

WKE

PROJECT ID: 1000-09-73

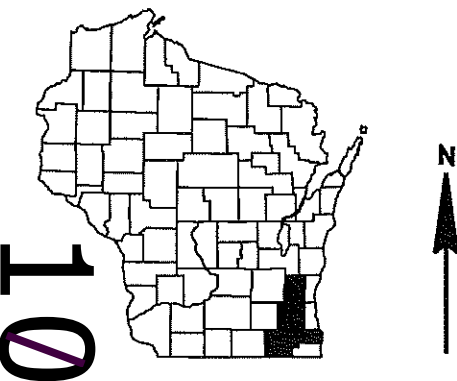
COUNTY: SE REGION WIDE

FEB 11, 2020

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



DESIGN DESIGNATION	1000-09-73
A.A.D.T.	= N/A
A.A.D.T.	= N/A
D.H.V.	= N/A
D.D.	= N/A
T.	= N/A
DESIGN SPEED	= N/A
ESALS	= N/A

CONVENTIONAL SYMBOLS

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

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

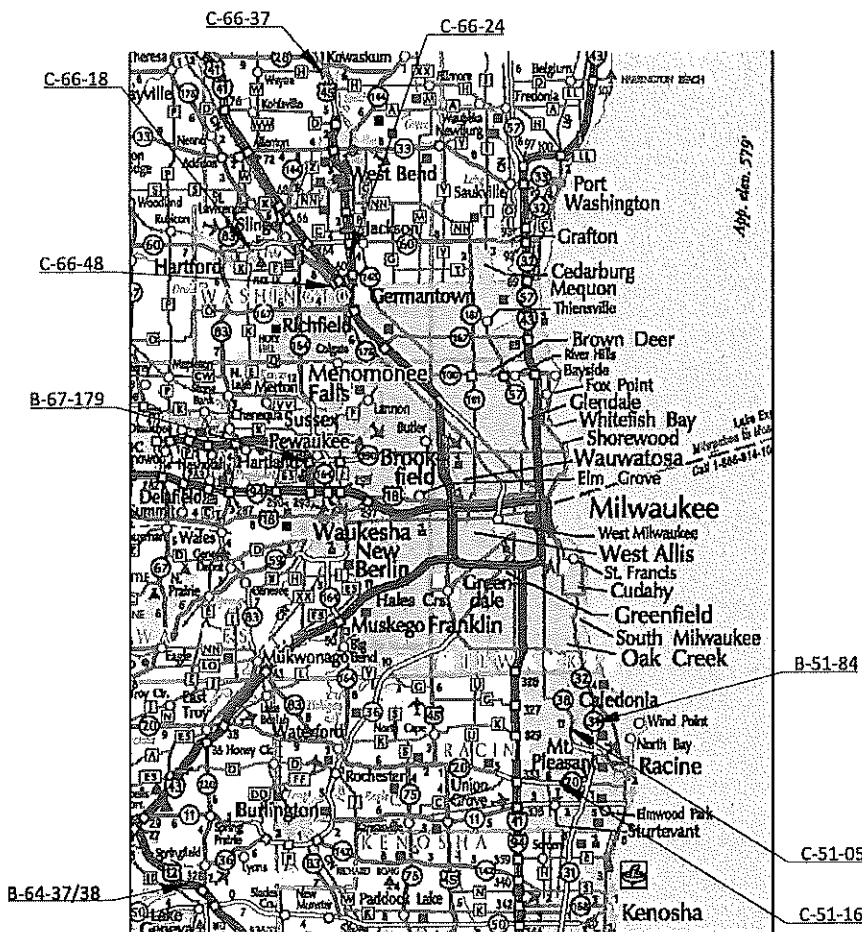
VARIOUS BRIDGE LOCATIONS

LOCATIONS ON STN PER ANNUAL PLAN

VARIOUS HIGHWAYS

SE REGION WIDE

STATE PROJECT NUMBER
1000-09-73



LAYOUT

SCALE 0 15 MI

TOTAL NET LENGTH OF CENTERLINE = 0.000

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), VARIOUS 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 (2011). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1000-09-73	WISC 2020040	1

ORIGINAL PLANS PREPARED BY

Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20229.04

DATE: 12/3/19

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SIGMA
Designer	ALFRED BENESCH & CO
Project Manager	JULIE JENKS, PE
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	JANET CANNON

APPROVED FOR THE DEPARTMENT

DATE: 12/3/19

(Signature)

E

UTILITY CONTACTS

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curteilertson@alliantenergy.com

AT&T LOCAL NETWORK - COMMUNICATION
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JENNIFER NAVARRO
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AT&T WISCONSIN - COMMUNICATION
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CALEDONIA STORM SEWER UTILITY
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BOB LUI
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blui@caledoniawitility.com

CHARTER COMMUNICATIONS
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1515 W WASHINGTON ST
WEST BEND, WI 53095
NICK FRASE
(920) 304-6797

1320 N DR MARTIN LUTHER KING DR
MILWAUKEE, WI 53212
NEAL LONG
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Neal.Long@charter.com

CITY OF HARTFORD
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HARTFORD, WI 53027-1591

(ROADWAY & STORM SEWER)
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(262) 673-8260
jschall@ci.hartford.wi.us

(SEWER)
DAVID PIQUETT
(262) 673-2423
DPIQUETT@ci.hartford.wi.us

CITY OF HARTFORD
(WATER & ELECTRIC)
620 WEST SUMMER ST
HARTFORD, WI 53027
BRIAN RHODES
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brhodes@wppienergy.org

FRONTIER COMMUNICATIONS OF WI, LLC -
COMMUNICATION
1851 N 14TH AVE
WAUSAU, WI 54401
CALVIN KLADE
(715) 847-1525
CALVIN.KLADE@FTR.COM

MIDWEST FIBER NETWORKS LLC -
COMMUNICATION LINE
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GLENDALE, WI 53209
RICHARD TRGOVEC
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rtrgovec@midwestfibernetworks.com

RACINE WATER WORKS COMMISSION – WATER
100 HUBBARD ST
RACINE, WI 53406
CHAD REGALIA
(262) 497-4611
Chad.regalia@cityofracine.org

TDS METROCOM LLC – COMMUNICATION
525 JUNCTION RD
MADISON, WI 53717
MICHAEL SWEET
(608) 664-4539
Michael.Sweet@tdstelecom.com

VILLAGE OF MT PLEASANT - SEWER
8811 CAMPUS DR
MOUNT PLEASANT, WI 53406
TONY BEYER
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tbeyer@mtpleasantwi.gov

VILLAGE OF PEWAUKEE WATER/SEWER UTILITY
– SEWER, WATER, & STREET LIGHTING
235 HICKORY ST
PEWAUKEE, WI 53072
DAN NAZE
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dnaze@villageofpewaukee.com

WE ENERGIES - ELECTRIC
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WEST ALLIS, WI 53214
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WE ENERGIES - GAS/PETROLEUM
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WISCONSIN DEPARTMENT OF TRANSPORTATION
– SIGNALS
141 NW BARSTOW ST
WAUKESHA, WI 53188
JARRETT GATES
(262) 548-5894
Jarrett.gates@dot.wi.gov

GENERAL NOTES

1. THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA.
2. NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.
3. THE COST OF GRADING, CONSTRUCTING, MAINTAINING, AND REMOVING TEMPORARY ACCESS IS INCIDENTAL TO THE CONTRACT.
4. DO NOT PLACE ANY TRAFFIC CONTROL WITHIN 50 FEET OF THE RAILROAD RIGHT-OF-WAY

EROSION CONTROL GENERAL NOTES

1. RE-TOPSOIL DISTURBED AREAS, AS DESIGNATED BY THE ENGINEER. SEED AND E-MAT TOP-SOILED AREAS, AS DESIGNATED BY THE ENGINEER, WITHIN FIVE (5) CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL. IF GRADED AREAS ARE LEFT EXPOSED FOR MORE THAN (14) CALENDAR DAYS, SEED THOSE AREAS WITH TEMPORARY SEED.
2. STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOODPLAINS AND WATERWAYS. STOCKPILED SOIL SHALL BE PROTECTED AGAINST EROSION. IF STOCKPILED MATERIAL IS LEFT FOR MORE THAN FOURTEEN (14) CALENDAR DAYS, SEED THE STOCKPILE WITH TEMPORARY SEED.
3. QUANTITIES FOR EROSION CONTROL ITEMS HAVE BEEN INCLUDED IN THE PROJECT, BUT MAY NOT BE REPRESENTED ON THE PLAN. THE LOCATIONS AND TYPE OF EROSION CONTROL ITEMS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL ITEMS SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE ITEM IS NO LONGER REQUIRED.

OTHER AGENCIES

WISDNR
DNR SOUTHERN REGION
(WALWORTH AND WAUKESHA COUNTIES)
141 NW BARSTOW ST
WAUKESHA, WI 53187
CRAIG WEBSTER
(414) 303-3011
Craig.Webster@wisconsin.gov

(RACINE AND WASHINGTON COUNTIES)
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KRISTINA.BETZOLD
(414)507-4946
Kristina.Betzold@wisconsin.gov

ORDER OF SECTION 2 SHEETS
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
EROSION CONTROL
PAVEMENT MARKING
TRAFFIC CONTROL PLAN
DETOUR PLAN

WISDOT
SOUTHEAST REGION
141 NW BARSTOW ST
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JULIE JENKS
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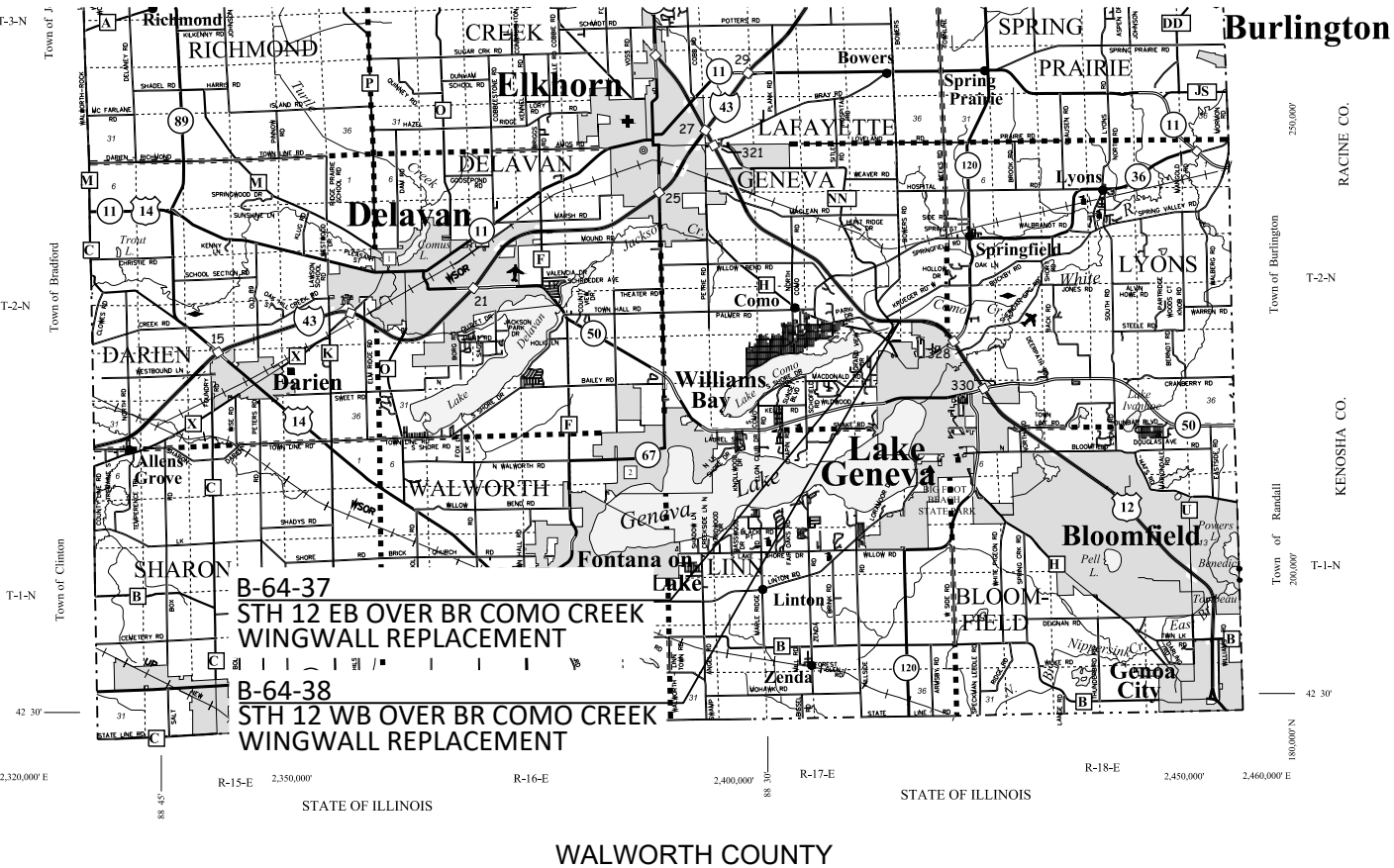
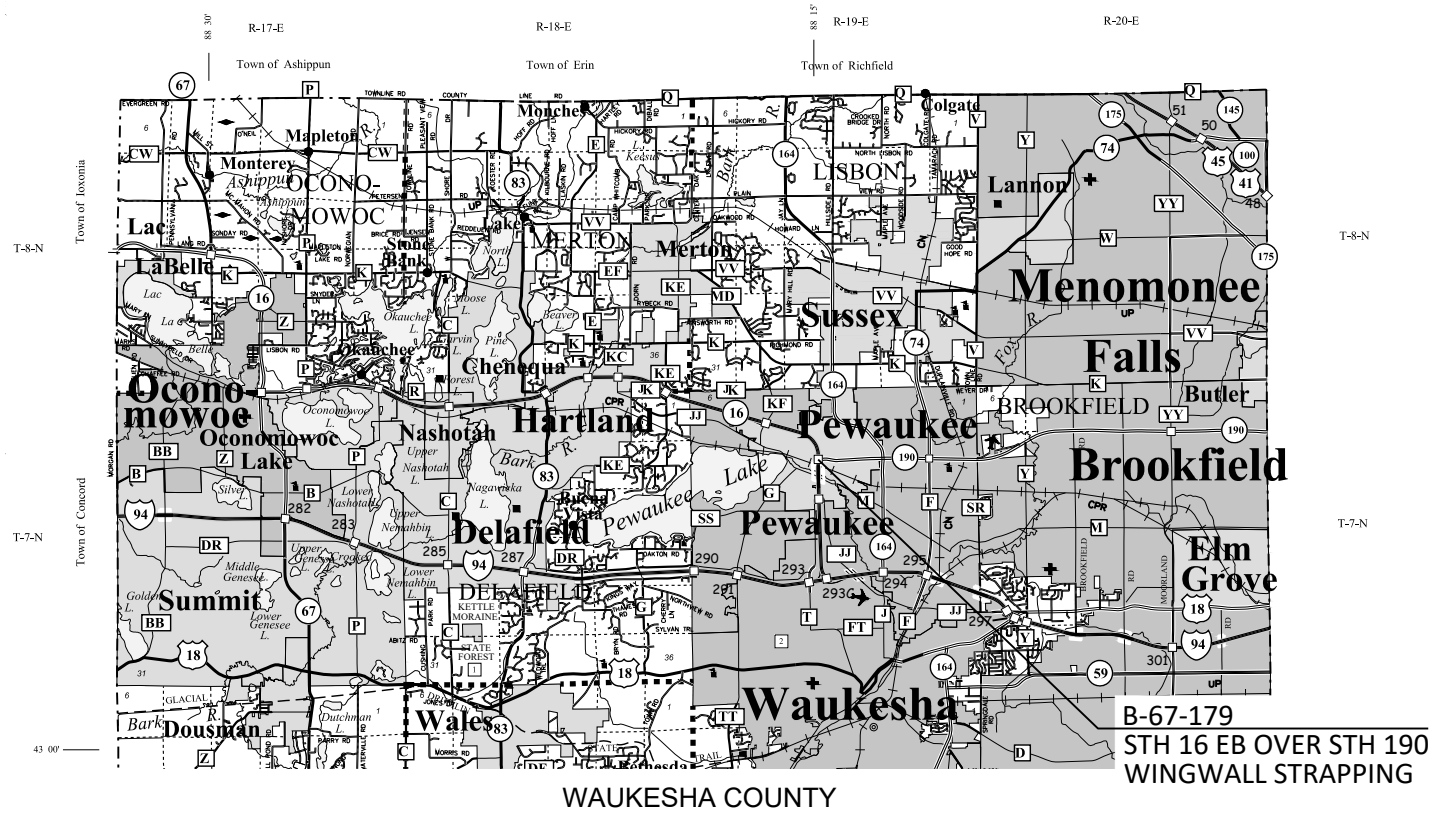
DESIGN
ALFRED BENESCH &
COMPANY
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SUITE 150
MILWAUKEE, WI 53233
BEN WEIGAND
(414) 308-1322
bweigand@benesch.com

STANDARD ABBREVIATIONS

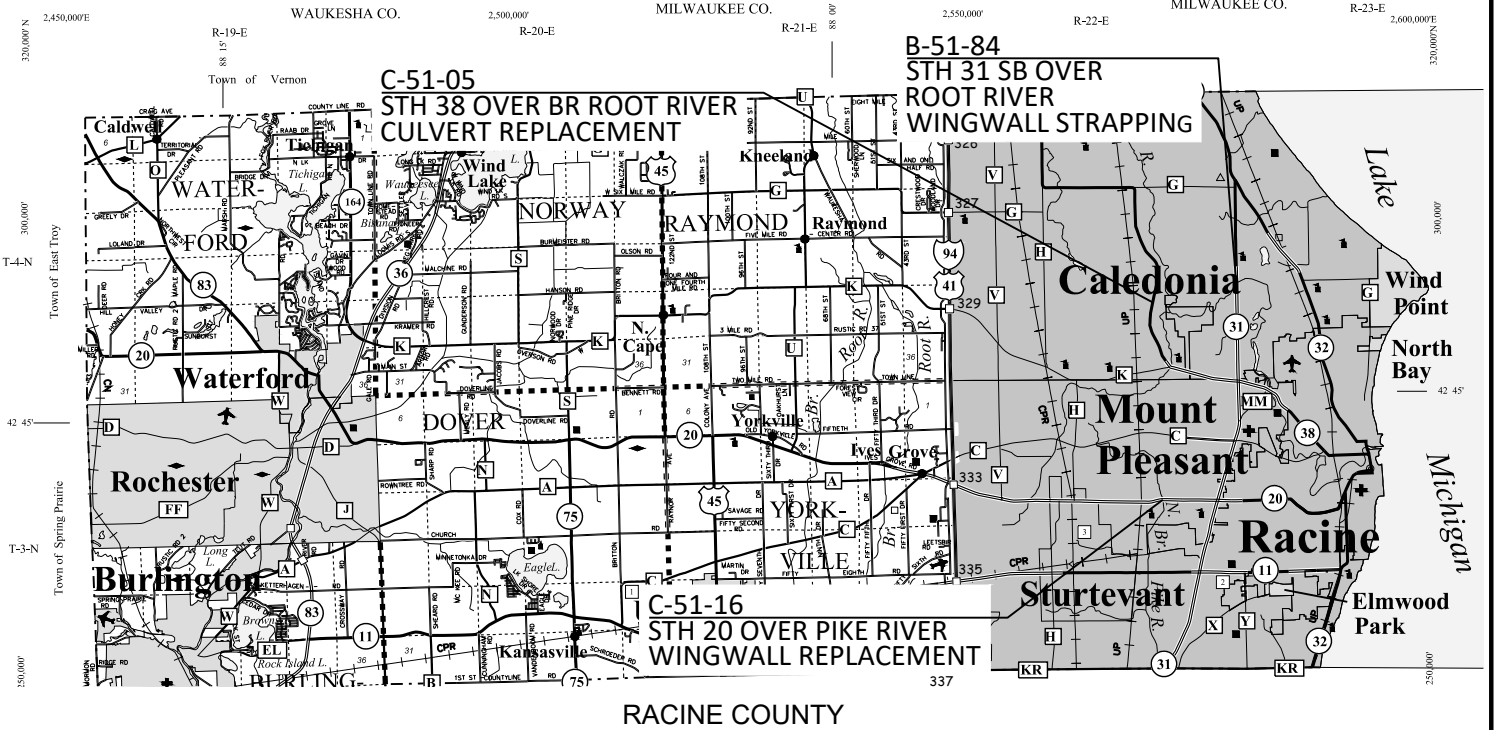
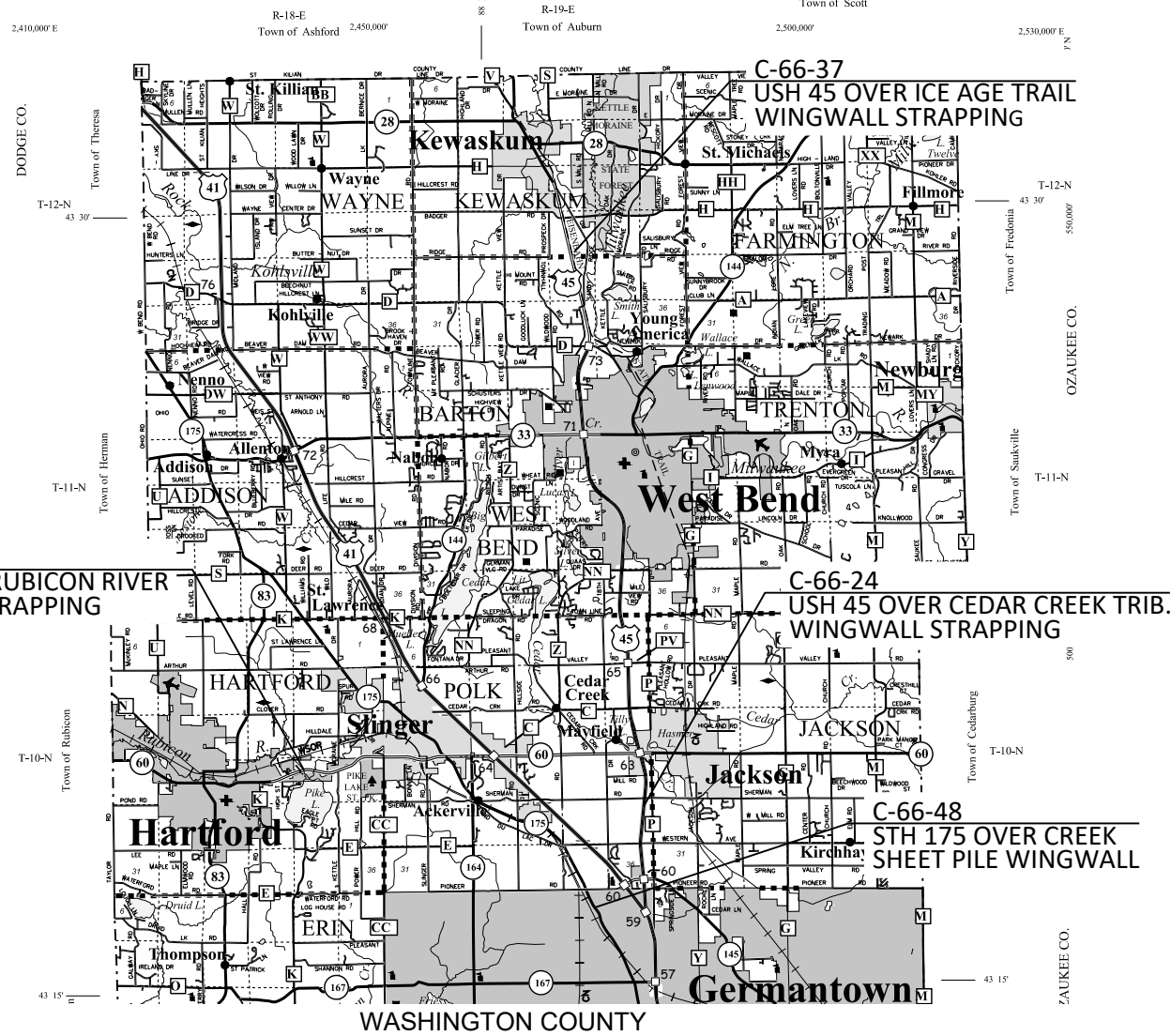
AGG	AGGREGATE	HORIZ	HORIZONTAL	SHLDR	SHOULDER
AADT	ANNUAL AVERAGE DAILY TRAFFIC	INL	INLET	SW	SIDEWALK
ASPH	ASPHALT DRIVEWAY	INV	INVERT	S	SOUTH
AVG	AVERAGE	JCT	JUNCTION	SPECS	SPECIFICATIONS
ADT	AVERAGE DAILY TRAFFIC	LT	LEFT	SF	SQUARE FEET
BM	BENCH MARK	LF	LINEAR FOOT	SY	SQUARE YARD
CB	CATCH BASIN	LS	LUMP SUM	STD	STANDARD
C/L	CENTERLINE	MH	MANHOLE	SDD	STANDARD DETAIL DRAWINGS
CONC	CONCRETE	ML	MATCH LINE	STH	STATE TRUNK HIGHWAYS
CO	COUNTY	N	NORTH	STA	STATION
CTH	COUNTY TRUNK HIGHWAY	Y	NORTH GRID COORDINATE	SS	STORM SEWER
CWT	HUNDREDWEIGHT	NO	NUMBER	STR	STRUCTURE OR STRUCTURAL
CY	CUBIC YARD	PAVT	PAVEMENT	TEL	TELEPHONE
DHV	DESIGN HOUR VOLUME	PERM	PERMANENT	TEMP	TEMPORARY
DIA	DIAMETER	PLE	PERMANENT LIMITED EASEMENT	TLE	TEMPORARY LIMITED EASEMENT
E	EAST	PT	POINT	T	TON
X	EAST GRID COORDINATE	PCC	PORTLAND CEMENT CONCRETE	TYP	TYPICAL
ELEC	ELECTRIC	PROJ	PROJECT	UG	UNDERGROUND
ELEV	ELEVATION	PL	PROPERTY LINE	USH	UNITED STATES HIGHWAY
ESALS	EQUIVALENT SINGLE AXLE LOADS	R/L	REFERENCE LINE	W	WATER
ESTR	EXISTING SIGN TO REMAIN	RT	RIGHT	WM	WATER MAIN
EXC	EXCAVATION	R/W	RIGHT-OF-WAY	WV	WATER VALVE
EBS	EXCAVATION BELOW SUBGRADE	RD	ROAD	W	WEST
EXIST	EXISTING	RDWY	ROADWAY	YD	YARD
FT	FOOT	SEC	SECTION		
GRVL	GRAVEL DRIVEWAY				



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



C-66-18
STH 60 OVER RUBICON RIVER
WINGWALL STRAPPING



PROJECT NO: 1000-09-73

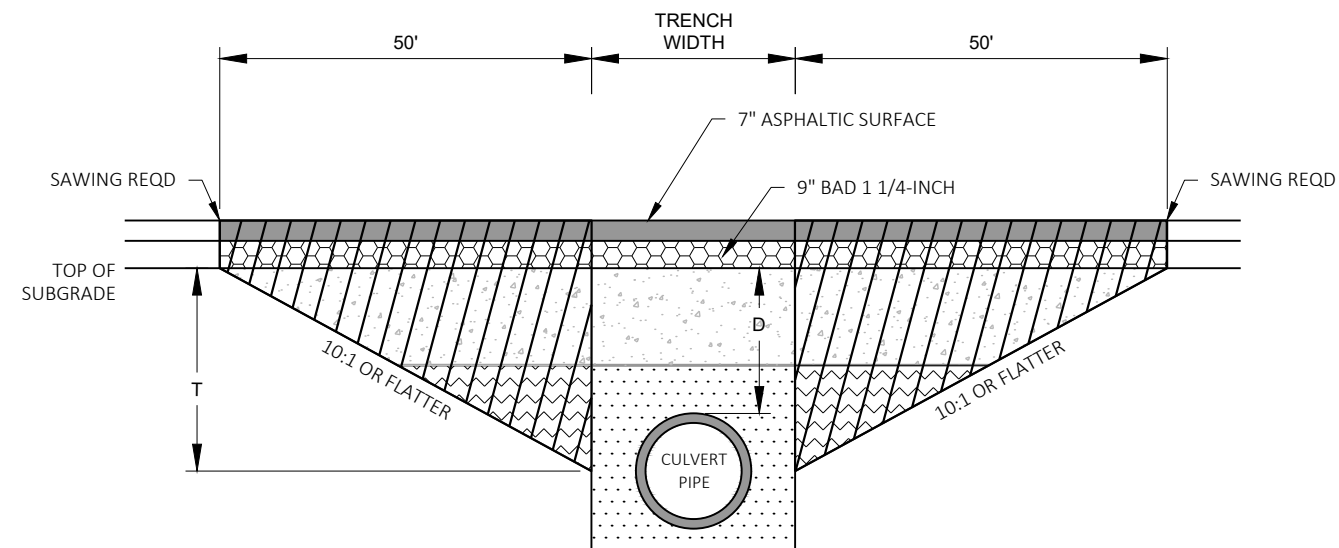
HWY: VARIOUS

COUNTY: SE REGION WIDE

PROJECT OVERVIEW

SHEET

E



TRANSITION CUT DEPTH (T) = THE LESSER OF DEPTH TO CENTER OF PIPE OR 5 FT.
DO NOT EXTEND TRANSITION CUT BELOW HORIZONTAL CENTER OF PIPE.

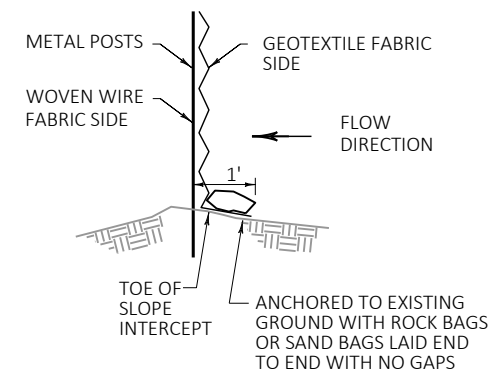
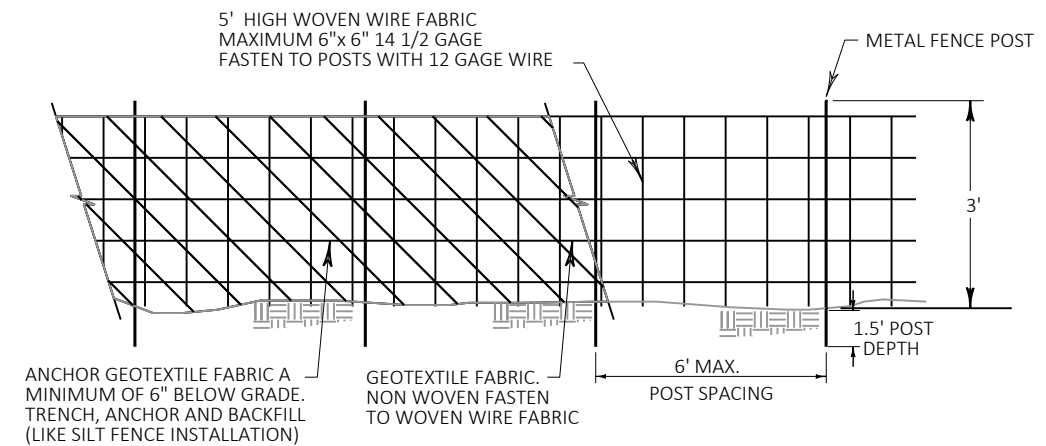
CULVERT PIPE TRANSITION

(2) 36" CULVERTS UNDER STH 38
STA. 94+85 & 94+93

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

NOTES

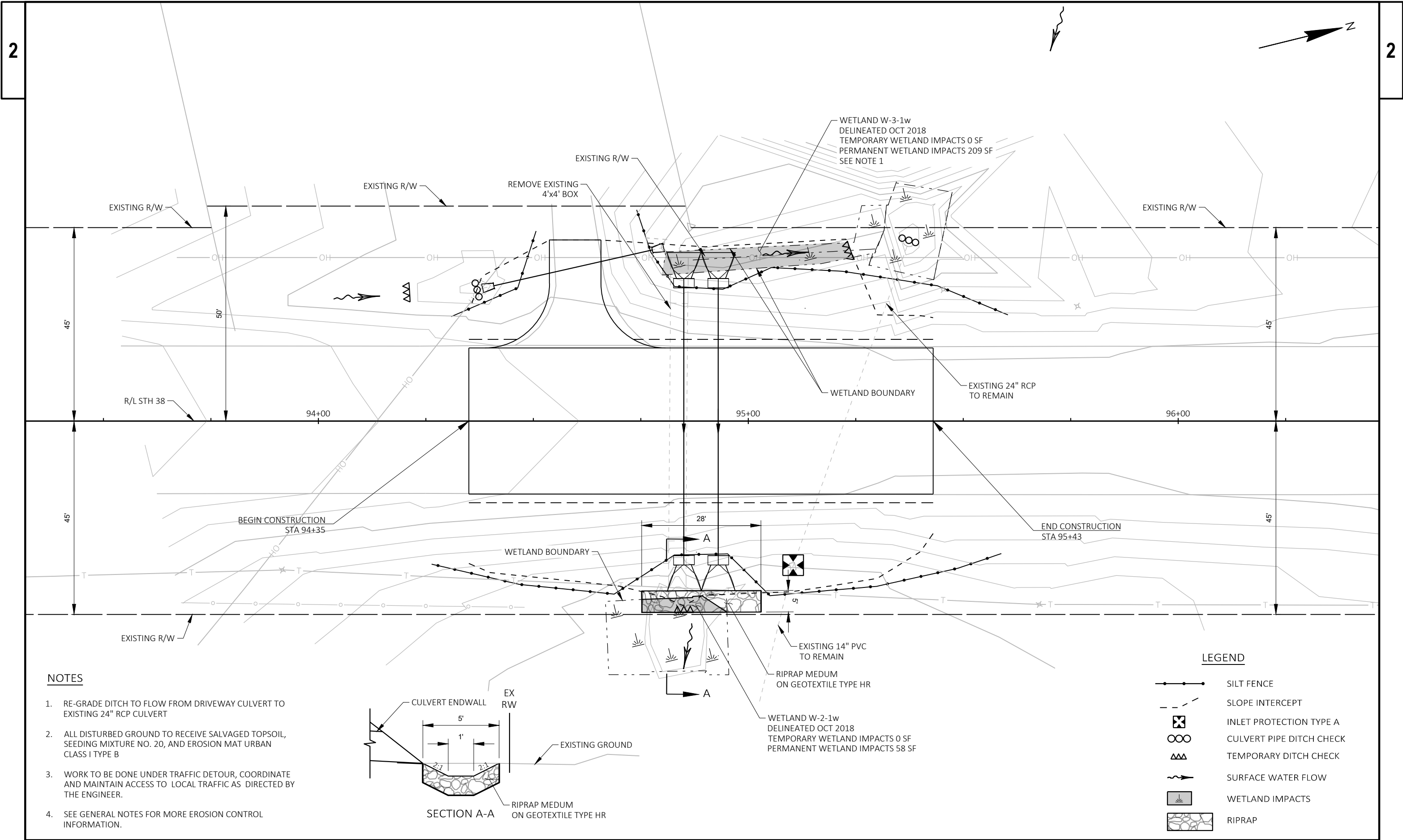
TRANSITION CUT IS PAID AS EXCAVATION COMMON.
TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.
BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520.

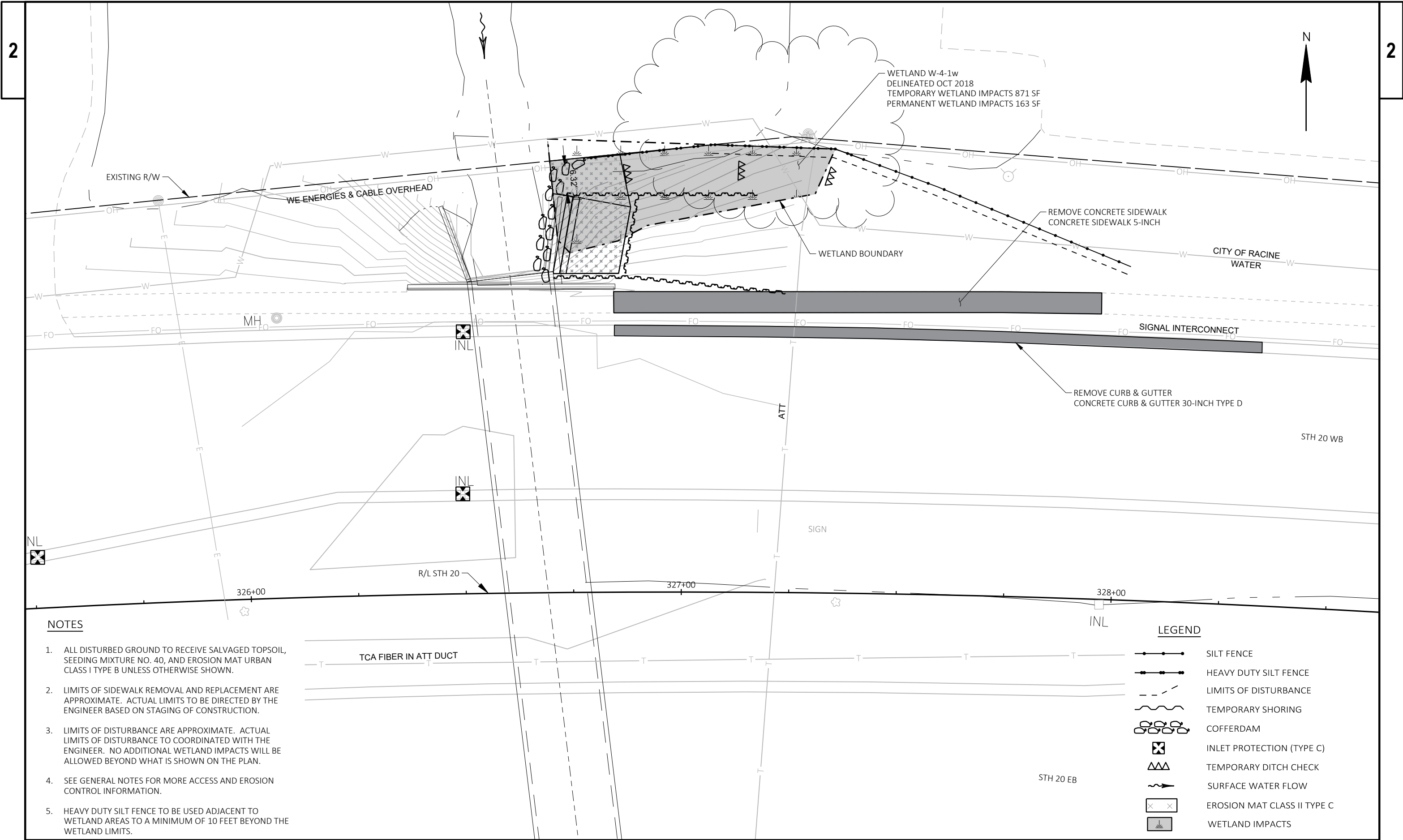


NOTE

- 1) ANCHOR MATERIAL IS INCLUDED IN THE BID ITEM HEAVY DUTY SILT FENCE

HEAVY DUTY SILT FENCE INSTALL AS SHOWN ON PLANS



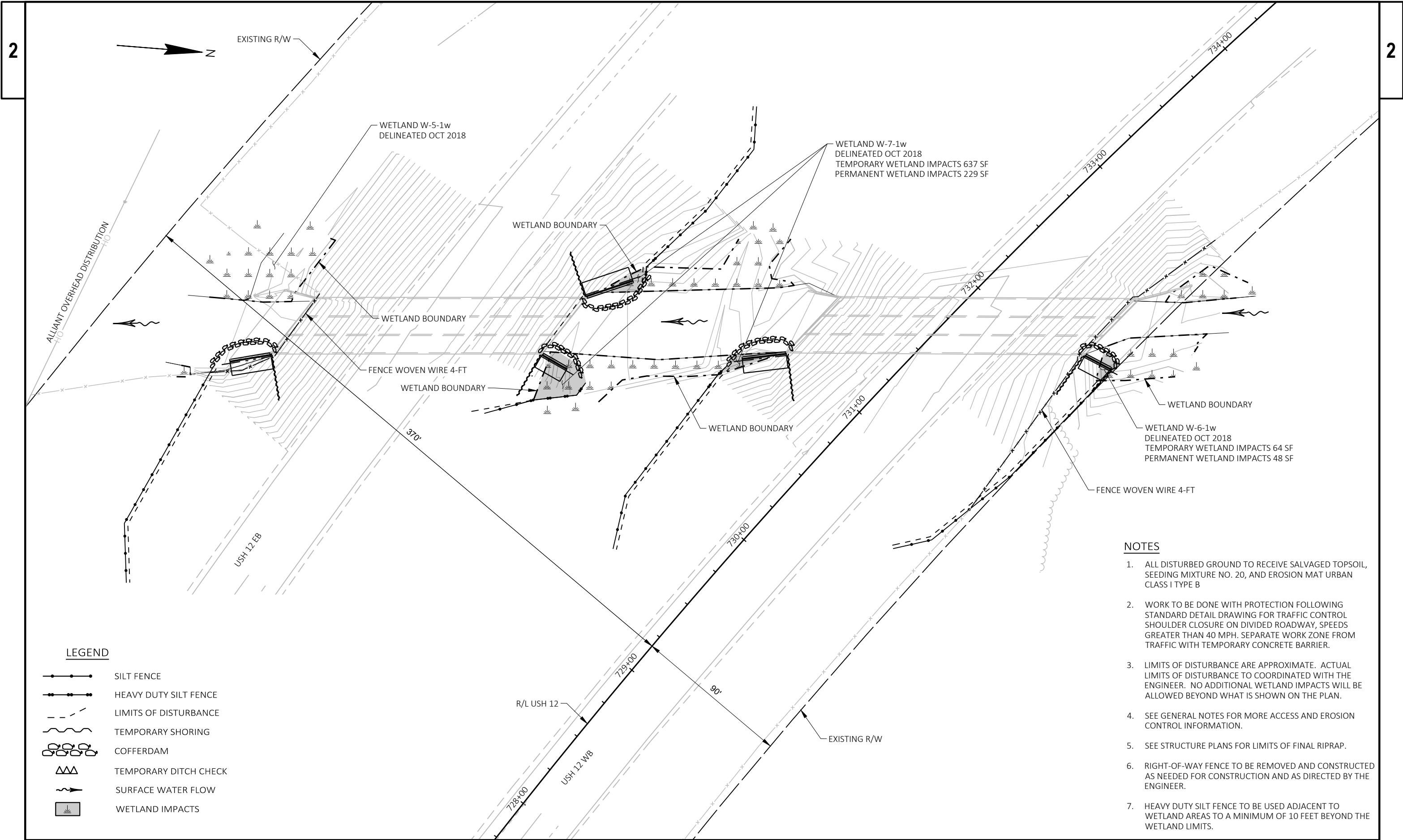


NOTES

1. ALL DISTURBED GROUND TO RECEIVE SALVAGED TOPSOIL, SEEDING MIXTURE NO. 40, AND EROSION MAT URBAN CLASS I TYPE B UNLESS OTHERWISE SHOWN.
2. LIMITS OF SIDEWALK REMOVAL AND REPLACEMENT ARE APPROXIMATE. ACTUAL LIMITS TO BE DIRECTED BY THE ENGINEER BASED ON STAGING OF CONSTRUCTION.
3. LIMITS OF DISTURBANCE ARE APPROXIMATE. ACTUAL LIMITS OF DISTURBANCE TO COORDINATED WITH THE ENGINEER. NO ADDITIONAL WETLAND IMPACTS WILL BE ALLOWED BEYOND WHAT IS SHOWN ON THE PLAN.
4. SEE GENERAL NOTES FOR MORE ACCESS AND EROSION CONTROL INFORMATION.
5. HEAVY DUTY SILT FENCE TO BE USED ADJACENT TO WETLAND AREAS TO A MINIMUM OF 10 FEET BEYOND THE WETLAND LIMITS.

LEGEND

- SILT FENCE
- HEAVY DUTY SILT FENCE
- LIMITS OF DISTURBANCE
- TEMPORARY SHORING
- COFFERDAM
- INLET PROTECTION (TYPE C)
- TEMPORARY DITCH CHECK
- SURFACE WATER FLOW
- EROSION MAT CLASS II TYPE C
- WETLAND IMPACTS

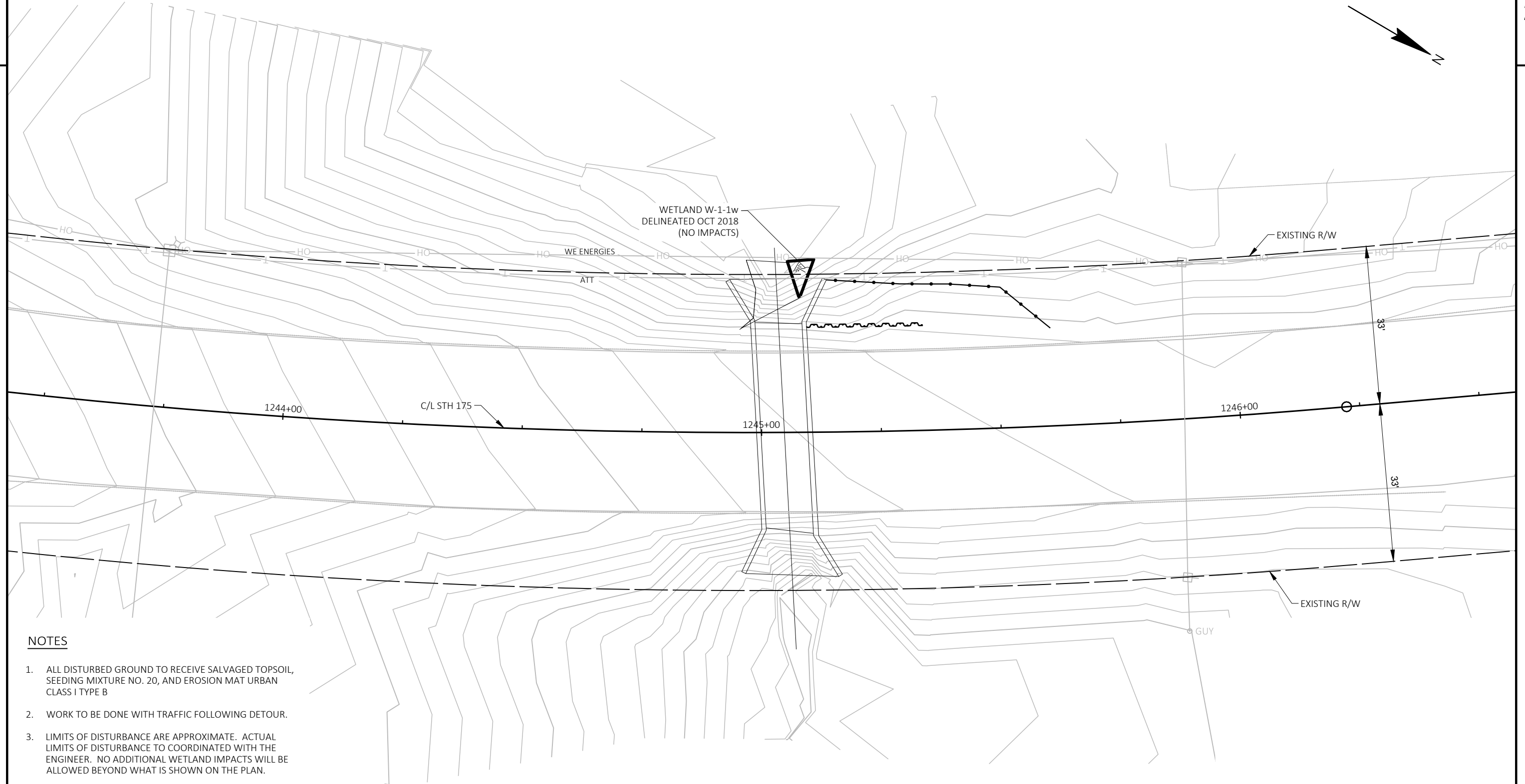


LEGEND

- SILT FENCE
- HEAVY DUTY SILT FENCE
- LIMITS OF DISTURBANCE
- TEMPORARY SHORING
- COFFERDAM
- TEMPORARY DITCH CHECK
- SURFACE WATER FLOW
- WETLAND IMPACTS

NOTES

- ALL DISTURBED GROUND TO RECEIVE SALVAGED TOPSOIL, SEEDING MIXTURE NO. 20, AND EROSION MAT URBAN CLASS I TYPE B
- WORK TO BE DONE WITH PROTECTION FOLLOWING STANDARD DETAIL DRAWING FOR TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH. SEPARATE WORK ZONE FROM TRAFFIC WITH TEMPORARY CONCRETE BARRIER.
- LIMITS OF DISTURBANCE ARE APPROXIMATE. ACTUAL LIMITS OF DISTURBANCE TO COORDINATED WITH THE ENGINEER. NO ADDITIONAL WETLAND IMPACTS WILL BE ALLOWED BEYOND WHAT IS SHOWN ON THE PLAN.
- SEE GENERAL NOTES FOR MORE ACCESS AND EROSION CONTROL INFORMATION.
- SEE STRUCTURE PLANS FOR LIMITS OF FINAL RIPRAP.
- RIGHT-OF-WAY FENCE TO BE REMOVED AND CONSTRUCTED AS NEEDED FOR CONSTRUCTION AND AS DIRECTED BY THE ENGINEER.
- HEAVY DUTY SILT FENCE TO BE USED ADJACENT TO WETLAND AREAS TO A MINIMUM OF 10 FEET BEYOND THE WETLAND LIMITS.

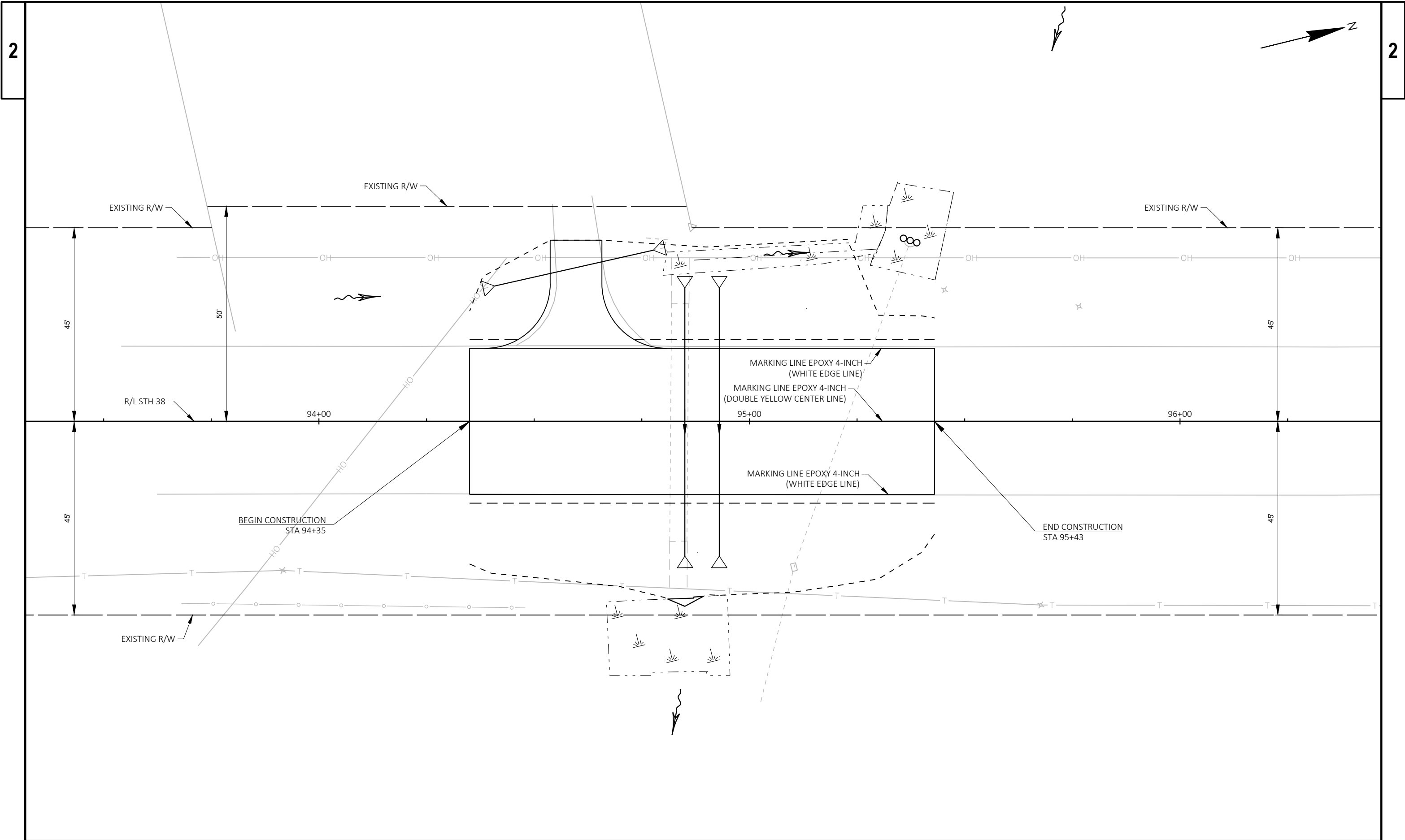


NOTES

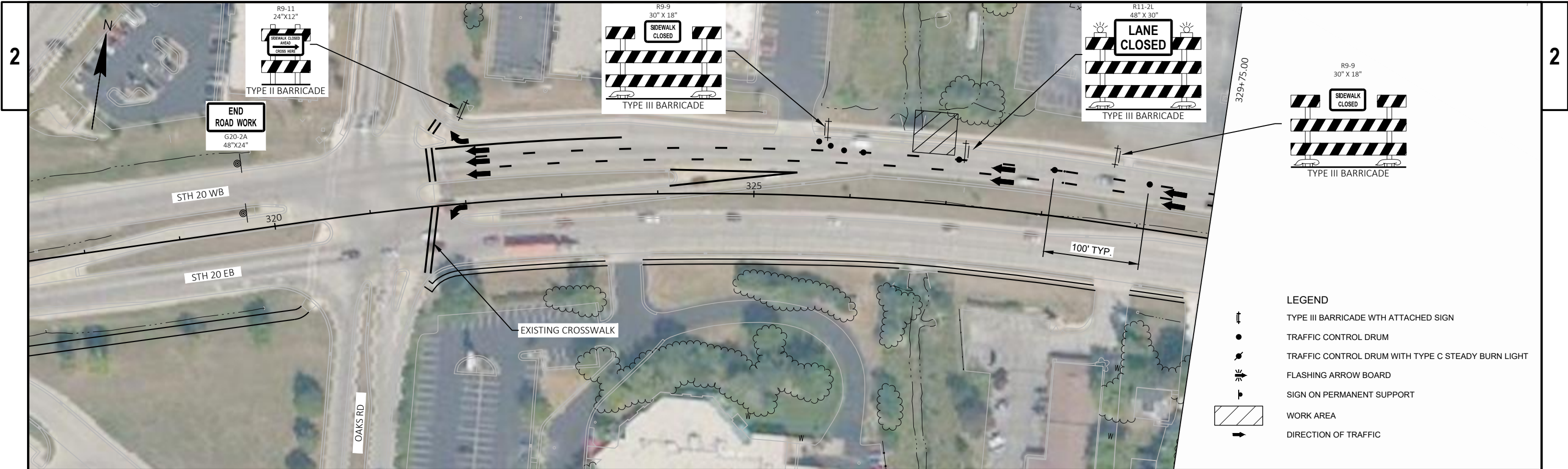
- 1. ALL DISTURBED GROUND TO RECEIVE SALVAGED TOPSOIL, SEEDING MIXTURE NO. 20, AND EROSION MAT URBAN CLASS I TYPE B
- 2. WORK TO BE DONE WITH TRAFFIC FOLLOWING DETOUR.
- 3. LIMITS OF DISTURBANCE ARE APPROXIMATE. ACTUAL LIMITS OF DISTURBANCE TO COORDINATED WITH THE ENGINEER. NO ADDITIONAL WETLAND IMPACTS WILL BE ALLOWED BEYOND WHAT IS SHOWN ON THE PLAN.
- 4. SEE GENERAL NOTES FOR MORE ACCESS AND EROSION CONTROL INFORMATION.

LEGEND

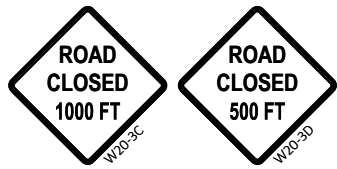
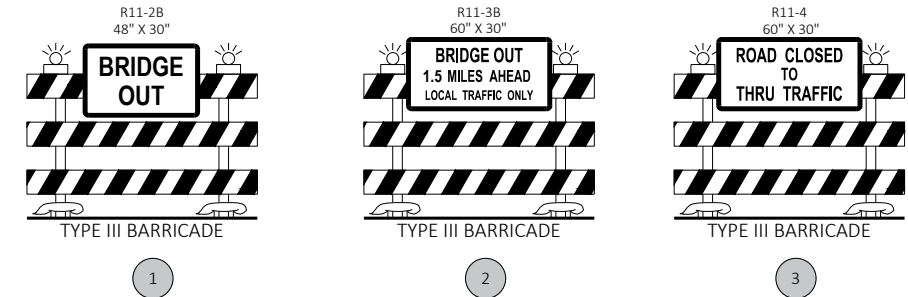
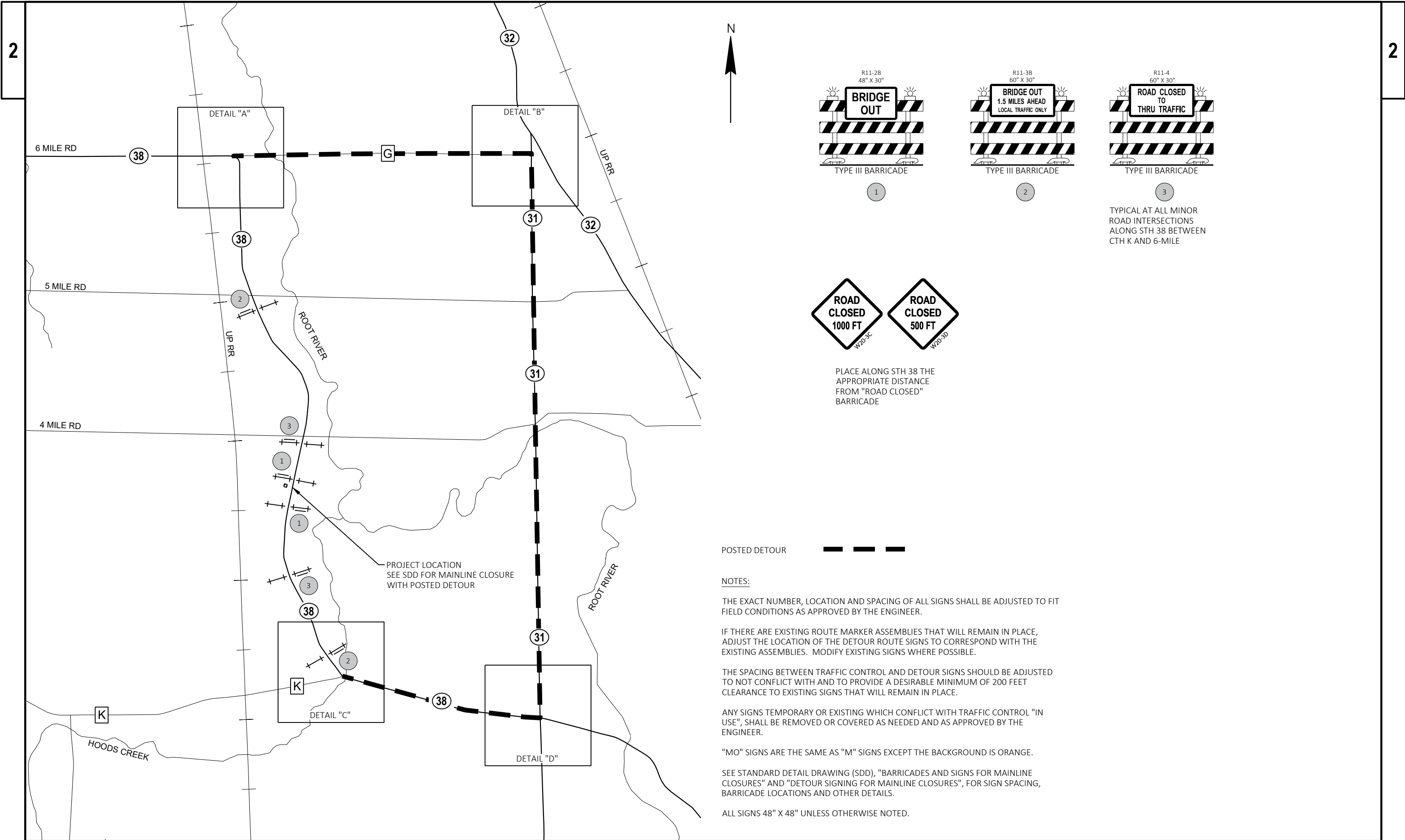
- SILT FENCE
- SHEET PILE WALL



PROJECT NO: 1000-09-73	HWY: VARIOUS	COUNTY: SE REGION WIDE	PAVEMENT MARKING : C-51-05 (STH 38)	SHEET	E
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PROJECT NO: 1000-09-73	HWY: VARIOUS	COUNTY: SE REGION WIDE	TRAFFIC CONTROL PLAN : C-51-16 (STH 20)	SHEET	E
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PLACE ALONG STH 38 THE APPROPRIATE DISTANCE FROM "ROAD CLOSED" BARRICADE

POSTED DETOUR

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. MODIFY EXISTING SIGNS WHERE POSSIBLE.

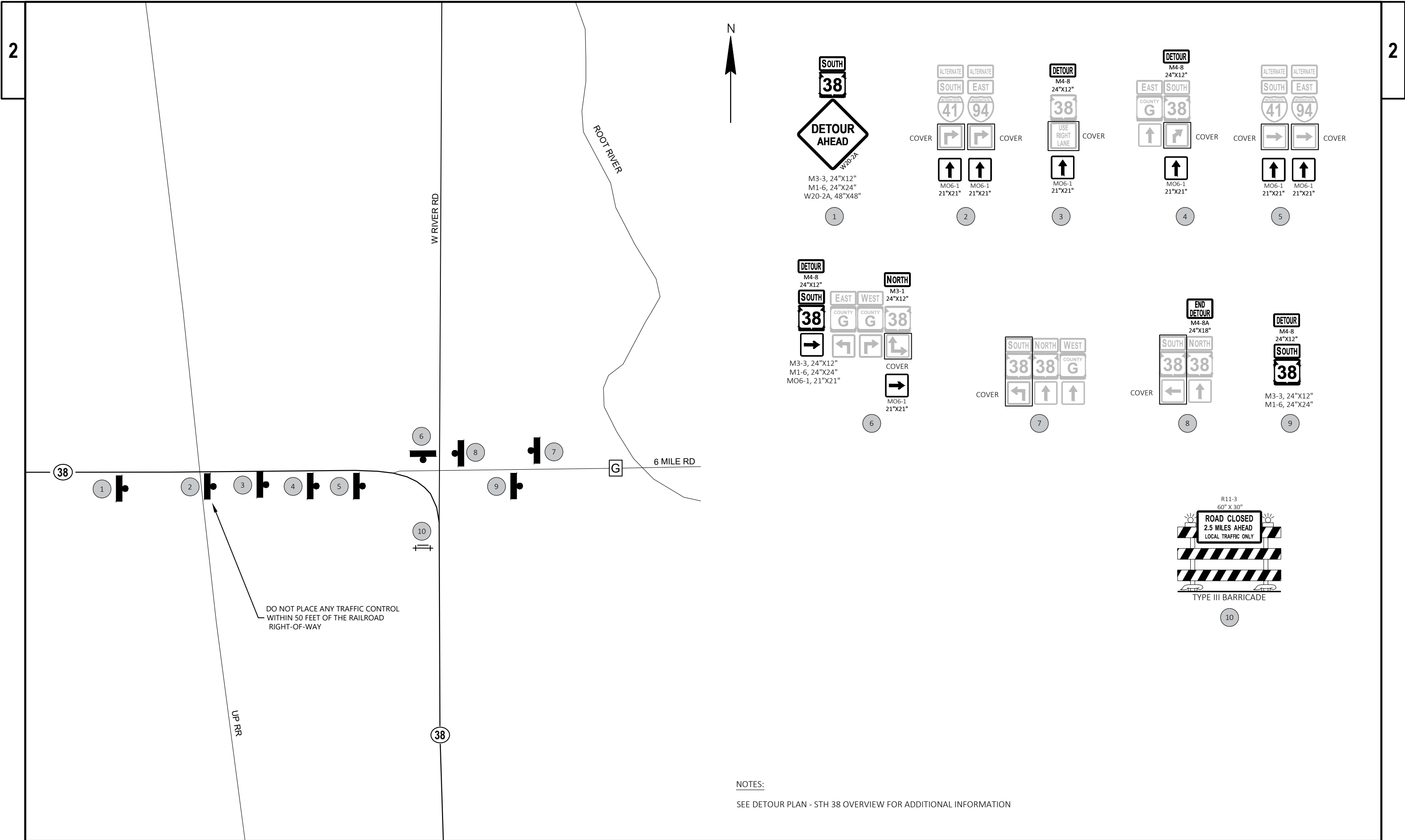
THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

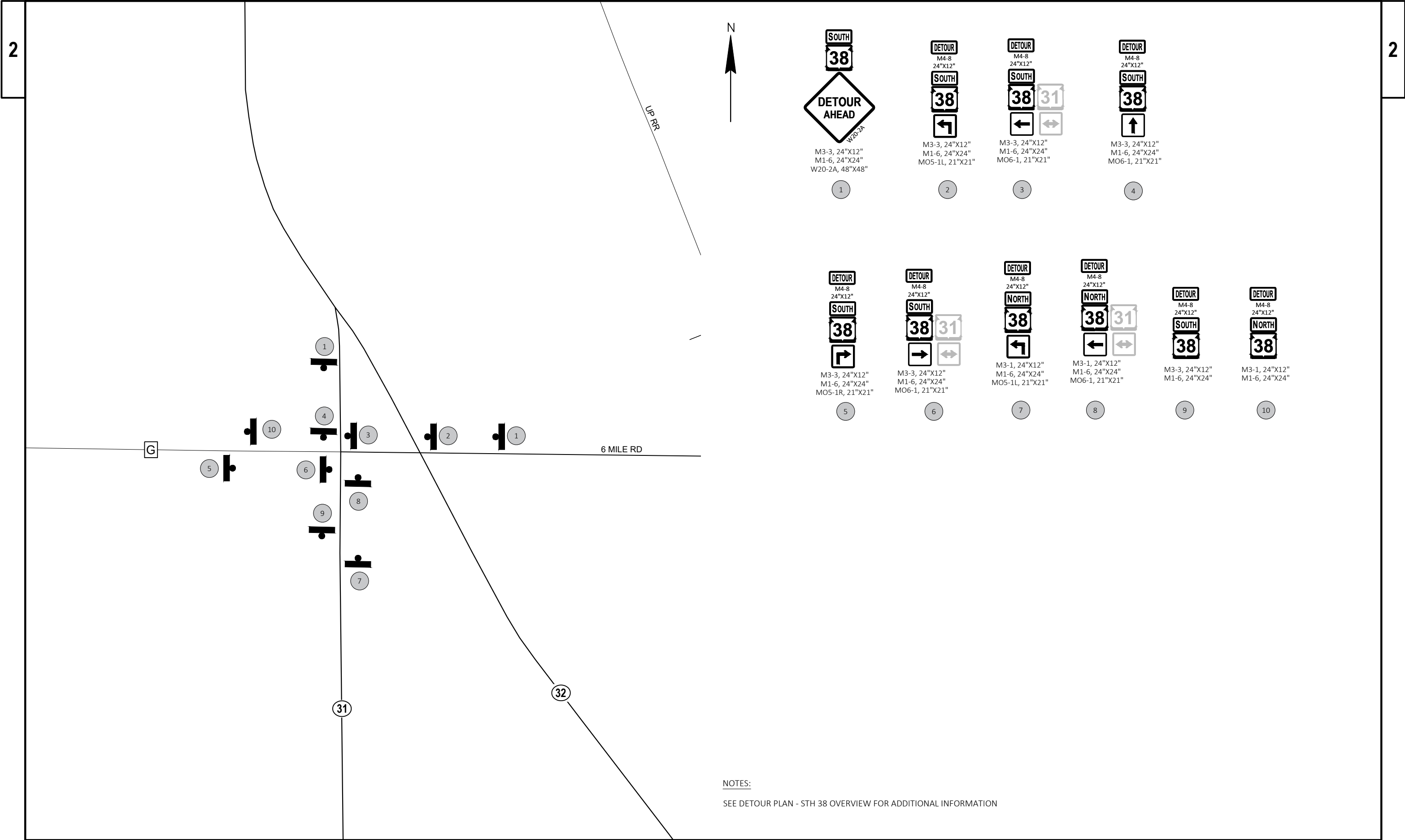
ANY SIGNS TEMPORARY OR EXISTING WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

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

SEE STANDARD DETAIL DRAWING (SDD), "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" AND "DETOUR SIGNING FOR MAINLINE CLOSURES", FOR SIGN SPACING, BARRICADE LOCATIONS AND OTHER DETAILS.

ALL SIGNS 48" X 48" UNLESS OTHERWISE NOTED.





SOUTH
38
DETOUR AHEAD
W20-2A
M3-3, 24"x12"
M1-6, 24"x24"
W20-2A, 48"x48"

DETOUR
M4-8
24"x12"
SOUTH
38
31
M3-3, 24"x12"
M1-6, 24"x24"
MO5-1L, 21"x21"

DETOUR
M4-8
24"x12"
SOUTH
38
31
M3-3, 24"x12"
M1-6, 24"x24"
MO6-1, 21"x21"

DETOUR
M4-8
24"x12"
SOUTH
38
31
M3-3, 24"x12"
M1-6, 24"x24"
MO6-1, 21"x21"

DETOUR
M4-8
24"x12"
SOUTH
38
31
M3-3, 24"x12"
M1-6, 24"x24"
MO5-1R, 21"x21"

DETOUR
M4-8
24"x12"
SOUTH
38
31
M3-3, 24"x12"
M1-6, 24"x24"
MO6-1, 21"x21"

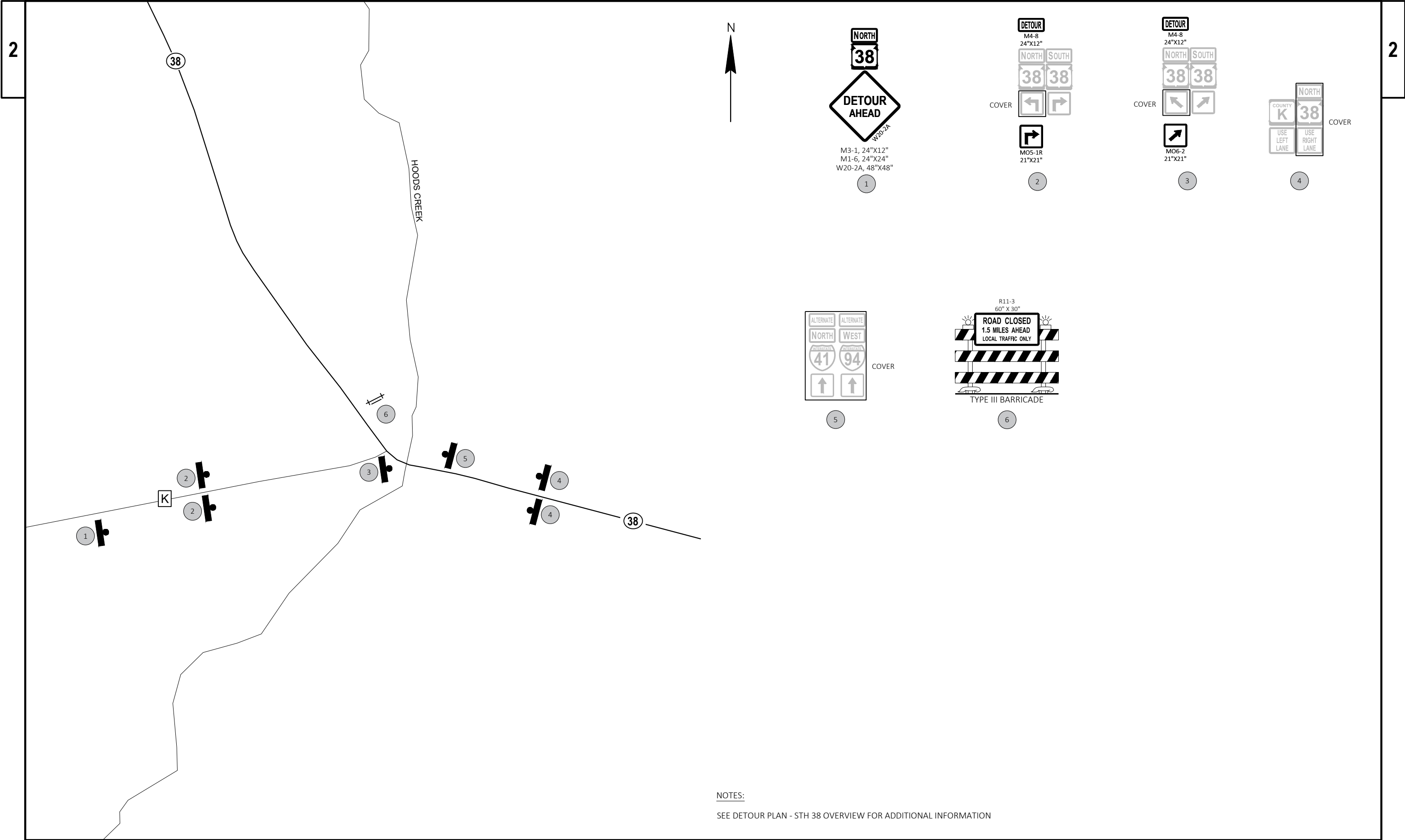
DETOUR
M4-8
24"x12"
NORTH
38
31
M3-1, 24"x12"
M1-6, 24"x24"
MO5-1L, 21"x21"

DETOUR
M4-8
24"x12"
NORTH
38
31
M3-1, 24"x12"
M1-6, 24"x24"
MO6-1, 21"x21"

DETOUR
M4-8
24"x12"
SOUTH
38
M3-3, 24"x12"
M1-6, 24"x24"

DETOUR
M4-8
24"x12"
NORTH
38
M3-1, 24"x12"
M1-6, 24"x24"

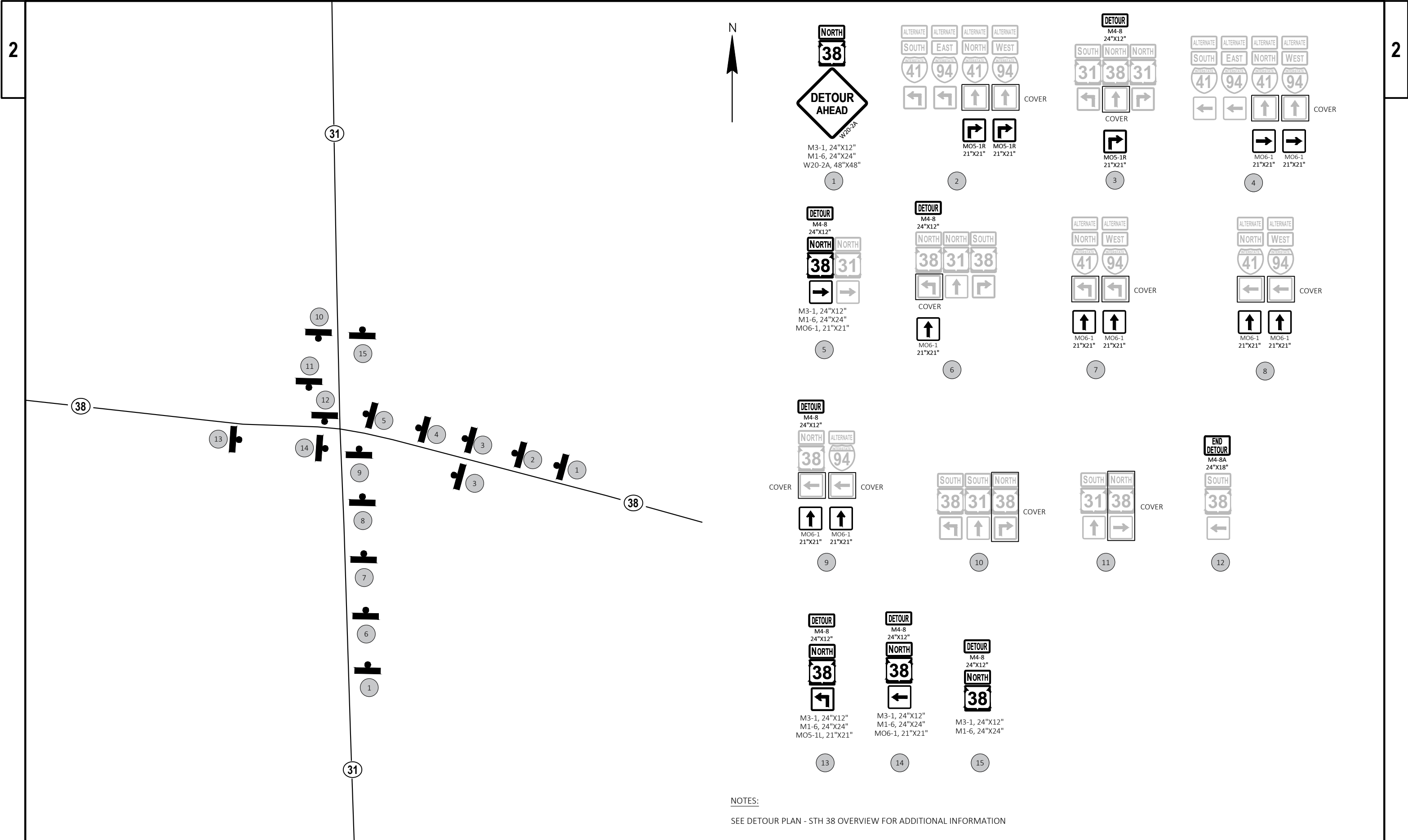
NOTES:
SEE DETOUR PLAN - STH 38 OVERVIEW FOR ADDITIONAL INFORMATION



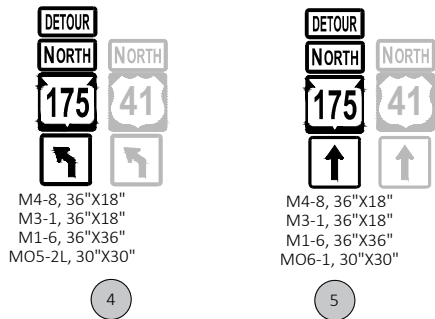
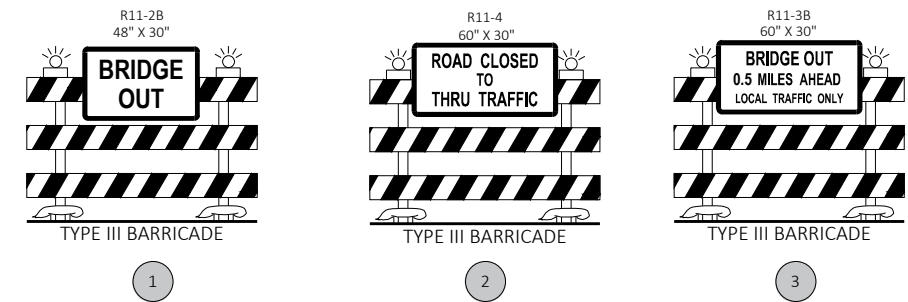
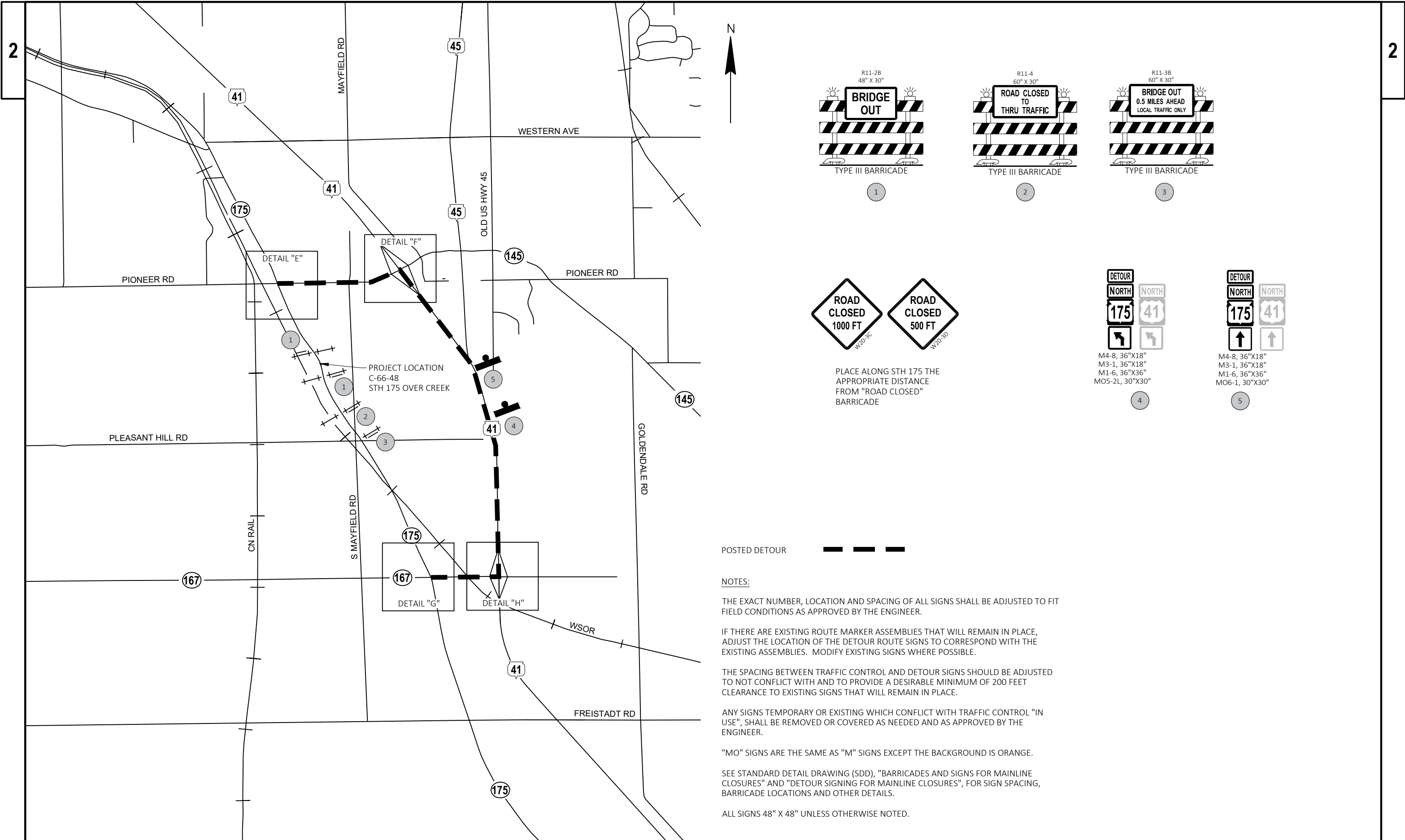
NOTES:

SEE DETOUR PLAN - STH 38 OVERVIEW FOR ADDITIONAL INFORMATION

PROJECT NO: 1000-09-73	HWY: VARIOUS	COUNTY: SE REGION WIDE	DETOUR PLAN - DETAIL "C"	SHEET	E
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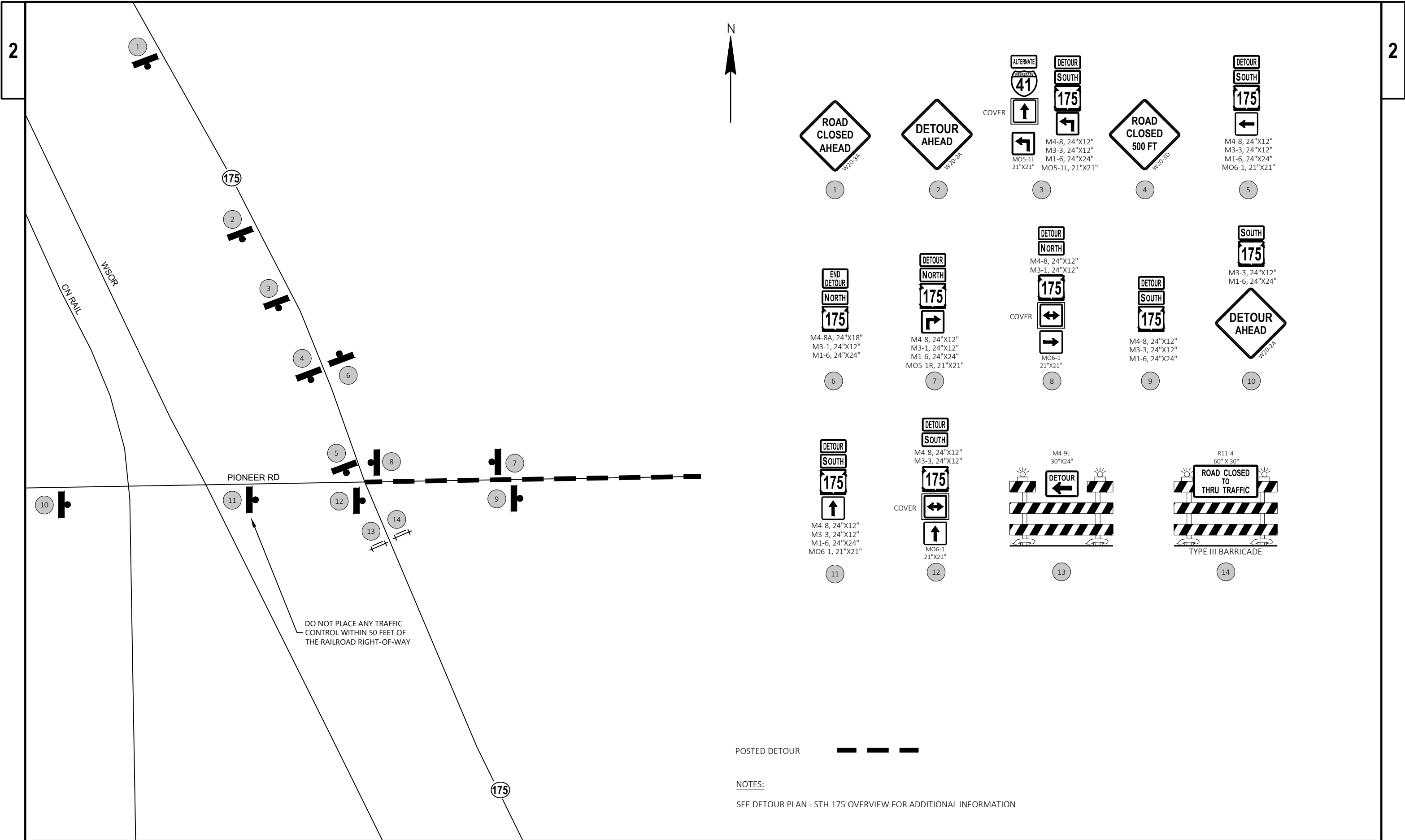


NOTES:
SEE DETOUR PLAN - STH 38 OVERVIEW FOR ADDITIONAL INFORMATION



POSTED DETOUR

- 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. 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.
 - "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
 - SEE STANDARD DETAIL DRAWING (SDD), "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" AND "DETOUR SIGNING FOR MAINLINE CLOSURES", FOR SIGN SPACING, BARRICADE LOCATIONS AND OTHER DETAILS.
 - ALL SIGNS 48" X 48" UNLESS OTHERWISE NOTED.



1



2



M4-8, 24"x12"
M3-3, 24"x12"
M1-6, 24"x24"
MO5-1L, 21"x21"

3



4



M4-8, 24"x12"
M3-3, 24"x12"
M1-6, 24"x24"
MO6-1, 21"x21"

5



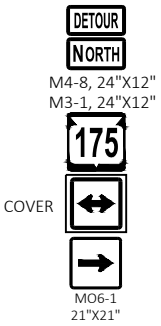
M4-8A, 24"x18"
M3-1, 24"x12"
M1-6, 24"x24"

6



M4-8, 24"x12"
M3-1, 24"x12"
M1-6, 24"x24"
MO5-1R, 21"x21"

7



M4-8, 24"x12"
M3-1, 24"x12"

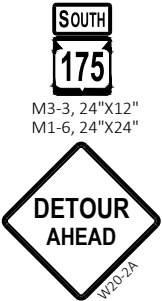
MO6-1, 21"x21"

8



M4-8, 24"x12"
M3-3, 24"x12"
M1-6, 24"x24"

9



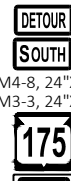
M3-3, 24"x12"
M1-6, 24"x24"

10



M4-8, 24"x12"
M3-3, 24"x12"
M1-6, 24"x24"
MO6-1, 21"x21"

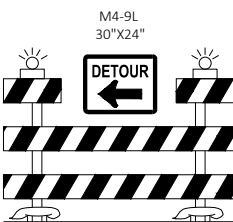
11



M4-8, 24"x12"
M3-3, 24"x12"

MO6-1, 21"x21"

12



M4-8, 24"x12"
M3-3, 24"x12"

13



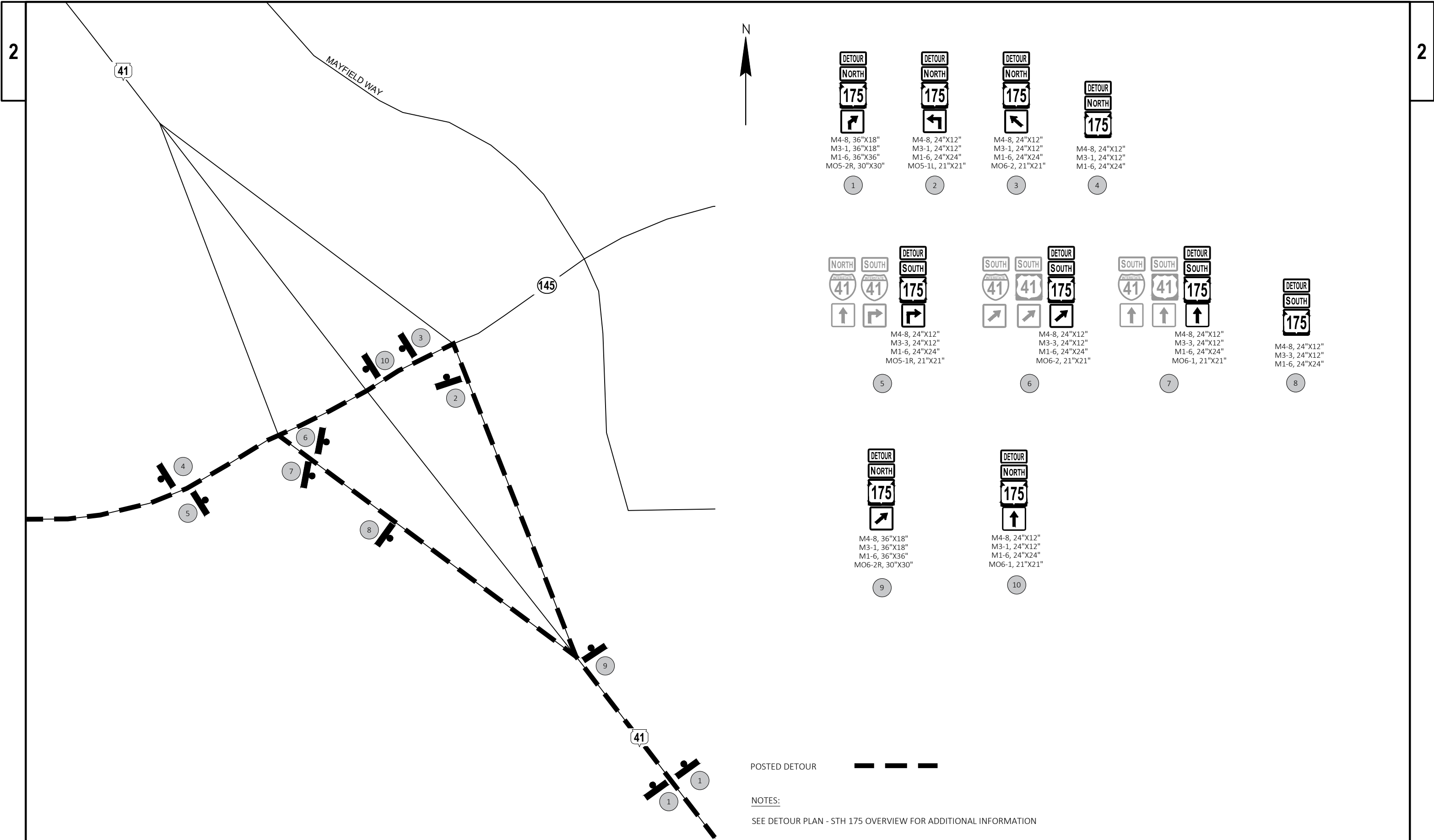
ROAD CLOSED TO THRU TRAFFIC

14

POSTED DETOUR

NOTES:

SEE DETOUR PLAN - STH 175 OVERVIEW FOR ADDITIONAL INFORMATION



DETOUR

NORTH

175

M4-8, 36"X18"
M3-1, 36"X18"
M1-6, 36"X36"
MO5-2R, 30"X30"

1

DETOUR

NORTH

175

M4-8, 24"X12"
M3-1, 24"X12"
M1-6, 24"X24"
MO5-1L, 21"X21"

2

DETOUR

NORTH

175

M4-8, 24"X12"
M3-1, 24"X12"
M1-6, 24"X24"
MO6-2, 21"X21"

3

DETOUR

NORTH

175

M4-8, 24"X12"
M3-1, 24"X12"
M1-6, 24"X24"

4

NORTH

41

SOUTH

41

DETOUR

SOUTH

175

M4-8, 24"X12"
M3-3, 24"X12"
M1-6, 24"X24"
MO5-1R, 21"X21"

5

SOUTH

41

SOUTH

41

DETOUR

SOUTH

175

M4-8, 24"X12"
M3-3, 24"X12"
M1-6, 24"X24"
MO6-2, 21"X21"

6

SOUTH

41

SOUTH

41

DETOUR

SOUTH

175

M4-8, 24"X12"
M3-3, 24"X12"
M1-6, 24"X24"
MO6-1, 21"X21"

7

DETOUR

SOUTH

175

M4-8, 24"X12"
M3-3, 24"X12"
M1-6, 24"X24"

8

DETOUR

NORTH

175

M4-8, 36"X18"
M3-1, 36"X18"
M1-6, 36"X36"
MO6-2R, 30"X30"

9

DETOUR

NORTH

175

M4-8, 24"X12"
M3-1, 24"X12"
M1-6, 24"X24"
MO6-1, 21"X21"

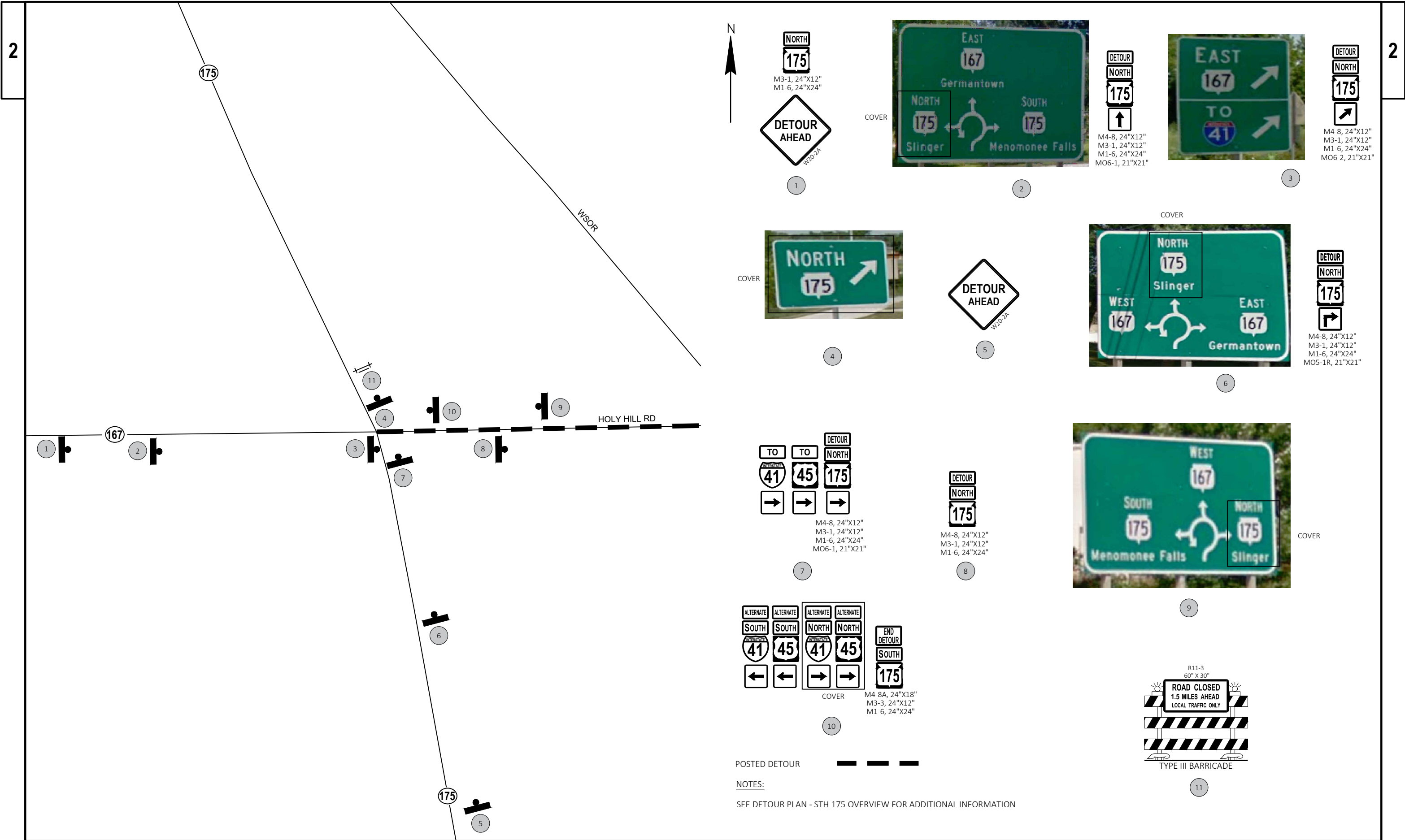
10

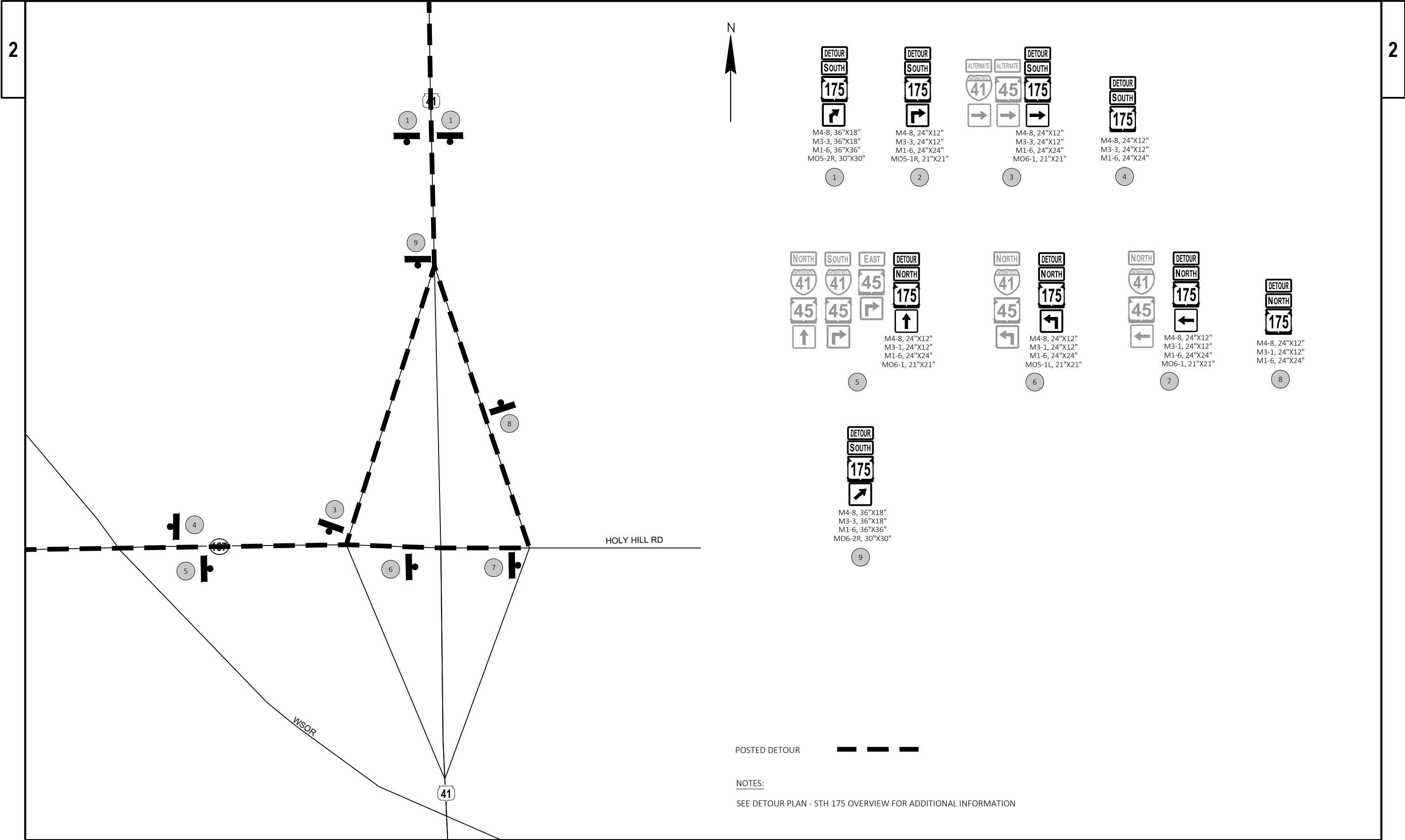
POSTED DETOUR

NOTES:
SEE DETOUR PLAN - STH 175 OVERVIEW FOR ADDITIONAL INFORMATION

PROJECT NO: 1000-09-73	HWY: VARIOUS	COUNTY: SE REGION WIDE	DETOUR PLAN - DETAIL "F"	SHEET	E
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FILE NAME : Y:\MILWAUKEE\202005\20229.04\ENG_DOCS\10000903\SHEETSPLAN\027002_DT.DWG LAYOUT NAME - 027003_dt	PLOT DATE : 7/30/2019 10:54 AM	PLOT BY : WEIGAND, BEN	PLOT NAME :	PLOT SCALE : Custom	WISDOT/CADDs SHEET 42
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1

DETOUR
SOUTH
175
[Right Turn Arrow]

M4-8, 36"x18"
M3-3, 36"x18"
M1-6, 36"x36"
MO5-2R, 30"x30"

2

DETOUR
SOUTH
175
[Right Turn Arrow]

M4-8, 24"x12"
M3-3, 24"x12"
M1-6, 24"x24"
MO5-1R, 21"x21"

3

ALTERNATE
41
[Right Arrow]

ALTERNATE
45
[Right Arrow]

DETOUR
SOUTH
175
[Right Arrow]

M4-8, 24"x12"
M3-3, 24"x12"
M1-6, 24"x24"
MO6-1, 21"x21"

4

DETOUR
SOUTH
175

M4-8, 24"x12"
M3-3, 24"x12"
M1-6, 24"x24"

5

NORTH
41
45
[Up Arrow]

SOUTH
41
45
[Right Arrow]

EAST
45
[Right Arrow]

DETOUR
NORTH
175
[Up Arrow]

M4-8, 24"x12"
M3-1, 24"x12"
M1-6, 24"x24"
MO6-1, 21"x21"

6

NORTH
41
45
[Left Arrow]

DETOUR
NORTH
175
[Left Arrow]

M4-8, 24"x12"
M3-1, 24"x12"
M1-6, 24"x24"
MO5-1L, 21"x21"

7

NORTH
41
45
[Left Arrow]

DETOUR
NORTH
175
[Left Arrow]

M4-8, 24"x12"
M3-1, 24"x12"
M1-6, 24"x24"
MO6-1, 21"x21"

8

DETOUR
NORTH
175

M4-8, 24"x12"
M3-1, 24"x12"
M1-6, 24"x24"

9

DETOUR
SOUTH
175
[Up Arrow]

M4-8, 36"x18"
M3-3, 36"x18"
M1-6, 36"x36"
MO6-2R, 30"x30"

POSTED DETOUR

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NOTES:

SEE DETOUR PLAN - STH 175 OVERVIEW FOR ADDITIONAL INFORMATION

Estimate Of Quantities

Page 1

1000-09-73

Line	Item	Item Description	Unit	Total	Qty
0002	201.0120	Clearing	ID	15.000	15.000
0004	201.0220	Grubbing	ID	39.000	39.000
0006	203.0200	Removing Old Structure (station) 01. 94+80	LS	1.000	1.000
0008	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 326+69	LS	1.000	1.000
0010	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 02. 730+71	LS	1.000	1.000
0012	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 03. 731+67	LS	1.000	1.000
0014	204.0100	Removing Pavement	SY	132.000	132.000
0016	204.0150	Removing Curb & Gutter	LF	150.000	150.000
0018	204.0155	Removing Concrete Sidewalk	SY	62.000	62.000
0020	204.0170	Removing Fence	LF	300.000	300.000
0022	205.0100	Excavation Common	CY	437.000	437.000
0024	206.2000	Excavation for Structures Culverts (structure) 01. C-51-16	LS	1.000	1.000
0026	206.2000	Excavation for Structures Culverts (structure) 02. B-64-37	LS	1.000	1.000
0028	206.2000	Excavation for Structures Culverts (structure) 03. B-64-38	LS	1.000	1.000
0030	206.5000	Cofferdams (structure) 01. C-51-16	LS	1.000	1.000
0032	206.5000	Cofferdams (structure) 02. B-64-37	LS	1.000	1.000
0034	206.5000	Cofferdams (structure) 03. B-64-38	LS	1.000	1.000
0036	210.1500	Backfill Structure Type A	TON	900.000	900.000
0038	213.0100	Finishing Roadway (project) 01. 1000-09-73	EACH	1.000	1.000
0040	305.0110	Base Aggregate Dense 3/4-Inch	TON	10.000	10.000
0042	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	268.000	268.000
0044	455.0605	Tack Coat	GAL	58.000	58.000
0046	465.0105	Asphaltic Surface	TON	149.000	149.000
0048	465.0425	Asphaltic Shoulder Rumble Strips 2-Lane Rural	LF	216.000	216.000
0050	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	108.000	108.000
0052	501.1000.S	Ice Hot Weather Concreting	LB	1,059.000	1,059.000
0054	502.4204	Adhesive Anchors No. 4 Bar	EACH	4.000	4.000
0056	502.4205	Adhesive Anchors No. 5 Bar	EACH	117.000	117.000
0058	504.0100	Concrete Masonry Culverts	CY	141.000	141.000
0060	505.0400	Bar Steel Reinforcement HS Structures	LB	7,867.000	7,867.000
0062	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	8,623.000	8,623.000
0064	509.1500	Concrete Surface Repair Special	SF	90.000	90.000
0066	511.1200	Temporary Shoring (structure) 01. C-51-16	SF	1,385.000	1,385.000
0068	511.1200	Temporary Shoring (structure) 02. B-64-37	SF	870.000	870.000
0070	511.1200	Temporary Shoring (structure) 03. B-64-38	SF	625.000	625.000

Estimate Of Quantities

Page 2

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Line	Item	Item Description	Unit	Total	Qty
0072	512.0500	Piling Steel Sheet Permanent Delivered	SF	630.000	630.000
0074	512.0600	Piling Steel Sheet Permanent Driven	SF	630.000	630.000
0076	516.0500	Rubberized Membrane Waterproofing	SY	37.000	37.000
0078	521.1503	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 18-Inch 4 to 1	EACH	2.000	2.000
0080	521.3118	Culvert Pipe Corrugated Steel 18-Inch	LF	38.000	38.000
0082	522.0448	Culvert Pipe Reinforced Concrete Class IV 48-Inch	LF	124.000	124.000
0084	522.1048	Apron Endwalls for Culvert Pipe Reinforced Concrete 48-Inch	EACH	4.000	4.000
0086	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	150.000	150.000
0088	602.0410	Concrete Sidewalk 5-Inch	SF	555.000	555.000
0090	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,200.000	1,200.000
0092	603.8125	Concrete Barrier Temporary Precast Installed	LF	1,200.000	1,200.000
0094	606.0200	Riprap Medium	CY	6.000	6.000
0096	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	189.000	189.000
0098	616.0100	Fence Woven Wire (height) 01. 4-FT	LF	300.000	300.000
0100	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1000-09-73	EACH	1.000	1.000
0102	619.1000	Mobilization	EACH	1.000	1.000
0104	624.0100	Water	MGAL	5.700	5.700
0106	625.0500	Salvaged Topsoil	SY	2,994.000	2,994.000
0108	628.1104	Erosion Bales	EACH	54.000	54.000
0110	628.1504	Silt Fence	LF	1,475.000	1,475.000
0112	628.1520	Silt Fence Maintenance	LF	1,625.000	1,625.000
0114	628.1905	Mobilizations Erosion Control	EACH	15.000	15.000
0116	628.1910	Mobilizations Emergency Erosion Control	EACH	8.000	8.000
0118	628.2008	Erosion Mat Urban Class I Type B	SY	2,594.000	2,594.000
0120	628.2027	Erosion Mat Class II Type C	SY	400.000	400.000
0122	628.6005	Turbidity Barriers	SY	35.000	35.000
0124	628.7005	Inlet Protection Type A	EACH	1.000	1.000
0126	628.7015	Inlet Protection Type C	EACH	5.000	5.000
0128	628.7504	Temporary Ditch Checks	LF	70.000	70.000
0130	628.7555	Culvert Pipe Checks	EACH	20.000	20.000
0132	628.7560	Tracking Pads	EACH	4.000	4.000
0134	628.7570	Rock Bags	EACH	60.000	60.000
0136	630.0120	Seeding Mixture No. 20	LB	59.000	59.000
0138	630.0140	Seeding Mixture No. 40	LB	17.000	17.000
0140	630.0200	Seeding Temporary	LB	20.000	20.000
0142	630.0500	Seed Water	MGAL	2.000	2.000
0144	631.1100	Sod Erosion Control	SY	20.000	20.000

Estimate Of Quantities

Page 3

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Line	Item	Item Description	Unit	Total	Qty
0146	633.5200	Markers Culvert End	EACH	4.000	4.000
0148	642.5001	Field Office Type B	EACH	1.000	1.000
0150	643.0300	Traffic Control Drums	DAY	1,606.000	1,606.000
0152	643.0410	Traffic Control Barricades Type II	DAY	185.000	185.000
0154	643.0420	Traffic Control Barricades Type III	DAY	1,402.000	1,402.000
0156	643.0705	Traffic Control Warning Lights Type A	DAY	1,568.000	1,568.000
0158	643.0715	Traffic Control Warning Lights Type C	DAY	370.000	370.000
0160	643.0800	Traffic Control Arrow Boards	DAY	85.000	85.000
0162	643.0900	Traffic Control Signs	DAY	8,389.000	8,389.000
0164	643.0920	Traffic Control Covering Signs Type II	EACH	60.000	60.000
0166	643.1050	Traffic Control Signs PCMS	DAY	146.000	146.000
0168	643.5000	Traffic Control	EACH	1.000	1.000
0170	645.0120	Geotextile Type HR	SY	11.000	11.000
0172	646.1020	Marking Line Epoxy 4-Inch	LF	432.000	432.000
0174	650.4500	Construction Staking Subgrade	LF	108.000	108.000
0176	650.5000	Construction Staking Base	LF	108.000	108.000
0178	650.6000	Construction Staking Pipe Culverts	EACH	2.000	2.000
0180	650.6500	Construction Staking Structure Layout (structure) 01. C-51-16	LS	1.000	1.000
0182	650.6500	Construction Staking Structure Layout (structure) 02. B-64-37	LS	1.000	1.000
0184	650.6500	Construction Staking Structure Layout (structure) 03. B-64-38	LS	1.000	1.000
0186	650.6500	Construction Staking Structure Layout (structure) 04. C-64-048	LS	1.000	1.000
0188	650.9910	Construction Staking Supplemental Control (project) 01. 1000-09-73	LS	1.000	1.000
0190	650.9920	Construction Staking Slope Stakes	LF	216.000	216.000
0192	690.0250	Sawing Concrete	LF	68.000	68.000
0194	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0196	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,000.000	1,000.000
0198	SPV.0060	Special 01. Strapping C-51-16	EACH	10.000	10.000
0200	SPV.0060	Special 02. Strapping C-66-18	EACH	2.000	2.000
0202	SPV.0060	Special 03. Strapping C-66-24	EACH	1.000	1.000
0204	SPV.0060	Special 04. Strapping C-66-37	EACH	2.000	2.000
0206	SPV.0060	Special 06. Strapping B-67-179	EACH	2.000	2.000
0208	SPV.0060	Special 07. Strapping B-64-37	EACH	1.000	1.000
0210	SPV.0060	Special 08. Strapping B-64-38	EACH	2.000	2.000
0212	SPV.0060	Special 09. Strapping B-51-84	EACH	1.000	1.000
0214	SPV.0090	Special 01. Heavy Duty Silt Fence	LF	150.000	150.000

CLEARING & GRUBBING		
	201.0120 CLEARING (ID)	201.0220 GRUBBING (ID)
LOCATION		
B-64-38, NW WING	3	3
	9	9
	3	3
	-	24
TOTALS	15	39

CULVERT PIPE						
	521.3118 CULVERT PIPE CORRUGATED STEEL 18-INCH (LF)	522.0448 CULVERT PIPE RC 48-INCH (LF)	522.1048 APRON ENDWALLS FOR CPRC 48-INCH (EACH)	521.1503 APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 18-INCH 4 TO 1 (EACH)	633.5200 MARKERS CULVERT END (EACH)	* JOINT TIES REQ'S (EACH)
LOCATION						
STH 38						
94+85	-	62	2	-	2	12
94+93	-	62	2	-	2	12
94+60	38	-	-	2	-	-
TOTALS	38	124	4	2	4	

* NON-BID ITEM (FOR INFORMATION ONLY)

REMOVALS					
	203.0200 REMOVING OLD STRUCTURE (STA 94+80) (LS)	204.0100 REMOVING PAVEMENT (SY)	204.0170 REMOVING FENCE (LF)	204.0150 REMOVING CURB & GUTTER (LF)	204.0155 REMOVING CONCRETE SIDEWALK (SY)
LOCATION					
STH 38	1	132	-	-	-
STH 20	-	-	-	150	62
USH 12	-	-	300	-	-
TOTALS	1	132	300	150	62

CULVERT PIPE TRANSITION									
LOCATION	LIMITS	LENTH (FT)	"D" DEPTH (FT)	PIPE DIA (IN)	"T" DEPTH (FT)	TRENCH WIDTH (FT)	PAVEMENT AND BASE REMOVAL (CF)	CUT VOLUME W/O PAVEMENT (CF)	205.0100 EXCAVATION COMMON (CY) *
STH 38	94+35 to 95+43	108	1.75	48	3.75	16	4661	7125	437
TOTAL									437

* EXCAVATION COMMON IS MEASURED BETWEEN THE SHOULDER POINTS OF THE ROADWAY. IF SUITABLE, REUSE EXCAVATION COMMON AS TRENCH BACKFILL, AS DIRECTED BY THE ENGINEER.

PAVEMENT & SHOULDERS									
	305.0110 BASE AGGREGATE DENSE 3/4-INCH (TON)	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (TON)	455.0605 TACK COAT (GAL)	465.0105 ASPHALTIC SURFACE (TON)	465.0425 ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL (LF)	465.0475 ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL (LF)	601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D (LF)	602.0410 CONCRETE SIDEWALK 5-INCH (SF)	624.0100 WATER (MGAL)
LOCATION									
STH 38									
94+35 to 95+43	10	242	58	137	216	108	-	-	5.1
DRIVEWAY	-	15	-	12	-	-	-	-	0.3
STH 20									
326+80 to 327+68	-	11	-	-	-	-	150	555	0.3
TOTALS	10	268	58	149	216	108	150	555	5.7

ALL ITEMS ON THIS PAGE ARE CATEGORY 0010

PROJECT NO: 1000-09-73	HWY: VARIOUS	COUNTY: SE REGION WIDE	MISCELLANEOUS QUANTITIES	SHEET	E
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EROSION CONTROL AND RESTORATION PART I

	606.0200 RIPRAP MEDIUM	625.0500 SALVAGED TOPSOIL	628.1104 EROSION BALES	628.1504 SILT FENCE	SPV.0090.01 HEAVY DUTY SILT FENCE	628.1520 SILT FENCE MAINTENANCE	628.1905 MOBILIZATIONS EROSION CONTROL	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL	628.2008 EROSION MAT URBAN CLASS I TYPE B	628.2027 EROSION MAT CLASS II TYPE C	628.6005 TURBIDITY BARRIERS	628.7005 INLET PROTECTION TYPE A	628.7015 INLET PROTECTION TYPE C
LOCATION	(CY)	(SY)	(EA)	(LF)	(LF)	(LF)	(EACH)	(EACH)	(SY)	(SY)	(SY)	(EACH)	(EACH)
C-51-05 (STH 38)	6	417	12	275	-	275	2	-	417	-	-	1	-
B-64-37 (USH 12)	-	834	12	660	60	720	3	-	834	-	-	-	-
B-64-38 (USH 12)	-	834	12	360	20	380	3	-	834	-	-	-	-
C-51-16 (STH 20)	-	889	12	130	70	200	3	-	489	400	-	-	5
C-66-48 (STH 175)	-	20	6	50	-	50	2	-	20	-	-	-	-
Projectw ide	-	-	-	-		-	2	8	-	-	35	-	-
TOTALS	6	2994	54	1475	150	1625	15	8	2594	400	35	1	5

EROSION CONTROL AND RESTORATION PART II

	628.7504 TEMPORARY DITCH CHECKS	628.7555 CULVERT PIPE CHECKS	628.7560 TRACKING PADS	628.7570 ROCK BAGS	629.0205 FERTILIZER TYPE A	630.0120 SEEDING MIXTURE NO. 20	630.0140 SEEDING MIXTURE NO. 40	630.0200 SEEDING TEMPORARY	630.0500 SEED WATER	631.1100 SOD EROSION CONTROL	645.0120 GEOTEXTILE TYPE HR
LOCATION	(LF)	(EACH)	(EACH)	(EA)	(CWT)	(LB)	(LB)	(LB)	(MGAL)	(SY)	(SY)
C-51-05 (STH 38)	40	20	1	10	-	12	-	-	-	-	11
B-64-37 (USH 12)	-	-	1	20	-	23	-	-	-	-	-
B-64-38 (USH 12)	-	-	1	20	-	23	-	-	-	-	-
C-51-16 (STH 20)	30	-	1	-	-	-	17	-	-	20	-
C-66-48 (STH 175)	-	-	-	10	-	1	-	-	-	-	-
Projectw ide	-	-	-	-	-	-	-	20	2	-	-
TOTALS	70	20	4	60	-	59	17	20	2	20	11

ALL ITEMS ON THIS PAGE ARE CATEGORY 0010

TRAFFIC CONTROL

LOCATION	DESCRIPTION	DURATION CALANDAR DAYS	603.8000	603.8125	643.1050	643.0300	643.0410	643.0420	643.0705	643.0715	643.0800	643.0900	643.0920	643.5000
			CONCRETE BARRIER TEMPORARY PRECAST DELIVERED (LF)	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED (LF)	TC SIGNS PCMS # (DAY)	TC DRUMS # (DAY)	TC BARRICADES TYPE II # (DAY)	TC BARRICADES TYPE III # (DAY)	TC WARNING LIGHTS TYPE A # (DAY)	TC WARNING LIGHTS TYPE C # (DAY)	TC ARROW BOARDS # (DAY)	TC SIGNS # (DAY)	TC COVERING SIGNS TYPE II (EACH)	TC (EACH)
C-51-05 (STH 38)	DETOUR	30	-	-	2 80	- -	- -	20 600	32 960	- -	- -	110 3300	44	-
C-51-59 (STH 20)	SHOULDER CLOSURE	1	-	-	- -	12 12	- -	- -	- -	- -	1 1	4 4	-	-
B-51-84 (STH 31)	SHOULDER CLOSURE	1	-	-	- -	12 12	- -	- -	- -	- -	1 1	8 8	-	-
B-64-37 (USH 12)	SHOULDER CLOSURE	20	600	600	- -	10 200	- -	- -	- -	- -	1 20	8 160	-	-
B-64-38 (USH 12)	SHOULDER CLOSURE	20	600	600	- -	10 200	- -	- -	- -	- -	1 20	8 160	-	-
B-67-179 (STH 190)	SHOULDER CLOSURE	1	-	-	- -	12 12	- -	- -	- -	- -	1 1	8 8	-	-
C-51-16 (STH 20 WB)	LANE CLOSURE	37	-	-	- -	30 1110	4 148	6 222	4 148	10 370	1 37	16 592	-	-
C-51-16 (STH 20 EB)	SHOULDER CLOSURE	3	-	-	- -	12 36	- -	- -	- -	- -	1 3	8 24	-	-
C-66-18 (STH 60)	SHOULDER CLOSURE	1	-	-	- -	12 12	- -	- -	- -	- -	1 1	8 8	-	-
C-66-24 (USH 45)	SHOULDER CLOSURE	1	-	-	- -	12 12	- -	- -	- -	- -	1 1	8 8	-	-
C-66-48 (STH 175)	DETOUR	23	-	-	2 66	- -	- -	20 460	20 460	- -	- -	155 3565	8	-
UNDISTRIBUTED			-	-	- -	- -	37	120	-	-	-	552	8	1
TOTALS			1,200	1,200	146	1,606	185	1,402	1,568	370	85	8,389	60	1

FENCE

		616.0100 FENCE WOVEN WIRE (4-FT) (LF)
LOCATION		
USH 12		
SOUTH ROW	85	
NORTH ROW	215	
TOTALS		300

PAVEMENT MARKING

				646.1020 MARKING LINE EPOXY 4-INCH
LOCATION		x	WHITE (LF)	x YELLOW (LF)
STH 38				
94+35	to 95+43	2	216	2 216
PROJECT			-	-
TOTALS			432	

CONSTRUCTION STAKING

		650.4500 SUBGRADE (LF)	650.5000 BASE (LF)	650.6000 PIPE CULVERTS (EACH)	650.9920 SLOPE STAKES (LF)
LOCATION					
STH 38					
94+35	to 95+43	108	108	-	216
94+85		-	-	1	-
94+93		-	-	1	-
TOTALS		108	108	2	216

SAWING

		690.0250 SAWING CONCRETE
LOCATION		(LF)
STH 38		
94+35	34	
95+43	34	
TOTALS		68

ALL ITEMS ON THIS PAGE ARE CATEGORY 0010

PROJECT NO: 1000-09-73

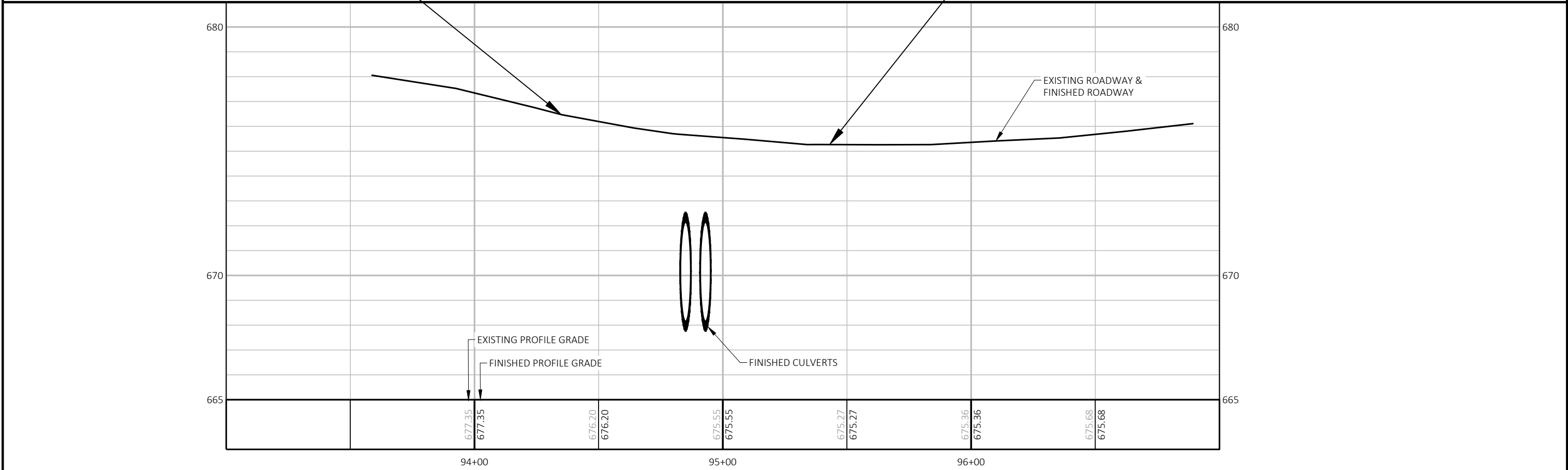
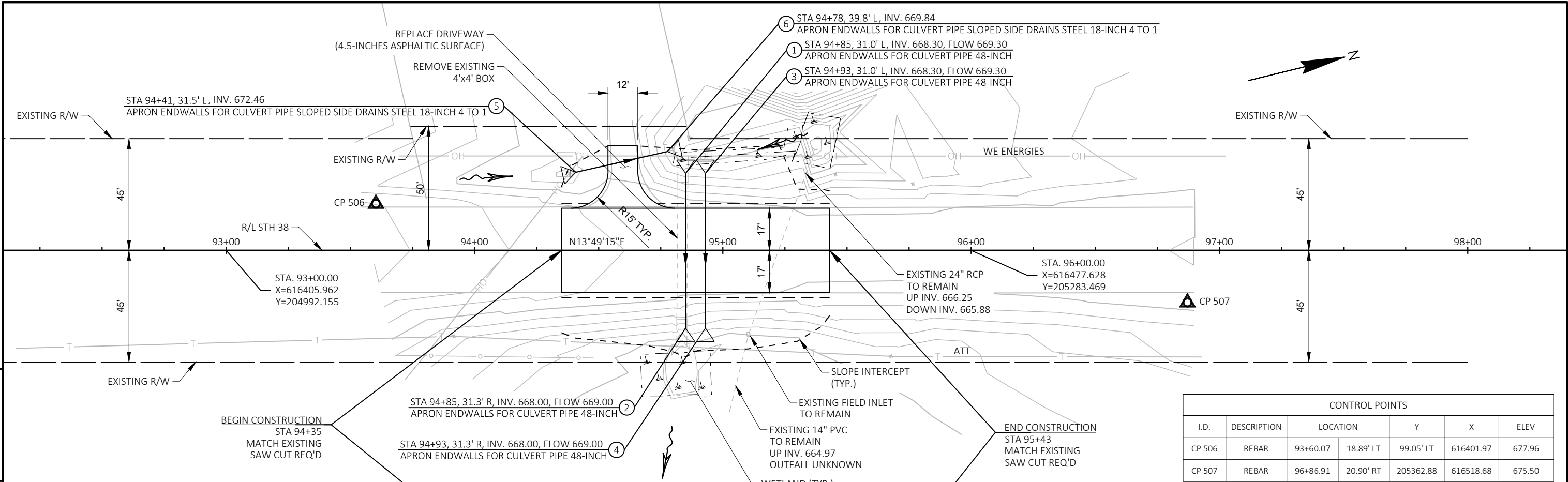
HWY: VARIOUS

COUNTY: SE REGION WIDE

MISCELLANEOUS QUANTITIES

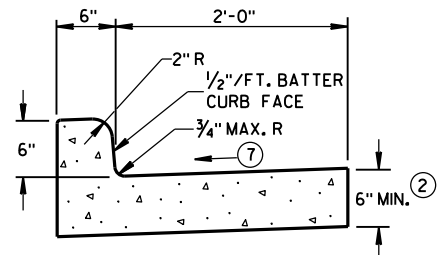
SHEET

E

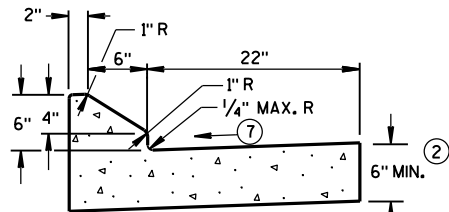


Standard Detail Drawing List

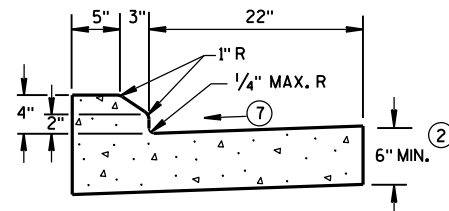
08D01-20A	CONCRETE CURB & GUTTER
08D01-20B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS
13A10-02A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-03A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-07A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-07B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-07C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C11-07A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D20-04	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



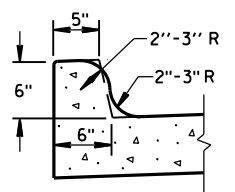
TYPES A^① & D



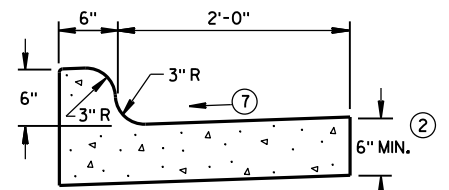
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

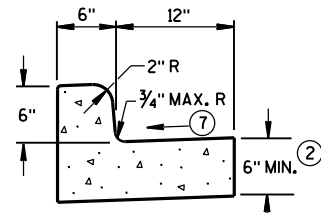


TYPES K^① & L
(OPTIONAL CURB SHAPE)



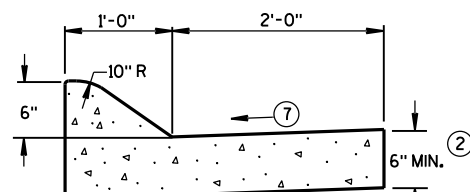
TYPES K^① & L

CONCRETE CURB & GUTTER 30"

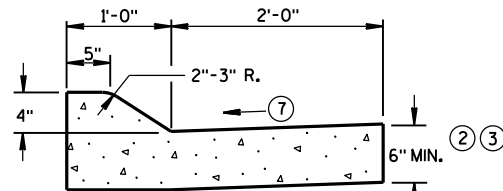


TYPES A^① & D

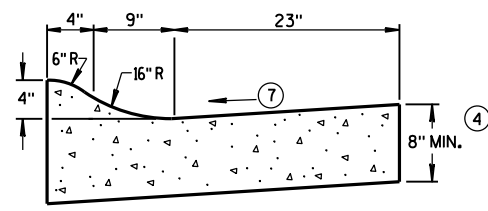
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A^① & D

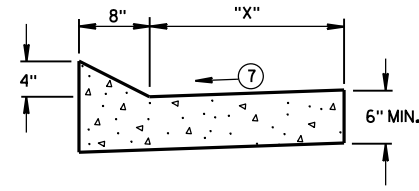


4" SLOPED CURB TYPES A^① & D



4" SLOPED CURB TYPES R^① & T^⑤

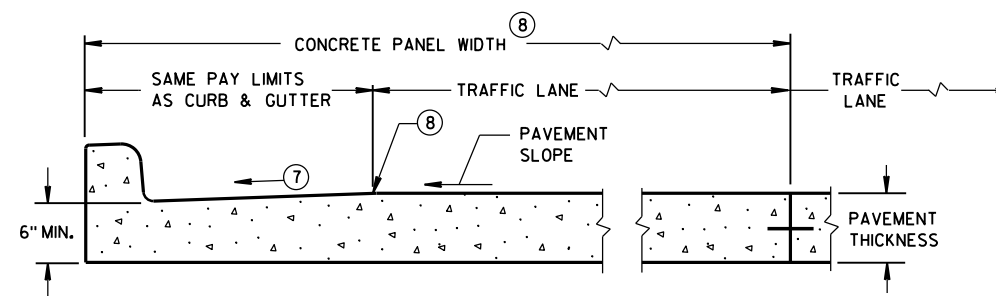
CONCRETE CURB & GUTTER 36"



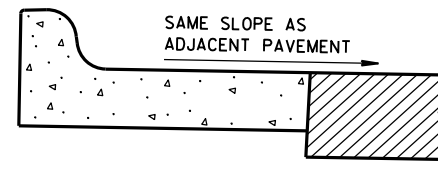
TYPES TBT & TBTT^①

CONCRETE CURB & GUTTER

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



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



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

GENERAL NOTES

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

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

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

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

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

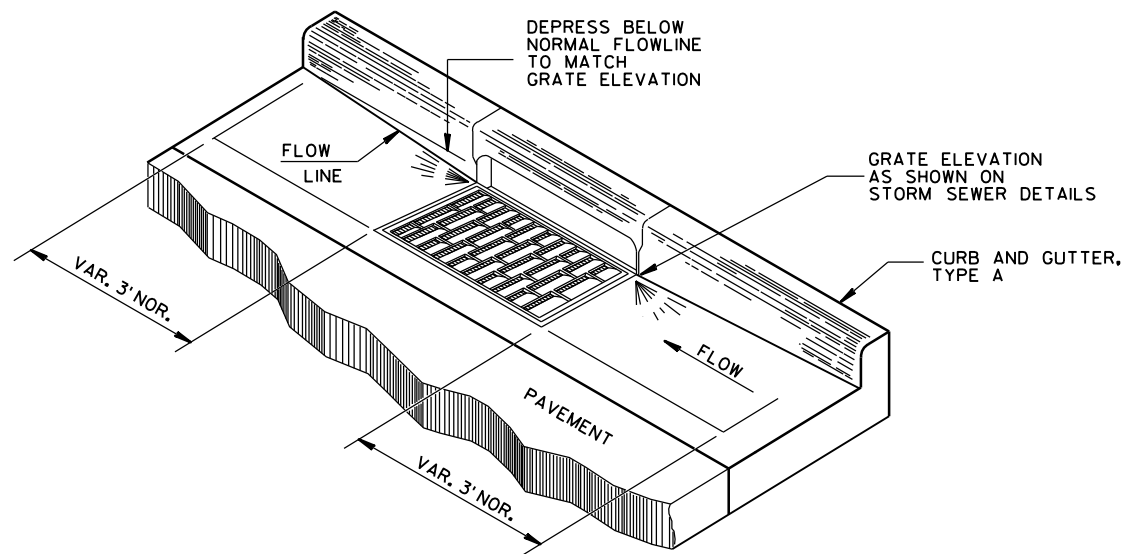
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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

* BIKE LANE IS NOT SHOWN.

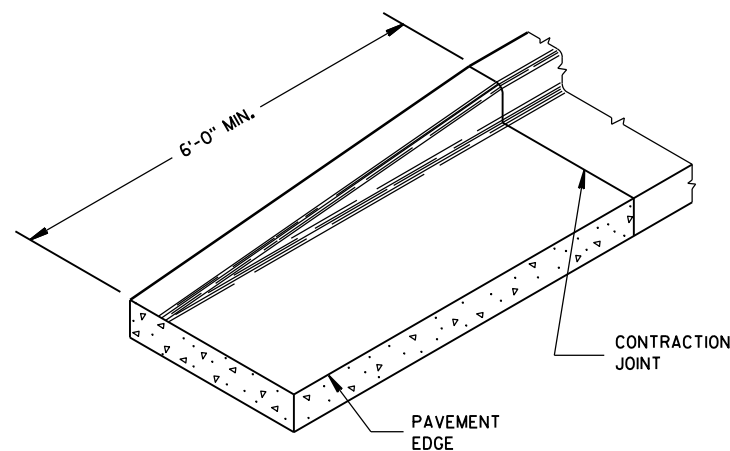
CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

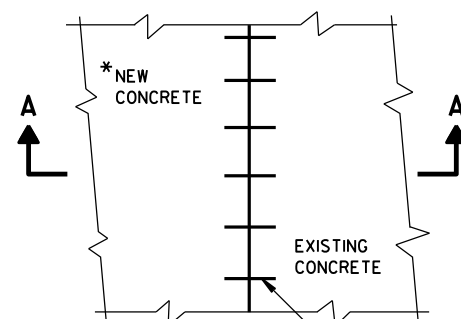


DETAIL OF CURB AND GUTTER AT INLETS

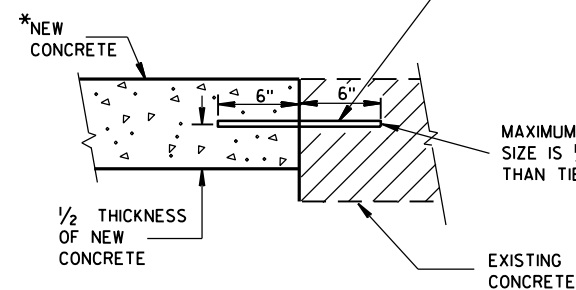
(TYPE H INLET COVER SHOWN)



END SECTION CURB & GUTTER



PLAN VIEW



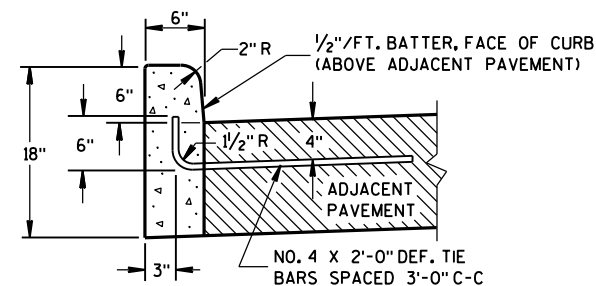
TIE BARS DRILLED INTO EXISTING PAVEMENT

*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

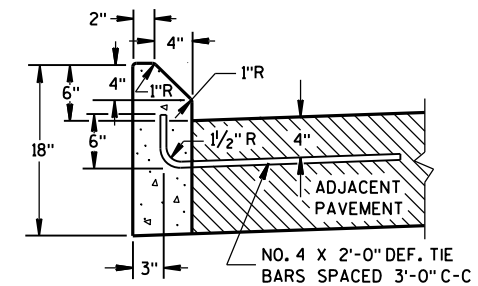
NO. 6 TIE BARS SPACED 2'-6" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT.

MAXIMUM DRILL HOLE SIZE IS 1/8" GREATER THAN TIE BAR DIAMETER

EXISTING CONCRETE



TYPES A^① & D



TYPES G^① & J

GENERAL NOTES

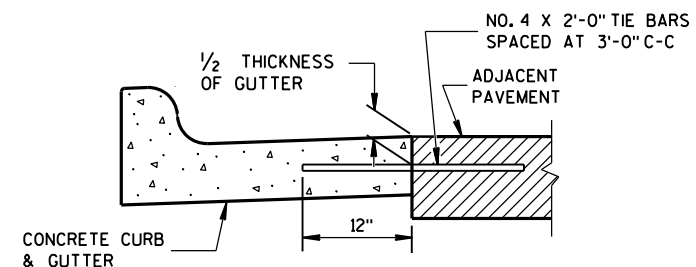
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

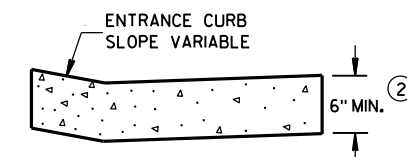
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 8D18 AND SDD 8D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

CONCRETE CURB



TYPICAL TIE BAR LOCATION^①



DRIVEWAY ENTRANCE CURB^⑨

(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2017

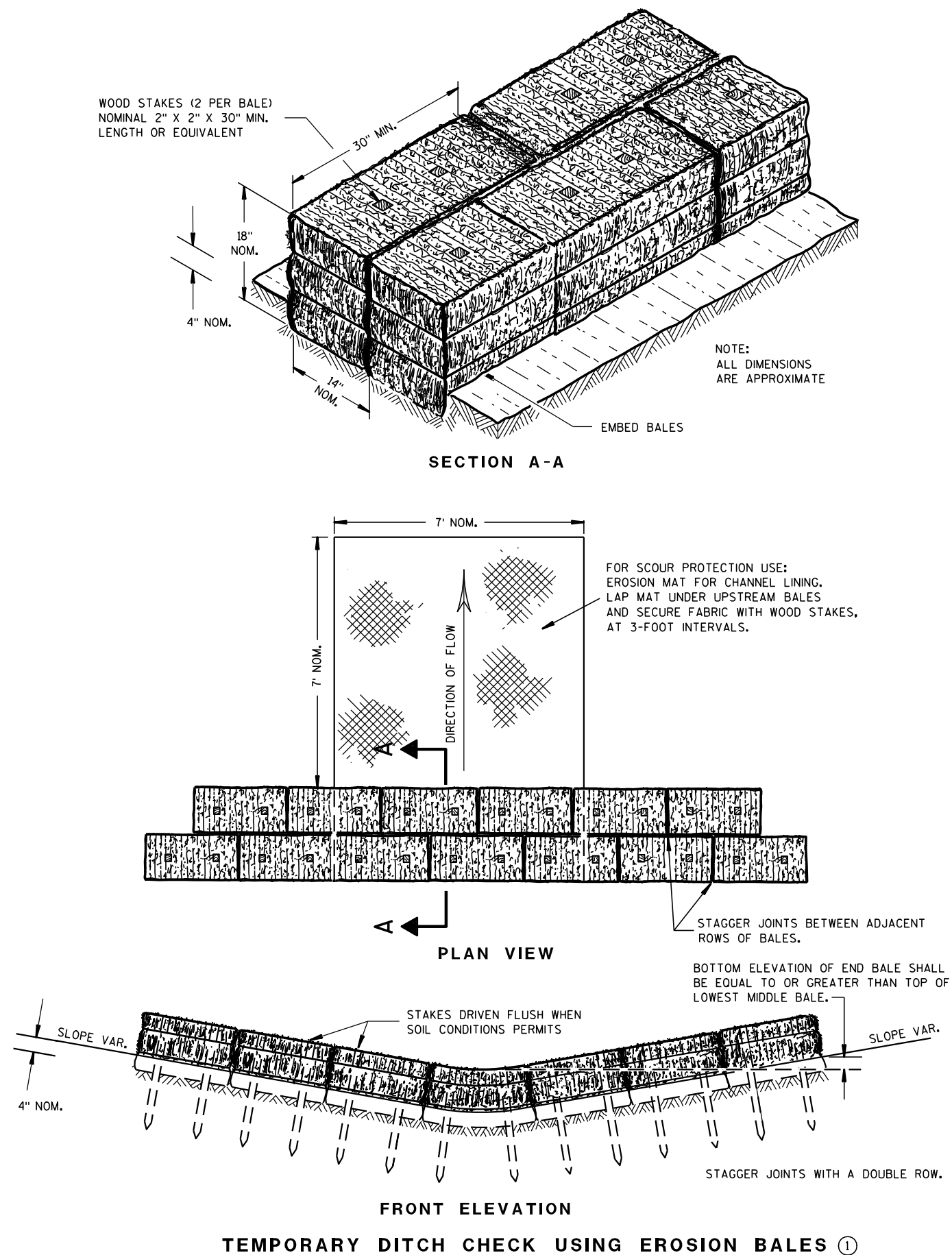
DATE

FHWA

/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

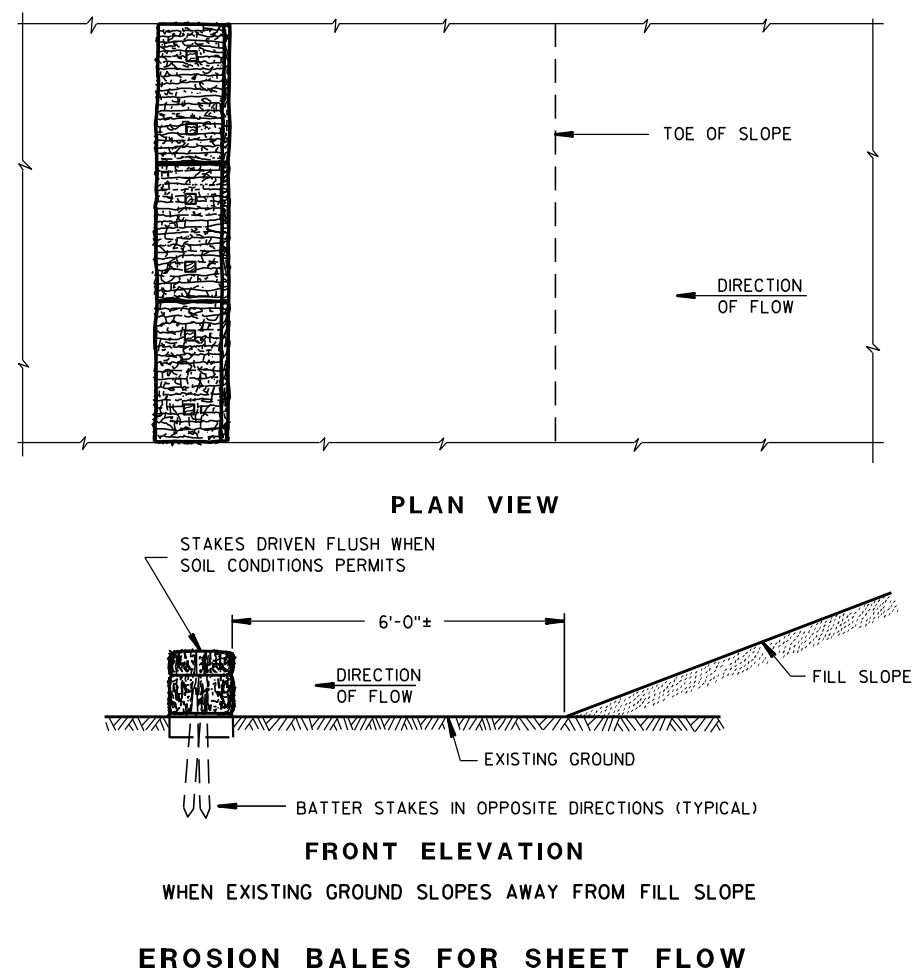
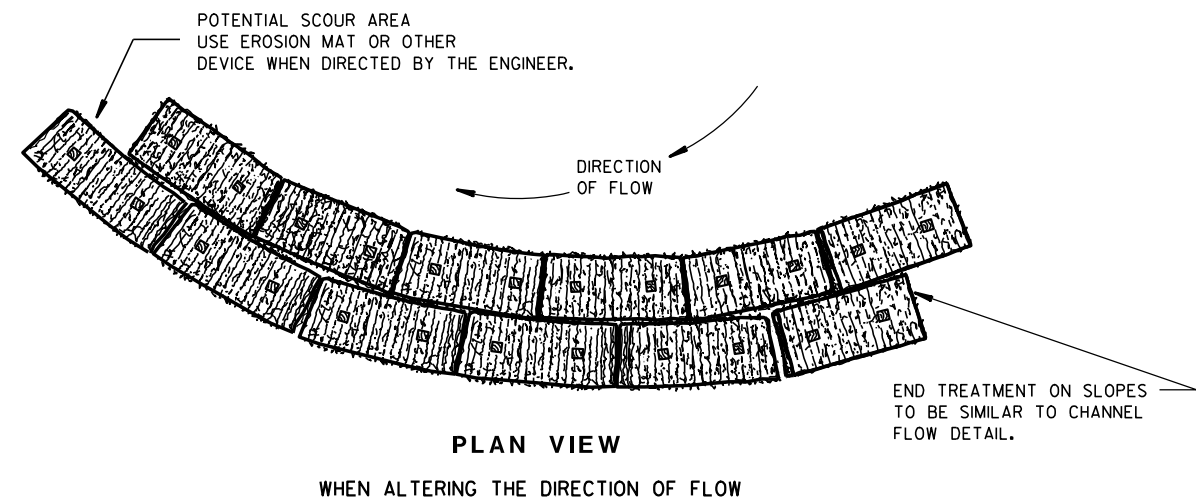
UNIT SUPERVISOR



GENERAL NOTES

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

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

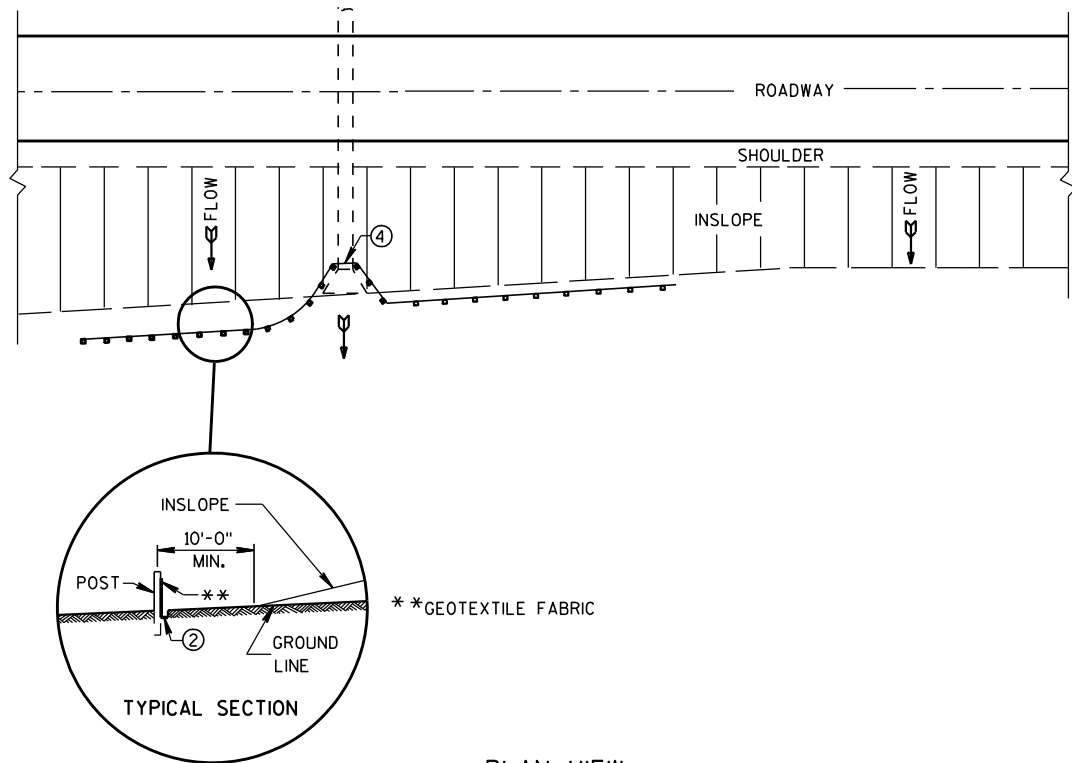
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

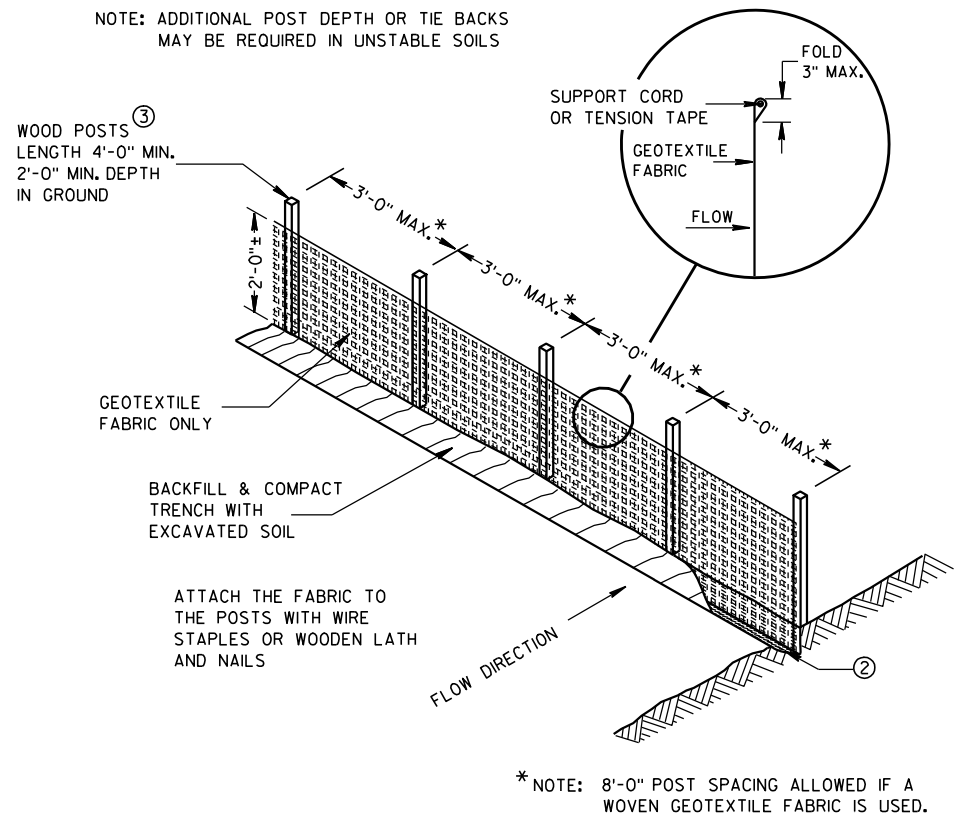
APPROVED

6/04/02
DATE/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

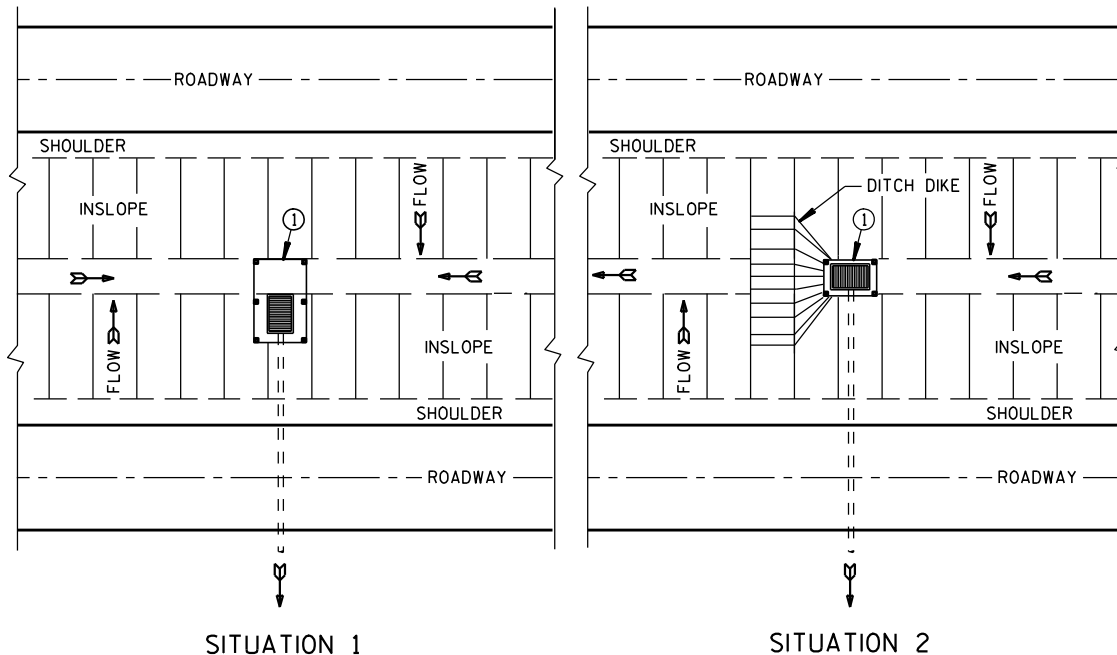
FHWA



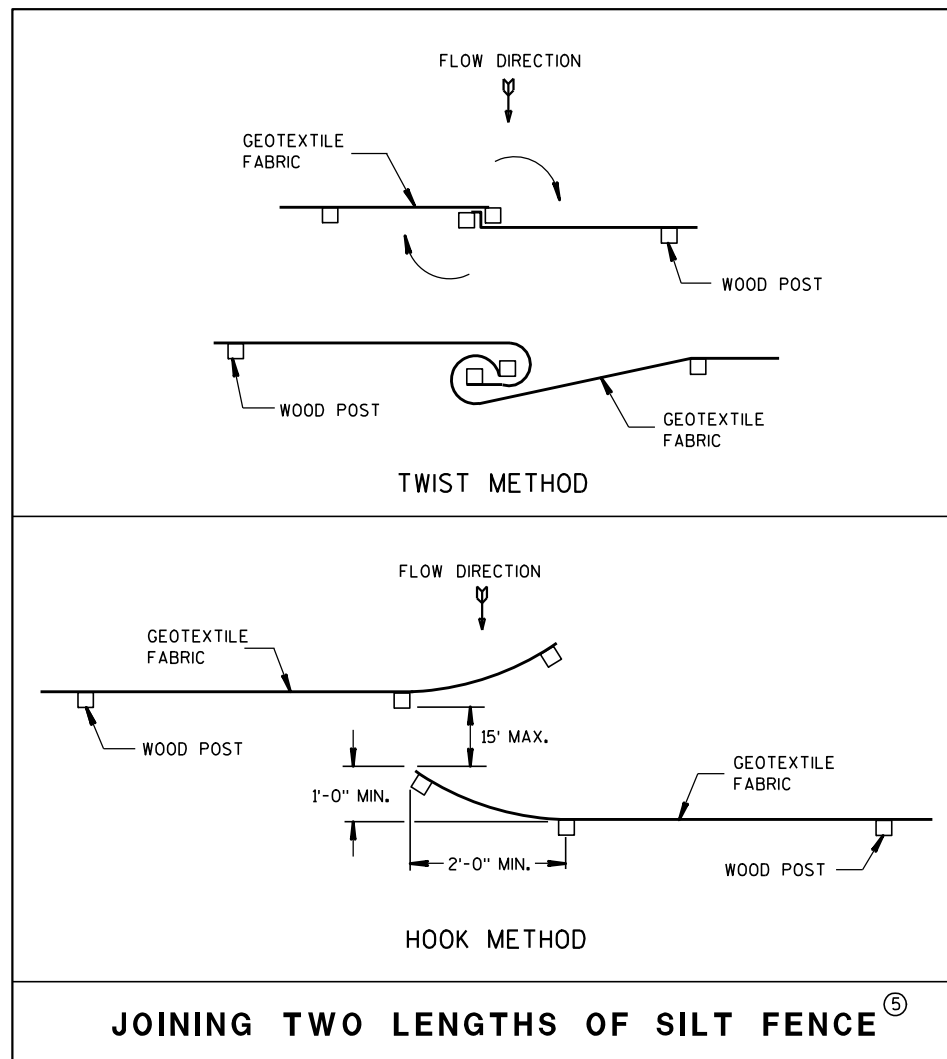
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

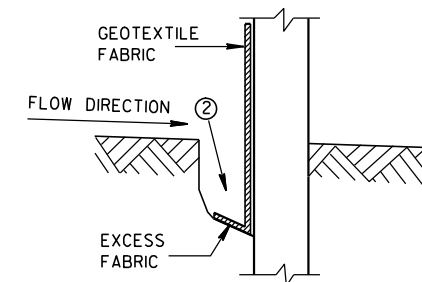


JOINING TWO LENGTHS OF SILT FENCE

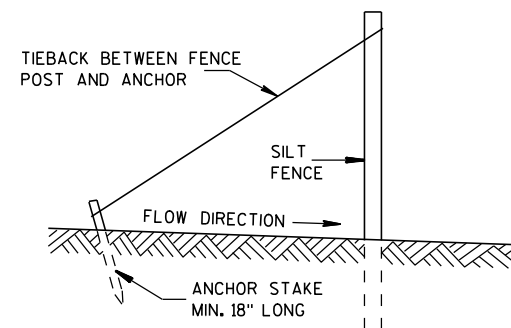
GENERAL NOTES

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 1 1/8" X 1 1/8" 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.

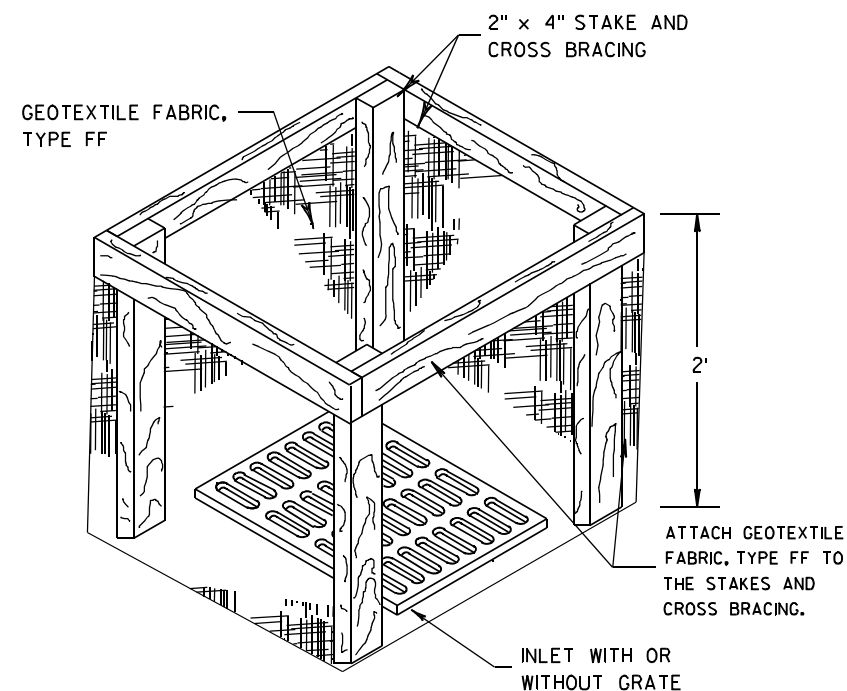
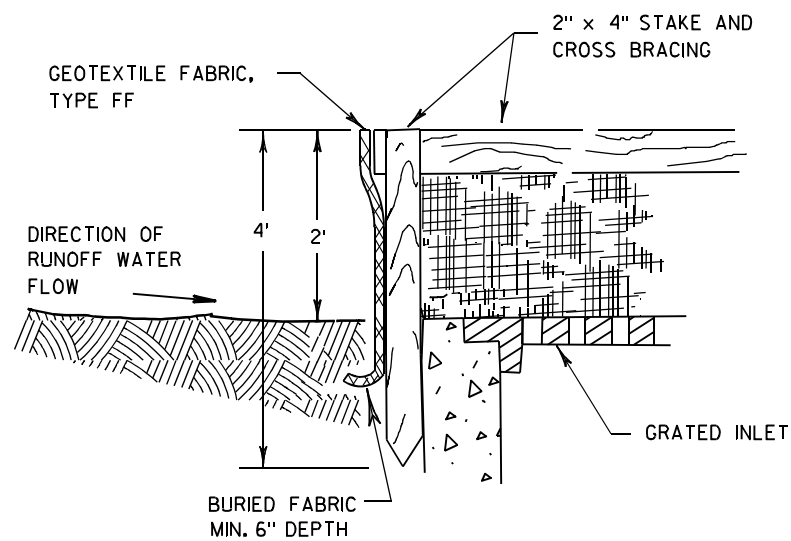


TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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



INLET PROTECTION, TYPE A

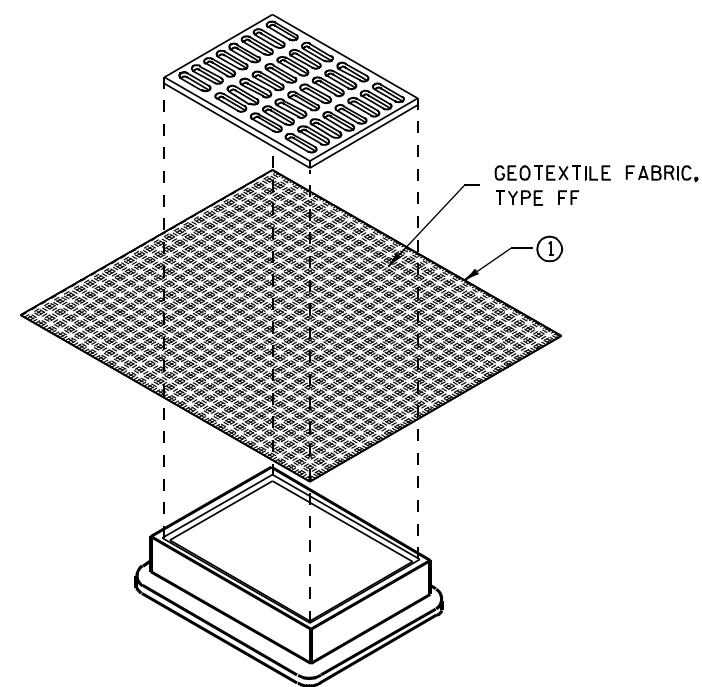
GENERAL NOTES

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.

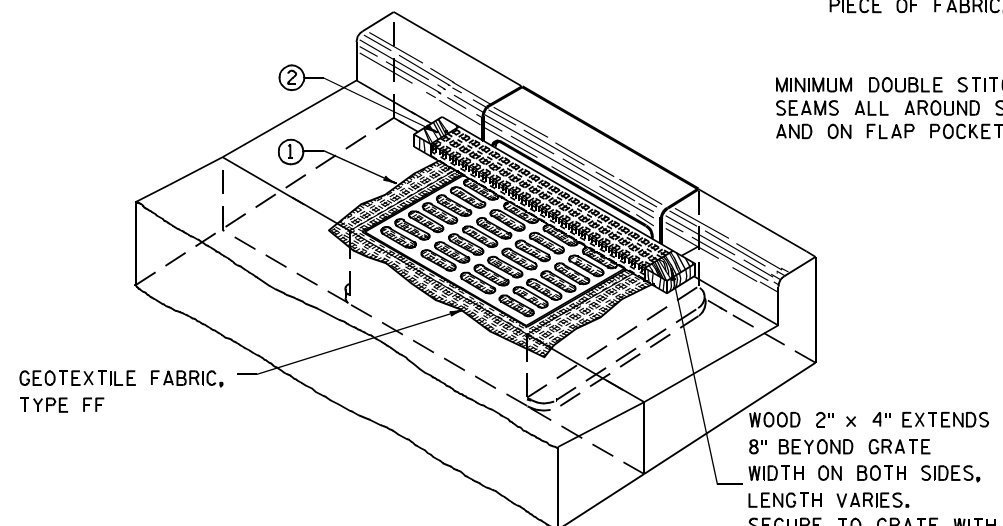
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

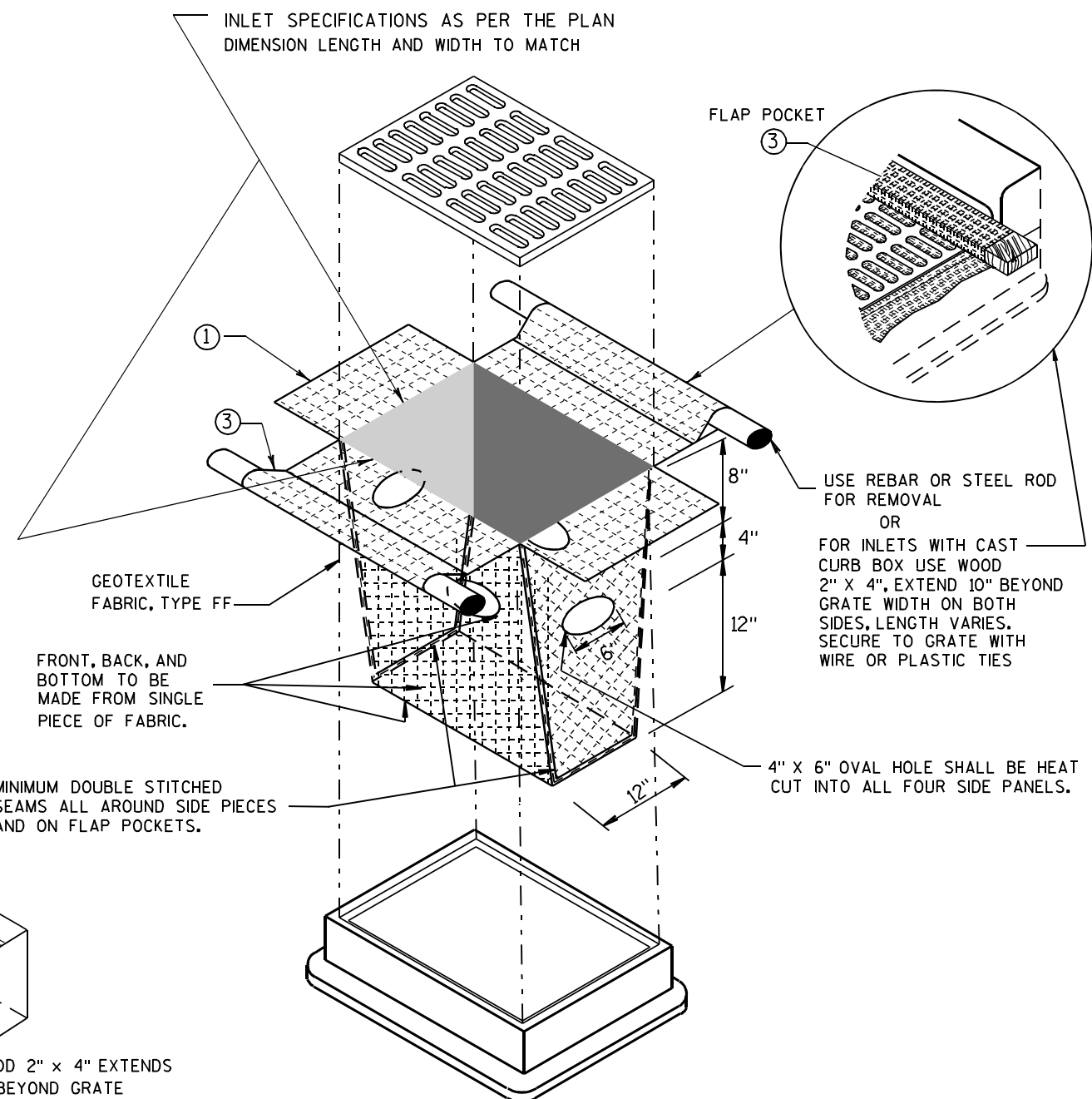
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

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.



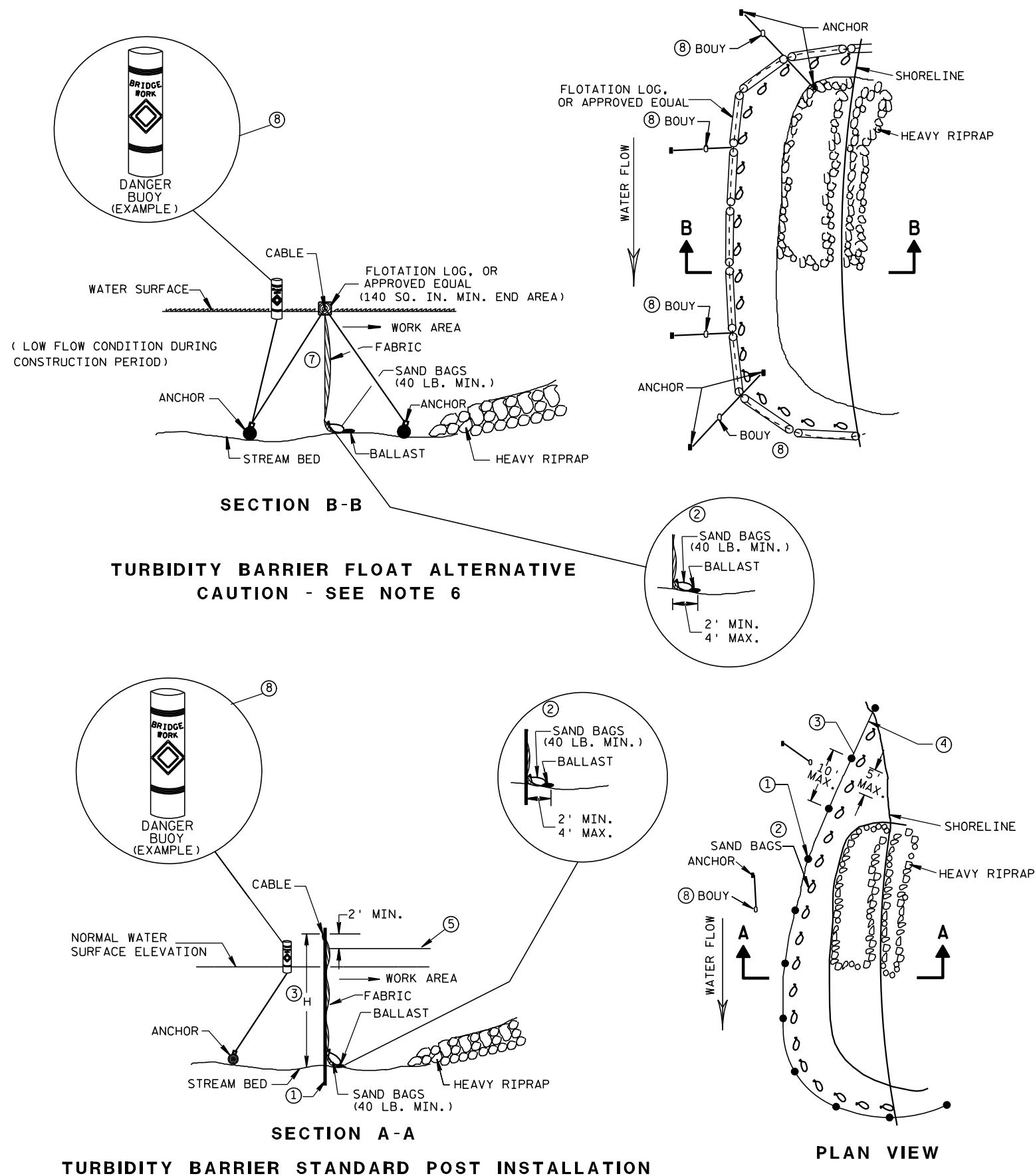
INLET PROTECTION, TYPE D

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

**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

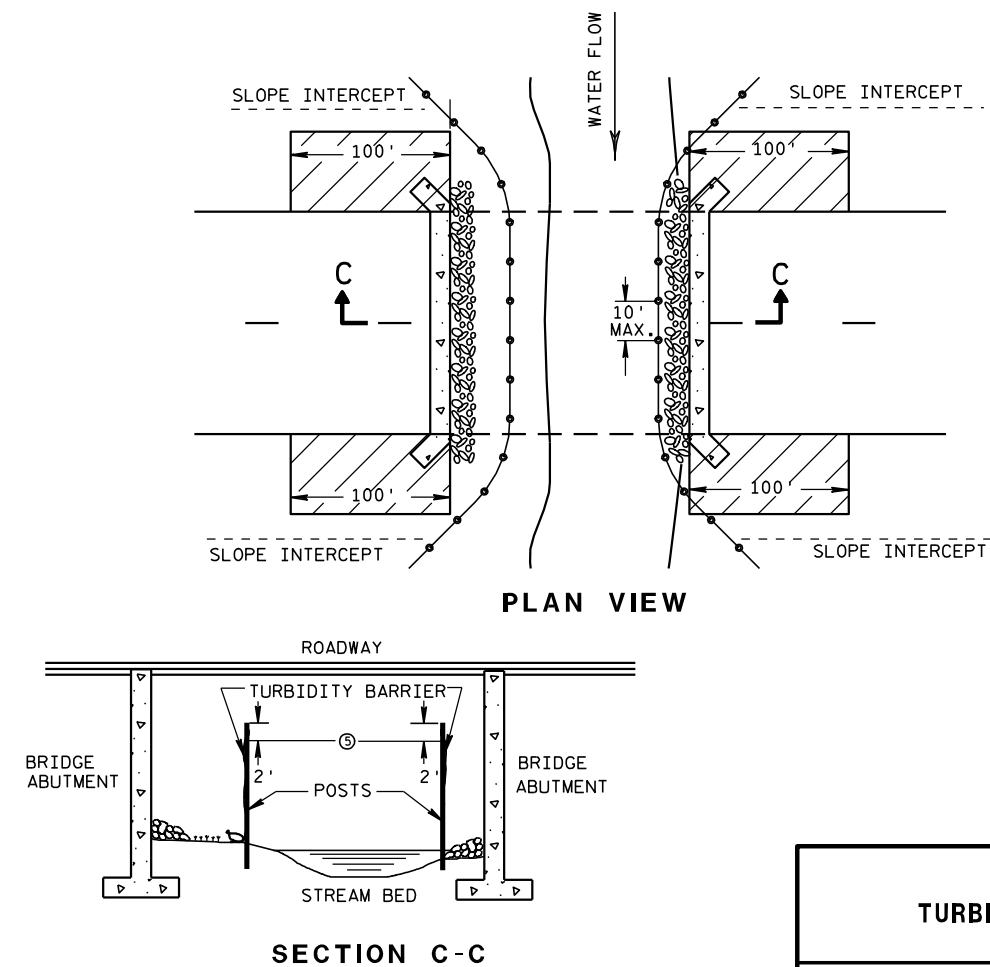


GENERAL NOTES

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

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

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

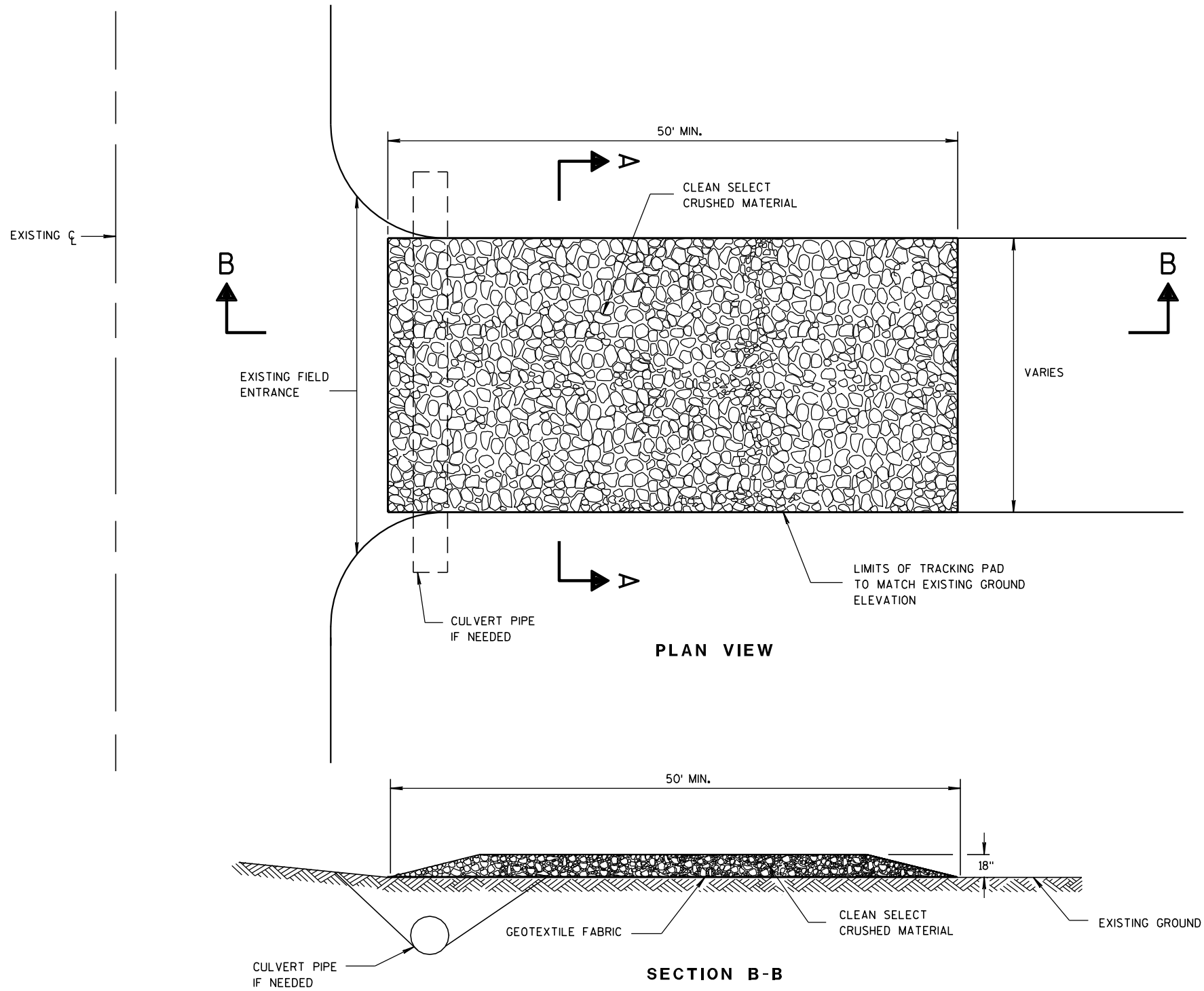
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



TRACKING PAD

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.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

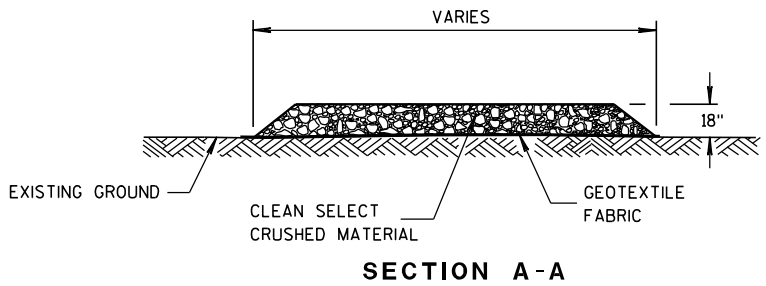
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

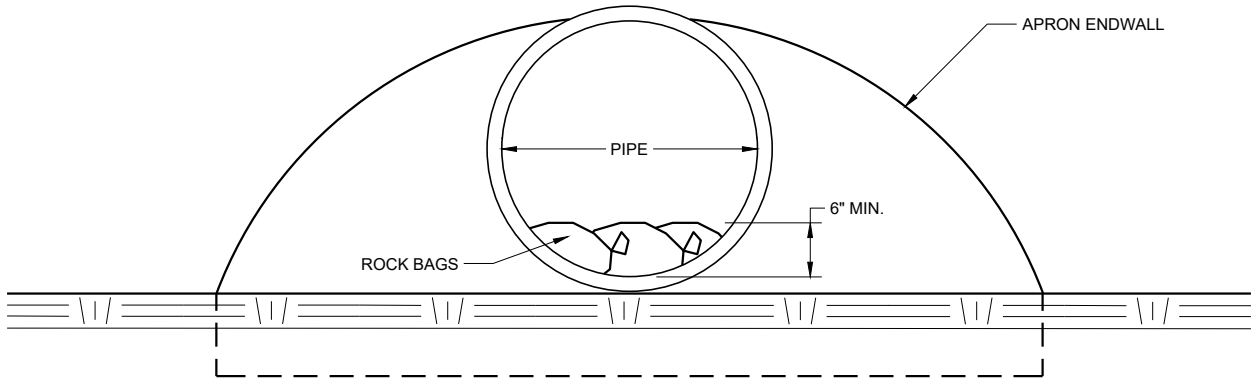
THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



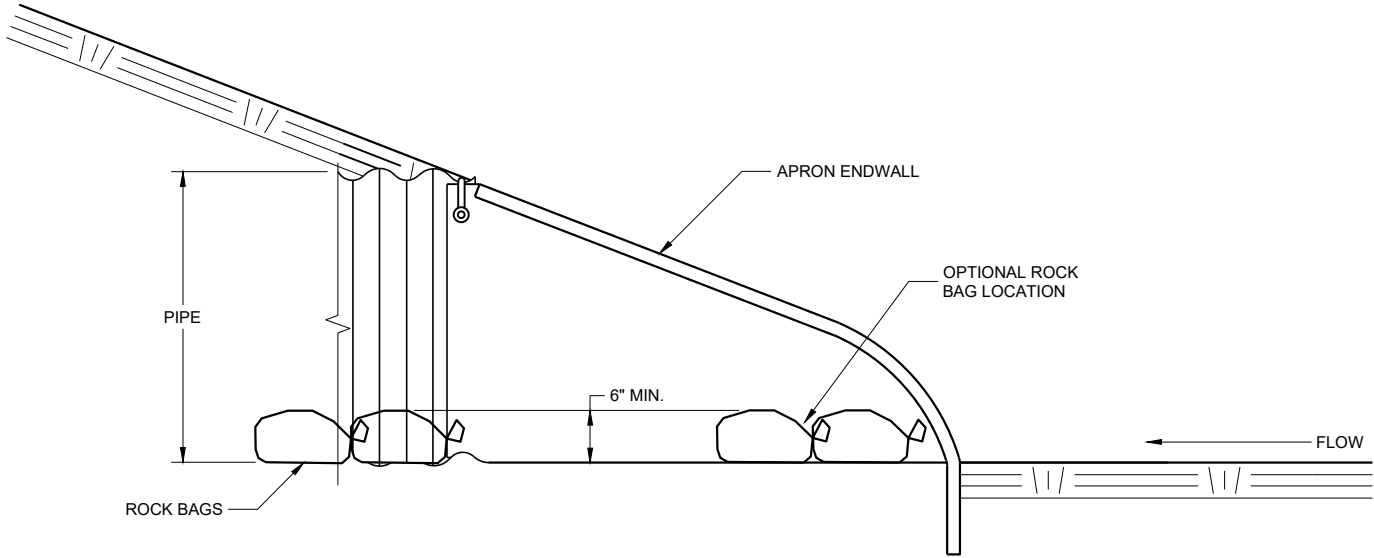
TRACKING PAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/24/2011
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



END VIEW



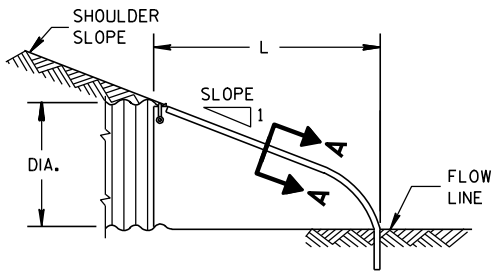
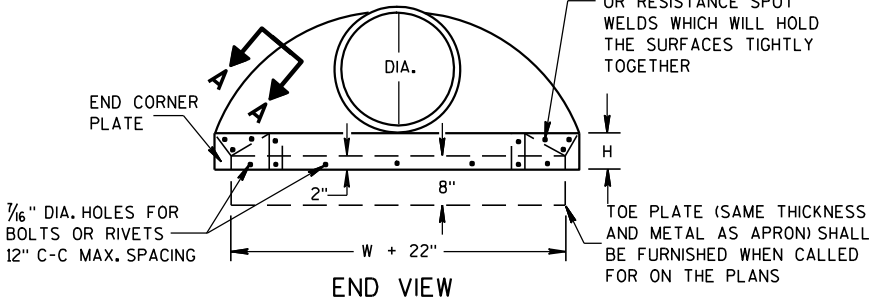
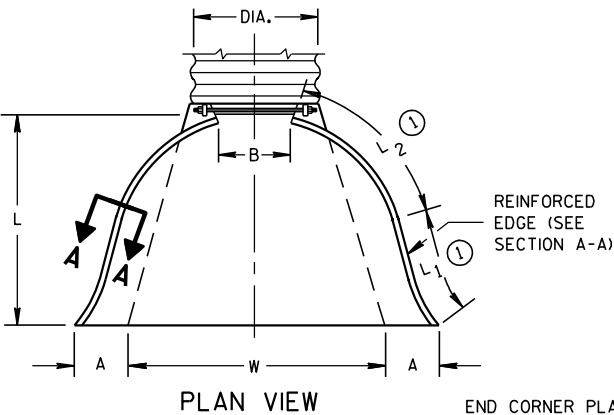
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGINEER
FHWA	

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

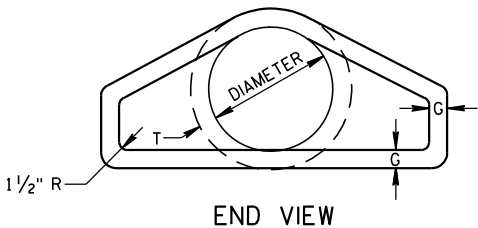
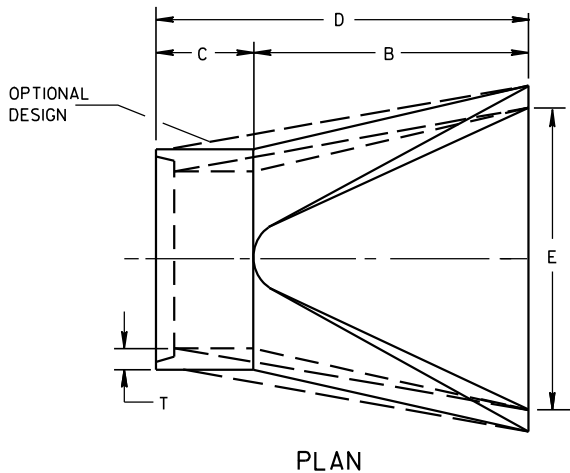
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



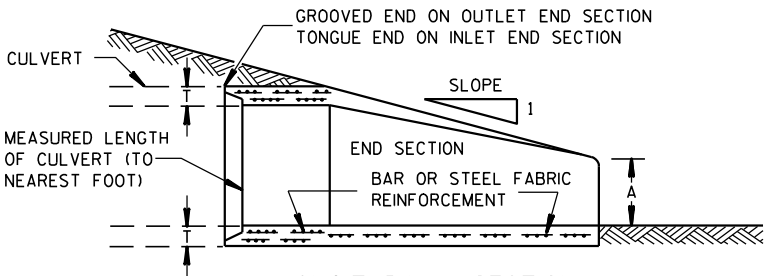
SIDE ELEVATION
METAL ENDWALLS

REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
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 1/2 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				

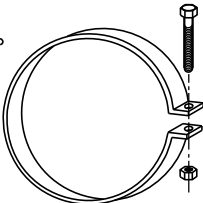
* MINIMUM
** MAXIMUM



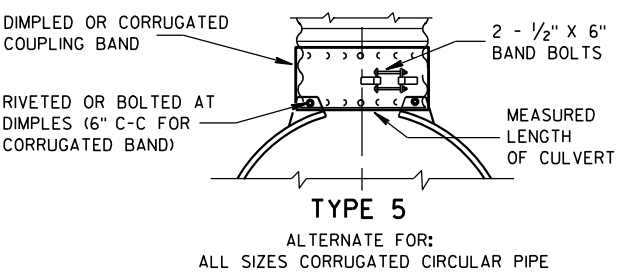
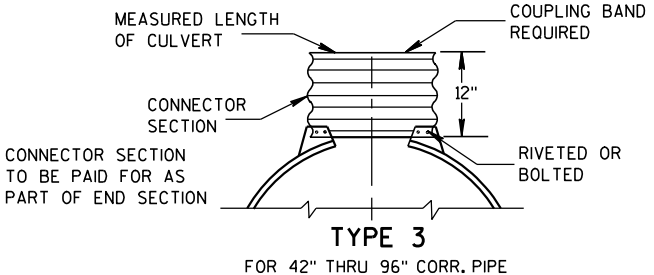
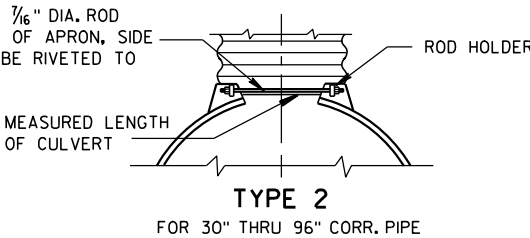
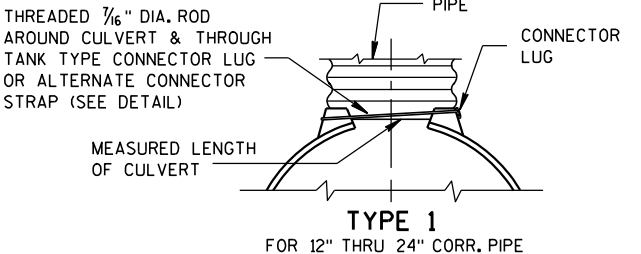
LONGITUDINAL SECTION
CONCRETE ENDWALLS



1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



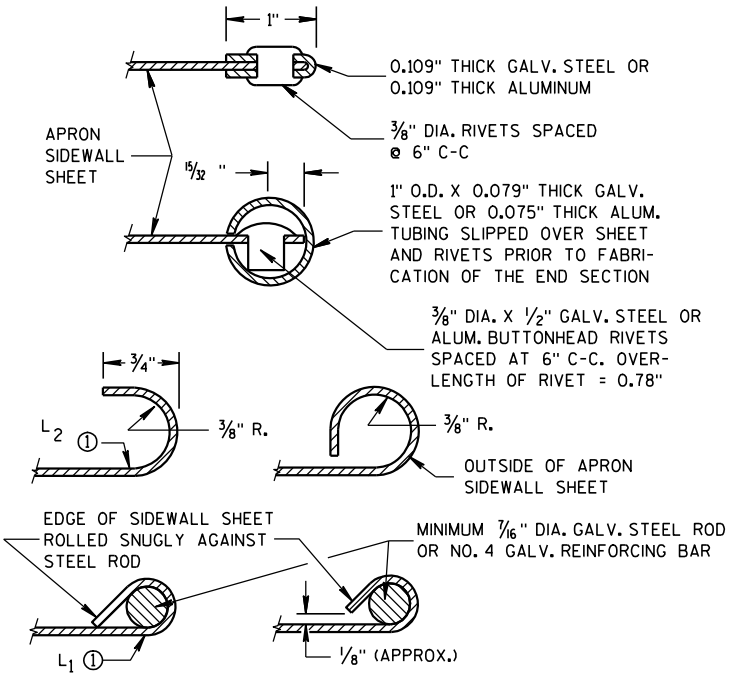
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

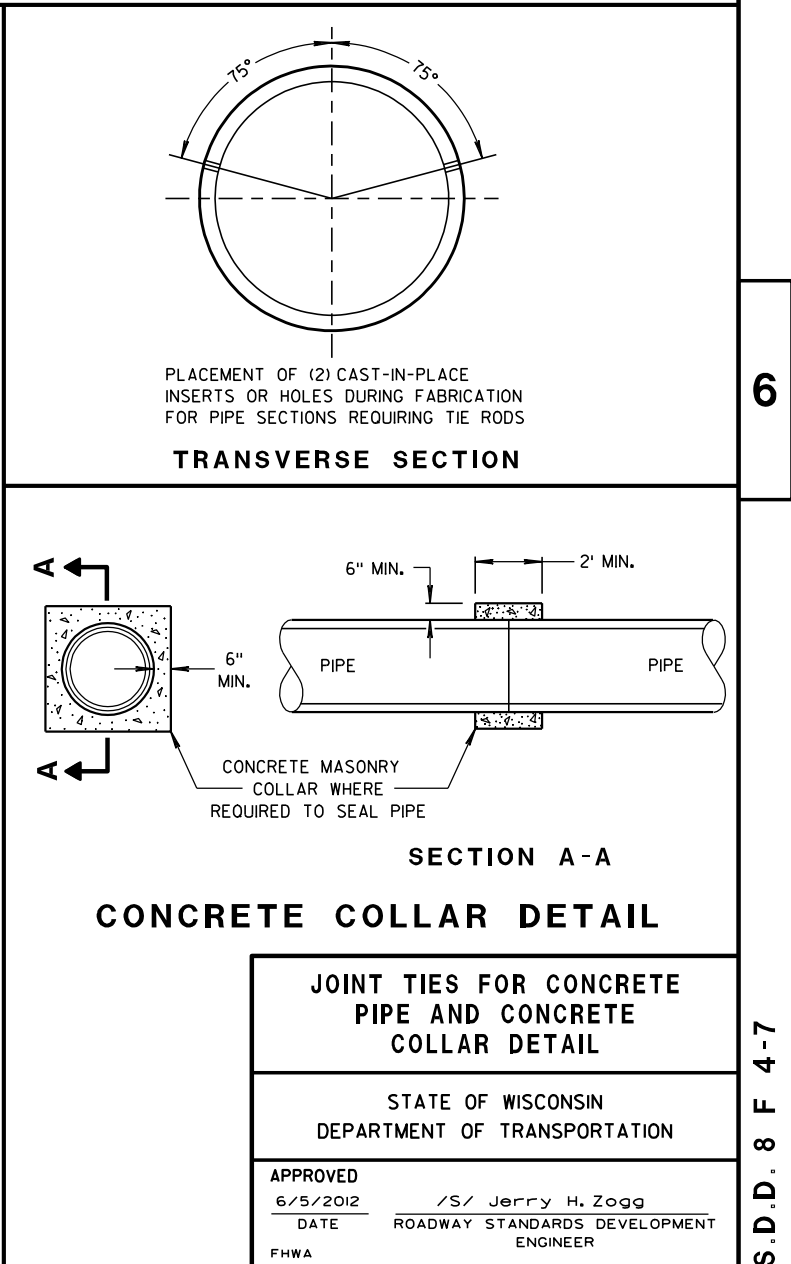
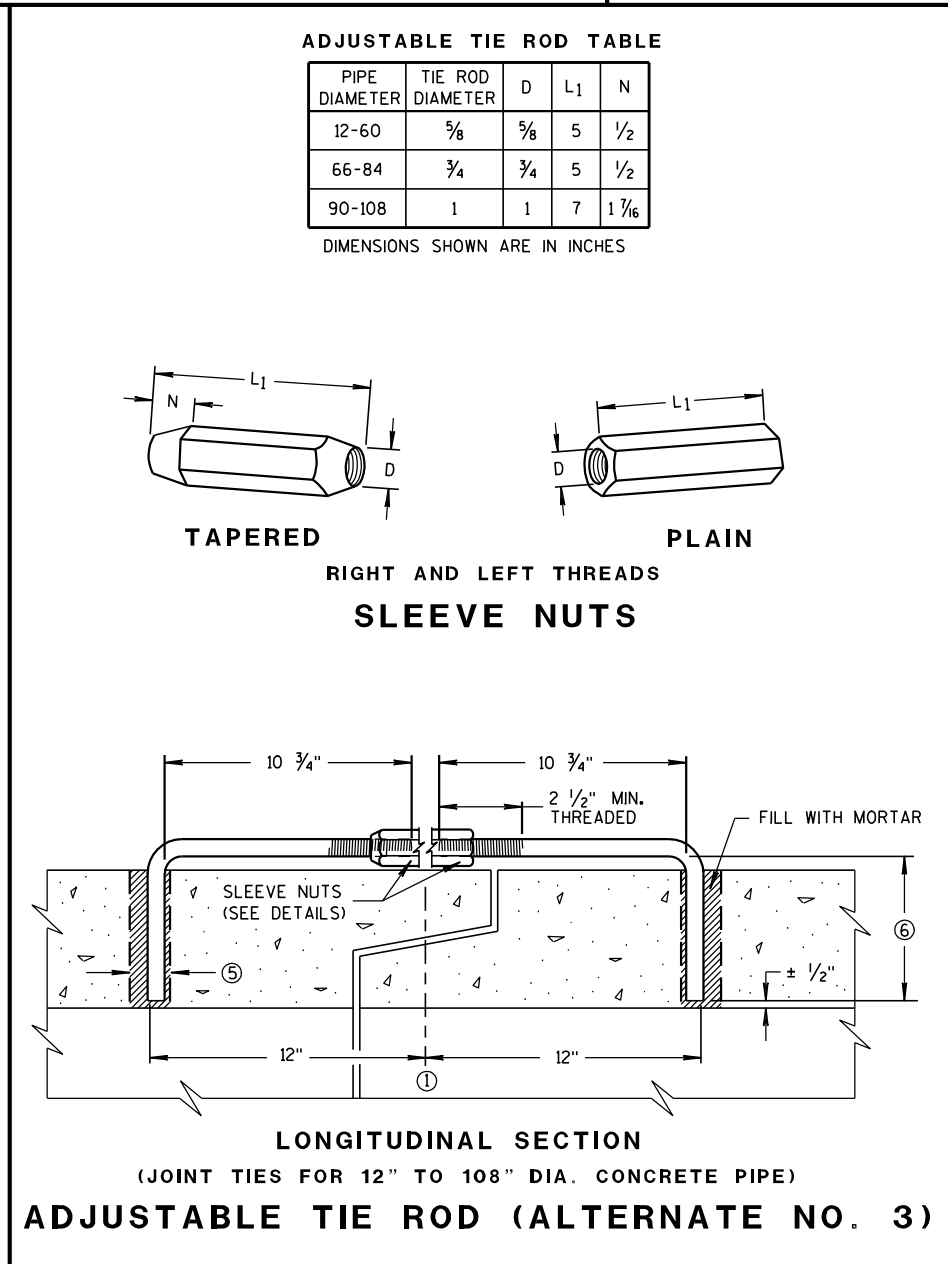
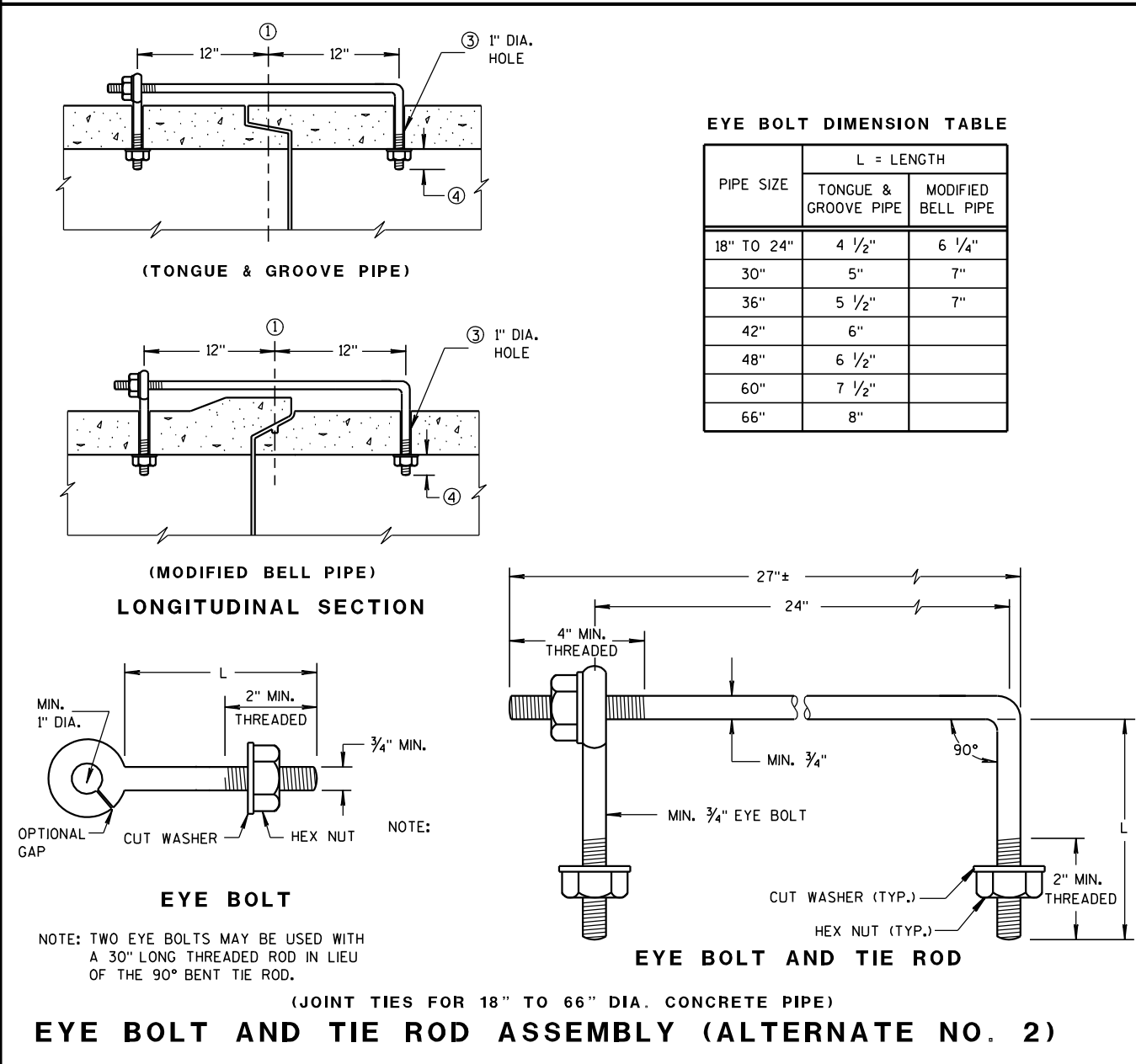
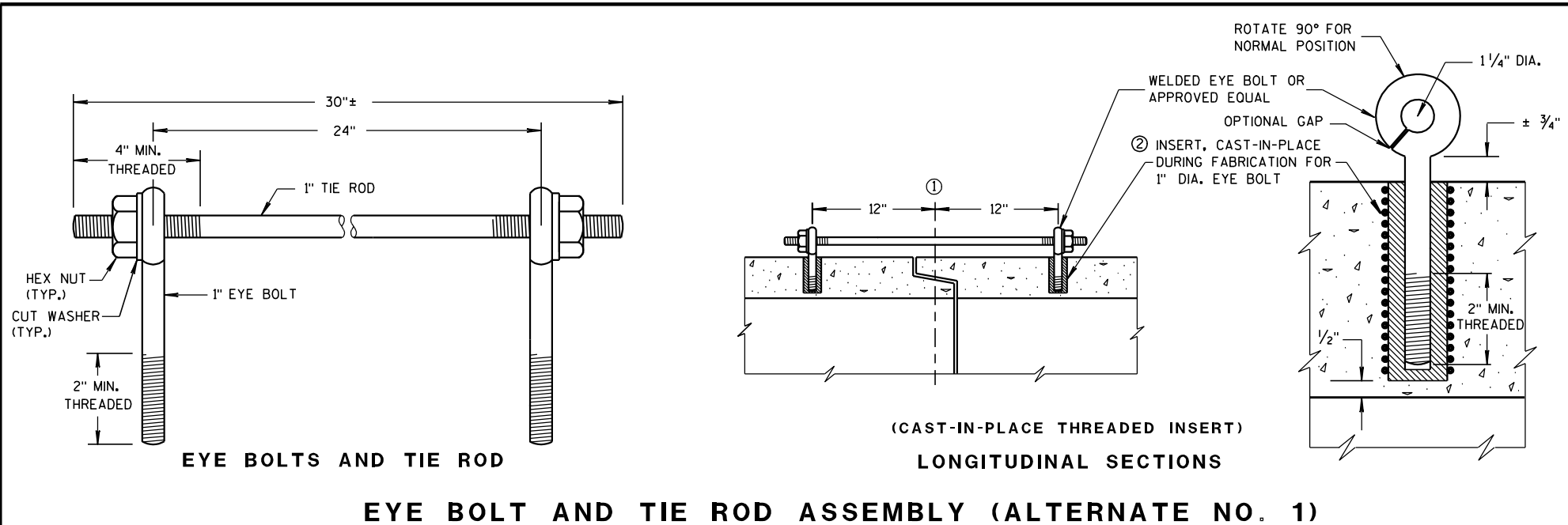
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

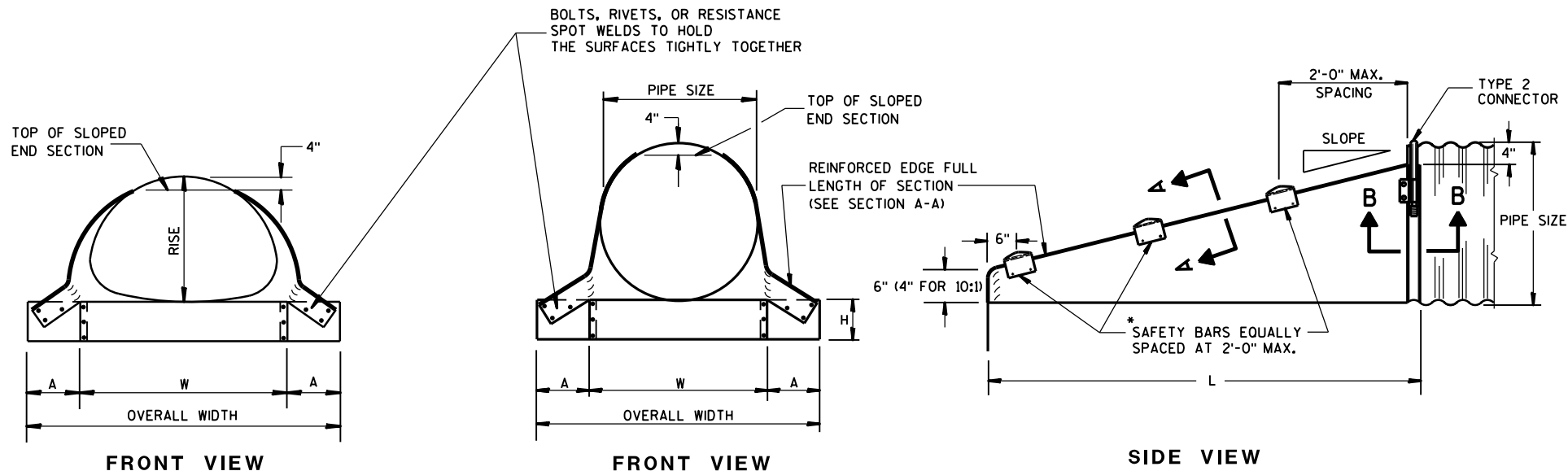
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

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





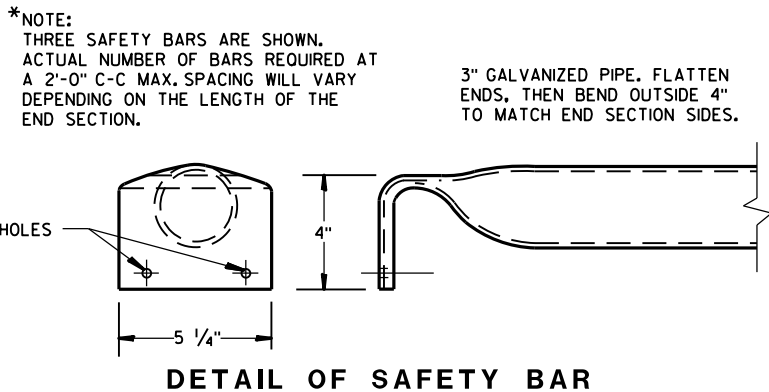
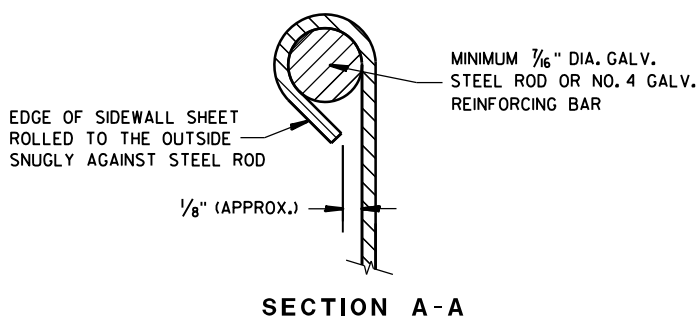
GENERAL NOTES

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.

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

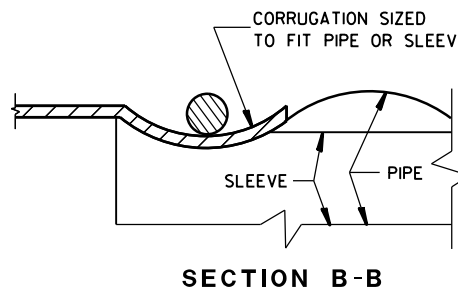
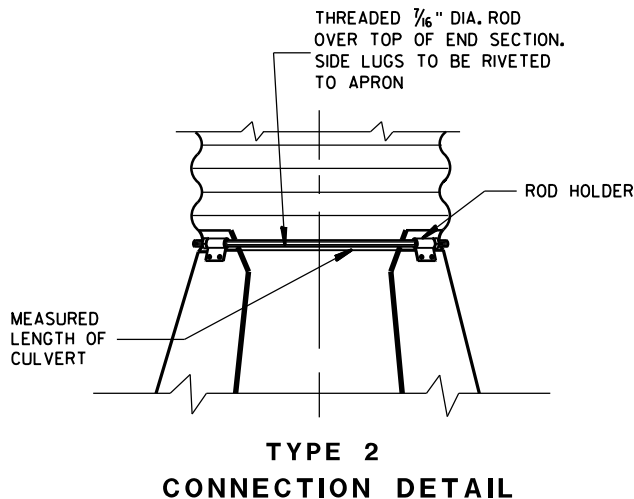
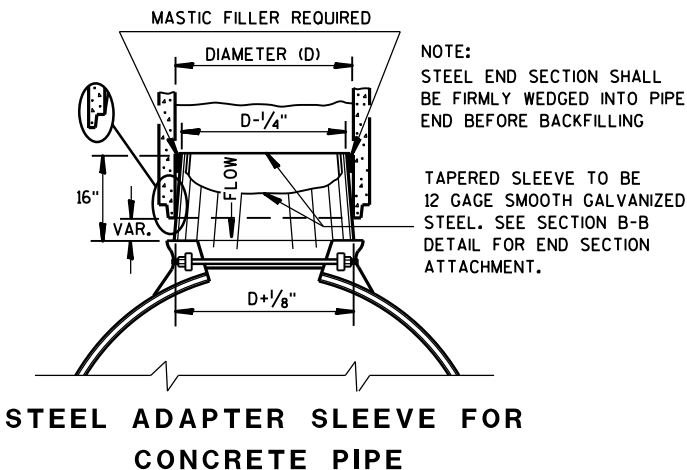
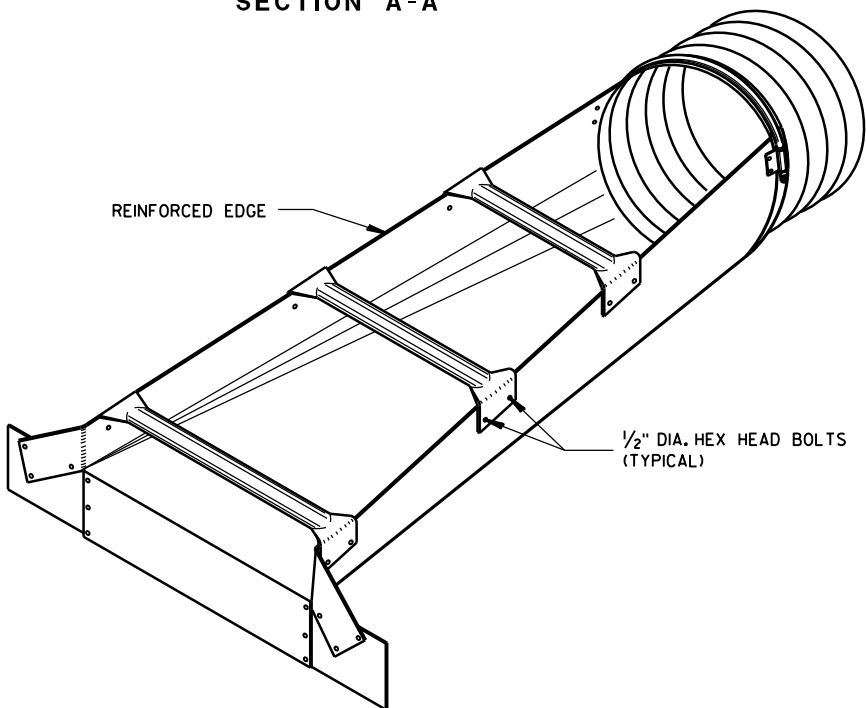
STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS													
EQUIV. DIA. (inches)	(inches)		MIN. THICK. (inches) ①	DIMENSIONS (inches)				L DIMENSIONS					
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30	10:1 ②	70
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30	10:1	70
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48	10:1	100
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60	10:1	120
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84	10:1	160
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114	10:1	210
42	49	33	.109	16	12	55	87	4:1	92	6:1	138	—	—
48	57	38	.109	16	12	63	95	4:1	112	6:1	168	—	—
54	64	43	.109	16	12	70	102	4:1	132	6:1	198	—	—

① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".

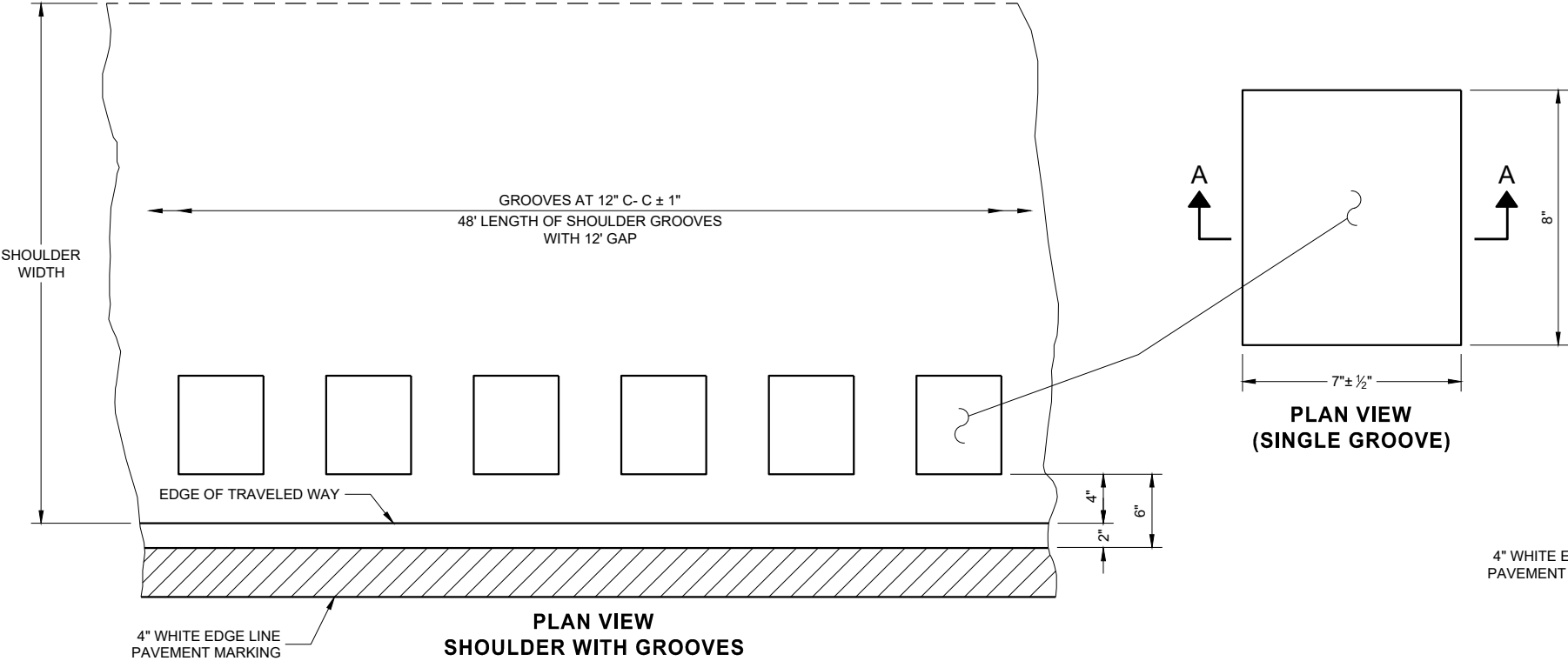
② ACTUAL SLOPE GREATER THAN 10:1.



STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



6

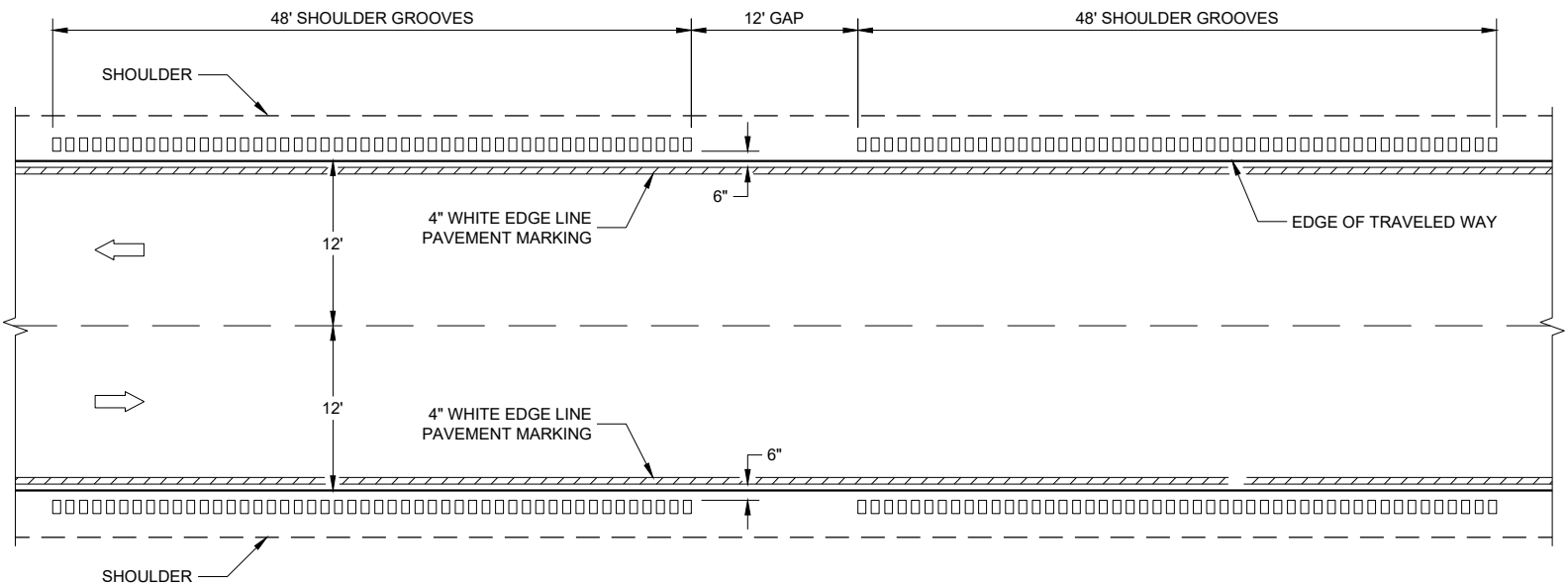
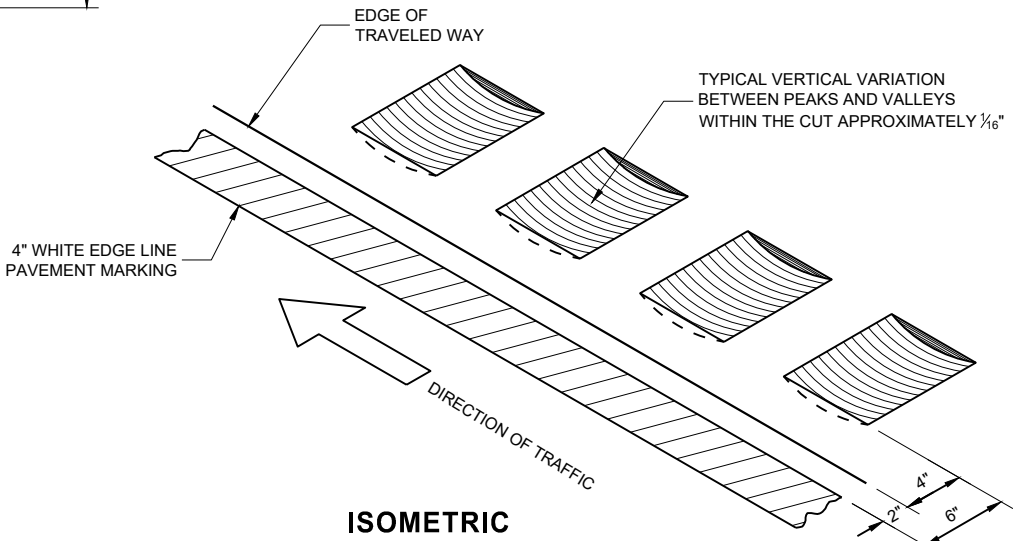
PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP

GENERAL NOTES

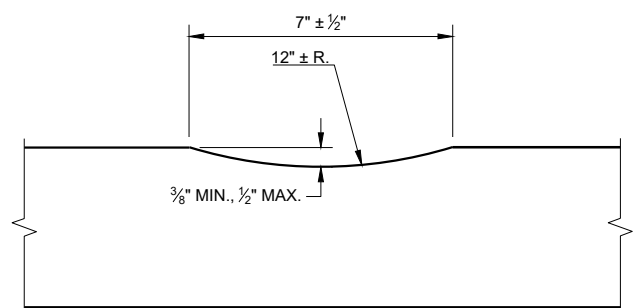
DETAILS OF CONSTRUCTION NO SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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



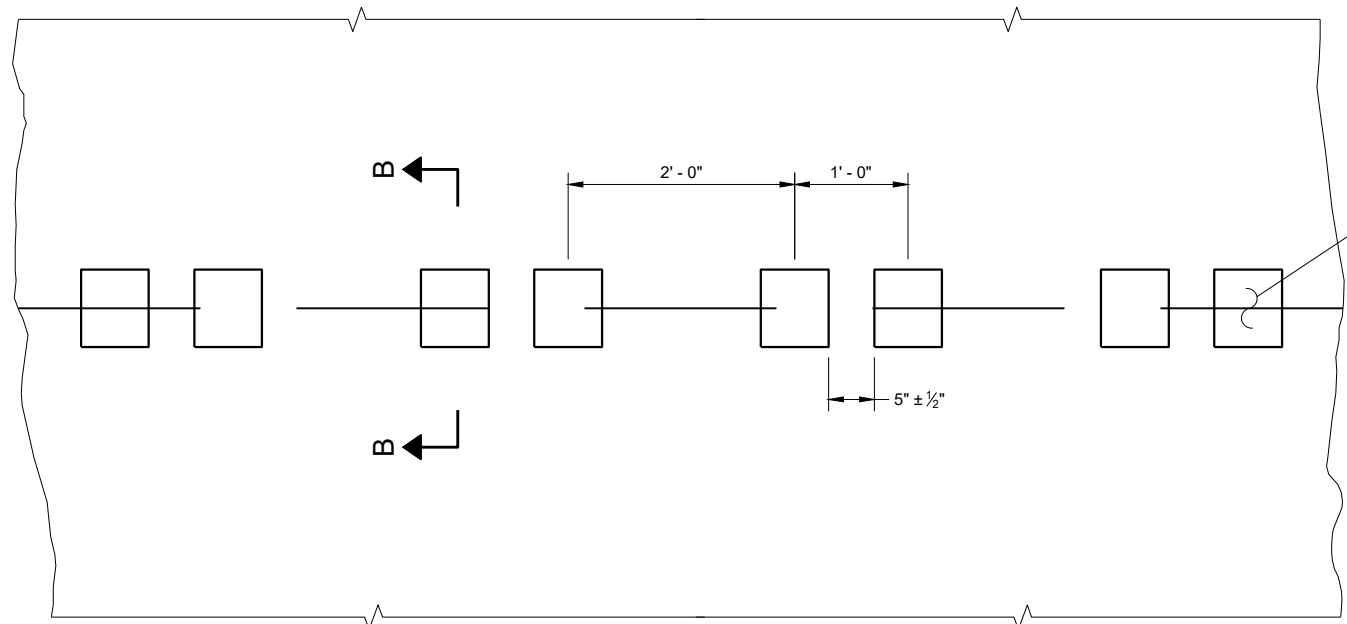
TYPE 1
2 - LANE SHOULDER RUMBLE STRIP



SECTION A - A

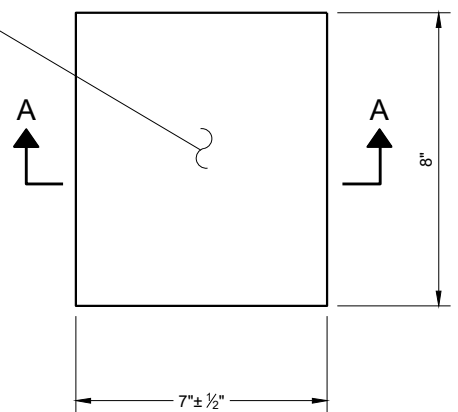
2-LANE RURAL SHOULDER
RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



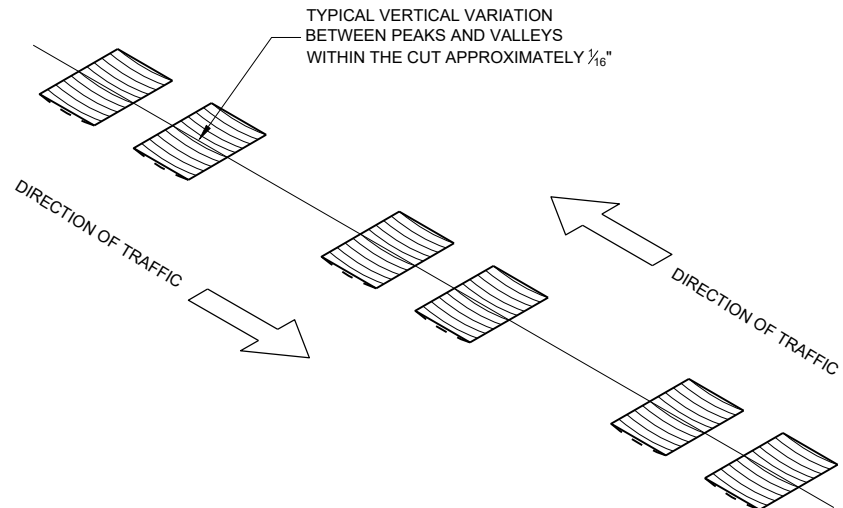
PLAN VIEW
SHOULDER WITH GROOVES

PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP

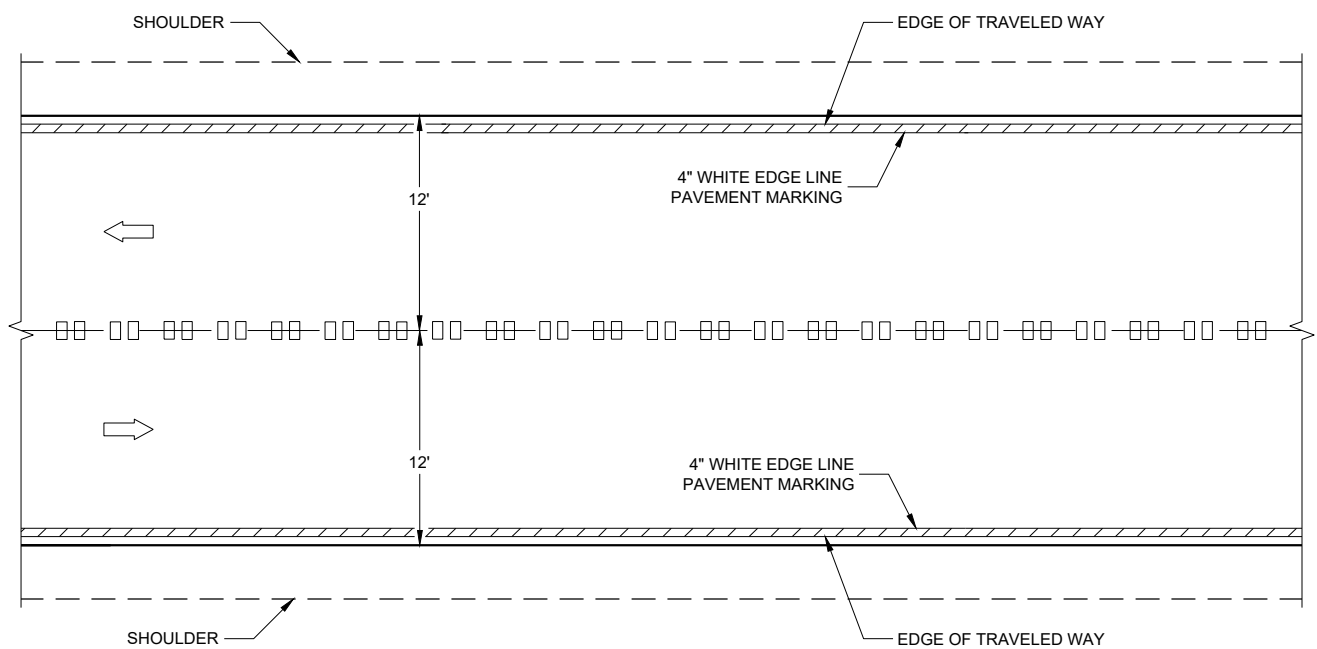


PLAN VIEW
(SINGLE GROOVE)

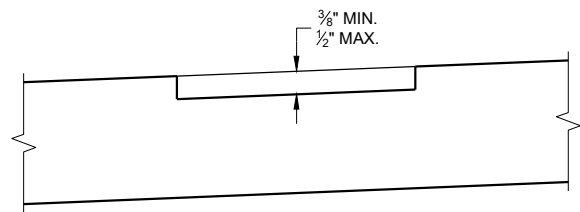
- GENERAL NOTES**
- DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.
- DO NOT MILL CENTERLINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.
- INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.
- SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.
- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS. WHEN DIRECTED BY THE ENGINEER.



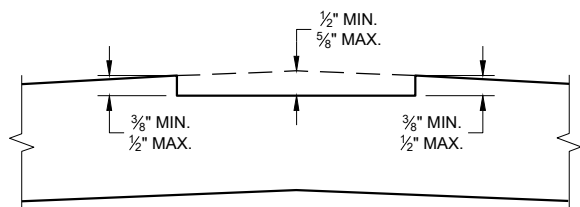
ISOMETRIC



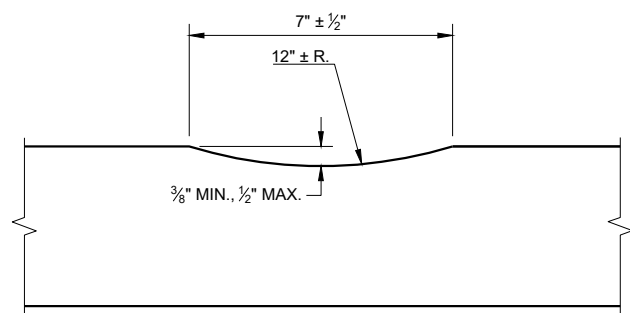
CENTERLINE GROOVES ON TWO-WAY ROADWAYS



SECTION B - B
SUPERELEVATED ROADWAY

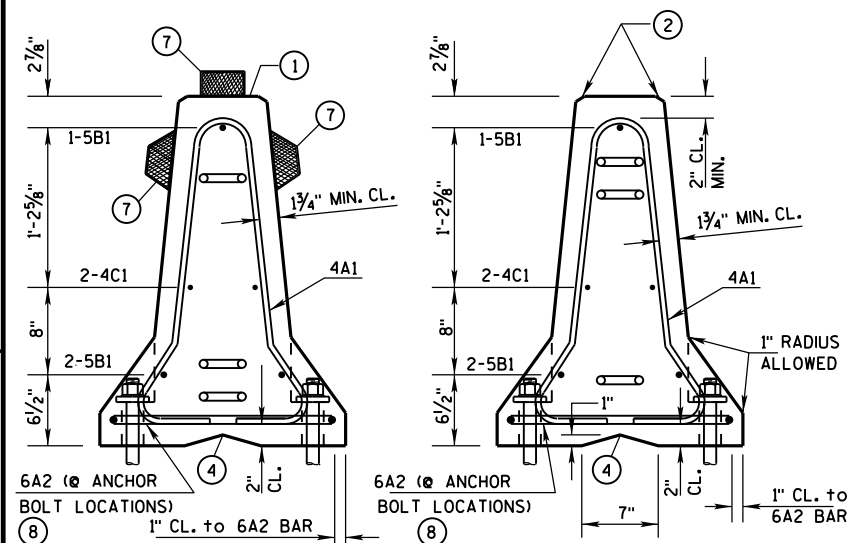
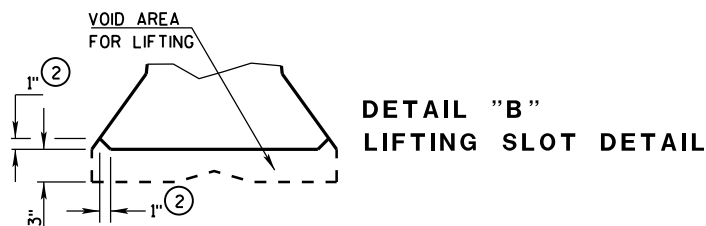
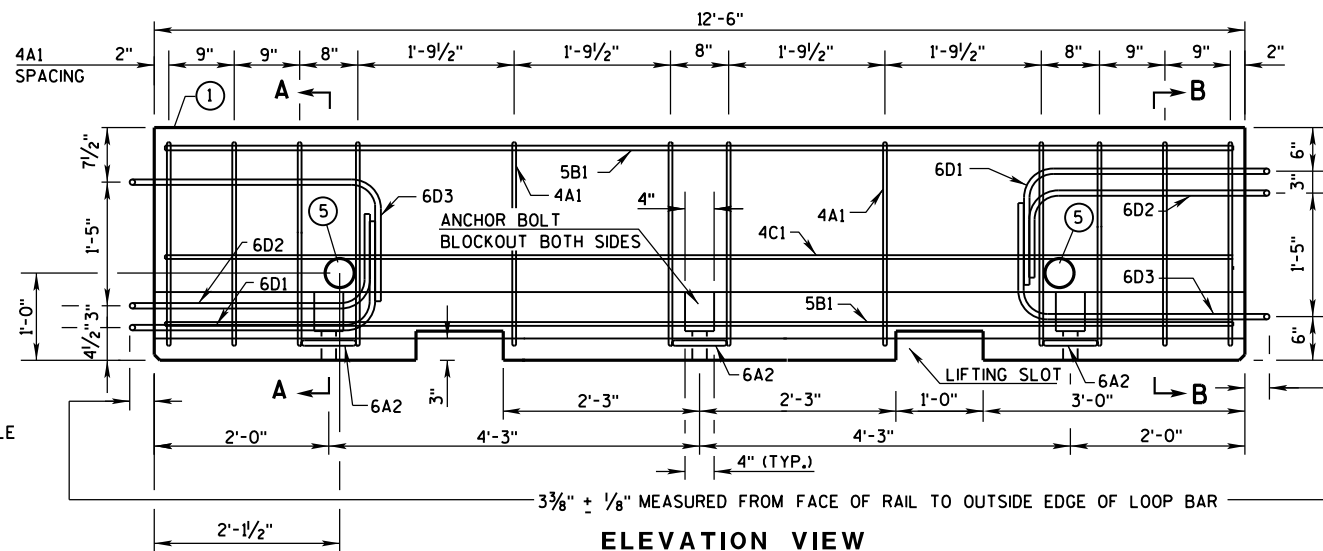


SECTION B - B
CROWNED ROADWAY



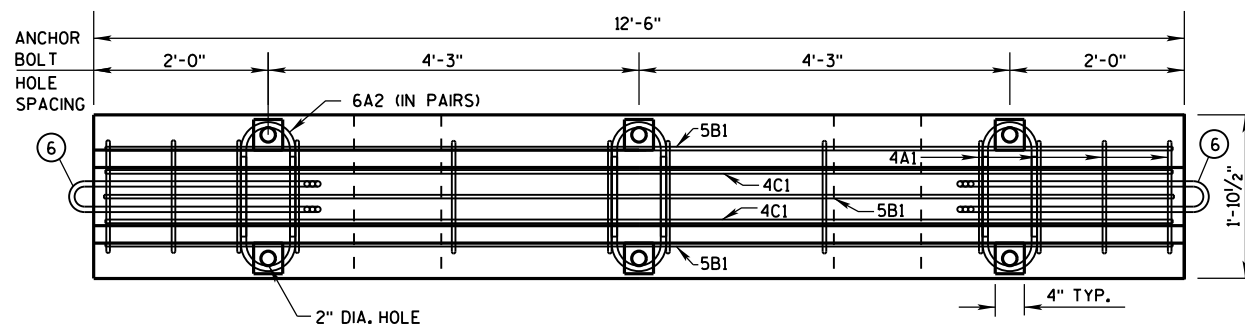
SECTION A - A

2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



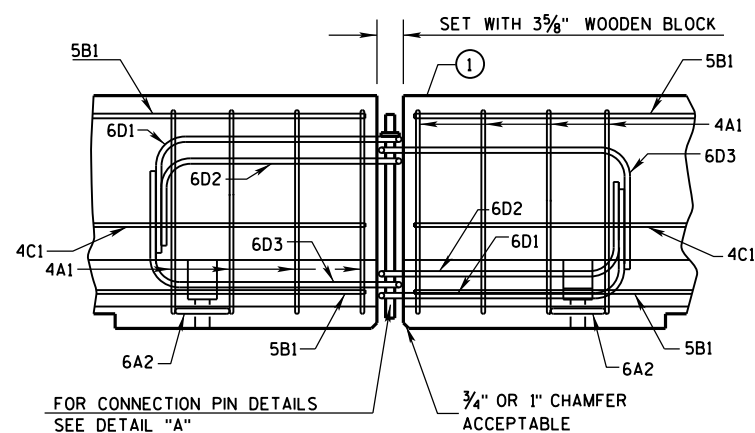
SECTION A-A
(STIRRUP PLACEMENT)

SECTION B-B
(STIRRUP PLACEMENT)

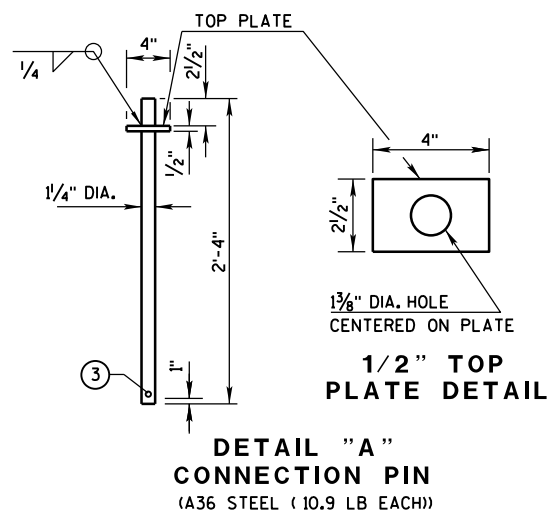


PLAN VIEW

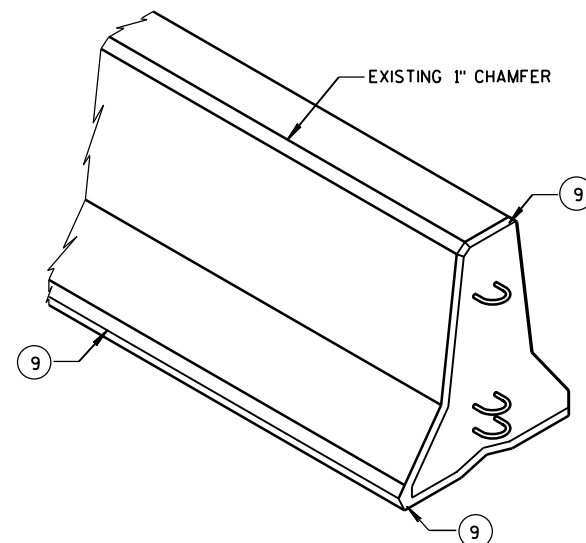
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE $\frac{3}{4}$ " SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A $3\frac{1}{2}$ " PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN $\frac{1}{4}$ " OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

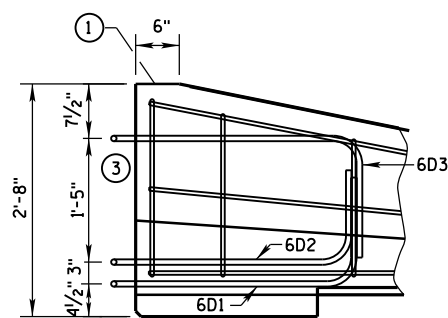
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS.
PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE: WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ A $\frac{3}{8}$ " HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- ④ "V" NOTCH IS OPTIONAL.
- ⑤ THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- ⑥ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- ⑦ USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- ⑧ SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- ⑨ 1" CHAMFER OPTIONAL.

 $f'_c = 4,000 \text{ psi}$

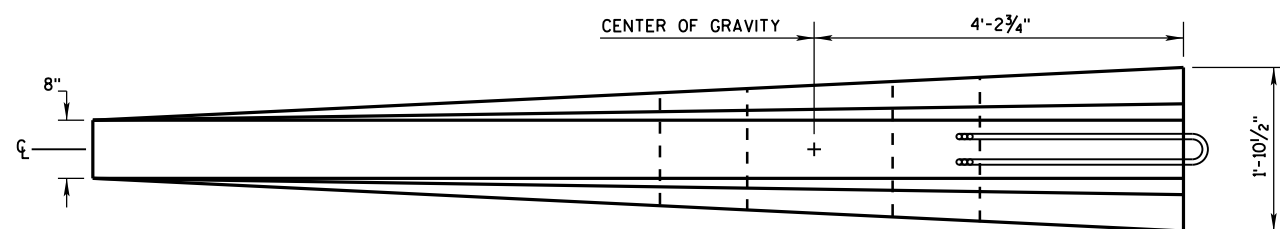
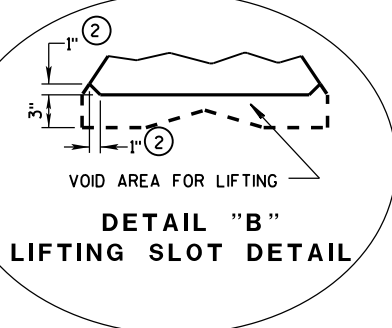
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

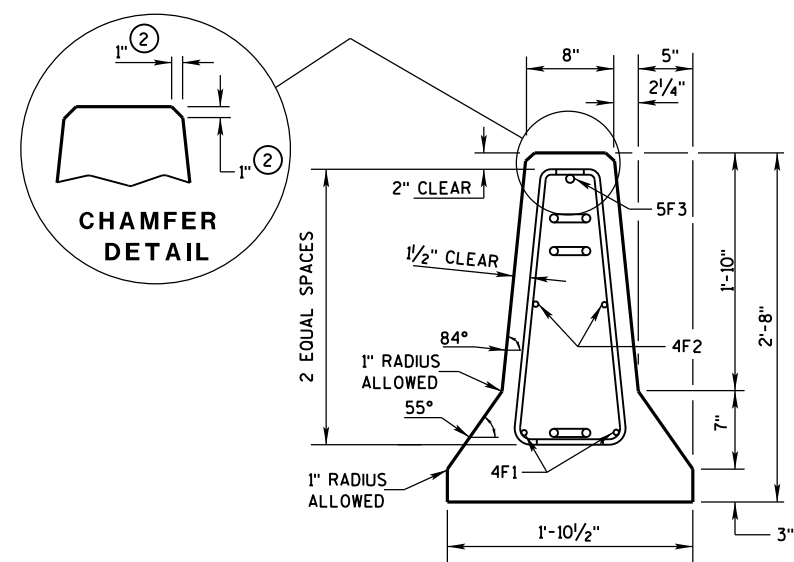


LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

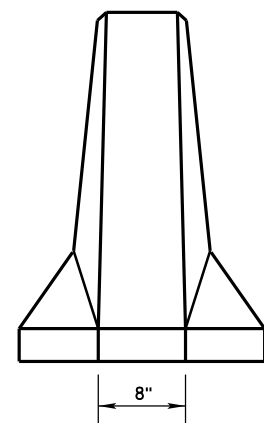
- ## GENERAL NOTES
- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
 - ② 1" CHAMFER TO PREVENT SPALLING.
 - ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



PLAN VIEW

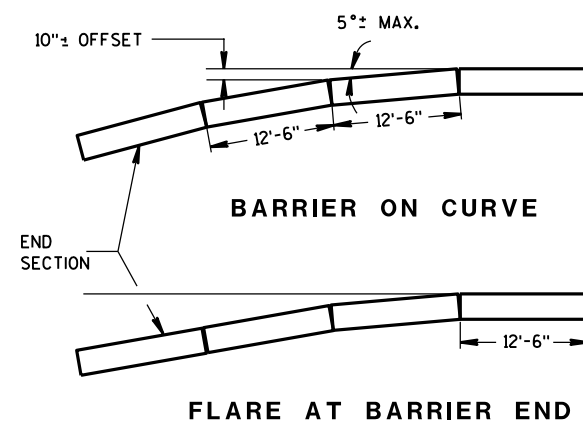


END SECTION



FRONT ELEVATION

DETAILS OF BARRIER TAPER SECTION



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

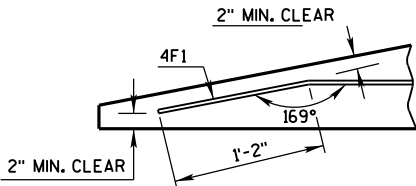
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

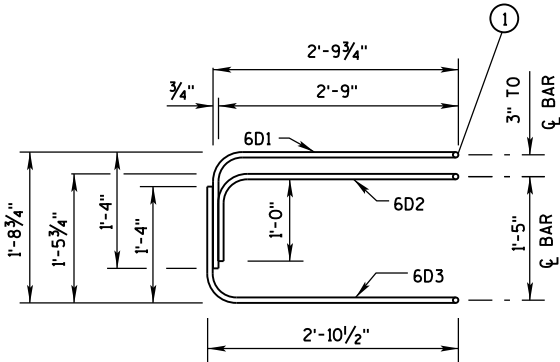
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

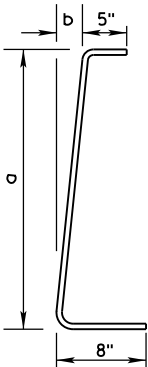
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

TAPER BARRIER SECTION

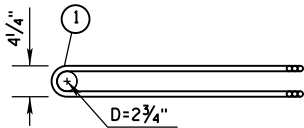
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION
BILL OF MATERIALS

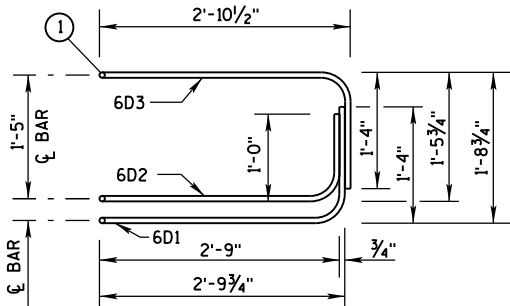
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"

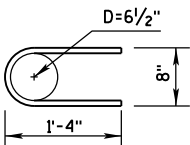


PLAN VIEW
LOOP BAR ASSEMBLY

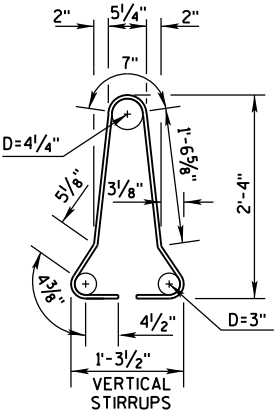
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

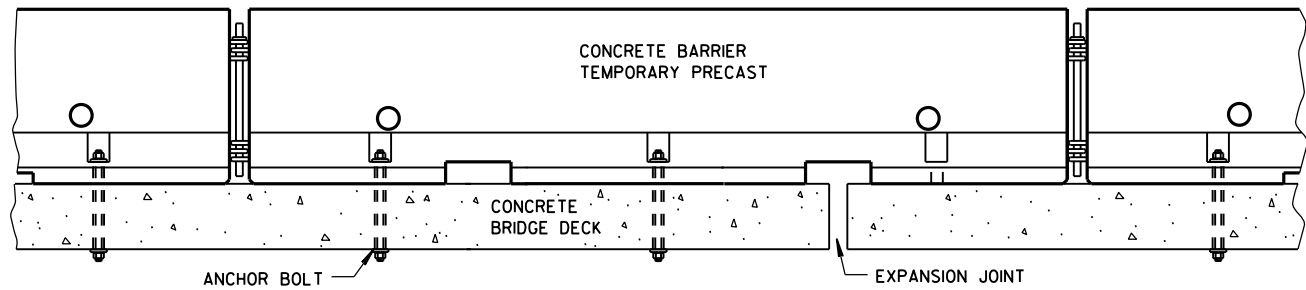
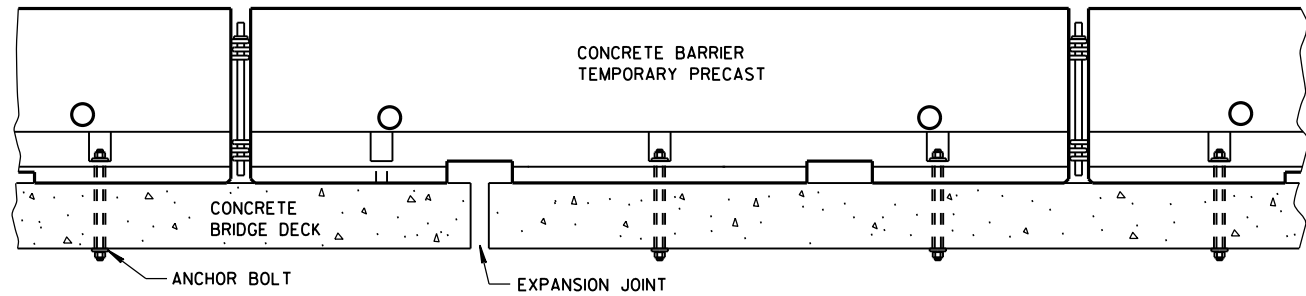


4A1

BARRIER SECTION

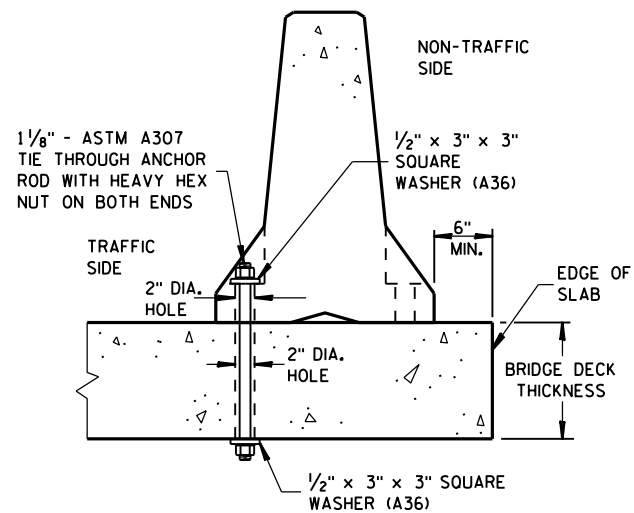
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



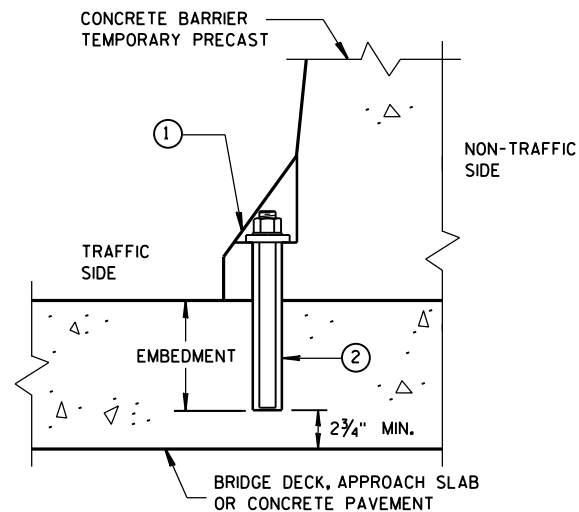
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



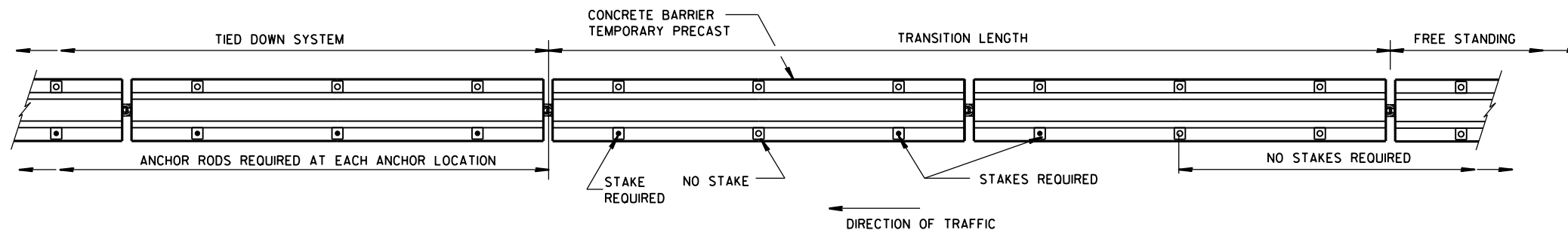
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

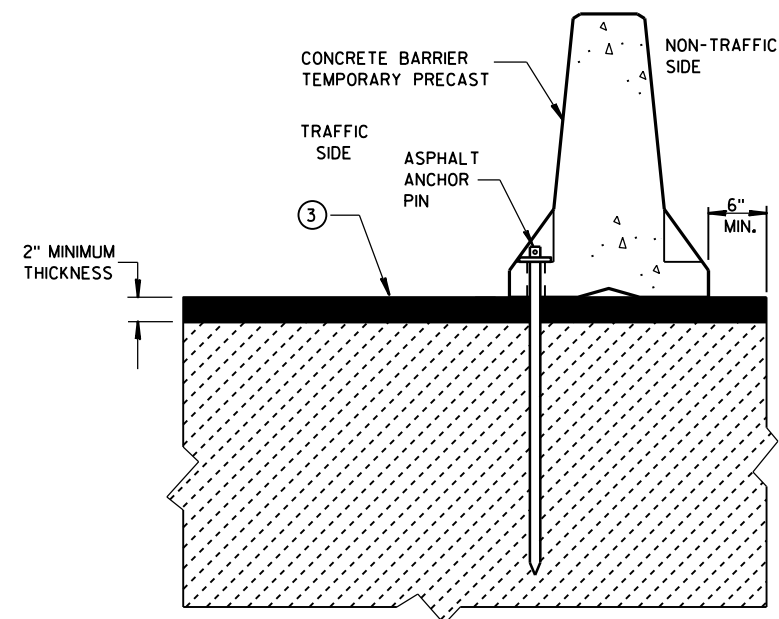
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

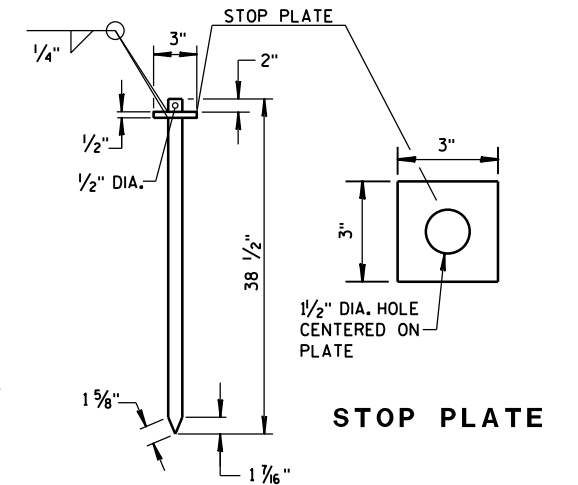
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.12 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE

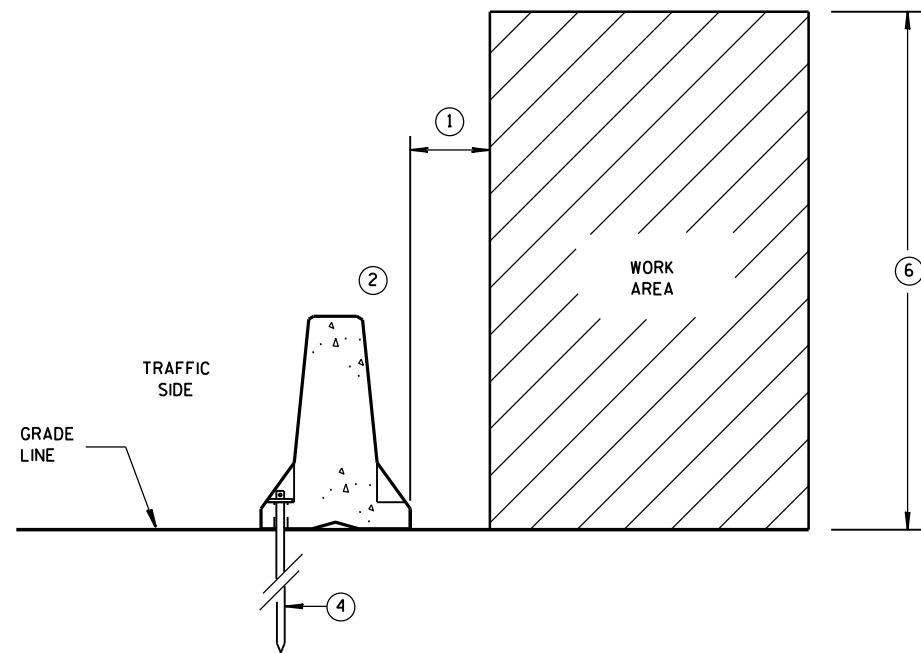


ASPHALT ANCHOR PIN

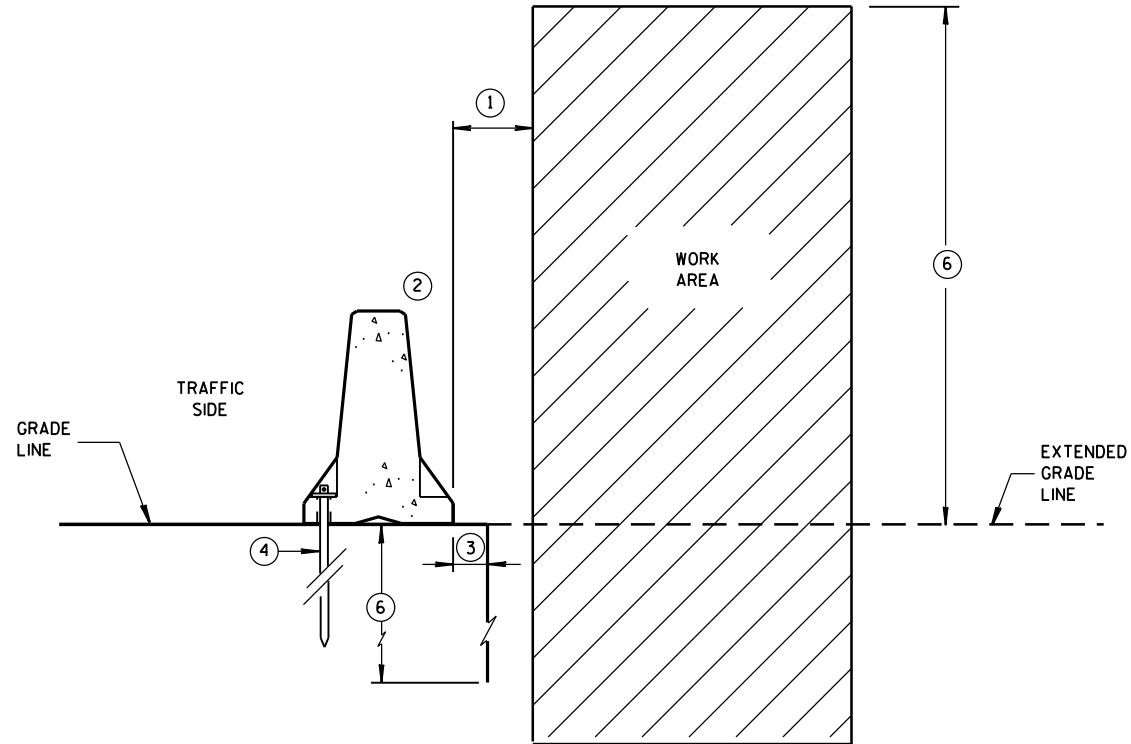
(ASTM A36 STEEL)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

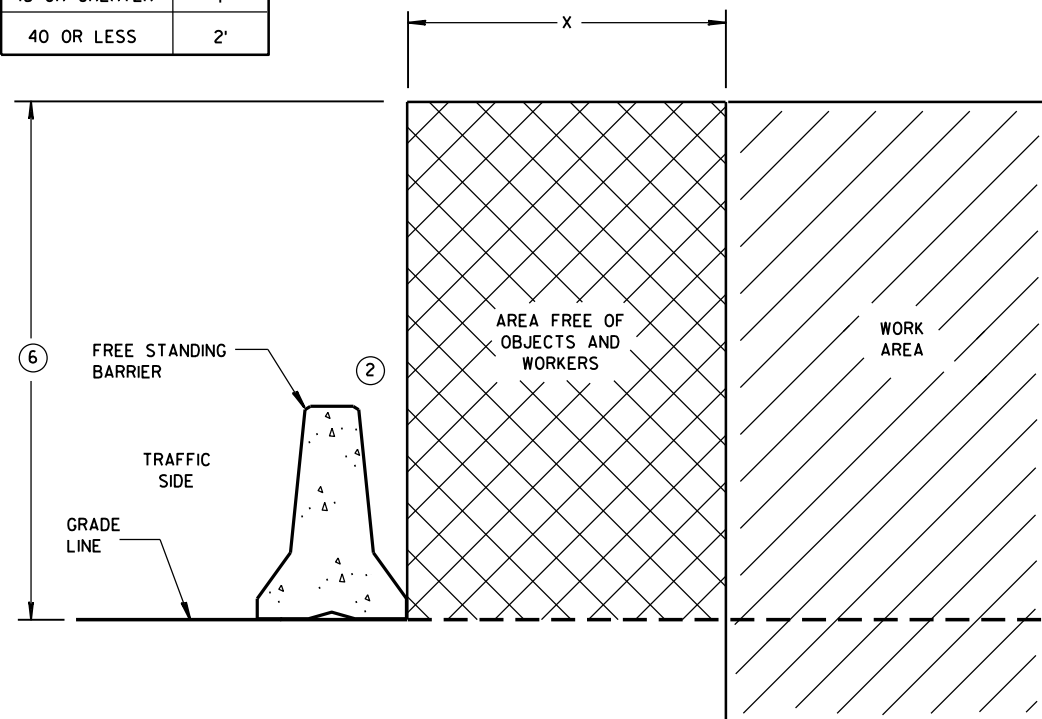


**ANCHORED BARRIER SPACE REQUIREMENTS
FOR HAZARDS EXTENDED
ABOVE THE GRADE LINE**

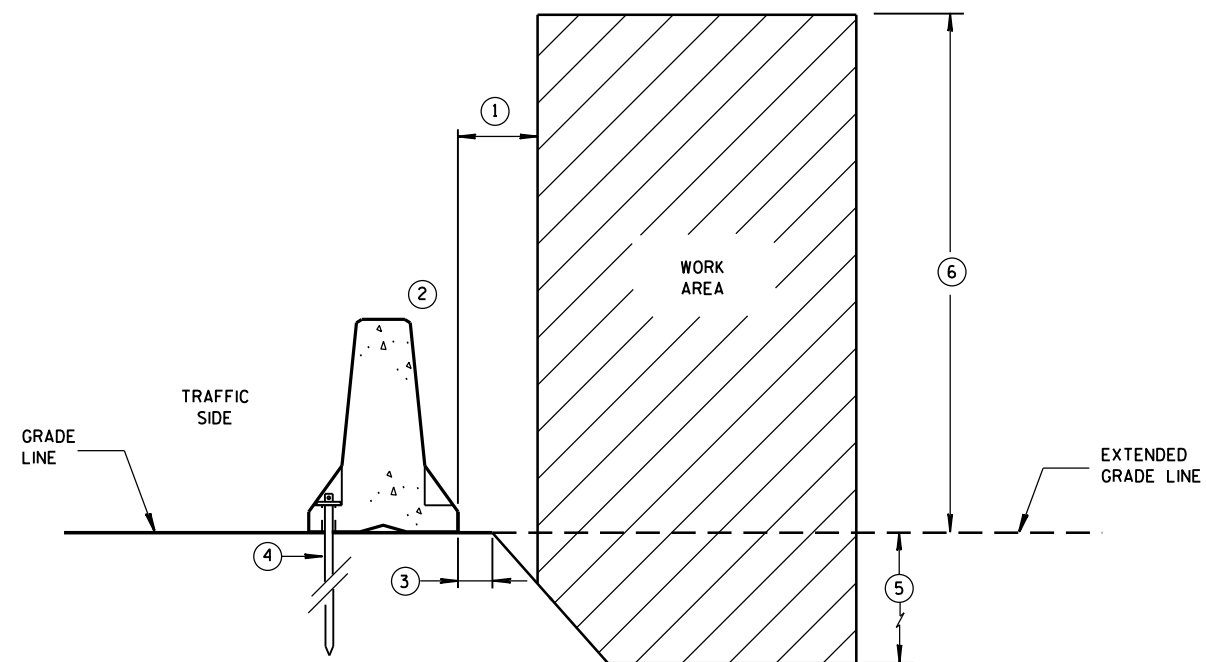


**ANCHORED BARRIER SPACE REQUIREMENTS
ON VERTICAL DROP OFFS**

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



FREE STANDING BARRIER SPACE REQUIREMENTS



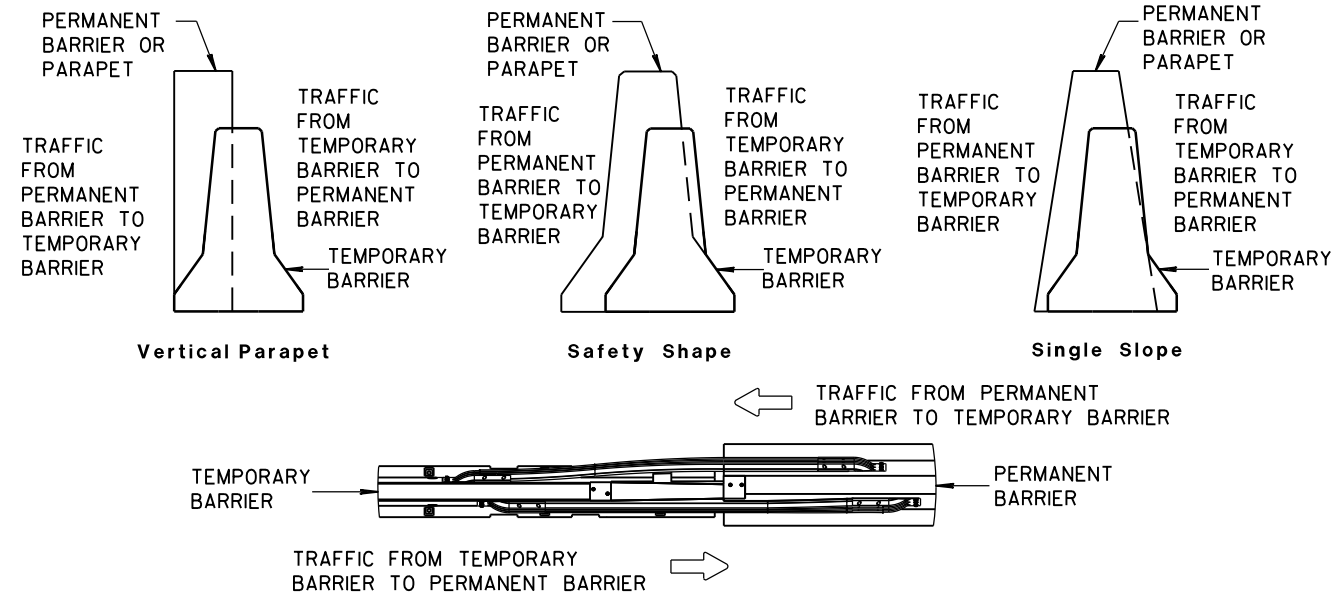
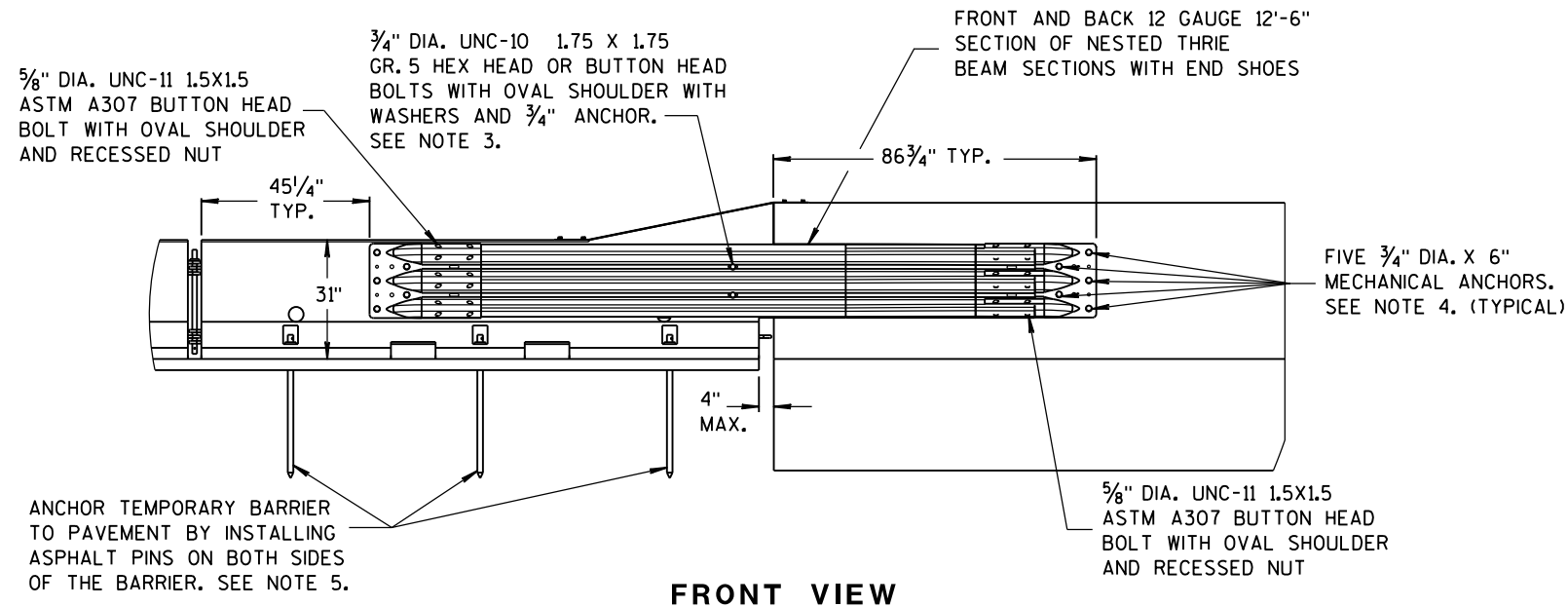
**ANCHORED BARRIER SPACE REQUIREMENTS
ON SLOPES**

GENERAL NOTES

- 1 WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- 2 OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- 3 SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- 4 SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- 5 DEPTH OF 3 FEET OR MORE.
- 6 Y = 6'-6".

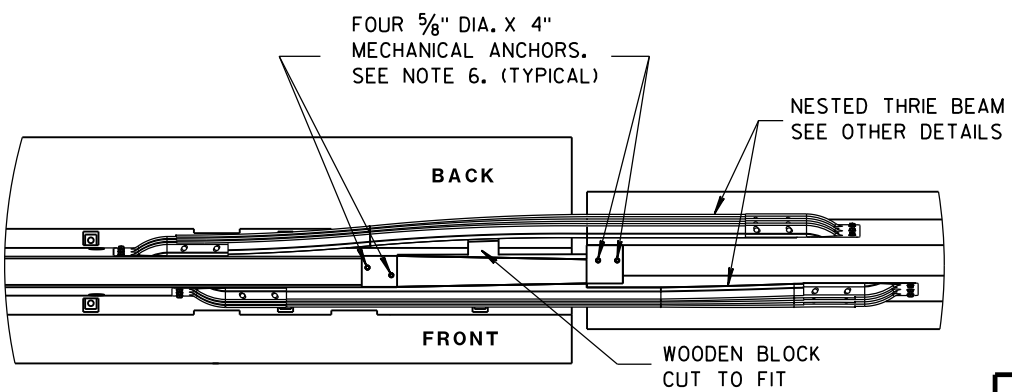
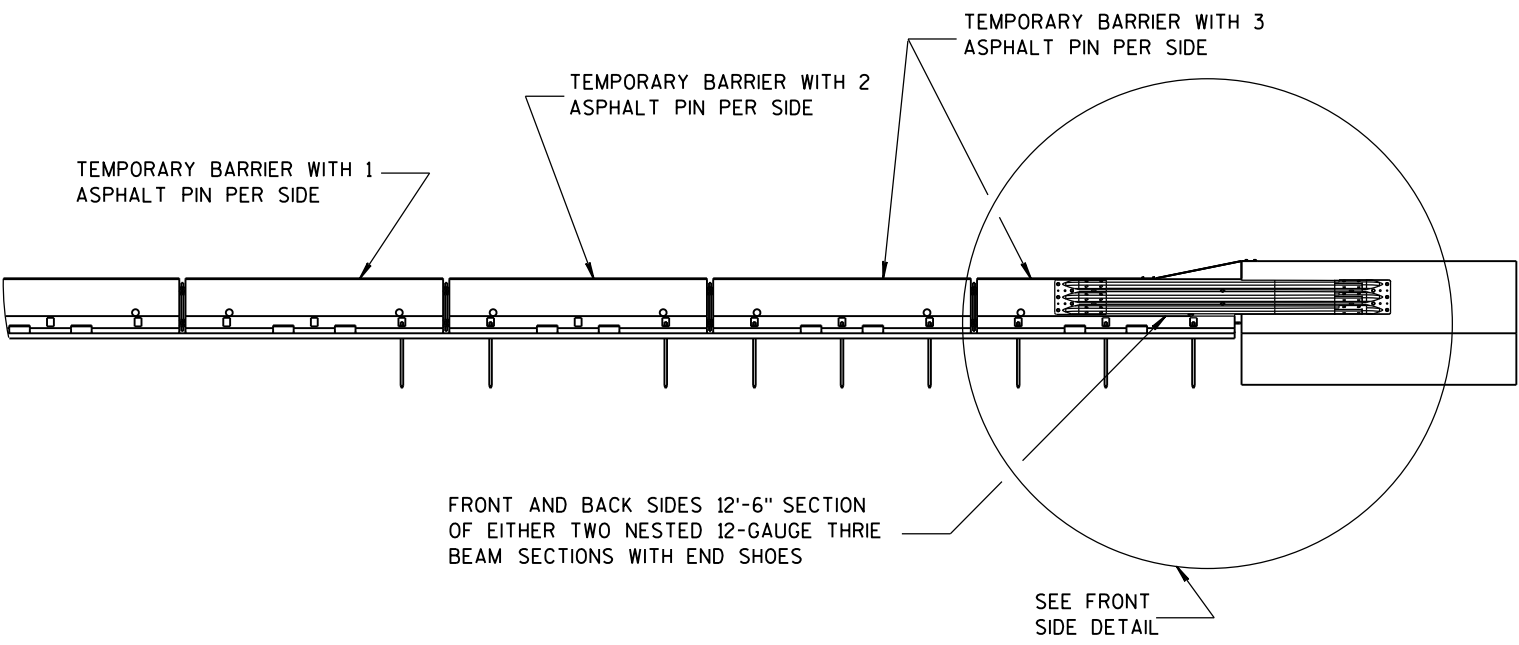
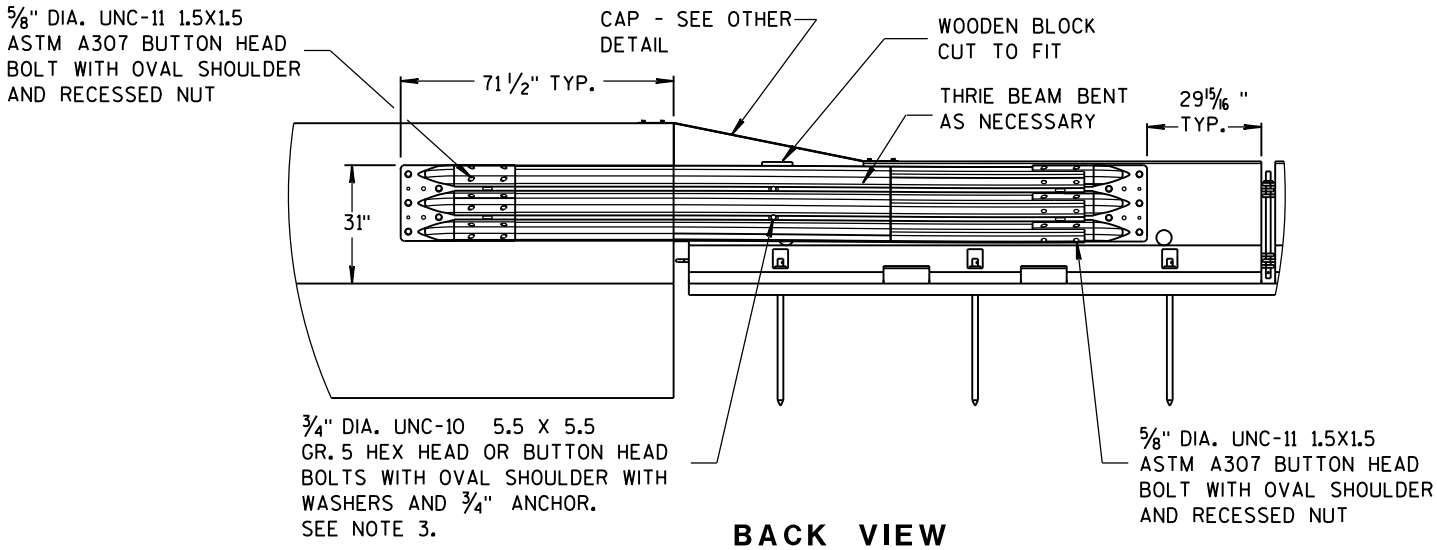
**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

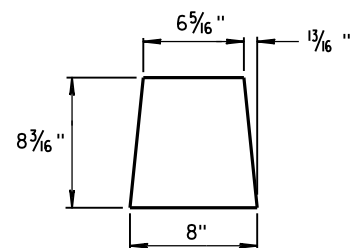
- NOTES**
- NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.
- CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
 - THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
 - MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
 - MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
 - MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
 - MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



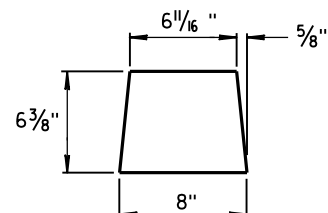
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

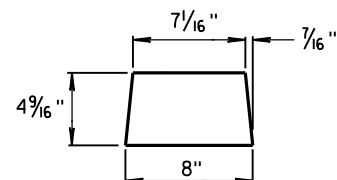
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



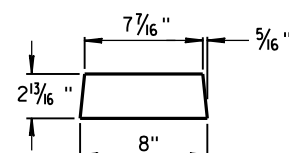
GUSSET 1



GUSSET 2

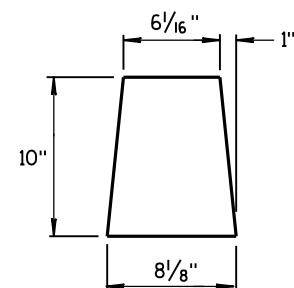


GUSSET 3

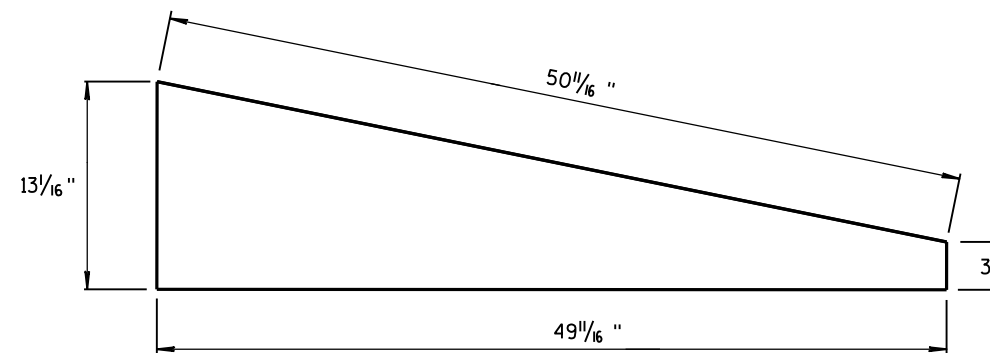


GUSSET 4

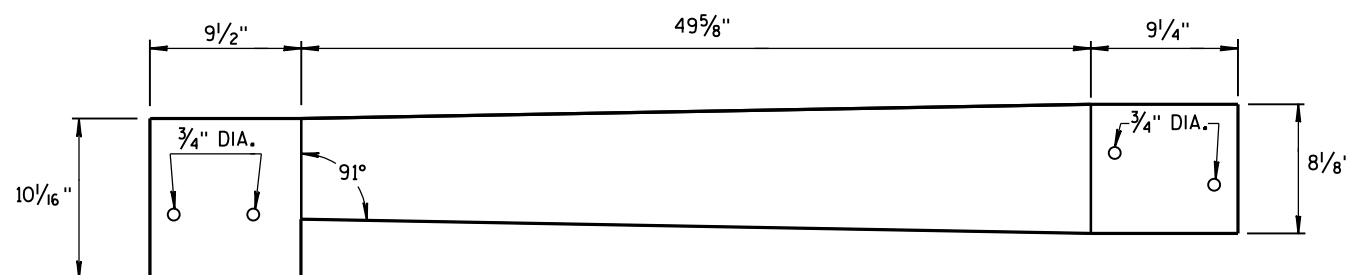
GUSSETS



END PLATE



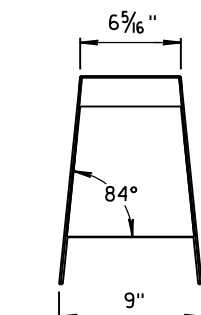
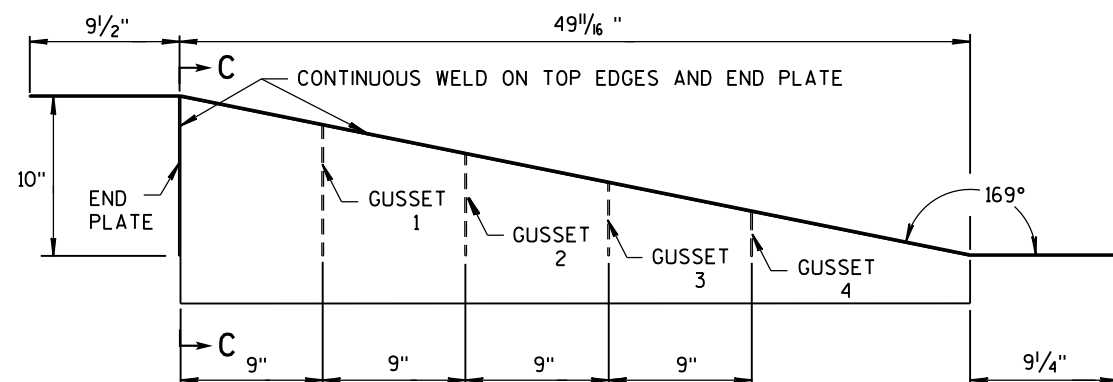
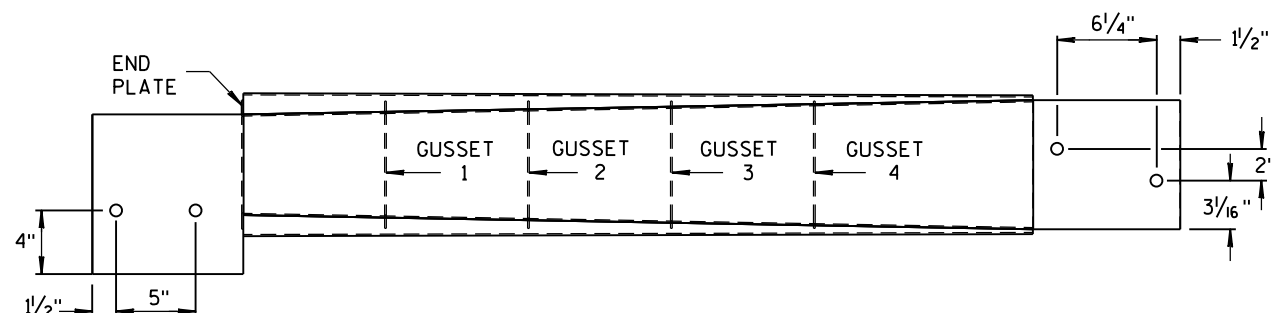
SIDE PLATE



TOP PLATE

**SIDE, TOP AND END PLATES FOR CAP
FROM TEMPORARY CONCRETE BARRIER
TO 42" PERMANENT CONCRETE BARRIER**

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C

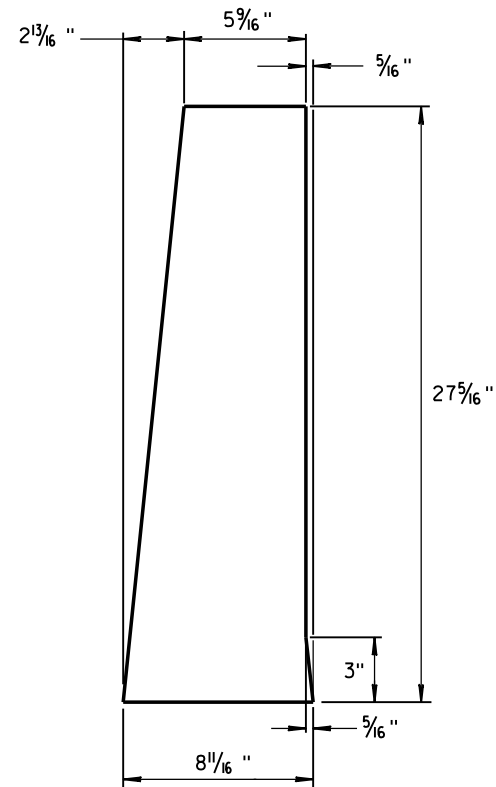
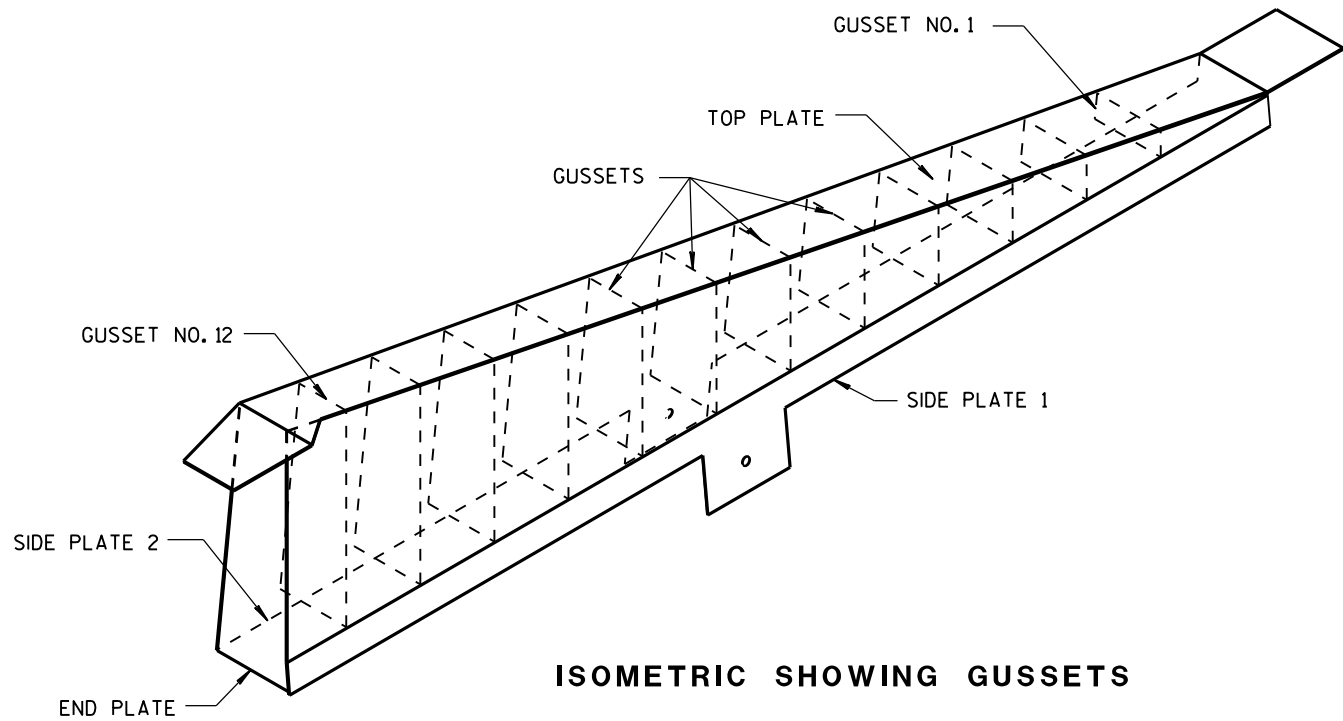
NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

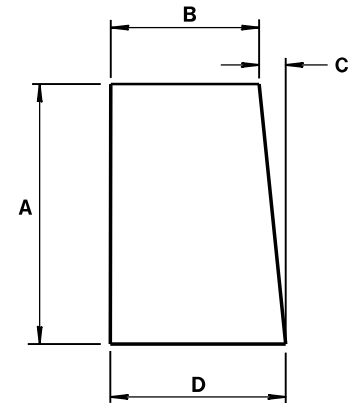
**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



1/8" STEEL PLATE

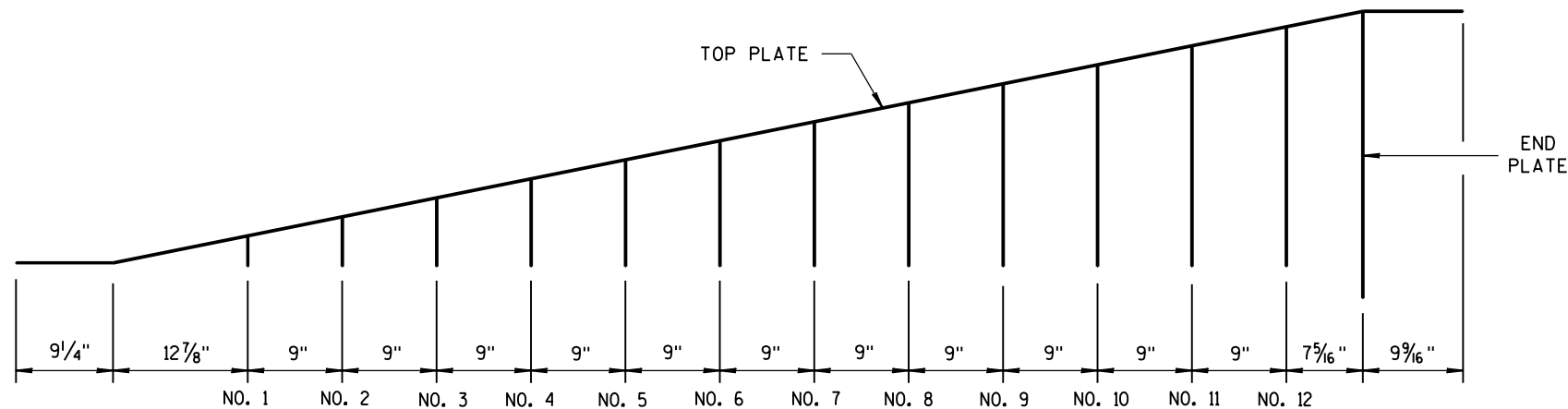


ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8 "	1 1/16 "	8 1/16 "
4	8 5/16 "	7 3/16 "	7/8"	8 1/16 "
5	10 1/8 "	7"	1 1/16 "	8 1/16 "
6	11 5/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8 "	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16 "	6 1/16 "	1 15/16 "	8 1/16 "
11	21"	5 7/8 "	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

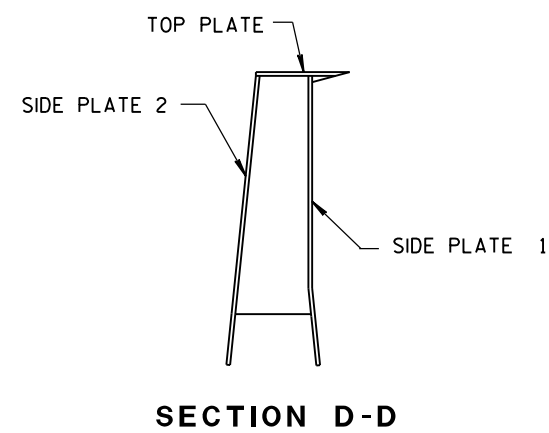
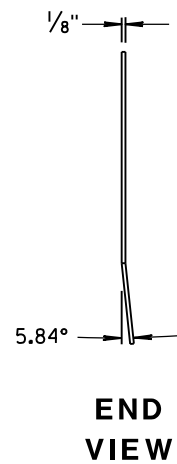
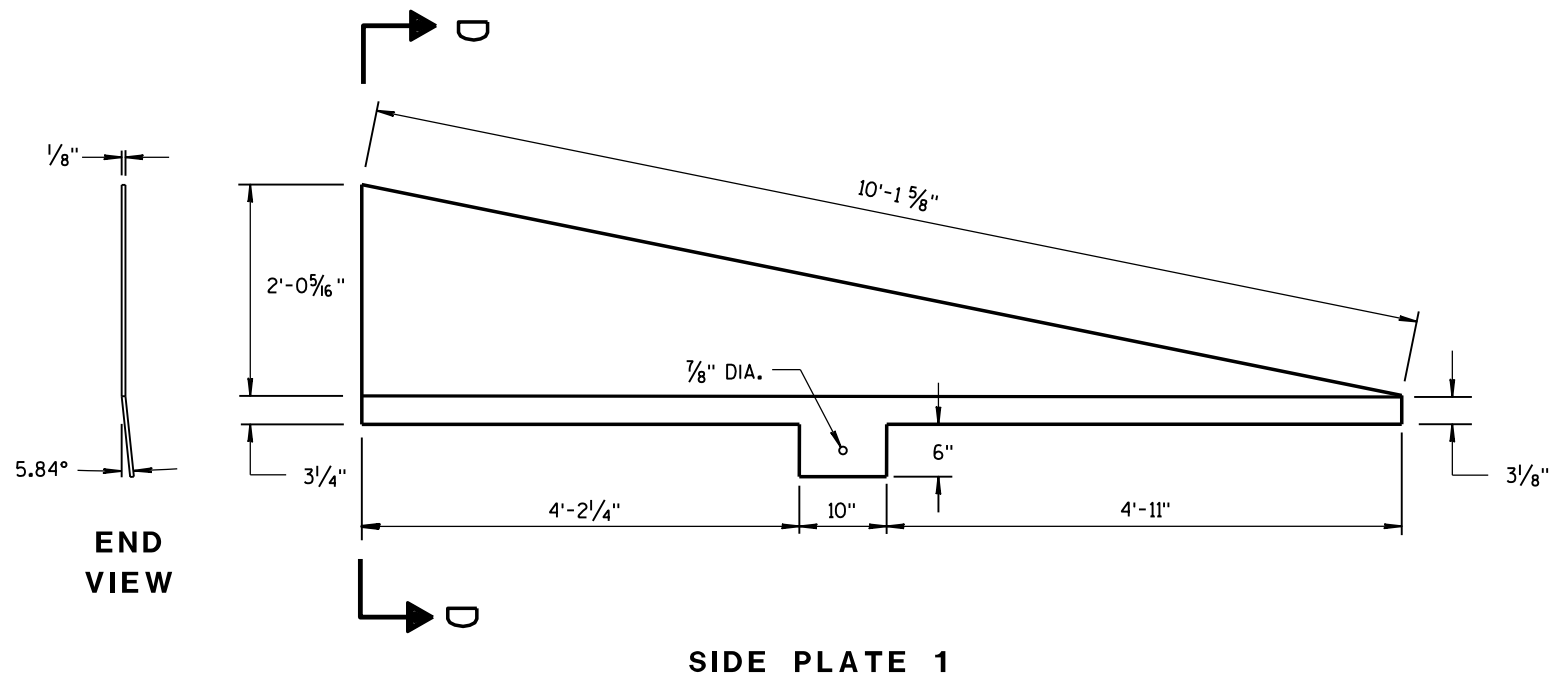
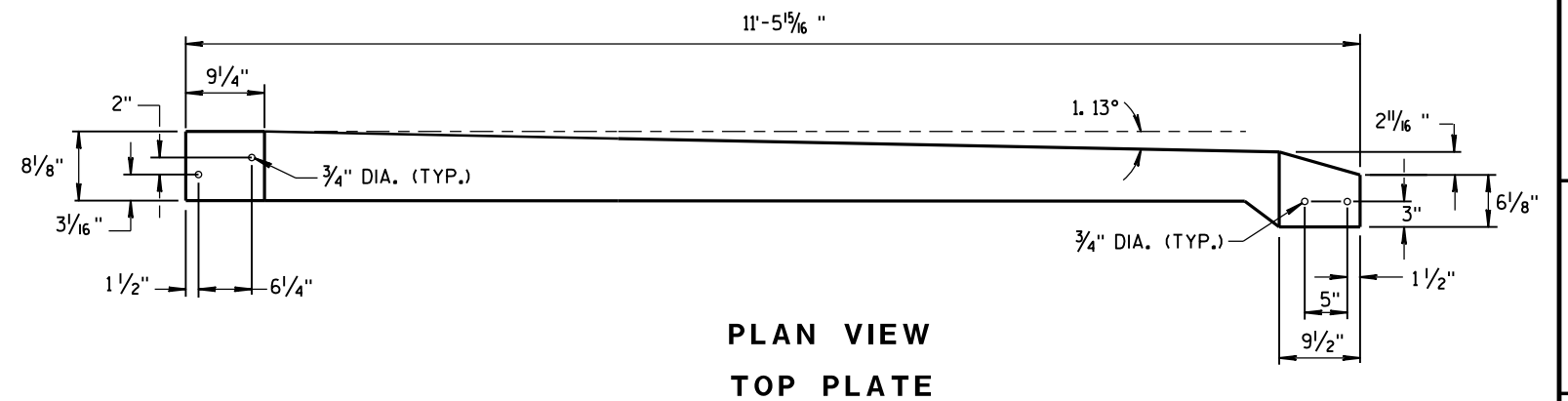
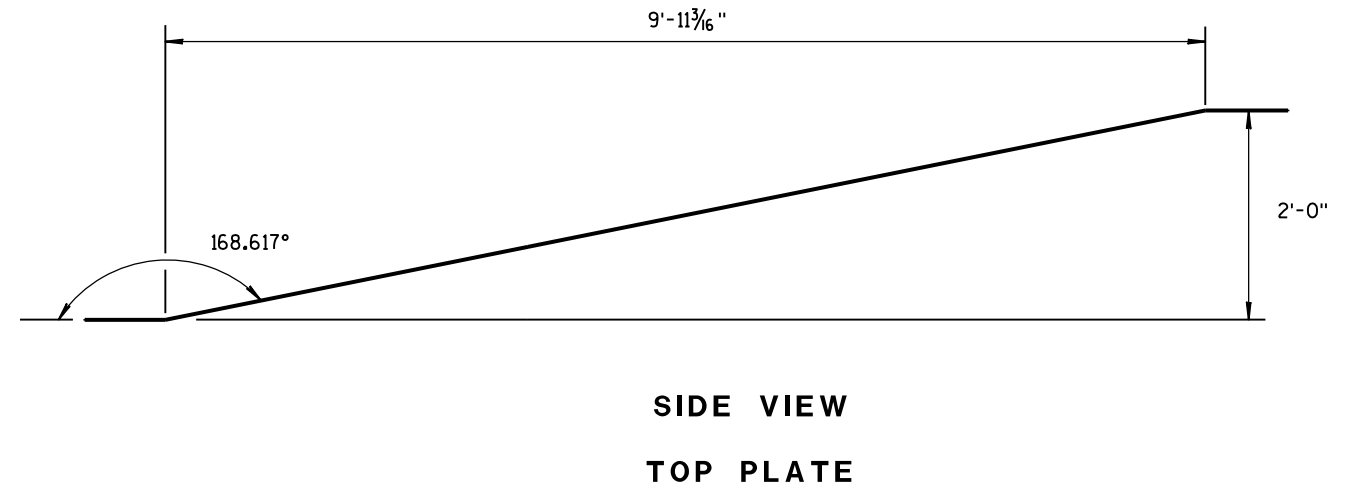
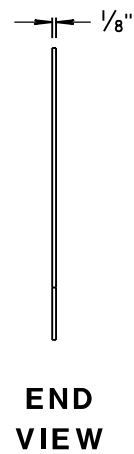
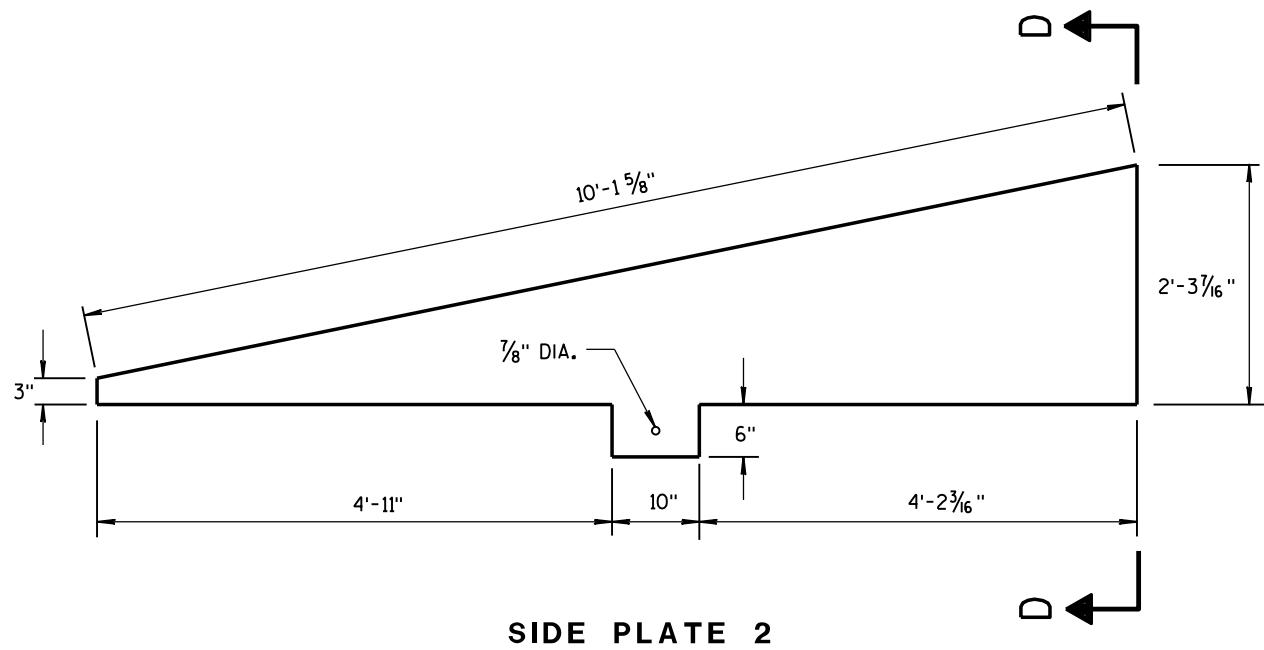
GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

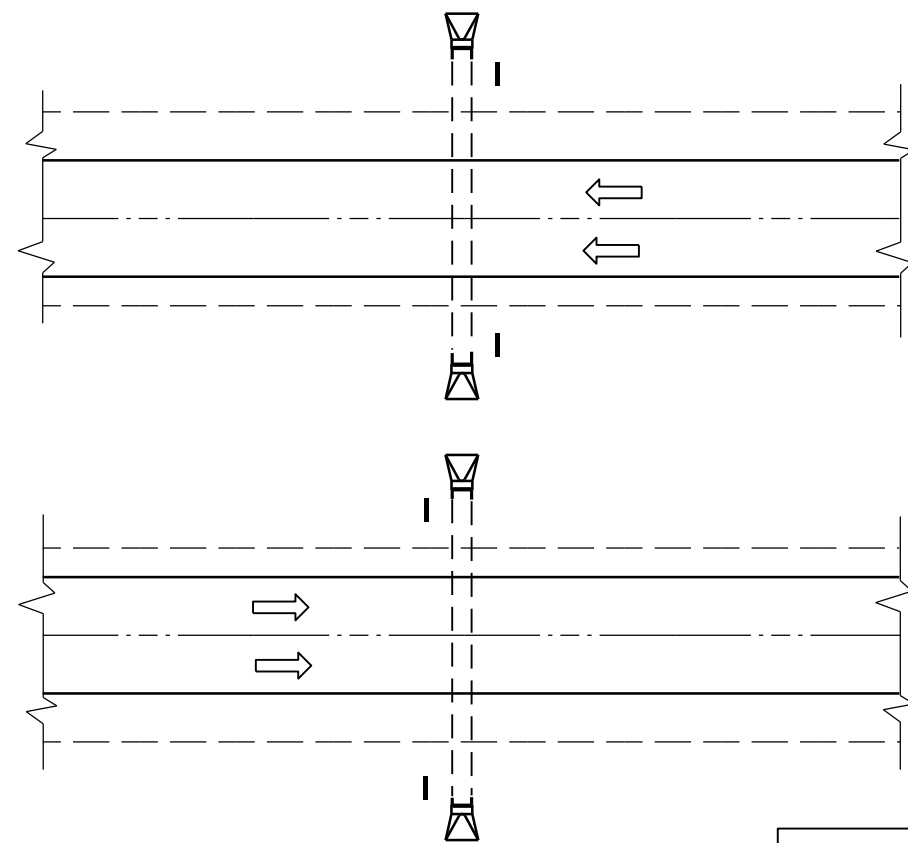
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

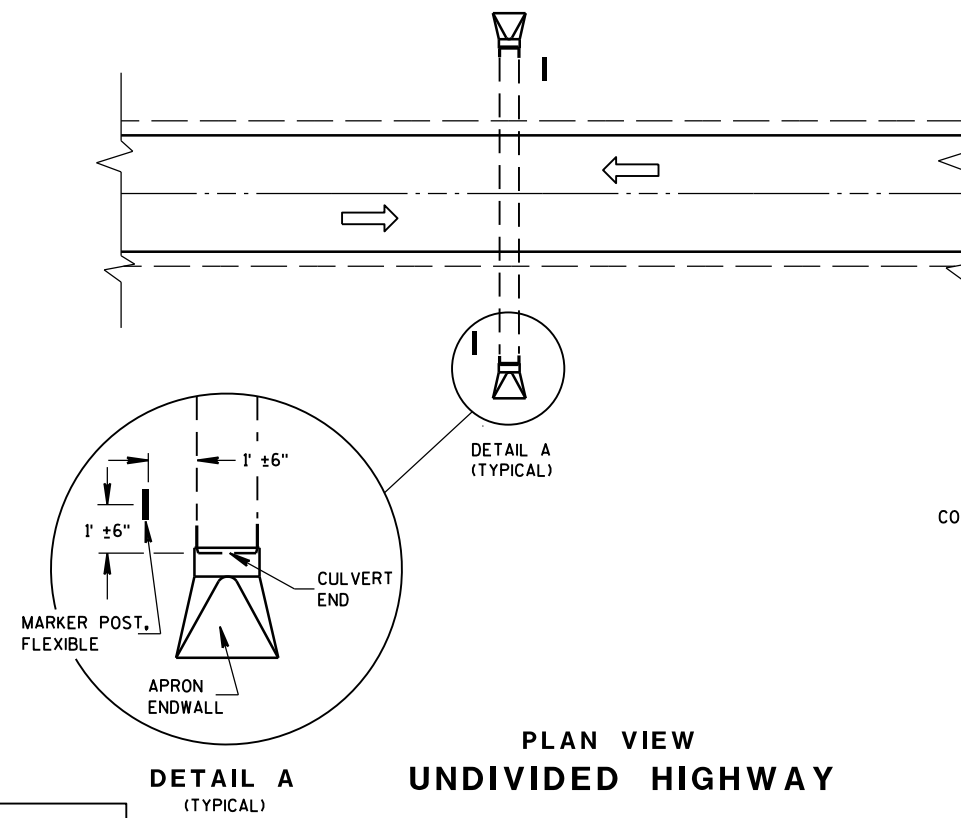
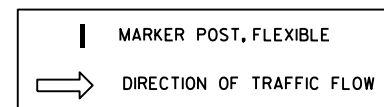


**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Rodney Taylor ROADWAY STANDARD DEVELOPMENT UNIT SUPERVISOR
FHWA	



PLAN VIEW
DIVIDED HIGHWAY

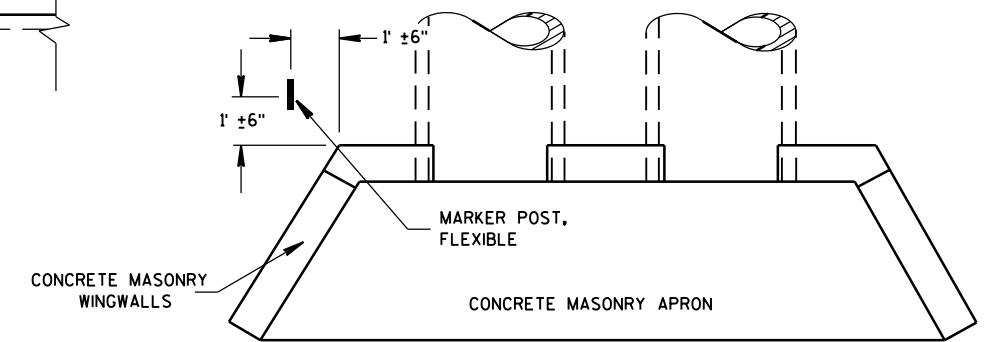


PLAN VIEW
UNDIVIDED HIGHWAY

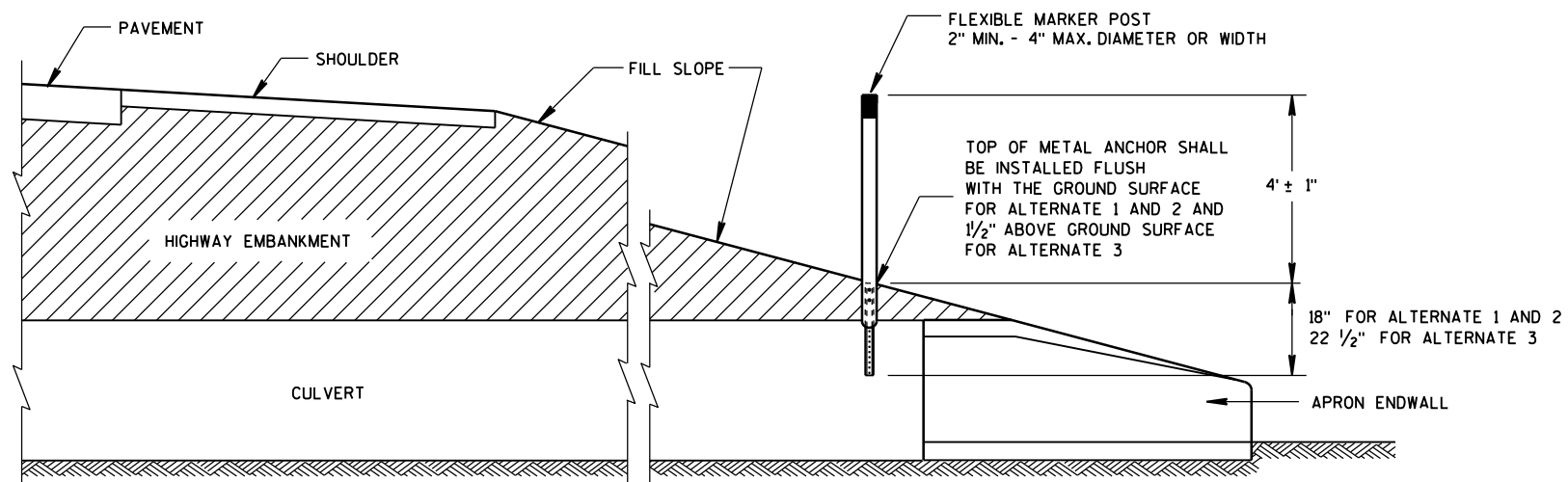
FLEXIBLE MARKER POST LOCATION

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.



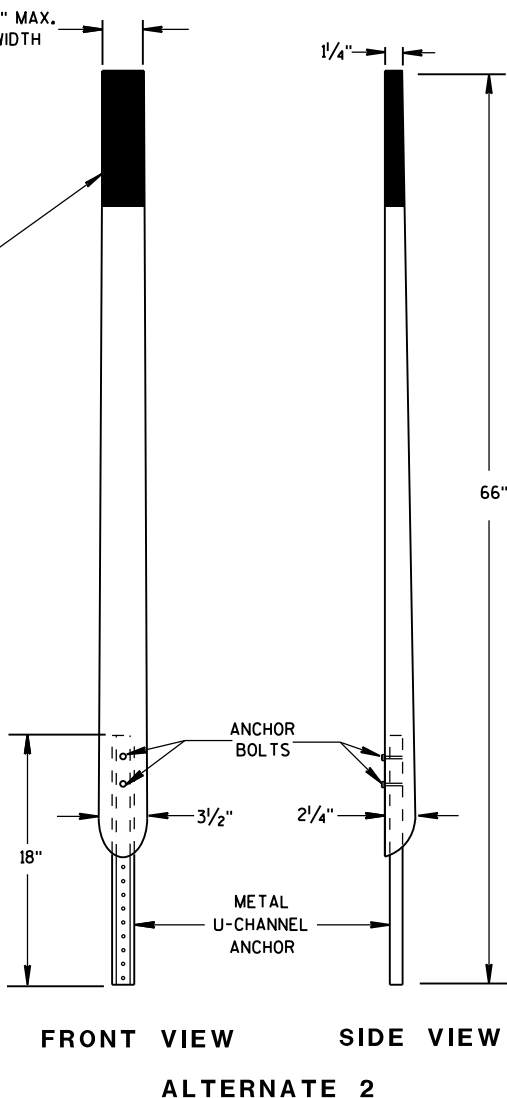
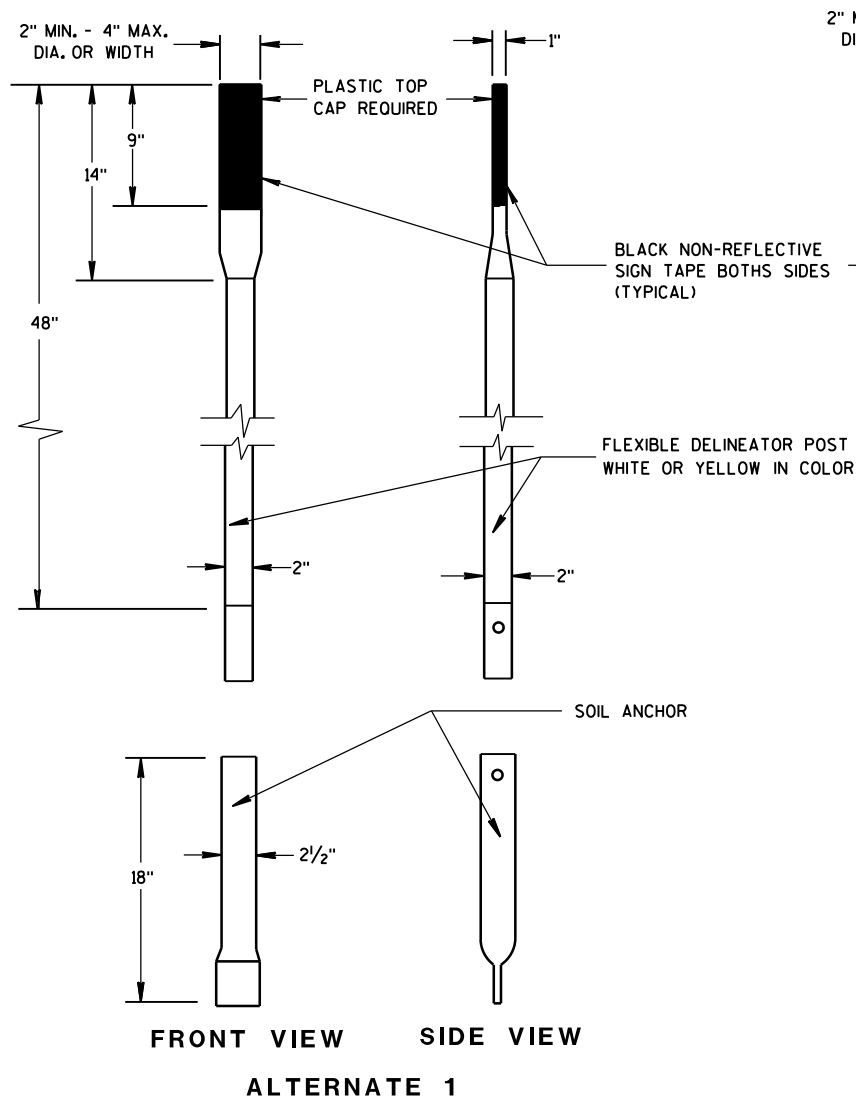
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



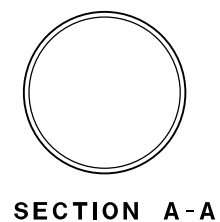
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

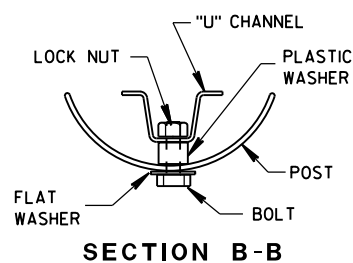
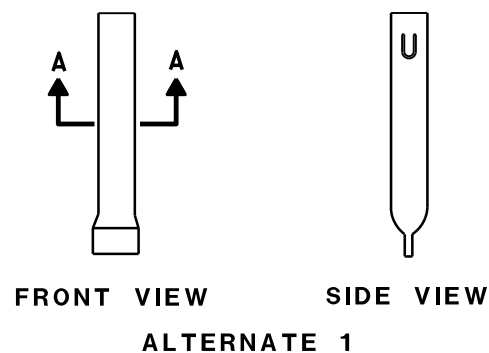
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



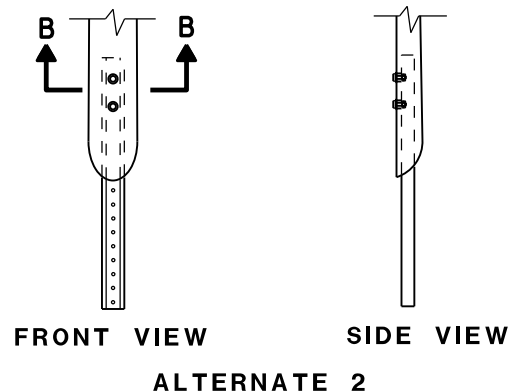
FLEXIBLE MARKER POSTS



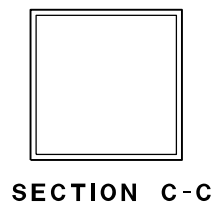
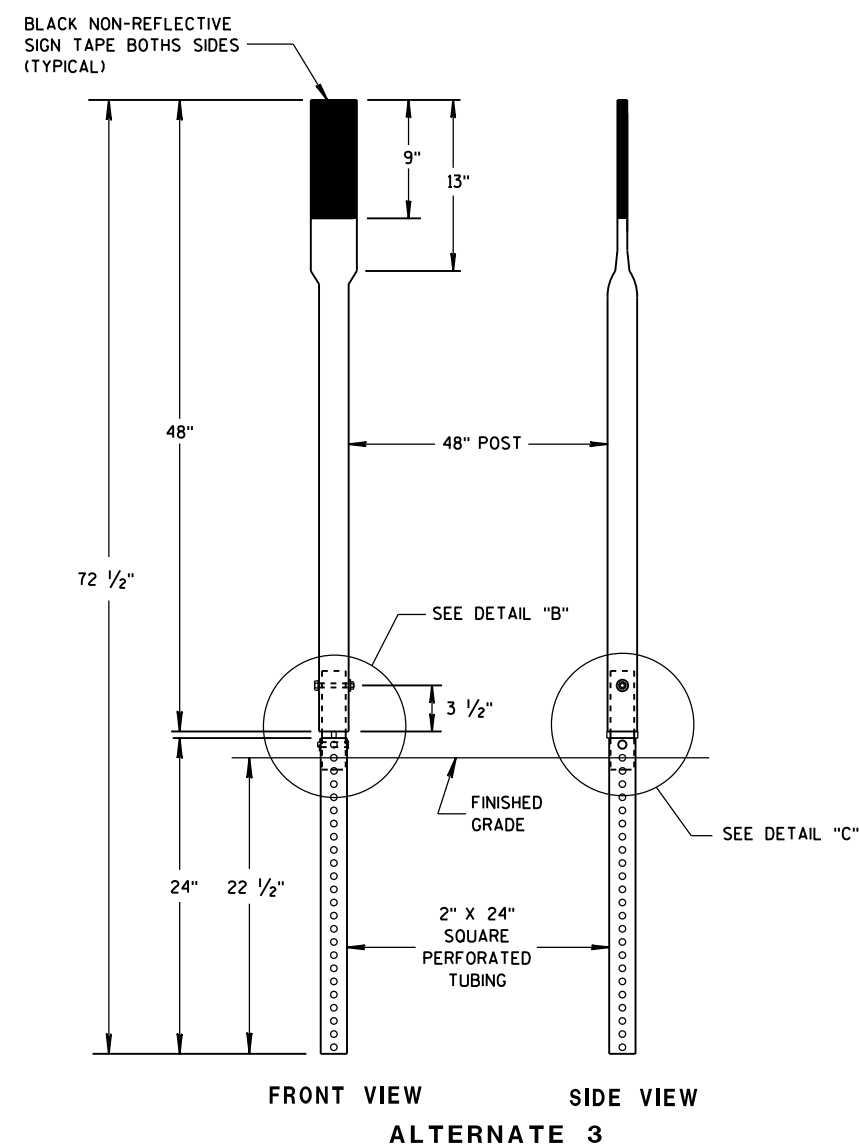
SECTION A-A



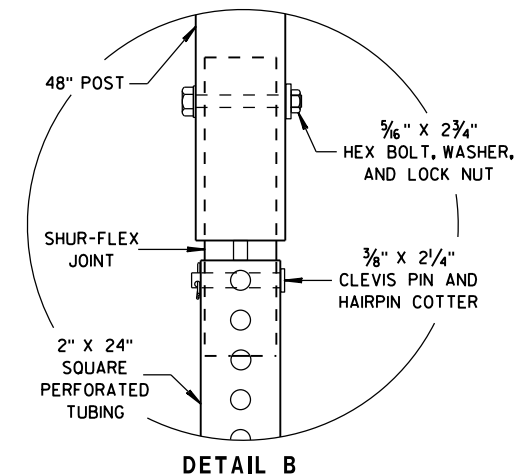
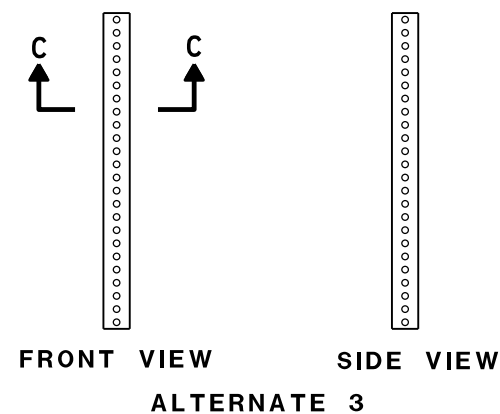
SECTION B-B



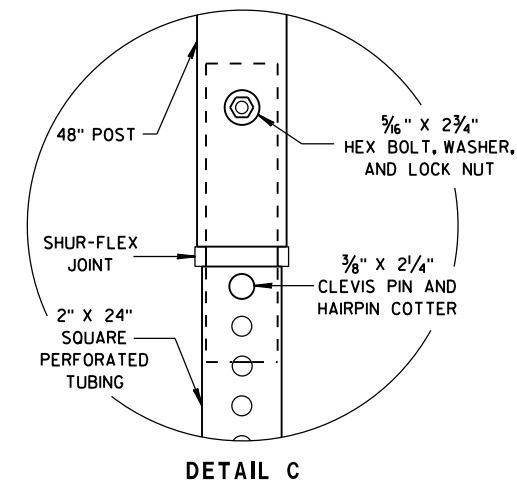
FLEXIBLE MARKER POST ANCHORS



SECTION C-C



DETAIL B



DETAIL C

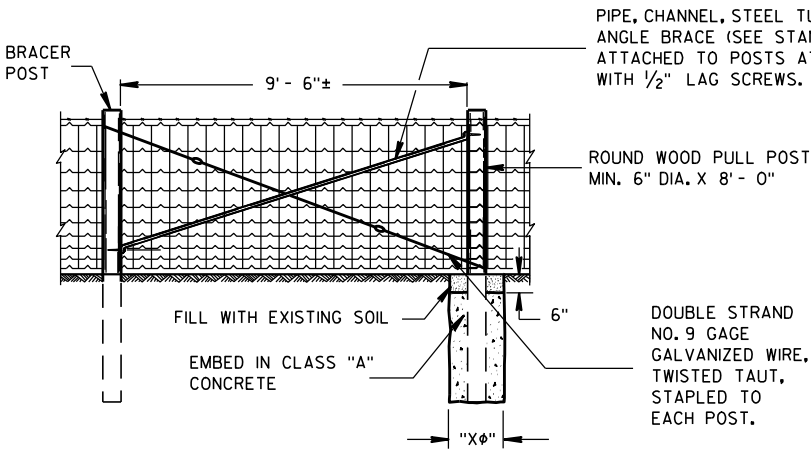
FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

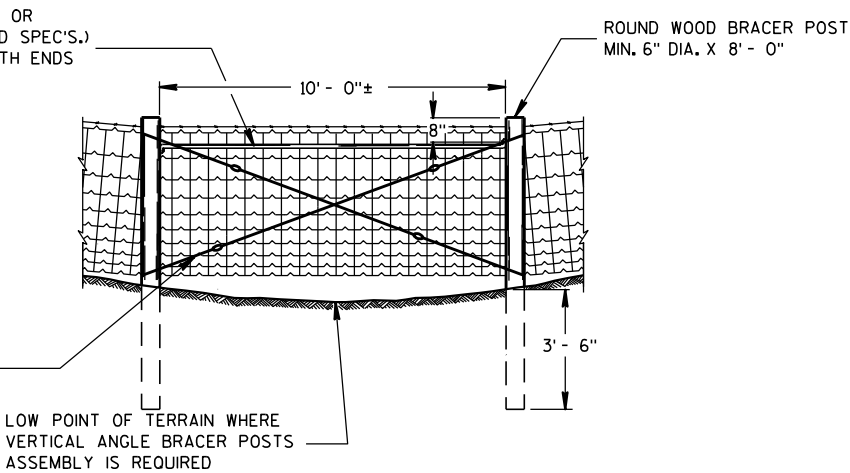
APPROVED
10/1/2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

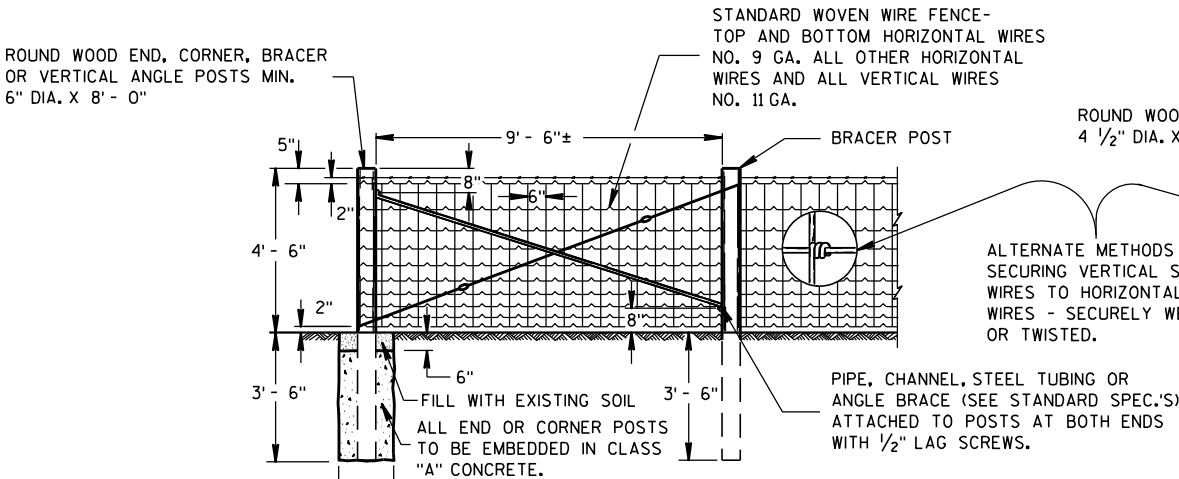
ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



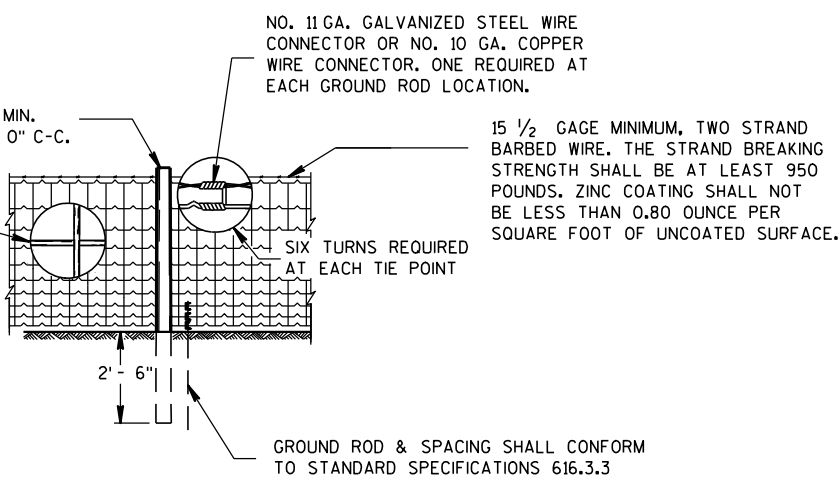
PULL OR STRETCHER POSTS ASSEMBLY



VERTICAL ANGLE BRACER POSTS ASSEMBLY

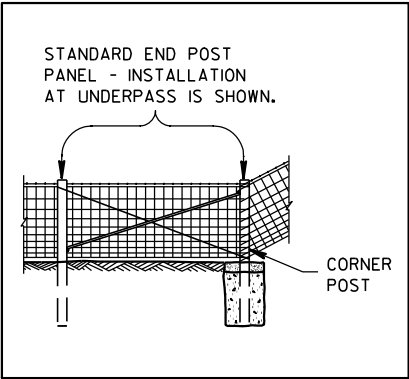


END OR CORNER POSTS ASSEMBLY

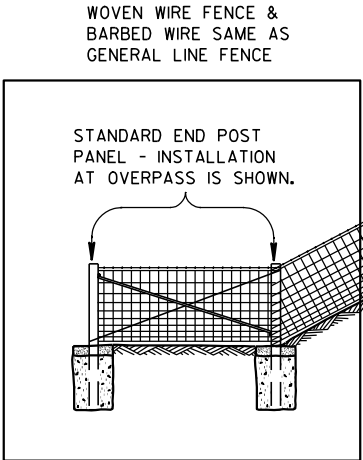


LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



FENCE DESIGN AT STRUCTURE APPROACH

GENERAL NOTES

"Xφ" = DIAMETER OF THE POST PLUS 12".

FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

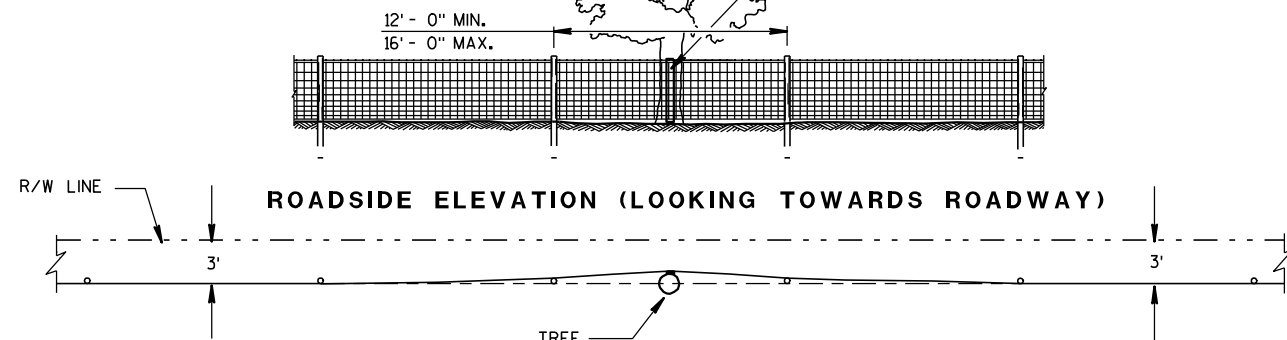
FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

FENCE WOVEN WIRE

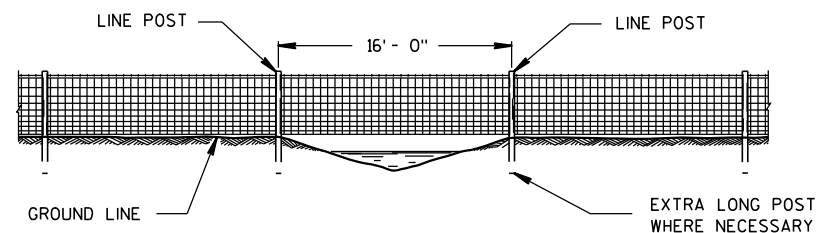
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

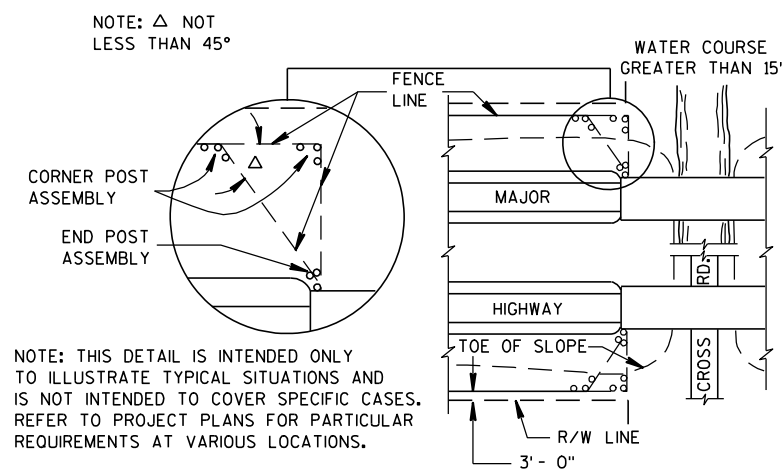
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE

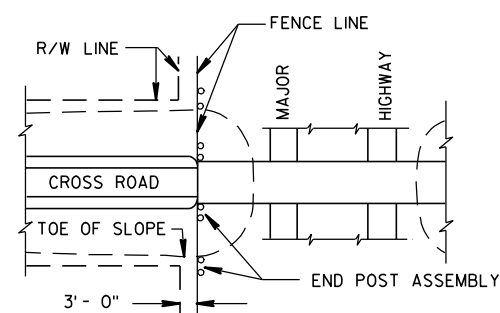


FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH

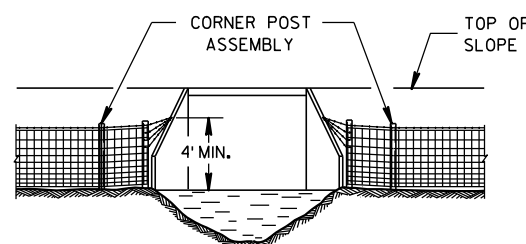


PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES

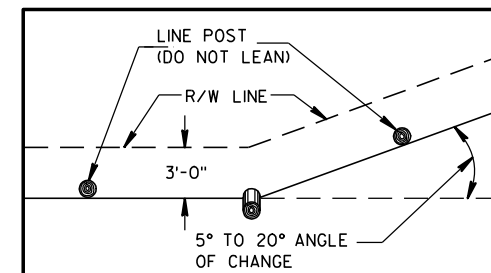
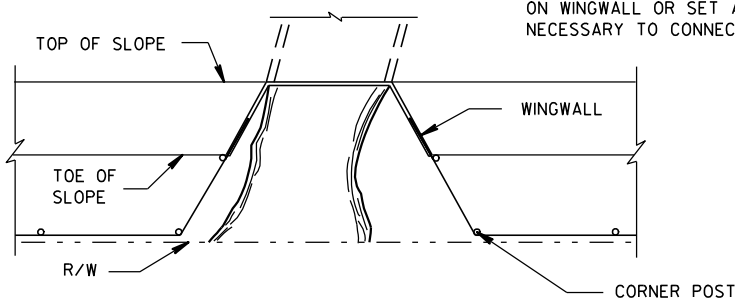


PLAN VIEW
MAJOR HIGHWAY UNDERPASS

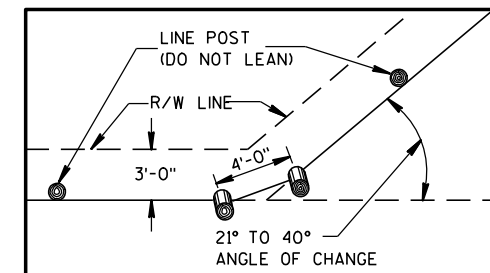


FENCE INSTALLATION TO WINGWALLS

NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



PLAN VIEW
SINGLE POST CORNER

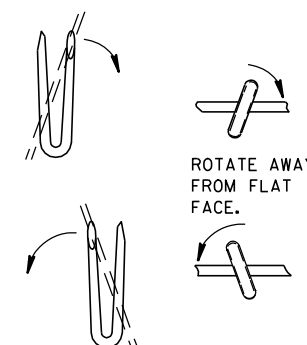


PLAN VIEW
DOUBLE POST CORNER

RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



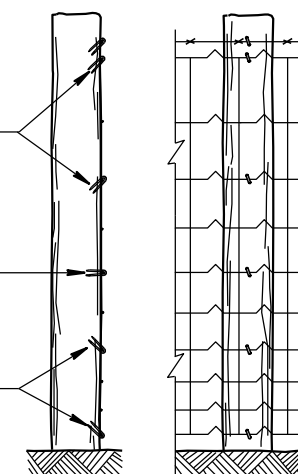
LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

STAPLES SLOPED DOWNWARD FOR SUSTAINED GRADES AND OVER KNOLLS.

STAPLES LEVEL FOR LEVEL GROUND.

SLOPE UPWARDS WHEN FENCE TENDS TO LIFT.



END ELEVATION
FARM SIDE ELEVATION
FENCE MOUNTING DETAIL

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

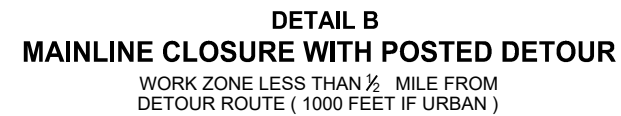
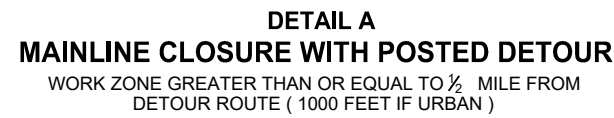
APPROVED

4/4/2008

DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



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



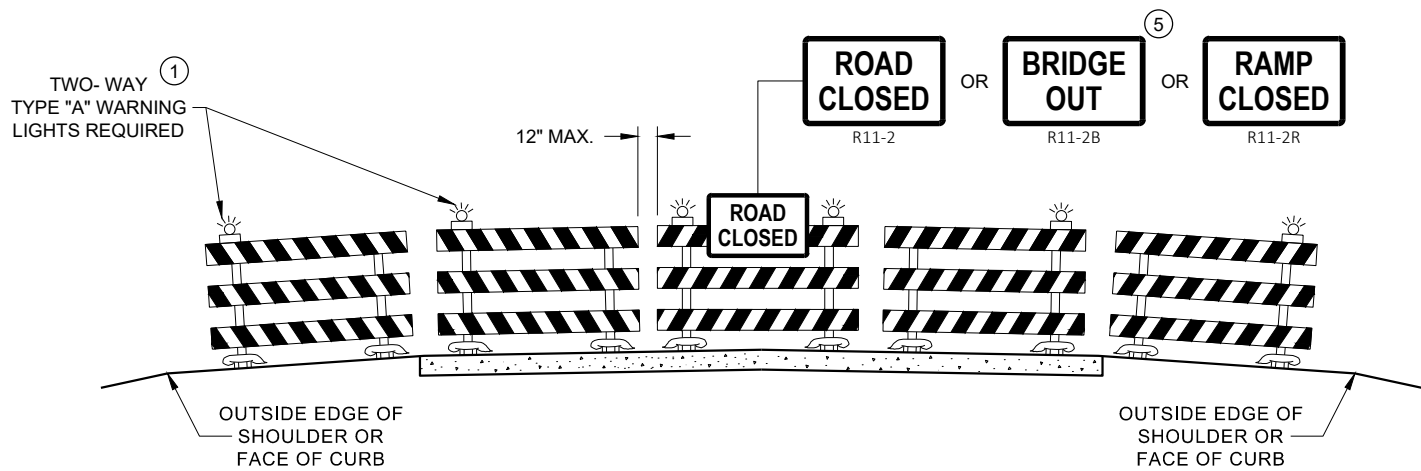
	SIGN ON PERMANENT SUPPORT
	TYPE III BARRICADE
	TYPE III BARRICADE WITH ATTACHED SIGN
	TYPE "A" WARNING LIGHT (FLASHING)
	WORK AREA
	FLAGS, 16" X 16" MIN. (ORANGE)

 M4 - 8
 M3 - X
 M1 - 4 OR  M1 - 6 OR  M1 - 5A
 M05 - 1 OR  M06 - 1

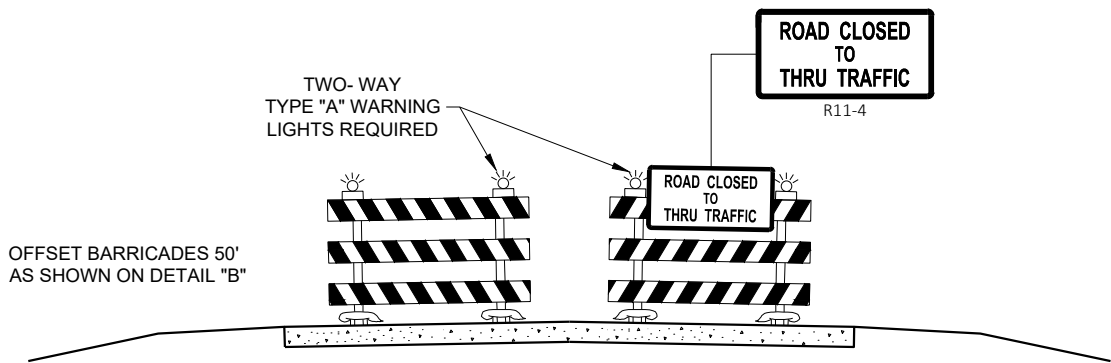
APPROVED
November 2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

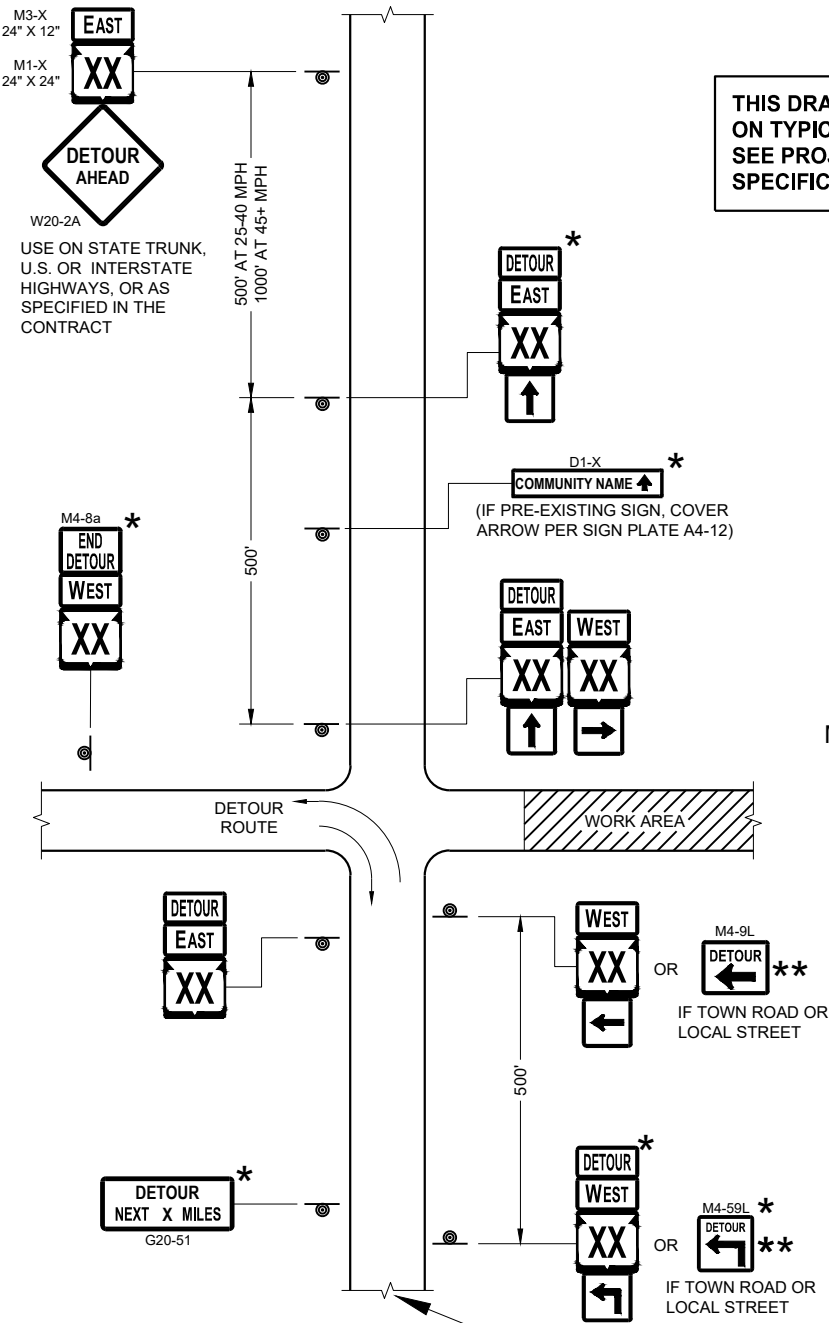
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE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

- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- 3 FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- 4 FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- 5 FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- 6 INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- 7 "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

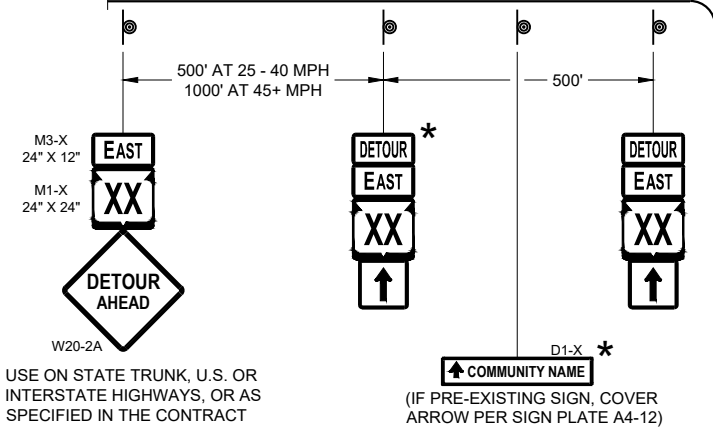
APPROVED
November 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



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

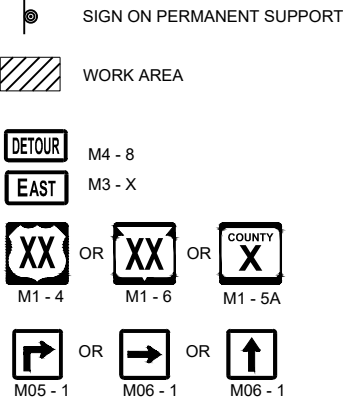
THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND



GENERAL NOTES

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

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

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

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

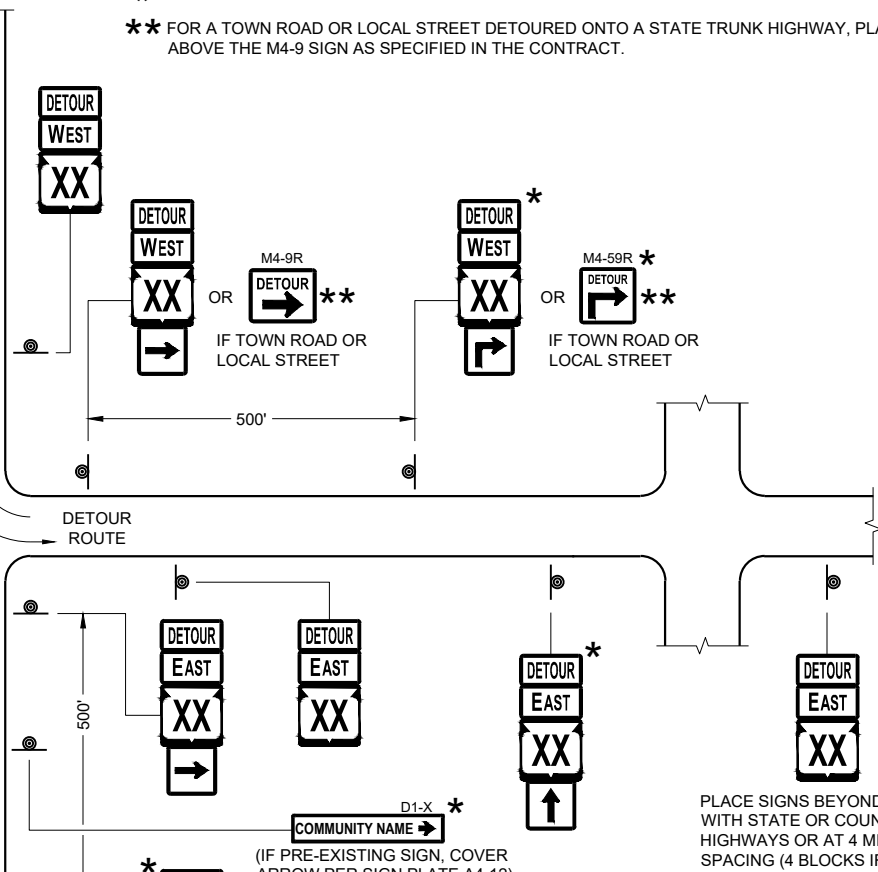
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

SIGN SIZES SHALL BE AS FOLLOWS:

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

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

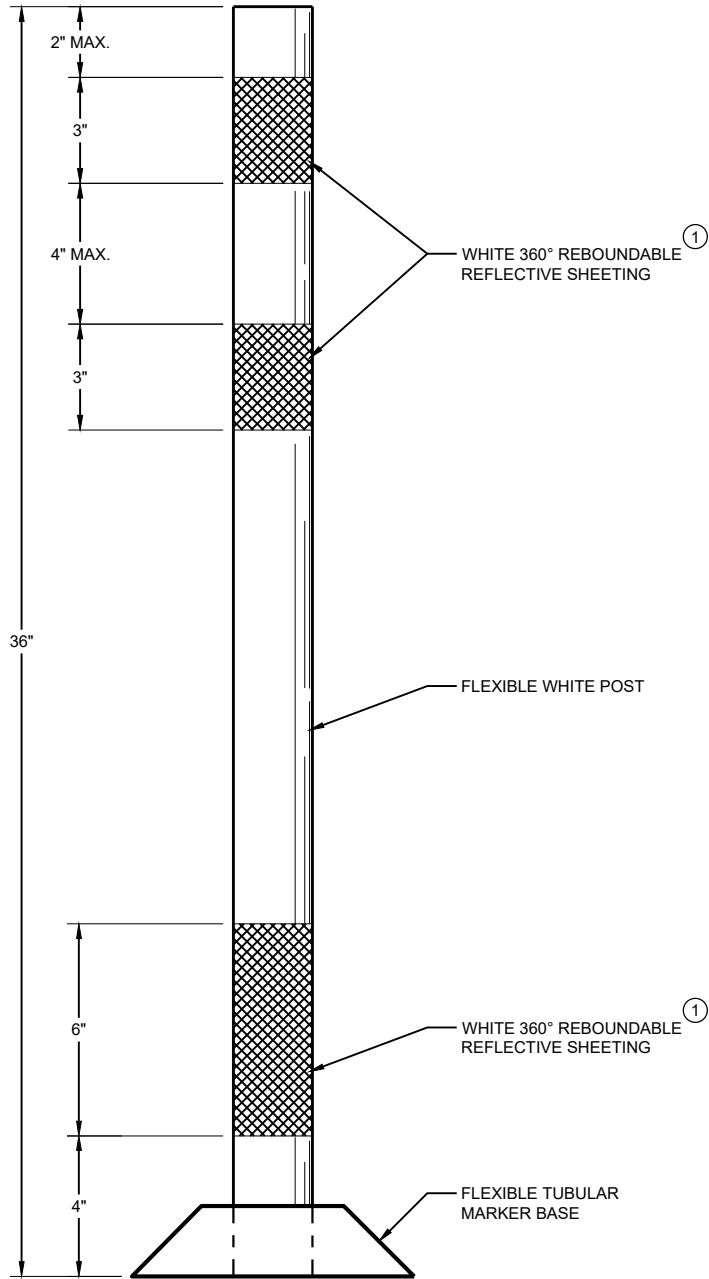


PLACE SIGNS BEYOND INTERSECTIONS
WITH STATE OR COUNTY TRUNK
HIGHWAYS OR AT 4 MILE MAXIMUM
SPACING (4 BLOCKS IF URBAN AREA)

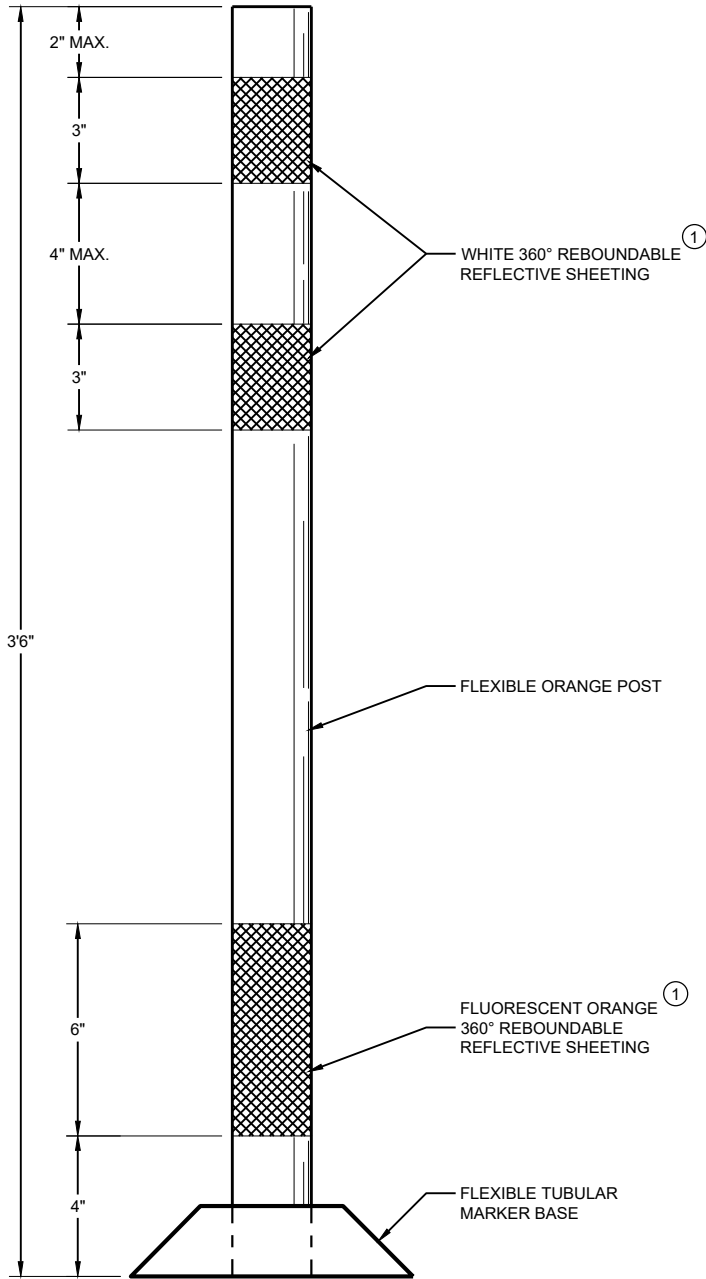
DETOUR SIGNING
FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



FLEXIBLE TUBULAR
MARKER POST
PERMANENT CROSSOVER



FLEXIBLE TUBULAR
MARKER POST
WORK ZONE

GENERAL NOTES

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

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

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

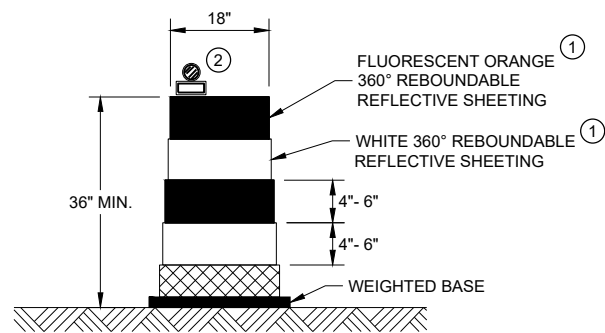
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

**CHANNELIZING DEVICES
FLEXIBLE TUBULAR
MARKER POST**

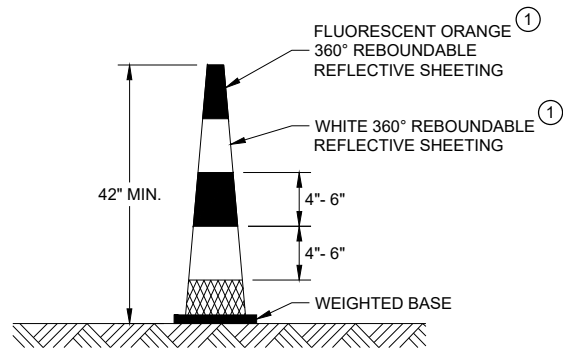
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

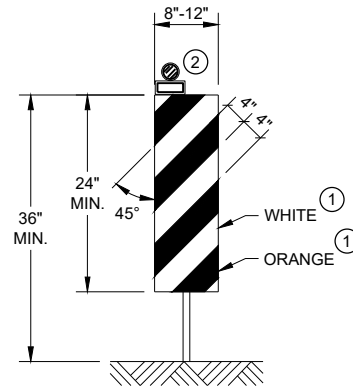


DRUM



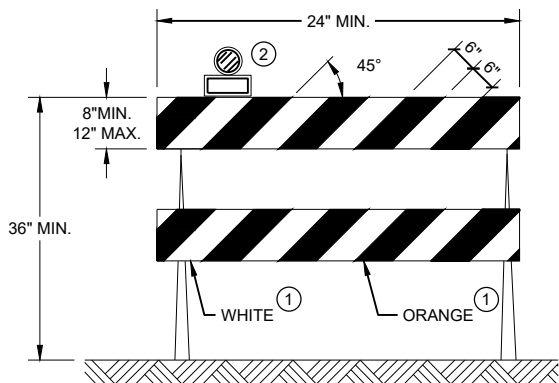
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



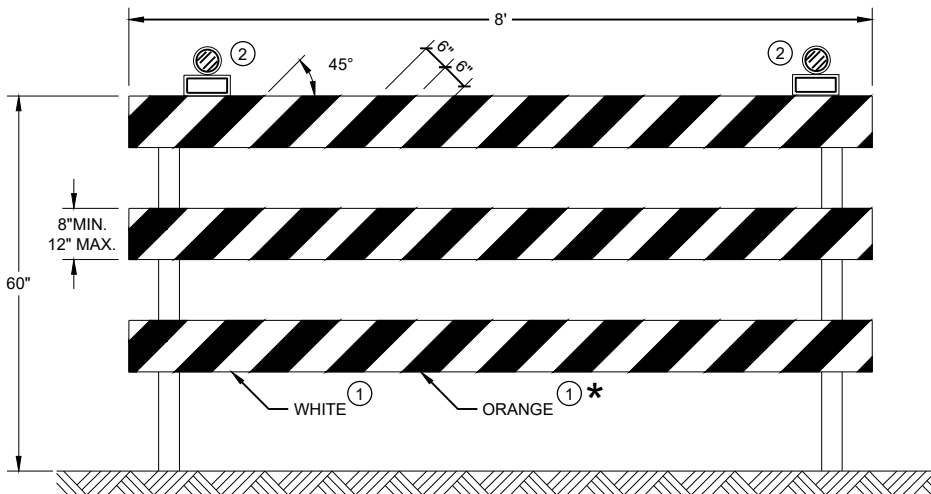
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

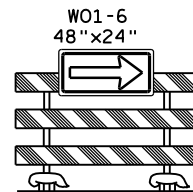
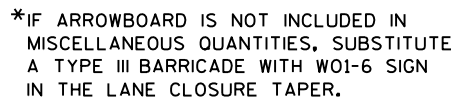
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

L = WS AT 45 MPH OR GREATER
 $L = \frac{WS^2}{60}$ AT 40 MPH OR LESS
 L = TAPER LENGTH IN FEET
 S = NON-CONSTRUCTION SPEED LIMIT (MPH)
 W = WIDTH OF LANE CLOSURE

	TYPE III BARRICADE WITH ATTACHED SIGN
	SIGN ON PERMANENT SUPPORT
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TRAFFIC CONTROL DRUM
	FLASHING ARROW BOARD
	DIRECTION OF TRAFFIC
	REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
	WORK AREA

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

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

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

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

BARRICADES IN A CLOSED LANE 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.

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

APPROVED	
June 2016	/S/ Peter Amakobe Atepe
DATE	STATEWIDE WORK ZONE TRAFFIC
	SAFETY ENGINEER
FHWA	

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

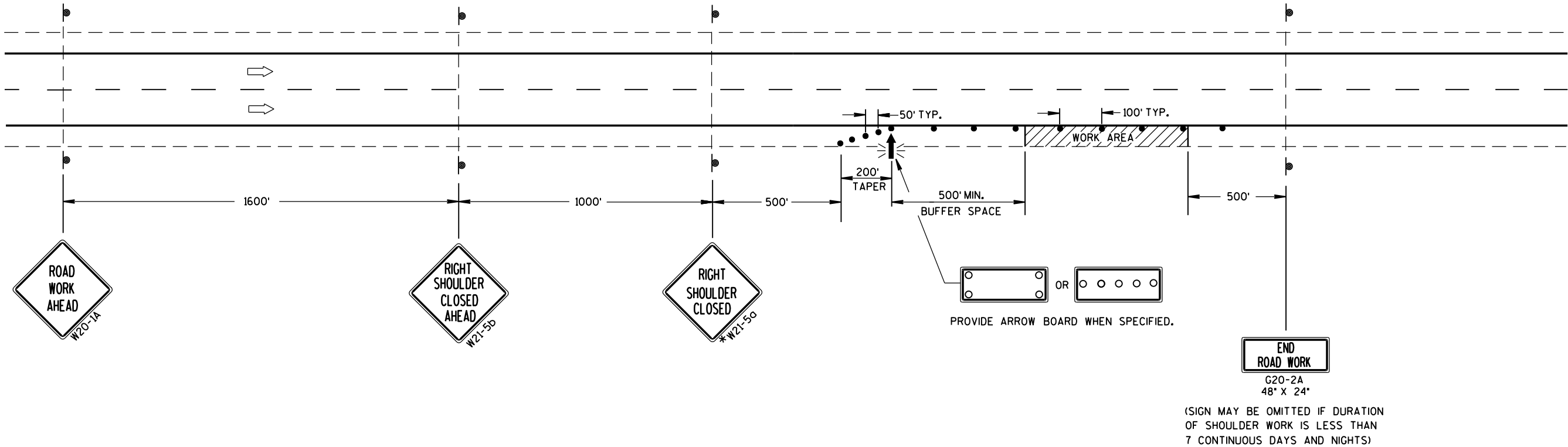
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

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

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

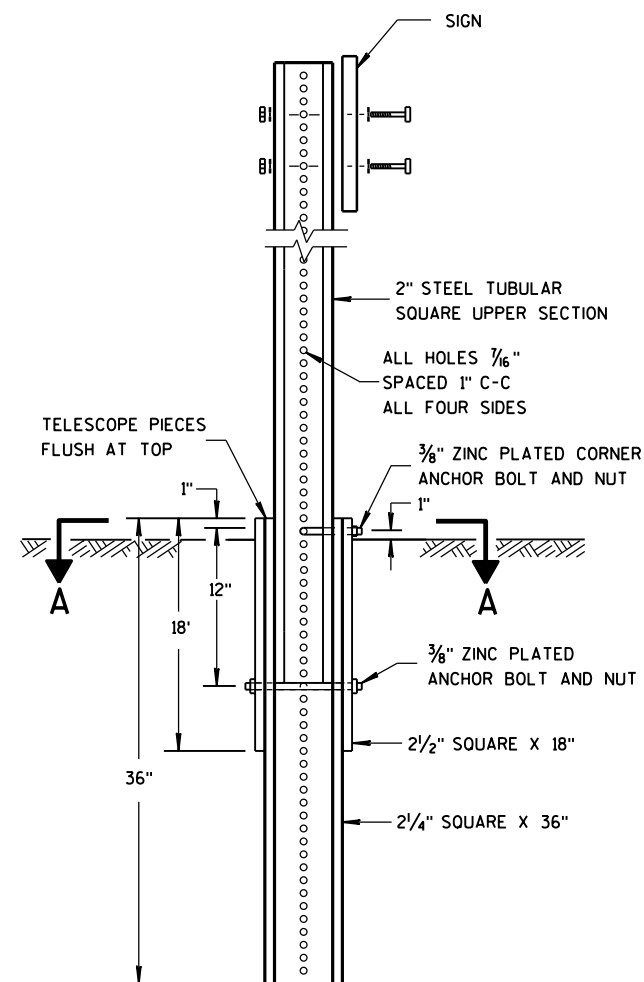
*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER

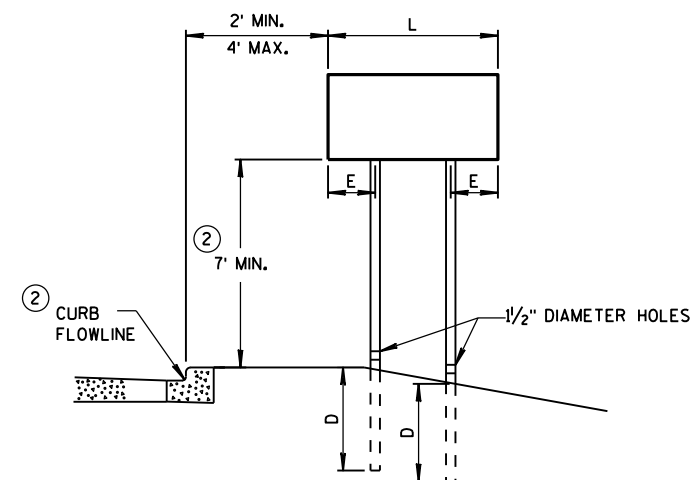
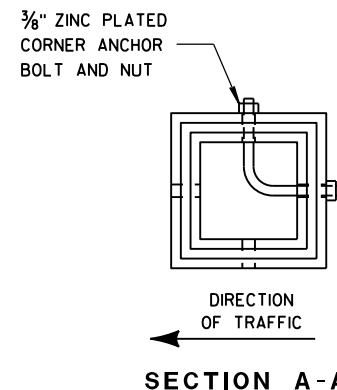


DETAIL OF TUBULAR
STEEL SIGN POST

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

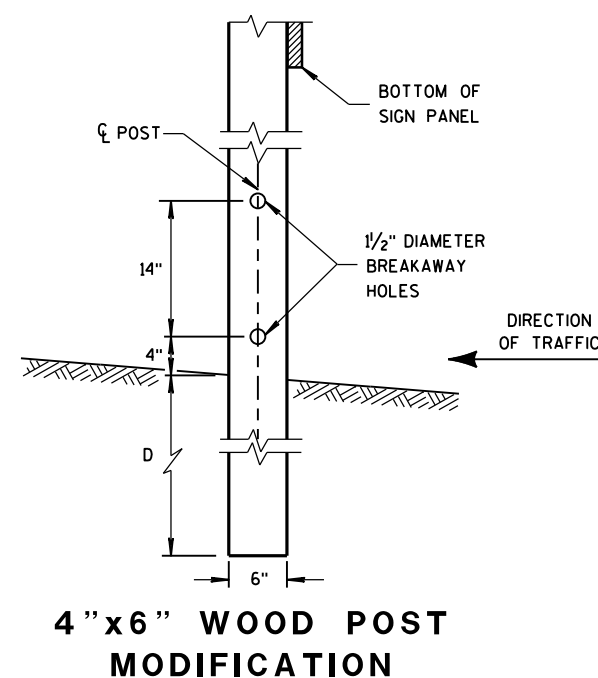
SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL
BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED
ON TUBULAR STEEL POSTS.



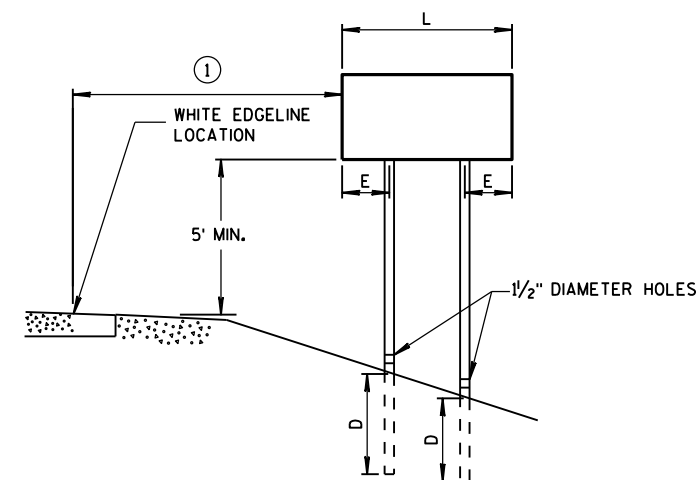
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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



4 "x6 " WOOD POST
MODIFICATION



RURAL AREA

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

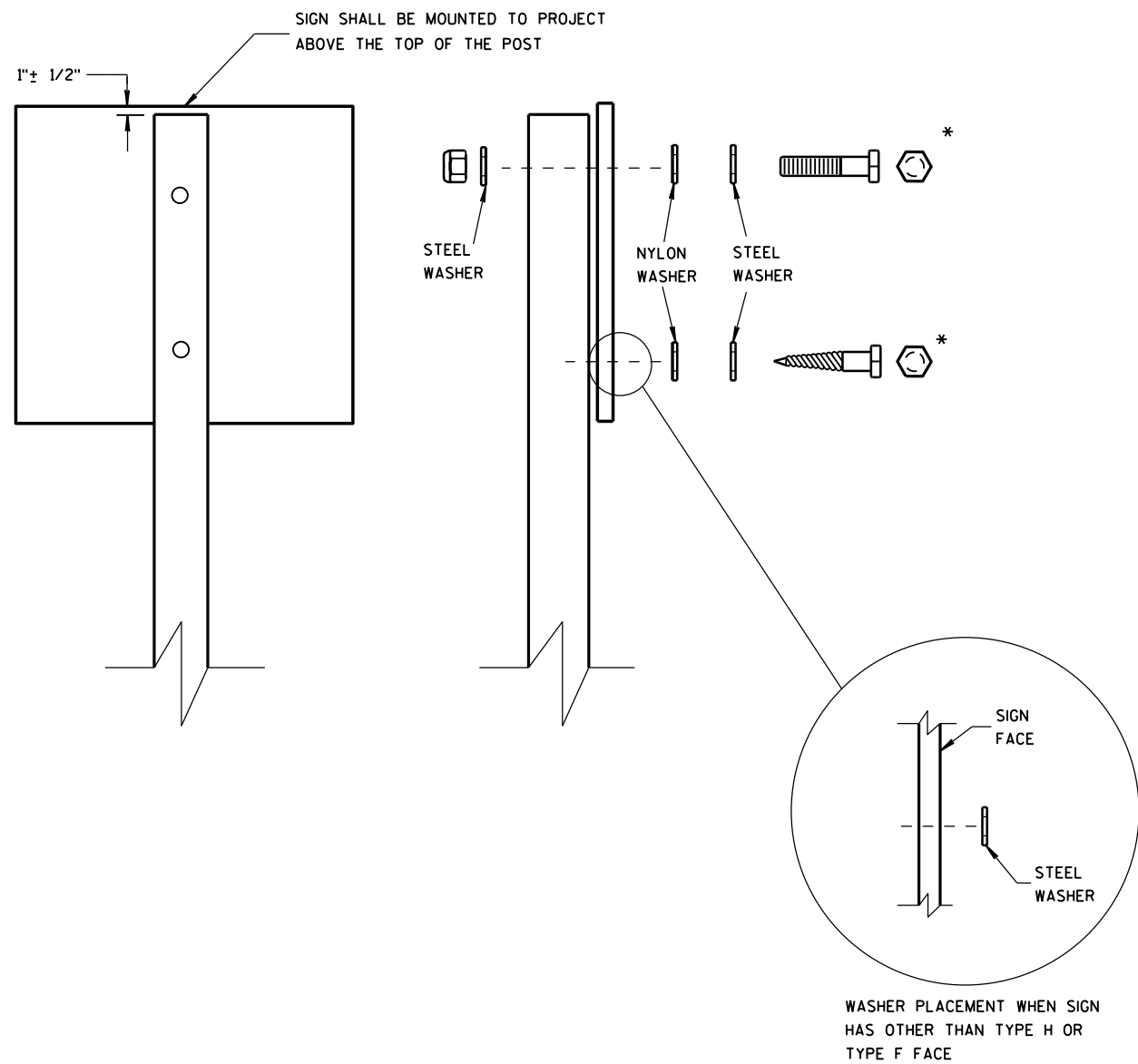
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" X 3"
 - MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

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

- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
 - 1-1/4" O.D. X 3/8" I.D. X .080 NYLON FOR ALL TYPE H SIGNS

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

REMOVAL OF EXISTING WINGWALL STRAP IS INCIDENTAL TO THE BID ITEM "STRAPPING B-51-084"

① INDICATES WING NUMBER

TRAFFIC DATA

STH 31
A.A.D.T. = 6,900 (2017)

LIST OF DRAWINGS

- GENERAL PLAN
- WING STRAPPING

DESIGN DATA

LOAD RATINGS TAKEN FROM ORIGINAL STRUCTURE PLANS

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-22
OPERATIONAL RATING: HS-51

WISCONSIN STANDARD PERMIT VEHICLE LOAD:

WIS-SPV: 250 KIPS

MATERIAL PROPERTIES

STRUCTURAL STEEL, ASTM A36, GRADE 36: $f_y = 36,000$ psi

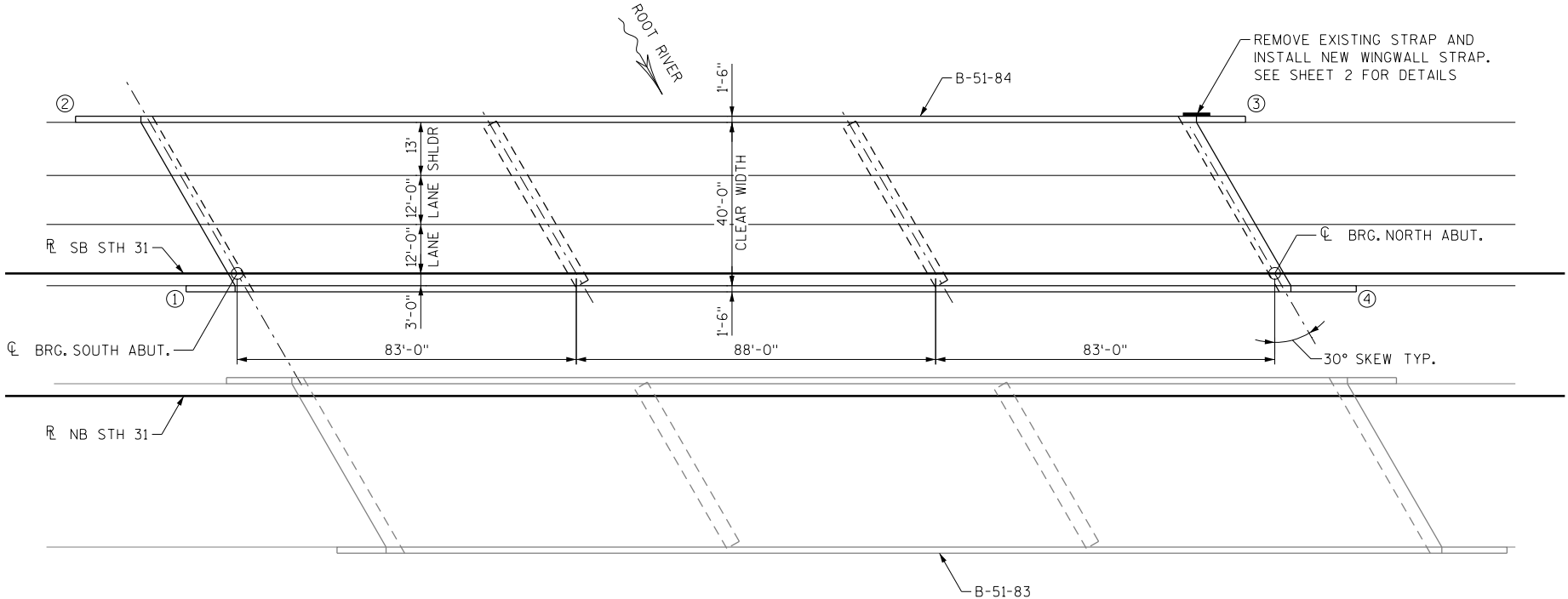
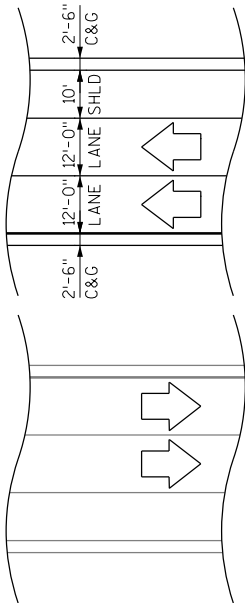
STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:

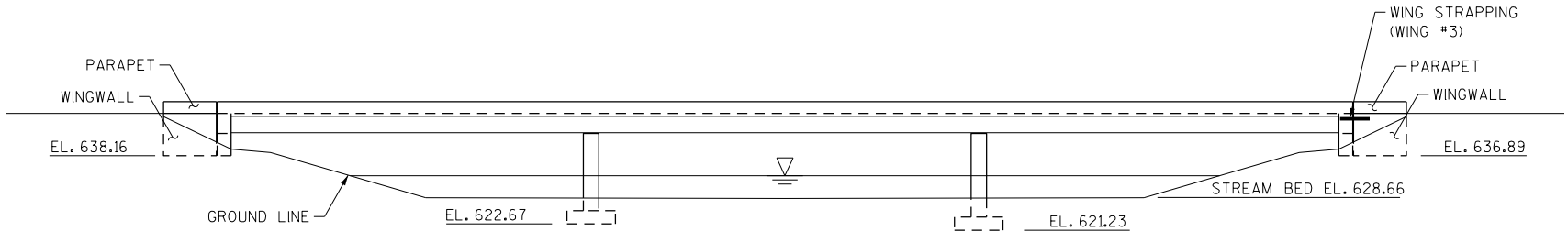
WILLIAM DREHER, PE
(608) 266-8489

CONSULTANT:

WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321



PLAN
3-SPAN 45-INCH PRESTRESSED CONCRETE GIRDER BRIDGE



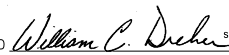
ELEVATION

∇ = OBSERVED WATER ELEVATION = 629.7 (8/16/2018)

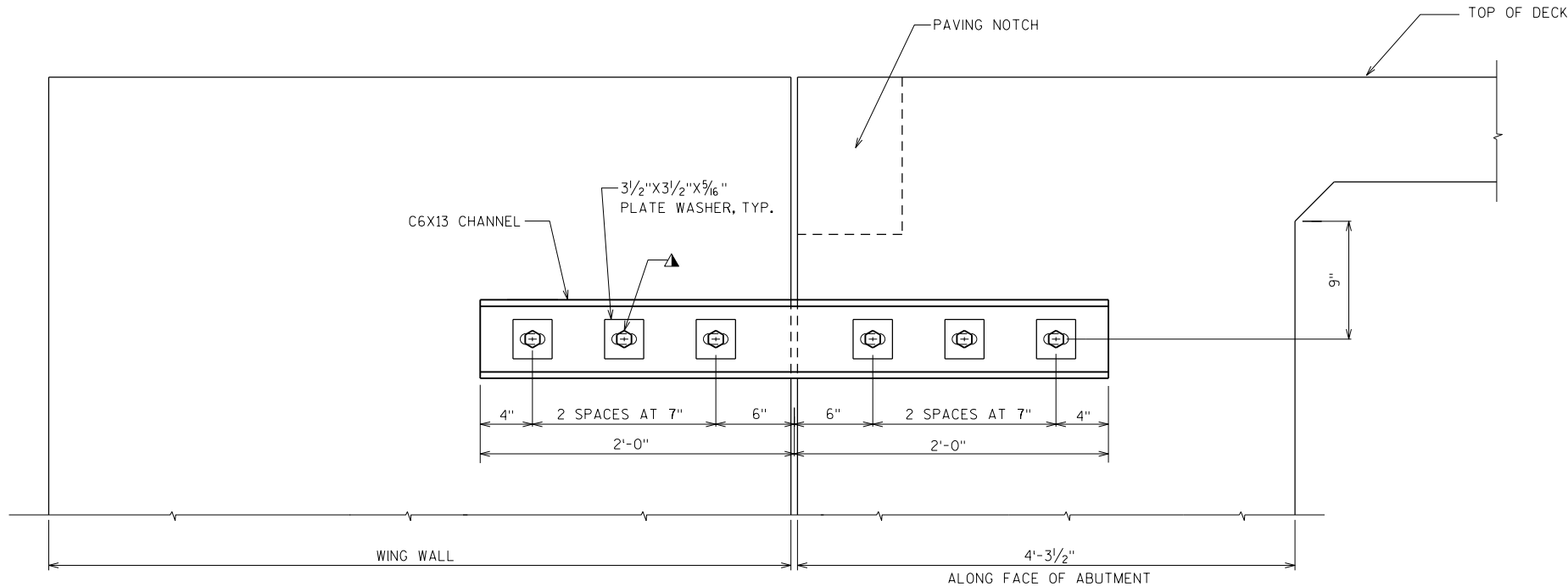


TOTAL ESTIMATED QUANTITIES

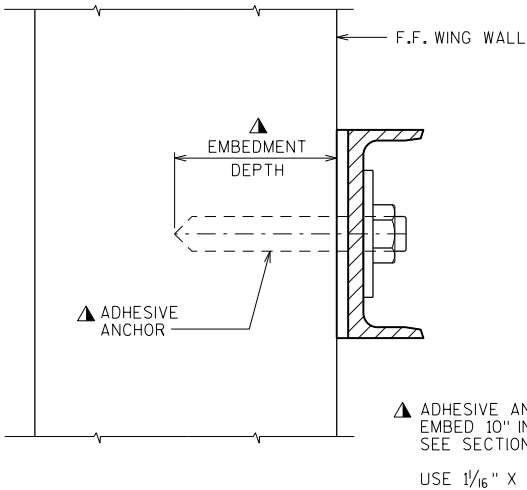
ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
SPV.0060.09	STRAPPING B-51-84	EACH	1

NO.	DATE	REVISION	BY
 Alfred Benesch & Company 1300 West Canal Street, Suite 150 Milwaukee, Wisconsin 53233 414-308-1310 Job No. 20229.04			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED 		08/21/19 DATE	
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-51-84			
STH 31SB OVER ROOT RIVER			
COUNTY	RACINE	TOWN/CITY/VILLAGE	CALEDONIA
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	JAP	DESIGN CK'D.	WJZ
DRAWN BY	BJW	PLANS CK'D.	WJZ
GENERAL PLAN			SHEET 1 OF 2

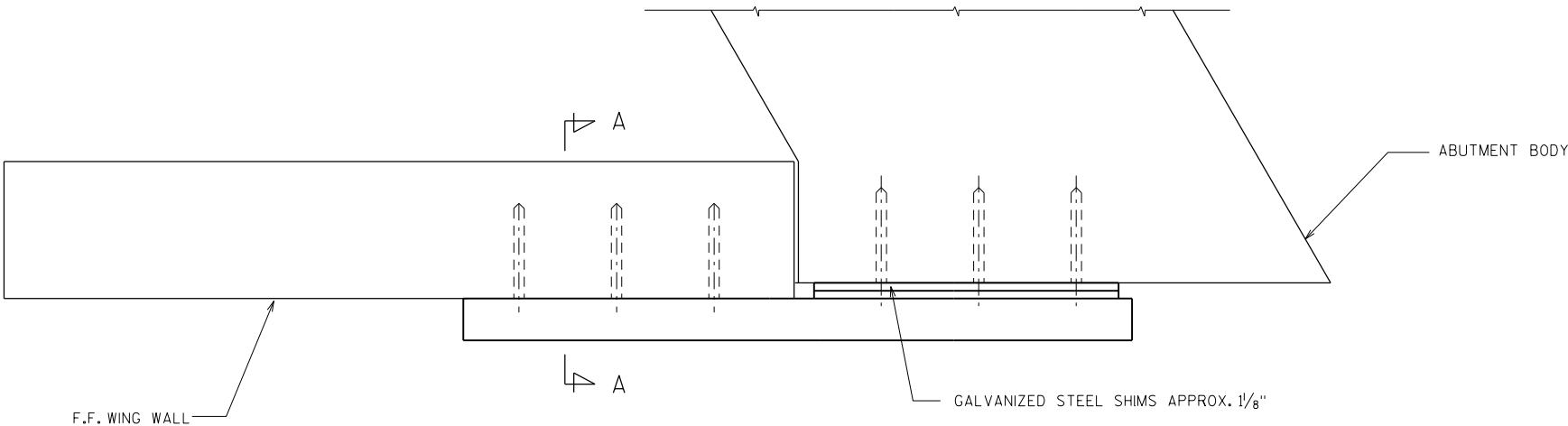
FILE= B-51-84_01-GP.DGN
SCALE = 1:40



WING ELEVATION



SECTION A-A



PLAN

NOTES

- BID ITEM "STRAPPING B-51-084" INCLUDES ALL ITEMS SHOWN.
- ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.
- ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.
- CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.
- CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
- ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.
- WINGWALL ANGLE, REQUIRED SHIMS, ANCHOR LOCATIONS AND WELD CLEARANCES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATING WING WALL STRAP.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-51-84	
		DRAWN BY	BJW
		PLANS CK'D.	WJZ
WING STRAPPING		SHEET 2 OF 2	

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

① INDICATES WING NUMBER

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.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR (1967).

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES B-64-037" SHALL BE THE EXISTING GROUND LINE.

AT THE BACK FACE OF THE WINGWALL, ALL VOLUME WHICH CANNOT BE PLACED BEFORE WINGWALL CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

CONCRETE SURFACE REPAIR AREAS ARE REQUIRED AT THE NOTED LOCATIONS. LIMITS OF REPAIR AREAS WILL BE DETERMINED BY THE PROJECT ENGINEER. ESTIMATED QUANTITIES ARE APPROXIMATE.

TRAFFIC DATA

USH 12 EB
A.A.D.T. = 8,400 (2015)

DESIGN CONTACTS

BRIDGE OFFICE:

WILLIAM DREHER, PE
(608) 266-8489

CONSULTANT:

WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED *William C. Dreher* SDR **08/07/19**
CHIEF STRUCTURES DESIGN ENGINEER DATE

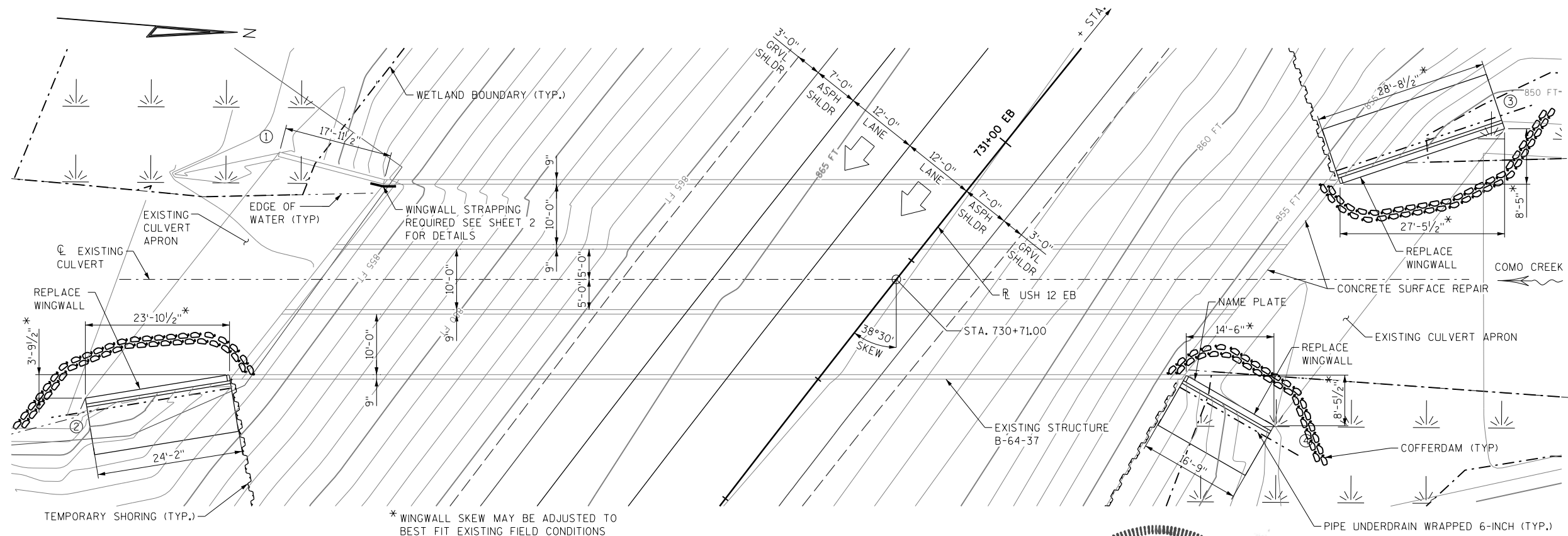
STRUCTURE B-64-37

USH 12 EB OVER COMO CREEK

COUNTY WALWORTH TOWN/CITY/VILLAGE GENEVA

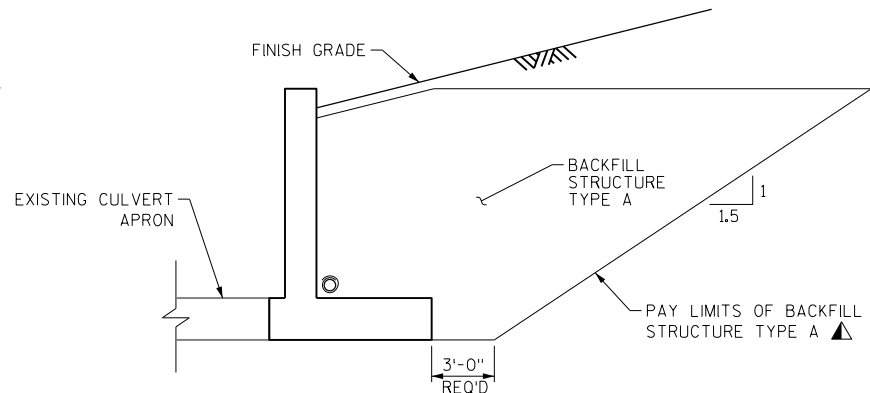
DESIGN SPEC. REHABILITATION N/A

DESIGNED JAP DESIGN CK'D. WJZ DRAWN BY BJW PLANS CK'D. WJZ

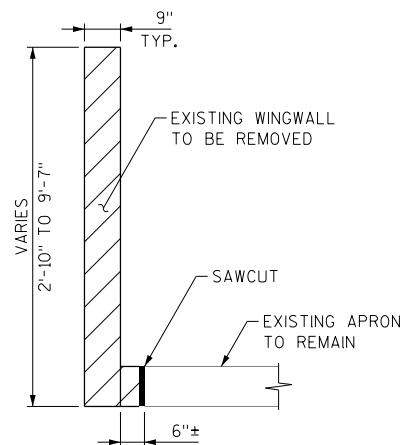
GENERAL PLAN
SHEET 1 OF 4

PLAN

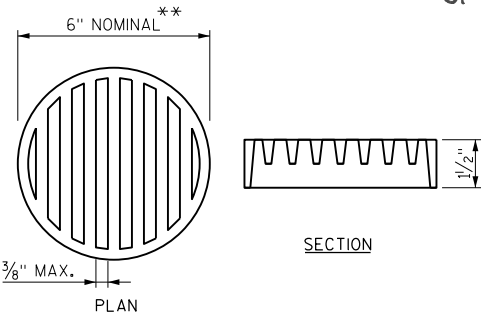
(THREE CELL REINFORCED CONCRETE BOX CULVERT)

TYPICAL SECTION
THRU RETAINING WALL

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



TYPICAL WINGWALL REMOVAL



RODENT SHIELD DETAIL

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

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

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

DESIGN DATA

LIVE LOAD:
ORIGINAL DESIGN LOADING: HS-20

EARTH LOAD

ORIGINAL BOX DESIGNED FOR 13' OF FILL

MATERIAL PROPERTIES

CONCRETE MASONRY ----- f'c = 3,500 psi

BAR STEEL REINFORCEMENT,
GRADE 60 ----- fy = 60,000 psi

GEOTECHNICAL

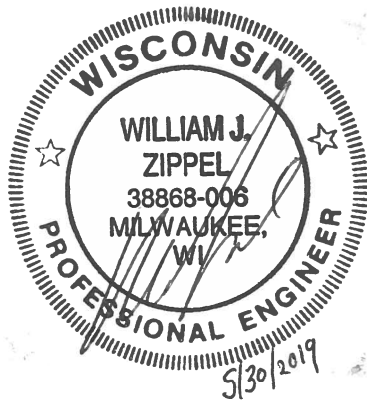
WINGWALL TO BE FOUNDED ON SOIL WITH A MINIMUM ULTIMATE BEARING RESISTANCE OF 2.5 KSF. CONTRACTOR TO DETERMINE SUITABILITY OF EXISTING SOIL PRIOR TO CONSTRUCTING THE WINGWALL.

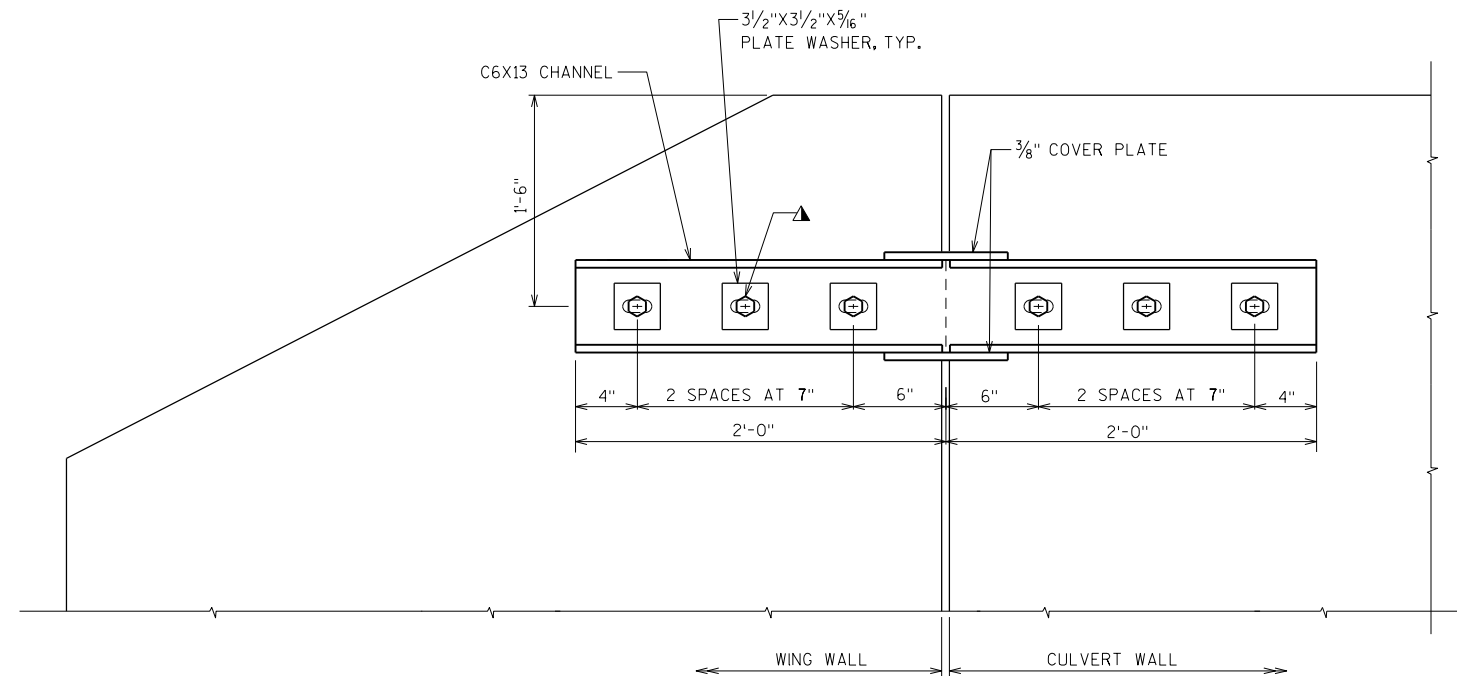
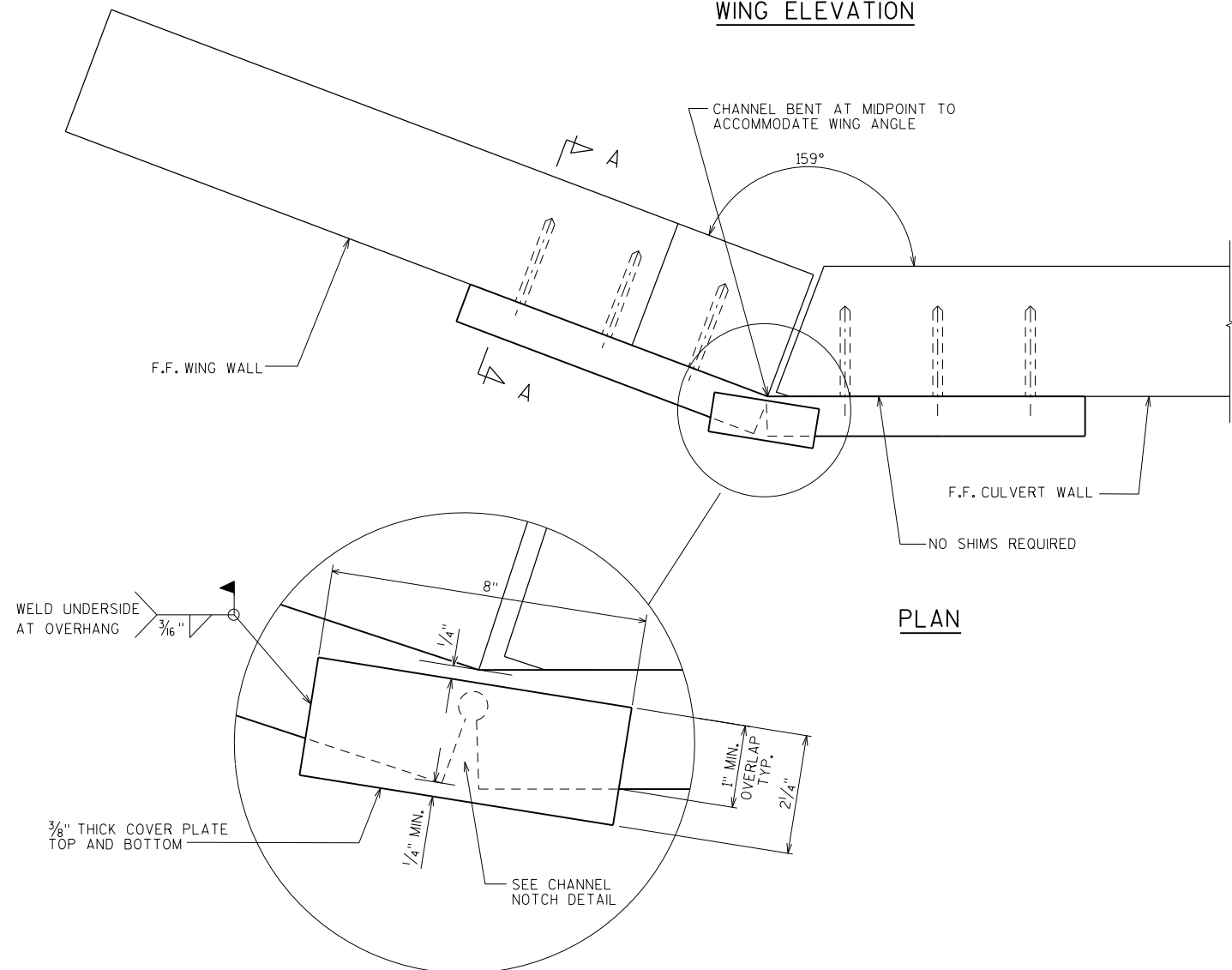
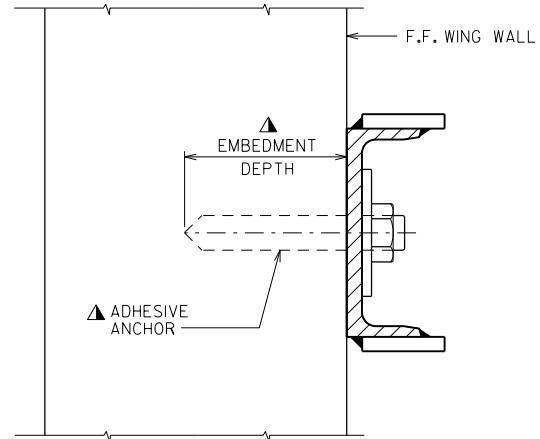
LIST OF DRAWINGS

1. GENERAL PLAN
2. WING STRAPPING
3. NORTH WINGWALLS
4. SOUTH WINGWALL

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 730+71	LS	1
206.2000	EXCAVATION FOR STRUCTURES CULVERTS B-64-37	LS	1
206.5000	COFFERDAMS B-64-37	LS	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	392
501.1000.S	ICE HOT WEATHER CONCRETING	LB	495
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EA	72
504.0100	CONCRETE MASONRY CULVERTS	CY	66
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2287
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	4803
509.1500	CONCRETE SURFACE REPAIR	SF	4
511.1200	TEMPORARY SHORING B-64-37	SF	870
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	20
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	100
SPV.0060.07	STRAPPING B-64-37	EA	1
NON-BID ITEMS			
NAME PLATE			
JOINT FILLER - 3/4"			
NON-BITUMINOUS JOINT SEALER			



WING ELEVATIONPLANSECTION A-A

▲ ADHESIVE ANCHORS 5/8"-INCH.
EMBED 5" IN CONCRETE.
USE 1/16" X 1 1/16" LONG SLOTTED HOLES

NOTES

BID ITEM "STRAPPING B-64-037" INCLUDES ALL ITEMS SHOWN.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.

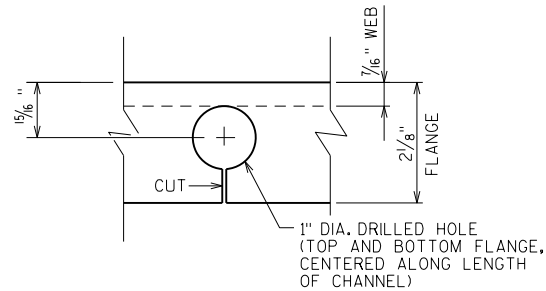
ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.

CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.

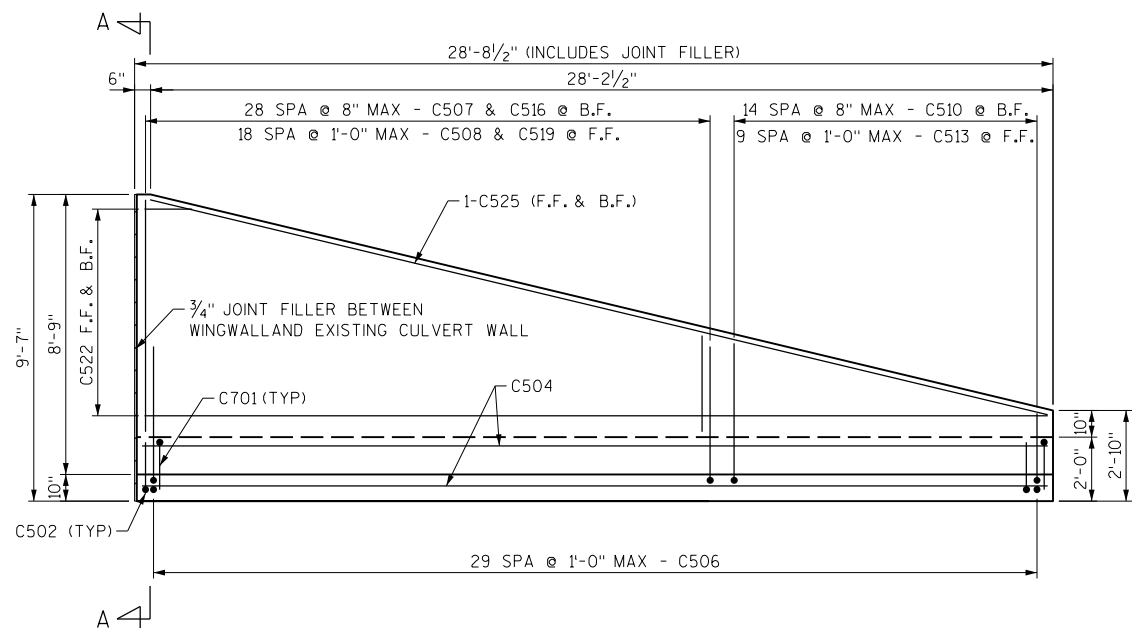
CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLTS WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

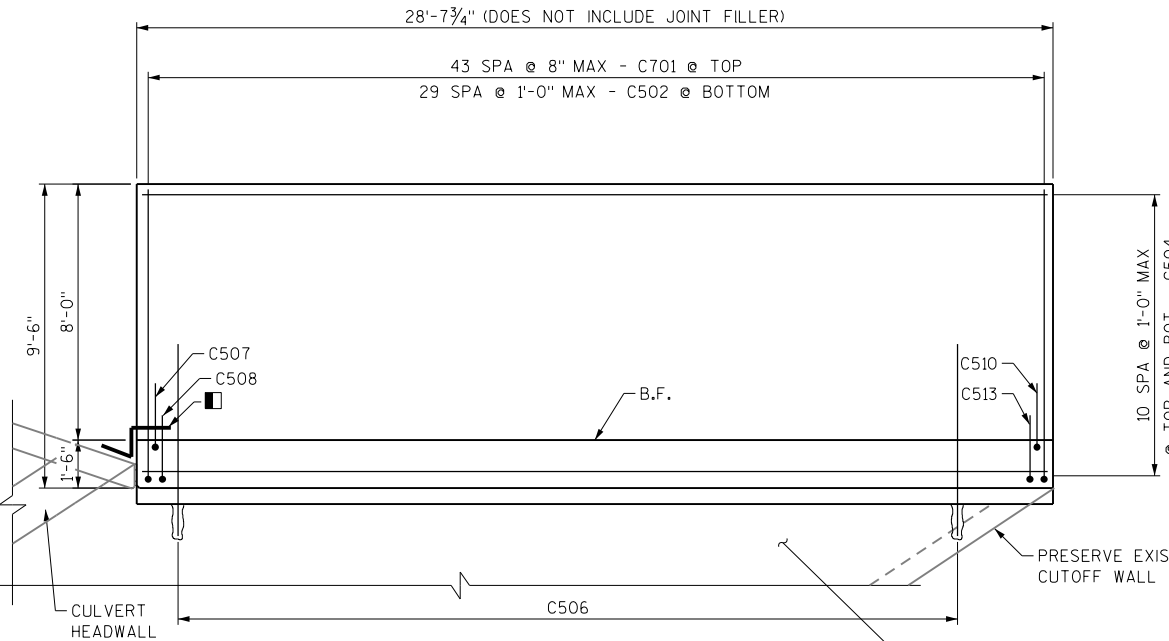
WINGWALL ANGLE, REQUIRED SHIMS, ANCHOR LOCATIONS AND WELD CLEARANCES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATING WING WALL STRAP.

CHANNEL NOTCH DETAIL

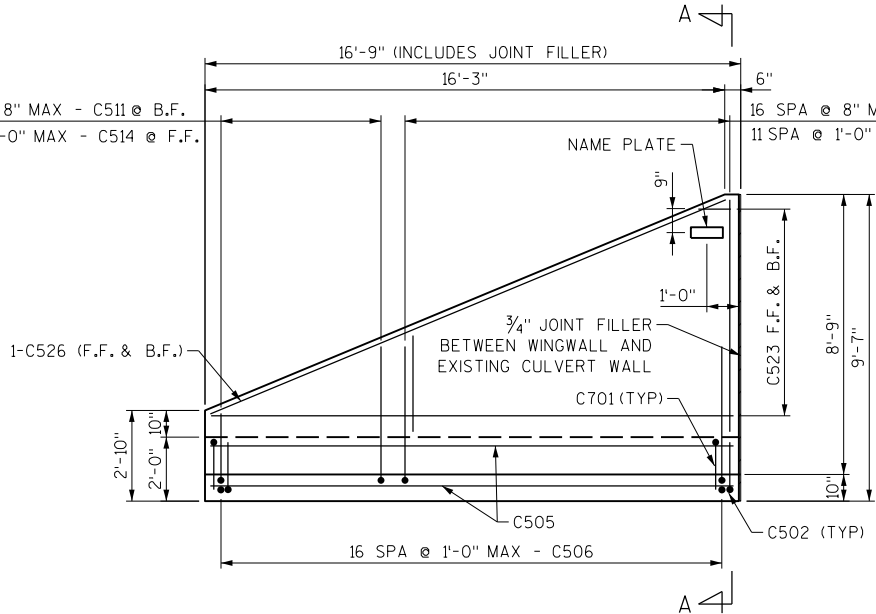
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-64-37	
DRAWN BY BJW		PLANS CKD. WJZ	
WING STRAPPING		SHEET 2 OF 4	



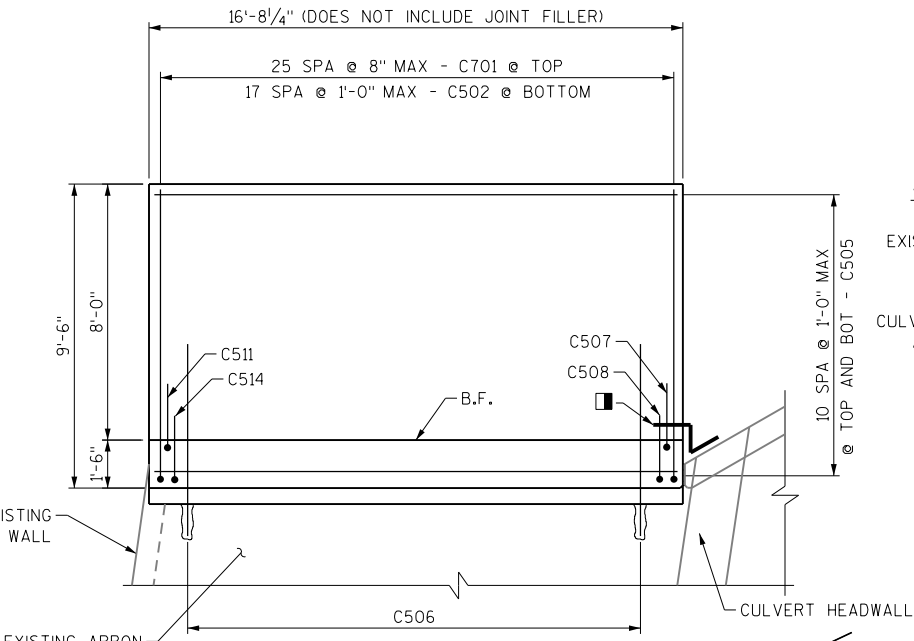
WINGWALL #3 (NW) ELEVATION



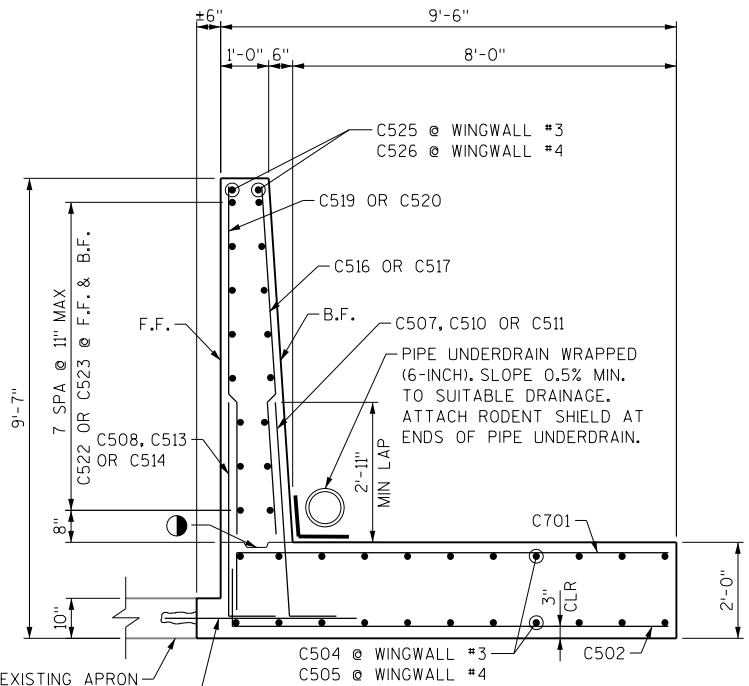
WINGWALL #3 (NW) FOOTING PLAN



WINGWALL #4 (NE) ELEVATION



WINGWALL #4 (NE) FOOTING PLAN



WINGWALL SECTION A-A

NOTES

SEE SHEET 4 FOR REBAR TABLES AND BAR BEND SKETCHES

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

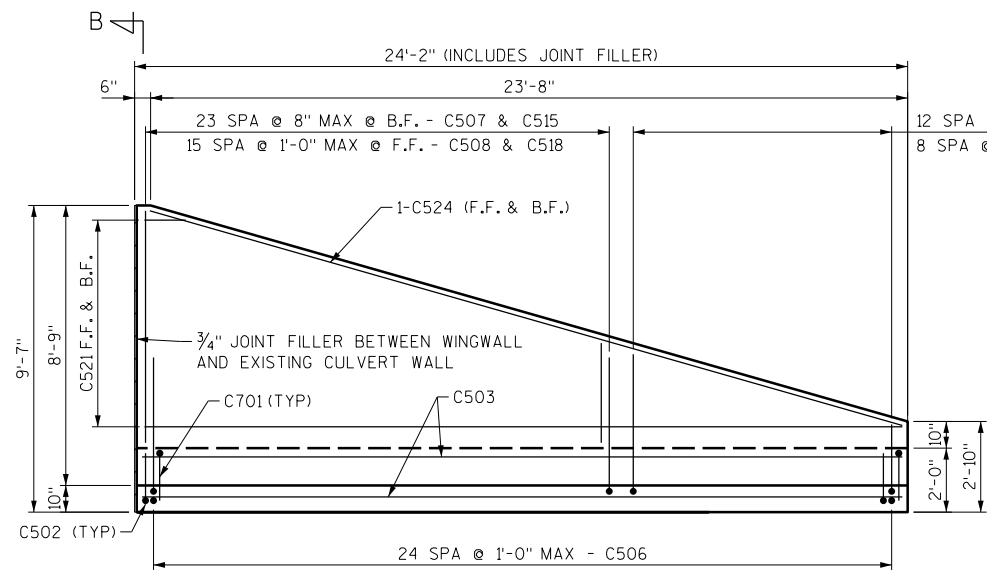
F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

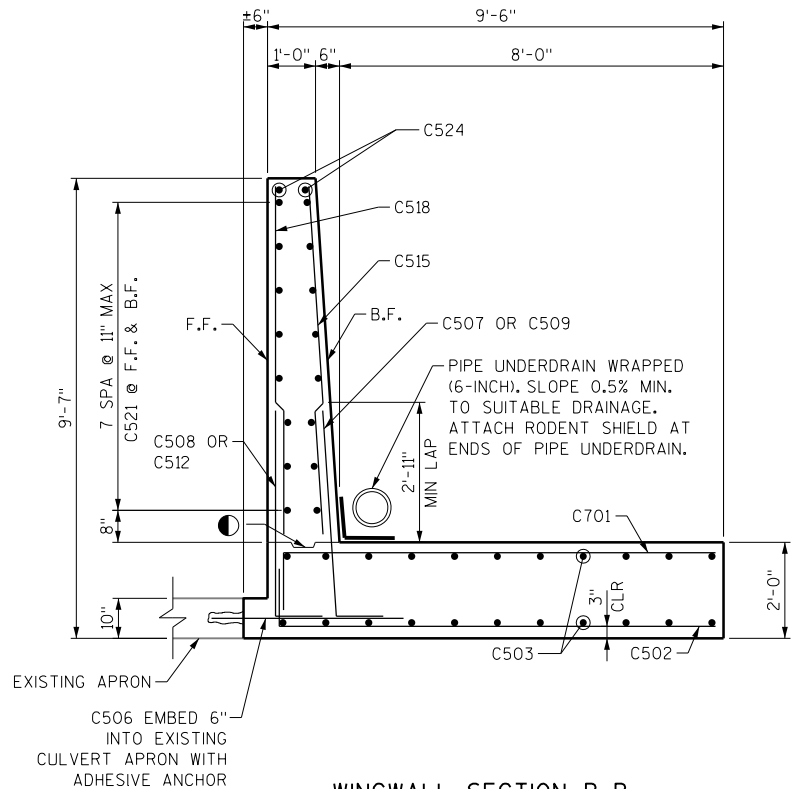
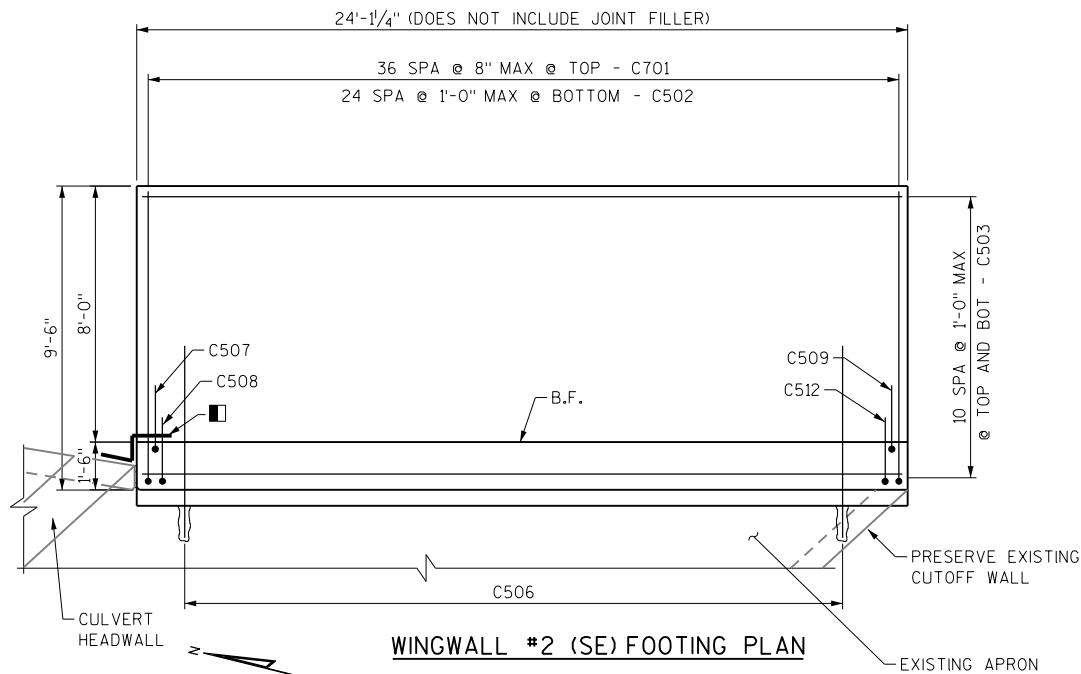
30" RUBBERIZED MEMBRANE WATERPROOFING

CONST. JOINT FORMED BY BEVELED 2"x6" KEYWAY WITH 18" RUBBERIZED MEMBRANE WATERPROOFING AT BACK OF WALL.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-64-37	
DRAWN BY		JAP	PLANS CKD. WJZ
NORTH WINGWALLS		SHEET 3 OF 4	



WINGWALL #2 (SE) ELEVATION

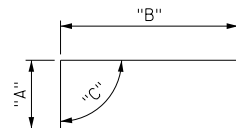


BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BAR SERIES	2287# COATED 4803# UNCOATED	LOCATION
C701		107	10'-2"	X			ALL WINGWALLS - FOOTING - HORIZ. - TOP
C502		73	9'-10"	X			ALL WINGWALLS - FOOTING - HORIZ. - BOT
C503		22	23'-9"				WINGWALL #2 - FOOTING - TRANS. - TOP & BOT
C504		22	28'-3"				WINGWALL #3 - FOOTING - TRANS. - TOP & BOT
C505		22	16'-4"				WINGWALL #4 - FOOTING - TRANS. - TOP & BOT
C506		72	3'-6"				ALL WINGWALLS - FOOTING - HORIZ. ADHESIVE DOWEL
C507	X	70	5'-3"	X			ALL WINGWALLS - FOOTING - DOWEL - B.F.
C508	X	47	5'-3"	X			ALL WINGWALLS - FOOTING - DOWEL - F.F.
C509	X	13	4'-2"	X	X		WINGWALL #2 - FOOTING - DOWEL - B.F. - CUT BAR
C510	X	15	4'-2"	X	X		WINGWALL #3 - FOOTING - DOWEL - B.F. - CUT BAR
C511	X	9	4'-2"	X	X		WINGWALL #4 - FOOTING - DOWEL - B.F. - CUT BAR
C512	X	9	4'-2"	X	X		WINGWALL #2 - FOOTING - DOWEL - F.F. - CUT BAR
C513	X	10	4'-2"	X	X		WINGWALL #3 - FOOTING - DOWEL - F.F. - CUT BAR
C514	X	6	4'-2"	X	X		WINGWALL #4 - FOOTING - DOWEL - F.F. - CUT BAR
C515	X	24	5'-2"	X			WINGWALL #2 - STEM - VERT. - B.F.
C516	X	29	5'-2"	X			WINGWALL #3 - STEM - VERT. - B.F.
C517	X	17	5'-2"	X			WINGWALL #4 - STEM - VERT. - B.F.
C518	X	16	5'-2"	X			WINGWALL #2 - STEM - VERT. - F.F.
C519	X	19	5'-2"	X			WINGWALL #3 - STEM - VERT. - F.F.
C520	X	12	5'-2"	X			WINGWALL #4 - STEM - VERT. - F.F.
C521	X	16	12'-6"	X			WINGWALL #2 - STEM - HORIZ - F.F. & B.F.
C522	X	16	14'-9"	X			WINGWALL #3 - STEM - HORIZ - F.F. & B.F.
C523	X	16	8'-7"	X			WINGWALL #4 - STEM - HORIZ - F.F. & B.F.
C524	X	2	24'-5"				WINGWALL #2 - STEM - DIAG - TOP BAR
C525	X	2	28'-10"				WINGWALL #3 - STEM - DIAG - TOP BAR
C526	X	2	17'-5"				WINGWALL #4 - STEM - DIAG - TOP BAR

THE FIRST DIGIT OR FIRST TWO DIGITS OF A BAR MARK INDICATES THE BAR SIZE. ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.

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



CUT BAR TABLE

BAR NO.	DIM "A"	DIM "B"	ANG "C"
C701	1'-2"	9'-2"	90°
C502	10"	9'-2"	90°
C507	10"	4'-7"	94°
C508	10"	4'-7"	90°
C509	10"	2'-4" TO 4'-7"	94°
C510	10"	2'-4" TO 4'-7"	94°
C511	10"	2'-4" TO 4'-7"	94°
C512	10"	2'-4" TO 4'-7"	90°
C513	10"	2'-4" TO 4'-7"	90°
C514	10"	2'-4" TO 4'-7"	90°

BAR NO.	NO. REQUIRED	LENGTH
C509	1 SERIES OF 13	
C510	1 SERIES OF 15	3'-0" TO 5'-3"
C511	1 SERIES OF 9	
C512	1 SERIES OF 9	
C513	1 SERIES OF 10	3'-0" TO 5'-3"
C514	1 SERIES OF 6	
C515	1 SERIES OF 24	
C516	1 SERIES OF 29	
C517	1 SERIES OF 17	3'-1" TO 7'-3"
C518	1 SERIES OF 16	
C519	1 SERIES OF 19	
C520	1 SERIES OF 12	
C521	2 SERIES OF 8	1'-2" TO 23'-9"
C522	2 SERIES OF 8	1'-3" TO 28'-3"
C523	2 SERIES OF 8	10" TO 16'-4"

BUNDLE AND TAG EACH SERIES SEPARATELY

NOTES

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

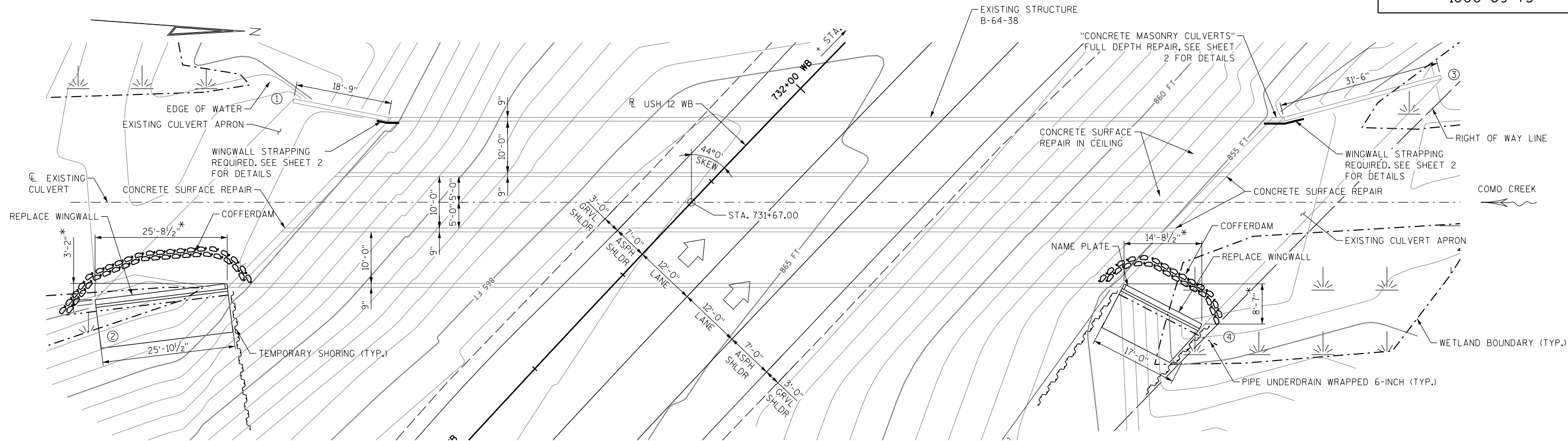
F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

30" RUBBERIZED MEMBRANCE WATERPROOFING

CONST. JOINT FORMED BY BEVELED 2"x6" KEYWAY WITH 18" RUBBERIZED MEMBRANE WATERPROOFING AT BACK OF WALL.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-64-37	
DRAWN BY		JAP	PLANS CKD. WJZ
SOUTH WINGWALL		SHEET	4 OF 4



PLAN

(THREE CELL REINFORCED CONCRETE BOX CULVERT)

*WINGWALL SKEW MAY BE ADJUSTED TO
BEST FIT EXISTING FIELD CONDITIONS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS AND ELEVATIONS SHOWN ARE BASED
ON THE ORIGINAL STRUCTURE PLANS.

① INDICATES WING NUMBER

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED
2" CLEAR UNLESS OTHERWISE SHOWN OR NOTEDTHE FIRST OR FIRST TWO DIGITS OF THE BAR
MARK SIGNIFIES THE BAR SIZE.THE CONTRACTOR SHALL SUPPLY A NEW NAME
PLATE IN ACCORDANCE WITH SECTION 502.3.11
OF THE STANDARD SPECIFICATIONS AND THE
STANDARD DETAIL DRAWINGS. NAME PLATE TO
SHOW ORIGINAL CONSTRUCTION YEAR (1967).THE UPPER LIMITS OF "EXCAVATION FOR
STRUCTURES CULVERTS B-64-037" SHALL BE
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VOLUME WHICH CANNOT BE PLACED BEFORE
WINGWALL CONSTRUCTION AND NOT OCCUPIED
BY THE NEW STRUCTURE SHALL BE BACKFILLED
WITH STRUCTURE BACKFILLCONCRETE SURFACE REPAIR AREAS ARE REQUIRED
AT THE NOTED LOCATIONS. LIMITS OF REPAIR
AREAS WILL BE DETERMINED BY THE PROJECT
ENGINEER. ESTIMATED QUANTITIES ARE APPROXIMATE.

DESIGN CONTACTS

BRIDGE OFFICE:

WILLIAM DREHER, PE
(608) 266-8489

CONSULTANT:

WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321

DESIGN DATA

LIVE LOAD:

ORIGINAL DESIGN LOADING: HS-20

EARTH LOAD

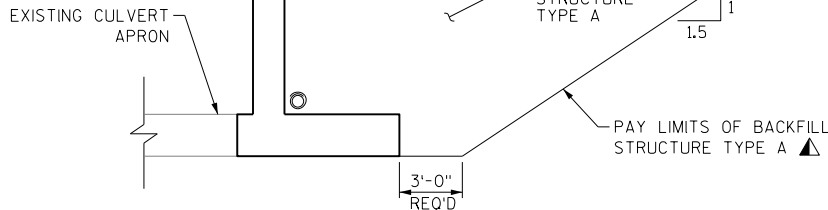
ORIGINAL BOX DESIGNED FOR 13' OF FILL

MATERIAL PROPERTIES

CONCRETE MASONRY ----- f'c = 3,500 psi

BAR STEEL REINFORCEMENT,
GRADE 60 ----- fy = 60,000 psi

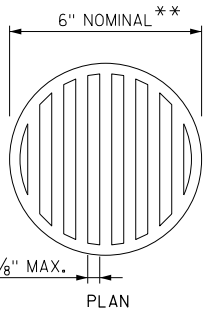
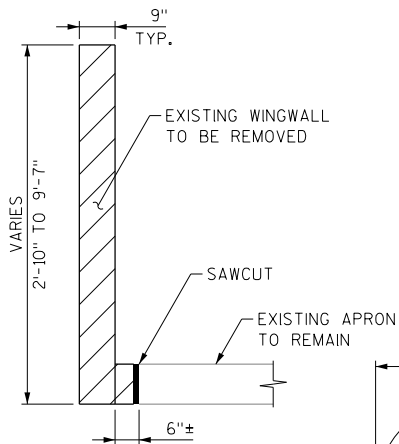
GEOTECHNICAL

WINGWALL TO BE FOUNDED ON SOIL WITH
A MINIMUM ULTIMATE BEARING RESISTANCE
OF 2.5 KSF. CONTRACTOR TO DETERMINE
SUITABILITY OF EXISTING SOIL PRIOR TO
CONSTRUCTING THE WINGWALL.TYPICAL SECTION
THRU RETAINING WALL▲ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS
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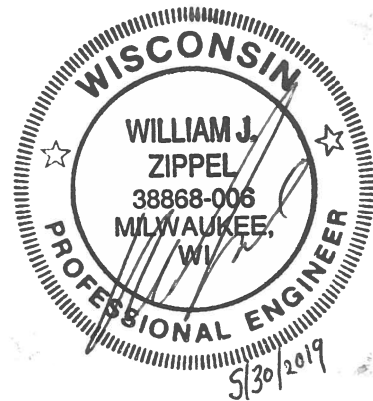
TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 731+67	LS	1
206.2000	EXCAVATION FOR STRUCTURES CULVERTS B-64-37	LS	1
206.5000	COFFERDAMS B-64-38	LS	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	242
501.1000.S	ICE HOT WEATHER CONCRETING	LB	301
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EA	4
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EA	45
504.0100	CONCRETE MASONRY CULVERTS	CY	40
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2938
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1401
509.1500	CONCRETE SURFACE REPAIR	SF	60
511.1200	TEMPORARY SHORING B-64-38	SF	625
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	61
SPV.0060.08	STRAPPING B-64-38	EA	2
NON-BID ITEMS			
	NAME PLATE		
	JOINT FILLER - 3/4"		
	NON-BITUMINOUS JOINT SEALER		

TYPICAL WINGWALL REMOVAL



RODENT SHIELD DETAIL

** DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO
SLOTS ARE VERTICAL.THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID
ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY
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SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE
PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

TRAFFIC DATA

USH 12 EB
A.A.D.T. = 8,400 (2015)

LIST OF DRAWINGS

1. GENERAL PLAN
2. WING STRAPPING
3. NORTH & SOUTH WINGWALLS

NO.	DATE	REVISION	BY
-----	------	----------	----

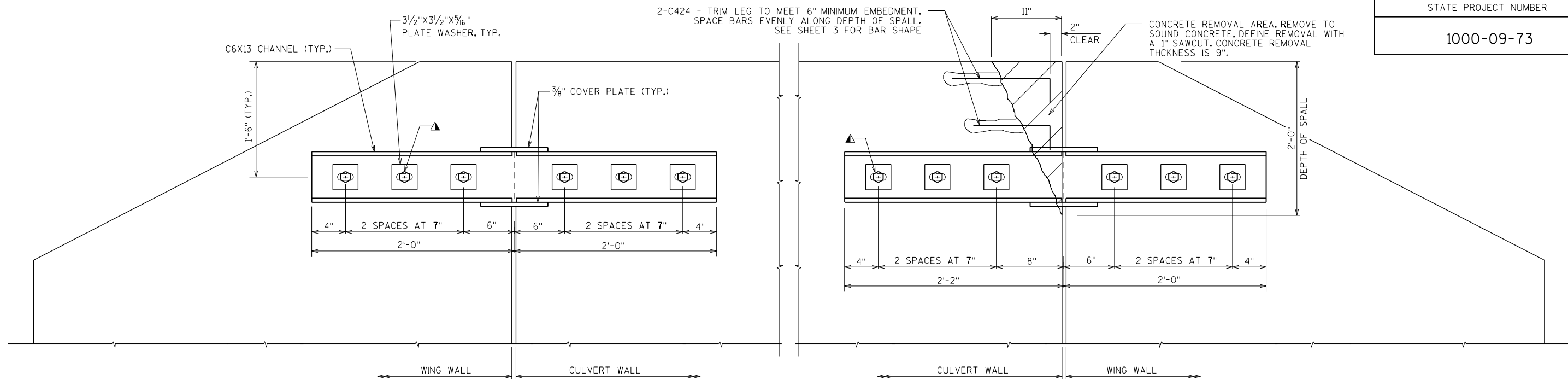
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED *William C. Dreher* SDR **08/07/19**
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-64-38

COUNTY				TOWN/CITY/VILLAGE			
WALWORTH				GENEVA			
DESIGN SPEC.				REHABILITATION N/A			
DESIGNED BY	JAP	DESIGN CK'D.	WJZ	DRAWN BY	BJW	PLANS CK'D.	WJZ

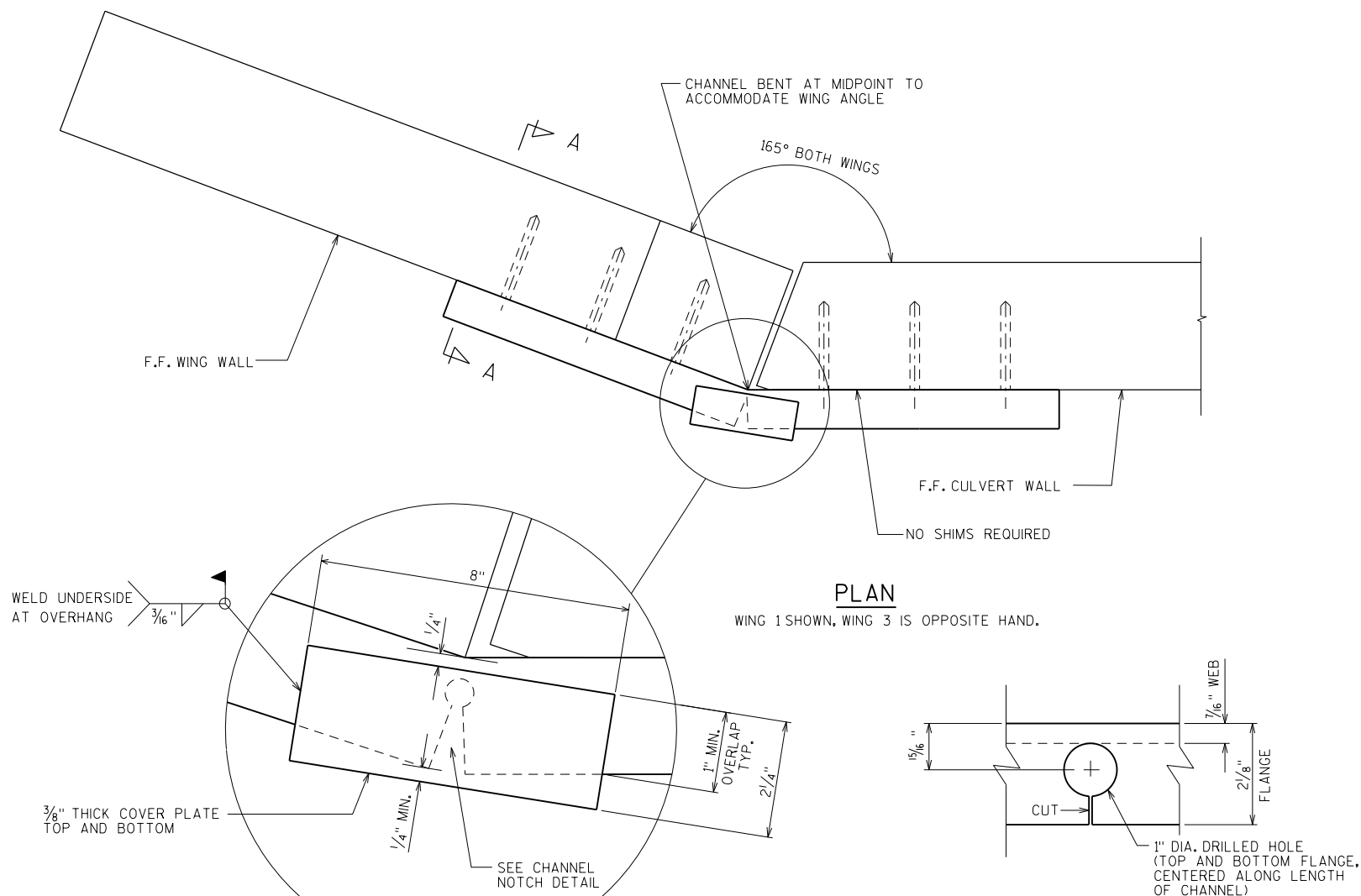
GENERAL PLAN

SHEET 1 OF 3



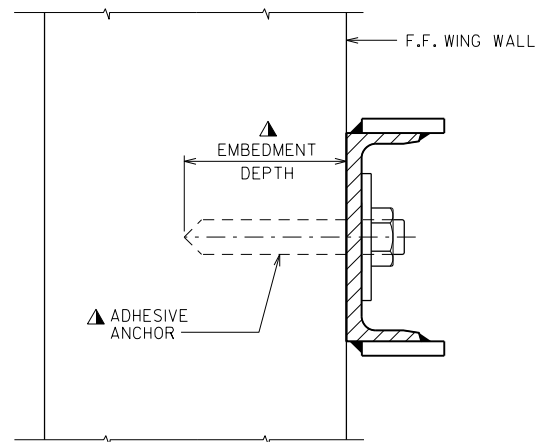
WING 1 ELEVATION

WING 3 ELEVATION



PLAN

CHANNEL NOTCH DETAIL



SECTION A-A

NOTES

BID ITEM "STRAPPING B-64-038" INCLUDES ALL ITEMS SHOWN.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.

ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.

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ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

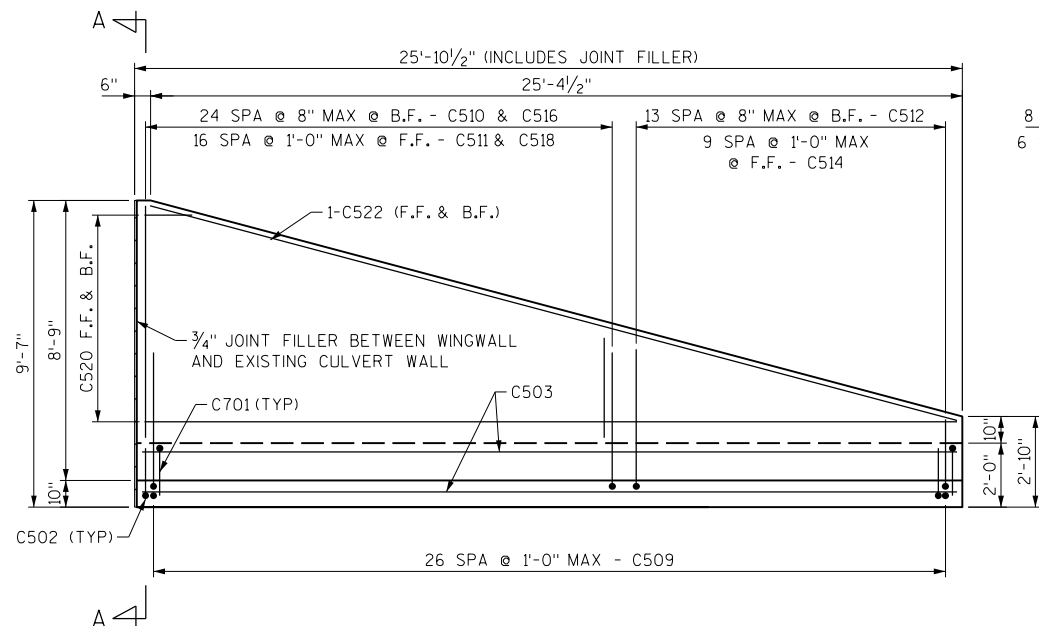
WINGWALL ANGLE, REQUIRED SHIMS, ANCHOR LOCATIONS AND WELD CLEARANCES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATING WING WALL STRAP.

IF WELDING COVER PLATE IN FIELD, PRIOR TO WELDING, REMOVE GALVANIZING FROM AREA TO BE WELDED. TOUCH UP WITH ZINC RICH PAINT ALL AREAS LACKING GALVANIZING WHEN COMPLETE.

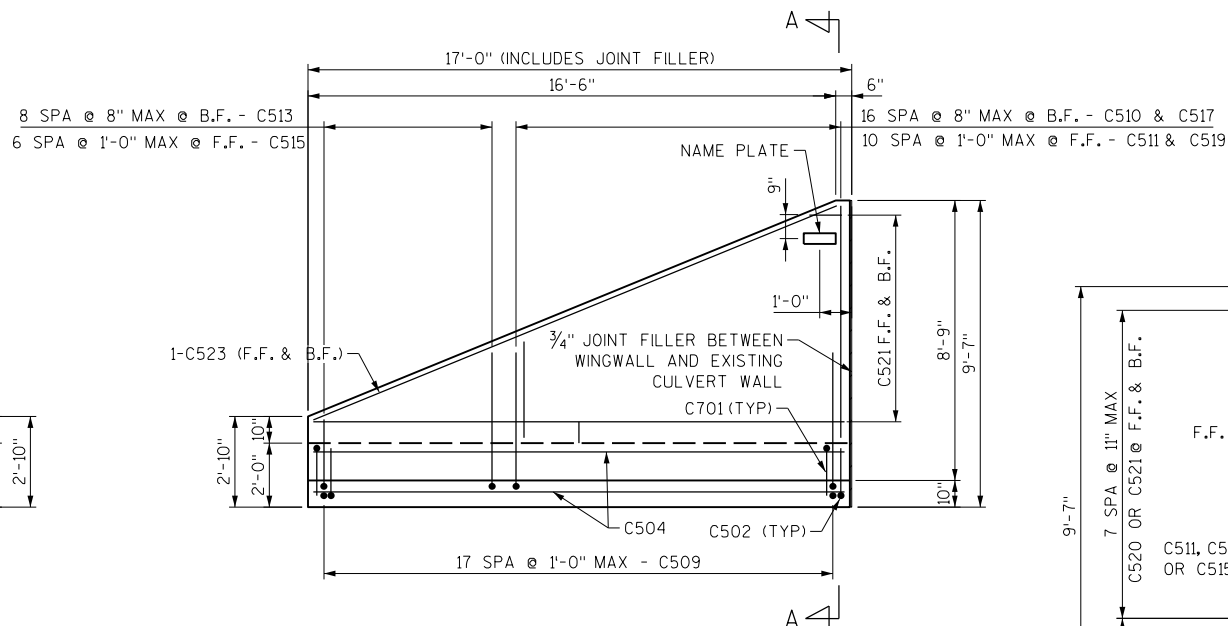
ADHESIVE ANCHORS 5/8"-INCH. EMBED 5" IN CONCRETE. SEE SECTION A-A

USE 1/16" X 1 3/16" LONG SLOTTED HOLES

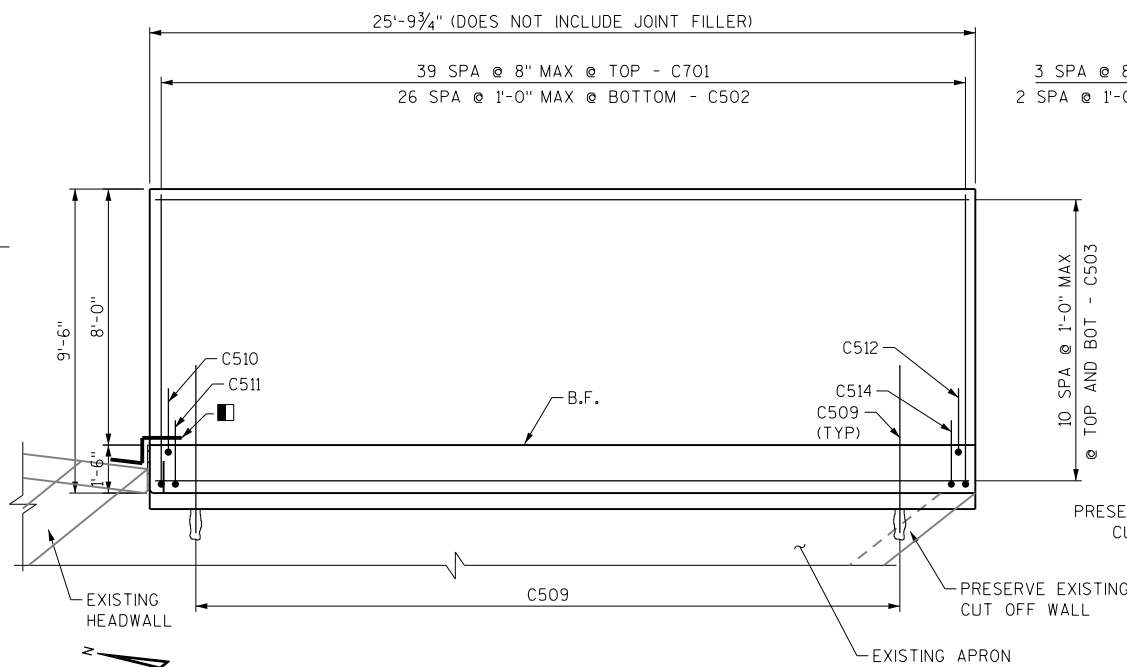
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-64-38	
DRAWN BY		BJW	PLANS CKD. WJZ
WING STRAPPING		SHEET 2 OF 3	



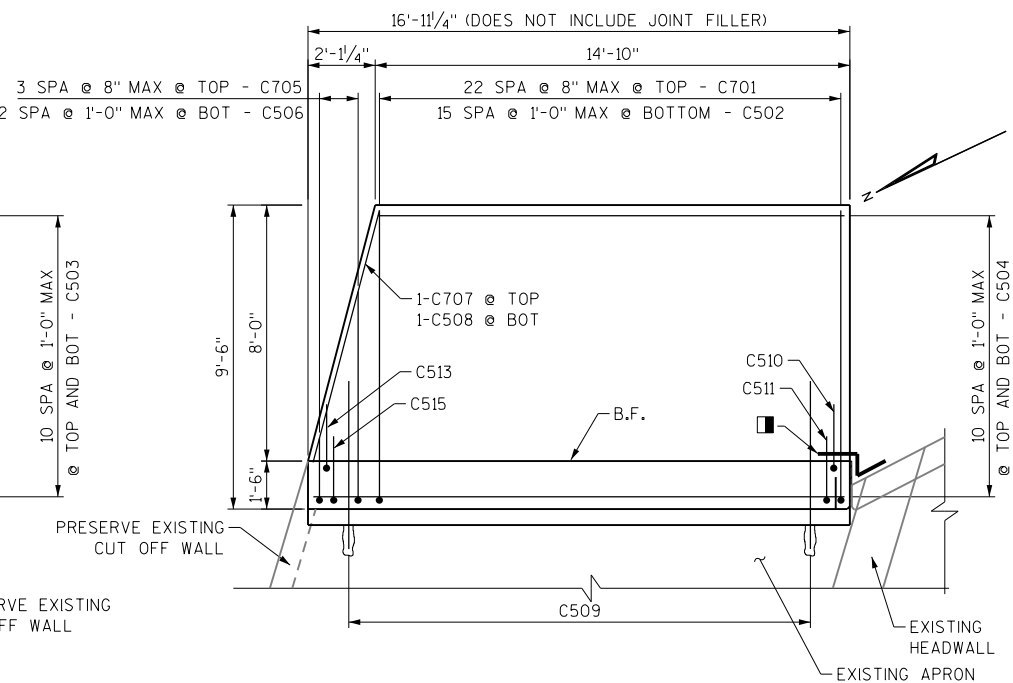
WINGWALL #2 (SE) ELEVATION



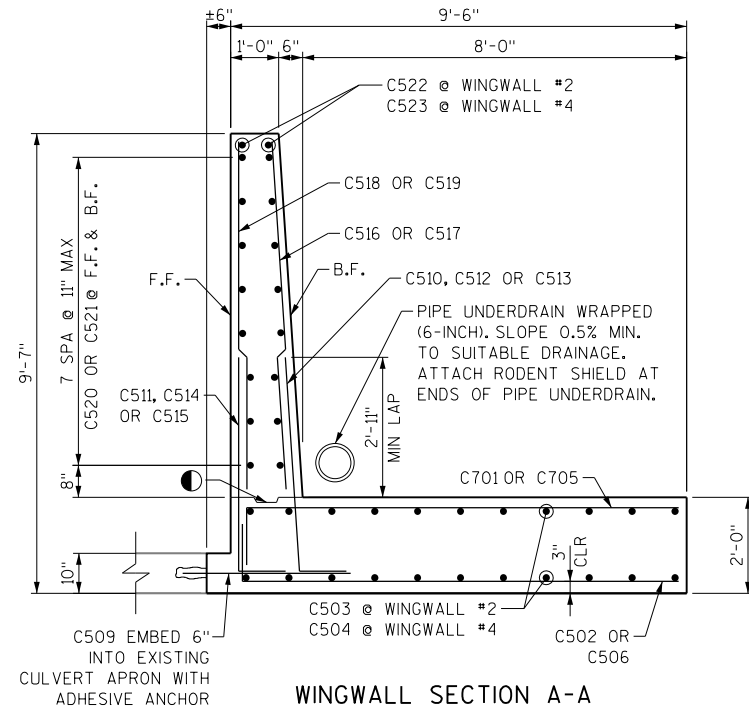
WINGWALL #4 (NE) ELEVATION



WINGWALL #2 (SE) FOOTING PLAN



WINGWALL #4 (NE) FOOTING PLAN



WINGWALL SECTION A-A

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BAR SERIES	1401 # COATED 2938 # UNCOATED
						LOCATION
C701		63	10'-2"	X		ALL WINGWALLS - FOOTING - HORIZ. - TOP
C502		43	9'-10"	X		ALL WINGWALLS - FOOTING - HORIZ. - BOT
C503		22	25'-5"			WINGWALL #2 - FOOTING - TRANS. - TOP & BOT
C504		22	15'-7"	X		WINGWALL #4 - FOOTING - TRANS. - TOP & BOT
C705		4	5'-3"	X	X	WINGWALL #4 - FOOTING HORIZ. - TOP - SERIES
C506		3	4'-11"	X	X	WINGWALL #4 - FOOTING HORIZ. - BOT - SERIES
C707		1	8'-1"			WINGWALL #4 - FOOTING HORIZ. - TOP EDGE
C508		1	8'-1"			WINGWALL #4 - FOOTING HORIZ. - BOT EDGE
C509		45	3'-6"			ALL WINGWALLS - FOOTING - HORIZ ADHESIVE DOWEL
C510	X	42	5'-3"	X		ALL WINGWALLS - FOOTING - DOWEL - B.F.
C511	X	28	5'-3"	X		ALL WINGWALLS - FOOTING - DOWEL - F.F.
C512	X	14	4'-2"	X	X	WINGWALL #2 - FOOTING - DOWEL - B.F. - CUT BAR
C513	X	9	4'-2"	X	X	WINGWALL #3 - FOOTING - DOWEL - B.F. - CUT BAR
C514	X	10	4'-2"	X	X	WINGWALL #2 - FOOTING - DOWEL - F.F. - CUT BAR
C515	X	7	4'-2"	X	X	WINGWALL #3 - FOOTING - DOWEL - F.F. - CUT BAR
C516	X	25	5'-2"	X		WINGWALL #2 - STEM - VERT. - B.F.
C517	X	17	5'-2"	X		WINGWALL #3 - STEM - VERT. - B.F.
C518	X	17	5'-2"	X		WINGWALL #2 - STEM - VERT. - F.F.
C519	X	11	5'-2"	X		WINGWALL #3 - STEM - VERT. - F.F.
C520	X	16	13'-3"	X		WINGWALL #2 - STEM - HORIZ - F.F. & B.F.
C521	X	16	8'-9"	X		WINGWALL #4 - STEM - HORIZ - F.F. & B.F.
C522	X	2	26'-1"			WINGWALL #2 - STEM - DIAG. - TOP BAR
C523	X	2	17'-8"			WINGWALL #4 - STEM - DIAG. - TOP BAR
C424	X	4	2'-9"	X		WINGWALL #3 - REPAIR DOWEL

NOTES

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

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

30" RUBBERIZED MEMBRANCE WATERPROOFING

CONST. JOINT FORMED BY BEVELED 2"x6" KEYWAY WITH 18" RUBBERIZED MEMBRANE WATERPROOFING AT BACK OF WALL.

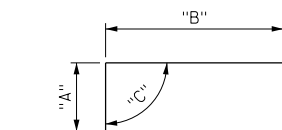
THE FIRST DIGIT OR FIRST TWO DIGITS OF A BAR MARK INDICATES THE BAR SIZE. ALL DIMENSIONS IN THE BAR BENDS ARE OUT TO OUT.

LENGTH SHOWN FOR BAR SERIES IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS.

CUT BAR TABLE

BAR NO.	LOCATION	NO. REQUIRED	LENGTH
C504	WINGWALL #4 - FOOTING	2 SERIES OF 11	14'-7" TO 16'-7"
C705	WINGWALL #4 - FOOTING	1 SERIES OF 4	2'-11" TO 7'-6"
C506	WINGWALL #4 - FOOTING	1 SERIES OF 3	1'-7" TO 6'-2"
C512	WINGWALL #2 - B.F.	1 SERIES OF 14	3'-0" TO 5'-3"
C513	WINGWALL #4 - B.F.	1 SERIES OF 9	3'-0" TO 5'-3"
C514	WINGWALL #2 - F.F.	1 SERIES OF 10	3'-0" TO 5'-3"
C515	WINGWALL #4 - F.F.	1 SERIES OF 7	3'-0" TO 5'-3"
C516	WINGWALL #2 - B.F.	1 SERIES OF 25	3'-1" TO 7'-3"
C517	WINGWALL #4 - B.F.	1 SERIES OF 17	3'-1" TO 7'-3"
C518	WINGWALL #2 - F.F.	1 SERIES OF 17	3'-1" TO 7'-3"
C519	WINGWALL #4 - F.F.	1 SERIES OF 11	3'-1" TO 7'-3"
C520	WINGWALL #2 - F.F./B.F.	2 SERIES OF 8	1'-1" TO 25'-5"
C521	WINGWALL #4 - F.F./B.F.	2 SERIES OF 8	10" TO 16'-7"

BUNDLE AND TAG EACH SERIES SEPARATELY



BAR NO.	DIM "A"	DIM "B"	ANG "C"
C701	1'-2"	9'-2"	90°
C502	10"	9'-2"	90°
C705	1'-2"	1'-11" TO 6'-6"	90°
C506	10"	1'-11" TO 6'-6"	90°
C510	10"	4'-7"	94°
C511	10"	4'-7"	90°
C512	10"	2'-4" TO 4'-7"	94°
C513	10"	2'-4" TO 4'-7"	90°
C514	10"	2'-4" TO 4'-7"	90°
C515	10"	2'-4" TO 4'-7"	90°
C424	10"	2'-0"	90°

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-64-38	
DRAWN BY		BJW	PLANS CKD. WJZ
NORTH & SOUTH WINGWALLS		SHEET 3	OF 3

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

CONCRETE SURFACE REPAIR AREAS ARE REQUIRED AT WINGS 3 AND 4. LIMITS OF REPAIR AREAS WILL BE DETERMINED BY THE PROJECT ENGINEER. ESTIMATED QUANTITIES FOR CONCRETE SURFACE REPAIR ARE APPROXIMATE.

① INDICATES WING NUMBER

TRAFFIC DATA

STH 16
A.A.D.T. = 20,800 (2015)

LIST OF DRAWINGS

- GENERAL PLAN
- WING STRAPPING

DESIGN DATA

LOAD RATINGS TAKEN FROM
"WISDOT BRIDGE LOAD RATING SUMMARY"
DATED JUNE 01, 2011

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-20
OPERATIONAL RATING: HS-42

WISCONSIN STANDARD PERMIT VEHICLE LOAD:

WIS-SPV: 250 KIPS

MATERIAL PROPERTIES

STRUCTURAL STEEL, ASTM A36, GRADE 36: $f_y = 36,000$ psi

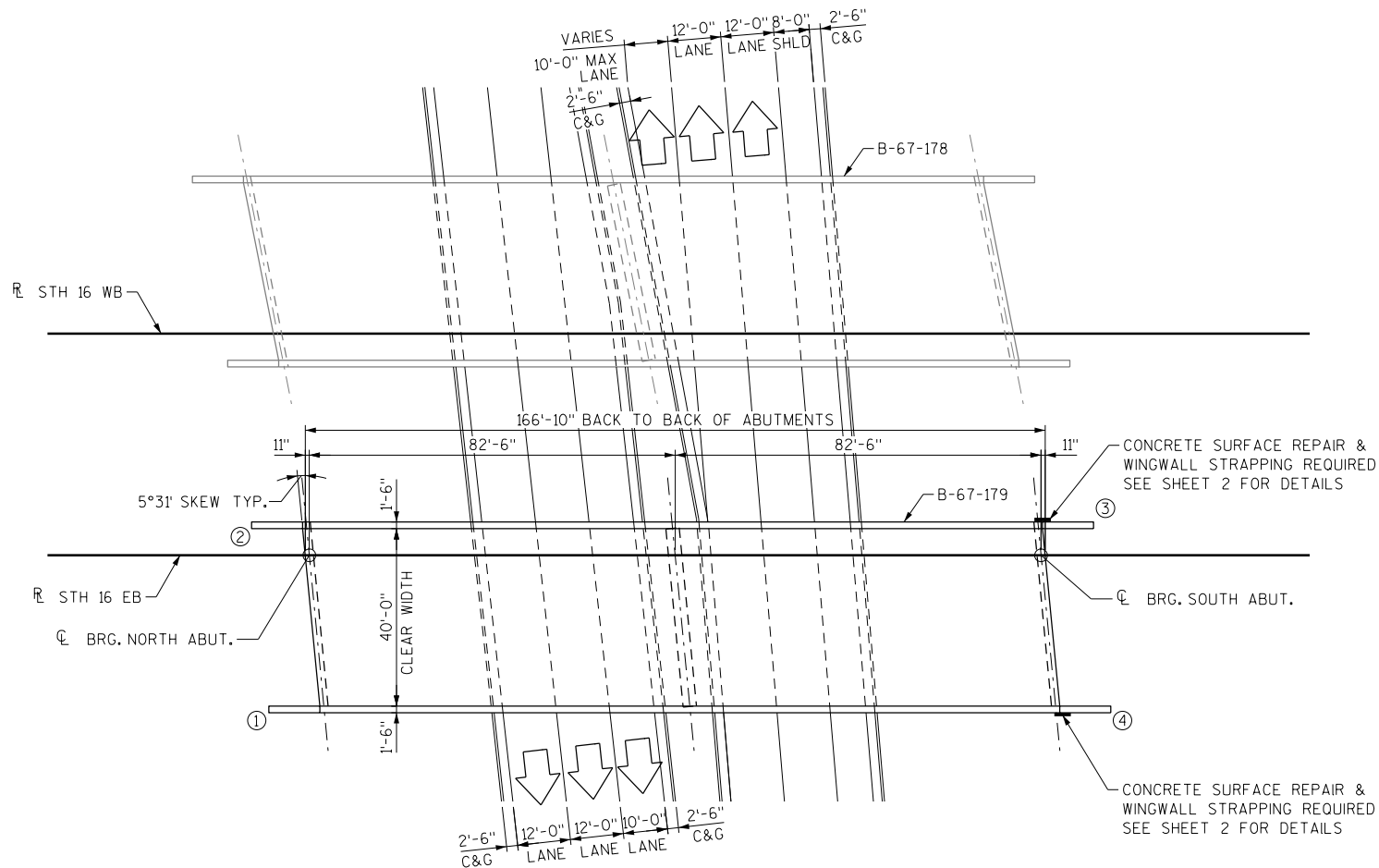
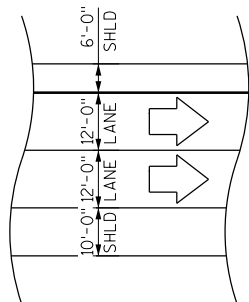
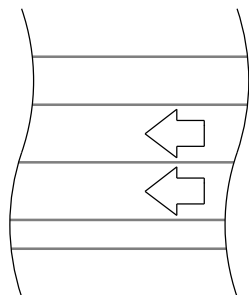
STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:

WILLIAM DREHER, PE
(608) 266-8489

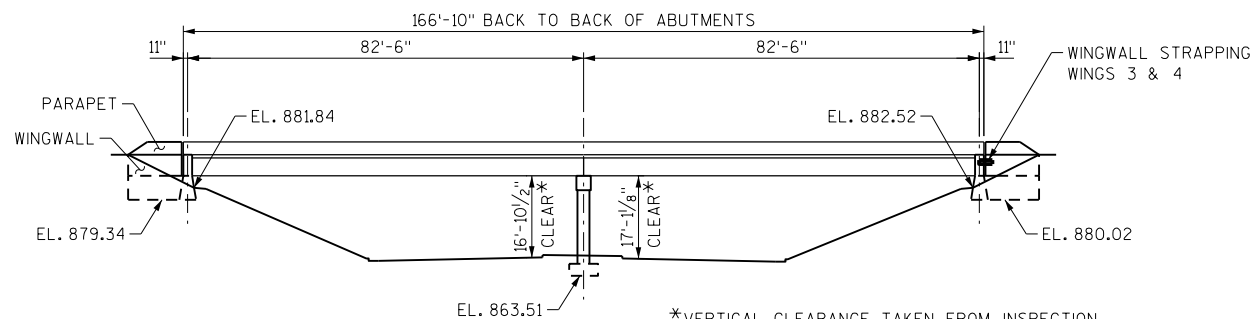
CONSULTANT:

WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321



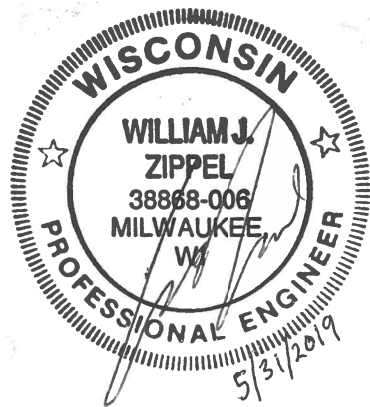
PLAN

2-SPAN 45-INCH PRESTRESSED CONCRETE GIRDER BRIDGE



ELEVATION

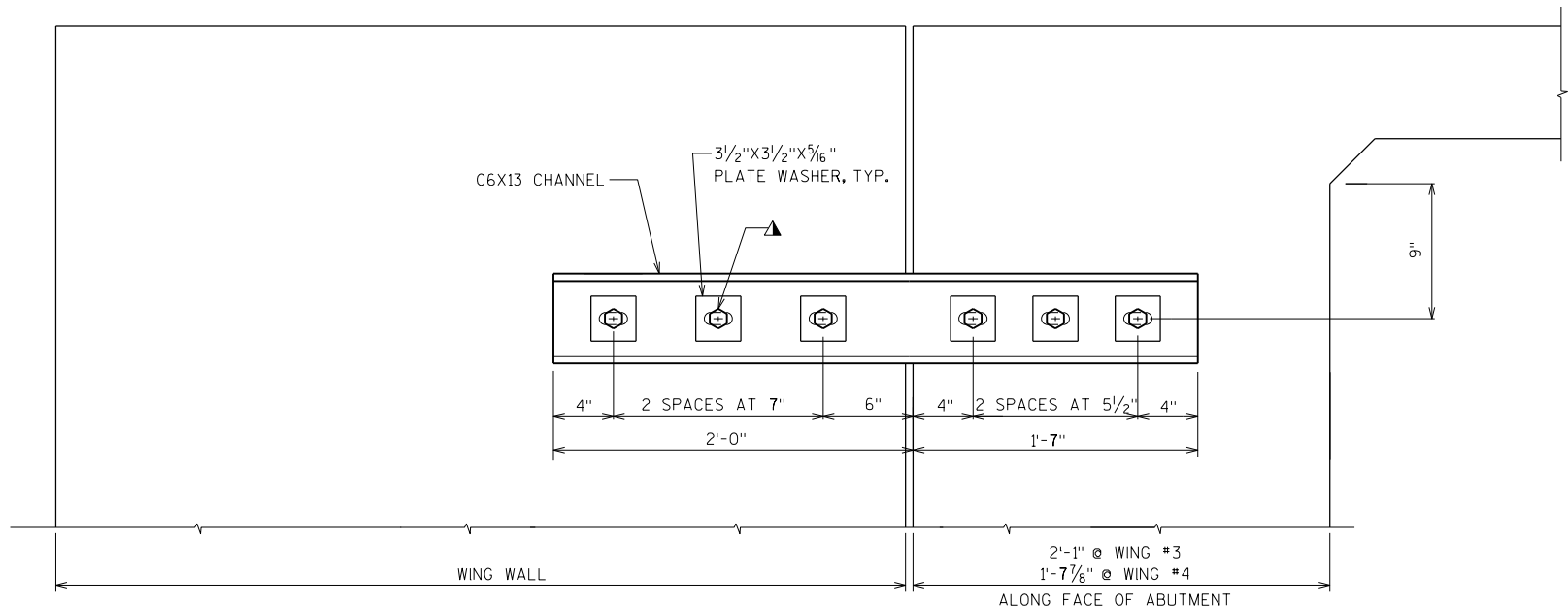
*VERTICAL CLEARANCE TAKEN FROM INSPECTION
REPORT DATED 5/16/2018



TOTAL ESTIMATED QUANTITIES

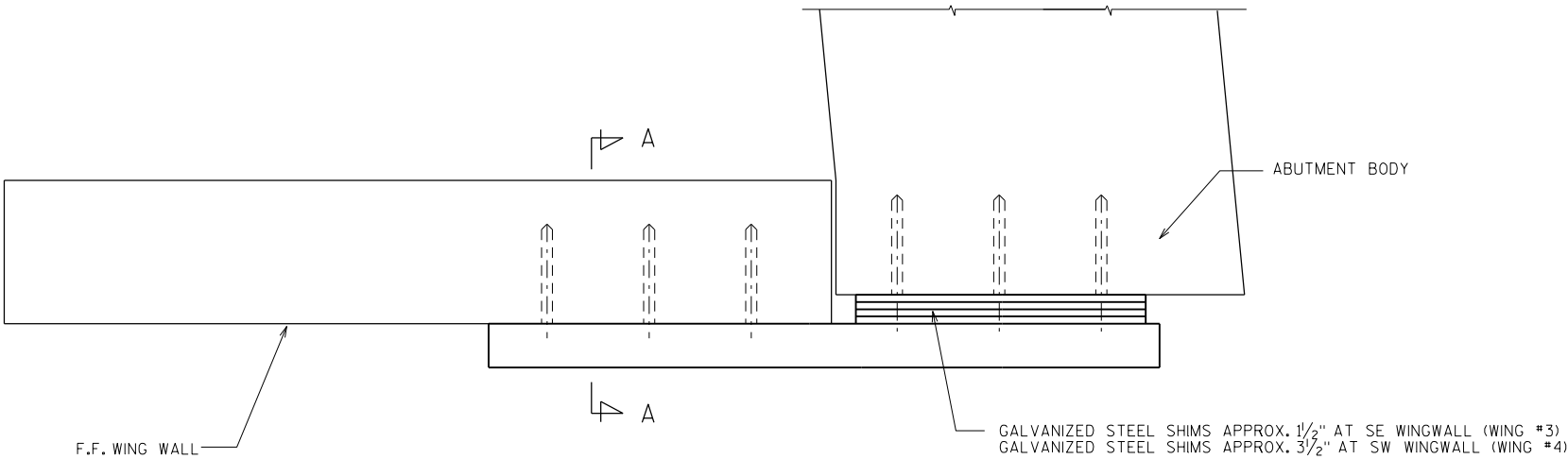
ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
509.1500	CONCRETE SURFACE REPAIR	SF	6
SPV.0060.06	STRAPPING B-67-179	EACH	2

NO.	DATE	REVISION	BY
 Alfred Benesch & Company 1300 West Canal Street, Suite 150 Milwaukee, Wisconsin 53233 414-308-1310 Job No. 20229,04			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> SDR 08/07/19		DATE	
STRUCTURE B-67-179			
STH 16 SB OVER STH 190			
COUNTY	WAUKESHA	TOWN/CITY/VILLAGE	PEWAUKEE
DESIGN SPEC.	REHABILITATION	N/A	
DESIGNED BY	JAP	DESIGN CK'D.	WJZ
DRAWN BY	BJW	PLANS CK'D.	WJZ
GENERAL PLAN			SHEET 1 OF 2



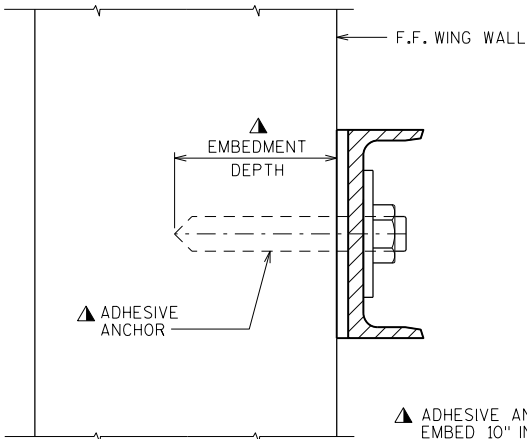
WING ELEVATION

WINGWALL #3 IS SHOWN
WINGWALL #4 IS OPPOSITE HAND



PLAN

WINGWALL #3 IS SHOWN
WINGWALL #4 IS OPPOSITE HAND



SECTION A-A

USE 1/16" X 2 1/2" LONG SLOTTED HOLES

NOTES

- BID ITEM "STRAPPING B-67-179" INCLUDES ALL ITEMS SHOWN.
- ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.
- ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.
- CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.
- CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
- ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.
- WINGWALL ANGLE, REQUIRED SHIMS, ANCHOR LOCATIONS AND WELD CLEARANCES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATING WING WALL STRAP.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-67-179	
DRAWN BY		BJW	PLANS CKD. WJZ
WING STRAPPING		SHEET 2 OF 2	

DESIGN DATA

LIVE LOAD:
ORIGINAL BOX DESIGN LOADING HS20

MATERIAL PROPERTIES:

CONCRETE MASONRY.....f'c = 3,500 psi
BAR STEEL REINFORCEMENT.....fy = 60,000 psi
STRUCTURAL STEEL, ASTM A36, GRADE 36: fy = 36,000 psi

FOUNDATION DATA:

WINGWALL TO BE FOUNDED ON SOIL WITH A MINIMUM
ULTIMATE BEARING RESISTANCE OF 3.5 KSF. CONTRACTOR
TO DETERMINE SUITABILITY OF EXISTING SOIL PRIOR TO
CONSTRUCTING THE WINGWALL.

TRAFFIC DATA

STH 20
AADT (2017) = 33400
DESIGN SPEED = 60 MPH.

LIST OF DRAWINGS:

1. GENERAL PLAN
2. TYPICAL SECTIONS & NOTES
3. WINGWALL REPLACEMENT
4. WING STRAPPING
5. RETAINING WALL STRAPPING

BENCHMARKS

NAME	DESCRIPTION	ELEV	STA	OFFSET
500	REBAR	686.53	325+98	71.6 LT
501	REBAR	683.96	327+17	71.6 RT

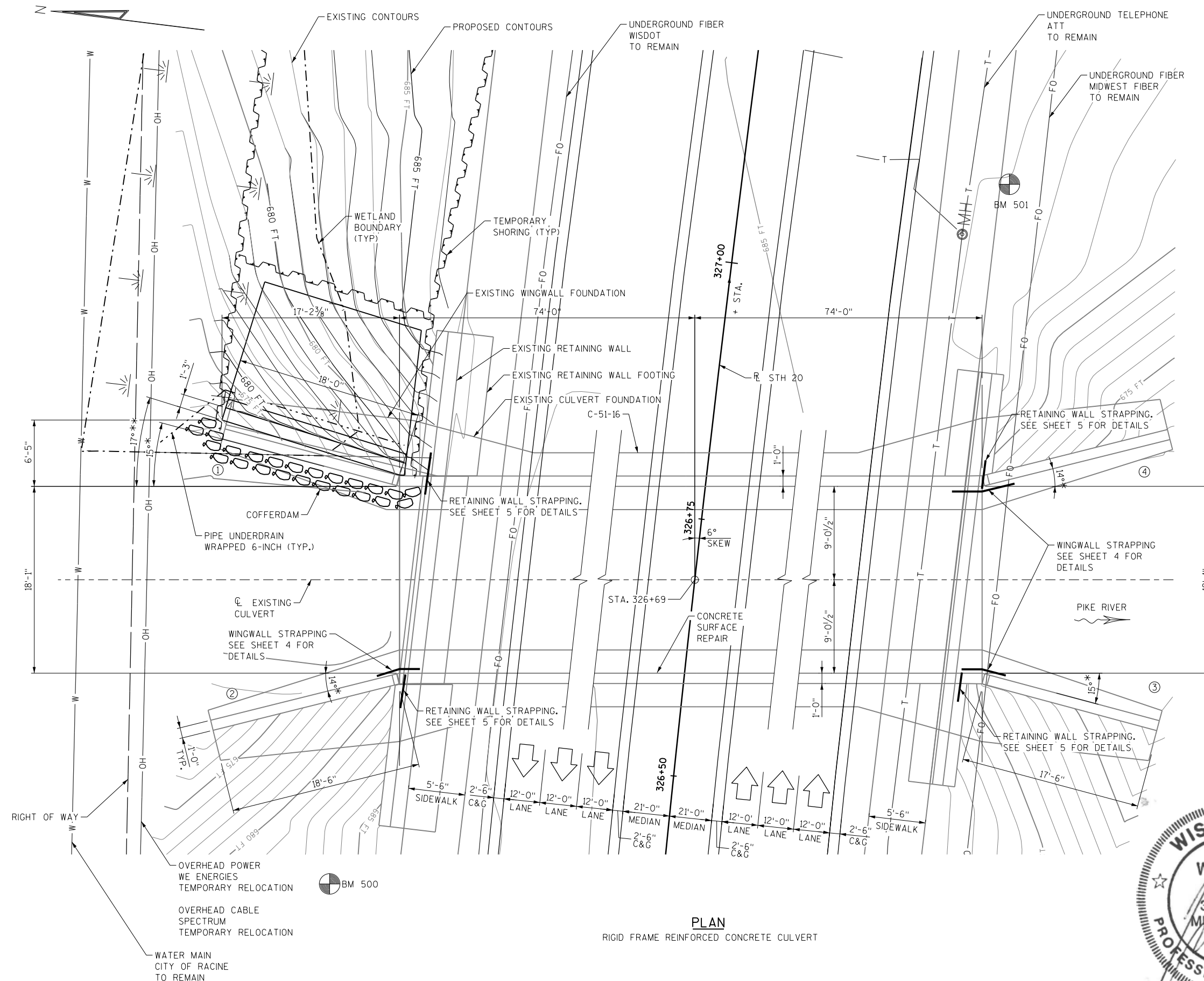
LEGEND

- ⊗ INDICATES WINGWALL NUMBER
* EXISTING WINGWALL
** PROPOSED WINGWALL SKEW MAY BE
ADJUSTED TO BEST FIT EXISTING
FIELD CONDITIONS

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
WILLIAM DREHER, PE
(608) 266-8489

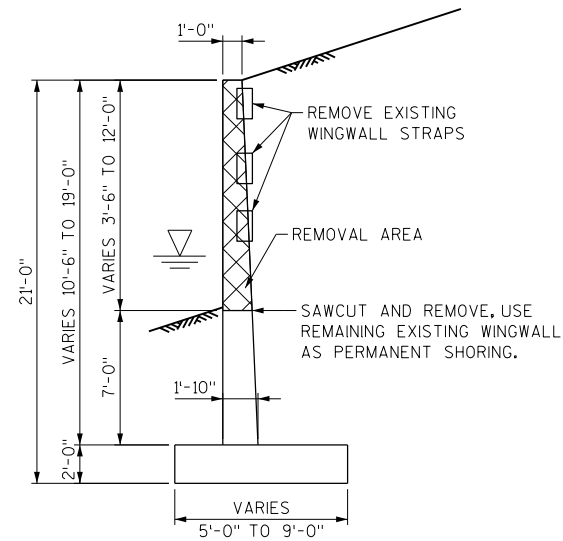
CONSULTANT:
WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321

**PLAN**

RIGID FRAME REINFORCED CONCRETE CULVERT



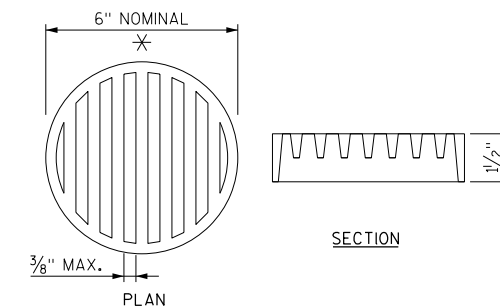
NO.	DATE	REVISION	BY
benesch Alfred Benesch & Company 1300 West Canal Street, Suite 150 Milwaukee, Wisconsin 53233 414-308-1310 Job No. 20229,04			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> CHIEF STRUCTURES DESIGN ENGINEER		12/05/19 DATE	
STRUCTURE C-51-16			
STH 20 OVER PIKE RIVER			
COUNTY	RACINE	TOWN/CITY/VILLAGE	MOUNT PLEASANT
DESIGN SPEC.	REHABILITATION	N/A	
DESIGNED BY	JAP	DESIGN CK'D.	WJZ
DRAWN BY	BJW	PLANS CK'D.	WJZ
GENERAL PLAN			SHEET 1 OF 5



EXISTING WINGWALL TYPICAL
SECTION AND REMOVAL

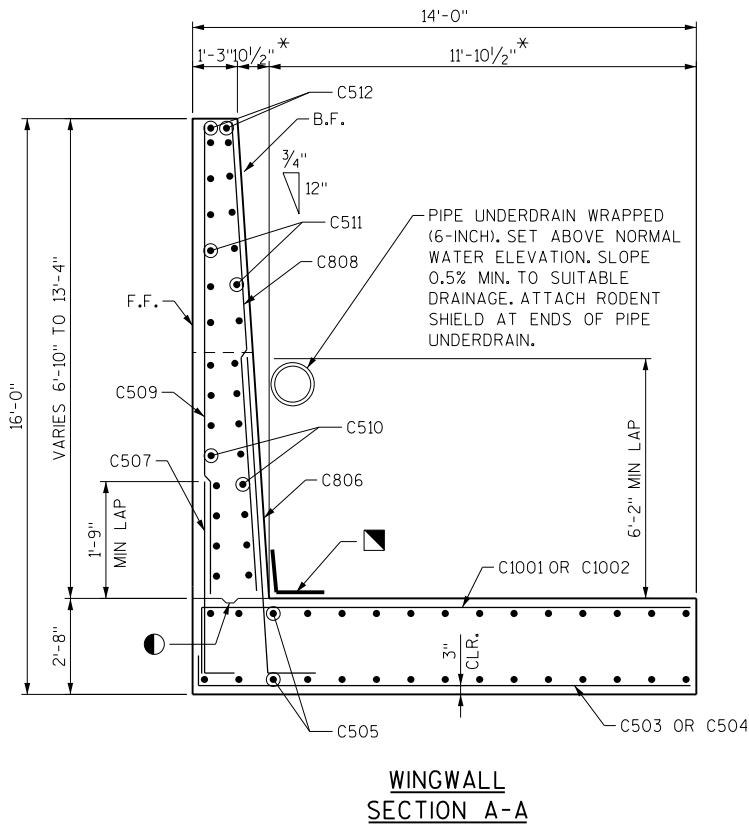
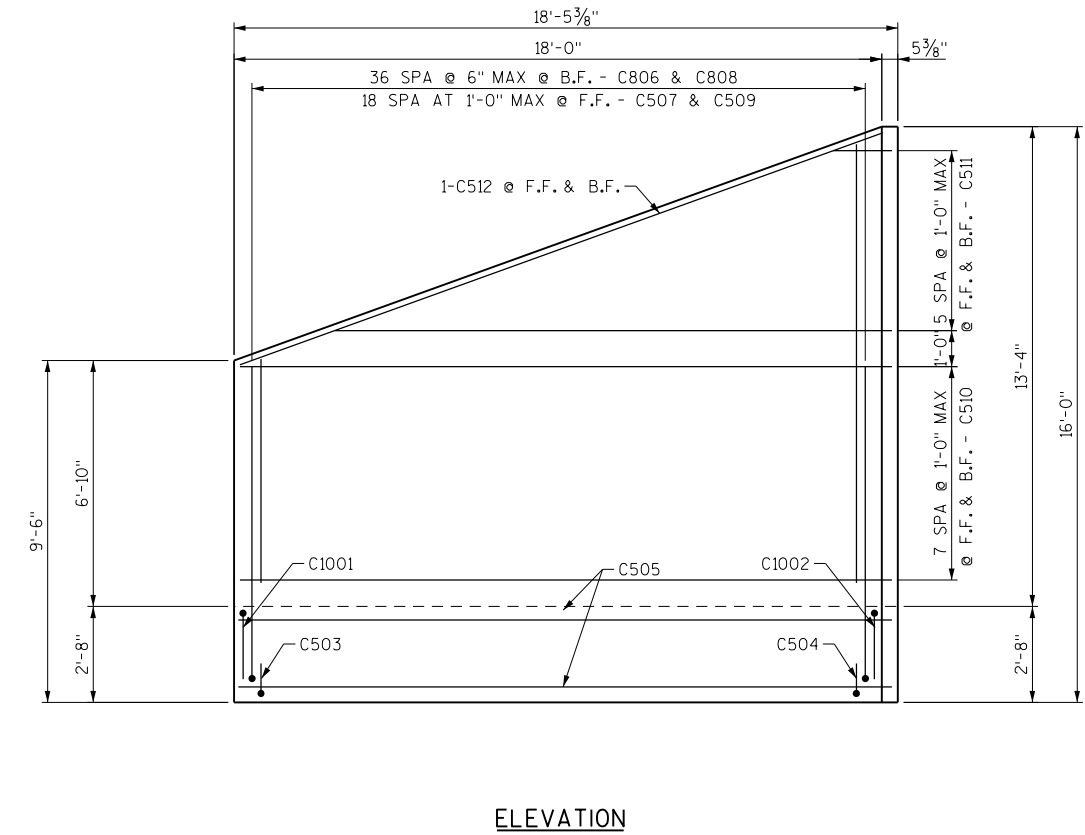
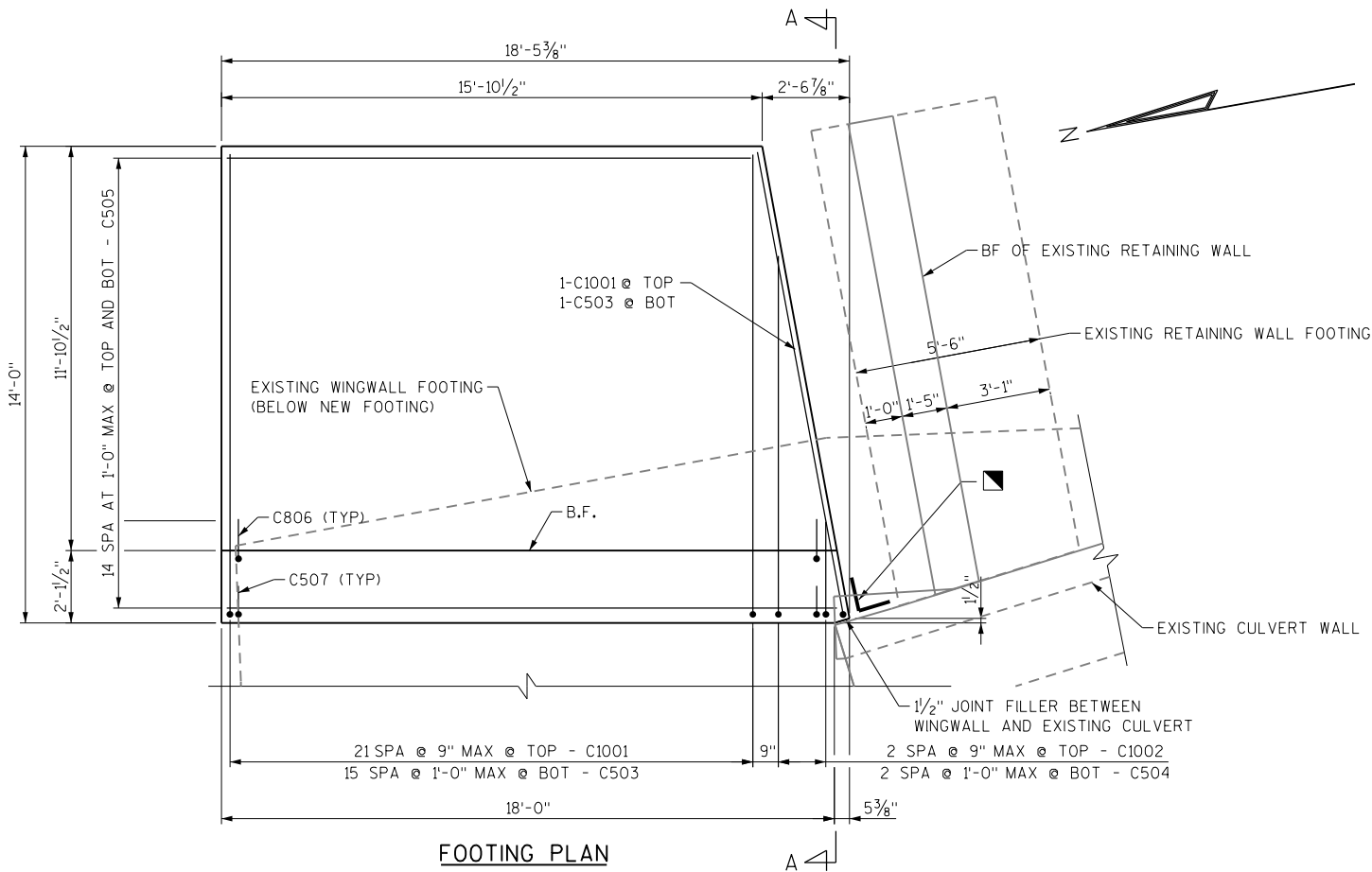
CONCRETE SURFACE REPAIR AREAS ARE REQUIRED ON THE CULVERT WALL(S). LIMITS OF REPAIR AREAS WILL BE DETERMINED BY THE ENGINEER. ESTIMATED QUANTITIES FOR CONCRETE SURFACE REPAIR ARE APPROXIMATE.

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 326+69	LS	1
206.2000	EXCAVATION FOR STRUCTURES CULVERTS C-51-16	LS	1
206.5000	COFFERDAMS C-51-16	LS	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	266
501.1000.S	ICE HOT WEATHER CONCRETING	LB	263
504.0100	CONCRETE MASONRY CULVERTS	CY	35
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2642
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2419
509.1500	CONCRETE SURFACE REPAIR	SF	20
511.1200	TEMPORARY SHORING C-51-16	SF	1385
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	5
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	28
SPV.0060.01	STRAPPING C-51-16	EA	10
	NON-BID ITEMS		
	JOINT FILLER - 1 1/2"		



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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		C-51-16	
DRAWN BY		BJW	PLANS CK'D. WJZ
TYPICAL SECTIONS & NOTES		SHEET 2 OF 5	



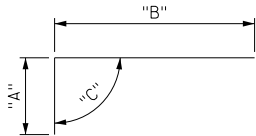
* AT FULL HEIGHT OF WALL

- NOTES**
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
 - F.F. DENOTES FRONT FACE
 - B.F. DENOTES BACK FACE
 - 18" RUBBERIZED MEMBRANCE WATERPROOFING
 - CONST. JOINT FORMED BY BEVELED 2"x6" KEYWAY

STATE PROJECT NUMBER
1000-09-73

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	BAR SERIES	2642 # COATED 2419 # UNCOATED
							LOCATION
C1001		23	15'-3"	X			FOOTING - TOP HORIZONTAL
C1002		3	8'-10"	X	X		FOOTING - TOP HORIZONTAL - SERIES
C503		17	14'-4"	X			FOOTING - BOTTOM HORIZONTAL
C504		3	7'-11"	X	X		FOOTING - BOTTOM HORIZONTAL - SERIES
C505		30	16'-6"		X		FOOTING - TOP AND BOTTOM TRANSVERSE - SERIES
C806	X	37	9'-7"	X			FOOTING - DOWEL - B.F.
C507	X	19	4'-10"	X			FOOTING - DOWEL - F.F.
C808	X	37	9'-9"		X		STEM - VERTICAL - B.F.
C509	X	19	9'-9"		X		STEM - VERTICAL - F.F.
C510	X	16	17'-9"				STEM - TRANSVERSE - F.F. & B.F.
C511	X	12	8'-7"		X		STEM - TRANSVERSE - F.F. & B.F. - SERIES
C512	X	2	19'-0"				STEM - DIAGONAL - TOP



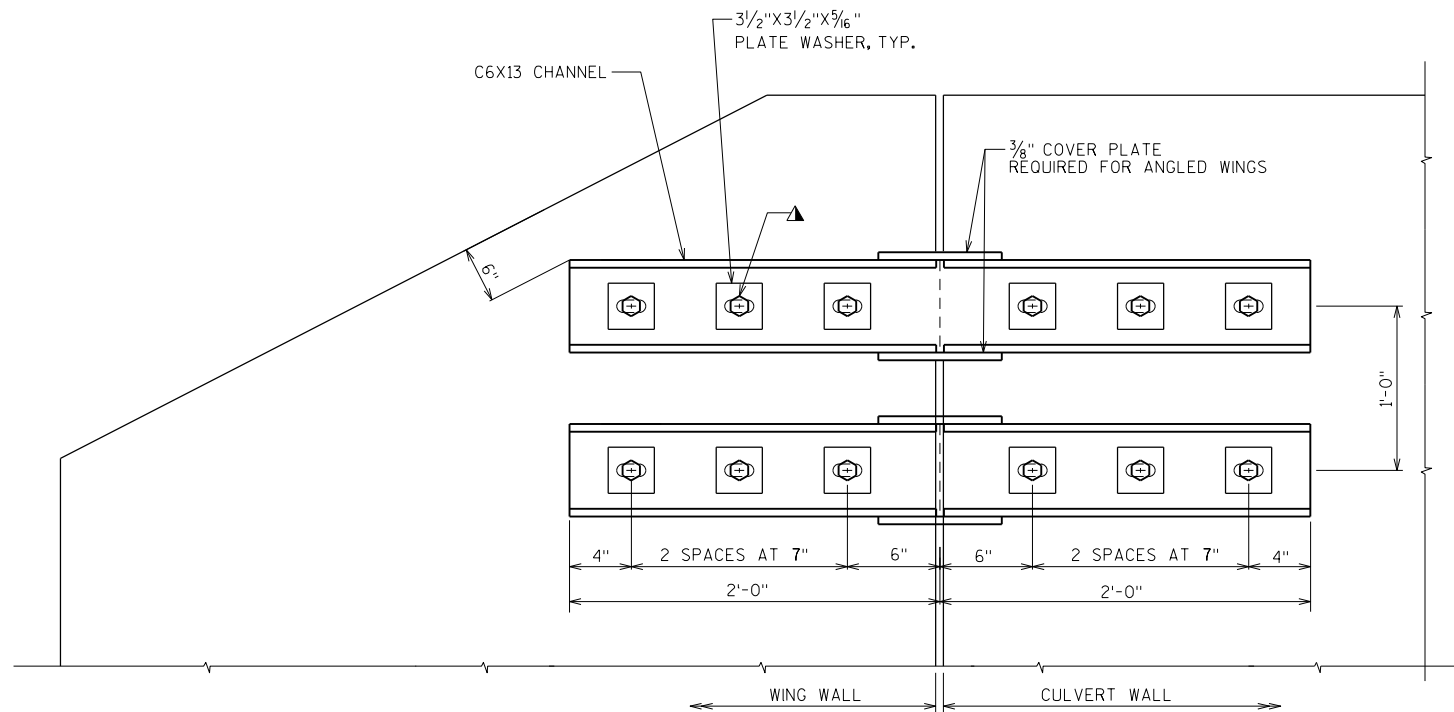
BAR NO.	DIM "A"	DIM "B"	ANG "C"
C1001	1'-10"	13'-8"	90°
C1002	1'-10"	3'-6" TO 11'-1"	90°
C503	10"	13'-8"	90°
C504	10"	3'-6" TO 11'-1"	90°
C806	1'-4"	8'-6"	94°
C507	10"	4'-1"	90°

BAR CUTOFF TABLE

BAR NO.	NO. REQUIRED	LENGTH
C1002	1 SERIES OF 3	5'-1" TO 12'-8"
C504	1 SERIES OF 3	4'-2" TO 11'-9"
C505	2 SERIES OF 15	15'-4" TO 17'-9"
C808	1 SERIES OF 37	6'-6" TO 13'-0"
C509	1 SERIES OF 19	6'-6" TO 13'-0"
C511	2 SERIES OF 6	1'-7" TO 15'-6"

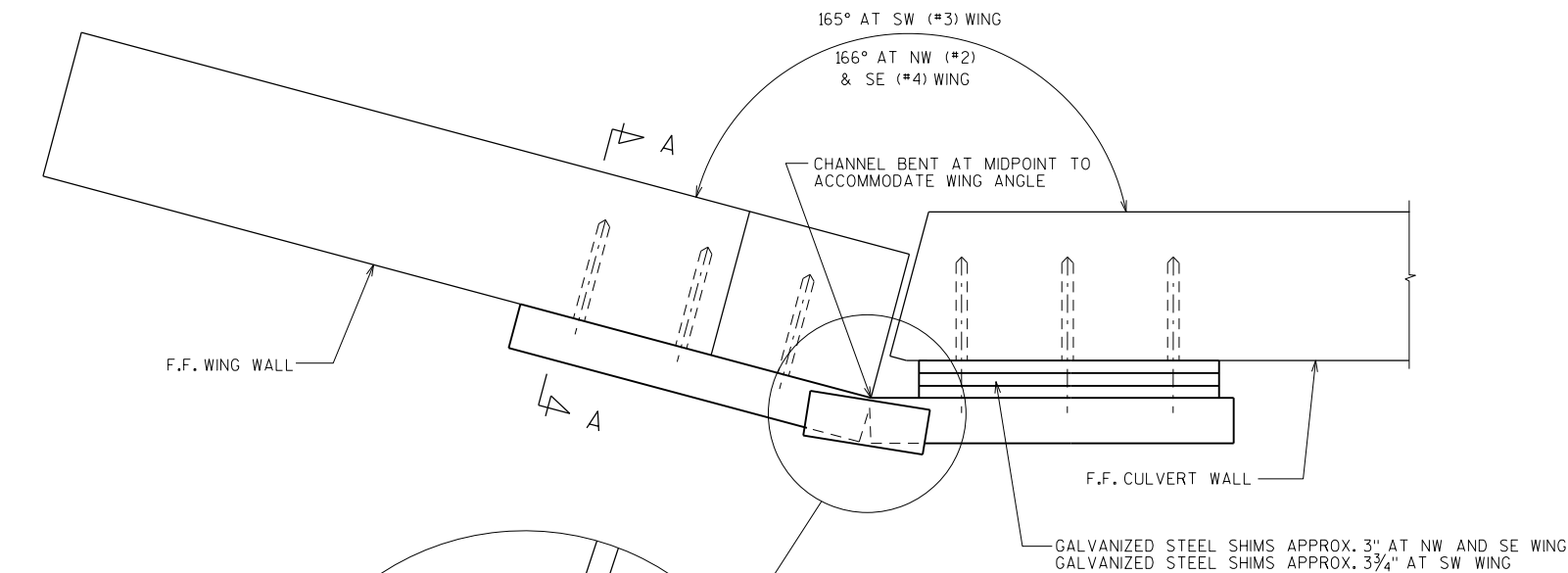
BUNDLE AND TAG EACH SERIES SEPARATELY

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE C-51-16			
DRAWN BY BJW		PLANS CKD. WJZ	
WINGWALL REPLACEMENT		SHEET 3 OF 5	



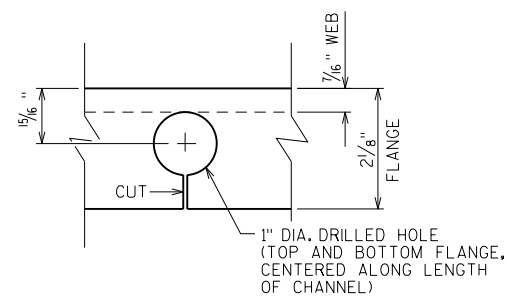
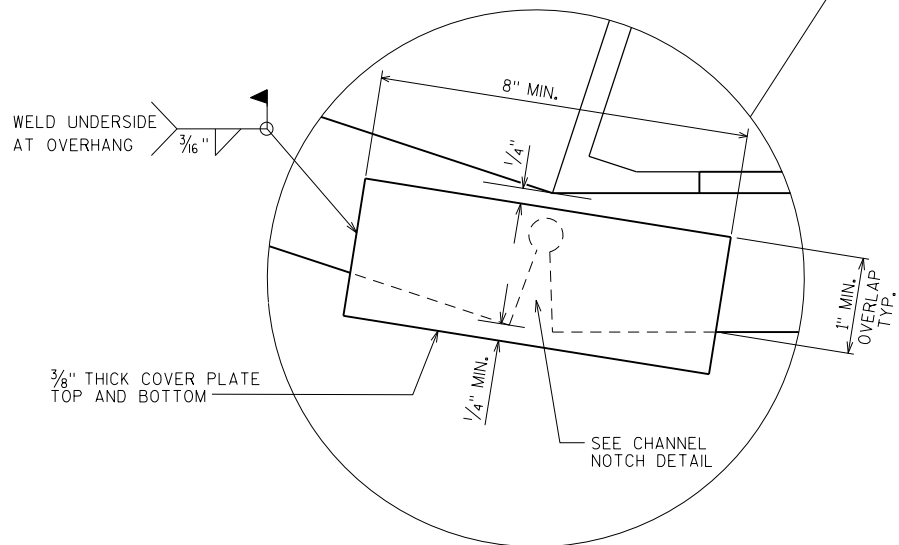
WING ELEVATION

WINGWALL 3 SHOWN
WINGWALLS 2 & 4 ARE OH



PLAN

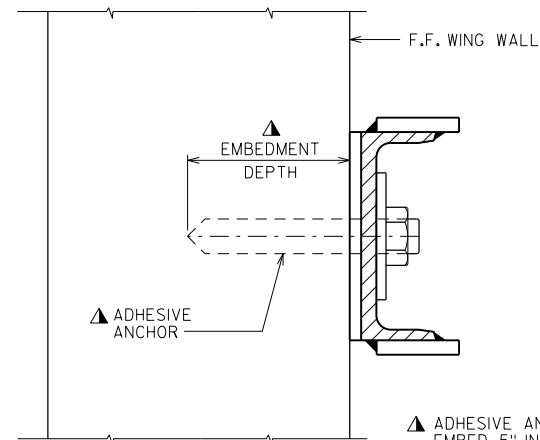
WINGWALL 3 SHOWN
WINGWALLS 2 & 4 ARE OH



CHANNEL NOTCH DETAIL

STATE PROJECT NUMBER

1000-09-73



SECTION A-A

ADHESIVE ANCHORS 5/8-INCH.
EMBED 5" IN CONCRETE.
SEE SECTION A-A

USE 1/16 " X 1 1/16 " LONG SLOTTED HOLES

NOTES

BID ITEM "STRAPPING C-51-016" INCLUDES ALL ITEMS SHOWN.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.

ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.

CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.

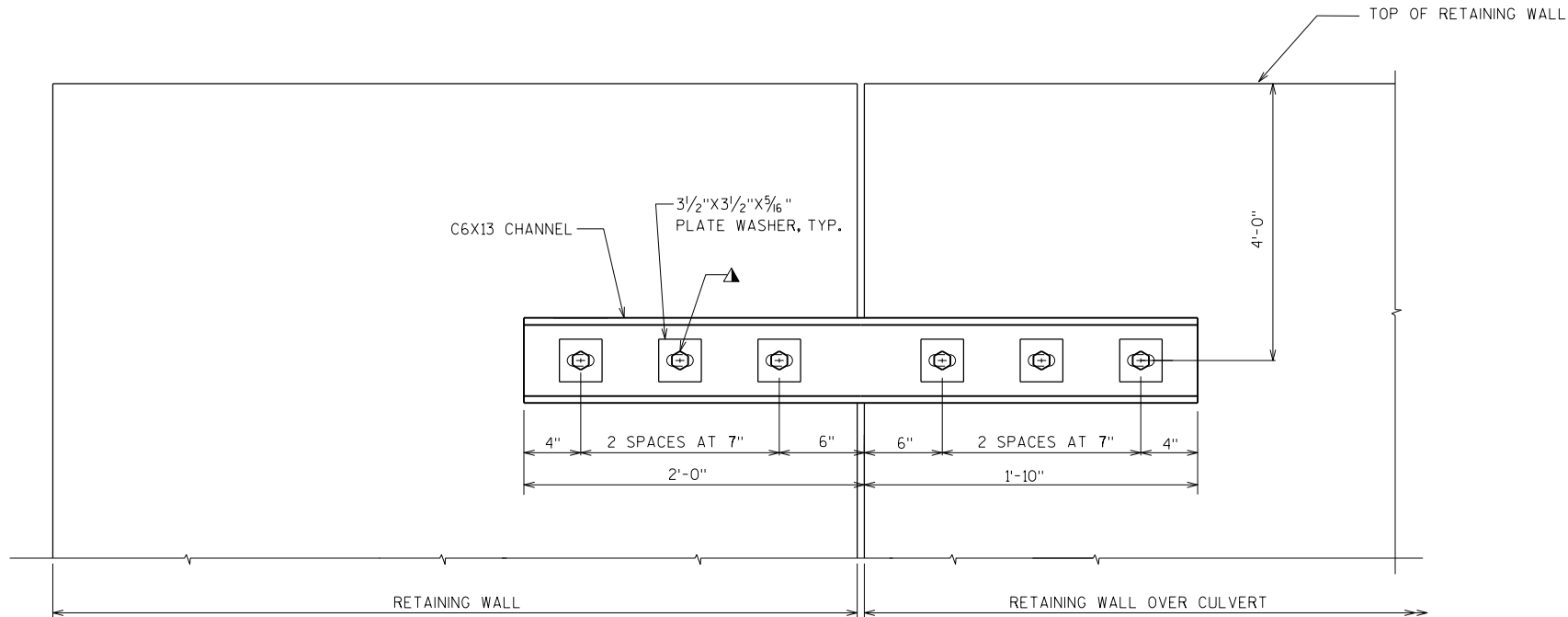
CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

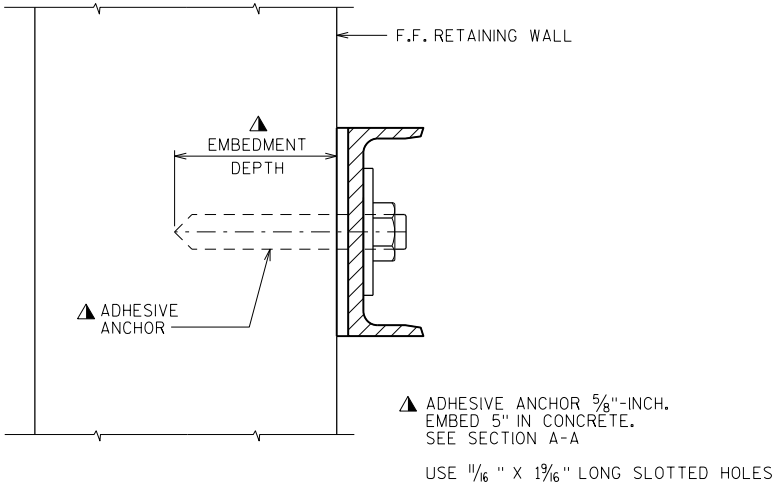
WINGWALL ANGLE, REQUIRED SHIMS, ANCHOR LOCATIONS AND WELD CLEARANCES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATING WING WALL STRAP.

IF WELDING COVER PLATE IN FIELD, PRIOR TO WELDING, REMOVE GALVANIZING FROM AREA TO BE WELDED. TOUCH UP WITH ZINC RICH PAINT ALL AREAS LACKING GALVANIZING WHEN COMPLETE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		C-51-16	
DRAWN BY		BJW	PLANS CKD. WJZ
WING STRAPPING		SHEET 4 OF 5	



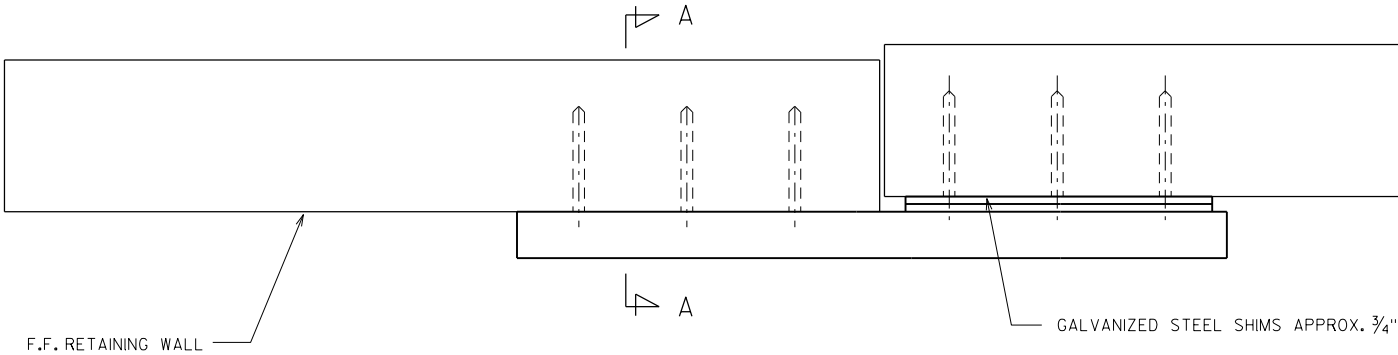
RETAINING WALL ELEVATION



SECTION A-A

NOTES

- BID ITEM "STRAPPING C-51-016" INCLUDES ALL ITEMS SHOWN.
- ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.
- ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.
- CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.
- CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
- ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.
- WINGWALL ANGLE, REQUIRED SHIMS, ANCHOR LOCATIONS AND WELD CLEARANCES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATING WING WALL STRAP.



PLAN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		C-51-16	
DRAWN BY		BJW	PLANS CKD. WJZ
RETAINING WALL STRAPPING		SHEET 5 OF 5	

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

① INDICATES WING NUMBER

TRAFFIC DATA

STH 60

A.A.D.T. = 19,600 (2014)

DESIGN DATA

LIVE LOAD:

ORIGINAL BOX CULVERT DESIGN LOADING: HS-20

EARTH LOAD

ORIGINAL BOX DESIGNED FOR 9.5' OF FILL

MATERIAL PROPERTIES

STRUCTURAL STEEL, ASTM A36, GRADE 36: $f_y = 36,000$ psi

LIST OF DRAWINGS

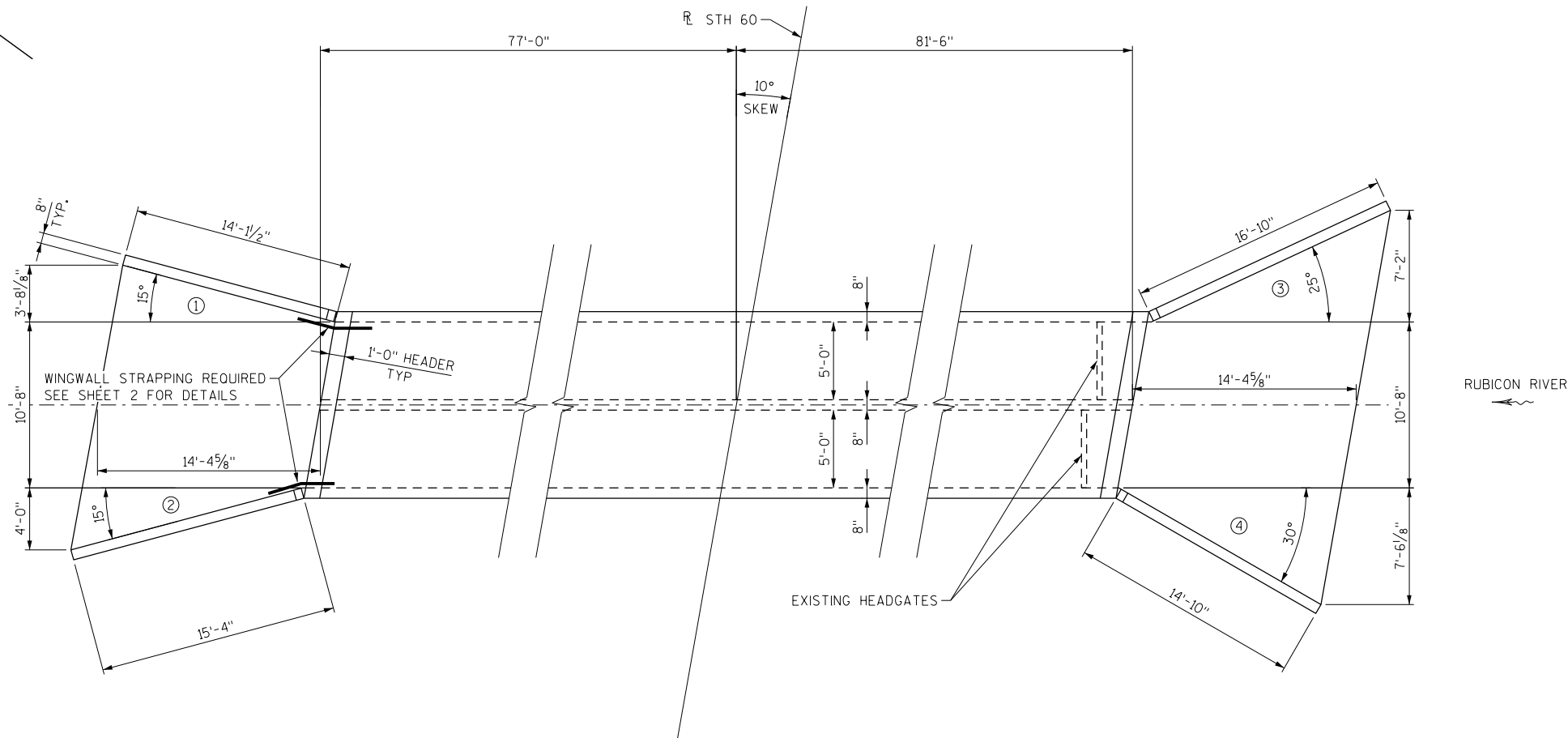
- GENERAL PLAN
- WING STRAPPING

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:

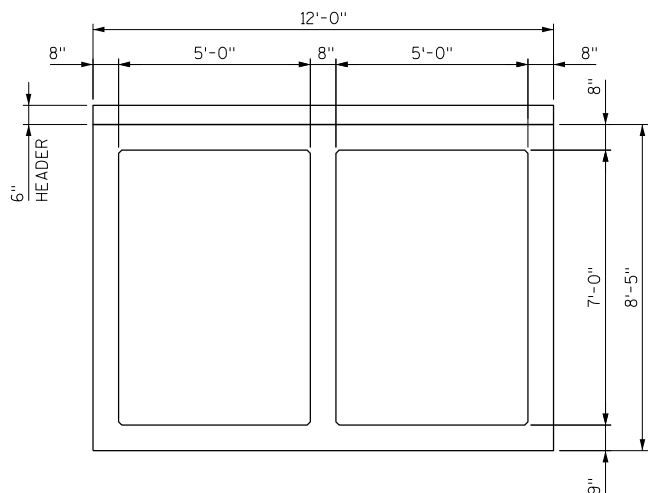
WILLIAM DREHER, PE
(608) 266-8489

CONSULTANT:

WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321

PLAN

2-CELL REINFORCED CONCRETE BOX CULVERT



TYPICAL SECTION THRU BOX



TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
SPV.0060.02	STRAPPING C-66-018	EACH	2

NO.	DATE	REVISION	BY
-----	------	----------	----

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED *William C. Dreher* SDR 08/05/19
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-66-18

STH 60 OVER RUBICON RIVER

COUNTY WASHINGTON TOWN/CITY/VILLAGE HARTFORD

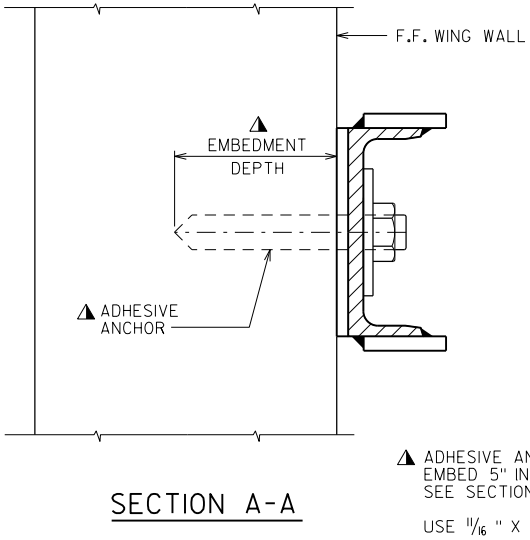
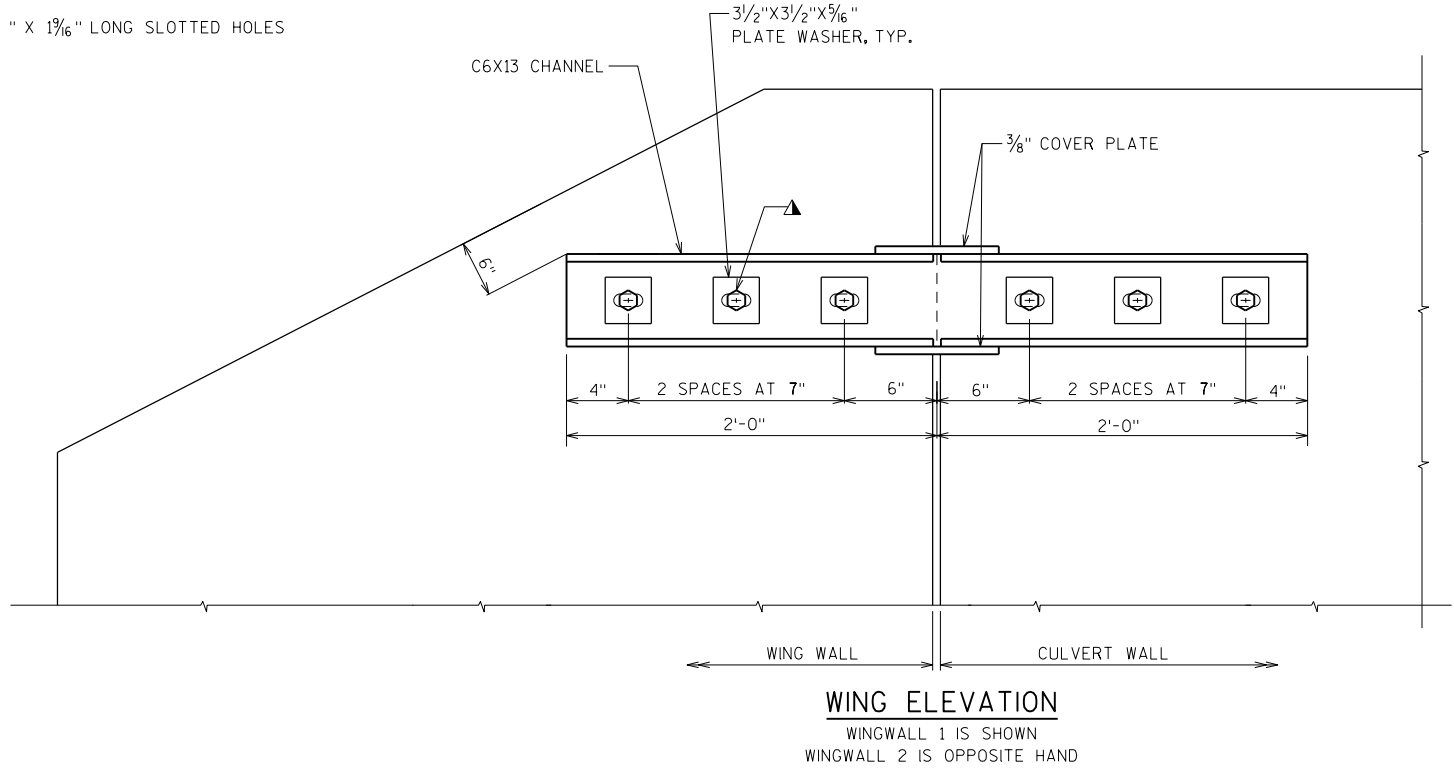
DESIGN SPEC. REHABILITATION N/A

DESIGNED BY JAP DESIGN CK'D. WJZ DRAWN BY BJW PLANS CK'D. WJZ

GENERAL PLAN SHEET 1 OF 2

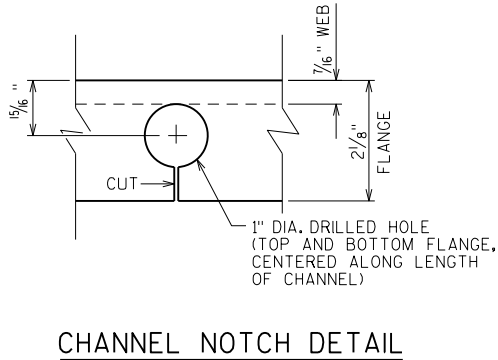
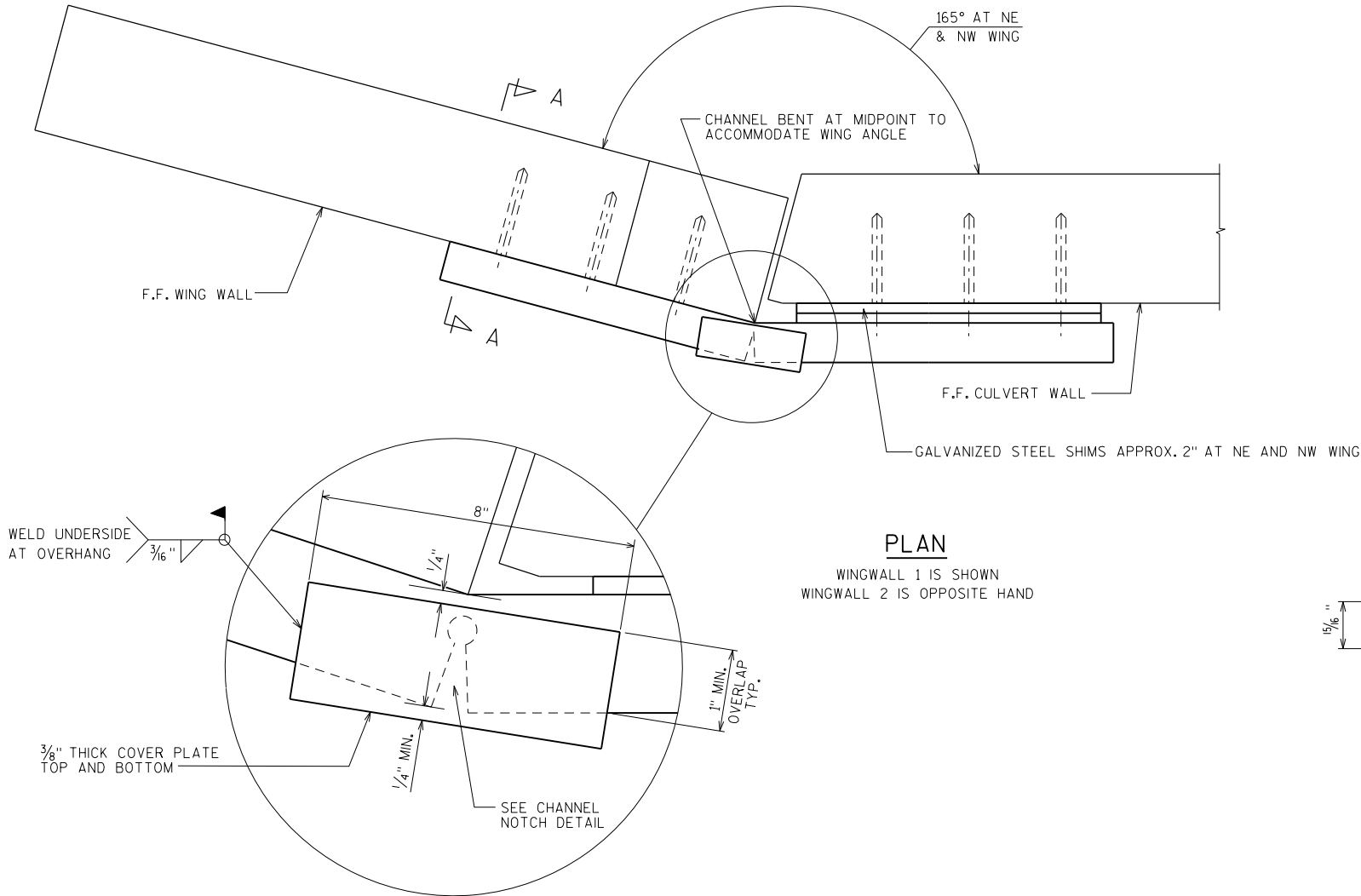
▲ ADHESIVE ANCHORS $\frac{5}{8}$ -INCH.
EMBED 5" IN CONCRETE.
SEE DETAIL "A"

USE $\frac{1}{16}$ " X $1\frac{1}{16}$ " LONG SLOTTED HOLES



NOTES

- BID ITEM "STRAPPING C-66-018" INCLUDES ALL ITEMS SHOWN.
- ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.
- ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.
- CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.
- CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
- ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.
- WINGWALL ANGLE, REQUIRED SHIMS, ANCHOR LOCATIONS AND WELD CLEARANCES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATING WING WALL STRAP.
- IF WELDING COVER PLATE IN FIELD, PRIOR TO WELDING, REMOVE GALVANIZING FROM AREA TO BE WELDED. TOUCH UP WITH ZINC RICH PAINT ALL AREAS LACKING GALVANIZING WHEN COMPLETE.



NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
STRUCTURE			C-66-18		
		DRAWN BY	BJW	PLANS CK'D.	WJZ
WING STRAPPING			SHEET 2 OF 2		

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS AND ELEVATIONS SHOWN ARE BASED
ON THE ORIGINAL STRUCTURE PLANS.

① INDICATES WING NUMBER

TRAFFIC DATAUSH 45
A.A.D.T. = 32,500 (2004)**DESIGN DATA****LIVE LOAD:**

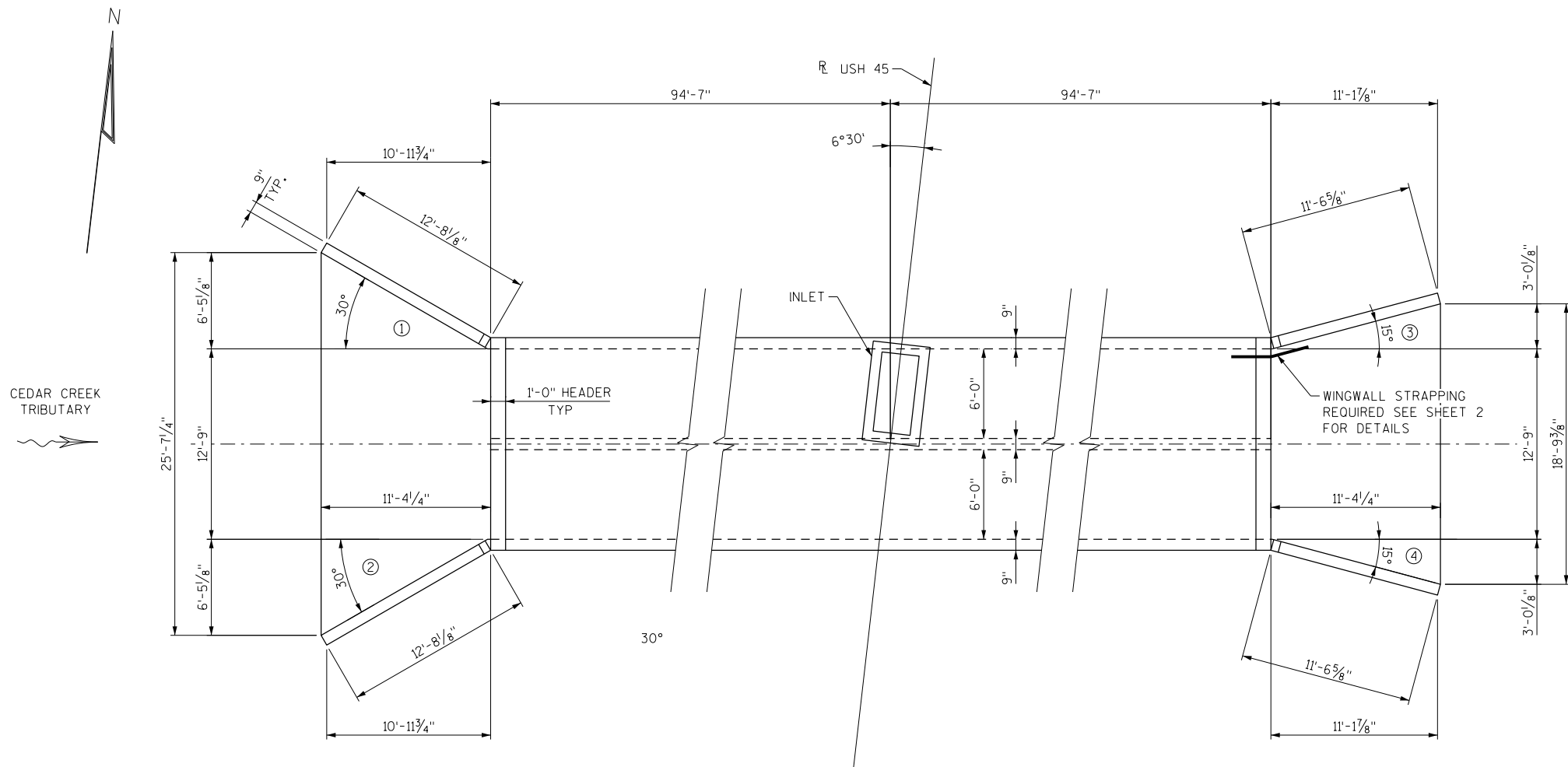
ORIGINAL BOX DESIGN LOADING: HS-20

EARTH LOAD

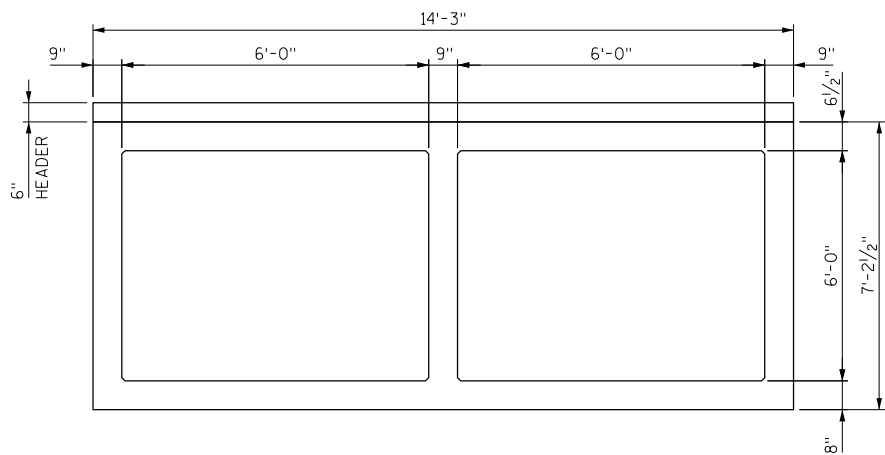
ORIGINAL BOX DESIGNED FOR 6.0' OF FILL

MATERIAL PROPERTIESSTRUCTURAL STEEL, ASTM A36, GRADE 36: $f_y = 36,000$ psi**LIST OF DRAWINGS**

1. GENERAL PLAN
2. WING STRAPPING

STRUCTURES DESIGN CONTACTS**BRIDGE OFFICE:**WILLIAM DREHER, PE
(608) 266-8489**CONSULTANT:**WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321**PLAN**

2-CELL REINFORCED CONCRETE BOX CULVERT

**TYPICAL SECTION THRU BOX****TOTAL ESTIMATED QUANTITIES**

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
SPV.0060.03	STRAPPING C-66-024	EACH	1

NO.	DATE	REVISION	BY
-----	------	----------	----

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED *William C. Dreher* SDR **08/05/19**
CHIEF STRUCTURES DESIGN ENGINEER DATE**STRUCTURE C-66-24**

USH 45 OVER CEDAR CREEK TRIBUTARY

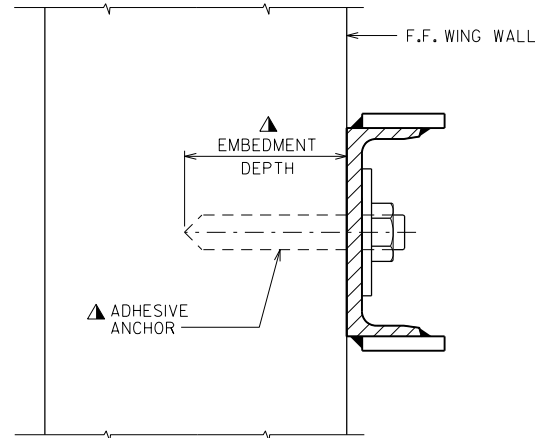
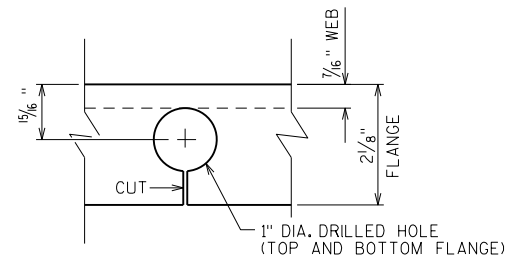
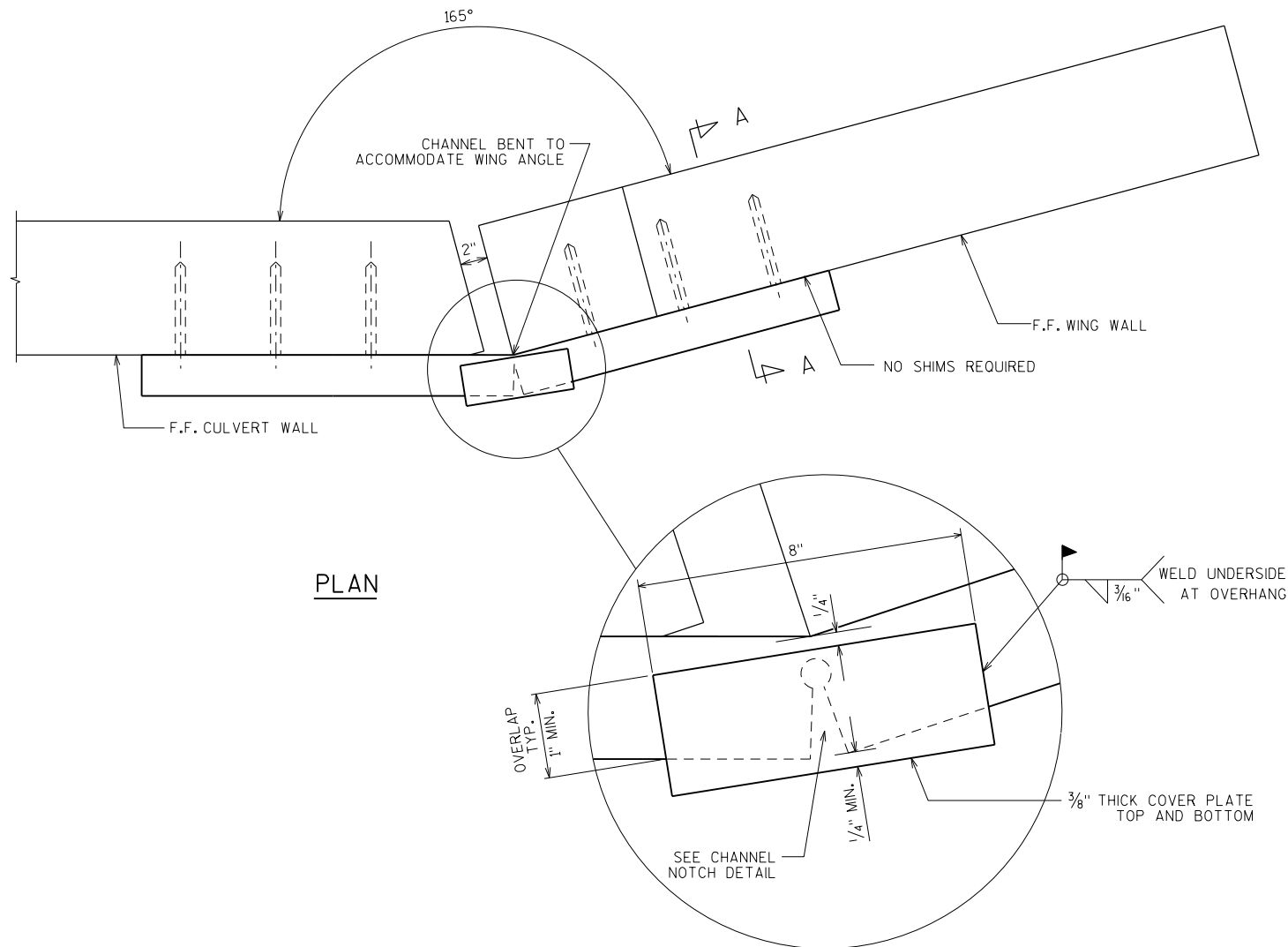
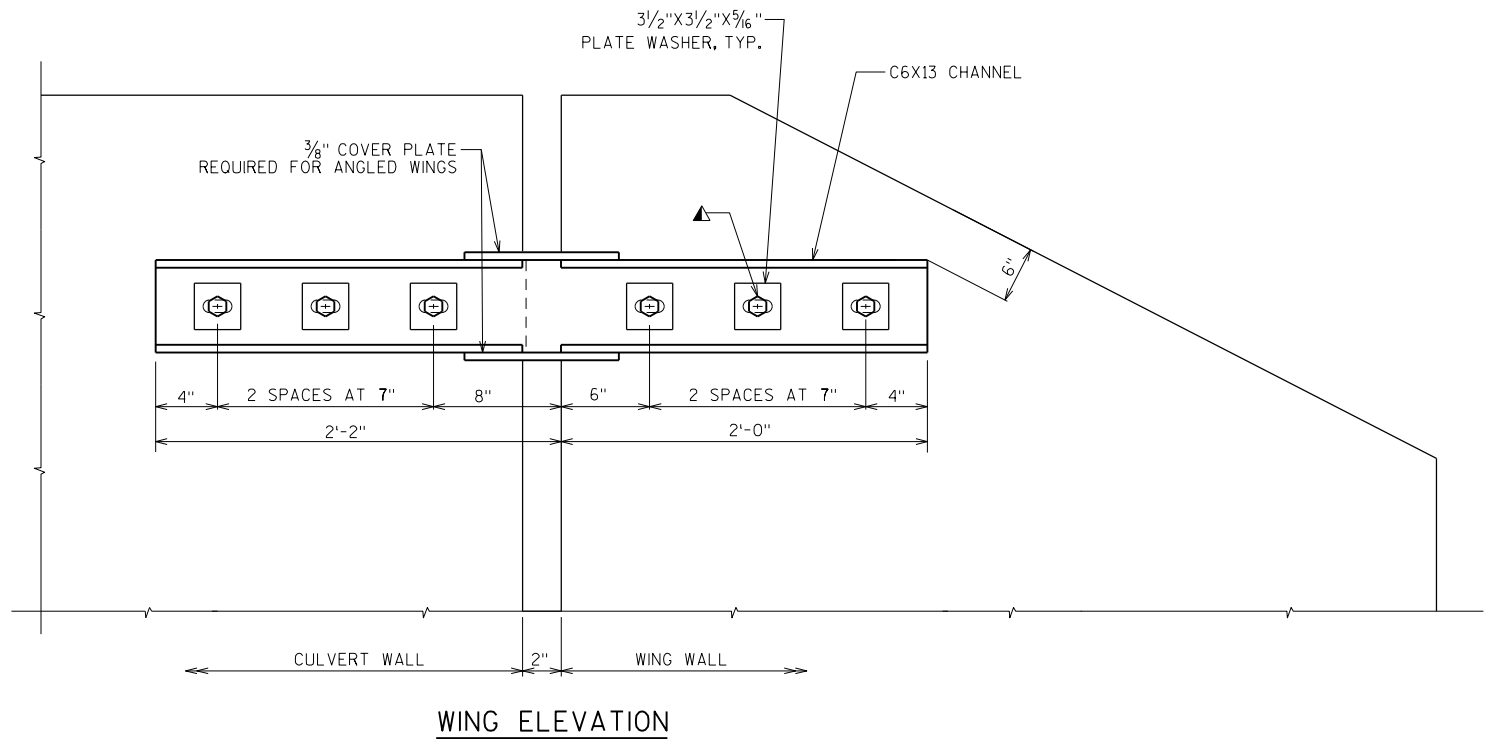
COUNTY WASHINGTON TOWN/CITY/VILLAGE POLK

DESIGN SPEC. REHABILITATION N/A

DESIGNED JAP DESIGN CK'D. WJZ DRAWN BY BJW PLANS CK'D. WJZ

GENERAL PLAN

SHEET 1 OF 2



▲ ADHESIVE ANCHORS 5/8-INCH.
EMBED 5" IN CONCRETE.
SEE SECTION A-A
USE 1/16 " X 1 7/16 " LONG SLOTTED HOLES

NOTES

BID ITEM "STRAPPING C-66-024" INCLUDES ALL ITEMS SHOWN.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.

ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.

CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.

CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

WINGWALL ANGLE, REQUIRED SHIMS, ANCHOR LOCATIONS AND WELD CLEARANCES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATING WING WALL STRAP.

IF WELDING COVER PLATE IN FIELD, PRIOR TO WELDING, REMOVE GALVANIZING FROM AREA TO BE WELDED. TOUCH UP WITH ZINC RICH PAINT ALL AREAS LACKING GALVANIZING WHEN COMPLETE.

STATE PROJECT NUMBER			
1000-09-73			
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		C-66-24	
DRAWN BY		BJW	PLANS CKD. WJZ
WING STRAPPING			SHEET 2 OF 2

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS AND ELEVATIONS SHOWN ARE BASED
ON THE ORIGINAL STRUCTURE PLANS.

① INDICATES WING NUMBER

TRAFFIC DATAUSH 45
A.A.D.T. = 17,800 (2016)**DESIGN DATA****LIVE LOAD:**

ORIGINAL BOX DESIGN LOADING: HS-20

EARTH LOAD

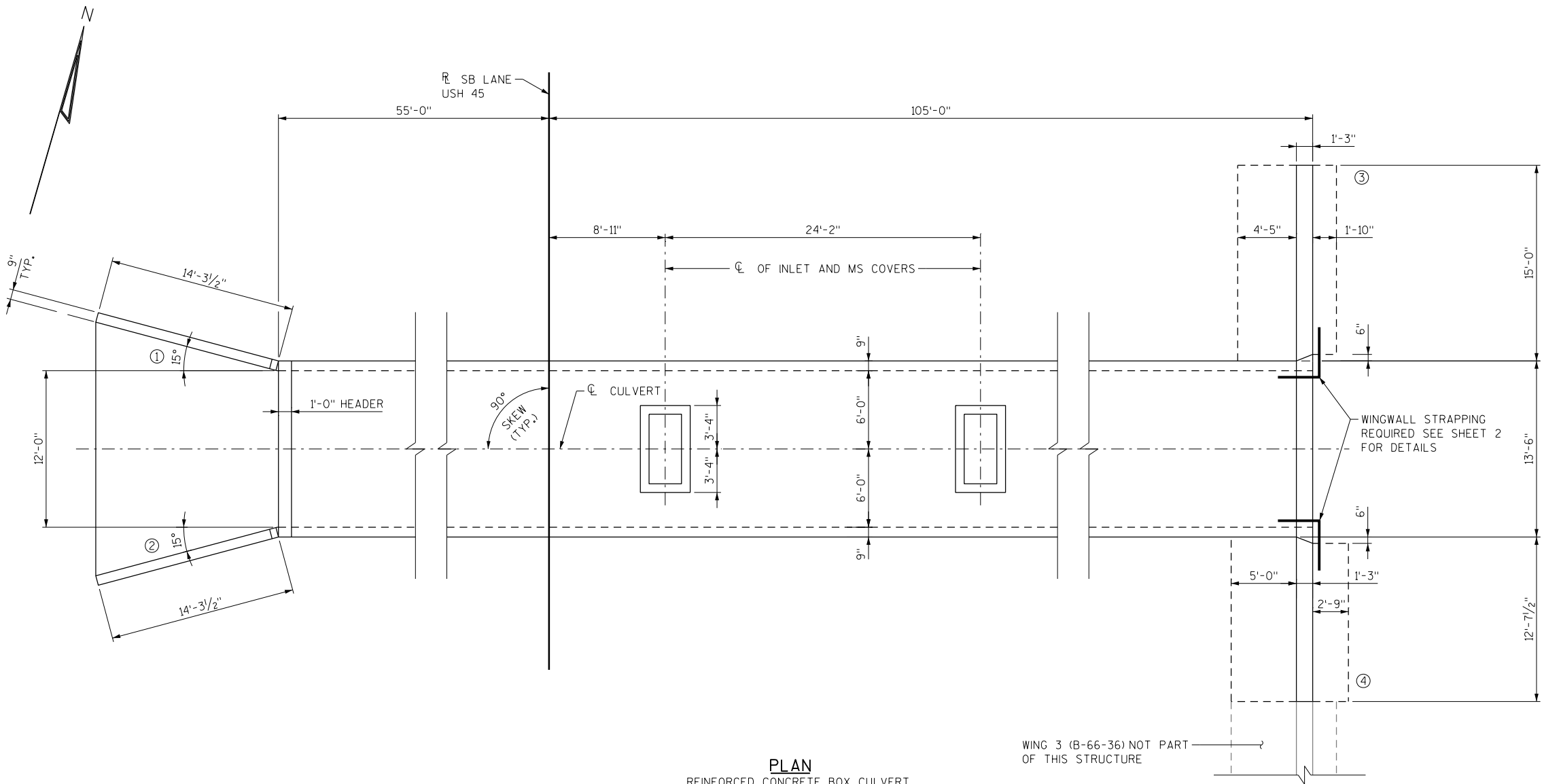
ORIGINAL BOX DESIGNED FOR 2.0' OF FILL

MATERIAL PROPERTIES

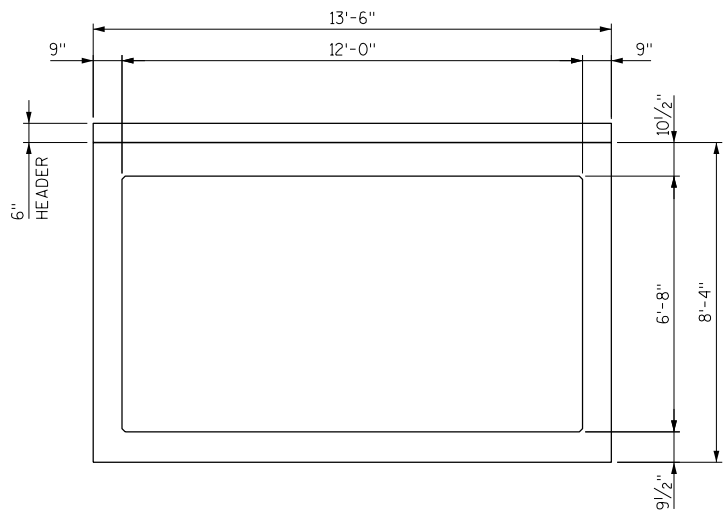
STRUCTURAL STEEL, ASTM A36, GRADE 36:fy = 36,000 psi

LIST OF DRAWINGS

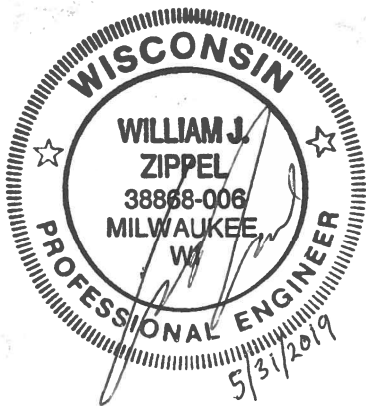
- GENERAL PLAN
- WING STRAPPING

STRUCTURES DESIGN CONTACTS**BRIDGE OFFICE:**WILLIAM DREHER, PE
(608) 266-8489**CONSULTANT:**WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321

PLAN
REINFORCED CONCRETE BOX CULVERT

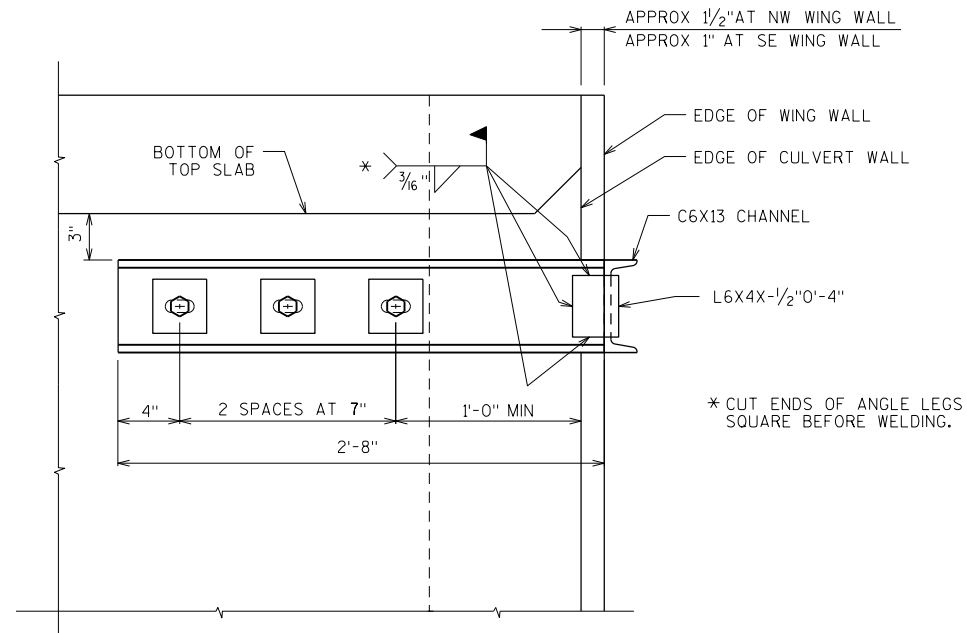
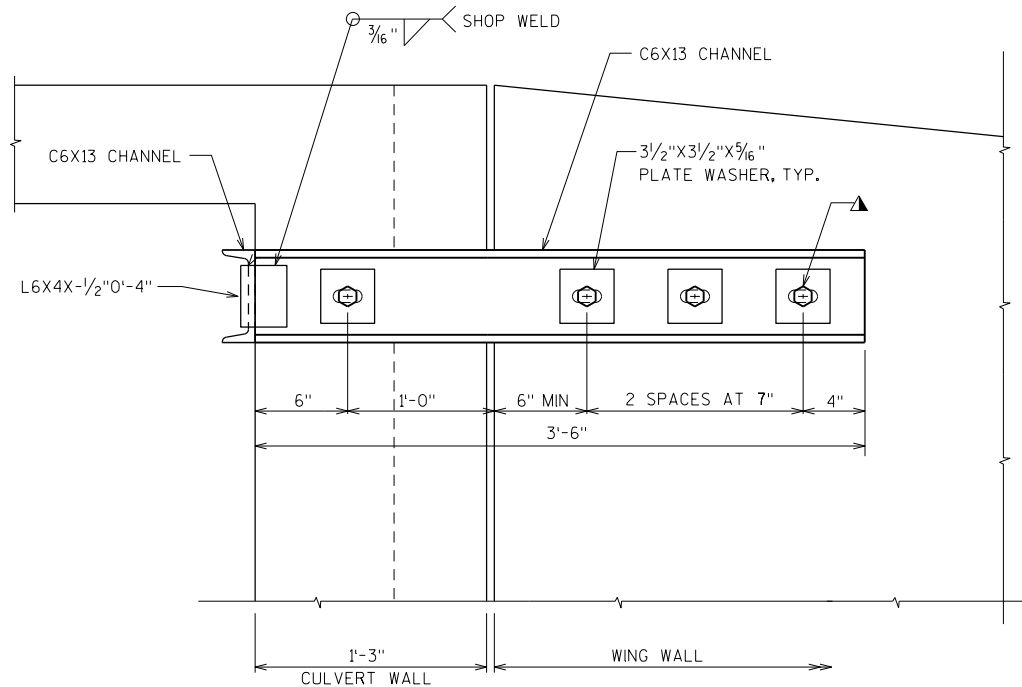
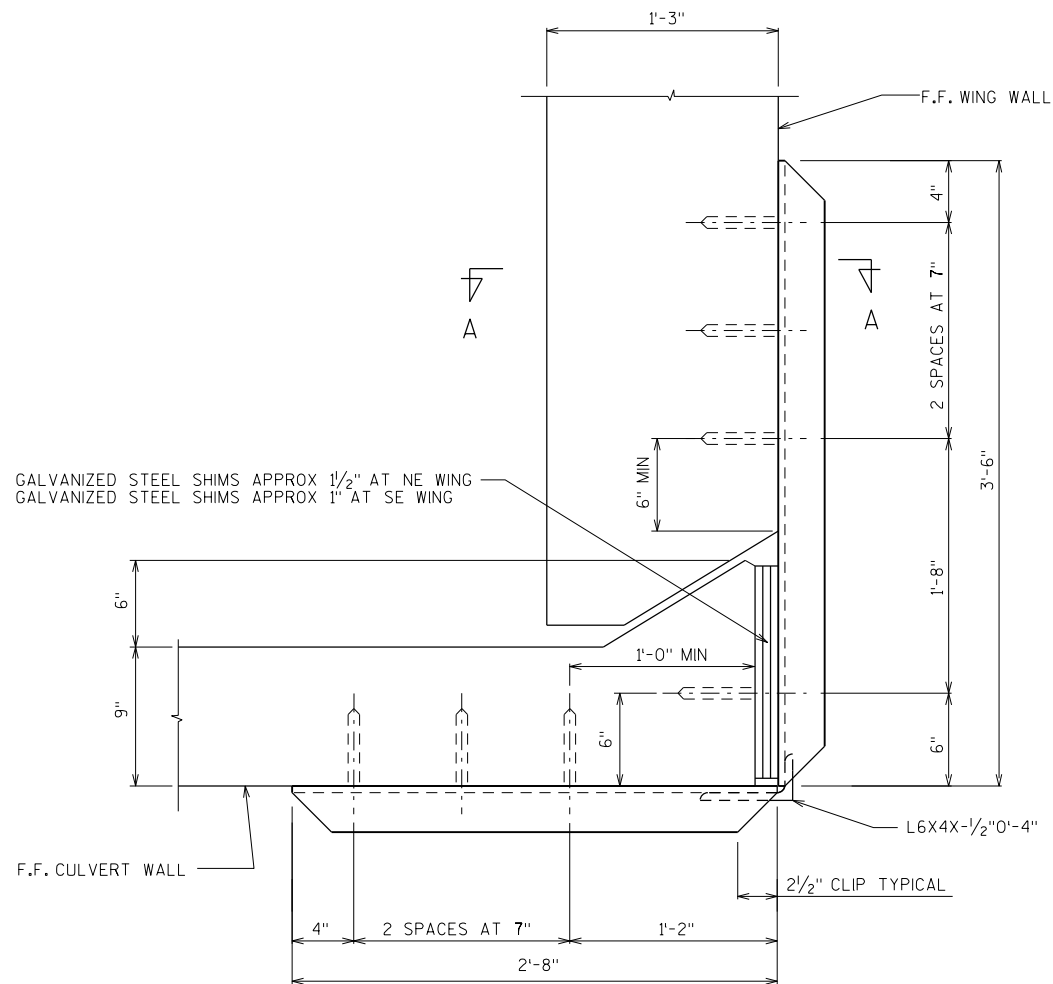
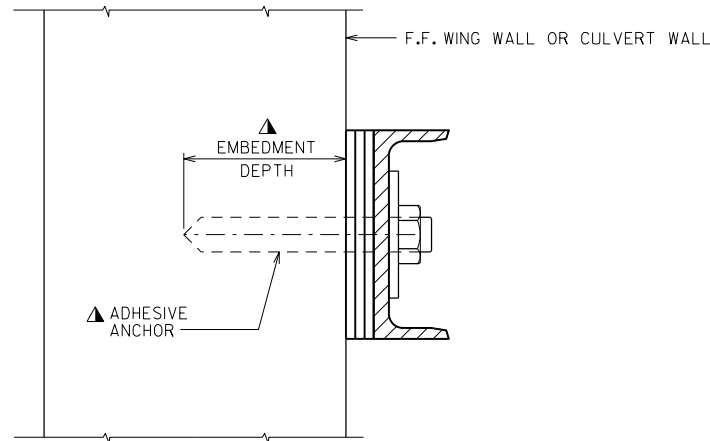


TYPICAL SECTION THRU BOX

**TOTAL ESTIMATED QUANTITIES**

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
SPV.0060.04	STRAPPING C-66-37	EACH	2

NO.	DATE	REVISION	BY
benesch Alfred Benesch & Company 1300 West Canal Street, Suite 150 Milwaukee, Wisconsin 53233 414-308-1310 Job No. 20229.04			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> SDR CHIEF STRUCTURES DESIGN ENGINEER		DATE 08/05/19	
STRUCTURE C-66-37			
USH 45 OVER PEDESTRIAN UNDERPASS			
COUNTY	WASHINGTON	TOWN/CITY/VILLAGE	KEWASKUM
DESIGN SPEC.	REHABILITATION	N/A	
DESIGNED BY	JAP	DESIGN CK'D.	WJZ
DRAWN BY	BJW	PLANS CK'D.	WJZ
GENERAL PLAN			SHEET 1 OF 2

**CULVERT WALL ELEVATION**WINGWALL 3 IS SHOWN
WINGWALL 4 IS OPPOSITE HAND**WING ELEVATION**WINGWALL 3 IS SHOWN
WINGWALL 4 IS OPPOSITE HAND**PLAN**WINGWALL 3 IS SHOWN
WINGWALL 4 IS OPPOSITE HAND**SECTION A-A**▲ ADHESIVE ANCHORS 5/8-INCH.
EMBED 5" IN CONCRETE.
SEE SECTION A-A

USE 1/16" X 1 1/16" LONG SLOTTED HOLES

NOTES

BID ITEM "STRAPPING C-66-37" INCLUDES ALL ITEMS SHOWN.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.

ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.

CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.

CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLE AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

WINGWALL ANGLE, REQUIRED SHIMS, ANCHOR LOCATIONS AND WELD CLEARANCES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATING WING WALL STRAP.

IF WELDING IN FIELD, PRIOR TO WELDING, REMOVE GALVANIZING FROM AREA TO BE WELDED. TOUCH UP WITH ZINC RICH PAINT ALL AREAS LACKING GALVANIZING WHEN COMPLETE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		C-66-37	
DRAWN BY BJW		PLANS CKD. WJZ	
WING STRAPPING		SHEET 2 OF 2	

DESIGN DATA

STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE CURRENT ASTM DESIGNATION: A572, Fy = 50 KSI

MINIMUM SECTION MODULUS REQUIRED = 18.0 IN³/FT

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

THE ORIGINAL STRUCTURE PLANS DO NOT EXIST. DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON FIELD SURVEY

PAY LIMITS FOR THE ITEMS "PILING STEEL SHEET PERMANENT DELIVERED" AND "PILING STEEL SHEET PERMANENT DRIVEN" SHALL BE TAKEN AS THE AREA SHOWN IN THE PLANS BETWEEN THE MAXIMUM SHEET PILING TIP ELEVATION AND THE TOP OF SHEET PILING CUTOFF ELEVATION.

① INDICATES WING NUMBER

TRAFFIC DATA

STH 175
A.A.D.T. = 3,800 (2013)

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:

WILLIAM DREHER, PE
(608) 266-8489

CONSULTANT:

WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321



TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
512.0500	PILING STEEL SHEET PERMANENT DELIVERED	SF	630
512.0600	PILING STEEL SHEET PERMANENT DRIVEN	SF	630

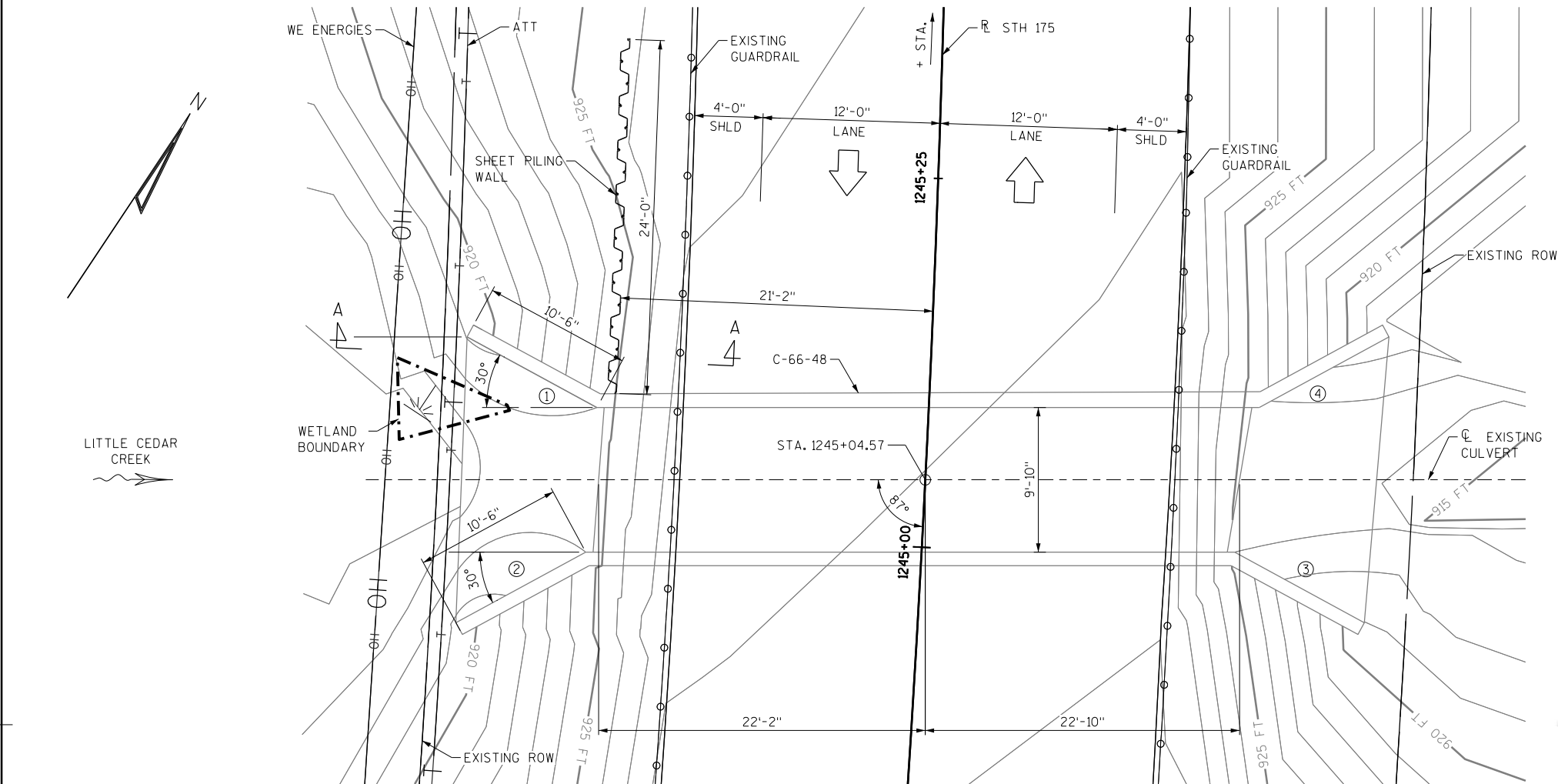
BENCHMARKS

NAME	DESCRIPTION	ELEV	STA	OFFSET
BM1	REBAR	686.53	325+97.9	71.57 LT
BM2	REBAR	683.96	327.16.79	71.56 RT

LIST OF DRAWINGS

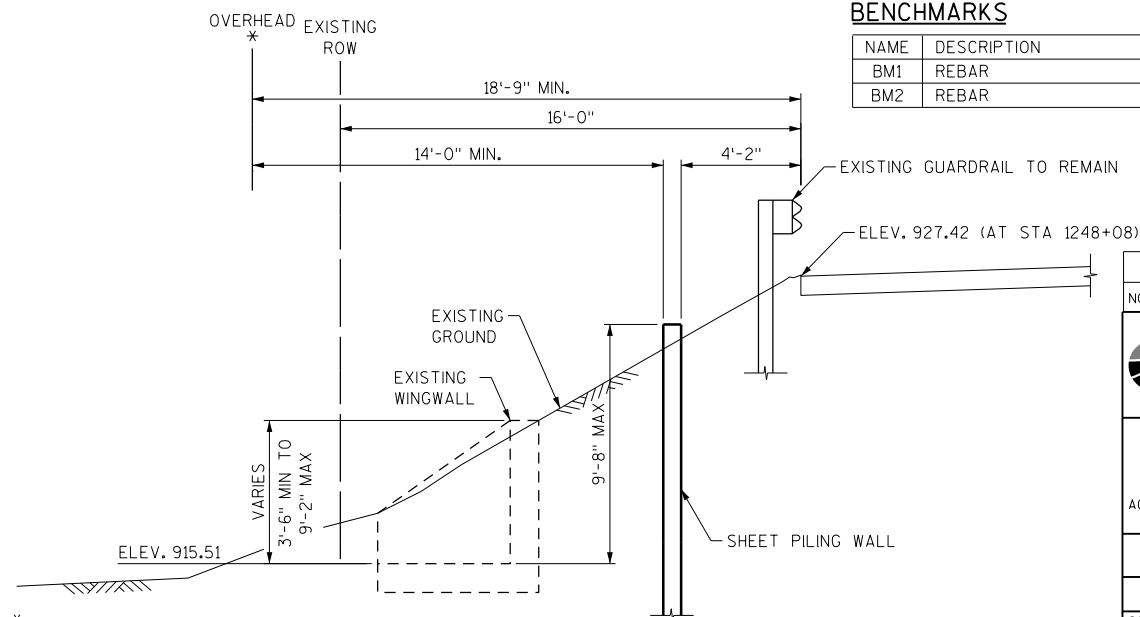
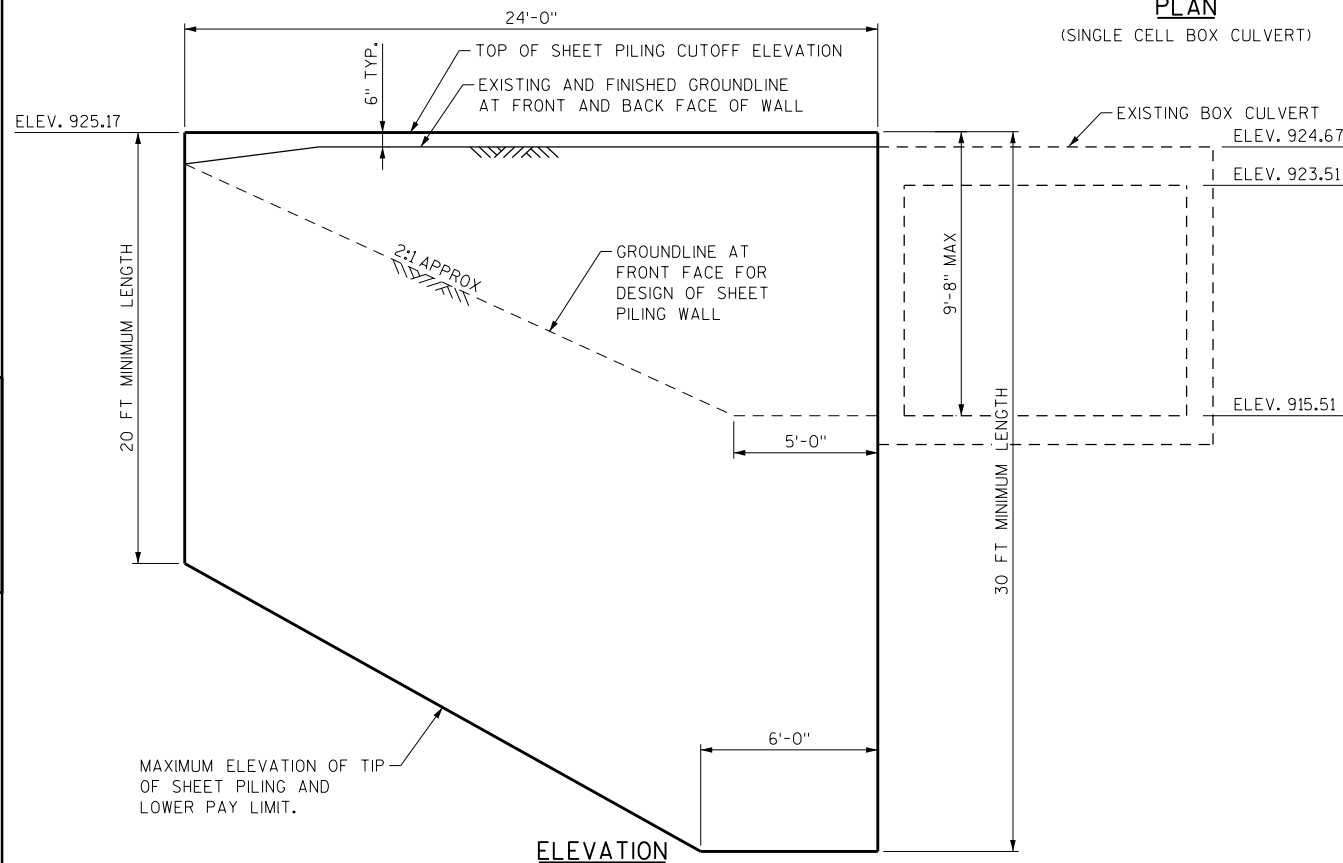
1. GENERAL PLAN

NO.	DATE	REVISION	BY
			
Alfred Benesch & Company 1300 West Canal Street, Suite 150 Milwaukee, Wisconsin 53233 414-308-1310 Job No. 20229.04			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> ^{SE}		12/05/19	
CHIEF STRUCTURES DESIGN ENGINEER		DATE	
STRUCTURE C-66-48			
STH 175 OVER LITTLE CEDAR CREEK			
COUNTY	WAHSINGTON	TOWN/CITY/VILLAGE	RICHFIELD
DESIGN SPEC.	REHABILITATION	N/A	
DESIGNED BY	JAP	DESIGN CK'D.	WJZ
DRAWN BY	BJW	PLANS CK'D.	WJZ
GENERAL PLAN			SHEET 1 OF 1



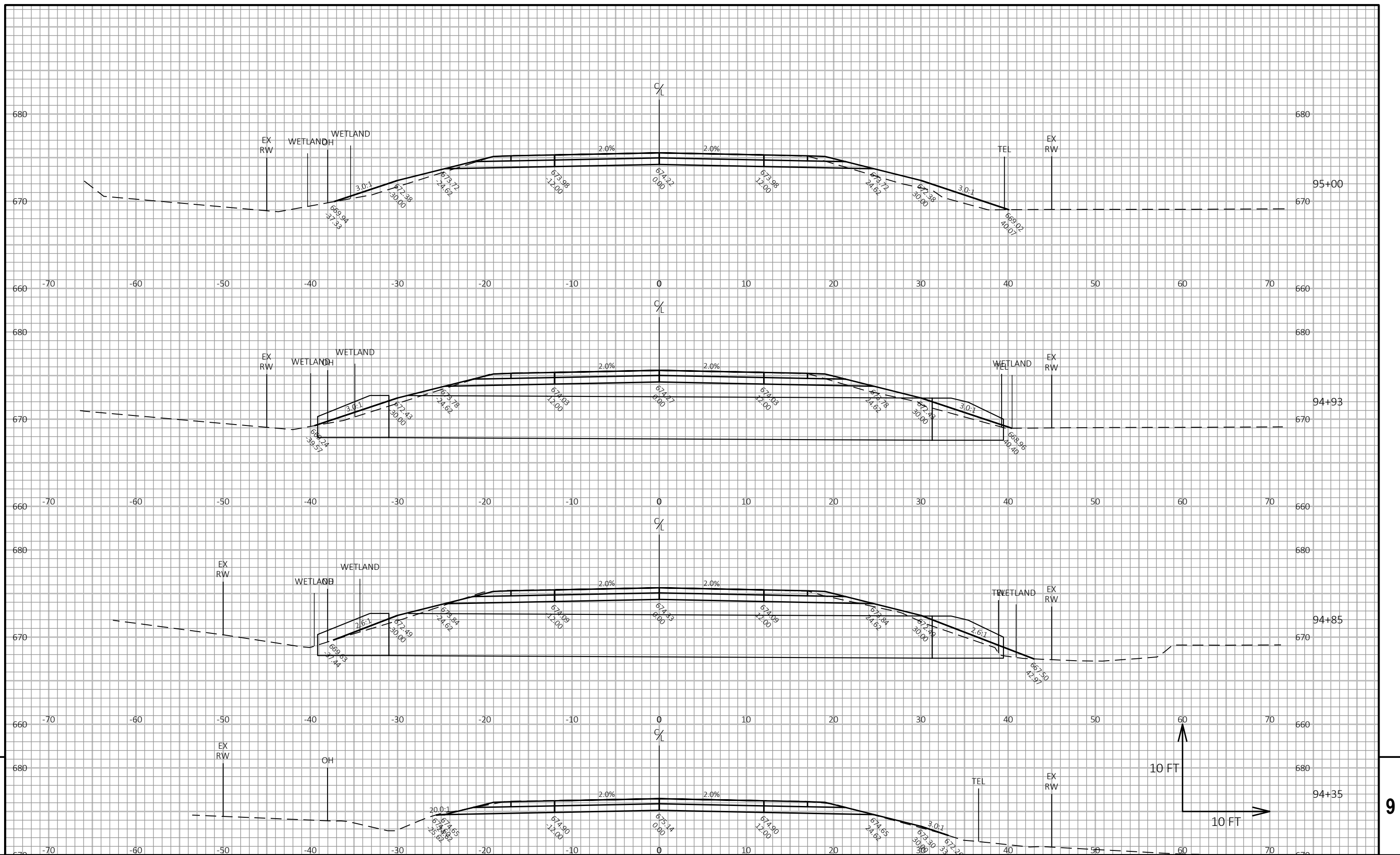
PLAN

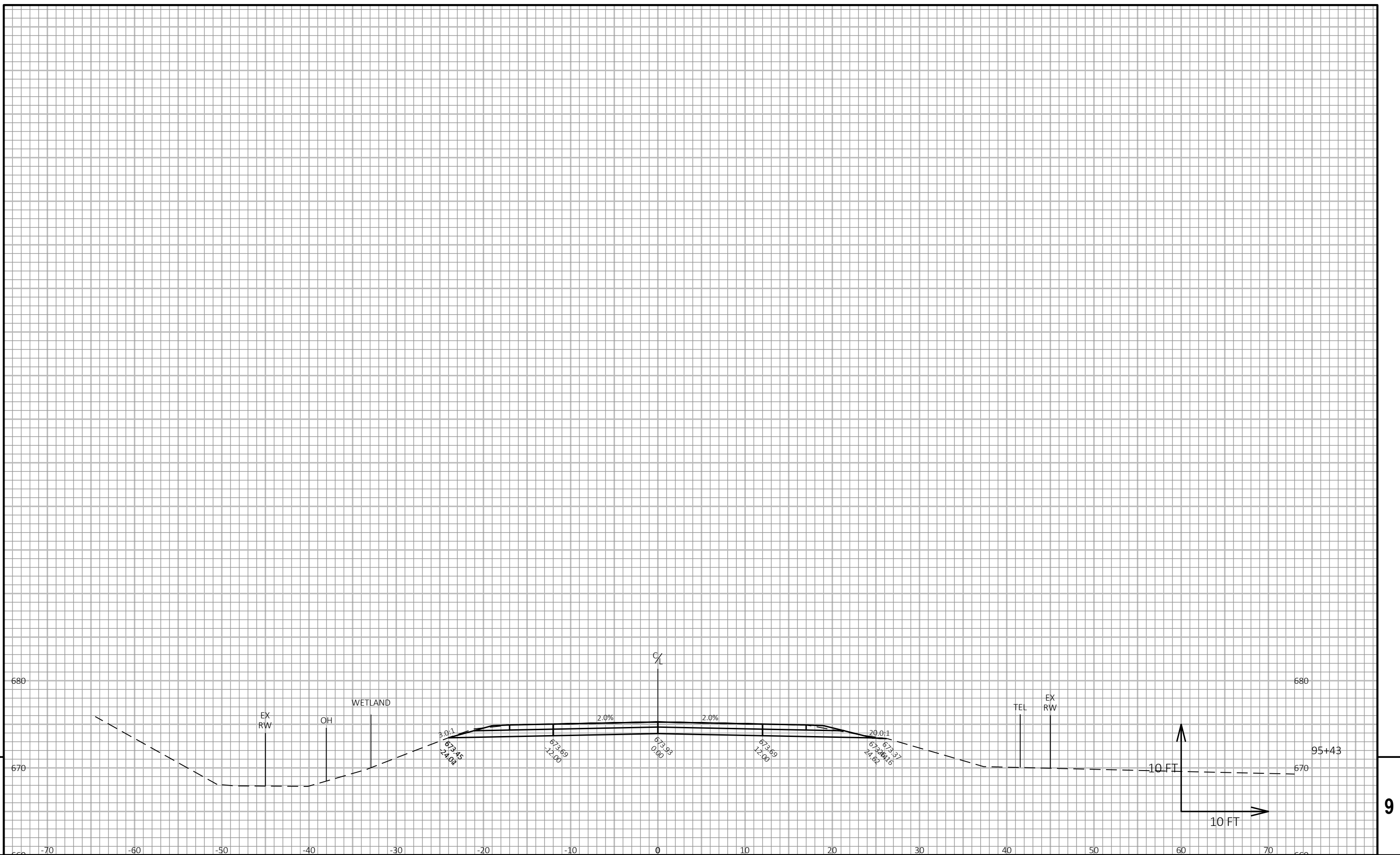
(SINGLE CELL BOX CULVERT)



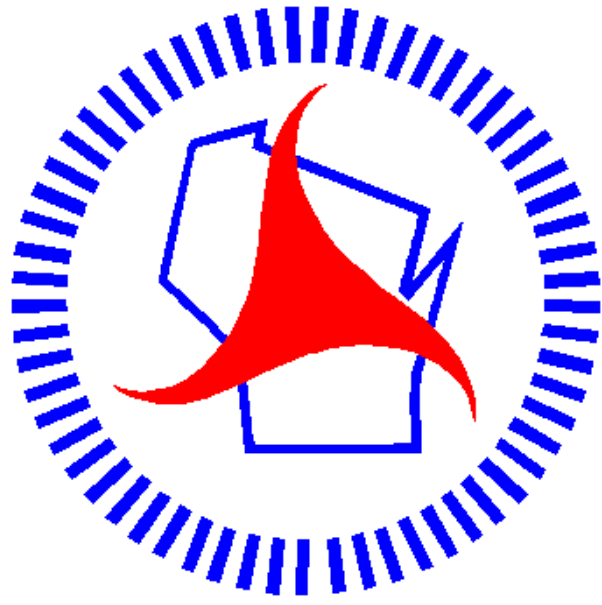
SECTION A-A

* HORIZONTAL LOCATION OF CENTER WIRE SHOWN ONLY.
POLES LOCATED INSIDE RIGHT OF WAY.
WIRE ELEVATIONS NOT SHOWN.





FILE NAME : Y:\MILWAUKEE\202005\20229.04\ENG_DOCS\10000903\SHEETSPLAN\090201_XS.DWG	PLOT DATE : 7/17/2019 3:35 PM	PLOT BY : WEIGAND, BEN	PLOT NAME :	PLOT SCALE : 1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	WISDOT/CADD SHEET 49
LAYOUT NAME - 2					



Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

<http://www.dot.wisconsin.gov>