

AS-BUILT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
MADISON - CAMBRIDGE ROAD
(CTH AB INTERSECTION)
USH 12
DANE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3080-00-78	WISC 2011303	1

ORDER OF SHEETS

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

TOTAL SHEETS = 100



DESIGN DESIGNATION

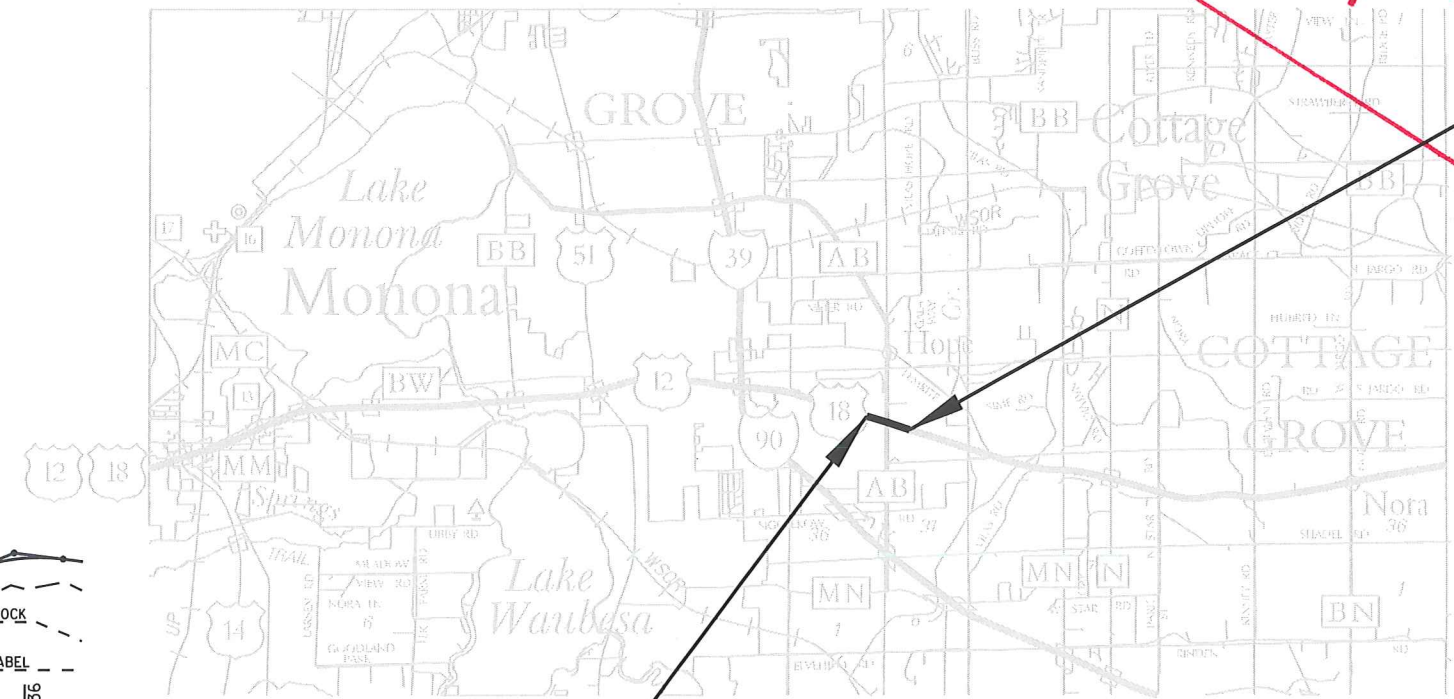
A.D.T. (2011)	=	16,200
A.D.T. (2031)	=	19,800
D.H.V. (2031)	=	2,079
D.D.	=	58/42
T.	=	8.4%
DESIGN SPEED	=	60 MPH
ESALS	=	4,058,800

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	////
PROPERTY LINE	---
LOT LINE	- - - -
LIMITED HIGHWAY EASEMENT	L - - - -
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)	-----
SPECIAL DITCH	-----
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	⊗

ROCK	-----
LABEL	-----
95.36	-----
□	-----
E	-----
FO	-----
G	-----
SAN	-----
SS	-----
T	-----
W	-----
⊗	-----
⊗	-----
⊗	-----



BEGIN PROJECT
STA. 178+66.85 EB
X = 857114.25
Y = 470679.02

END PROJECT
STA. 194+37.71 EB

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.298 MI.

--Coordinates on this plan are referenced to the Wisconsin County Coordinate System (WCCS), Dane County.--

AB BUILT CONSTRUCTION PLAN
WORK TYPE SAFETY IMPROVEMENT
CONTRACTOR T McGUIRE, INC
PROJECT MANAGER CURT NEUHAUSER
WORK START-COMPLETED 9/11 - 11/11

AS-BUILT
FILE COPY

ORIGINAL PLANS PREPARED BY

PEOPLE WHO CARE,
CREATING QUALITY TRANSPORTATION
TODAY AND TOMORROW

WISDOT SOUTHWEST REGION - MADISON OFFICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WISDOT
Designer	JAY HILLE
Project Manager	JAN BENNETT
District Examiner	
District Supervisor	JEFFREY GUST
C.O. Examiner	JANE ENGBRETSSEN

APPROVED FOR DISTRICT OFFICE

DATE: 1-31-2011

(Signature)

E

MAD MAY 11
PROJECT ID: 3080-00-78
WITH:
COUNTY: DANE
FILE NAME : r:\Support\CADD\Projects\d1_30800008\010101_T1.DGN
PLOT DATE : 09-FEB-2011 12:38
PLOT BY : dotbbg
PLOT NAME :
PLOT SCALE : 200.000000:1.000000
WISDOT/CADD SHEET 10

21108-2A

GENERAL NOTES:

Locations shown on the storm sewer sheets for inlets and manholes are by station and offset to the center of the structure (see details).

Storm sewer pipe elevation, lengths and locations, as shown on the plans, may be adjusted to fit existing field conditions as approved by the engineer.

All concrete pipe shall have the apron endwall and the first two pipe joints tied at the joints (3 joints total). Joint ties shall be incidental to the item of SSPRC & CPRC.

Erosion control features shown on the plan sheets are at suggested locations. Exact locations will be determined by the engineer in the field. All erosion control measures shall be maintained until such time as the Engineer determines the measure is no longer necessary. Remove items at the Engineer's direction.

Expansion joints are to be constructed at all radius points in curb & gutter or at locations shown on the plan.

When the quantity of the item of base aggregate dense are measured for payment by the ton, the depth or thickness is approximate and the actual thickness will depend on the distribution of material as directed by the engineer.

Miscellaneous removal items shall be removed to an existing joint or sawcut where shown on the plans.

The contractor will be responsible for seeding any previously grassed areas which are disturbed by his operations outside of the normal construction limits.

Inlet protection is required at all inlets as per detail or as directed by the engineer.

Finishing roadway shall include cleanout of existing drainage structures as directed by the engineer.

All curb and gutter radii are measured to flag of curb, unless otherwise noted.

No trees or shrubs are to be removed without approval of the engineer.

The locations of existing and proposed utility installations as shown are approximate. There may be other utility installations within the project area that are not shown.

A sawed joint will be required where new pavement is to meet an existing paved surface.

Contractor shall exercise extreme care so as not to damage mainline pavement structure when removing existing turn lanes or shoulder material. If damage occurs during removal of the existing turn lanes or shoulder material, all repairs will be done at the contractors expense.

Do not drive equipment or store equipment or materials in wetlands or waterways.

UTILITY/MUNICIPALITY	CONTACT/ADDRESS	UTILITY TYPE
Alliant Energy	Jason Hogan 4902 N Billmore Lane Suite 1000 Madison, WI 53718 (608) 458 - 4871 (Office) (608) 395 - 7395 (Mobile) jasonhogan@alliantenergy.com	Electricity
	For emergencies, call 911, then call, Electric: 24-hours, (800) 862-6261	
Madison Gas And Electric Co	Steve Beversdorf P.O. Box 1231 Madison, WI 53701 -1231 (608) 252 - 1552 (Office) sbeversdorf@mge.com	Gas/Petroleum
	For gas/petroleum emergencies, call 911, then call, 24-hours, (608) 252-1111	
Frontier Communications of WI, LLC	Dana Gillett 100 Communications Dr Sun Prairie, WI 53590 (608) 837 - 1605 (Primary) dana.gillett@fir.com	Communication Line

District DNR Area Liaison

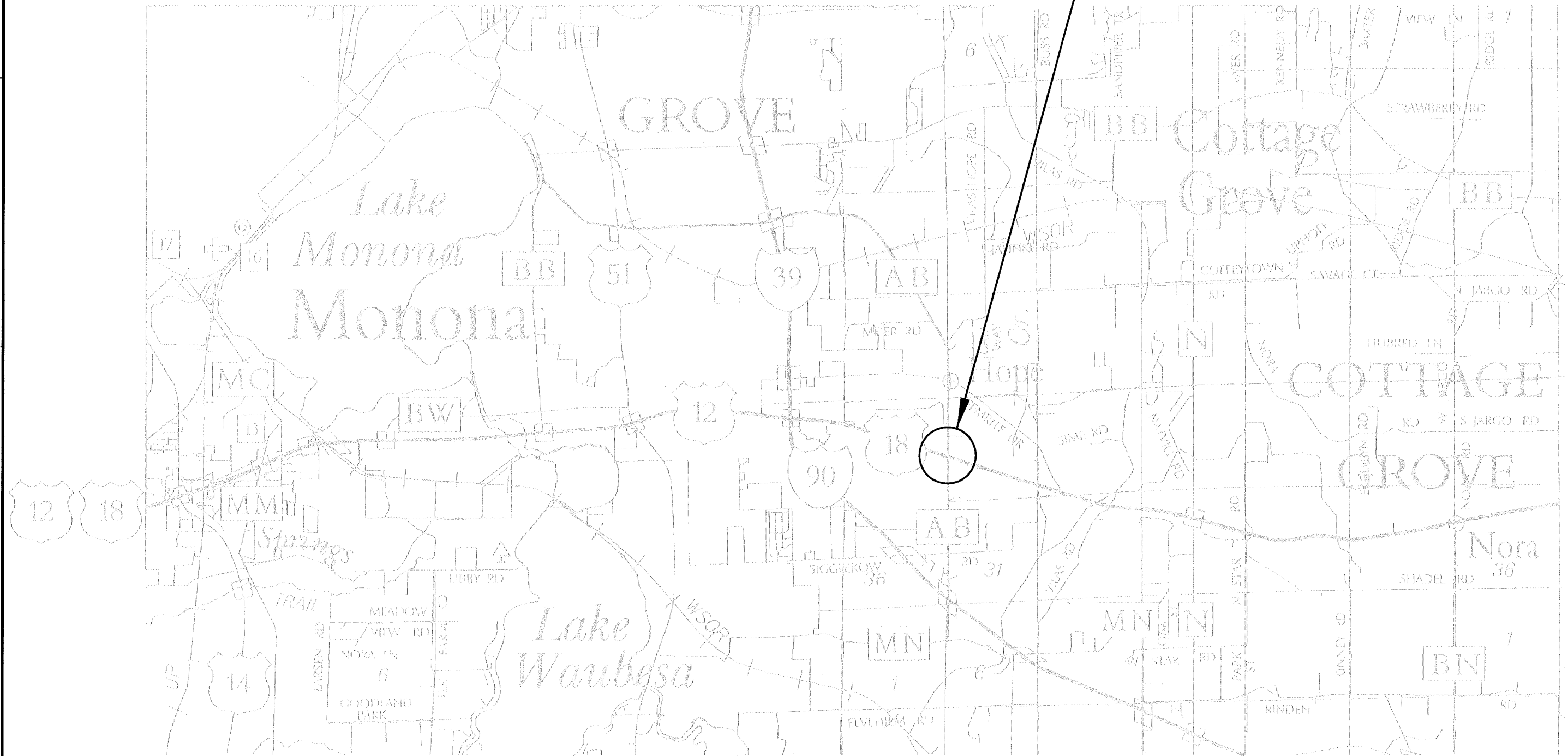
Amanda Cushman
WI. Dept. Of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI, 53711
(608) 275-3485

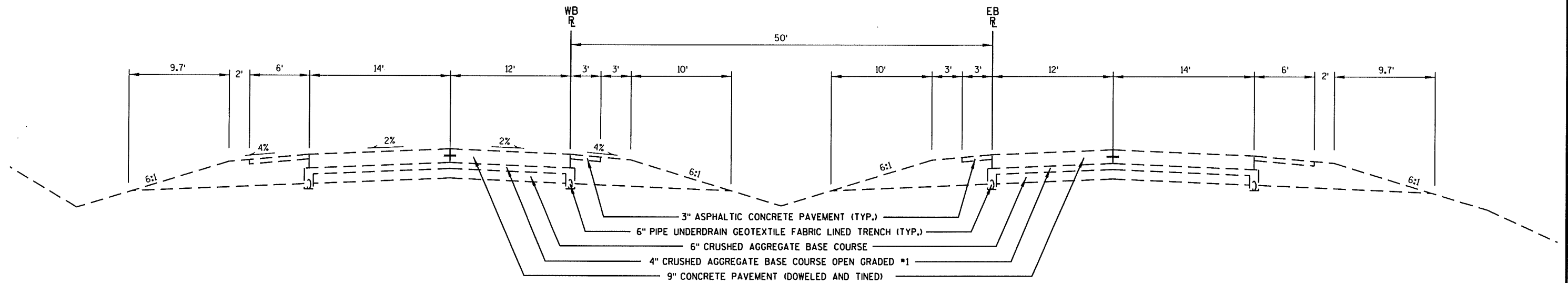


Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com



PROJECT LOCATION

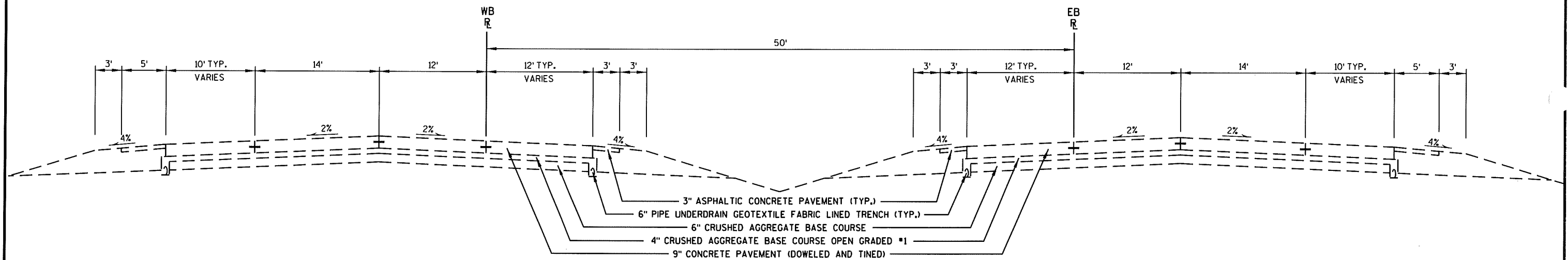




EXISTING TYPICAL SECTION

USH 12/18

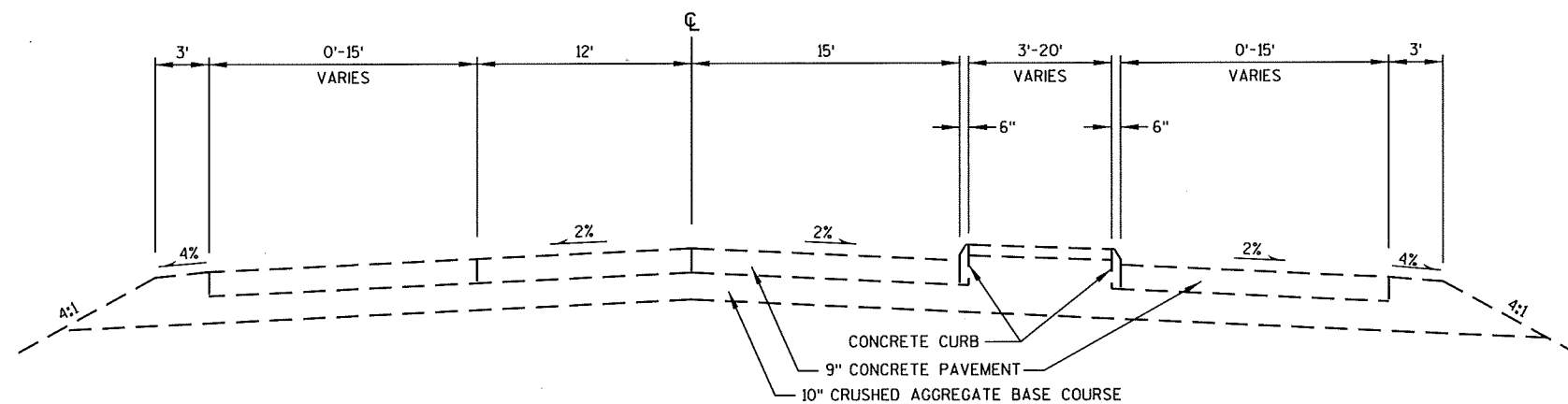
STA. 178+66 - STA. 180+96 EB, STA. 186+23 - STA. 194+38 EB
STA. 192+48 - STA. 194+38 WB, STA. 178+66 - STA. 186+78 WB



EXISTING TYPICAL SECTION

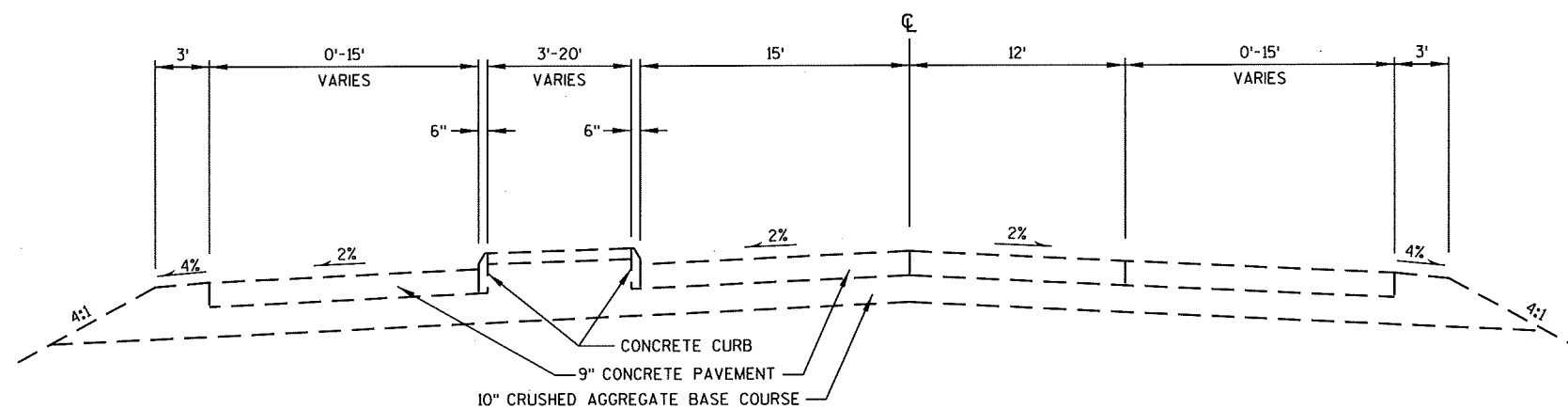
USH 12/18

STA. 180+96 - STA. 186+23 EB
STA. 186+78 - STA. 192+48 WB



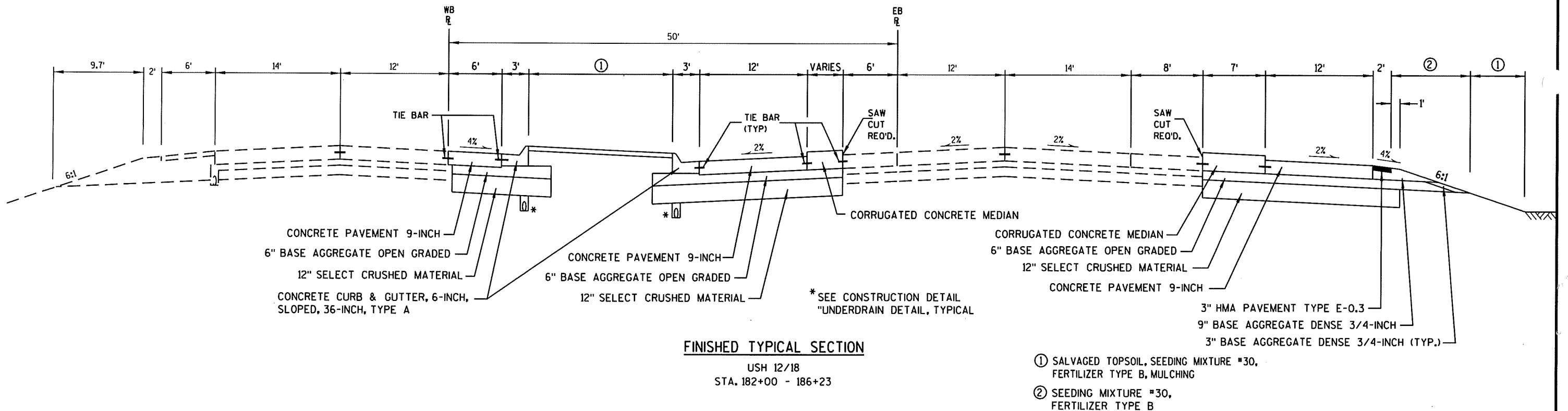
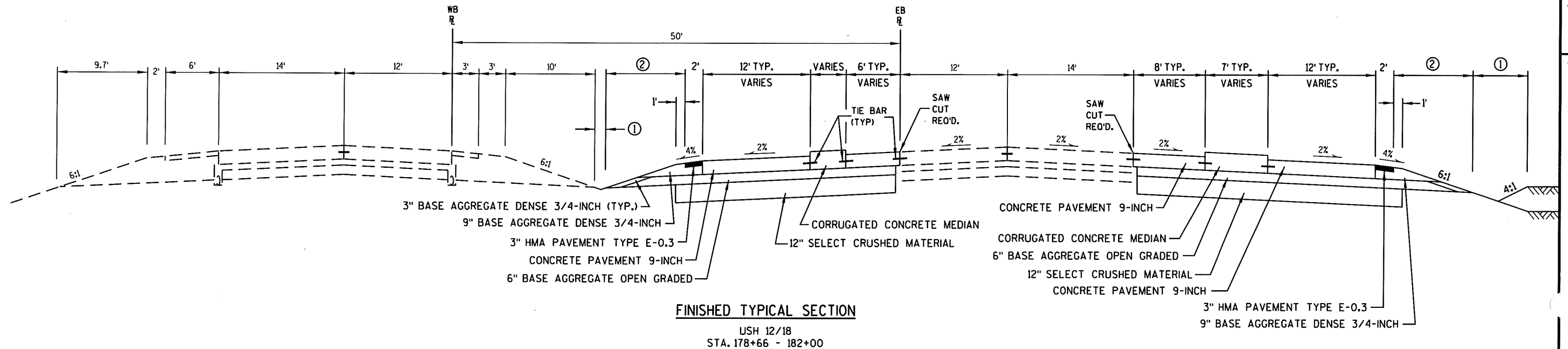
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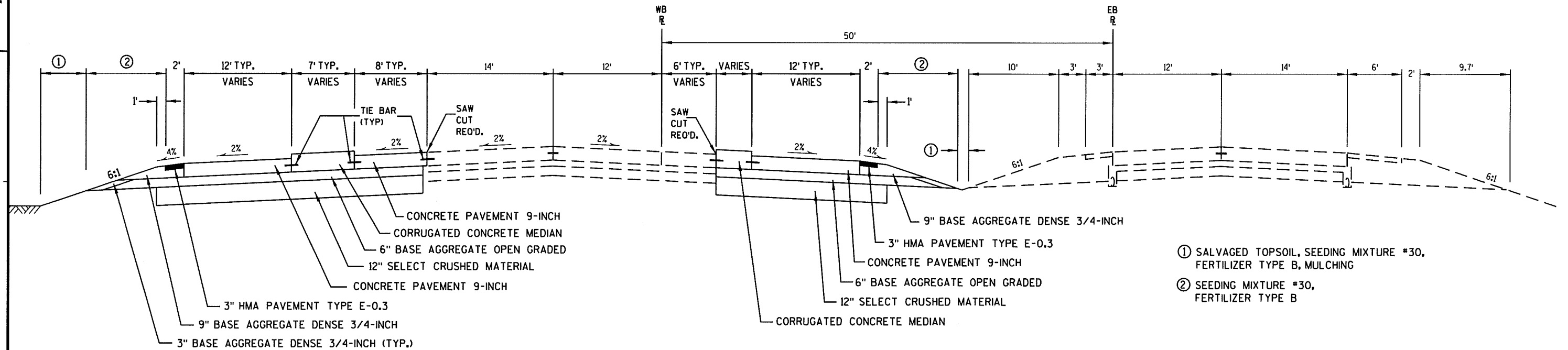
CTH AB
STA. 18+70 - STA. 19+72



EXISTING TYPICAL SECTION

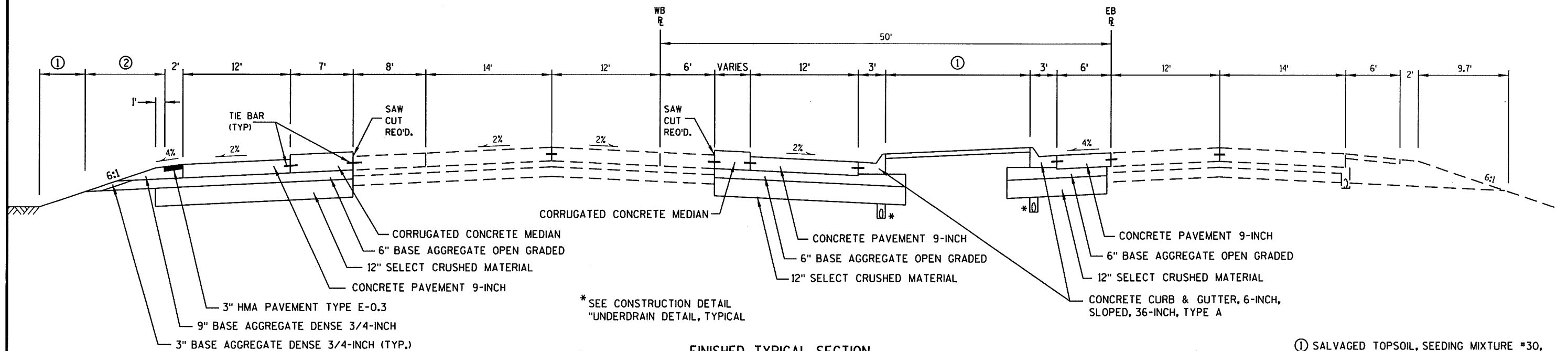
CTH AB
STA. 20+90 - STA. 21+95





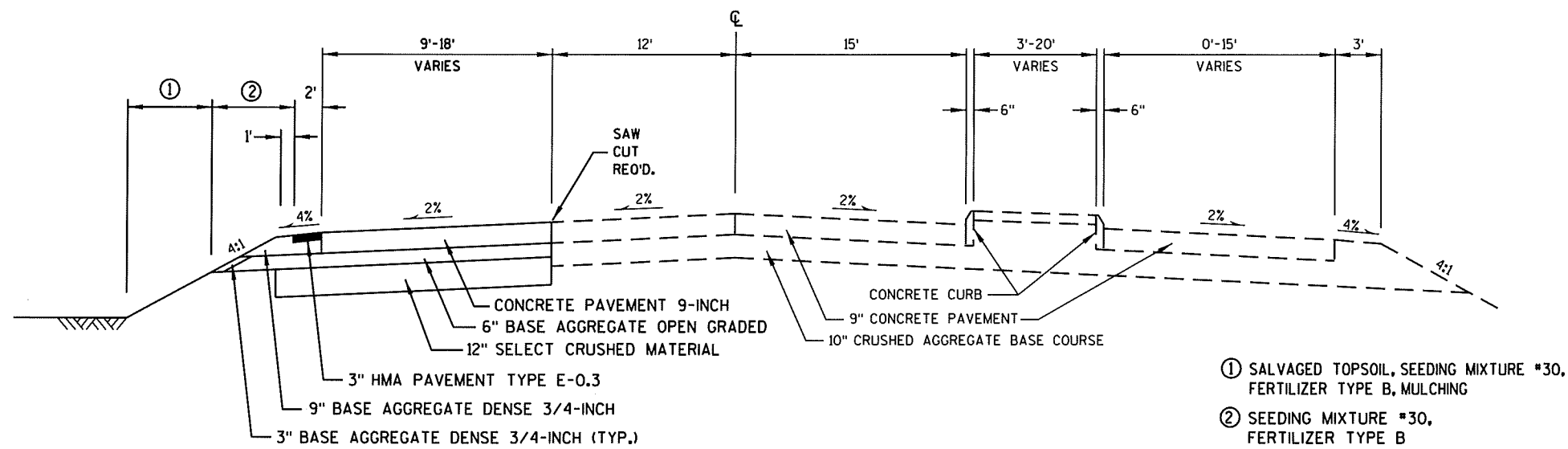
FINISHED TYPICAL SECTION

USH 12/18
STA. 191+50 - 194+38



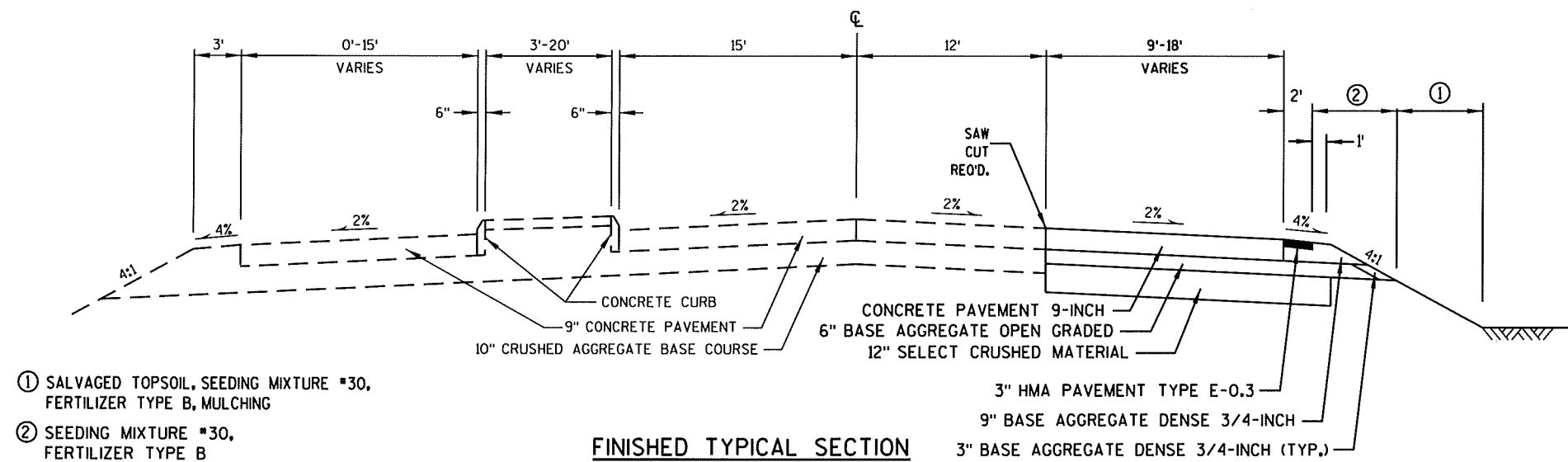
FINISHED TYPICAL SECTION

USH 12/18
STA. 186+78 - 191+50



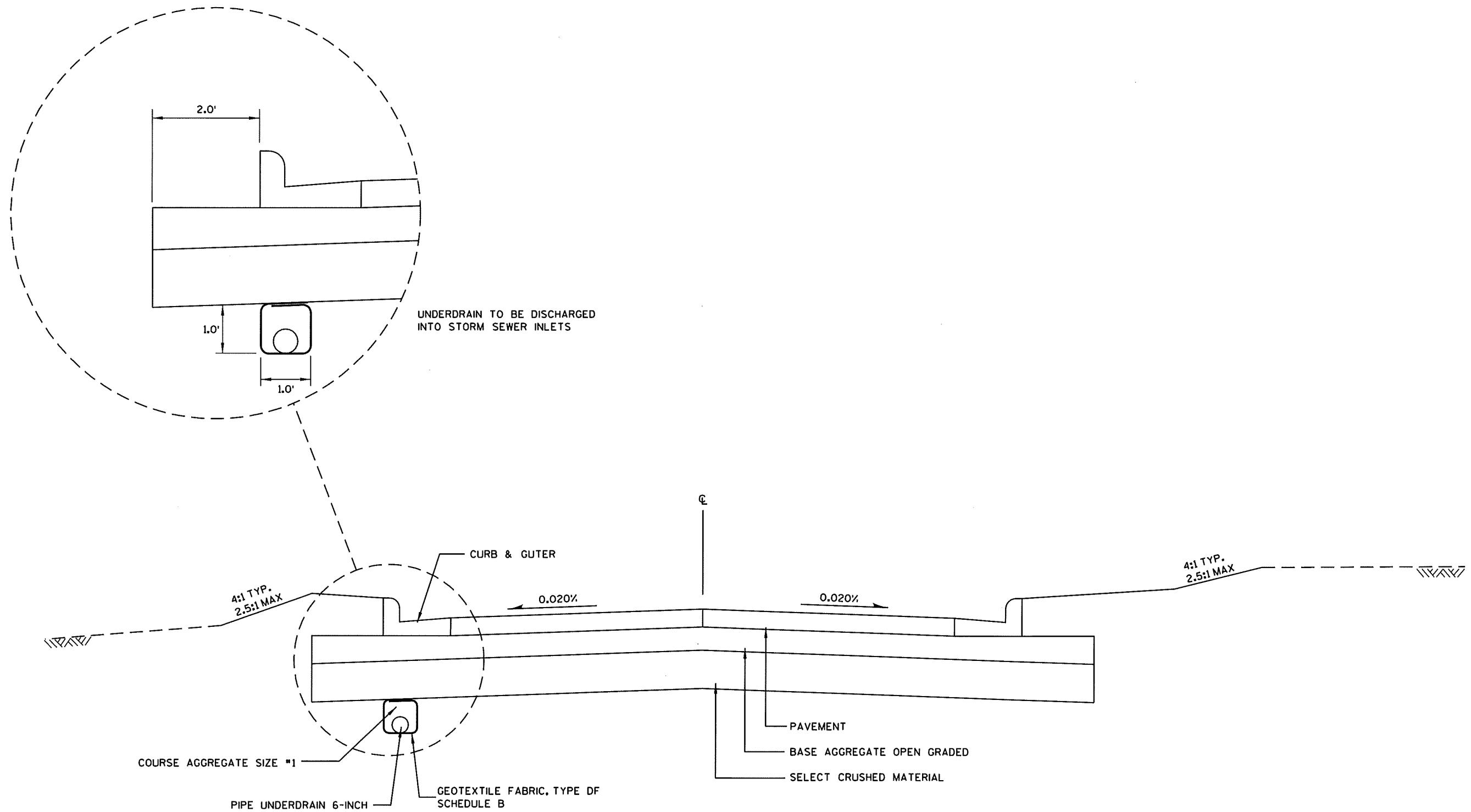
FINISHED TYPICAL SECTION

CTH AB
STA. 18+70 - STA. 19+72

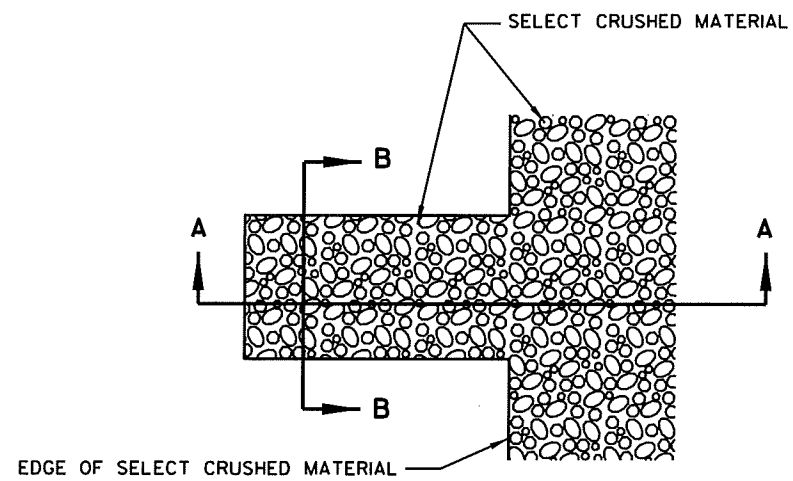
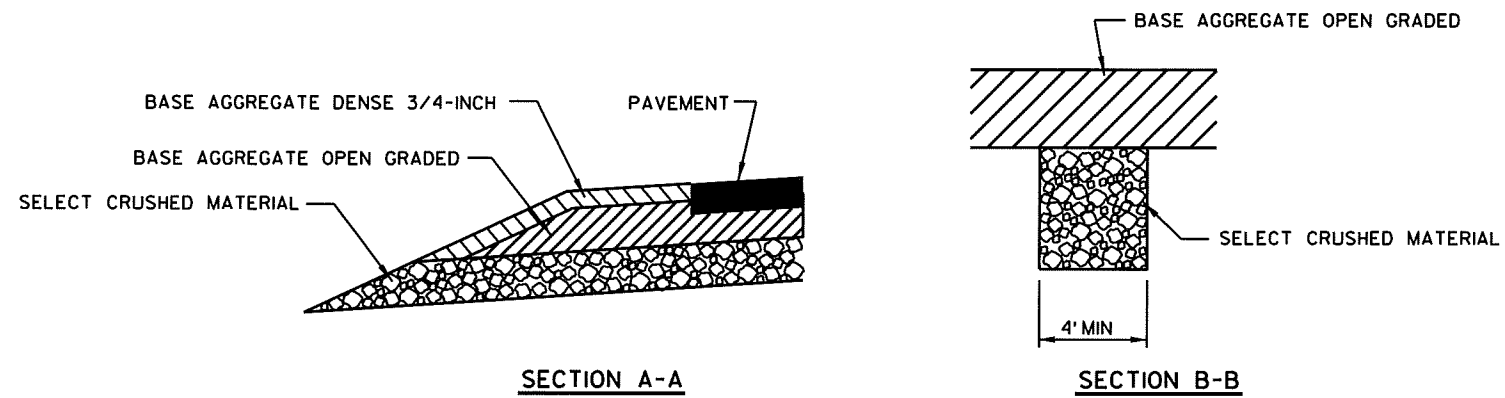


FINISHED TYPICAL SECTION

CTH AB
STA. 20+90 - STA. 21+95



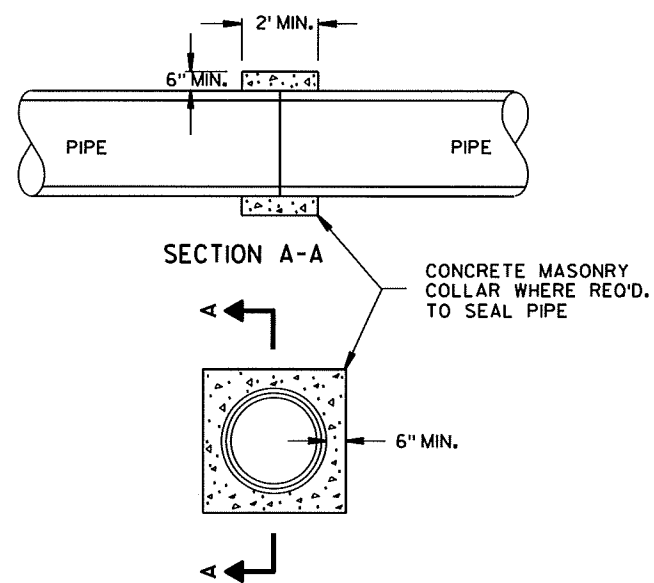
**PIPE UNDERDRAIN (6-INCH) WITH GEOTEXTILE FABRIC
AND AGGREGATE DETAIL, TYPICAL**



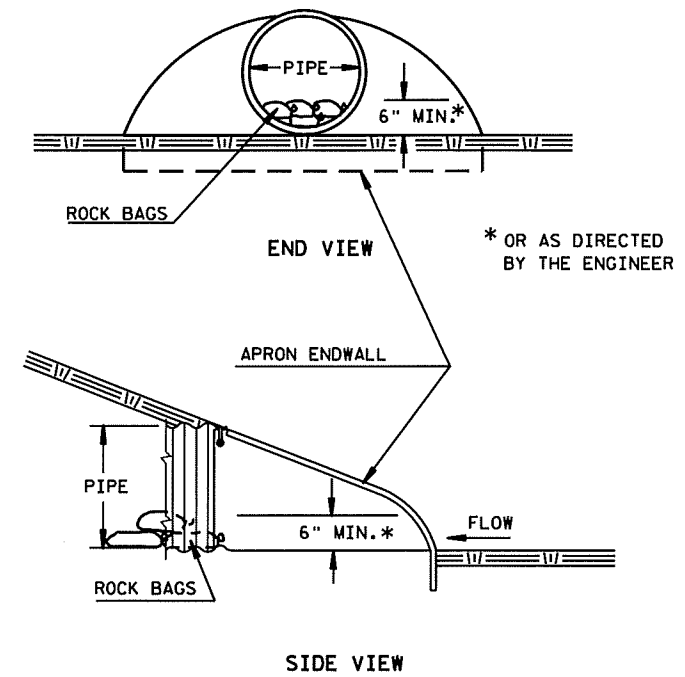
DETAIL FOR FRENCH DRAINS

DRAINS ARE TO BE CONSTRUCTED AT LEAST EVERY 250'
AND AT EACH SAG VERTICLE CURVE IN THE PROFILE.
(LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER)

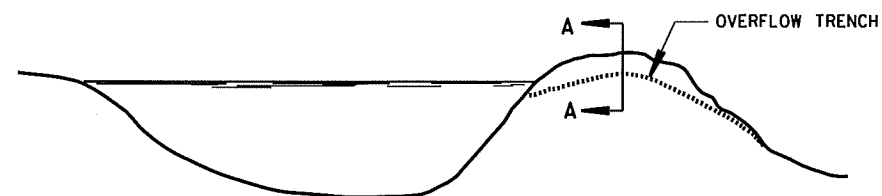
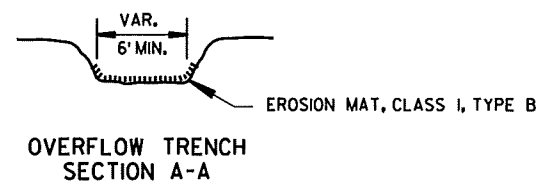
EXCAVATION REQUIRED TO CONSTRUCT FRENCH DRAINS SHALL
BE CONSIDERED INCIDENTAL TO THE ITEM SELECT CRUSHED MATERIAL.



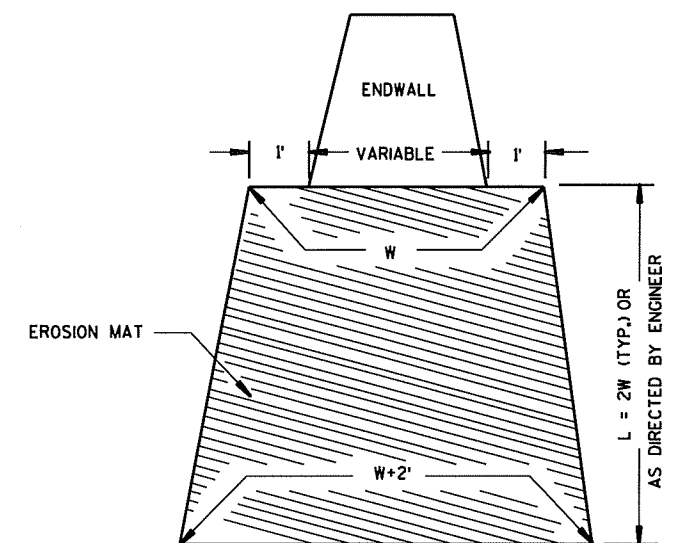
CONCRETE COLLAR DETAIL



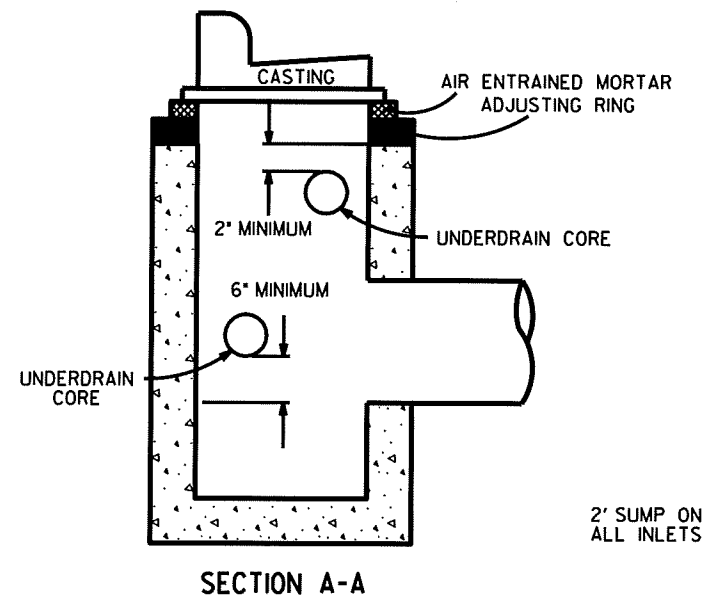
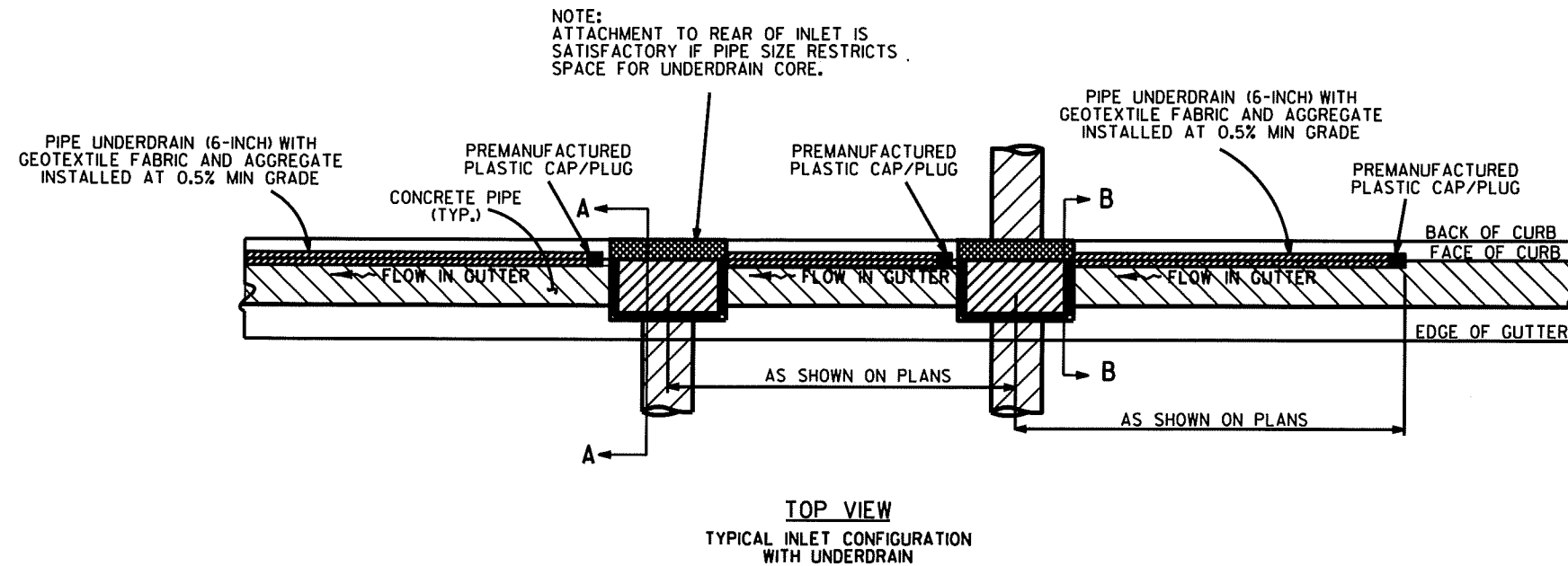
CULVERT PIPE CHECK



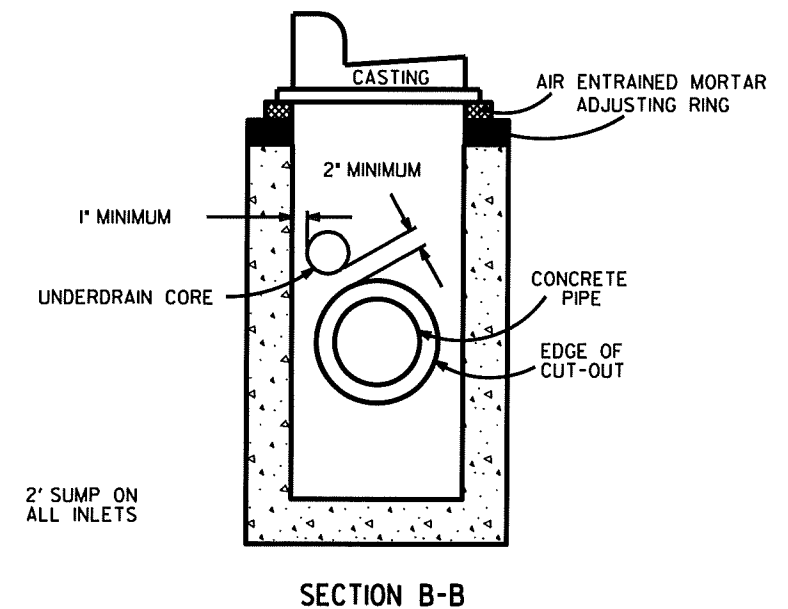
SEDIMENT BASIN



EROSION MAT TREATMENT AT CULVERTS



NOTE: PAYMENT FOR UNDERDRAIN CORE HOLES IS INCLUDED IN THE RESPECTIVE INLET BID ITEM.



- NOTE:
- (1) BOTTOM OF CORE PLACED A MINIMUM OF 6" ABOVE THE INVERT OF THE CROSS PIPE.
 - (2) TOP OF CORE HOLES WILL BE A MINIMUM OF 2" BELOW THE TOP OF THE INLET STRUCTURES (BOTTOM OF RINGS)
 - (3) DRAIN TILES SHALL NOT BE ALLOWED IN THE RING OF THE STRUCTURE OF INLETS OR SEWER ACCESS STRUCTURES

CROSS-SECTION VIEW
TYPICAL INLET CONFIGURATION WITH UNDERDRAIN CORED INTO WALL WITH CROSSPIPE ONLY

- NOTE:
- (1) CORE HOLES SHALL PROVIDE FOR A MINIMUM OF 2" OF CONCRETE BETWEEN THE CUTOUT FOR A CONCRETE PIPE AND THE EDGE OF THE CORE HOLE.
 - (2) CORE HOLES MAY HAVE 0" CLEARANCE FROM THE INSIDE WALLS OF A STRUCTURE.

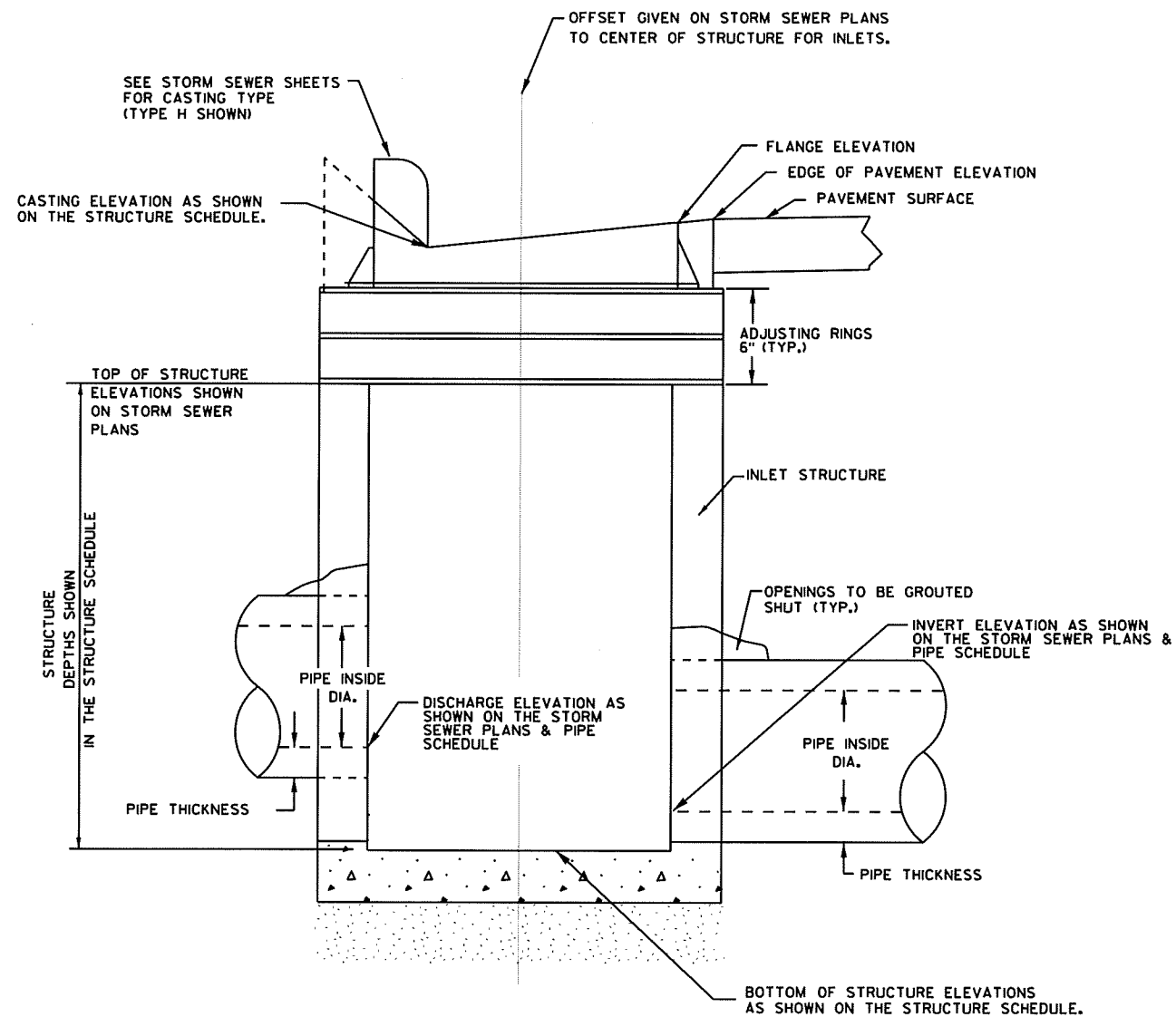
CROSS-SECTION VIEW
TYPICAL INLET IN SUMP CONDITION WITH UNDERDRAIN CORED INTO WALL WITH PIPE

UNDERDRAIN PIPE

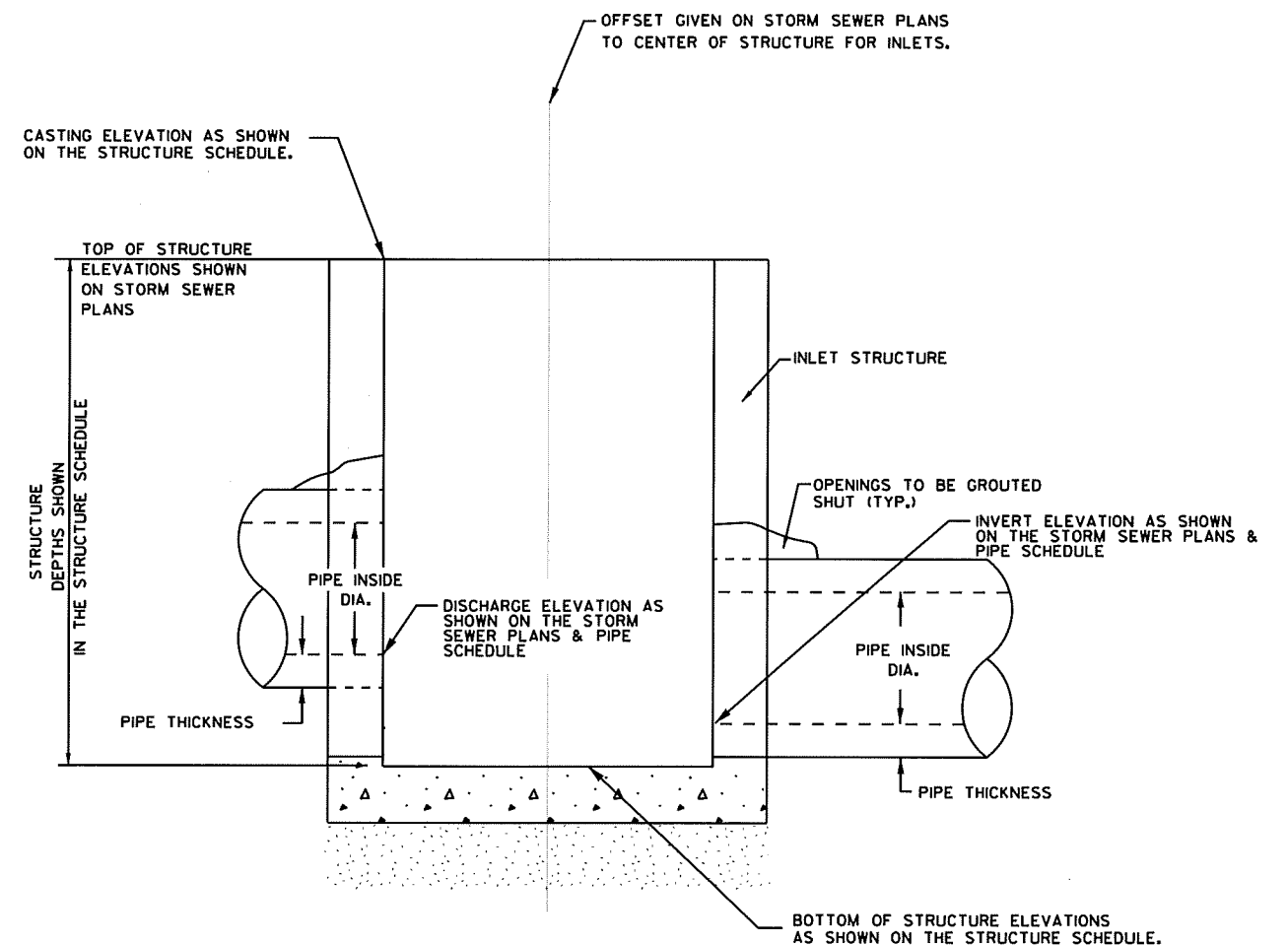
GENERAL NOTES:

GRANULAR BACKFILL REQUIRED AROUND INLET
(INCIDENTAL TO CONSTRUCTION OF INLET)

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT
SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT
REQUIREMENTS OF THE STANDARD SPECIFICATIONS, APPLICABLE
SPECIAL PROVISIONS, AND S.D.D. FOR INLETS TYPE 1, 2, 3 & 4.



DETAIL OF INLET W/CASTING



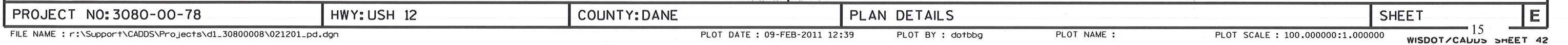
DETAIL OF TYPE 8&9 INLET

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	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT						.70 - .95						
CONCRETE						.80 - .95						
BRICK						.70 - .80						
DRIVES, WALKS						.75 - .85						
ROOFS						.75 - .95						
GRAVEL ROADS, SHOULDERS						.40 - .60						

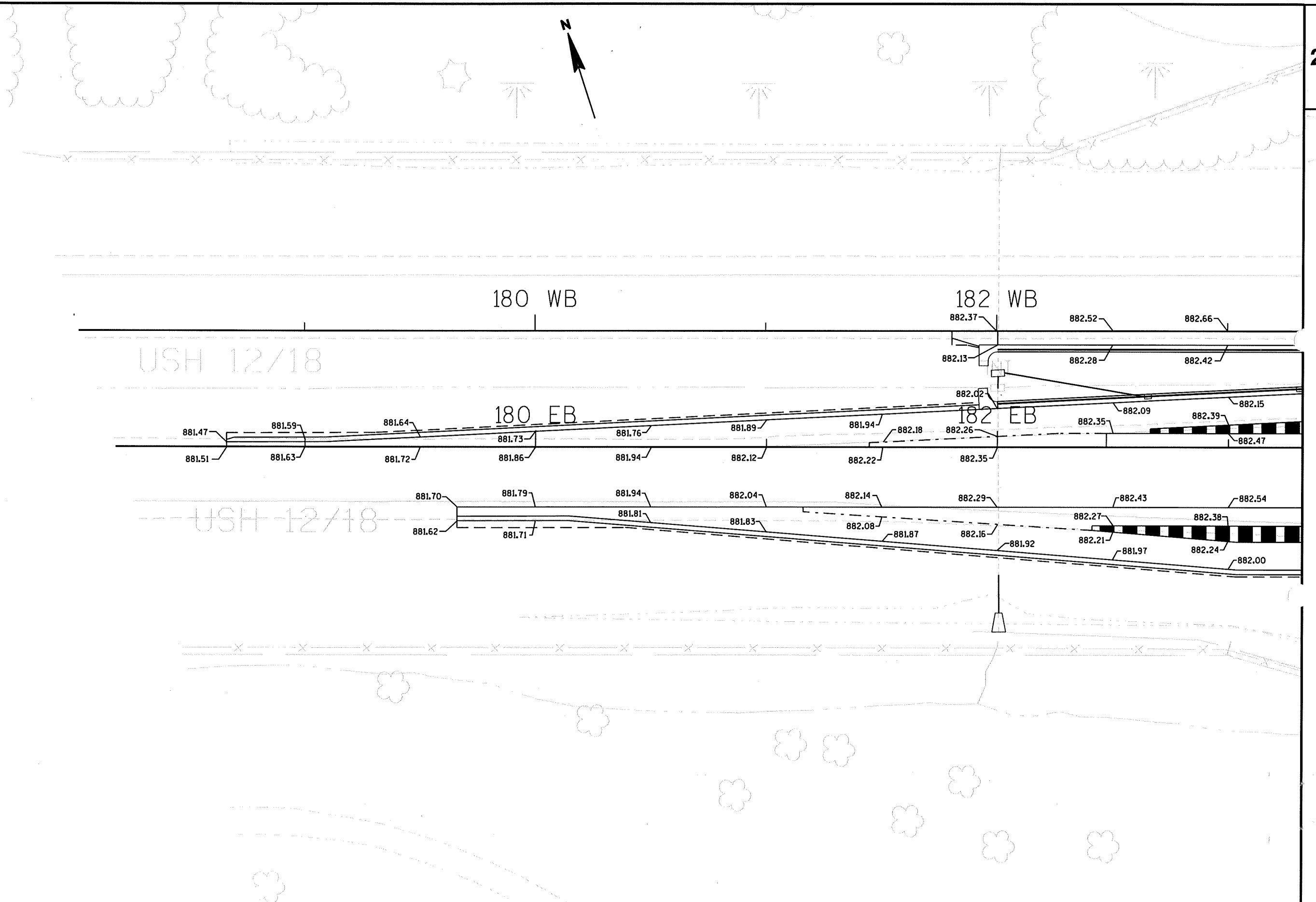
TOTAL PROJECT AREA = 9.26 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 2.60 ACRES

2 |



2

2



PROJECT NO: 3080-00-78

HWY: USH 12

COUNTY: DANE

PAVEMENT GRADES & JOINTS

SHEET

E

FILE NAME : r:\Support\CADDS\Projects\d1_30800008\021301_.jd.dgn

PLOT DATE : 09-FEB-2011 12:39

PLOT BY : dotbbg

PLOT NAME :

PLOT SCALE : 40.000000:1.000000

WISDOT/CADDS SHEET 42

2

2

- ① STA. 185+80.42 EB, 35.77' RT. - R.=80'
- ② STA. 185+80.37 EB, 113.22' LT, R.=80'
- ③ STA. 186+25.42 EB, 63.00' LT, R.=80'
- ④ STA. 187+25.42 EB, 86.00' LT, R.=80'

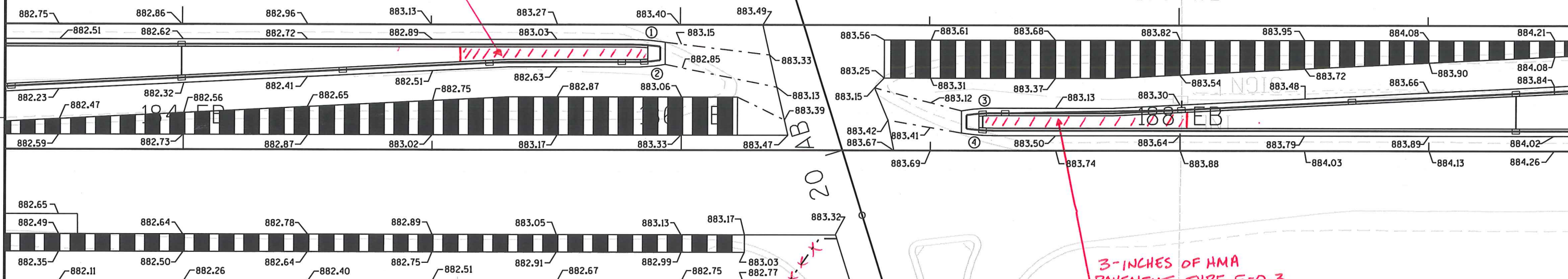
3-INCHES OF HMA
PAVEMENT TYPE E-D.3

STA. 186+97.70 EB, 153.22' LT,
R. = 50'

184 WB

186 WB

188 WB



PROJECT NO: 3080-00-78

HWY: USH 12

COUNTY: DANE

PAVEMENT GRADES & JOINTS

SHEET

E

FILE NAME : r:\Support\CADD\Projects\d1_30800008\021302_jd.dgn

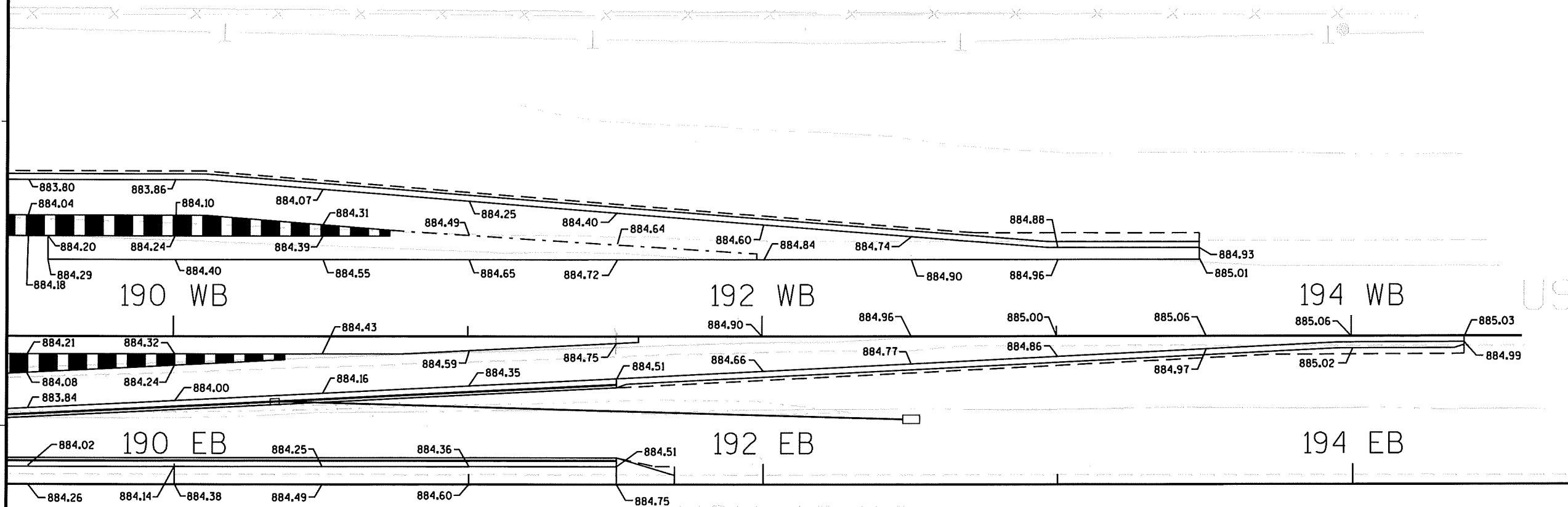
PLOT DATE : 09-FEB-2011 12:40

PLOT BY : dotbbg

PLOT NAME :

PLOT SCALE : 40.000000:1.000000

WISDOT/CADD SHEET 42

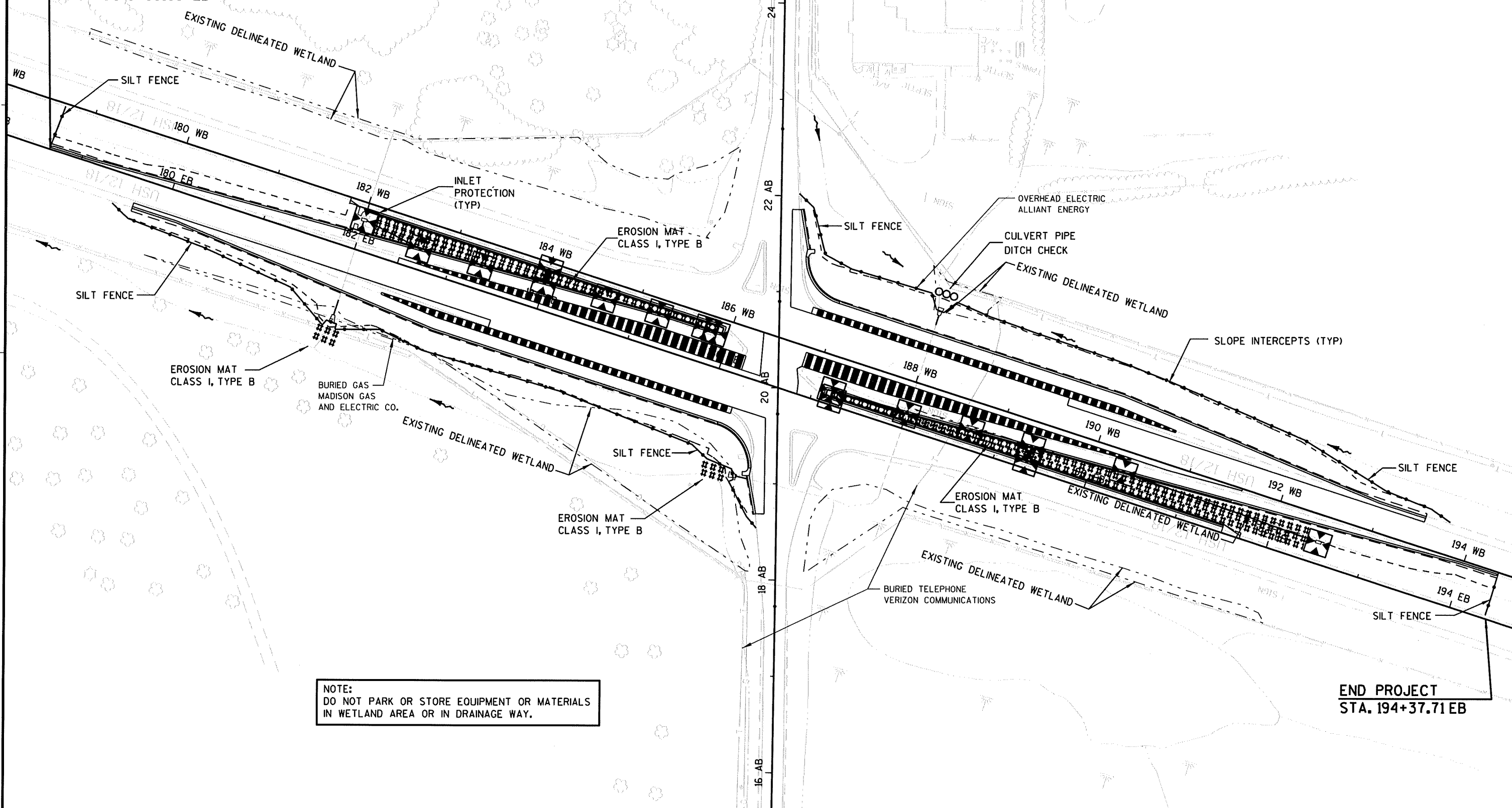


NOTS

2

2

BEGIN PROJECT
STA. 178+65.85 EB



NOTE:
DO NOT PARK OR STORE EQUIPMENT OR MATERIALS
IN WETLAND AREA OR IN DRAINAGE WAY.

END PROJECT
STA. 194+37.71 EB

PROJECT NO: 3080-00-78

HWY: USH 12

COUNTY: DANE

EROSION CONTROL

SHEET

E

FILE NAME : r:\Support\CADD\Projects\d1_30800008\022001_ec.dgn

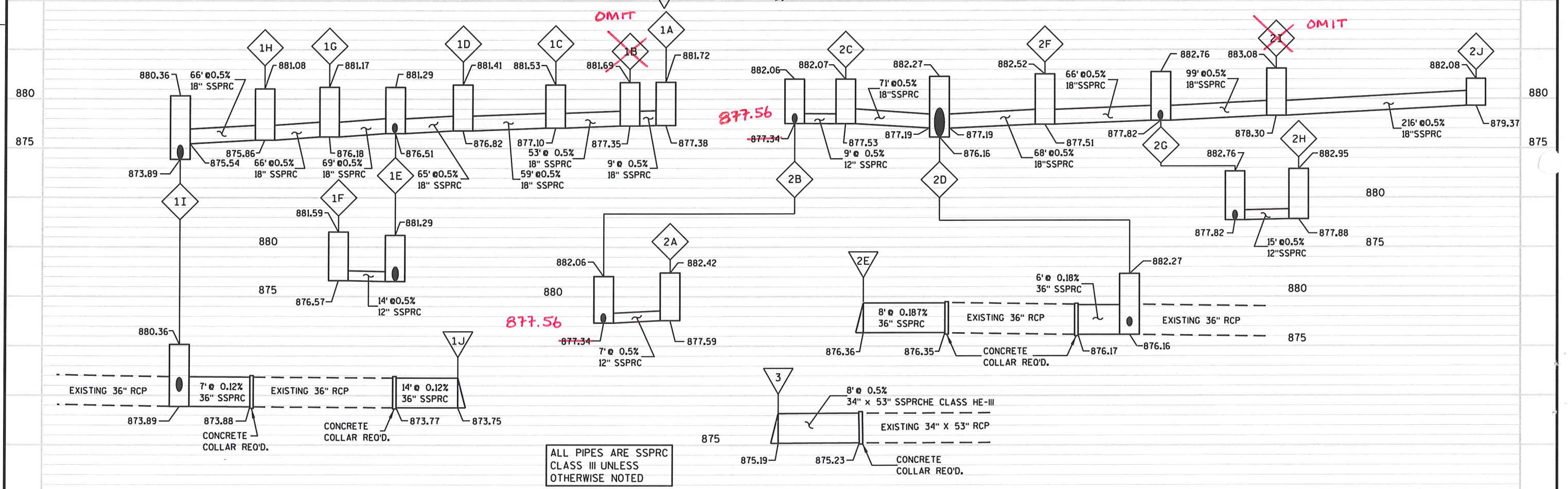
PLOT DATE : 09-FEB-2011 12:40

PLOT BY : dotbbg

PLOT NAME :

PLOT SCALE : 100.000000:1.000000

19
WISDOT/CADD SHEET 42



(I-1)
ROAD TO
Lake Kegonsa
State Park
1 MILE
D7-52
66" X 42"

← 1/2 MILE
(CHANGED DUE TO TOO MANY
EXISTING SIGNS AT PROPOSED
LOCATION.)

(I-4)
Lake Kegonsa
State Park
D7-53R
66" X 36"

(I-5)
LEFT
TURN
LANE
R3-55L
36" X 48"

(I-6)
LEFT
TURN
LANE
R3-56
36" X 48"

(I-7)
SPEED
LIMIT
55
R2-1
36" X 48"

(I-8)
WRONG
WAY
R5-1A
42" X 30"

(I-9)
ONE
WAY
R6-2L
24" X 30"

(I-10)
12
18
JVI3-2
24" X 69"

EXISTING SIGN
TO REMAIN

EXISTING SIGN
TO REMAIN

REMOVE

REMOVE AND
REPLACE
STOP
R1-1
36" X 36"

(I-15)
DO NOT
ENTER
R5-1
36" X 36"

(I-13)
R4-7
36" X 48"

REMOVE

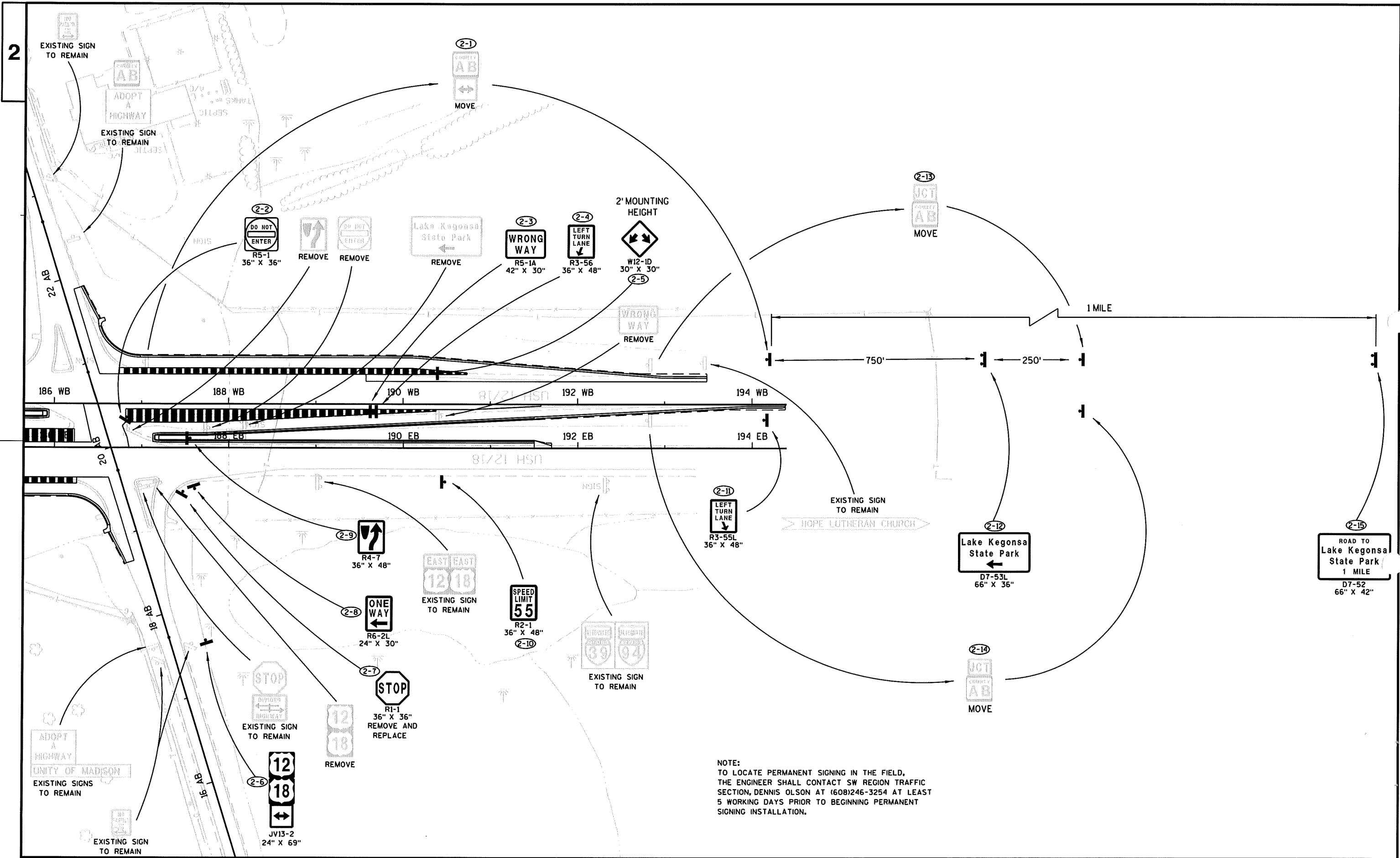
REMOVE

REMOVE
Lake Kegonsa
State Park

(I-14)
COUNTY
AB
MOVE

EXISTING SIGN
TO REMAIN

NOTE:
TO LOCATE PERMANENT SIGNING IN THE FIELD,
THE ENGINEER SHALL CONTACT SW REGION TRAFFIC
SECTION, DENNIS OLSON AT (608)246-3254 AT LEAST
5 WORKING DAYS PRIOR TO BEGINNING PERMANENT
SIGNING INSTALLATION.



PROJECT NO:3080-00-78

HWY: USH 12

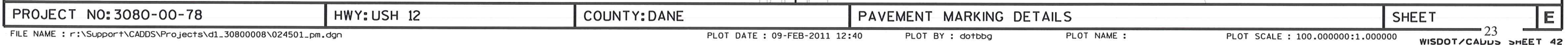
COUNTY:DANE

PERMANENT SIGNING

SHEET

E

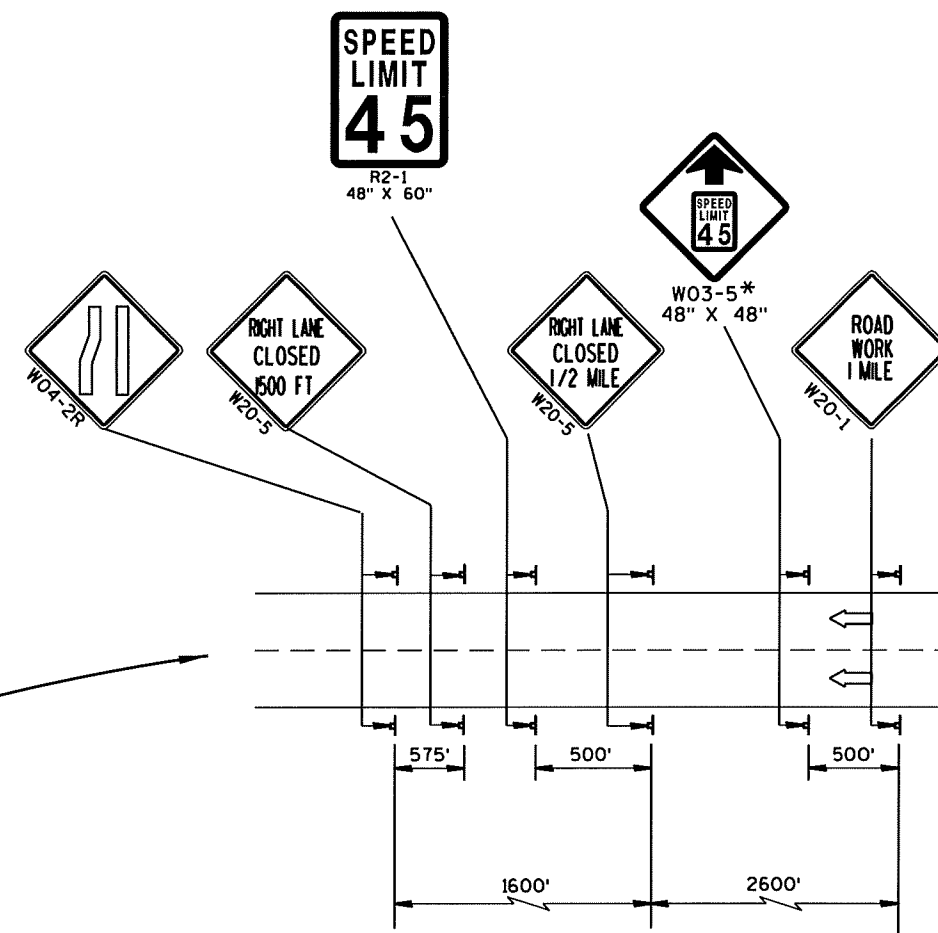
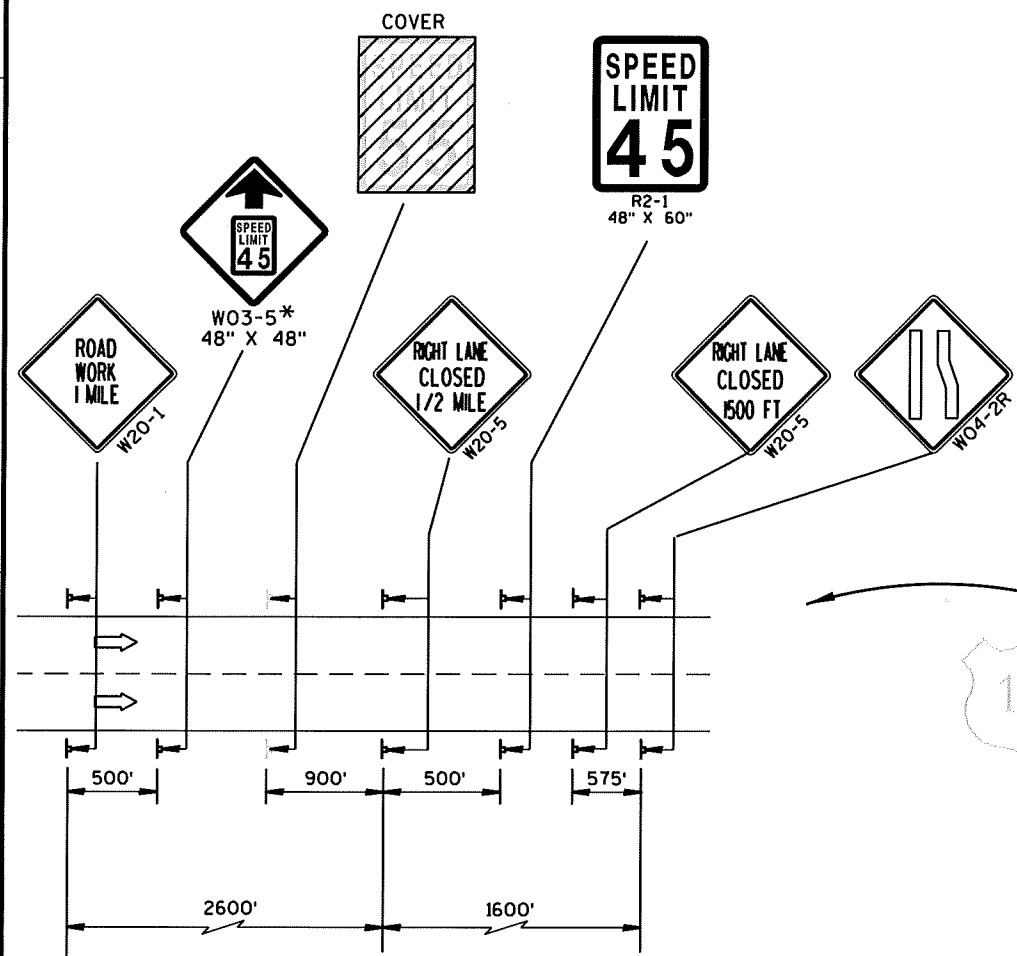
2



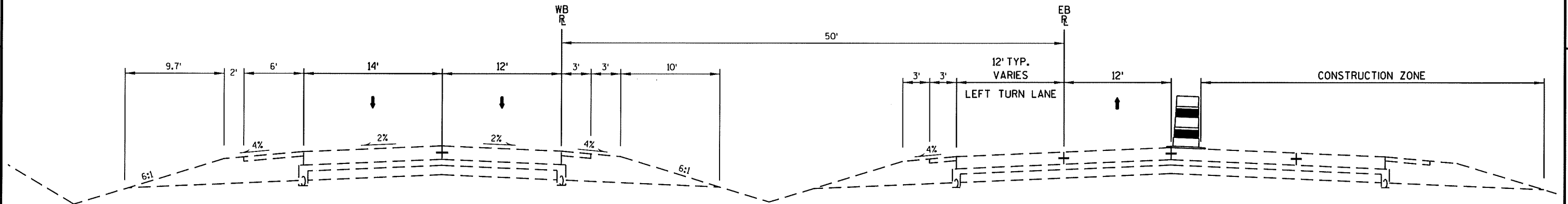
SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H." FOR EXACT LOCATIONS.



PROJECT LOCATION

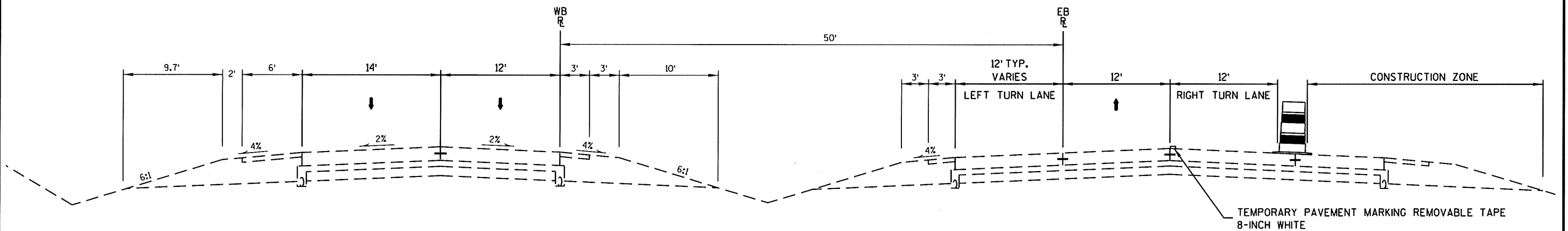


*R2-5A (48"X60") WITH W13-1W (36"X36")
MAY BE USED IN LIEU OF THE W03-5 SIGN



STAGE 1 CONSTRUCTION STAGING TYPICAL SECTION

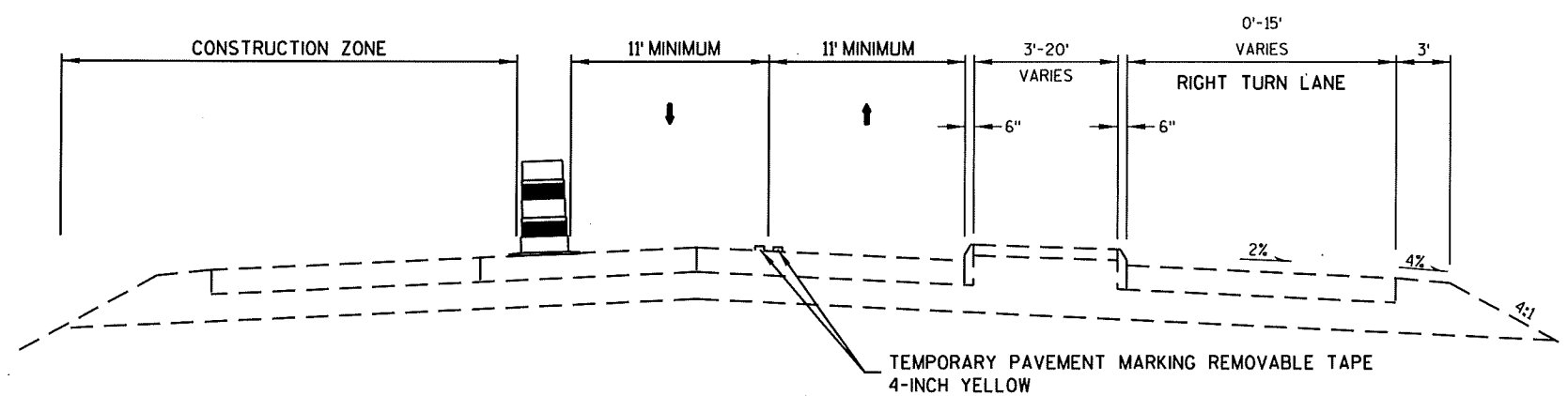
USH 12/18
STA. 178+66 - STA. 183+62
REVERSE FOR STA. 186+78 - STA. 189+56



STAGE 1 CONSTRUCTION STAGING TYPICAL SECTION

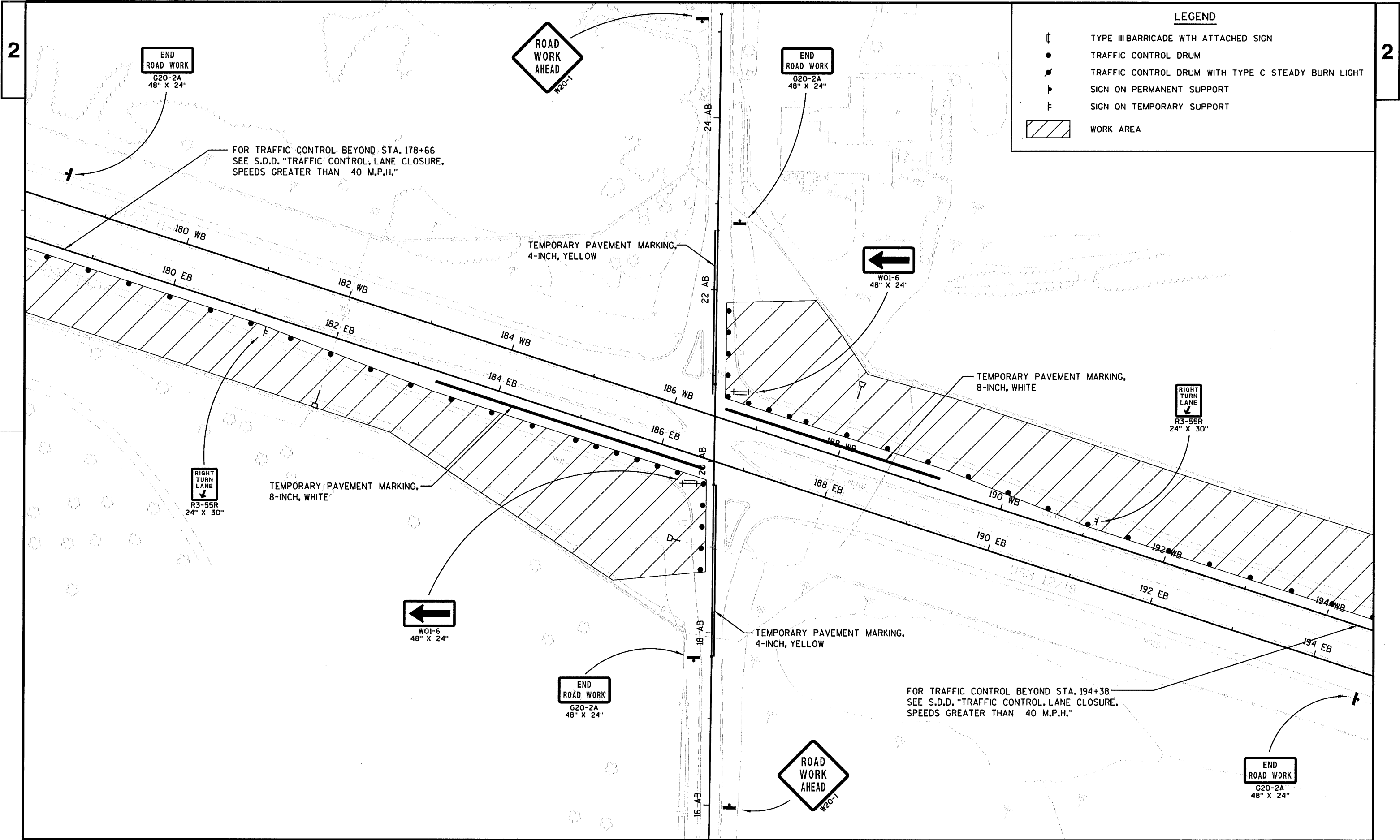
USH 12/18
STA. 183+62 - STA. 186+23
REVERSE FOR STA. 186+78 - STA. 189+56

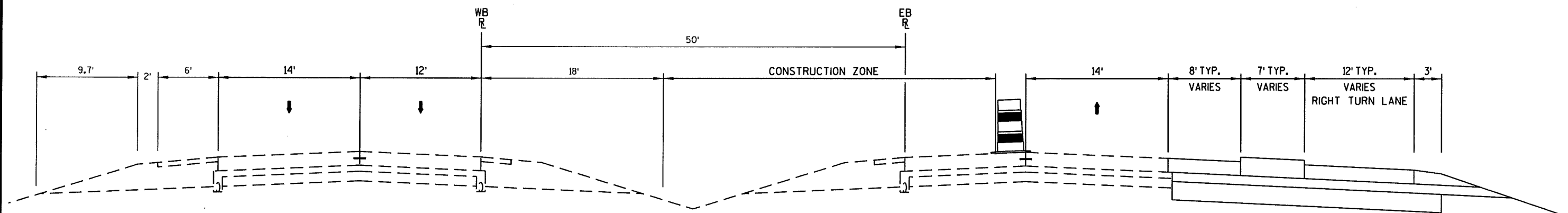
TEMPORARY PAVEMENT MARKING REMOVABLE TAPE
8-INCH WHITE



STAGE 1 CONSTRUCTION STAGING TYPICAL SECTION

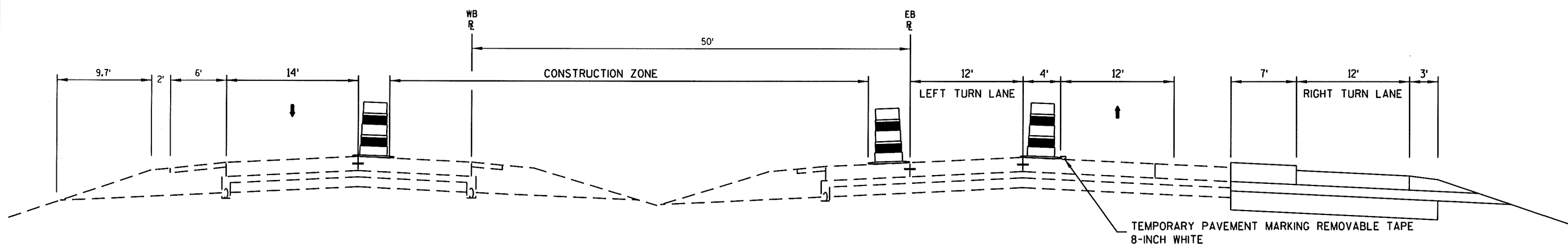
CTH AB
STA. 18+70 - STA. 19+72
REVERSE FOR STA. 20+90 - 21+95





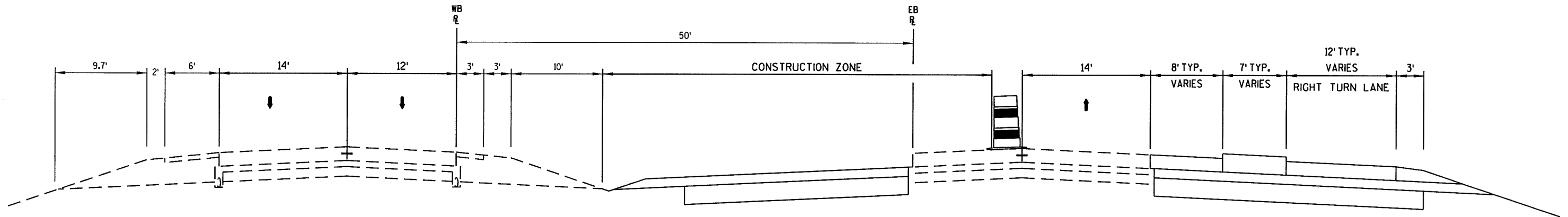
STAGE 2A CONSTRUCTION STAGING TYPICAL SECTION

USH 12/18
STA. 178+66 - STA. 183+79
REVERSE FOR STA. 189+54 - STA. 194+38



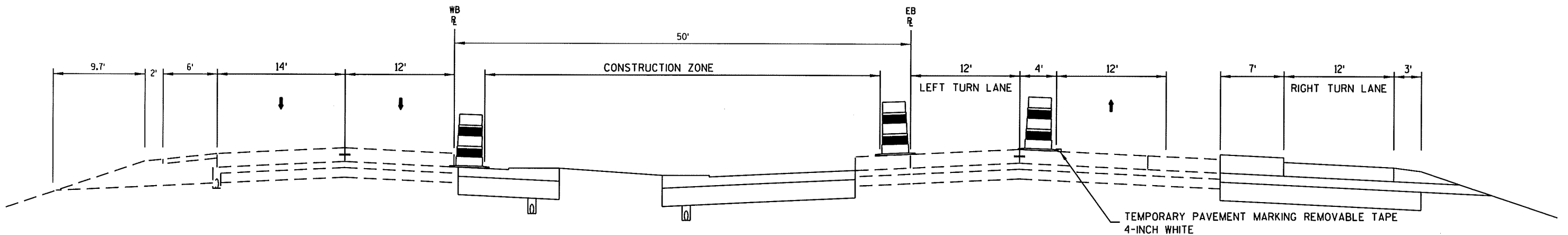
STAGE 2A CONSTRUCTION STAGING TYPICAL SECTION

USH 12/18
STA. 183+79 - STA. 186+23
REVERSE FOR STA. 186+78 - STA. 189+54



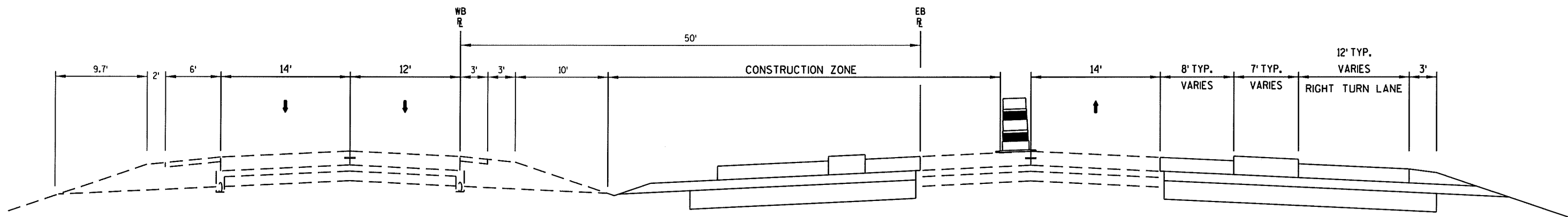
STAGE 2B CONSTRUCTION STAGING TYPICAL SECTION

USH 12/18
STA. 178+66 - STA. 183+79
REVERSE FOR STA. 189+54 - STA. 194+38



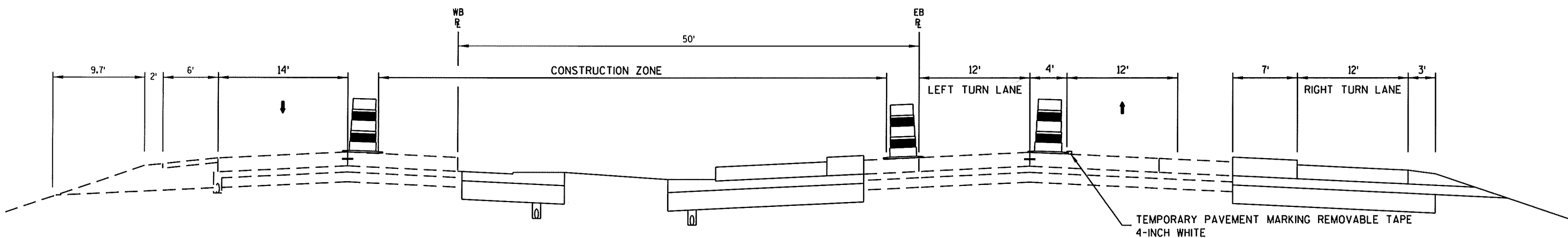
STAGE 2B CONSTRUCTION STAGING TYPICAL SECTION

USH 12/18
STA. 183+79 - STA. 186+23
REVERSE FOR STA. 186+78 - STA. 189+54



STAGE 2C CONSTRUCTION STAGING TYPICAL SECTION

USH 12/18
STA. 178+66 - STA. 183+79
REVERSE FOR STA. 189+54 - STA. 194+38



STAGE 2C CONSTRUCTION STAGING TYPICAL SECTION

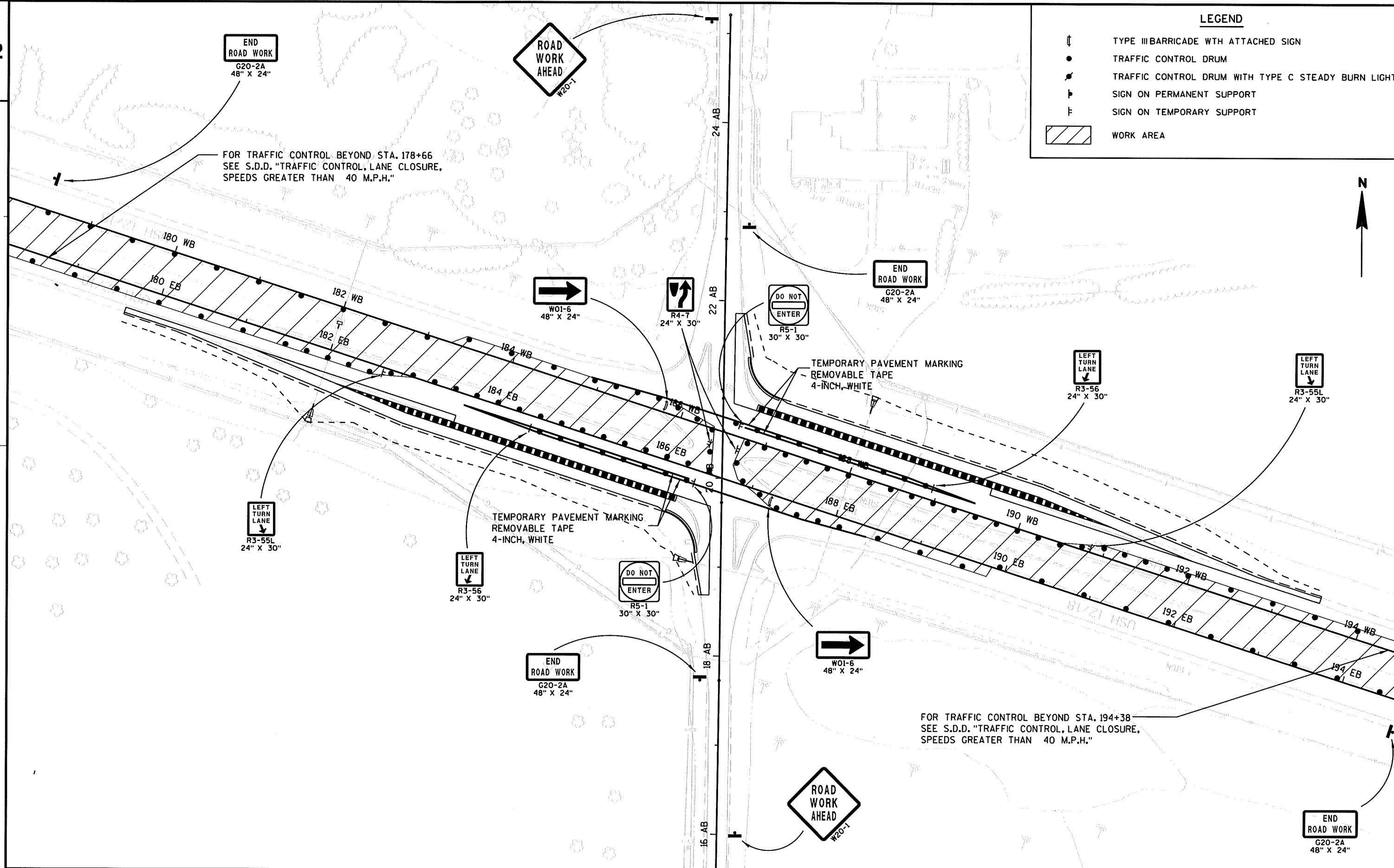
USH 12/18
STA. 183+79 - STA. 186+23
REVERSE FOR STA. 186+78 - STA. 189+54

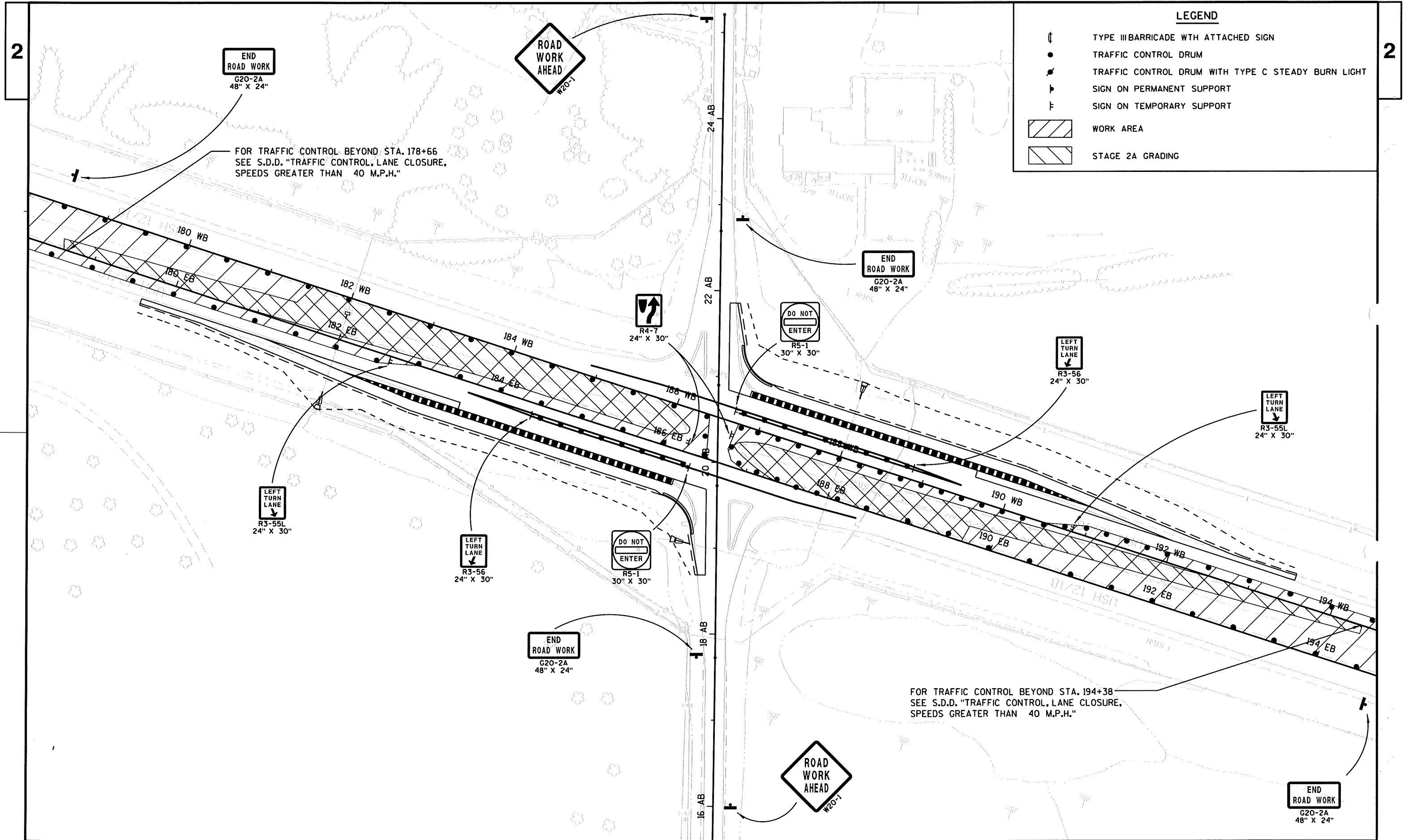
2

2

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- WORK AREA





2

2

LEGEND

- † TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- ⚡ TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⌋ SIGN ON PERMANENT SUPPORT
- ⌋ SIGN ON TEMPORARY SUPPORT
- ▨ WORK AREA

END
ROAD WORK
G20-2A
48" X 24"

ROAD
WORK
AHEAD
W20-1

FOR TRAFFIC CONTROL BEYOND STA. 178+66
SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE,
SPEEDS GREATER THAN 40 M.P.H."

W01-6
48" X 24"

R4-7
24" X 30"

END
ROAD WORK
G20-2A
48" X 24"

DO NOT
ENTER
R5-1
30" X 30"

TEMPORARY PAVEMENT MARKING
REMOVABLE TAPE, 4-INCH WHITE

LEFT
TURN
LANE
R3-56
24" X 30"

LEFT
TURN
LANE
R3-55L
24" X 30"

LEFT
TURN
LANE
R3-55L
24" X 30"

LEFT
TURN
LANE
R3-56
24" X 30"

DO NOT
ENTER
R5-1
30" X 30"

TEMPORARY PAVEMENT MARKING
REMOVABLE TAPE, 4-INCH WHITE

W01-6
48" X 24"

END
ROAD WORK
G20-2A
48" X 24"

ROAD
WORK
AHEAD
W20-1

FOR TRAFFIC CONTROL BEYOND STA. 194+38
SEE S.D.D. "TRAFFIC CONTROL, LANE CLOSURE,
SPEEDS GREATER THAN 40 M.P.H."

END
ROAD WORK
G20-2A
48" X 24"

PROJECT NO: 3080-00-78

HWY: USH 12

COUNTY: DANE

STAGE CONSTRUCTION - STAGE 2C

SHEET

E

FILE NAME : r:\Support\CADDS\Projects\d1_30800008\026103_s2.dgn

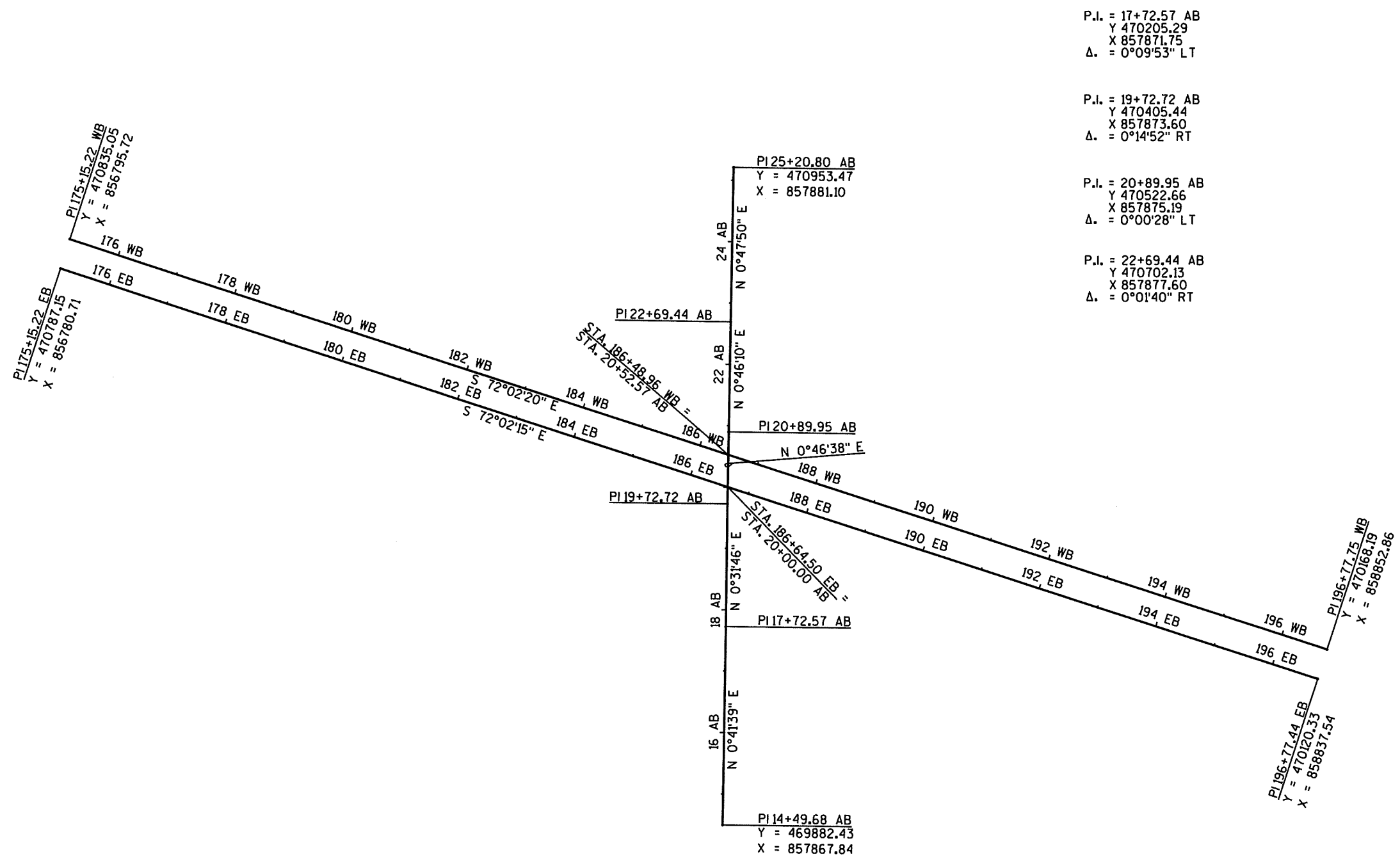
PLOT DATE : 09-FEB-2011 12:41

PLOT BY : dotbbg

PLOT NAME :

PLOT SCALE : 100.000000:1.000000

WISDOT/CADDS SHEET 42



3

DATE 18FEB11		ESTIMATE OF QUANTITIES			
LINE				3080-00-78	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	5.000	5.000
0020	204.0100	REMOVING PAVEMENT	SY	1,410.000	1,410.000
0030	204.0220	REMOVING INLETS	EACH	2.000	2.000
0040	205.0100	EXCAVATION COMMON	CY	4,888.000	4,888.000
0050	213.0100	FINISHING ROADWAY (PROJECT) 01. 3080-00-78	EACH	1.000	1.000
0060	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	722.000	722.000
0070	310.0110	BASE AGGREGATE OPEN GRADED	TON	2,650.000	2,650.000
0080	312.0110	SELECT CRUSHED MATERIAL	TON	4,690.000	4,690.000
0090	415.0090	CONCRETE PAVEMENT 9-INCH	SY	4,915.000	4,915.000
0100	415.2000.S	INCENTIVE STRENGTH CONCRETE PAVEMENT	DOL	2,465.000	2,465.000
0110	415.6000.S	ROUTE AND SEAL	LF	2,060.000	2,060.000
0120	416.0610	DRILLED TIE BARS	EACH	1,341.000	1,341.000
0130	416.0620	DRILLED DOWEL BARS	EACH	123.000	123.000
0140	455.0105	ASPHALTIC MATERIAL PG58-28	TON	4.300	4.300
0150	460.1100	HMA PAVEMENT TYPE E-0.3	TON	79.000	79.000
0160	465.0315	ASPHALTIC FLUMES	SY	24.000	24.000
0170	520.8000.S	CULVERT PIPE CONCRETE COLLAR	EACH	5.000	5.000
0180	522.1036	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH	EACH	2.000	2.000
0190	523.0534	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 34X53-INCH	EACH	1.000	1.000
0200	601.0555	CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE A	LF	1,752.000	1,752.000
0210	608.0312	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH	LF	39.000	39.000
0220	608.0318	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH	LF	898.000	898.000
0230	608.0336	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 36-INCH	LF	35.000	35.000
0240	610.0134	STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 34X53-INCH	LF	8.000	8.000
0250	611.0107	CATCH BASINS TYPE 5	EACH	1.000	1.000
0260	611.0303	INLETS TYPE 3	EACH	15.000	15.000
0270	611.0305	INLETS TYPE 8	EACH	1.000	1.000
0280	611.0307	INLETS TYPE 9	EACH	1.000	1.000
0290	611.0627	INLET COVERS TYPE HM	EACH	16.000	16.000
0300	611.9710	SALVAGED INLET COVERS	EACH	3.000	3.000
0310	611.9800.S	PIPE GRATES	EACH	1.000	1.000
0320	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	71.000	71.000
0330	612.0806	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH	EACH	2.000	2.000
0340	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 3080-00-78	EACH	1.000	1.000
0350	619.1000	MOBILIZATION	EACH	1.000	1.000
0360	620.0100	CONCRETE CORRUGATED MEDIAN	SF	12,530.000	12,530.000
0370	620.0300	CONCRETE MEDIAN SLOPED NOSE	SF	140.000	140.000
0380	624.0100	WATER	MGAL	30.000	30.000
0390	625.0500	SALVAGED TOPSOIL	SY	4,420.000	4,420.000
0400	627.0200	MULCHING	SY	3,050.000	3,050.000
0410	628.1504	SILT FENCE	LF	1,871.000	1,871.000
0420	628.1520	SILT FENCE MAINTENANCE	LF	1,871.000	1,871.000
0430	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	2.000	2.000
0440	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	1.000	1.000

3

3

DATE 18FEB11		ESTIMATE OF QUANTITIES			
LINE				3080-00-78	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0450	628.2004	EROSION MAT CLASS I TYPE B	SY	1,365.000	1,365.000
0460	628.7005	INLET PROTECTION TYPE A	EACH	2.000	2.000
0470	628.7015	INLET PROTECTION TYPE C	EACH	13.000	13.000
0480	628.7020	INLET PROTECTION TYPE D	EACH	3.000	3.000
0490	628.7555	CULVERT PIPE CHECKS	EACH	1.000	1.000
0500	629.0210	FERTILIZER TYPE B	CWT	5.000	5.000
0510	630.0130	SEEDING MIXTURE NO. 30	LB	110.000	110.000
0520	633.5200	MARKERS CULVERT END	EACH	6.000	6.000
0530	634.0612	POSTS WOOD 4X6-INCH X 12-FT	EACH	2.000	2.000
0540	634.0616	POSTS WOOD 4X6-INCH X 16-FT	EACH	22.000	22.000
0550	634.0618	POSTS WOOD 4X6-INCH X 18-FT	EACH	2.000	2.000
0560	637.0202	SIGNS REFLECTIVE TYPE II	SF	249.860	249.860
0570	638.2102	MOVING SIGNS TYPE II	EACH	6.000	6.000
0580	638.2602	REMOVING SIGNS TYPE II	EACH	14.000	14.000
0590	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	12.000	12.000
0600	638.4000	MOVING SMALL SIGN SUPPORTS	EACH	6.000	6.000
0610	642.5401	FIELD OFFICE TYPE D	EACH	1.000	1.000
0620	643.0100	TRAFFIC CONTROL (PROJECT) 01. 3080-00-78	EACH	1.000	1.000
0630	643.0300	TRAFFIC CONTROL DRUMS	DAY	7,324.000	7,324.000
0640	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	64.000	64.000
0650	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	128.000	128.000
0660	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	1,274.000	1,274.000
0670	643.0800	TRAFFIC CONTROL ARROW BOARDS	DAY	196.000	196.000
0680	643.0900	TRAFFIC CONTROL SIGNS	DAY	1,806.000	1,806.000
0690	643.0905.S	TRAFFIC CONTROL COVERING SIGNS	EACH	2.000	2.000
0700	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	3,651.000	3,651.000
0710	646.0126	PAVEMENT MARKING EPOXY 8-INCH	LF	2,755.000	2,755.000
0720	646.0600	REMOVING PAVEMENT MARKINGS	LF	2,480.000	2,480.000
0730	647.0456	PAVEMENT MARKING CURB EPOXY	LF	24.000	24.000
0740	647.0606	PAVEMENT MARKING ISLAND NOSE EPOXY	EACH	2.000	2.000
0750	649.0400	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH	LF	4,560.000	4,560.000
0760	649.0801	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 8-INCH	LF	595.000	595.000
0770	650.4000	CONSTRUCTION STAKING STORM SEWER SYSTEM	EACH	21.000	21.000
0780	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	4,075.000	4,075.000
0790	650.7000	CONSTRUCTION STAKING CONCRETE PAVEMENT	LF	4,075.000	4,075.000
0800	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 3080-00-78	LS	1.000	1.000
0810	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	4,075.000	4,075.000
0820	690.0150	SAWING ASPHALT	LF	24.000	24.000
0830	690.0250	SAWING CONCRETE	LF	2,585.000	2,585.000
0840	SPV.0045	SPECIAL 01. PORTABLE CHANGEABLE MESSAGE SIGN	DAY	98.000	98.000
0850	SPV.0060	SPECIAL 01. END PLUG FOR EXISTING UNDERDRAIN	EACH	6.000	6.000
0860	SPV.0090	SPECIAL 01. PIPE UNDERDRAIN (6-INCH) WITH GEOTEXTILE FABRIC AND AGGREGATE	LF	1,580.000	1,580.000

3

3

EARTHWORK

205.0100									
GROUP CODE	STATION - STATION (A)	LOCATION (B)	EXCAVATION	UNUSABLE PAVEMENT INCLUDED IN	AVAILABLE	UNEXPANDED	EXPANDED	MASS	WASTE
			COMMON CY (C)	EXCAVATION COMMON CY (D)	MATERIAL CY (E)	FILL CY (F)	FILL CY (G)	ORDINATE CY (H)	CY (I)
0010									
STAGE 1									
	179+66 - 193+50	USH 12	1,694	165	1,529	1,067	1,280	249	414
	18+68 - 21+86	CTH AB	402	80	322	63	76	246	326
STAGE 1 SUBTOTAL			2,096	245	1,851	1,130	1,356	495	740
STAGE 2									
	178+66 - 194+38	USH 12	2792	235	2,557	488	586	1,971	2,206
STAGE 2 SUBTOTAL			2792	235	2557	488	586	1971	2206
PROJECT TOTAL			4,888	480	4,408	1,618	1,942	2,466	2,946

FILL EXPANSION FACTOR = 1.20

(D) UNUSABLE PAVEMENT INCLUDED IN THE EXCAVATION COMMON INCLUDES 350 CY OF CONCRETE PAVEMENT REMOVAL, PAID FOR UNDER SEPARATE REMOVAL ITEM, AND 130 CY OF ASPHALTIC SURFACE REMOVAL

(E) AVAILABLE MATERIAL = C - D

(G) EXPANDED FILL = F x 1.20

(H) MASS ORDINATE = E - G

(I) WASTE = D + H

PIPE REMOVAL

			203.0100	204.0220
GROUP			REMOVING SMALL	REMOVING
CODE	STATION	LOCATION	PIPE CULVERTS	INLETS
			EACH	EACH
010				
STAGE 1	182+00 EB	RT	1	-
	188+00 WB	LT	1	-
	19+00 AB	LT	1	-
STAGE 2A	182+00 EB	LT	1	1
	188+00 EB	LT	1	1
TOTAL			5	2

REMOVING PAVEMENT

				204.0100
				REMOVING
				PAVEMENT
GROUP				
CODE	STATION - STATION		LOCATION	SY
010				
STAGE 1	181+68 EB	186+26 EB	RT	200
	18+68 AB	19+79 AB	LT	180
	20+78 AB	21+86 AB	RT	150
	186+74 WB	191+78 WB	LT	180
STAGE 2A	181+00 EB	186+43 EB	LT	400
	186+77 EB	187+37 EB	LT	50
	186+81 WB	192+60 WB	RT	250
TOTAL				1,410

BASE COURSE ITEMS

GROUP CODE	STATION - STATION	LOCATION	305.0110	310.0110	312.0110	
			BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE OPEN GRADED TON	SELECT CRUSHED MATERIAL TON	
010						
STAGE 1	179+66 EB	186+26 EB	RT	230	530	860
	186+74 WB	193+48 WB	LT	240	550	900
	18+69 AB	19+68 AB	LT	12	85	160
	20+85 AB	21+86 AB	RT	12	75	140
STAGE 2A	178+66 EB	186+43 EB	LT	120	560	1020
	186+77 WB	194+38 WB	RT	100	520	960
	182+00 WB	186+38 WB	RT	4	160	310
	186+77 EB	191+50 EB	LT	4	170	340
TOTAL			722	2,650	4,690	

CONCRETE PAVEMENT

			415.0090
			CONCRETE
			PAVEMENT
GROUP			9-INCH
CODE	STATION - STATION	LOCATION	SY
010			
STAGE 1	179+66 EB	186+26 EB	RT
	186+74 WB	193+48 WB	LT
	18+69 AB	19+68 AB	LT
	20+85 AB	21+86 AB	RT
STAGE 2B	178+66 EB	186+43 EB	LT
	186+77 WB	194+38 WB	RT
STAGE 2C	182+00 WB	186+38 WB	RT
	186+77 EB	191+50 EB	LT
TOTAL			4915

INCENTIVE

415.2000.S			
GROUP	INCENTIVE STRENGTH		
CODE	STATION - STATION	LOCATION	CONCRETE PAVEMENT
			DOL
010			
STAGE 1	179+66 EB	186+26 EB	RT
	186+74 WB	193+48 WB	LT
	18+69 AB	19+68 AB	LT
	20+85 AB	21+86 AB	RT
STAGE 2B	178+66 EB	186+43 EB	LT
	186+77 WB	194+38 WB	RT
STAGE 2C	182+00 WB	186+38 WB	RT
	186+77 EB	191+50 EB	LT
TOTAL			2465

PROJECT NO: 3080-00-78

HWY: USH 12

COUNTY: DANE

MISCELLANEOUS QUANTITIES

SHEET

E

3

ROUT AND SEAL

GROUP CODE	STATION - STATION		LOCATION	415.6000.S	
				ROUT AND SEAL	LF
010					
STAGE 1	179+66 EB	186+16 EB	RT		650
	18+69 AB	19+08 AB	LT		48
	21+45 AB	21+86 AB	RT		50
	186+98 WB	193+48 WB	LT		650
STAGE 2C	191+50 EB	191+70 EB	LT		20
	181+80 WB	182+00 WB	RT		17
	191+50 WB	194+38 WB	RT		290
	178+66 EB	182+00 EB	LT		335
TOTAL					2060

ASPHALT FLUMES

GROUP CODE	STATION	LOCATION	465.0315
			ASPHALTIC FLUMES SY
010			
STAGE 1	19+16 AB	LT	6
	21+37 AB	RT	6
STAGE 2C	182+00 EB	LT	6
	182+00 WB	RT	6
TOTAL			24

3

DRILLED BARS

GROUP CODE	STATION - STATION		LOCATION	416.0610	416.0620
				DRILLED TIE BARS EACH	DRILLED DOWEL BARS EACH
010					
STAGE 1	179+66 EB	186+62 EB	RT	232	7
	186+51 WB	193+48 WB	LT	232	7
	18+69 AB	19+68 AB	LT	33	8
	20+85 AB	21+86 AB	RT	33	8
STAGE 2B	178+66 EB	186+43 EB	LT	259	37
STAGE 2C	186+77 WB	194+38 WB	RT	253	34
	182+00 WB	186+33 WB	RT	144	11
	186+83 EB	191+50 EB	LT	155	11
TOTAL				1341	123

CONCRETE STORM SEWER

GROUP CODE	STATION - STATION		LOCATION	STORM SEWER PIPE REINFORCED CONCRETE (SSPRC)					APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE			
				520.8000.S CONCRETE COLLAR EACH	608.0312 CLASS III 12-INCH LF	608.0318 CLASS III 18-INCH LF	608.0336 CLASS III 36-INCH LF	610.0134 CLASS HE-III 34X53-INCH LF	522.1036 36-INCH EACH	523.0534 HORIZONTAL ELLIPTICAL 34X53-INCH EACH	611.9800.S PIPE GRATES EACH	633.5200 MARKERS CULVERT END EACH
0010												
STAGE 1	182+00 EB		RT	1	-	-	14	-	1	-	-	1
	182+00 WB		LT	-	-	-	-	-	-	-	-	1
	188+00 EB		RT	-	-	-	-	-	-	-	-	1
	188+00 WB		LT	1	-	-	8	-	1	-	-	1
STAGE 2A	19+00 AB		LT	1	-	-	-	8	-	1	1	1
	19+00 AB		RT	-	-	-	-	-	-	-	-	1
	182+00 EB		LT	1	-	-	7	-	-	-	-	-
	182+00 EB	182+65 EB	LT	-	-	66	-	-	-	-	-	-
	182+65 EB	183+31 EB	LT	-	-	66	-	-	-	-	-	-
	183+31 EB	183+99 EB	LT	-	-	69	-	-	-	-	-	-
	183+99 EB		LT	-	14	-	-	-	-	-	-	-
	183+99 EB	184+64 EB	LT	-	-	65	-	-	-	-	-	-
	184+64 EB	185+23 EB	LT	-	-	59	-	-	-	-	-	-
	185+23 EB	185+76 EB	LT	-	-	53	-	-	-	-	-	-
	185+76 EB	185+85 EB	LT	-	9	-	-	-	-	-	-	-
	187+21 EB		RT	-	7	-	-	-	-	-	-	-
	187+21 EB	187+30 EB	LT	-	9	-	-	-	-	-	-	-
	187+30 EB	188+01 EB	LT	-	-	71	-	-	-	-	-	-
	188+01 EB		LT	1	-	-	6	-	-	-	-	-
	188+01 EB	188+69 EB	LT	-	-	68	-	-	-	-	-	-
	188+69 EB	189+35 EB	LT	-	-	66	-	-	-	-	-	-
	189+35 EB	190+35 EB	LT	-	-	99	-	-	-	-	-	-
	190+35 EB	192+50 EB	LT	-	-	216	-	-	-	-	-	-
TOTAL				5	39	898	35	8	2	1	1	6

ASPHALTIC ITEMS

GROUP CODE	STATION - STATION		LOCATION	455.0105	460.1100
				ASPHALTIC MATERIAL PG58-28 TON	HMA PAVEMENT TYPE E-0.3 TON
010					
STAGE 1	179+66 EB	186+16 EB	RT	1.3	24
	18+69 AB	19+08 AB	LT	0.1	2
	21+45 AB	21+86 AB	RT	0.1	2
	186+98 WB	193+48 WB	LT	1.3	24
STAGE 2C	191+50 EB	191+70 EB	LT	0.1	2
	181+80 WB	182+00 WB	RT	0.1	2
	191+50 WB	194+38 WB	RT	0.6	11
	178+66 EB	182+00 EB	LT	0.7	12
TOTAL				4.3	79

CURB & GUTTER

GROUP CODE	STATION - STATION		LOCATION	601.0555
				CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A LF
010				
STAGE 1	19+16 AB	19+62 AB	LT	61
	20+91 AB	21+37 AB	RT	61
STAGE 2C	182+00 EB	185+86 EB	LT	385
	182+00 WB	185+86 WB	RT	385
	187+19 EB	191+50 EB	LT	430
	187+19 WB	191+50 WB	RT	430
TOTAL				1752

CONCRETE MEDIAN ITEMS

GROUP CODE	STATION - STATION		LOCATION	620.0100	620.0300
				CONCRETE CORRUGATED MEDIAN SF	CONCRETE MEDIAN SLOPED NOSE SF
010					
STAGE 1	182+41 EB	186+26 EB	RT	2540	-
	186+74 WB	190+73 WB	LT	2640	-
STAGE 2B	182+66 EB	186+23 EB	LT	3680	-
	186+81 WB	190+37 WB	RT	3670	-
STAGE 2C	185+86 EB		LT	-	70
	187+19 WB		RT	-	70
TOTAL				12530	140

STRUCTURE SCHEDULE

GROUP CODE	STRUCTURE NO.	STATION	OFFSET TO CENTER OF STRUCTURE	CASTING ELEVATION	TOP OF STRUCTURE ELEVATION	BOTTOM OF STRUCTURE ELEVATION	DEPTH	611.0107	611.0303	611.0305	611.0307	611.0627	611.9710
								CATCH BASIN TYPE 5 EACH	INLETS TYPE 3 EACH	INLETS TYPE 8 EACH	INLETS TYPE 9 EACH	INLET COVERS TYPE HM EACH	SALVAGED INLET COVERS EACH
0010													
STAGE 2A	1A	185+85 EB	34.5' LT	882.63	881.72	877.21	4.51	-	1	-	-	1	-
	*1B	185+76 EB	35.2' LT	882.6	881.69	844.14	4.55	-	1	-	-	1	-
	*1C	185+23 EB	34.8' LT	882.44	881.53	876.89	4.64	-	1	-	-	1	-
	*1D	184+64 EB	31.9' LT	882.32	881.41	876.61	4.80	-	1	-	-	1	-
	*1E	183+99 EB	28.7' LT	882.2	881.29	876.30	4.99	-	1	-	-	1	-
	*1F	183+99 EB	42.2' LT	882.5	881.59	876.36	5.23	-	1	-	-	1	-
	*1G	183+31 EB	25.2' LT	882.08	881.17	875.97	5.20	-	1	-	-	1	-
	*1H	182+65 EB	22.0' LT	881.99	881.08	875.65	5.43	-	1	-	-	1	-
	*1I	182+00 EB	30.1' LT	880.36	880.36	873.56	6.80	-	-	-	1	-	2
	*2A	187+21 EB	8.2' LT	883.33	882.42	877.42	5.00	-	1	-	-	1	-
	*2B	187+21 EB	14.9' LT	882.97	882.06	877.39	4.67	-	1	-	-	1	-
	*2C	187+30 EB	15.0' LT	882.98	882.07	877.32	4.75	-	1	-	-	1	-
	*2D	188+01 EB	16.4' LT	883.18	882.27	875.83	6.44	1	-	-	-	1	-
	*2F	188+69 EB	19.8' LT	883.43	882.52	877.30	5.22	-	1	-	-	1	-
	*2G	189+35 EB	23.1' LT	883.67	882.76	877.64	5.12	-	1	-	-	1	-
	*2H	189+35 EB	8.0' LT	883.86	882.95	877.71	5.24	-	1	-	-	1	-
	*2I	190+35 EB	28.1' LT	883.99	883.08	878.09	4.99	-	1	-	-	1	-
	2J	192+50 EB	23.6' LT	882.08	882.08	879.16	2.92	-	-	1	-	-	1
PROJECT TOTAL								1	15	1	1	16	3

*CORE HOLES FOR UNDERDRAIN PIPE REQUIRED

WATER

GROUP CODE	LOCATION	624.0100
		WATER MGAL
010	PROJECT	30
TOTAL		30

UNDERDRAIN ITEMS

GROUP CODE	STATION - STATION	LOCATION	SPV.0090.01	612.0206	612.0806	SPV.0060.01
			PIPE UNDERDRAIN (6-INCH) WITH GEOTEXTILE FABRIC AND AGGREGATE	PIPE UNDERDRAIN UNPERFORATED 6-INCH	APRON ENDWALLS FOR UNDERDRAIN REINFORCED CONCRETE 6-INCH	END PLUG FOR EXISTING UNDERDRAIN
			LF	LF	EACH	EACH
010						
STAGE 1	179+66 EB	26' RT	-	-	-	1
	186+62 EB	36' RT	-	55	1	-
	186+51 WB	36' LT	-	-	-	1
	193+48 WB	26' LT	-	-	-	1
STAGE 2A	178+66 EB	0' LT	-	-	-	1
	182+00 WB	0' RT	-	-	-	1
	182+00 EB	185+83 EB	LT	365	-	-
	182+00 WB	185+86 WB	RT	380	-	-
	187+19 EB	191+50 EB	LT	425	-	-
	187+19 WB	191+50 WB	RT	410	-	-
	191+70 EB	16' LT	-	16	1	-
	194+38 WB	0' RT	-	-	-	1
TOTAL			1580	71	2	6

LANDSCAPING ITEMS

				625.0500	627.0200	629.0210	630.0130
GROUP CODE	STATION - STATION		LOCATION	SALVAGED TOPSOIL	MULCHING	FERTILIZER	SEEDING
				SY		SY	TYPE B CWT
010							
STAGE 1	179+66 EB	186+82 EB	RT	890	850	1	25
	186+32 WB	193+48 WB	LT	1470	1470	1	35
STAGE 2C	178+66 EB	185+86 EB	LT	630	110	1	15
	187+19 WB	194+38 WB	RT	850	220	1	20
	UNDISTRIBUTED			580	400	1	15
TOTAL				4420	3050	5.0	110

EROSION CONTROL MOBILIZATION			
GROUP CODE	LOCATOIN PROJECT	628.1905	628.1910
		MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
010		2	1
TOTAL		2	1

EROSION CONTROL ITEMS										
GROUP CODE	STATION - STATION		LOCATION	628.1504	628.1520	628.2004	628.7005	628.7015	628.7020	628.7555
				SILT FENCE LF	SILT FENCE MAINTENANCE LF	EROSION MAT CLASS I TYPE B SY	INLET PROTECTION TYPE A EACH	INLET PROTECTION TYPE C EACH	INLET PROTECTION TYPE D EACH	CULVERT PIPE CHECKS EACH
010										
STAGE 1	179+66 EB	186+81 EB	RT	775	775	35	-	-	-	-
	186+32 WB	193+48 WB	LT	775	775	-	-	-	-	1
STAGE 2	178+66 EB		LT	38	38	-	-	-	-	-
	182+00 EB		LT	-	-	-	1	-	-	-
	182+00 EB	185+86 EB	LT	-	-	520	-	-	-	-
	182+65 EB		LT	-	-	-	-	1	-	-
	183+31 EB		LT	-	-	-	-	1	-	-
	183+99 EB		LT	-	-	-	-	1	-	-
	183+99 WB		RT	-	-	-	-	-	1	-
	184+64 EB		LT	-	-	-	-	1	-	-
	185+23 EB		LT	-	-	-	-	1	-	-
	185+76 EB		LT	-	-	-	-	1	-	-
	185+85 EB		LT	-	-	-	-	1	-	-
	187+19 WB	191+50 WB	RT	-	-	630	-	-	-	-
	187+21 EB		LT	-	-	-	-	-	1	-
	187+21 WB		RT	-	-	-	-	1	-	-
	187+30 WB		RT	-	-	-	-	1	-	-
	188+01 WB		RT	-	-	-	-	1	-	-
	188+69 WB		RT	-	-	-	-	1	-	-
	189+35 EB		LT	-	-	-	-	-	1	-
	189+35 WB		RT	-	-	-	-	1	-	-
	190+35 WB		RT	-	-	-	-	1	-	-
	192+50 WB		RT	-	-	-	1	-	-	-
	194+38 WB		RT	38	38	-	-	-	-	-
	UNDISTRIBUTED			245	245	180	-	-	-	-
TOTAL				1871	1871	1365	2	13	3	1

SIGNS														
GROUP CODE	SIGN NO.	LOCATION	SIGN CODE	MESSAGE	SIZE W X H (INCHES)	634.0612	634.0616	634.0618	637.0202	638.2102	638.2602	638.3000	638.4000	REMARKS
						POSTS WOOD 4X6-INCH 12-FT EACH	POSTS WOOD 4X6-INCH 16-FT EACH	POSTS WOOD 4X6-INCH 18-FT EACH	SIGNS REFLECTIVE TYPE II SF	MOVING SIGNS TYPE II EACH	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	MOVING SMALL SIGN SUPPORTS EACH	
010	1-1	12/18 EB RT	D7-52	ROAD TO STATE PARK 1 MILE	66" x 42"	-	2	-	19.25	-	-	-	-	
	1-2	12/18 EB RT		"JCT AB"	-	-	-	-	-	1	-	-	1	
	1-3	12/18 EB LT		"JCT AB"	-	-	-	-	-	1	-	-	1	
	1-4	12/18 EB RT	D7-53R	STATE PARK (RT ARROW)	66" x 36"	-	2	-	16.5	-	1	1	-	
	1-5	12/18 EB MED	R3-55L	"LEFT TURN LANE" (RT ARROW)	36" X 48"	-	1	-	12	-	-	-	-	
	1-6	12/18 EB LT	R3-56	"LEFT TURN LANE" (LT ARROW)	36" X 48"	-	1	-	12	-	-	-	-	
	1-7	12/18 WB LT	R2-1	"SPEED LIMIT 55"	36" X 48"	-	1	-	12	-	-	-	-	
	1-8	12/18 EB LT	R5-1A	"WRONG WAY"	42" X 30"	-	-	-	8.75	-	1	1	-	MOUNT ON BACK OF SIGN 1-6
	1-9	12/18 WB LT	R6-2L	"ONE WAY" (LT ARROW)	24" X 30"	-	1	-	5	-	-	-	-	
	1-10	CTH AB RT	JV13-2	"12" "18" DBL ARROW	24" X 69"	-	-	1	11.5	-	2	1	-	
	1-11	CTH AB RT	R1-1	"STOP"	30" X 30"	-	1	-	5.18	-	1	1	-	
	1-12	12/18 EB RT	W12-1D	DOUBLE DOWN ARROWS	30" X 30"	1	-	-	6.25	-	-	-	-	2' MOUNTING HEIGHT
	1-13	12/18 WB MED	R4-7	KEEP RIGHT	36" X 48"	-	1	-	12	-	1	1	-	
	1-14	12/18 EB RT		"COUNTY AB" DBL ARROW	-	-	-	-	-	1	-	-	1	
	1-15	12/18 EB LT	R5-1	"DO NOT ENTER"	36" X 36"	-	1	-	9	-	1	1	-	
	2-1	12/18 WB LT		"COUNTY AB" DBL ARROW	-	-	-	-	-	1	-	-	1	
	2-2	12/12 WB RT	R5-1	"DO NOT ENTER"	36" X 36"	-	1	-	-	-	1	1	-	
	2-3	12/18 WB MED	R5-1A	"WRONG WAY"	42" X 30"	-	-	-	8.75	-	1	1	-	MOUNT ON BACK OF SIGN 2-4
	2-4	12/18 WB MED	R3-56	"LEFT TURN LANE" LT ARROW	36" X 48"	-	1	-	12	-	-	-	-	
	2-5	12/18 WB LT	W12-1D	DOUBLE DOWN ARROWS	30" X 30"	1	-	-	6.25	-	-	-	-	2' MOUNTING HEIGHT
	2-6	CTH AB LT	JV13-2	"12" "18" DBL ARROW	24" X 69"	-	-	1	11.5	-	2	1	-	
	2-7	CTH AB LT	R1-1	"STOP"	30" X 30"	-	1	-	5.18	-	1	1	-	
	2-8	12/18 EB RT	R6-2L	"ONE WAY" (LT ARROW)	24" X 30"	-	1	-	5	-	-	-	-	
	2-9	12/18 EB MED	R4-7	KEEP RIGHT	36" X 48"	-	1	-	12	-	1	1	-	
	2-10	12/18 EB RT	R2-1	"SPEED LIMIT 55"	36" X 48"	-	1	-	12	-	-	-	-	
	2-11	12/18 WB RT	R3-55L	"LEFT TURN LANE" RT ARROW	36" X 48"	-	1	-	12	-	-	-	-	
	2-12	12/18 WB LT	D7-53R	STATE PARK (LT ARROW)	66" x 36"	-	2	-	16.5	-	1	1	-	
	2-13	12/18 WB RT		"JCT AB"	-	-	-	-	-	1	-	-	1	
	2-14	12/18 WB LT		"JCT AB"	-	-	-	-	-	1	-	-	1	
	2-15	12/18 WB LT	D7-52	ROAD TO STATE PARK 1 MILE	66" x 42"	-	2	-	19.25	-	-	-	-	
TOTAL						2	22	2	249.86	6	14	12	6	

TRAFFIC CONTROL ITEMS																	
GROUP CODE	STAGE	643.0300		643.0420		643.0705 WARNING LIGHTS TYPE A		643.0715 WARNING LIGHTS TYPE C		643.0800 ARROW BOARDS		643.0900 SIGNS		643.0905.S COVERING SIGNS		SPV.0045.01 PORTABLE CHANGEABLE MESSAGE SIGN	
		DRUMS		BARRICADES TYPE III													
		EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS
010																	
	STAGE 1	111	2220	2	40	4	80	26	520	4	80	34	680	-	2	40	
	STAGE 2A	176	880	2	10	4	20	26	130	4	20	40	200	-	2	10	
	STAGE 2B	176	2992	0	0	0	0	26	442	4	68	38	646	-	2	34	
	STAGE 2C	176	1232	2	14	4	28	26	182	4	28	40	280	-	2	14	
	UNDISTRIBUTED	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	
TOTAL		7324		64		128		1274		196		1806		2		98	

REMOVING PAVEMENT MARKINGS				646.0600	
GROUP CODE	STATION	LOCATION		REMOVING PAVEMENT MARKINGS	
				LF	
010					
STAGE 1	ADVANCE TRAFFIC CONTROL EB	RT		175	
	ADVANCE TRAFFIC CONTROL WB	LT		175	
	179+38 EB	181+68 EB	RT	230	
	184+17 EB	186+22 EB	RT	205	
STAGE 2	18+07 AB	19+50 AB	CL	180	
	21+04 AB	22+84 AB	CL	230	
	186+77 WB	189+03 WB	LT	225	
	191+78 WB	193+77 WB	LT	200	
	178+66 EB	180+99 EB	LT	235	
	184+06 EB	186+22 WB	LT	215	
	186+77 WB	189+05 WB	RT	230	
	192+60 WB	194+38 WB	RT	180	
TOTAL				2480	

PAVEMENT MARKINGS										
GROUP CODE	STATION - STATION	LOCATION	646.0106		646.0126		647.0456		647.0606	
			EPOXY 4-INCH (WHITE) (SOLID) LF	EPOXY 4-INCH (WHITE) (DASHED) LT	EPOXY 4-INCH (YELLOW) (SOLID) LF	EPOXY 4-INCH (YELLOW) (DASHED) LF	EPOXY 8-INCH LF	CURB EPOXY (YELLOW) LF	ISLAND NOSE EPOXY EACH	
010										
STAGE 1	179+37 EB	186+16 EB	RT	680	-	-	-	-	-	
	180+91 EB	182+46 EB	RT	-	-	-	-	155	-	
	180+91 EB	186+26 EB	RT	-	-	-	-	535	-	
	186+74 WB	192+23 WB	LT	-	-	-	-	550	-	
STAGE 2C	190+68 WB	192+23 WB	LT	-	-	-	-	155	-	
	186+96 WB	193+77 WB	LT	680	-	-	-	-	-	
	18+69 AB	19+16 AB	LT	48	-	-	-	-	-	
	18+07 AB	19+50 AB	CL	-	-	145	38	-	-	
	21+37 AB	21+86 AB	RT	50	-	-	-	-	-	
	21+04 AB	22+84 AB	CL	-	-	180	50	-	-	
	ADVANCE TRAFFIC CONTROL EB		LT	-	175	-	-	-	-	
	ADVANCE TRAFFIC CONTROL WB		RT	-	175	-	-	-	-	
	178+66 EB	185+80 EB	LT	-	-	715	-	-	-	
	181+06 EB	186+23 EB	LT	-	-	-	-	515	-	
STAGE 2	181+06 EB	182+71 EB	LT	-	-	-	-	165	-	
	185+80 EB	185+86 EB	LT	-	-	-	-	6	-	
	185+80 WB	185+86 WB	RT	-	-	-	-	6	-	
	185+86 EB	185+91 EB	LT	-	-	-	-	-	1	
	186+81 WB	191+97 WB	RT	-	-	-	-	515	-	
	190+32 WB	191+97 WB	RT	-	-	-	-	165	-	
	187+25 WB	194+38 WB	RT	-	-	715	-	-	-	
	187+19 EB	187+25 EB	LT	-	-	-	-	6	-	
	187+19 WB	187+25 WB	RT	-	-	-	-	6	-	
	187+14 WB	187+19 WB	RT	-	-	-	-	-	1	
TOTAL				1458	350	1755	88	2755	24	2

TEMPORARY PAVEMENT MARKINGS					
GROUP CODE	STATION - STATION	LOCATION	649.0400	649.0801	
			REMOVABLE TAPE	REMOVABLE TAPE	REMOVABLE
			4-INCH (WHITE) (SOLID)	4-INCH (YELLOW) (SOLID)	TAPE 8-INCH
			LF	LF	LF
010					
STAGE 1	ADVANCE TRAFFIC CONTROL EB	RT	660	-	-
	ADVANCE TRAFFIC CONTROL WB	LT	660	-	-
	183+26 EB	186+57 EB	RT	-	330
	186+58 WB	189+22 WB	LT	-	265
STAGE 2	18+07 AB	19+50 AB	-	285	-
	21+04 AB	22+84 AB	-	360	-
	ADVANCE TRAFFIC CONTROL EB	RT	-	660	-
	ADVANCE TRAFFIC CONTROL WB	LT	-	660	-
	183+62 EB	186+30 EB	RT	535	-
	187+25 EB	188+39 EB	RT	115	-
	184+90 WB	185+77 WB	LT	75	-
	186+71 WB	189+45 WB	LT	550	-
TOTAL			2595	1965	595

3

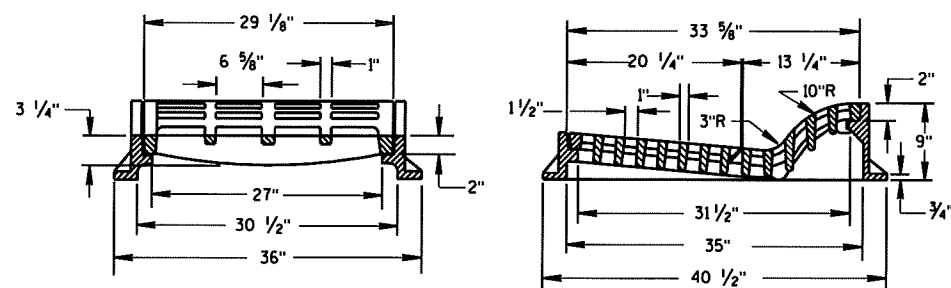
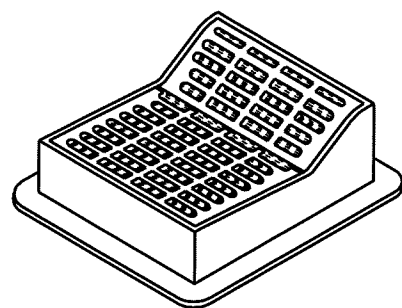
CONSTRUCTION STAKING							
GROUP CODE	STATION - STATION		LOCATION	650.4000	650.4500	650.7000	650.9920
				CONSTRUCTION STAKING STORM SEWER EACH	CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING CONCRETE PAVEMENT LF	CONSTRUCTION STAKING SLOPE STAKES LF
010							
STAGE 1	179+66 EB	186+62 EB	RT	1	695	695	695
	186+51 WB	193+48 WB	LT	1	695	695	695
	18+69 AB	19+68 AB	LT	1	100	100	100
	20+84 AB	21+86 AB	RT	-	100	100	100
STAGE 2	178+66 EB	186+43 EB	LT	9	775	775	775
	186+77 EB	191+70 EB	LT	-	495	495	495
	186+77 WB	194+38 WB	RT	9	760	760	760
	181+80 WB	186+33 WB	RT	-	455	455	455
TOTAL				21	4075	4075	4075

3

SAWING						
GROUP CODE	STATION - STATION		LOCATION	690.0150	690.0250	
				SAWING ASPHALT LF	SAWING CONCRETE LF	
010						
STAGE 1	179+66 EB		RT	6	-	
	181+51 EB	186+62 EB	RT	-	520	
	18+69 AB	19+68 AB	LT	-	110	
	20+84 AB	21+86 AB	RT	-	110	
STAGE 2A	186+51 WB	191+71 WB	LT	-	530	
	193+48 WB		LT	6	-	
	178+66 EB		LT	3	-	
	180+96 EB	186+43 EB	LT	-	550	
	181+80 WB		RT	3	-	
	185+77 WB	186+33 WB	RT	-	55	
	186+43 EB		RT	-	45	
	186+81 WB		RT	-	45	
	186+83 EB	187+34 EB	LT	-	50	
	186+81 WB	192+49 WB	RT	-	570	
	191+70 EB		LT	3	-	
	194+38 WB		RT	3	-	
TOTAL				24	2585	

Standard Detail Drawing List

08A5-17C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A7-3	CATCH BASINS TYPE 3 & 5
08C1-5	INLETS TYPE 1, 2, 3 & 4
08C5-2	INLETS TYPE 8, 9, 10, AND 11
08D1-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D4-5	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D15-4A	EDGEDRAIN OUTLET AND OUTFALL MARKERS
08E9-6	SILT FENCE
08E10-2	INLET PROTECTION TYPE A, B, C AND D
08F1-11	APRON ENDWALLS FOR CULVERT PIPE
08F2-1	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F4-6	JOINT TIES FOR CONCRETE PIPE
08F6-4	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
11B1-5	CONCRETE CORRUGATED MEDIAN
11B2-2	CONCRETE MEDIAN NOSE
13A3-4	CONCRETE PAVEMENT SHOULDERS
13C11-10A	RURAL DOWELED CONCRETE PAVEMENT
13C11-10B	RURAL DOWELED CONCRETE PAVEMENT
13C18-1A	CONCRETE PAVEMENT JOINTING
13C18-1B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-1C	CONCRETE PAVEMENT JOINT TIES
13C18-1D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
15A3-1	MARKER POSTS, FLEXIBLE, FOR CULVERT END
15C8-13A	PAVEMENT MARKING (MAINLINE)
15C8-13F	PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)
15D12-2	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.



TYPE "F"

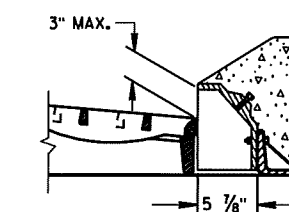
(APPROXIMATE WEIGHT 645 LBS.)

FRAME.....300 LBS.

GRATE.....165 LBS.

GRATE.....180 LBS.

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

(APPROXIMATE WEIGHT 79 LBS.)

CURB BOX.....79 LBS.

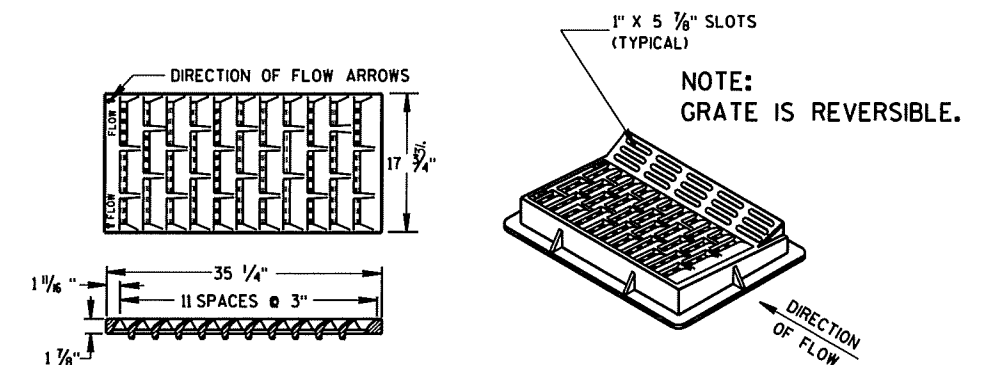
USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

GENERAL NOTES

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

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

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



TYPE "HM"

(APPROXIMATE WEIGHT 375 LBS.)

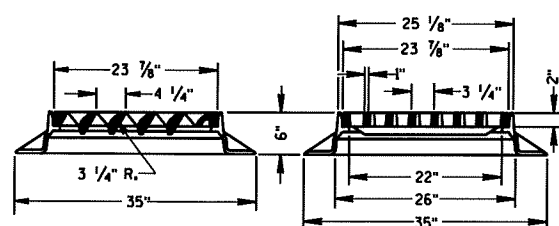
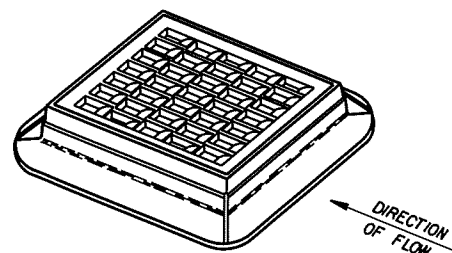
FRAME.....175 LBS.

GRATE.....138 LBS.

CURB BOX.....62 LBS.

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

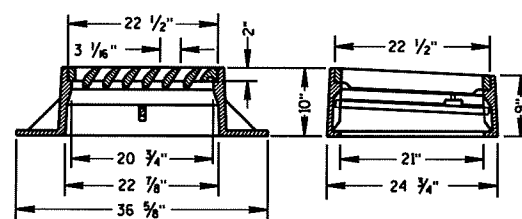
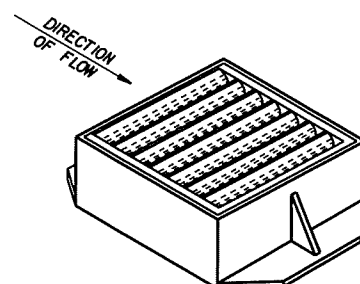


TYPE "S"

(APPROXIMATE WEIGHT 334 LBS.)

FRAME.....165 LBS.

GRATE.....169 LBS.



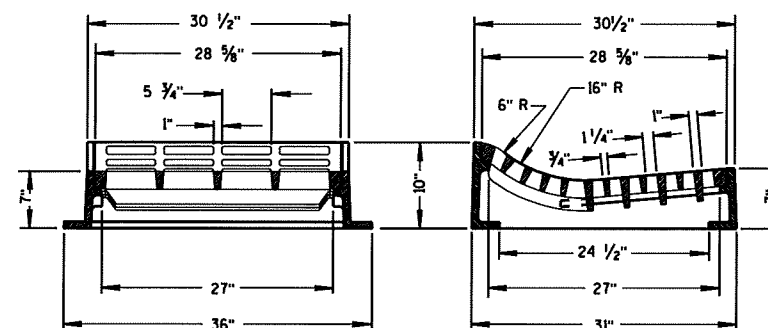
TYPE "V"

(APPROXIMATE WEIGHT 405 LBS.)

FRAME.....270 LBS.

GRATE.....130 LBS.

SAFETY BAR.....5 LBS.



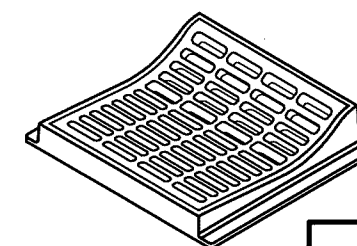
TYPE "T"

(APPROXIMATE WEIGHT 530 LBS.)

FRAME.....270 LBS.

GRATE.....260 LBS.

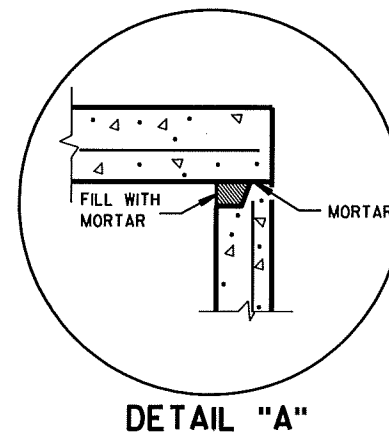
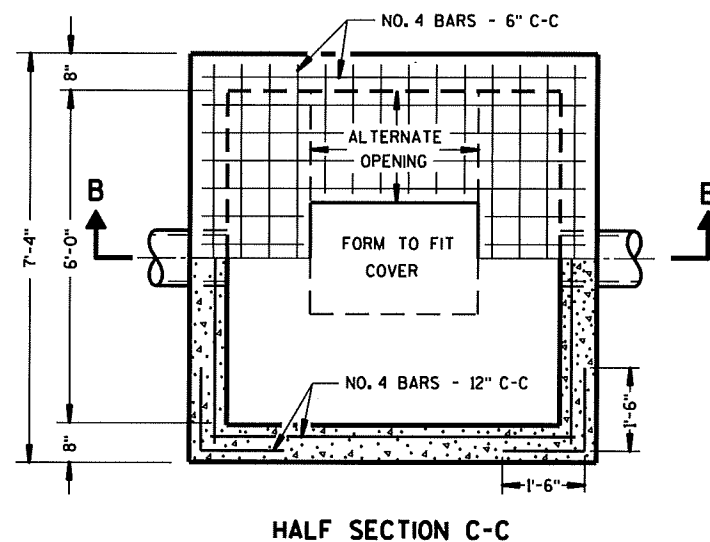
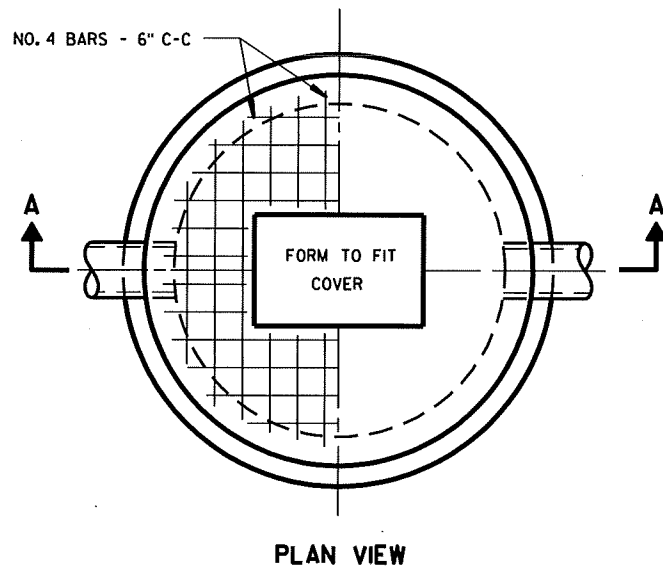
USE WITH TYPES R & T CONCRETE CURB & GUTTER, 30 INCH.



INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/17/07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



GENERAL NOTES

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

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

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLE 1-C", "CATCH BASINS 1-B", "INLETS 3-H", ETC. THE FIRST DIGIT DESIGNATES THE MASONRY PORTION OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

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

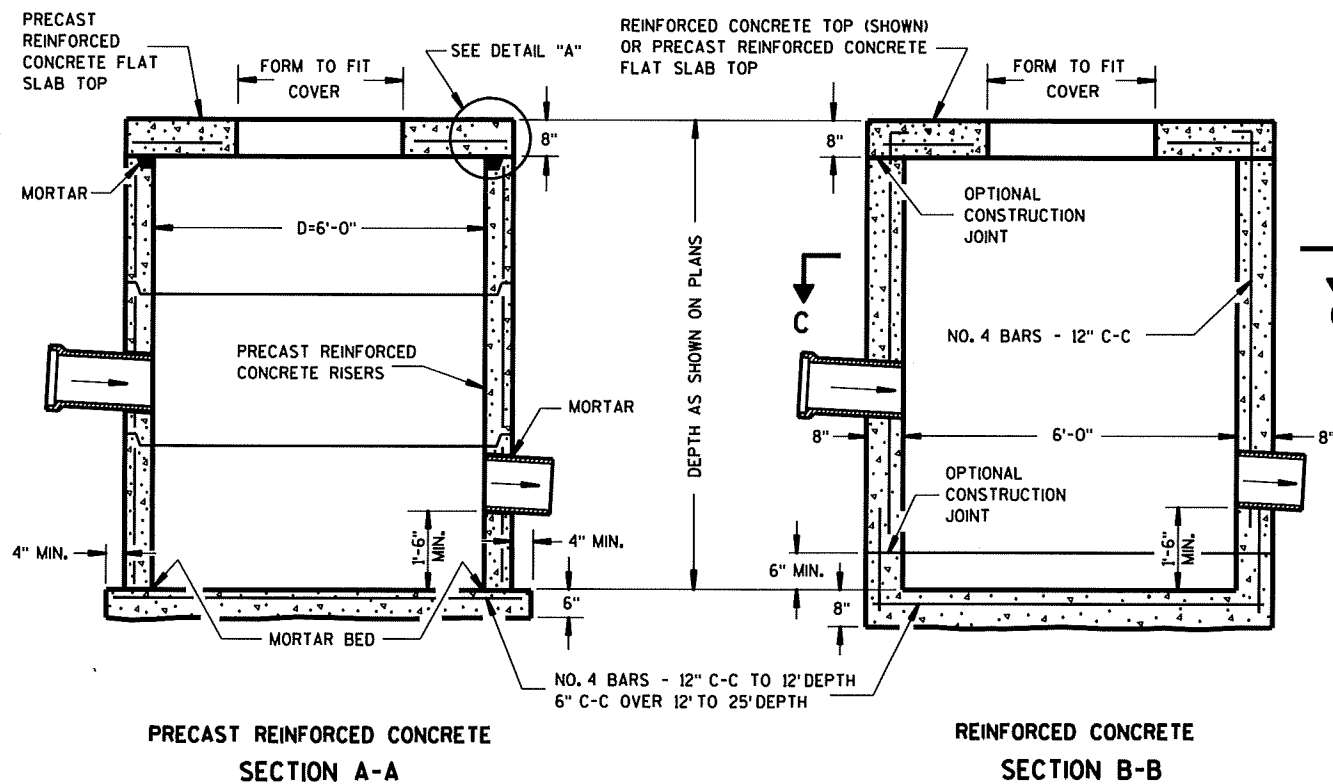
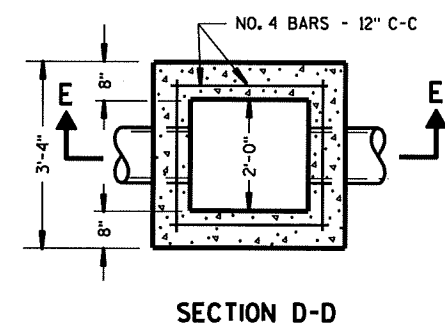
STEPS MEETING THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES; AND BE CAPABLE OF SUPPORTING A CONCENTRATED LOAD OF 300 LBS. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A CROSS SECTIONAL DIMENSION OF 1 INCH.

SOLID ALUMINUM STEPS SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 0.75 INCH. ALUMINUM SURFACES TO BE EMBEDDED IN CONCRETE SHALL BE GIVEN ONE COAT OF SUITABLE QUALITY PAINT, SUCH AS ZINC CHROMATE PRIMER CONFORMING TO FEDERAL SPECIFICATION TT-P-645 OR EQUIVALENT. STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR WILL BE ACCEPTABLE.

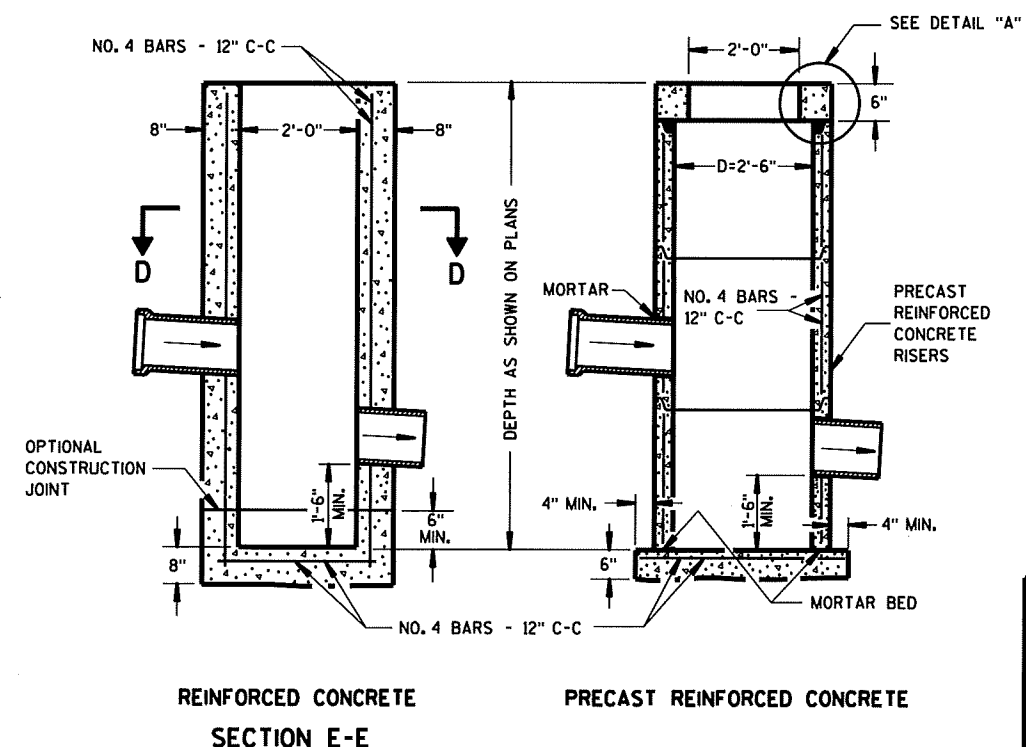
ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED CONCRETE RISERS SHALL BE PLACED WITH TONGUE DOWN.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.



CATCH BASINS TYPE 5



CATCH BASINS TYPE 3

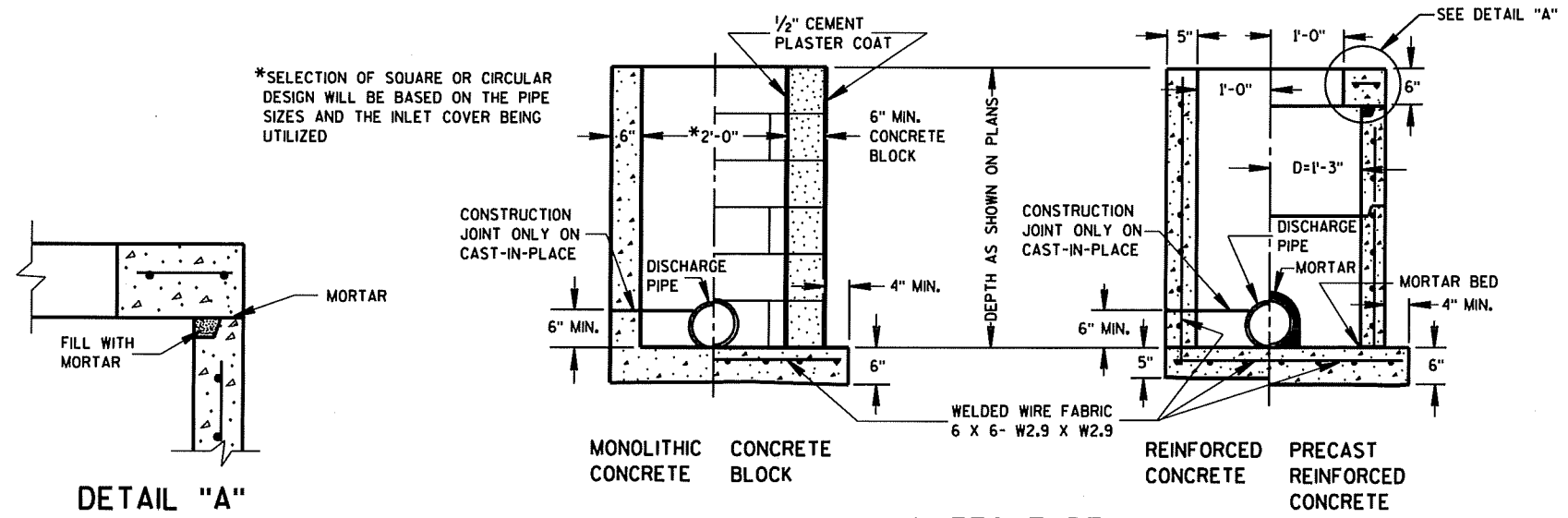
CATCH BASINS TYPE 3 & 5

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/13/82
DATE
FHWA

[Signature]
CHIEF DESIGN ENGINEER

S.D.D. 8 A 7-3



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.

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 1-C", "CATCH BASINS 1-B", "INLETS 3-H", ETC. THE FIRST DIGIT DESIGNATES THE MASONRY PORTION OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

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

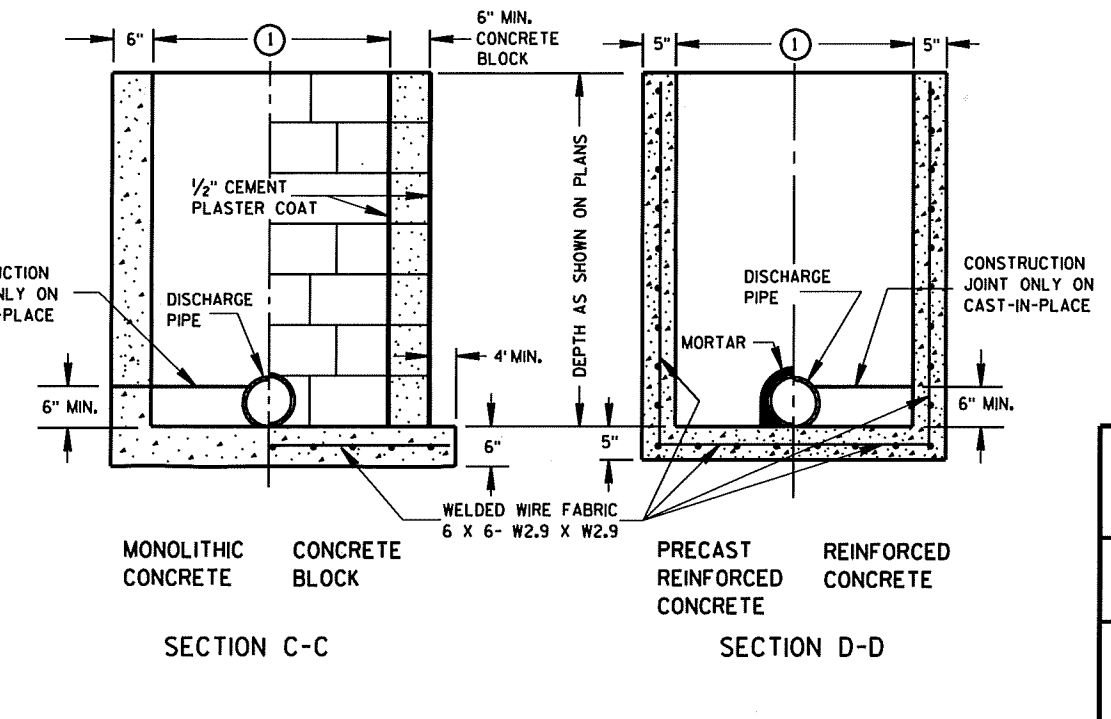
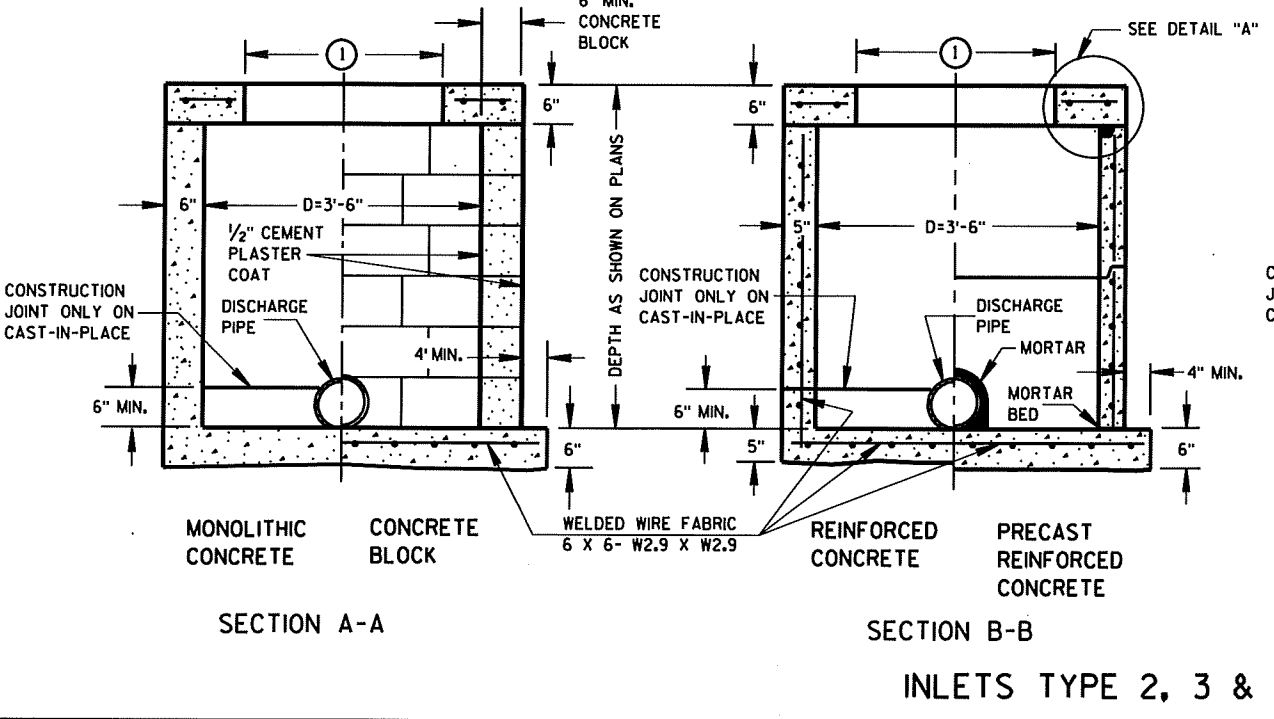
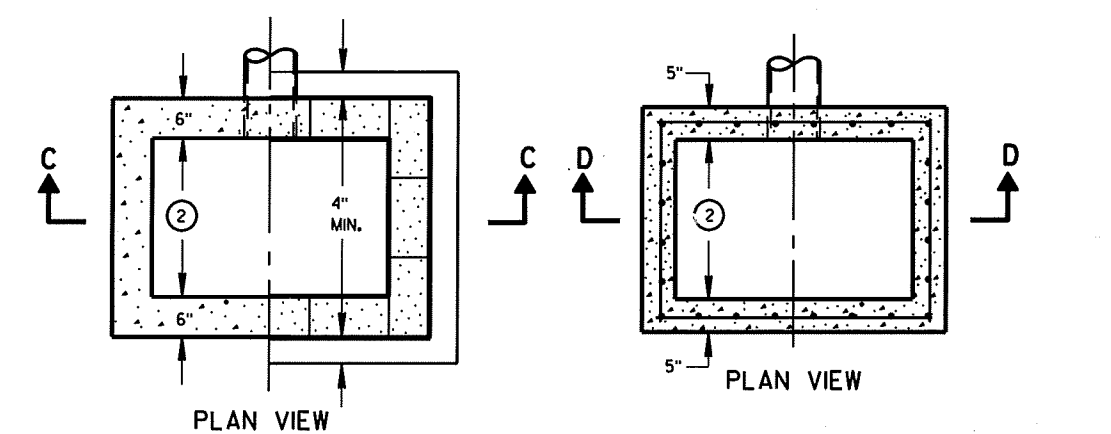
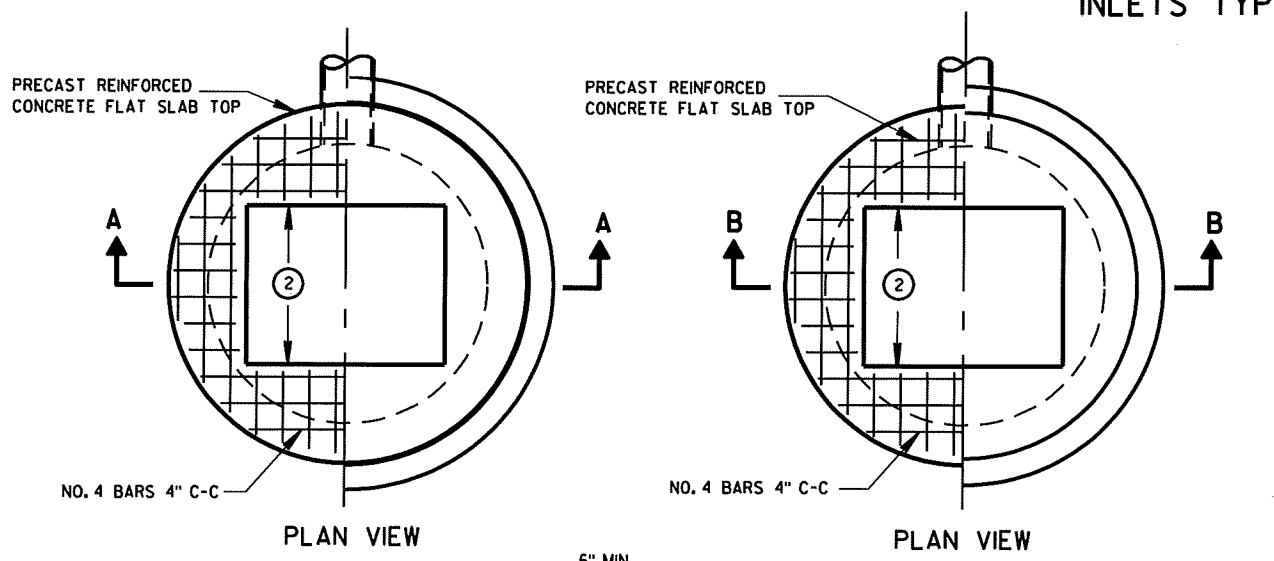
PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON THE STRUCTURES. THE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

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

PRECAST REINFORCED CONCRETE RISERS SHALL BE PLACED WITH TONGUE DOWN.

① USE 2'-6" OPENING FOR TYPE 2 INLETS, 3'-0" OPENING FOR TYPE 3 INLETS, AND 2'-11" FOR TYPE 4 INLETS.

② USE 2'-0" OPENING FOR TYPE 1, 2 & 3 INLETS, 2'-6 1/2" OPENING FOR TYPE 4 INLETS.



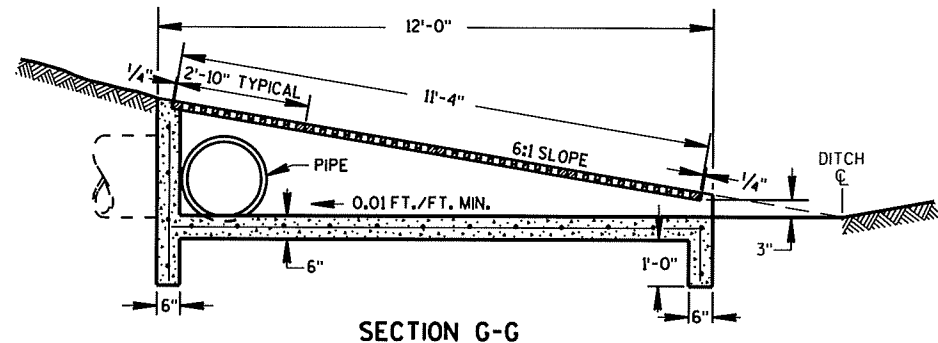
INLETS TYPE 1, 2, 3 & 4	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/26/94 DATE	 CHIEF ROADWAY DEVELOPMENT ENGINEER FHWA

S.D.D. 8 C 1-5

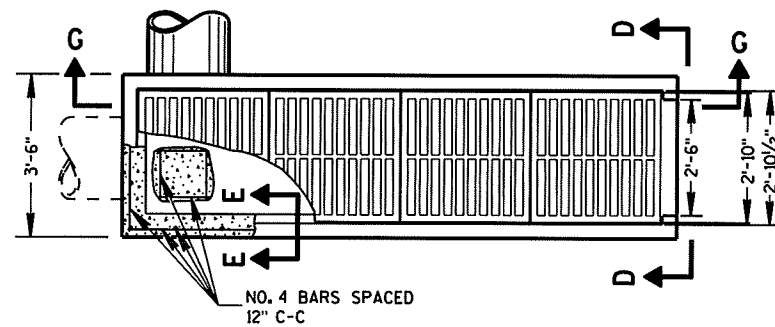
S.D.D. 8 C 1-5

6

6

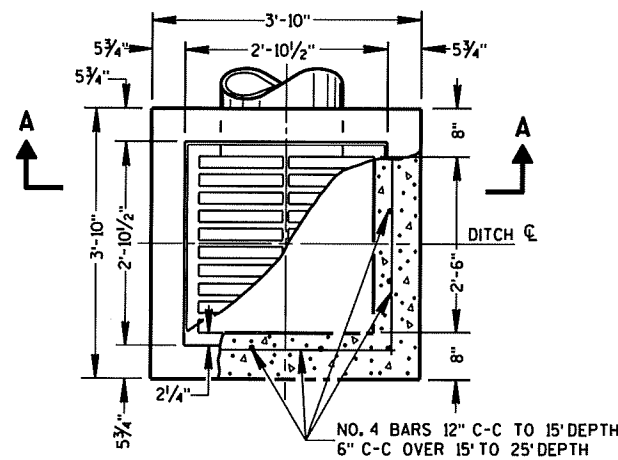


SECTION G-G

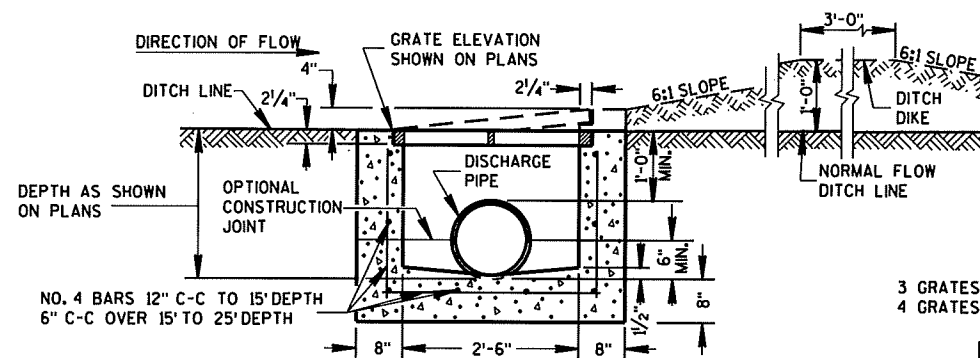


PLAN VIEW

REINFORCED CONCRETE INLET TYPE 11

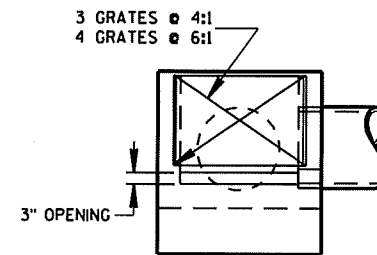


PLAN VIEW

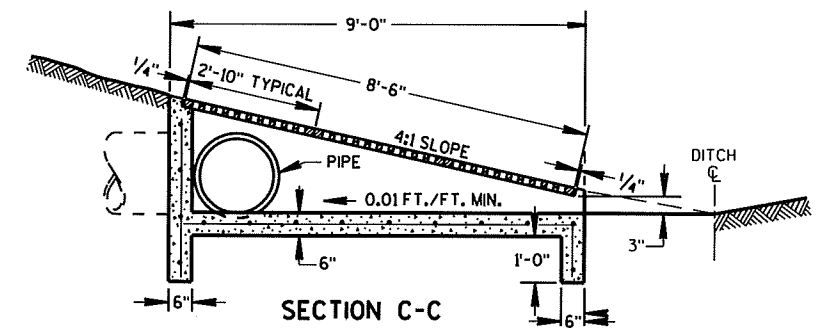


SECTION A-A

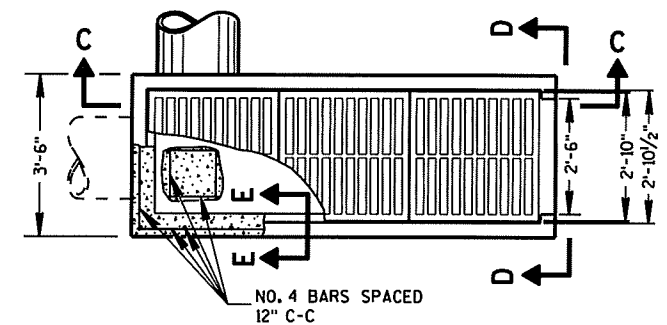
REINFORCED CONCRETE INLET TYPE 8



SECTION D-D

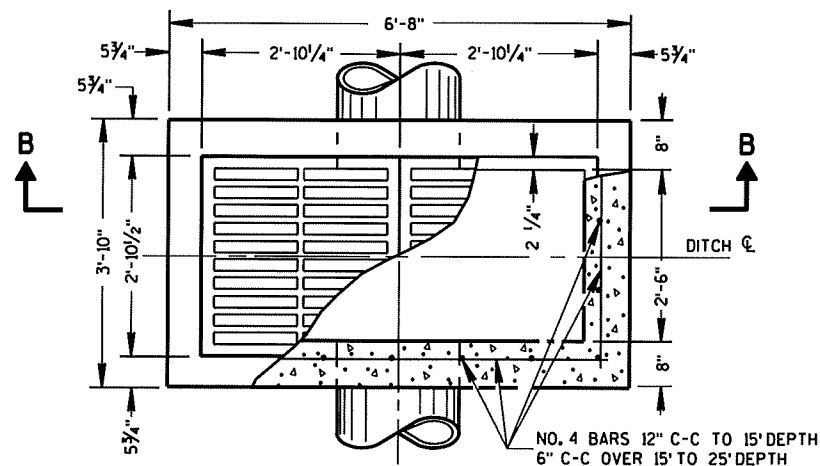


SECTION C-C

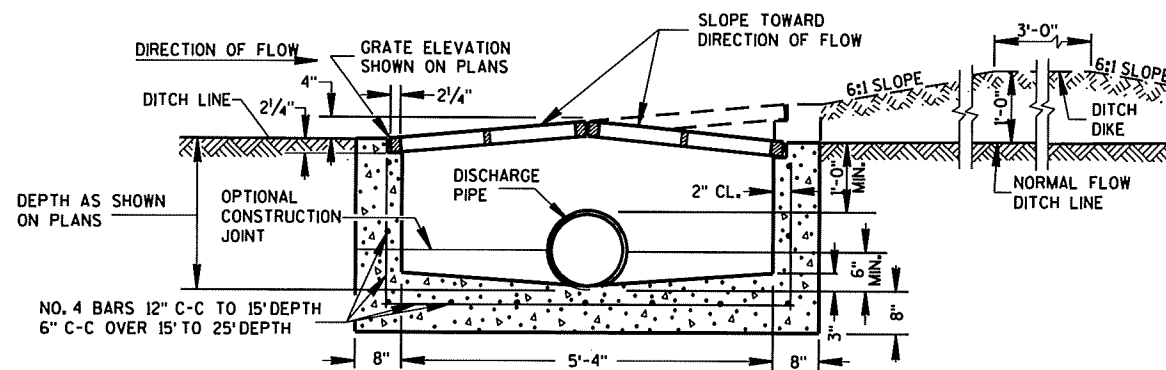


PLAN VIEW

REINFORCED CONCRETE INLET TYPE 10

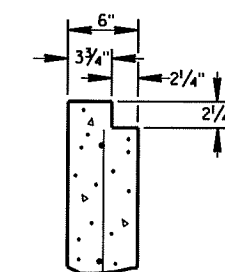


PLAN VIEW



SECTION B-B

REINFORCED CONCRETE INLET TYPE 9



SECTION E-E

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.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLETS WHICH MAY INCLUDE PRECAST REINFORCED CONCRETE INLETS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

PRECAST REINFORCED CONCRETE INLET UNITS, IF USED, SHALL CONFORM TO THE REQUIREMENTS OF THE CATCH BASINS, MANHOLES AND INLETS SECTION OF THE STANDARD SPECIFICATIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A CORRECTED LIST OF SIZES IS FURNISHED BY THE ENGINEER.

ALL INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, 8-MS", ETC. THIS DESIGNATION IS INTERPRETED TO MEAN THAT THE NUMBER, OR FIRST DIGIT DESIGNATES THE MASONRY PORTION OF THE STRUCTURE AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER OR IRON CASTING TO BE USED THEREWITH TO COMPRISE THE COMPLETE UNIT.

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

INLETS TYPE 8, 9, 10 AND 11

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

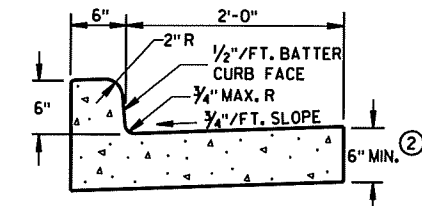
8/10/94
DATE

FHWA

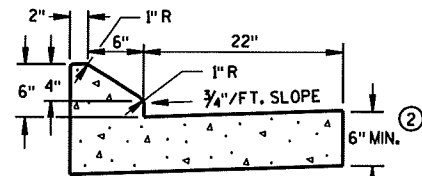
Ray J. Rasmussen
CHIEF ROADWAY DEVELOPMENT ENGINEER

S.D.D. 8 C 5-2

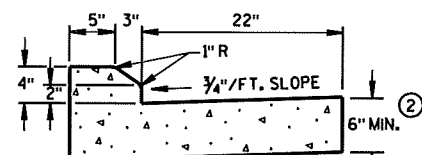
S.D.D. 8 C 5-2



TYPES A & D ①

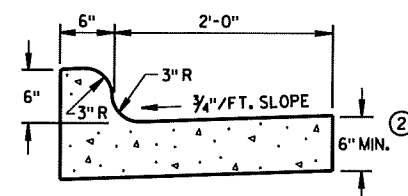


6" SLOPED CURB TYPES G & J ①

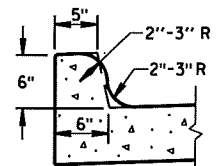


4" SLOPED CURB TYPES G & J ①

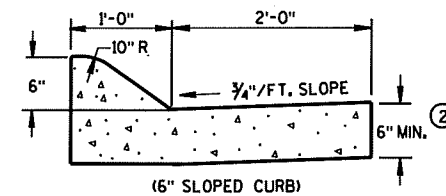
CONCRETE CURB & GUTTER 30"



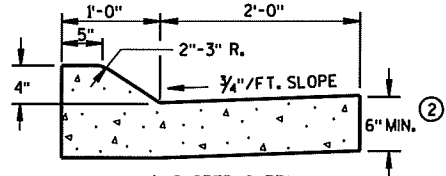
TYPES K & L ①



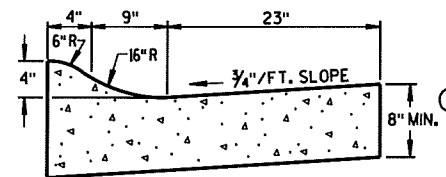
OPTIONAL CURB SHAPE FOR TYPES K & L ①



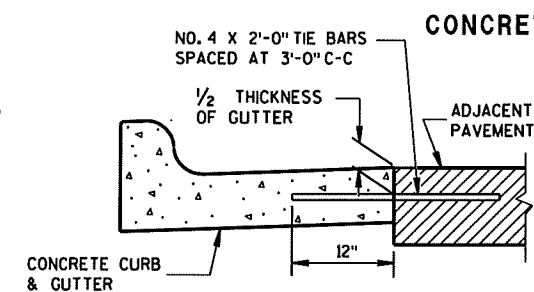
(6" SLOPED CURB)



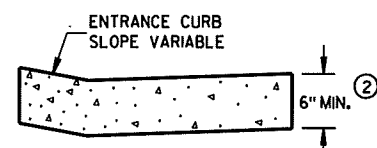
TYPES A & D ①



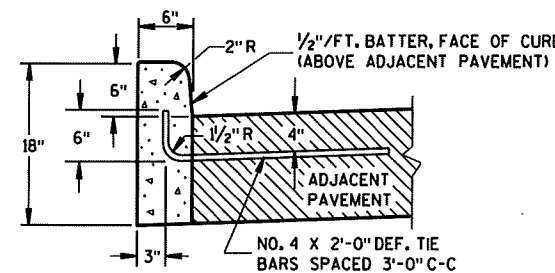
4" SLOPED CURB TYPES R & T ① ④



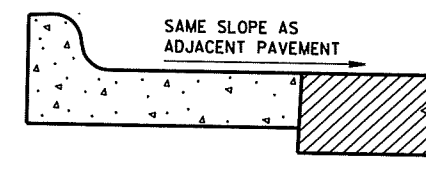
TYPICAL TIE BAR LOCATION ①



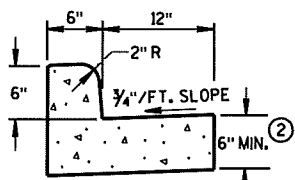
DRIVEWAY ENTRANCE CURB (WHEN DIRECTED BY THE ENGINEER)



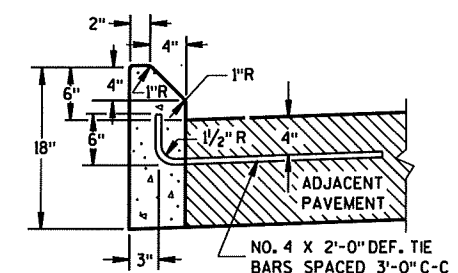
TYPES A & D ①



REVERSE SLOPE GUTTER ⑤ (TYPICAL FOR ALL CURB & GUTTER TYPES)



TYPES A & D CONCRETE CURB & GUTTER 18"



TYPES G & J ①

GENERAL NOTES

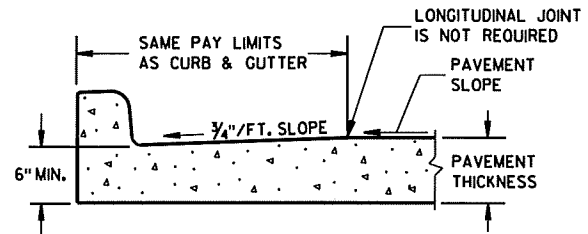
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

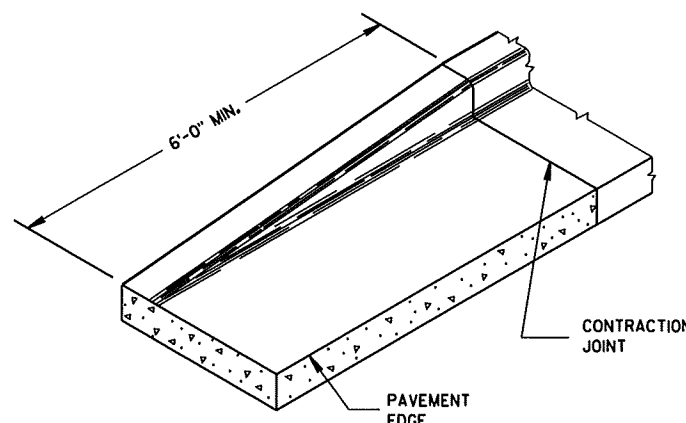
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

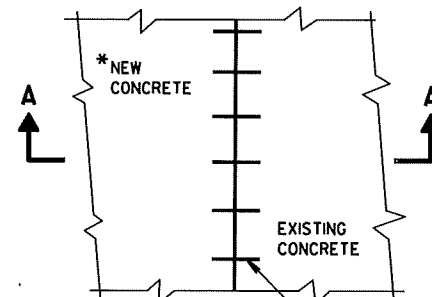
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER



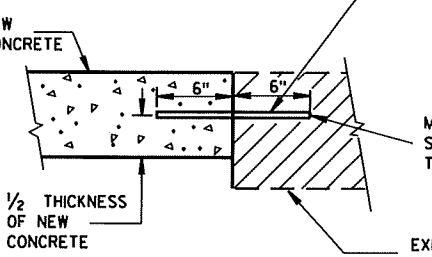
PLAN VIEW

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

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

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

EXISTING CONCRETE



SECTION A-A TIE BARS DRILLED INTO EXISTING PAVEMENT

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6



PLAN VIEW
FLUME AT CURB END



6

③ CONCRETE SURFACE DRAIN

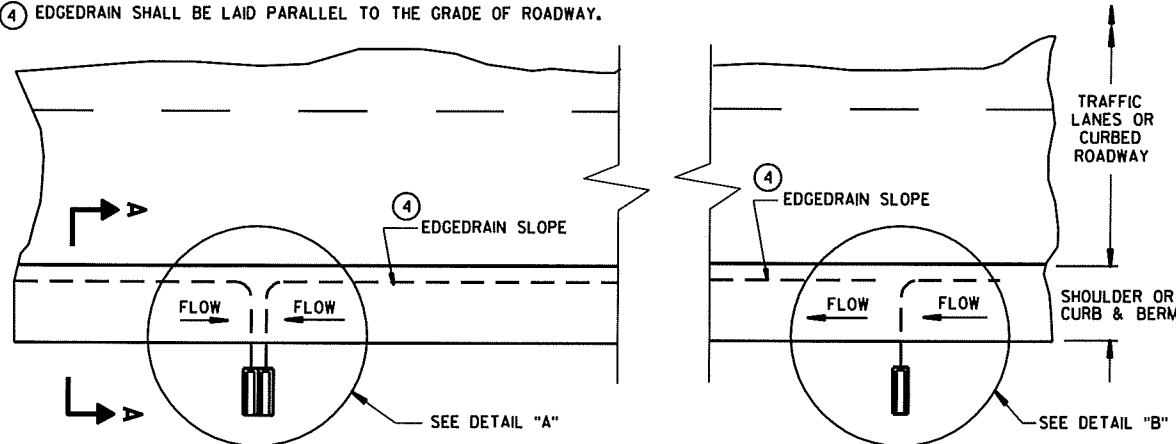


ROADWAY STANDARDS DEVELOPMENT ENGINEER

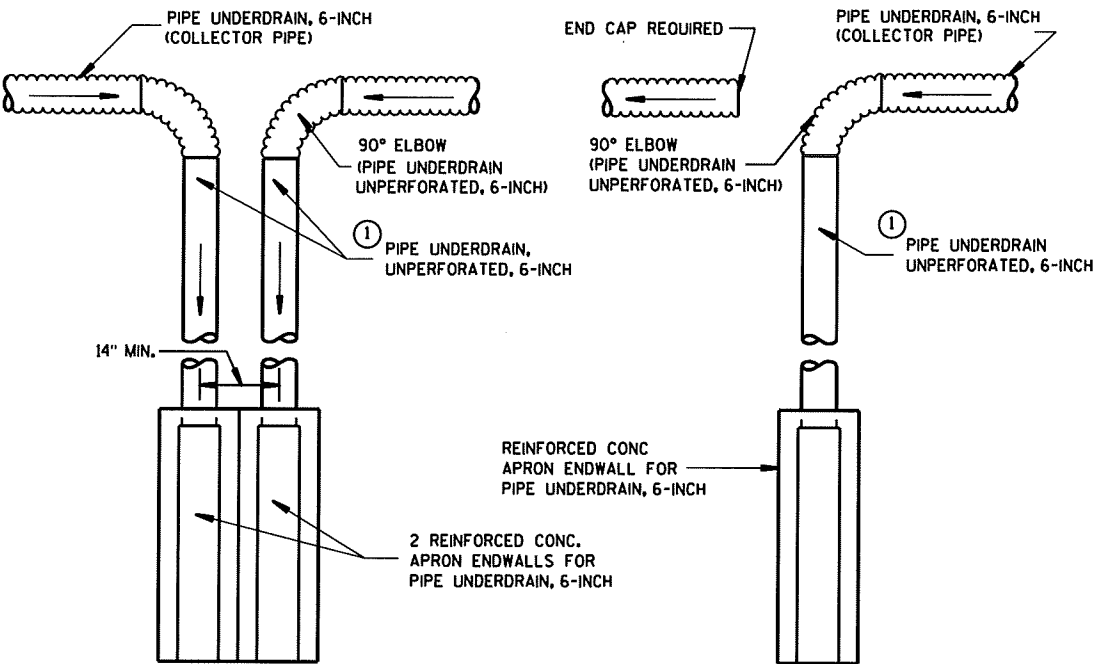
GENERAL NOTES

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

- ① UNPERFORATED PIPE UNDERDRAIN AND FITTINGS FURNISHED FOR OUTFALL PIPE SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING SPECIFICATIONS:
POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.
TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D 3034, SDR 23.5 PVC SEWER PIPE.
- ② MAXIMUM SPACING OF EDGEDRAIN OUTLETS SHALL BE 250 FEET UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.
- ③ EDGEDRAIN SHALL BE CONNECTED TO INLETS REGARDLESS OF FLOW DIRECTION FOR DRAINAGE AND MAINTENANCE ACCESS.
- ④ EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.

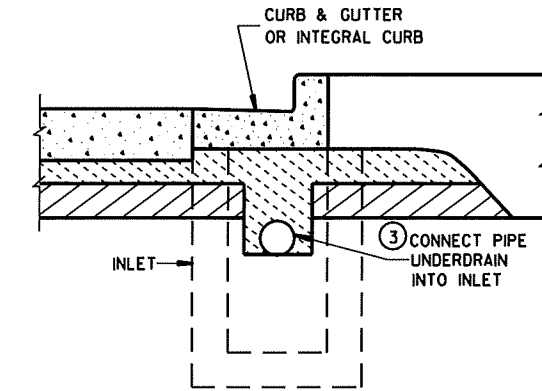


**PLAN VIEW
ROADWAY WITH SHOULDERS OR CURBS
(EDGEDRAIN OUTLETS TO ROADSIDE) ②**

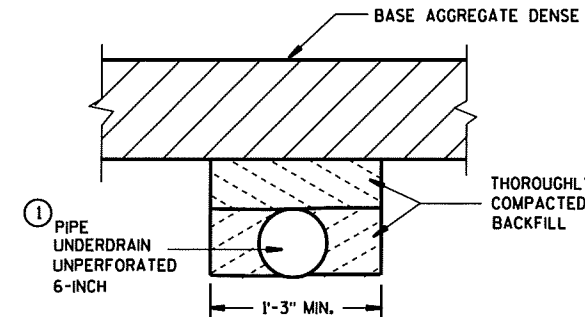


DETAIL "A" TO BE USED AT LOW POINT LOCATIONS
DETAIL "B" TO BE USED AT INTERMEDIATE LOCATIONS

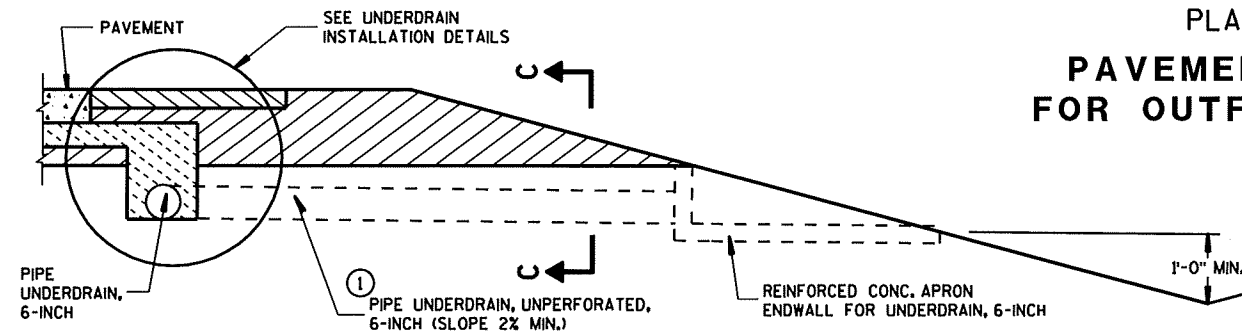
TYPICAL DRAIN OUT DETAILS



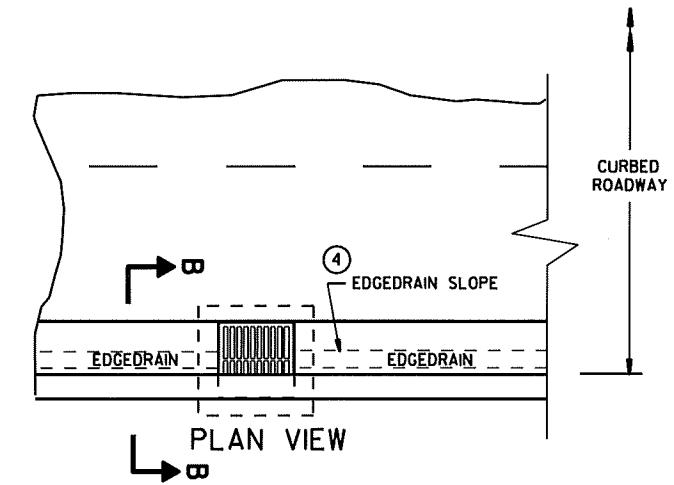
**SECTION B-B
URBAN CROSS SECTION**



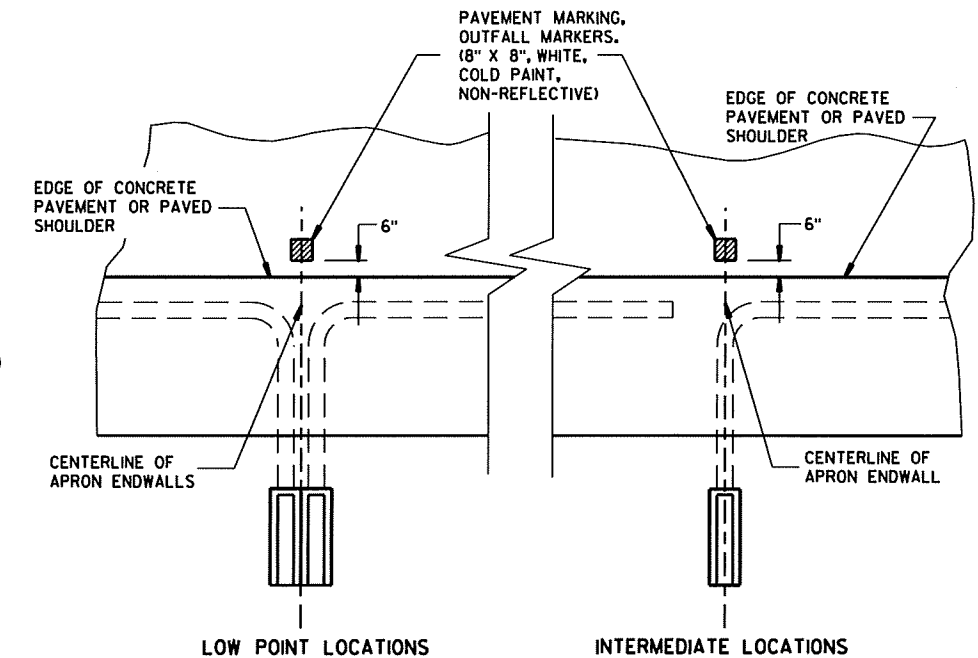
**SECTION C-C
(TRENCH FOR OUTFALL PIPE)**



**SECTION A-A
RURAL CROSS SECTION**



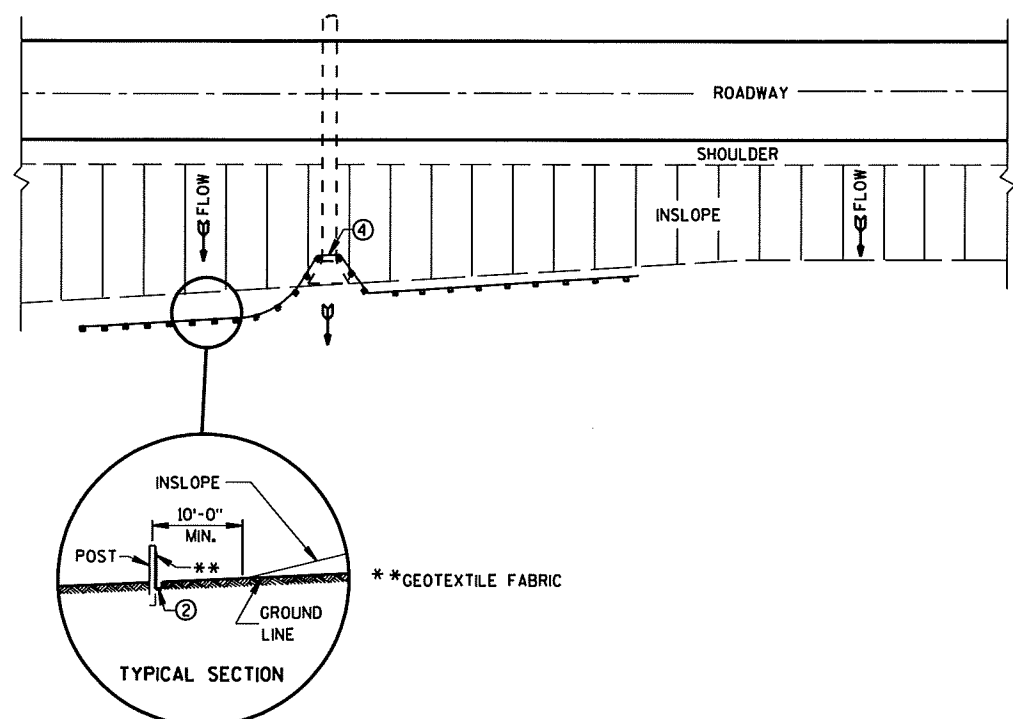
**ROADWAY WITH CURBS
(EDGEDRAIN CONNECTS INTO INLET STRUCTURE)**



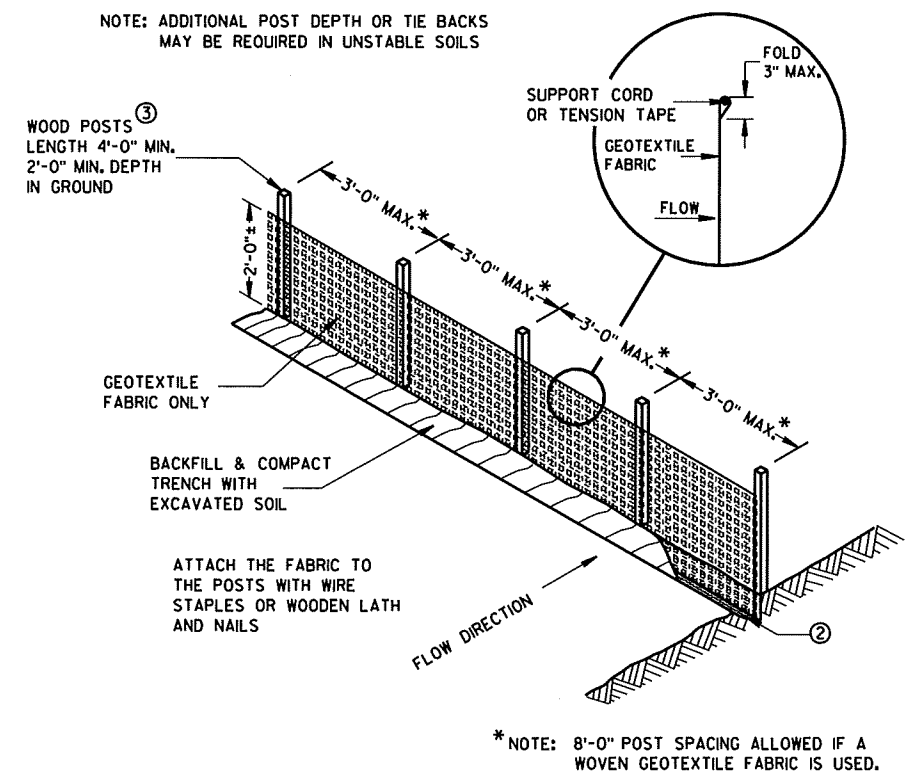
**PLAN VIEW
PAVEMENT MARKING
FOR OUTFALL MARKERS**

**EDGEDRAIN OUTLET
AND OUTFALL MARKERS**

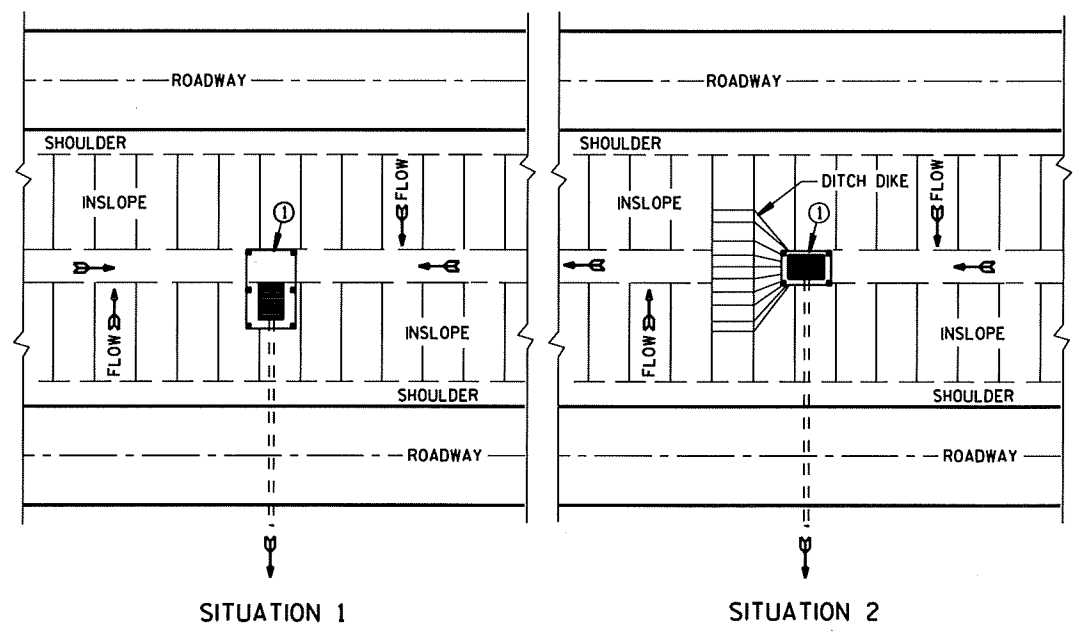
**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**



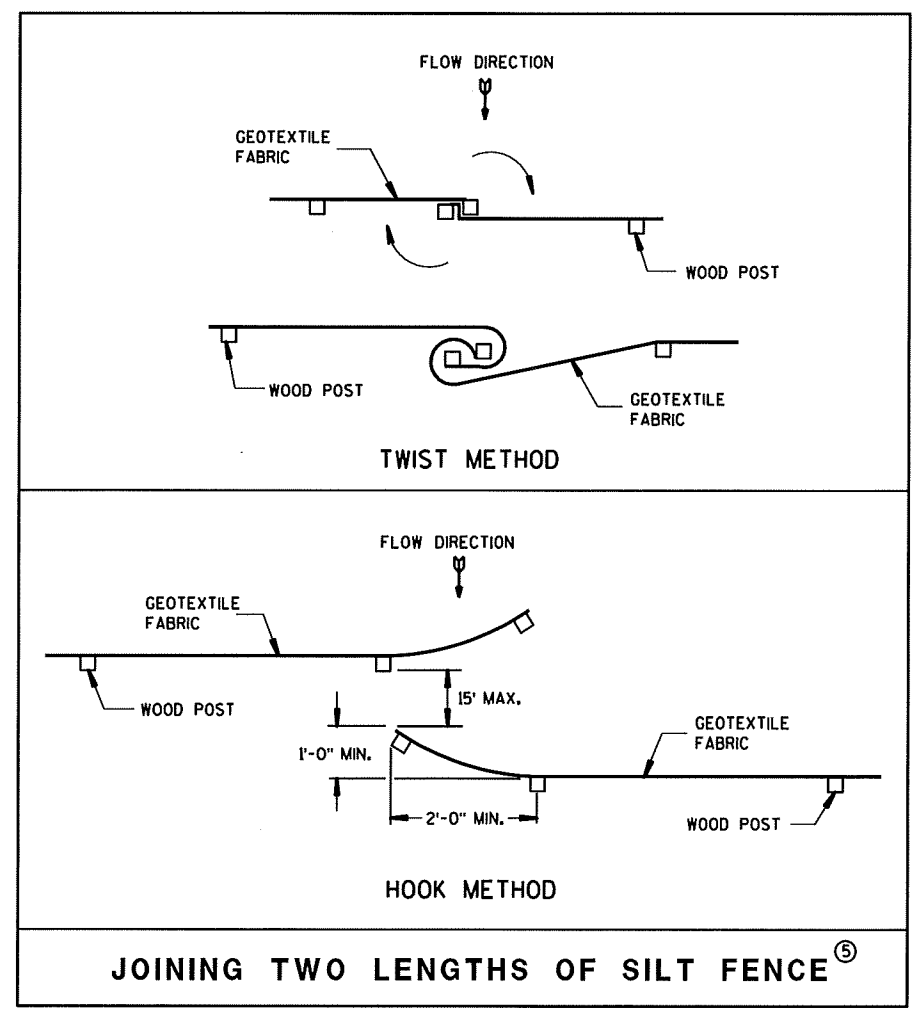
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



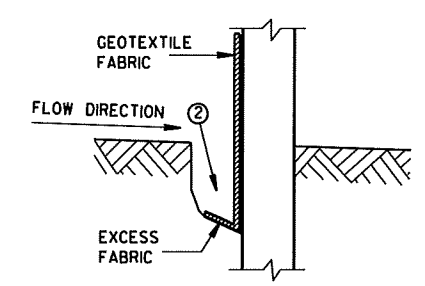
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS



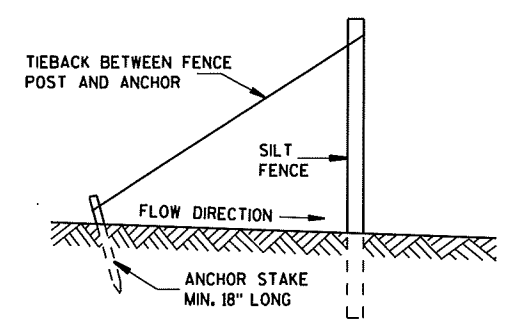
JOINING TWO LENGTHS OF SILT FENCE ⑤

GENERAL NOTES

- DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
 - ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
 - ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
 - ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
 - ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

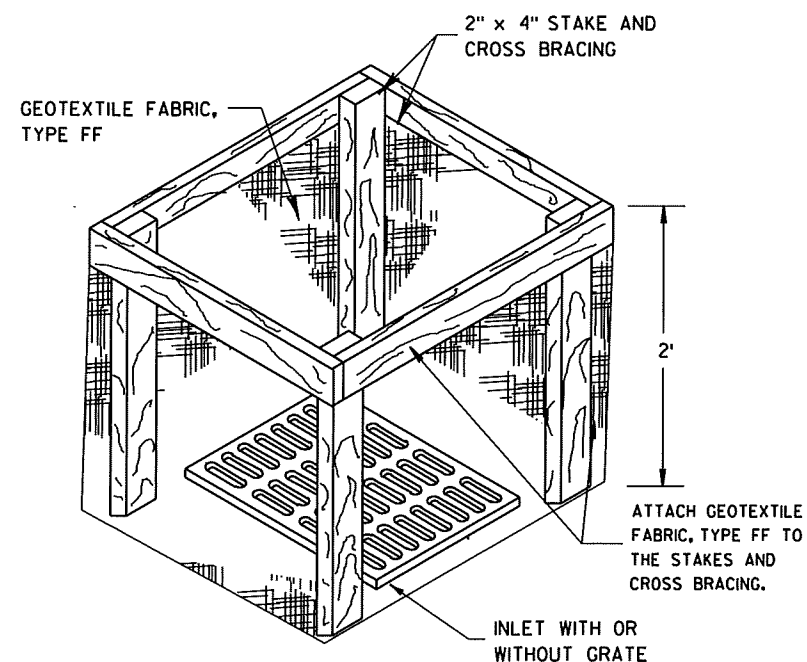
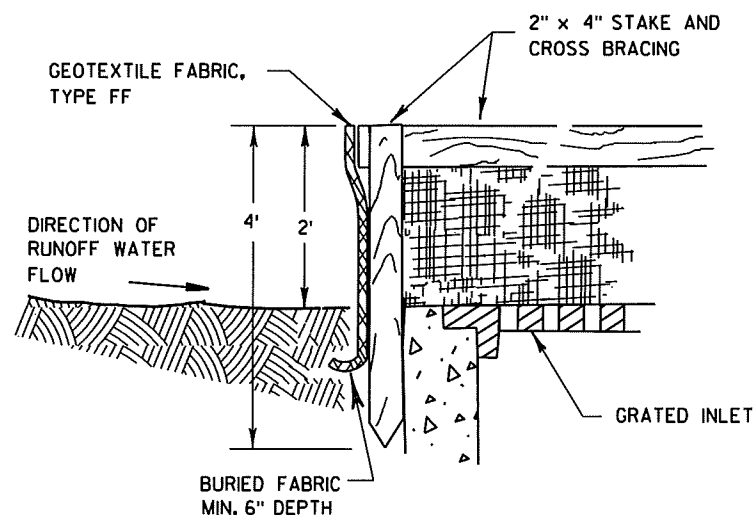


TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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



INLET PROTECTION, TYPE A

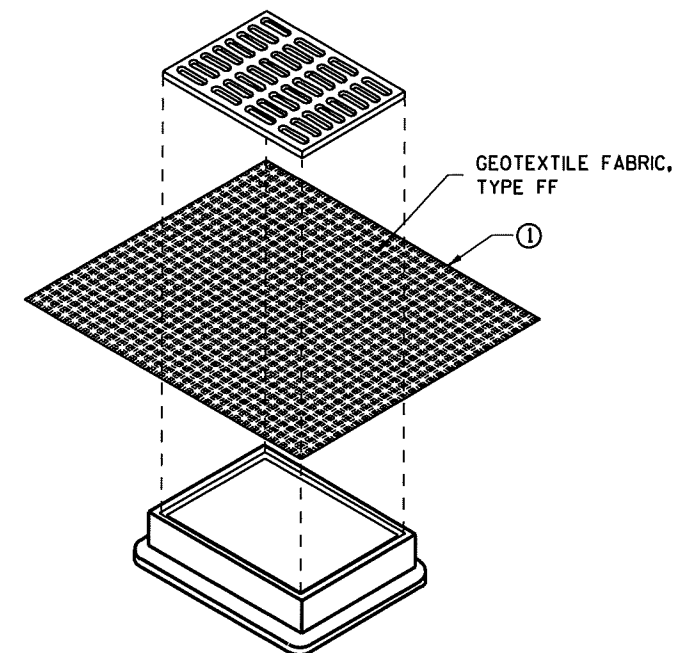
GENERAL NOTES

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

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

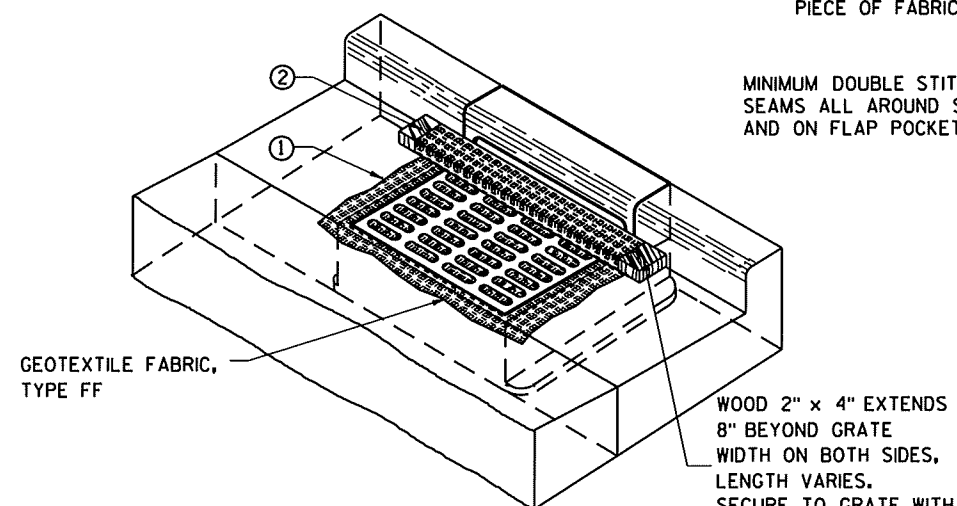
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



INLET PROTECTION, TYPE B (WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

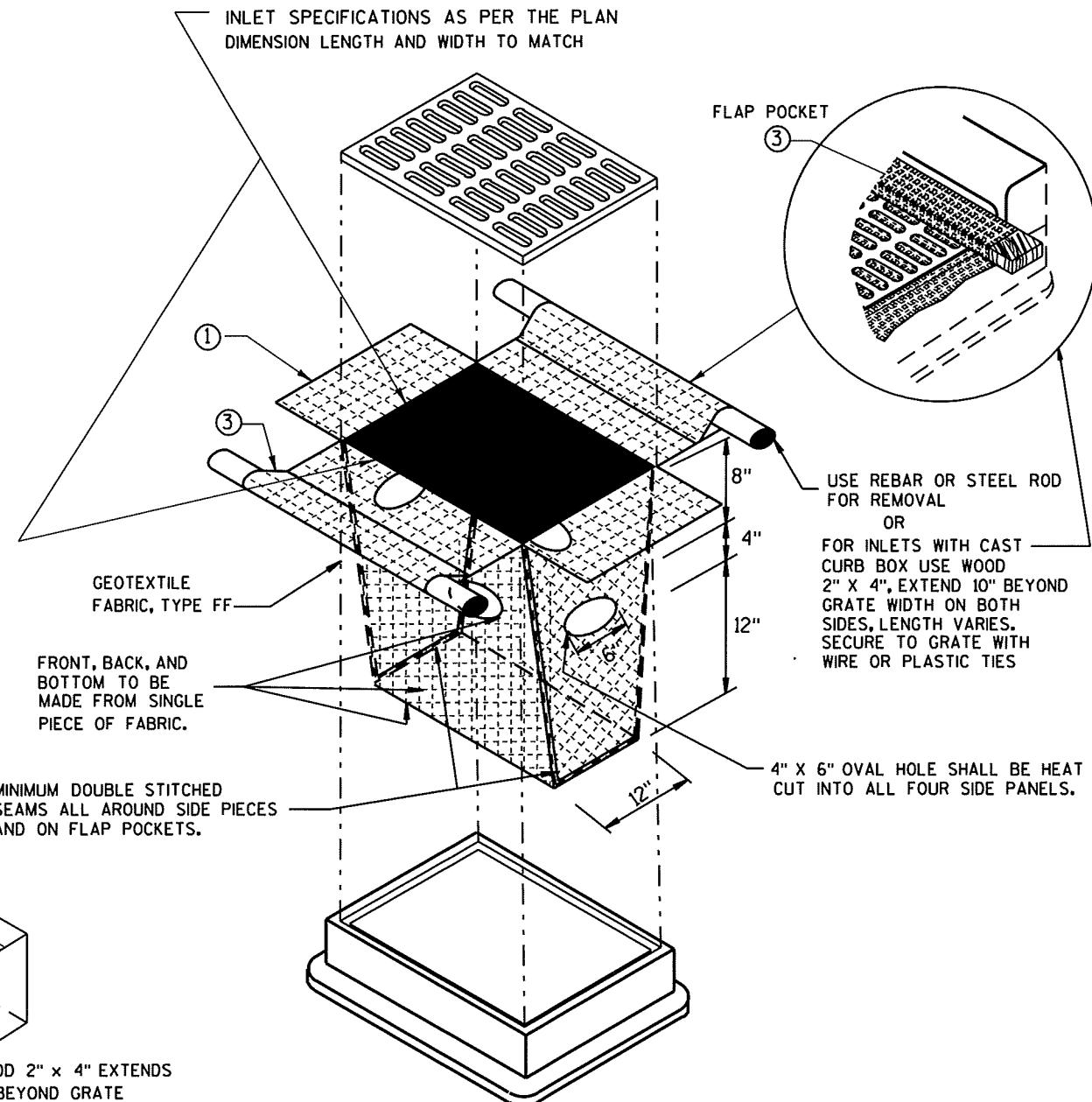
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



INLET PROTECTION, TYPE D

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

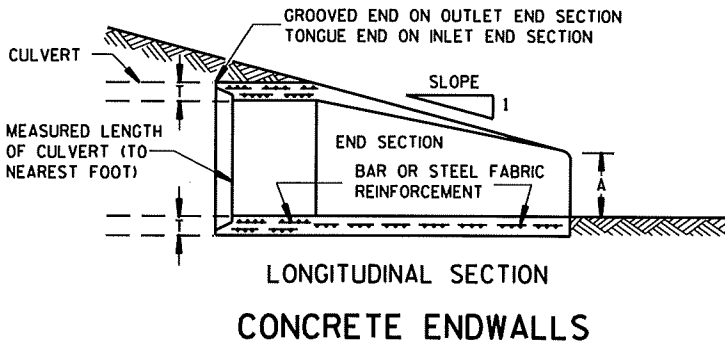
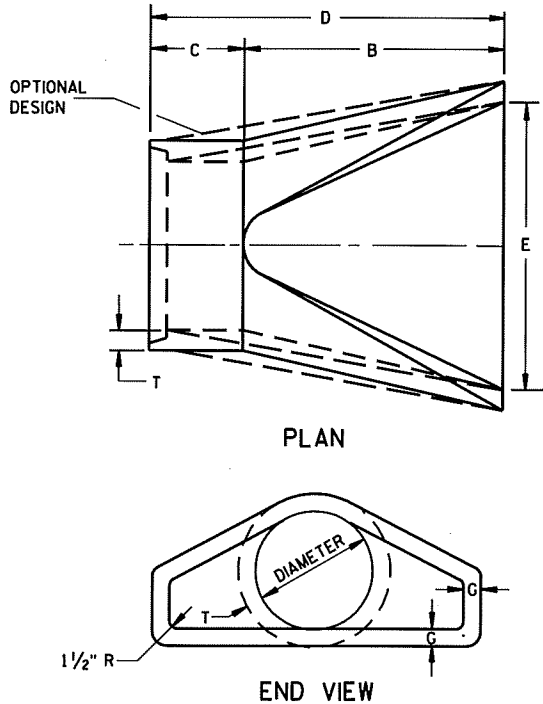
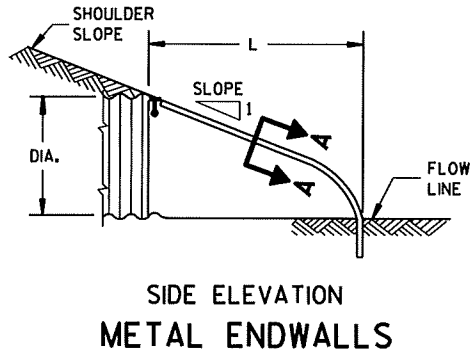
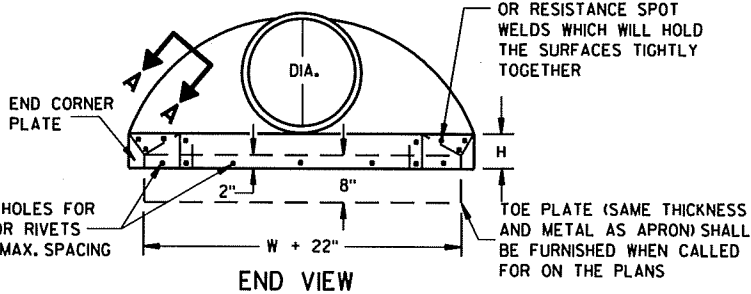
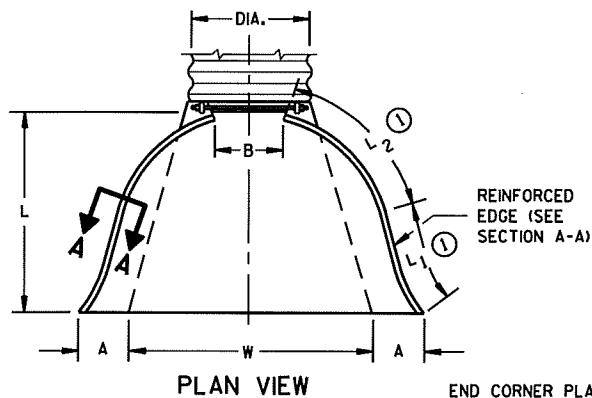
INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (1)	L2 (1)	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 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 3/8	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	H	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/2 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/2 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

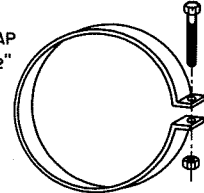
* EXCEPT CENTER PANEL SEE GENERAL NOTES

REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 ¹ / 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 ¹ / 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 ¹ / ₂	98 ¹ / ₄ -100 ¹ / ₂	90	5 ¹ / ₂	2 ³ / ₄ 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	

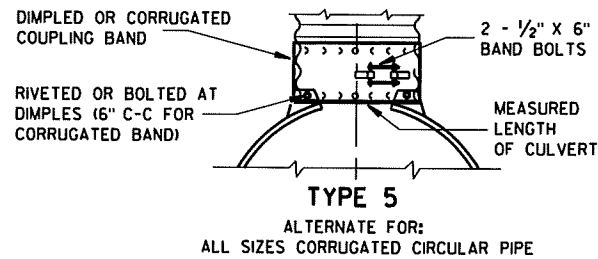
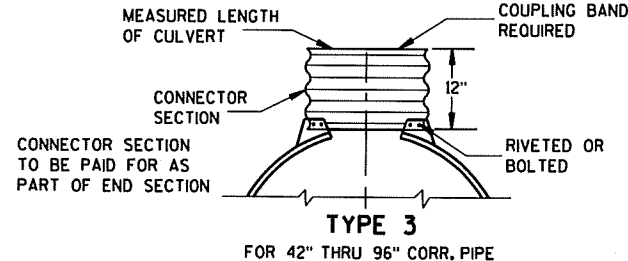
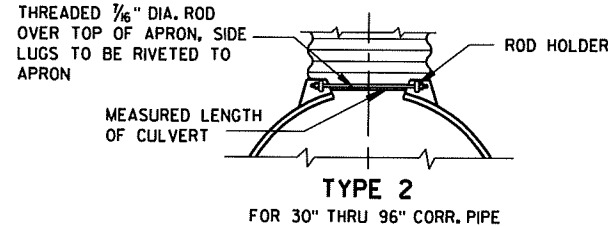
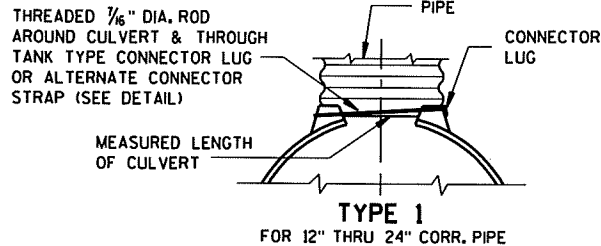
*MINIMUM
**MAXIMUM



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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



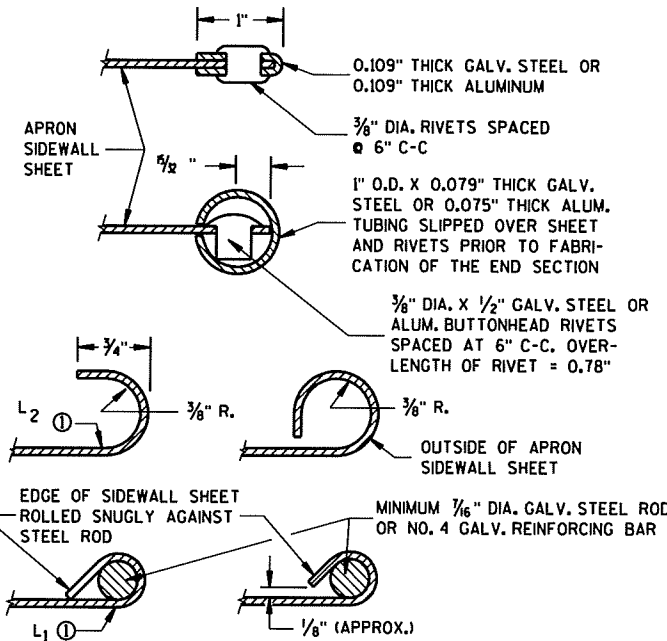
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VICE 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.

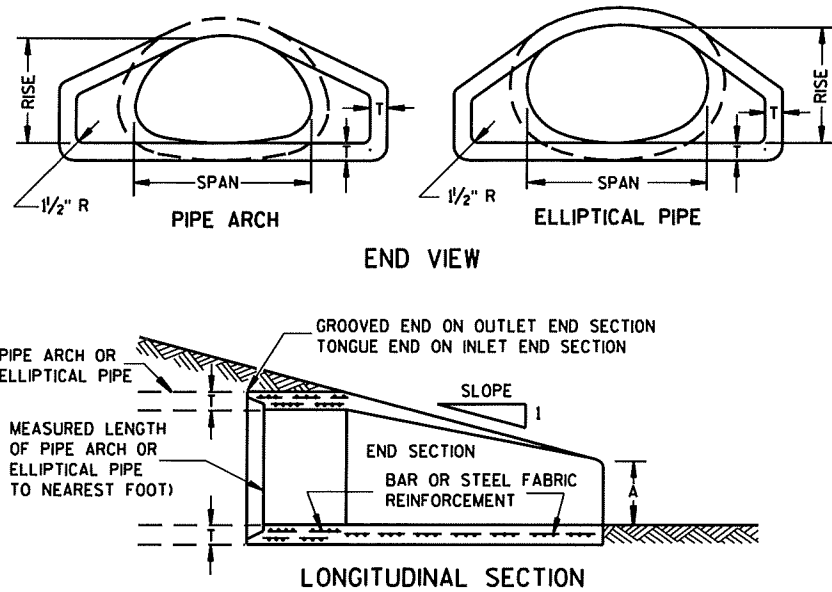
APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

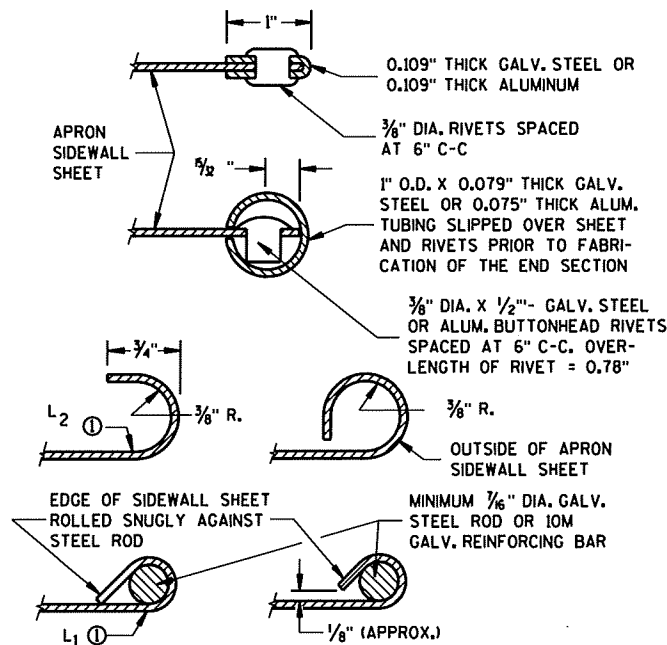
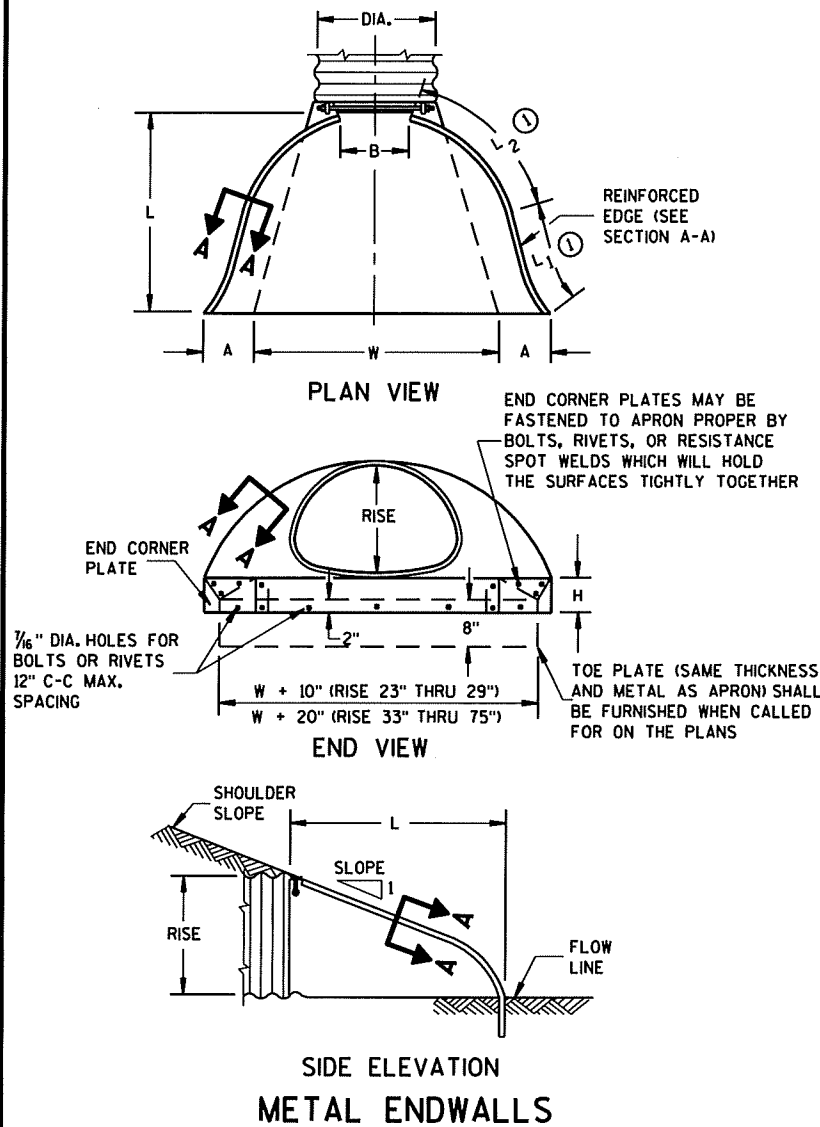
APPROVED
11/30/94
DATE

APPROVED
11/30/94
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



CONCRETE ENDWALLS

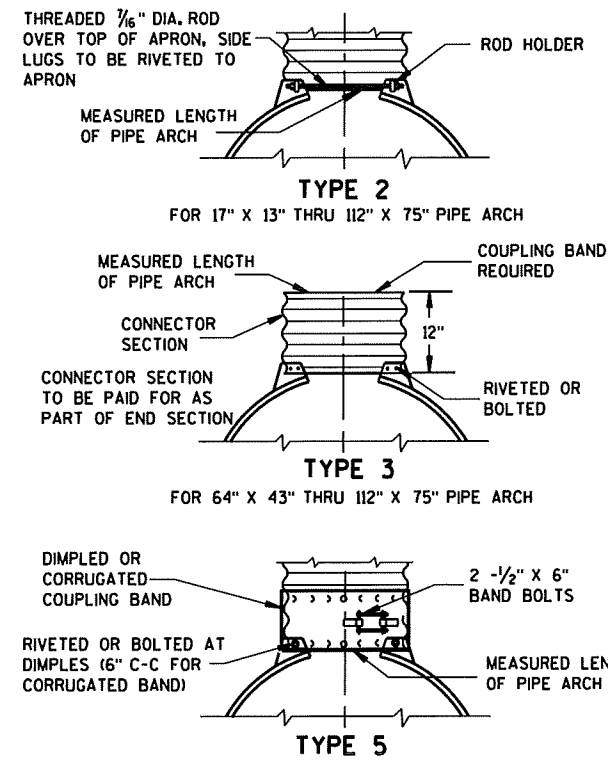


SECTION A-A

2- 2/3" X 1/2" CORRUGATIONS												
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1/2")	L (±1/2")	L1 (±1/2")	L2 (±1/2")	W (±2")	
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1
18	21	15	.064	.060	7	10	6	23	14	19 1/2	36	2 1/2 to 1
21	24	18	.064	.060	8	12	6	28	18	21 3/4	42	2 1/2 to 1
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2 1/2 to 1
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1
42	49	33	.109	.105	13	21	9	53	24	54 3/4	85	2 1/2 to 1
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1
54	64	43	.109	.105	18	30	12	70	24	72 3/4	102	2 1/2 to 1
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/2 to 1
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1

3" X 1" CORRUGATIONS												
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1/2")	L (±1/2")	L1 (±1/2")	L2 (±1/2")	W (±2")	
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED. * EXCEPT CENTER PANEL SEE GENERAL NOTES



NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH									
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	29	18	3	8½	39	33	72	48	3 to 1
30	36	22	3½	9½	50	46	96	60	3 to 1
36	44	27	4	11⅞	60	36	96	72	3 to 1
42	51	31	4½	15⅞	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5½	25½	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28½	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE									
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅞	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48	6½	30	60	36	96	96	2½ to 1

**NOMINAL SIZE

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

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

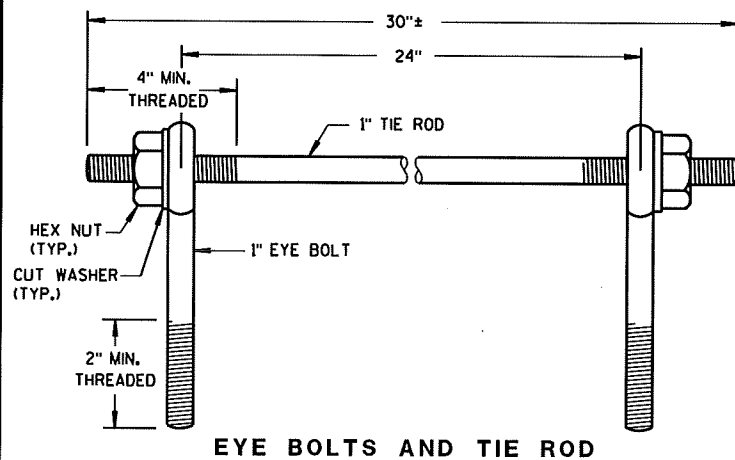
① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPE

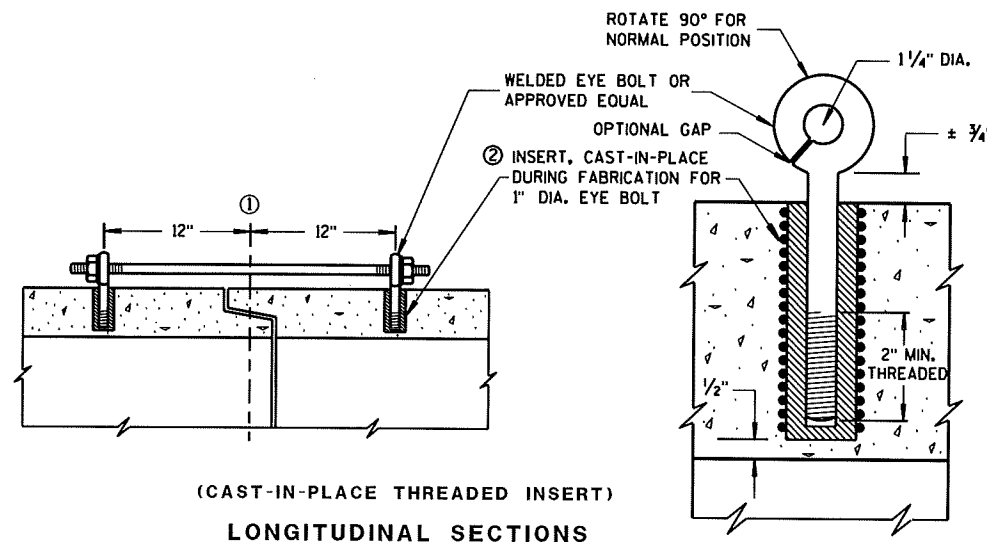
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
FHWA

Paul J. Rasmussen
CHIEF ROADWAY DEVELOPMENT ENGINEER



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

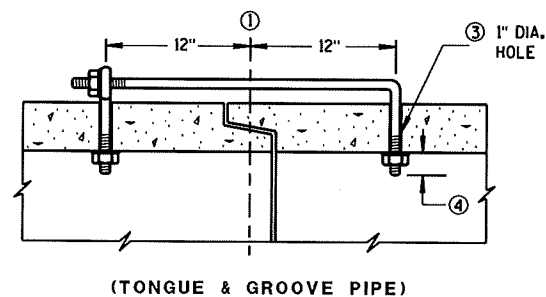
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED ON 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 CULVERT PIPE AS INDICATED ON THE PLANS AND BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO CULVERT PIPE, REINFORCED CONCRETE CULVERT PIPE, OR REINFORCED CONCRETE PIPE CATTLE PASS.

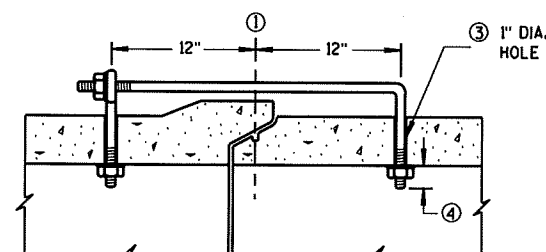
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

- ① C. 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 C. 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.

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



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)
LONGITUDINAL SECTION

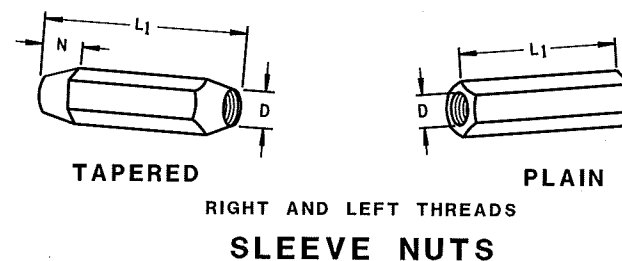
EYE BOLT DIMENSION TABLE

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"	

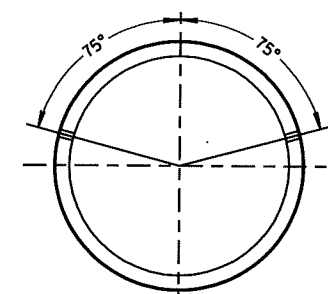
ADJUSTABLE TIE ROD TABLE

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 1/8

DIMENSIONS SHOWN ARE IN INCHES

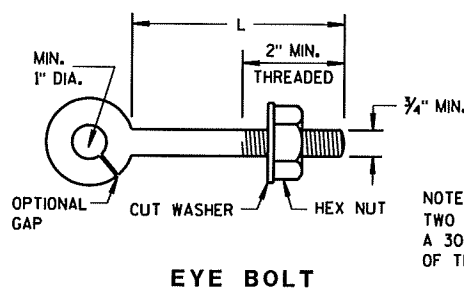


SLEEVE NUTS



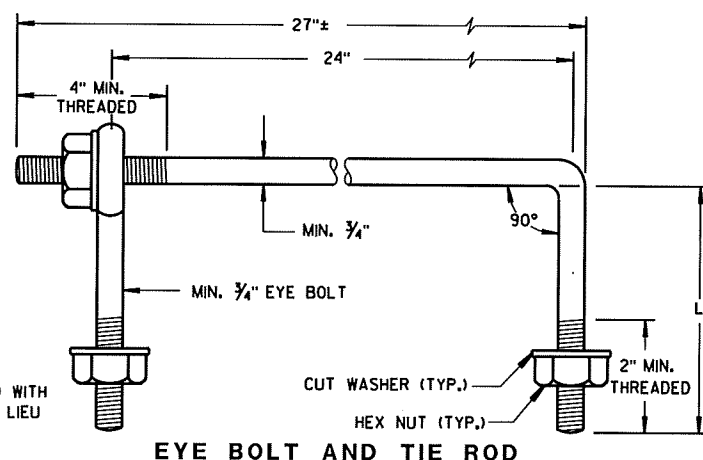
PLACEMENT OF (2) CAST-IN-PLACE
INSERTS OR HOLES DURING FABRICATION
FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



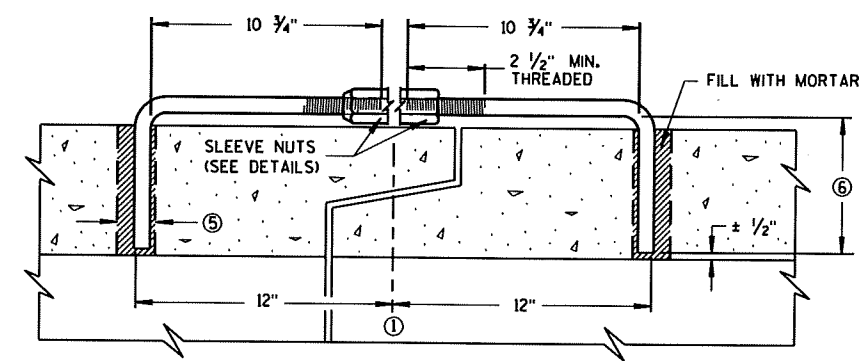
EYE BOLT

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)



LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)

JOINT TIES FOR CONCRETE PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/17/07

DATE

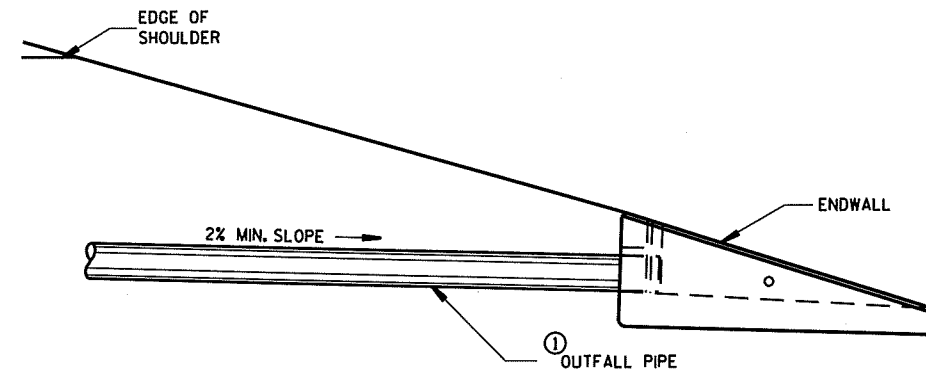
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

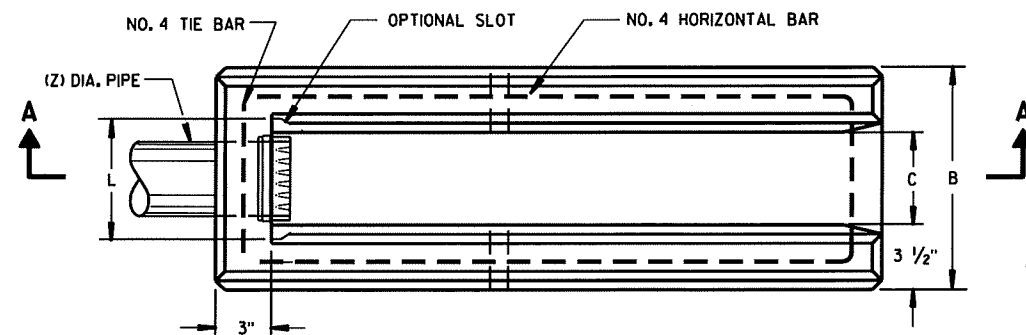
6

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

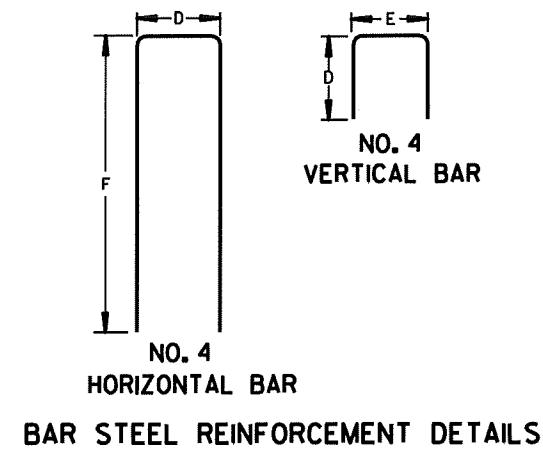
** APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



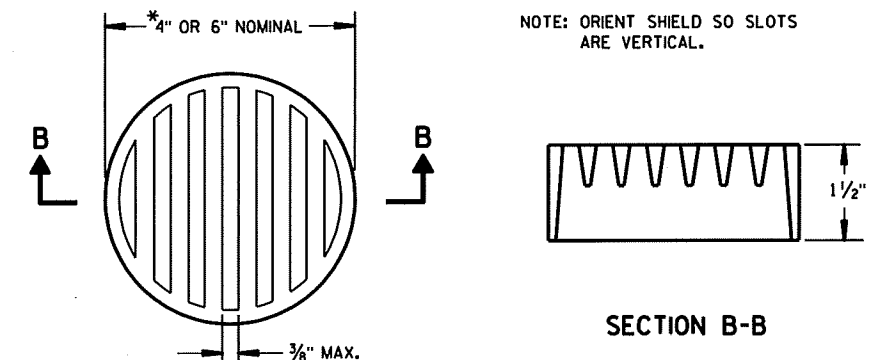
INSTALLATION DETAIL



PLAN VIEW

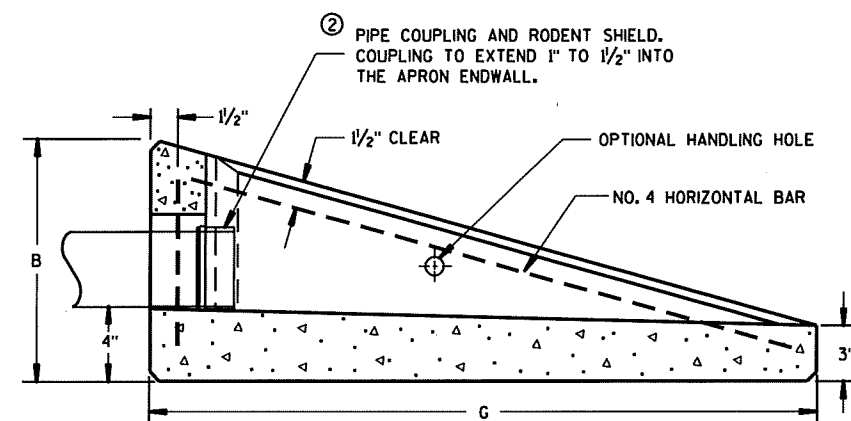


BAR STEEL REINFORCEMENT DETAILS



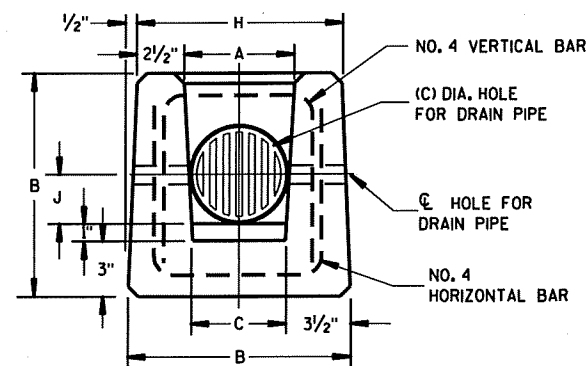
② RODENT SHIELD

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



SECTION A-A

CONCRETE APRON ENDWALL FOR UNDERDRAIN

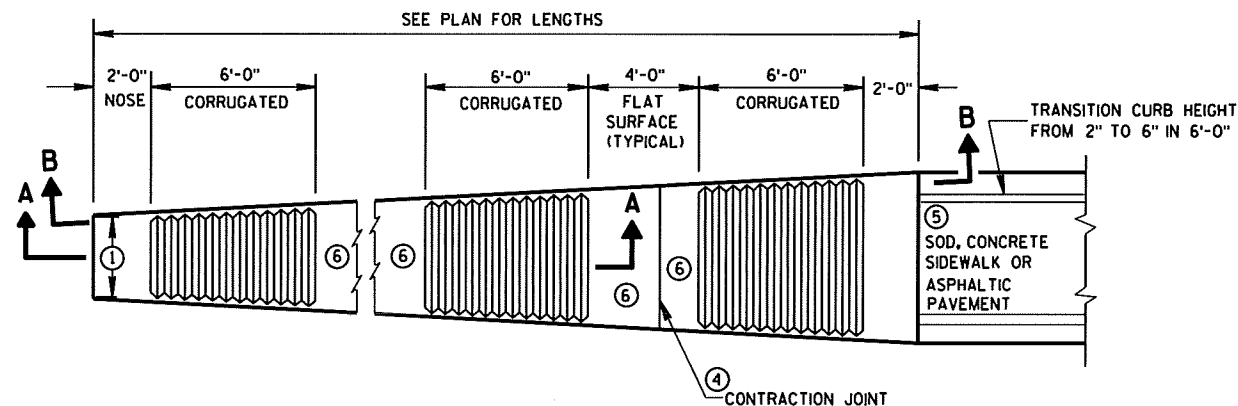


END VIEW

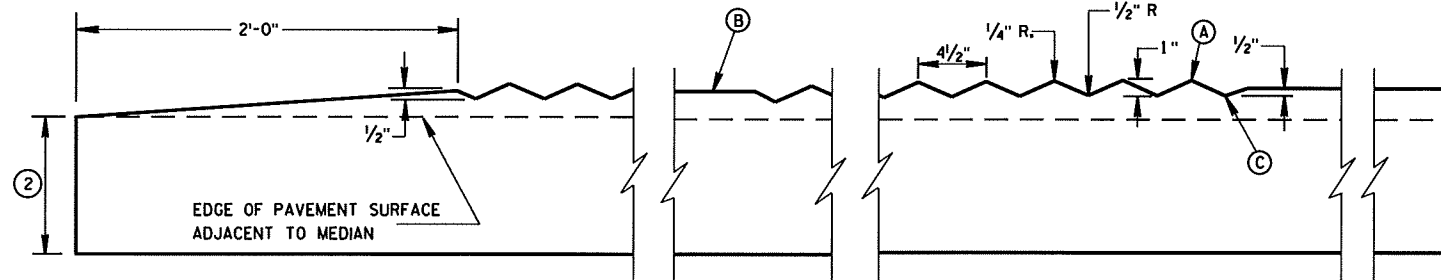
REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3/10/98 DATE	<i>Ray J. Thoma</i> CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

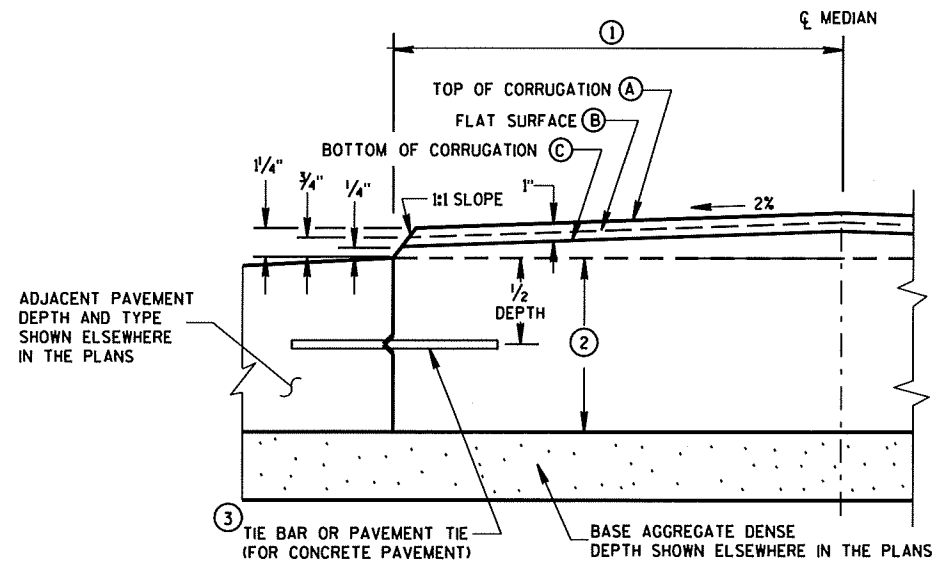
S.D.D. 8 F 6-4



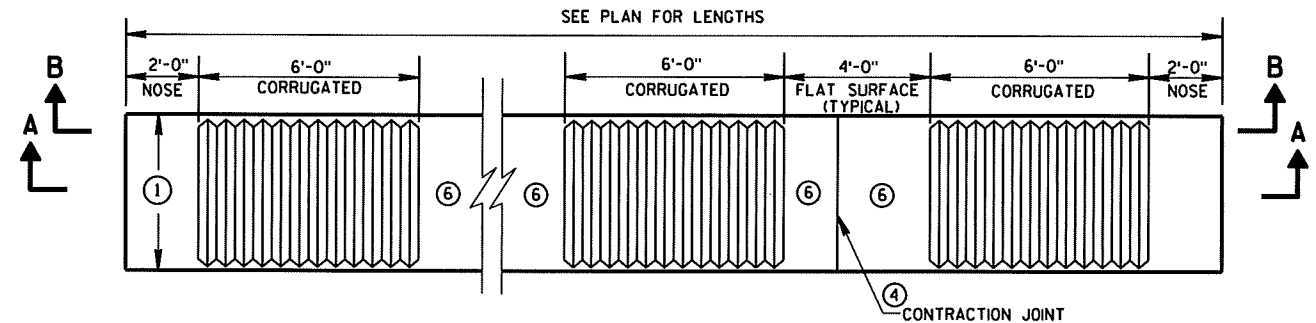
PLAN VIEW
VARIABLE WIDTH CONCRETE CORRUGATED MEDIAN



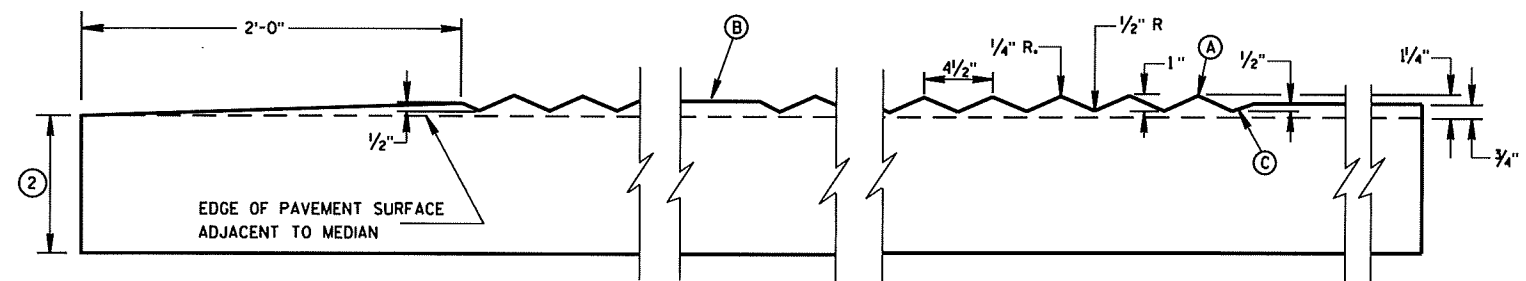
SECTION A-A
LONGITUDINAL SECTION



HALF CROSS SECTION
CONCRETE CORRUGATED MEDIAN AND ADJACENT PAVEMENT



PLAN VIEW
UNIFORM WIDTH CONCRETE CORRUGATED MEDIAN



SECTION B-B
LONGITUDINAL SECTION

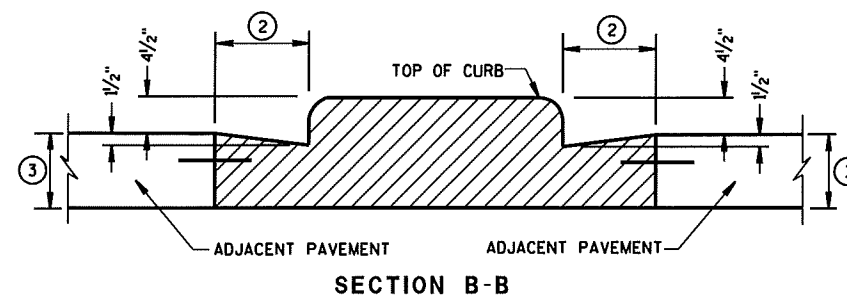
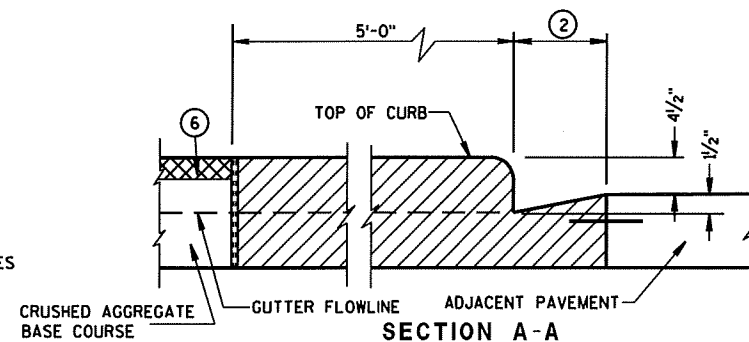
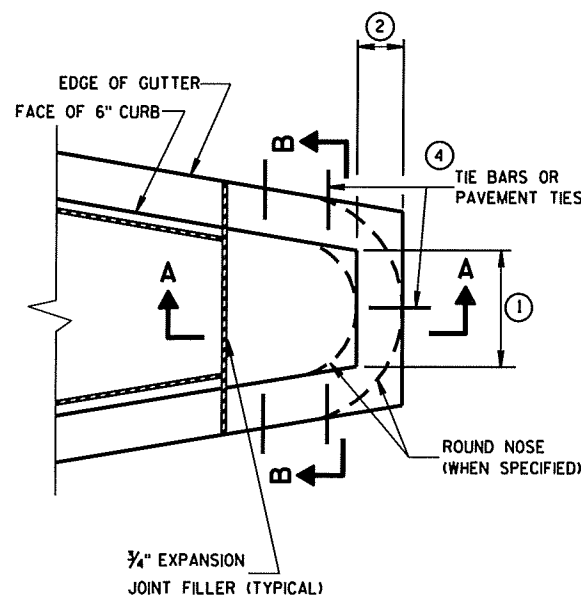
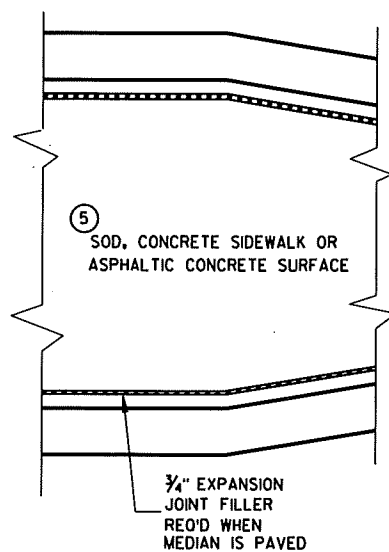
GENERAL NOTES

- ① SEE PLANS FOR CONSTANT OR VARIABLE WIDTH.
- ② THE DEPTH OF THE CONCRETE CORRUGATED MEDIAN SHALL BE 9-INCHES UNLESS SHOWN OTHERWISE IN THE PLAN. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN IN THE PLAN. TYPICAL OPTIONS ARE:
 - (1) NEW OR EXISTING CONCRETE PAVEMENT.
 - (2) ASPHALTIC CONCRETE OVER NEW OR EXISTING CONCRETE BASE COURSE, OR PAVEMENT.
 - (3) ASPHALTIC PAVEMENT OVER BASE AGGREGATE DENSE.
- ③ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C. INSTALL TIE BARS TO MAINTAIN A MINIMUM OF 3-INCHES OF COVER BETWEEN THE TIE BAR AND THE CONCRETE SURFACE (BOTTOM AND TOP). PAVEMENT TIES REQUIRED IN EXISTING CONCRETE PAVEMENT OR CONCRETE BASE COURSE, PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.
- ④ CONCRETE CORRUGATED MEDIAN CONTRACTION JOINTS SHALL BE CONSTRUCTED TO MATCH THE JOINTS IN ADJACENT CONCRETE PAVEMENT. WHERE ADJACENT PAVEMENT IS ASPHALT WITH BASE AGGREGATE DENSE. TRANSVERSE CONTRACTION JOINTS SHALL BE PROVIDED AT 20 FOOT INTERVALS.
- ⑤ SURFACE TYPE AND DETAILS ARE DEFINED ELSEWHERE IN THE PLAN.
- ⑥ YELLOW MARKING ON FLAT SURFACE WHEN MEDIAN SEPARATES OPPOSING TRAFFIC.

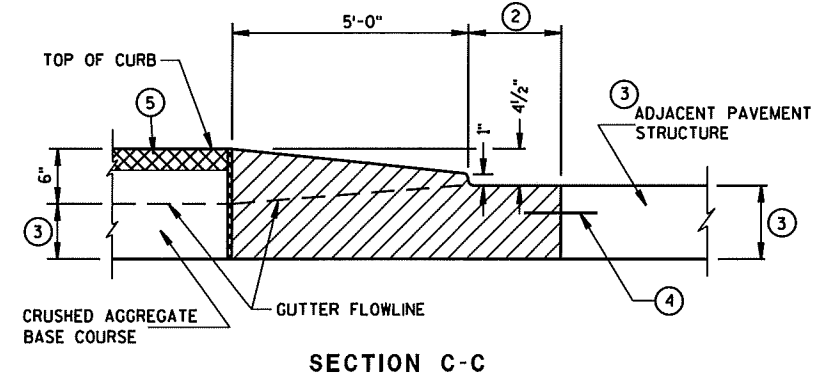
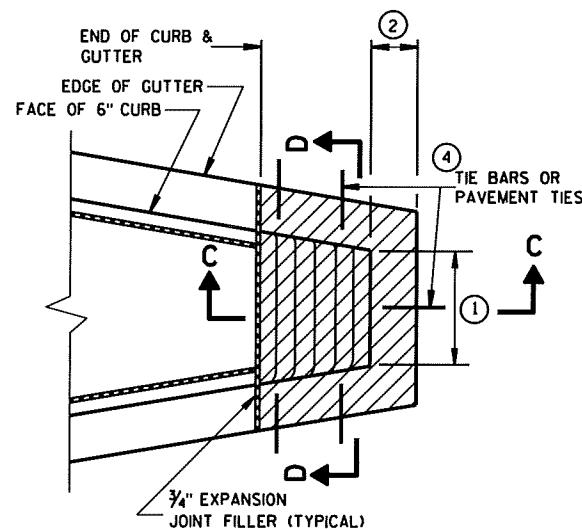
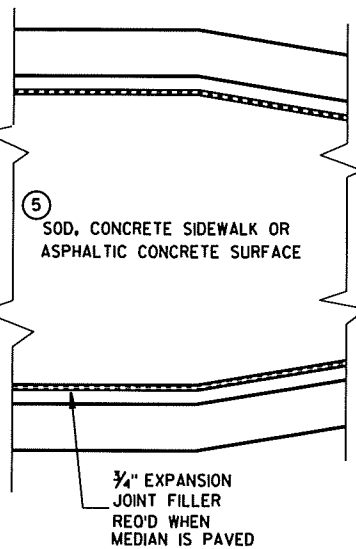
CONCRETE CORRUGATED MEDIAN

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/17/07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1

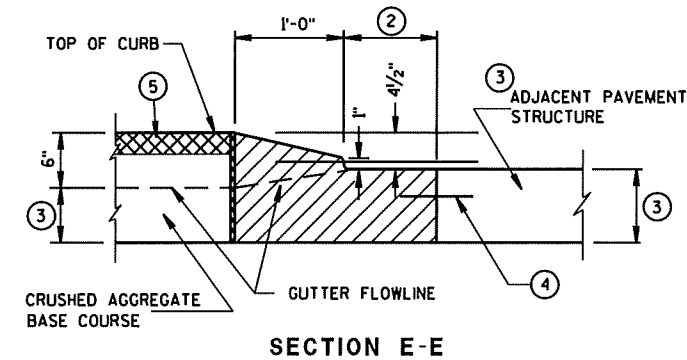
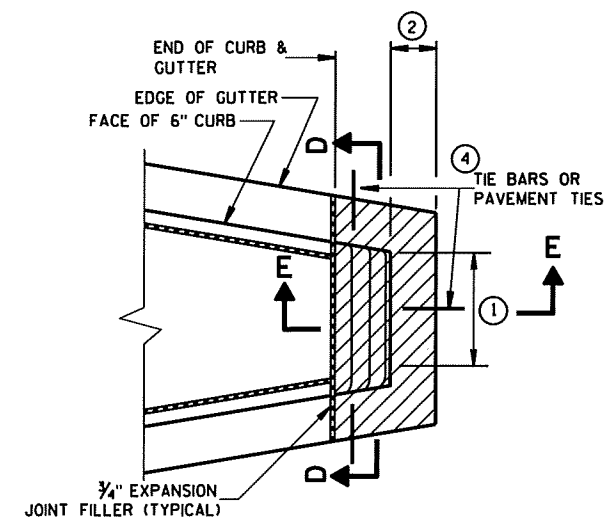
GENERAL NOTES

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.

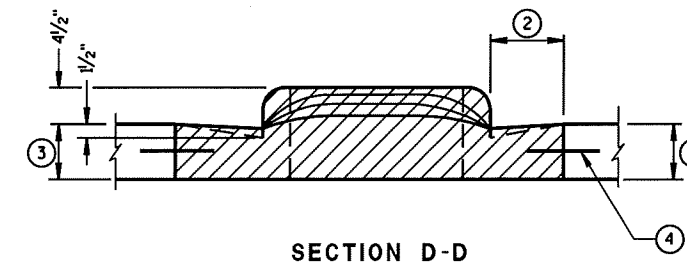
- SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
 - NEW OR EXISTING CONCRETE PAVEMENT.
 - ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
 - ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

- TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.
- PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

- SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



CONCRETE MEDIAN SLOPED NOSE TYPE 2



CONCRETE MEDIAN NOSE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6/8/06 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

PAVEMENT TYPE OF TRAFFIC LANES	TIE BAR SPACING	SHOULDER JOINT SPACING
NON-REINFORCED	30"	MATCH JOINT SPACING OF ADJACENT TRAFFIC LANE
REINFORCED	30"	20' AND MATCH JOINT SPACING OF ADJACENT TRAFFIC LANE
CONTINUOUSLY REINFORCED	30"	15' FOR 6' TO 10' WIDE SHOULDERS
CONTINUOUSLY REINFORCED	36"	12' FOR 3' WIDE SHOULDERS

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.

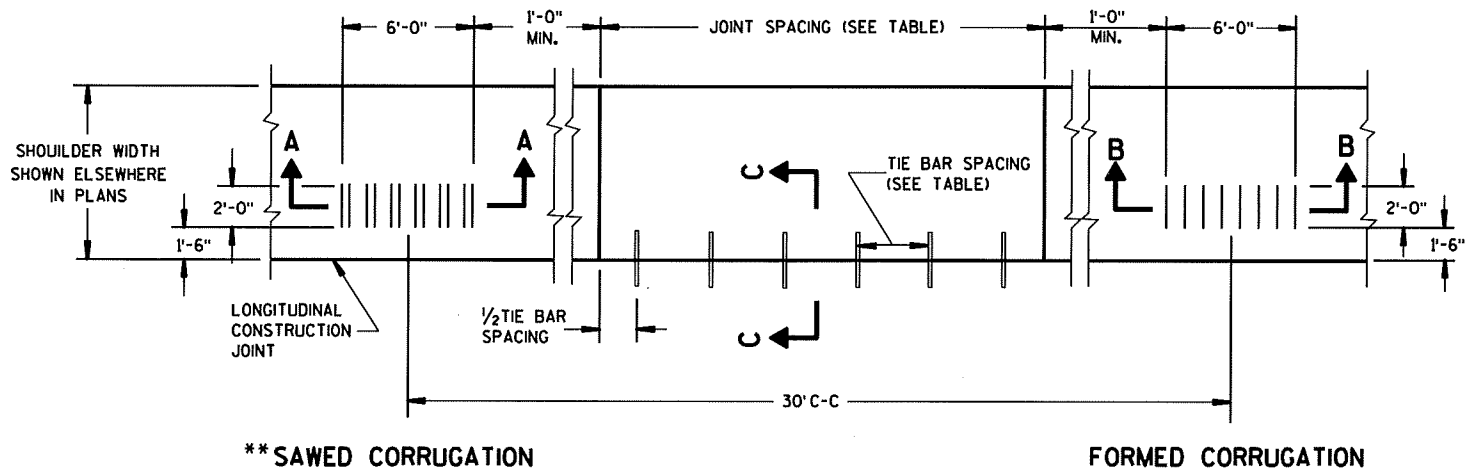
CORRUGATIONS SHALL BE PERPENDICULAR TO THE PAVEMENT EDGE.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

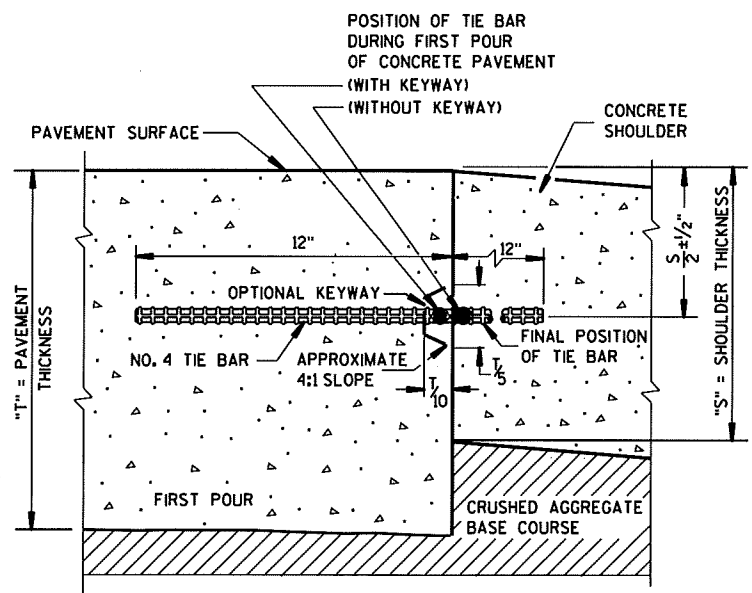
THE SHOULDER PAVEMENT SHALL RECEIVE A FINISH WITH AN ARTIFICIAL TURF DRAG IN CONFORMANCE WITH SUBSECTION 415.5.9.6.2 OF THE STANDARD SPECIFICATIONS

TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.

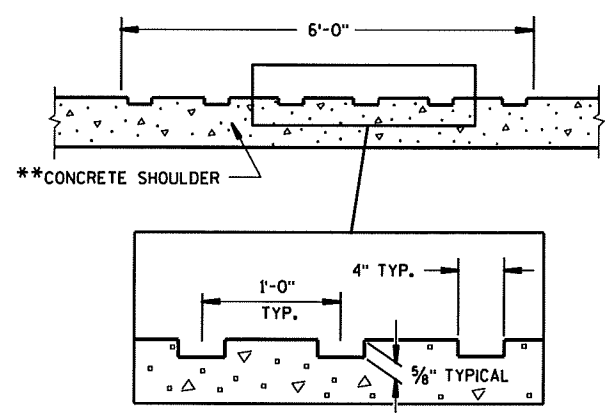
**SAWED CORRUGATIONS SHALL NOT BE USED UNLESS SPECIFIED ELSEWHERE IN THIS CONTRACT.



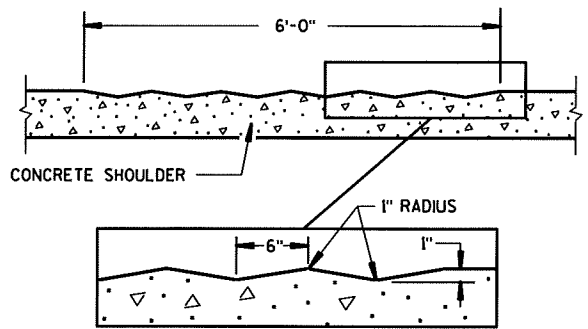
PLAN VIEW OF CONCRETE SHOULDER



SECTION C-C
LONGITUDINAL CONSTRUCTION JOINT



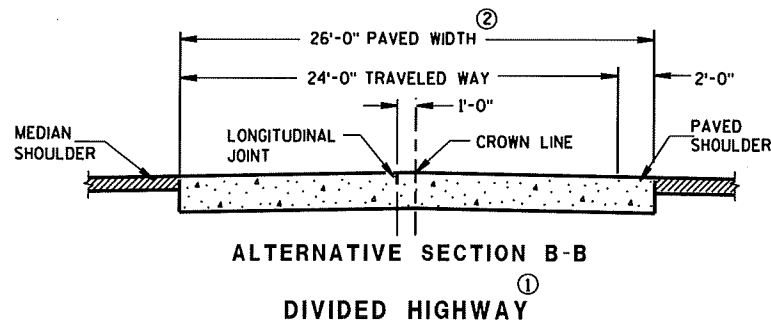
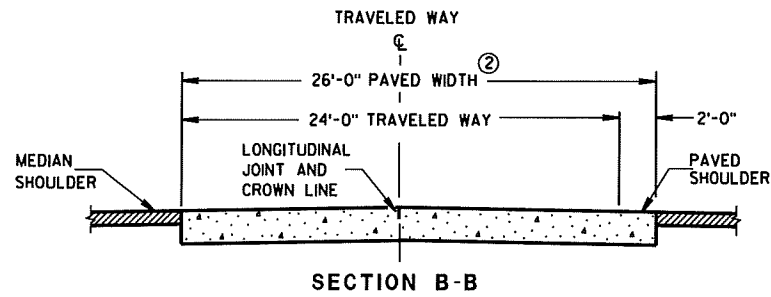
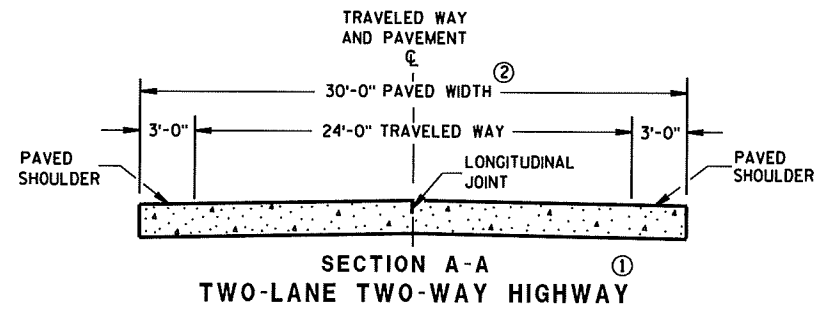
** SECTION A-A (SAWED)



SECTION B-B (FORMED)

CORRUGATION DETAIL

CONCRETE PAVEMENT SHOULDERS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 9/8/03 DATE	<i>Bill Duckert</i> PAVEMENT ENGINEER
FHWA	



GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, CENTER THE DOWEL ASSEMBLY ACROSS THE LANES. LOCATE THE INNER AND OUTER MOST DOWEL BARS SO THAT THE CENTER OF THE BARS ARE A MINIMUM OF 6 INCHES AND A MAXIMUM OF 12 INCHES FROM THE LONGITUDINAL JOINT AND THE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

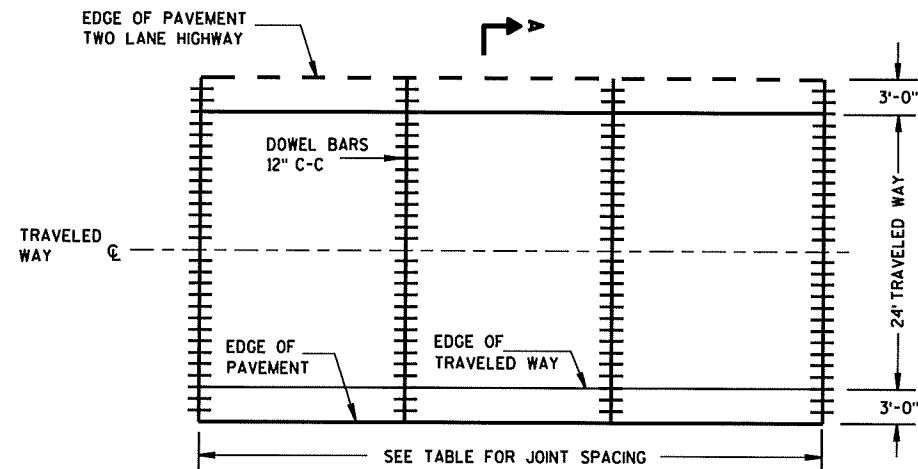
THE CONTRACTOR MAY INSERT TIE BARS THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN PLACED.

① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.

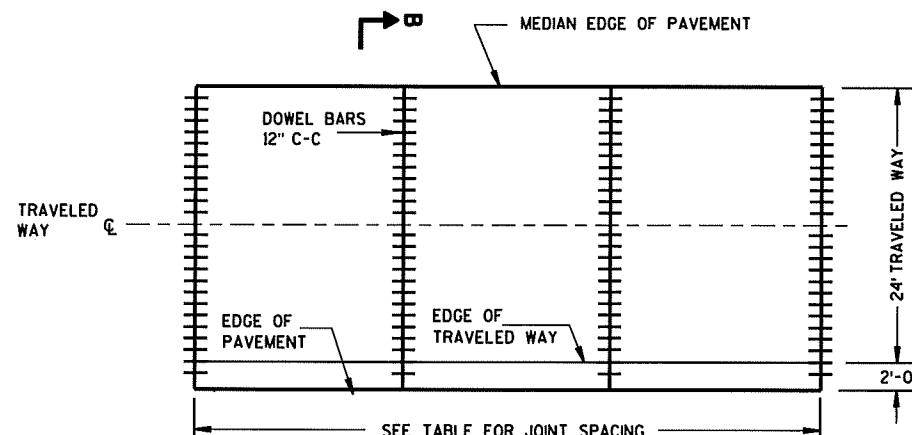
② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED PAVED SHOULDER AS CONCRETE PAVEMENT.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'



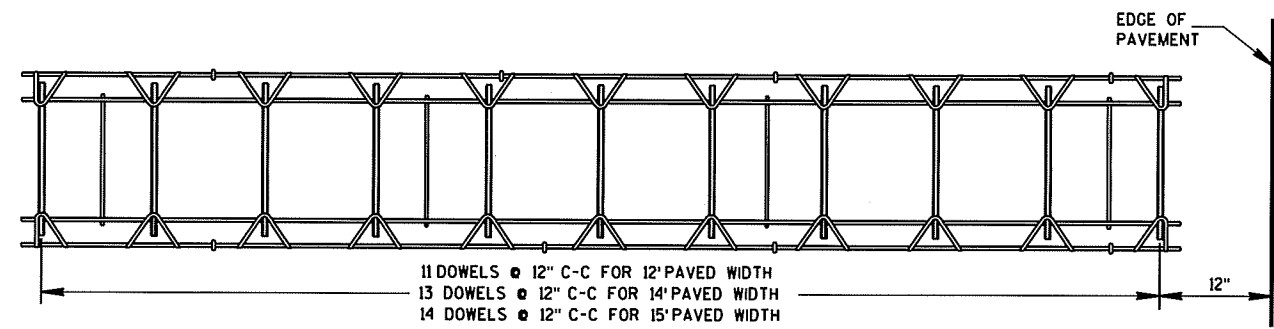
CONTRACTION JOINT LAYOUT FOR TWO-LANE TWO-WAY HIGHWAY



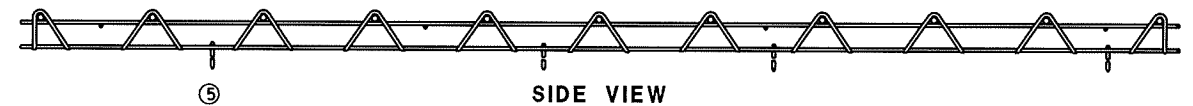
CONTRACTION JOINT LAYOUT FOR DIVIDED HIGHWAY

RURAL DOWELED
CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

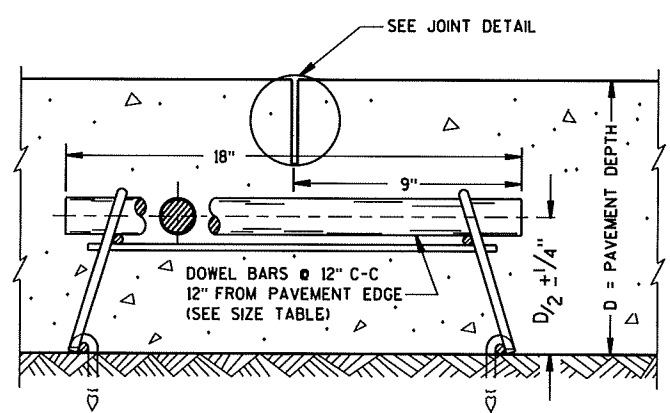


PLAN VIEW

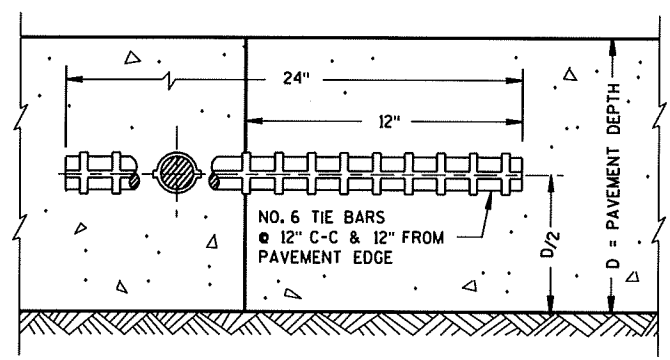


SIDE VIEW
(NORMAL TO CENTERLINE)

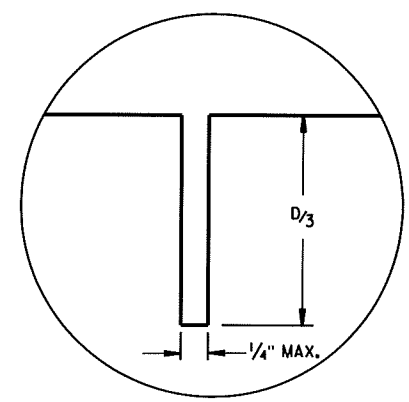
CONTRACTION JOINT DOWEL ASSEMBLY ①



DOWELED CONTRACTION JOINT



CONSTRUCTION JOINT

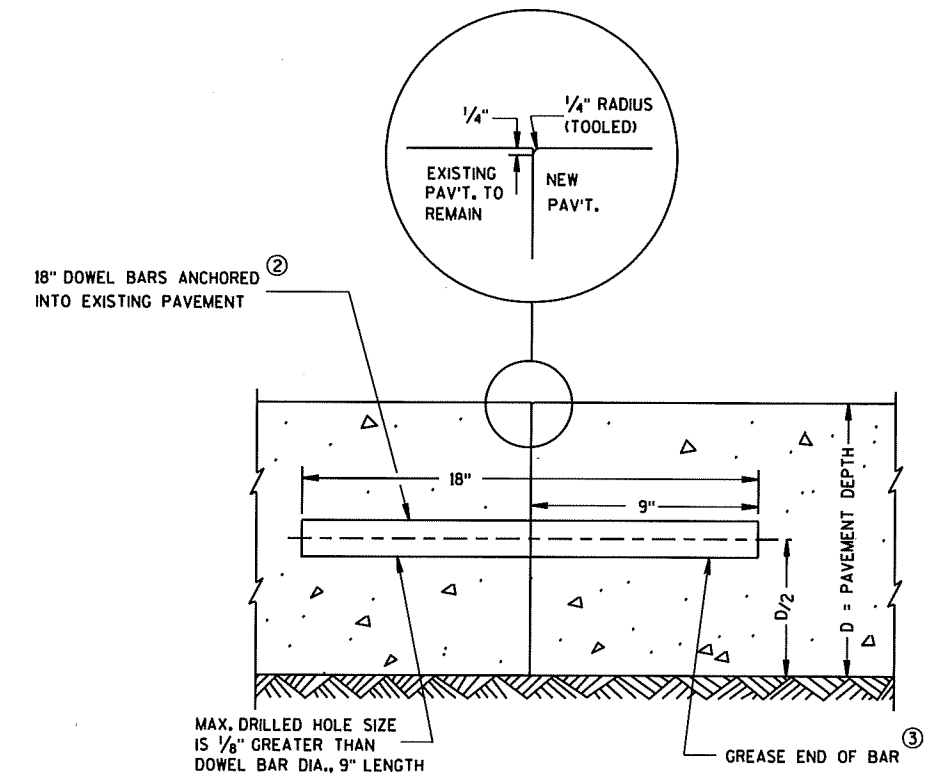


JOINT DETAIL

GENERAL NOTES

- ① THE ENGINEER MAY APPROVE THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. THE CONTRACTOR MAY USE MECHANICAL DOWEL BAR INSERTERS INSTEAD OF DOWEL ASSEMBLIES.
- ② ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY.
- ③ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ④ SPACE DOWEL BARS INSTALLED BY DRILLING 1'-3" ON CENTER. CENTER THE GROUPING OF DOWEL BARS INSIDE THE SLAB BASED ON ALL THE FOLLOWING SITUATIONS:

 BETWEEN THE EDGES OF PAVEMENTS WITHOUT LONGITUDINAL JOINTS OR BETWEEN THE EDGE OF PAVEMENT AND NEAREST LONGITUDINAL JOINT OR BETWEEN TWO ADJACENT LONGITUDINAL JOINTS.
- ⑤ SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.



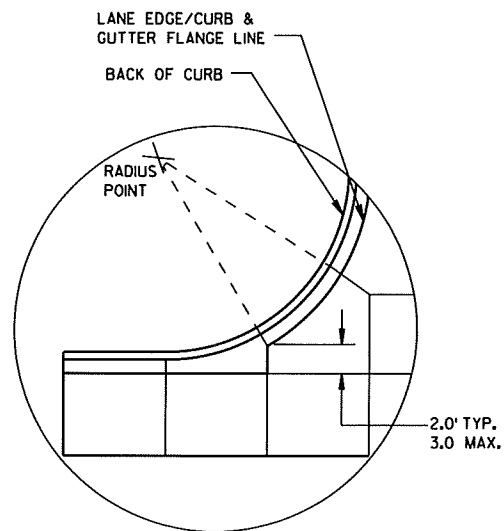
TRANSVERSE CONTRACTION JOINTS ABUTTING EXISTING PAVEMENT

④ DOWEL BAR DETAIL

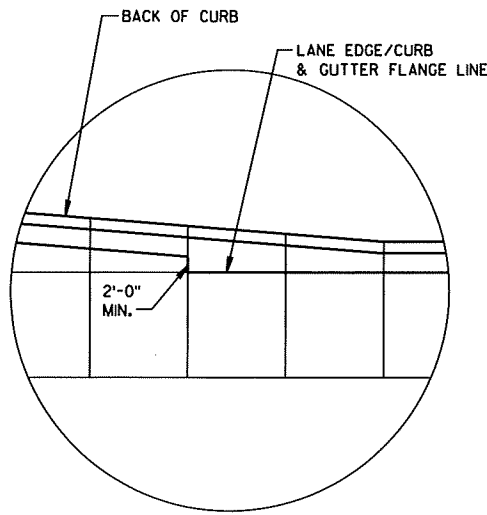
RURAL DOWELED
CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

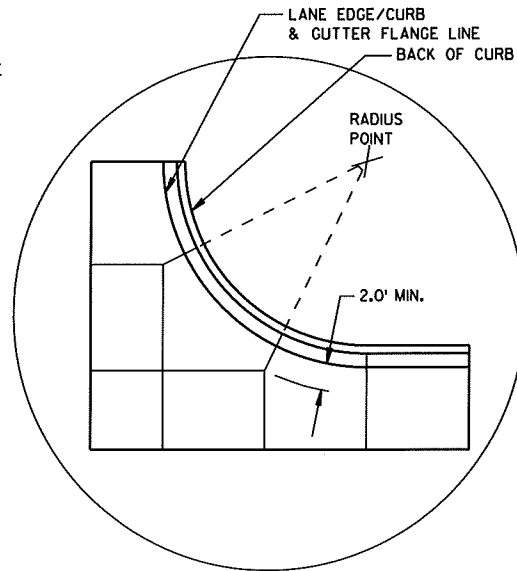
APPROVED
 12/11/09 /S/ Deb Bischoff
 DATE PAVEMENT POLICY & DESIGN ENGINEER
 FHWA



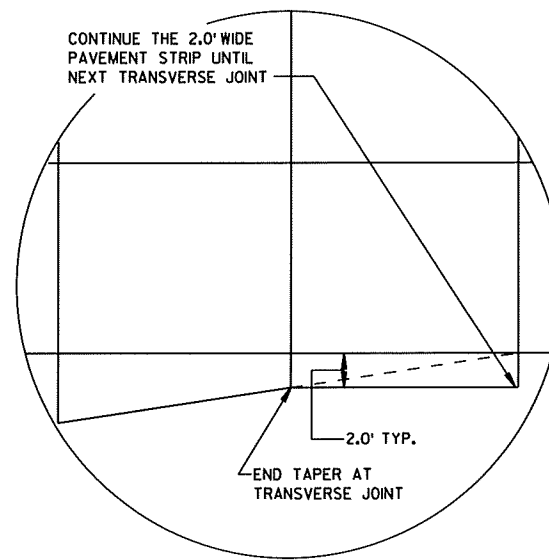
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.

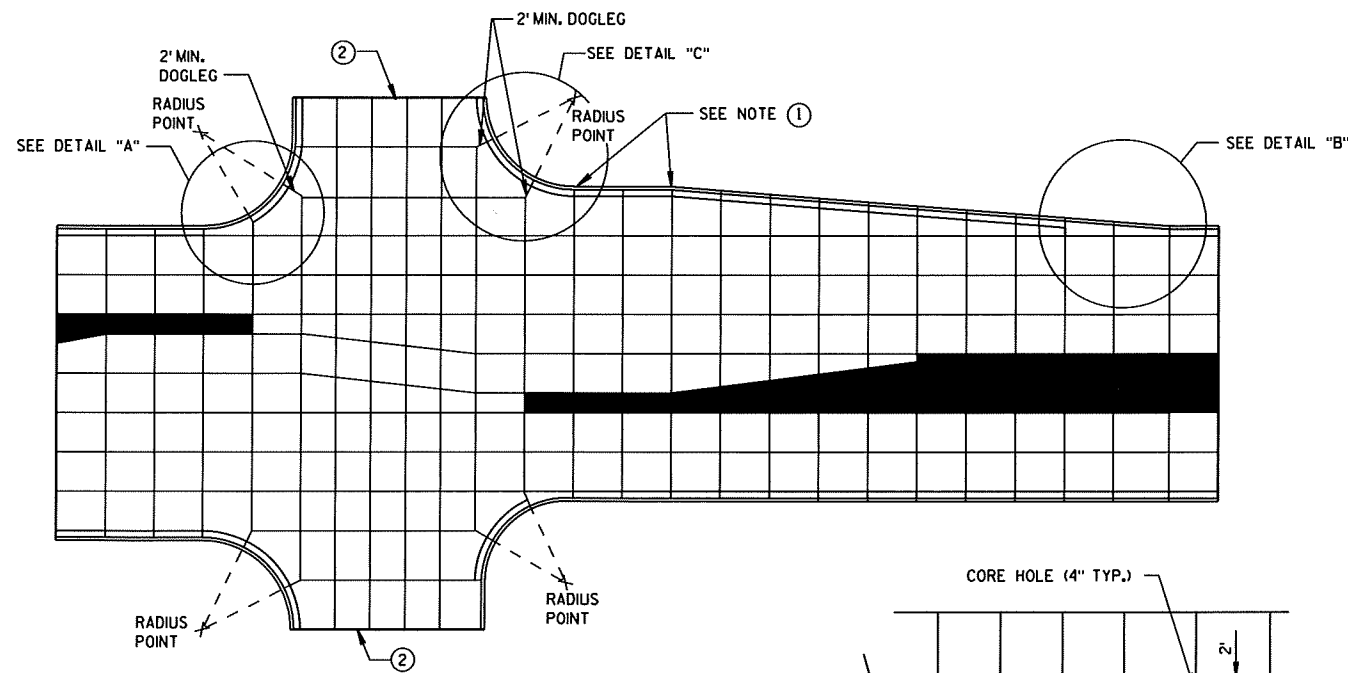
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

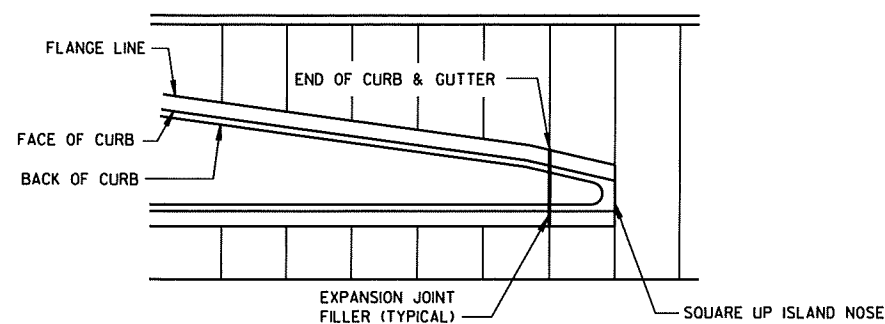
AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

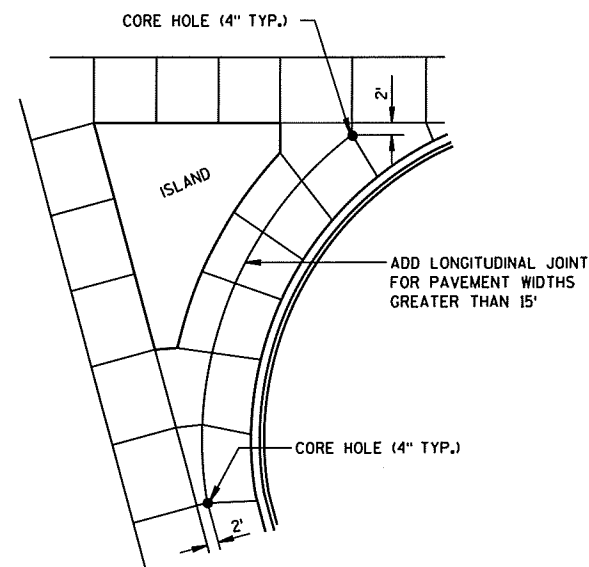
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



STANDARD INTERSECTION



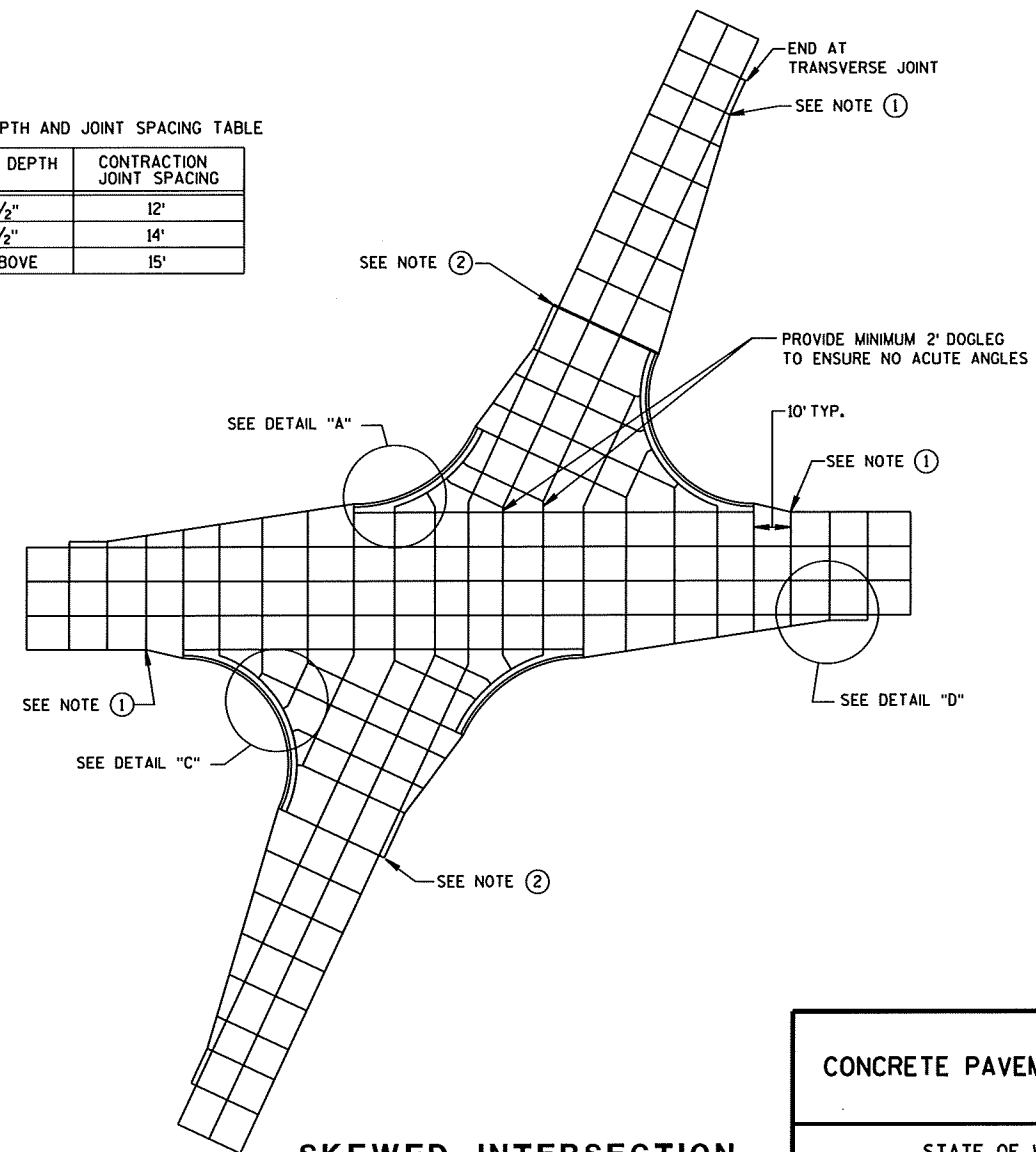
APPROACH TO MEDIAN



LARGE RIGHT TURN

PAVEMENT DEPTH AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



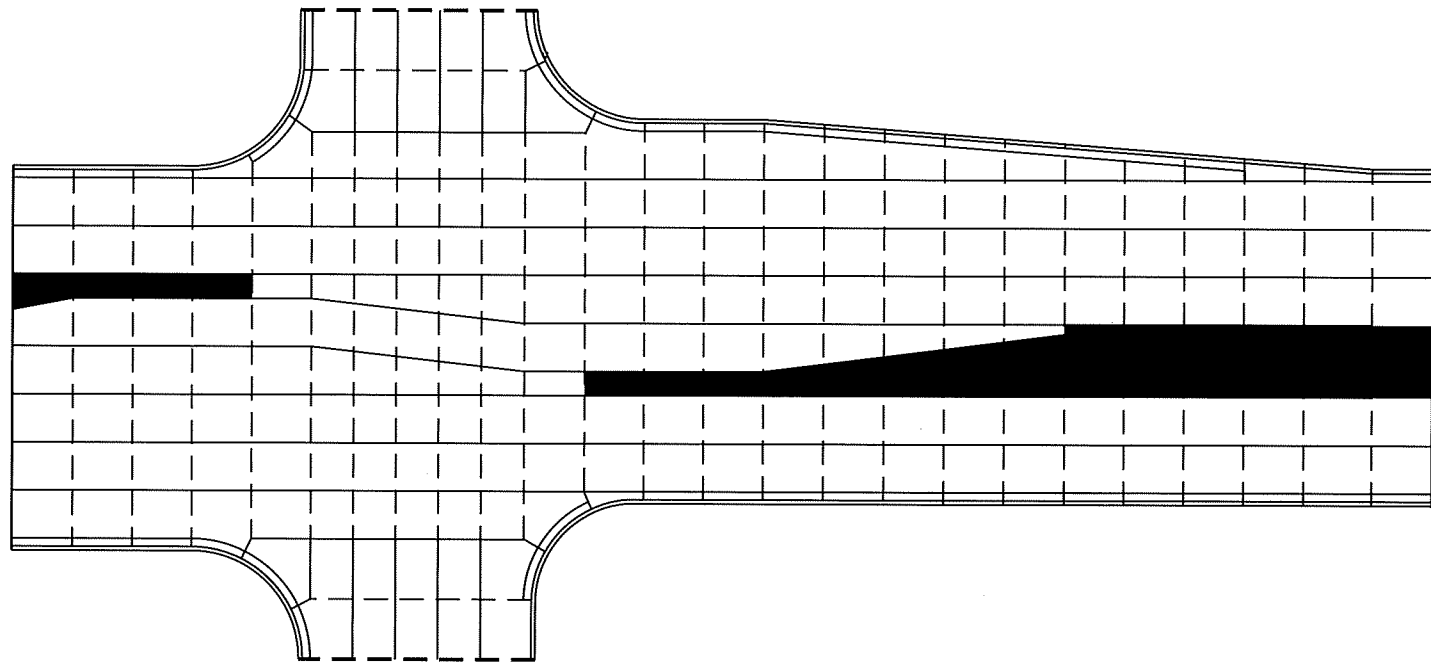
SKEWED INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

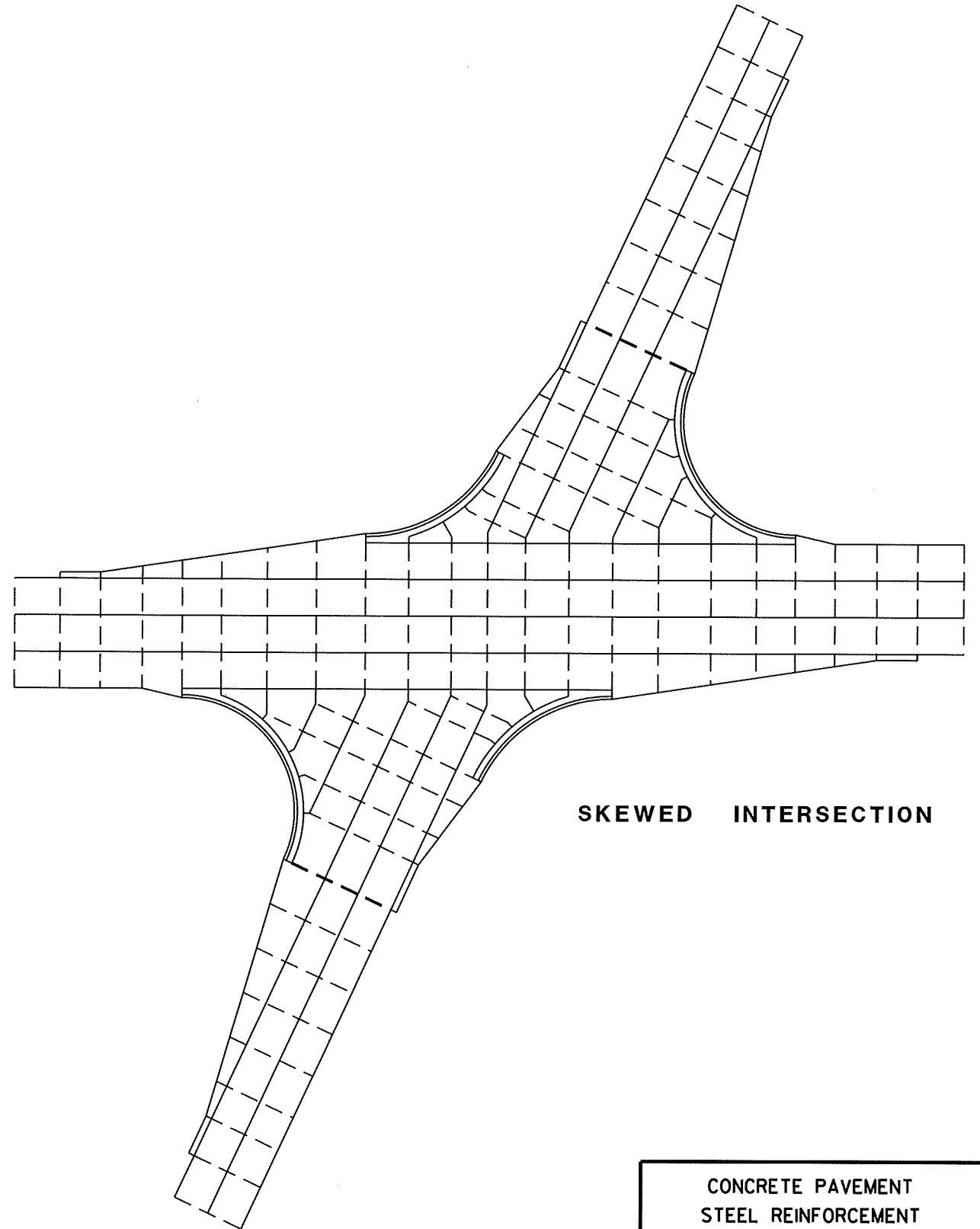
- POTENTIAL DOWELED EXPANSION JOINT
- - - DOWELED JOINT
- TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

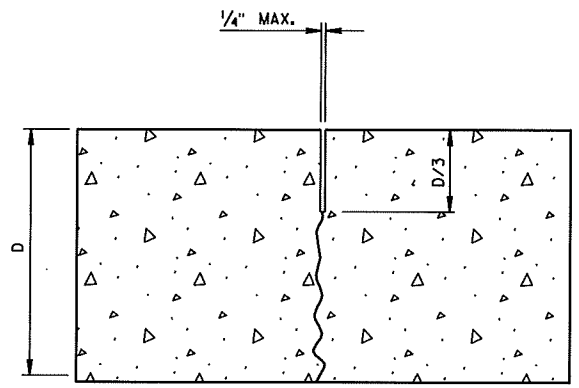
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



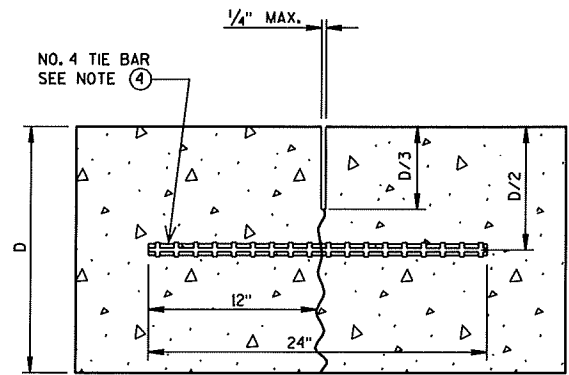
SKEWED INTERSECTION

CONCRETE PAVEMENT
STEEL REINFORCEMENT

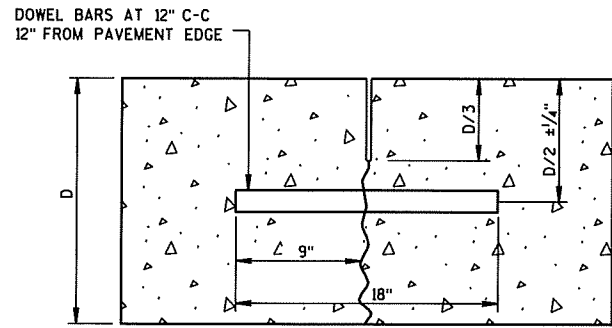
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



UNDOWELED-TRANSVERSE



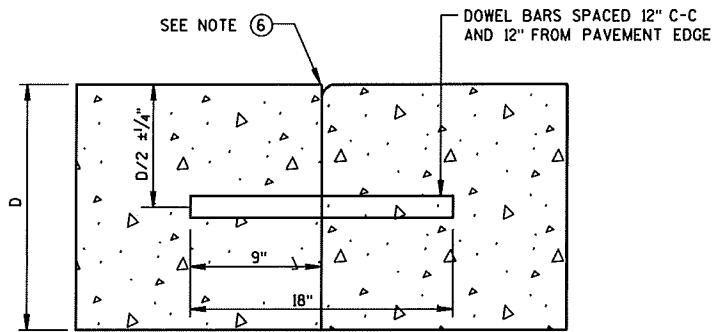
TIED LONGITUDINAL



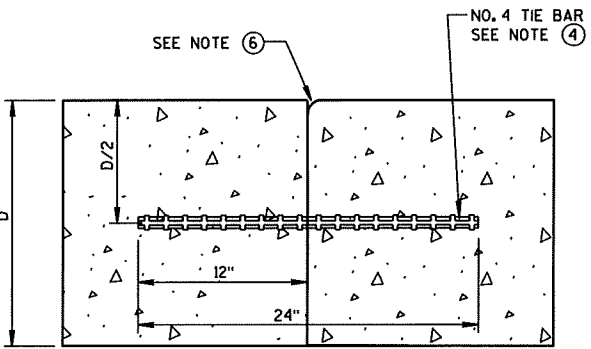
DOWELED-TRANSVERSE

CONTRACTION JOINTS

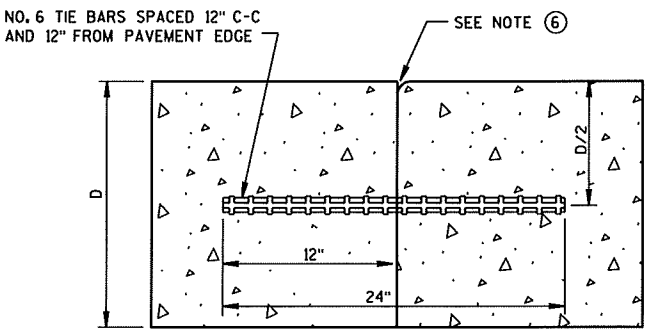
SEE NOTE ②



DOWELED TRANSVERSE

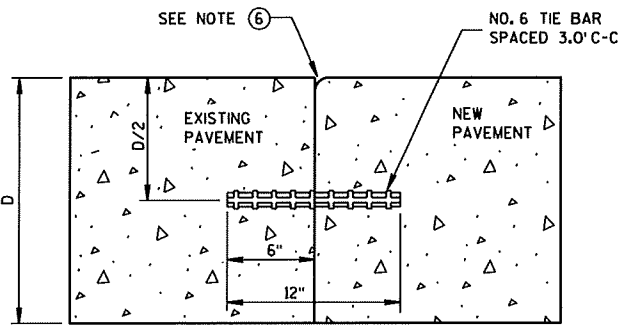


TIED LONGITUDINAL



TIED TRANSVERSE

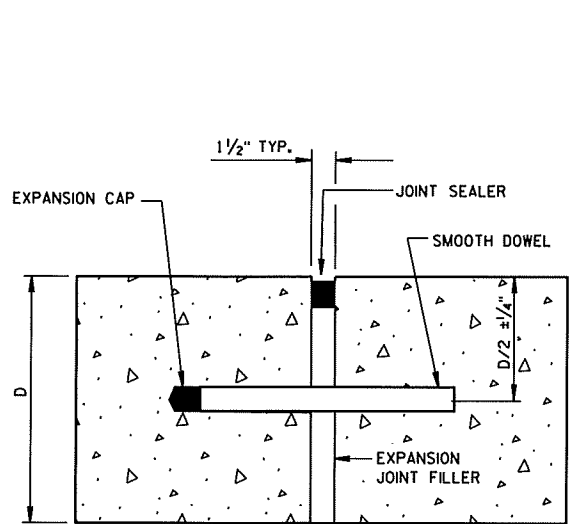
SEE NOTE ③



TIED LONGITUDINAL TO EXISTING

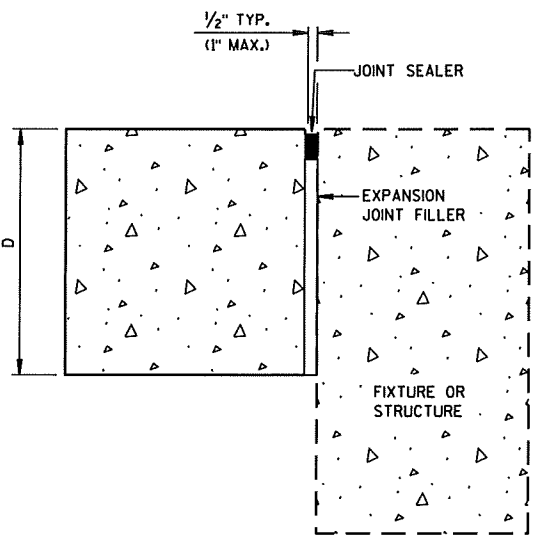
CONSTRUCTION JOINTS

SEE NOTE ⑤



DOWELED-TRANSVERSE

SEE NOTE ①



UNTIED-LONGITUDINAL

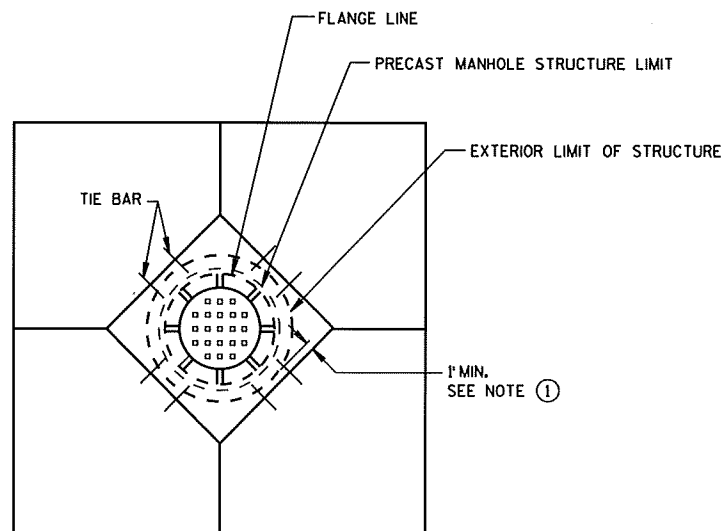
EXPANSION JOINTS

GENERAL NOTES

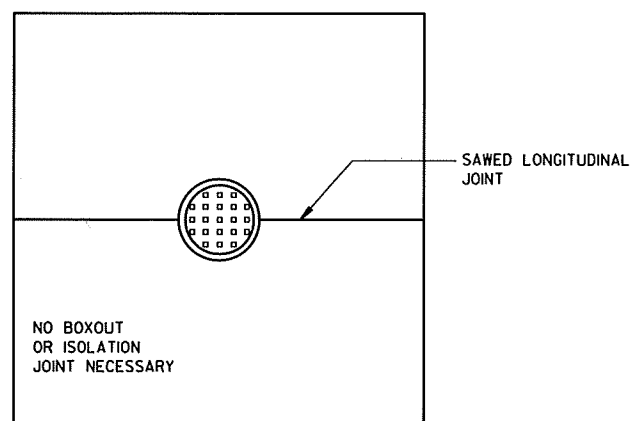
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.
4. SPACE TIE BARS AT LONGITUDINAL CONSTRUCTION OR CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C1.
5. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
6. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.

CONCRETE PAVEMENT
JOINT TYPES

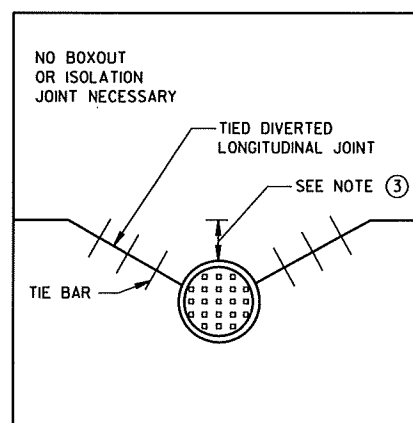
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



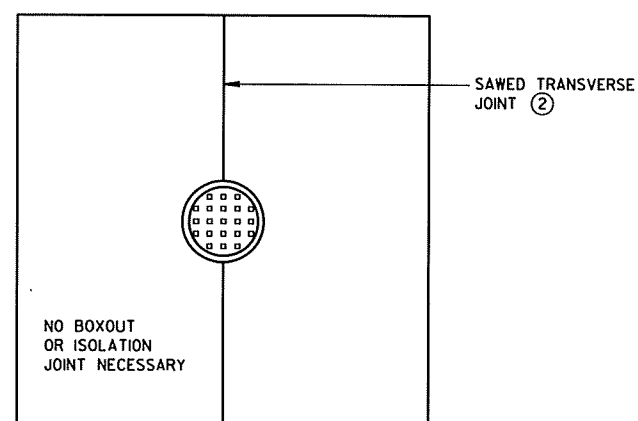
**DIAGONAL MANHOLE BOXOUT
FOR CONSTRUCTION JOINTS**



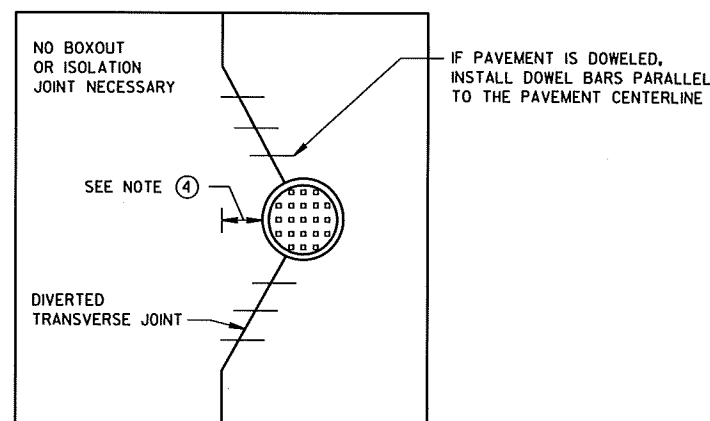
**MANHOLE WITH
LONGITUDINAL JOINT**



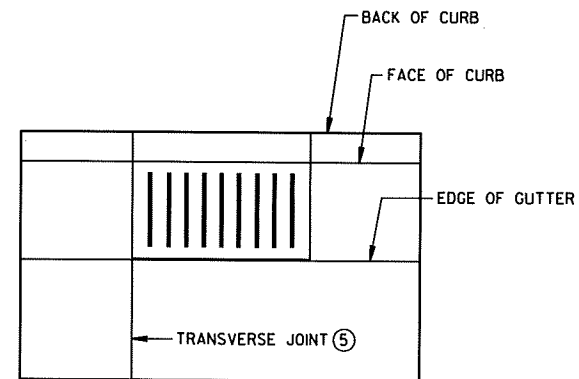
**MANHOLE WITH DIVERTED
LONGITUDINAL CONTRACTION JOINT**



**MANHOLE WITH
TRANSVERSE JOINT**



**MANHOLE WITH DIVERTED
TRANSVERSE CONTRACTION JOINT**



**INLET WITH
TRANSVERSE JOINT**

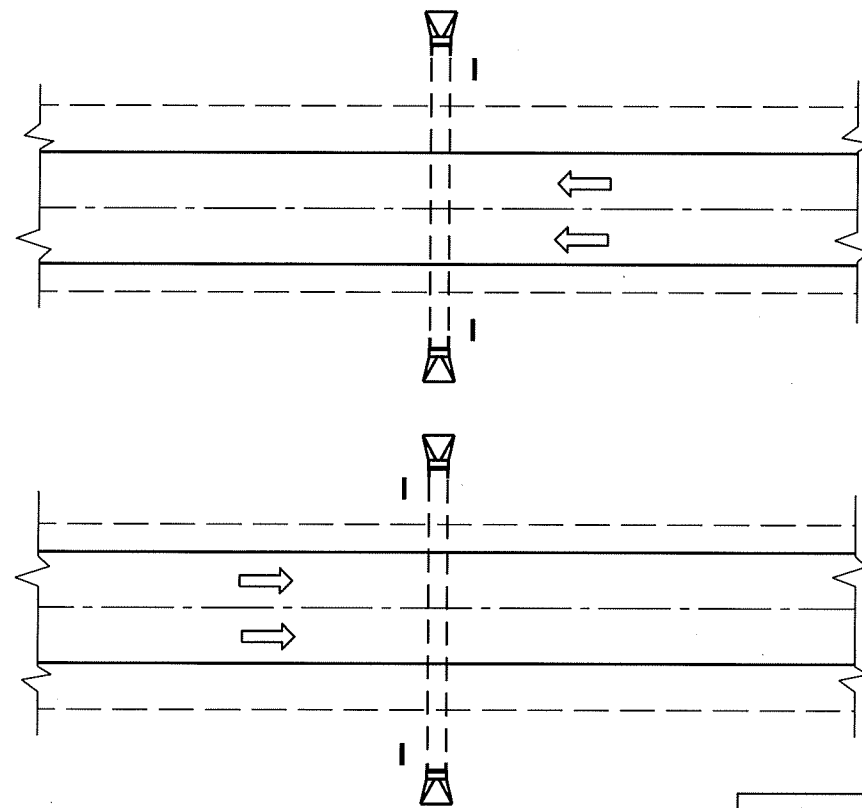
GENERAL NOTES

1. USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
2. ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
3. IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS GREATER THAN 2 FEET, DO NOT DIVERT JOINT AND SAW LONGITUDINAL JOINT AS NORMAL. IF DISTANCE IS 2 FEET OR LESS, DIVERT LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE.
4. IF DISTANCE FROM THE EDGE OF MANHOLE TO THE NEAREST TRANSVERSE JOINT IS GREATER THAN 4 FEET, REDIRECT JOINT TO INTERSECT MANHOLE. IF DISTANCE IS 4 FEET OR LESS, PLACE REBAR REINFORCEMENT AROUND MANHOLE.
5. ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.

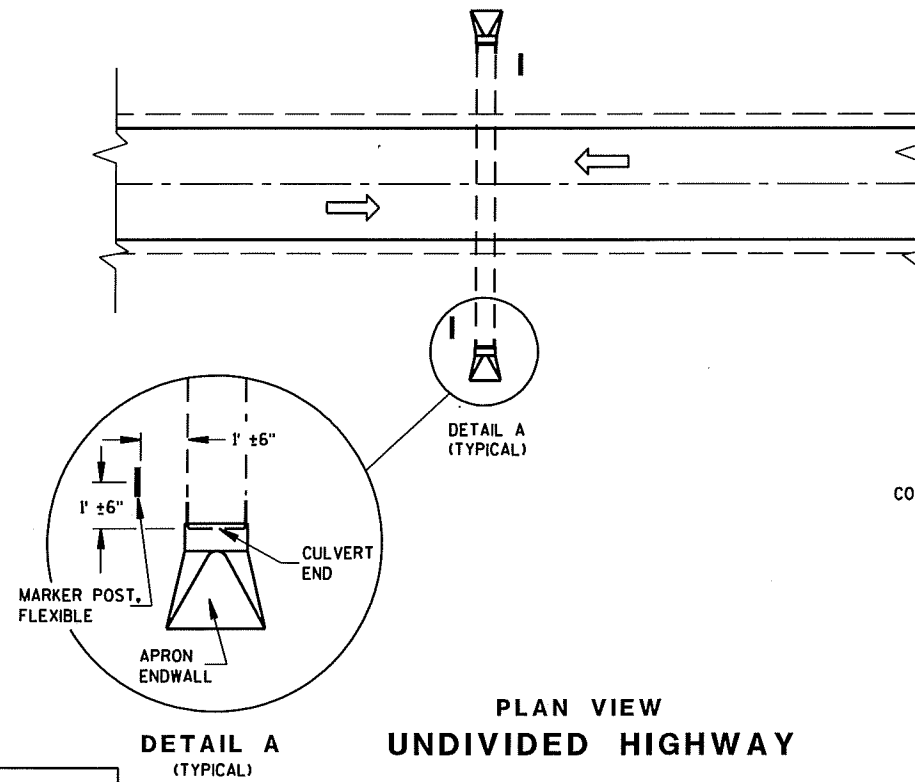
CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10-5-2010 DATE	/S/ Deb Bischoff PAVEMENT POLICY & DESIGN ENGINEER
FHWA	

GENERAL NOTES

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

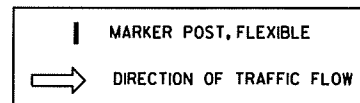


**PLAN VIEW
DIVIDED HIGHWAY**

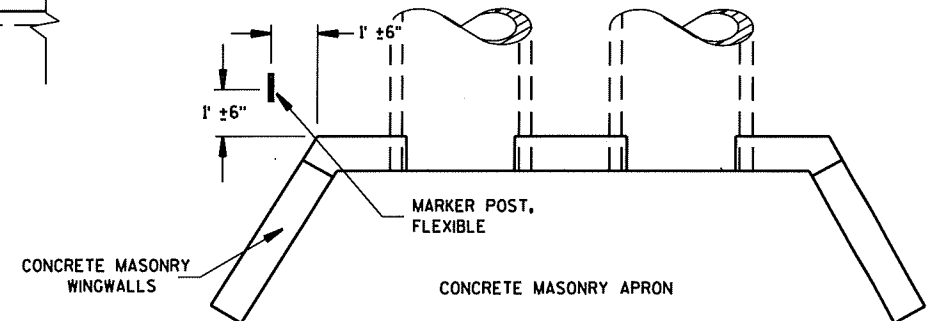


**DETAIL A
(TYPICAL)**

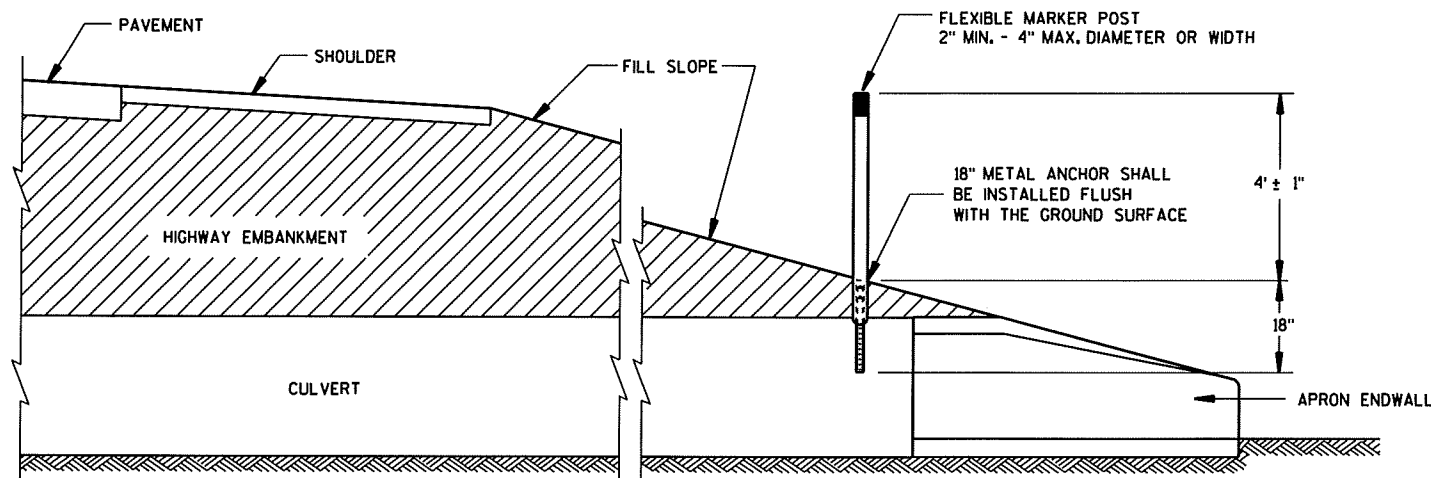
**PLAN VIEW
UNDIVIDED HIGHWAY**



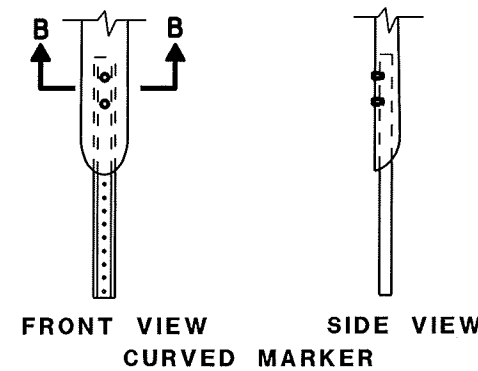
FLEXIBLE MARKER POST LOCATION



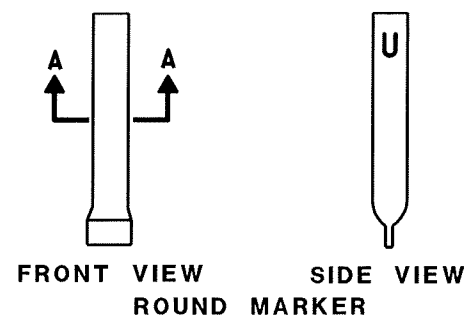
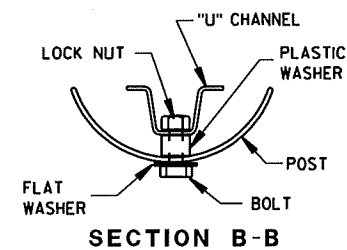
**PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH**



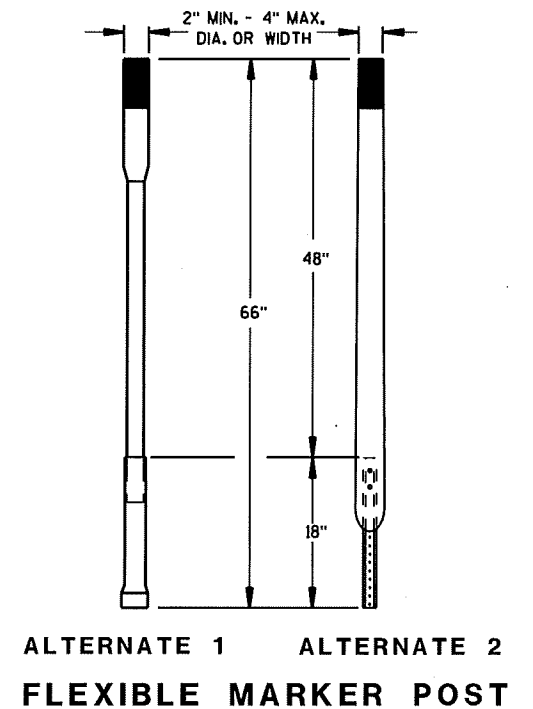
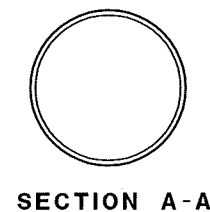
**CROSS SECTION
FLEXIBLE MARKER POST**



**FRONT VIEW CURVED MARKER
SIDE VIEW**



**FRONT VIEW ROUND MARKER
SIDE VIEW
FLEXIBLE MARKER POST ANCHORS**

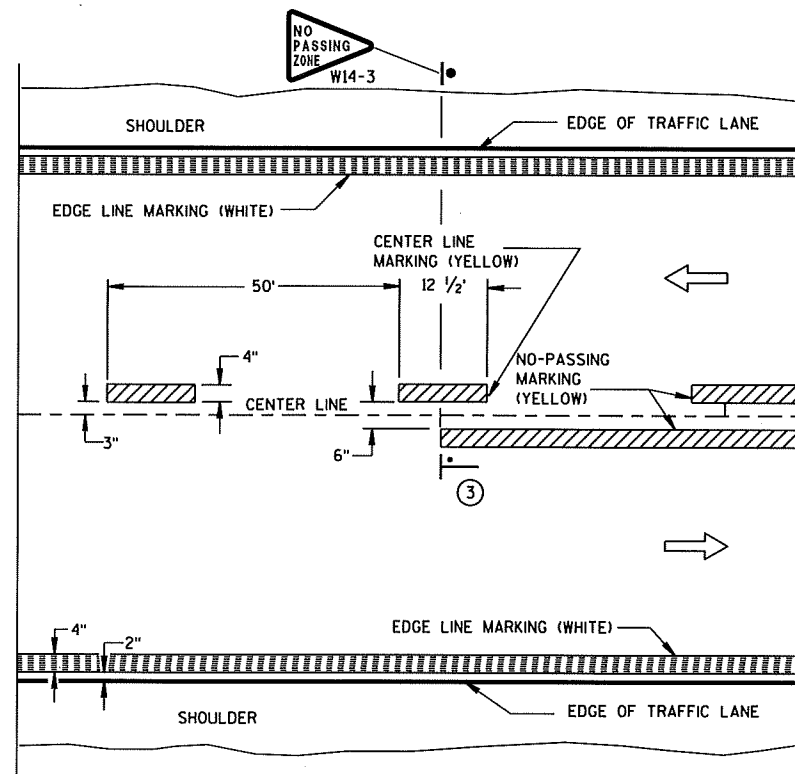


**ALTERNATE 1 ALTERNATE 2
FLEXIBLE MARKER POST**

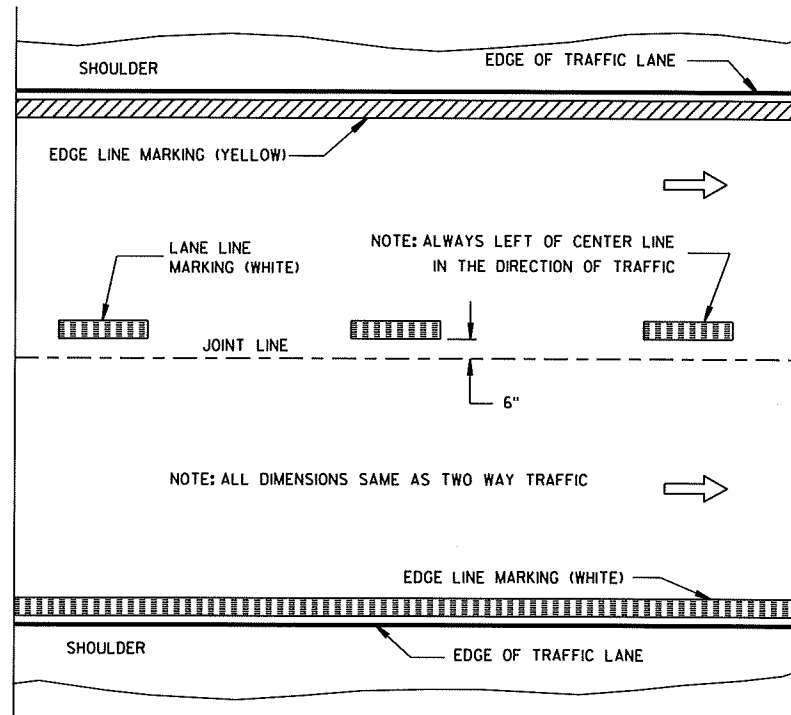
MARKER POST, FLEXIBLE, FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/98 DATE	<i>Paul J. Rasmussen</i> CHIEF ROADWAY DEVELOPMENT ENGINEER FHWA

S.D.D. 15 A 3-1

S.D.D. 15 A 3-1



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

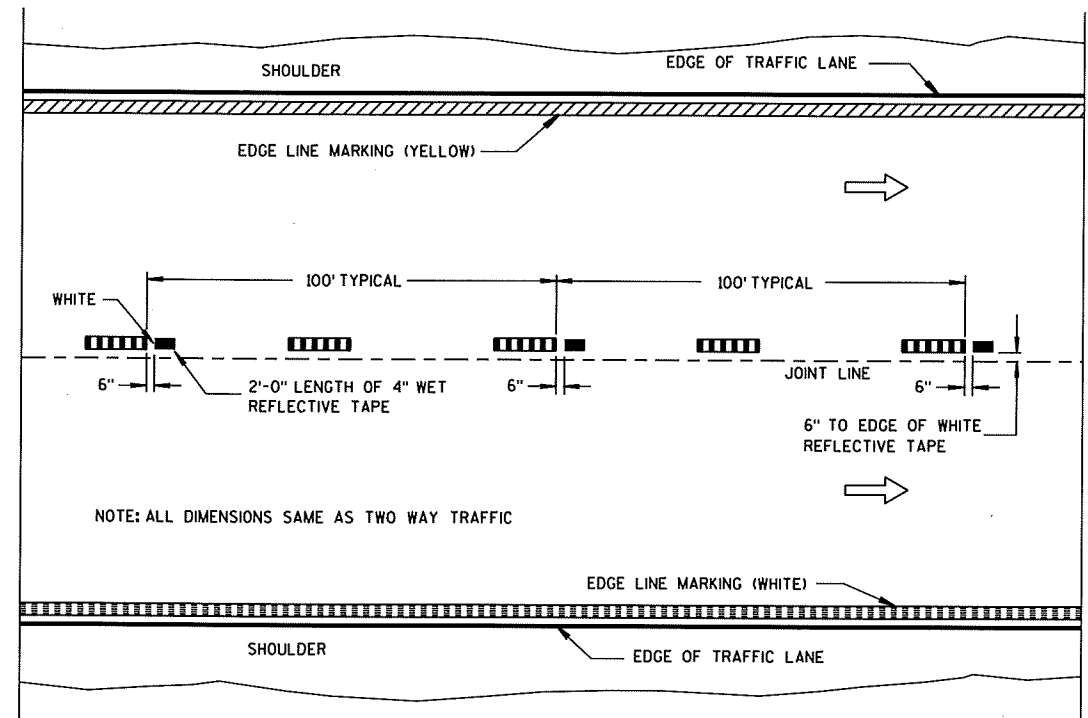
GENERAL NOTES

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

- 1 HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- 2 NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- 3 NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE

LEGEND

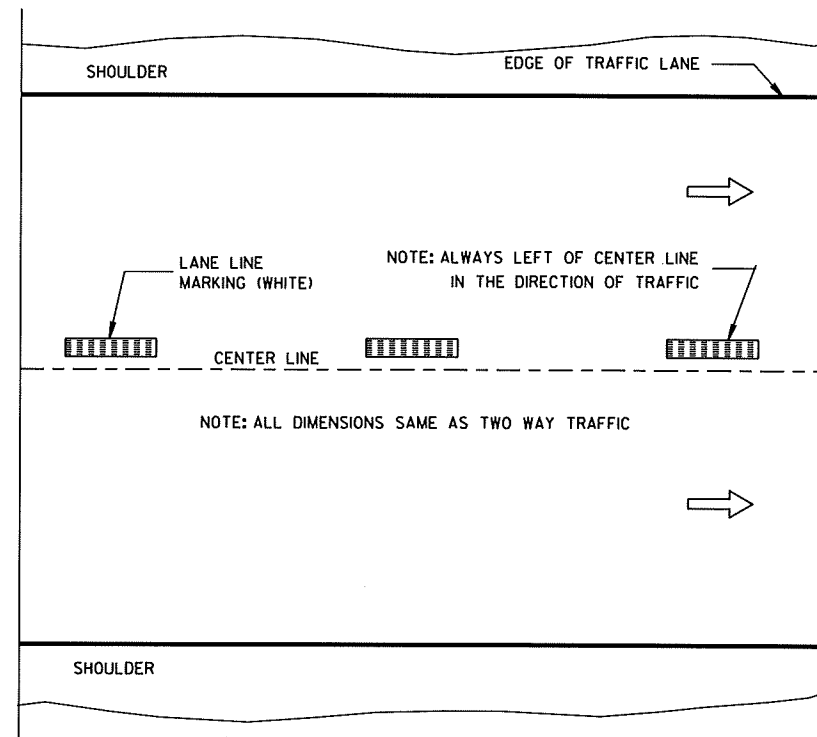
- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-13-10 /S/ Thomas N. Notbohm
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

TWO WAY TRAFFIC

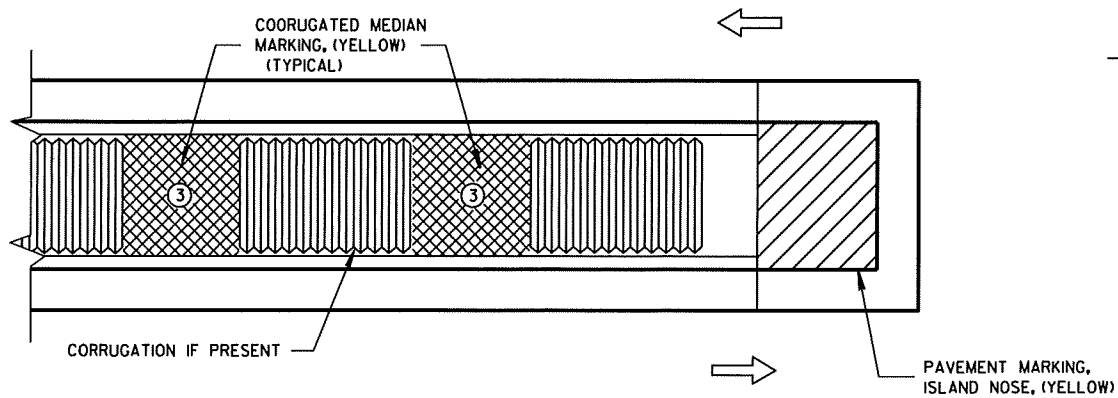


ONE WAY TRAFFIC

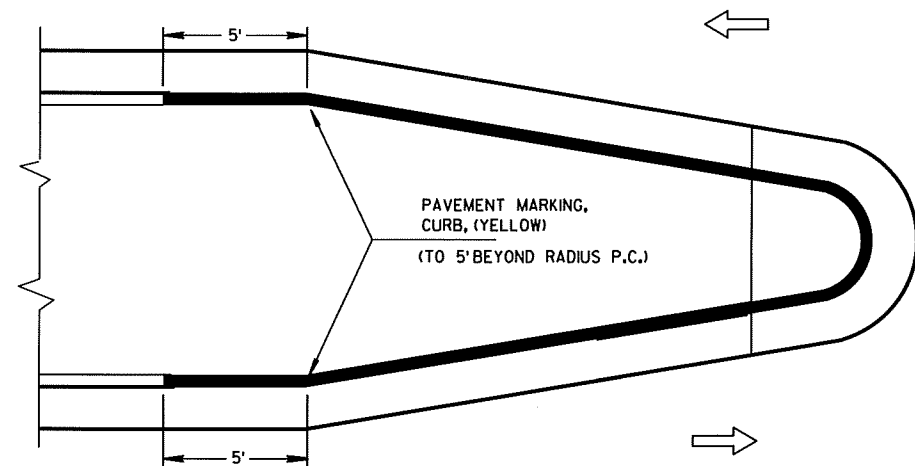
TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

6

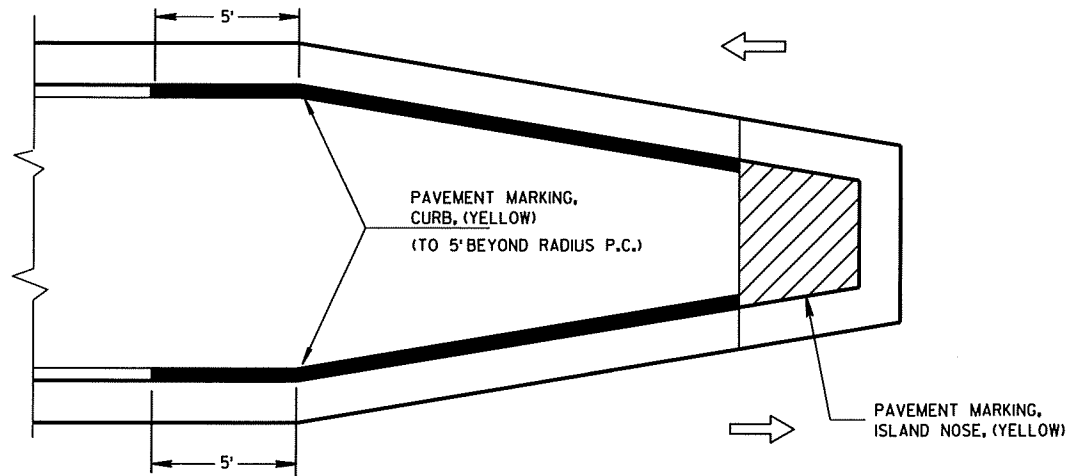
6



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

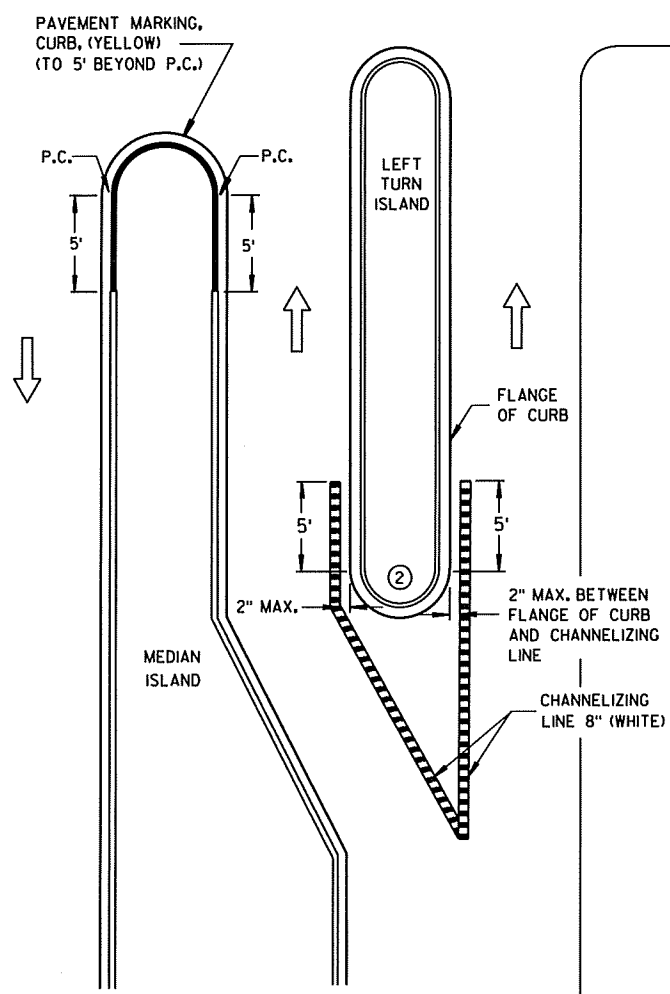


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

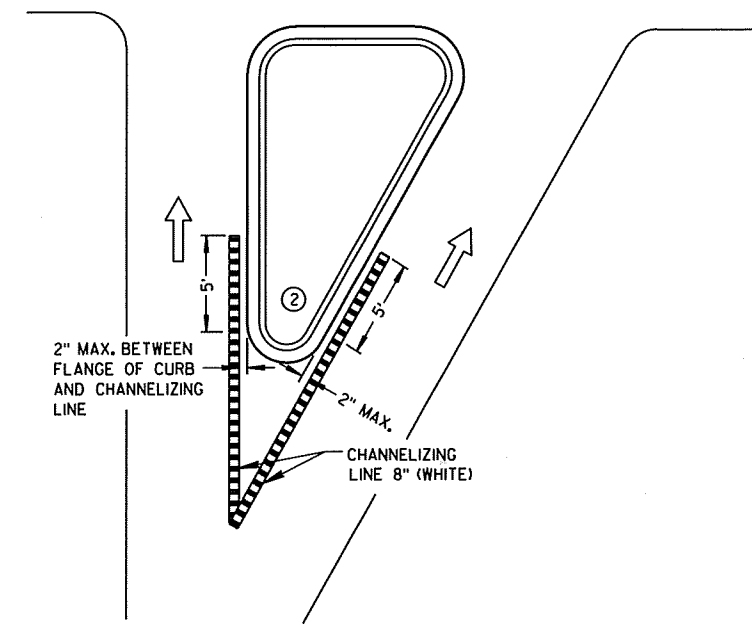
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS



LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

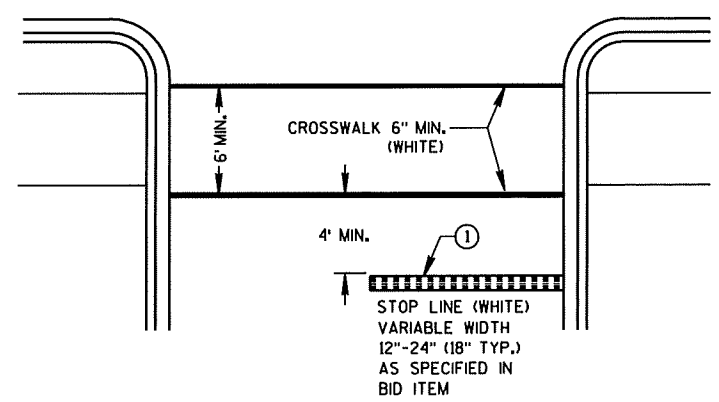
- 1 STOP LINE IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
- 2 DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.
- 3 WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND

LEGEND

- ISLAND NOSE MARKING
- CURB MAKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL



STOP LINE AND CROSSWALK

PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

S.D.D. 15 C 8-13f

S.D.D. 15 C 8-13f

LEGEND

- POST WITH ATTACHED SIGN
- POST WITH ATTACHED SIGN IN DRUM
- DRUM WITH WARNING LIGHT (TYPE C)
- DRUM
- ARROW BOARD
- 8' TYPE III BARRICADE
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC

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.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

- 1. CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

GENERAL NOTES CONTINUED:

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 7 CONTINUOUS DAYS AND NIGHTS.

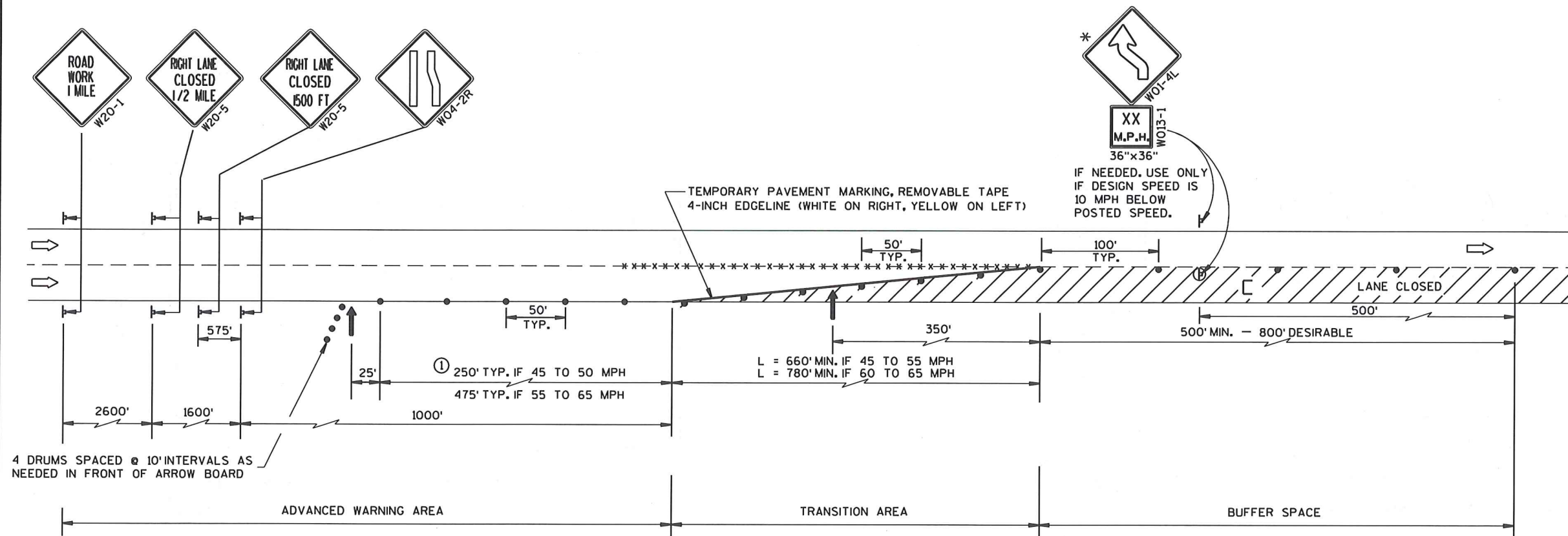
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

IF LANE CLOSURE IS MORE THAN 1 MILE, PLACE A TYPE III BARRICADE APPROXIMATELY EVERY 1/4 MILE ACROSS THE CLOSED LANE TO HELP ENFORCE THE DRUM LINE.

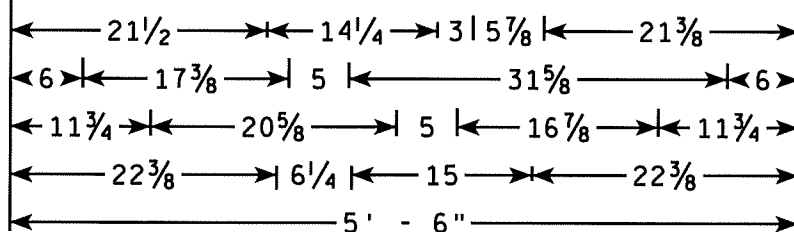
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

- * THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.

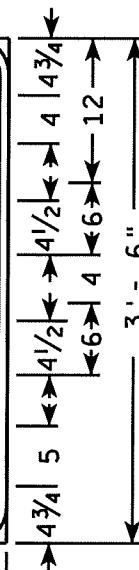


400' OUTSIDE OF ARROW BOARD

TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8-7-95 DATE	<i>Charles J. Spang</i> for DIRECTOR, OFFICE OF TRAFFIC
FHWA	



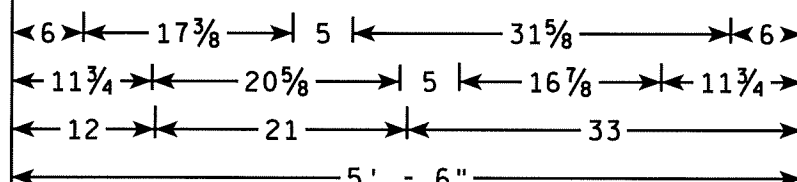
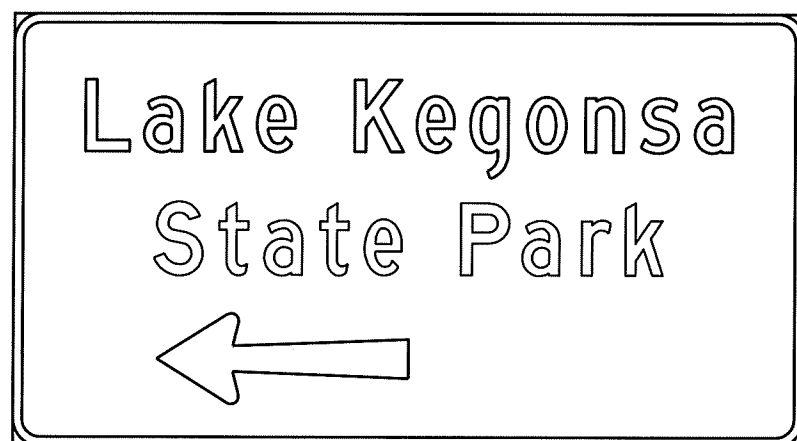
D7-52



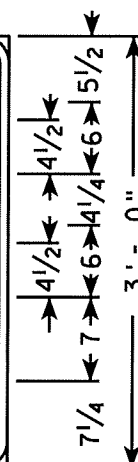
3/4" Border
2 1/4" Radius

NOTES

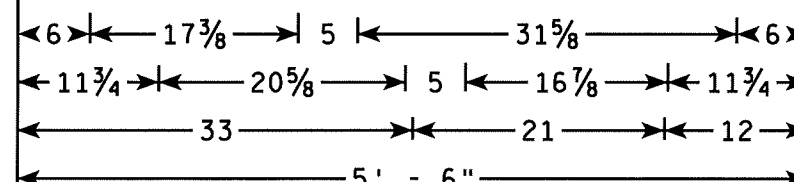
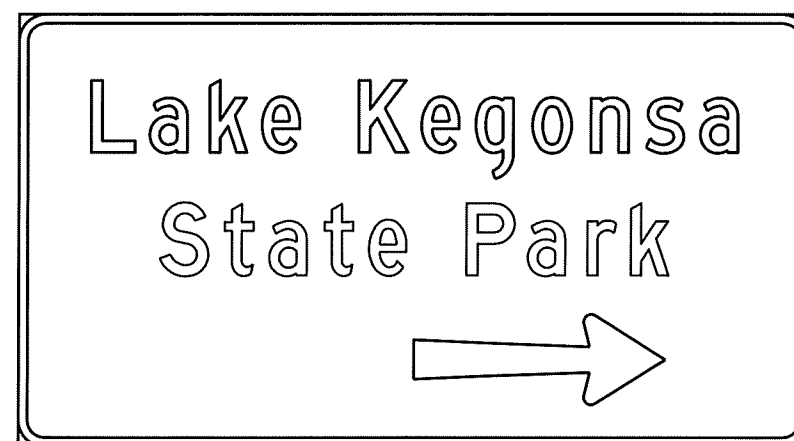
1. All Signs Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - BROWN
Message - WHITE
3. Message Series - D



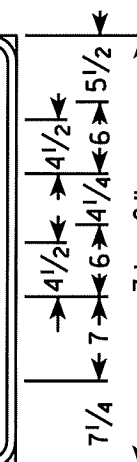
D7-53L



3/4" Border
2 1/4" Radius



D7-53R

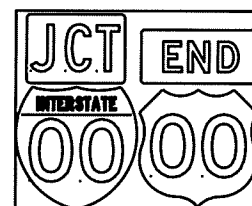


3/4" Border
2 1/4" Radius

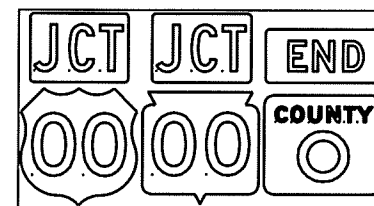
TYPICAL ASSEMBLIES



J1-1



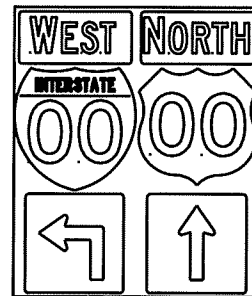
J1-2



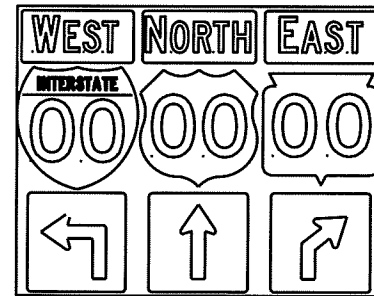
J1-3



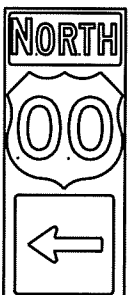
J2-1



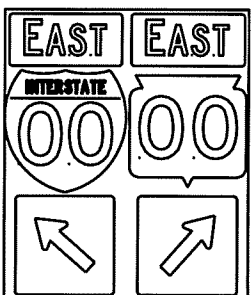
J2-2



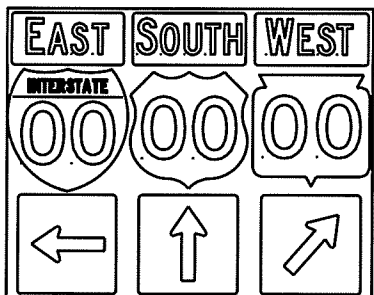
J2-3



J3-1



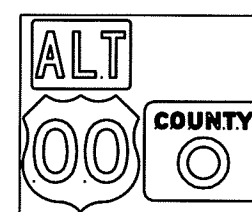
J3-2



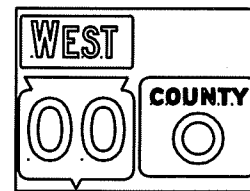
J3-3



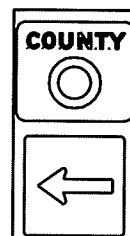
J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



J33-1



J23-1



J22-1

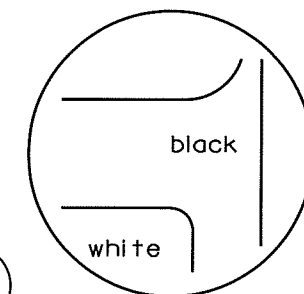
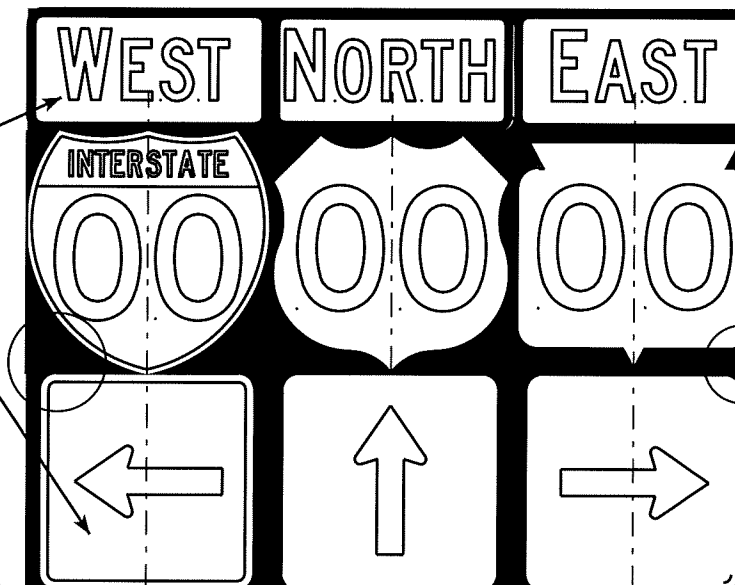
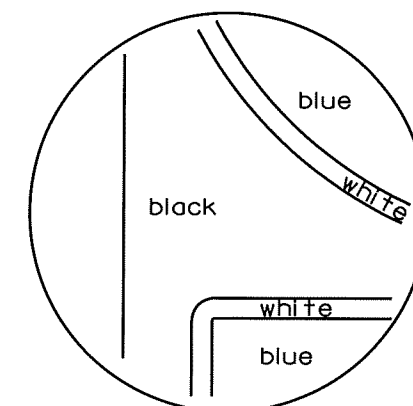


JV

NOTES

- Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Black Non-reflective
Message - see Note 5
- Message Series - See Note 5
- Corners shall be square since base material is plywood.
- The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
- Certain marker heads require the component pieces to be the same color. As an example, all the components used with an MI-1 Interstate marker shall be blue.
- Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
- Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.

blue background with interstate



black background

ROUTE MARKERS & COMPONENTS IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rausch*
For State Traffic Engineer
DATE 10/21/09 PLATE NO. A2-1S.6

PROJECT NO:

FILE NAME : C:\Users\PROJECTS\tr_std\plate\A21S.DGN

PLOT DATE : 21-OCT-2009 09:27

PLOT BY : ditjph

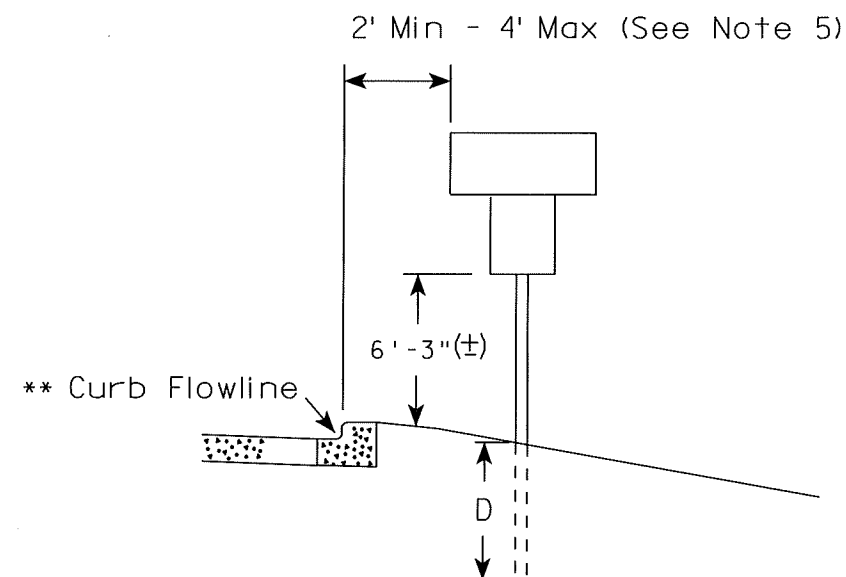
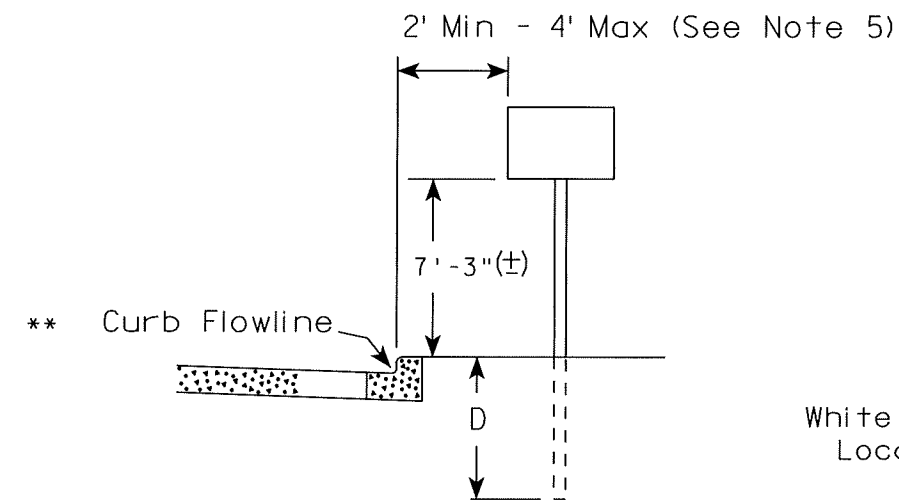
PLOT NAME :

SHEET NO: 71

E

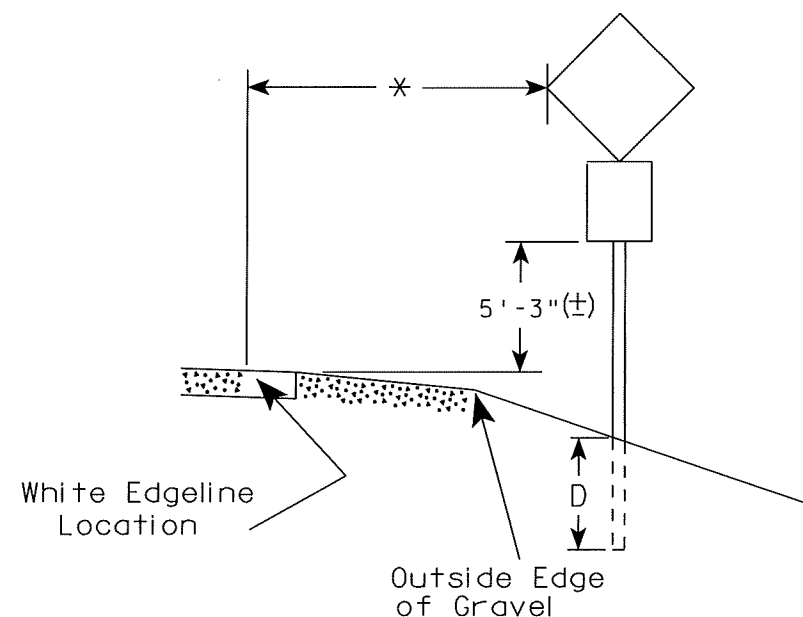
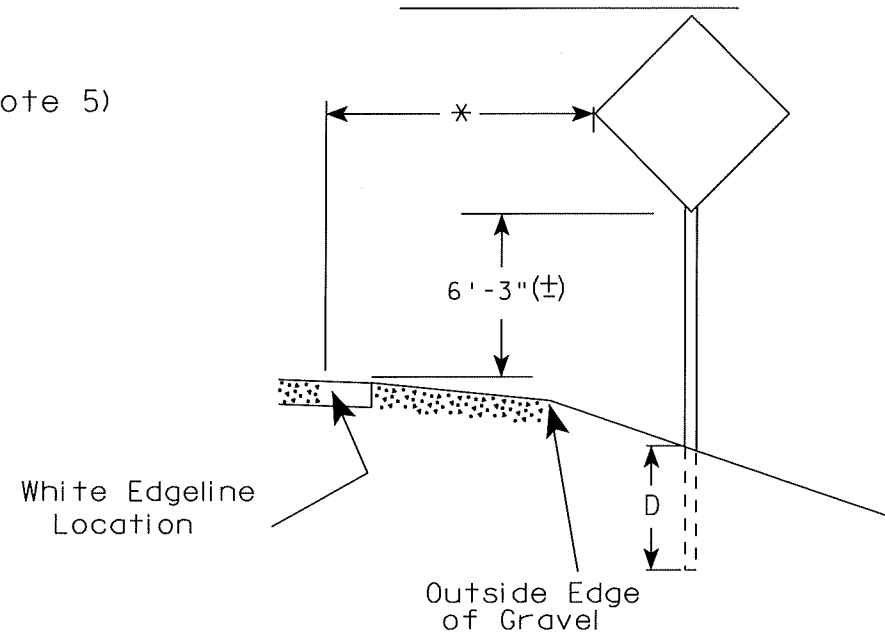
WISDOT/CADDs SHEET 42

URBAN AREA



* * The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

RURAL AREA (See Note 2)



* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (W1-8A), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 9/30/09

PLATE NO. A4-3.15

PROJECT NO:

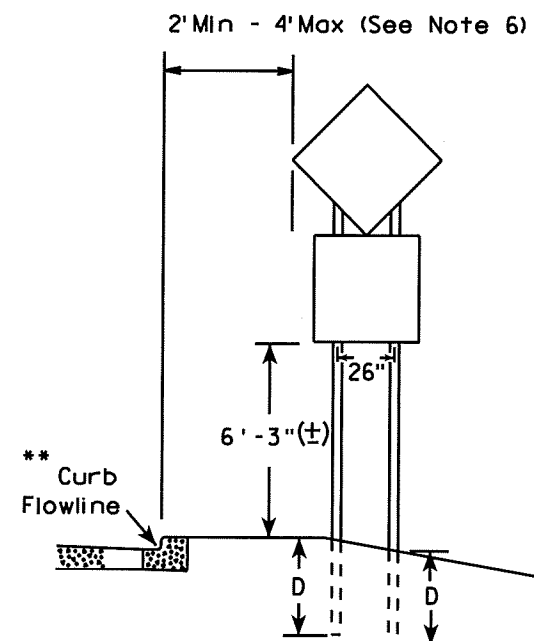
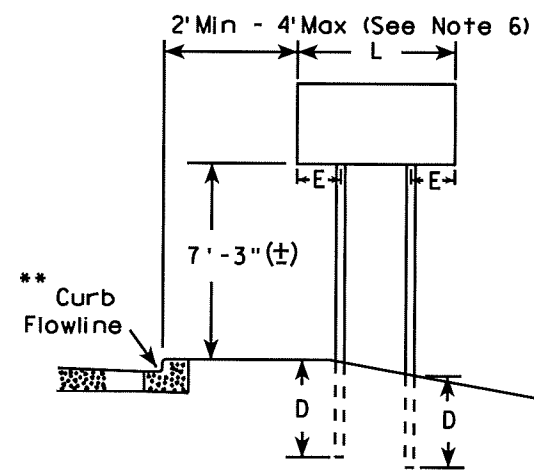
HWY:

COUNTY:

SHEET NO: 72

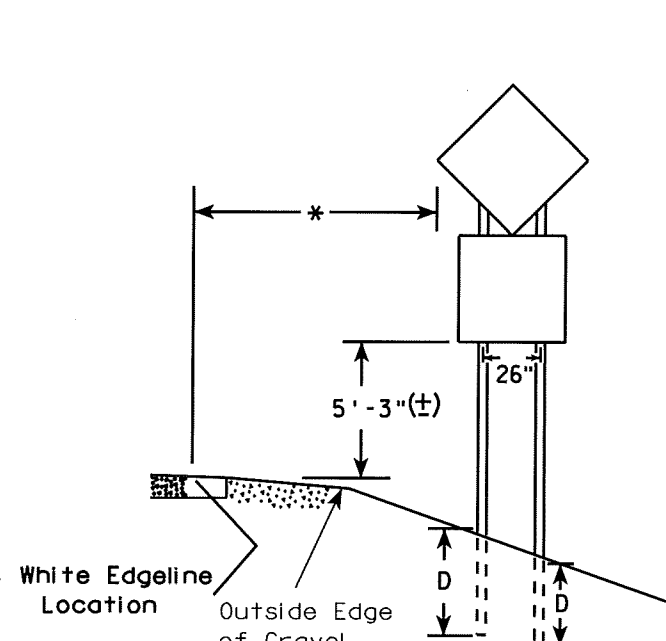
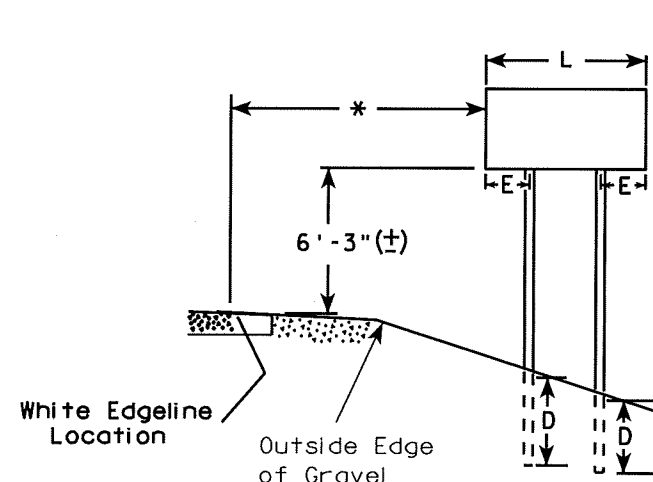
E

URBAN AREA



48" DIAMOND WARNING SIGN

RURAL AREA (See Note 3)



48" DIAMOND WARNING SIGN

GENERAL NOTES

1. For multiple post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (W1-8A), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

*** See A4-3 sign plate for signs 4' or less in width or 20 S.F. or less in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/30/09 PLATE NO. A4-4.10

PROJECT NO:

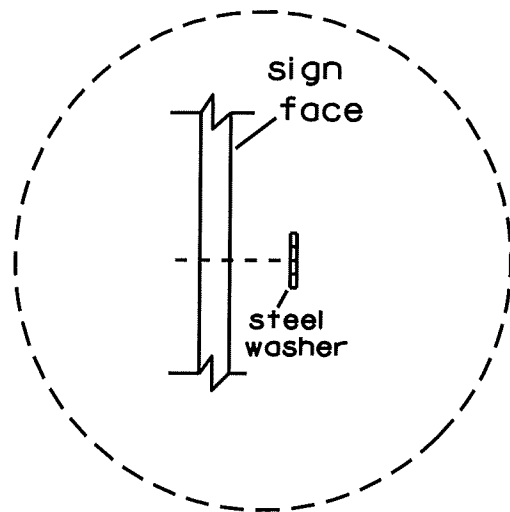
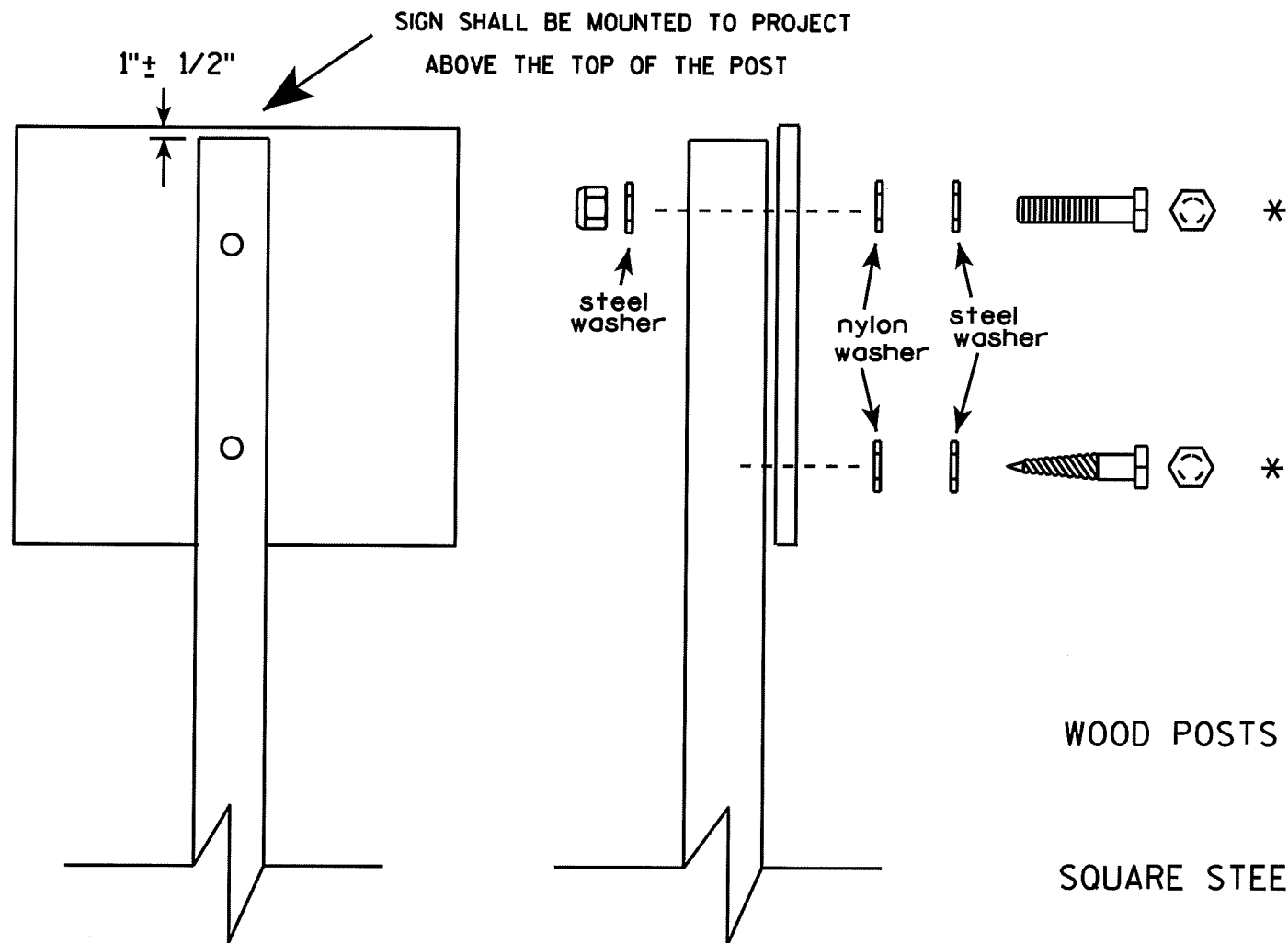
HWY:

COUNTY:

SHEET NO: 73

E

7



Washer Placement when Sign Has Other Than Type H or Type F Face

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

LAG SCREWS - $\frac{3}{8}$ " X 3"

MACHINE BOLTS - $\frac{5}{16}$ " X 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts

RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL

O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL

1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON for all Type H signs.

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

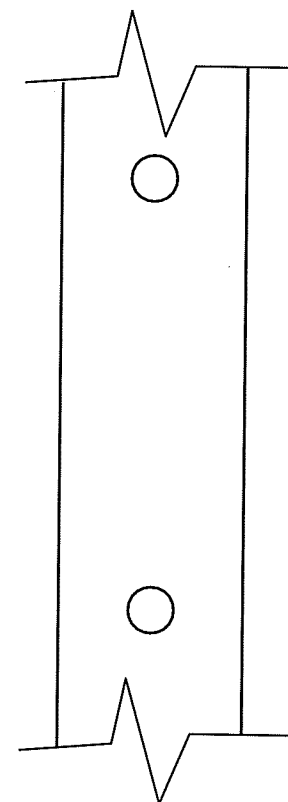
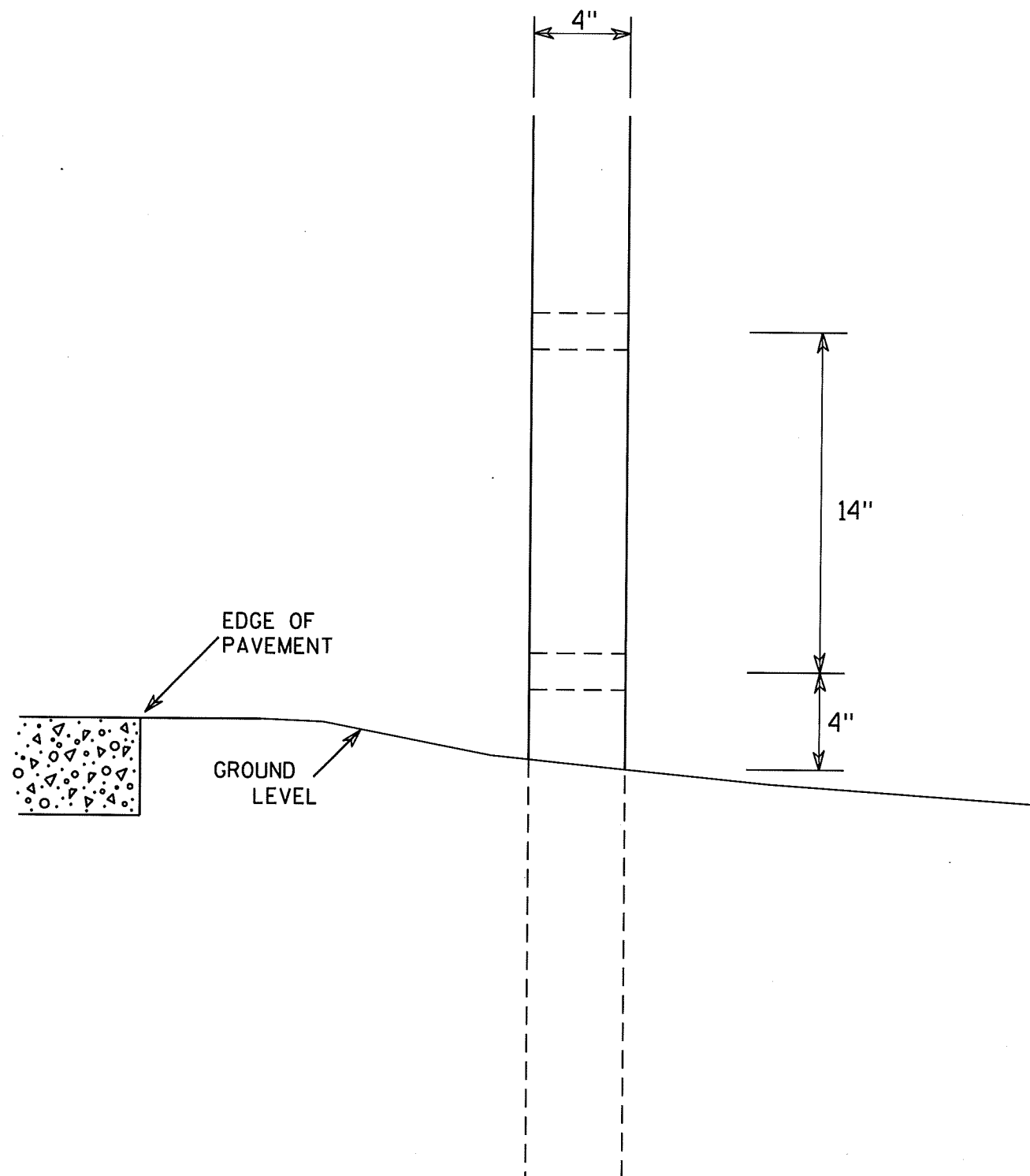
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

PROJECT NO:

SHEET NO: 74

E



SIDE VIEW

GENERAL NOTES

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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

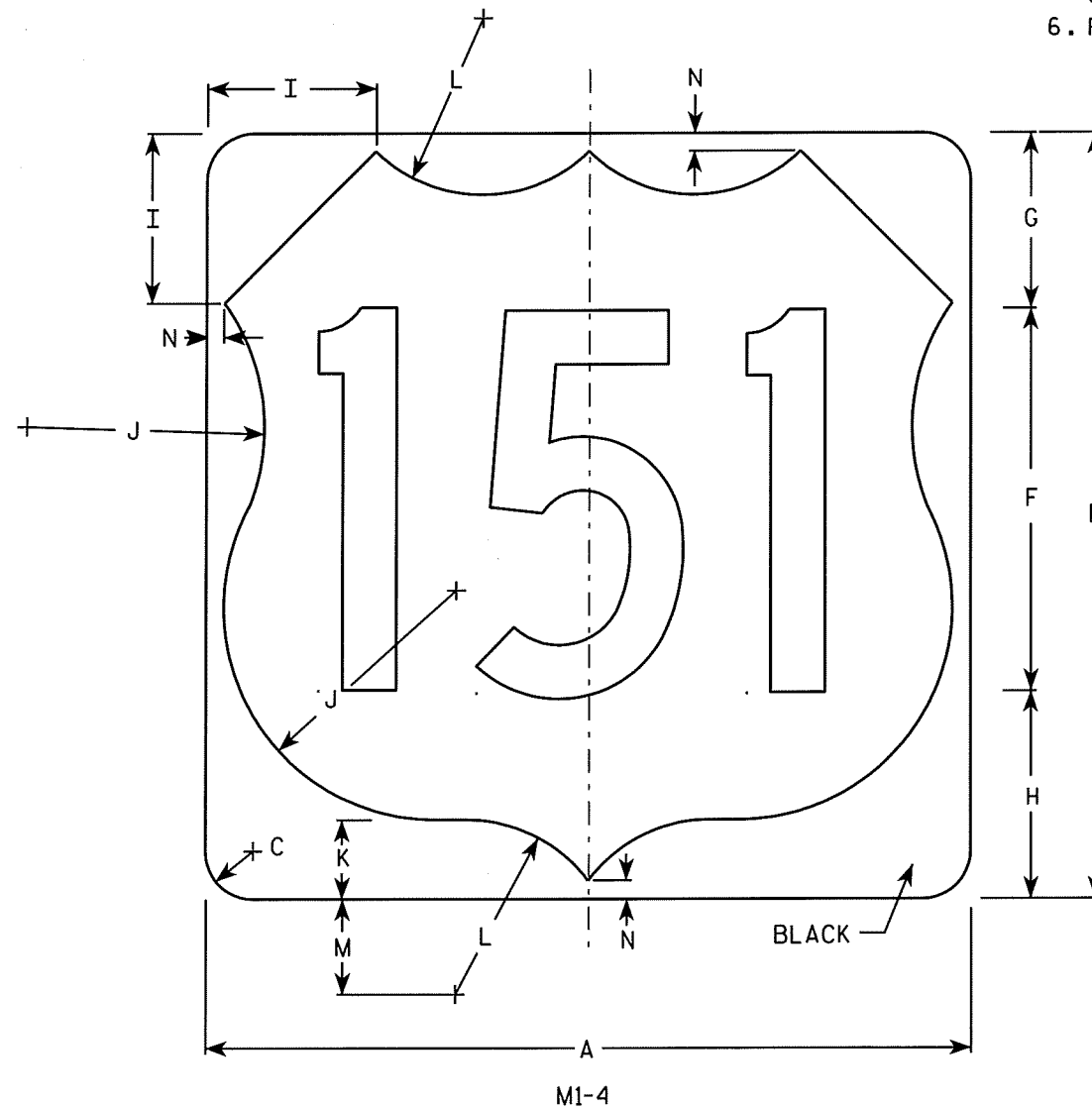
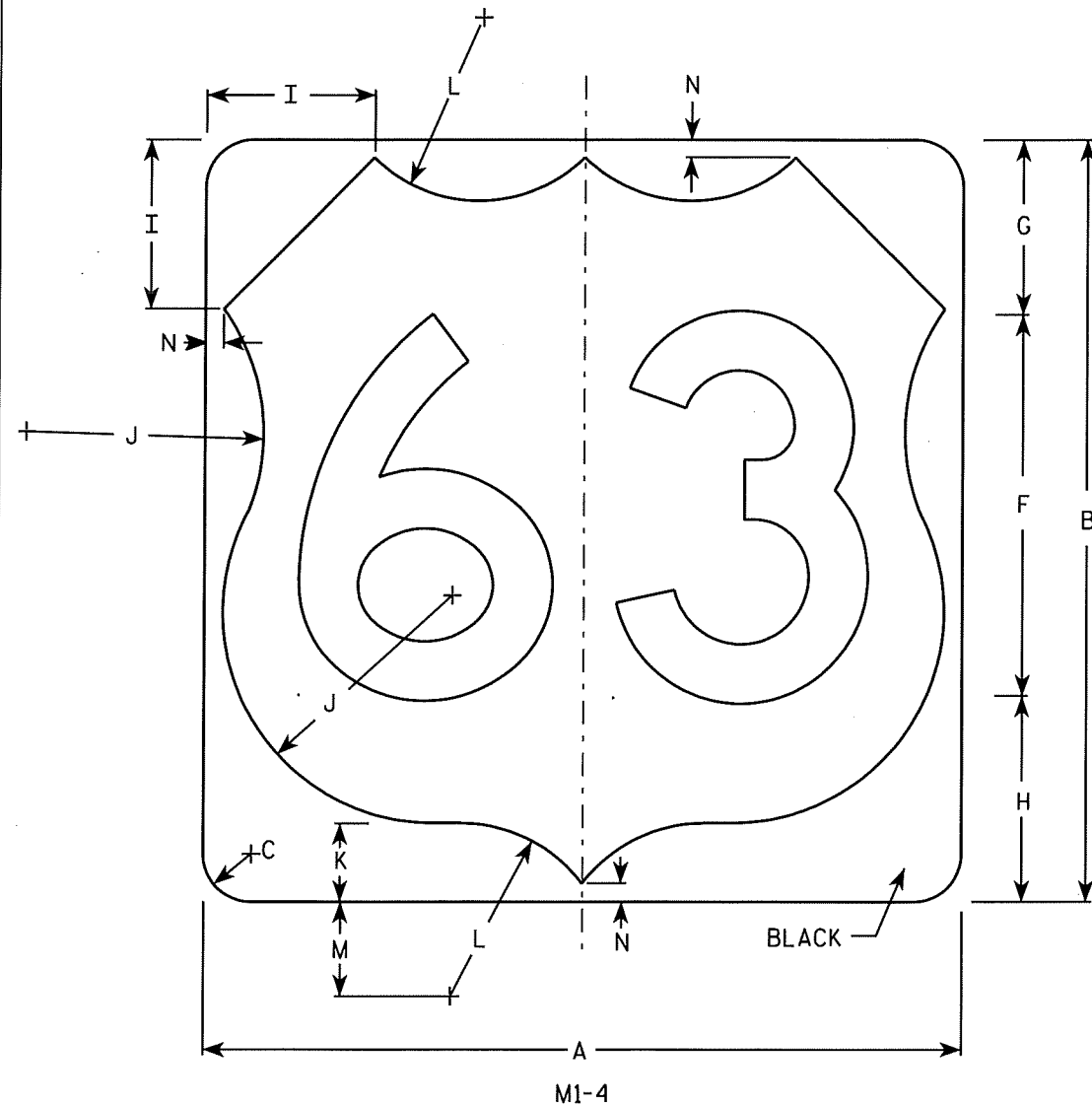
COUNTY:

SHEET NO: 75

E

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 6
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and adjust spacing as per Plate A10-1.
6. Permanent Signs
Background - Type H Reflective
Detour or other temporary signs
Background - Reflective



Metric equivalent
for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m ²
1																												
2	24	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0	.36
3	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0	.81
4	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0	.81
5	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0	.81

PROJECT NO:

HWY:

COUNTY:

USH MARKER
M1-4 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

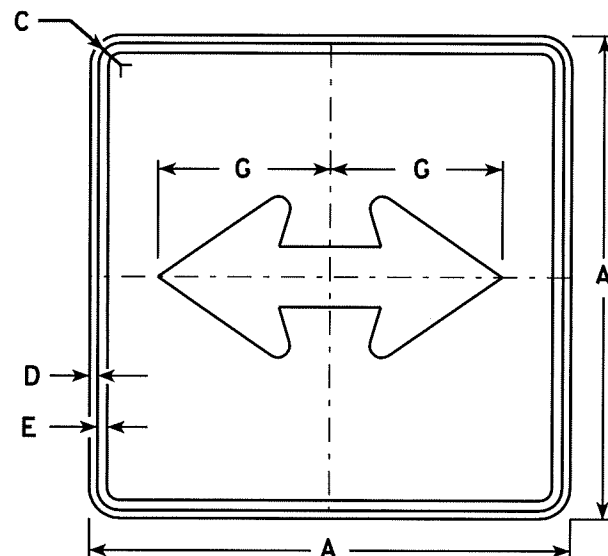
Matthew R. Raush
for State Traffic Engineer

DATE 08/25/05

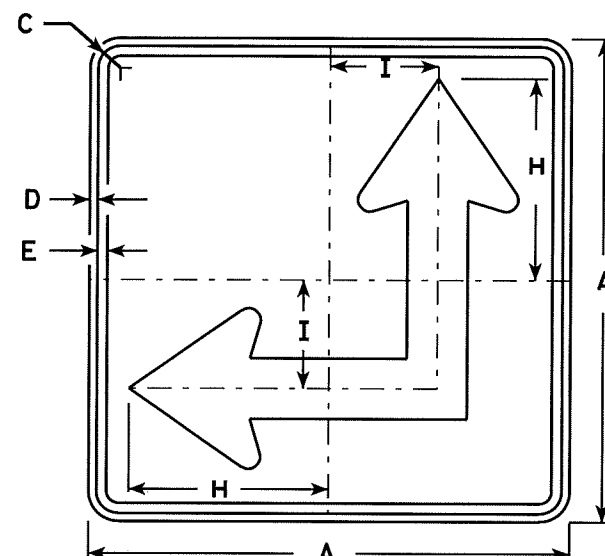
PLATE NO. M1-4.9

SHEET NO: 76

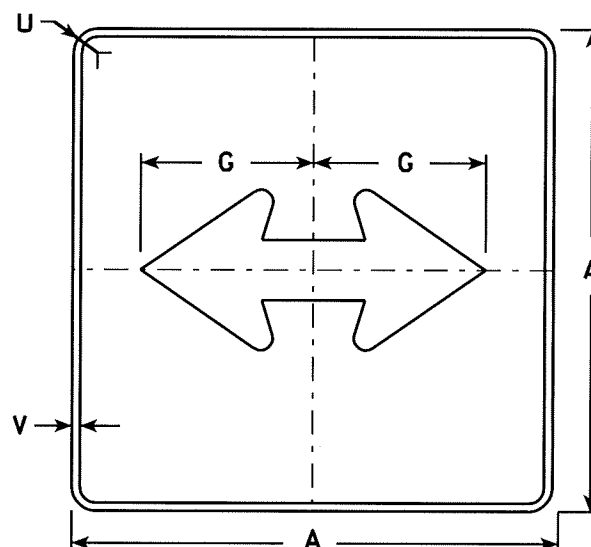
E



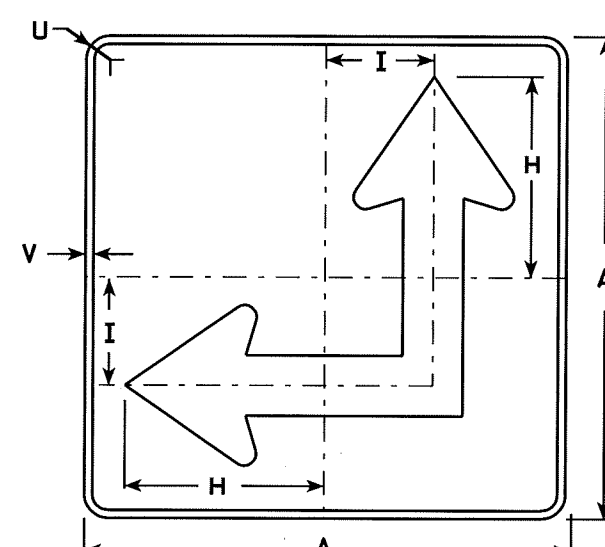
M6-4
MK6-4
MM6-4
MO6-4
MR6-4



M6-6
MK6-6
MM6-6
MO6-6
MR6-6



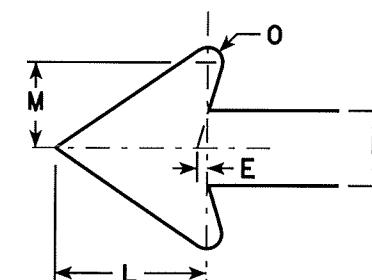
MB6-4
MG6-4
MN6-4



MB6-6
MG6-6
MN6-6

NOTES

- Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - See Note 4
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-4 and M6-6 Background - White - Type H Reflective
(Detour or temporary Signs - Reflective)
Message - Black
MB6-4 and MB6-6 Background - Blue
Message - White - Type H Reflective
(Detour or temporary Signs - Reflective)
MG6-4 and MG6-6 Background - Green
Message - White - Type H Reflective
MK6-4 and MK6-6 Background - Green
Message - White - Type H Reflective
MM6-4 and MM6-6 Background - White - Type H Reflective
Message - Green
MN6-4 and MN6-6 Background - Brown
Message - White - Type H Reflective
MO6-4 and MO6-6 Background - Orange - Reflective
Message - Black
MR6-4 and MR6-6 Background - Brown
Message - Yellow - Type H Reflective
- M6-6R same as M6-6L except arrow points ahead and right.



Metric equivalent
for this sign is:

SIZE	
1	
2	525 mm X 525 mm
3	750 mm X 750 mm
4	750 mm X 750 mm
5	750 mm X 750 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq.
1																												
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06	0.28
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25	0.56
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25	0.56
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25	0.56

PROJECT NO:

HWY:

COUNTY:

STANDARD SIGN M6-4 & M6-6 SERIES

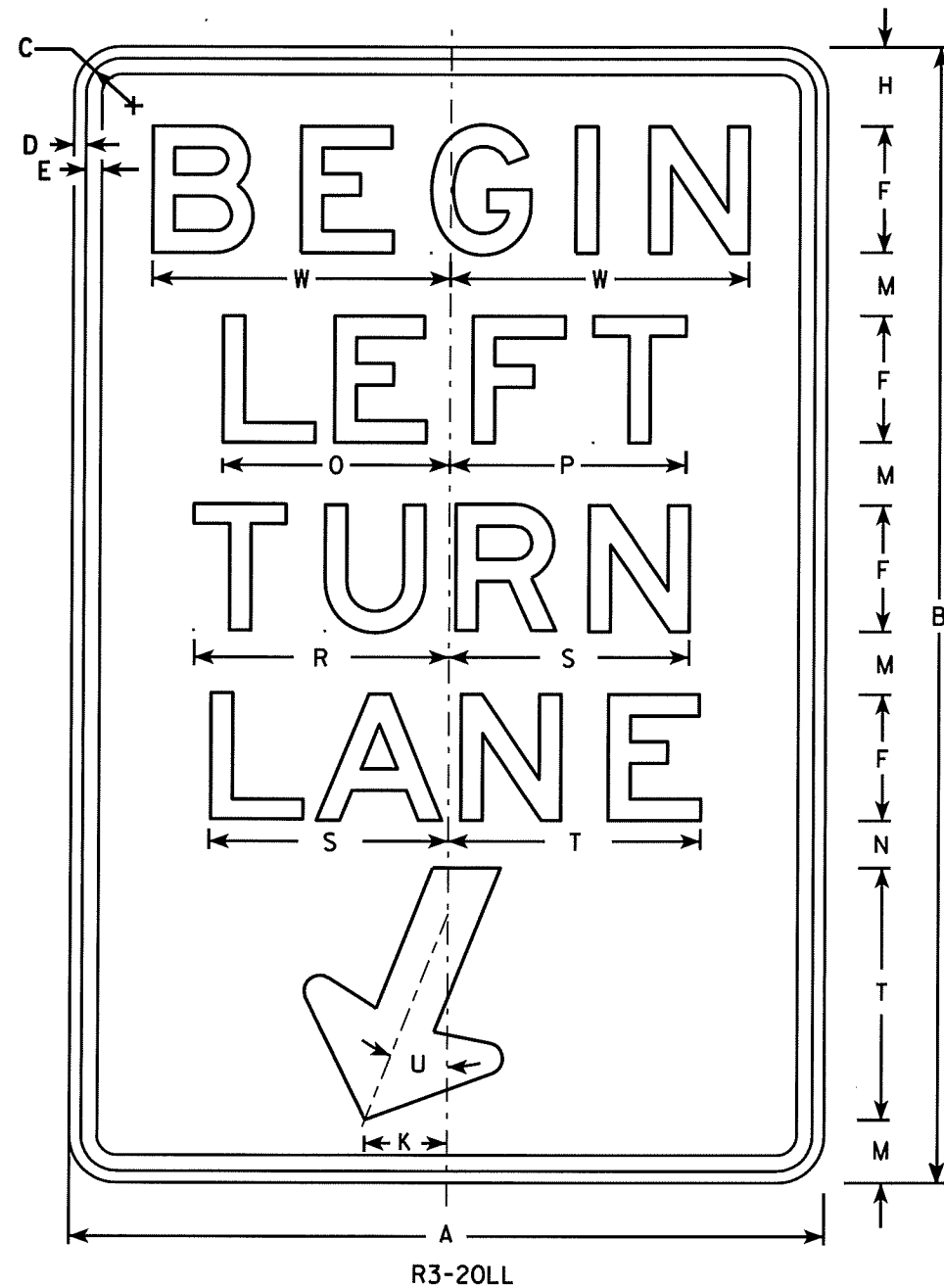
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/16/10 PLATE NO. M6-4.7

SHEET NO: 77

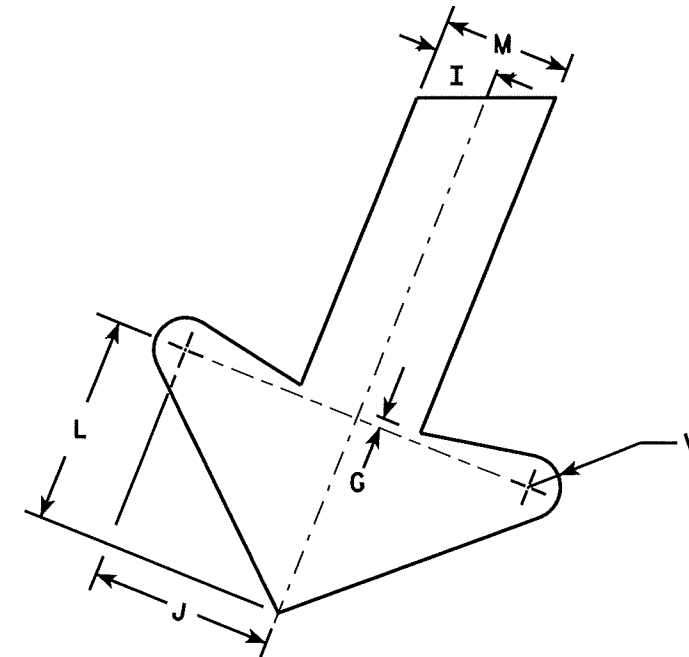
E



R3-20LL

NOTES

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



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 3/4	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	10 7/8	11 1/4		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

STANDARD SIGN R3-20LL

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/18/10 PLATE NO. R3-20LL.1

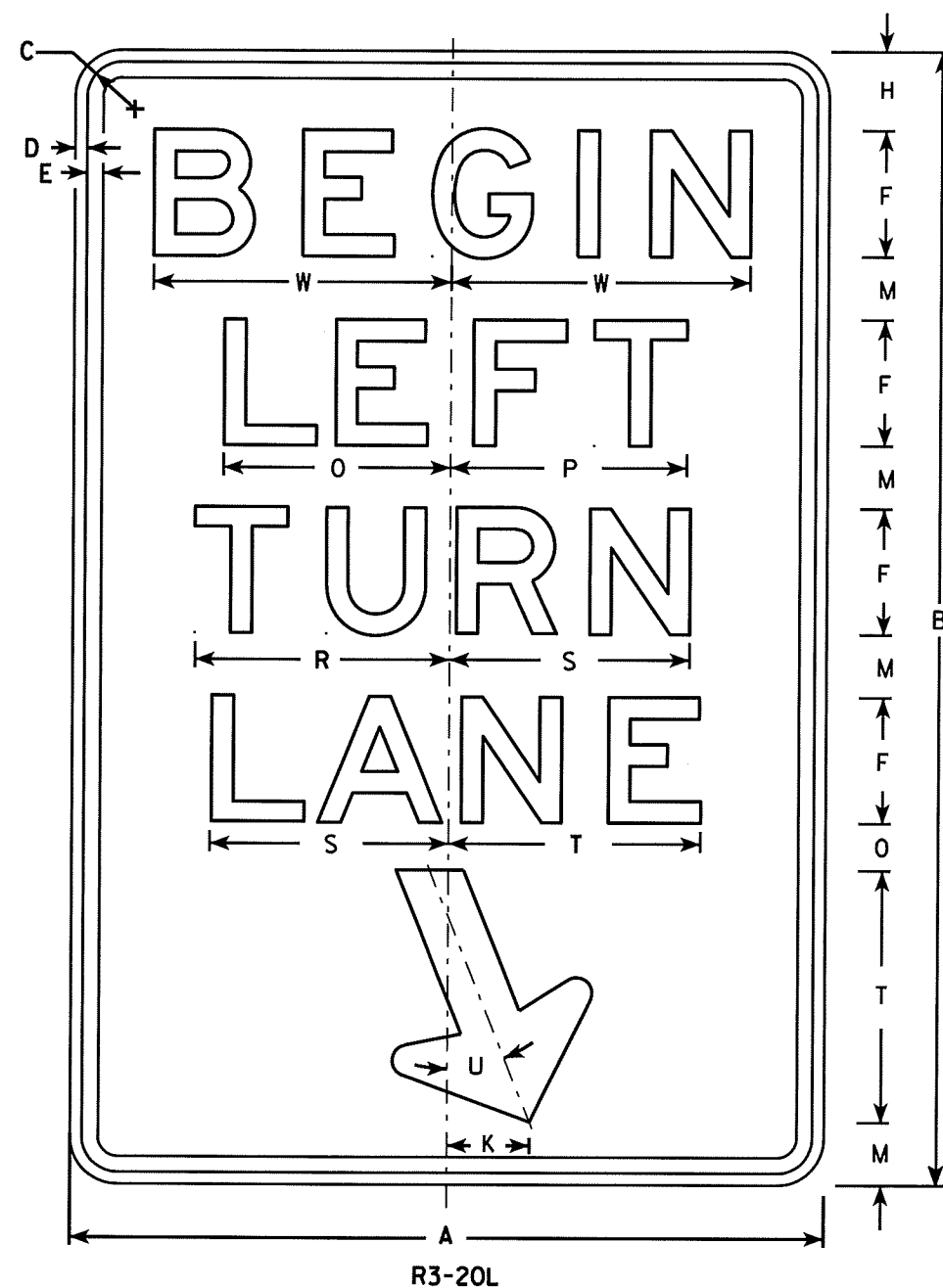
PROJECT NO:

HWY:

COUNTY:

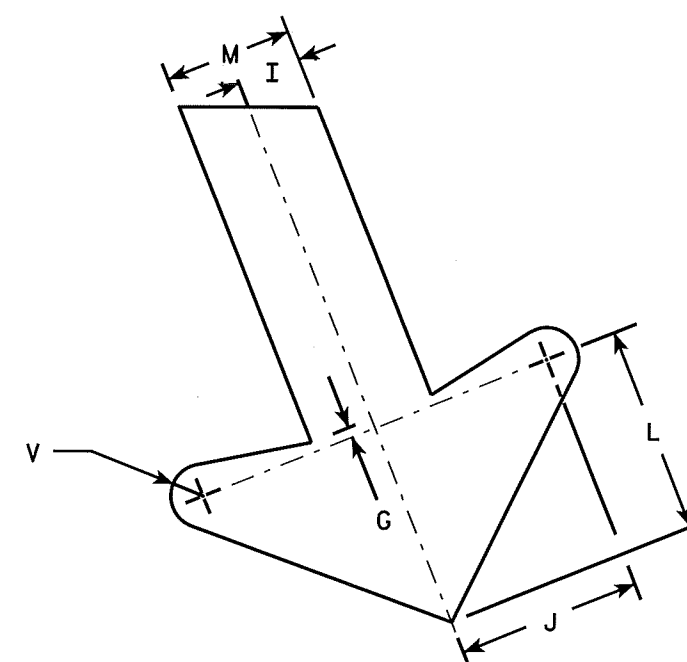
SHEET NO: 78

E



NOTES

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



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 3/4	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	10 7/8	11 1/4		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

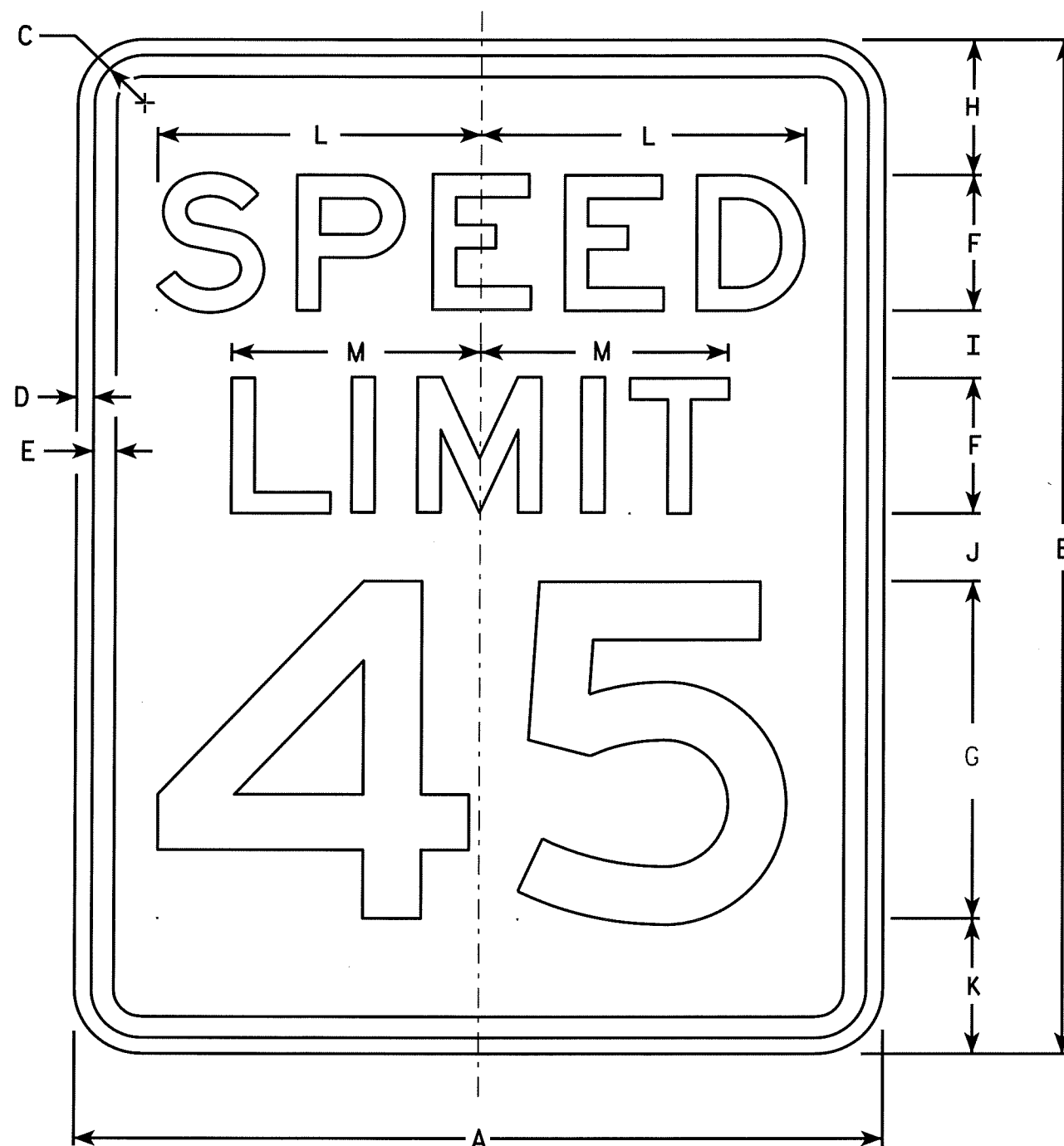
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 79	E
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STANDARD SIGN
R3-20L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/18/10 PLATE NO. R3-20L.7



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO:

HWY:

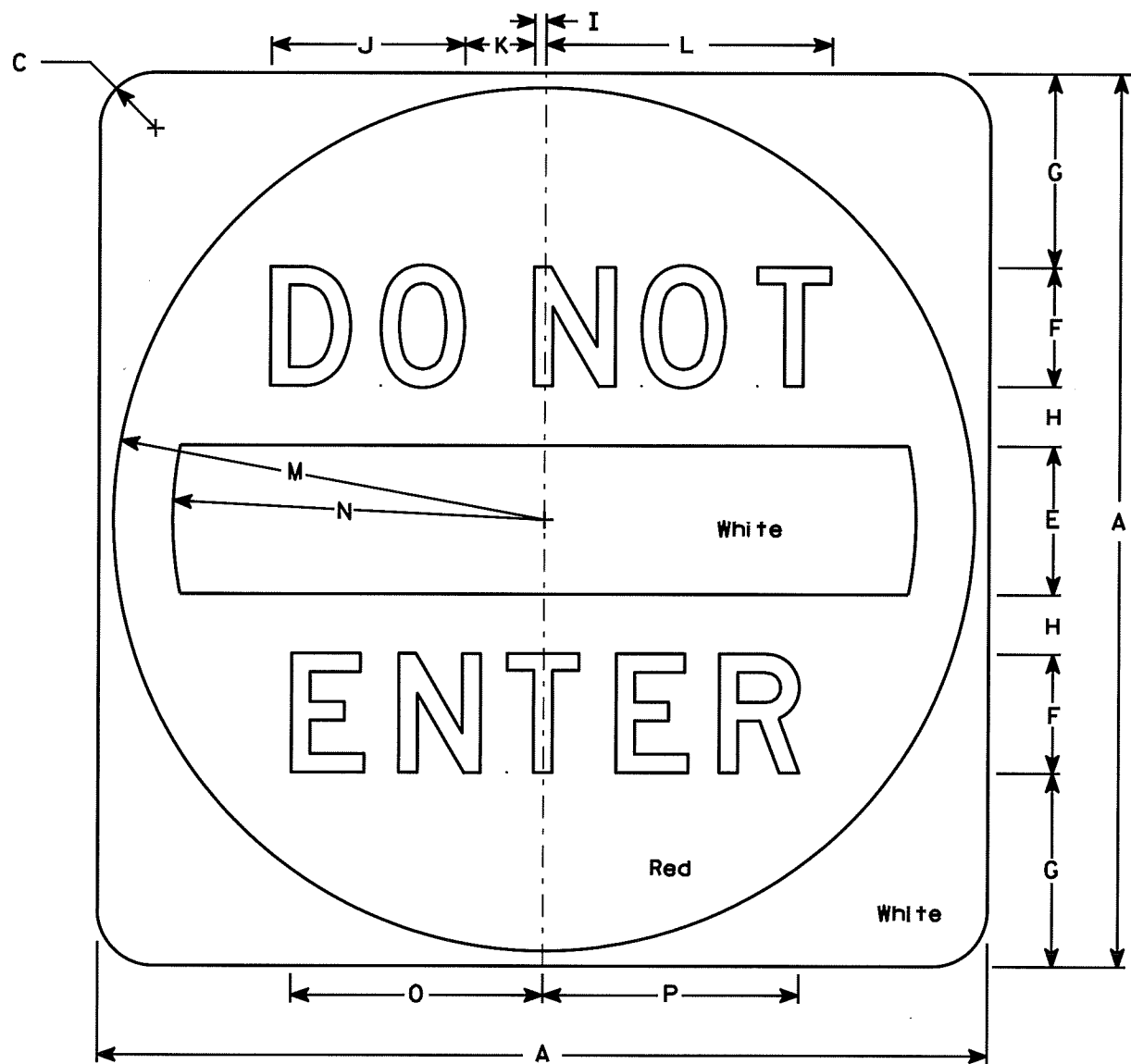
COUNTY:

SHEET NO: 80

E

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - See detail
Message - White - Type H Reflective
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but when base material is metal, the corners shall be rounded.



R5-1

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7⁄8		5	4	6 1⁄2	2	3⁄8	6 1⁄2	2 3⁄8	9 5⁄8	14 1⁄2	12 1⁄2	8 1⁄2	8 5⁄8											6.26
2M	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
3	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
4	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
5	48		3		8	6	11	3	5⁄8	9 3⁄4	3 5⁄8	14 1⁄2	23 1⁄2	20	12 3⁄4	12 7⁄8											16.0

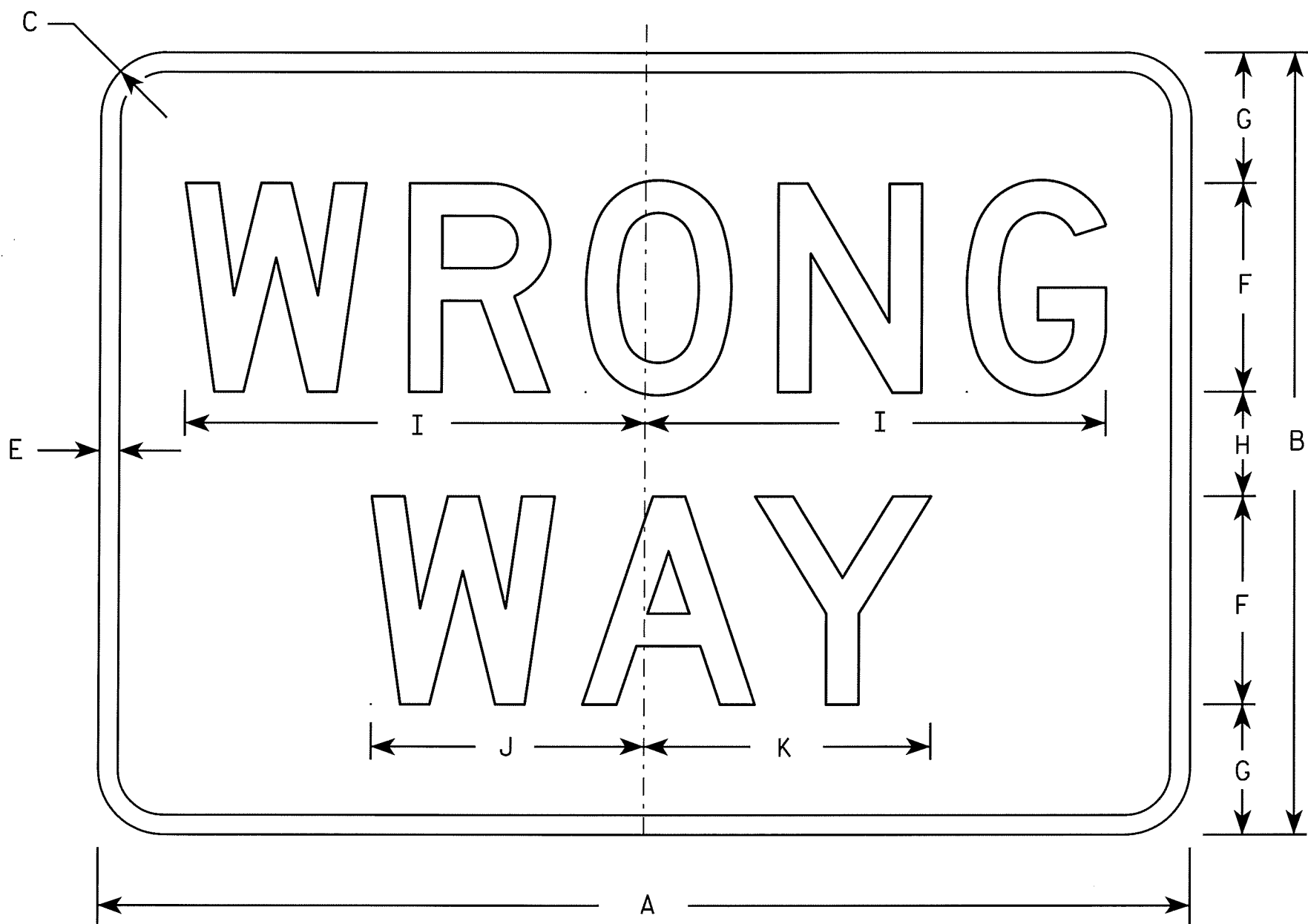
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 81	E
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STANDARD SIGN
R5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1.15



R5-1A

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	18	1 1/2		1/2	5	3	2	11	6 1/2	6 7/8																3.75
2S	36	24	2		5/8	6	4 1/2	3	13 1/4	7 7/8	8 1/4																6.00
2M	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
3	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
4	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
5	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75

STANDARD SIGN

R5-1A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1A.2

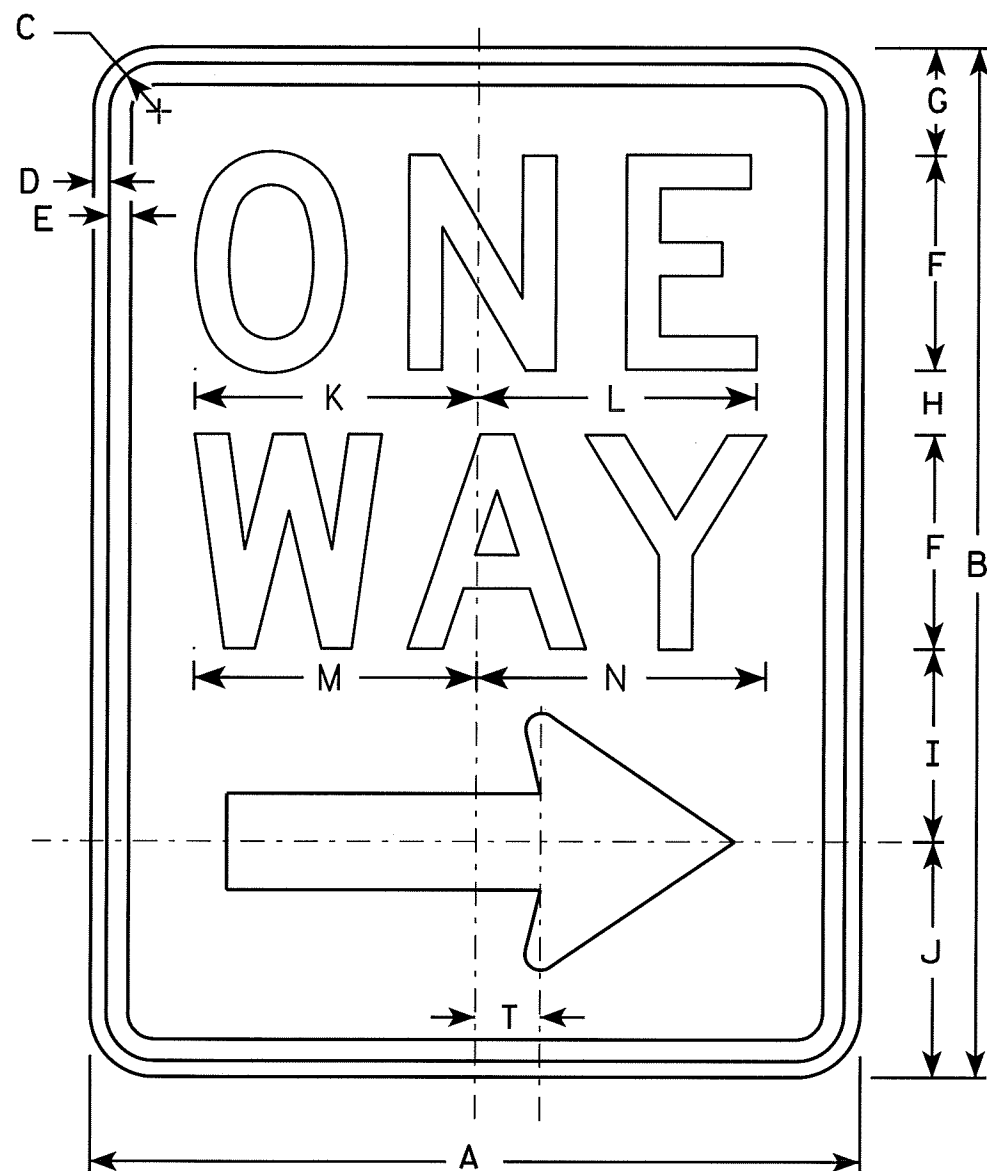
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 82

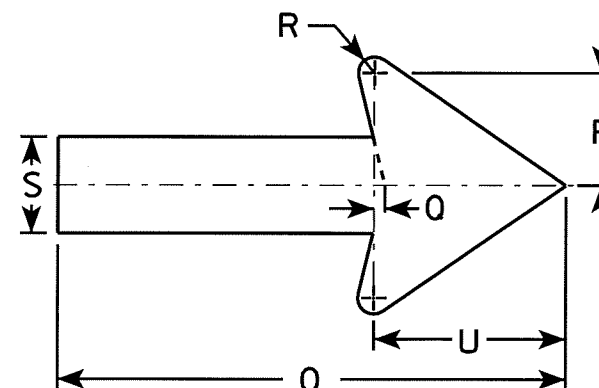
E



R6-2R

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. R6-2L same as R6-2R except arrow points to the left.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	18	24	1 1/8	3/8	1/2	5	2 1/2	1 1/2	4 1/2	5 1/2	6 5/8	6 1/2	6 5/8	6 3/4	11 7/8	2 5/8	1/4	3/8	2 1/4	1 1/2	4 1/2					
2S	24	30	1 1/8	3/8	1/2	6	3	2 1/2	5 1/2	7	8 1/8	8 1/8	8 1/2	8 5/8	16	3 1/2	3/8	1/2	3	2	6					
2M	30	36	1 3/8	1/2	5/8	8	2 1/2	2 5/8	6 7/8	8	10 1/2	10 1/2	11 1/4	11 1/4	20	4 3/8	1/2	5/8	3 3/4	2 1/2	7 1/2					
3	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
4	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
5																										

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 83	E
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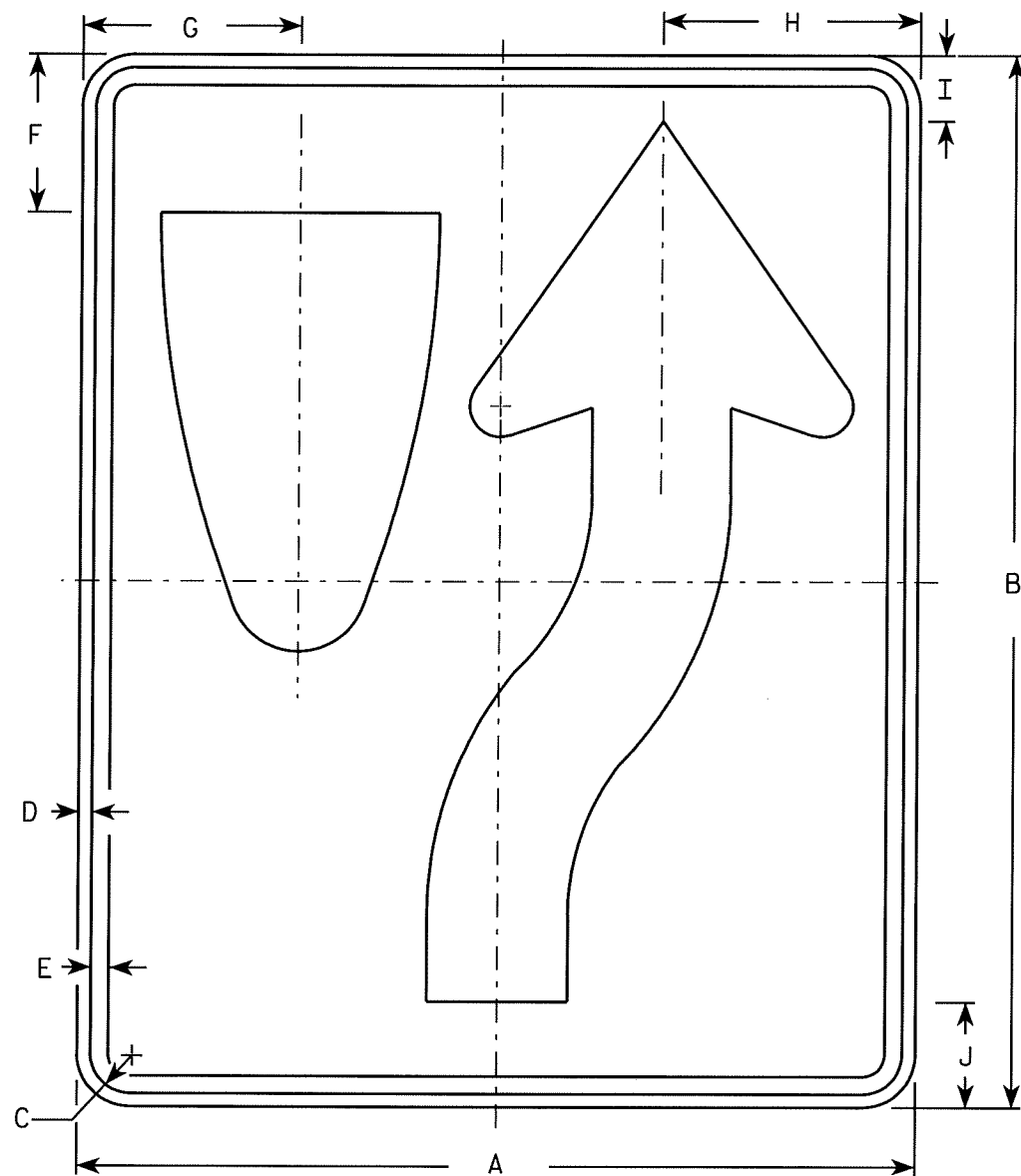
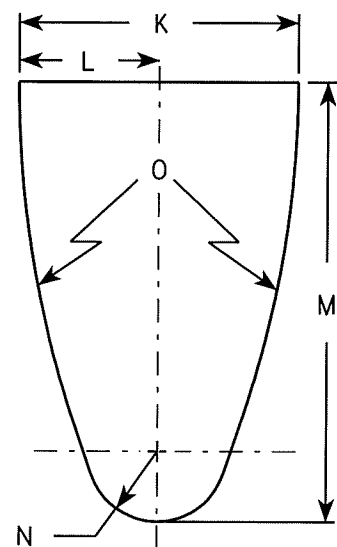
STANDARD SIGN R6-2 R&L

WISCONSIN DEPT OF TRANSPORTATION

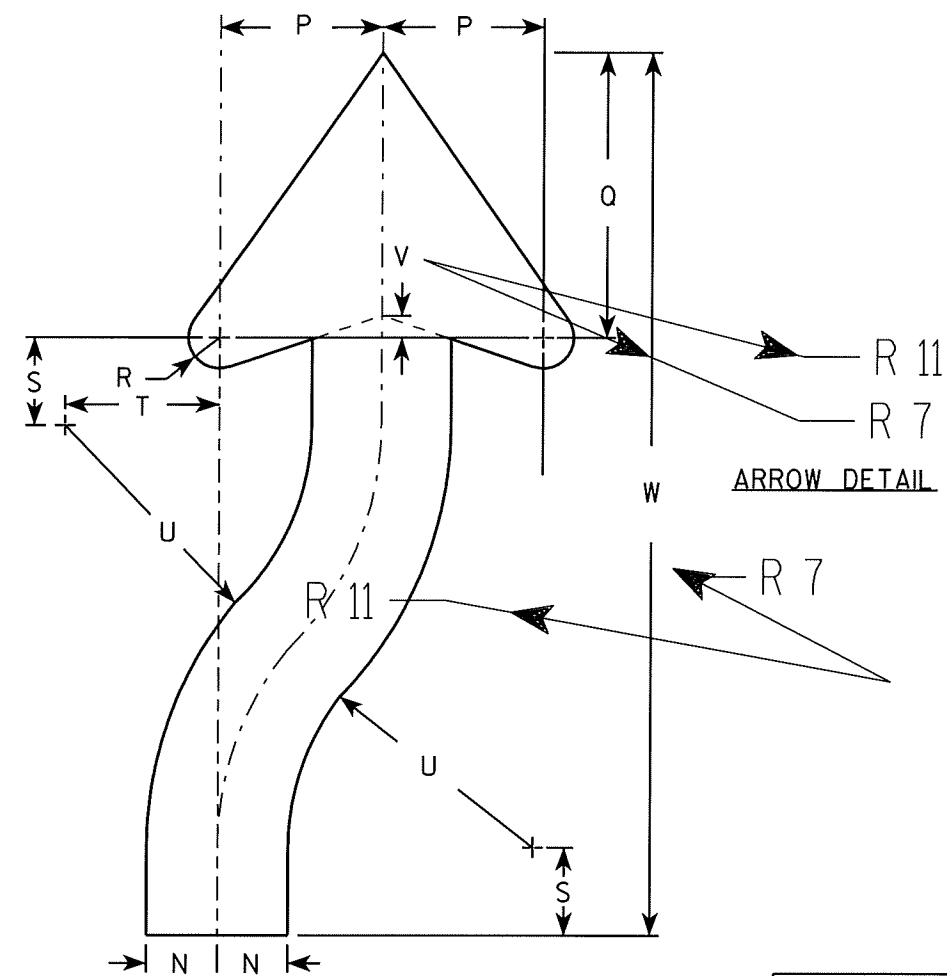
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/2/10 PLATE NO. R6-2.8

7



R4-7



ARROW DETAIL

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
2. Color:
Background - White
Message - Black
3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
4. R4-8 is the same as R4-7 except Legend is reversed.

Metric equivalent
for this sign is:

SIZE	
1	450 mm X 600 mm
2	600 mm X 750 mm
3	900 mm X 1200 mm
4	900 mm X 1200 mm
5	900 mm X 1200 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. m.
1	18	24	1 1/8	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0	.27
2	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0	.45
3	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0	1.08
4	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0	1.08
5	48	60	2 1/4	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0	1.08

STANDARD SIGN
R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Christa J. Spang
for State Traffic Engineer

DATE 2/6/02

PLATE NO. R4-7.7

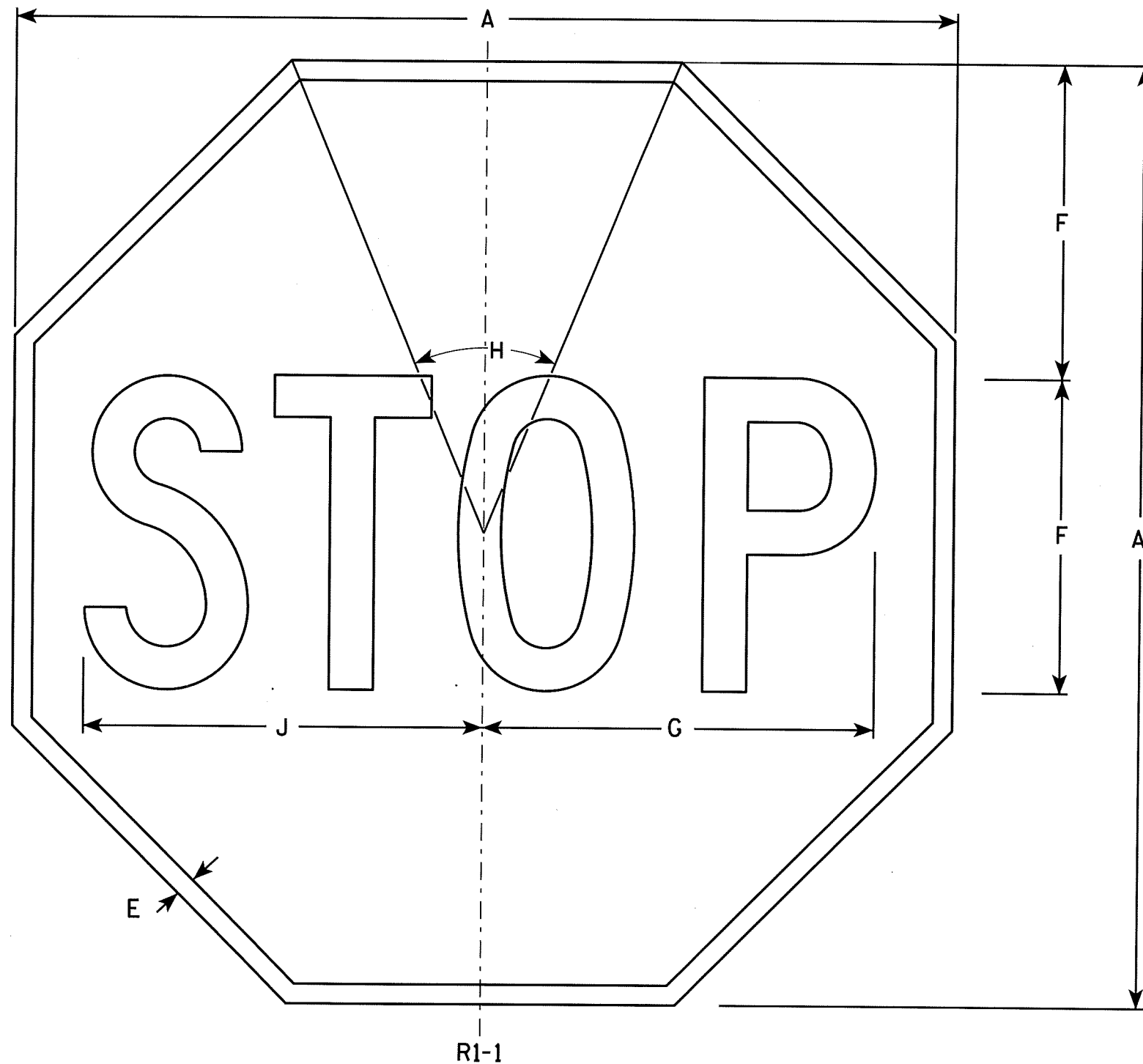
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 84

E



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Red
Message - White
3. Message Series - C

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24				$\frac{3}{8}$	8	10	45°		10 $\frac{1}{4}$																	3.31
2S	30				$\frac{5}{8}$	10	12 $\frac{1}{2}$	45°		12 $\frac{3}{4}$																	5.18
2M	36				$\frac{3}{4}$	12	15	45°		15 $\frac{3}{8}$																	7.46
3	36				$\frac{3}{4}$	12	15	45°		15 $\frac{3}{8}$																	7.46
4	48				1	16	20	45°		20 $\frac{1}{2}$																	13.25
5	48				1	16	20	45°		20 $\frac{1}{2}$																	13.25
6	18				$\frac{3}{8}$	6	7 $\frac{3}{4}$	45°		7 $\frac{3}{4}$																	1.86
7	12				$\frac{1}{4}$	4	5	45°		5 $\frac{1}{8}$																	0.78

STANDARD SIGN R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1.12

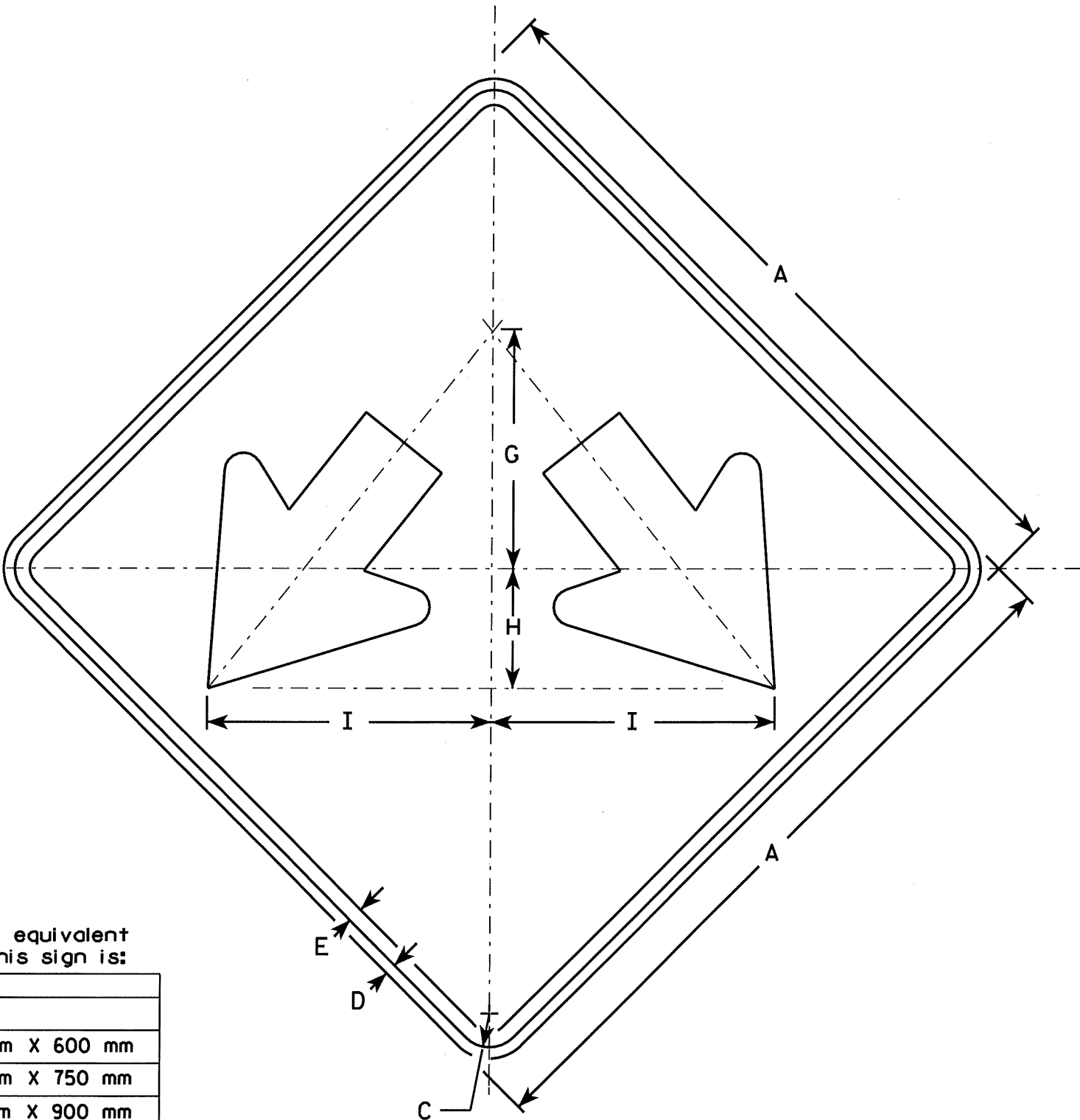
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 85

7



Metric equivalent
for this sign is:

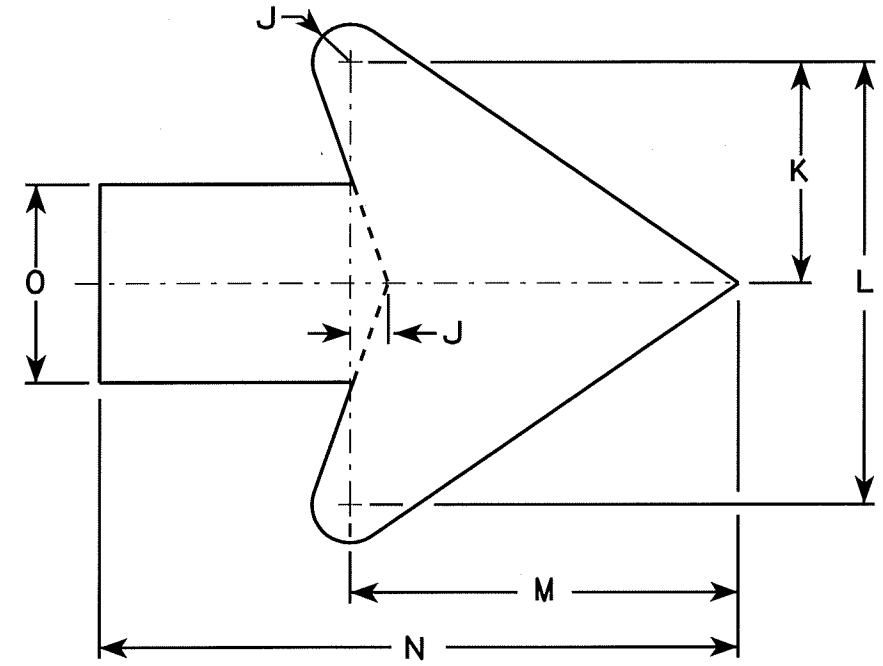
SIZE	
1	
2	600 mm X 600 mm
3	750 mm X 750 mm
4	900 mm X 900 mm
5	1200 mm X 1200 mm

W12-1D

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. m.
1																												
2	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0	0.36
3	30		1 3/8	1/2	5/8		10	5	11 7/8	3/4	4 1/2	9	7 7/8	13	4												6.25	0.56
4	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0	0.81
5	48		2 1/4	3/4	1		16	8	19	1 1/4	7 1/4	14 1/2	12 3/4	21	6 1/4												16.0	1.44

NOTES

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



Arrow Detail

STANDARD SIGN
W12-1D

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/14/06 PLATE NO. W12-1D.13

7

STAGE 1 EARTHWORK - USH 12

Earthwork values in table have not been expanded.
Fill expansion factor for common excavation = 1.20

STATION	AREA (SF)		Incremental Vol (CY)		Cumulative Vol (CY)		Mass Ordinate
	Cut	Fill	Cut	Fill	Cut	Fill	
178+65.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179+00.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179+09.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179+30.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179+50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179+66.01	23.91	0.00	7.09	0.00	7.09	0.00	7.09
180+00.00	24.54	0.00	30.50	0.00	37.59	0.00	37.59
180+14.71	24.59	0.00	13.38	0.00	50.97	0.00	50.97
180+38.94	26.25	0.00	22.81	0.00	73.78	0.00	73.78
180+50.00	27.69	0.00	11.05	0.00	84.83	0.00	84.83
181+00.00	33.28	0.01	56.45	0.01	141.28	0.01	141.27
181+50.00	36.37	0.77	64.49	0.72	205.77	0.73	205.04
181+80.20	37.80	8.17	41.48	5.00	247.25	5.73	241.52
181+86.86	38.79	14.29	9.45	2.77	256.70	8.50	248.20
181+99.99	41.10	54.47	19.43	16.72	276.12	25.22	250.90
182+00.00	41.10	54.50	0.02	0.02	276.14	25.24	250.90
182+41.06	45.25	10.40	65.66	49.35	341.80	74.59	267.21
182+47.09	45.71	9.40	10.16	2.21	351.95	76.80	275.16
182+47.10	45.71	9.40	0.02	0.00	351.97	76.80	275.17
182+50.00	45.66	9.62	4.91	1.02	356.88	77.82	279.05
182+66.32	46.27	9.78	27.78	5.86	384.66	83.69	300.97
183+00.00	48.74	12.86	59.26	14.12	443.92	97.81	346.11
183+03.51	49.16	13.58	6.36	1.72	450.28	99.53	350.76
183+50.00	48.14	11.72	83.77	21.78	534.05	121.31	412.74
183+57.52	47.78	11.31	13.36	3.21	547.41	124.52	422.89
183+57.53	29.74	11.35	0.01	0.00	547.42	124.52	422.90
184+00.00	28.83	12.00	46.06	18.36	593.49	142.88	450.60
184+50.00	26.09	13.75	50.85	23.84	644.34	166.73	477.61
185+00.00	28.77	16.33	50.80	27.85	695.14	194.58	500.56
185+30.77	29.96	22.22	33.47	21.97	728.60	216.54	512.06
185+50.00	29.72	23.57	21.25	16.31	749.85	232.85	517.00
185+80.41	30.81	25.44	34.09	27.60	783.94	260.45	523.49
185+86.40	30.93	25.24	6.85	5.62	790.79	266.07	524.72
185+86.41	30.93	25.24	0.01	0.01	790.80	266.08	524.72
185+93.41	30.85	24.63	8.01	6.46	798.81	272.55	526.26
186+00.00	31.01	24.77	7.55	6.03	806.36	278.58	527.78
186+16.01	38.30	19.73	20.55	13.19	826.91	291.77	535.14
186+16.02	39.29	36.65	0.01	0.01	826.92	291.78	535.14
186+23.12	46.47	32.93	11.28	9.15	838.20	300.93	537.27
186+25.59	49.39	31.61	4.38	2.95	842.58	303.88	538.70
186+25.60	0.00	0.00	0.01	0.01	842.59	303.89	538.71
186+32.63	0.00	0.00	0.00	0.00	842.59	303.89	538.71
186+42.80	0.00	0.00	0.00	0.00	842.59	303.89	538.71
186+50.00	0.00	0.00	0.00	0.00	842.59	303.89	538.71
186+73.66	0.00	0.00	0.00	0.00	842.59	303.89	538.71
186+73.67	61.66	25.64	0.01	0.00	842.60	303.89	538.71
186+77.30	55.75	33.30	7.89	3.96	850.50	307.85	542.64
186+81.24	50.83	41.27	7.78	5.44	858.27	313.29	544.98
186+81.25	50.82	41.29	0.02	0.02	858.29	313.31	544.98
186+82.86	48.80	44.32	2.97	2.55	861.26	315.86	545.40
186+85.24	46.14	48.31	4.18	4.08	865.45	319.94	545.50
186+97.70	37.58	62.10	19.32	25.48	884.76	345.42	539.34
186+97.71	37.57	44.03	0.01	0.02	884.78	345.44	539.34
187+00.00	35.41	46.08	3.09	3.82	887.87	349.26	538.61
187+12.42	29.59	48.46	14.95	21.74	902.82	371.00	531.82
187+19.42	29.94	48.99	7.72	12.63	910.54	383.64	526.90
187+19.43	29.94	48.99	0.01	0.02	910.55	383.66	526.90
187+21.00	30.06	49.28	1.74	2.86	912.30	386.51	525.78
187+25.42	30.59	49.76	4.96	8.11	917.26	394.62	522.64
187+50.00	34.50	45.04	29.63	43.15	946.89	437.77	509.12
187+72.67	36.34	38.90	29.74	35.24	976.63	473.01	503.62
188+00.00	38.69	51.24	37.97	45.62	1014.60	518.63	495.97
188+50.00	38.15	32.85	71.15	77.86	1085.75	596.49	489.26

STAGE 1 EARTHWORK - USH 12, CONTINUED

Earthwork values in table have not been expanded.
Fill expansion factor for common excavation = 1.20

STATION	AREA (SF)		Incremental Vol (CY)		Cumulative Vol (CY)		Mass Ordinate
	Cut	Fill	Cut	Fill	Cut	Fill	
189+00.00	36.42	35.99	69.05	63.74	1154.80	660.23	494.56
189+35.00	34.17	41.46	45.75	50.20	1200.55	710.43	490.12
189+50.00	32.38	44.32	18.49	23.83	1219.03	734.26	484.78
189+56.69	31.45	45.58	7.91	11.14	1226.94	745.40	481.55
189+56.70	50.47	43.57	0.02	0.02	1226.96	745.41	481.54
190+00.00	45.46	49.64	76.92	74.74	1303.88	820.15	483.73
190+10.20	44.43	52.25	16.98	19.25	1320.86	839.40	481.46
190+37.30	41.09	49.80	42.92	51.21	1363.78	890.61	473.16
190+50.00	40.65	46.46	19.22	22.64	1383.00	913.25	469.75
190+72.69	39.45	38.42	33.66	35.67	1416.66	948.92	467.74
190+77.31	39.23	36.96	6.73	6.45	1423.39	955.37	468.02
191+00.00	37.73	27.45	32.34	27.06	1455.73	982.43	473.30
191+50.00	35.08	20.80	67.42	44.68	1523.14	1027.11	496.04
191+50.01	35.08	20.80	0.01	0.01	1523.16	1027.12	496.04
191+57.32	33.13	19.06	9.23	5.40	1532.39	1032.51	499.88
191+57.33	33.12	19.06	0.01	0.01	1532.40	1032.52	499.88
191+63.14	31.95	17.35	7.00	3.92	1539.40	1036.44	502.97
191+69.79	30.67	15.52	7.71	4.05	1547.11	1040.48	506.63
192+00.00	26.15	10.21	31.79	14.39	1578.90	1054.88	524.02
192+50.00	22.69	1.61	45.22	10.94	1624.12	1065.82	558.30
192+71.92	19.70	0.05	17.21	0.67	1641.33	1066.50	574.84
192+96.63	18.54	0.00	17.50	0.02	1658.83	1066.52	592.31
193+00.00	18.68	0.00	2.32	0.00	1661.15	1066.52	594.63
193+47.70	17.99	0.00	32.39	0.00	1693.54	1066.52	627.03
193+47.71	0.00	0.00	0.00	0.00	1693.55	1066.52	627.03
193+50.00	0.00	0.00	0.00	0.00	1693.55	1066.52	627.03
193+73.86	0.00	0.00	0.00	0.00	1693.55	1066.52	627.03
193+95.08	0.00	0.00	0.00	0.00	1693.55	1066.52	627.03
194+00.00	0.00	0.00	0.00	0.00	1693.55	1066.52	627.03
194+37.70	0.00	0.00	0.00	0.00	1693.55	1066.52	627.03

STAGE 1 EARTHWORK - CTH AB

Earthwork values in table have not been expanded.
Fill expansion factor for common excavation = 1.20

STATION	AREA (SF)		Incremental Vol (CY)		Cumulative Vol (CY)		Mass Ordinate
	Cut	Fill	Cut	Fill	Cut	Fill	
18+68.56	29.62	0.00	0.00	0.00	0.00	0.00	0.00
19+06.66	39.94	34.01	49.07	24.00	49.07	24.00	25.08
19+16.25	43.25	24.77	14.77	10.44	63.85	34.44	29.41
19+16.26	41.98	26.89	0.02	0.01	63.86	34.45	29.42
19+57.28	91.34	1.63	101.27	21.66	165.14	56.11	109.03
19+60.21	89.68	0.00	9.82	0.09	174.96	56.20	118.76
19+68.33	85.72	0.00	26.38	0.00	201.34	56.20	145.14
19+79.01	0.00	0.00	16.95	0.00	218.29	56.20	162.09
20+77.75	0.00	0.00	0.00	0.00	218.29	56.20	162.09
20+84.45	53.38	0.00	6.62	0.00	224.92	56.20	168.72
21+01.78	64.21	0.00	37.74	0.00	262.65	56.20	206.45
21+05.08	66.13	1.63	7.97	0.10	270.62	56.30	214.32
21+36.56	43.47	5.23	63.89	4.00	334.51	60.30	274.21
21+36.57	45.54	2.62	0.02	0.00	334.52	60.30	274.22
21+85.75	28.74	0.70	67.65	3.02	402.17	63.32	338.85

STAGE 2 EARTHWORK - USH 12

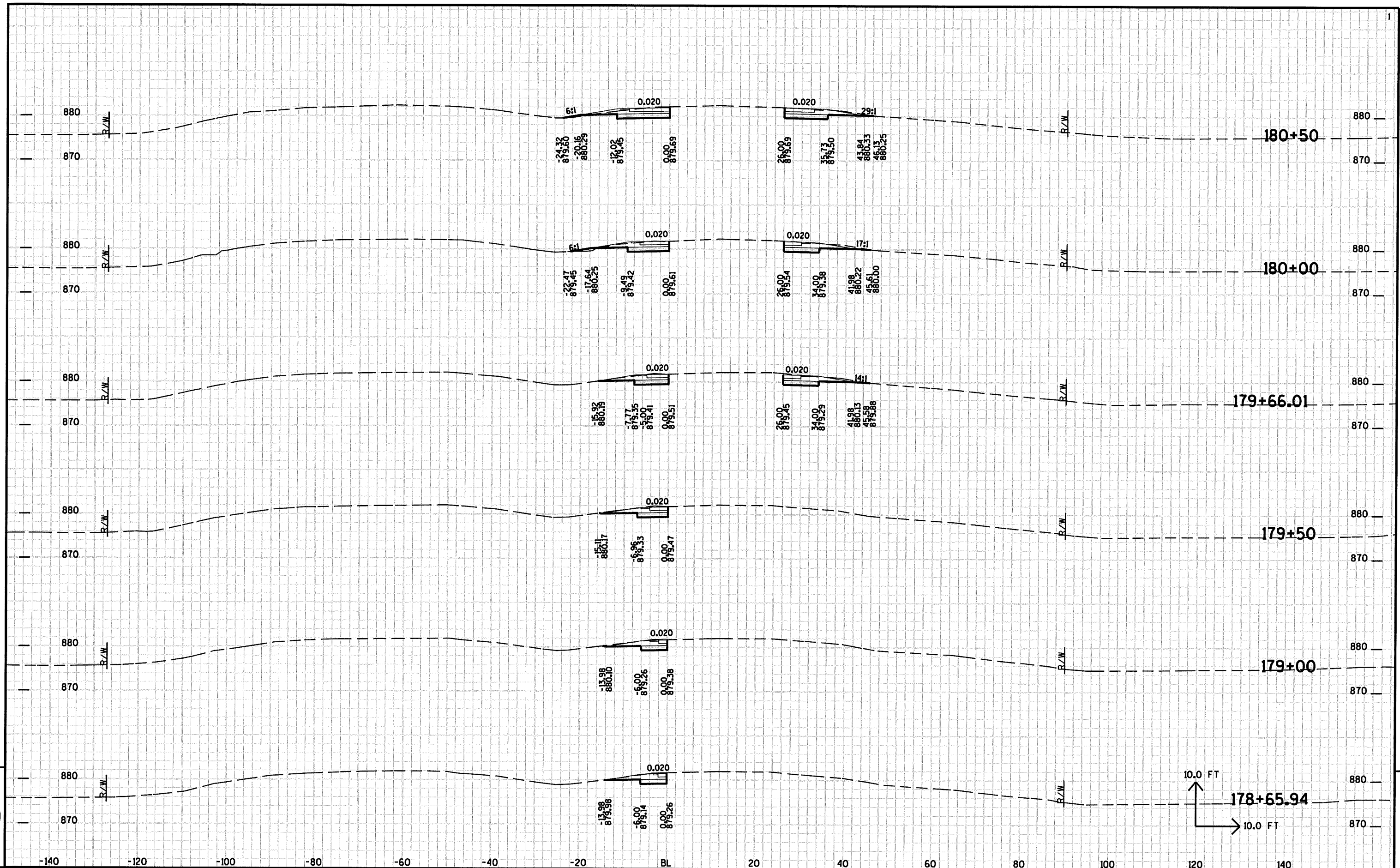
Earthwork values in table have not been expanded.
Fill expansion factor for common excavation = 1.20

STATION	AREA (SF)		Incremental Vol (CY)		Cumulative Vol (CY)		Mass Ordinate
	Cut	Fill	Cut	Fill	Cut	Fill	
178+65.94	17.74	0.00	0.00	0.00	0.00	0.00	0.00
179+00.00	18.96	0.00	23.15	0.00	23.15	0.00	23.15
179+09.24	19.61	0.00	6.60	0.00	29.75	0.00	29.75
179+30.86	19.56	0.00	15.68	0.00	45.43	0.00	45.43
179+50.00	21.07	0.00	14.40	0.00	59.83	0.00	59.83
179+66.01	21.57	0.00	12.64	0.00	72.47	0.00	72.47
180+00.00	23.65	2.11	28.47	1.33	100.94	1.33	99.61
180+14.71	25.30	0.57	13.34	0.73	114.28	2.06	112.22
180+38.94	25.95	1.65	23.00	1.00	137.27	3.06	134.22
180+50.00	27.29	1.22	10.90	0.59	148.18	3.64	144.53
181+00.00	30.02	2.52	53.06	3.47	201.24	7.11	194.13
181+50.00	31.99	6.63	57.41	8.47	258.65	15.58	243.07
181+80.20	58.11	8.29	50.38	8.34	309.03	23.92	285.11
181+86.86	58.62	9.02	14.40	2.13	323.43	26.06	297.37
181+99.99	58.83	12.98	28.56	5.35	351.99	31.41	320.58
182+00.00	57.92	26.78	0.02	0.01	352.01	31.42	320.59
182+41.06	63.62	19.64	92.41	35.30	444.42	66.71	377.71
182+47.09	63.66	18.82	14.21	4.29	458.64	71.01	387.63
182+47.10	49.99	18.90	0.02	0.01	458.66	71.01	387.64
182+50.00	49.99	18.57	5.37	2.01	464.03	73.03	391.00
182+66.32	51.17	16.40	30.57	10.57	494.60	83.59	411.00
183+00.00	54.30	14.45	65.78	19.24	560.38	102.84	457.54
183+03.51	54.78	14.30	7.09	1.87	567.47	104.70	462.77
183+50.00	61.09	9.90	99.75	20.83	667.22	125.54	541.68
183+57.52	62.30	9.44	17.18	2.69	684.41	128.23	556.17
183+57.53	62.30	9.44	0.02	0.00	684.43	128.24	556.19
184+00.00	65.96	8.44	100.87	14.06	785.30	142.30	643.01
184+50.00	63.51	7.11	119.88	14.40	905.19	156.70	748.49
185+00.00	74.05	6.14	127.37	12.27	1032.56	168.96	863.59
185+30.77	76.83	4.50	85.97	6.06	1118.53	175.03	943.50
185+50.00	81.09	4.40	56.24	3.17	1174.77	178.20	996.57
185+80.41	89.02	2.65	95.79	3.97	1270.56	182.17	1088.39
185+86.40	93.40	1.82	20.24	0.50	1290.80	182.66	1108.13
185+86.41	94.11	0.00	0.03	0.00	1290.83	182.66	1108.17
185+93.41	97.15	0.00	24.79	0.00	1315.62	182.66	1132.96
186+00.00	99.04	0.00	23.94	0.00	1339.57	182.66	1156.90
186+16.01	99.29	0.00	58.80	0.00	1398.37	182.66	1215.71
186+16.02	99.27	0.00	0.04	0.00	1398.40	182.66	1215.74
186+23.12	98.39	0.00	25.99	0.00	1424.39	182.66	1241.73
186+25.59	98.41	0.00	9.00	0.00	1433.40	182.66	1250.73
186+25.60	98.40	0.00	0.04	0.00	1433.43	182.66	1250.77
186+32.63	98.50	0.00	25.63	0.00	1459.07	182.66	1276.40
186+42.80	0.00	0.00	18.55	0.00	1477.62	182.66	1294.95
186+50.00	0.00	0.00	0.00	0.00	1477.62	182.66	1294.95
186+73.66	0.00	0.00	0.00	0.00	1477.62	182.66	1294.95
186+73.67	0.00	0.00	0.00	0.00	1477.62	182.66	1294.95
186+77.30	0.00	0.00	0.00	0.00	1477.62	182.66	1294.95
186+81.24	29.20	0.00	2.13	0.00	1479.75	182.66	1297.09
186+81.25	62.81	0.00	0.02	0.00	1479.77	182.66	1297.10
186+82.86	71.11	0.00	3.99	0.00	1483.76	182.66	1301.10
186+85.24	99.53	0.00	7.52	0.00	1491.28	182.66	1308.62
186+97.70	97.84	0.00	45.54	0.00	1536.82	182.66	1354.16
186+97.71	97.83	0.00	0.04	0.00	1536.85	182.66	1354.19
187+00.00	97.26	0.00	8.27	0.00	1545.13	182.66	1362.46
187+12.42	93.71	0.00	43.92	0.00	1589.05	182.66	1406.39
187+19.42	90.66	0.00	23.90	0.00	1612.95	182.66	1430.29
187+19.43	89.99	2.42	0.03	0.00	1612.99	182.66	1430.32
187+21.00	88.61	2.72	5.19	0.15	1618.18	182.81	1435.37
187+25.42	85.86	3.19	14.28	0.48	1632.46	183.30	1449.16
187+50.00	78.63	3.51	74.87	3.05	1707.33	186.35	1520.98
187+72.67	77.70	3.10	65.63	2.77	1772.96	189.12	1583.84
188+00.00	64.15	6.75	71.79	4.99	1844.75	194.11	1650.64
188+50.00	59.02	12.17	114.04	17.52	1958.79	211.63	1747.17
189+00.00	59.80	15.47	110.02	25.59	2068.81	237.22	1831.59

STAGE 2 EARTHWORK - USH 12. CONTINUED

Earthwork values in table have not been expanded.
Fill expansion factor for common excavation = 1.20

STATION	AREA (SF)		Incremental Vol (CY)		Cumulative Vol (CY)		Mass Ordinate
	Cut	Fill	Cut	Fill	Cut	Fill	
189+35.00	58.09	20.63	76.41	23.40	2145.22	260.62	1884.61
189+50.00	55.67	15.75	31.60	10.11	2176.82	270.72	1906.10
189+56.69	54.76	16.39	13.68	3.98	2190.50	274.70	1915.80
189+56.70	54.76	16.39	0.02	0.01	2190.52	274.71	1915.81
190+00.00	52.55	20.25	86.05	29.38	2276.57	304.09	1972.48
190+10.20	51.58	20.81	19.67	7.76	2296.24	311.84	1984.39
190+37.30	49.19	20.74	50.57	20.85	2346.81	332.70	2014.11
190+50.00	48.80	19.03	23.05	9.35	2369.85	342.05	2027.80
190+72.69	47.03	20.06	40.27	16.43	2410.12	358.48	2051.65
190+77.31	46.55	20.23	8.01	3.45	2418.13	361.92	2056.21
191+00.00	47.26	23.80	39.42	18.50	2457.55	380.42	2077.12
191+50.00	48.31	29.15	88.49	49.03	2546.04	429.45	2116.59
191+50.01	48.51	13.14	0.02	0.01	2546.06	429.46	2116.60
191+57.32	47.06	11.80	12.94	3.38	2559.00	432.84	2126.16
191+57.33	51.97	11.40	0.02	0.00	2559.01	432.84	2126.18
191+63.14	50.27	11.22	11.00	2.43	2570.02	435.27	2134.74
191+69.79	49.66	11.50	12.31	2.80	2582.32	438.07	2144.25
192+00.00	26.54	12.75	42.63	13.57	2624.95	451.64	2173.31
192+50.00	24.16	7.70	46.94	18.94	2671.90	470.58	2201.32
192+71.92	22.37	7.26	18.89	6.07	2690.78	476.65	2214.13
192+96.63	21.19	4.41	19.93	5.34	2710.72	481.99	2228.73
193+00.00	21.10	3.91	2.64	0.52	2713.36	482.50	2230.85
193+47.70	15.53	1.25	32.36	4.56	2745.72	487.07	2258.65
193+47.71	15.53	1.25	0.01	0.00	2745.72	487.07	2258.66
193+50.00	15.25	1.12	1.31	0.10	2747.03	487.17	2259.86
193+73.86	12.91	0.44	12.44	0.69	2759.47	487.86	2271.62
193+95.08	13.36	0.09	10.32	0.21	2769.80	488.06	2281.73
194+00.00	13.54	0.12	2.45	0.02	2772.25	488.08	2284.16
194+37.70	14.40	0.29	19.51	0.29	2791.76	488.37	2303.39



PROJECT NO: 3080-00-78

HWY: USH 12

COUNTY: DANE

CROSS SECTIONS - USH 12

SHEET NO:

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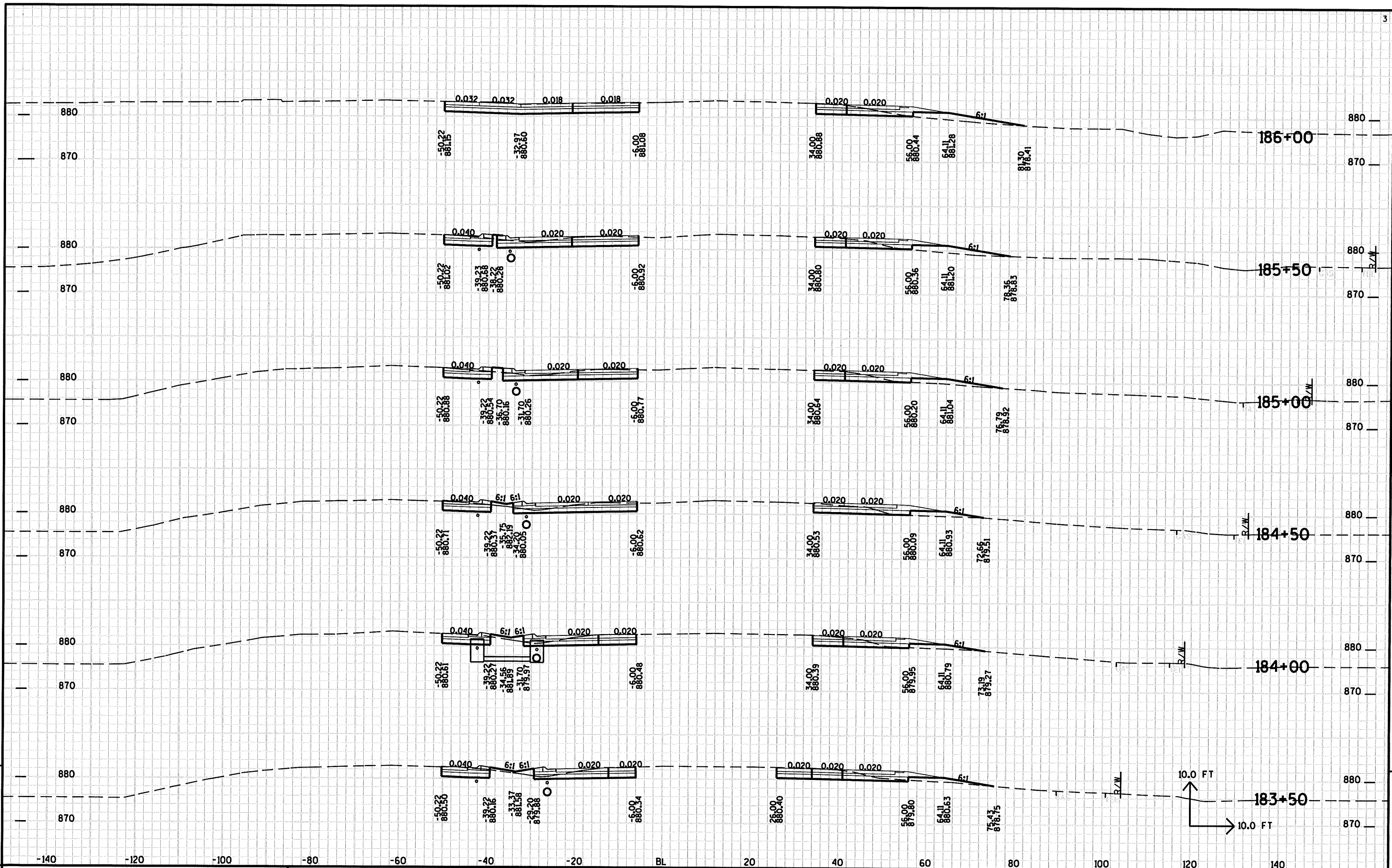
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HWY: USH 12

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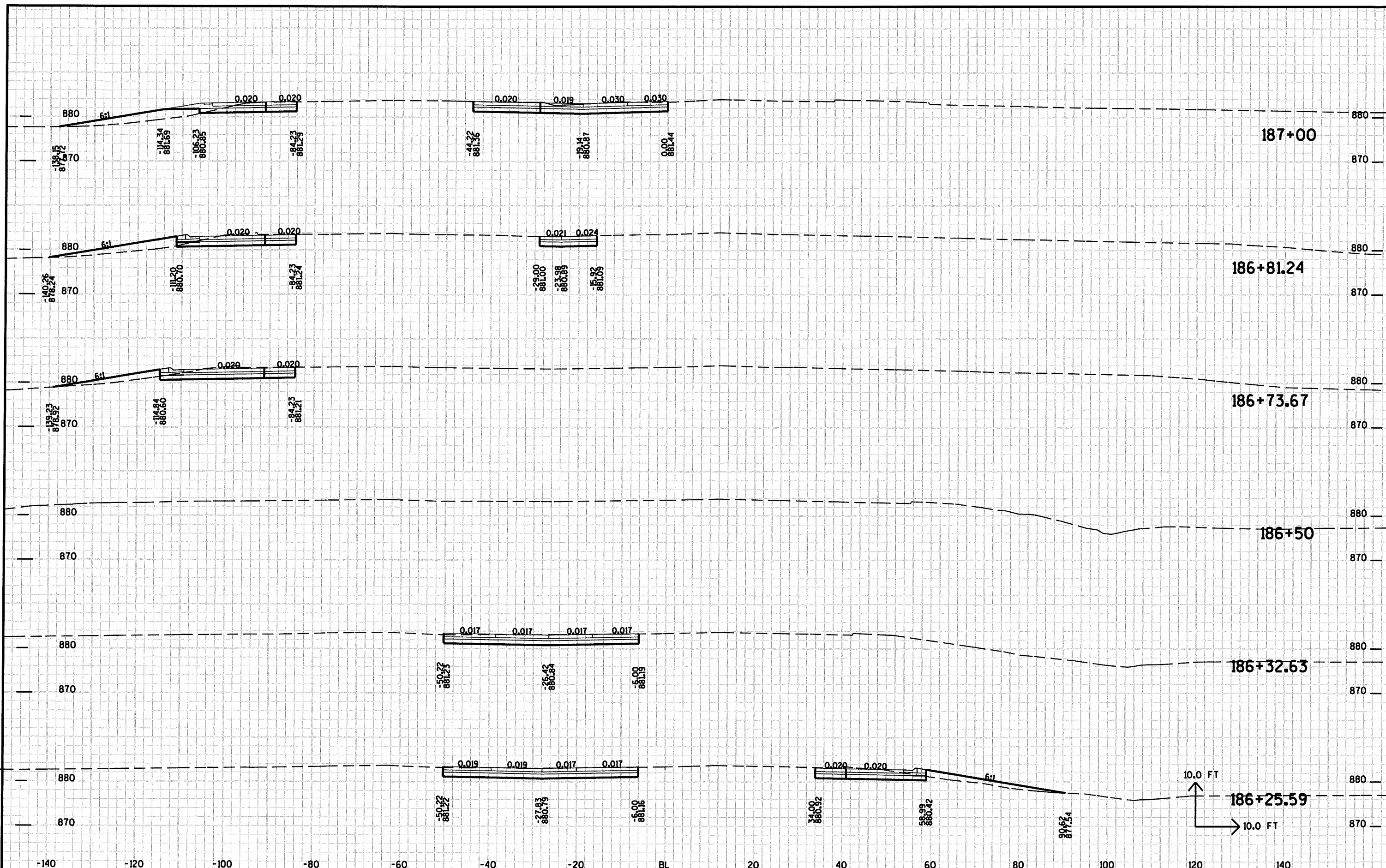
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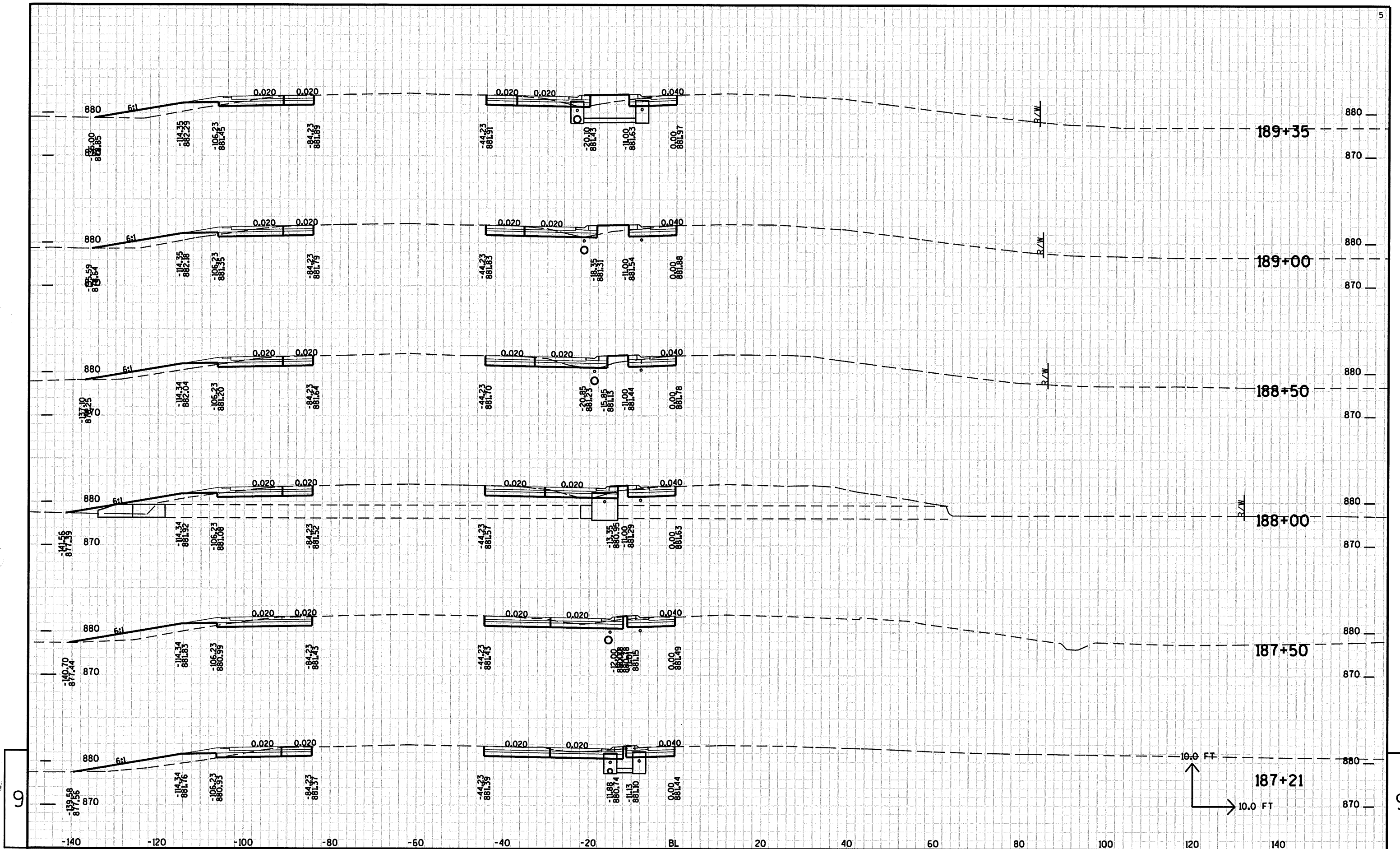
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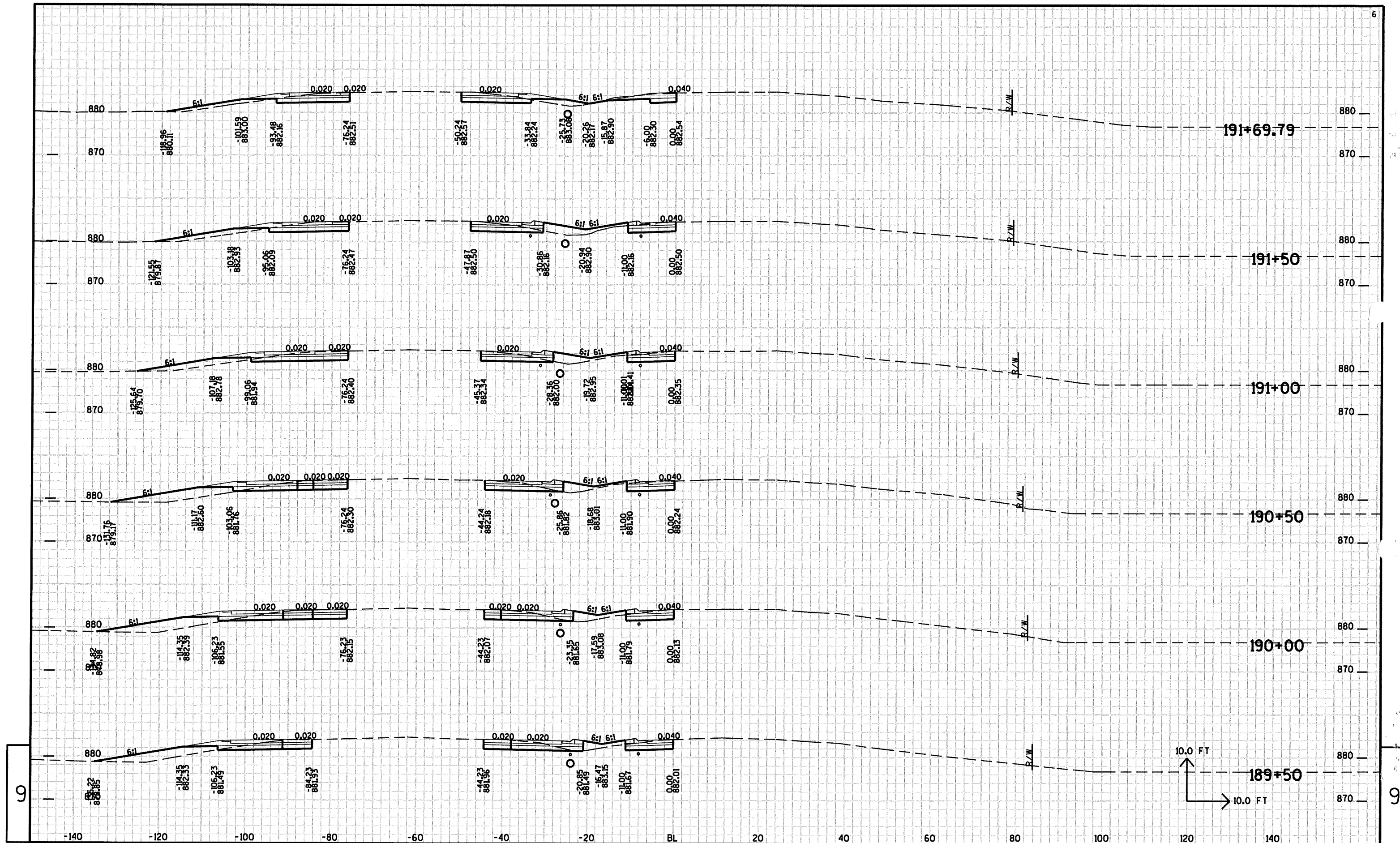
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PROJECT NO: 3080-00-78

HWY: USH 12

COUNTY: DANE

CROSS SECTIONS - USH 12

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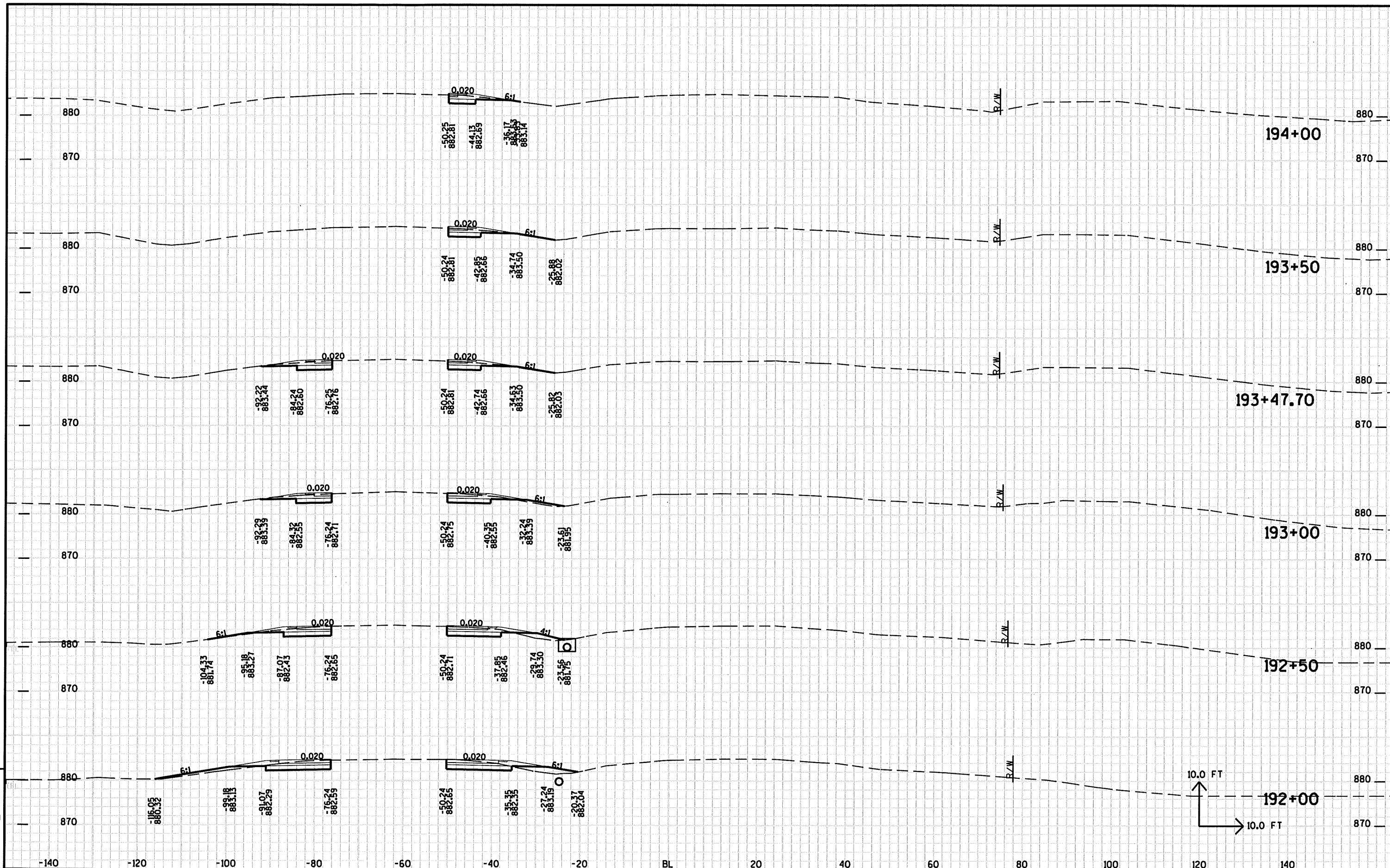
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PLOT NAME :

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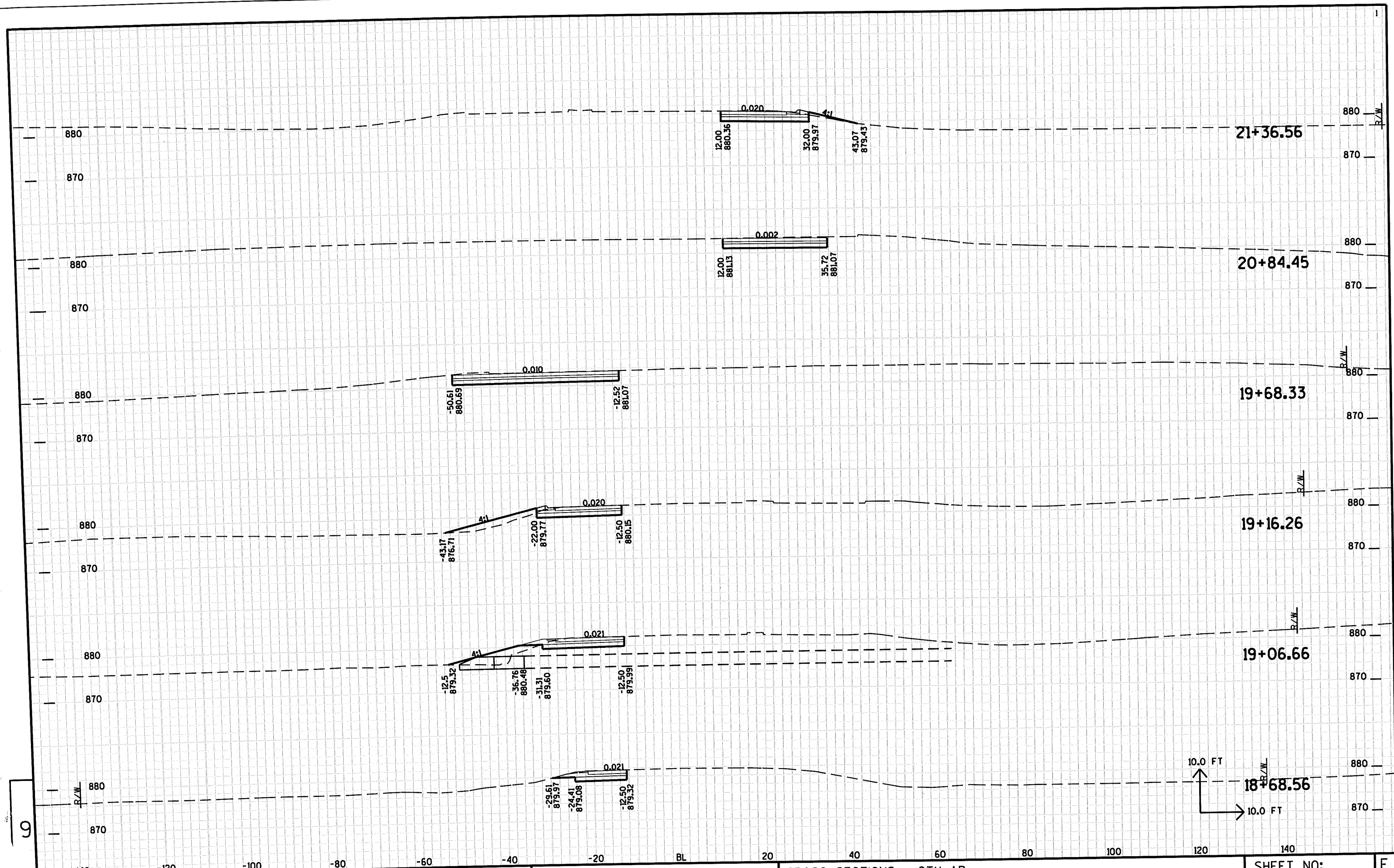
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SHEET NO:

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PROJECT NO: 3080-00-78

HWY: USH 12

COUNTY: DANE

CROSS SECTIONS - CTH AB

SHEET NO: 97

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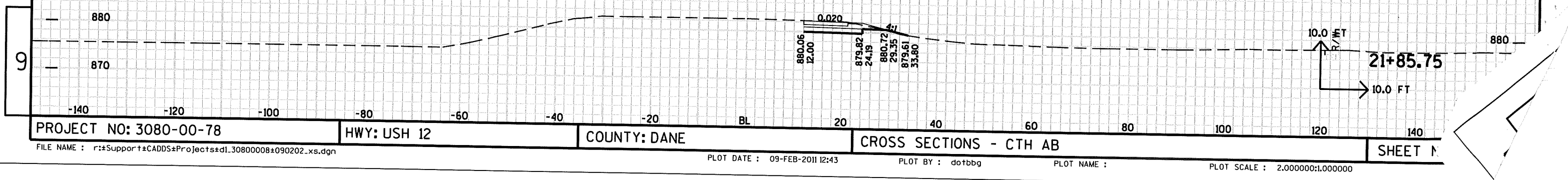
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PLOT BY : dotbbg

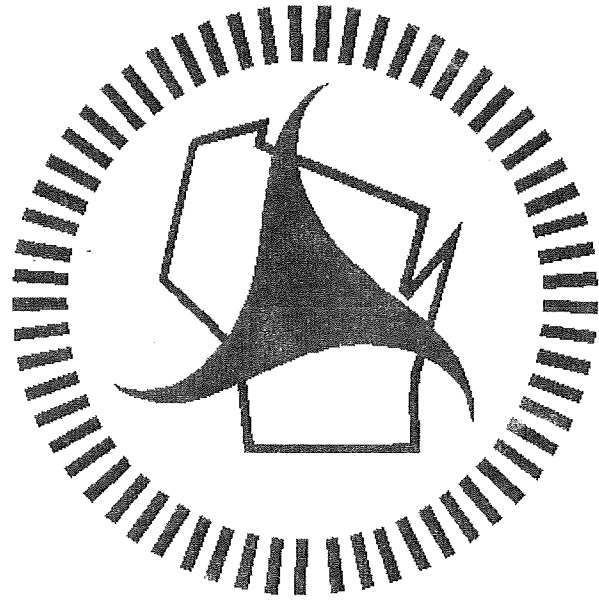
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Notes



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