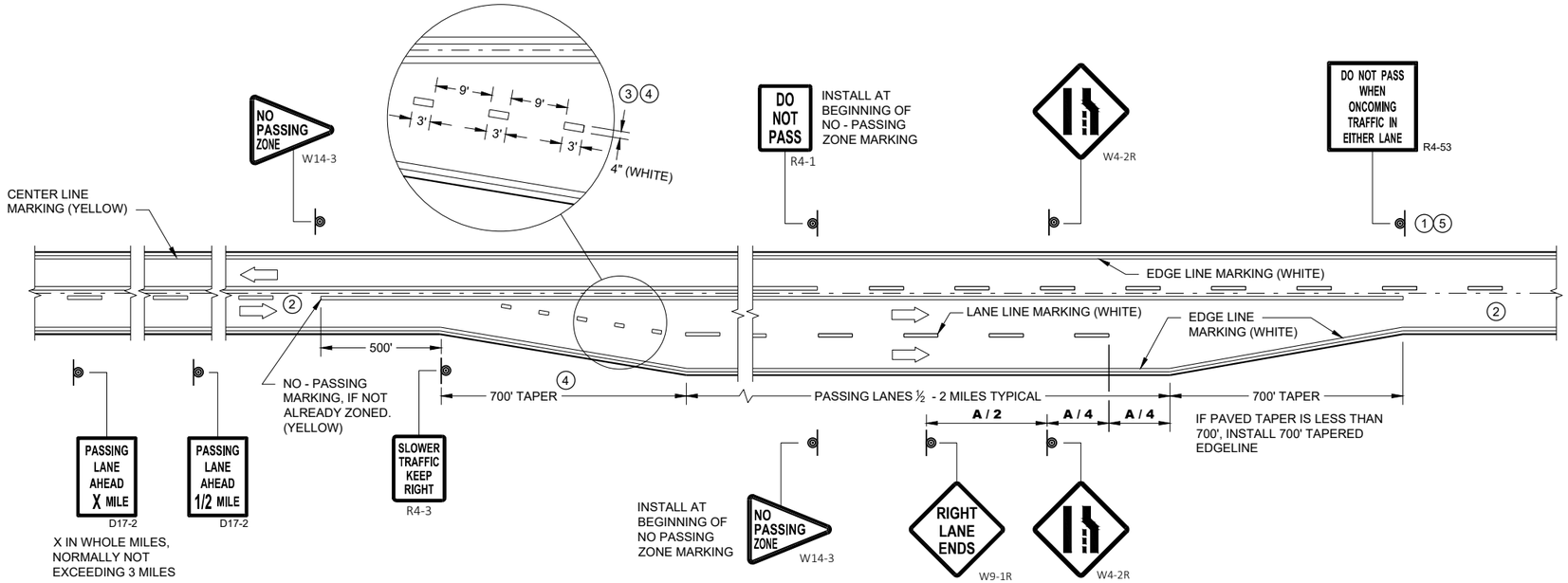
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

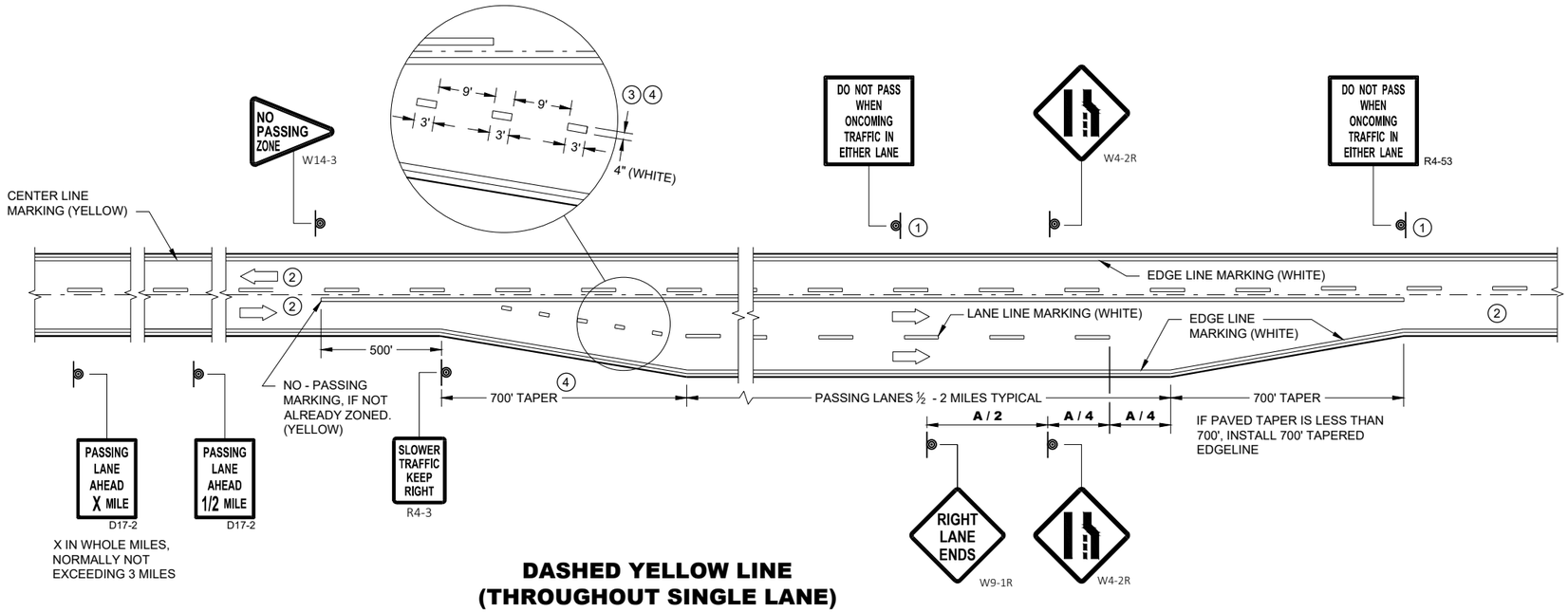
SDD 15C35 - 04b

6

SDD 15C35 - 04b



SOLID DOUBLE - YELLOW LINE
(END OF SINGLE LANE)



DASHED YELLOW LINE
(THROUGHOUT SINGLE LANE)

GENERAL NOTES

1. SIGN SHALL BE REPEATED AT 1 MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
2. THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
3. THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3' LINE, 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
4. WHEN THE ENTRANCE TAPER IS LESS THAN 700 FEET OR THE SHOULDER WIDTH IN THE PASSING / CLIMBING LANE IS LESS THAN THE ADJACENT HIGHWAY, DO NOT INSTALL DOTTED LINE PAVEMENT MARKING.
5. REPEAT EVERY ONE MILE UP UNTIL NO PASSING ZONE.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	775
50	885
55	990

PAVEMNET MARKING & SIGNING (CLIMBING LANE & PASSING LANE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 — DATE
/S/ Matthew Rauch — STATE SIGNING AND MAF ENGINEER
FHWA

SDD 15C35 - 04c

LEGEND

SIGN ON PERMANENT SUPPORT

TRAFFIC CONTROL DRUM

DIRECTION OF TRAFFIC

WORK ZONE

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

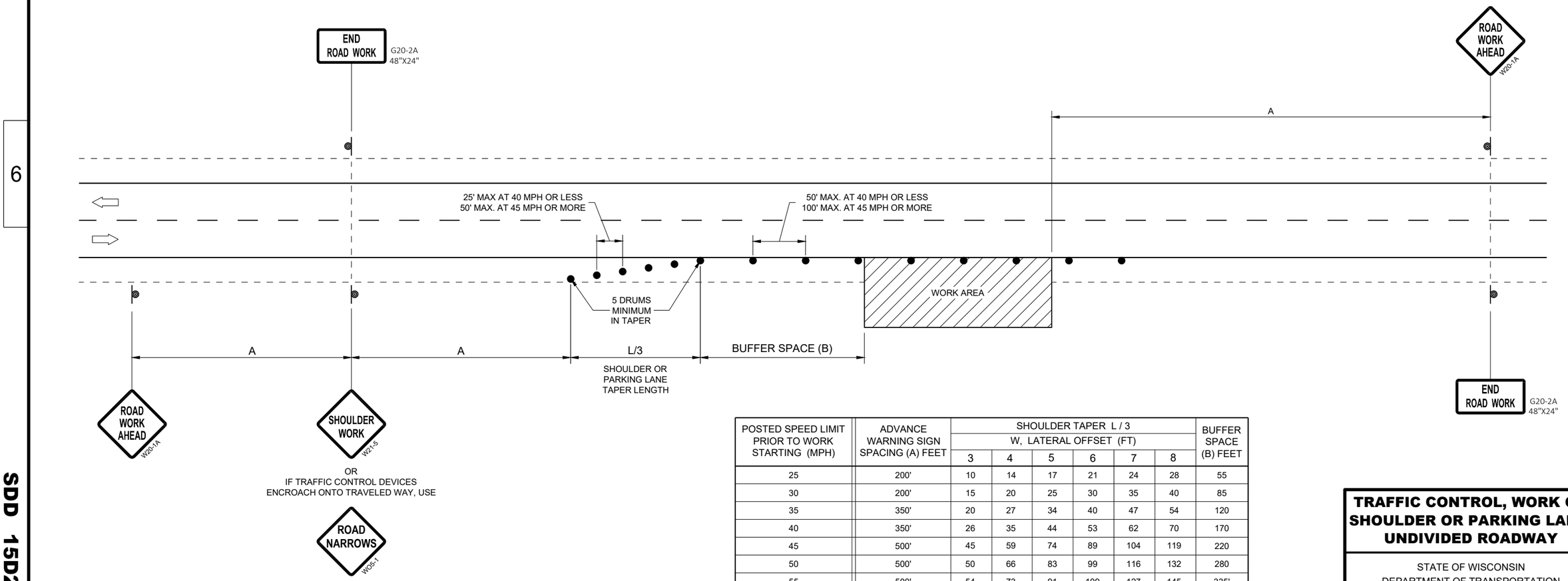
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

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

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

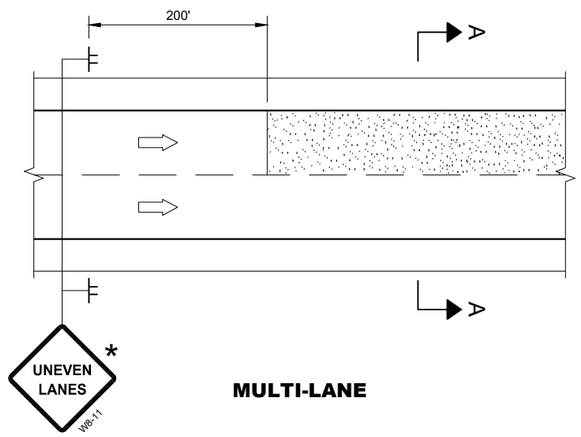
APPROVED
May 2020
DATE

/S/ Andrew Heidtke
STATEWIDE WORK ZONE T SAFETY ENGINEER

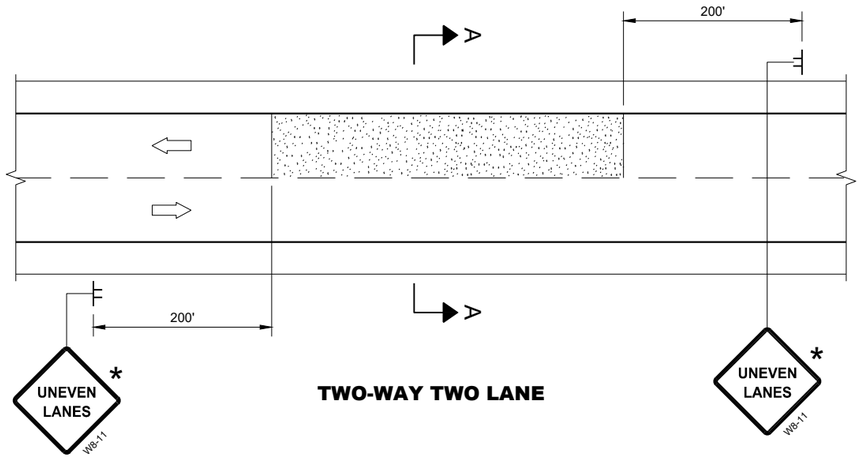
FHWA

SDD 15D28 - 04

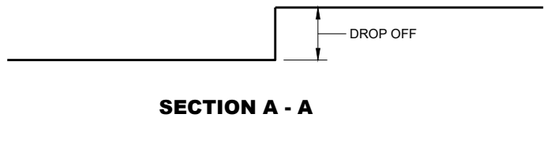
SDD 15D28 - 04



MULTI-LANE

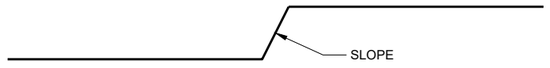


TWO-WAY TWO LANE

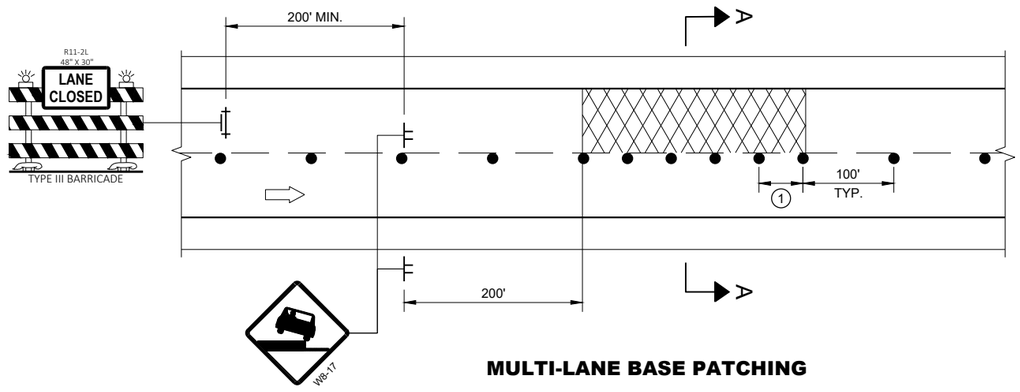


SECTION A - A

OR

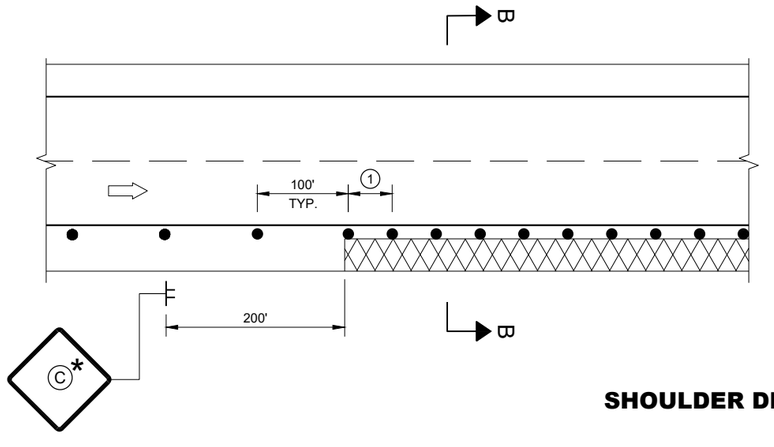


SECTION A - A

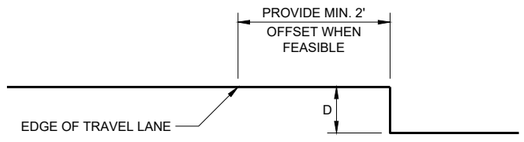


MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS



SHOULDER DROP-OFFS



SECTION B - B

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	SHOULDER DROP - OFF W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

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

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

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.

(1) USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

TRAFFIC CONTROL, DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15D39 - 02

GENERAL NOTES

DRAWING NOT TO SCALE. ALL SIGNS AND POSTS ON THIS SHEET SHALL BE PAID FOR WITH 'TRAFFIC CONTROL SIGNS' BID ITEM. ALL SIDE ROADS WHICH ARE UNDER CONSTRUCTION OF CURB AND GUTTER AND/OR GRADING SHALL BE ADEQUATELY SIGNED.

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD). SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES.

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

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

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

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

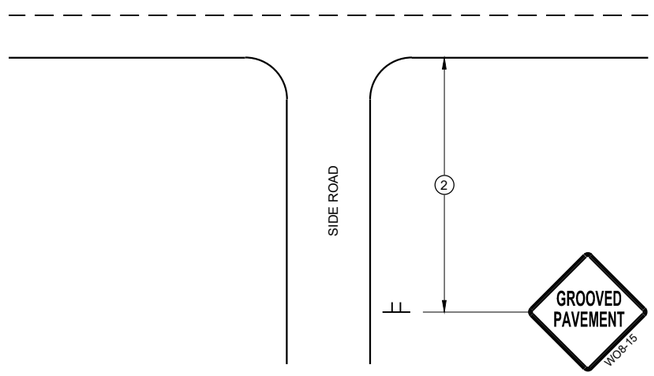
(1) PLACE SIGNS 350' IN ADVANCE OF MILLED SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.

(2) PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

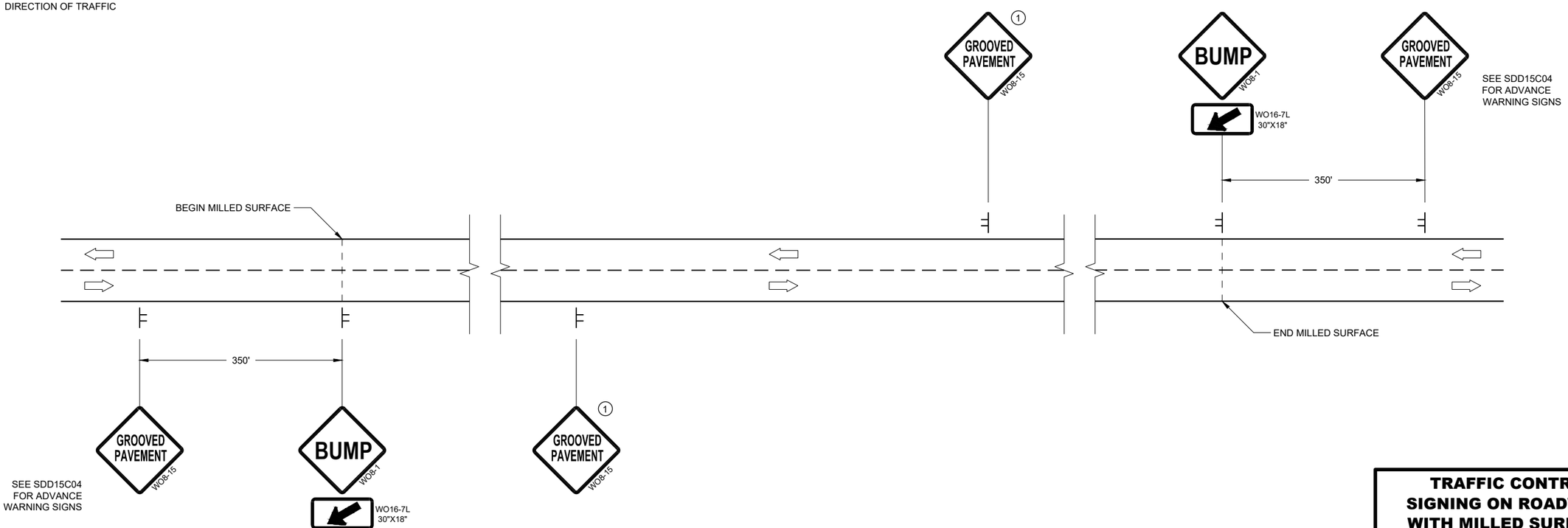
LEGEND

SIGN ON TEMPORARY SUPPORT

DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH SIGN DETAIL



DETAIL FOR SIGNING ON MILLED SURFACES

TRAFFIC CONTROL, SIGNING ON ROADWAYS WITH MILLED SURFACES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

6
SDD 15D44 - 02

GENERAL NOTES

DRAWING NOT TO SCALE. ALL SIGNS AND POSTS ON THIS SHEET SHALL BE PAID FOR WITH 'TRAFFIC CONTROL SIGNS' BID ITEM. ALL SIDE ROADS WHICH ARE UNDER CONSTRUCTION OF CURB AND GUTTER AND/OR GRADING SHALL BE ADEQUATELY SIGNED.

ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (WMUTCD). SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE WISDOT STANDARD SIGN PLATES.

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

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

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

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNS IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

SEE 15C34 FOR ADDITIONAL TRAFFIC CONTROL SIGNING WHEN CENTERLINE PAVEMENT MAKINGS ARE MISSING. 'DO NOT PASS' SIGNS MUST BE INSTALLED ON THE SAME DAY AS MILLING OPERATIONS.

(1) PLACE SIGNS 350' IN ADVANCE OF CHIP SEALED OR LOOSE GRAVEL SURFACES AND AT 1 MILE INTERVALS, OR AS DIRECTED BY THE ENGINEER.

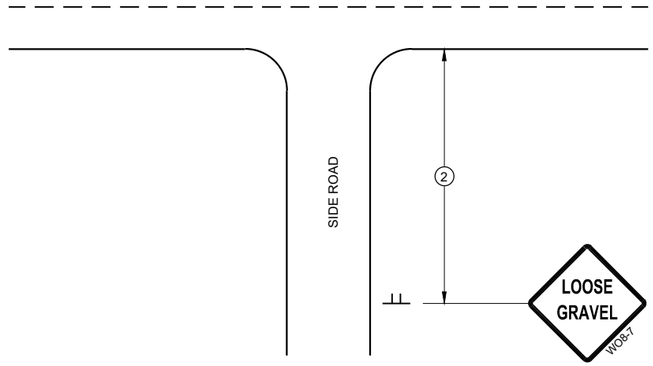
(2) PLACE SIGN 200' MIN. FROM INTERSECTION AND 200' MIN. AFTER ADVANCE WARNING SIGN SHOWN IN SDD 15C04.

(3) ADD WO8-1 OR WO8-2 SIGN WHEN THE CONDITION IS PRESENT.

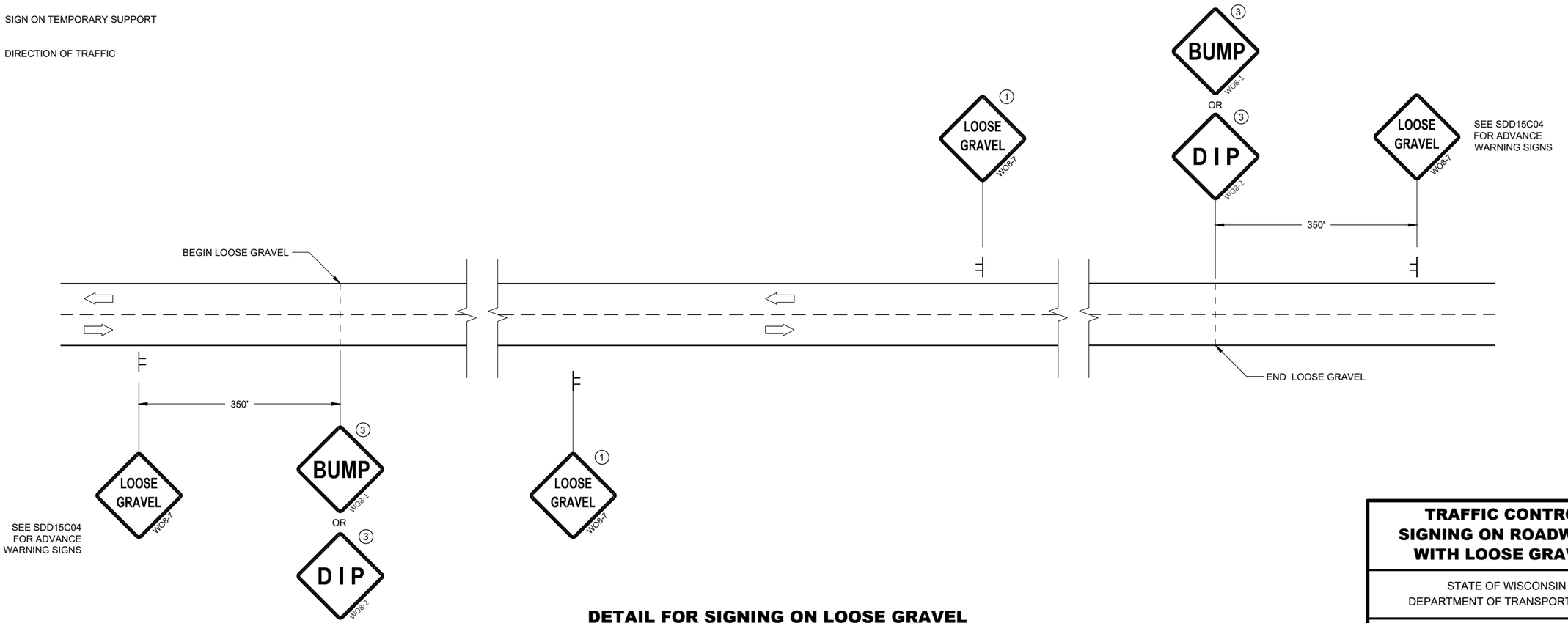
LEGEND

SIGN ON TEMPORARY SUPPORT

DIRECTION OF TRAFFIC



TYPICAL SIDE ROAD APPROACH SIGN DETAIL



DETAIL FOR SIGNING ON LOOSE GRAVEL OR CHIP SEALED SURFACES

TRAFFIC CONTROL SIGNING ON ROADWAYS WITH LOOSE GRAVEL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15D45 - 03

LEGEND

V1 WORK VEHICLE

V2 SHADOW VEHICLE

TRUCK MOUNTED ATTENUATOR (TMA)

FLASHING ARROW PANEL (CAUTION)

WORK AREA

DIRECTION OF TRAFFIC

POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.

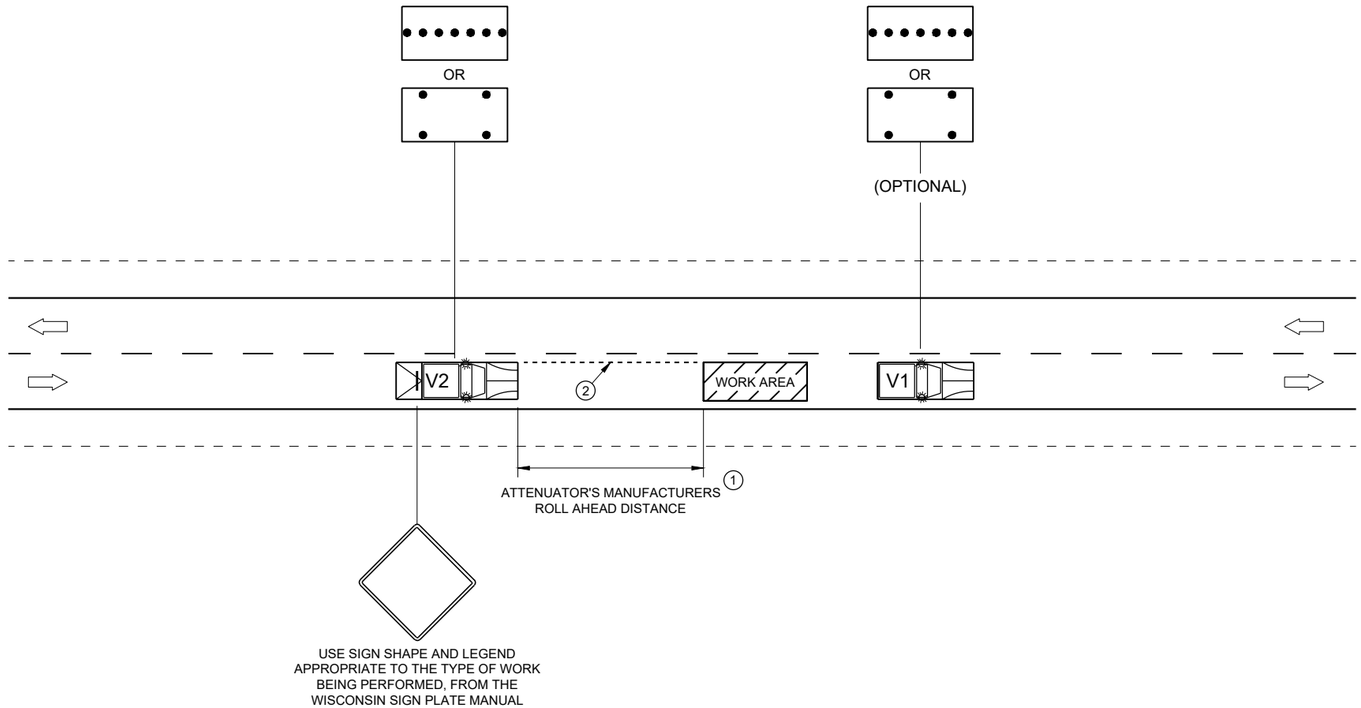
ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

(1) DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

(2) ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.



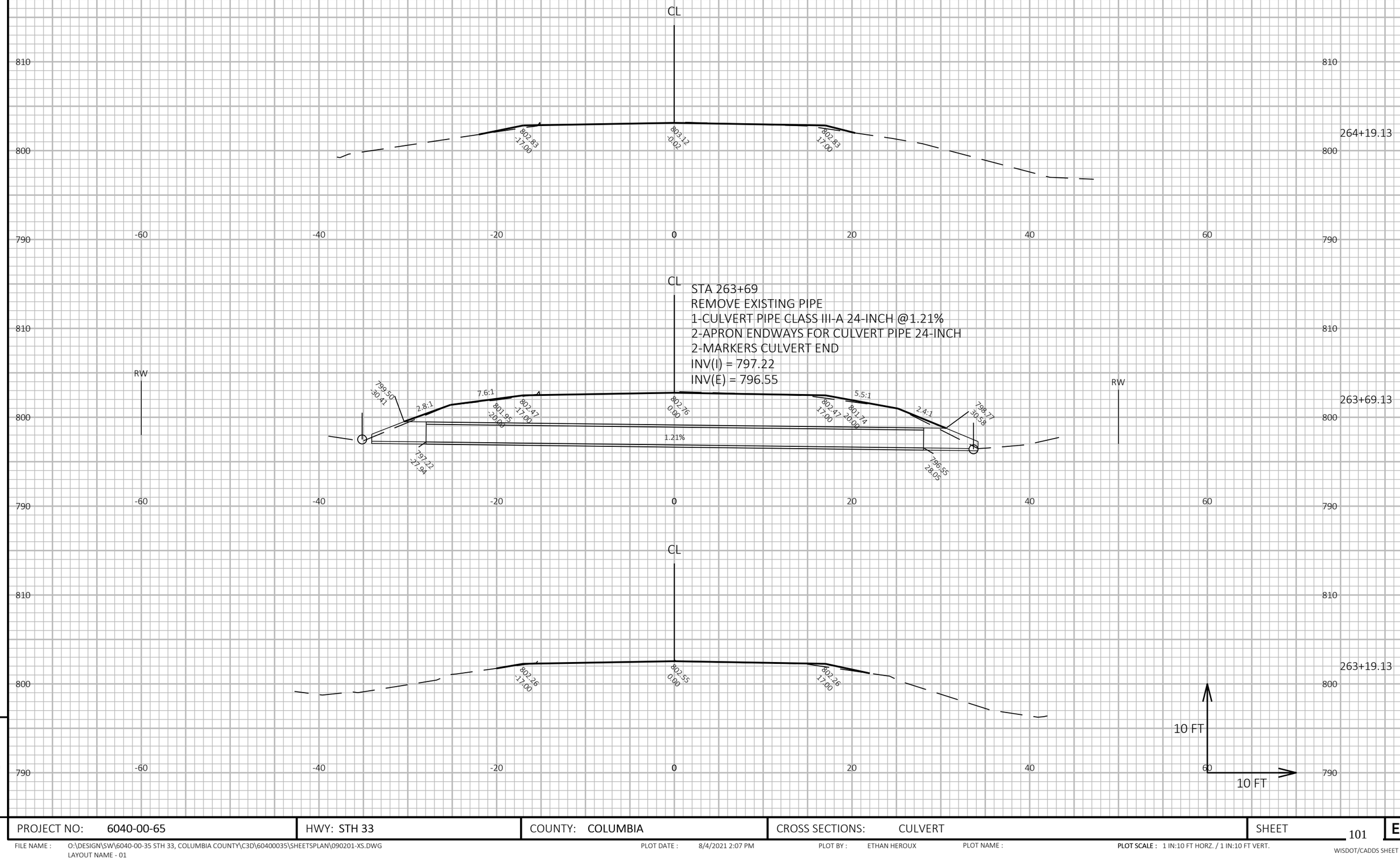
TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 — DATE
/S/ Andrew Heidtke — STATEWIDE WORK ZONE T SAFETY ENGINEER
FHWA

6

SDD 15D51 - 01

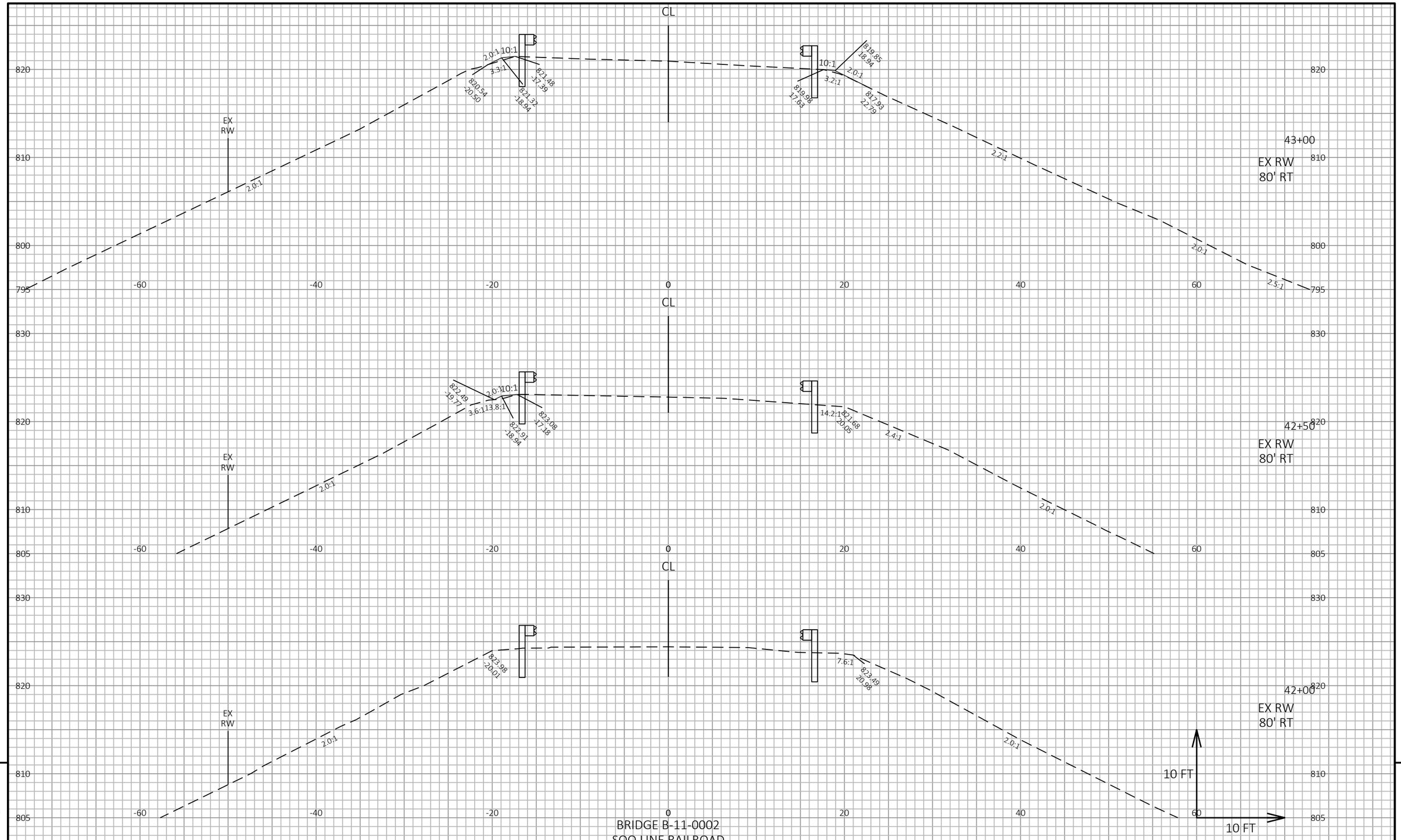


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: CULVERT	SHEET 101	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 01

PLOT DATE : 8/4/2021 2:07 PM PLOT BY : ETHAN HEROUX PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

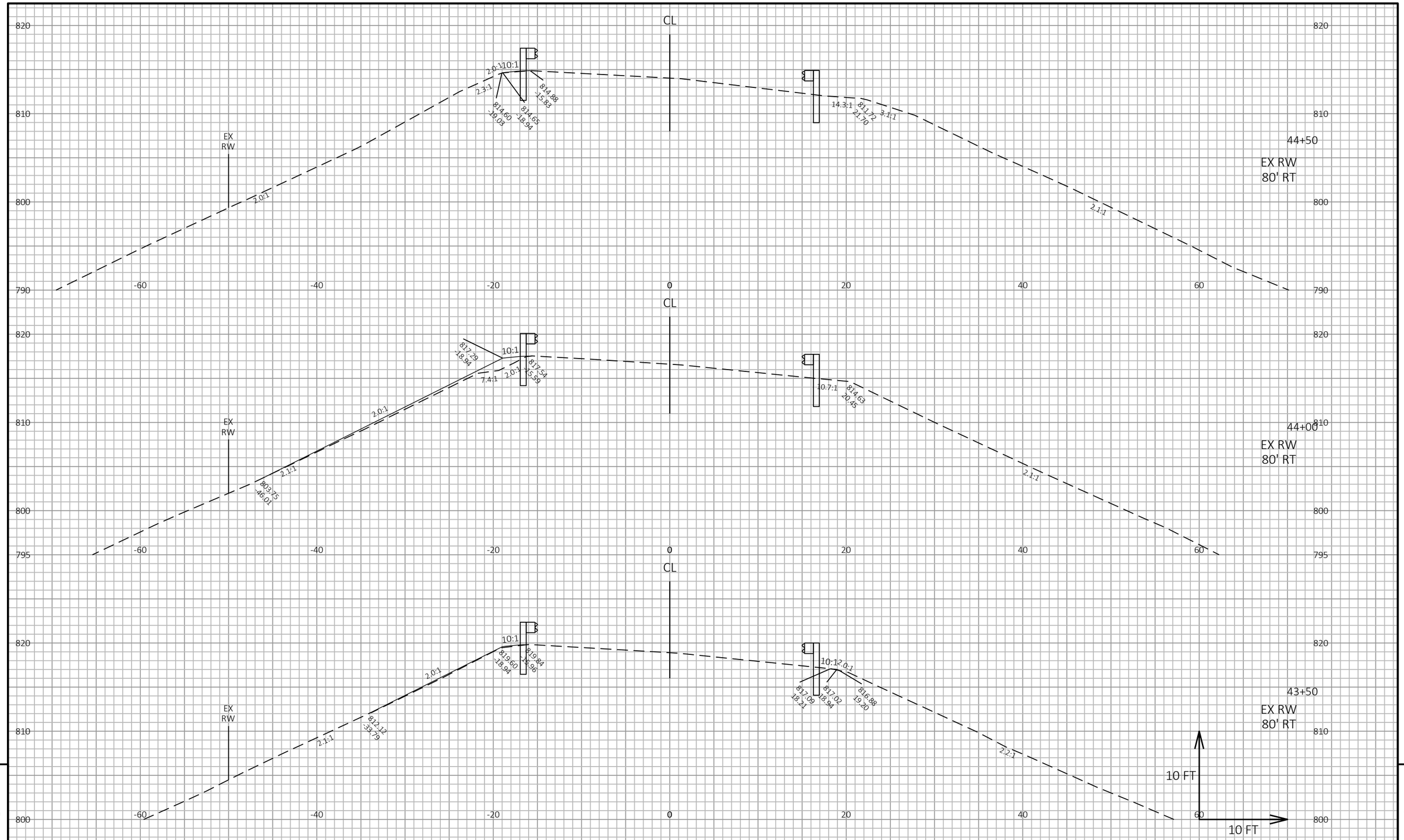


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 102	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 01

PLOT DATE : 8/9/2021 8:23 AM PLOT BY : ETHAN HEROUX PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

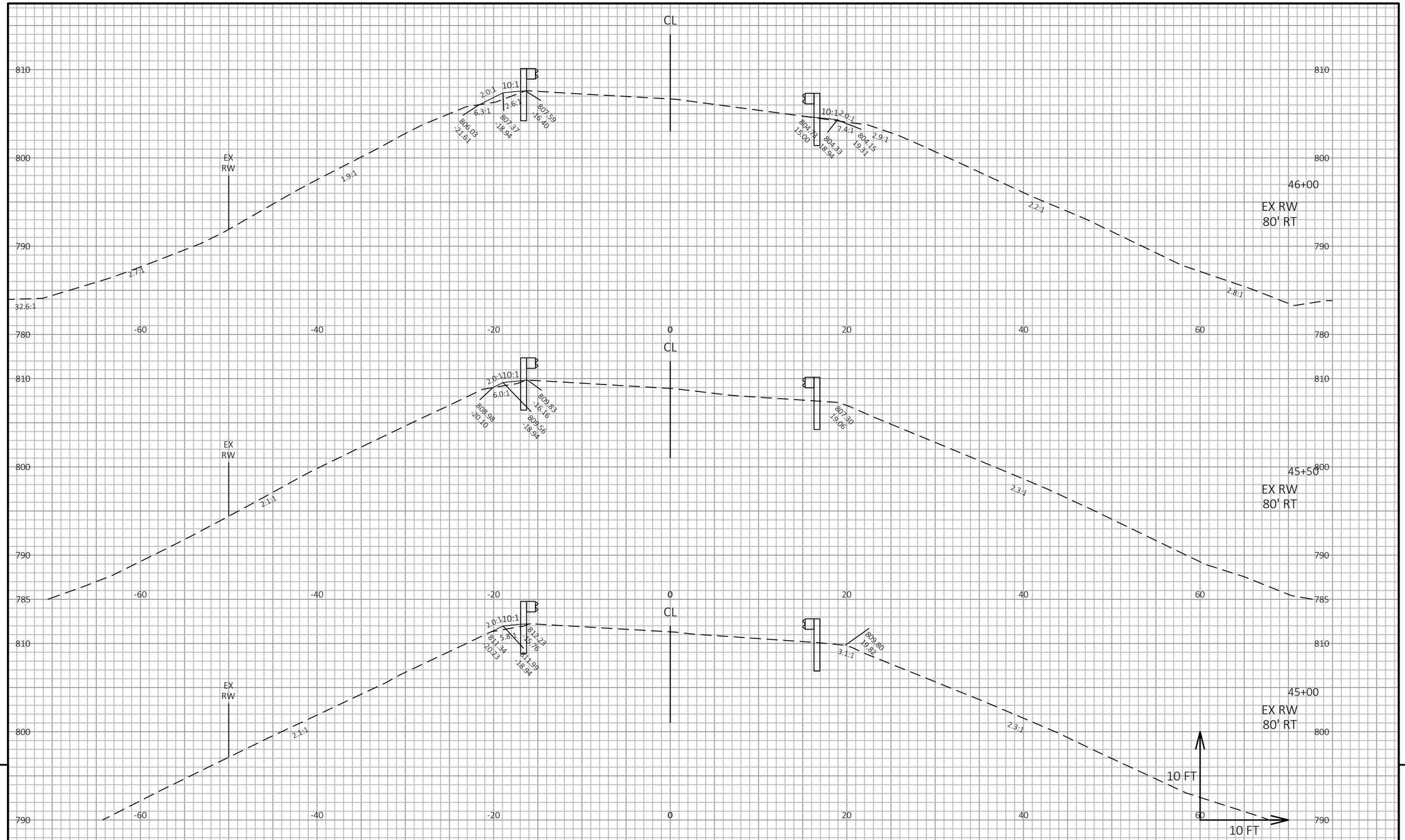


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 103	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 02

PLOT DATE : 8/9/2021 8:23 AM PLOT BY : ETHAN HEROUX PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 104	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 03

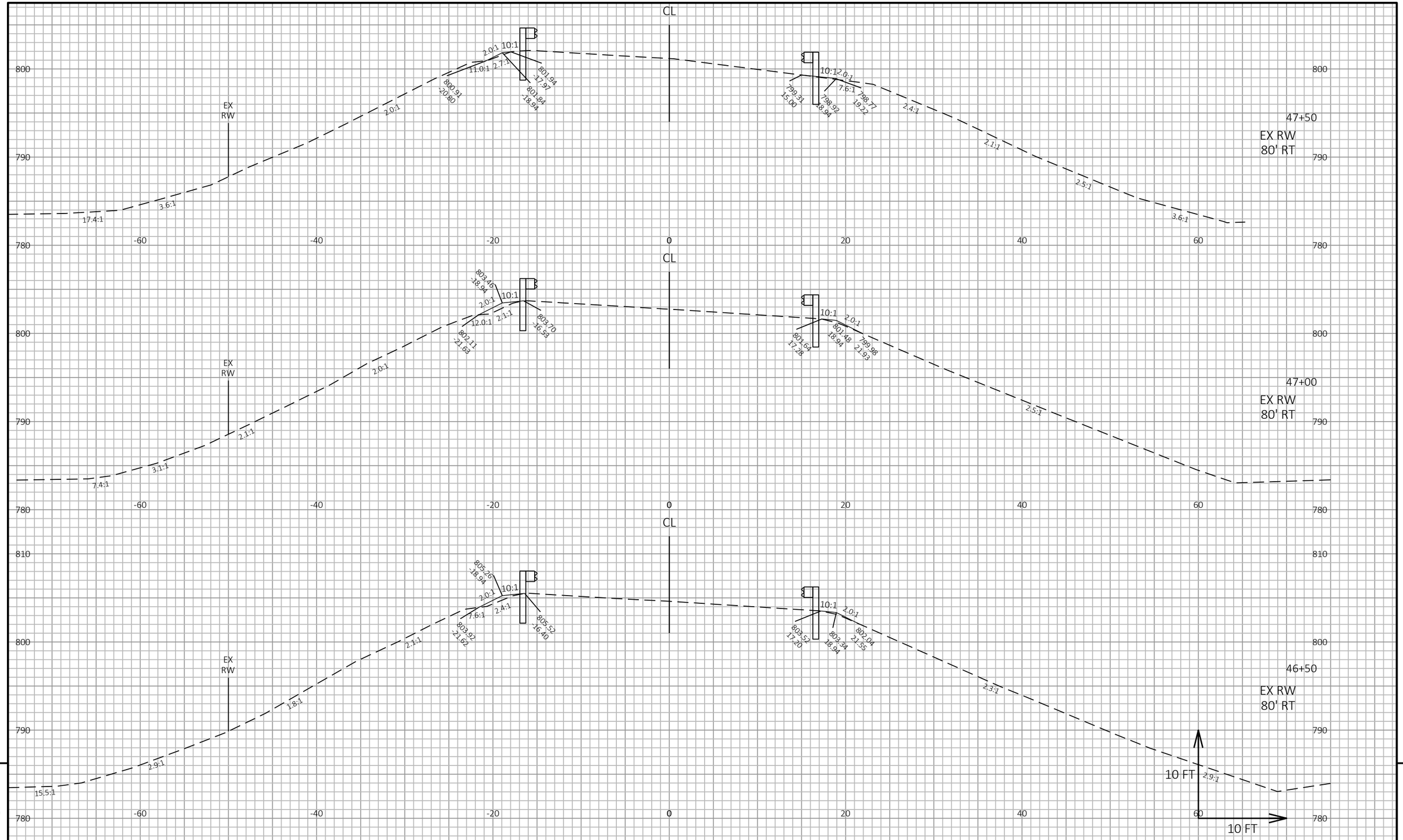
PLOT DATE : 8/9/2021 8:23 AM

PLOT BY : ETHAN HEROUX

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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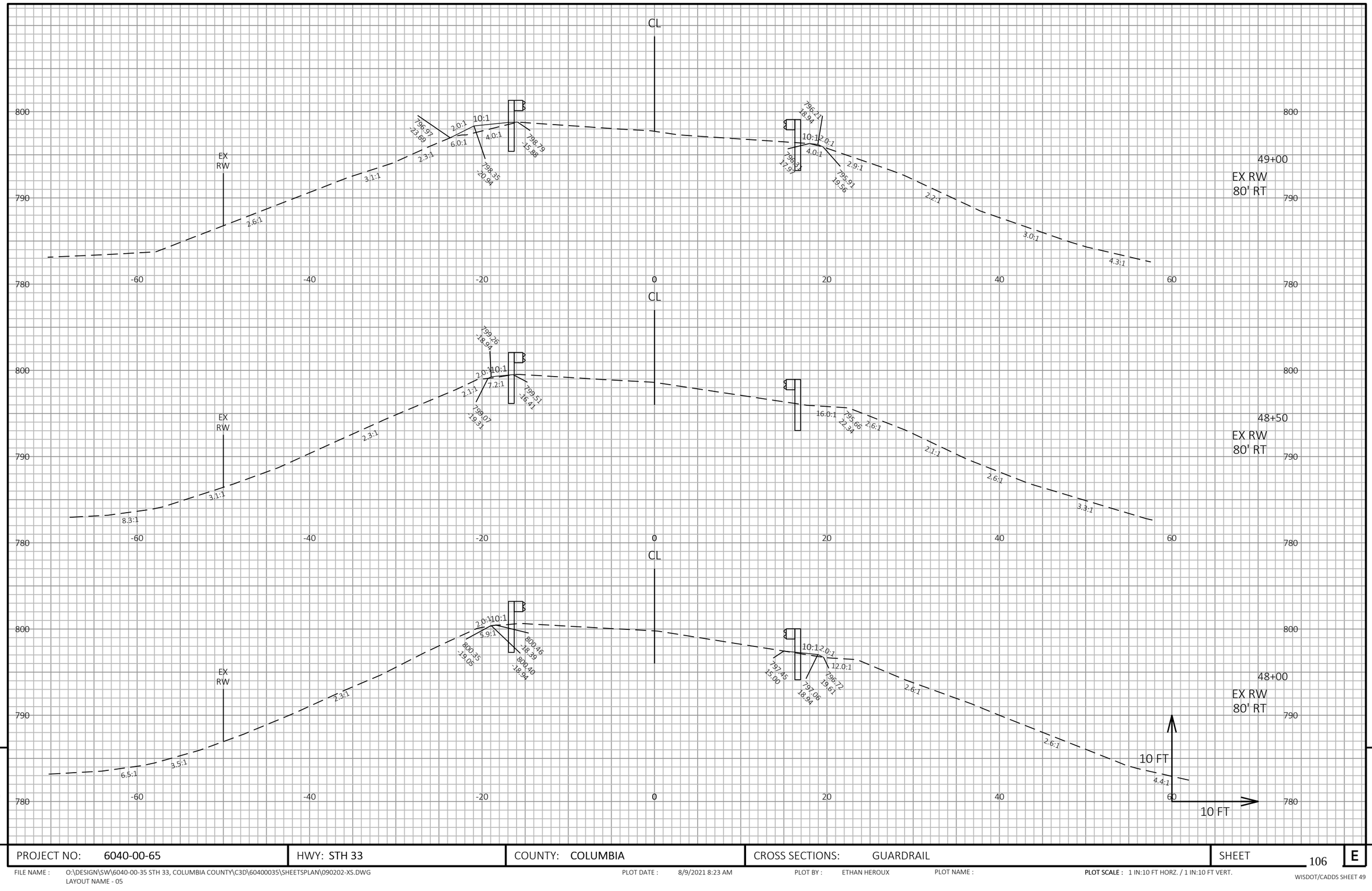
PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 105	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 04

PLOT DATE : 8/9/2021 8:23 AM PLOT BY : ETHAN HEROUX PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

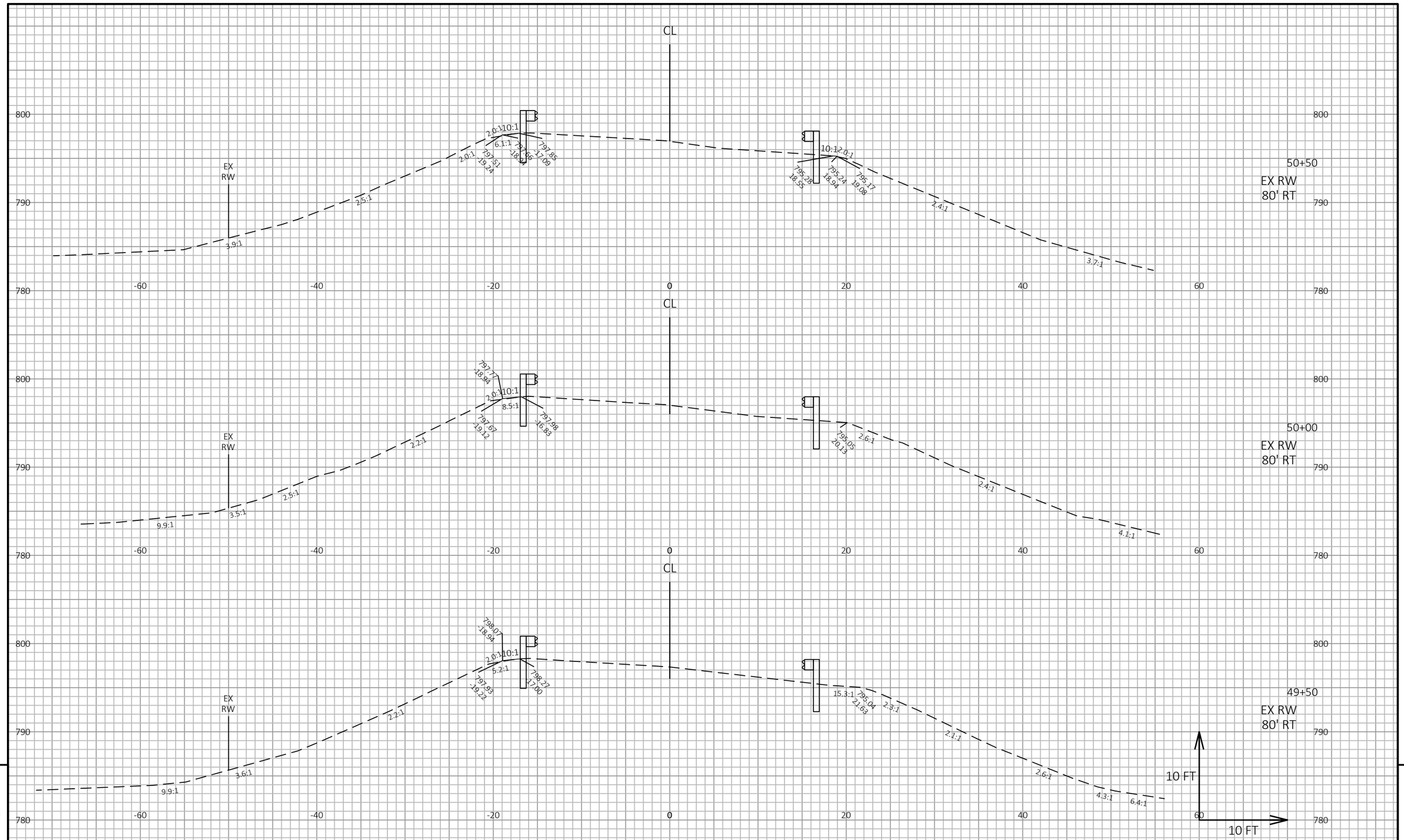


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 106 E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 05

PLOT DATE : 8/9/2021 8:23 AM PLOT BY : ETHAN HEROUX PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

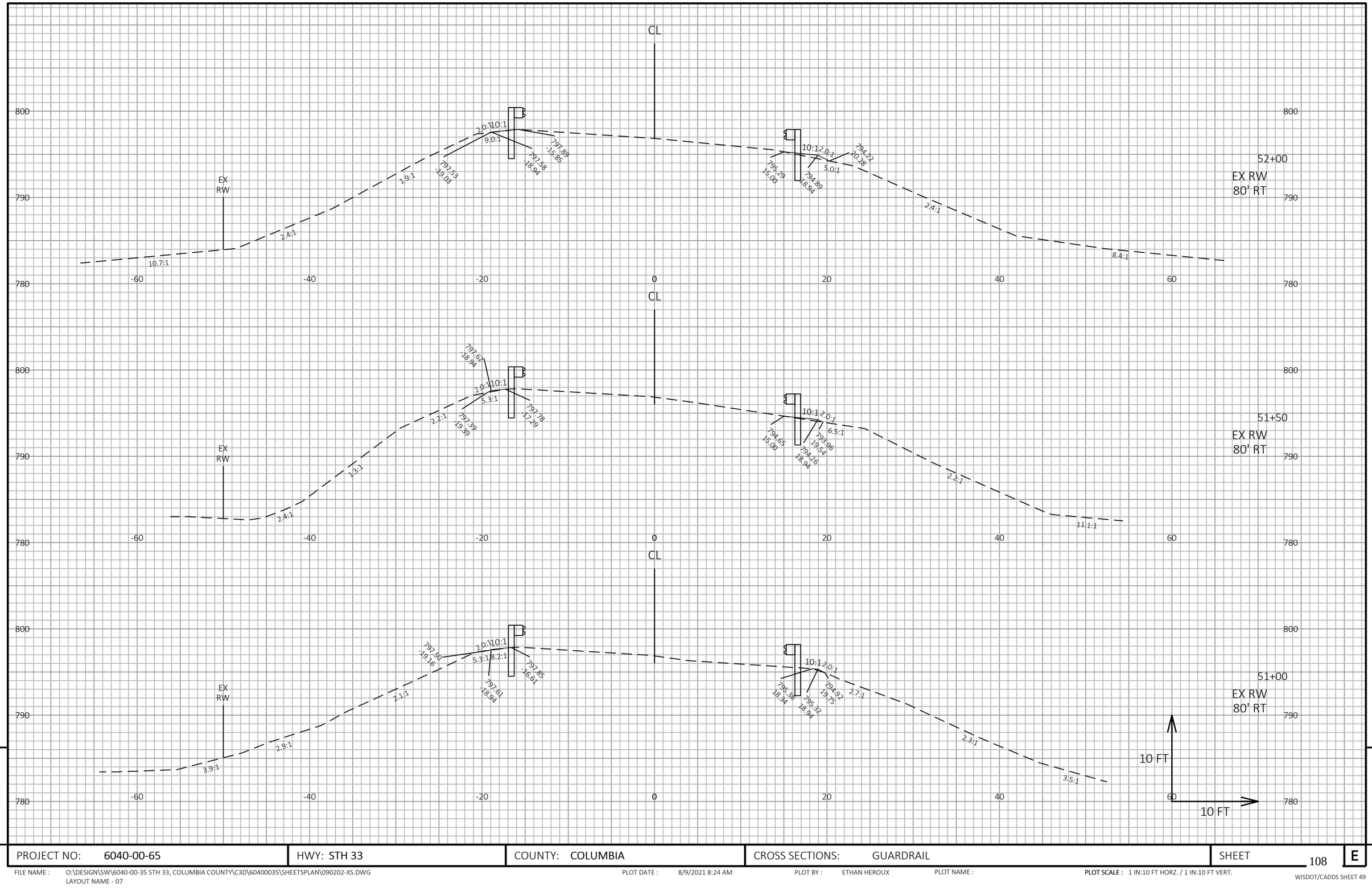


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 107	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 06

PLOT DATE : 8/9/2021 8:23 AM PLOT BY : ETHAN HEROUX PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

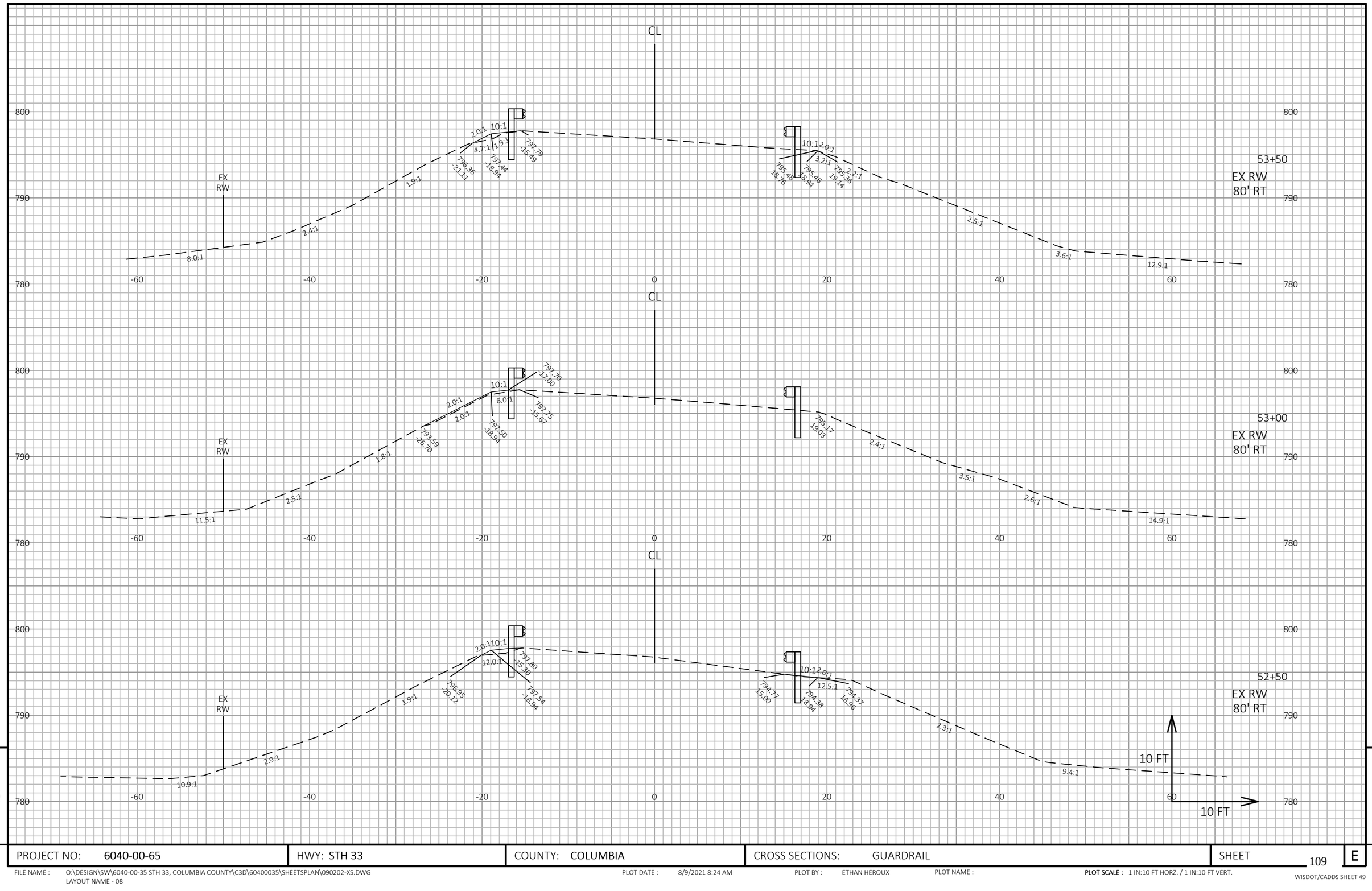


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 108	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 07

PLOT DATE : 8/9/2021 8:24 AM PLOT BY : ETHAN HEROUX PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 109	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 08

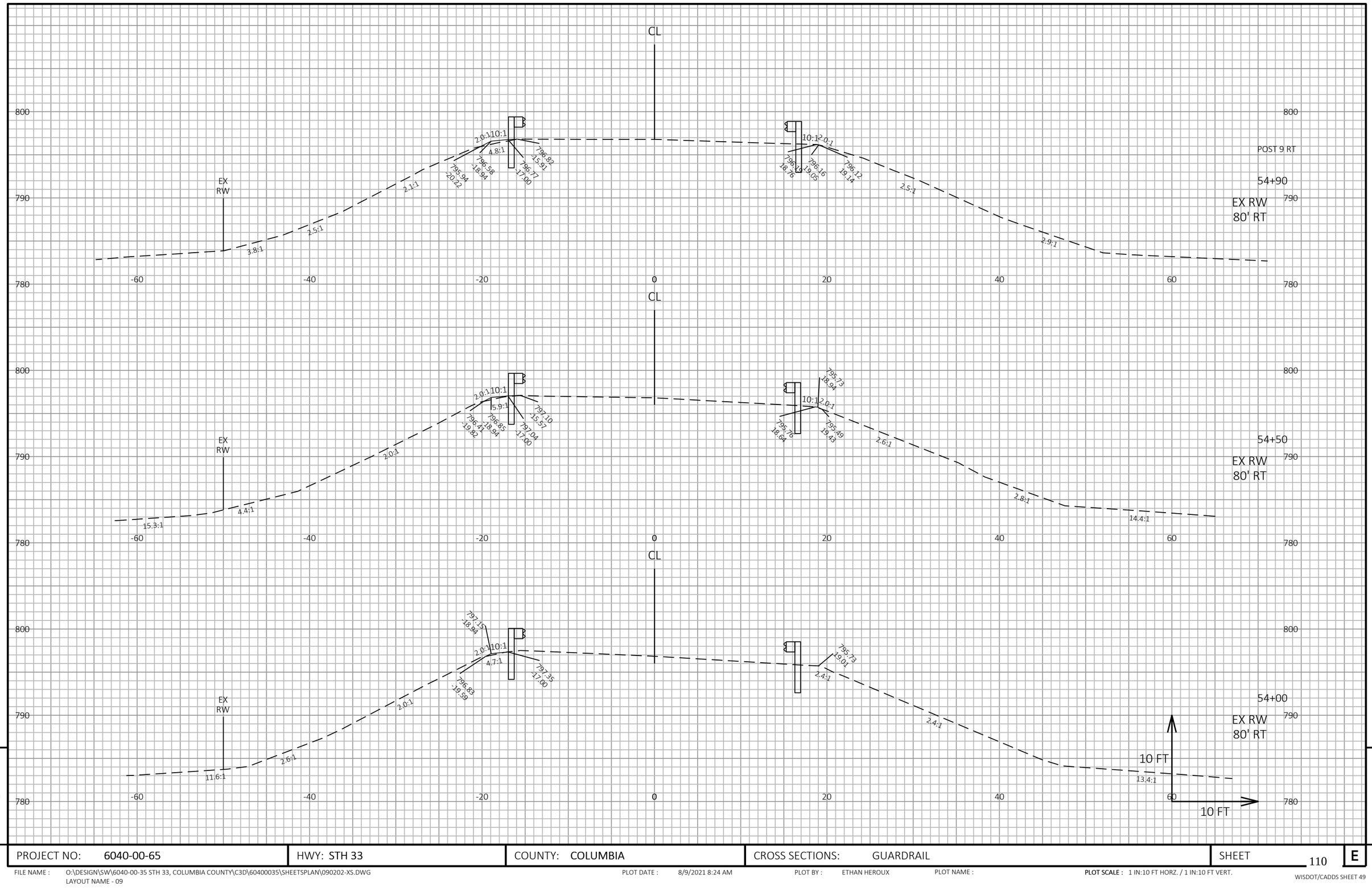
PLOT DATE : 8/9/2021 8:24 AM

PLOT BY : ETHAN HEROUX

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

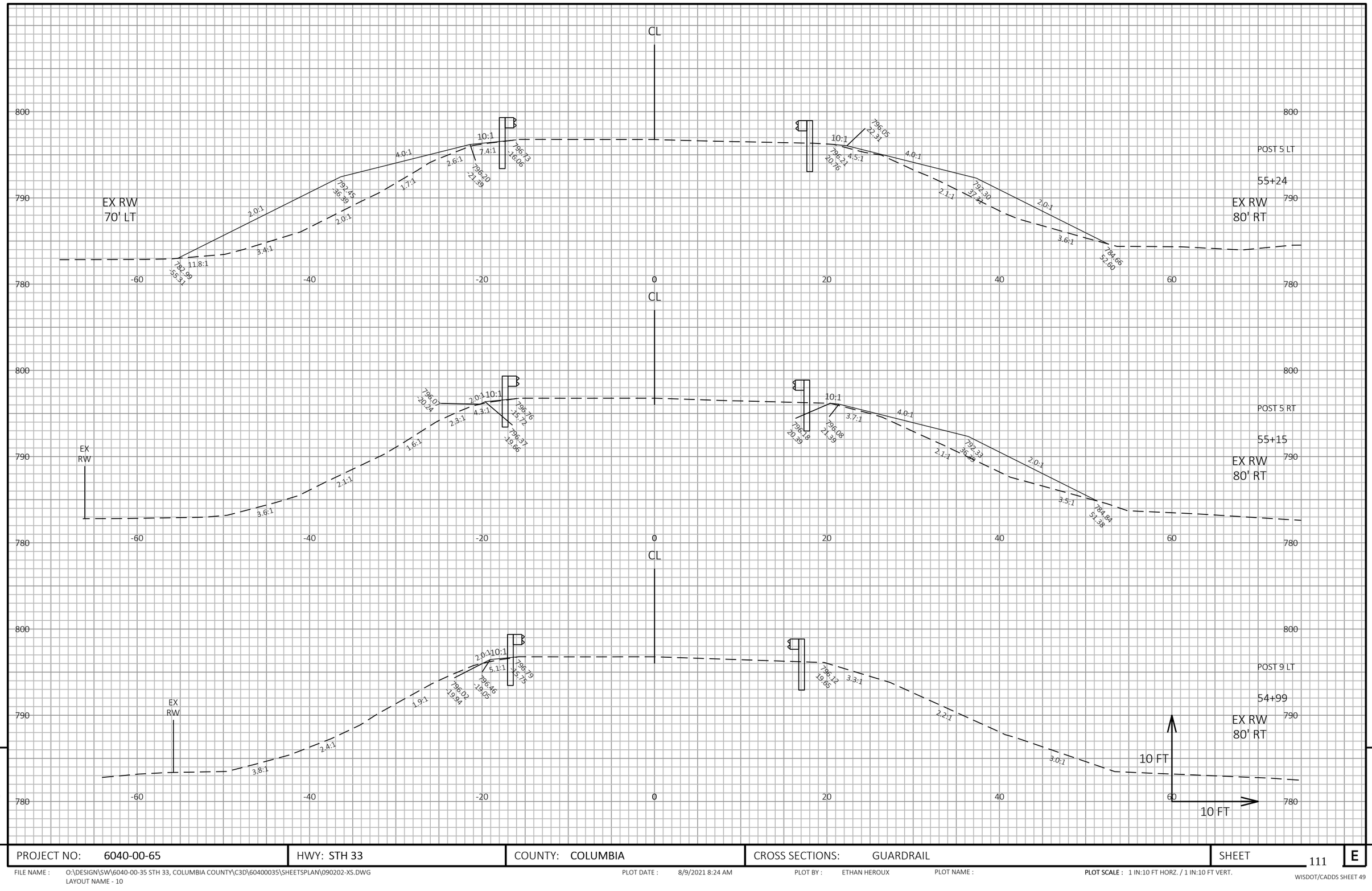


PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 110	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 09

PLOT DATE : 8/9/2021 8:24 AM PLOT BY : ETHAN HEROUX PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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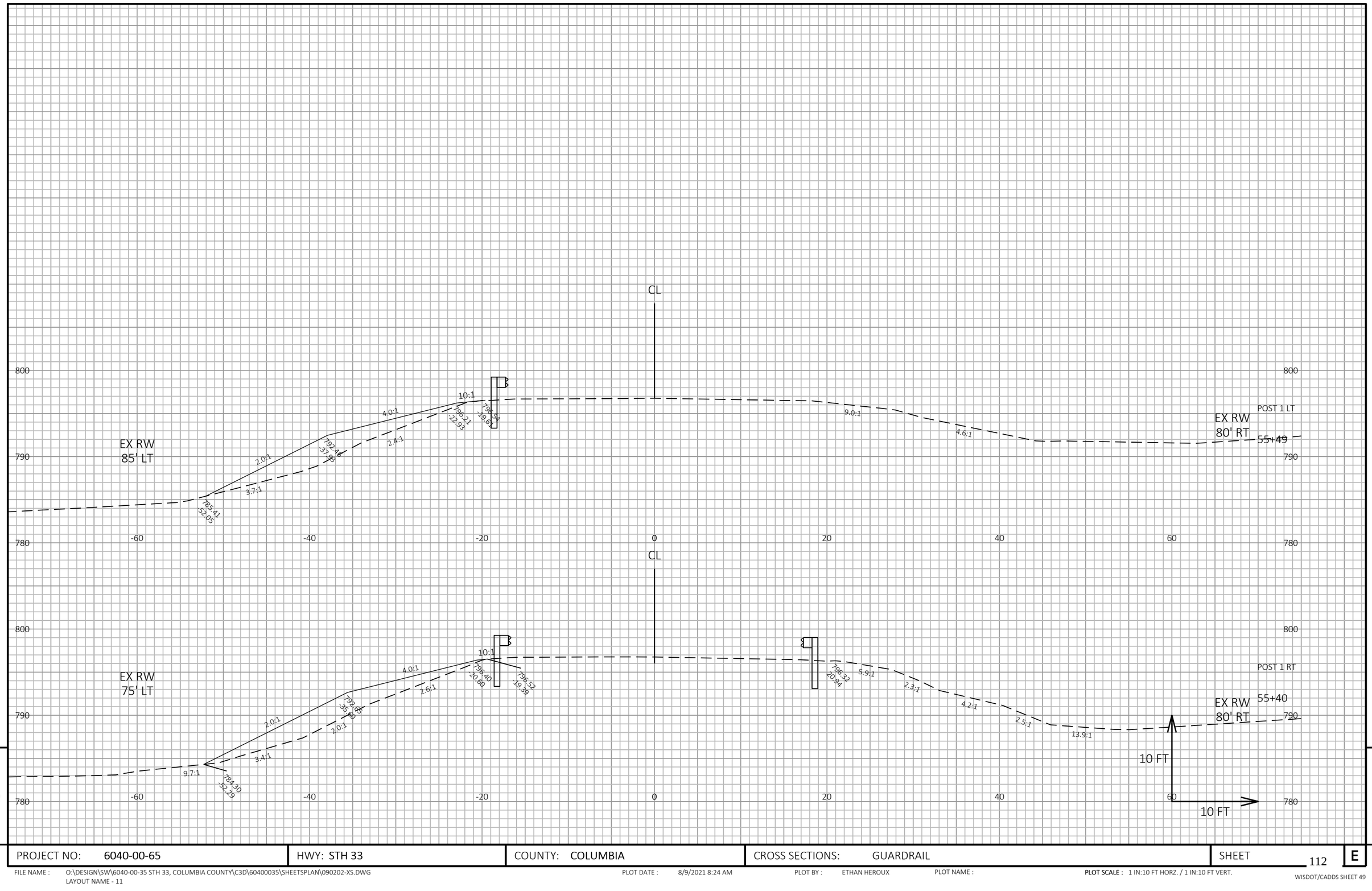
PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 111	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 10

PLOT DATE : 8/9/2021 8:24 AM PLOT BY : ETHAN HEROUX PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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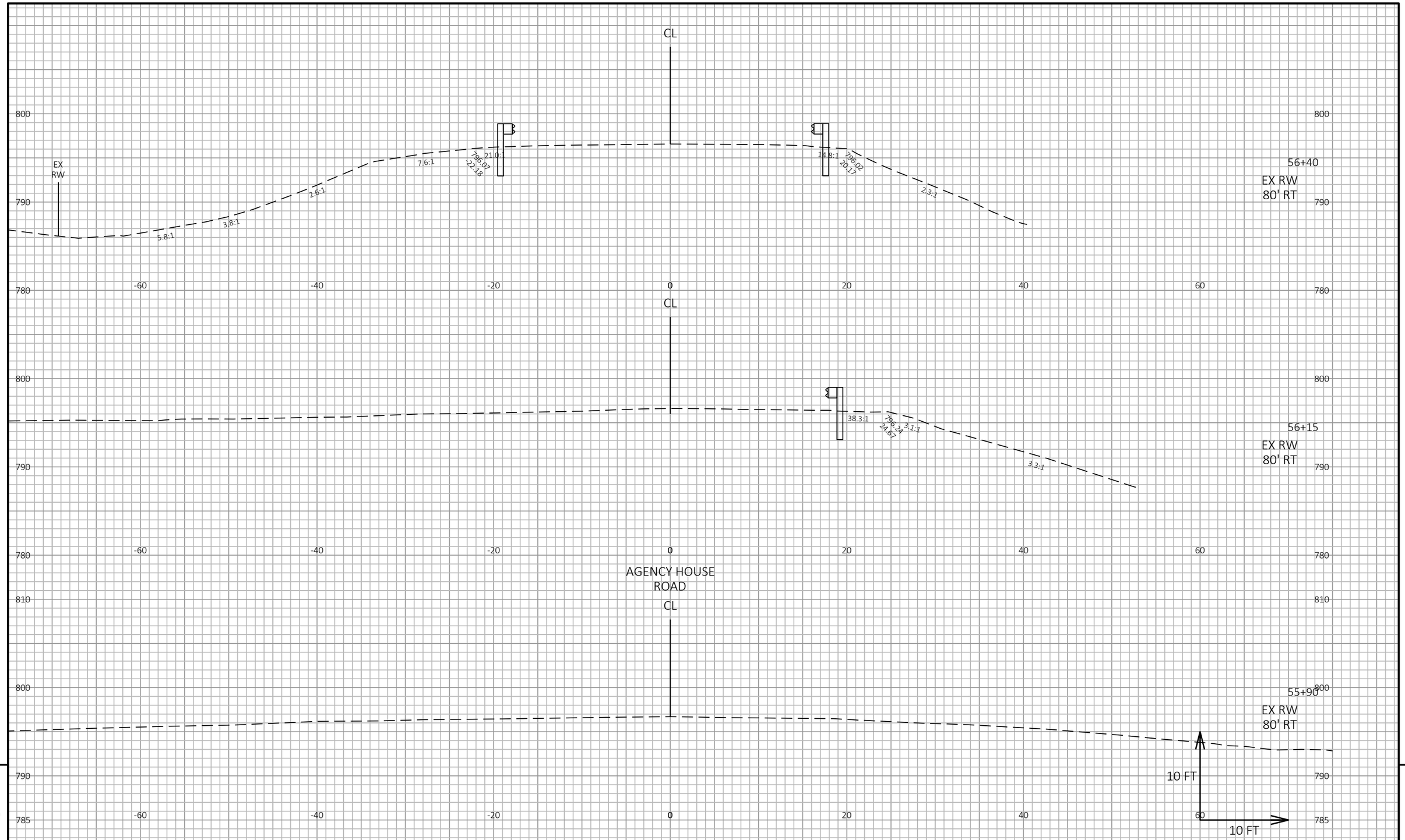
9

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 112	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 11

PLOT DATE : 8/9/2021 8:24 AM PLOT BY : ETHAN HEROUX PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



9

9

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 113	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 12

PLOT DATE : 8/9/2021 8:24 AM PLOT BY : ETHAN HEROUX PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

BRIDGE B-11-0003
PORTAGE CANAL

CL

800
790
780

EX RW

10:1
4.7:1
2.5:1
1.7:1
2.4:1
4.2:1
795.74
19.94
796.13
16.00
784.94
46.91

-60 -40 -20 0 20 40 60

57+00
EX RW
80' RT

CL

795.27
21.04
2.5:1
10:1
2.9:1
9.2:1
795.71
19.94
796.10
16.00

56+75
EX RW
80' RT

CL

795.81
19.94
2.5:1
10:1
9.1:1
796.20
16.00
795.65
20.94
3.8:1
1.9:1
1.8:1
2.8:1
7.1:1

10:1
8.9:1
796.97
19.94
796.27
16.97
2.6:1
1.6:1
2.5:1
3.4:1
0.7:1
7.2:1
786.17
44.45

56+65
EX RW
80' RT

10 FT
10 FT

9

9

PROJECT NO: 6040-00-65	HWY: STH 33	COUNTY: COLUMBIA	CROSS SECTIONS: GUARDRAIL	SHEET 114	E

FILE NAME : O:\DESIGN\SW\6040-00-35 STH 33, COLUMBIA COUNTY\C3D\60400035\SHEETSPLAN\090202-XS.DWG
LAYOUT NAME - 13

PLOT DATE : 8/9/2021 8:24 AM PLOT BY : ETHAN HEROUX PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov