WKE

MAY 2013

PROJECT ID: 1030-24-80

WITH: N/A

COUNTY: RACINE

ORDER OF SHEETS

TOTAL SHEETS = 54

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

N-S FREEWAY CTH KR TO STH 11

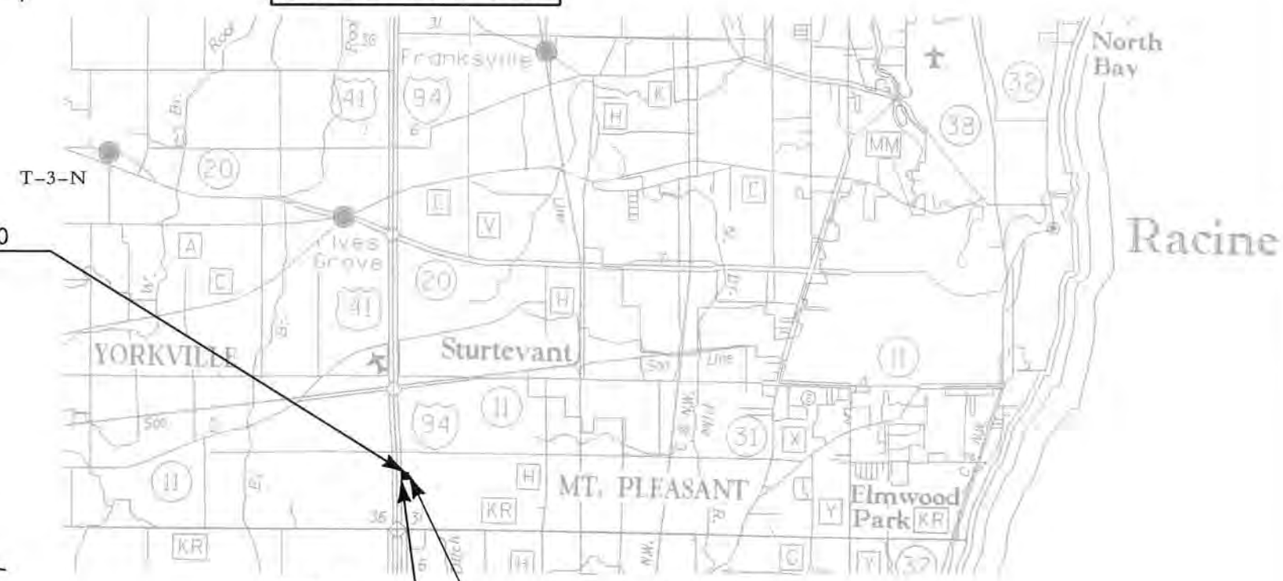
BOX CULVERT EXTENSION

I-94

RACINE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1030-24-80	WISC 2013267	1

STATE PROJECT NUMBER
1030-24-80



END PROJECT 1030-24-80
STA. 5697+00

BOX CULVERT EXTENSION
C-51-12
STA. 5693+50

BEGIN PROJECT 1030-24-80
STA. 5691+50
Y = 168434.3750
X = 594406.8416

DESIGN DESIGNATION		EAST FRONTAGE ROAD
A.A.D.T. 2010	=	520
A.A.D.T. 2035	=	865
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 (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

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

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

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), RACINE COUNTY, NAD 1983(97)

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988(91) (NAVD 88(91)).

ORIGINAL PLANS PREPARED BY

DAAR ENGINEERING, INC.
www.daarengineering.com
Milwaukee, WI 53212
414-225-9817

WISCONSIN JOSHUA H. MOUNT E-35706 MILWAUKEE, WI PROFESSIONAL ENGINEER

1/31/2013 (Date) (Signature)

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1/31/2013 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WISDOT
Designer	SE DESIGN WORKS
Project Manager	JOSH LEVEQUE
Regional Examiner	
Regional Supervisor	WAFA ELOAO
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 1-31-13 (Signature)

E

UTILITY CONTACTS

TO OBTAIN LOCATION OF PARTICIPANS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

WIS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.

DIGGERS HOTLINE

Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

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ORDER OF SECTION 2 DETAIL SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
REMOVAL PLANS
PLAN DETAILS
EROSION CONTROL PLAN
TRAFFIC CONTROL & STAGING PLANS
ALIGNMENT PLANS

GENERAL NOTES

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

THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE PLANS REFLECT UTILITIES AS OF SEPTEMBER 2011. UTILITIES INSTALLED OR RELOCATED SINCE THAT TIME ARE NOT REFLECTED.

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES SHALL BE FILLED WITH GRANULAR BACKFILL, WHICH SHALL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE ABANDONMENT OR REMOVAL ITEM.

INLET AND DISCHARGE ELEVATIONS FOR DRAINAGE STRUCTURES SHOWN ON THE PLAN MAY BE ADJUSTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

THE QUANTITY OF SALVAGED TOPSOIL IS COMPUTED FROM MEASUREMENTS BETWEEN THE SUBGRADE SHOULDER POINTS AND THE SLOPE INTERCEPTS AS SHOWN ON THE CROSS SECTIONS PLUS 5 FEET FOR ROUNDING.

EXISTING DRIVEWAYS AND FIELD ENTRANCES SHALL BE RESTORED IN KIND AS DIRECTED BY THE ENGINEER IN THE FIELD AND AT THE LOCATION DETERMINED BY THE ENGINEER.

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

BROKEN CONCRETE CONTAINING RE-BAR SHALL NOT BE USED AS HEAVY RIPRAP.

CROSS SECTIONS SHOWN INCLUDE THE THICKNESS OF TOPSOIL WHERE REQUIRED. TOPSOIL SHALL BE REPLACED WITH 4-INCH TYPICAL DEPTH.

REMOVAL OF EROSION CONTROL DEVICES IS INCLUDED IN THE COST OF THEIR RESPECTIVE BID ITEMS.

THE EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT OF WAY SHALL BE RESTORED WITH SALVAGED TOPSOIL, FERTILIZER AND SEED AS DIRECTED BY THE ENGINEER.

PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLANS AND PROVIDE DOCUMENTATION TO ENGINEER IN ACCORDANCE WITH THE SPECIFICATIONS.

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LOCATIONS OF DRAINTILE ON THE PLAN ARE BASED ON AS-BUILT OR PROPERTY OWNER INTERVIEWS, DRAINTILE EXPLORATION ITEM IS TO BE USED TO VERIFY THE EXACT SIZE AND LOCATION.

FERTILIZER SHALL NOT BE USED NEAR NAVIGABLE WATERWAYS OR WETLANDS.

THE PROPOSED REFERENCE LINE SHOWN IN THE PLANS IS THE FUTURE EAST FRONTAGE ROAD ALIGNMENT, TO BE CONSTRUCTED UNDER PROJECT 1030-24-77 (BY OTHERS)

STANDARD ABBREVIATIONS

AECPRC	APRON ENDWALL CULVERT PIPE REINFORCED CONCRETE
AECPRCHE	APRON ENDWALL CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
AECPSS	APRON ENDWALL CULVERT PIPE SLOPED SECTION
AEW	APRON END WALL
AGG	AGGREGATE
BAD	BASE AGGREGATE DENSE
B/C	BACK OF CURB
BM	BENCH MARK
C&G	CURB AND GUTTER
C/L	CENTER OR CONSTRUCTION LINE
CONC	CONCRETE
CP	CULVERT PIPE
CPCM	CULVERT PIPE CORRUGATED METAL
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
CSD	CONCRETE SURFACE DRAIN
CY	CUBIC-YARD
D	DEGREE OF CURVE
△	DELTA
DISCH	DISCHARGE
DWY	DRIVEWAY
EBS	EXCAVATION BELOW SUBGRADE
EFR	EAST FRONTAGE ROAD
EL	ELEVATION
FE	FIELD ENTRANCE
HMA	HOT MIX ASPHALT
INV	INVERT
L	LENGTH OF CURVE
LHF	LEFT HAND FORWARD
LT	LEFT
MIN	MINIMUM
M/L	MATCHLINE
NB	NORTHBOUND
NC	NORMAL CROWN
PAVT	PAVEMENT
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PE	PRIVATE ENTRANCE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PLE	PERMANENT LIMITED EASEMENT
PT	POINT OF TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RC	REVERSE CROWN
REQD	REQUIRED
RHF	RIGHT HAND FORWARD
RO	RUN OFF LENGTH
RT	RIGHT
SALV	SALVAGED
SB	SOUTHBOUND
SDD	STANDARD DETAIL DRAWING
SE	SUPER ELEVATION
SF	SQUARE FOOT
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
SSPRCHE	STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
STA	STATION
SY	SQUARE YARD
T	TANGENT LENGTH
TLE	TEMPORARY LIMITED EASEMENT
TYP	TYPICAL
VCL	VERTICAL CURVE LENGTH
VPC	POINT OF VERTICAL CURVE
VPI	POINT OF VERTICAL INTERSECTION
VPT	POINT OF VERTICAL TANGENT
WFR	WEST FRONTAGE ROAD

2

2

2

TOWN OF
YORKVILLE

APPLE HOLLER

NAVIGABLE WATERWAY
UT-18 TO KILBOURN ROAD DITCH

SYLVANIA
CEMETERY

CEMETERY

100

4680 4685 4690 4695 4700 4705 4710

WEST FRONTAGE ROAD

IH-94 SB

IH-94 NB

EAST FRONTAGE ROAD

C-51-12
EXISTING BOX
CULVERT

BEGIN PROJECT
I.D. 1030-24-80
STA. 5691+50

5680 5685 5690 5695 5700 5705 57

WETLAND BOUNDARY

C-51-12
BOX CULVERT
EXTENSION

END PROJECT
I.D. 1030-24-80
STA. 5997+00

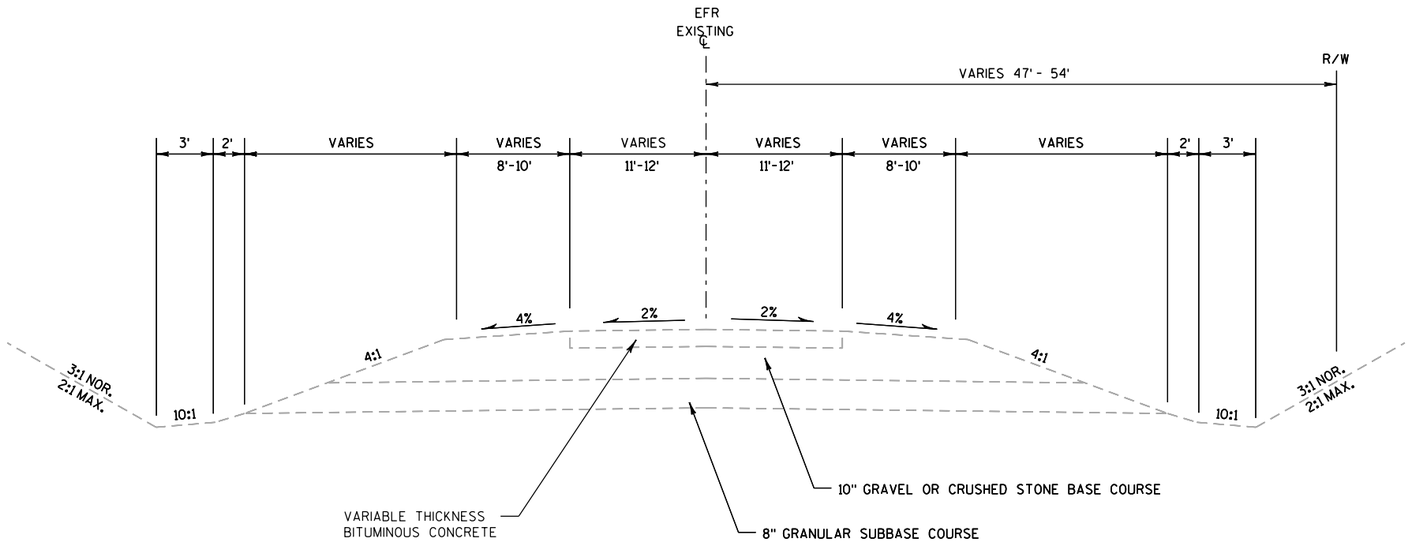
NAVIGABLE WATERWAY
UT-18 TO KILBOURN ROAD DITCH

1/4 SECTION LINE

VILLAGE OF
MT. PLEASANT

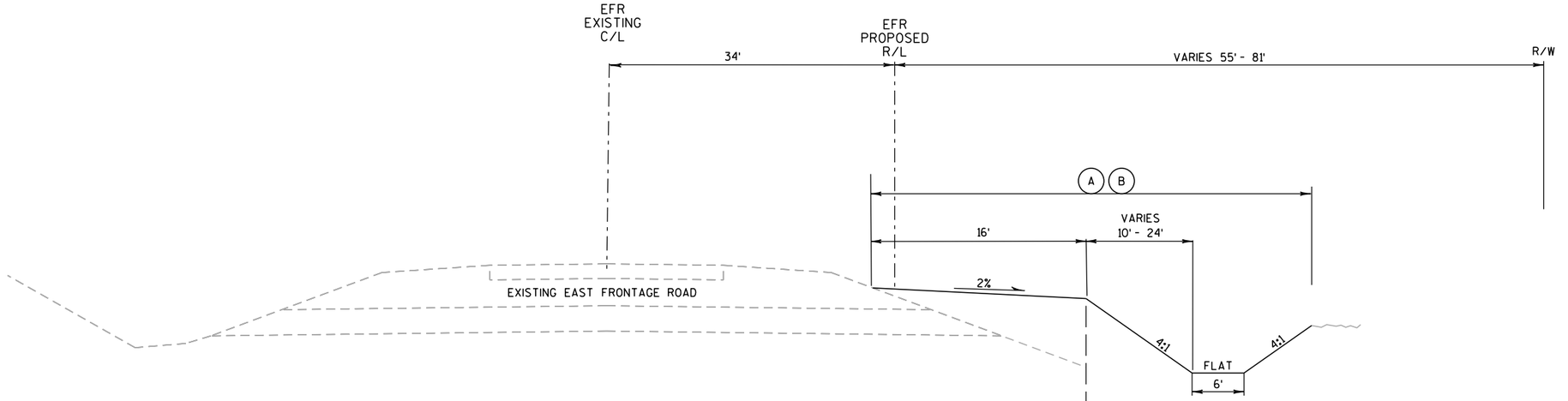
PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	PROJECT OVERVIEW: BOX CULVERT EXTENSION	SHEET 4	E

2

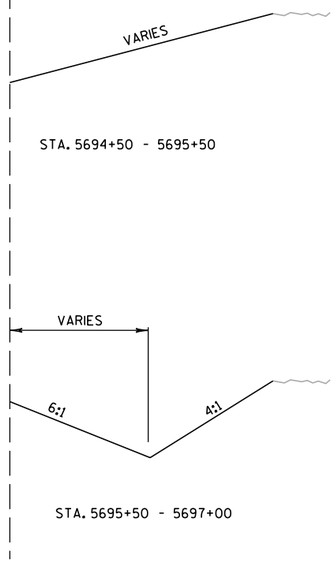


TYPICAL EXISTING SECTION
EAST FRONTAGE ROAD
STA. 5691+50 - 5697+00

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	TYPICAL SECTIONS: EXISTING EAST FRONTAGE ROAD	SHEET 5	E



TYPICAL FINISHED SECTION
BOX CULVERT EXTENSION
STA. 5691+50 - 5697+00



LEGEND:

(A) SEEDING MIXTURE NO. 20 AND FERTILIZER TYPE B

(B) 4" TOPSOIL AND MULCHING

THE PAVEMENT STRUCTURE (5 1/2" HMA, 12" BASE AGGREGATE, 8" SELECT SUBBASE AND GEOGRID REINFORCEMENT) & BASE AGGREGATE SHOULDERS WILL BE CONSTRUCTED BY OTHERS UNDER PROJECT ID 1030-24-77, EAST FRONTAGE ROAD.

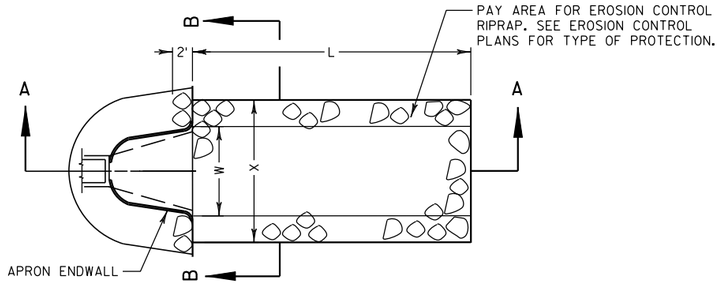
2

RUNOFF COEFFICIENT TABLE

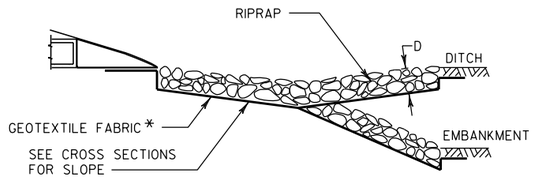
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33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

TOTAL PROJECT AREA = 61 ACRES (R/W AREA FOR CTH KR TO STH 11 SEGMENT)
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.68 ACRES (I.D. 1030-24-80 DISTURBED AREA)

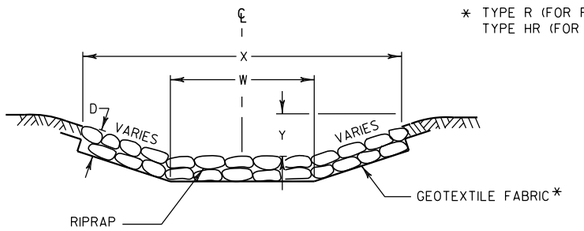
090805



PLAN VIEW



SECTION A-A



SECTION B-B

L = 3 x W (NOR) OR 10' MIN
OR AS INDICATED IN THE PLANS
OR AS DIRECTED BY THE ENGINEER

D = 12" FOR RIPRAP LIGHT
18" FOR RIPRAP MEDIUM
24" FOR RIPRAP HEAVY

X = W+2' FOR TYPICAL CULVERT
DISCHARGE INTO DITCH
W+5' FOR CULVERT DISCHARGE
DOWN EMBANKMENT SLOPE

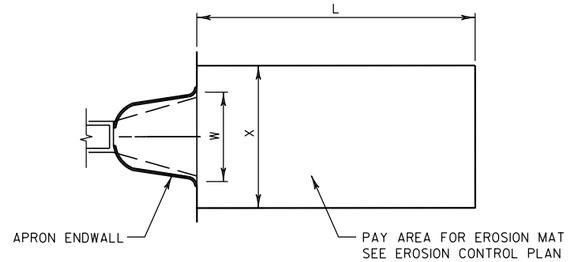
Y = 0' FOR TYPICAL CULVERT
DISCHARGE INTO DITCH
12" FOR CULVERT DISCHARGE
DOWN EMBANKMENT SLOPE

* TYPE R (FOR RIPRAP LIGHT ONLY)
TYPE HR (FOR RIPRAP HEAVY AND MEDIUM ONLY)

RIPRAP AND GEOTEXTILE FABRIC DETAIL AT APRON ENDWALLS

SEE EROSION CONTROL PLAN FOR LOCATIONS

100914 (MOD)



W = WIDTH OF APRON ENDWALL

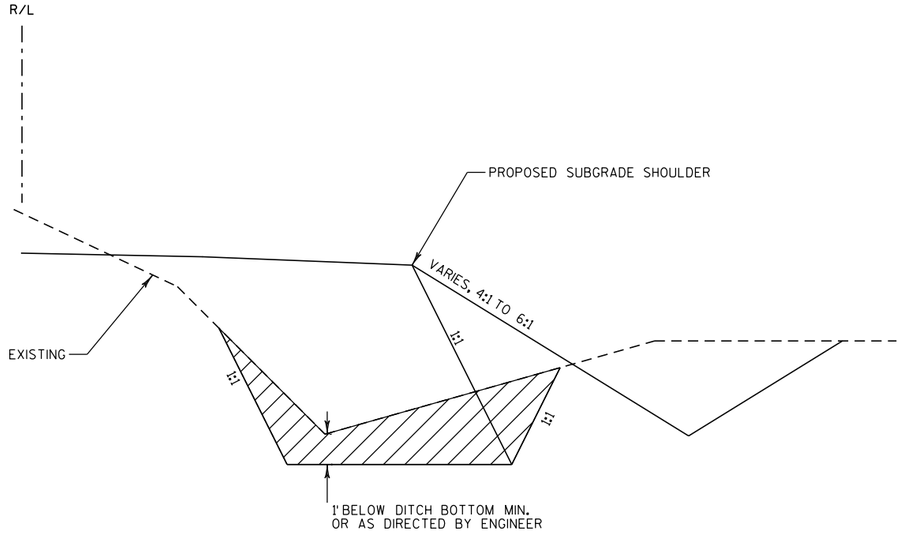
L = 3 x W (NORMAL) OR 10' (MINIMUM) OR
AS INDICATED IN THE PLANS OR
AS DIRECTED BY THE ENGINEER.

X = W+2' FOR TYPICAL CULVERT
DISCHARGE INTO DITCH
W+5' FOR CULVERT DISCHARGE
DOWN EMBANKMENT SLOPE

EROSION MAT TREATMENT AT CULVERTS

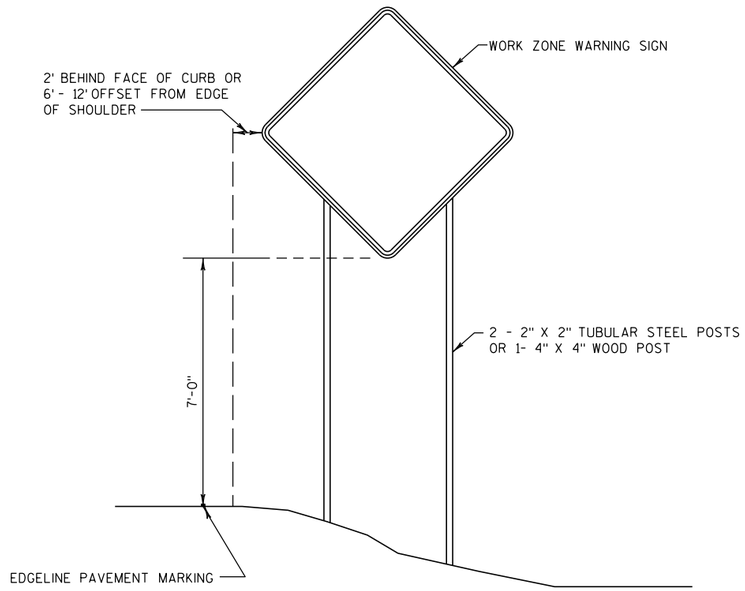
SEE EROSION CONTROL PLAN FOR LOCATIONS

100813



EBS AT DITCH FILLS

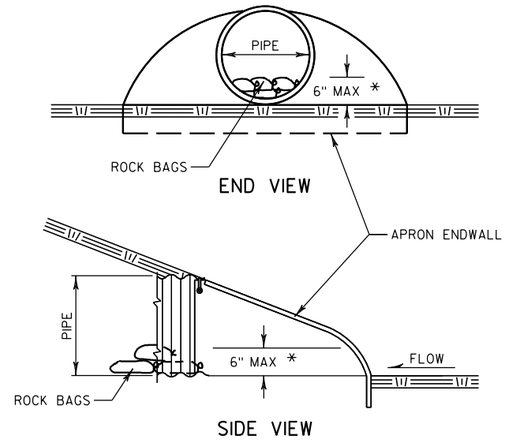
1. UTILIZE DETAIL FOR ALL AREAS WHERE FILL IS TO BE PLACED OVER AN EXISTING DITCH.
2. EXCAVATE AREA TO A MINIMUM OF 1-FOOT BELOW EXISTING DITCH BOTTOM OR AS DIRECTED BY ENGINEER IN THE FIELD.
3. EBS AREA TO BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE ENGINEER.
4. BACKFILL MUST BE HOMOGENEOUS WITH ADJOINING FILL MATERIAL.
5. EXACT LOCATIONS AND EXTENTS OF EBS SECTIONS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.



TYPICAL TEMPORARY TRAFFIC CONTROL SIGN MOUNTING ON FIXED SUPPORT

LONG TERM
7 DAYS OR MORE

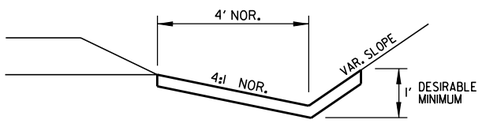
101105



* OR AS DIRECTED BY THE ENGINEER

CULVERT PIPE CHECK

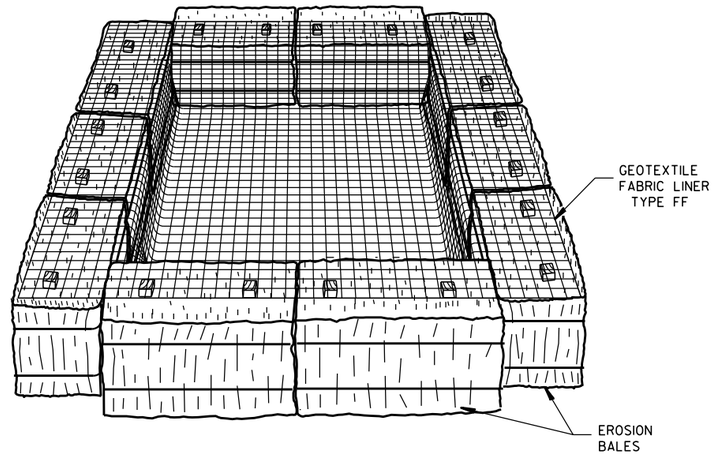
100813



EROSION MAT DETAIL FOR DITCHES

081231

2



TEMPORARY SETTLING BASIN

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

STORAGE VOLUME (C.F.) = 16 X GPM (PUMP RATE)

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

SOLUTION:
SV (C.F.) = 16 X 50
SV = 800 C.F.

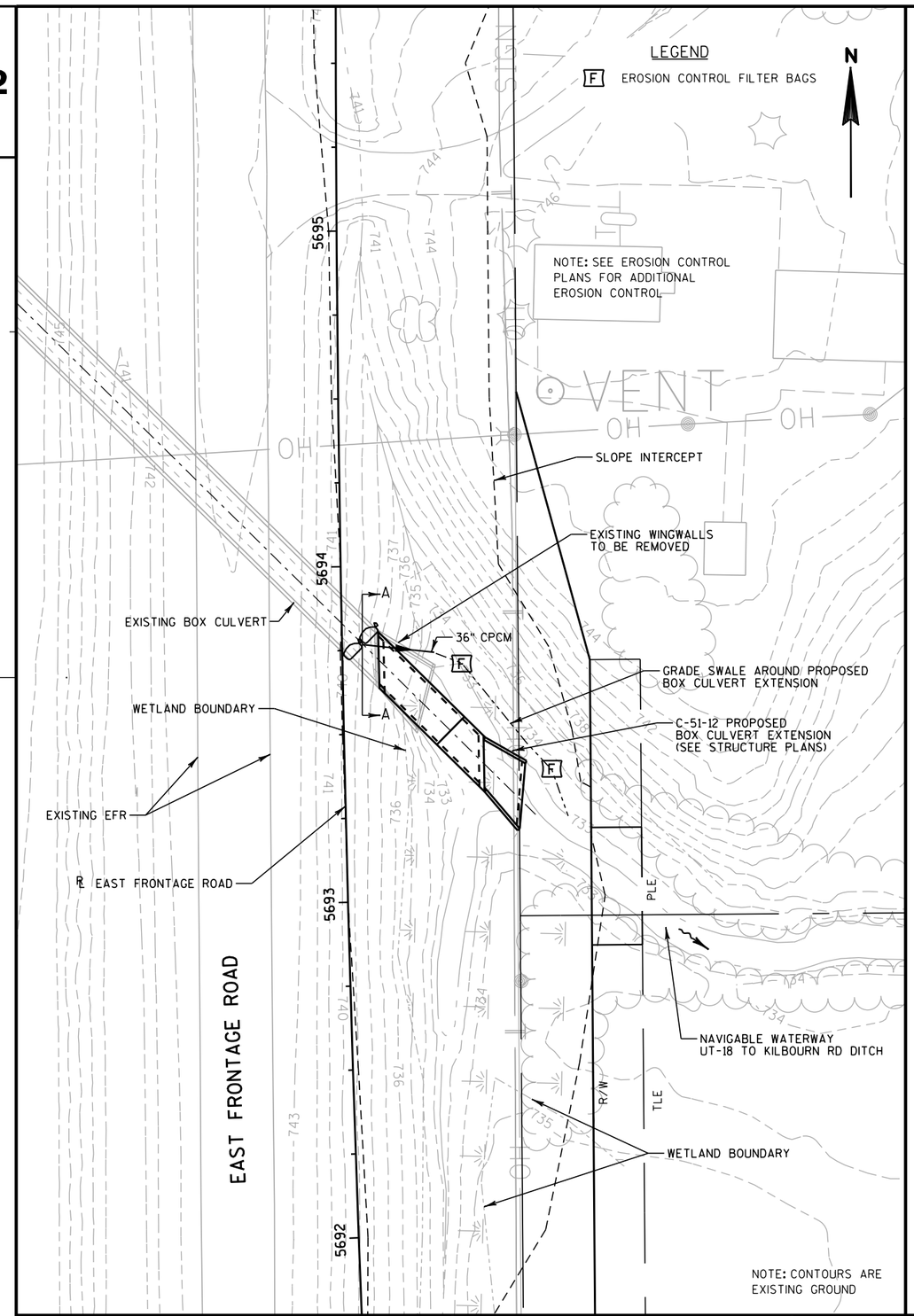
$\frac{800 \text{ C.F.}}{1.5 \text{ FT.}}$ = 533 S.F.

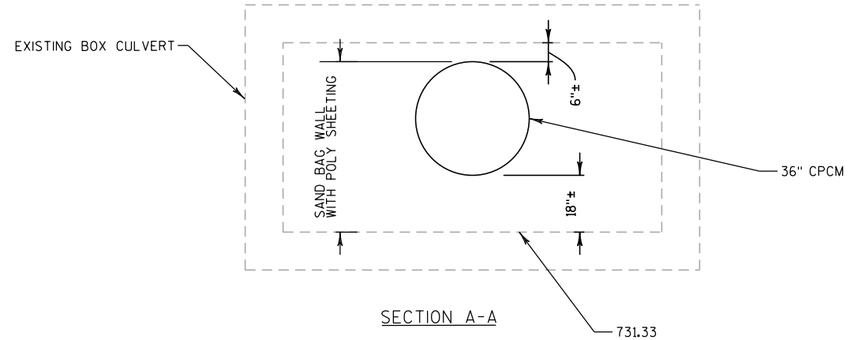
USE A 20 FT. X 27 FT. BASIN

NOTES:

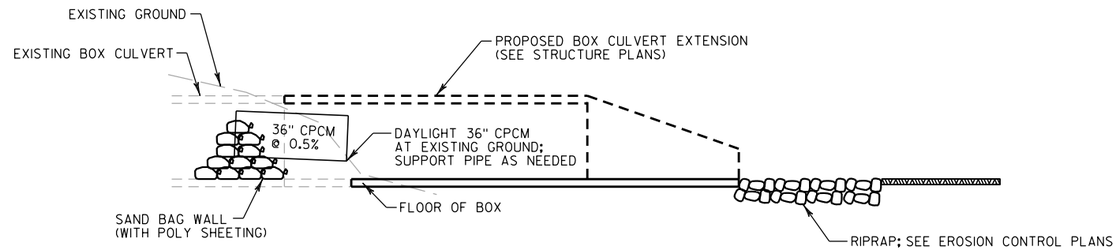
1. CONTRACTOR TO PUMP WATER FROM EXCAVATION TO BASIN PRIOR TO DISCHARGING TO THE WATERWAY.
2. BASIN TO BE KEPT LESS THAN 10% FULL OF SEDIMENT. GEOTEXTILE FABRIC AND SEDIMENTS TO BE DISPOSED BY THE CONTRACTOR OFF OF THE PROJECT SITE.
3. TEMPORARY SETTLING BASIN TO BE PAID FOR AS EROSION BALES AND GEOTEXTILE FABRIC TYPE FF.

081230





SECTION A-A

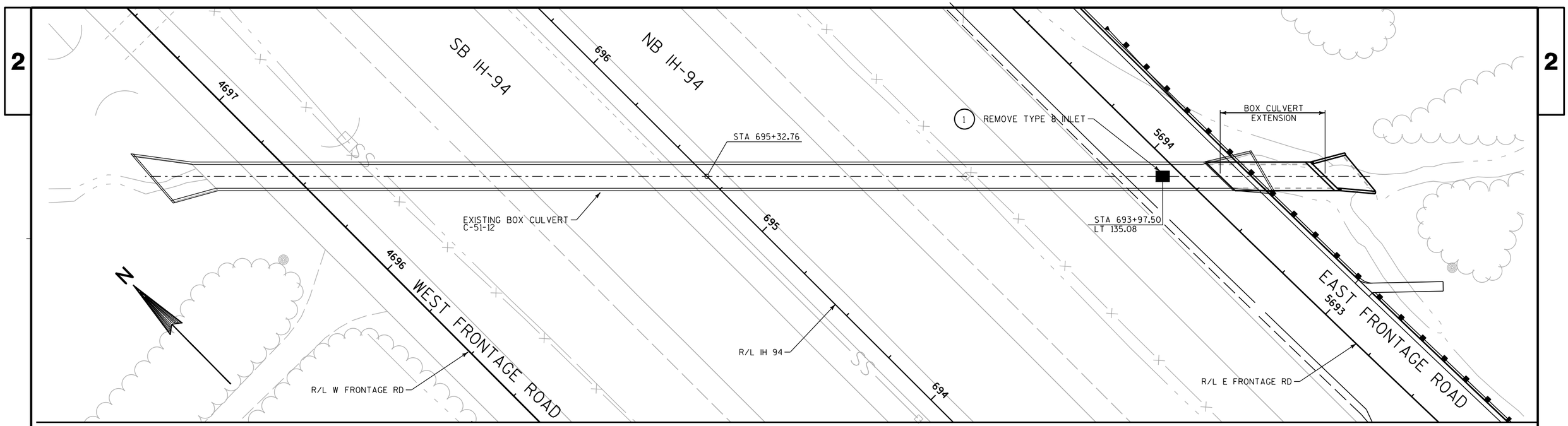


CROSS SECTION VIEW

DIVERSION PIPE

(TO BE USED UNTIL FLOOR OF BOX CULVERT EXTENSION IS POURED)

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	CONSTRUCTION DETAILS: BOX CULVERT EXTENSION / DIVERSION PIPE	SHEET 11	E



BILL OF BARS

BAR MARK	COAT	NO REQ'D	LENGTH	BENT	BAR SERIES
S401	--	4	1'-2"	--	--
S402	--	4	1'-11"	X	--

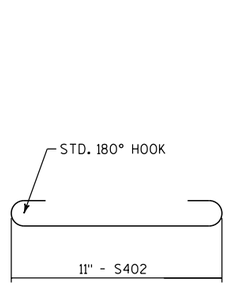
LOCATION NUMBER	DESCRIPTION	DISCHARGE EL.
(1)	TYPE 8 INLET - 15" CIRCULAR OPENING +/- (EST.)	TOP OF CULVERT

NOTES

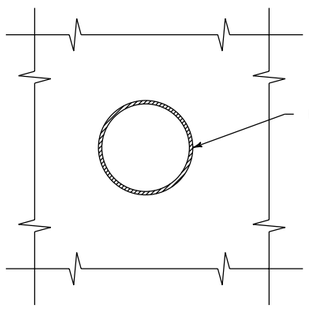
REMOVAL OF THE EXISTING INLET IS PAID FOR UNDER THE ITEM "REMOVING INLETS"

OPENING AT INLET #1 IS ASSUMED TO BE 15" (DIA) OPENING

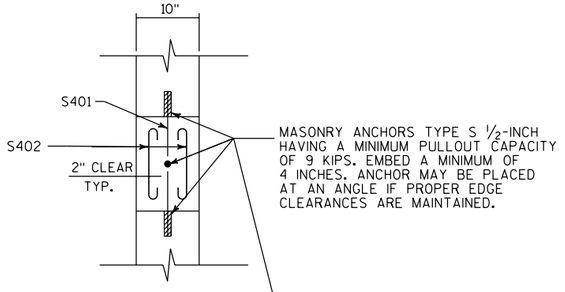
CONTRACTOR SHALL VERIFY INLET OPENINGS PRIOR TO ORDERING STEEL.



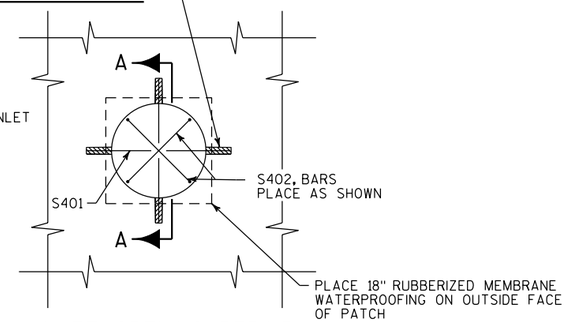
S402



INLET REMOVAL



SECTION A-A

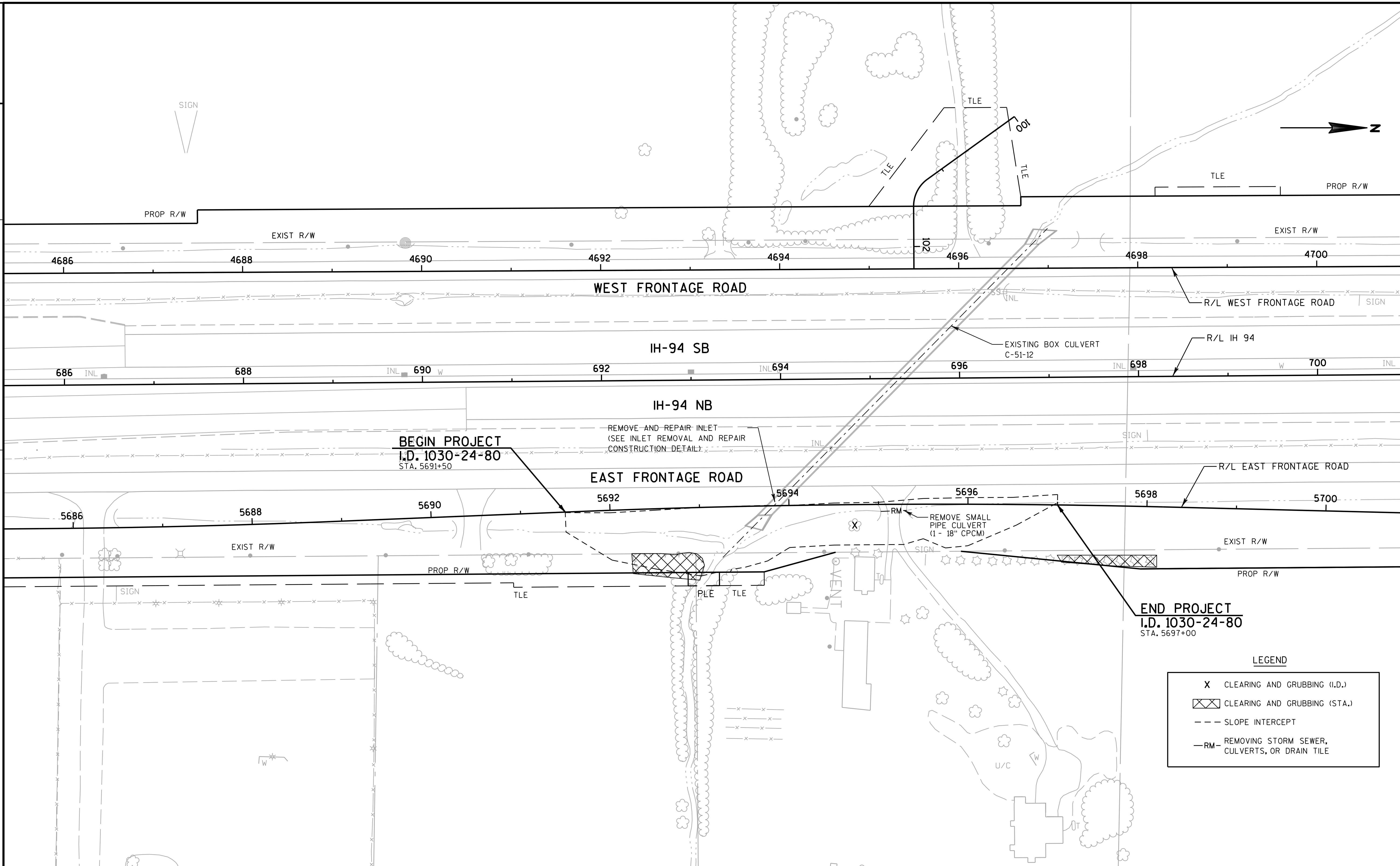


INLET OPENING REPAIR

BOX CULVERT EXTENSION - INLET REMOVAL AND REPAIR

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	BOX CULVERT EXTENSION-INLET REMOVAL/REPAIR	SHEET 12	E

FILE NAME : Z:\Racine\CADDS\12\12_BoxCulvert\CDS\021002_cd.dgn PLOT DATE : 1/14/2013 PLOT BY : kld PLOT NAME : PLOT SCALE : 1:40.1299



SIGN
TLE
100
TLE
TLE
TLE
PROP R/W
PROP R/W
EXIST R/W
EXIST R/W
102
4686
4688
4690
4692
4694
4696
4698
4700
WEST FRONTAGE ROAD
R/L WEST FRONTAGE ROAD
SIGN
INL
IH-94 SB
EXISTING BOX CULVERT
C-51-12
R/L IH 94
686
688
690
692
694
696
698
700
IH-94 NB
REMOVE AND REPAIR INLET
(SEE INLET REMOVAL AND REPAIR
CONSTRUCTION DETAIL)
BEGIN PROJECT
I.D. 1030-24-80
STA. 5691+50
EAST FRONTAGE ROAD
R/L EAST FRONTAGE ROAD
5686
5688
5690
5692
5694
5696
5698
5700
RM
REMOVE SMALL
PIPE CULVERT
(1 - 18" CPCM)
EXIST R/W
EXIST R/W
PROP R/W
PROP R/W
SIGN
TLE
PLE
TLE
VENT
END PROJECT
I.D. 1030-24-80
STA. 5697+00
U/C
N

LEGEND

X	CLEARING AND GRUBBING (I.D.)
(crosshatch)	CLEARING AND GRUBBING (STA.)
– – –	SLOPE INTERCEPT
—RM—	REMOVING STORM SEWER, CULVERTS, OR DRAIN TILE

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	REMOVAL PLAN: BOX CULVERT EXTENSION	SHEET 13	E

2

IH-94 SB

IH-94 NB

N

EXISTING BOX CULVERT
C-51-12

BEGIN PROJECT
I.D. 1030-24-80
STA. 5691+50

R/L EAST FRONTAGE ROAD

5691 5692 EAST FRONTAGE ROAD 5693 5694 5695 5696 5697

WETLAND BOUNDARY

REPLACE DISTURBED
AREA OF DRIVEWAY

+10.74
26.00' RT

+23.62
26.00' RT

DR04

45.00' RT

18'

MATCH EXISTING

END PROJECT
I.D. 1030-24-80
STA. 5697+00

EXIST R/W

PROP R/W

C-51-12
BOX CULVERT
EXTENSION

PROP R/W

PROP R/W

TLE

PLE

TLE

NAVIGABLE WATERWAY
UT-18 TO KILBOURN ROAD DITCH

PL

PAVEMENT DETAIL LEGEND

DR04 AGGREGATE DRIVEWAY, BASE AGGREGATE DENSE 3/4-INCH, 6-INCH

2

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	PLAN DETAIL: BOX CULVERT EXTENSION	SHEET 14	E

FILE NAME : Z:\Racine\CADDS\12\12_BoxCulvert\CDS\021201_pd.dgn PLOT DATE : 1/14/2013 PLOT BY : kld PLOT NAME : PLOT SCALE : 1:40

2

2

N

SIGN

PROP R/W

EXIST R/W

4686 4688 4690 4692 4694 4696 4698 4700

WEST FRONTAGE ROAD

R/L WEST FRONTAGE ROAD

TLE

100'

20'

TLE

PROP R/W

WETLAND BOUNDARY

EXIST R/W

SIGN

IH-94 SB

686 INL 688 INL 690 W 692 INL 694 696 INL 698 W 700 INL

R/L IH 94

IH-94 NB

BEGIN PROJECT
I.D. 1030-24-80
STA. 5691+50

EXISTING BOX CULVERT
C-51-12

SLOPE INTERCEPT

SIGN

INL

WETLAND BOUNDARY

EAST FRONTAGE ROAD

5686 5688 5690 5692 5694 5696 5698 5700

R/L EAST FRONTAGE ROAD

PROP R/W

EXIST R/W

SIGN

TLE

5691+50.00
28.33' RT

5691+97.32
60.12' RT

5692+48.96
73.04' RT

5692+73.12
77.16' RT

PLE

TLE

5693+51.46
69.14' RT

5693+07.17
82.23' RT

PROP R/W

SEE STRUCTURE PLANS

EXIST R/W

PROP R/W

END PROJECT
I.D. 1030-24-80
STA. 5697+00

NAVIGABLE WATERWAY
UT-18 TO KILBOURN ROAD DITCH

U/C

W

UT

NOTE: DO NOT INSTALL CLASS II TYPE C
EROSION MAT IN WATER.

LEGEND

- EROSION MAT CLASS II, TYPE C
- RIPRAP HEAVY
- SLOPE INTERCEPT
- TEMPORARY DITCH CHECK
- CULVERT PIPE CHECK
- SURFACE WATER FLOW
- EROSION BALE
- EROSION CONTROL FILTER BAGS

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	EROSION CONTROL: BOX CULVERT EXTENSION	SHEET 15	E

FILE NAME : Z:\Racine\CADDS\12\12_BoxCulvert\CDS\022001_EC.dgn PLOT DATE : 1/14/2013 PLOT BY : kld PLOT NAME : PLOT SCALE : 1:100

2

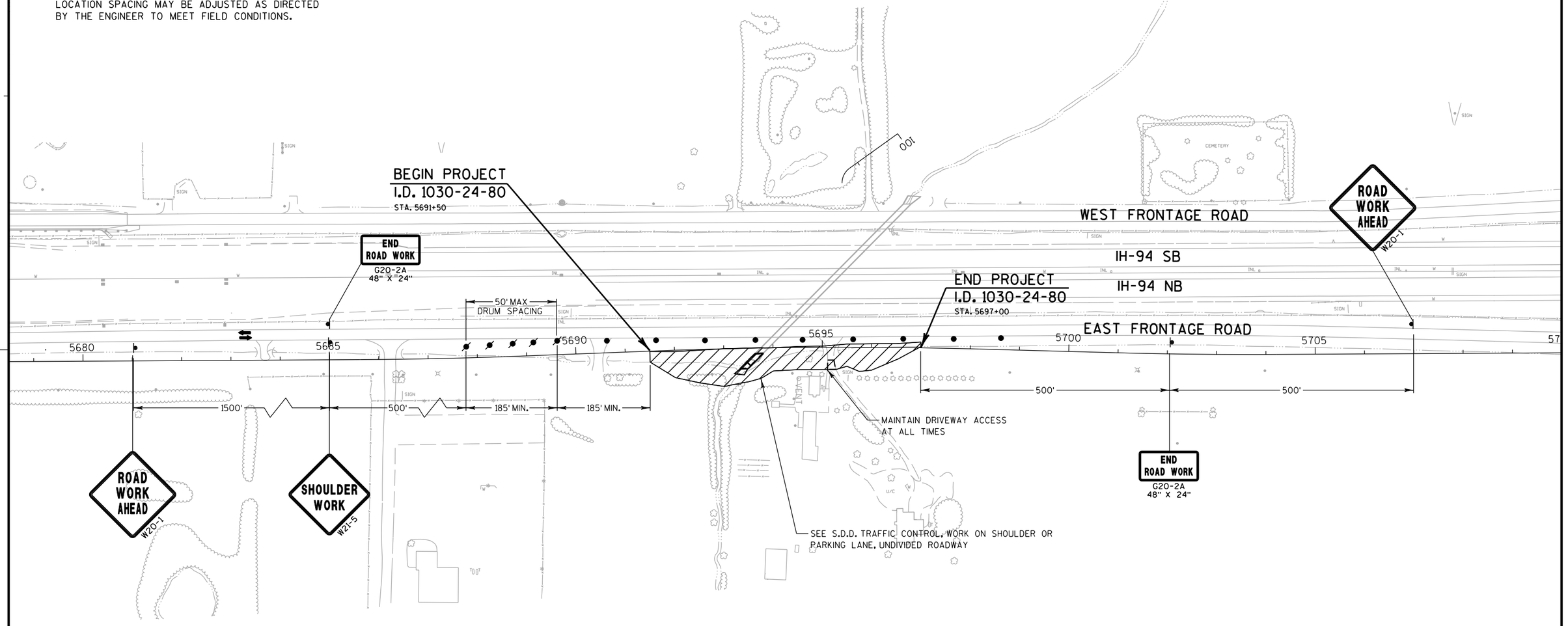
GENERAL NOTES FOR CONSTRUCTION STAGING AND TRAFFIC CONTROL

1. ALL TRAFFIC CONTROL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED IN THE PLANS.
2. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS REFLECTIVE ORANGE.
3. TRAFFIC CONTROL DRUMS IN TAPERS SHALL BE SPACED AT 50-FT OC MAX IN TAPERS AND 100-FT OC MAX ON TANGENTS
4. SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATION SPACING MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER TO MEET FIELD CONDITIONS.
5. ALL EXISTING CONFLICTING PAVEMENT MARKING SHALL BE REMOVED.
6. A FLAGGER MAY BE REQUIRED WHERE CONSTRUCTION VEHICLES ENTER OR LEAVE "WORK/CLOSED" AREAS IF WARRANTED BY CONDITIONS AND/OR AS DIRECTED BY THE ENGINEER.

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON WOOD POST
- WORK AREA
- DIRECTION OF TRAFFIC
- TRAFFIC CONTROL DRUM WITH LIGHT TYPE C

N



BOX CULVERT EXTENSION

CONSTRUCTION

-EXTEND BOX CULVERT
-RE-GRADE TO TRANSITION EXISTING DITCH

TRAFFIC

-RIGHT SHOULDER CLOSURE FOR NORTHBOUND TRAFFIC ON EAST FRONTAGE ROAD

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	TRAFFIC CONTROL: BOX CULVERT EXTENSION	SHEET 16	E

2

N

CONTROL POINTS			
POINT NO.	COORDINATES X	COORDINATES Y	DESCRIPTION
HMOD1	593977.80	170296.36	TY:DISK IN CONCRETE

S 89°50'01" E 2641.95'

1/4 SECTION LINE

POINT SEC3156
CONCRETE MON. WITH ALUM. CAP
Y=167731.39
X=594140.50

T3N R22E 36 31

TOWN OF
YORKVILLE

HMOD1

2664.26'
N 0°18'32" W

SECTION LINE

2667.69'
N 0°17'38" W

SECTION LINE

FOR REFERENCE ONLY

680 685 690 695 700 705 710

R/L IH 94

IH-94 SB

IH-94 NB

284.86'

280.25'

PC KC3465

PT KC3465

PC KC3466

PI KC3466

PC KC3467

PT KC3467

R/L PROPOSED
EAST FRONTAGE ROAD

5680 EAST FRONTAGE ROAD 5685 5690 5695 5700 5705 5710

CURVE KC3465

CURVE KC3467

N 0° 27'15"W

N 2° 19'19" W

CURVE 3466

N 1° 24'55" E

N 0° 27'15" W

STA. 5684+42
Y= 167726.71
X= 594426.33

PI KC3465

PT KC3466

PI KC3467

BEGIN PROJECT
I.D. 1030-24-80
STA. 5691+50

END PROJECT
I.D. 1030-24-80
STA. 5697+00

S 89°03'40" E 2652.12'

T3N R22E 31

POINT SEC3145
CAST IRON MON. WITH BRASS CAP
Y=167689.57
X=596692.28

VILLAGE OF MT. PLEASANT

CURVE DATA											
CURVE NO.	PI	PI COORDINATES X	PI COORDINATES Y	Δ	D	T	L	E	R	PC	PT
KC3465	5687+24.88	594424.07	168009.58	(1°52'04")	0°34'23"	163.02'	326.00'	1.33'	10000.00	5685+61.87	5688+87.87
KC3466	5694+91.85	594392.99	168775.95	3°44'14"	0°34'23"	326.25'	852.26'	5.32'	10000.00	5691+65.60	5698+17.86
KC3467	5702+58.02	594411.92	169542.12	(1°52'09")	0°34'23"	163.14'	326.25'	1.33'	10000.00	5700+94.88	5704+21.14

DATE 28FEB13 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1030-24-80 QUANTITY
0010	201.0105	CLEARING **P**	STA	2.000	2.000
0020	201.0120	CLEARING	ID	49.000	49.000
0030	201.0205	GRUBBING **P**	STA	2.000	2.000
0040	201.0220	GRUBBING	ID	49.000	49.000
0050	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	1.000	1.000
0060	203.0200	REMOVING OLD STRUCTURE (STATION) 020. 5693+83.15	LS	1.000	1.000
0070	204.0220	REMOVING INLETS	EACH	1.000	1.000
0080	205.0100	EXCAVATION COMMON	CY	2,291.000	2,291.000
0090	206.2000	EXCAVATION FOR STRUCTURES CULVERTS (STRUCTURE) 001. C-51-0012	LS	1.000	1.000
0100	208.0100	BORROW	CY	1,189.000	1,189.000
0110	208.1100	SELECT BORROW	CY	2,595.000	2,595.000
0120	210.0100	BACKFILL STRUCTURE **P**	CY	350.000	350.000
0130	213.0100	FINISHING ROADWAY (PROJECT) 078. 1030-24-80	EACH	1.000	1.000
0140	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	11.000	11.000
0150	311.0110	BREAKER RUN	TON	180.000	180.000
0160	502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS **P**	EACH	32.000	32.000
0170	502.6102	MASONRY ANCHORS TYPE S 1/2-INCH **P**	EACH	4.000	4.000
0180	504.0100	CONCRETE MASONRY CULVERTS **P**	CY	69.200	69.200
0190	505.0110	BAR STEEL REINFORCEMENT CULVERTS	LB	8.500	8.500
0200	505.0410	BAR STEEL REINFORCEMENT HS CULVERTS	LB	6,690.000	6,690.000
0210	516.0500	RUBBERIZED MEMBRANE WATERPROOFING **P**	SY	17.250	17.250
0220	520.0118	CULVERT PIPE CLASS III 18-INCH	LF	160.000	160.000
0230	521.1518	APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 18-INCH 6 TO 1	EACH	2.000	2.000
0240	522.1048	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 48-INCH	EACH	1.000	1.000
0250	606.0300	RIPRAP HEAVY	CY	95.000	95.000
0260	608.0448	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 48-INCH	LF	32.000	32.000
0270	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	120.000	120.000
0280	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 041. 1030-24-80	EACH	1.000	1.000
0290	619.1000	MOBILIZATION	EACH	1.000	1.000
0300	624.0100	WATER	MGAL	8.000	8.000
0310	625.0500	SALVAGED TOPSOIL **P**	SY	3,310.000	3,310.000
0320	627.0200	MULCHING **P**	SY	1,620.000	1,620.000
0330	628.1104	EROSION BALES	EACH	128.000	128.000
0340	628.1504	SILT FENCE	LF	225.000	225.000
0350	628.1520	SILT FENCE MAINTENANCE	LF	225.000	225.000
0360	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	3.000	3.000
0370	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	1.000	1.000
0380	628.2027	EROSION MAT CLASS II TYPE C	SY	1,800.000	1,800.000
0390	628.7504	TEMPORARY DITCH CHECKS	LF	38.000	38.000
0400	628.7555	CULVERT PIPE CHECKS	EACH	20.000	20.000
0410	628.7560	TRACKING PADS	EACH	2.000	2.000
0420	629.0210	FERTILIZER TYPE B	CWT	2.000	2.000
0430	630.0120	SEEDING MIXTURE NO. 20	LB	85.000	85.000
0440	630.0200	SEEDING TEMPORARY	LB	85.000	85.000
0450	633.5200	MARKERS CULVERT END	EACH	1.000	1.000
0460	643.0100	TRAFFIC CONTROL (PROJECT) 080. 1030-24-80	EACH	1.000	1.000
0470	643.0300	TRAFFIC CONTROL DRUMS	DAY	570.000	570.000

3

DATE 28FEB13 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1030-24-80 QUANTITY
0480	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	205.000	205.000
0490	643.0900	TRAFFIC CONTROL SIGNS	DAY	205.000	205.000
0500	643.1050	TRAFFIC CONTROL SIGNS PCMS	DAY	38.000	38.000
0510	645.0105	GEOTEXTILE FABRIC TYPE C **P**	SY	120.000	120.000
0520	645.0120	GEOTEXTILE FABRIC TYPE HR **P**	SY	142.000	142.000
0530	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	HRS	100.000	100.000
0540	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	100.000	100.000
0550	SPV.0060	SPECIAL 009. EROSION CONTROL FILTER BAGS	EACH	20.000	20.000
0560	SPV.0060	SPECIAL 024. SEALING PIPE STUBS	EACH	1.000	1.000
0570	SPV.0060	SPECIAL 030. SILT FENCE DRAINAGE OUTLET EROSION CONTROL FILTER BAGS	EACH	3.000	3.000
0580	SPV.0105	SPECIAL 076. DIVERSION PIPE	LS	1.000	1.000
0590	SPV.0105	SPECIAL 087. SURVEY PROJECT 1030-24-80	LS	1.000	1.000
0600	SPV.0105	SPECIAL 088. PAVEMENT CLEANUP PROJECT 1030-24-80	LS	1.000	1.000
0610	SPV.0180	SPECIAL 002. GEOTEXTILE FABRIC TYPE FF	SY	90.000	90.000

3

CLEARING AND GRUBBING

CATEGORY	STATION		LOCATION	201.0105 CLEARING STA	201.0120 CLEARING I.D.	201.0205 GRUBBING STA	201.0220 GRUBBING I.D.
1000	BOX CULVERT EXTENSION						
	5692+00	5693+00	RT	1	--	1	--
	5694+73		RT	--	49	--	49
	5697+00 -	5698+00	RT	1	--	1	--
	TOTAL			2	49	2	49

REMOVING SMALL PIPE CULVERT

CATEGORY	STATION	SIZE INCH	LENGTH FEET	TYPE	203.0100 REMOVING SMALL PIPE CULVERTS EACH
1000	BOX CULVERT EXTENSION				
	5695+17	18	29	CPCM	1
	TOTAL				1

3

BASE AGGREGATE ITEMS

CATEGORY	STATION	STATION	305.0110 BASE AGGREGATE DENSE 3/4 INCH TON
1000	DRIVEWAYS		
		5695+17	11
	TOTAL		11

REMOVING AND REPAIRING INLETS

CATEGORY	STATION	TYPE	204.0220 REMOVING INLETS EACH	502.6102 MASONRY ANCHORS TYPE S 1/2 - INCH EACH	504.01000 CONCRETE MASONRY CULVERTS CY	505.0110 BAR STEEL REINFORCEMENT CULVERTS LB	516.0500 RUBBERIZED MEMBRANE WATERPROOFING SY
1000	5693+98 7' LT	8	1	4	0.2	8.5	0.25
	TOTAL		1	4	0.2	8.5	0.25

3

EARTHWORK

CATEGORY	ROADWAY	FROM / TO STATION	205.0100 EXCAVATION COMMON (1) CY		AVAILABLE MATERIAL (3)	REDUCED EBS IN FILL (4)	EXPANDED EBS BACKFILL (5)	208.1100 SELECT BORROW CY	UNEXPANDED FILL (6)	EXPANDED FILL (7)	ESTIMATED DISPOSAL AREA OUTSIDE 1:1 SLOPE (8)	(9) 208.0100 BORROW	(10) WASTE
			CUT	EBS EXCAVATION (2)		FACTOR	FACTOR			FACTOR			
1000						0.80	1.30			1.20			
	BOX CULVERT EXTENSION & EBS IN DITCH FILLS	5691+50 to 5697+00	295	1,996	2,291	1,597	2,595	2,595	1,856	2,228	743	1,189	1,104
		TOTAL EXCAVATION COMMON		2,291									

1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100

2) EBS TO BE BACKFILLED WITH SELECT BORROW. EBS MAY BE WASTED OUTSIDE OF THE 1:1 SLOPE.

3) AVAILABLE MATERIAL = CUT + EBS EXCAVATION

4) REDUCED EBS IN FILL = FOR INFORMATION ONLY. EXCAVATED EBS MATERIALS MAY BE USED OUTSIDE THE 1:1 SLOPE ON THE NON IH-94 SIDE OF THE FRONTAGE ROAD ONLY.

5) EXPANDED EBS BACKFILL; THIS IS TO BE FILLED WITH SELECT BORROW MATERIAL. EBS BACKFILL FACTOR = 1.3 ITEM NUMBER 208.1100

6) UNEXPANDED FILL; FILL FROM END AREA EARTHWORK VOLUMES

7) EXPANDED FILL FACTOR = 1.20 (EXPANDED FILL DOES NOT CONTAIN EBS)

8) ESTIMATED DISPOSAL AREA OUTSIDE OF THE 1:1 SLOPE IS THE AREA AVAILABLE FOR PLACEMENT OF EXCESS EBS. SEE CROSS SECTIONS IN PROJECT ID 1030-24-77 (BY OTHERS) FOR FINISHED 1:1 SLOPE LOCATION.

9) BORROW= EXPANDED FILL - ESTIMATED DISPOSAL OUTSIDE OF 1:1 SLOPE - CUT

10) WASTE = EBS EXCAVATION - (ESTIMATED DISPOSAL AREA OUTSIDE 1:1 SLOPE*1.2)

STORM SEWER ITEMS

CATEGORY	STRUCTURE NUMBER	STATION	OFFSET FT	RIM OR FLANGE ELEV	FROM STR	TO STR	INLET ELEV	DISCH ELEV	SLOPE	608.0448 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 48-INCH LF	522.1048 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 48-INCH EACH	633.5200 MARKERS CULVERT END EACH	SPV.0060.024 SEALING PIPE STUBS EACH	NOTES
1000	BOX CULVERT EXTENSION													
	509A	5692+96	10.0' RT	739.70	509A	510	732.65	732.59	0.20%	32	–	–	1	SEAL PIPE AT WEST END
	510	5693+00	50.0' RT	N/A	510	OUTFALL	732.59	732.57	0.25%	–	1	1	–	
	TOTALS									32	1	1	1	

NOTES
1) STATIONS AND OFFSETS ARE TO THE CENTER OF STRUCTURES OR TO THE APRON END OF ENDWALLS.
2) PIPE LENGTHS ARE MEASURED TO THE CENTER OF STRUCTURES OR END OF PIPE (NOT THE APRON END OF ENDWALLS).

DRIVEWAY CULVERT ITEMS

CATEGORY	STATION	INLET END STATION	INLET END OFFSET	INLET END ELEV	DISCHARGE END STATION	DISCHARGE END OFFSET	DISCHARGE END ELEV	SLOPE	DRIVEWAY WIDTH	520.0118 CULVERT PIPE CLASS III 18-INCH LF	521.1518 APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 18-INCH 6 TO 1 EACH	STEEL THICKNESS INCHES
1000	BOX CULVERT EXTENSION											
	5695+19	5695+65	37.3' RT	740.33	5694+05	37.3' RT	740.01	0.20%	18.0	160	2	0.064
	TOTALS									160	2	

NOTE
1) PIPE OFFSETS AND ELEVATIONS ARE TO THE CENTERLINE AND INVERT OF PIPE.
2) PIPE LENGTH IS FROM END OF PIPE TO END OF PIPE AND DOES NOT INCLUDE LENGTH OF APRON ENDWALL.

MOBILIZATION

CATEGORY	LOCATION	619.1000 MOBILIZATION EACH
1000	BOX CULVERT EXTENSION (1030-24-80)	1
	TOTAL	1

WATER

CATEGORY	ROADWAY	624.0100 MGAL
1000	BOX CULVERT EXTENSION	8
	TOTAL	8

RESTORATION ITEMS

CATEGORY	STATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB
1000	BOX CULVERT EXTENTION					
	5691+50 - 5697+00	2,990	1,470	2	81	81
	UNDISTRIBUTED	320	150	–	4	4
	TOTAL	3,310	1,620	2	85	85

FILE NAME : Z:\Racine\CADDS\12\12_BoxCulvert\CDS\030201_mq.dgn PLOT DATE : 1/14/2013 PLOT BY : kld PLOT NAME : PLOT SCALE : 1:200
WISDOT/CADDS SHEET 43

3

CONSTRUCTION STAKING

CATEGORY	LOCATION	SPV.0105.087 SURVEY PROJECT LS
1000	BOX CULVERT EXTENSION (1030-24-80)	1
	TOTAL	1

TRACKING PADS

CATEGORY	LOCATION	628.7560 TRACKING PADS EACH
1000	BOX CULVERT EXTENSION	2
	TOTAL	2

PAVEMENT CLEANUP

CATEGORY	LOCATION	SPV.0105.088 PAVEMENT CLEANUP LS
1000	BOX CULVERT EXTENSION (1030-24-80)	1
	TOTAL	1

TEMPORARY SETTLING BASIN

CATEGORY	LOCATION	*628.1104 EROSION BALES EACH	SPV.0180.002 GEOTEXTILE FABRIC TYPE FF SY
1000	BOX CULVERT EXTENSION	38	90
	TOTAL	38	90

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

DIVERSION PIPE

CATEGORY	STATION	LOCATION	SPV.0105.076 DIVERSION PIPE LS
1000	BOX CULVERT EXTENSION 5693+70	RT	1
	TOTAL		1

3

3

MAINTENANCE AND REPAIR OF HAUL ROADS 1030-24-80

CATEGORY	LOCATION	618.0100.041 EACH
1000	BOX CULVERT EXTENSION 1030-24-80	1
		1

FINISHING ROADWAY PROJECT

CATEGORY	LOCATION	213.0100.078 FINISHING ROADWAY EACH
1000	BOX CULVERT EXTENSION (1030-24-80)	1
	TOTAL	1

3

TRAFFIC CONTROL ITEMS

CATEGORY	LOCATION	STAGE DURATION DAYS	643.0900 TRAFFIC CONTROL SIGNS EACH	643.0900 TRAFFIC CONTROL SIGNS DAYS	643.0300 TRAFFIC CONTROL DRUMS EACH	643.0300 TRAFFIC CONTROL DRUMS DAYS	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C EACH	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAYS	643.1050 TRAFFIC CONTROL SIGNS PCMS EACH	643.1050 TRAFFIC CONTROL SIGNS PCMS DAYS
1000	EAST FRONTAGE ROAD	37	5	185	14	518	5	185	--	--
	UNDISTRIBUTED			20		52		20	2	38
	TOTAL			205		570		205		38

TRAFFIC CONTROL (PROJECT)

CATEGORY	LOCATION	643.0100.080 TRAFFIC CONTROL EACH
1000	BOX CULVERT EXTENSION (1030-24-80)	1
	TOTAL	1

EROSION CONTROL ITEMS

CATEGORY	STATION	LOCATION	606.0300 RIPRAP HEAVY CY	628.1104* EROSION BALES EACH	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINT LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2027 EROSION MAT CLASS II TYPE C SY	628.7504 TEMPORARY DITCH CHECK LF	628.7555 CULVERT PIPE CHECKS EACH	645.0120 GEOTEXTILE FABRIC TYPE HR SY	SPV.0060.009 EROSION CONTROL FILTER BAGS EACH	SPV.0060.030 SILT FENCE DRAINAGE OUTLET EROSION CONTROL FILTER BAGS EACH
1000	EAST FRONTAGE ROAD 5691+50 - 5697+00	RT	28	72	180	180	3	1	1,440	30	10	41	16	2
	UNDISTRIBUTED		7	18	45	45	--	--	360	8	10	11	4	1
	TOTALS		35	90	225	225	3	1	1,800	38	20	52	20	3

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRANSPORTATION PROJECT PLAT NO: 1030-24-21- 4.02

THAT PART OF THE SOUTHEAST 1/4 OF THE NORTHEAST 1/4 AND THE NORTHEAST 1/4 OF THE NORTHEAST 1/4 OF SECTION 36, TOWNSHIP 03 NORTH, RANGE 21 EAST, TOWN OF YORKVILLE, AND THAT PART OF THE SOUTHWEST 1/4 OF THE NORTHWEST 1/4 AND THE NORTHWEST 1/4 OF THE NORTHWEST 1/4 OF SECTION 31, TOWNSHIP 03 NORTH, RANGE 22 EAST, VILLAGE OF MT. PLEASANT, RACINE COUNTY, WISCONSIN.

RELOCATION ORDER I-94 AND FRONTAGE ROADS CTH KR TO STH 11 SEGMENT RACINE COUNTY

TO PROPERLY ESTABLISH, LAY OUT, WIDEN, ENLARGE, EXTEND, CONSTRUCT, RECONSTRUCT, IMPROVE, OR MAINTAIN A PORTION OF THE HIGHWAY DESIGNATED ABOVE, THE STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DEEMS IT NECESSARY TO RELOCATE OR CHANGE SAID HIGHWAY AND ACQUIRE CERTAIN LANDS AND INTERESTS OR RIGHTS IN LANDS FOR THE ABOVE PROJECT.

TO EFFECT THIS CHANGE, PURSUANT TO AUTHORITY GRANTED UNDER SECTION 84.02 (3) AND 84.09, WISCONSIN STATUTES, THE DEPARTMENT OF TRANSPORTATION HEREBY ORDERS THAT:

1. THAT PORTION OF SAID HIGHWAY AS SHOWN ON THIS PLAT IS LAID OUT AND ESTABLISHED TO THE LINES AND WIDTHS AS SO SHOWN FOR THE ABOVE PROJECT.
2. THE LANDS OR INTERESTS OR RIGHTS IN LANDS AS SHOWN ON THIS PLAT ARE REQUIRED BY THE DEPARTMENT FOR THE ABOVE PROJECT AND SHALL BE ACQUIRED IN THE NAME OF THE STATE OF WISCONSIN, PURSUANT TO THE PROVISIONS OF SECTION 84.09 (1) OR (2), WISCONSIN STATUTES.

SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTEREST TO THE DEPARTMENT.

PARCEL NUMBER	OWNER	INTEREST REQUIRED	R/W REQUIRED ACRES			T.L.E. TEMP. ACRES	P.L.E. PERM. ACRES
			NEW	EXISTING	TOTAL		
3	ERICKSON TRUCK SALES & SALVAGE INC.	Fee AR TLE	0.246	0.000	0.246	0.115	0.000
4	SUPER MIX PROFIT SHARING TRUST	Fee AR PLE TLE	0.174	0.000	0.174	0.102	0.003
5	LEONARD INVESTMENTS LLC	Fee AR PLE TLE	0.314	0.000	0.314	0.017	0.009
6	UNIVERSITY OF LAWSONOMY	Fee AR	0.466	0.000	0.466	0.000	0.000
7	ALVIN R. & JEAN R. WILKES REVOCABLE TRUST	Fee AR TLE	1.425	1.266	2.691	0.337	0.000
8	SYLVANIA CEMETERY ASSOCIATION	Fee AR	0.000	0.246	0.246	0.000	0.000

HIGHWAY	BASIS OF EXISTING RIGHT-OF-WAY	WIDTH	YEAR
I-94	I 101-1(3)	VARIES	1956
I-94	DJ 2617	VARIES	1945
BRAUN ROAD WEST	TOWN ROAD V. 1 P. 169	66'	1850
BRAUN ROAD EAST	WIDTH BY SS 82.31(2)	66'	

CONVENTIONAL SYMBOLS

FOUND IRON PIPE/PIN	I.P. ● (1" UNLESS NOTED)
R/W MONUMENT	○ ●(SET)
R/W STANDARD	△ ▲(SET)
SIGN	ISIGN
SECTION CORNER MONUMENT	⊕
SECTION CORNER SYMBOL	T 17 N 26 26 35 35 R 18 E
FEE (HATCH VARIES)	▨
TEMPORARY LIMITED EASEMENT	▨
PERMANENT LIMITED EASEMENT	▨
R/W BOUNDARY POINT	RWB20
PARCEL NUMBER	102
UTILITY NUMBER	92
SIGN NUMBER (OFF PREMISE)	21-1
BUILDING	▭

PROPOSED R/W LINE	———
EXISTING H.E. LINE	—— ——
PROPERTY LINE	—— - ——
LOT & TIE LINES	--------
SLOPE INTERCEPTS	- - - - - - -
CORPORATE LIMITS	//////////
NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)	◆◆◆◆◆◆
NO ACCESS (BY ACQUISTION)	▮▮▮▮▮▮▮▮▮▮
NO ACCESS (BY STATUTORY AUTHORITY)	●●●●●●●●●●
SECTION LINE	— — — —
QUARTER LINE	—— — ——
SIXTEENTH LINE	——— ———
EXISTING CENTERLINE	—·—·———
PROPOSED REFERENCE LINE	⌃
PARALLEL OFFSET	⊓

UTILITY NUMBER	OWNER	INTEREST REQUIRED
100	WE ENERGIES ELECTRIC	ROR

NOTES:

COORDINATES AND BEARINGS SHOWN ON THIS PLAT ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, RACINE COUNTY ZONE, NAD83 (97) ADJUSTMENT AND ARE REFERENCED TO GPS HARN POINTS YORKVILLE EAST, PARIS EAST, AND RAYMOND SOUTH. ALL DISTANCES ARE GROUND LENGTH.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 (TYPICAL 3/4" REBAR) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT BY WISDOT SE REGION SURVEY UNIT.

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

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

FOR THE LATEST ACCESS / DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION OFFICE IN WAUKESHA.

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

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

CONVENTIONAL ABBREVIATIONS

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

CURVE DATA

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

CONVENTIONAL UTILITY SYMBOLS

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

	NON COMPENSABLE	COMPENSABLE
POWER POLE	⏚	▮
TELEPHONE POLE	⌀	●
TELEPHONE PEDESTAL	⌑	✖
ELECTRIC TOWER	☒	

GN

SCALE, FEET
0 100 200

I HEREBY CERTIFY THAT THIS PLAT MEETS ALL REQUIREMENTS OF SECTION 84.095, WISCONSIN STATUTES. THIS PLAT AND RELOCATION ORDER ARE APPROVED FOR THE WISCONSIN DEPARTMENT OF TRANSPORTATION.

DATE: 6-3-2011 C E Andersen
Name
Title

THIS PLAT WAS PREPARED BY OR UNDER THE DIRECTION OF:

DATE: 6-3-2011 Paul Krause
Name PAUL KRAUSE

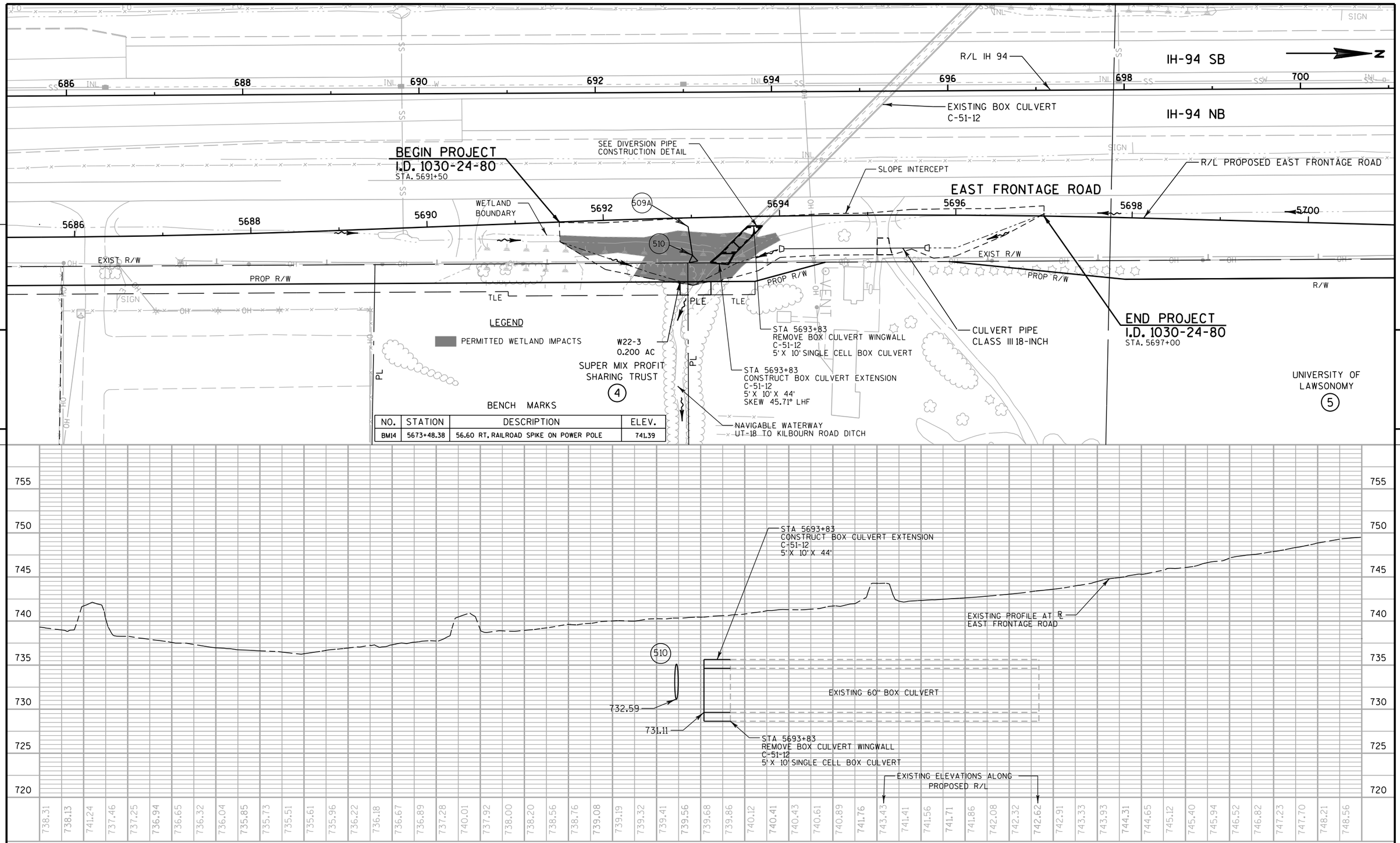
RESERVED FOR REGISTER OF DEEDS
PROJECT NUMBER 1030-24-21- 4.02
AMENDMENT NO:

DOCUMENT # 2286285
RACINE COUNTY REGISTER OF DEEDS
June 08, 2011 11:37 AM

TRACEY L FEICHTNER
RACINE COUNTY
REGISTER OF DEEDS
Fee Amount: $25.00
Pages: 1

Vol 1 Pg 169

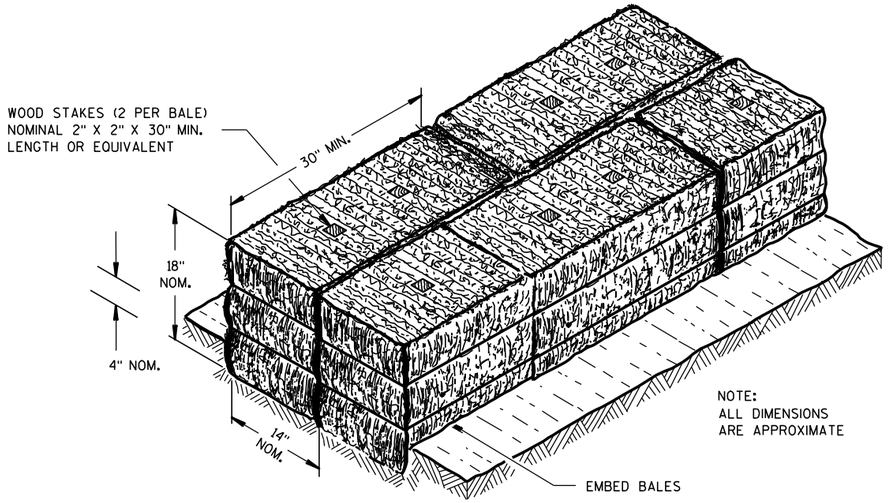
FILE NAME : J:\projects\d2_r_10302494\21\040402_rp.dgn
PLOT DATE : 02-JUN-2011 09:34
PLOT BY : dotphk
PLOT NAME :
PLOT SCALE : 100.000000:1.000000
CONST.# 1030-24-77/78/79
I-94
1030-24-21 4.02



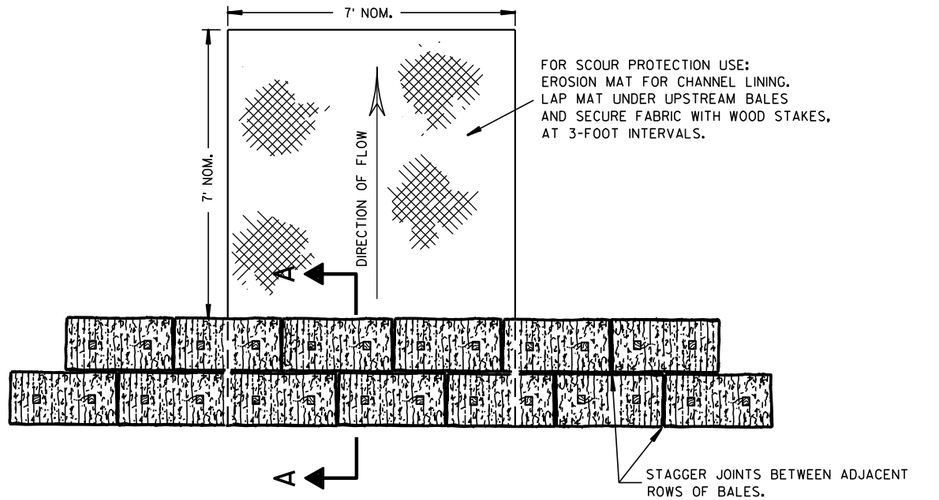
PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	PLAN & PROFILE: BOX CULVERT EXTENSION	SHEET 26	E

Standard Detail Drawing List

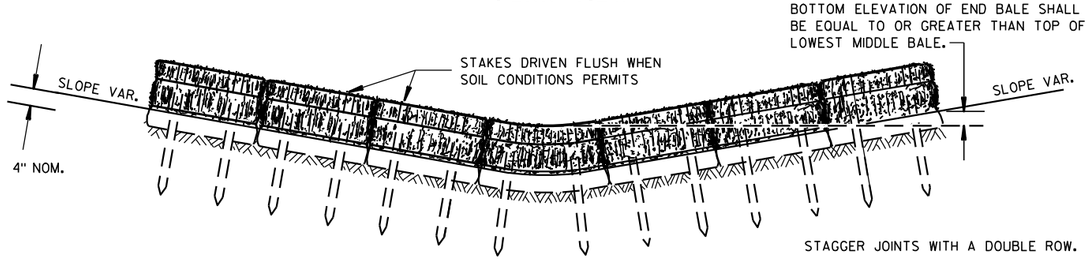
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E14-01	TRACKING PAD
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F07-04	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE FRAINS
12A03-10	NAME PLATE (STRUCTURES)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C04-01	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C12-03	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15D28-01	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY



SECTION A-A



PLAN VIEW



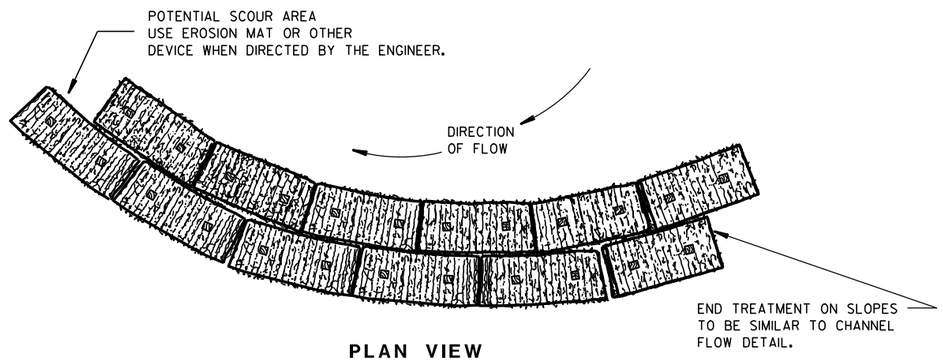
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

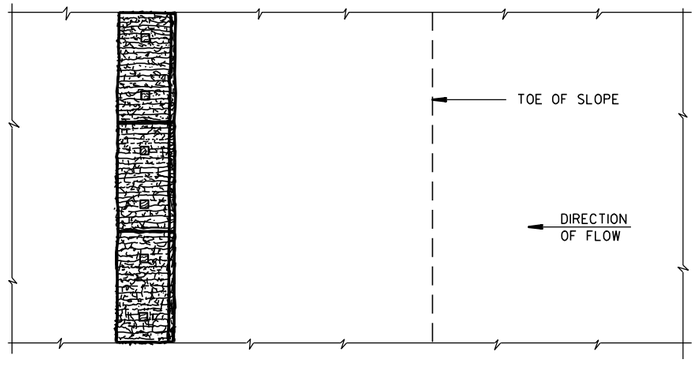
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

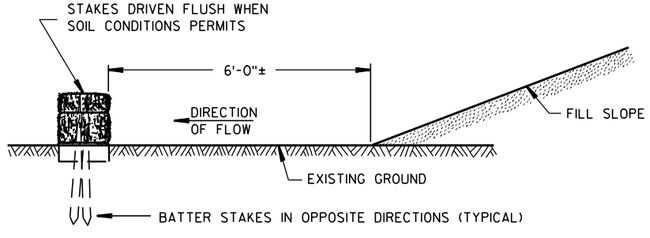


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

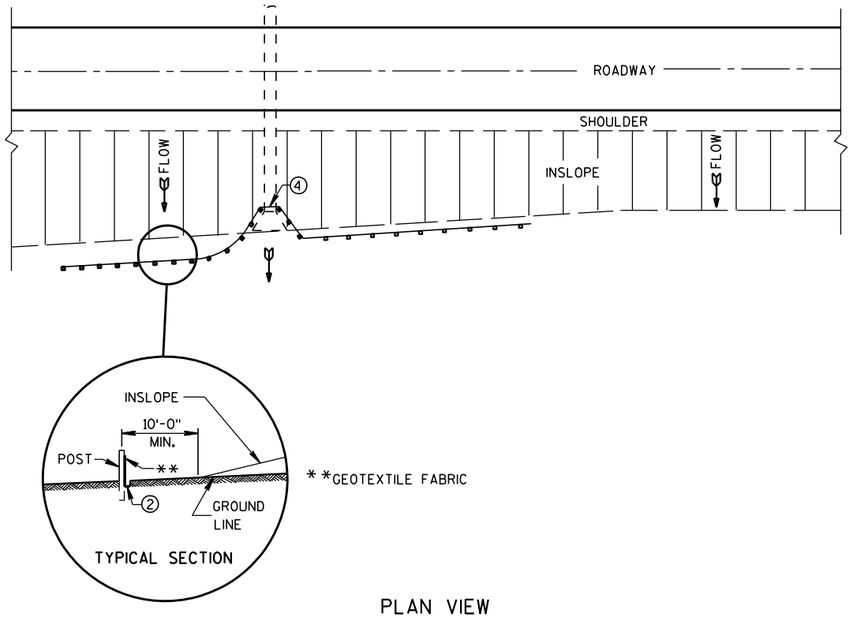
FHWA

6

S.D.D. 8 E 8-3

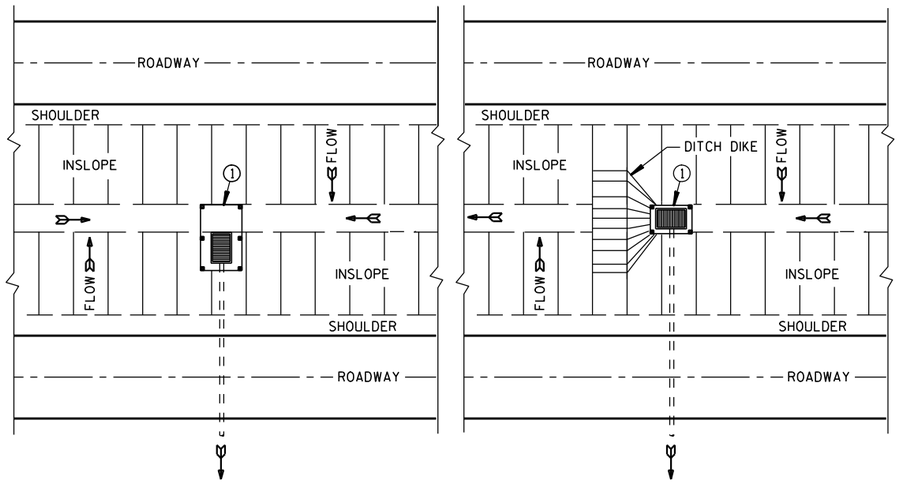
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



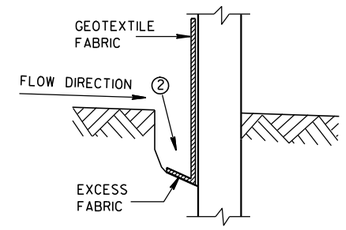
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

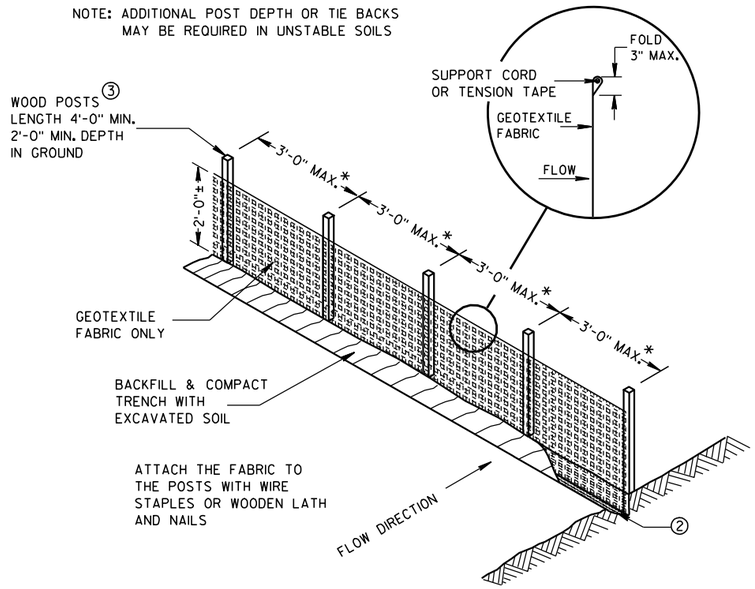
GENERAL NOTES

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

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

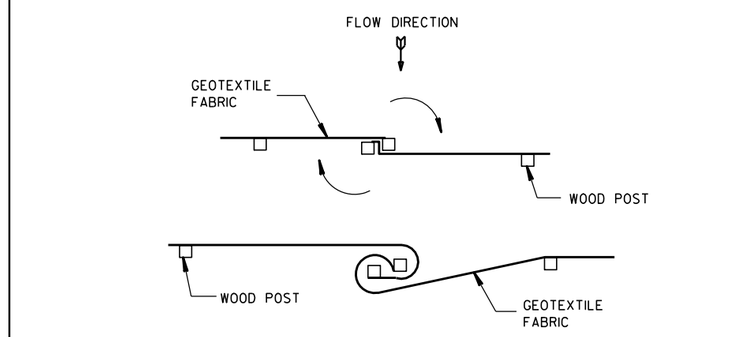


TRENCH DETAIL

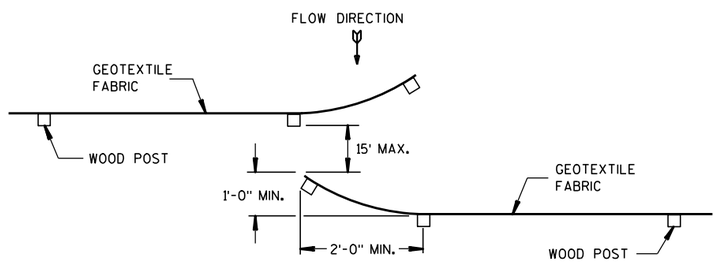


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

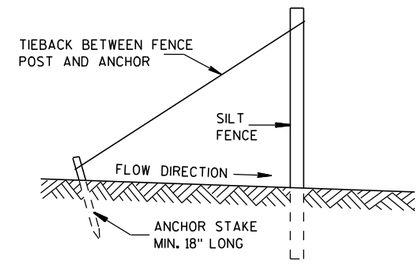


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

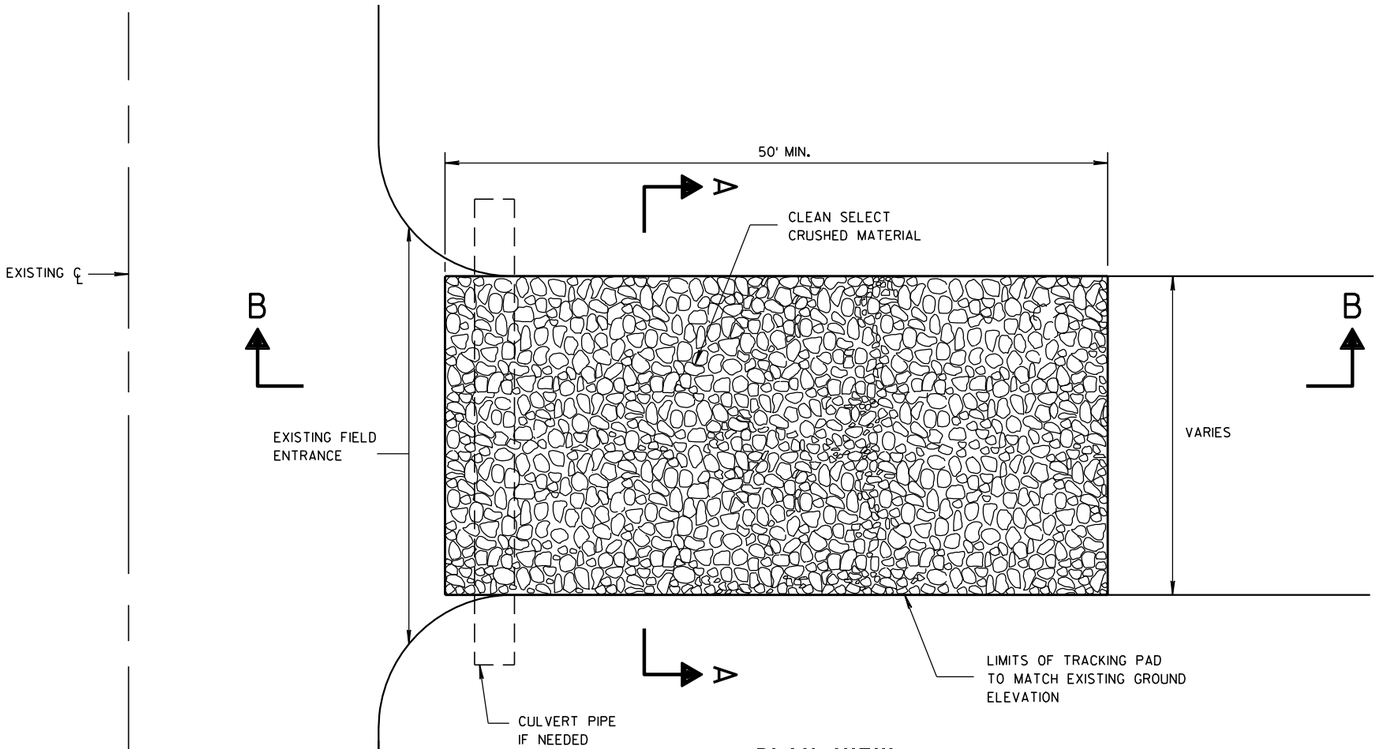
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

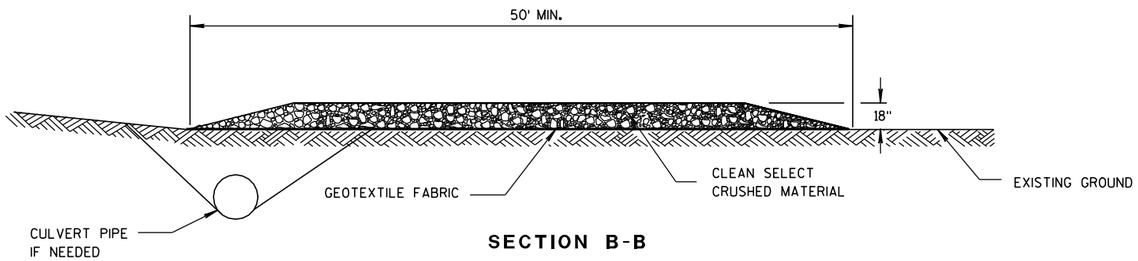
S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6



PLAN VIEW



SECTION B-B

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.

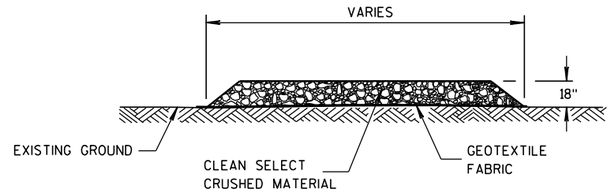
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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.



SECTION A-A

TRACKING PAD

TRACKING PAD	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3/24/2011 DATE FHWA	/S/ Jerry H. Zoda ROADWAY STANDARDS ENGINEER
30	ENT

6
S.D.D. 8 E 14-1

METAL APRON ENDWALLS

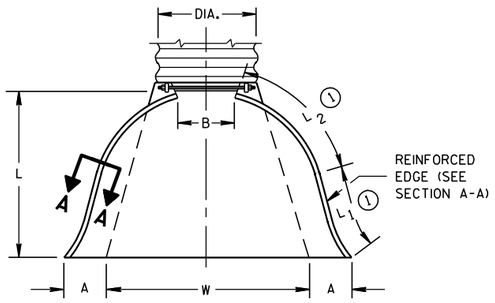
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

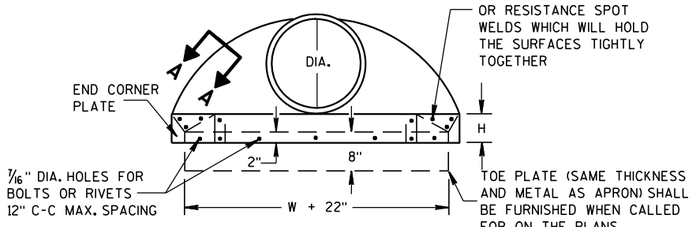
REINFORCED CONCRETE APRON ENDWALLS

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

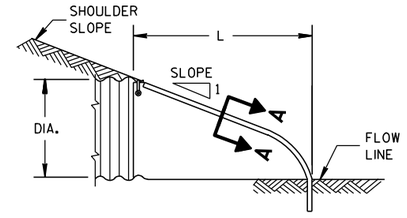
*MINIMUM
**MAXIMUM



PLAN VIEW

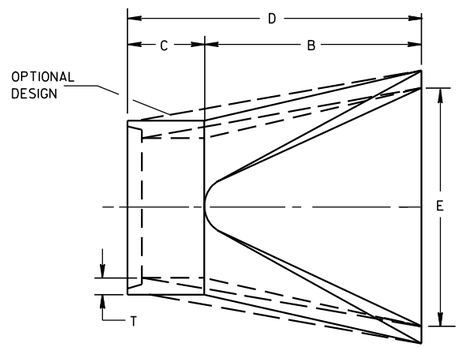


END VIEW

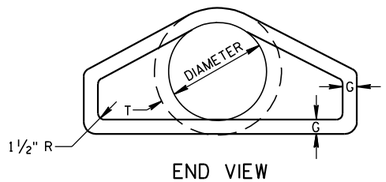


SIDE ELEVATION

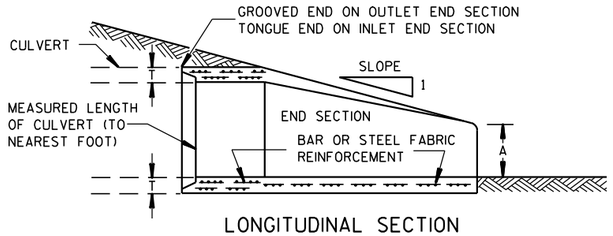
METAL ENDWALLS



PLAN

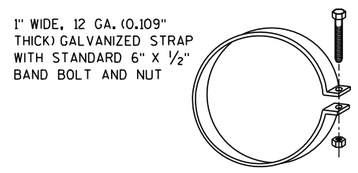


END VIEW



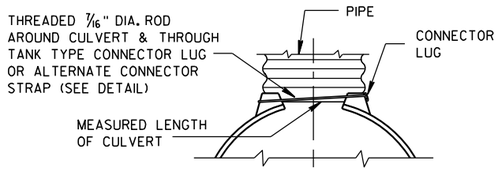
LONGITUDINAL SECTION

CONCRETE ENDWALLS

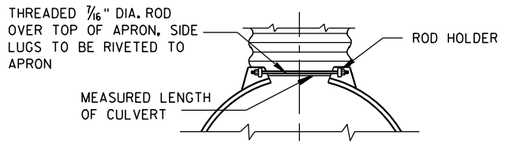


ALTERNATE FOR TYPE 1 CONNECTION

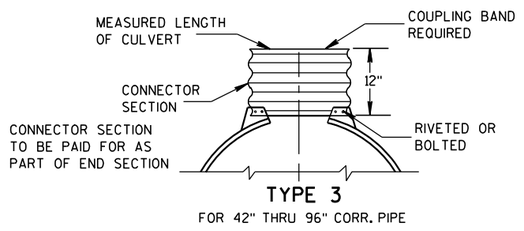
END SECTION CONNECTOR STRAP



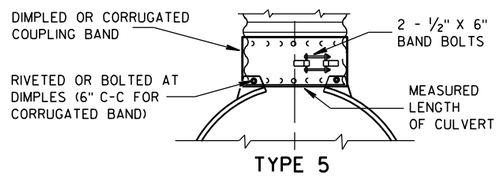
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

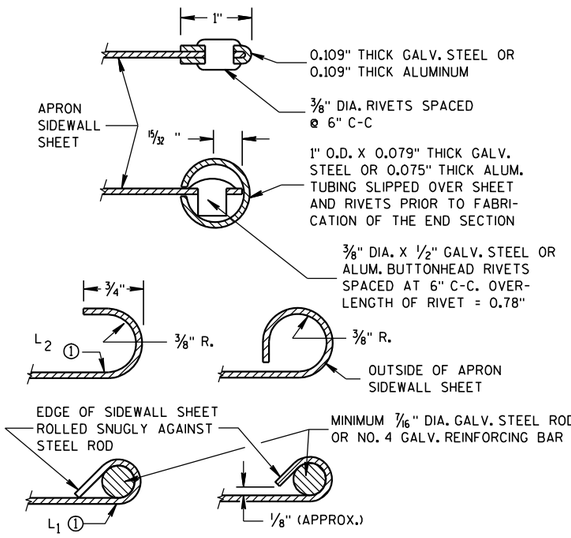
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

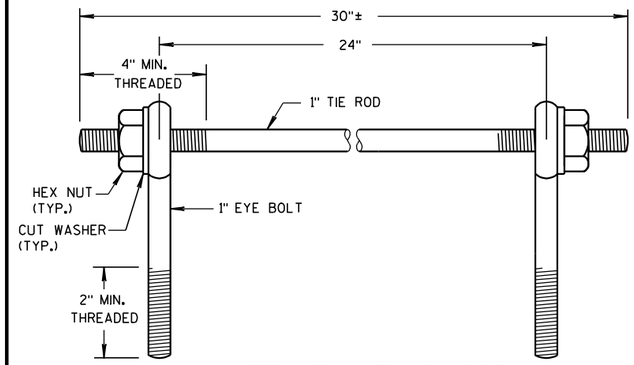
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

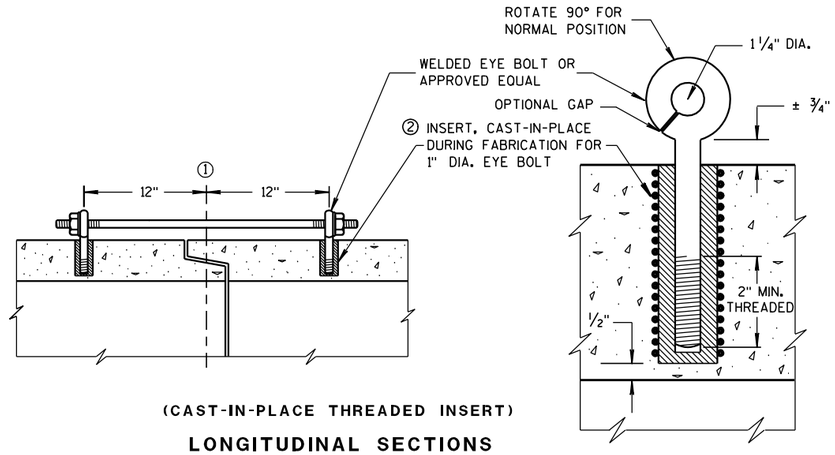
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

GENERAL NOTES

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

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

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

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

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

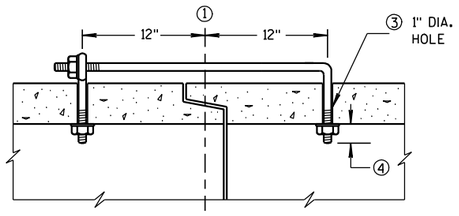
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

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

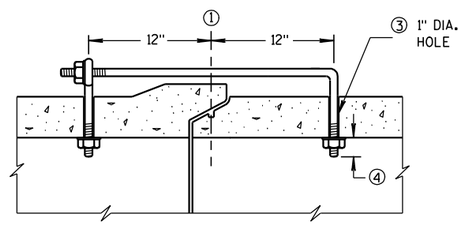
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

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



(TONGUE & GROOVE PIPE)

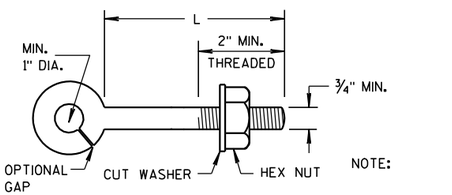


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

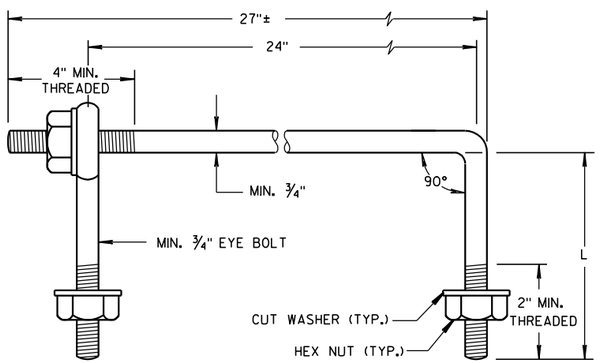
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

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



EYE BOLT AND TIE ROD

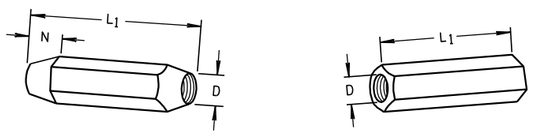
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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

ADJUSTABLE TIE ROD TABLE

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

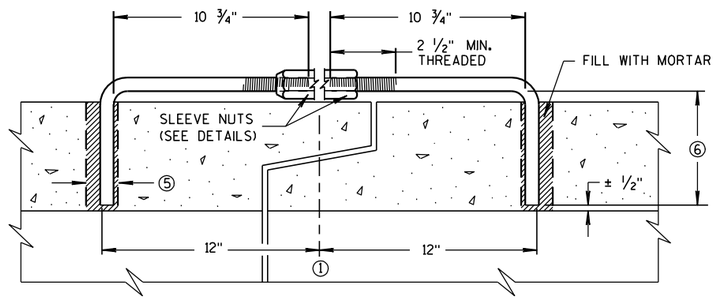
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

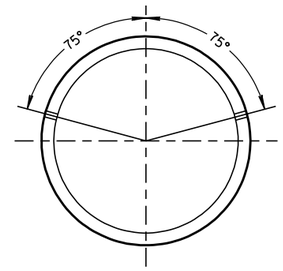
SLEEVE NUTS



LONGITUDINAL SECTION

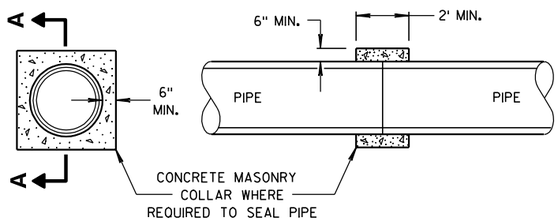
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

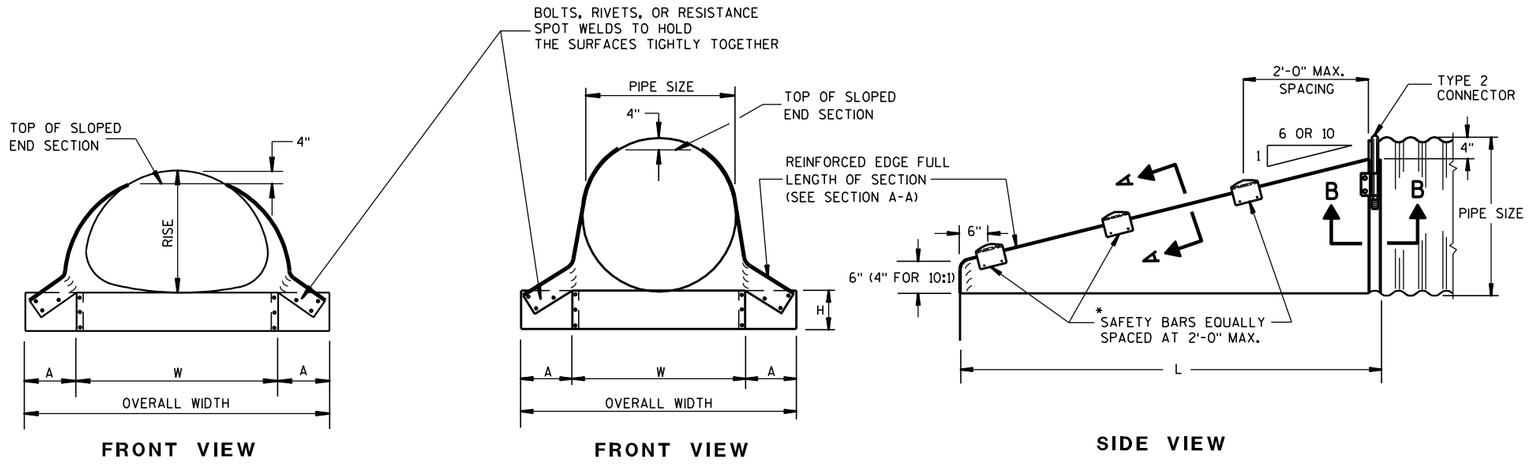
APPROVED
6/5/2012 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 8 F 4-7

6

S.D.D. 8 F 4-7



FRONT VIEW

FRONT VIEW

SIDE VIEW

GENERAL NOTES

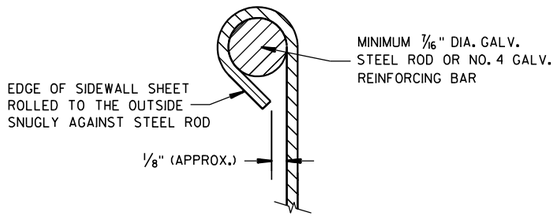
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

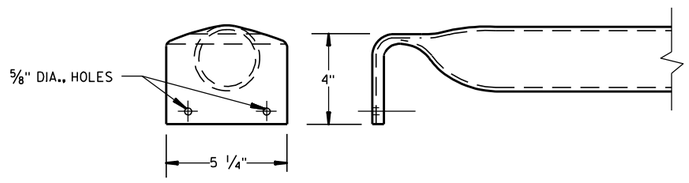
STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS

PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS			
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	6:1	30	10:1	70
18	.064	8	6	24	40	6:1	48	10:1	100
21	.064	8	6	27	43	6:1	66	10:1	130
24	.064	8	6	30	46	6:1	84	10:1	160
30	.109	12	9	36	60	6:1	120	10:1	220
36	.109	12	9	42	66	6:1	156	10:1	280
42	.109	16	12	48	80	6:1	192	——	——
48	.109	16	12	54	86	6:1	228	——	——
54	.109	16	12	60	92	6:1	264	——	——
60	.109	16	12	66	98	6:1	300	——	——



SECTION A-A

*NOTE:
THREE SAFETY BARS ARE SHOWN. ACTUAL NUMBER OF BARS REQUIRED AT A 2'-0" C-C MAX. SPACING WILL VARY DEPENDING ON THE LENGTH OF THE END SECTION.

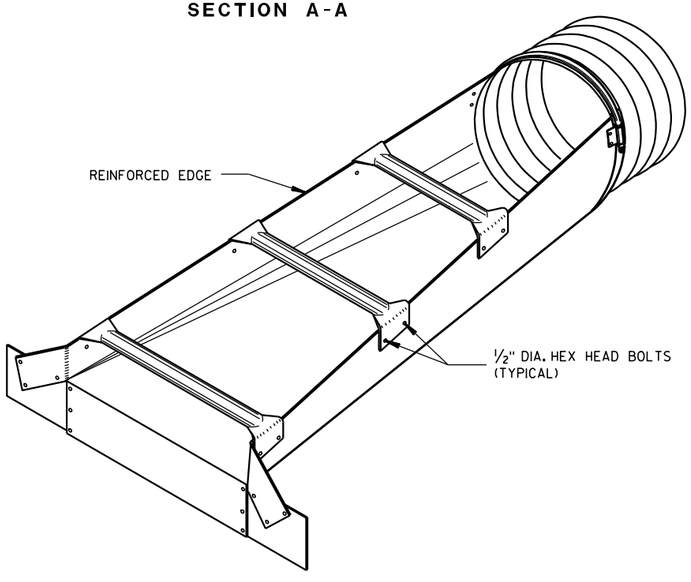


DETAIL OF SAFETY BAR

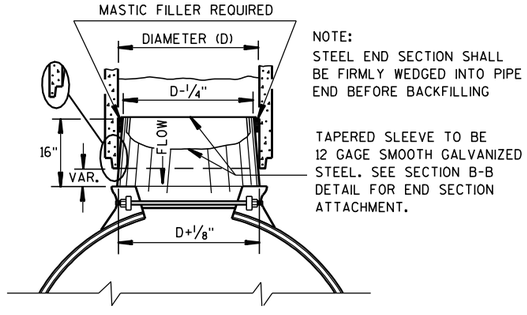
STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS

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
15	17	13	.064 *	7	6	30	44	6:1	30	10:1 ②	70
18	21	15	.064 *	8	6	27	43	6:1	30	10:1	70
21	24	18	.064 *	8	6	30	46	6:1	48	10:1	100
24	28	20	.064 *	8	6	34	50	6:1	60	10:1	120
30	35	24	.079 *	12	9	41	65	6:1	84	10:1	160
36	42	29	.109 *	12	9	48	72	6:1	114	10:1	210
42	49	33	.109	16	12	55	87	6:1	138	——	——
48	57	38	.109	16	12	63	95	6:1	168	——	——
54	64	43	.109	16	12	70	102	6:1	198	——	——

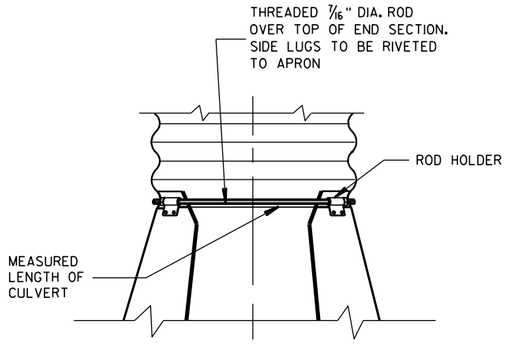
① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".
② ACTUAL SLOPE GREATER THAN 10:1.



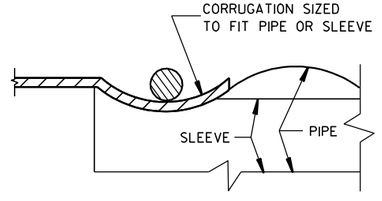
ISOMETRIC VIEW



STEEL ADAPTER SLEEVE FOR CONCRETE PIPE



TYPE 2 CONNECTION DETAIL



SECTION B-B

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

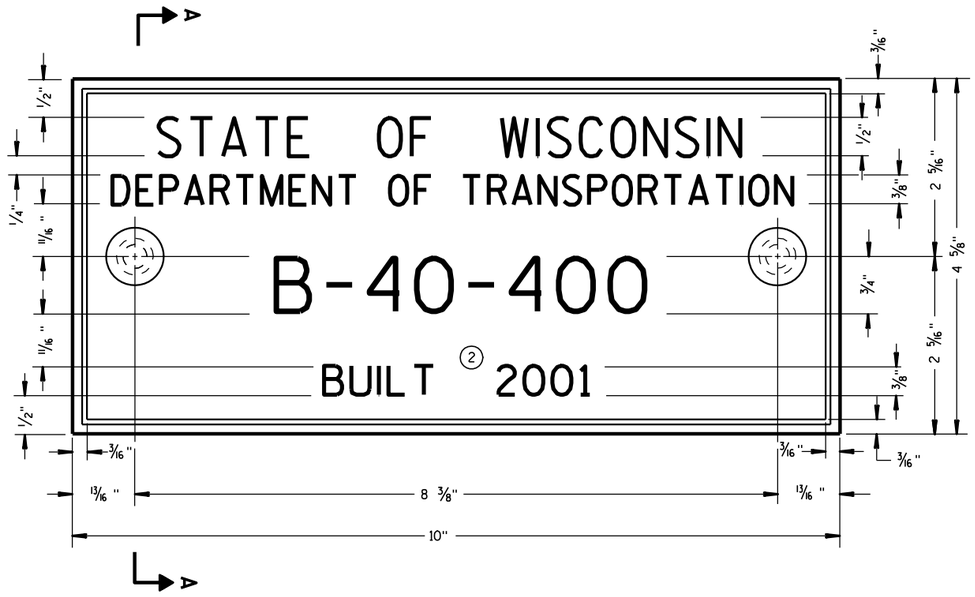
APPROVED
6/5/2012 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 8 F 7-4

6

S.D.D. 8 F 7-4



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

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

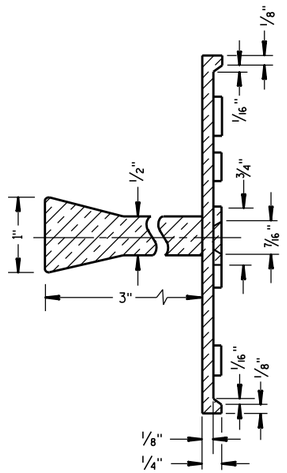
GENERAL NOTES

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

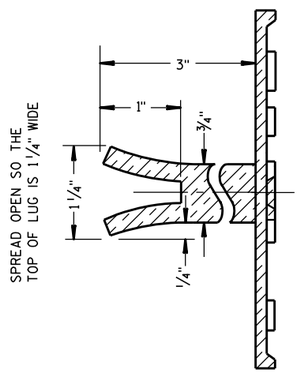
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

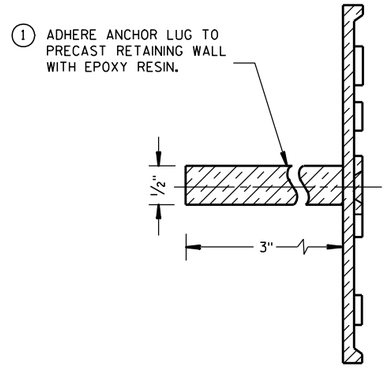
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

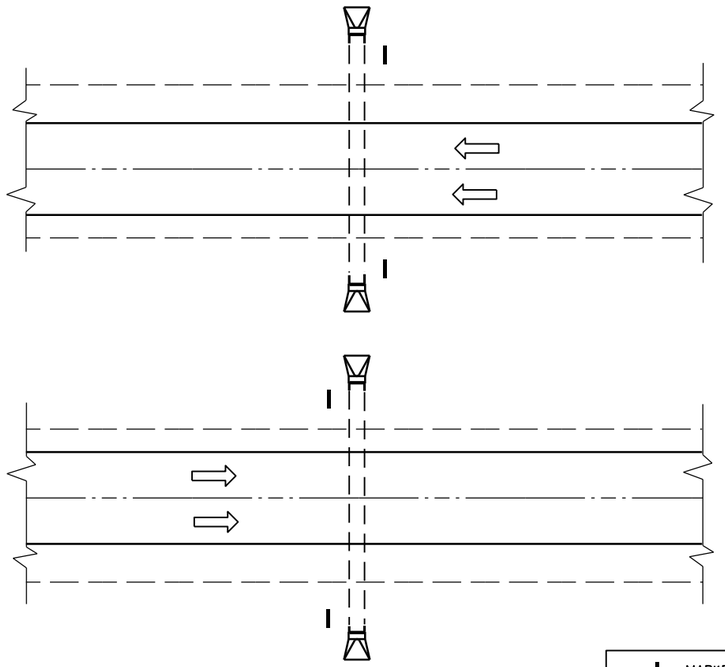
3/26/10 DATE

/S/ Scot Beck CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

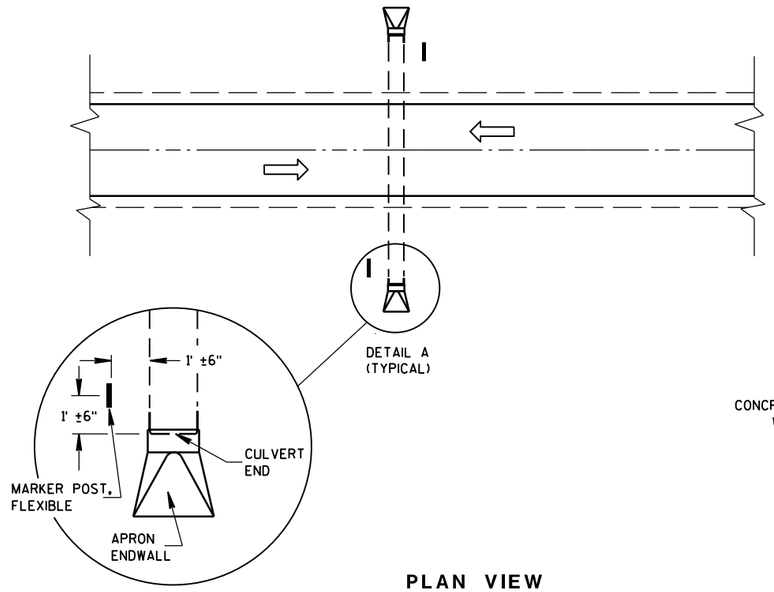
6

S.D.D. 12 A 3-10



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

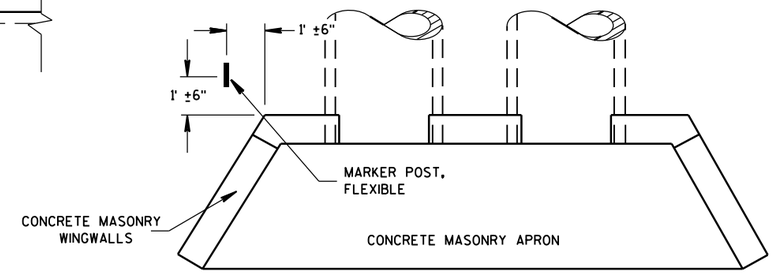
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

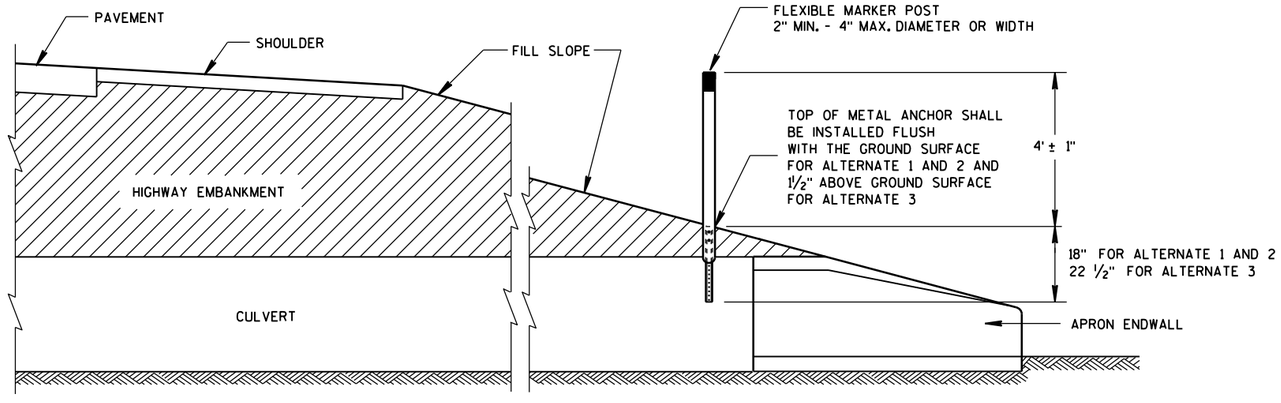
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

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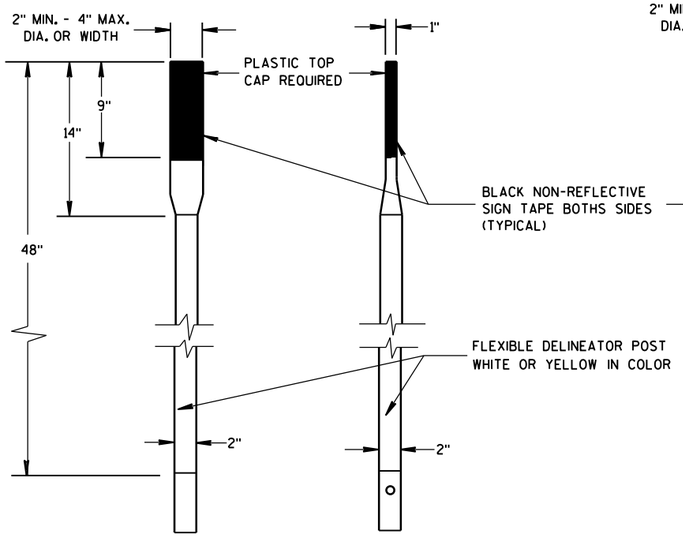
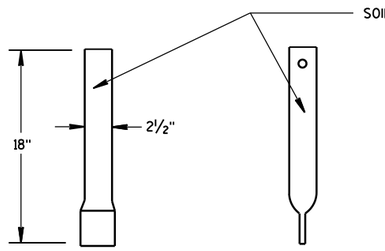
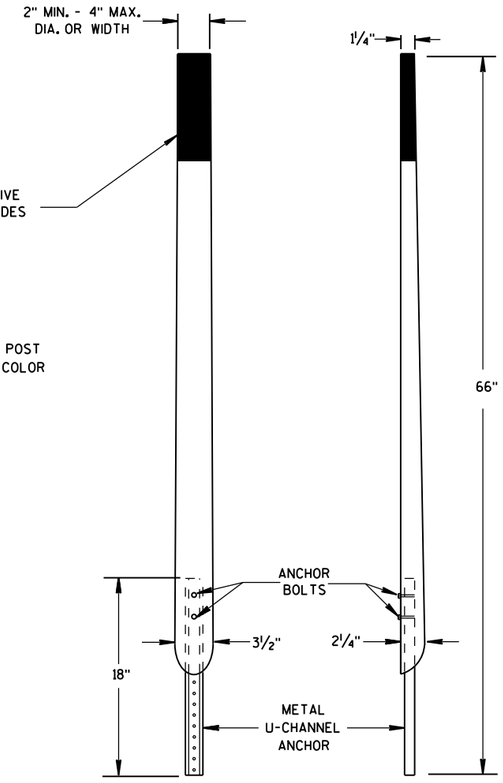
S.D.D. 15 A 3-2a





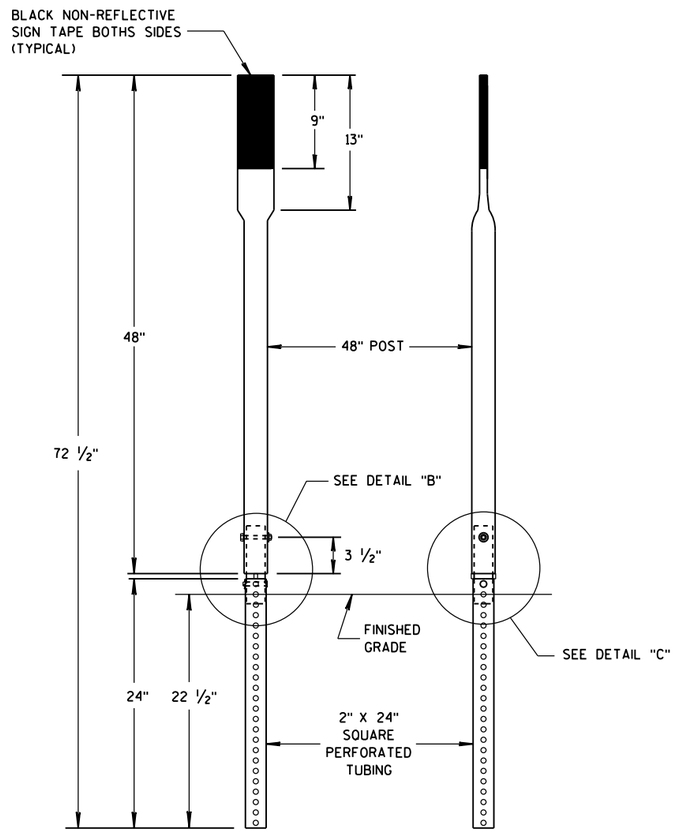
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

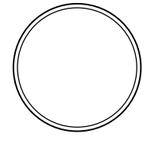
ALTERNATE 2



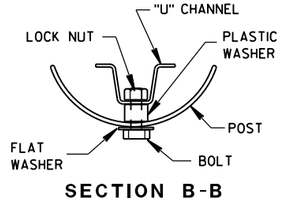
FRONT VIEW SIDE VIEW

ALTERNATE 3

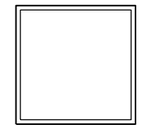
FLEXIBLE MARKER POSTS



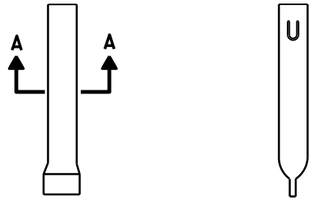
SECTION A-A



SECTION B-B

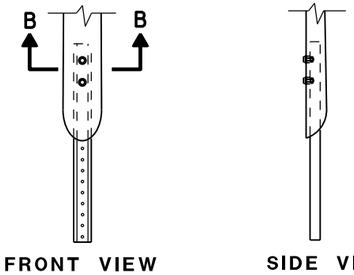


SECTION C-C



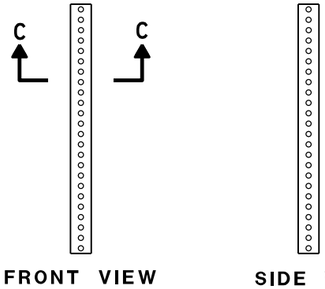
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

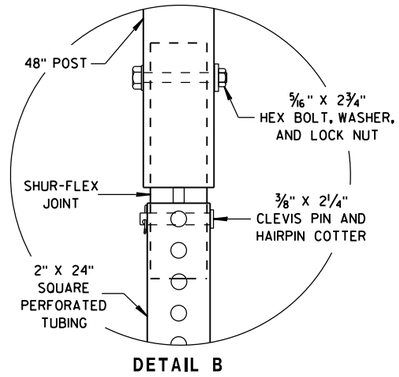
ALTERNATE 2



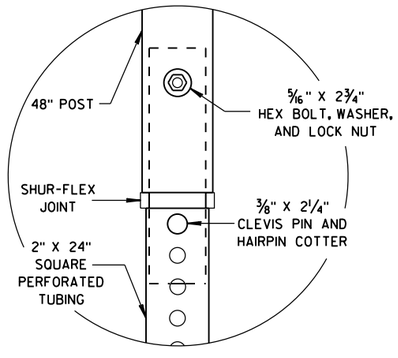
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

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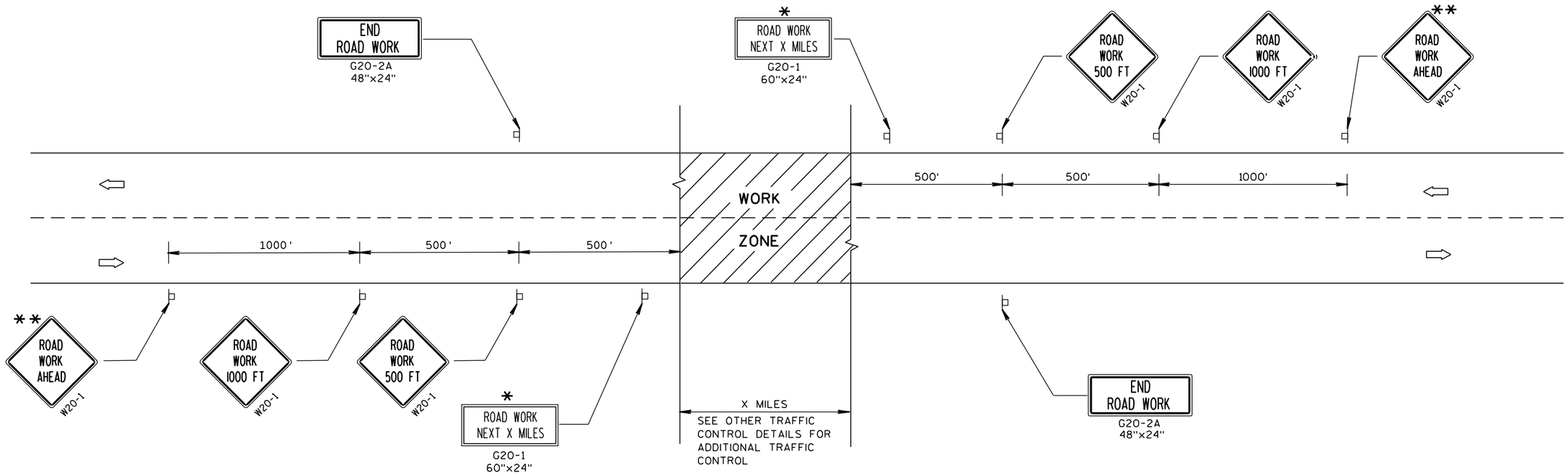
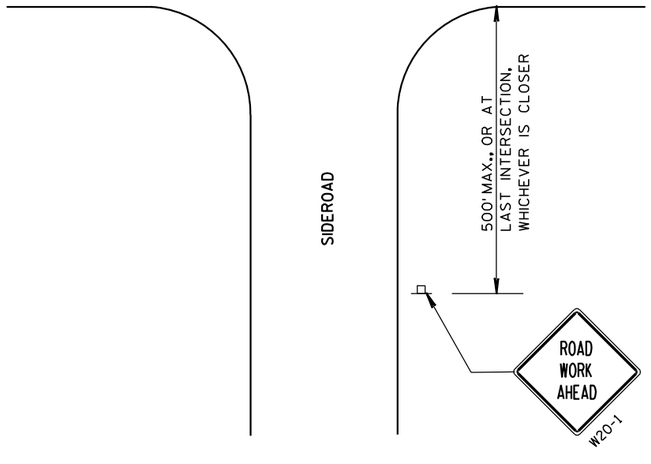
S.D.D. 15 A 3-2b



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



GENERAL NOTES

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

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

LEGEND

POST MOUNTED SIGN

DIRECTION OF TRAFFIC FLOW

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/23/00 DATE

/S/ Chester J. [illegible] CHIEF SIGNS AND MARKING ENGINEER

FHWA

6

S.D.D. 15 C 4-1

TWO-LANE ROADWAY

SYMBOLS

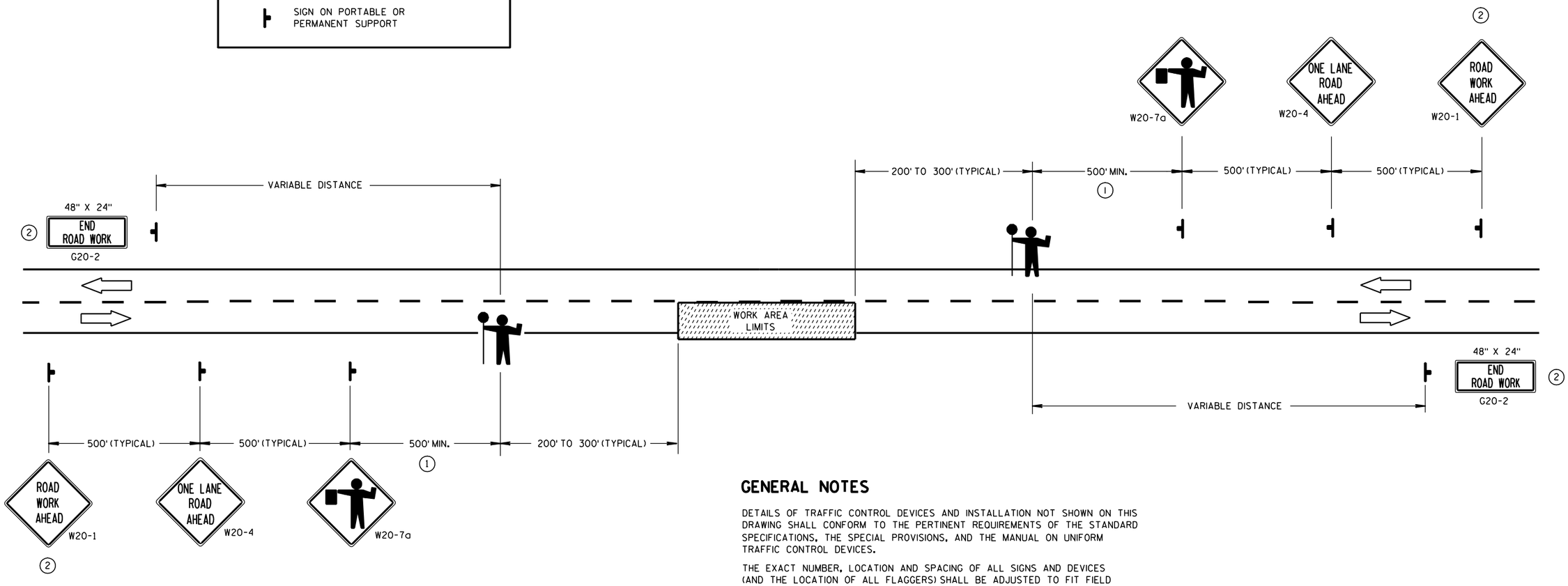
WORK AREA

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

SIGN ON PORTABLE OR PERMANENT SUPPORT

W3-4

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



(1) FOR A MOVING WORK OPERATION,
SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

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

GENERAL NOTES

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

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

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

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, THE "FLAGGER AHEAD", THE "ROAD WORK AHEAD" AND THE ONE LANE ROAD AHEAD" SIGNS SHALL BE COVERED OR REMOVED AND THE HIGHWAY RESTORED TO NORMAL OPERATION.

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

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/5/06 — DATE

/S/ Thomas N. Nathaam — STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 C 12-3

GENERAL NOTES

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. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"WO" 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 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.

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

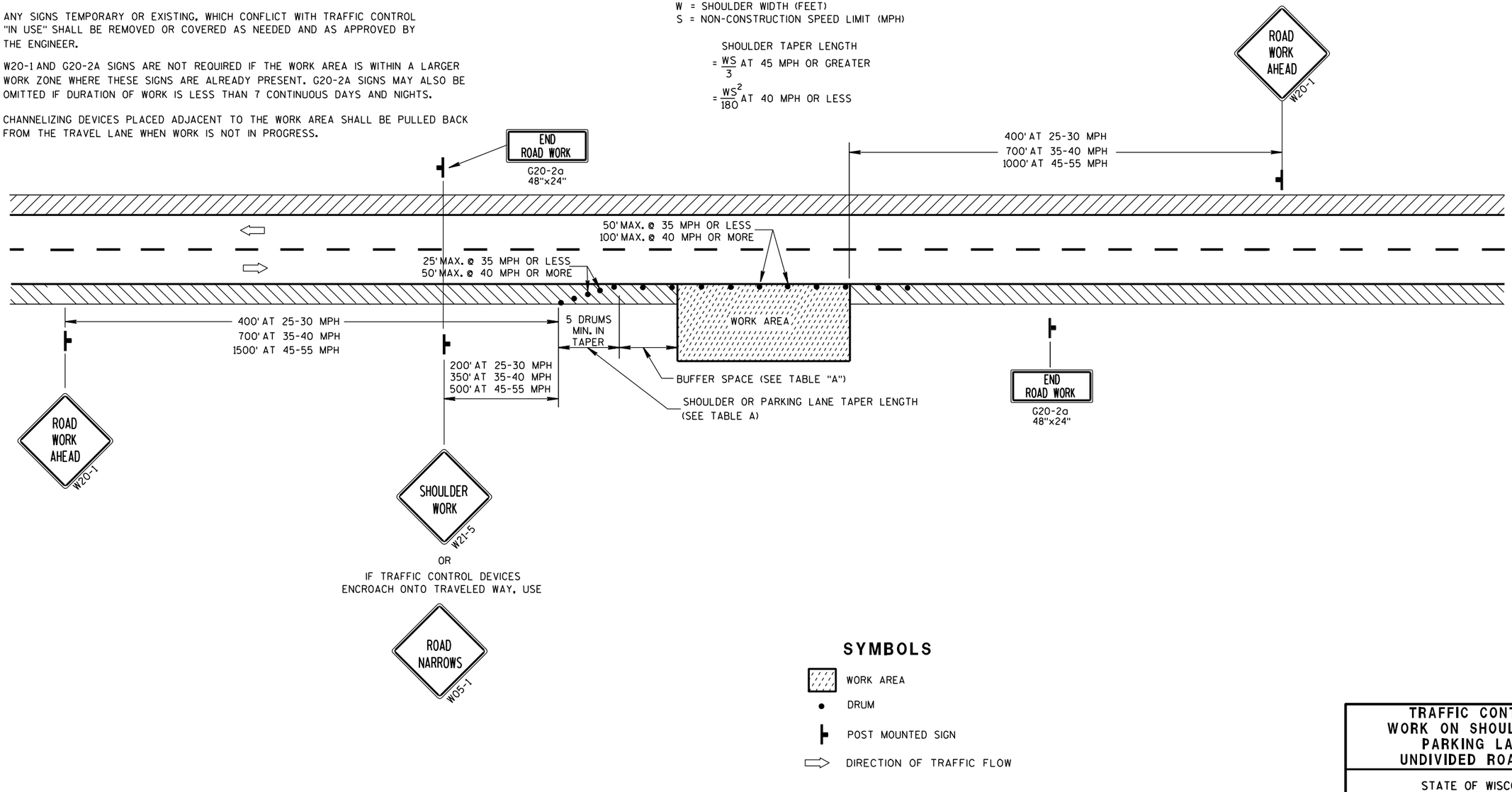
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

TABLE A

S \ W	SHOULDER TAPER LENGTH (FEET) 4	6	8	10	BUFFER SPACE (FEET)
30	20	30	40	50	85
35	30	45	55	70	120
40	40	55	75	90	170
45	60	90	120	150	220
50	70	100	135	170	280
55	75	110	150	185	335

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

SHOULDER TAPER LENGTH
$= \frac{WS}{3}$ AT 45 MPH OR GREATER
$= \frac{WS^2}{180}$ AT 40 MPH OR LESS



SYMBOLS

- WORK AREA
- DRUM
- POST MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

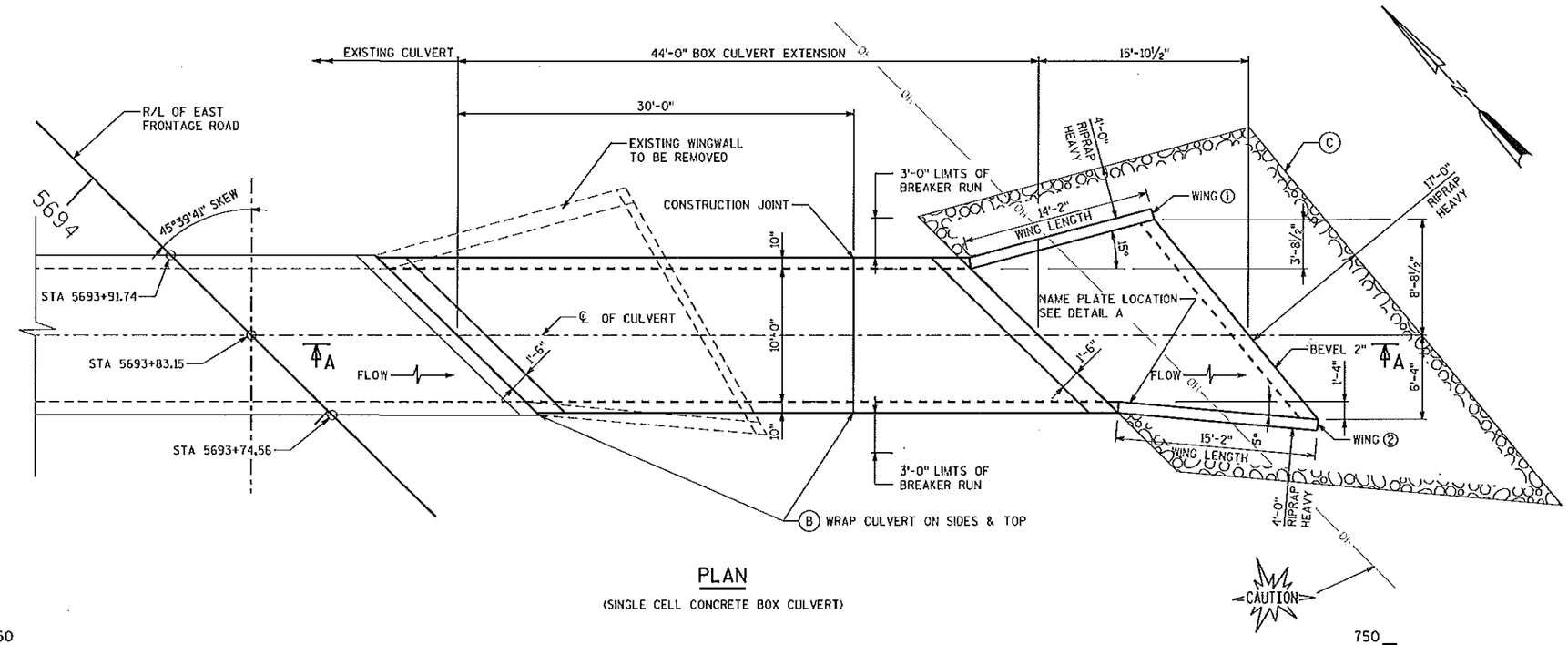
APPROVED
5/23/00 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARK[illegible] ENGINEER
FHWA

6

S.D.D. 15 D 28-1

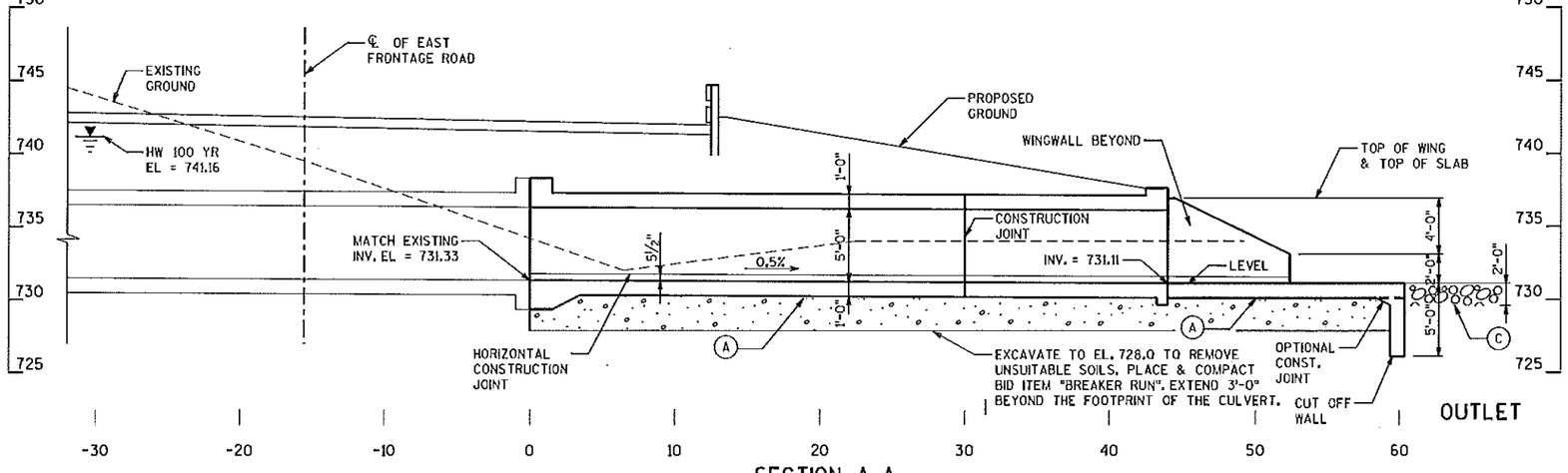
STATE PROJECT NUMBER

1030-24-80



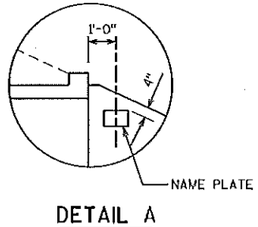
PLAN

(SINGLE CELL CONCRETE BOX CULVERT)



SECTION A-A

(ALONG ℄ OF CULVERT)



DETAIL A

NOTES

Ⓐ GEOTEXTILE FABRIC TYPE C TO BE PLACED UNDER BOX AND APRON

Ⓑ 18" MIN. RUBBERIZED MEMBRANE WATERPROOFING TO BE PLACED AT CONSTRUCTION JOINTS AND CONNECTION TO EXISTING CULVERT AS SHOWN

Ⓒ RIPRAP HEAVY TO BE 2'-0" THICK. GEOTEXTILE FABRIC TYPE HR TO BE PLACED BELOW RIPRAP HEAVY.

DESIGN DATA

LIVE LOAD:
DESIGN LIVE LOAD = HS-20
EARTH LOAD = 5.2 FEET OF FILL

DESIGN STRESSES:
CONCRETE MASONRY----------f'c = 3,500 psi
BAR STEEL REINFORCEMENT
HIGH STRENGTH, GRADE 60------fy = 60,000 psi
ALLOWABLE SOIL STRESS-------q all. = 3000 psf

HYDRAULIC DATA

100 YR FREQUENCY
Q100 ----------518 CFS
VELOCITY----------13.9 FPS
HIGH WATER EL.----------741.16 FT
WATERWAY AREA----------37 SQ FT
DRAINAGE AREA----------1.92 SQ MI
ROADWAY OVERTOPPING----------N/A
SCOUR CODE----------8
EROSION CONTROL:
Q2----------108 CFS
HW2----------735.95

TRAFFIC DATA

MAIN LINE:
ADT (2035)----------118,850
ROADWAY DESIGN SPEED---------70 MPH
FUNCTIONAL CLASS----------FREEWAY PRINCIPAL ARTERIAL

EAST/WEST FRONTAGE ROAD
ADT (2035)----------865
ROADWAY DESIGN SPEED---------55 MPH
FUNCTIONAL CLASS----------LOCAL (RURAL)

WISCONSIN
MAHMOUD N. MALAS
E-27922
MILWAUKEE, WI
PROFESSIONAL ENGINEER
1/28/2013

LIST OF DRAWINGS

1. GENERAL PLAN AND SECTION
2. GENERAL NOTES AND QUANTITIES
3. SUBSURFACE EXPLORATION
4. BOX DETAILS
5. BOX DETAILS
6. APRON DETAILS
7. WINGWALL DETAILS
8. BILL OF BARS

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
WILLIAM DREHER (608) 266-8489
CONSULTANT:
MAHMOUD MALAS (262) 821-1171

NO.	DATE	REVISION	BY

KSA K. Singh & Associates, Inc.
Engineers, Scientists and Environmental Management Consultants

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William C. Dreher KAR 02/07/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-51-12

BOX CULVERT EXTENSION AT UT-18 (UNNAMED TRIBUTARY TO KILBOURN ROAD DITCH)

COUNTY: RACINE
~~TOWN/CITY/VILLAGE~~: STURTEVANT

DESIGN SPEC.
AASHTO STANDARD SPEC. 17TH EDITION

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
RL	SG	JS	SG

GENERAL PLAN AND SECTION

SHEET 1 OF 8

8

8

STATE PROJECT NUMBER
1030-24-80

GENERAL NOTES

ALL ELEVATIONS SHOWN ARE PER NORTH AMERICAN VERTICAL DATUM OF 1988(91) (NAVD 88(91)).

DRAWINGS SHALL NOT BE SCALED.

ALL DIMENSIONS ARE IN FEET AND INCHES, UNLESS OTHERWISE NOTED.

TRANSVERSE DIMENSIONS ARE RADIAL OR NORMAL TO THE CENTER LINES, UNLESS OTHERWISE NOTED.

BAR DIMENSIONS FOR FABRICATED BAR SHAPES ARE OUT TO OUT. PLACE BAR STEEL REINFORCEMENT WITH 2" OF CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTED.

PLACE BOTTOM BAR STEEL REINFORCEMENT IN BOTTOM SLAB WITH 3" CLEAR CONCRETE COVER.

BEVEL EXPOSED EDGES OF CONCRETE ¾", UNLESS OTHERWISE NOTED.

THE FIRST ONE OR TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR DIAMETER.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.

ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE OR BREAKER RUN, SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TO THE TOP OF THE BOX ELEVATION WITHIN THE LENGTH OF THE BOX.

PLACE RIPRAP HEAVY AND GEOTEXTILE FABRIC TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET.

SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-ASPHALTIC JOINT SEALER.

FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION: M153 TYPE 1, 2, OR 3 OR AASHTO DESIGNATION: M213.

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 THE ORIGINAL CONSTRUCTION YEAR.

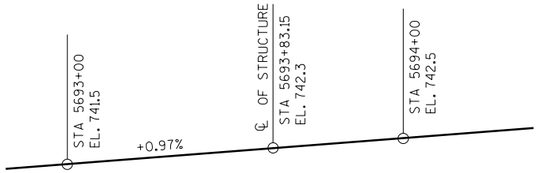
BROKEN CONCRETE CONTAINING REBAR SHALL NOT BE USED AS RIPRAP OR RIPRAP HEAVY.

SEE ROADWAY PLAN FOR TRAFFIC CONTROL STAGING AND DIVERSION PIPE DURING CONSTRUCTION.

TOTAL ESTIMATED QUANTITIES

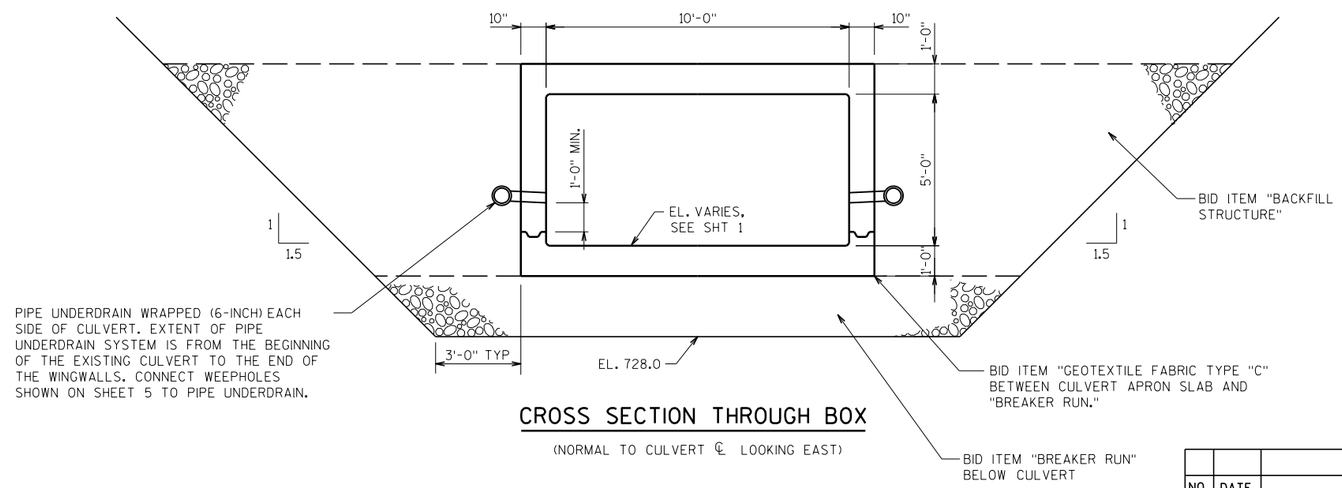
ITEM NO.	BID ITEMS	UNIT	ESTIMATED QUANTITIES
203.0200.020	REMOVING OLD STRUCTURE, STATION 5693+83	LS	1
206.2000.001	EXCAVATION FOR STRUCTURES CULVERT C-51-0012	LS	1
210.0100	BACKFILL STRUCTURE	CY	350
311.0110	BREAKER RUN	TON	180
502.5005	MASONRY ANCHORS TYPE L NO. 5 BARS	EA	32
504.0100	CONCRETE MASONRY CULVERTS	CY	69
505.0410	BAR STEEL REINFORCEMENT HS CULVERTS	LB	6,690
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	17
606.0300	RIPRAP HEAVY	CY	60
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	120
645.0105	GEOTEXTILE FABRIC TYPE C	SY	120
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	90
NON BID ITEMS			
-	FILLER	SIZE	3/4"
-	4" DIAMETER SCHEDULE 40 PVC WEEPHOLES	EA	6

ALL ITEMS ARE CATEGORY 4000



PROFILE GRADE LINE

(ALONG ℄ OF EAST FRONTAGE ROAD)



CROSS SECTION THROUGH BOX

(NORMAL TO CULVERT ℄ LOOKING EAST)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-51-12

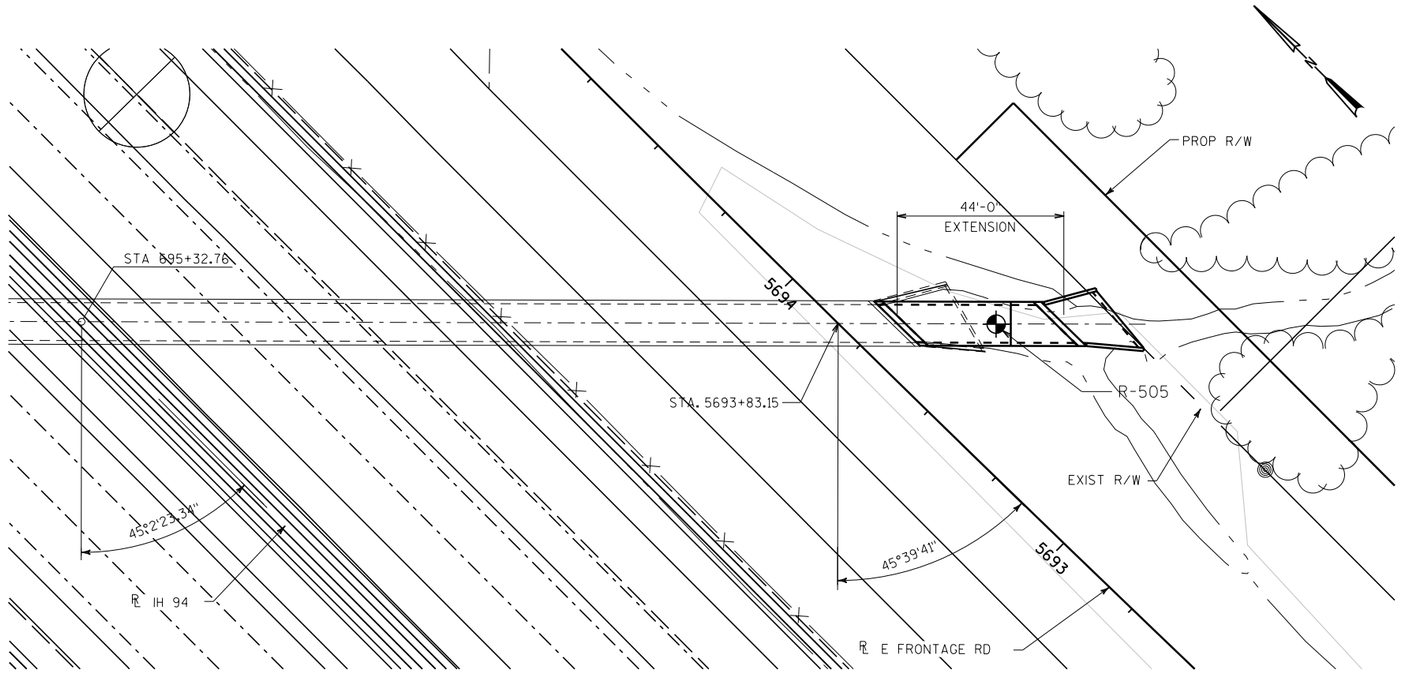
DRAWN BY JS | PLANS CK'D. SG

GENERAL NOTES AND QUANTITIES

SHEET 2 OF 8

8

8



PLAN

NOTE:

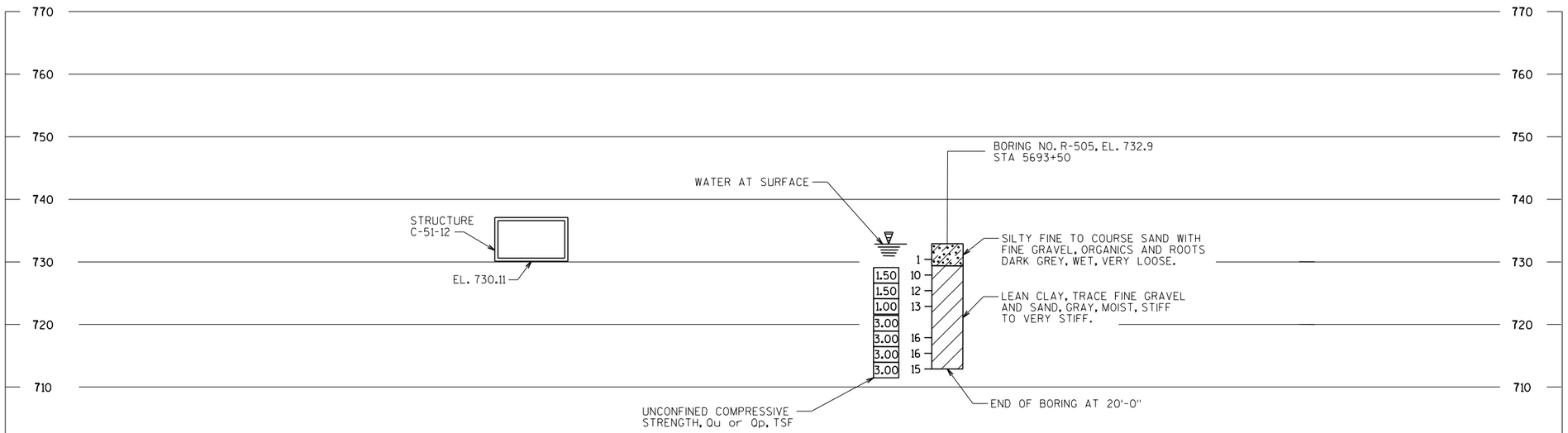
THE SUBSURFACE INFORMATION PRESENTED HEREIN IS AN ABBREVIATED VERSION OF THE INFORMATION PRESENTED IN THE GEOTECHNICAL ENGINEERING REPORT. REVIEW THE APPROPRIATE GEOTECHNICAL REPORT AND SOIL BORING LOGS FOR ADDITIONAL SUBSURFACE INFORMATION.

BORING STATIONS AND OFFSETS ARE BASED ON I.H.-94 ℄.

DENOTES SOIL BORING LOCATION

SOIL BORINGS COMPLETED BY:
GESTRA ENGINEERING, INC.
1626 W. FOND DU LAC AVENUE
MILWAUKEE, WI 53205
PH: (414) 933-7444
FX: (414) 933-7844
BORINGS WERE PERFORMED
ON JULY 18, 2009

REPORT BY:
MILWAUKEE TRANSPORTATION PARTNERS
JOHN W. SIWULA, P.E.



STATE PROJECT NUMBER

1030-24-80

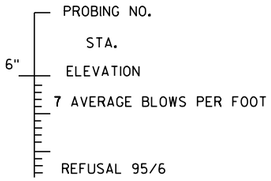
ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

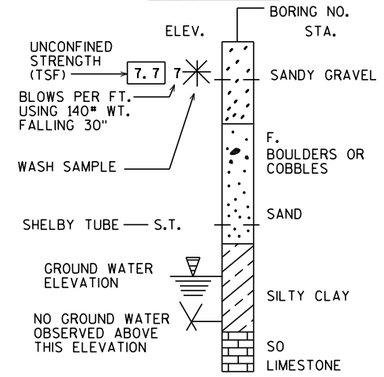
MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-51-12

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SUBSURFACE EXPLORATION

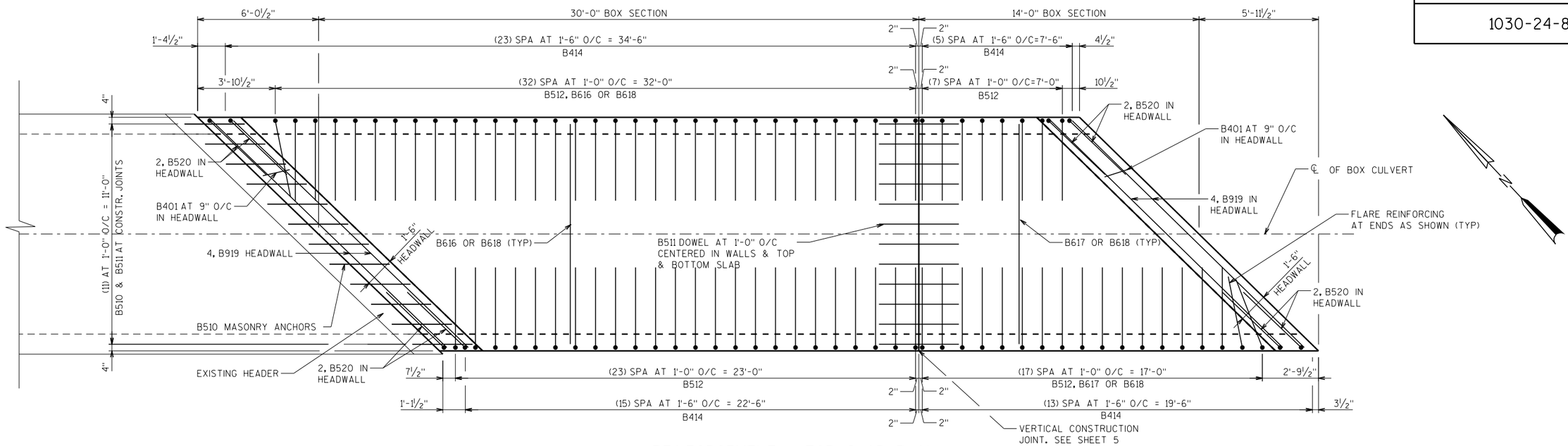
SHEET 3 OF 8

8

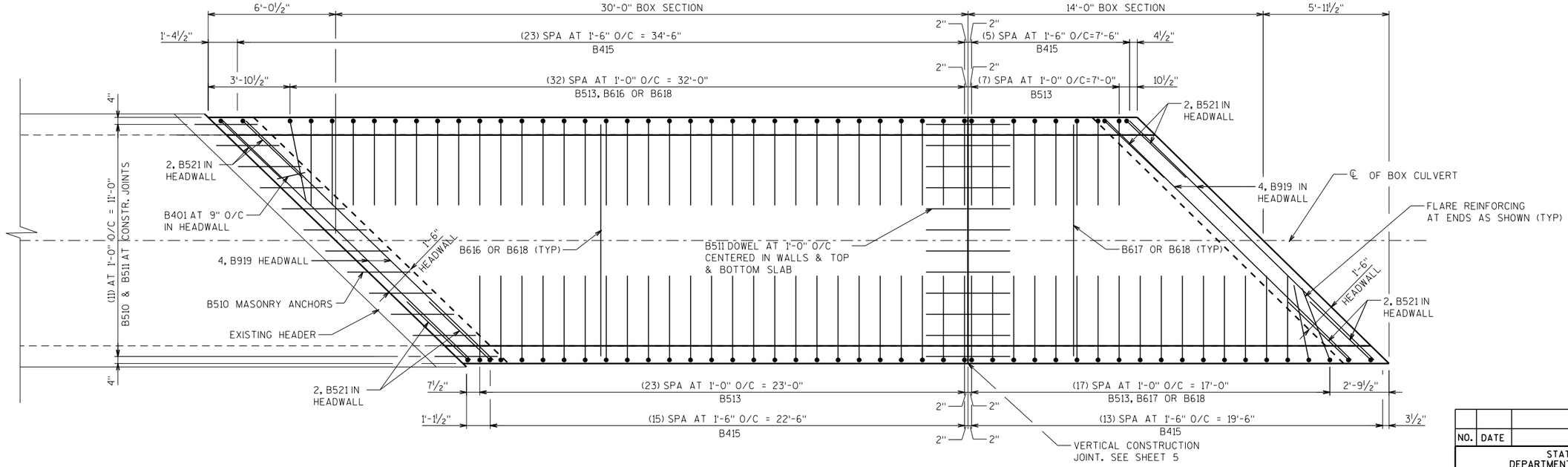
8

STATE PROJECT NUMBER

1030-24-80



REINFORCEMENT - TOP SLAB PLAN



REINFORCEMENT - BOTTOM SLAB PLAN

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

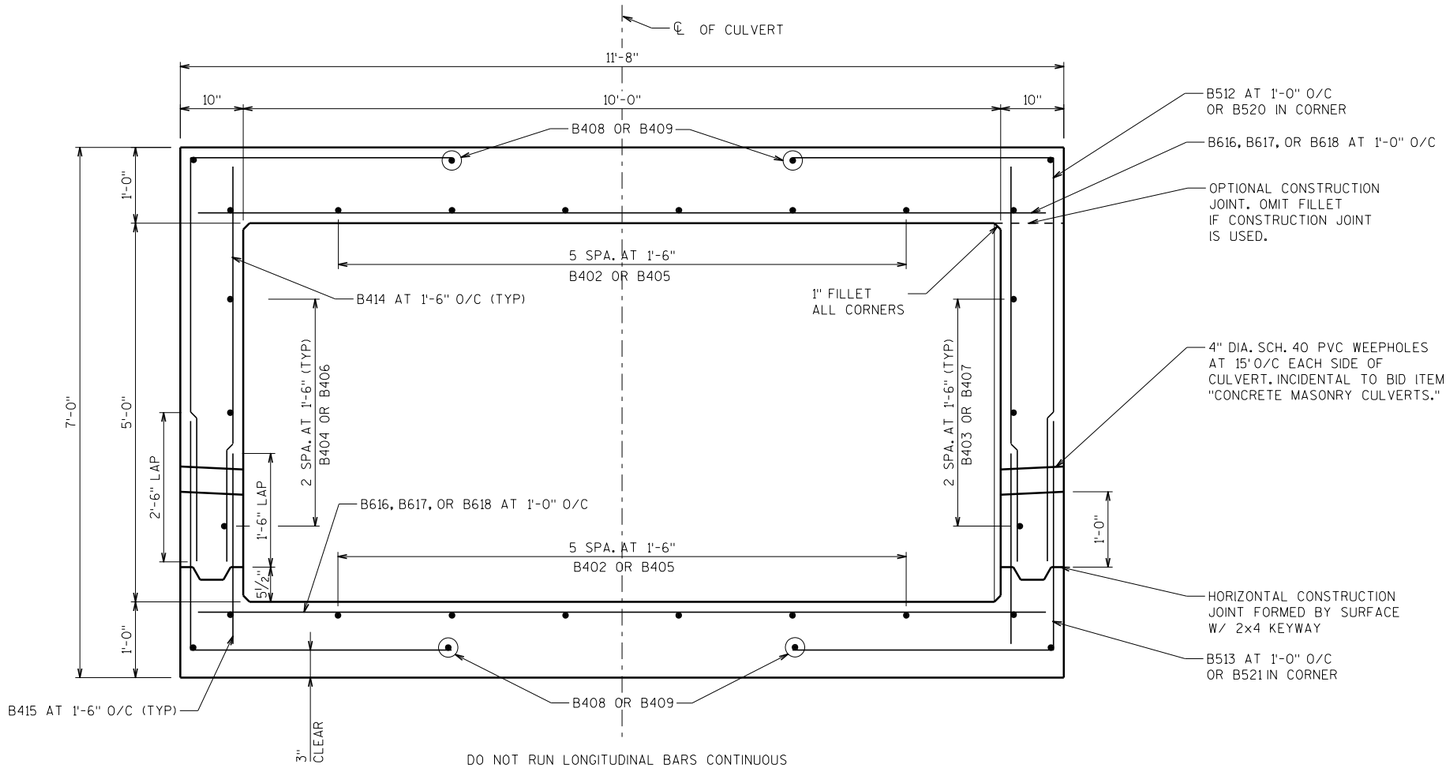
STRUCTURE C-51-12

DRAWN BY JS | PLANS CK'D. SG

BOX DETAILS

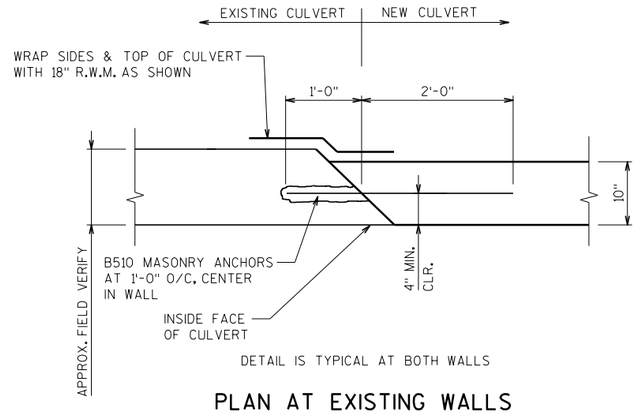
SHEET 4 OF 8

STATE PROJECT NUMBER
1030-24-80



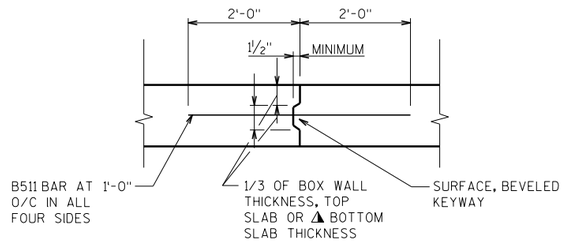
CROSS SECTION THROUGH CULVERT

(NORMAL TO CULVERT ℄ LOOKING EAST)



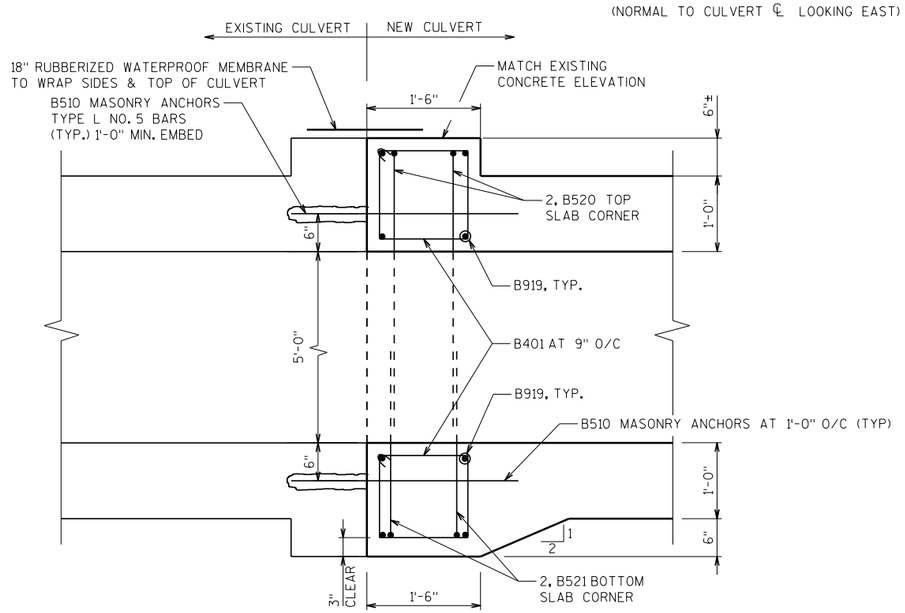
DETAIL IS TYPICAL AT BOTH WALLS

PLAN AT EXISTING WALLS

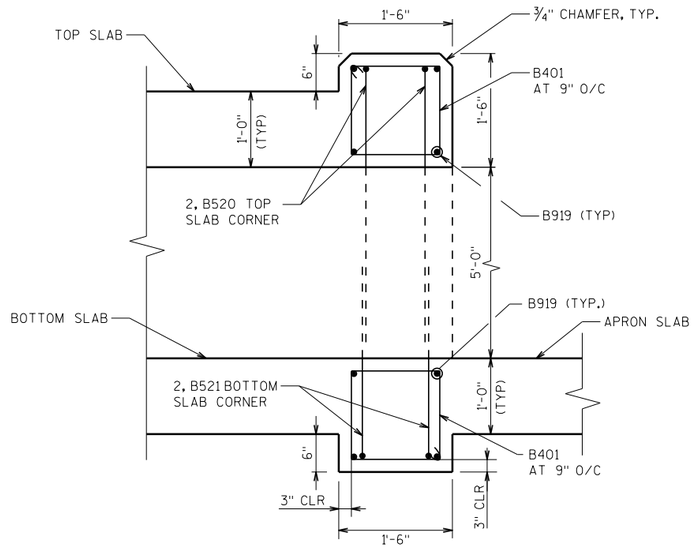


DO NOT RUN CULVERT LONGITUDINAL REINFORCING
CONTINUOUS THROUGH CONSTRUCTION JOINT

VERTICAL CONSTRUCTION JOINT



SECTION AT EXISTING HEADER



SECTION AT HEADER

(AT OUTLET)

NOTES

PLACE BAR STEEL REINFORCEMENT WITH 2" OF CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTED.

PLACE BOTTOM BAR STEEL REINFORCEMENT IN BOTTOM SLAB WITH 3" CLEAR CONCRETE COVER.

⚠ IN LIEU OF CONSTRUCTION JOINTS IN THE BOTTOM SLAB, THE CONTRACTOR MAY USE 2" DEEP SAW CUTS WITHIN 12 HRS AFTER POURING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-51-12

DRAWN BY	JS	PLANS CK'D.	SG

BOX DETAILS

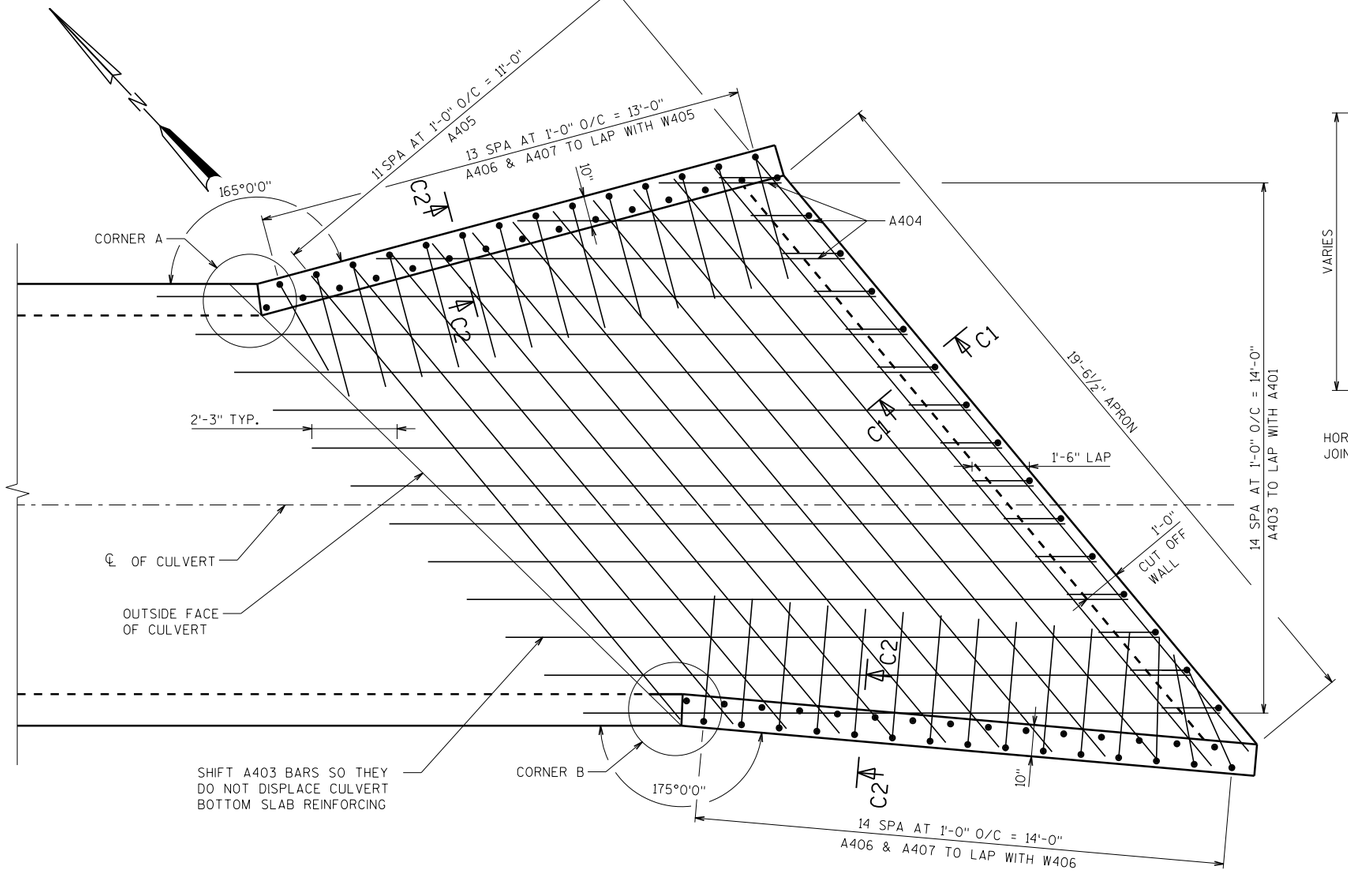
SHEET 5 OF 8

8

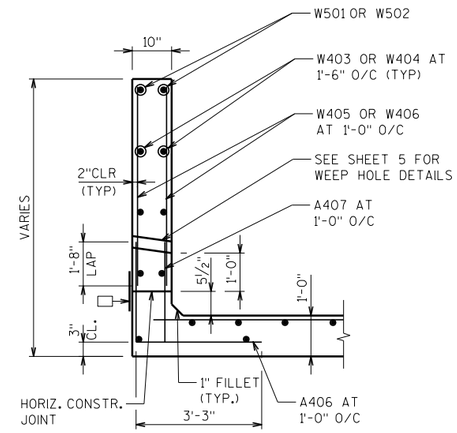
8

STATE PROJECT NUMBER

1030-24-80

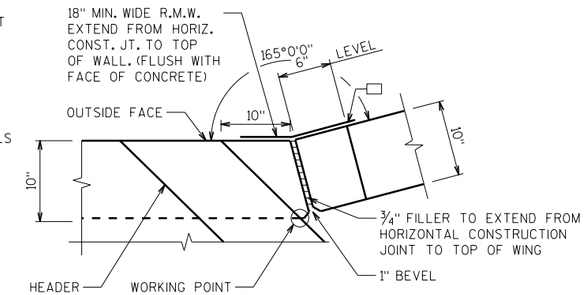


REINFORCEMENT - APRON SLAB PLAN

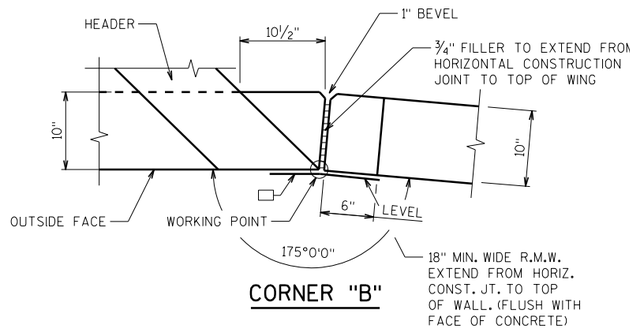


SECTION C2

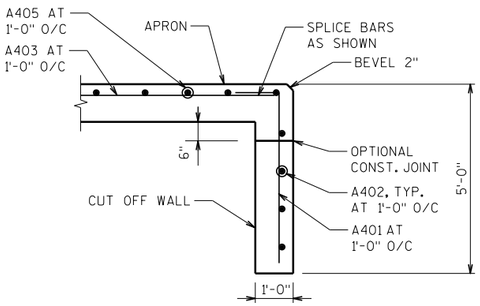
(WING WALL)



CORNER "A"

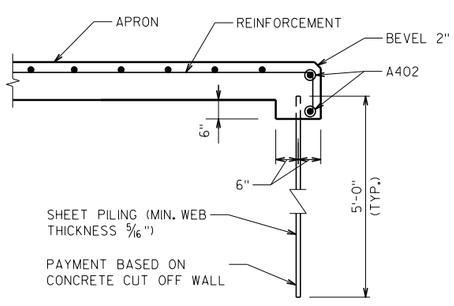


CORNER "B"



SECTION C1

(CUT OFF WALL)



ALTERNATE SECTION C1

(CUT OFF WALL)

NOTES

PLACE BAR STEEL REINFORCEMENT WITH 2" OF CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTED.

PLACE BOTTOM BAR STEEL REINFORCEMENT IN BOTTOM SLAB WITH 3" CLEAR CONCRETE COVER.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERT C-51-0012" SHALL BE THE EXISTING GROUND LINE.

THE CONCRETE IN THE CUT OFF WALL MAY BE PLACED UNDERWATER IF THE EXCAVATION CANNOT BE DEWATERED.

THE ALTERNATE CUT OFF WALL MAY BE USED IN LIEU OF THE CAST-IN-PLACE CONCRETE CUT OFF WALLS. PAYMENT SHALL BE BASED ON CONCRETE CUT OFF WALLS.

☐ 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING ALONG CONSTRUCTION JOINT IN WING

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

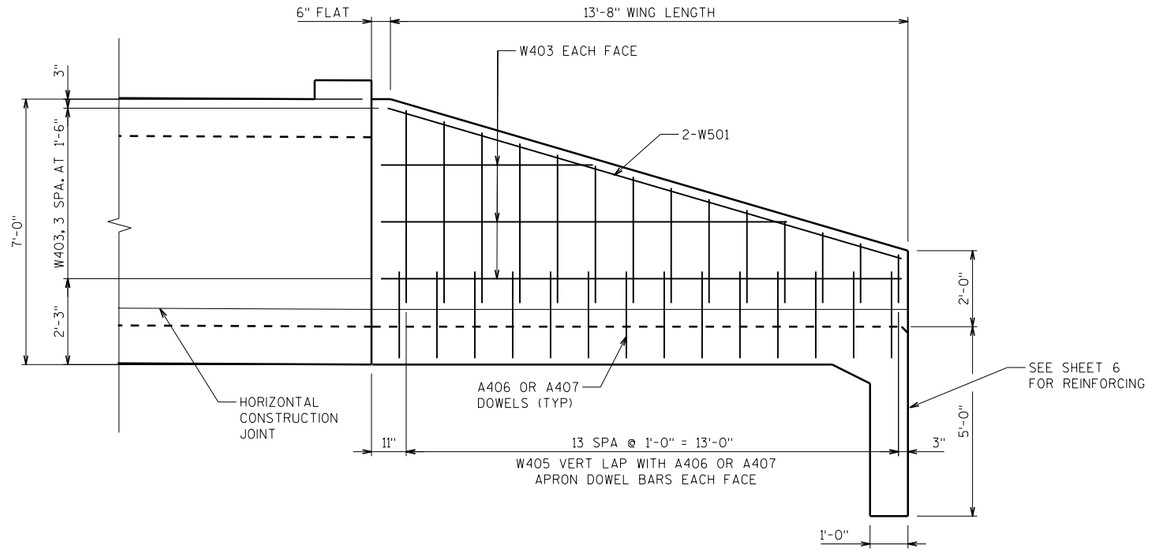
STRUCTURE C-51-12

DRAWN BY JS | PLANS CK'D. SG

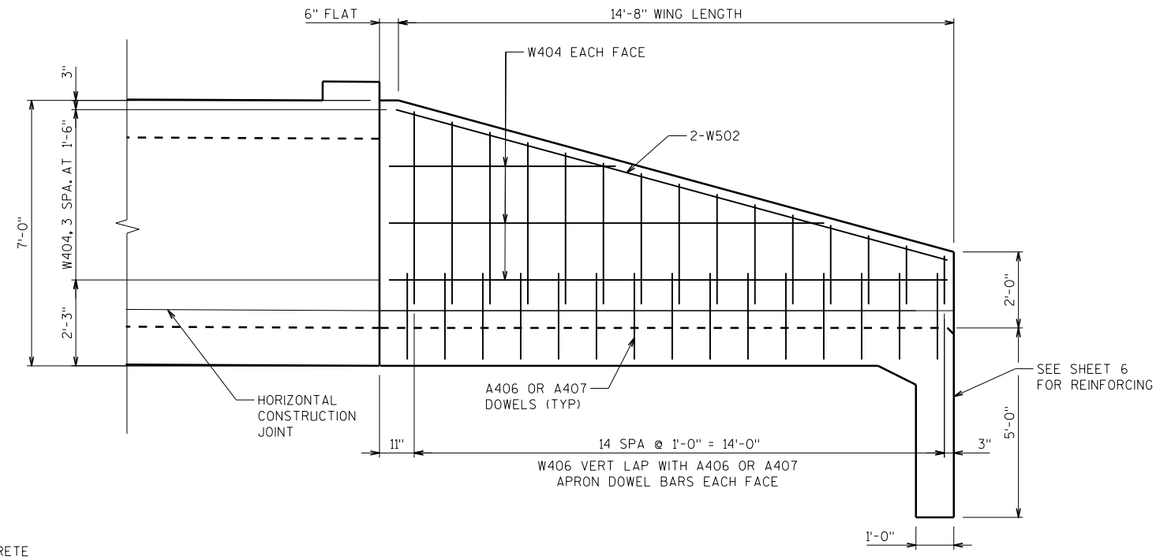
APRON DETAILS

SHEET 6 OF 8

STATE PROJECT NUMBER
1030-24-80



REINFORCEMENT - WING ①



REINFORCEMENT - WING ②

NOTES

PLACE BAR STEEL REINFORCEMENT WITH 2" OF CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTED.

PLACE BOTTOM BAR STEEL REINFORCEMENT IN BOTTOM SLAB WITH 3" CLEAR CONCRETE COVER.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-51-12

DRAWN BY	JS	PLANS CK'D.	SG

WINGWALL DETAILS

SHEET 7 OF 8

STATE PROJECT NUMBER

1030-24-80

BILL OF BARS

BAR MARK	COAT	NO. REQUIRED	LENGTH	BENT	BAR SERIES	LOCATION / DESCRIPTION
			BOX			
B401		92	5'-11"	X		HEADER / STIRRUPS
B402		12	29'-8"		△	BOX - LONGITUDINAL 30 FT SECTION
B403		7	23'-5"			BOX - LONGITUDINAL 30 FT SECTION
B404		7	35'-0"			BOX - LONGITUDINAL 30 FT SECTION
B405		12	13'-8"		△	BOX - LONGITUDINAL 14 FT SECTION
B406		7	19'-7"			BOX - LONGITUDINAL 14 FT SECTION
B407		7	7'-8"			BOX - LONGITUDINAL 14 FT SECTION
B408		4	29'-8"		△	BOX - LONGITUDINAL 30 FT SECTION
B409		4	13'-9"		△	BOX - LONGITUDINAL 14 FT SECTION
B510		32	3'-0"			MASONRY ANCHOR TYPE L
B511		32	4'-0"			DOWELS AT CONSTRUCTION JOINT
B512		83	9'-8"	X		TOP SLAB CORNER
B513		83	8'-1"	X		BOTTOM SLAB CORNER
B414		60	5'-4"			VERTICAL WALLS
B415		60	2'-8"			VERTICAL WALLS
B616		20	7'-4"		△	TOP & BOTTOM SLAB HORIZONTAL
B617		20	6'-10"		△	TOP & BOTTOM SLAB HORIZONTAL
B618		62	11'-4"			TOP & BOTTOM SLAB HORIZONTAL
B919		16	16'-3"			HEADER LONGITUDINAL
B520		8	10'-3"	X		HEADER TOP SLAB CORNER
B521		8	8'-8"	X		HEADER BOTTOM SLAB CORNER
			APRON			
A401		15	5'-11"	X		CUTOFF WALL
A402		4	20'-0"			CUTOFF WALL
A403		12	17'-6"		△	APRON SLAB
A404		3	7'-9"		△	APRON SLAB
A405		12	17'-8"		△	APRON SLAB
A406		29	6'-1"	X		APRON CORNER
A407		29	2'-11"			APRON VERTICAL
			WINGS			
W501		2	14'-1"			WING 1 - TOP
W502		2	15'-1"			WING 2 - TOP
W403		6	9'-8"		△	WING 1 - HORIZONTAL
W404		6	10'-5"		△	WING 2 - HORIZONTAL
W405		28	3'-4"		△	WING 1 - VERTICAL
W406		30	3'-4"		△	WING 2 - VERTICAL

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

◑ MASONRY ANCHORS TYPE L NO. 5 BARS. MINIMUM PULLOUT CAPACITY OF 9 KIPS. EMBED A MINIMUM OF 1'-0" IN CONCRETE.

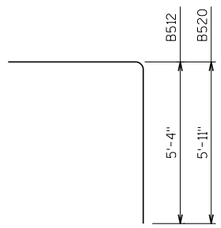
BAR SERIES TABLE

BAR MARK	BENT	NO. REQUIRED	LENGTH	LOCATION
		BOX		
B402		2 SERIES OF 6	25'-10" TO 33'-6"	SLAB
B405		2 SERIES OF 6	9'-10" TO 17'-6"	SLAB
B408		2 SERIES OF 2	27'-4" TO 32'-0"	SLAB
B409		2 SERIES OF 2	11'-5" TO 16'-0"	SLAB
B616		2 SERIES OF 10	3'-5" TO 11'-2"	NEAR EXISTING
B617		2 SERIES OF 11	1'-5" TO 11'-2"	NEAR APRON
		APRONS		
A403		1 SERIES OF 12	16'-10" TO 19'-0"	
A404		1 SERIES OF 3	3'-3" TO 12'-4"	NORTH CORNER
A405		1 SERIES OF 12	15'-2" TO 20'-1"	
		WINGS		
W403		2 SERIES OF 3	5'-7" TO 13'-9"	
W404		2 SERIES OF 3	6'-0" TO 14'-9"	
W405		2 SERIES OF 14	1'-5" TO 5'-3"	
W406		2 SERIES OF 15	1'-5" TO 5'-3"	

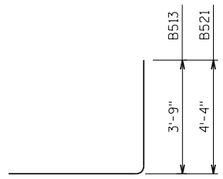
NOTES

THE FIRST DIGIT OF THE BAR MARK SIGNIFIES (OR TWO DIGITS FOR NO. 10 BARS AND GREATER) THE ENGLISH BAR DIAMETER SIZE

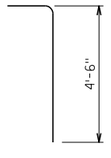
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT



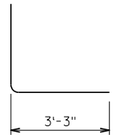
B512, B520



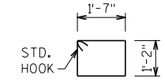
B513, B521



A401



A406



B401

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-51-12

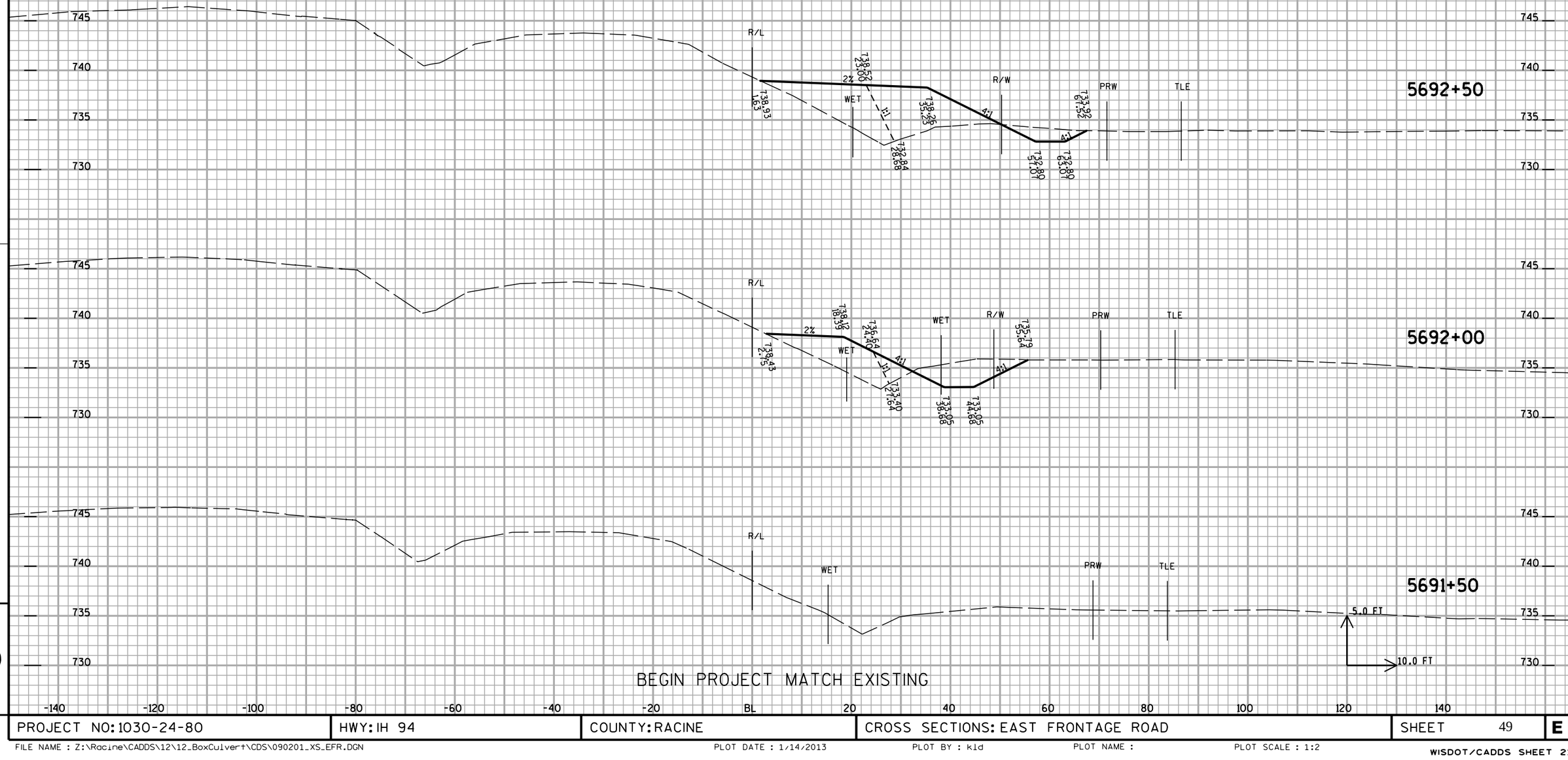
DRAWN BY JS | PLANS CK'D. SG

BILL OF BARS

SHEET 8 OF 8

		BOX CULVERT EXTENSION						
		AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY) (Unadjusted)		Unadjusted
STATION	Distance	Cut	Fill	Cut	Fill	Cut 1.00	Fill 1.00	Mass Ordinate
5691+50	0	0	0	0	0	0	0	0
5692+00	50	39	82	36	75	36	75	-39
5692+50	50	16	189	51	251	87	326	-239
5693+00	50	24	239	37	397	124	723	-599
5693+25	25	4	292	13	246	137	969	-832
5693+50	25	0	311	2	279	139	1,248	-1,109
5693+75	25	0	273	0	270	139	1,519	-1,380
5694+00	25	0	146	0	194	139	1,713	-1,574
5694+25	25	26	30	12	82	151	1,794	-1,643
5694+50	25	31	18	27	22	177	1,817	-1,639
5694+75	25	22	7	25	12	202	1,828	-1,626
5695+00	25	45	8	31	7	233	1,835	-1,602
5695+25	25	29	10	34	8	267	1,843	-1,576
5695+50	25	16	9	21	9	288	1,852	-1,564
5695+75	25	0	0	7	4	295	1,856	-1,561
BOX CULVERT EXTENSION TOTAL				**295**	**1,856**	**295**	**1,856**	**-1,561**

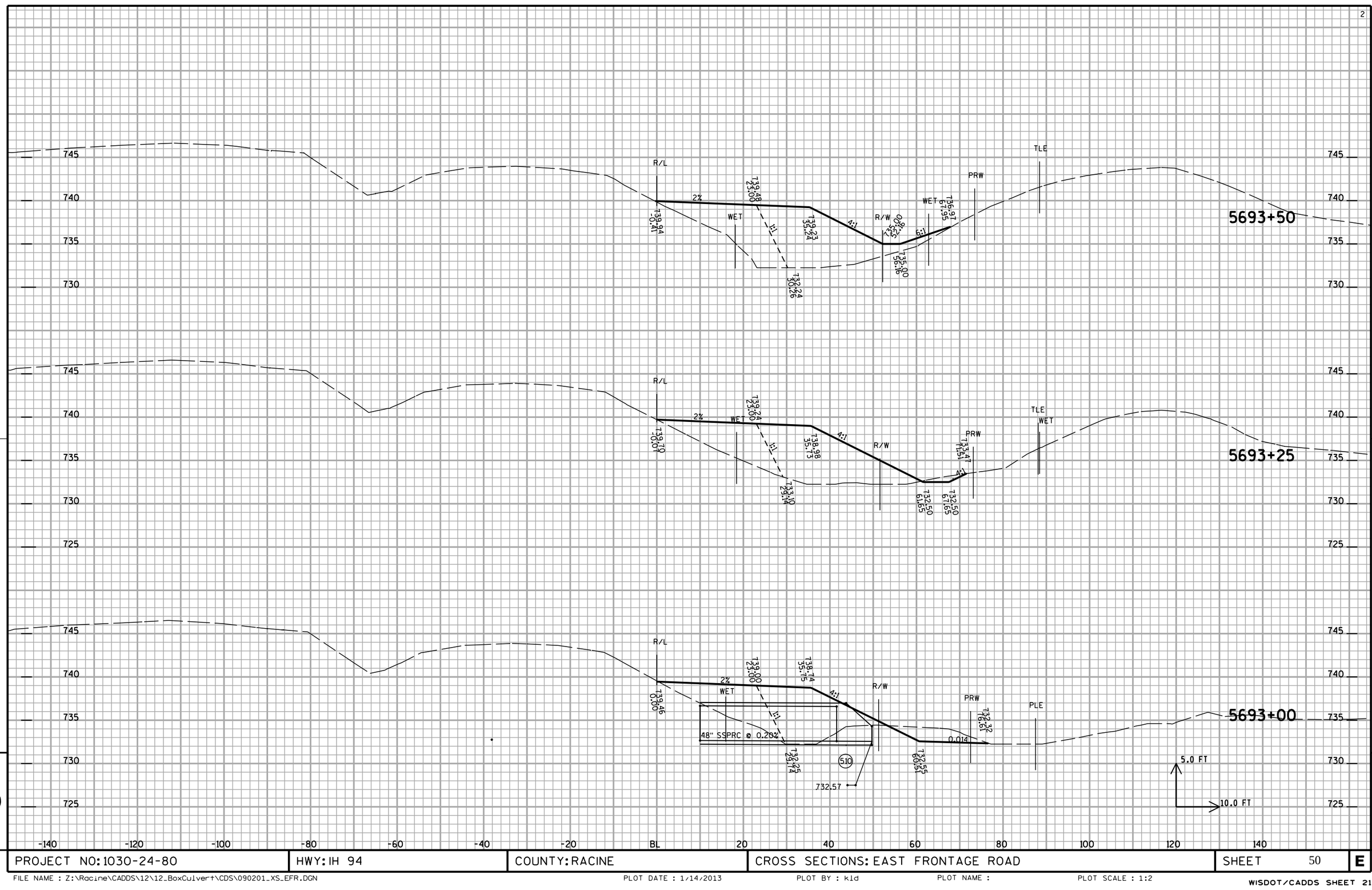
NOTE:
THE 1:1 SLOPE INFORMATION SHOWN IS FOR FUTURE PROJECT 1030-24-77 (BY OTHERS).



9

9

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	CROSS SECTIONS: EAST FRONTAGE ROAD	SHEET 49	E



9

9

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	CROSS SECTIONS: EAST FRONTAGE ROAD	SHEET 50	E

745
740
735
730
725

R/L
740.43
0.000
WET
WET
739.97
23.00
2%
1:1
735.89
47.04
739.71
35.75
3:1
741.59
47.02
R/W

5694+00

EXISTING BOX CULVERT

R/L
740.23
0.000
739.19
51.75
44'BOX CULVERT EXTENSION
(SEE STRUCTURE C-51-0012)
732.24
94.17

5693+83.14
Skew = 45°39'41.00" LHF
(NOT FOR EARTHWORK)

PRW
R/L
740.20
-0.25
739.73
23.00
2%
WET
1:1
733.56
29.16
739.47
35.75
4:1
WET
734.50
41.53
3:1
R/W
740.49
61.55

5693+75

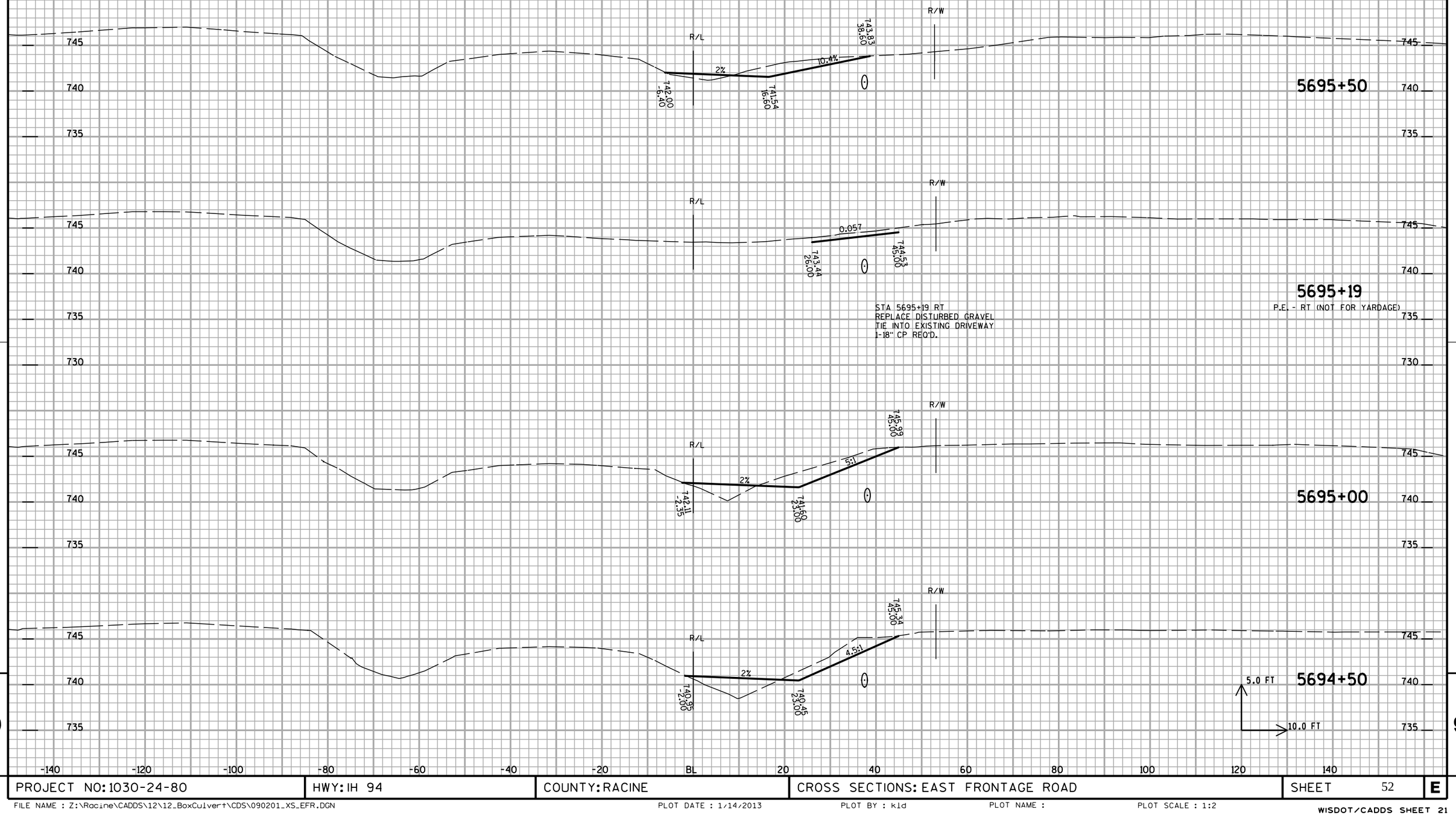
5.0 FT
10.0 FT

-140 -120 -100 -80 -60 -40 -20 BL 20 40 60 80 100 120 140

9

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	CROSS SECTIONS: EAST FRONTAGE ROAD	SHEET 51	E

FILE NAME : Z:\Racine\CADDS\12\12_BoxCulvert\CDS\090201_XS_EFR.DGN PLOT DATE : 1/14/2013 PLOT BY : kld PLOT NAME : PLOT SCALE : 1:2



STA 5695+19 RT
REPLACE DISTURBED GRAVEL
TIE INTO EXISTING DRIVEWAY
1-18" CP REQ'D.

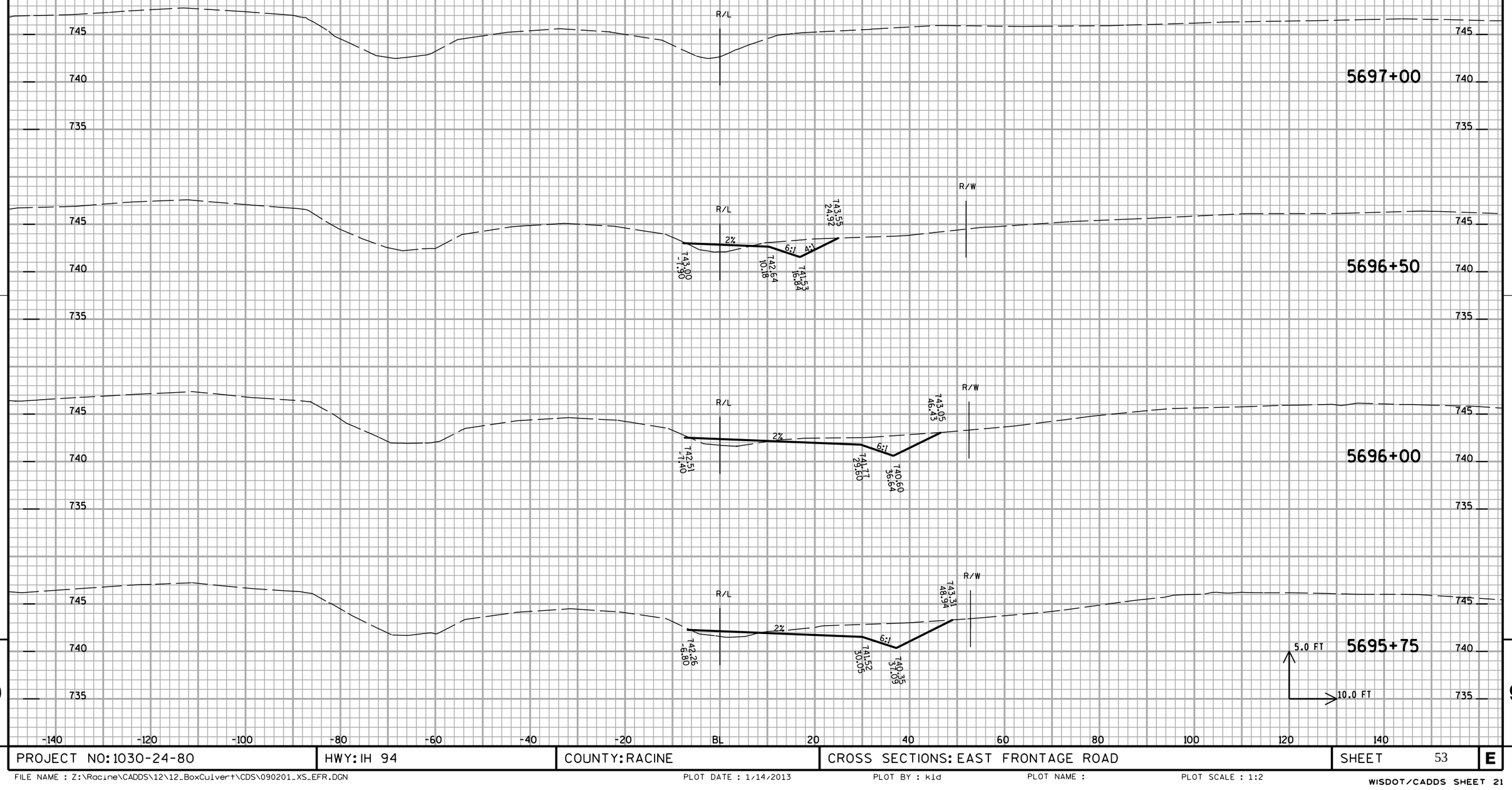
9

9

PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	CROSS SECTIONS: EAST FRONTAGE ROAD	SHEET 52	E

FILE NAME : Z:\Racine\CADDS\12\12_BoxCulvert\CDS\090201_XS_EFR.DGN
PLOT DATE : 1/14/2013
PLOT BY : kld
PLOT NAME :
PLOT SCALE : 1:2
WISDOT/CADDS SHEET 21

END PROJECT MATCH EXISTING



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PROJECT NO: 1030-24-80	HWY: IH 94	COUNTY: RACINE	CROSS SECTIONS: EAST FRONTAGE ROAD	SHEET 53	E

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