SUP APR 12

PROJECT ID: 1198-00-75
WITH: 1198-00-61

COUNTY: DOUGLAS

ORDER OF SHEETS

TOTAL SHEETS = 94

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CITY OF SUPERIOR, NORTH 4TH STREET

IH 535/STH 35 INTERCHANGE E RAMP INTERSECTION

USH 53

DOUGLAS COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1198-00-75	WISC 2012182	1

STATE PROJECT NUMBER
1198-00-75

31

N

END PROJECT 1198-00-75
STA 21+81.00

BEGIN PROJECT 1198-00-75
STA 9+12.00
N = 310204.77
E = 149885.43

DESIGN DESIGNATION

A.A.D.T. 2012	=	17,300
A.A.D.T. 2032	=	21,700
D.H.V.	=	5600
D.D.	=	58/42
T.	=	11.3
DESIGN SPEED	=	35 MPH
ESALS	=	

CONVENTIONAL SYMBOLS

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

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

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

LAYOUT
SCALE 0 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.240 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DOUGLAS COUNTY.

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54702

WISCONSIN
JEFFREY A. ABRAMSON
32337
Eau Claire
WI
PROFESSIONAL ENGINEER

DATE: 01/16/2012

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Project Manager	MATT DICKENSON
Regional Examiner	DAN OJIBWAY
Regional Supervisor	DAVID OSTROWSKI
C.O. Examiner	JANE ENGLEBRETSEN

APPROVED FOR THE DEPARTMENT
DATE: 01/13/12 (Signature)

E

UTILITIES

	UTILITY OR MUNICIPALITY	ADDRESS	CONTACT	UTILITY TYPE
*	CENTURYLINK	135 N 21ST STREET SUPERIOR, WI 54880	STEVE HAUGE (715) 566-3879	COMMUNICATION LINE
	CITY OF SUPERIOR SEWER DEPARTMENT	51E 1ST STREET SUPERIOR, WI 54880	CHRIS CARLSON (715) 394-0392	SANITARY/STORM SEWER
*	MURPHY OIL COMPANY- SUPERIOR REFINERY	2407 STINSON AVENUE P.O. BOX 2066 SUPERIOR, WI 54880	SAMUEL TALARICO ( ) -	GAS/PETROLEUM
*	SUPERIOR WATER LIGHT AND POWER COMPANY	2915 HILL AVENUE SUPERIOR, WI 54880	AARON ANDERSON (715) 395-6317 KEVIN HABERMAN (715) 395-6315	WATER/GAS ELECTRIC

* MEMBER OF DIGGERS HOTLINE

DIGGERS HOTLINE

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

DNR CONTACT

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
NORTHWEST REGION HEADQUARTERS
810 W MAPLE STREET
SPOONER, WI 54801
ATTN: AMY CRONK
(715) 635-4229
amy.cronk@wisconsin.gov

WISDOT ENVIRONMENTAL COORDINATOR

WISCONSIN DEPARTMENT OF TRANSPORTATION
NORTHWEST REGION - SUPERIOR OFFICE
1701 N 4TH STREET
SUPERIOR, WI 54880
ATTN: AMY ADRIHAN
(715) 392-7972
amy.adrihan@dot.wi.gov

DESIGN CONTACT

AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
ATTN: JEFF ABRAMSON, PE
(715) 834-3161
abramsonj@ayresassociates.com

REGION CONTACT

WISCONSIN DEPARTMENT OF TRANSPORTATION,
NORTHWEST REGION - SUPERIOR OFFICE
1701 N 4TH STREET
SUPERIOR, WI 54880
ATTN: MATT DICKENSON
(715) 395-3022
matthew.dickenson@dot.wi.gov

GENERAL NOTES

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

THE LOCATION OF EXISTING AND PROPOSED UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

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

THE EROSION CONTROL ITEMS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. THE ENGINEER MAY MODIFY LOCATIONS AS NEEDED. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS LONGER NECESSARY.

ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE IMPERVOUS AREAS, GRAVEL SURFACES, AND SODDED AREAS SHALL BE FERTILIZED, SEEDED, AND E-MATTED OR MULCHED.

PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN WITH THE ENGINEER.

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

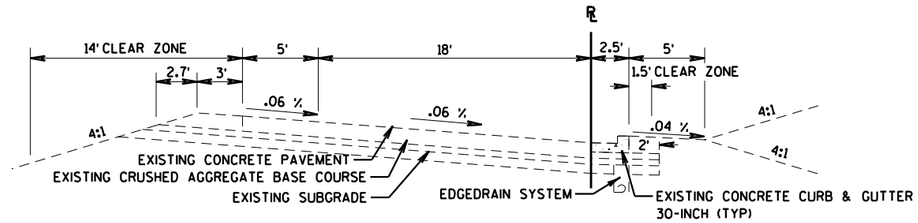
SHRINKAGE OF EARTHWORK IS VARIABLE. AN AVERAGE FACTOR FOR EXCAVATION COMMON IS 30%.

PROJECT 1198-00-75 OVERLAPS WITH PROJECT 1198-00-61. THIS PROJECT IS ADDING A RIGHT TURN LANE, REMOVING A RAMP, ADDING TRAFFIC SIGNALS, REVISING LIGHTING, AND MAKING SOME PAVEMENT MODIFICATIONS. PROJECT 1198-00-61 WILL MILL & OVERLAY THIS PROJECT AREA ALONG WITH ALL MARKING AND SIGNING.

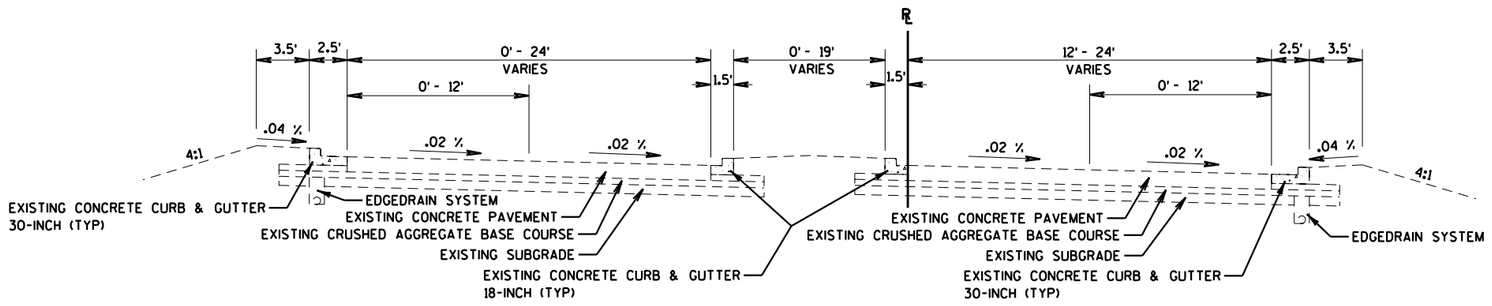
ABBREVIATIONS

AC	ACRE	MH	MANHOLE
AH	AHEAD	M/L	MATCH LINE
ASPH	ASPHALTIC	MATL	MATERIAL
BK	BACK	NC	NORMAL CROWN
B/L	BASE LINE	PAVT	PAVEMENT
BM	BENCH MARK	PLE	PERMANENT LIMITED EASEMENT
CB	CATCH BASIN	PP	POWER POLE
C/L	CENTERLINE	PE	PRIVATE ENTRANCE
CE	COMMERCIAL ENTRANCE	PB*	PULL BOX
CONC	CONCRETE	R	RADIUS
CB*	CONTROL BASE	RR	RAILROAD
CP	CULVERT PIPE	R/L	REFERENCE LINE
CPRC	CULVERT PIPE REINFORCED CONCRETE	REINF	REINFORCED
C & G	CURB AND GUTTER	REQD	REQUIRED
D	DEGREE OF CURVE	RHF	RIGHT-HAND FORWARD
DIA	DIAMETER	R/W	RIGHT-OF-WAY
DISCH	DISCHARGE	SALV	SALVAGED
EL	ELEVATION	SHLDR	SHOULDER
EBS	EXCAVATION BELOW SUBGRADE	SPECS	SPECIFICATIONS
EX.EC	EXISTING EDGE OF CONCRETE	SDD	STANDARD DETAIL DRAWINGS
FE	FIELD ENTRANCE	STA	STATION
HES	HIGH EARLY STRENGTH	SS	STORM SEWER
HYD	HYDRANT	SE	SUPERELEVATION
INL	INLET	T	TANGENT
INV	INVERT	TI	TEMPORARY INTEREST
LHF	LEFT-HAND FORWARD	TLE	TEMPORARY LIMITED EASEMENT
L	LENGTH OF CURVE	TYP	TYPICAL

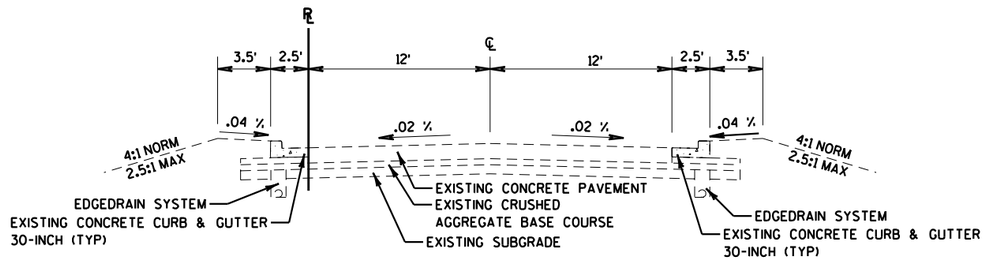
2



TYPICAL EXISTING SECTION - RAMP B/IH 535 NB



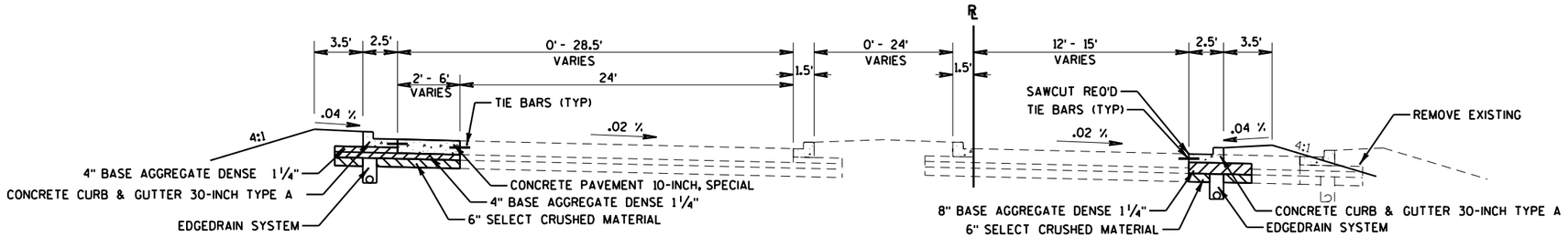
TYPICAL EXISTING SECTION - N 4TH ST/USH 53



TYPICAL EXISTING SECTION - LANE B/USH 53 SB

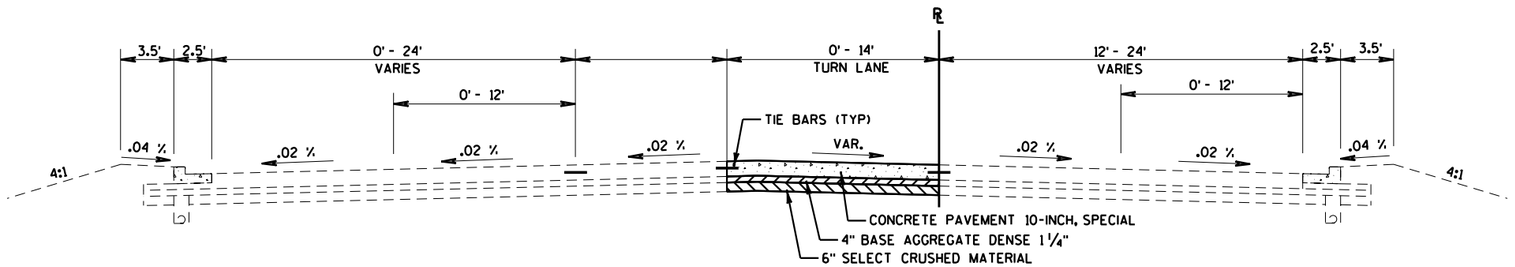
PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 3	E

2



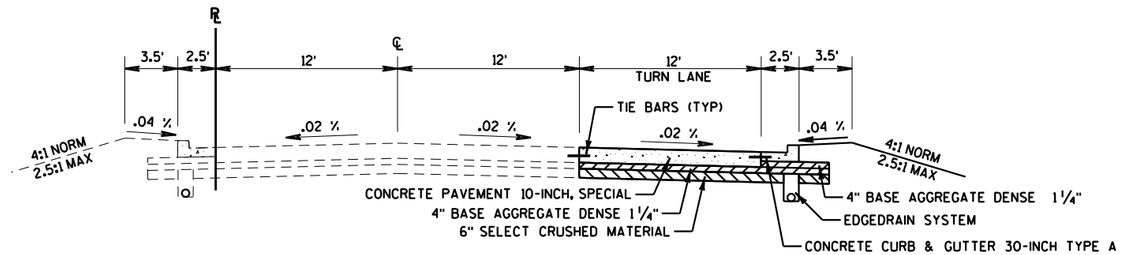
TYPICAL FINISHED SECTION - N 4TH ST/USH 53

STA 13+35.00 NB - STA 16+25.00 NB



TYPICAL FINISHED SECTION - N 4TH ST/USH 53 NB & SB

STA 9+12.67 NB - STA 10+71.17 NB



TYPICAL FINISHED SECTION - LANE B/USH 53 SB

STA 0+00.00 B - STA 3+13.11 B

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 4	E

2

RADIUS INFO - A
STA = 19+98.28
OFFSET = 29.89' RT
R = 300.00'
N = 310251.61
E = 148808.08

RADIUS INFO - B
STA = 17+42.17
OFFSET = 74.00' RT
R = 50.00'
N = 310285.01
E = 149055.84

RADIUS INFO - C
STA = 2+63.96
OFFSET = 30.11' RT
R = 4.00'
N = 310275.24
E = 149127.29

RADIUS INFO - D
STA = 2+98.17
OFFSET = 44.92' RT
R = 5.00'
N = 310230.43
E = 149132.67

RADIUS INFO - E
STA = 3+05.74
OFFSET = 31.00' RT
R = 5.00'
N = 310230.30
E = 149149.51

RADIUS INFO - F
STA = 16+32.31
OFFSET = 7.50' LT
R = 6.00'
N = 310202.69
E = 149165.09

RADIUS INFO - G
STA = 3+34.30
OFFSET = 6.00' LT
R = 6.00'
N = 310230.94
E = 149197.58

RADIUS INFO - H
STA = 15+13.65
OFFSET = 105.71' RT
R = 156.00'
N = 310315.00
E = 149284.60

MATCH 608.37
PC 3+72.94
4+00
608.58
608.85
609.17
CONCRETE CURB & GUTTER
30-INCH TYPE A
36'
609.97
+00
5+00
610.28
610.86
+69.02
36' RT
+75
36.1' RT
611.31
611.65
+00
37.6' RT
611.95
+25
41.3' RT
+39.66
44.4' RT
612.05
612.35
612.50
612.54
612.96
613.27
613.33
613.38
613.42
613.45
PI 0+32.00
PT 0+76.45
1+00
S 21°17'44" E
PI 5+53.23
2+00
USH 53 SB/B LANE
3+00
STA -0+10 - STA 1+00, 36' RT
STA 1+00 - STA 3+13, 24' RT
SAWING CONCRETE
N
OBLITERATE OLD ROADWAY
IH 535 NB RAMP/RAMP B
ECC 6+43.53
R 300'
00+50
B
R 50'
612.65
612.95
CONCRETE SIDEWALK 4-INCH
CONCRETE CURB & GUTTER
REVERSE SLOPE 30-INCH
TYPE A (SAFETY ISLAND ONLY)
PC 2+69.09
CONCRETE CURB & GUTTER
30-INCH TYPE A
H
SLOPE INTERCEPT
R 156'
MATCH
613.44
613.50
4+00
SEE
OFFSET
TABLE
613.98
613.99
SLOPE INTERCEPT
PI 3+70.86
MATCH XXXX
613.91
CONCRETE CURB & GUTTER
30-INCH TYPE A
F
00+91
00+17
00+18
00+19
00+20
00+21
00+10
00+12
00+7
00+8
MATCH
617.65
616.57
615.68
614.83
614.16
613.53
613.03
612.51
612.25
611.97
611.85
611.84
612.01
612.08
612.16
612.44
612.65
612.84
612.89
SLOPE INTERCEPT
A
IH 535 NB RAMP
24'
21'
12'
15'
24'
15'
12'
+85
+25
+42
1-INCH
PC 19+22.54
PI 20+62.09
CONCRETE CURB & GUTTER
30-INCH TYPE A
STA 16+37 - STA 18+25, 15' RT
STA 18+25 - STA 18+85, 12' RT
STA 18+85 - STA 19+05, 21' RT
STA 19+05 - STA 21+81, 24' RT
SAWING CONCRETE
B LANE ALI TO FLAG
STATION	OFFSET
3+31.38	28.9'
3+50	29.4'
3+75	29.5'
4+00	28.8'
4+25	27.4'
4+47.92	26.0'

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	PAVING DETAIL	SHEET 5	E

FILE NAME : T:\410630\dgn\021201_pd.dgn PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

2

2

N

TO STH 35 NB

CONCRETE MEDIAN SLOPED NOSE TYPE 1

CONCRETE CURB & GUTTER
30-INCH TYPE A

SLOPE INTERCEPT

MATCH

GRAND AVE

USH 53 NB

USH 53 SB

613.55 613.59 613.69 613.75 613.82 613.83 613.76 613.63

15' 12'

N 89°34'07" W

15+00 14+00 13+00 12+00 11+00 10+00

PI 9+00.00

PI 10+99.54

614.06 614.05 614.01 613.97 613.90 613.81

PT 4+47.92

+37.4

STA 4+48, 20' RT
SAWCUT REQ'D.

STA 13+78, 48' LT
SAWCUT REQ'D.

CONCRETE CURB & GUTTER
30-INCH TYPE A

CAUTION

14'

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	PAVING DETAIL	SHEET	E

FILE NAME : T:\410630\dgn\021202_pd.dgn PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

2

CATCH BASIN #1
STA 9+71.50, 1.5' RT
REMOVE EXISTING INLET
CATCH BASIN TYPE 2-H REQ'D.
FL ELEV = 617.61
INV ELEV = 611.52
DISC ELEV = 611.30

CATCH BASIN #3
STA 19+00, 25.5' RT
CATCH BASIN TYPE 2-H REQ'D.
FL ELEV = 611.84
DISC ELEV = 607.50
29'- STORM SEWER 12-INCH REQ'D.
BETWEEN CB#3 & CB#4A
6" UNDERDRAIN OPENING REQ'D.

CATCH BASIN #4A
STA 7+01, 4' RT
REMOVE EXISTING MANHOLE
CATCH BASIN TYPE 1-C REQ'D.
RIM ELEV = 611.15
INV ELEV = 606.28
DISC ELEV = 606.28

INLET #4
STA 7+02.50, 1.5' RT
REMOVE EXISTING INLET
REMOVE 12" STORM SEWER
FROM INL#4 TO CB#4A

CATCH BASIN #10
STA 3+79, 1.5' RT
REMOVE EXISTING INLET
CATCH BASIN TYPE 2-H REQ'D.
FL ELEV = 608.13
DISC ELEV = 606.10
6" UNDERDRAIN OPENING REQ'D.

CATCH BASIN #6
STA 4+54, 1.5' RT
REMOVE EXISTING INLET
CATCH BASIN TYPE 2-C REQ'D.
RIM ELEV = 609.00
INV ELEV = 605.96
DISC ELEV = 605.96
48'- STORM SEWER 18-INCH REQ'D.
BETWEEN CB#5 & CB#6

CATCH BASIN #5
STA 1+25, 37.5' RT
CATCH BASIN TYPE 2-H REQ'D.
FL ELEV = 610.28
INV ELEV = 606.35
DISC ELEV = 606.35
6" UNDERDRAIN OPENING REQ'D.

INLET #7
STA 1+27, 25' RT
REMOVE EXISTING INLET

MANHOLE #8
STA 1+10, 28' RT
REMOVE EXISTING MANHOLE

MANHOLE #9
STA 1+20, 35' RT
REMOVE EXISTING MANHOLE

REMOVE STORM SEWER BETWEEN
CB#5 & MH#9, MH#9 & MH#8,
INL#7 & MH#8, MH#8 & CB#6

INLET #2
STA 18+65, 14.5' RT
REMOVE EXISTING INLET
REMOVE 12" STORM SEWER
FROM INL#2 TO CB#4A

CATCH BASIN #11
STA 15+78.5, 25' RT
REMOVE EXISTING MANHOLE
CATCH BASIN TYPE 1-C REQ'D.
RIM ELEV = 613.75
INV ELEV = 610.09
DISC ELEV = 610.09

CATCH BASIN #12
STA 15+54, 16.5' RT
CATCH BASIN TYPE 2-H REQ'D.
FL ELEV = 613.49
INV ELEV = 610.40
DISC ELEV = 610.40
6" UNDERDRAIN OPENING REQ'D.

CB#1 CB#3 CB#4A CB#5 CB#6 CB#10 CB#11 CB#12
INL#2 INL#4 INL#7
MH#8 MH#9
SLOPE INTERCEPT
IH 535 NB RAMP
USH 53 SB/B LANE
24' 36' 26' 15'
1-INCH

* ALL CATCH BASINS & INLETS ARE TO HAVE TYPE A & TYPE C INLET PROTECTION.

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	STORM SEWER	SHEET 7	E

FILE NAME : T:\410630\dgn\022501_ss.dgn PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

2

N

TO STH 35 NB

CATCH BASIN #13
STA 13+51.5, 24' RT
REMOVE EXISTING INLET
CATCH BASIN TYPE 2-C REQ'D.
RIM ELEV = 613.62
INV ELEV = 607.86
DISC ELEV = 607.86

CATCH BASIN #14
STA 13+49, 16.5' RT
CATCH BASIN TYPE 2-H REQ'D.
FL ELEV = 613.90
INV ELEV = 607.94
DISC ELEV = 607.94
6" UNDERDRAIN OPENING REQ'D.

GRAND AVE

SLOPE INTERCEPT

CB #13

CB #14

15'

USH 53 NB

USH 53 SB

15+00 14+00 13+00 12+00 11+00 10+00

* ALL CATCH BASINS & INLETS ARE TO HAVE TYPE A & TYPE C INLET PROTECTION.

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	STORM SEWER	SHEET 8	E

2

LEGEND

- EX CONTROL CABINET
- EX LIGHTING UNIT (TO BE REMOVED)
- E — EX CABLE IN DUCT (1 1/2" UNLSS OTHERWISE NOTED)
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LIGHTING UNIT
- LIGHTING PULL BOX

STA. 20+28
III-200-8-5-(L-01)
- POLE NUMBER
- BASE TYPE
- MAST ARM LENGTH IN FEET
- LAMP WATTAGE
- DISTRIBUTION TYPE

N

EX L-33
EX L-26
EX L-27
REMOVING LIGHTING UNIT EX L-28
REMOVING LIGHTING UNIT EX L-29
REMOVING LIGHTING UNIT EX L-32
20+88, 31' RT III-200-8-5 (L-100)
REMOVING LIGHTING UNIT EX L-31
REMOVING LIGHTING UNIT EX L-30
LIGHTING PULL BOX PB-200
19+60, 31' RT III-200-8-5 (L-101)
2+50, 57.5' RT III-200-8-5 (L-103)
LIGHTING PULL BOX PB-201
REMOVING LIGHTING UNIT EX L-39
MOUNT ON SB2 III-200-12-SB2 (L-102)
EX L-40
LIGHTING PULL BOX PB-202
1½-INCH
EXISTING LIGHTING CABINET (EX-LC)
1-INCH
EX L-41
EX PB-4
MOUNT ON SB5 III-200-12-SB5 (L-104)
LIGHTING PULL BOX PB-203
REMOVING LIGHTING UNIT EX L-38
1½-INCH

00+01 00+6 00+8 00+9 00+21 00+20 00+61 00+81 00+11 00+91 1+00 2+00 3+00 4+00 5+00

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	LIGHTING	SHEET 9	E

FILE NAME : T:\410630\dgn\023501_lp.dgn PLOT DATE : 2/6/2012 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

LEGEND

EX LIGHTING CONTROL CABINET

EX LIGHTING UNIT (TO BE REMOVED)

EX CABLE IN DUCT (1 1/2" UNLESS OTHERWISE NOTED)

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

LIGHTING UNIT

LIGHTING PULL BOX

STA. 20+28
III-200-8-5-(L-01)
- POLE NUMBER
- BASE TYPE
- MAST ARM LENGTH IN FEET
- LAMP WATTAGE
- DISTRIBUTION TYPE

N

EX L-42

15+25, 11' LT
III-200-8-5 (L-105)

1 ½-INCH

EX L-37

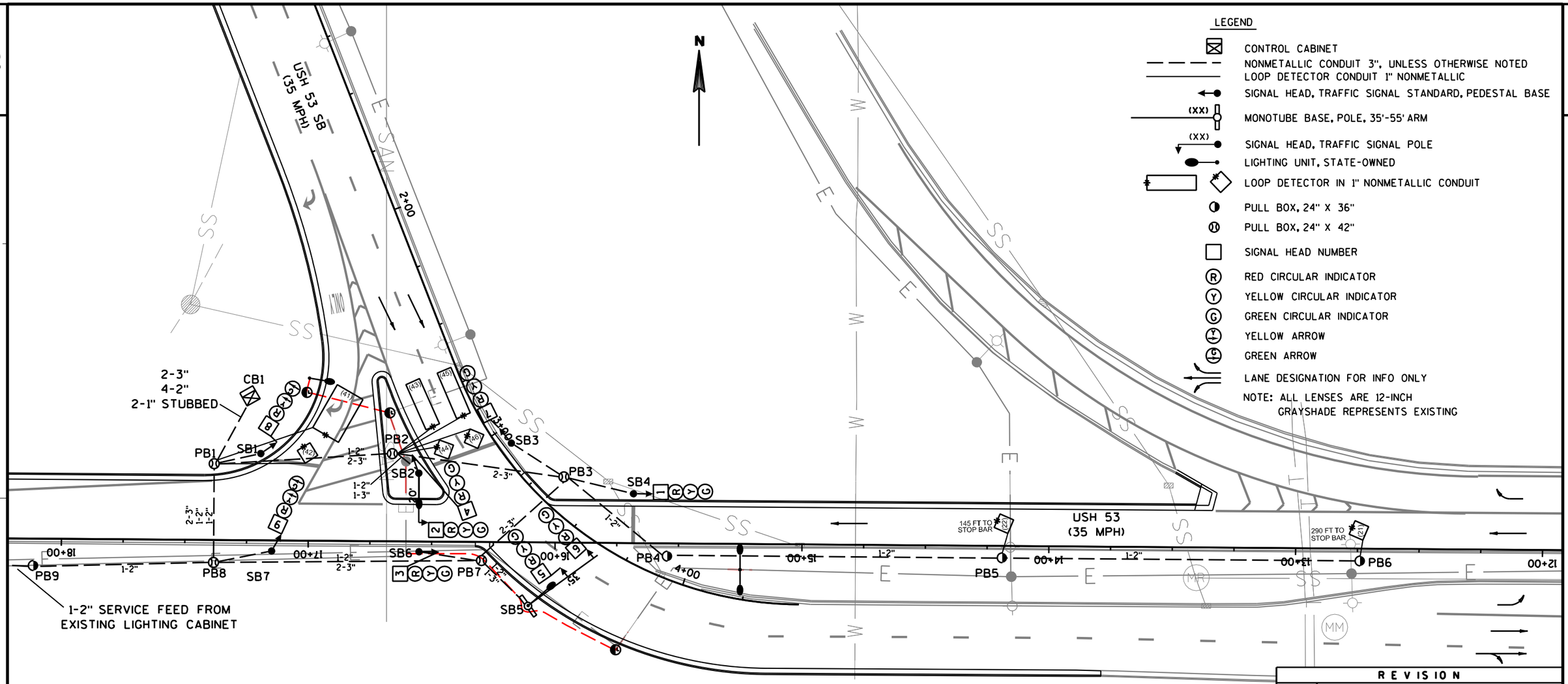
EX L-36

EX L-35

REMOVING LIGHTING UNIT
EX L-34

15+00 14+00 13+00 12+00 11+00 10+00

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	LIGHTING	SHEET 10	E



GENERAL NOTES

1. CONTRACTOR SHALL HAVE PULL BOXES AND CONDUIT RUNS INSPECTED PRIOR TO PLACING SIGNAL CABLE INTO THE SYSTEM.
2. THE ENGINEER SHALL ADJUST THE LOCAITONS OF ITEMS UNDER THIS CONTRACT TO AVOID ANY CONFLICTS WITH EXISTING UTILITIES.
3. CONTRACTOR SHALL HAVE BASE, PULL BOX, AND DETECTOR LOCATIONS VERIFIED BY DEPARTMENT STAFF PRIOR TO INSTALLATION.
4. PAVEMENT MARKINGS ARE SHOWN GRAY SCALED FOR REFERENCE ONLY.
5. DO NOT REINSTALL RUMBLE STRIPS.
6. TRAFFIC SIGNAL CONTROL CABINET AND CONTROLLER WITH SPECIAL PROGRAMMING FUNCTIONS WILL BE PROVIDED AND INSTALLED BY WISDOT.
7. TRAFFIC SIGNAL FACE, BACKPLATES, AND LED MODULES WILL BE WISDOT FURNISHED.

REVISION

Rev. No.	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
	Date	By	Date	By

TRAFFIC CONTROL SIGNAL

IH 535 AND USH 53 SB
CITY OF SUPERIOR
DOUGLAS COUNTY

SIGNAL NO. S1351 CONTROLLER TYPE: TS2

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED

Date_____ _____ REGIONAL TRAFFIC ENGINEER

APPROVED

Date_____ _____ STATE TRAFFIC SIGNAL ENGINEER

REGION CONTACT: MORRIS LUKE, PE
DESIGNED BY: AYRES ASSOCIATES INC
REVISED BY:

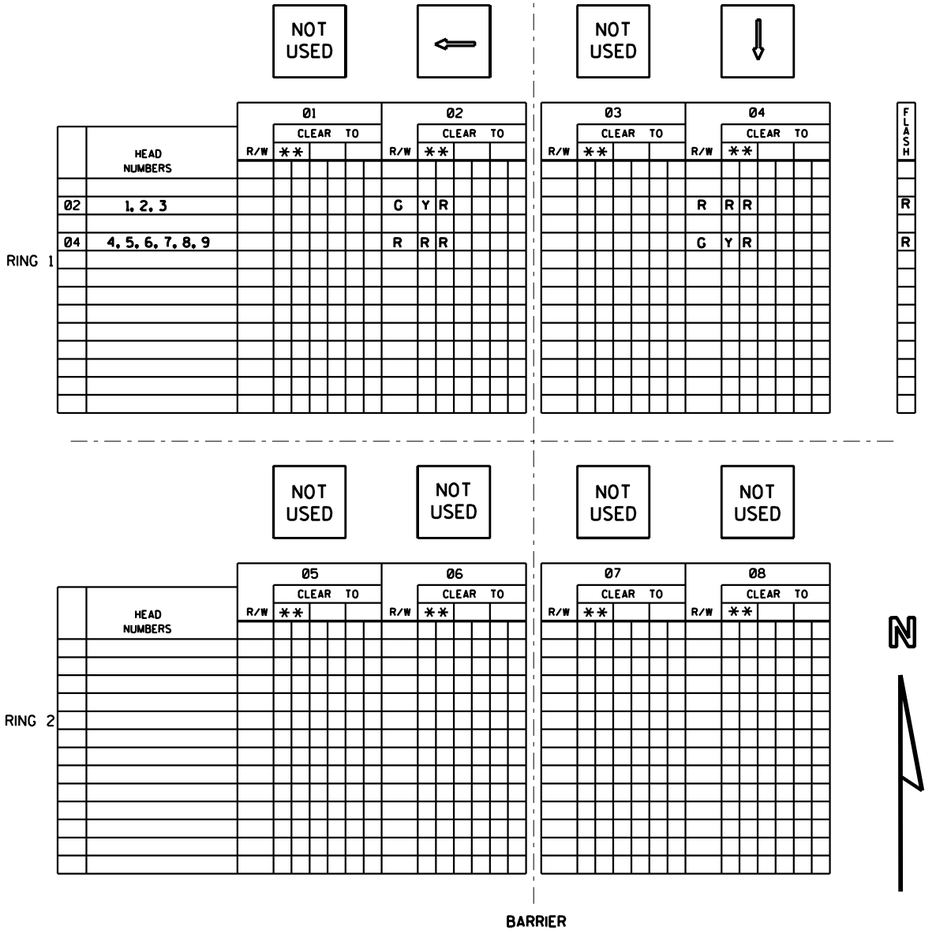
PAGE OF

PROJECT NO: 1198-00-75	HWY: IH 535 AND USH 53 SB	COUNTY: DOUGLAS	SIGNAL PLAN	SHEET 1 OF 11	E

FILE NAME : T:\410630\dgn\024001_sp.dgn PLOT DATE : 2/6/2012 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION



** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1 BELOW)

* WHEN CALLED, TIMED STEADY WALK, FOLLOWED BY FLASHING DON'T WALK WITH PED COUNTDOWN TIMER ACTIVATED, THEN STEADY DON'T WALK.

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
2		4
4		2

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	LOOP SIZE	NUMBER OF TURNS
21	1	X			2	2				6' X 6'	3
22	1	X			2	2				6' X 6'	3
41	2	X			4	4		(x=6")		12' X 20'	3
42	2	X			4	4		(x=6")		6' X 6'	4
43	3	X			4	4				6' X 20'	3
44	3	X			4	4				6' X 6'	4
45	4	X			4	4				6' X 20'	3
46	4	X			4	4				6' X 6'	4

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / 0	PHASE RECALL	PHASE ACTIVE
2	X		MIN.	X
4				X

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF PRE-EMPT	
NONE	X
RAILROAD	
EMERGENCY VEHICLE	
3M	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTOR	

N

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
INTERSECTION ONLY	X
*LOCATION OF MASTER CONTROLLER NO: S-	
SIGNAL SYSTEM *: SS- -	

TYPE OF LIGHTING	
BY OTHER AGENCY	
*IN TRAFFIC SIGNAL CABINET	X
IN SEPARATE DOT LIGHTING CABINET	X

* LUMINARES ON TROMBONE AND MONOTUBE ARMS ARE FED FROM SIGNAL CABINET

FUTURE EMERGENCY VEHICLE PRE-EMPTION		
VEHICLE ACTUATION	PRE-EMPTED PHASES ON	PRE-EMPTION CHANNEL
WESTBOUND		
EASTBOUND		
SOUTHBOUND		
NORTHBOUND		

NOTE: FULL CLEARANCE AND MINIMUM GREEN INTERVALS SHALL ALWAYS BE PROVIDED.

GENERAL NOTES:

1. ANY ACTUATED PHASE WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL (SEE CHART 1 AT LEFT).
3. PROVIDE LIGHTING CIRCUIT IN TRAFFIC SIGNAL CABINET.
4. PROVIDE TS 2 - GROUP 3 SIGNAL CONTROLLER / CABINET WITH 19.2000 "INTERSECTION ONLY" COMMUNICATION FROM WISDOT STATEWIDE CONTRACT.

REVISION				
Rev. No.				
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
	Date	By	Date	By

IH 535 AND USH 53
CITY OF SUPERIOR
DOUGLAS COUNTY

SIGNAL NO: S1351

CONTROLLER TYPE: TS2

DATE:

PROJECT ID:	1198-00-75
INTERSECTION:	IH 535 and USH 53 SB

SIGNAL WIRE COLOR CODING	BLK-BLACK	RED-RED	GRN-GREEN
	WHT-WHITE	BLU-BLUE	ORG-ORANGE

		# OF	HEAD		SIGNAL INDICATION WIRE COLOR									
CB __ TO	JUMPER	COND.	NO.	PHASE	RED	YELLOW	GREEN	<RED	<YELLOW>	<GREEN>	D/WALK	WALK	PED BUTTON	NEUTRAL
CB1 SB1		5	8	4	RED				ORANGE	GREEN				WHITE
CB1 SB2		9	4	4	RED	ORG	GRN							WHITE
			2	2	RED/BLK	WHT/BLK	GRN/BLK							
CB1 SB3		5	7	4	RED	ORG	GRN							WHITE
CB1 SB4		5	1	2	RED	ORG	GRN							WHITE
CB1 SB5		9	5, 6	4	RED	ORG	GRN							WHITE
CB1 SB6		5	3	2	RED	ORG	GRN							WHITE
CB1 SB7		5	9	4	RED				ORANGE	GREEN				WHITE

EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	CB1

PULL BOX BONDING JUMPER 10 AWG GRN XLP	
FROM	TO
SB1	PB1
SB2	PB2
SB4	PB3
SB5	PB7
SB7	PB8

NOTES:
1. ENSURE THE GROUNDED CONDUCTORS, GROUNDING CONDUCTORS, AND THE POLE CABLES ARE BOTH 12" LONGER THAN THE UNGROUNDED CONDUCTORS.
2. GROUNDED CONDUCTOR (NEUTRAL) TO BE THE WHITE CONDUCTOR IN THE TRAFFIC SIGNAL CABLES OF THE RESPECTIVE SIGNAL BASE.

CONTROLLER TYPE: TS2
REVISION:
DATE:

2

2

BLATNIK BRIDGE

DRUMS WITH TYPE C LIGHTS (25' SPACING)

DRUMS (25' SPACING)

CUMMING AVENUE

3RD STREET

STH 35 SB

YIELD

R1-2
36" X 31"

IH 535

W01-6
48" X 24"

ARROW BOARD

TYPE III BARRICADE

USH 53 SB

N

TEMPORARY PAVEMENT MARKING
4-INCH REMOVABLE TAPE

DRUMS (25' SPACING)

GRAND AVENUE

USH 53 NB

USH 53 SB

R11-2
48" X 30"
ROAD CLOSED

TYPE III BARRICADE

TEMPORARY PAVEMENT MARKING
4-INCH REMOVABLE TAPE

W01-6
48" X 24"

TYPE III BARRICADE

R11-2
48" X 30"
ROAD CLOSED

TYPE III BARRICADE

FOR ROAD CLOSURE SEE S.D.D.
"BARRICADES AND SIGNS FOR
MAINLINE CLOSURES".

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 1	SHEET	E

FILE NAME : T:\410630\dgn\025001_tc.dgn PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42

2

2

BLATNIK BRIDGE

DRUMS WITH TYPE C LIGHTS (25' SPACING)

DRUMS (25' SPACING)

CUMMING AVENUE

STH 35 SB

3RD STREET

IH 535

R1-2
36" X 31"

W01-6
48" X 24"

TYPE III BARRICADE

ARROW BOARD

USH 53 SB

N

DRUMS (25' SPACING)

TEMPORARY PAVEMENT MARKING
REMOVABLE TAPE 4-INCH

USH 53 NB

USH 53 SB

TEMPORARY PAVEMENT MARKING
REMOVABLE TAPE 4-INCH

R11-2
48" X 30"
ROAD
CLOSED

TYPE III BARRICADE

W01-6
48" X 24"

TYPE III BARRICADE

R11-2
48" X 30"
ROAD
CLOSED

TYPE III BARRICADE

FOR ROAD CLOSURE SEE S.D.D.
"BARRICADES AND SIGNS FOR
MAINLINE CLOSURES".

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	TRAFFIC CONTROL - STAGE 2	SHEET 15	E

FILE NAME : T:\410630\dgn\025002_tc.dgn PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42

DATE 07FEB12 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1198-00-75 QUANTITY
0010	204.0100	REMOVING PAVEMENT	SY	1,814.000	1,814.000
0040	204.0150	REMOVING CURB & GUTTER	LF	325.000	325.000
0070	204.0195	REMOVING CONCRETE BASES	EACH	8.000	8.000
0080	204.0210	REMOVING MANHOLES	EACH	4.000	4.000
0090	204.0220	REMOVING INLETS	EACH	7.000	7.000
0100	204.0245	REMOVING STORM SEWER (SIZE) 01. 12-INCH	LF	60.000	60.000
0110	204.0245	REMOVING STORM SEWER (SIZE) 02. 18-INCH	LF	54.000	54.000
0120	205.0100	EXCAVATION COMMON	CY	370.000	370.000
0130	208.1100	SELECT BORROW	CY	290.000	290.000
0150	213.0100	FINISHING ROADWAY (PROJECT) 02. 1198-00-75	EACH	1.000	1.000
0160	214.0100	OBLITERATING OLD ROAD	STA	2.000	2.000
0180	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	679.000	679.000
0190	310.0115	BASE AGGREGATE OPEN GRADED	CY	100.000	100.000
0200	312.0110	SELECT CRUSHED MATERIAL	TON	530.000	530.000
0210	416.0610	DRILLED TIE BARS	EACH	571.000	571.000
0220	416.0620	DRILLED DOWEL BARS	EACH	17.000	17.000
0310	601.0409	CONCRETE CURB & GUTTER 30-INCH TYPE A	LF	1,420.000	1,420.000
0330	602.0405	CONCRETE SIDEWALK 4-INCH	SF	568.000	568.000
0350	608.0312	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH	LF	29.000	29.000
0360	608.0318	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH	LF	48.000	48.000
0370	611.0101	CATCH BASINS TYPE 1	EACH	2.000	2.000
0380	611.0103	CATCH BASINS TYPE 2	EACH	8.000	8.000
0420	611.0612	INLET COVERS TYPE C	EACH	4.000	4.000
0430	611.0624	INLET COVERS TYPE H	EACH	6.000	6.000
0470	612.0106	PIPE UNDERDRAIN 6-INCH	LF	1,267.000	1,267.000
0510	619.1000	MOBILIZATION	EACH	0.450	0.450
0520	620.0300	CONCRETE MEDIAN SLOPED NOSE	SF	64.000	64.000
0530	625.0105	TOPSOIL	CY	680.000	680.000
0540	625.0500	SALVAGED TOPSOIL	SY	95.000	95.000
0550	627.0200	MULCHING	SY	1,035.000	1,035.000
0560	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	1.000	1.000
0570	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	1.000	1.000
0580	628.2006	EROSION MAT URBAN CLASS I TYPE A	SY	1,190.000	1,190.000
0590	628.7005	INLET PROTECTION TYPE A	EACH	10.000	10.000
0600	628.7015	INLET PROTECTION TYPE C	EACH	6.000	6.000
0610	629.0205	FERTILIZER TYPE A	CWT	1.400	1.400
0640	630.0140	SEEDING MIXTURE NO. 40	LB	41.000	41.000
0650	630.0200	SEEDING TEMPORARY	LB	55.200	55.200
0740	643.0100	TRAFFIC CONTROL (PROJECT) 02. 1198-00-75	EACH	1.000	1.000
0750	643.0300	TRAFFIC CONTROL DRUMS	DAY	4,200.000	4,200.000
0760	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	1,960.000	1,960.000
0770	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	2,352.000	2,352.000
0780	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	1,512.000	1,512.000
0800	643.0900	TRAFFIC CONTROL SIGNS	DAY	504.000	504.000
0810	645.0111	GEOTEXTILE FABRIC TYPE DF SCHEDULE A	SY	900.000	900.000
0830	646.0126	PAVEMENT MARKING EPOXY 8-INCH	LF	265.000	265.000
0860	647.0166	PAVEMENT MARKING ARROWS EPOXY TYPE 2	EACH	2.000	2.000
0880	647.0356	PAVEMENT MARKING WORDS EPOXY	EACH	1.000	1.000
0900	647.0566	PAVEMENT MARKING STOP LINE EPOXY 18-INCH	LF	59.000	59.000
0920	647.0726	PAVEMENT MARKING DIAGONAL EPOXY 12-INCH	LF	125.000	125.000

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DATE 07FEB12 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1198-00-75 QUANTITY
0930	649.0400	TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH	LF	1,825.000	1,825.000
0940	650.4000	CONSTRUCTION STAKING STORM SEWER	EACH	10.000	10.000
0950	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	1,138.000	1,138.000
0960	650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	788.000	788.000
0970	650.7000	CONSTRUCTION STAKING CONCRETE PAVEMENT	LF	1,138.000	1,138.000
0990	650.8500	CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (PROJECT) 02. 1198-00-75	LS	1.000	1.000
1010	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 02. 1198-00-75	LS	1.000	1.000
1020	652.0210	CONDUIT RIGID NONMETALLIC SCHEDULE 40 1-INCH	LF	54.000	54.000
1030	652.0220	CONDUIT RIGID NONMETALLIC SCHEDULE 40 1 1/2-INCH	LF	55.000	55.000
1040	652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	1,186.000	1,186.000
1050	652.0235	CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	LF	415.000	415.000
1060	652.0605	CONDUIT SPECIAL 2-INCH	LF	148.000	148.000
1070	652.0615	CONDUIT SPECIAL 3-INCH	LF	438.000	438.000
1080	652.0800	CONDUIT LOOP DETECTOR	LF	772.000	772.000
1090	652.0900	LOOP DETECTOR SLOTS	LF	392.000	392.000
1100	653.0135	PULL BOXES STEEL 24X36-INCH	EACH	4.000	4.000
1110	653.0140	PULL BOXES STEEL 24X42-INCH	EACH	9.000	9.000
1120	654.0101	CONCRETE BASES TYPE 1	EACH	5.000	5.000
1130	654.0102	CONCRETE BASES TYPE 2	EACH	1.000	1.000
1140	654.0105	CONCRETE BASES TYPE 5	EACH	4.000	4.000
1150	654.0113	CONCRETE BASES TYPE 13	EACH	1.000	1.000
1160	654.0217	CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL	EACH	1.000	1.000
1170	655.0230	CABLE TRAFFIC SIGNAL 5-14 AWG	LF	1,182.000	1,182.000
1180	655.0250	CABLE TRAFFIC SIGNAL 9-14 AWG	LF	116.000	116.000
1190	655.0515	ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG	LF	2,012.000	2,012.000
1200	655.0610	ELECTRICAL WIRE LIGHTING 12 AWG	LF	900.000	900.000
1210	655.0620	ELECTRICAL WIRE LIGHTING 8 AWG	LF	2,355.000	2,355.000
1220	655.0625	ELECTRICAL WIRE LIGHTING 6 AWG	LF	5,955.000	5,955.000
1230	655.0700	LOOP DETECTOR LEAD IN CABLE	LF	1,265.000	1,265.000
1240	655.0800	LOOP DETECTOR WIRE	LF	1,908.000	1,908.000
1250	657.0100	PEDESTAL BASES	EACH	5.000	5.000
1270	657.0255	TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	EACH	4.000	4.000
1280	657.0310	POLES TYPE 3	EACH	1.000	1.000
1290	657.0322	POLES TYPE 5-ALUMINUM	EACH	4.000	4.000
1300	657.0420	TRAFFIC SIGNAL STANDARDS ALUMINUM 13-FT	EACH	5.000	5.000
1310	657.0590	TROMBONE ARMS 20-FT	EACH	1.000	1.000
1320	657.0615	LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 8-FT	EACH	5.000	5.000
1330	657.0710	LUMINAIRE ARMS TRUSS TYPE 4 1/2-INCH CLAMP 12-FT	EACH	1.000	1.000
1340	657.1360	INSTALL POLES TYPE 13	EACH	1.000	1.000
1350	657.1535	INSTALL MONOTUBE ARMS 35-FT	EACH	1.000	1.000
1360	657.1812	INSTALL LUMINAIRE ARMS STEEL 12-FT	EACH	1.000	1.000
1370	658.0190.S	TRAFFIC SIGNAL FACE - LED STATE FURNISHED	EACH	9.000	9.000

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DATE 07FEB12 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1198-00-75 QUANTITY
1380	658.5069	SIGNAL MOUNTING HARDWARE (LOCATION) 01. IH 535/USH 53	LS	1.000	1.000
1400	690.0250	SAWING CONCRETE	LF	1,856.000	1,856.000
1410	715.0415	INCENTIVE STRENGTH CONCRETE PAVEMENT	DOL	500.000	500.000
1450	SPV.0060	SPECIAL 02. LUMINARIES UTILITY HPS 200 WATTS	EACH	7.000	7.000
1460	SPV.0060	SPECIAL 03. REMOVING LIGHTING UNIT	EACH	8.000	8.000
1470	SPV.0090	SPECIAL 01. CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT	LF	1,420.000	1,420.000
1510	SPV.0180	SPECIAL 03. CONCRETE PAVEMENT 10-INCH SPECIAL	SY	1,070.000	1,070.000

ALL ITEMS ON THIS SHEET ARE IN CATEGORY 0010

3

REMOVING PAVEMENT

STATION TO STATION	LOCATION	204.0100 SY
13+78 - 16+20	SB LANES	87
13+30 - 16+15	NB LANES	348
3+70 - 9+40	B RAMP REMOVAL	1075
18+05 - 16+37	IH 535 NB RAMP	199
9+12 - 10+72	MEDIAN ISLAND REMOVAL	105
TOTAL		**1814**

REMOVING CURB & GUTTER

STATION TO STATION	LOCATION	204.0150 LF
1+19 - 3+03	RT, USH 53 SB	188
3+73 - 4+00	RT, B RAMP	17
9+25 - 9+75	IH 535 NB RAMP	50
3+30 - 4+00	RT, USH 53 SB	70
TOTAL		**325**

NOTE: CURB & GUTTER ADJACENT TO CONCRETE PAVEMENT BEING REMOVED TO BE PAID FOR AS REMOVING PAVEMENT.

REMOVING MANHOLES

	STATION	LOCATION	204.0210 EACH
MH#8	1+10	28' RT	1
MH#9	1+20	35' RT	1
CB#11	15+78.50	25' RT	1
CB#4A	7+01	4' RT	1
TOTAL			**4**

REMOVING INLETS

	STATION	LOCATION	204.0220 EACH
INL#7	1+27	25' RT	1
CB#10	3+79	1.5' RT	1
CB#6	4+54	1.5' RT	1
CB#4	7+02.50	1.5' RT	1
CB#1	9+71.50	1.5' RT	1
CB#13	13+51.50	25' RT	1
INL#2	18+65	14.5' RT	1
TOTAL			**7**

REMOVING STORM SEWER

STRUCTURE TO STRUCTURE	SIZE	204.0245 LF
INL#2 - CB#4A	12"	39
INL#4 - CB#4A	12"	4
CB#5 - MH#9	18"	6
MH#9 - MH#8	18"	11
INL#7 - MH#8	12"	17
MH#8 - CB#6	18"	37
TOTAL		**114**

OBLITERATING OLD ROAD

STATION TO STATION	LOCATION	214.0100 STA
5+09 - 6+84	OLD B RAMP	2

FINISHING ROADWAY

PROJECT	213.0100 EACH
1198-00-75	1
TOTAL	**1**

BASE AGGREGATE DENSE 1 1/4-INCH

STATION TO STATION	LOCATION	305.0120 TON
9+12.67 - 10+71.17	TWO-WAY LEFT	55.3
13+35 - 16+26.50	SB LANES	26.4
13+29.60 - 13+48.98	RT, NB LANES	1.3
13+43.98 - 13+53.98	RT, NB LANES	0.9
16+26.50 - 18+85	RT, IH 535 NB RAMP	84.8
21+73.04 - 21+82.55	RT, IH 535 NB RAMP	1.0
-0+12.53 - 3+13.11	RT, USH 53 SB	67.1
3+20 - 3+38.46	RT, USH 53 SB	0.8
13+40.50 - 16+14.07	CURB AREA	64.2
13+78.54 - 16.32.31	CURB AREA	59.6
-0+10 - 21+81.60	CURB AREA	164.0
2+58.97 - 3+09.47	SAFTEY ISLAND	86.1
UNDISTRIBUTED	PROJECT	67.0
TOTAL		**679**

BASE AGGREGATE OPEN GRADED

STATION TO STATION	310.0115 CY
13+40 - 16+15	18.3
13+78 - 16+32	16.9
0+10 - 21+81	49.2
UNDISTRIBUTED	15.6
TOTAL	**100**

EARTHWORK SUMMARY

STATION TO STATION	LOCATION	205.0100 EXCAVATION COMMON CY	(3) UNUSABLE MATERIAL CY	UNEXPANDED FILL CY	(1) (4) EXPANDED FILL CY	(2) WASTE CY	208.1100 SELECT BORROW CY
9+00 - 21+75	USH 53/I535 NB/4TH STREET	154	136	136	177	136	23
0+00 - 4+25	BLANE	185	---	32	42	---	-143
5+00 - 6+75	BRAMP	---	265	316	411	265	411
SUB TOTAL		339	401	484	629	401	290
UNDISTRIBUTED		31	24	24	30	24	30
PROJECT TOTALS		**370**	**425**		**659**	**425**	**290**

(1) EXPANSION FACTOR = 1.3
(2) WASTE = UNUSABLE MATERIAL=CONCRETE PAVEMENT / CURB & CUTTER (FOR INFORMATION ONLY - NOT A BID ITEM)
(3) UNUSABLE MATERIAL IS EXISTING CONCRETE PAVEMENT AND CURB & GUTTER THAT IS BEING REMOVED. MATERIAL IS NOT COUNTED IN EXCAVATION COMMON. MATERIAL IS PAID FOR AS REMOVING PAVEMENT.
(4) EXPANDED FILL = UNEXPANDED FILL * EXPANSION FACTOR

ALL ITEMS ON THIS SHEET ARE IN CATEGORY 0010

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SELECT CRUSHED MATERIAL

STATION TO STATION	LOCATION	312.0110 TON
9+12.67 - 10+71.17	TWO-WAY LEFT	72.6
13+35 - 16+26.50	SB LANES	34.6
13+29.60 - 13+48.98	RT, NB LANES	1.8
13+43.98 - 13+53.98	RT, NB LANES	1.2
16+26.50 - 18+85	RT, IH 535 NB RAMP	111.3
21+73.04 - 21+82.55	RT, IH 535 NB RAMP	1.4
-0+12.53 - 3+13.11	RT, USH 53 SB	88.1
3+20 - 3+38.46	RT, USH 53 SB	1.0
13+40.50 - 16+14.07	CURB AREA	32.8
13+78.54 - 16.32.31	CURB AREA	30.4
-0+10 - 21+81.60	CURB AREA	83.7
2+58.97 - 3+09.47	SAFTEY ISLAND	28.9
UNDISTRIBUTED	PROJECT	42.0
TOTAL		**530**

CONCRETE PAVEMENT 10-INCH, SPECIAL

STATION TO STATION	LOCATION	SPV.0180.03 SY
9+12.67 - 10+71.17	TWO-WAY LEFT	248.9
13+35 - 16+26.50	SB LANES	118.6
13+29.60 - 13+48.98	RT, NB LANES	6.1
13+43.98 - 13+53.98	RT, NB LANES	4.1
16+26.50 - 18+85	RT, IH 535 NB RAMP	381.7
21+73.04 - 21+82.55	RT, IH 535 NB RAMP	4.7
-0+12.53 - 3+13.11	RT, USH 53 SB	302.0
3+20 - 3+38.46	RT, USH 53 SB	3.6
TOTAL		**1070**

DRILLED TIE BARS

STATION TO STATION	LOCATION	416.0610 EACH
9+12 - 10+72	TWO-WAY LEFT	140
13+29.60 - 16+15.57	RT, NB LANES	116
13+78.54 - 16+32.31	SB LANES	112
16+37.04 - 21+82.55	RT, IH 535 NB RAMP	203
TOTAL		**571**

DRILLED DOWEL BARS

STATION	LOCATION	416.0620 EACH
1+00	USH 53 SB	8
18+85	RT, IH 535 NB RAMP	9
TOTAL		**17**

CONCRETE CURB AND GUTTER 30-INCH TYPE A

STATION TO STATION	LOCATION	601.0409 LF
13+40.50 - 16+14.07	NB LANES	287
13+78.54 - 16.32.31	SB LANES	265
-0+10 - 21+81.60	USH 53 SB & IH 535 NB	739
2+58.97 - 3+09.47	SAFETY ISLAND	129
TOTAL		**1420**

CONCRETE SIDEWALK 4-INCH

STATION TO STATION	LOCATION	602.0405 SF
2+58.97 - 3+09.47	SAFETY ISLAND	568
TOTAL		**568**

CATCH BASINS AND COVERS

STRUCTURE NUMBER	611.0101 TYPE 1 EACH	611.0103 TYPE 2 EACH	611.0612 TYPE C EACH	611.0624 TYPE H EACH
CB#1	---	1	---	1
CB#3	---	1	---	1
CB#4A	1	---	1	---
CB#5	---	1	---	1
CB#6	---	1	1	---
CB#10	---	1	---	1
CB#11	1	---	1	---
CB#12	---	1	---	1
CB#13	---	1	1	---
CB#14	---	1	---	1
TOTALS	**2**	8	**4**	6

PIPE UNDERDRAIN 6-INCH

STATION TO STATION	612.0106 LF
13+40 - 16+15	275
13+78 - 16+32	254
0+10 - 21+81	738
TOTAL	**1267**

MOBILIZATIONS EROSION CONTROL

PROJECT	628.1905 EACH
1198-00-75	1
TOTAL	**1**

EROSION MAT URBAN CLASS I TYPE A

STATION TO STATION	LOCATION	628.2006 SY
0+00 - 9+90	B LANE/B RAMP	658
13+40 - 16+10	NB LANES	240
13+78 - 16+40	SB LANES	233
UNDISTRIBUTED		59
TOTAL		**1190**

INLET PROTECTION

LOCATION	628.7005 TYPE A EACH	628.7015 TYPE C EACH
CB#1	1	1
CB#3	1	1
CB#4A	1	---
CB#5	1	1
CB#6	1	---
CB#10	1	1
CB#11	1	---
CB#12	1	1
CB#13	1	---
CB#14	1	1
TOTALS	**10**	**6**

MOBILIZATION

PROJECT	619.1000 EACH
1198-00-75	0.45
TOTAL	**0.45**

MOBILIZATIONS EMERGENCY EROSION CONTROL

PROJECT	628.1910 EACH
1198-00-75	1
TOTAL	**1**

GEOTEXTILE FABRIC TYPE DF SCHEDULE A

STATION TO STATION	645.0111 SY
13+40 - 16+15	191
13+78 - 16+32	176
0+10 - 21+81	513
UNDISTRIBUTED	20
TOTAL	**900**

TRAFFIC CONTROL (1198-00-75)

PROJECT	643.0100 LS
1198-00-75	1
1198-00-75	1

CONCRETE MEDIAN SLOPED NOSE

STATION	LOCATION	TYPE	620.0300 SF
13+32.85	RT, NB LANES	1	64
TOTAL			**64**

ALL ITEMS ON THIS SHEET ARE IN CATEGORY 0010

STORM SEWER SCHEDULE

STUCTURE NUMBER	STATION	LOCATION		CATCH BASIN TYPE	COVER TYPE	TOP OF CURB	FLAGLINE	* RIM OR FLOWLINE	** TOP OF BOX ELEV	*** DEPTH	INLET ELEV	INLET FROM	DISCHARGE ELEV	DISCHARGE TO	608.0312 608.0318 SSPRC CL. III 12-INCH LF	18-INCH LF	SLOPE %	COMMENT
CB1	9+71.5	RAMP B	1.5' RT	2	H	617.99	617.61	617.49	616.65	6.85	611.52	EXIST	611.30	EXIST	---	---	---	EXIST 18" INLET & DISCHARGE
CB3	19+00	I535 NB	14.5' RT	2	H	612.22	611.84	611.72	610.88	4.88	---	---	607.50	CB4A	29	---	4.20%	****6" UNDERDRAIN OPENING REQD
CB4A	7+01	RAMP B	4' RT	1	C	---	---	611.15	609.90	5.12	606.28	CB3	606.28	EXIST	---	---	---	NEW 12" INLET & 14"X23" DISCHARGE
CB5	1+25	LANE B	37.5' RT	2	H	610.66	610.28	610.16	609.32	4.47	606.35	EXIST	606.35	CB6	---	48	0.81%	****EXIST 18" INLET & NEW 18" DISCHARGE. 6" UNDERDRAIN OPENING REQD
CB6	4+54	RAMP B	1.5' RT	2	C	---	---	609.00	607.75	3.29	605.96	CB5	605.96	EXIST	---	---		NEW 18" INLET & 14"x23" DISCHARGE
CB10	3+79	RAMP B	1.5' RT	2	H	608.51	608.13	608.01	607.17	2.57	---	---	606.10	---	---	---	---	****EXIST 12" DISCHARGE. 6" UNDERDRAIN OPENING REQD
CB11	15+78.5	USH 53	25' RT	1	C	---	---	613.75	612.50	3.91	610.09	CB12	610.09	---	---	---	---	EXISTING 12" INLETS & DISCHARGE
CB12	15+54	USH 53	16.5' RT	2	H	613.87	613.49	613.37	612.53	3.63	610.40	EXIST	610.40	---	---	---	---	****6" UNDERDRAIN OPENING REQD. EXISTING 12" INLETS & DISCHARGE
CB13	13+51.5	USH 53	24' RT	2	C	---	---	613.62	612.37	6.01	607.86	CB14	607.86	---	---	---	---	EXISTING 18" INLET & DISCHARGE
CB14	13+49	USH 53	16.5' RT	2	H	614.28	613.90	613.78	612.94	6.50	607.94	EXIST	607.94	---	---	---	---	****6" UNDERDRAIN OPENING REQD. EXISTING 18" INLET & DISCHARGE
TOTALS															29	48		

NOTES:

* FLOWLINE AND RIM ELEVATIONS FOR INLETS AND MANHOLES IN CURB AND GUTTER AREAS ARE AT THE FLOWLINE OF THE GUTTER.

** FOR NEW STRUCTURES, TOP OF BOX ELEVATIONS ARE TYPICALLY FLOWLINE/RIM ELEVATIONS MINUS CASTING DEPTH AND 6" FOR ADJUSTING RINGS. DEPTH FOR ADJUSTMENT MAY VARY.

*** DEPTH OF BOX ASSUMES A 1.5 FT SUMP FOR CATCH BASINS

**** 6" UNDERDRAIN OPENING REQUIRED. INCIDENTAL TO CATCH BASIN

1.) ALL SUBSURFACE ELEVATIONS ARE PIPE FLOWLINES.
2.) CALCULATED DEPTH = DISTANCE FROM TOP OF BOX TO DISCHARGE ELEVATION.
3.) PIPE LENGTHS MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
4.) STORM SEWER PIPE IS REINFORCED, CLASS III, UNLESS NOTED OTHERWISE.
5.) ALL STRUCTURES HAVE THE STATUS "NEW".
6.) ALL TRENCHES & HOLES RESULTING FROM REMOVAL OF MANHOLES AND INLETS SHALL BE FILLED WITH GRANULAR BACKFILL. GRANULAR BACKFILL SHALL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE REMOVAL ITEM.
7.) ALL CATCH BASINS AND INLETS TO HAVE TYPE A AND TYPE C INLET PROTECTION.

SALVAGED TOPSOIL, TOPSOIL, MULCHING, FERTILIZER, & SEEDING

STATION TO STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	625.0105 TOPSOIL CY	627.0200 MULCHING SY	629.0205 FERTILIZER TYPE A CWT	630.0140 SEEDING MIX NO. 40 LB	630.0200 SEEDING TEMPORARY LB
3+75 - 9+00	B RAMP	---	385	1035	0.65	18.6	27.9
13+30 - 16+00	RT, USH 53 NB	---	295	---	0.19	5.3	8.0
9+00 - 9+75	RT, B RAMP	30	---	---	0.02	0.5	0.8
1+25 - 3+00	RT, B LANE	385**	---	---	0.24	6.9	6.9
16+50 - 18+85	RT, IH 535 NB	265**	---	---	0.17	4.8	4.8
13+78 - 16+32	LT, USH 53 SB	65	---	---	0.04	1.2	1.8
UNDISTRIBUTED		---	---	---	0.13	3.7	5.0
TOTALS		**95**	**680**	**1035**	**1.4**	**41.0**	**55.2**

** TO BE USED FOR TOPSOIL ON B RAMP/ROAD OBLITERATION AREA

ALL ITEMS ON THIS SHEET ARE IN CATEGORY 0010

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TRAFFIC CONTROL SIGNS, DRUMS, LIGHTS, AND BARRICADES

LOCATION	643.0300 DRUMS EACH	643.0300 DRUMS DAYS	643.0705 WARNING LIGHTS TYPE A EACH	643.0705 WARNING LIGHTS TYPE A DAYS	643.0715 WARNING LIGHTS TYPE C EACH	643.0715 WARNING LIGHTS TYPE C DAYS	643.0420 BARRICADES TYPE III EACH	643.0420 BARRICADES TYPE III DAYS	643.0900 SIGNS EACH	643.0900 SIGNS DAYS
STAGE 1	30	1680	18	1008	9	504	15	840	4	224
STAGE 2	45	2520	24	1344	18	1008	20	1120	5	280
TOTALS		**4200**		**2352**		**1512**		**1960**		**504**

PAVEMENT MARKING ARROWS EPOXY TYPE 2

STATION	LOCATION	DESCRIPTION	647.0166 EACH
1+85	USH 53 SB TO IH 535 NB	RIGHT TURN	1
2+67	USH 53 SB TO IH 535 NB	RIGHT TURN	1
TOTAL			**2**

PAVEMENT MARKING WORDS EPOXY

STATION	LOCATION	DESCRIPTION	647.0356 EACH
2+27	USH 53 SB TO IH 535 NB	"ONLY"	1
TOTAL			**1**

PAVEMENT MARKING STOP LINE 18-INCH

LOCATION	647.0566 LF
USH 53 SB @ USH 53 NB	26
USH 53 SB RT TURN KANE @ IH 535 NB	18
USH 53 NB/IH 535 NB @ USH 53 SB	15
TOTAL	**59**

NOTE: SEE TRAFFIC SIGNAL PLAN FOR LAYOUT.

TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH

STAGE	LOCATION	COLOR	649.0400 LF
STAGE 1	B LANE/USH 53 SB	YELLOW	725
STAGE 2	B LANE/USH 53 SB	YELLOW	1100
TOTAL			**1825**

PAVEMENT MARKING DIAGONAL EPOXY 12-INCH

LOCATION	647.0726 WHITE LF
*USH 53 SB RT TURN LANE	125
TOTAL	**125**

* SEE TRAFFIC SIGNAL PLAN FOR LAYOUT.

PAVEMENT MARKING EPOXY 8-INCH

LOCATION	DESCRIPTION	646.0126 LF
*USH 53 SB RT TURN LANE	CHANNELIZING	265
TOTAL		**265**

* SEE TRAFFIC SIGNAL PLAN FOR LAYOUT.

CONSTRUCTION STAKING STORM SEWER

STATION	650.4000 EACH
CB#1	1
CB#3	1
CB#4A	1
CB#5	1
CB#6	1
CB#10	1
CB#11	**1**
CB#12	1
CB#13	1
CB#14	1
TOTAL	**10**

CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS

PROJECT	650.8500 LS
1198-00-75	1

CONSTRUCTION STAKING

STATION TO STATION	LOCATION	650.4500 SUBGRADE LF	650.7000 CONCRETE PAVEMENT LF
1+00 - 3+00	B LANE/USH 53 SB	200	200
16+50 - 19+10	USH 53 NB/IH 535	260	260
13+40 - 16+05	USH 53 NB	265	265
9+12 - 10+73	USH 53 NB TWLTL	161	161
13+78 - 16+30	USH 53 SB	252	252
TOTALS		**1138**	**1138**

SAWING CONCRETE

STATION TO STATION	LOCATION	690.0250 LF
9+12 - 10+72	TWLTL	348
13+29.60 - 16+15.57	NB LANES	337
13+78.54 - 16+32.31	SB LANES	278
16+37.04 - 21+82.55	IH 535 NB	552
0+12.53 - 3+13.41	USH 53 SB	341
TOTAL		**1856**

INCENTIVE STRENGTH CONCRETE PAVEMENT

PROJECT	715.0415 DOL
1198-00-75	500

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

PROJECT	650.9910 LS
1198-00-75	1

CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER

STATION TO STATION	LOCATION	650.5500 LF
13+40.50 - 16+14.07	NB LANES	287
0+10 - 1+00	USH 53 SB	90
19+00 - 21+81.60	USH 53 SB & IH 535 NB	282
2+58.97 - 3+09.47	SAFETY ISLAND	129
TOTAL		**788**

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LIGHTING REMOVALS

STATION	DESCRIPTION	SPV.0060.02 REMOVING LIGHTING UNIT EACH	204.0195 REMOVING CONCRETE BASES EACH
4+85, 9' RT	EX L-28	1	1
5+90, 8' RT	EX L-29	1	1
6+90, 8' RT	EX L-30	1	1
7+95, 8' RT	EX L-31	1	1
9+00, 8' RT	EX L-32	1	1
10+45, 10' LT	EX L-34	1	1
3+85, 36' RT	EX L-38	1	1
2+92, 35' RT	EX L-39	1	1
TOTALS		**8**	**8**

CONCRETE BASES

SB NO	STATION	OFFSET	654.0101 CONCRETE BASES TYPE 1 EACH	654.0102 CONCRETE BASES TYPE 2 EACH	654.0105 CONCRETE BASES TYPE 5 EACH	654.0113 CONCRETE BASES TYPE 13 EACH	654.0217 CONCRETE CONTROL BASES TYPE 9 SPECIAL EACH
L-100	20+88	31.0' RT	---	---	1	---	---
L-101	19+60	31' RT	---	---	1	---	---
L-103	2+50	57.5' RT	---	---	1	---	---
L-105	15+25	11.0' LT	---	---	1	---	---
SB-01	17+19	35' RT	1	---	---	---	---
SB-02	16+55	28' RT	---	1	---	---	---
SB-03	16+18	40' RT	1	---	---	---	---
SB-04	15+68	20' RT	1	---	---	---	---
SB-05	16+11	26' LT	---	---	---	1	---
SB-06	16+55	4' LT	1	---	---	---	---
SB-07	17+15	4' LT	1	---	---	---	---
CABINET	17+24	58' RT	---	---	---	---	1
TOTALS			**5**	**1**	**4**	**1**	**1**

CABLE TRAFFIC SIGNAL

FROM	TO	655.0230 5-14 AWG LF	655.0250 9-14 AWG LF
CB1	SB1	47	---
SB1	FACE 8	15	---
CB1	SB2	--	116
SB2	FACE 4	15	---
SB2	FACE 2	40	---
CB1	SB3	200	---
SB3	FACE 7	15	---
CB1	SB4	204	---
SB4	FACE 1	15	---
CB1	SB5	204	---
SB5	FACE 5	40	---
SB5	FACE 6	55	---
CB1	SB6	208	---
SB6	FACE 3	15	---
CB1	SB7	94	---
SB7	FACE 9	15	---
TOTALS		**1182**	**116**

CONDUIT

FROM	TO	652.0210 RIGID NON METALIC 1-INCH LF	652.0225 SCHEDULE 40 2-INCH LF	652.0235 3-INCH LF	652.0605 SPECIAL 2-INCH LF	652.0615 SPECIAL 3-INCH LF
EX LT CB	*PB9*	---	204	---	---	---
PB9	PB8	---	71	---	---	---
PB8	PB1	---	---	---	38	76
PB8	SB7	---	---	23	---	---
PB1	CB1	54	108	54	---	---
PB1	SB1	---	---	18	---	---
PB1	PB2	---	---	---	---	136
PB2	SB2	---	---	8	---	---
PB2	PB3	---	---	---	---	132
PB3	SB3	---	---	24	---	---
PB3	SB4	---	---	28	---	---
PB3	PB4	---	51	---	---	---
PB3	PB7	---	---	---	---	94
PB4	PB5	---	134	---	---	---
PB5	PB6	---	143	---	---	---
PB7	SB5	---	---	22	---	---
PB7	SB6	---	---	26	---	---
PB7	PB8	---	---	212	---	---
TOTALS		**54**	**711**	**415**	**38**	**438**

PULL BOXES STEEL

STATION	LOCATION	DESCRIPTION	653.0135 24x36-INCH EACH	653.0140 24x42-INCH EACH
20+17	31' RT	PB-200	---	1
2+56	60.2' RT	PB-201	---	1
2+75	31.7' RT	PB-202	---	1
3+85	36.5' RT	PB-203	---	1
17+38	30' RT	PB-01	---	1
16+66	35' RT	PB-02	---	1
15+97	27' RT	PB-03	---	1
15+54	5' RT	PB-04	1	---
14+19	5' RT	PB-05	1	---
12+74	5' RT	PB-06	1	---
16+30	7' LT	PB-07	---	1
17+38	9' LT	PB-08	---	1
18+11	11' LT	PB-09	1	---
TOTALS			**4**	**9**

LUMINAIRE ARMS TRUSS TYPE 4 1/2-INCH CLAMP 12-FT

STATION	DESCRIPTION	657.0710 EACH
SB2	L-102	1

INSTALL LUMINAIRE ARMS STEEL 12-FT

STATION	DESCRIPTION	657.1812 EACH
SB5	L-104	1

ALL ITEMS ON THIS SHEET ARE IN CATEGORY 0020

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ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG

FROM	TO	655.0515 (GREEN) LF	655.0515 (WHITE) LF
CB1	PB1	35	---
PB1	SB1	26	---
PB2	SB2	16	---
PB3	SB4	36	---
PB7	SB5	30	---
PB8	SB7	31	---
CB1	SB1	47	47
SB1	SB2	107	107
SB2	SB3	102	102
SB3	SB4	54	54
SB4	SB5	103	103
SB5	SB6	50	50
SB6	SB7	362	362
SB7	CB1	94	94
TOTALS		**1093**	**919**

LOOP DETECTOR ITEMS

LOOP NO	652.0800 CONDUIT LOOP DETECTOR LF	652.0900 LOOP DETECTOR SLOTS LF	655.0700 LOOP DETECTOR LEAD IN CABLE LF	655.0800 LOOP DETECTOR WIRE LF	REMARKS
21	49	29	482	136	3 TURNS
22	52	30	341	142	3 TURNS
41	152	72	25	306	3 TURNS
42	116	44	25	270	4 TURNS
43	98	62	98	284	3 TURNS
44	61	31	98	154	4 TURNS
45	136	76	98	364	3 TURNS
46	108	48	98	252	4 TURNS
TOTALS	**772**	**392**	**1265**	**1908**	

PEDESTAL BASES

SB NO	STATION	OFFSET	657.0100 EACH
SB1	17+19	35' RT	1
SB3	16+18	40' RT	1
SB4	15+68	20' RT	1
SB6	16+55	4' LT	1
SB7	17+15	4' LT	1
TOTAL			**5**

TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE

STATION	DESCRIPTION	657.0255 EACH
20+88, 31.0' RT	L-100	1
19+60, 31.0' RT	L-101	1
2+50, 57.5' RT	L-103	1
15+25, 11.0' LT	L-105	1
TOTAL		**4**

LIGHTING CONDUIT AND WIRE SCHEDULE

FROM	TO	652.0220 CONDUIT RIGID NONMETALLIC SCHEDULE 40 1 1/2-INCH LF	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	652.0605 CONDUIT SPECIAL 2-INCH LF	CONDUCTOR LENGTH LF	NO. OF WIRES	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG LF	655.0620 ELECTRICAL WIRE LIGHTING 8 AWG LF	655.0625 ELECTRICAL WIRE LIGHTING 6 AWG LF
EX-LC	L-101	---	50	---	130	3	---	390	---
L-101	LUMINAIRE	---	---	---	48	3	144	---	---
L-101	L-100	---	65	---	135	3	---	405	---
L-100	LUMINAIRE	---	---	---	48	3	144	---	---
L-100	EX L-33	---	115	---	125	3	---	375	---
EX-LC	EX L-41	---	---	---	190	3	---	---	570
EX L-41	L-103	35	10	---	315	3	---	---	945
L-103	LUMINAIRE	---	---	---	48	3	144	---	---
L-103	EX L-40	---	---	---	---	3	---	---	---
EX-LC	L-105	---	---	---	575	3	---	---	1725
L-105	LUMINAIRE	---	---	---	48	3	144	---	---
L-105	EX L-37	10	---	---	120	3	---	---	360
EX-LC	EX L-42	10	95	---	785	3	---	---	2355
CB-1	SB-2	---	10	75	190	3	---	570	---
SB-2	LUMINAIRE	---	---	---	54	3	162	---	---
CB-1	SB-5	---	130	35	205	3	---	615	---
SB-5	LUMINAIRE	---	---	---	54	3	162	---	---
TOTALS		**55**	**475**	**110**			**900**	**2355**	**5955**

TRAFFIC SIGNAL ITEMS

SB NO	STATION	OFFSET	657.0310 POLES TYPE 3 EACH	657.0420 TRAFFIC SIGNAL STANDARDS ALUMINUM 13-FT EACH	657.0590 TROMBONE ARMS 20-FT EACH	657.1360 INSTALL POLES TYPE 13 EACH	657.1535 INSTALL MONOTUBE ARMS 35-FT EACH
SB1	17+19	35' RT	---	1	---	---	---
SB2	16+55	28' RT	1	---	1	---	---
SB3	16+18	40' RT	---	1	---	---	---
SB4	15+68	20' RT	---	1	---	---	---
SB5	16+11	26' LT	---	---	---	1	1
SB6	16+55	4' LT	---	1	---	---	---
SB7	17+15	4' LT	---	1	---	---	---
TOTAL			**1**	**5**	**1**	**1**	**1**

LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 8-FT

STATION	DESCRIPTION	657.0615 EACH
20+88, 31.0' RT	L-100	1
19+60, 31.0' RT	L-101	1
2+50, 57.5' RT	L-103	1
15+25, 11.0' LT	L-105	2
TOTAL		**5**

POLES TYPE 5-ALUMINUM

STATION	DESCRIPTION	657.0322 EACH
20+88, 31.0' RT	L-100	1
19+60, 31.0' RT	L-101	1
2+50, 57.5' RT	L-103	1
15+25, 11.0' LT	L-105	1
TOTAL		**4**

TRAFFIC SIGNAL FACE - LED STATE FURNISHED

SB NO	HEAD NO	TYPE OF MOUNT	658.0190.S TRAFFIC SIGNAL FACE - LED STATE FURNISHED EACH
SB1	8	STANDARD	1
SB2	4	STANDARD	1
	2	MAST ARM	1
SB3	7	STANDARD	1
SB4	1	STANDARD	1
SB5	5	MONOTUBE	**1**
	6	MONOTUBE	1
SB6	3	STANDARD	1
SB7	9	STANDARD	1
TOTALS			**9**

SIGNAL MOUNTING HARDWARE

PROJECT	658.5069 SIGNAL MOUNTING ORNAMENTAL HARDWARE (USH 53) LS
1198-00-75	1

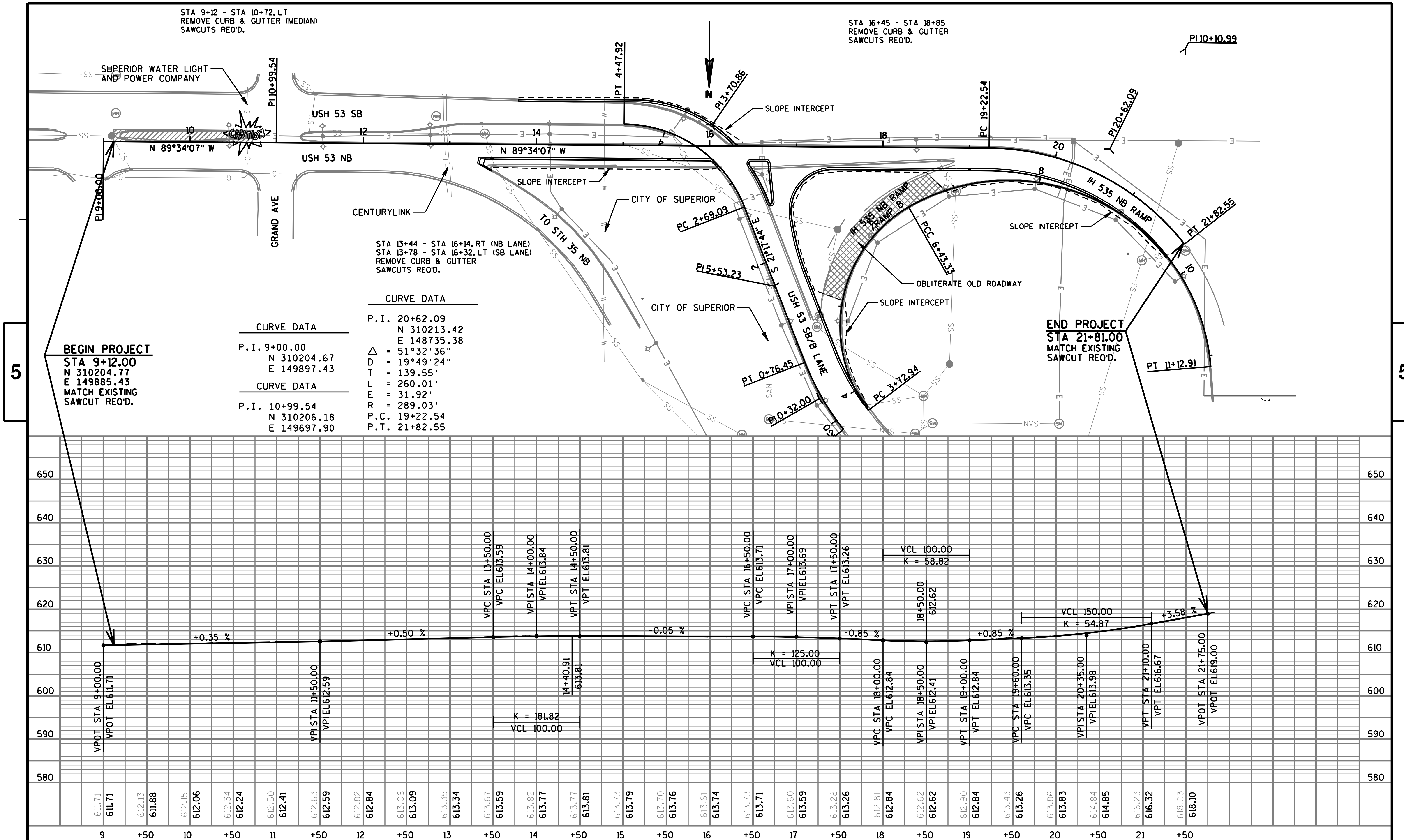
LED MODULES*

SB NO	HEAD NO	FACE LAYOUT	12-INCH BALL RED EACH	12-INCH BALL YELLOW EACH	12-INCH BALL GREEN EACH	12-INCH ARROW YELLOW EACH	12-INCH ARROW GREEN EACH
SB1	*8*	*R-YA-GA*	*1*	---	---	1	1
SB2	4	R-Y-G	1	1	1	---	---
	2	R-Y-G	1	1	1	---	---
SB3	7	R-Y-G	1	1	1	---	---
SB4	1	R-Y-G	1	1	1	---	---
SB5	5	R-Y-G	1	1	1	---	---
	6	R-Y-G	1	1	1	---	---
SB6	3	R-Y-G	1	1	1	---	---
SB7	9	R-YA-GA	1	---	---	1	1
TOTALS			**9**	**7**	**7**	**2**	**2**

*SUPPLIED UNDER TRAFFIC SIGNAL FACE - LED STATE FURNISHED, ITEM 658.0190.S

LUMINAIRES UTILITY HPS 200 WATTS

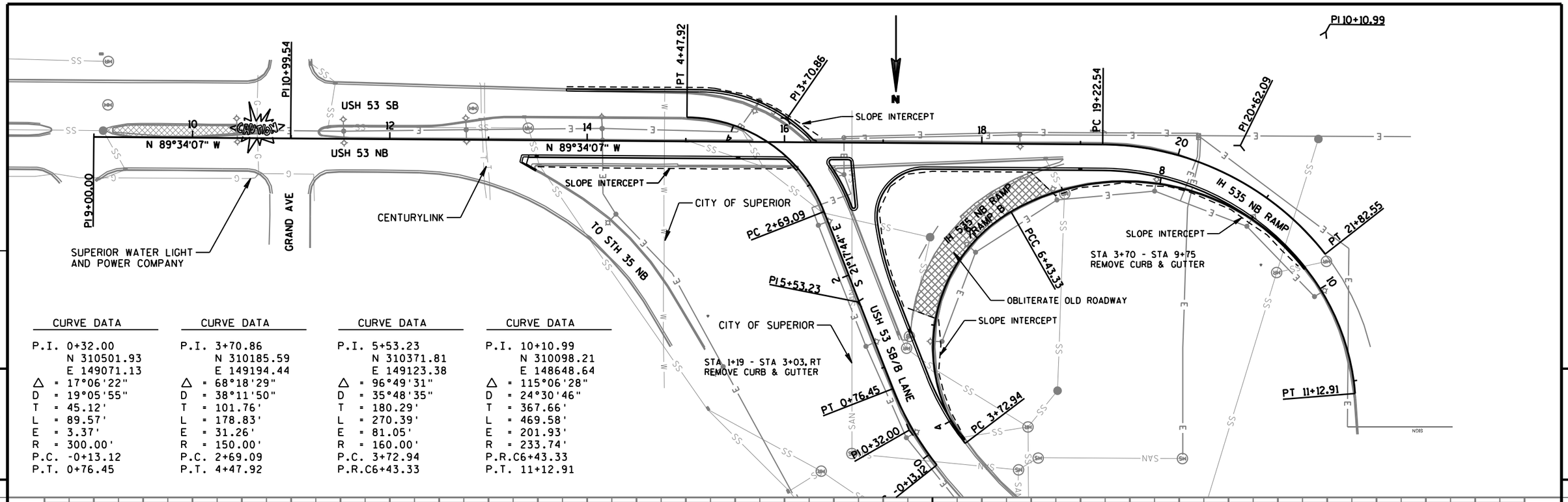
STATION	DESCRIPTION	SPV.0060.02 EACH
20+88, 31.0' RT	L-100	1
19+60, 31.0' RT	L-101	1
SB2	L-102	1
2+50, 57.5' RT	L-103	1
SB5	L-104	1
15+25, 11.0' LT	L-105	2
TOTAL		**7**



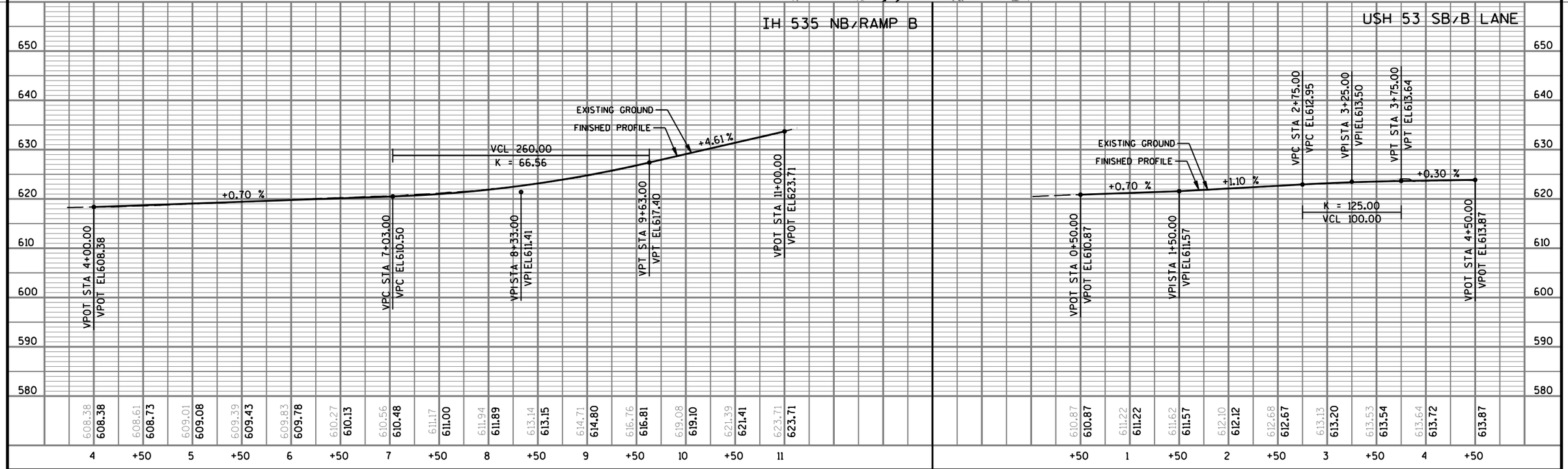
PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	PLAN & PROFILE - USH 53 NB	SHEET 26	E

FILE NAME : T:\410630\dgn\050101_pp.dgn PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 40



CURVE DATA	CURVE DATA	CURVE DATA	CURVE DATA
P.I. 0+32.00	P.I. 3+70.86	P.I. 5+53.23	P.I. 10+10.99
N 310501.93	N 310185.59	N 310371.81	N 310098.21
E 149071.13	E 149194.44	E 149123.38	E 148648.64
△ = 17°06'22"	△ = 68°18'29"	△ = 96°49'31"	△ = 115°06'28"
D = 19°05'55"	D = 38°11'50"	D = 35°48'35"	D = 24°30'46"
T = 45.12'	T = 101.76'	T = 180.29'	T = 367.66'
L = 89.57'	L = 178.83'	L = 270.39'	L = 469.58'
E = 3.37'	E = 31.26'	E = 81.05'	E = 201.93'
R = 300.00'	R = 150.00'	R = 160.00'	R = 233.74'
P.C. -0+13.12	P.C. 2+69.09	P.C. 3+72.94	P.R.C6+43.33
P.T. 0+76.45	P.T. 4+47.92	P.R.C6+43.33	P.T. 11+12.91

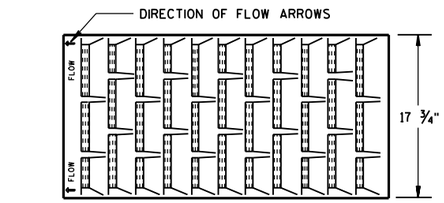


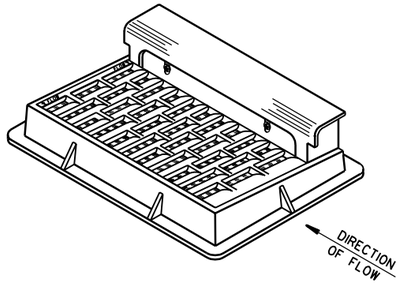
PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	PLAN & PROFILE	SHEET 27 E

Standard Detail Drawing List

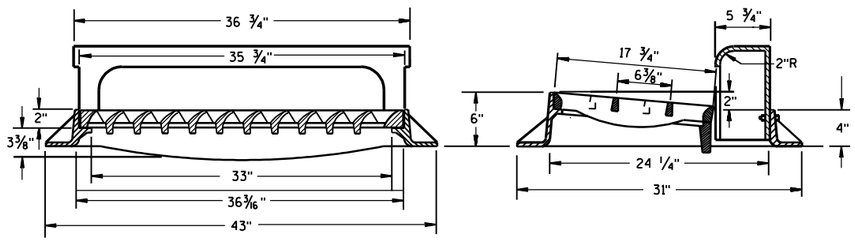
08A5-16A	INLET COVERS TYPE A, H, A-S, & H-S
08A5-16B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A6-4	CATCH BASINS TYPE 1 & 2
08D1-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D15-4A	EDGEDRAIN OUTLET AND OUTFALL MARKERS
08D15-4B	EDGEDRAIN AND BASE AGGREGATE OPEN GRADED
08D15-4C	EDGEDRAIN AND BASE AGGREGATE OPEN GRADED
08E10-2	INLET PROTECTION TYPE A, B, C AND D
09B2-7	CONDUIT
09B4-9	PULL BOX
09C2-6	CONCRETE BASES, TYPES 1, 2 & 5
09C3-3	TRANSFORMER/PEDESTAL BASES
09C6-5	CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL
09C12-2A	CONCRETE BASE TYPE 13
09C12-2B	CONCRETE BASE TYPE 13
09D1-4	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
09E1-11B	POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 3 (HEAVY DUTY)
09E1-11D	POLE MOUNTINGS FOR LIGHTING UNITS, TYPE 5 (30 FEET)
09E1-11G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E5-5	TRAFFIC SIGNAL STANDARD ORNAMENTAL BRACKET MOUNTINGS TYPICAL FOR 13 FT. OR 15 FT.
09E8-4D	TYPE 13 POLE 35'-55' MONOTBE ARM
09E8-4E	GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS
09F11-3	LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT WITH NEW ASPHALTIC OVERLAY
11B2-2	CONCRETE MEDIAN NOSE
13C1-15	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C13-7	URBAN 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
15C2-4A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C2-4B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C5-1	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C6-5	SIGNING & MARKING FOR TWO LANE BRIDGES
15C7-12B	PAVEMENT MARKING WORDS
15C7-12C	PAVEMENT MARKING ARROWS
15C8-14A	PAVEMENT MARKING (MAINLINE)
15C8-14B	PAVEMENT MARKING (INTERSECTIONS)
15C8-14E	PAVEMENT MARKING (LEFT TURN LANE)
15C8-14F	PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)
15C12-3	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C31-1A	PAVEMENT MARKING (RAMPS AND GORES)

NOTE:
GRATE IS REVERSIBLE.





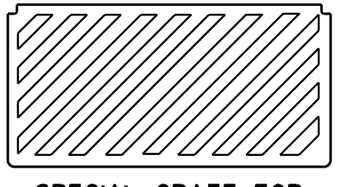
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"



TYPE "H"

(APPROXIMATE WEIGHT 422 LBS.)
FRAME..... 175 LBS.
GRATE..... 138 LBS.
CURB BOX..... 109 LBS.

1 1/8" DIAGONAL BARS WITH 1 5/8" OPENINGS



SPECIAL GRATE FOR TYPE "H" COVER

(MEASURES 35 1/4" X 17 3/4" X 2")
(APPROXIMATE WEIGHT 172 LBS.)
GRATE..... 172 LBS.

(NOTED AS TYPE H-S ON DRAINAGE TABLE)

S.D.D. 8 A 5-16a

6

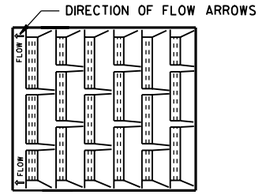
GENERAL NOTES

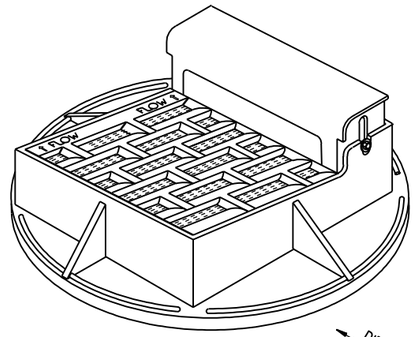
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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

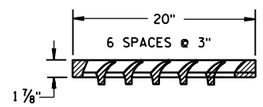
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.

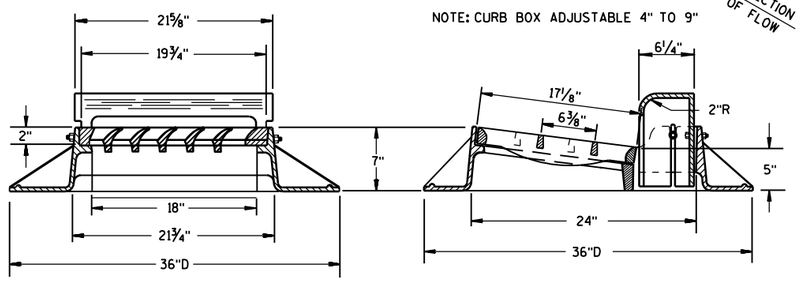




NOTE: CURB BOX ADJUSTABLE 4" TO 9"

NOTE:
GRATE IS REVERSIBLE.

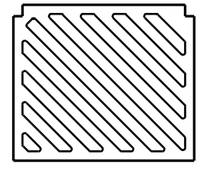




TYPE "A"

(APPROXIMATE WEIGHT 325 LBS.)
FRAME..... 157 LBS.
GRATE..... 84 LBS.
CURB BOX..... 84 LBS.

1" DIAGONAL BARS WITH 1 1/2" OPENINGS



SPECIAL GRATE FOR TYPE "A" COVER

(MEASURES 19 3/4" X 17" X 1 7/8"
GRATE..... 84 LBS.

(NOTED AS TYPE A-S ON DRAINAGE TABLE)

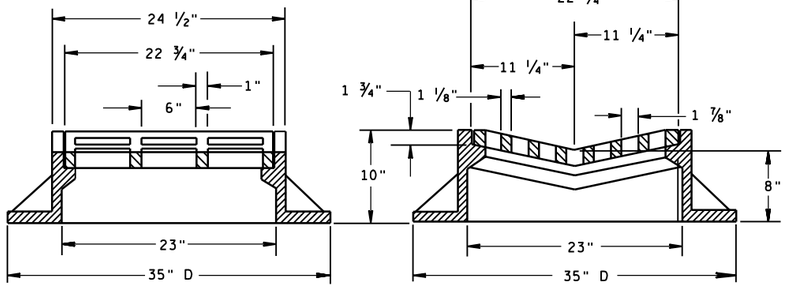
INLET COVERS
TYPE A, H, A-S, & H-S

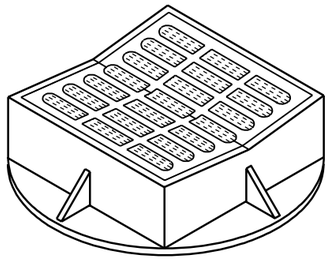
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/4/99
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 A 5-16a

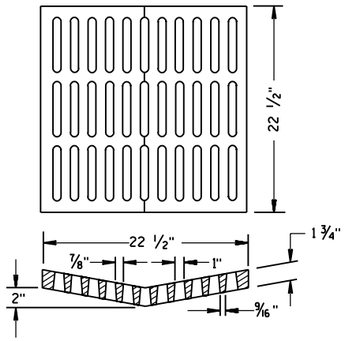




TYPE "B"

(APPROXIMATE WEIGHT 395 LBS.)

FRAME..... 285 LBS.
GRATE..... 110 LBS.

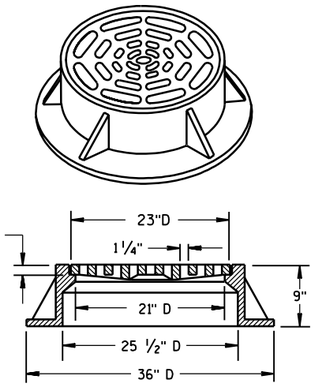


ALTERNATIVE GRATE FOR TYPE "B" COVER

(APPROXIMATE GRATE WEIGHT 125 LBS.)
GRATE.....125 LBS.

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.

NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

(APPROXIMATE WEIGHT 340 LBS.)

FRAME..... 235 LBS.
GRATE..... 105 LBS.

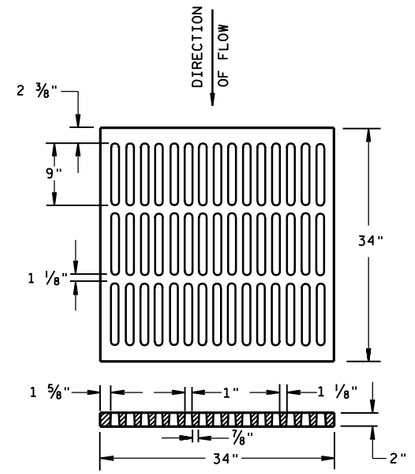
GENERAL NOTES

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

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

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

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

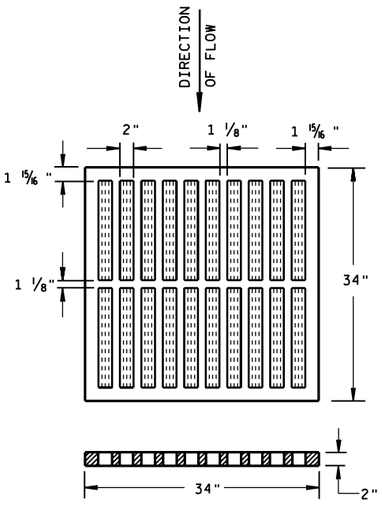


ALTERNATIVE TYPE "MS"

(APPROXIMATE GRATE WEIGHT 365 LBS.)
GRATE.....365 LBS.

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED

NOTED AS TYPE MS-A ON THE DRAINAGE TABLE

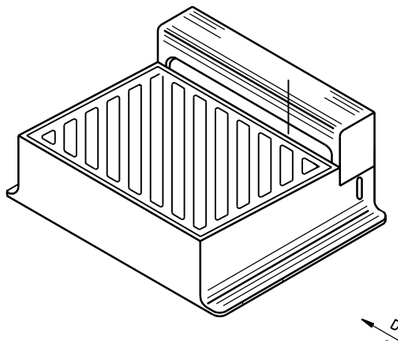


TYPE "MS"

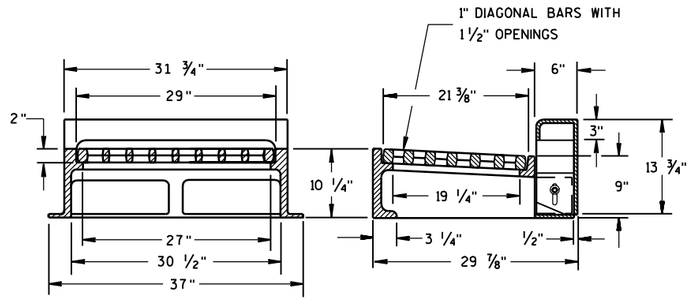
(APPROXIMATE GRATE WEIGHT 270 LBS.)
GRATE.....270 LBS.

USE ON FREEWAYS AND EXPRESSWAYS

NOTED AS TYPE MS ON DRAINAGE TABLE



DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

(APPROXIMATE WEIGHT 670 LBS.)

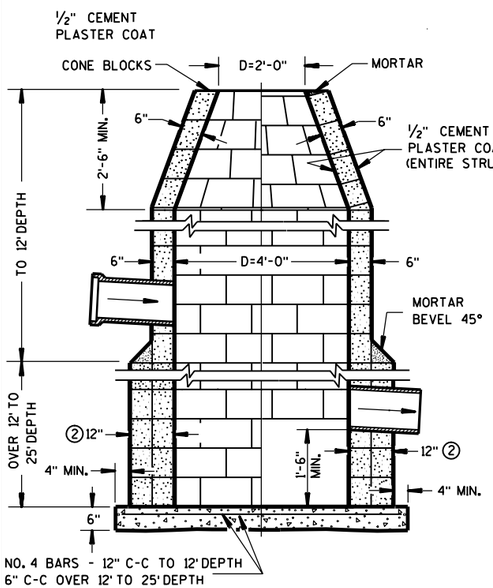
FRAME..... 360 LBS.
GRATE..... 160 LBS.
CURB BOX..... 150 LBS.

INLET COVERS
TYPE B, B-A, C, MS, MS-A, & WM

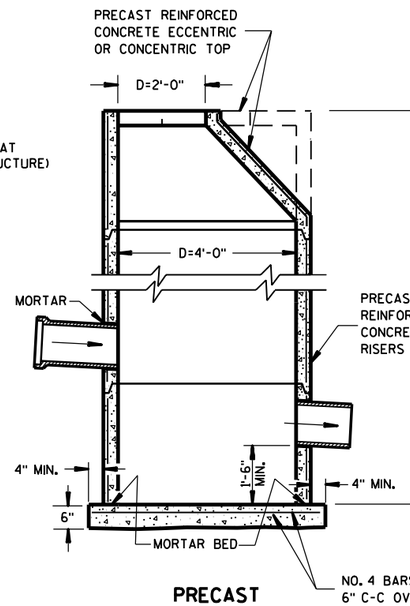
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/4/99
DATE
FHWA

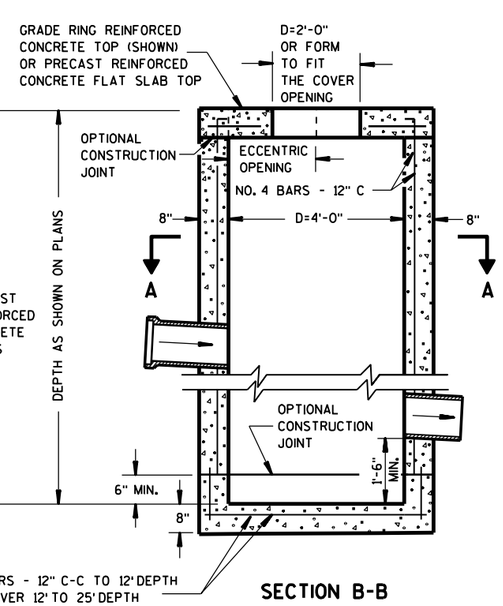
CHIEF ROADWAY DEVELOPMENT ENGINEER



CONCRETE BLOCK

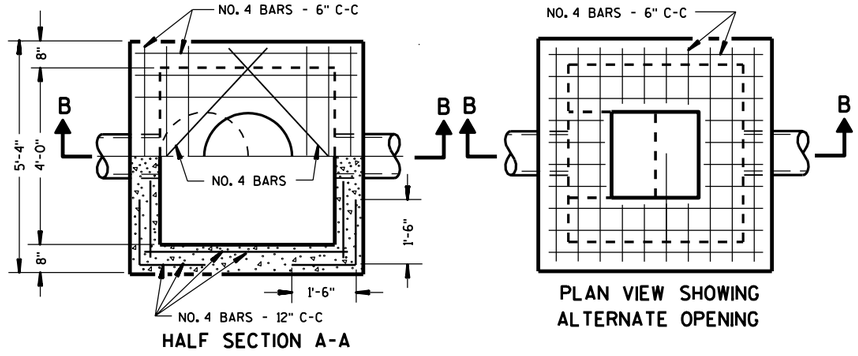


PRECAST REINFORCED CONCRETE



SECTION B-B
REINFORCED CONCRETE

CATCH BASINS, TYPE 1



HALF SECTION A-A

PLAN VIEW SHOWING ALTERNATE OPENING

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 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 CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

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

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. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE.

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

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

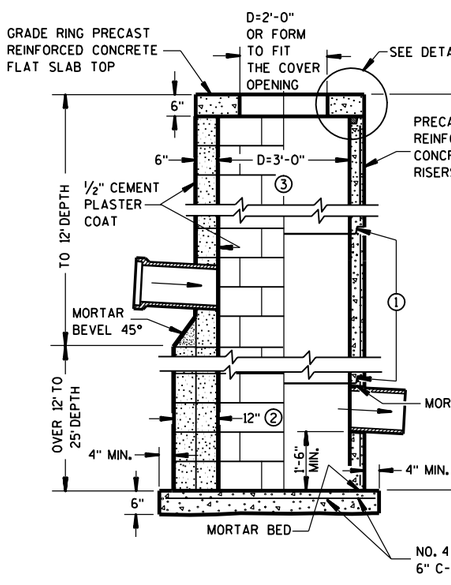
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

THE "PRECAST REINFORCED CONCRETE FLAT SLAB TOP" OPTION IS REQUIRED ON CATCH BASINS, TYPE 1 WHEN 2' X 3' OPENING INLET COVERS ARE REQUIRED.

① PRECAST REINFORCED CONCRETE RISERS SHALL BE PLACED WITH THE TONGUE DOWN WHEN GRADE RINGS ARE USED FOR THE SLAB TOP.

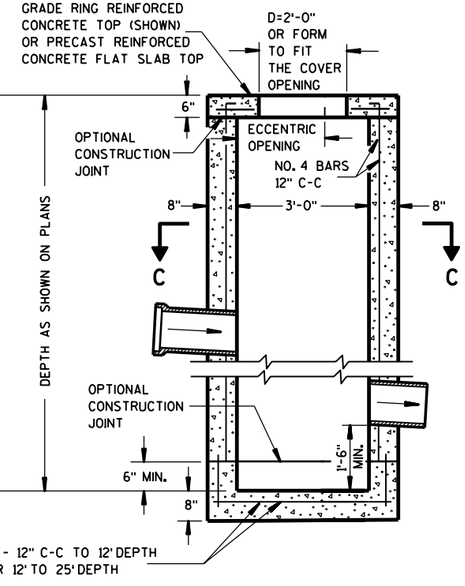
② 2 COURSES 6" BLOCK.

③ WHEN THE CONNECTING PIPES ARE 24" OR LARGER THE PRECAST CATCH BASIN MAY BE INCREASED TO 42" DIA.

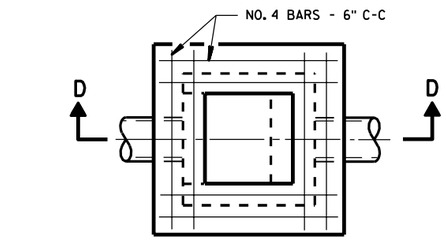


CONCRETE BLOCK

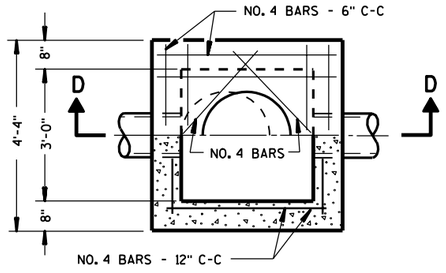
PRECAST REINFORCED CONCRETE



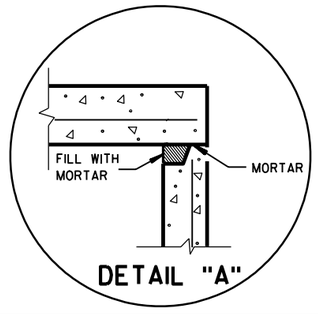
SECTION D-D
REINFORCED CONCRETE



PLAN VIEW SHOWING ALTERNATE OPENING



HALF SECTION C-C



DETAIL "A"

CATCH BASINS, TYPE 2

CATCH BASINS TYPE 1 & 2

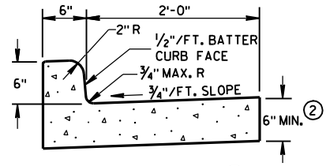
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/9/99
DATE

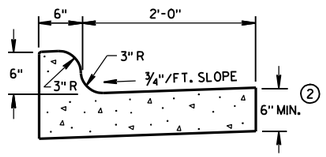
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

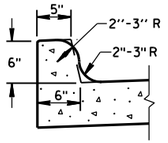
S.D.D. 8 A 6-4



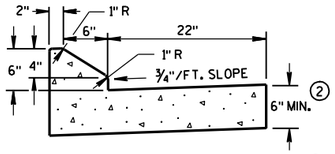
TYPES A & D ①



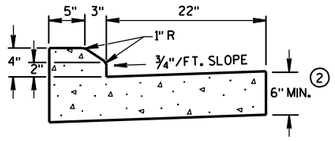
TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

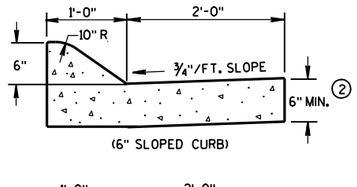


6" SLOPED CURB TYPES G & J ①

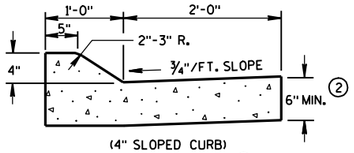


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

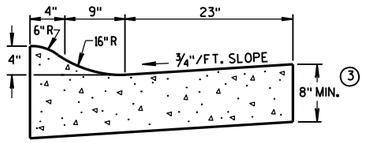


(6" SLOPED CURB)



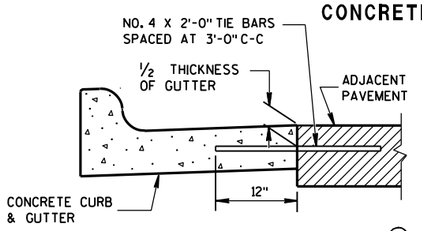
(4" SLOPED CURB)

TYPES A & D ①

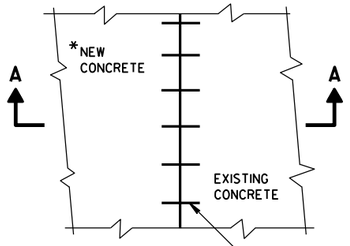


4" SLOPED CURB TYPES R & T ①④

CONCRETE CURB & GUTTER 36"

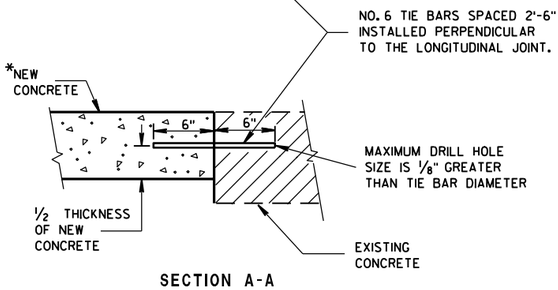


TYPICAL TIE BAR LOCATION ①



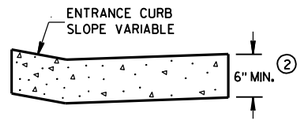
*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

PLAN VIEW

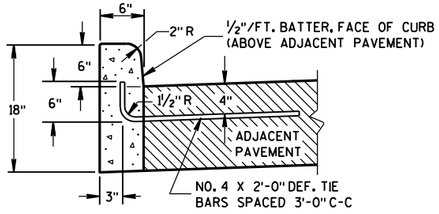


SECTION A-A

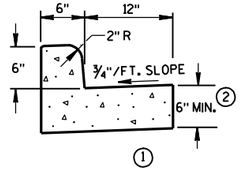
TIE BARS DRILLED INTO EXISTING PAVEMENT



DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

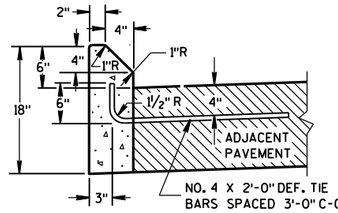


① TYPES A & D



① TYPES A & D

CONCRETE CURB & GUTTER 18"



① TYPES G & J

CONCRETE CURB

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.

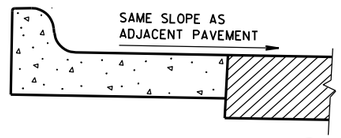
① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.

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.

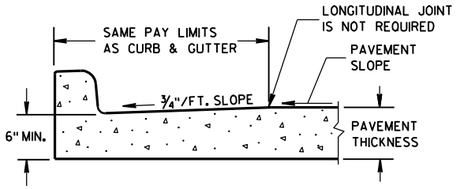
③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

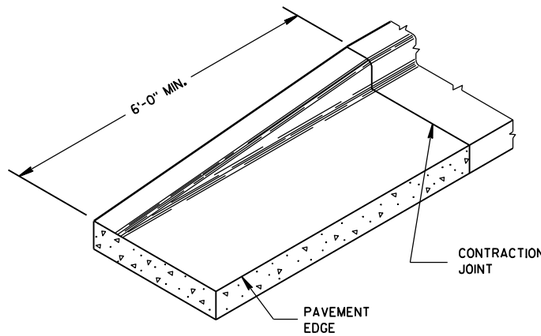
⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



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



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 8 D 1-17

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:

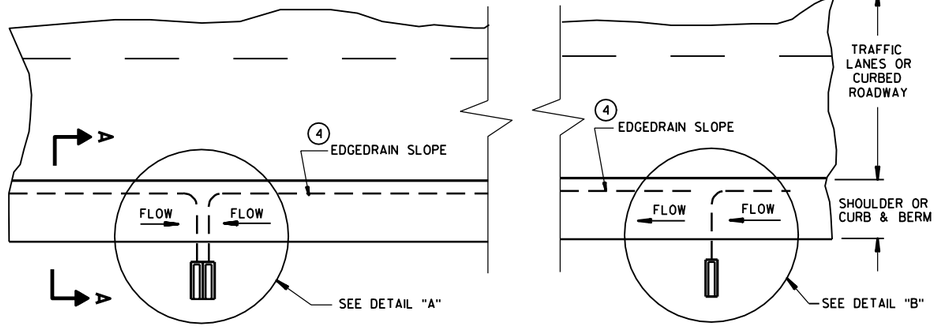
POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.

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.

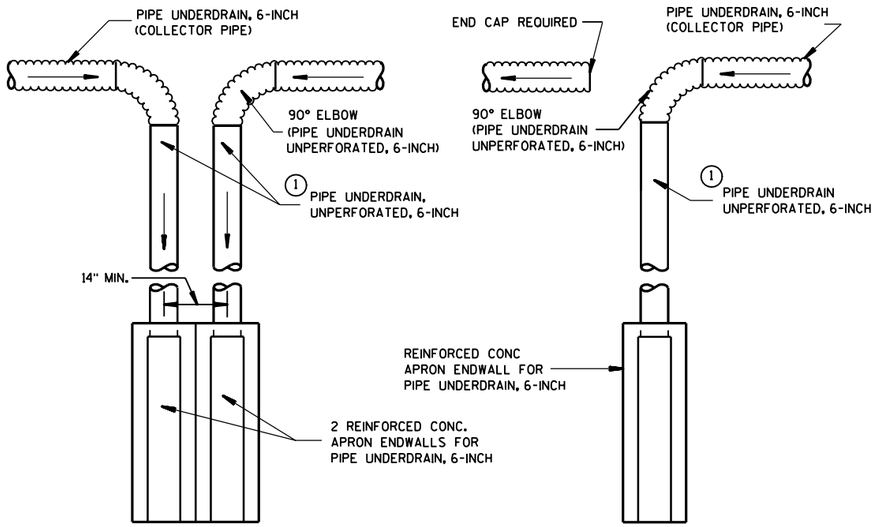
(4) EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.



PLAN VIEW

ROADWAY WITH SHOULDERS OR CURBS

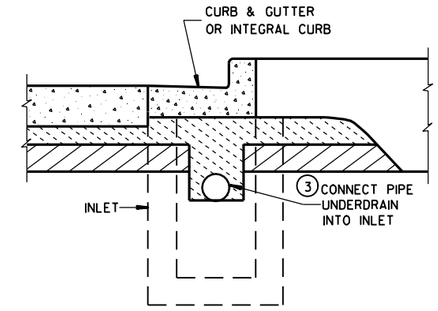
(EDGEDRAIN OUTLETS TO ROADSIDE) (2)



DETAIL "A"
TO BE USED AT LOW POINT LOCATIONS

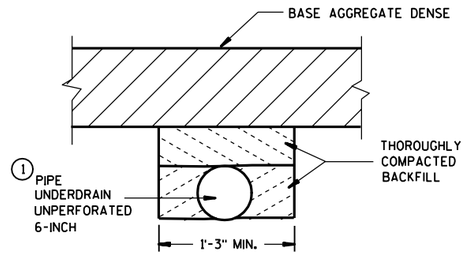
DETAIL "B"
TO BE USED AT INTERMEDIATE LOCATIONS

TYPICAL DRAIN OUT DETAILS



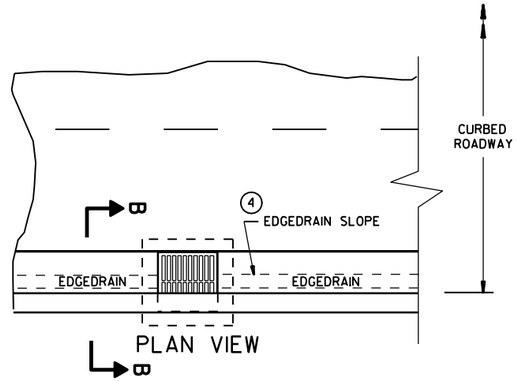
SECTION B-B

URBAN CROSS SECTION



SECTION C-C

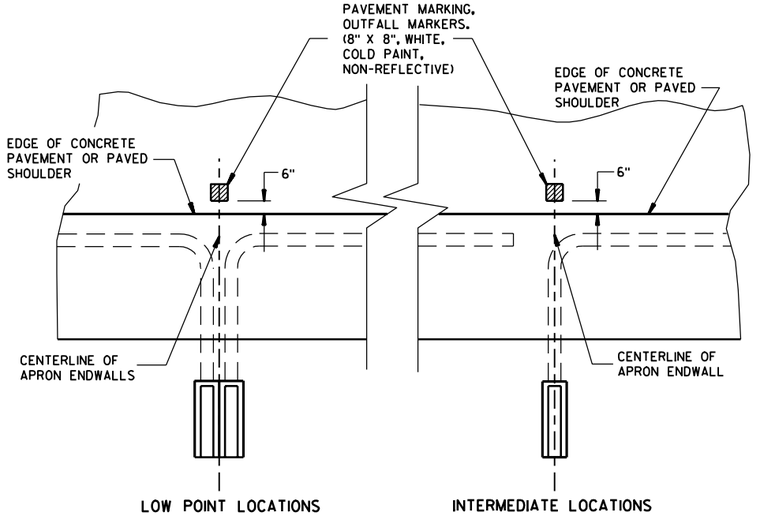
(TRENCH FOR OUTFALL PIPE)



PLAN VIEW

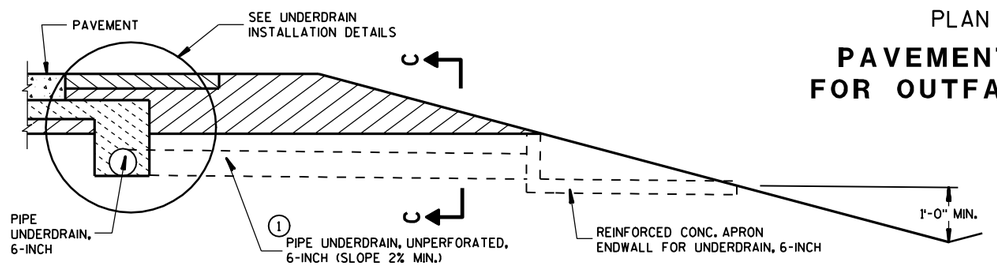
ROADWAY WITH CURBS

(EDGEDRAIN CONNECTS INTO INLET STRUCTURE)



PLAN VIEW

PAVEMENT MARKING FOR OUTFALL MARKERS



SECTION A-A

RURAL CROSS SECTION

EDGEDRAIN OUTLET AND OUTFALL MARKERS

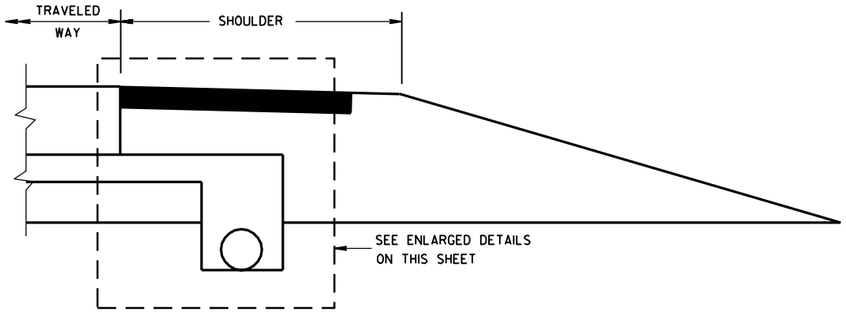
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 8 D 15-4a

6

S.D.D. 8 D 15-4a



RURAL CROSS SECTION

GENERAL NOTES

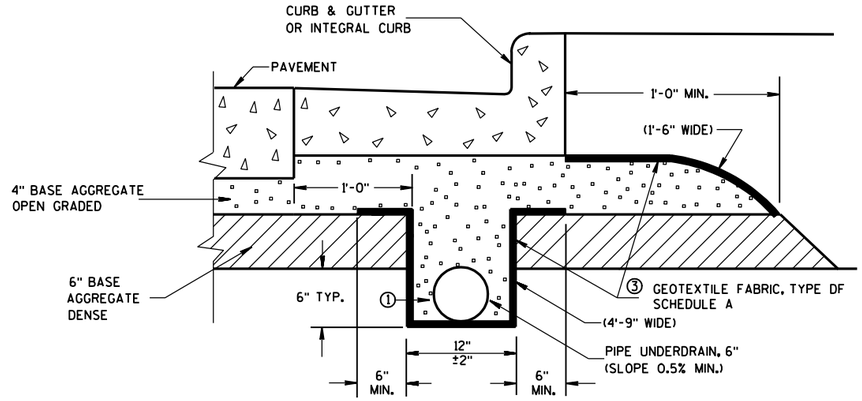
THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

PIPE UNDERDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF THE ROADWAY.

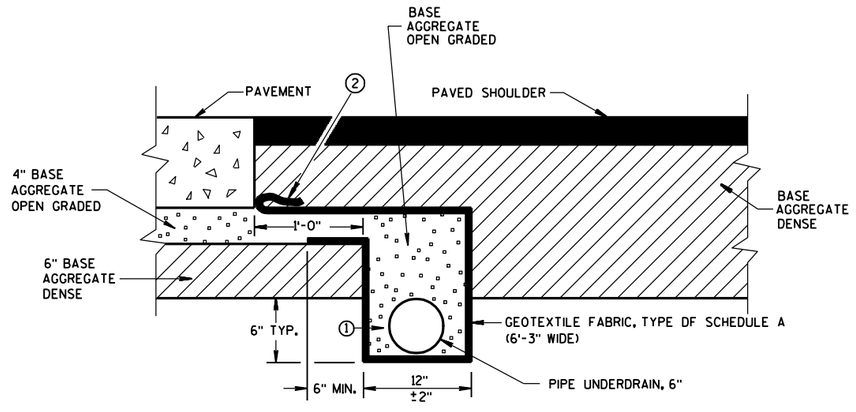
① TRENCH BACKFILL WILL BE PAID FOR AS BASE AGGREGATE OPEN GRADED.

② FOLD OVER EXCESS GEOTEXTILE FABRIC AT THIS LOCATION.

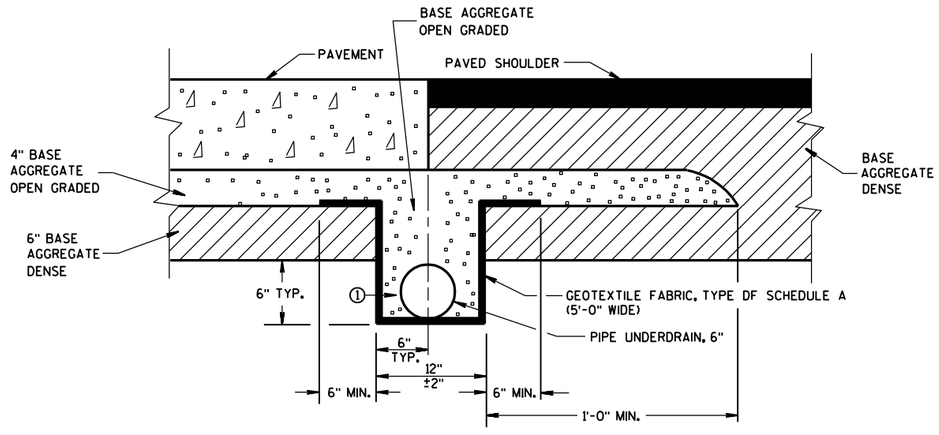
③ TOTAL FABRIC WIDTH IS 6'-3" FOR PAYMENT.



EDGEDRAIN IN URBAN ROADWAY



POST PAVING INSTALLATION
(QUANTITIES ARE BASED ON THIS DETAIL)



PRE-PAVING INSTALLATION ALTERNATE

EDGEDRAIN IN RURAL ROADWAY

EDGEDRAIN AND BASE AGGREGATE OPEN GRADED

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

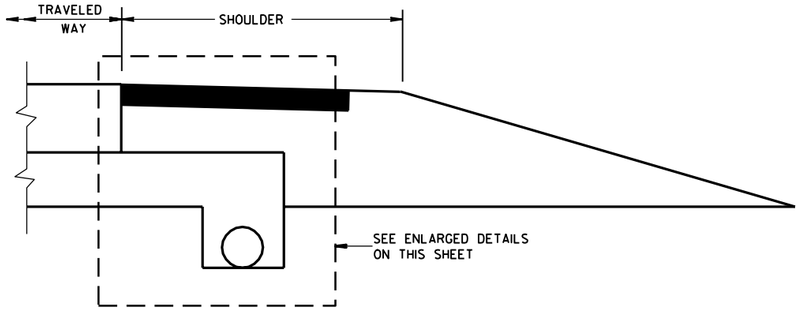
APPROVED
3/21/07 DATE
/S/ Steven W. Krebs
CHIEF MATERIALS MANAGEMENT ENGINEER
FHWA

6

S.D.D. 8 D 15-4b

6

S.D.D. 8 D 15-4b



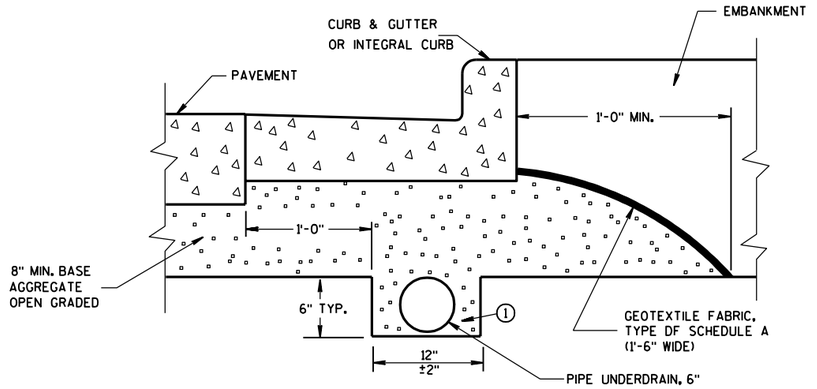
RURAL CROSS SECTION

GENERAL NOTES

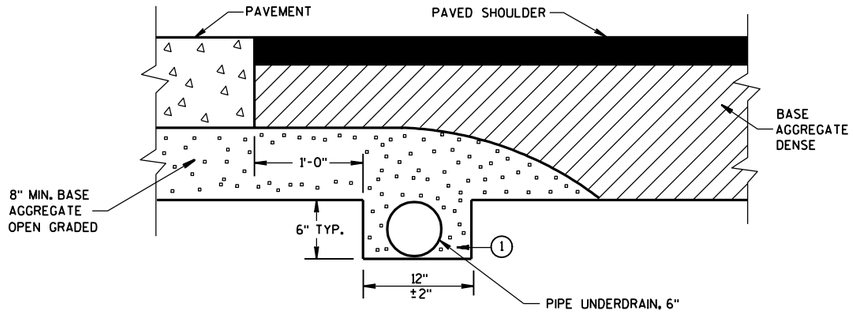
THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

PIPE UNDERDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF THE ROADWAY.

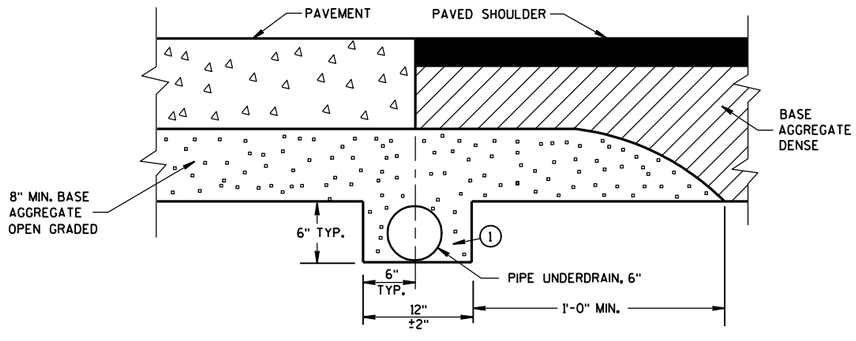
(1) TRENCH BACKFILL WILL BE PAID FOR AS BASE AGGREGATE OPEN GRADED.



EDGEDRAIN IN URBAN ROADWAY



POST PAVING INSTALLATION
(QUANTITIES ARE BASED ON THIS DETAIL)



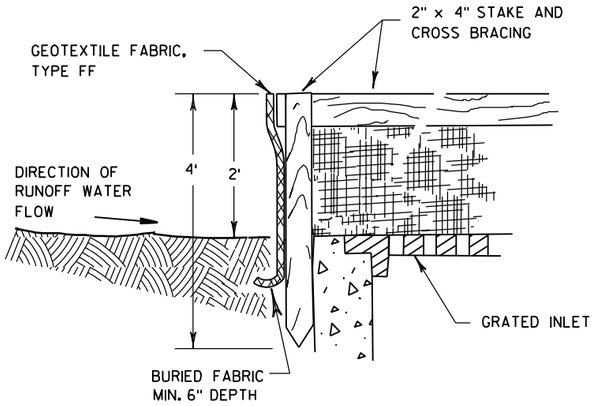
PRE-PAVING INSTALLATION ALTERNATIVE

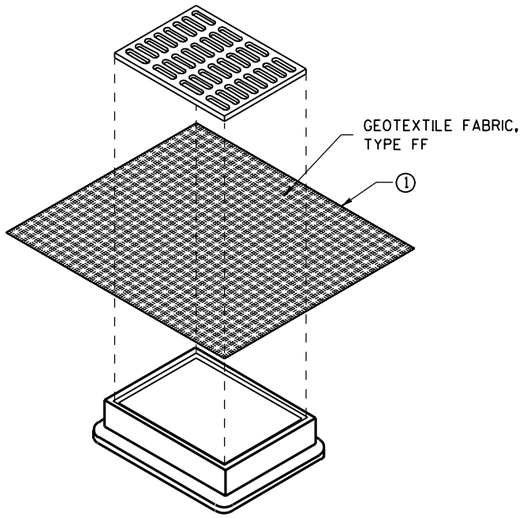
EDGEDRAIN IN RURAL ROADWAY

EDGEDRAIN AND BASE AGGREGATE OPEN GRADED	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
3/21/07 DATE	/S/ Steven W. Krebs CHIEF MATERIALS MANAGEMENT ENGINEER
FHWA	

6

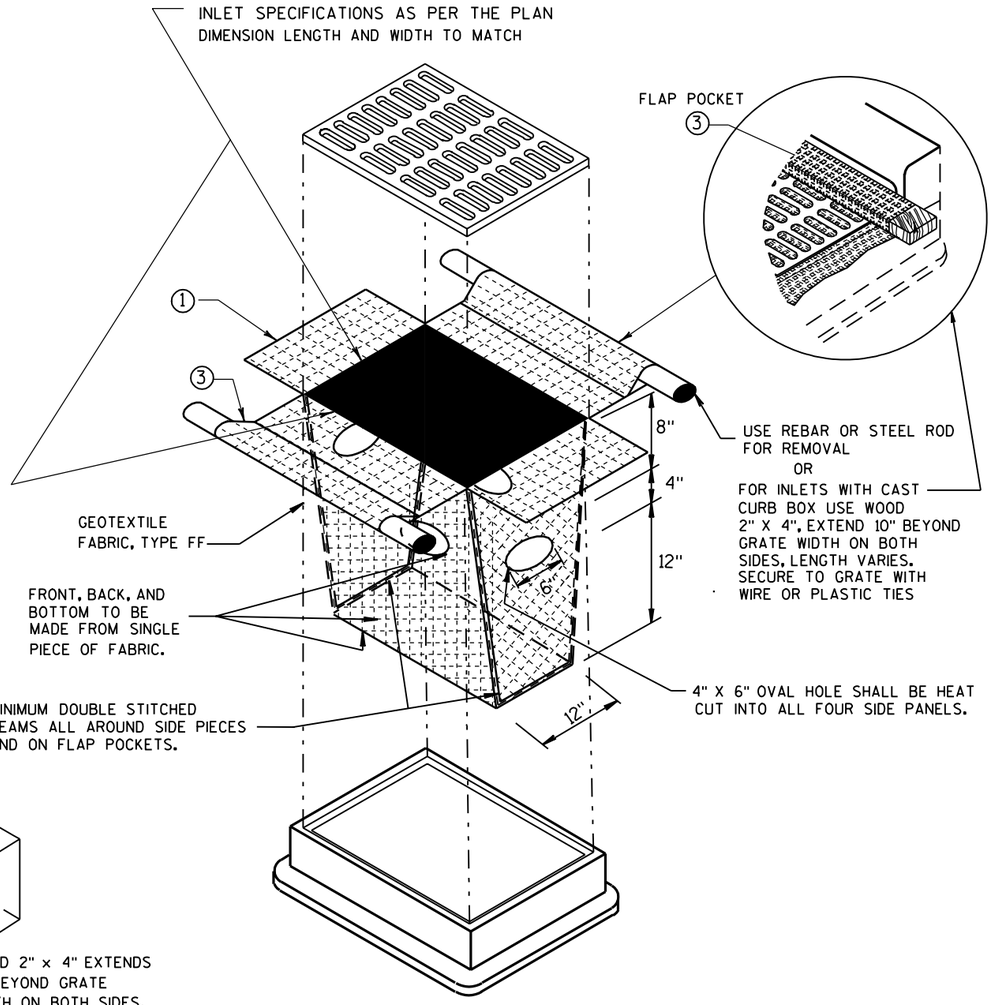
S.D.D. 8 D 15-4c





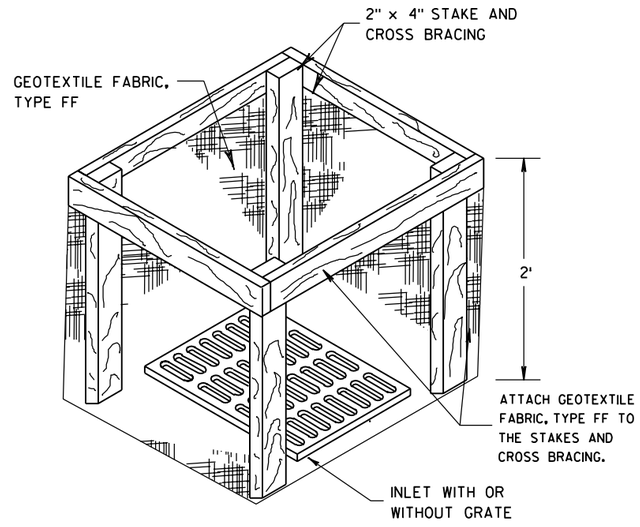
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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

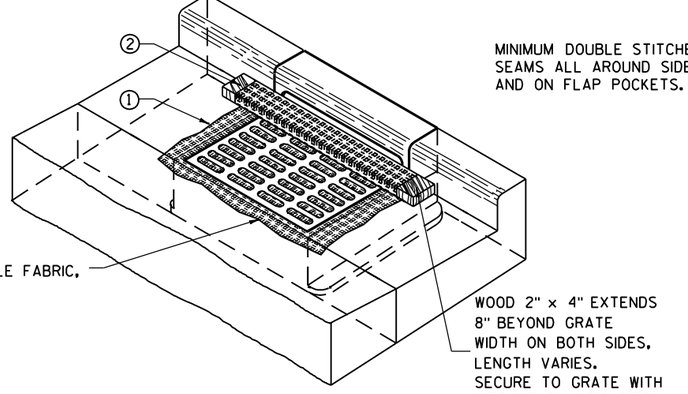


INLET PROTECTION, TYPE D

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



INLET PROTECTION, TYPE A



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

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

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

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

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

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

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

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

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

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02
DATE
FHWA

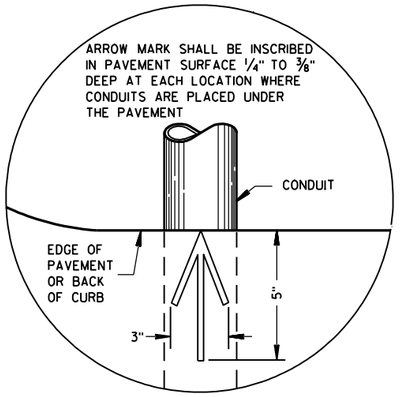
CHIEF ROADWAY DEVELOPMENT ENGINEER

6

S.D.D. 8 E 10-2

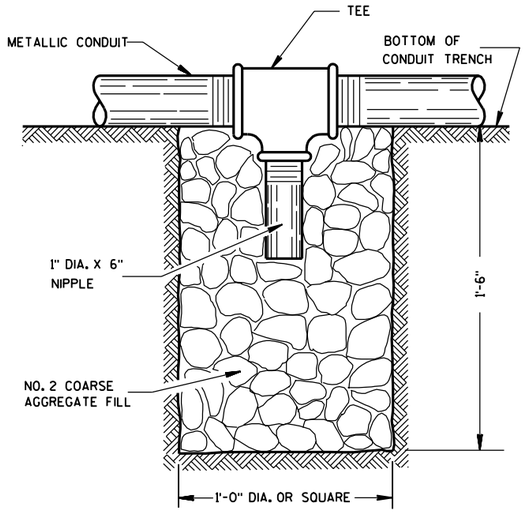
6

S.D.D. 8 E 10-2



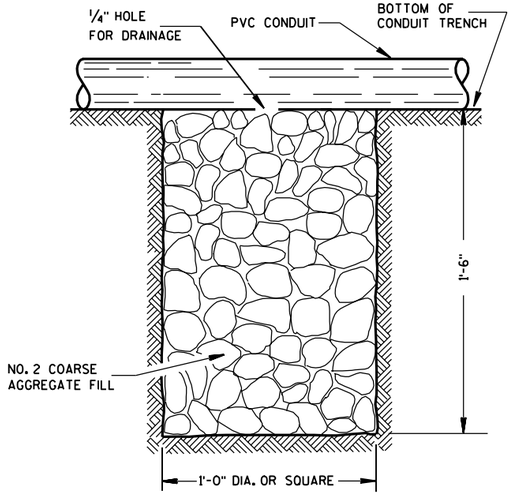
PLAN VIEW

ARROW MARK



NOTE: INSTALL AT LOCATIONS WHERE METALLIC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR METALLIC CONDUIT



NOTE: INSTALL AT LOCATIONS WHERE PVC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

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

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

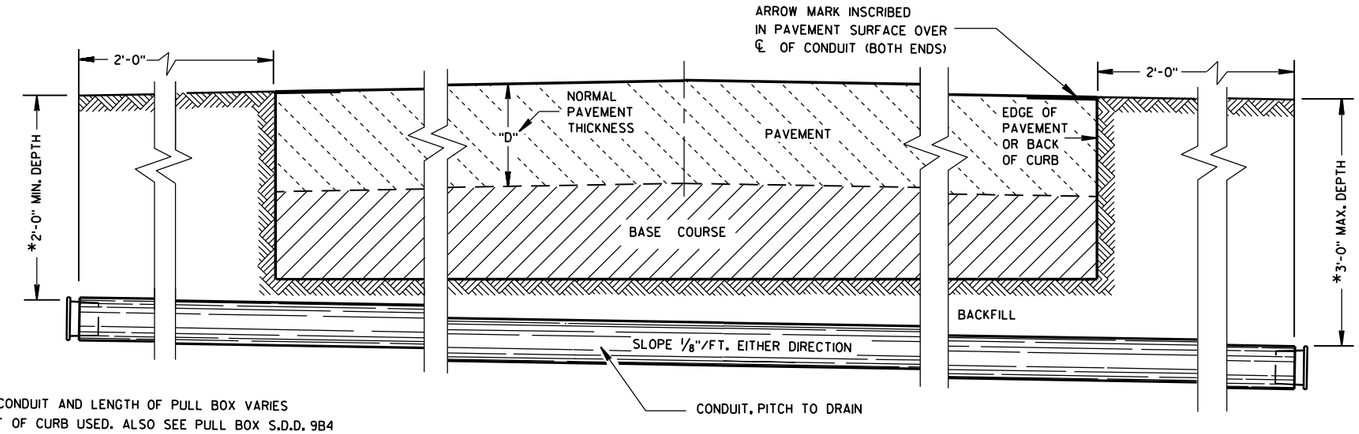
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

POLY ROPE OR A PULL WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.



*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

SIDE ELEVATION

DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/23/03
DATE

STATE ELECTRICAL ENGINEER FOR HIGHWAYS

FHWA

6

S.D.D. 9 B 2-7

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS *										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.

GENERAL NOTES

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

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE. THE MECHANICAL CONNECTION (INSIDE AND OUTSIDE) TO THE PULL BOX, SHALL BE TOTALLY AND PERMANENTLY SEALED WITH A SILICONE OR RUBBERIZED CAULKING COMPOUND AS APPROVED BY THE ENGINEER.

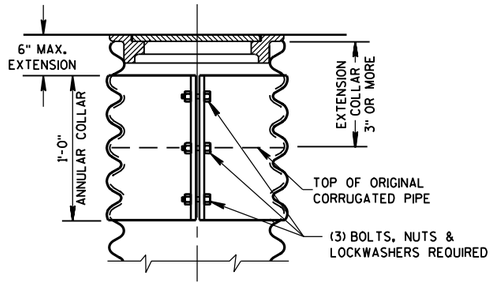
GROUNDING LUGS ARE NOT REQUIRED IN PULL BOXES WHEN VOLTAGES OF LESS THAN 50 VOLTS AC ARE THE ONLY VOLTAGES ENCOUNTERED IN THE BOXES.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

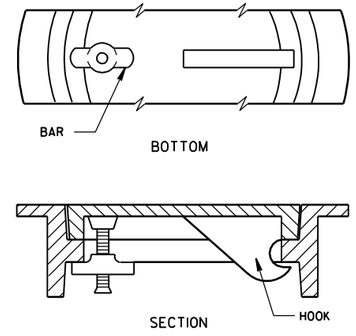
S.D.D. 9B2, "CONDUIT", APPLIES TO THIS DRAWING.

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.

IF PULL BOX EQUIPMENT GROUNDING IS REQUIRED USING AN EQUIPMENT GROUNDING ELECTRODE IN EACH PULL BOX, THE EQUIPMENT GROUNDING ELECTRODE SHALL BE 5/8" X 8'-0", COPPERCLAD AND BE EXOTHERMICALLY WELDED TO A #4 AWG, COPPER, STRANDED WIRE (BARE OR GREEN INSULATED). THE #4 AWG WIRE SHALL BE 4 FEET IN LENGTH, NEATLY COILED, TAPED AND AVAILABLE FOR USE WHEN REQUIRED.

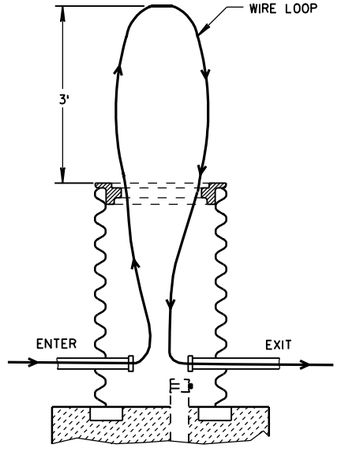


CORRUGATED PIPE EXTENDER

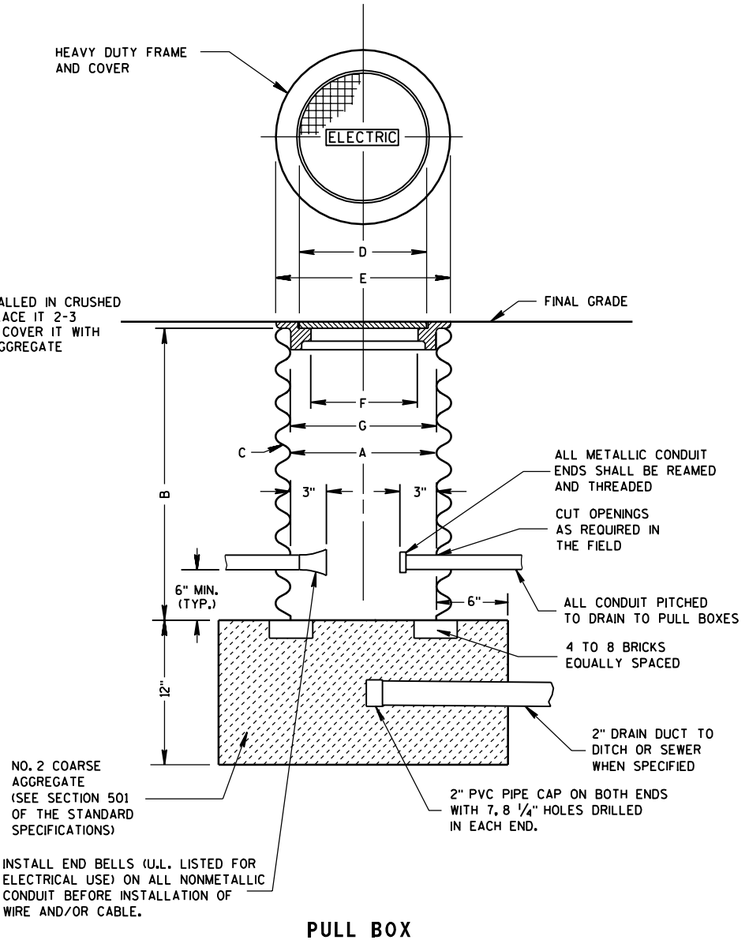


ALTERNATE COVER (LOCKING)

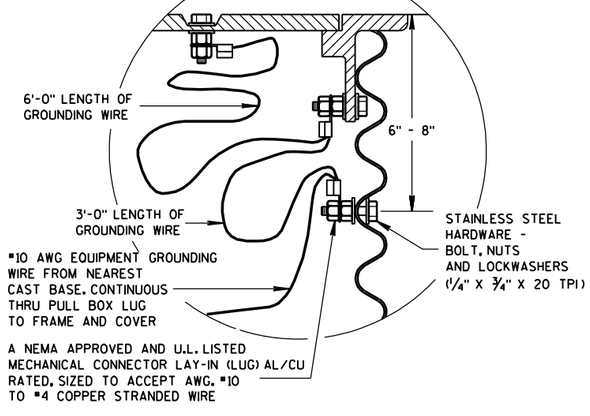
TIGHTENING BAR TYPE



MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX



PULL BOX



EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

PULL BOX

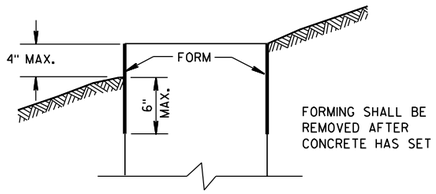
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/27/06 DATE
/S/ Balu Ananthanarayanan
STATE ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA

6

S.D.D. 9 B 4-9

FORM DEPTH SHALL BE NO MORE THAN 6" BELOW GRADE ON THE LOWER SIDE OF BASE



FORMING DETAIL

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

GENERAL NOTES

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

GENERAL NOTES (CONTINUED)

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 2 AND TYPE 5 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE OF THE TYPE 2 AND TYPE 5 BASES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 AND 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-449, OR ASTM A-687 (GRADE 105).

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

(1) THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

(2) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(3) (4) 1" DIA. X 5'-0" ANCHOR RODS.

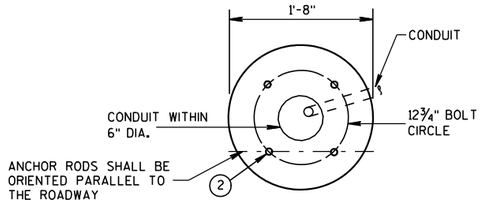
(4) (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

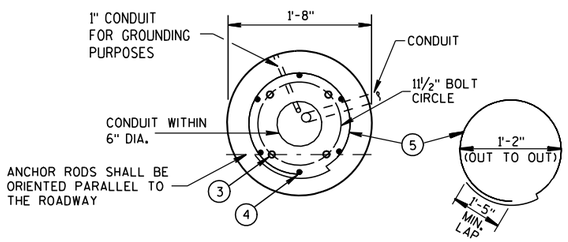
(5) (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

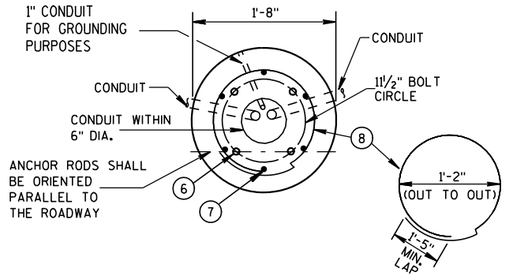
(6) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(7) (6) NO.4 X 4'-8" BAR STEEL REINFORCEMENT.

(8) (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.



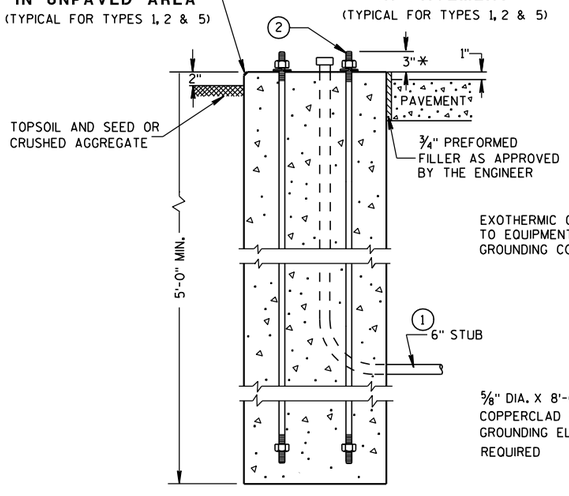




FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

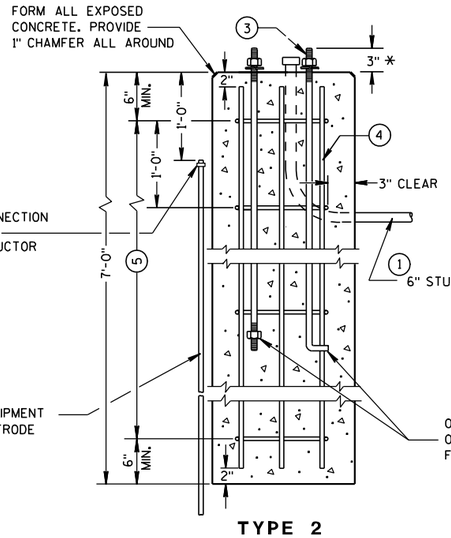
HALF SECTION IN UNPAVED AREA
(TYPICAL FOR TYPES 1, 2 & 5)

HALF SECTION IN PAVEMENT
(TYPICAL FOR TYPES 1, 2 & 5)



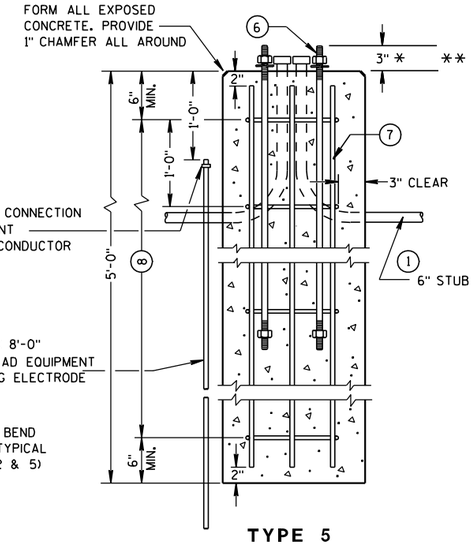
TYPE 1

FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND



TYPE 2

FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND



TYPE 5

CONCRETE BASES

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2¾" OR LONGER THAN 3¼" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

** FOR NONBREAKAWAY INSTALLATIONS, 4½" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

CONCRETE BASES, TYPES 1, 2 & 5

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/3/10	/S/ Joanna L. Bush
DATE	STATE ELECTRICAL ENGINEER FOR HIGHWAYS

FHWA

GENERAL NOTES

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

FOUR (4) BOLTS SHALL BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-325, (92,000 YIELD) HEAVY HEX NUT AND BE GALVANIZED IN ACCORDANCE WITH ASTM A-153, CLASS C.

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CAST BASES WHEN PLUMBING POLES OR STANDARDS DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED AND U.L. LISTED MECHANICAL CONNECTOR (LUG) AL/CU RATED AND SIZED TO ACCEPT #10 AWG STRANDED WIRE, SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

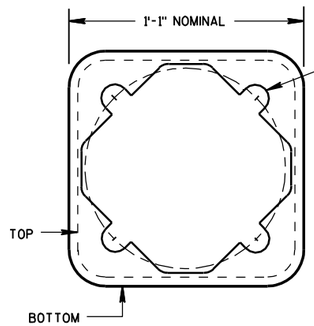
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

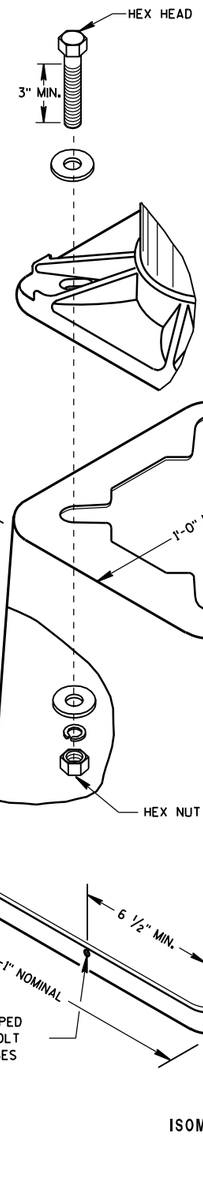
PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

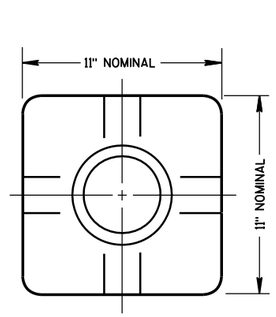
THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.



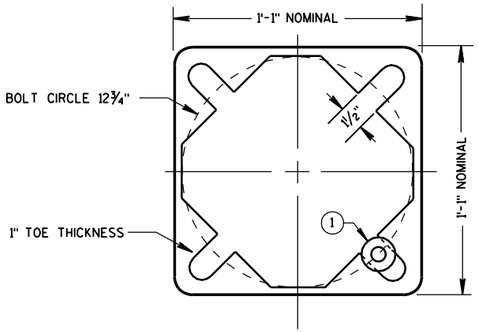
BOTTOM VIEW
(TRANSFORMER BASE)



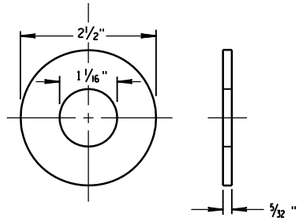
ISOMETRIC VIEW



TOP VIEW
(PEDESTAL BASE)

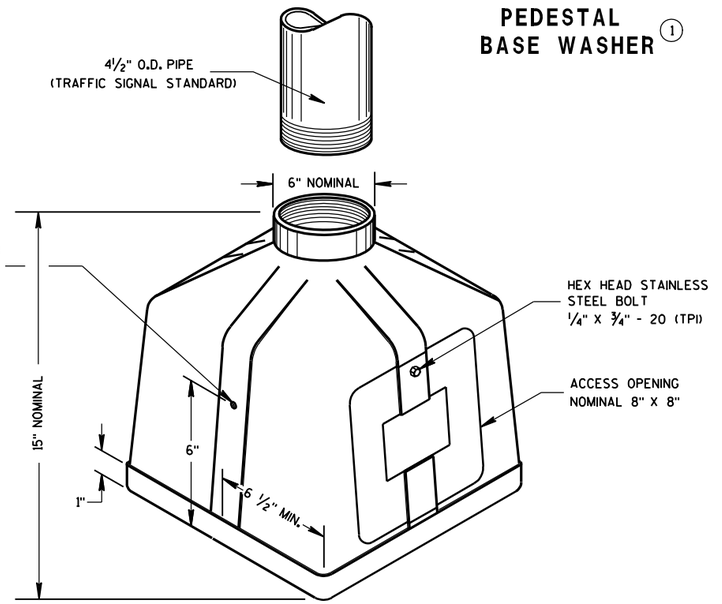


BOTTOM VIEW
(PEDESTAL BASE)



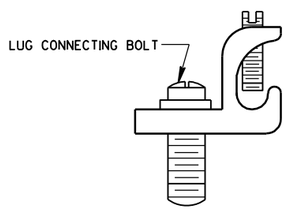
ZINC COATED STEEL WASHER
TO BE PROVIDED BY THE CONTRACTOR

PEDESTAL BASE WASHER (1)



ISOMETRIC VIEW

PEDESTAL BASE

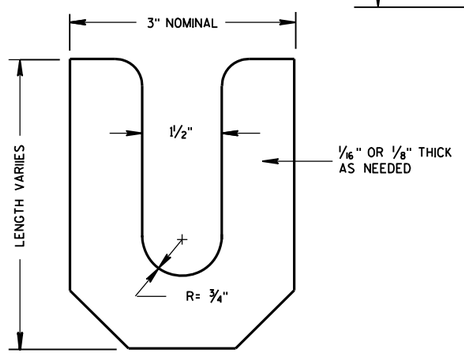


TYPICAL MECHANICAL CONNECTOR LUG

TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE

INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES



LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/27/09
DATE

/S/ Joanna L. Bush
STATE ELECTRICAL ENGINEER FOR HIGHWAYS

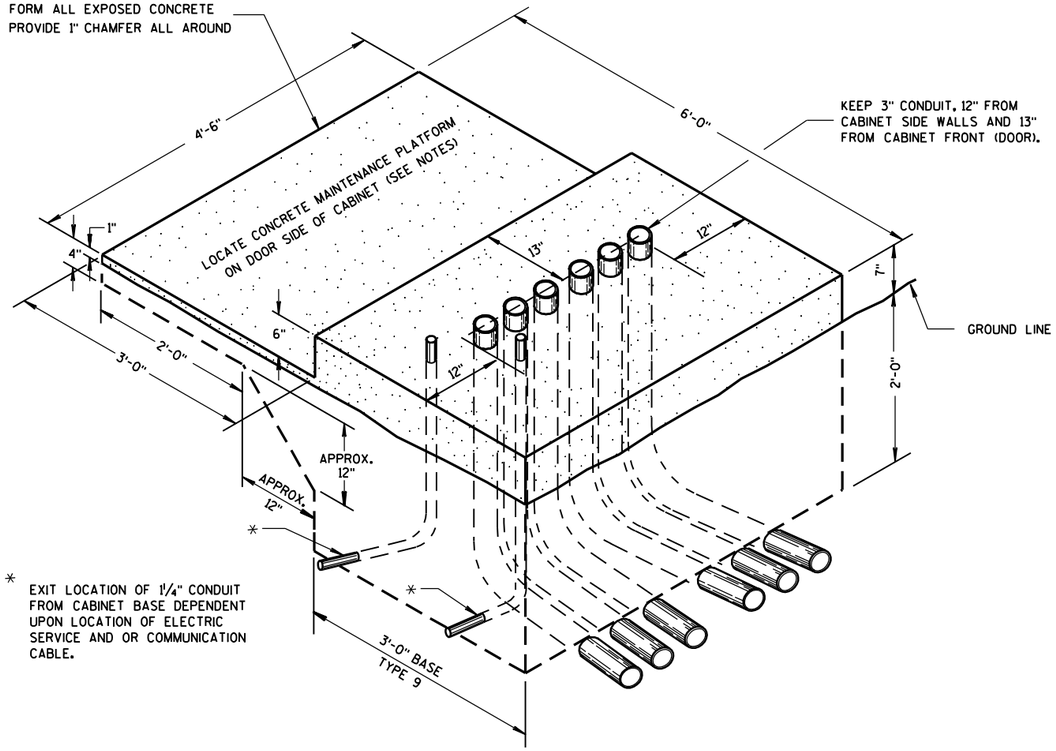
FHWA

6

S.D.D. 9 C 3-3

6

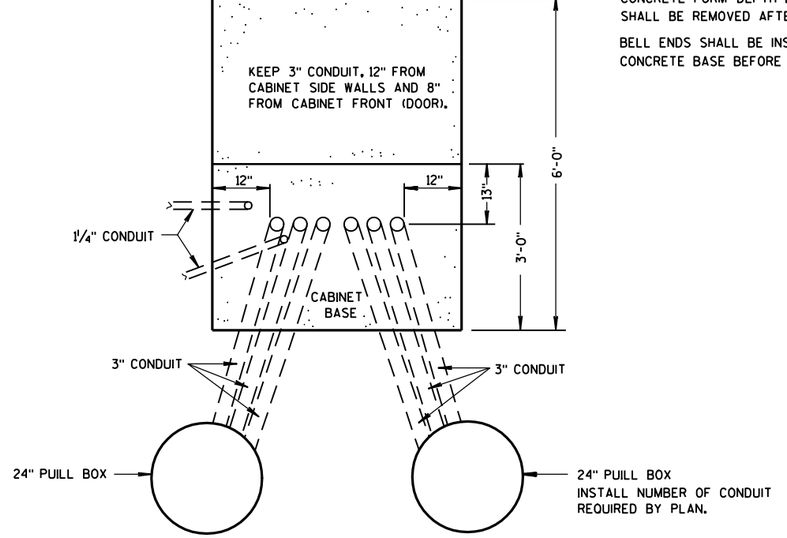
S.D.D. 9 C 3-3



ISOMETRIC VIEW

TYPE 9, SPECIAL

(C.Y. CONCRETE = APPROX. 1.56)



PLAN VIEW

CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL

GENERAL NOTES

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

INSTALL FOUR ½ INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

CONTROL CABINET BASE TOP SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND BE LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

PLUG ALL BELOW GRADE NONMETALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

CONDUIT EXITING THE CONCRETE BASE (SIX THREE INCH) SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.

CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

2/27/07 — DATE

/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGINEER FOR HIGHWAYS

FHWA

6

S.D.D. 9 C 6-5

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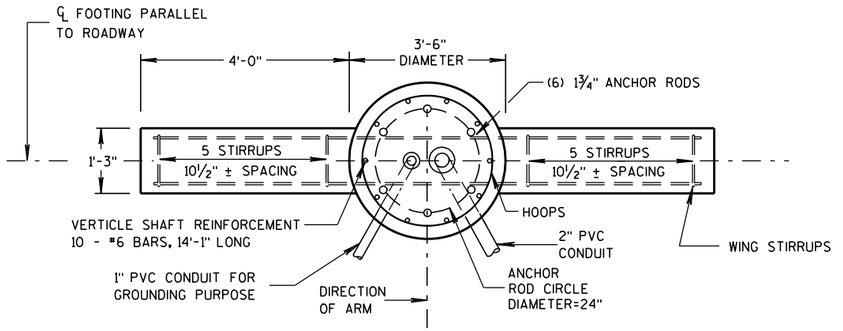
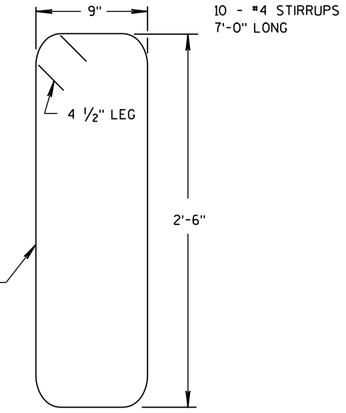
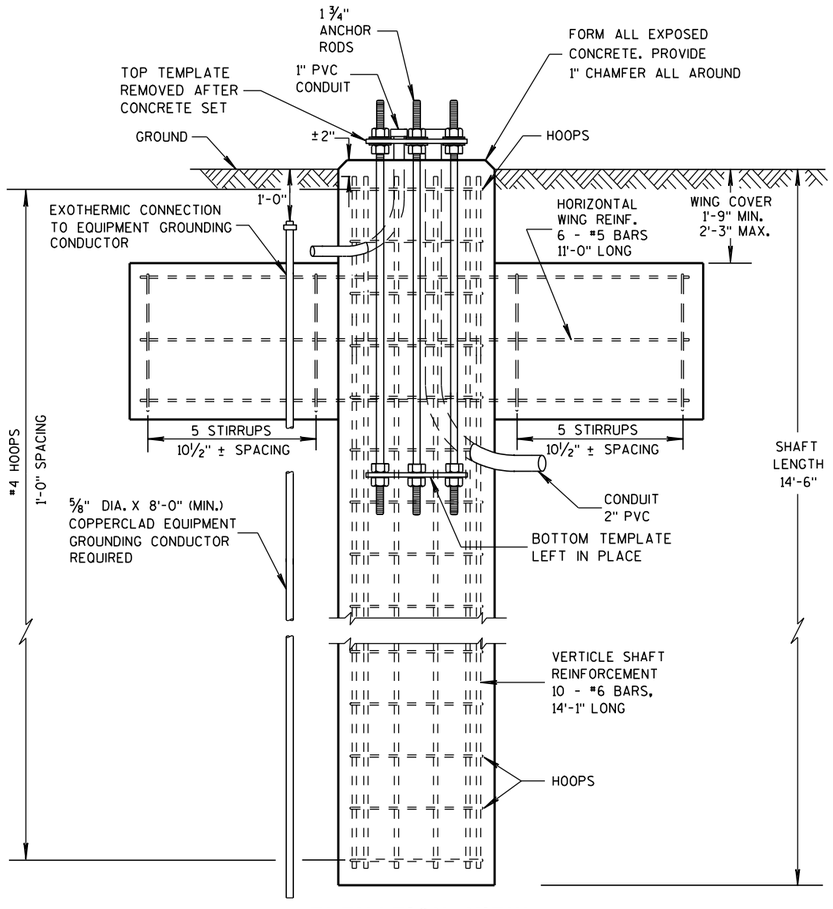
S.D.D. 9 C 6-5



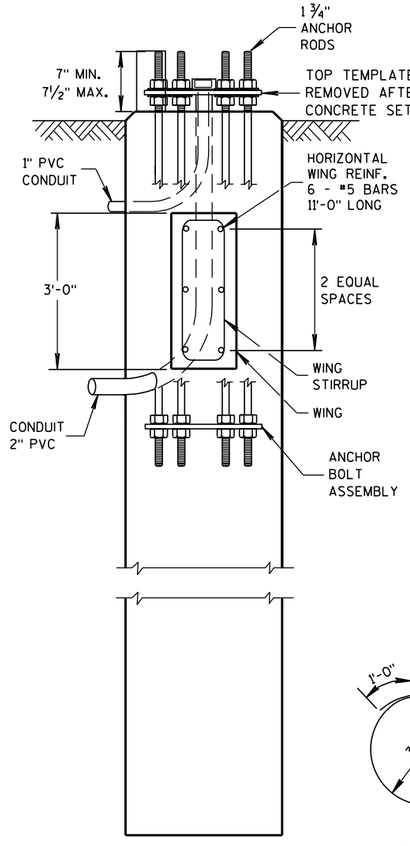
PLAN VIEW



WING STIRRUP

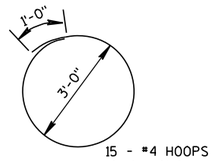


ELEVATION VIEW



SIDE VIEW

DOES NOT SHOW HOOPS OR
VERTICAL SHAFT REINFORCEMENT



15 - #4 HOOPS
10'-6" LONG

HOOP DETAIL

GENERAL NOTES

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

ORIENT ANCHOR RODS IN FOOTING AND PROVIDE ANCHOR ROD PROJECTION ABOVE TOP OF CONCRETE FOOTING BASE PER THIS SHEET.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF THE UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

WELDING OF ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

BASES (SHAFT), BELOW THE WING, SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUNG THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

TOP SURFACE OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

CONDUIT SIZE AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASE SHALL BE 4½" INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL ENDS INSTALLED. ALL CONDUIT SHALL SLOPE TO PULL BOX.

ALL CONDUIT ENDS AT THE TOP OF THE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTOR FITTINGS, UL LISTED FOR ELECTRICAL USE, SHALL BE USED.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE THROUGH A 1-INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4-FOOT COIL OF WIRE ABOVE THE CONCRETE BASE, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS.

THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVEL WAY SHALL BE 24-INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18-INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36-INCHES, (GREATER THAN 36-INCHES IF INSTALLED IN BREAKER-RUN), EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

CONCRETE MASONRY	fc=3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 p.s.i.
ANCHOR RODS, AASHTO M314 GRADE 55	fy=55,000 p.s.i.
TEMPLATES, ASTM A709 GRADE 36	fy=36,000 p.s.i.

(FOR TYPE 12 & 13 POLES)

CONCRETE = 6.3 C.Y.
H.S. REINFORCEMENT = 433 LBS.

TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION.
SEE S.D.D. 9C13-1 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION.

CONCRETE BASE TYPE 13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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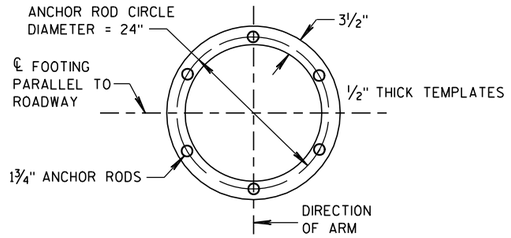
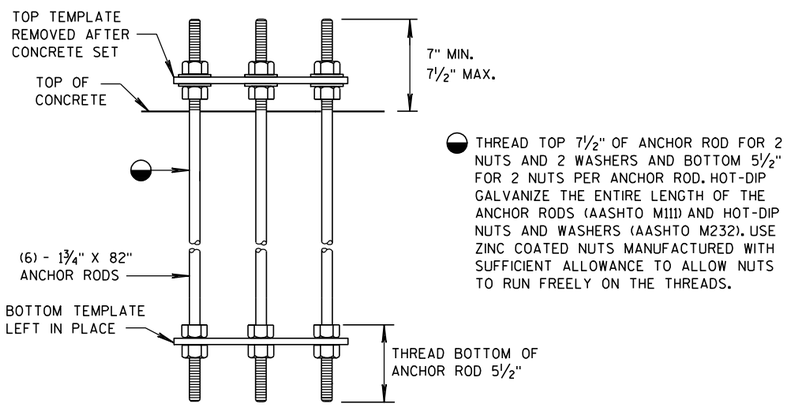
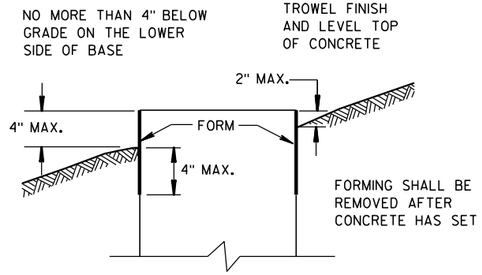


TOP AND BOTTOM TEMPLATES



◒ THREAD TOP 7½" OF ANCHOR ROD FOR 2 NUTS AND 2 WASHERS AND BOTTOM 5½" FOR 2 NUTS PER ANCHOR ROD. HOT-DIP GALVANIZE THE ENTIRE LENGTH OF THE ANCHOR RODS (AASHTO M111) AND HOT-DIP NUTS AND WASHERS (AASHTO M232). USE ZINC COATED NUTS MANUFACTURED WITH SUFFICIENT ALLOWANCE TO ALLOW NUTS TO RUN FREELY ON THE THREADS.

ANCHOR BOLT ASSEMBLY DETAIL



FORMING DETAIL

CONCRETE BASE TYPE 13 ANCHOR ASSEMBLY

CONCRETE BASE TYPE 13	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3-2-11 DATE	/S/ Thomas J. Gosnion STATE ELECTRICAL ENGI
FHWA	HWYS

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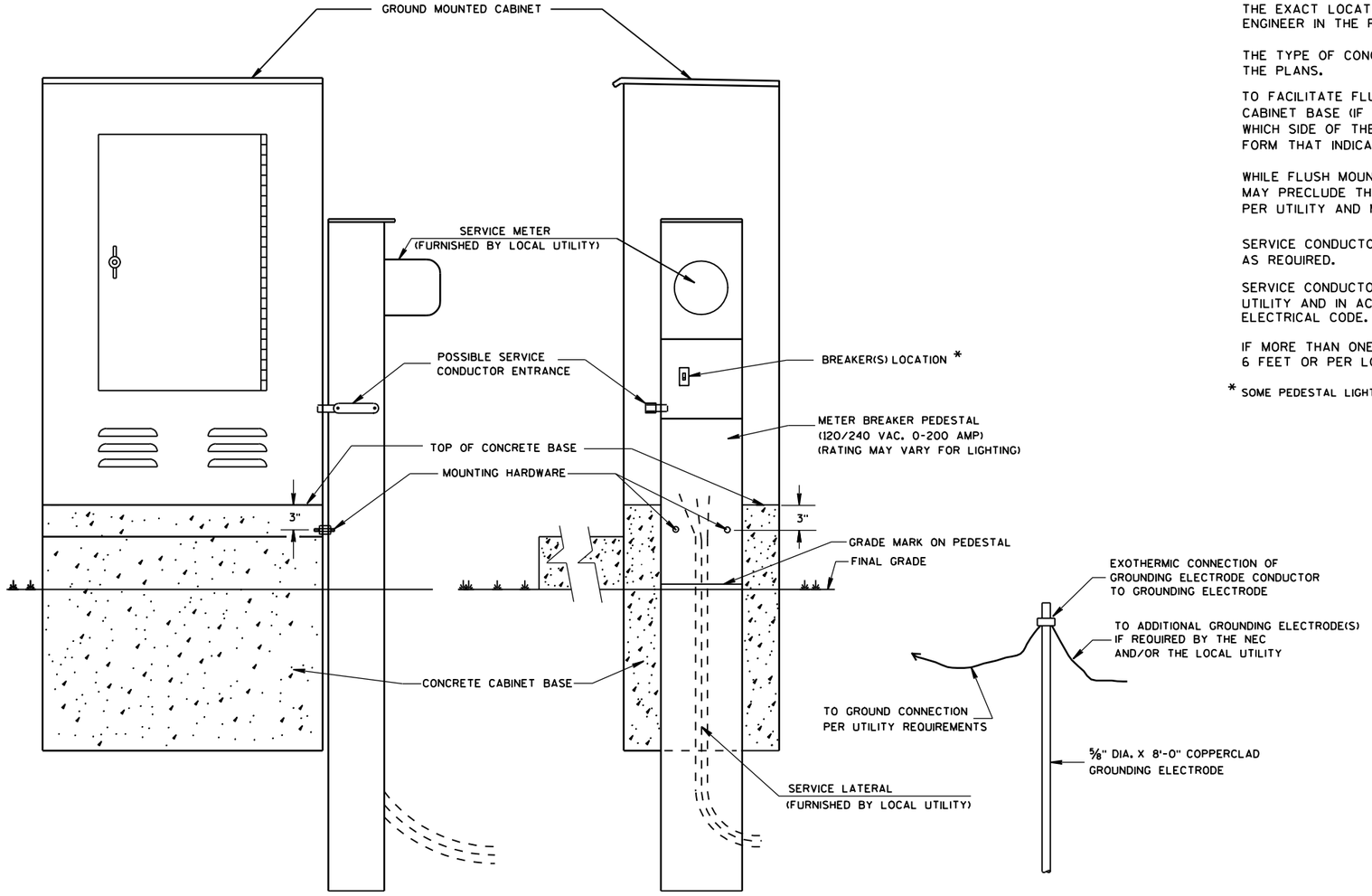
S.D.D. 9 C 12-2b



TYPICAL CABINET SERVICE INSTALLATION

GENERAL NOTES

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

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE. CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH. THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
10/27/09 DATE	/S/ Joanna L. Bush STATE ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA	

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S.D.D. 9 D 1-4

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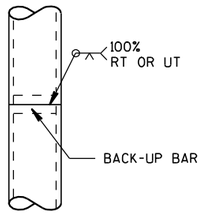
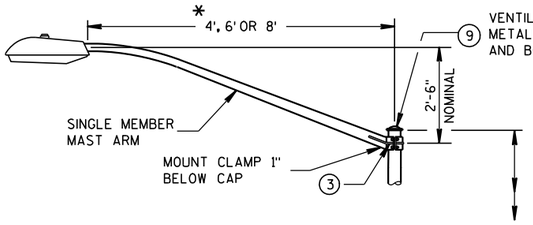
S.D.D. 9 D 1-4

FOR MANUFACTURERS USE ONLY

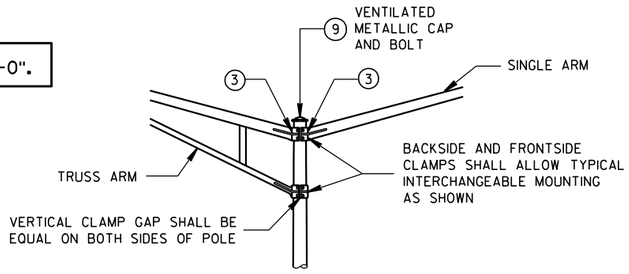
WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 1.5-88. RECORDS OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE OFFICE OF DESIGN/BRIDGE FOR VERIFICATION AND APPROVAL.

* RISE FOR 4' ARM SHALL BE 2'-0".





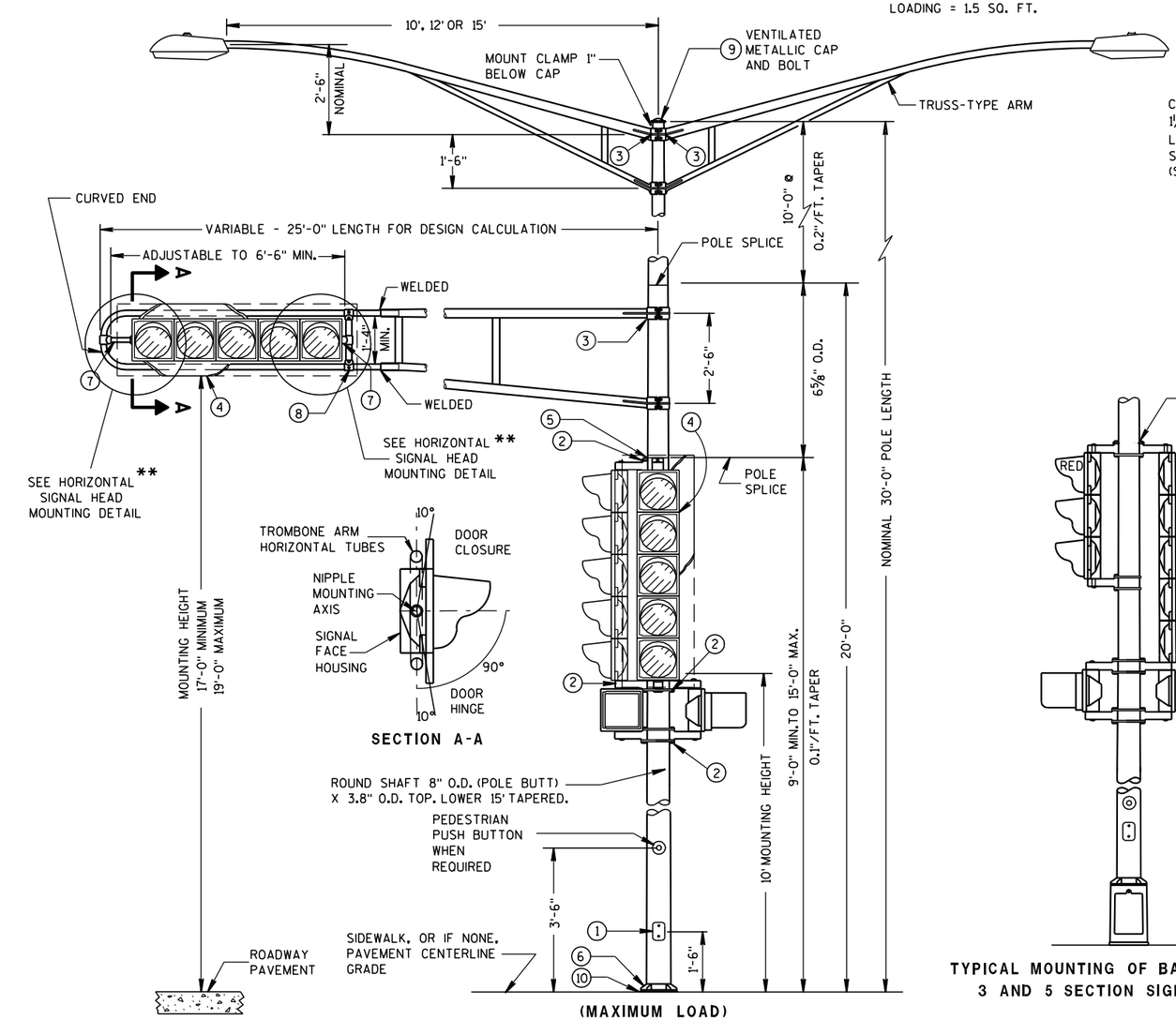
POLE SPLICE DETAIL

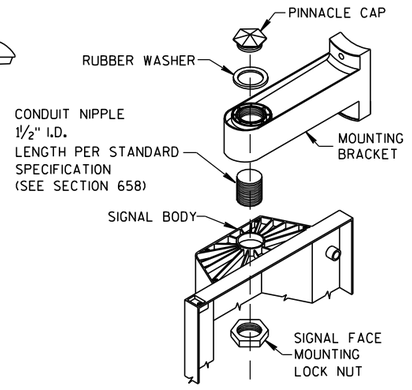


INTERCHANGEABLE MOUNTING DETAIL

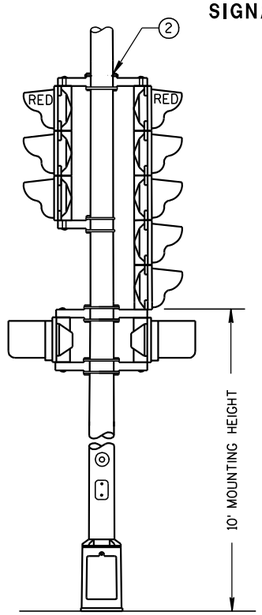
LUMINAIRE

WT. - 50 LBS.
EFFECTIVE PROJECTED AREA FOR WIND LOADING = 1.5 SQ. FT.

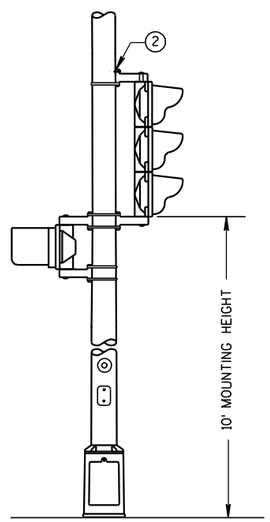




SIGNAL FACE MOUNTING DETAIL (BANDED)



TYPICAL MOUNTING OF BACK TO BACK 3 AND 5 SECTION SIGNAL FACES



TYPICAL MOUNTING OF 3 SECTION SIGNAL FACE

GENERAL NOTES

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

ALL TYPE 3 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL.

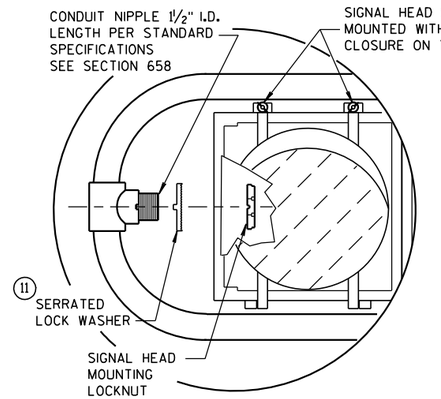
SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

A PULL WIRE/ROPE IN ACCORDANCE WITH STANDARD SPECIFICATION 652, SHALL BE INSTALLED IN EACH TROMBONE ARM RACEWAY DURING THE MANUFACTURING PROCESS.

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2⅜ INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

1. 4" X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) ¼" X ¾" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
2. SIGNAL FACE MOUNTING BRACKETS, MOUNT WITH CAP SCREWS AND BANDING. (SEE STANDARD SPECIFICATIONS - SEC. 658)
3. GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1⅜" HOLE IN POLE SHAFT FOR WIRING.
4. SECURELY MOUNT DULL BLACK POLYCARBONATE BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURER'S RECOMMENDATIONS.
5. POLE MOUNTED SIGNAL FACES SHALL REQUIRE 1 OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACE.
6. TYPE 3 POLE CONFIGURATIONS SHALL BE MOUNTED DIRECTLY TO THEIR CONCRETE BASES.
7. MOUNTING BRACKET NIPPLES FOR THE SIGNAL FACE(S) SHALL BE 2 INCHES IN LENGTH AND 1½ INCHES IN DIAMETER. (SEE STANDARD SPECIFICATION - SECTION 658)
8. VERTICAL STRUT (ADJUSTABLE). ONE (1) SET SCREW (1/4 " X ¾" -20 TPI, STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.
9. FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
10. SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND POLE.
11. USE SERRATED LOCK WASHERS WITH NOTCHES BETWEEN END TEE AND SIGNAL HEAD.



HORIZONTAL SIGNAL HEAD MOUNTING DETAIL **

** SIGNAL HEAD ATTACHMENT ALSO APPLYS TO MOUNTING AT CROSS BAR

TYPE 3 POLE MOUNTING CONFIGURATION

POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 3 (HEAVY DUTY)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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S.D.D. 9 E 1-11b

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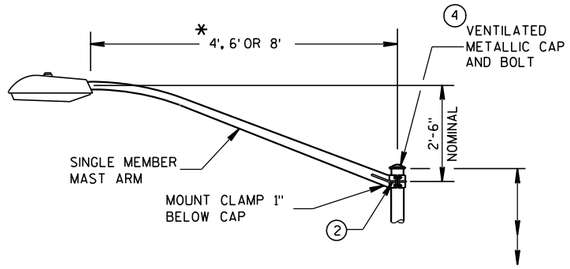
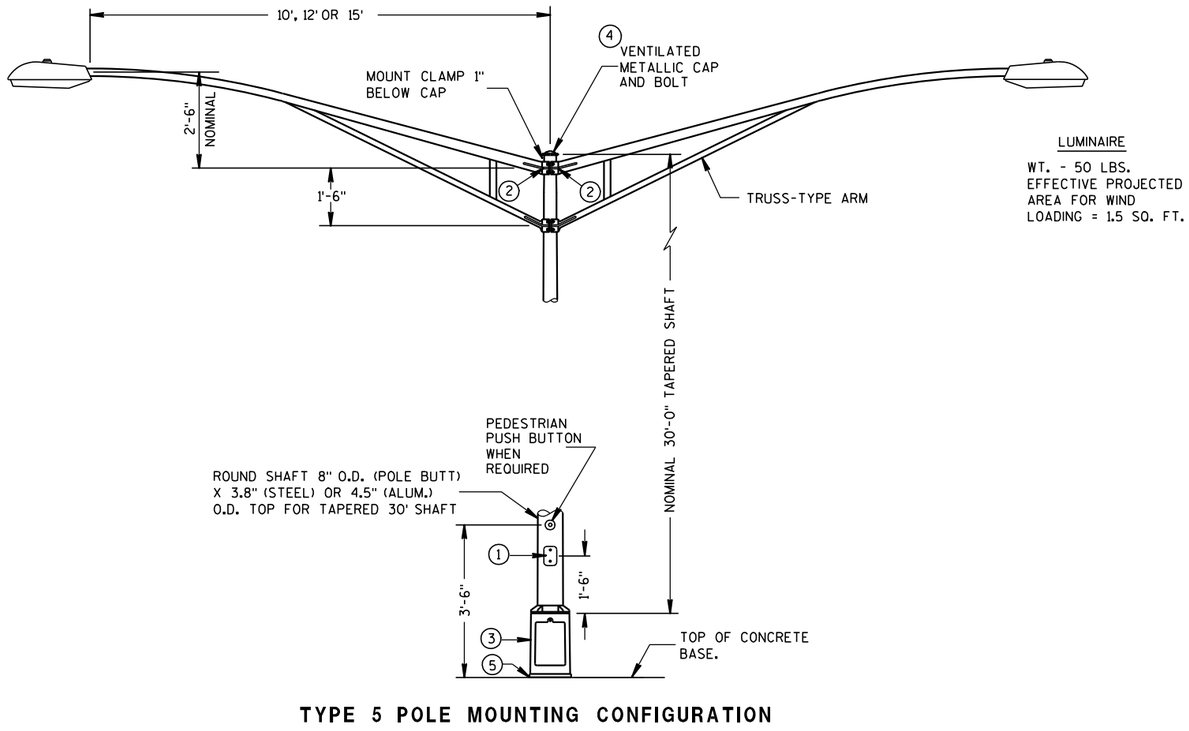
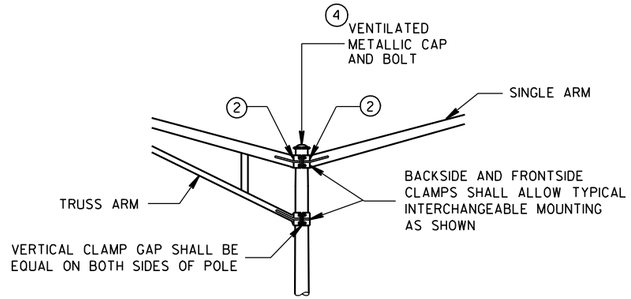
S.D.D. 9 E 1-11b

*RISE FOR 4' ARM SHALL BE 2'-0".





TYPE 5 POLE MOUNTING CONFIGURATION
(MAXIMUM LOAD)
LIGHTING ONLY



INTERCHANGEABLE MOUNTING DETAIL

GENERAL NOTES

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

ALL TYPE 5 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL OR ALUMINUM, AS CALLED FOR IN THE CONTRACT.

TYPE 5 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063-T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

THE TYPE 5 ALUMINUM POLES SHALL HAVE A MINIMUM WALL THICKNESS OF 0.188".

TYPE 5 STEEL POLES SHALL HAVE A MINIMUM WALL THICKNESS OF U.S. STANDARD 11 GAGE (.1196").

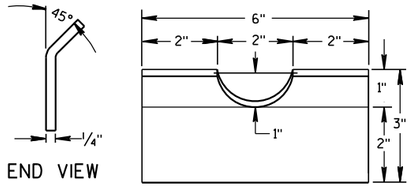
THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2⅜ INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONEECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

1. 4" x 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) ¼" X ¾" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
2. GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1⅜" HOLE IN POLE SHAFT FOR WIRING.
3. CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
4. FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
5. SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.

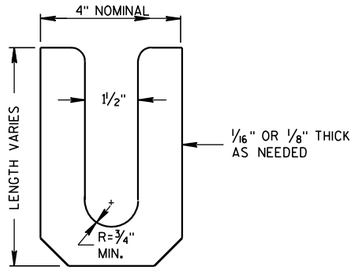
POLE MONTINGS FOR LIGHTING UNITS, TYPE 5 (30 FEET)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...



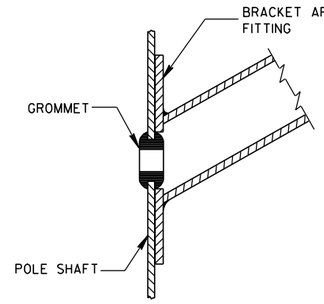
RECTANGULAR CLAMP SHIM

(4 TO A SET)

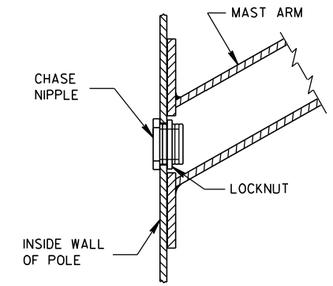


LEVELING SHIM (15)

SHALL BE ALUMINUM



TYPICAL APPLICATION OF GROMMET IN POLE SHAFT



TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT

GENERAL NOTES

CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

(10.) 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.

(11.) INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)

(12.) BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.

(13.) OUTSIDE SHIM DIAMETER - (4.5" O.D. FOR LUMINAIRE MAST ARM)
(6.625" O.D. FOR TROMBONE MAST ARM)

(14.) VARIABLE SHIM THICKNESS - (0.10", 0.25", 0.35", 0.53" OR 0.70")

SHIM THICKNESS FOR TROMBONE MAST ARMS MAY BE TYPICALLY 0.25", 0.35", 0.53" OR 0.70".

SHIM THICKNESS FOR LUMINAIRE MAST ARMS MAY BE TYPICALLY 0.10", 0.25" OR 0.35".

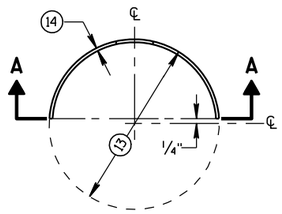
SHIM MATERIAL SHALL BE ALUMINUM ALLOY.

SHIM THICKNESS SHALL BE IMPRESSED INTO EACH SHIM. NUMERALS SHALL BE 1/4" HIGH AND LEGIBLE.

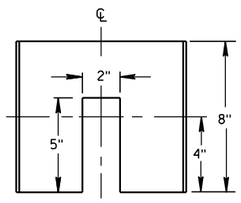
THE CONTRACTOR SHALL SUBMIT TWO COPIES OF ALL SHIM SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.

(15.) LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE CONCRETE BASE AND A METALLIC BASE PLATE.

SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



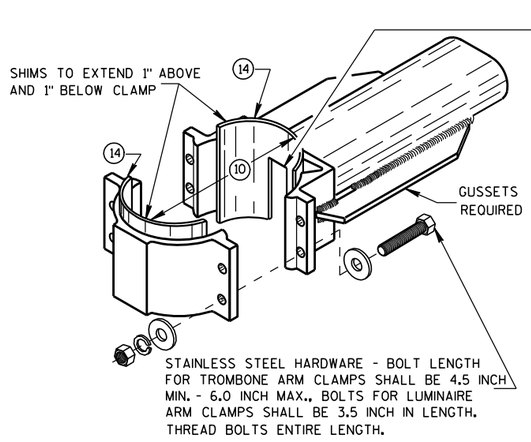
PLAN VIEW



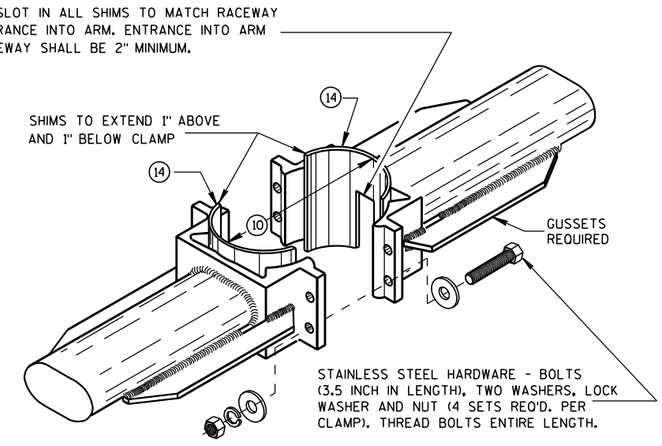
SECTION A-A

CIRCULAR CLAMP SHIM

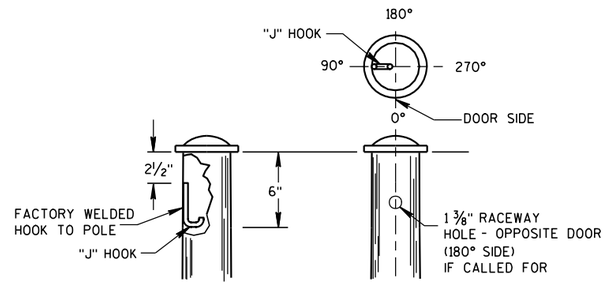
(2 TO A SET)



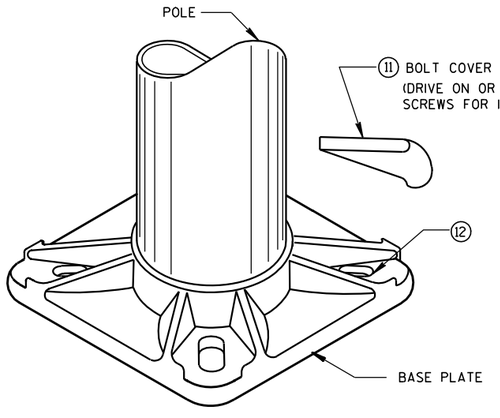
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



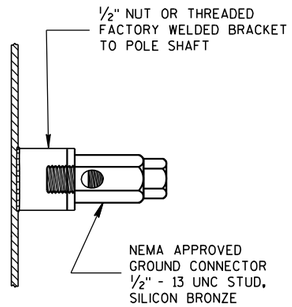
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS

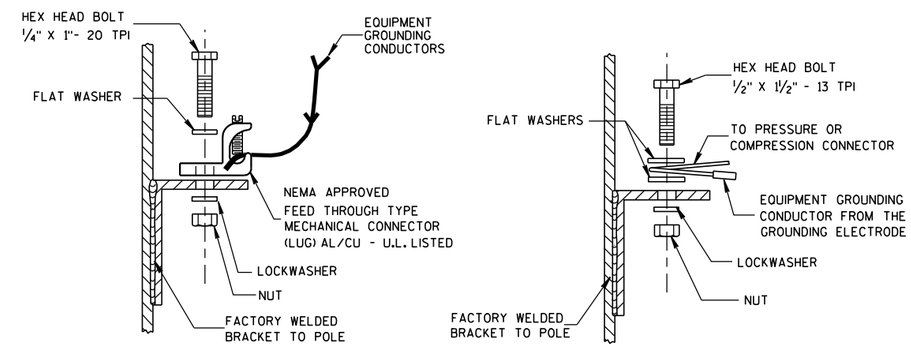


TYPICAL "J" HOOK LOCATION



BASE PLATE





TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

HARDWARE DETAILS FOR POLE MOUNTINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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3/2/11 — DATE
/S/ Thomas J. Gosling — STATE ELECTRICAL ENGI
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HWYS
FHWA

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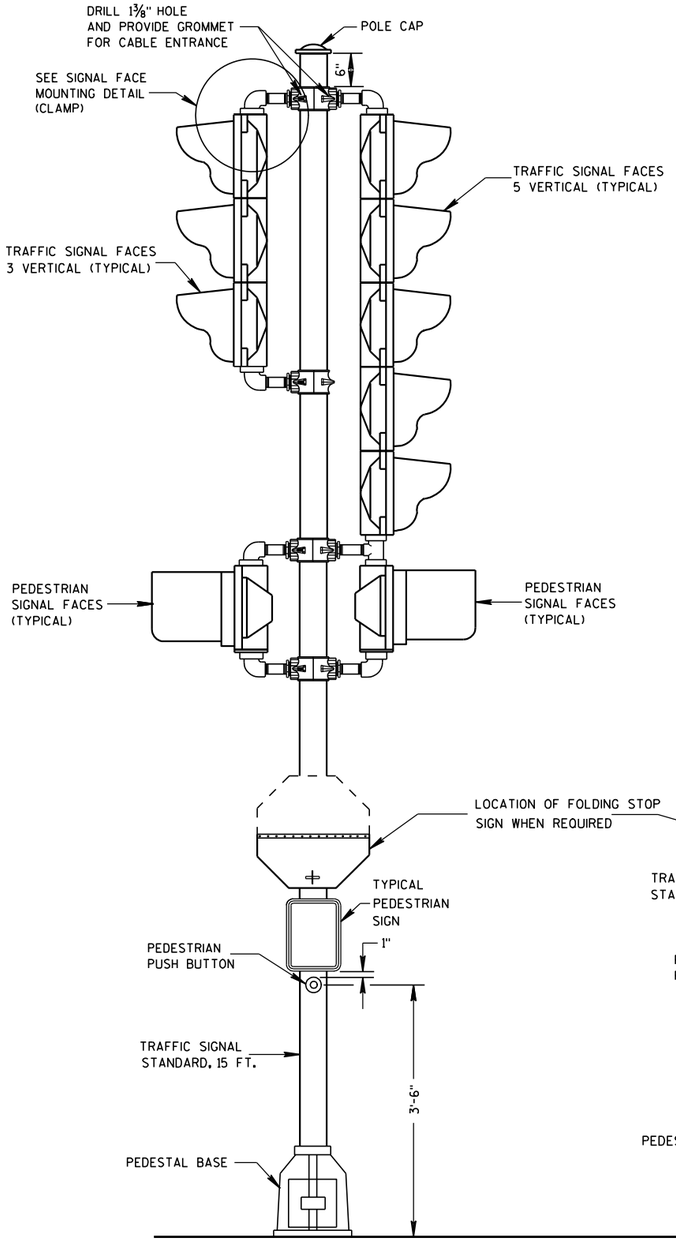
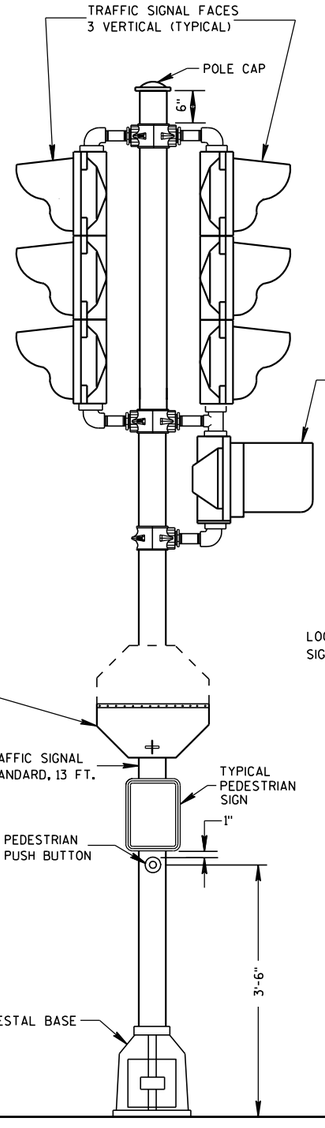
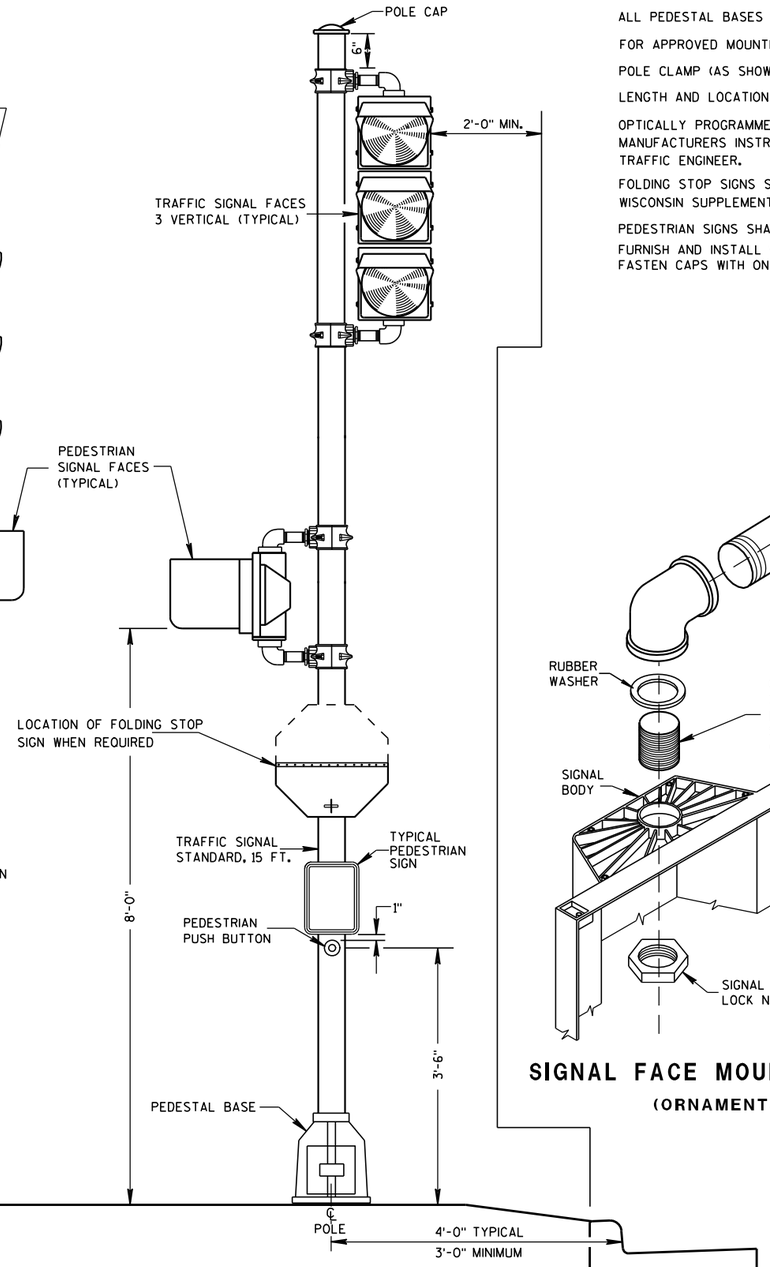
S.D.D. 9 E 1-11g



TRAFFIC SIGNAL STANDARD-15 FT.



TRAFFIC SIGNAL STANDARD-13 FT.



TRAFFIC SIGNAL STANDARD-15 FT.
3M MOUNTING (TYPICAL)

GENERAL NOTES

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

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

POLE CLAMP (AS SHOWN) MOUNTING BRACKETS SHALL BE USED.

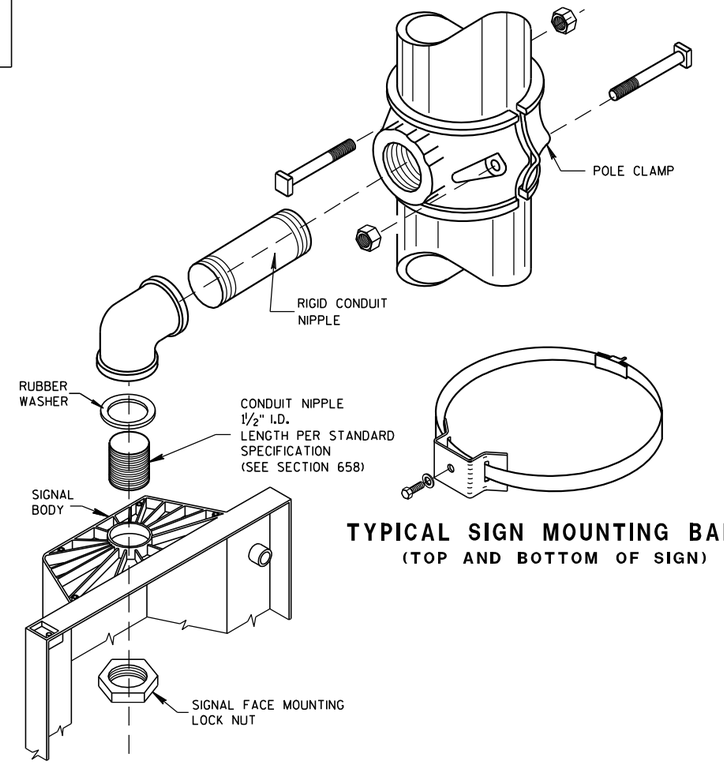
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE DISTRICT TRAFFIC ENGINEER.

FOLDING STOP SIGNS SHALL BE IN ACCORDANCE WITH THE MUTCD AND/OR THE LATEST WISCONSIN SUPPLEMENT. THE SIGNS SHALL BE SIZED AND LOCATED AS CALLED FOR IN THE PLANS.

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



SIGNAL FACE MOUNTING DETAIL
(ORNAMENTAL)

TYPICAL SIGN MOUNTING BAND
(TOP AND BOTTOM OF SIGN)

TRAFFIC SIGNAL STANDARD
ORNAMENTAL BRACKET MOUNTINGS
TYPICAL FOR 13 FT. OR 15 FT.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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5/11/10
DATE
/S/ John Corbin
STATE ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA

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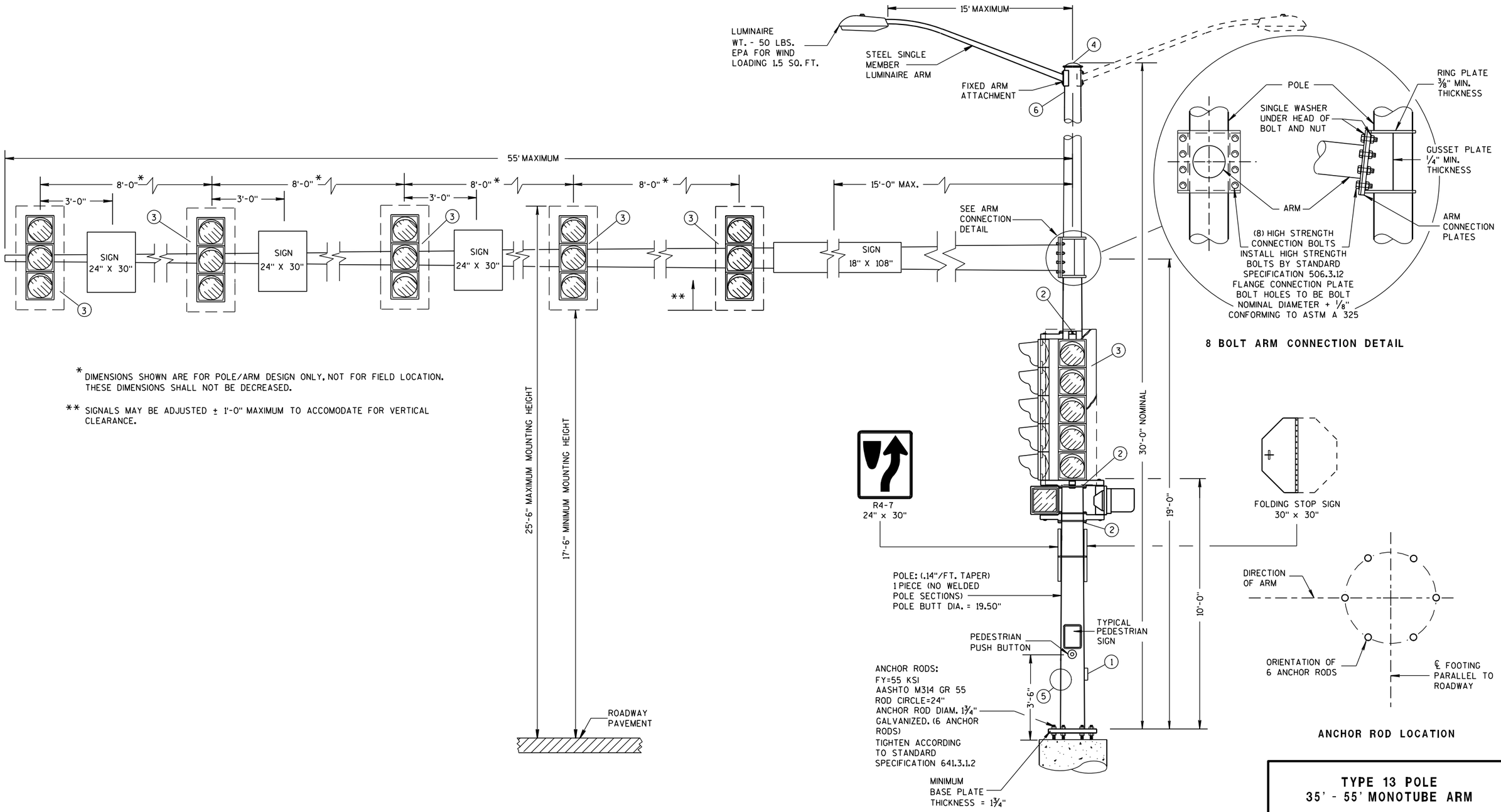

* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

** SIGNALS MAY BE ADJUSTED ± 1'-0" MAXIMUM TO ACCOMODATE FOR VERTICAL CLEARANCE.

(MAXIMUM LOAD)

TYPE 13 POLE 35'- 55' MONOTUBE ARM

8 BOLT ARM CONNECTION DETAIL

ANCHOR ROD LOCATION

TYPE 13 POLE
35' - 55' MONOTUBE ARM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 — DATE

/S/ Thomas J. Corrigan — STATE ELECTRICAL ENGI

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GENERAL NOTES

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

POLE TYPES 9 AND 10 ARE FOR ARM LENGTHS 15-FOOT TO 30-FOOT.

POLE TYPES 12 AND 13 ARE FOR ARM LENGTHS 35-FOOT TO 55-FOOT.

MONOTUBE POLE AND ARM SHALL BE GALVANIZED STEEL.

RING-STIFFENED BUILT-UP BOX TYPE OF ATTACHMENT FOR TRAFFIC SIGNAL ARM.

ONE (1) PIECE POLE CONSTRUCTION (NO WELDED POLE SECTIONS).

STANDARD STRAIGHT ARM DESIGN (3 % ± RISE).

SECTION 657, POLES OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

PROVIDE WIREWAY THRU POLE WALL AND ARM CONNECTION PLATES. PROVIDE ROUND, SMOOTH INSIDE SURFACE.

MANUFACTURER'S SUBMITTED POLE DESIGNS AND DRAWINGS SHALL BE SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED AS BEING IN COMPLIANCE WITH THE LATEST AASHTO AND ALL PERTINENT WISDOT SPECIFICATIONS AND DRAWINGS FOR TRAFFIC AND LIGHTING STRUCTURES AND AS FOLLOWS:

- CATEGORY III FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 AND TYPE 10 STRUCTURES.
- CATEGORY II FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 12 AND TYPE 13 STRUCTURES.
- 90 MPH (3-SECOND GUST) WIND SPEED AND A 50 YEAR DESIGN LIFE.

SECURE THE OPENING BELOW THE BASE PLATE WITH STAINLESS STEEL OR GALVANIZED STEEL MESH AND SECURE THE MESH WITH ¾" S.S. BANDING AROUND THE LEVELING NUTS.

INDENT PRINT (NOMINAL ½" HIGH) THE POLE LENGTH AND FIRST TWO LETTERS OF THE MANUFACTURERS NAME ON TWO SIDES OF THE BASE PLATE 180 DEGREES APART, BEFORE GALVANIZING. THE ARM SHALL BE IDENTIFIED WITH THE SAME INFORMATION BY INDENT PRINT.

SIGNAL FACE SHALL BE MOUNTED 6 INCHES (NOMINAL) FROM THE END OF THE MONOTUBE ARM OR AS SHOWN ON THE PLAN CONSTRUCTION DETAIL OR AS DIRECTED BY THE PROJECT ENGINEER/ELECTRICAL OPERATIONS PERSONNEL. MOUNT ALL LIKE HEADS AT SAME ELEVATION.

SIGN MOUNTING BRACKETS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 637 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

(1) DESIGN FOR MAXIMUM ALLOWABLE HANDHOLE WITH COVER ASSEMBLY WITH TWO ¼" X ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLTS.

(2) SIGNAL MOUNTING BRACKETS FOR POLE MOUNTING, MOUNT WITH CAP SCREW AND BANDING, (SEE SPECIFICATIONS SEC. 658).

(3) SECURELY MOUNT BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURERS RECOMMENDATIONS.

(4) THE TOP OF THE POLE SHAFT AND THE END OF THE MONOTUBE ARM SHALL BE EQUIPPED WITH A REMOVABLE, VENTILATED CAP HELD SECURELY IN PLACE WITH SET SCREWS.

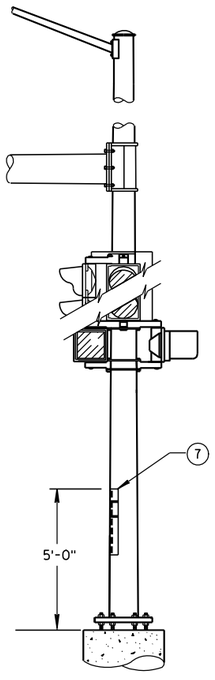
(5) FACTORY-WELDED BRACKET FOR GROUNDING LUG, OPPOSITE HANDHOLE, (LUG AND HARDWARE PAID UNDER SEPARATE ITEM). PROVIDE HOLE IN BRACKET FOR ¼" X ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLT.

(6) FACTORY-WELDED "J" HOOK FOR STRAIN RELIEF FOR POLE LUMINAIRE WIRE.

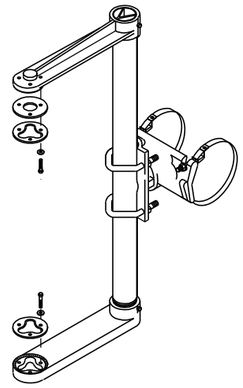
(7) INSTALL DEPARTMENT PROVIDED STRUCTURAL IDENTIFICATION PLAQUES.

STRUCTURAL IDENTIFICATION PLAQUES SHALL BE PLACED ON THE POLES IN THE SAME DIRECTION AS THE ARM.

MOUNTING HEIGHT SHALL BE 5'-0" ABOVE THE CURB OR SHOULDER . ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

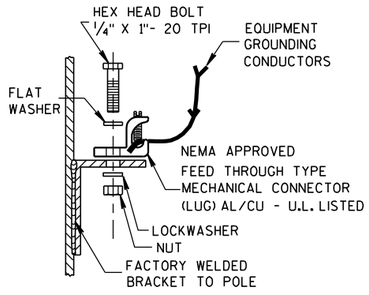


STRUCTURAL IDENTIFICATION PLAQUE PLACEMENT



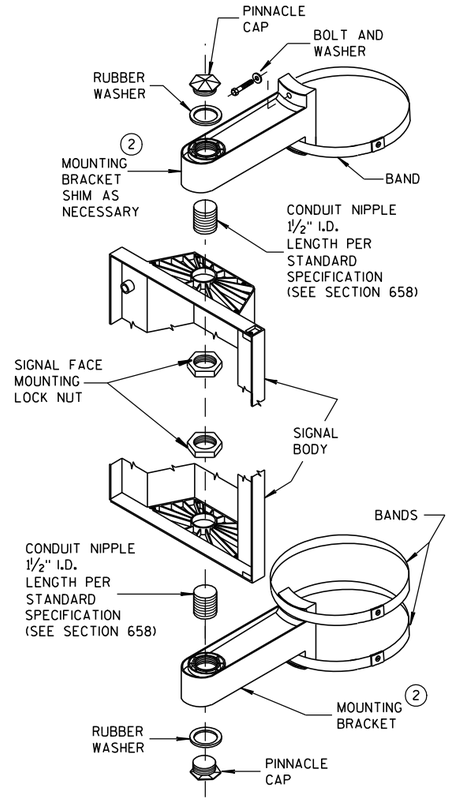
SIGNAL FACE MOUNTING BRACKET DETAIL FOR MONOTUBE ARM

(MOUNT PER MANUFACTURER'S RECOMMENDATION)

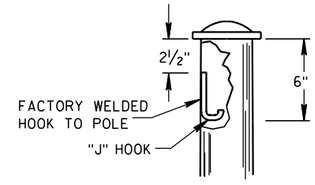


TYPICAL GROUNDING CONNECTIONS (5)

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



SIGNAL FACE VERTICAL MOUNTING DETAIL



"J" HOOK WIRE SUPPORT (6)

GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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3/2/2011 DATE — /S/ Thomas J. Corrigan STATE ELECTRICAL ENGI — HWYS

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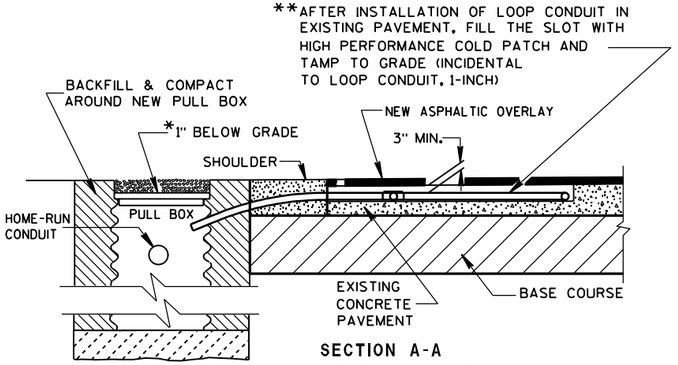
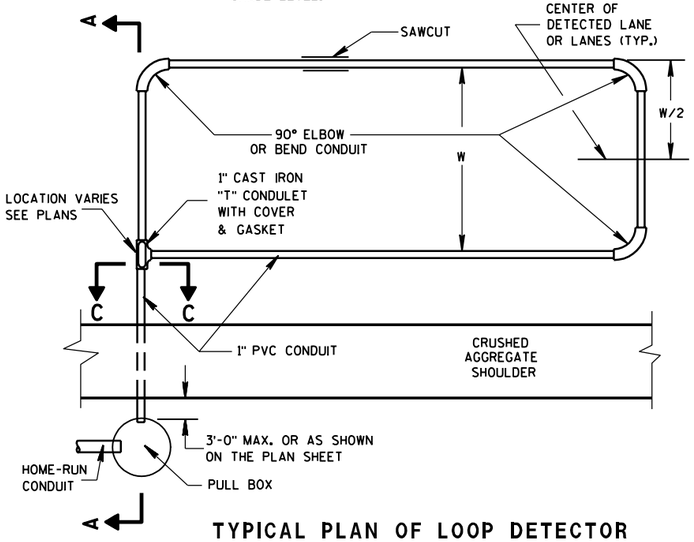


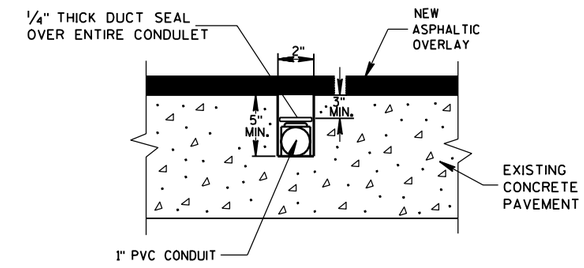
SECTION A-A
NO CURB & GUTTER

LOOP DETECTOR INSTALLATION DETAIL

*RECESS PULL BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.



TYPICAL PLAN OF LOOP DETECTOR



SIDE VIEW
SECTION C-C

LOOP DETECTOR SLOT DETAIL

GENERAL NOTES

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

LOOP SIZE, LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS SUCH AS 3M TYPE 82A1 OR APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

MEASURE GROUND RESISTANCE USING A MEGGER. REPLACE LOOP WIRE NOT ATTAINING A READING OF INFINITY TO GROUND.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READINGS TO THE PROJECT ENGINEER FOR EVALUATION.

IN THE EVENT EPOXY IS USED AS A LOOP SLOT FILLER, THE SLOT SHALL BE TOTALLY CLEAN AND DRY BEFORE ITS INSTALLATION.

BEFORE PLACING THE 1 INCH CONDUIT IN THE CLEANED OUT SLOT, PLACE SOME OF THE TAR OR EPOXY SEALANT IN THE SLOT TO A DEPTH OF APPROXIMATELY 1/2 INCH.

ONCE THE 2" LOOP SLOT HAS BEEN CHIPPED OUT, THE LOOP INSTALLATION SHALL BE COMPLETED PRIOR TO OPENING THE LANE(S) TO TRAFFIC.

ANTI-SIEZE LUBRICATING MATERIAL SHALL BE USED ON ALL THREADS OF THREADED ASSEMBLIES BEFORE INSTALLATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

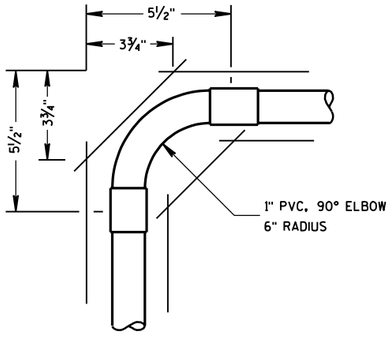
THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL BOX, THROUGH THE LOOP CONDUIT BACK TO THE ROADSIDE PULL BOX, AND BE INSTALLED IN ONE, NON-SPLICED, CONTINUOUS LENGTH.

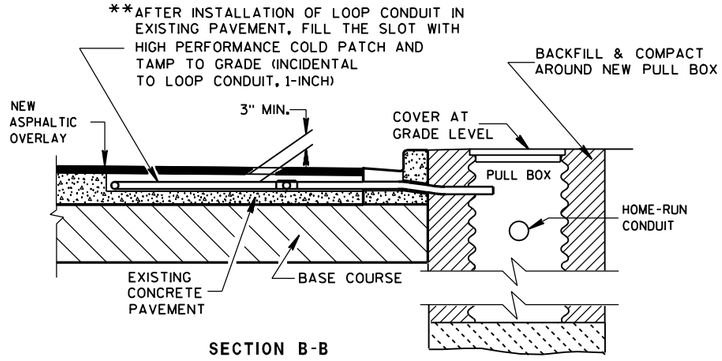
DRIVE A 1 1/2" MAX. PK NAIL INTO THE NEW ASPHALTIC OVERLAY AND ON TOP OF THE CONDULET AFTER THE NEW ASPHALTIC OVERLAY IS INSTALLED, IF REQUESTED BY THE DISTRICT TRAFFIC SECTION.

** AFTER THE HIGH PERFORMANCE COLD PATCH HAS BEEN TAMPED, SEAL THE SLOT/HIGH PERFORMANCE COLD PATCH/ PAVEMENT OPENING WITH HOT POURED ELASTIC TYPE MATERIAL CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATION FOR JOINT SEALANTS, HOT POURED, FOR CONCRETE AND ASPHALT PAVEMENTS, ASTM DESIGNATION: D3405".



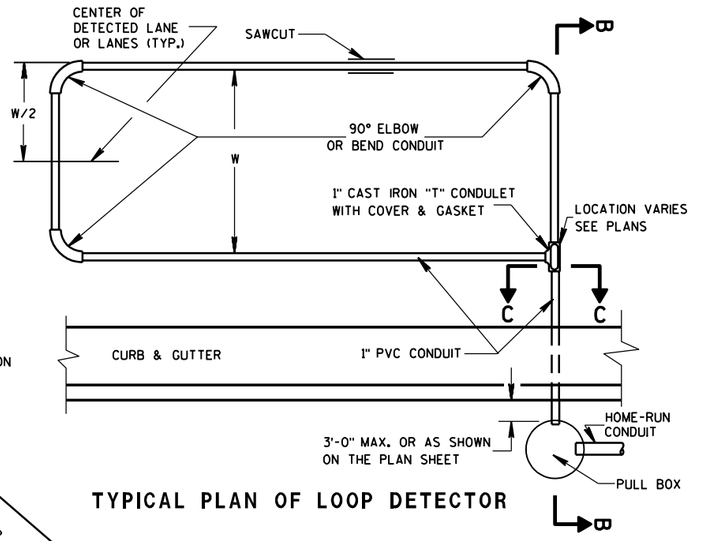
TOP VIEW

CORNER SAW SLOT DETAIL

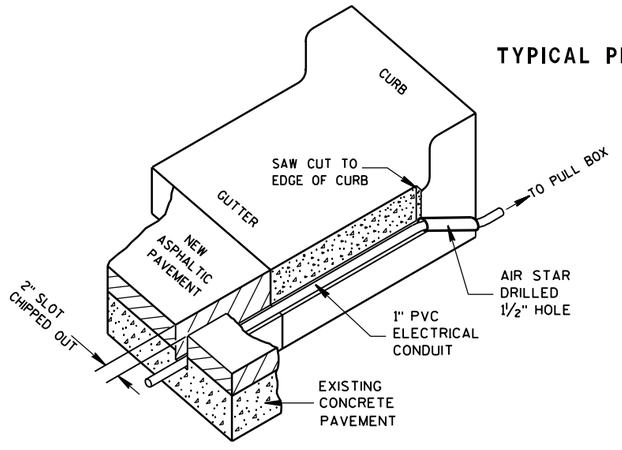


SECTION B-B
CURB & GUTTER

LOOP DETECTOR INSTALLATION DETAIL



TYPICAL PLAN OF LOOP DETECTOR



ISOMETRIC VIEW

TYPICAL SAW CUT DETAIL FOR LEAD-IN CONDUIT

LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT WITH NEW ASPHALTIC OVERLAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/7/06
DATE

/S/ Balu Ananthanarayanan
STATE ELECTRICAL ENGINEER FOR HIGHWAYS

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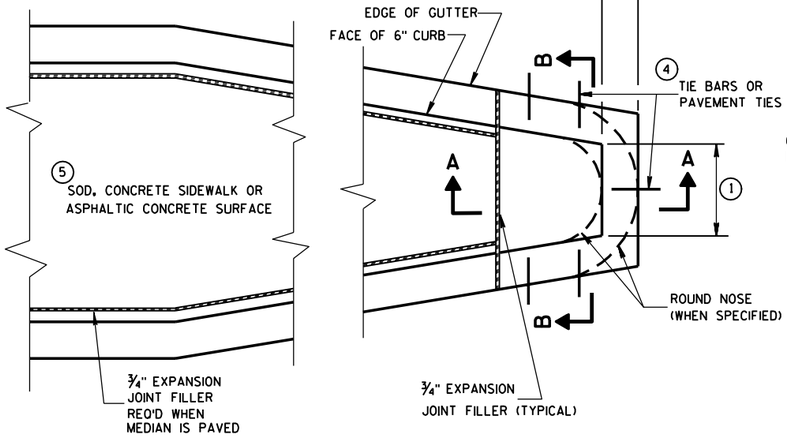
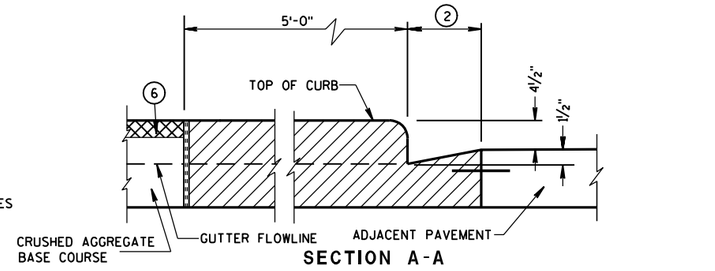
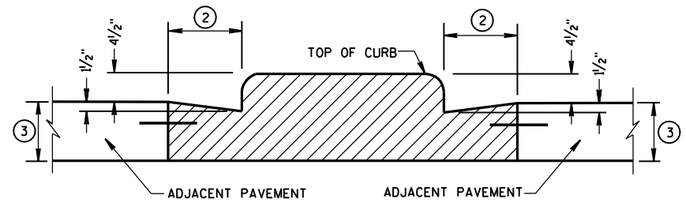




SECTION A-A



SECTION B-B

CONCRETE MEDIAN BLUNT NOSE DETAIL

GENERAL NOTES

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

(1) SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).

(2) WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.

(3) DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:

(1) NEW OR EXISTING CONCRETE PAVEMENT.

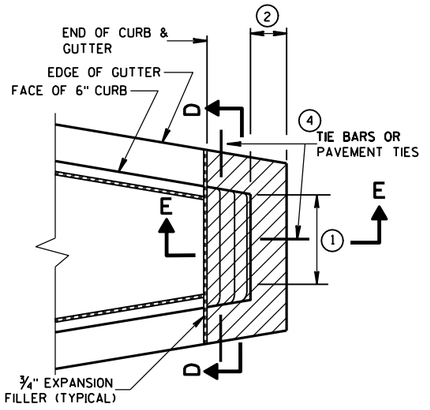
(2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.

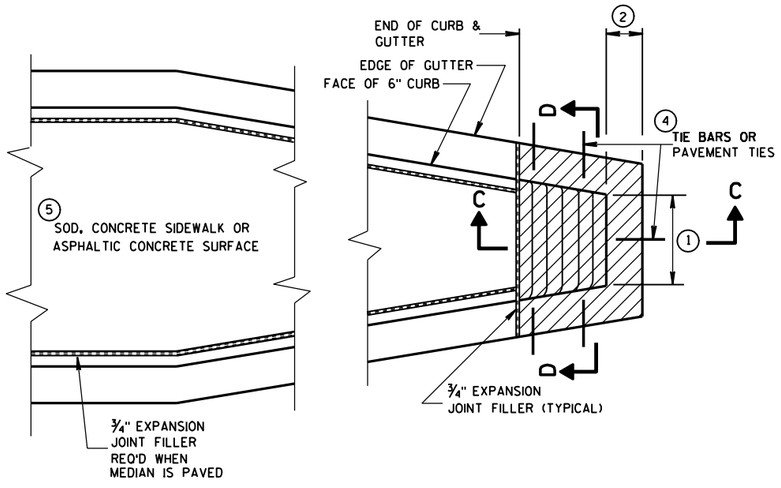
(3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

(4) 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.

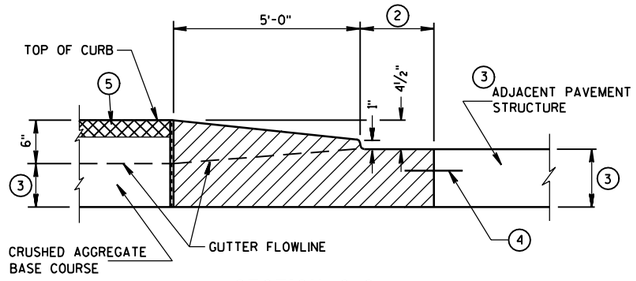
PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

(5) SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

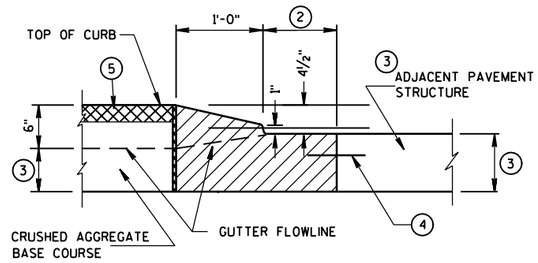




CONCRETE MEDIAN SLOPED NOSE TYPE 1

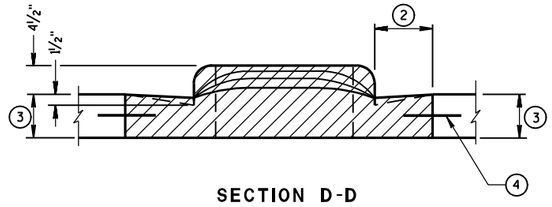


SECTION C-C



SECTION E-E

CONCRETE MEDIAN SLOPED NOSE TYPE 2



SECTION D-D

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

6

S.D.D. 11B 2-2

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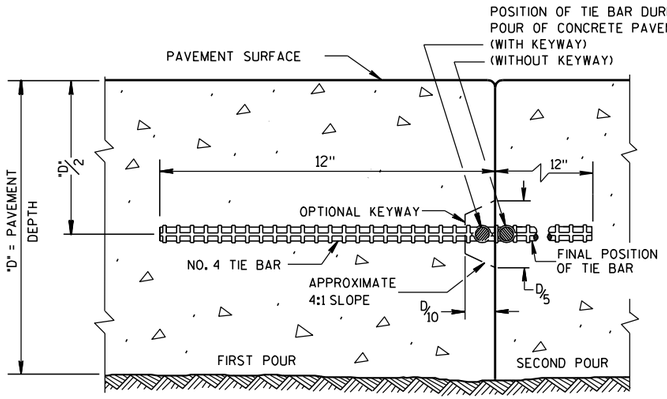
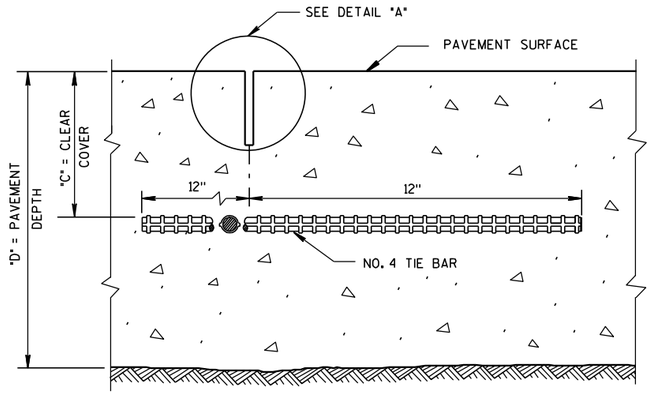
S.D.D. 11B 2-2



CONSTRUCTION JOINT



SAWED JOINT

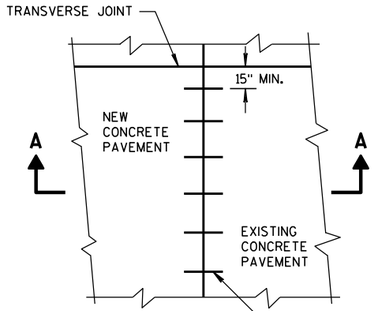
GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

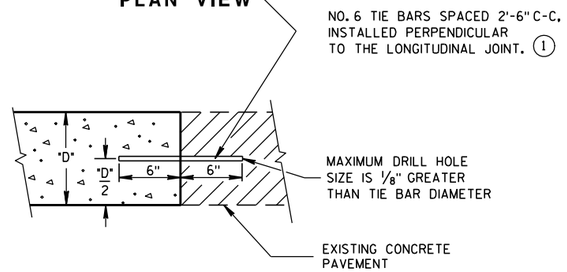
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

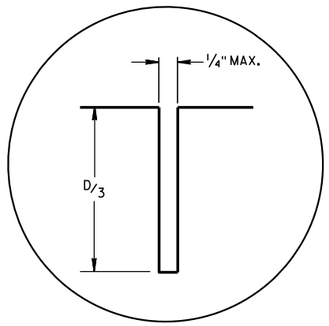
(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



PLAN VIEW

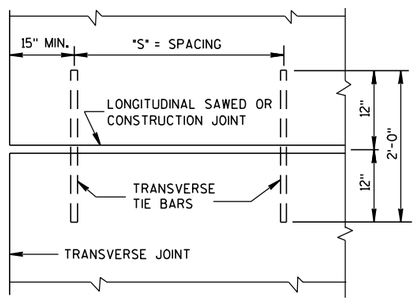


SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT



DETAIL "A"

PAVEMENT DEPTH "D"	CLEAR COVER "C"	MAXIMUM TIE BAR SPACING "S"	
		PAVEMENT WIDTH	
		24' OR 26'	≥ 30'
6, 6 ½"	3"±½"	48"	42"
7, 7 ½"	3 ¼"±1"	45"	36"
8, 8 ½"	3 ¾"±1"	39"	30"
9, 9 ½"	4 ¼"±1"	33"	27"
10, 10 ½"	4 ¾"±1"	30"	24"
11, 11 ½"	5 ¼"±1"	27"	21"
12"	5 ¾"±1"	24"	21"



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10-5-2010 — DATE

/S/ Deb Bischoff — PAVEMENT POLICY & DESIGN ENGINEER

FHWA

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S.D.D. 13 C 1-15

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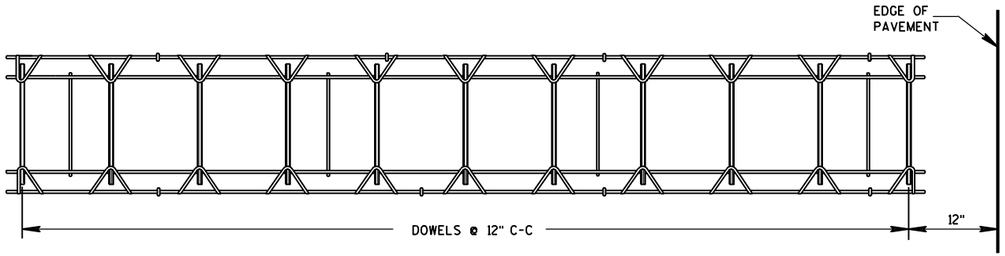
S.D.D. 13 C 1-15



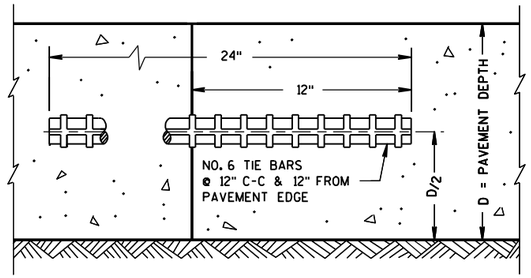
PLAN VIEW

SIDE VIEW

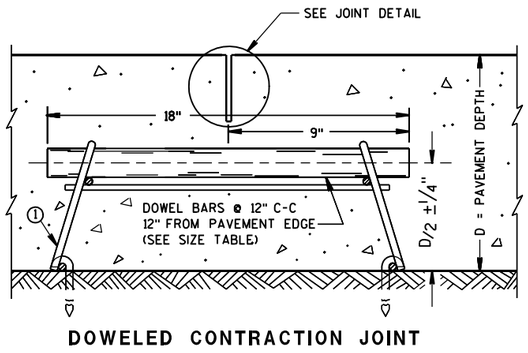
CONTRACTION JOINT DOWEL ASSEMBLY ①

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

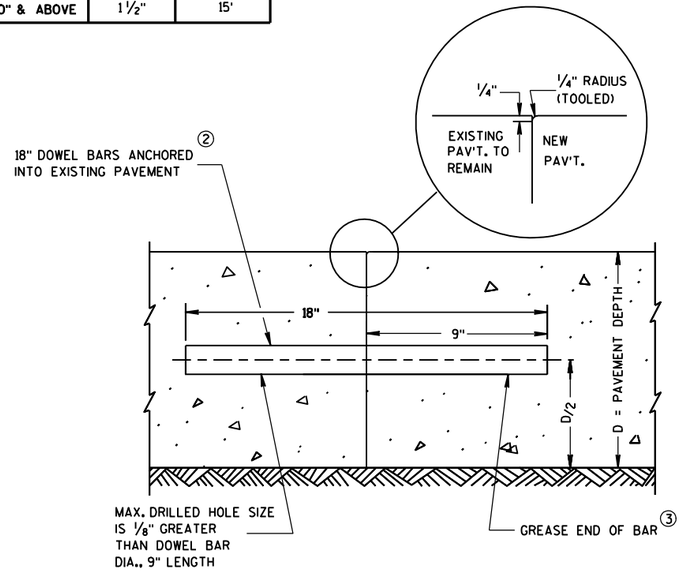
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



TRANSVERSE CONSTRUCTION JOINT

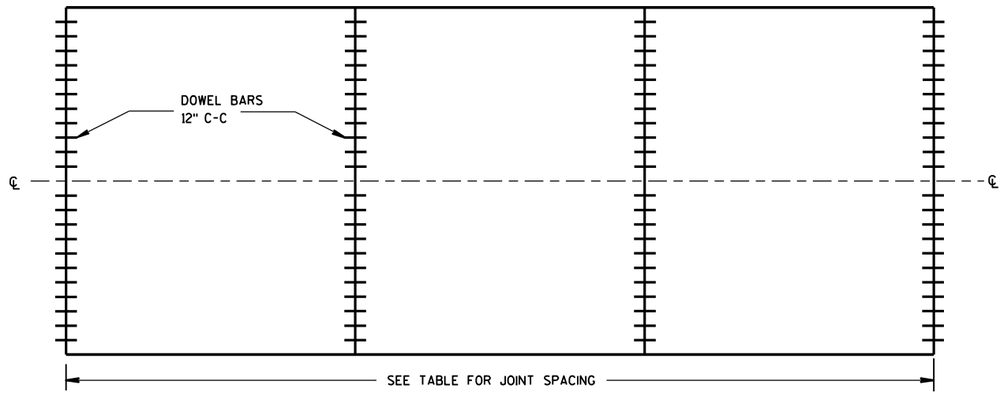


DOWELED CONTRACTION JOINT



TRANSVERSE CONTRACTION JOINTS ABUTTING EXISTING PAVEMENT

④ DOWEL BAR DETAIL



CONTRACTION JOINT LOCATIONS

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 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.

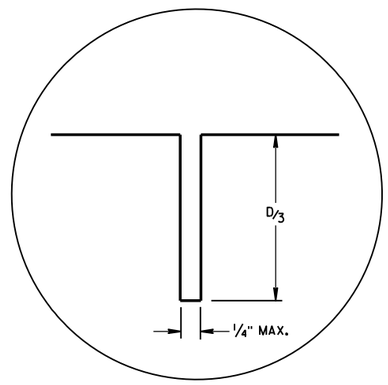
② ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY.

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.



JOINT DETAIL

URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/11/2009 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & DESIGN ENGINEER
FHWA

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S.D.D. 13 C 13-7

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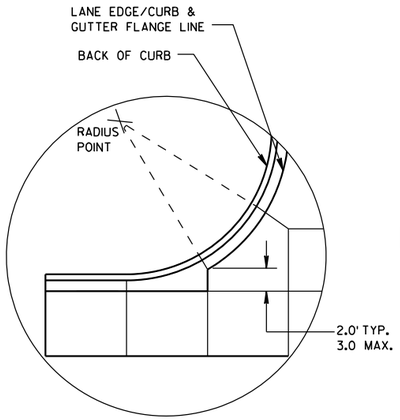
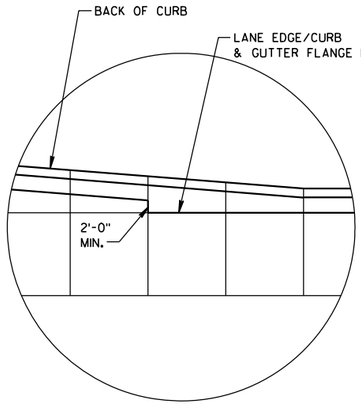
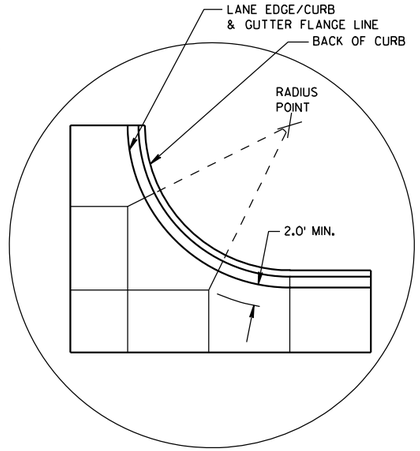
S.D.D. 13 C 13-7



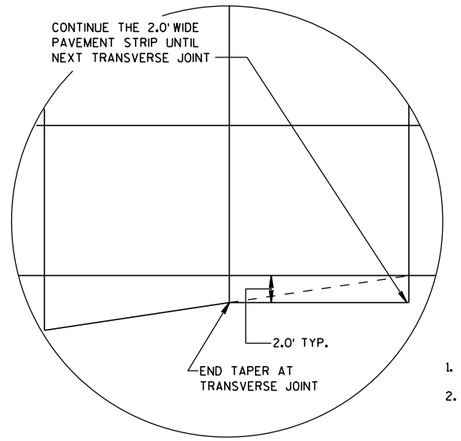
DETAIL "A"



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.

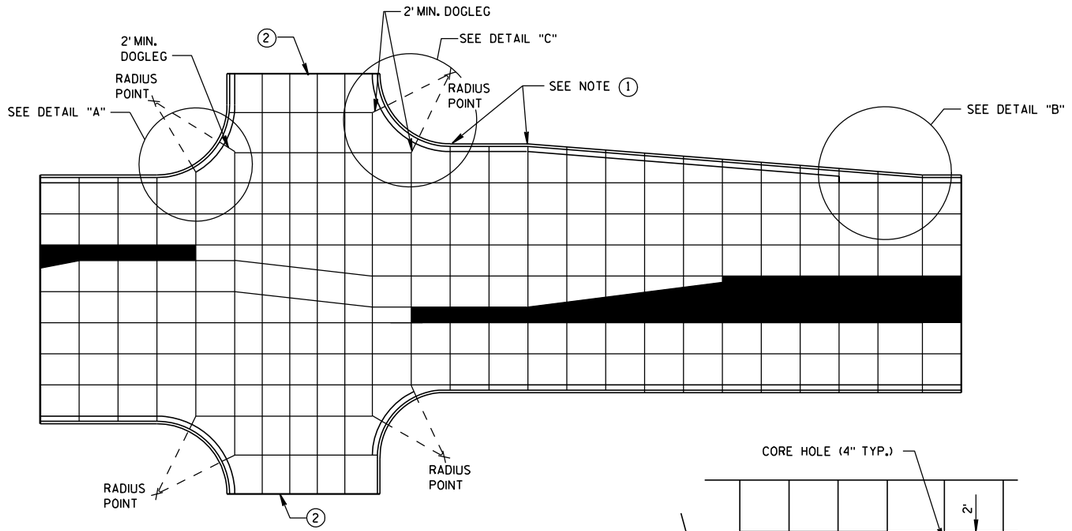
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

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.

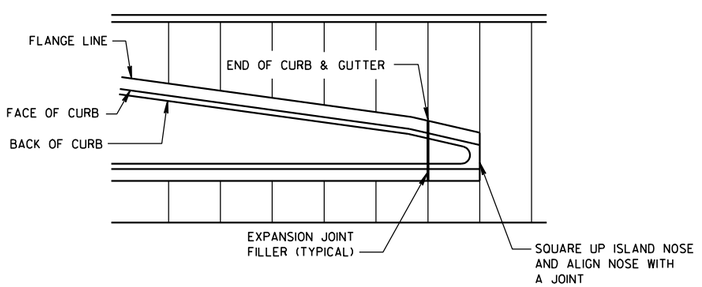
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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



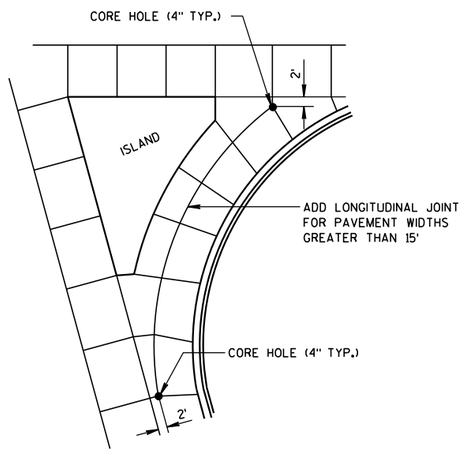
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

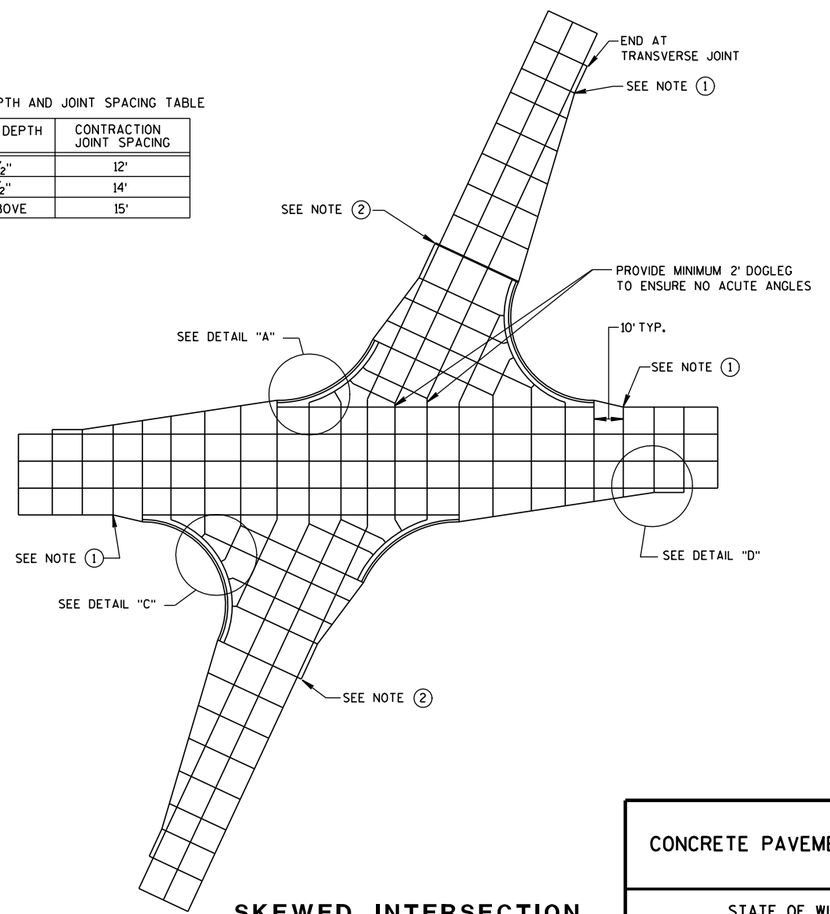
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'



APPROACH TO MEDIAN



LARGE RIGHT TURN



SKEWED INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

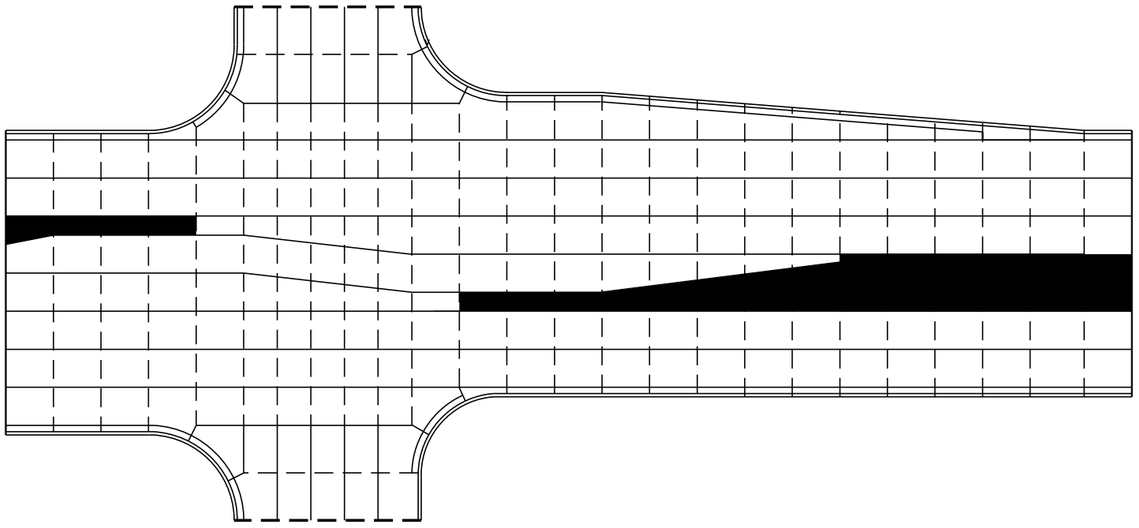
S.D.D. 13C18-1a

LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

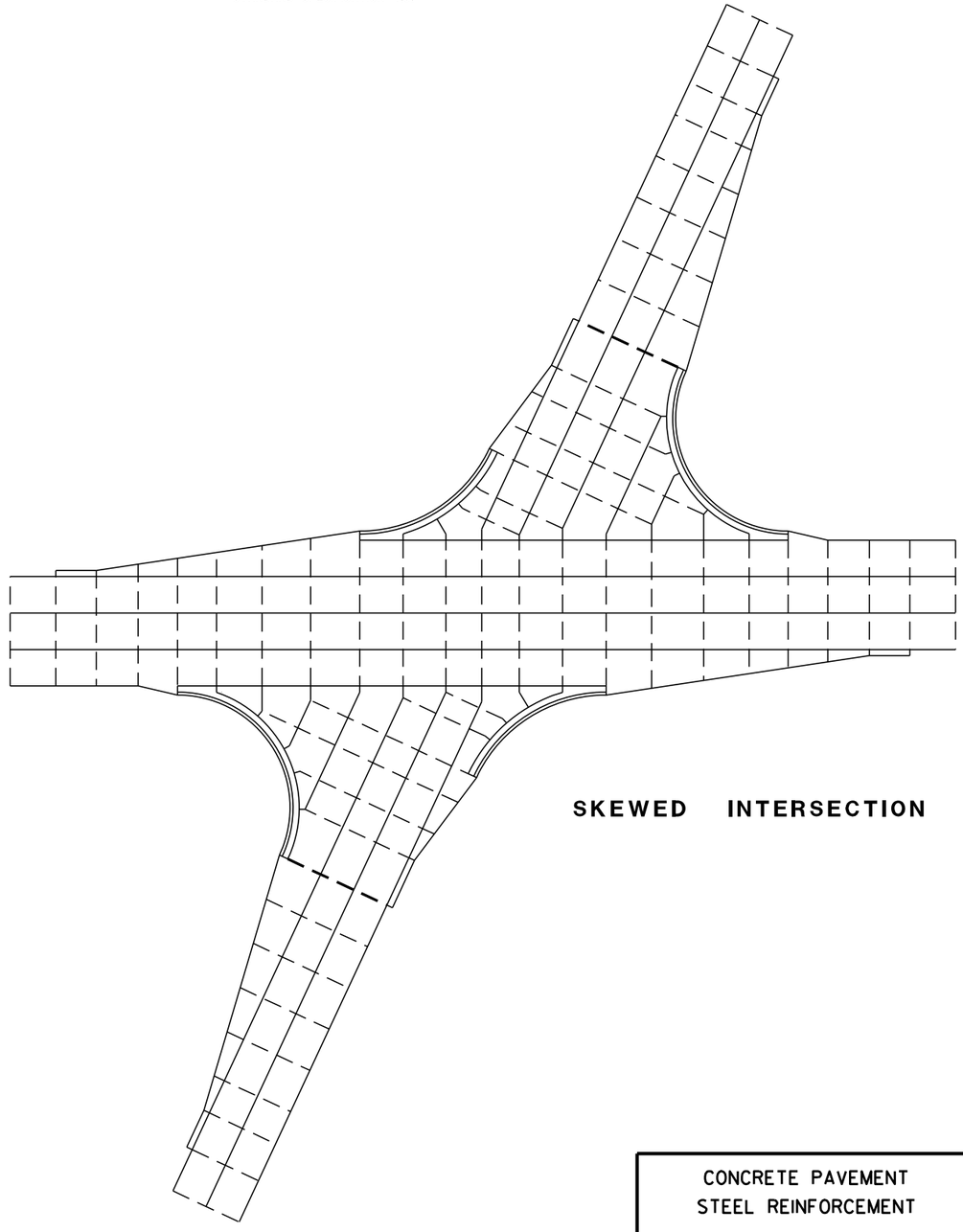
TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

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



SKEWED INTERSECTION

6

S.D.D. 13C18-1b

CONCRETE PAVEMENT
STEEL REINFORCEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIO

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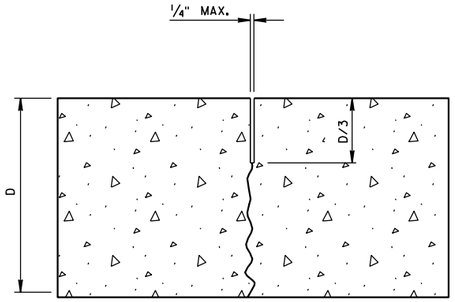
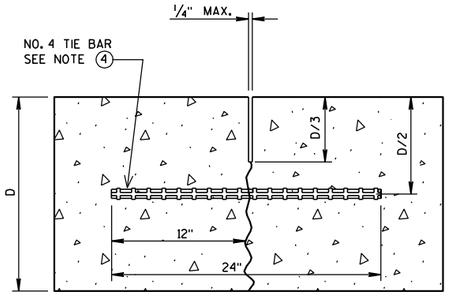
S.D.D. 13C18-1b



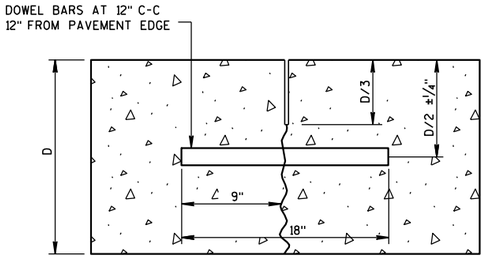
UNDOWELED-TRANSVERSE



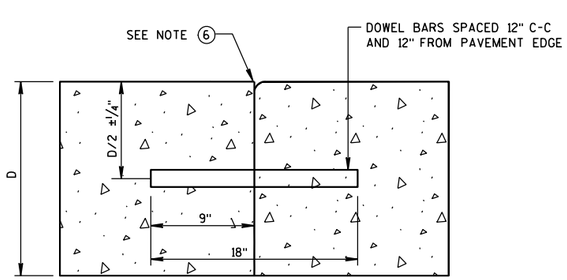
TIED LONGITUDINAL

GENERAL NOTES

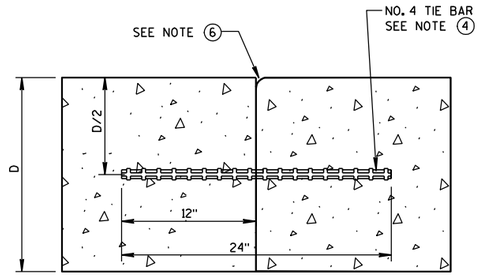
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 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.



DOWELED-TRANSVERSE



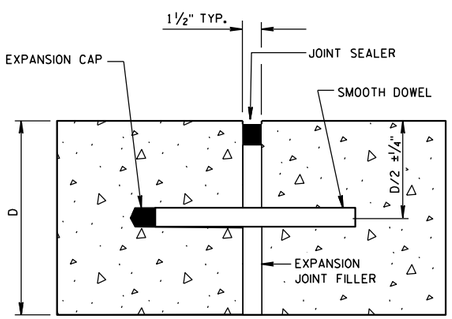
DOWELED TRANSVERSE



TIED LONGITUDINAL

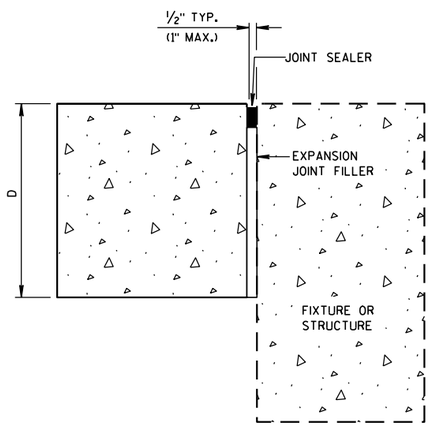
CONTRACTION JOINTS

SEE NOTE (2)

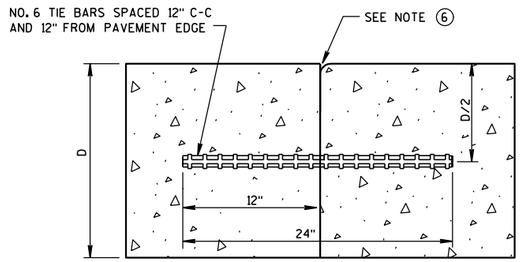


DOWELED-TRANSVERSE

SEE NOTE (1)

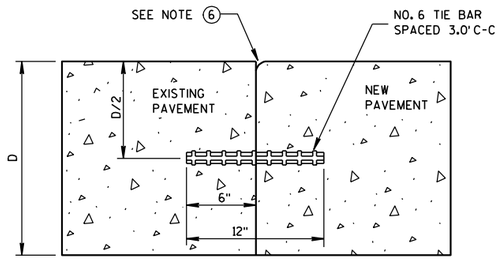


UNTIED-LONGITUDINAL



TIED TRANSVERSE

SEE NOTE (3)



TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

SEE NOTE (5)

EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 13 C 18-1c

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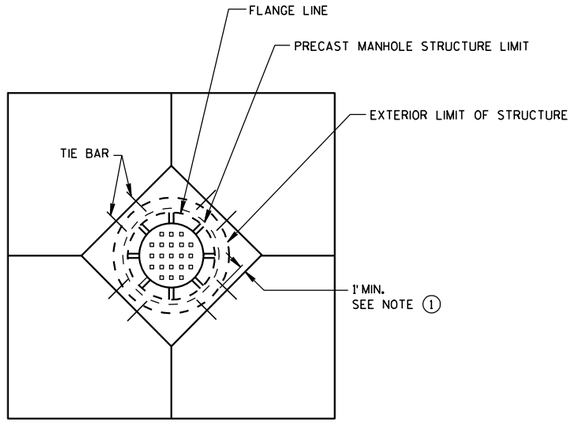
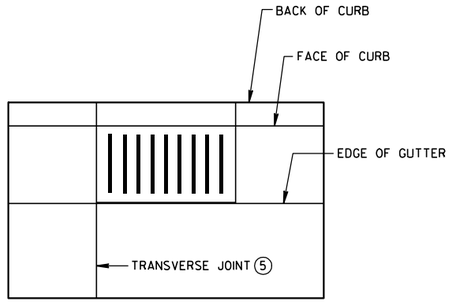
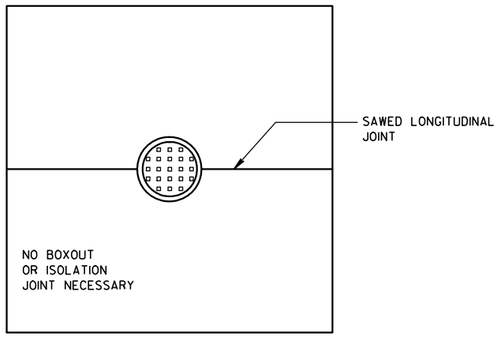
S.D.D. 13 C 18-1c



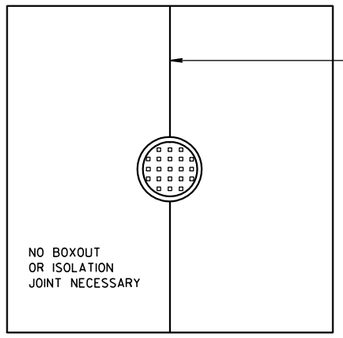
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



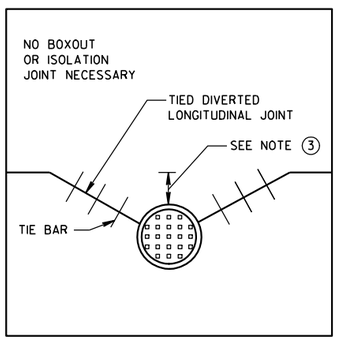
INLET WITH TRANSVERSE JOINT



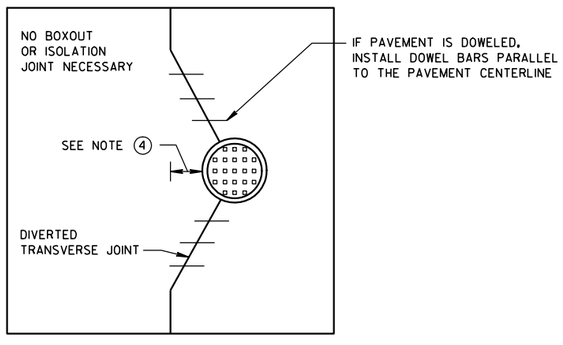
MANHOLE WITH LONGITUDINAL JOINT



MANHOLE WITH TRANSVERSE JOINT



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION 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.

6

S.D.D. 13C18-1d

CONCRETE PAVEMENT
JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

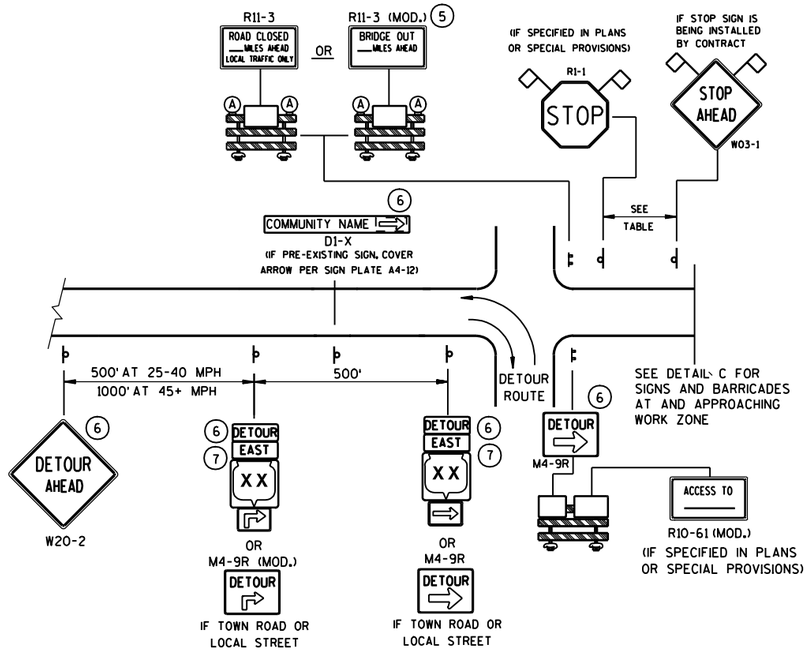
APPROVED
10-5-2010
DATE

/S/ Deb Bischoff
PAVEMENT POLICY & DESIGN ENGINEER

FHWA

6

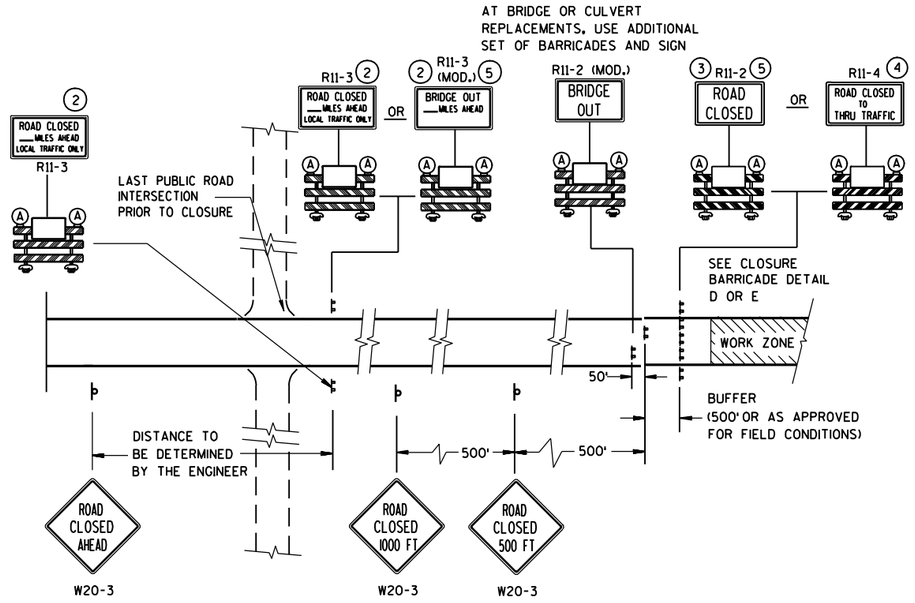
S.D.D. 13C18-1d



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

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

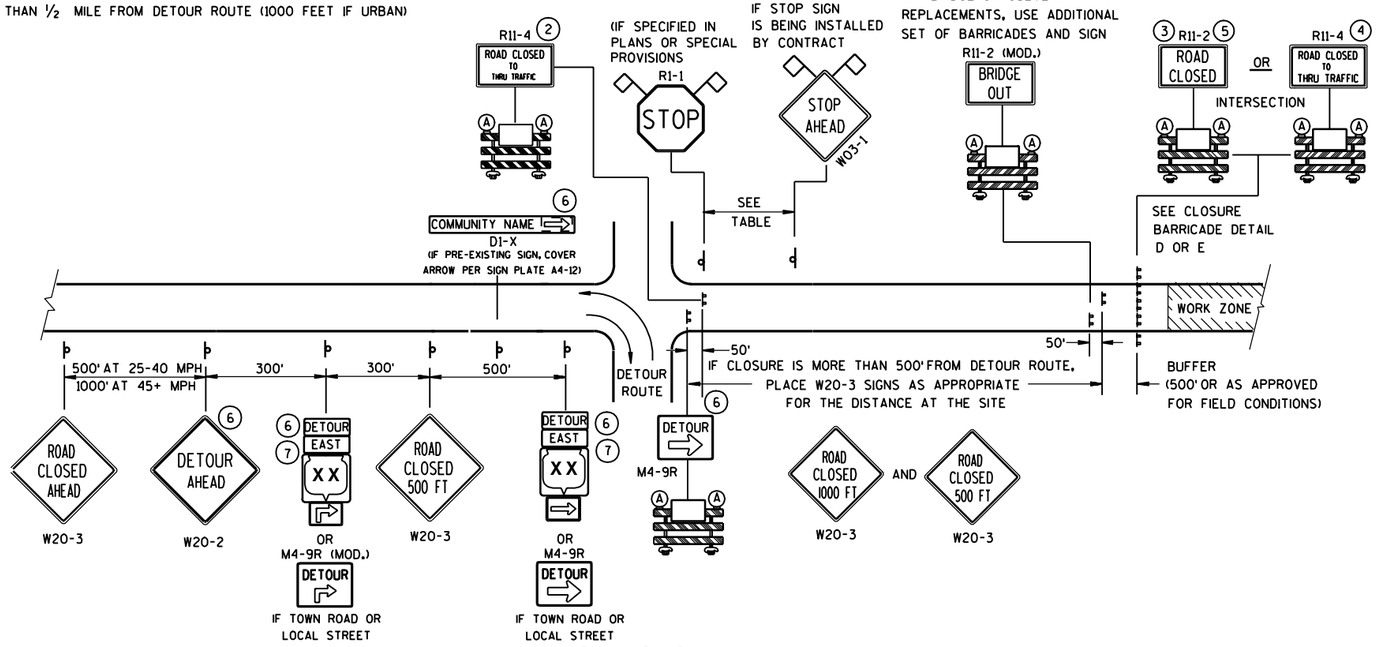


DETAIL C

MAINLINE CLOSURE, NO POSTED DETOUR

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

SEE SDD 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES (1) THROUGH (7)



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

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

LEGEND

- POST MOUNTED SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

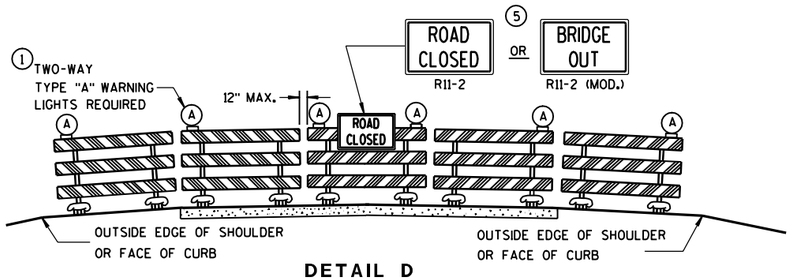
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 15 C 2-4a

6

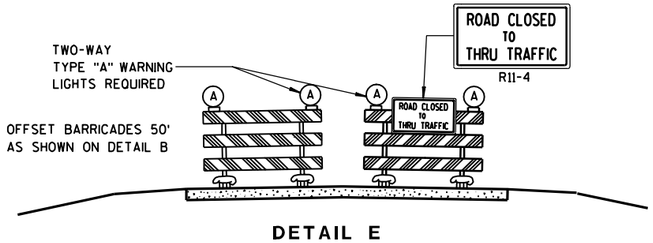
S.D.D. 15 C 2-4a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

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

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

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

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

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

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

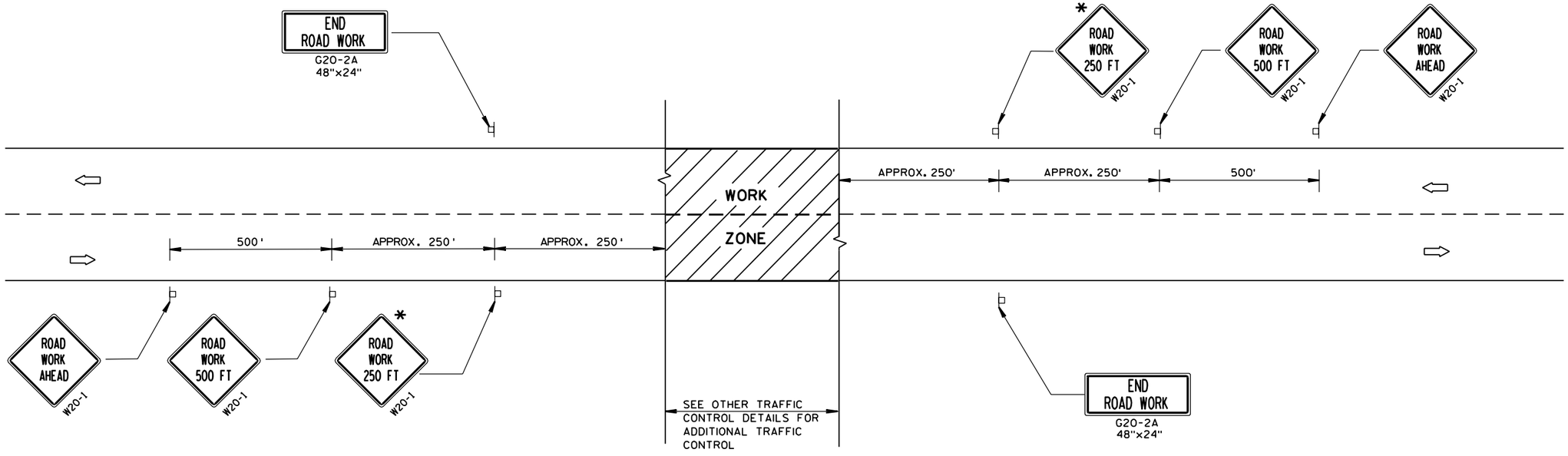
(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/16/03
DATE
Thomas N. Nottbohm for
CHIEF SIGNS AND MARKING ENGINEER
FHWA

6
S.D.D. 15 C 2-4b



GENERAL NOTES

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

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

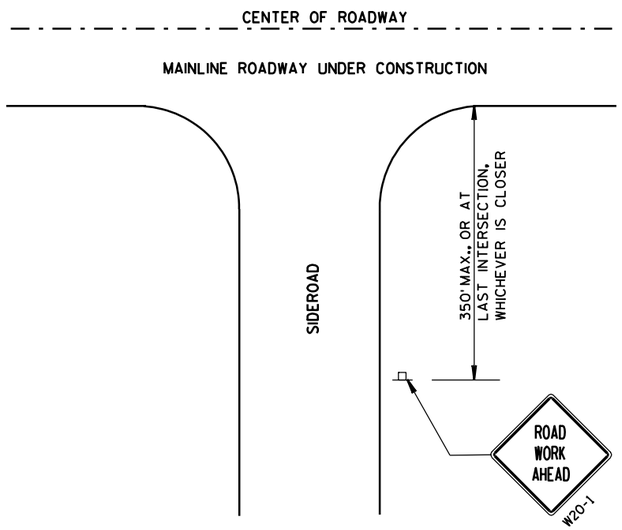
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS, IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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

* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.

TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL



LEGEND

POST MOUNTED SIGN

DIRECTION OF TRAFFIC FLOW

TRAFFIC CONTROL.
ADVANCE WARNING SIGNS
40 M.P.H. OR LESS
TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

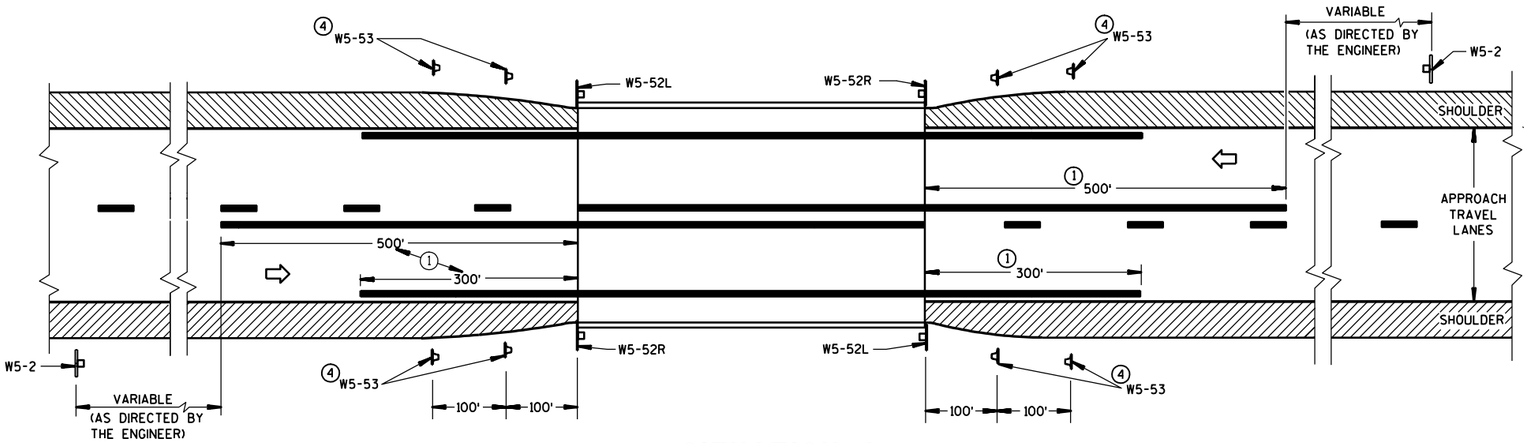
APPROVED
5/23/00
DATE

Chester J. Sprang
CHIEF SIGNS AND MARKING ENGINEER

FHWA

6

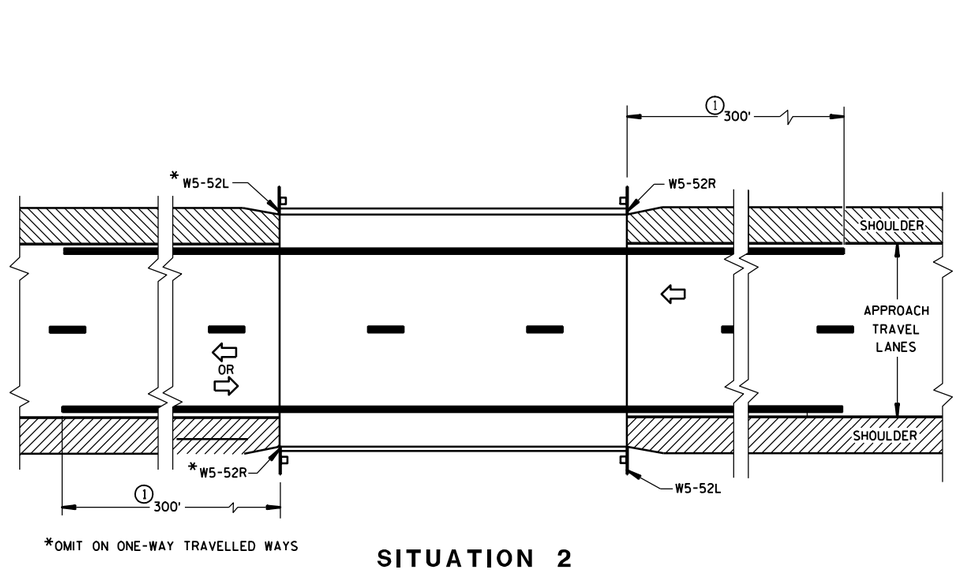
S.D.D. 15 C 5-1



SITUATION 1

WARRANTING CRITERION:

BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET



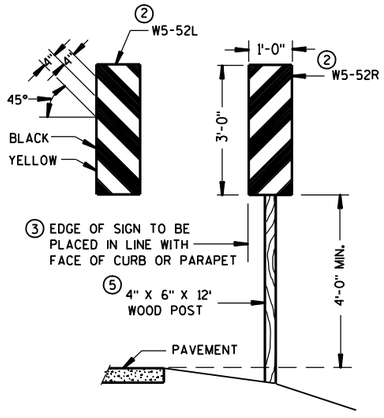
*OMIT ON ONE-WAY TRAVELLED WAYS

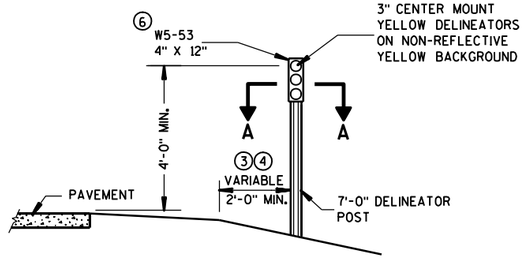
SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND

2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.





OBJECT MARKER PLACEMENT

GENERAL NOTES

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

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

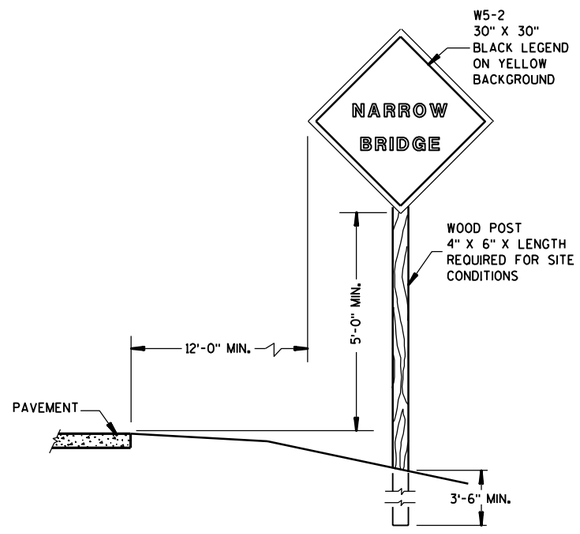
② FACE OF OBJECT MARKERS W5-52R AND W5-52L SHALL BE COVERED WITH TYPE H REFLECTIVE SHEETING.

③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.

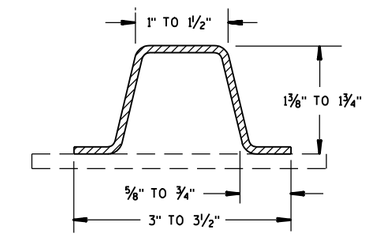
④ OBJECT MARKERS (W5-53) SHALL BE LOCATED ALONG A LINE FLARED AWAY FROM THE BRIDGE CORNER TO DELINEATE THE NARROWING OF THE SHOULDER OR BERM.

⑤ A 12 FOOT DELINEATOR POST MAY BE USED INSTEAD OF A WOOD POST.

⑥ NON-BID ITEM. INCIDENTAL TO OTHER ITEMS.



SIGN PLACEMENT



SECTION A-A

(MINIMUM WEIGHT 1.9 LBS. PER FT. AFTER GALVANIZING)

SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/5/06 — DATE
/S/ Thomas N. Notbohm — STATE TRAFFIC ENGINEER OF DESIGN
FHWA

6

S.D.D. 15 C 6-5

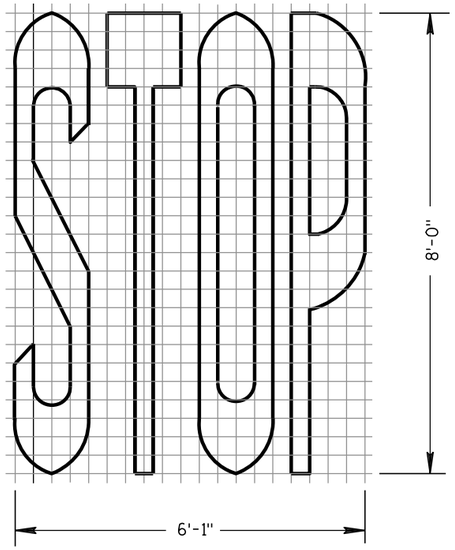
6

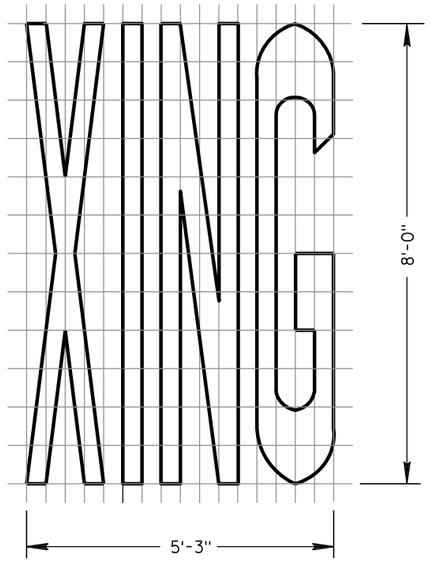
S.D.D. 15 C 6-5

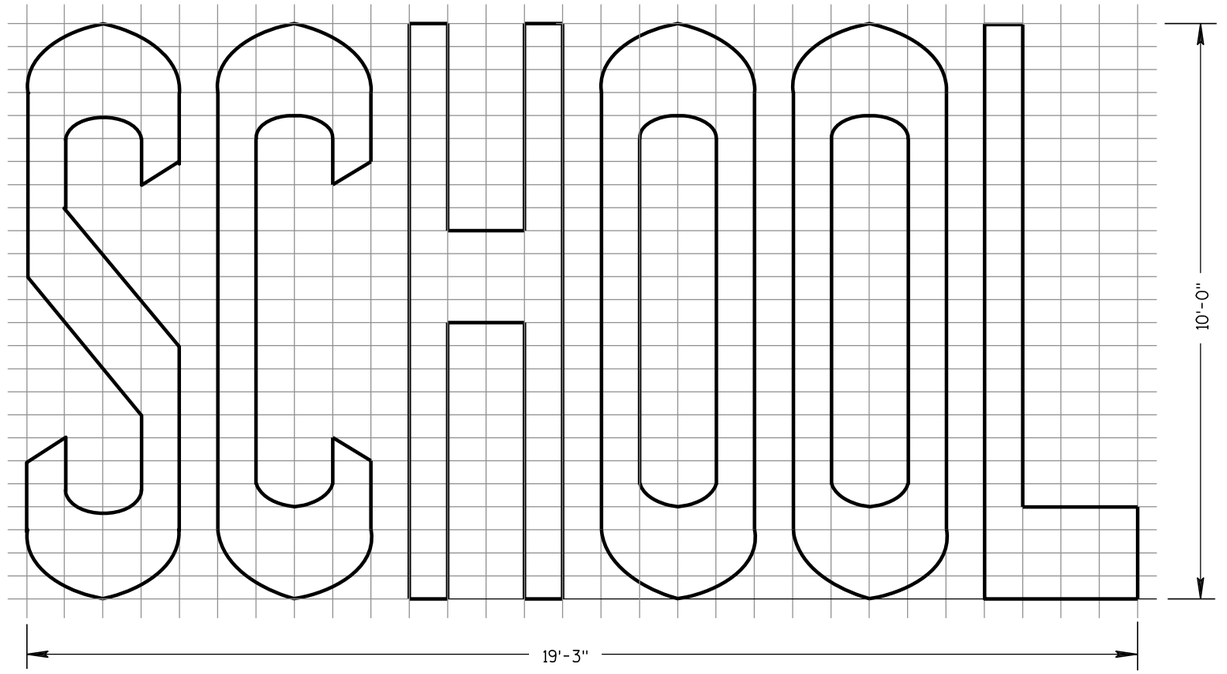
GENERAL NOTES

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

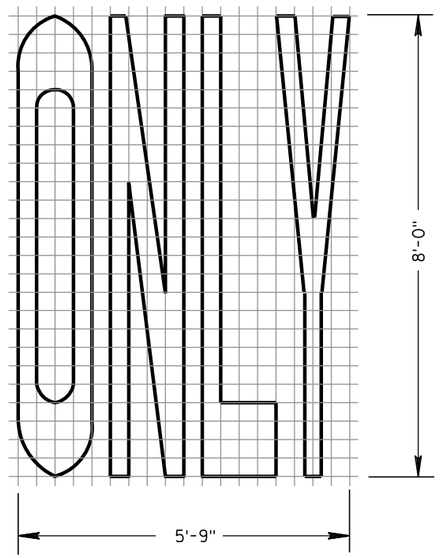
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.

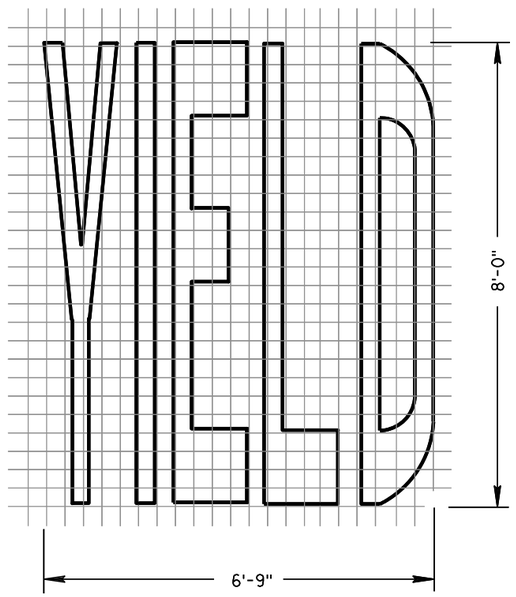


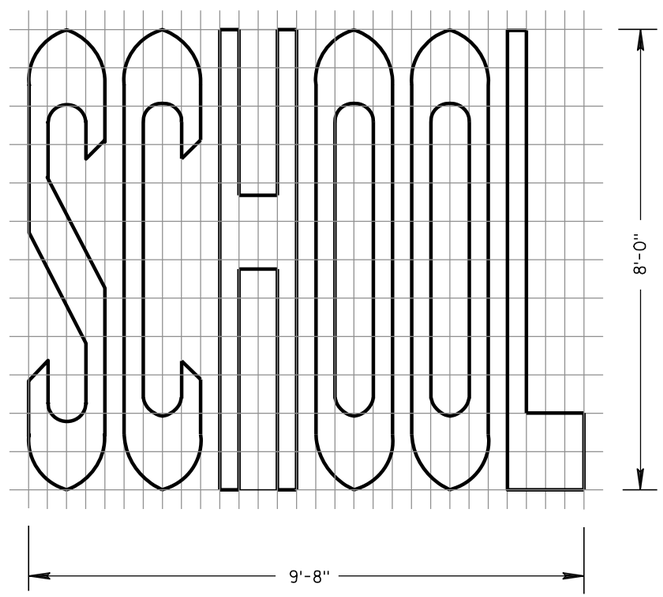




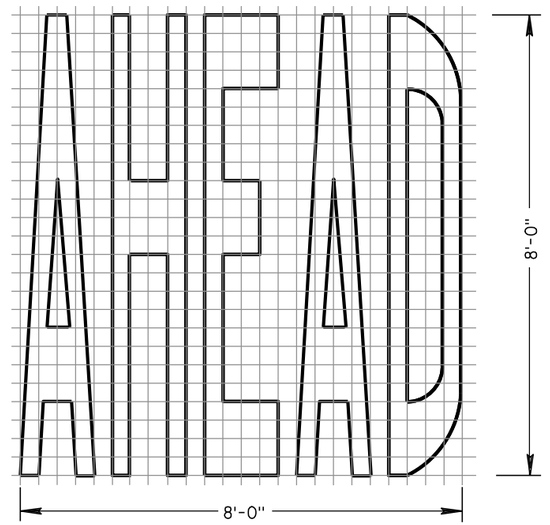
TWO-LANE







SINGLE-LANE



PAVEMENT MARKING WORDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7-1-11 — DATE

/S/ Thomas N. Nothohm — STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 C 7-12b

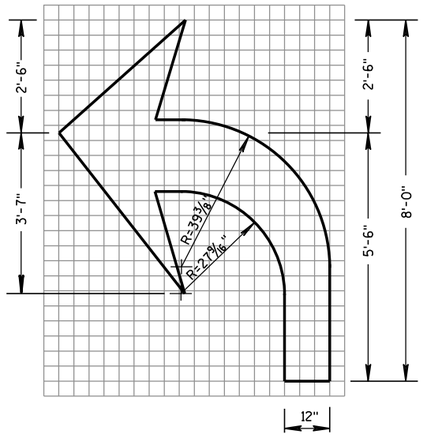
6

S.D.D. 15 C 7-12b

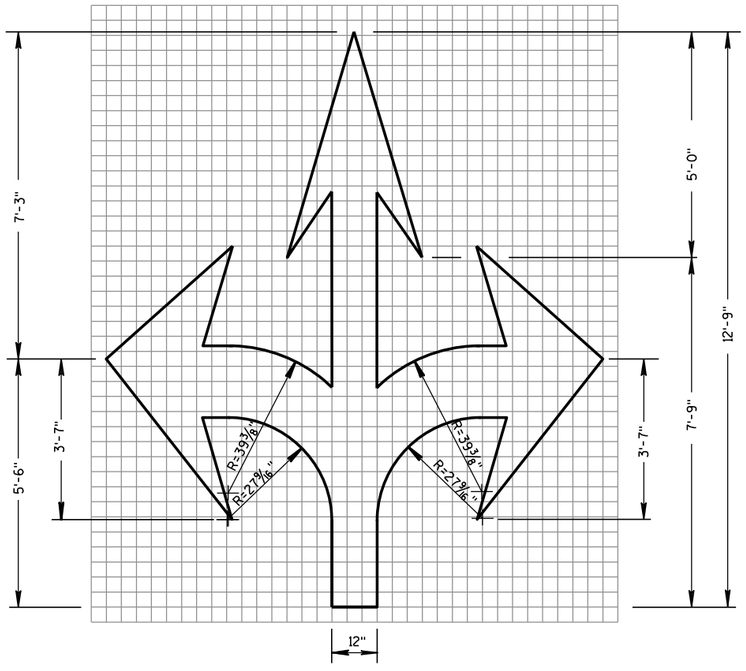
GENERAL NOTES

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

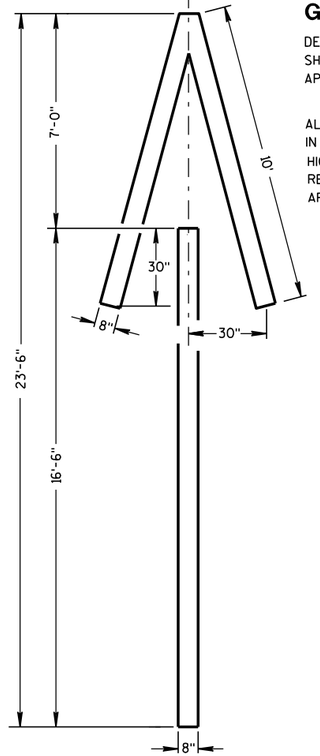
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



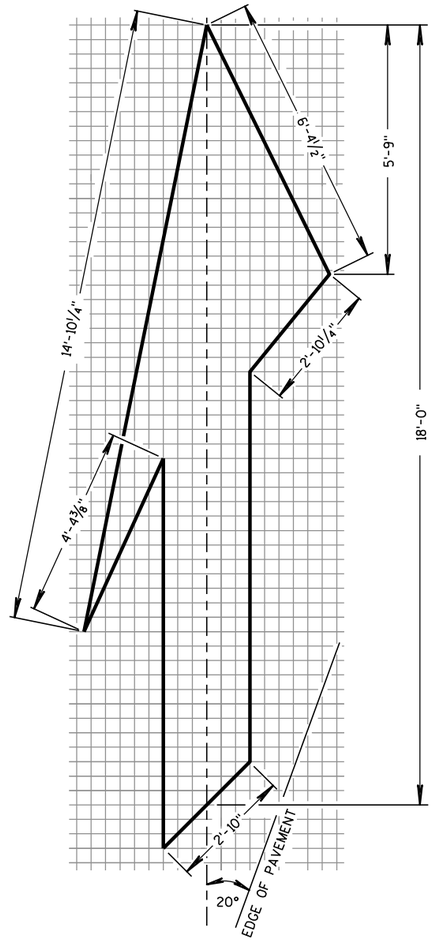
TYPE 2



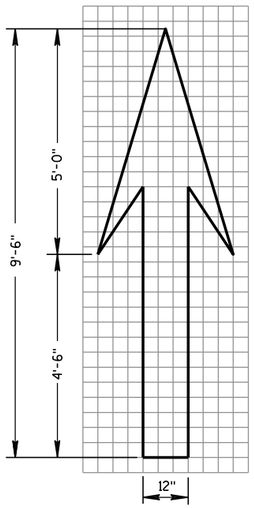
TYPE 6



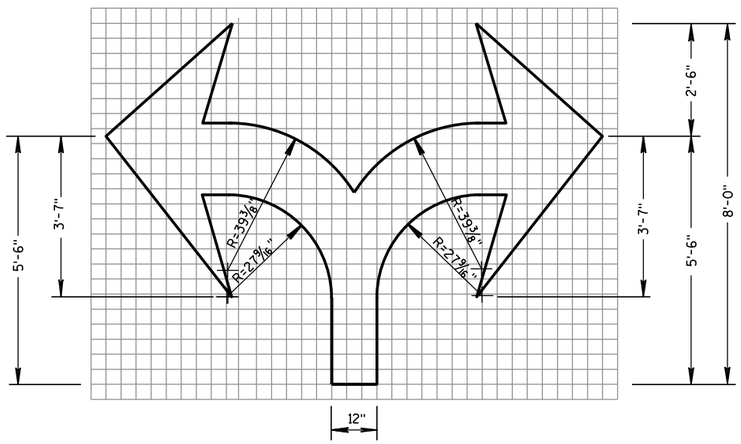
TYPE 4



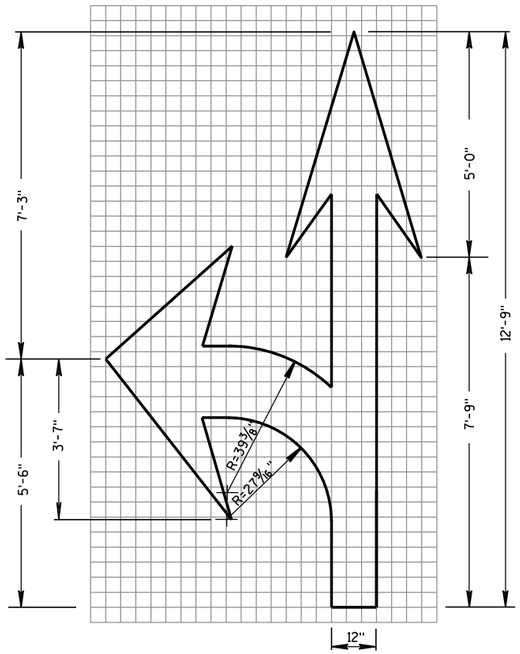
TYPE 5 LANE DROP ARROW



TYPE 1



TYPE 7



TYPE 3

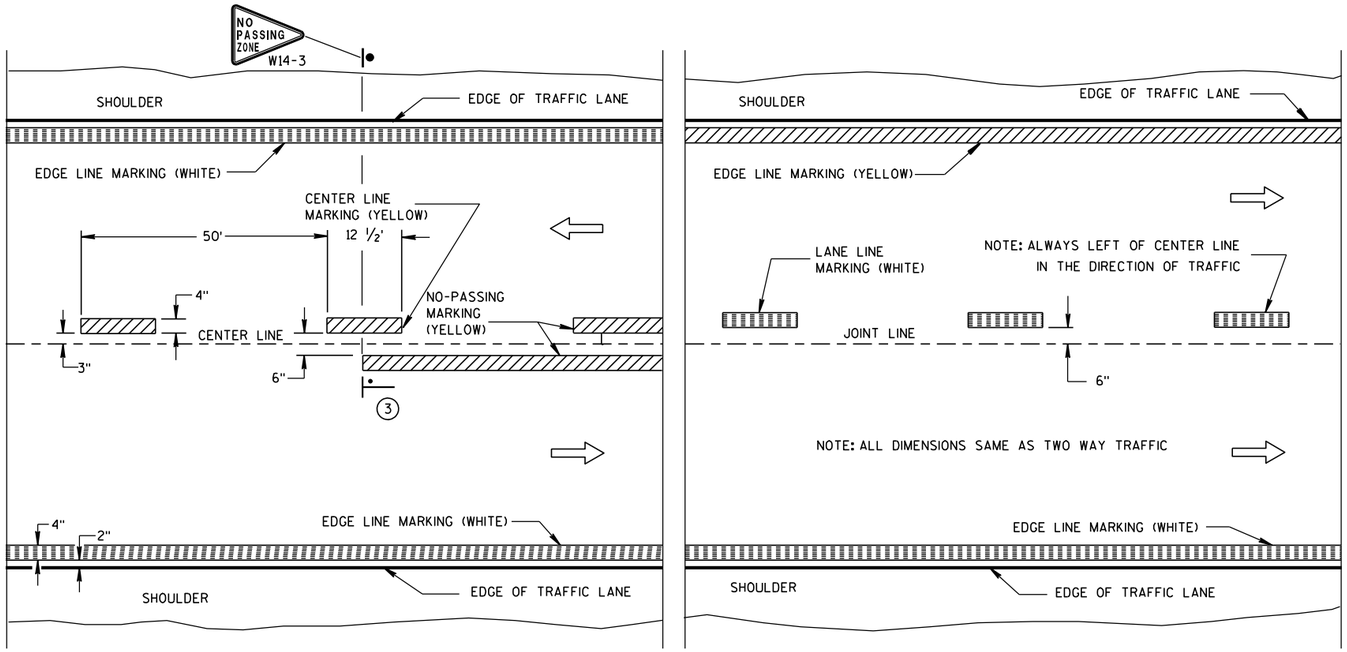
PAVEMENT MARKING ARROWS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
7/1/11 DATE	/S/ Thomas N. Nothdurft STATE TRAFFIC ENGINEER
FHWA	

6

S.D.D. 15 C 7-12c

6

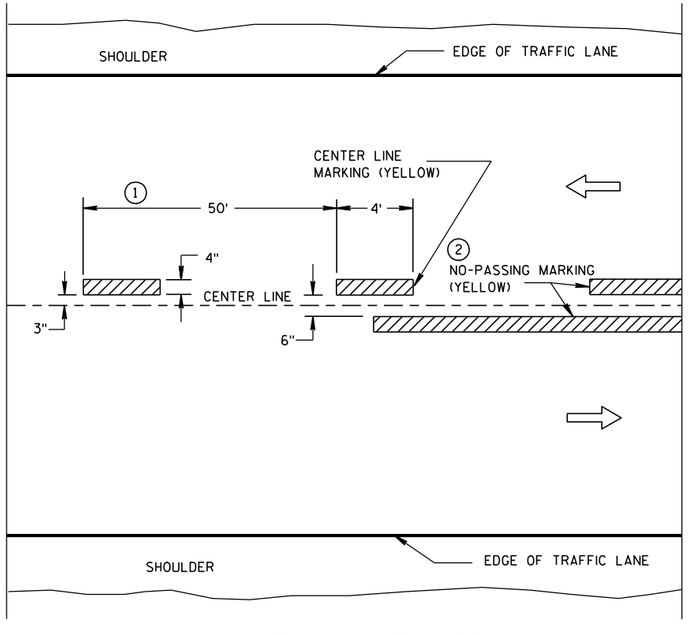
S.D.D. 15 C 7-12c



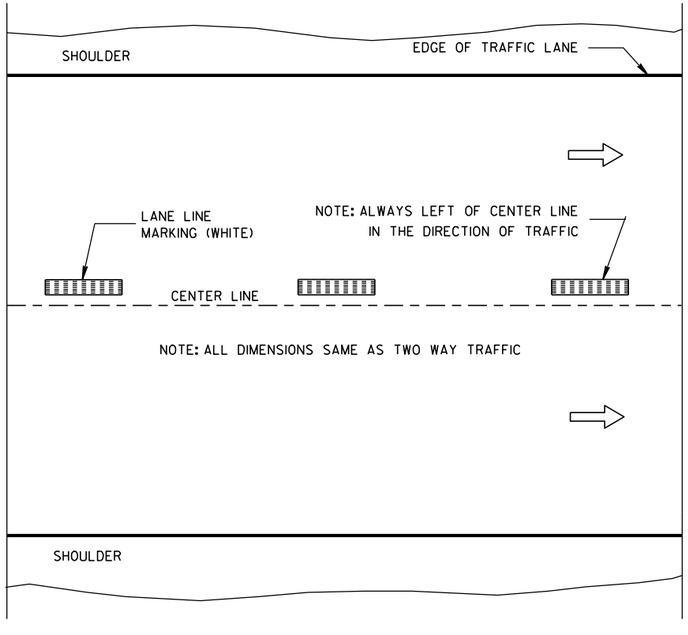
TWO WAY TRAFFIC

ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

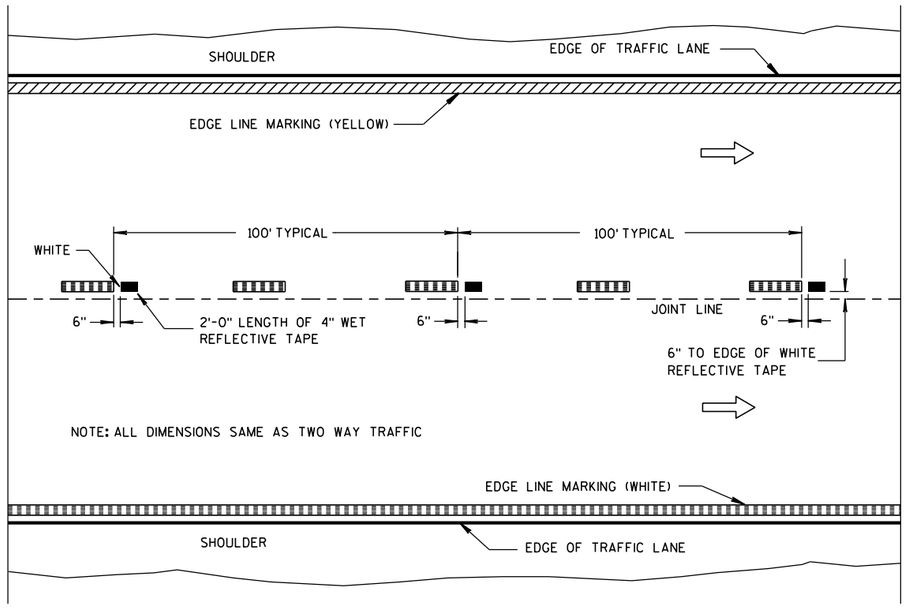
GENERAL NOTES

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

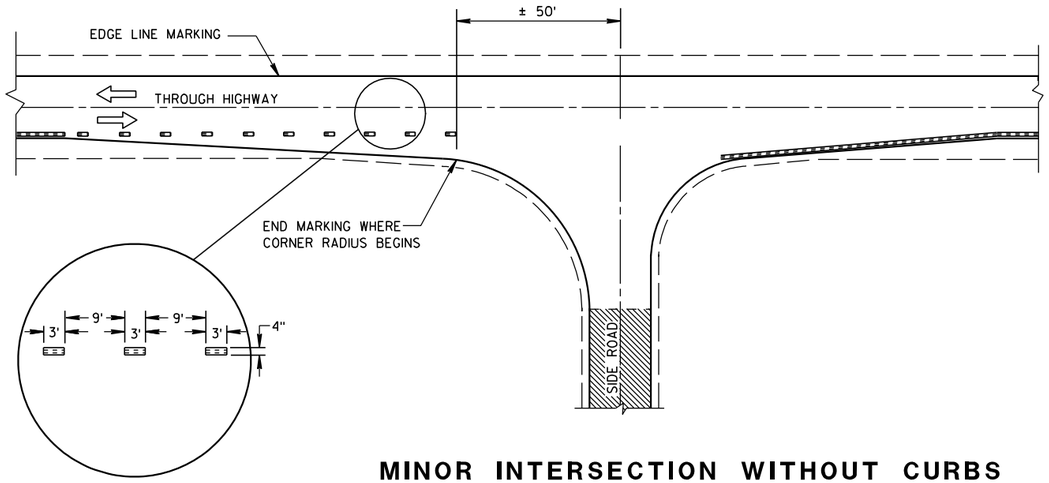
APPROVED
6-23-11 DATE
/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 15 C 8-14a

6

S.D.D. 15 C 8-14a



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

(1) WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.

(2) WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.

(3) ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.

(4) THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.

(5) BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.

(6) BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

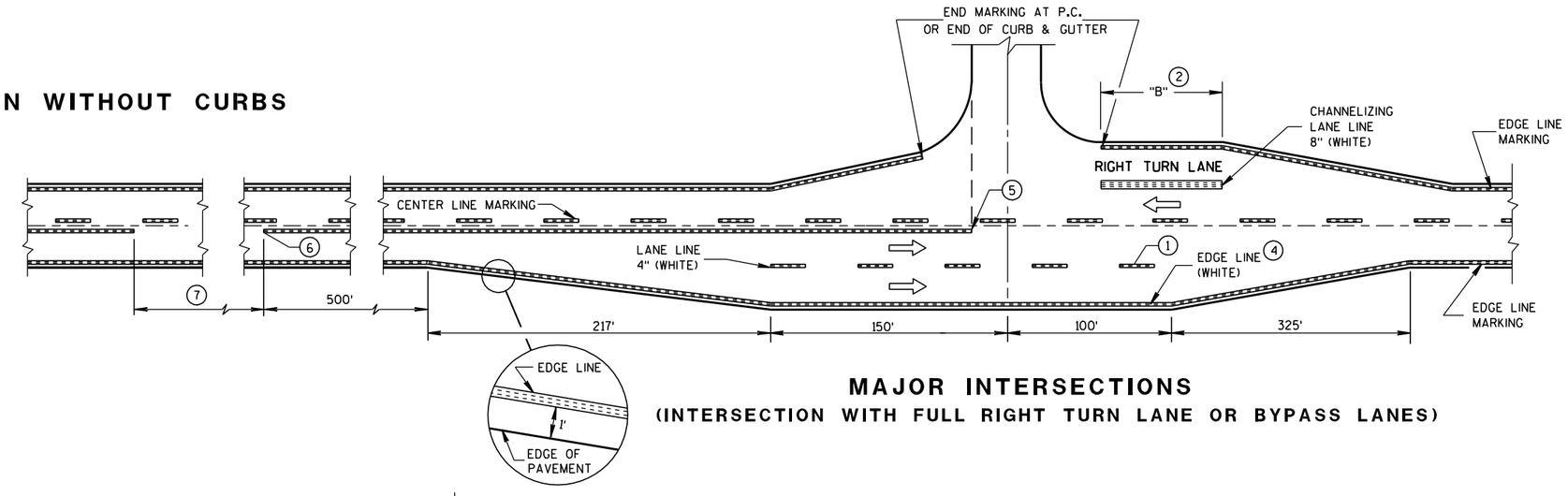
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

(8) 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

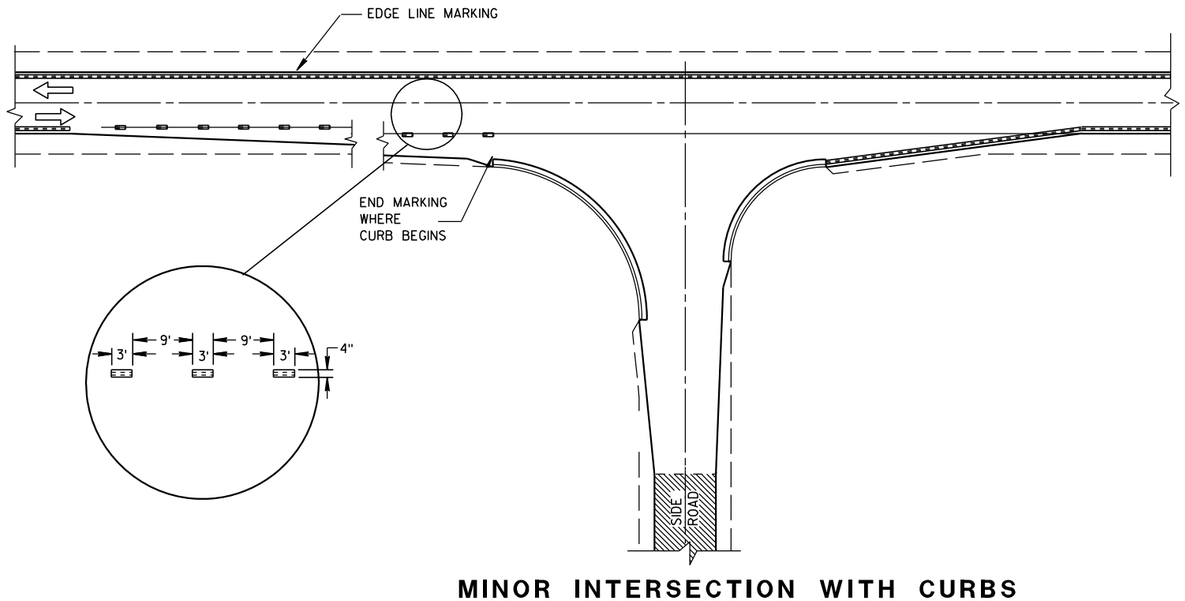
ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

(7)

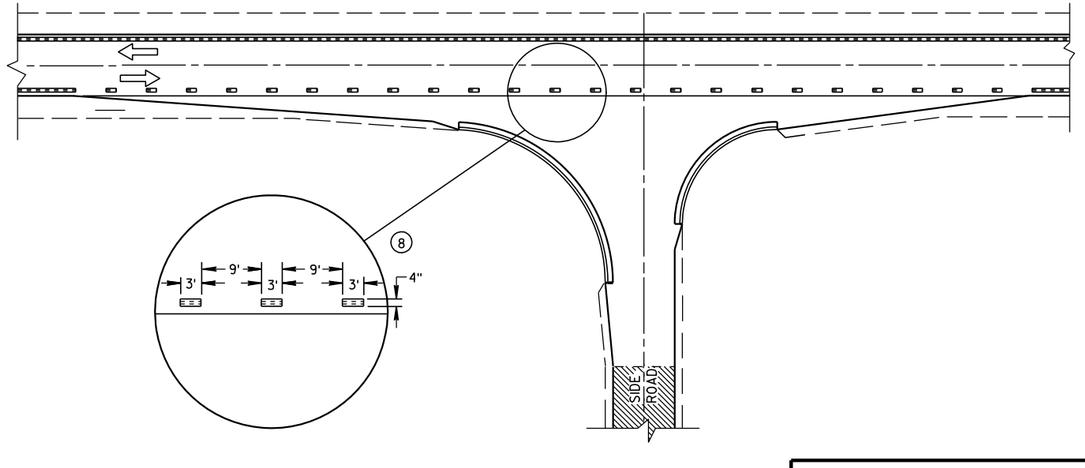
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS
(3) (FOR SPECIAL CONDITIONS AS SPECIFIED)

PAVEMENT MARKING (INTERSECTIONS)

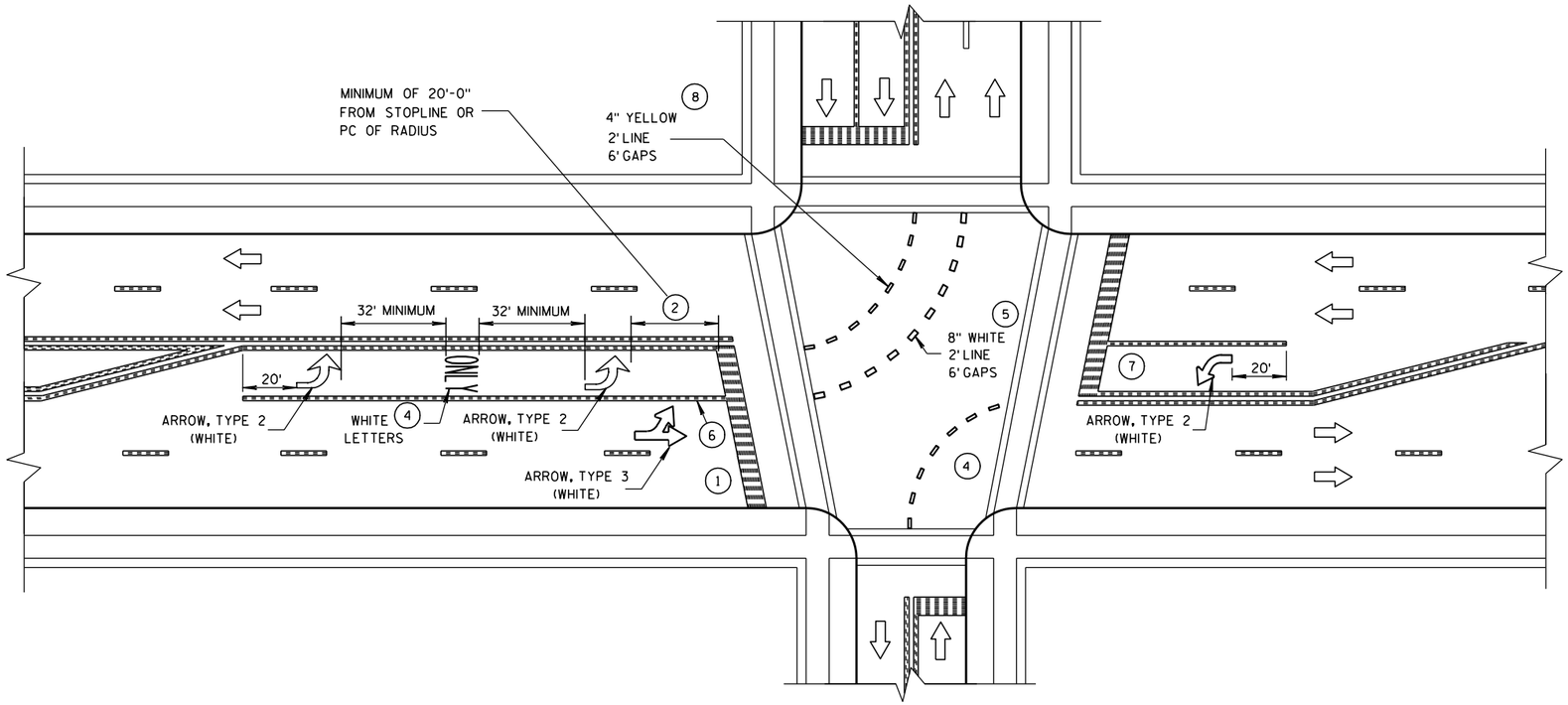
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 15 C 8-14b

6

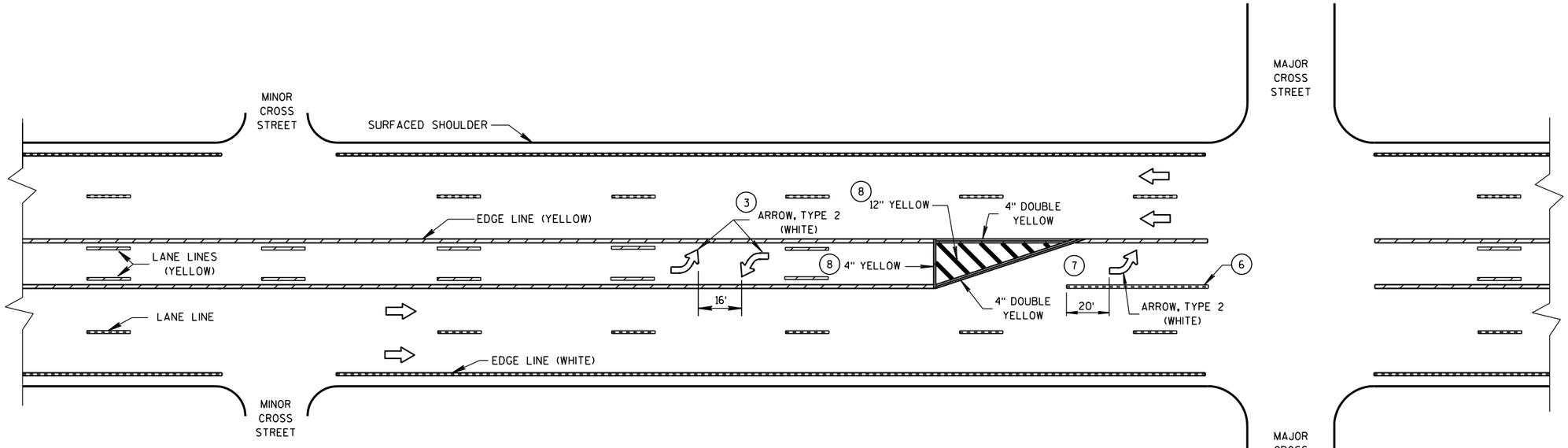
S.D.D. 15 C 8-14b



GENERAL NOTES

1. STOP BAR IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
2. DISTANCE MAY BE ADJUSTED TO ACCOMODATE SHORT LEFT TURN LANES. AS APPROVED BY THE ENGINEER.
3. A SET OF ARROWS IS REQUIRED EVERY 400' OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
4. ADD EXTRA ARROW AND ONLY PER 160' OR WHEN ON A CURVE.
5. 8" WHITE WITH 2' LINE 6' GAPS FOR DUAL TURN LANE.
6. 8" WHITE
7. ADD SECOND ARROW WHEN TURN BAY IS GREATER THAN OR EQUAL TO 108'.
8. REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.

NOTE:
ARROW SYMBOL (⇨)
SHOWS DIRECTION OF TRAVEL



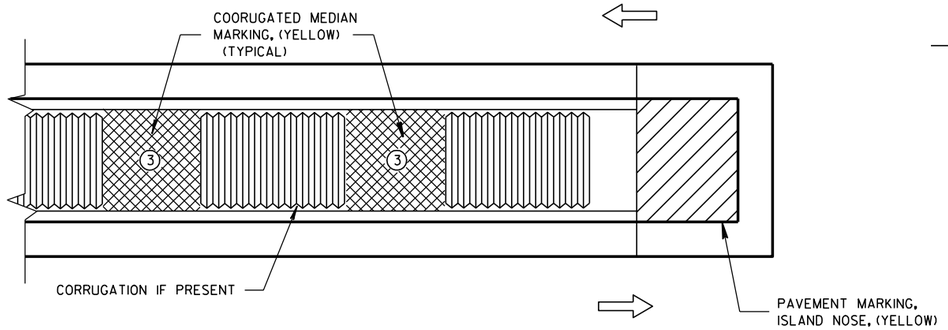
TWO WAY LEFT TURN LANE

PAVEMENT MARKING
(LEFT TURN LANE)

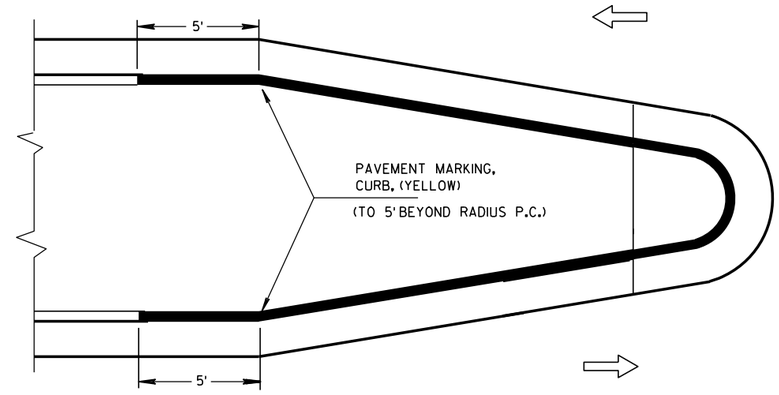
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

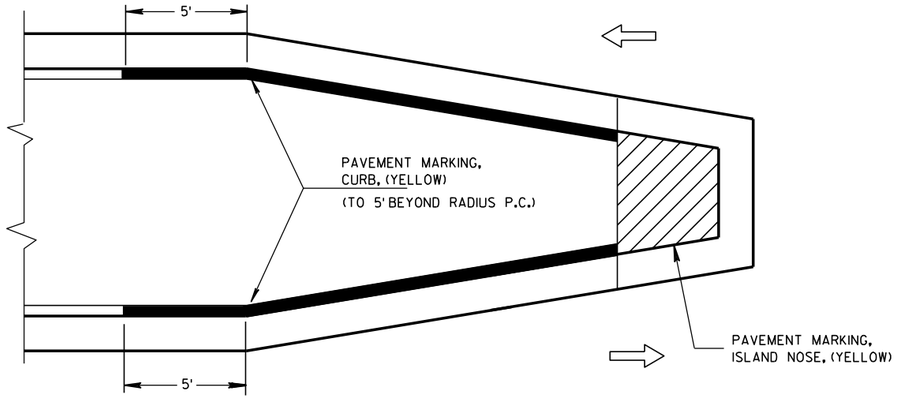
S.D.D. 15 C 8-14e



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

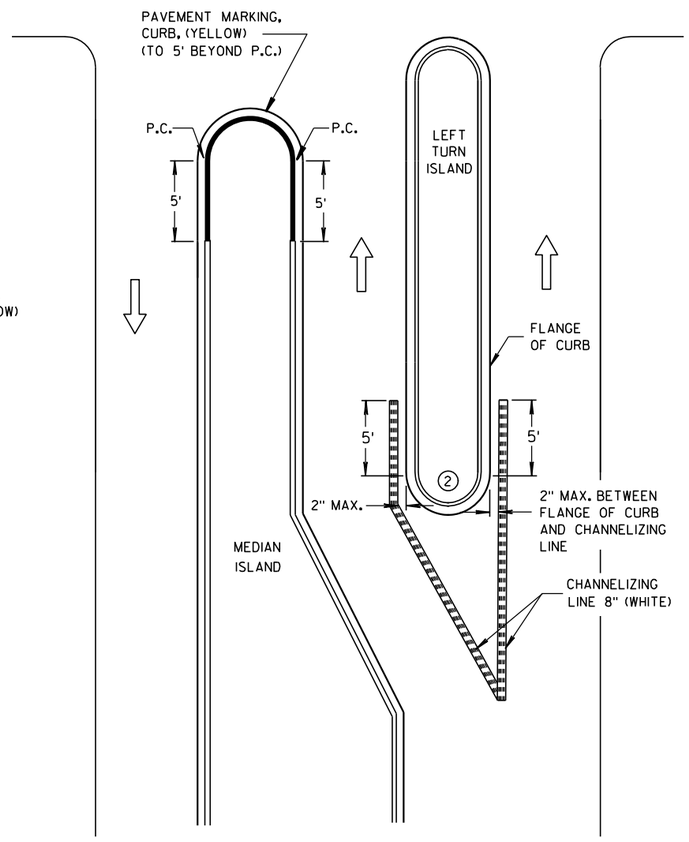


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

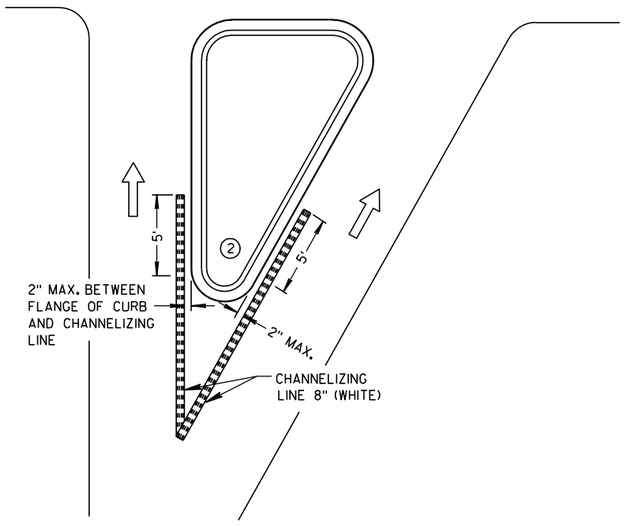
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS



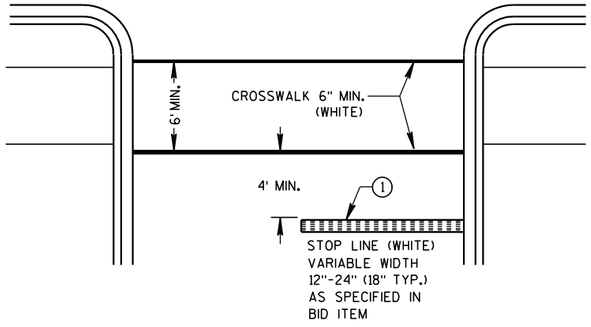
LEFT TURN & MEDIAN ISLAND

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 AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND



STOP LINE AND CROSSWALK

LEGEND

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

PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 15 C 8-14f

6

S.D.D. 15 C 8-14f

TWO-LANE ROADWAY

SYMBOLS

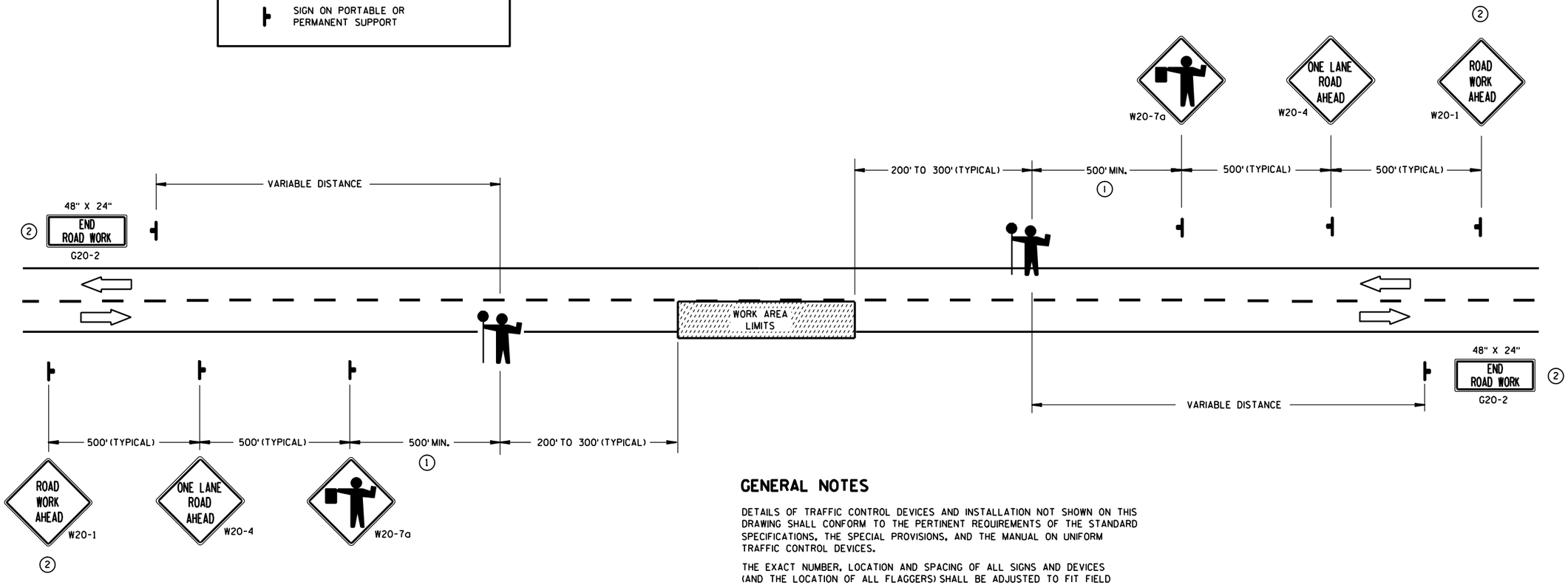
WORK AREA

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

SIGN ON PORTABLE OR PERMANENT SUPPORT

W3-4

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



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

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

GENERAL NOTES

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

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

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

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

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

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

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

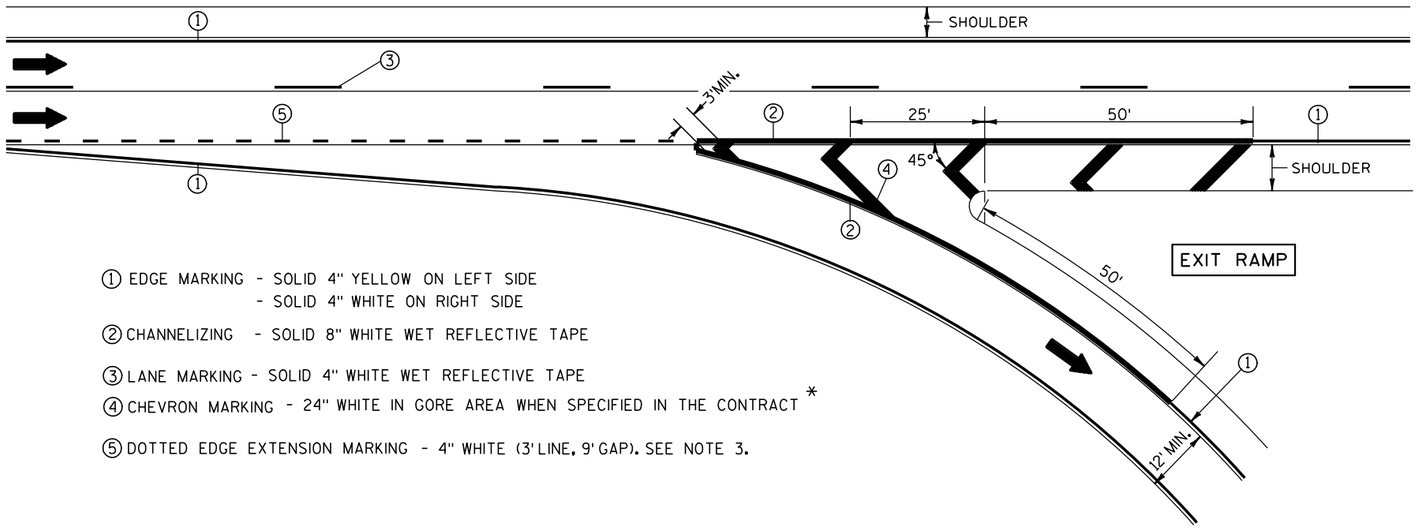
APPROVED
9/5/06 — DATE
/S/ Thomas N. Notbohm — STATE TRAFFIC ENGINEER OF DESIGN
FHWA

6

S.D.D. 15 C 12-3

6

S.D.D. 15 C 12-3



① EDGE MARKING - SOLID 4" YELLOW ON LEFT SIDE
- SOLID 4" WHITE ON RIGHT SIDE

② CHANNELIZING - SOLID 8" WHITE WET REFLECTIVE TAPE

③ LANE MARKING - SOLID 4" WHITE WET REFLECTIVE TAPE

④ CHEVRON MARKING - 24" WHITE IN GORE AREA WHEN SPECIFIED IN THE CONTRACT *

⑤ DOTTED EDGE EXTENSION MARKING - 4" WHITE (3' LINE, 9' GAP). SEE NOTE 3.

NOTES:

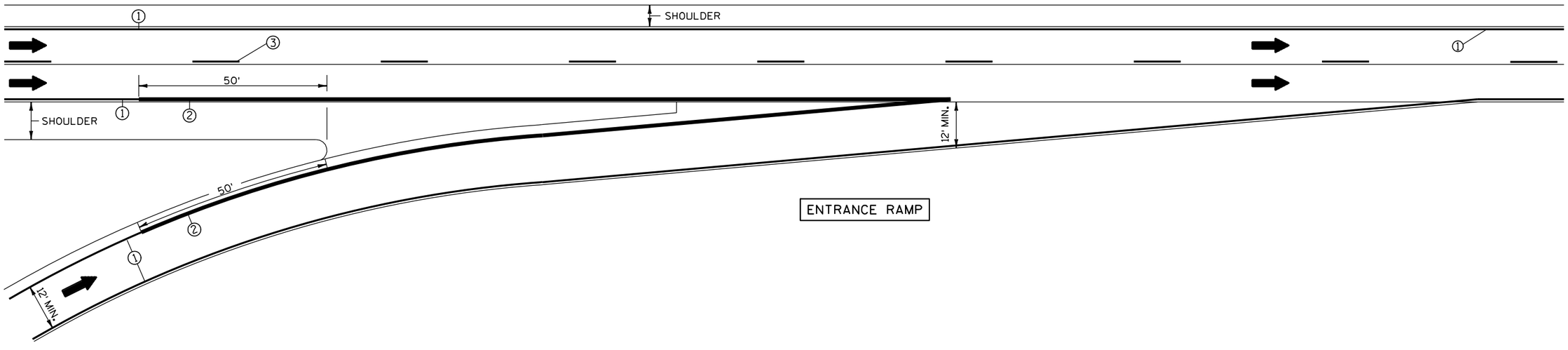
1. ARROWS SHOWN ON THIS MARKING PLAN DESIGNATE TRAFFIC FLOW, AND SHALL NOT BE TAKEN AS PROPOSED PAVEMENT MARKINGS.

2. PLACE WHITE EDGE OF TAPE 6" LEFT FROM JOINT.

3. 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE-GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

4. RETRACE EXISTING DIAGONAL MARKINGS.

* REFER TO DESIGN NOTES.



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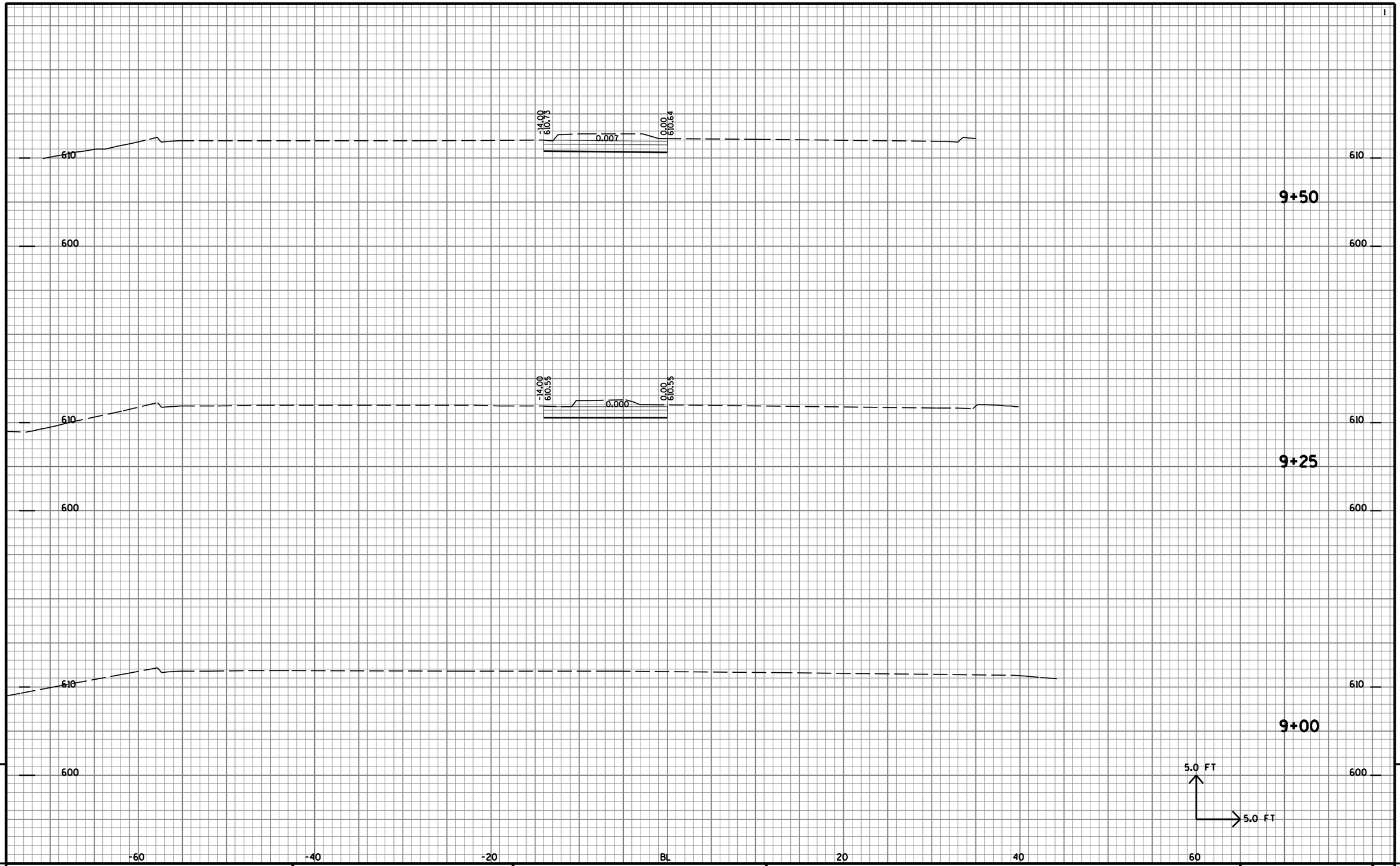
S.D.D. 15 C 31-1a

S.D.D. 15 C 31-1a

PAVEMENT MARKING (RAMPS AND GORES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: N 4TH STREET / USH 53	SHEET NO: 71	E

9

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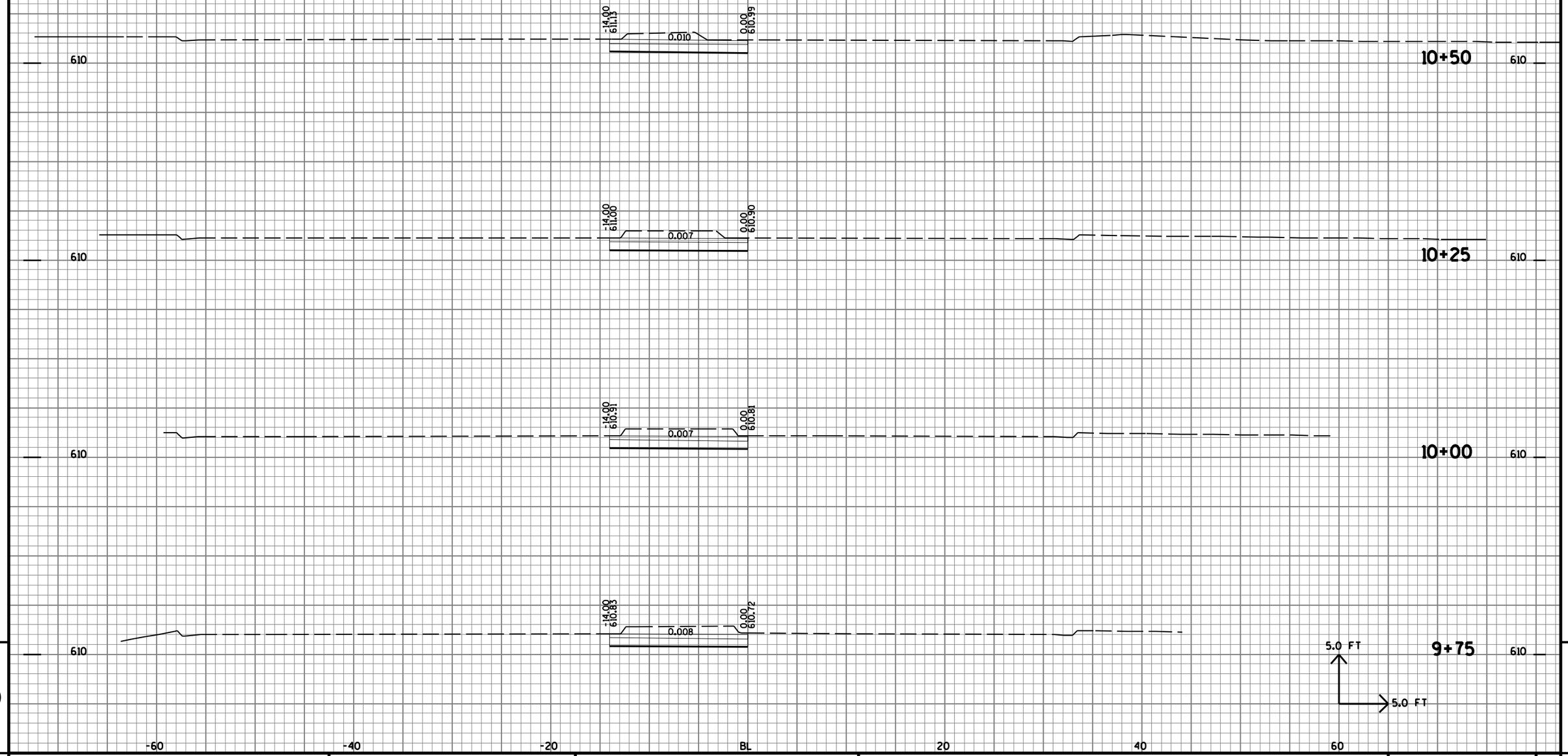

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FILE NAME : T:\410630\dgn\REVXS-4th.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

610 — 12+00 — 610

610 — 11+50 — 610

610 — 11+00 — 610

610 — 10+75 — 610

5.0 FT

5.0 FT

-60 -40 -20 BL 20 40 60

9 9

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: N 4TH STREET / USH 53	SHEET NO:	E

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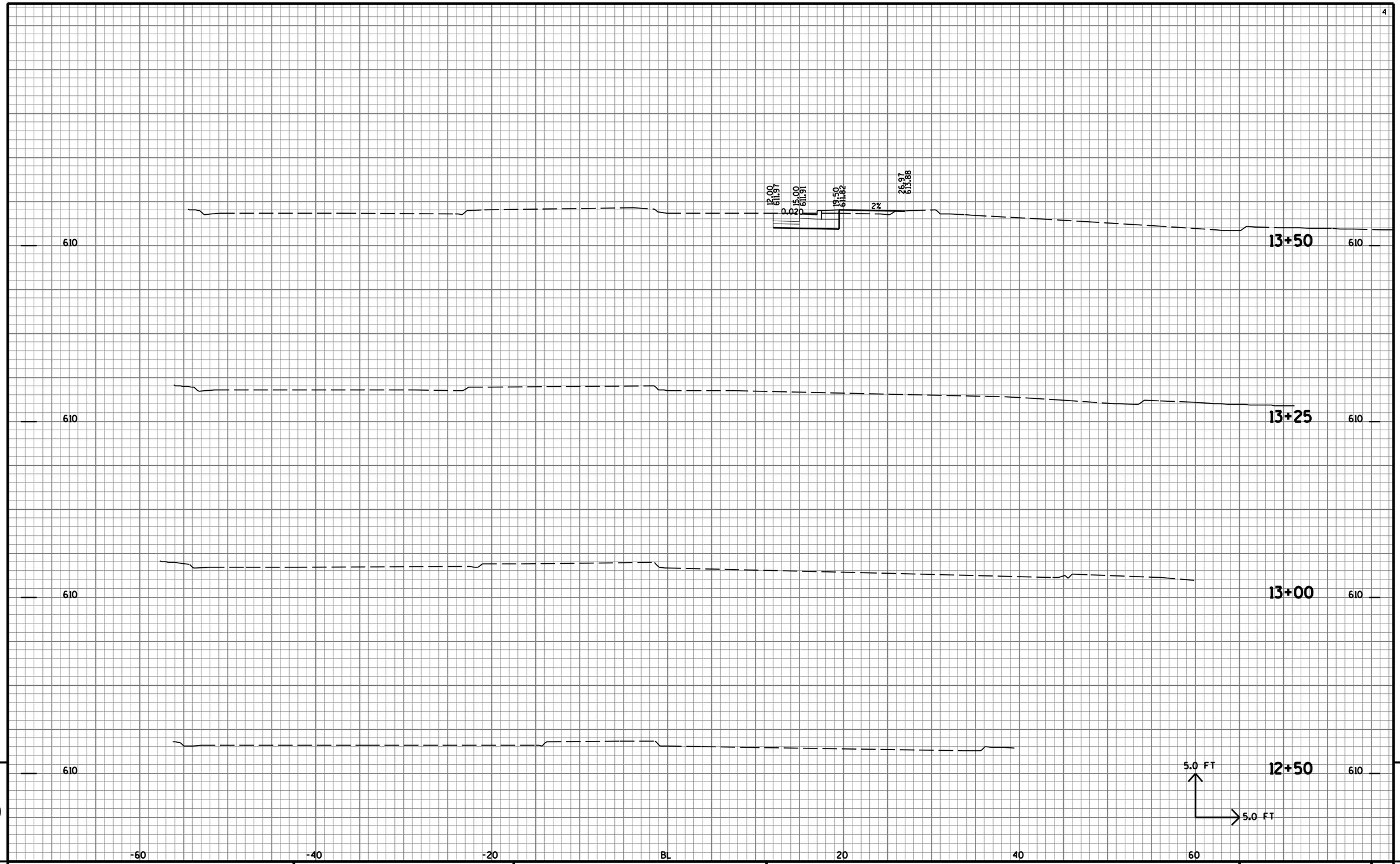

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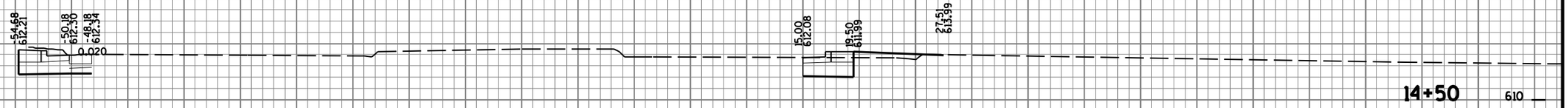

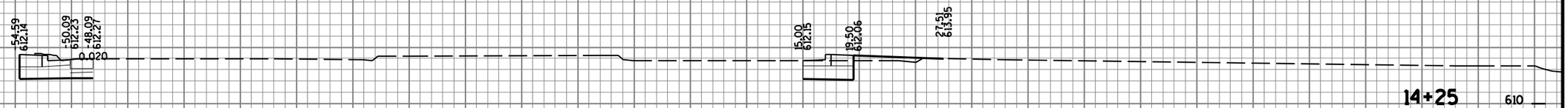

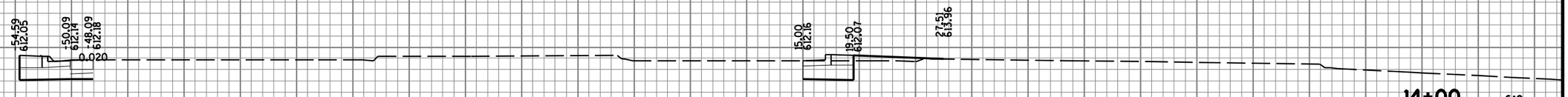

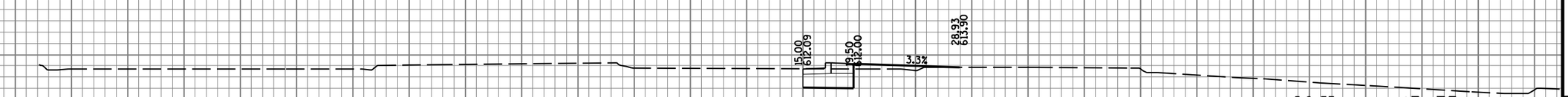

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-60 -40 -20 BL 20 40 60

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PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: N 4TH STREET / USH 53	SHEET NO: 75	E

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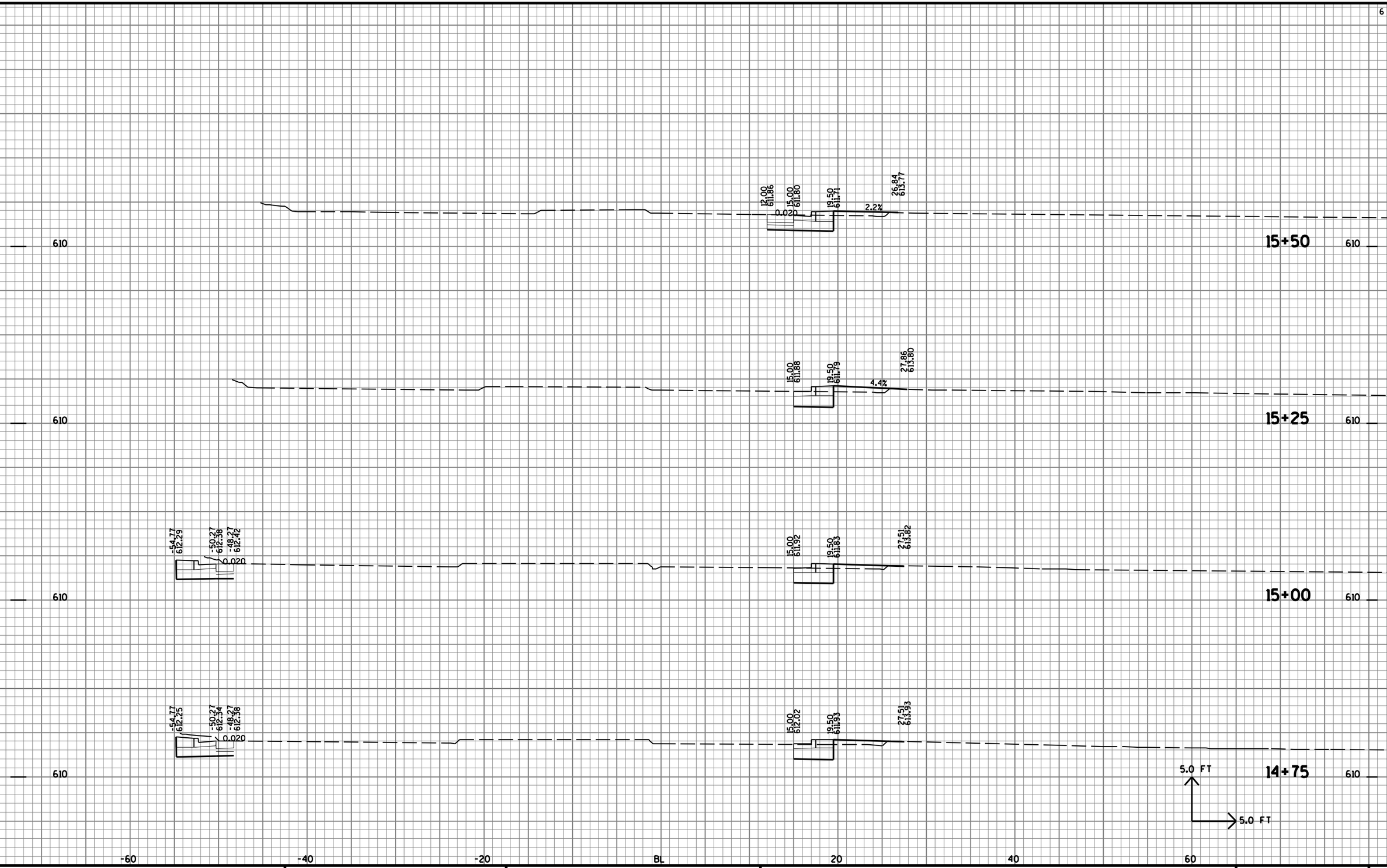

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PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: N 4TH STREET / USH 53	SHEET NO: 76	E

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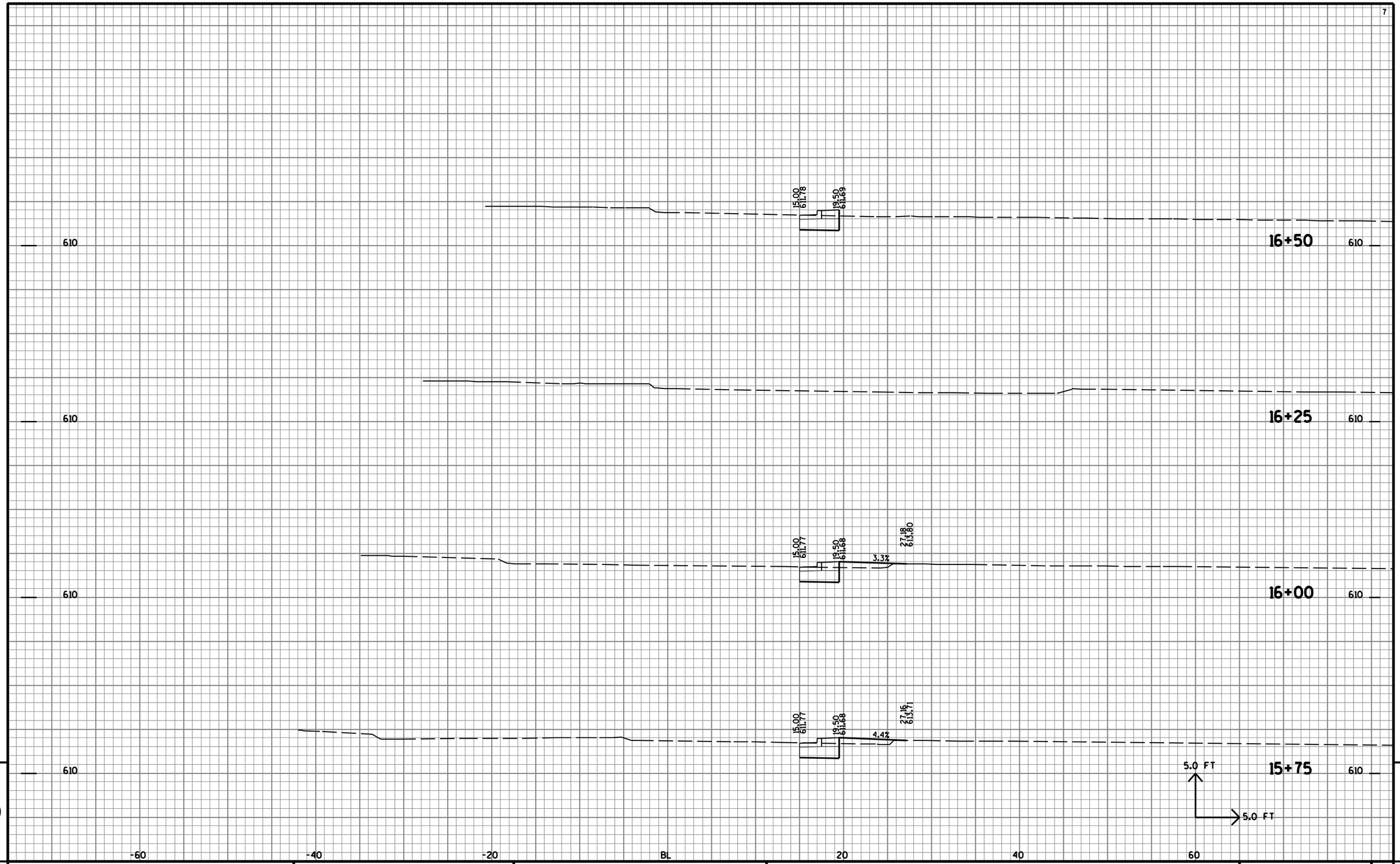

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PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: N 4TH STREET / USH 53	SHEET NO: 77	E

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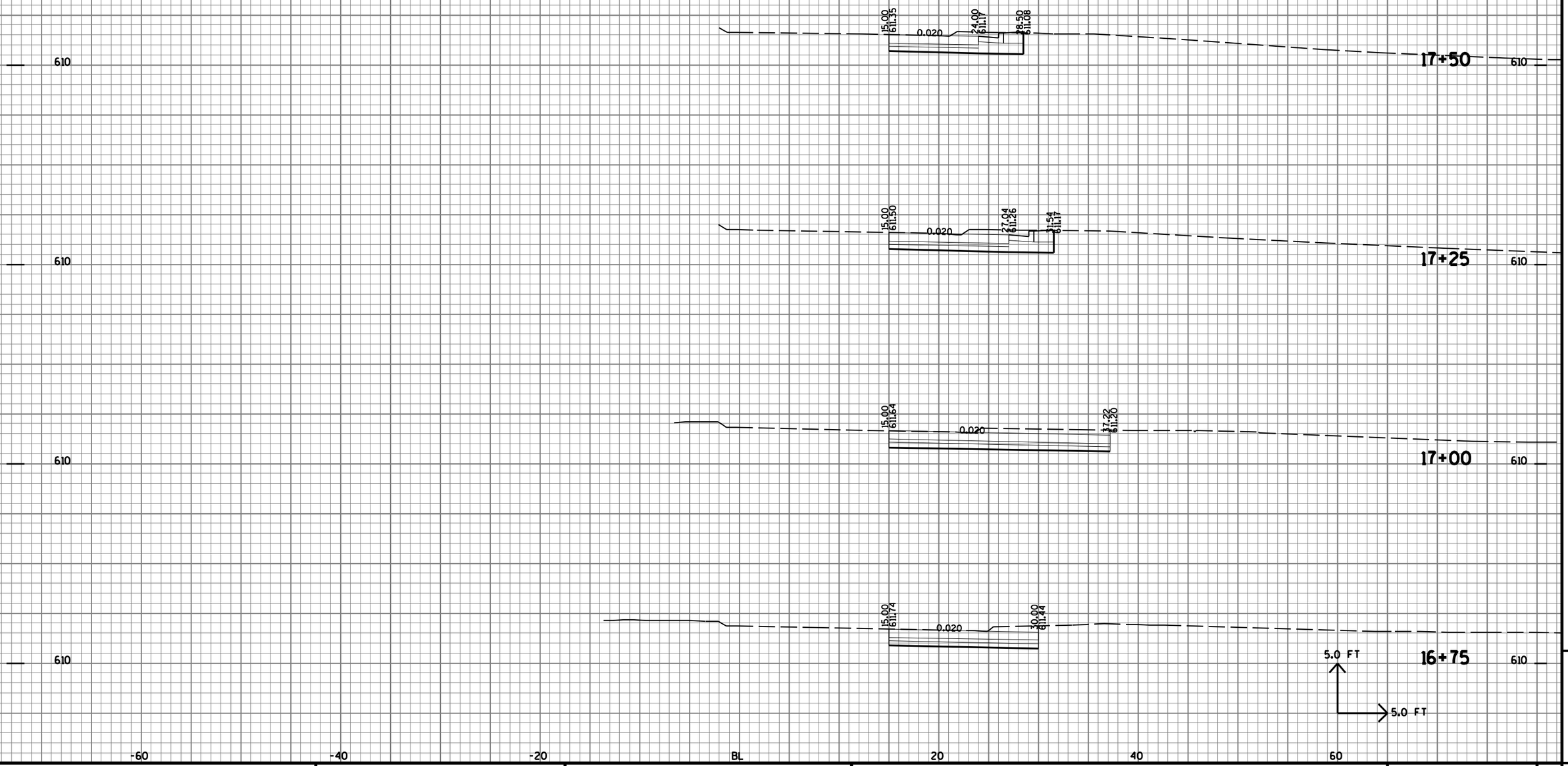

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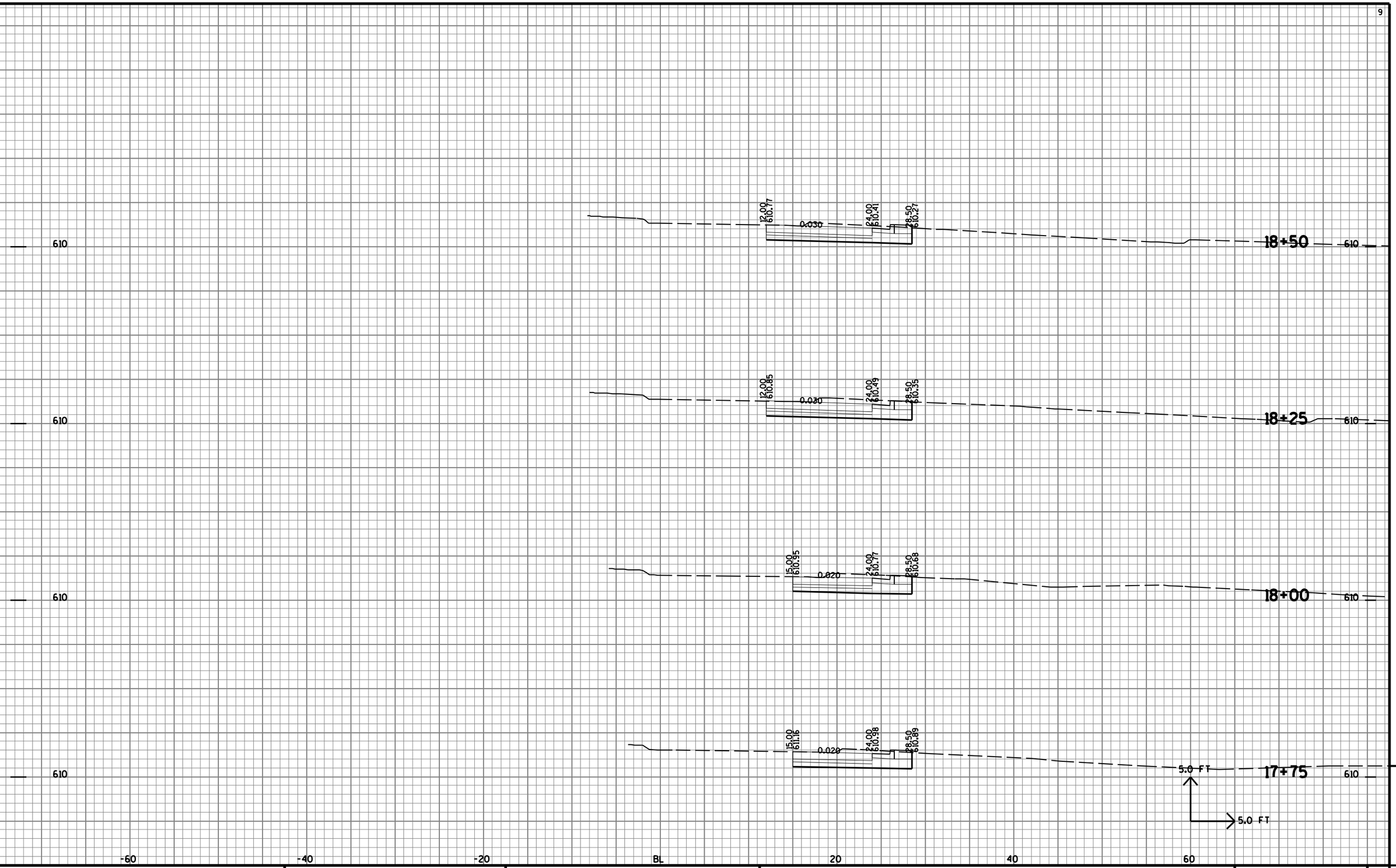

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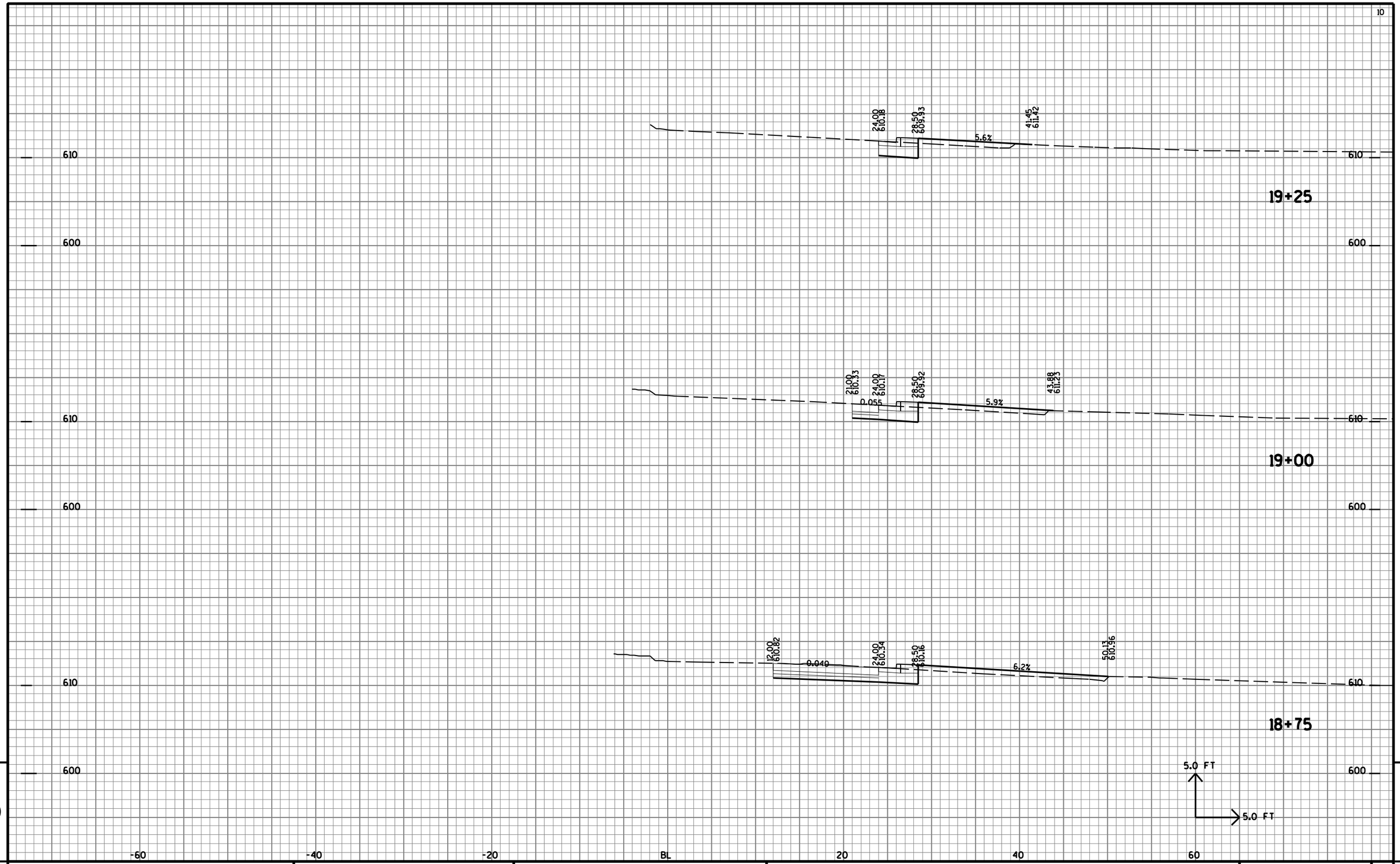

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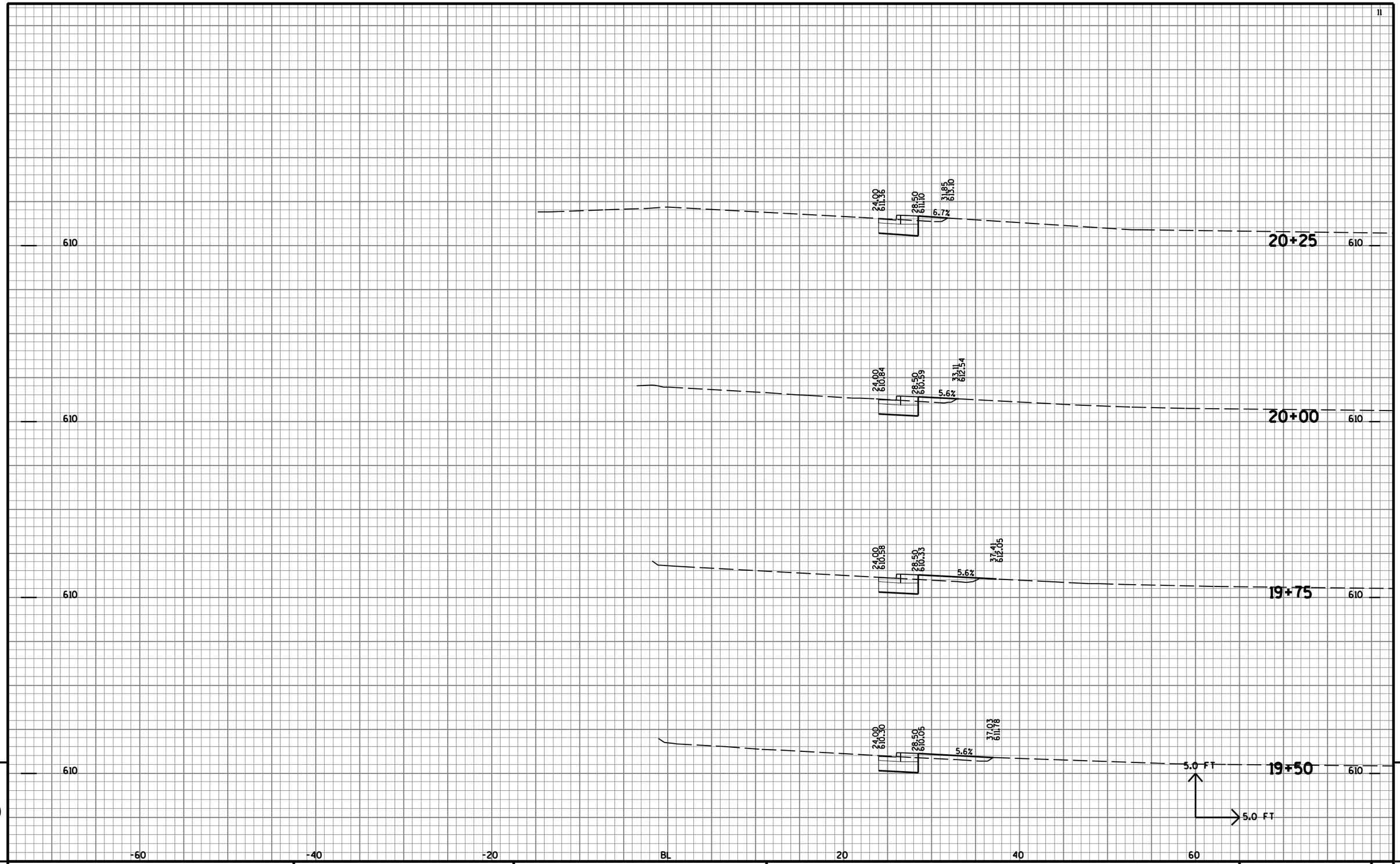

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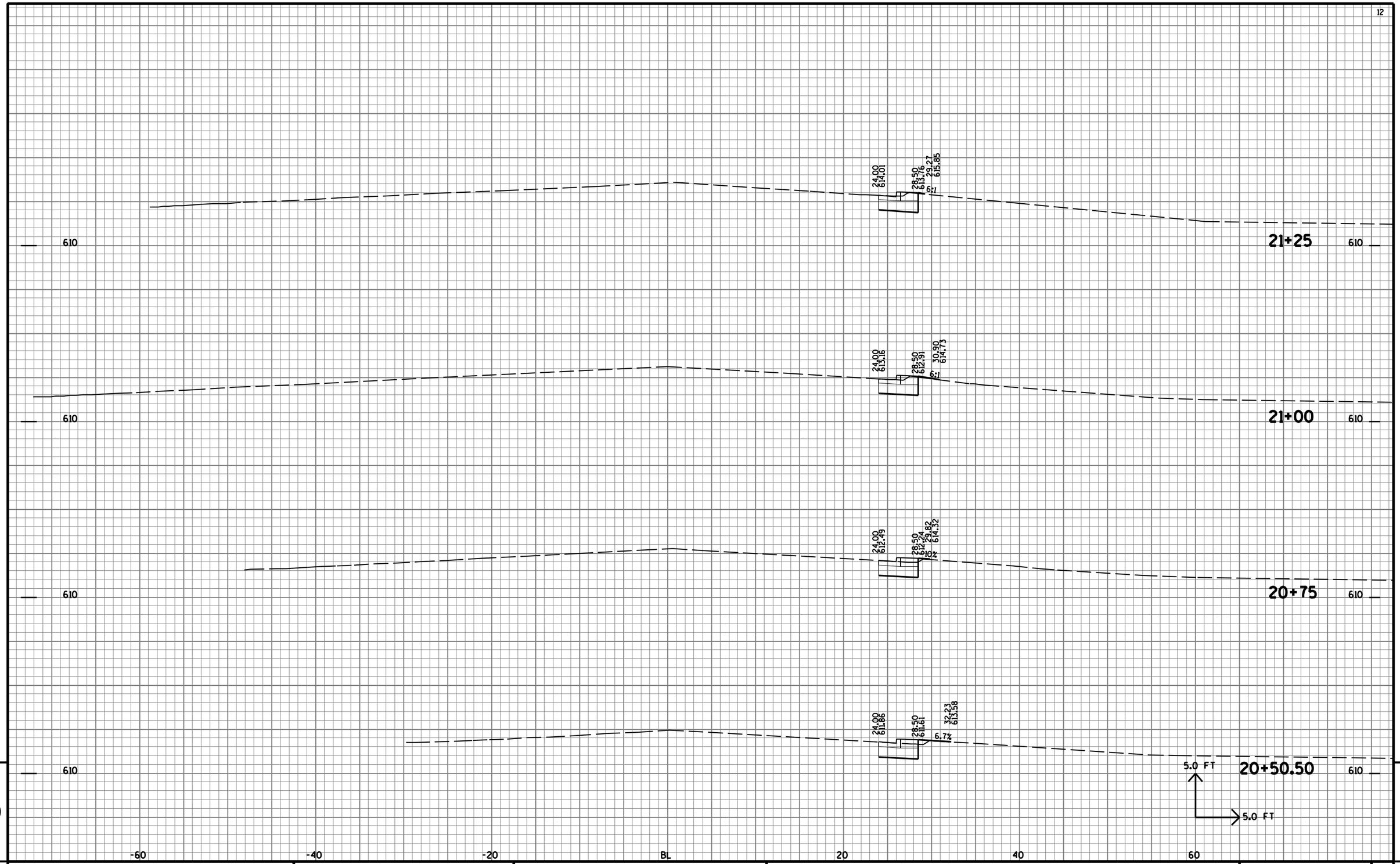
9

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: N 4TH STREET / IH 535 NB	SHEET NO:	E

FILE NAME : T:\410630\dgn\REVXS-4th.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

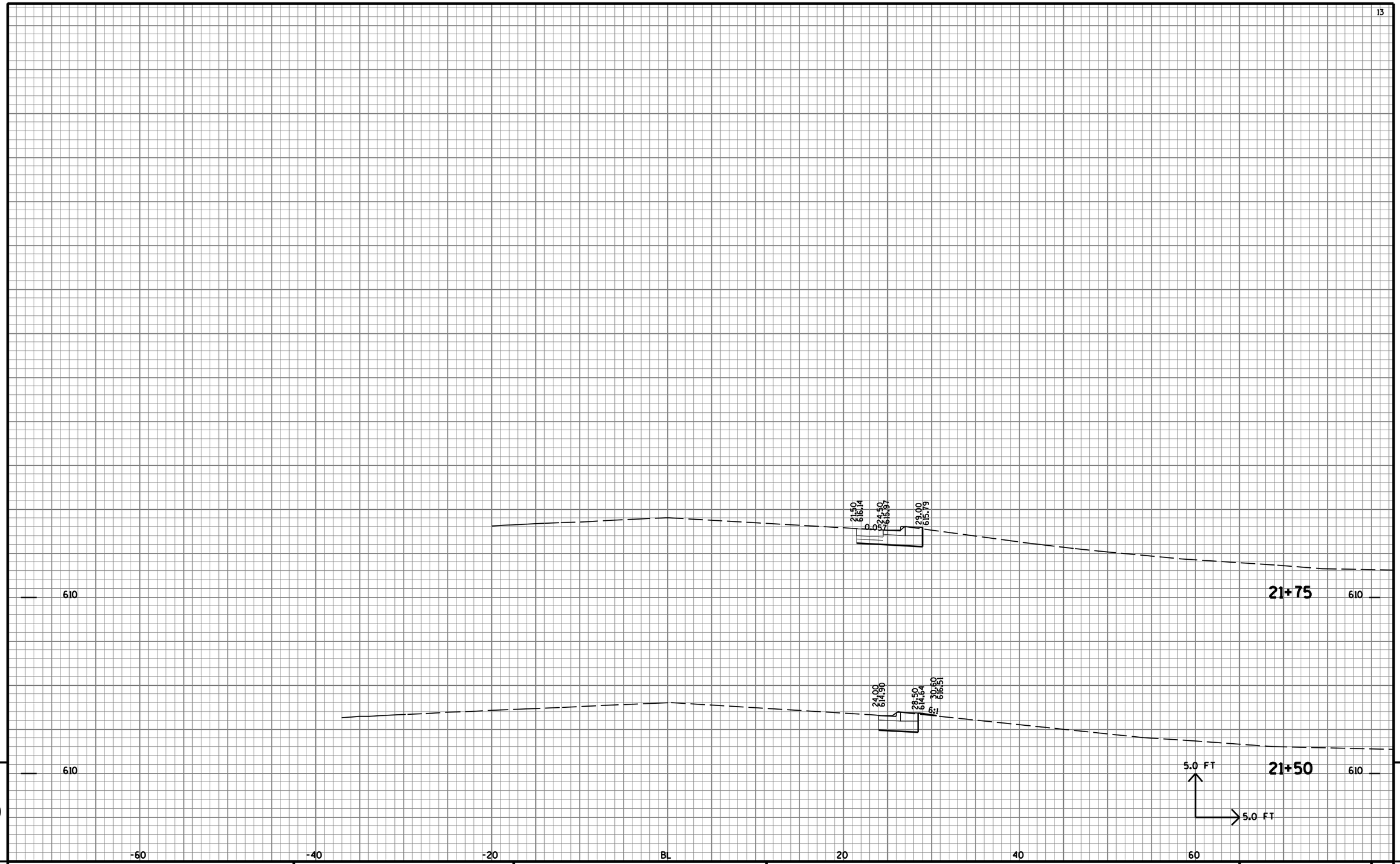


9

9

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: N 4TH STREET / IH 535 NB	SHEET NO:	E

FILE NAME : T:\410630\dgn\REVXS-4th.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC eau_shd_util.tbl PLOT SCALE : 1:2



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9

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: N 4TH STREET / IH 535 NB	SHEET NO: 83	E

FILE NAME : T:\410630\dgn\REVXS-4th.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

610
600

36.00
607.18
40.50
607.00
5%
45.58
608.39

610
600

0+50

610
600

36.00
606.91
40.50
606.73
42.60
608.77
5%

610
600

0+25

610
600

36.00
606.70
40.50
606.52

610
600

0+00

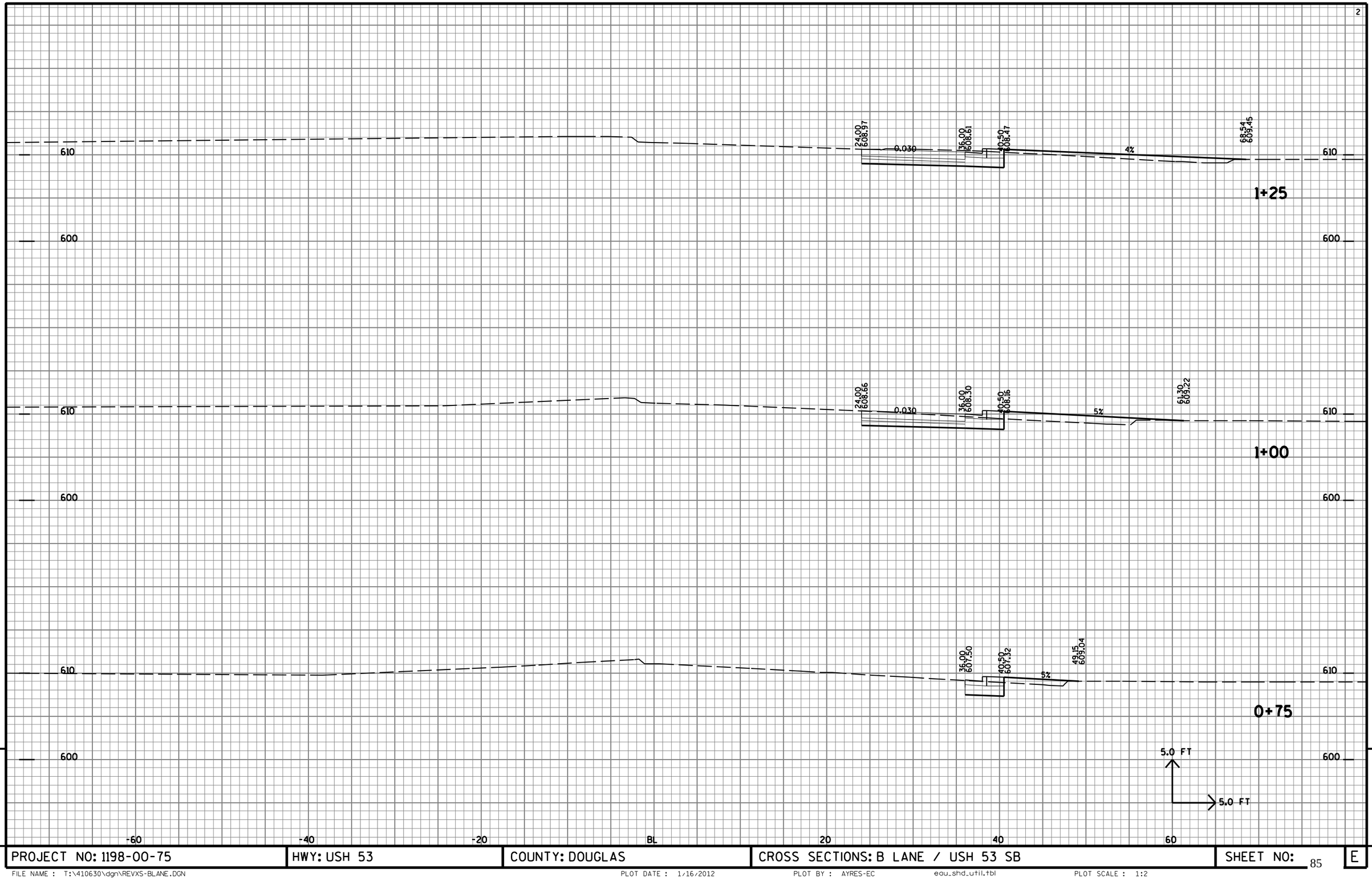
5.0 FT
5.0 FT

-60 -40 -20 BL 20 40 60

9 9

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: B LANE / USH 53 SB	SHEET NO:	E

FILE NAME : T:\410630\dgn\REVXS-BLANE.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC eau_shd_util.tbl PLOT SCALE : 1:2

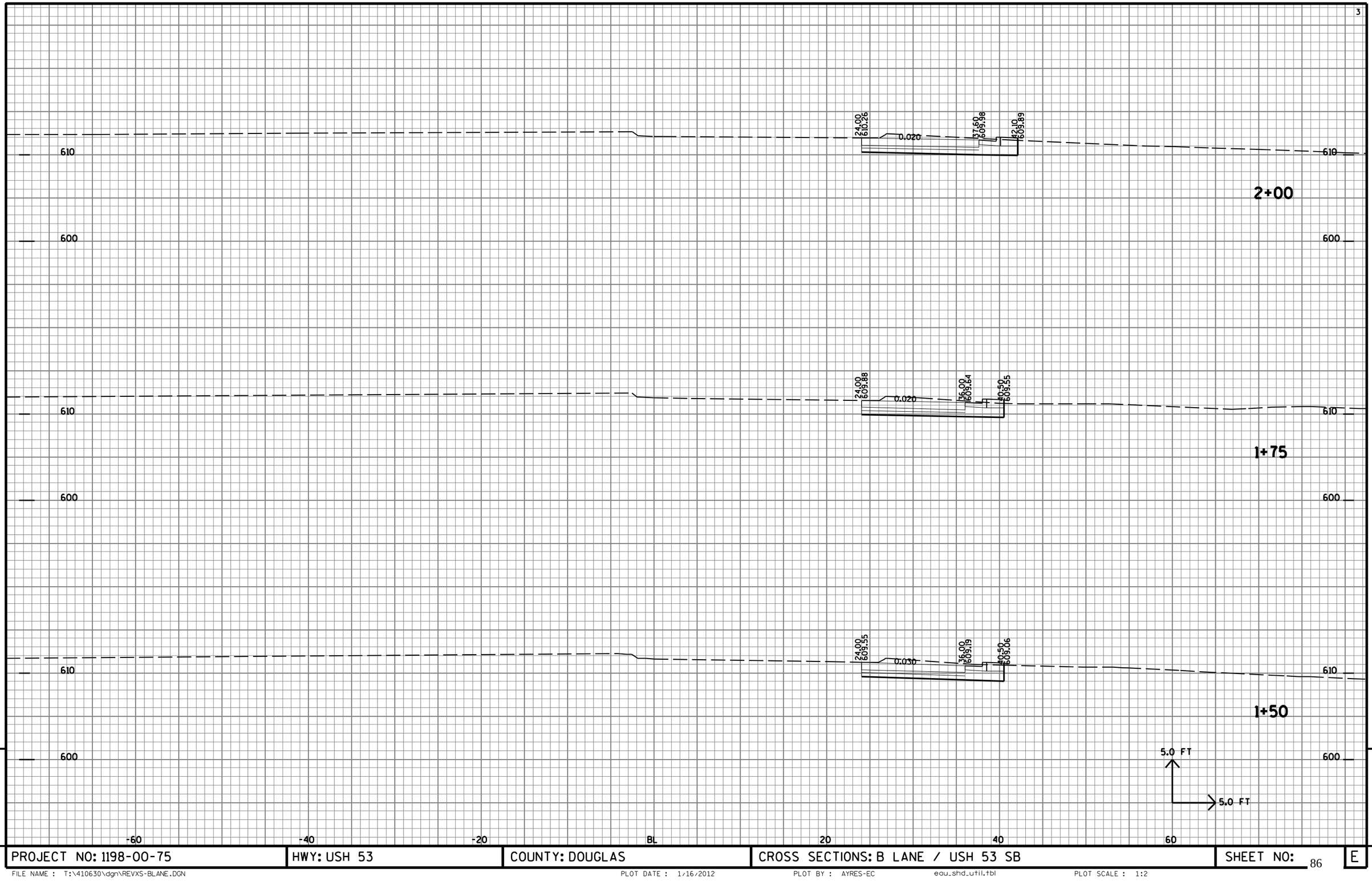


9

9

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: B LANE / USH 53 SB	SHEET NO: 85	E

FILE NAME : T:\410630\dgn\REVXS-BLANE.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC eau_shd_util.tbl PLOT SCALE : 1:2



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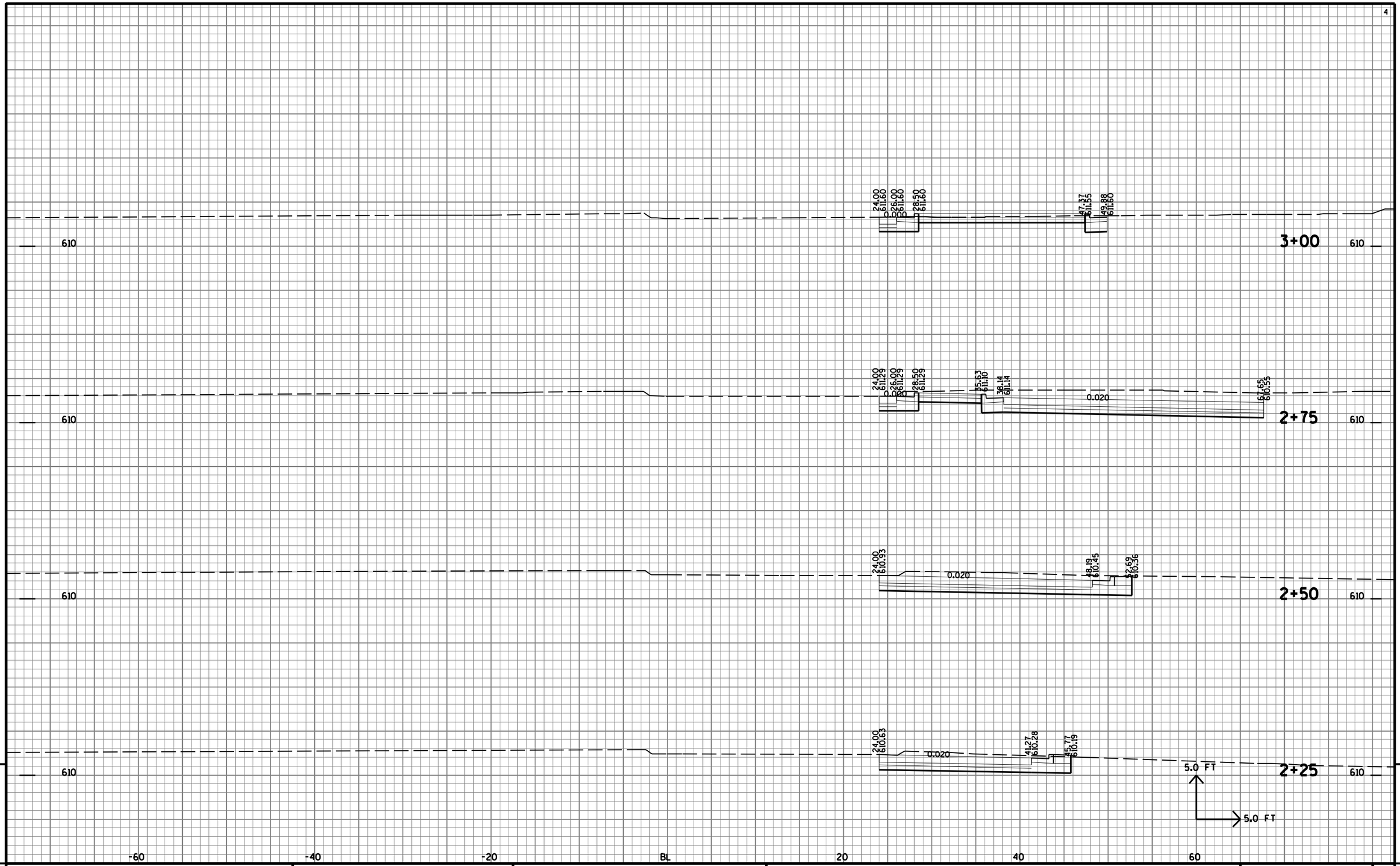
PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: B LANE / USH 53 SB	SHEET NO: 86	E

FILE NAME : T:\410630\dgn\REVXS-BLANE.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2



PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: B LANE / USH 53 SB	SHEET NO: 87	E

FILE NAME : T:\410630\dgn\REVXS-BLANE.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC eau_shd_util.tbl PLOT SCALE : 1:2

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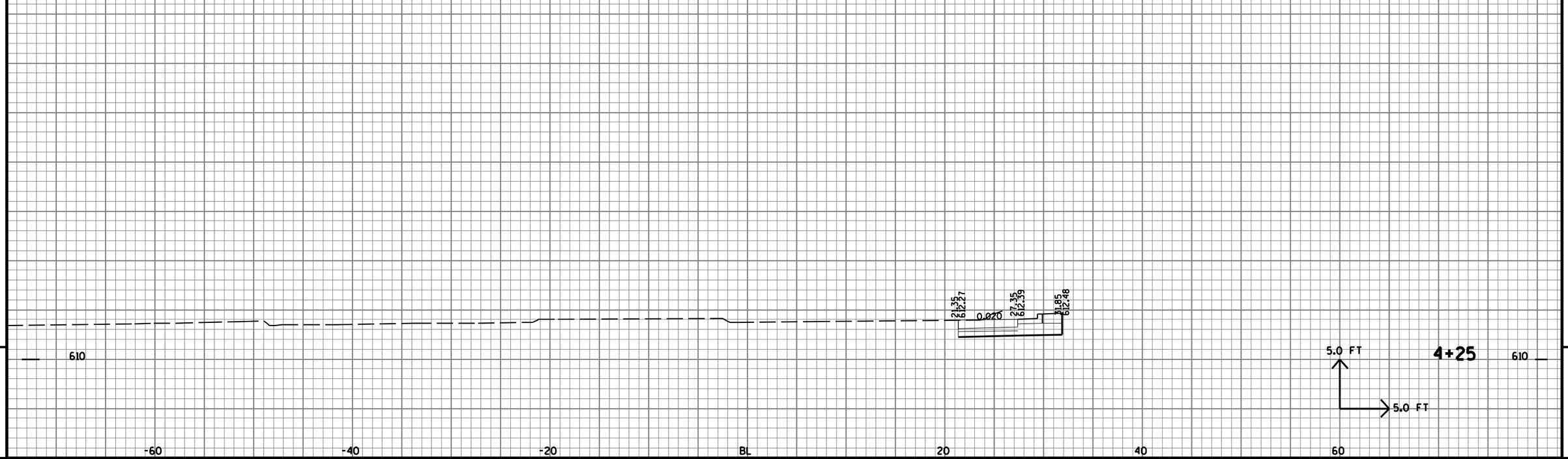
PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: B LANE / USH 53 SB	SHEET NO: 88	E

FILE NAME : T:\410630\dgn\REVXS-BLANE.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2



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9

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: B LANE / USH 53 SB	SHEET NO: 89	E

-27.00
610.71
3.00
609.72
610
610
5+50
600
600
-27.00
610.75
3.00
609.58
610
610
5+25
600
600
-27.00
610.64
3.00
609.41
610
610
5+00
600
600
5.0 FT
5.0 FT
-60
-40
-20
BL
20
40
60

9

9

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: B RAMP REMOVAL	SHEET NO: 90	E

FILE NAME : T:\410630\dgn\REVXS-BRAMP.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

-27.00
611.62
3.00
610.42
610
610
600
600
6+25

-27.00
611.29
3.00
610.19
610
610
600
600
6+00

-27.00
610.85
3.00
609.95
610
610
600
600
5+75

5.0 FT
5.0 FT

-60 -40 -20 BL 20 40 60

9 9

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: B RAMP REMOVAL	SHEET NO: 91	E

FILE NAME : T:\410630\dgn\REVXS-BRAMP.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

610

7+00

610

-27.00
612.16

3.00
610.83

610

610

6+75

600

600

610

610

6+50

600

600

5.0 FT

5.0 FT

9

9

-60

-40

-20

BL

20

40

60

PROJECT NO: 1198-00-75	HWY: USH 53	COUNTY: DOUGLAS	CROSS SECTIONS: B RAMP REMOVAL	SHEET NO: 92	E

FILE NAME : T:\410630\dgn\REVXS-BRAMP.DGN PLOT DATE : 1/16/2012 PLOT BY : AYRES-EC edu_shd_util.tbl PLOT SCALE : 1:2

Notes

Wisconsin Department of Transportation

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