STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
CITY OF ROCHESTER

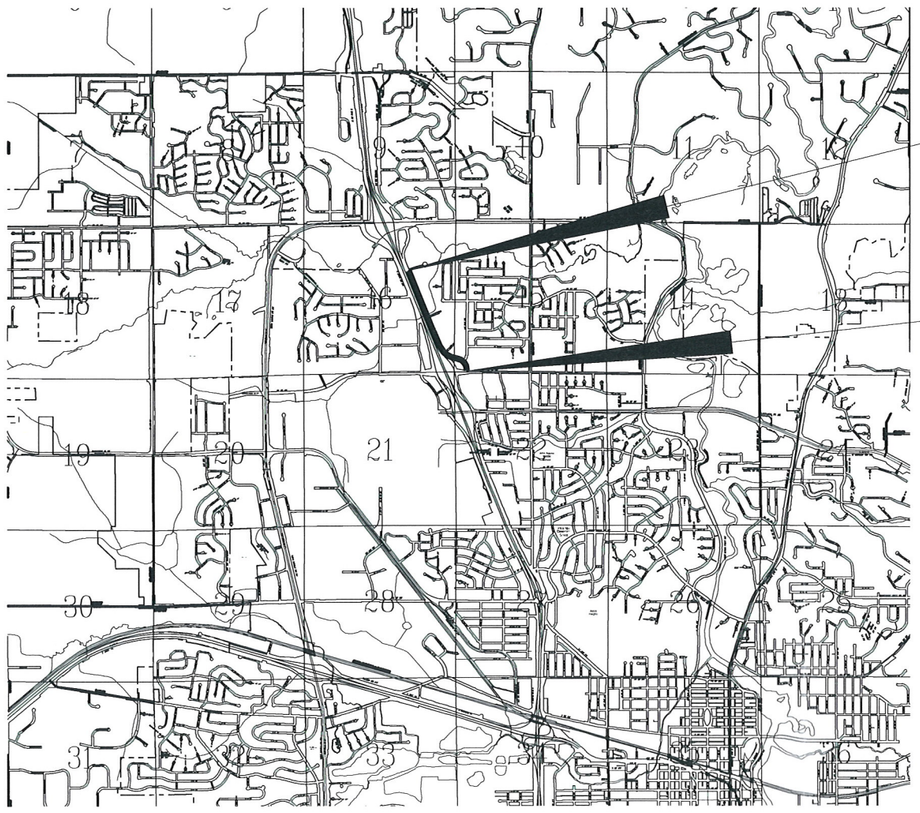
CONSTRUCTION PLAN FOR: GRADING, AGGREGATE BASE, BITUMINOUS MILLING, BITUMINOUS SURFACING, CURB & GUTTER AND SIGNAL RELOCATION.

LOCATED ON TH 52 EAST FRONTAGE ROAD FROM THE INTERSECTION OF 41ST STREET NW TO THE INTERSECTION OF PENNINGTON COURT NW

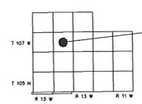
LEGAL DESCRIPTION: FROM A POINT THAT IS 438.60' EAST AND 5.33' NORTH OF THE SOUTHWEST CORNER OF SECTION 15, TOWNSHIP 107 N., RANGE 14 W. TO A POINT THAT IS 1622.81' WEST AND 1737.38' SOUTH OF THE NORTH EAST CORNER OF SECTION 16, TOWNSHIP 107N., RANGE 14W

STATE PROJECT NO. 159-130-004

GROSS LENGTH	4237.53 ft.	0.803 MILES
EXCEPTIONS LENGTH	0.00 ft.	0.00 MILES
NET LENGTH	4237.53 ft.	0.803 MILES



0 2640 5280
SCALE (IN FEET)



CAUTION

ALL UNDERGROUND AND OVERHEAD UTILITY LOCATIONS SHOWN ARE APPROXIMATE. THERE MAY BE ADDITIONAL UNDERGROUND AND OVERHEAD UTILITIES NOT SHOWN ON THE PLAN THAT MAY BE REQUIRED TO BE REMOVED. IT IS THE CONTRACTORS RESPONSIBILITY TO REQUEST A GOPHER STATE ONE CALL PRIOR TO THE START OF ANY CONSTRUCTION.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

PLAN REVISIONS		
DATE	SHEET NO.(S)	APP. BY

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LEGEND

	EXISTING CONIFEROUS TREE
	EXISTING DECIDUOUS TREE
	EXISTING SHRUB
	EXISTING GUY ANCHOR
	EXISTING GUY ANCHOR
	EXISTING LIGHT POLE
	EXISTING POWER POLE
	EXISTING GROUND LIGHT
H E	EXISTING ELEC HANDHOLE
E	EXISTING ELEC MANHOLE
E	EXISTING ELEC METER
E	EXISTING ELEC PEDESTAL
	EXISTING ELEC SIGNAL
	EXISTING ELEC TRANFORMER BOX
G	EXISTING GAS METER
G	EXISTING GAS VALVE
H T	EXISTING TELE HANDHOLE
T	EXISTING TELE PEDESTAL
TV	EXISTING TV PEDESTAL
	EXISTING SIGN
	BENCH MARK
	FOUND CIM
	FOUND PIPE
	EXISTING APRON
S	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN
	EXISTING STORM INLET
ST	EXISTING STORM MAHNOLE
	EXISTING WATER CURB STOP
H W	EXISTING IRRIGATION CONTROL BOX
	EXISTING HYDRANT
W	EXISTING WATER METER
W	EXISTING WATER VALVE
	EXISTING FENCE
OHE	EXISTING OVERHEAD ELECTRIC
	EXISTING RETAINING WALL
	EXISTING SANITARY SEWER
SS SS	EXISTING SANITARY SEWER SERVICE
	EXISTING STORM SEWER
UGC	EXISTING UNDERGROUND CABLE TV
UGE	EXISTING UNDERGROUND ELECTRIC
FOC	EXISTING UNDERGROUND FIBER OPTIC
GAS	EXISTING UNDERGROUND GAS
UGT	EXISTING UNDERGROUND TELE
	EXISTING WATERMAIN
WS WS	EXISTING WATERMAIN SERVICE
	PROPOSED SANITARY SEWER
	PROPOSED STORM SEWER
* * * * * * *	PROPOSED SILT FENCE
	PROPOSED APRON
	PROPOSED CATCH BASIN
	PROPOSED STORM MANHOLE
	RANDOM RIPRAP
	PROPOSED SOD
	PROPOSED HYDROSEEDING
	PROPOSED EROSION CONTROL BLANKET
	EXISTING CONCRETE SURFACE
	EXISTING GRAVEL SURFACE

Signature: Craig N Britton — Craig Britton

Design Engineer: I hereby certify that this plan was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Date: 5/22/2013 License Number 44228

Signature: Brian Hinton

Signal Design Engineer: I hereby certify that these signal plans were prepared by me or under my direct supervision, that this plan conforms to the current MMUTCD (except where a variance has been granted), and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Date: 5/22/2013 License Number 20844

Signature: Kent A Rohr — Kent Rohr

Structural Engineer: I hereby certify that this plan was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Date: 5/22/2013 License Number 21179

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

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DESIGN DESIGNATION T.H. 52 E. FRONTAGE ROAD

ADT (Current Year)	2013	6197
ADT (Future Year)	2033	9296
HCADT (Future Year)	2033	548 (5.9%)
DESIGN LOADING		10 - TON
R-VALUE		30
SIGMA N18 (20)		915,000
FUNCTIONAL CLASSIFICATION		LOCAL
NO. AND WIDTH OF TRAFFIC LANES		2 @ 11 Ft
SHOULDER WIDTH		6 Ft
DESIGN SPEED		35 MPH
BASED ON SIGHT DISTANCE		STOPPING
HEIGHT OF EYE		3.50 Ft
HEIGHT OF OBJECT		2.00 Ft
STOP CONDITION AT:		41ST ST NW

LOCAL AGENCY SIGNATURES: ROCHESTER, MINNESOTA

Approved: Douglas Nelson, Manager of Engineering — Date 5/22/13

Approved: Richard Freese, Director of Public Works — Date 5/23/13

STATE AID APPROVALS:

District State Aid Engineer: Reviewed for Compliance with State Aid Rules / Policy — Date 06/03/2013

For State Aid Engineer: Approved for State Aid Funding — Date 06/03/2013

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LAND SURVEYORS BRAINERD, MN
ENVIRONMENTAL SERVICES DETROIT LAKES, MN
GRAND FORKS, ND
RED LAKE, MN
ROCHESTER, MN

TITLE SHEET

STATE AID PROJECT NO. 159-130-004

STATEMENT OF ESTIMATED QUANTITIES

LINE	NOTES	TABLE	SHEET NO	SPEC.REF. NUMBER	ITEM	UNIT	PARTICIPATING S.A.P. 159-130-004	NON-PARTICIPATING	STORM SEWER S.A.P. 159-130-004	TOTAL ESTIMATED QUANTITY
					1 STREET (350)					
1				2021.501	MOBILIZATION	L.S.	0.88	0.02	0.10	1
2	1	B	7	2104.501	REMOVE CURB & GUTTER	Lin Ft	2735			2735
3	1	B	7	2104.505	REMOVE CONCRETE DRIVEWAY PAVEMENT	Sq Yd	472			472
4	1	B	7	2104.505	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	Sq Yd	199			199
5	2,3	B	7	2104.505	REMOVE BITUMINOUS PAVEMENT	Sq Yd	1390			1390
6	2,4	B	7	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	Lin Ft	4335			4335
7	5	C	7	2104.523	SALVAGE SIGN	Each		37		37
8	6	A	7	2105.501	COMMON EXCAVATION (P)	Cu Yd	5500			5500
9		A	7	2105.525	TOPSOIL BORROW (LV)	Cu Yd	768			768
10	7	D	8	2211.503	AGGREGATE BASE (CV) CLASS 5	Cu Yd	3470			3470
11	8	B	7	2232.501	MILL BITUMINOUS SURFACE	Sq Yd	13688			13688
12	10	D	8	2360.501	TYPE SP 9.5 WEARING COURSE MIX (3,C)	Ton	2504			2504
13	10	D	8	2360.501	TYPE SP 12.5 WEARING COURSE MIX (3,C)	Ton	895			895
14	10	D	8	2360.502	TYPE SP 12.5 NON WEAR COURSE MIX (3,B)	Ton	895			895
15	10			2360.505	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	Ton	45			45
16		L	12	2504.602	ADJUST GATE VALVE & BOX	Each	11			11
17		L	12	2504.602	ADJUST CURB BOX	Each	3			3
18		D	8	2531.501	CONCRETE CURB & GUTTER DESIGN B612	Lin Ft	636			636
19	11	D	8	2531.501	CONCRETE CURB & GUTTER DESIGN B624	Lin Ft	5872			5872
20	11,13	D	8	2531.501	CONCRETE CURB & GUTTER DESIGN B624 (MOD)	Lin Ft	145			145
21	14	D	8	2531.502	CONCRETE CURB DESIGN V6	Lin Ft	72			72
22		D	8	2531.507	7" CONCRETE DRIVEWAY PAVEMENT	Sq Yd	293			293
23				2563.601	TRAFFIC CONTROL	L.S.	0.88	0.02	0.10	1
24		G	10	2564.531	SIGN PANELS TYPE C	Sq Ft	194.33			194.33
25		H	10	2564.531	SIGN PANELS TYPE D	Sq Ft	14.25			14.25
26	20			2564.602	FURNISH SIGN POST	Each	3			3
27	21			2571.541	TRANSPLANT TREE (SPADE SIZE 60")	Tree	4			4
28		E	9	2573.502	SILT FENCE, TYPE HEAVY DUTY	Lin Ft	3361			3361
29				2573.520	SEDIMENT REMOVAL BACKHOE	Hour	10			10
30		E	9	2573.530	STORM DRAIN INLET PROTECTION	Each	24			24
31		E	9	2573.540	FILTER LOG TYPE STRAW BIOROLL	Lin Ft	47			47
32				2573.550	EROSION CONTROL SUPERVISOR	L.S.	1			1
33				2573.602	TEMPORARY ROCK CONSTRUCTION ENTRANCE	Each	2			2
34	15	E	9	2575.501	SEEDING	Acre	0.8			0.8
35	15	E	9	2575.502	SEED MIXTURE 260	LB	80			79.9
36	16	E	9	2575.505	SODDING TYPE MINERAL	Sq Yd	1496			1496
37		E	9	2575.523	EROSION CONTROL BLANKETS CATEGORY 3	Sq Yd	3656			3656
38		E	9	2575.523	EROSION CONTROL BLANKETS CATEGORY 5	Sq Yd	212			212
39		E	9	2575.532	FERTILIZER TYPE 3	LB	302			302
40		F	9	2582.501	PAVT MSSG (RIGHT-THRU ARROW) EPOXY - GR IN	Each	1			1
41		F	9	2582.501	PAVT MSSG (BIKE SYMBOL) EPOXY - GR IN	Each	6			6
42		F	9	2582.501	PAVT MSSG (LT ARROW) EPOXY - GR IN	Each	13			13
43		F	9	2582.501	PAVT MSSG (RT ARROW) EPOXY - GR IN	Each	3			3
44		F	9	2582.502	4" SOLID LINE WHITE - EPOXY (GROUND IN)	Lin Ft	8369			8369
45	17	F	9	2582.502	6" SOLID LINE WHITE - EPOXY (GROUND IN)	Lin Ft	306			306
46	17	F	9	2582.502	12" SOLID LINE WHITE - EPOXY (GROUND IN)	Lin Ft	237			237
47		F	9	2582.502	4" SOLID LINE YELLOW - EPOXY (GROUND IN)	Lin Ft	2540			2540
48		F	9	2582.502	12" SOLID LINE YELLOW - EPOXY (GROUND IN)	Lin Ft	331			331
49		F	9	2582.502	4" BROKEN LINE YELLOW - EPOXY (GROUND IN)	Lin Ft	640			640
50		F	9	2582.502	4" DBLE SOLID LINE YELLOW - EPOXY (GR IN)	Lin Ft	2518			2518

STATEMENT OF ESTIMATED QUANTITY NOTES :

(P) - PLANNED QUANTITY

1. ALL SAW CUTTING THAT IS REQUIRED FOR THE REMOVAL OF CONCRETE CURB AND GUTTER, CONCRETE SIDEWALK, CONCRETE DRIVEWAYS, BITUMINOUS DRIVEWAYS AND BITUMINOUS PATCH AREAS SHALL BE INCIDENTAL TO THOSE ITEMS BID.
2. SHALL BE PAID AT THE UNIT PRICE BID REGARDLESS OF PAVEMENT THICKNESS.
3. ITEM INCLUDES THE REMOVAL OF BITUMINOUS PAVEMENT WITHIN THE ROADWAY SECTION FOR AREAS TO BE PATCHED PRIOR TO BITUMINOUS PAVING. AREAS SHALL BE MARKED BY THE ENGINEER IN THE FIELD FOLLOWING MILLING OPERATIONS.
4. QUANTITY IS BASED ON SAWING STREET PAVEMENT AT TERMINAL ENDS ONLY. ALL OTHER SAWING OF CONCRETE AND BITUMINOUS SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS BID.
5. ALL SIGNS AND SIGN POSTS, ONCE REMOVED, SHALL BECOME THE PROPERTY OF THE OWNER. THE CONTRACTOR SHALL REMOVE AND SALVAGE THE ITEMS, TRANSPORT AND NEATLY STOCKPILE THEM AT A LOCATION DESIGNATED BY THE OWNER.
6. ALL COMMON EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR. QUANTITY DOES NOT INCLUDE THE EXISTING BITUMINOUS AND/OR EXISTING CONCRETE PAVEMENT VOLUMES. NO DIRECT COMPENSATION SHALL BE MADE FOR STRIPPING, STOCKPILING AND RE-SPREADING OF EXISTING TOPSOIL.
7. PROVIDES FOR AGGREGATE BASE WITHIN THE ROADWAY ONLY. AGGREGATE BASE BENEATH DRIVEWAYS, SIDEWALKS, PEDESTRIAN CURB RAMPS AND REMOVED AND REPLACED CONCRETE CURB & GUTTER SHALL BE CONSIDERED INCIDENTAL TO THOSE ITEMS BID.
8. SHALL BE PAID FOR BY THE SQUARE YARD REGARDLESS OF BITUMINOUS MILLING DEPTH. CONTRACTORS SHALL COMPARE EXISTING AND PROPOSED GRADES AND BASE THEIR BIDS ACCORDINGLY.
9. ITEM INCLUDES EPOXY COATED REINFORCEMENT BARS FOR THE RETAINING WALL. SEE THE RETAINING WALL SHEETS FOR DETAILS. REINFORCEMENT BARS FURNISHED AND INSTALLED AT CATCH BASINS, CURB & GUTTER REPAIRS (MnDOT SA-CG), SIDEWALK CONNECTIONS (MnDOT SA-SW), BUS SHELTER FOUNDATION AND CURB SILLS SHALL BE CONSIDERED INCIDENTAL TO THOSE ITEMS BID.
10. BITUMINOUS MATERIAL FOR TACK COAT SHALL BE CONSIDERED INCIDENTAL TO THE ITEM BID.
11. CONNECT TO EXISTING CURB & GUTTER PER MnDOT SA-CG (CURB AND GUTTER REPAIR). DRILL AND HAMMER REINFORCEMENT BARS SHALL BE CONSIDERED INCIDENTAL.
12. PAYMENT FOR THIS ITEM SHALL BE MADE FOR ADJUSTING FRAME AND RING CASTINGS TO THEIR FINISHED 2013 GRADE. SEE EXISTING UTILITIES - SANITARY SEWER TABULATION K AND EXISTING UTILITIES - STORM SEWER TABULATION J FOR EXISTING AND PROPOSED CASTING ELEVATIONS.
13. ITEM INCLUDES CURB & GUTTER THAT CONTAINS A CONCRETE SILL. CONCRETE SILL SHALL BE CONSTRUCTED AT ALL PEDESTRIAN RAMPS AND WHERE SIDEWALK ABUTS THE CURB & GUTTER.
14. VERTICAL CURB TO BE USED AT PEDESTRIAN CURB RAMPS AND WITHIN MEDIAN REFUGE AREAS AS INDICATED IN THE PLANS.
15. SEED MIXTURE 260 TO BE PLACED AT A RATE OF 100 LBS / ACRE. SEED SHALL BE PLACED AND RAKED / DRAGGED IN PRIOR TO PLACEMENT OF EROSION CONTROL BLANKET. THE AREA TO BE SEEDED SHALL INCLUDE THE WEST SIDE OF THE FRONTAGE ROAD FROM APPROXIMATE STATION 19+50 TO THE NORTH END OF THE PROJECT AND/OR AS DIRECTED BY THE ENGINEER IN THE FIELD. SEE EROSION CONTROL PLAN AND TABULATION FOR LOCATIONS.
16. SODDING TYPE MINERAL SHALL BE PLACED IN THE DISTURBED AREAS ON THE EAST SIDE OF THE FRONTAGE ROAD, ON THE WEST SIDE OF THE FRONTAGE ROAD FROM THE BEGINNING OF THE PROJECT TO APPROXIMATE STATION 19+50 AND/OR AS DIRECTED BY THE ENGINEER IN THE FIELD. SEE EROSION CONTROL PLAN AND TABULATION FOR LOCATIONS.
17. 6 INCH SOLID LINE WHITE STRIPING TO BE PLACED AT CROSSWALK LOCATIONS. 12 INCH SOLID LINE WHITE STRIPING TO BE PLACED AT STOP BARS. SEE PAVEMENT MARKING AND SIGNING PLAN FOR LOCATIONS.
18. CONNECT TO EXISTING SIDEWALK PER MnDOT SA-SW (SIDEWALK OR MEDIAN REPAIR). ALL COSTS OF COMPLETING THE WORK AS SPECIFIED SHALL BE INCLUDED IN THE UNIT PRICE BID.
19. ITEM TO INCLUDE CONCRETE SIDEWALK FOR PEDESTRIAN CURB RAMPS AND CONCRETE SLAB FOR BUS SHELTER.
20. SEE PAVEMENT MARKING AND SIGNING PLAN FOR LOCATIONS. COORDINATE LOCATION WITH OWNER.
21. TRANSPLANT TREES TO ON-SITE LOCATION AS DIRECTED BY THE ENGINEER IN THE FIELD. SEE THE REMOVALS PLAN FOR TREES TO BE TRANSPLANTED.
22. ITEM PROVIDED FOR THE RELOCATED BUS SHELTER FOUNDATION. SHALL INCLUDE ALL COSTS OF CONSTRUCTING THE BUS SHELTER AS SPECIFIED PER THE BUS SHELTER DETAILS.
23. ITEM SHALL INCLUDE 6" COLORED (FEDERAL CONCRETE NO. 20220) CONCRETE WITH A WINDOW PANE FINISH TO BE PLACED IN THE MEDIANS BETWEEN 41st STREET NW AND 22nd AVENUE NW.

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY B.R.B.
DESIGNED BY C.N.B.
CHECKED BY C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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BAXTER, MN
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CROOKSTON, MN
GRAND FORKS, ND
RED WING, MN
ROCHESTER, MN

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

STATEMENT OF ESTIMATED QUANTITIES

STATEMENT OF ESTIMATED QUANTITIES (CONTINUED)

LINE	NOTES	TABLE	SHEET NO	SPEC.REF. NUMBER	ITEM	UNIT	PARTICIPATING S.A.P. 159-130-004	NON-PARTICIPATING	STORM SEWER S.A.P. 159-130-004	TOTAL ESTIMATED QUANTITY
					2 PED FACILITIES (550)					
51	1	B	7	2104.503	REMOVE CONCRETE SIDEWALK	Sq Ft	5218			5218
52	22		23	2401.511	STRUCTURAL CONCRETE (3Y33A)	Sq Ft	91			91
53	18	D	8	2521.501	5" CONCRETE WALK	Sq Ft	4112			4112
54	19	D	8	2521.501	6" CONCRETE WALK	Sq Ft	899			899
55	23	D	8	2521.501	6" CONCRETE WALK SPECIAL	Sq Ft	1618			1618
56		D	8	2521.501	7" CONCRETE WALK	Sq Ft	134			134
57		D	8	2531.618	TRUNCATED DOMES	Sq Ft	155			155
58				2540.601	RELOCATE BUS SHELTER	L.S.	1			1
					3 STORM SEWER (450)					
59		J	12	2104.501	REMOVE SEWER PIPE (STORM)	Lin Ft	236			236
60		J	12	2104.509	REMOVE CONCRETE APRON	Each	2			2
61		J	12	2104.509	REMOVE MANHOLE OR CATCH BASIN	Each	7			7
62		J	12	2104.523	SALVAGE CONCRETE APRON	Each	4			4
63			66	2401.501	STRUCTURAL CONCRETE (1A43)	Cu Yd			5	5
64			66	2401.501	STRUCTURAL CONCRETE (3Y43A)	Cu Yd			15	15
65			66	2401.541	REINFORCEMENT BARS	LB			200	200
66	9		66	2401.541	REINFORCEMENT BARS (EPOXY COATED)	LB			1710	1710
67		I	11	2501.515	12" RC PIPE APRON	Each			2	2
68		I	11	2501.515	30" RC PIPE APRON	Each			1	1
69		I	11	2501.573	INSTALL CONCRETE APRON	Each			4	4
70		I	11	2503.511	12" PVC PIPE SEWER	Lin Ft			8	8
71		I	11	2503.541	12" RC PIPE SEWER DES 3006 CL V	Lin Ft			92	92
72		I	11	2503.541	15" RC PIPE SEWER DES 3006 CL V	Lin Ft			100	100
73		I	11	2503.541	18" RC PIPE SEWER DES 3006 CL III	Lin Ft			80	80
74		I	11	2503.541	24" RC PIPE SEWER DES 3006 CL III	Lin Ft			16	16
75		I	11	2503.541	27" RC PIPE SEWER DES 3006 CL III	Lin Ft			8	8
76		I	11	2503.541	30" RC PIPE SEWER DES 3006 CL III	Lin Ft			36	36
77		I	11	2503.602	CONNECT TO EXISTING STORM SEWER	Each			15	15
78		I	11	2503.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE	Each			1	1
79		I	11	2506.502	CONST DRAINAGE STRUCTURE DESIGN SPEC 1	Each			10	10
80		I	11	2506.502	CONST DRAINAGE STRUCTURE DESIGN SPEC 4	Each			10	10
81	12	J	12	2506.602	ADJUST FRAME & RING CASTING	Each			4	4
82		I	11	2511.501	RANDOM RIP RAP CLASS III	Cu Yd			55	55.4
83			66	2557.603	CHAIN LINK SAFETY FENCE	Lin Ft			57	57
					4 SANITARY SEWER (250)					
84		K	12	2104.501	REMOVE SEWER PIPE (SANITARY)	Lin Ft		58		58
85				2451.609	GRANULAR FOUNDATION AND/OR BEDDING	Ton		19		19
86				2503.511	15" PVC PIPE SEWER	Lin Ft		58		58
87				2503.601	MAINTENANCE OF SANITARY SEWER SERVICE	L.S.		1		1
88				2503.602	CONNECT TO EXISTING SANITARY SEWER	Each		2		2
89				2503.603	SANITARY SEWER INSPECTION	Lin Ft		58		58
90	12	K	12	2506.602	ADJUST FRAME & RING CASTING	Each		7		7
91		K	12	2506.602	FURNISH & INSTALL MANHOLE WATERPROOFING-INT	Each		7		7
					5 TRAFFIC (650)					
92				2565.616	REVISE SIGNAL SYSTEM	SYS	1			1

STATEMENT OF ESTIMATED QUANTITY NOTES :

(P) - PLANNED QUANTITY

1. ALL SAW CUTTING THAT IS REQUIRED FOR THE REMOVAL OF CONCRETE CURB AND GUTTER, CONCRETE SIDEWALK, CONCRETE DRIVEWAYS, BITUMINOUS DRIVEWAYS AND BITUMINOUS PATCH AREAS SHALL BE INCIDENTAL TO THOSE ITEMS BID.
2. SHALL BE PAID AT THE UNIT PRICE BID REGARDLESS OF PAVEMENT THICKNESS.
3. ITEM INCLUDES THE REMOVAL OF BITUMINOUS PAVEMENT WITHIN THE ROADWAY SECTION FOR AREAS TO BE PATCHED PRIOR TO BITUMINOUS PAVING. AREAS SHALL BE MARKED BY THE ENGINEER IN THE FIELD FOLLOWING MILLING OPERATIONS.
4. QUANTITY IS BASED ON SAWING STREET PAVEMENT AT TERMINAL ENDS ONLY. ALL OTHER SAWING OF CONCRETE AND BITUMINOUS SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS BID.
5. ALL SIGNS AND SIGN POSTS, ONCE REMOVED, SHALL BECOME THE PROPERTY OF THE OWNER. THE CONTRACTOR SHALL REMOVE AND SALVAGE THE ITEMS, TRANSPORT AND NEATLY STOCKPILE THEM AT A LOCATION DESIGNATED BY THE OWNER.
6. ALL COMMON EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR. QUANTITY DOES NOT INCLUDE THE EXISTING BITUMINOUS AND/OR EXISTING CONCRETE PAVEMENT VOLUMES. NO DIRECT COMPENSATION SHALL BE MADE FOR STRIPPING, STOCKPILING AND RE-SPREADING OF EXISTING TOPSOIL.
7. PROVIDES FOR AGGREGATE BASE WITHIN THE ROADWAY ONLY. AGGREGATE BASE BENEATH DRIVEWAYS, SIDEWALKS, PEDESTRIAN CURB RAMPS AND REMOVED AND REPLACED CONCRETE CURB & GUTTER SHALL BE CONSIDERED INCIDENTAL TO THOSE ITEMS BID.
8. SHALL BE PAID FOR BY THE SQUARE YARD REGARDLESS OF BITUMINOUS MILLING DEPTH. CONTRACTORS SHALL COMPARE EXISTING AND PROPOSED GRADES AND BASE THEIR BIDS ACCORDINGLY.
9. ITEM INCLUDES EPOXY COATED REINFORCEMENT BARS FOR THE RETAINING WALL. SEE THE RETAINING WALL SHEETS FOR DETAILS. REINFORCEMENT BARS FURNISHED AND INSTALLED AT CATCH BASINS, CURB & GUTTER REPAIRS (MnDOT SA-CG), SIDEWALK CONNECTIONS (MnDOT SA-SW), BUS SHELTER FOUNDATION AND CURB SILLS SHALL BE CONSIDERED INCIDENTAL TO THOSE ITEMS BID.
10. BITUMINOUS MATERIAL FOR TACK COAT SHALL BE CONSIDERED INCIDENTAL TO THE ITEM BID.
11. CONNECT TO EXISTING CURB & GUTTER PER MnDOT SA-CG (CURB AND GUTTER REPAIR). DRILL AND HAMMER REINFORCEMENT BARS SHALL BE CONSIDERED INCIDENTAL.
12. PAYMENT FOR THIS ITEM SHALL BE MADE FOR ADJUSTING FRAME AND RING CASTINGS TO THEIR FINISHED 2013 GRADE. SEE EXISTING UTILITIES - SANITARY SEWER TABULATION K AND EXISTING UTILITIES - STORM SEWER TABULATION J FOR EXISTING AND PROPOSED CASTING ELEVATIONS.
13. ITEM INCLUDES CURB & GUTTER THAT CONTAINS A CONCRETE SILL. CONCRETE SILL SHALL BE CONSTRUCTED AT ALL PEDESTRIAN RAMPS AND WHERE SIDEWALK ABUTS THE CURB & GUTTER.
14. VERTICAL CURB TO BE USED AT PEDESTRIAN CURB RAMPS AND WITHIN MEDIAN REFUGE AREAS AS INDICATED IN THE PLANS.
15. SEED MIXTURE 260 TO BE PLACED AT A RATE OF 100 LBS / ACRE. SEED SHALL BE PLACED AND RAKED / DRAGGED IN PRIOR TO PLACEMENT OF EROSION CONTROL BLANKET. THE AREA TO BE SEEDED SHALL INCLUDE THE WEST SIDE OF THE FRONTAGE ROAD FROM APPROXIMATE STATION 19+50 TO THE NORTH END OF THE PROJECT AND/OR AS DIRECTED BY THE ENGINEER IN THE FIELD. SEE EROSION CONTROL PLAN AND TABULATION FOR LOCATIONS.
16. SODDING TYPE MINERAL SHALL BE PLACED IN THE DISTURBED AREAS ON THE EAST SIDE OF THE FRONTAGE ROAD, ON THE WEST SIDE OF THE FRONTAGE ROAD FROM THE BEGINNING OF THE PROJECT TO APPROXIMATE STATION 19+50 AND/OR AS DIRECTED BY THE ENGINEER IN THE FIELD. SEE EROSION CONTROL PLAN AND TABULATION FOR LOCATIONS.
17. 6 INCH SOLID LINE WHITE STRIPING TO BE PLACED AT CROSSWALK LOCATIONS. 12 INCH SOLID LINE WHITE STRIPING TO BE PLACED AT STOP BARS. SEE PAVEMENT MARKING AND SIGNING PLAN FOR LOCATIONS.
18. CONNECT TO EXISTING SIDEWALK PER MnDOT SA-SW (SIDEWALK OR MEDIAN REPAIR). ALL COSTS OF COMPLETING THE WORK AS SPECIFIED SHALL BE INCLUDED IN THE UNIT PRICE BID.
19. ITEM TO INCLUDE CONCRETE SIDEWALK FOR PEDESTRIAN CURB RAMPS AND CONCRETE SLAB FOR BUS SHELTER.
20. SEE PAVEMENT MARKING AND SIGNING PLAN FOR LOCATIONS. COORDINATE LOCATION WITH OWNER.
21. TRANSPLANT TREES TO ON-SITE LOCATION AS DIRECTED BY THE ENGINEER IN THE FIELD. SEE THE REMOVALS PLAN FOR TREES TO BE TRANSPLANTED.
22. ITEM PROVIDED FOR THE RELOCATED BUS SHELTER FOUNDATION. SHALL INCLUDE ALL COSTS OF CONSTRUCTING THE BUS SHELTER AS SPECIFIED PER THE BUS SHELTER DETAILS.
23. ITEM SHALL INCLUDE 6" COLORED (FEDERAL CONCRETE NO. 20220) CONCRETE WITH A WINDOW PANE FINISH TO BE PLACED IN THE MEDIANS BETWEEN 41st STREET NW AND 22nd AVENUE NW.

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY B.R.B.
DESIGNED BY C.N.B.
CHECKED BY C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: Craig N. Britton
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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STATEMENT OF ESTIMATED QUANTITIES

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

CONSTRUCTION/SOIL NOTES

GRADING, BASE AND SURFACE

1. TOP OF THE GRADING SUBSTRATE (GRADING GRADE) IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.

2. UNSUITABLE MATERIALS ARE TOPSOILS, DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSTABLE SOILS.

3. STRIP SOD AND TOPSOIL FROM AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING.

4. ALL TOPSOIL STRIPPING WILL BE INCLUDED IN THE COMMON EXCAVATION QUANTITIES.

5. THE ORGANIC PORTIONS OF THE SURFICIAL DEPOSITS SHOULD BE REMOVED WITH A MINIMUM 1' DEEP SUBCUT IN THE PROPOSED ROADWAY AREAS PRIOR TO CONSTRUCTION OF THE PAVEMENT SECTION. BACKFILL WITH SELECT GRANULAR MATERIAL MODIFIED. ANY UNCONTAMINATED COMMON EMBANKMENT MATERIAL REMOVED FROM THE EXISTING SUBGRADE AREA MAY BE USED IN OTHER AREAS DESIGNATED FOR COMMON EMBANKMENT MATERIAL.

6. EXCESS TOPSOIL AND MUCK MATERIAL SHALL BE USED THROUGHOUT THE PROJECT AND AS DIRECTED BY THE ENGINEER.

7. OBTAIN COMPACTION ON THE GRADING PORTIONS OF PERMANENT CONSTRUCTION IN ACCORDANCE WITH THE
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AGGREGATE BASE SPECIFICATION, INCLUDED IN THE SPECIAL PROVISIONS. THIS WOULD INCLUDE ANY AREAS WHERE CRUSHED CONCRETE OR SALVAGED ASPHALT MAY BE USED FOR AGGREGATE BASE.

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CONTRACTOR SHALL USE A MINIMUM OF 4 PASSES OF AN APPROVED COMPACTION DEVICE.

10. WHERE CONNECTING TO THE INPLACE ROADWAYS AT THE TERMINI OF PROPOSED CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING, WHICHEVER IS DEEPER, THEN 1(V):20(H) TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION, UNLESS OTHERWISE NOTED.

11. PROVIDE 1(V):20(H) LONGITUDINAL TAPERS BETWEEN CHANGES IN SUBGRADE AND SUBCUT DEPTHS.

12. DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.

13. PROVIDE FOR A UNIFORM BITUMINOUS TACK COAT BETWEEN ALL BITUMINOUS COURSES. ALL COSTS ASSOCIATED WITH THE FURNISHING AND PLACEMENT OF THE TACK COAT SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS BID. THE TACK COAT SHALL BE IN ACCORDANCE WITH MN/DOT SPECIFICATION 2357 WITH THE FOLLOWING MODIFICATIONS:

    1) THE TACK COAT SHALL CONSIST OF EMULSIFIED ASPHALT (CSS-1 OR CSS-1H) AND SHALL BE APPLIED BETWEEN ALL BITUMINOUS COURSES.

    2) THE TACK COAT SHALL BE APPLIED AT A UNIFORM RATE OF 0.03 TO 0.05 GAL/SY BETWEEN BITUMINOUS LAYERS AND 0.07 TO 0.10 GAL/SY ON MILLED BITUMINOUS SURFACES PRIOR TO BEING OVERLAID.

14. DEPRESSIONS RESULTING FROM MILLING, AIR BLOWING, AND SWEEPING OPERATIONS THAT ARE GREATER THAN 0.5 INCHES DEEP AND 4 INCHES WIDE, AND CRACKS AND JOINTS THAT ARE GREATER THAN 1 INCH WIDE SHALL BE PATCHED WITH MnDOT SPECIFICATION 2231 BITUMINOUS PATCHING MIXTURE AS DIRECTED BY THE ENGINEER. THE PATCHING MIXTURE SHALL MEET THE REQUIREMENTS OF TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB340C). PATCHING SHALL BE PERFORMED PRIOR TO PAVING AND SHALL BE COMPACTED BY THE "ORDINARY COMPACTION METHOD" INCLUDING ROLLING WITH A PNEUMATIC-TIRED ROLLER.

15. STABILIZING AGGREGATE SHALL BE INCORPORATED INTO THE SUBGRADE TO ACHIEVE SATISFACTORY SURFACE STABILITY AT LOCATIONS DEEMED NECESSARY BY THE ENGINEER, IN ACCORDANCE WITH THE PROVISIONS OF SPEC. 2105.3G. GRANULAR MATERIAL WHICH IS FURNISHED BY THE CONTRACTOR SHALL BE STABILIZED, IF NECESSARY, AT THE CONTRACTOR'S EXPENSE. WHERE STABILIZING AGGREGATE IS DEEMED NECESSARY, IT SHALL BE APPLIED AT A RATE OF APPROXIMATELY 200 LBS/SY.

16. PROVIDE A SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT.

17. ALL PEDESTRIAN RAMPS SHALL MEET THE PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG), TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT.

18. CONNECT TO EXISTING CONCRETE CURB & GUTTER AND SIDEWALK IN ACCORDANCE WITH MnDOT STATE AID CONCRETE PAVEMENT REHABILITATION BEST PRACTICES MANUAL, REPAIR TYPE SA-CG AND SA-SW, RESPECTIVELY.

REMOVALS

18. PROVIDE FOR THE REMOVAL AND DISPOSAL OF ANY INPLACE SURFACING, OTHER STRUCTURES OR DEBRIS THAT WOULD INTERFERE WITH CONSTRUCTION. ALL SUCH MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR, UNLESS OTHERWISE NOTED, AND SHALL EITHER BE RECYCLED TO THE EXTENT ALLOWED OR DISPOSED OF OFF THE RIGHT OF WAY IN ACCORDANCE WITH SPEC. 2104.03.C. PROVIDE FOR SAW CUTTING AS DEEMED NECESSARY BY THE ENGINEER.

19. THE EXISTING PAVEMENT THICKNESSES ARE ASSUMED TO BE AS FOLLOWS:
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THE CONTRACTOR SHALL INVESTIGATE AND MAKE THEIR OWN DETERMINATION. (INFORMATION TAKEN FROM THE PROJECT RECORD DRAWINGS).

TURF ESTABLISHMENT

20. PLACE A MINIMUM OF 4 INCHES OF TOPSOIL IN SEED AND SOD AREAS SCHEDULED FOR PERMANENT TURF ESTABLISHMENT.

21. SOD ALL AREAS ADJACENT TO RESIDENCES OR BUSINESSES AND AREAS OF HEAVY DRAINAGE RUNOFF, AS INDICATED IN THE TURF ESTABLISHMENT AND EROSION CONTROL PLANS AND DETAILS.

22. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE LATER THAN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

23. SEEDING REQUIREMENTS ON THIS PROJECT ARE AS FOLLOWS:

    A. ON PERMANENT SLOPES STEEPER THAN 1:3 USE SOD OR SEED MIXTURE 260 AND EROSION CONTROL BLANKET CATEGORY 3. DO NOT DISK ANCHOR.

    B. PROVIDE COMMERCIAL FERTILIZER TYPE 3, OR EQUIVALENT ON ALL AREAS TO BE SEEDED OR SODDED.

MISCELLANEOUS

24. WHERE SEDIMENT DEPOSITS OFF-SITE OR IN A DITCH OR STREAM CHANNEL IN ANY LOCATION, THE MATERIAL MUST BE REMOVED BY THE CONTRACTOR, AT THEIR EXPENSE, WITHIN 2 DAYS.

25. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MMUTCD.

26. THE CONTRACTOR IS HEREBY REMINDED OF THEIR RESPONSIBILITY UNDER STATE LAW TO CONTACT ALL UTILITIES THAT MAY HAVE FACILITIES IN THE AREA. CONTACT MUST BE MADE THROUGH GOPHER STATE ONE-CALL.

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INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.

28. ALL REQUIRED DEWATERING ON THIS PROJECT IS CONSIDERED INCIDENTAL.

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

STANDARD PLATES	
3000L	REINFORCED CONCRETE PIPE
3006G	GASKET JOINT FOR R.C. PIPE
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3131C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3145F	CONCRETE PIPE TIES
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN
4022A	MANHOLE OR CATCH BASIN COVER
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4180J	MANHOLE OR CATCH BASIN STEP
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER
7111J	INSTALLATION OF CATCH BASIN CASTINGS
7113A	CONCRETE APPROACH NOSE DETAIL
8000I	STANDARD BARRICADES

STANDARD PLANS MANUAL	
5-297.250	PEDESTRIAN CURB RAMP DETAILS
5-297.404	PERMANENT EROSION CONTROL
5-297.405	TEMPORARY SEDIMENT CONTROL
5-297.406	PERMANENT EROSION CONTROL
5-297.408	TEMPORARY SEDIMENT CONTROL SILT FENCE

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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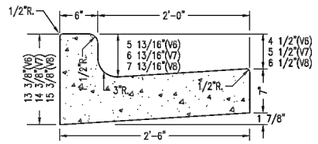
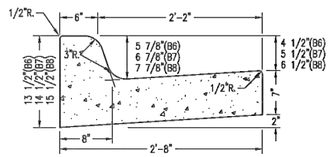
CONSTRUCTION NOTES AND STANDARD PLATES

WSN NUMBER: 1012R0001

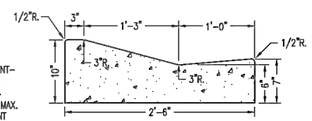
STATE AID PROJECT NO. 159-130-004



DESIGN "V"(VERTICAL)



DESIGN "B"(BATTERFACE)



DESIGN "D"(DRIVEOVER)

NOTES

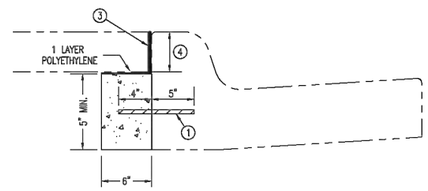
1. CONCRETE MIX: MANUAL PLACEMENT–MN/DOT SPEC. 3A32, SLIP–FORM PLACEMENT–MN/DOT SPEC. 3A22.
2. PROVIDE 1/2" EXP. JT. AT 300' MAX. SPACING AND TO MATCH PAVEMENT EXP. JTS. IN ADDITION TO EXP. JTS. SHOWN ON OTHER DETAIL PLATES.
3. PROVIDE CONTRACTION JTS. @ 9' MAX. SPACING, SAW CUT 2" MIN. DEPTH.
4. ALL CONC. C. & G. SHALL BE PLACED ON A MIN. OF 4" CLASS V AGGREGATE BASE.
5. SILL REQUIRED FOR DESIGN "V" AND "B", WHEREVER SIDEWALK ABUTS CURB. SEE S.D.P. 2–02.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

CONCRETE CURB & GUTTER

ASST. CITY ENGINEER — DIRECTOR

SHT	DATE REVISED	PLATE NO.	REV.
1 OF 1 SHTS	12/1/11	2–01	D



MODIFIED B624 CURB & GUTTER
MODIFIED V624 CURB & GUTTER (SIMILAR)

NOTES

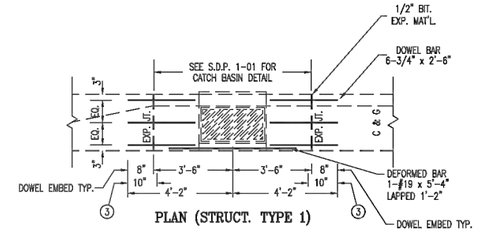
1. TIE SILL AT 3'–0" CENTERS WITH 9" x #13 REINFORCING BARS OR POUR INTEGRALLY WITH CURB.
2. TO BE USED AT ALL CURB RETURNS AND WHERE SIDEWALK ABUTS CURB & GUTTER.
3. 1/2" PREFORMED JOINT FILLER PER MN/DOT SPEC. 3702.
4. DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 5" MIN.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

CONCRETE SILL

ASST. CITY ENGINEER — DIRECTOR

SHT	DATE REVISED	PLATE NO.	REV.
1 OF 1 SHTS	3/22/06	2–02	D



PLAN (STRUCT. TYPE 1)

NOTES

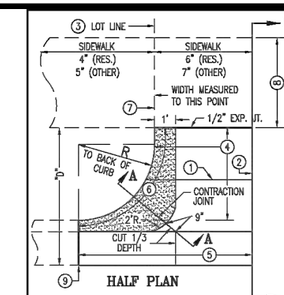
1. DOWEL BARS SHALL BE PER MN/DOT SPEC. 3302 (EPOXY COATED).
2. DEFORMED BAR SHALL BE PER MN/DOT SPEC. 3301 (EPOXY COATED).
3. COAT THE DOWEL BARS WITH A THIN UNIFORM COATING OF AN APPROVED FORM COATING MATERIAL MEETING MN/DOT SPEC. 3902 NOT MORE THAN ONE HOUR BEFORE COVERING WITH CONCRETE, OR WRAP WITH TEFLON TAPE.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

CURB & GUTTER REINFORCEMENT AT CATCH BASINS

ASST. CITY ENGINEER — DIRECTOR

SHT	DATE REVISED	PLATE NO.	REV.
1 OF 1 SHTS	3/22/06	2–06	C

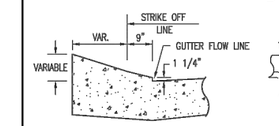


TYPE OF ENTRANCE	WIDTH	R	T
RESIDENTIAL	12'–32'	4'–6"	6"
COMM., IND., ALLEY, R–4	12'–32'	6'–6"	7"

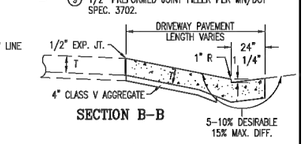
HALF PLAN

NOTES

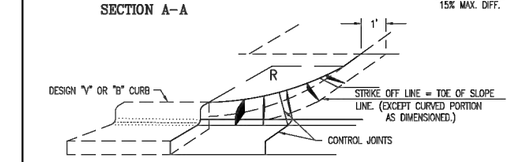
1. TRANSVERSE CONTRACTION JOINT REQUIRED WHEN "D" = 10'–0" OR GREATER, PLACE AT THE CENTER OF THE APPROACH.
2. CONTRACTION JOINTS SPACED SO THAT MAX. SPACING BETWEEN JOINTS DOES NOT EXCEED 1.5 "D" OR 12' WHICHEVER IS LESS, MEASURED AT FLOW LINE.
3. EDGE OF APPROACH AT SIDEWALK LINE MUST BE WITHIN THE LOT SERVED.
4. PAID FOR AS CONCRETE DRIVEWAY PAVEMENT.
5. PAID FOR AS CURB & GUTTER THRU ENTRANCE.
6. SHADED AREA INDICATES CURB TRANSITION FROM FULL EXPOSURE TO ZERO EXPOSURE.
7. CONTRACTION JOINT FOR RESIDENTIAL, 1/2" PREFORMED JOINT FILLER PER MN/DOT SPEC. 3702 FOR OTHER.
8. 36" MINIMUM WALK WIDTH REQUIRED OUTSIDE OF DRIVE TRANSITION AREA.
9. 1/2" PREFORMED JOINT FILLER PER MN/DOT SPEC. 3702.



SECTION A–A



SECTION B–B



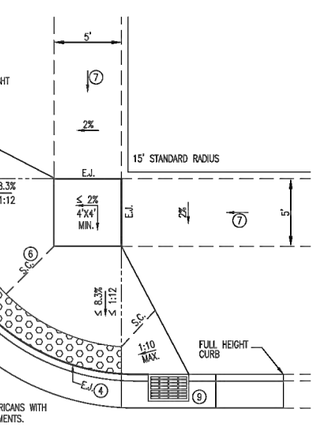
PERSPECTIVE

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

CONCRETE DRIVE APPROACH TYPE A

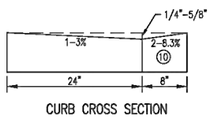
ASST. CITY ENGINEER — DIRECTOR

SHT	DATE REVISED	PLATE NO.	REV.
1 OF 1 SHTS	12/1/11	2–07	D



NOTES

1. DETAIL COMPLIES WITH THE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.
2. SEE MN/DOT S.D.P. 7038 FOR DETECTABLE WARNING SURFACE.
3. IF RAMP IS PAID BY SQ. FT. THEN DETECTABLE WARNING AREA IS PAID IN ADDITION TO RAMP AREA.
4. E.J. = 1/2" PREFORMED JOINT FILLER PER MN/DOT SPEC. 3702.
5. RAMP THICKNESS IS TO BE MIN. 6" CONCRETE–MN/DOT SPEC. MIX 3A32 WITH A MIN. OF 4" AGGREGATE BASE CLASS V (INCIDENTAL).
6. S.C. = PREFERRED PLACE TO SAW CUT.
7. SIDEWALK LONGITUDINAL SLOPES 8.3% MAX. SLOPE BETWEEN 8.3% AND 5% FOR 15' MAX.
8. REPLACE SIDEWALK PANELS AS NEEDED TO MEET RAMP ELEVATION.
9. IF FLARE EXTENDS INTO A CATCH BASIN THEN USE TYPE C CASTING WITH A TYPE C GRATE. SEE S.D.P. 2–05 AND 2–06 FOR TRANSITIONS AND REINFORCEMENT AT CATCH BASINS.
10. CURB SHOULD MATCH SLOPE OF RAMP BEHIND CURB.



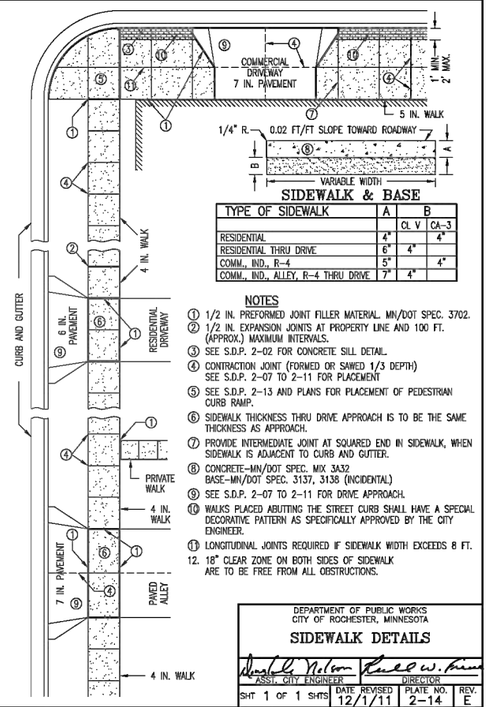
CURB CROSS SECTION

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

PEDESTRIAN CURB RAMP

ASST. CITY ENGINEER — DIRECTOR

SHT	DATE REVISED	PLATE NO.	REV.
1 OF 2 SHTS	12/1/11	2–13	I



SIDEWALK & BASE

TYPE OF SIDEWALK	A	B	
		CL V	CA–3
RESIDENTIAL	4"		4"
RESIDENTIAL THRU DRIVE	6"	4"	
COMM., IND., R–4	5"		4"
COMM., IND., ALLEY, R–4 THRU DRIVE	7"	4"	

NOTES

1. 1/2 IN. PREFORMED JOINT FILLER MATERIAL. MN/DOT SPEC. 3702.
2. 1/2 IN. EXPANSION JOINTS AT PROPERTY LINE AND 100 FT. (APPROX.) MAXIMUM INTERVALS.
3. SEE S.D.P. 2–02 FOR CONCRETE SILL DETAIL.
4. CONTRACTION JOINT (FORMED OR SAWED 1/3 DEPTH) SEE S.D.P. 2–07 TO 2–11 FOR PLACEMENT
5. SEE S.D.P. 2–13 AND PLANS FOR PLACEMENT OF PEDESTRIAN CURB RAMP.
6. SIDEWALK THICKNESS THRU DRIVE APPROACH IS TO BE THE SAME THICKNESS AS APPROACH.
7. PROVIDE INTERMEDIATE JOINT AT SQUARED END IN SIDEWALK, WHEN SIDEWALK IS ADJACENT TO CURB AND GUTTER.
8. CONCRETE–MN/DOT SPEC. MIX 3A32 BASE–MN/DOT SPEC. 3137, 3138 (INCIDENTAL)
9. SEE S.D.P. 2–07 TO 2–11 FOR DRIVE APPROACH.
10. WALKS PLACED ABUTTING THE STREET CURB SHALL HAVE A SPECIAL DECORATIVE PATTERN AS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
11. LONGITUDINAL JOINTS REQUIRED IF SIDEWALK WIDTH EXCEEDS 8 FT.
12. 18" CLEAR ZONE ON BOTH SIDES OF SIDEWALK ARE TO BE FREE FROM ALL OBSTRUCTIONS.

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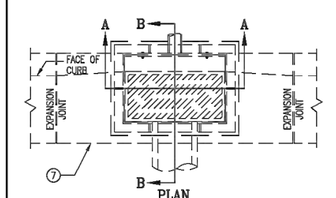
CITY OF ROCHESTER, MINNESOTA

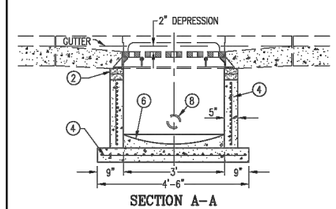
SIDEWALK DETAILS

ASST. CITY ENGINEER — DIRECTOR

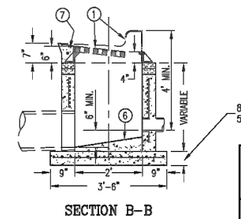
SHT	DATE REVISED	PLATE NO.	REV.
1 OF 1 SHTS	12/1/11	2–14	E



PLAN



SECTION A–A



SECTION B–B

8" W/#13 @ 12" E.W. (CAST IN PLACE)
5" MIN. (PRECAST)

NOTES

1. REFER TO PLANS AND S.D.P. 1–11 & 1–12 FOR TYPE OF FRAME, GRATE AND CURB BOX.
2. ADJ. RINGS SHALL BE PER S.D.P. 1–13, AND BE FULLY MORTARED. HEIGHT OF RINGS SHALL BE 2" MIN.–10" MAX. WITH 3 RINGS MAXIMUM.
3. STRUCTURE SHALL BE PRECAST CONCRETE.
4. REINFORCING SHALL BE A MINIMUM OF SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT EACH DIRECTION.
5. NO STEPS REQUIRED.
6. PROVIDE CONCRETE FILLETS TO FIT BOTTOM PORTION OF STRUCTURE AND TO DIRECT THE FLOW TO OUTLET AT MIN. SLOPE OF 1/4" PER FOOT. MINIMUM CONCRETE THICKNESS AT OUTLET 1 1/2".
7. SEE S.D.P. 2–01, 2–05 AND 2–06 FOR CURB, GUTTER AND REINFORCEMENT DETAILS AT CATCH BASINS.
8. SEE S.D.P. 1–08 FOR SUBDRAIN DETAILS AT CATCH BASINS.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STRUCTURE TYPE 1

ASST. CITY ENGINEER — DIRECTOR

SHT	DATE REVISED	PLATE NO.	REV.
1 OF 1 SHTS	12/1/11	1–01	H

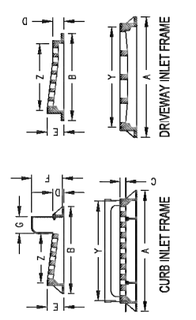
CASTINGS - STRUCTURE TYPE 1

TYPE	DESCRIPTION	A	B	C	D	E	F	G	Y	Z
B	3' CURB INLET FRAME, GRATE & BOX	43	31	1 15/16	4	6	11 5/16	5 3/4	35 1/4	17 3/4
C	3' DRIVEWAY INLET FRAME & GRATE	43	31	1 7/8	4	6			35 3/4	22 3/4
V	3' CURB INLET FRAME, GRATE & BOX	43	31	1 15/16	4	6	11 5/16	5 3/4	35 1/4	17 3/4

ALL DIMENSIONS ARE MINIMUM AND IN INCHES UNLESS OTHERWISE NOTED.

CASTINGS - STRUCTURE TYPE 1

TYPE	M.N. OPENING	GRATE SLOTS	REMARKS
B	1.59 SQ. FT.	DIAGONAL	
C	2.5 SQ. FT.	PARALLEL (BICYCLE SAFE)	USE WHERE DRIVEWAY PRECLUDES USE OF TYPE B IN B. CURB
V	1.69 SQ. FT.	PERPENDICULAR VANE	USE WHEN STREET GRADE EXCEEDS 2%



NOTES:
1. CASTINGS SHALL BE ACCORDING TO MN/DOT SPEC 3321.1-2 SUPPLIED BY FOUNDRIES THAT ARE APPROVED ON THE MN/DOT APPROVED/QUALIFIED PRODUCTS LIST
2. ALL CASTINGS SHALL COMPLY WITH AASHTO M-306
3. ALL CASTINGS SHALL COMPLY WITH U.S. CODE OF FEDERAL REGULATIONS 23CFR635.410, THE "BUY AMERICAN" STEEL & IRON REGULATION
4. ALL STORM SEWER CASTINGS MAY INCLUDE IMPRINT "FSH STAMP AND "DUMP NO WASTE"

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

STANDARD CASTINGS ASSEMBLIES

ASST. CITY ENGINEER — DIRECTOR

SHT	DATE REVISED	PLATE NO.	REV.
1 OF 2 SHTS	12/1/11	1–12	A

DATE	REV#	REVISIONS DESCRIPTION	BY

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DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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CERTIFIED BY: _____
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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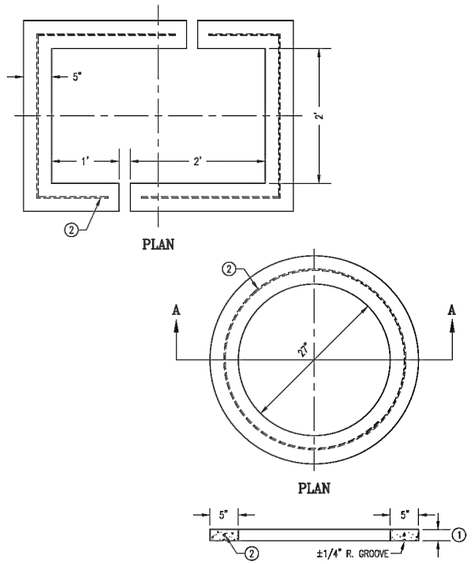
ROCHESTER, MN

STANDARD PLATES

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004



NOTES

1. VARIABLE THICKNESS OF 2" MIN. AND 6" MAX.
2. REINFORCEMENT SHALL BE A SINGLE HOOP OF #8 GAGE STEEL WIRE

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CITY OF ROCHESTER, MINNESOTA

CONCRETE STRUCTURE ADJUSTING RINGS

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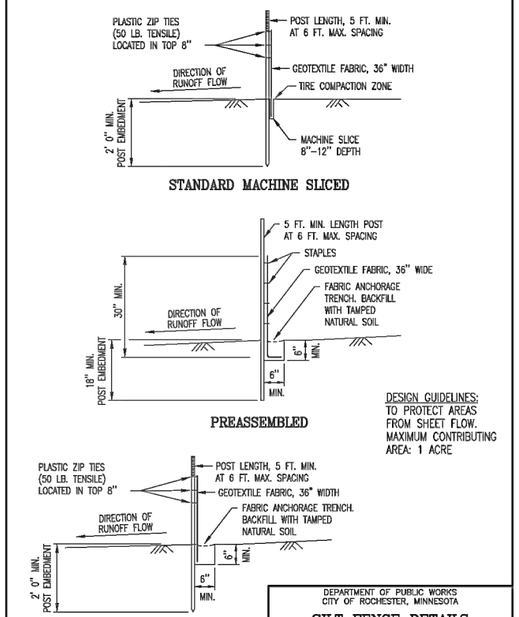
SHT	DATE REVISED	PLATE NO.	REV.
1 OF 3 SHTS	12/1/11	1–13	C



DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW.
MAXIMUM CONTRIBUTING AREA: 1 ACRE

REFERENCE: MN/DOT SPEC. 3886

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CITY OF ROCHESTER, MINNESOTA

SILT FENCE DETAILS

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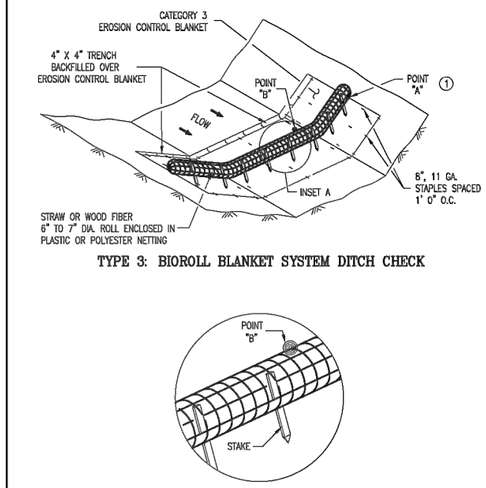
SHT	DATE REVISED	PLATE NO.	REV.
1 OF 2 SHTS	6/15/07	7–01	B



NOTES
SEE SPECS. 2573, 3733, 3885, 3889.
SEE SHEET 1 FOR DITCH CHECK SPACING.

1. POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

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TEMP. SEDIMENT CONTROL TYPE 3 DITCH CHECK

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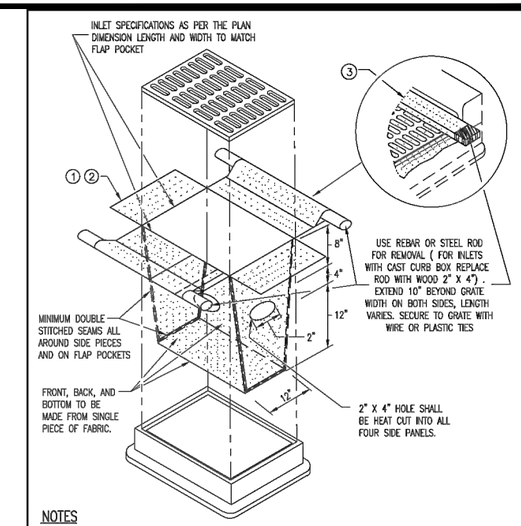
SHT	DATE REVISED	PLATE NO.	REV.
4 OF 6 SHTS	6/15/07	7–03	A



NOTES

1. ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
2. FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
3. FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 IN. X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE ROCK SOCK AND WOOD 2 IN. x 4 INCH.
4. INSTALLATION NOTES: DO NOT INSTALL FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 IN., MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3" BETWEEN THE INLET WALLS AND THE BAG MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" SIDE CLEARANCE.

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INLET PROTECTION– FILTER BAG INSERT

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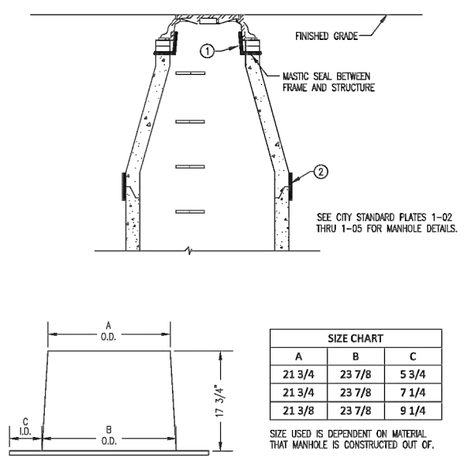
SHT	DATE REVISED	PLATE NO.	REV.
5 OF 5 SHTS	6/15/07	7–05	C



SIZE CHART		
A	B	C
21 3/4	23 7/8	5 3/4
21 3/4	23 7/8	7 1/4
21 3/8	23 7/8	9 1/4

SIZE USED IS DEPENDENT ON MATERIAL THAT MANHOLE IS CONSTRUCTED OUT OF.

NOTES

1. INTERNAL WATER BARRIER PER ASTM D1248
2. 12" EXTERNAL WATER BARRIER WRAP (ALL JOINTS) PER ASTM C877
3. TRIM TOP OF SEAL TO 1" ABOVE TOP OF ADJ. RINGS. CASTING SHOULD NOT REST ON SEAL.
4. PLACE SEALANT ON TOP OF CONE SECTION AND BENEATH SEAL.
5. INSTALL MARKER WHEN MANHOLE IS PLACED OUTSIDE OF THE ROADWAY.

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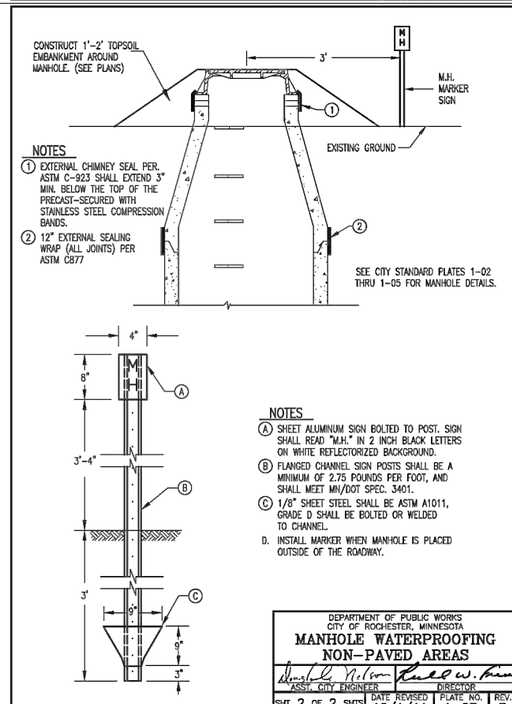
CITY OF ROCHESTER, MINNESOTA

MANHOLE WATERPROOFING PAVED AREAS

ASST. CITY ENGINEER — DIRECTOR

SHT	DATE REVISED	PLATE NO.	REV.
1 OF 2 SHTS	12/1/11	1–07	A



NOTES

1. EXTERNAL CHIMNEY SEAL PER. ASTM C-923 SHALL EXTEND 3" MIN. BELOW THE TOP OF THE PRECAST-SECURED WITH STAINLESS STEEL COMPRESSION BANDS.
2. 12" EXTERNAL SEALING WRAP (ALL JOINTS) PER ASTM C877

NOTES

A. SHEET ALUMINUM SIGN BOLTED TO POST. SIGN SHALL READ "M.H." IN 2 INCH BLACK LETTERS ON WHITE REFLECTORIZED BACKGROUND.
B. FLANGED CHANNEL SIGN POSTS SHALL BE A MINIMUM OF 2.75 POUNDS PER FOOT, AND SHALL MEET MN/DOT SPEC. 3401.
C. 1/8" SHEET STEEL SHALL BE ASTM A1011, GRADE D SHALL BE BOLTED OR WELDED TO CHANNEL.
D. INSTALL MARKER WHEN MANHOLE IS PLACED OUTSIDE OF THE ROADWAY.

DEPARTMENT OF PUBLIC WORKS
CITY OF ROCHESTER, MINNESOTA

MANHOLE WATERPROOFING NON–PAVED AREAS

ASST. CITY ENGINEER — DIRECTOR

SHT	DATE REVISED	PLATE NO.	REV.
2 OF 2 SHTS	12/1/11	1–07	B

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ROCHESTER, MN

STANDARD PLATES

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

EARTHWORK SUMMARY (A)

STATION TO STATION	LOCATION	COMMON EXCAVATION (EV)	TOPSOIL BORROW (LV)	REMARKS
		CU YD	CU YD	
TH 52 E. FRONTAGE ROAD				
10+48 - 14+76	LT & RT	390		
10+48 - 14+76	LT	924	34	
10+48 - 14+76	RT	905	70	
14+76 - 22+30	LT & RT			
14+76 - 22+30	LT	525	148	
14+76 - 22+30	RT	500	61	
22+30 - 36+00	LT & RT			
22+30 - 36+00	LT	1050	274	
22+30 - 36+00	RT	8	11	
36+00 - 42+00	LT & RT			
36+00 - 42+00	LT	526	62	
36+00 - 42+00	RT		3	
42+00 - 48+10	LT & RT			
42+00 - 48+10	LT	447	63	
42+00 - 48+10	RT		2	
48+10 - 52+85.53	LT & RT			
48+10 - 52+85.53	LT	225	39	
48+10 - 52+85.53	RT		1	
S.A.P. 159-130-004 TOTAL		**5500**	**768**	

ITEM NOTES:

1. 1.3 SHRINKAGE FACTOR FROM COMPACTED VOLUME (CV) TO LOOSE VOLUME (LV)

CONCRETE & BITUMINOUS PAVEMENT REMOVALS (B)

STATION	LOCATION	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	REMOVE BITUMINOUS PAVEMENT	MILL BITUMINOUS SURFACE	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	REMOVE CONCRETE DRIVEWAY PAVEMENT	REMOVE CURB & GUTTER	REMOVE CONCRETE SIDEWALK
		SQ YD	SQ YD	SQ YD	LIN FT	SQ YD	LIN FT	SQ FT
TH 52 E. FRONTAGE ROAD								
10+48 - 14+76	LT & RT			2201	248			
10+48 - 14+76	LT	136				117	621	1700
10+48 - 14+76	RT						468	2716
14+76 - 22+30	LT & RT			2805				
14+76 - 22+30	LT		196		759	44	434	
14+76 - 22+30	RT		14		60	142	750	572
22+30 - 36+00	LT & RT		239	3702	185			
22+30 - 36+00	LT		295		1326			
22+30 - 36+00	RT	13	13			32	239	230
36+00 - 42+00	LT & RT			1501				
36+00 - 42+00	LT		134		600			
36+00 - 42+00	RT	25				68	90	
42+00 - 48+10	LT & RT			1564				
42+00 - 48+10	LT		149		623			
42+00 - 48+10	RT	25				69	88	
48+10 - 52+85.53	LT & RT			1915				
48+10 - 52+85.53	LT		239		477		11	
48+10 - 52+85.53	RT				57		34	
S.A.P. 159-130-004 TOTAL		**199**	**1279**	**13688**	**4335**	**472**	**2735**	**5218**

ITEM NOTES:

1. 111 S.Y. OF REMOVE BITUMINOUS PAVEMENT WAS ADDED TO THE TOTAL FOR BITUMINOUS PATCH AREAS REQUIRED ON THE PROJECT (1279 + 111 = 1390 S.Y.). SAWCUTTING FOR AREAS PATCHED SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS BID.
2. PAYMENT FOR THE REMOVAL OF THE BITUMINOUS PAVEMENT FROM STA 10+48 - STA 14+76 SHALL BE MADE UNDER THE BID ITEM MILL BITUMINOUS SURFACE, REGARDLESS OF THE METHOD OF REMOVAL BY THE CONTRACTOR.
3. MILL BITUMINOUS SURFACE SHALL BE PAID FOR BY THE SQUARE YARD REGARDLESS OF THE ACTUAL BITUMINOUS MILLING DEPTH.

SALVAGE SIGNS (U) (C)

STATION	LOCATION		SALVAGE SIGN
	LT	RT	EACH
TH 52 E. FRONTAGE ROAD			
10+57	X		POST
11+48		X	2
11+63	X		3
12+75		X	2
13+11	X		1
13+20		X	2
13+77	X		1
13+89		X	1
14+57		X	3
15+54	X		1
16+23		X	1
17+64	X		1
17+76		X	1
19+18	X		1
19+97	X		1
19+99		X	1
20+07		X	3
22+25	X		1
24+66	X		2
26+65	X		1
31+07	X		2
35+55	X		1
35+77		X	3
40+90	X		1
46+19	X		1
S.A.P. 159-130-004 TOTAL			**37**

DATE	REV#	REVISIONS DESCRIPTION	BY

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WSN NUMBER: 1012R0001

QUANTITY TABULATIONS

STATE AID PROJECT NO. 159-130-004

PROPOSED CONCRETE & BITUMINOUS PAVEMENT SUMMARY

D

STATION	LOCATION	AGGREGATE BASE CLASS 5 7.5" (MEDIANS)	AGGREGATE BASE CLASS 5 12" (ROADWAY)	TYPE SP 9.5 WEARING COURSE MIX (SPWEA340C) (DRIVEWAYS)	TYPE SP 12.5 NON WEAR COURSE MIX (SPNWB330B)	TYPE SP 12.5 WEARING COURSE MIX (SPWEB340C)	TYPE SP 9.5 WEARING COURSE MIX (SPWEA340C)	7" CONCRETE DRIVEWAY PAVEMENT	CONCRETE CURB & GUTTER B624	CONCRETE CURB & GUTTER B624 (MOD)	CONCRETE CURB & GUTTER B612	CONCRETE CURB DESIGN V6	6" CONCRETE WALK SPECIAL	5" CONCRETE WALK	6" CONCRETE WALK	7" CONCRETE WALK	TRUNCATED DOMES	REMARKS
		CY	CY	TON	TON	TON	TON	SQ YD	LIN FT	LIN FT	LIN FT	LIN FT	SQ FT	SQ FT	SQ FT	SQ FT	SQ FT	
TH 52 E. FRONTAGE ROAD																		
10+48 - 14+76	LT & RT		730		352	352	352		869									
10+48 - 14+76	LT	37.5	296	3				41		25	636	17	1618	1597	166	134	47	
10+48 - 14+76	RT		216							62				2073	442		57	
14+76 - 22+30	LT & RT				114	114	581											
14+76 - 22+30	LT		240.5					28	734									
14+76 - 22+30	RT		285					73	757	16				243	122		20	
22+30 - 36+00	LT & RT				224	224	708											
22+30 - 36+00	LT		766						1380	20				84	36		11	
22+30 - 36+00	RT		80	3				30	237	22		55		115	133		20	
36+00 - 42+00	LT & RT				94	94	283											
36+00 - 42+00	LT		353						600									
36+00 - 42+00	RT			6.5				60	90									
42+00 - 48+10	LT & RT				85.5	85.5	288											
42+00 - 48+10	LT		331						610									
42+00 - 48+10	RT			6.5				61	88									
48+10 - 52+85.53	LT & RT				25.5	25.5	273											
48+10 - 52+85.53	LT		134.5						473									
48+10 - 52+85.53	RT								34									
S.A.P. 159-130-004 TOTAL		**37.5**	**3432**	**19**	**895**	**895**	**2485**	**293**	**5872**	**145**	**636**	**72**	**1618**	**4112**	**899**	**134**	**155**	

ITEM NOTES:

1. BITUMINOUS PAVEMENT QUANTITIES COMPUTED AT A RATE OF 113 LBS PER SQ YD PER INCH OF PAVEMENT THICKNESS.
2. AGGREGATE BASE BENEATH CONCRETE SIDEWALK, AND CONCRETE CURB & GUTTER REPLACEMENT SECTIONS ON THE EAST SIDE OF THE FRONTAGE ROAD, NORTH OF 23RD AVE. SHALL BE INCIDENTAL TO OTHER ITEMS BID.
3. AGGREGATE BASE BENEATH CONCRETE AND BITUMINOUS DRIVEWAY PAVEMENT AND PEDESTRIAN CURB RAMPS SHALL BE INCIDENTAL TO OTHER ITEMS BID.
4. 6" CONCRETE WALK SPECIAL BID ITEM IS PROVIDED FOR COLORED AND STAMPED (WINDOW PANE PATTERN) CONCRETE WALK LOCATED IN THE MEDIANS.
5. 6" CONCRETE WALK BID ITEM IS PROVIDED FOR THE CONSTRUCTION OF PEDESTRIAN CURB RAMPS.
6. 7" CONCRETE WALK BID ITEM IS PROVIDED FOR SIDEWALK THROUGH CONCRETE DRIVEWAY SECTIONS.

DATE	REV#	REVISIONS DESCRIPTION	BY

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DESIGNED BY C.N.B.
CHECKED BY C.N.B.

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CROOKSTON, MN
GRAND FORKS, ND
RED WING, MN
ROCHESTER, MN

QUANTITY TABULATIONS

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

EROSION CONTROL AND PERMANENT TURF ESTABLISHMENT

E

STATION TO STATION	LOCATION	SODDING TYPE MINERAL	FERTILIZER TYPE 3 (24-12-24)	SEEDING	SEED MIXTURE 260	FERTILIZER TYPE 3 (22-5-10)	EROSION CONTROL BLANKETS CATEGORY 3	EROSION CONTROL BLANKETS CATEGORY 5	SILT FENCE TYPE HEAVY DUTY	STORM DRAIN INLET PROTECTION	FILTER LOG TYPE STRAW BIOROLL	REMARKS
		SQ YD	POUND	ACRE	POUND	POUND	SQ YD	SQ YD	LIN FT	EACH	LIN FT	
TH 52 E. FRONTAGE ROAD												
10+48 - 14+76	LT & RT											
10+48 - 14+76	LT	236	9.8						200	2		
10+48 - 14+76	RT	481	19.9							3		
14+76 - 22+30	LT & RT											
14+76 - 22+30	LT	236	9.8	0.16	16.3	48.9	613	176		1	33	
14+76 - 22+30	RT	420	17.4							5		
22+30 - 36+00	LT & RT											
22+30 - 36+00	LT			0.39	39.2	117.6	1861	36	1415	4	14	
22+30 - 36+00	RT	75	3.1							4		
36+00 - 42+00	LT & RT											
36+00 - 42+00	LT			0.10	9.8	29.3	472		638	1		
36+00 - 42+00	RT	20	0.8							1		
42+00 - 48+10	LT & RT											
42+00 - 48+10	LT			0.09	9.1	27.2	439		618	2		
42+00 - 48+10	RT	19	0.8							1		
48+10 - 52+85.53	LT & RT											
48+10 - 52+85.53	LT			0.06	5.6	16.8	271		490			
48+10 - 52+85.53	RT	9	0.4									
S.A.P. 159-130-004 TOTAL		**1496**	**61.8**	**0.80**	**79.9**	**239.8**	**3656**	**212**	**3361**	**24**	**47**	

NOTES

1. SEED MIXTURE 260 APPLIED AT A RATE OF 100 LB./ACRE
2. FERTILIZER TYPE 3 (22-5-10) FOR SEEDED AREAS APPLIED AT A RATE OF 300 LB./ACRE
3. FERTILIZER TYPE 3 (24-12-24) FOR SODDED AREAS APPLIED AT A RATE OF 200 LB./ACRE

PAVEMENT MARKINGS - EPOXY

F

STATION	LOCATION	STRIPING							MESSAGE				REMARKS
		4" SOLID LINE WHITE EPOXY (GROUND IN)	4" SOLID LINE YELLOW EPOXY (GROUND IN)	4" BROKEN LINE YELLOW EPOXY (GROUND IN)	4" DBLE SOLID LINE YELLOW EPOXY (GR IN)	6" SOLID LINE WHITE EPOXY (GROUND IN)	12" SOLID LINE WHITE EPOXY (GROUND IN)	12" SOLID LINE YELLOW EPOXY (GROUND IN)	PAVT MSSG (LT ARROW) EPOXY (GR IN)	PAVT MSSG (RT ARROW) EPOXY (GR IN)	PAVT MSSG (RT-THRU ARROW) EPOXY (GR IN)	PAVT MSSG (BIKE SYMBOL) EPOXY (GR IN)	
		LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	
TH 52 E. FRONTAGE ROAD													
10+48 - 14+76	LT & RT	802	531			103	198		4	3	1		
14+76 - 22+30	LT & RT	1416	1009	209	625	98	16	62	8			2	
22+30 - 36+00	LT & RT	2793	500	191	856	105	23	65	1			2	
36+00 - 42+00	LT & RT	1201		120									
42+00 - 48+10	LT & RT	1137	500	120									
48+10 - 52+85.53	LT & RT	1020			1037			204				2	
S.A.P. 159-130-004 TOTAL		**8369**	**2540**	**640**	**2518**	**306**	**237**	**331**	**13**	**3**	**1**	**6**	

ITEM NOTES:

1. EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.
2. THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION OF THE STRIPING PER CITY OF ROCHESTER STANDARDS.
3. AN EPOXY RESIN LINE 4" WIDE AND 15 MIL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF ONE (1) GALLON OF COMPONENTS FOR 320 FEET OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE, NO-TRACKING SYSTEM.
4. SEE STANDARD SIGNS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE "C" SIGN PANELS.
5. PAVEMENT MARKINGS TO BE GROUND IN. SEE SPECIAL PROVISIONS.

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY B.R.B.
DESIGNED BY C.N.B.
CHECKED BY C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: Craig N Britton
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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QUANTITY TABULATIONS

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

SIGN PANELS TYPE C (G)

SIGN DESIGNATION	QUANTITY	PANEL SIZE (IN)	AREA (SQ FT)	CODE NUMBER	PANEL LEGEND	REMARKS
TH 52 E. FRONTAGE ROAD						
C-1	1	30 X 36	7.5 *	SPECIAL	LEFT TURN YIELD ON FLASHING YELLOW ARROW	MOUNT ON MAST ARM - SEE NOTE #1 FOR SIGN GRAPHIC
C-2	1	36 X 30	7.50	R3-30AD	LEFT ONLY/COMBINE THRU-RIGHT	
C-3	1	30 X 36	7.5 *	SPECIAL	LEFT TURN YIELD ON FLASHING YELLOW ARROW	MOUNT ON MAST ARM - SEE NOTE #1 FOR SIGN GRAPHIC
C-4	1	30 X 36	7.5 *	SPECIAL	LEFT TURN YIELD ON FLASHING YELLOW ARROW	MOUNT ON MAST ARM - SEE NOTE #1 FOR SIGN GRAPHIC
C-5	1	30 X 36	7.5 *	SPECIAL	LEFT TURN YIELD ON FLASHING YELLOW ARROW	MOUNT ON MAST ARM - SEE NOTE #1 FOR SIGN GRAPHIC
C-6	1	30 X 30	6.25	R1-1	STOP	
C-7	1	24 X 30	5.00	R4-7	KEEP RIGHT	
	1	18 X 18	2.25	X4-2	HAZARD MARKER	YELLOW ON YELLOW - SMOOTH SURFACE
C-8	1	24 X 30	5.00	R2-1	SPEED LIMIT 30	
	1	24 X 24	4.00	R8-3	NO PARKING	
C-9	1	24 X 24	4.00	R3-2	NO LEFT TURN	
C-10	1	54 X 30	11.25	R3-30ACA	LEFT ONLY/THRU ONLY/RIGHT ONLY	
	1	24 X 18	3.00	R14-1	TRUCK ROUTE	
C-11	1	54 X 30	11.25	R3-30ACA	LEFT ONLY/THRU ONLY/RIGHT ONLY	
	1	24 X 24	4.00	R8-3	NO PARKING	
C-12	1	24 X 30	5.00	R4-7	KEEP RIGHT	
	1	18 X 18	2.25	X4-2	HAZARD MARKER	YELLOW ON YELLOW - SMOOTH SURFACE
C-13	1	30 X 30	6.25	R1-1	STOP	
C-14	1	24 X 18	3.00	R3-17	BIKE (SYMBOL) BIKE LANE	
	1	24 X 8	1.33	R3-17BP	ENDS	
C-15	1	24 X 24	4.00	R8-3	NO PARKING	
C-16	1	24 X 36	6.00	R3-9B	CENTER LANE DUAL LEFT TURN ONLY	
	1	24 X 24	4.00	R8-3	NO PARKING	
C-17	1	24 X 36	6.00	R3-9B	CENTER LANE DUAL LEFT TURN ONLY	
	1	24 X 24	4.00	R8-3	NO PARKING	
C-18	1	24 X 24	4.00	R8-3	NO PARKING	
C-19	1	24 X 18	3.00	R3-17	BIKE (SYMBOL) BIKE LANE	
C-20	1	24 X 24	4.00	R8-3	NO PARKING	
C-21	1	30 X 30	6.25	R1-1	STOP	
C-22	1	24 X 18	3.00	R3-17	BIKE (SYMBOL) BIKE LANE	
C-23	1	36 X 30	7.50	R3-30AC	LEFT ONLY/THRU ONLY	
C-24	1	24 X 24	4.00	R8-3	NO PARKING	
C-25	1	24 X 24	4.00	R8-3	NO PARKING	
C-26	1	24 X 30	5.00	R2-1	SPEED LIMIT 30	
	1	24 X 24	4.00	R8-3	NO PARKING	
C-27	1	24 X 24	4.00	R8-3	NO PARKING	
C-28	1	24 X 18	3.00	R3-17	BIKE (SYMBOL) BIKE LANE	
C-29	1	30 X 30	6.25	R1-1	STOP	
C-30	1	24 X 18	3.00	R3-17	BIKE (SYMBOL) BIKE LANE	
C-31	1	24 X 30	5.00	R2-1	SPEED LIMIT 30	
	1	24 X 24	4.00	R8-3	NO PARKING	
C-32	1	24 X 24	4.00	R8-3	NO PARKING	
C-33	1	24 X 24	4.00	R8-3	NO PARKING	
C-34	1	24 X 30	5.00	R2-1	SPEED LIMIT 30	ADD SIGN TO TOP OF EXISTING POST
C-35	1	24 X 18	3.00	R3-17	BIKE (SYMBOL) BIKE LANE	
C-36	1	24 X 18	3.00	R3-17	BIKE (SYMBOL) BIKE LANE	
S.A.P. 159-130-004 TOTAL			**194.33**			

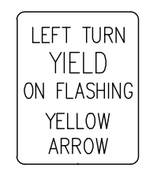
* NOT INCLUDED IN THE SIGN SQUARE FOOT TOTAL QUANTITY. TO BE INCLUDED IN THE UNIT PRICE BID FOR REVISED SIGNAL SYSTEM

SIGN PANELS TYPE D (H)

SIGN DESIGNATION	QUANTITY	PANEL SIZE (IN)	AREA (SQ FT)	CODE NUMBER	PANEL LEGEND
TH 52 E. FRONTAGE ROAD					
D-1	1	9 X 42	2.63	D3-1	E FRONTAGE RD
	1	9 X 30	1.88	D3-1	22 AVE NW
D-2	1	9 X 42	2.63	D3-1	E FRONTAGE RD
	1	9 X 30	1.88	D3-1	23 AVE NW
D-3	1	9 X 42	2.63	D3-1	E FRONTAGE RD
	1	9 X 42	2.63	D3-1	PENNINGTON DR NW
S.A.P. 159-130-004 TOTAL			**14.25**		

ITEM NOTES:

1. SIGN GRAPHIC FOR SPECIAL ITEM SIGN. TO BE INSTALLED ON THE SIGNAL MAST ARMS. COST FOR FURNISHING AND INSTALLING THE LEFT TURN YIELD ON FLASHING YELLOW ARROW TO BE INCLUDED IN THE UNIT PRICE BID FOR REVISED SIGNAL SYSTEM.



2. FURNISH AND INSTALL SIGN POSTS AT LOCATIONS SHOWN ON THE PAVEMENT MARKING PLAN, SHEETS 68-71, OR AS DIRECTED BY THE ENGINEER. SIGNS TO BE INSTALLED BY OTHERS. APPROX. SIGN LOCATIONS (COORDINATE WITH OWNER):
   STA. 11+62, 59' LT.
   STA. 13+10, 27' RT.
   STA. 35+02, 24' LT.

DATE	REV#	REVISIONS DESCRIPTION	BY

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DESIGNED BY C.N.B.
CHECKED BY C.N.B.

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CERTIFIED BY: _____ PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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QUANTITY TABULATIONS

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

PROPOSED STORM SEWER

NUMBER	STATION	OFFSET	STRUCTURE DESIGN	CASTING ASSEMBLY	GRATE ELEV.	PIPE ELEVATIONS IN STRUCTURE			DRAINS TO		SALVAGE & INSTALL	FURNISH & INSTALL						TIE TO EXISTING						RIPRAP	NOTES
						OUTLET ELEV.	INLET ELEV.	INLET ELEV.	NUMBER	GRADE (%)	CONCRETE APRON (EACH)	12" RC APRON (EACH)	30" RC APRON (EACH)	12" RCP (LF)	15" RCP (LF)	18" RCP (LF)	30" RCP (LF)	12" RCP (LF)	15" RCP (LF)	18" RCP (LF)	24" RCP (LF)	27" RCP (LF)	12" PVC (LF)	CL. 3 (CU.YD.)	
STMH-1	10+53.17	69.75' LT	TYPE 4 (48")	TYPE 2	1041.99	1035.80	1035.90 (E)	1035.94 (S)	CB-1	1.06%					18			10							TIE TO EX. 12" RCP (E & S)
CB-1	10+59.46	86.88' LT	TYPE 4 (48")	TYPE V	1042.27	1035.56 (NW)	1035.61 (STMH-1)												8						TIE TO EX. 15" RCP (NW)
CB-2	14+15.73	43.25' RT	TYPE 4 (48")	TYPE B	1030.40	1026.49			CB-3	1.00%				8											
CB-3	14+12.39	36.19' RT	TYPE 4 (54")	R-3067-C-L	1030.37	1026.31	1026.66 (E)	1026.41 (CB-2)	CB-4	0.48%					46								8		TIE TO EX. 12" PVC (E)
CB-4	14+53.88	37.38' RT	TYPE 4 (48")	TYPE V	1030.04	1025.99 (SW)	1026.09 (CB-3)												8						TIE TO EX. 15" RCP (SW)
CB-5	14+56.12	33.34' LT	TYPE 1	TYPE V	1029.85	1026.53 (NE)												8							TIE TO EX. 12" RCP (NE)
CB-6	19+07.36	16.67' RT	TYPE 1	TYPE V	1022.84	1019.15			CB-7	1.00%				10											
CB-7	18+97.42	16.67' RT	TYPE 1	TYPE V	1022.95	1018.95 (SW)	1019.05 (CB-6)													8					TIE TO EX. 18" RCP (SW)
CB-8	19+16.54	28.92' LT	TYPE 4 (48")	TYPE V	1022.68	1018.58	1018.68 (NE)		CB-9	0.90%						10				8					TIE TO EX. 18" RCP (NE)
CB-9	19+15.58	39.01' LT	TYPE 4 (60")	TYPE 2	1023.65	1018.45	1018.49 (SE)	1018.49 (CB-8)	A-1	1.50%							36			8					TIE TO EX. 18" RCP (SE)
A-1	19+55.07	43.17' LT	30" RCP APRON			1017.82							1											10.9	
CB-10	21+64.33	40.38' RT	TYPE 1	R-3067-C-L	1019.96	1016.61			EXCB-2D	1.00%				8											TIE TO EXISTING CATCH BASIN
A-2	22+06.15	39.68' LT	27" RCP APRON			1015.82					1											8		8.7	INSTALL SALVAGED APRON
CB-11	24+29.90	28.92' LT	TYPE 4 (48")	TYPE V	1017.65	1014.06	1014.16 (NE)		A-3	1.08%						12				8					TIE TO EX. 18" RCP (NE)
A-3	24+42.86	41.41' LT	18" RCP APRON			1013.87					1													5.9	INSTALL SALVAGED APRON
CB-12	27+89.91	20.92' LT	TYPE 4 (48")	TYPE V	1015.46	1011.27	1011.28 (NE)		A-4	0.35%					12				8						TIE TO EX. 15" RCP (NE)
A-4	28+02.83	33.53' LT	15" RCP APRON			1011.21					1													4.4	INSTALL SALVAGED APRON
CB-13	33+43.90	20.67' LT	TYPE 1	TYPE B	1012.96	1008.18			CB-14	1.00%				23											
CB-14	33+21.31	20.67' LT	TYPE 1	TYPE B	1012.98	1007.90	1007.95 (NE)	1007.95 (CB-13)	A-5	3.08%						10				8					TIE TO EX. 18" RCP (NE)
A-5	33+21.43	36.67' LT	18" RCP APRON			1007.41					1													5.9	INSTALL SALVAGED APRON
CB-15	33+27.03	16.67' RT	TYPE 1	TYPE B	1013.11	1009.09			CB-16	1.00%				6											
CB-16	33+21.03	16.67' RT	TYPE 1	TYPE B	1013.10	1008.93	1009.03 (CB-15)													8					TIE TO EX. 18" RCP (SW)
CB-17	36+78.00	20.67' LT	TYPE 1	TYPE V	1014.57	1010.57			A-6	1.00%				13											
A-6	36+73.08	39.02' LT	12" RCP APRON			1010.38						1												15.5	
CB-18	42+32.27	20.67' LT	TYPE 1	TYPE V	1017.93	1015.26			A-7	0.50%				6											
A-7	42+26.27	31.06' LT	12" RCP APRON			1015.20						1												4.1	
CB-19	47+92.27	20.92' LT	TYPE 4 (48")	TYPE V	1020.24	1013.11 (E)	1013.20 (W)														16				TIE TO EX. 24" RCP (W & E)
S.A.P. 159-130-004 TOTAL											**4**	**2**	**1**	**74**	**76**	**32**	**36**	**18**	**24**	**48**	**16**	**8**	**8**	**55.4**	

NOTES

1. STATIONS AND OFFSETS OF STORM STRUCTURES ARE GIVEN TO THE CENTER OF THE STRUCTURE.
2. GRATE ELEVATION IS GIVEN TO THE FLOW LINE OF THE GRATE.
3. LOCATIONS OF PIPE INLETS AND OUTLETS WITH AN APRON ARE GIVEN TO THE TOE OF THE APRON.
4. GRADES FOR PIPE WITH AN APRON ARE CALCULATED USING THE TOE OF APRON.
5. PIPE LENGTHS LISTED DO NOT INCLUDE APRON LENGTHS.
6. ALL RCP 18" OR LARGER IN DIAMETER SHALL BE CLASS III.
7. ALL RCP 15" OR SMALLER IN DIAMETER SHALL BE CLASS V.
8. GRANULAR FILTER BLANKET OR GEOTEXTILE FABRIC TYPE IV UNDER RIP RAP.

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STORM SEWER TABULATIONS

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

EXISTING UTILITIES - STORM SEWER (J)

STATION-LOCATION		STRUCT TYPE	INPLACE CASTING EL.	ADJ M.H. (EACH)	NEW CASTING EL.	SALVAGE CONCRETE APRON (EACH)	REMOVE SEWER PIPE (STORM) (LIN FT)	REMOVE CONCRETE APRON (EACH)	REMOVE MANHOLE OR CATCH BASIN (EACH)	INL. EL.	INL. EL.	INL. EL.	OUTL. EL.	REMARKS
EAST FRONTAGE ROAD														
10+53.17	69.75' LT	CB 3' WIDE	1041.75				36		1	1035.94 - 12" RCP S	1035.89 - 12" RCP E		1035.80 - 15" RCP NE	
10+55.43	108.82' RT	CB 3' WIDE	1040.00							1036.69 - 12" RCP S			1036.74 - 12" RCP W	
12+91.48	64.26' LT	STO MH	1034.56							1027.73 - 12" CMP S	1027.64 - 15" CMP SW		1027.58 - 15" CMP NW	
14+04.64	65.19' LT	STO MH	1031.64							1026.41 - 15" CMP SE			1026.41 - 15" RCP N	
14+13.53	32.65' RT	CB 3' WIDE	1030.36				55		1	1026.59 - 12" PVC E			1026.27 - 12" RCP NW	
14+53.95	33.09' RT	CB 3' WIDE	1029.98				8		1	1025.88 - 12" RCP SE			1025.96 - 15" RCP SW	
14+56.15	20.27' LT	STO MH	1030.53	1	1030.33					1025.73 - 15" RCP S	1025.58 - 12" RCP SW	1025.34 - 15" RCP NE	1025.08 - 18" RCP NW	
14+56.19	32.83' LT	CB 3' WIDE	1029.76				8		1				1026.53 - 12" RCP NE	
15+87.41	69.06' LT	CB 3' WIDE	1028.34										1024.05 - 12" RCP N	
15+91.56	15.63' LT	STO MH	1027.88	1	1027.80					1023.82 - 18" RCP SE			1023.75 - 18" RCP W	
18+16.45	35.06' LT	STO MH	1024.43	1	1024.75					1019.90 - 18" RCP E			1019.87 - 18" RCP W	
18+99.16	12.85' RT	CB 3' WIDE	1022.63				8		1				1018.93 - 18" RCP SW	
19+15.86	26.68' LT	CB 3' WIDE	1022.27				8		1	1018.69 - 18" RCP NE			1018.57 - 18" RCP SW	
19+24.99	36.13' LT	OUTLET					13	1					1018.36 - 18" RCP	SUBMERGED
19+23.49	39.13' LT	OUTLET					16	1					1018.36 - 18" RCP	SUBMERGED
21+63.56	48.68' RT	CB 3' WIDE	1019.87							1016.43 - 15" RCP SE			1016.33 - 18" RCP NW	
21+84.45	42.59' RT	STO MH	1020.27	1	1020.20					1016.37 - 18" RCP SE	1016.37 - 24" RCP NE	1016.32 - 15" RCP NW	1016.10 - 27" RCP SW	
22+03.59	44.08' RT	CB 3' WIDE	1019.60										1016.70 - 15" RCP SE	
22+04.39	31.63' LT	OUTLET				1							1015.85 - 27" RCP W/APRON	
24+29.67	17.26' RT	CB 3' WIDE	1017.74							1014.71 - 18" RCP NE			1014.61 - 18" RCP SW	
24+30.13	34.13' LT	OUTLET				1	8						1014.11 - 18" RCP W/APRON	
27+89.64	17.04' RT	CB 3' WIDE	1015.77										1011.32 - 15" RCP SW	
27+90.40	46.32' LT	OUTLET				1	26						1011.25 - 15" RCP W/APRON	
33+21.21	17.13' RT	CB 3' WIDE	1012.98				8		1				1008.93 - 18" RCP SW	
33+21.69	46.65' LT	OUTLET				1	26						1007.24 - 18" RCP W/APRON	
36+36.96	53.14' RT	OUTLET											1004.08 - 6'X9.5' CONC ARCH W/APRON	
36+37.23	30.85' LT	INLET											1004.42 - 6'X9.5' CONC ARCH	
36+50.96	30.88' LT	INLET											1004.42 - 6'X9.5' CONC ARCH	
36+51.30	52.55' RT	OUTLET											1004.15 - 6'X9.5' CONC ARCH W/APRON	
36+67.03	17.10' RT	CB 3' WIDE	1014.58										1007.92 - 18" RCP NE	
36+66.83	62.71' RT	OUTLET											1006.94 - 18" RCP W/APRON	BURIED
47+72.77	17.22' RT	CB 3' WIDE	1020.08							1012.18 - 24" RCP NW			1020.08 - 24" RCP NE	
48+18.86	72.06' LT	INLET	1017.51				16			1014.49 - 24" RCP NW			1014.46 - 24" RCP SE	
S.A.P. 159-130-004 TOTAL				**4**		**4**	**236**	**2**	**7**					

EXISTING UTILITIES - SANITARY SEWER (K)

STATION LOCATION		STRUCT TYPE	INPLACE CASTING EL.	ADJ M.H. (EACH)	REMOVE SEWER PIPE (LIN FT)	NEW CASTING EL.	M.H. WATERPROOFING INTERIOR (EACH)	INL. EL.	INL. EL.	INL. EL.	OUTL. EL.	REMARKS
EAST FRONTAGE ROAD												
10+40.96	1.72' LT	3	1041.45					1029.6 - 8" VCP W			1029.61 - 8" VCP E	
10+41.27	54.82' RT	3	1040.82					11029.35 - 8" VCP E	1029.74 - 8" VCP N		1029.32 - 8" VCP E	
12+77.01	57.45' LT	3	1035.51	1		1035.44	1	1026.16 - 6" PVC SW			1026.05 - 6" PVC NW	
13+98.35	59.43' LT	3	1031.62					1023.25 - 4" PVC SW	1022.96 - 6" PVC SE		1022.93 - 6" PVC NE	
14+33.45	76.76' RT	3	1031.95					1022.92 - 8" PVC NE			1022.88 - 8" PVC SW	
14+34.08	6.45' LT	3	1031.00	1		1030.82	1	1021.41 - 6" PVC SW	1021.35 - 8" PVC NE		1021.28 - 8" PVC NW	
15+90.81	5.72' LT	3	1027.93	1		1028.12	1	1018.95 - 8" PVC SE			1018.78 - 8" PVC W	
18+20.44	9.60' LT	3	1024.31	1		1024.53	1	1015.24 - 8" PVC E	1015.28 - 8" PVC N		1015.16 - 8" PVC W	
20+64.01	4.77' LT	3	1021.66	1		1021.63	1	1012.20-8" PVC E			1012.09-8" PVC NW	
23+10.10	3.34' LT	3	1019.54	1		1019.61	1	1009.42-8" PVC SE			1009.35-8" PVC NW	
24+71.86	26.31' RT	3	1017.87	1		1018.39	1	1008.18-8" PVC S			1007.96-8" PVC E	
24+43.37	197.15' RT	3	1016.95					1005.89-8" PVC SW	1006.05-6" PVC S		1005.66-8" PVC N	
35+68.63	56.05' RT	3	1013.53		58			998.89-15" PVC W			998.86-15" PVC E	
35+78.43	294.55' LT	3	1010.98					1001.20-8" PVC N	1000.43-15" PVC S		1000.38-15" PVC E	
S.A.P. 159-130-004 TOTAL				**7**	**58**		**7**					

EXISTING UTILITIES - WATERMAIN (L)

STATION-LOCATION		GATE VALVE	HYD	CURB STOP	ADJ. GATE VALVE & BOX
EAST FRONTAGE ROAD					
10+51.00	35.68' RT	X			1
11+93.43	7.30' LT	X			1
13+92.78	47.18' LT			X	
14+04.72	38.47' RT		X		
14+09.06	38.12' RT	X			
14+22.65	42.40' RT	X			1
14+70.35	0.95' LT	X			
16+00.67	29.78' RT			X	
16+42.42	30.60' LT	X			
17+67.91	30.31' LT			X	
17+86.25	29.07' RT		X		
18+07.86	4.49' RT	X			1
21+72.35	18.86' RT	X			1
22+59.63	20.03' RT	X			
22+69.35	20.24' RT		X		
22+73.14	20.39' RT	X			
23+16.40	8.30' LT	X			1
27+48.09	21.68' RT	X			
27+48.28	19.43' RT		X		
28+89.05	26.96'RT	X			1
29+14.92	21.62' RT	X			
29+15.13	19.53' RT		X		
30+37.64	25.45' RT	X			
31+05.60	25.76' RT	X			
31+14.14	22.47' RT	X			
31+14.38	19.68' RT		X		
33+31.89	25.28' RT	X			
33+78.63	26.41' RT	X			
34+54.67	23.47' RT	X			
34+56.65	22.37' RT	X			
34+56.85	19.89' RT		X		
35+42.37	27.25' RT	X			1
35+78.48	22.84' RT	X			1
37+70.42	28.43' RT	X			1
38+03.63	20.16' RT		X		
38+03.66	22.83' RT	X			
38+07.53	25.81' RT	X			
41+24.11	28.65' RT	X			
41+83.57	23.72' RT	X			
41+83.75	20.06' RT		X		
44+91.18	27.48' RT	X			1
45+12.07	23.11' RT	X			
45+12.25	20.60' RT		X		
48+80.42	18.03' RT	X			
48+80.60	20.41' RT		X		
52+30.56	17.91' RT	X			
52+30.75	20.29' RT		X		
53+51.64	29.72' RT	X			
S.A.P. 159-130-004 TOTAL					**11**

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY B.R.B.
DESIGNED BY C.N.B.
CHECKED BY C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____ PROFESSIONAL ENGINEER CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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ROCHESTER, MN

WSN NUMBER: 1012R0001

UTILITY TABULATION

STATE AID PROJECT NO. 159-130-004

EXISTING UTILITIES - MINNESOTA ENERGY RESOURCES							M
STATION LOCATION					INPLACE UTILITY	LEAVE AS IS	RELOCATE
EAST FRONTAGE ROAD							
10+65.25	58.27' RT	TO	10+83.36	31.49' LT	GAS MAIN	X	
10+83.36	31.49' LT	TO	10+89.13	38.83' LT	GAS MAIN	X	
10+89.13	38.83' LT	TO	11+14.30	207.38' LT	GAS MAIN	X	
10+89.13	38.83' LT	TO	10+93.11	34.91' LT	GAS MAIN		X
10+93.11	34.91' LT	TO	14+94.76	36.27' LT	GAS MAIN		X
14+87.75	16.82' RT				REGULATION STATION		X
14+87.75	16.82' RT	TO	14+91.63	4.54' RT	GAS MAIN		X
14+91.63	4.54' RT	TO	14+94.76	36.27' LT	GAS MAIN		X
14+87.75	16.82' RT	TO	15+43.83	19.72' RT	GAS MAIN		X
15+43.83	19.72' RT	TO	17+05.36	21.57' RT	GAS MAIN	X	
22+53.30	22.04' RT	TO	22+60.82	22.14' RT	GAS MAIN	X	
22+60.82	22.14' RT	TO	22+60.39	47.75' RT	GAS SERVICE	X	
22+60.82	22.14' RT	TO	28+85.65	21.86' RT	GAS MAIN	X	
28+85.65	21.86' RT	TO	28+83.80	53.10' RT	GAS SERVICE	X	
28+85.65	21.86' RT	TO	30+17.70	22.29' RT	GAS MAIN	X	
30+17.70	22.29' RT	TO	30+17.56	31.88' RT	GAS SERVICE	X	
30+17.70`	22.29' RT	TO	33+98.97	21.37' RT	GAS MAIN	X	
33+98.97	21.37' RT	TO	33+98.83	32.83' RT	GAS SERVICE	X	
33+98.97	21.37' RT	TO	35+92.60	22.15' RT	GAS MAIN	X	
35+80.76	144.15' RT	TO	35+81.08	41.57' RT	GAS MAIN	X	
35+81.08	41.57' RT	TO	35+90.34	32.1' RT	GAS MAIN	X	
35+90.34	32.01' RT	TO	35+92.60	22.15' RT	GAS MAIN	X	
35+92.60	22.15' RT	TO	50+44.35	19.18' RT	GAS MAIN	X	
50+44.35	19.18' RT	TO	50+56.46	21.25' RT	GAS MAIN	X	
50+56.46	21.25' RT	TO	53+54.98	24.17' RT	GAS MAIN	X	
53+54.98	24.17' RT	TO	53+48.99	109.01' RT	GAS MAIN	X	
53+54.98	24.17' RT	TO	53+79.27	23.20' RT	GAS MAIN	X	

EXISTING UTILITIES - CHARTER COMMUNICATIONS							N
STATION LOCATION					INPLACE UTILITY	LEAVE AS IS	RELOCATE
EAST FRONTAGE ROAD							
15+28.96	17.19' RT	TO	15+31.39	32.75' RT	UNDERGROUND	X	
15+31.39	32.75' RT	TO	15+41.16	54.33' RT	UNDERGROUND	X	
15+28.96	17.19' RT	TO	16+22.33	19.45' RT	UNDERGROUND		X
16+22.33	19.45' RT				POWER POLE		X
16+22.33	19.45' RT	TO	17+75.54	20.46' RT	OVERHEAD		X
17+75.54	20.46' RT				POWER POLE		X
17+75.54	20.46' RT	TO	19+99.40	18.94' RT	OVERHEAD		X
19+99.40	18.94' RT				POWER POLE		X
19+99.40	18.94' RT	TO	22+27.26	20.40' RT	OVERHEAD		X
22+27.26	20.40' RT				POWER POLE	X	
22+27.26	20.40' RT	TO	24+15.48	21.22' RT	OVERHEAD	X	
24+15.48	21.22' RT				POWER POLE	X	
24+15.48	21.22' RT	TO	24+20.20	30.87' RT	UNDERGROUND	X	
24+20.20	30.87' RT	TO	24+66.62	31.18' RT	UNDERGROUND	X	
24+66.62	31.18' RT	TO	24+69.56	58.79' RT	UNDERGROUND	X	
45+15.20	30.91' RT	TO	45+18.03	23.13' RT	UNDERGROUND		X
45+18.03	23.13' RT	TO	45+28.52	24.05' RT	UNDERGROUND		X
45+28.52	24.05' RT	TO	45+30.51	27.31' RT	UNDERGROUND		X
45+30.51	27.31' RT				PEDESTAL		X
45+30.51	27.31' RT	TO	45+33.03	22.20' RT	UNDERGROUND		X
45+33.03	22.20' RT	TO	45+37.90	21.25' RT	UNDERGROUND		X
45+37.90	21.25' RT	TO	47+74.56	20.40' RT	UNDERGROUND		X
47+74.75	20.40' RT	TO	48+93.54	21.29' RT	UNDERGROUND		X
48+93.54	21.29' RT				PEDESTAL		X
48+93.54	21.29' RT	TO	49+00.31	19.50' RT	UNDERGROUND		X
49+00.31	19.50' RT	TO	49+86.85	18.80' RT	UNDERGROUND	X	
49+86.85	18.80' RT	TO	49+85.91	41.87' LT	UNDERGROUND	X	
49+85.91	41.87' LT				PEDESTAL	X	
49+85.91	41.87' LT	TO	49+88.58	34.27' LT	UNDERGROUND	X	
49+88.58	34.27' LT	TO	51+46.18	40.57' LT	UNDERGROUND	X	

EXISTING UTILITIES - ENVENTIS TELECOM							O
STATION	LOCATION	TO	STATION	LOCATION	INPLACE UTILITY	LEAVE AS IS	RELOCATE
EAST FRONTAGE ROAD							
10+69.42	49.57' RT				MANHOLE	X	
10+69.82	46.21' RT				PEDESTAL	X	
10+69.82	46.21' RT	TO	10+77.79	22.06' RT	FIBER OPTIC LINE	X	
10+77.79	22.06' RT	TO	10+86.63	44.44' LT	FIBER OPTIC LINE	X	
10+86.63	44.44' LT	TO	11+04.65	179.03' LT	FIBER OPTIC LINE	X	
10+69.42	49.57' RT	TO	10+76.61	36.20' RT	FIBER OPTIC LINE	X	
10+76.61	36.20' RT	TO	14+62.31	17.14' RT	FIBER OPTIC LINE	X	
14+62.31	17.14' RT	TO	14+72.81	29.22' RT	FIBER OPTIC LINE	X	
14+72.81	29.22' RT	TO	17+41.56	35.13' RT	FIBER OPTIC LINE	X	
17+41.56	35.13' RT	TO	18+03.10	27.03' RT	FIBER OPTIC LINE	X	
18+03.10	27.03' RT	TO	35+08.11	28.69' RT	FIBER OPTIC LINE	X	
35+08.11	28.69' RT	TO	35+13.32	25.83' RT	FIBER OPTIC LINE	X	
35+13.32	25.83' RT	TO	35+86.53	30.09' RT	FIBER OPTIC LINE	X	
35+86.53	30.09' RT				MANHOLE	X	
35+86.53	30.09' RT	TO	35+90.20	37.92' RT	FIBER OPTIC LINE	X	
35+90.20	37.92' RT	TO	35+88.31	143.83' RT	FIBER OPTIC LINE	X	
42+73.00	74.49' RT	TO	42+78.97	25.03' RT	UNDERGROUND		X
42+78.97	25.03' RT				PEDESTAL		X
42+78.97	25.03' RT	TO	42+81.37	19.49' RT	UNDERGROUND		X
42+81.37	19.49' RT	TO	47+64.51	21.14' RT	UNDERGROUND	X	
47+64.51	21.14' RT	T0	47+69.79	28.37' RT	UNDERGROUND	X	
47+69.79	28.37' RT				PEDESTAL	X	
47+69.79	28.37' RT	TO	47+73.22	21.81' RT	UNDERGROUND	X	
47+73.22	21.81' RT	TO	50+44.70	21.22' RT	UNDERGROUND	X	
50+44.70	21.22' RT	TO	50+50.25	23.67' RT	UNDERGROUND	X	
50+50.25	23.67' RT	TO	50+51.70	31.01' RT	UNDERGROUND	X	

EXISTING UTILITIES - CENTURYLINK							P
STATION LOCATION					INPLACE UTILITY	LEAVE AS IS	RELOCATE
EAST FRONTAGE ROAD							
10+66.29	39.07' RT				PEDESTAL	X	
10+66.29	39.07' RT	TO	10+88.65	59.54' LT	UNDERGROUND	X	
10+88.65	59.54' LT	TO	11+08.05	177.22' LT	UNDERGROUND	X	
11+08.05	177.22' LT	TO	11+14.86	184.59' LT	UNDERGROUND	X	
11+14.86	184.59' LT				PEDESTAL	X	
10+66.29	39.07' RT	TO	10+78.11	26.49' RT	UNDERGROUND	X	
10+78.11	26.49' RT	TO	14+87.45	13.72' RT	UNDERGROUND		X
14+87.45	13.72' RT				PEDESTAL		X
14+87.45	13.72' RT	TO	14+91.52	44.72' LT	UNDERGROUND		X
14+91.52	44.72' LT	TO	15+69.51	43.53' LT	UNDERGROUND	X	
15+69.51	43.53' LT				PEDESTAL	X	
21+17.42	22.12' RT	TO	21+37.49	23.21' RT	FIBER OPTIC LINE	X	
21+37.49	23.21' RT	TO	21+56.25	37.57' RT	FIBER OPTIC LINE	X	
21+56.25	37.57' RT	TO	21+63.83	40.18' RT	FIBER OPTIC LINE	X	
21+63.83	40.18' RT	TO	21+88.32	39.46' RT	FIBER OPTIC LINE	X	
21+88.32	39.46' RT	TO	22+09.97	38.04' RT	FIBER OPTIC LINE	X	
22+09.97	38.04' RT				PEDESTAL	X	
22+09.97	38.04' RT	TO	22+24.75	18.09' RT	UNDERGROUND	X	
22+24.75	18.09' LT	TO	22+33.55	30.32' LT	UNDERGROUND	X	
22+33.55	30.32' LT	TO	29+66.86	23.48' LT	UNDERGROUND	X	
29+66.86	23.48' LT	TO	29+66.29	40.28' RT	UNDERGROUND	X	

EXISTING UTILITIES - ROCHESTER PUBLIC UTILITIES				Q
STATION LOCATION		INPLACE UTILITY	LEAVE AS IS	RELOCATE
EAST FRONTAGE ROAD				
10+66.90	38.43' RT	POWER POLE	X	
10+68.29	70.65' LT	POWER POLE		X
10+69.01	85.59' LT	GUY WIRE		X
10+69.27	89.87' LT	GUY WIRE		X
10+80.71	64.26' LT	GUY WIRE		X
10+83.72	62.23' LT	GUY WIRE		X
10+84.75	76.78' LT	GUY WIRE		X
12+74.79	14.65' RT	POWER POLE		X
12+76.52	33.04' RT	GUY WIRE		X
14+10.93	28.83' RT	POWER POLE		X
14+84.08	14.28' RT	POWER POLE		X
14+84.97	21.48' RT	GUY WIRE		X
14+85.23	22.41' RT	GUY WIRE		X
16+21.90	28.74' RT	GUY WIRE		X
16+22.33	19.45' RT	POWER POLE		X
17+75.54	20.46' RT	POWER POLE		X
17+77.50	13.00' RT	GUY WIRE		X
17+81.59	20.43' RT	GUY WIRE		X
19+97.48	41.55' LT	GUY WIRE		X
19+97.51	28.22' LT	GUY POLE		X
19+99.40	18.94' RT	POWER POLE		X
22+24.89	45.67' LT	GUY WIRE	X	
22+25.01	34.40' LT	POWER POLE	X	
22+27.26	20.40' RT	POWER POLE	X	
24+15.48	21.22' RT	POWER POLE	X	
24+35.23	19.90' RT	GUY WIRE	X	
24+40.16	20.00' RT	GUY WIRE	X	
24+45.75	20.51' RT	GUY WIRE	X	
24+50.14	36.52' RT	PEDESTAL	X	
29+64.76	29.88' RT	PEDESTAL	X	
29+65.07	35.22' RT	PEDESTAL	X	
34+27.86	27.65' LT	PEDESTAL	X	
35+55.41	19.64' LT	LIGHT POLE		X
49+80.28	41.55' LT	PEDESTAL	X	
51+17.39	40.75' LT	GUY WIRE	X	
51+20.49	40.87' LT	GUY WIRE	X	
51+46.36	40.57' LT	POWER POLE	X	
53+50.06	40.04' LT	POWER POLE	X	
53+51.14	47.55' LT	GUY WIRE	X	

UTILITY NOTES:

1. THE "LEAVE AS IS" AND "RELOCATE" COLUMNS ARE BASED UPON THE BEST INFORMATION AVAILABLE AT THE TIME OF DESIGN AND MAY NOT REFLECT THE ACTUAL EFFECTS OF THE UTILITY CONSTRUCTION. ACTUAL DETERMINATION WILL BE MADE IN THE FIELD DURING CONSTRUCTION. CONTRACTORS SHALL BASE THEIR BID AND SCHEDULE ACCORDINGLY.
2. ALL UTILITIES ARE SHOWN AT APPROXIMATE LOCATIONS. IT SHALL BE THE CONTRACTOR'S OWN RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES AND TO ASCERTAIN THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO PERFORMING ANY WORK ON THE PROJECT. THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN THE VICINITY OF ANY SUCH FACILITIES, WHICH MAY EXIST, IN A MANNER THAT WILL PREVENT DAMAGE THERETO.
3. THE CONTRACTOR SHALL COORDINATE THEIR WORK AND COOPERATE WITH THE EXISTING UTILITY COMPANIES IN A MANNER CONSISTENT WITH THE PROVISIONS OF MnDOT 1507 AND THE APPLICABLE PROVISIONS OF MnDOT 1505.
4. ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS UNLESS OTHERWISE NOTED.

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY B.R.B.
DESIGNED BY C.N.B.
CHECKED BY C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____ PROFESSIONAL ENGINEER CRAIG N. BRITTON

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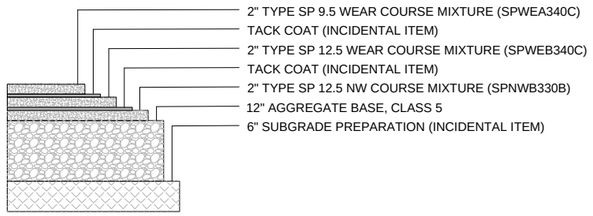
GRAND FORKS, ND
RED WING, MN
ROCHESTER, MN

WSN NUMBER: 1012R0001

UTILITY TABULATION

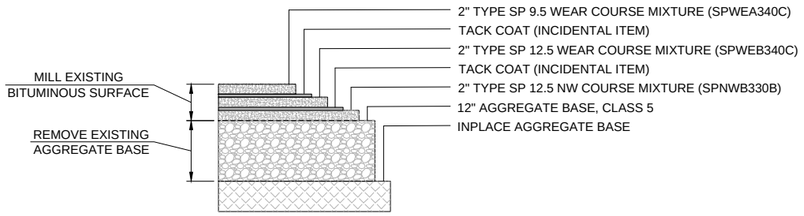
STATE AID PROJECT NO. 159-130-004

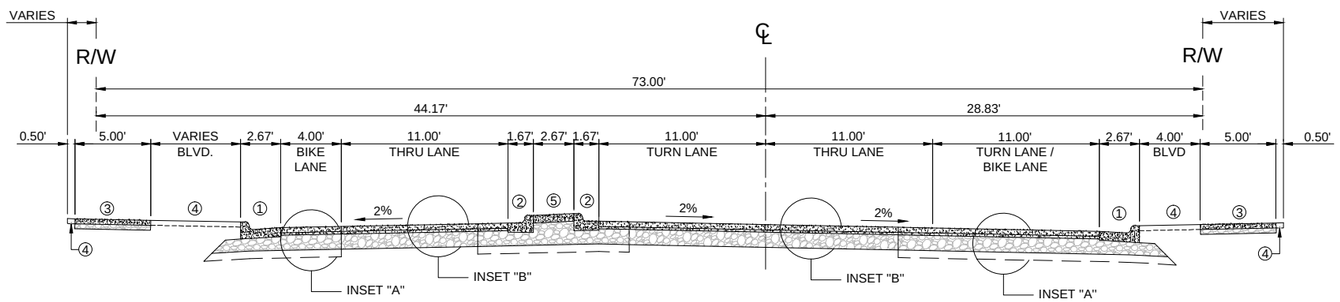
INSET A



10 TON DESIGN

INSET B





NOTES:

① PLACE B624 CURB & GUTTER

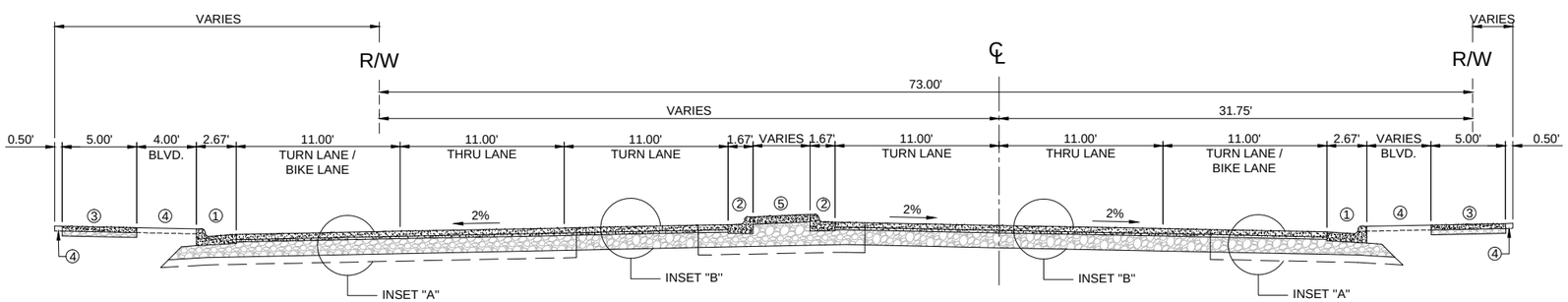
② PLACE B612 REJECT CURB & GUTTER

③ PLACE 5" CONCRETE WALK
(5" CONCRETE & 4" CLASS 5 AGG.)

④ PLACE 4" TOPSOIL, SODDING TYPE MINERAL

⑤ PLACE 6" CONCRETE WALK SPECIAL
COLORED CONCRETE, FED. COLOR #20220
WINDOW PANE CONCRETE FINISH
CLASS 5 AGG. UNDER AND BEHIND NEW CURB & GUTTER

EAST FRONTAGE ROAD
PROPOSED NORTH BOUND LEFT & RIGHT TURN LANES
STA: 13+90.04



NOTES:

① PLACE B624 CURB & GUTTER

② PLACE B612 REJECT CURB & GUTTER

③ PLACE 5" CONCRETE WALK
(5" CONCRETE & 4" CLASS 5 AGG.)

④ PLACE 4" TOPSOIL, SODDING TYPE MINERAL

⑤ PLACE 6" CONCRETE WALK SPECIAL
COLORED CONCRETE, FED. COLOR #20220
WINDOW PANE CONCRETE FINISH
CLASS 5 AGG. UNDER AND BEHIND NEW CURB & GUTTER

EAST FRONTAGE ROAD
PROPOSED LEFT & RIGHT TURN LANES
STA: 11+46.22

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____ PROFESSIONAL ENGINEER CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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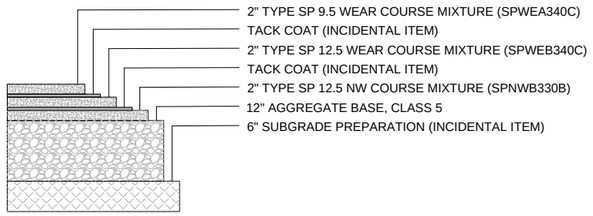
RED WING, MN
ROCHESTER, MN

TYPICAL SECTIONS

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

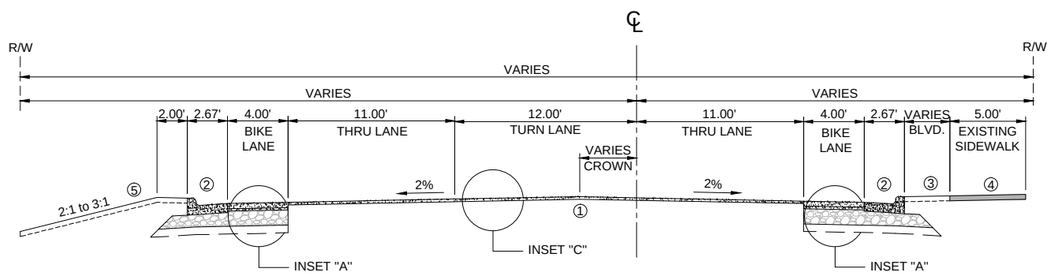
INSET A



10 TON DESIGN

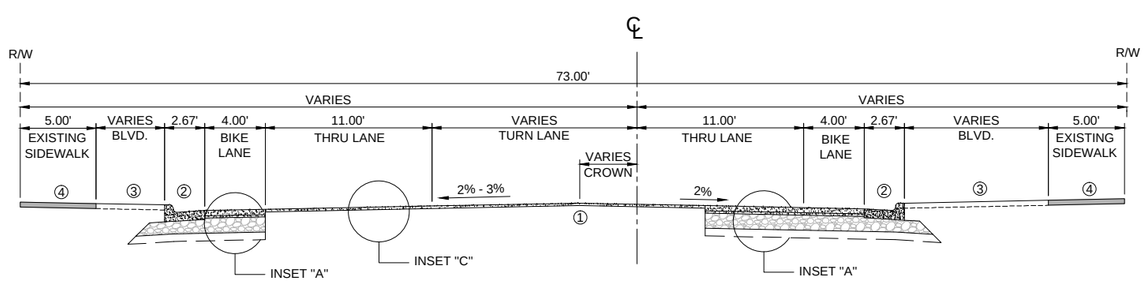
INSET C

NOTE:
THE CONTRACTOR SHALL MILL THE EXISTING BITUMINOUS SURFACE AT THE REQUIRED DEPTHS ACCORDING TO THE PROPOSED ROADWAY PROFILES.



NOTES:
① CROWN OFFSET VARIES (SEE CROSS SECTIONS)
② PLACE B624 CURB & GUTTER
③ PLACE 4" TOPSOIL, SODDING TYPE MINERAL
④ EXISTING SIDEWALK TO REMAIN
⑤ PLACE 4" TOPSOIL, SEED, EROSION CONTROL BLANKET
6 BITUMINOUS MIXTURE FOR PATCHING - AS DIRECTED BY THE ENGINEER.

EAST FRONTAGE ROAD
PROPOSED TYPICAL SECTION
STA: 18+13.00 TO STA: 21+36.80



NOTES:
① CROWN OFFSET VARIES (SEE CROSS SECTIONS)
② PLACE B624 CURB & GUTTER
③ PLACE 4" TOPSOIL, SODDING TYPE MINERAL
④ EXISTING SIDEWALK TO REMAIN
5 BITUMINOUS MIXTURE FOR PATCHING - AS DIRECTED BY THE ENGINEER.

EAST FRONTAGE ROAD
PROPOSED TYPICAL SECTION
STA: 14+76.46 TO STA: 18+13.00

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: Craig N. Britton
PROFESSIONAL ENGINEER CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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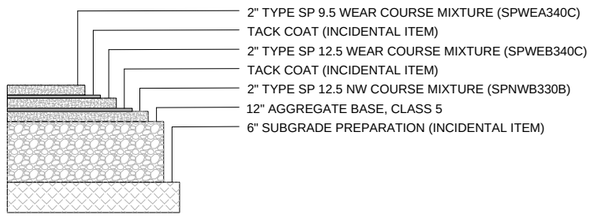
RED WING, MN
ROCHESTER, MN

WSN NUMBER: 1012R0001

TYPICAL SECTIONS

STATE AID PROJECT NO. 159-130-004

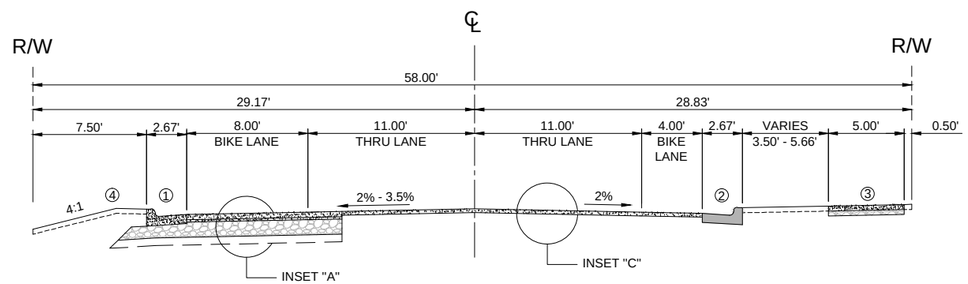
INSET A



10 TON DESIGN

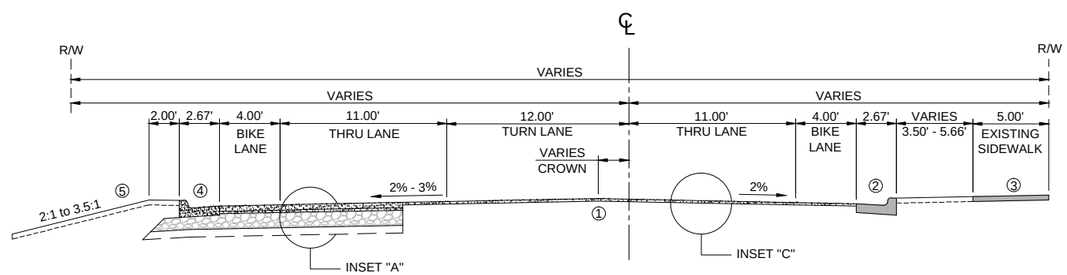
INSET C

NOTE:
THE CONTRACTOR SHALL MILL THE EXISTING BITUMINOUS SURFACE AT THE REQUIRED DEPTHS ACCORDING TO THE PROPOSED ROADWAY PROFILES.



NOTES:
① PLACE B624 CURB & GUTTER
② EXISTING CURB & GUTTER TO REMAIN
③ FUTURE 5" CONCRETE WALK (NIC)
(5" CONCRETE & 4" CLASS 5 AGG.)
④ PLACE 4" TOPSOIL, SEED, EROSION CONTROL BLANKET
⑤ BITUMINOUS MIXTURE FOR PATCHING - AS DIRECTED BY THE ENGINEER.

EAST FRONTAGE ROAD
PROPOSED TYPICAL SECTION
STA: 25+30.00 TO E.O.P.



NOTES:
① CROWN OFFSET VARIES
(SEE CROSS SECTIONS)
② EXISTING CURB & GUTTER TO REMAIN
③ EXISTING SIDEWALK TO REMAIN
④ PLACE B624 CURB & GUTTER
⑤ PLACE 4" TOPSOIL, SEED, EROSION CONTROL BLANKET
⑥ BITUMINOUS MIXTURE FOR PATCHING - AS DIRECTED BY THE ENGINEER.

EAST FRONTAGE ROAD
PROPOSED TYPICAL SECTION
STA: 22+30.00 TO STA: 25+30.00

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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CERTIFIED BY: _____
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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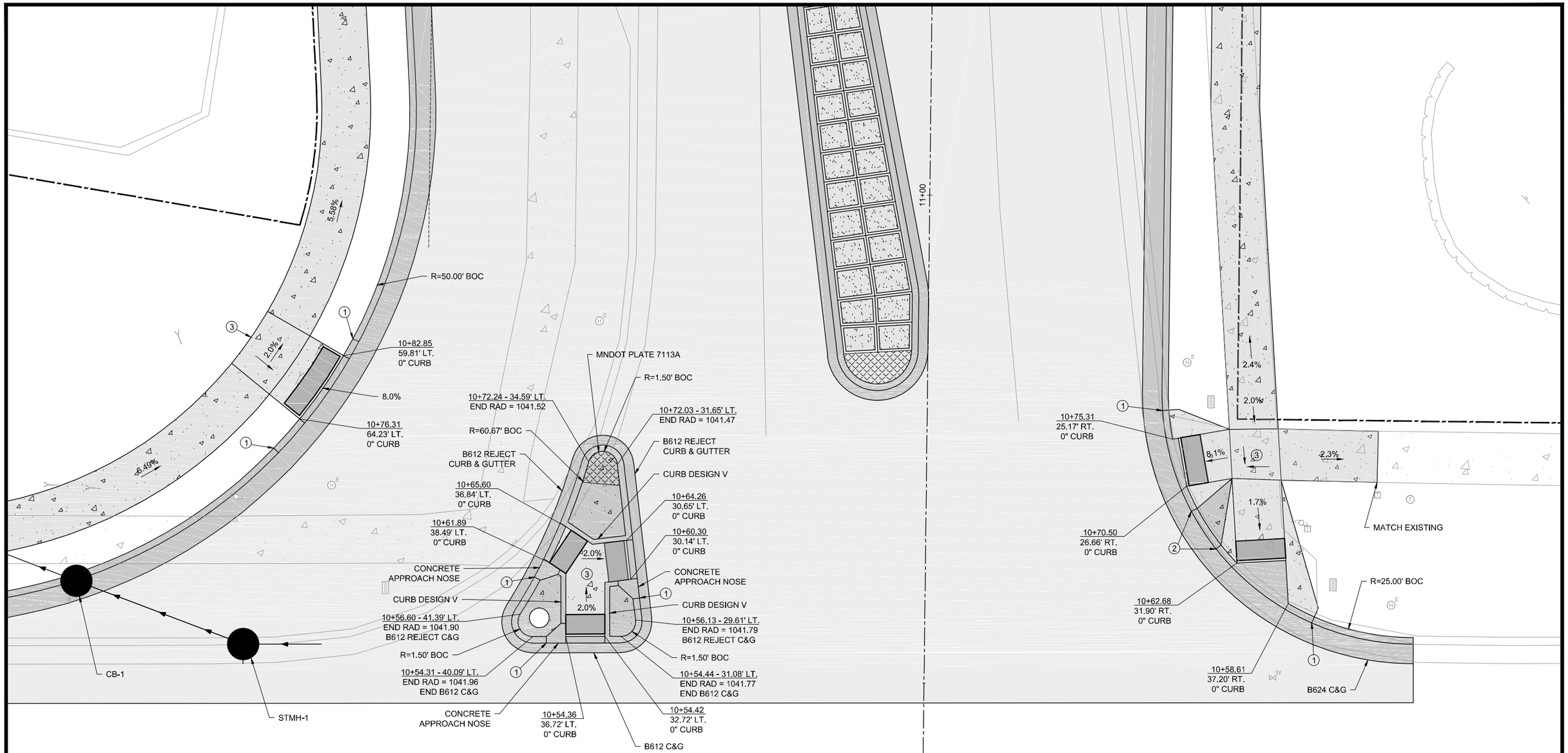
ROCHESTER, MN

TYPICAL SECTIONS

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004



NORTH

0 5 10

SCALE (IN FEET)

41ST STREET NW

NOTE:

ALL GRADES SHOWN ARE TO TOP BACK OF CURB.

SEE MNDOT STANDARD PLATE NO. 7113A FOR CONCRETE APPROACH NOSE CONSTRUCTION AT MEDIAN.

SEE MNDOT STANDARD PLAN 5-297.250 (4 OF 5) FOR CONCRETE APPROACH NOSE CONSTRUCTION AT PED. RAMPS.

1. FULL CURB HEIGHT.
2. 3" MINIMUM CURB HEIGHT.
3. 4' X 4' MINIMUM LANDING AREA (2.0% SLOPE MAX).

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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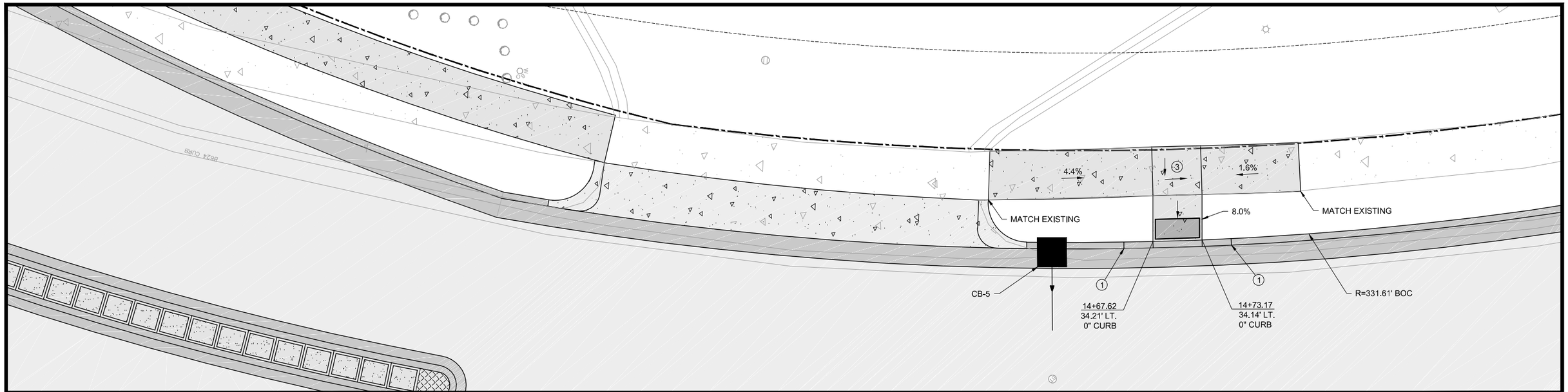
ADA PEDESTRIAN RAMP DETAIL - 41ST STREET NW

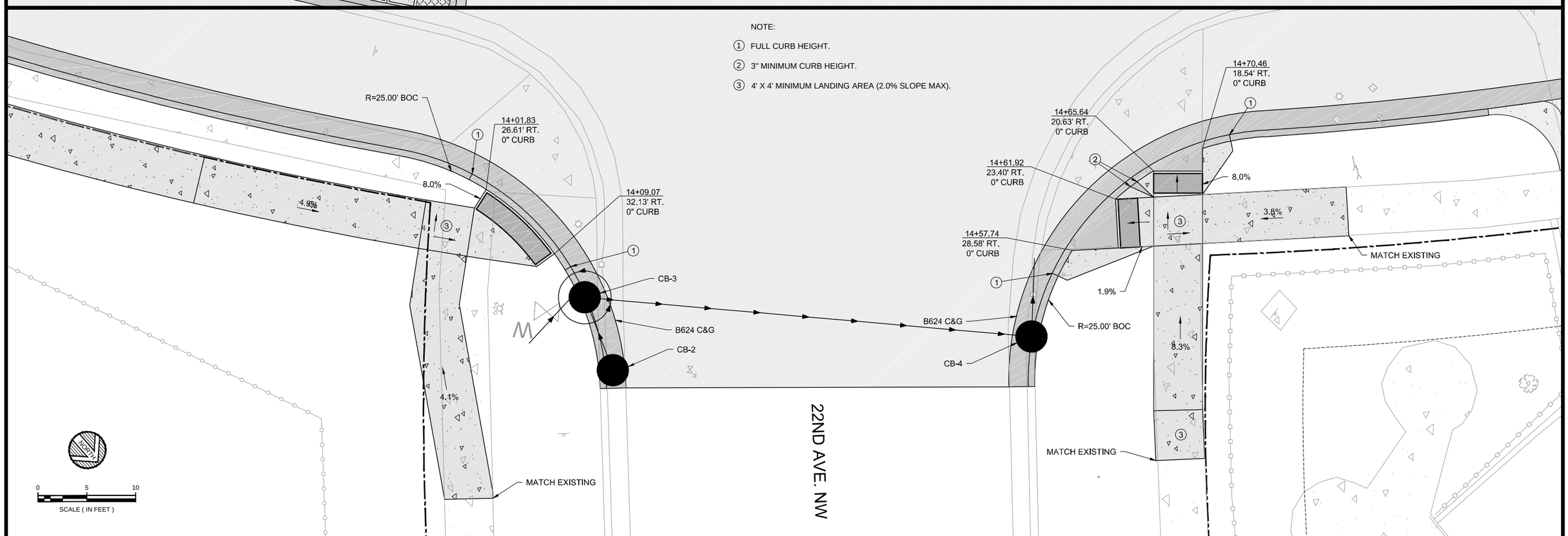
WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004



NOTE:

1. FULL CURB HEIGHT.
2. 3" MINIMUM CURB HEIGHT.
3. 4' X 4' MINIMUM LANDING AREA (2.0% SLOPE MAX).



DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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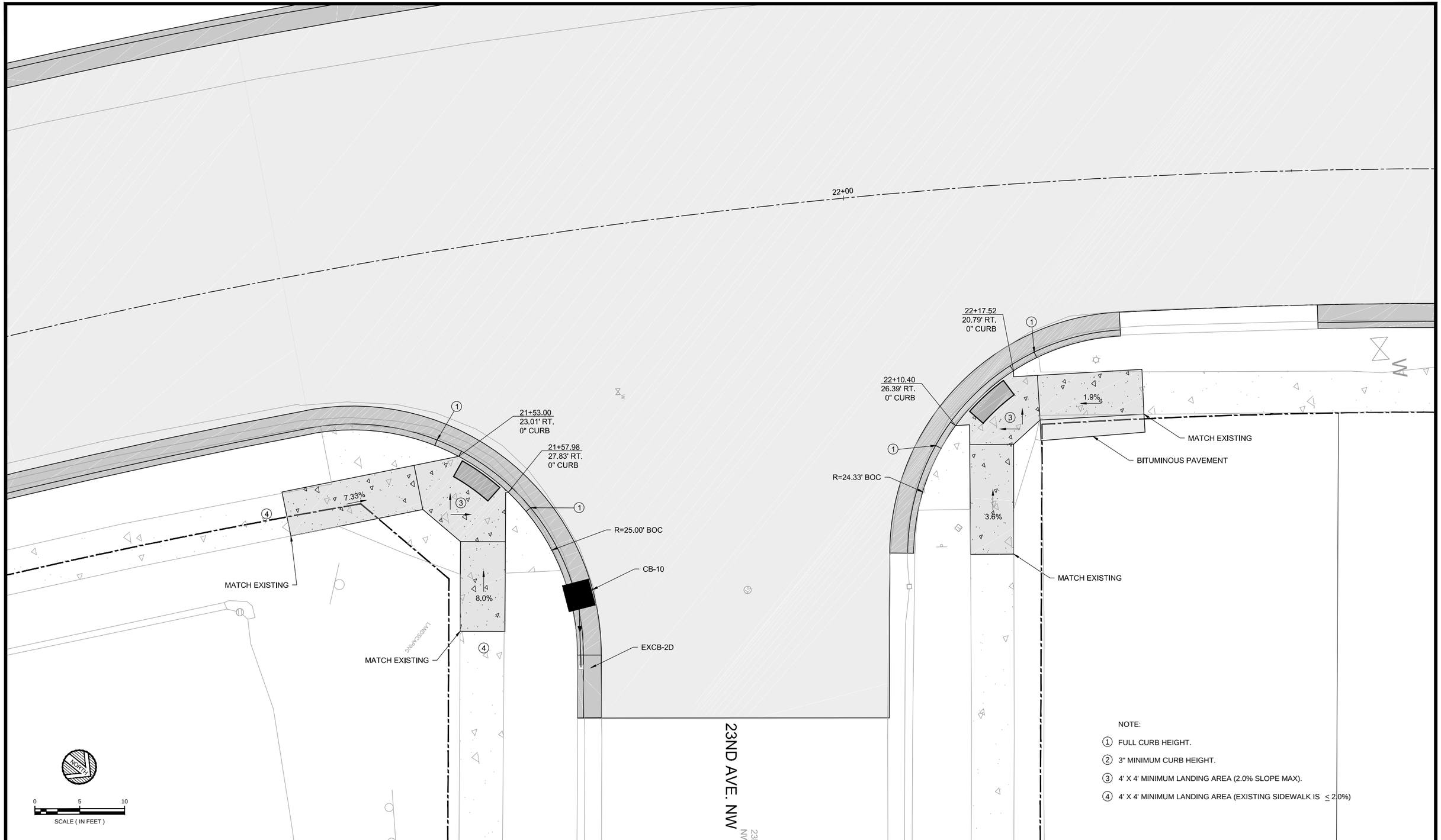
ADA PEDESTRIAN RAMP DETAIL - 22ND AVE NW

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

SHEET NO. 18 OF 93 SHEETS



NOTE:

1. FULL CURB HEIGHT.
2. 3" MINIMUM CURB HEIGHT.
3. 4' X 4' MINIMUM LANDING AREA (2.0% SLOPE MAX).
4. 4' X 4' MINIMUM LANDING AREA (EXISTING SIDEWALK IS ≤ 2.0%)

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____ PROFESSIONAL ENGINEER CRAIG N. BRITTON

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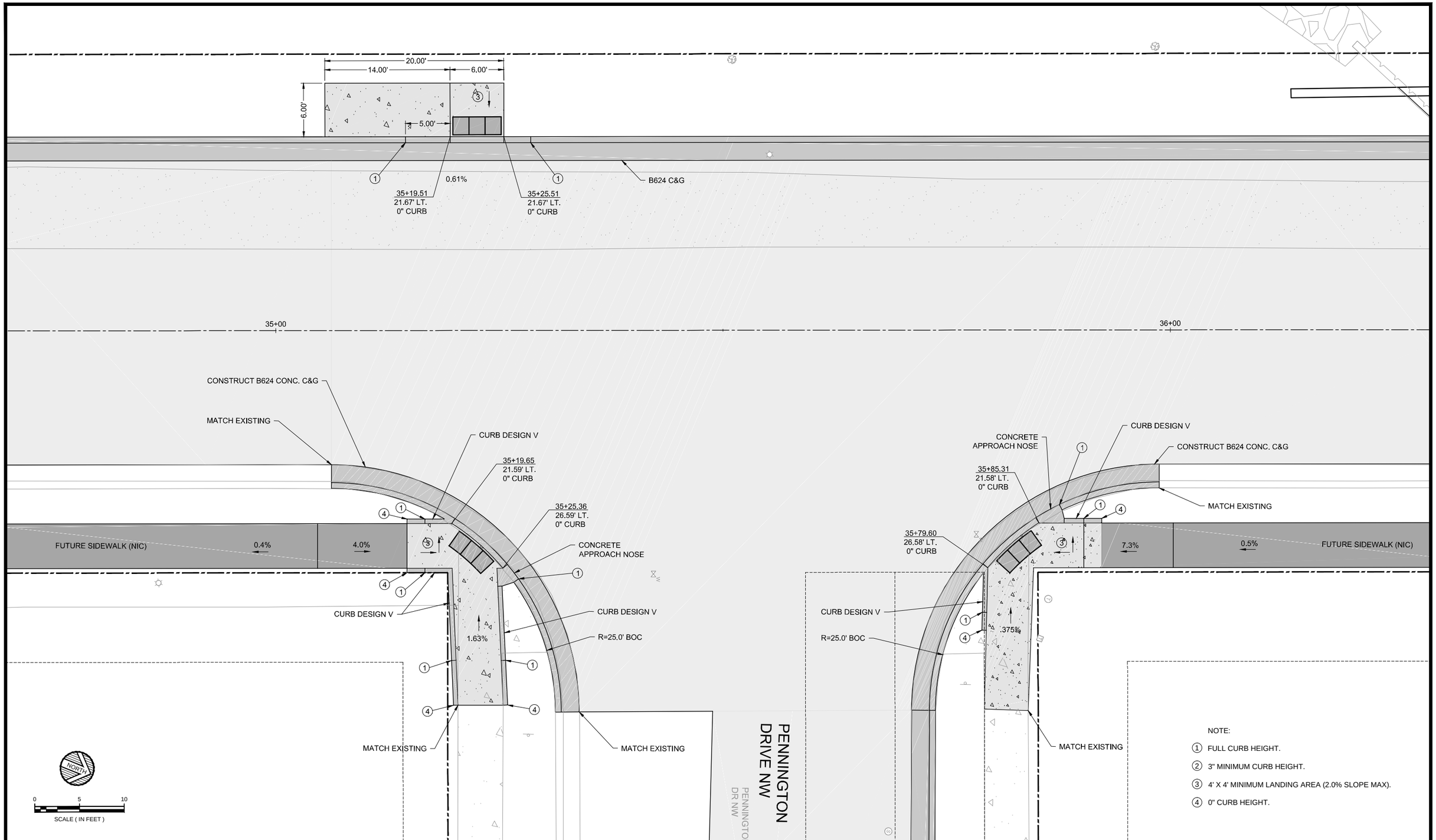
ROCHESTER, MN

ADA PEDESTRIAN RAMP DETAIL - 23RD AVE NW

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004



NOTE:

1. FULL CURB HEIGHT.
2. 3" MINIMUM CURB HEIGHT.
3. 4' X 4' MINIMUM LANDING AREA (2.0% SLOPE MAX).
4. 0" CURB HEIGHT.

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: Craig N Britton
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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ROCHESTER, MN

ADA PEDESTRIAN RAMP DETAIL - PENNINGTON DR NW

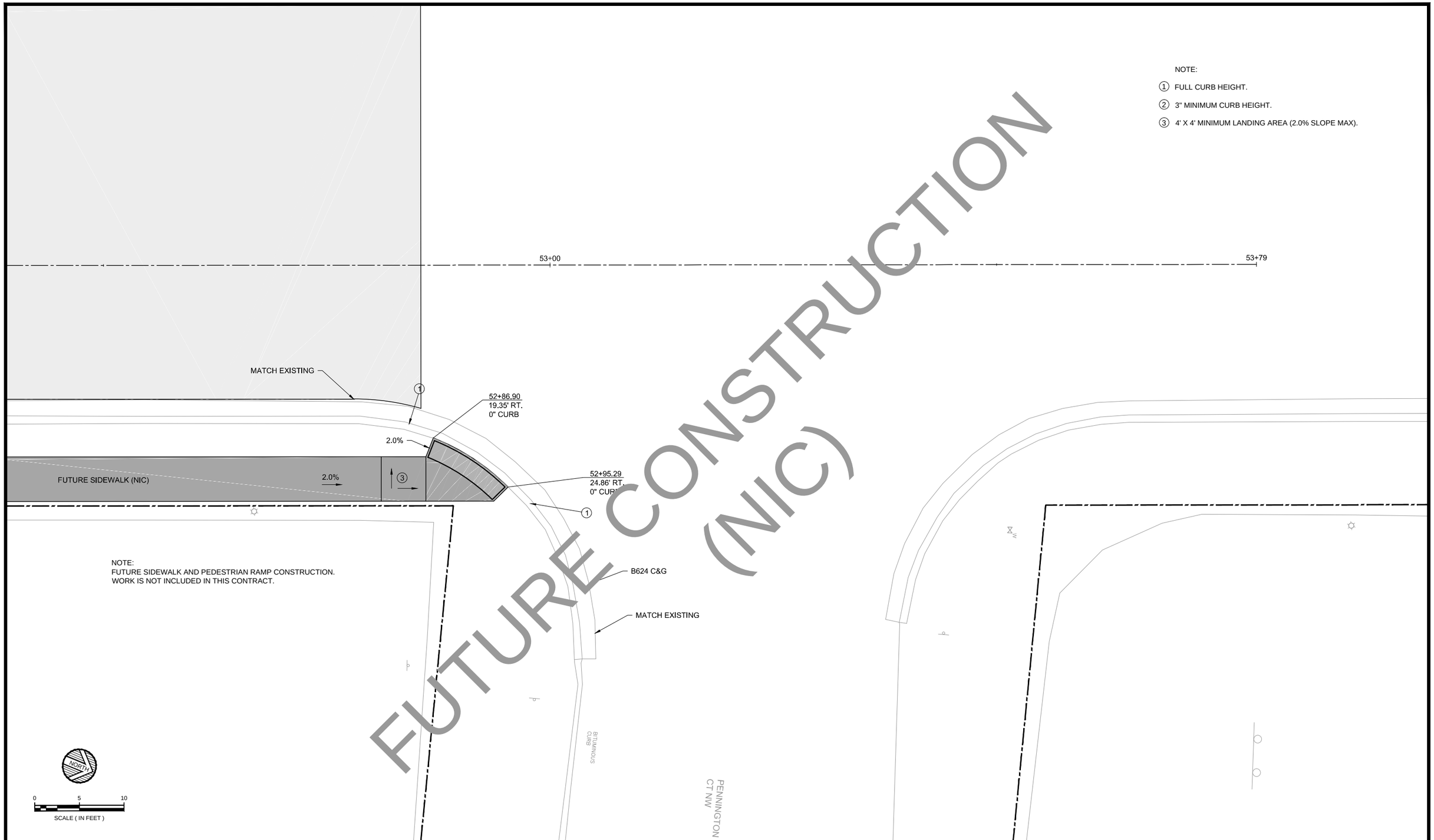
WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

SHEET NO. 20 OF 93 SHEETS

NOTE:

1. FULL CURB HEIGHT.
2. 3" MINIMUM CURB HEIGHT.
3. 4' X 4' MINIMUM LANDING AREA (2.0% SLOPE MAX).



FUTURE CONSTRUCTION (NIC)

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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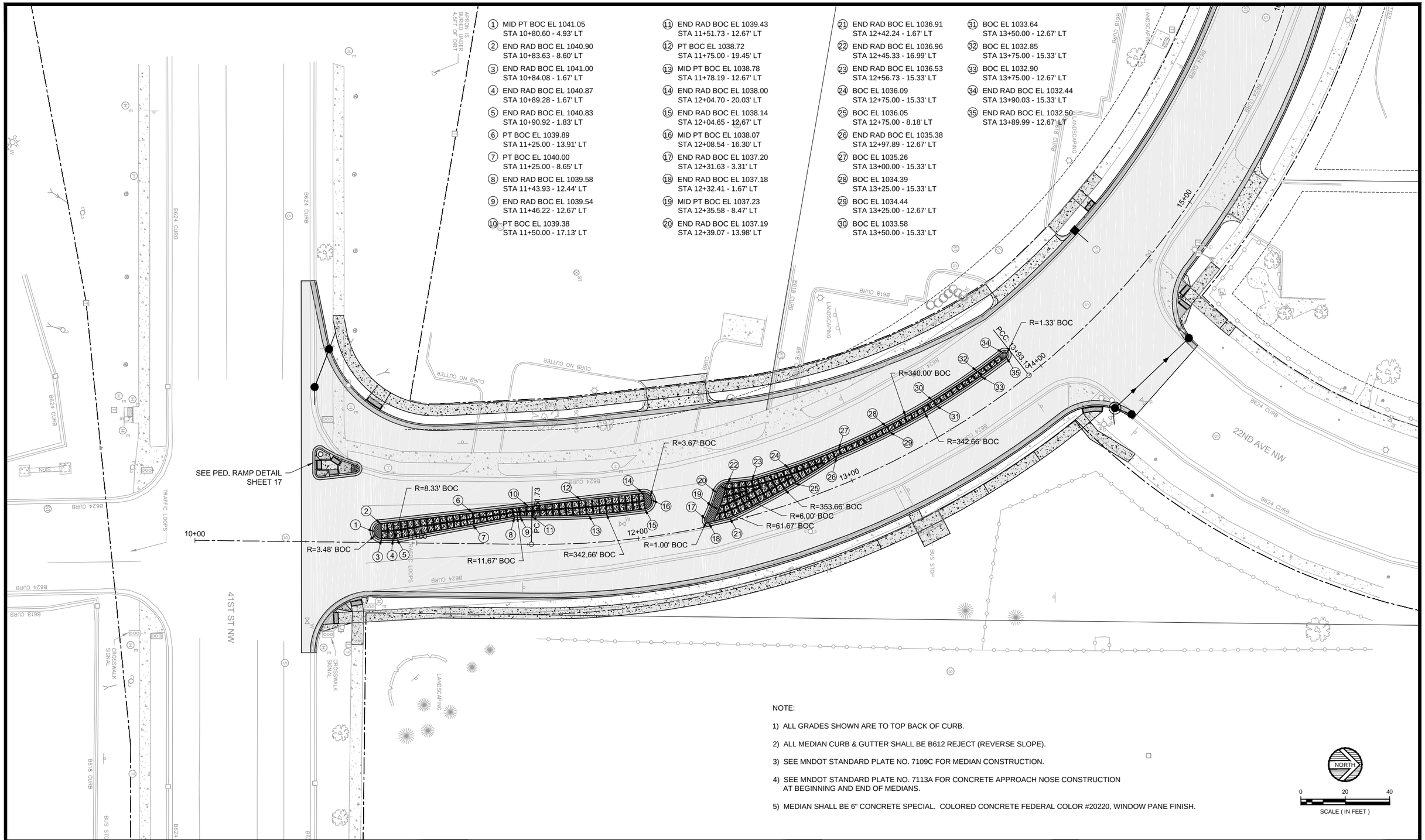
ROCHESTER, MN

ADA PEDESTRIAN RAMP DETAIL - PENNINGTON CT NW

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004



NOTE:

1) ALL GRADES SHOWN ARE TO TOP BACK OF CURB.

2) ALL MEDIAN CURB & GUTTER SHALL BE B612 REJECT (REVERSE SLOPE).

3) SEE MNDOT STANDARD PLATE NO. 7109C FOR MEDIAN CONSTRUCTION.

4) SEE MNDOT STANDARD PLATE NO. 7113A FOR CONCRETE APPROACH NOSE CONSTRUCTION AT BEGINNING AND END OF MEDIANS.

5) MEDIAN SHALL BE 6" CONCRETE SPECIAL. COLORED CONCRETE FEDERAL COLOR #20220, WINDOW PANE FINISH.

NORTH

0 20 40

SCALE (IN FEET)

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: Craig N Britton
PROFESSIONAL ENGINEER CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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ROCHESTER, MN

MEDIAN DETAIL

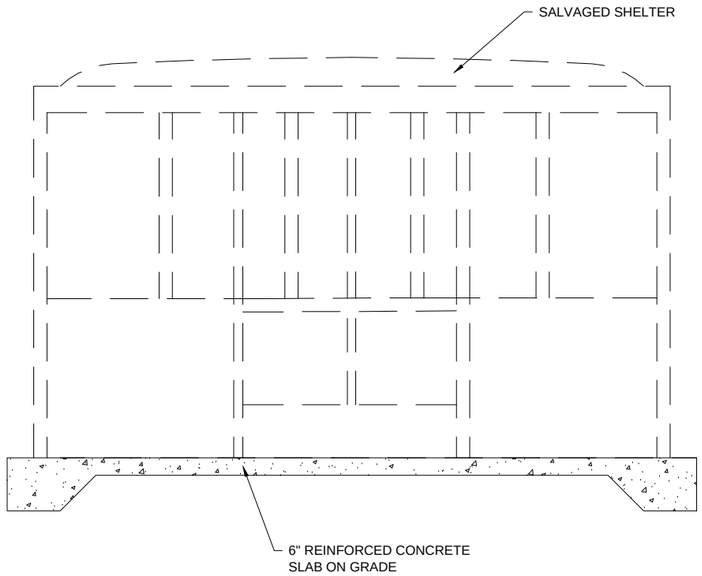
WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

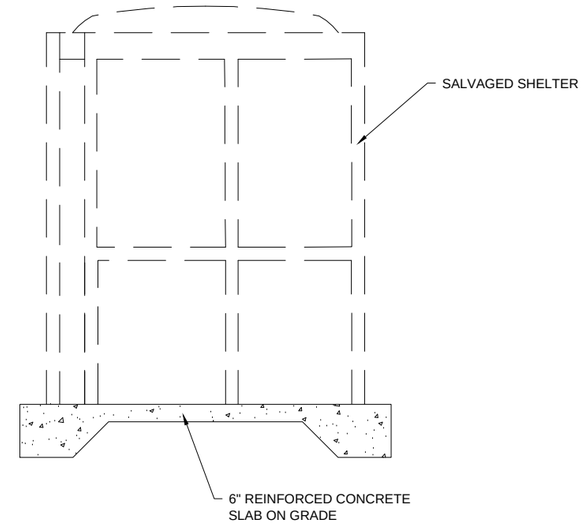
REFURBISH NOTES:

① SALVAGE AND REINSTALL SHELTER ON NEW FOUNDATION. ANY DAMAGE INCURRED DURING PROCESS WILL BE AT CONTRACTOR'S EXPENSE.

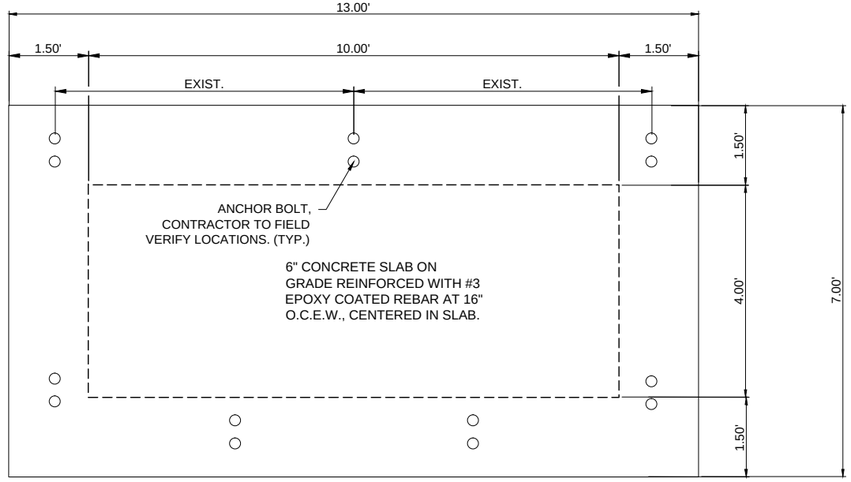
② ALL WORK AND MATERIAL ON THIS SHEET TO BE INCLUDED IN PRICE BID FOR ITEM NO. 2401.511, "STRUCTURAL CONCRETE (3Y33A)".



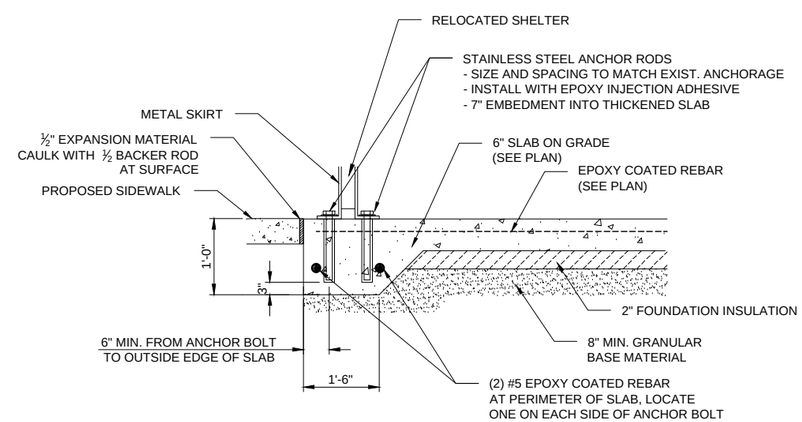
1 RELOCATED SHELTER - SIDE ELEVATION
NOT TO SCALE



2 RELOCATED SHELTER - TYP. END ELEVATION
NOT TO SCALE



3 RELOCATED SHELTER - FOUNDATION PLAN
NOT TO SCALE



4 RELOCATED SHELTER - FOUNDATION DETAIL
NOT TO SCALE

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	J.J.E.
DESIGNED BY	K.A.R.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: Kent A Rohr
PROFESSIONAL ENGINEER: KENT A. ROHR

LICENSE NO. 21179 DATE: MAY 30, 2013

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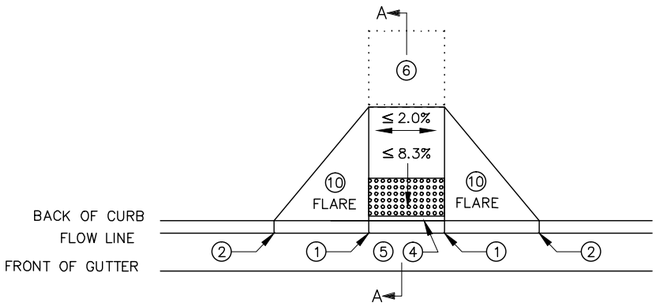
RED WING, MN
ROCHESTER, MN

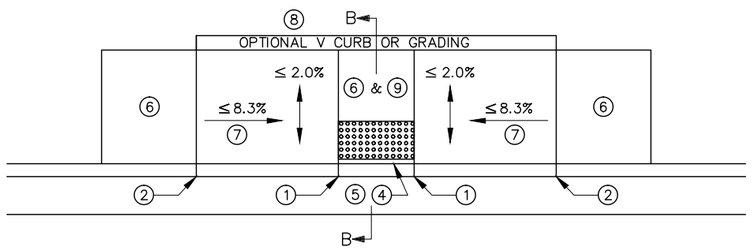
BUS SHELTER DETAIL

WSN NUMBER: 1012R0001

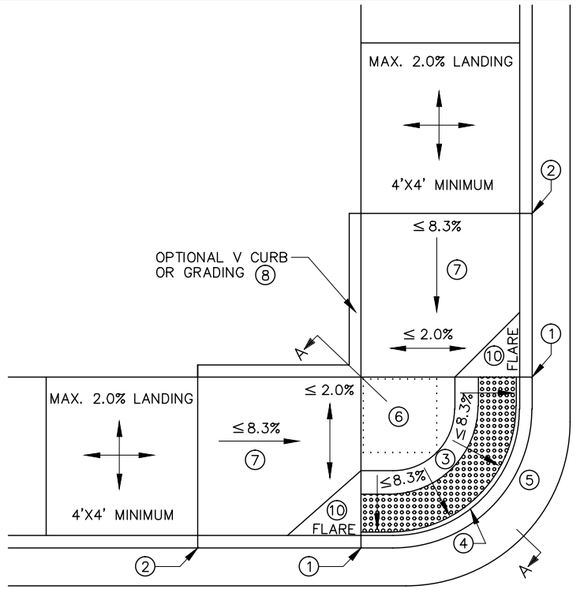
STATE AID PROJECT NO. 159-130-004



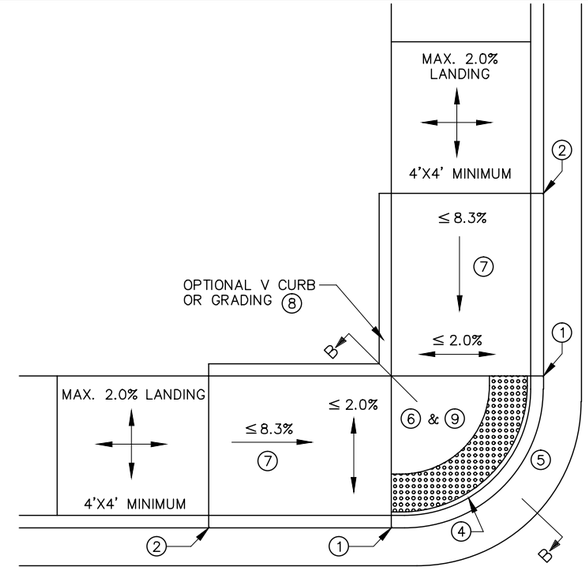
PERPENDICULAR



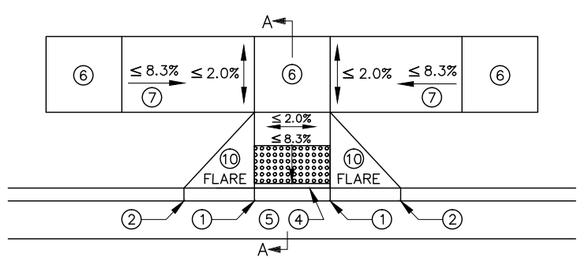
PARALLEL



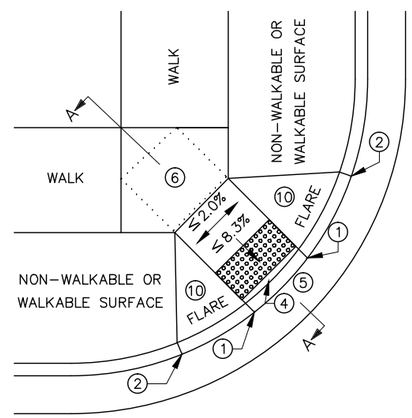
FAN



DEPRESSED CORNER



TIERED PERPENDICULAR



DIAGONAL 12

NOTES:

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR DETAILS ON DETECTABLE WARNING.

SLOPES ARE DEFINED AS ABSOLUTE ELEVATION DIFFERENCE PER LENGTH OF RUN. (AS OPPOSED TO A RELATIVE SLOPE WITH RESPECT TO A CURB LINE OR CURB HEIGHT.)

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AND AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS 5% OR GREATER.

CONTRACTION JOINTS SHALL BE CONSTRUCTED AT ALL GRADE BREAKS.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

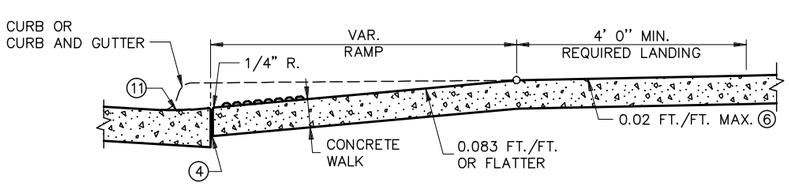
USE 6" CONCRETE FOR ALL INITIAL RAMP AND LANDING AREAS.

CONTRACTOR SHALL EMPLOY APPROPRIATE METHODS FOR INTERMEDIATE GRADE CONTROL TO ENSURE ALL GRADE BREAKS ARE CONSTRUCTED PROPERLY.

ALL GRADE BREAKS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL/PEDESTRIAN ACCESS ROUTE.

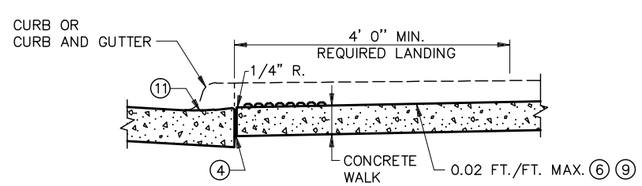
4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

1. 0" CURB HEIGHT.
2. FULL CURB HEIGHT.
3. LESS THAN 5% PREFERRED. 5–8.3% SHOULD ONLY BE USED AFTER ALL OTHER SLOPES HAVE BEEN CONSIDERED AND DEEMED IMPRACTICAL.
4. 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SET BACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SET BACK 3"–6" FROM THE BACK OF CURB.
5. SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
6. 4' BY 4' MIN. LANDING WITH MAX. 2% SLOPE IN ALL DIRECTIONS.
7. IF RUNNING SLOPE IS LESS THAN 5.0% NO SECONDARY LANDING IS REQUIRED.
8. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.
9. DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
10. SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
11. SEE SHEET 3 OF 5 FOR FURTHER DETAIL.
12. DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN CONSIDERED AND DEEMED IMPRACTICAL.



SECTION A–A

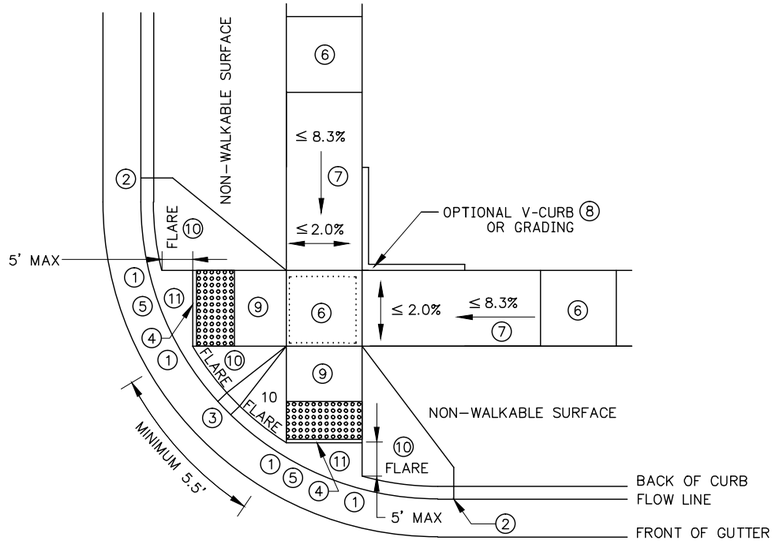
PERPENDICULAR/TIERED/DIAGONAL/FAN



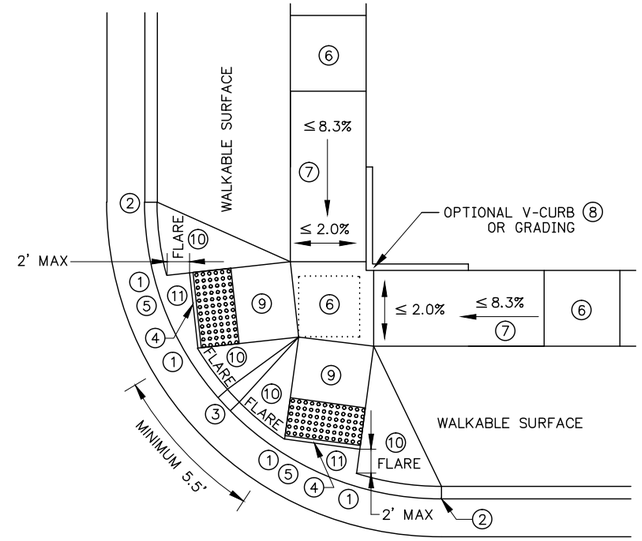
SECTION B–B

PARALLEL/DEPRESSED CORNER

STANDARD PLAN SHEET NO. 5–297.250 (1 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: MAY 10, 2012	

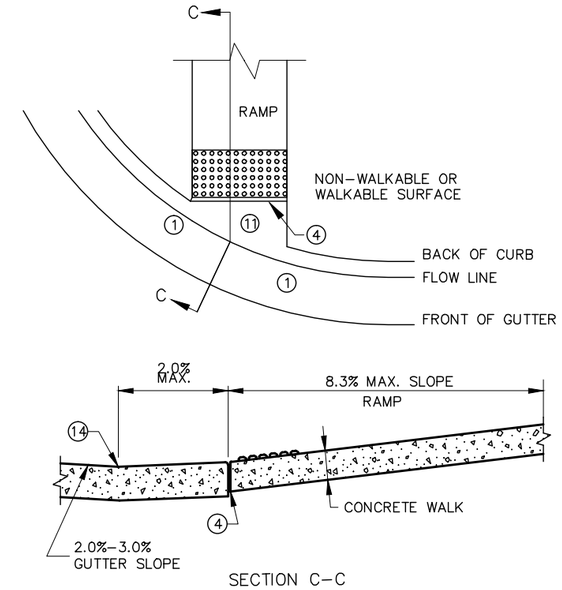


ADJACENT TO NON-WALKABLE SURFACE



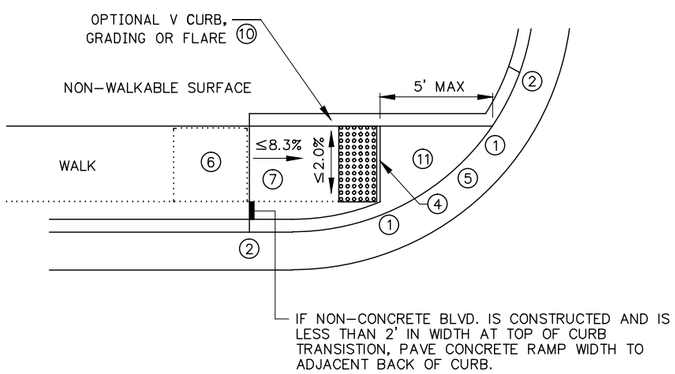
ADJACENT TO WALKABLE SURFACE

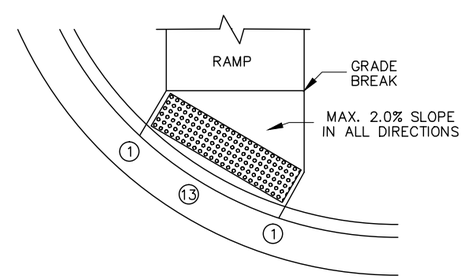
COMBINED DIRECTIONAL



SECTION C-C

CURB FOR DIRECTIONAL RAMPS ⑫





ONE-WAY DIRECTIONAL

NOTES:

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR DETAILS ON DETECTABLE WARNING.

SLOPES ARE DEFINED AS ABSOLUTE ELEVATION DIFFERENCE PER LENGTH OF RUN. (AS OPPOSED TO A RELATIVE SLOPE WITH RESPECT TO A CURB LINE OR CURB HEIGHT.)

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AND AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS 5% OR GREATER.

CONTRACTION JOINTS SHALL BE CONSTRUCTED AT ALL GRADE BREAKS.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

USE 6" CONCRETE WALK FOR ALL INITIAL RAMP AND LANDING AREAS.

CONTRACTOR SHALL EMPLOY APPROPRIATE METHODS FOR INTERMEDIATE GRADE CONTROL TO ENSURE ALL GRADE BREAKS ARE CONSTRUCTED PROPERLY.

ALL GRADE BREAKS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL/PEDESTRIAN ACCESS ROUTE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

③ 3" MINIMUM CURB HEIGHT.

④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SET BACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SET BACK 3"-6" FROM THE BACK OF CURB.

⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.

⑥ 4' BY 4' MIN. LANDING WITH MAX. 2% SLOPE IN ALL DIRECTIONS.

⑦ IF RAMP SLOPE IS LESS THAN 5% NO SECONDARY LANDING IS REQUIRED.

⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

⑨ RUNNING SLOPE LESS THAN OR EQUAL TO 8.3% & CROSS SLOPE LESS THAN OR EQUAL TO 2%.

⑩ SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.

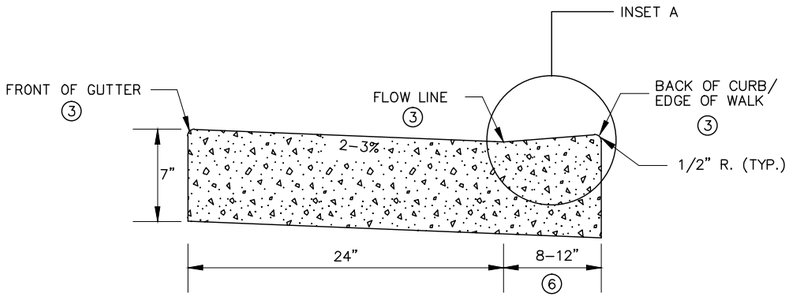
⑪ MAX. 2% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑫ TO BE USED FOR ALL DIRECTIONAL RAMPS.

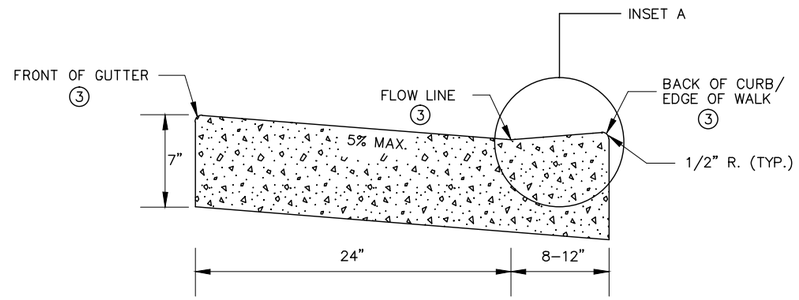
⑬ DOMES PLACED AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

⑭ ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE MAY NOT BE GREATER THAN 1/4 INCH.

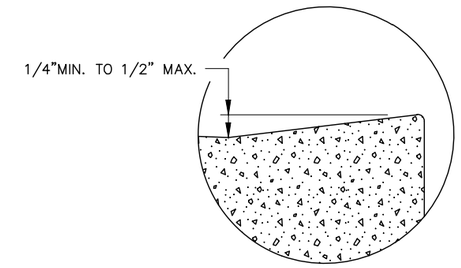
STANDARD PLAN SHEET NO. 5-297.250 (2 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: MAY 10, 2012	



NON PERPENDICULAR ①

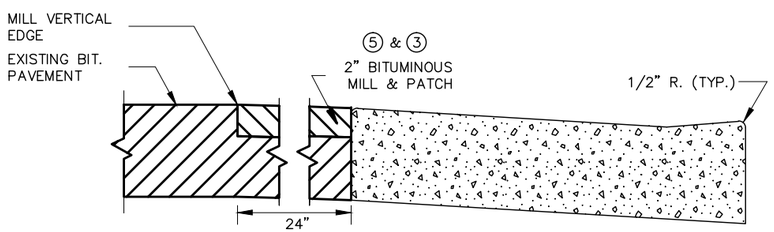


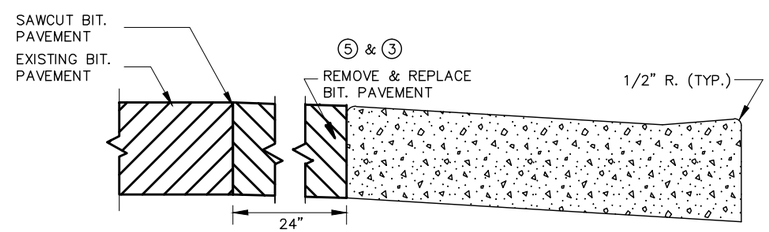
PERPENDICULAR ②

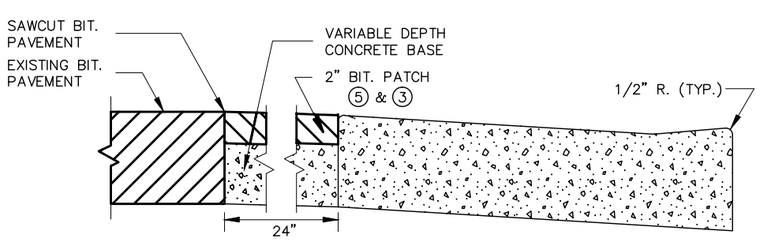


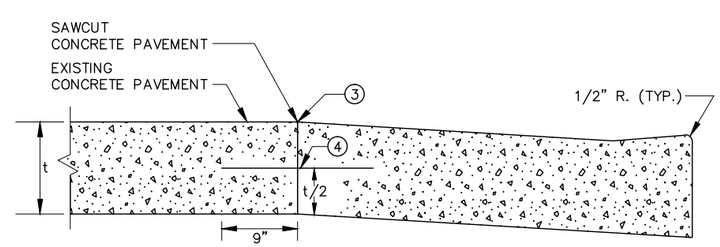
INSET A

PEDESTRIAN ACCESS ROUTE
CURB & GUTTER DETAIL









PAVEMENT TREATMENT OPTIONS
IN FRONT OF CURB & GUTTER
FOR USE ON CURB RAMP RETROFITS

NOTES:

ADEQUATE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% ABSOLUTE MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE MAY NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.

② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

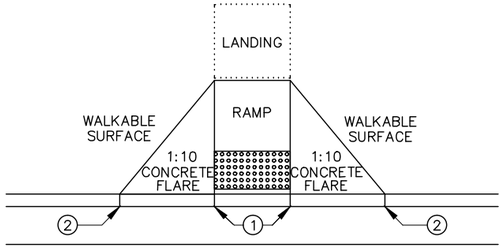
③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

④ DRILL AND GROUT NO. 13 EPOXY–COATED 18" LONG BARS AT 2' CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.

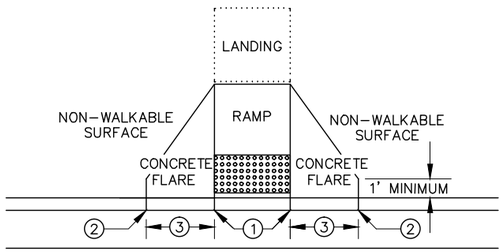
⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

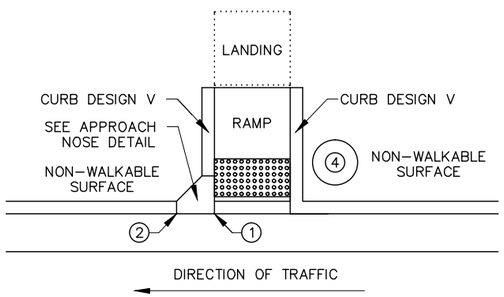
STANDARD PLAN SHEET NO. 5–297.250 (3 OF 5) STANDARD APPROVED: MAY 10, 2012	PEDESTRIAN CURB RAMP DETAILS



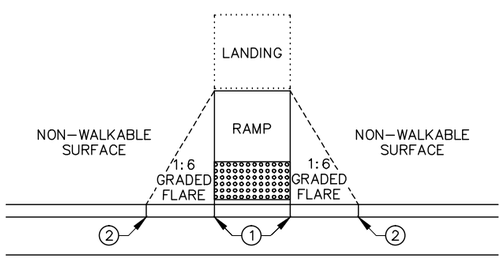
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

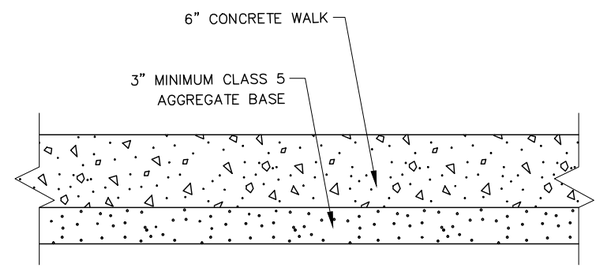


RETURNED CURB

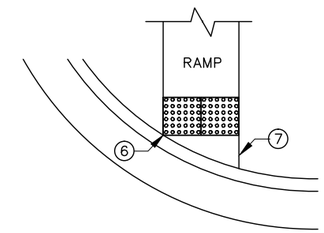


GRADED FLARES

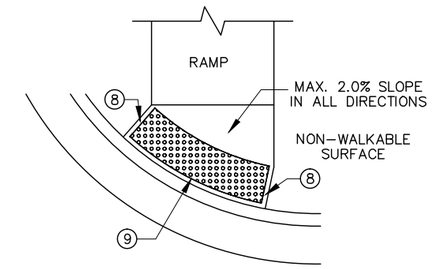
TYPICAL SIDE TREATMENT OPTIONS ⑤



TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER

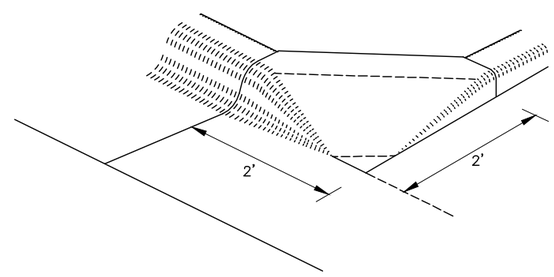


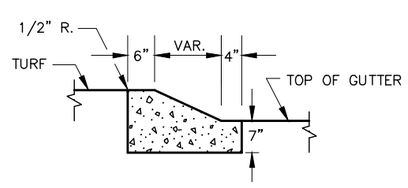
DETECTABLE WARNING
SETBACK CRITERIA



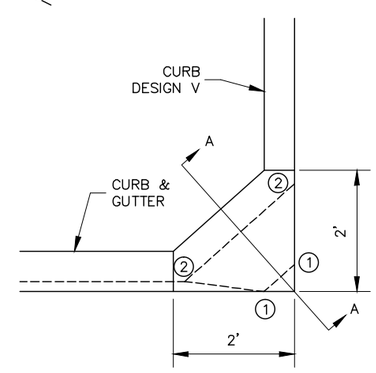
RADIAL DETECTABLE
WARNING AT RADIUS

DETECTABLE WARNING PLACEMENT





SECTION A–A



APPROACH NOSE DETAIL
FOR DOWNSTREAM SIDE OF TRAFFIC

NOTES:

SEE STANDARD PLATE 7038 AND THIS SHEET FOR DETAILS ON DETECTABLE WARNING.

USE 6" CONCRETE WALK UP TO EXISTING SIDEWALK GRADES FOR ALL RAMP AND LANDING AREAS.

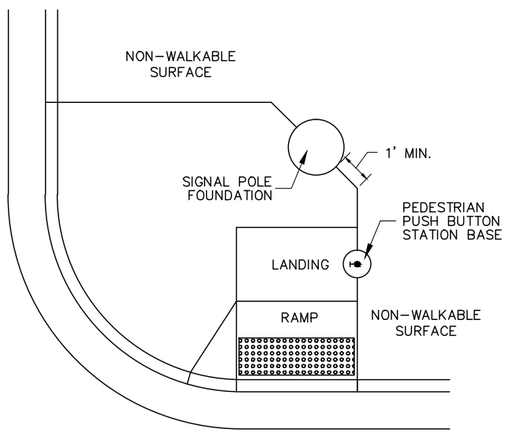
WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.

FLARE LENGTHS SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

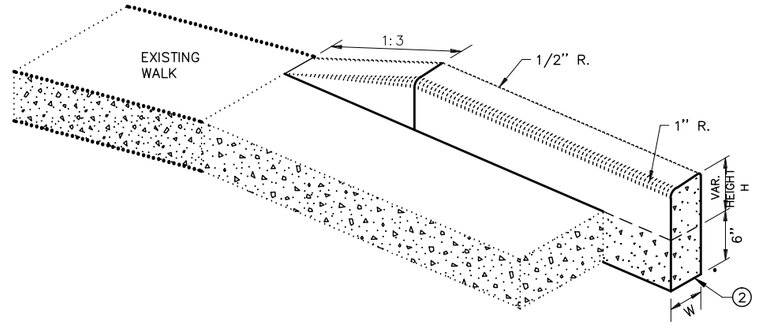
4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

① 0" CURB HEIGHT.
② FULL CURB HEIGHT.
③ 2' – 3' CONCRETE FLARE.
④ IMMOVABLE OBJECT OR OBSTRUCTION.
⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
⑥ DETECTABLE WARNING SHALL HAVE ONE CORNER 3" FROM THE BACK OF CURB.
⑦ SHALL BE 2' MAXIMUM OFFSET WHEN ADJACENT TO WALKABLE SURFACE AND 5' MAXIMUM OFFSET WHEN ADJACENT TO NON-WALKABLE SURFACE.
⑧ WHEN NO FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
⑨ DETECTABLE WARNING TO BE PLACED AT A UNIFORM OFFSET DISTANCE FROM 3" TO 6" FROM THE BACK OF CURB. IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNING SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE CONCRETE BORDER.

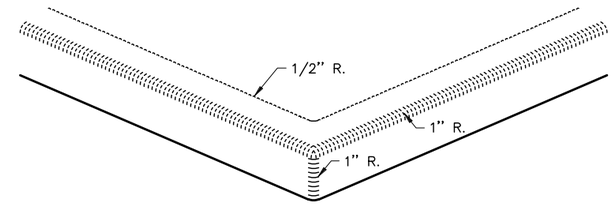
STANDARD PLAN SHEET NO. 5-297.250 (4 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: MAY 10, 2012	



CONCRETE WALK EDGES ADJACENT TO CONCRETE STRUCTURES

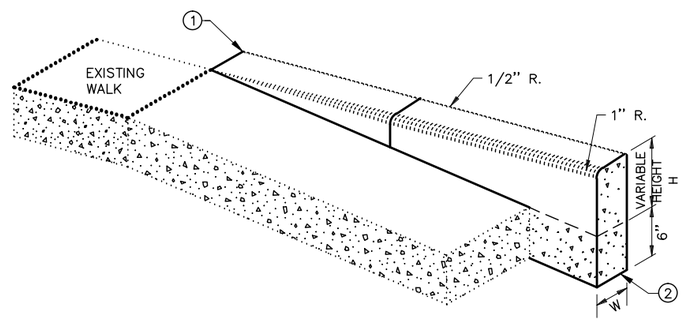


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

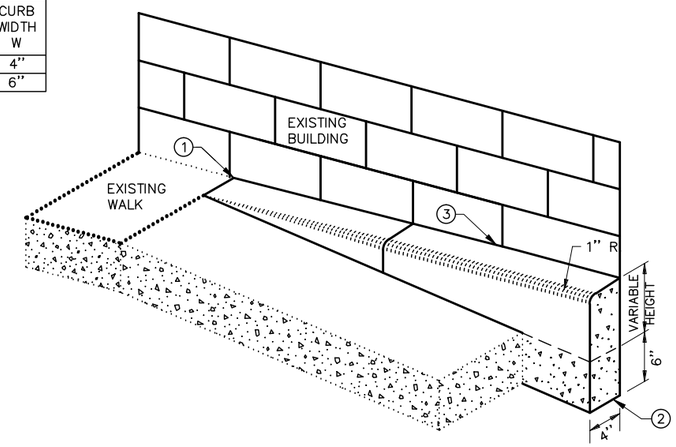


V CURB INTERSECTION

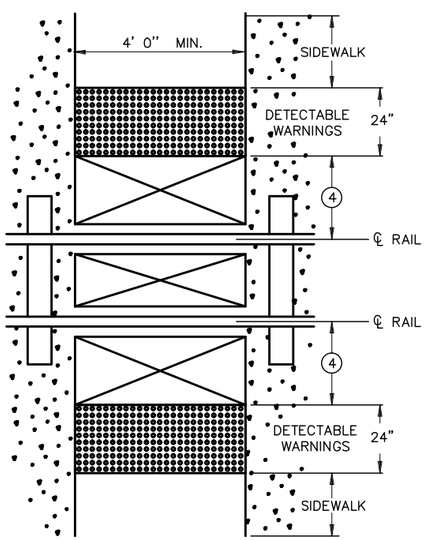
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
<6"	4"
≥6"	6"



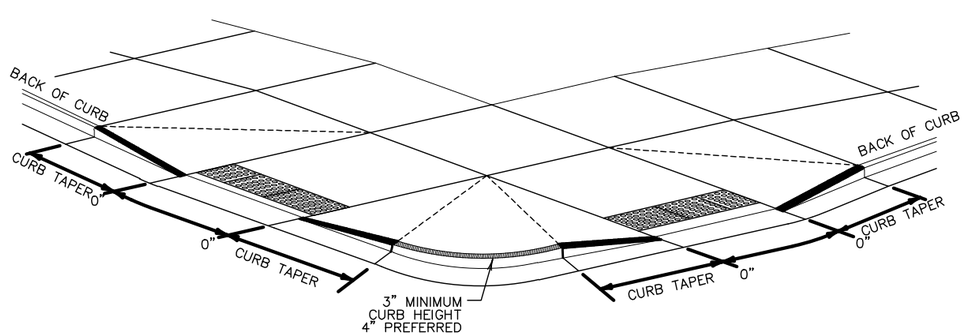
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



V CURB ADJACENT TO BUILDING



RAILROAD CROSSING PLAN VIEW



DETECTABLE EDGE AT QUADRANT ⑤

NOTES:

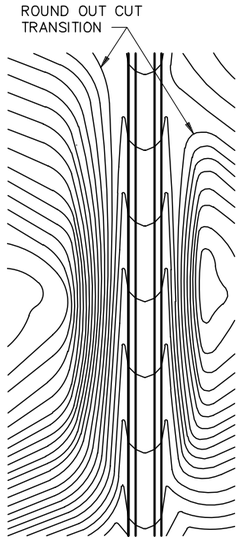
ALL V-CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

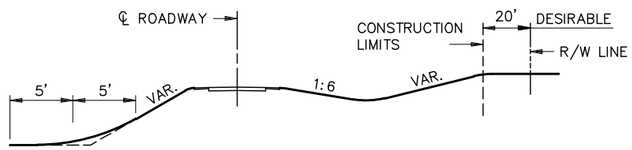
V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

1. END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
2. ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
3. EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
4. EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 6' MINIMUM TO 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL.
5. ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES TRUNCATED DOMES WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TRANSITIONS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS IMMEDIATELY AT THE EDGE OF THE TRUNCATED DOMES AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TRANSITION AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILTY GUIDELINES.

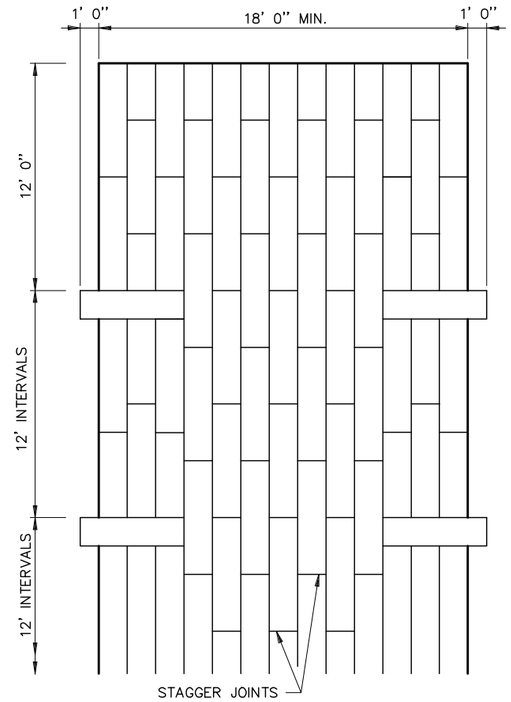
STANDARD PLAN SHEET NO. 5-297.250 (5 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: MAY 10, 2012	



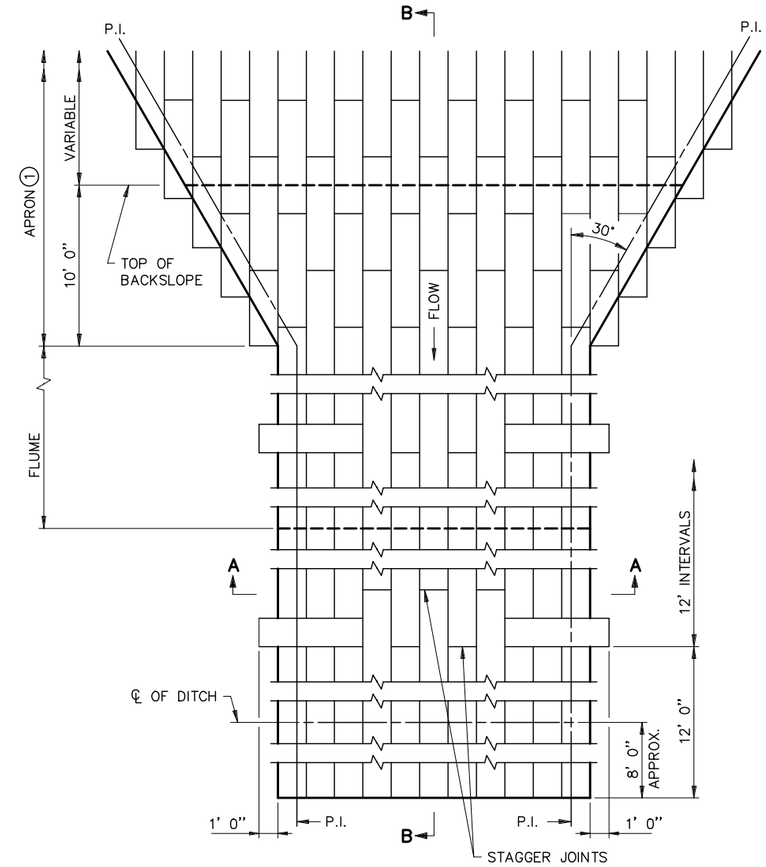
CONTOURING ROAD CUTS



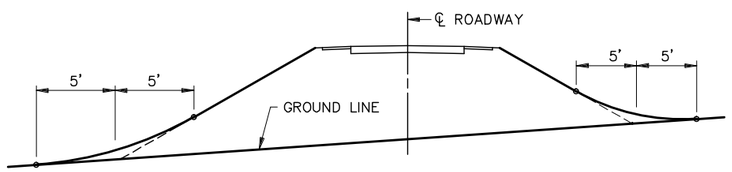
ROUNDING SHOULDERS AND BACKSLOPES



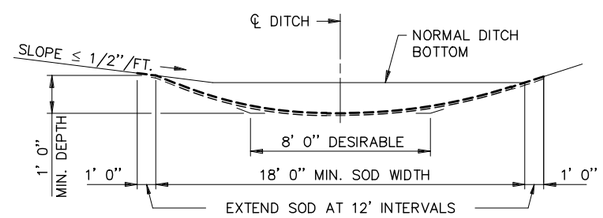
PLAN VIEW



PLAN VIEW

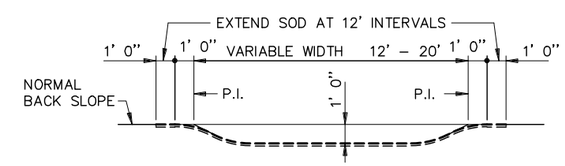


SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES

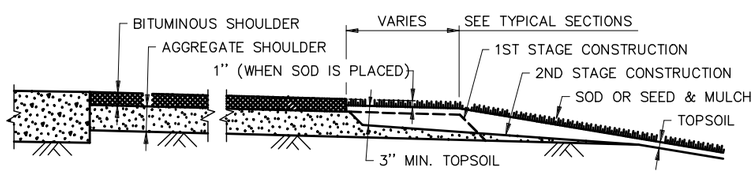


SODDED DITCH CROSS SECTION

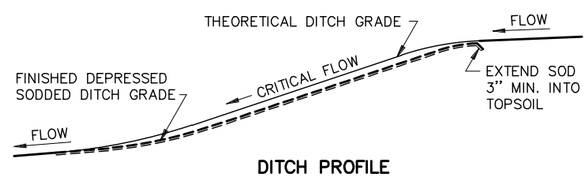
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.) , FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



SECTION A–A

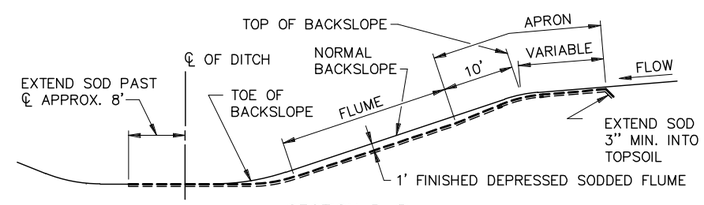


SHAPING AND TOPSOILING INSLOPES



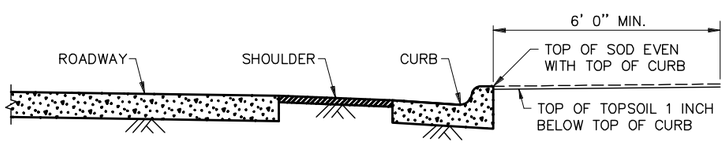
DITCH PROFILE

SODDED DITCH DETAILS



SECTION B–B

SODDED FLUME DETAILS



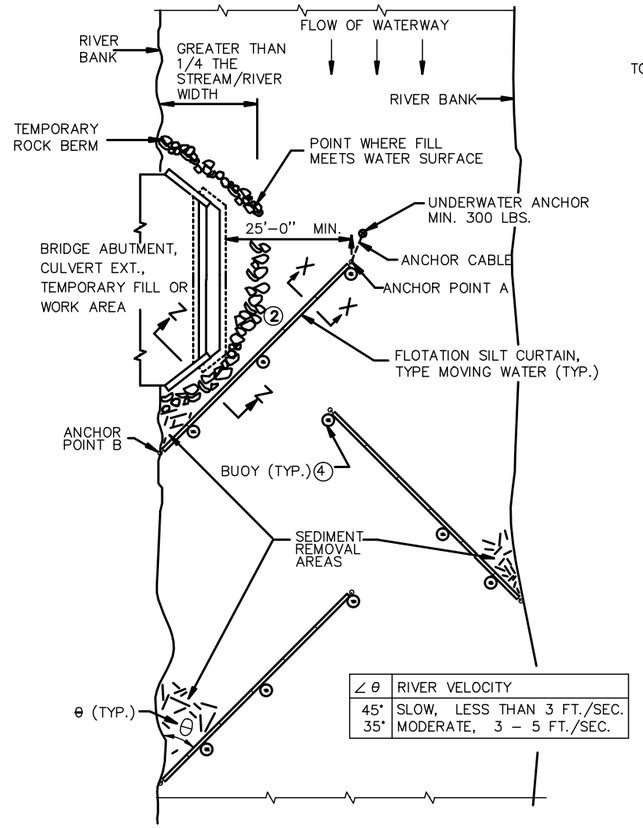
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

NOTES:

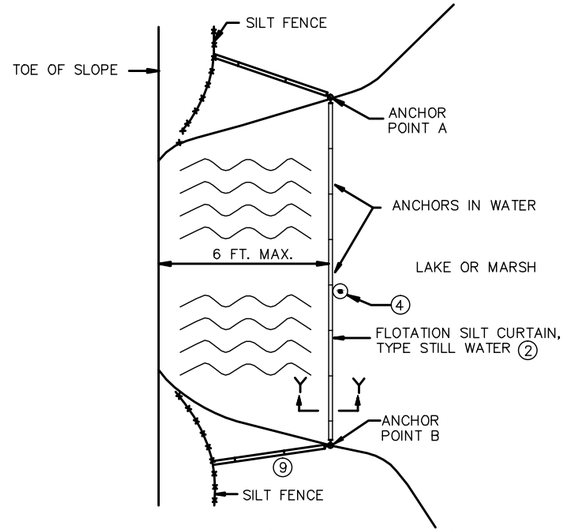
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

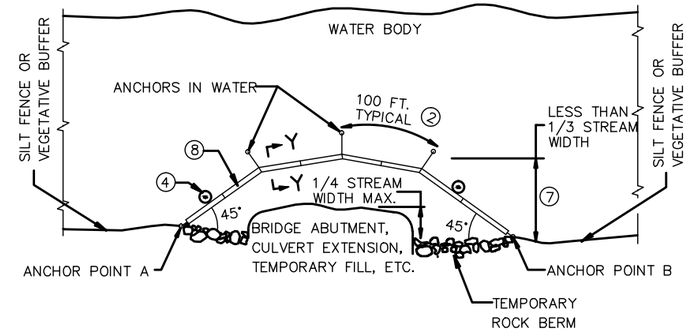
STANDARD SHEET NO. 5–297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: NOVEMBER 20, 2002	



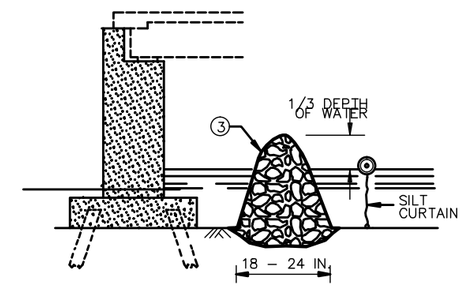
PLAN VIEW (TYPE: MOVING WATER)



PLAN VIEW (TYPE: STILL WATER)



PLAN VIEW (TYPE: WORK AREA)



SECTION Z–Z TEMPORARY ROCK BERM
FOR SEDIMENT CONTROL

DESIGN GUIDELINES: MOVING WATER

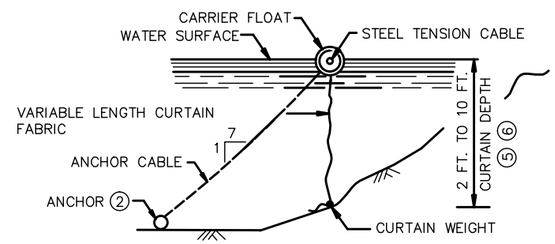
WHEN TEMPORARY FILL ENCROACHES MORE THAN 1/4 BUT LESS THAN 1/3 WIDTH OF THE STREAM. 1 6
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 11 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

DESIGN GUIDELINES: WORK AREA

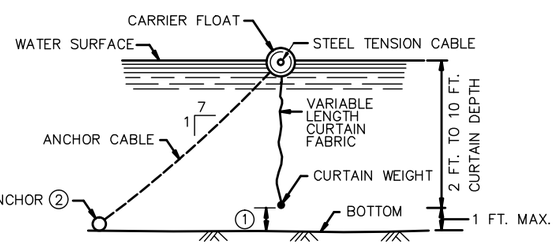
WHEN TEMPORARY FILL ENCROACHES LESS THAN 1/4 OF THE WIDTH OF STREAM.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

DESIGN GUIDELINES: STILL WATER 6

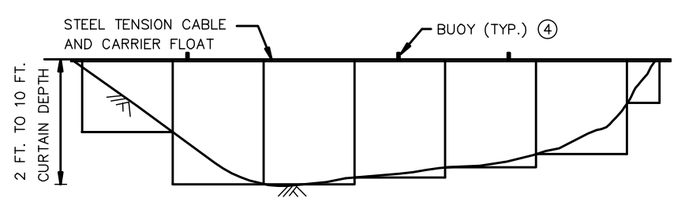
MINIMUM WATER DEPTH: 0 FT.
MAXIMUM WATER DEPTH: 10 FT.



SECTION Y–Y

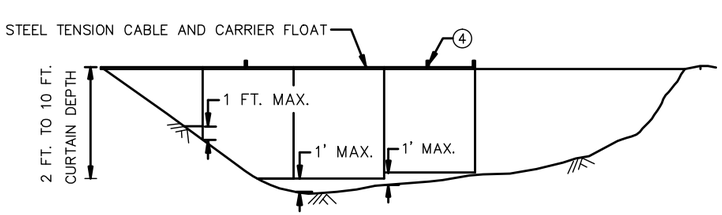


SECTION X–X



FLOTATION SILT CURTAIN – TYPE: WORK AREA AND STILL WATER 5

FOR CONTAINING OVERFLOWS FROM WEIRS, STANDPIPES, SETTLING PONDS



FLOTATION SILT CURTAIN – TYPE: MOVING WATER 5

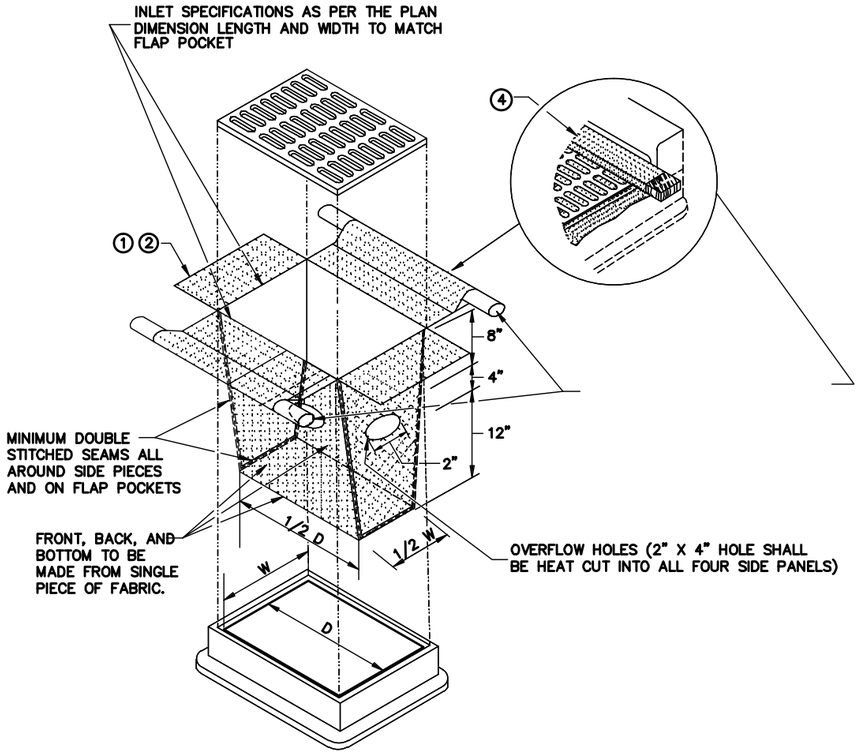
USE FOR SMALLER RIVERS
WITH SLOW AND MODERATE VELOCITIES

NOTES:

SEE SPECS. 2573 & 3887.

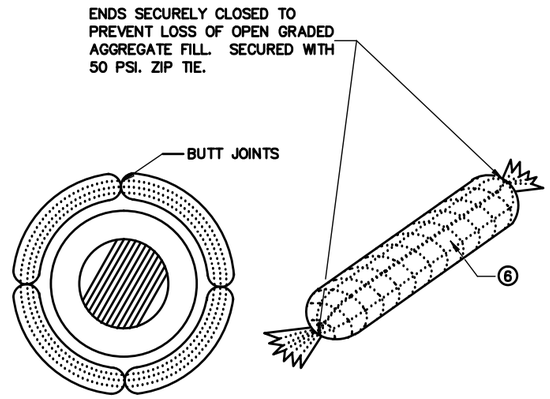
1. CURTAIN EXTENDS TO 1 FT. MAXIMUM FROM BOTTOM OF WATER BODY.
2. FOR ANCHOR AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.
3. IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT THE BRIDGE, A TEMPORARY ROCK BERM WILL BE USED TO PROVIDE ADDITIONAL PROTECTION. THE TEMPORARY ROCK BERM IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.
4. ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.
5. WATER DEPTH CAN BE 0 TO 10 FEET, 0 TO 11 FEET FOR TYPE MOVING WATER.
6. SILT CURTAIN HEIGHT INCLUDES MAXIMUM WAVE HEIGHT FOR WATER BODY.
7. KEEP AS CLOSE TO WORK AREA AS POSSIBLE.
8. SILT CURTAIN, ROCK BERM OR SHEET PILE AS REQUIRED TO CONTROL THE INFILTRATION OF SILT.
9. IF 6 INCHES OR LESS OF WATER, USE BALE BARRIERS, SEE SHEET 2.

STANDARD SHEET NO. 5–297.405 (1 OF 4)	TITLE: TEMPORARY SEDIMENT CONTROL SILT CURTAIN
STANDARD APPROVED: MARCH 29, 2012	

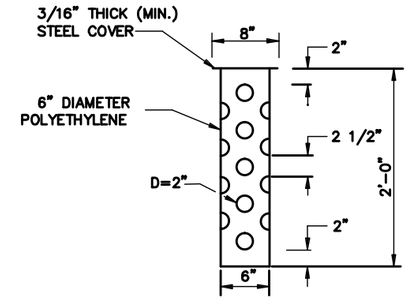


FILTER BAG INSERT ③

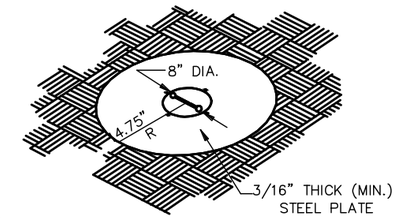
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



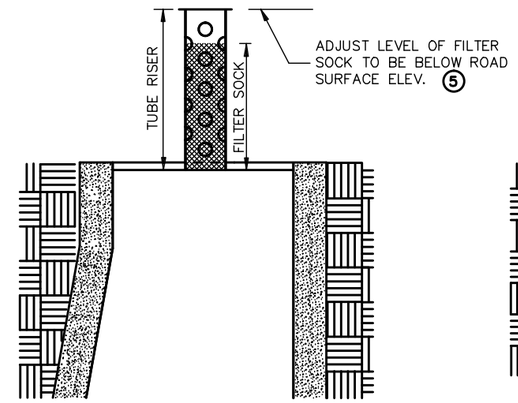
ROCK LOG/COMPOST LOG



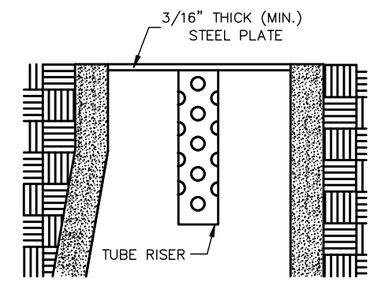
TUBE RISER



PERSPECTIVE VIEW

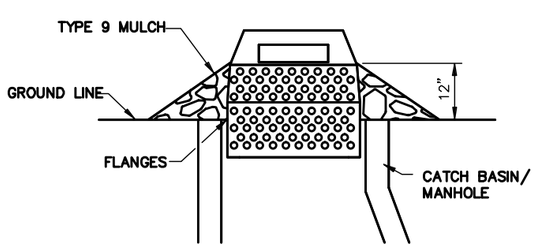


SECTION
(UP POSITION)



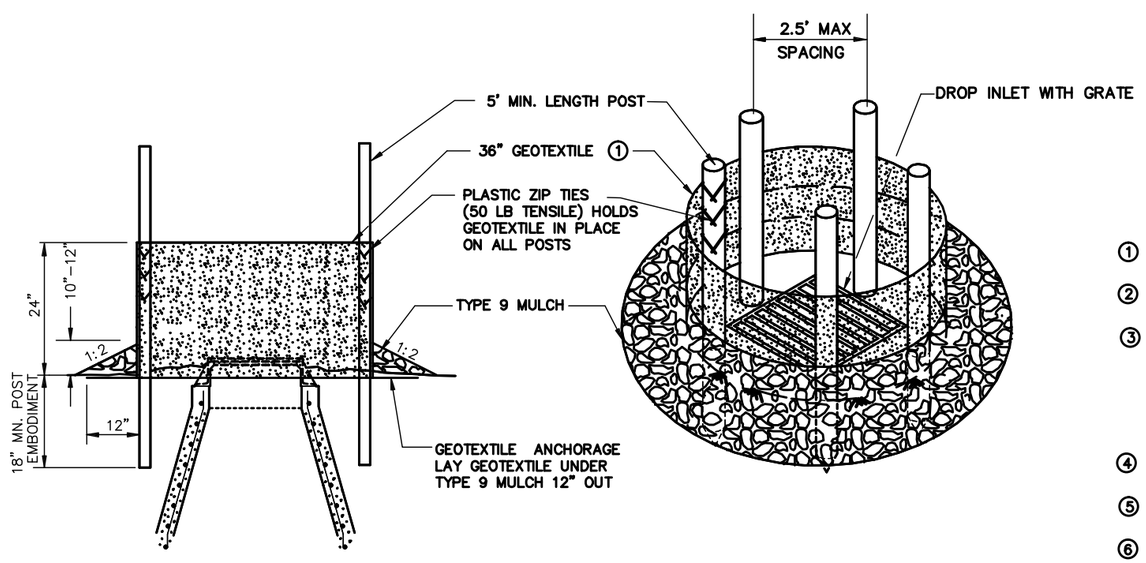
SECTION
(DOWN POSITION)

POP-UP HEAD



SEDIMENT CONTROL INLET HAT

NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

NOTES:

SEE SPECS. 2573, 3137, 3886 & 3891.

MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.

① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.

② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

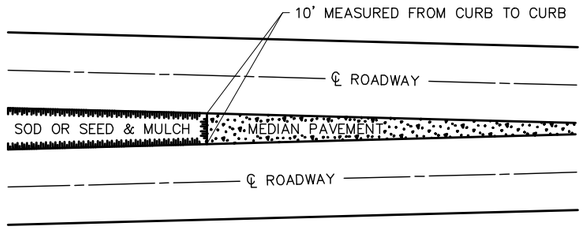
③ INSTALLATION NOTES:
DO NOT INSTALL FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.

④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

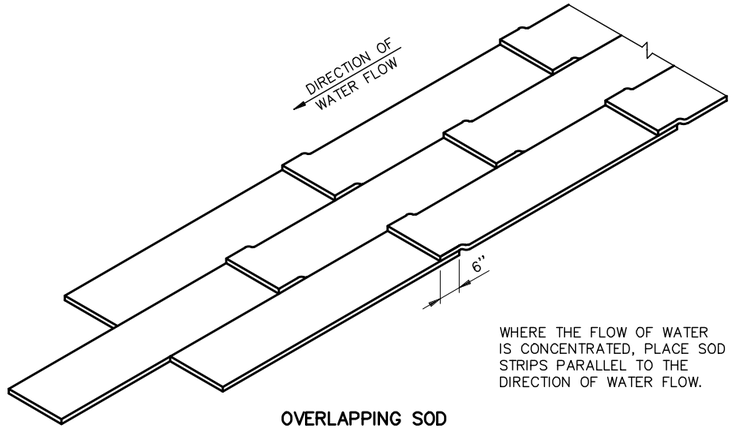
⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.

⑥ GEOTEXTILE SOCK BETWEEN 4–10 FEET LONG AND 4–6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137–1; CA–3 GRADATION.

STANDARD SHEET NO. 297.405 (4 OF 4)	TITLE: TEMPORARY SEDIMENT CONTROL STORM DRAIN INLET PROTECTION
STANDARD APPROVED: MARCH 29, 2012	

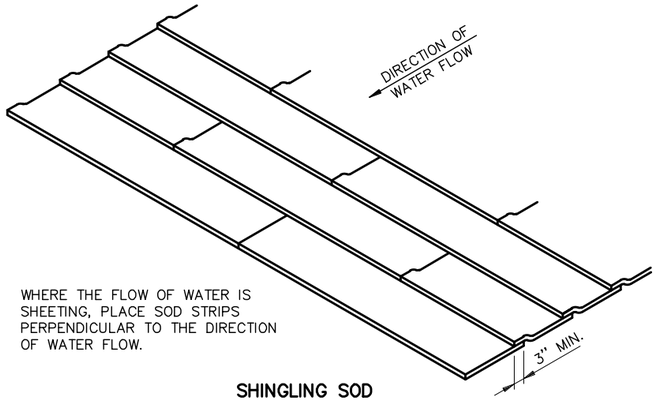


SODDING LIMITS AT GORE AREA



WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.

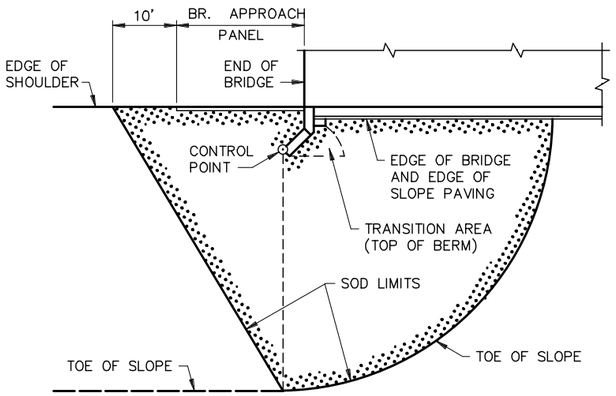
OVERLAPPING SOD



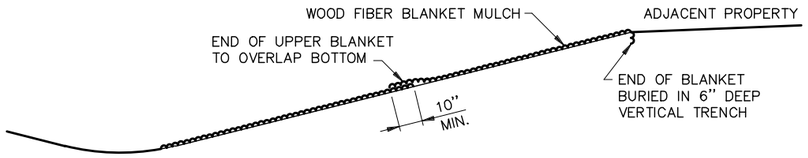
WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

SHINGLING SOD

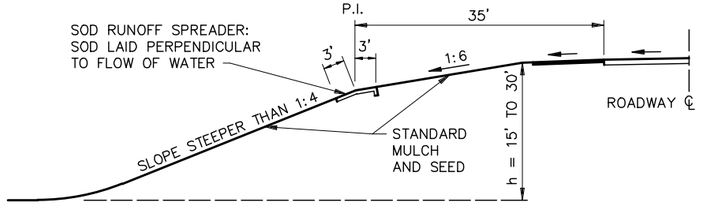
SPECIAL SOD PLACEMENT TECHNIQUES



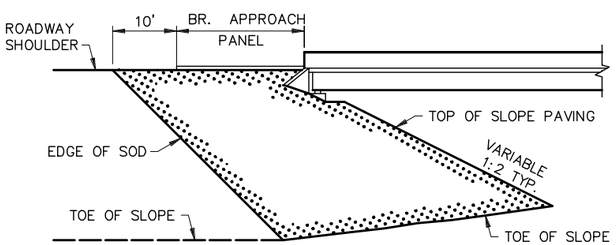
PLAN



WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE

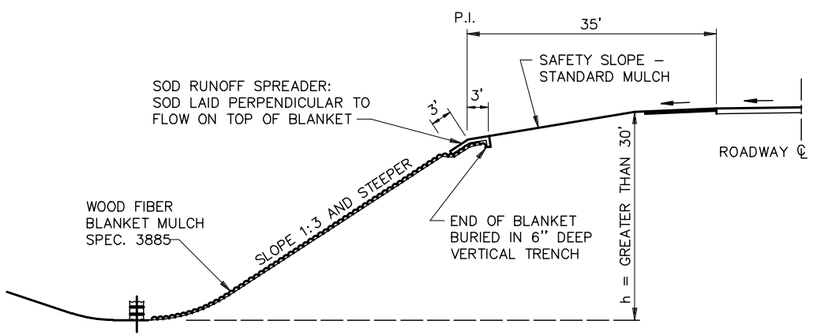


BROKEN-BACK SAFETY FILL SLOPE

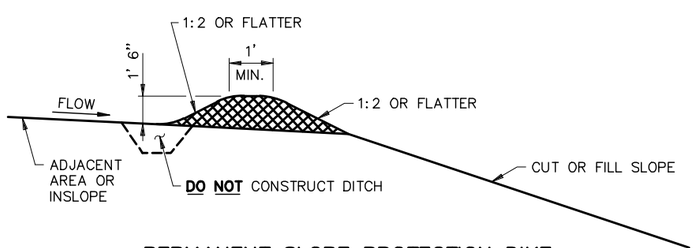


ELEVATION

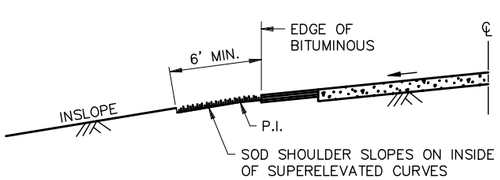
SODDING LIMITS AT BRIDGE APPROACH FILLS



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)



PERMANENT SLOPE PROTECTION DIKE

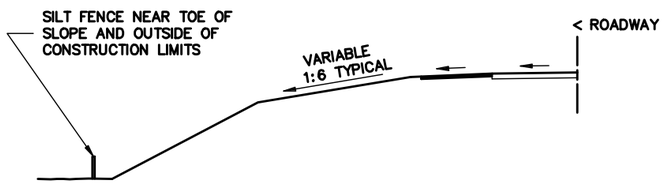


SODDING INSLOPES OF SUPERELEVATED CURVES

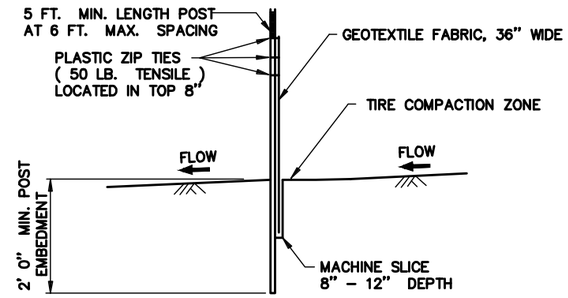
STANDARD SHEET NO. 5-297.406	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STANDARD APPROVED: JANUARY 31, 1985	

REVISION DATE 10-26-2000

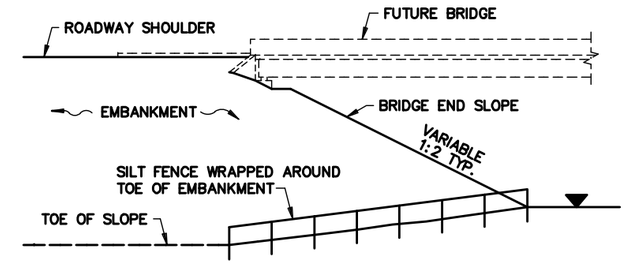
STATE AID PROJ. NO. 159-130-004 SHEET NO. 32 OF 93 SHEETS



LOCATION OF SILT FENCE
AT TOE OF ROADWAY EMBANKMENT

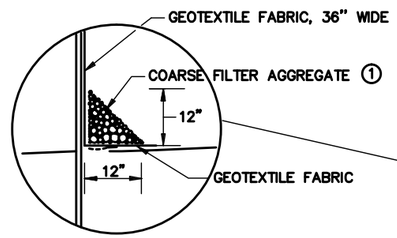


SILT FENCE, MACHINE SLICED
DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW.
MAXIMUM CONTRIBUTING AREA: 1 ACRE.

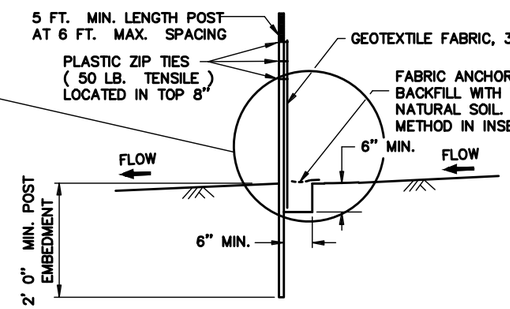


BRIDGE FILL

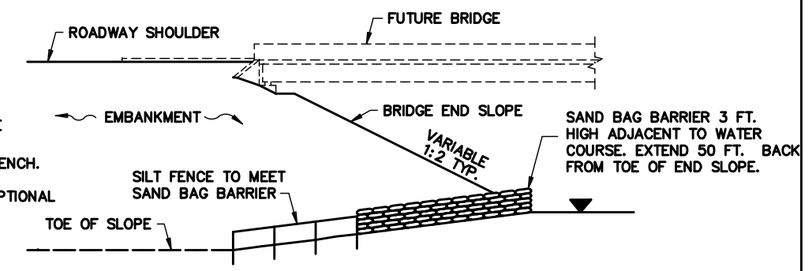
DESIGN GUIDELINES:
WATER COURSE FLOW VELOCITY: STAGNANT
CONTRIBUTING SLOPE AREA: 1/2 ACRE



OPTIONAL METHOD
FOR SILT FENCE, HEAVY DUTY

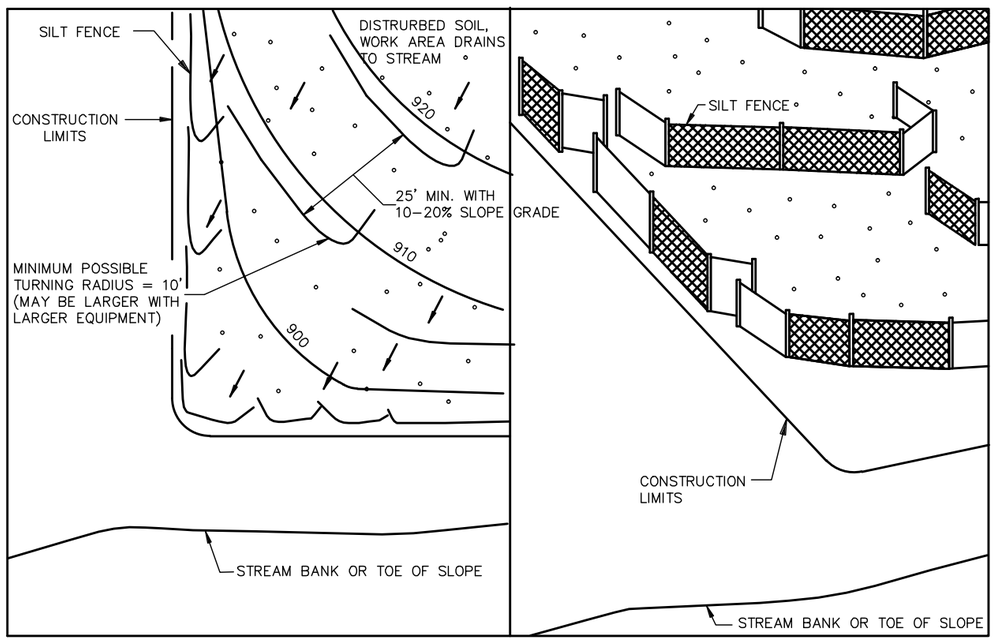


SILT FENCE, HEAVY DUTY
(HAND INSTALLED)
DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW.
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



BRIDGE FILL

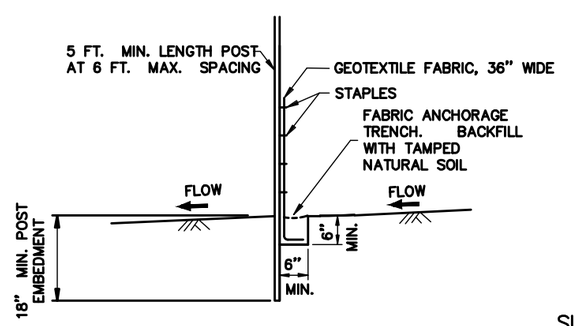
DESIGN GUIDELINES:
WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1 ACRE



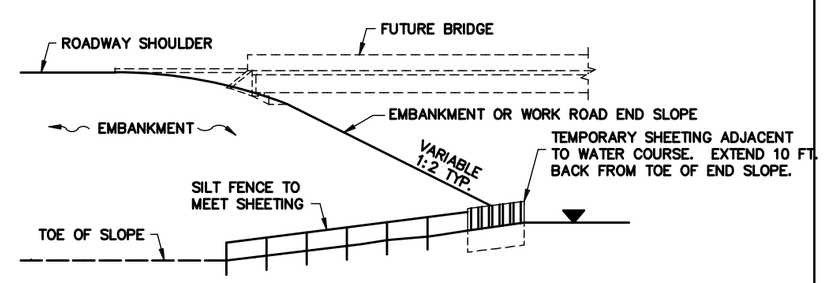
PLAN VIEW

SIDE VIEW

SILT FENCE, J–HOOK INSTALLATION



SILT FENCE, PREASSEMBLED
DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW.
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



EMBANKMENT OR WORK ROAD FILL

DESIGN GUIDELINES:
WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES

SILT FENCE AT BRIDGE EMBANKMENT ADJACENT TO WATER

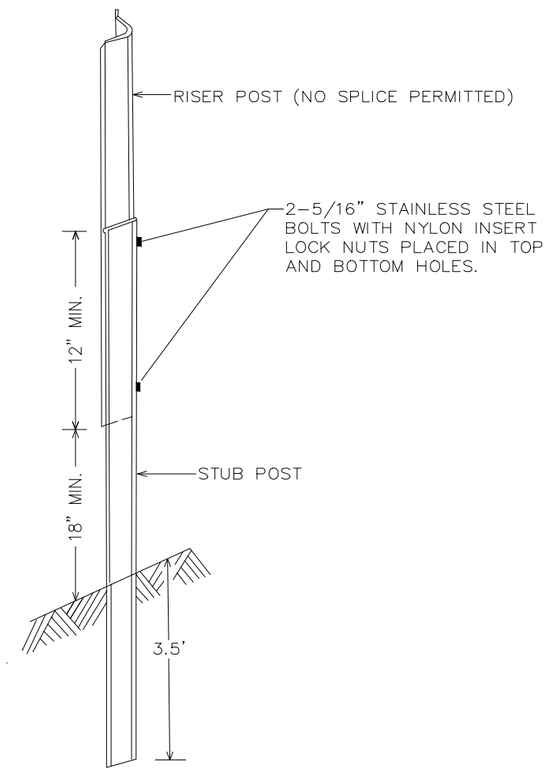
NOTES:

SEE SPECS. 2573, 3149 & 3886.

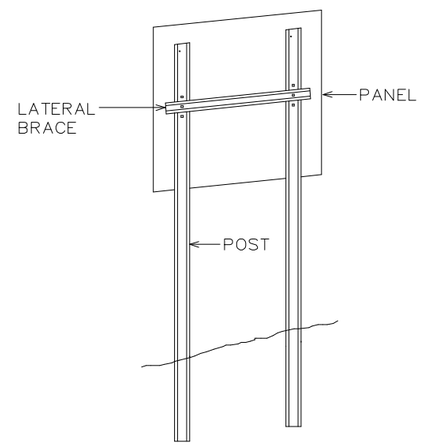
① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

STANDARD SHEET NO. 5–297.408 (1 OF 2)	TITLE: TEMPORARY SEDIMENT CONTROL SILT FENCE
STANDARD APPROVED: SEPTEMBER 27, 2006	
STATE AID PROJ. NO. 159–130–004	SHEET NO. 33 OF 93 SHEETS

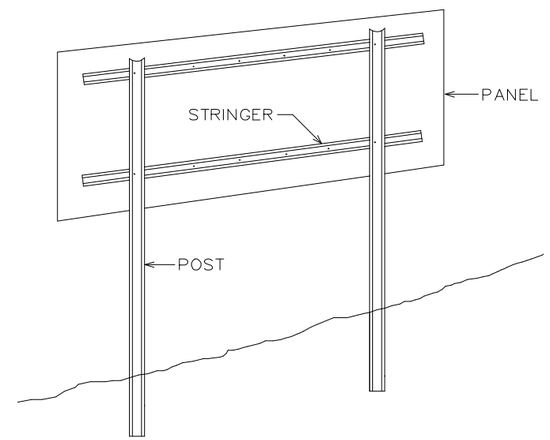
TYPE C & D POST



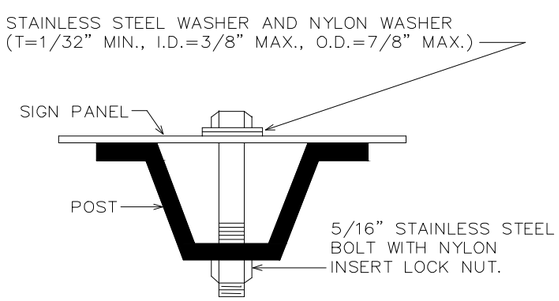
U POST SPLICE



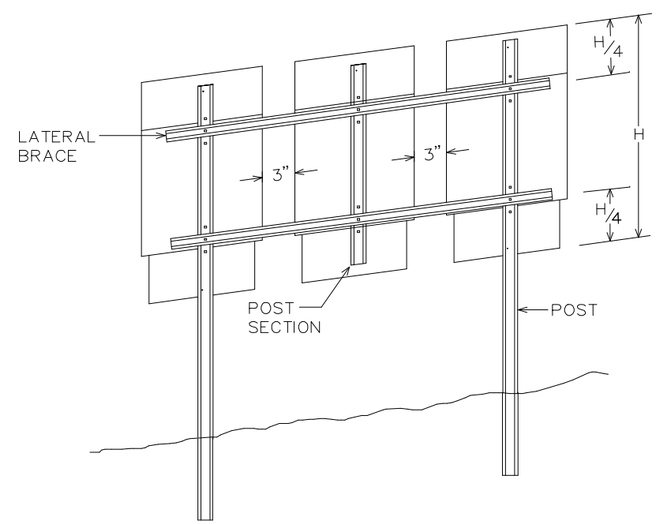
TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



U POST MOUNTING
TYPE C SIGNS



MODIFIED TYPE C INSTALLATION

NOTES:

1. USE 3 LB/FT STUB POSTS, RISER POSTS, STRINGERS, KNEE BRACES, LATERAL BRACES AND KNEE BRACE STUB POSTS. ALL SHALL CONFORM TO MN/DOT 3401.
2. FOR TYPE D SIGN POSTS LENGTHS AND SPACINGS, SEE SIGN DATA SHEET.
3. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE STANDARD SIGNS MANUAL).
4. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
5. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
6. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
7. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
8. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 31/2'.
9. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MN/DOT 3306 AND GALVANIZED IN ACCORDANCE WITH MN/DOT 3394.
10. COLLARS SHALL BE USED TO SHIM OVERLAYS AND DEMOUNTABLE LEGEND AWAY FROM PANEL WHERE INTER-FERENCE WITH BOLT HEADS IS ENCOUNTERED. MN/DOT 3352.2A5.
11. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
12. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
13. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

TYPE C & D SIGN STRUCTURAL DETAILS

Sheet 1 of 3

REVISED: 8-5-08

STATE PROJ. NO. | SHEET NO. | OF | SHEETS

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DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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CERTIFIED BY: _____ PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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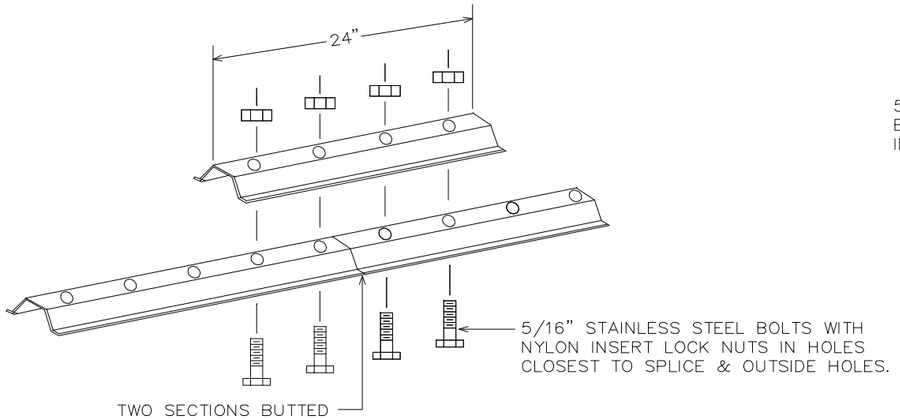
STANDARD PLAN - SIGN DETAILS

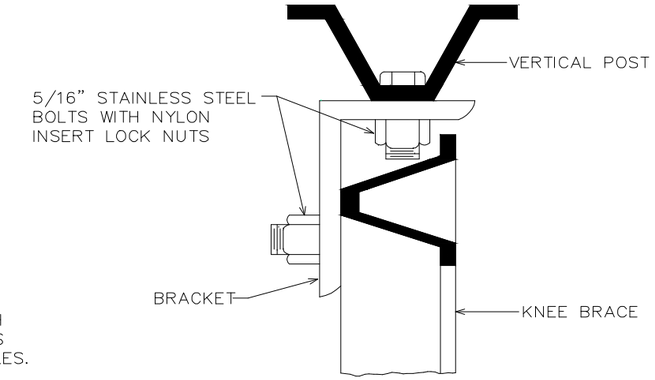
WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

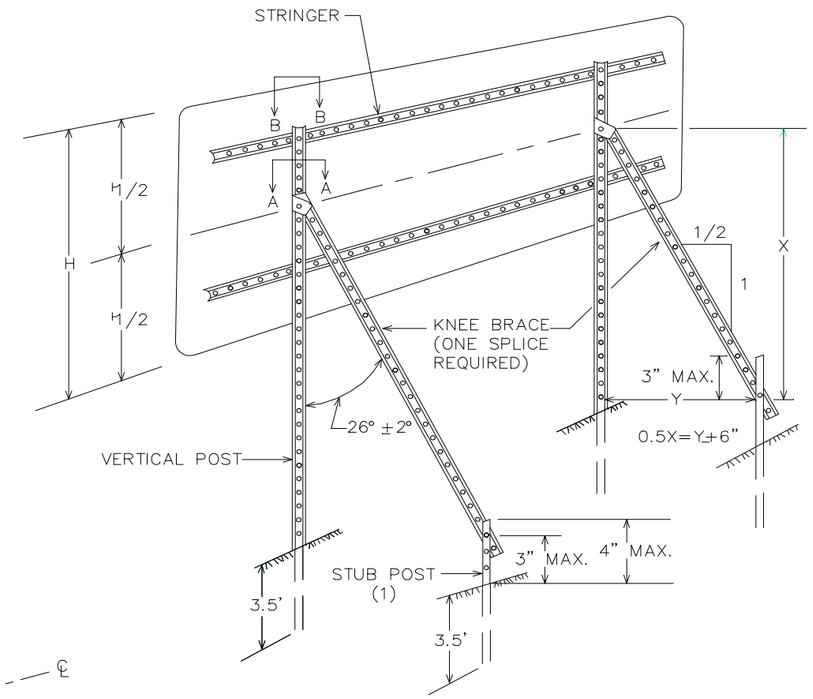
SHEET NO. 34 OF 93 SHEETS



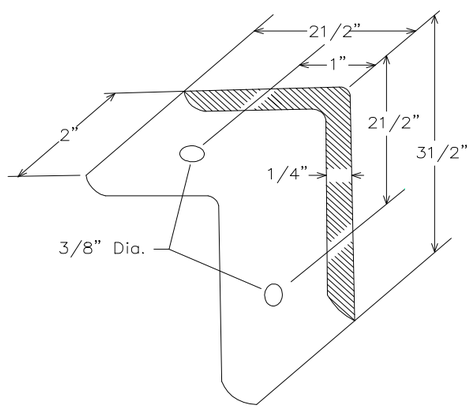
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



SECTION A–A

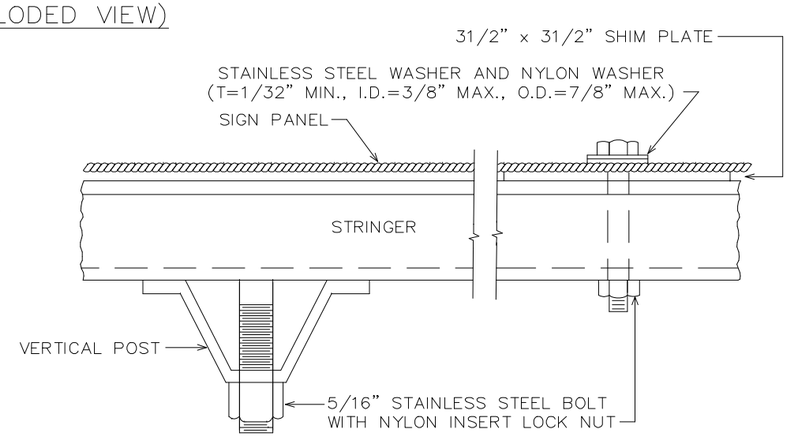


TYPICAL "A–FRAME" INSTALLATION TYPE "D" SIGNS

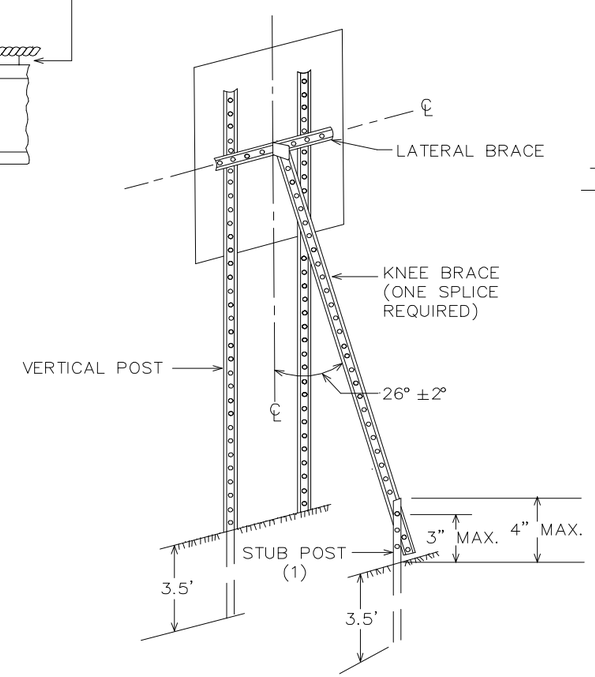


A–FRAME BRACKET

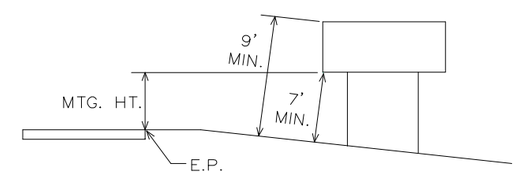
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



SECTION B–B

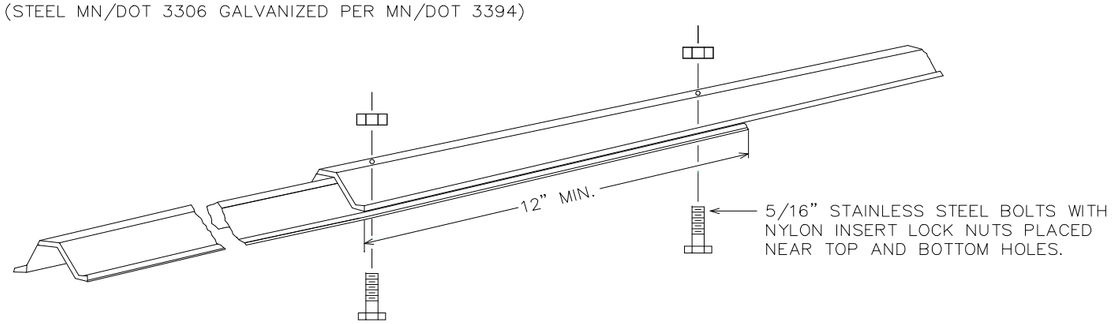


TYPICAL "A–FRAME" INSTALLATION TYPE "C" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.



KNEE BRACE SPLICE

TYPE C & D SIGN STRUCTURAL DETAILS

Sheet 2 of 3

REVISED: 1–7–08

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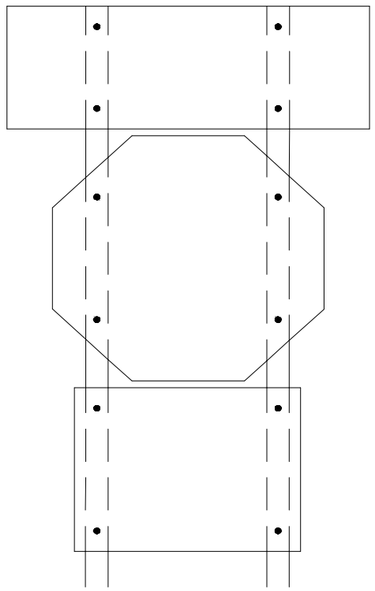
WSN NUMBER: 1012R0001

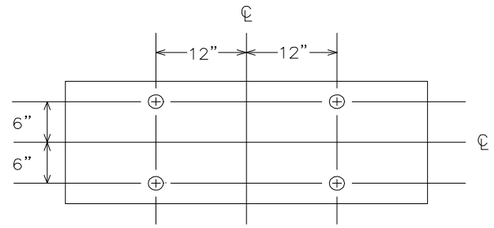
STANDARD PLAN - SIGN DETAILS

STATE AID PROJECT NO. 159-130-004

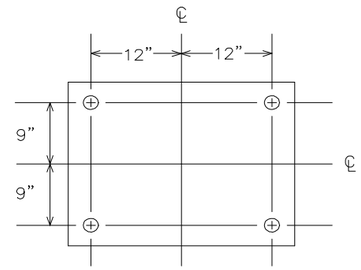
SHEET NO. 35 OF 93 SHEETS



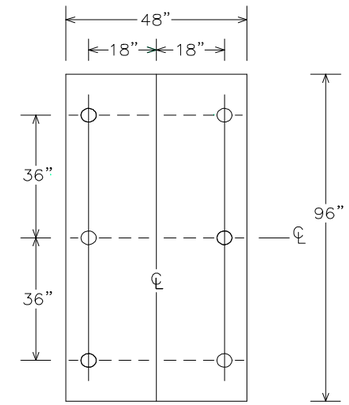
R6-1, R1-1 & (R6-3 OR R6-3a)
MOUNTING



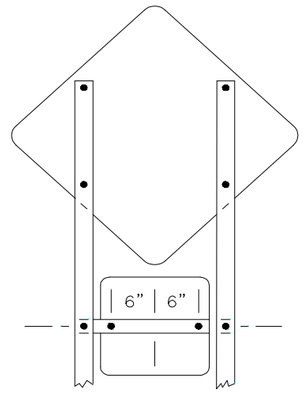
PUNCHING FOR R6-1(48"x18")



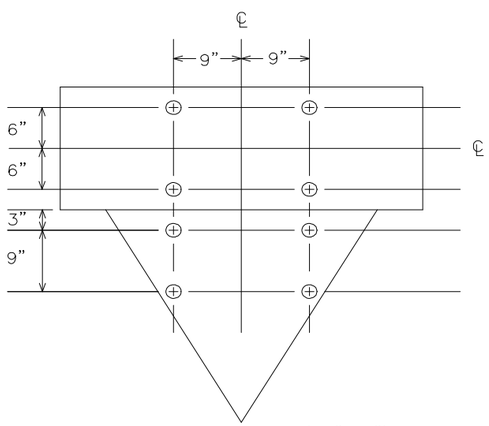
PUNCHING FOR R6-3 OR R6-3a(30"x24")



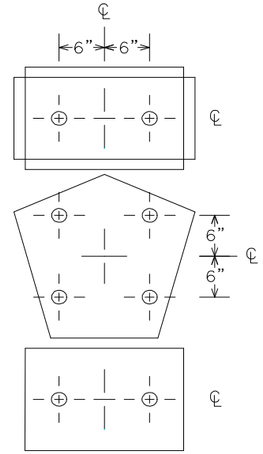
PUNCHING FOR R2-4b
SPEED LIMIT



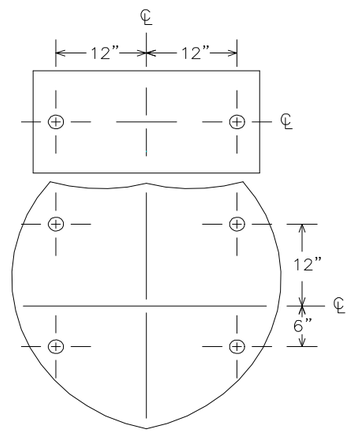
(W1-1, W1-2, W1-3, W1-4 OR W1-5) & W13-1
MOUNTING



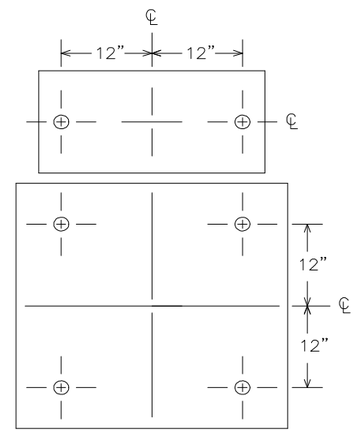
PUNCHING FOR R6-1(48"x18")
& R1-2(36"x36"x36")



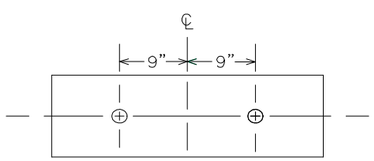
M2-1A [21"x15"] OR
(M3-1A, M3-2A, M3-3A OR M3-4A) [24"x12"] AND
M1-6 [24"x24"] AND
(M5-1A, M5-2A, M6-1A, M6-2A, M6-3A M6-4A, M6-5A OR M6-6A) [21"x15"]
PUNCHING



(M3-1A, M3-2A, M3-3A OR M3-4A) [30"x15"] AND
M1-1 [45"x36" OR 36"x36"]
PUNCHING



(M3-1, M3-1A, M3-2, M3-2A, M3-3, M3-3A M3-4 OR
M3-4A) [30"x15"] AND (M1-4 OR M1-5A) [36"x36"]
PUNCHING



PUNCHING FOR R6-1(36"x12")

TYPE C & D SIGN

STRUCTURAL DETAILS

Sheet 3 of 3

REVISED: 10-28-08

STATE PROJ. NO. SHEET NO. OF SHEETS

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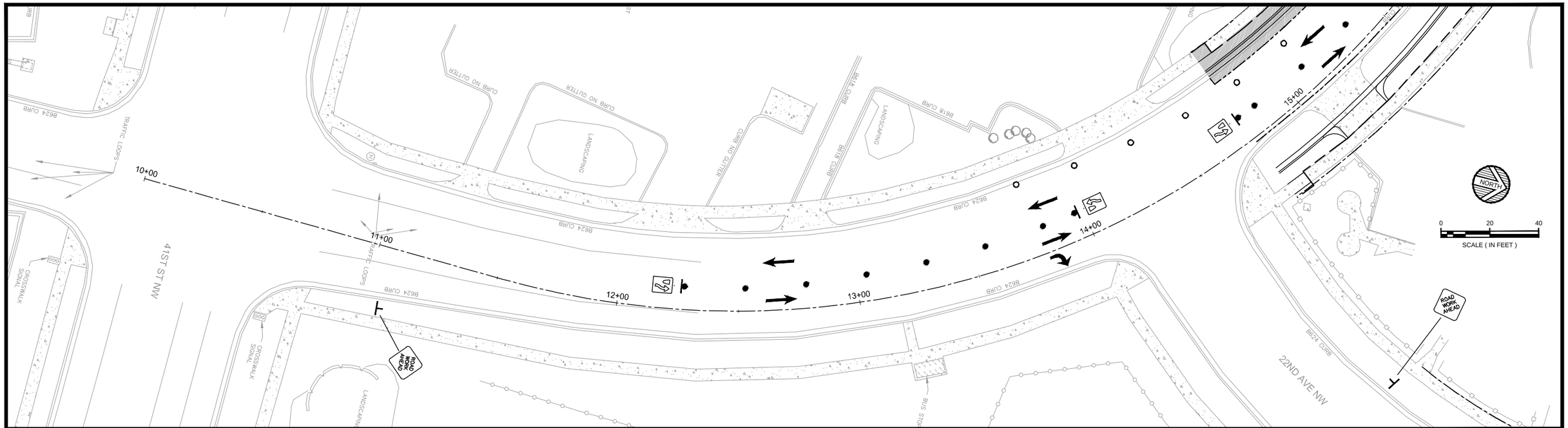
STANDARD PLAN - SIGN DETAILS

WSN NUMBER: 1012R0001

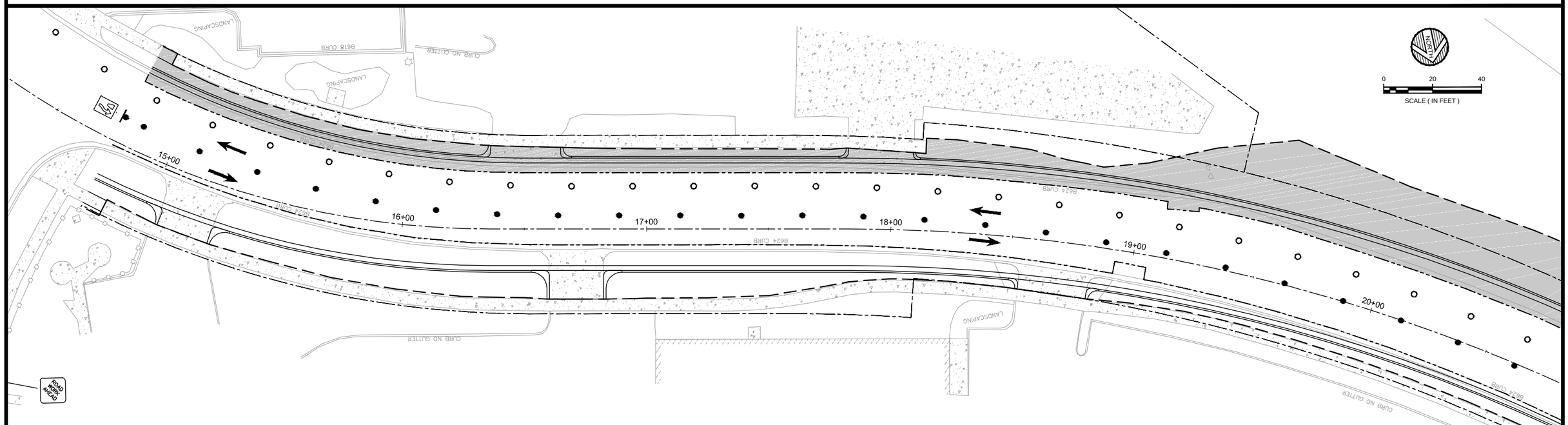
STATE AID PROJECT NO. 159-130-004

SHEET NO. 36 OF 93 SHEETS



NOTES:
1. CONTRACTOR SHALL ESTABLISH TEMPORARY TRAFFIC CONTROL IN ACCORDANCE WITH MN/DOT FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
3. CONTRACTOR SHALL MAINTAIN ACCESS TO EACH DRIVEWAY AT ALL TIMES.

● TYPE A CHANNELIZER – 42" WEIGHTED
○ TYPE B CHANNELIZER – REBOUNDABLE DRUM
TYPE 3 BARRICADES
POST MOUNTED SIGN
TRAFFIC PATTERNS
STAGE 1 CONSTRUCTION



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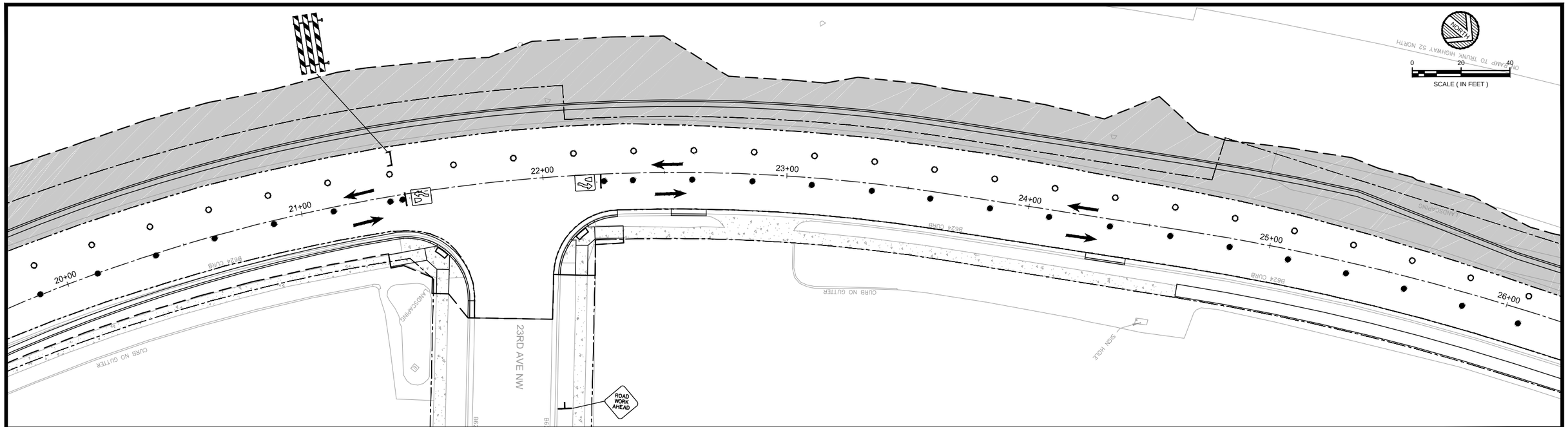
TRAFFIC CONTROL PLAN
STAGE 1 - PHASE 1

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004



NOTES:
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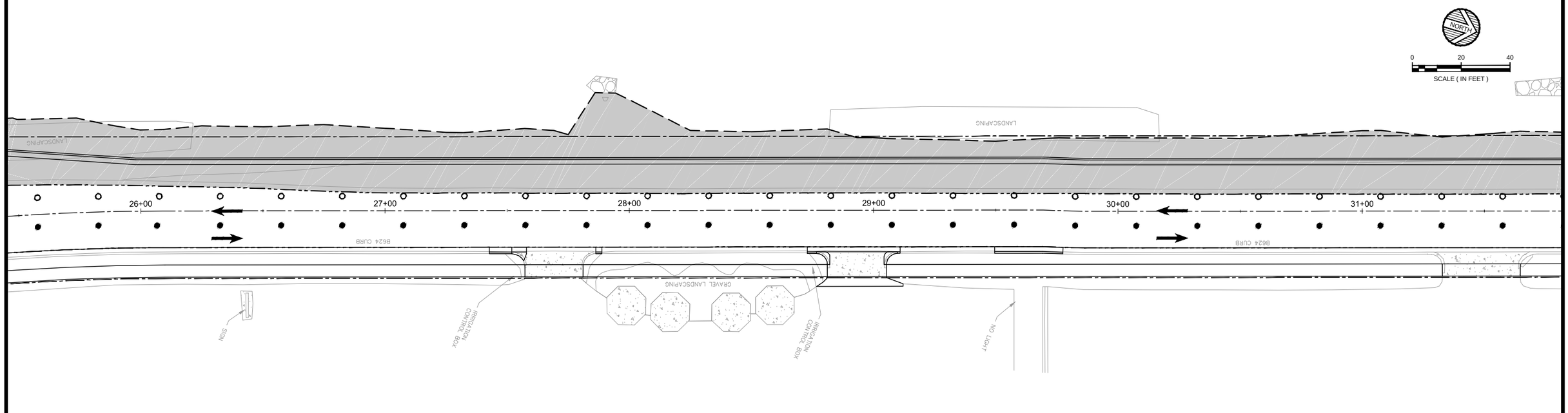
STAGE 1 CONSTRUCTION



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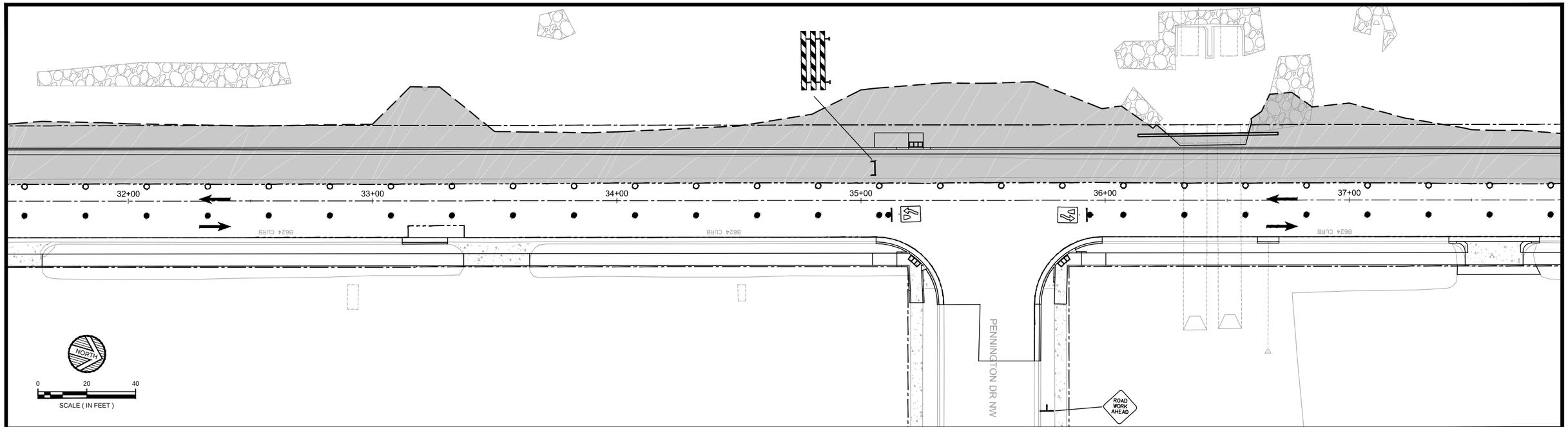
TRAFFIC CONTROL PLAN
STAGE 1 - PHASE 1

STATE AID PROJECT NO. 159-130-004



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TYPE A CHANNELIZER – 42" WEIGHTED
TYPE B CHANNELIZER – REBOUNDABLE DRUM
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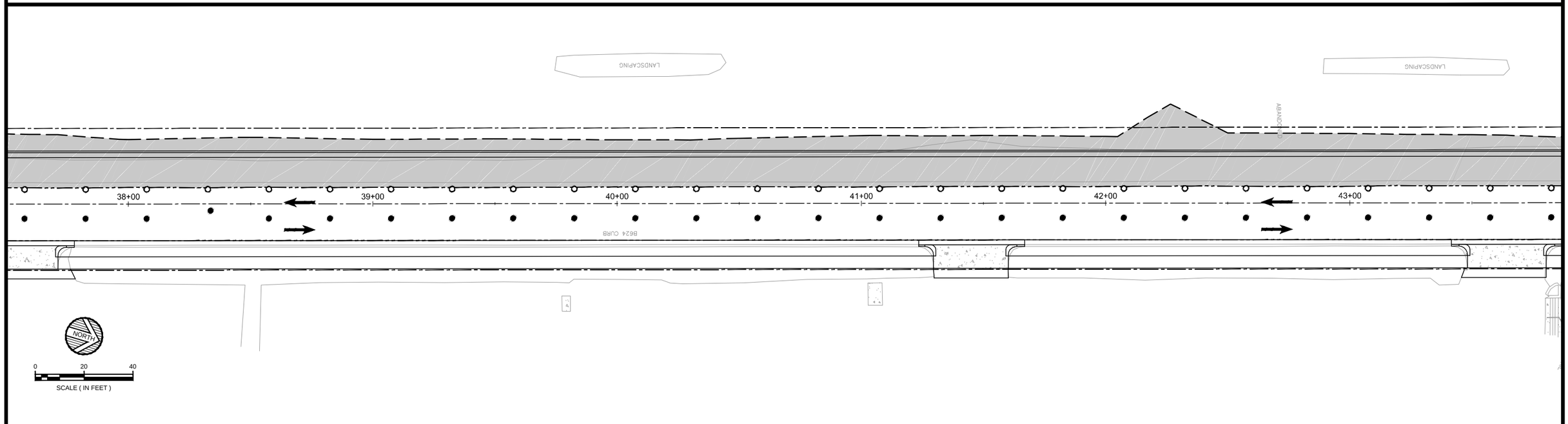

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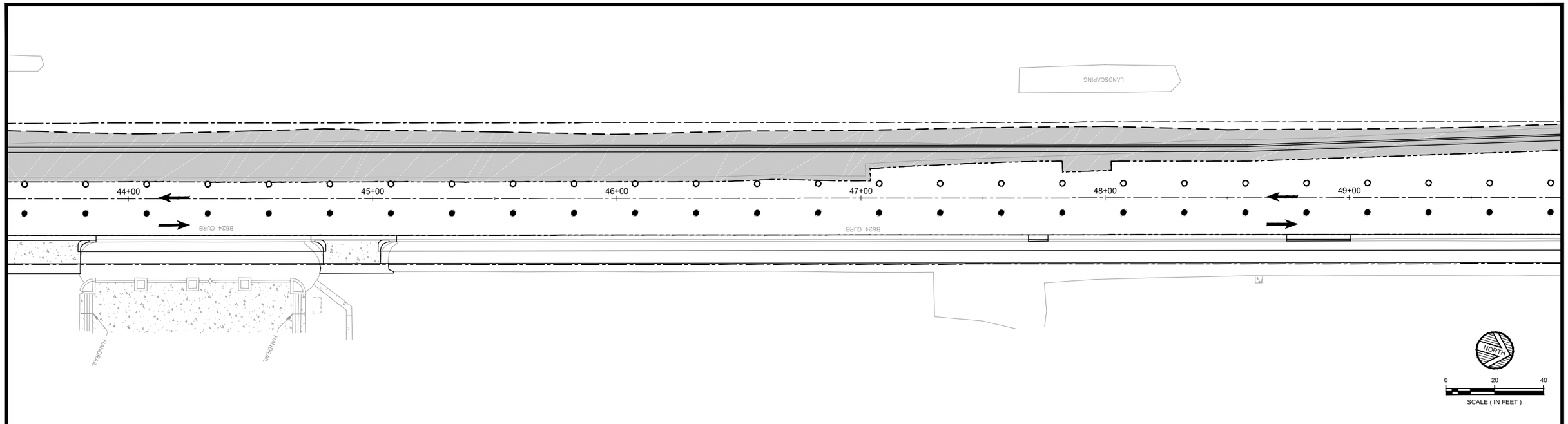
ROCHESTER, MN

WSN NUMBER: 1012R0001

TRAFFIC CONTROL PLAN
STAGE 1 - PHASE 1

STATE AID PROJECT NO. 159-130-004



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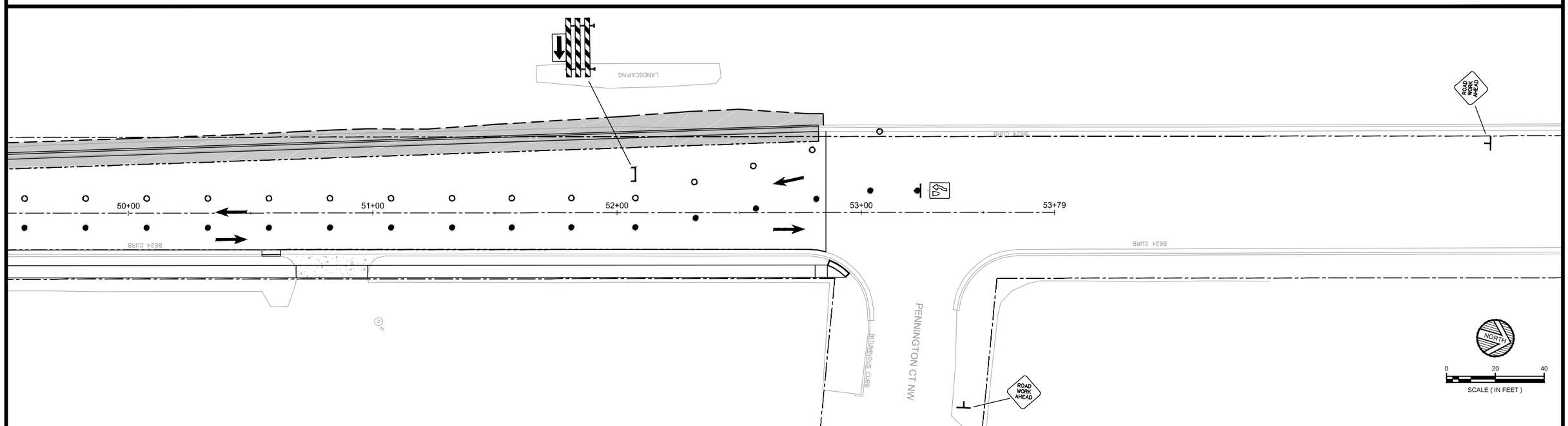
TYPE A CHANNELIZER – 42" WEIGHTED
TYPE B CHANNELIZER – REBOUNDABLE DRUM
TYPE 3 BARRICADES
POST MOUNTED SIGN
TRAFFIC PATTERNS
STAGE 1 CONSTRUCTION



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DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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CERTIFIED BY: _____ PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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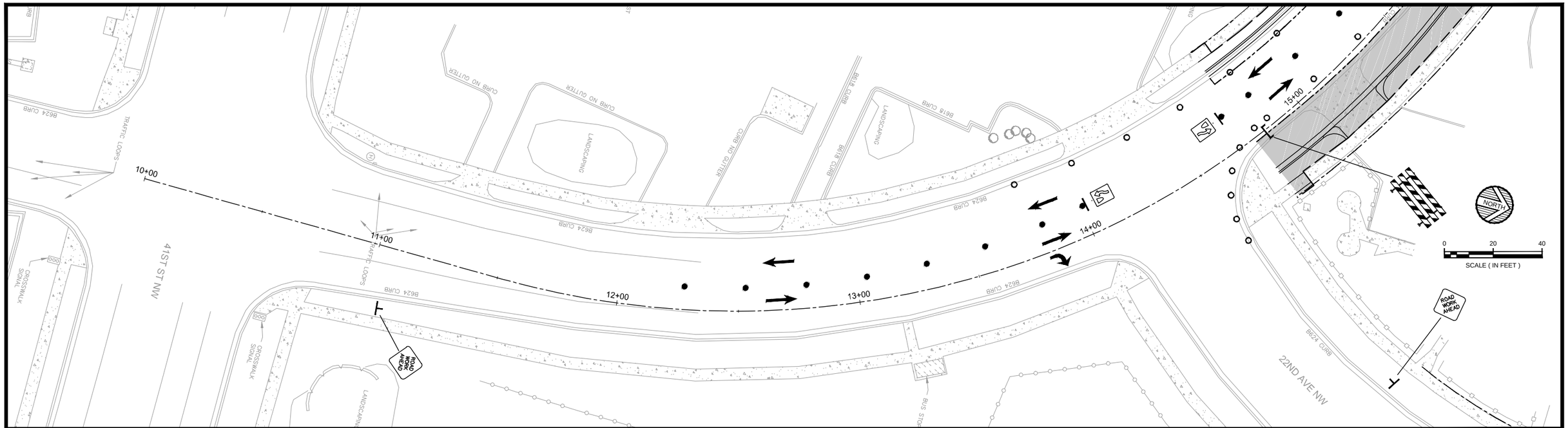

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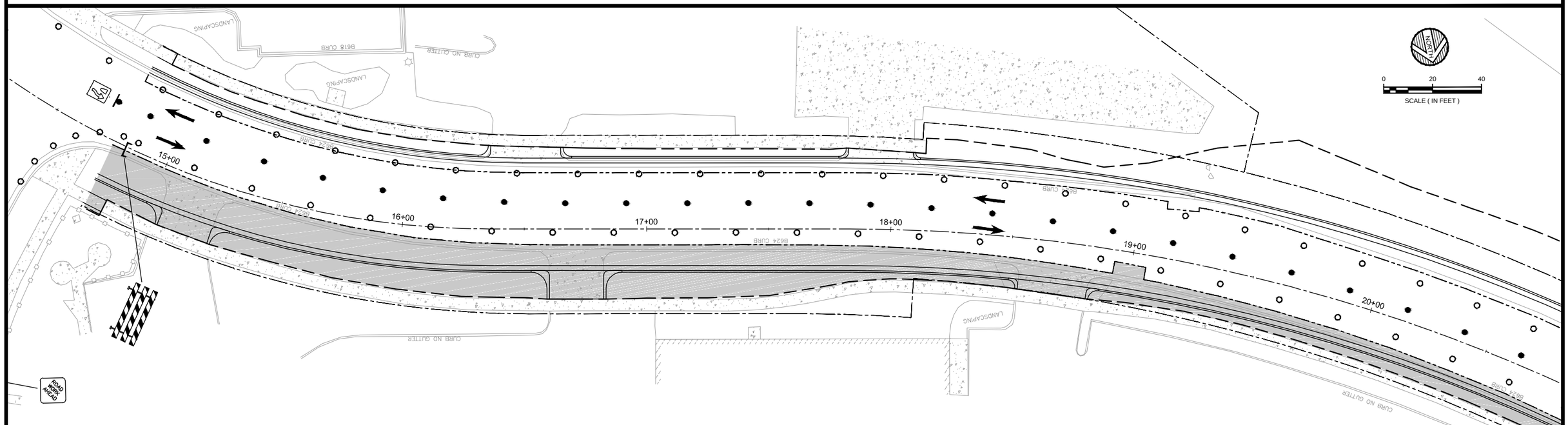

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TRAFFIC CONTROL PLAN
STAGE 1 - PHASE 2

WSN NUMBER: 1012R0001

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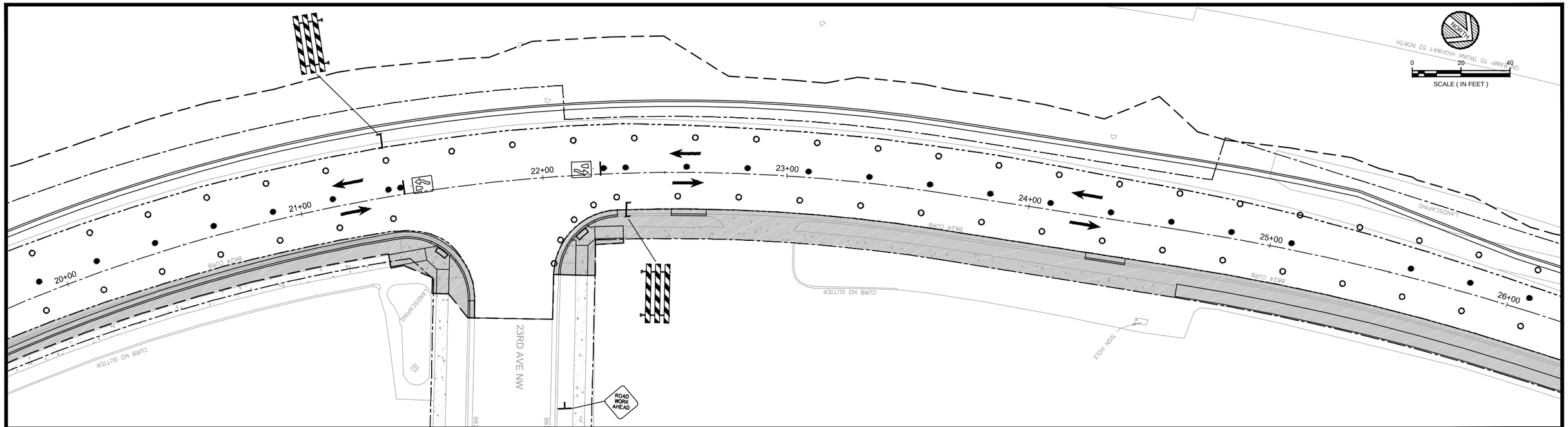

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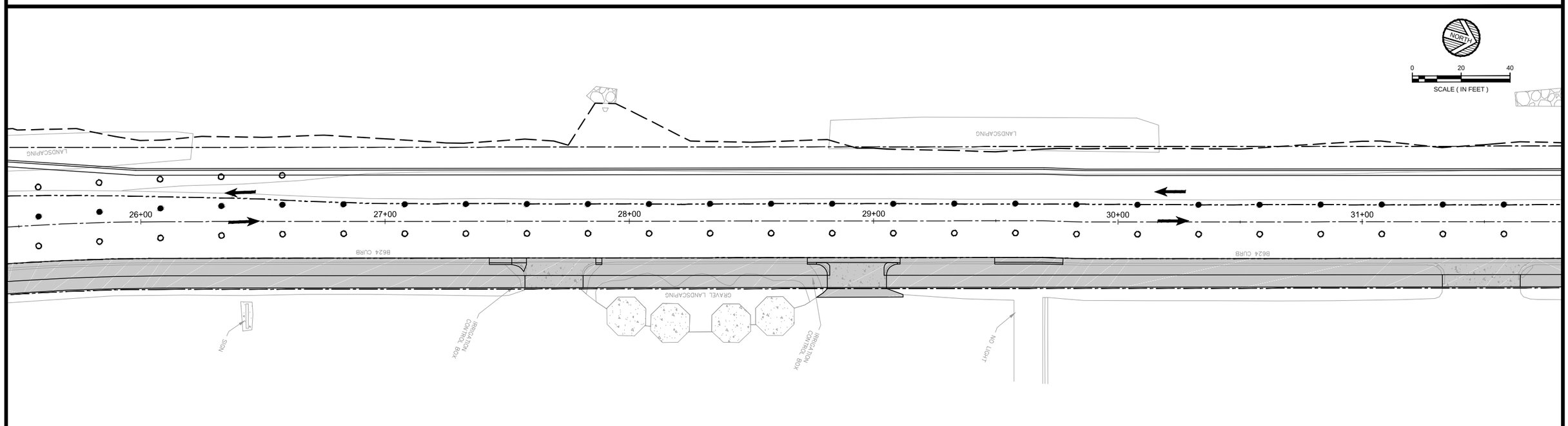

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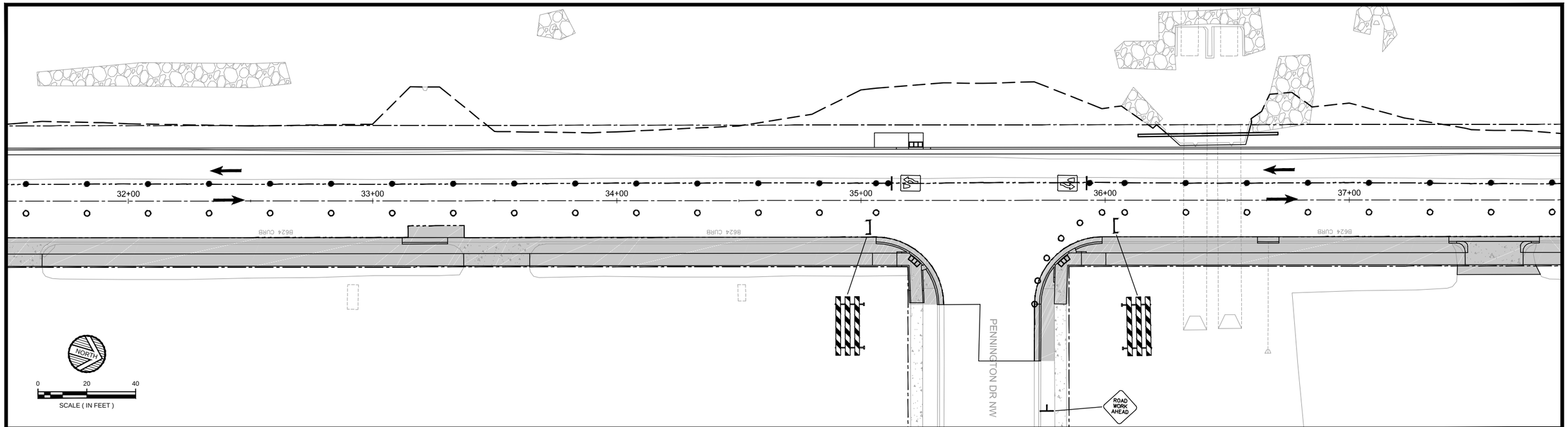

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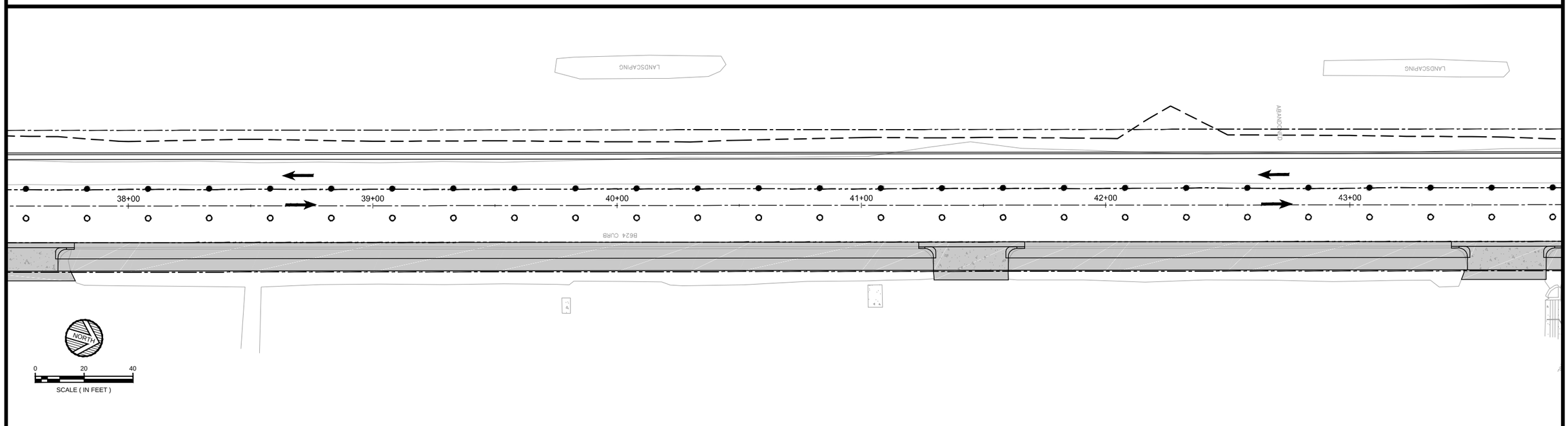

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STAGE 1 - PHASE 2

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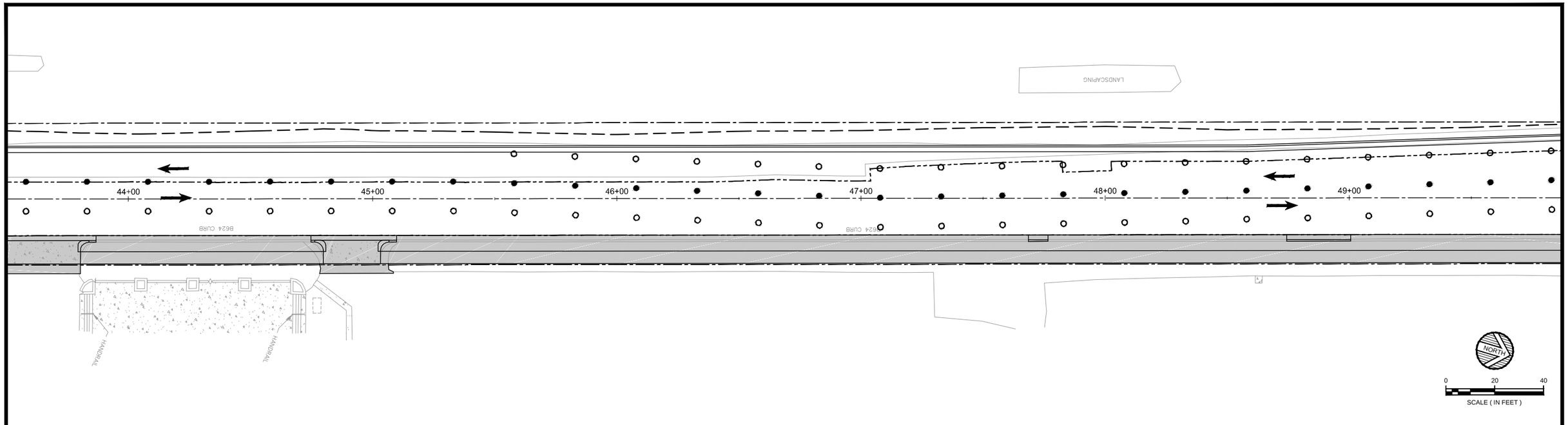

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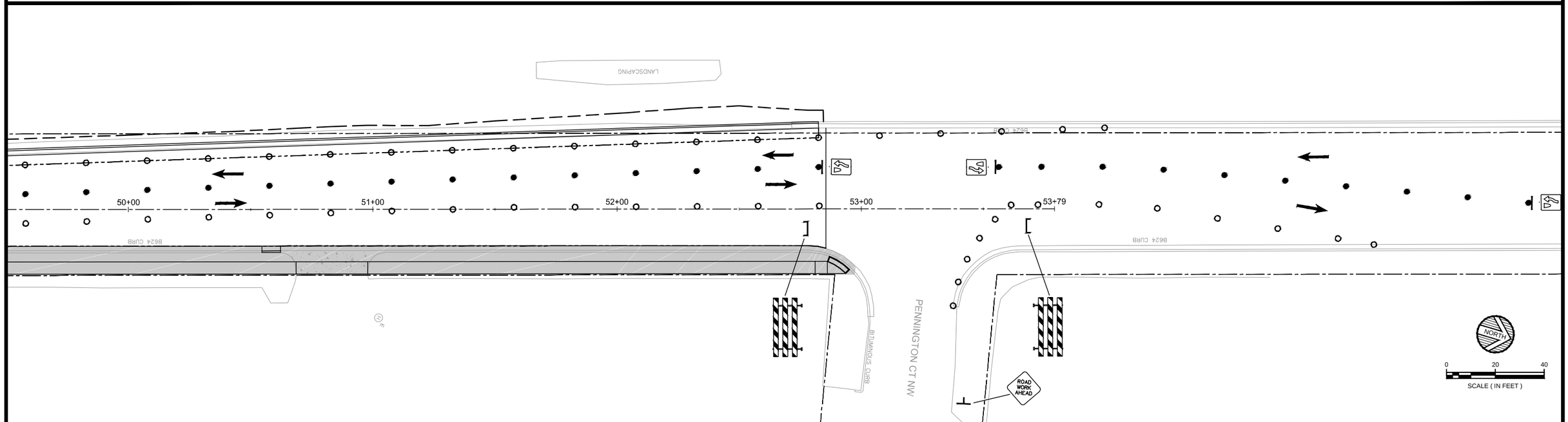

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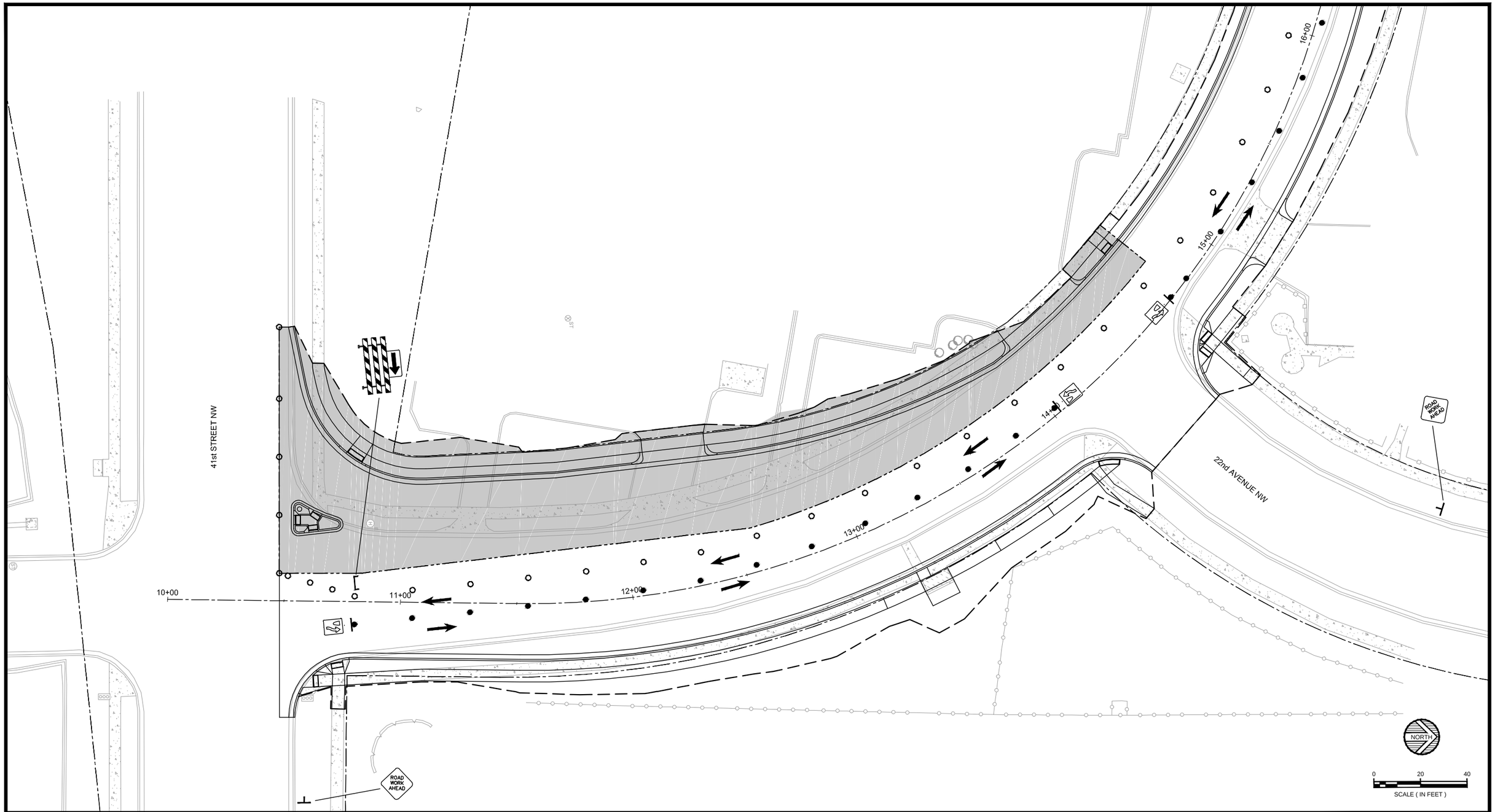

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TRAFFIC CONTROL PLAN
STAGE 2 - PHASE 1

WSN NUMBER: 1012R0001

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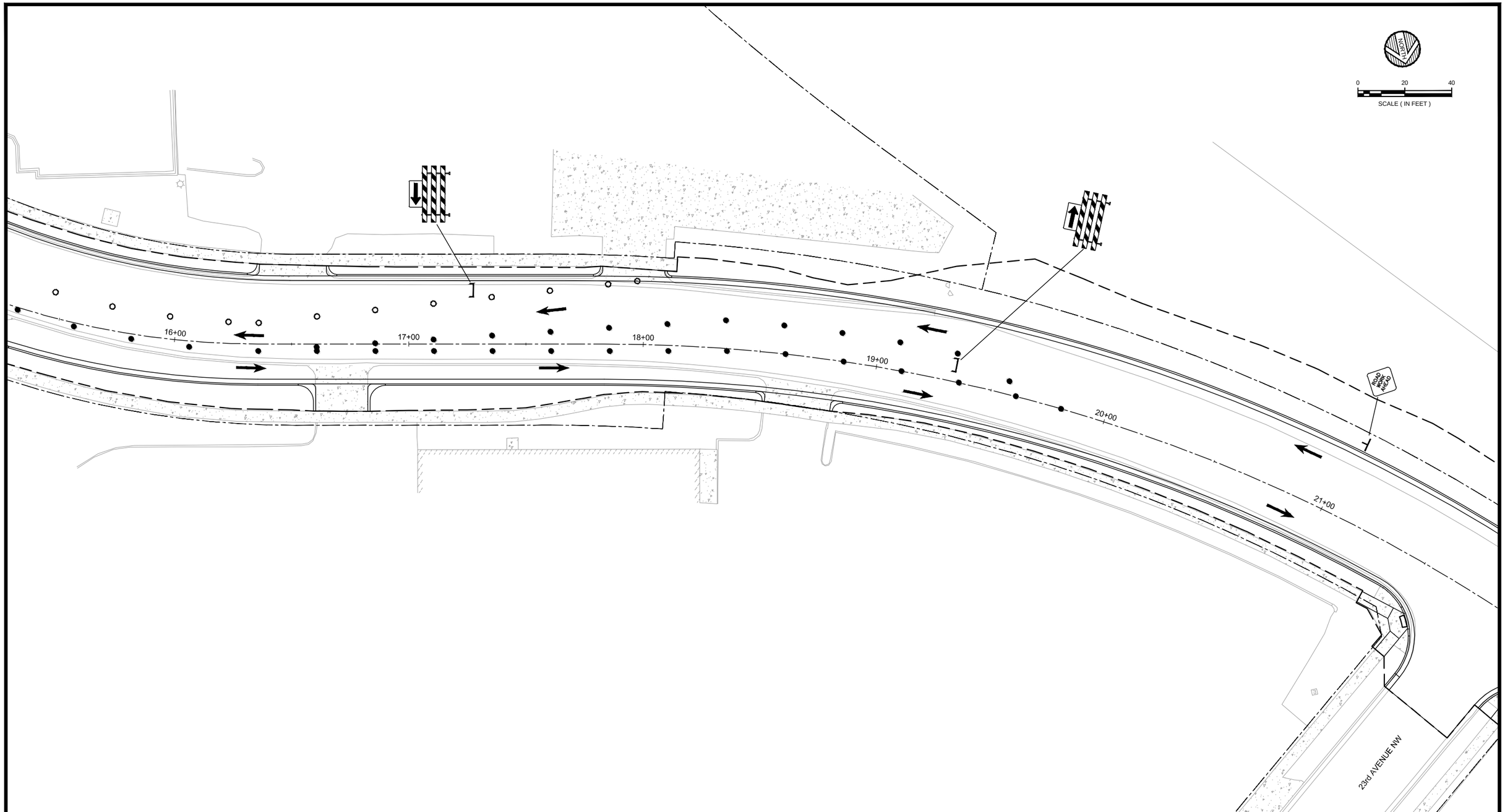

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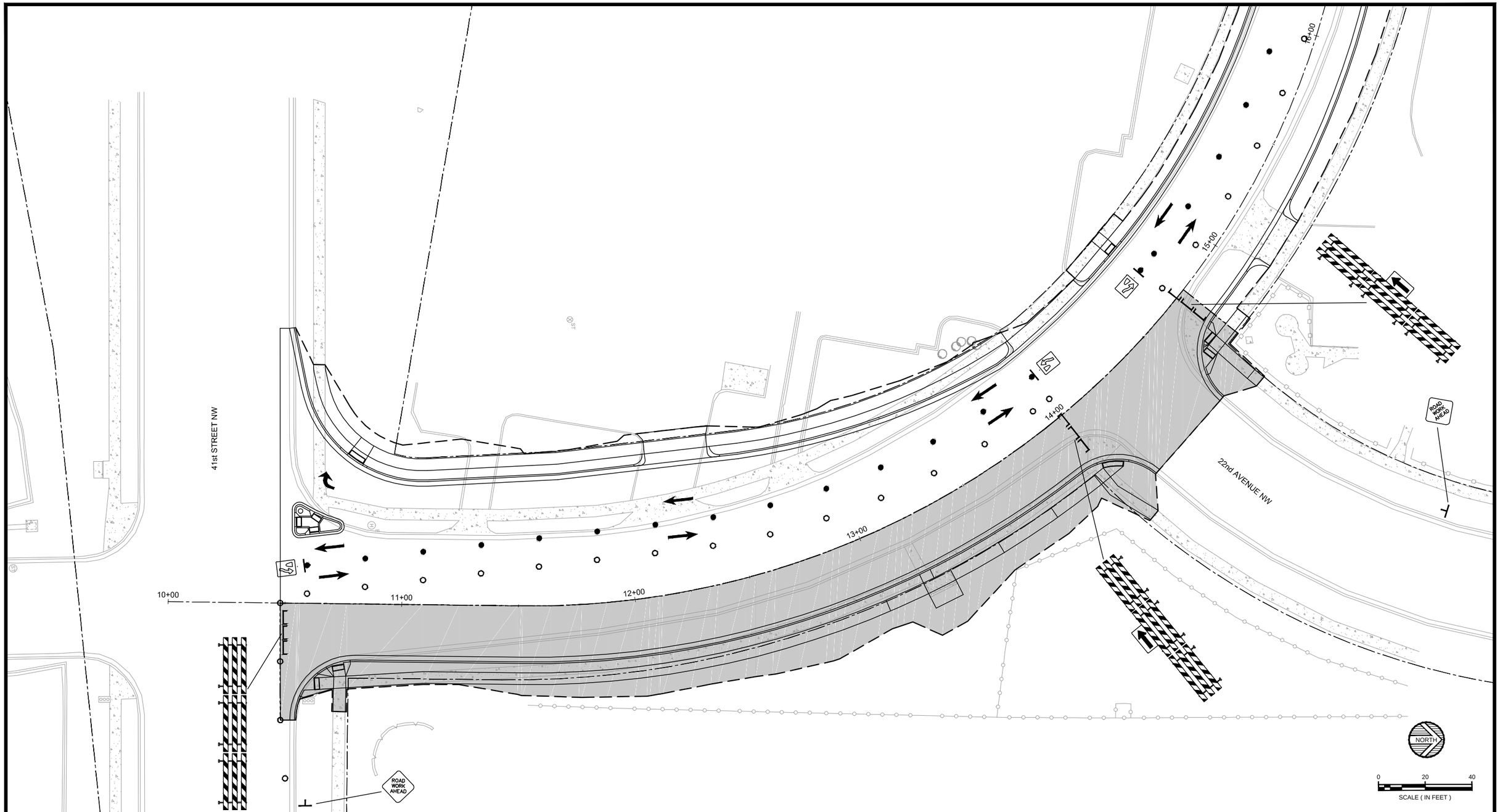
TRAFFIC CONTROL PLAN
STAGE 2 - PHASE 1

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

SHEET NO. 46 OF 93 SHEETS



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TRAFFIC CONTROL PLAN
STAGE 2 - PHASE 2

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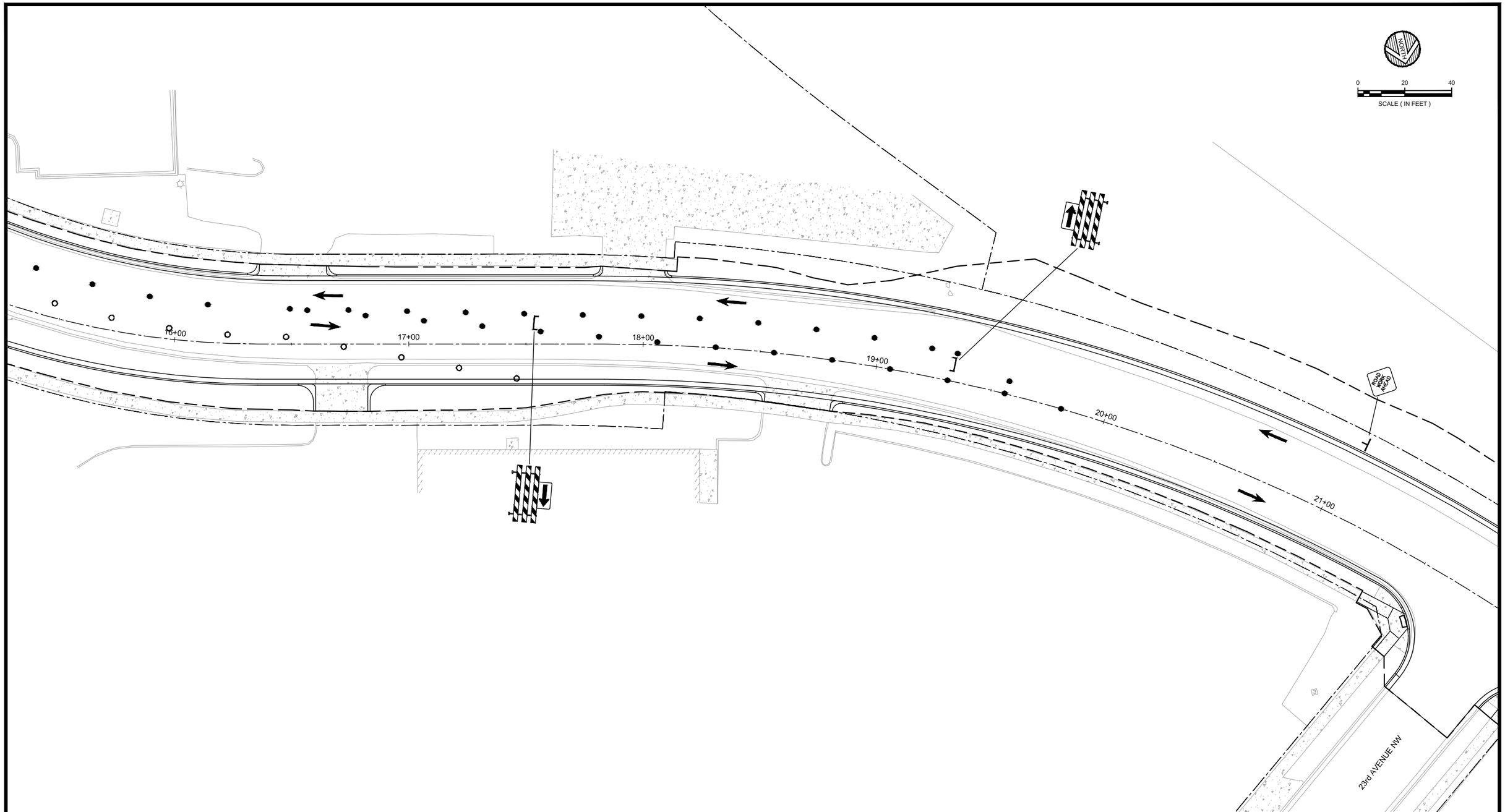

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STAGE 2 - PHASE 2

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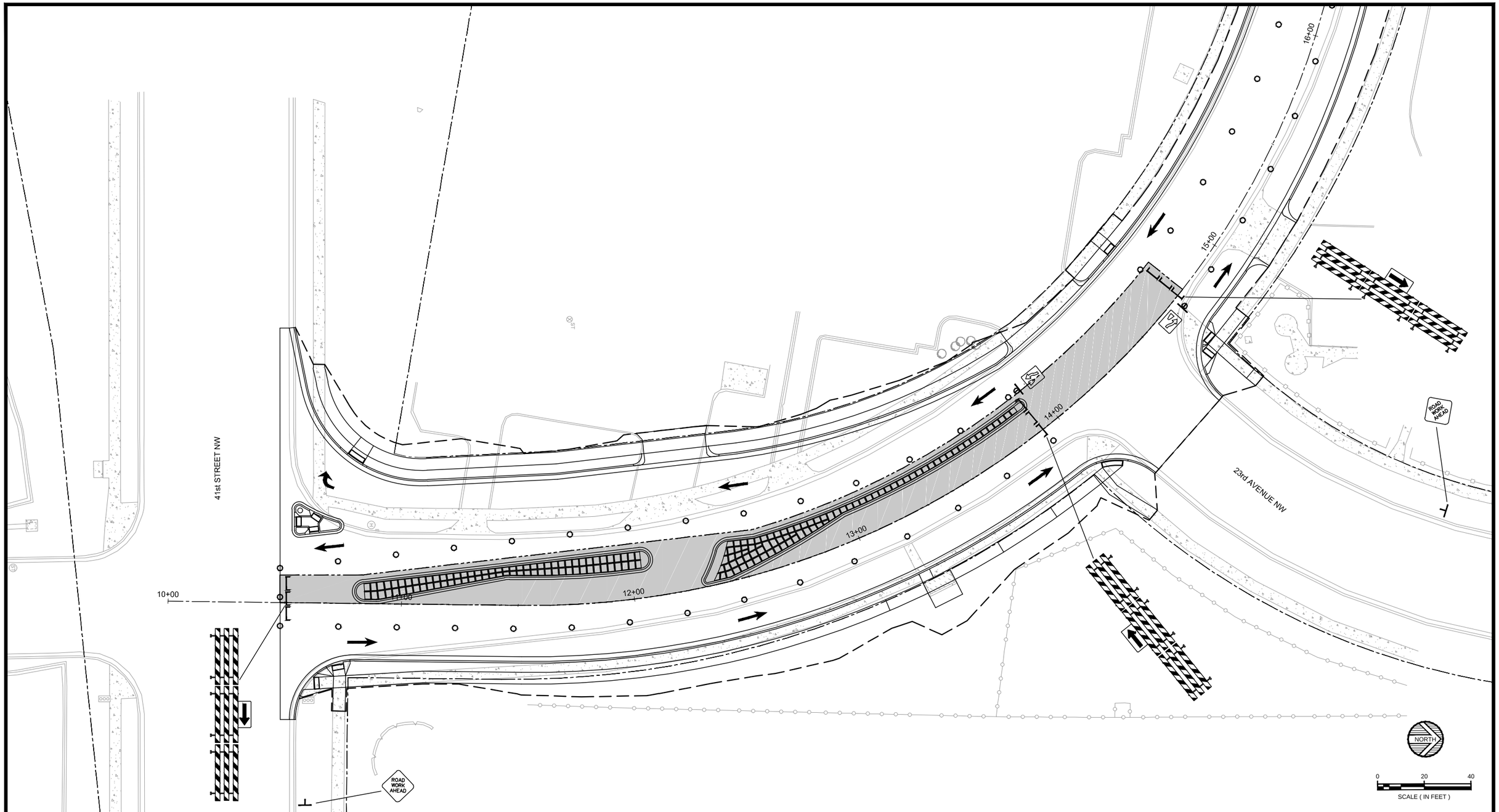

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TRAFFIC CONTROL PLAN
STAGE 2 - PHASE 3

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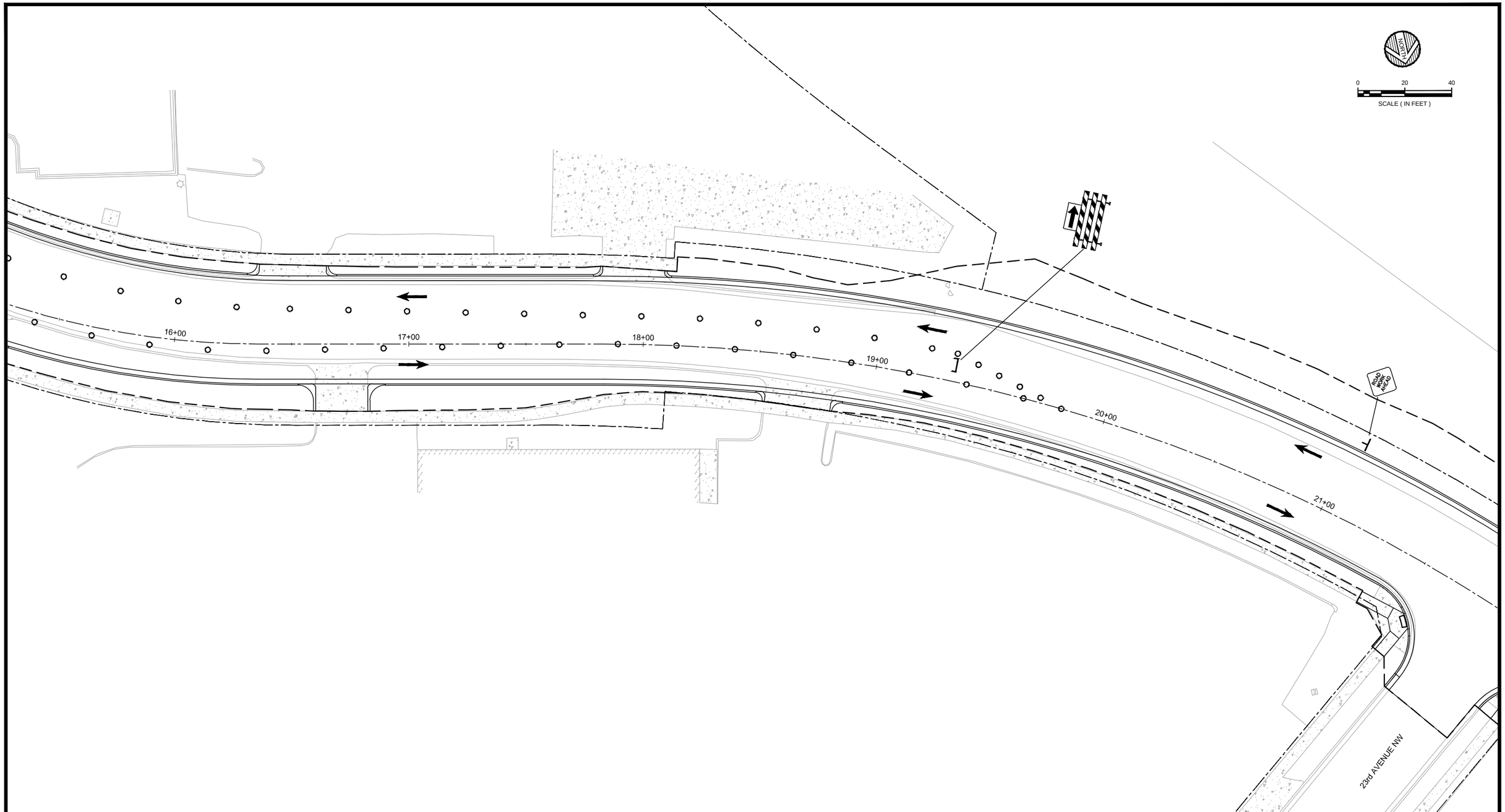

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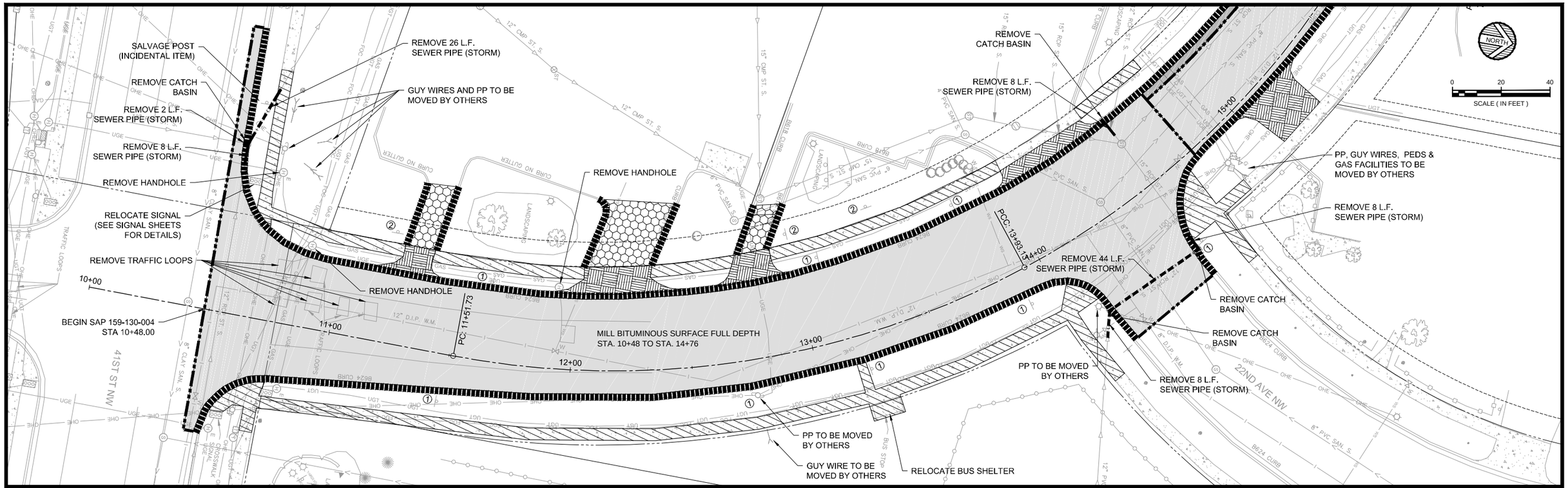
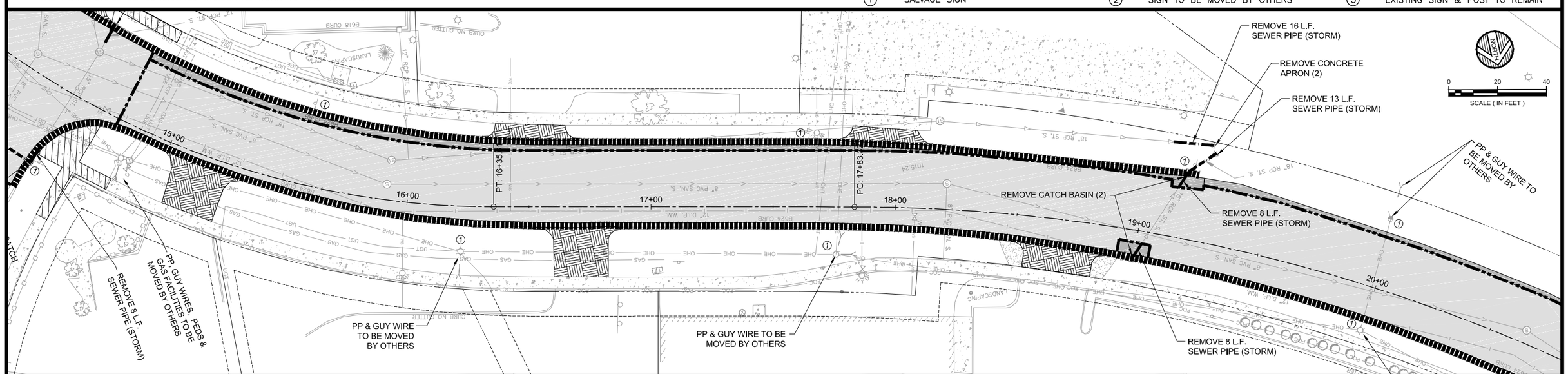


NOTES:

1. CONTRACTOR SHALL REMOVE ALL TREES AND SHRUBS WITHIN GRADING LIMITS (INCIDENTAL ITEM).
2. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING STORM SEWER PIPES TO THE NEAREST JOINT FOR ALL STRUCTURES THAT ARE TO BE REMOVED.
3. SAW CUTTING OF SIDEWALK, DRIVEWAYS, AND CURB & GUTTER, UNLESS SPECIFICALLY INDICATED ON THE PLANS SHALL BE CONSIDERED INCIDENTAL WORK TO THE CONTRACT ITEM.

SAWING BITUMINOUS PAVEMENT (FULL DEPTH)
REMOVE CURB & GUTTER
REMOVE SEWER PIPE (STORM)
MILL BITUMINOUS SURFACE
REMOVE BITUMINOUS PAVEMENT
① SALVAGE SIGN
CONCRETE DRIVEWAY REMOVAL
REMOVE CONCRETE SIDEWALK
② SIGN TO BE MOVED BY OTHERS
BITUMINOUS DRIVEWAY REMOVAL
③ EXISTING SIGN & POST TO REMAIN



DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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CERTIFIED BY: Craig N. Britton
PROFESSIONAL ENGINEER CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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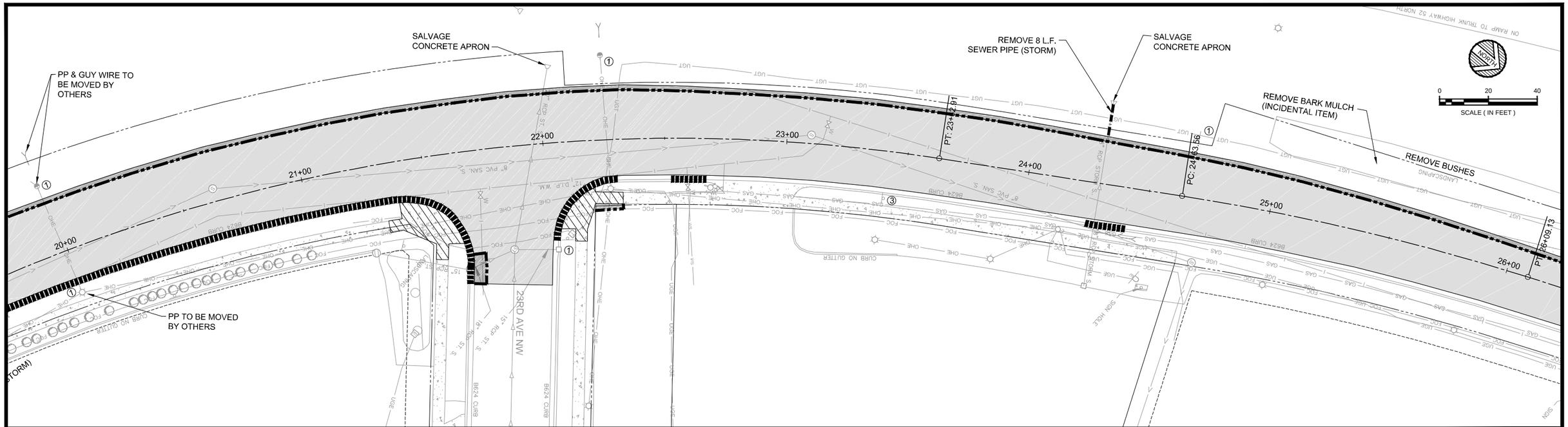
ROCHESTER, MN

REMOVALS PLAN

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

SHEET NO. 51 OF 93 SHEETS



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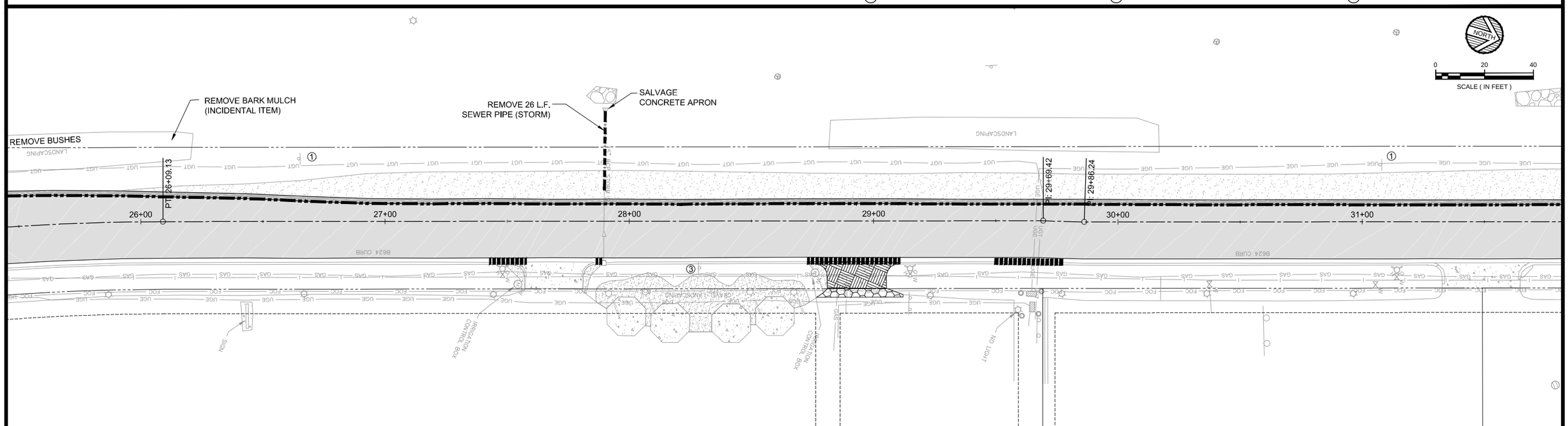

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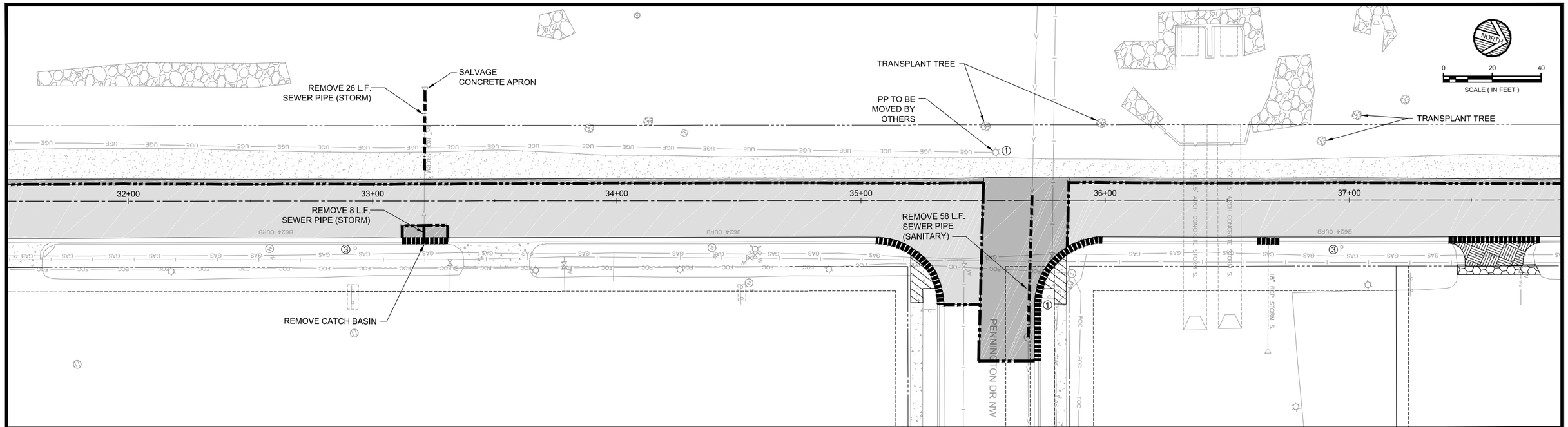
REMOVALS PLAN

STATE AID PROJECT NO. 159-130-004

SHEET NO. 52 OF 93 SHEETS



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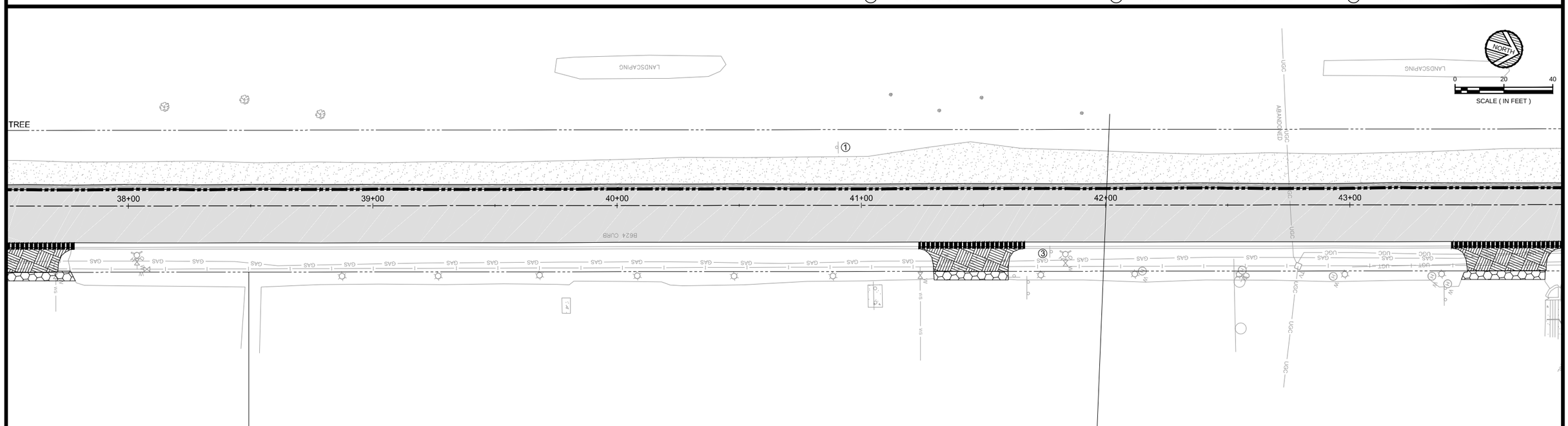

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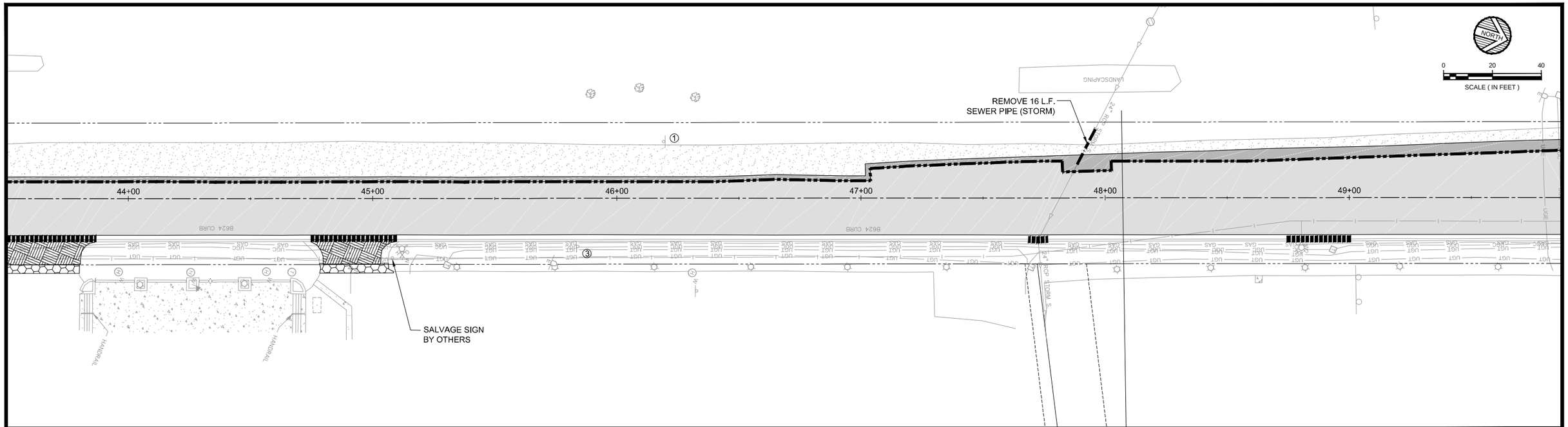

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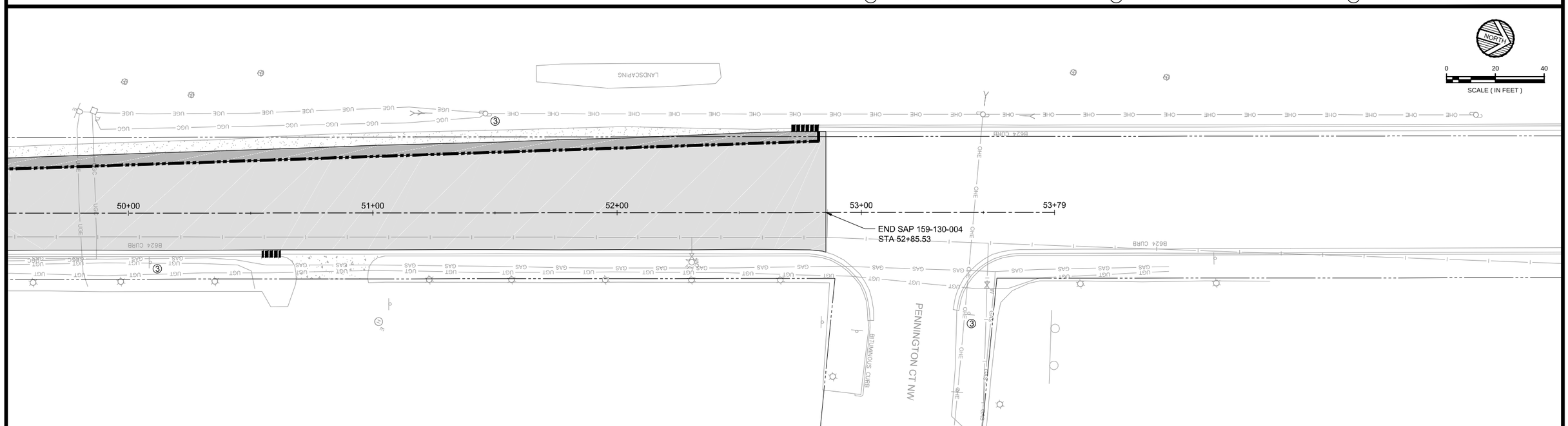

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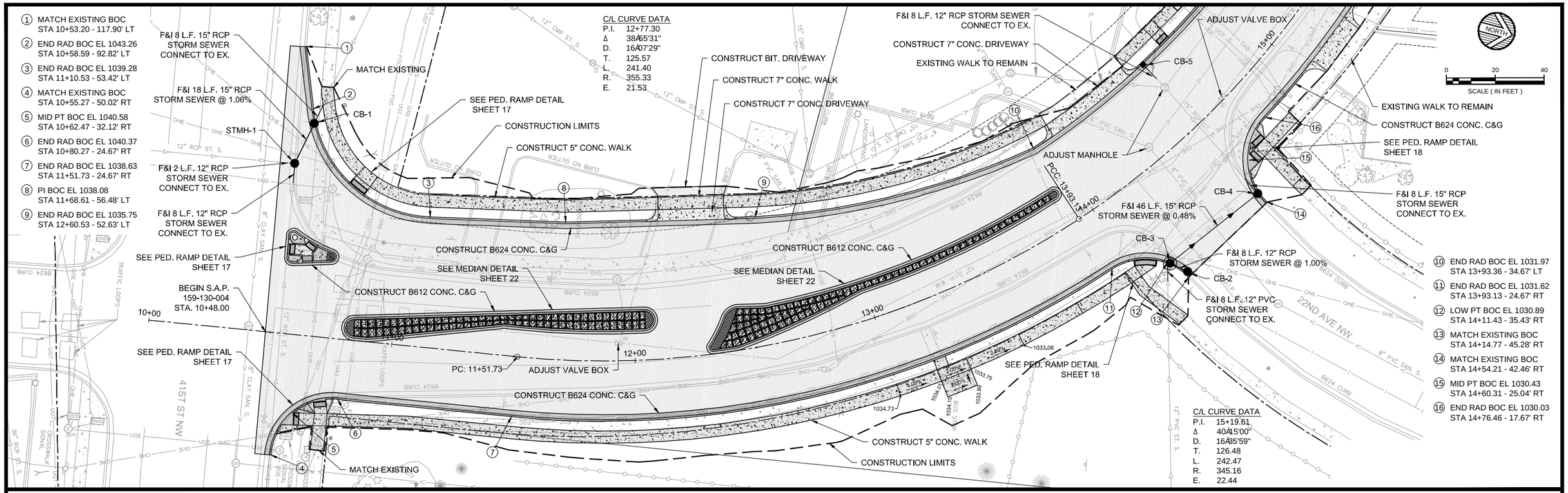

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PLAN & PROFILE

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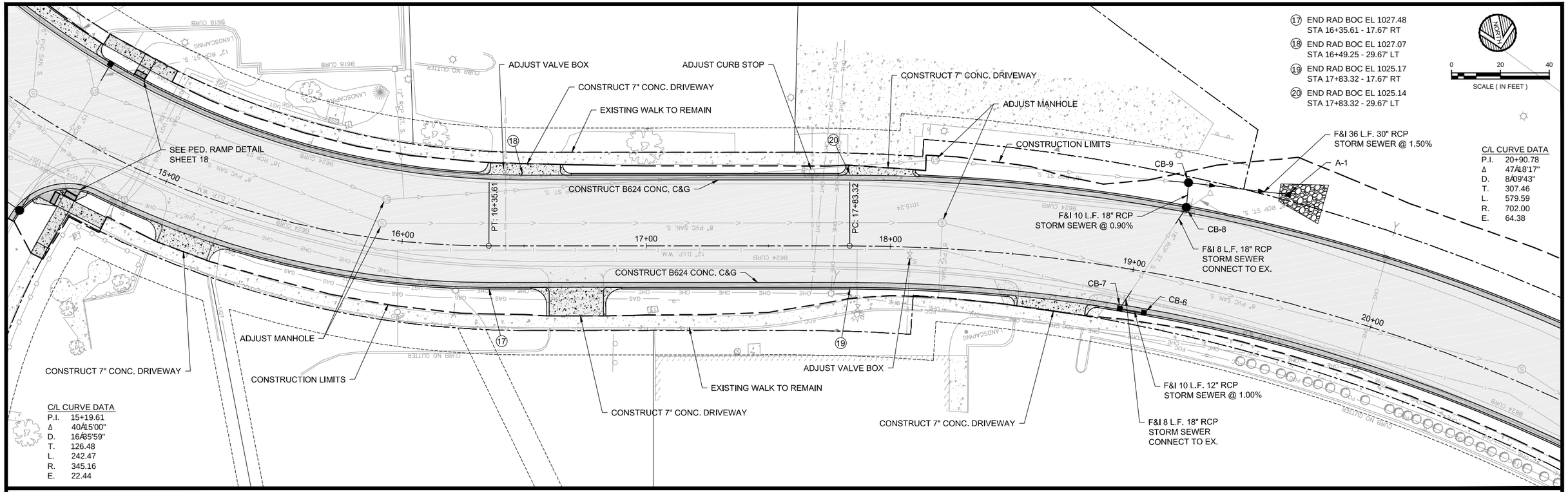

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STATE AID PROJECT NO. 159-130-004

21 END RAD BOC EL 1021.04
STA 21+36.80 - 17.67' RT

22 MID PT BOC EL 1020.73
STA 21+58.83 - 26.47' RT

23 END RAD BOC EL 1020.42
STA 21+63.11 - 46.92' RT

24 MATCH EXISTING BOC
STA 22+04.24 - 40.14' RT

25 HIGH PT BOC EL 1020.43
STA 22+10.40 - 26.39' RT

26 MATCH EXISTING BOC
STA 22+30.01 - 17.67' RT

27 END RAD BOC EL 1018.88
STA 23+62.91 - 29.67' LT

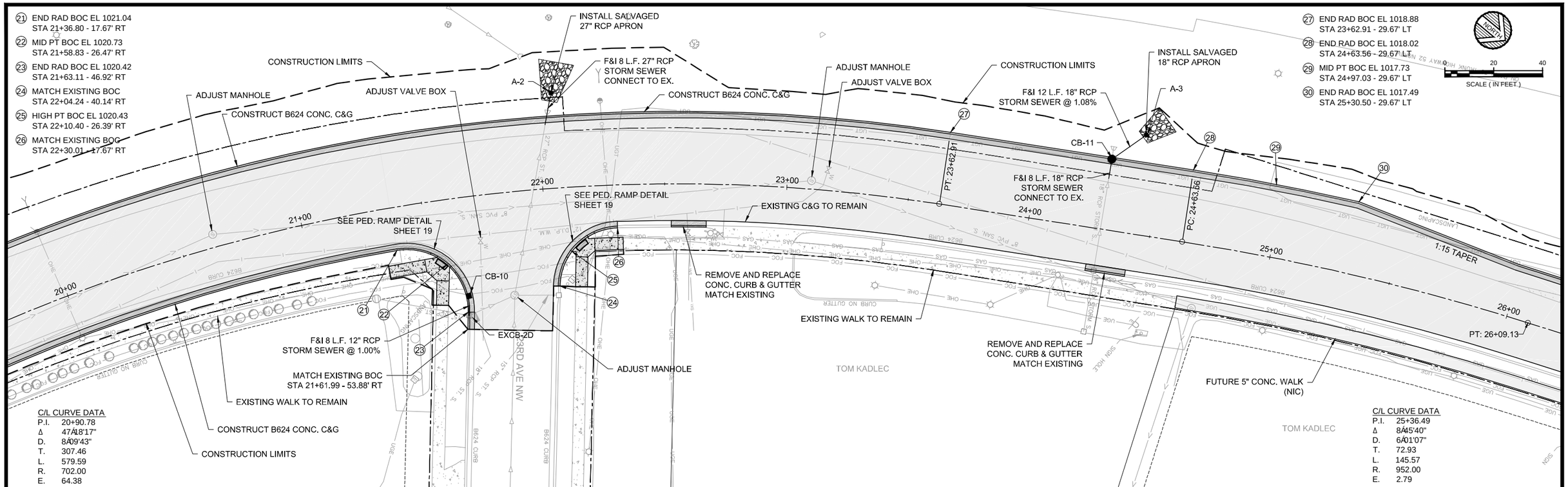
28 END RAD BOC EL 1018.02
STA 24+63.56 - 29.67' LT

29 MID PT BOC EL 1017.73
STA 24+97.03 - 29.67' LT

30 END RAD BOC EL 1017.49
STA 25+30.50 - 29.67' LT

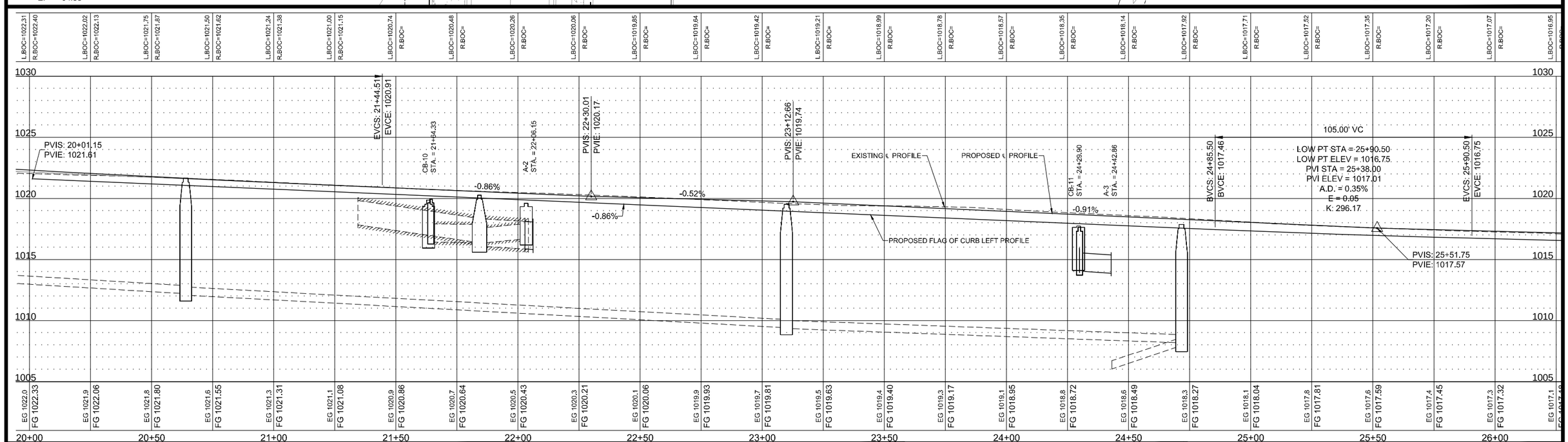
NORTH

0 20 40
SCALE (IN FEET)



C/L CURVE DATA
P.I. 20+90.78
Δ 47°18'17"
D. 8°09'43"
T. 307.46
L. 579.59
R. 702.00
E. 64.38

C/L CURVE DATA
P.I. 25+36.49
Δ 84°15'40"
D. 6°01'07"
T. 72.93
L. 145.57
R. 952.00
E. 2.79



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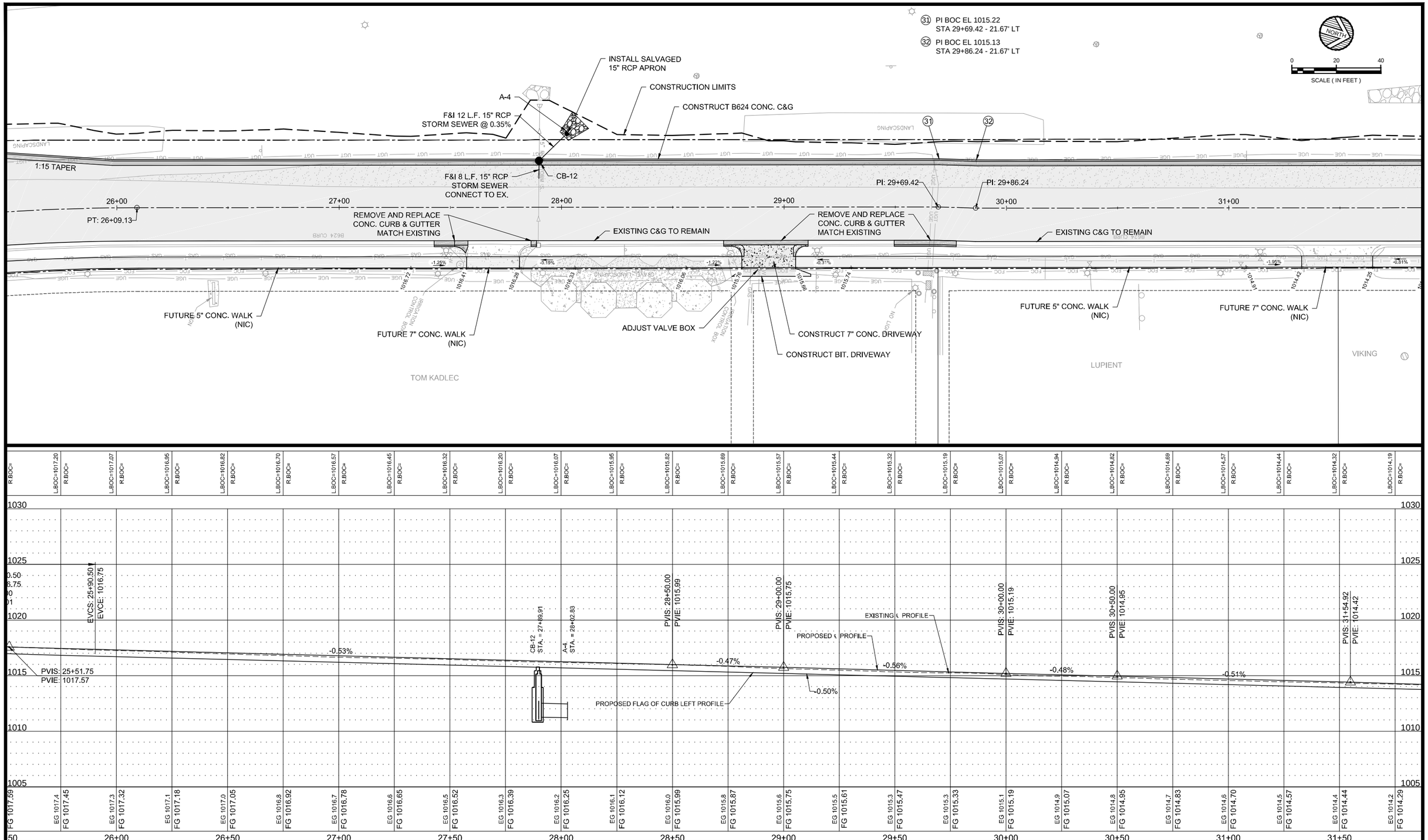

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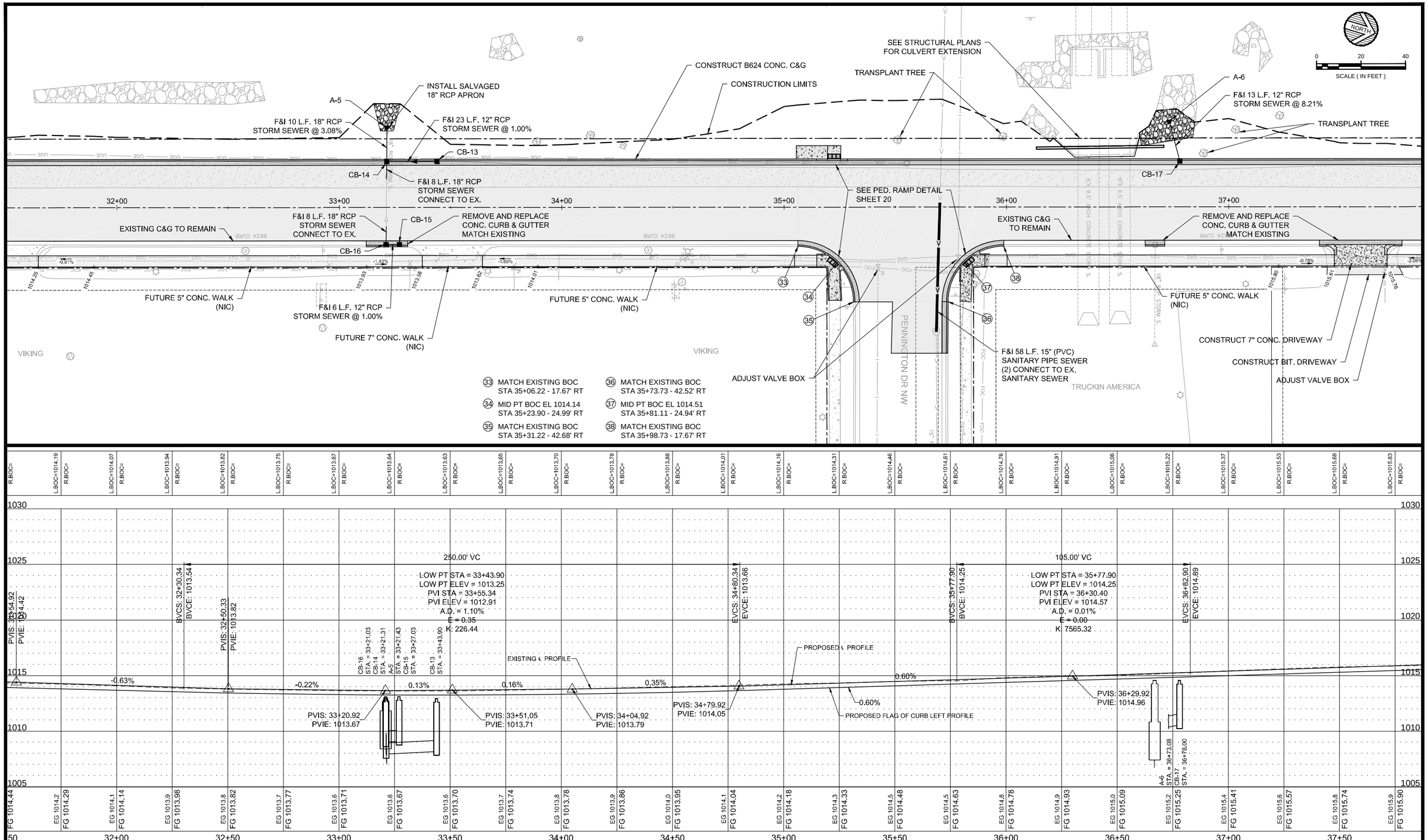

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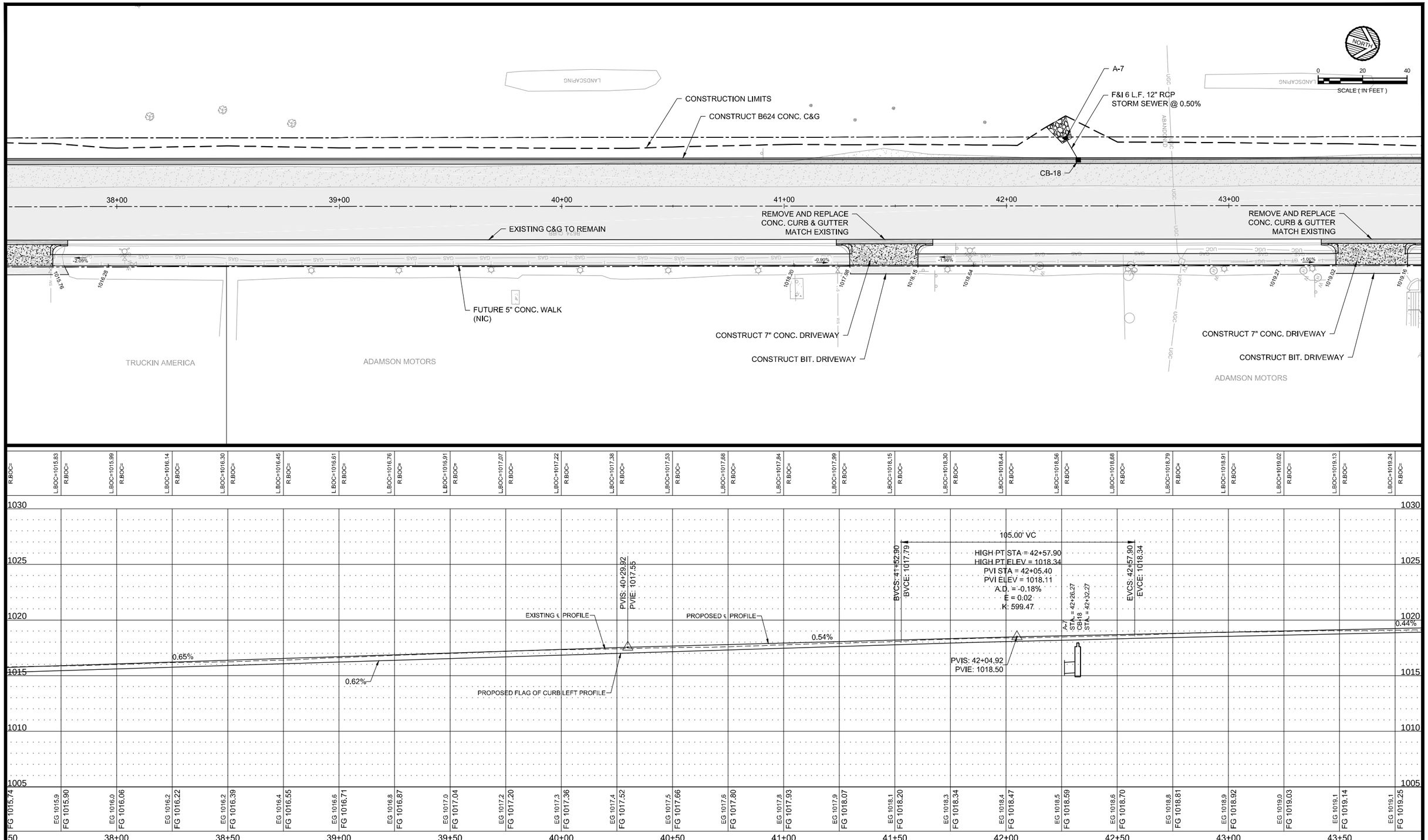

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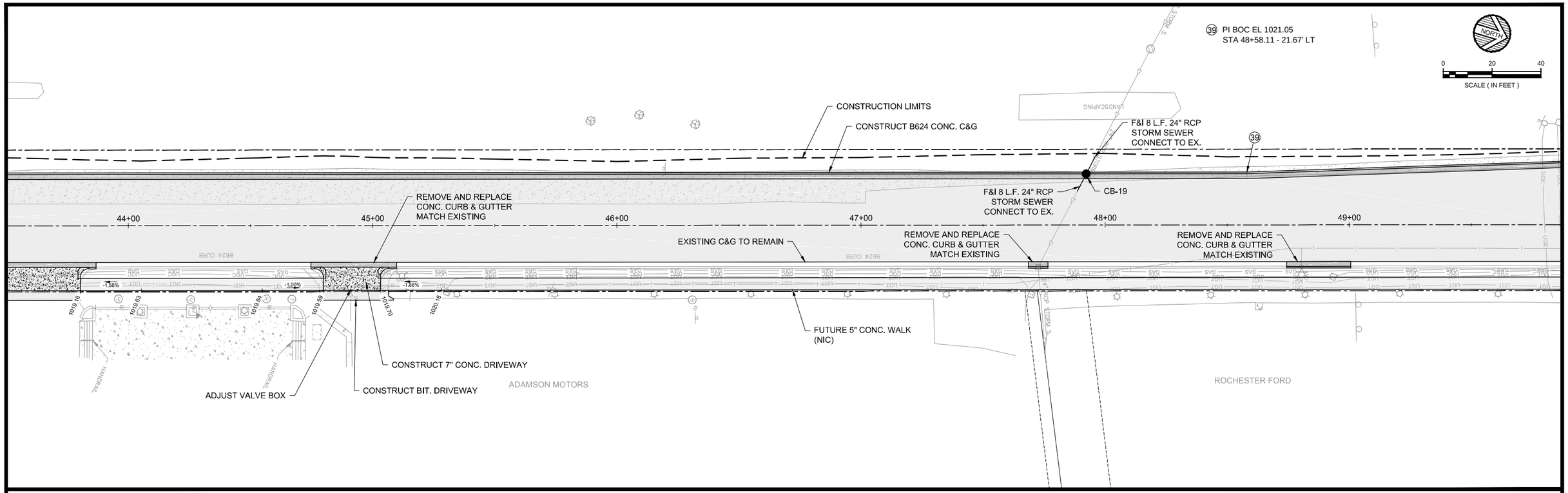
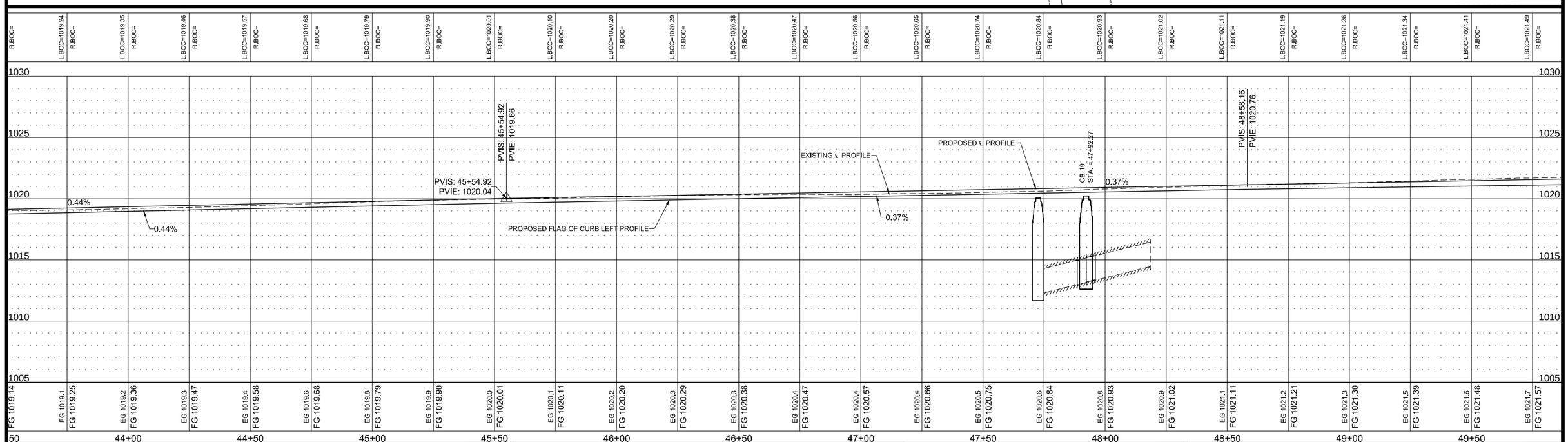
SHEET NO. 60 OF 93 SHEETS





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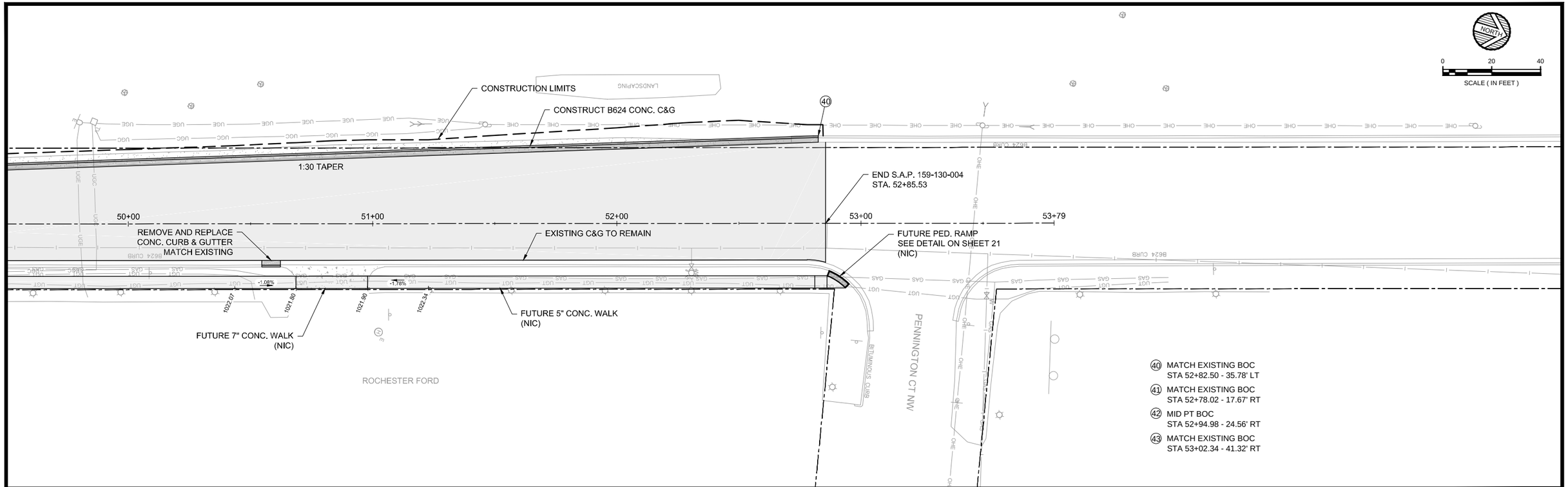

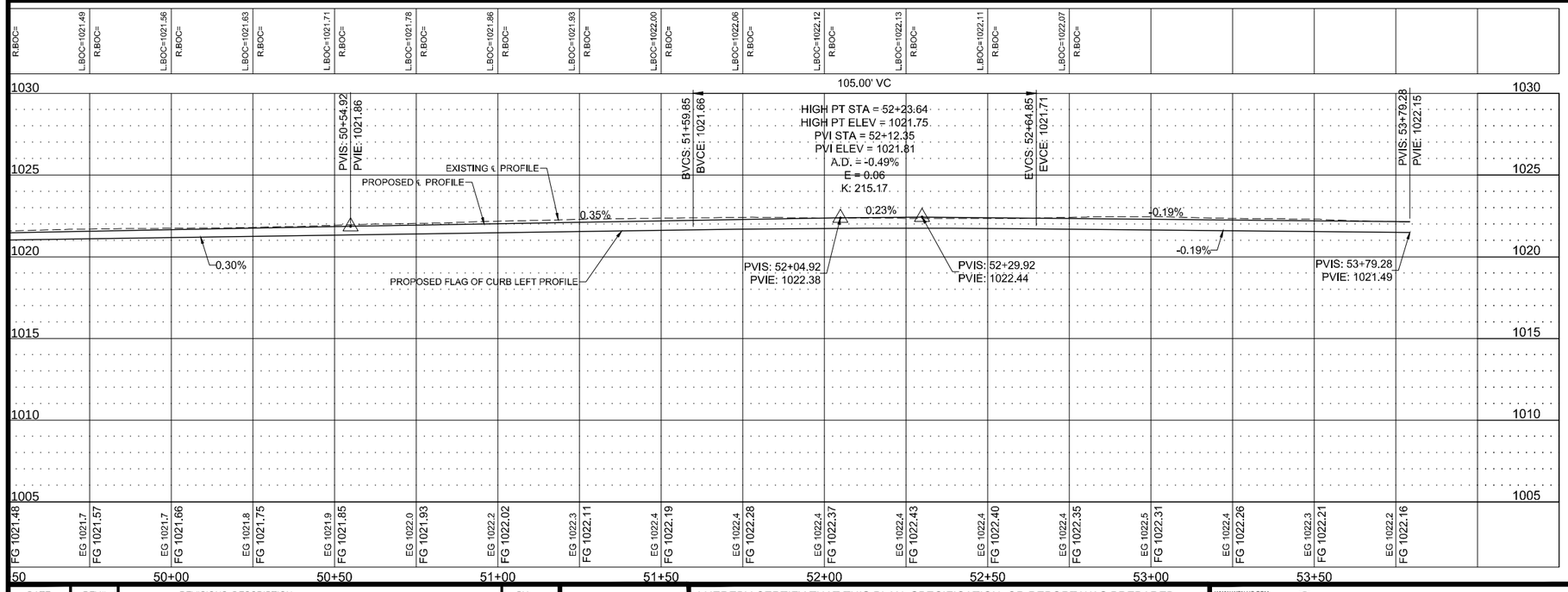

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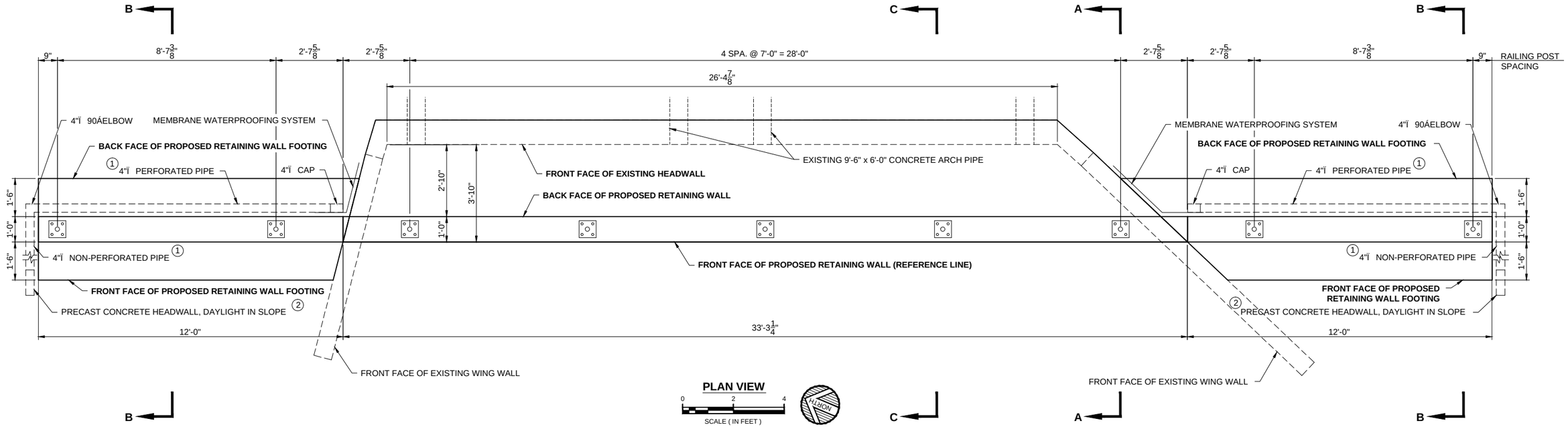
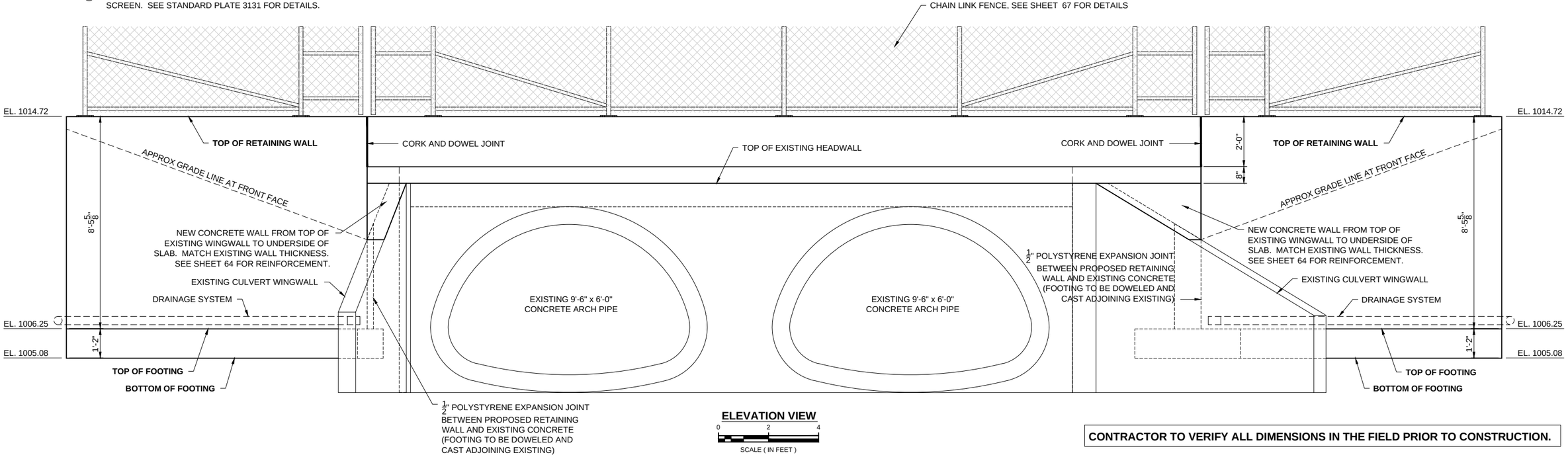


1 SLOPE TO DRAIN, MINIMUM SLOPE OF 2.00%.

2 PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.



CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION.

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	J.J.E.
DESIGNED BY	K.A.R.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: Kent A Rohr
PROFESSIONAL ENGINEER: KENT A. ROHR

LICENSE NO. 21179 DATE: MAY 30, 2013

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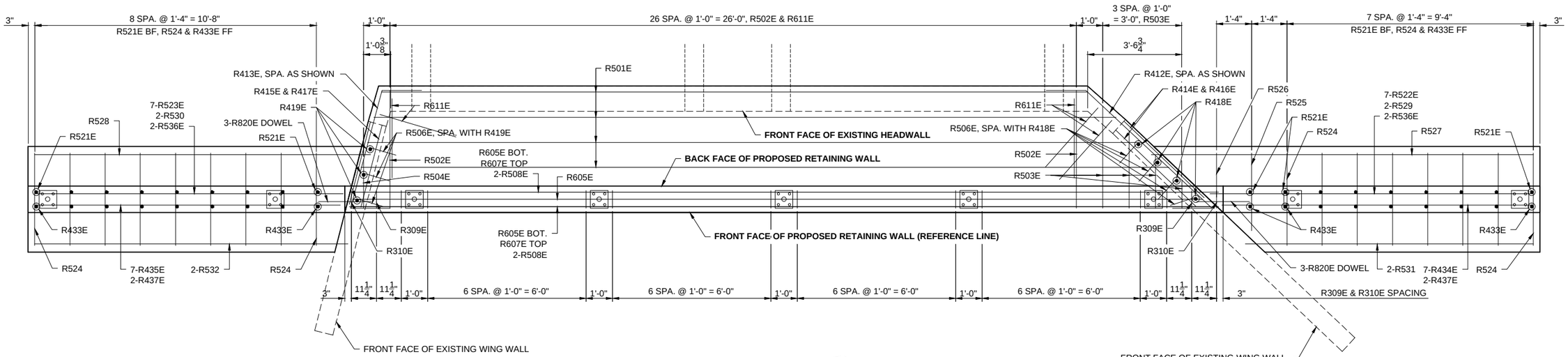
RETAINING WALL LAYOUT

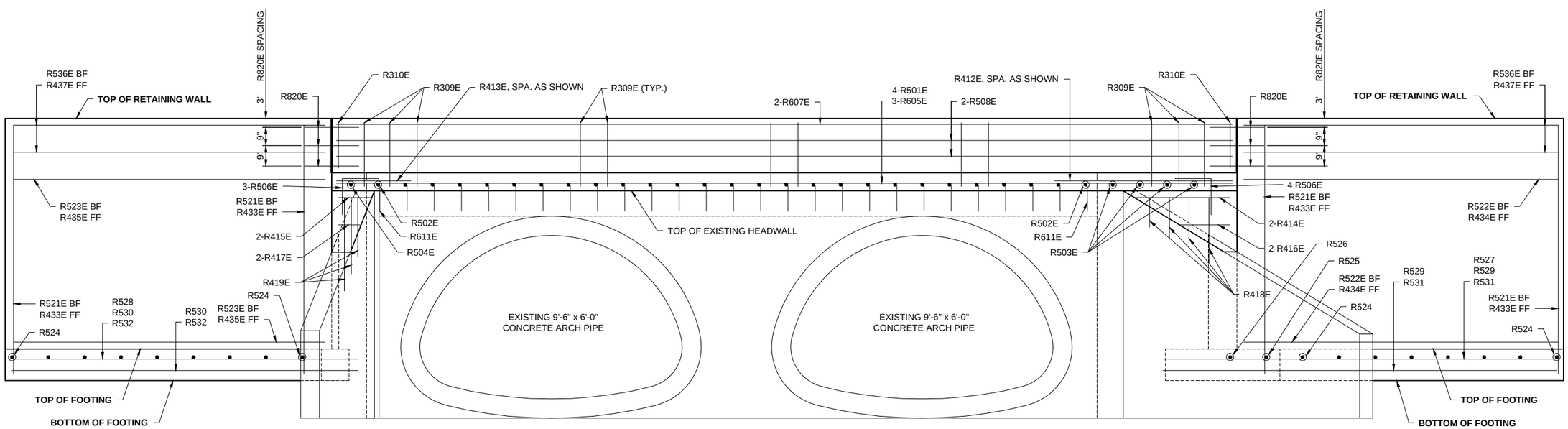
WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004



PLAN VIEW

0 2 4
SCALE (IN FEET)



ELEVATION VIEW

0 2 4
SCALE (IN FEET)

CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION.

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DESIGNED BY	K.A.R.
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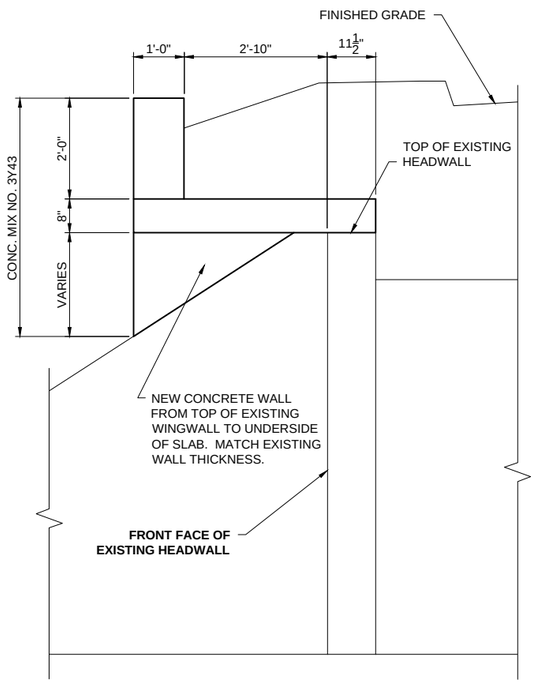
WSN NUMBER: 1012R0001

RETAINING WALL REINFORCEMENT

STATE AID PROJECT NO. 159-130-004



SECTION A-A (LAYOUT)

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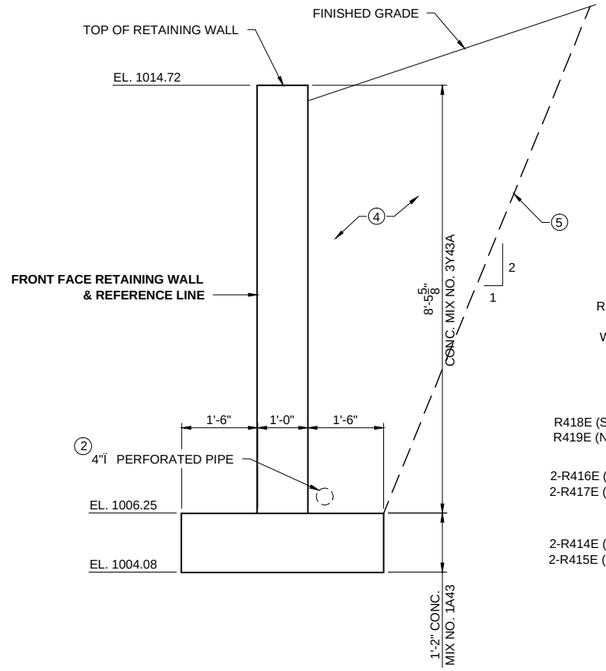

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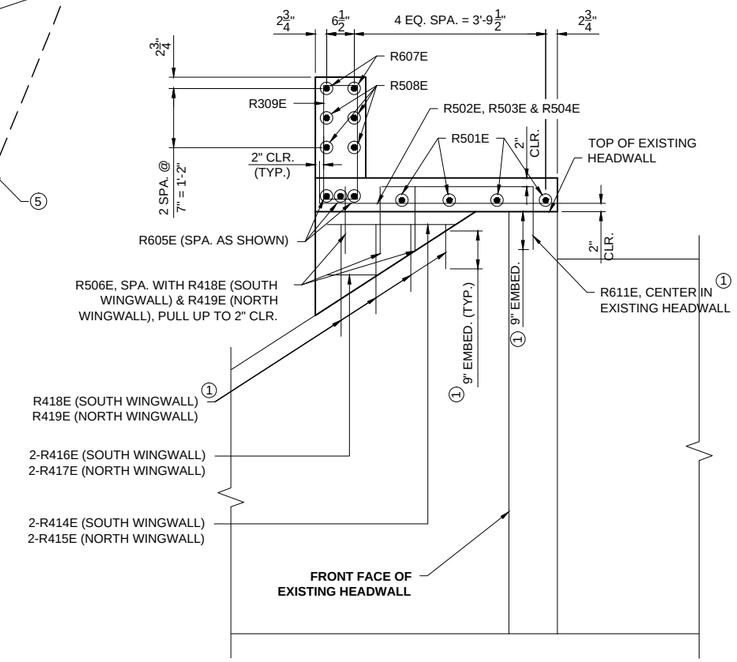

SECTION D-D (REINFORCEMENT)

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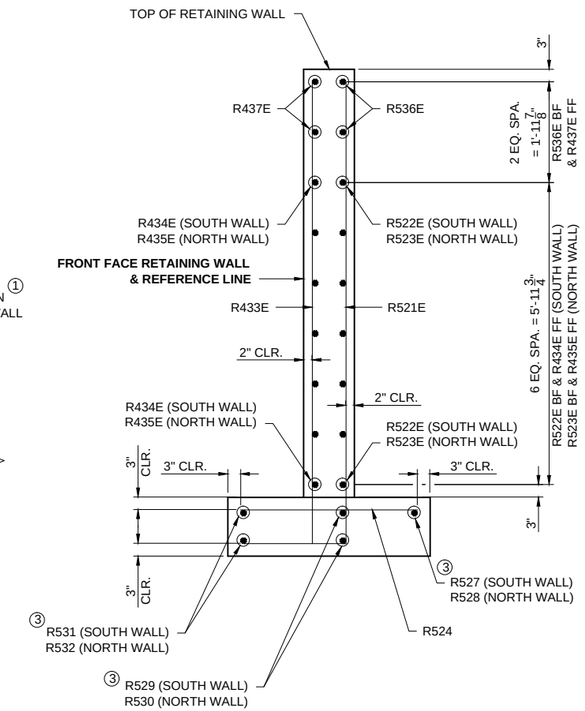

SECTION E-E (REINFORCEMENT)

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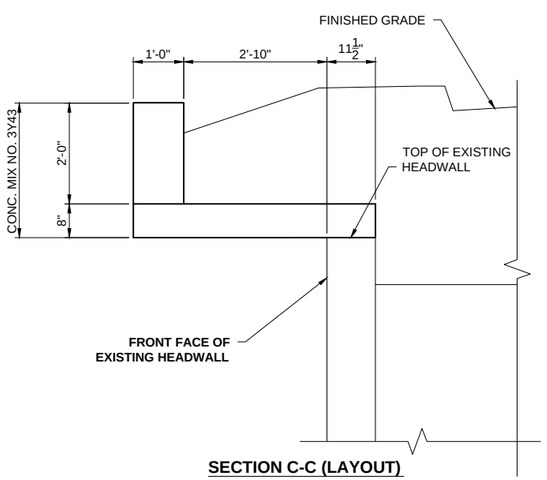

SECTION C-C (LAYOUT)

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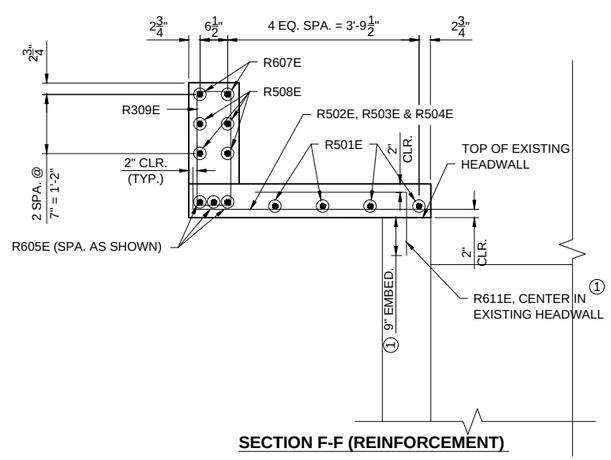

SECTION F-F (REINFORCEMENT)

0 1.5 3
SCALE (IN FEET)

1. DRILL AND ANCHOR INTO EXISTING CONCRETE. LENGTH OF R611E, R418E & R419E BARS BASED ON ASSUMED 9" EMBEDMENT. EMBEDMENT DEPTH & ANCHORAGE ADHESIVE SHALL BE SUFFICIENT TO FULLY DEVELOP THE TENSILE STRENGTH OF THE REBAR. CONTRACTOR SHALL SUPPLY PRODUCT LITERATURE DEMONSTRATING THAT THE PROPOSED ANCHORAGE MEETS THESE REQUIREMENTS. CONTRACTOR RESPONSIBLE FOR COORDINATING WITH REBAR SUPPLIER IF PROPOSED EMBEDMENT DEPTH DIFFERS FROM THAT SHOWN HERE. SEE SPECIAL PROVISIONS FOR MORE INFORMATION.
2. SLOPE TO DRAIN, MINIMUM SLOPE OF 2.00%.
3. DRILL AND ANCHOR 5" INTO EXISTING CONCRETE. SEE SPECIAL PROVISIONS FOR MORE INFORMATION.
4. SELECT GRANULAR BORROW PER MNDOT SPEC. 3149.2B2, MODIFIED TO LESS THAN 10% PASSING A NO. 200 SIEVE. COMPACTION SHALL BE IN ACCORDANCE WITH MNDOT SPEC. 2106. (INCIDENTAL)
5. LIMITS USED TO DETERMINE QUANTITY OF SELECT GRANULAR BORROW MOD. 10%. ACTUAL EXCAVATION LIMITS SHALL BE DETERMINED BY THE CONTRACTOR BASED ON OSHA REGULATIONS & IN-SITU SOILS. EXCAVATION SHALL BE INCIDENTAL.

CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION.

DATE	REV#	REVISIONS DESCRIPTION	BY

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DESIGNED BY	K.A.R.
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RETAINING WALL SECTIONS

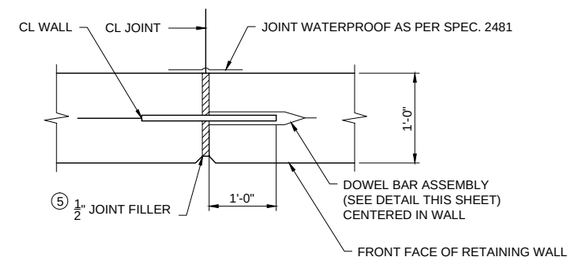
WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

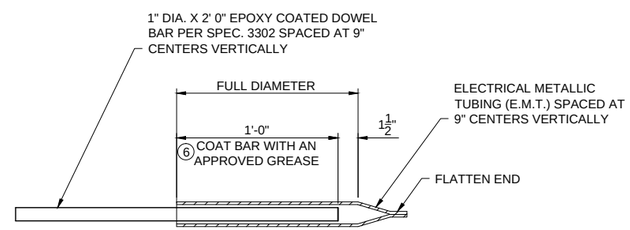
BILL OF REINFORCEMENT FOR CANTILEVER SLAB & RETAINING WALL

	BAR	NO.	LENGTH	SHAPE	LOCATION
	R501E	1 SET OF 4	26'-9" TO 30'-7"	STRAIGHT	SLAB LONGITUDINAL
	R502E	27	5'-5"	BENT	SLAB TRANSVERSE
	R503E	1 SET OF 4	1'-11" TO 4'-8"	BENT	SLAB TRANSVERSE
	R504E	1	2'-8"	BENT	SLAB TRANSVERSE
	R605E	1 SET OF 3	31'-10" TO 32'-5"	STRAIGHT	SLAB LONGITUDINAL
	R506E	7	2'-8"	BENT	SLAB TIE TO EXISTING WINGWALL
	R607E	2	32'-11"	STRAIGHT	SLAB LONGITUDINAL & WALL LONGT.
	R508E	4	32'-11"	STRAIGHT	WALL LONGITUDINAL
	R309E	32	6'-10"	BENT	WALL TIE
	R310E	2	5'-6"	BENT	WALL TIE
1	R611E	30	4'-3"	BENT	SLAB TIE TO EXISTING HEADWALL
	R412E	1	9'-6"	BENT	SLAB TIE AT EDGE
	R413E	1	7'-7"	BENT	SLAB TIE AT EDGE
	R414E	2	3'-8"	STRAIGHT	SOUTH WINGWALL HORZ.
	R415E	2	3'-1"	STRAIGHT	NORTH WINGWALL HORZ.
	R416E	2	1'-6"	STRAIGHT	SOUTH WINGWALL HORZ.
	R417E	2	1'-1"	STRAIGHT	NORTH WINGWALL HORZ.
1	R418E	1 SET OF 4	1'-0" TO 2'-4"	STRAIGHT	SOUTH WINGWALL VERT.
1	R419E	1 SET OF 3	1'-3" TO 2'-3"	STRAIGHT	NORTH WINGWALL VERT.
4	R820E	6	2'-0"	STRAIGHT	RETAINING WALL DOWEL
	R521E	18	11'-1"	BENT	FOOTING VERT. DOWEL BF
	R522E	7	12'-3"	STRAIGHT	SOUTH RETAINING WALL HORZ. BF
	R523E	7	11'-9"	STRAIGHT	NORTH RETAINING WALL HORZ. BF
	R524	17	3'-6"	STRAIGHT	FOOTING TRANS.
	R525	1	2'-11"	STRAIGHT	SOUTH FOOTING TRANS.
	R526	1	1'-8"	STRAIGHT	SOUTH FOOTING TRANS.
1	R527	1	14'-6"	STRAIGHT	SOUTH FOOTING TRANS.
1	R528	1	12'-9"	STRAIGHT	NORTH FOOTING TRANS.
1	R529	2	12'-10"	STRAIGHT	SOUTH FOOTING TRANS.
1	R530	2	12'-4"	STRAIGHT	NORTH FOOTING TRANS.
1	R531	2	10'-11"	STRAIGHT	SOUTH FOOTING TRANS.
1	R532	2	11'-10"	STRAIGHT	NORTH FOOTING TRANS.
	R433E	18	9'-1"	STRAIGHT	FOOTING VERT. DOWEL FF
	R434E	7	11'-9"	STRAIGHT	SOUTH RETAINING WALL HORZ. FF
	R435E	7	11'-7"	STRAIGHT	NORTH RETAINING WALL HORZ. FF
	R536E	4	11'-6"	STRAIGHT	RETAINING WALL HORZ. BF
	R437E	4	11'-6"	STRAIGHT	RETAINING WALL HORZ. FF

CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION.



CORK AND DOWELED JOINT DETAIL 7
(TYPICAL SECTION THROUGH JOINT)



DOWEL BAR ASSEMBLY

SUMMARY OF QUANTITIES FOR CANTILEVER SLAB & RETAINING WALL

	STRUCTURAL CONCRETE (1A43)	5	CU. YD.
	STRUCTURAL CONCRETE (3Y43A)	15	CU. YD.
	REINFORCEMENT BARS	200	POUND
1 4	REINFORCEMENT BARS (EPOXY COATED)	1,710	POUND
1	ANCHORAGES TYPE REINF BARS	44	EACH
4	DOWEL BAR (EPOXY COATED)	6	EACH
3	SELECT GRANULAR BORROW MOD. 10% (LV)	30	CU. YD.
2 3	1/2" x 1'-0" CORK	4	LIN. FT.
2 3	1/2" x 1'-0" POLYSTYRENE	13	LIN. FT.
3	MEMBRANE WATERPROOFING SYSTEM	17	LIN. FT.
	CHAIN LINK SAFETY FENCE	57	LIN. FT.
3	4"ï PERFORATED PIPE	24	LIN. FT.
3	4"ï NON-PERFORATED PIPE	32	LIN. FT.
3	4"ï CAP	2	EACH
3	4"ï 90ÁELBOW	2	EACH
3	PRECAST CONCRETE HEADWALL	2	EACH

1 THE WEIGHT OF BARS R611E, R418E, R419E, R527, R528, R529, R530, R531 & R532 HAS BEEN INCLUDED WITH AND SHALL BE PAID FOR AS PART OF ITEM NO. 2401.541, "REINFORCEMENT BARS (EPOXY COATED)"

2 SEE SPECIAL PROVISIONS.

3 TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

4 THE WEIGHT OF BAR R820E HAS BEEN INCLUDED WITH AND SHALL BE PAID FOR AS PART OF ITEM NO. 2401.541, "REINFORCEMENT BARS (EPOXY COATED)"

RETAINING WALL NOTES:

THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

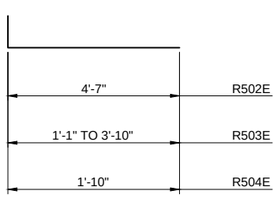
ALL PIPE SHALL COMPLY WITH Mn/DOT SPEC. 3245.

WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER Mn/DOT SPEC. 3733, TYPE 1. ATTACH TO PIPE AS PER Mn/DOT SPEC. 3502.

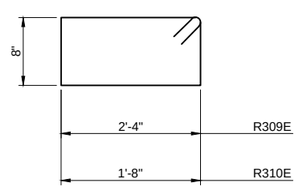
THE MATERIALS AND PLACEMENT OF THE CORK AND DOWEL JOINT/ CONSTRUCTION JOINT (DOWEL BAR ASSEMBLIES, JOINT FILLER, AND JOINT WATERPROOFING) ARE INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.

THE MATERIALS AND PLACEMENT OF THE DRAINAGE SYSTEM, $\frac{1}{2}$" JOINT FILLER AND WATERPROOFING ARE INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.

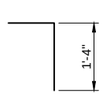
BAR SHAPES:



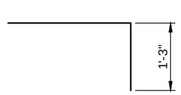
R502E, R503E & R504E



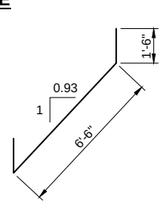
R309E & R310



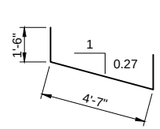
R506E



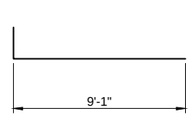
R611E



R412E



R413E



R521E

CORK AND DOWEL JOINT NOTES:

THE CONTRACTOR SHALL ASSIGN TO THE REINFORCING BAR SUPPLIER THE RESPONSIBILITY OF SUPPLYING THE NECESSARY MATERIALS ASSOCIATED WITH THE DETAILS SHOWN ON THIS SHEET.

5 JOINT FILLER SHALL BE CORK (SPEC. 2401.3E3).

6 GREASE SHALL BE AN APPROVED HIGH PRESSURE TYPE THAT IS EFFECTIVE OVER THE FULL RANGE OF EXPECTED TEMPERATURES AND RESISTANT TO CHEMICAL ACTION.

7 DOWEL BAR ASSEMBLY MUST BE INSTALLED PERPENDICULAR TO JOINT AND PARALLEL TO THE WALL FACE, AND TO EACH OTHER.

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RETAINING WALL DETAILS

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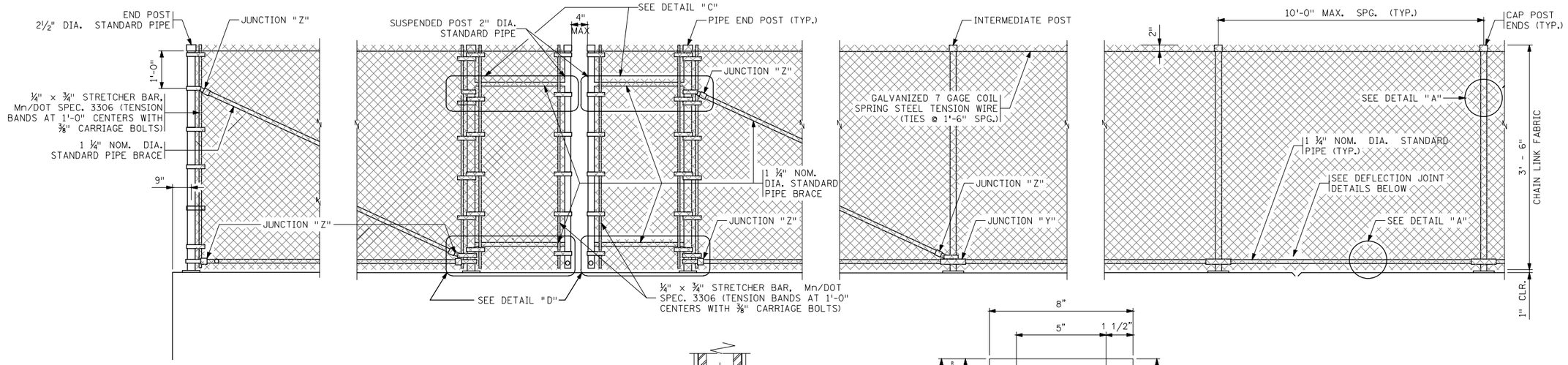


GENERAL NOTES

LENGTH OF "CHAIN LINK SAFETY FENCE" FOR PAYMENT SHALL BE MEASURED BETWEEN THE CENTERS OF END RAIL POSTS.

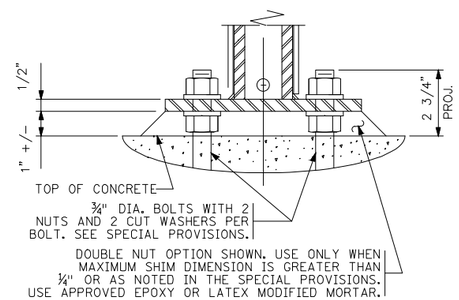
FENCE POSTS AND FENCE POST ANCHORAGES SHALL BE SET VERTICAL, UNLESS OTHERWISE NOTED.

℄ OF FENCE POST ANCHORAGE SHALL BE A MINIMUM OF 6" FROM JOINTS.

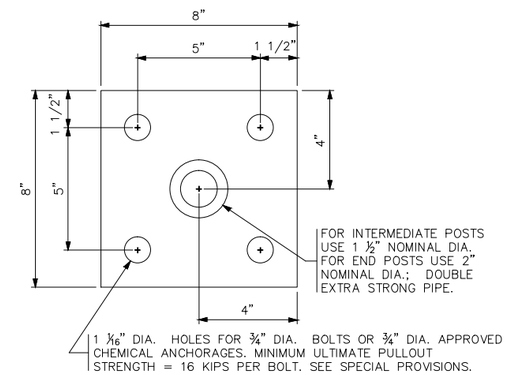
ALL POSTS SHALL HAVE A MEANS TO SECURELY HOLD THE TOP TENSION WIRE IN POSITION AND ALLOW FOR THE REMOVAL AND REPLACEMENT OF A POST WITHOUT DAMAGING THE TOP WIRE.

WIRE TIES MAY BE 9 GAGE GALVANIZED STEEL OR 0.179" MIN. ALUMINUM ALLOY CONFORMING TO A.S.T.M. B211, ALLOY 1100-H18. USE 12½ GAGE GALVANIZED HOG RINGS FOR TENSION WIRE TIES.

SEE SPECIAL PROVISIONS FOR REQUIREMENTS NOT INCLUDED ON THIS SHEET AND FOR BASIS OF PAYMENT.



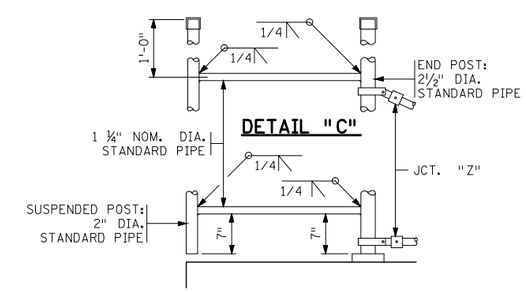
POST BASE PLATE GROUT ALTERNATE

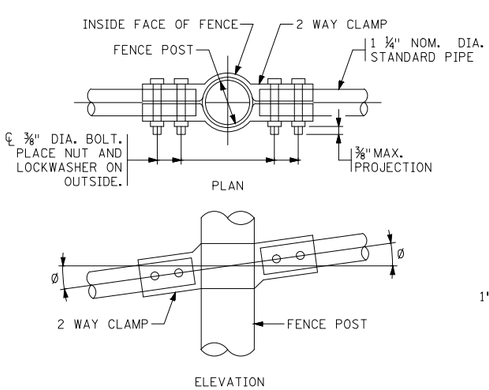


POST BASE PLATE

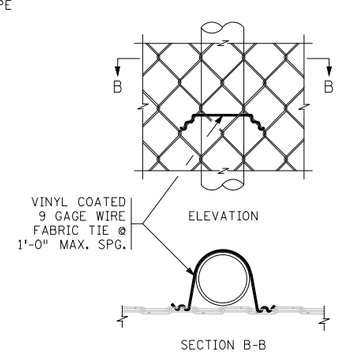
ESTIMATED WEIGHT = 12 OR 14 LBS.

2 WAY CLAMP BENDING TABLE	
GRADE OF FENCE	Ø
0° TO 2°	0°
2° TO 6°	4°
6° TO 10°	8°

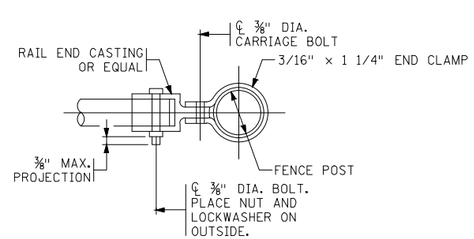




JUNCTION "X"



DETAIL "A"



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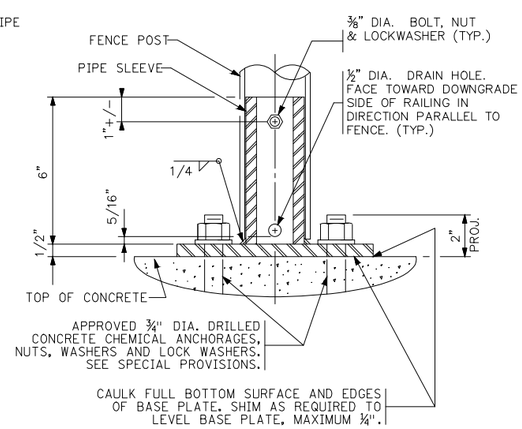
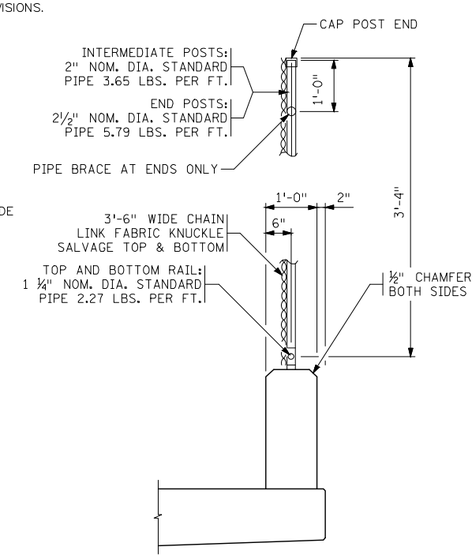


POST BASE PLATE TYPICAL SECTION



TYPICAL SECTION THROUGH FENCE

(INTERMEDIATE POST SHOWN)

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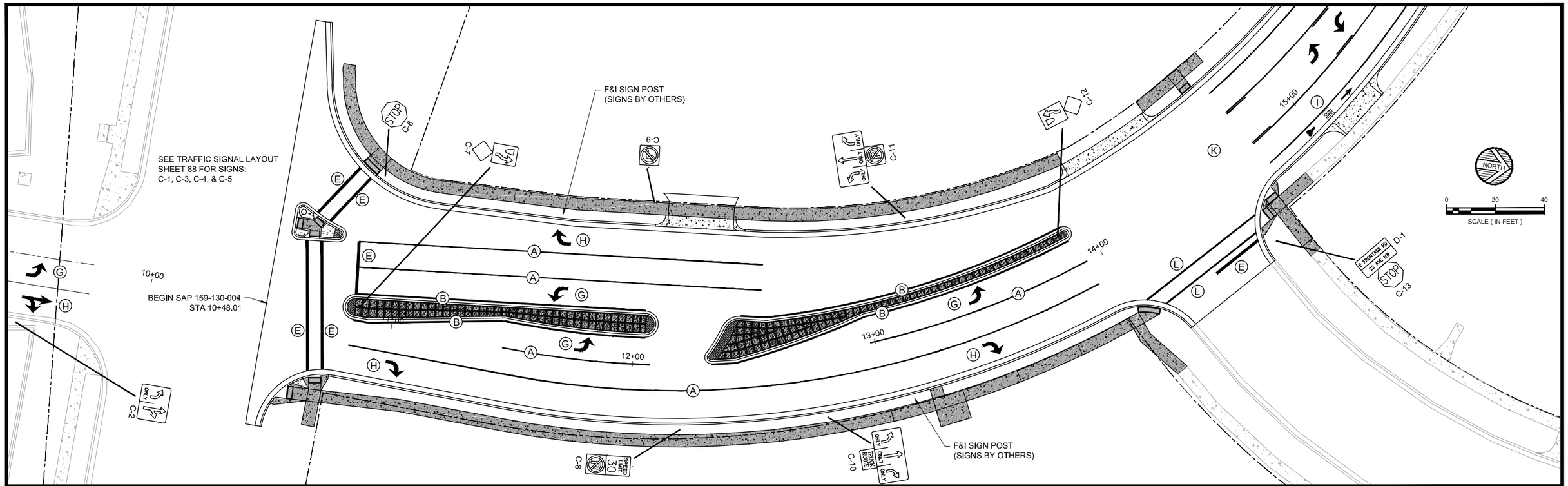
CHAIN LINK FENCE DETAILS

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004



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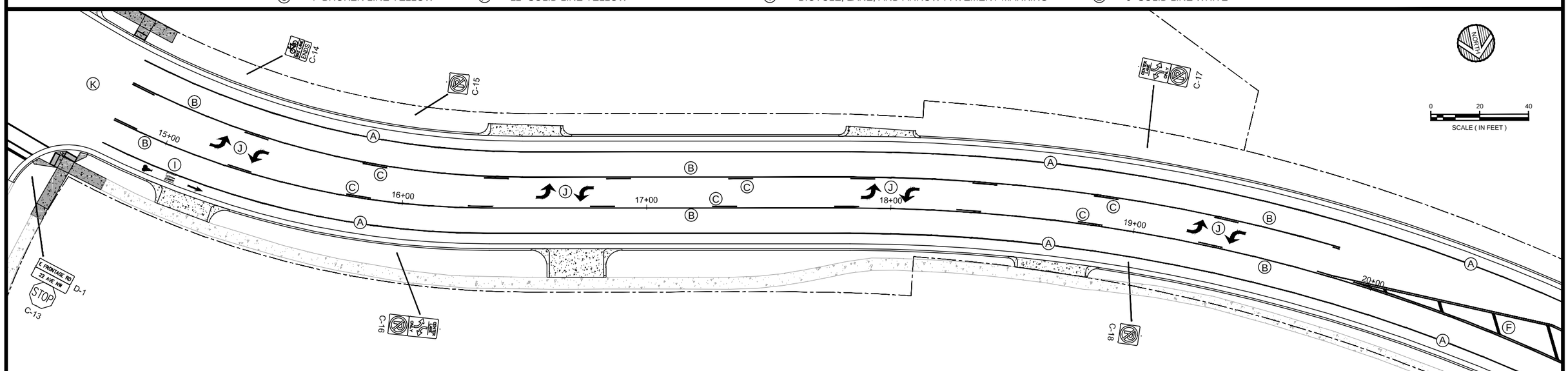
(A)	4" SOLID LINE WHITE	(D)	4" DOUBLE SOLID LINE YELLOW	(G)	LEFT TURN ARROW PAVEMENT MARKING	(J)	TWO WAY LEFT TURN ARROW PAVEMENT MARKING
(B)	4" SOLID LINE YELLOW	(E)	12" SOLID LINE WHITE	(H)	RIGHT TURN ARROW PAVEMENT MARKING	(K)	CROSSWALK BLOCK PAVEMENT MARKING
(C)	4" BROKEN LINE YELLOW	(F)	12" SOLID LINE YELLOW	(I)	BICYCLE, LANE, AND ARROW PAVEMENT MARKING	(L)	6" SOLID LINE WHITE



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DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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PAVEMENT MARKING & SIGNING PLAN

WSN NUMBER: 1012R0001

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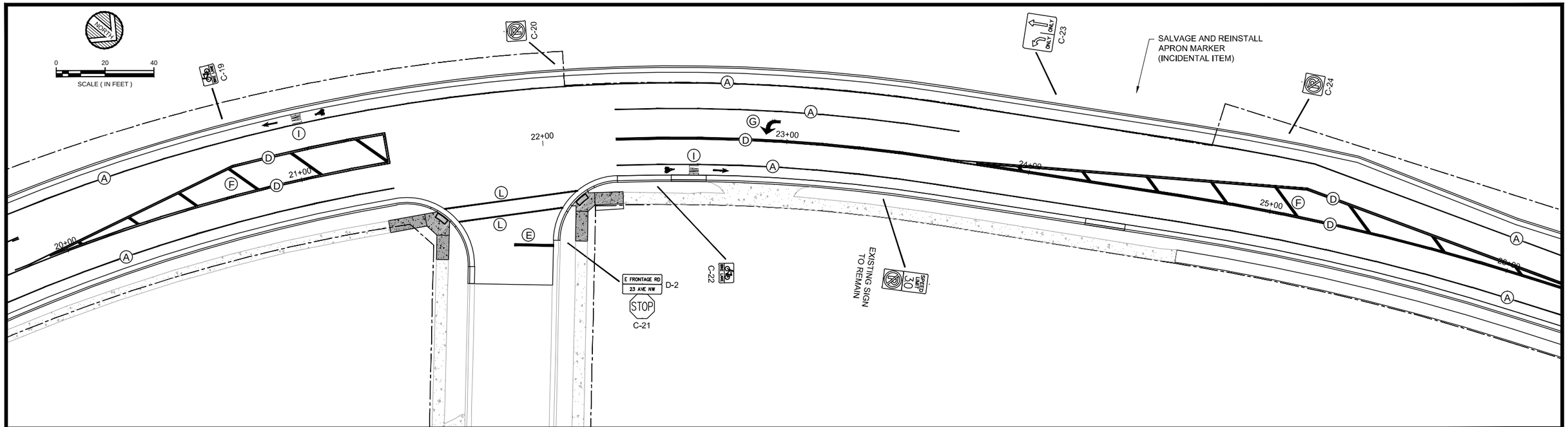

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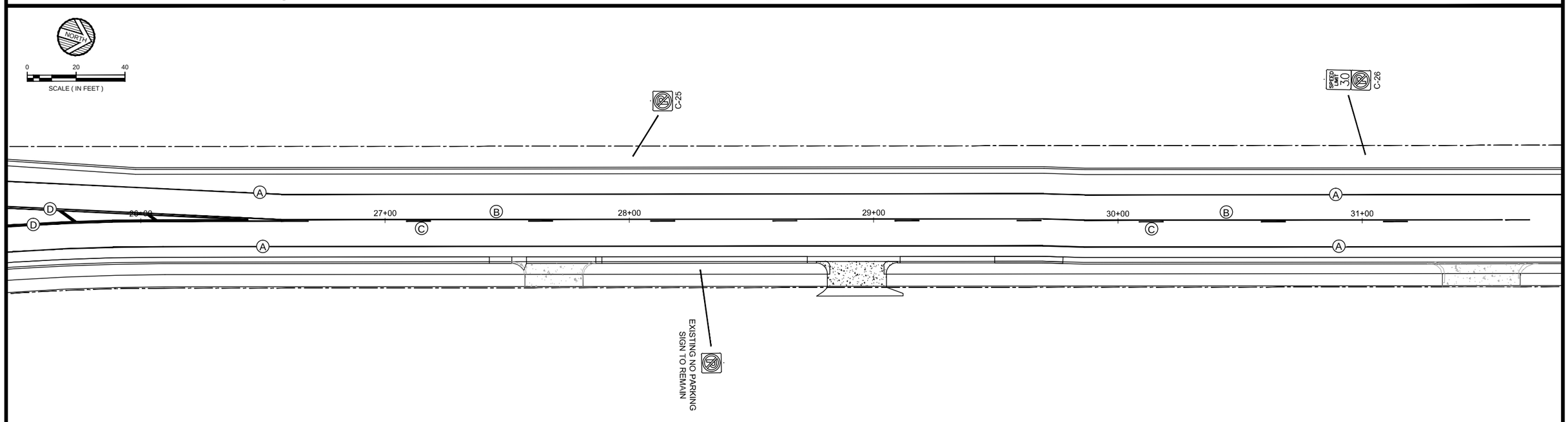

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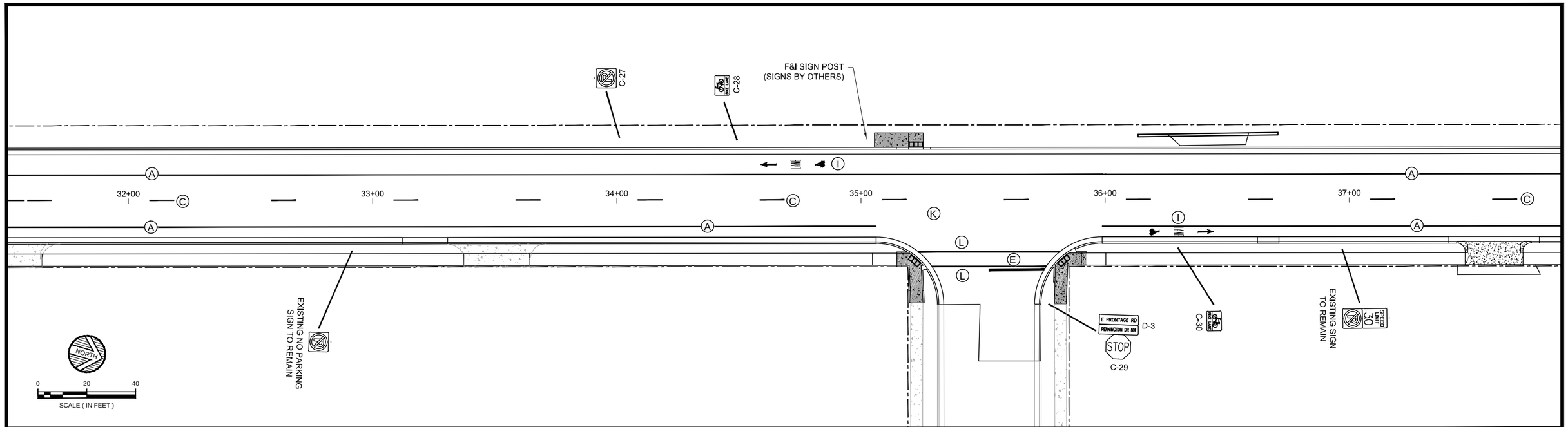

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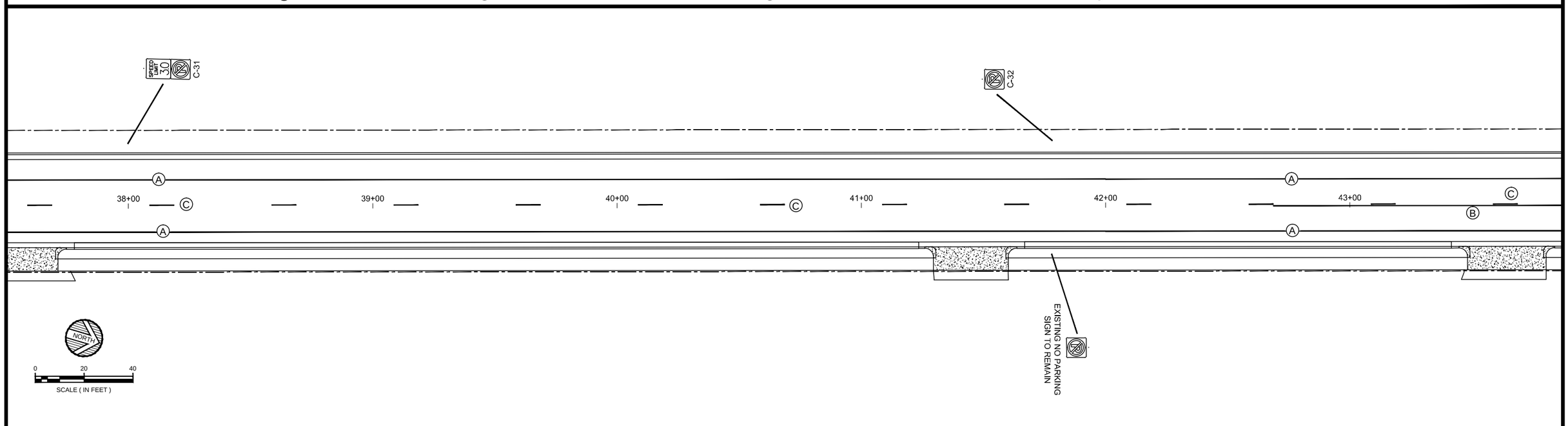
B	4" SOLID LINE YELLOW	E	12" SOLID LINE WHITE	H	RIGHT TURN ARROW PAVEMENT MARKING	K	CROSSWALK BLOCK PAVEMENT MARKING
C	4" BROKEN LINE YELLOW	F	12" SOLID LINE YELLOW	I	BICYCLE, LANE, AND ARROW PAVEMENT MARKING	L	6" SOLID LINE WHITE



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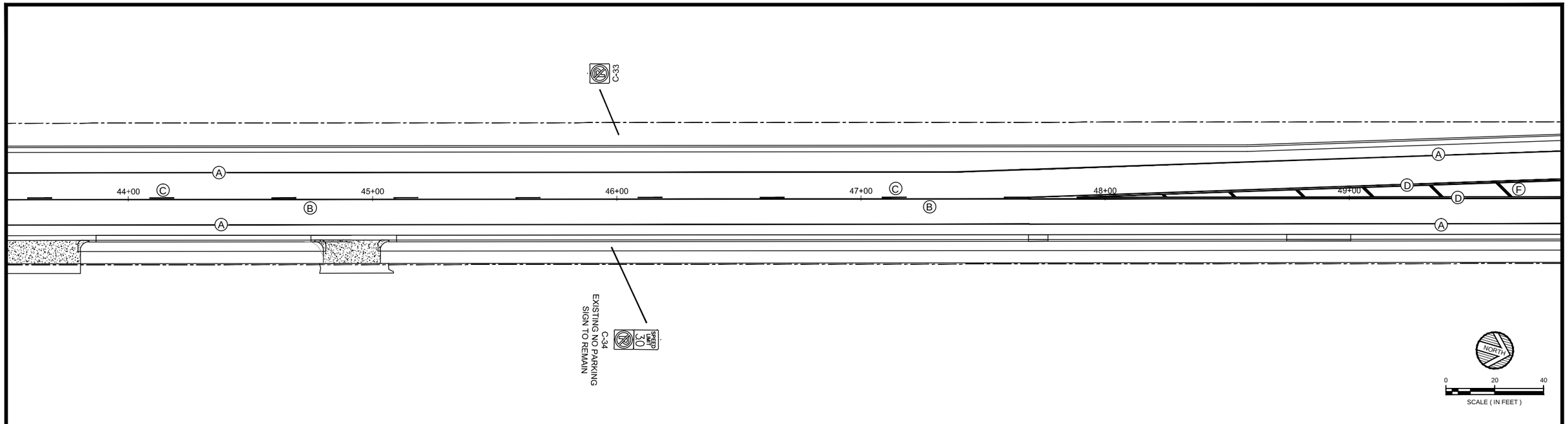

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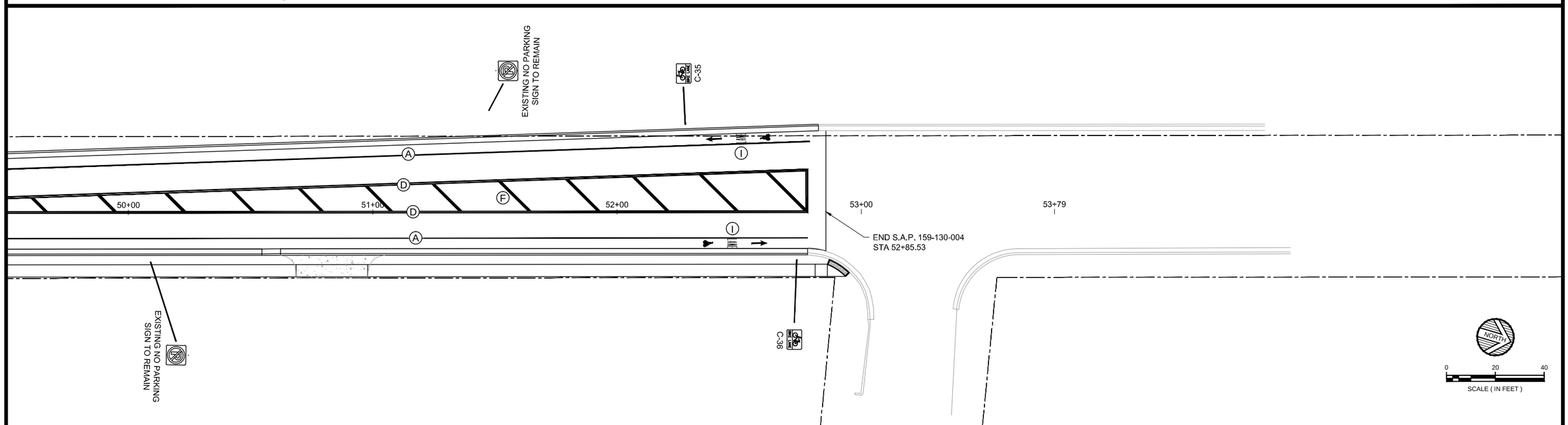

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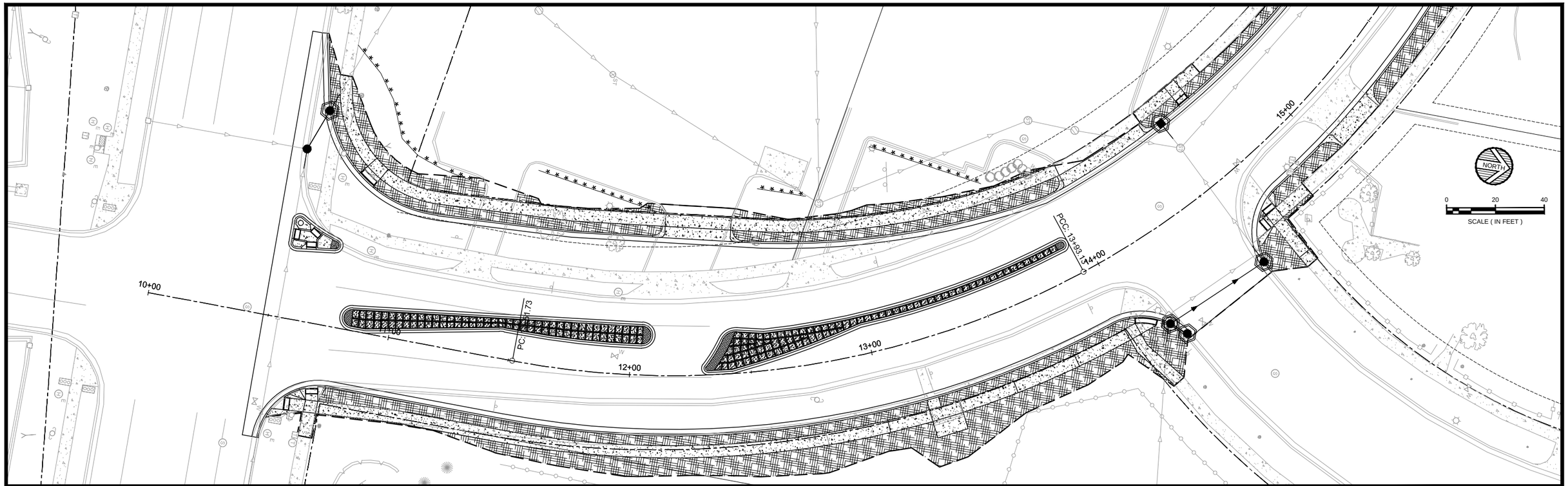

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STORM SEWER

SILT FENCE, TYPE HEAVY DUTY

EROSION CONTROL BLANKETS CATEGORY 3

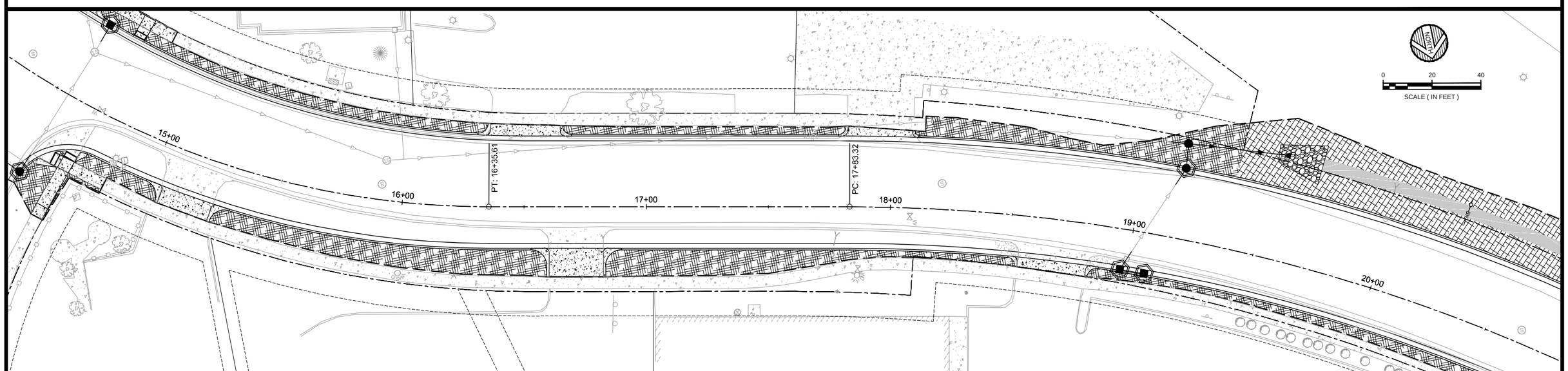
SODDING TYPE MINERAL

EROSION CONTROL BLANKETS CATEGORY 5

RANDOM RIP RAP CLASS III

FILTER LOG TYPE STRAW BIOROLL

CB INLET PROTECTION, MnDOT 5-297.405



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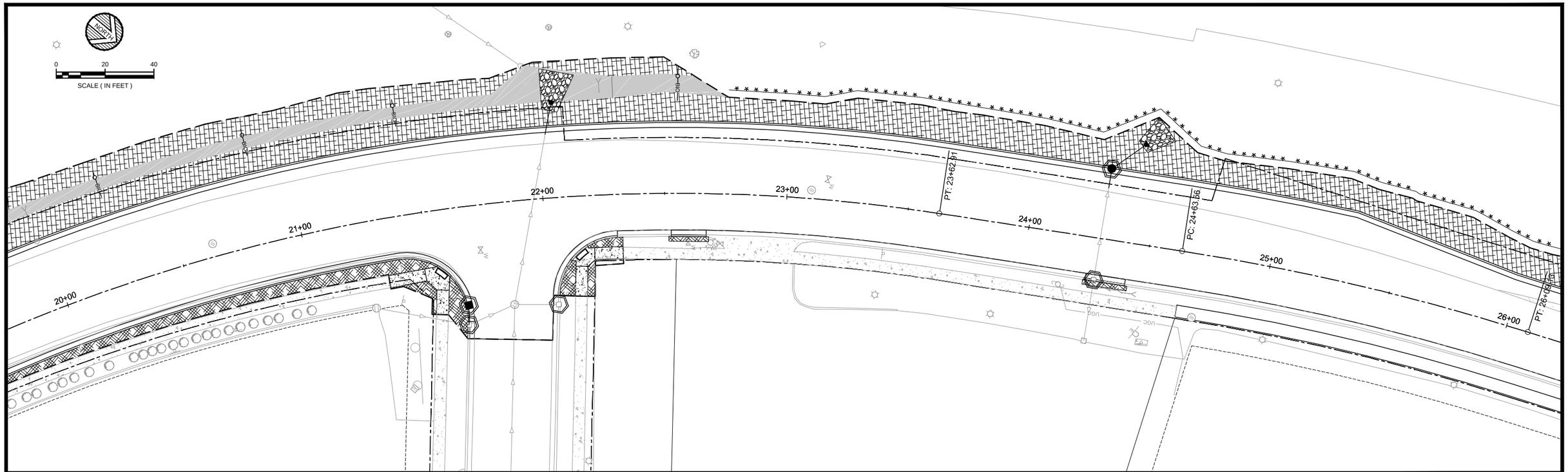

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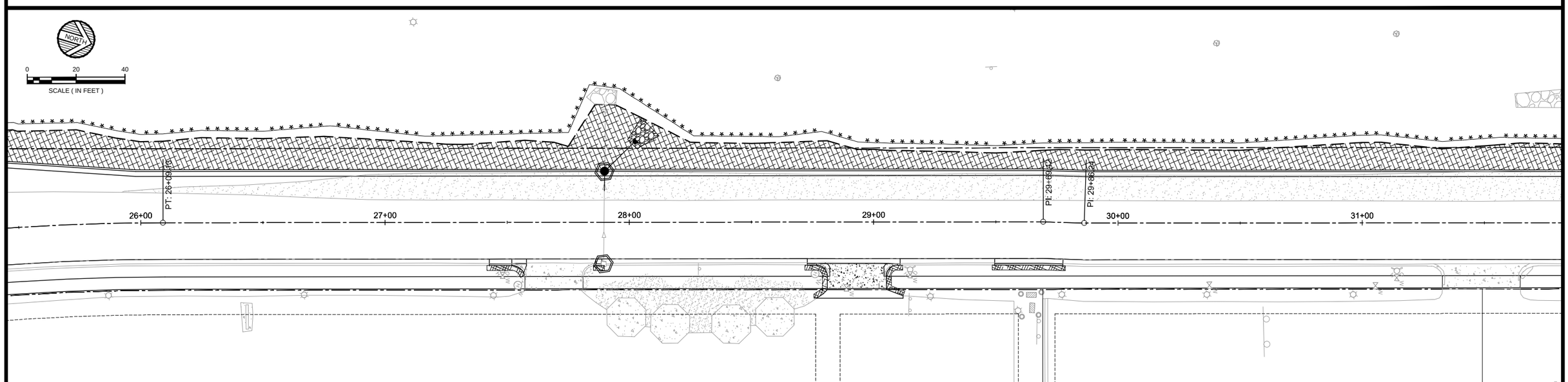

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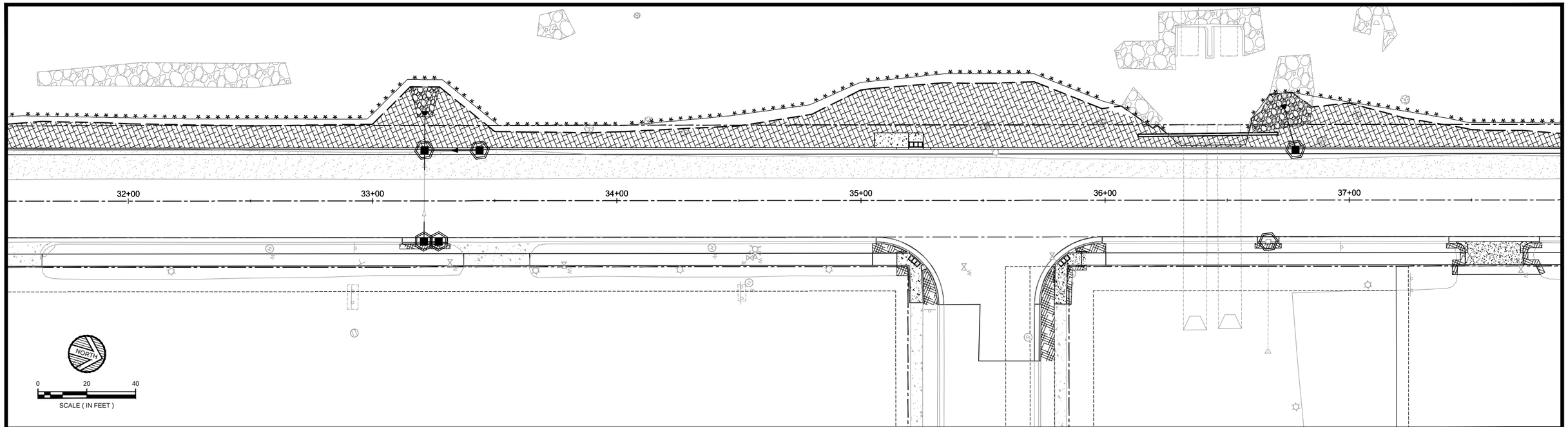

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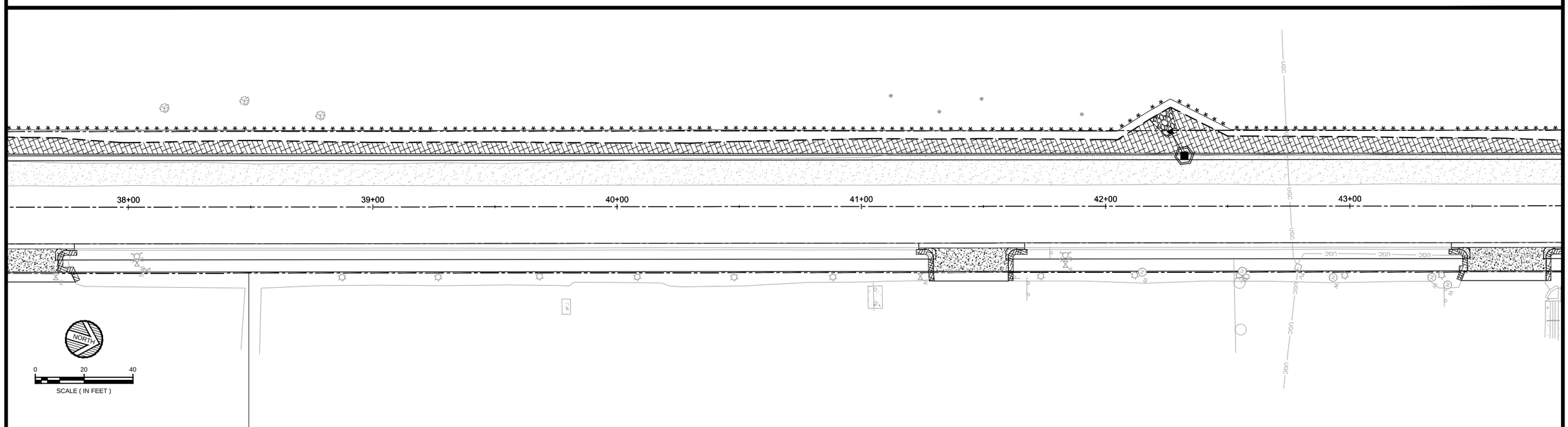

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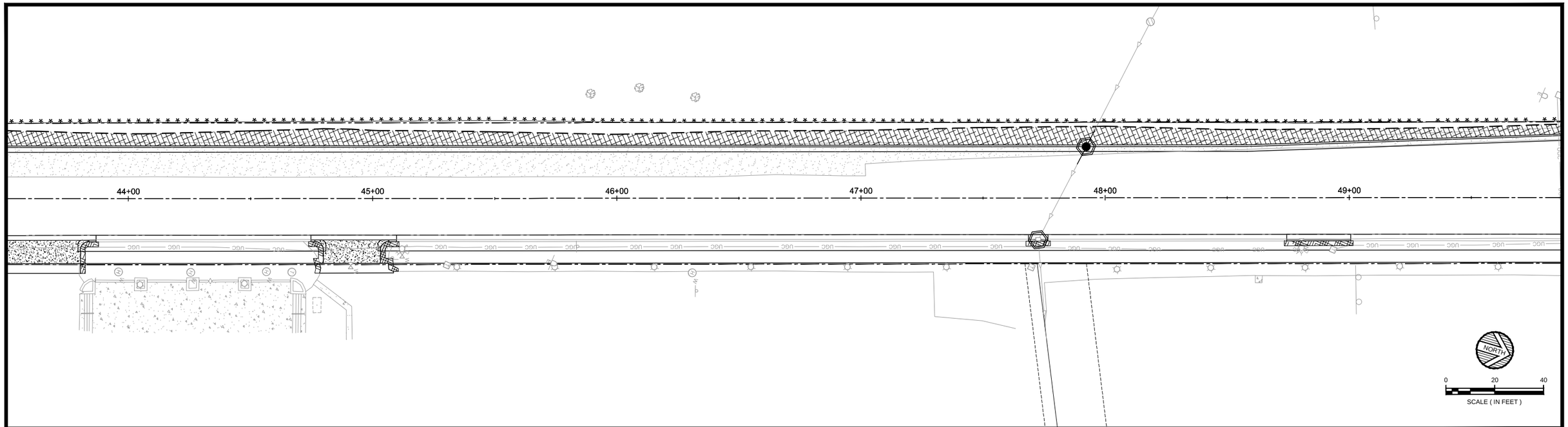

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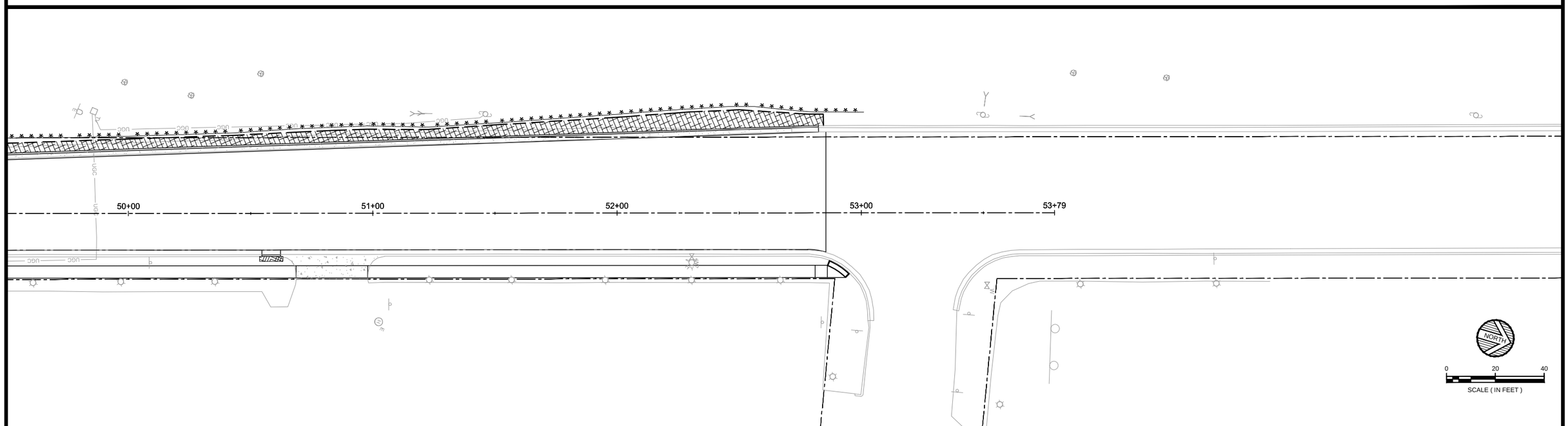

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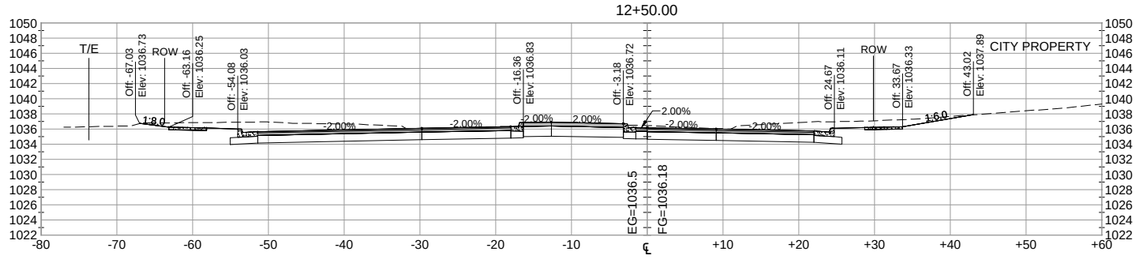

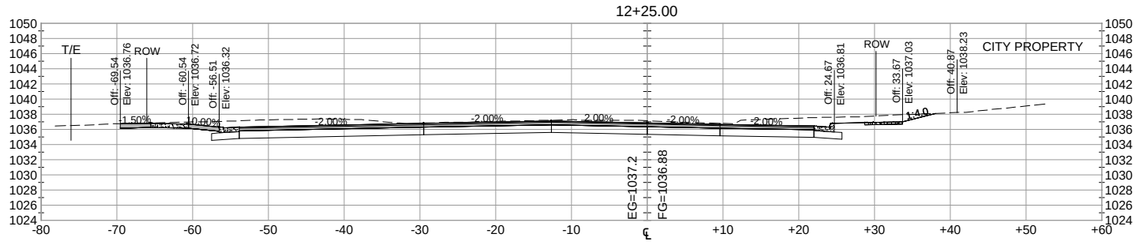

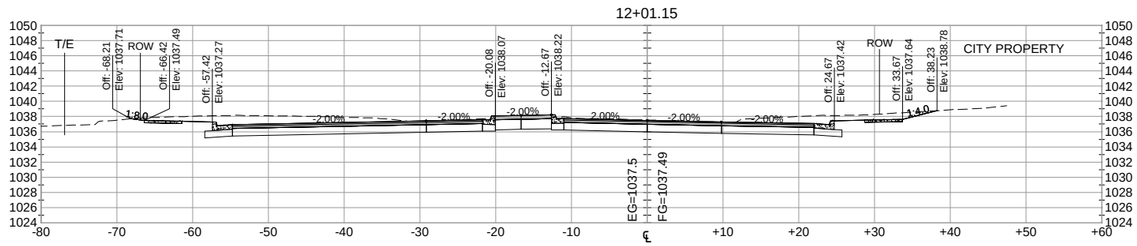

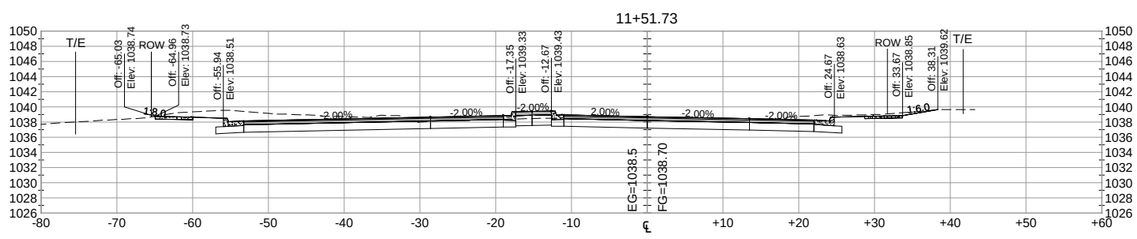

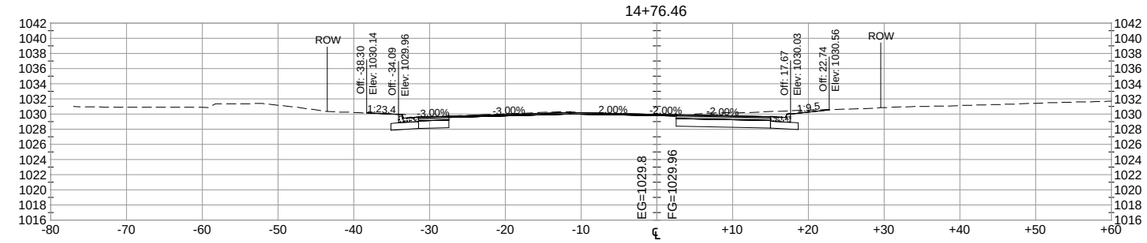

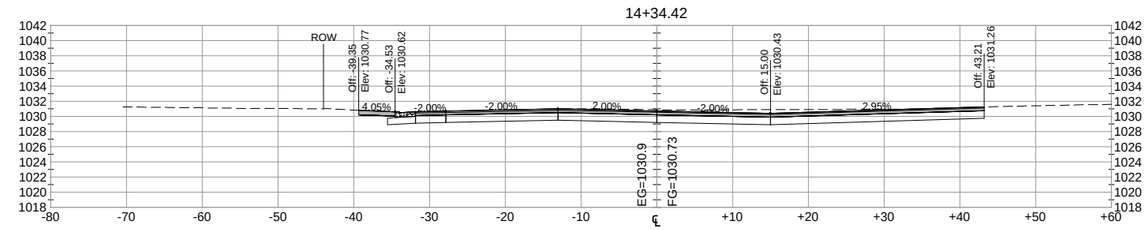

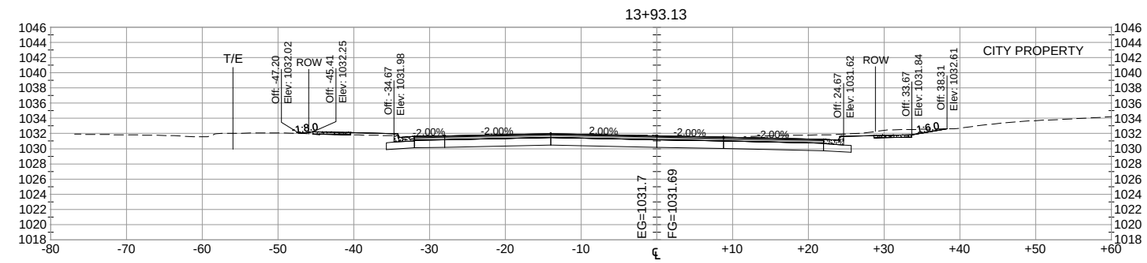

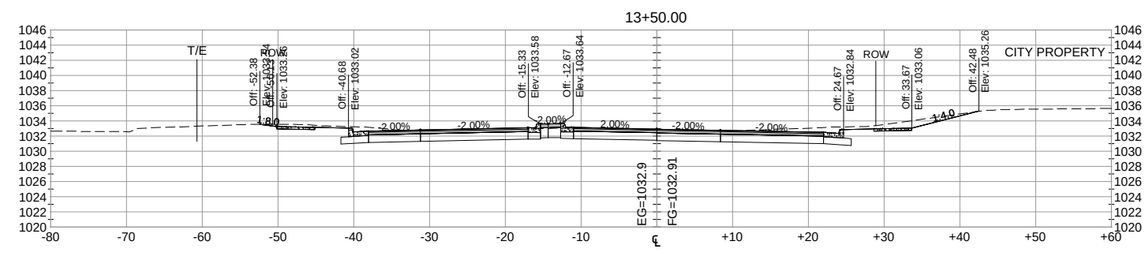

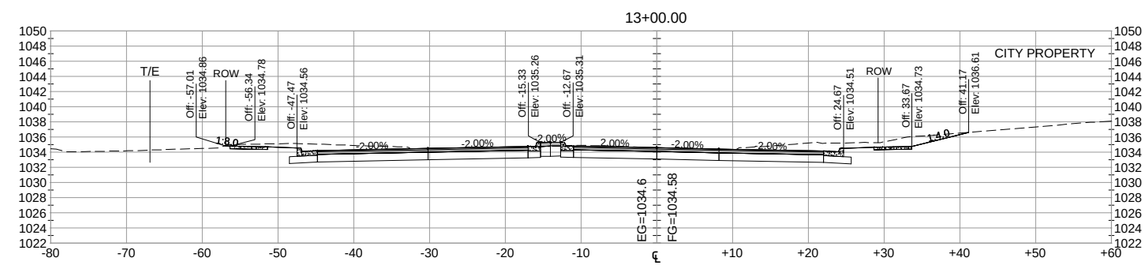

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SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

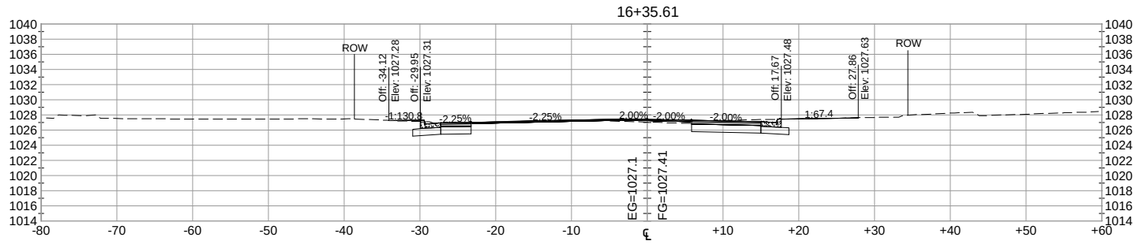
CROSS SECTIONS

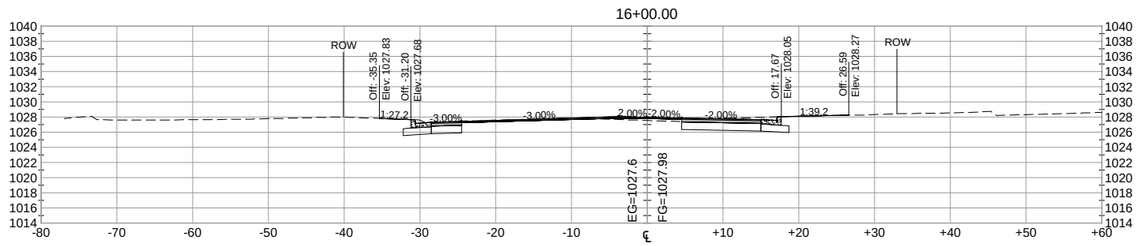
STATION: 11+00 - 14+76.46

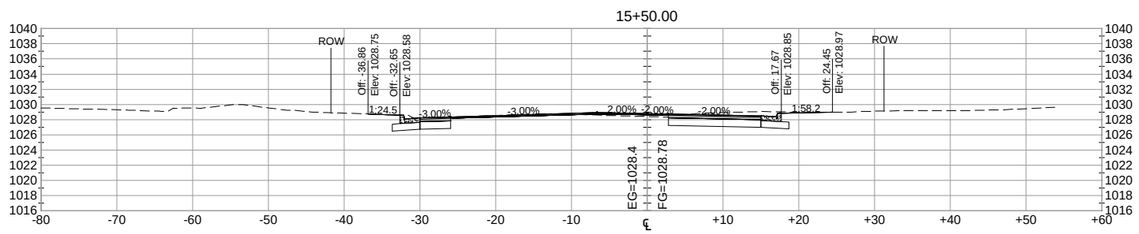
WSN NUMBER: 1012R0001

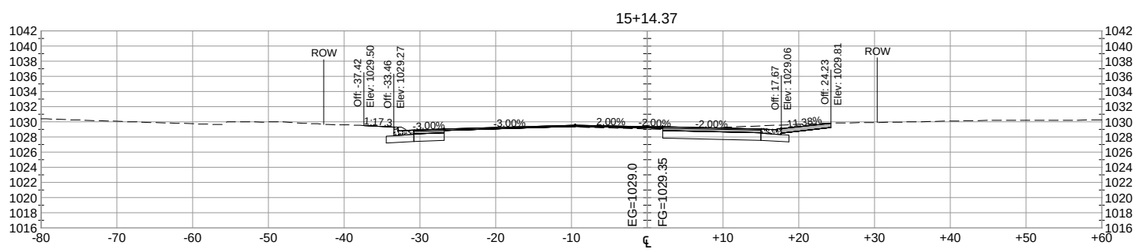
STATE AID PROJECT NO. 159-130-004

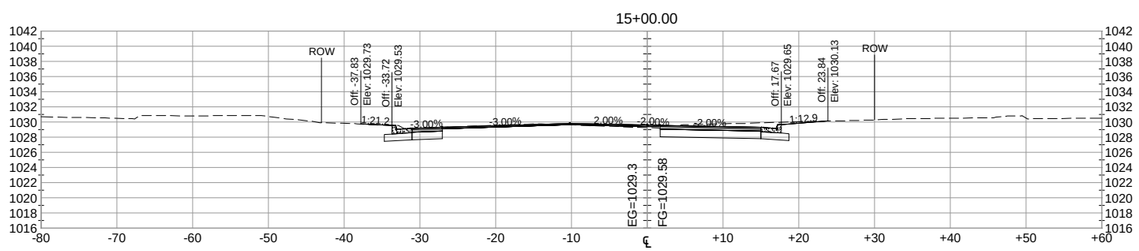
SHEET NO. 76 OF 93 SHEETS

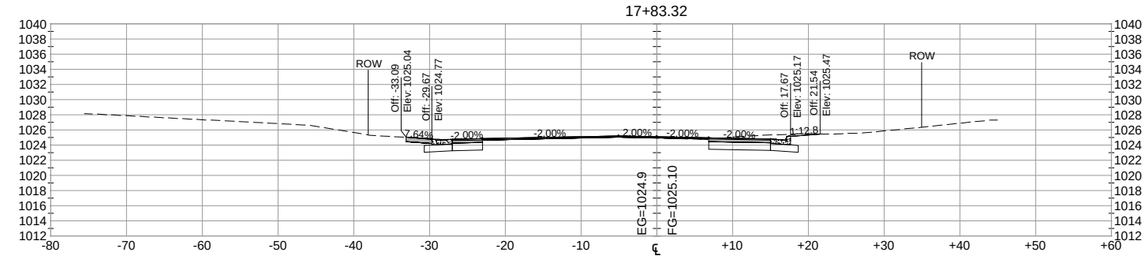


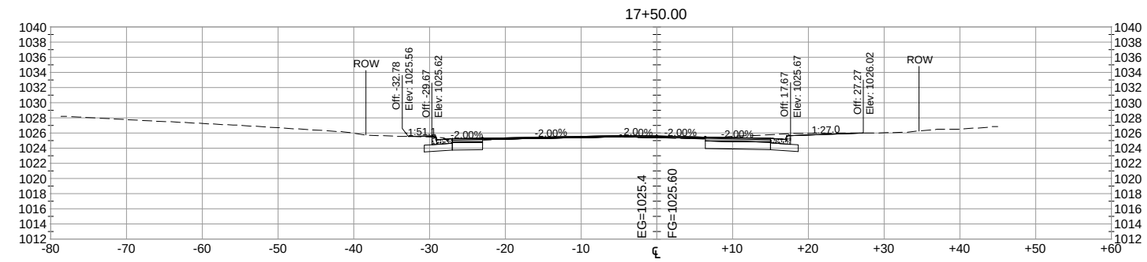


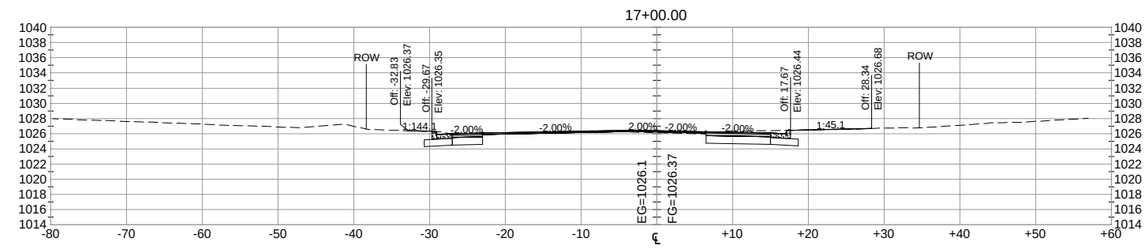


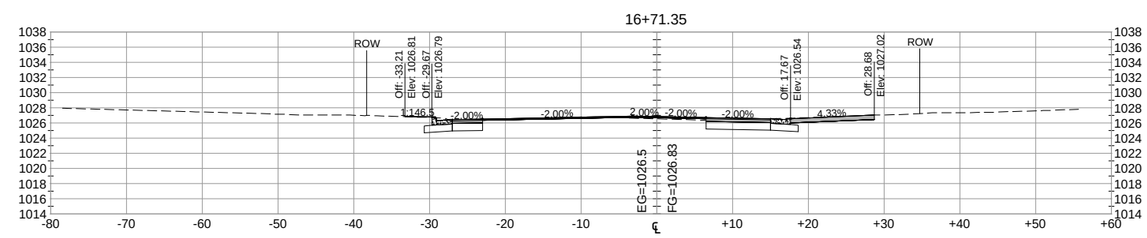


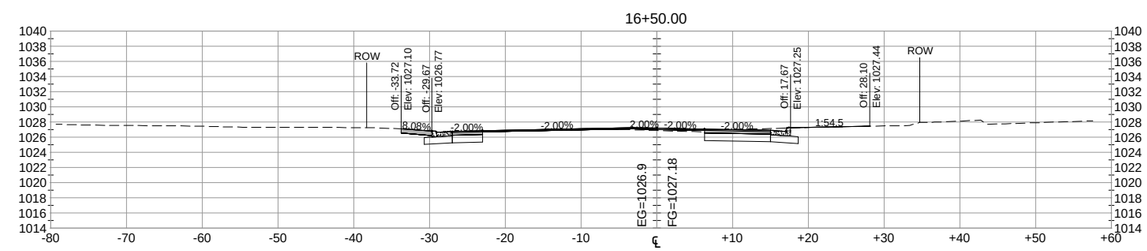












DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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RED WING, MN
ROCHESTER, MN

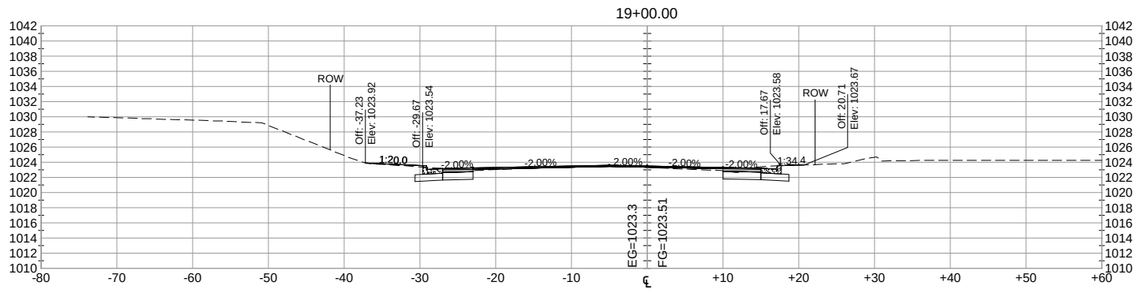
SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

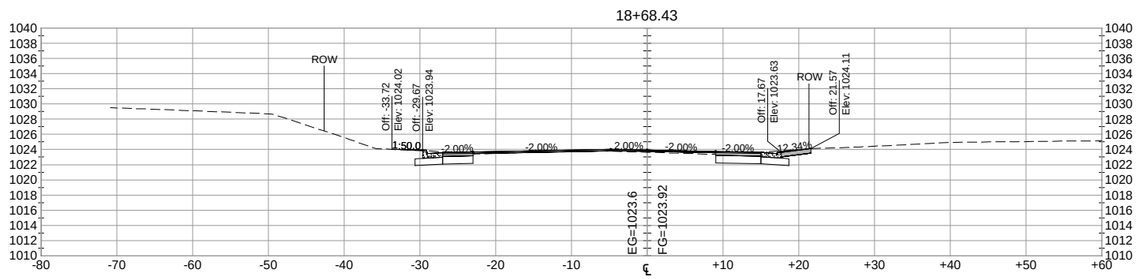
CROSS SECTIONS

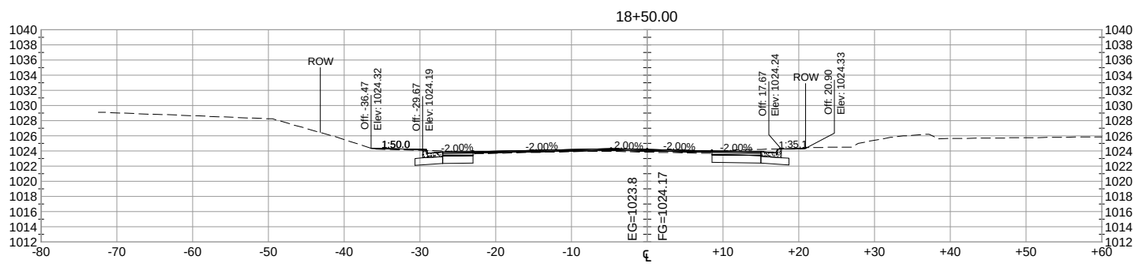
STATION: 15+00 - 17+83.32

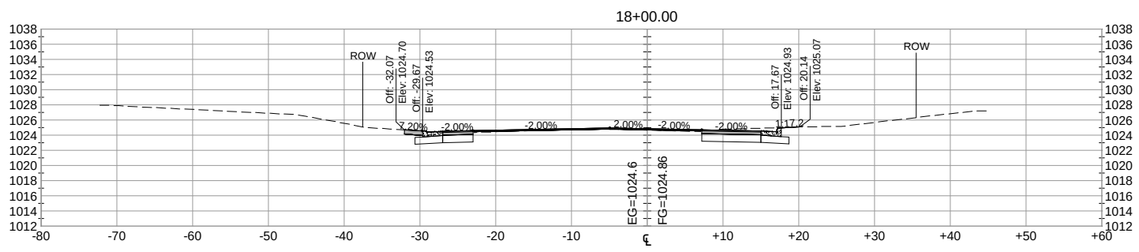
WSN NUMBER: 1012R0001

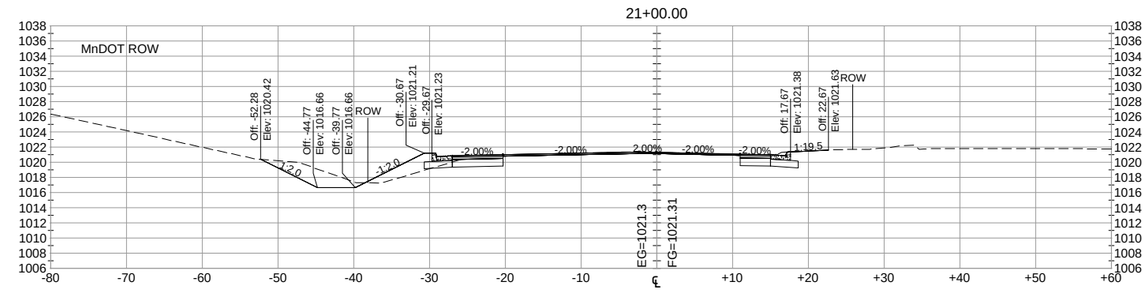
STATE AID PROJECT NO. 159-130-004

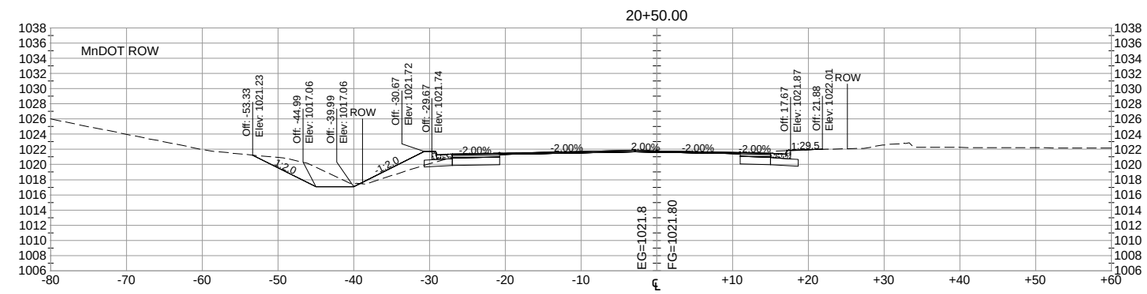


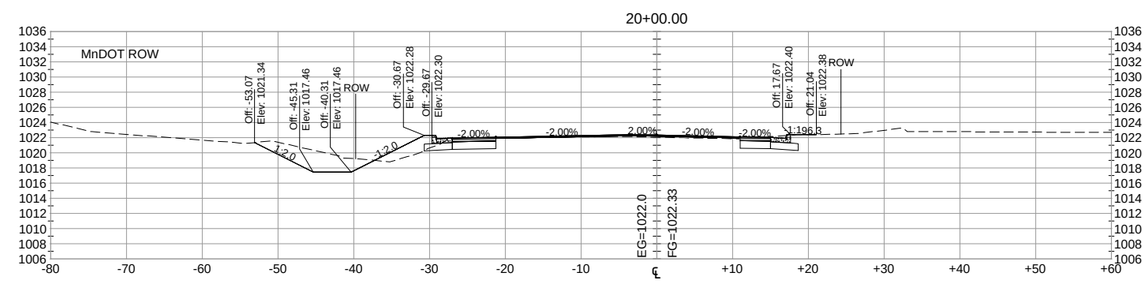


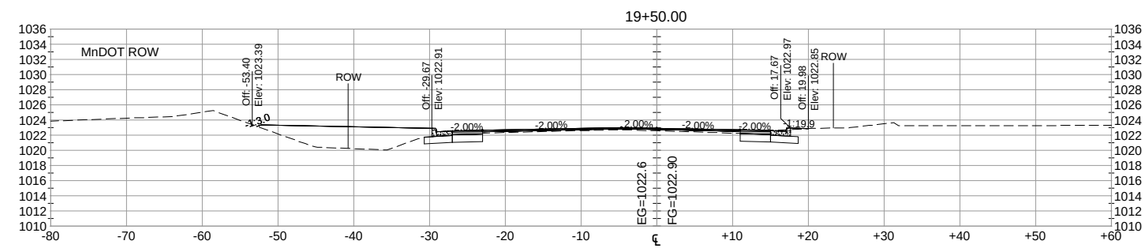












DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

CROSS SECTIONS

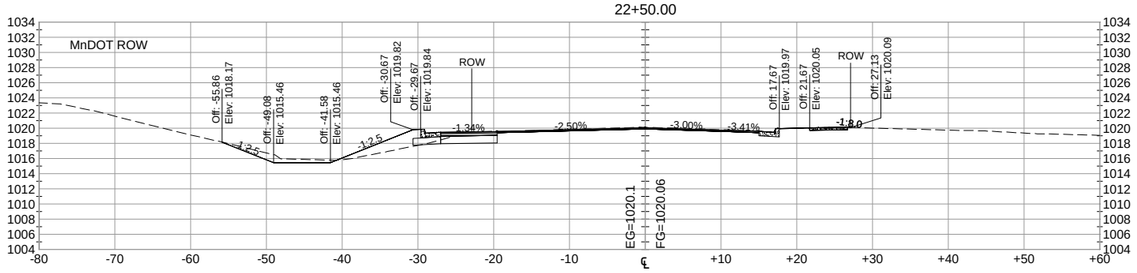
STATION: 18+00 - 21+00

WSN NUMBER: 1012R0001

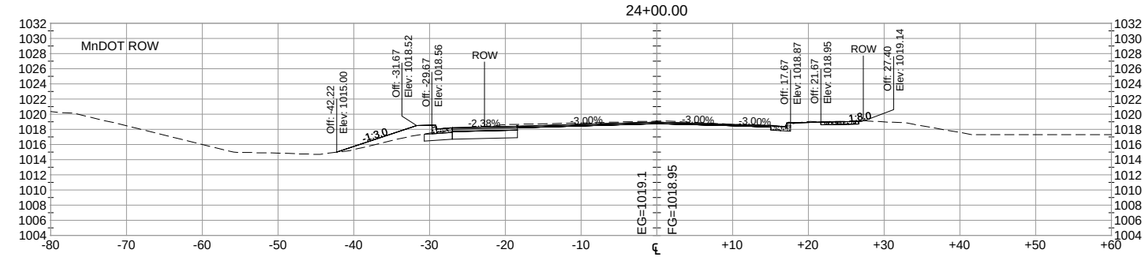
STATE AID PROJECT NO. 159-130-004

NOTE:
CONCRETE WALK SHOWN FROM
STA. 22+30 TO E.O.P. ON THE RT.
IS FOR FUTURE CONSTRUCTION (NIC).

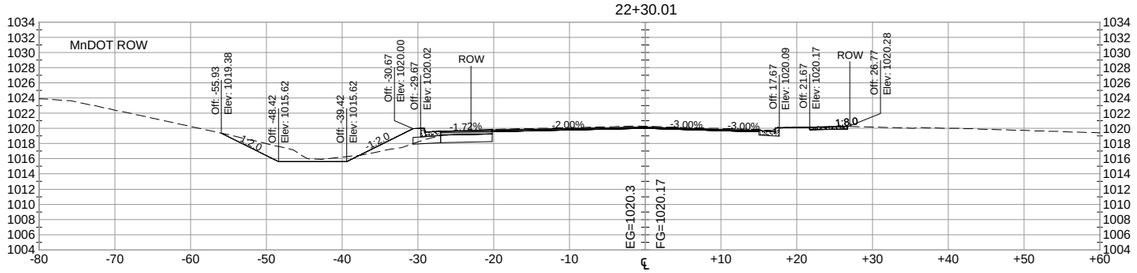
22+50.00



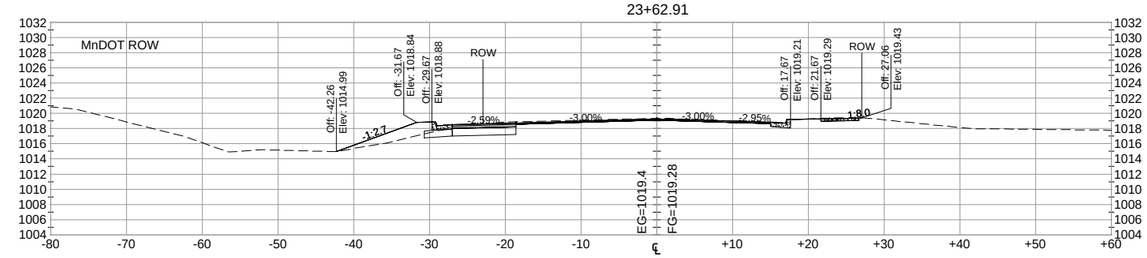
24+00.00



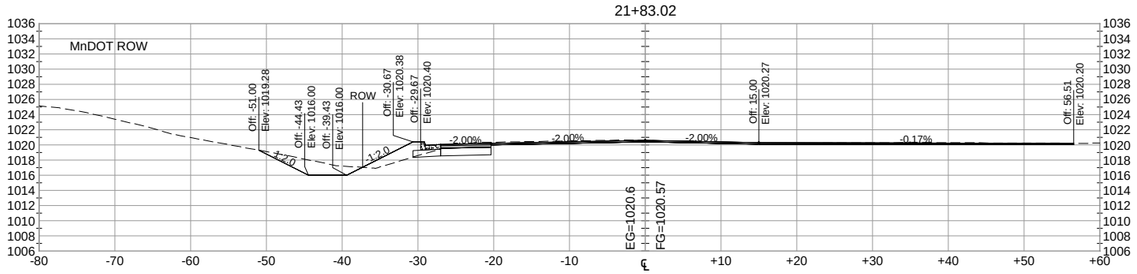
22+30.01



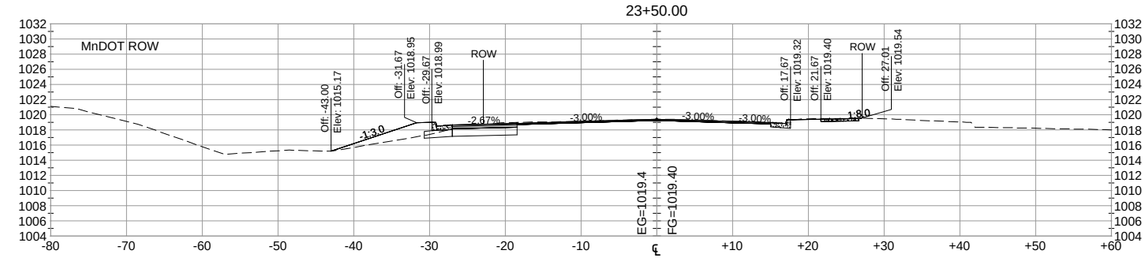
23+62.91



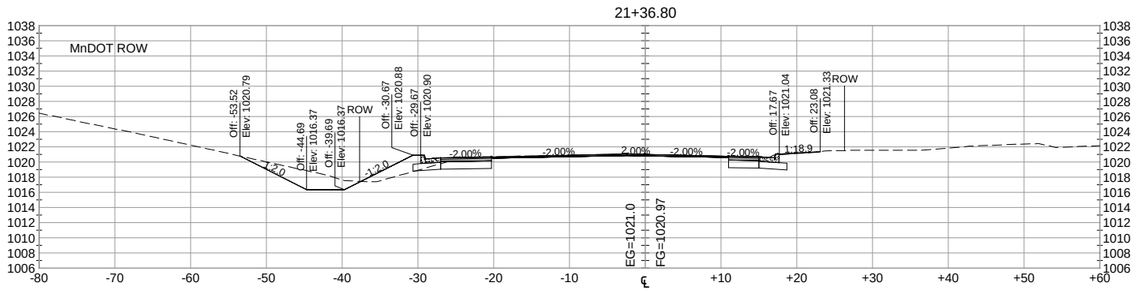
21+83.02



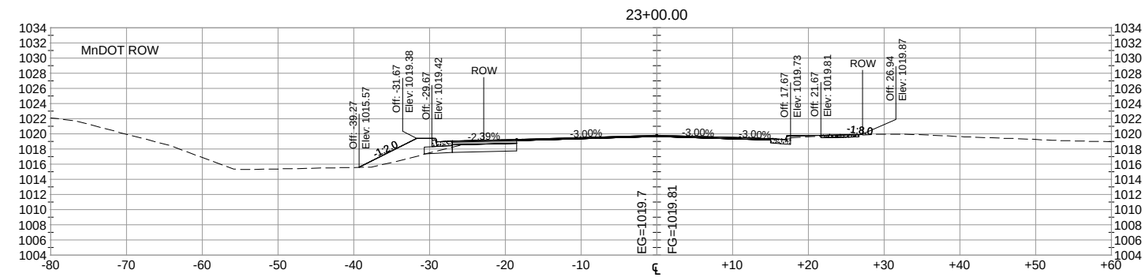
23+50.00



21+36.80



23+00.00



DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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CERTIFIED BY: _____
PROFESSIONAL ENGINEER CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

WSN NUMBER: 1012R0001

CROSS SECTIONS

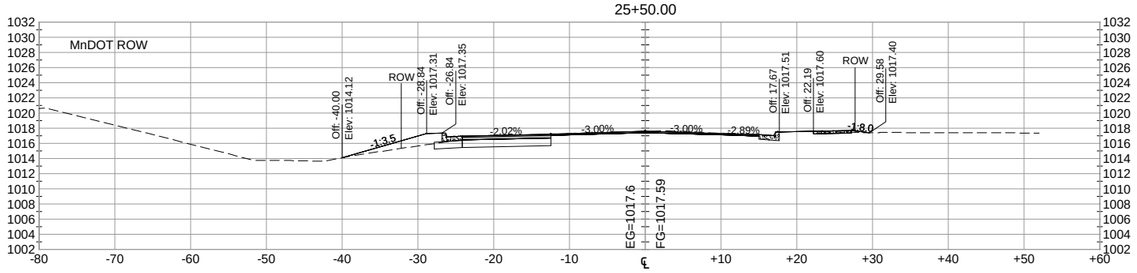
STATION: 21+36.80 - 24+00

STATE AID PROJECT NO. 159-130-004

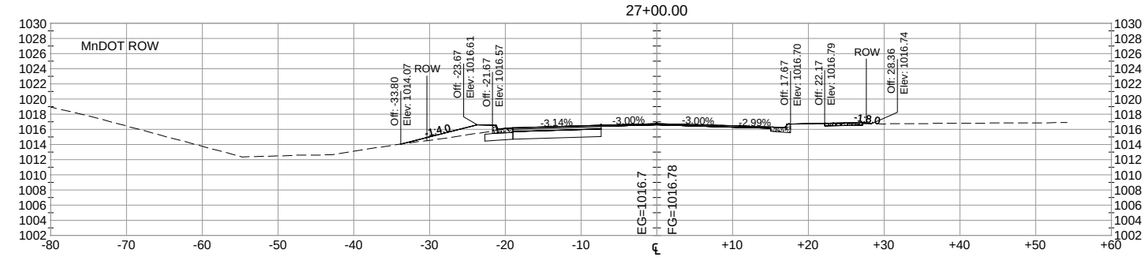
SHEET NO. 79 OF 93 SHEETS

NOTE:
CONCRETE WALK SHOWN FROM
STA. 22+30 TO E.O.P. ON THE RT.
IS FOR FUTURE CONSTRUCTION (NIC).

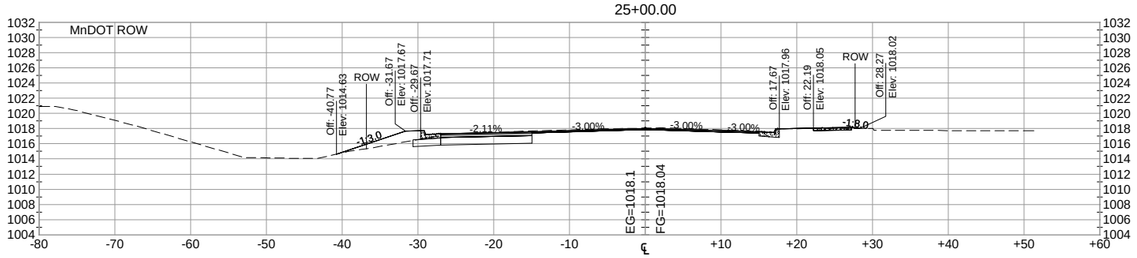
25+50.00



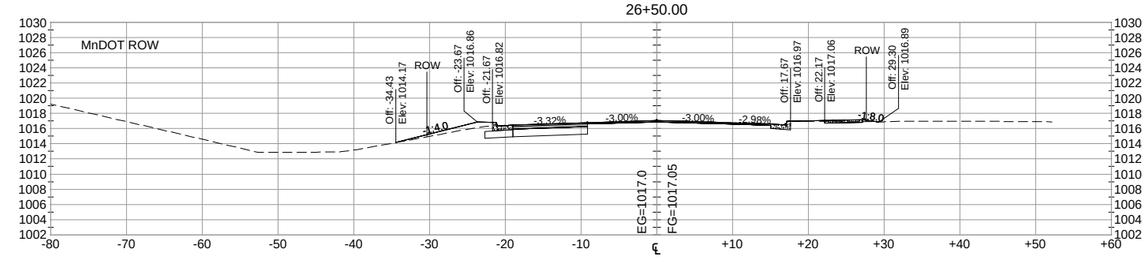
27+00.00



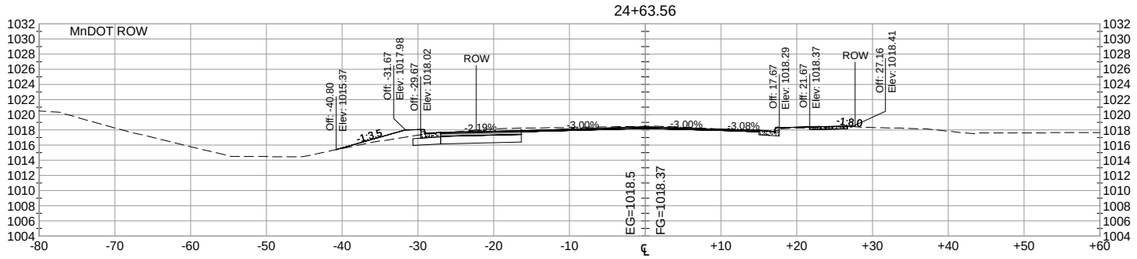
25+00.00



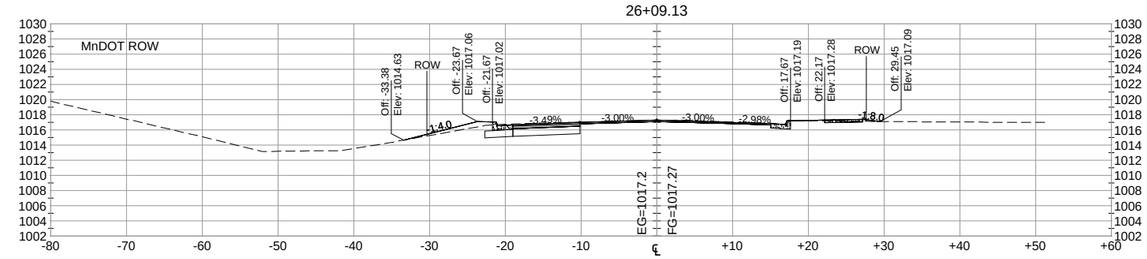
26+50.00



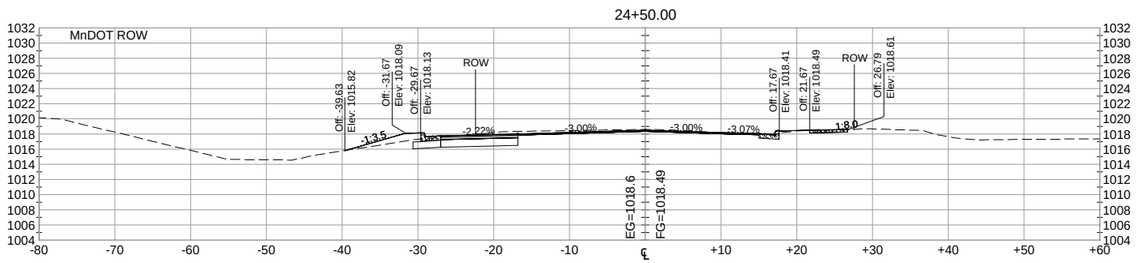
24+63.56



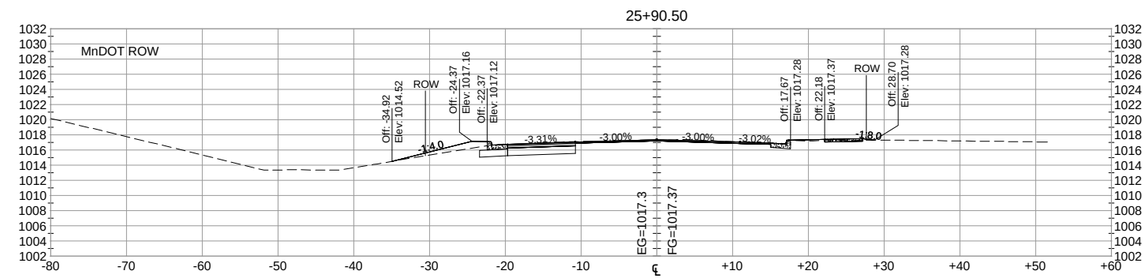
26+09.13



24+50.00



25+90.50



DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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CERTIFIED BY: _____
PROFESSIONAL ENGINEER CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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RED WING, MN
ROCHESTER, MN

SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

WSN NUMBER: 1012R0001

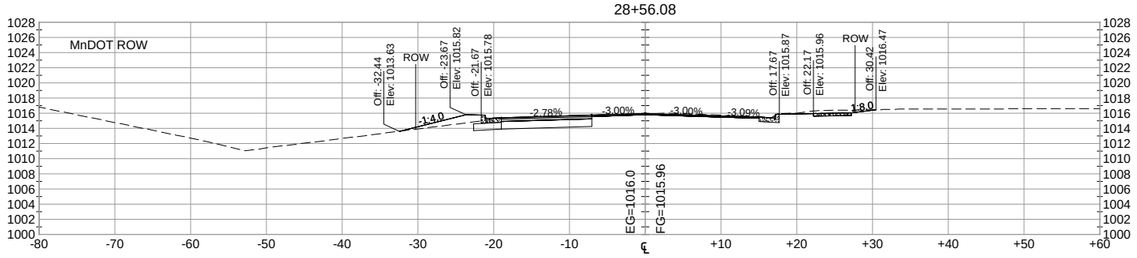
CROSS SECTIONS

STATION: 24+50 - 27+00

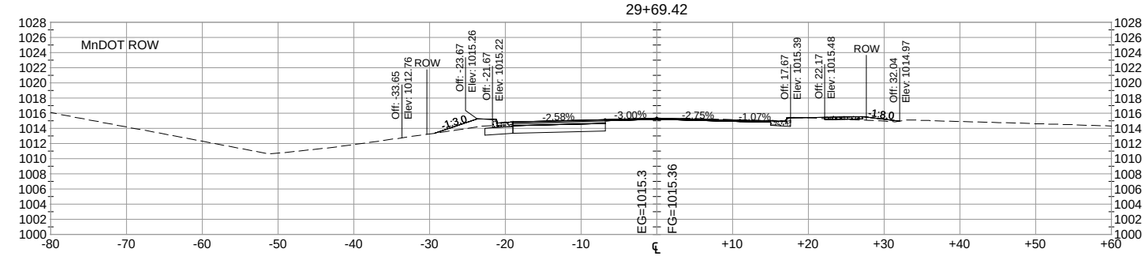
STATE AID PROJECT NO. 159-130-004

NOTE:
CONCRETE WALK SHOWN FROM
STA. 22+30 TO E.O.P. ON THE RT.
IS FOR FUTURE CONSTRUCTION (NIC).

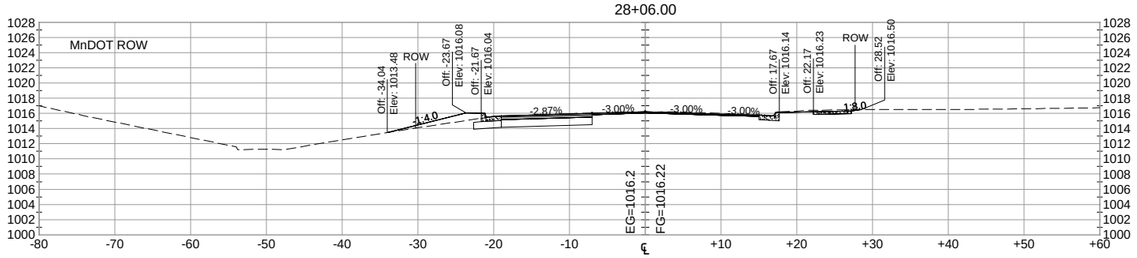
28+56.08



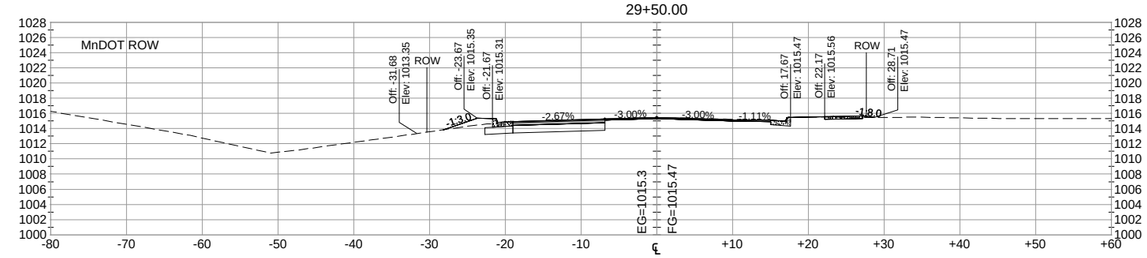
29+69.42



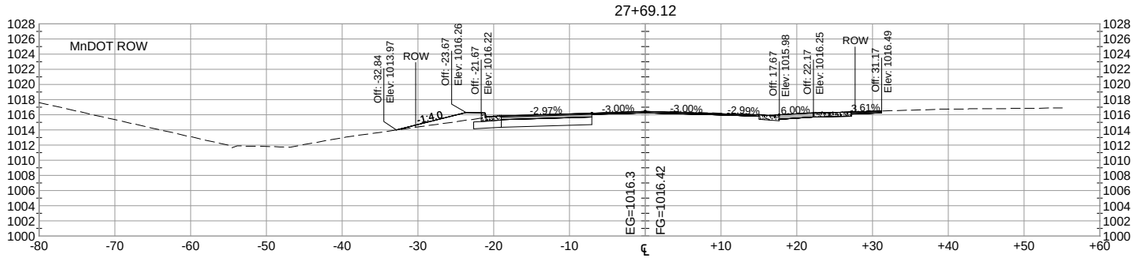
28+06.00



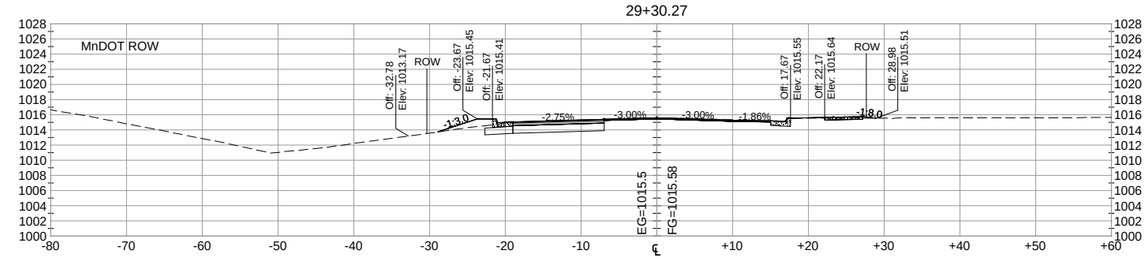
29+50.00



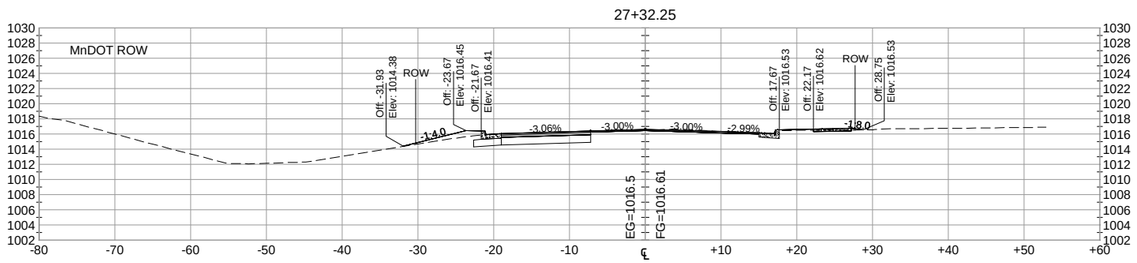
27+69.12



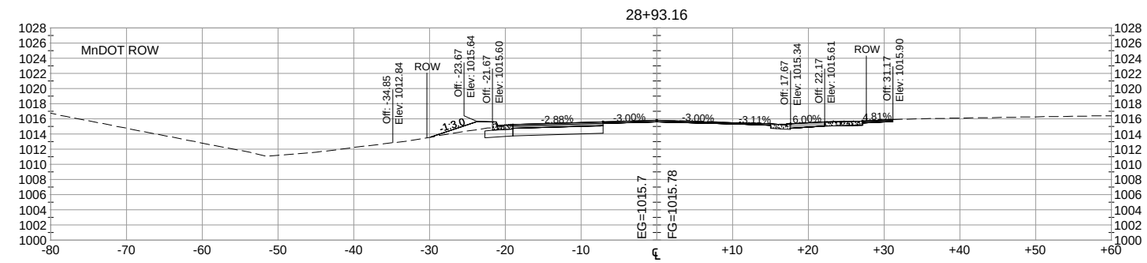
29+30.27



27+32.25



28+93.16



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DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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LICENSE NO. 44228 DATE: 05/09 2013

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ROCHESTER, MN

SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

WSN NUMBER: 1012R0001

CROSS SECTIONS

STATION: 27+32.25 - 29+69.42

STATE AID PROJECT NO. 159-130-004

NOTE:
CONCRETE WALK SHOWN FROM
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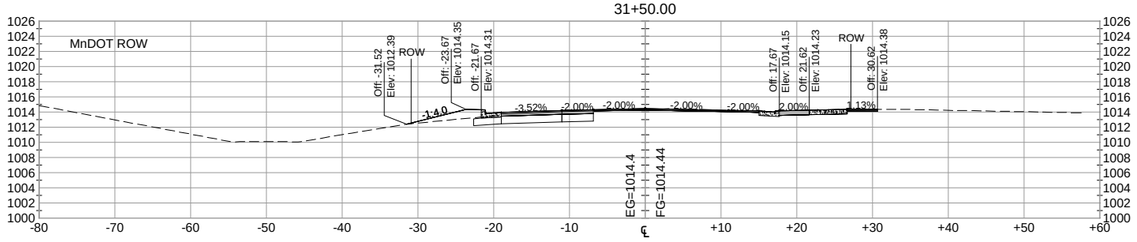
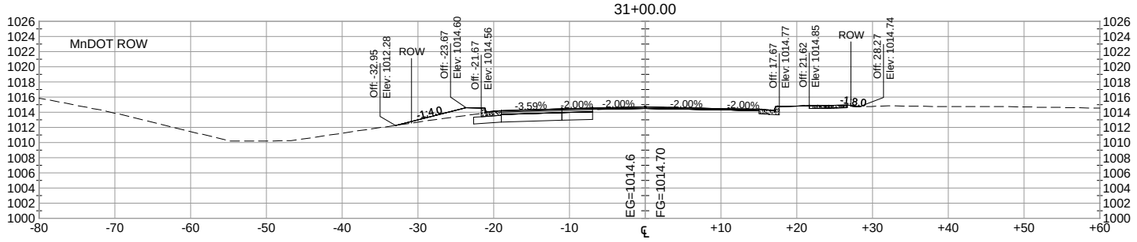
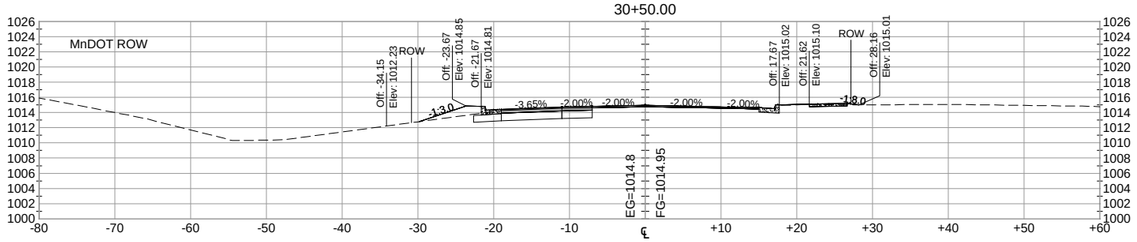
31+50.00



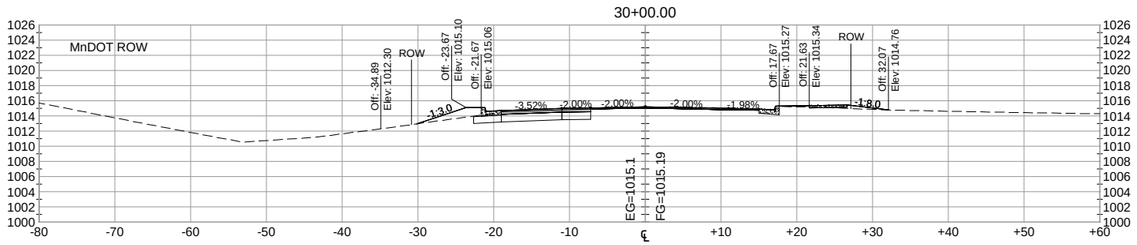
31+00.00



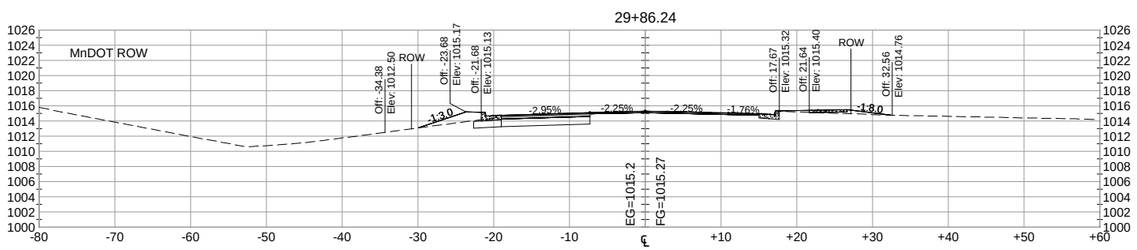
30+50.00



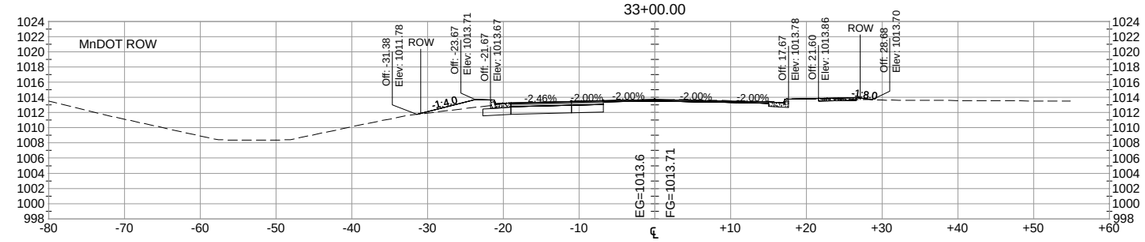
30+00.00



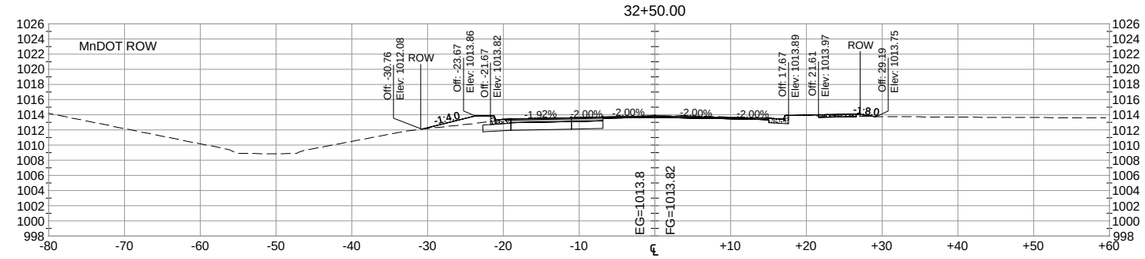
29+86.24



33+00.00



32+50.00



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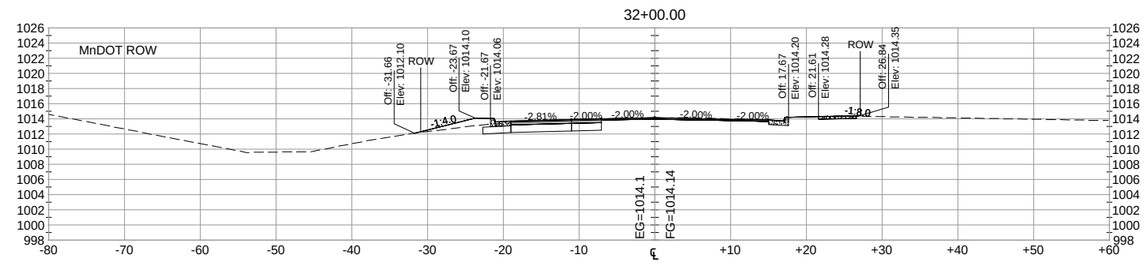

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____
PROFESSIONAL ENGINEER CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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CROOKSTON, MN
GRAND FORKS, ND
RED WING, MN
ROCHESTER, MN

SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

CROSS SECTIONS

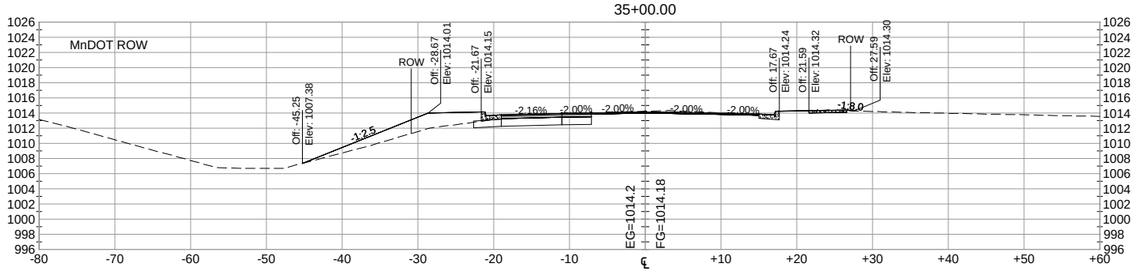
STATION: 29+86.24 - 33+00

WSN NUMBER: 1012R0001

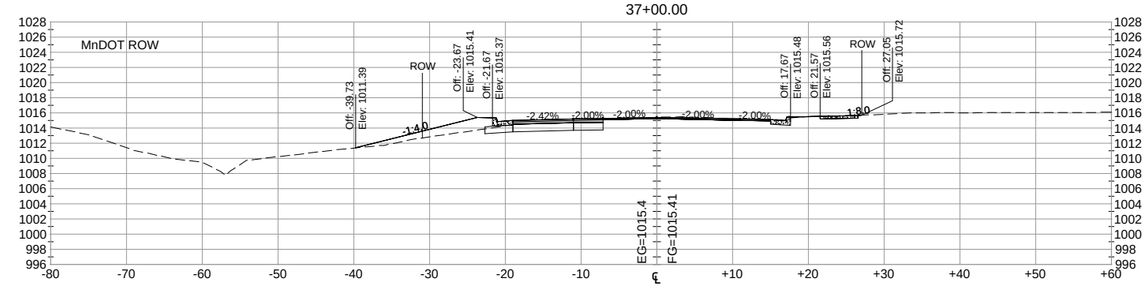
STATE AID PROJECT NO. 159-130-004

NOTE:
CONCRETE WALK SHOWN FROM
STA. 22+30 TO E.O.P. ON THE RT.
IS FOR FUTURE CONSTRUCTION (NIC).

35+00.00



37+00.00



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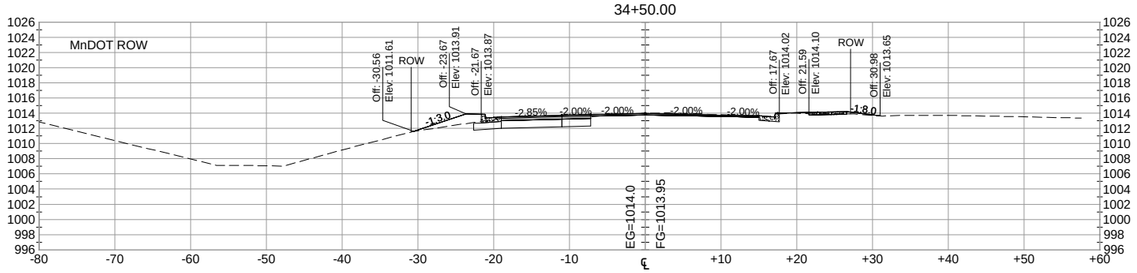

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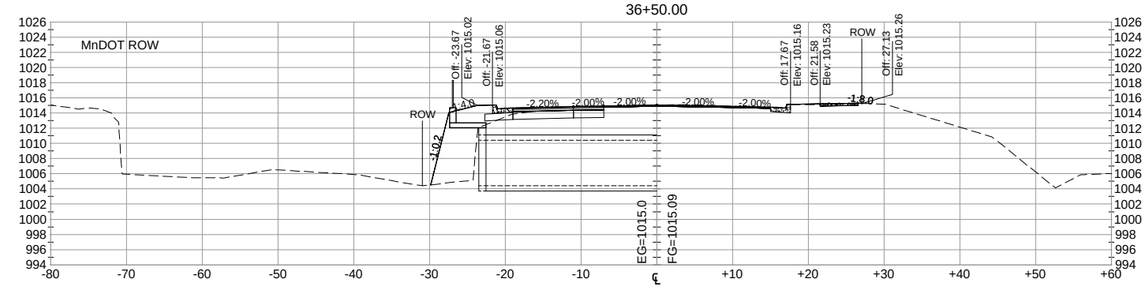

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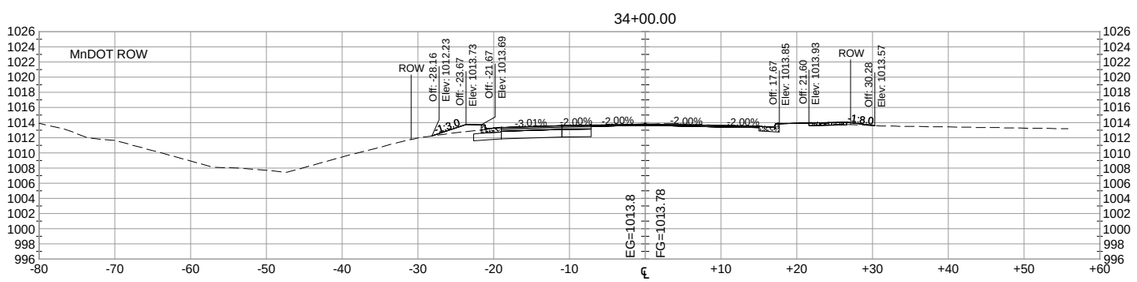

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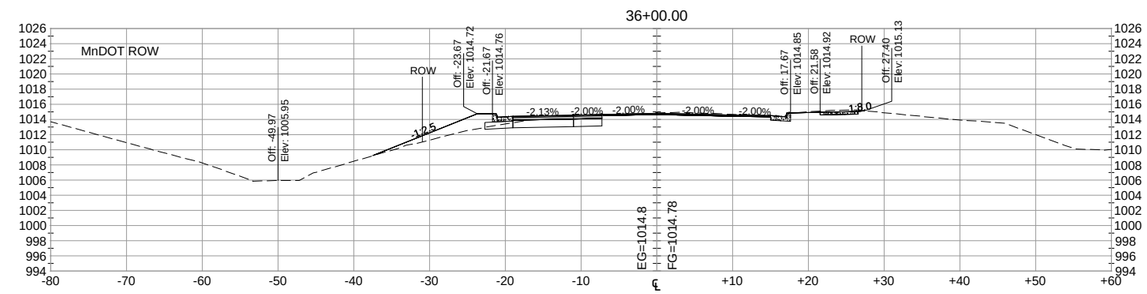

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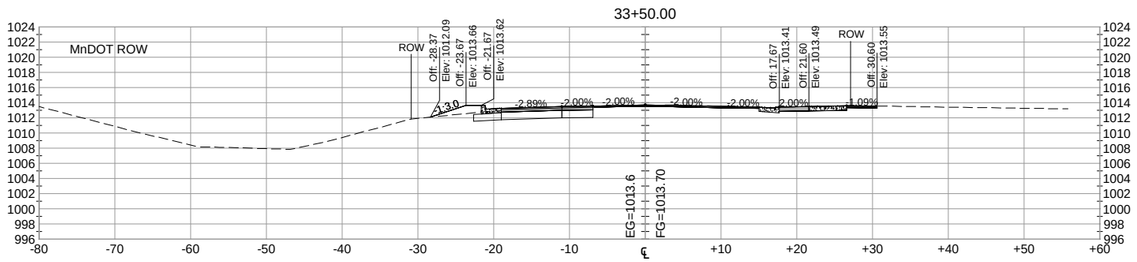

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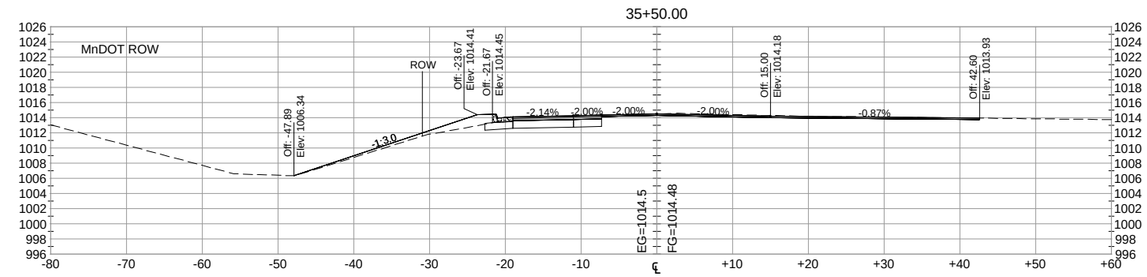

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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LICENSE NO. 44228 DATE: 05/09 2013

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ROCHESTER, MN

SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

CROSS SECTIONS

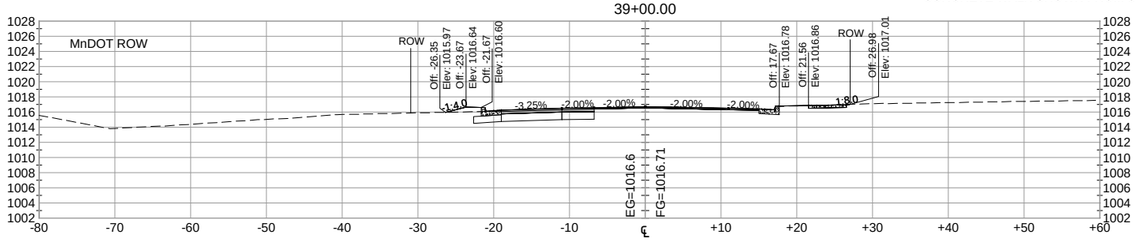
STATION: 33+50 - 37+00

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

NOTE:
CONCRETE WALK SHOWN FROM STA. 22+30 TO E.O.P. ON THE RT. IS FOR FUTURE CONSTRUCTION (NIC).

39+00.00



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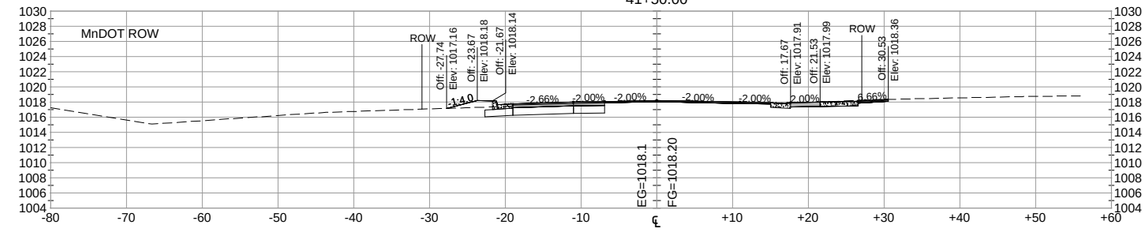

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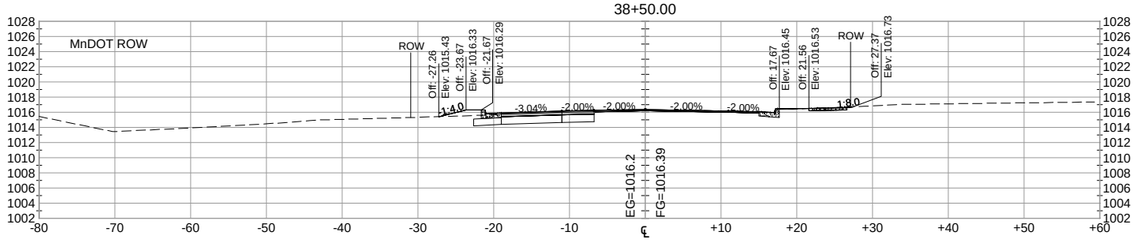

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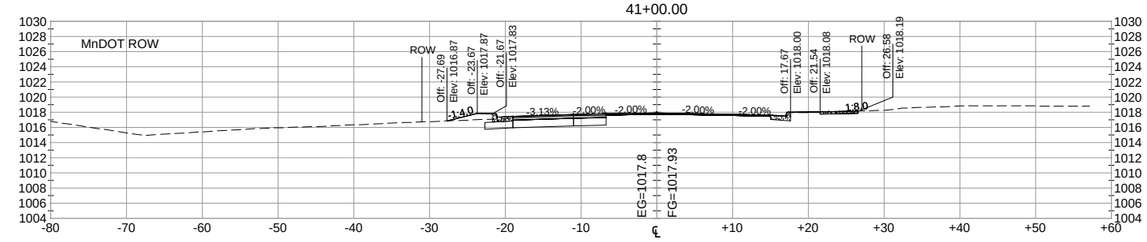

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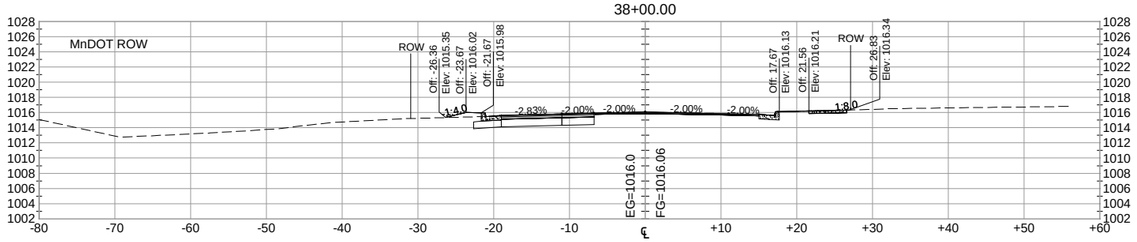

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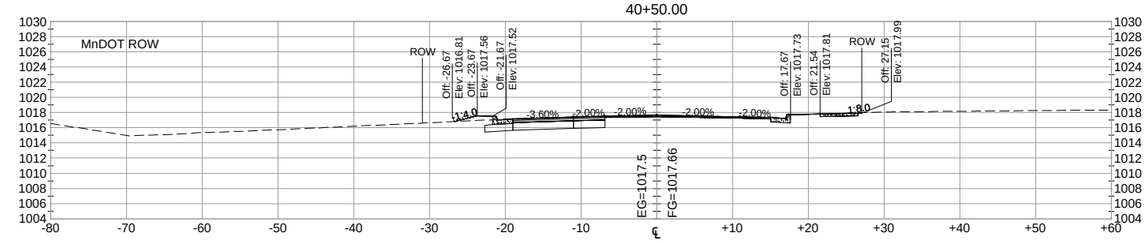

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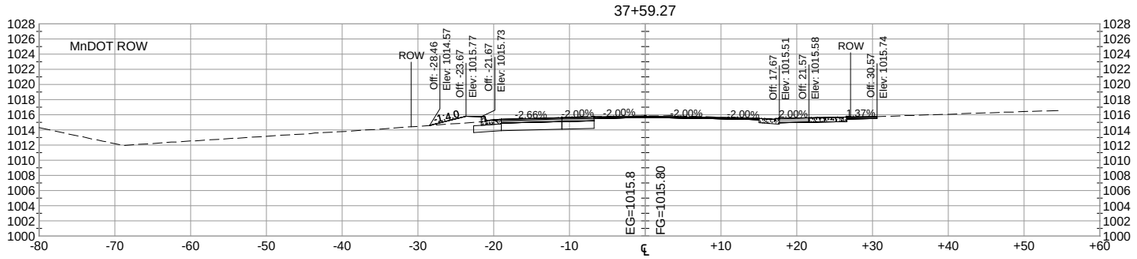

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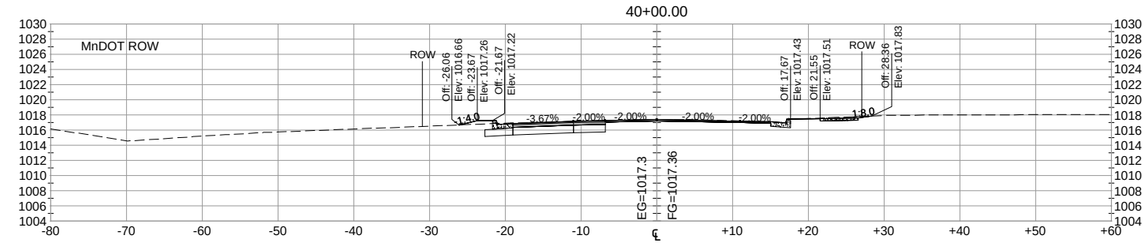

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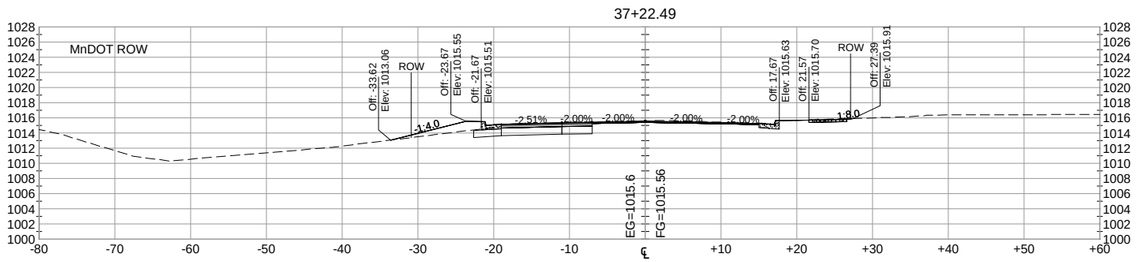

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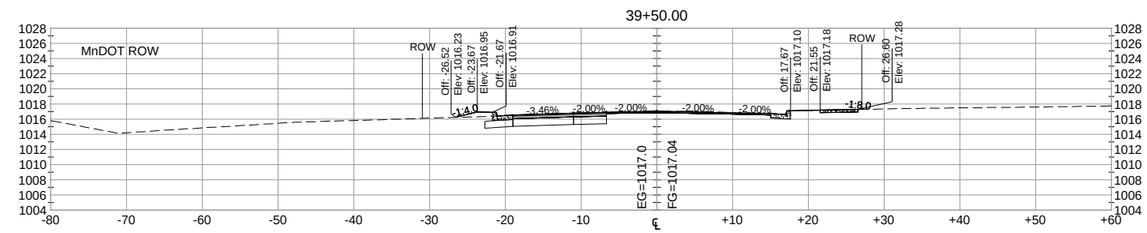

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DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

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RED WING, MN
ROCHESTER, MN

SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

CROSS SECTIONS

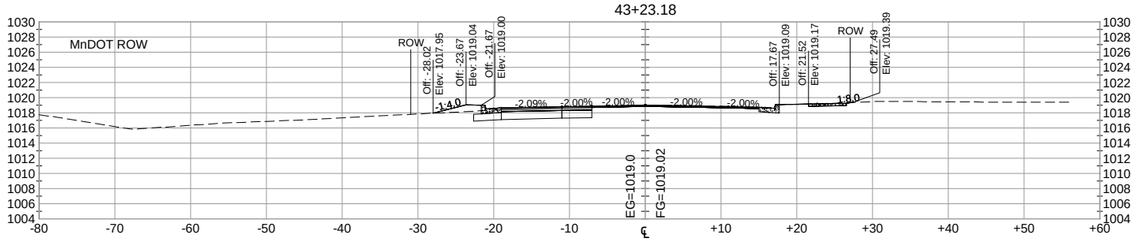
STATION: 37+22.49 - 41+50

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

NOTE:
CONCRETE WALK SHOWN FROM
STA. 22+30 TO E.O.P. ON THE RT.
IS FOR FUTURE CONSTRUCTION (NIC).

43+23.18



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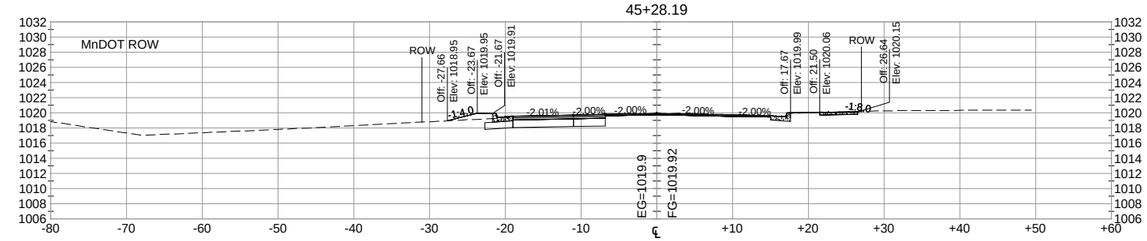

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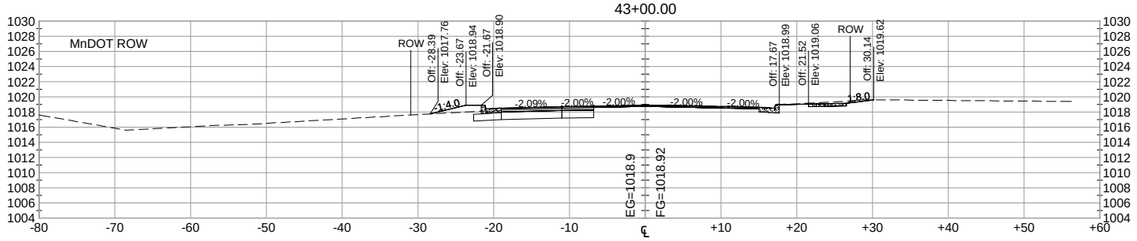

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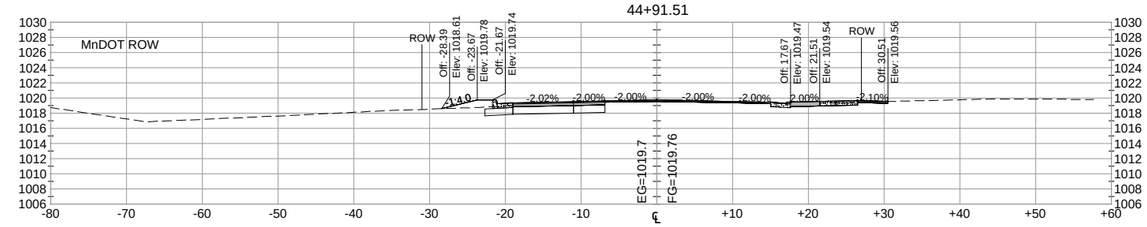

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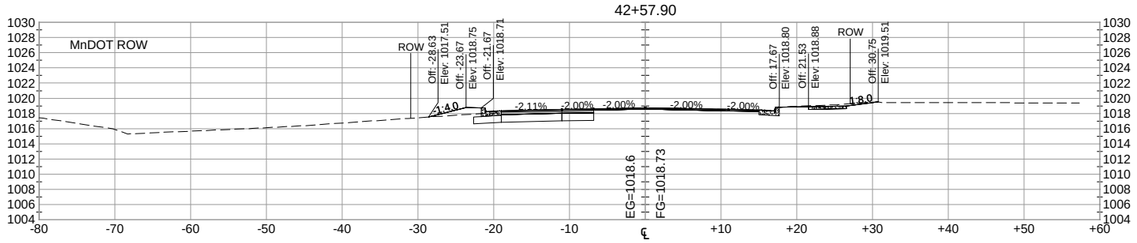

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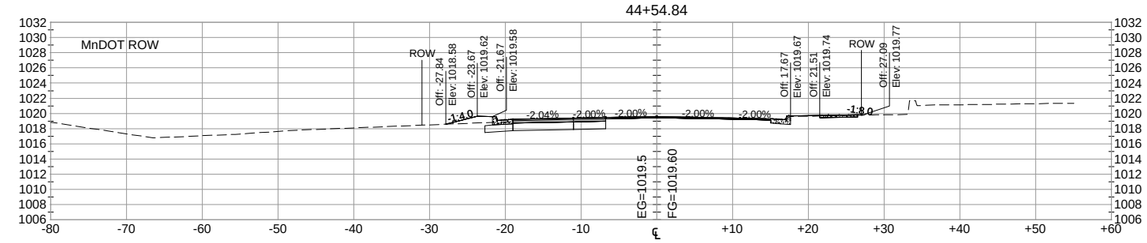

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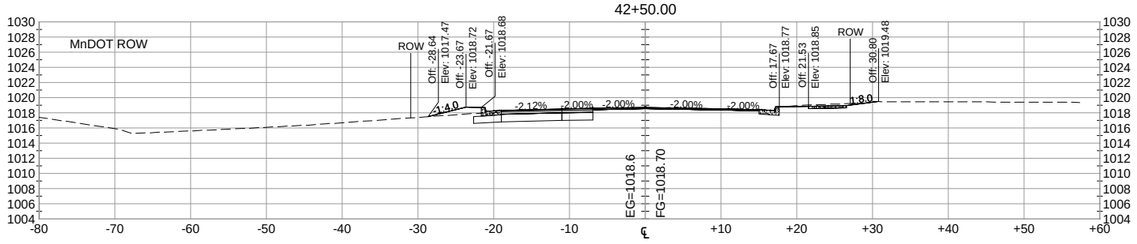
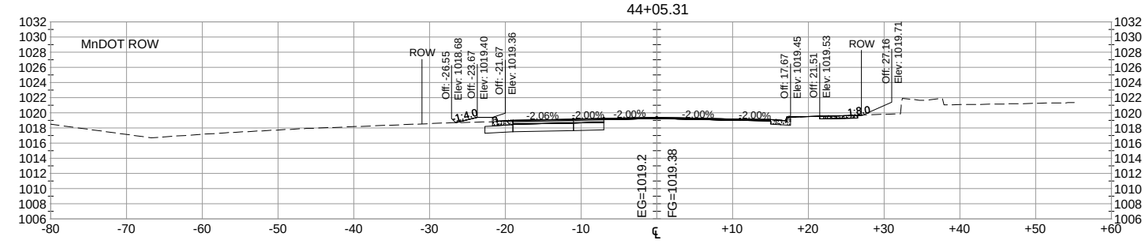


44+05.31



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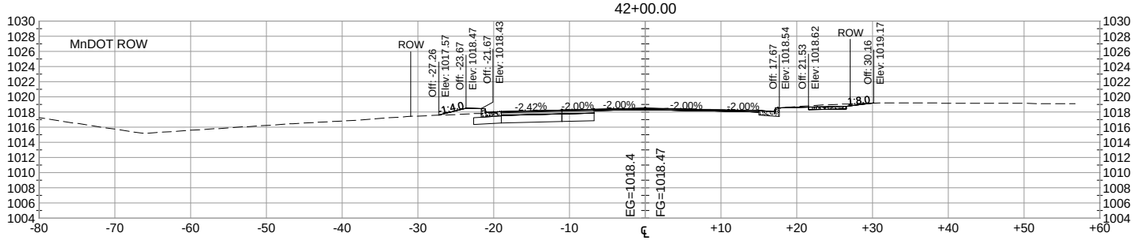

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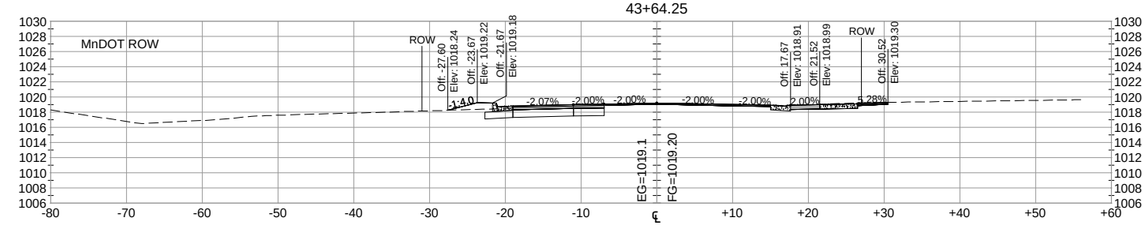

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
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SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

CROSS SECTIONS

STATION: 42+00 - 45+28.19

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

NOTE:
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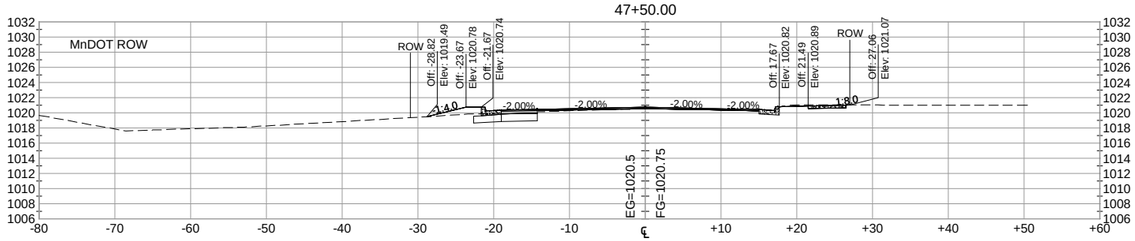
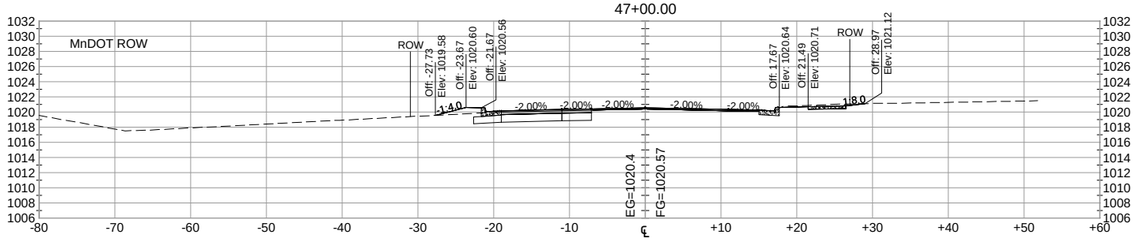
47+50.00



47+00.00



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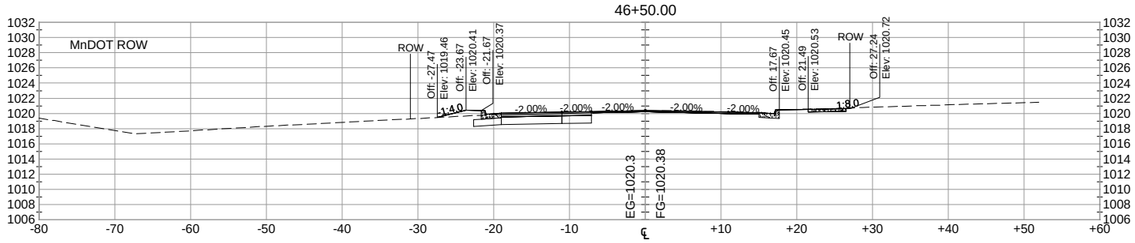

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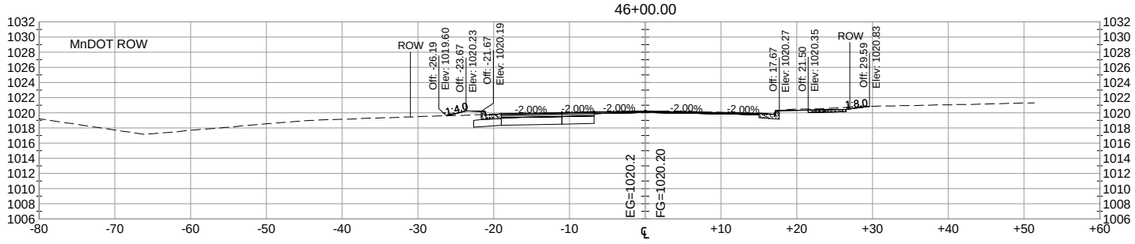

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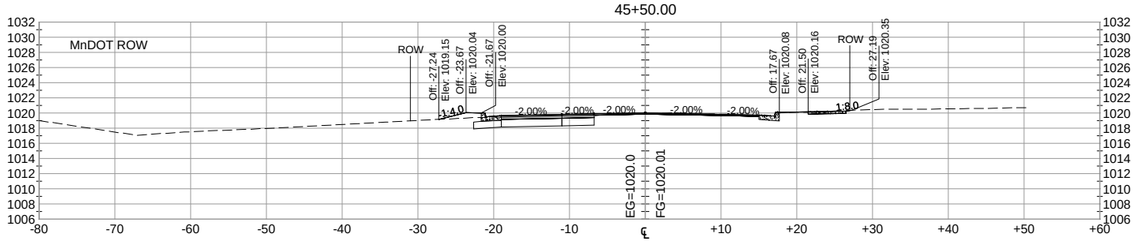

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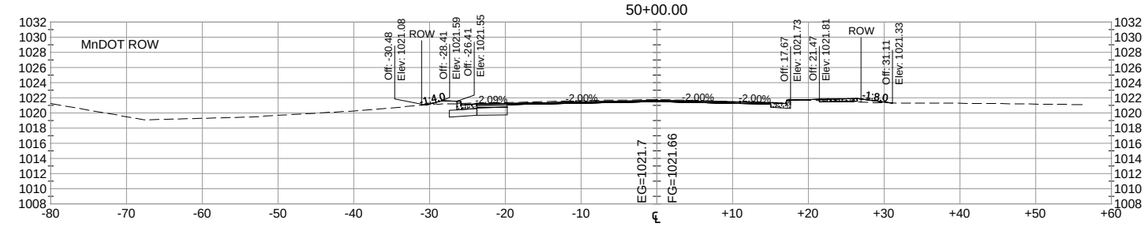

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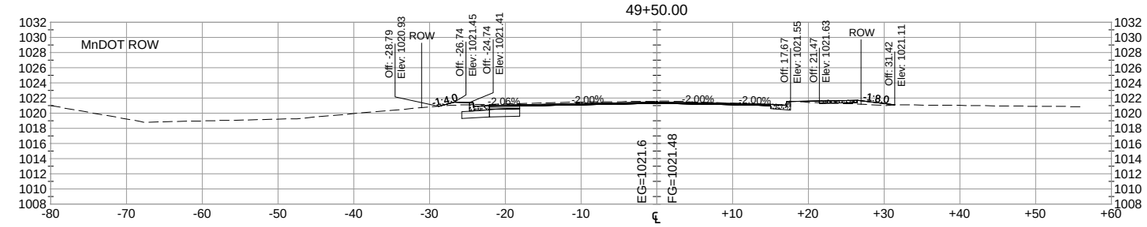

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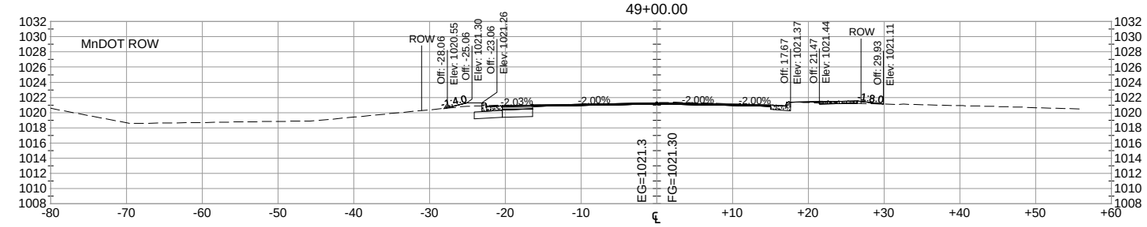

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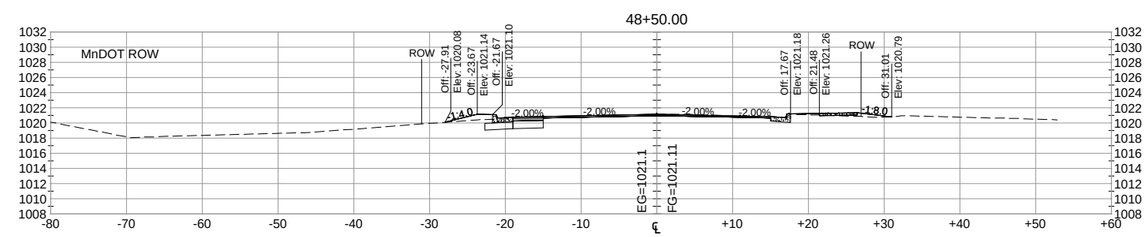

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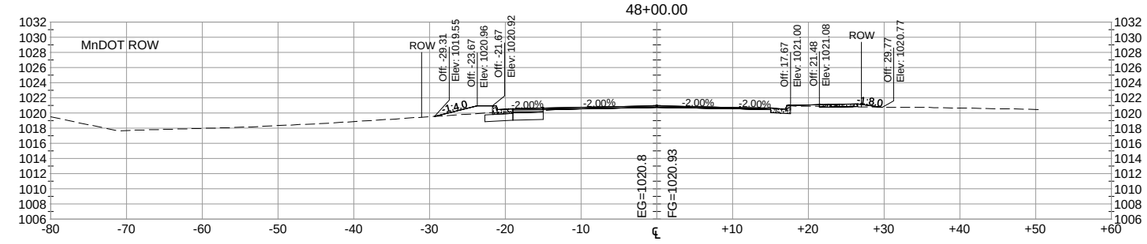

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DESIGNED BY	C.N.B.
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CERTIFIED BY: PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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CROOKSTON, MN
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ROCHESTER, MN

SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

CROSS SECTIONS

STATION: 45+50 - 50+00

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

NOTE:
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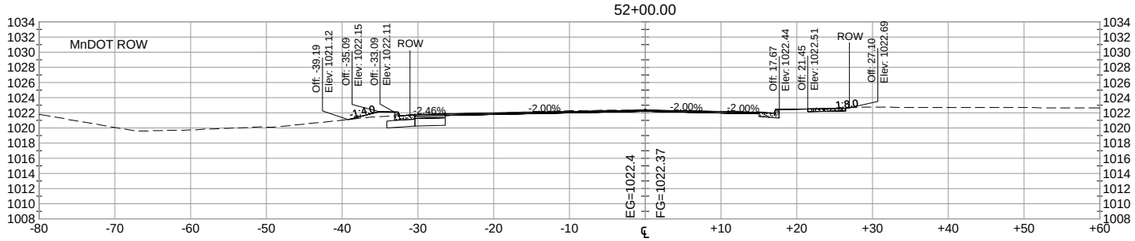
52+00.00



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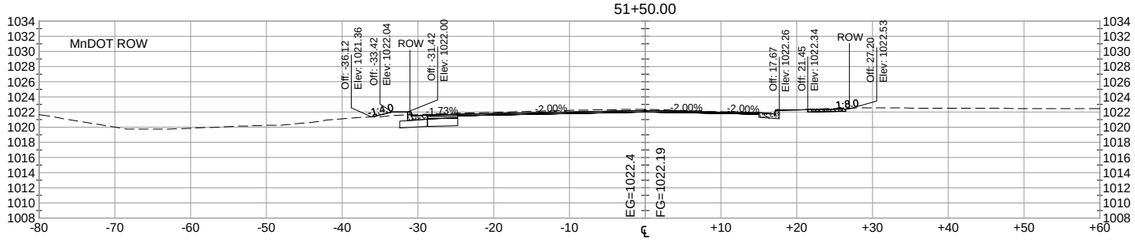

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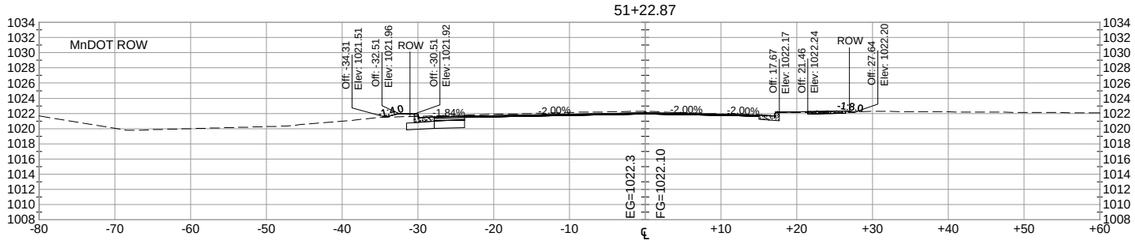

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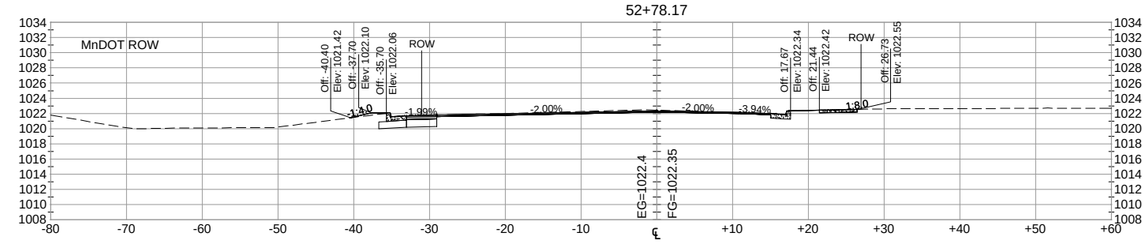

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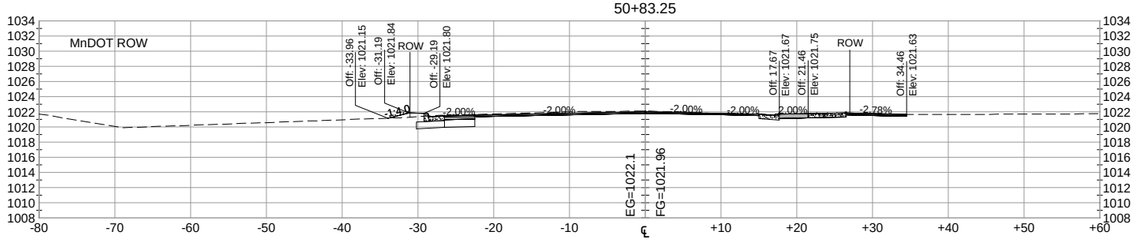

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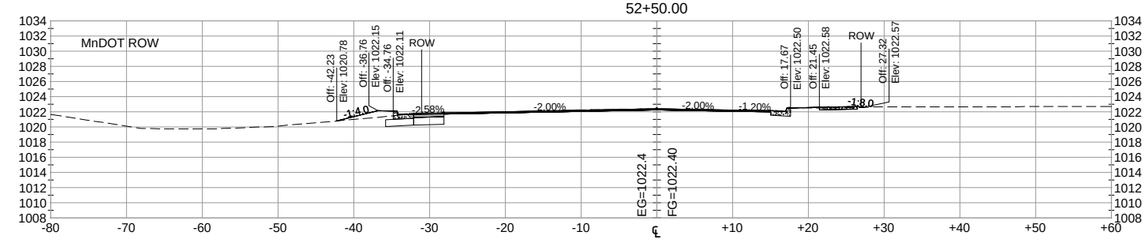

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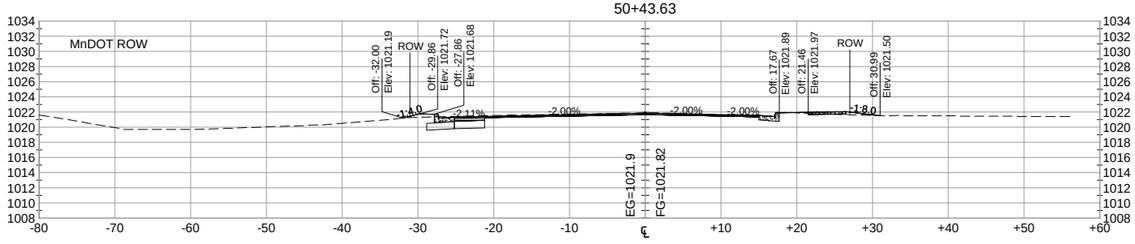

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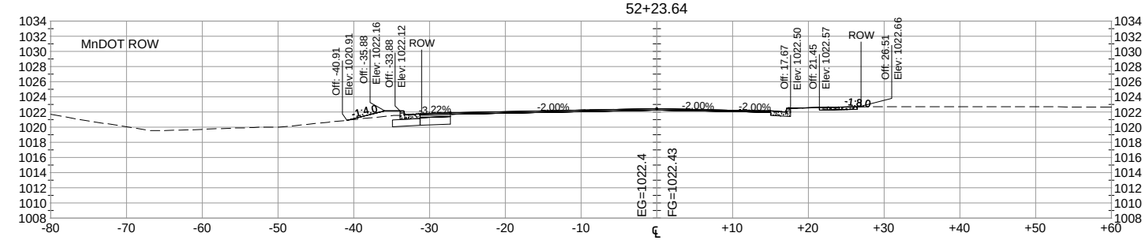

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	B.R.B.
DESIGNED BY	C.N.B.
CHECKED BY	C.N.B.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: _____
PROFESSIONAL ENGINEER: CRAIG N. BRITTON

LICENSE NO. 44228 DATE: 05/09 2013

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CROOKSTON, MN
GRAND FORKS, ND
RED WING, MN
ROCHESTER, MN

SCALES
HORIZONTAL 0 5 10
VERTICAL 0 5 10

CROSS SECTIONS

STATION: 50+43.63 - 52+78.17

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

SHEET NO. 87 OF 93 SHEETS

(2) INPLACE
TYPE R-100-A-35-D30-12 (DAVIT AT 345Â)
1 - END MOUNT SIGNAL OVERHEAD AT 0'
1 - STRAIGHT MOUNT SIGNAL OVERHEAD AT 16'
2 - ANGLE MOUNT SIGNALS AT 90ÂAND 270Â
2 - ANGLE MOUNT C. D. PED IND AT 90ÂAND 270Â
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)
1 - LUMINAIRE 200W HPS W/PEC & CH SW
2 - PEDESTRIAN PUSH BUTTONS AND SIGN (R10-4b) (180ÂAND 270Â)
2 - OVERHEAD SIGNS TYPE D

HH6 TO HH7
INPLACE 3" R.S.C.
4-12/C #12
3-3/C #12
5-2/C #14
1-3/C #20
R & S
TYPE R-100-A-35-D30-12 (DAVIT AT 345Â)
1 - END MOUNT SIGNAL OVERHEAD AT 0'
1 - STRAIGHT MOUNT SIGNAL OVERHEAD AT 16'
2 - ANGLE MOUNT SIGNALS AT 90ÂAND 270Â
2 - ANGLE MOUNT C. D. PED IND AT 90ÂAND 270Â
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)
1 - LUMINAIRE 200W HPS W/PEC & CH SW
2 - PEDESTRIAN PUSH BUTTONS AND SIGN (R10-4b) (180ÂAND 270Â)
2 - OVERHEAD SIGNS TYPE D
REMOVE 3" R.S.C.
4-12/C #12
3-3/C #12
5-2/C #14
1-3/C #20
F & I 3" R.S.C.
2-12/C #14
3-3/C #14
10-2/C #14
1-3/C #20

REMOVE
PA100 POLE FOUNDATION

INSTALL SALVAGED
TYPE R-100-A-35-D30-12 (DAVIT AT 345Â)
1 - STRAIGHT MOUNT SIGNAL OVERHEAD AT 16'
2 - ANGLE MOUNT SIGNALS AT 180ÂAND 270Â
2 - ANGLE MOUNT C. D. PED IND AT 90ÂAND 270Â
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)
1 - LUMINAIRE 200W HPS W/PEC & CH SW
2 - OVERHEAD SIGNS TYPE D

F & I
PA100 POLE FOUNDATION
3" R.S.C. TO HH15
3-12/C #14
5-3/C #14
2-2/C #14
1-3/C #20
1-1/C #6 BR. GR.

INSTALL OWNER SUPPLIED MATERIAL
1 - END MOUNT SIGNAL OVERHEAD AT 0'
1 - ANGLE MOUNT SIGNALS AT 90Â
1 - APS PB (PB4-1) AND SIGN

HH6 TO HH15
F & I 3" R.S.C.
3-12/C #14
5-3/C #14
3-2/C #14
2-1/C #10
1-3/C #20
1-1/C #6 BR.GR.

HH7 TO HH9
INPLACE 3" R.S.C.
4-12/C #12
3-3/C #12
1-3/C #20
REMOVE
4-12/C #12
3-3/C #12
1-3/C #20
F & I
4-12/C #14
3-3/C #14
1-3/C #20

HH7 TO HH14
F & I 1-1/4" R.S.C.
4-2/C #14

HH7 TO HH8
INPLACE 1-1/4" R.S.C.
1-2/C #14
REMOVE 1-1/4" R.S.C.
1-2/C #14
F & I 1-1/4" R.S.C.
1-2/C #14

OWNER SUPPLIED
PED PB STATION
1-APS PB (PB6-2)
AND SIGN
EXTEND INTO HH15:
2" R.S.C.
1-2/C #14

REMOVE HH7

EXTEND 3" R.S.C. TO NEW HH7

REMOVE HH6

EXTEND (2)3" R.S.C. TO NEW HH6

(3) INPLACE
TYPE R-100-A-30
1 - END MOUNT SIGNAL OVERHEAD AT 0'
2 - ANGLE MOUNT SIGNALS AT 270Â
1 - ANGLE MOUNT C. D. PED IND AT 270Â
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 3+8)
1 - PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b) (270Â)
1 - OVERHEAD SIGN TYPE D

R & S
A-30 MAST ARM
1 - END MOUNT SIGNAL OVERHEAD AT 0'
1 - ANGLE MOUNT SIGNAL AT 270Â
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 3+8)
1 - PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b) (270Â)
1 - OVERHEAD SIGN TYPE D

INSTALL OWNER SUPPLIED MATERIAL
A-35 MAST ARM
1 - END MOUNT SIGNAL OVERHEAD AT 0'
1 - ANGLE MOUNT SIGNAL AT 270Â
1 - APS PB (PB6-1) AND SIGN

INSTALL SALVAGED
1 - STRAIGHT MOUNT SIGNAL OVERHEAD 11'
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 3+8)
1 - OVERHEAD SIGN TYPE D

INPLACE
3" R.S.C. TO HH9
2-12/C #12
2-3/C #12
1-3/C #20

REMOVE
2-12/C #12
2-3/C #12
1-3/C #20

HH10 TO HH11
INPLACE 1-1/4" R.S.C.
6-2/C #14

F & I
2-12/C #14
3-3/C #14
1-2/C #14
1-3/C #20

NOTES:
1. THE CONTRACTOR SHALL COORDINATE ALL OVERHEAD CONSTRUCTION WITH ROCHESTER PUBLIC UTILITIES (RPU) PERSONNEL. THE CONTRACTOR SHALL GIVE ADEQUATE NOTICE TO RPU OF ALL OVERHEAD WORK TO BE PERFORMED AS POWER LINES MAY BE REQUIRED TO BE DE-ENERGIZED BY RPU PERSONNEL. RPU CONTACT: MIKE ENGLE, PHONE: (507) 280-1579.
2. SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
3. EXACT LOCATION OF SIGNAL POLES, HANDHOLES AND DETECTOR LOOP SHALL BE STAKED BY THE ENGINEER.
4. A 3/4" HALF COUPLING. 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED APPROXIMATELY 6' FROM THE ENDS OF NEW MAST ARMS. A 1-3/C #20 CABLE SHALL BE WIRED DIRECT TO THE CONDUIT BODY CONTINUOUS WITHOUT SPLICES FROM THE SIGNAL CABINET. 2-1/C #14 CONDUCTORS SHALL BE WIRED FROM THE CONDUIT OUTLET BODY TO THE TERMINAL BLOCK IN THE SIGNAL BASE FOR EVP LIGHT.
5. ALL HANDHOLES SHALL BE PVC WITH METAL RINGS AND COVERS. ALL EXISTING HANDHOLE CASTINGS BEING REMOVED SHALL BE SALVAGED TO OWNER.
6. ALL 35 mm NMC SHALL BE "INNERDUCT" TYPE WITH PRIOR APPROVAL BY THE ENGINEER (SEE SPECIAL PROVISIONS).
7. REMOVE EXISTING LOOP DETECTORS AND INSTALL NEW LOOP DETECTORS AT LOCATIONS SHOWN. NOT ALL EXISTING LOOP DETECTORS BEING REMOVED ARE SHOWN.

(4) INPLACE
8' PEDESTAL POLE AND BASE TYPE 4A
1 - STRAIGHT MOUNT C. D. PED IND
1 - PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b)

INPLACE
3" R.S.C. TO HH10
2-3/C #12

R & S
1 - PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b)

INSTALL OWNER SUPPLIED MATERIAL
1 - APS PB (PB8-2) AND SIGN

LOOP DETECTOR CHART

LOOP NUMBER	SIZE (FT.)	LOOP FUNCTION	NUMBER OF TURNS	DIST. FROM STOP BAR
* D1-1	6' X 6'	4,5	4	200'
* D1-2	6' X 6'	1	4	120'
* D1-3	6' X 6'	4	4	8'
* D2-1	6' X 6'	1,5	4	120'
* D2-2	6' X 6'	1,5	4	120'
* D3-1	2 - 6' X 6'	1	4	5' & 20'
D4-1	6' X 6'	2	4	120'
D4-2	2 - 6' X 6'	3	4	5' & 20'
D4-3	2 - 6' X 6'	1	4	5' & 20'
* D5-1	6' X 6'	1,5	4	120'
* D6-1	6' X 6'	4,5	4	200'
* D6-2	6' X 6'	4,5	4	200'
* D6-3	6' X 6'	1	4	120'
* D6-4	6' X 6'	1	4	120'
* D6-5	6' X 6'	4	4	8'
* D6-6	6' X 6'	4	4	8'
D7-1	2 - 6' X 6'	1	4	20' & 50'
D7-2	2 - 6' X 6'	1	4	5' & 35'
* D8-1	2 - 6' X 6'	1	4	5' & 20'

* INPLACE LOOP DETECTORS
LOOP FUNCTION:
1 - CALL AND EXTEND
2 - EXTEND ONLY
3 - DELAY CALL - EXTEND IMMEDIATELY
4 - CALL ONLY
5 - SYSTEM DETECTOR

(1) INPLACE
TYPE R-100-A-25
1 - END MOUNT SIGNAL OVERHEAD AT 0'
2 - ANGLE MOUNT SIGNALS AT 180ÂAND 270Â
2 - ANGLE MOUNT C. D. PED IND AT 90ÂAND 180Â
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 4+7)
2 - PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b) (90Â& 180Â)
1 - OVERHEAD SIGN TYPE D

R & S
A-25 MAST ARM
1 - END MOUNT SIGNAL OVERHEAD AT 0'
2 - ANGLE MOUNT SIGNALS AT 180ÂAND 270Â
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 4+7)
2 - PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b) (90Â& 180Â)
1 - OVERHEAD SIGN TYPE D

INSTALL OWNER SUPPLIED MATERIAL
1 - END MOUNT SIGNAL OVERHEAD AT 0'
1 - STRAIGHT MOUNT SIGNAL OVERHEAD 11'
2 - ANGLE MOUNT SIGNALS AT 180ÂAND 270Â

INSTALL SALVAGED
A-30 MAST ARM
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 4+7)
1 - OVERHEAD SIGN TYPE D

INPLACE
3" R.S.C. TO HH1
2-12/C #12
6-3/C #12
1-3/C #20

INTERCONNECT

INPLACE EQUIPMENT PAD CONTROLLER AND CABINET CABINET TO HH1:
INPLACE 4" R.S.C.
4-12/C #12
7-3/C #12
20-2/C #14
2-3/C #20
1-1/C #6 BR. GR.
F & I
8-3/C #14
CABINET TO HH2:
INPLACE 4" R.S.C.
7-12/C #12
6-3/C #12
8-2/C #14
2-3/C #20
1-1/C #6 BR. GR.
INPLACE 2" R.S.C.
1-12 PR. #19
INPLACE STUBBED OUT AND CAPPED 2" R.S.C. (EAST)
REMOVE
7-12/C #12
6-3/C #12
8-2/C #14
2-3/C #20
1-1/C #6 BR. GR.
F & I
5-12/C #14
8-3/C #14
13-2/C #14
2-1/C #10
2-3/C #20
1-1/C #6 BR. GR.

OWNER SUPPLIED
PED PB STATION
1-APS PB (PB4-2)
AND SIGN
EXTEND INTO HH1:
2" R.S.C.
1-2/C #14

HH2 TO HH6
INPLACE (2)3" R.S.C.
7-12/C #12
6-3/C #12
5-2/C #14
2-1/C #10
2-3/C #20
1-1/C #6 BR. GR.
REMOVE
7-12/C #12
6-3/C #12
5-2/C #14
2-1/C #10
2-3/C #20
1-1/C #6 BR. GR.
F & I
5-12/C #14
8-3/C #14
13-2/C #14
2-1/C #10
2-3/C #20
1-1/C #6 BR. GR.

HH2 TO HH4
INPLACE 1-1/4" R.S.C.
3-2/C #14
INPLACE 2" R.S.C.
1-12 PR. #19

INPLACE LOAD CENTER
LOAD CENTER TO HH3:
INPLACE 2" R.S.C.
3-1/C #1/0

LOAD CENTER TO HH1:
INPLACE 1-1/4" R.S.C.
4-1/C #10

LOAD CENTER TO CABINET
INPLACE 1-1/4" R.S.C.
2-1/C #6
1-1/C #6 BR.GR.

OWNER SUPPLIED
PED PB STATION
1-APS PB (PB2-1)
AND SIGN
EXTEND INTO HH1:
2" R.S.C.
1-2/C #14

HH1 TO HH13
INPLACE 3" R.S.C.
2-12/C #12
5-3/C #12
20-2/C #14
2-1/C #10
1-1/C #6 BR.GR.
1-3/C #20
F & I
4-3/C #14

(5) INPLACE
TYPE R-100-A-35-D30-12 (DAVIT AT 345Â)
1 - END MOUNT SIGNAL OVERHEAD AT 0'
1 - STRAIGHT MOUNT SIGNAL OVERHEAD AT 12'
2 - ANGLE MOUNT SIGNALS AT 270Â
1 - ANGLE MOUNT C. D. PED IND AT 270Â
1 - ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2+5)
1 - LUMINAIRE 200W HPS W/PEC & CH SW
1 - PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b) (270Â)
2 - OVERHEAD SIGNS TYPE D

R & S
1 - END MOUNT SIGNAL OVERHEAD AT 0'
1 - ANGLE MOUNT SIGNAL AT 270Â
1 - PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b) (270Â)

INSTALL OWNER SUPPLIED MATERIAL INPLACE
1 - END MOUNT SIGNAL OVERHEAD AT 0'
1 - ANGLE MOUNT SIGNAL AT 270Â
1 - APS PB (PB8-1) AND SIGN

3" R.S.C. TO HH13
2-12/C #12
5-3/C #12
2-1/C #10
1-3/C #20

HH13 TO HH10
INPLACE 3" R.S.C.
2-3/C #12
9-2/C #14
1-1/C #6 BR. GR.

OWNER SUPPLIED
PED PB STATION
1-APS PB (PB2-2)
AND SIGN
EXTEND INTO HH13:
2" R.S.C.
1-2/C #14

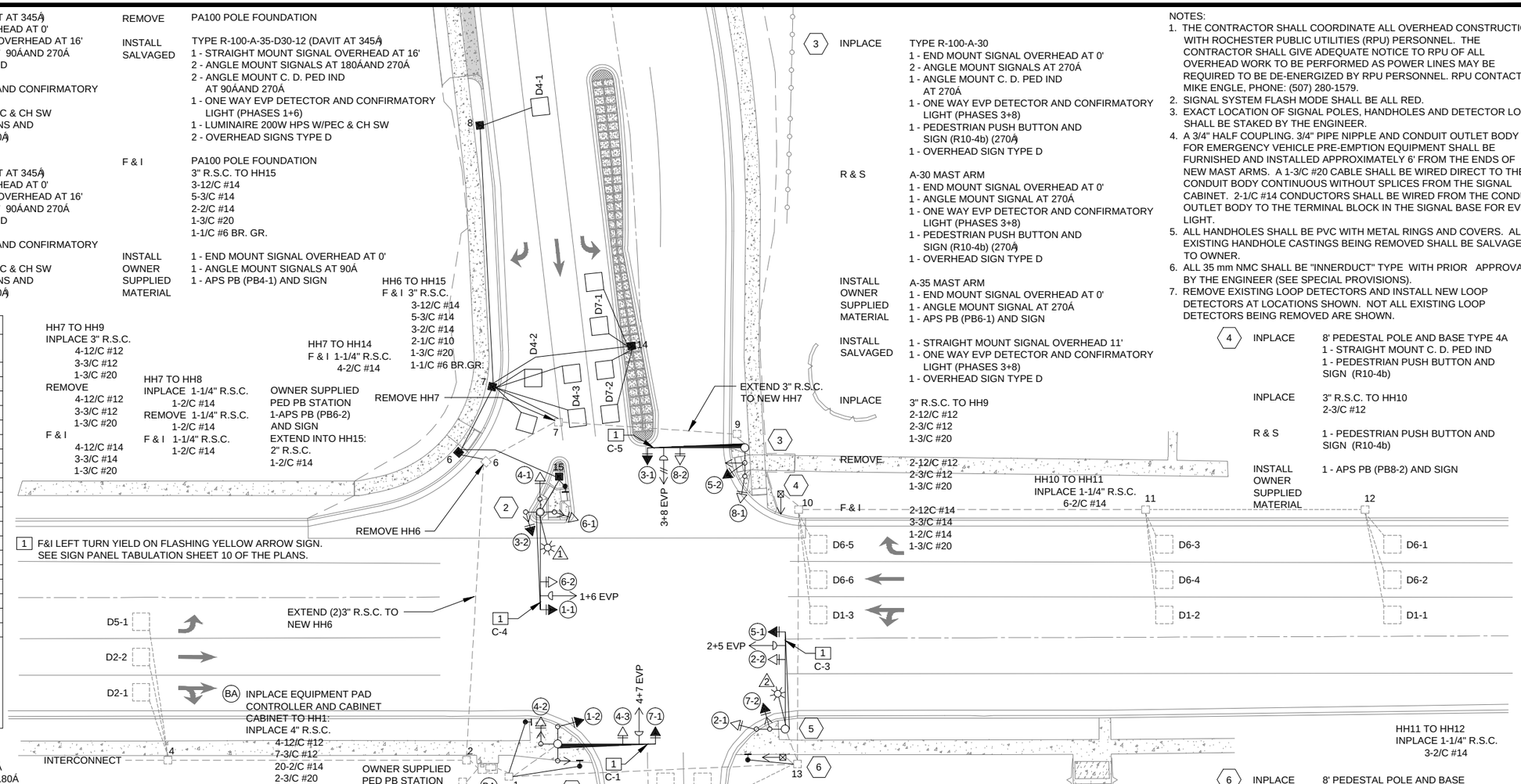
HH11 TO HH12
INPLACE 1-1/4" R.S.C.
3-2/C #14

(6) INPLACE
8' PEDESTAL POLE AND BASE TYPE 4A
1 - STRAIGHT MOUNT C. D. PED IND
1 - PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b)

INPLACE
3" R.S.C. TO HH13
2-3/C #12
1-1/C #6 BR. GR. - CONNECTED TO PEDESTAL BASE FOR GROUNDING

R & S
1 - PEDESTRIAN PUSH BUTTON AND SIGN (R10-4b)

1 F&I LEFT TURN YIELD ON FLASHING YELLOW ARROW SIGN. SEE SIGN PANEL TABULATION SHEET 10 OF THE PLANS.



0 20 40
SCALE (IN FEET)

SIGNAL FACE CHART

	SIGNAL FACE	R	RA	Y	YA	FYA	G	GA
EXISTING	2-1, 2-2, 4-1, 4-2, 4-3, 6-1, 6-2, 8-1, 8-2	●		●			●	
PROPOSED	1-1, 1-2, 3-1, 3-2, 5-1, 5-2, 7-1, 7-2		←		←	←		←

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	R.A.E.
DESIGNED BY	R.A.E.
CHECKED BY	B.J.H.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CERTIFIED BY: PROFESSIONAL ENGINEER: BRIAN J. HINTON

LICENSE NO. 20844 DATE: 05/09 2013

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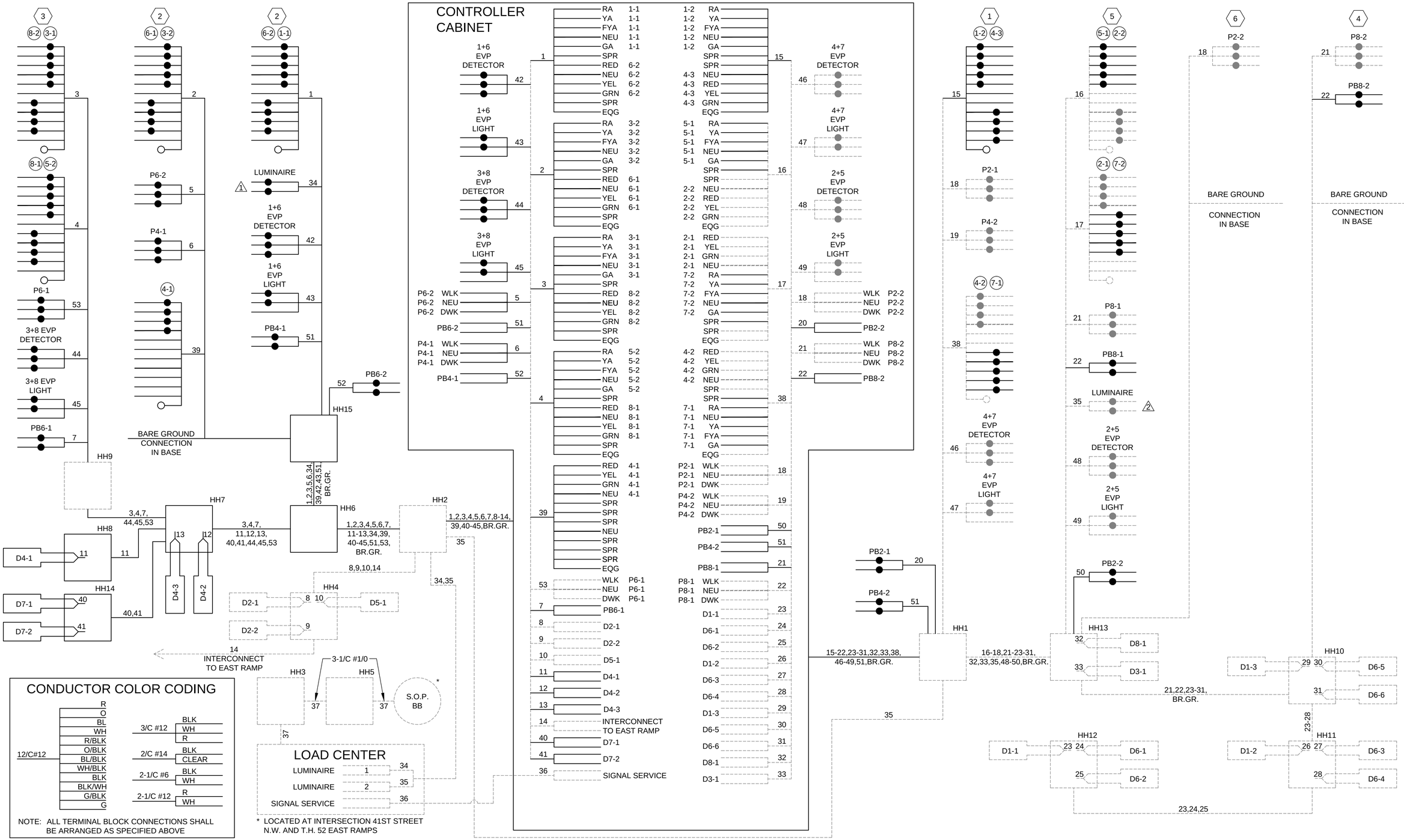
ROCHESTER, MN

SIGNAL LAYOUT

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

J:\1012R-City of Rochester\1012R0001-East Frontage Road\1012R0001.000-East Frontage Road\CADD\ELEC\SIGNALS.dwg Plotted by: Craig Britton 6/6/2013 9:08:43 AM



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FIELD WIRING DIAGRAM

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

LEGEND

- PROPOSED SIGNAL POLE
- PEDESTRIAN PUSH BUTTON STATION
- PEDESTRIAN PUSH BUTTON

NOTES:

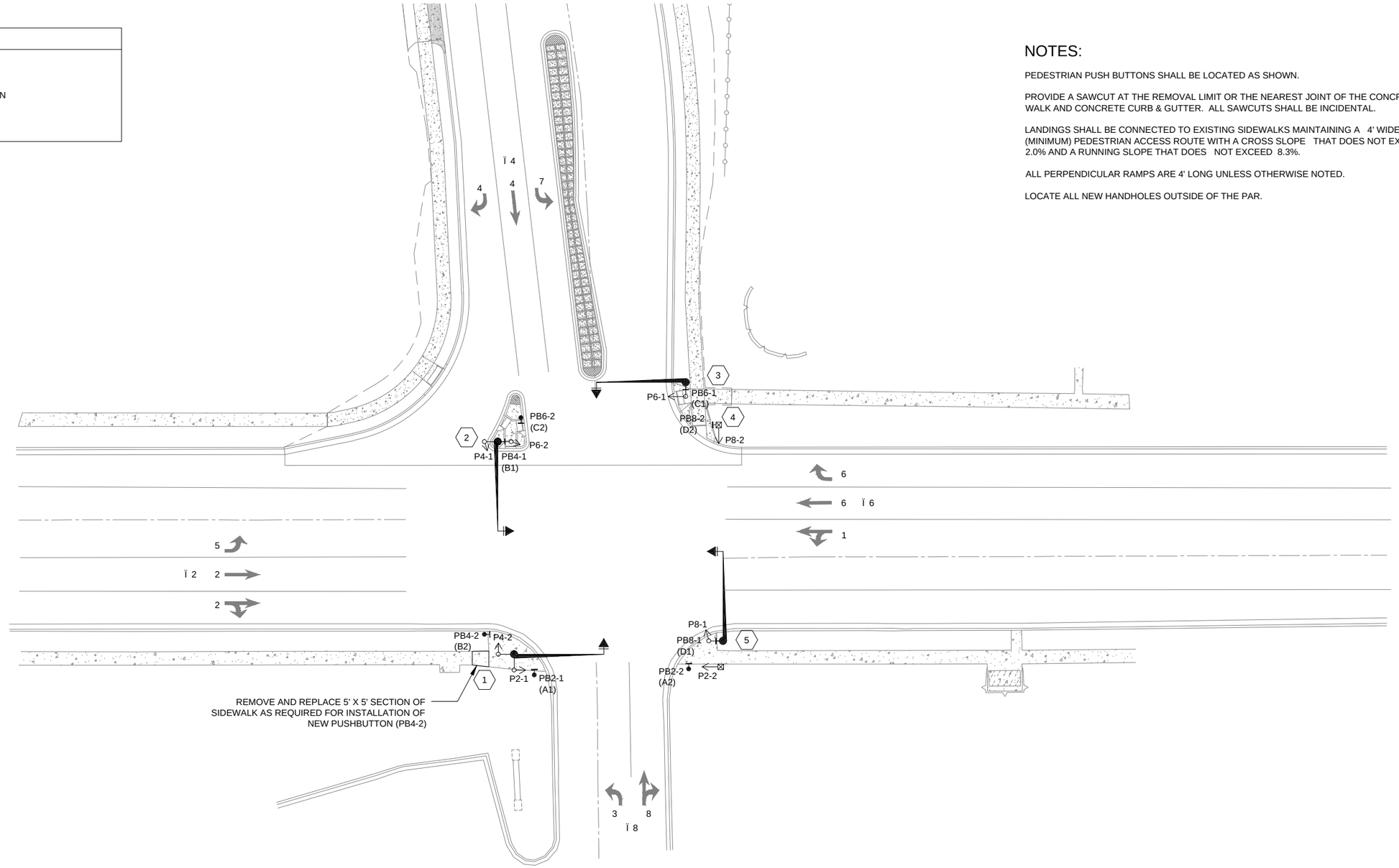
PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN.

PROVIDE A SAWCUT AT THE REMOVAL LIMIT OR THE NEAREST JOINT OF THE CONCRETE WALK AND CONCRETE CURB & GUTTER. ALL SAWCUTS SHALL BE INCIDENTAL.

LANDINGS SHALL BE CONNECTED TO EXISTING SIDEWALKS MAINTAINING A 4' WIDE (MINIMUM) PEDESTRIAN ACCESS ROUTE WITH A CROSS SLOPE THAT DOES NOT EXCEED 2.0% AND A RUNNING SLOPE THAT DOES NOT EXCEED 8.3%.

ALL PERPENDICULAR RAMPS ARE 4' LONG UNLESS OTHERWISE NOTED.

LOCATE ALL NEW HANDHOLES OUTSIDE OF THE PAR.



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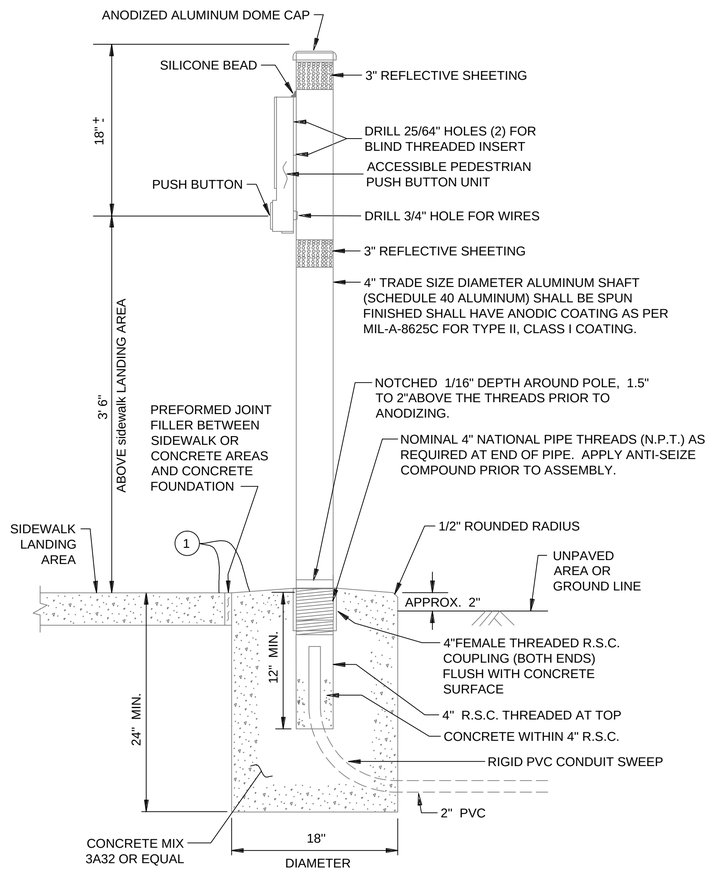
PEDESTRIAN CROSSWALK DETAILS

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004



NOTES:

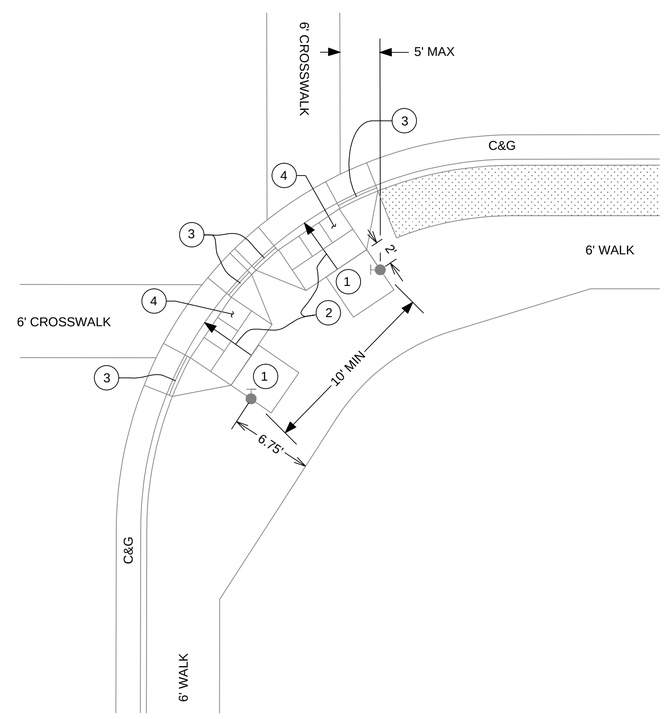
- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN POST TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE POST.
- BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
- BLIND THREADED INSERTS SHALL BE ZINC PLATED STEEL WITH 1/4 - 20 UNC THREADS. INSERT SHALL BE SUITABLE FOR USE ON A MOUNTING SURFACE WALL THICKNESS OF .337". APPROVED BLIND THREADED INSERTS CAN BE FOUND ON THE MN/DOT QUALIFIED PRODUCTS LIST.
- MOUNTING BOLTS SHALL BE 1/4 - 20 STAINLESS STEEL. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
- APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" POST.
- THE REFLECTIVE SHEETING SHALL BE WHITE AT INTERSECTION CORNERS AND SHALL BE YELLOW WHEN USED IN CENTER MEDIANS. SEE MN/DOT SIGNING QUALIFIED PRODUCTS LIST (QPL) FOR APPROVED TUBE DELINEATOR SHEETING.
- ANTI-SEIZE COMPOUND MUST BE USED ON THE MOUNTING BOLTS WHEN THE PEDESTRIAN SIGN IS MOUNTED.

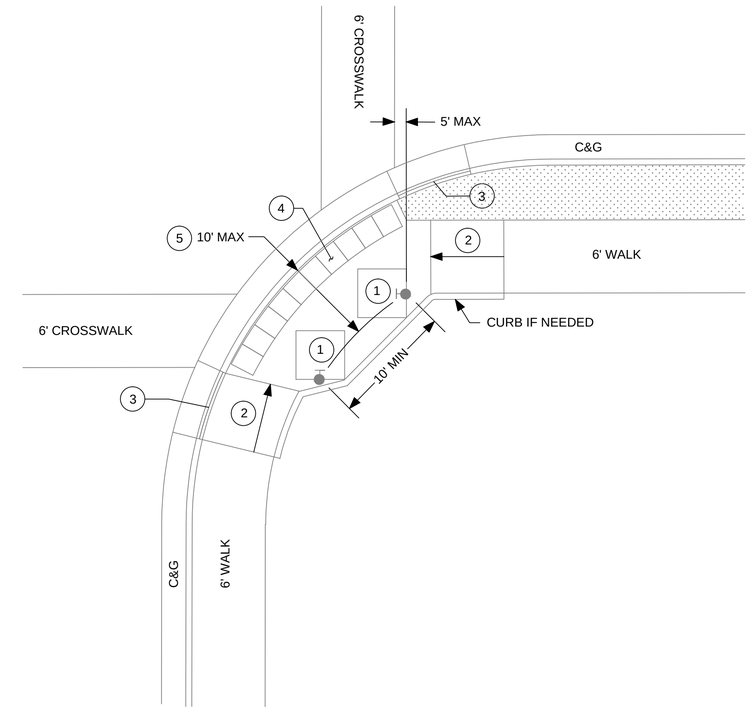
(1) THE CONCRETE FOUNDATION SHALL BE CAST IN PLACE AND CONSTRUCTED FLUSH WITH THE SURROUNDING SIDEWALK. THE FOUNDATION SHALL BE CONSTRUCTED CONCURRENTLY WITH, OR AFTER, THE ADJACENT SIDE WALK CONSTRUCTION.

PEDESTRIAN PUSH BUTTON STATION

GUIDELINES FOR LOCATING APS PUSH BUTTONS:

- THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC DETAILS REGARDING PEDESTRIAN RAMP LAYOUT, SEE THE PEDESTRIAN CURB RAMP AND SIDEWALK DETAILS.
-
- BUTTONS SHALL BE WITHIN 5' OF THE OUTSIDE EDGE OF THE CROSSWALK.
- THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE CROSSWALK.
- A MIN. 4'X4' LANDING AREA SHALL BE PROVIDED ADJACENT TO EACH BUTTON.
- BUTTONS SHALL BE WITHIN 10' OF THE BACK OF CURB OR EDGE OF ROADWAY.
- BUTTONS SHALL BE AT LEAST 10' APART.





(1) 4'X4' MINIMUM LANDING AREA ADJACENT TO PUSH BUTTON. (2% SLOPE MAX.)

(2) RAMP - SLOPE (5% PREFERRED 8% MAX).

(3) CURB TAPER SECTION AT 1:10 (10%) (HEIGHT OF CURB IS TAPERED TO 0").

(4) DETECTABLE WARNING SURFACE (TRUNCATED DOMES) - RADIUS SECTIONS WHERE SPECIFIED.

(5) DISTANCE FROM THE BACK OF CURB TO PUSH BUTTON STATION.

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION

DATE	REV#	REVISIONS DESCRIPTION	BY

DRAWN BY	R.A.E.
DESIGNED BY	R.A.E.
CHECKED BY	B.J.H.

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CERTIFIED BY: PROFESSIONAL ENGINEER BRIAN J. HINTON

LICENSE NO. 20844 DATE: 05/09 2013

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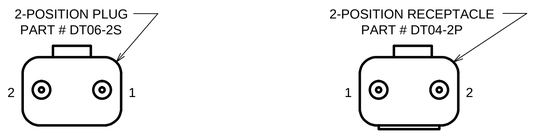
APS PUSH BUTTON LOCATION DETAIL

WSN NUMBER: 1012R0001

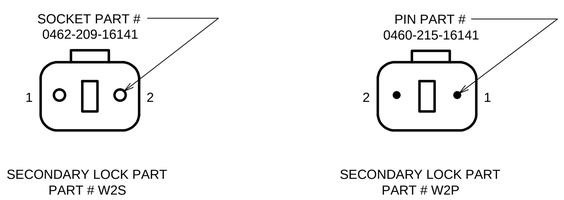
STATE AID PROJECT NO. 159-130-004

2-POSITION CONNECTOR

(BACK VIEW)



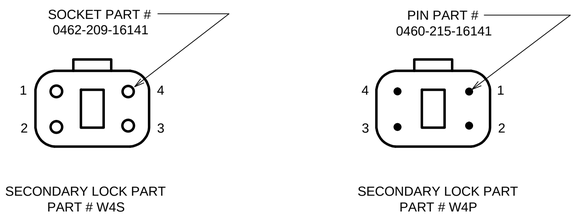
(FRONT VIEW)



4-POSITION CONNECTOR

(BACK VIEW)

(FRONT VIEW)



6-POSITION CONNECTOR

(BACK VIEW)

(FRONT VIEW)

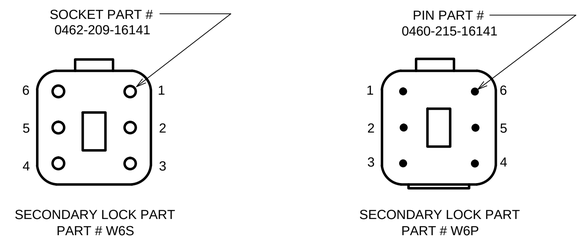


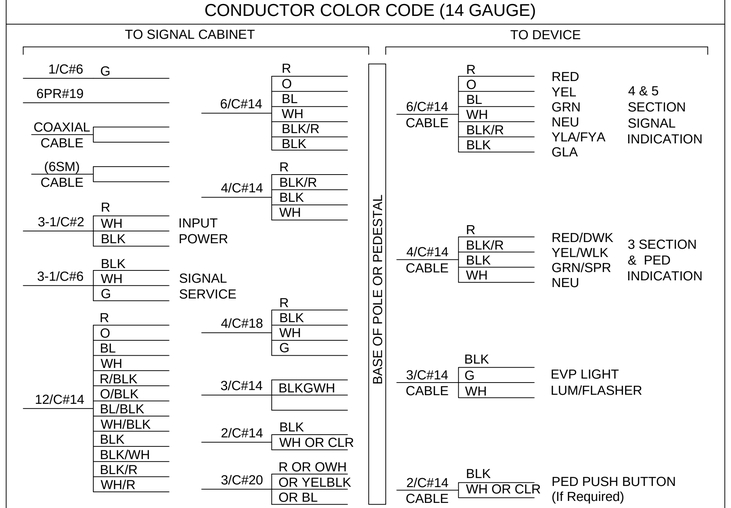
TABLE 1	2 Position DT Connector		(As Needed)
Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
BLK	1	BLK	PB (If Required)
WH or CL	2	WH or CL	NEU

TABLE 2a	4 Position DT Connector		(3 Section Head/DWK/WLK)
Wire toControl Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R or R/BLK or BLK	1	R	RED or DWK
O or O/BLK or BLK/WH or BLK	2	BLK/R	YEL or WLK
BL or BL/BLK or BLK/R or BLK	3	BLK	GRN or SPR
WH or WH/BLK or WH/R	4	WH	NEU

TABLE 3	6 Position DT Connector		(4 and 5 Section Heads)
Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R	1	R	RED
O	2	O	YEL
BL	3	BL	GRN
WH	4	WH	NEU
O/BLK or BLK/R (6/C)	5	BLK/R	YLA or FYLA
BL/BLK or BLK (6/C)	6	BLK	GLA

TABLE 2b	4 Position DT Connector (Used with 3 Conductor Cable Only)		(EVP LHT/LUM/Flasher)
Wire toControl Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
BLK	1	BLK	EVP LHT or LUM or RED or YEL
(Not Used)	2	(Not Used)	(Not Used) (See Note #8)
G	3	G	EQ.G
WH	4	WH	NEU

CONDUCTOR COLOR CODE (14 GAUGE)



NOTE:
ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

NOTES:

1. DT04-P RECEPTACLE SHALL BE TERMINATED TO THE WIRING HARNESS RUNNING FROM THE BASE/JUNCTION BOX OF THE POLE TO SIGNAL INDICATIONS.
2. DT06-_S PLUG SHALL BE TERMINATED TO THE CABLES RUNNING FROM THE TRAFFIC SIGNAL CABINET TO THE BASE/JUNCTION BOX OF THE POLE.
3. THERE SHALL BE A MINIMUM OF 24 INCHES OF SLACK ON EACH CABLE IN EVERY POLE BASE/JUNCTION BOX.
4. STRIP A MAXIMUM OF 6 INCHES OF THE OUTER JACKET OF EACH SIGNAL CABLE.
5. STRIP .250 INCHES OF INSULATION FROM EACH INDIVIDUAL CONDUCTOR.
6. CRIMP PINS OR SOCKETS USING RATCHETING TYPE CRIMPING TOOL HDT-48-00. NO OTHER CRIMPING TOOL WILL BE ALLOWED.
7. WIRES MUST BE TERMINATED AS DETAILED IN TABLES 1 THRU 3 DEPENDING ON WIRE COUNT. 8.
8. ANY UNUSED PIN MUST HAVE A SEALING PLUG PLACED IN BOTH THE PLUG & RECEP]TACLE (PART # 114017).
9. LABEL EACH HALF OF THE CONNECTOR (PLUG AND RECEPTACLE) WITH THE DEVICE DESIGNATION (AS INDICATED IN THE WIRING DIAGRAM) USING A PERMANENT BLACK MARKER.

Wire Color Code Key	
R	Red
O	Orange
BL	Blue
WH	White
BLK	Black
BRN	Brown
CL	Clear
G	Green
R/BLK	Red with Black Stripe
O/BLK	Orange with Black Stripe
BL/BLK	Blue with Black Stripe
WH/BLK	White with Black Stripe
WH/R	White with Red Stripe
BLK/WH	Black with White Stripe
BLK/R	Black with Red Stripe

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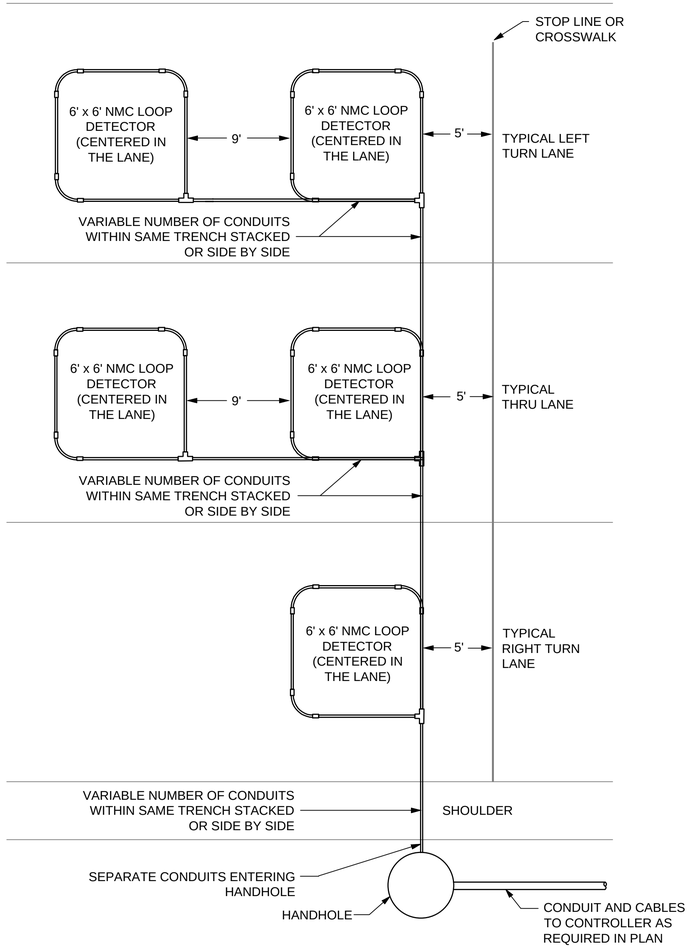
WIRING CONNECTOR DETAIL

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004

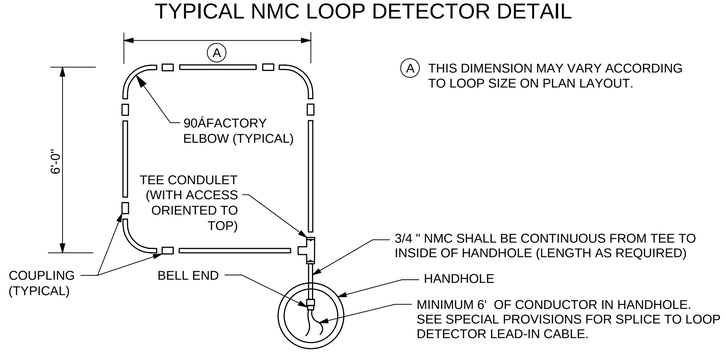
TYPICAL CROSS STREET NMC LOOP DETECTOR LAYOUT



NOTES:

1. ROADWAY LOOP DETECTOR CONDUCTORS AND LOOP DETECTOR LEAD IN CABLES SHALL BE IN ACCORDANCE WITH MN/DOT SPEC 3815.
2. THE 3/4" NON-METALLIC CONDUIT (NMC) AND FITTINGS SHALL BE SCHEDULE 40 HEAVY WALL RIGID POLYVINYL CHLORIDE (PVC). SEE SPEC. 3803.
3. THREE CORNERS OF EACH LOOP DETECTOR SHALL BE A 90ÁFACTORY ELBOW (6" RADIUS). THE FOURTH SHALL BE AN NMC TEE CONDULET.
4. APPROVED PVC PRIMER AND CEMENT SHALL BE USED FOR THE PVC JOINTS.
5. ALL SLACK MUST BE REMOVED FROM LOOP DETECTOR CONDUCTORS WITHIN THE NMC.
6. THE ROADWAY LOOP DETECTOR CONDUCTORS (1/C#14) SHALL BE TWISTED THREE TURNS PER FOOT FROM THE NMC TEE CONDULET TO THE HANDHOLE.
7. ATTACH A FERROUS METAL ITEM IN OR ADJACENT TO THE TEE CONDULET COVER OR AS DIRECTED BY THE ENGINEER.
8. EACH LOOP DETECTOR CONDUIT TO THE HANDHOLE SHALL BE SLOPED TOWARDS THE HANDHOLE.
9. LOOP DETECTOR CONDUITS TO THE HANDHOLE MAY BE PLACED WITHIN THE SAME TRENCH.
10. THE LOOP DETECTOR ROADWAY CONDUCTORS SHALL EXTEND 6' TO 10' INTO THE HAND HOLE FOR SPLICING. NO SPLICES ALLOWED IN CONDUIT.
11. THE LOOP DETECTOR ROADWAY CONDUCTORS AND THE LOOP DETECTOR LEAD-IN CABLE CONDUCTORS SHALL BE PROPERLY PREPARED AND CLEANED BEFORE SPLICING.
12. SPLICE KITS SHALL BE INSTALLED IN HANDHOLES IN SUCH A MANNER AS TO ENSURE THAT EACH SPLICE KIT IS SUSPENDEDAND/OR SECURED NEAR THE TOP OF THE HANDHOLE TO THE SATISFACTION OF THE ENGINEER. (PLACING SPLICE KITS ON TOP OF THE ELECTRICAL CABLES AND CONDUCTORS IS NOT ACCEPTABLE).
13. TYPICAL SIZE OF LOOP DETECTORS ARE 6' x 6' AND 6' x 10'. REFER TO INTERSECTION LAYOUT FOR SPECIFIC LOOP DETECTORS TO BE PLACED.
14. ALL LOOP DETECTORS SHALL HAVE 4 TURNS OF CONDUCTORS.
15. SEE SPECIAL PROVISIONS FOR APPROVED SPLICE KITS.
16. PRIOR TO INSTALLING THE APPROVED SPLICE KIT, THE CONTRACTOR SHALL SOLDER THE ENDS OF THE LOOP DETECTOR LEAD IN CONDUCTOR AND SHALL FURNISH AND INSTALL AN APPROPRIATE SIZED WIRE NUT TO THE SOLDERED ENDS PRIOR TO THE INSTALLATION OF THE SPLICE KITS.
17. IF BENDING OF THE NMC LOOP LEAD-IN CONDUIT IS REQUIRED, AN APPROPRIATE HEATING BLANKET OR DEVICE APPROVED BY THE ENGINEER SHALL BE USED. EXPOSED FLAME OR TORCHES ARE NOT ALLOWED.

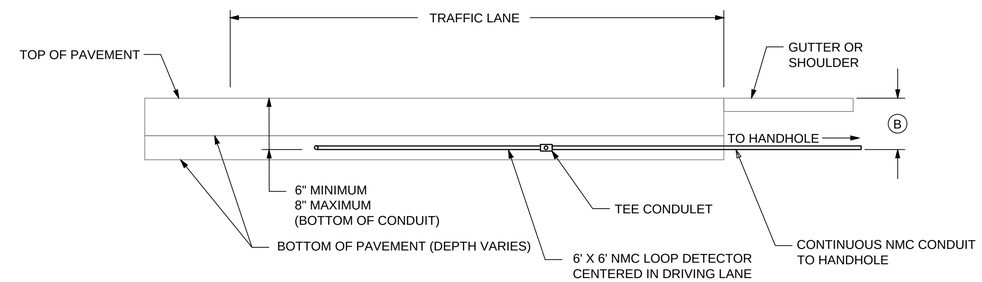
TYPICAL NMC LOOP DETECTOR DETAIL



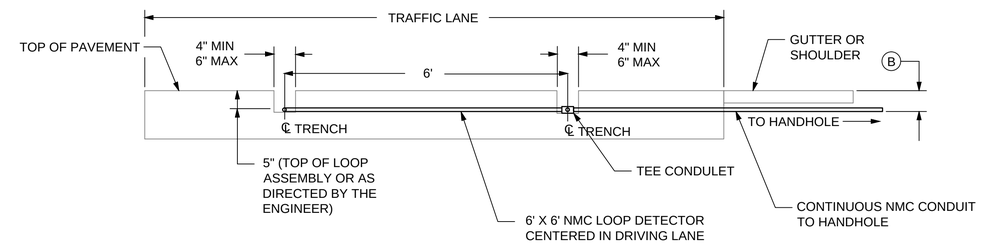
(A) THIS DIMENSION MAY VARY ACCORDING TO LOOP SIZE ON PLAN LAYOUT.

TYPICAL NMC LOOP DETECTOR INSTALLATION

NEW BITUMINOUS OR CONCRETE PAVEMENT



INPLACE PAVEMENT



(B) VARIABLE DEPTH; MAINTAIN DRAINAGE TO HAND HOLE

NOTES:

1. USE THE LOOP DETECTOR TO BE INSTALLED FOR THE PURPOSE OF MARKING THE PAVEMENT LOCATION FOR THE MILLING OPERATION.
2. TO ACHIEVE FULL TRENCH DEPTH FOR CONDUIT PLACEMENT, MILL BEYOND THE DESIRED PAVEMENT MARKING.
3. PROVIDE A MINIMUM 5" CLEARANCE, MEASURED FROM THE TOP OF THE FINISHED PAVEMENT TO HIGHEST POINT OF LOOP ASSEMBLY (INCLUDING CONDULET).
4. AN AIR COMPRESSOR UNIT (50 HP) IS REQUIRED FOR REMOVING ALL LOOSE MATERIAL FROM TRENCH PRIOR TO TACK COAT APPLICATION.
5. APPLY A TACK COAT AT A UNIFORM RATE TO THE BOTTOM AND EDGES OF THE MILLED AREA. USE AN EMULSIFIED ASPHALT PER SPEC. 2357.2A
6. MIXTURE USED TO FILL THE RETROFIT LOOP DETECTOR TRENCHES SHALL MEET THE REQUIREMENTS OF MNDOT SPECIFICATION 2360. AGGREGATE SIZE A OR B WILL BE ALLOWED WHEN 2360 IS UTILIZED. OTHER WEARING COURSE MIXTURE TYPES ARE ALLOWED WHEN APPROVED BY THE ENGINEER.
7. COMPACTION SHALL BE OBTAINED BY THE ORDINARY COMPACTION METHOD. BACKFILL THE TRENCH WITH A MINIMUM OF TWO LIFTS AND COMPACT EACH LIFT. BEFORE COMPACTING THE FIRST LIFT ENSURE THAT THERE IS ADEQUATE MIXTURE ON EACH SIDE AND ABOVE THE CONDUIT SO THAT THE CONDUIT IS NOT DAMAGED DURING COMPACTION OPERATIONS.
8. THE COMPACTED MIXTURE IN THE TRENCH SHOULD BE LEFT 1/4 " TO 1/2 " ABOVE THE ADJACENT PAVEMENT SURFACE TO PROVIDE FOR ADDITIONAL COMPACTION BY TRAFFIC.
9. WHEN INSTALLING NMC LOOPS INTO PRE-ROADWAY AGGREGATE BASE, DEPTH OF TOP OF CONDUIT TO TOP OF AGGREGATE SHALL NOT EXCEED 2".
10. WHEN LOOP DETECTORS ARE MILLED INTO CONCRETE SURFACES, THE TRENCHES SHALL BE FILLED USING A GROUTING MATERIAL WHICH MEETS Mn/DOT SPEC 2520 OR OTHER MATERIAL AS APPROVED BY THE ENGINEER. BITUMINOUS FILL IS ACCEPTABLE WHEN OVERLAYING CONCRETE TRENCHES.
11. MILLING IS REQUIRED FOR ALL NMC LOOP INSTALLATIONS. WHEN LOOPS ARE MILLED INTO EXISTING MILLED SURFACE THAT WILL BE OVERLAYED WITH BITUMINOUS, THE MINIMUM TRENCH DEPTH SHALL BE NO LESS THAN THE HIGHEST LOOP ASSEMBLY IN THE TRENCH.
12. WHEN MILLING INTO EXISTING BITUMINOUS SURFACE, BE ADVISED THAT CONCRETE MAY BE ENCOUNTERED UNDER THE BITUMINOUS SURFACE.

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NON-METALLIC CONDUITLOOP DETECTOR DETAILS

WSN NUMBER: 1012R0001

STATE AID PROJECT NO. 159-130-004