WKE October 2025

PROJECT ID: 2720-09-71

WITH: N/A

COUNTY: WAUKESHA

ORDER OF SHEETS

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

TOTAL SHEETS = 90

31

N

DESIGN DESIGNATION 2720-09-01

A.A.D.T.	2026	=	3000
A.A.D.T.	2046	=	3300
D.H.V.		=	___
D.D.		=	50/50
T.		=	10.0%
DESIGN SPEED		=	30 MPH
ESALS		=	730,000

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'E)
- 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

V MENOMONEE FALLS, CAMPBELL DR

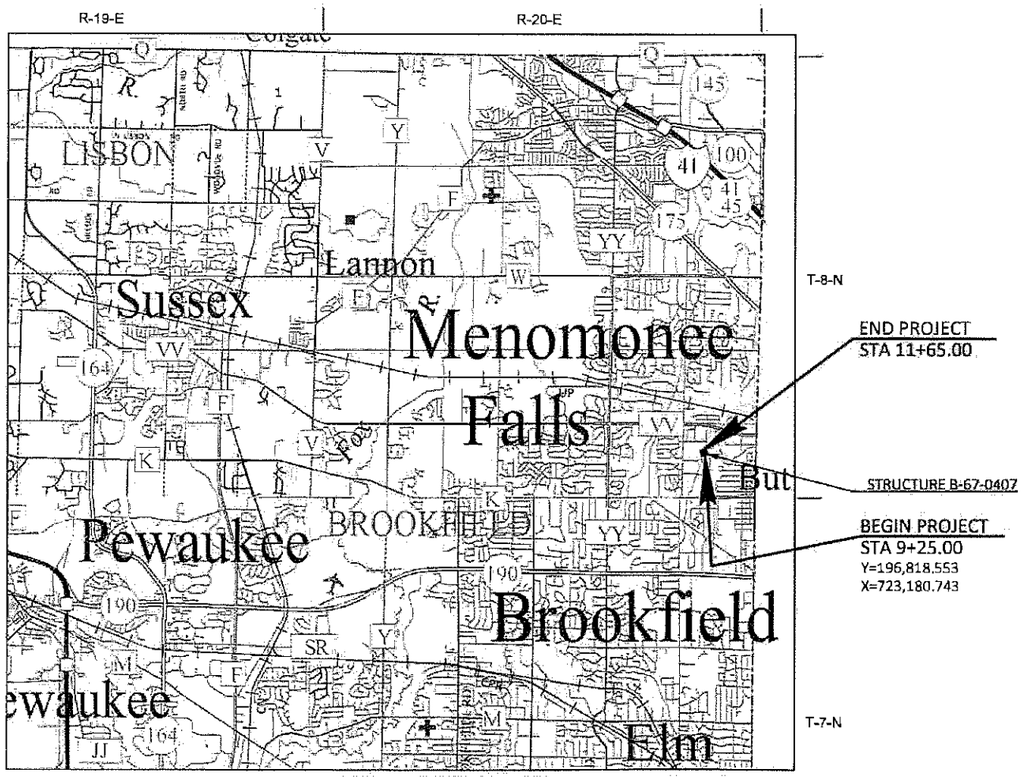
BUTLER DITCH BRIDGE P67-0775

LOCAL STREET

WAUKESHA COUNTY

STATE PROJECT NUMBER
2720-09-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2720-09-71	WISC 2026065	1



LAYOUT

SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 0.045 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), WAUKESHA 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.

ACCEPTED FOR

VILLAGE OF MENOMONEE FALLS

Date 8/27/25 (Signature and Title of Official)

ORIGINAL PLANS PREPARED BY

SEH Building a Better World for All of Us™

Short Elliott Hendrickson Inc.
10 North Bridge Street
Chippewa Falls, WI 54729-2550
715.720.6200 main | 888.908.8166 fax
800.472.5881 toll free | www.sehinc.com

WISCONSIN
SAVANNAH STEHN
45539-6
MOUNT HOREB
WISCONSIN
PROFESSIONAL ENGINEER

9-2-25 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SEH
Designer	SEH
Project Manager	JOE JELACIC
Regional Examiner	
Regional Supervisor	AMY TAETSCH

APPROVED FOR THE DEPARTMENT

DATE: 9/2/25 *Joseph Jelacic* (Signature)

E

FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\CSD CAMPBELL DR\SHEETS\SEC 01 TITLE\010101-TI (2720-09-01 CAMPBELL DR - BRIDGE OVER BUTLER DITCH).DWGDT DATE : 8/19/2025 11:34 PM PLOT BY : SEH PLOT NAME :

STANDARD ABBREVIATIONS

ABUT	ABUTMENT
AC	ACRE
AGG	AGGREGATE
AECPRC	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE
AECPCS	APRON ENDWALL FOR CULVERT PIPE CORRUGATED STEEL
ASPH	ASPHALTIC
AVG	AVERAGE
ADT	AVERAGE DAILY TRAFFIC
BF	BACK FACE
BM	BENCH MARK
BR	BRIDGE
CE	COMMERCIAL ENTRANCE
C/L	CENTER LINE
Δ	CENTRAL ANGLE OR DELTA
COB	CENTER OF BARRIER
CONC	CONCRETE
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
CR	CREEK
CY	CUBIC YARD
C&G	CURB AND GUTTER
D	DEGREE OF CURVE
DHV	DESIGN HOUR VOLUME
DISCH	DISCHARGE
DG	DITCH GRADE
DWY	DRIVEWAY
X	EAST GRID COORDINATE
EAT	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
EOR	END POINT OF RADIUS
EL	ELEVATION
ENT	ENTRANCE
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
EXIST	EXISTING
FC	FACE OF CURB
FF	FACE TO FACE
FERT	FERTILIZE
FE	FIELD ENTRANCE
FL	FLOW LINE
FO	FIBER OPTIC
CWT	HUNDREDWEIGHT
HYD	HYDRANT
ID	INSIDE DIAMETER
INV	INVERT
IP	IRON PIPE ON PIN
LHF	LEFT-HAND FORWARD
L	LENGTH OF CURVE
LF	LINEAR FOOT
LC	LONG CHORD OF CURVE
LS	LUMP SUM
MH	MANHOLE
MOR	MID POINT OF RADIUS
NC	NORMAL CROWN
NO	NUMBER
OBLIT	OBLITERATE
PAVT	PAVEMENT
PE	PRIVATE ENTRANCE
PVRC	POINT OF VERTICAL REVERSE CURVE
QOR	QUARTER POINT OF RADIUS
R	RADIUS
REQ'D	REQUIRED
RES	RESIDENCE OR RESIDENTIAL
RHF	RIGHT-HAND FORWARD
R/W	RIGHT-OF-WAY
R	RIVER
RDWY	ROADWAY
R/L	REFERENCE LINE
SALV	SALVAGED
SAN	SANITARY SEWER
SF	SQUARE FEET
SY	SQUARE YARD
SDD	STANDARD DETAIL DRAWINGS
STA	STATION
SS	STORM SEWER
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
SE	SUPERELEVATION RATE
TC	TOP OF CURB
T OR TN	TOWN
T	TRUCKS (PERCENT OF)
TYP	TYPICAL
VAR	VARIABLE
VC	VERTICAL CURVE
Y	NORTH GRID COORDINATE
YD	YARD

DNR AREA LIAISON:

DNR SOUTHEAST REGION HEADQUARTERS
141 NW BARSTOW ST.
WAUKESHA, WI 53188
TELEPHONE: 262.574.2141
ATTENTION: CRAIG WEBSTER
EMAIL: CRAIG.WEBSTER@WISCONSIN.GOV

WISDOT CONTACT:

WISCONSIN DEPT OF TRANSPORTATION
SOUTHEAST REGION
141 NW BARSTOW ST.
WAUKESHA, WI 53188
TELEPHONE: 262.548.6762
ATTENTION: JOSEPH JELACIC
EMAIL: JOSEPH.JELACIC@DOT.WI.GOV

DESIGN CONTACT:

SEH INC.
10 N BRIDGE ST.
CHIPPEWA FALLS, WI 54729
TELEPHONE: 715.720.6291
ATTENTION: TARA KRISTA
EMAIL: TKRISTA@SEHINC.COM

VILLAGE CONTACT:

VILLAGE OF MENOMONEE FALLS
W156N8480 PILGRIM ROAD
MENOMONEE FALLS, WI 53051
TELEPHONE: 262.532.4414
ATTENTION: JONATHAN BRETL
EMAIL: JBRETL@MENOMONEE-FALLS.ORG

UTILITY CONTACT LIST:

AT&T - COMMUNICATION
ATTENTION: TYLER FLECK
220 WISCONSIN AVE
WAUKESHA, WI 53186
TELEPHONE: 424.248.6803
EMAIL: TF8394@ATT.COM

EVERSTREAM - COMMUNICATION
ATTENTION: ABIGAIL STEIN
324 E. WISCONSIN AVE, SUITE 730
MILWAUKEE, WI 53202
TELEPHONE: 414.409.9316
EMAIL: ASTEIN@EVERSTREAM.NET

SPECTRUM - COMMUNICATION
ATTENTION: JON TRAMMELL
1320 N DR MARTIN LUTHER KING JR DR
TELEPHONE: 262.420.0564
EMAIL: JON.TRAMMELL@CHARTER.COM

VERIZON - COMMUNICATION
ATTENTION: RANDY CICATELLO
15725 WEST RYERSON RD
NEW BERLIN, WI 53151
TELEPHONE: 262.232.1323
EMAIL: RANDY.CICATELLO@VERIZON.COM

VILLAGE OF MENOMONEE FALLS - WATER & SANITARY
W156 N8480 PILGRIM ROAD
MENOMONEE FALLS, WI 53051
ATTENTION: TOM DIMOFF
TELEPHONE: 262.523.4807
EMAIL: TDIMOFF@MENOMONEE-FALLS.ORG

WE ENERGIES - GAS
1830 S WEST AVE
WAUKESHA, WI 53189
ATTENTION: JEANETTE SCHULTZ
TELEPHONE: 262.365.6421
EMAIL: JEANETTE.SCHULTZ@WE-ENERGIES.COM

WE ENERGIES - ELECTRIC
1830 S WEST AVE
WAUKESHA, WI 53189
ATTENTION: ROB SHELL
TELEPHONE: 262.502.6831
EMAIL: ROB.SHELL@WE-ENERGIES.COM

GENERAL NOTES:

1. NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
3. THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.
4. CONCRETE COLLAR REQUIRED AT JOINTS BETWEEN EXISTING AND NEW CULVERT PIPE.
5. JOINT TIES WILL BE REQUIRED ON THE ENDWALL AND LAST 2 SECTIONS PER STD 520 AND 524 ON ALL CULVERT PIPES.
6. WETLANDS, WATERWAYS, AND OTHER ENVIRONMENTALLY SENSITIVE AREAS SHALL BE PROTECTED AT ALL TIMES. DO NOT STORE EQUIPMENT OR MATERIALS NEAR THESE SITES.
7. TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
8. ASPHALTIC AND CONCRETE SURFACES SHALL BE SAWCUT AT THE MATCH LINE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.
9. A CONVERSION FACTOR OF 2.0 TONS/CY IS USED TO ESTIMATE QUANTITIES FOR BASE AGGREGATE DENSE 1-1/4-INCH AND 2.1 TONS/CY FOR BASE AGGREGATE DENSE 3/4-INCH.
10. APPLY TACK COAT AT A RATE OF 0.05 GA/SY BETWEEN LAYERS OF HMA PAVEMENT.
11. HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.
12. THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN AND TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING OR PARKING LANE.

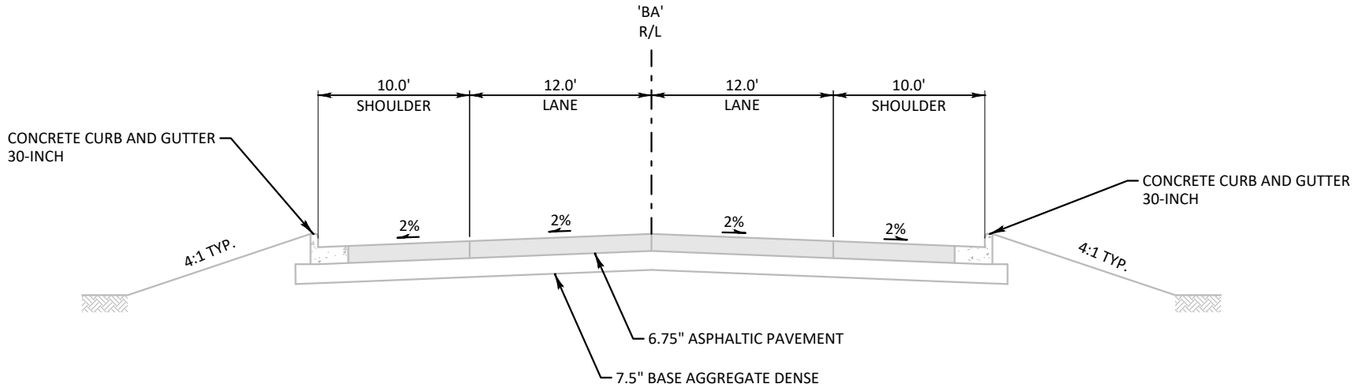
RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 0.8 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.5 ACRES

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

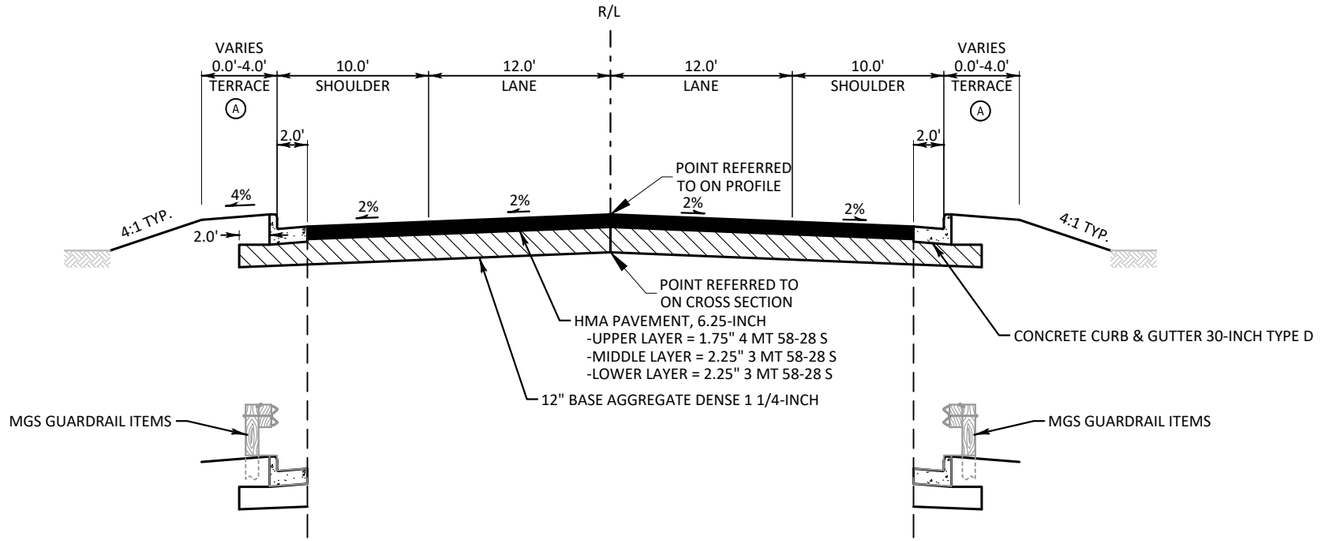
2



TYPICAL EXISTING SECTION

CAMPBELL DRIVE

STA 9+25 TO STA 11+65



TYPICAL FINISHED SECTION

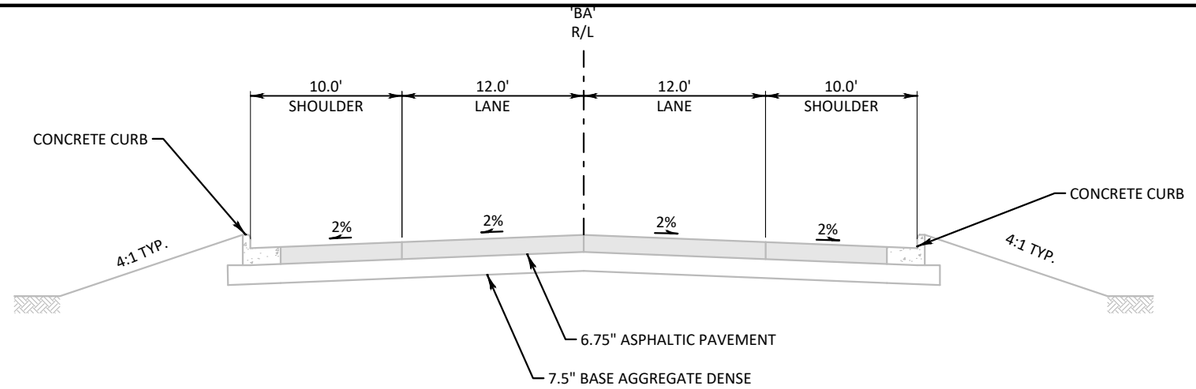
CAMPBELL DRIVE

STA 9+25 TO STA 11+65

NOTES:

Ⓐ SALVAGED TOPSOIL, SEED, FERTILIZER, MULCH & EROSION MAT

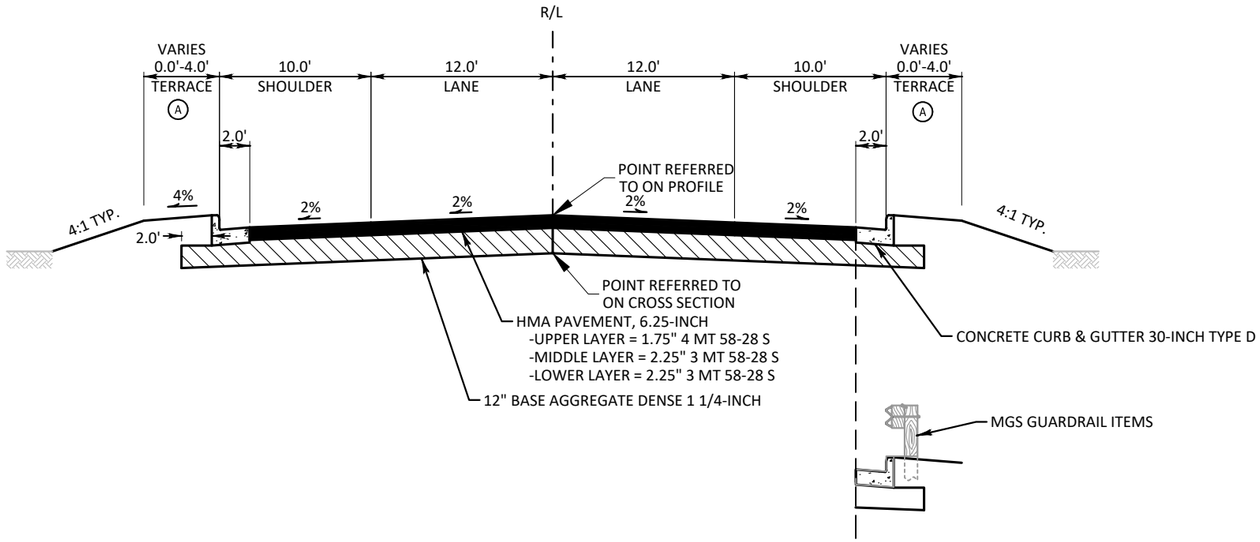
PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	TYPICAL SECTIONS	SHEET 3	E



TYPICAL EXISTING SECTION

CAMPBELL COURT

STA 3+75 TO STA 5+22



TYPICAL FINISHED SECTION

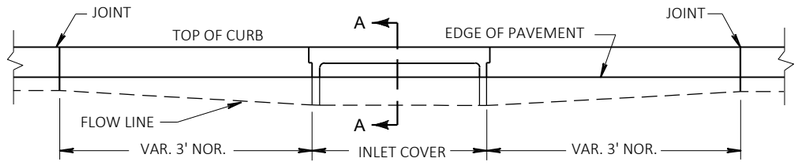
CAMPBELL COURT

STA 3+75 TO STA 5+22

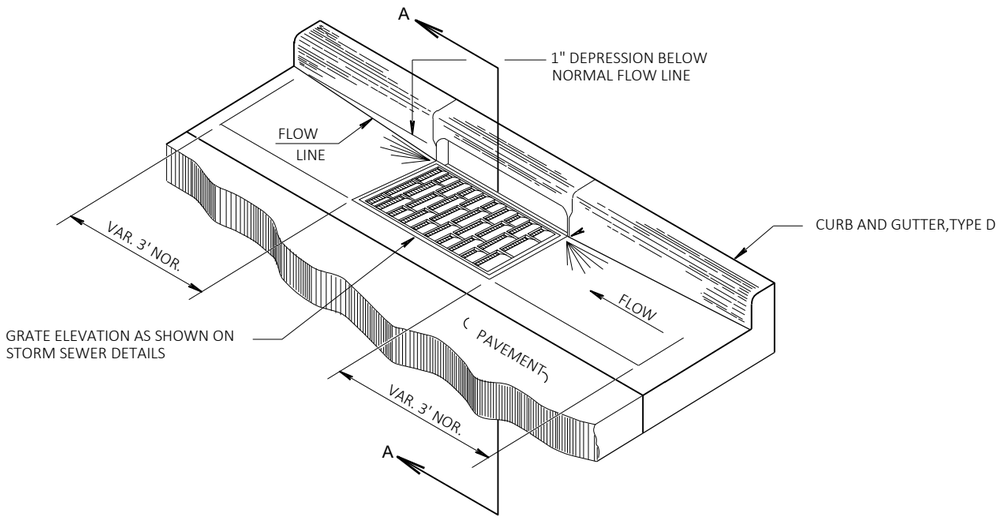
NOTES:

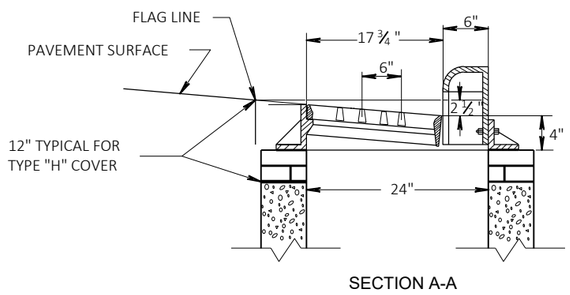
(A) SALVAGED TOPSOIL, SEED, FERTILIZER, MULCH & EROSION MAT

PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	TYPICAL SECTIONS	SHEET 4	E



ELEVATION

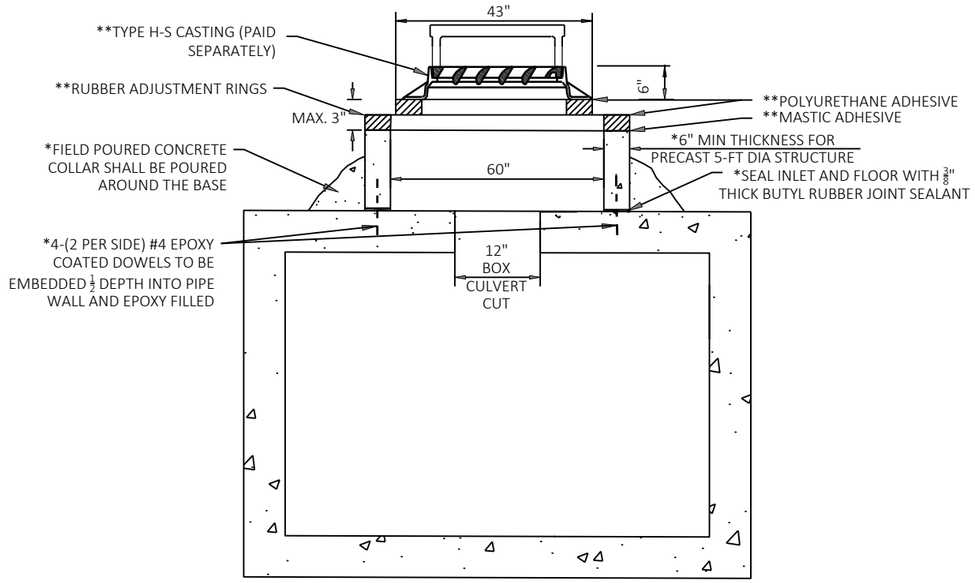




SECTION A-A

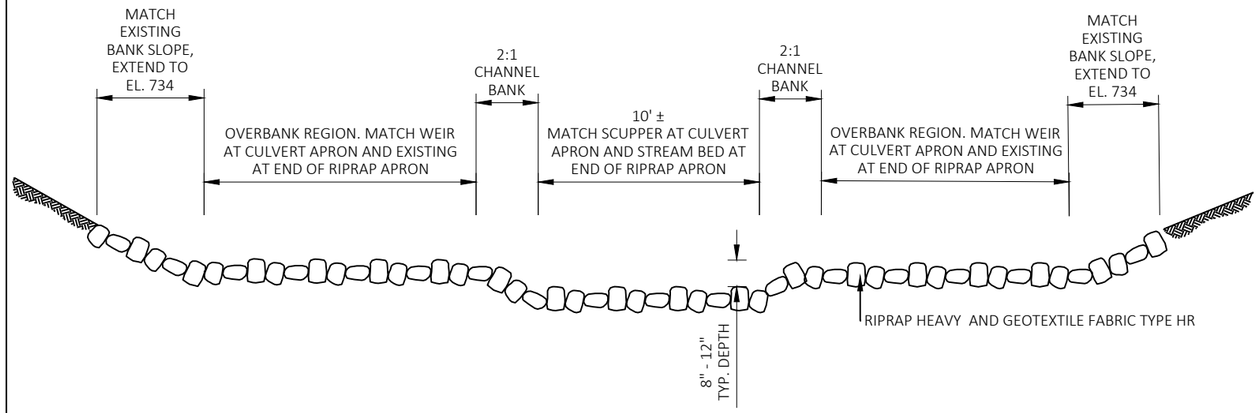
DETAIL OF CURB AND GUTTER AT INLETS

(TYPE 2x3-H INLET SHOWN)



SADDLE INLET

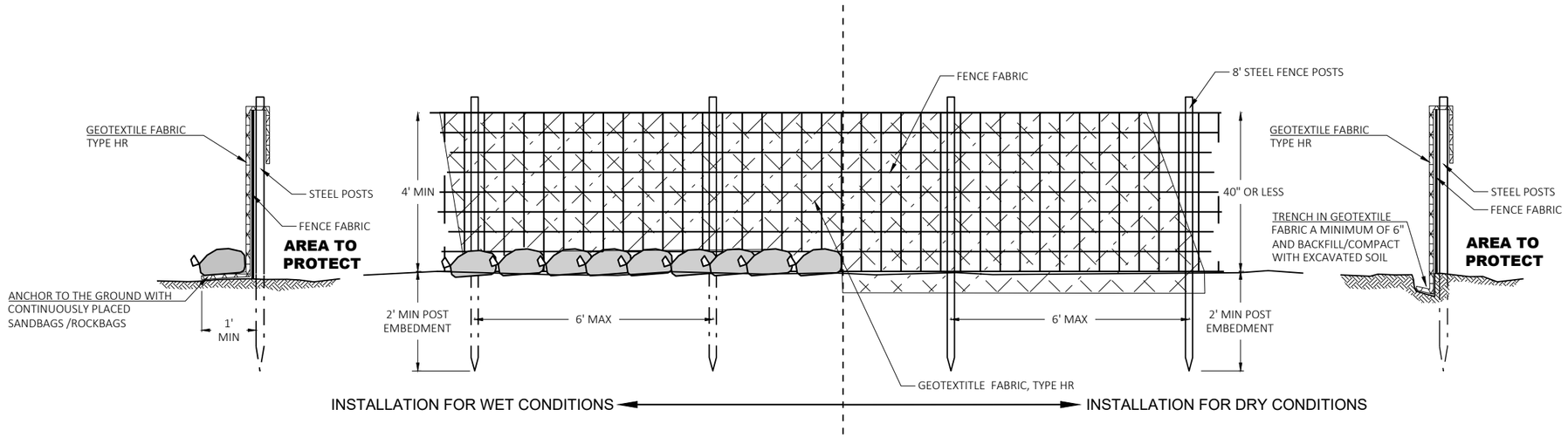
*INCIDENTAL TO SADDLE INLET BID ITEM
**INCIDENTAL TO TYPE H-S CASTING



TYPICAL SECTION SHAPING OF RIPRAP APRON

NOTE: WITHIN THE MIDDLE CHANNEL AND CHANNEL BANK AREA, BED LARGER STONE INTO THE STREAM BED AND USE HAND METHODS TO CHINK THE GAPS TO CREATE A COMPACTED, TIGHT, AND UNIFORM SURFACE THAT CONFORMS WITH THE SCUPPER CROSS SECTION GIVEN ON THE STRUCTURE PLANS WITH NO PROTRUDING STONE. RIPRAP IN THE OVERBANK AREA MAY BE PLACED BY CONVENTIONAL MACHINE METHODS.

2



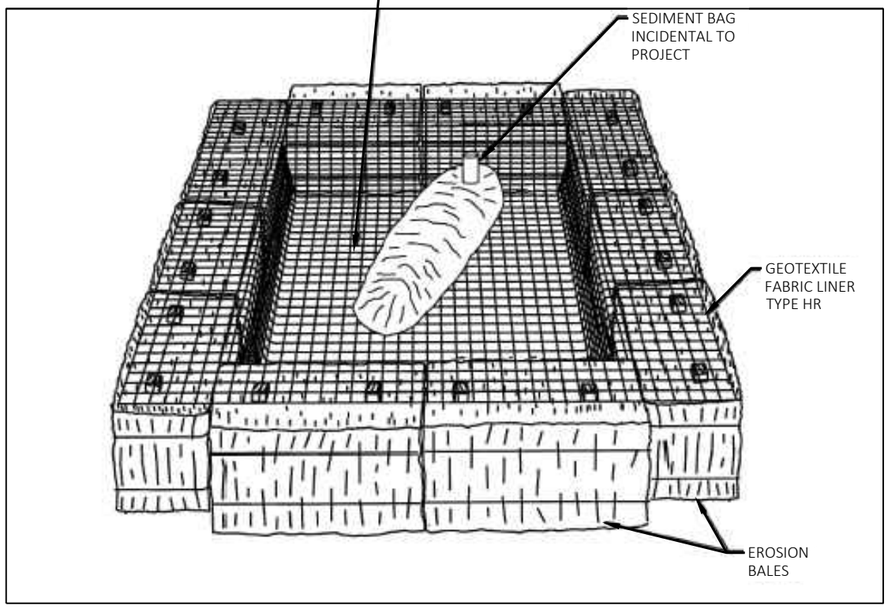
SILT FENCE HEAVY DUTY

GENERAL NOTES:

1. ATTACH FENCE FABRIC TO POSTS A MINIMUM OF 3 TIES PER POST (TOP, MIDDLE, BOTTOM)
2. ATTACH GEOTEXTILE FABRIC TO FENCE FABRIC AND/OR POSTS AT A MAXIMUM SPACING OF EVERY 2 FEET ALONG THE TOP AND ADDITIONALLY AS NECESSARY TO PREVENT DISPLACEMENT BY WIND AND WAVE ACTIONS.

2

CONTRACTOR TO PROVIDE A SEDIMENT BAG OR APPROVED EQUAL TO BE PLACED INSIDE OF BASIN. THE COST OF ALL WORK AND MATERIALS TO CONSTRUCT THE SETTLING BASIN WILL BE PAID UNDER CONTRACT BID ITEMS EROSION BALES (EACH) AND GEOTEXTILE FABRIC TYPE HR (SY). SEDIMENT BAG AND DEWATERING IS INCIDENTAL TO THE BID ITEMS THE WORK IS ASSOCIATED WITH.



TEMPORARY SETTLING BASIN WITH SEDIMENT BAG

(SIZE TO BE DETERMINED IN FIELD AS INDICATED BELOW:)

STORAGE VOLUME (CF) = 16 X GPM (PUMP RATE)

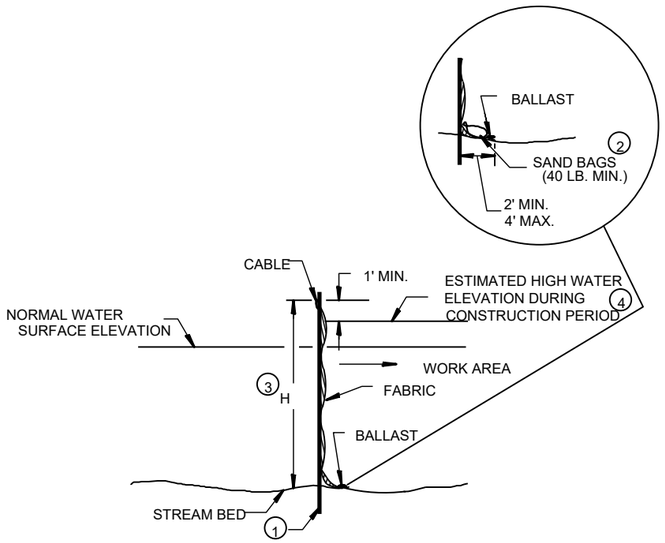
EXAMPLE:
CONTRACTOR INDICATES PUMP CAPABLE OF 50 GPM
HEIGHT OF BALES = 1.5 FT

SOLUTION:
SV (CF) = 16 X 50
SV = 800 CF

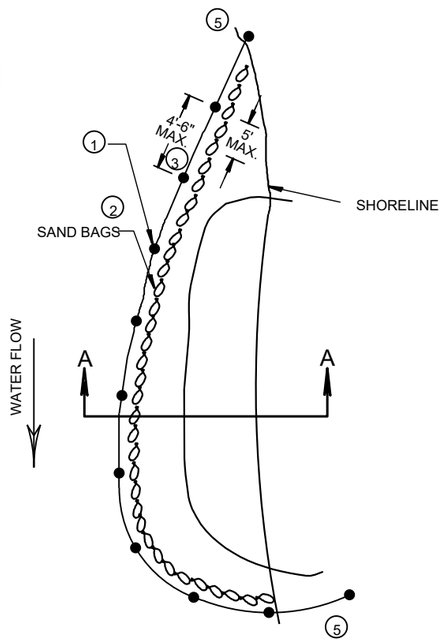
$$\frac{800\ CF}{1.5\ FT} = 533\ SF$$

USE A 20 FT X 27 FT BASIN

2



SECTION A-A



PLAN VIEW

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

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

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

(2) SANDBAGS OR ROCK BAGS SHALL BE USED AS ADDITIONAL BALLAST. PLACE CONTINUOUSLY WITH NO GAPS. SAND OR ROCK BAGS ARE INCIDENTAL TO THE BID ITEM "ENHANCED TURBIDITY BARRIER".

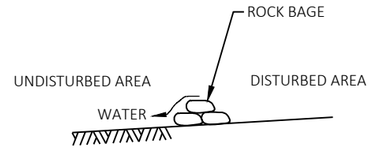
(3) WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

(4) ESTIMATED HIGH WATER ELEVATIONS DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 1' GREATER THAN THE OBSERVED WATER ELEVATION AT THE TIME OF CONSTRUCTION.

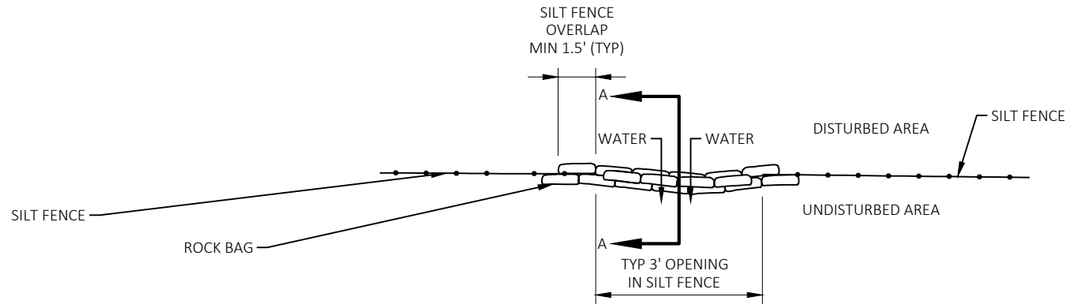
(5) ENDS OF BARRIER ARE TO BE TRENCHED INTO THE SHORELINE OR CONNECTED CONTINUOUSLY TO THE CONCRETE WALLS TO FULLY ISOLATE THE IN-WATER WORK ZONE.

ENHANCED TURBIDITY BARRIER DETAIL

2



SECTION A-A

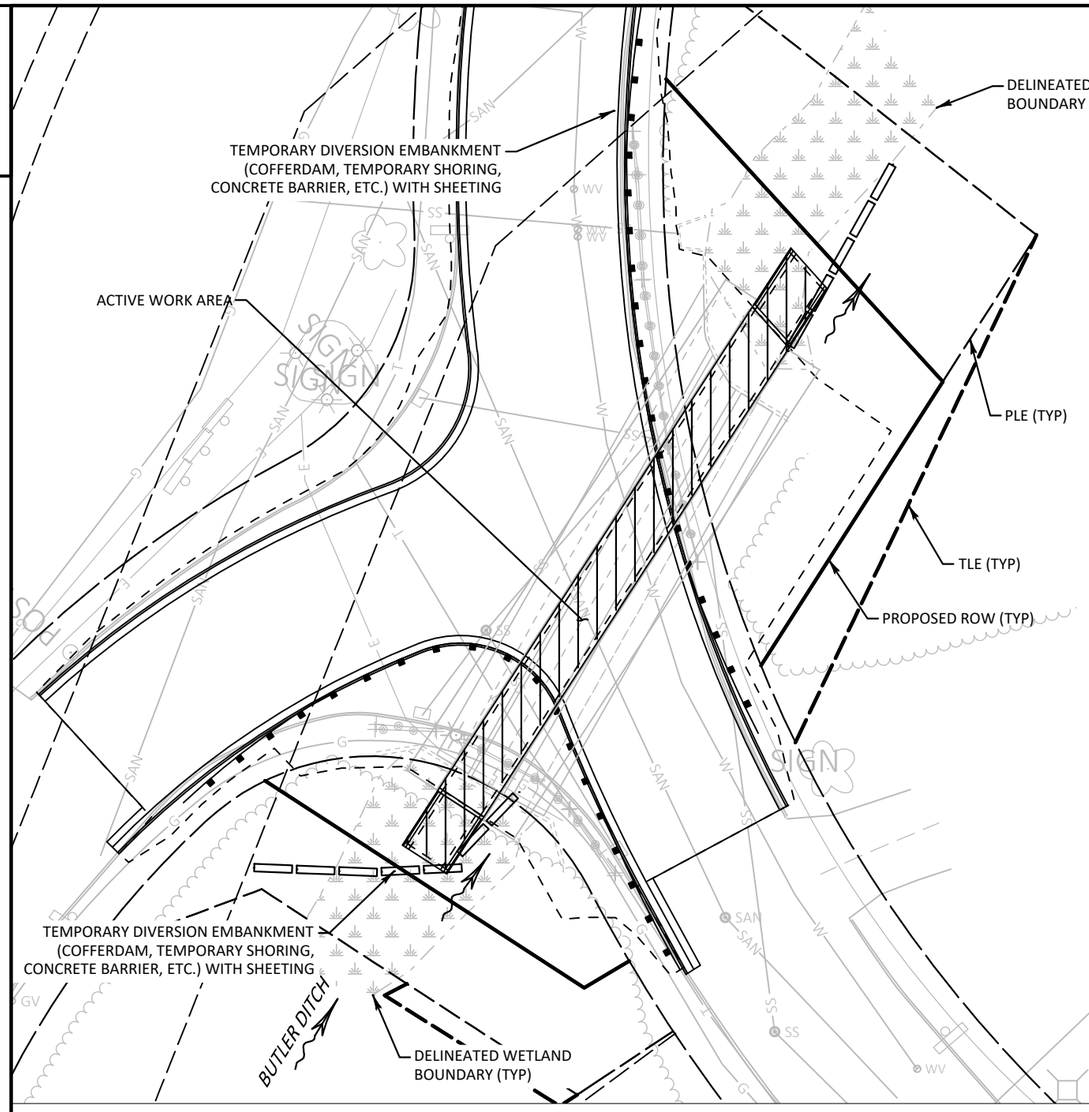


PLAN VIEW

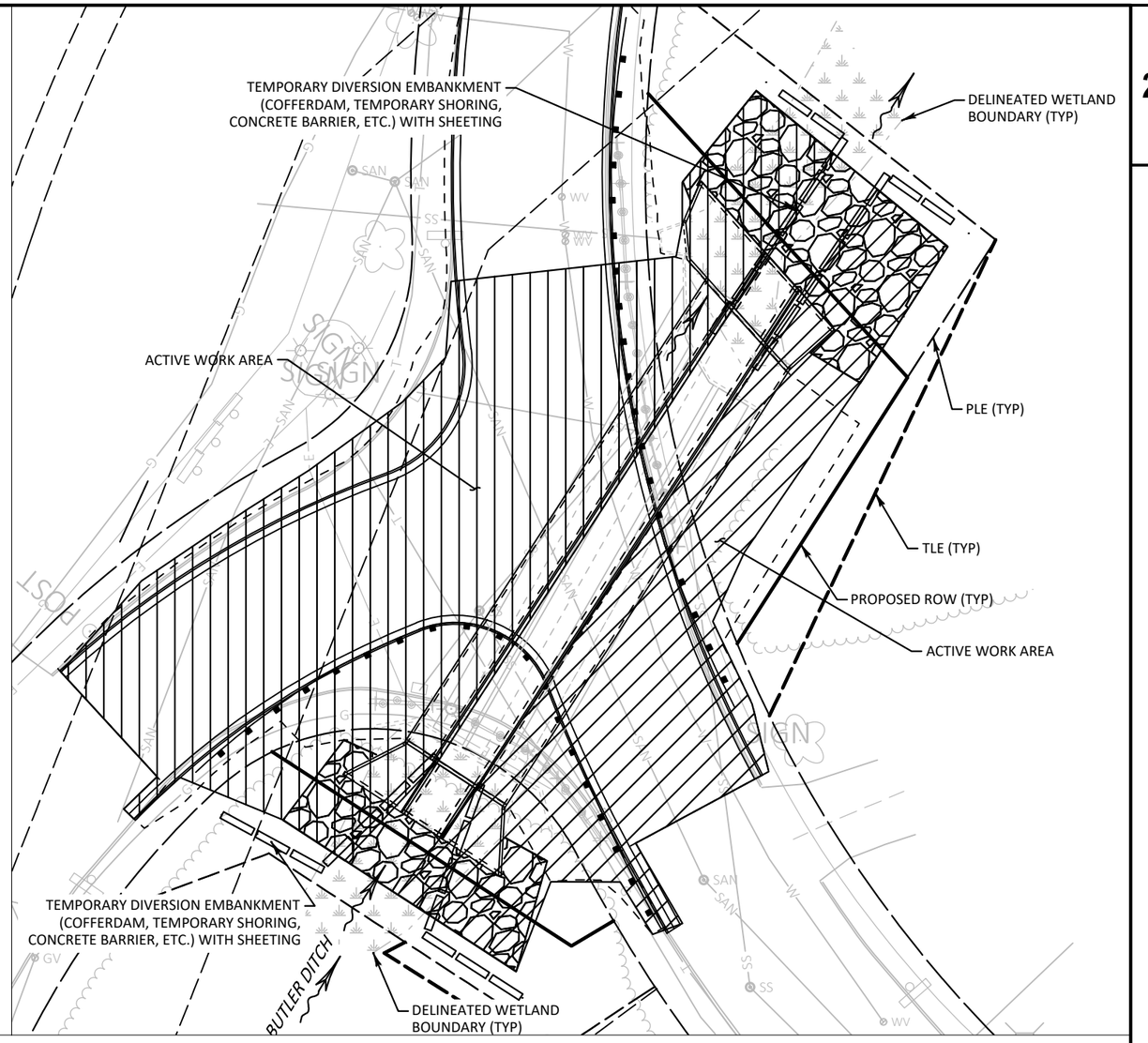
1. DESIGNER SHALL PLACE SILT FENCE RELIEFS AS NECESSARY

ROCK BAGS USED FOR SILT FENCE RELIEF POINT

SER (20180101)



PHASE 1



PHASE 2

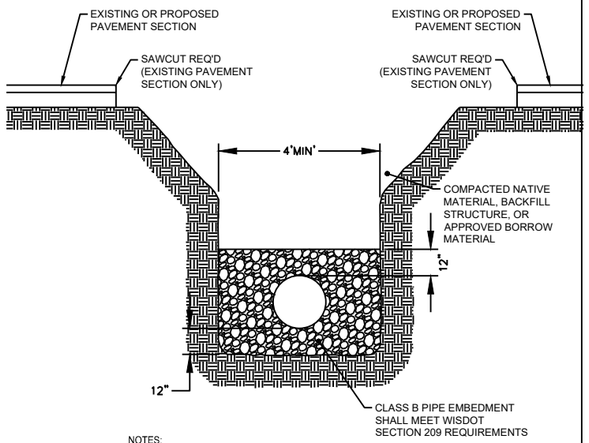
STREAM DIVERSION NOTES:

THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A PHASED STREAM DIVERSION PLAN COMPATIBLE WITH THEIR PROPOSED WORK PLAN AND SUBMITTING THE DIVERSION PLAN WITH ECIP FOR APPROVAL PRIOR TO COMMENCING WORK.

THE PHASE CONCEPT SHOWN ON THE PLAN UTILIZES THE EXISTING AND PROPOSED PIPES FOR CONVEYANCE. THE CONTRACTOR IS PERMITTED TO UTILIZE TEMPORARY PIPES/CHANNELS. TEMPORARY PIPES WILL BE INCIDENTAL TO THE ITEM "TEMPORARY WATER DIVERSION".

REFER TO "TEMPORARY WATER DIVERSION" IN THE SPECIAL PROVISIONS FOR ADDITIONAL DETAILS AND REQUIREMENTS.

ALL GRADING AND RESTORATION ASSOCIATED WITH TEMPORARY STREAM DIVERSION TO BE CONFINED WITHIN THE SLOPE INTERCEPTS SHOWN.

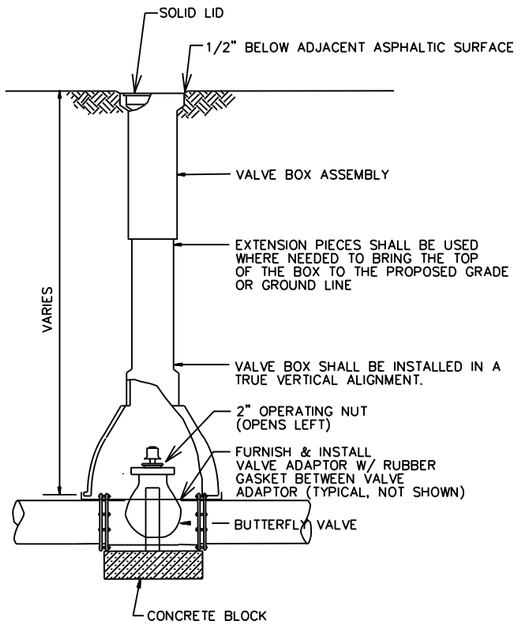


NOTES:

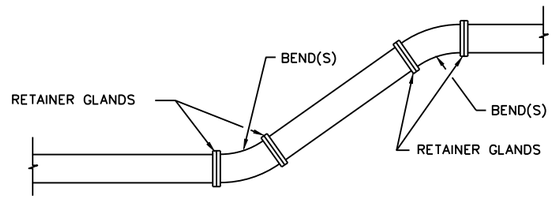
CLASS B PIPE EMBEDMENT SHALL BE INCIDENTAL TO ALL PIPE INSTALLATIONS. CRUSHED ROCK FOR PIPE STABILIZATION (WHEN REQUIRED) SHALL BE MEASURED AND PAID FOR AS SHOWN IN THE PROJECT SPECIAL PROVISIONS

NTS

TYPICAL PAVEMENT CUT TRENCH SECTION FOR UTILITY CONSTRUCTION



BUTTERFLY VALVE & BOX



JOINT RESTRAINT DETAIL

ALL WATER MAIN SHALL BE INSTALLED WITH APPROVED JOINT RESTRAINT CLAMPS, RODS, AND DEVICES AS ACCEPTED BY THE ENGINEER AT EACH FITTING. BASED UPON A 150 PSI TEST PRESSURE AND 8.0' COVER. THE FOLLOWING SHOWS THE MINIMUM LENGTH OF PIPE EACH WAY OF A FITTING TO BE RESTRAINED.

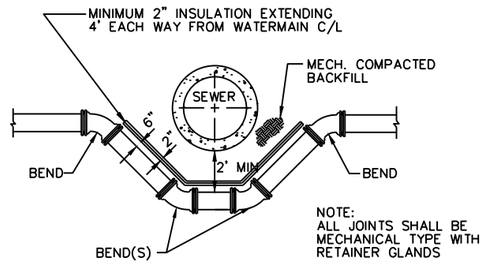
PIPE DIAMETER	DEAD END TEE BRANCH OR 90° BEND	45° BEND	22 1/2° BEND
6"	23 LF	7 LF	0 LF
8"	30 LF	10 LF	2 LF
10"	38 LF	12 LF	3 LF
12"	50 LF	14 LF	3 LF
16"	72 LF	24 LF	10 LF

WHERE RESTRAINED JOINTS ARE REQUIRED AND THE PIPE IS IN A CASING NEAR THE FITTING TO BE RESTRAINED, THE LENGTH OF PIPE IN THE CASING SHALL NOT BE INCLUDED IN THE LENGTH OF PIPE NECESSARY TO DEVELOP SUFFICIENT SOIL FRICTION TO OVERCOME THRUST.

ALL HYDRANTS, VALVES, SERVICES, FITTINGS AND PLUGS, STUBS AND EXTENSIONS, AND BLIND FLANGES USED FOR RETAINING WATER PRESSURE MUST BE TIED WITH TIE RODS OR RISER CLAMPS AND MEGA LUG COMBINATION AS A PRESSURE RESTRAINT. ALL TIE RODS OR BARE METALS SHALL HAVE TWO COATS OF BITUMASTIC OR ACCEPTED EQUAL.

NTS

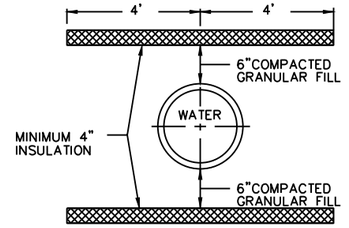
THRUST RESTRAINT



NOTE:
ALL JOINTS SHALL BE MECHANICAL TYPE WITH RETAINER GLANDS

LOWER WATER MAIN

NOTE: LOCATIONS AND DIMENSIONS OF INSULATION REQUIRED SHOWN ON PLANS



INSULATE WATER MAIN

PROJECT NO: 2720-09-71	HWY: LOCAL STREET	COUNTY: WAUKESHA	WATER MAIN DETAILS	SHEET 11	E

2

LEGEND

CLEARING AND GRUBBING

DELINEATED WETLAND BOUNDARY (TYP)

EX ROW (TYP)

CAMPBELL DR

CAMPBELL CT

PI: 3+56.38 'CC'

4'CC'

PT: 4+53.33 'CC'

N65° 23' 46"E

5'CC'

PROPOSED ROW (TYP)

TLE (TYP)

PLE (TYP)

DELINEATED WETLAND BOUNDARY (TYP)

APPROX PL (TYP)

EX EASEMENT (TYP)

EX EASEMENT (TYP)

N65° 12' 07"W

PC: 6+79.97

N39° 44' 31"E

PT: 13+75.99

7 8 9 10 11 12 13

NC

PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	REMOVAL PLAN	SHEET 12 E

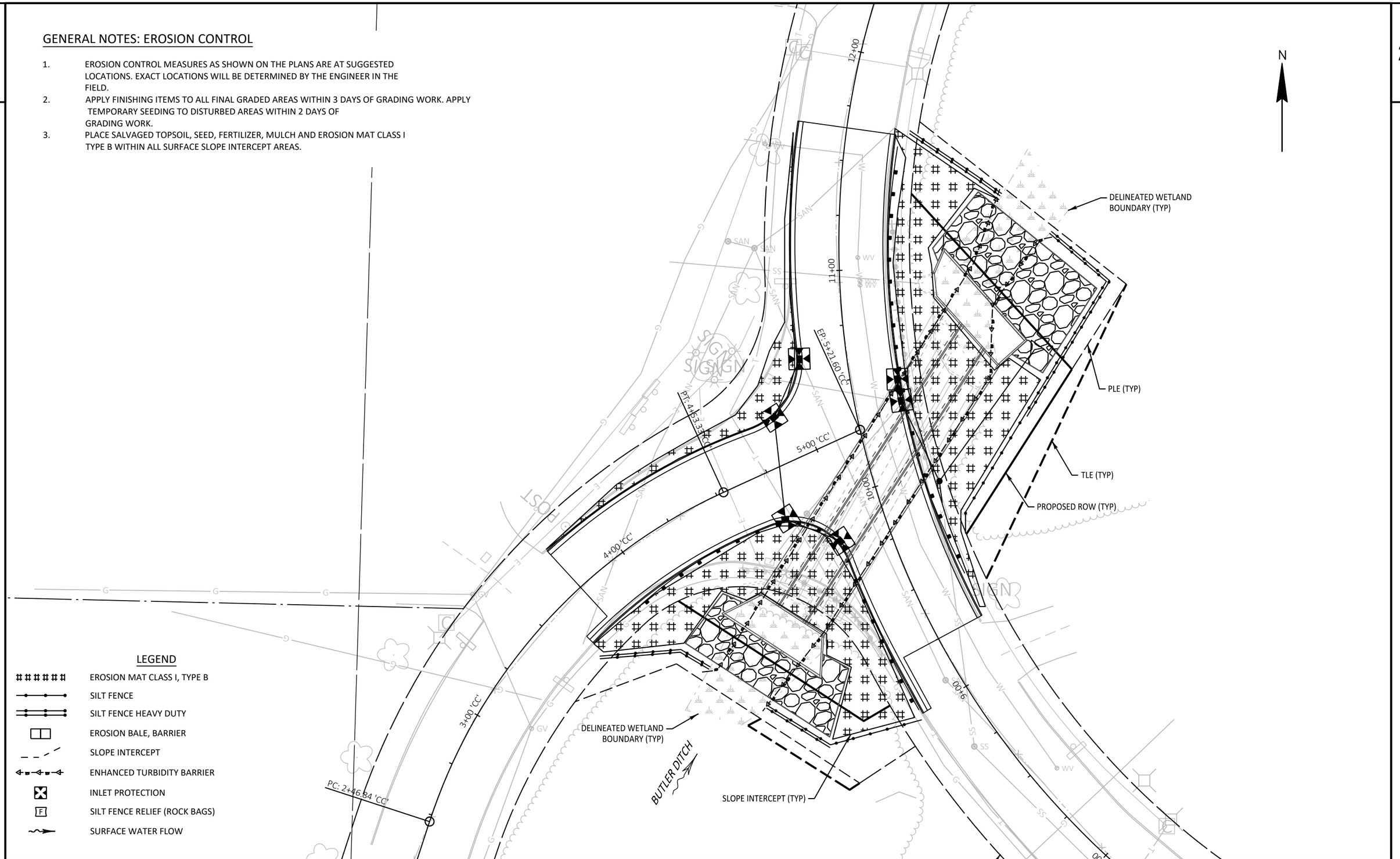
FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\SHEETS\SEC 02 TYP SEC & DETAILS\021101_RM (REMOVALS).DWG PLOT DATE : 8/19/2025 11:35 PM PLOT BY : SAVANNAH STEHN PLOT NAME : PLOT SCALE : 1.0 IN = #### FT

WISDOT/CADDS SHEET 42

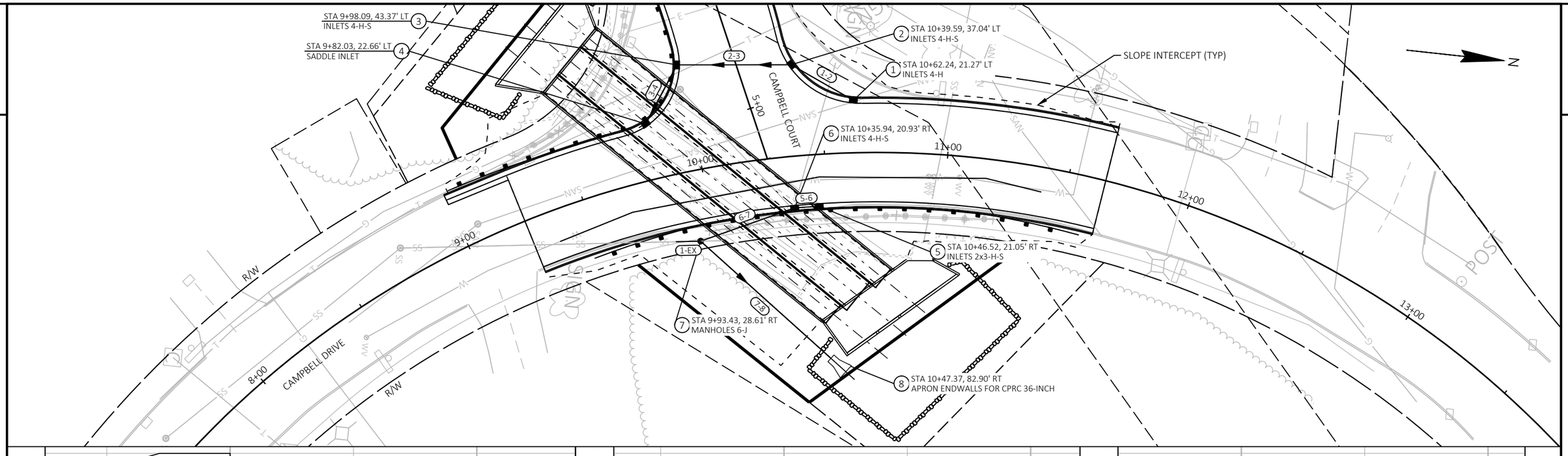
2

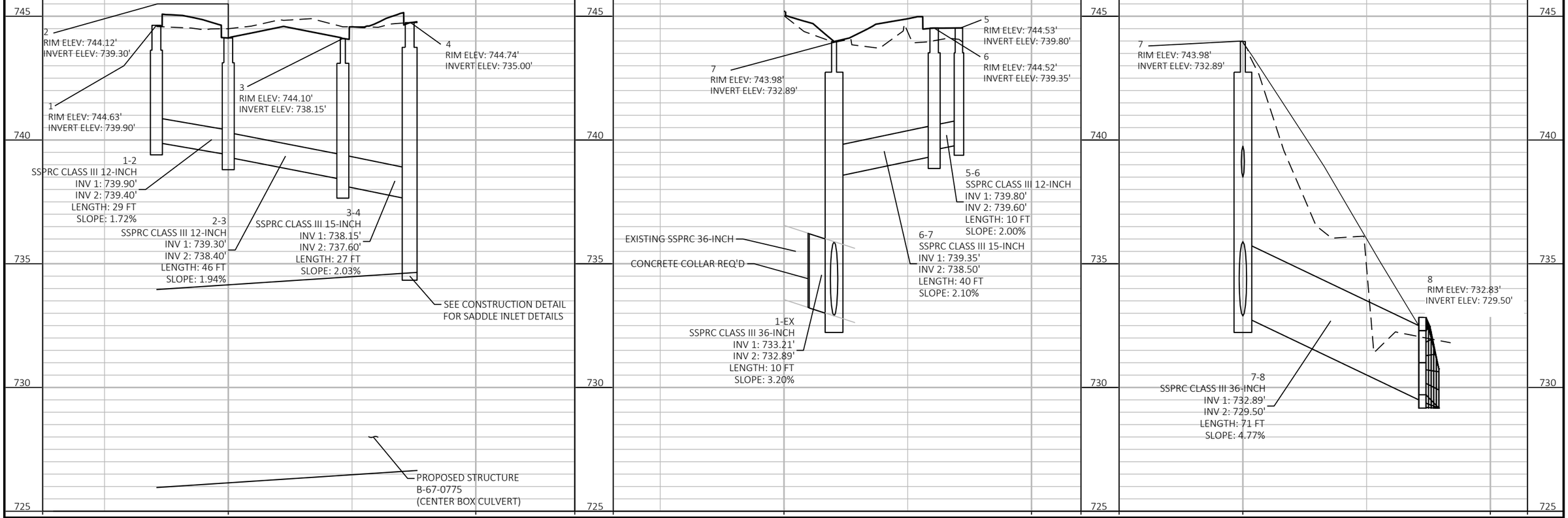
GENERAL NOTES: EROSION CONTROL

1. EROSION CONTROL MEASURES AS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
2. APPLY FINISHING ITEMS TO ALL FINAL GRADED AREAS WITHIN 3 DAYS OF GRADING WORK. APPLY TEMPORARY SEEDING TO DISTURBED AREAS WITHIN 2 DAYS OF GRADING WORK.
3. PLACE SALVAGED TOPSOIL, SEED, FERTILIZER, MULCH AND EROSION MAT CLASS I TYPE B WITHIN ALL SURFACE SLOPE INTERCEPT AREAS.



PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	EROSION CONTROL	SHEET 13 E





PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	STORM SEWER	SHEET 14	E

FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\SHEETS\SEC 02 TYP SEC & DETAILS\022501_SS (STM SWR).DWG
LAYOUT NAME - 01
PLOT DATE : 8/19/2025 11:36 PM
PLOT BY : SAVANNAH STEHN
PLOT NAME :
PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 41

INSTALL WATER MAIN SO THAT NO HIGH POINTS EXIST. INSTALL AT A UNIFORM SLOPE BETWEEN THE CONNECTIONS AT STA 9+35 & STA 11+40. INSULATION SHALL BE 8' WIDE (4' EITHER SIDE OF WATER MAIN). STAGGER INSULATION JOINTS BETWEEN TOP 2" LAYER AND BOTTOM 2" LAYER.
INSTALL NEW VALVES AND SUFFICIENT PIPE LENGTH AND OR BLOCKING BEYOND THE VALVE TO ALLOW WATER MAIN TO BE LIVE DURING CULVERT INSTALLATIONS. ONCE CULVERT INSTALLATION AND BACKFILLING HAS BEEN COMPLETED, INSTALL REMAINING WATER MAIN OVER CULVERT.

BUTLER DITCH
DELINEATED WETLAND BOUNDARY (TYP)
4'C'
CAMPBELL CT
WE ENERGIES - ELEC
SPECTRUM - COMM
PT: 4+53.33 'C'
N65°52'49"E
5'C'
WE ENERGIES - GAS
SLOPE INTERCEPTS (TYP)
VILLAGE OF MENOMONEE FALLS - SAN
SPECTRUM - COMM
VILLAGE OF MENOMONEE FALLS - SAN
STA 9+68.20, 10.6' RT
10
C1
11
STA 10+47.30, 9.1' RT
STA 11+16.60, 7.8' RT
END PROJECT
STA 11+65.00
SAWCUT REQUIRED
MATCH EX PAVEMENT
13'
9
10'
12
BEGIN PROJECT
STA 9+25.00
SAWCUT REQUIRED
MATCH EX PAVEMENT
EX ROW (TYP)
CAMPBELL DR
VILLAGE OF MENOMONEE FALLS WATER
STA 9+35, 12.9' RT
1 - CONNECT TO EXISTING WATER MAIN
FIELD VERIFY ELEVATION
1 - 12" BUTTERFLY VALVE AND BOX
PROPOSED ROW (TYP)
200 LF - WATER MAIN HDPE 14-INCH
DEFLECT WATER MAIN TO ENSURE
IT IS INSTALLED IN THE SAME LOCATION
AS THE EXISTING WATER MAIN
STA 11+40, 10.0' RT
1 - CONNECT TO EXISTING WATER MAIN
FIELD VERIFY ELEVATION
1 - 12" BUTTERFLY VALVE & BOX

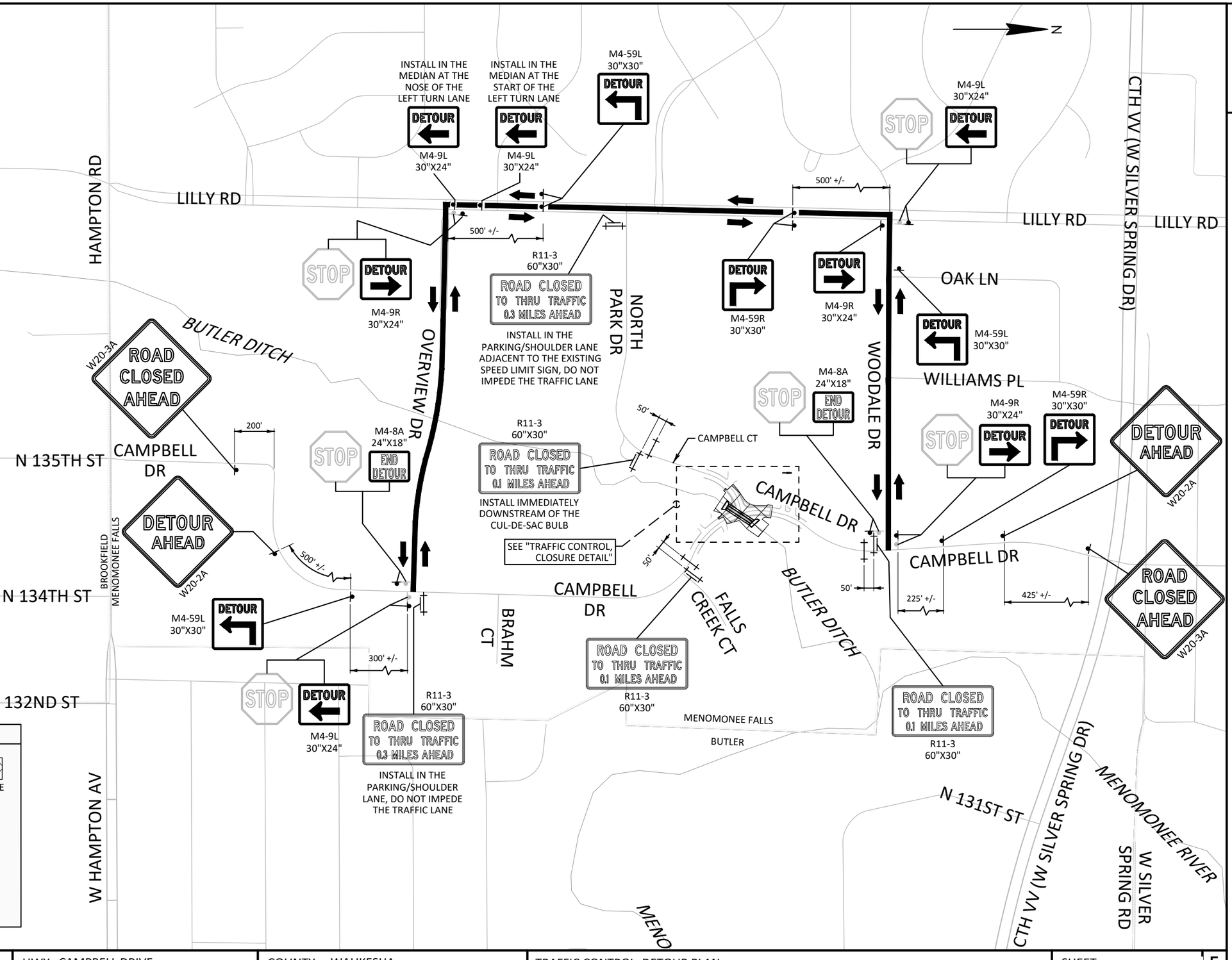
EXISTING GROUND AT REF LINE
EXISTING WATER MAIN TO REMAIN
STA 9+68 - 10+33
4" THICK INSULATION
PROPOSED PROFILE AT REF LINE
EXISTING WATER MAIN TO REMAIN
BUTLER DITCH HYDRAULIC INFO
Q100 = 808 CFS
Q100 ELEVATION = 733.72
CONNECT TO EXIST WATER MAIN
APPROX EL = 739.10
FIELD VERIFY EXISTING WATER MAIN ELEVATION
STA 9+70 - 10+30
4" THICK INSULATION
WATER MAIN HDPE 14-INCH
0.05% SLOPE
FIELD VERIFY EXISTING TOP OF WATER MAIN AT EACH CONNECTION POINT AND INSTALL NEW WATER MAIN AT UNIFORM SLOPE BETWEEN THE TWO CONNECTION POINTS
CONNECT TO EXIST WATER MAIN
APPROX EL = 739.00
FIELD VERIFY EXISTING WATER MAIN ELEVATION
EXISTING PROFILE ELEVATIONS
FINISHED PROFILE ELEVATIONS

7	8	9	10	11	12	13
750.19	749.83	749.42	748.98	748.60	748.23	747.79	747.35	746.93	746.53	746.14	745.76	745.40	745.27	745.14	745.01	744.89	744.90	744.98	745.08	745.19	745.38	745.58	745.82	746.09	746.36	746.60	746.84	747.08	747.33	747.59
												745.52	745.33	745.16	745.04	744.97	744.96	745.00	745.08	745.22	745.40	745.59	745.82							

PROJECT NO: 2720-09-71 | HWY: LOCAL STREET | COUNTY: WAUKESHA | WATER MAIN - CAMPBELL DRIVE | SHEET 15 E

GENERAL NOTES DETOUR PLAN

1. THIS DETOUR PLAN TO BE IN PLACE FOR ALL CONSTRUCTION STAGES.
2. DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE SDD, "BARICADES AND SIGNS FOR MAINLINE CLOSURES, DETOUR SIGNING FOR MAINLINE CLOSURES, DETAIL F, DETOUR SIGNING"(SDD 15C02-09c), THE STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS.
3. THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
4. THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 100 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
5. ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS SPECIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER IN THE FIELD.
6. DETOUR SIGNS SHALL BE PLACED A MINIMUM OF 7 CALENDAR DAYS PRIOR TO THE START OF THE DETOUR AND COVERED UNTIL NEEDED. THE COVERED DETOUR SIGNS ARE INCIDENTAL TO ITEM DETOUR SIGNS..
7. TYPE III BARRICADES SHALL HAVE TWO, TWO-WAY TYPE "A" WARNING LIGHTS ON EACH BARRICADE.
8. ALL "WO" OR "W" DIAMOND SHAPED WARNING SIGNS, SIGNS ARE 36"x36" UNLESS OTHERWISE NOTED.
9. "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
10. ALL SIGNS SHALL BE FURNISHED, INSTALLED AND MAINTAINED BY THE CONTRACTOR.



DETOUR PLAN LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH SIGN
- DIRECTION OF TRAFFIC
- COVERING SIGNS TYPE II
- PCMS — TRAFFIC CONTROL SIGNS PCMS
- FMS — TRAFFIC CONTROL SIGNS FIXED MESSAGE
- DETOUR ROUTE
- WORK SPACE CLOSED TO TRAFFIC

PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	TRAFFIC CONTROL, DETOUR PLAN	SHEET 16 E

2

N

DETOUR PLAN LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH SIGN
- DIRECTION OF TRAFFIC
- COVERING SIGNS TYPE II
- PCMS — TRAFFIC CONTROL SIGNS PCMS
- FMS — TRAFFIC CONTROL SIGNS FIXED MESSAGE
- DETOUR ROUTE
- WORK SPACE CLOSED TO TRAFFIC

MAINTAIN ACCESS TO DRIVEWAY AT ALL TIMES

ROAD CLOSED
R11-2
48"X30"

CAMPBELL DR
ROAD CLOSED
BEGINS MM-DD-YY
G20-57C
72"x36"

BUTLER DITCH

G20-57C
72"x36"
CAMPBELL DR
ROAD CLOSED
BEGINS MM-DD-YY

MAINTAIN ACCESS TO DRIVEWAY AT ALL TIMES

MAINTAIN ACCESS TO DRIVEWAY AT ALL TIMES

ROAD CLOSED
R11-2
48"X30"

MAINTAIN ACCESS TO DRIVEWAY AT ALL TIMES

CAMPBELL DR

MAINTAIN ACCESS TO DRIVEWAY AT ALL TIMES

CAMPBELL DR
ROAD CLOSED
BEGINS MM-DD-YY
G20-57C
72"x36"

ROAD CLOSED
R11-2
48"X30"

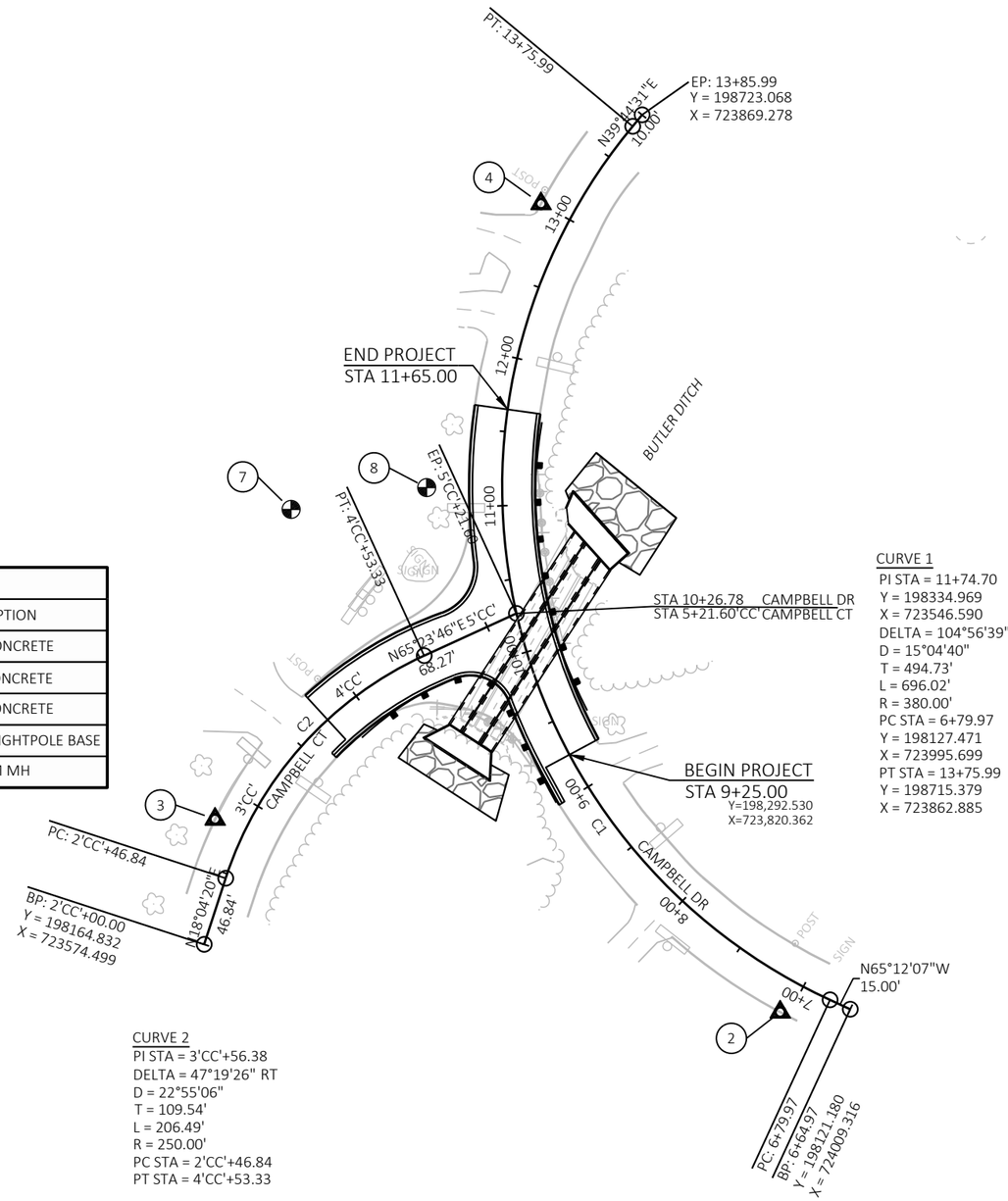
PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	TRAFFIC CONTROL, CLOSURE DETAIL	SHEET 17	E

FILE NAME : X:\KO\M\MENFA\179837\5-final-dsgn\51-drawings\40-TransHwy\C3D Campbell Dr\sheets\SEC 02 Typ Sec & Details\027000-dt (Detour Overview).dwg
PLOT DATE : 8/19/2025 11:37 PM
PLOT BY : SEH
LAYOUT NAME : 02
PLOT SCALE : 1.0 IN = 40.0 FT
WISDOT/CADDS SHEET 42

2

N

SURVEY CONTROL STATION & OFFSET TABLE						
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION	DESCRIPTION
2	7+05.49	22.44 LT	198119.25	723962.16	750.22	CP, CUT "X" IN CONCRETE
3	2+79.62	21.50 LT	198249.05	723581.81	746.56	CP, CUT "X" IN CONCRETE
4	13+00.35	22.13 LT	198663.31	723801.13	747.92	CP, CUT "X" IN CONCRETE
7	11+01.58	142.28 LT	198457.56	723633.03	751.62	BMK, CUT X SW LIGHTPOLE BASE
8	11+12.22	50.85 LT	198472.22	723724.24	747.13	BMK, CUT X S RIM MH



PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	ALIGNMENT DETAILS	SHEET 18	E

Estimate Of Quantities

2720-09-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	4.000	4.000
0004	201.0205	Grubbing	STA	4.000	4.000
0006	203.0220	Removing Structure (structure) 01. P-67-0775	EACH	1.000	1.000
0008	204.0150	Removing Curb & Gutter	LF	548.000	548.000
0010	204.0210	Removing Manholes	EACH	1.000	1.000
0012	204.0220	Removing Inlets	EACH	3.000	3.000
0014	204.0245	Removing Storm Sewer (size) 01. 12-Inch	LF	66.000	66.000
0016	204.0245	Removing Storm Sewer (size) 02. 24-Inch	LF	155.000	155.000
0018	204.0245	Removing Storm Sewer (size) 03. 36-Inch	LF	49.000	49.000
0020	205.0100	Excavation Common	CY	1,075.000	1,075.000
0022	206.2001	Excavation for Structures Culverts (structure) 01. B-67-0407	EACH	1.000	1.000
0024	208.0100	Borrow	CY	1,344.000	1,344.000
0026	210.2500	Backfill Structure Type B	TON	4,300.000	4,300.000
0028	213.0100	Finishing Roadway (project) 01. 2720-09-71	EACH	1.000	1.000
0030	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,311.000	1,311.000
0032	311.0110	Breaker Run	TON	500.000	500.000
0034	455.0605	Tack Coat	GAL	167.000	167.000
0036	460.2000	Incentive Density HMA Pavement	DOL	380.000	380.000
0038	460.6223	HMA Pavement 3 MT 58-28 S	TON	422.000	422.000
0040	460.6224	HMA Pavement 4 MT 58-28 S	TON	164.000	164.000
0042	502.4104	Adhesive Anchors 1/2-inch	EACH	128.000	128.000
0044	502.4105	Adhesive Anchors 5/8-inch	EACH	67.000	67.000
0046	504.0100	Concrete Masonry Culverts	CY	110.000	110.000
0048	505.0400	Bar Steel Reinforcement HS Structures	LB	3,240.000	3,240.000
0050	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	5,145.000	5,145.000
0052	516.0500	Rubberized Membrane Waterproofing	SY	25.000	25.000
0054	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0056	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	1.000	1.000
0058	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	702.000	702.000
0060	606.0300	Riprap Heavy	CY	345.000	345.000
0062	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	85.000	85.000
0064	608.0315	Storm Sewer Pipe Reinforced Concrete Class III 15-Inch	LF	67.000	67.000
0066	608.0336	Storm Sewer Pipe Reinforced Concrete Class III 36-Inch	LF	81.000	81.000
0068	611.0530	Manhole Covers Type J	EACH	1.000	1.000
0070	611.0624	Inlet Covers Type H	EACH	2.000	2.000
0072	611.0639	Inlet Covers Type H-S	EACH	4.000	4.000
0074	611.2006	Manholes 6-FT Diameter	EACH	1.000	1.000
0076	611.3004	Inlets 4-FT Diameter	EACH	4.000	4.000
0078	611.3230	Inlets 2x3-FT	EACH	1.000	1.000
0080	612.0902.S	Insulation Board Polystyrene (inch) 01. 2-inch	SY	225.000	225.000
0082	614.2300	MGS Guardrail 3	LF	150.000	150.000
0084	614.2350	MGS Guardrail Short Radius	LF	44.000	44.000
0086	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0088	618.0100	Maintenance and Repair of Haul Roads (project) 01. 2720-09-71	EACH	1.000	1.000
0090	619.1000	Mobilization	EACH	1.000	1.000
0092	624.0100	Water	MGAL	13.000	13.000
0094	625.0500	Salvaged Topsoil	SY	1,338.000	1,338.000
0096	627.0200	Mulching	SY	1,338.000	1,338.000
0098	628.1104	Erosion Bales	EACH	12.000	12.000

2720-09-71

Line	Item	Item Description	Unit	Total	Qty
0100	628.1504	Silt Fence	LF	195.000	195.000
0102	628.1520	Silt Fence Maintenance	LF	195.000	195.000
0104	628.1530.S	Silt Fence Heavy Duty	LF	365.000	365.000
0106	628.1535.S	Silt Fence Heavy Duty Maintenance	LF	365.000	365.000
0108	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0110	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0112	628.2004	Erosion Mat Class I Type B	SY	1,245.000	1,245.000
0114	628.7005	Inlet Protection Type A	EACH	8.000	8.000
0116	628.7015	Inlet Protection Type C	EACH	8.000	8.000
0118	628.7570	Rock Bags	EACH	78.000	78.000
0120	629.0210	Fertilizer Type B	CWT	0.900	0.900
0122	630.0130	Seeding Mixture No. 30	LB	59.900	59.900
0124	630.0200	Seeding Temporary	LB	144.000	144.000
0126	630.0500	Seed Water	MGAL	30.200	30.200
0128	633.5200	Markers Culvert End	EACH	1.000	1.000
0130	642.5001	Field Office Type B	EACH	1.000	1.000
0132	643.0420	Traffic Control Barricades Type III	DAY	4,505.000	4,505.000
0134	643.0705	Traffic Control Warning Lights Type A	DAY	5,670.000	5,670.000
0136	643.0900	Traffic Control Signs	DAY	3,735.000	3,735.000
0138	643.5000	Traffic Control	EACH	1.000	1.000
0140	645.0105	Geotextile Type C	SY	705.000	705.000
0142	645.0120	Geotextile Type HR	SY	539.000	539.000
0144	650.4000	Construction Staking Storm Sewer	EACH	8.000	8.000
0146	650.4500	Construction Staking Subgrade	LF	405.000	405.000
0148	650.5000	Construction Staking Base	LF	405.000	405.000
0150	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	702.000	702.000
0152	650.6501	Construction Staking Structure Layout (structure) 01. B-67-0407	EACH	1.000	1.000
0154	650.9911	Construction Staking Supplemental Control (project) 01. 2720-09-71	EACH	1.000	1.000
0156	650.9920	Construction Staking Slope Stakes	LF	405.000	405.000
0158	690.0150	Sawing Asphalt	LF	159.000	159.000
0160	690.0250	Sawing Concrete	LF	15.000	15.000
0162	715.0502	Incentive Strength Concrete Structures	DOL	660.000	660.000
0164	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,000.000	1,000.000
0166	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	2,400.000	2,400.000
0168	SPV.0035	Special 01. Structural Grout	CY	15.000	15.000
0170	SPV.0060	Special 01. Exploratory Excavation	EACH	1.000	1.000
0172	SPV.0060	Special 02. Remove Existing Gate Valve	EACH	3.000	3.000
0174	SPV.0060	Special 03. Connect to Existing Water Main	EACH	2.000	2.000
0176	SPV.0060	Special 04. Butterfly Valve and Box 12-inch	EACH	2.000	2.000
0178	SPV.0060	Special 05. Temporary Water Diversion	EACH	1.000	1.000
0180	SPV.0060	Special 06. Saddle Inlet	EACH	1.000	1.000
0182	SPV.0090	Special 01. Water Main HDPE 14-inch	LF	200.000	200.000
0184	SPV.0090	Special 02. Water Main C900 12-inch	LF	12.000	12.000
0186	SPV.0090	Special 03. Precast Concrete Box Culvert, 8 FT x 6 FT	LF	303.000	303.000
0188	SPV.0090	Special 04. Precast Concrete Box Culvert, 12 FT x 8 FT	LF	151.500	151.500
0190	SPV.0180	Special 01. Enhanced Turbidity Barriers	SY	406.000	406.000
0192	SPV.0180	Special 02. External Joint Sealer	SY	355.000	355.000
0194	SPV.0195	Special 01. Crushed Rock for Pipe Stabilization	TON	50.000	50.000

3

CLEARING AND GRUBBING

CATEGORY	STATION	LOCATION	LOCATION	201.0105 GRUBBING STA	201.0205 GRUBBING STA	REMARKS
0010	9+00 - 10+00	CAMPBELL DR	LT&RT	1	1	-
	10+00 - 12+00	CAMPBELL DR	RT	2	2	-
	3+50 - 4+50	CAMPBELL CT	RT	1	1	-
	PROJECT TOTALS			4	4	

REMOVING CURB AND GUTTER

CATEGORY	STATION	LOCATION	204.0150 REMOVING CURB & GUTTER LF	REMARKS
0010	9+25 - 11+65	RT	167	-
	9+00 - 3+60'CC'	LT/RT	134	SW QUAD
	3+75'CC' - 11+65	LT/RT	247	NW QUAD
	PROJECT TOTALS		548	

REMOVING STORM SEWER STRUCTURES

CATEGORY	STATION	LOCATION	204.0210 REMOVING MANHOLES EACH	204.0220 REMOVING INLETS EACH	REMARKS
0010	10+35	22' RT	-	1	-
	4+59'CC'	38' RT	-	1	-
	4+84'CC'	25' RT	1	-	-
	4+93'CC'	39' LT	-	1	-
	PROJECT TOTALS		1	3	

REMOVING STORM SEWER PIPE

CATEGORY	STATION	LOCATION	204.0245 REMOVING STORM SEWER 01. 12-INCH LF	204.0245 REMOVING STORM SEWER 02. 24-INCH LF	204.0245 REMOVING STORM SEWER 03. 36-INCH LF
0010	9+83 - 10+35	RT	-	-	49
	9+37 - 9+98	LT	66	-	-
	9+98 - 10+35	LT/RT	-	66	-
	4+93'CC' - 10+35	LT/RT	-	61	-
	4+59'CC' - 9+98	LT/RT	-	28	-
	PROJECT TOTALS		66	155	49

BASE AGGREGATE ITEMS

CATEGORY	ROADWAY	STATION	LOCATION	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL	REMARKS
0010	CAMPBELL DR	9+00 - 11+65	LT&RT	819	8	-
	CAMPBELL CT	3+61'CC'- 5+01'CC'	LT&RT	492	5	
	PROJECT TOTALS			1311	13	

EARTHWORK SUMMARY (PROJECT ID 2720-09-71)										
CATEGORY	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION	SALVAGED / UNUSABLE PAVEMENT MATERIAL (2)	AVAILABLE MATERIAL (3)	UNEXPANDED FILL	EXPANDED FILL (4)	MASS ORDINATE +/- (5)	WASTE	208.0100 BORROW
			CUT (1)				FACTOR 1.25			
0010	9+00 - 11+65	CAMPBELL DRIVE	579	199	380	1,379	1,724	-1,344	0	-1,344
	3-61 - 5+01'CC'	CAMPBELL COURT	291	98	196	57	71	125	125	0
	INTERSECTION	SW QUAD & NW QUAD	202	59	143	10	13	130	130	0
PROJECT TOTAL			1,075	356	719	1,446	1,808	1,089	255	1,344

NOTES:
(1) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(2) MATERIAL BASED OFF EXISTING SURVEY. FIELD CONDITIONS MAY VARY.
(3) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
(4) EXPANDED FILL FACTOR = 1.25
(5) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

3

ASPHALTIC ITEMS

CATEGORY	ROADWAY	STATION	LOCATION	455.0605 TACK COAT GAL	460.6223 HMA PAVEMENT 3 MT 58-28 S TON	460.6224 HMA PAVEMENT 4 MT 58-28 S TON	REMARKS
0010	CAMPBELL DR	9+00 - 11+65	LT&RT	107	270	105	-
	CAMPBELL CT	3+61 - 5+01	LT&RT	60	152	59	-
		PROJECT TOTALS		167	422	164	

CONCRETE CURB AND GUTTER

CATEGORY	STATION	LOCATION	601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D LF	REMARKS
0010	9+00 - 3+61'CC'	SW QUAD	218	-
	9+25 - 11+65	RT	226	
	3+75'CC' - 11+65	NW QUAD	258	
	PROJECT TOTALS		702	

STORM SEWER PIPE

CATEGORY	FROM STRUCTURE		TO STRUCTURE	INLET ELEVATION	DISCHARGE ELEVATION	SLOPE FT/FT	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF	608.0315 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH LF	608.0336 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 36-INCH LF	520.8000 CONCRETE COLLAR FOR PIPE EACH	REMARKS
0010	1	-	2	739.90	739.40	0.0172	29	-	-	-	-
	2	-	3	739.30	738.40	0.0194	46	-	-	-	-
	3	-	4	738.15	737.60	0.0203	-	27	-	-	-
	5	-	6	739.80	739.60	0.0200	10	-	-	-	-
	6	-	7	739.35	738.50	0.0210	-	40	-	-	-
	7	-	8	732.89	732.00	0.0125	-	-	71	-	-
	EX	-	7	733.21	732.89	0.0320	-	-	10	1	-
	PROJECT TOTAL						85	67	81	1	

STORM SEWER STRUCTURES

CATEGORY	STRUCTURE NUMBER	*STATION	*OFFSET	611.0530 MANHOLE COVERS TYPE J EACH	611.0624 INLET COVERS TYPE H EACH	611.0639 INLET COVERS TYPE H-S EACH	611.2006 MANHOLES 6-FT DIAMETER EACH	611.3004 INLETS 4-FT DIAMETER EACH	611.3230 INLETS 2x3-FT EACH	SPV.0060 06. SADDLE INLET EACH	522.1036 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH EACH	633.5200 MARKERS CULVERT END EACH	RIM ELEVATION FT	INVERT ELEVATION FT	**DEPTH FT	COMMENTS
0010	1	10+62.24	21.27' LT	-	1	-	-	1	-	-	-	-	744.63	739.90	3.90	-
	2	10+39.59	37.04' LT	-	-	1	-	1	-	-	-	-	744.12	739.30	3.98	-
	3	9+98.09	43.37' LT	-	-	1	-	1	-	-	-	-	744.10	738.15	5.14	-
	4	9+82.03	22.66' LT	-	1	-	-	-	-	1	-	-	744.74	735.00	8.74	-
	5	10+46.52	21.05' RT	-	-	1	-	-	1	-	-	-	744.53	739.80	3.89	-
	6	10+35.94	20.93' RT	-	-	1	-	1	-	-	-	-	744.52	739.35	4.36	-
	7	9+93.43	28.61' RT	1	-	-	1	-	-	-	-	-	743.98	732.89	10.18	
	8	10+47.37	82.90' RT		-	-	-	-	-	-	1	1	-	729.50	-	
		PROJECT TOTALS		1	2	4	1	4	1	1	1	1				

*STATION & OFFSET TO CENTER OF STRUCTURE UNLESS OTHERWISE NOTED IN THE PLANS

** DEPTH = RIM ELEV - COVER HT - 6 INCH ADJ RING HT - INVERT ELEV - PIPE THICKNESS

3

MAINTENANCE AND REPAIR OF HAUL ROADS
01. 2720-09-71

CATEGORY	LOCATION	618.0100
0030	PROJECT	1
	PROJECT TOTALS	1

MGS GUARDRAIL

CATEGORY	STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2350 MGS GUARDRAIL SHORT RADIUS LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	NOTES
0010	9+46.91 - 10+00.00	RT	-	-	1	
	10+00.00 - 11+06.15	RT	100	-	-	
	11+06.15 - 11+59.39	RT	-	-	1	
	9+02.06 - 9+49.21	LT	-	-	1	
	9+49.21 - 9+72.84	LT	25	-	-	
	9+72.84 - 4+66.11'CC'	LT/RT	-	44	-	R=28.0' / 7 CRT POSTS
	3+84.79'CC' - 4+39.94'CC'	RT	-	-	1	
	4+39.94'CC' - 4+66.11'CC'	RT	25	-	-	
	PROJECT TOTALS		150	44	4	

FINISHING ITEMS

CATEGORY	STATION - STATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
0010	ENTIRE PROJECT	1070	1070	0.7	47.9	115.2	24.1
	UNDISTRIBUTED QTY	268	268	0.2	12.0	28.8	6.1
	PROJECT TOTALS	1338	1338	0.9	59.9	144.0	30.2

EROSION CONTROL

CATEGORY	STATION	LT/RT	628.1104 EROSION BALES EACH	645.0120 GEOTEXTILE TYPE HR SY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1530.S SILT FENCE HEAVY DUTY LF	628.1535.S SILT FENCE HEAVY DUTY MAINTENANCE LF	628.2004 EROSION MAT CLASS I TYPE B SY	SPV.0180.01 ENHANCED TURBIDITY BARRIERS SY	628.7005 INLET PROTECTION TYPE A EACH	628.7015 INLET PROTECTION TYPE C EACH	628.7570 ROCK BAGS EACH	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATONS EMERGENCY EROSION CONTROL EACH	REMARKS
0010	PROJET LENGTH		10	20	110	110	250	250	1185	406	6	6	68	4	2	-
	UNDISTRIBUTED		2	4	85	85	115	115	60	-	2	2	10	-	-	-
	PROJECT TOTAL		12	24	195	195	365	365	1245	406	8	8	78	4	2	

3

TRAFFIC CONTROL

CATEGORY	LOCATION	APPROX. SERVICE PERIOD DAYS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III QTY.	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	643.0705 TRAFFIC CONTROL WARNING LIGHTS TPE AÈ QTY.	643.0705 TRAFFIC CONTROL WARNING LIGHTS TPE AÈ DAYS	643.0900 TRAFFIC CONTROL SIGNS QTY.	643.0900 TRAFFIC CONTROL SIGNS DAYS
0010	ENTIRE PROJECT	117	35	4095	44	5148	29	3393
				410		522		342
	PROJECT TOTALS			4505		5670		3735

STAKING ITEMS

CATEGORY	ROADWAY	STATION	LOCATION	650.4000 CONSTRUCTION STAKING STORM SEWER EACH	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	650.6501 CONSTRUCTION STAKING STRUCTURE LAYOUT 01. B-67-0407 EACH	650.9911 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 01. PROJECT 2720-09-71 EACH	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF	REMARKS
0010	CAMPBELL DR	9+00 - 11+65	LT&RT	6	265	265	408	1	.	265	-
	CAMPELL CT	361 501	LT RT	2	140	140	294	-	-	140	
	PROJECT 27200571			-	-	-	-	-	1	-	
	PROJECT TOTALS			8	405	405	702	1	1	405	

SAWING

CATEGOR	STATION	LOCATION	6900150 SAWING ASPALT LF	6900250 SAWING CONCRETE LF	REMARKS
0010	900 925	LT	27	25	
	925	LTRT	38	25	TRANSERSE
	1165	LTRT	40	5	TRANSERSE
	361 375	RT	16	25	-
	375	LTRT	38	25	TRANSERSE
	PROJECT TOTALS		159	15	

SPECIALS

CATEGOR	LOCATION	TEMPORAR WATER IERSION SP006005 EAC	REMARKS
0010	LT RT	1	P670775
		1	

3

INSULATION BOARD POLYSTYRENE

CATEGORY	STATION	TO	STATION	LOCATION	612.0902.S 2-INCH SY	REMARKS
0030	9+68	-	10+33	RT	225	ABOVE AND BELOW WATER MAIN
		-				
				TOTAL 0030	225	

EXPLORATORY EXCAVATION

CATEGORY	STATION	TO	STATION	LOCATION	SPV.0060.01 EXPLORATORY EXCAVATION EACH	REMARKS
0030	8+96.21	-	11+65	LT & RT	1	UNDISTRIBUTED
				TOTAL 0030	1	

REMOVE EXISTING GATE VALVE

CATEGORY	STATION	LOCATION	SPV.0060.02 REMOVE EXISTING GATE VALVE EACH	REMARKS
0030	10+93	RT	1	
0030	10+95	RT	1	
0030	11+06	RT	1	
		TOTAL 0030	3	

CONNECT TO EXISTING WATER MAIN

CATEGORY	STATION	LOCATION	SPV.0060.03 CONNECT TO EXISTING WATER MAIN EACH	REMARKS
0030	9+35	12.9' RT	1	
0030	11+40	10.0' RT	1	
		TOTAL 0030	2	

BUTTERFLY VALVE AND BOX 12-INCH

CATEGORY	STATION	LOCATION	SPV.0060.04 BUTTERFLY VALVE AND BOX 12-INCH EACH	REMARKS
0030	9+35	12.9' RT	1	
0030	11+40	10.0' RT	1	
		TOTAL 0030	2	

WATER MAIN

CATEGORY	STATION	TO	STATION	LOCATION	SPV.0090.01 WATER MAIN HDPE 14-INCH LF	SPV.0090.02 WATER MAIN C900 12-INCH LF	REMARKS
0030	9+35	-	11+40	RT	200		
0030	9+35			RT		6	AT CONNECTION FOR VALVE
0030	11+40			RT		6	AT CONNECTION FOR VALVE
				TOTAL 0030	200	12	

CRUSHED ROCK FOR PIPE STABILIZATION

CATEGORY	STATION	TO	STATION	LOCATION	SPV.0195.01 CRUSHED ROCK FOR PIPE STABILIZATION TON	REMARKS
0030	9+35	-	11+40	RT	50	UNDISTRIBUTED
				TOTAL 0030	50	

CONVENTIONAL SYMBOLS

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W OR HE LINE
PROPERTY LINE
LOT, TIE & OTHER MINOR LINES
SLOPE INTERCEPT
CORPORATE LIMITS
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC ETC)
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)
TEMPORARY LIMITED EASEMENT AREA
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)
TRANSMISSION STRUCTURES
BUILDING
TO BE REMOVED
BRIDGE
CULVERT

SECTION CORNER SYMBOL
SECTION CORNER MONUMENT
GEODETIC SURVEY MONUMENT
SIXTEENTH CORNER MONUMENT
SIGN
OFF-PREMISE SIGN

R/W MONUMENT (TO BE SET)
NON-MONUMENTED R/W POINT
FOUND IRON PIN (1-INCH UNLESS NOTED) IP

	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE		
TELEPHONE POLE		
PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)		

ACCESS RESTRICTED BY ACQUISITION
NO ACCESS (BY STATUTORY AUTHORITY)
ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)
NO ACCESS (NEW HIGHWAY)
PARCEL NUMBER 25
UTILITY NUMBER 40
PARALLEL OFFSETS

CONVENTIONAL UTILITY SYMBOLS

WATER	W
GAS	G
TELEPHONE	T
OVERHEAD TRANSMISSION LINES	OH
ELECTRIC	E
CABLE TELEVISION	TV
FIBER OPTIC	FO
SANITARY SEWER	SAN
STORM SEWER	SS
ELECTRIC TOWER	

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF COMPOUND CURVE	PCC
ACRES	AC	POINT OF INTERSECTION	PI
AHEAD	AH	PROPERTY LINE	PL
ALUMINUM	ALUM	RECORDED AS	(100')
AND OTHERS	ET AL	REEL / IMAGE	R/I
BACK	BK	REFERENCE LINE	R/L
BLOCK	BLK	REMAINING	REM
CENTERLINE	C/L	RESTRICTIVE DEVELOPMENT EASEMENT	RDE
CERTIFIED SURVEY MAP	CSM	RIGHT	RT
CONCRETE	CONC	RIGHT OF WAY	R/W
COUNTY	CO	SECTION	SEC
COUNTY TRUNK HIGHWAY	CTH	SEPTIC VENT	SEPV
DISTANCE	DIST	SQUARE FEET	SF
CORNER	COR	STATE TRUNK HIGHWAY	STH
DOCUMENT NUMBER	DOC	STATION	STA
EASEMENT	EASE	TELEPHONE PEDESTAL	TP
EXISTING	EX	TEMPORARY LIMITED EASEMENT	TLE
GAS VALVE	GV	TRANSPORTATION PROJECT PLAT	TPP
GRID NORTH	GN	UNITED STATES HIGHWAY	USH
HIGHWAY EASEMENT	HE	VOLUME	V
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY	NGS		
NUMBER	NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		

CURVE DATA ABBREVIATIONS

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ /DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), WAUKESHA COUNTY, NAD83 (2011) IN US SURVEY FEET VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES GRID DISTANCES MAY BE USED AS GROUND DISTANCES

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY ¾" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT

ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-ACQUISITION AREAS ARE INTENDED TO RE ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, OR FROM CENTERLINE OF EXISTING PAVEMENTS.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U S PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD"

DIMENSIONING FOR THE NEW MEASURED RIGHT-OF WAY IS ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES

A PERMANENT LIMITED EASEMENT (PLE) IS A RIGHT FOR CONSTRUCTION AND MAINTENANCE PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE, BUT WITHOUT PREJUDICE TO THE OWNER'S RIGHTS TO MAKE OR CONSTRUCT IMPROVEMENTS ON SAID LANDS OR TO FLATTEN THE SLOPES, PROVIDING SAID ACTIVITIES WILL NOT IMPAIR OR OTHERWISE ADVERSELY AFFECT THE HIGHWAY FACILITIES

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE ALL (TLEs) ON THIS PLAT EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN

PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPATIONAL LINES THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE VILLAGE OF MENOMONEE FALLS

INFORMATION FOR THE BASIS OF EXISTING HIGHWAY RIGHT-OF-WAY POINTS OF REFERENCE AND ACCESS CONTROL ARE LISTED ON THE DETAIL PAGES

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
2720-09-01	4.01	2
FEDERAL PROJECT NUMBER 2720-09-01		

PLAT OF RIGHT OF WAY REQUIRED FOR

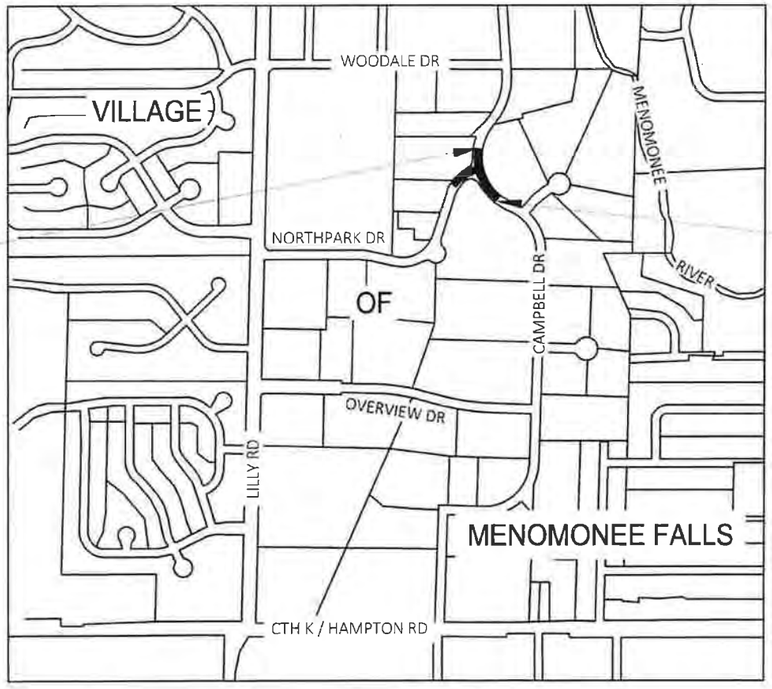
V MENOMONEE FALLS, CAMPBELL DR BRIDGE OVER BUTLER DITCH

CAMPBELL DR	WAUKESHA COUNTY

CONSTRUCTION PROJECT NUMBER 2720-09-71

END RELOCATION
STA 12+00

Y = 198559 251
X = 723785 129
779.806 FEET NORTH AND 1569.970 FEET EAST OF THE WEST QUARTER CORNER OF SECTION 36, T8N, R20E



BEGIN RELOCATION
STA 8+50

Y = 198230 388
X = 723862.137
450.943 FEET NORTH AND 1646.978 FEET EAST OF THE WEST QUARTER CORNER OF SECTION 36, T8N, R20E

LAYOUT
SCALE 0 1000 FEET

TOTAL NET LENGTH OF CENTERLINE = 0.066 MILES

THIS PLAT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES AND ACCESS RIGHTS.

Original Plat Prepared by

SEH

WISCONSIN
JASON L. CANCE
S-2688
CHIPPEWA FALLS WI
LAND SURVEYOR

(Signature) 5-7-2025 (Date)

REVISION DATE

ACCEPTED FOR

VILLAGE OF MENOMONEE FALLS

DATE: 6/2/25 (Signature)

FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\RW\DWG\040101-RP.DWG

PLOT DATE : 5/7/2025 9:33 AM PLOT BY : SEH PLOT NAME :

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO THE VILLAGE.

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W ACRES REQUIRED			PLE ACRES	TLE ACRES
			NEW	EXISTING	TOTAL		
1	13550 CAMPBELL LLC	FEE/PLE/TLE	0.083	–	0.083	0.094	0.029
2	CHYBOWSKI FAMILY LIMITED LIABILITY PARTNERSHIP	FEE/PLE/TLE	0.046	–	0.046	0.087	0.007
10	VILLAGE OF MENOMONEE FALLS	RELEASE OF RIGHTS					

FEE - COURSE TABLE		
COURSE	BEARING	DISTANCE
32-551	N89°46'58"E	1596.42'
551-200	N00°13'02"W	458.18'
200-100	SEE CURVE 1	
100-101	S59°28'53"W	13.84'
101-102	N57°01'48"W	100.38'
102-552	N29°44'39"E	62.45'
552-553	N29°44'39"E	87.36'
553-103	N29°44'39"E	63.52'
103-104	S42°26'22"E	108.21'
104-105	S32°36'52"W	89.00'
105-554	S24°01'15"W	42.43'
554-100	S24°01'15"W	42.95'

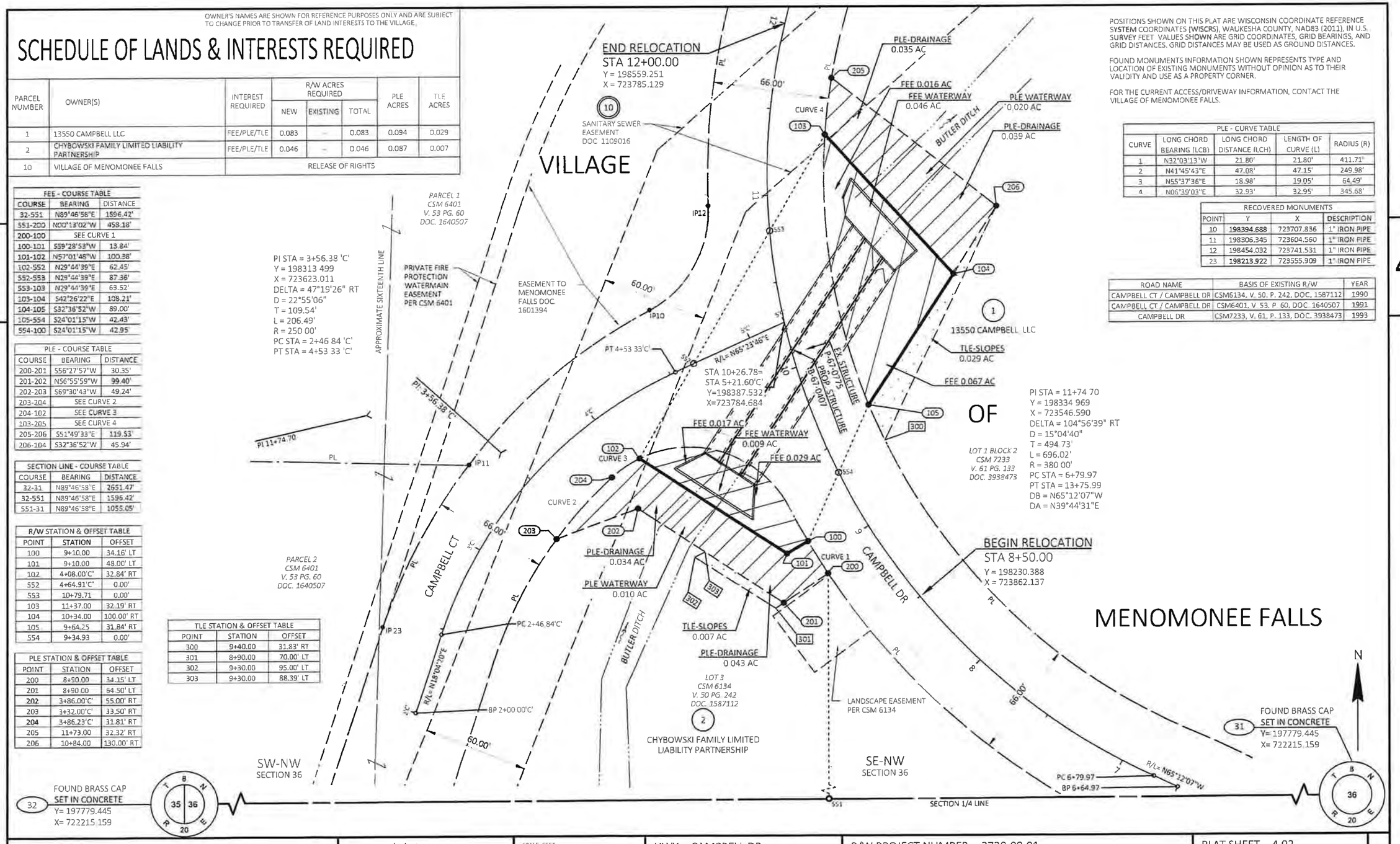
PLE - COURSE TABLE		
COURSE	BEARING	DISTANCE
200-201	S56°27'57"W	30.35'
201-202	N56°55'59"W	99.40'
202-203	S69°30'43"W	49.24'
203-204	SEE CURVE 2	
204-102	SEE CURVE 3	
103-205	SEE CURVE 4	
205-206	S51°49'33"E	119.53'
206-104	S32°36'52"W	45.94'

SECTION LINE - COURSE TABLE		
COURSE	BEARING	DISTANCE
32-31	N89°46'58"E	2651.47'
32-551	N89°46'58"E	1596.42'
551-31	N89°46'58"E	1055.05'

R/W STATION & OFFSET TABLE		
POINT	STATION	OFFSET
100	9+10.00	34.16' LT
101	9+10.00	48.00' LT
102	4+08.00'C'	32.84' RT
552	4+64.91'C'	0.00'
553	10+79.71	0.00'
103	11+37.00	32.19' RT
104	10+34.00	100.00' RT
105	9+64.25	31.84' RT
554	9+34.93	0.00'

PLE STATION & OFFSET TABLE		
POINT	STATION	OFFSET
200	8+90.00	34.15' LT
201	8+90.00	64.50' LT
202	3+86.00'C'	55.00' RT
203	3+32.00'C'	33.50' RT
204	3+86.23'C'	31.81' RT
205	11+73.00	32.32' RT
206	10+84.00	130.00' RT

TLE STATION & OFFSET TABLE		
POINT	STATION	OFFSET
300	9+40.00	31.83' RT
301	8+90.00	70.00' LT
302	9+30.00	95.00' LT
303	9+30.00	88.39' LT



POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), WAUKESHA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

FOUND MONUMENTS INFORMATION SHOWN REPRESENTS TYPE AND LOCATION OF EXISTING MONUMENTS WITHOUT OPINION AS TO THEIR VALIDITY AND USE AS A PROPERTY CORNER.

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE VILLAGE OF MENOMONEE FALLS.

PLE - CURVE TABLE				
CURVE	LONG CHORD BEARING (LCB)	LONG CHORD DISTANCE (LCH)	LENGTH OF CURVE (L)	RADIUS (R)
1	N32°03'13"W	21.80'	21.80'	411.71'
2	N41°45'43"E	47.08'	47.15'	249.98'
3	N55°37'36"E	18.98'	19.05'	64.49'
4	N06°39'03"E	32.93'	32.95'	345.68'

RECOVERED MONUMENTS			
POINT	Y	X	DESCRIPTION
10	198394.688	723707.836	1" IRON PIPE
11	198306.345	723604.560	1" IRON PIPE
12	198454.032	723741.531	1" IRON PIPE
23	198213.922	723555.909	1" IRON PIPE

ROAD NAME	BASIS OF EXISTING R/W	YEAR
CAMPBELL CT / CAMPBELL DR	CSM6134, V. 50, P. 242, DOC. 1587112	1990
CAMPBELL CT / CAMPBELL DR	CSM6401, V. 53, P. 60, DOC. 1640507	1991
CAMPBELL DR	CSM7233, V. 61, P. 133, DOC. 3938473	1993

REVISION DATE	DATE 5/7/25	SCALE, FEET 0 25 50	HWY: CAMPBELL DR	R/W PROJECT NUMBER 2720-09-01	PLAT SHEET 4.02
	GRID FACTOR N/A		COUNTY: WAUKESHA	CONSTRUCTION PROJECT NUMBER 2720-09-71	PS&E SHEET E

FILE NAME : 040101-RP DWG PLOT DATE : 5/7/2025 9 33 AM PLOT BY : SEH PLOT NAME : WISDOT/CADDS SHEET 75

5

BEGIN CONSTRUCTION
STA 3+75.00'CC'
SAWCUT REQUIRED
MATCH EX PAVEMENT

PI: 3+56.38 'CC'

APPROX PL (TYP)

N

DELINEATED WETLAND
BOUNDARY (TYP)

BUTLER DITCH

CAUTION
WE ENERGIES - ELEC

EX EASEMENT (TYP)

WE ENERGIES - ELEC

4'CC'

CAMPBELL CT

SPECTRUM - COMM

PT: 4+53.33 'CC'

AT&T- COMM

STA 10+65.42, 55.00 LT
STA 4+78.89'CC', 53.93 LT

WE ENERGIES - GAS

SLOPE INTERCEPTS (TYP)

VILLAGE OF MENOMONEE
FALLS - SAN

SPECTRUM - COMM
STA 9+72.84, 49.99 LT
STA 4+64.55'CC', 50.32 RT

R=30.00'

N69° 49' 23"E

744.41

5'CC'

R=35.00'

9+25.64
23.06'LT

9+02.06
23.87'LT

9+49.21
22.00'LT

9+25.00
18.00'LT

9+00.00
20.00'LT

R=404.0'

STA 10+26.78
STA 5+21.60'CC'

END PROJECT
STA 11+65.00
SAWCUT REQUIRED
MATCH EX PAVEMENT

VILLAGE OF MENOMONEE
FALLS - SAN

C1

Y=198,387.5320
X=723,784.6839

WE ENERGIES - GAS

CAUTION

9+25.00
20.00'RT

9+73.50
23.07'RT

11+06.15
22.00'RT

11+32.73
23.00'RT

11+59.39
24.00'RT

APPROX EX ROW (TYP)

CAMPBELL DR

R=385.3'

10+00.00
22.00'RT

R=357.5'

9+46.91
24.00'RT

VILLAGE OF MENOMONEE FALLS
WATER

BEGIN PROJECT
STA 9+25.00
SAWCUT REQUIRED
MATCH EX PAVEMENT

PROPOSED ROW (TYP)

PROPOSED STRUCTURE
B-67-0407
SEE STRUCTURE PLAN

TLE (TYP)

PLE (TYP)

SPECTRUM - COMM

DELINEATED WETLAND
BOUNDARY (TYP)

EX EASEMENT (TYP)

N65° 12' 07"W

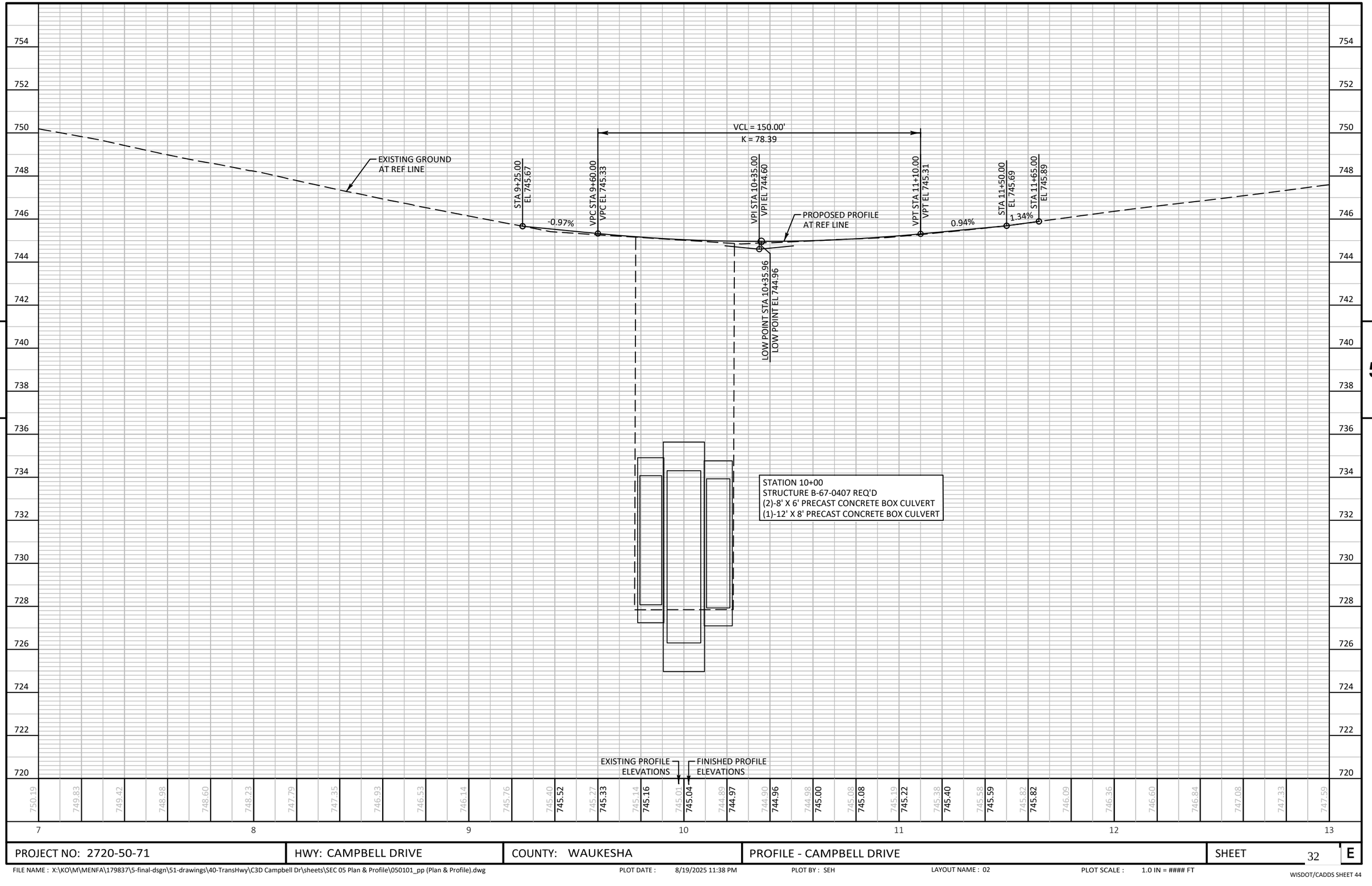
PC: 6+79.97

BP: 6+64.97

PT: 13+75.99

EP: 13+85.99

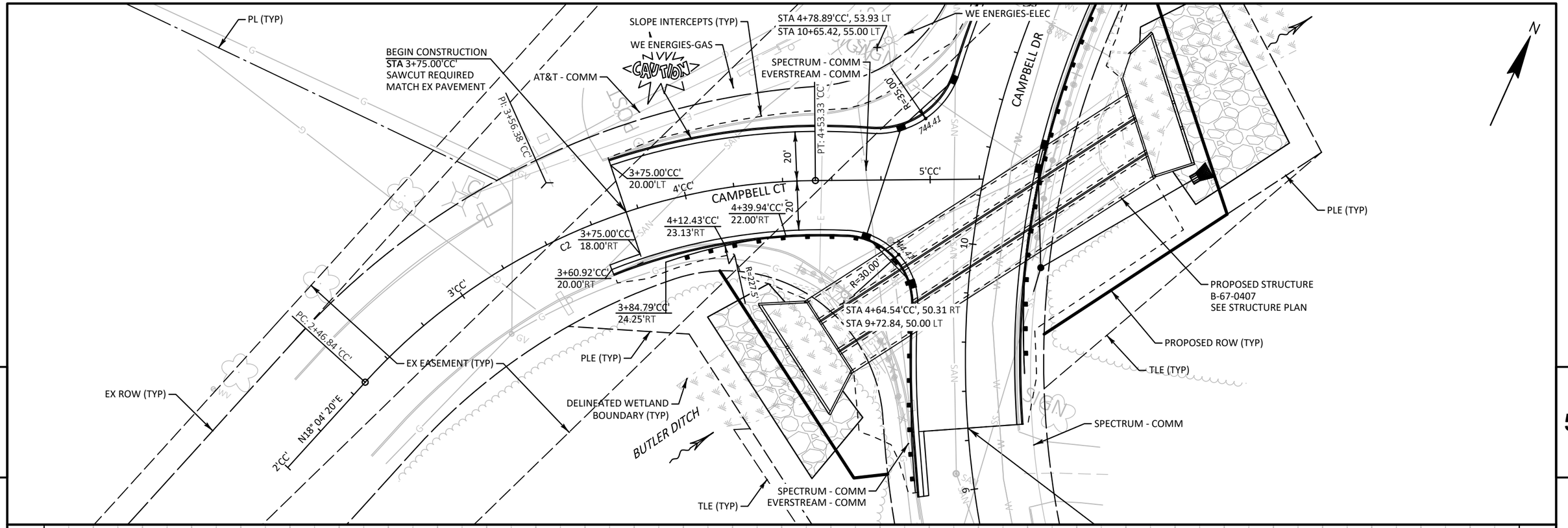
PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	PLAN - CAMPBELL DRIVE	SHEET 31 E

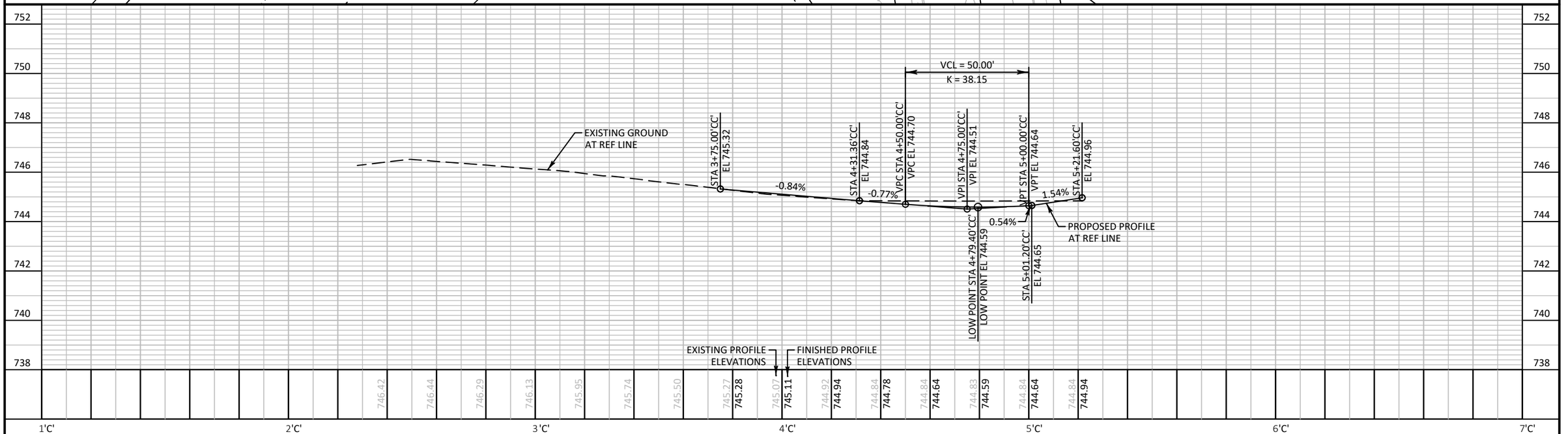


5

5

PROJECT NO: 2720-50-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	PROFILE - CAMPBELL DRIVE	SHEET 32 E



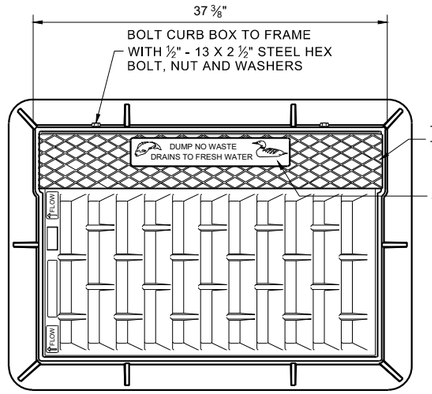


PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	PLAN AND PROFILE - CAMPBELL COURT	SHEET 33 E

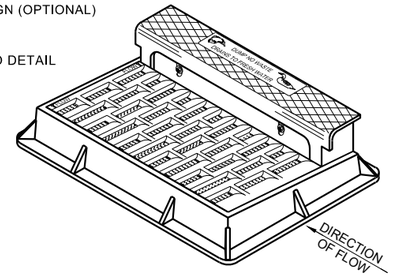
Standard Detail Drawing List

08A05-22A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-22E	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-04	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT, 10-FT DIAMETER
08C06-03	INLETS 3-FT AND 4-FT DIAMETER
08C07-03	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT, 2.5X3-FT & 2X3.5-FT
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
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)
14B53-03A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

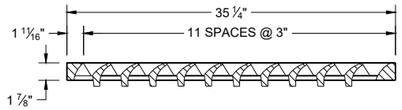
6

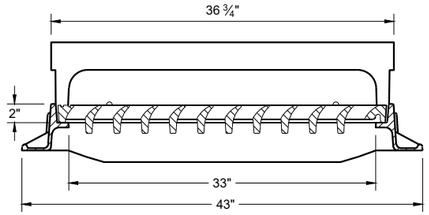


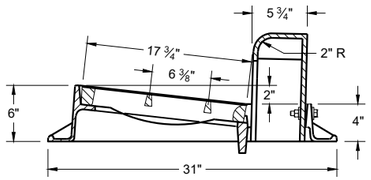
NOTE: EITHER CASTING IS ACCEPTABLE

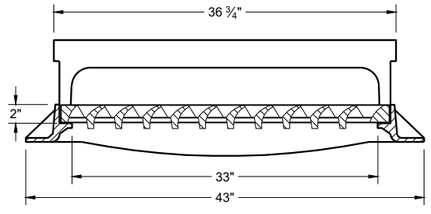


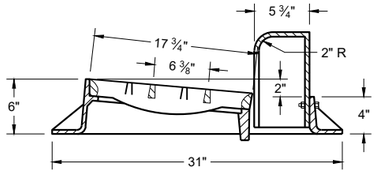
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"







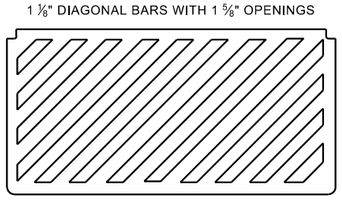




TYPE "H"

NOTE: EITHER CASTING IS ACCEPTABLE

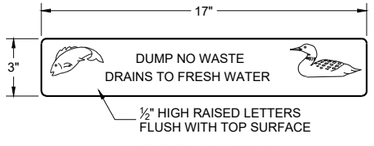
1 ⅛" DIAGONAL BARS WITH 1 ⅝" OPENINGS



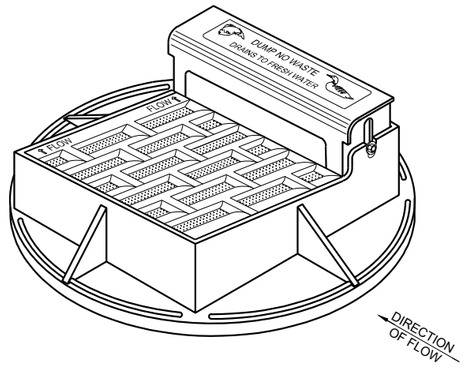
SPECIAL GRATE FOR TYPE "H" COVER

(MEASURES 35" X 17 ¾" X 2")

(NOTED AS TYPE H-S ON DRAINAGE TABLE)

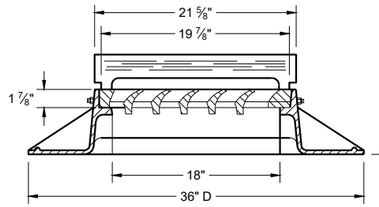


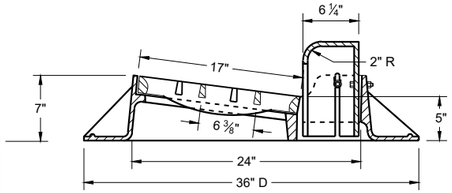
LOGO DETAIL



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

NOTE: EITHER CASTING IS ACCEPTABLE





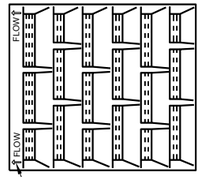
TYPE "A"

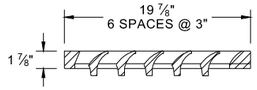
GENERAL NOTES

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.

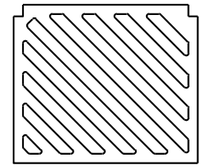
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.





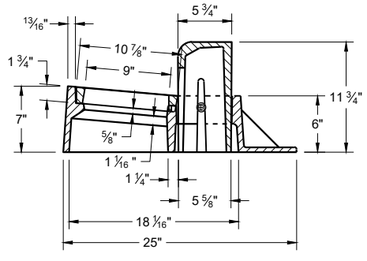
1" DIAGONAL BARS
WITH 1 ½" OPENINGS



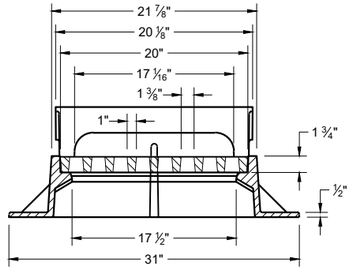
SPECIAL GRATE FOR TYPE "A" COVER

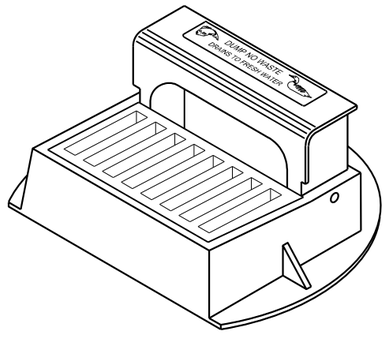
(MEASURES 19 ¾" X 17" X 1 ⅞")

(NOTED AS TYPE A-S ON DRAINAGE TABLE)



TYPE "Z"





INLET COVERS
TYPES A, H, A-S, H-S AND Z

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

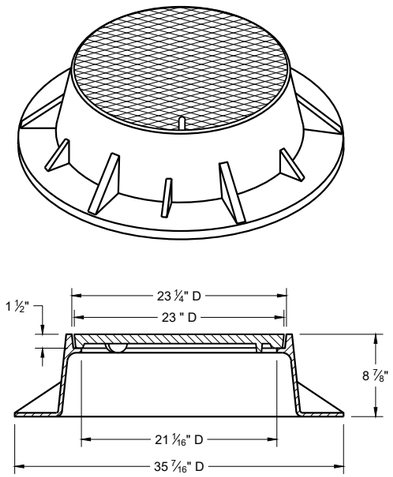
6
SDD 08A05-22a

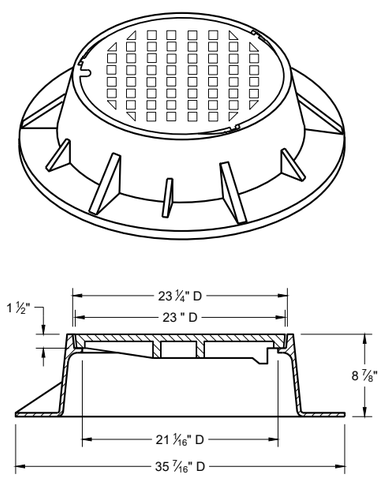
GENERAL NOTES

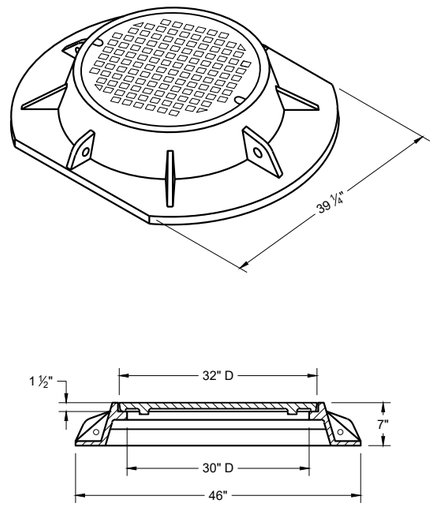
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

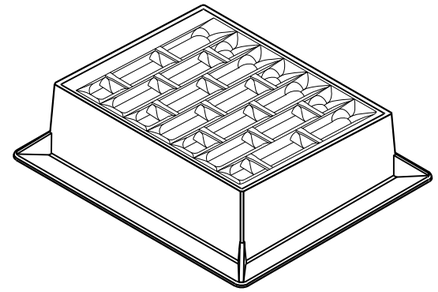
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

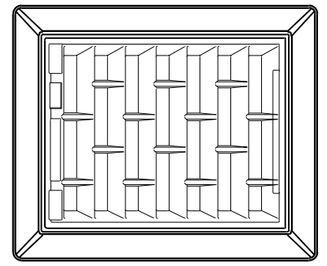


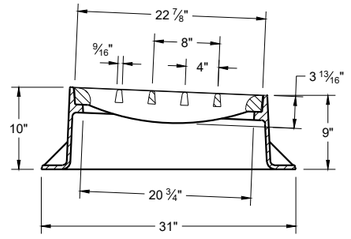


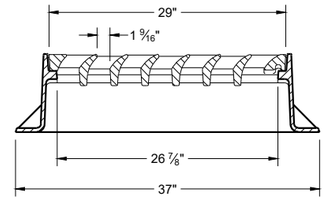


TYPE "K"

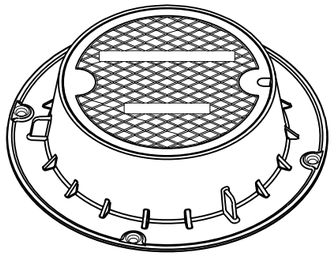


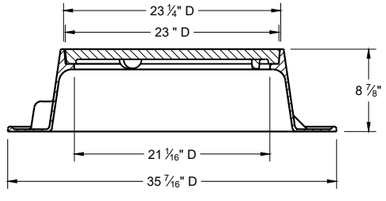






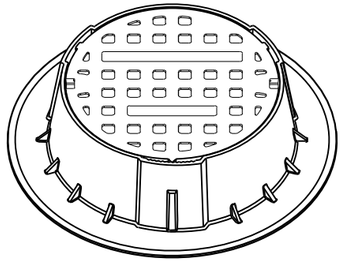
INLET COVER TYPE "BW"

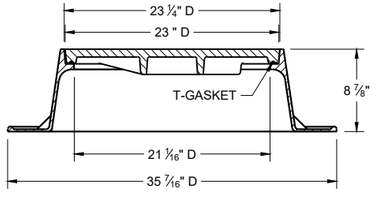




TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

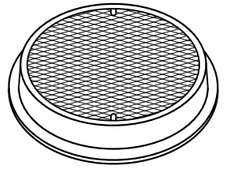


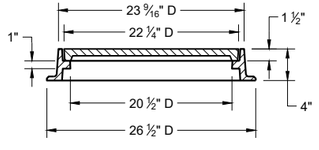


TYPE "J" SPECIAL

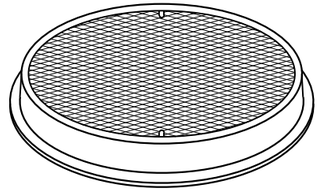
TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

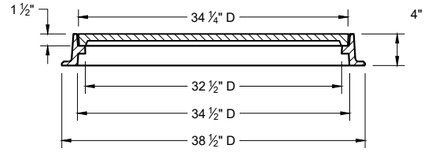
NOTE: EITHER CASTING IS ACCEPTABLE





TYPE "L"





TYPE "M"

INLET COVERS TYPES BW
MANHOLE COVERS TYPES K, J, J-S, L, AND M

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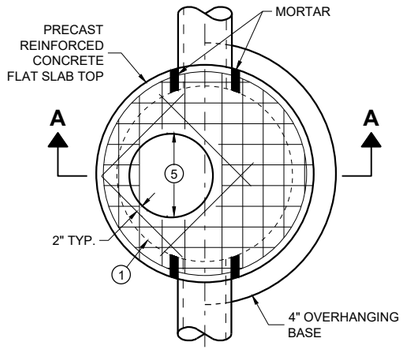
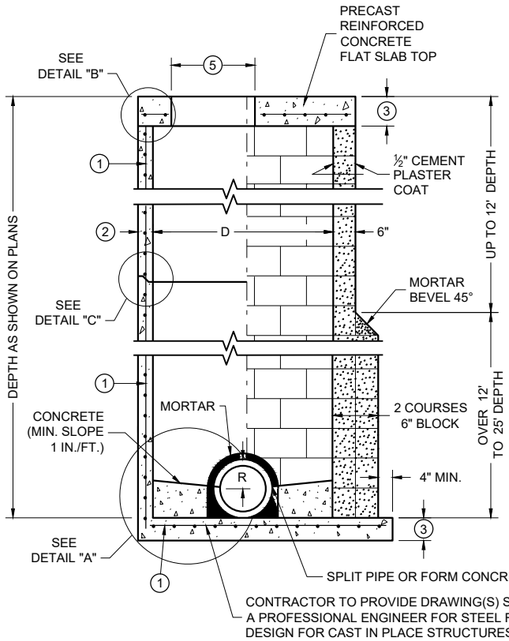


PLAN VIEW

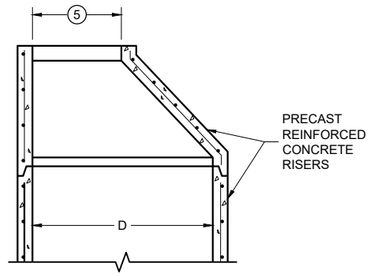
CIRCULAR OPENING



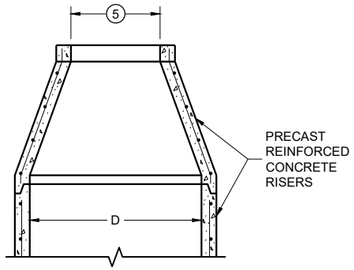
SECTION A - A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

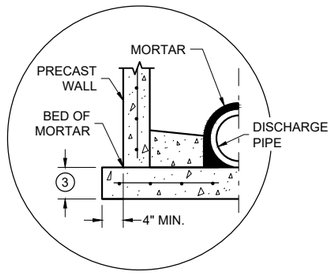
CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE (1)



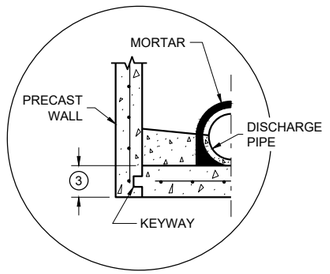
OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP



OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

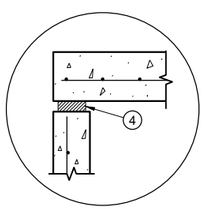


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

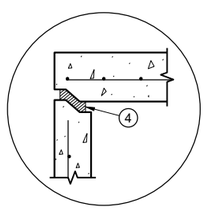


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

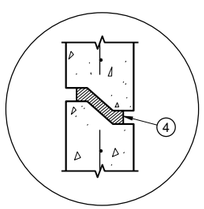
DETAIL "A"



TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

DETAIL "C"

MANHOLE COVER OPENING MATRIX

OPENING SIZE (FT.) (5) \ MANHOLE COVER TYPE	C	ALL J'S	K	L	M
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE (DIA.)	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES		MINIMUM WALL THICKNESS (IN)	MINIMUM PRECAST FLAT SLAB TOP AND BASE THICKNESS
	180° SEPARATION (IN)	90° SEPARATION (IN)		
3-FT	15	12	4	6
4-FT	24	18	4	6
5-FT	36	24	5	8
6-FT	42	36	6	8
7-FT	48	36/42 *	7	8
8-FT	60	42	8	8
9-FT	66	54	9	10
10-FT	72	60	10	10

*A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES. SEE MINIMUM HORIZONTAL PIPE SEPARATION 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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES. CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL IMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½ INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

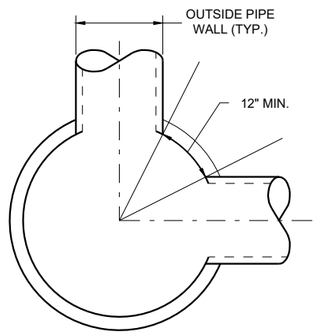
(1) FOR PRECAST MANHOLES AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

(2) SEE PIPE MATRIX TABLE FOR MINIMUM WALL THICKNESS FOR PRECAST MANHOLES

(3) SEE PIPE MATRIX TABLE FOR MINIMUM THICKNESS OF PRECAST FLAT SLAB TOPS AND BASES.

(4) JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFORMING TO ASTM C443.

(5) SEE MANHOLE COVER OPENING MATRIX.



MINIMUM HORIZONTAL PIPE SEPARATION

DETAIL "D"

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT AND 10-FT DIAMETER

MANHOLES, 3-FT, 4-FT 5-FT, 6-FT, 7-FT, 8-FT, 9-FT AND 10-FT DIAMETER

STATE OF WISCONSIN
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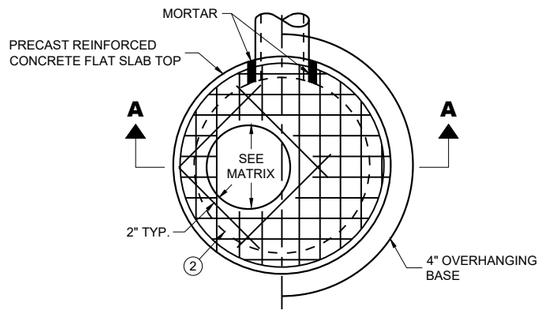
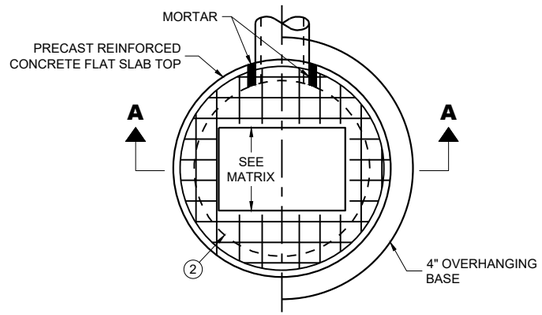
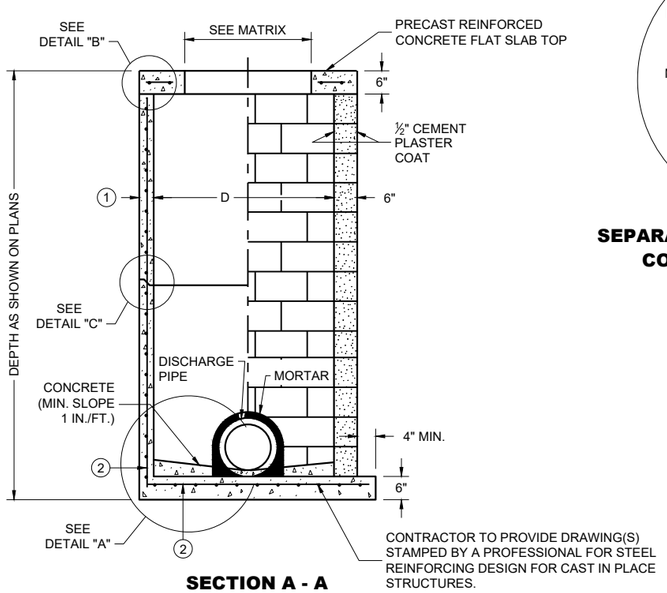


PLAN VIEW CIRCULAR OPENING



PLAN VIEW RECTANGULAR OPENING



SECTION A - A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE (2)

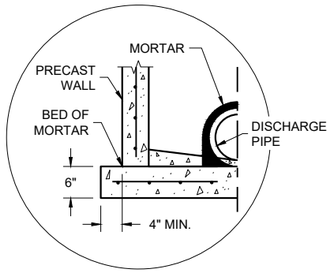
CIRCULAR INLETS WITH FLAT TOP

CATCH BASIN COVER OPENING MATRIX

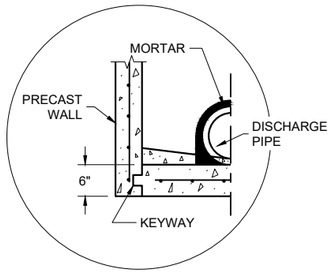
INLET SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
	OPENING SIZE (FT.)											
3-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
4-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
	2 X 2.5			X				X	X	X	X	
	2 X 3						X					
	2.5 X 3					X						

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

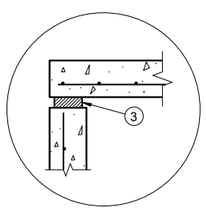


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

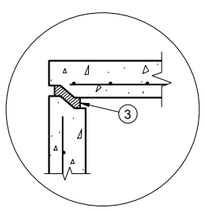


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

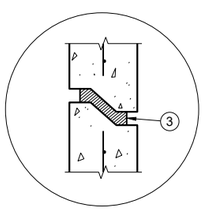
DETAIL "A"



TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B" **DETAIL "C"**

INLETS 3-FT AND 4-FT DIAMETER

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

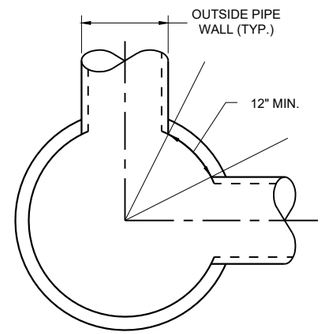
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

(1) MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT DIAMETER AND 5 INCHES FOR 4-FT DIAMTER PRECAST INLETS.

(2) FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

(3) JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFORMING TO ASTM C443.



MINIMUM HORIZONTAL PIPE SEPARATION

DETAIL "D"

INLETS 3-FT AND 4-FT DIAMETER

STATE OF WISCONSIN
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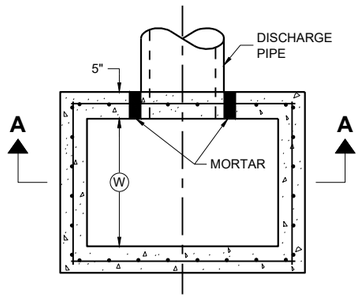
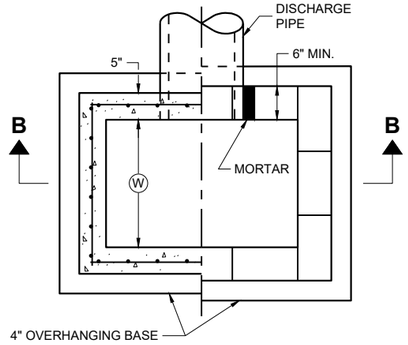
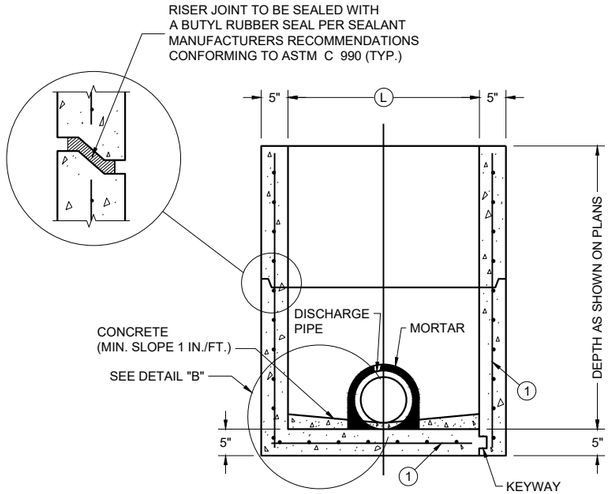


PLAN VIEW



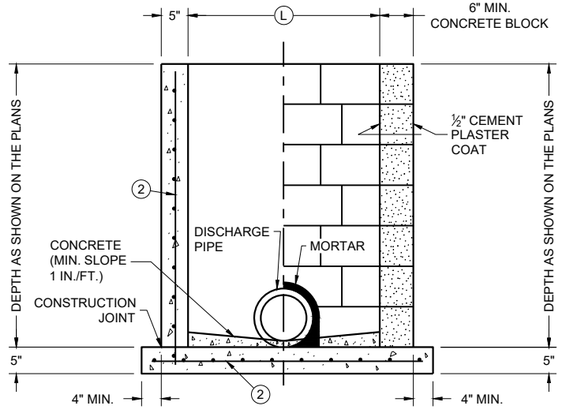
PLAN VIEW



PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE

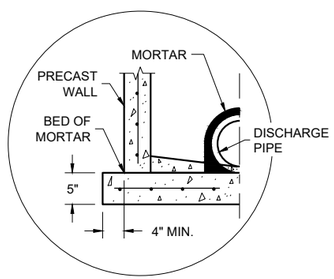
SECTION A - A



CAST IN PLACE REINFORCED CONCRETE

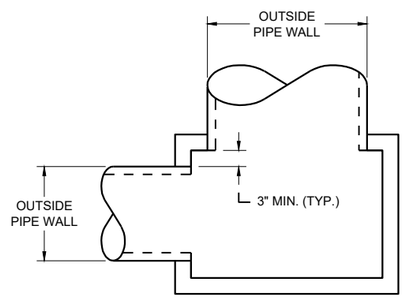
CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE (1)

SECTION B - B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "B"



DETAIL "A"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP N0T SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

(1) FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913
(2) CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

CATCH BASIN COVER MATRIX

INLET SIZE	WIDTH (W) (FT.)	LENGTH (L) (FT.)	INLET COVER TYPE									
			ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM	V V-B
2 X 2-FT	2	2	X	X				X				
2 X 2.5-FT	2	2.5			X			X	X	X	X	
2 X 3-FT	2	3					X					
2.5 X 3-FT	2.5	3				X						
2 X 3.5-FT	2	3.5										X

PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2 X 2-FT	12	12
2 X 2.5-FT	12	18
2 X 3-FT	12	24
2.5 X 3-FT	18	24
2 X 3.5-FT	12	30

INLETS 2 X 2-FT, 2 X 2.5-FT, 2 X 3-FT, 2.5 X 3-FT AND 2X3.5-FT

INLETS 2 X 2-FT, 2 X 2.5-FT, 2 X 3-FT, 2.5 X 3-FT AND 2 X 3.5-FT

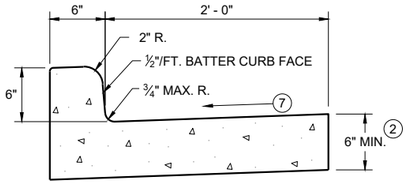
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2023
DATE

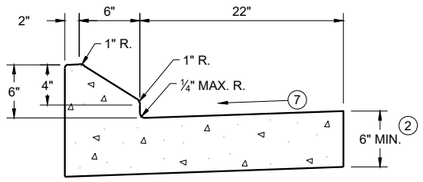
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

FHWA

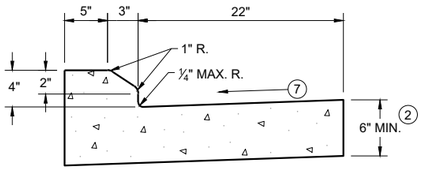
6
SDD 08C07-03



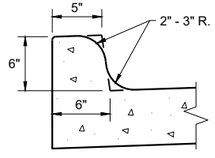
TYPES A (1) & D



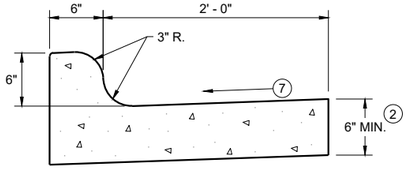
6" SLOPED CURB TYPES G (1) & J



4" SLOPED CURB TYPES G (1) & J

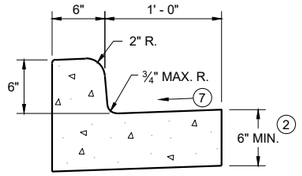


TYPES K (1) & L
(OPTIONAL CURB SHAPE)



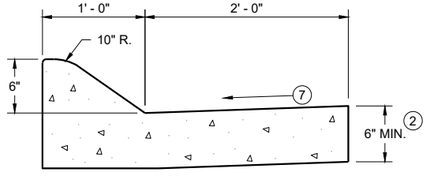
TYPES K (1) & L

CONCRETE CURB AND GUTTER 30"

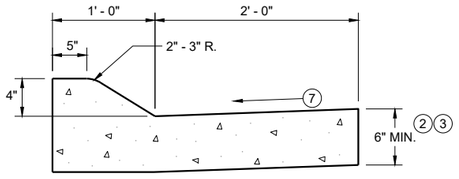


TYPES A (1) & D

CONCRETE CURB AND GUTTER 18"

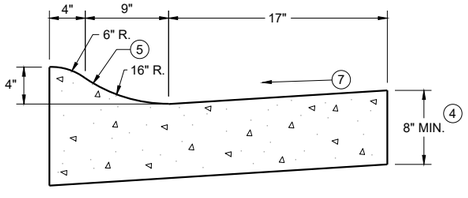


6" SLOPED CURB TYPES A (1) & D



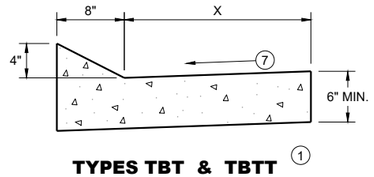
4" SLOPED CURB TYPES A (1) & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R (1) & T
CONCRETE CURB AND GUTTER 30"

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

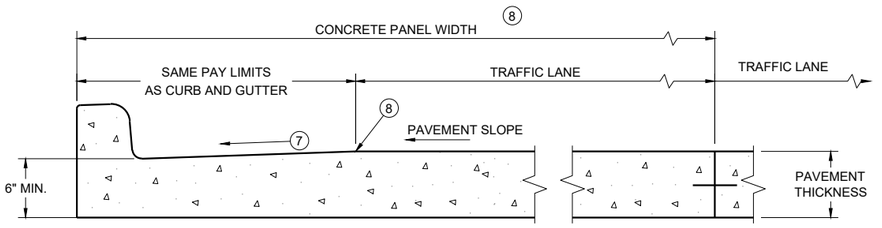


TYPES TBT & TBTT (1)

CONCRETE CURB AND GUTTER

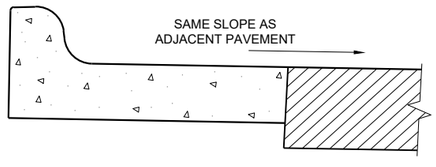
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB AND GUTTER *

* BIKE LANE IS NOT SHOWN



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

GENERAL NOTES

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

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

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

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

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

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

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

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

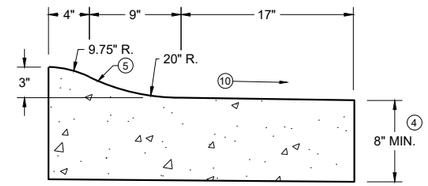
(5) UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

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

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

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

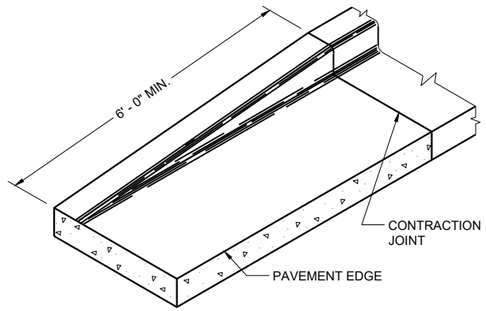
(9) SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY



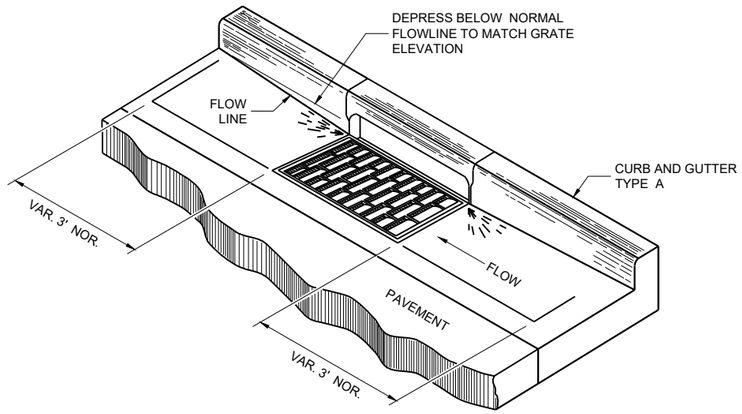
3" SLOPED CURB TYPES R (1) & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



END SECTION CURB AND GUTTER



DETAIL OF CURB AND GUTTER AT INLETS

(TYPICAL H INLET COVER SHOWN)

GENERAL NOTES

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

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

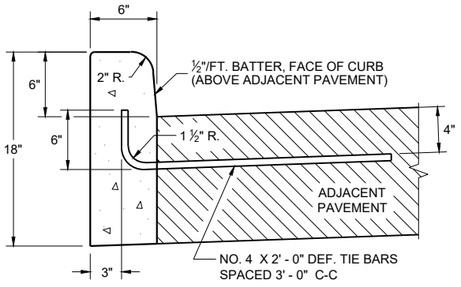
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

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

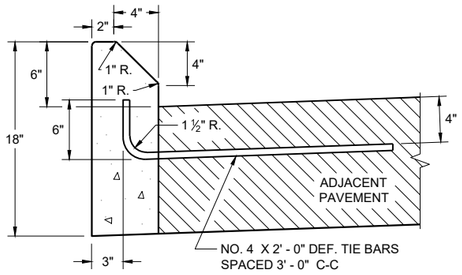
(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(10) REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

(11) PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.

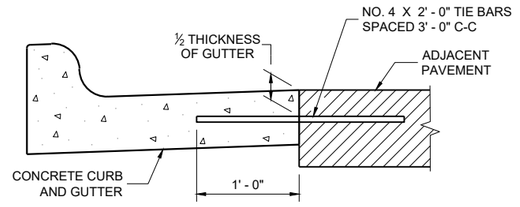


TYPES A (1) & D

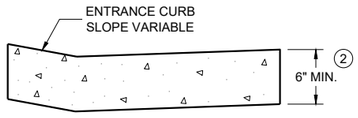


TYPES G (1) & J

CONCRETE CURB

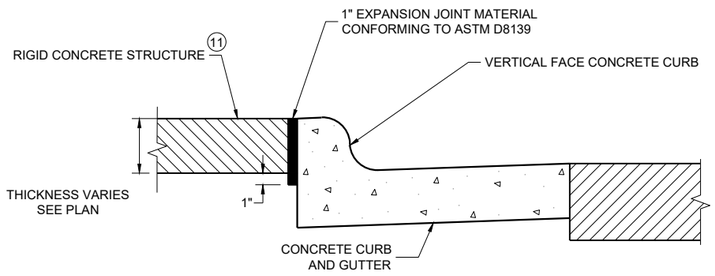


TYPICAL TIE BAR LOCATION (1)

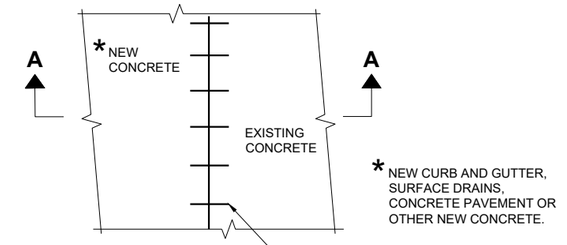


DRIVEWAY ENTRANCE CURB (10)

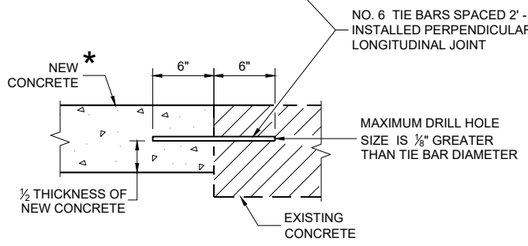
(WHEN DIRECTED BY THE ENGINEER)



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE (11)



PLAN VIEW



SECTION A - A

TIE BARS DRILLED INTO EXISTING PAVEMENT

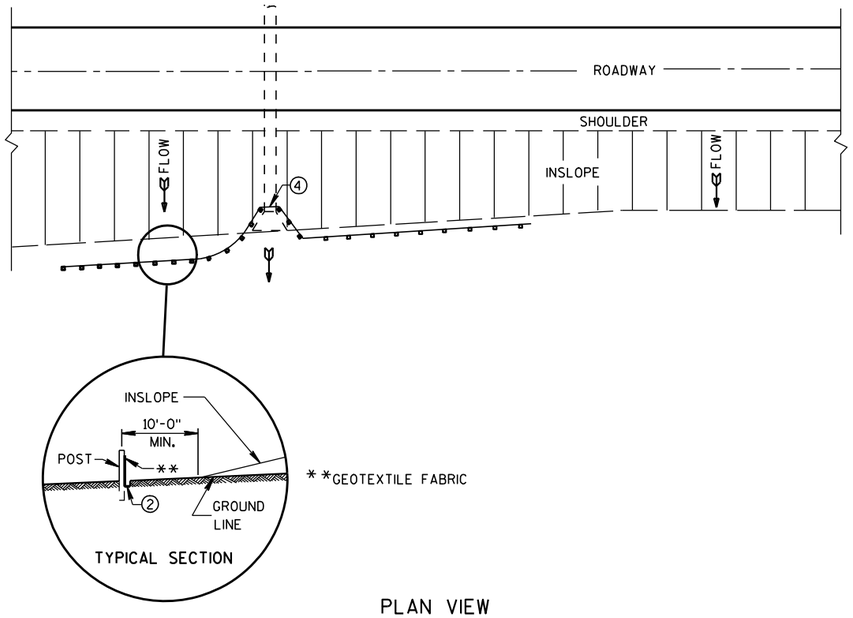
CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 — DATE
/S/ Rodnery Taylor — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

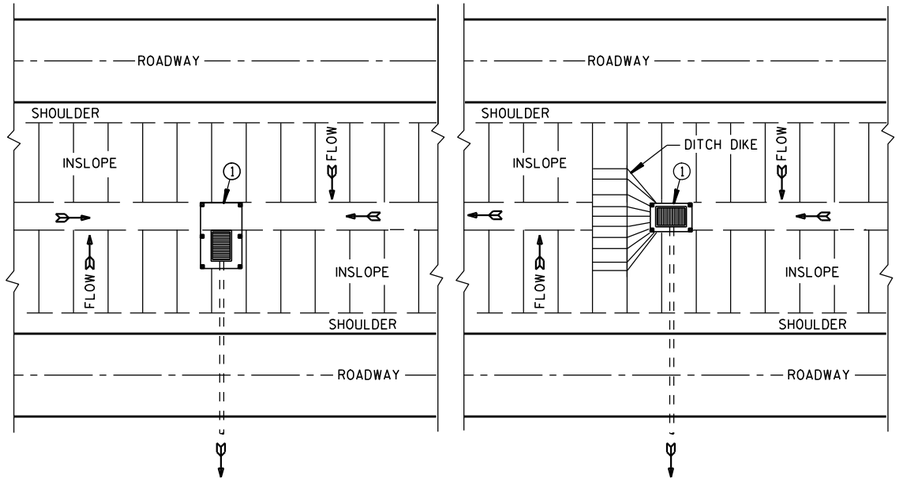
FHWA

6
SDD 08D01-24b



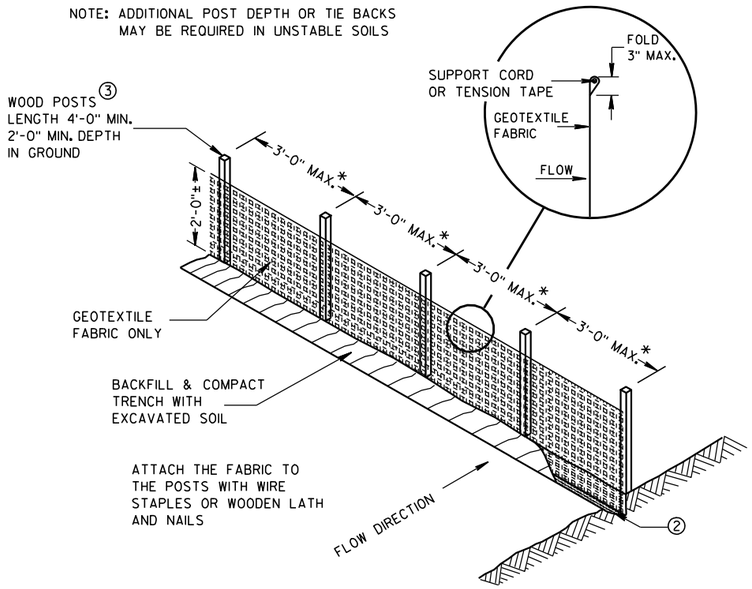
PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



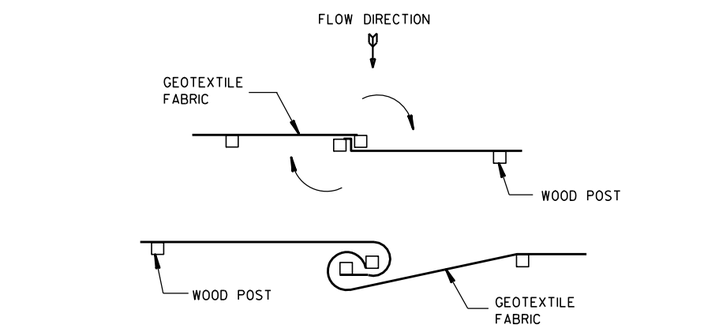
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

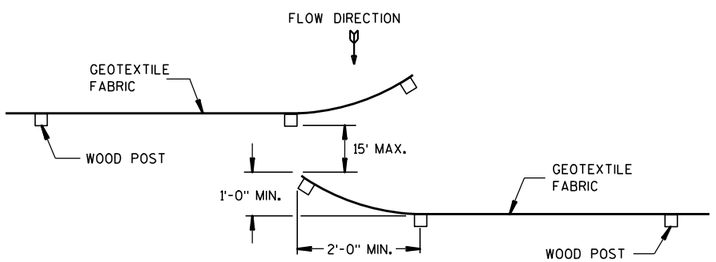


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE



TWIST METHOD



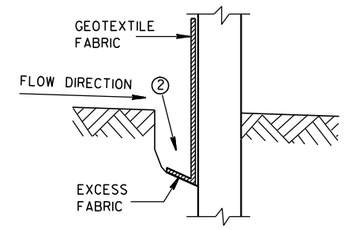
HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5

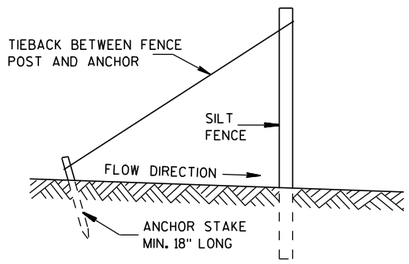
GENERAL NOTES

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

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



TRENCH DETAIL



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

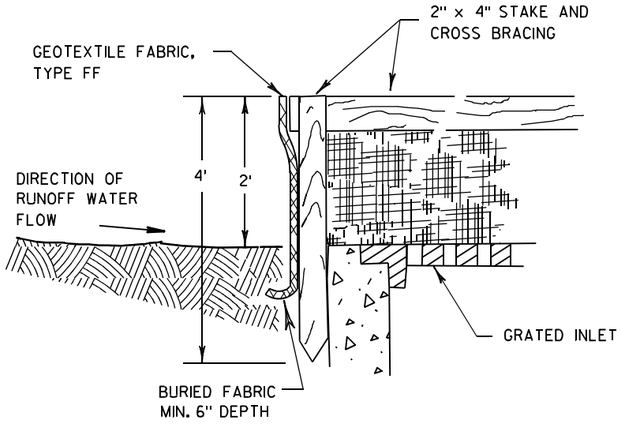
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

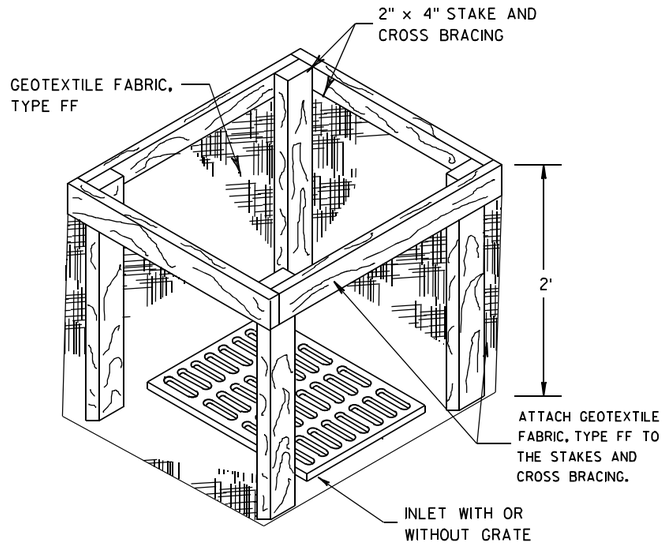
6

S.D.D. 8 E 9-6

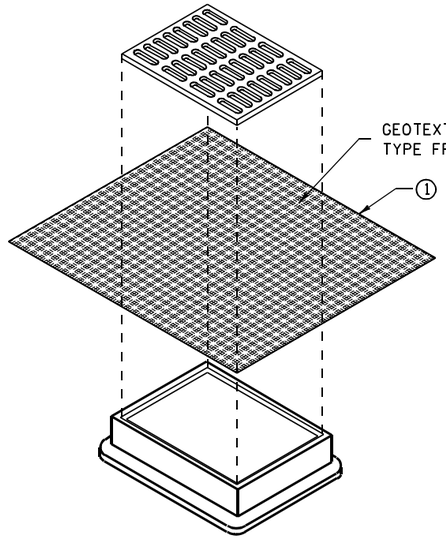
6

S.D.D. 8 E 9-6



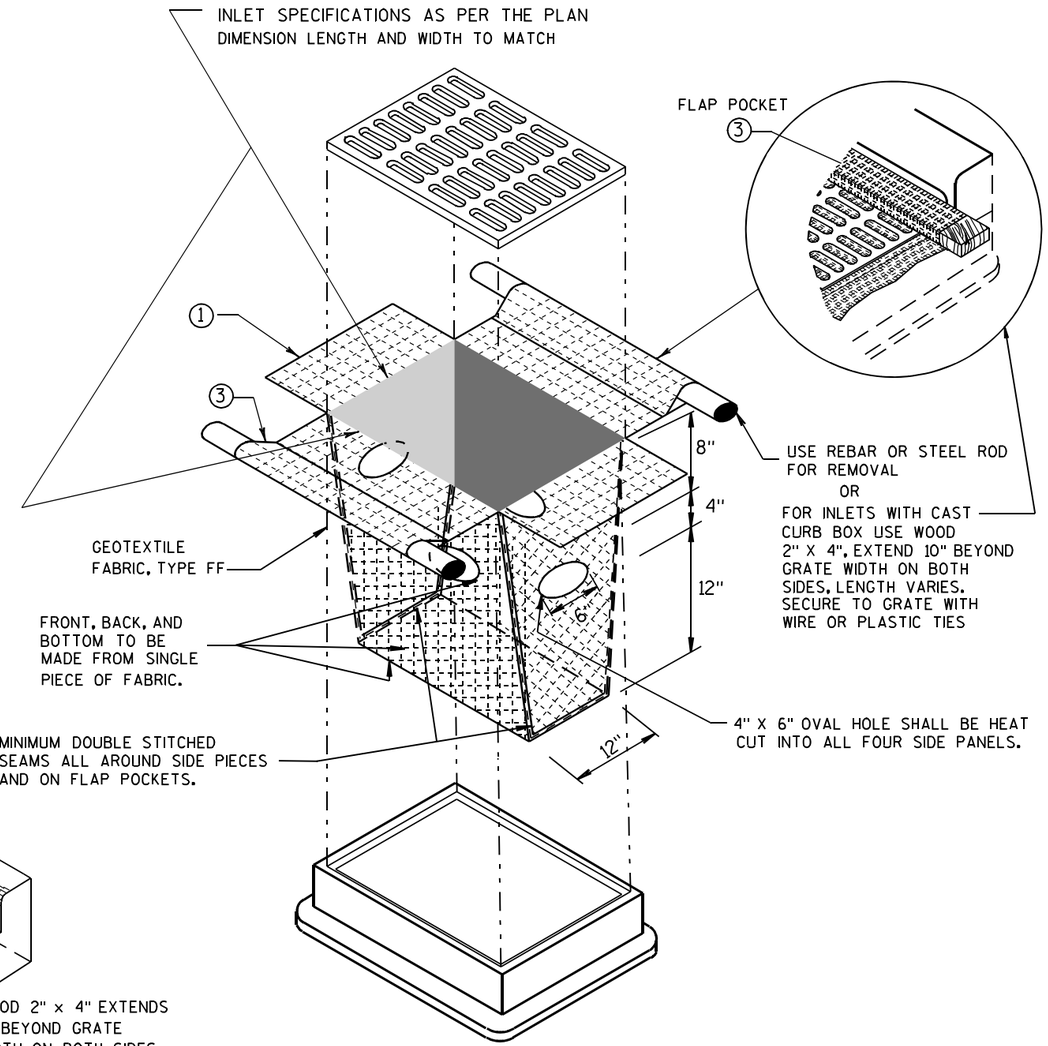


INLET PROTECTION, TYPE A



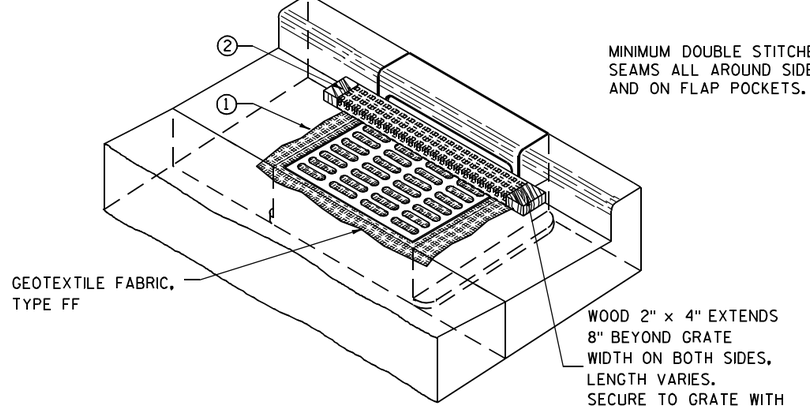
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH
OR WITHOUT A CURB BOX AS PER NOTE ②)



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6
S.D.D. 8 E 10-2

METAL APRON ENDWALLS

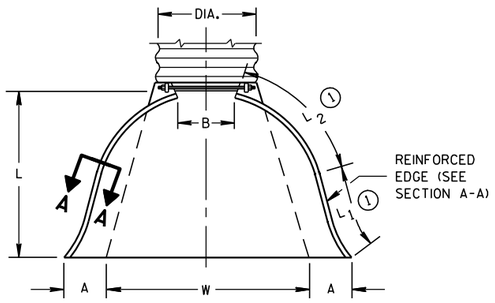
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

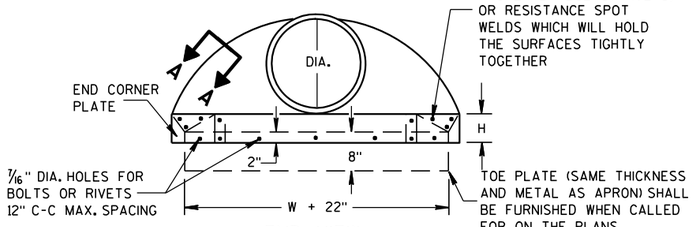
REINFORCED CONCRETE APRON ENDWALLS

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

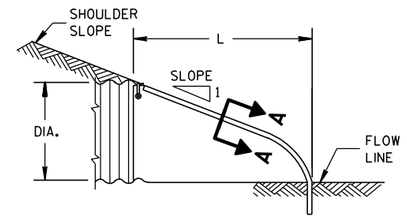
*MINIMUM
**MAXIMUM



PLAN VIEW

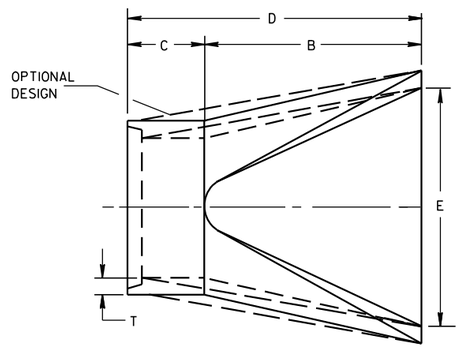


END VIEW

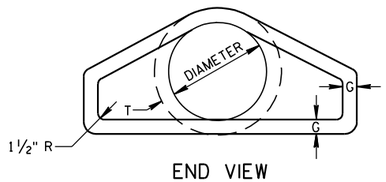


SIDE ELEVATION

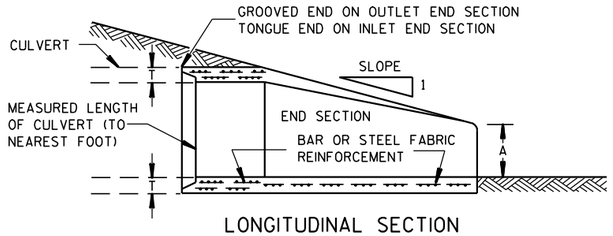
METAL ENDWALLS



PLAN

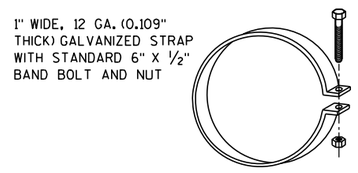


END VIEW



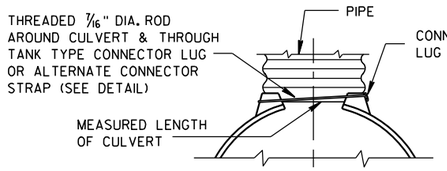
LONGITUDINAL SECTION

CONCRETE ENDWALLS

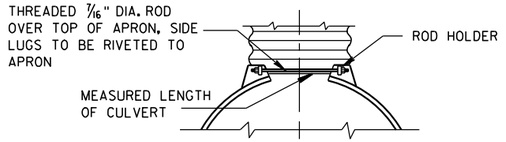


ALTERNATE FOR TYPE 1 CONNECTION

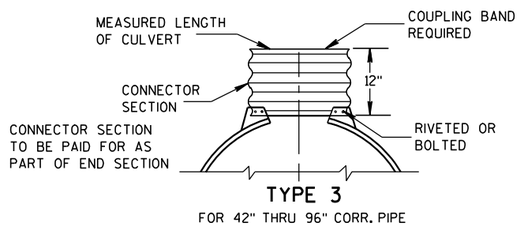
END SECTION CONNECTOR STRAP



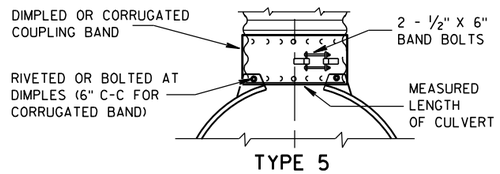
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

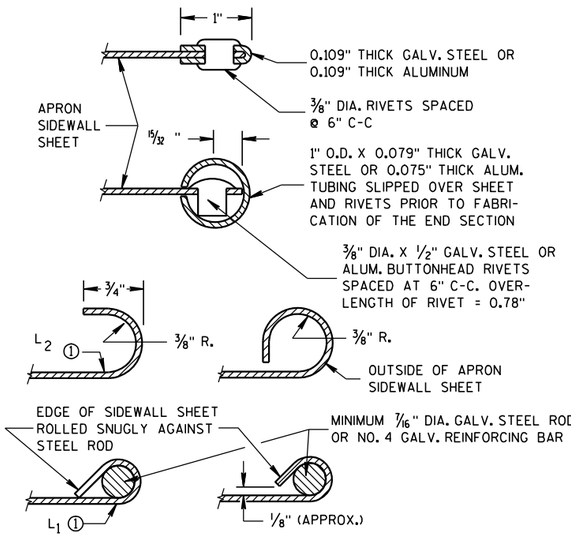
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

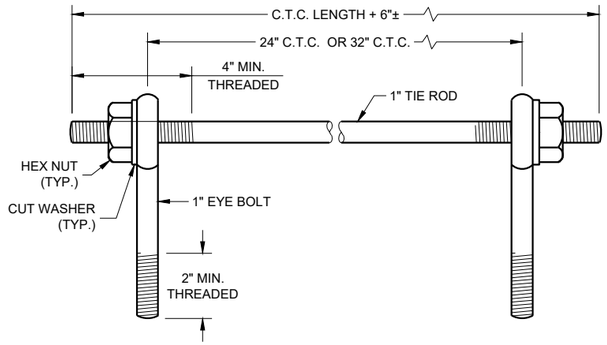
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

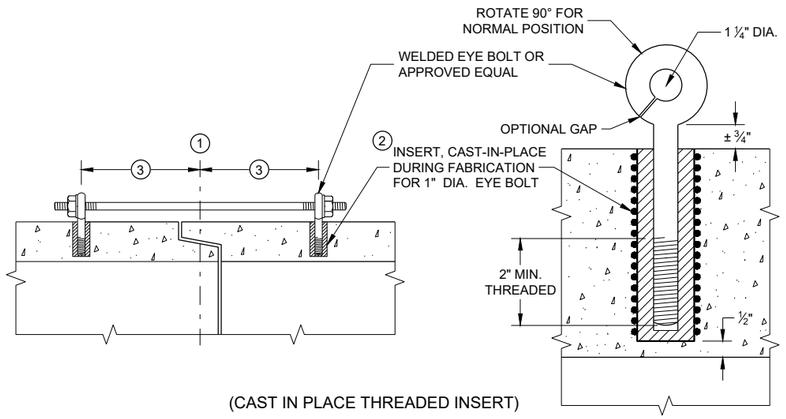
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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



EYE BOLTS AND TIE ROD



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

(1) CENTER LINE 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.

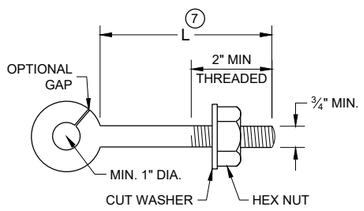
(3) HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.

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

(5) OPENING TO BE ROD DIAMETER PLUS 1 INCH.

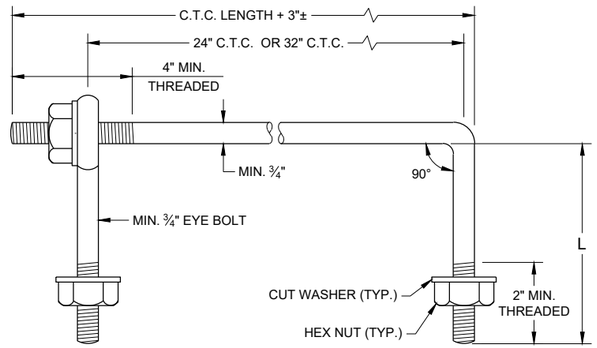
(6) LENGTH ADEQUATE TO EXTEND TO WITHIN ½ INCH OF THE INNER SURFACE OF THE PIPE.

(7) EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

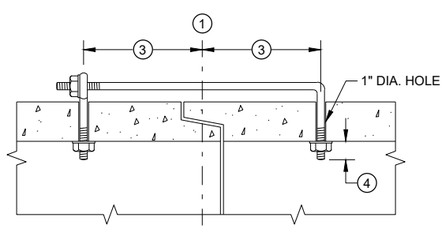


EYE BOLT (7)

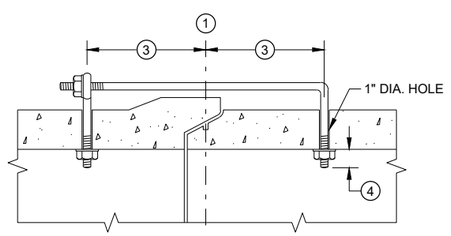
NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD



(TONGUE AND GROOVE PIPE)



(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

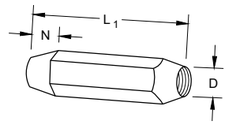
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

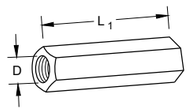
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12 - 60	⅝	⅝	5	½
66 - 84	¾	¾	5	½
90 - 144	1	1	7	1 7/16

DIMENSIONS SHOWN ARE IN INCHES



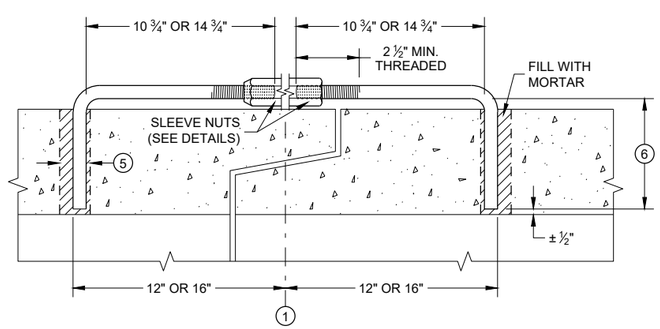
TAPERED



PLAIN

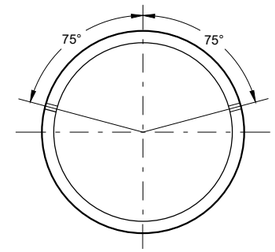
RIGHT AND LEFT THREADS

SLEEVE NUTS



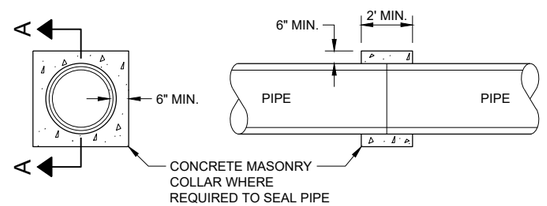
LONGITUDINAL SECTION

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

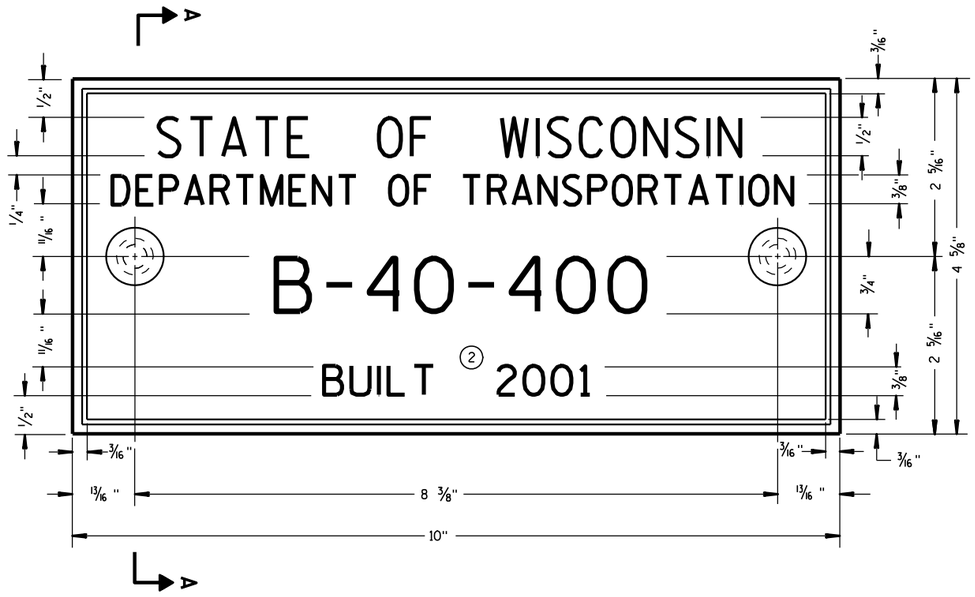
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE ENGINEER

FHWA

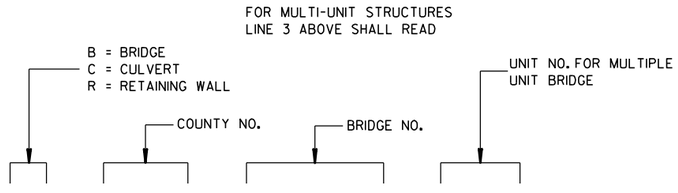
SDD 08F04 - 08

SDD 08F04 - 08



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

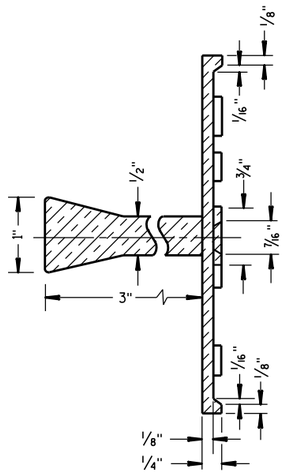
GENERAL NOTES

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

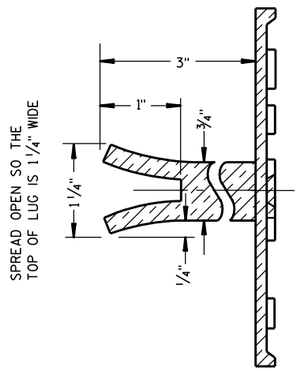
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

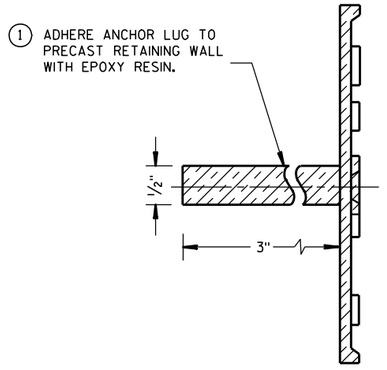
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
3/26/10 DATE	/S/ Scot Beck CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	

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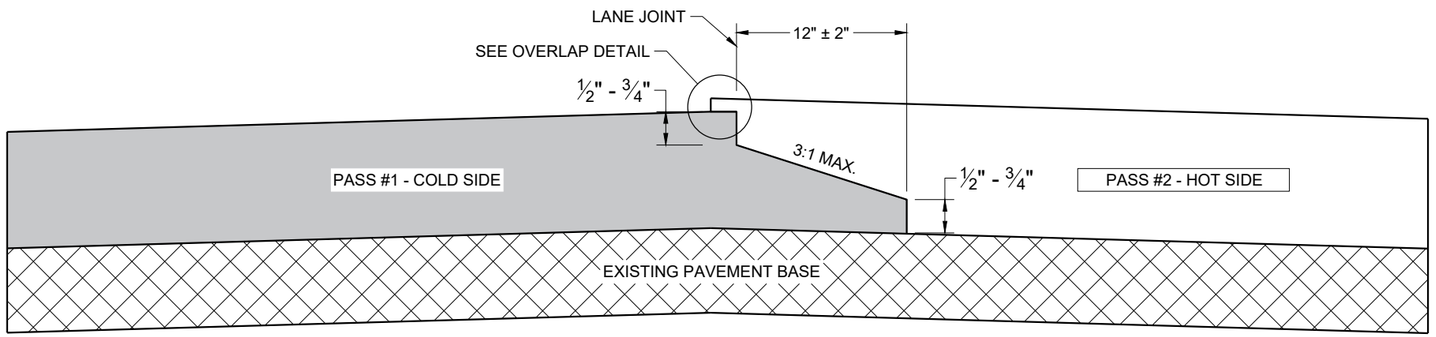
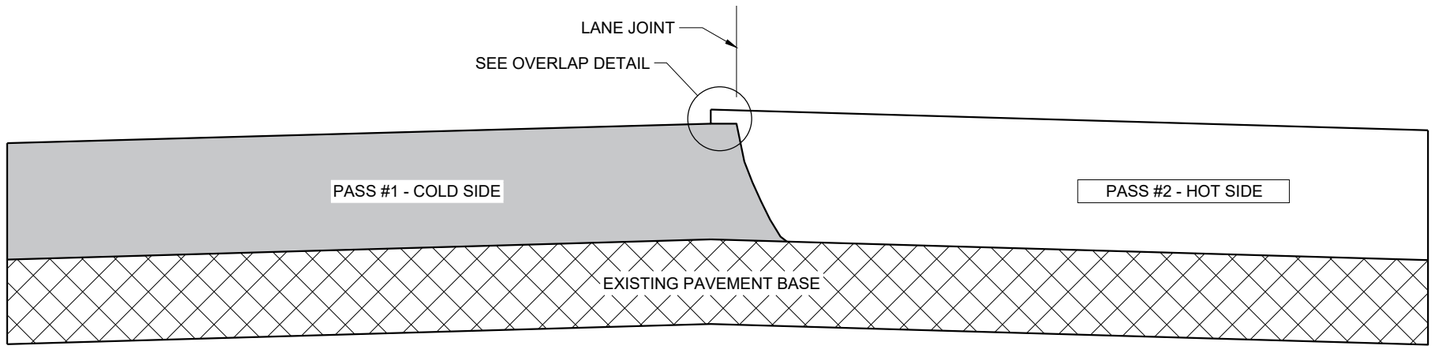
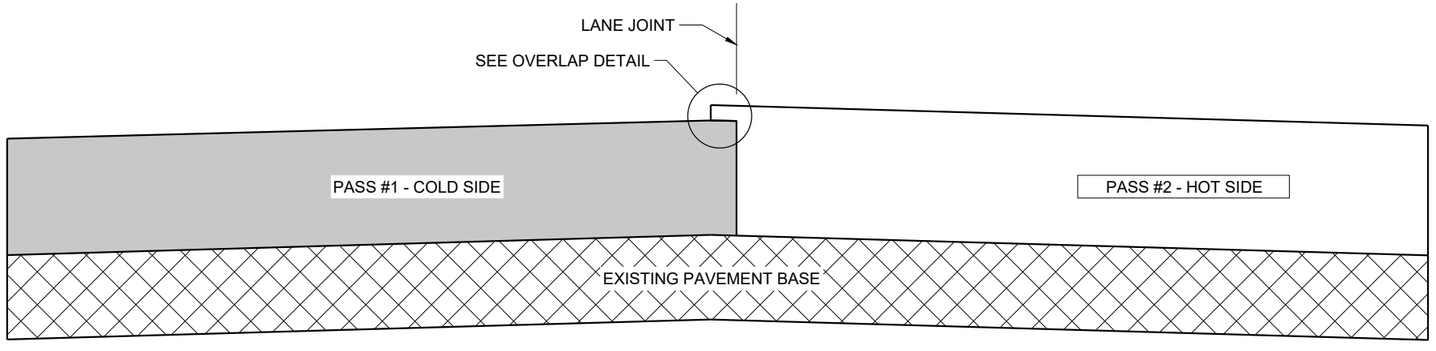
S.D.D. 12 A 3-10



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

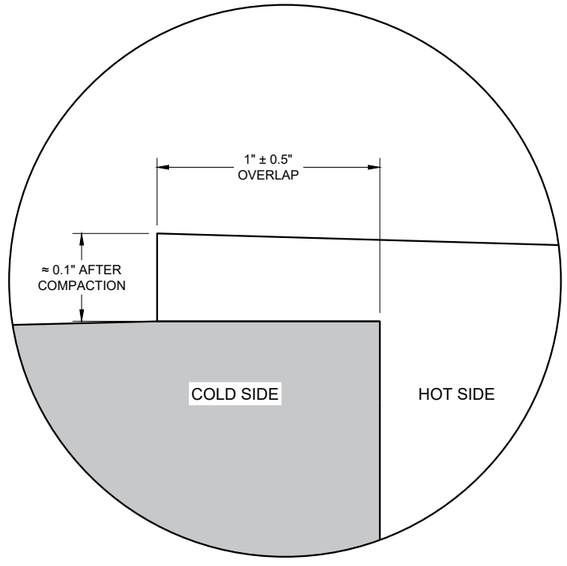
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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)

6

6

SDD 13C19 - 03

SDD 13C19 - 03

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020
DATE

/S/ Steven Hefel
HMA PAVEMENT ENGIN

FHWA

(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.

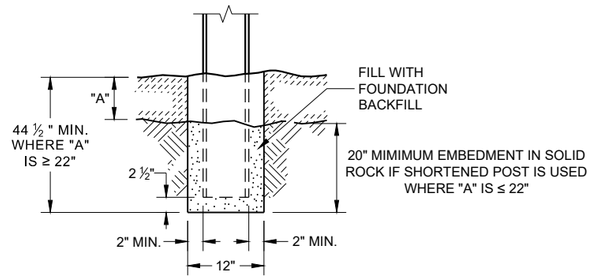
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL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

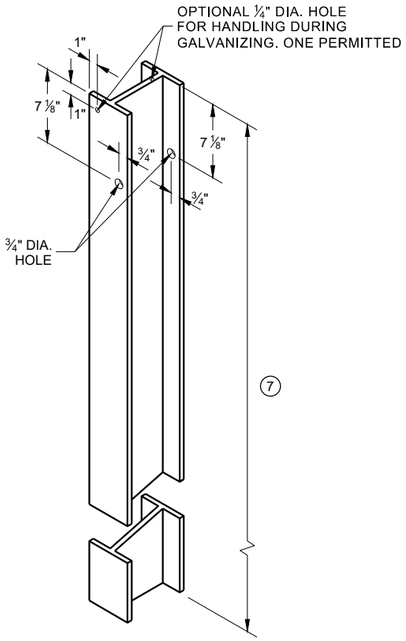
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

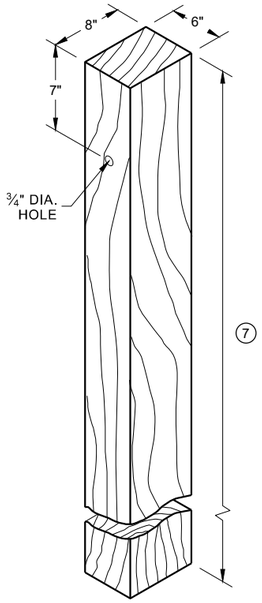
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



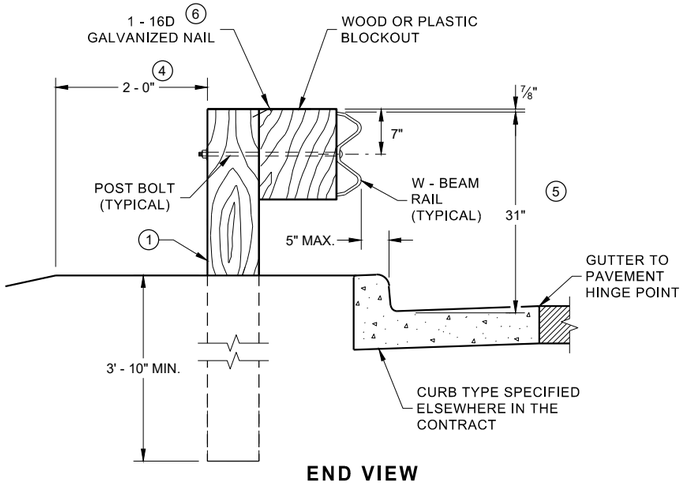
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



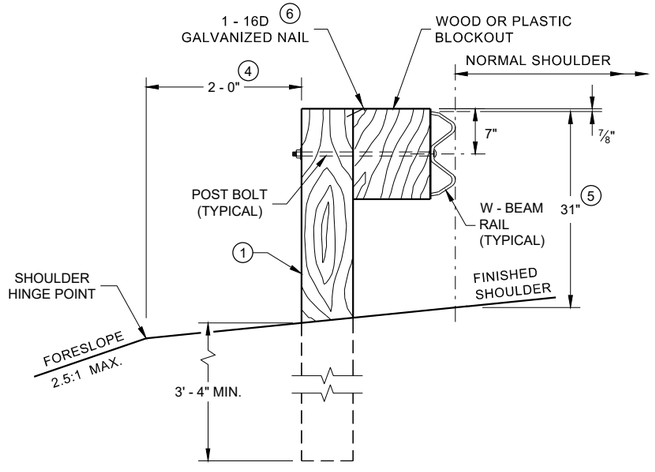
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



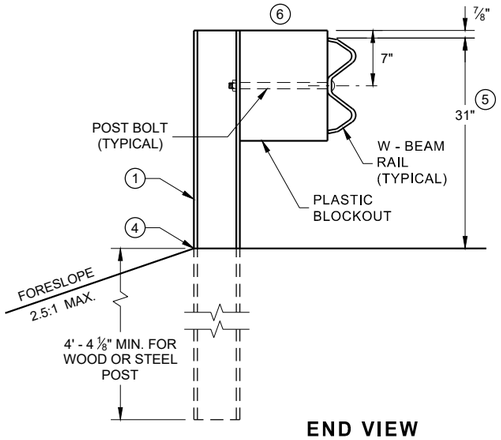
WOOD POST (6" X 8") NOMINAL (1)



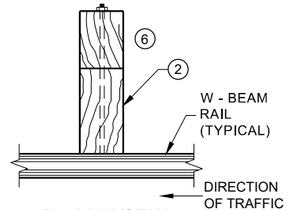
END VIEW
LOCATED ALONG A CURBED ROADWAY



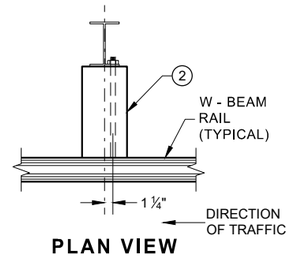
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



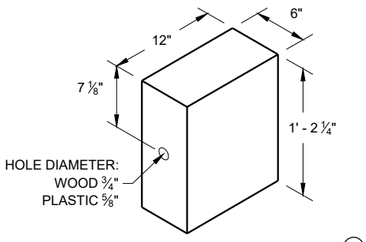
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



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

6

SDD 14B42 - 07a

6

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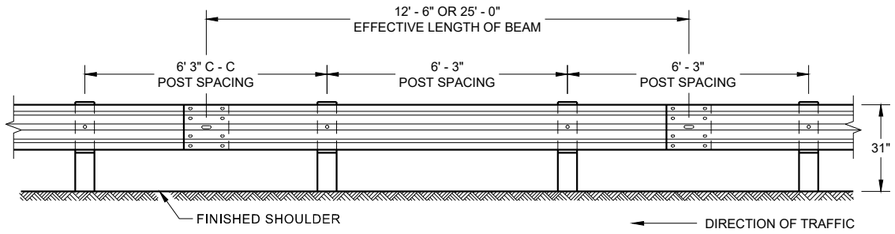
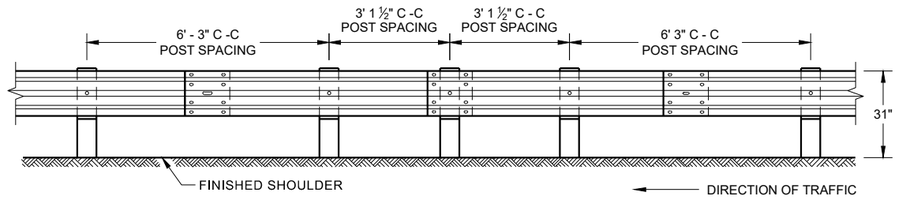
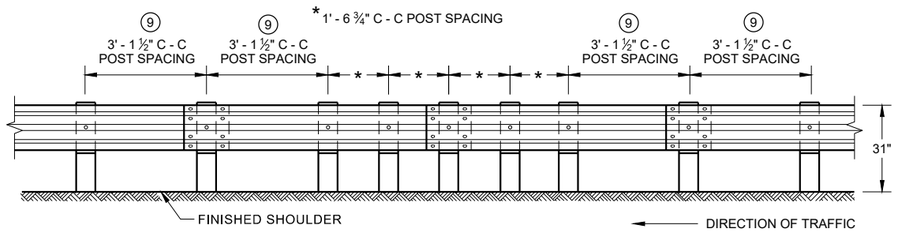


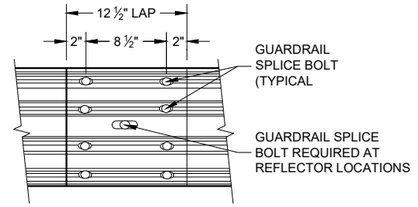
FRONT VIEW
POST SPACING STANDARD INSTALLATION



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



FRONT VIEW
QUARTER POST SPACING (QS)



FRONT VIEW
MID-SPAN BEAM SPLICE

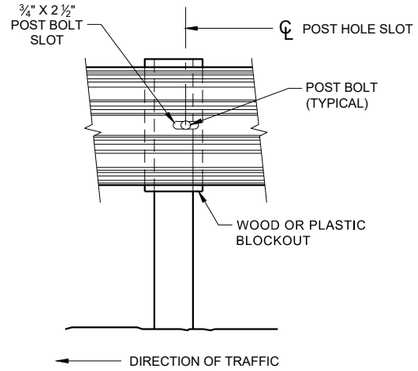
GENERAL NOTES

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

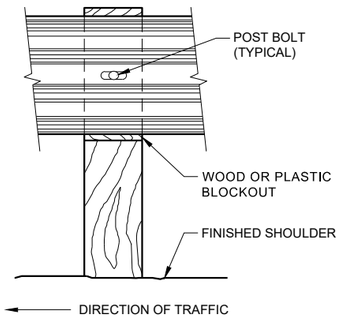
⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

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.

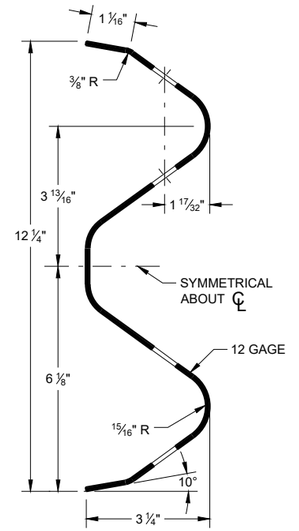
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



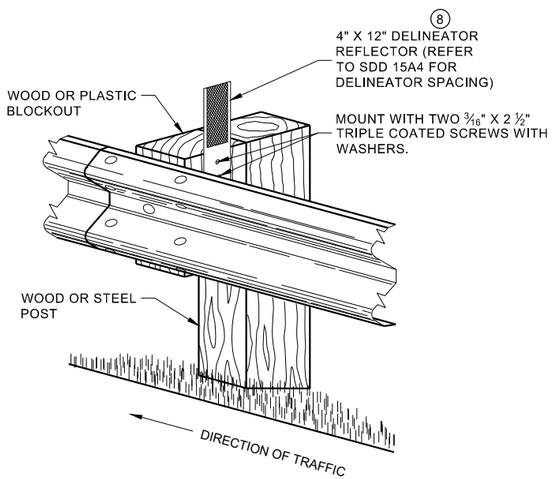
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



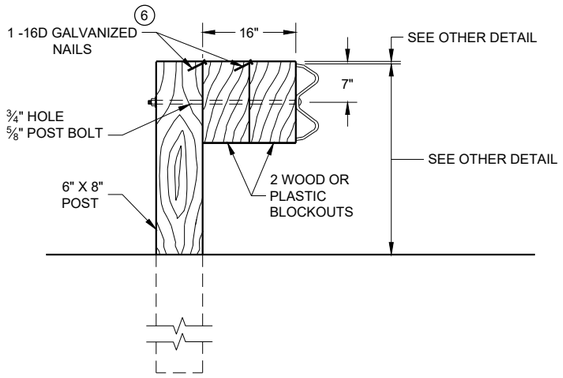
ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B42 - 07b

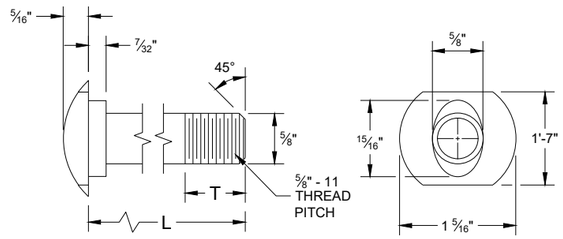


DETAIL FOR 16" BLOCKOUT DEPTH

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.

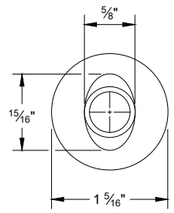
NOTE:

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.

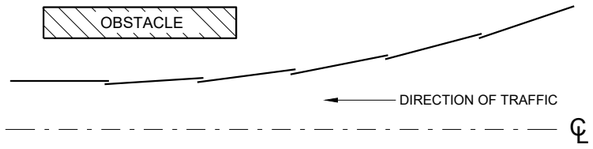


POST BOLT TABLE

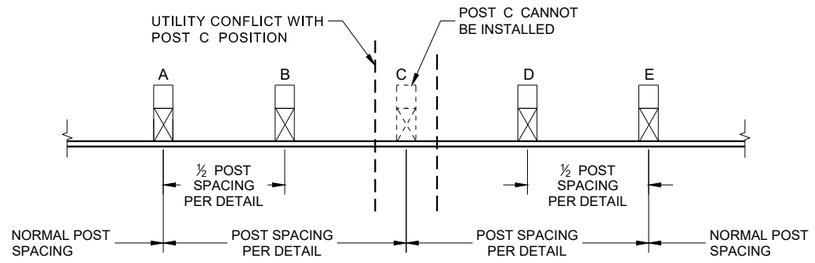
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



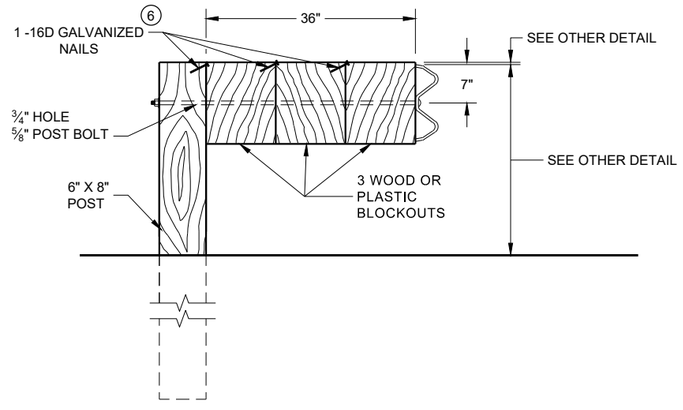
ALTERNATE BOLT HEAD



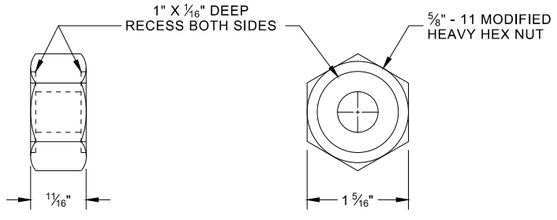
PLAN VIEW
BEAM LAPPING DETAIL



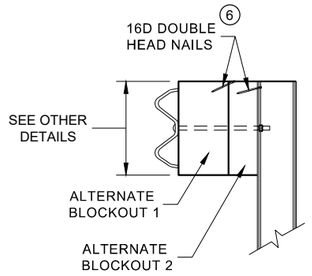
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



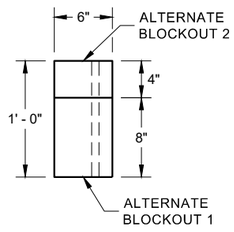
DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



PLAN VIEW

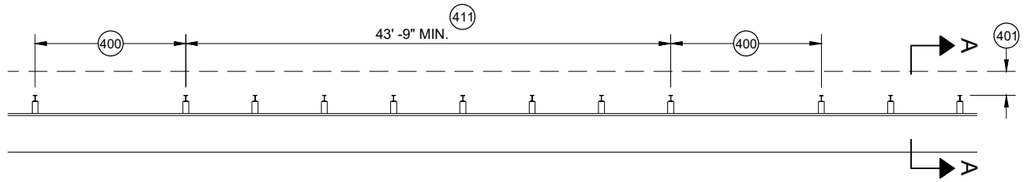
ALTERNATE WOOD BLOCKOUT DETAIL

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.

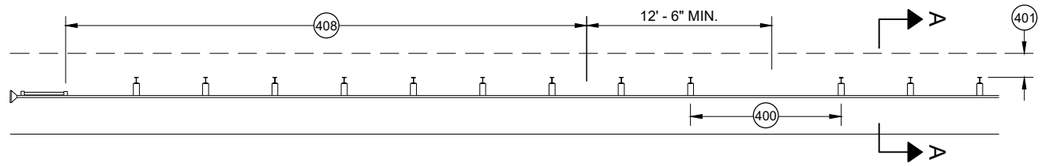
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

(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.

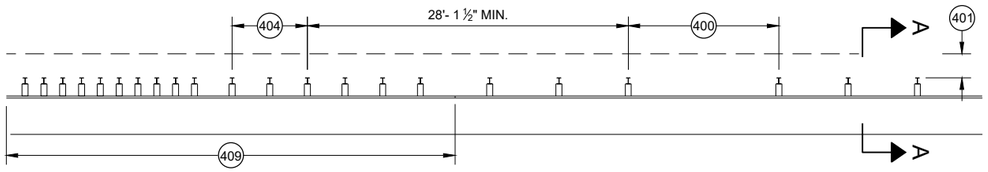
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL



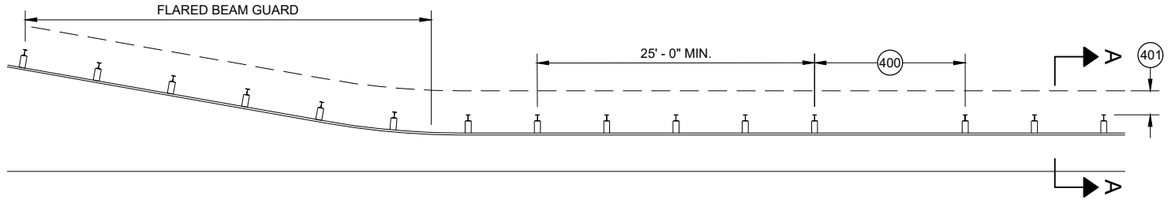
MISSING POST IN MGS GUARDRAIL



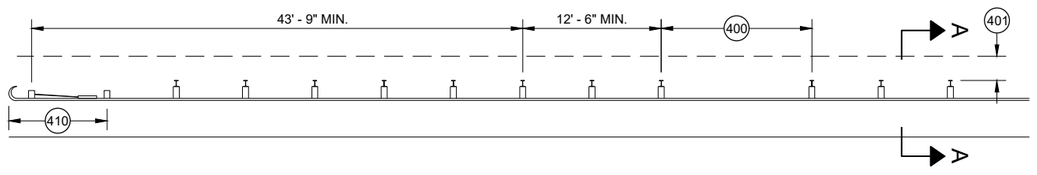
MISSING POST IN MGS GUARDRAIL NEAR EAT



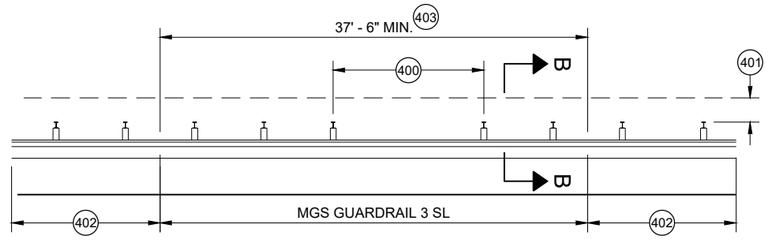
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

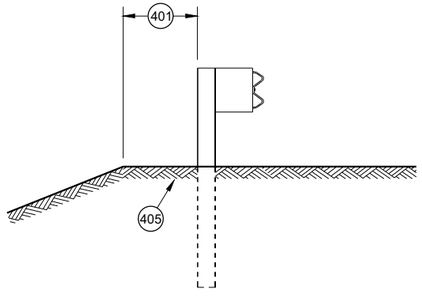


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

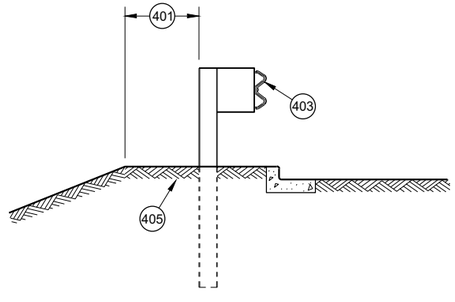


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) 407

(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.

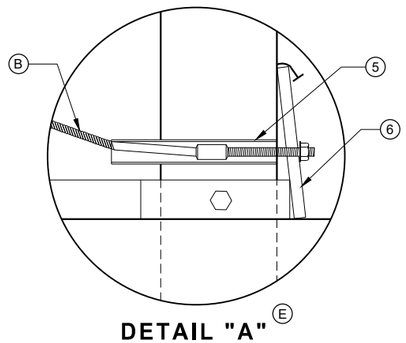
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

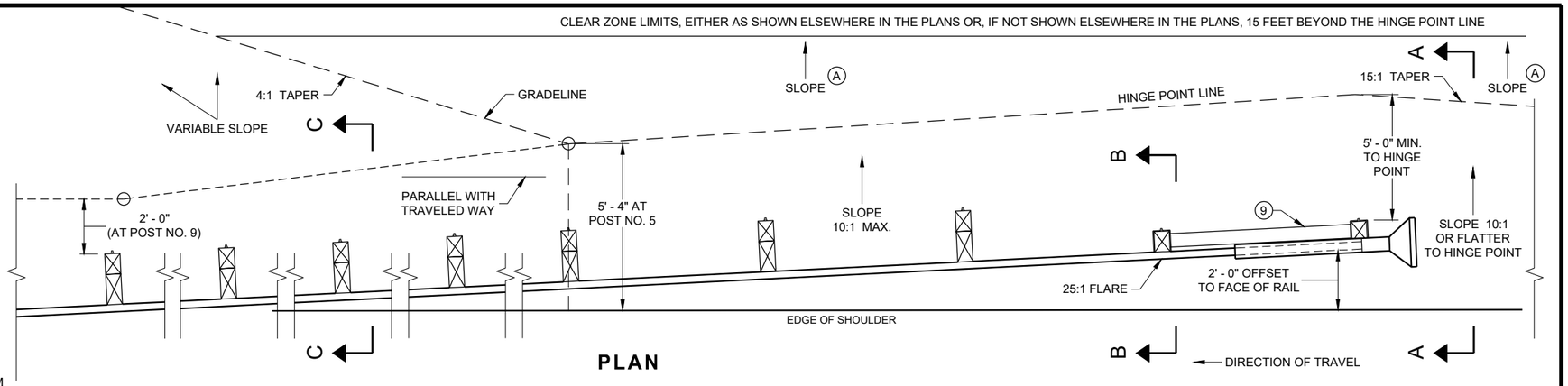
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

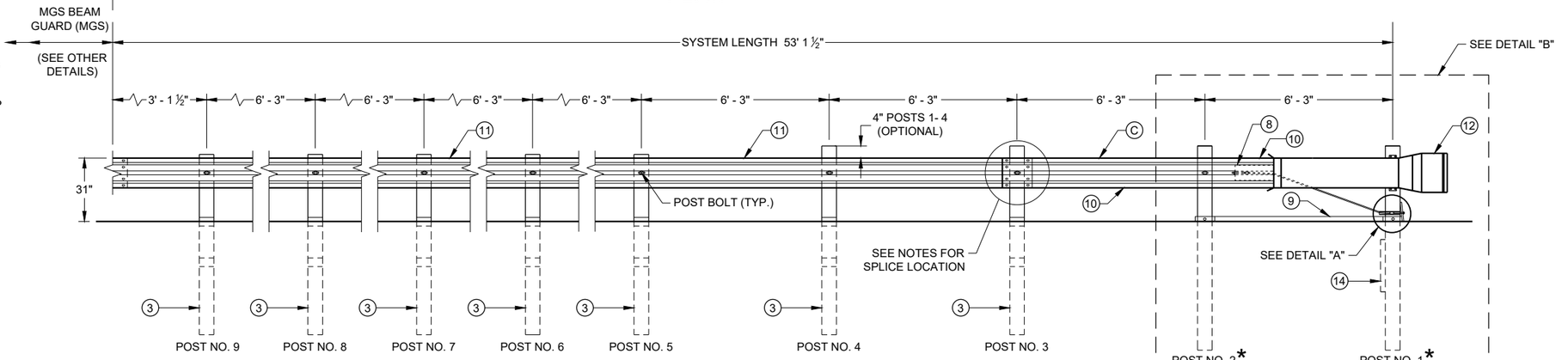
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



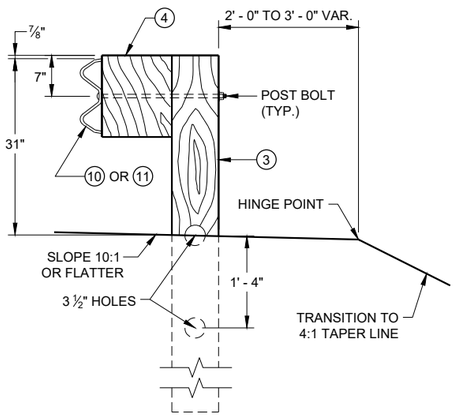
DETAIL "A" (E)



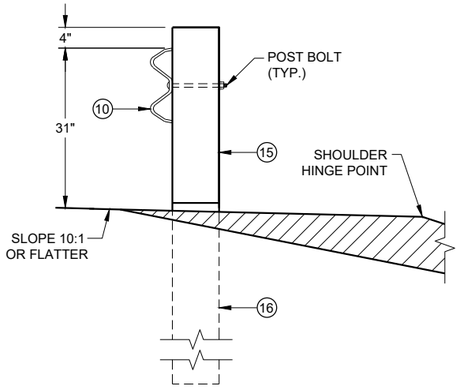
PLAN



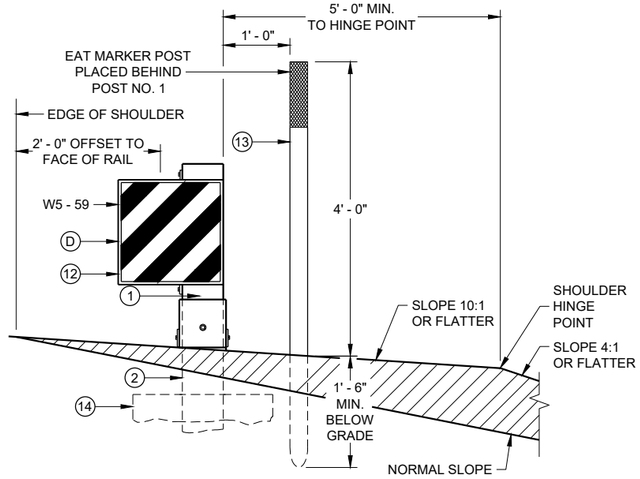
ELEVATION



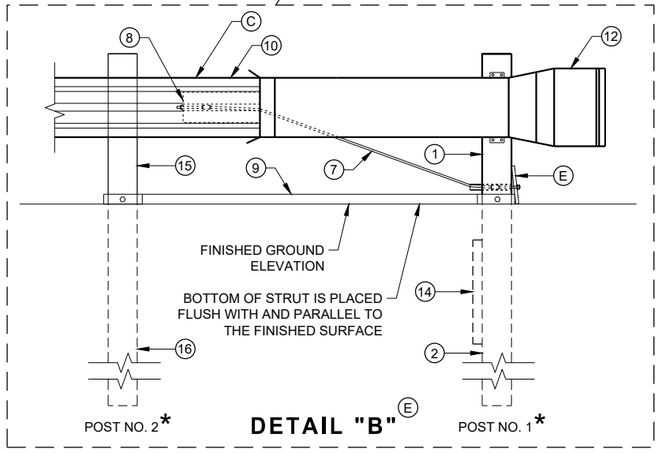
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



DETAIL "B" (E)

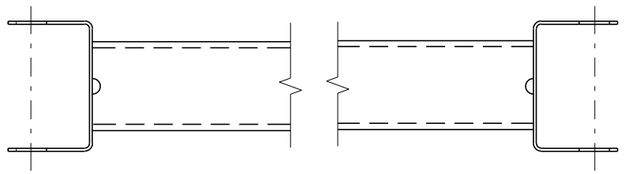
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

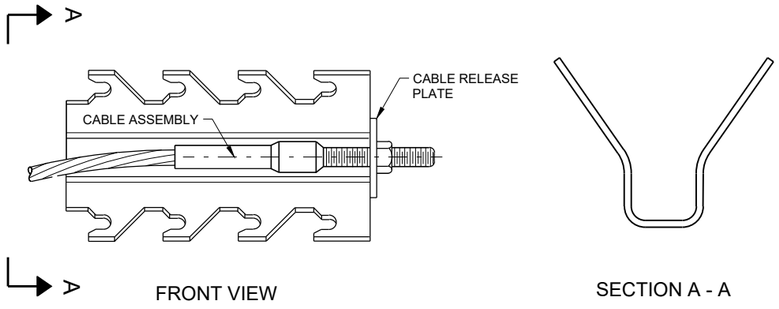
SDD 14B44 - 04a

BILL OF MATERIALS

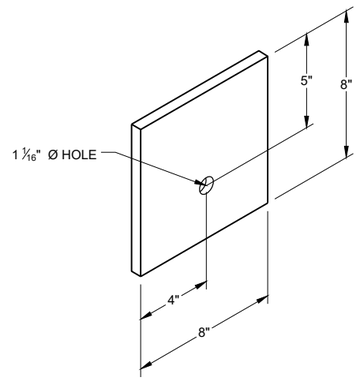
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUGACTURER'S DETAILS FOR MORE INFORMATION.
1	UPPER POST NO. 1 6" X 6" TUBE
2	LOWER POST NO. 1
3	WOOD CRT
4	WOOD BLOCKOUT
5	PIPE SLEEVE
6	BEARING PLATE
7	BCT CABLE ASSEMBLY
8	ANCHOR CABLE BOX
9	GROUND STRUT
10	PERFORATED W-BEAM RAIL 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 GROUND STRUT (9) (E)



GENERIC ANCHOR CABLE BOX (9) (E)



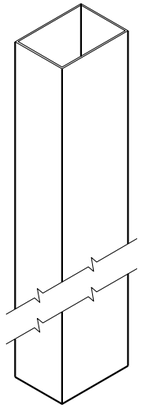
BEARING PLATE (6) (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

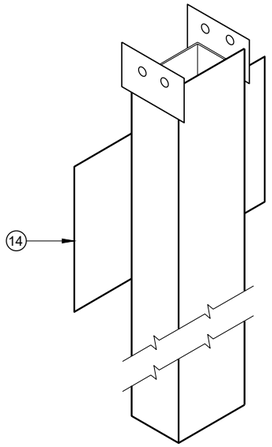
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

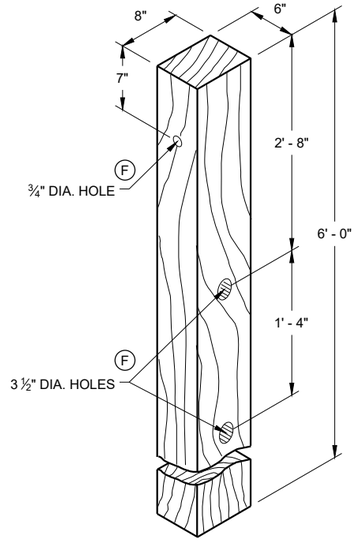
SDD 14B44 - 04b



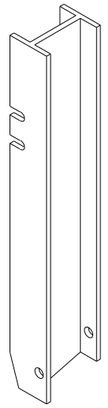
UPPER POST NO. 1 (1) (E)



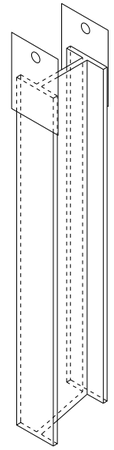
LOWER POST NO. 1 (2) (E)



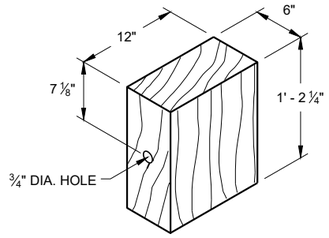
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



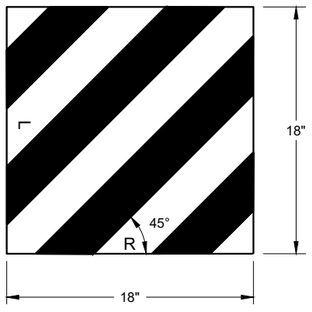
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)



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



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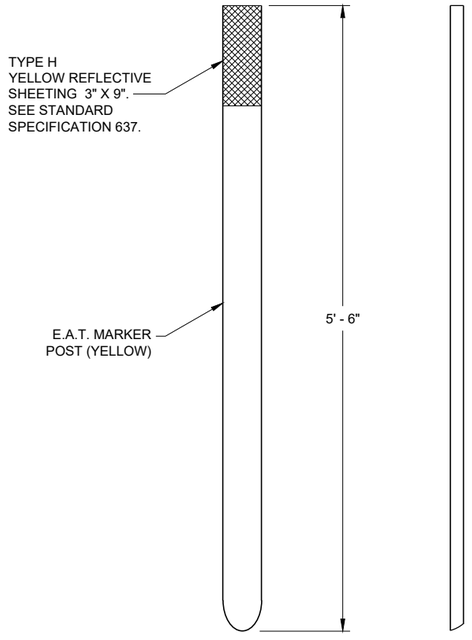
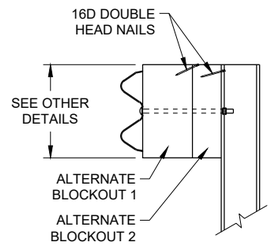
REFLECTIVE SHEETING DETAIL (E)

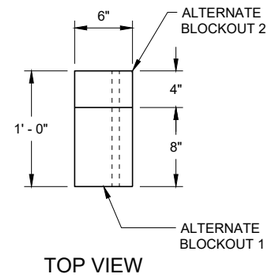


FRONT VIEW SIDE VIEW

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

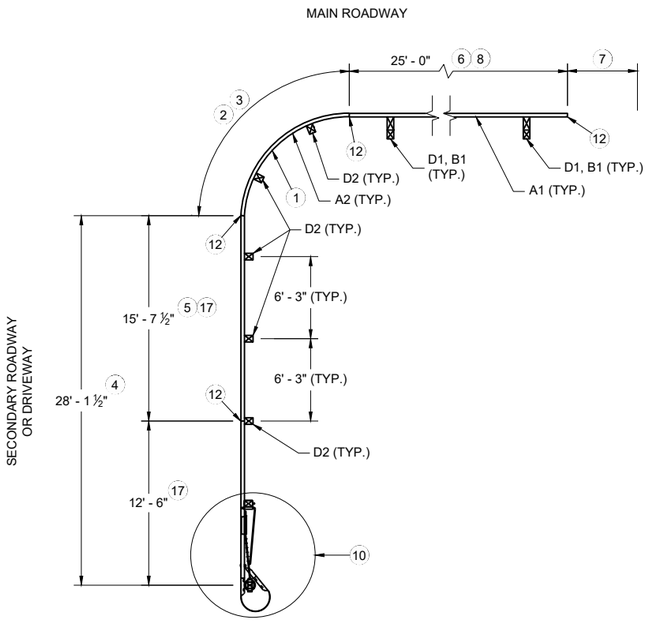
APPROVED
7/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR

FHWA

6

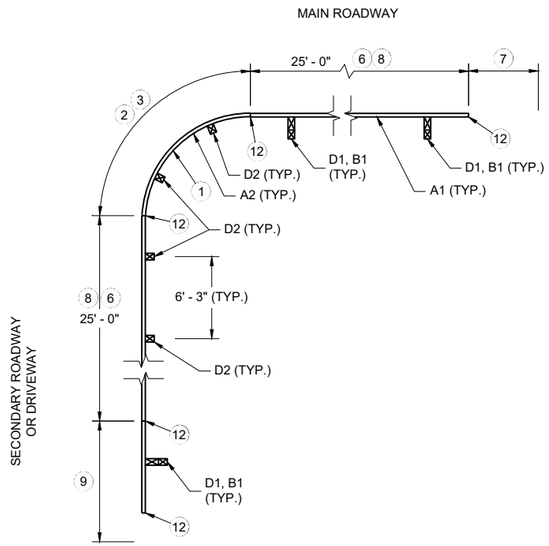
SDD 14B44 - 04c

SDD 14B44 - 04c



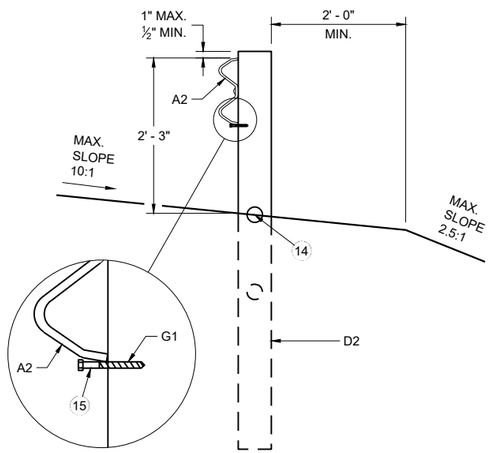
PLAN VIEW

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

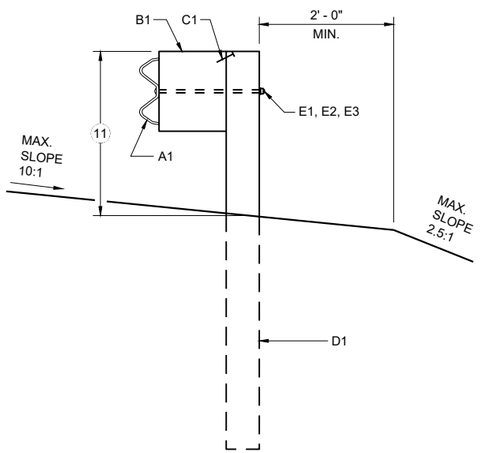


PLAN VIEW

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



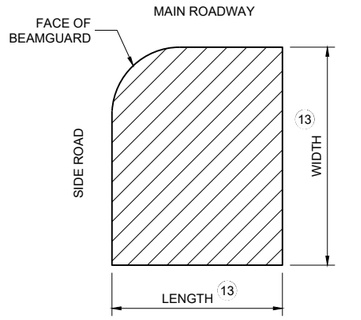
CONTROLLED RELEASE TERMINAL POST (CRT) IN RADIUS



BEAM GUARD POSTS IN HEIGHT TRANSITION

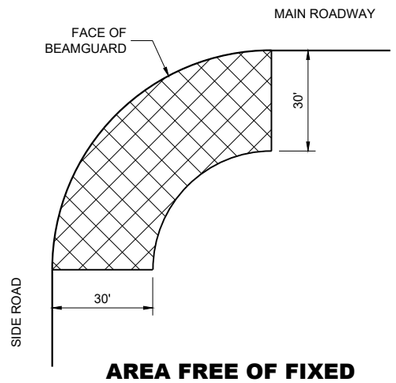
TABLE FOR RADIUS OF 32' AND LESS

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

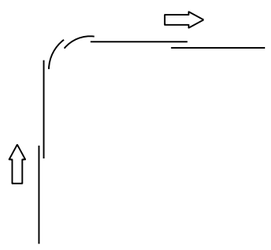


16

AREA FREE OF FIXED OBJECTS FOR RADIUS 32' AND LESS



AREA FREE OF FIXED OBJECTS FOR RADIUS GREATER THAN 32'



LAP SPLICE DETAIL

GENERAL NOTES

SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.

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

GALVANIZE PARTS AFTER FABRICATION.

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

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

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

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

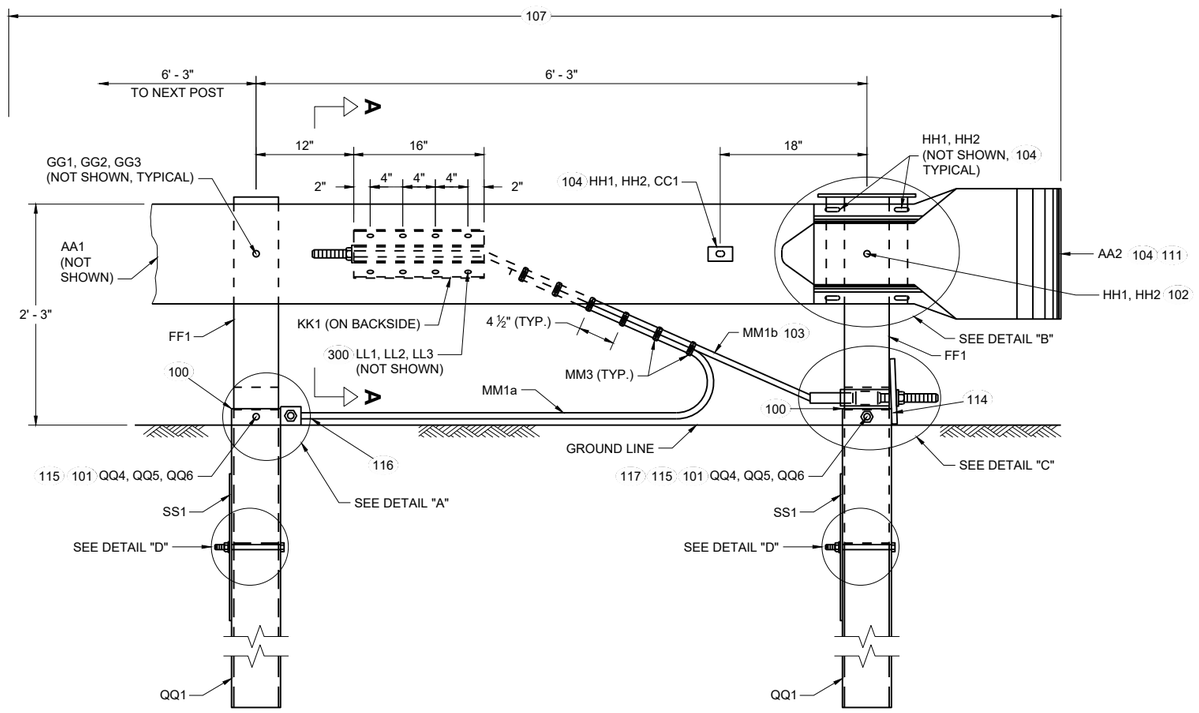
UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE ¼" TO ½" BEYOND THE NUT.

DRAWINGS ARE NOT TO SCALE.

1. RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
2. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
3. WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
4. MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
5. ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
6. MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER. ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
7. BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
8. TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
9. ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
10. SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
11. HEIGHT VARIES. SEE NOTE 8 AND 8 .
12. BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
13. SEE TABLE FOR VALUES.
14. MAXIMUM HEIGHT FOR CENTER OF HOLE IS ¾" ABOVE FINISHED GROUND ±1".
15. DRILL POST $^{15}/_{64}$" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
16. SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
17. TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).

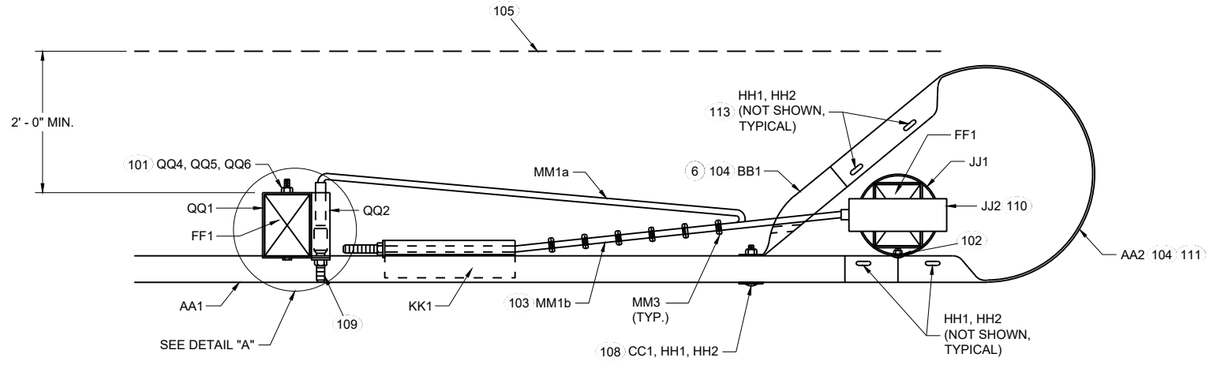
SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PROFILE VIEW

SHORT RADIUS TERMINAL



TOP VIEW

SHORT RADIUS TERMINAL

GENERAL NOTES

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

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

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

103 CABLE IS TAUT.

104 ADJUST AA2 AND BB1 TO FIT.

106 BREAK POINT OF SHOULDER.

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

107 PAY LIMIT FOR BEAM GUARD.

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

109 CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS ½" TOLERANCE). DEBURR AFTER CUTTING.

110 SEE STEEL PIPE ASSEMBLY DETAILS.

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

112 FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.

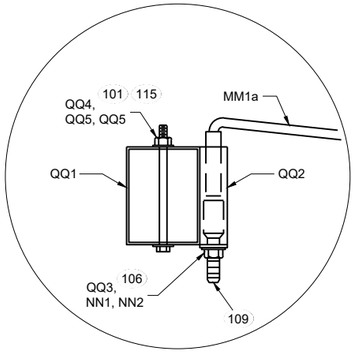
113 FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.

114 NO MATERIAL IS TO BE PLACED AGAINST THE VERTICAL FACES OF BEARING PLATE.

115 PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLTS FOR POST AND SOIL TUBE.

116 PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLT. PLACE CABLE ON TOP OF MATERIAL.

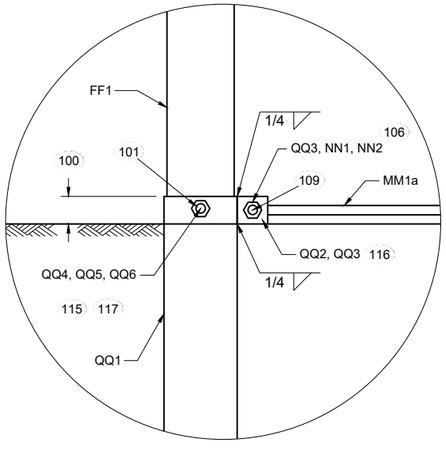
117 ONE WASHER BETWEEN BOLD HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.



TOP VIEW

DETAIL "A"

(WOOD BREAKAWAY AND BEAM GUARD RAIL POSTS NOT SHOWN)



PROFILE VIEW

DETAIL "A"

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

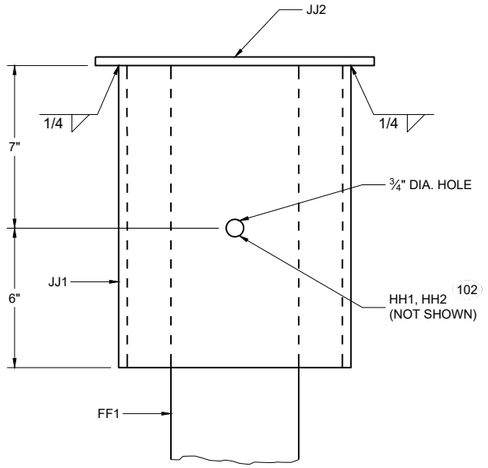
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B53-03b

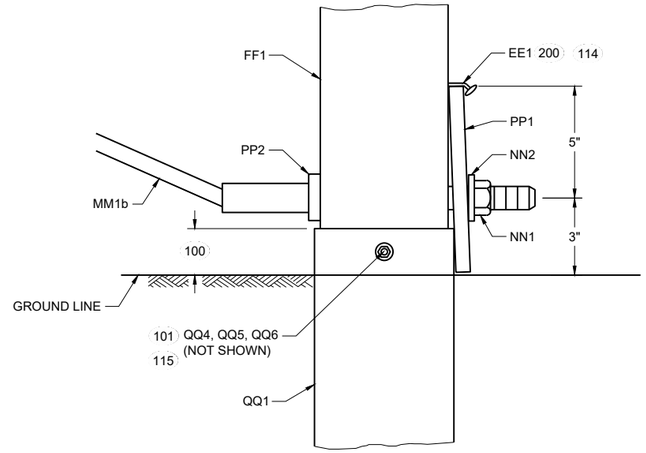
GENERAL NOTES

200 TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.



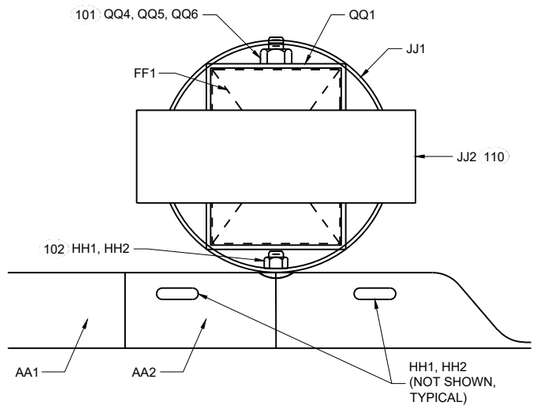
PROFILE VIEW

DETAIL "B"
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM END SECTION NOT SHOWN)



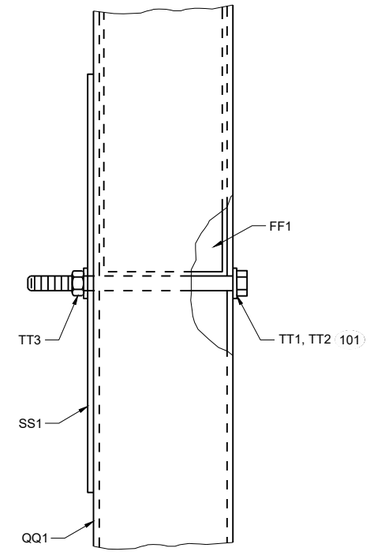
PROFILE VIEW

DETAIL "C"



PLAN VIEW

DETAIL "B"
STEEL PIPE ASSEMBLY



PROFILE VIEW

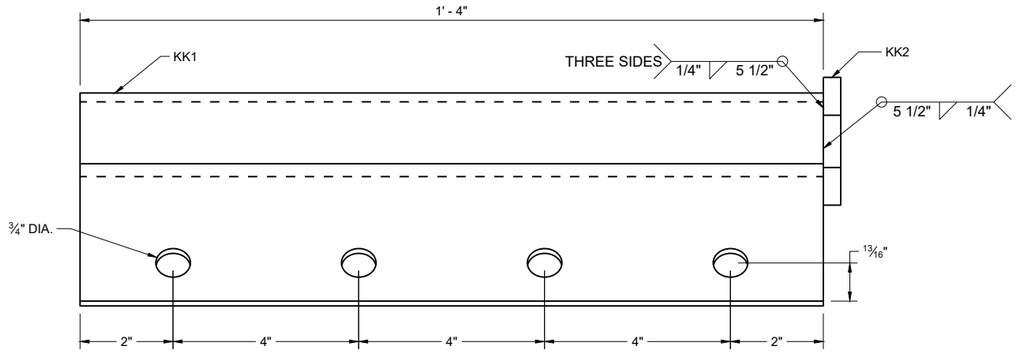
DETAIL "D"

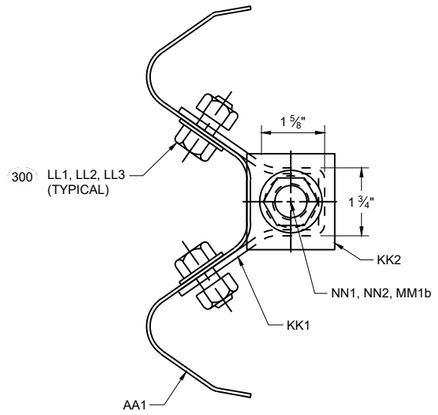
SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

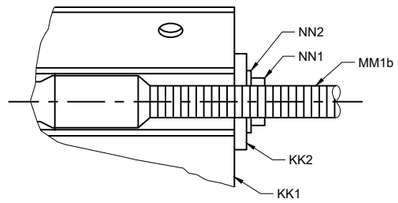
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

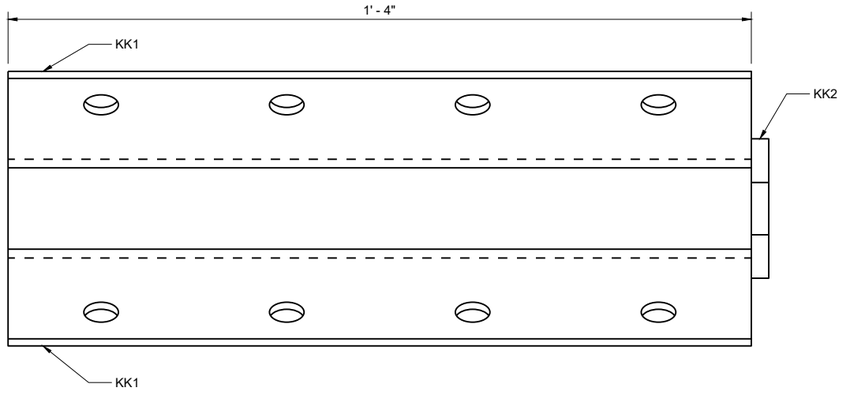
300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.

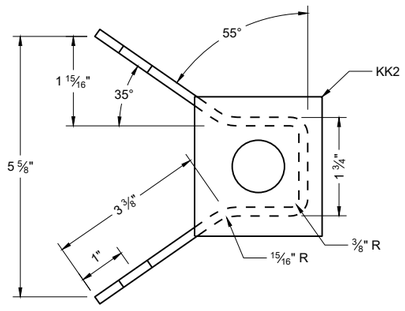




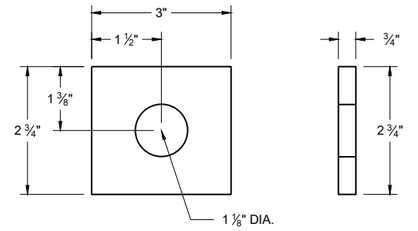


SECTION A - A





ANCHOR BRACKET (KK1, KK2)



ANCHOR BRACKET BEARING PLATE (KK2)

6

SDD 14B53-03d

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

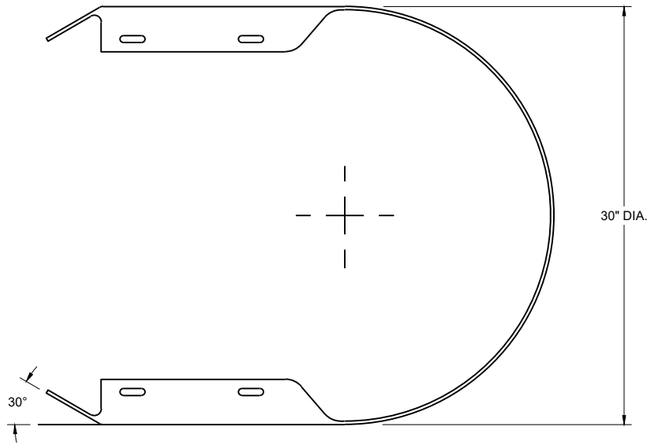
6

SDD 14B53-03d

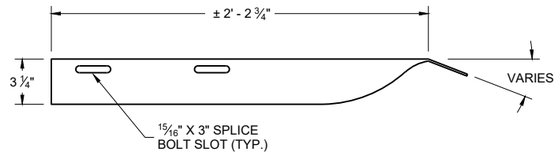
GENERAL NOTES

400 CROSS SECTION OF PART IS TO FIT OVER AA1 .

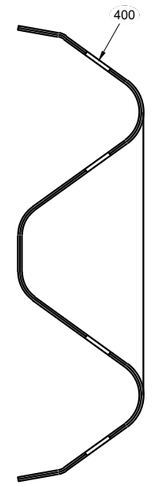
401 CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



TOP VIEW

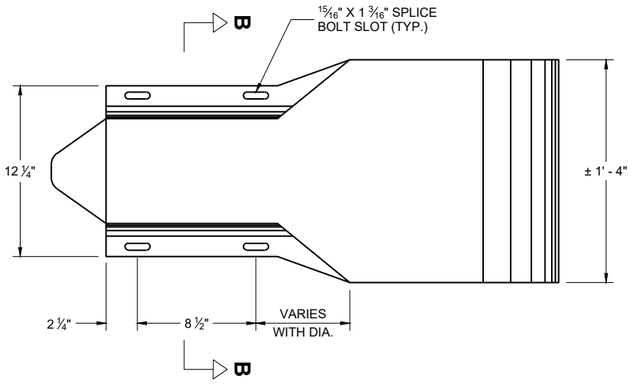


TOP VIEW



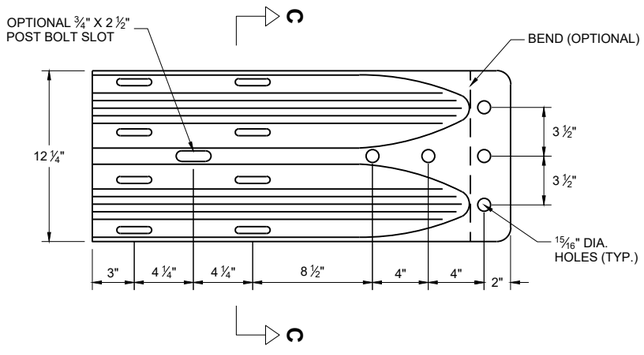
SECTION B -B

SECTION C -C



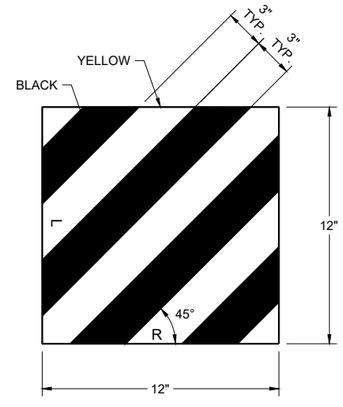
PROFILE VIEW

W BEAM
END SECTION BUFFER (AA2)



PROFILE VIEW

W BEAM
TERMINAL CONNECTOR (BB1)



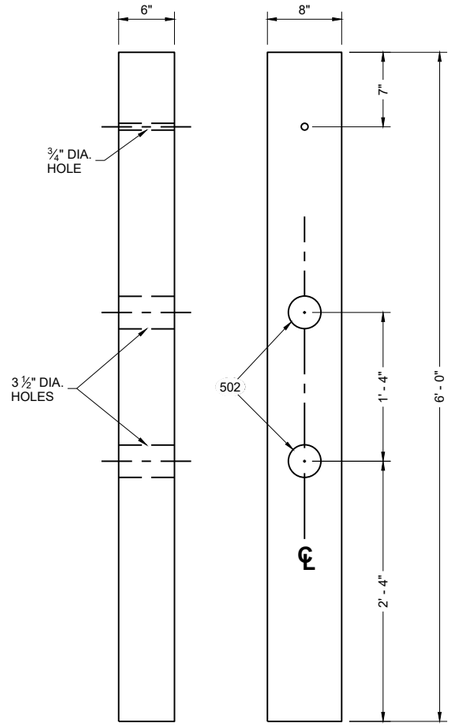
REFLECTIVE SHEETING (UU1, UU2)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

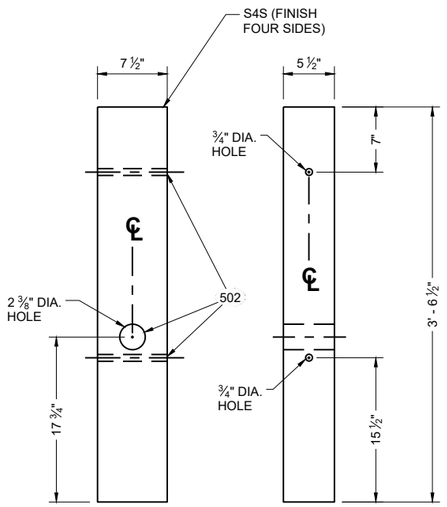
6

SDD 14B53-03e



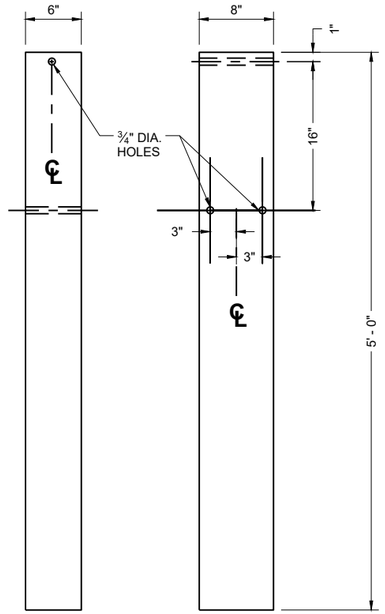
FRONT VIEW SIDE VIEW

CONTROLLED RELEASE POST (CRT) (DD2)



FRONT VIEW SIDE VIEW

WOOD BREAKAWAY POST (FF1)



FRONT VIEW SIDE VIEW

FOUNDATION TUBE (QQ1) 500

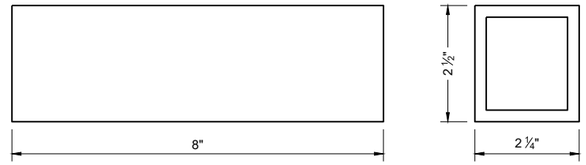
GENERAL NOTES

500 SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.

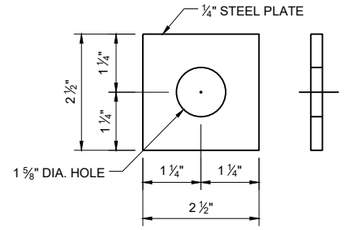
501 FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.

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

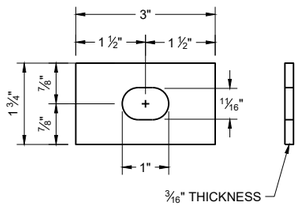
503 MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE 109 .



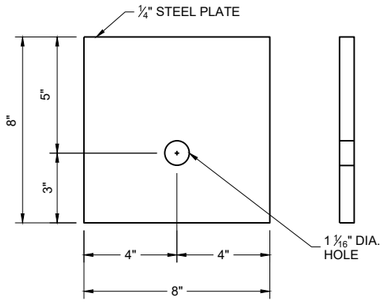
FOUNDATION TUBE - ANCHOR CABLE TUBE (QQ2)



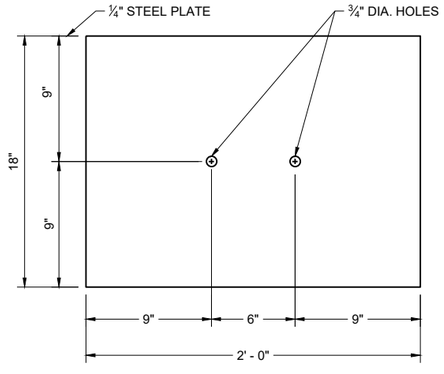
ANCHOR CABLE TUBE END PLATE (QQ3)



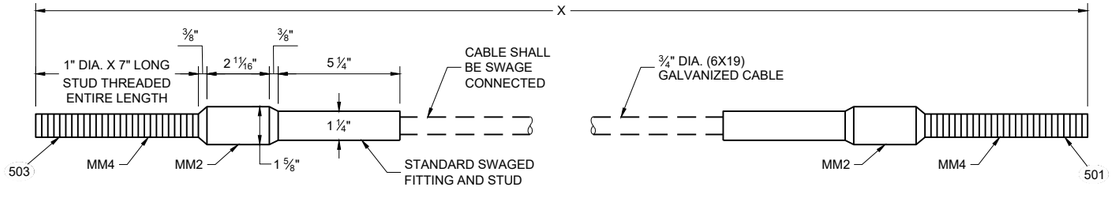
RECTANGULAR PLATE WASHER (CC1)



BEARING PLATE (PP1)



SOIL PLATE (SS1)



CABLE ASSEMBLY (MM1a, MM1b)

"X" LENGTH

MM1b	9' - 0"
MM1b	6' - 8"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

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

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B53-03g

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

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

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
NN2	ANCHOR CABLE - NUT - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	1" DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B53-03h

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 1/2" X 2 1/2" X 1/4"
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5/8 DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8 DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

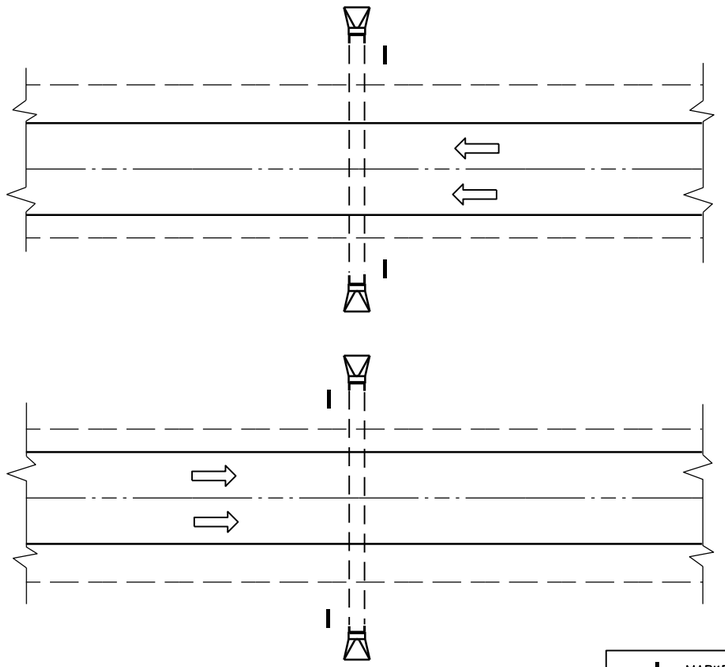
SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2024 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

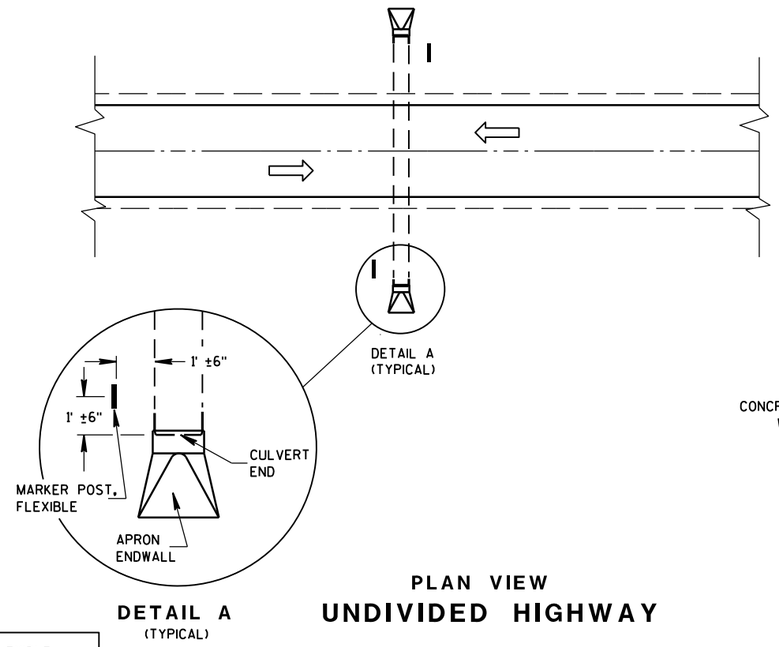
FHWA

6
SDD 14B53-03i



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

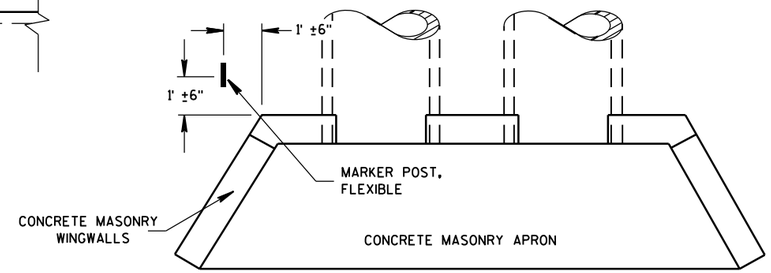
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

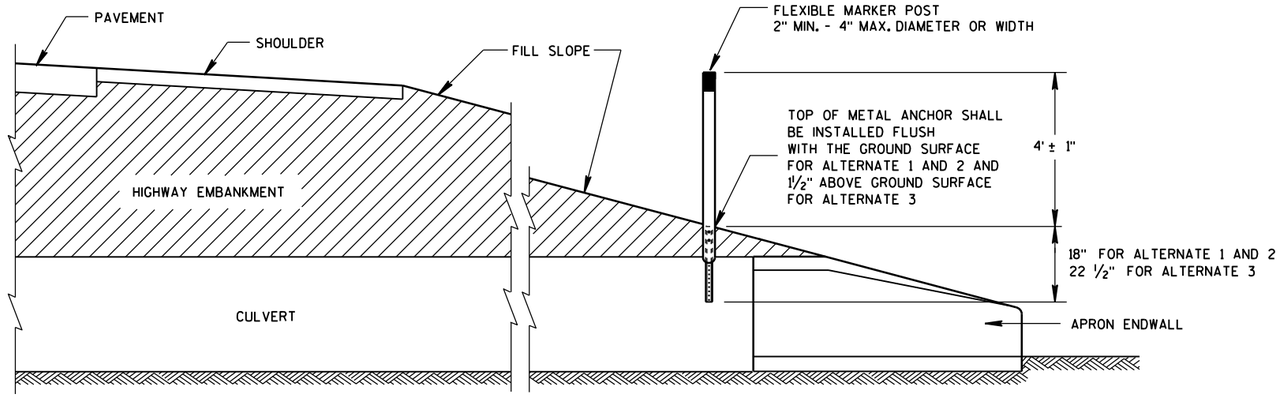
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



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

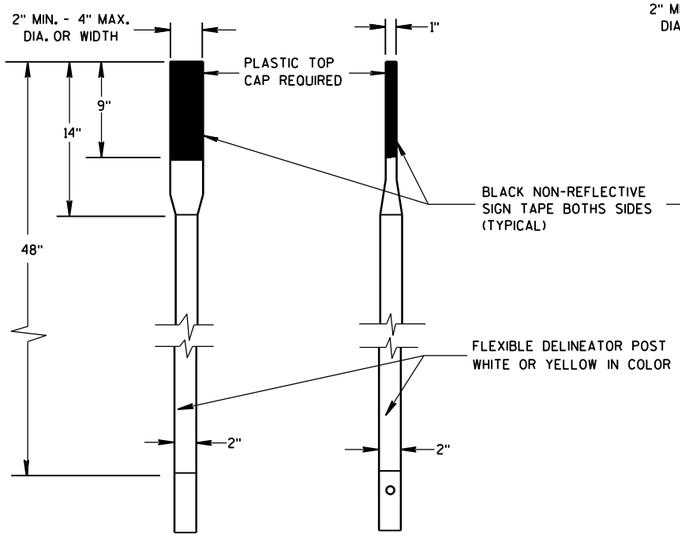
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

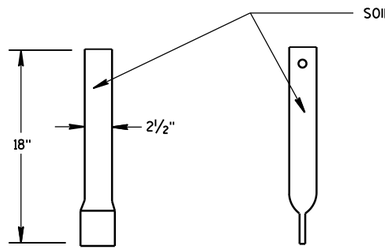
6

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

6

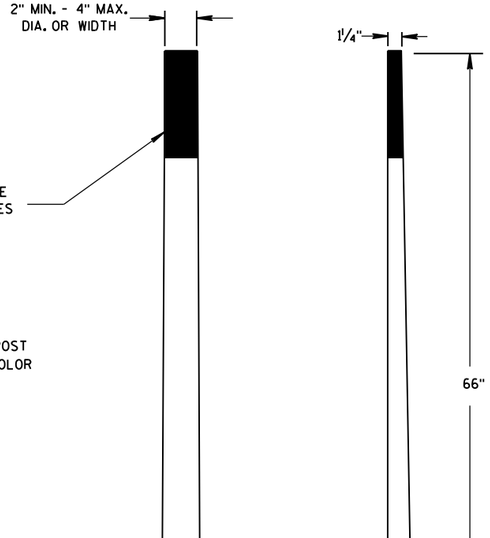
S.D.D. 15 A 3-2a





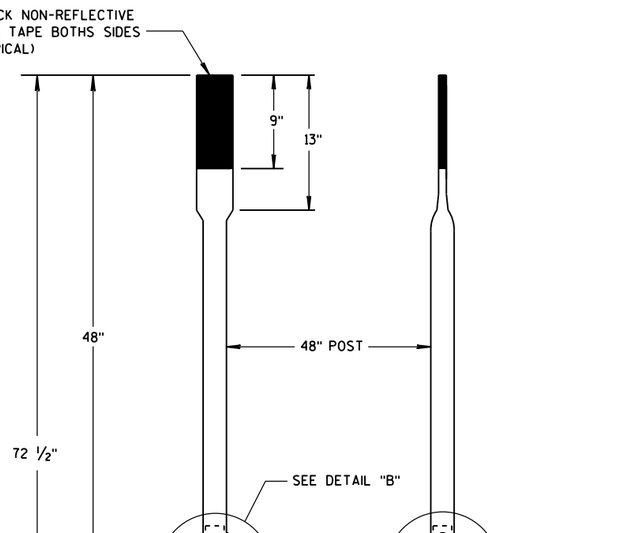
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

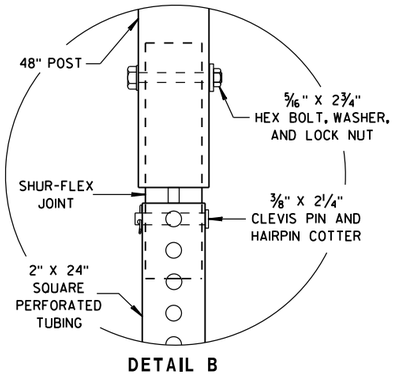
ALTERNATE 2



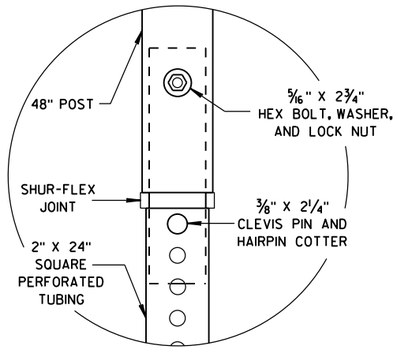
FRONT VIEW SIDE VIEW

ALTERNATE 3

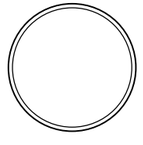
FLEXIBLE MARKER POSTS



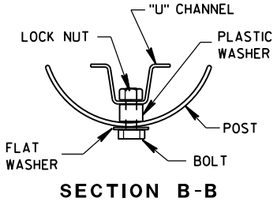
DETAIL B



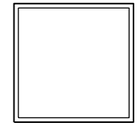
DETAIL C



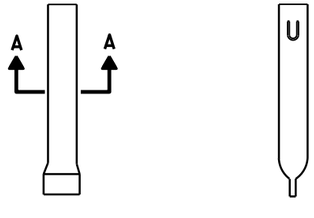
SECTION A-A



SECTION B-B

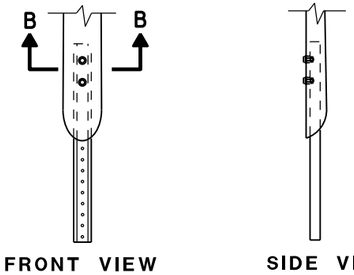


SECTION C-C



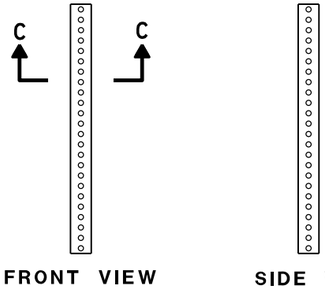
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

ALTERNATE 2



FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

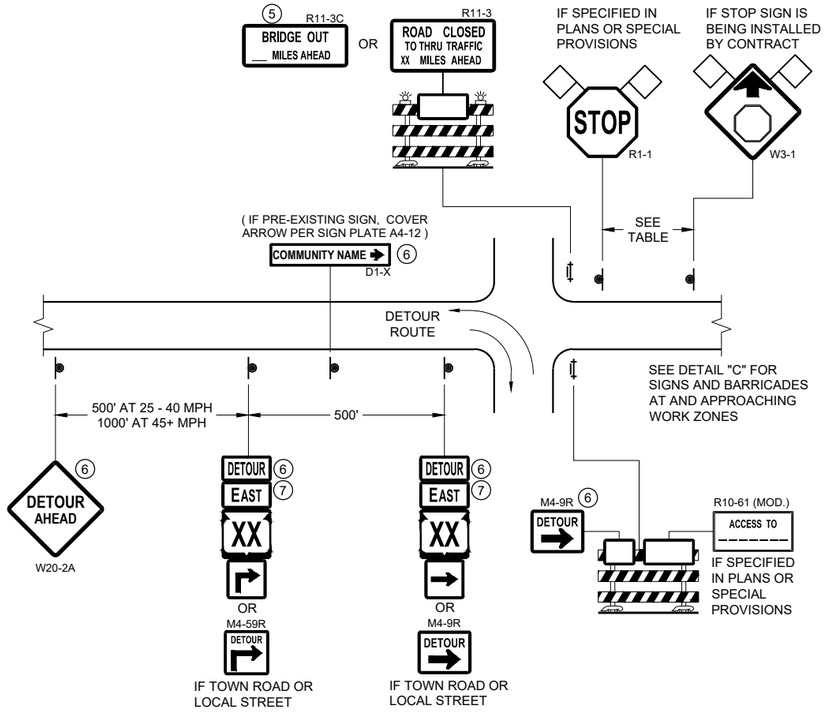
APPROVED
10/1/2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

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

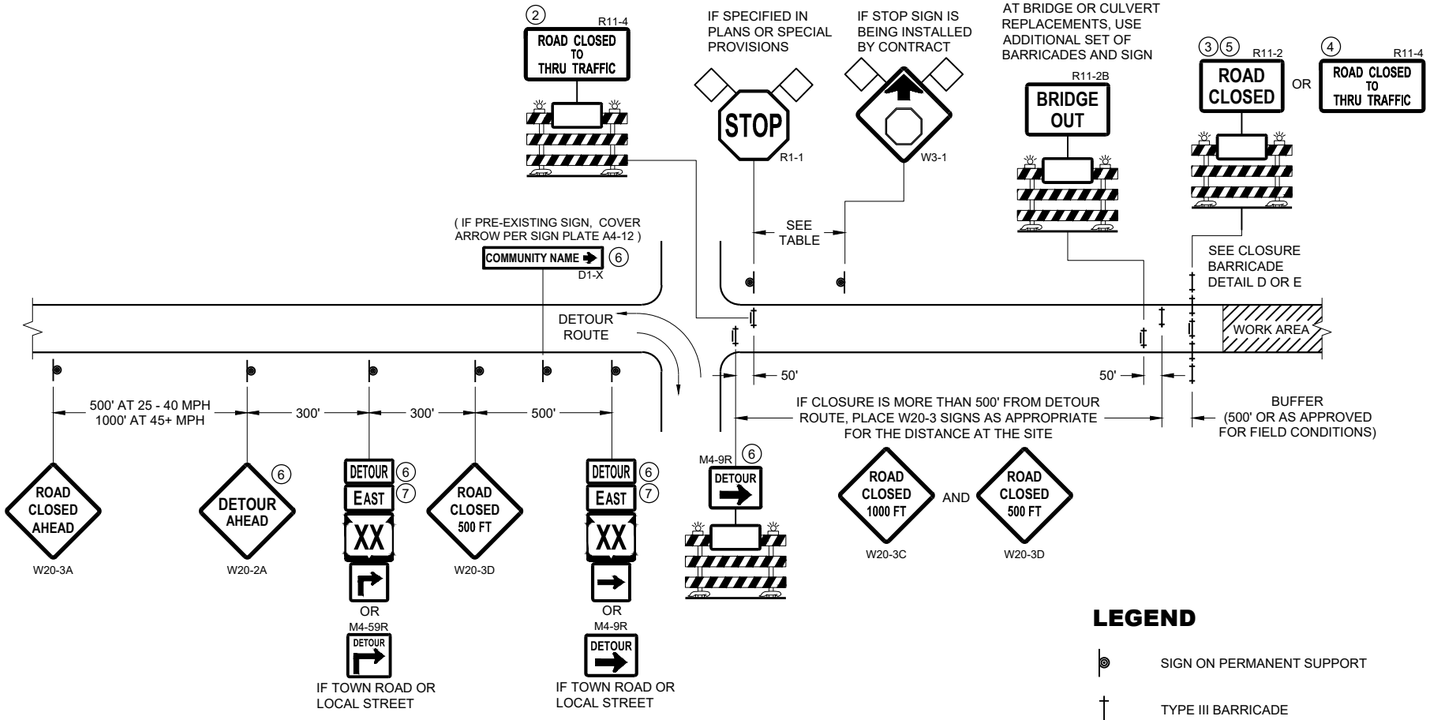
6

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



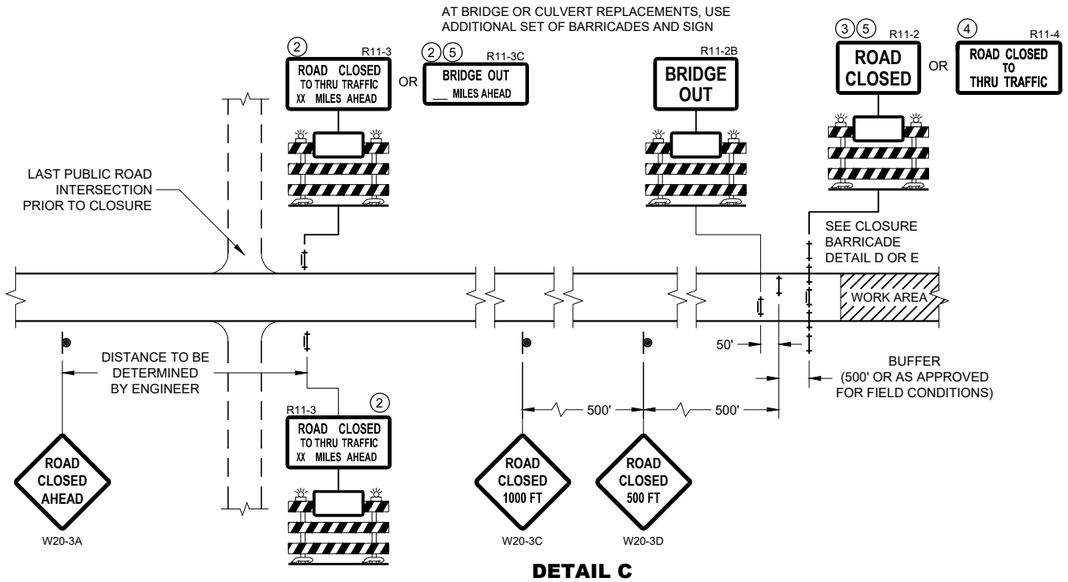
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)
- DETOUR — M4 - 8
- EAST — M3 - X
- XX — M1 - 4 OR XX — M1 - 6 OR COUNTY X — M1 - 5A
- M05 - 1 OR M06 - 1

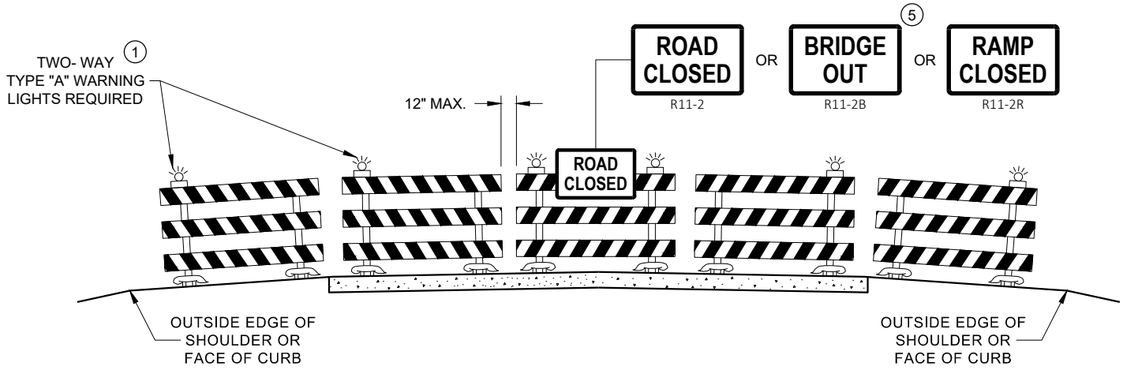
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

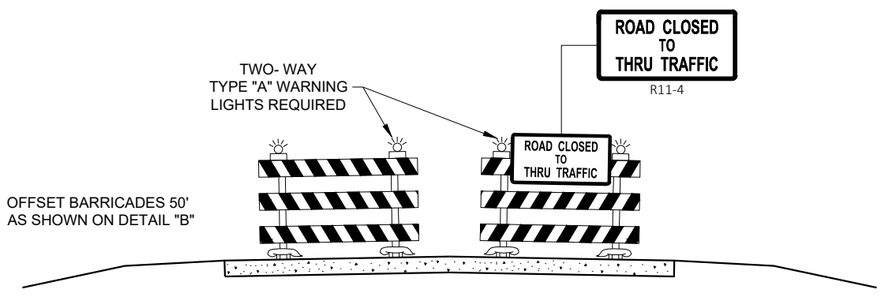
APPROVED
May 2023
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

SDD 15C02 - 09a



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING.

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEE
FHWA

6

SDD 15C02 - 09b

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SDD 15C02 - 09b

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

LEGEND

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

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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

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

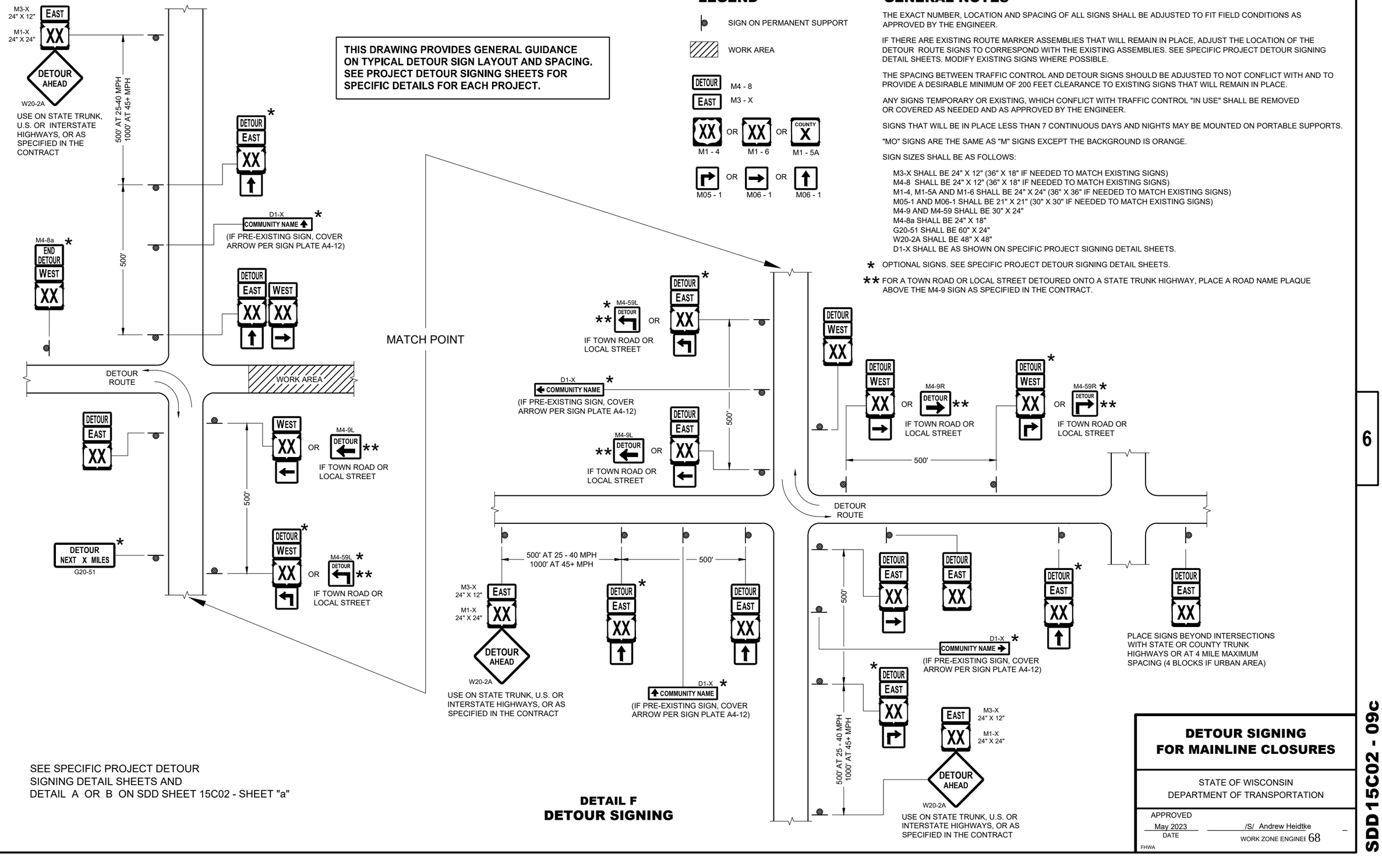
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



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

DETAIL F
DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

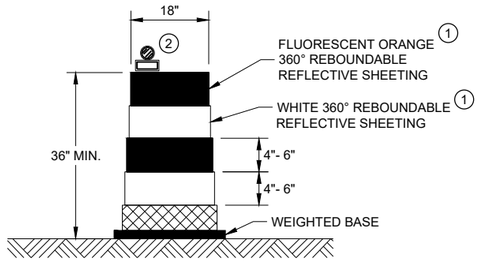
FHWA

6

SDD 15C02 - 09c

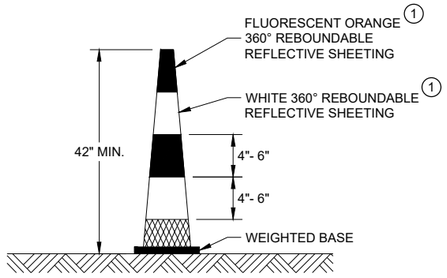
GENERAL NOTES

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

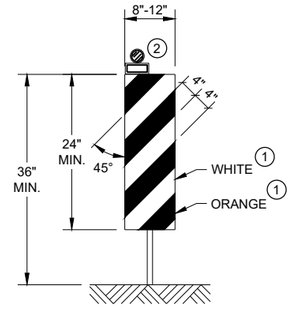
BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

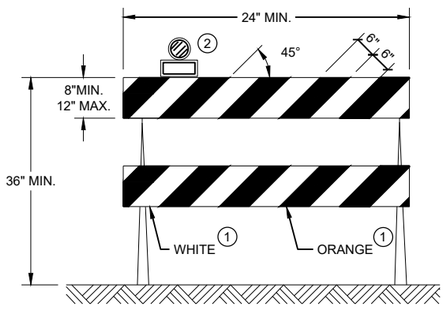
DO NOT USE IN TAPERS
½ SPACING OF DRUMS

BALLAST WIDTHS
RANGE FROM 14"-20"



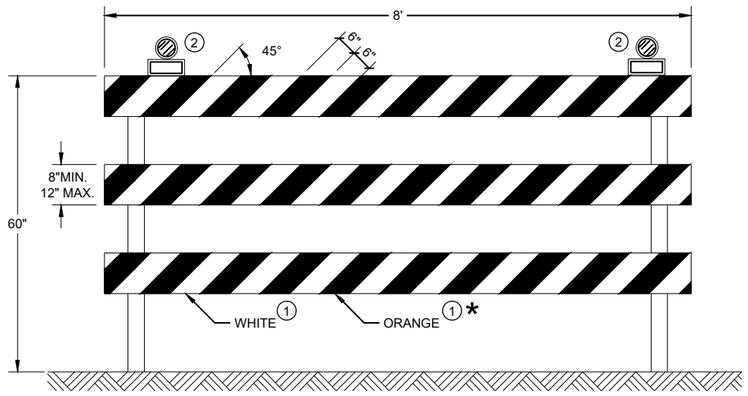
VERTICAL PANEL

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
November 2022
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

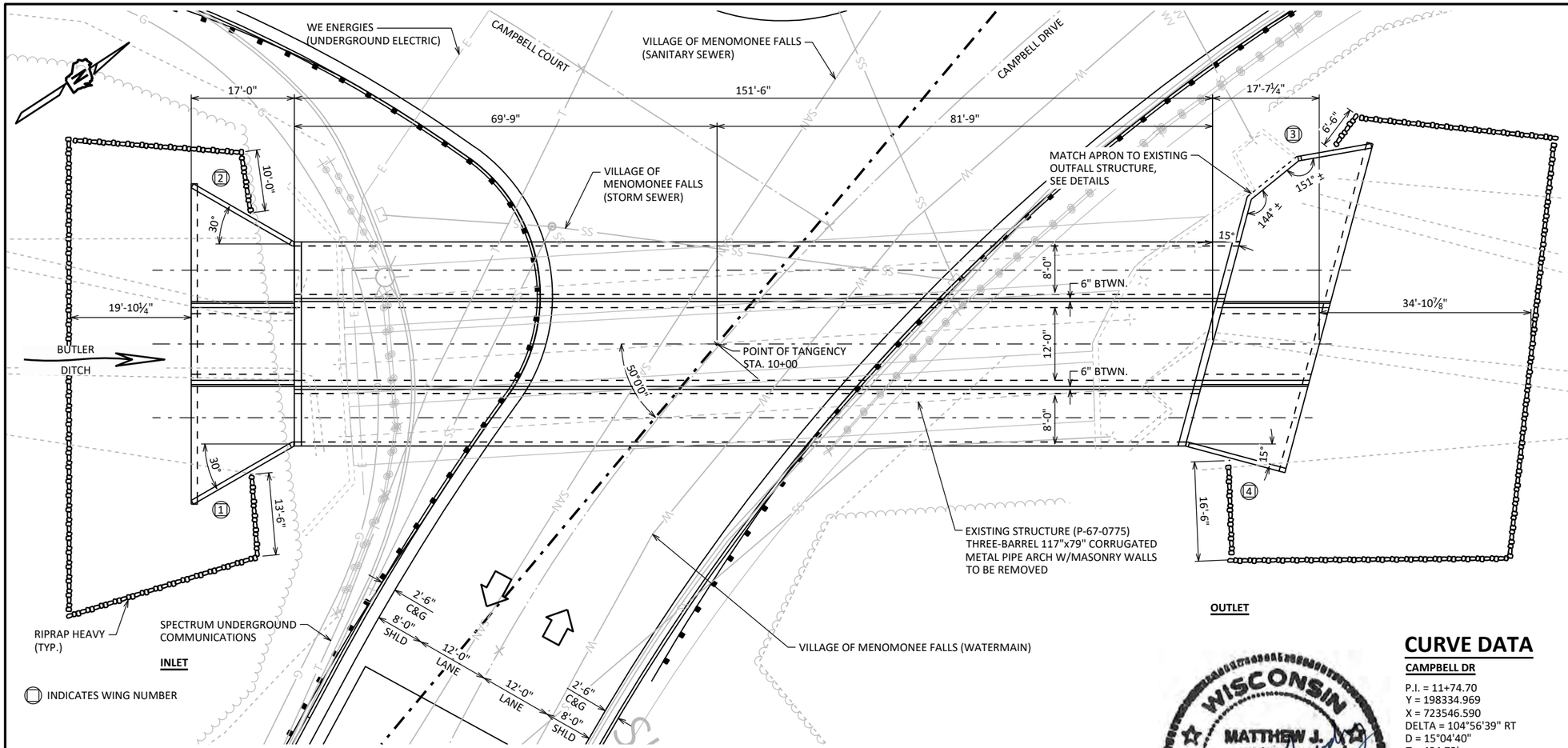
SDD 15C11 - 10b

6

SDD 15C11 - 10b

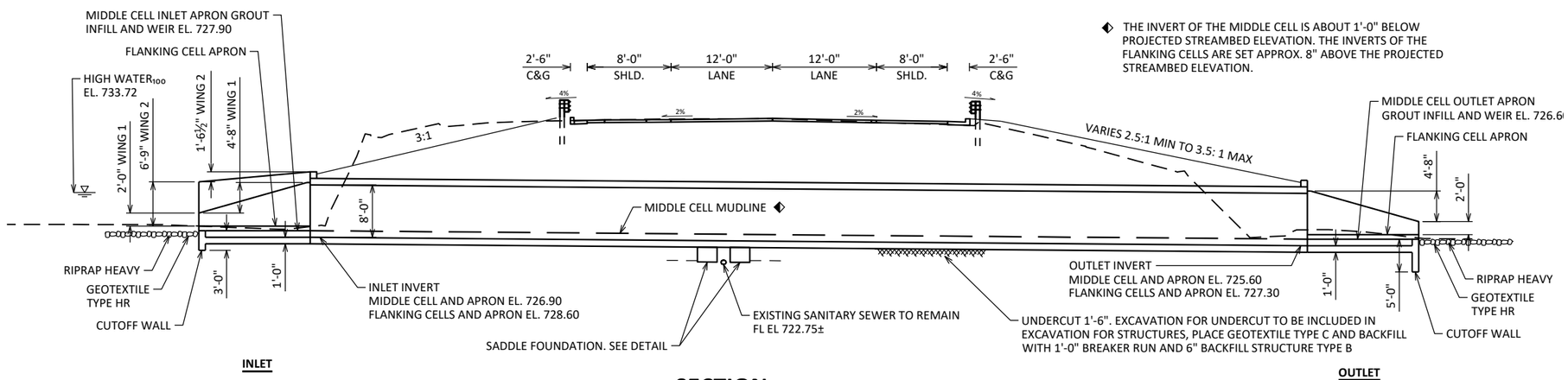
STATE PROJECT NUMBER

2720-09-71



GENERAL PLAN

3 - CELL PRECAST BOX



◆ THE INVERT OF THE MIDDLE CELL IS ABOUT 1'-0" BELOW PROJECTED STREAMBED ELEVATION. THE INVERTS OF THE FLANKING CELLS ARE SET APPROX. 8" ABOVE THE PROJECTED STREAMBED ELEVATION.

SECTION

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 2.44
OPERATING RATING: RF = 3.17
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

EARTH LOAD: DESIGNED FOR FILL HEIGHT RANGE OF 8.0 FEET TO 10.0 FEET

MATERIAL PROPERTIES:

CONCRETE MASONRY — f'_c = 3,500 PSI
HIGH STRENGTH BAR STEEL REINFORCEMENT — f_y = 60,000 PSI
PRECAST CONCRETE — f'_c = 5,000 PSI
STEEL REINFORCEMENT (WIRE) — f_y = 65,000 PSI

HYDRAULIC DATA

100-YEAR FREQUENCY:

Q_{100} = 808.0 C.F.S.
VEL. = 13.53 F.P.S.
HW_{100} = 733.72 FT.
WATERWAY AREA = 87.0 SQ. FT.
DRAINAGE AREA = 7.2 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 8

2-YEAR FREQUENCY:

Q_2 = 180.0 C.F.S.
VEL. = 5.57 F.P.S.
HW_2 = 730.40 FT.

TRAFFIC DATA

FEATURE ON:

ADT =3000 (2026)
ADT = 3300 (2046)
R.D.S. = 30 MPH

CURVE DATA

CAMPBELL DR

P.I. = 11+74.70
Y = 198334.969
X = 723546.590
DELTA = 104°56'39" RT
D = 15°04'40"
T = 494.73'
L = 696.02'
R = 380.00'
PC STA = 6+79.97
PT STA = 13+75.99
DB = N65°12'07" W
DA = N39°44'31" E

WISCONSIN — MATTHEW J. GUNDRY — 36517 — EAU CLAIRE — WI — 9/12/2025 — PROFESSIONAL ENGINEER

LIST OF DRAWINGS:

STRUCTURE DESIGN CONTACTS:

MATT GUNDRY 715-720-6246
AARON BONK 608-261-0261

NO.	DATE	REVISION	BY

SHORT ELLIOTT HENDRICKSON INC.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED — CHIEF STRUCTURES DESIGN ENGINEER — DATE 09/15/25

STRUCTURE B-67-407

CAMPBELL DRIVE OVER BUTLER DITCH

COUNTY	VILLAGE
WAUKESHA	MENOMONEE FALLS

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATION

DESIGNED	DESIGN	DRAWN	PLANS
BY MJG	CK'D HC	BY ZLM	CK'D MJG

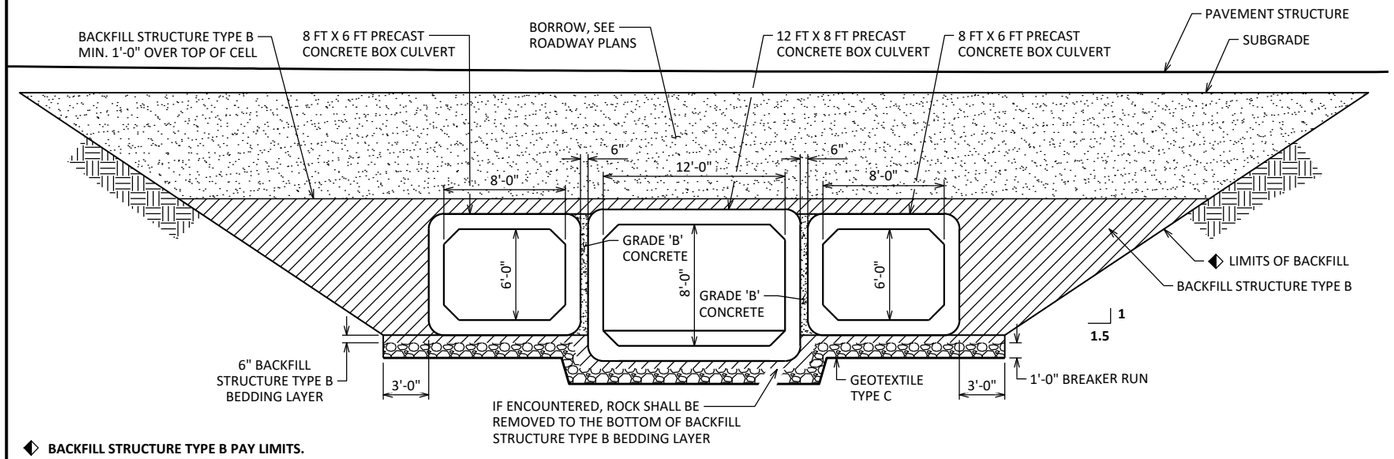
GENERAL PLAN

SHEET 1 OF 10
70

I.D.
DATE:

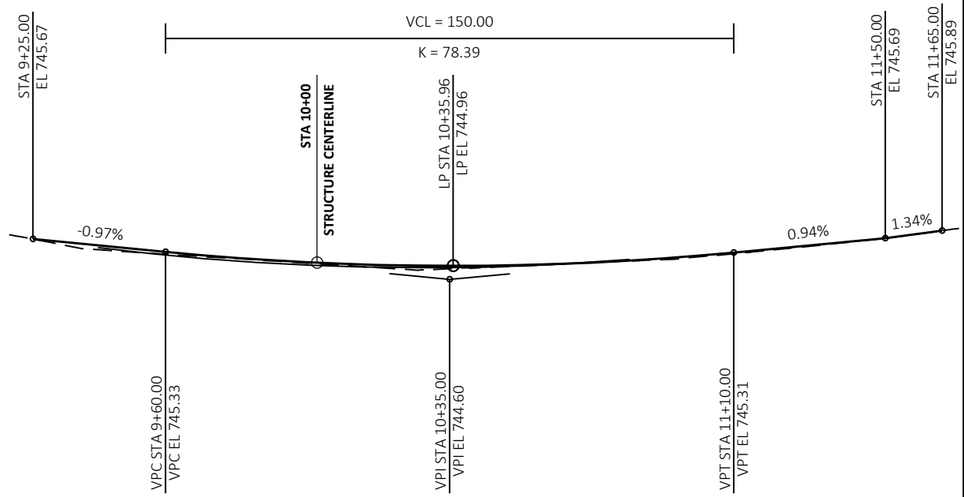
STATE PROJECT NUMBER

2720-09-71

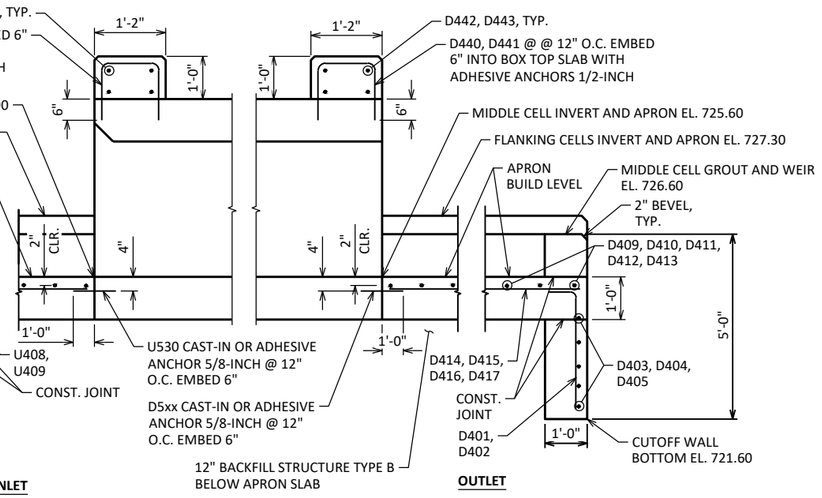


BACKFILL STRUCTURE TYPE B PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO THE BID ITEM EXCAVATION FOR STRUCTURES CULVERTS B-67-407". LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

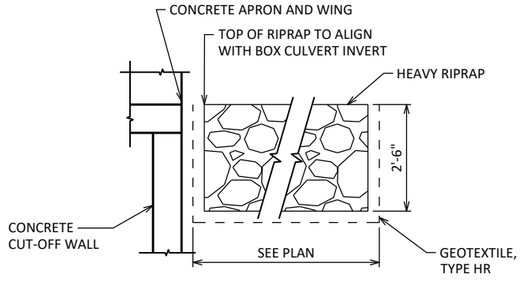
CROSS SECTION THRU CULVERT



PROFILE GRADE LINE



PART SECTION THRU APRONS



RIPRAP AT APRONS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS B-67-0407" SHALL BE THE EXISTING GROUNDLINE.

THE EXISTING STRUCTURE (P-67-0775) TO BE REMOVED, IS A THREE-CELL 117 x 79-INCH CORRUGATED METAL PIPE ARCH WITH MASONRY ENDWALLS.

WITHIN THE LENGTH OF THE CULVERT PIPES, ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURES TO THE ELEVATION OF THE TOP OF THE PIPES WITHIN THE LENGTH OF THE PIPES.

STRUCTURE BACKFILL IS REQUIRED BEHIND ALL WINGWALLS.

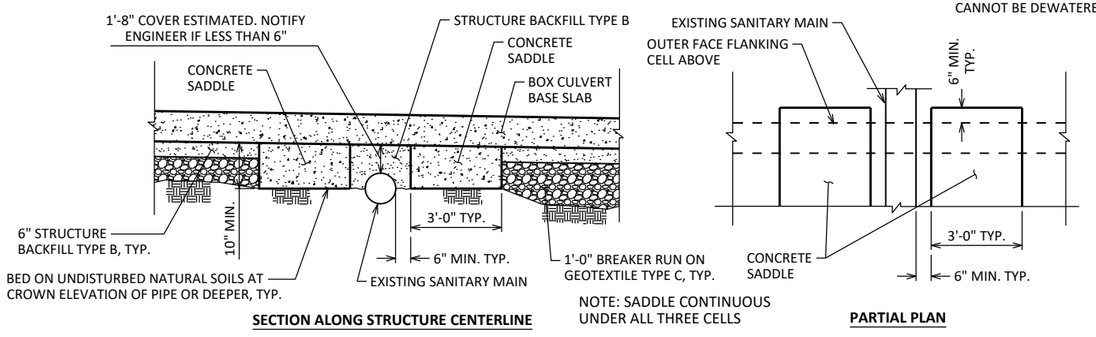
IN LIEU OF USING BREAKER RUN FOR THE CONSTRUCTION PLATFORM, THE CONTRACTOR MAY ELECT TO SUBSTITUTE #1 OR #2 CONCRETE COURSE AGGREGATE, SELECT CRUSHED MATERIAL, OR OTHER STONE OR GRAVEL MATERIAL AS APPROVED BY THEE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR BASE STABILITY WITH ANY SUBSTITUTED MATERIAL. THE REGION GEOTECHNICAL ENGINEER MAY BE CONTACTED TO DETERMINE IS "OTHER STONE OR GRAVEL MATERIAL" IS ACCEPTABLE.

PLACE 18" (MIN.) WIDE SHEET OF "RUBBERIZED MEMBRANE WATERPROOFING" OVER ALL CONSTRUCTION JOINTS.

THE CONCRETE IN THE CUTOFF WALLS MAY BE PLACED UNDERWATER IF THE EXCAVATION CANNOT BE DEWATERED.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
203.0220	REMOVING STRUCTURE P-67-0775	EACH	1
206.2001	EXCAVATION FOR STRUCTURES CULVERTS B-67-0407	EACH	1
210.2500	BACKFILL STRUCTURE TYPE B	TON	4300
311.0110	BREAKER RUN	TON	500
502.4104	ADHESIVE ANCHORS 1/2-INCH	EACH	128
502.4105	ADHESIVE ANCHORS 5/8-INCH	EACH	67
504.0100	CONCRETE MASONRY CULVERTS	CY	110
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3240
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	5145
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	25
606.0300	RIPRAP HEAVY	CY	345
645.0105	GEOTEXTILE TYPE C	SY	705
645.0120	GEOTEXTILE TYPE HR	SY	515
SPV.0035	STRUCTURAL GROUT	CY	15
SPV.0090	PRECAST CONCRETE BOX CULVERT 03. 8 FT X 6 FT	LF	303
SPV.0090	PRECAST CONCRETE BOX CULVERT 04. 12 FT X 8 FT	LF	151.5
SPV.0180	EXTERNAL JOINT SEALER	SY	355



SADDLE DETAIL AT SANITARY MAIN

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

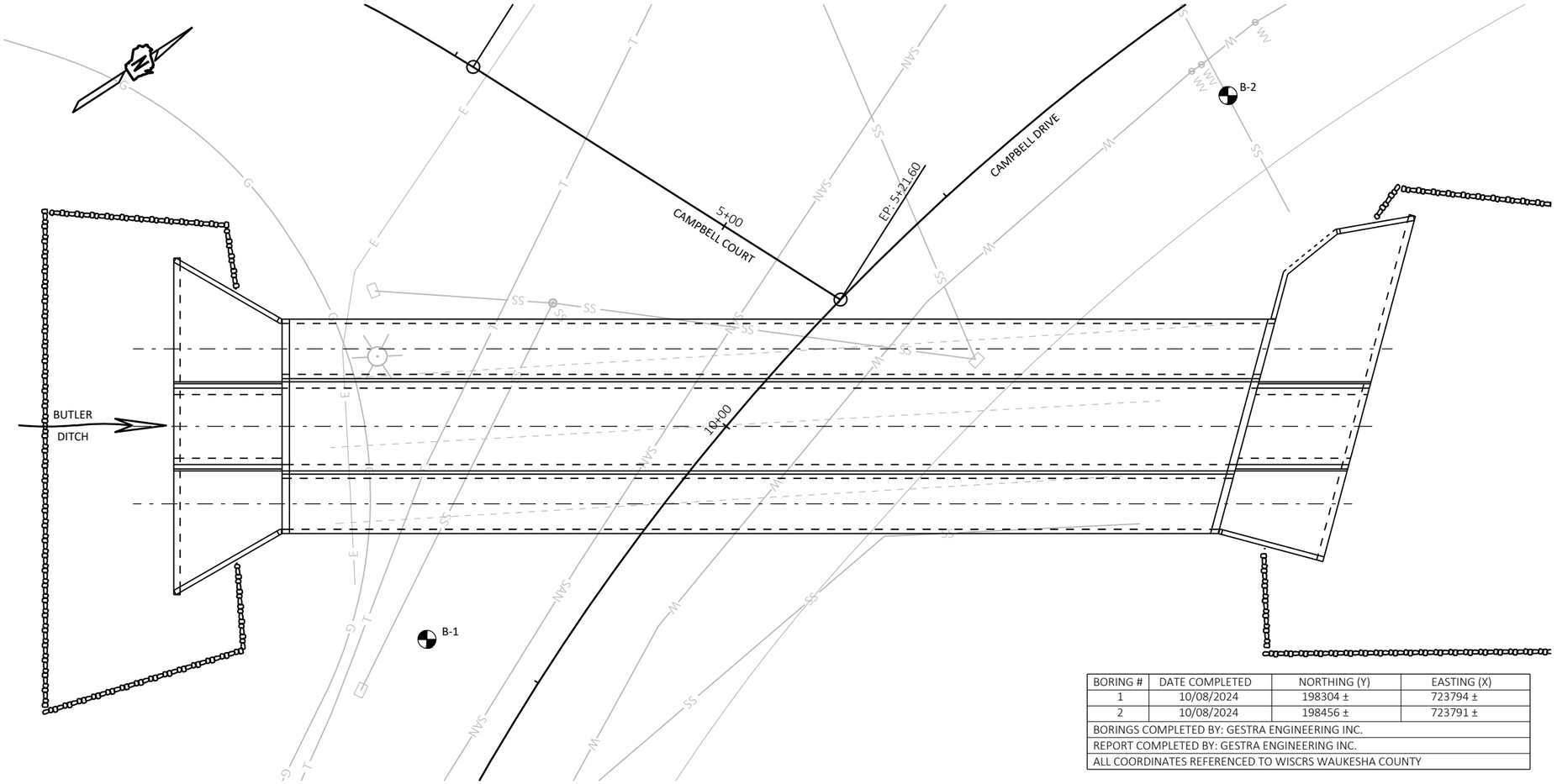
STRUCTURE B-67-407

DRAWN BY ZLM | PLANS CK'D MJG

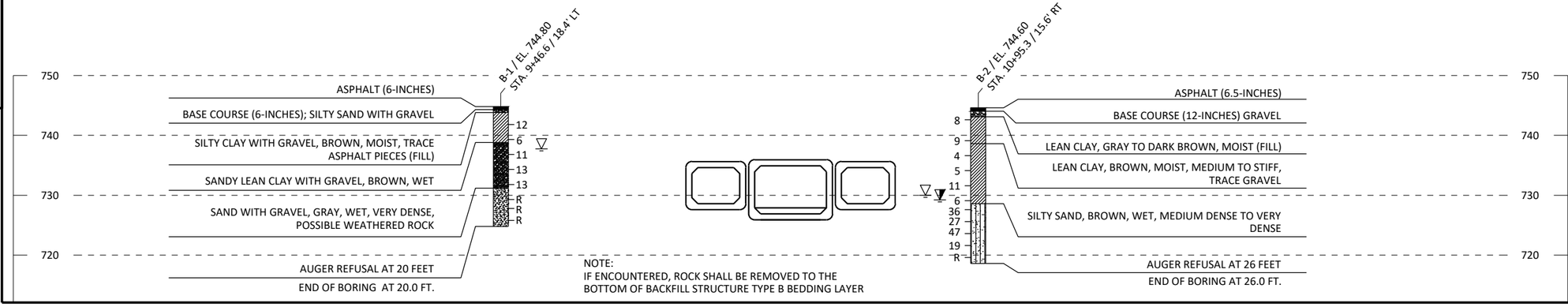
ESTIMATED QUANTITIES

SHEET 2 OF 10

71



BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	10/08/2024	198304 ±	723794 ±
2	10/08/2024	198456 ±	723791 ±
BORINGS COMPLETED BY: GESTRA ENGINEERING INC.			
REPORT COMPLETED BY: GESTRA ENGINEERING INC.			
ALL COORDINATES REFERENCED TO WISCRS WAUKESHA COUNTY			



NOTE:
IF ENCOUNTERED, ROCK SHALL BE REMOVED TO THE BOTTOM OF BACKFILL STRUCTURE TYPE B BEDDING LAYER

STATE PROJECT NUMBER

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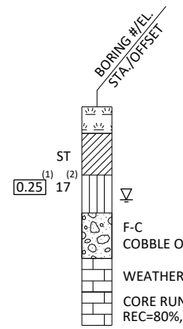
MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

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

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-407

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SUBSURFACE EXPLORATION

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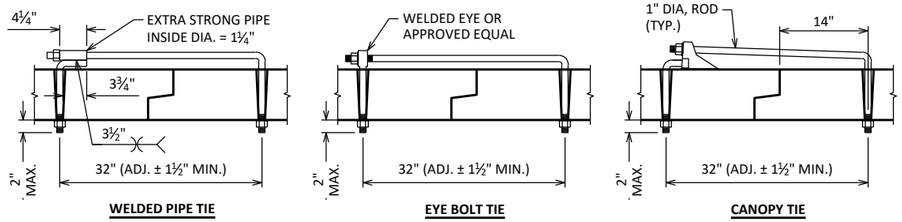
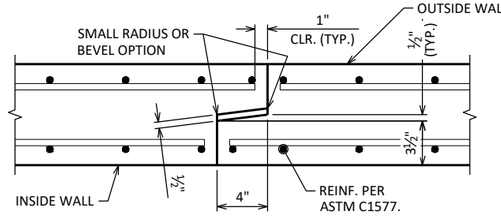


NOTES:
EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED. THREADS MAY BE CUT OR ROLLED. TIE NUTS SHALL BE TIGHTENED TO MEET PRECAST MANUFACTURER'S RECOMMENDATIONS. (2 TIES REQ'D. PER JOINT.) (TIES TO BE GALVANIZED STEEL.)

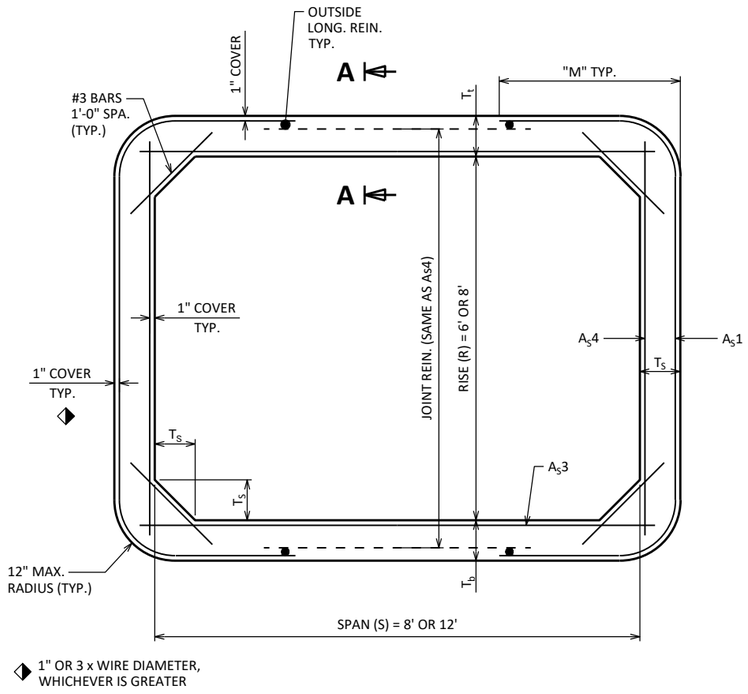
JOINT TIES SHALL BE INCLUDED WITH PRECAST REINFORCED BOX CULVERT BID ITEMS.

JOINT TIES



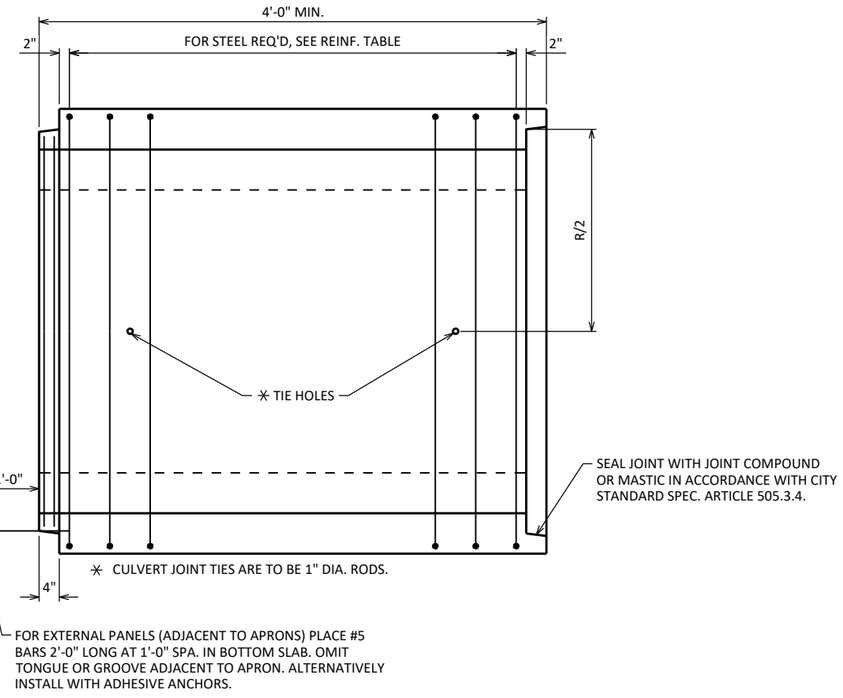
JOINT DETAIL

NOTE:
THIS JOINT DETAIL IS BASED ON WISDOT STANDARDS. PRECASTER MAY PROPOSED ALT. JOINT DETAIL TO ENGINEER FOR REVIEW.

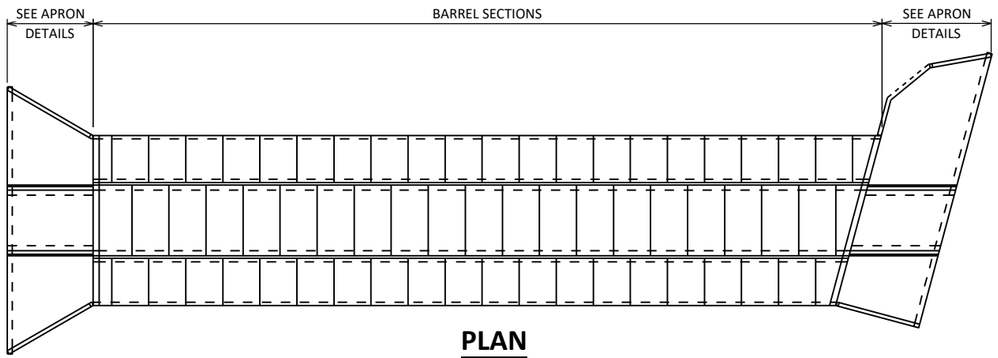


◆ 1" OR 3 x WIRE DIAMETER, WHICHEVER IS GREATER

SECTION THRU BARREL



LONGITUDINAL SECTION



PLAN

MULTICELL INSTALLATION

BOX CULVERT DESIGN CRITERIA:

DESIGN AND CONSTRUCT PRECAST BOX CULVERT IN ACCORDANCE WITH ASTM C1577. DESIGN EARTH COVER SHALL BE AS STATED IN SPECIAL PROVISIONS. MINIMUM CIRCUMFERENTIAL REINFORCEMENT AREAS (SQ. INCHES) ARE PROVIDED BELOW BASED ON ASTM C1577 AND SITE CONDITIONS.

FILL HEIGHT (FT)	R (FT)	S (FT)	T_t (IN)	T_b (IN)	T_s (IN)	A_s1	A_s2	A_s3	A_s4	A_s5	A_s6	A_s7	A_s8	M
10	6	8	8	8	8	0.465	0.692	0.720	0.200	0.110	0.110	0.055	0.055	3'-9"
10	8	12	12	12	12	0.513	0.650	0.670	0.200	0.132	0.132	0.055	0.055	5'-0"

NOTES

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

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

ALL PRECAST BOX SECTIONS SHALL BE PLACED ON A BEDDING OF "STRUCTURE BACKFILL" OF 6" MINIMUM DEPTH.

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

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8 INCHES. PROVIDE 0.03 SQ. IN./FT MINIMUM LONG. REINFORCEMENT AT EACH FACE IN SLABS AND WALLS.

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

THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC. M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE TYPE DF SCHEDULE A SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE SHALL CONFORM TO SECTION 645.2.2.4 OF THE STANDARD SPECIFICATION. (FABRIC NOT REQUIRED OVER INSIDE WALL JOINTS OF MULTICELL INSTALLATION.)

☑ WHEN TWO OR MORE BARRELS ARE UTILIZED IN PARALLEL FOR MULTICELL INSTALLATIONS THE CLEAR SPACING BETWEEN BARRELS SHALL BE 6 INCHES AND THE SPACE BETWEEN ADJACENT BARRELS FROM TOP OF BEDDING TO TOP OF TOP SLAB SHALL BE FILLED WITH GRADE "B" CONCRETE.

SHOP DRAWINGS SHALL PROVIDE "BOX CULVERT BARREL DATA" WITH REQUIRED AND ACTUAL REINFORCEMENT AREAS.

MATERIAL PROPERTIES:
PRECAST CONCRETE_____f'c=5,000 P.S.I.
BAR STEEL REINFORCEMENT_____fy=60,000 P.S.I.
STEEL REINFORCEMENT (WIRE)___fy=65,000 P.S.I.

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STATE OF WISCONSIN
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STRUCTURE B-67-407

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CULVERT DETAILS

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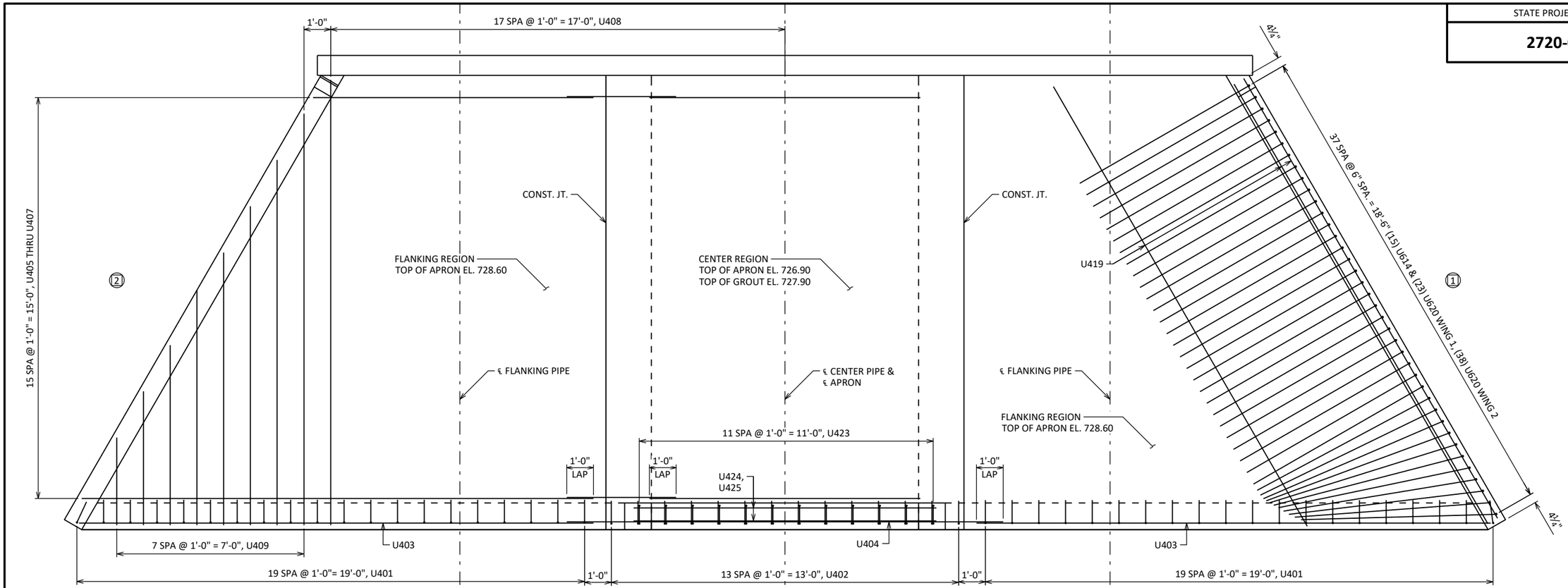
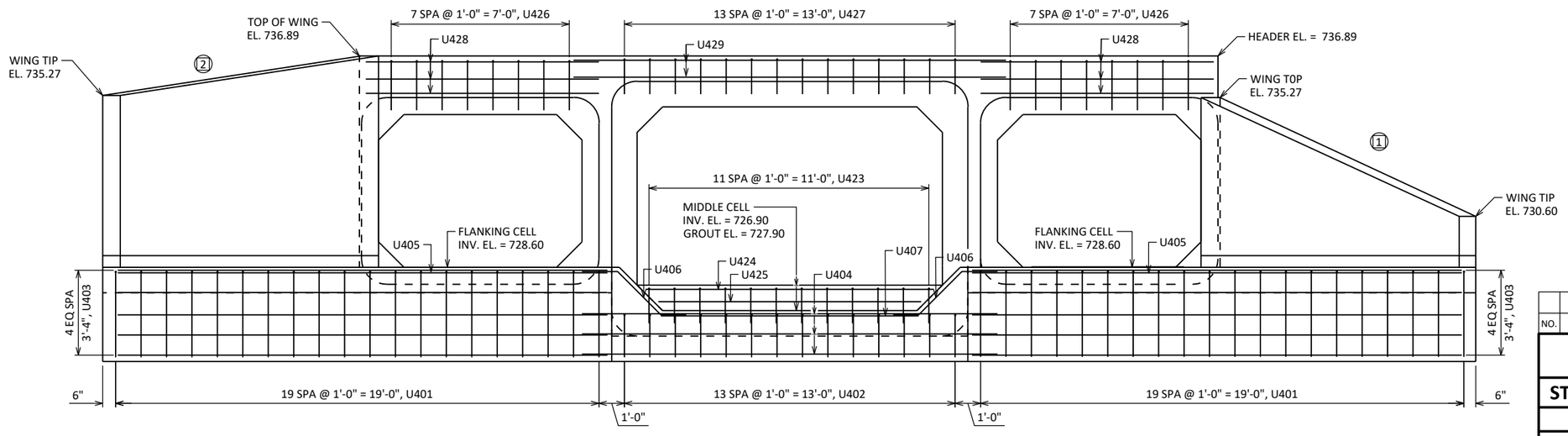


INLET APRON PLAN

APRON IS SYMMETRICAL ABOUT CENTERLINE



INLET APRON ELEVATION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-407

DRAWN BY ZLM | PLANS CK'D MJG

INLET APRON DETAILS 1

SHEET 5 OF 10

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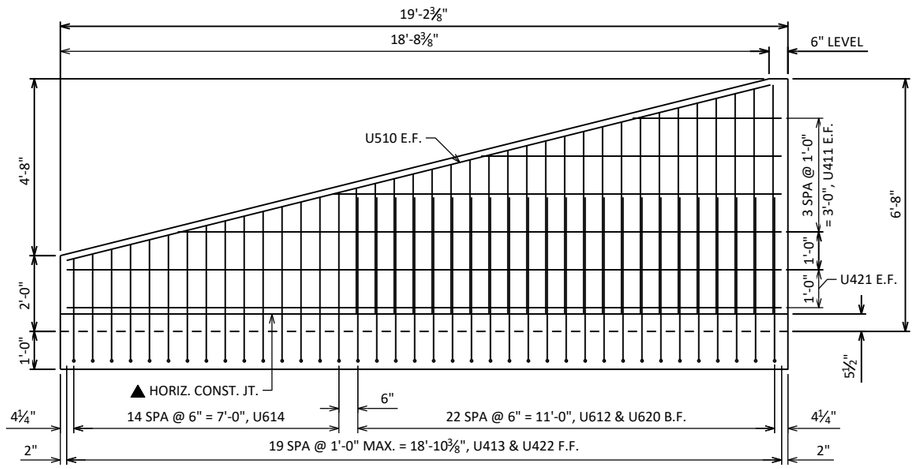
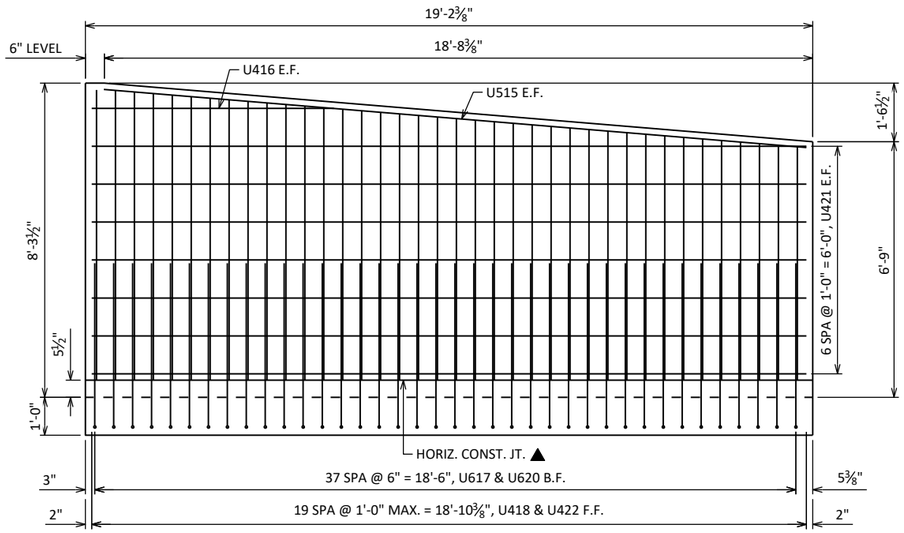


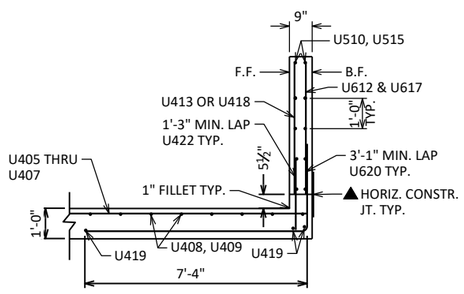
INLET WING ELEVATION

WING 1 BACK FACE SHOWN

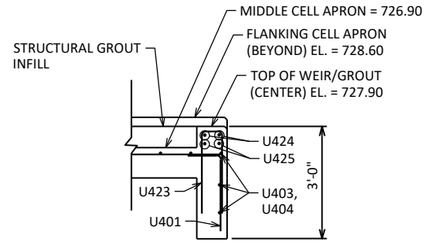


INLET WING ELEVATION

WING 2 BACK FACE SHOWN



INLET WING SECTION



INLET CUTOFF WALL AND WEIR

BILL OF BARS					INLET APRON
BAR MARK	COAT	*NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
U401		40	4 - 2		X	CUTOFF WALL VERT. FLANKING
U402		14	2 - 6		X	CUTOFF WALL VERT. CENTER
U403		10	19 - 3			CUTOFF WALL HORIZ. FLANKING
U404		3	16 - 4			CUTOFF WALL HORIZ. CENTER
U405		32	14 - 10	◭		APRON SLAB HORIZ. FLANKING
U406		32	4 - 10		X	APRON SLAB HORIZ. STEP
U407		16	10 - 2			APRON SLAB HORIZ. CENTER
U408		35	16 - 8			APRON SLAB HORIZ.
U409		16	9 - 0	◭		APRON SLAB HORIZ. FLARE
U510	X	2	19 - 2			WING 1 HORIZ. TOP EACH FACE
U411	X	8	9 - 11	◭		WING 1 HORIZ. EACH FACE
U612	X	23	4 - 9	◭		WING 1 VERT. BACK FACE
U413	X	20	3 - 9	◭		WING 1 VERT. FRONT FACE
U614	X	15	10 - 9	◭	X	WING 1 VERT. BACK FACE BOTTOM
U515	X	2	18 - 8			WING 2 HORIZ. TOP EACH FACE
U416	X	2	6 - 5			WING 2 HORIZ. EACH FACE
U617	X	38	6 - 11	◭		WING 2 VERT. BACK FACE
U418	X	20	6 - 11	◭		WING 2 VERT. FRONT FACE
U419		6	18 - 10			WINGS HORIZ. APRON SLAB
U620	X	61	11 - 6		X	WINGS VERT. BACK FACE BOTTOM
U421	X	18	18 - 10			WINGS HORIZ.BOTTOM EACH FACE
U422	X	40	2 - 6			WINGS VERT. DOWELS FRONT FACE
U423		12	4 - 2		X	WEIR VERT.
U424		2	11 - 4			WEIR HORIZ. TOP
U425		2	10 - 4			WEIR HORIZ. BOTTOM
U426	X	16	4 - 8		X	HEADER VERT. FLANKING
U427	X	14	3 - 6		X	HEADER VERT. CENTER
U428	X	12	9 - 2			HEADER HORIZ. FLANKING
U429	X	4	17 - 0			HEADER HORIZ. CENTER
U530	X	32	1 - 6			APRON DOWELS

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

◧ ADHESIVE ANCHOR 1/2-INCH REQUIRED

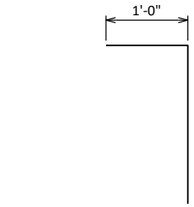
◐ ADHESIVE ANCHOR 5/8-INCH REQUIRED. NOT REQUIRED IF BARS CAST IN END OF CELLS.

BAR SERIES TABLE

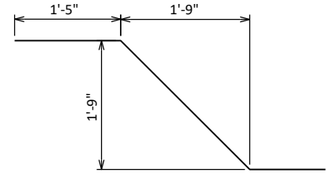
BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.			LENGTH		
U405	2	SERIES OF	16	10'-6"	TO	19'-2"
U409	2	SERIES OF	8	3'-4"	TO	15'-5"
U411	2	SERIES OF	4	3'-11"	TO	15'-11"
U612	1	SERIES OF	23	3'-4"	TO	6'-0"
U413	1	SERIES OF	20	1'-6"	TO	6'-0"
U614	1	SERIES OF	15	9'-10'	TO	11'-7"
U617	1	SERIES OF	38	6'-2"	TO	7'-8"
U418	1	SERIES OF	20	6'-2"	TO	7'-8"

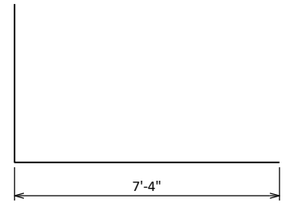
▲ 18" RUBBERIZED MEMBRANE WATERPROOFING. PLACE ALONG HORIZ. AND VERT. CONSTR. JT. FOR ENTIRE WING AND HEADWALL LENGTH AND HEIGHT, TYP.



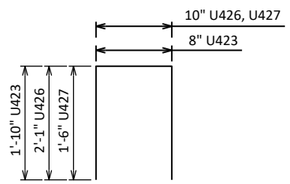
U401, U402



U406



U614,U620



U423, U426, U427

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INLET APRON DETAILS 2

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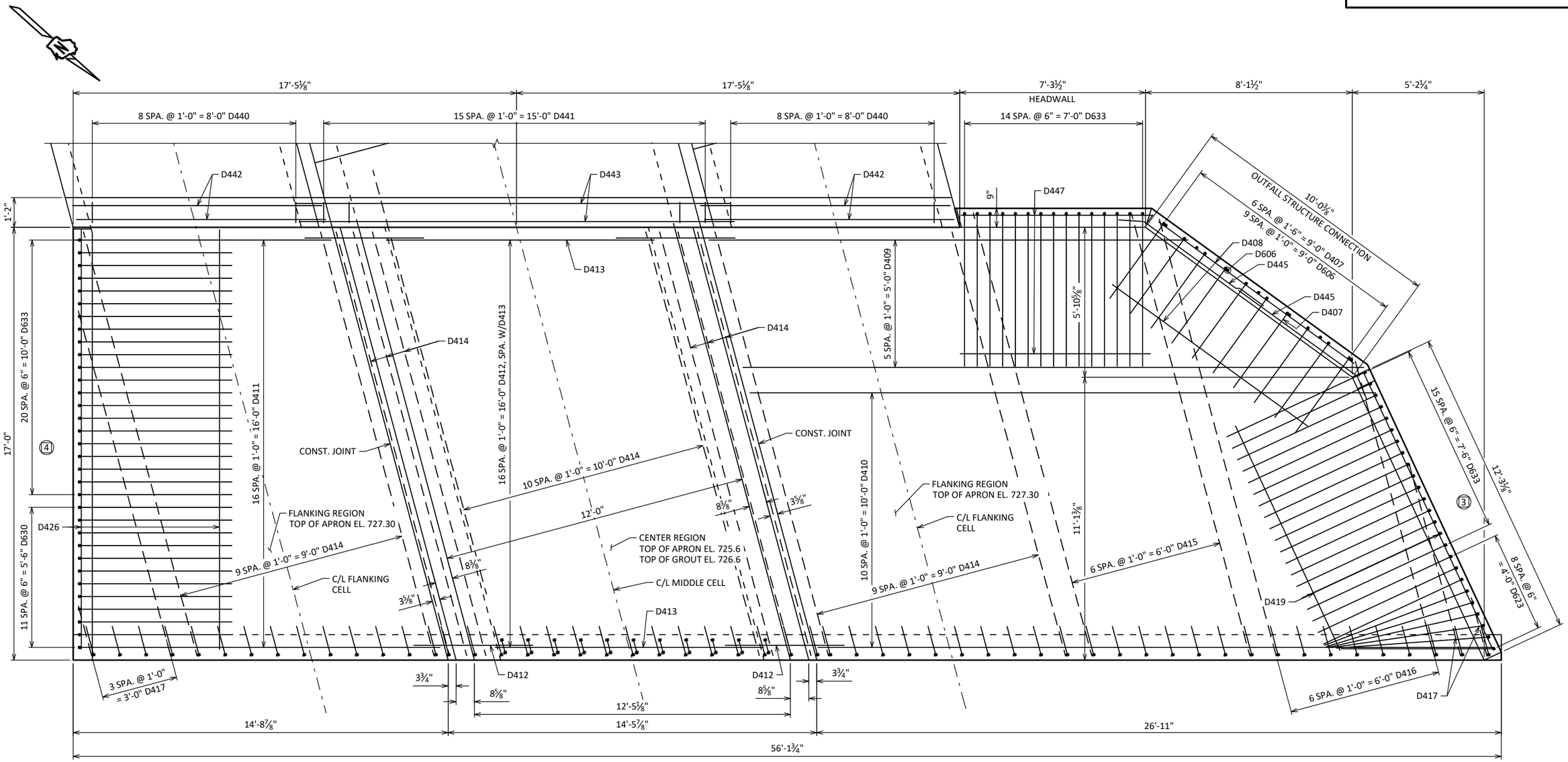

OUTLET APRON PLAN

LEGEND

= BOTTOM REINFORCEMENT
= TOP REINFORCEMENT

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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DRAWN BY ZLM | PLANS CK'D MJG

OUTLET APRON DETAILS 1

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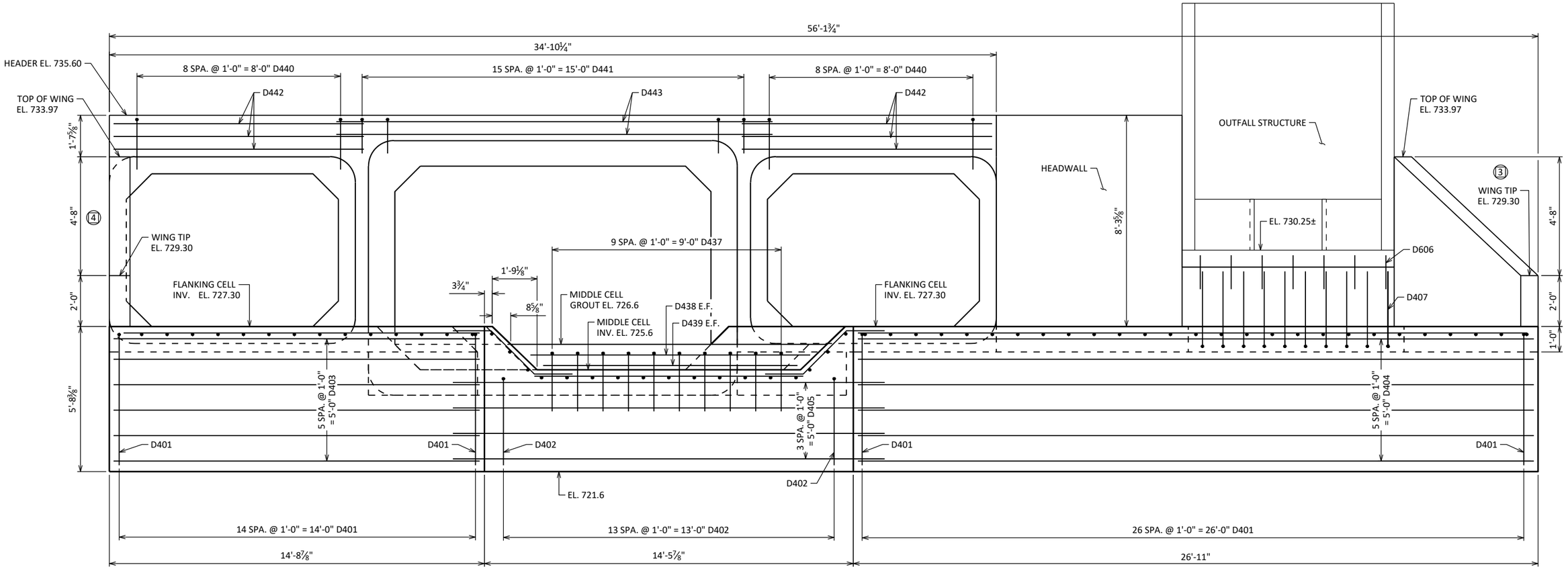


OUTLET ELEVATION

8

8

NO.	DATE	REVISION	BY

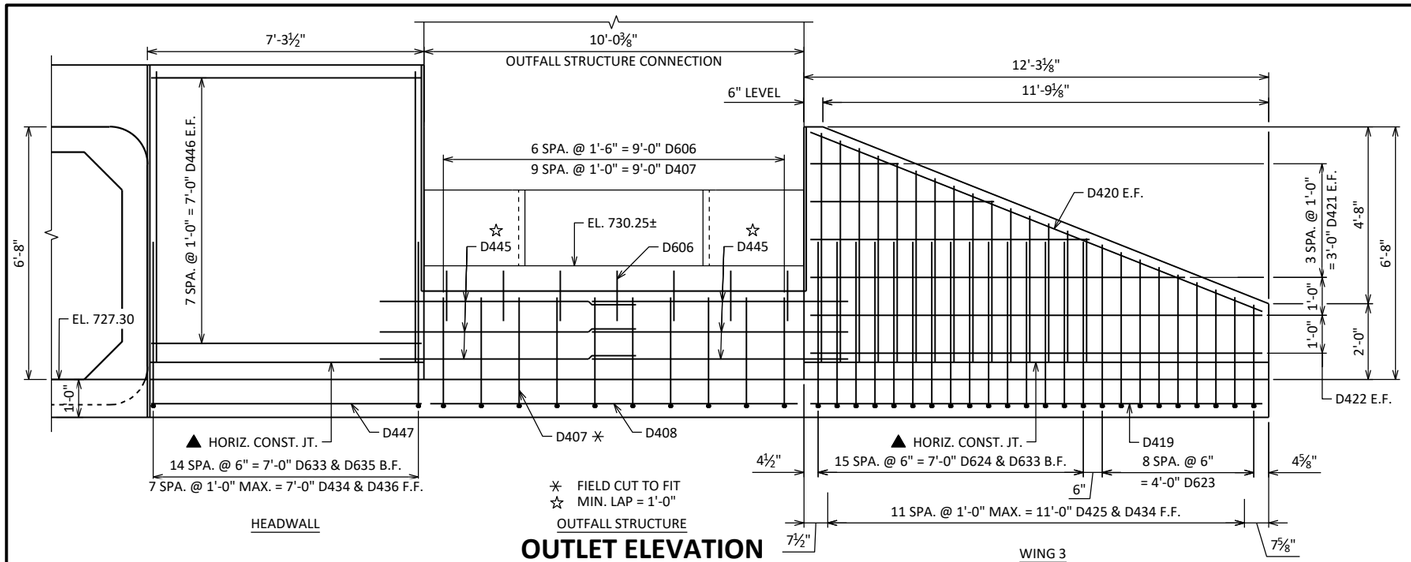
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-407

DRAWN BY ZLM | PLANS CK'D MJG

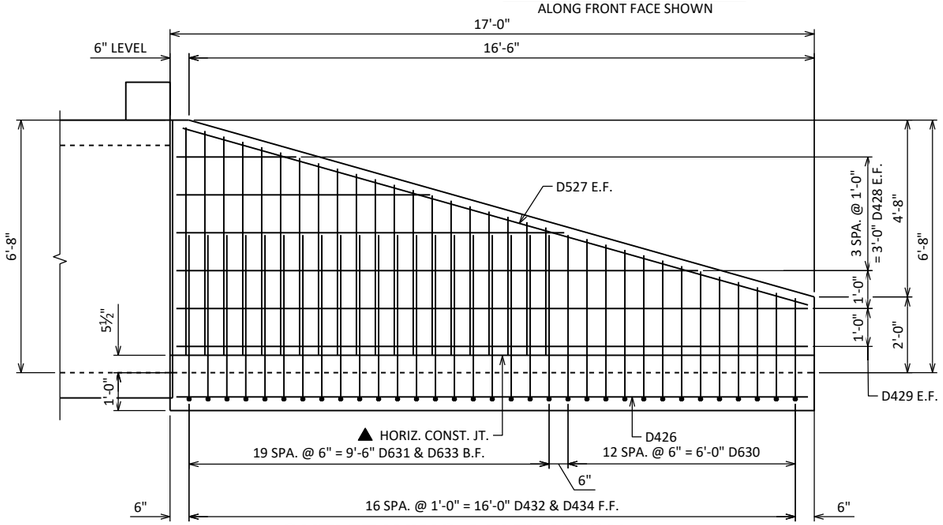
OUTLET APRON DETAILS 2

SHEET 8 OF 10

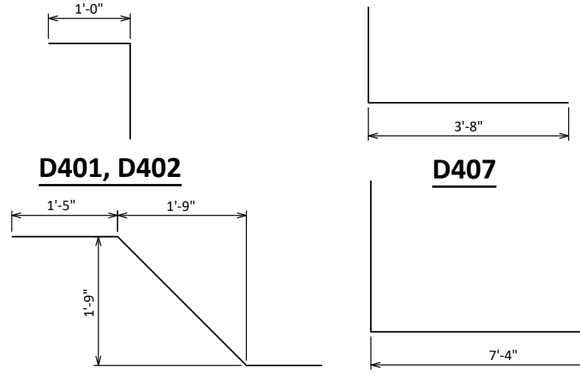


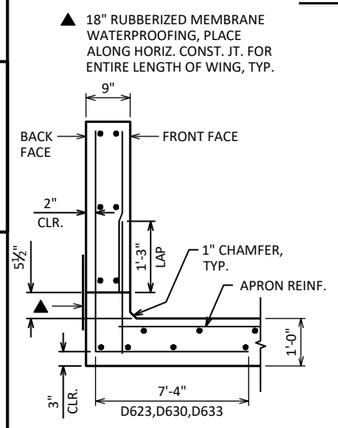
OUTLET ELEVATION

ALONG FRONT FACE SHOWN



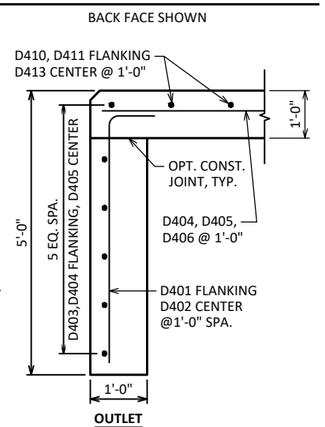
OUTLET WING 4 ELEVATION



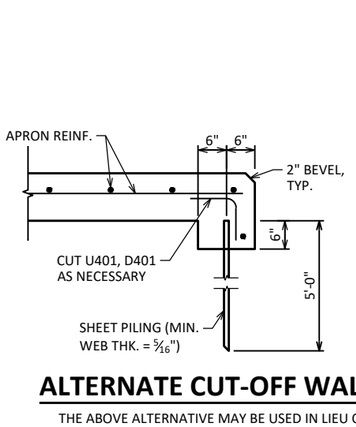


SECTION THRU WINGS

BACK FACE SHOWN

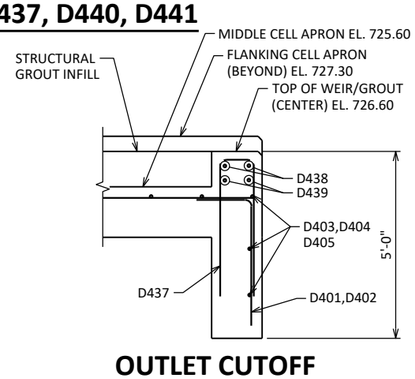


CUT-OFF WALLS



ALTERNATE CUT-OFF WALLS

THE ABOVE ALTERNATIVE MAY BE USED IN LIEU OF CAST-IN-PLACE CONCRETE CUT-OFF WALLS. PAYMENT WILL BE BASED ON THE CONCRETE CUT-OFF WALLS.



OUTLET CUTOFF WALL AND WEIR

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BILL OF BARS — OUTLET APRON

BAR MARK	COAT	*NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
D401		42	6 - 1		X	CUTOFF WALL VERT. FLANKING
D402		14	4 - 2		X	CUTOFF WALL VERT. CENTER
D403		6	14 - 4			CUTOFF WALL HORIZ. FLANKING
D404		6	26 - 7			CUTOFF WALL HORIZ. FLANKING
D405		4	16 - 10			CUTOFF WALL HORIZ. CENTER
D606	X	7	1 - 4			EXISTING OUTFALL VERT. TIES
D407	X	7	6 - 10		X	EXISTING OUTFALL STEP WALL VERT.
D408		2	9 - 6			EXISTING OUTFALL STEP WALL HORIZ.
D409		6	21 - 7	▲		APRON SLAB HORIZ. FLANKING @ OUTFALL
D410		11	25 - 7	▲		APRON SLAB HORIZ. FLANKING @ WING 3
D411		17	12 - 1	▲		APRON SLAB HORIZ. FLANKING @ WING 4
D412		34	5 - 3		X	APRON SLAB HORIZ. STEP
D413		17	10 - 8			APRON SLAB HORIZ. CENTER
D414		37	17 - 2			APRON SLAB HORIZ.
D415		7	18 - 0			APRON SLAB HORIZ.
D416		7	14 - 11	▲		APRON SLAB HORIZ. FLARE @ OUTFALL
D417		2	5 - 1	▲		APRON SLAB HORIZ. FLARE @ WING 3
D418		4	8 - 0	▲		APRON SLAB HORIZ. FLARE @ WING 4
D419		2	9 - 9			WING 3 HORIZ. APRON SLAB
D420	X	2	12 - 10			WING 3 HORIZ. TOP EACH FACE
D421	X	8	6 - 8	▲		WING 3 HORIZ. EACH FACE
D422	X	4	11 - 11			WING 3 HORIZ. BOTTOM EACH FACE
D623	X	9	10 - 7	▲	X	WING 3 VERT. BACK FACE BOTTOM
D624	X	16	4 - 7	▲		WING 3 VERT. BACK FACE
D425	X	12	3 - 9	▲		WING 3 VERT. FRONT FACE
D426		2	16 - 8			WING 4 HORIZ. APRON SLAB
D527	X	2	17 - 1			WING 4 HORIZ. TOP EACH FACE
D428	X	8	8 - 6	▲		WING 4 HORIZ. EACH FACE
D429	X	4	16 - 8			WING 4 HORIZ. BOTTOM EACH FACE
D630	X	13	10 - 8	▲	X	WING 4 VERT. BACK FACE BOTTOM
D631	X	20	4 - 8	▲		WING 4 VERT. BACK FACE
D432	X	17	3 - 9	▲		WING 4 VERT. FRONT FACE
D633	X	51	11 - 6		X	WINGS & HEADWALL VERT. BACK FACE BOTTOM
D434	X	37	2 - 6			WINGS & HEADWALL VERT. DOWELS FRONT FACE
D635	X	15	7 - 8			HEADWALL VERT. BACK FACE
D436	X	8	7 - 8			HEADWALL VERT. FRONT FACE
D437		10	4 - 2		X	WEIR VERT.
D438		2	11 - 0			WEIR HORIZ. TOP
D439		2	10 - 0			WEIR HORIZ. BOTTOM
D440	X	18	4 - 8	◧	X	HEADER VERT. FLANKING
D441	X	16	3 - 6	◧	X	HEADER VERT. CENTER
D442	X	12	9 - 10			HEADER HORIZ. FLANKING
D443	X	4	17 - 4			HEADER HORIZ. CENTER
D544	X	35	1 - 6	◐		APRON DOWELS
D445	X	6	7 - 0		X	OUTFALL HORIZ.
D446	X	16	6 - 11			HEADWALL HORIZ. EACH FACE
D447		2	6 - 11			HEADWALL HORIZ. APRON

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

◧ ADHESIVE ANCHOR 1/2-INCH REQUIRED

◐ ADHESIVE ANCHOR 5/8-INCH REQUIRED. NOT REQUIRED IF BARS CAST IN END OF CELLS.

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.			LENGTH		
D409	1	SERIES OF	6	18'-10"	TO	24'-5"
D410	1	SERIES OF	11	24'-7"	TO	26'-7"
D411	1	SERIES OF	17	9'-11"	TO	14'-2"
D416	1	SERIES OF	7	12'-0"	TO	17'-9"
D417	1	SERIES OF	2	2'-4"	TO	7'-9"
D418	1	SERIES OF	4	2'-0"	TO	14'-0"
D421	1	SERIES OF	8	2'-4"	TO	11'-0"
D623	1	SERIES OF	9	9'-10"	TO	11'-5"
D624	1	SERIES OF	16	3'-3"	TO	6'-0"
D425	1	SERIES OF	12	1'-7"	TO	6'-0"
D428	2	SERIES OF	4	3'-2"	TO	13'-9"
D630	1	SERIES OF	13	9'-10"	TO	11'-6"
D631	1	SERIES OF	20	3'-4"	TO	6'-0"
D432	1	SERIES OF	17	1'-6"	TO	6'-0"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

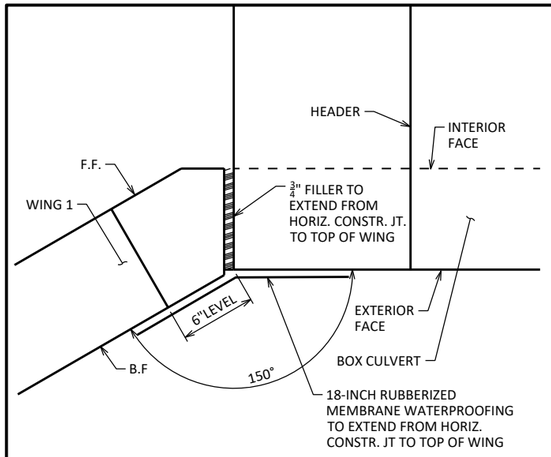
STRUCTURE B-67-407

DRAWN BY ZLM | PLANS CK'D MJG

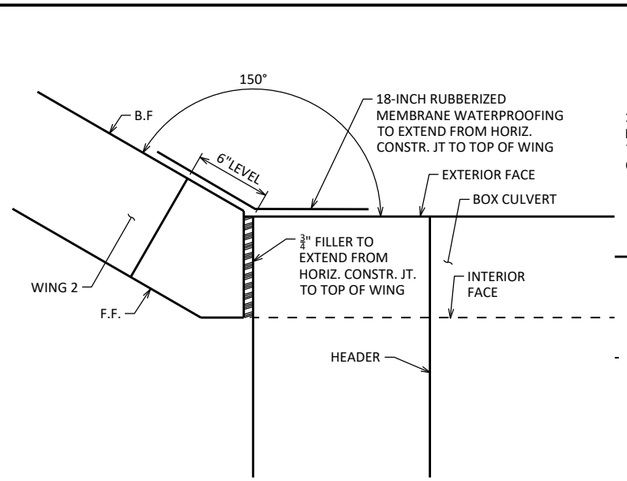
OUTLET APRON DETAILS 3

STATE PROJECT NUMBER

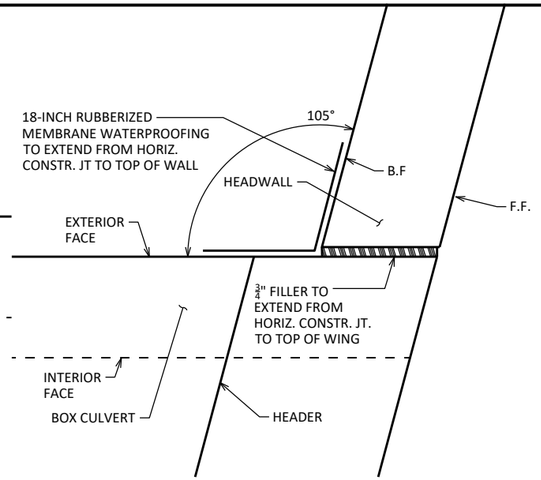
2720-09-71



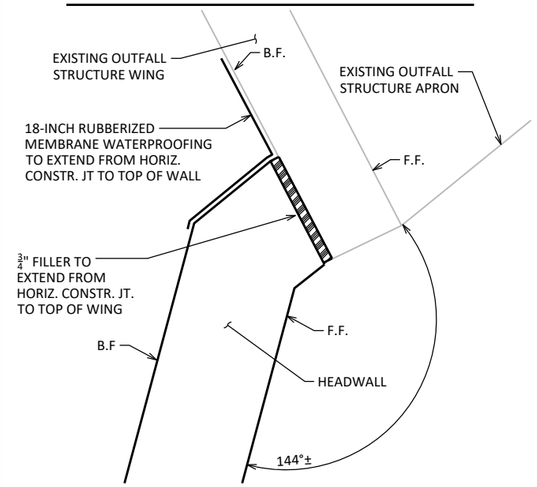
WING 1 CORNER AT BARREL END



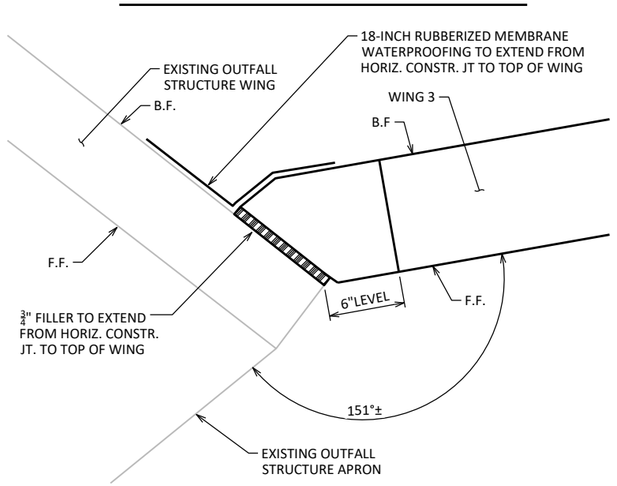
WING 2 CORNER AT BARREL END



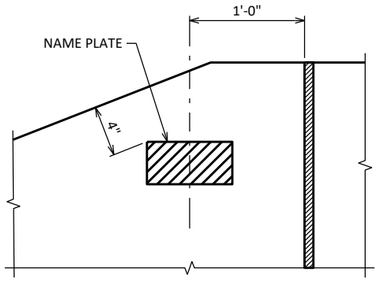
HEADWALL CORNER AT BARREL END



HEADWALL CORNER AT OUTFALL

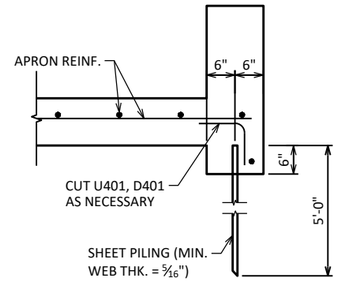


WING 3 CORNER AT OUTFALL



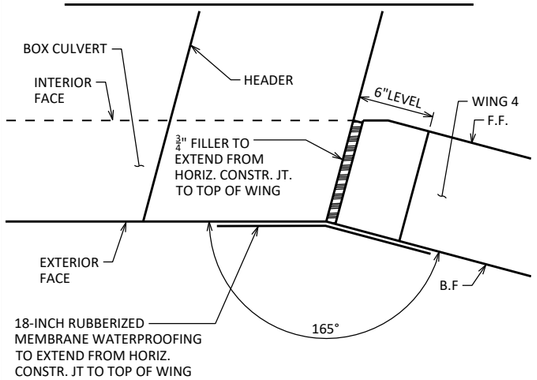
NAME PLATE DETAIL

WING 4

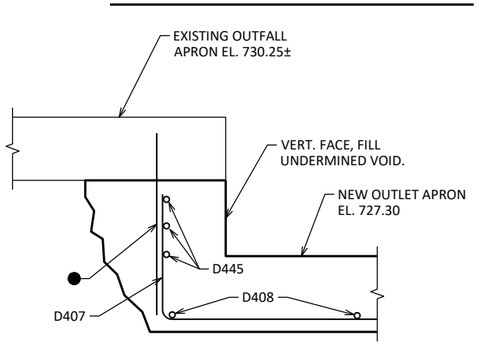


ALTERNATE CUT-OFF WALLS

THE ABOVE ALTERNATIVE MAY BE USED IN LIEU OF CAST-IN-PLACE CONCRETE CUT-OFF WALLS. PAYMENT WILL BE BASED ON THE CONCRETE CUT-OFF WALLS.



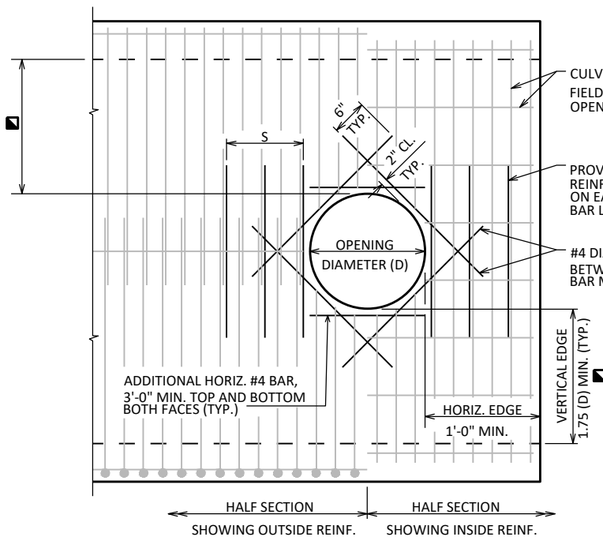
WING 4 CORNER AT BARREL END



SECTION THRU EXISTING STORMWATER OUTFALL

LEGEND

- D606 EPOXY COATED 1'-4" LONG ADHESIVE ANCHOR @ 1'-6" O.C. FIELD DRILL THROUGH EXISTING APRON INTO CONCRETE VERTICAL WALL. CENTER ANCHORS IN VERTICAL WALL AND EMBED 6". HOLD DOWN ANCHOR 2" FROM TOP SURFACE OF EXISTING APRON AND PLUG HOLE WITH NON-SHRINK GROUT.



STORM SEWER OUTFALL IN WING WALL DETAIL

WHEN D ≤ 1'-6" S = 1'-6"
WHEN D > 1'-6" S = 1'-6" MIN, D MAX

NOTES

ALL BAR STEEL REINFORCEMENT SHALL BE CUT 2" CLEAR AROUND OPENING.

WHERE VERTICAL EDGE DISTANCE CANNOT BE MET ABOVE AND BELOW PIPE, PLACE THE OUTFALL SUCH THAT APPROXIMATELY 50% OF THE PIPE IS EMBEDDED IN THE TOP OF THE WING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-67-407

DRAWN BY ZLM | PLANS CK'D MJG

DETAILS

SHEET 10 OF 10

8

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CAMPBELL DRIVE

CATEGORY	STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY)		CUMULATIVE VOL (CY)		
				CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
0010	9+02	902.0	0	10.37	0.00	0	0	0	0	0
	9+25	925	23	68.04	3.16	33	1	33	2	32
	9+26	925.6	1	67.80	5.02	2	0	35	2	33
	9+47	946.9	21	62.26	23.19	51	11	86	16	71
	9+49	949.2	2	61.72	89.79	5	5	91	22	70
	9+50	950	1	61.54	100.53	2	3	93	25	68
	9+73	973.5	23	58.91	292.88	57	171	146	239	-93
	10+00	1000	27	58.65	362.53	58	322	203	641	-438
	10+50	1050	50	53.53	272.15	104	588	307	1,376	-1,069
	11+00	1100	50	60.02	15.79	105	267	412	1,709	-1,297
	11+06	1106.1	6	61.47	11.66	14	3	426	1,713	1,287
	11+33	1132.7	27	70.21	3.21	65	7	491	1,722	-1,231
	11+50	1150	17	75.04	0	46	1	538	1,724	-1,186
	11+59	1159.4	9	75.26	0	26	0	564	1,724	-1,160
	11+65	1165	6	75.25	0	16	0	579	1,724	-1,144
					TOTAL	579	1379			

CAMPBELL COURT

CATEGORY	STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY)		CUMULATIVE VOL (CY)		
				CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
0010	3+75	375	0	75.82	0.15	0	0	0	0	0
	3+85	384.8	10	75.16	0.71	27	0	27	0	27
	4+00	400	15	69.76	0.66	41	0	68	1	68
	4+12	412.4	12	70.01	0.32	32	0	100	1	99
	4+40	439.9	28	74.71	5.35	74	3	174	5	170
	4+50	450	10	116.33	46.43	36	10	210	17	193
	4+65	465	15	186.05	109.74	84	43	294	71	223
					TOTAL	294	57			

9

9

PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	EARTHWORK TABULATIONS	SHEET 80	E

BEGIN CONSTRUCTION
STA 9+00

BG POST 1, LT

PLE

EX RW

TEL

9:9:1

3.2%

745.84,-25.52

743.94,-25.10

744.14,-18.59

9+02

C/L

EX RW

RW

3.0:1

4.0:1

2.0%

742.48,-33.50

744.98,-26.00

743.80,-24.50

743.89,-20.00

744.05,-12.00

744.29,0.00

744.05,12.00

743.89,20.00

743.80,24.50

9+25

BG POST 5, LT

742.27,-34.11

744.97,-26.00

9+26

BG POST 1, RT

TLE

745.14,-26.00

743.91,-26.71

743.59,-24.50

743.68,-20.00

743.84,-12.00

744.08,0.00

743.84,12.00

743.68,20.00

743.59,24.50

9+47

10 FT

10 FT

9

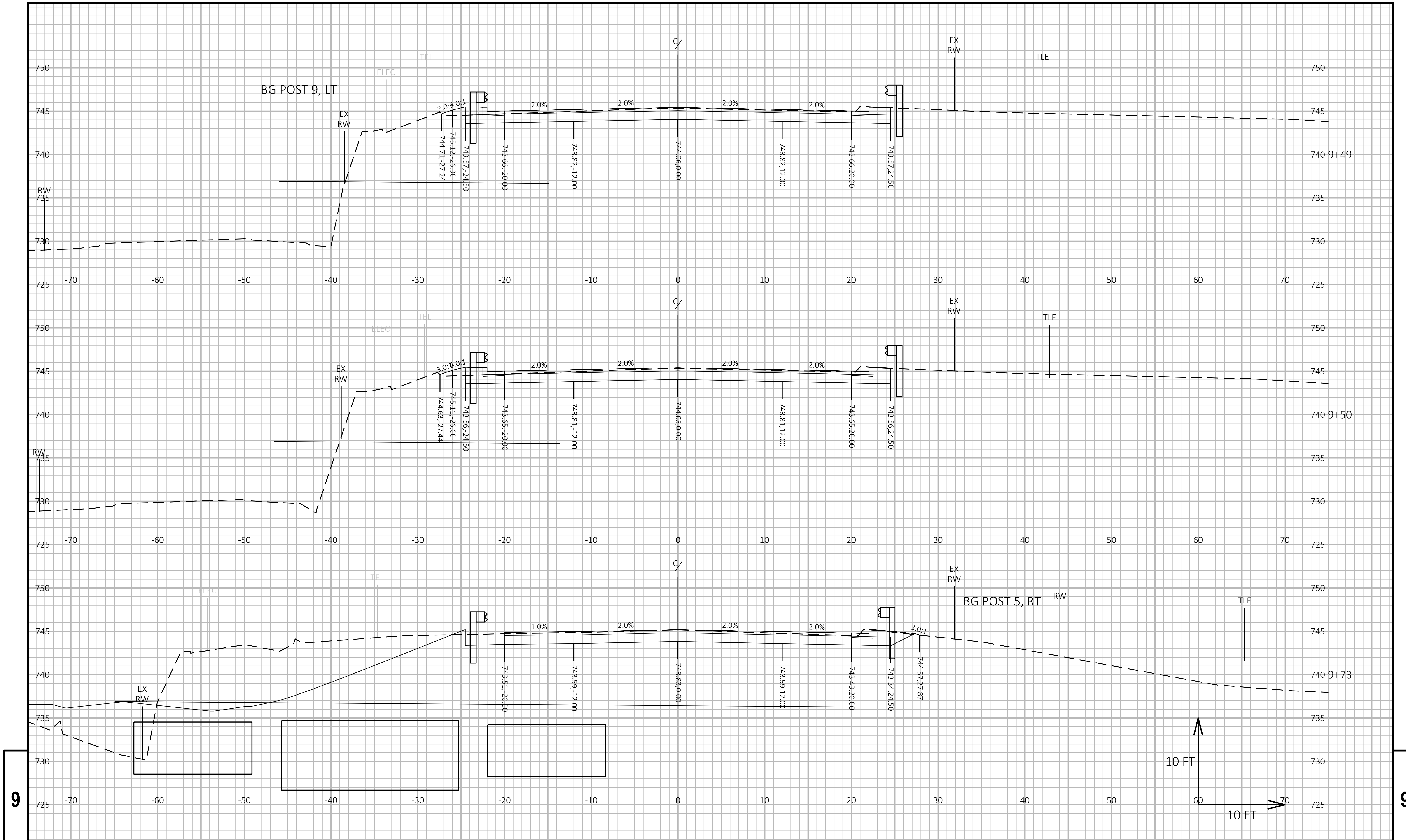
9

PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	CROSS SECTIONS: CAMPBELL DR	SHEET 81	E

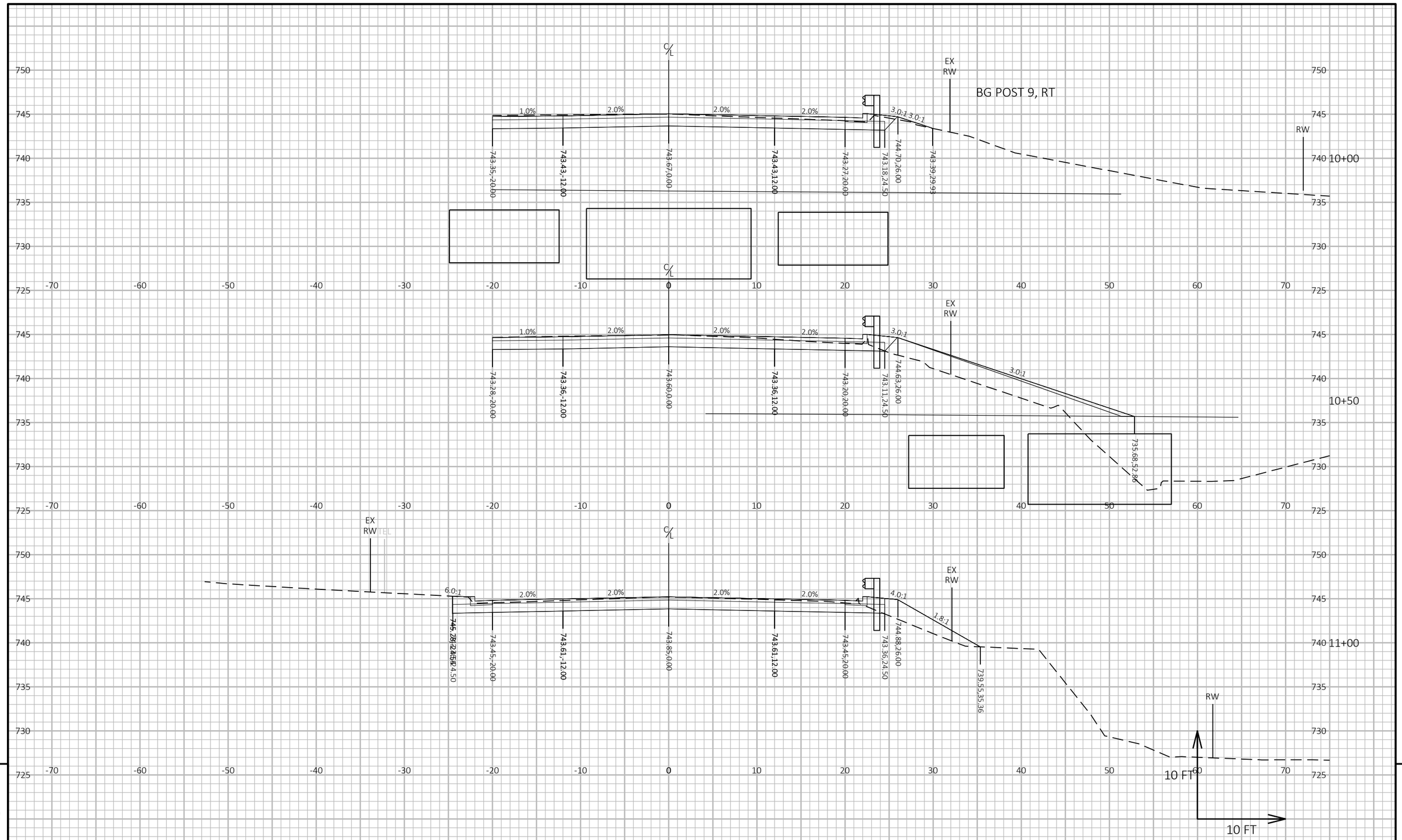
FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\SHEETS\SEC 09 B CROSS SECTIONS\XS.DWG
LAYOUT NAME - CD-1

PLOT DATE : 9/2/2025 6:37 AM PLOT BY : SAVANNAH STEHN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	CROSS SECTIONS: CAMPBELL DR	SHEET 82	E

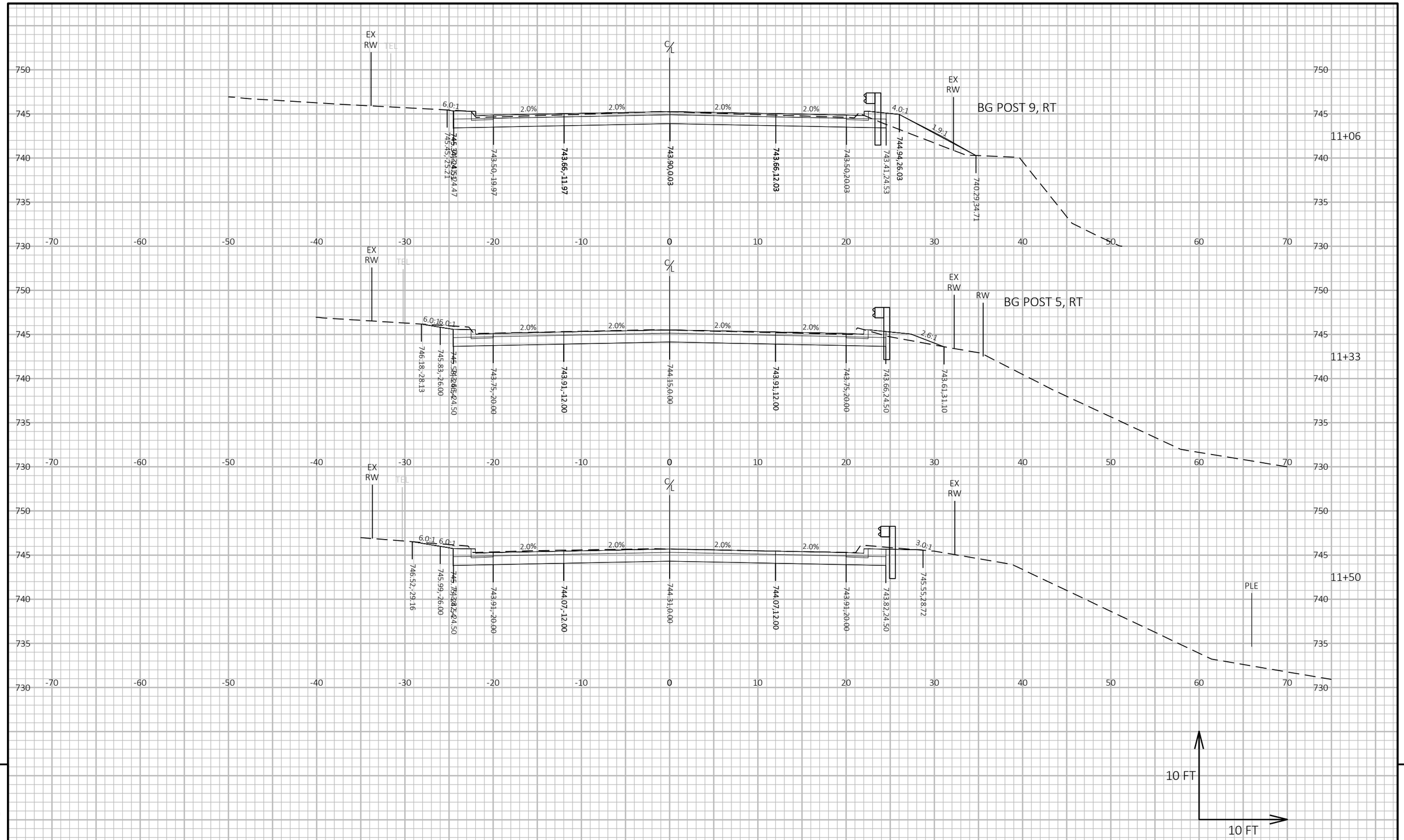


PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	CROSS SECTIONS: CAMPBELL DR	SHEET 83	E

FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\SHEETS\SEC 09 B CROSS SECTIONS\XS.DWG
LAYOUT NAME - CD-3

PLOT DATE : 9/2/2025 6:37 AM PLOT BY : SAVANNAH STEHN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

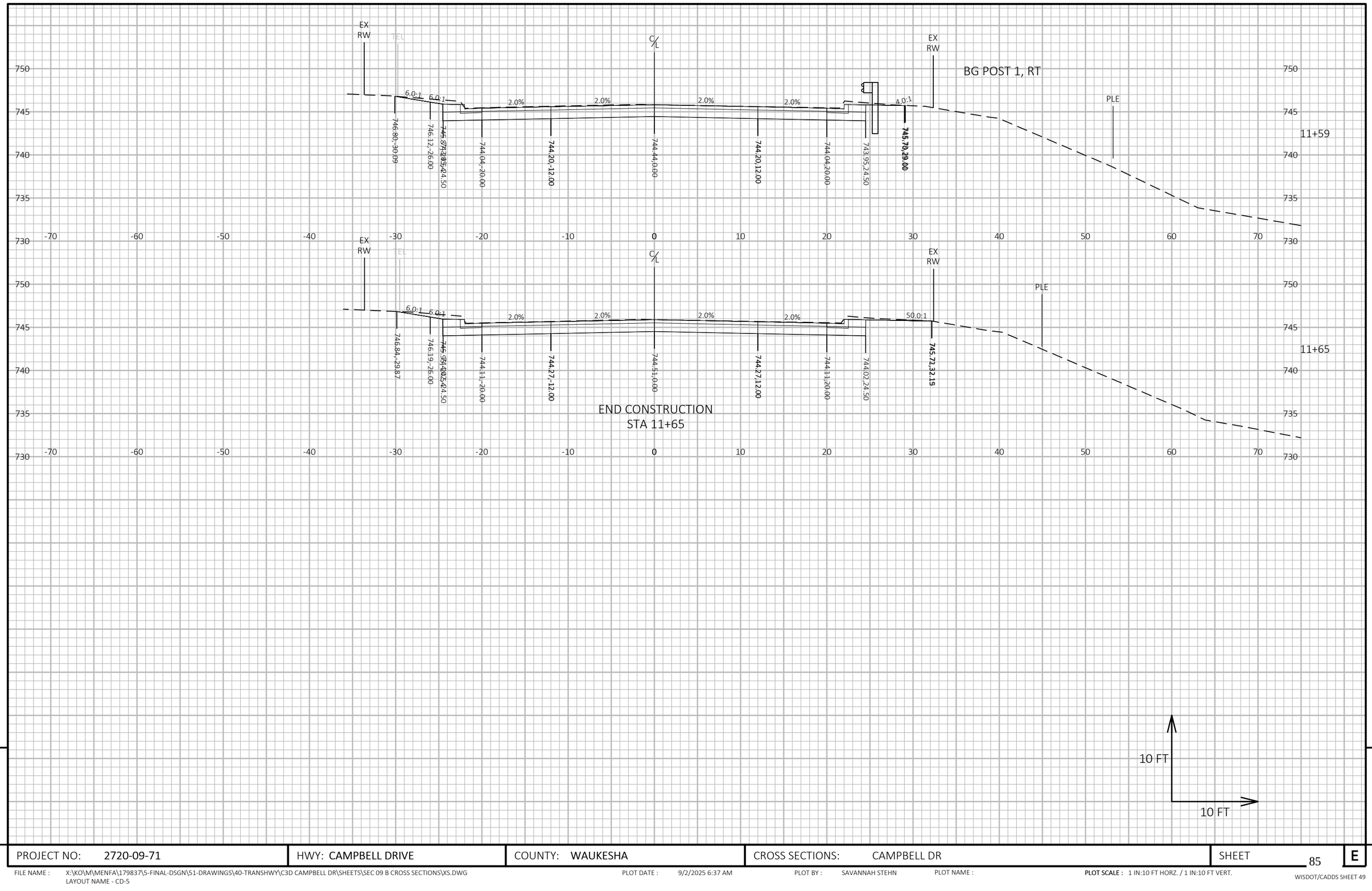


PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	CROSS SECTIONS: CAMPBELL DR	SHEET 84	E

FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\SHEETS\SEC 09 B CROSS SECTIONS\XS.DWG
LAYOUT NAME - CD-4

PLOT DATE : 9/2/2025 6:37 AM PLOT BY : SAVANNAH STEHN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



9

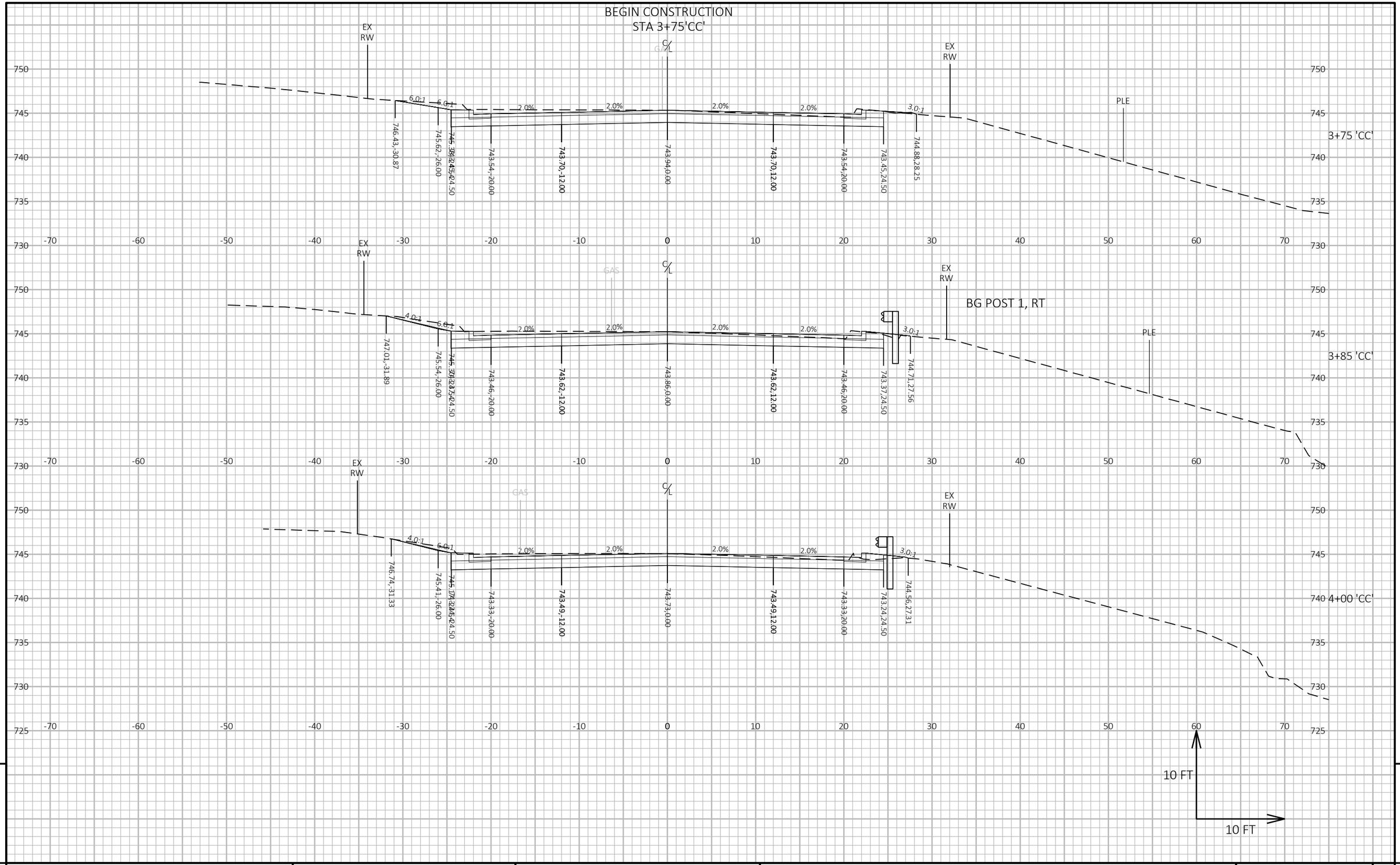
9

PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	CROSS SECTIONS: CAMPBELL DR	SHEET 85	E

FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\SHEETS\SEC 09 B CROSS SECTIONS\XS.DWG
LAYOUT NAME - CD-5

PLOT DATE : 9/2/2025 6:37 AM PLOT BY : SAVANNAH STEHN PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

BEGIN CONSTRUCTION
STA 3+75'CC'

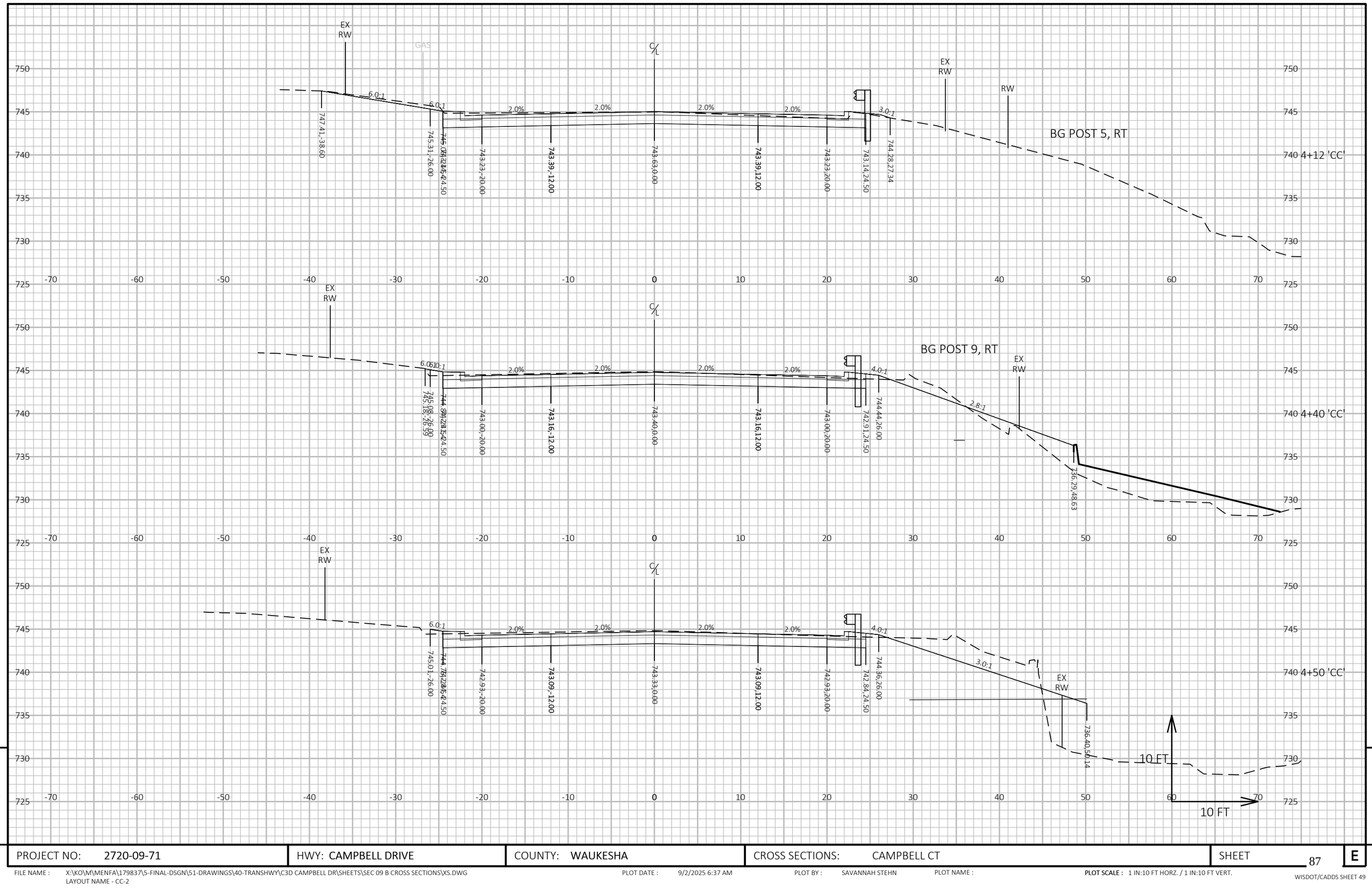


9 9

PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	CROSS SECTIONS: CAMPBELL CT	SHEET 86	E

FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\SHEETS\SEC 09 B CROSS SECTIONS\XS.DWG
LAYOUT NAME - CC-1

PLOT DATE : 9/2/2025 6:37 AM PLOT BY : SAVANNAH STEHN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

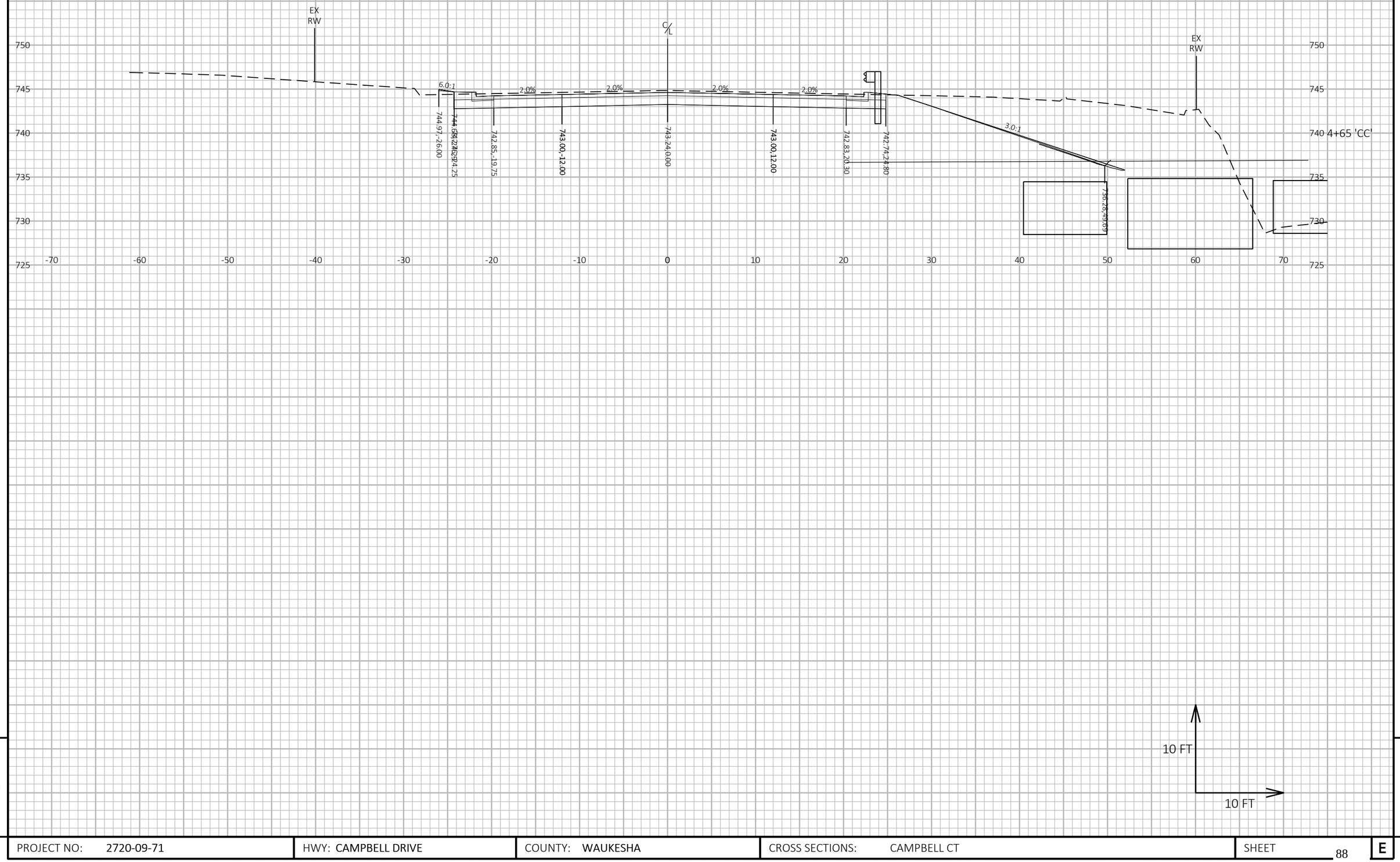


PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	CROSS SECTIONS: CAMPBELL CT	SHEET 87 E

FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\SHEETS\SEC 09 B CROSS SECTIONS\XS.DWG
LAYOUT NAME - CC-2

PLOT DATE : 9/2/2025 6:37 AM PLOT BY : SAVANNAH STEHN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



PROJECT NO: 2720-09-71	HWY: CAMPBELL DRIVE	COUNTY: WAUKESHA	CROSS SECTIONS: CAMPBELL CT	SHEET 88	E

FILE NAME : X:\KO\M\MENFA\179837\5-FINAL-DSGN\51-DRAWINGS\40-TRANSHWY\C3D CAMPBELL DR\SHEETS\SEC 09 B CROSS SECTIONS\XS.DWG
LAYOUT NAME - CC-3

PLOT DATE : 9/2/2025 6:37 AM PLOT BY : SAVANNAH STEHN 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