2022 STREET AND UTILITY IMPROVEMENT PROJECT

CITY OF CIRCLE PINES

CONSTRUCTION PLAN FOR BITUMINOUS STREET RECONSTRUCTION, CONCRETE CURB AND GUTTER, SANITARY SEWER, WATERMAIN, AND STORM SEWER IMPROVEMENTS

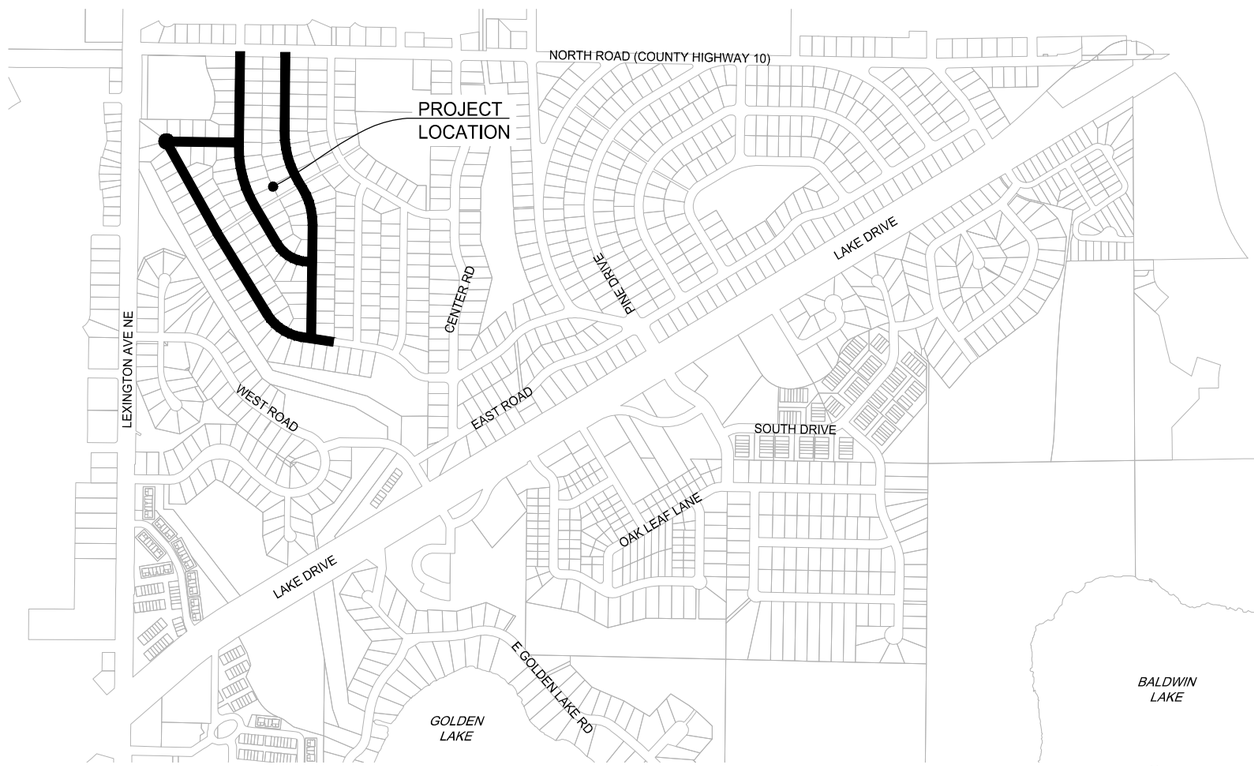
LOCATED ON	STARDUST BLVD	FROM	CUL-DE SAC	TO	150' EAST OF GALAXY DR
	GALAXY DR	FROM	STARDUST BLVD	TO	NORTH RD
	TWILITE TERRACE	FROM	GALAXY DR	TO	NORTH RD
	TWINKLE TERRACE	FROM	STARDUST BLVD	TO	TWILITE TERRACE

EXISTING PLAN SYMBOLS

- PROPERTY LINES/RIGHT-OF-WAY
- UTILITY EASEMENT
- TREE LINE
- SIGN
- DECIDUOUS TREE
- SHRUB
- CONIFEROUS TREE

EXISTING UTILITY SYMBOLS

- FIBER OPTIC LINE
- GAS LINE
- COMMUNICATION LINE
- ELECTRIC POWER LINE
- WATER MAIN
- SANITARY SEWER
- STORM SEWER
- COMMUNICATIONS PEDESTAL
- POWER POLE
- ELECTRIC BOX
- CATCH BASIN
- STORM APRON
- STORM SEWER MANHOLE
- GATE VALVE
- HYDRANT
- SANITARY SEWER MANHOLE



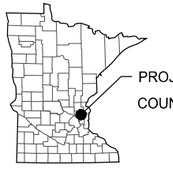
PROJECT LOCATION MAP

N

0 500 1000
H: SCALE IN FEET

EXCAVATION NOTICE SYSTEM

A CALL TO GOPHER STATE ONE (651-454-0002) IS REQUIRED A MINIMUM OF 48 HOURS PRIOR TO PERFORMING ANY EXCAVATION.



PROJECT LOCATION

COUNTY: ANOKA

SECT 25, TWP 31N, RNG 23W

UTILITY INFORMATION

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY 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."

GOPHER ONE CALL TICKET NUMBER: 210822711 - 210822715

UTILITY COORDINATION MEETING HELD ON: 11/30/2021

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY
01/18/22	3, 6, 8, 9, 31, 49, 51-53, 57, 59, 60-61, 64, 66	EME

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

PLAN SET INDEX

THIS PLAN SET CONTAINS 96 SHEETS

THIS PLAN SET HAS BEEN PREPARED FOR:

City of CIRCLE PINES

CITY OF CIRCLE PINES
200 CIVIC HEIGHTS CIRCLE
CIRCLE PINES, MN 55014
763.784.5898

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

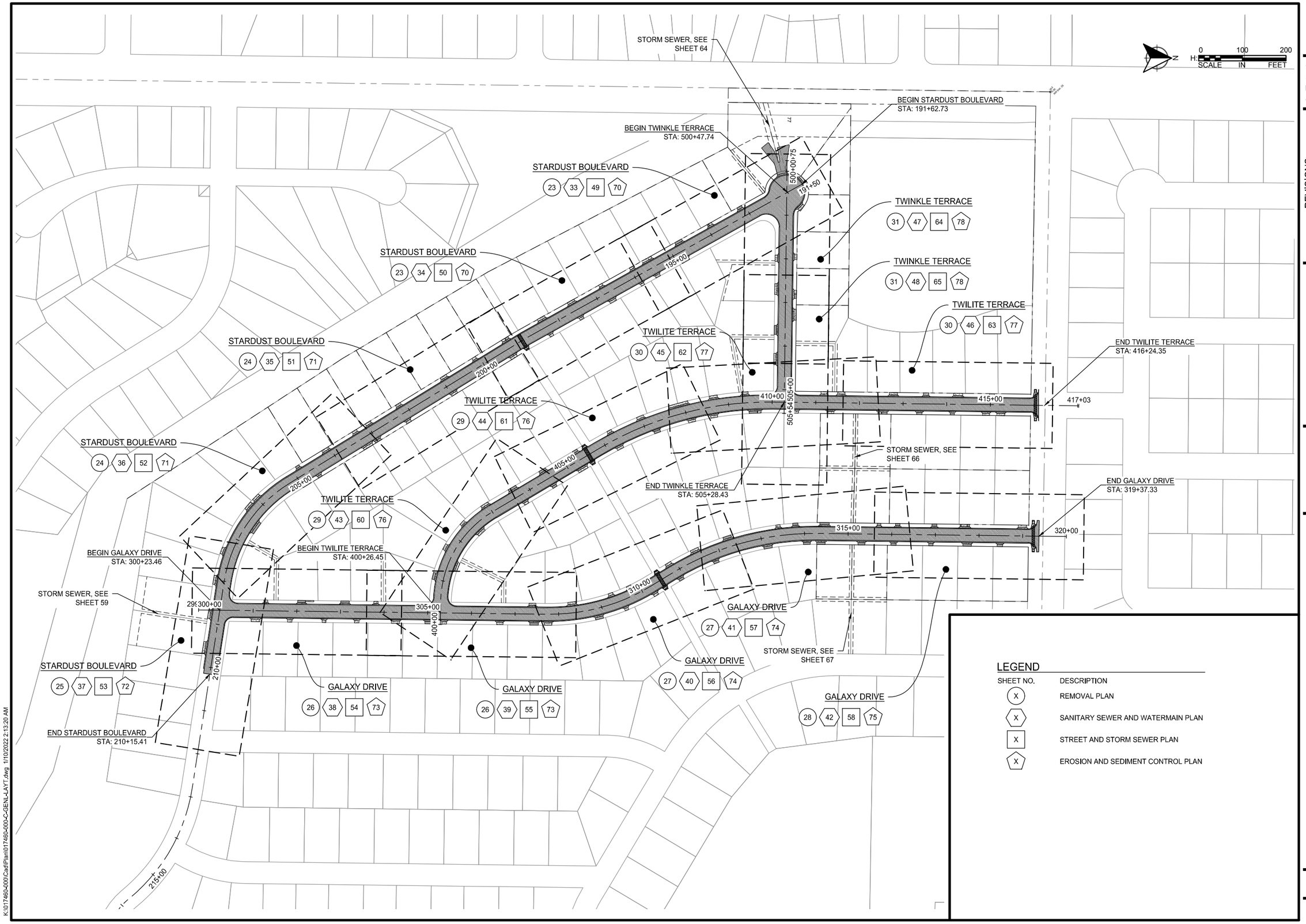
wsb

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.

GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LICENSE NUMBER: 45489

WSB PROJ. NO. 017460-000



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City of CIRCLE PINES

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

NO.	DATE	DESCRIPTION

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.

GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

GENERAL LAYOUT

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

SHEET 2 OF 96

A

STATEMENT OF ESTIMATED QUANTITIES

NOTES	ITEM NO.	MNDOT SPECIFICATION NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY
A. Surface Improvements					
	1	2021.501	MOBILIZATION	LS	1.00
1	2	2101.502	CLEARING	EACH	90
1	3	2101.502	GRUBBING	EACH	90
	4	2104.502	REMOVE SIGN	EACH	25
	5	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	L F	1430
	6	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	L F	870
	7	2104.503	REMOVE CURB & GUTTER	L F	11320
	8	2104.503	SALVAGE FENCE	L F	970
	9	2104.503	ABATE ASBESTOS-CONTAINING PIPES	L F	2000
	10	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	S Y	1595
	11	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	S Y	885
	12	2104.504	REMOVE BITUMINOUS PAVEMENT	S Y	19695
	13	2104.518	REMOVE CONCRETE WALK	S F	715
3	14	2104.601	SALVAGE AND REINSTALL LANDSCAPE STRUCTURES	LS	1
	15	2106.507	EXCAVATION - COMMON (P)	C Y	5738
1, 2	16	2106.507	EXCAVATION - SUBGRADE	C Y	1500
	17	2106.507	GRANULAR EMBANKMENT (CV)	C Y	35
1, 2	18	2106.507	SELECT GRANULAR EMBANKMENT (CV)	C Y	1500
	19	2112.519	SUBGRADE PREPARATION	RD STA	56.6
2	20	2123.510	COMMON LABORERS	HOUR	20
	21	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	24
2	22	2123.610	UTILITY CREW	HOUR	20
2	23	2123.610	SKID LOADER	HOUR	20
	24	2130.523	WATER	MGAL	10
	25	2211.507	AGGREGATE BASE (CV) CLASS 5 (P)	C Y	4030
4	26	2360.504	TYPE SP 9.5 WEAR CRS MIX (2,B) 3.0" THICK	S Y	715
	27	2360.509	TYPE SP 9.5 WEARING COURSE MIX (3,B)	TON	1780
	28	2360.509	TYPE SP 12.5 NON WEAR COURSE MIX (3,B)	TON	2370
2	29	2502.503	4" PERF TP PIPE DRAIN	L F	1800
	30	2504.601	IRRIGATION SYSTEM	LS	1
3	31	2504.602	ADJUST GATE VALVE & BOX	EACH	1
	32	2521.518	6" CONCRETE WALK	S F	725
	33	2531.503	CONCRETE CURB & GUTTER DESIGN B618	L F	11320
4	34	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	S Y	1770
	35	2531.618	TRUNCATED DOMES	S F	128
	36	2540.602	MAIL BOX	EACH	126
	37	2540.602	MAIL BOX SUPPORT	EACH	126
	38	2540.602	TEMPORARY MAIL BOX	EACH	126
2	39	2557.602	REPAIR DOG FENCE	EACH	5
5	40	2557.603	INSTALL FENCE	L F	970
	41	2563.601	TRAFFIC CONTROL	LS	1
6	42	2564.518	SIGN PANELS TYPE C	S F	54.25
6	43	2564.602	SIGN PANELS TYPE SPECIAL	EACH	6
	44	2565.616	PEDESTRIAN CROSSWALK FLASHER SYSTEM	SYS	3
1	45	2571.502	CONIFEROUS TREE 8' HT B&B	EACH	20
1	46	2571.502	DECIDUOUS TREE 2.5" CAL B&B	EACH	100
	47	2573.501	STABILIZED CONSTRUCTION EXIT	LS	1
	48	2573.502	STORM DRAIN INLET PROTECTION	EACH	56
2	49	2573.503	SILT FENCE, TYPE MS	L F	4600
	50	2573.503	SEDIMENT CONTROL LOG TYPE WOOD FIBER	L F	1140
1	51	2574.507	COMMON TOPSOIL BORROW	C Y	1620
	52	2574.508	FERTILIZER TYPE 3	LB	410
	53	2575.504	SODDING TYPE LAWN	S Y	9690
	54	2575.504	ROLLED EROSION PREVENTION CATEGORY 20	S Y	280
	55	2575.508	HYDRAULIC MULCH MATRIX	LB	6000
	56	2575.523	RAPID STABILIZATION METHOD 3	MGAL	5
	57	2582.518	CROSSWALK PREF THERMO	S F	1139
B. Sanitary Sewer Improvements					
	58	2104.502	REMOVE MANHOLE	EACH	29
	59	2104.503	REMOVE SEWER PIPE (SANITARY)	L F	5670
	60	2104.503	REMOVE SANITARY SERVICE PIPE	L F	3590
	61	2105.601	DEWATERING	LS	1
	62	2503.601	SANITARY SEWER BYPASS PUMPING	LS	1
	63	2503.602	CONNECT TO EXISTING SANITARY SEWER	EACH	1
	64	2503.602	CONNECT TO EXISTING MANHOLES (SAN)	EACH	1
	65	2503.602	CONNECT TO EXISTING SANITARY SEWER SER	EACH	125
	66	2503.602	8"X6" PVC WYE	EACH	78
	67	2503.602	12"X6" PVC WYE	EACH	47
	68	2503.603	TELEVISE SANITARY SEWER	L F	5604
	69	2503.603	6" PVC PIPE SEWER	L F	3476
	70	2503.603	6" PVC RISER PIPE	L F	445
	71	2503.603	8" PVC PIPE SEWER	L F	3387
	72	2503.603	12" PVC PIPE SEWER	L F	2217
	73	2506.502	ADJUST FRAME & RING CASTING	EACH	1
	74	2506.602	CHIMNEY SEAL	EACH	29
	75	2506.602	CASTING ASSEMBLY (SANITARY)	EACH	29
	76	2506.603	CONSTRUCT 48" DIA SANITARY MANHOLE	L F	393.4

STATEMENT OF ESTIMATED QUANTITIES

NOTES	ITEM NO.	MNDOT SPECIFICATION NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY
C. Watermain Improvements					
	77	2104.502	REMOVE GATE VALVE & BOX	EACH	19
	78	2104.502	REMOVE CURB STOP & BOX	EACH	126
	79	2104.502	REMOVE HYDRANT	EACH	9
	80	2104.503	REMOVE WATER MAIN	L F	5990
	81	2104.503	REMOVE WATER SERVICE PIPE	L F	3970
	82	2504.601	TEMPORARY WATER SERVICE	LS	1
	83	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	5
	84	2504.602	CONNECT TO EXISTING WATER SERVICE	EACH	126
	85	2504.602	HYDRANT	EACH	14
	86	2504.602	ADJUST GATE VALVE & BOX	EACH	1
	87	2504.602	1" CORPORATION STOP	EACH	126
	88	2504.602	6" GATE VALVE & BOX	EACH	14
	89	2504.602	8" GATE VALVE & BOX	EACH	13
	90	2504.602	1" CURB STOP & BOX	EACH	126
	91	2504.603	1" TYPE PE PIPE	L F	3638
	92	2504.603	6" PVC WATERMAIN	L F	175
	93	2504.603	8" PVC WATERMAIN	L F	5665
1	94	2504.604	4" POLYSTYRENE INSULATION	S Y	72
	95	2504.608	DUCTILE IRON FITTINGS	LB	3040
D. Storm Sewer Improvements					
1	96	2101.505	CLEARING	ACRE	0.50
1	97	2101.505	GRUBBING	ACRE	0.50
	98	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	27
	99	2104.503	REMOVE SEWER PIPE (STORM)	L F	2565
	100	2104.603	ABANDON STORM SEWER	L F	290
	101	2501.502	44" SPAN RC PIPE-ARCH APRON	EACH	1
	102	2501.602	TRASH GUARD FOR 44" SPAN PIPE APRON	EACH	1
	103	2503.503	15" RC PIPE SEWER DES 3006 CL V	L F	2282
	104	2503.503	21" RC PIPE SEWER DES 3006 CL III	L F	1117
	105	2503.503	24" RC PIPE SEWER DES 3006 CL III	L F	1532
	106	2503.503	27" RC PIPE SEWER DES 3006 CL III	L F	291
	107	2503.503	36" RC PIPE SEWER DES 3006 CL III	L F	185
	108	2503.503	44" SPAN RC PIPE-ARCH SEWER CL IIA	L F	107
	109	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	1
	110	2503.602	CONNECT TO EXISTING BOX CULVERT	EACH	1
	111	2503.603	24" PIPE SEWER SPECIAL	L F	137
	112	2503.603	TELEVISE STORM SEWER	L F	5651
	113	2506.502	CASTING ASSEMBLY	EACH	39
	114	2506.503	CONST DRAINAGE STRUCTURE DES 48-4020	L F	216.9
	115	2506.503	CONST DRAINAGE STRUCTURE DES 60-4020	L F	33.2
	116	2506.503	CONST DRAINAGE STRUCTURE DES 72-4020	L F	23.7
	117	2506.602	CONST DRAINAGE STRUCTURE DESIGN SPEC (2'X3')	EACH	19
	118	2506.602	CHIMNEY SEAL	EACH	58
	119	2511.507	RANDOM RIPRAP CLASS II	C Y	11

NOTES

1. AS DIRECTED BY THE ENGINEER.
2. TOKEN QUANTITY.
3. ALLOWANCE
4. DRIVEWAY PAVEMENT, AGGREGATE BASE INCIDENTAL
5. SALVAGED FENCE TO BE REINSTALLED, TYPE AS NOTED ON PLANS
6. SIGNING TO MATCH EXISTING CONDITIONS
7. 3.0" AVERAGE EXISTING BITUMINOUS THICKNESS

wsb

City of CIRCLE PINES

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

NO.	DATE	DESCRIPTION
A	01/18/22	ADDENDUM NO. 1

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.

GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

STATEMENT OF ESTIMATED QUANTITIES

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

SHEET 3R OF 96

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SANITARY SEWER TABULATION

STRUCTURE NO.	TYPE	ALIGNMENT	STATION	OFFSET		CASTING ASSEMBLY	RIM ELEVATION	INVERT ELEVATION (OUT)	DOWNSTREAM STRUCTURE NO.	PIPE SLOPE (%)	2506 CONSTRUCT SANITARY MANHOLE	2503 PVC PIPE SEWER		NOTES
											48" DIA.	8" SDR 35	12" SDR 35	
											LF	LF	LF	
6000	48" MH	STARDUST BLVD	208+67.18	0.00		R-1642B	905.54	890.08	EXMH-A	0.22%	15.4		127	CONNECT TO EXISTING MH
6001	48" MH	STARDUST BLVD	207+37.97	0.00		R-1642B	906.19	890.36	6000	0.22%	15.8		129	
6002	48" MH	STARDUST BLVD	206+28.78	0.00		R-1642B	906.74	890.60	6001	0.22%	16.1		109	
6003	48" MH	STARDUST BLVD	205+18.80	0.00		R-1642B	907.29	890.84	6002	0.22%	16.4		109	
6004	48" MH	STARDUST BLVD	203+38.80	0.00		R-1642B	908.19	891.24	6003	0.22%	16.9		180	
6005	48" MH	STARDUST BLVD	200+38.80	0.00		R-1642B	909.69	891.90	6004	0.22%	17.7		300	
6006	48" MH	STARDUST BLVD	197+38.74	0.00		R-1642B	911.18	892.56	6005	0.22%	18.6		300	
6007	48" MH	STARDUST BLVD	194+38.74	0.00		R-1642B	908.82	893.22	6006	0.22%	15.6		300	
6008	48" MH	STARDUST BLVD	192+57.11	0.00		R-1642B	906.25	893.62	6007	0.22%	12.6		182	
6009	48" MH	STARDUST BLVD	192+27.54	44.08	LT	R-1642B	906.24	893.73	6008	0.22%	12.5		53	
6010	48" MH	TWINKLE TER	502+87.45	0.00		R-1642B	908.48	894.15	6009	0.22%	14.3		188	
6011	48" MH	TWINKLE TER	410+27.69	0.00		R-1642B	908.08	894.68	6010	0.22%	13.4		241	
6012	48" MH	TWILITE TER	413+18.02	0.00		R-1642B	906.39	896.17	6011	0.40%	10.2	290		
6013	48" MH	GALAXY DR	302+77.51	0.00		R-1642B	907.23	892.18	6000	0.70%	15.0	254		
6014	48" MH	GALAXY DR	305+29.27	0.00		R-1642B	908.80	893.93	6013	0.70%	14.8	252		
6015	48" MH	GALAXY DR	307+73.14	0.00		R-1642B	910.93	894.90	6014	0.40%	16.0	244		
6016	48" MH	GALAXY DR	309+06.50	10.56	RT	R-1642B	912.03	895.44	6015	0.40%	16.5	135		
6017	48" MH	GALAXY DR	311+71.15	0.00		R-1642B	911.79	896.49	6016	0.40%	15.3	266		
6018	48" MH	GALAXY DR	313+20.59	0.00		R-1642B	909.51	897.09	6018	0.40%	12.4	149		
6019	48" MH	GALAXY DR	314+61.92	0.00		R-1642B	907.40	897.66	6019	0.40%	9.7	141		
6020	48" MH	GALAXY DR	316+73.69	0.00		R-1642B	909.31	898.50	6020	0.40%	10.8	212		
6021	48" MH	GALAXY DR	318+71.68	0.00		R-1642B	911.19	901.47	6021	1.50%	9.7	198		
6022	48" MH	TWILITE TER	401+16.69	0.00		R-1642B	908.59	896.63	6014	3.00%	11.9	90		
6023	48" MH	TWILITE TER	402+08.73	0.00		R-1642B	909.04	897.96	6023	1.45%	11.0	92		
6024	48" MH	TWILITE TER	403+01.89	0.00		R-1642B	909.52	898.63	6024	0.60%	10.8	93		
6025	48" MH	TWILITE TER	405+83.65	0.00		R-1642B	910.55	899.45	6025	0.40%	11.0	282		
6026	48" MH	TWILITE TER	406+87.07	0.00		R-1642B	911.44	899.87	6026	0.40%	11.5	103		
6027	48" MH	TWILITE TER	408+37.78	0.00		R-1642B	911.16	900.47	6027	0.40%	10.6	150		
6028	48" MH	TWILITE TER	408+77.48	0.00		R-1642B	910.70	899.61	6011	3.00%	11.0	150		
EXMH-A	EXISTING MH	STARDUST BLVD	209+93.77	0.13	RT	---	904.74	889.80	EXMH-B	---				EXISTING 12" PVC
EXMH-B	EXISTING MH	STARDUST BLVD	211+71.20	1.17	RT	---	903.18	---	---	---				
EXMH-C	EXISTING MH	TWILITE TER	416+12.36	0.39	LT	---	909.09	898.36	STUB	---				
STUB	---	TWILITE TER	416+04.73	0.39	LT	---	---	897.65	6012	0.40%		287		CONNECT TO EXISTING 8" VCP
PROJECT TOTALS											**393.4**	**3387**	**2217**	

wsb

City of CIRCLE PINES

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AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

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GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

QUANTITY TABULATIONS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

SEWER AND WATER SERVICES

	SANITARY SERVICE											WATER SERVICE	
ADDRESS	APPROXIMATE WYE STATION	DOWNSTREAM MANHOLE	INV. AT MH	DIA. MAIN (IN)	% SLOPE (MAIN)	INV. AT MAIN	GROUND ELEV. AT ROW	WYE	6" PVC SANITARY SERVICE (LF)	6" PVC RISER PIPE (LF)	REMARKS	1" HDPE WATER SERVICE (LF)	REMARKS
257 STARDUST BLVD	0+24 R	6006	893.62	12	0.22	894.2	907.20	12" x 6"	97	---		90	INSULATION (STORM CROSSING)
255 STARDUST BLVD	0+05 R	6008	893.62	12	0.22	894.1	906.68	12" x 6"	45	---		59	
253 STARDUST BLVD	1+48 R	6007	893.22	12	0.22	894.1	907.65	12" x 6"	26	4		38	
251 STARDUST BLVD	0+78 R	6007	893.22	12	0.22	893.9	906.38	12" x 6"	26	4		38	
249 STARDUST BLVD	2+91 R	6006	892.56	12	0.22	893.7	909.35	12" x 6"	26	6		37	
250 STARDUST BLVD	2+89 L	6006	892.56	12	0.22	893.7	910.65	12" x 6"	26	7		15	
247 STARDUST BLVD	2+20 R	6006	892.56	12	0.22	893.5	910.74	12" x 6"	26	7		38	
248 STARDUST BLVD	2+18 L	6006	892.56	12	0.22	893.5	910.53	12" x 6"	26	7		17	
246 STARDUST BLVD	1+18 L	6006	892.56	12	0.22	893.3	911.67	12" x 6"	26	9		17	
245 STARDUST BLVD	1+09 R	6006	892.56	12	0.22	893.3	911.61	12" x 6"	26	6		37	
244 STARDUST BLVD	0+29 L	6006	892.56	12	0.22	893.1	912.07	12" x 6"	26	9		16	
243 STARDUST BLVD	0+25 R	6006	892.56	12	0.22	893.1	911.58	12" x 6"	26	6		38	
241 STARDUST BLVD	2+51 R	6006	891.90	12	0.22	893.0	911.33	12" x 6"	27	6		39	
242 STARDUST BLVD	2+47 L	6006	891.90	12	0.22	892.9	911.68	12" x 6"	25	9		16	
239 STARDUST BLVD	1+73 R	6005	891.90	12	0.22	892.8	911.08	12" x 6"	29	6		41	
240 STARDUST BLVD	1+69 L	6006	891.90	12	0.22	892.8	911.26	12" x 6"	23	9		14	
238 STARDUST BLVD	0+69 L	6005	891.90	12	0.22	892.6	910.73	12" x 6"	25	6		14	
237 STARDUST BLVD	0+66 R	6005	891.90	12	0.22	892.6	910.57	12" x 6"	27	6		40	
236 STARDUST BLVD	2+91 L	6004	891.24	12	0.22	892.4	910.26	12" x 6"	26	6		17	
235 STARDUST BLVD	2+88 R	6004	891.24	12	0.22	892.4	910.15	12" x 6"	26	6		38	
234 STARDUST BLVD	2+12 L	6004	891.24	12	0.22	892.2	909.87	12" x 6"	26	6		16	
233 STARDUST BLVD	2+09 R	6004	891.24	12	0.22	892.2	909.77	12" x 6"	26	6		38	
232 STARDUST BLVD	1+42 L	6004	891.24	12	0.22	892.1	909.19	12" x 6"	26	7		15	
231 STARDUST BLVD	1+39 R	6004	891.24	12	0.22	892.0	909.33	12" x 6"	26	7		37	
229 STARDUST BLVD	0+57 R	6004	891.24	12	0.22	891.9	908.52	12" x 6"	26	7		37	
230 STARDUST BLVD	0+54 L	6004	891.24	12	0.22	891.9	909.14	12" x 6"	26	7		15	
227 STARDUST BLVD	1+75 R	6003	890.84	12	0.22	891.7	908.45	12" x 6"	26	7		41	
228 STARDUST BLVD	1+53 L	6003	890.84	12	0.22	891.7	908.99	12" x 6"	26	7		14	
225 STARDUST BLVD	0+97 R	6003	890.84	12	0.22	891.6	908.37	12" x 6"	26	7		38	
226 STARDUST BLVD	0+76 L	6003	890.84	12	0.22	891.5	909.09	12" x 6"	26	6		16	NO FIELD SHOT ON EX. CURB STOP
223 STARDUST BLVD	0+11 R	6003	890.84	12	0.22	891.4	907.93	12" x 6"	26	7		37	
224 STARDUST BLVD	0+06 L	6003	890.84	12	0.22	891.4	907.64	12" x 6"	26	6		13	
221 STARDUST BLVD	0+48 R	6002	890.60	12	0.22	891.2	907.73	12" x 6"	31	7		40	
222 STARDUST BLVD	0+98 L	6001	890.36	12	0.22	891.1	907.32	12" x 6"	24	6		14	
219 STARDUST BLVD	0+75 R	6001	890.36	12	0.22	891.0	906.69	12" x 6"	30	6		41	
217 STARDUST BLVD	0+28 R	6001	890.36	12	0.22	890.9	906.06	12" x 6"	29	6		40	NO FIELD SHOT ON EX. CURB STOP
215 STARDUST BLVD	0+96 R	6000	890.06	12	0.22	890.8	906.44	12" x 6"	29	6		40	
213 STARDUST BLVD	0+16 R	6000	890.06	12	0.22	890.6	905.93	12" x 6"	27	5		37	NO FIELD SHOT ON EX. CURB STOP
211 STARDUST BLVD	0+70 R	EXMH-A	889.50	12	0.22	890.5	905.38	12" x 6"	26	5		37	
222 GALAXY DR	0+45 R	6000	890.41	8	0.70	891.1	905.67	8" x 6"	26	5		36	
223 GALAXY DR	0+76 L	6000	890.41	8	0.70	891.3	907.16	8" x 6"	26	6		17	
224 GALAXY DR	1+24 R	6000	890.41	8	0.70	891.5	907.02	8" x 6"	26	5		36	
225 GALAXY DR	1+44 L	6000	890.41	8	0.70	891.5	907.60	8" x 6"	26	6		15	
226 GALAXY DR	2+02 R	6000	890.41	8	0.70	892.2	907.60	8" x 6"	26	6		35	
227 GALAXY DR	2+51 L	6000	890.41	8	0.70	892.5	907.89	8" x 6"	26	5		17	
228 GALAXY DR	0+37 R	6013	892.18	8	0.70	892.8	906.25	8" x 6"	26	5		36	
229 GALAXY DR	0+78 L	6013	892.18	8	0.70	893.1	906.34	8" x 6"	26	5		15	NO FIELD SHOT ON EX. CURB STOP
230 GALAXY DR	1+14 R	6013	892.18	8	0.70	893.3	907.99	8" x 6"	26	5		36	
227 TWILITE TER	1+74 L	6013	892.18	8	0.70	893.7	---	---	---	---		15	2 OF 2 WATER SERVICES
232 GALAXY DR	1+98 R	6013	892.18	8	0.70	893.9	906.39	8" x 6"	26	4		36	
234 GALAXY DR	0+52 R	6014	893.93	8	0.40	894.5	910.04	8" x 6"	26	6		36	
228 TWILITE TER	0+77 L	6014	893.93	8	0.40	894.6	---	---	---	---		13	2 OF 2 WATER SERVICES, NO FIELD SHOT ON EX. CURB STOP
235 GALAXY DR	0+94 R	6014	893.93	8	0.40	894.5	910.41	8" x 6"	26	6		36	
237 GALAXY DR	1+69 L	6014	893.93	8	0.40	894.9	911.45	8" x 6"	26	7		15	
238 GALAXY DR	1+72 R	6014	893.93	8	0.40	895.0	911.68	8" x 6"	26	7		36	
239 GALAXY DR	0+37 L	6015	894.90	8	0.40	895.4	912.19	8" x 6"	25	7		14	
240 GALAXY DR	0+37 R	6015	894.90	8	0.40	895.4	912.59	8" x 6"	27	7		37	
242 GALAXY DR	0+87 R	6015	894.90	8	0.40	895.6	913.35	8" x 6"	24	8		37	
241 GALAXY DR	1+18 L	6015	894.90	8	0.40	895.7	912.79	8" x 6"	34	7		16	NO FIELD SHOT ON EX. CURB STOP
244 GALAXY DR	0+08 R	6016	895.44	8	0.40	895.8	914.47	8" x 6"	18	9		37	
246 GALAXY DR	0+71 R	6016	895.44	8	0.40	896.1	914.66	8" x 6"	26	9		37	
243 GALAXY DR	1+00 L	6016	895.44	8	0.40	896.2	913.11	8" x 6"	26	7		16	
245 GALAXY DR	1+91 L	6016	895.44	8	0.40	896.5	913.50	8" x 6"	29	7		19	
248 GALAXY DR	2+14 R	6016	895.44	8	0.40	896.6	913.48	8" x 6"	23	7		33	NO FIELD SHOT ON EX. CURB STOP
247 GALAXY DR	2+50 L	6016	895.44	8	0.40	896.8	912.28	8" x 6"	27	6		16	
250 GALAXY DR	0+47 R	6017	896.49	8	0.40	897.0	912.70	8" x 6"	22	6		32	
249 GALAXY DR	0+57 L	6017	896.49	8	0.40	897.1	911.03	8" x 6"	30	4		20	
252 GALAXY DR	1+28 R	6017	896.49	8	0.40	897.3	910.90	8" x 6"	24	4		33	
251 GALAXY DR	0+13 L	6018	897.09	8	0.40	897.5	909.79	8" x 6"	27	---		16	
254 GALAXY DR	0+56 R	6018	897.09	8	0.40	897.7	909.84	8" x 6"	23	---		33	
253 GALAXY DR	0+57 L	6018	897.09	8	0.40	897.7	906.92	8" x 6"	29	---		20	

SEWER AND WATER SERVICES

	SANITARY SERVICE											WATER SERVICE	
ADDRESS	APPROXIMATE WYE STATION	DOWNSTREAM MANHOLE	INV. AT MH	DIA. MAIN (IN)	% SLOPE (MAIN)	INV. AT MAIN	GROUND ELEV. AT ROW	WYE	6" PVC SANITARY SERVICE (LF)	6" PVC RISER PIPE (LF)	REMARKS	1" HDPE WATER SERVICE (LF)	REMARKS
255 GALAXY DR	0+27 L	6019	897.66	8	0.40	898.1	907.51	8" x 6"	26	---		17	
256 GALAXY DR	0+29 R	6019	897.66	8	0.40	898.1	908.51	8" x 6"	26	---		36	
258 GALAXY DR	0+69 R	6019	897.66	8	0.40	898.3	907.59	8" x 6"	26	---		36	
257 GALAXY DR	0+73 L	6019	897.66	8	0.40	898.3	907.20	8" x 6"	26	---		16	
259 GALAXY DR	1+61 L	6019	897.66	8	0.40	898.6	908.34	8" x 6"	26	---		15	
260 GALAXY DR	1+79 R	6019	897.66	8	0.40	898.7	909.29	8" x 6"	26	---		36	
261 GALAXY DR	0+51 L	6020	896.50	8	1.50	899.6	911.40	8" x 6"	26	---		16	
262 GALAXY DR	0+68 R	6020	896.50	8	1.50	899.9	912.05	8" x 6"	26	---		36	SERVICE BELOW STORM SEWER
264 GALAXY DR	1+24 R	6020	896.50	8	1.50	900.7	912.65	8" x 6"	26	---		38	SERVICE BELOW STORM SEWER
263 GALAXY DR	1+41 L	6020	896.50	8	1.50	900.9	912.86	8" x 6"	26	---		19	
265 GALAXY DR	1+65 L	6020	896.50	8	1.50	901.3	912.67	8" x 6"	26	---		17	
266 GALAXY DR	1+92 R	6020	896.50	8	1.50	901.7	912.92	8" x 6"	26	---		36	SERVICE BELOW STORM SEWER. NO FIELD SHOT ON EX. CURB STOP
227 TWILITE TER	0+56 L	6014	893.93	8	3.00	896.0	909.05	8" x 6"	30	---		19	1 OF 2 WATER SERVICES, NO FIELD SHOT ON EX. CURB STOP
228 TWILITE TER	0+74 R	6014	893.93	8	3.00	896.5	909.19	8" x 6"	23	---		34	1 OF 2 WATER SERVICES, NO FIELD SHOT ON EX. CURB STOP
229 TWILITE TER	0+27 L	6022	896.63	8	1.45	897.4	909.35	8" x 6"	30	---		21	
232 TWILITE TER	0+84 R	6022	896.63	8	1.45	898.2	909.29	8" x 6"	24	---		34	
231 TWILITE TER	0+86 L	6022	896.63	8	1.45	898.2	909.57	8" x 6"	27	---		19	
233 TWILITE TER	0+50 L	6023	897.96	8	0.40	898.5	909.67	8" x 6"	31	---		19	
234 TWILITE TER	0+21 R	6024	898.33	8	0.40	898.8	910.33	8" x 6"	26	---		38	
235 TWILITE TER	0+27 L	6024	898.33	8	0.40	898.8	910.24	8" x 6"	26	---		16	NO FIELD SHOT ON EX. CURB STOP
238 TWILITE TER	1+10 R	6024	898.33	8	0.40	899.1	910.54	8" x 6"	26	---		38	
237 TWILITE TER	1+16 L	6024	898.33	8	0.40	899.1	909.99	8" x 6"	26	---		15	
240 TWILITE TER	1+91 R	6024	898.33	8	0.40	899.4	910.58	8" x 6"	26	---		38	
239 TWILITE TER	1+93 L	6024	898.33	8	0.40	899.4	910.30	8" x 6"	26	---		14	
242 TWILITE TER	0+03 R	6025	899.45	8	0.40	899.8	910.86	8" x 6"	26	---		37	
241 TWILITE TER	0+04 L	6025	899.45	8	0.40	899.8	910.80	8" x 6"	26	---		17	
243 TWILITE TER	0+87 L	6025	899.45	8	0.40	900.1	911.77	8" x 6"	27	---		16	
244 TWILITE TER	0+98 R	6025	899.45	8	0.40	900.2	911.87	8" x 6"	26	---		39	
245 TWILITE TER	0+48 L	6026	899.87	8	0.40	900.4	912.10	8" x 6"	28	---		17	
246 TWILITE TER	0+82 R	6026	899.87	8	0.40	900.5	912.38	8" x 6"	25	---		34	NO FIELD SHOT ON EX. CURB STOP
247 TWILITE TER	1+42 L	6026	899.87	8	0.40	900.8	912.14	8" x 6"	28	---		19	
248 TWILITE TER	1+34 R	6011	895.11	8	3.00	899.5	910.87	8" x 6"	25	---		36	
249 TWILITE TER	1+23 L	6011	895.11	8	3.00	899.2	911.24	8" x 6"	27	---		17	
251 TWILITE TER	0+60 L	6011	895.11	8	3.00	897.2	909.91	8" x 6"	28	---		18	
250 TWILITE TER	0+31 R	6011	895.11	8	3.00	896.4	909.44	8" x 6"	26	---		36	
254 TWILITE TER	0+58 R	6011	895.21	8	0.40	895.8	907.87	12" x 6"	26	---		37	SERVICE BELOW STORM SEWER
253 TWILITE TER	0+59 L	6011	895.21	8	0.40	895.8	907.38	12" x 6"	26	---		17	
256 TWILITE TER	1+34 R	6011	895.21	8	0.40	896.1	906.51	12" x 6"	26	---		34	SERVICE BELOW STORM SEWER
255 TWILITE TER	1+71 L	6011	895.21	8	0.40	896.2	906.32	12" x 6"	26	---		16	
258 TWILITE TER	1+88 R	6011	895.21	8	0.40	896.3	906.58	12" x 6"	25	---		37	NO FIELD SHOT ON EX. CURB STOP
257 TWILITE TER	2+19 L	6011	895.21	8	0.40	896.4	906.40	12" x 6"	26	---		16	
260 TWILITE TER	2+60 R	6011	895.21	8	0.40	896.6	906.80	12" x 6"	26	---		37	NO FIELD SHOT ON EX. CURB STOP
259 TWILITE TER	0+07 L	6012	896.49	8	0.40	896.9	907.32	12" x 6"	26	---		16	
262 TWILITE TER	0+54 R	6012	896.49	8	0.40	897.0	907.60	12" x 6"	26	---		38	
261 TWILITE TER	0+77 L	6012	896.49	8	0.40	897.1	908.46	12" x 6"	26	---		16	
264 TWILITE TER	1+25 R	6012	896.49	8	0.40	897.3	909.29	12" x 6"	26	---		37	NO FIELD SHOT ON EX. CURB STOP
263 TWILITE TER	1+48 L	6012	896.49	8	0.40	897.4	909.81	12" x 6"	26	---		16	NO FIELD SHOT ON EX. CURB STOP
266 TWILITE TER	2+44 R	6012	896.49	8	0.40	897.8	910.32	12" x 6"	26	---		38	
265 TWILITE TER	---	EXMH-C	---	---	---	---	---	---		---	EX. SERVICE TO REMAIN (NORTH RD)	16	
101 TWINKLE TER	0+50 L	6008	893.62	12	0.22	894.2	906.73	12" x 6"	92	---		80	
103 TWINKLE TER	0+47 L	6008	893.62	12	0.22	894.2	906.88	12" x 6"	70	---		46	
105 TWINKLE TER	0+55 L	6009	893.73	12	0.22	894.4	907.37	12" x 6"	26	---		17	
104 TWINKLE TER	0+58 R	6009	893.73	12	0.22	894.4	907.68	12" x 6"	26	---		37	SERVICE BELOW STORM SEWER (OR ABOVE STORM SEWER W/ INSULATION)
106 TWINKLE TER	1+31 R	6009	893.73	12	0.22	894.5	909.00	12" x 6"	26	4		36	
107 TWINKLE TER	1+39 L	6009	893.73	12	0.22	894.5	908.22	12" x 6"	26	4		16	
108 TWINKLE TER	0+42 R	6010	894.15	12	0.22	894.7	909.47	12" x 6"	26	5		37	
109 TWINKLE TER	0+54 L	6010	894.15	12	0.22	894.8	909.11	12" x 6"	26	4		16	

wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

NO.	DATE	DESCRIPTION

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.

GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

QUANTITY TABULATIONS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

STORM SEWER TABULATION

STRUCT. NO.	STREET	STATION	OFFSET	SIDE	STRUCTURE PAY HEIGHTS: SPECIAL (2'X3' BOX)	48-4020	60-4020	72-4020	STEPS REQ.	CASTING ASSEMBLY	TOP OF CASTING ELEV. (FINISHED)	OUTLET ELEV. BOTTOM	15" RCP CL V	21" RCP CL III	24" RCP CL III	27" RCP CL III	36" RCP CL III	SPECIAL: 24" PIPE SEWER SPECIAL	44" SPAN RCP CL IIA	ARCHED PIPE APRONS: 44" SPAN ARCH APRON	TRASH GUARD	RIPRAP CL II	GEOTEXTILE FILTER TYPE IV	GRANULAR FILTER	DRAINS TO: STRUCT. NO.		PIPE GRADE	INVERT ELEV.	REMARKS
			FT		EACH	LIN FT	LIN FT	LIN FT					LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	CY	SY	CY			FT/FT		
5000	Stardust	191+97.19	34.03	RT		10.8			YES	R1642B	906.30	895.59						112							5000A	24	0.0080	894.70	
5000A		0+40.49	0.00	RT		11.0			YES	R4342	905.63	894.71						25							OUT-1	24	0.0200	894.21	CONNECT TO EXISTING BOX CULVERT
5001	Stardust	192+49.56	17.07	RT		7.5			YES	R3067V	905.80	901.69	55												5000	15	0.0224	900.46	3' SUMP
5001A	Stardust	193+33.43	16.67	RT		4.6			YES	R3067V	906.89	902.61	84												5001	15	0.0110	901.69	
5001B	Stardust	193+33.43	16.67	LT	1					R3067V	906.89	903.28	33												5001A	15	0.0200	902.61	
5002	Twinkle	501+14.94	19.72	RT		12.9			YES	R3067V	905.51	895.99			99										5000	24	0.0040	895.60	3' SUMP
5002A	Twinkle	502+97.66	16.67	RT		11.8			YES	R3067V	908.14	896.72			183										5002	24	0.0040	895.99	
5003	Twinkle	501+10.71	16.67	LT		5.0			YES	R3067V	905.54	900.87	37												5002	15	0.0050	900.69	
5004	Twinkle	500+89.64	19.09	LT	1					R3067V	905.15	901.08	21												5003	15	0.0050	900.97	
5005	Twinkle	504+90.43	16.67	RT		10.0			YES	R3067V	907.08	897.49			193										5002A	24	0.0040	896.72	
5006	Twinkle	504+90.43	16.67	LT	1					R3067V	907.08	903.59	33												5005	15	0.0500	901.92	
5008	Twilite	410+11.02	16.67	RT			10.6		YES	R3067V	907.99	897.71			55										5005	24	0.0040	897.49	
5009	Twilite	411+91.70	16.67	RT			6.7		YES	R3067V	905.24	898.86			181										5008	24	0.0050	897.96	
5010	Galaxy	315+11.31	16.67	LT		7.4			YES	R3067V	906.66	899.65			133										5020	24	0.0024	899.63	RESTRICTED TRENCH
5011	Galaxy	315+18.63	16.67	LT	1					R3067V	906.65	902.95	7												5010	15	0.0200	902.80	
5012	Galaxy	315+10.41	16.67	RT		7.0			YES	R3067V	906.66	900.00			33										5010	24	0.0030	899.90	
5013	Galaxy	315+18.63	16.67	RT		4.9			YES	R3067V	906.65	902.14	8												5012	15	0.0170	902.00	
5013A	Galaxy	317+51.92	16.67	RT		6.7			YES	R3067V	910.71	904.37	233												5013	15	0.0100	902.04	
5014	Galaxy	319+15.26	16.93	RT		4.8			YES	R3067V	909.62	905.19	163												5013A	15	0.0050	904.37	
5015	Galaxy	319+15.41	16.92	LT	1					R3067V	909.62	905.87	34												5014	15	0.0200	905.19	
5016	Twilite	412+20.00	16.67	RT		5.6			YES	R3067V	905.16	899.88	28												5009	15	0.0094	899.61	
5017	Twilite	412+20.00	16.67	LT	1					R3067V	905.16	901.46	33												5016	15	0.0100	901.13	
5018		4+33.13	0.08	LT		9.7			YES	R4342	910.26	900.66		133											5012	21	0.0030	900.28	RESTRICTED TRENCH
5019		5+67.05	0.00	RT						---	906.77	901.06		134											5018	21	0.0030	900.66	RESTRICTED TRENCH, CONNECT TO EXISTING CBMH
5020		1+32.78	0.00	RT		7.6			YES	R4342	906.69	899.25			133										5009	24	0.0030	898.88	RESTRICTED TRENCH
5021	Galaxy	313+55.52	16.67	RT		5.9			YES	R3067V	908.54	903.04	153												5012	15	0.0150	900.75	
5022	Galaxy	313+55.52	16.67	LT	1					R3067V	908.55	904.71	33												5021	15	0.0500	903.04	
5023	Twilite	413+67.90	16.67	RT		5.4			YES	R3067V	906.71	901.65	148												5016	15	0.0120	899.88	
5024	Twilite	413+67.90	16.67	LT	1					R3067V	906.71	902.98	33												5023	15	0.0400	901.65	
5025	Twilite	415+84.00	16.67	RT		4.7			YES	R3067V	908.61	904.24	216												5023	15	0.0120	901.65	
5026	Twilite	415+84.00	16.67	LT	1					R3067V	908.61	904.91	33												5025	15	0.0200	904.24	
5100	Stardust	208+96.32	16.67	RT				12.5	YES	R3067V	904.96	892.83					185								5100A	36	0.0030	892.81	RESTRICTED TRENCH
5100A	Stardust	208+96.72	201.37	RT				4.6	YES	R1642B	896.77	892.27							107						OUT-2	44	0.0030	891.93	PIPE LENGTH DOES NOT INCLUDE APRON
5101	Stardust	208+23.71	16.67	RT		9.1			YES	R3067V	905.33	899.55			73										5100	24	0.0050	899.19	3' SUMP
5102	Stardust	208+23.71	16.67	LT	1					R3067V	905.33	901.33	33												5101	15	0.0200	900.66	
5103	Stardust	206+93.82	16.67	RT		6.0			YES	R3067V	905.98	900.32			135										5101	24	0.0050	899.65	
5104	Stardust	205+65.20	16.67	RT		5.8			YES	R3067V	906.65	901.24		134											5103	21	0.0050	900.57	
5105	Stardust	204+71.85	16.67	RT		5.6			YES	R3067V	907.09	901.82		96											5104	21	0.0050	901.34	
5106	Stardust	204+71.85	16.67	LT	1					R3067V	907.09	903.09	33												5105	15	0.0200	902.42	
5107	Stardust	202+32.83	16.67	RT		5.6			YES	R3067V	908.29	903.02		239											5105	21	0.0050	901.82	
5108	Stardust	202+32.83	16.67	LT	1					R3067V	908.29	904.29	33												5107	15	0.0200	903.62	
5109	Stardust	199+12.85	16.67	RT		5.1			YES	R3067V	909.89	905.12	320												5107	15	0.0050	903.52	
5110	Stardust	199+12.85	16.67	LT	1					R3067V	909.89	905.89	33												5109	15	0.0200	905.22	
5200	Galaxy	300+65.58	16.67	RT			8.9		YES	R3067V	904.79	899.21				63									5100	27	0.0050	898.89	3' SUMP
5201	Galaxy	300+65.58	16.67	LT	1					R3067V	904.79	900.92	33												5200	15	0.0200	900.25	
5202	Galaxy	302+93.57	16.67	RT			6.8		YES	R3067V	906.90	900.45				228									5200	27	0.0050	899.31	
5203	Galaxy	302+93.57	16.67	LT	1					R3067V	906.90	903.15	33												5202	15	0.0200	902.48	
5204	Galaxy	305+51.38	16.67	RT				6.5	YES	R3067V	908.51	902.34			258										5202	24	0.0069	900.56	
5205	Galaxy	306+83.43	16.67	RT		5.0			YES	R3067V	909.62	904.97	132												5204	15	0.0142	903.09	
5206	Galaxy	306+83.43	16.67	LT	1					R3067V	909.62	905.89	33												5205	15	0.0200	905.22	
5207	Twilite	400+66.54	16.67	LT	1					R3067V	907.91	904.46	33												5208	15	0.0200	903.79	
5208	Twilite	400+66.54	16.67	RT		5.7			YES	R3067V	907.91	902.62			56										5204	24	0.0050	902.34	
5209	Twilite	401+16.94	10.23	RT		5.4			YES	R1642B	908.39	903.11		48											5208	21	0.0050	902.87	
5210	Twilite	402+08.72	10.18	RT		5.4			YES	R1642B	908.85	903.55		87											5209	21	0.0050	903.11	
5211	Twilite	403+02.17	10.13	RT		5.4			YES	R1642B	909.31	903.99		89											5210	21	0.0050	903.54	
5212	Twilite	404+58.64	16.67	RT		4.7			YES	R3067V	909.10	904.78		157											5211	21	0.0050	904.00	
5213	Twilite	404+58.64	16.67	LT	1					R3067V	909.10	905.44	33												5212	15	0.0050	905.27	
5214	Twilite	405+73.65	16.67	RT		4.5			YES	R3067V	910.01	905.85	115												5212	15	0.0050	905.27	
5215	Twilite	405+73.65	16.67	LT	1					R3067V	910.01	906.52	33												5214	15	0.0200	905.85	
OUT-1										---	---	894.21																	CONNECT TO EXISTING BOX CULVERT
OUT-2										---	---	891.93								1	1	10.6	45.9	1.1					GEOTEXTILE AND GRANULAR FILTER INCIDENTAL
PROJECT TOTALS					**19**	**216.9**	**33.2**	**23.7**					**2282**	**1117**	**1532**	**291**	**185**	**137**	**107**	**1**	**1**	**10.6**	**45.9**	**1.1**					

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City of CIRCLE PINES

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AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

NO.	DATE	DESCRIPTION
A	01/18/22	ADDENDUM NO. 1

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GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

QUANTITY TABULATIONS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

SHEET
6R OF 96

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City of CIRCLE PINES

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CITY OF CIRCLE PINES

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SIGN TABULATION

STATION	OFFSET	SIGN DESCRIPTION	SIZE (IN)	PANEL CODE NO.	SIGN PANELS TYPE C (SQ FT)	SIGN PANELS TYPE SPECIAL (EA)	COMMENTS
STARDUST BOULEVARD							
199+04	LT	PEDESTRIAN CROSSING	30" X 30"	W11-2			REMOVE EXISTING SIGNS, REPLACE WITH PEDESTRIAN CROSSWALK FLASHER SYSTEM
		LEFT ARROW	24" X 12"	W16-7PL			
206+96	LT	NO PARKING ANY TIME	12" X 18"	R7-1	1.50		
		AUTISTIC CHILD AREA	30" X 30"	W11-X	6.25		
208+13	LT	NO PARKING BETWEEN SIGNS	12" X 18"	R7-1	1.50		
GALAXY DRIVE							
300+45	RT	STREET ID: GALAXY DRIVE/STARDUST BOULEVARD				1	4 BLADES
300+59	LT	STOP SIGN	30" X 30"	R1-1	6.25		
310+43	RT	PEDESTRIAN CROSSING	30" X 30"	W11-2			REMOVE EXISTING SIGNS, REPLACE WITH PEDESTRIAN CROSSWALK FALSHER SYSTEM
		LEFT ARROW	24" X 12"	W16-7PL			
310+58	LT	PEDESTRIAN CROSSING	30" X 30"	W11-2			
		LEFT ARROW	24" X 12"	W16-7PL			
318+36	LT	???	24" X 30"	---	5.00		
		AXLE WEIGTH LIMIT	24" X 30"	R12-2	5.00		
		NO PARKING	24" X 30"	W7-X	5.00		
319+14	RT	STREET ID: GALAXY DRIVE/NORTH ROAD				1	4 BLADES
319+17	RT	STOP SIGN	30" X 30"	R1-1	6.25		
TWILITE TERRACE							
400+57	LT	STREET ID: TWILITE TERRACE/GALAXY DRIVE				1	4 BLADES
405+47	RT	PEDESTRIAN CROSSING	30" X 30"	W11-2			REMOVE EXISTING SIGNS, REPLACE WITH PEDESTRIAN CROSSWALK FALSHER SYSTEM
		LEFT ARROW	24" X 12"	W16-7PL			
405+64	LT	PEDESTRIAN CROSSING	30" X 30"	W11-2			
		LEFT ARROW	24" X 12"	W16-7PL			
415+37	LT	AXLE WEIGHT LIMIT	24" X 30"	R12-2	5.00		
415+98	LT	STREET ID: TWILITE TERRACE/NORTH ROAD				1	4 BLADES
415+98	RT	STOP SIGN	30" X 30"	R1-1	6.25		
TWINKLE TERRACE							
501+14	RT	STREET ID: TWINKLE TERRACE/STARDUST BOULEVARD				1	4 BLADES
504+97	RT	STOP SIGN	30" X 30"	R1-1	6.25		
505+02	LT	STREET ID: TWINKLE TERRACE/TWILITE TERRACE				1	4 BLADES
PROJECT TOTALS					**54.25**	**6**	

NOTES:

1. SALVAGE EXISTING SIGNS AND DELIVER TO THE OWNER AS DIRECTED BY THE ENGINEER.
2. EXISTING SIGNS ARE TO BE REPLACED WITH NEW SIGNS, EXCEPT AS NOTED.
3. PEDESTRIAN CROSSWALK FLASHER SYSTEM SHALL INCLUDE THE REQUIRED SIGN PANELS.
4. VERIFY ALL SIGNS PRIOR TO ORDERING MATERIALS.

wsb

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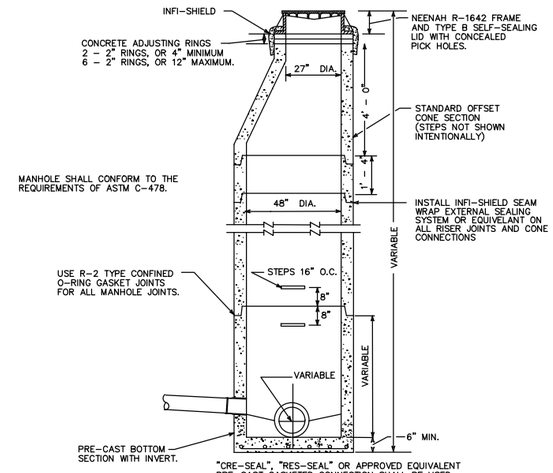
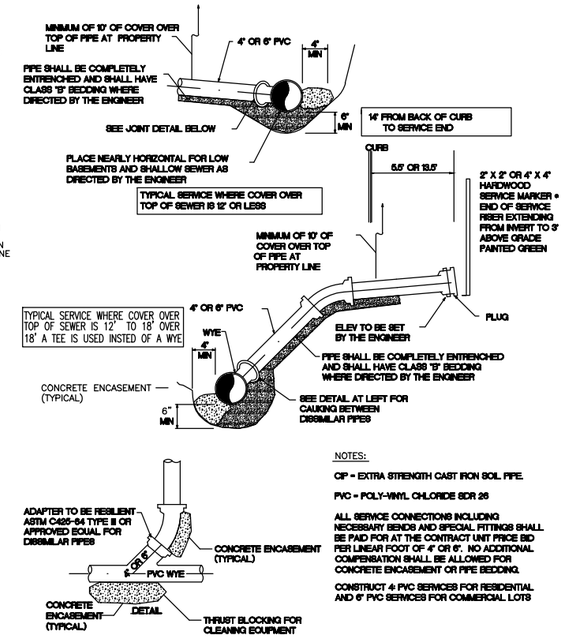


NOTES:
1. ALL CONNECTIONS TO EXISTING STRUCTURES SHALL BE CORE DRILLED
2. MANHOLE STEPS SHALL BE CAST IN ALUMINUM OR MA INDUSTRY WITH VINYL COATING OR APPROVED EQUIVALENT AND SHALL BE LOCATED ON THE DOWN STREAM SIDE OF MANHOLE
3. STEPS SHALL BE PLACED SO THAT THE OFFSET VERTICAL PORTION OF THE CONE IS FACING DOWNSTREAM
4. MANHOLE COVERS SHALL BE CAST WITH THE WORDS "SANITARY SEWER"
5. THE INITIAL AND FINAL RAISING OF CASTINGS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. THE FINAL RAISING FOR WEAR COURSE WILL BE DONE WITH IRON RISER RING.
6. ALL MANHOLES TO HAVE "I\ BARRIER" MANUFACTURED BY STRIKE PRODUTS, OR APPROVED EQUIVALENT, INTERNAL MANHOLE CHIMNEY SEAL AND CONCRETE COLLAR.

NO SCALE

STANDARD MANHOLE FOR SANITARY SEWER



NOTES:

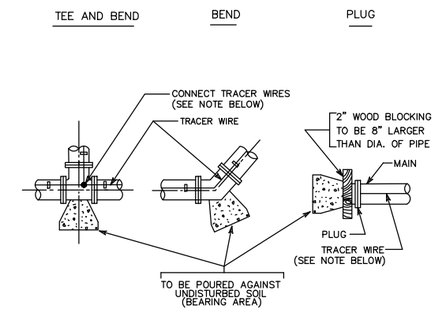
CIP = EXTRA STRENGTH CAST IRON SOIL PIPE.

PVC = POLY-VINYL CHLORIDE SDR 26

ALL SERVICE CONNECTIONS INCLUDING NECESSARY BENDS AND SPECIAL FITTINGS SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT OF 4" OR 6". NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR CONCRETE ENCASEMENT OR PIPE BEDDING.

CONSTRUCT 4" PVC SERVICES FOR RESIDENTIAL AND 6" PVC SERVICES FOR COMMERCIAL LOTS

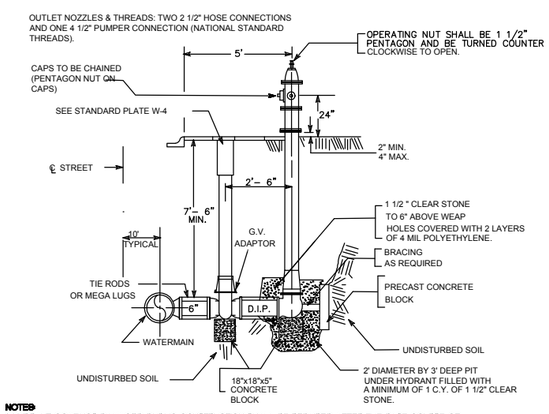
TYPICAL SERVICE CONNECTION FOR SANITARY SEWER



PIPE SIZE	BEARING AREA
6"	4.0 SQ.FT.
8"	6.0 SQ.FT.
10" – 12"	12.0 SQ.FT.
16"	20.0 SQ.FT.

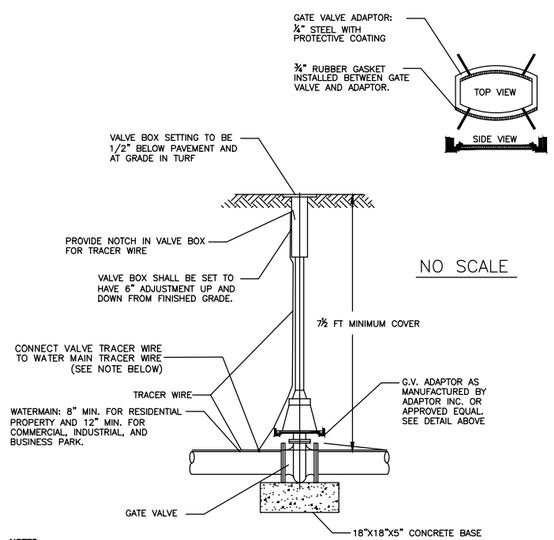
NOTES:
1. THRUST BLOCKING TO BE USED FOR BENDS 22½° AND OVER
2. THRUST BLOCKING SHALL ONLY BE USED WHERE WORKING PRESSURES ARE LESS THEN 150 PSI
3. ALL FITTINGS MUST HAVE MEGA-LUGS. ¾" TIE RODS INSTALLED WHERE NECESSARY TO RESTRAIN ALL JOINTS
4. POURED CONCRETE THRUST BLOCKING WILL BE REQUIRED ON ALL WATERMAIN PLUGS AND ON ALL FITTINGS FOR 12" DIAMETER PIPE AND LARGER
5. TRACER WIRE SHALL BE REQUIRED ON ALL NONFERROUS MAINS. TRACER WIRE SHALL BE SOLID COPPER WIRE WITH U.S.E. RATED INSULATION, COLOR YELLOW AND MINIMUM SIZE OF AWG #10.
6. TRACER WIRES SHALL BE INTERCONNECTED AT PIPE TEES AND CROSSES. SPLICES SHALL BE "KURNEY" (SPLIT BOLT) OR "KUPLETAP". INSTALLATION TAPE SHALL BE VINYL, ELECTRICAL WITH TWO COATS OF "SCOTCH KOTE".
7. TRACER WIRE AT PLUGS AND CAPS TO BE BROUGHT UP TO THE ROAD SUBGRADE AND HAVE A MIN. 24" COIL OF EXTRA WIRE TO BE LEFT AT THE ROAD SUBGRADE OR BURIED A MIN. EIGHT INCHES (8") IN NON-PAVED AREAS.

THRUST BLOCKING FOR WATER MAIN



NOTES:
1. HYDRANT COATINGS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AFTER THE BASE COURSE OF BITUMINOUS IS INSTALLED. PRIME AND PAINT HYDRANTS PER AWWA AND MANUFACTURER'S STANDARDS
2. ALL HYDRANT LEADS SHALL BE TIED WITH 3/4" TIE RODS. TIE ROD SHALL EXTEND FROM TEE TO VALVE AND VALVE TO HYDRANT. MEGA LUGS MAY BE USED IN LIEU OF TIE RODS
3. HYDRANTS SHALL HAVE A 16" BREAK OFF TRAFFIC FLANGE. BONNETT CARRIERS ON G.V.
4. ALL RODS AND RETAINERS TO BE COATED WITH BITUMASTIC
5. YELLOW "OUT OF ORDER" TAG TO BE INSTALLED ON THE PUMPER CONNECTION AFTER BACKFILL.
6. THE INITIAL AND FINAL RAISING OF VALVE BOXES SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT
7. PROVIDE LOCATING WIRE BOX FOR TRACER WIRE CONNECTION.
8. TRACER WIRE SHALL BE REQUIRED ON ALL NONFERROUS MAINS. TRACER WIRE SHALL BE SOLID COPPER WIRE WITH U.S.E. RATED INSULATION, COLOR YELLOW AND MINIMUM SIZE OF AWG #12. SECURE WIRE TO TOP OF PIPE WITH 10 MIL WRAPPING TAPE AT LEAST EVERY FOUR (4) FEET.
9. TRACER WIRES SHALL BE INTERCONNECTED AT PIPE TEES AND CROSSES. SPLICES SHALL BE "KURNEY" (SPLIT BOLT) OR "KUPLETAP". INSTALLATION TAPE SHALL BE VINYL, ELECTRICAL WITH TWO COATS OF "SCOTCH KOTE".

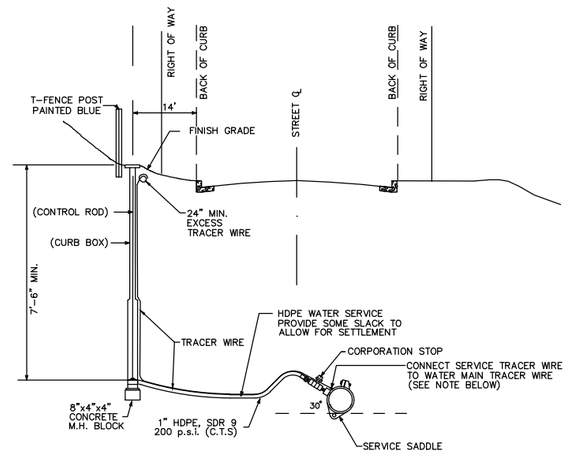
TYPICAL HYDRANT INSTALLATION



NO SCALE

NOTES:
1. GATE VALVES SHOULD BE USED ON 4" THROUGH 16" WATERMAIN.
2. VALVE BOX INSERTS ARE NOT ALLOWED UNLESS APPROVED BY THE ENGINEER.
3. VALVE BOXES SHALL BE INSTALLED PLUMB AND SHALL ALLOW A 4" P.V.C. PIPE TO PASS ENTIRELY OVER THE VALVE NUT AFTER INSTALLATION IS COMPLETE.
4. ALL VALVES SHALL BE TIED WITH ¾" THREADED TIE RODS TO THE MAIN. MEGA LUGS MAY BE USED IN LIEU OF TIE RODS.
5. THE INITIAL AND FINAL RAISING OF VALVE BOXES SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
6. TRACER WIRE SHALL BE REQUIRED ON ALL NONFERROUS MAINS. TRACER WIRE SHALL BE SOLID COPPER WIRE WITH U.S.E. RATED INSULATION, COLOR YELLOW AND MINIMUM SIZE OF AWG #12.
7. TRACER WIRES SHALL BE INTERCONNECTED AT PIPE TEES AND CROSSES. SPLICES SHALL BE "KURNEY" (SPLIT BOLT) OR "KUPLETAP". INSTALLATION TAPE SHALL BE VINYL, ELECTRICAL WITH TWO COATS OF "SCOTCH KOTE".
8. PROVIDE EXTENSION IF OPERATING NUT EXCEEDS MAXIMUM OF FOUR (4) FEET FROM FINISH GRADE. EXTENSION SHALL INCLUDE A STEADYING PLATE.
9. PROVIDE NOTCH IN RISER FOR TRACER WIRE.
10. 8" PVC RISER TO BE PLUMB WITHIN 1 INCH.

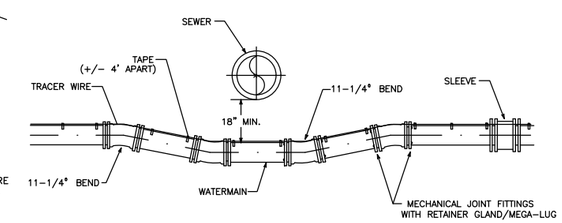
GATE VALVE AND BOX INSTALLATION



NOTES:
1. CURB BOXES AND RODS SHALL BE ADJUSTABLE UP AND DOWN FOR 7-½ INCHES COVER.
2. 1" COPPER SIZE (C.T.S.) POLYETHYLENE SERVICE TUBING.
3. HDPE IS TO BE ONE PIECE, NO JOINTS, COUPLINGS, ETC., ALLOWED FROM MAIN TO CURB STOP. BACKFILL MATERIAL SHALL BE GRANULAR BEDDING MATERIAL, FREE OF STONES AND CHUNKS.
4. WATER SERVICE AND SANITARY SEWER SERVICE SHALL HAVE A THREE FOOT (3') HORIZONTAL SEPARATION
5. CORPORATION STOPS WILL HAVE A MINIMUM OF A 2' LATERAL SEPARTION
6. CURB BOXES LOCATED IN DRIVEWAYS OR PARKING LOTS SHALL BE COVERED WITH A FORD A-1 METER BOX COVER
7. ALL CURB BOXES AND CLEANOUTS SHALL BE TIED WITH AT LEAST TWO (2) TIES
8. TRACER WIRE, #12 AWG COPPER CLAD STEEL, WIRE PER CEAM 2918.2, COLOR YELLOW.
9. CONNECT SERVICE TRACER WIRE TO WATER MAIN TRACER WIRE. SPLICES SHALL BE "KURNEY" (SPLIT BOLT) OR "KUPLE TAP". INSTALLATION TAPE SHALL BE VINYL, ELECTRICAL WITH TWO COATS OF "SCOTCH KOTE".
10. COIL EXCESS TRACER WIRE IN AROUND OUTSIDE OF CURB STOP BOX.

A

TYPICAL WATER SERVICE CONNECTION



NOTES:
1. MINIMUM OF FOUR (4) 11¼° BENDS
2. ¾" TIE RODS INSTALLED WHERE NECESSARY TO RESTRAIN ALL JOINTS
3. INSULATION IS REQUIRED WHEN 18" MINIMUM IS NOT MET

WATER MAIN OFFSET

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MISCELLANEOUS DETAILS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

SHEET 9 OF 96

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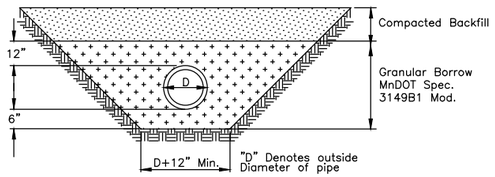
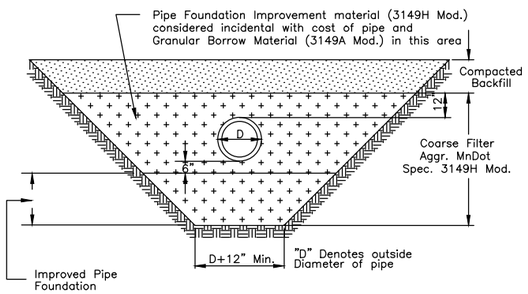
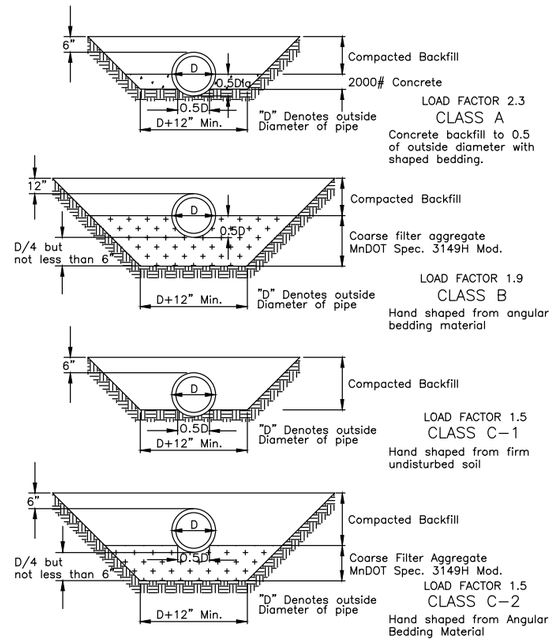


PIPE FOUNDATION & BEDDING IN GOOD SOILS

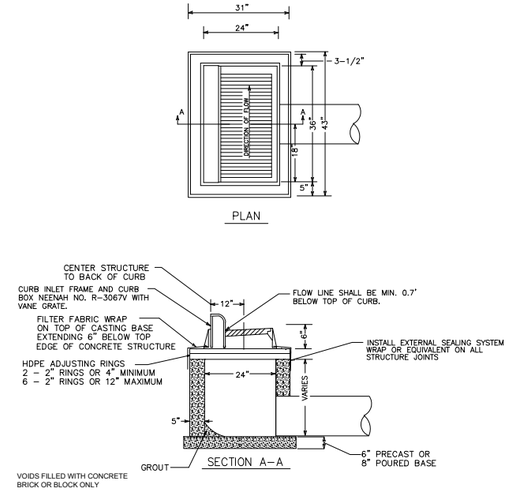


PIPE FOUNDATION & BEDDING IN POOR SOILS

BEDDING METHODS FOR PLASTIC PIPE

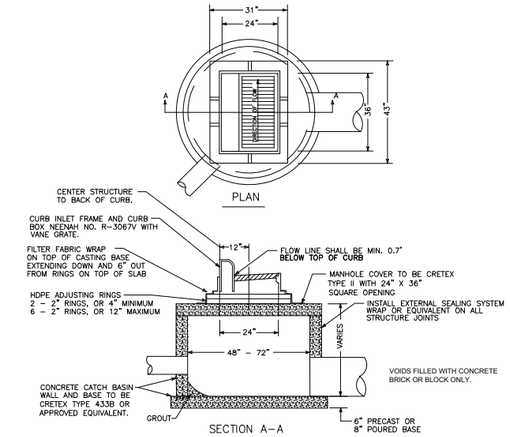


BEDDING METHODS FOR RCP AND DIP



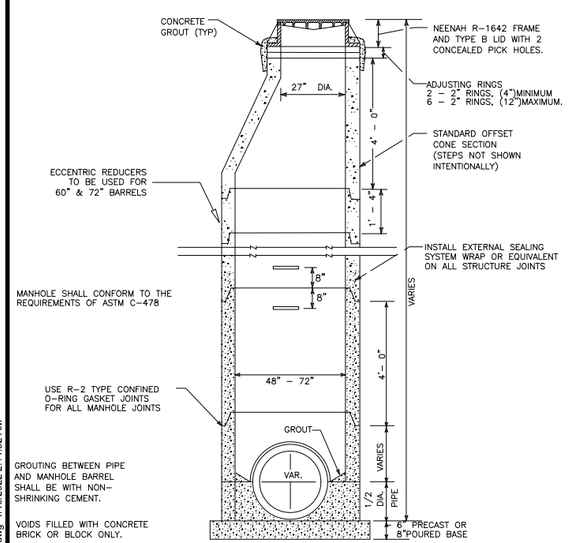
NOTES:
1. REINFORCING TO CONSIST OF #4 BARS @ 8" O.C. BOTH WAYS
2. GROUT BOTTOM TO DRAIN TO CENTER
3. PIPE CUT-OUTS TO BE LOCATED WHERE REQUIRED
4. ADJUSTING RINGS SHALL BE HDPE PLASTIC USE MORTAR TO FASTEN BOTTOM RING TO CONCRETE, AND BUTYL ROPE, (RAM-NECK) ON TOP RING TO CASTING. WITH FILTER FABRIC WRAP EXTENDING 6" BELOW CONCRETE AND OVER LAP CASTING BASE. BACK FILL WITH COMPACTED GRANULAR. IF OFFSET OF RINGS IS NEEDED CHECK WITH ENGINEER
5. WIMCO MODEL #CG-3067 HIGH FLOW INLET PROTECTION TO BE INSTALLED AND KEPT CLEAN UNTIL BASE COURSE IS PAVED

STANDARD CATCH BASIN



NOTES:
1. REINFORCING TO CONSIST OF #4 BARS @ 8" O.C. BOTH WAYS
2. MANHOLE STEPS SHALL BE CAST ALUMINUM OR MA INDUSTRY WITH VINYL COATING OR APPROVED EQUIVALENT AND SHALL BE LOCATED @ 16" O.C. PARALLEL WITH THE CURB
3. GROUT BOTTOM TO DRAIN TO CENTER
4. PIPE CUT-OUTS TO BE LOCATED WHERE REQUIRED
5. ADJUSTING RINGS SHALL BE HDPE. USE MORTAR TO FASTEN BOTTOM RING TO CONCRETE BASE, AND USE BUTYL ROPE, (RAM NECK), ON TOP RING TO CASTING WRAP WITH FILTER FABRIC OVER LAPPING CASTING BASE, EXTENDING DOWN TO CONCRETE SLAB AND OUT 6". BACK FILL WITH COMPACTED GRANULAR.
6. WIMCO MODEL #CG-3067 HIGH FLOW INLET PROTECTION TO BE INSTALLED AND KEPT CLEAN UNTIL BASE COURSE IS PAVED

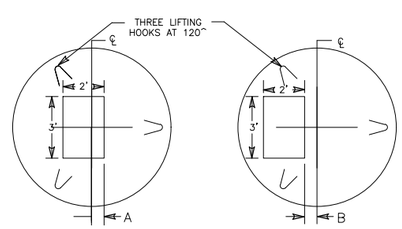
CATCH BASIN MANHOLE



NOTES:
1. MANHOLE STEPS SHALL BE CAST ALUMINUM OR MA INDUSTRY WITH VINYL COATING OR APPROVED EQUIVALENT AND SHALL BE LOCATED ON THE DOWN STREAM SIDEOF MANHOLE
2. STEPS SHALL BE PLACED SO THAT THE OFFSET VERTICAL PORTION OF THE CONE IS FACING DOWN STREAM
3. MANHOLE COVER SHALL BE CAST WITH THE WORDS "STORM SEWER"
4. THE INITIAL + FINAL RAISING OF CASTINGS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT

STANDARD STORM SEWER MANHOLE

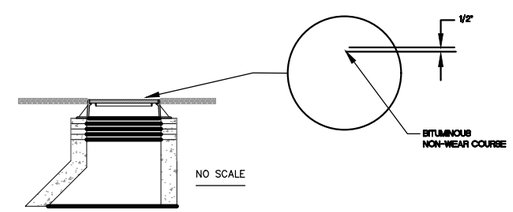
MANHOLE TOP SLAB WITH OFF–SET 2' x 3' HOLE					
STRUCTURE DIAMETER (in.)	COVER DIAMETER (in.)	MINIMUM t (in.)	A (in.)	B (in.)	WEIGHT OF COVER (lbs)
48	58	6	9		930
54	65	8	6		1710
60	72	8	3		2230
66	79	8	0		2810
72	86	8		3	3440
78	93	8		6	4120
84	100	8		9	4860
90	108	8		12	5760
96	114	8		15	6490
102	120	8		18	7260
108	126	12		21	12100
120	144	12		24	16100



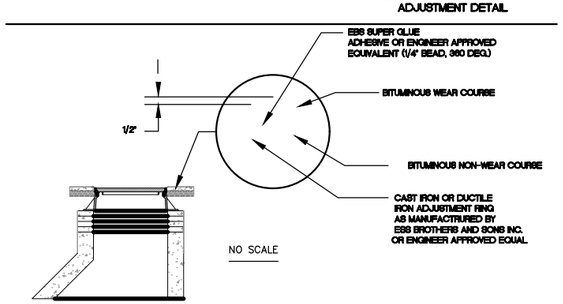
FOR 48" - 66"
STRUCTURE DIAMETER
NO SCALE

FOR 72" - 120"
STRUCTURE DIAMETER
NO SCALE

PRECAST COVER DETAIL



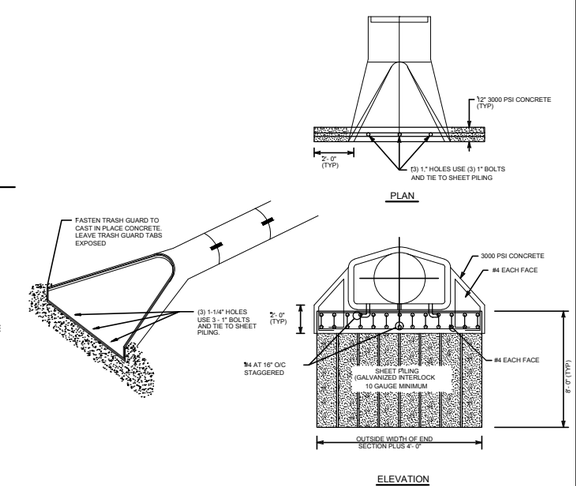
BITUMINOUS BASE COURSE
ADJUSTMENT DETAIL



NOTES:
1. THE HEIGHT OF THE CAST IRON OR DUCTILE IRON ADJUSTMENT RING IS DETERMINED BY THE THICKNESS OF THE OVERLAY.
2. CAST IRON OR DUCTILE IRON ADJUSTMENT RINGS TO BE INSTALLED AS PER MANUFACTURE'S RECOMENDATION.

CASTING ADJUSTMENT DETAIL

NOTE:
THIS DRAWING IS TYPICAL FOR ALL FLARED END SECTIONS
ALL TRASH GUARDS WILL BE GALVANIZED.



PILING FOR (36" DIAMETER & LARGER)
STORM SEWER APRONS

wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

NO.	DATE	DESCRIPTION

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.

GINA M. DULLINGER, P.E.
DATE: 12/14/2021 LIC. NO: 45489

MISCELLANEOUS DETAILS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

SHEET
10 OF 96

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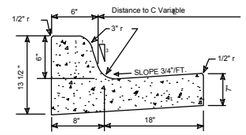
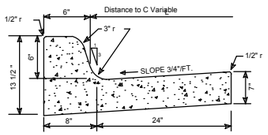


Mn/DOT B 618



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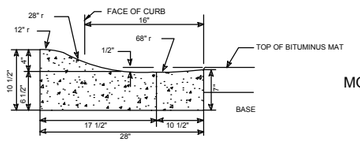
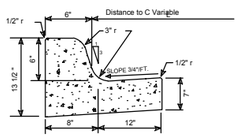


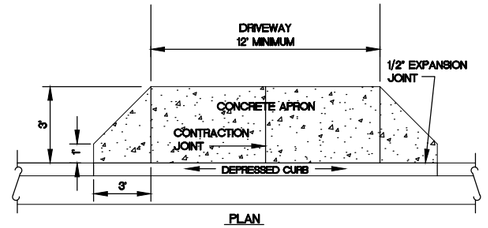
MODIFIED 'S' DESIGN



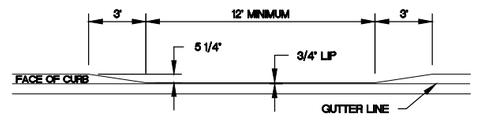
Mn/DOT B 612

NOTES:
1. MINIMUM OF 3" CLASS 5 AGGREGATE BASE UNDER ALL CURB AND GUTTER.
2. STAMP TOP OF CURB WITH A "W" AT ALL WATER SERVICES TO INDICATE CURB STOP LOCATION (INCIDENTAL).

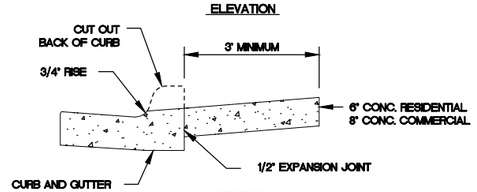
CONCRETE CURB AND GUTTER



PLAN



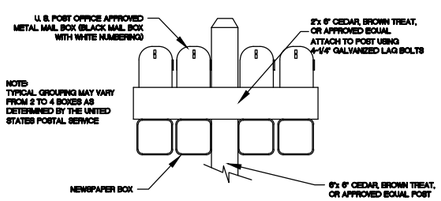
ELEVATION



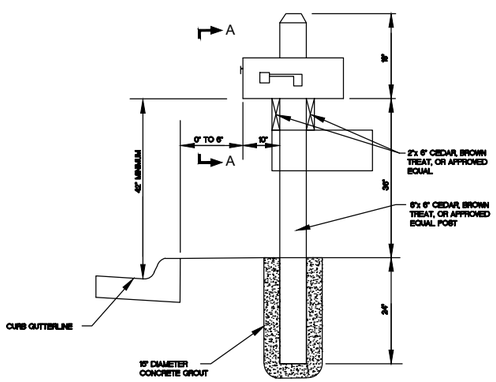
SECTION

NOTES:
1. DRIVEWAYS WITH GRADE GREATER THAN 10% MUST OBTAIN ENGINEERING DEPT. APPROVAL.
2. DRIVEWAY AREA MUST MEET CODE FOR LOT COVERAGE.
3. NO DRIVEWAY SHALL BE CLOSER THAN 40' FROM END OF CORNER RADII.
4. MINIMUM DRIVEWAY WIDTH IS 10' ALONG RIGHT-OF-WAY LINE.
5. MAXIMUM DRIVEWAY WIDTH IS 36' ALONG RIGHT-OF-WAY LINE.
6. DRIVEWAYS SHALL BE NO CLOSER THAN 10' FROM THE ADJACENT PROPERTY LINE

TYPICAL RESIDENTIAL DRIVEWAY



SECTION A-A



MAIL BOX DETAIL

FENCE INSTALLATION DETAIL

wsb

City of CIRCLE PINES

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

NO.	DATE	DESCRIPTION

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CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

SHEET
11 OF 96

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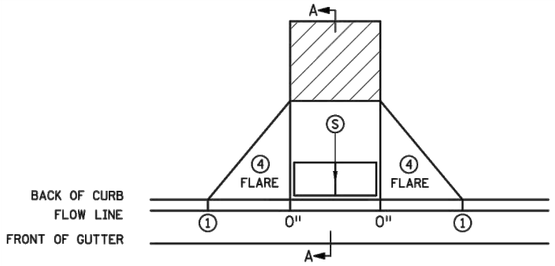
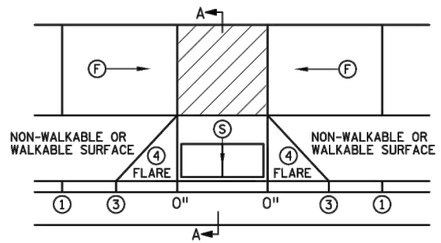
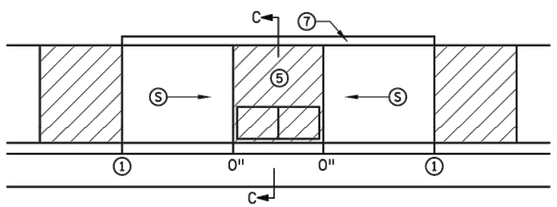


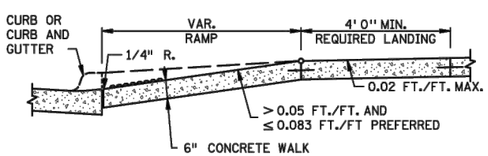
PERPENDICULAR



TIERED PERPENDICULAR

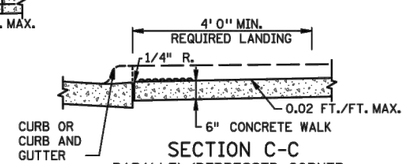


PARALLEL



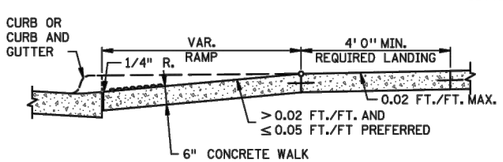
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



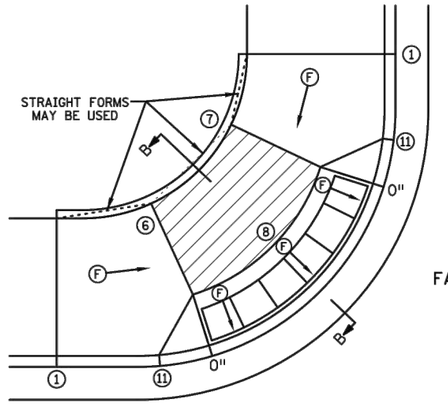
SECTION C-C

PARALLEL/DEPRESSED CORNER

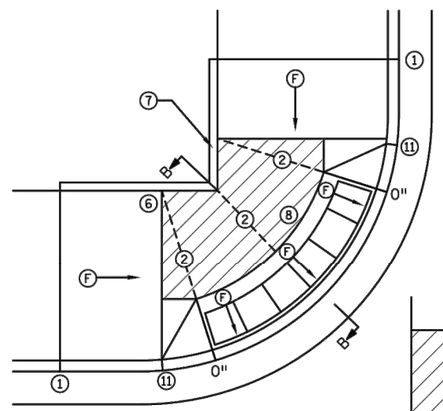


SECTION B-B

FAN

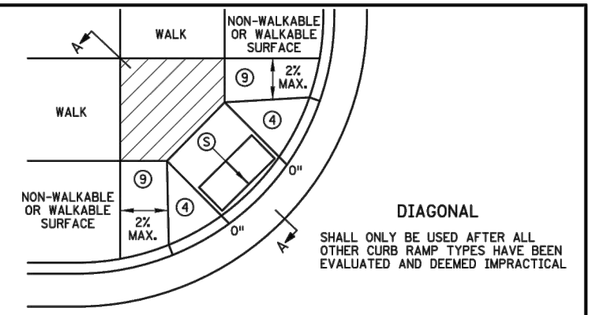


FAN 10



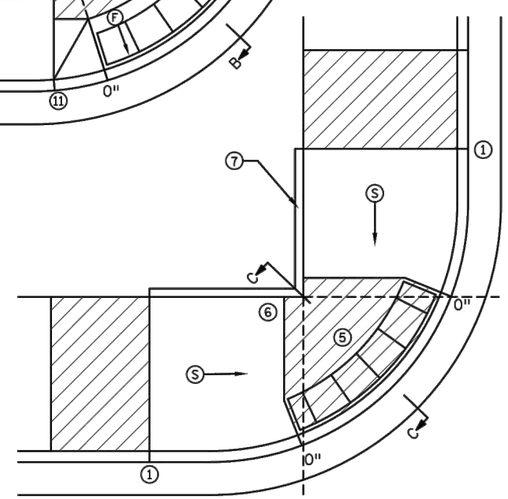
MODIFIED FAN 10

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL



DEPRESSED CORNER

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

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, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN 6 BELOW.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.

WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

1. MATCH FULL HEIGHT CURB.
2. 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
3. 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
4. SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
5. DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
6. THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
7. WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
8. A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.
9. PAVE FULL WALK WIDTH.
10. "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.
11. INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- S — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- F — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- X" — CURB HEIGHT

REVISION:

APPROVED: 11-04-2021

JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 1 OF 6

APPROVED: 11-04-2021
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

STANDARD PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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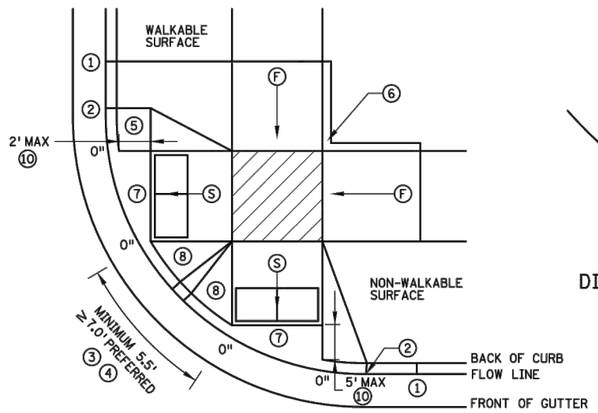
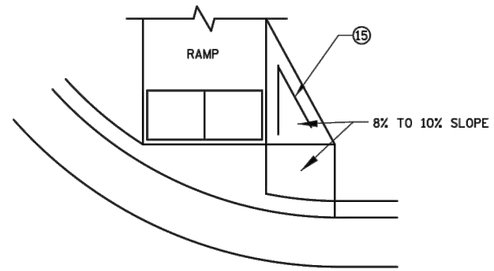
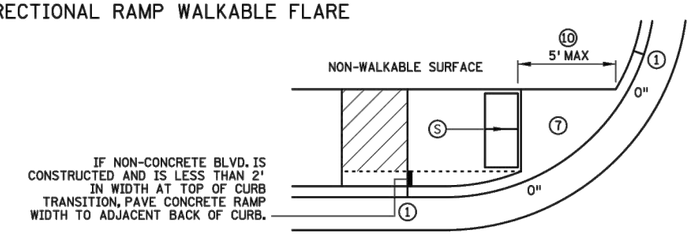


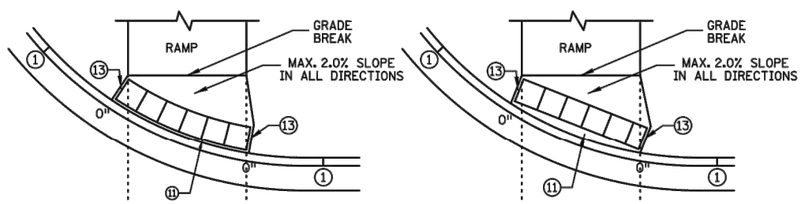
COMBINED DIRECTIONAL



DIRECTIONAL RAMP WALKABLE FLARE

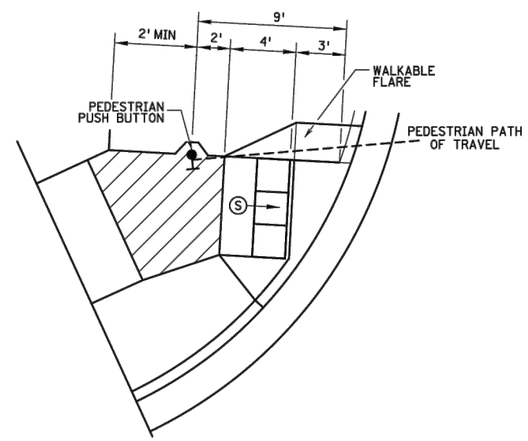


STANDARD ONE-WAY DIRECTIONAL ⑨



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

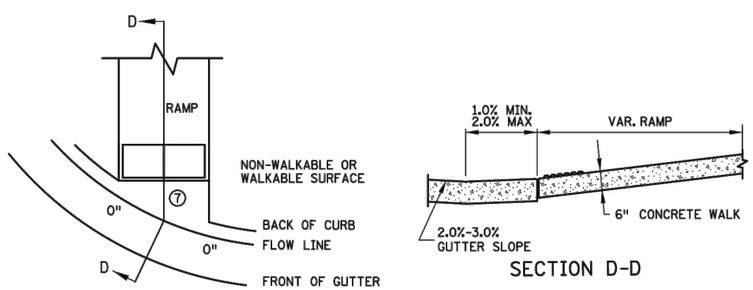
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



SEMI-DIRECTIONAL RAMP ③④⑨

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)



SECTION D-D

CURB FOR DIRECTIONAL RAMPS ⑭

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

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SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

⑮ PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

Ⓕ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

REVISION:

APPROVED: 11-04-2021
JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 2 OF 6

APPROVED: 11-04-2021
REVISED:

THOMAS STYBRICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

STANDARD PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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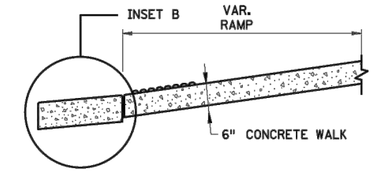
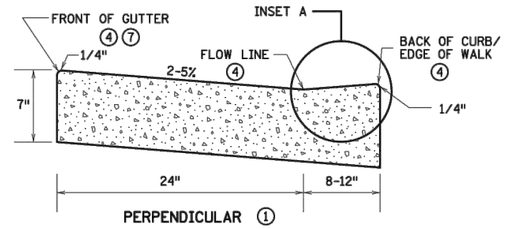
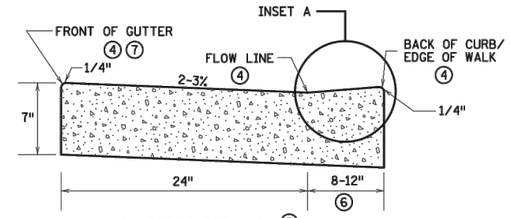
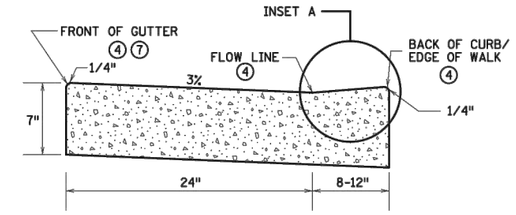




PERPENDICULAR ①

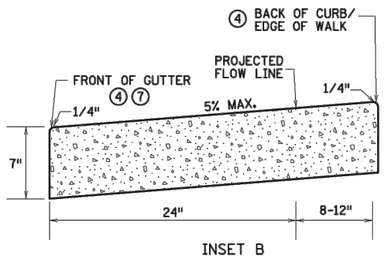


NON PERPENDICULAR ②

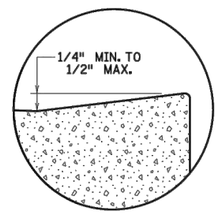


FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)

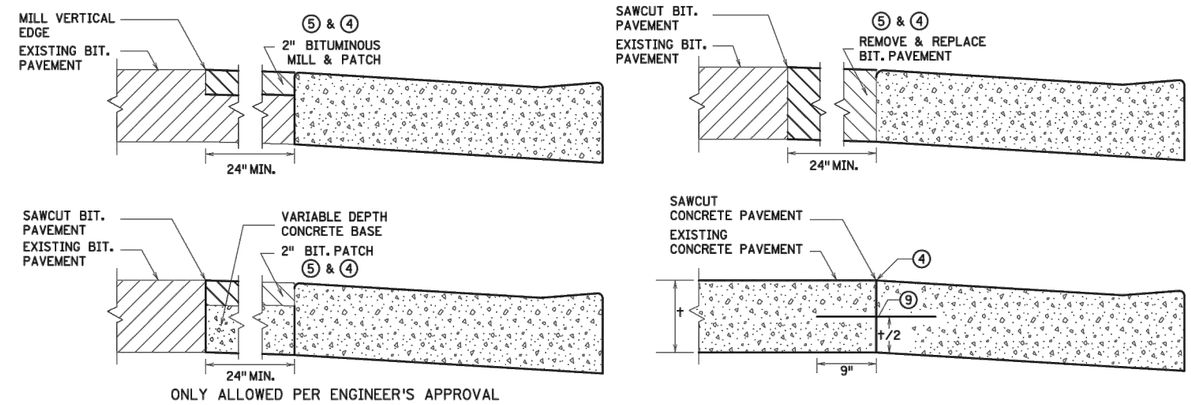
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



INSET B
OUTFLOW GUTTER ⑧

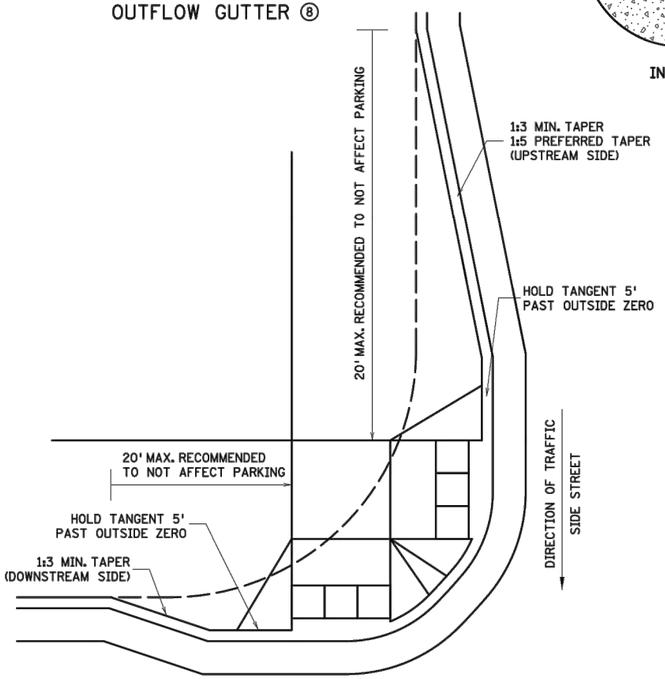


INSET A



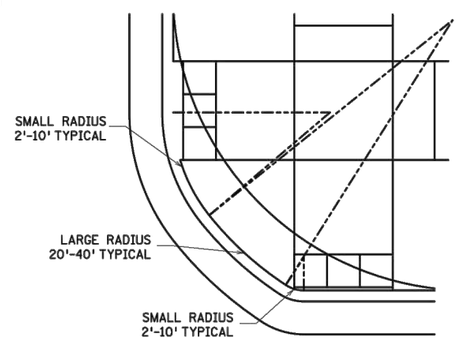
ONLY ALLOWED PER ENGINEER'S APPROVAL

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



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪

DIRECTION OF TRAFFIC
MAIN STREET



COMBINED DIRECTIONAL ⑩
(COMPOUND RADIUS)

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.
NO PONDING SHALL BE PRESENT IN THE PAR.
ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① 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.
② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.
④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
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. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.
⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED.
PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

REVISION:
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JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 3 OF 6
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REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

STANDARD PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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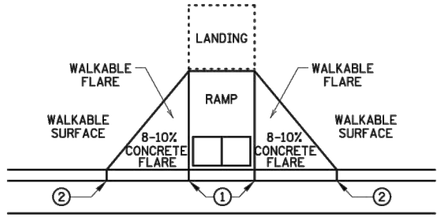
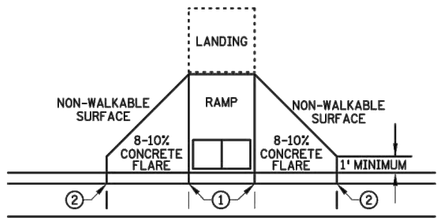
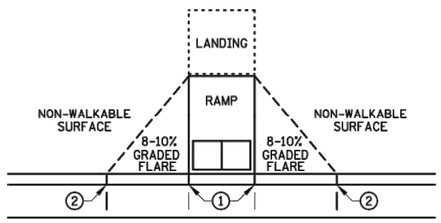


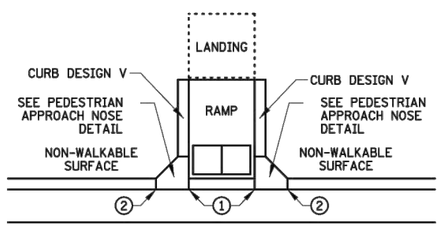
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

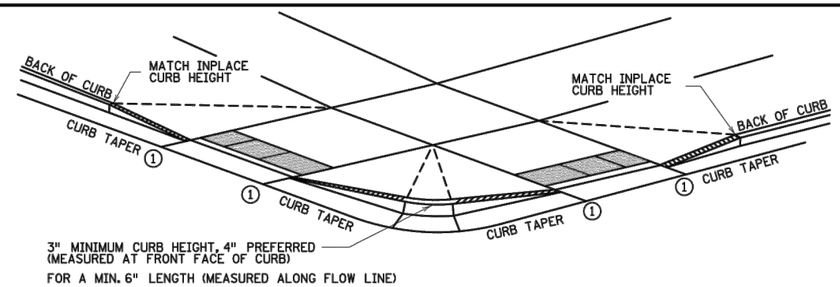


GRADED FLARES

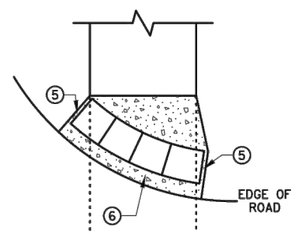


RETURNED CURB ④

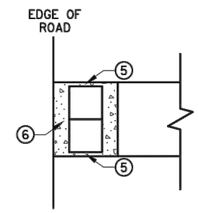
TYPICAL SIDE TREATMENT OPTIONS ③ ⑩



DETECTABLE EDGE WITH ⑦
CURB AND GUTTER

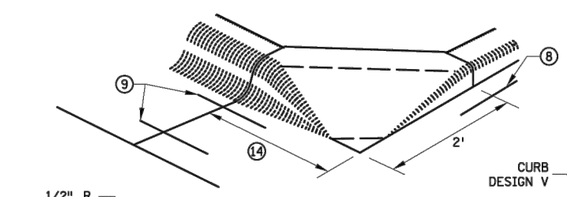


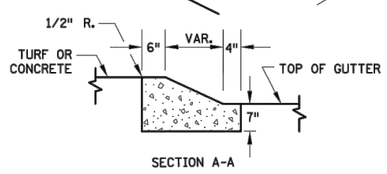
RADIAL DETECTABLE WARNING



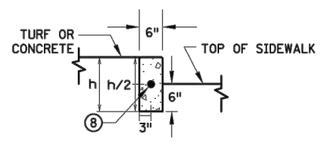
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

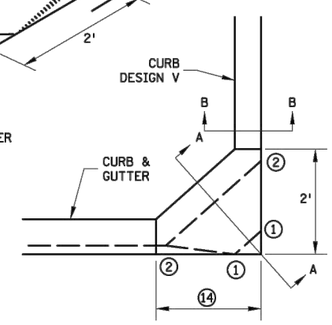




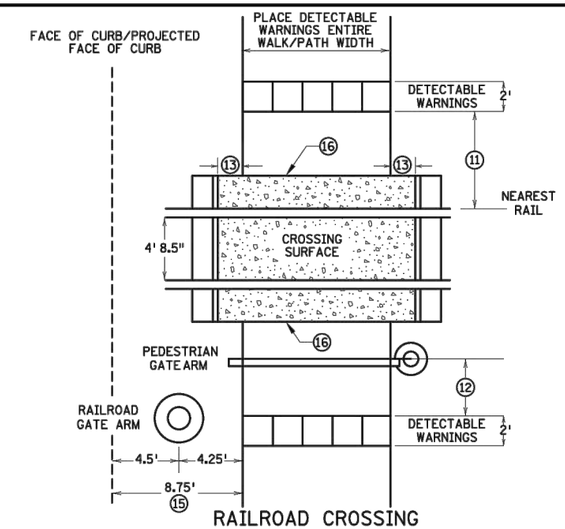
SECTION A-A



SECTION B-B



PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

NOTES:

INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

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

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT. SEE INSET A ON SHEET 3 OF 6.

② FULL CURB HEIGHT.

③ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED 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.

④ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑤ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑥ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.

⑦ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS. AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

⑧ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

⑨ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

⑩ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE. CONSTRUCT THESE TAPERS AT 0"-3" AT 8-10%, THEN LESS THAN 5% FROM 3" CURB TO FULL CURB HEIGHT.

⑪ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑫ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑪.

⑬ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑭ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

⑮ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

⑯ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

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JOFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 4 OF 6

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REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

STANDARD PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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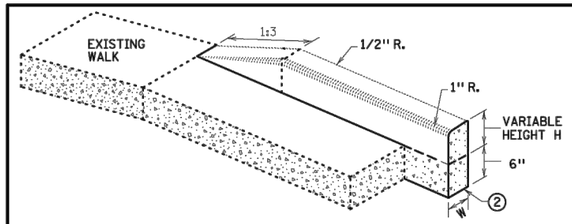
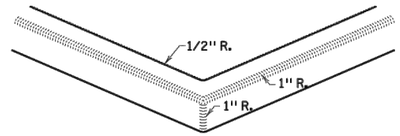
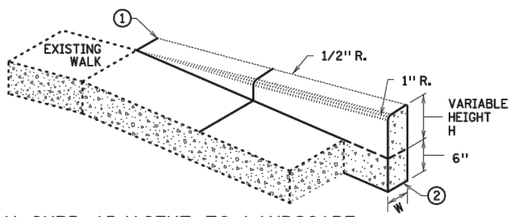


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

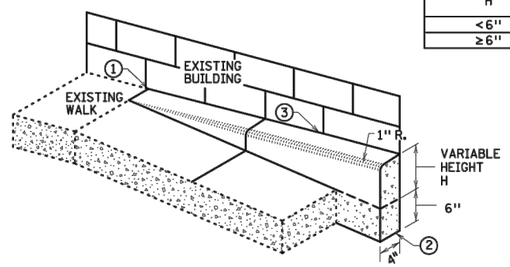


V CURB INTERSECTION

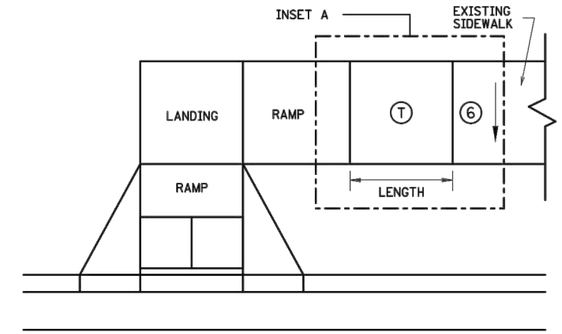
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
<6"	4"
≥6"	6"



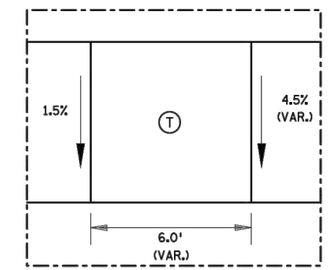
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



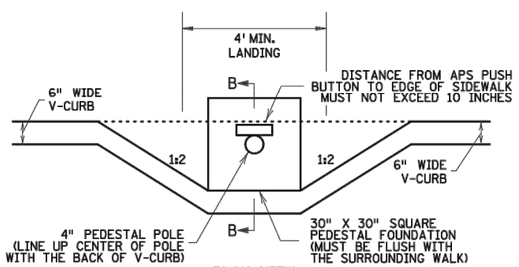
V CURB ADJACENT TO BUILDING OR BARRIER



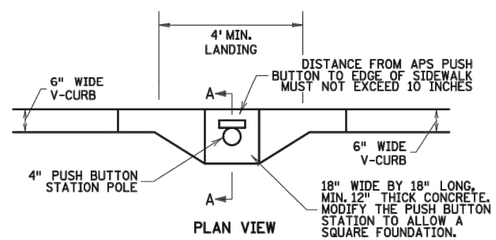
TRANSITION PANEL ④⑤



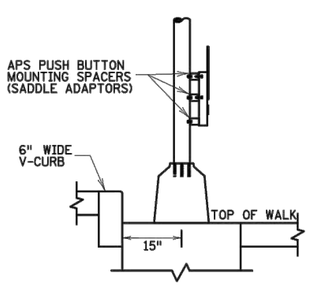
INSET A



PLAN VIEW

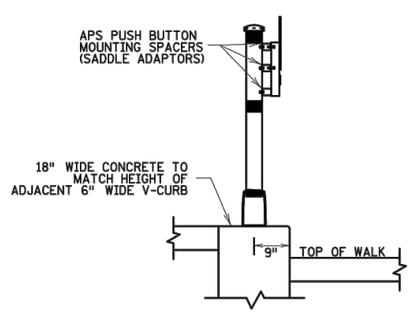


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

PUSH BUTTON STATION (V-CURB)

NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

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 CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM ½" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.

④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.

⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).

⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

Ⓣ TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:

APPROVED: 11-04-2021
JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 5 OF 6

APPROVED: 11-04-2021
REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

STANDARD PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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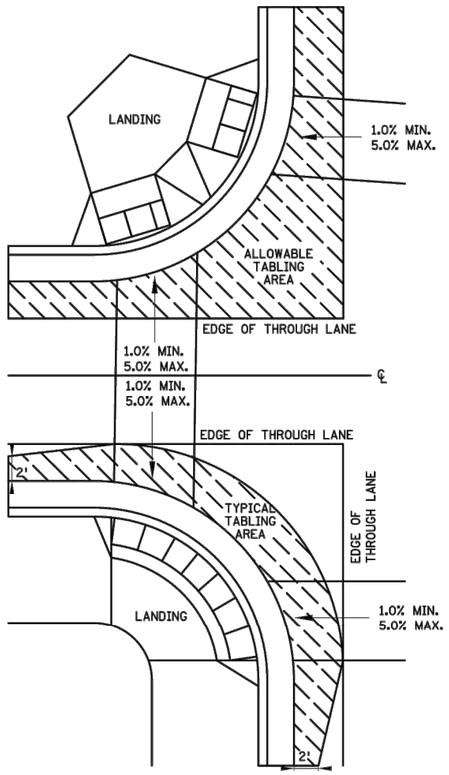
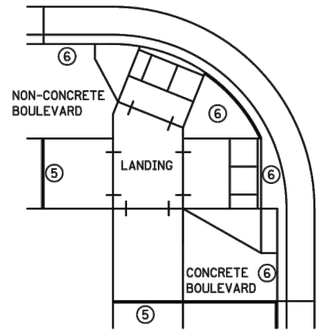
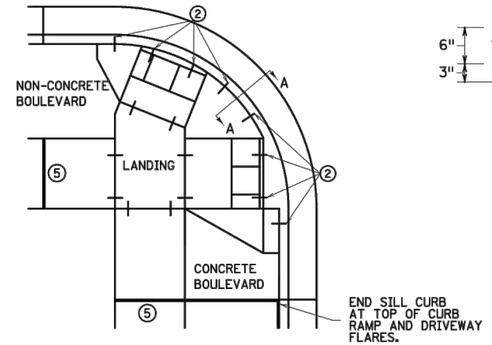


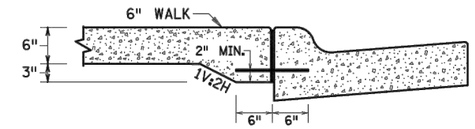
CURB LINE AND ROAD CROSSING ADJUSTMENTS



EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS

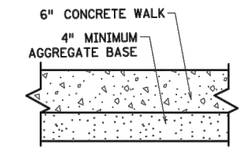


CURB LINE REINFORCEMENT ④ PLACEMENT ON BITUMINOUS ROADWAYS

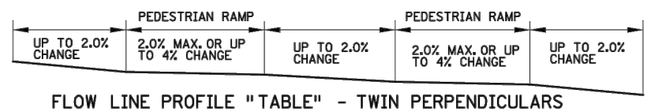


SECTION VIEW A-A

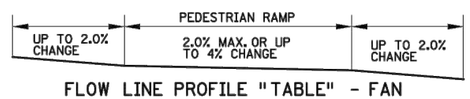
THICKENED SECTION THROUGH CURB RAMP FLARES



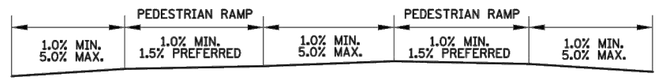
TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER



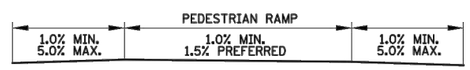
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



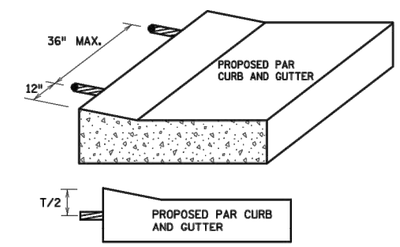
FLOW LINE PROFILE "TABLE" - FAN



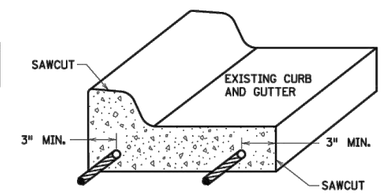
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



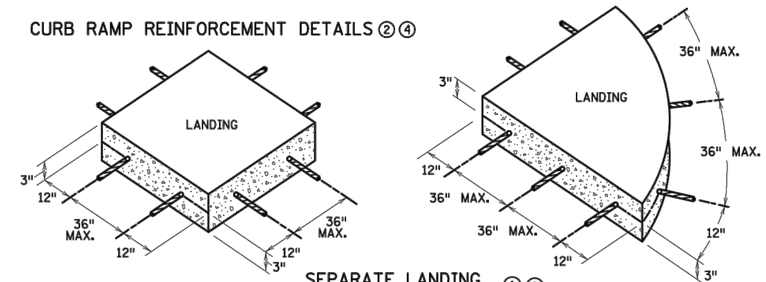
FLOW LINE PROFILE RAISE - FAN



CURB RAMP REINFORCEMENT DETAILS ②④



CURB AND GUTTER REINFORCEMENT ③



SEPARATE LANDING POUR REINFORCEMENT ①②

GENERAL NOTES:

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
3) 5.0% RECOMMENDED MAX. FLOW LINE
4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.

② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.

③ DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.

④ THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.

⑤ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

⑥ USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

REVISION:

APPROVED: 11-04-2021

JEFFREY PERKINS
OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 6 OF 6

APPROVED: 11-04-2021
REVISED:

THOMAS STYBRICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (TH) SHEET NO. OF SHEETS

wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

STANDARD PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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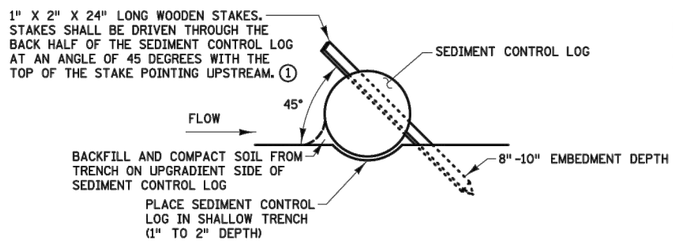
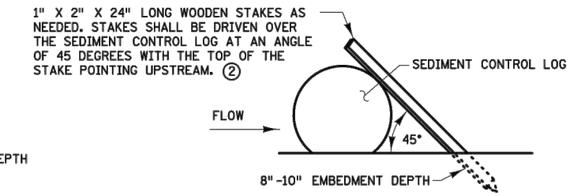
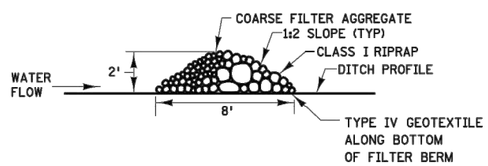


TYPES: STRAW, WOOD FIBER, OR COIR

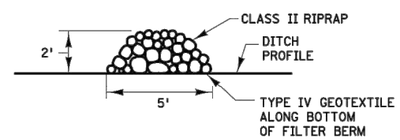


TYPES: WOOD CHIP, COMPOST, OR ROCK

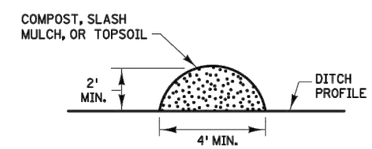
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

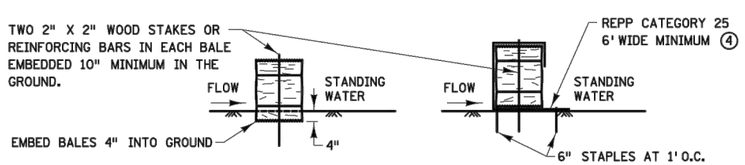


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

REPP (BLANKET) METHOD (ALTERNATE)

BALE BARRIERS3

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

1. SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.
2. PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.
3. TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.
4. INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:

APPROVED: JANUARY 8, 2020

MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 2 OF 8

APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

PLOTTED/REVISED: 24-JAN-2020

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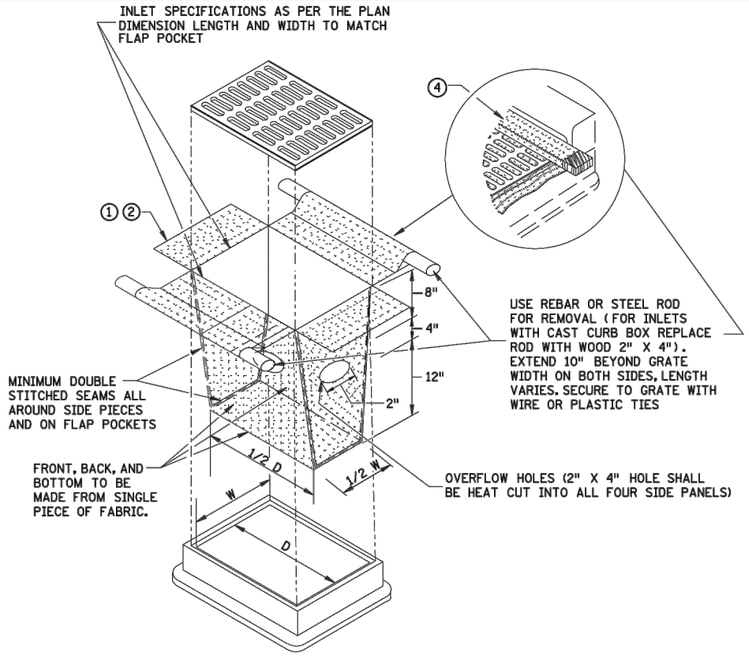
wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

STANDARD PLANS

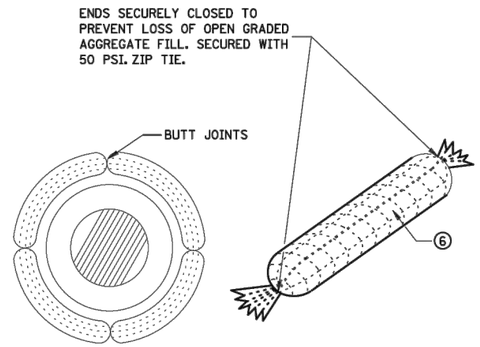
2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

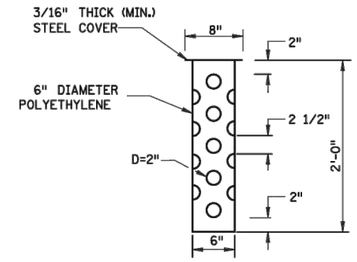


FILTER BAG INSERT ③

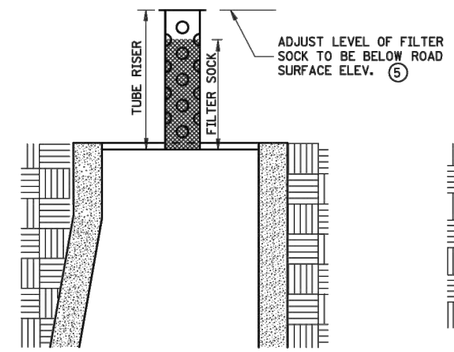
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



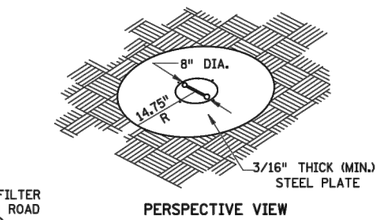
ROCK LOG/COMPOST LOG



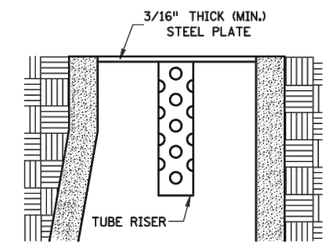
TUBE RISER



SECTION
(UP POSITION)

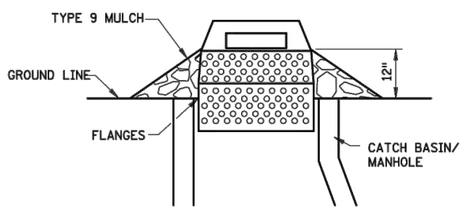


PERSPECTIVE VIEW



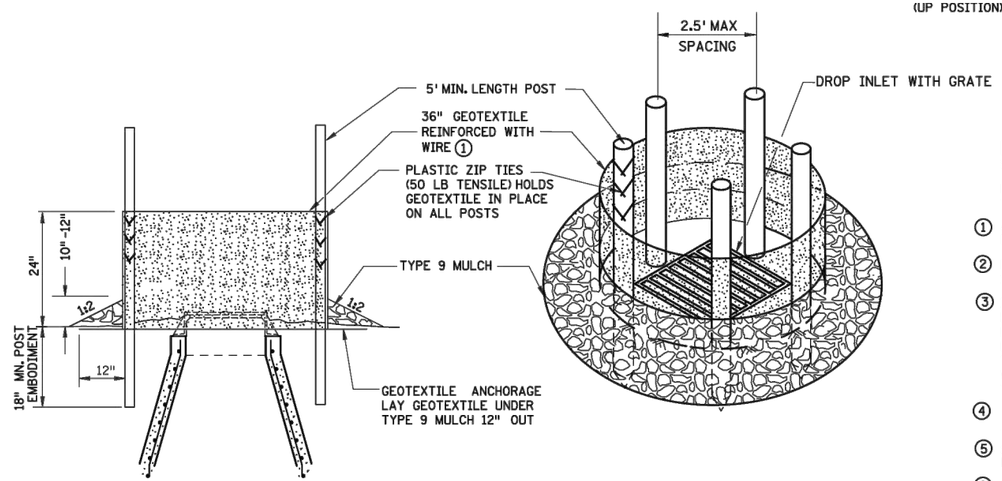
SECTION
(DOWN POSITION)

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.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

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 PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED 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.

REVISION:
APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 4 OF 8

APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

TEMPORARY SEDIMENT CONTROL

STORM DRAIN INLET PROTECTION

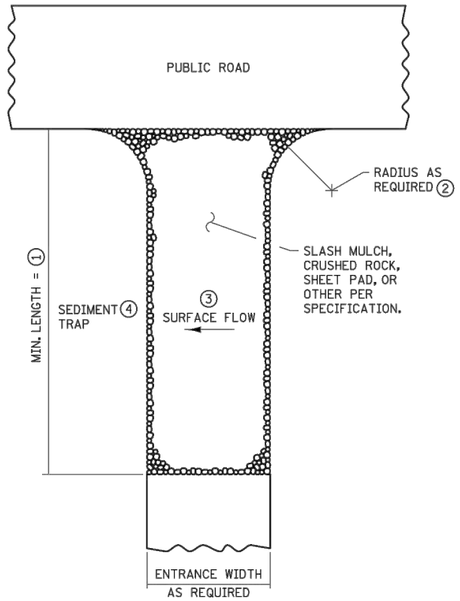
wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

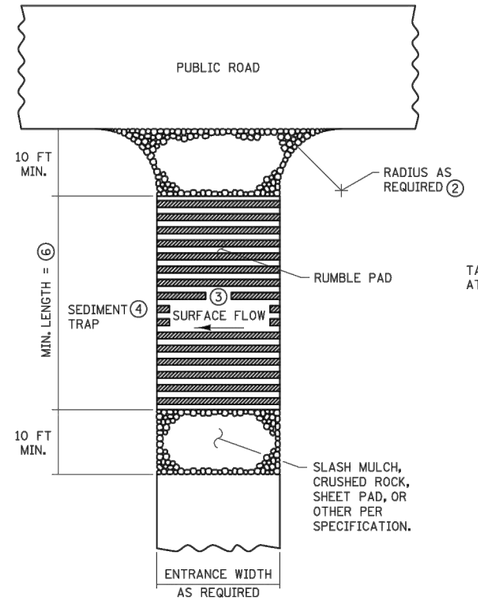
STANDARD PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

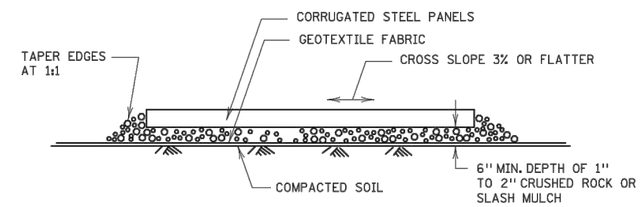
WSB PROJECT NO. 017460-000



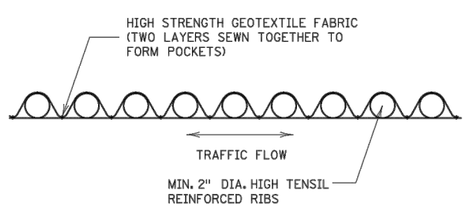
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



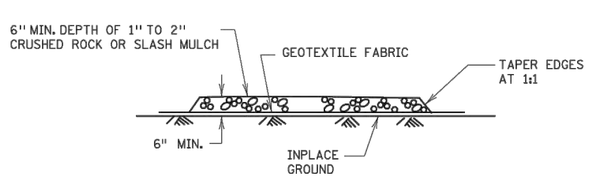
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:
APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 5 OF 8

APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

STABILIZED CONSTRUCTION EXIT

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

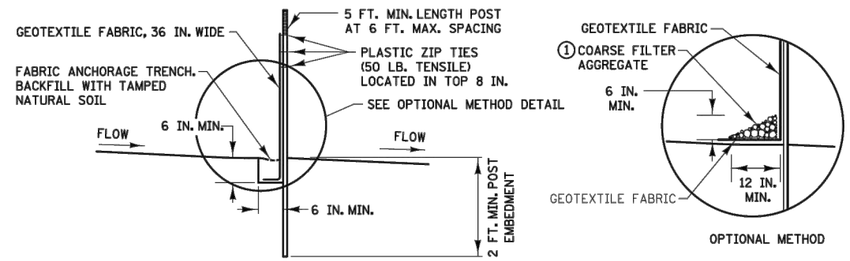
wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

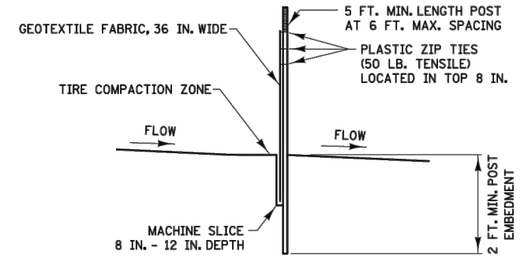
STANDARD PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

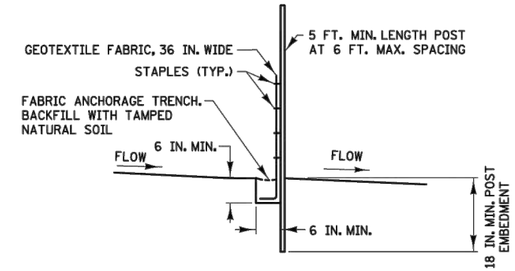
WSB PROJECT NO. 017460-000



SILT FENCE TYPE HI ②
(HAND INSTALLED)



SILT FENCE TYPE MS ②
(MACHINE SLICED)



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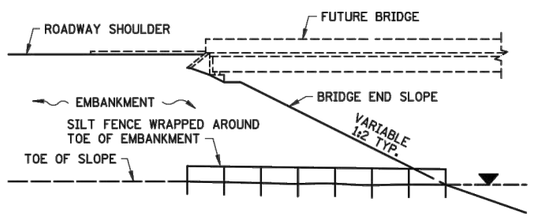
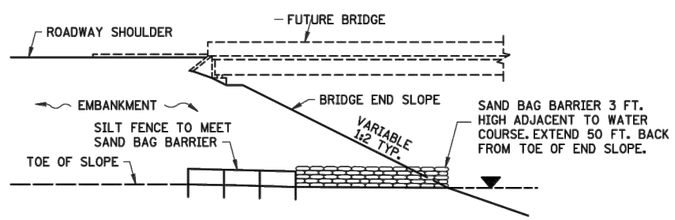
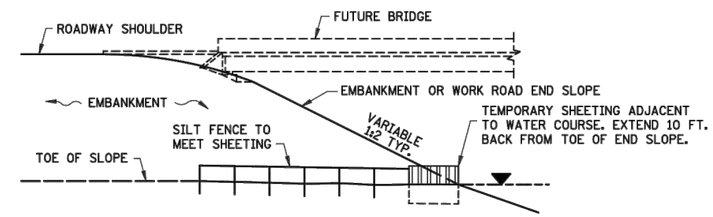
(PREASSEMBLED)



SILT FENCE ONLY ④

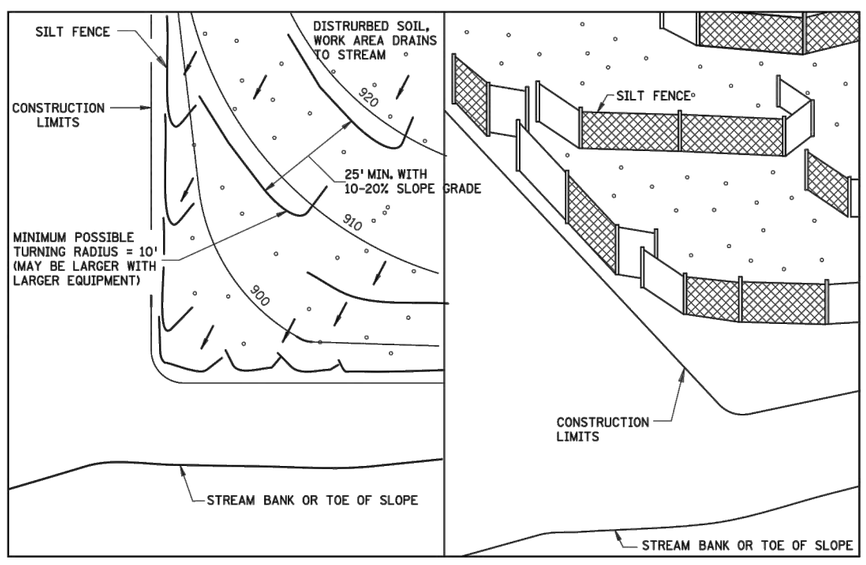


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

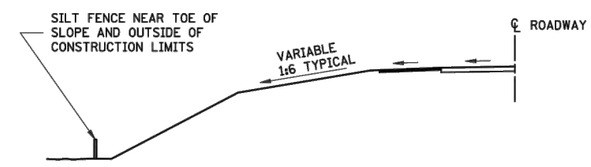
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

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

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 6 OF 8

APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

SILT FENCE

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

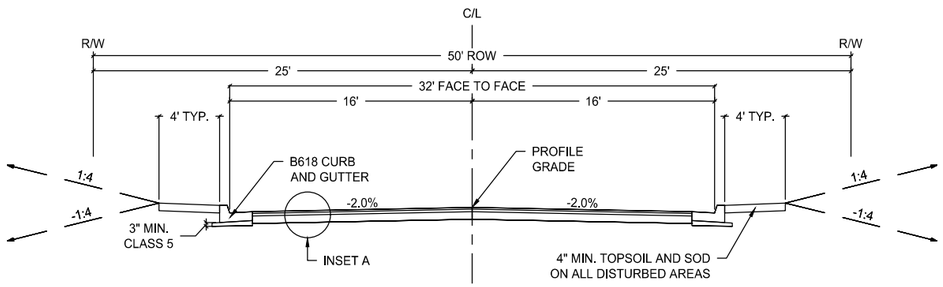
wsb | City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

STANDARD PLANS

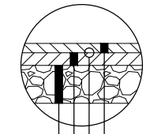
2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000



TYPICAL SECTION

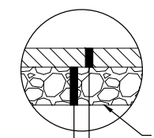
STARDUST BOULEVARD
GALAXY DRIVE
TWILITE TERRACE
TWINKLE TERRACE



INSET A

PAVEMENT SECTION

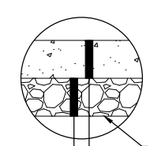
1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (3,B)
SPWEA340B
BITUMINOUS MATERIAL FOR TACK COAT (INCIDENTAL)
2" TYPE SP 12.5 NON WEAR COURSE MIXTURE (3,B)
SPNWB330B
6" AGGREGATE BASE CLASS 5



BITUMINOUS DRIVEWAY REPLACEMENT

PAVEMENT SECTION

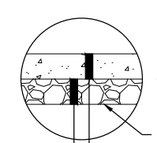
SCARIFY AND RECOMPACT
SUBGRADE (INCIDENTAL)
3" TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)
SPWEA240B
6" AGGREGATE BASE CLASS 5 (INCIDENTAL)



CONCRETE DRIVEWAY REPLACEMENT

PAVEMENT SECTION

SCARIFY AND RECOMPACT
SUBGRADE (INCIDENTAL)
6" CONCRETE DRIVEWAY PAVEMENT
6" AGGREGATE BASE CLASS 5 (INCIDENTAL)



CONCRETE WALK

PAVEMENT SECTION

SCARIFY AND RECOMPACT
SUBGRADE (INCIDENTAL)
4" CONCRETE WALK (6" CONCRETE AT PED RAMPS)
4" AGGREGATE BASE CLASS 5 (INCIDENTAL)

wsb
City of CIRCLE PINES

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

NO.	DATE	DESCRIPTION

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.

GINA M. DULLINGER, P.E.
DATE: 12/14/2021 LIC. NO: 45489

TYPICAL SECTIONS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

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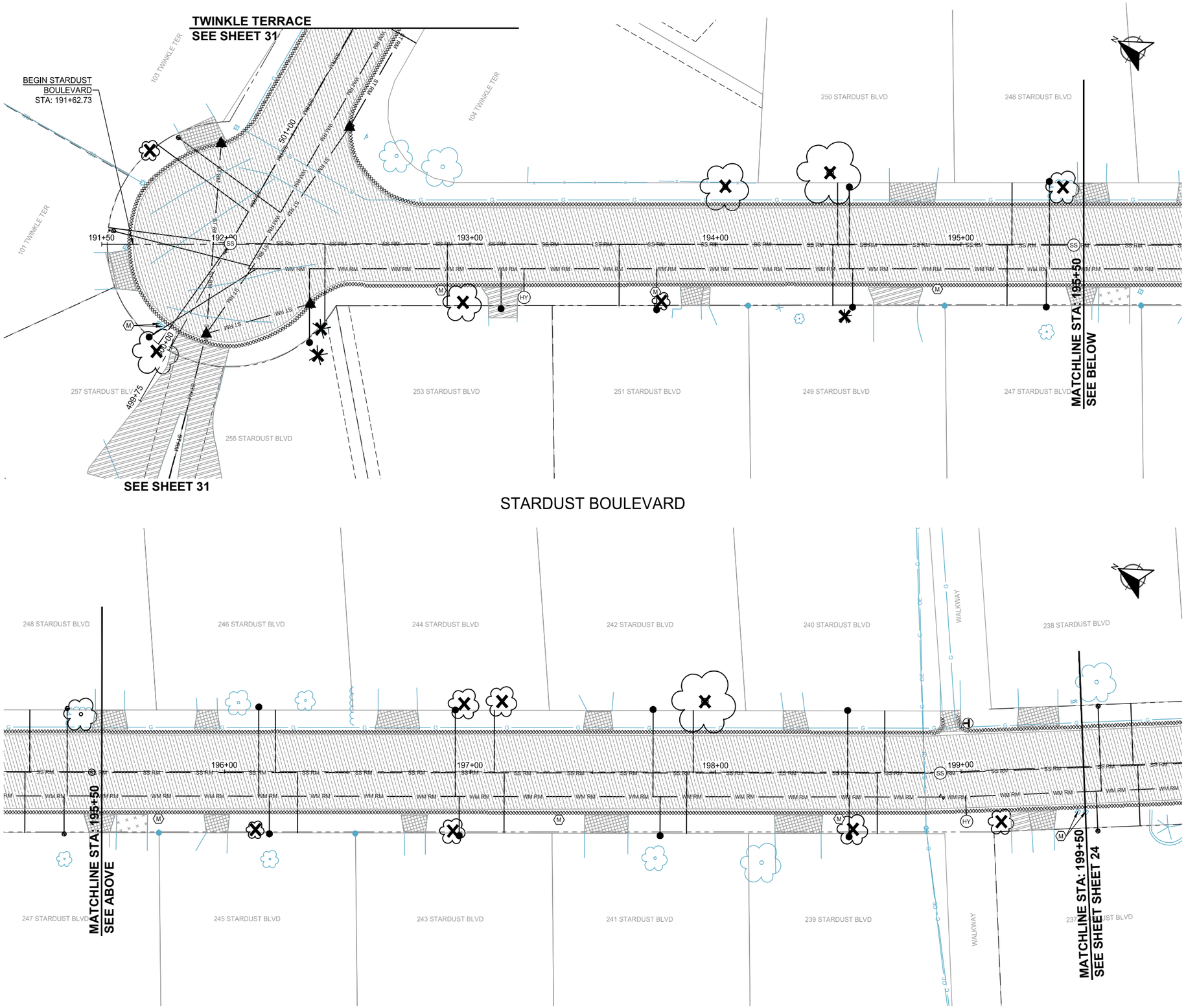
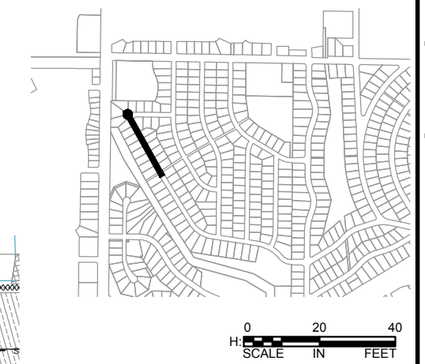


LOCATION



LEGEND

- ADJUST CASTING
- REMOVE GATE VALVE
- ADJUST GATE VALVE
- REMOVE HYDRANT, VALVE & LEAD
- REMOVE DRAINAGE STRUCTURE
- REMOVE SIGN
- REMOVE TREE
- SALVAGE & RE-INSTALL MAILBOX (SUPPORT LOCATION)
- WM RM — REMOVE WATERMAIN
- REMOVE WATER SERVICE/ CURBSTOP
- ST RM — REMOVE STORM SEWER
- ST AB — ABANDON STORM SEWER
- SS RM — REMOVE SANITARY SEWER
- REMOVE SANITARY SEWER SERVICE
- REMOVE CURB AND GUTTER
- SALVAGE & RE-INSTALL FENCE
- REMOVE BITUMINOUS
- REMOVE BITUMINOUS DRIVEWAY
- REMOVE CONCRETE
- REMOVE GRAVEL
- CLEAR AND GRUB (BY ACRE)

wsb

City of CIRCLE PINES

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GINA M. DOLLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

REMOVAL PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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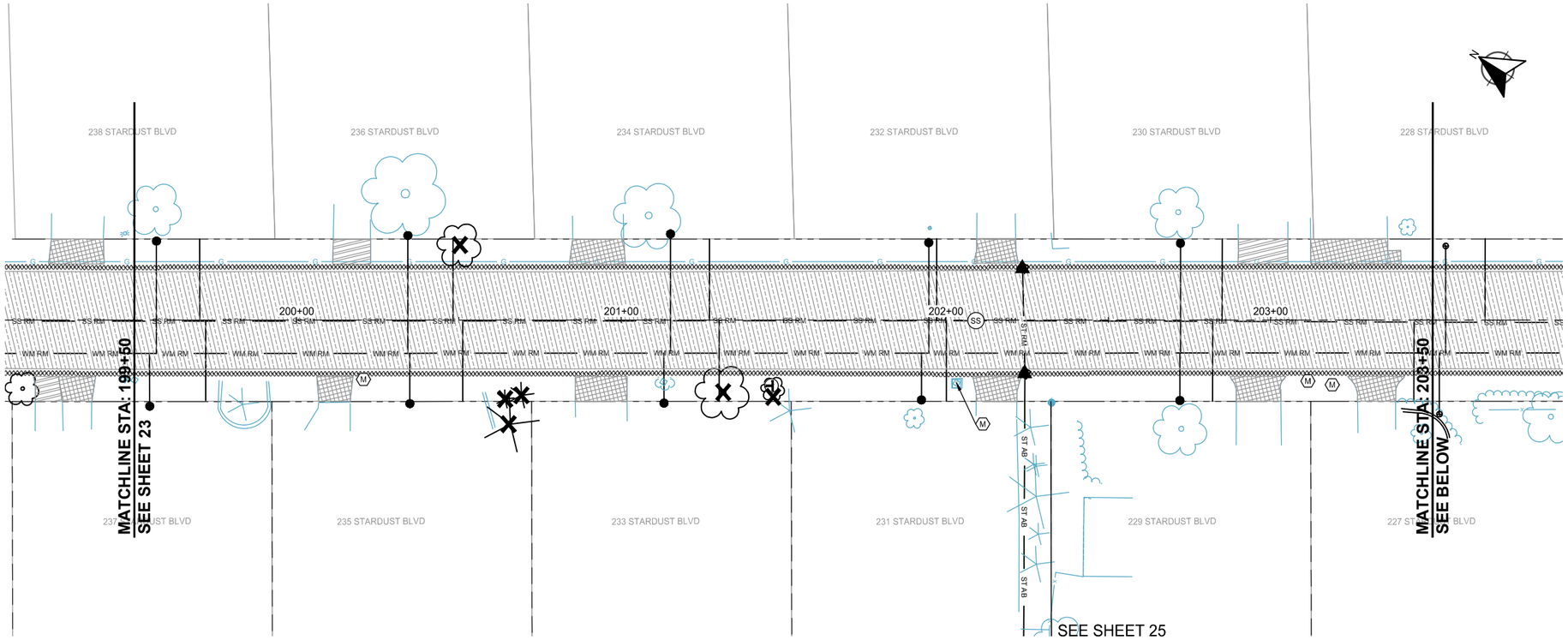
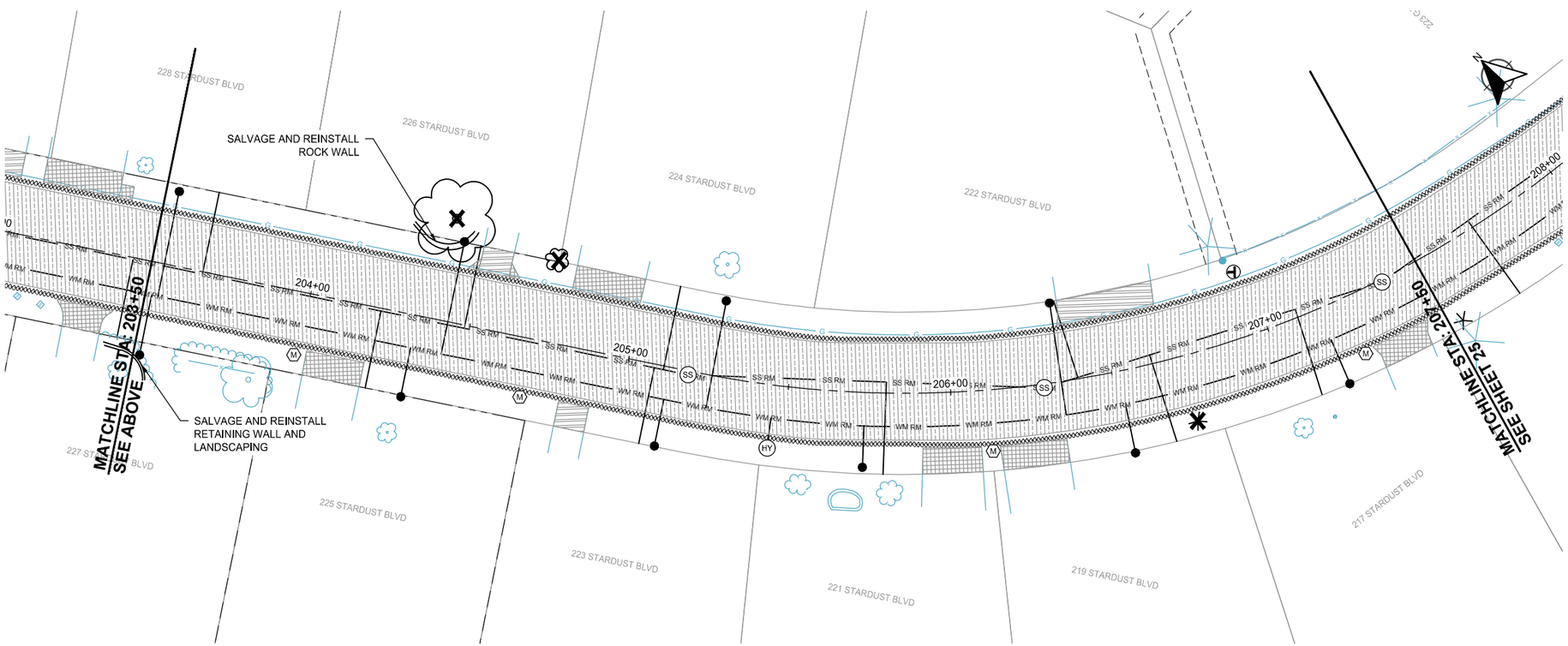


STARDUST BOULEVARD



LOCATION

H: 0 20 40
SCALE IN FEET

LEGEND

- AC — ADJUST CASTING
- GV — REMOVE GATE VALVE
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- REMOVE GRAVEL
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wsb

City of Circle Pines

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REMOVAL PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

SHEET
24 OF 96

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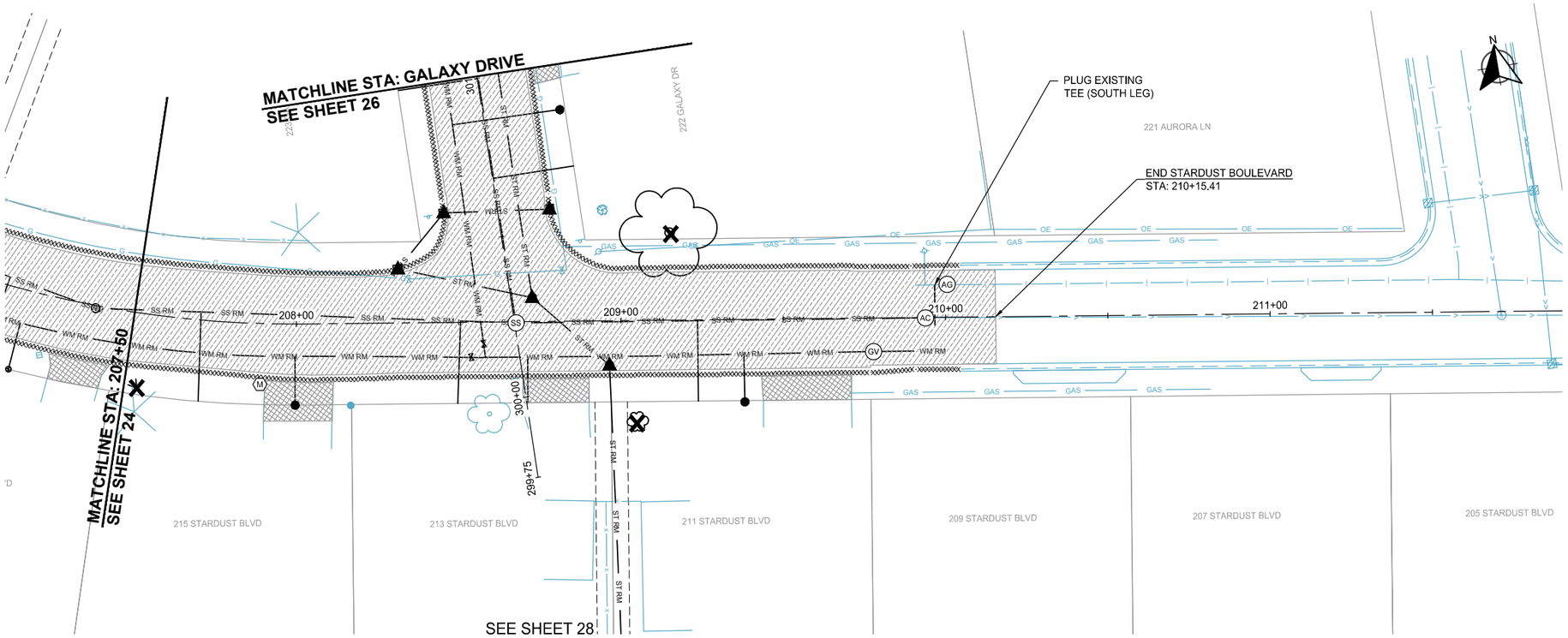
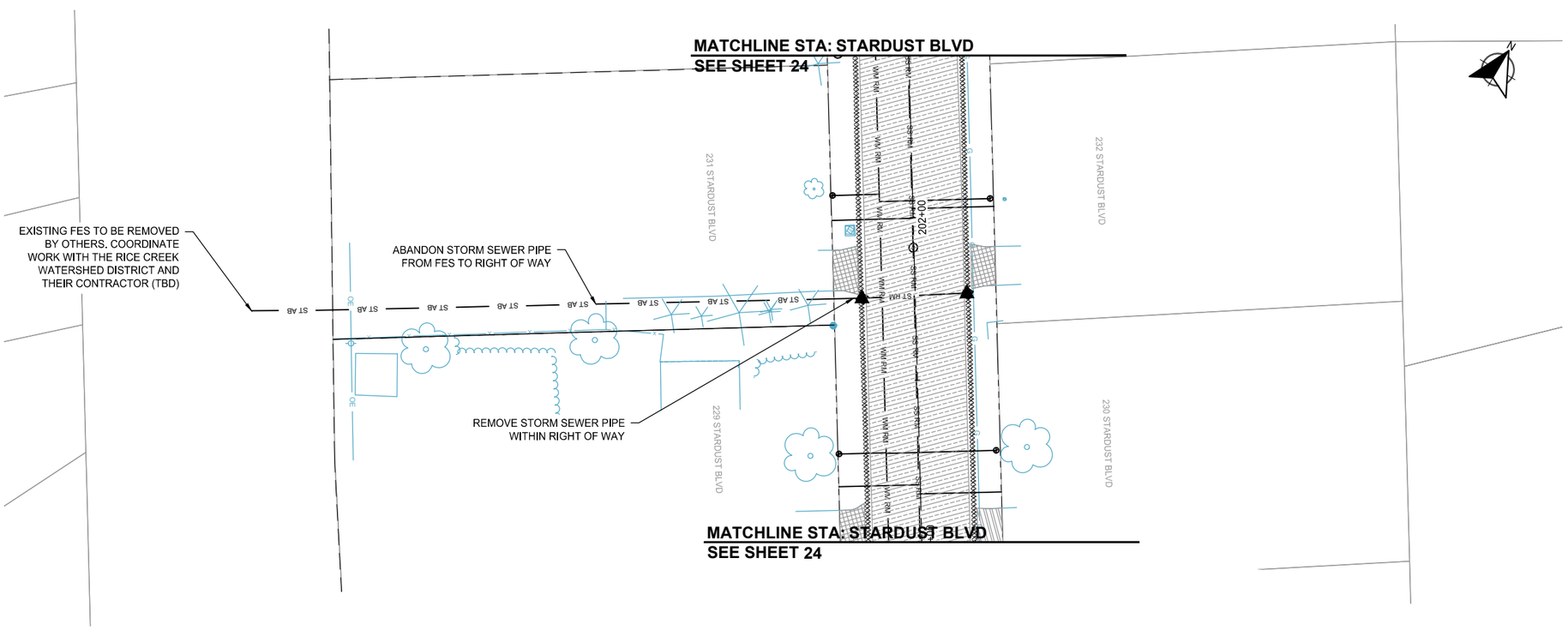


STARDUST BOULEVARD



LOCATION

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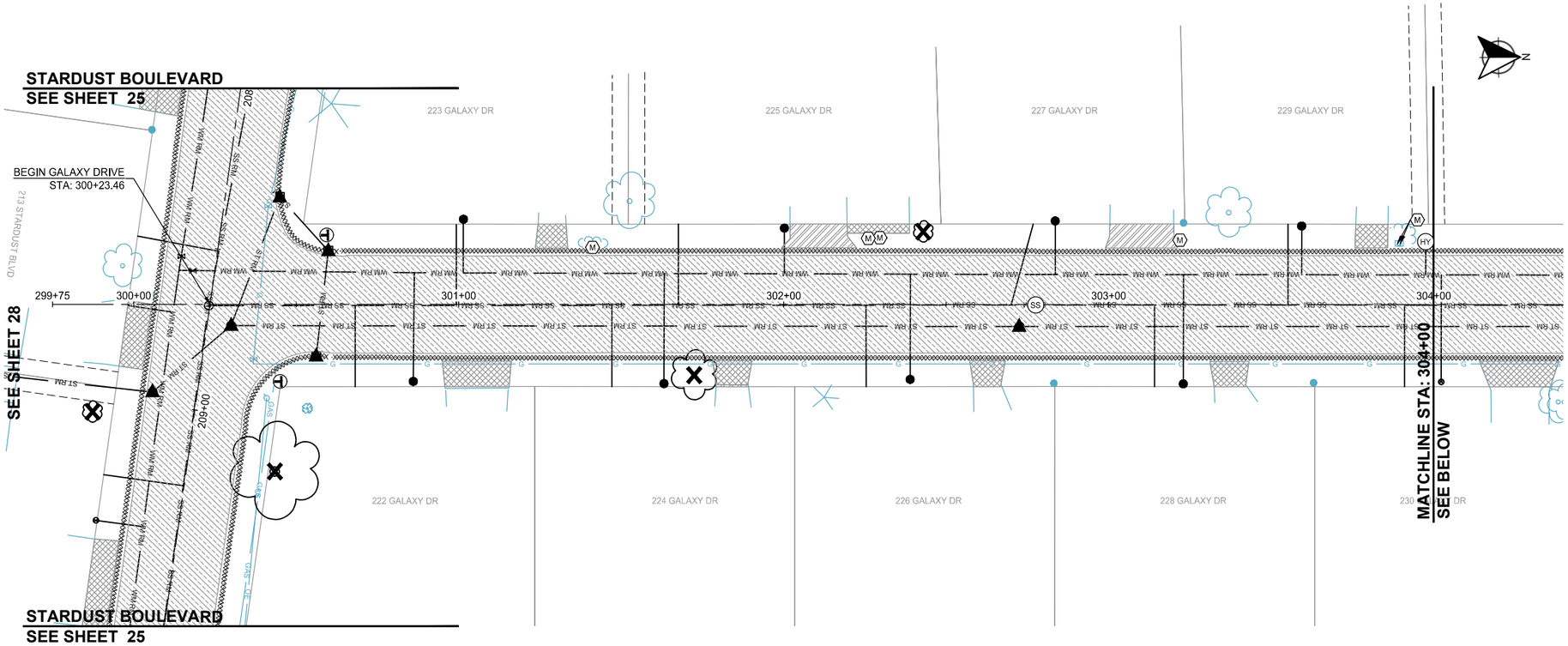
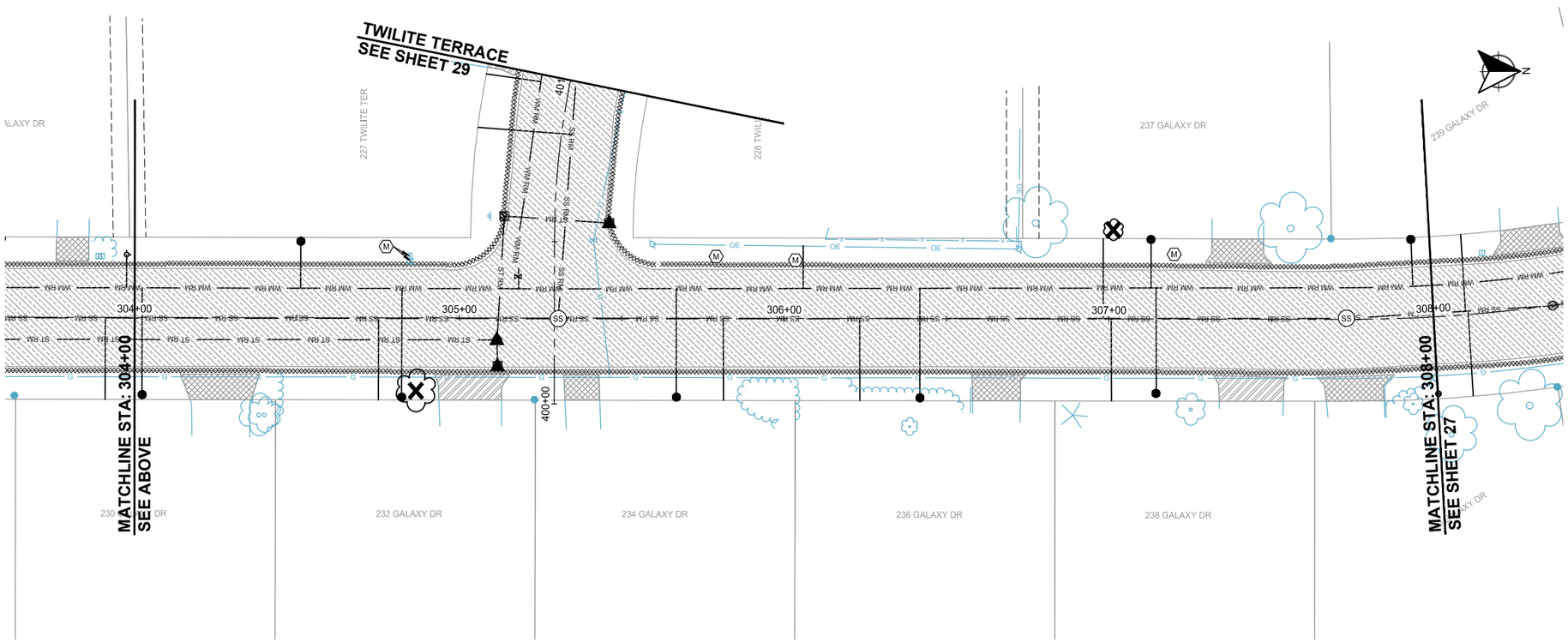


GALAXY DRIVE



LOCATION

H: 0 20 40
SCALE IN FEET

LEGEND

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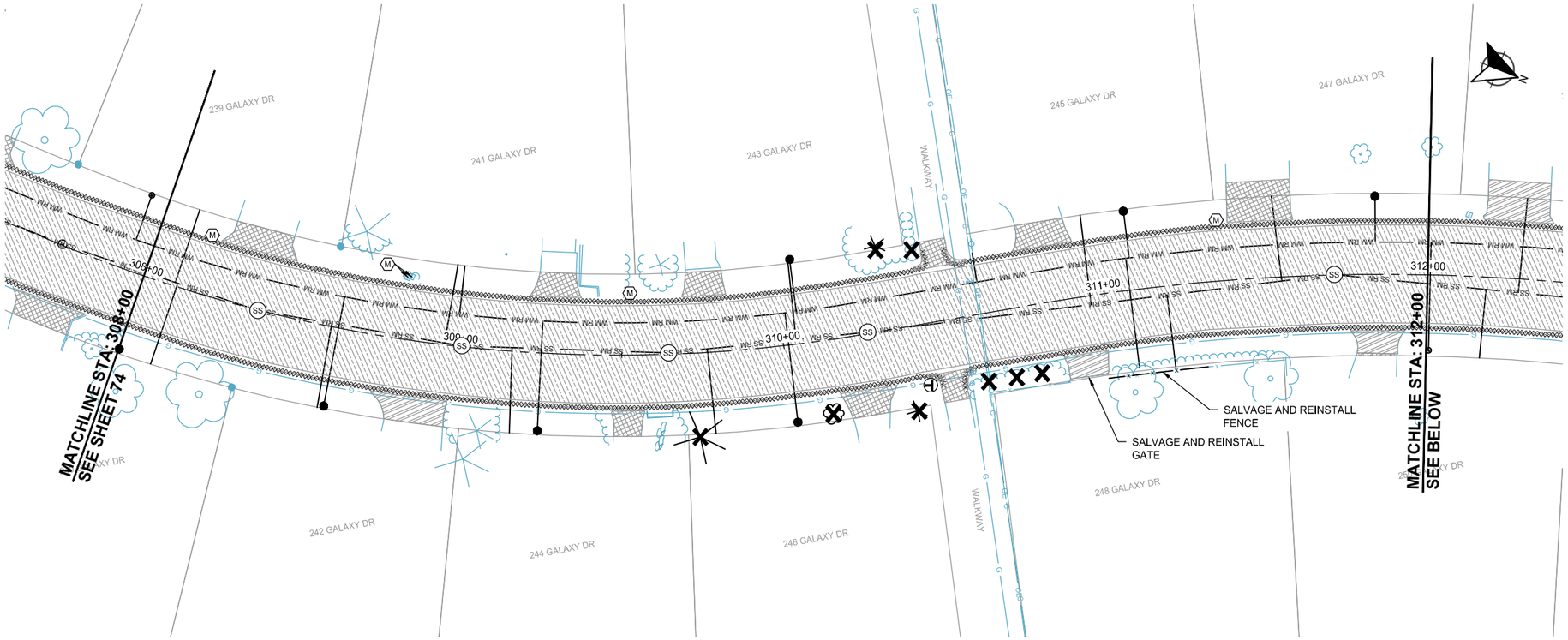

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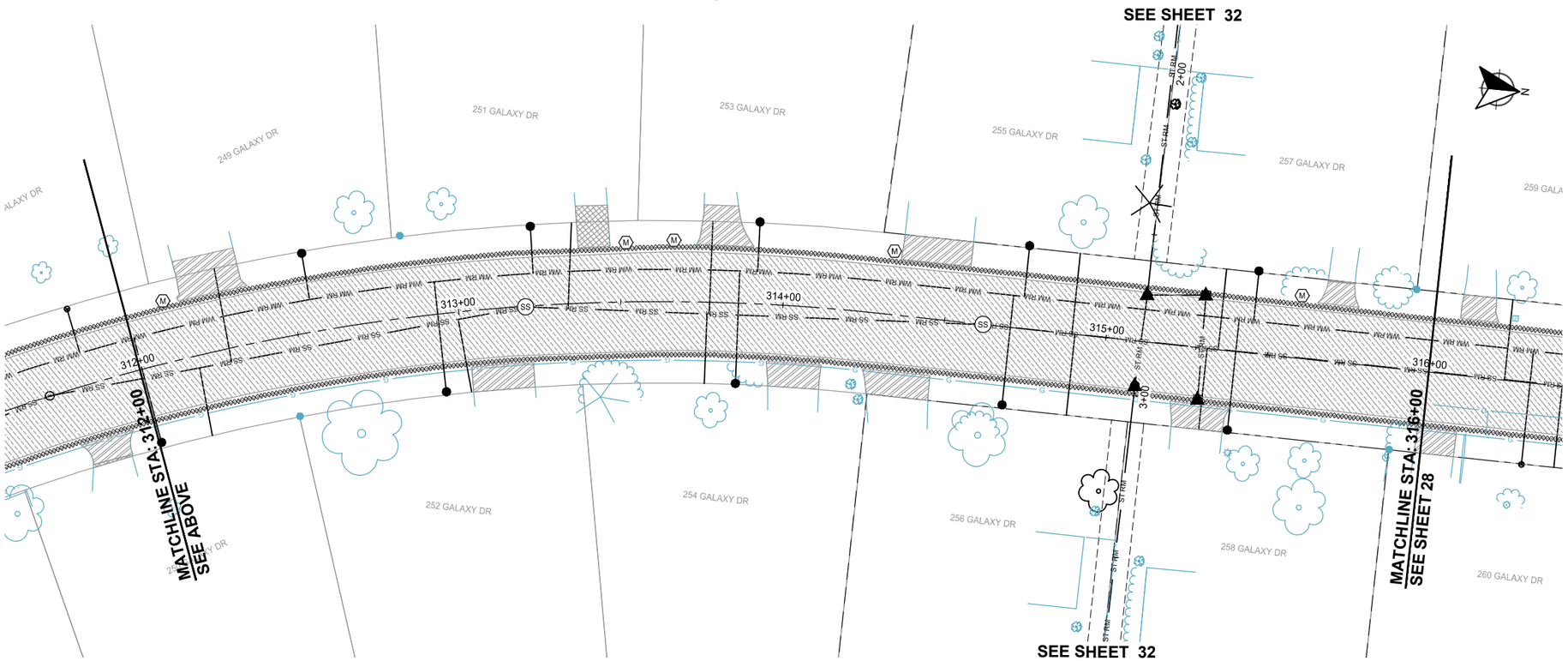

LOCATION

H: 0 20 40
SCALE IN FEET

LEGEND

- AC — ADJUST CASTING
- GV — REMOVE GATE VALVE
- AG — ADJUST GATE VALVE
- HY — REMOVE HYDRANT, VALVE & LEAD
- REMOVE DRAINAGE STRUCTURE
- REMOVE SIGN
- REMOVE TREE
- M — SALVAGE & RE-INSTALL MAILBOX (SUPPORT LOCATION)
- WM RM — REMOVE WATERMAIN
- REMOVE WATER SERVICE/ CURBSTOP
- ST RM — REMOVE STORM SEWER
- ST AB — ABANDON STORM SEWER
- SS RM — REMOVE SANITARY SEWER
- REMOVE SANITARY SEWER SERVICE
- REMOVE CURB AND GUTTER
- SALVAGE & RE-INSTALL FENCE
- REMOVE BITUMINOUS
- REMOVE BITUMINOUS DRIVEWAY
- REMOVE CONCRETE
- REMOVE GRAVEL
- CLEAR AND GRUB (BY ACRE)

wsb

City of CIRCLE PINES

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

NO.	DATE	DESCRIPTION

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GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

REMOVAL PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

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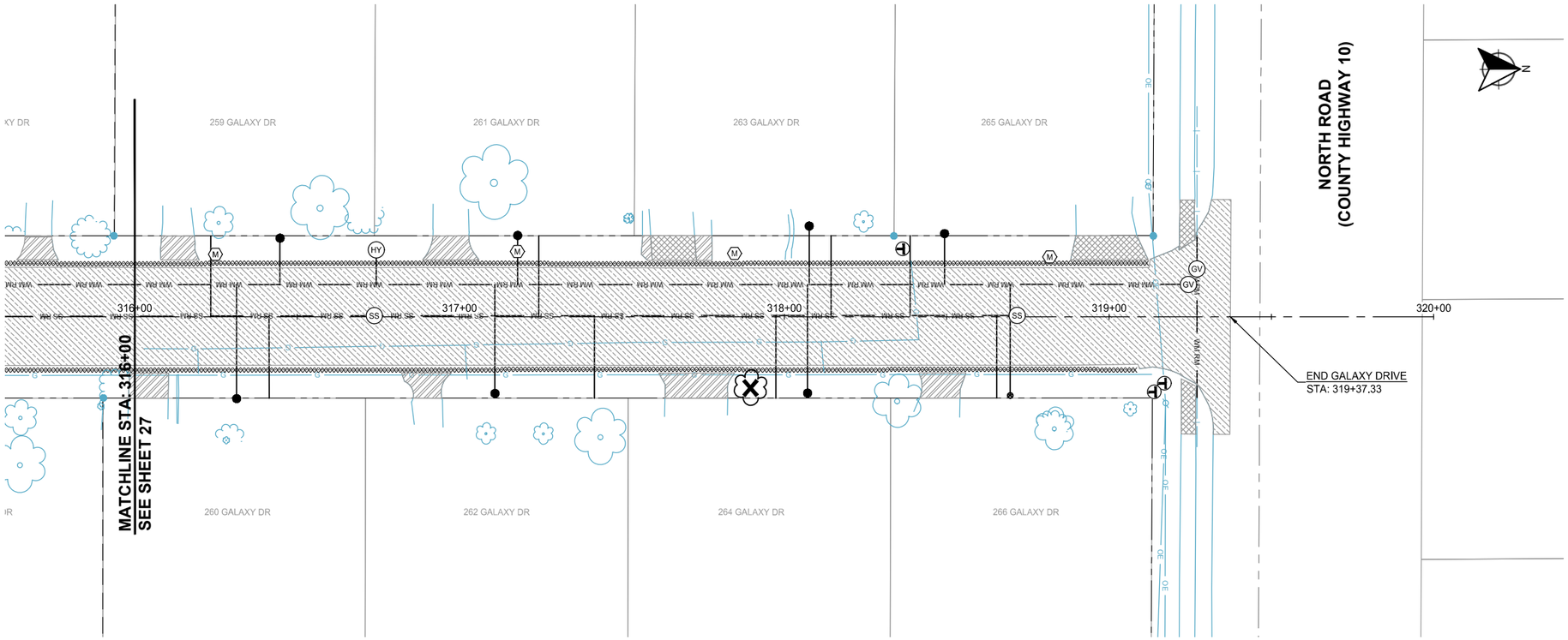

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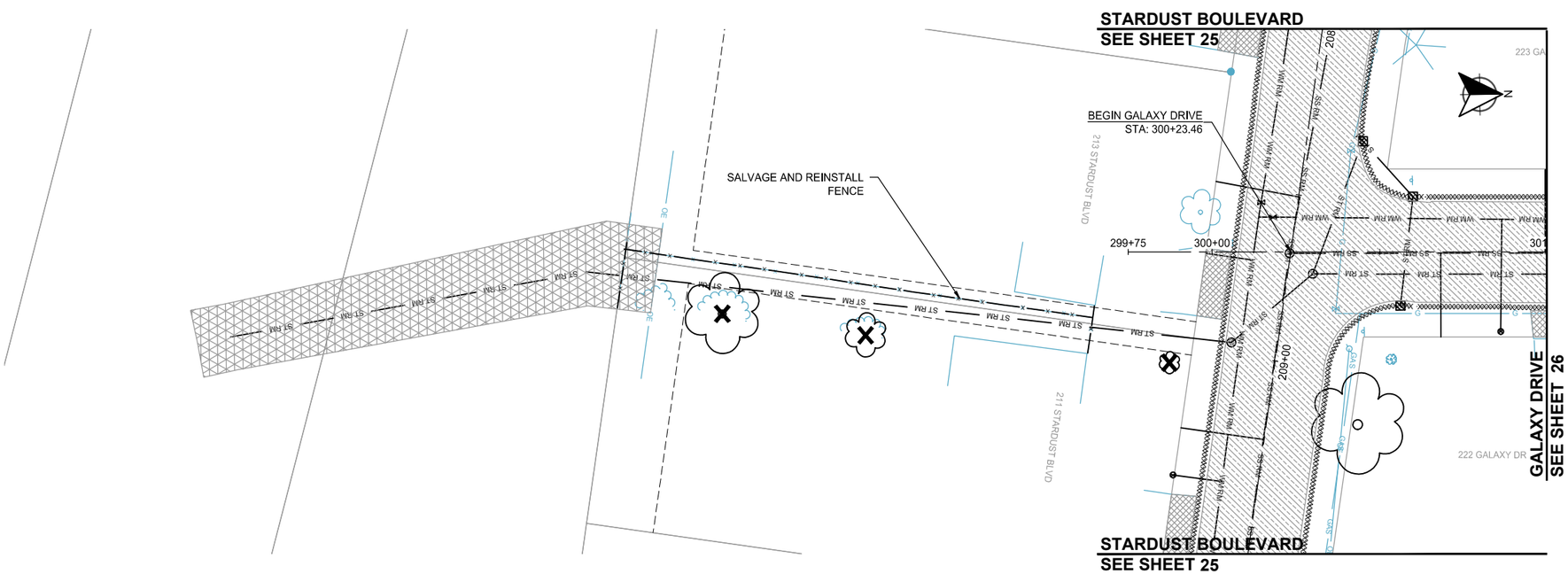

LOCATION

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- REMOVE GRAVEL
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City of Circle Pines

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CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

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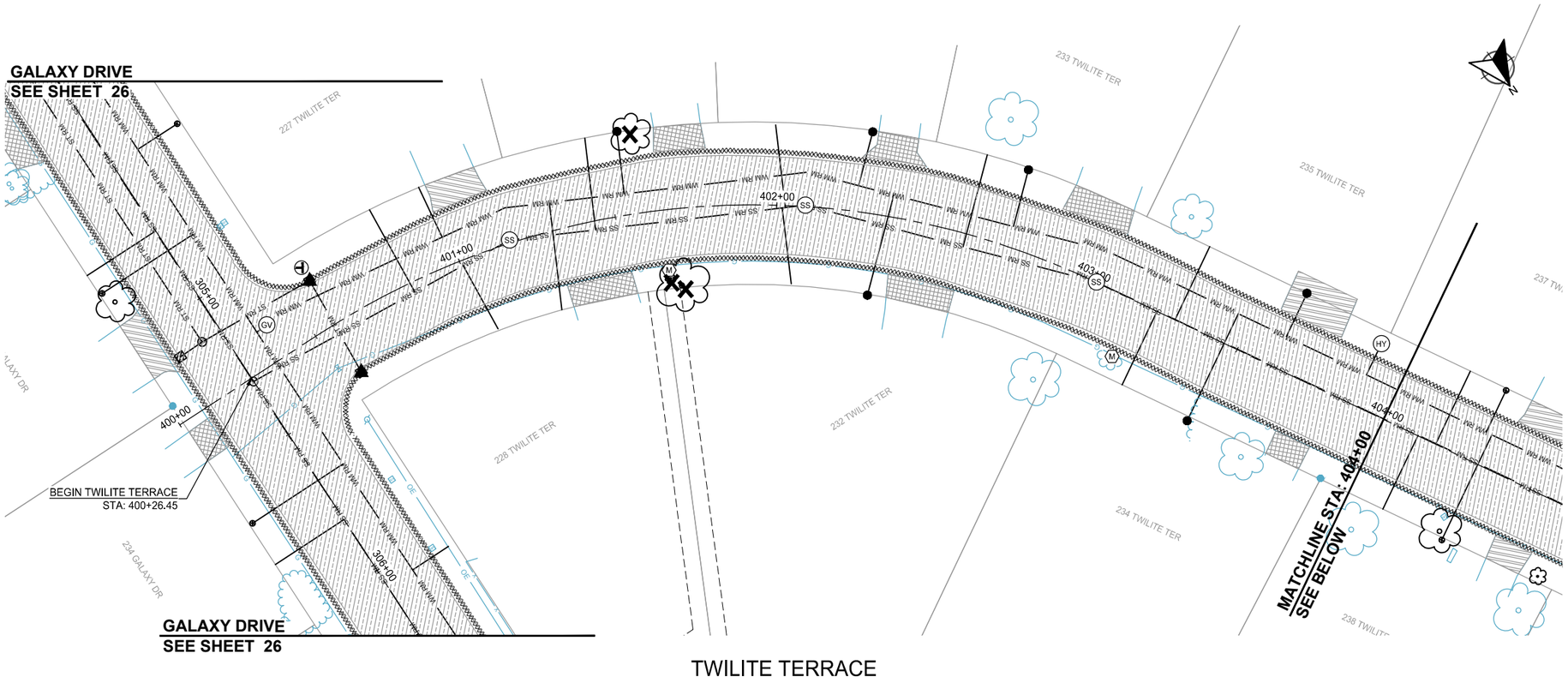

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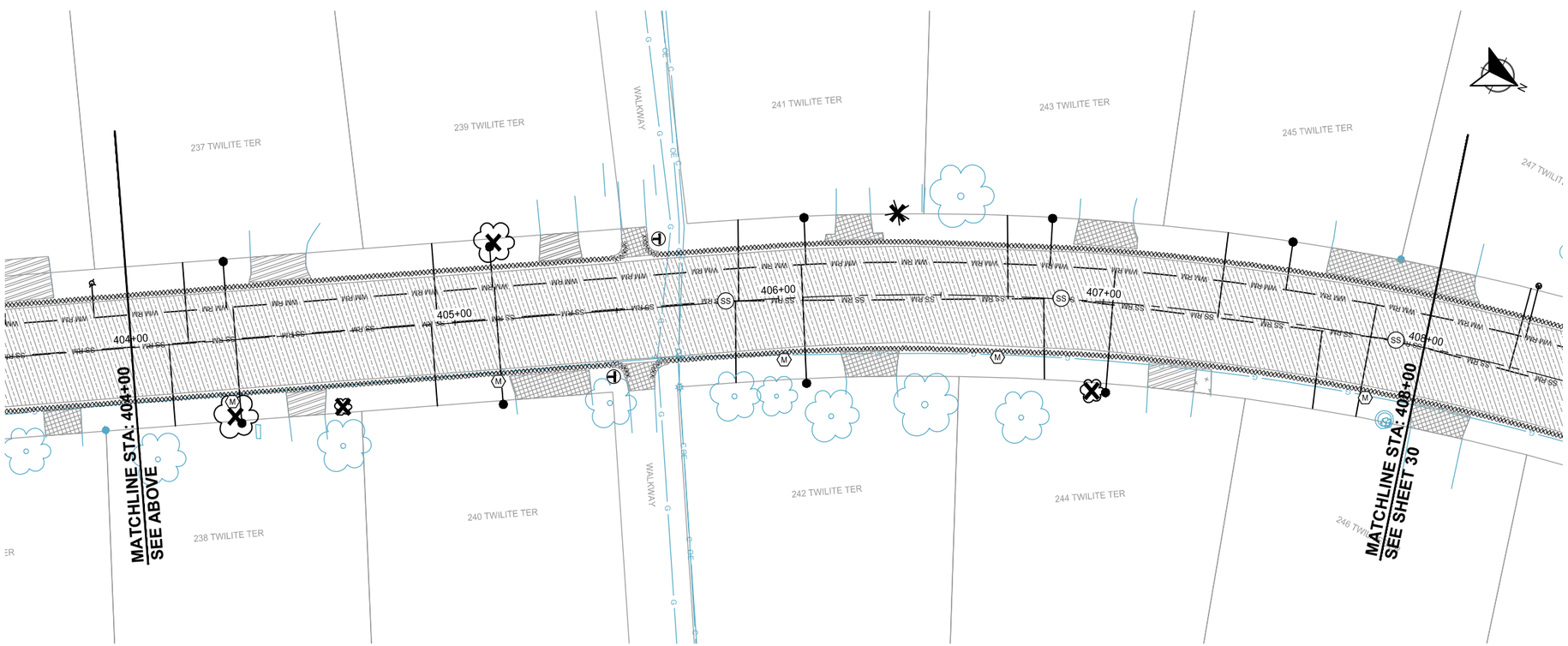

LOCATION

H: 0 20 40
SCALE IN FEET

LEGEND

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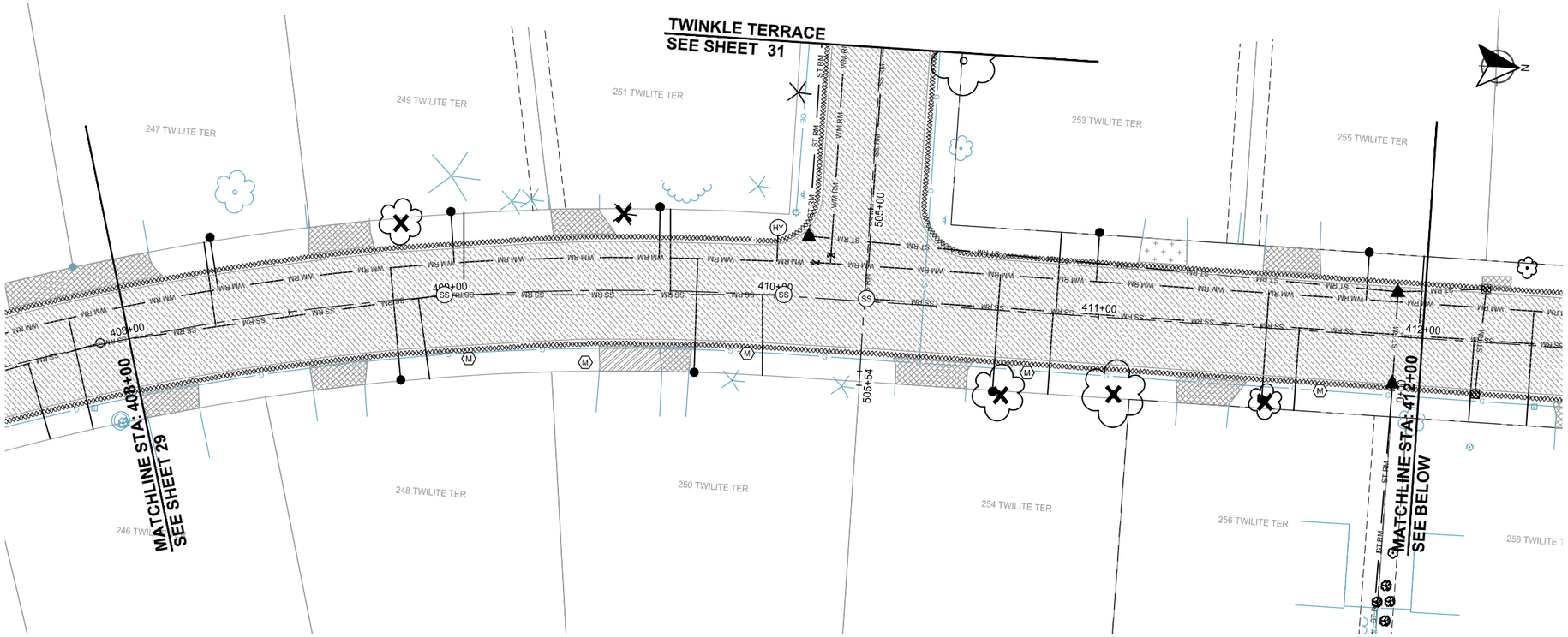

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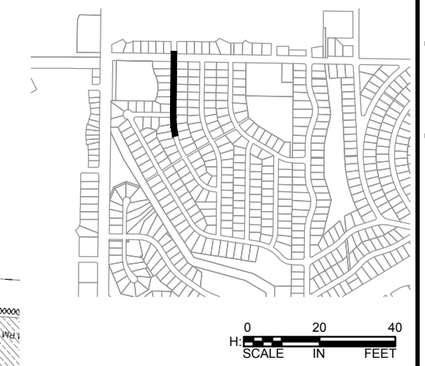

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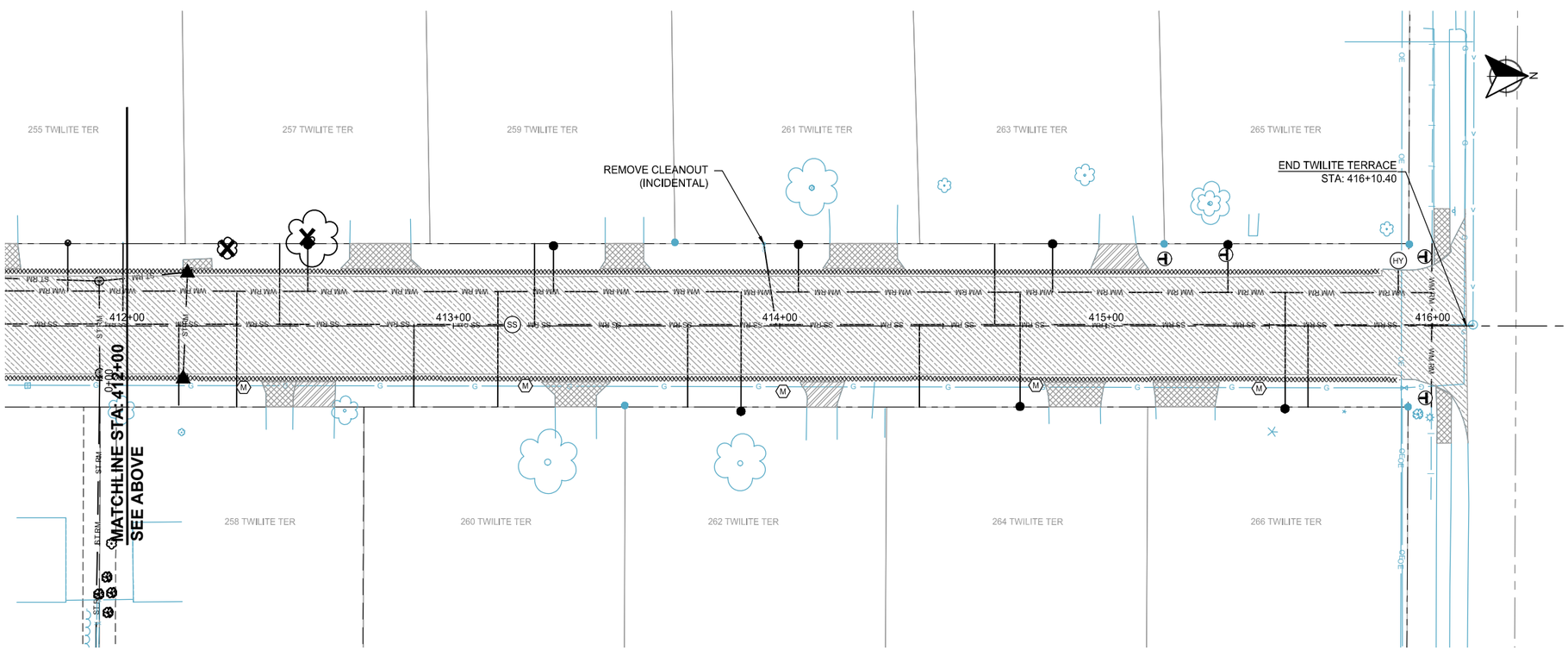

LEGEND

- ADJUST CASTING
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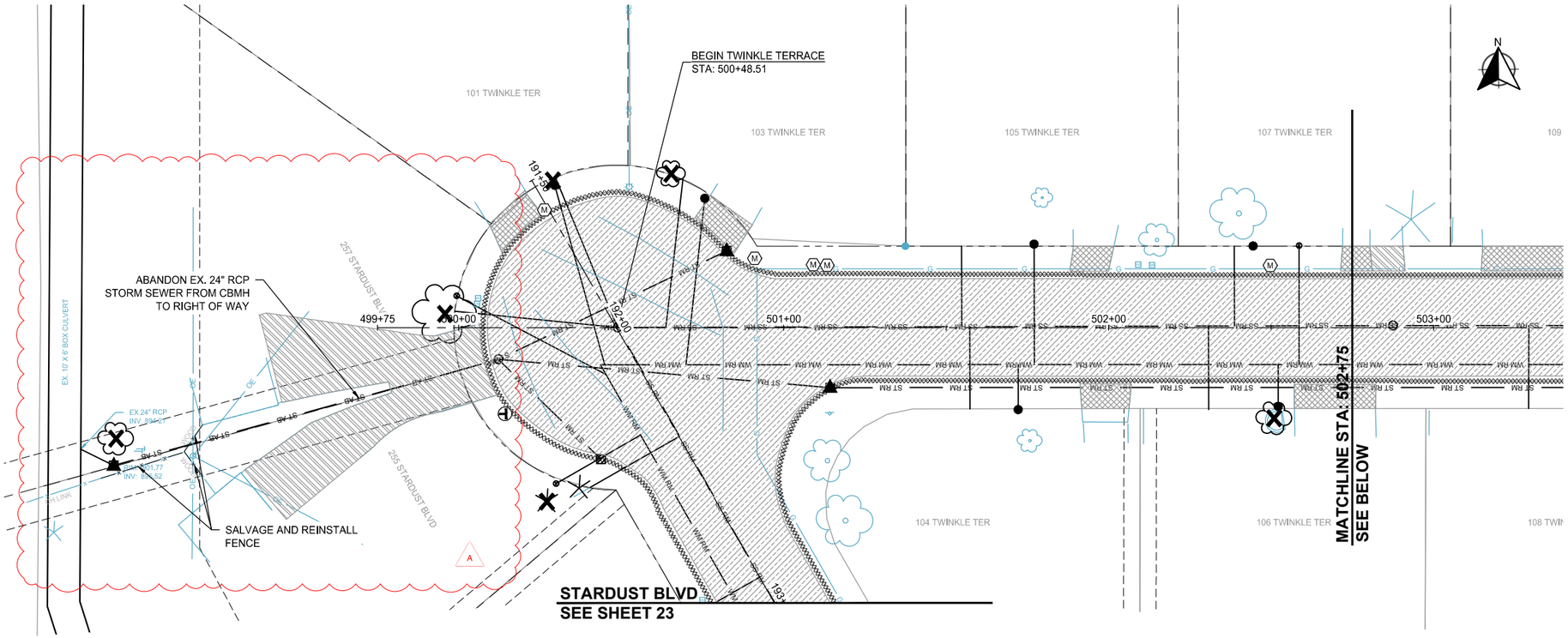

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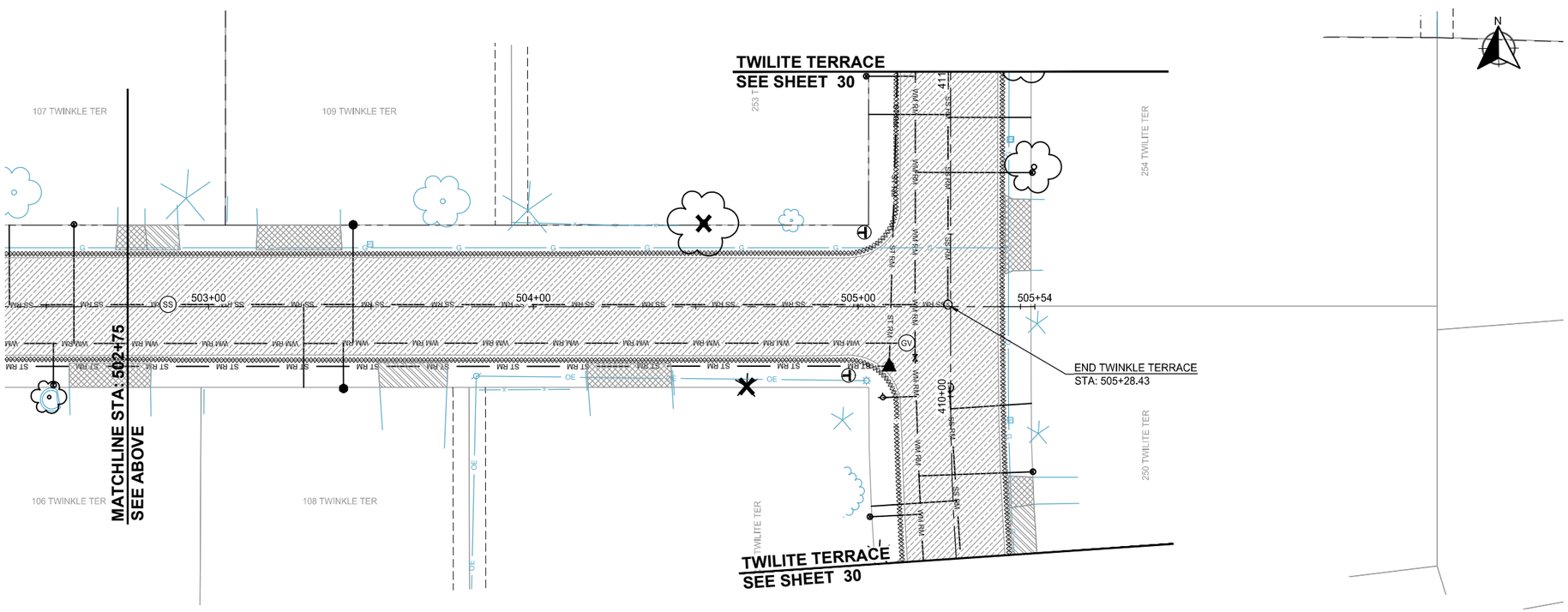

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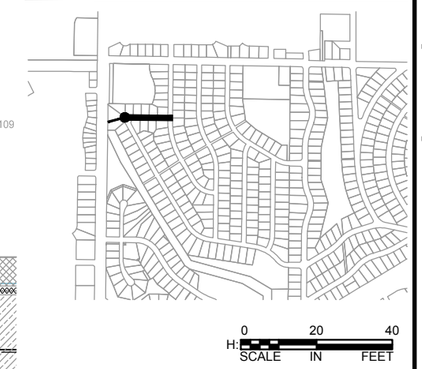

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City of CIRCLE PINES

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REVISIONS

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A	01/18/22	ADDENDUM NO. 1

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REMOVAL PLANS

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CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

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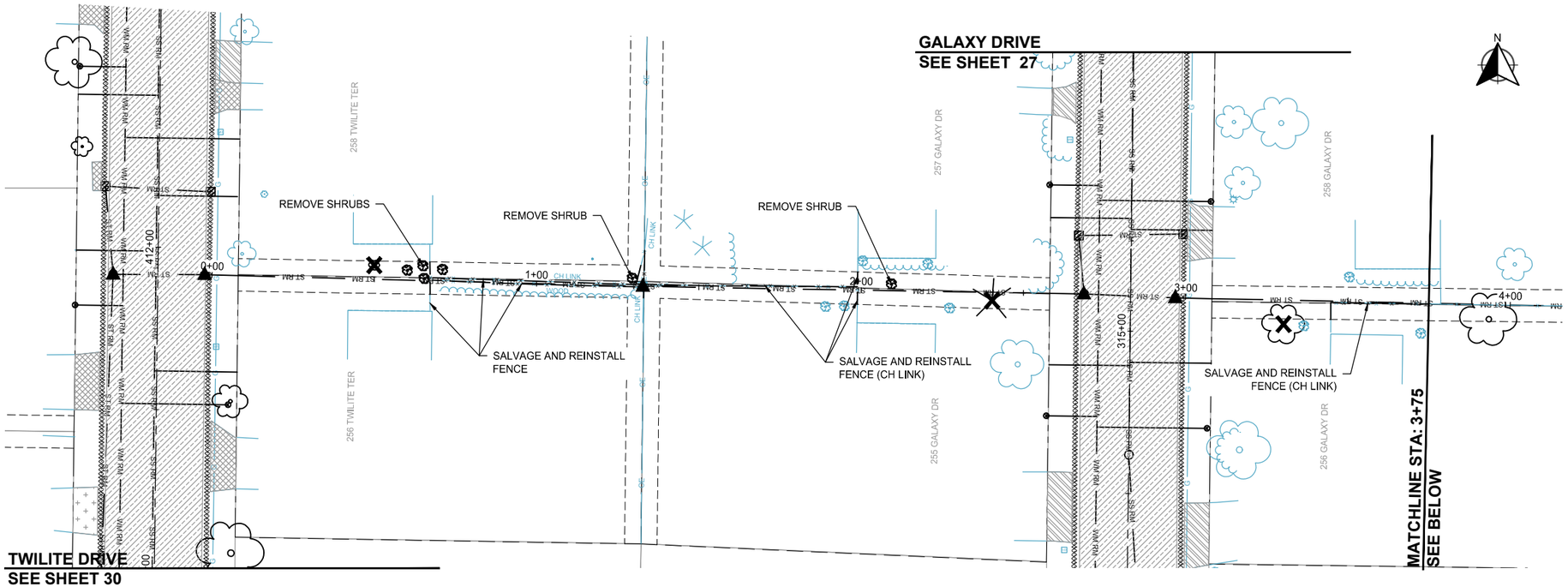

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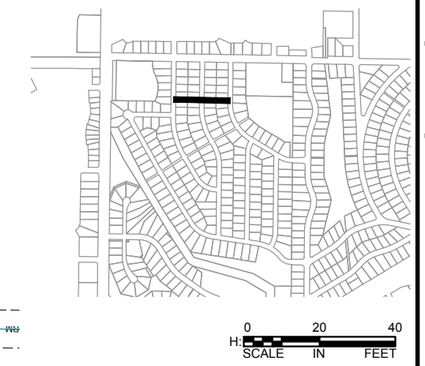
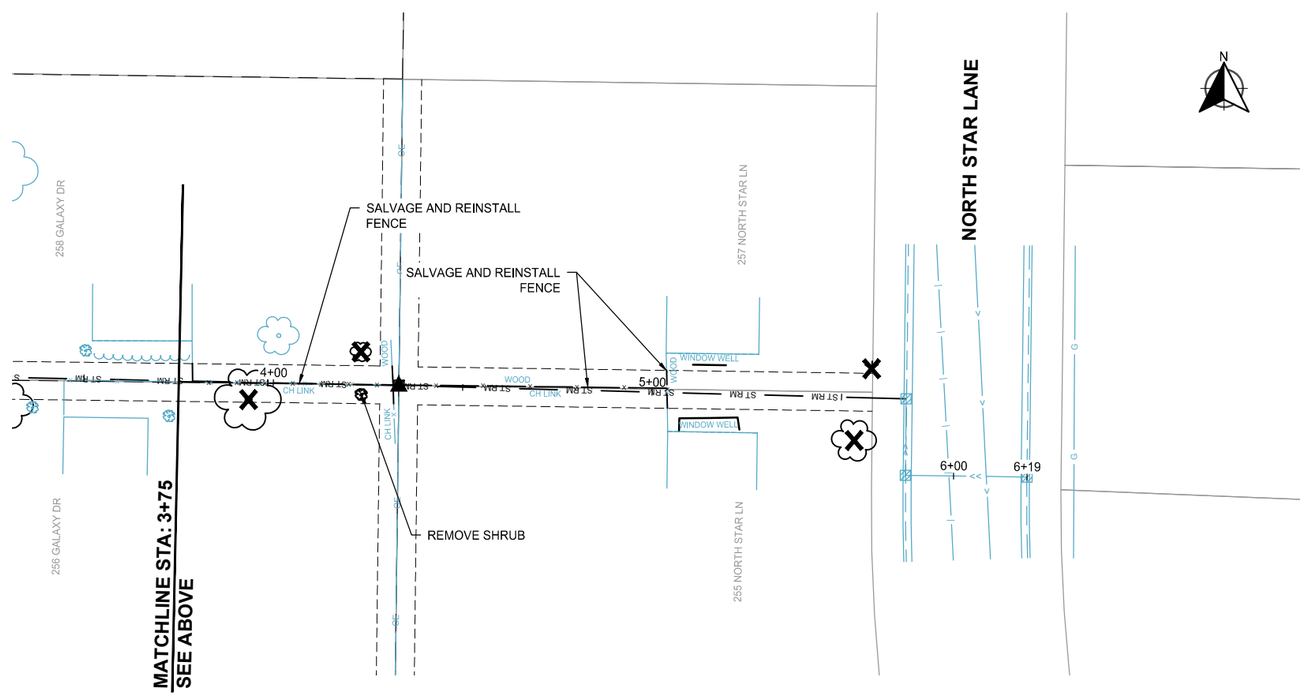


STORM SEWER



LEGEND

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City of CIRCLE PINES

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REMOVAL PLANS

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CITY OF CIRCLE PINES

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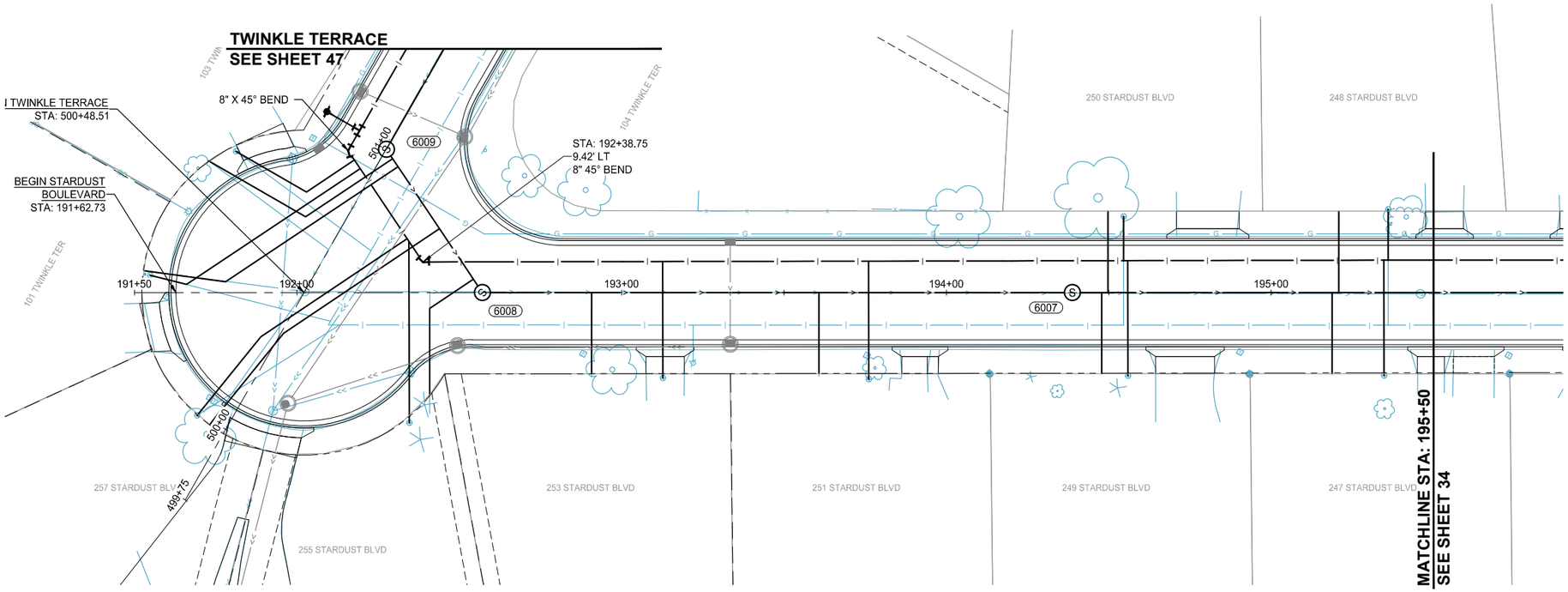
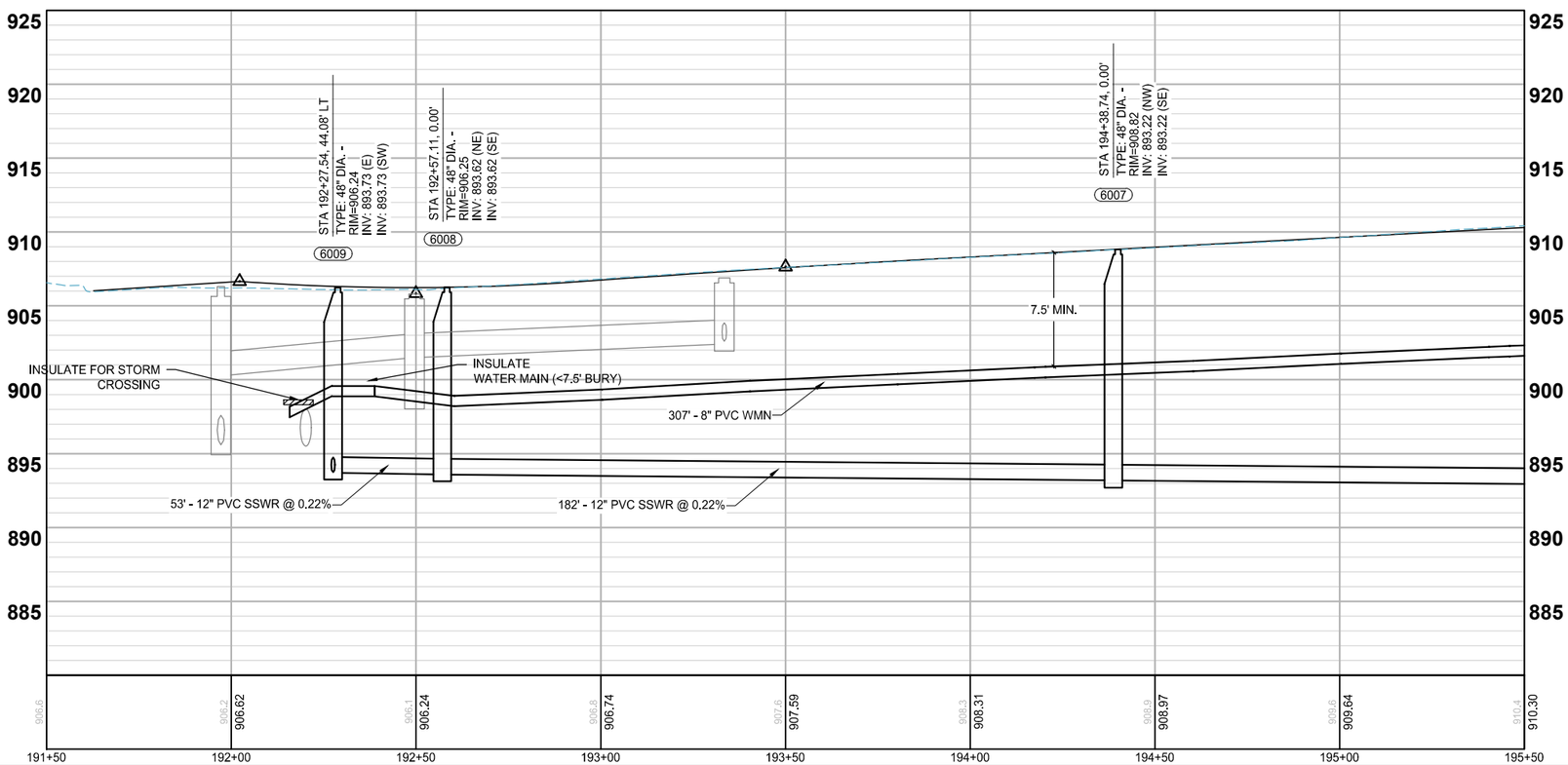


STARDUST BOULEVARD



LOCATION

H: 0 20 40 SCALE IN FEET

V: 0 5 10 SCALE IN FEET

LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

wsb

City of CIRCLE PINES

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SANITARY SEWER & WATERMAIN PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

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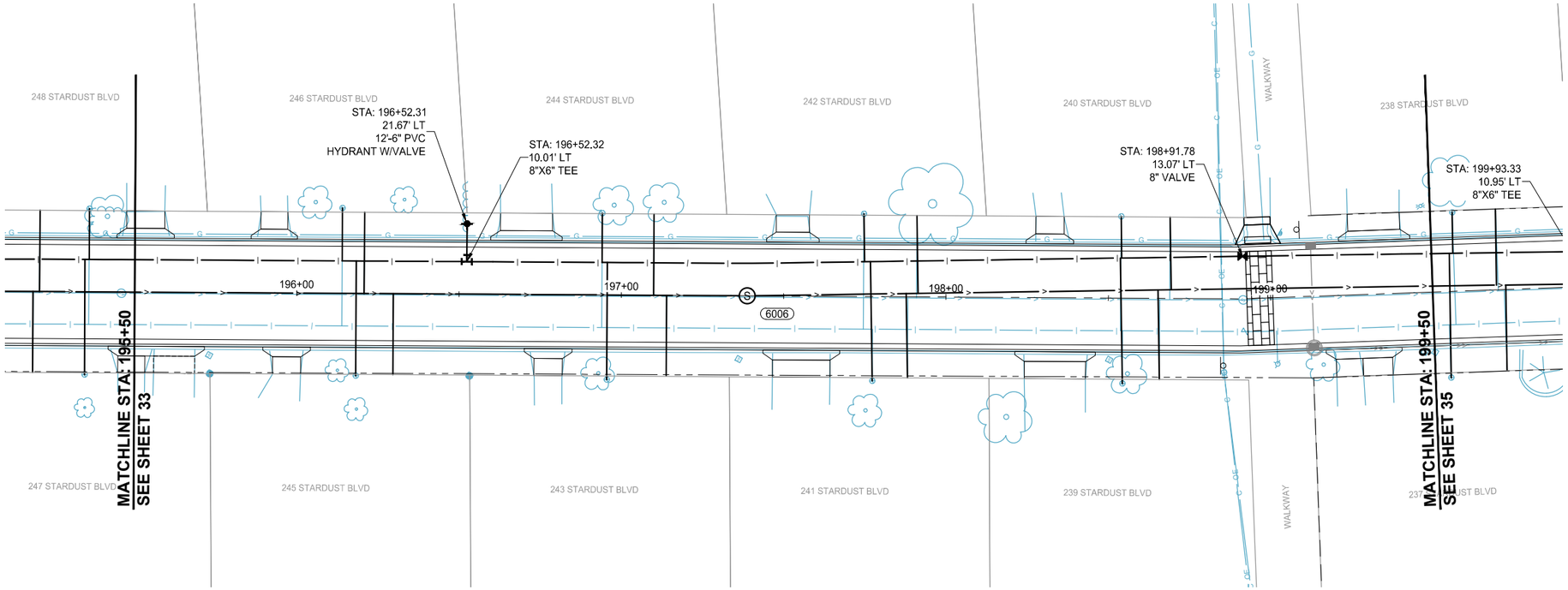

LOCATION

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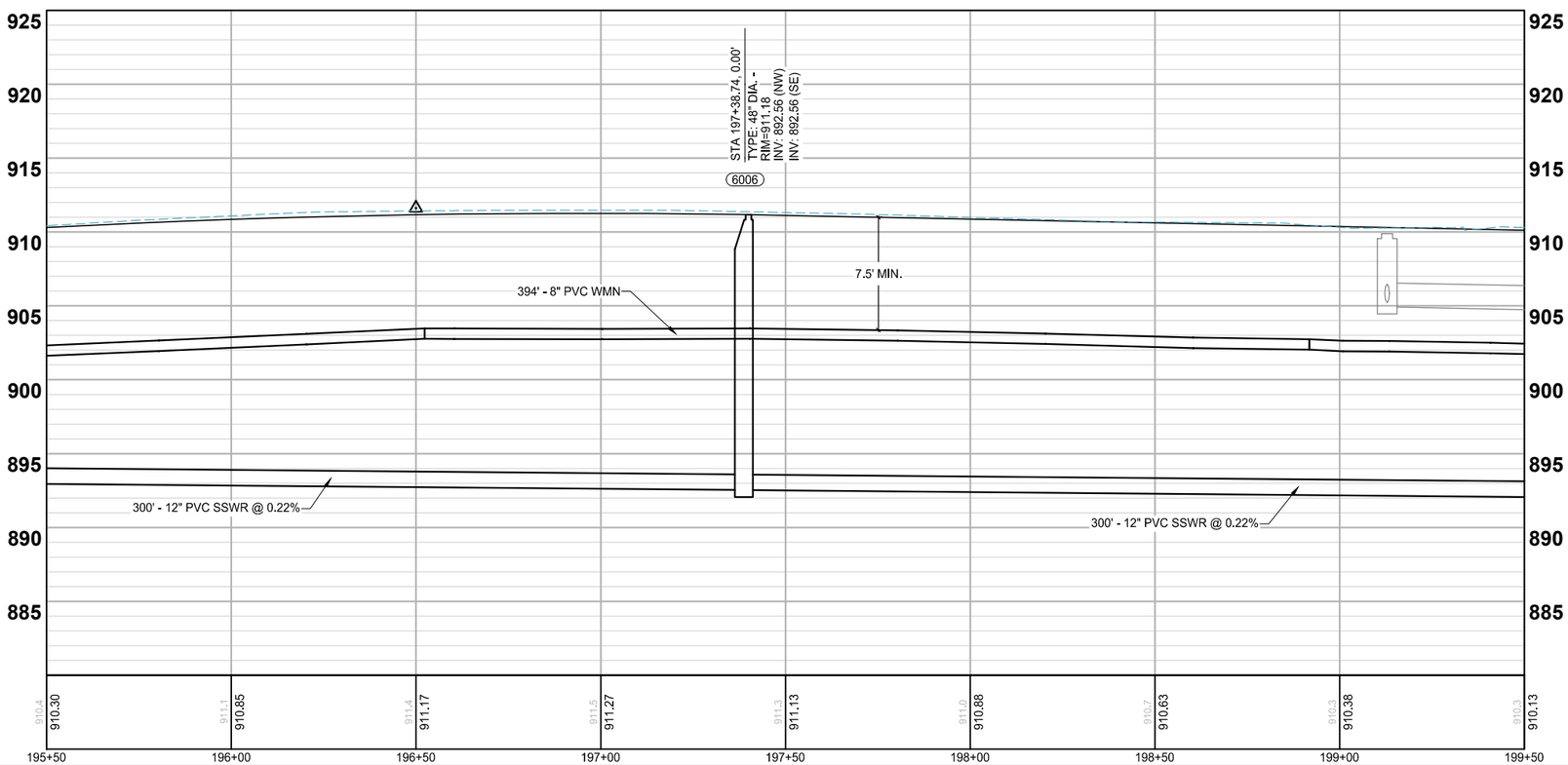
STARDUST BOULEVARD



LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

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City of Circle Pines

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SANITARY SEWER & WATERMAIN PLANS

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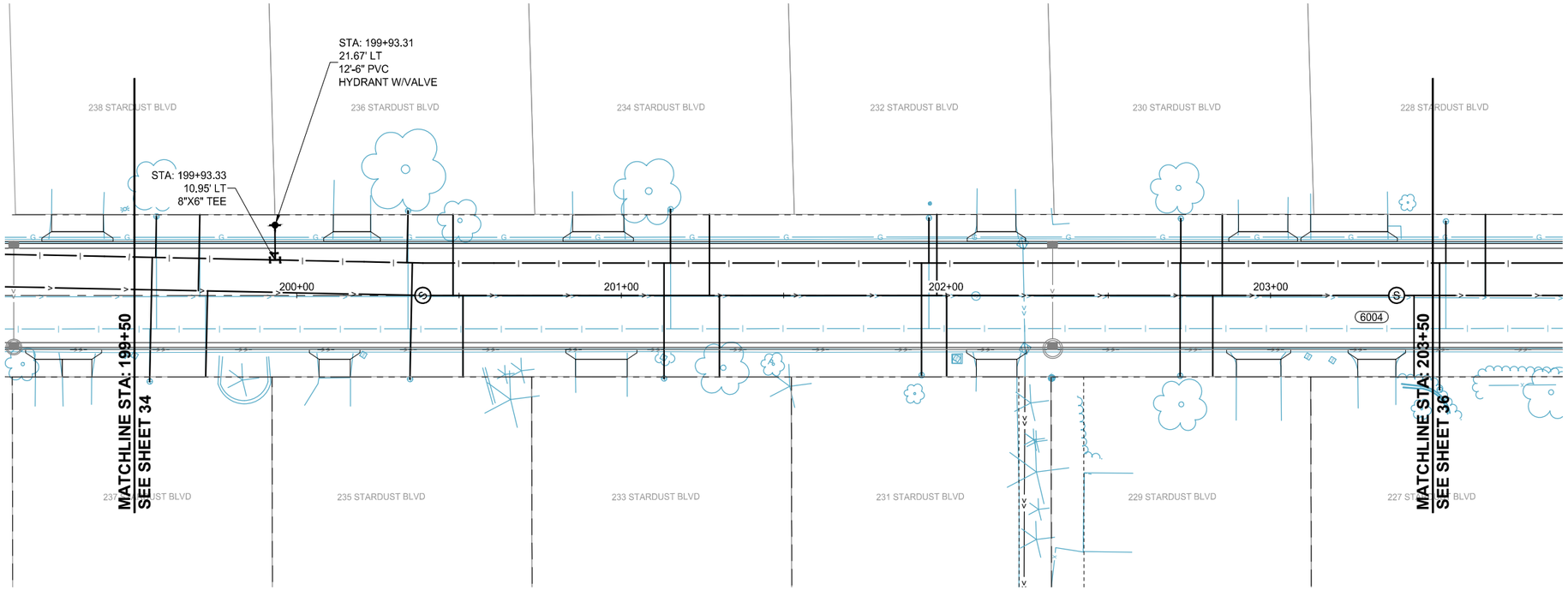

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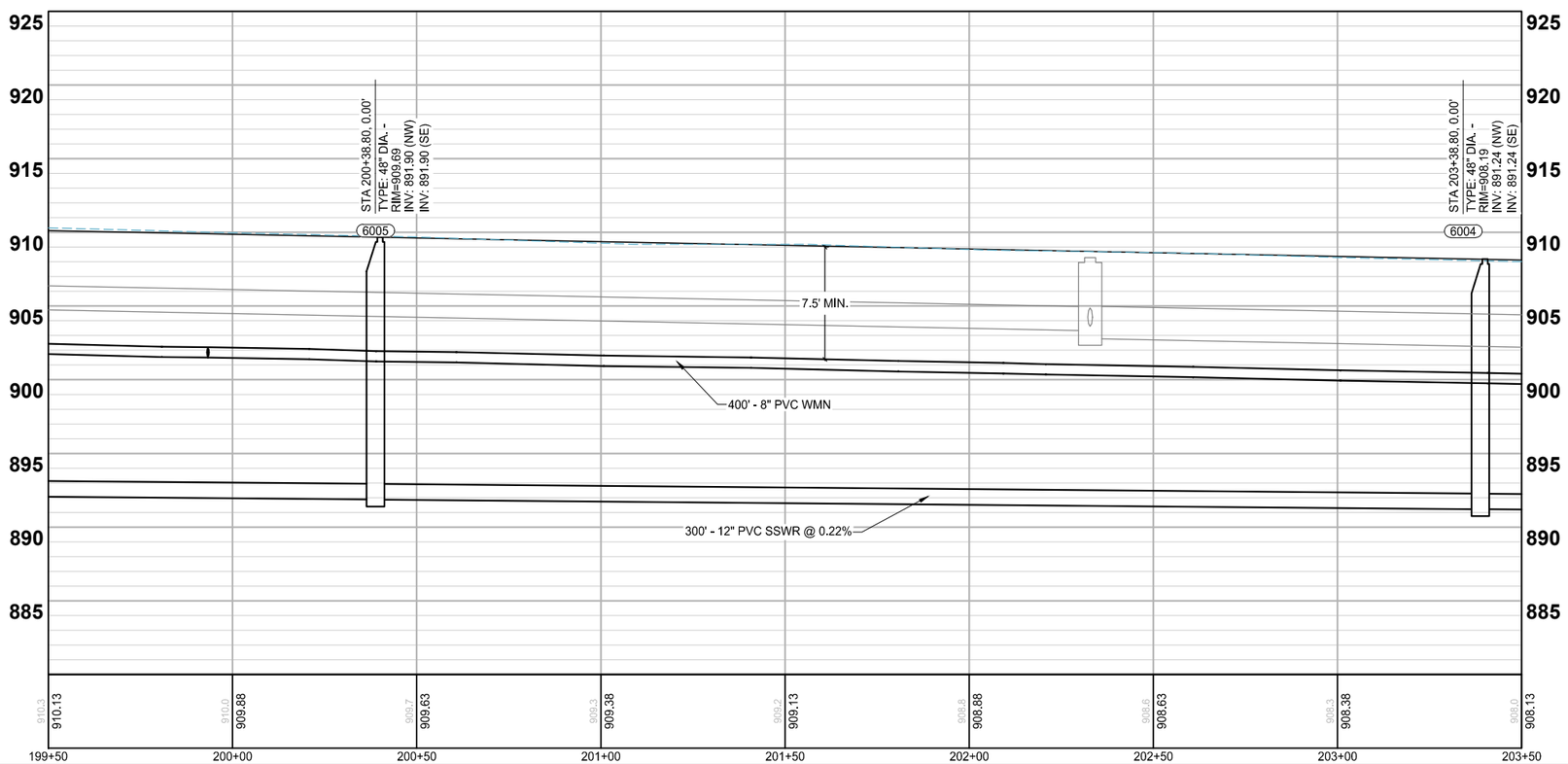

LOCATION

H: 0 20 40 SCALE IN FEET

V: 0 5 10 SCALE IN FEET

LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
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- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
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wsb

City of Circle Pines

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SANITARY SEWER & WATERMAIN PLANS

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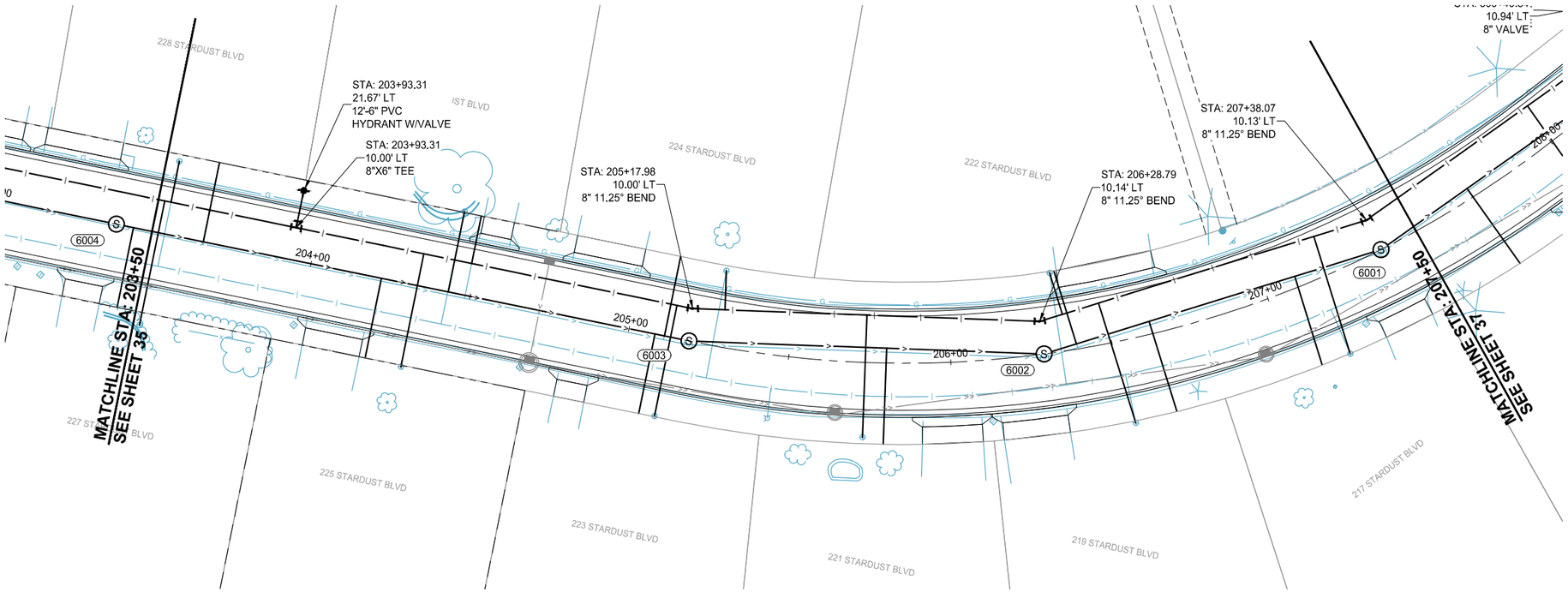

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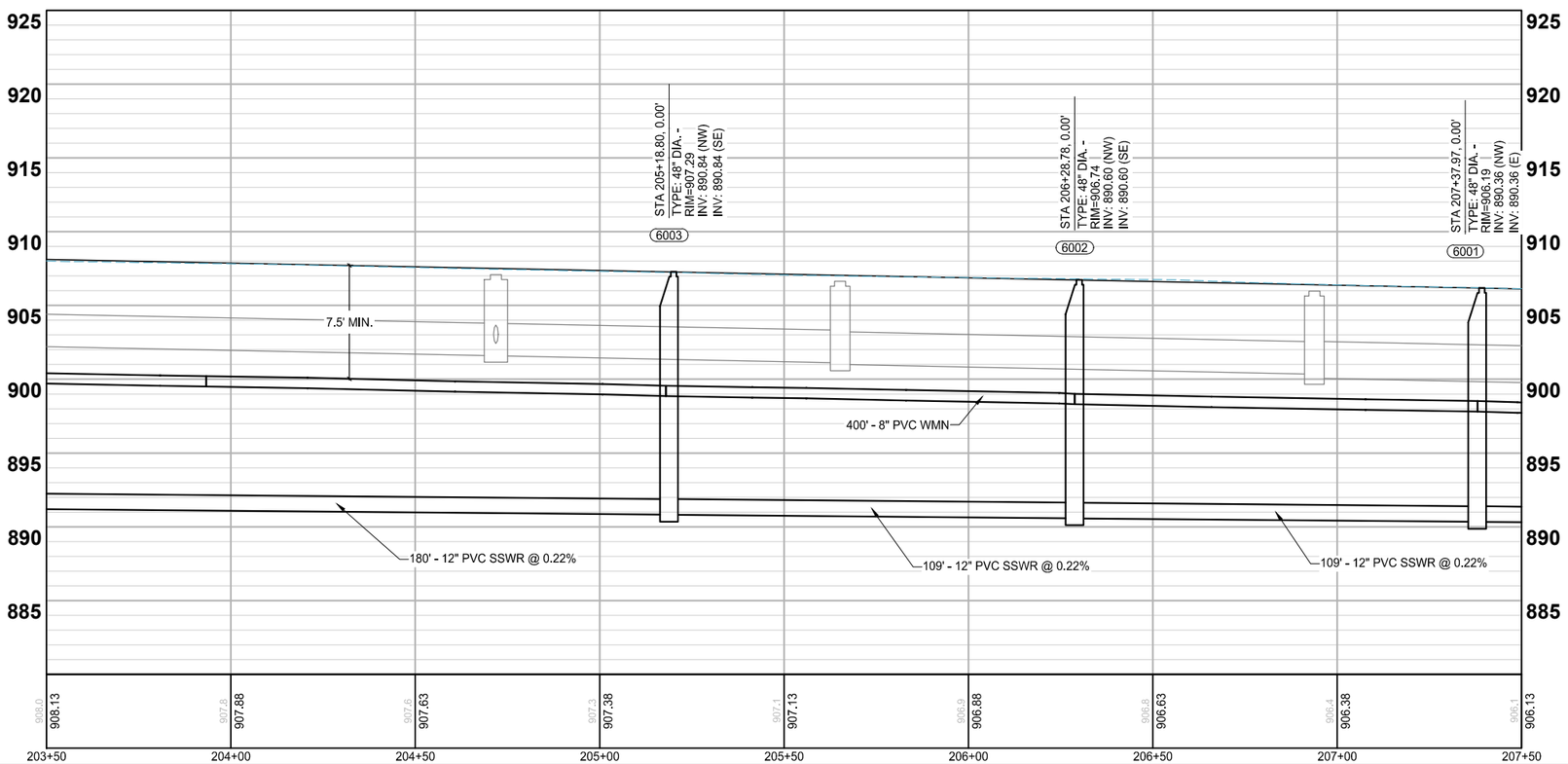

LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
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- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
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wsb

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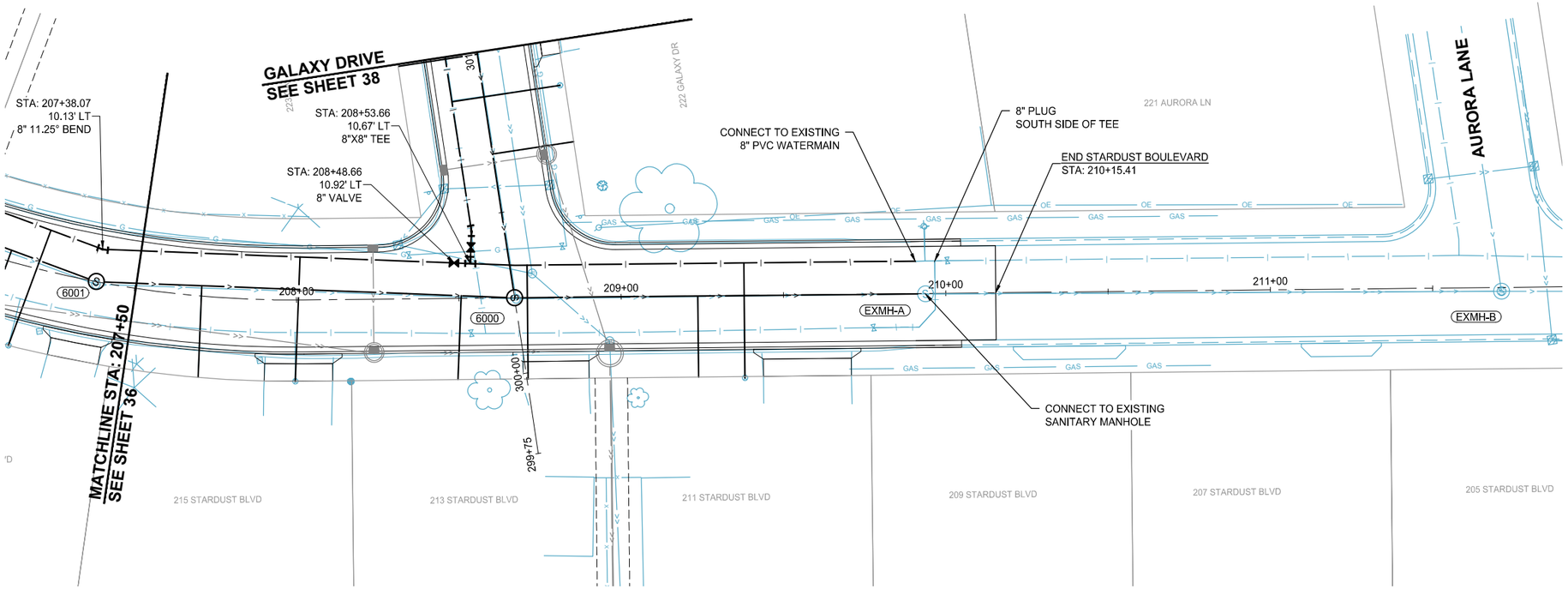

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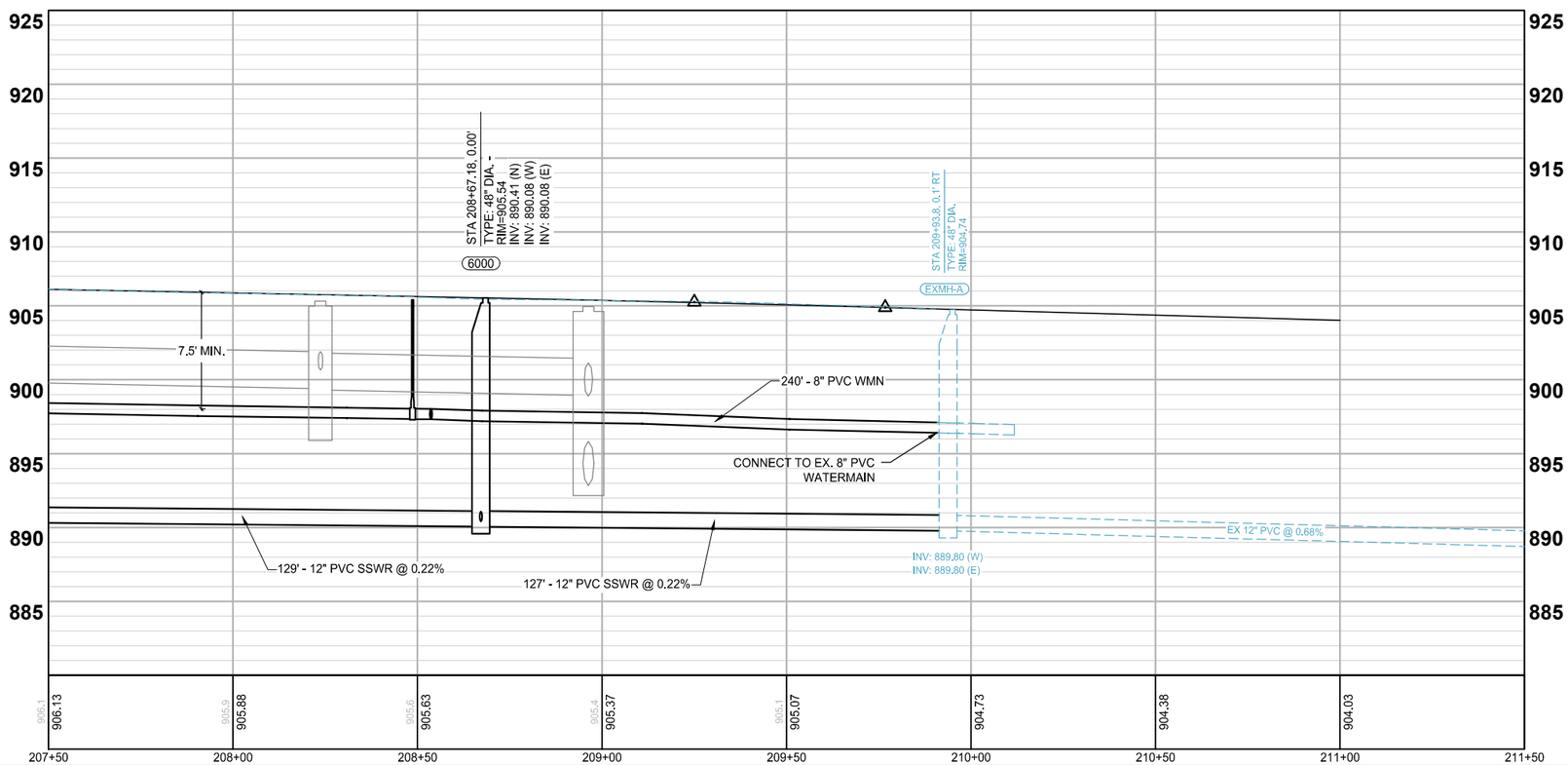

LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

wsb

City of CIRCLE PINES

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

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DATE: 12/14/2021 LIC. NO: 45489

SANITARY SEWER & WATERMAIN PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

SHEET 37 OF 96

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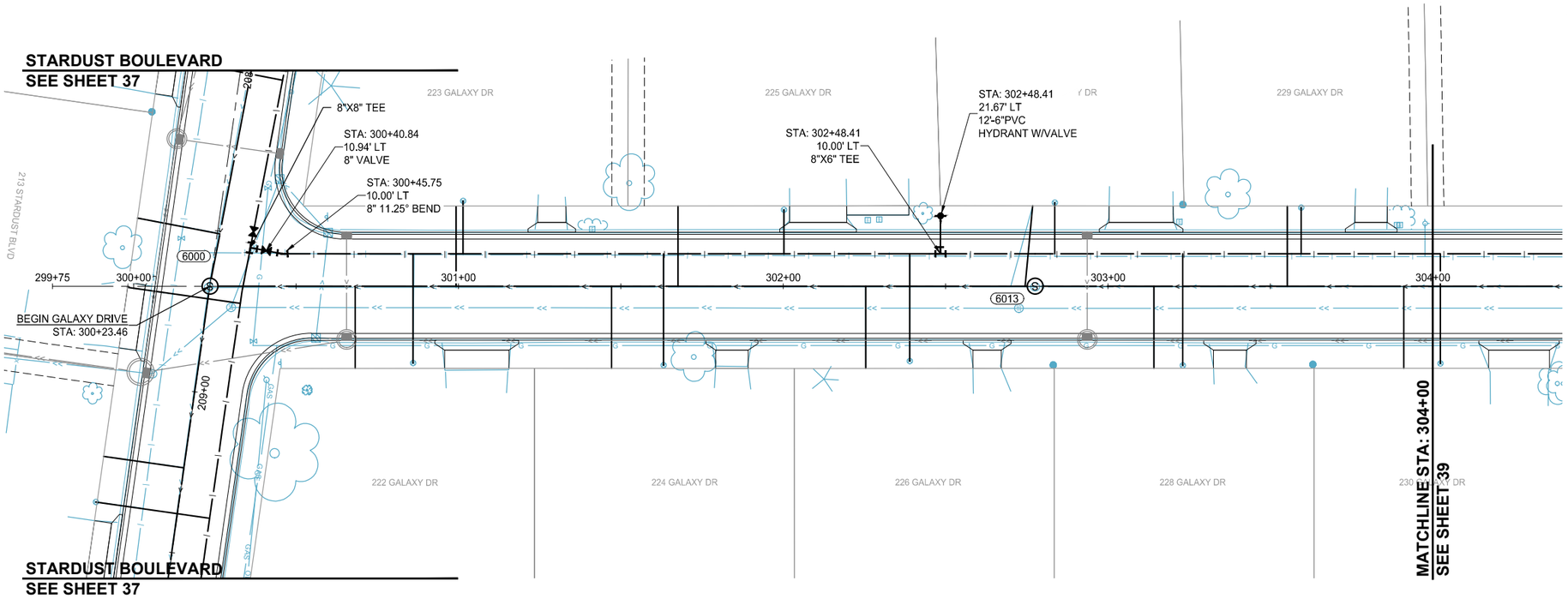
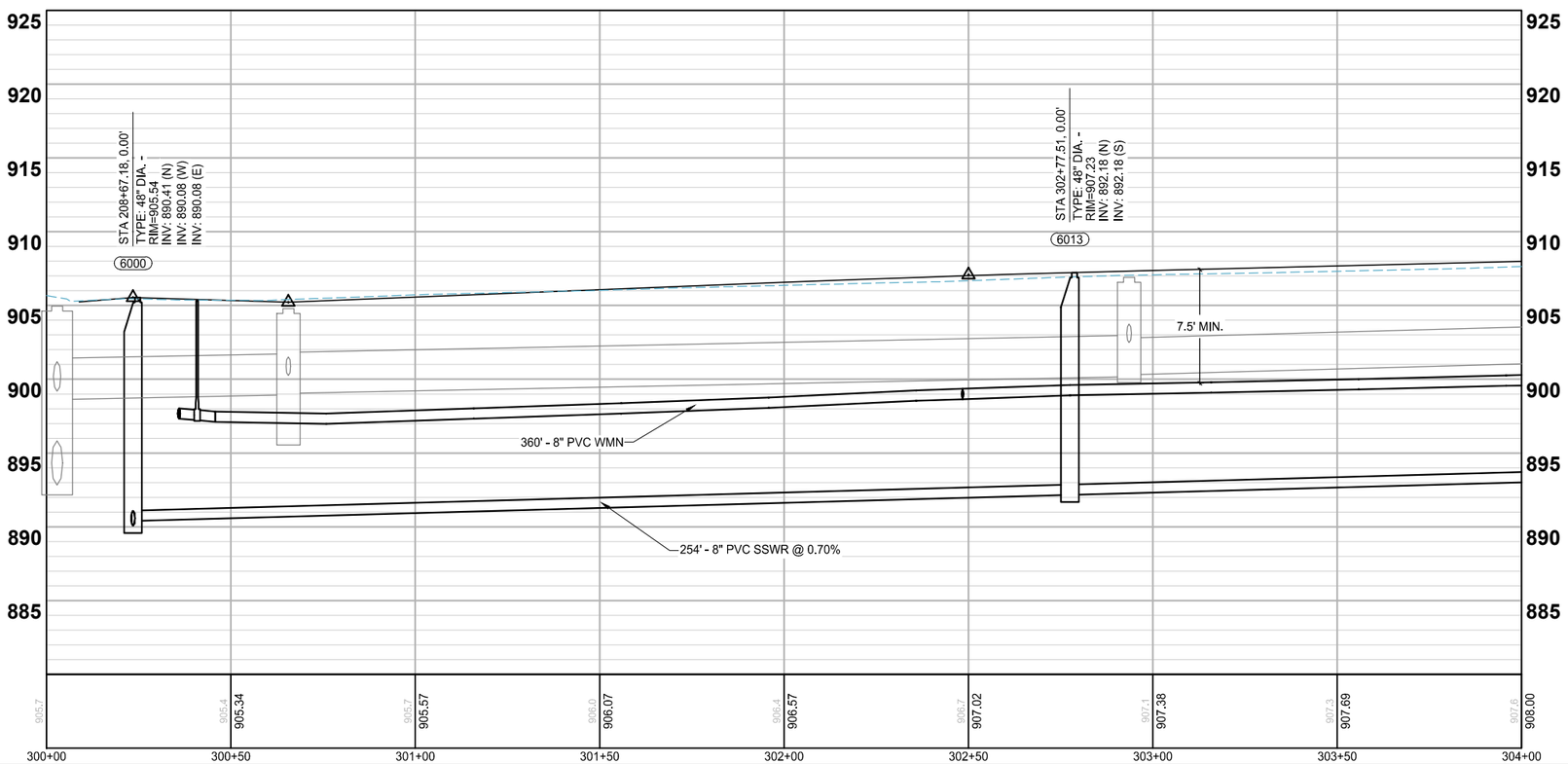


GALAXY DRIVE



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LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

wsb

City of Circle Pines

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CITY OF CIRCLE PINES

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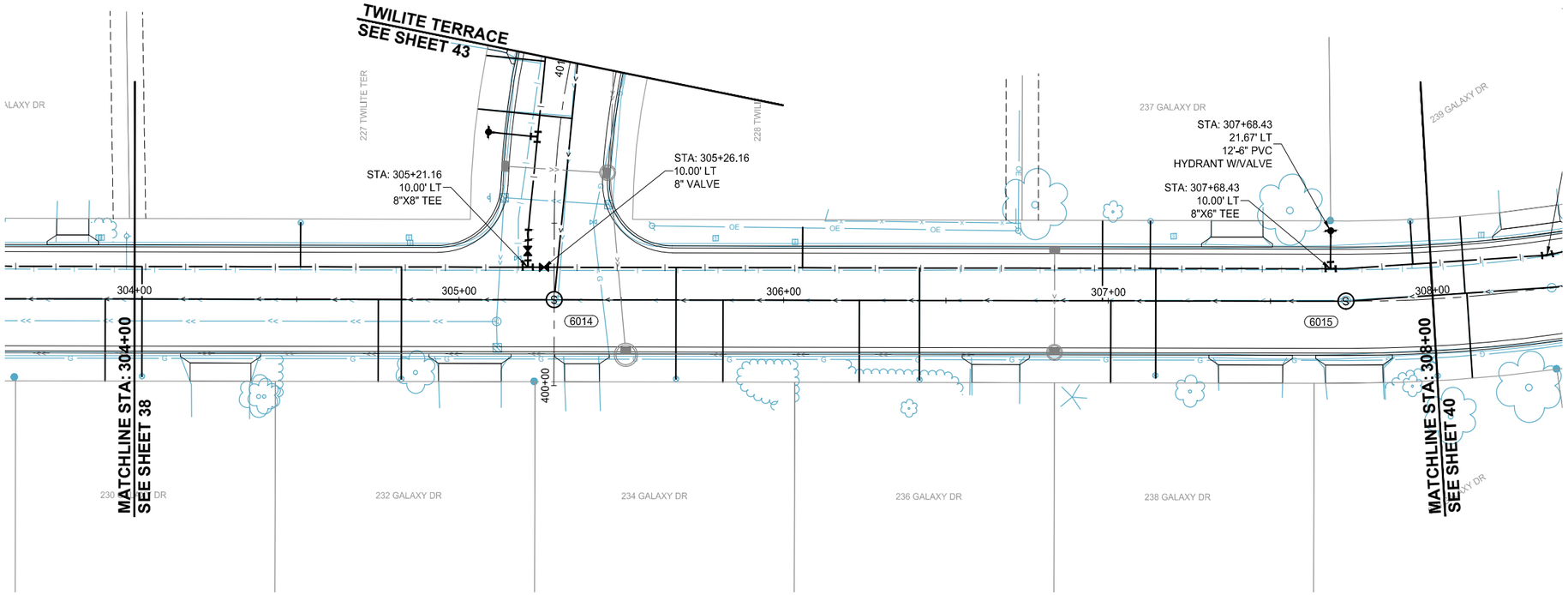

LOCATION

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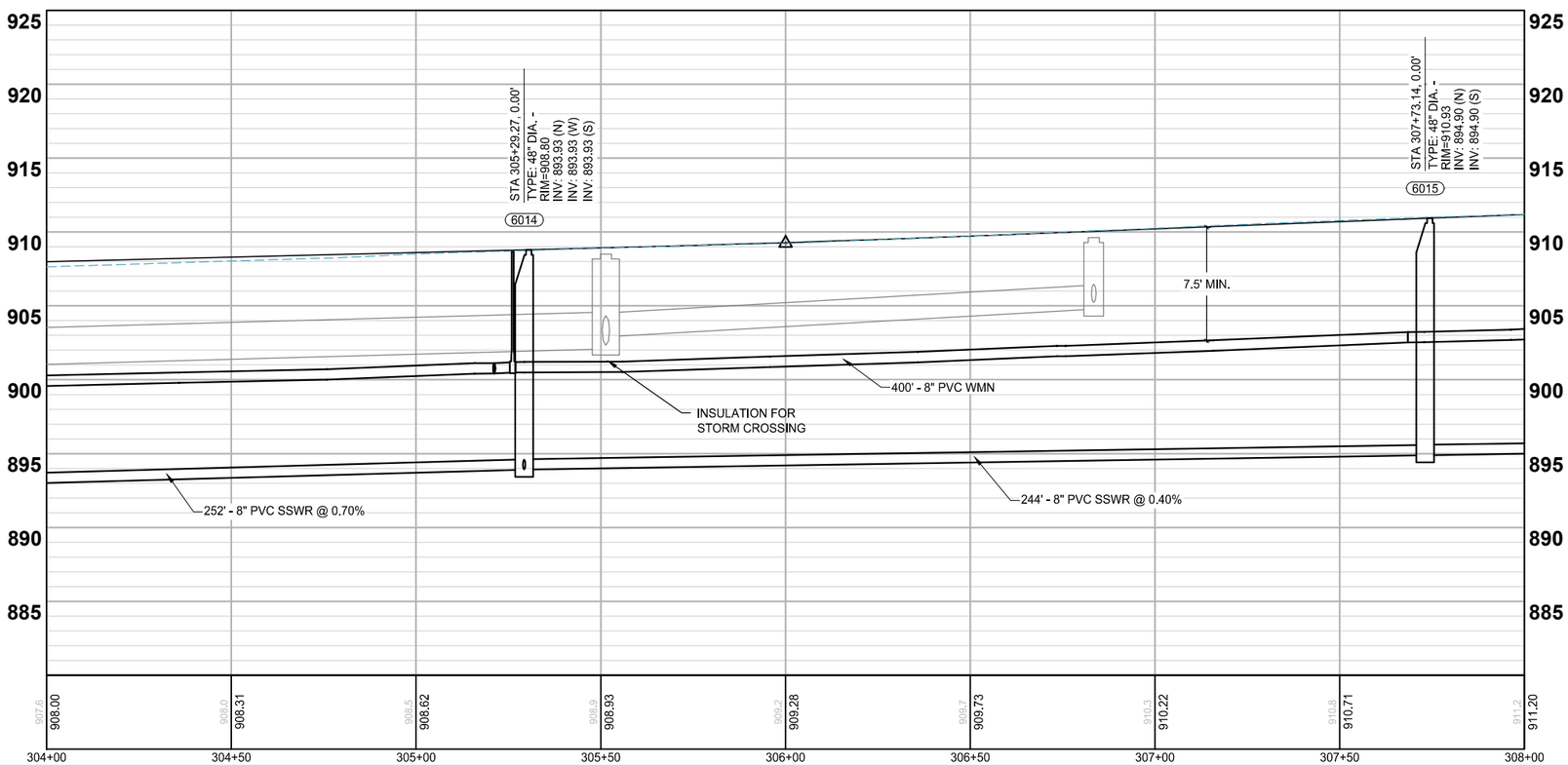
GALAXY DRIVE



LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

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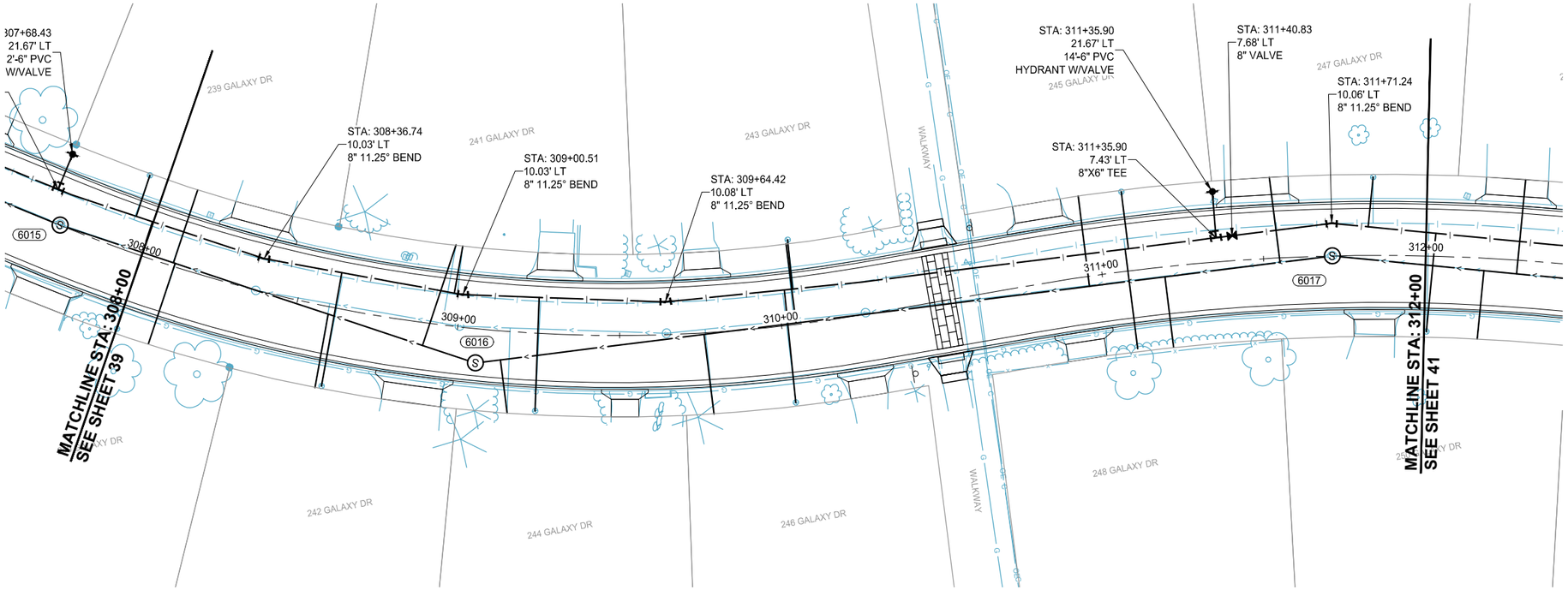

LOCATION

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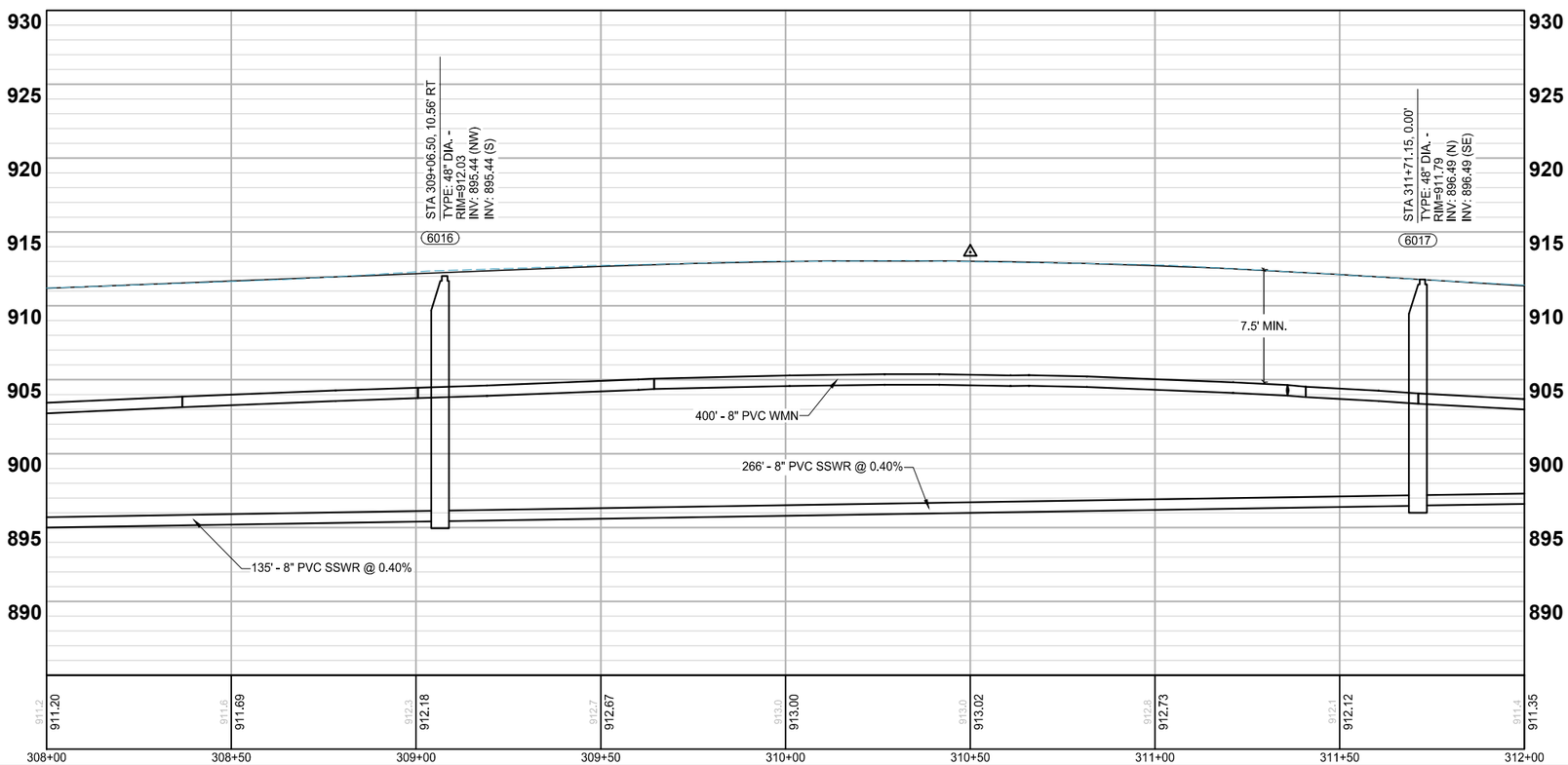
GALAXY DRIVE



LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

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City of Circle Pines

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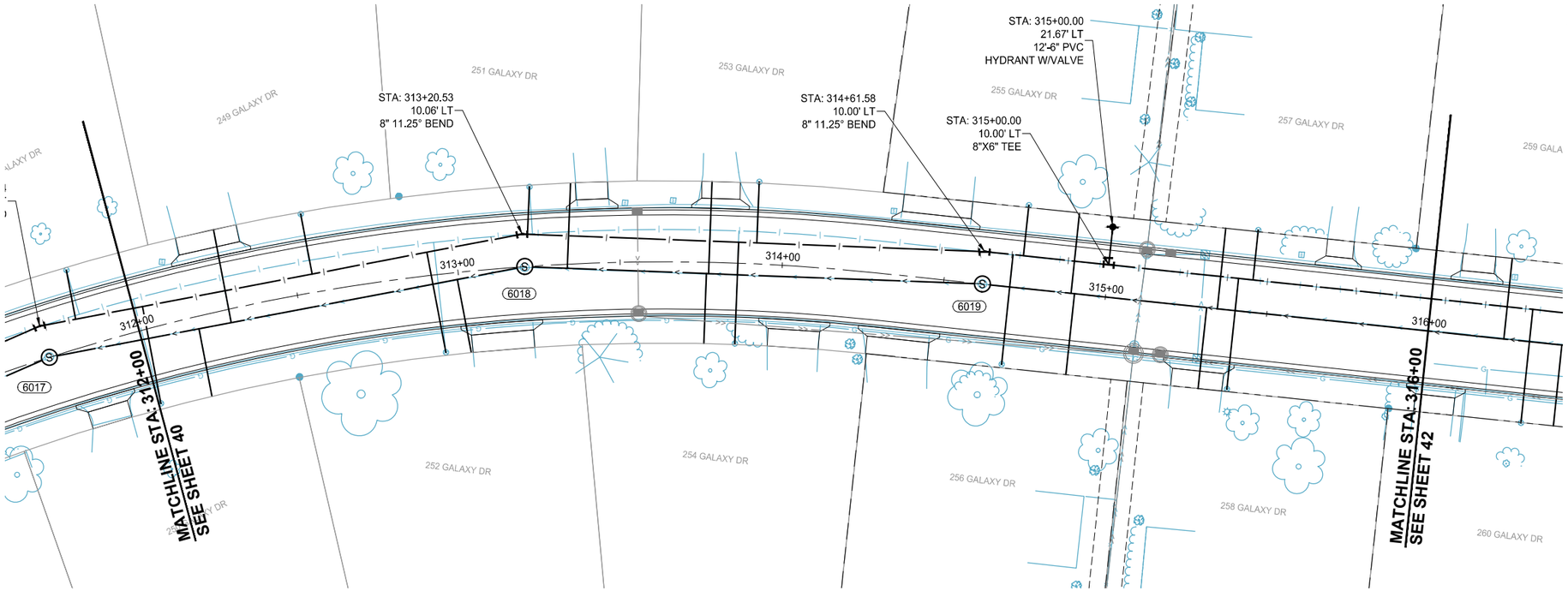

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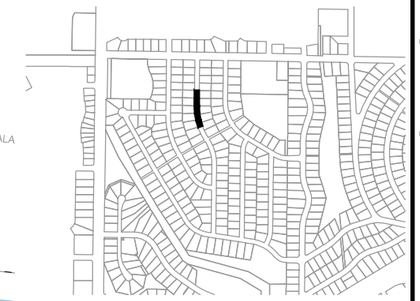

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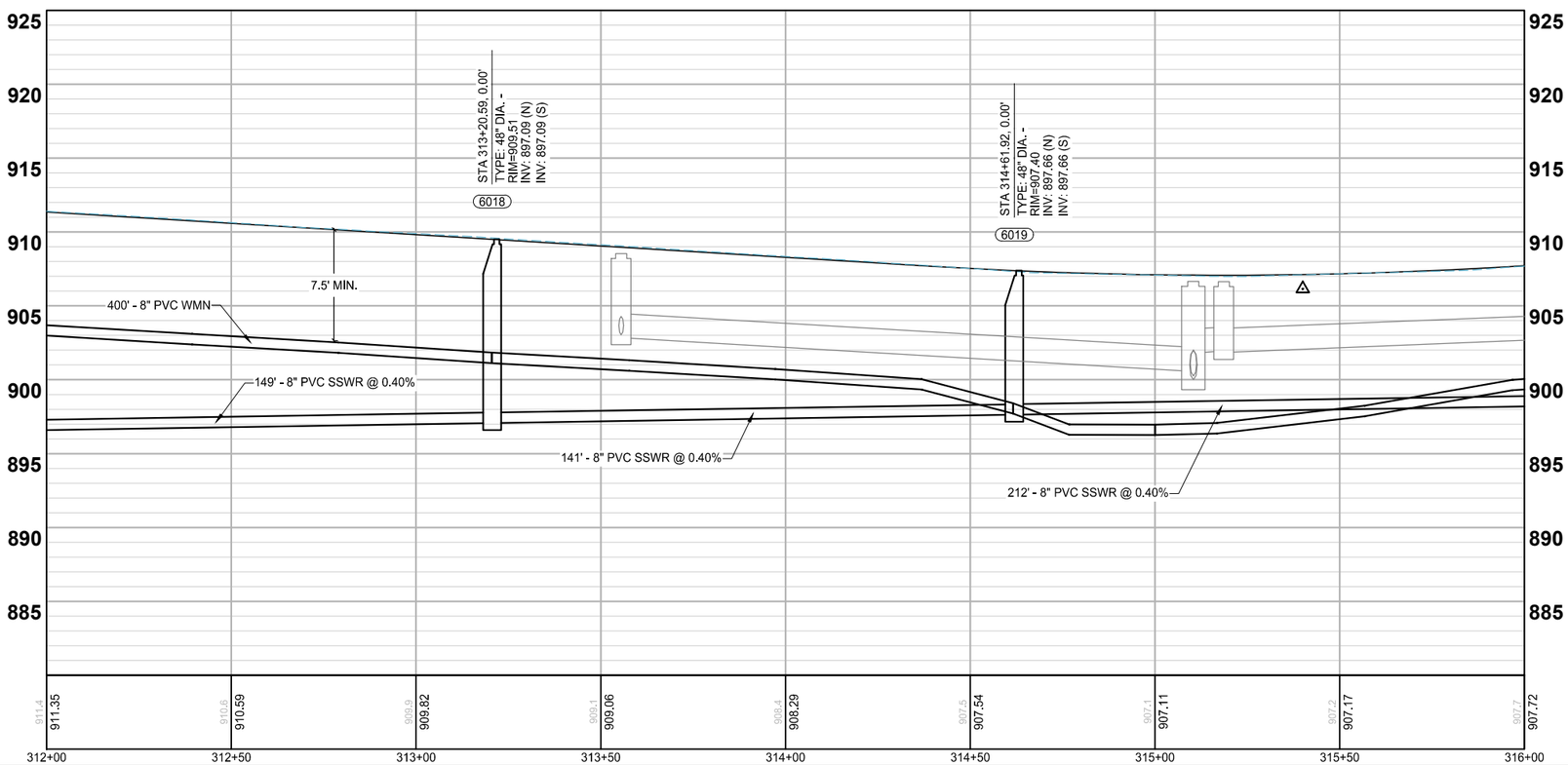

LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

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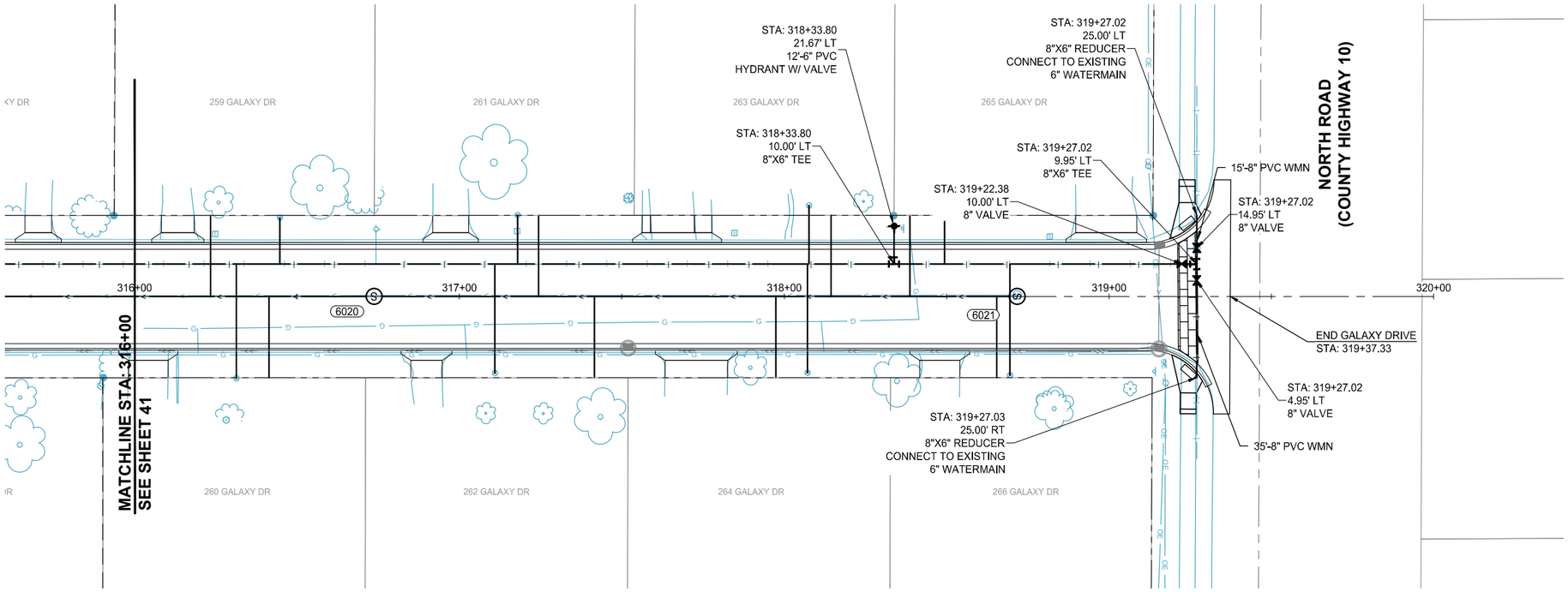

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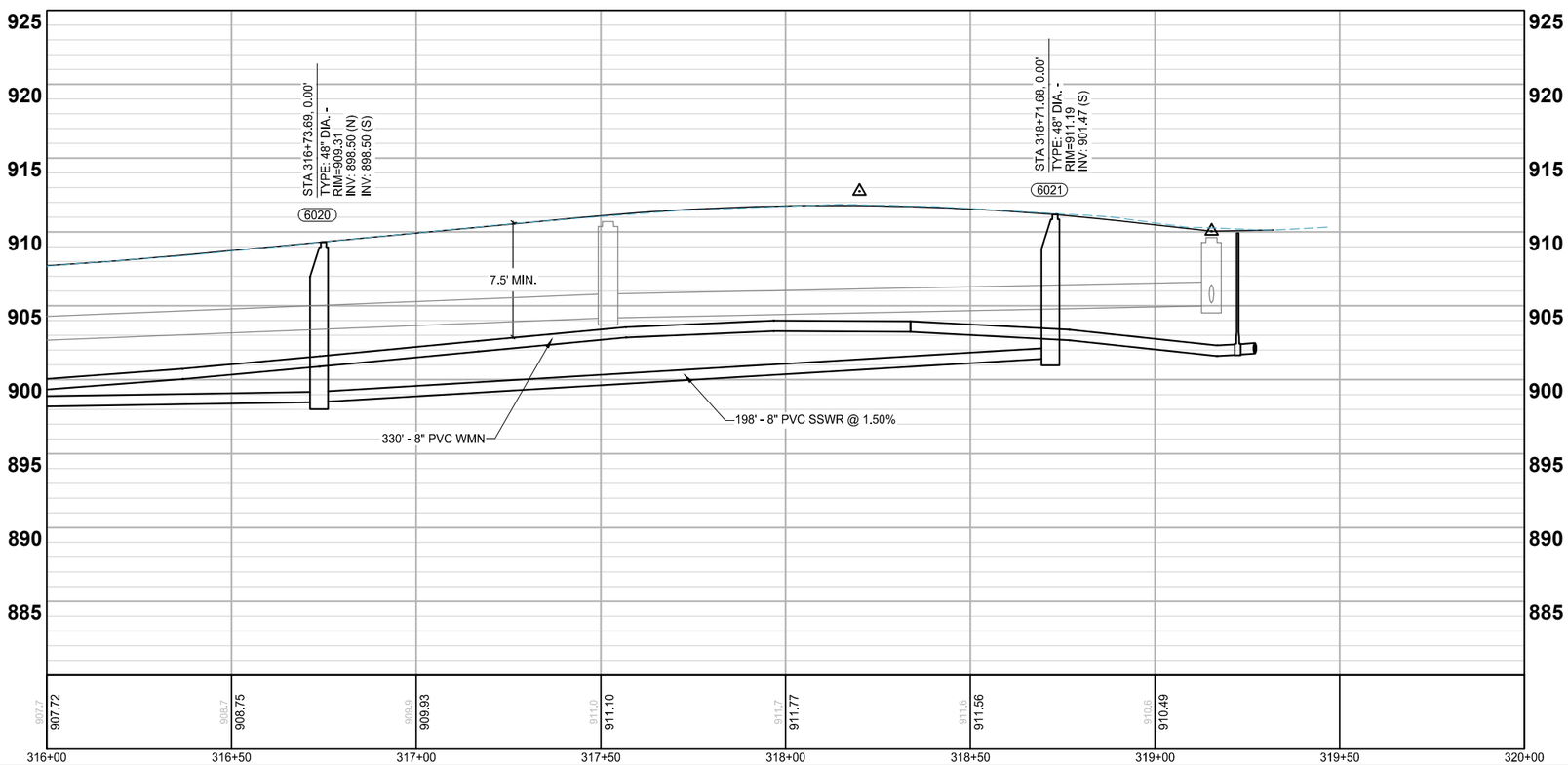
GALAXY DRIVE



LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

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City of Circle Pines

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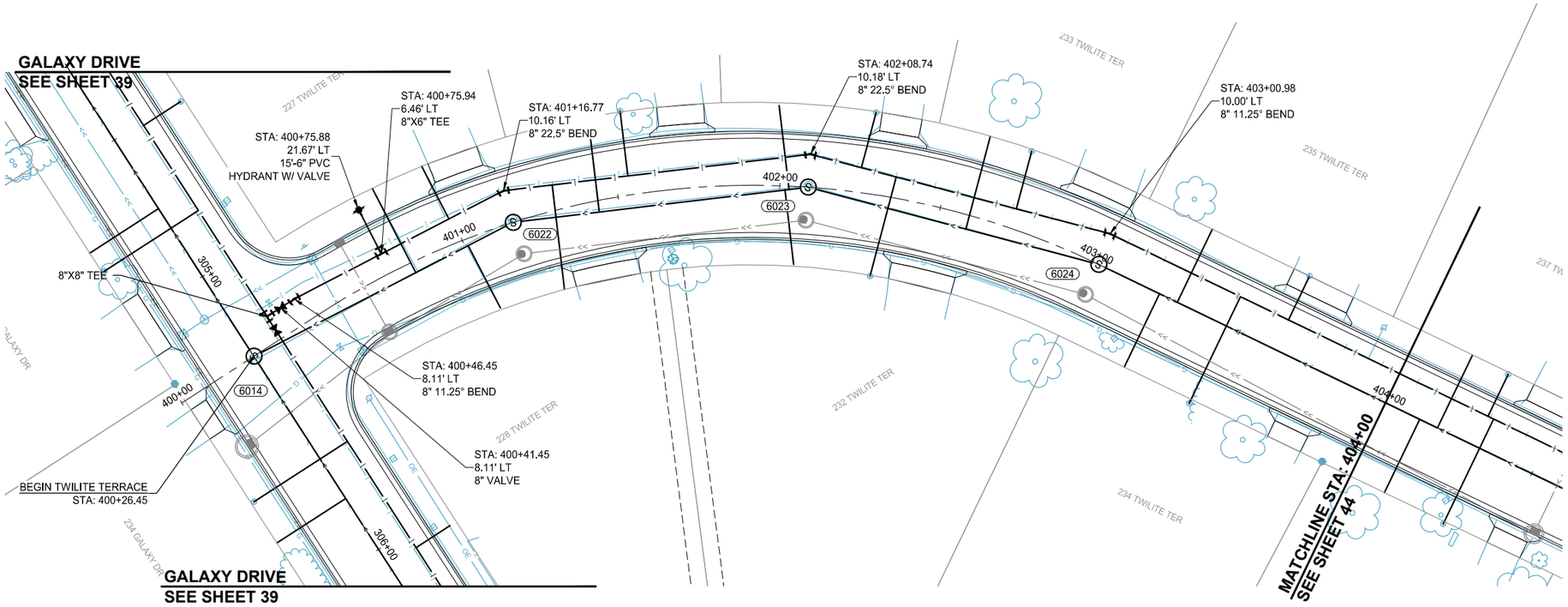
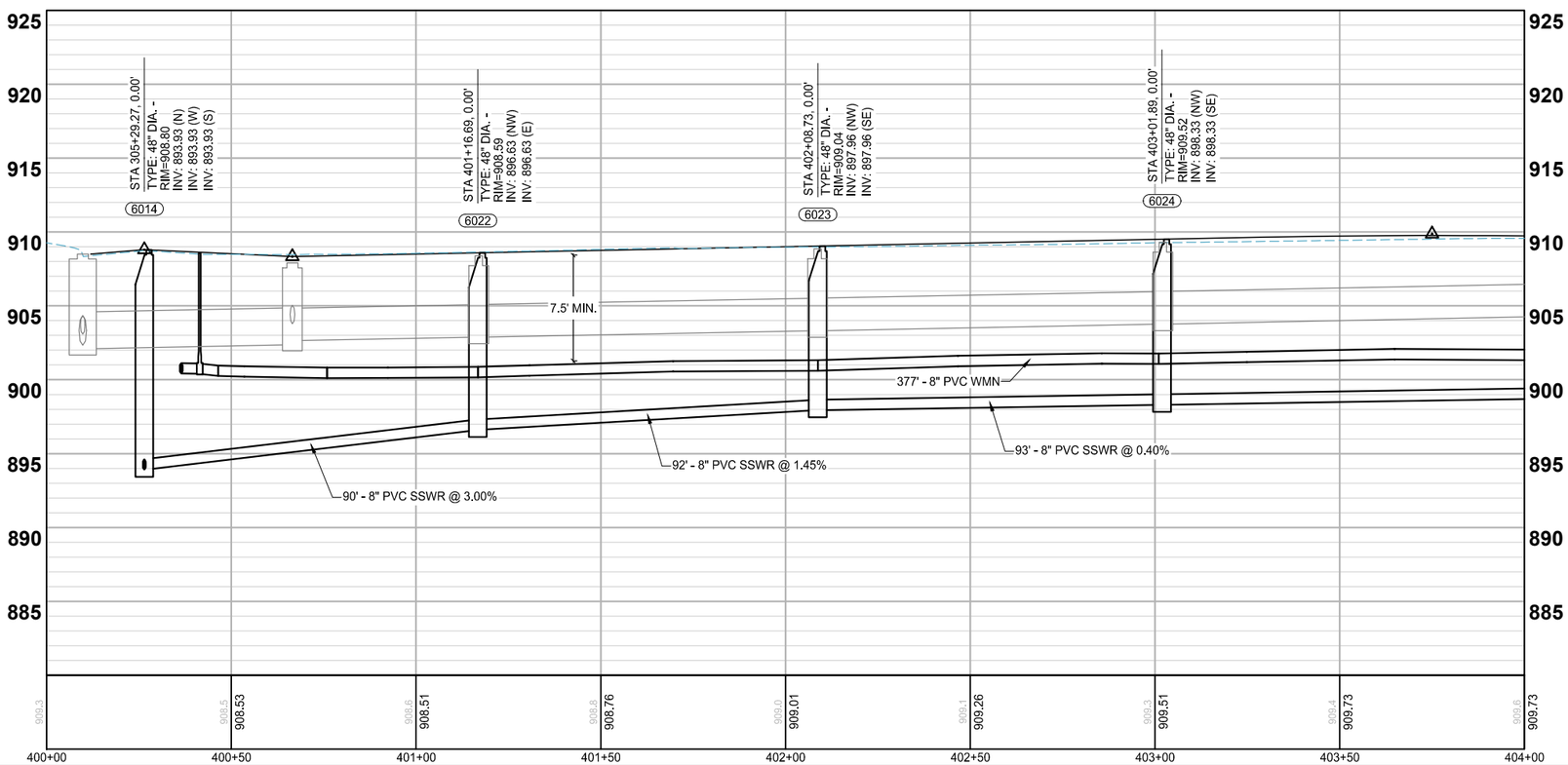


TWILITE TERRACE



LOCATION

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LEGEND

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- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

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City of Circle Pines

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SANITARY SEWER & WATERMAIN PLANS

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WSB PROJECT NO.
017460-000

SHEET 43 OF 96

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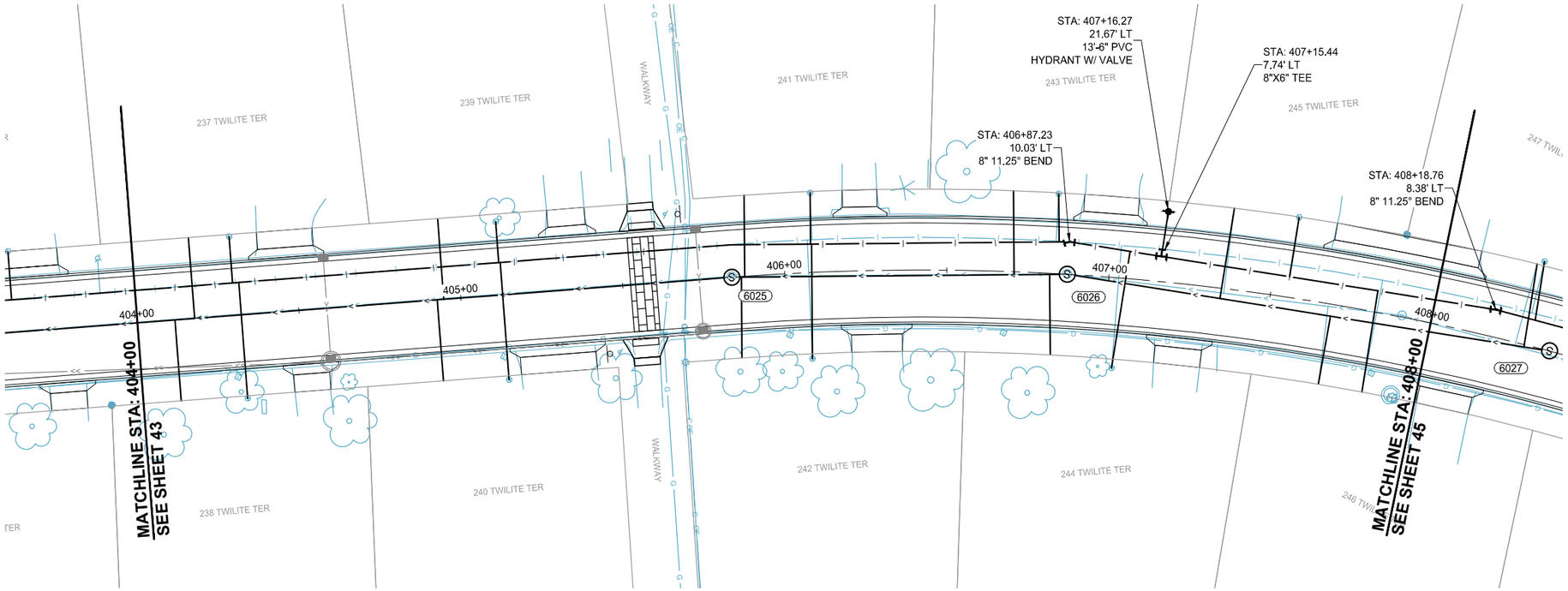

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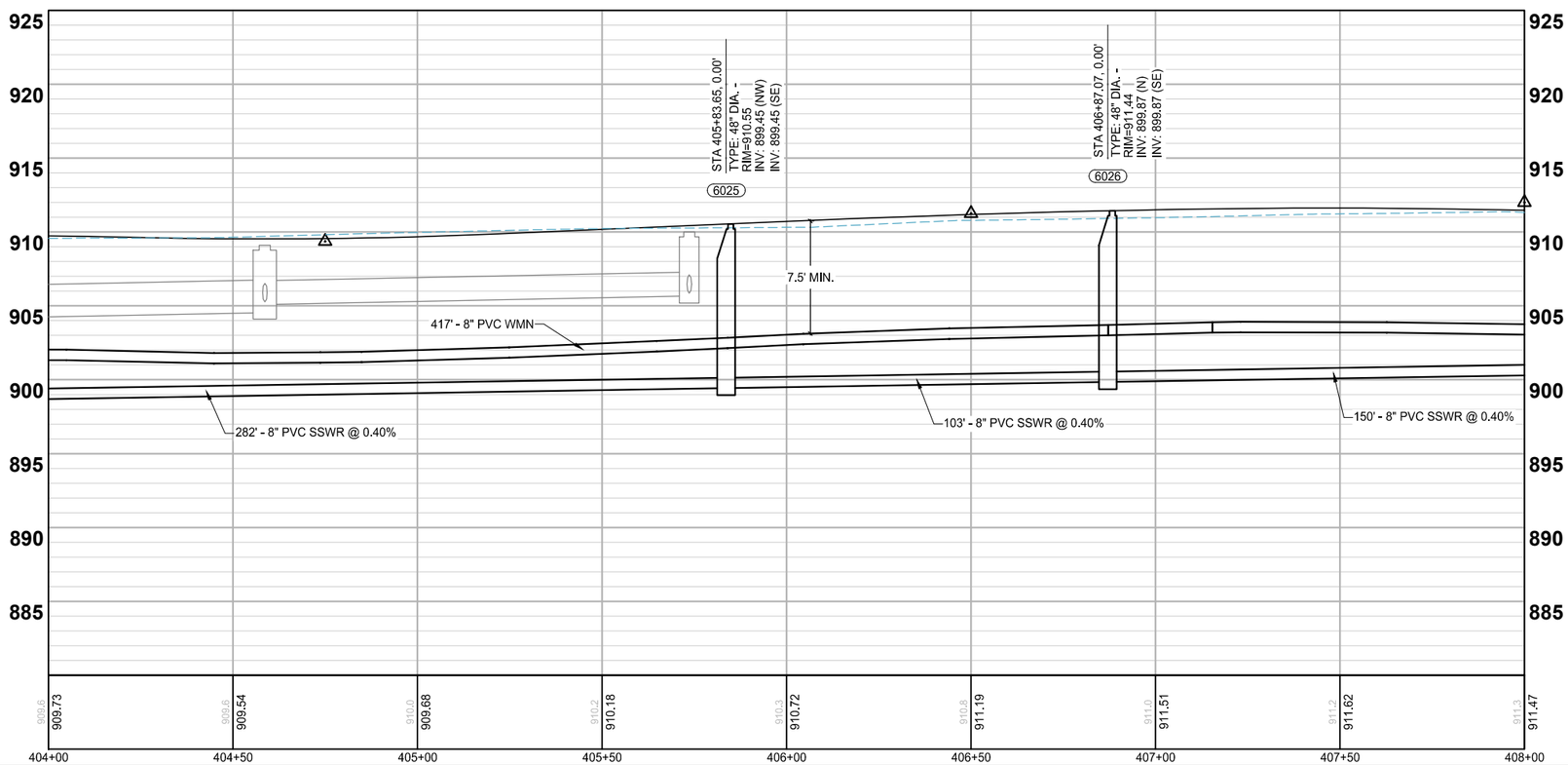
TWILITE TERRACE



LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

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SHEET 44 OF 96

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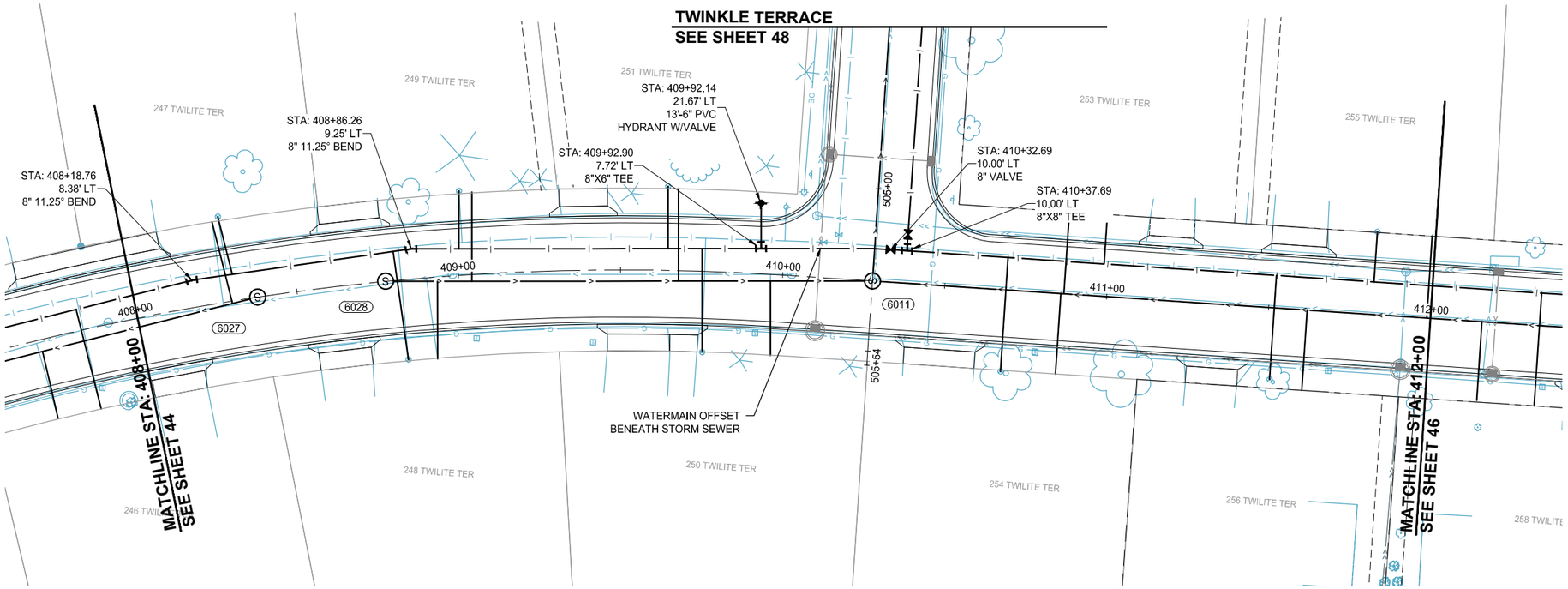

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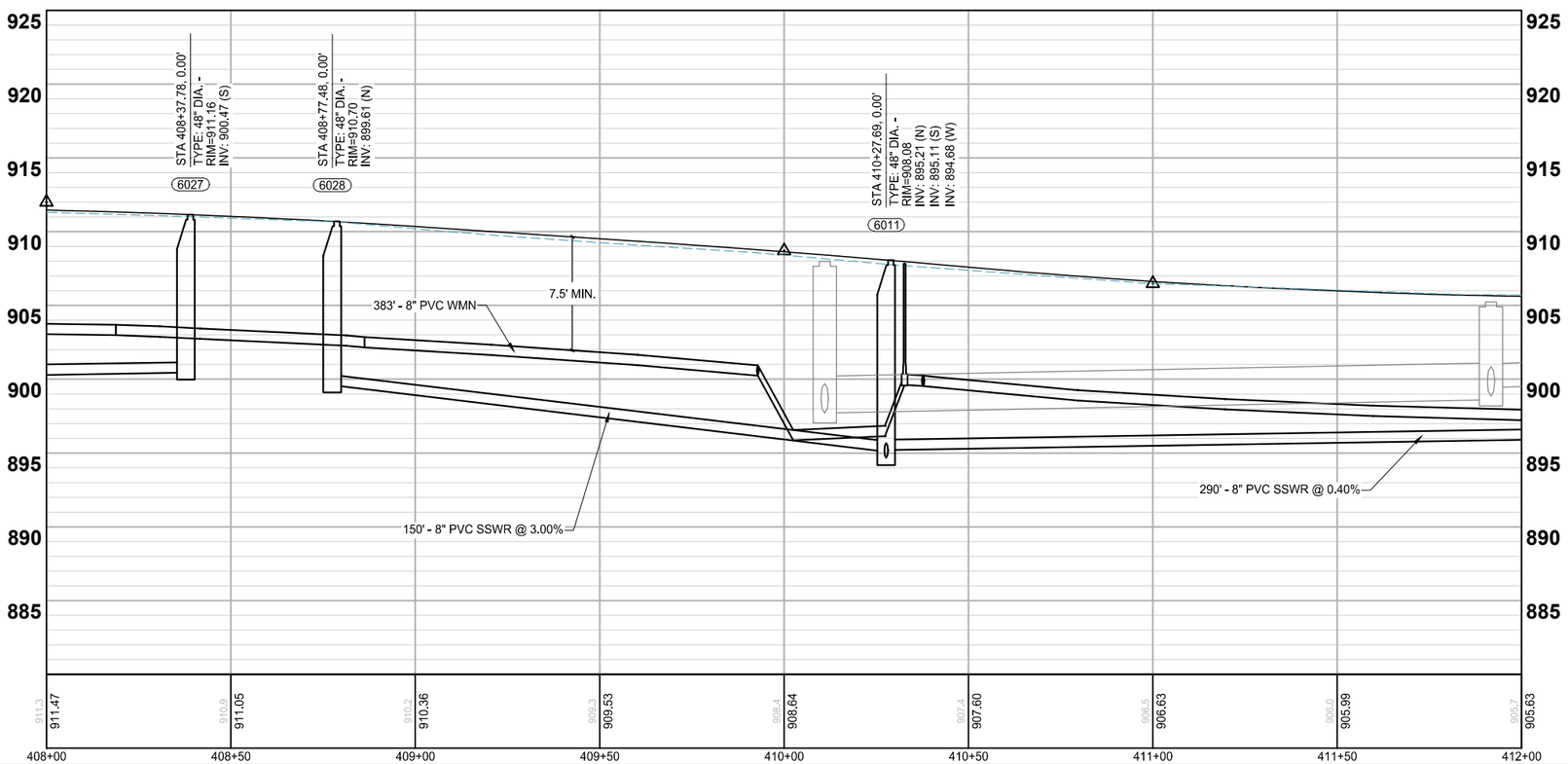
TWILITE TERRACE



LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
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- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
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SHEET 45 OF 96

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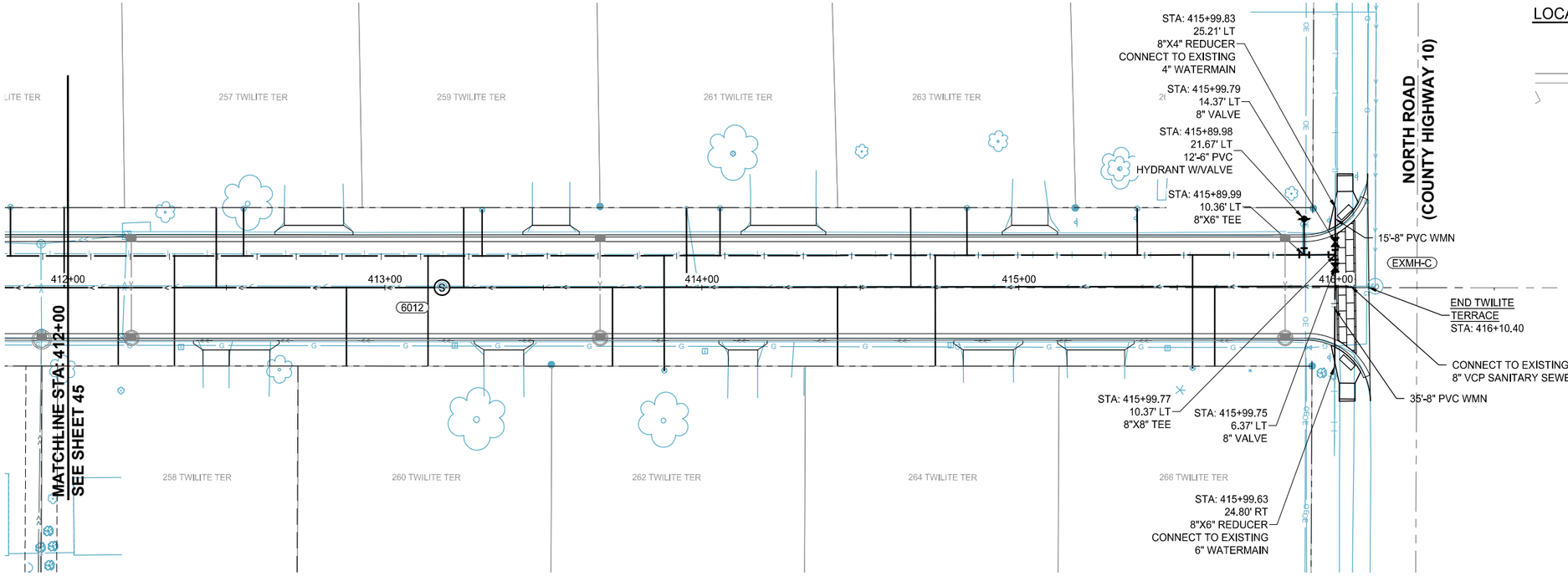

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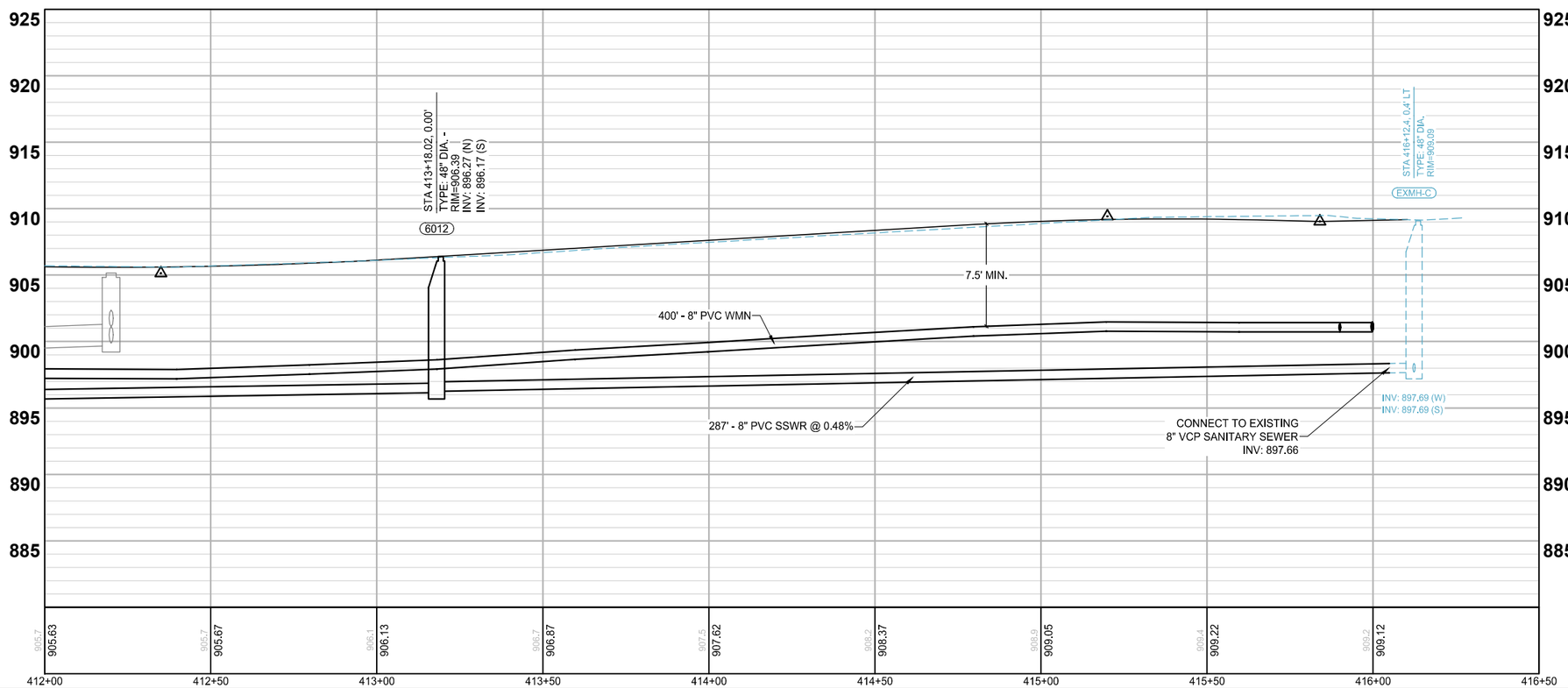
TWILITE TERRACE



LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
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SHEET 46 OF 96

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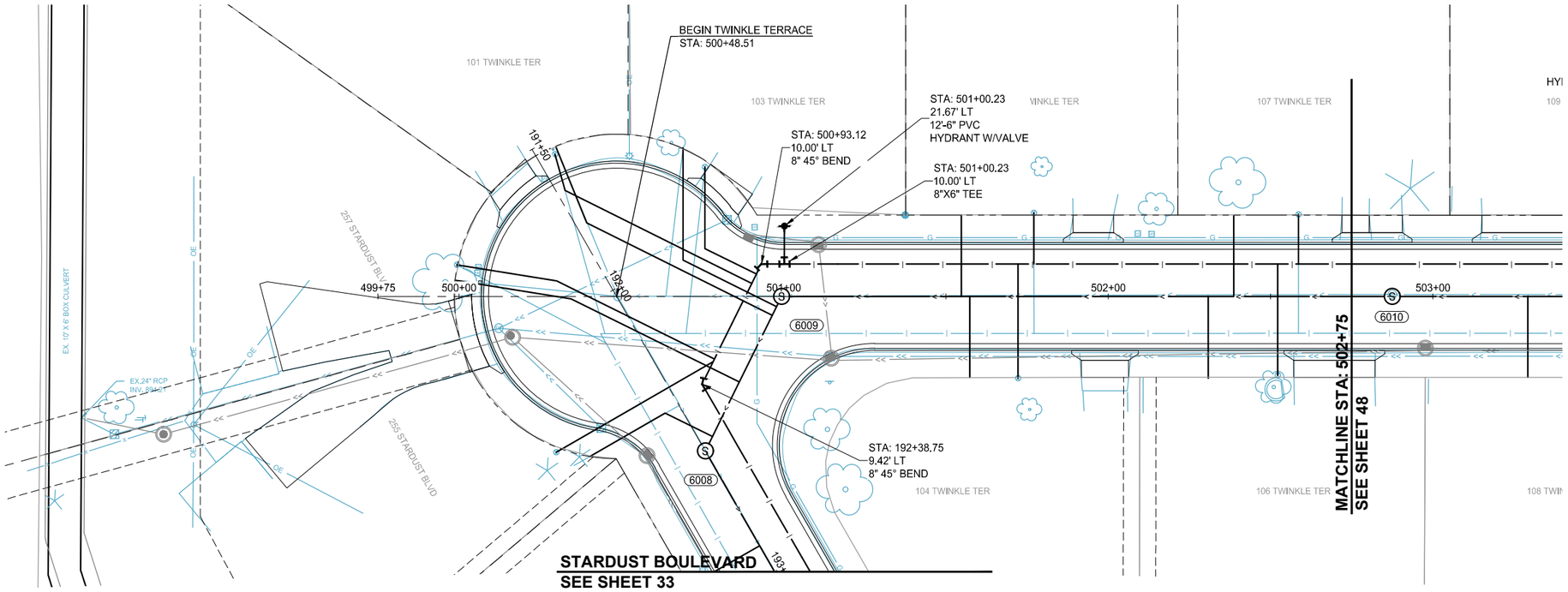

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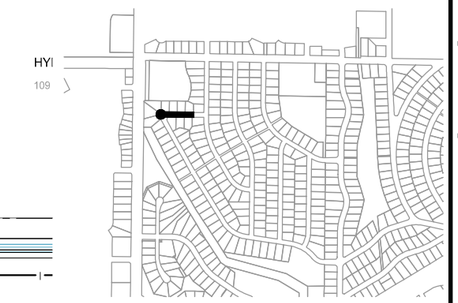

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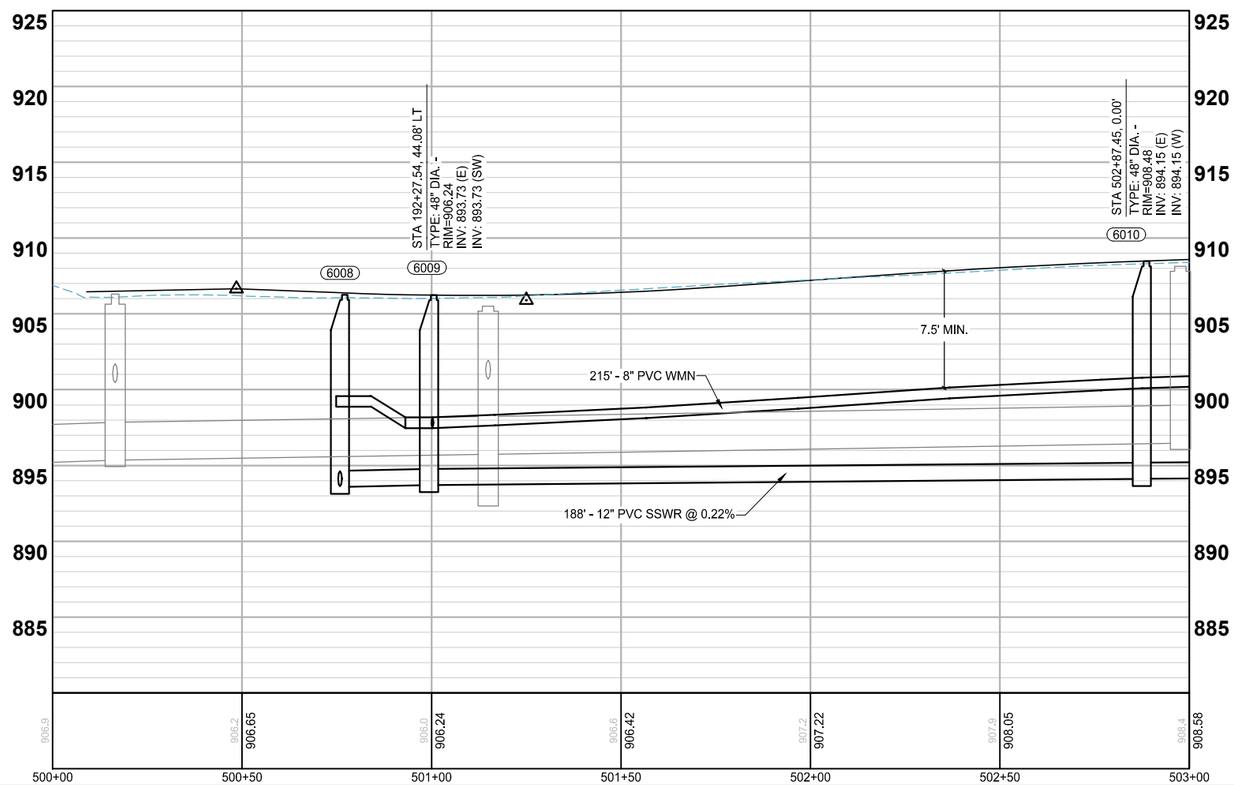
TWINKLE TERRACE



LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
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- EXISTING SANITARY STRUCTURE
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GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

SANITARY SEWER & WATERMAIN PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

SHEET 47 OF 96

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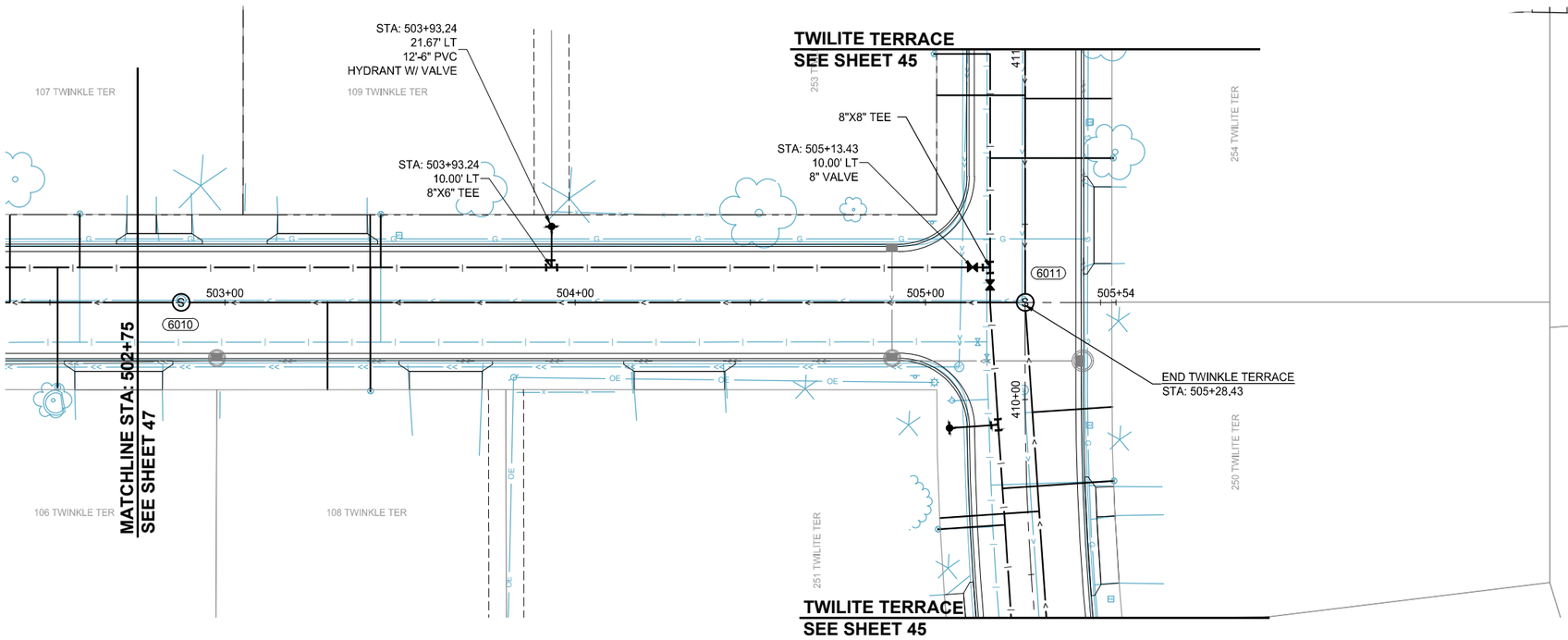

TWINKLE TERRACE

LOCATION

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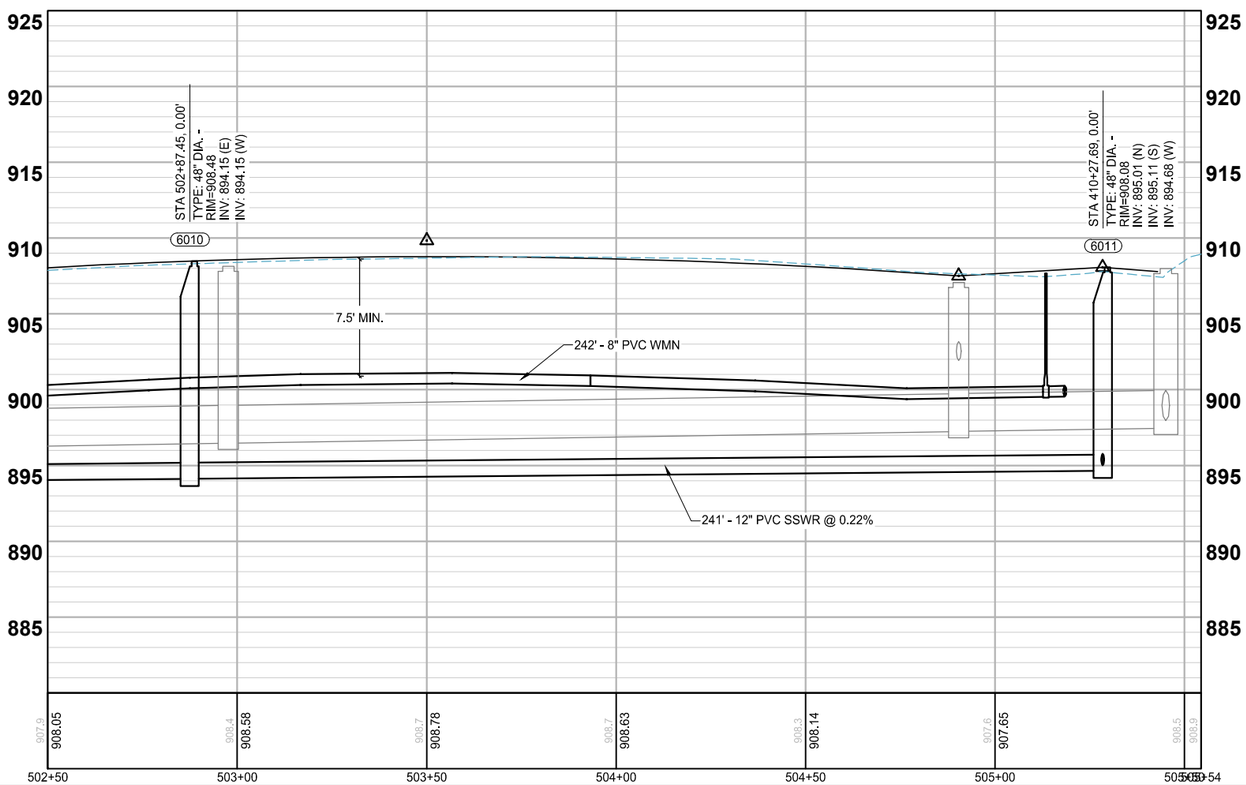

LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- EXISTING WATER SERVICE W/ CURBSTOP
- PROPOSED WATER SERVICE W/ CURBSTOP
- EXISTING HYDRANT W/ VALVE
- PROPOSED HYDRANT W/ VALVE
- PROPOSED WATER FITTINGS
- EXISTING SANITARY SEWER MAIN
- PROPOSED SANITARY SEWER MAIN
- EXISTING SANITARY SEWER SERVICE
- PROPOSED SANITARY SEWER SERVICE
- EXISTING SANITARY STRUCTURE
- PROPOSED SANITARY STRUCTURE

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City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

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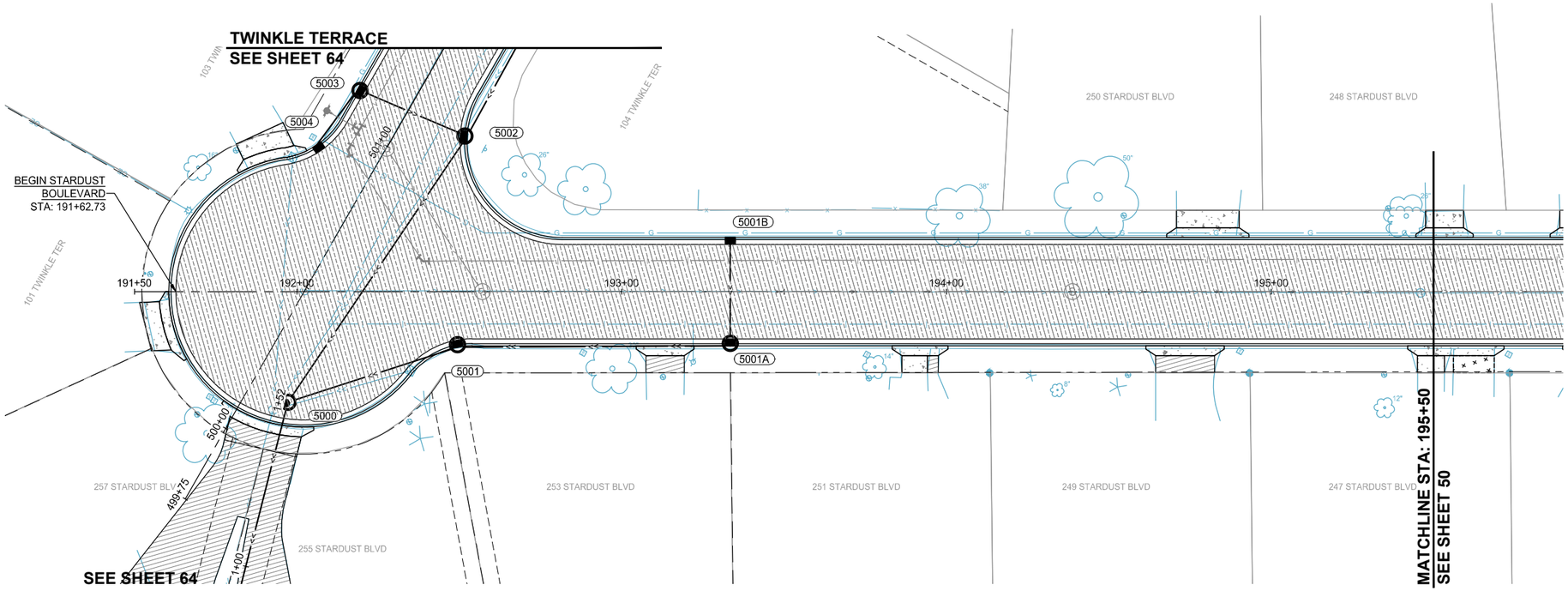

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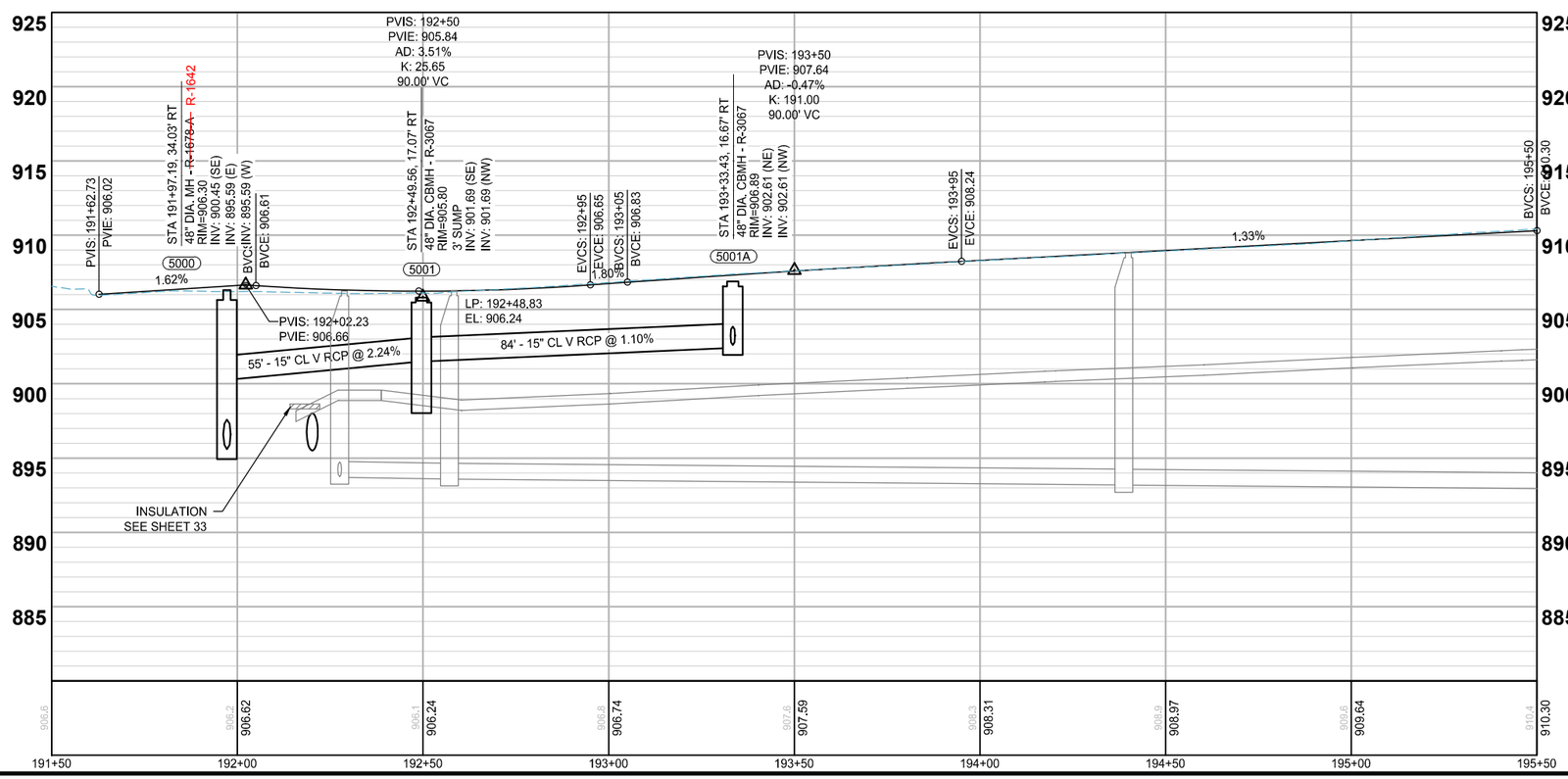
STARDUST BOULEVARD



LEGEND

- PROPOSED CURB AND GUTTER
- PROPOSED BITUMINOUS (EDGE)
- PROPOSED CONCRETE (EDGE)
- PROPOSED GRAVEL (EDGE)
- APPROX. CONSTRUCTION LIMITS
- EXISTING STORM SEWER PIPE
- EXISTING STORM STRUCTURE
- PROPOSED STORM SEWER PIPE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED DRAIN TILE PIPE
- PROPOSED BITUMINOUS ROAD/ TRAIL
- PROPOSED BITUMINOUS DRIVEWAY/ WALK
- PROPOSED CONCRETE DRIVEWAY/ WALK
- PROPOSED GRAVEL DRIVEWAY
- PROPOSED TRUNCATED DOMES
- 965.77 PROPOSED SPOT ELEVATION
- 965.77 EXISTING SPOT ELEVATION

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STREET & STORM SEWER PLANS

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CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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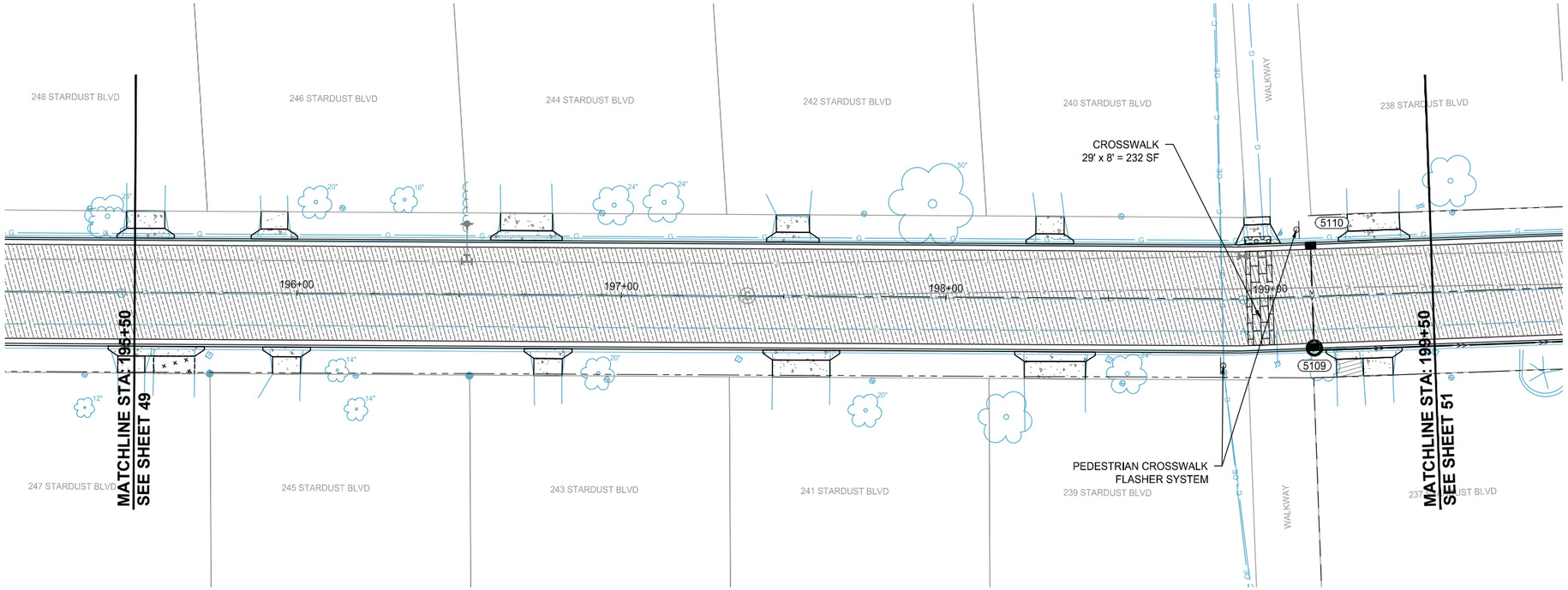

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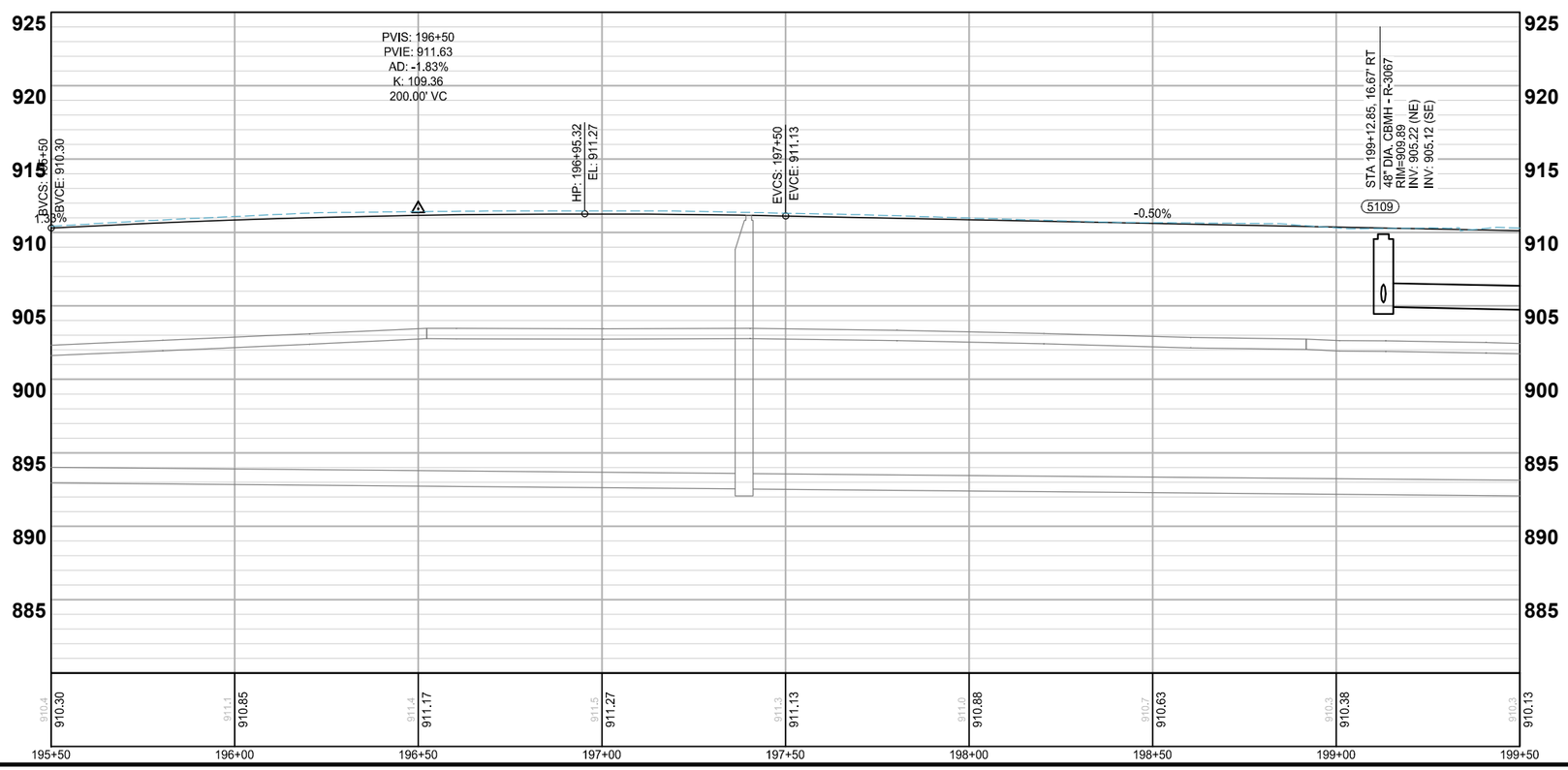

LEGEND

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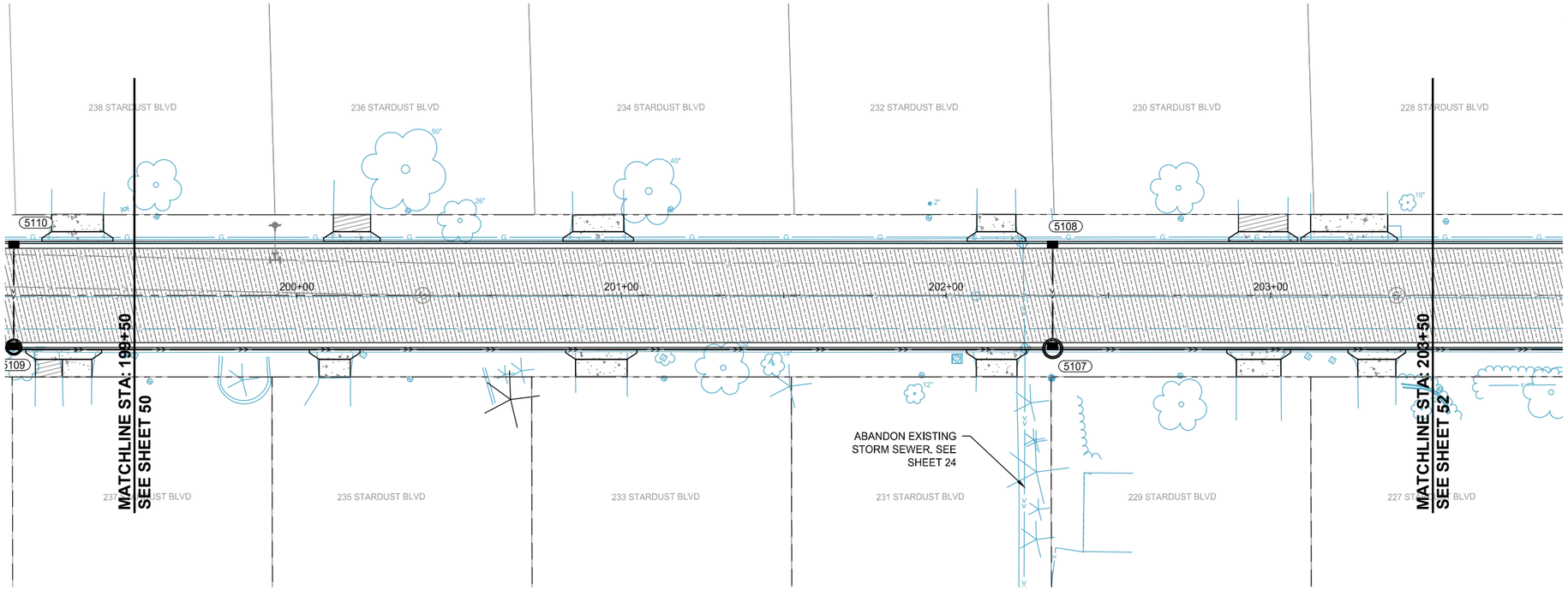

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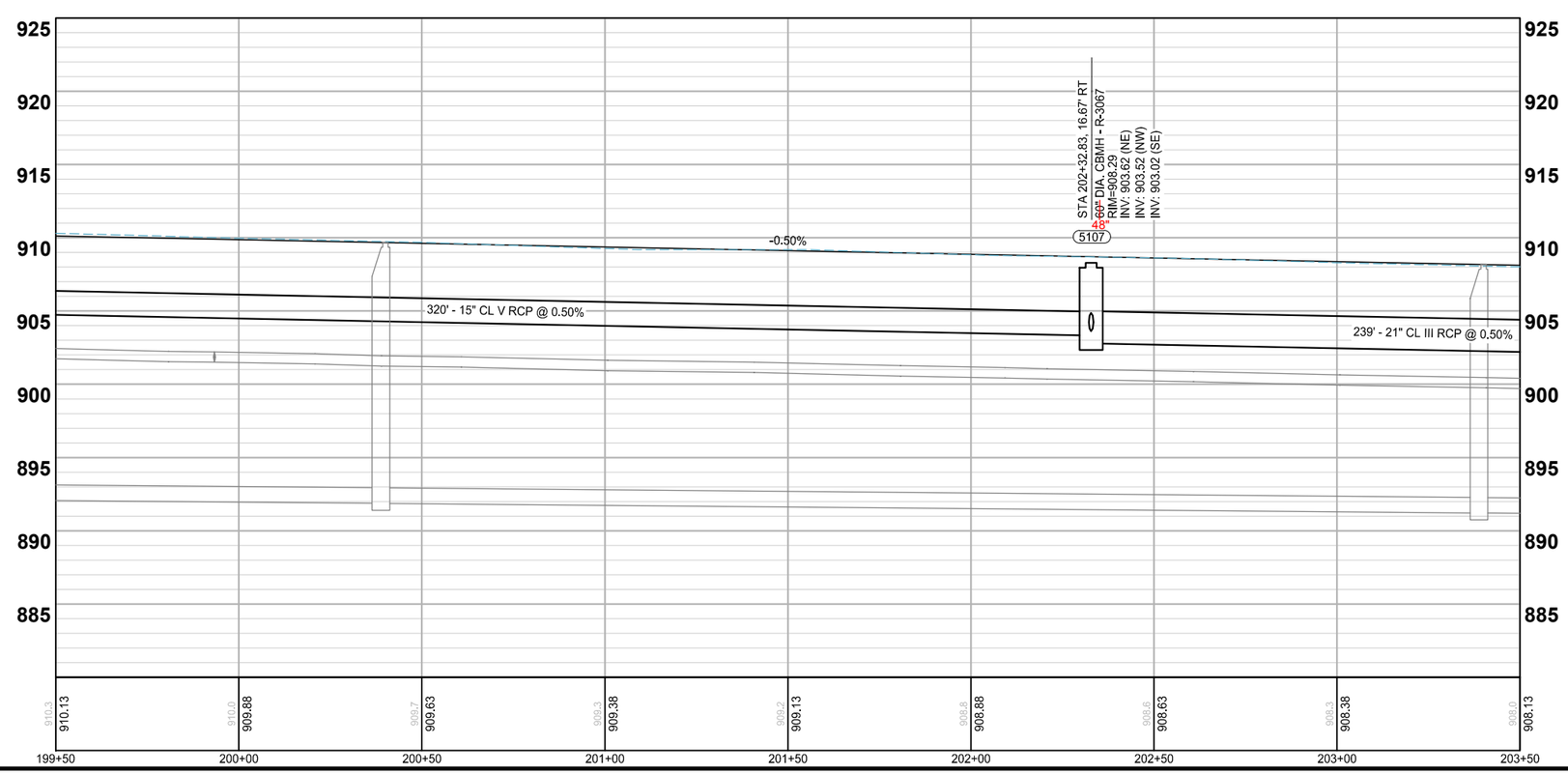

LEGEND

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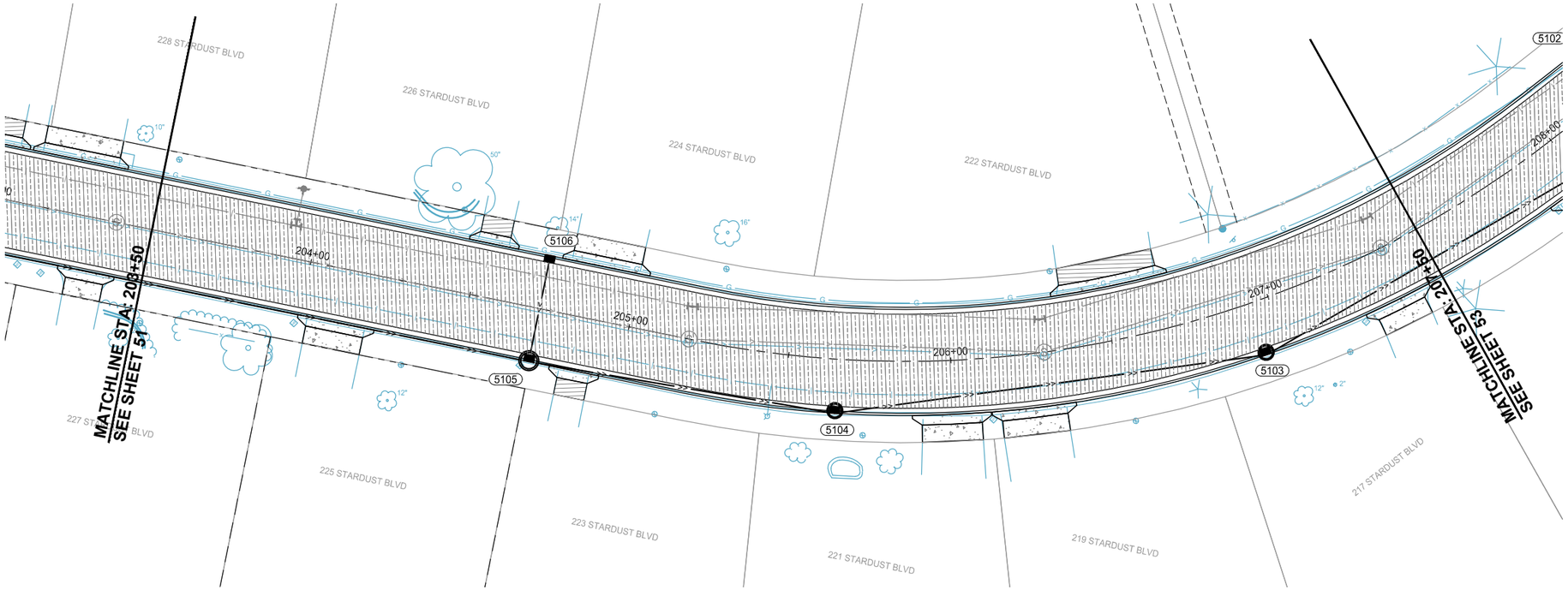

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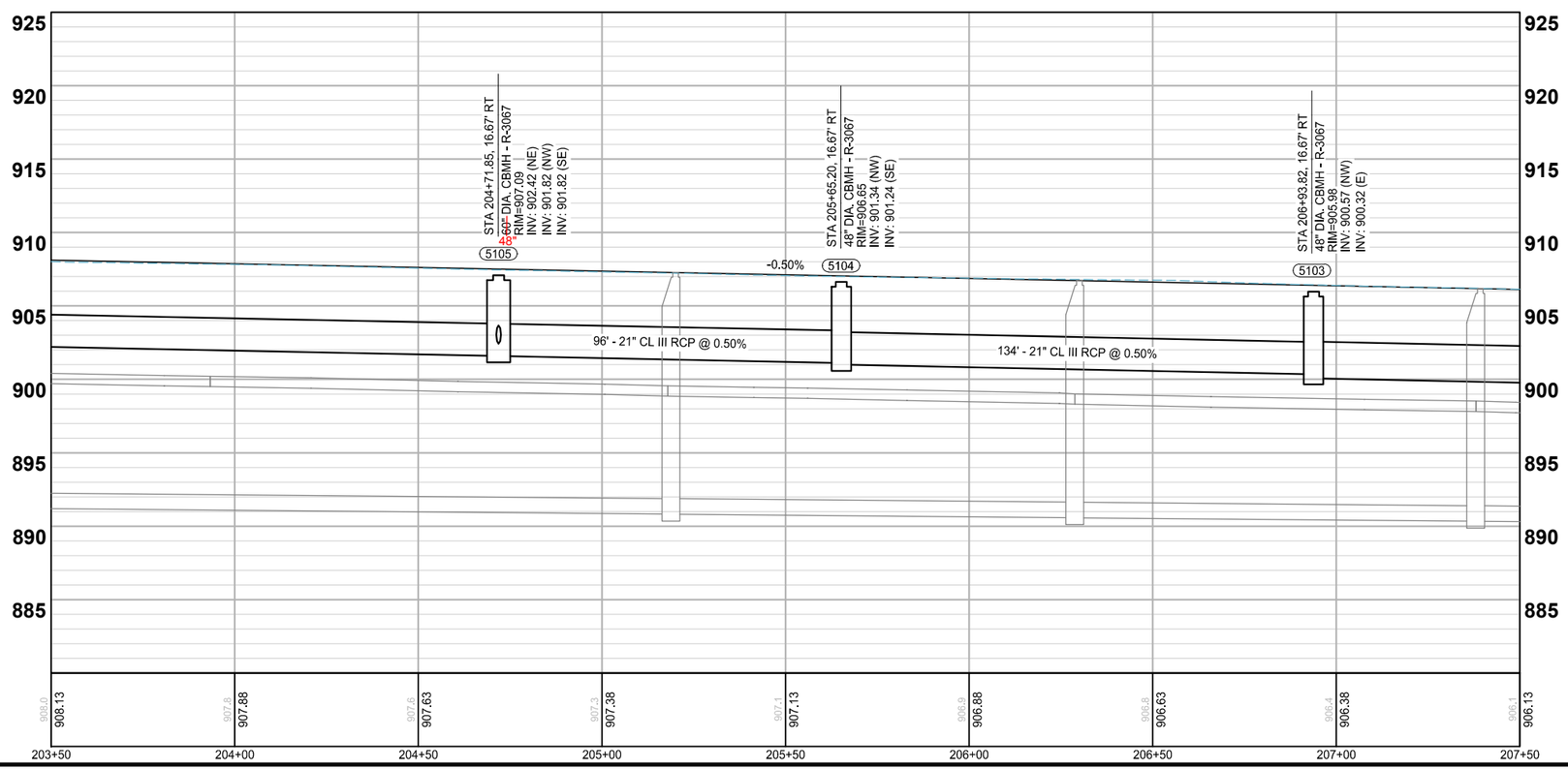

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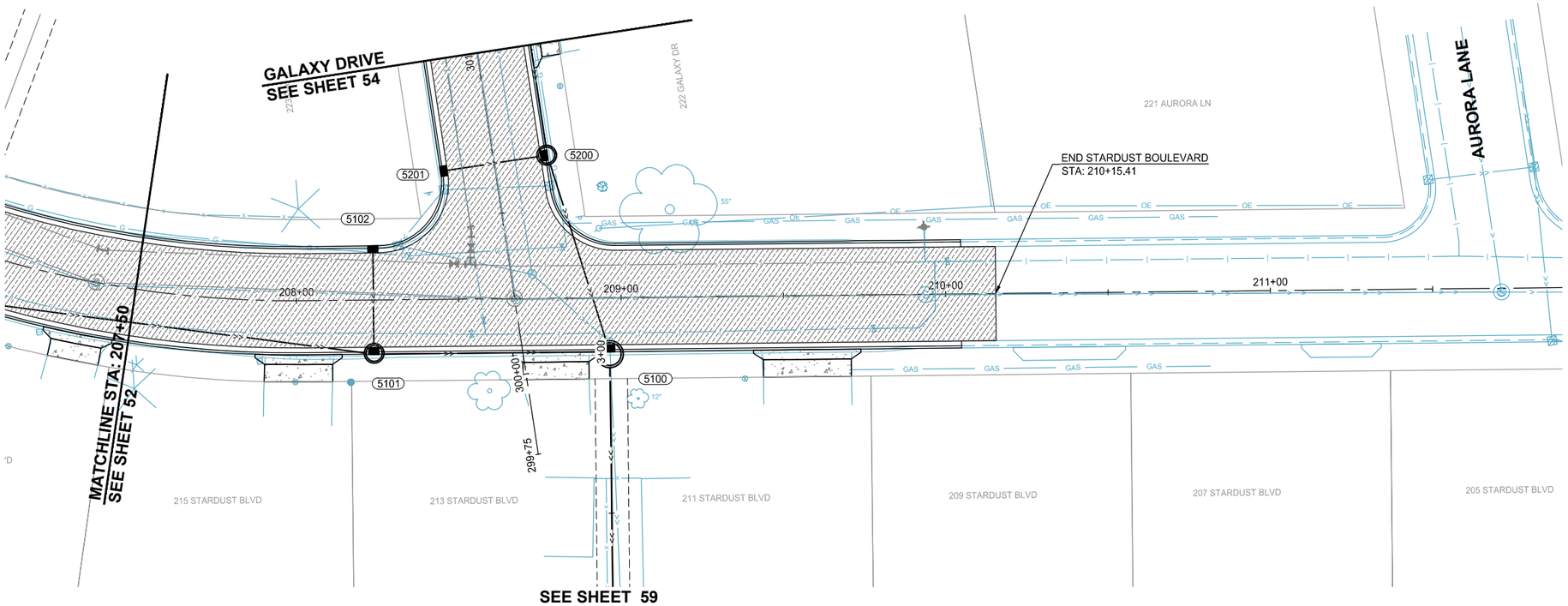

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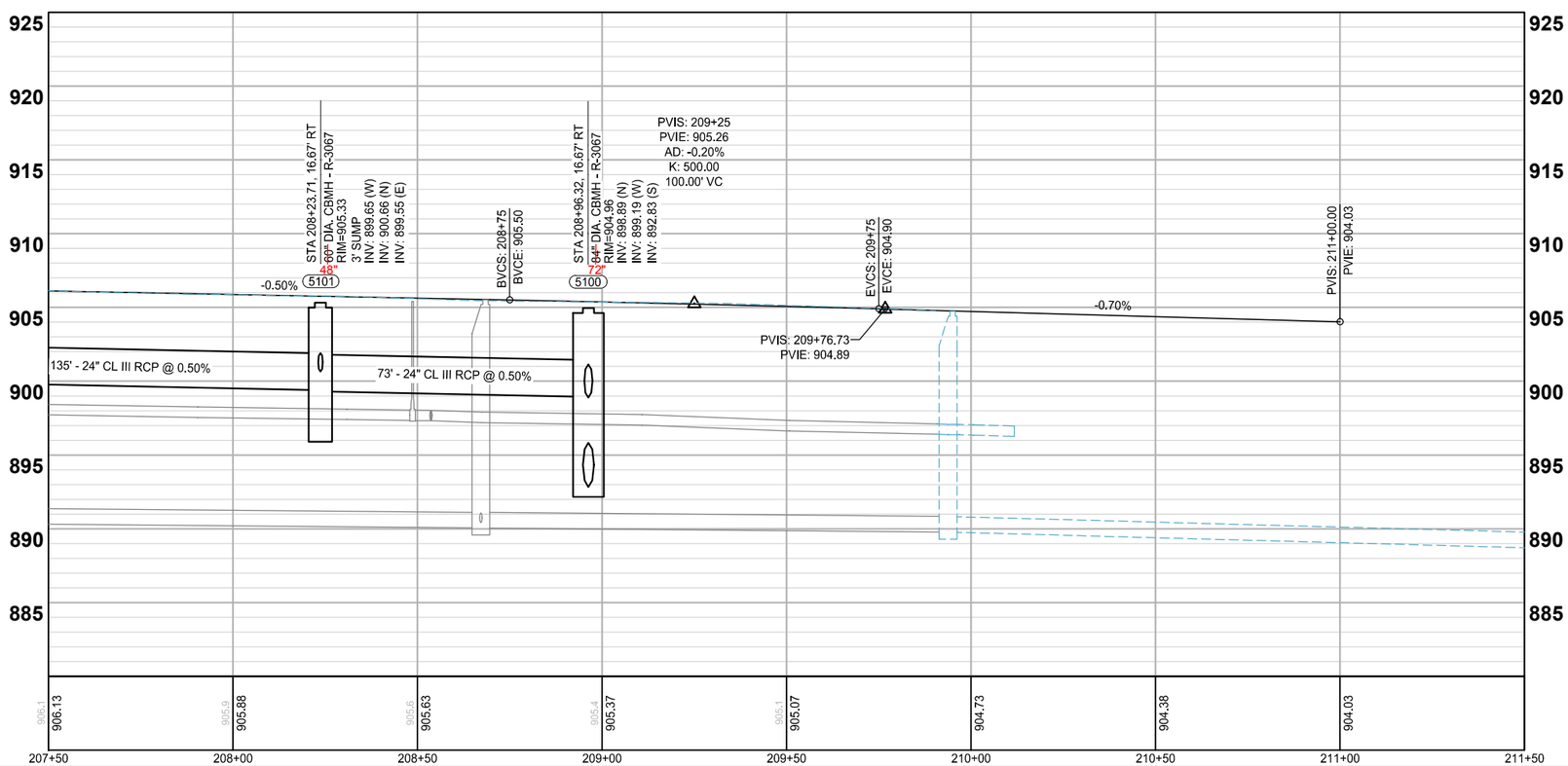

LOCATION

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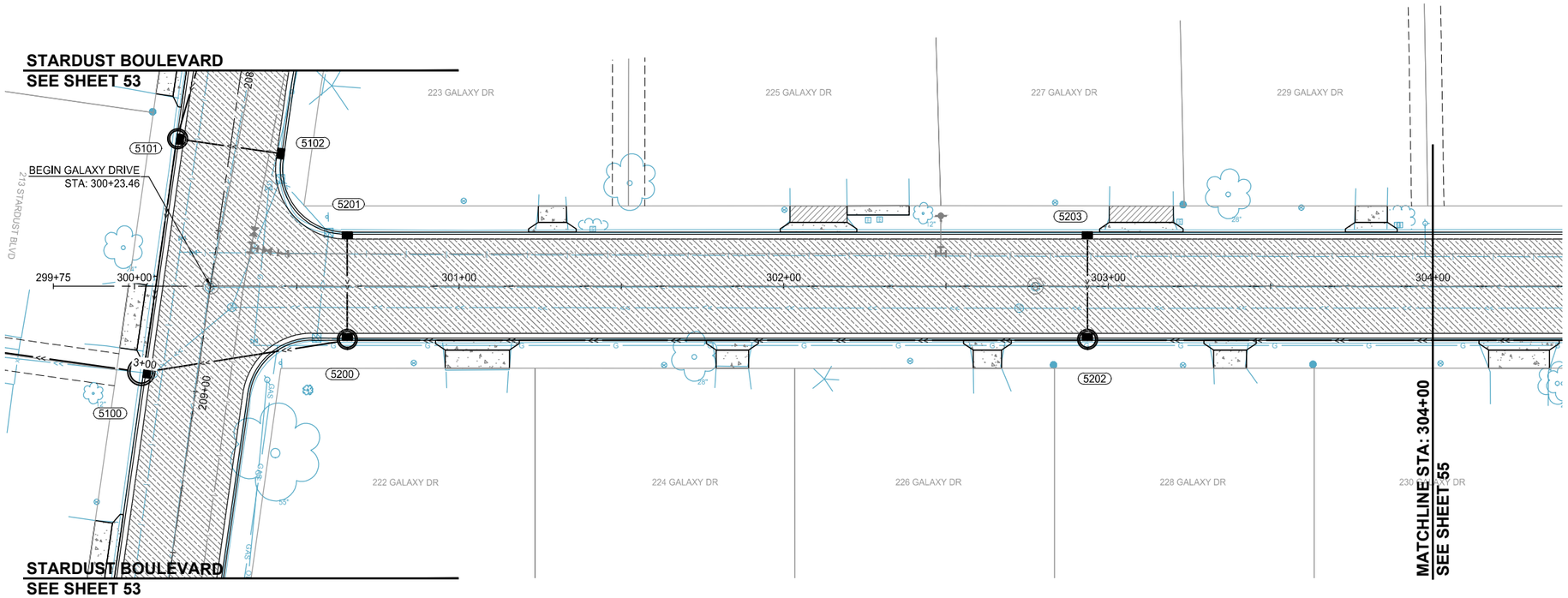
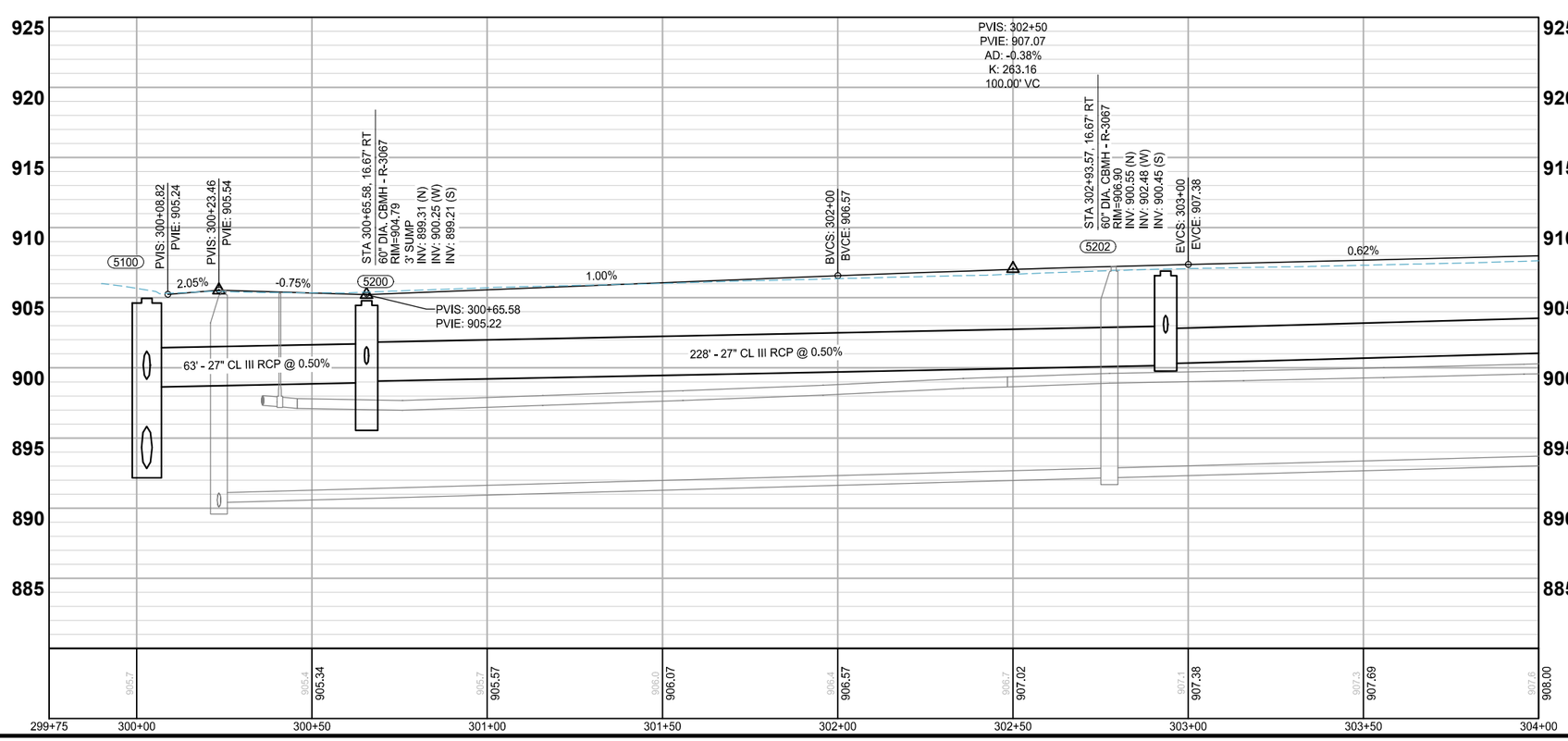


GALAXY DRIVE



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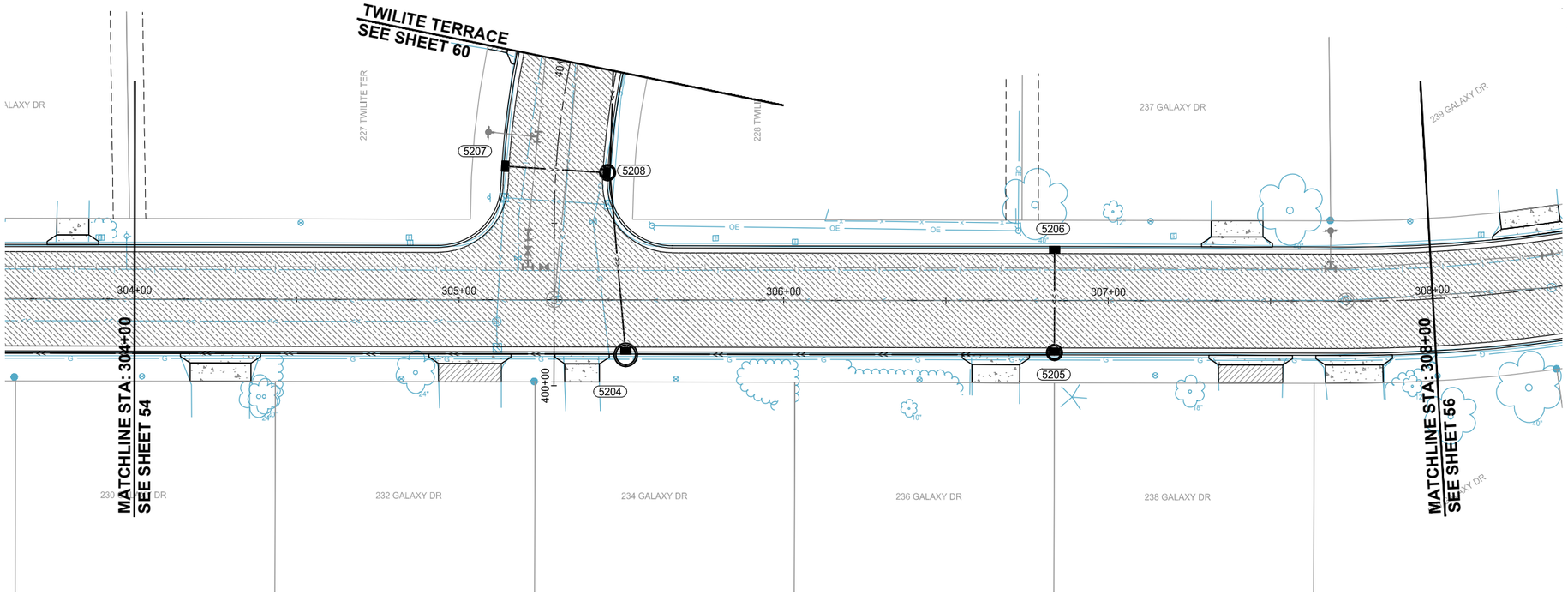

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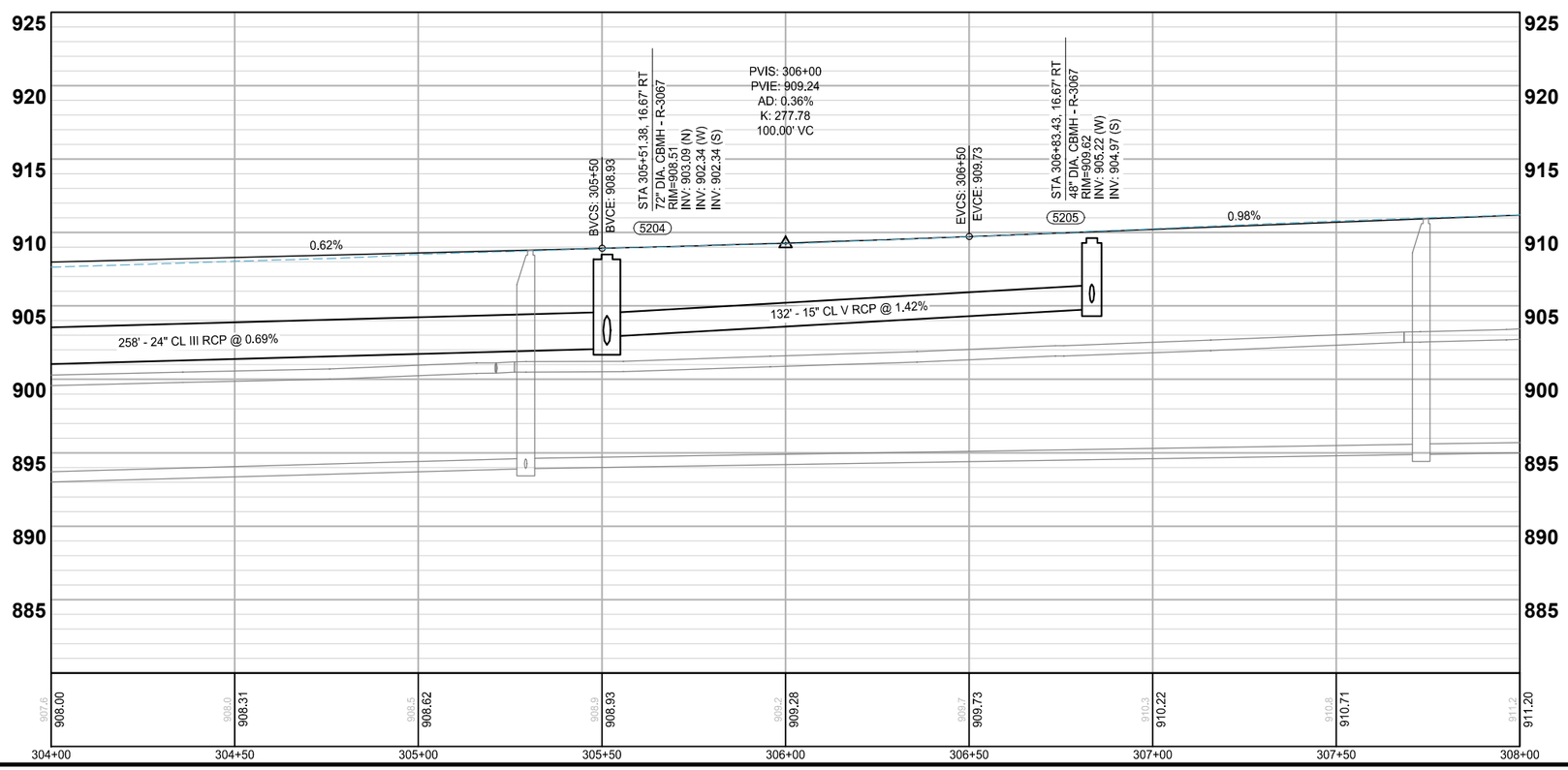

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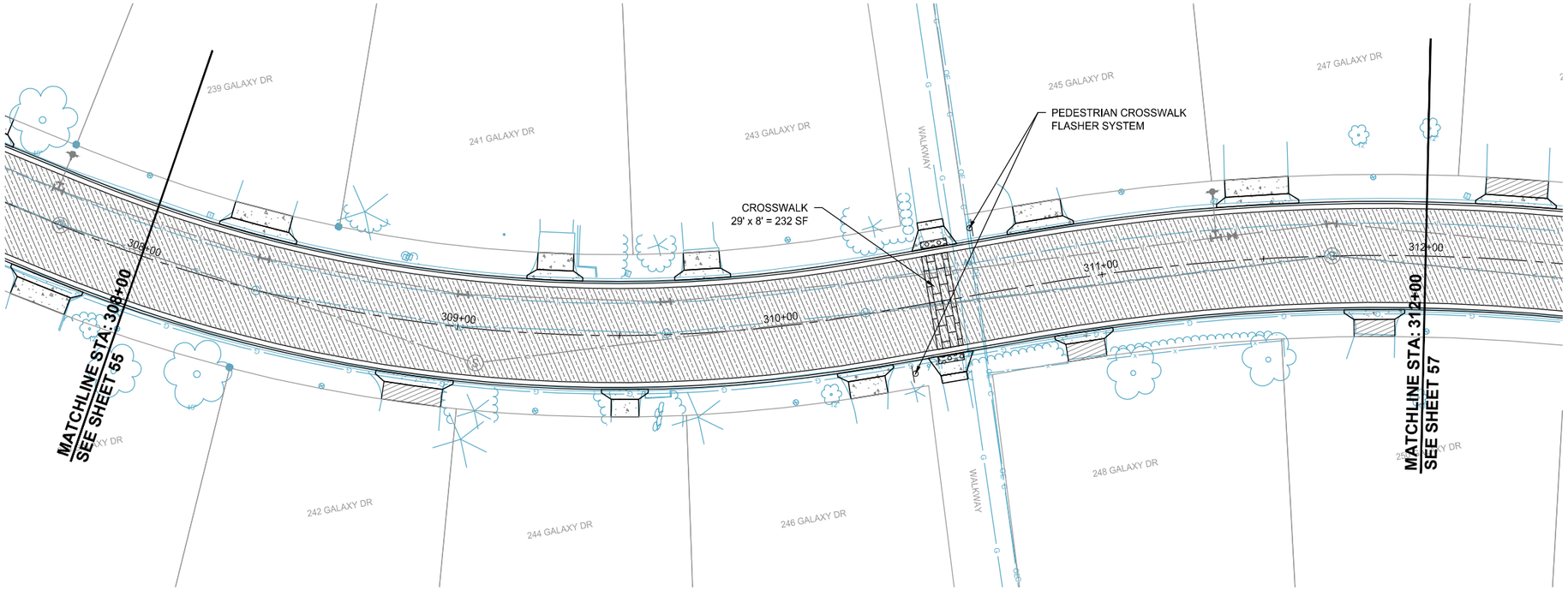

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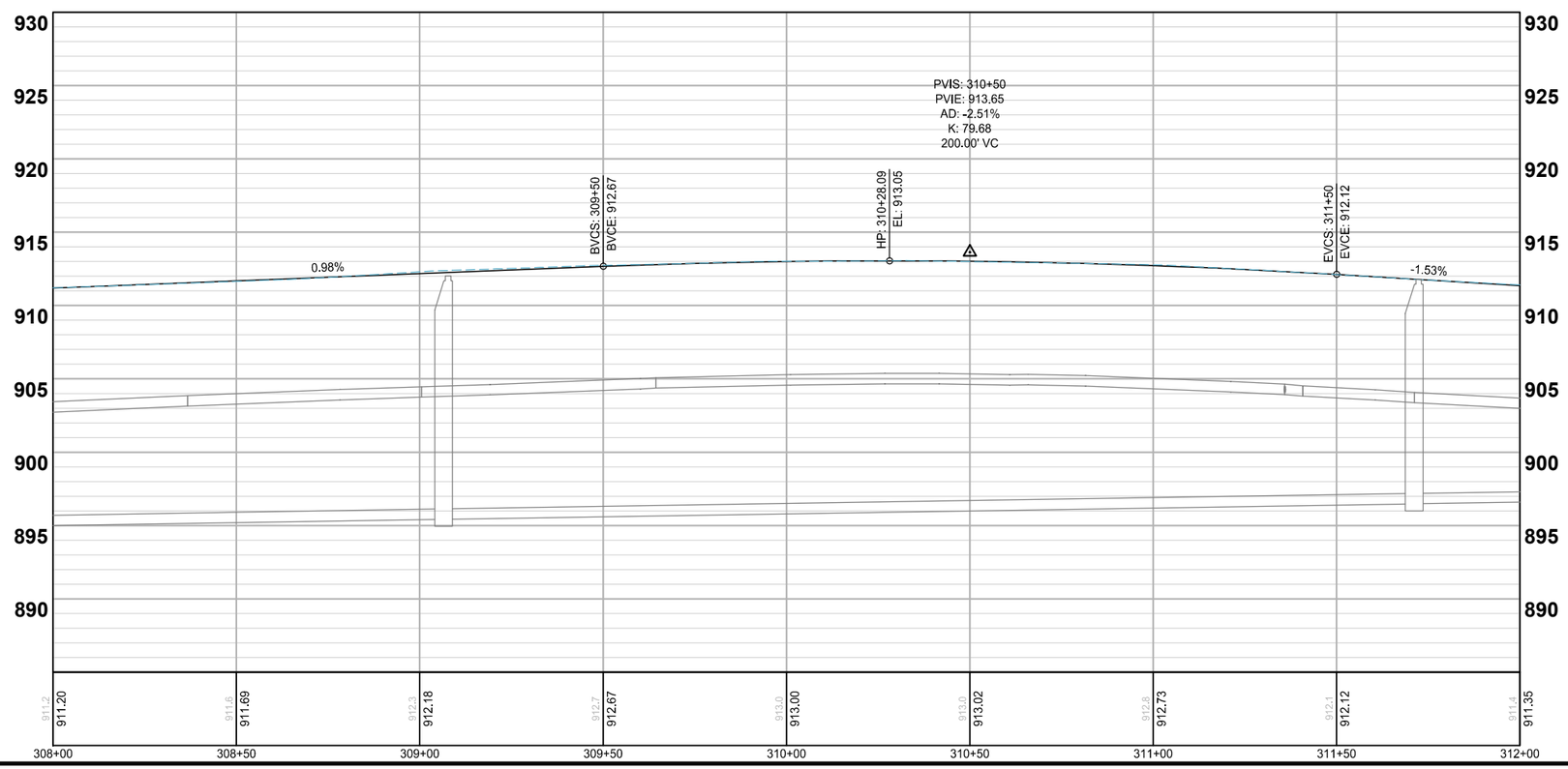

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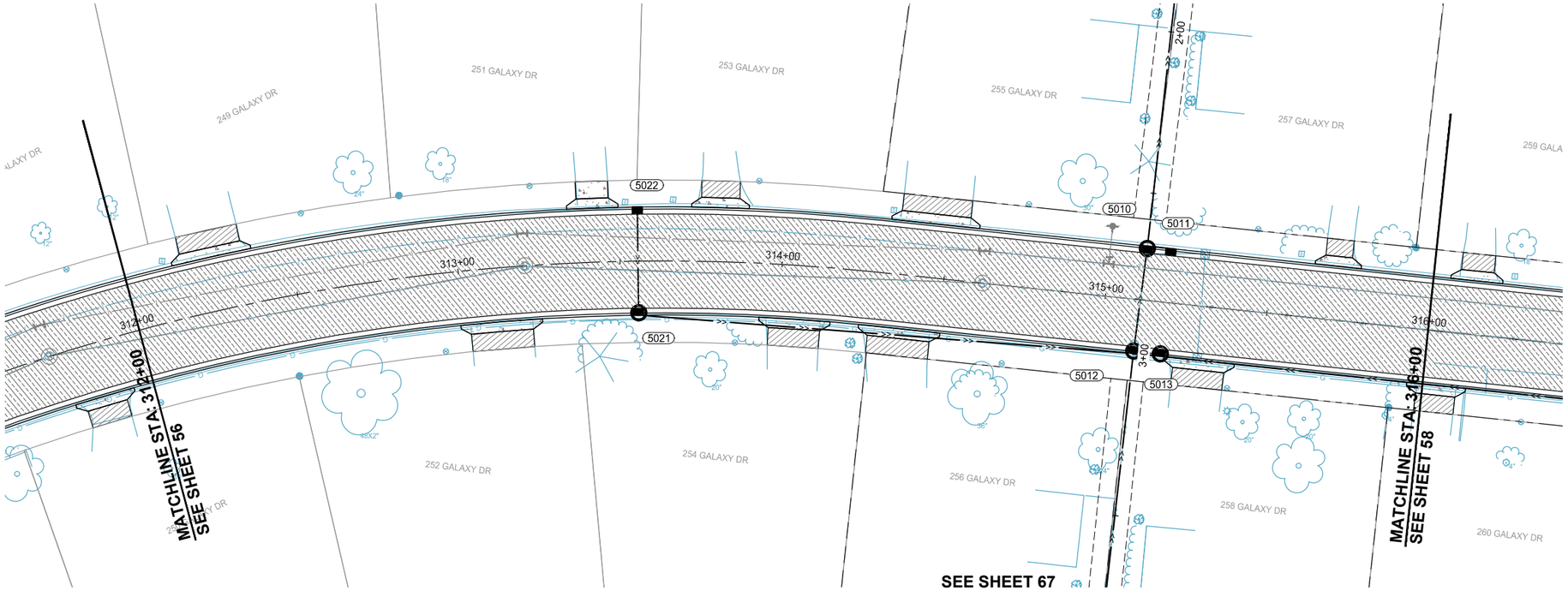

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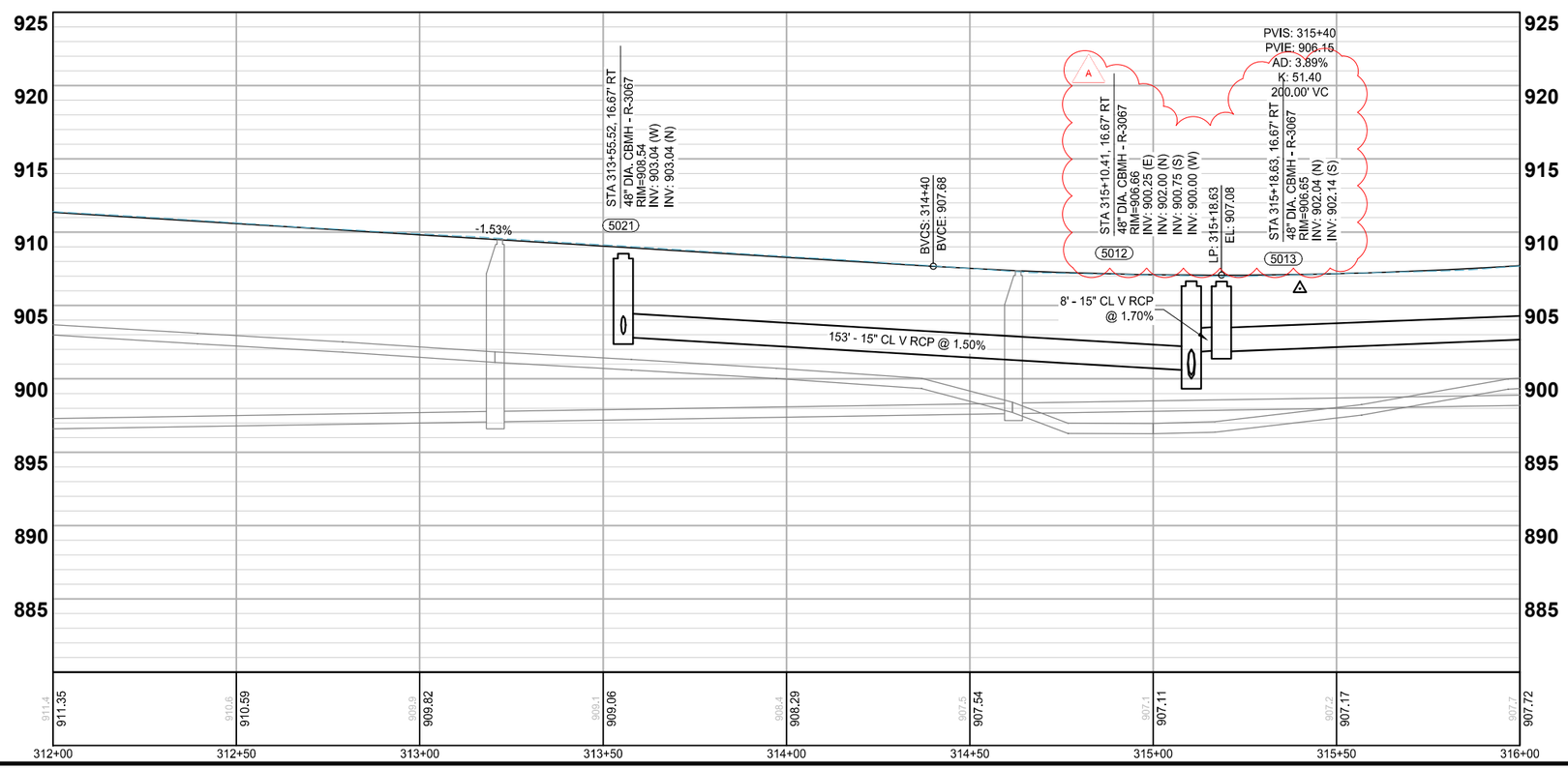

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SHEET 57 OF 96

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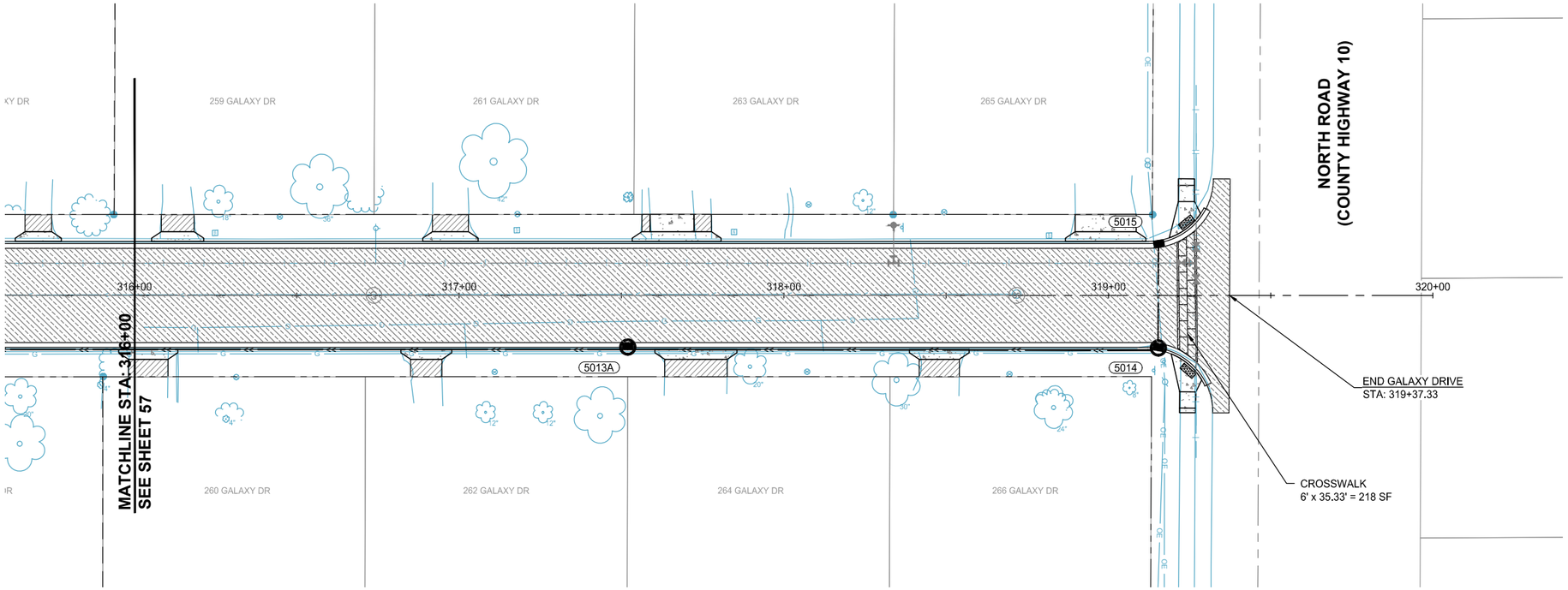

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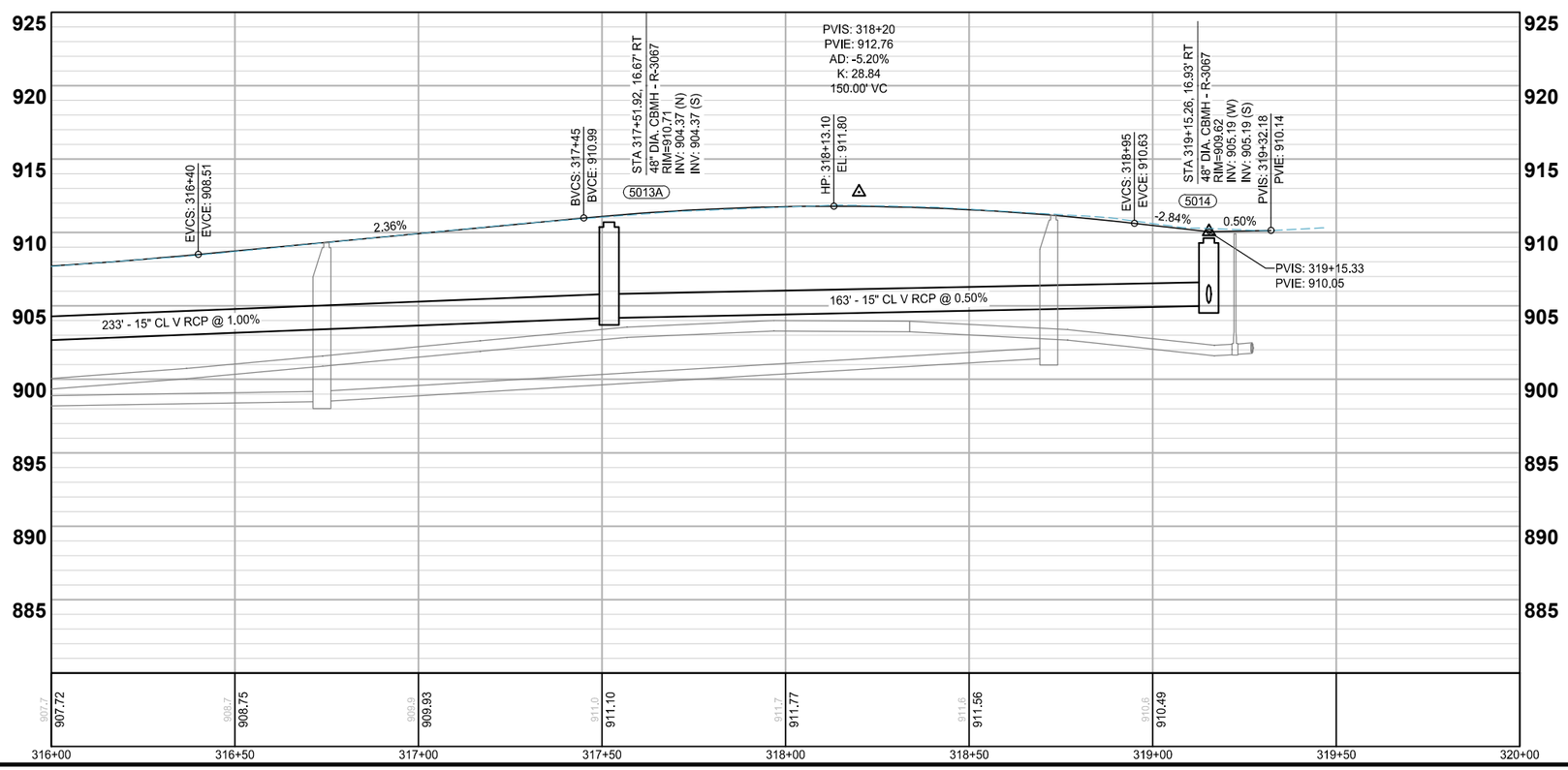

LEGEND

- PROPOSED CURB AND GUTTER
- PROPOSED BITUMINOUS (EDGE)
- PROPOSED CONCRETE (EDGE)
- PROPOSED GRAVEL (EDGE)
- APPROX. CONSTRUCTION LIMITS
- EXISTING STORM SEWER PIPE
- EXISTING STORM STRUCTURE
- PROPOSED STORM SEWER PIPE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED DRAIN TILE PIPE
- PROPOSED BITUMINOUS ROAD/ TRAIL
- PROPOSED BITUMINOUS DRIVEWAY/ WALK
- PROPOSED CONCRETE DRIVEWAY/ WALK
- PROPOSED GRAVEL DRIVEWAY
- PROPOSED TRUNCATED DOMES
- 965.77 PROPOSED SPOT ELEVATION
- 965.77 EXISTING SPOT ELEVATION

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SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

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GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

STREET & STORM SEWER PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

SHEET 58 OF 96

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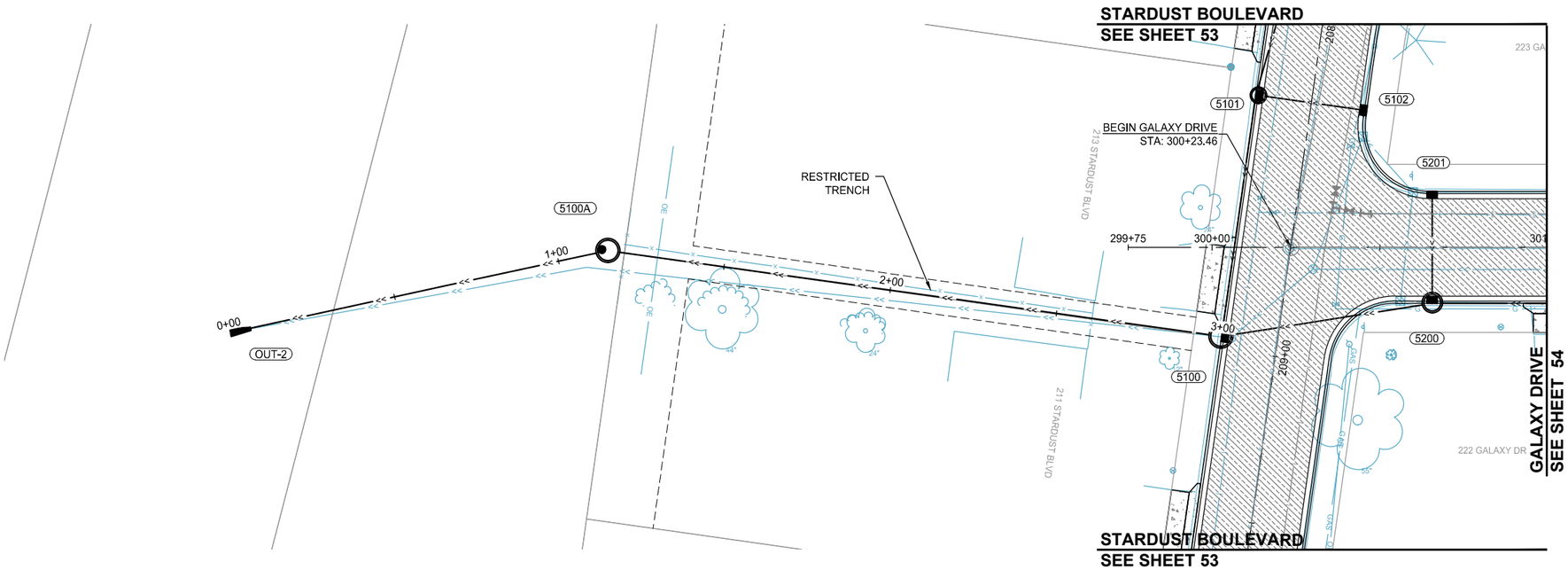

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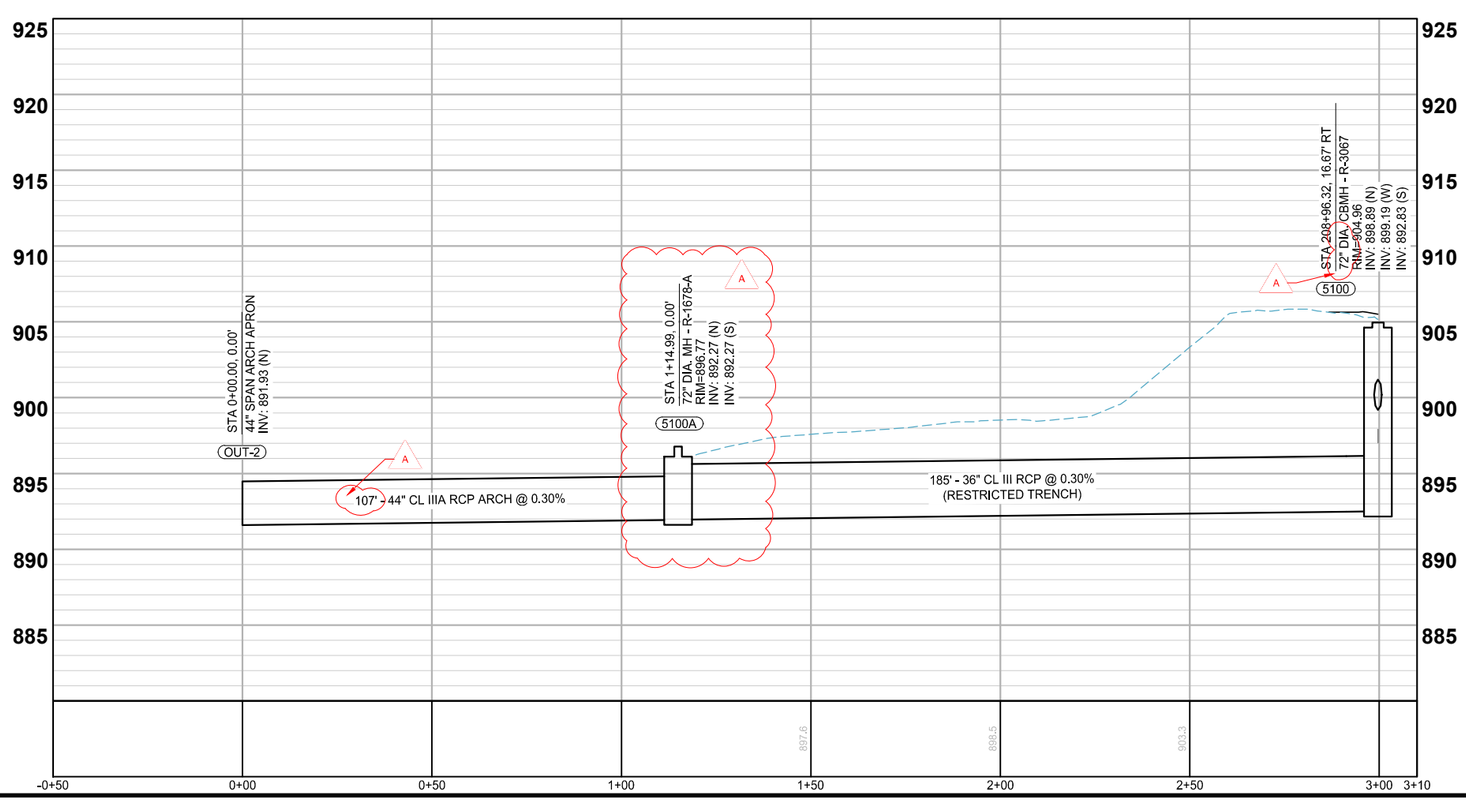

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City of CIRCLE PINES

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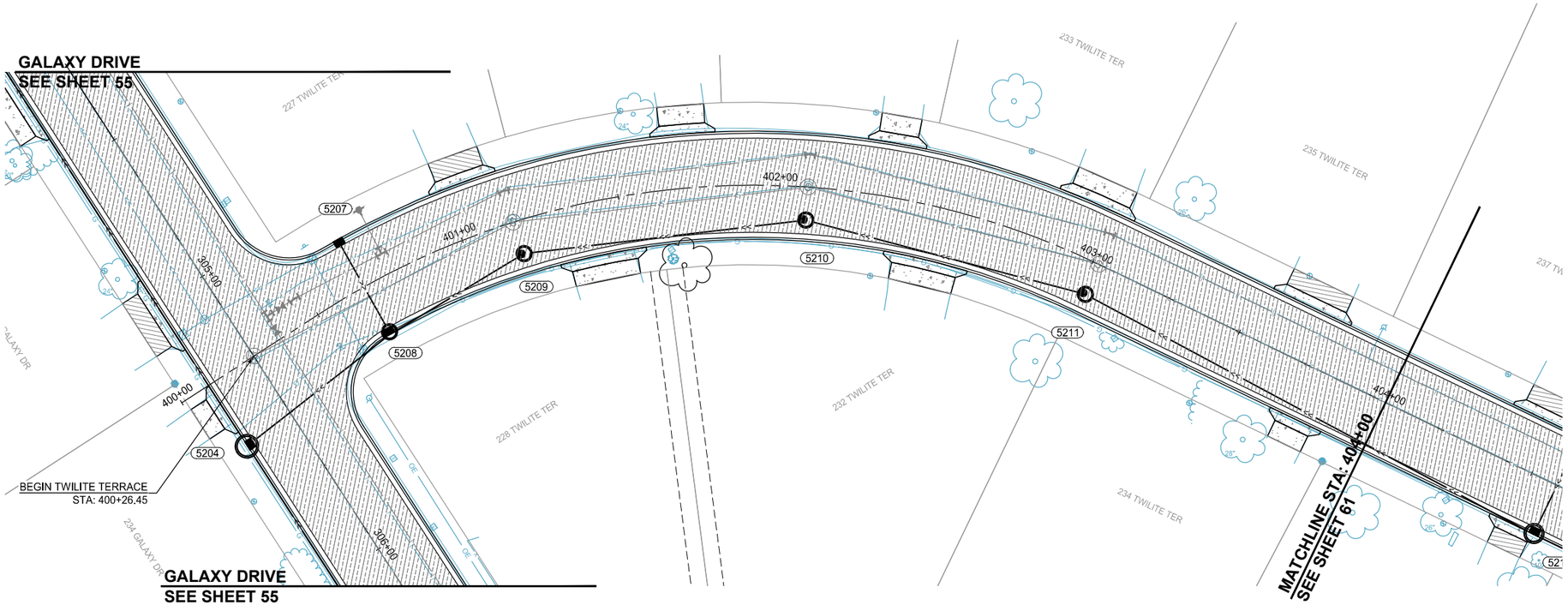

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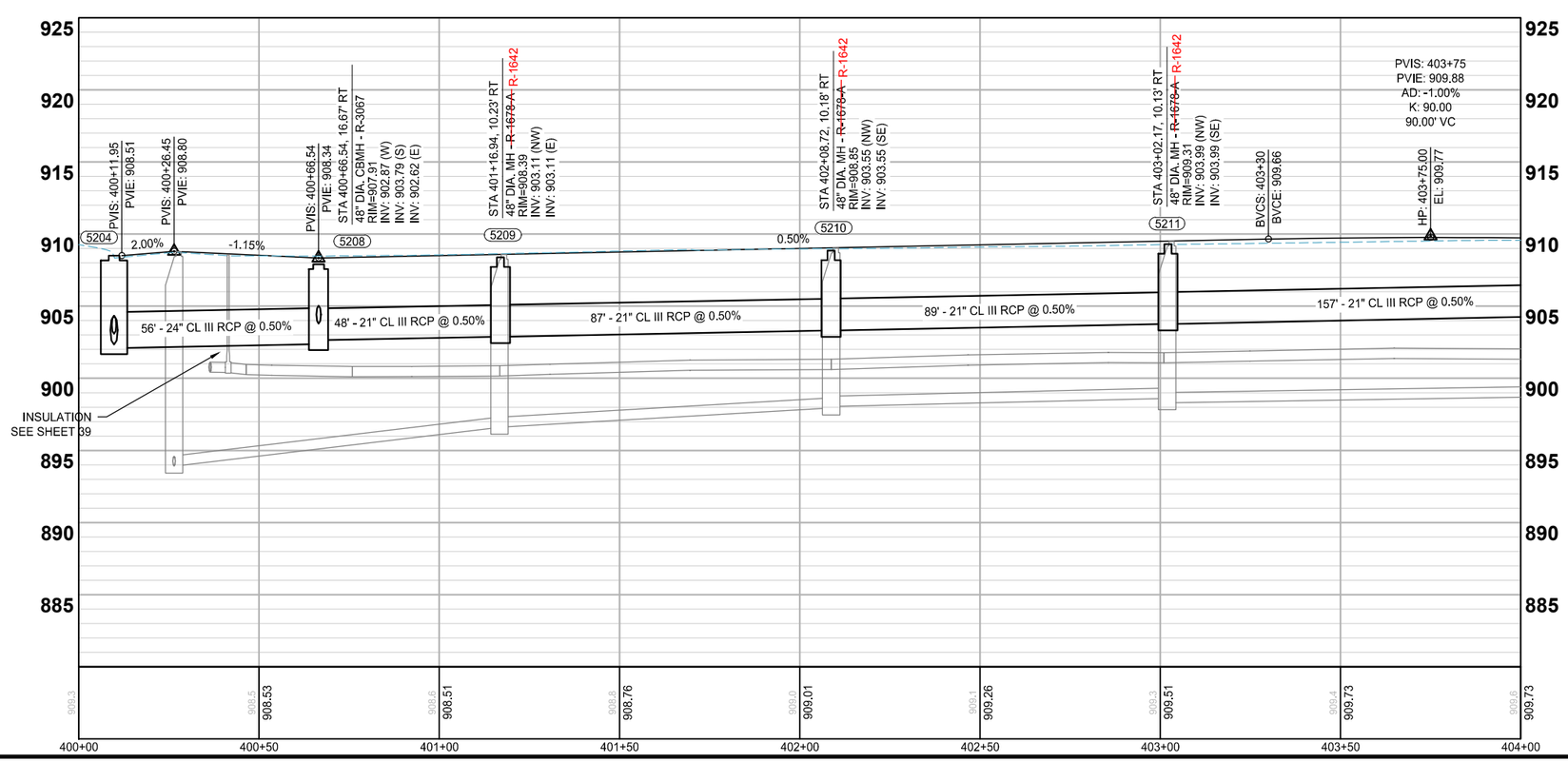

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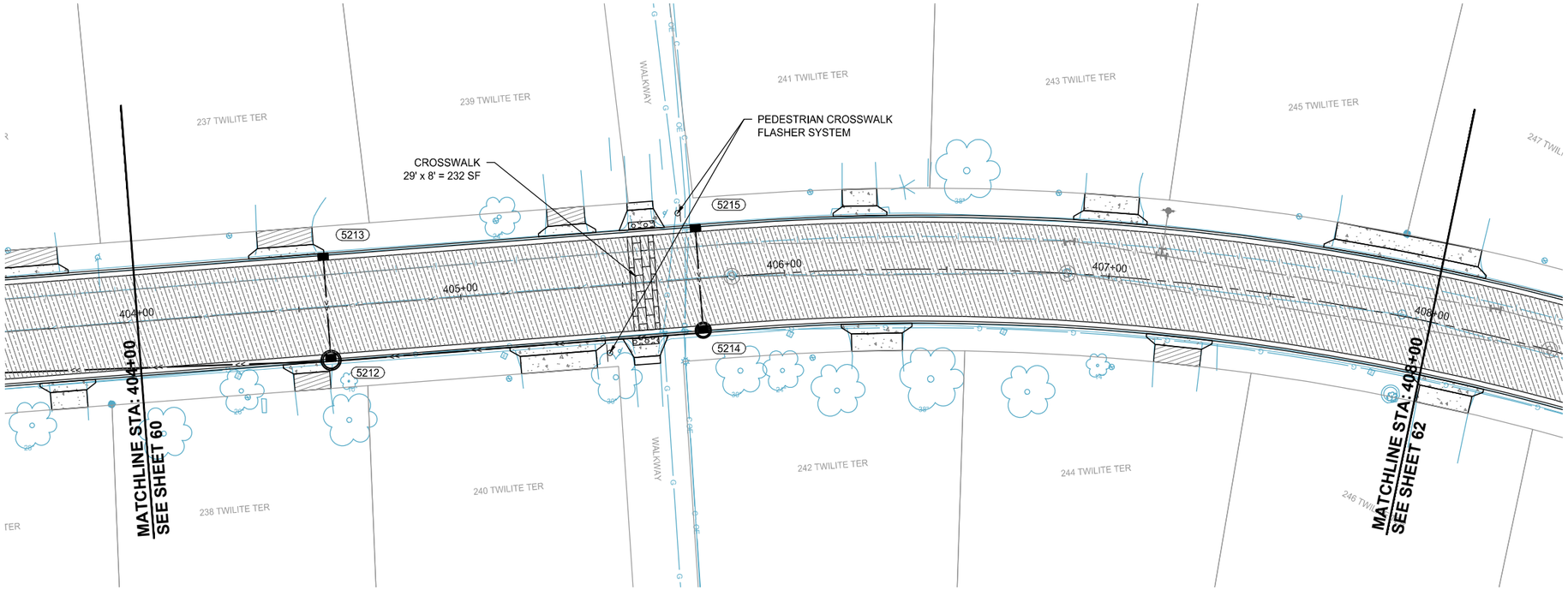

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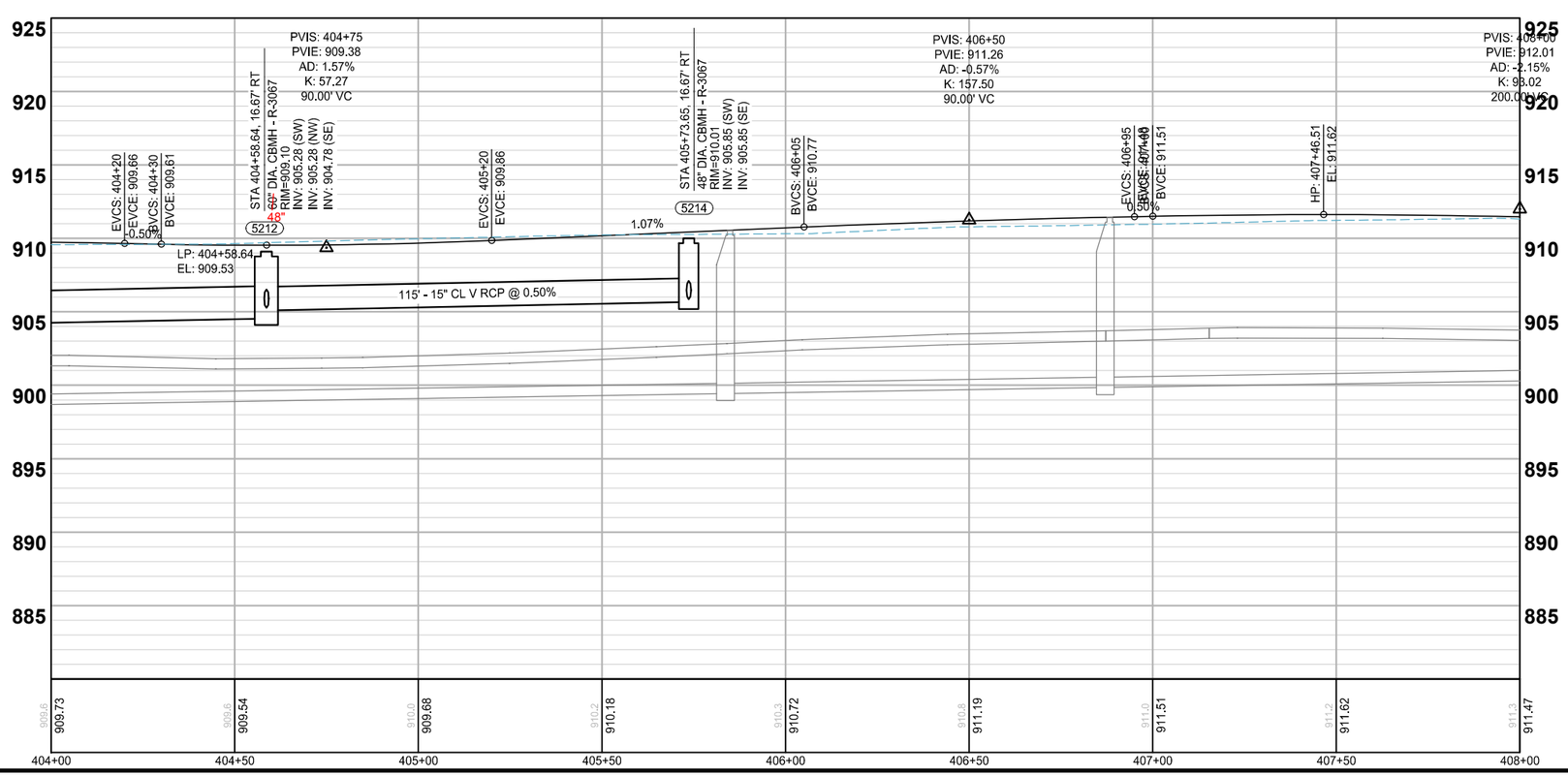

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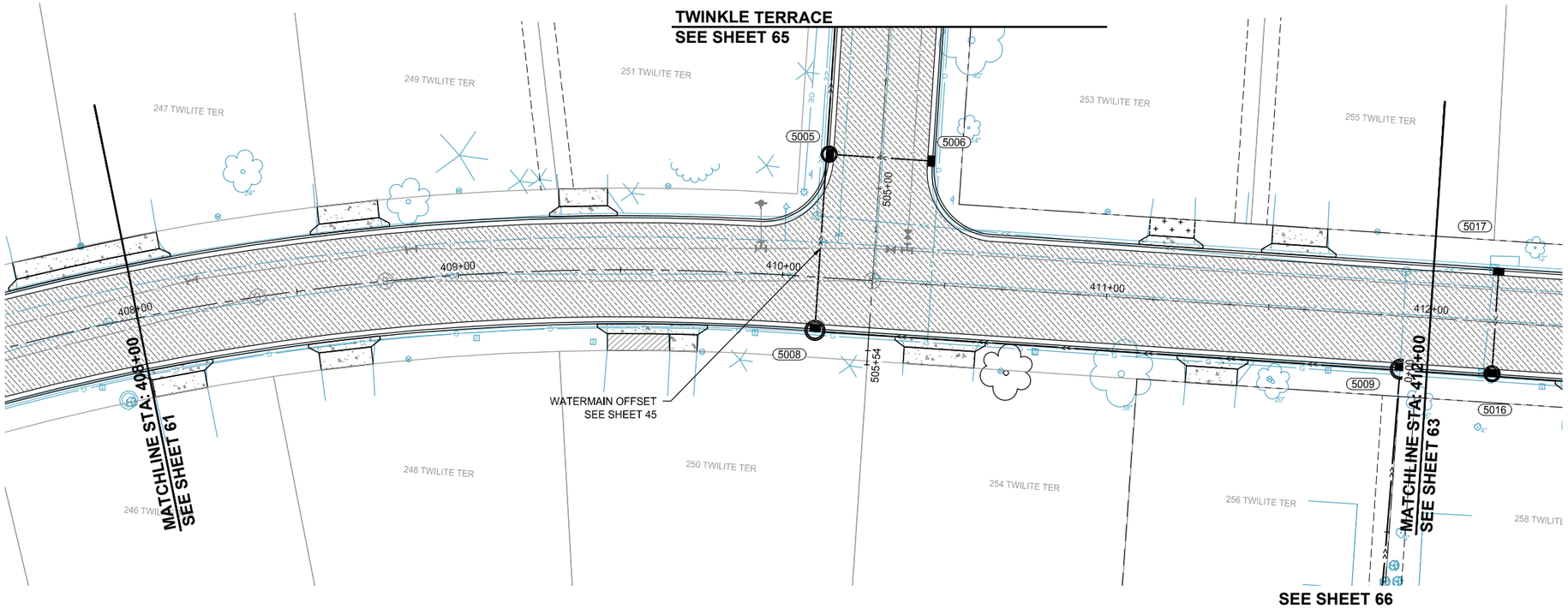

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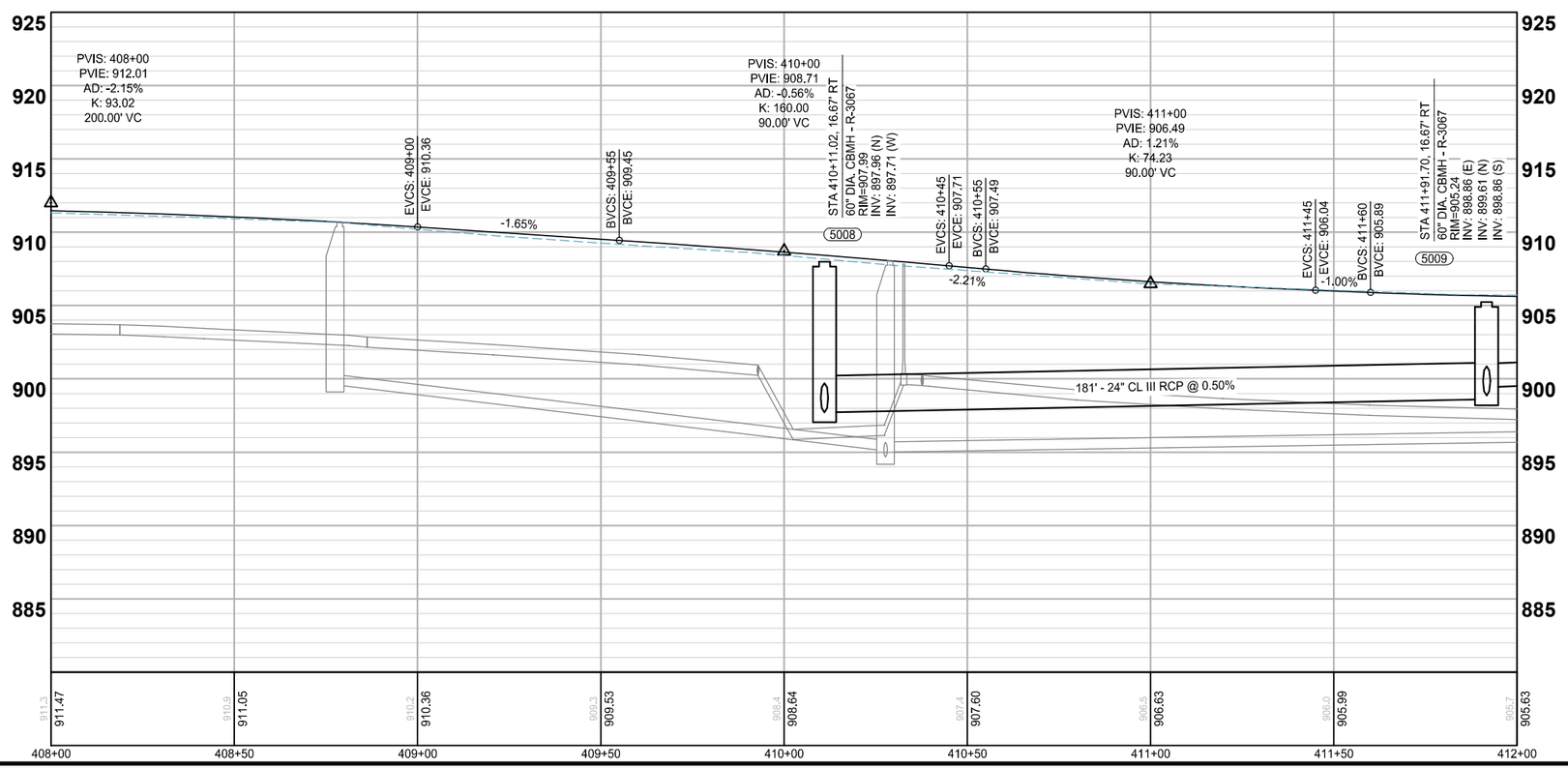

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STREET & STORM SEWER PLANS

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CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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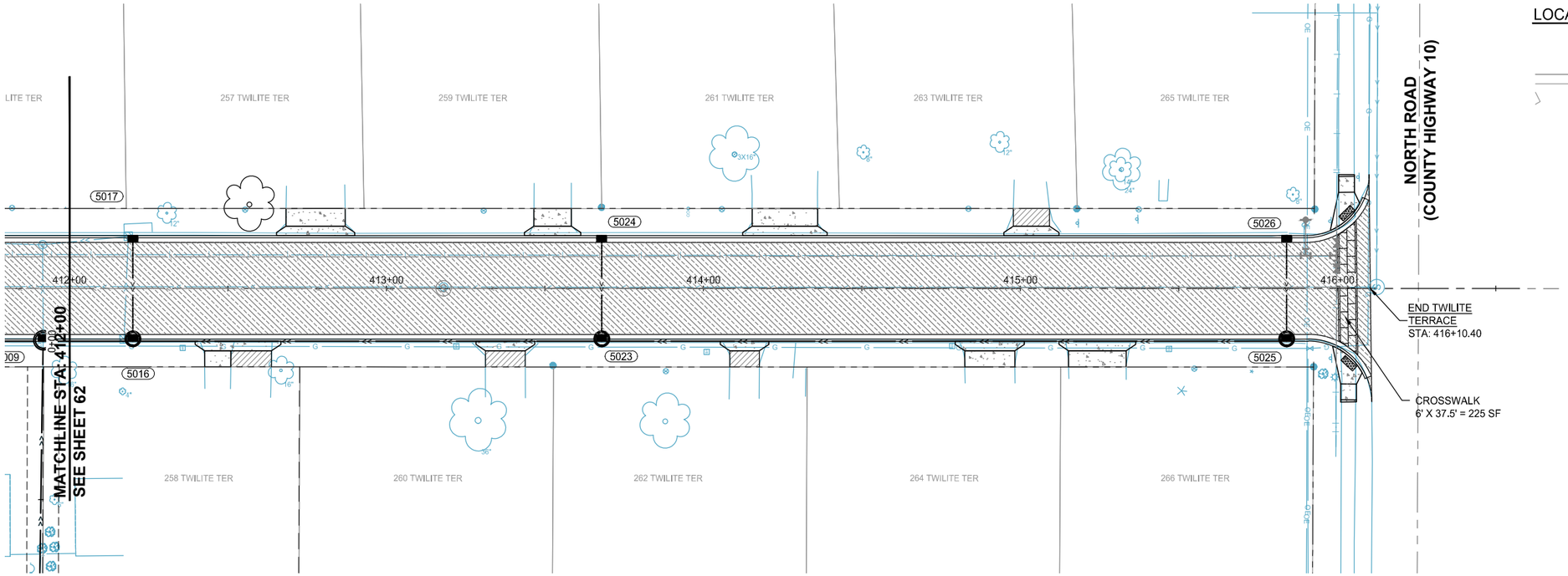

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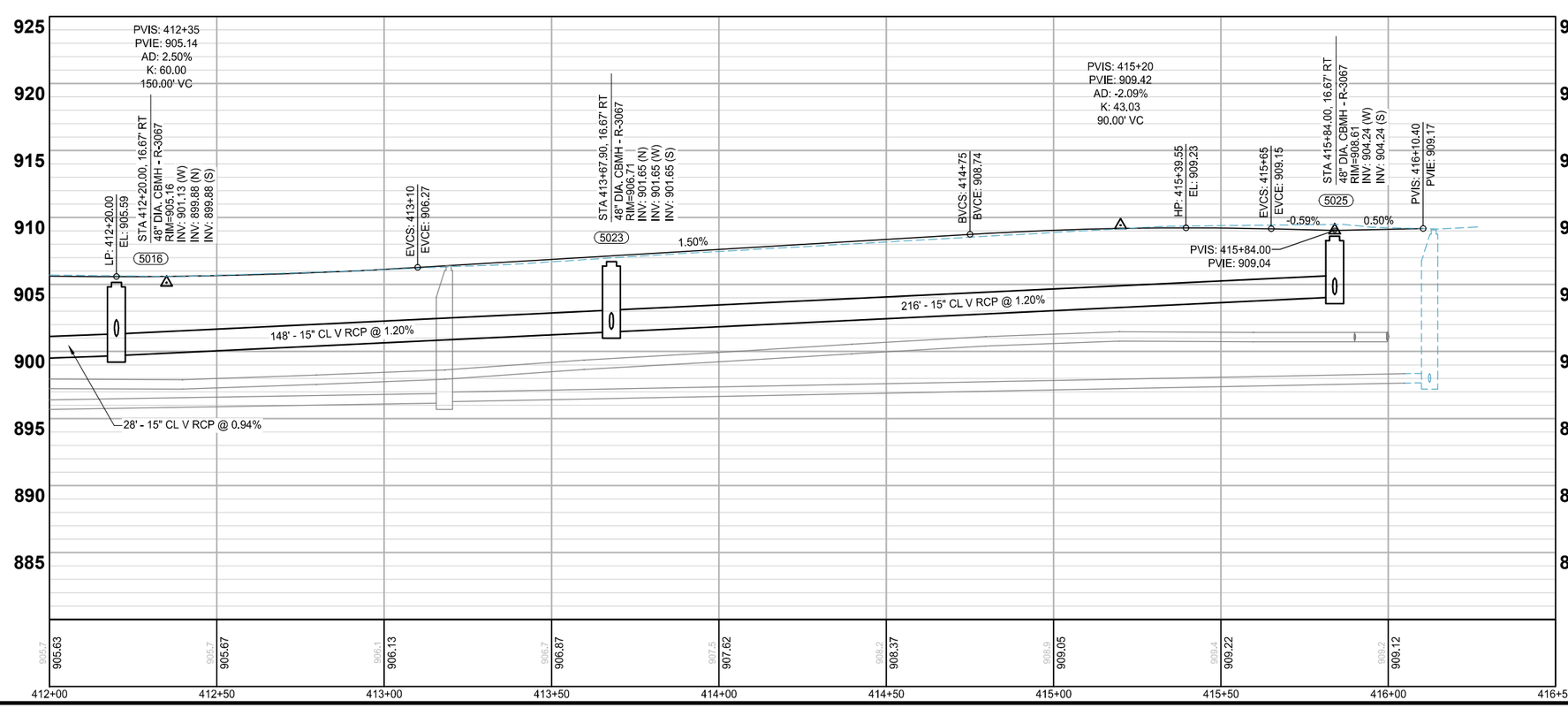

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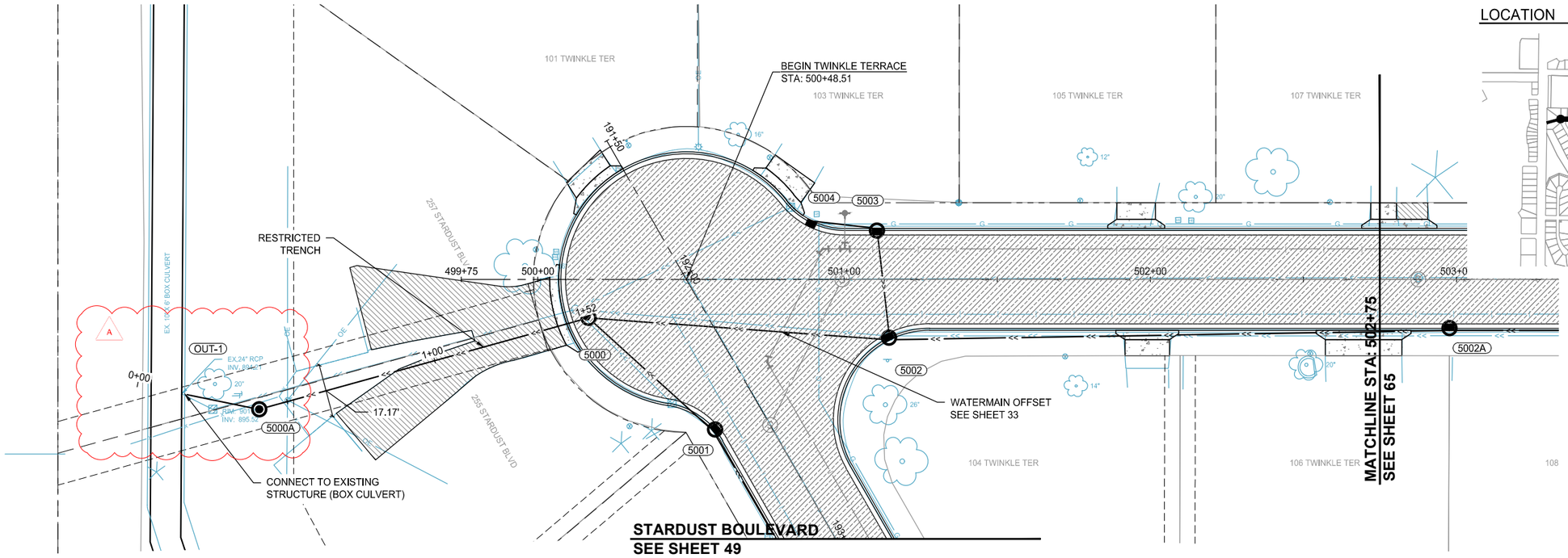

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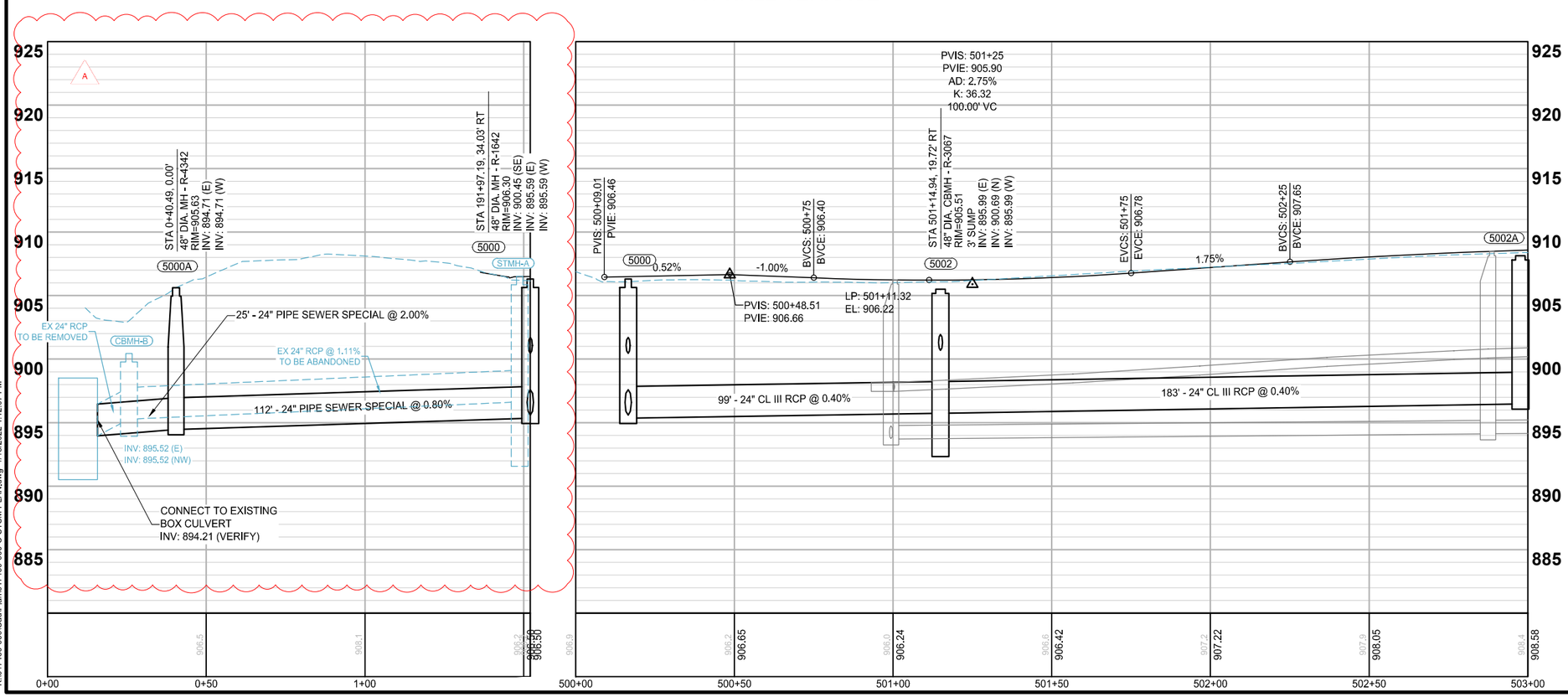
TWINKLE TERRACE



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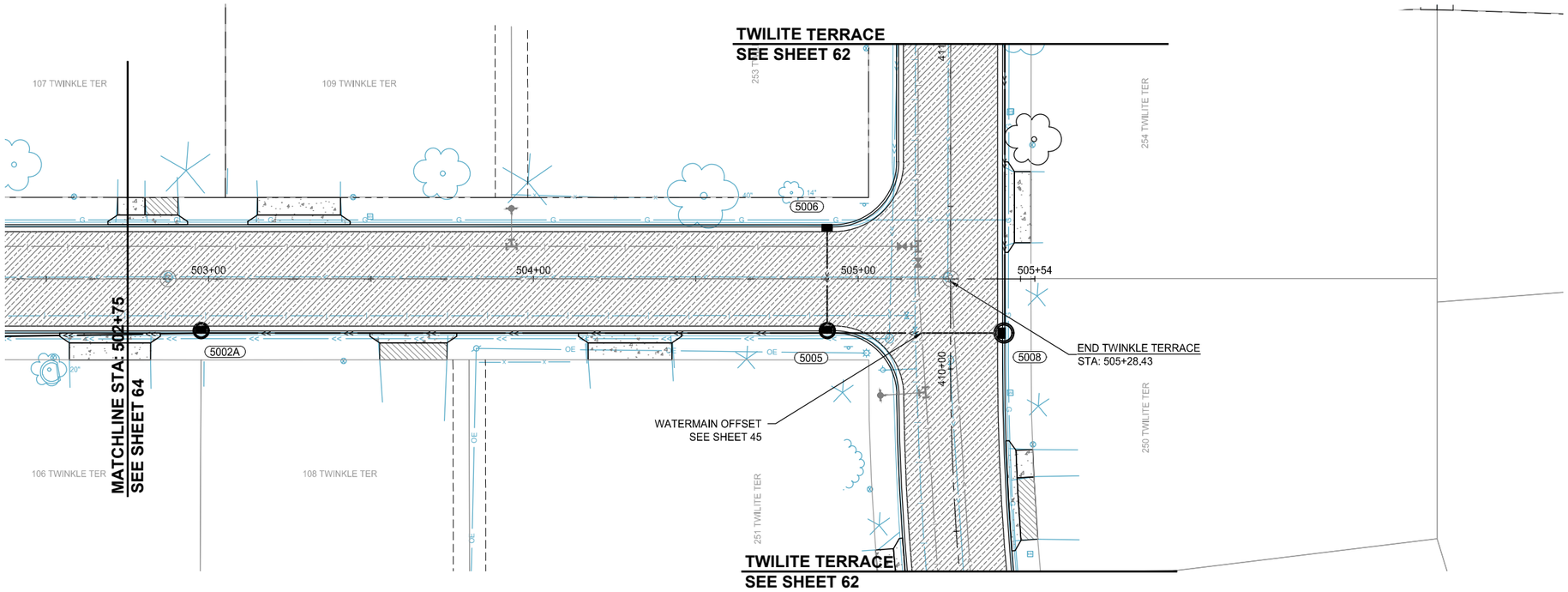

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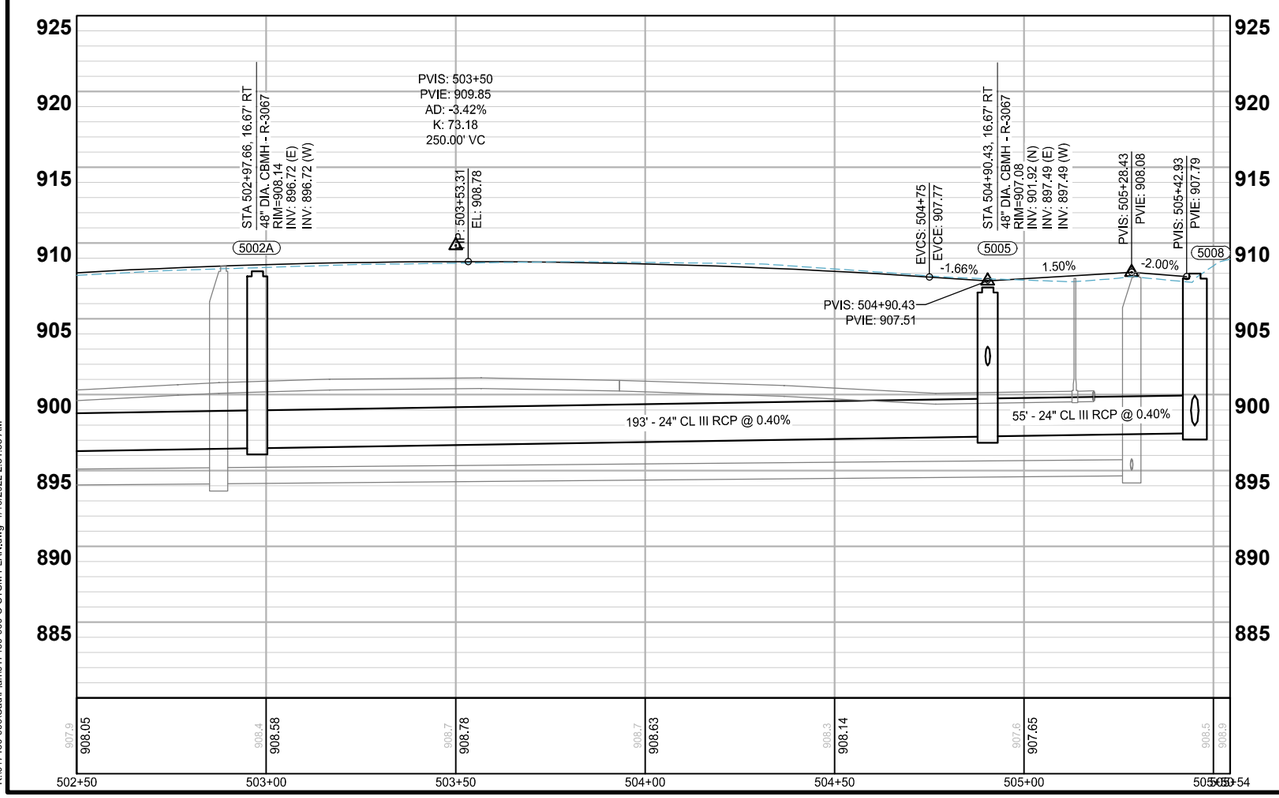

LOCATION

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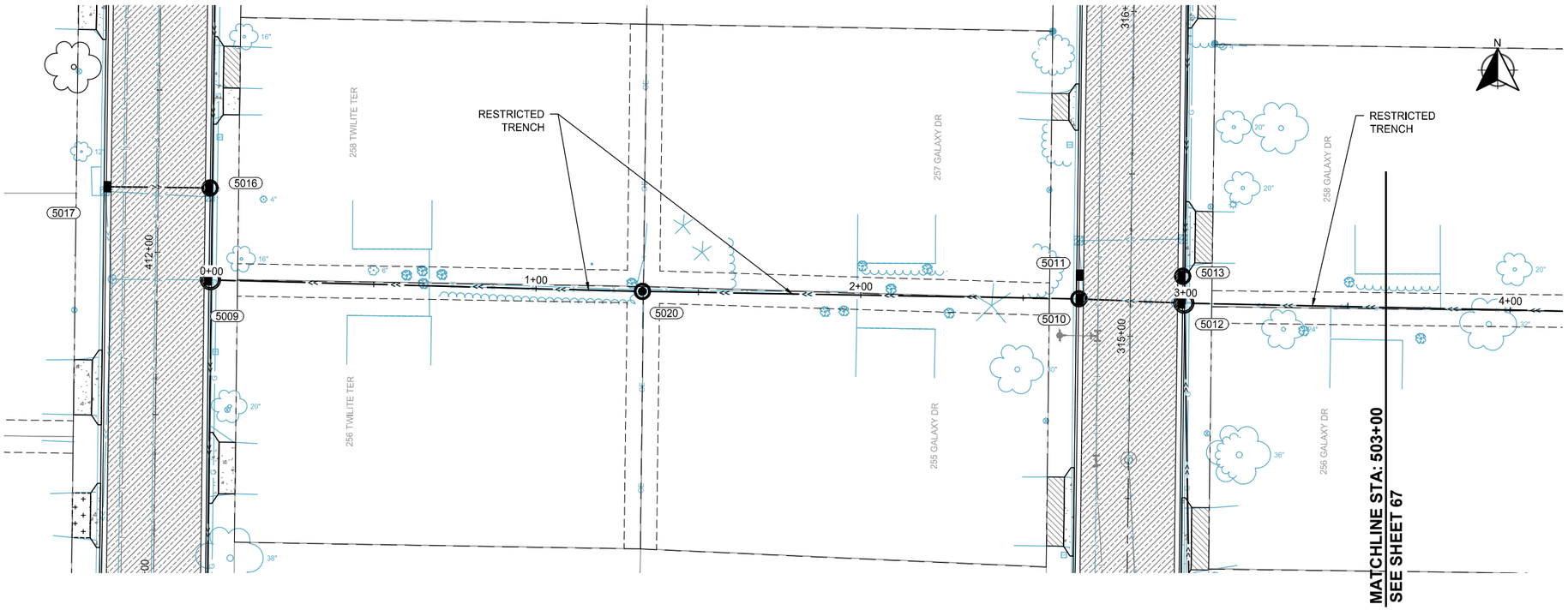

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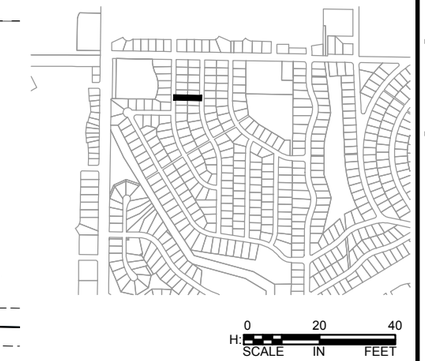

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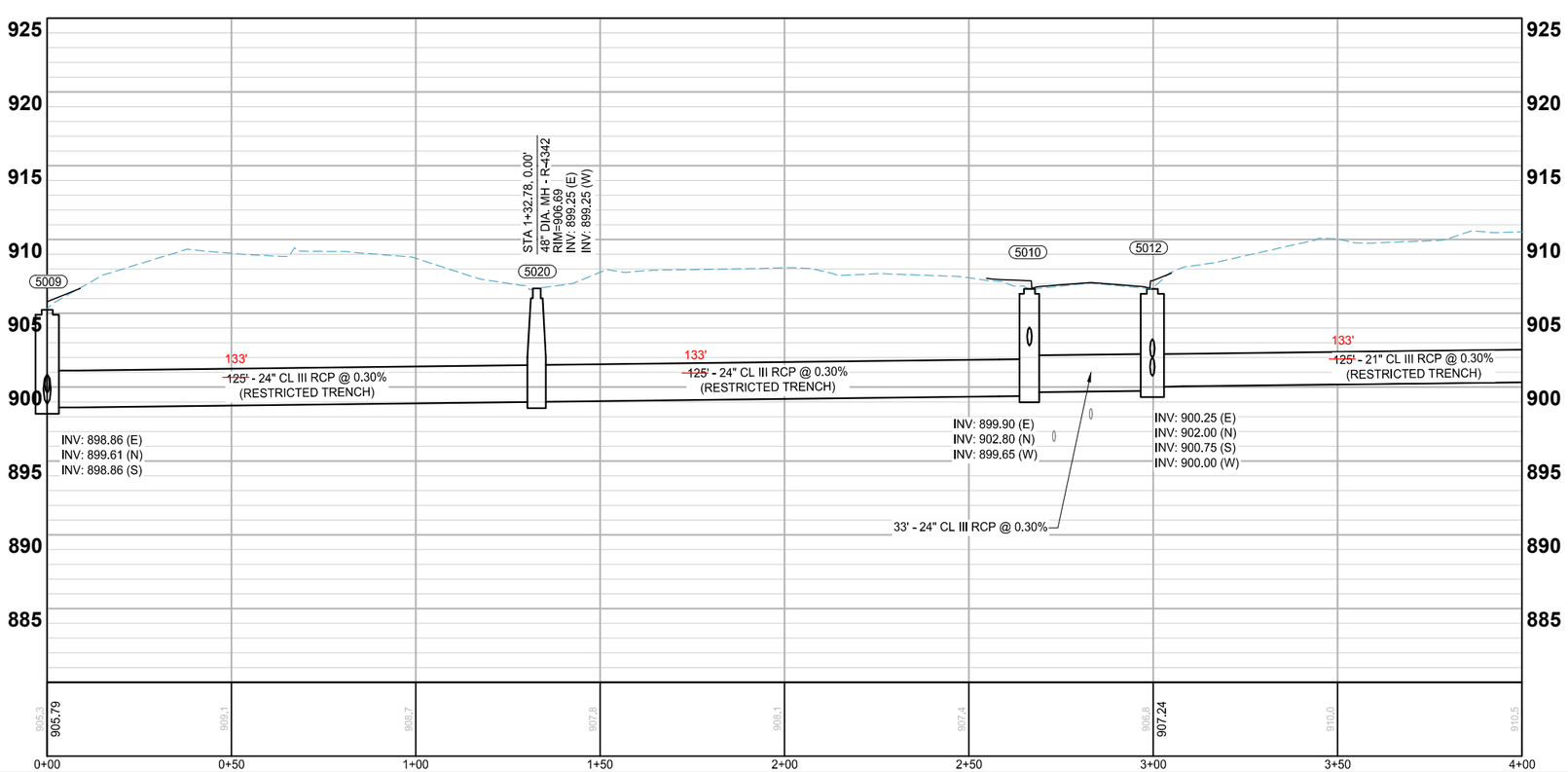

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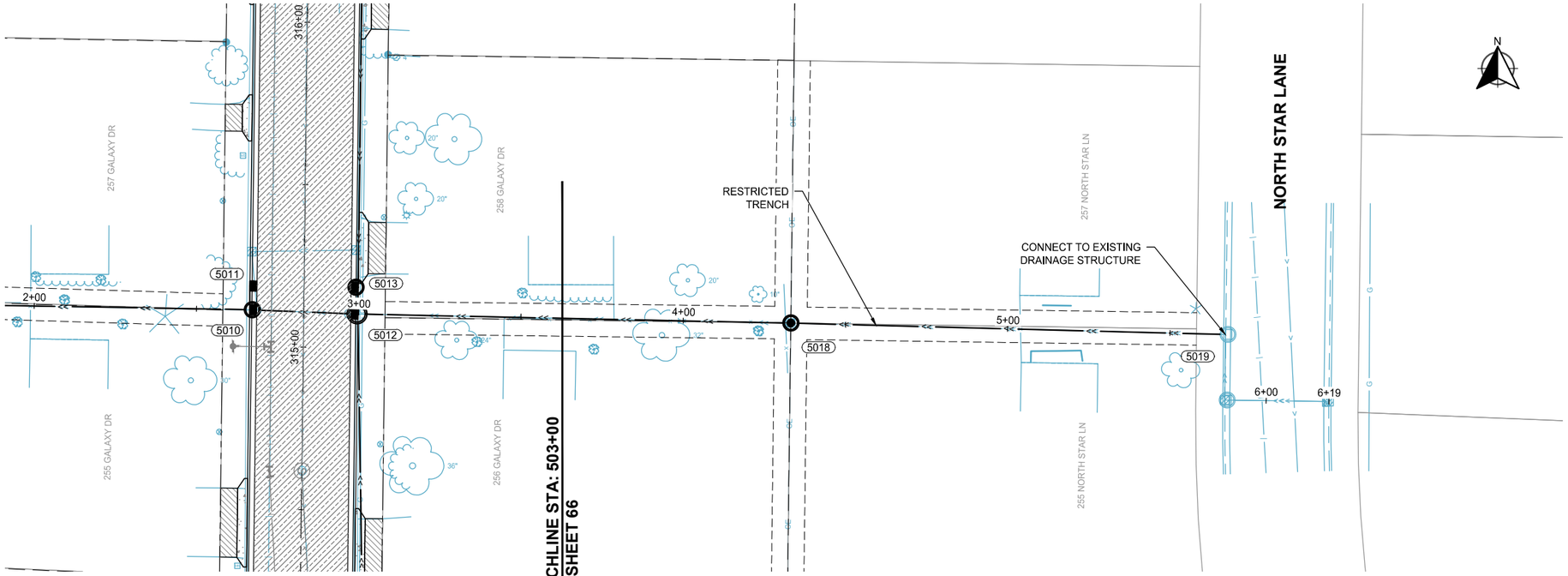

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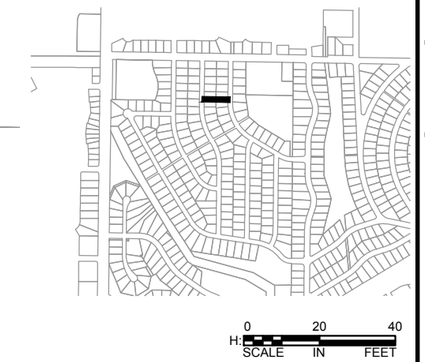

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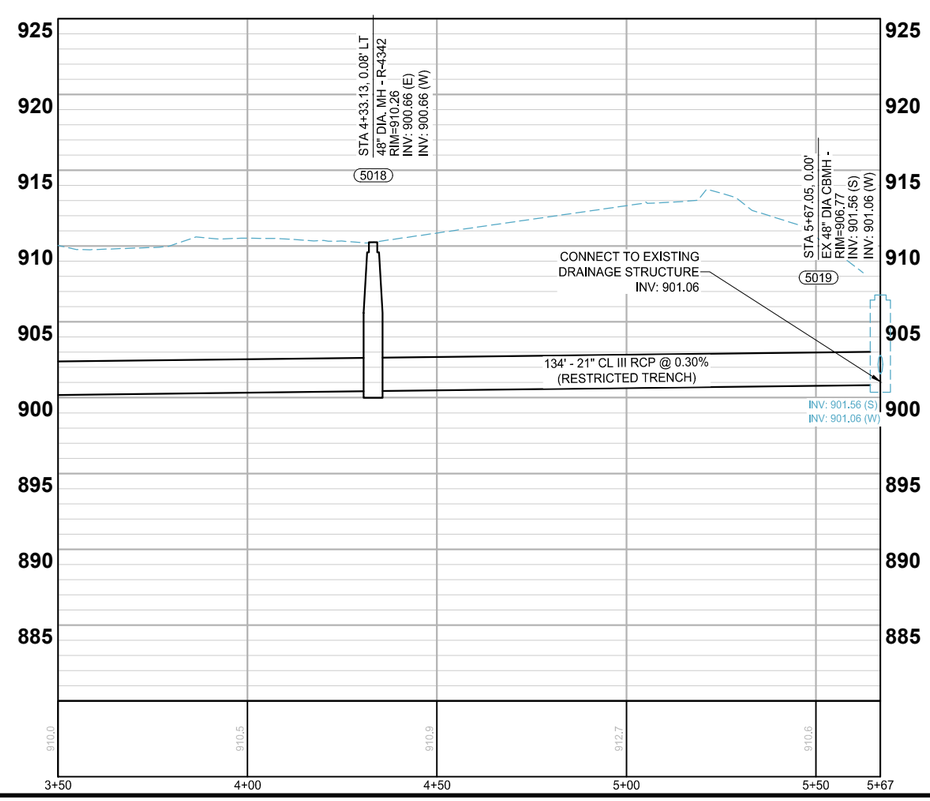

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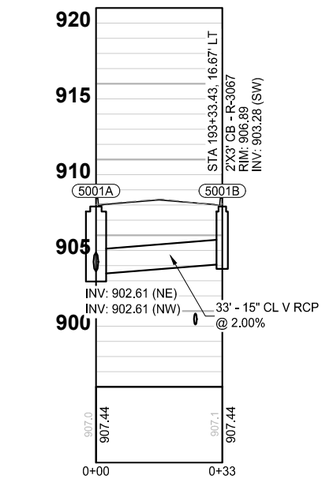
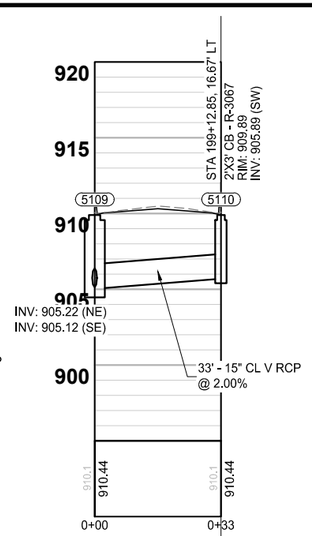
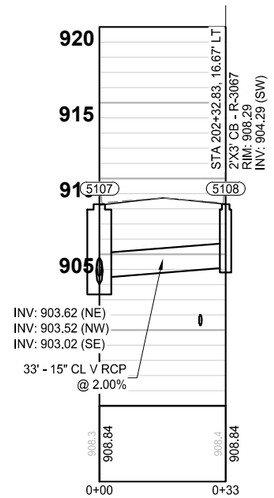
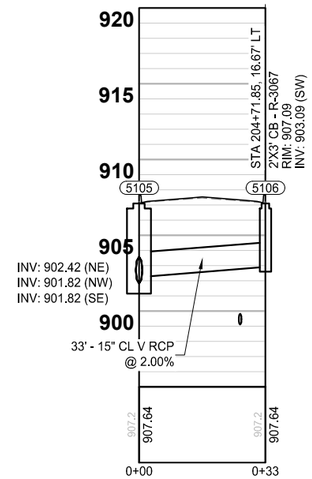
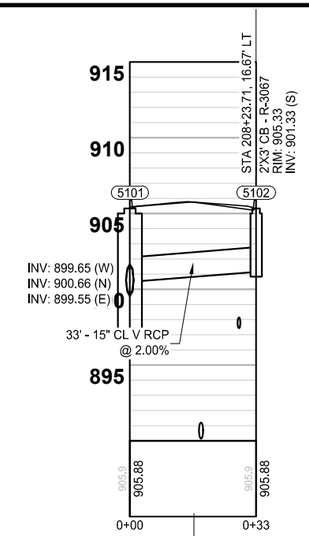
STARDUST BOULEVARD











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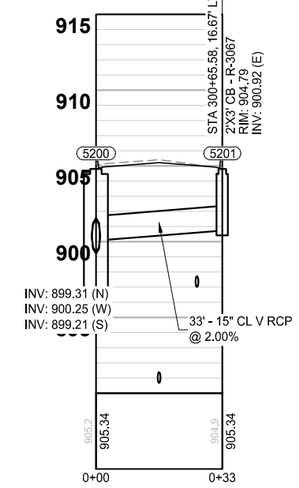

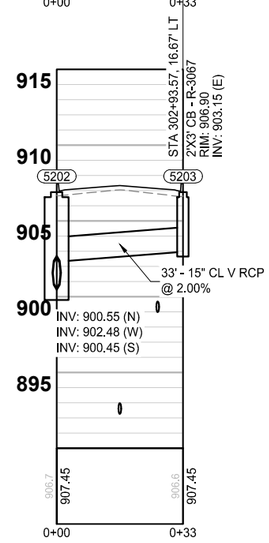

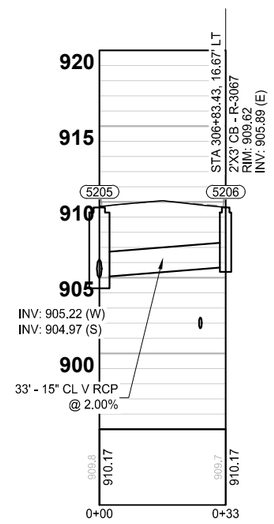

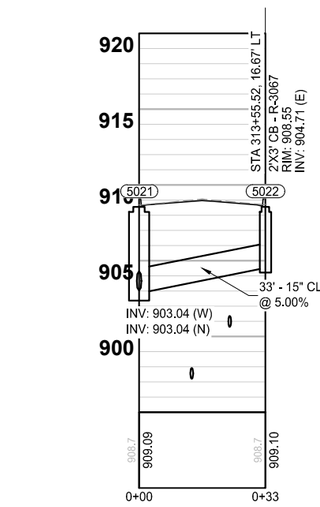

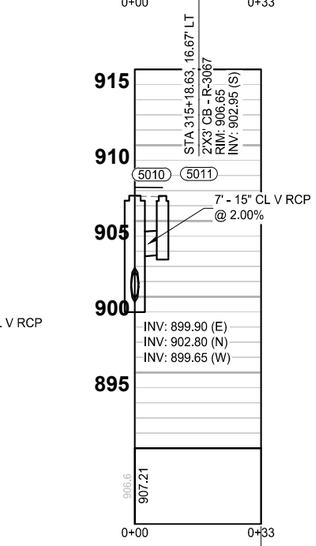

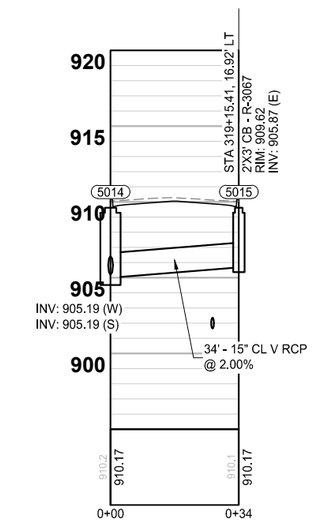

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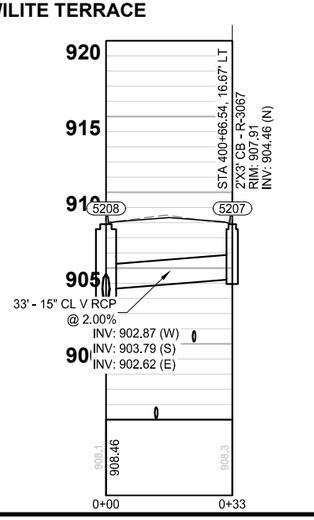

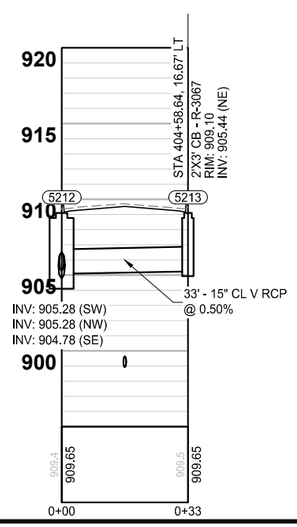

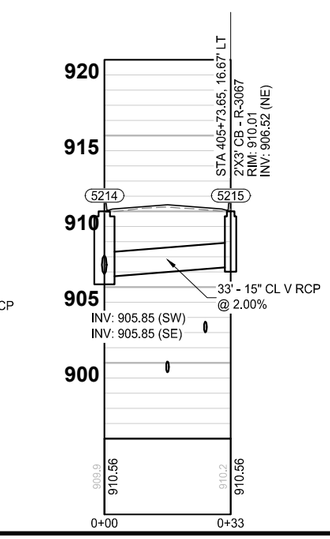

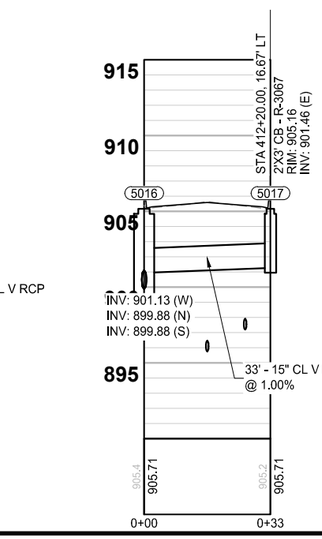

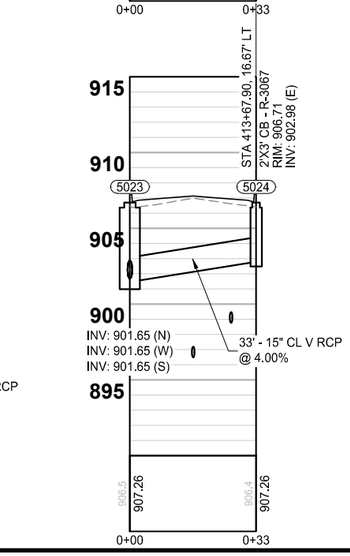

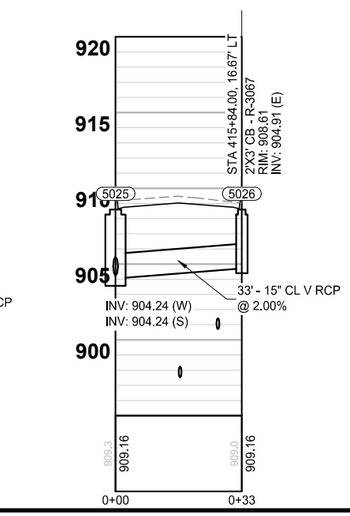

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V: 0 5 10 SCALE IN FEET

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wsb | City of Circle Pines

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GMD	EME

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GINA M. DULLINGER, P.E.

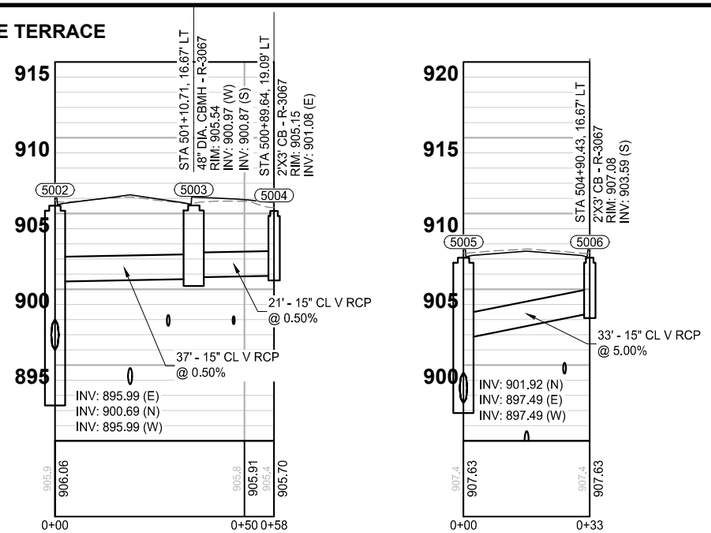
DATE: 12/14/2021 LIC. NO: 45489

STREET & STORM SEWER PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

TWINKLE TERRACE



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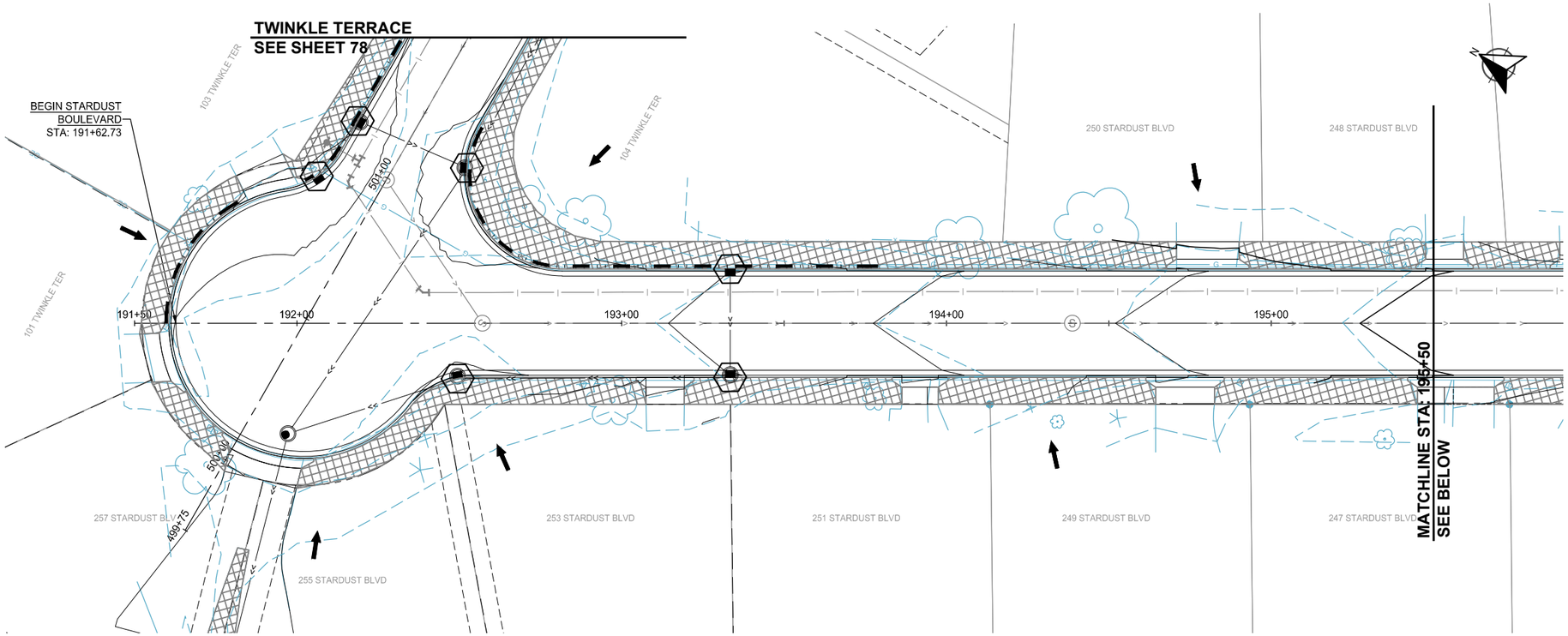
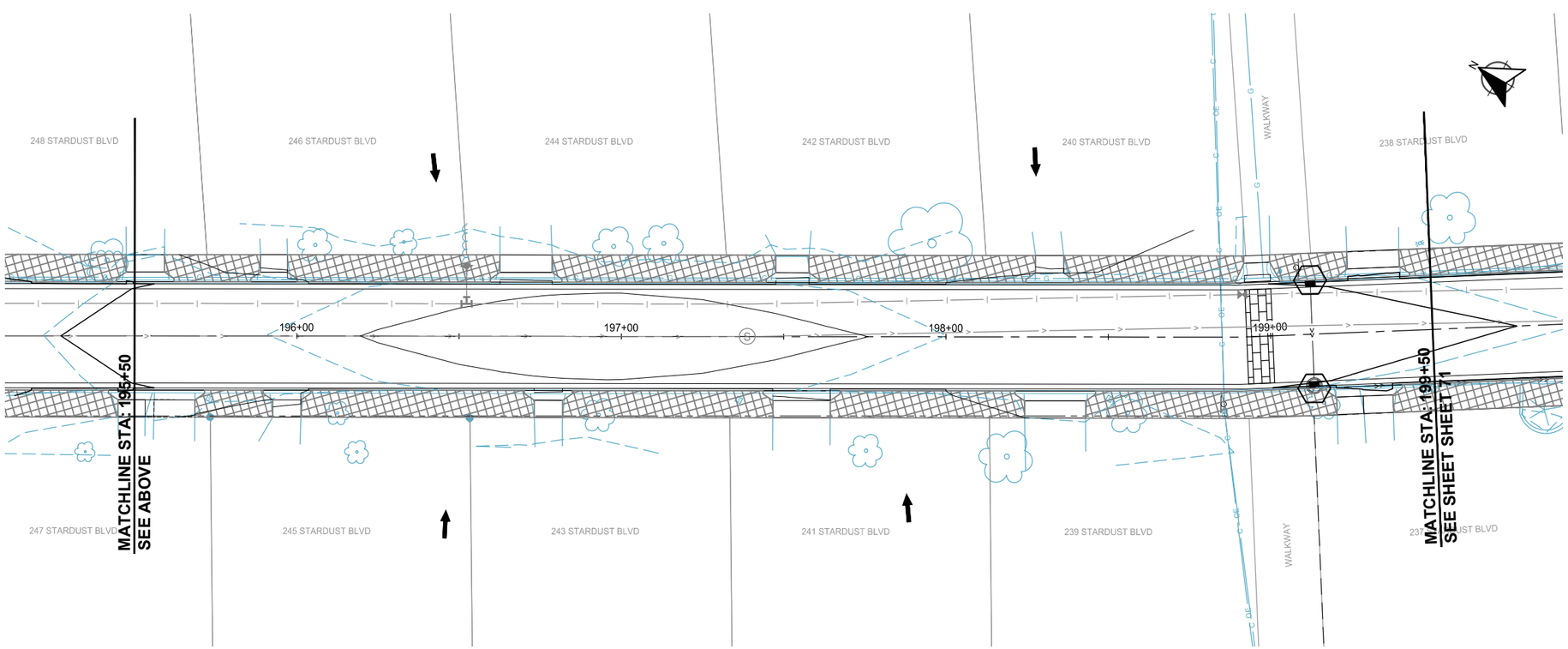


STARDUST BOULEVARD



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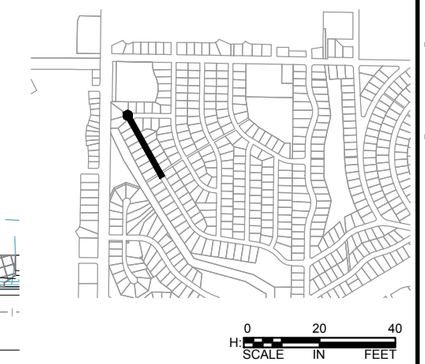

LEGEND

- INLET PROTECTION
- FLOW DIRECTION
- RIP RAP
- WOOD FIBER BIOROLL
- SF — SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY: STABILIZED FIBER MATRIX @ 3000 LB/AC
  PERMANENT: SOD TYPE LAWN WITH FERTILIZER TYPE 3 @ 200 LB/AC
- TEMPORARY: ROLLED EROSION PREVENTION CAT. 20
  PERMANENT: ROLLED EROSION PREVENTION CAT. 20 WITH MNDOT SEED MIX 35-221 @ 36.6 LB/AC AND FERTILIZER TYPE 4 @ 150 LB/AC

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EROSION CONTROL PLANS

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CITY OF CIRCLE PINES

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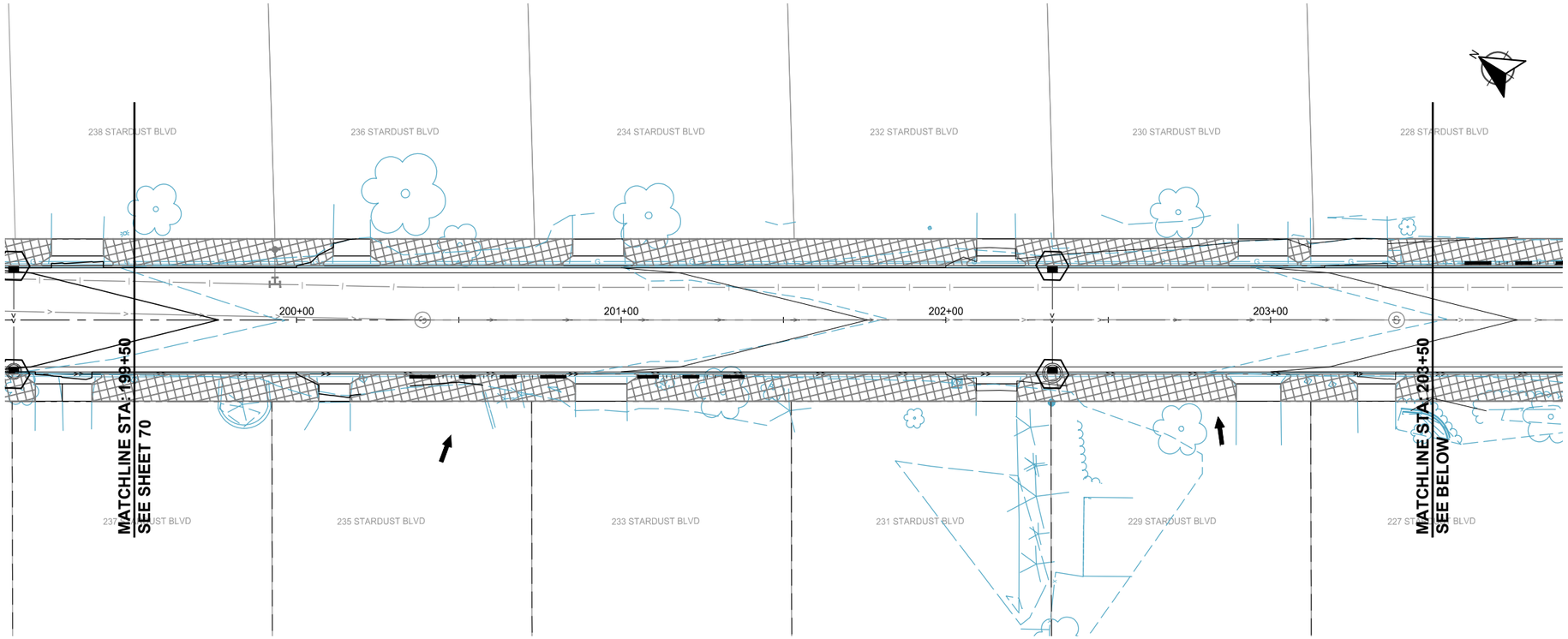

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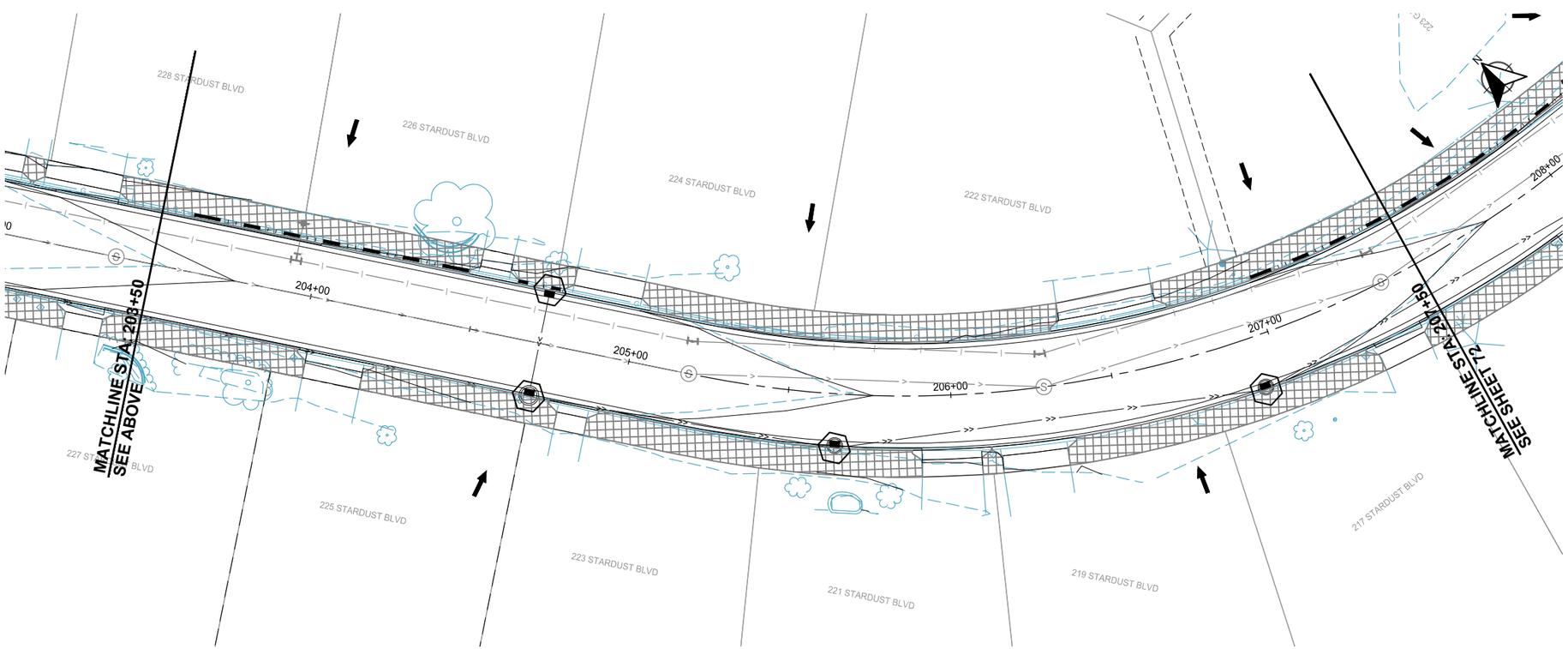

LOCATION

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SCALE IN FEET

LEGEND

- INLET PROTECTION
- FLOW DIRECTION
- RIP RAP
- WOOD FIBER BIOROLL
- SF — SILT FENCE
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City of Circle Pines

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CITY OF CIRCLE PINES

WSB PROJECT NO.
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71 OF 96

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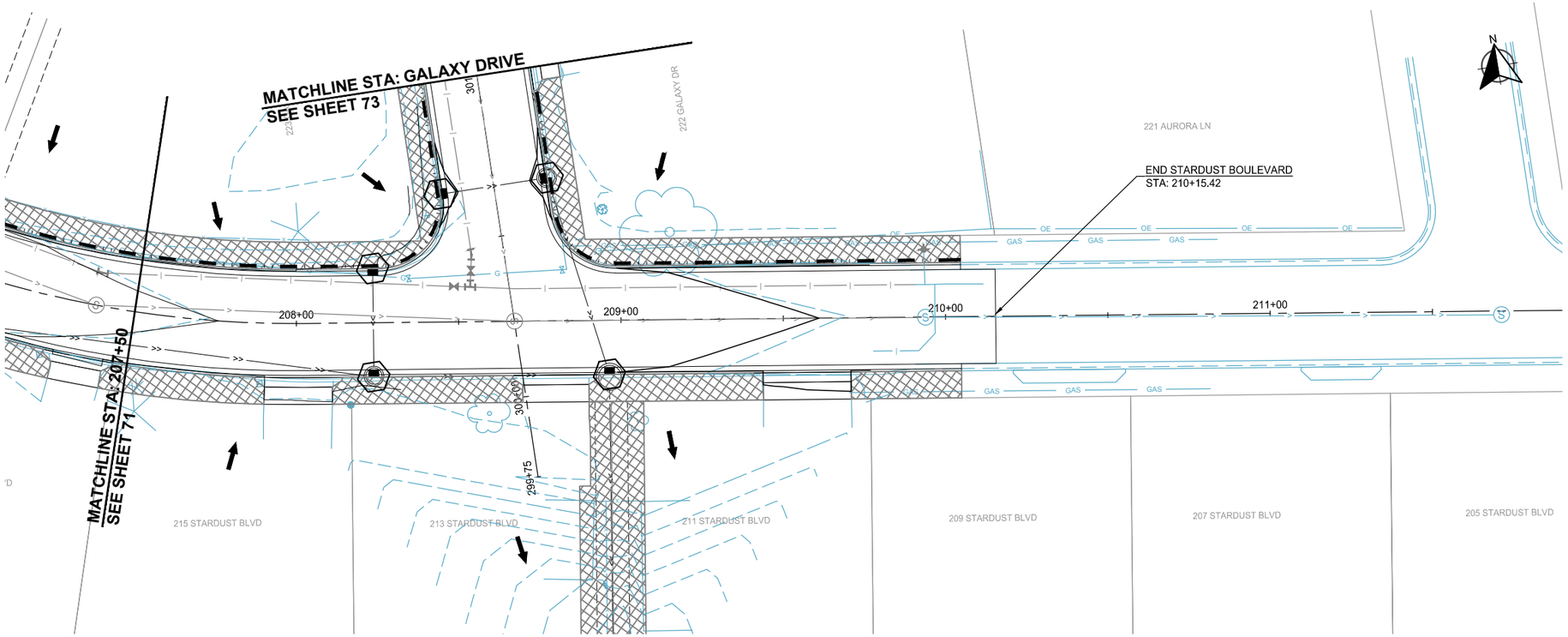

STARDUST BOULEVARD

LOCATION

H: 0 20 40
SCALE IN FEET

LEGEND

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CITY OF CIRCLE PINES

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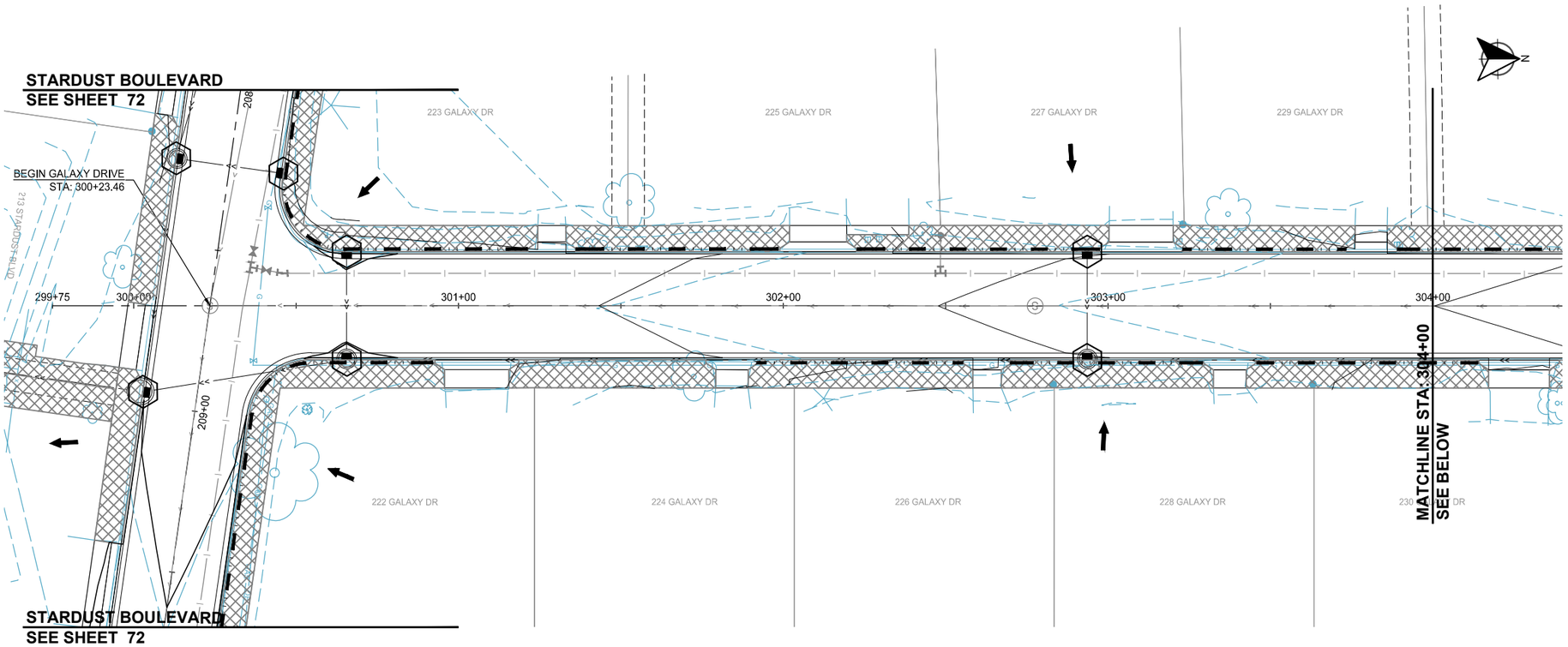
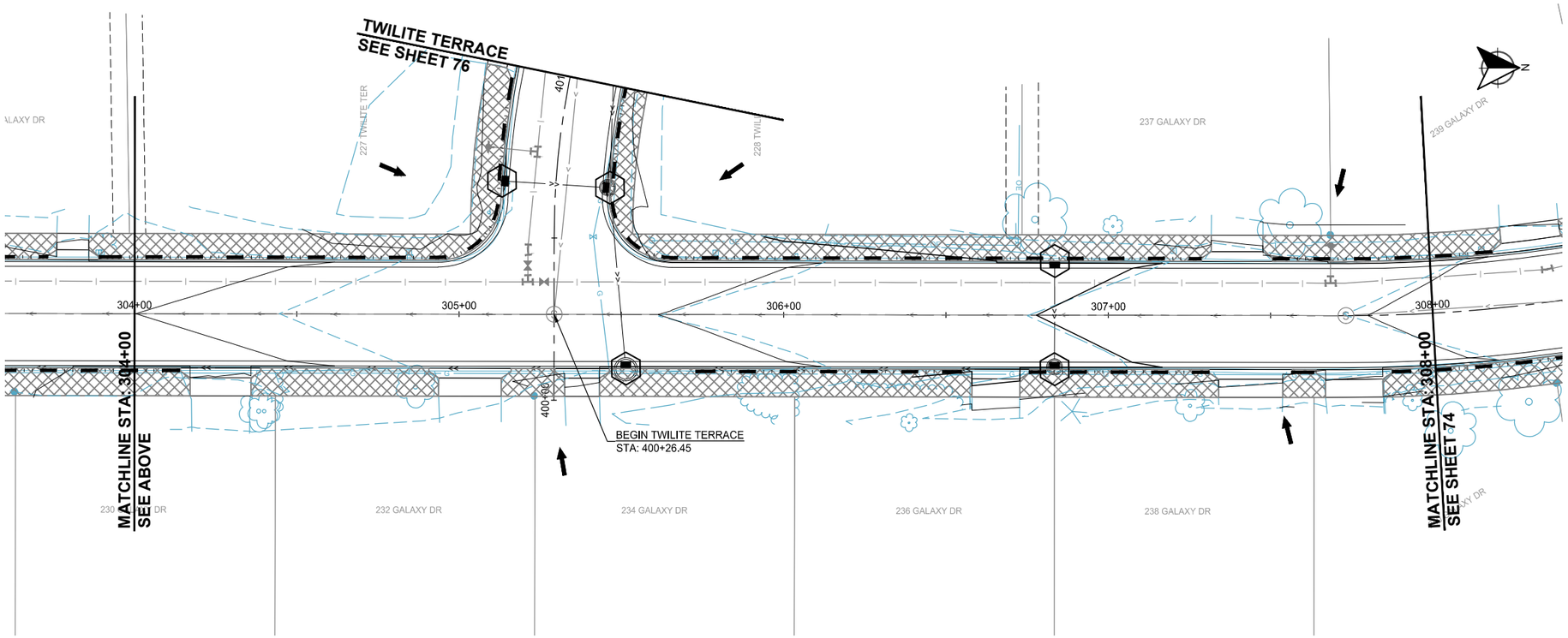


GALAXY DRIVE



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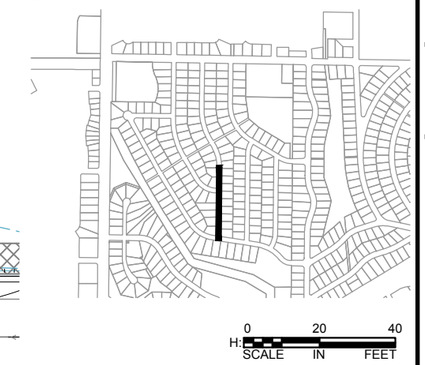

LEGEND

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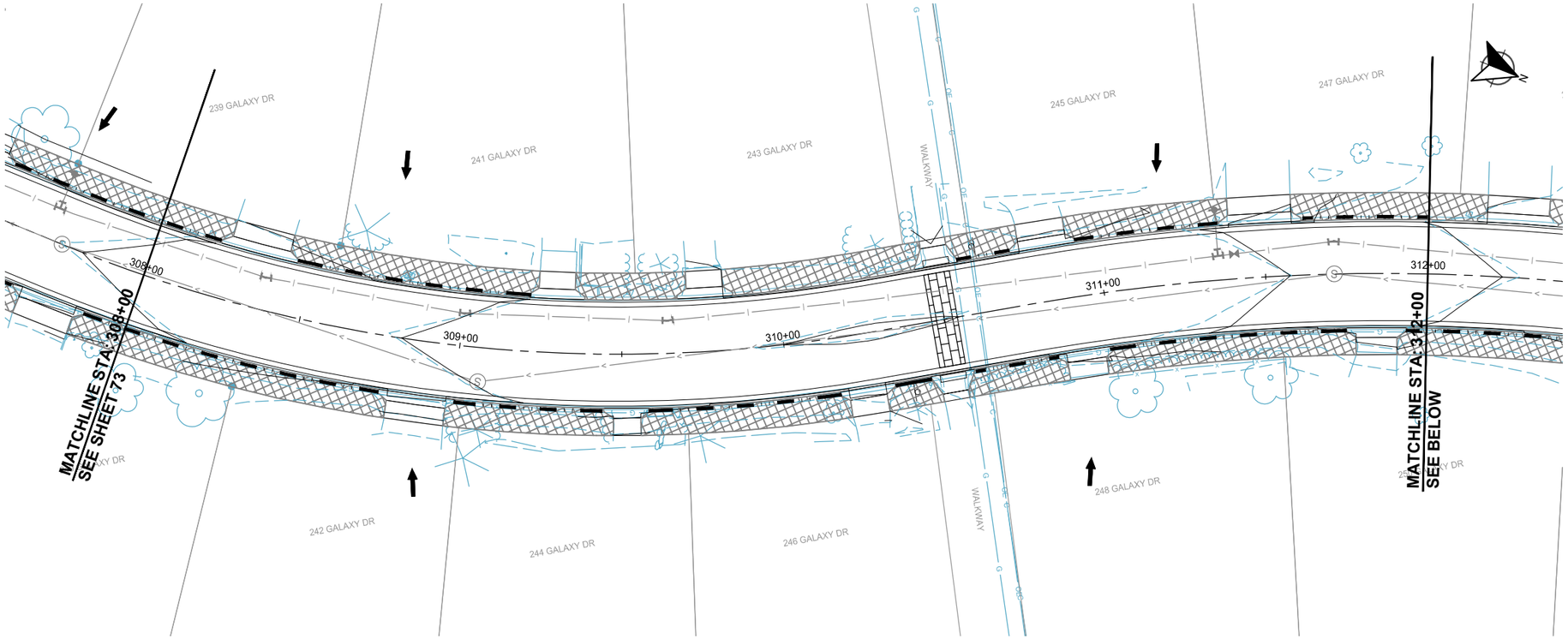

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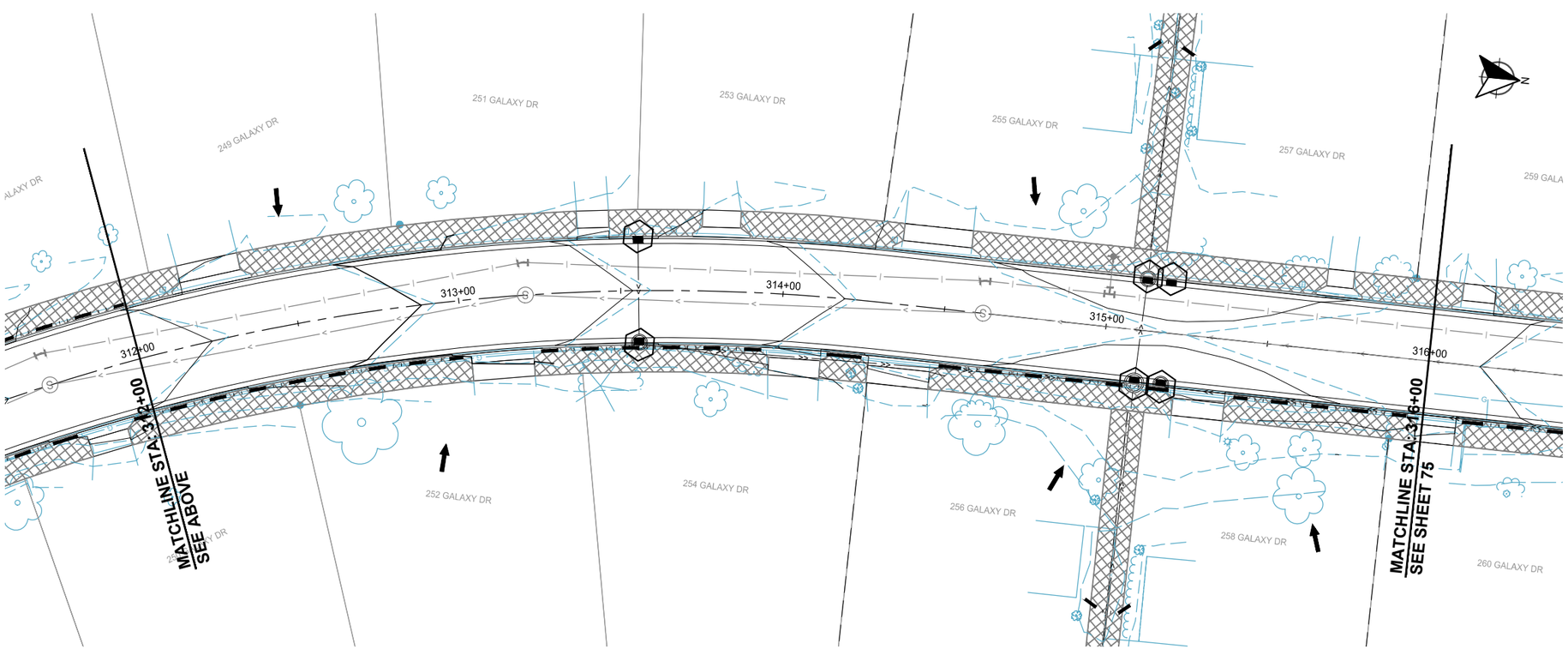

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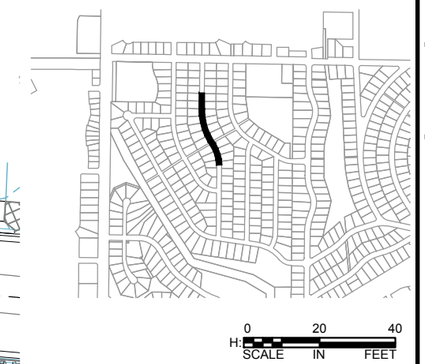

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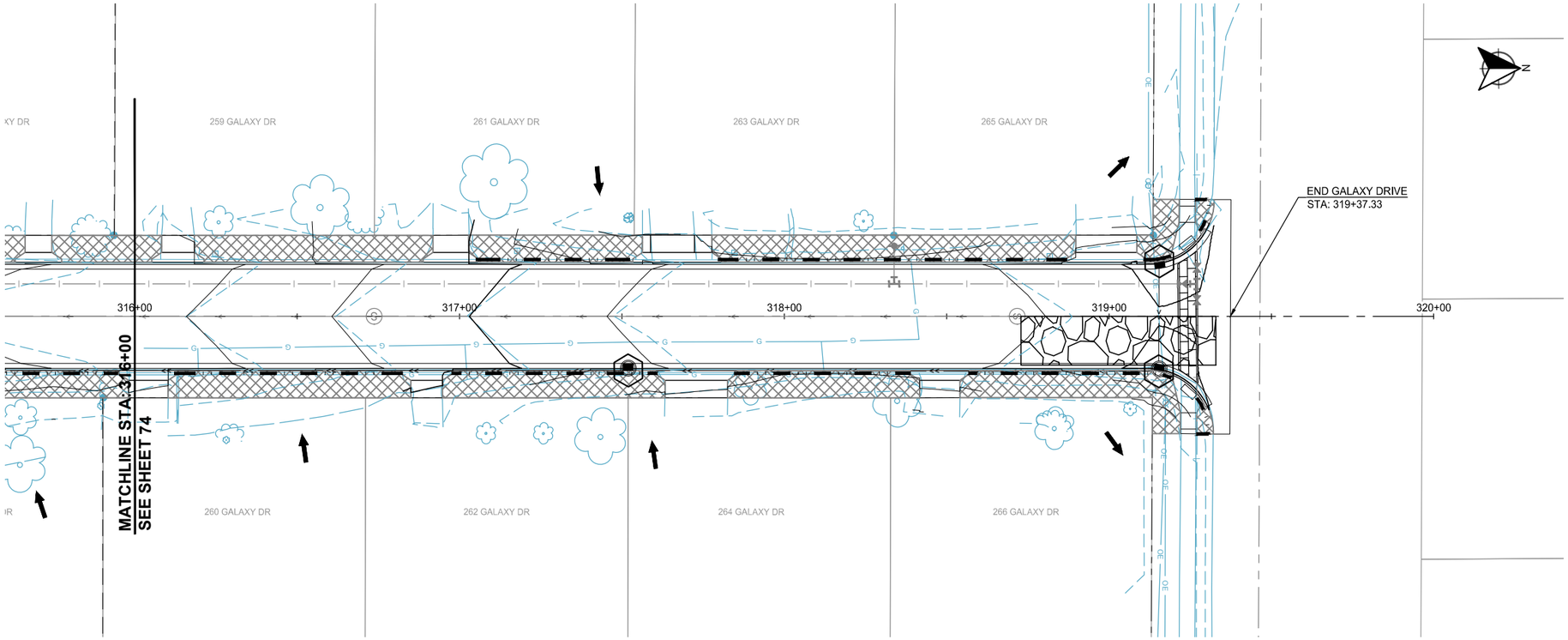

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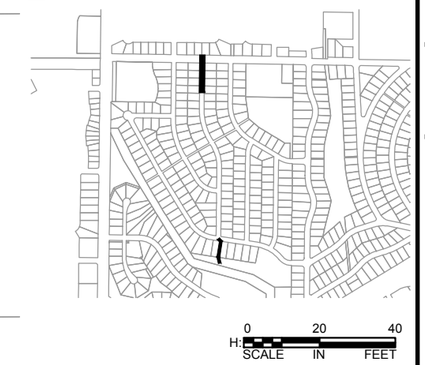
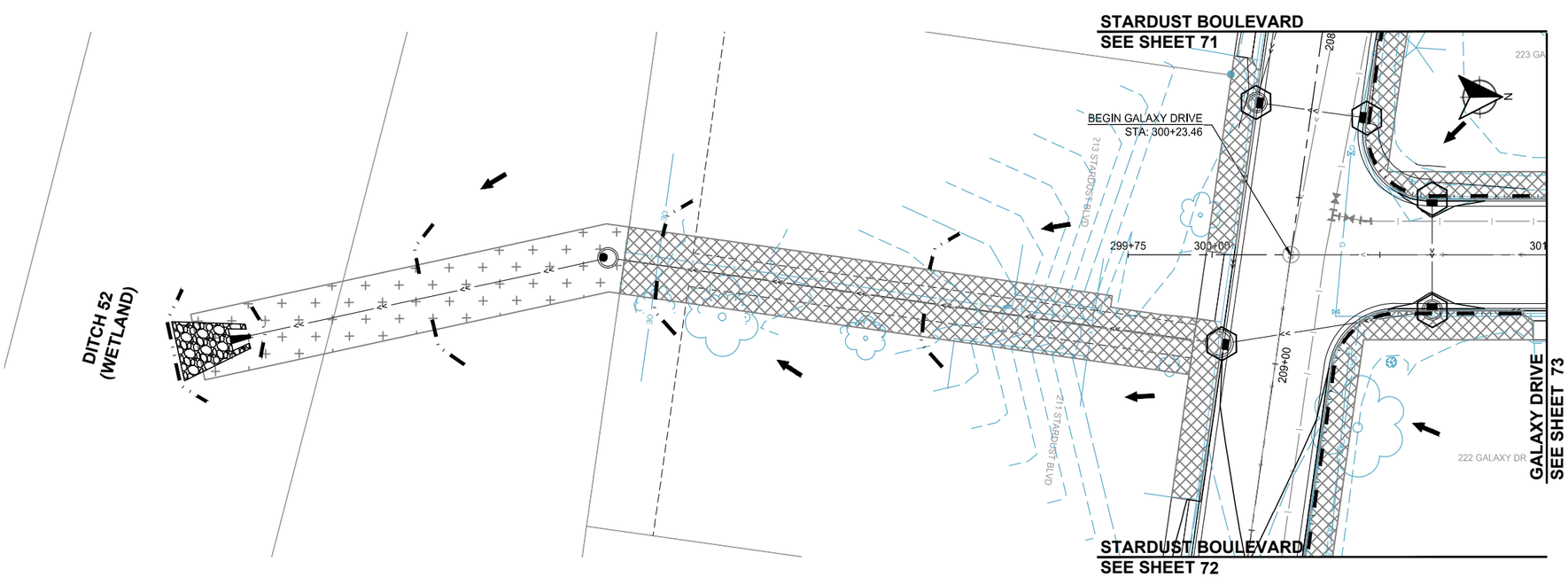
LOCATION





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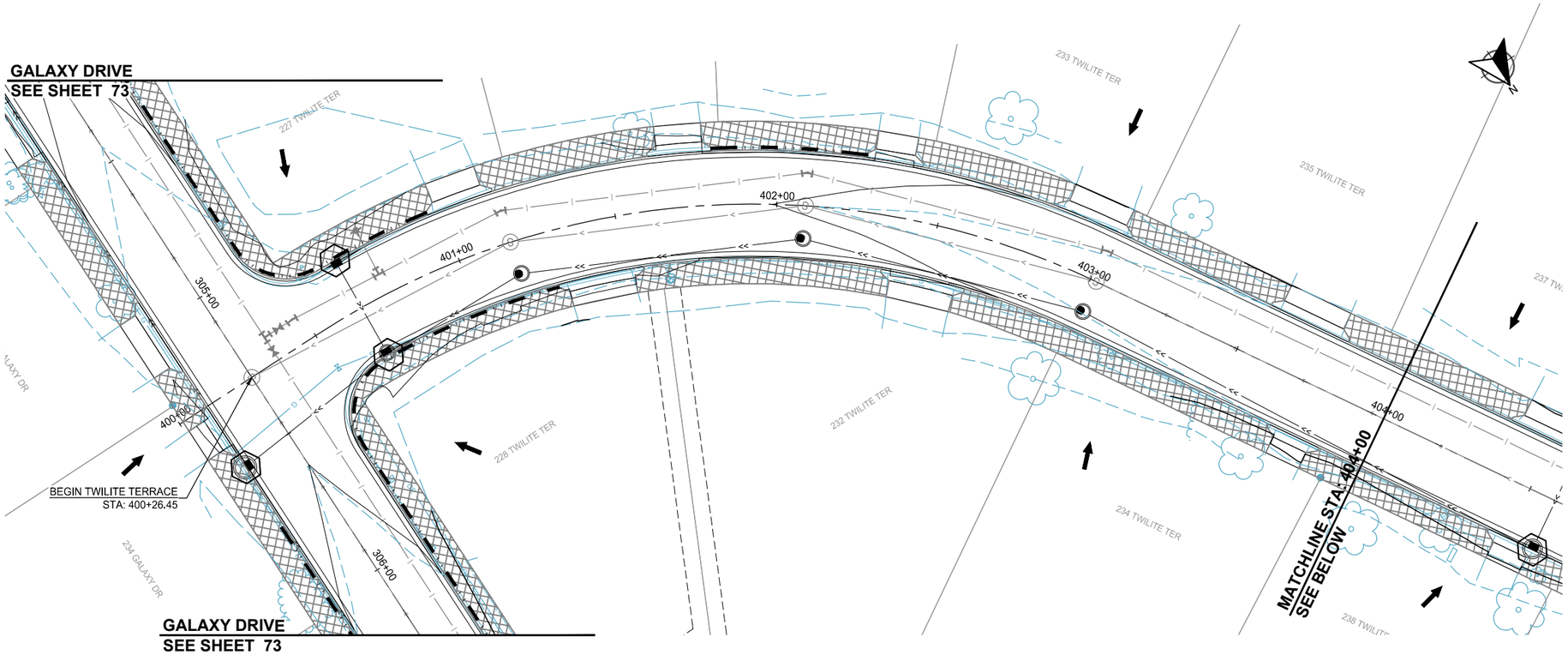

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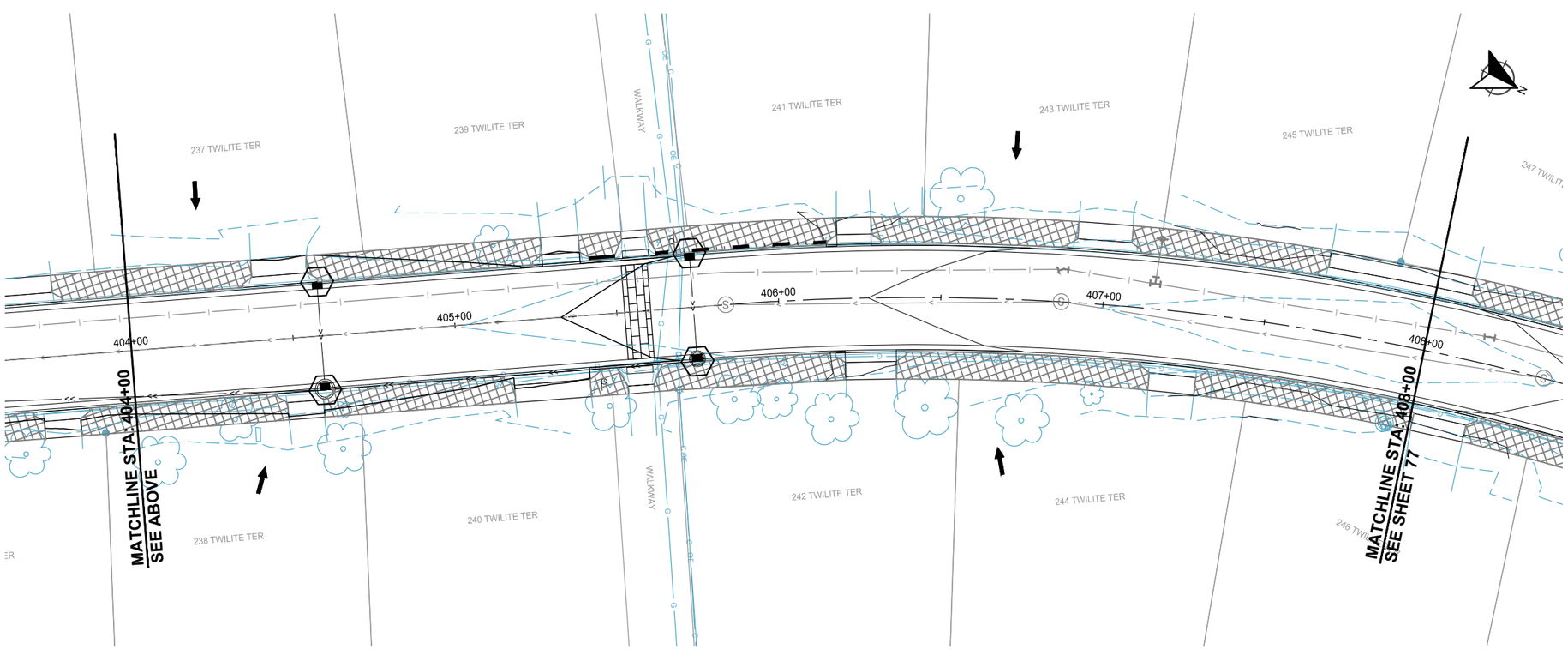

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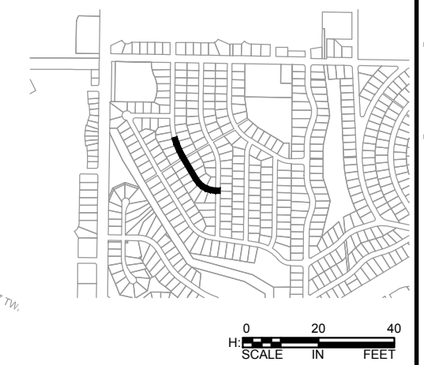

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WSB PROJECT NO.
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SHEET
76 OF 96

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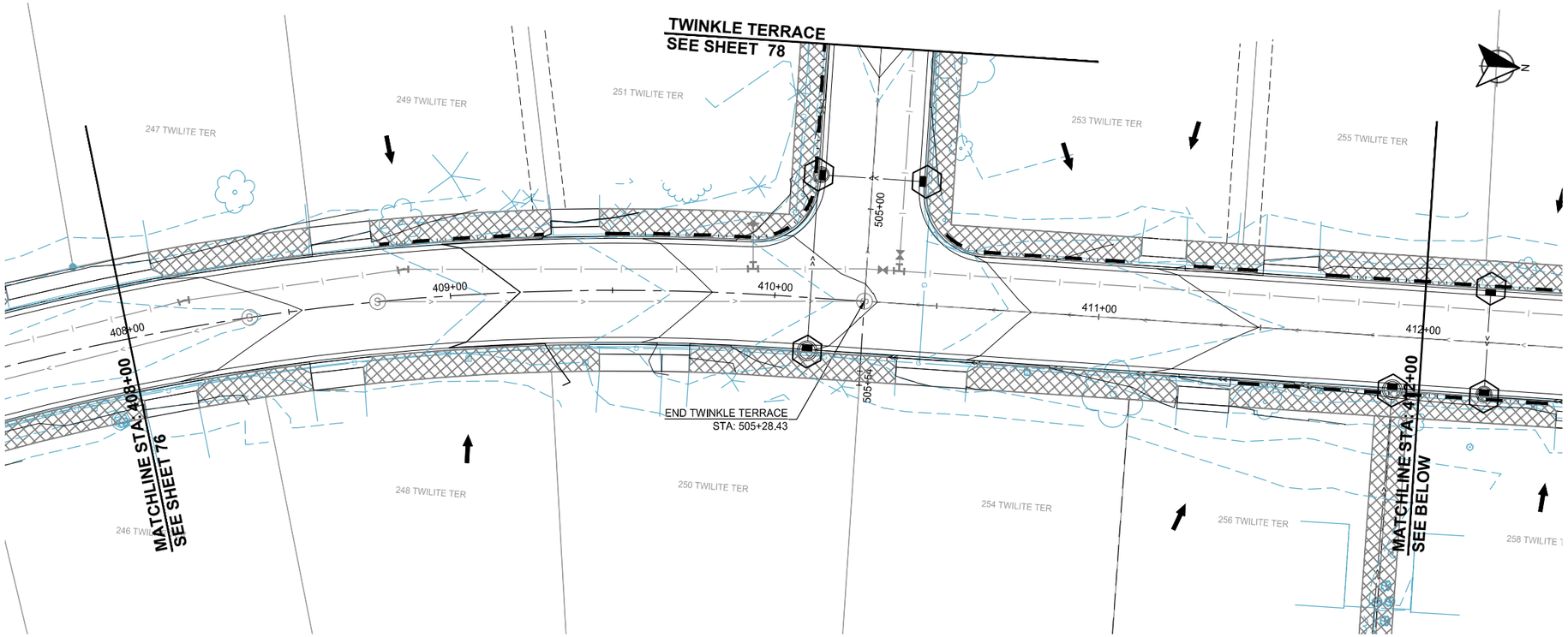
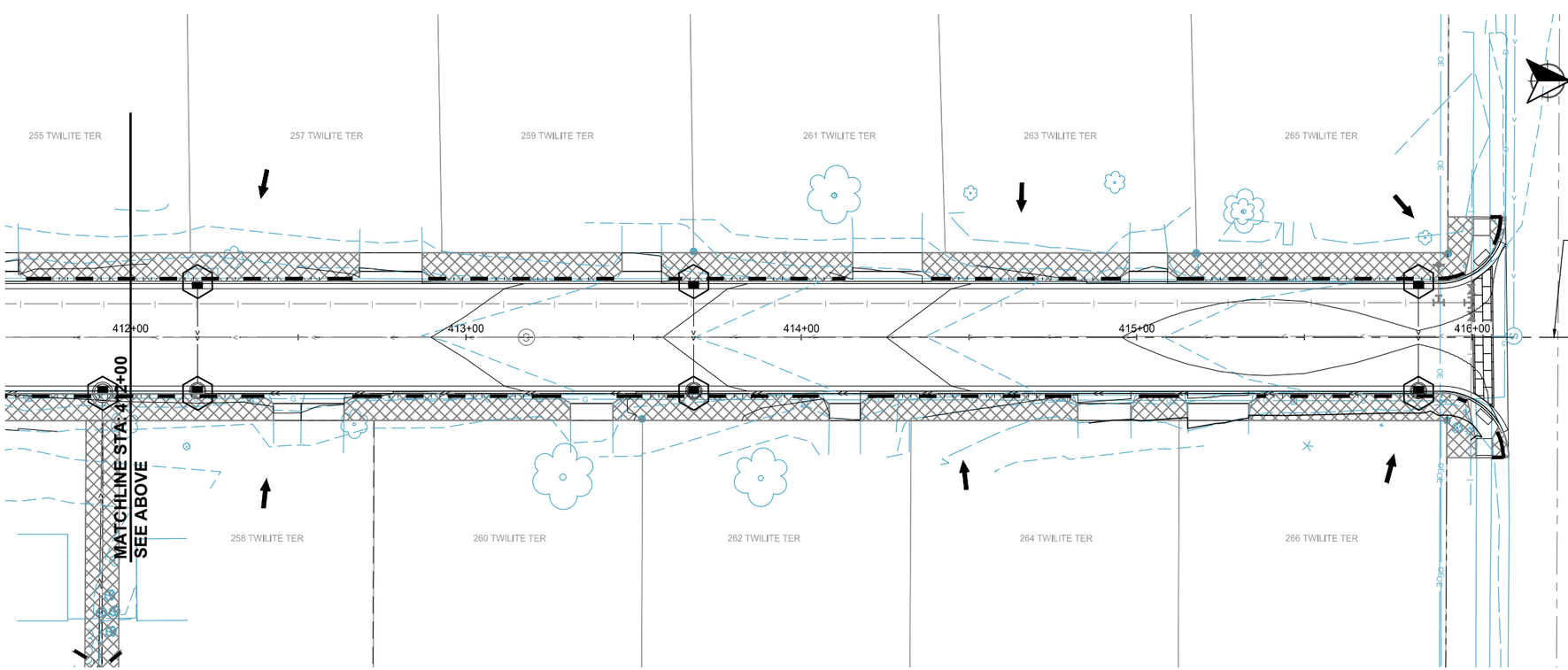


TWILITE TERRACE



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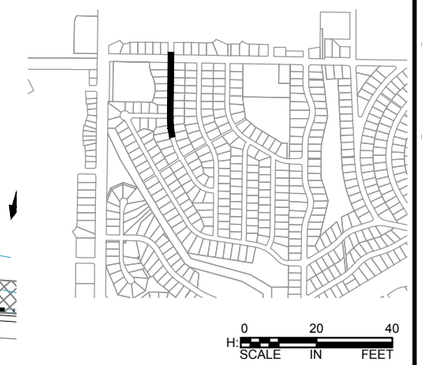

LEGEND

- INLET PROTECTION
- FLOW DIRECTION
- RIP RAP
- WOOD FIBER BIOROLL
- SF — SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY: STABILIZED FIBER MATRIX @ 3000 LB/AC
  PERMANENT: SOD TYPE LAWN WITH FERTILIZER TYPE 3 @ 200 LB/AC
- TEMPORARY: ROLLED EROSION PREVENTION CAT. 20
  PERMANENT: ROLLED EROSION PREVENTION CAT. 20 WITH MNDOT SEED MIX 35-221 @ 36.6 LB/AC AND FERTILIZER TYPE 4 @ 150 LB/AC

wsb

City of Circle Pines

SCALE:	DESIGN BY:
AS SHOWN	GMD
PLAN BY:	CHECK BY:
GMD	EME

REVISIONS

NO.	DATE	DESCRIPTION

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.

GINA M. DULLINGER, P.E.

DATE: 12/14/2021 LIC. NO: 45489

EROSION CONTROL PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO.
017460-000

SHEET
77 OF 96

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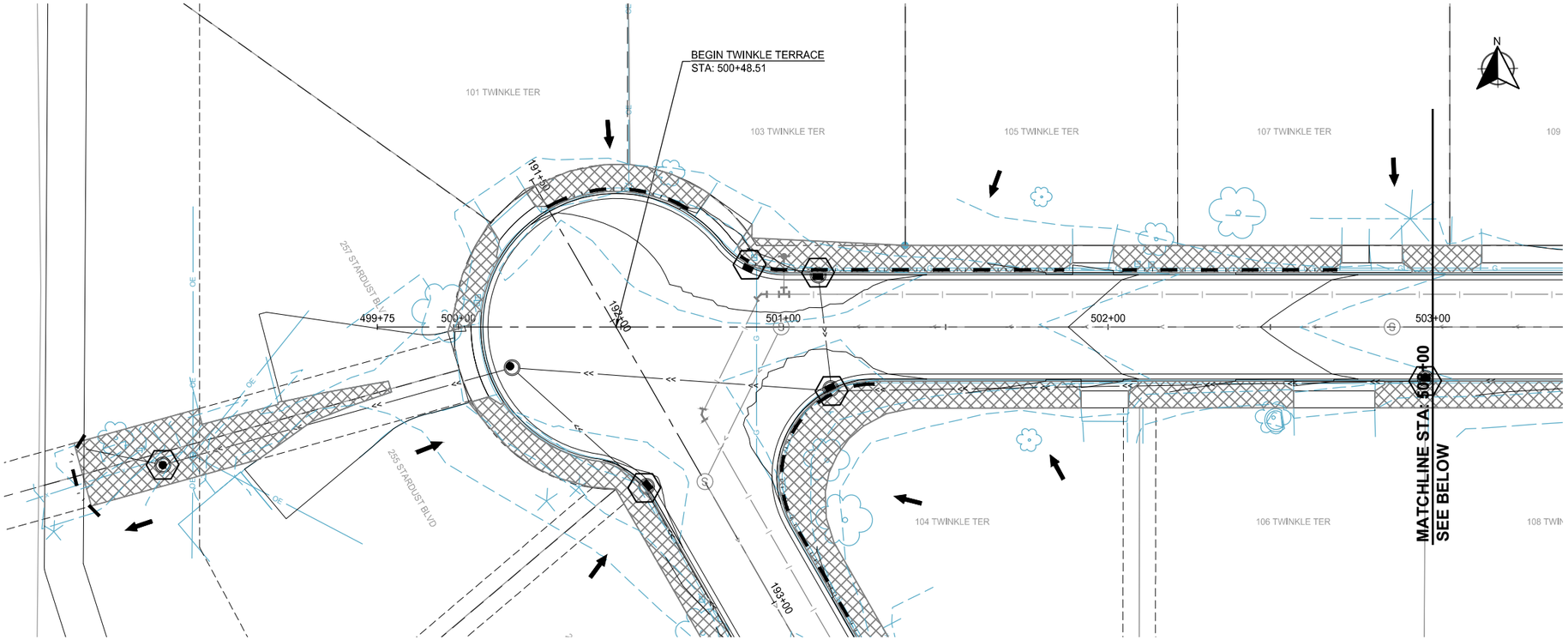

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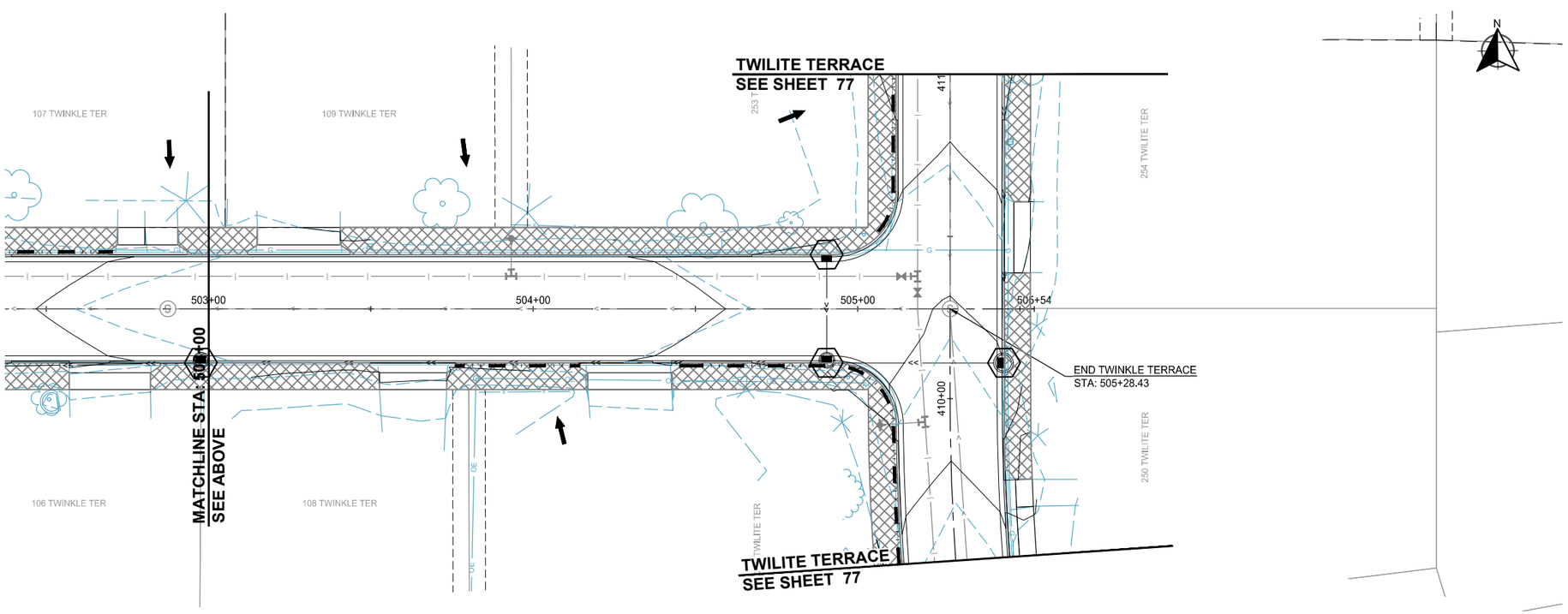

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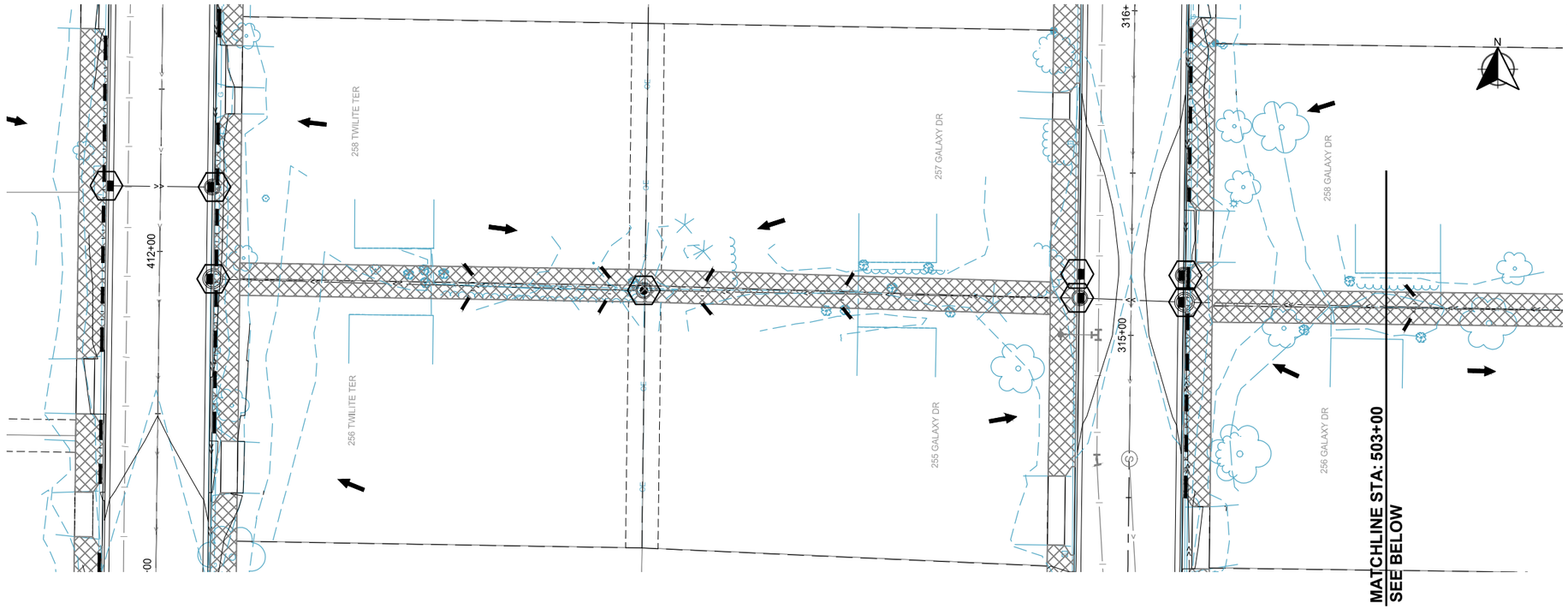
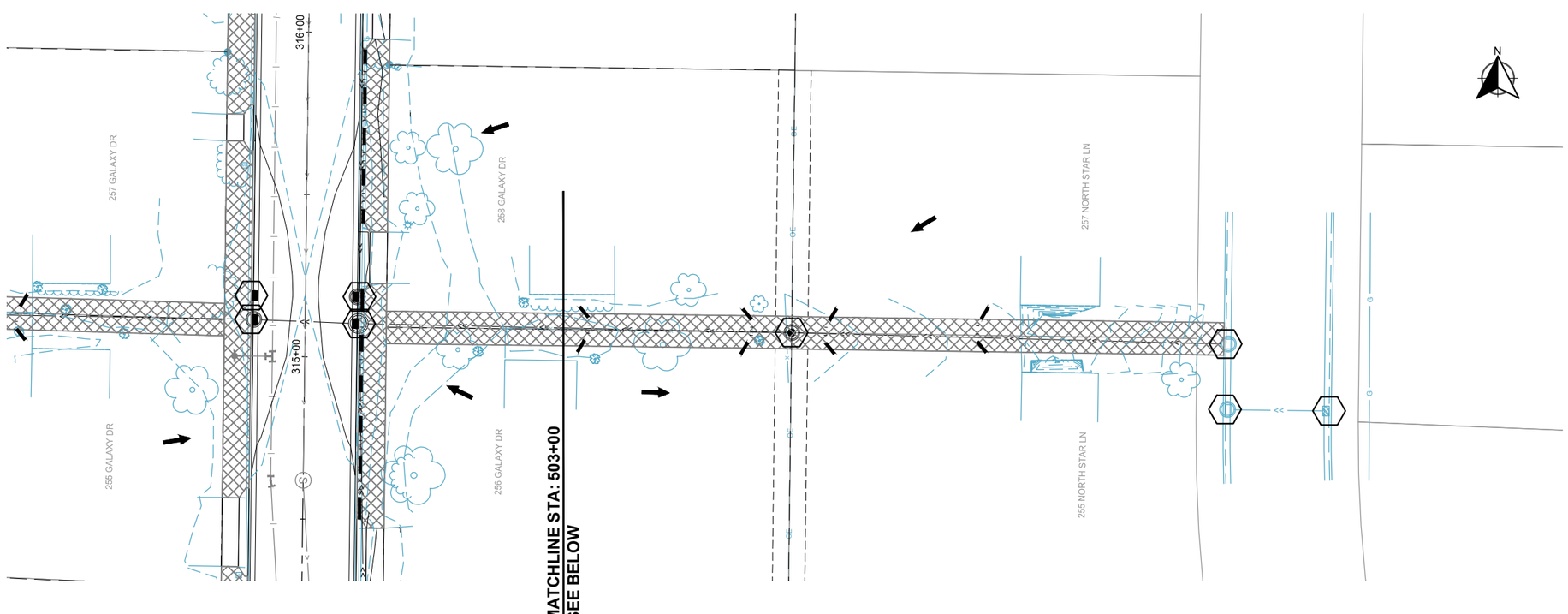


LOCATION

STORM SEWER



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EROSION CONTROL PLANS

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

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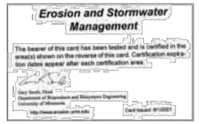
STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

PROJECT NAME: 2022 STREET & UTILITY IMPROVEMENTS **PROJECT NUMBER:** WSB 017460-000
PROJECT LOCATION: STREET: TWILITE TERRACE CITY: CIRCLE PINES COUNTY: ANOKA
STATE: MINNESOTA ZIP: 55014 LATITUDE/LONGITUDE: 45.1515/-93.1606

THE PLANNED SCOPE OF THE PROJECT INCLUDES:
THE CITY OF CIRCLE PINES PROPOSES TO RECONSTRUCT STARDUST BOULEVARD, GALAXY DRIVE, TWILITE TERRACE, AND TWINKLE TERRACE IN CIRCLE PINES, MINNESOTA. ADDITIONAL PROJECT ACTIVITIES WILL INCLUDE CONCRETE CURB AND GUTTER, SANITARY SEWER, WATERMAIN AND STORM SEWER IMPROVEMENTS.

TENTATIVE CONSTRUCTION SCHEDULE (OPERATOR SHOULD PROVIDE ESTIMATED CONSTRUCTION SCHEDULE TO THE ENGINEER)	
CONSTRUCTION ACTIVITIES:	ESTIMATED DATES OF SOIL DISTURBANCE ACTIVITIES:
TEMPORARY SEDIMENT CONTROL BMPS & REMOVALS	MAY 2022
GRADING & UTILITY WORK	MAY - JULY 2022
CURB & PAVEMENT	AUGUST - SEPTEMBER 2022
FINAL STABILIZATION, APPURTENANT WORK	OCTOBER - NOVEMBER 2022

PROJECT PERSONNEL AND TRAINING
SWPPP DEVELOPER:
WSB (MEGHAN LITSEY)
701 XENIA AVE S, SUITE 300
GOLDEN VALLEY, MN 55416
612-723-9166/MLITSEY@WSBENG.COM



CONTRACTOR TO PROVIDE CERTIFICATION OF EROSION CONTROL OFFICER AND ANY OTHER CREW MEMBERS WHO WILL WORK ON THE IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING, AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. PROVIDE PROOF OF CERTIFICATION AT THE PRECONSTRUCTION MEETING. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

CHAIN OF RESPONSIBILITY
THE CITY OF CIRCLE PINES AND THE CONTRACTOR ARE CO-PERMITTEES FOR THE NPDES CONSTRUCTION GENERAL PERMIT. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA.

NAME	ORGANIZATION	TITLE	PHONE
CHANDRA PETERSON	CITY OF CIRCLE PINES	OWNER CONTACT	763-231-2611
	CONTRACTOR TO COMPLETE		

AGENCY CONTACTS

ORGANIZATION	CONTACT NAME	PHONE
MPCA (EMERGENCY) 24 HOUR	STATE DUTY OFFICER	1-800-422-0798
MPCA	SARAH KAMRATH	651-757-2855
RICE CREEK WATERSHED DISTRICT	PATRICK HUGHES	763-398-3080

LOCATION OF SWPPP REQUIREMENTS
THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET AS WELL AS IN THE PROJECT SPECIFICATIONS OR ON FILE WITH THE PROJECT OWNER.

DESCRIPTION	LOCATION
TEMPORARY/PERMANENT EROSION CONTROL MEASURES	SHEET NO. 69-78
DIRECTION OF FLOW	SHEET NO. 49-78
CONSTRUCTION NOTES & STANDARD PLATES	SHEET NO. 12-21
DRAINAGE PLAN & CONSTRUCTION PLAN	SHEET NO. 33-68
BMP TABULATION	SHEET NO. 4-8
STORMWATER CALCULATIONS	DRAINAGE REPORT & HYDRAULIC REPORT. AVAILABLE UPON REQUEST

RECEIVING WATERS
A SPECIAL AND IMPAIRED WATERS SEARCH WAS COMPLETED USING THE MPCA SEARCH ENGINE ON 12/29/2021. BASED ON THIS REVIEW, THE FOLLOWING SPECIAL/IMPAIRED WATERS (WITH CONSTRUCTION RELATED IMPAIRMENTS) ARE LOCATED WITHIN ONE MILE OF, AND DOWNSTREAM OF, ANY PROJECT DISCHARGE POINTS. PARTS 23.9 & 23.10 OF THE NPDES PERMIT APPLY.

WATERBODY	IMPAIRMENT(S)
DITCH (53-62)	N/A
GOLDEN LAKE	NUTRIENTS, MERCURY IN FISH TISSUE

AREAS OF ENVIRONMENTAL SENSITIVITY (AES) AND INFESTED WATERS
THERE IS A MAP OF KNOWN NATURAL RESOURCES ON THE LAST PAGE OF THE SWPPP NARRATIVE. AREAS OF ENVIRONMENTAL SENSITIVITY ARE ALSO CALLED OUT ON THE PLAN SHEETS.

SOIL TYPES
A PROJECT WIDE GEOTECHNICAL REPORT WAS COMPLETED DURING THE DESIGN PHASE. THE BORING PROFILE GENERALLY CONSISTED OF A PAVEMENT SECTION AND FILL MATERIALS OVERLYING NATURALLY DEPOSITED LACUSTRINE SANDS. THE FILL CONSISTED OF SAND WITH SILT AND SAND. THE LACUSTRINE DEPOSITS CONSISTED OF SAND THAT WERE FINE-GRAINED. ADDITIONAL SOIL INFORMATION CAN BE FOUND IN THE GEOTECHNICAL REPORT, LOCATED WITHIN THE PROJECT SPECIFICATIONS. SOIL CLASSIFICATIONS FOR HIGHLY ERODIBLE LAND (HEL), POTENTIALLY HIGHLY ERODIBLE LAND (PHEL), AND NOT HIGHLY ERODIBLE LAND (NHEL) SOILS CAN BE FOUND ON *FIGURE 1. SWPPP RESOURCE MAP*. NATIVE TOPSOIL WILL BE STRIPPED; IF MATERIAL NEEDS TO BE STOCKPILED, APPROPRIATE ACTION WILL TAKE PLACE TO ENSURE THE STOCKPILES HAVE ALL PROPER BMPS IN PLACE ACCORDING TO THIS SWPPP AND THE NPDES PERMIT.

ENVIRONMENTAL REVIEW
NO FORMAL ENVIRONMENTAL REVIEW WAS REQUIRED FOR THIS PROJECT.

WETLANDS: NO WETLAND IMPACTS ARE PROPOSED. ALL WETLAND AREAS WILL BE PROTECTED WITH PERIMETER CONTROL AND A 50' NATURAL BUFFER (IF INFEASIBLE, REDUNDANT PERIMETER CONTROL MEASURES). REDUNDANT BMP MEASURES MUST BE PLACED 5' FROM THE INITIAL PERIMETER CONTROL MEASURE WITH A STABILIZED BUFFER STRIP BETWEEN THE BMPS.

THREATENED/ENDANGERED SPECIES: ANOKA COUNTY LISTS THE NORTHERN LONG-EARED BAT AND MONARCH BUTTERFLY AS THREATENED/ENDANGERED SPECIES WITHIN THE COUNTY. THERE ARE NO CRITICAL HABITATS LOCATED WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS. THEREFORE, IT IS DETERMINED THAT THE PROJECT WILL HAVE NO EFFECT ON THESE SPECIES OR THEIR HABITATS.

DRINKING WATER/WELLS: ACCORDING TO THE MDH, THE PROJECT IS LOCATED IN THE CIRCLE PINES DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA). THE CIRCLE PINES DWSMA IS CLASSIFIED WITH MODERATE VULNERABILITY, AND SPECIAL CARE MUST BE TAKEN DURING CONSTRUCTION TO PREVENT AND IMMEDIATELY RESPOND TO SPILLS.

CONTAMINATED PROPERTIES: THE MPCA'S "WHAT'S IN MY NEIGHBORHOOD" DATABASE WAS REVIEWED ON 12/29/2021. THE RESULTS OF THIS REVIEW SHOW NO KNOWN CONTAMINATED PROPERTIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS. THEREFORE, NO ADDITIONAL STORMWATER-RELATED MITIGATION MEASURES APPLY.

FLOOD CONTINGENCY PLAN: PROJECT ACTIVITIES ARE NOT LOCATED WITHIN THE 100-YEAR FLOODPLAIN OR FLOODWAY; HOWEVER, THE PROJECT ENGINEER (AT THEIR DISCRETION) MAY REQUIRE A PREVENTATIVE FLOOD CONTINGENCY PLAN FOR SPECIFIC PROJECT ACTIVITIES AND AREAS IF SEASONAL PRECIPITATION POSSES A POTENTIAL RISK OF FLOODING WORK AREAS WITHIN THE PROJECT LIMITS. THIS PLAN SHALL BE SUBMITTED BY THE OPERATOR TO THE PROJECT ENGINEER FOR APPROVAL A MINIMUM OF 72 HOURS PRIOR TO THE SCHEDULED WORK AND/OR DURING ACTIVE WORK WITHIN THE AREA OF POTENTIAL RISK OF FLOODING. NO WORK CAN COMMENCE IN THE AREA UNTIL WRITTEN APPROVAL HAS BEEN GRANTED BY THE PROJECT ENGINEER.

FISH EXCLUSION DATES: N/A

AQUATIC INVASIVE SPECIES: N/A

LAND FEATURE CHANGES
TOTAL AREA TO BE DISTURBED = 6.65 ACRES
IMPERVIOUS AREA: PRE-CONSTRUCTION = 5.07 ACRES/POST-CONSTRUCTION = 4.89 ACRES
NET DECREASE OF IMPERVIOUS AREA = 0.18 ACRES

LONG TERM MAINTENANCE AND OPERATION:
THE NPDES PERMANENT STORMWATER TREATMENT SYSTEM (PART 15.1) IS NOT REQUIRED BECAUSE THE NET NEW IMPERVIOUS AREA CREATED BY THE PROJECT IS LESS THAN ONE ACRE.

STABILIZATION TIME FRAMES

AREA	TIME FRAME	NOTES
EXPOSED AREAS	IMMEDIATELY AND NO LATER THAN 7 DAYS OF BEING UNWORKED	1, 4, 5
LAST 200 LINEAL FEET OF DRAINAGE DITCH/SWALE	WITHIN 24 HOURS OF CONNECTION TO SURFACE WATER/PROPERTY EDGE	1, 2, 3
REMAINING PORTIONS OF DRAINAGE DITCH OR SWALE	7 DAYS	1, 3
PIPE AND CULVERT OUTLETS	24 HOURS	
STOCKPILES	7 DAYS	1

1. INITIATE STABILIZATION IMMEDIATELY WHEN CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED ON ANY PORTION OF THE SITE. COMPLETE STABILIZATION WITHIN THE TIME FRAME LISTED. IN MANY INSTANCES THIS WILL REQUIRE STABILIZATION TO OCCUR MORE THAN ONCE DURING THE COURSE OF THE PROJECT. TEMPORARY SOIL STOCKPILES WITHOUT SIGNIFICANT CLAY OR SILT AND STOCKPILED AND CONSTRUCTED ROAD BASE ARE EXEMPT FROM THE STABILIZATION REQUIREMENT.
2. STABILIZE WETTED PERIMETER OF DITCH (I.E. WHERE THE DITCH GETS WET).
3. APPLICATION OF MULCH, HYDROMULCH, TACKIFIER AND POLYACRYLAMIDE ARE NOT ACCEPTABLE STABILIZATION METHODS IN THESE AREAS.
4. STABILIZE ALL AREAS OF THE SITE PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE MULCHED OR BLANKETED WITHIN THE TIME FRAMES IN THE NPDES PERMIT.
5. KEEP DITCHES AND EXPOSED SOILS IN AN EVEN ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES, HYDROMULCHES, AND BLANKETS.

SITE INSPECTION AND MAINTENANCE
THE EROSION CONTROL OFFICER IS TO INSPECT THE ENTIRE CONSTRUCTION SITE AT LEAST ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. THE OPERATOR SHALL PROVIDE A RAINFALL GAUGE ON-SITE AT VARIOUS MILE INTERVALS ALONG THE ALIGNMENT. INSPECT ALL TEMPORARY AND PERMANENT PROJECT BMPS UNTIL THE SITE HAS UNDERGONE FINAL STABILIZATION AND THE NOT HAS BEEN SUBMITTED. INSPECT SURFACE WATER INCLUDING DRAINAGE DITCHES FOR SIGNS OF EROSION AND SEDIMENT DEPOSITION. INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF TRACKING ONTO PAVED SURFACES. INSPECT SURROUNDING PROPERTIES FOR EVIDENCE OF OFF-SITE SEDIMENT ACCUMULATION. ALL INSPECTIONS AND MAINTENANCE CONDUCTED MUST BE RECORDED IN WRITING BY THE OPERATOR AND RETAINED WITH THE SWPPP. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER. RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY SHALL INCLUDE:
A. DATE, TIME, AND NAME OF PERSON(S) CONDUCTING INSPECTIONS;
B. FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS;

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STORM WATER POLLUTION PREVENTION PLAN

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

C. CORRECTIVE ACTIONS TAKEN (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES); INCLUDING DOCUMENTATION/PHOTOS OF IMPLEMENTED BMPS INTENDED TO CORRECT A PROBLEM BUT FAILED.
D. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCHES IN 24 HOURS;
E. DOCUMENTATION OF CHANGES MADE TO THE SWPPP.

REPLACE, REPAIR OR SUPPLEMENT ALL NONFUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY UNLESS LISTED DIFFERENTLY BELOW:
A. REPAIR, REPLACE, OR SUPPLEMENT PERIMETER CONTROL DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE DEVICE. COMPLETE REPAIRS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY.
B. REPAIR OR REPLACE INLET PROTECTION DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE DEVICE.
C. DRAIN AND REMOVE SEDIMENT FROM TEMPORARY AND PERMANENT SEDIMENT BASINS ONCE THE SEDIMENT HAS REACHED 1/2 THE STORAGE VOLUME. COMPLETE WORK WITHIN 72 HOURS OF DISCOVERY.
D. REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. STABILIZE ANY AREAS THAT ARE DISTURBED BY SEDIMENT REMOVAL OPERATIONS. SEDIMENT REMOVAL AND STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF DISCOVERY.
E. REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE WITHIN ONE (1) CALENDAR DAY OF DISCOVERY. STREET SWEEPING MAY HAVE TO OCCUR MORE OFTEN TO MINIMIZE OFF SITE IMPACTS. LIGHTLY WET THE PAVEMENT PRIOR TO SWEEPING.
F. MAINTAIN ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS GONE UNDER FINAL STABILIZATION, AND THE NOT HAS BEEN SUBMITTED TO THE MPCA.

CONSTRUCTION ACTIVITY REQUIREMENTS: EROSION/SEDIMENT CONTROL, PROCEDURES, & MAINTENANCE STANDARDS

1. AMEND THE SWPPP AND DOCUMENT ALL CHANGES TO THE SWPPP AND ASSOCIATED PLAN SHEETS IN A TIMELY MANNER. SWPPP AMENDMENTS AND SITE PLANS WILL BE PREPARED BY THE OPERATOR AND SUBMITTED TO THE OWNER FOR REVIEW AND WRITTEN APPROVAL BY THE PROJECT OWNER (OR DESIGNATED REPRESENTATIVE). STORE THE SWPPP AND ALL AMENDMENTS ON SITE AT ALL TIMES.
2. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR THE ENGINEER'S ACCEPTANCE FOR WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, AREAS IDENTIFIED IN THE PLANS AS "SITE MANAGEMENT PLAN AREA", ANY WORK THAT WILL REQUIRE DEWATERING, ANY ADDITIONAL PLANS LISTED IN THE PROJECT SPECIFICATIONS, AND AS REQUIRED BY THE ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS TO THE ENGINEER IN WRITING. ALLOW A MINIMUM OF 7 DAYS FOR THE PROJECT ENGINEER TO REVIEW AND ACCEPT SITE MANAGEMENT PLAN SUBMITTALS. WORK WILL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE ENGINEER. THERE WILL BE NO EXTRA TIME ADDED TO THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL.
3. THERE IS NO CONSTRUCTION PHASING OR STAGING DEFINED BY THE OWNER FOR THIS PROJECT. THE SCHEDULE FOR INSTALLING TEMPORARY BMPS SHALL BE INCORPORATED INTO THE OPERATOR'S WEEKLY SCHEDULE FOR EACH CONSTRUCTION STAGE AND PRESENTED TO THE OWNER'S REPRESENTATIVE.
4. BURNING OF ANY MATERIAL IS NOT ALLOWED WITHIN PROJECT BOUNDARY.
5. DO NOT DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. DELINEATE AREAS NOT TO BE DISTURBED AND WETLANDS (EVEN AREAS THAT ARE PERMITTED FOR CONSTRUCTION) PRIOR TO STARTING GROUND DISTURBING ACTIVITIES. IF IT BECOMES NECESSARY TO DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS, OBTAIN WRITTEN PERMISSION FROM THE PROJECT ENGINEER PRIOR TO PROCEEDING. PRESERVE ALL NATURAL BUFFERS SHOWN ON THE PLANS.
6. ROUTE STORMWATER AROUND UNSTABILIZED AREAS OF THE SITE WHENEVER FEASIBLE. PROVIDE EROSION CONTROL AND VELOCITY DISSIPATION DEVICES AS NEEDED TO KEEP CHANNELS FROM ERODING AND TO PREVENT NUISANCE CONDITIONS AT THE OUTLET.
7. DIRECT DISCHARGE FROM BMPS TO VEGETATED AREAS WHENEVER FEASIBLE. PROVIDE VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION.
8. LOCATE PERIMETER CONTROL ON THE CONTOUR TO CAPTURE OVERLAND, LOW-VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS. PLACE J-HOOKS AT A MAXIMUM OF 100-FOOT INTERVALS.
9. ALL STOCKPILES MUST HAVE PERIMETER SEDIMENT CONTROLS IMPLEMENTED AND MAINTAINED AT ALL TIMES. PILES CANNOT BE PLACED IN BUFFER AREAS OR SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS, OR CONDUITS AND DITCHES UNLESS THERE IS A BYPASS IN PLACE TO PREVENT STORMWATER RUN-ON INTO THE STOCKPILE.
10. STEEP SLOPES MAY BE TEMPORARILY CREATED DURING GRADING OPERATIONS. STABILIZATION OF STEEP SLOPES (3:1 OR GREATER) SHALL BE PROPERLY CAT-TRACKED AND STABILIZED PER THE EROSION CONTROL PLAN. LONG SLOPES CAN BE BROKEN UP WITH SEDIMENT CONTROL LOGS IF EROSION IS EVIDENT.
11. DITCH CHECKS WILL BE PLACED AS INDICATED ON THE PLANS DURING ALL PHASES OF CONSTRUCTION.
12. ALL STORM DRAIN INLETS, THAT RECEIVE PROJECT STORMWATER, MUST BE PROTECTED BY APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED. INLET PROTECTION MAY BE REMOVED FOR A PARTICULAR INLET IF A SPECIFIC SAFETY CONCERN (STREET FLOODING/FREEZING) HAS BEEN IDENTIFIED AND THE PERMITTEE(S) HAS RECEIVED WRITTEN CORRESPONDENCE FROM THE JURISDICTIONAL AUTHORITY VERIFYING THE NEED FOR REMOVAL. WRITTEN CORRESPONDENCE MUST BE DOCUMENTED IN THE SWPPP.
13. SILT FENCE IS NOT AN ACCEPTABLE CATCH BASIN INLET PROTECTION BMP. CONTACTOR SHALL CLEAN, REMOVE AND DISPOSE OF SEDIMENT, AND/OR REPLACE STORM DRAIN INLET PROTECTION ON A ROUTINE BASIS TO ENSURE THE DEVICE IS FULLY FUNCTIONAL PRIOR TO THE NEXT FORECASTED PRECIPITATION EVENT (30% OR GREATER).
14. DISCHARGE TURBID OR SEDIMENT LADEN WATER TO TEMPORARY SEDIMENT BASINS WHENEVER FEASIBLE. IN THE EVENT THAT IT IS NOT FEASIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN, THE WATER MUST BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO DOWNSTREAM LANDOWNERS. CLEAN OUT ALL PERMANENT STORMWATER BASINS REGARDLESS OF WHETHER USED AS TEMPORARY SEDIMENT BASINS/TRAPS TO THE DESIGN CAPACITY AFTER COMPLETING ALL UP-GRADIENT LAND DISTURBING ACTIVITY. USE A SKIMMER DEVICE FOR BASIN DRAINING.
15. PROVIDE STABILIZATION IN ANY TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES.
16. THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN AND NARRATIVE TO THE PROJECT ENGINEER FOR APPROVAL 7 DAYS PRIOR TO UNDERTAKING THESE ACTIVITIES. DEWATERING PLAN MUST INCLUDE BMP'S TO PREVENT SEDIMENT TRANSPORT, EROSION, AND ADVERSE IMPACTS TO DOWNSTREAM RECEIVING WATERS. THE DEWATERING PLAN MUST ALSO INCLUDE ANY SPECIFIC CHEMICAL TREATMENTS (FLOC, POLYMERS, ETC.) THAT WILL BE USED. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ANY PERMIT NECESSARY FOR THESE ACTIVITIES; THE DEWATERING PLAN AND DNR APPROPRIATIONS PERMIT WILL BECOME PART OF THE SWPPP.

TEMPORARY & PERMANENT EROSION CONTROL BMPS

SEED MIX: SEED MIX SHALL BE USED IN CONSTRUCTION AND REVEGETATION PROJECTS IN ORDER TO ENHANCE SOIL NUTRIENT AVAILABILITY AND BIOLOGICAL SOIL STRUCTURE, ENCOURAGE NATIVE PLAN SUCCESSION, REDUCE EROSION, AND DISCOURAGE INVASIVE PLANT SPECIES. INOCULATION OF SOILS WITH MYCORRHIZAL FUNGI OR THE PRESENCE OF PRE-EXISTING SOIL MICROBES IS ESSENTIAL FOR THE STABILIZATION OF ADVERSE SOILS, ESTABLISHMENT OF NATIVE GRASSES, AND THE EXCLUSION OF NON-NATIVE "ANNUALS" AND NOXIOUS WEEDS.

EROSION CONTROL BLANKET: EROSION CONTROL BLANKETS (ECBS) ARE A SOIL STABILIZATION (EROSION CONTROL) BMP, INTENDED TO PROTECT DISTURBED SOIL SURFACES FROM RAINDROP IMPACT EROSION. ECBS ARE CARPET-LIKE MATS, INSTALLED OVER AND ANCHORED TO THE PROPERLY PREPARED SOIL SURFACES. PROPERLY SELECTED AND INSTALLED, ECBS CAN MIMIC THE BENEFICIAL EFFECTS OF VEGETATIVE COVER THEREBY REDUCING EROSION RATES BY OVER 90%. ECBS ALSO PROTECT SEEDS AND PROVIDE A BENEFICIAL ENVIRONMENT FOR VEGETATION TO BECOME ESTABLISHED. CONTRACTOR SHALL VERIFY DURING REGULAR INSPECTIONS THAT NO GULLIES, RILLS, OR SCOUR HOLES HAVE FORMED UNDER EROSION CONTROL BLANKETS AND MATS AND CORRECT ALL ERODED AREAS WITHIN 7 or 14 DAYS. ALL REPAIRS MUST BE COMPLETED WITHIN 24 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.

HYDRAULIC MATRICES: HYDRAULIC MATRICES ARE EROSION CONTROL PRODUCTS THAT ARE USED TO STABILIZE EXPOSED SOILS. THESE MATRICES ARE APPLIED IN A SLURRY, PRODUCED BY MIXING FIBER, WATER AND A BINDING AGENT TOGETHER IN A MECHANICAL HYDRO-SEEDER. WOOD FIBER IS WIDELY USED BUT OTHER FIBERS CAN INCLUDE PAPER, STRAW, COIR, CORN, ETC. THE EFFECTIVENESS OF THESE HYDRAULIC MATRICES ARE DEPENDENT ON:
- PROPER SOIL PREPARATION
- APPLICATION RATES (DEPENDENT ON THE MANUFACTURERS RECOMMENDATIONS)
- THE TYPE OF FIBERS USED
- THE TYPE OF BOND AGENT(S) ADDED

THESE HYDRAULIC MATRICES ARE CLASSIFIED IN THE MNDOT SPEC BOOK AND APPROVED PRODUCTS LIST, DEPENDING ON THE PRODUCT CHARACTERISTICS, STRENGTH, AND LONGGEVITY. HYDRAULIC MATRICES USED INCLUDE: ORGANIC FIBER MATRIX, HYDRAULIC MULCH MATRIX, STABILIZED FIBER MATRIX, BONDED FIBER MATRIX, AND FIBER REINFORCED MATRIX.

SOD TYPE LAWN: SOD IS A PERMANENT EROSION PREVENTION BMP THAT PROVIDES INSTANTANEOUS SOIL STABILIZATION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF SOD AS OUTLINED IN THE PROJECT SPECIFICATIONS.

ENERGY DISSIPATER: AN ENERGY DISSIPATER IS A STRUCTURE DESIGNED TO CONTROL EROSION AT THE OUTLET OF A CHANNEL OR CONDUIT.

TEMPORARY & PERMANENT SEDIMENT CONTROL BMPS

SEDIMENT CONTROL LOGS: SEDIMENT CONTROL LOGS ARE MANUFACTURED FROM STRAW, WOOD EXCELSIOR, COCONUT FIBERS, AND/OR OTHER MATERIALS THAT ARE BOUND WITH POLYPROPYLENE OR BIODEGRADABLE NETTING INTO TIGHT TUBULAR ROLLS. FIBER ROLLS CONTROL THREE TYPES OF EROSIONAL PROCESSES; EROSION CONTROL, RUN OFF CONTROL, AND SEDIMENT CONTROL. SEDIMENT CONTROL LOGS CAN BE USED FOR THE FOLLOWING:
- SLOPE INTERRUPTERS TO REDUCE EROSION ON NEWLY CONSTRUCTED SLOPES
- TEMPORARY DITCH CHECKS TO REDUCE RUNOFF VELOCITIES IN DRAINAGE CHANNELS
- SEDIMENT CONTROL BARRIERS FOR SMALL DISTURBED SOIL AREAS SUCH AS STOCKPILES, DISCRETE SLOPES, OR INDIVIDUAL LOTS

TEMPORARY SEDIMENTATION BASINS: WHERE 5 OR MORE ACRES OF DISTURBED SOIL DRAIN TO A COMMON LOCATION, A TEMPORARY SEDIMENT BASIN MUST BE PROVIDED PRIOR TO RUNOFF LEAVING THE CONSTRUCTION SITE OR ENTERING SURFACE WATERS. ALL TEMPORARY BASINS SHALL BE CONSTRUCTED AND OPERATIONAL PRIOR TO GRADING 5 OR MORE ACRES. BASINS MUST PROVIDE A LIVE STORAGE VOLUME FROM A 2-YEAR 24-HOUR STORM EVENT FROM EACH ACRE (DISTURBED AND UNDISTURBED) DRAINING TO THE BASIN. AT A MINIMUM, IF CALCULATIONS ARE NOT PERFORMED THE BASIN SHALL PROVIDE 3,600 CUBIC FEET OF LIVE STORAGE FROM EACH ACRE. THE BASIN INTAKE MUST BE DESIGNED TO WITHDRAW WATER FROM THE SURFACE, PREVENT SHORT CIRCUITING AND THE DISCHARGE OF FLOATING DEBRIS, INCLUDE AN EMERGENCY OVERFLOW ABOVE THE LIVE STORAGE ELEVATION, AND PROVIDE ENERGY DISSIPATION AT THE BASIN OUTLET. BASINS MUST BE DRAINED AND SEDIMENT REMOVED WHEN THE DEPTH OF COLLECTED SEDIMENT IN THE BASIN REACHES 1/2 THE LIVE STORAGE VOLUME. DRAINAGE AND REMOVAL MUST BE COMPLETED WITHIN 72 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS. IF A BASIN IS INFEASIBLE WITHIN THE PROJECT LIMITS, EQUIVALENT SEDIMENT CONTROL BMPS MUST BE IMPLEMENTED AND DOCUMENTED IN THE SWPPP OR SWPPP AMENDMENT.

STABILIZED CONSTRUCTION EXIT: TEMPORARY CONSTRUCTION EXITS ARE CONSTRUCTED AT THE EGRESS POINT FROM THE CONSTRUCTION AREA ONTO A PAVED ROAD. A STABILIZED CONSTRUCTION EXIT IS A TRACKING CONTROL BMP INTENDED TO PREVENT TRACKING OF SOIL FROM THE CONSTRUCTION SITE BY EQUIPMENT AND VEHICLES. THE EXITS ARE CONSTRUCTED OF LARGE ANGULAR ROCK, STEEL RIBS (RUMBLE STRIPS), OR TRACK PADS INTENDED TO KNOCK THE MUD OFF THE TIRES BEFORE TRAVELING ONTO THE ROADWAY.

CHEMICAL TREATMENTS: OPERATOR MUST AMEND THE SWPPP TO INCLUDE THE INTENDED USES AND LOCATIONS OF FLOCCULANTS, POLYMERS, AND OTHER SEDIMENTATION TREATMENT CHEMICALS. CHEMICAL TREATMENTS MUST BE IN COMPLIANCE WITH PART 9.18.

DUST CONTROL: OPERATOR WILL COMPLY WITH STATE RULE 7011.0150 ON DUST PREVENTION REQUIREMENTS. DUST FROM THE SITE WILL BE CONTROLLED BY INCREASED STREET SWEEPING AND/OR USING A MOBILE PRESSURE-TYPE DISTRIBUTOR TRUCK TO APPLY POTABLE WATER TO DISTURBED AREAS. THE MOBILE UNIT WILL APPLY WATER AT A RATE NECESSARY TO PREVENT RUNOFF AND PONDING.

POLLUTION PREVENTION MANAGEMENT

POTENTIAL SOURCES OF POLLUTANTS FROM CONSTRUCTION ACTIVITIES INCLUDE, BUT NOT LIMITED TO:
1. SEDIMENT AND FUGITIVE DUST GENERATED FROM IMPORT/EXPORT OPERATIONS, REMOVALS/COMPACTION, MASS/FINE GRADING, EXCAVATIONS, TRENCHING, TOPSOIL STRIPING STOCKPILING, WET/DRY PAVEMENT CUTTING, STREET CONSTRUCTION.
2. BASIC/ACIDIC PH LEVELS FROM CURB AND GUTTER, MANHOLE STRUCTURES, SIDEWALKS, DRIVEWAY APRONS, WET/DRY PAVEMENT CUTTING, MASONRY WASHOUT/CLEANOUT.
3. EXCESS NUTRIENTS FROM LANDSCAPING INSTALLATIONS, SOIL ADDITIVES, FERTILIZATION, MULCHING.
4. HYDROCARBONS FROM STREET CONSTRUCTION, DEMOLITION/REMOVALS, WET/DRY PAVEMENT CUTTING.

OPERATOR WILL COMPLY WITH ALL OF THE POLLUTION PREVENTION AND MANAGEMENT MEASURES IDENTIFIED IN THE NPDES-CSW PERMIT, PART 12.1. STORAGE AND DISPOSAL OF CONSTRUCTION AND HAZARDOUS WASTES MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.
A. POSITION AND STAKE DOWN ALL PORTABLE TOILETS SO THEY CANNOT BE TIPPED OR KNOCKED OVER. SUPPLY ADEQUATE SECONDARY CONTAINMENT.
B. SECONDARY CONTAINMENT IS NEEDED AROUND ALL STATIONARY EQUIPMENT (GENERATORS, PUMPS, LIGHT PLANTS, ETC.) PROVIDE CONTAINMENT FOR ALL HAZARDOUS MATERIALS AND TOXIC WASTE.

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STORM WATER POLLUTION PREVENTION PLAN

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

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C. NO ENGINE DEGREASING IS ALLOWED ON SITE.
D. VEHICLE AND EQUIPMENT WASHING TO OCCUR IN DESIGNATED AREA AS DETERMINED BY THE CONTRACTOR SUBMITTAL OF A MANAGEMENT PLAN FOR THESE ACTIVITIES.
E. PROPERLY CLEAN UP AND REPORT ALL SPILLS AS REQUIRED BY THE MPCA AND MNDOT SPECIFICATIONS.
F. PROVIDE A SPILL KIT AT EACH WORK LOCATION ON THE SITE.
G. PROVIDE A SECURE STORAGE AREA WITH RESTRICTED ACCESS FOR ALL HAZARDOUS MATERIALS AND TOXIC WASTE. RETURN ALL HAZARDOUS MATERIALS AND TOXIC WASTE TO THE DESIGNATED STORAGE AREA AT THE END OF THE BUSINESS DAY UNLESS INFEASIBLE. STORE ALL HAZARDOUS MATERIALS AND TOXIC WASTE (INCLUDING BUT NOT LIMITED TO OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT, PETROLEUM BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) IN SEALED CONTAINERS WITH SECONDARY CONTAINMENT. CLEAN UP SPILLS IMMEDIATELY. STORE, COLLECT AND DISPOSE OF ALL SOLID WASTE.
H. SLURRY FROM CONCRETE OPERATIONS MUST BE VACUUMED UP IMMEDIATELY. NO CONCRETE WASHOUT SHALL COME IN CONTACT WITH THE GROUND AND MUST BE PROPERLY DISPOSED OF.
I. A SIGN MUST BE INSTALLED ADJACENT TO EACH CONCRETE WASHOUT FACILITY.
J. CREATE AND FOLLOW A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS. INCLUDE IN THE PLAN HOW THE MATERIAL WILL BE DISPOSED OF AND THE LOCATION OF THE DISPOSAL SITE. SUBMIT PLAN TO THE ENGINEER PRIOR TO CONSTRUCTION.
K. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS AND FROM ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.

FINAL STABILIZATION

FINAL STABILIZATION IS ACHIEVED WHEN NPDES CGP PARTS 13.1-13.7 (AS APPLICABLE) ARE COMPLETED PRIOR TO SUBMISSION OF THE NOTICE OF TERMINATION (NOT) TO MPCA.
1. ALL AREAS MUST BE STABILIZED WITH A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70%.
2. ALL TEMPORARY SEDIMENT CONTROL BMP MEASURES MUST BE REMOVED PRIOR TO SUBMITTING PERMIT NOT.

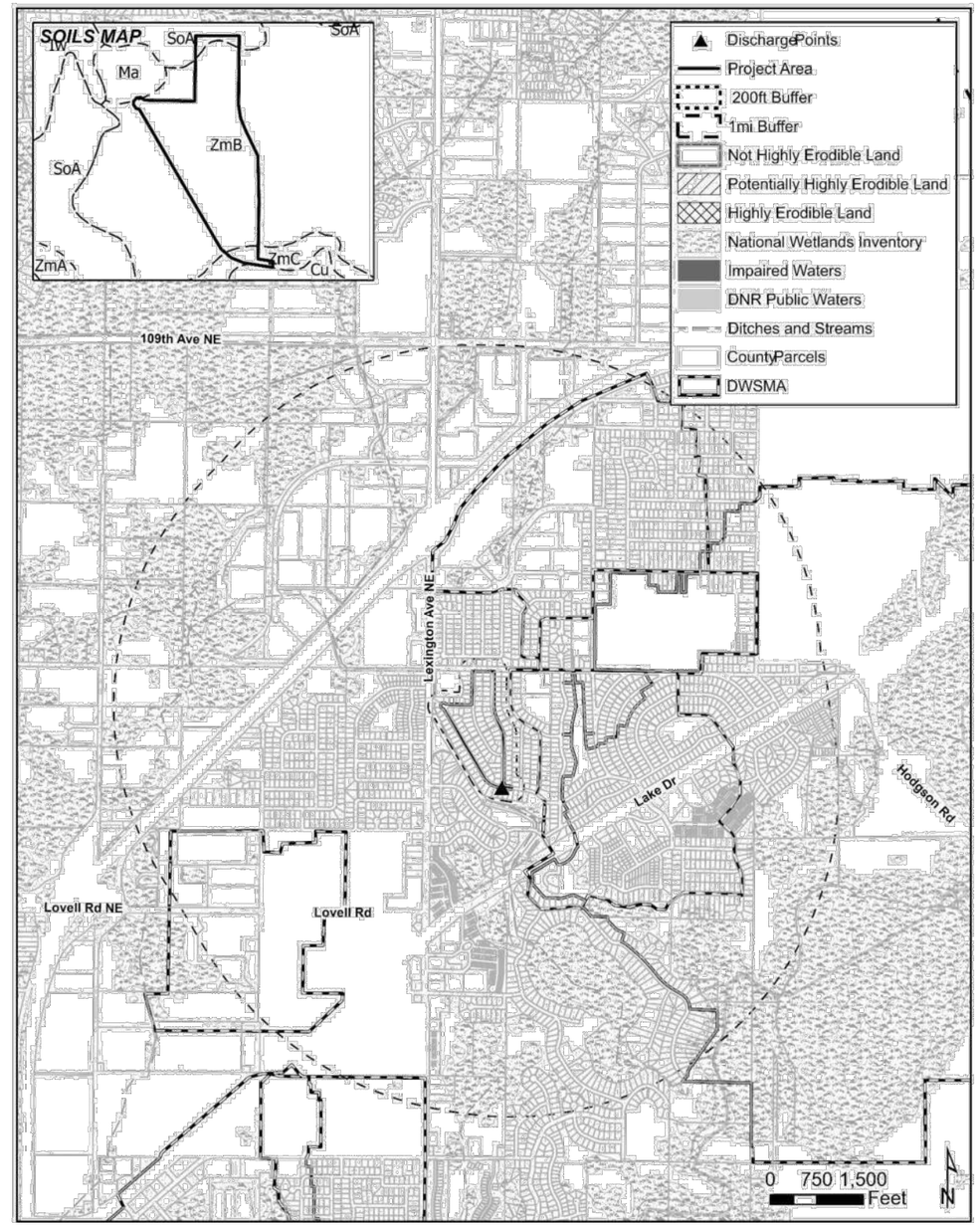

Figure 1. SWPPP Resource Map

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STORM WATER POLLUTION PREVENTION PLAN

2022 STREET AND UTILITY IMPROVEMENT PROJECT
CITY OF CIRCLE PINES

WSB PROJECT NO. 017460-000

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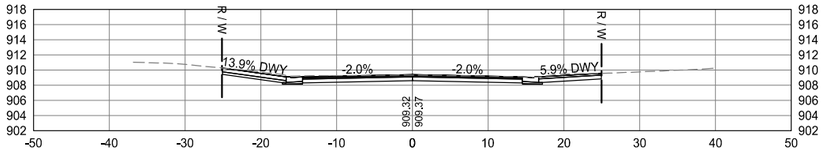

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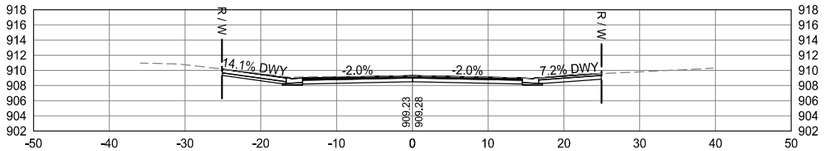

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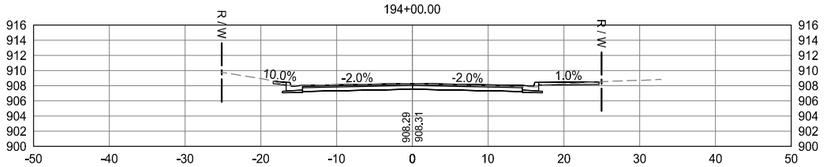

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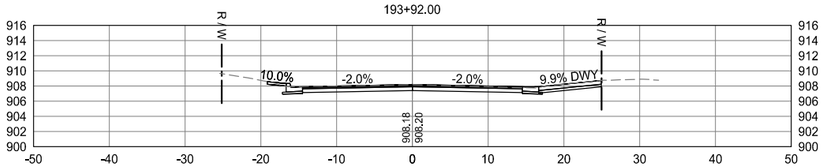

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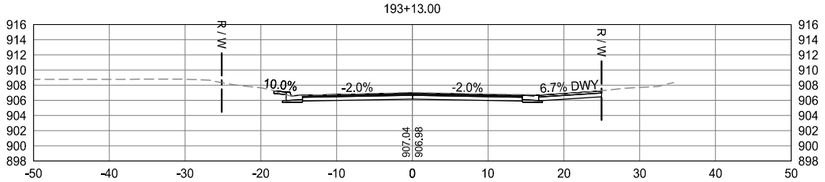

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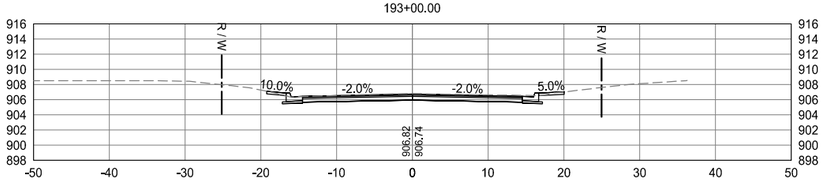

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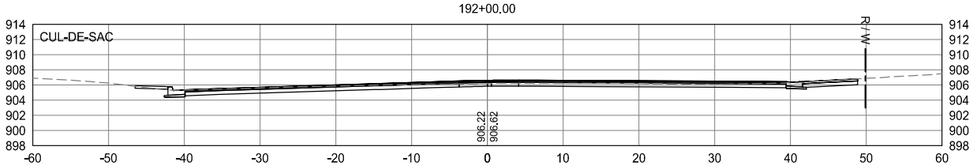

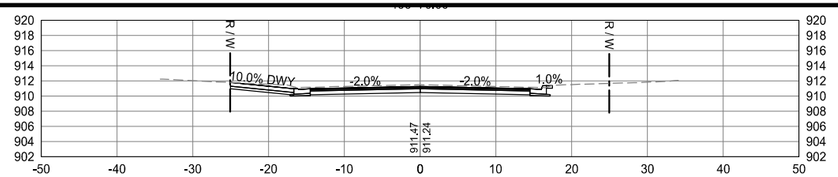

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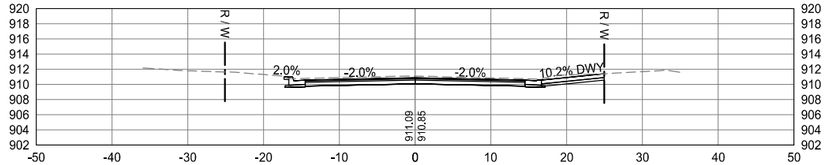

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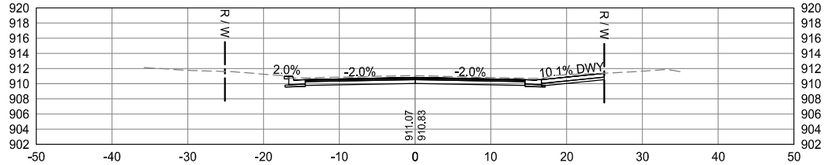

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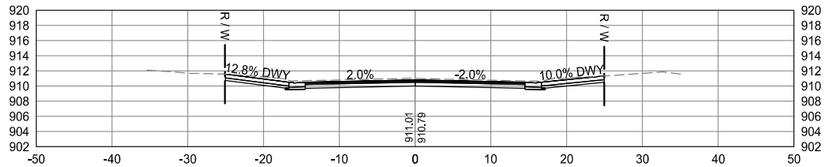

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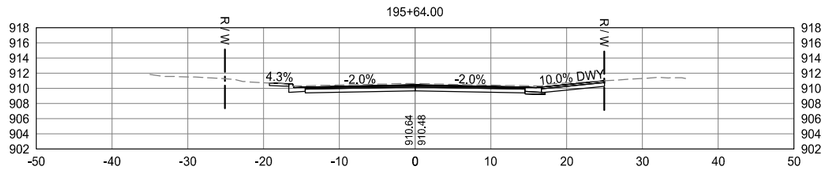

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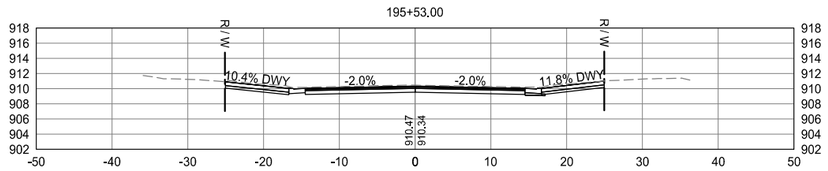

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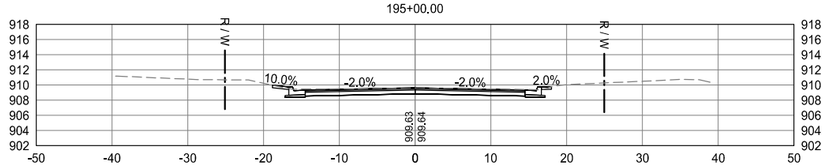

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CITY OF CIRCLE PINES

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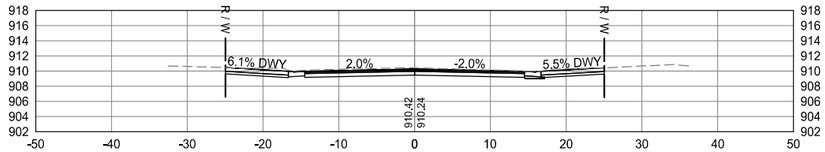

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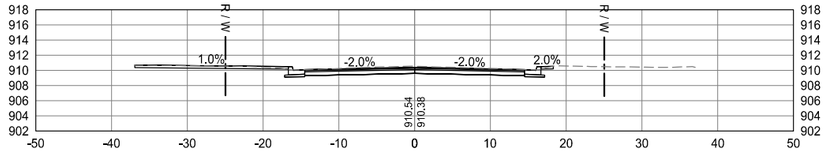

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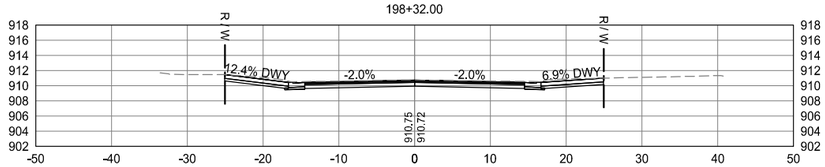

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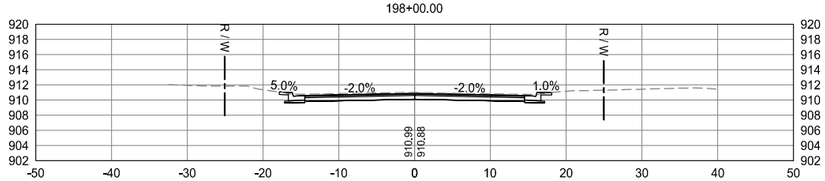

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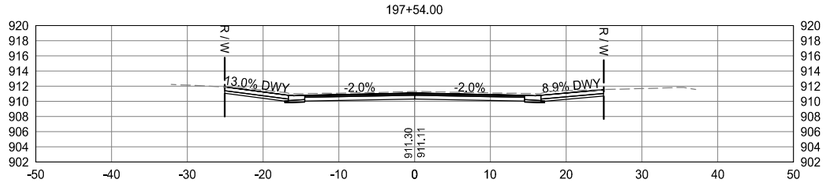

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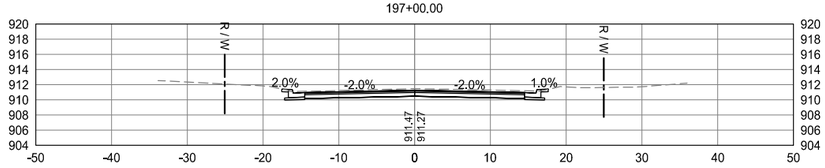

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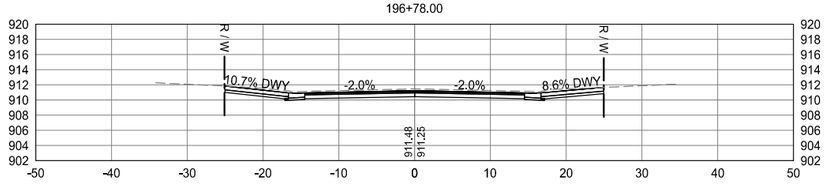

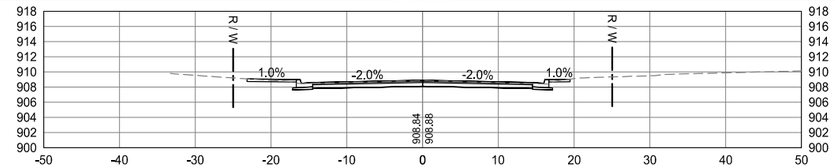

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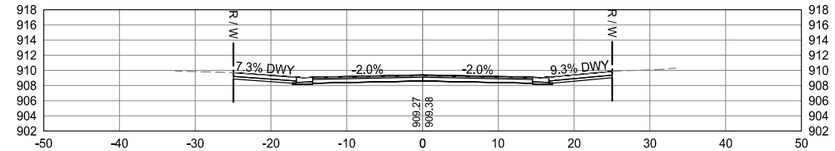

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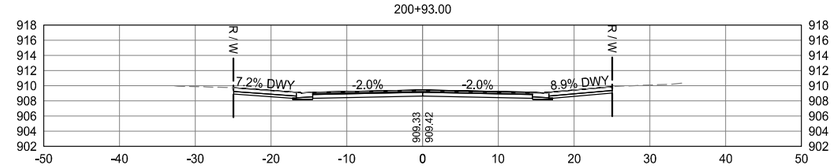

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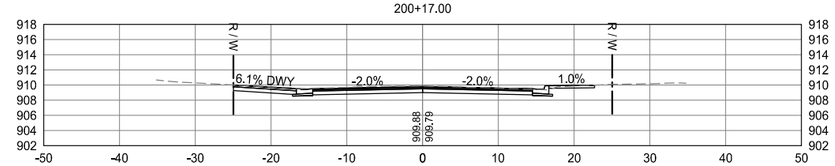

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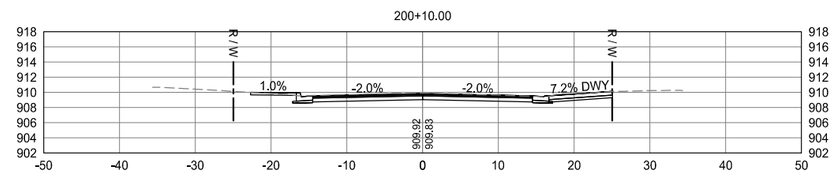

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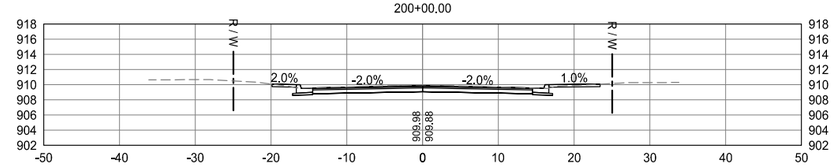

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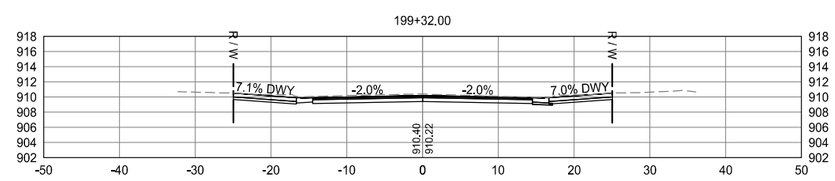

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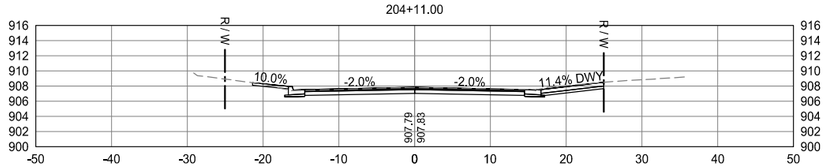

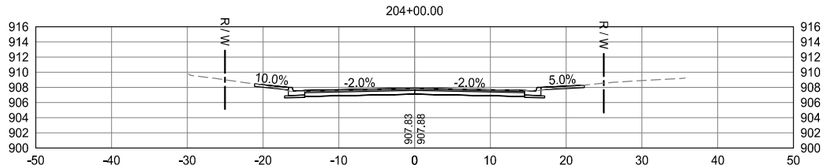

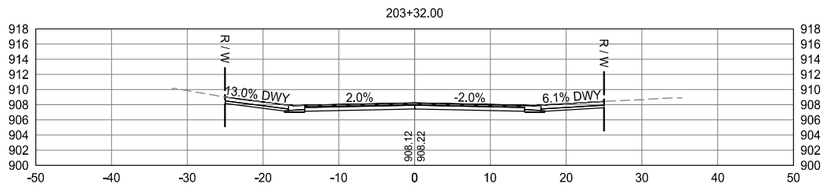

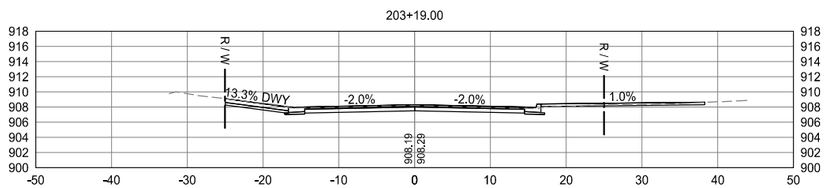

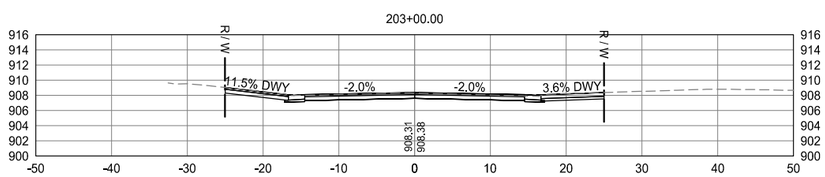

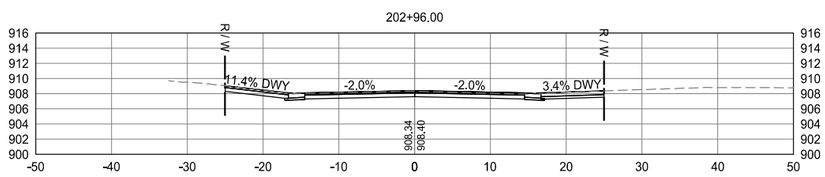

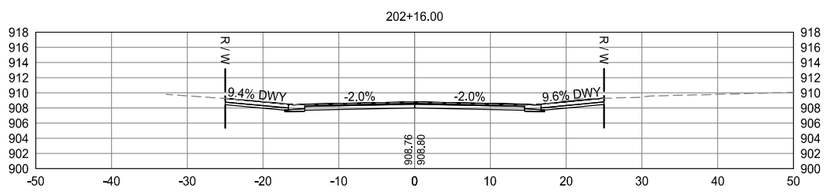

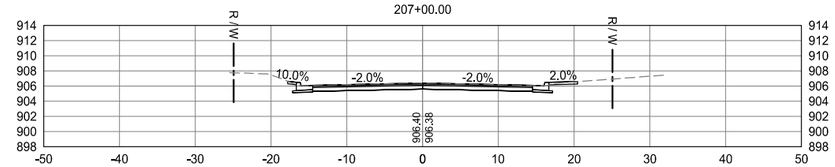

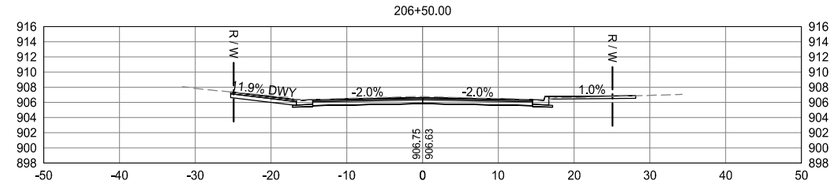

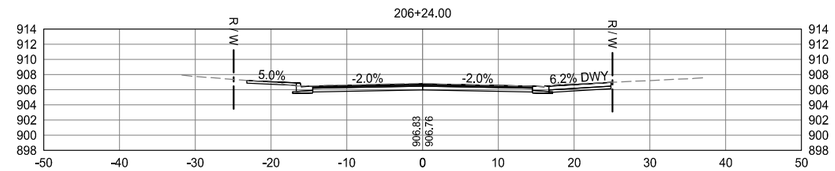

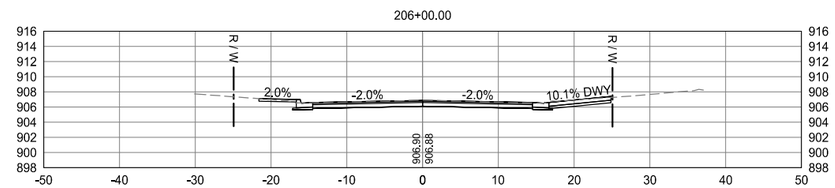

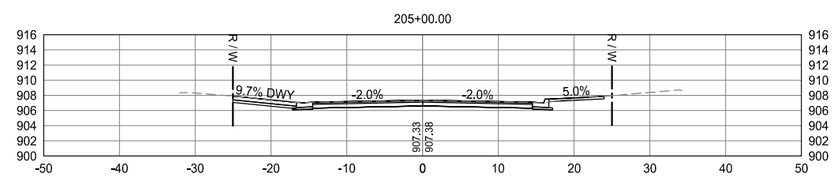

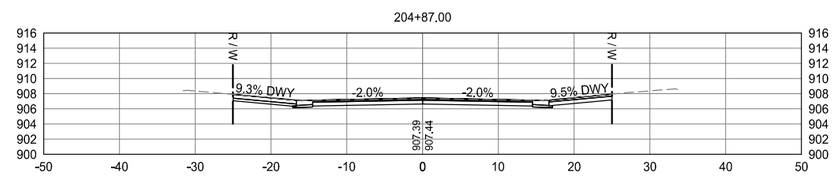

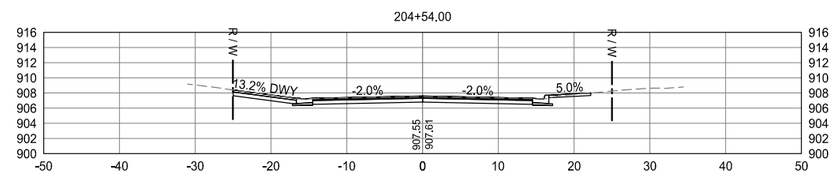

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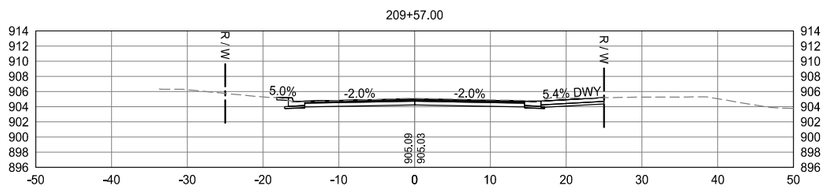

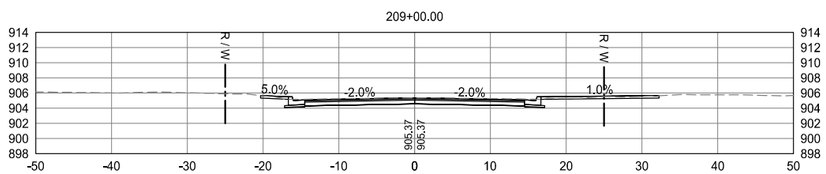

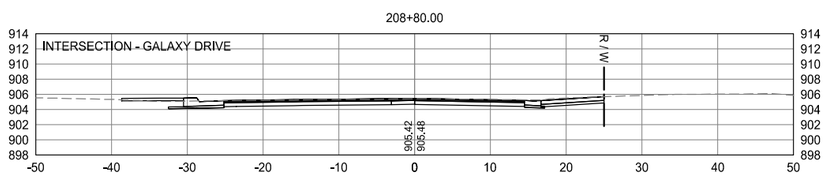

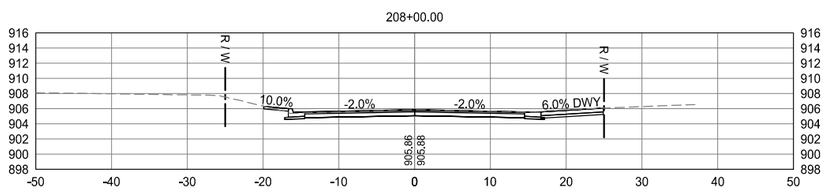

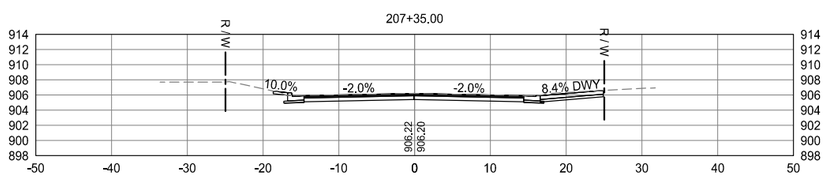

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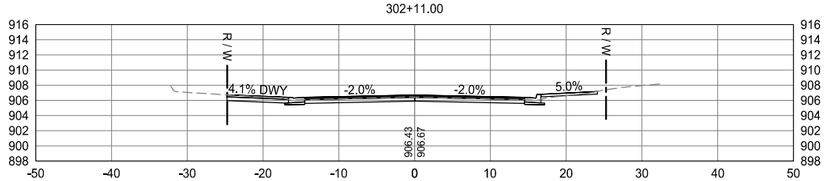

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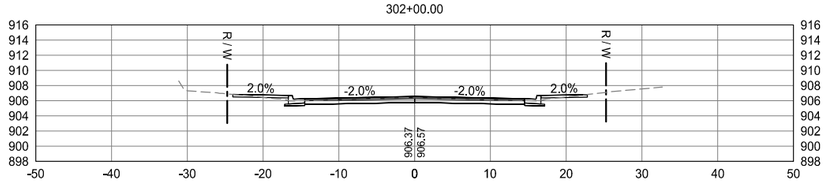

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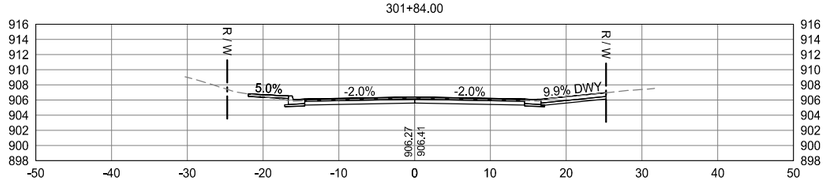

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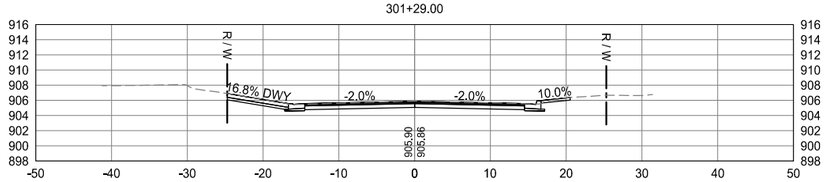

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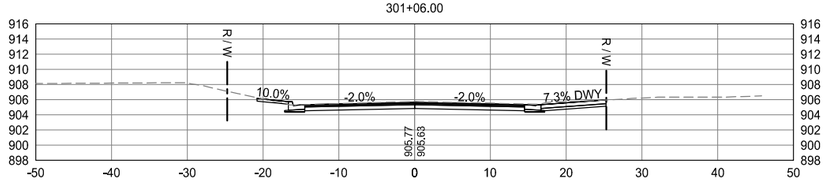

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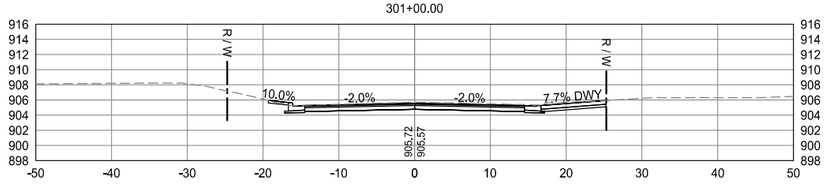

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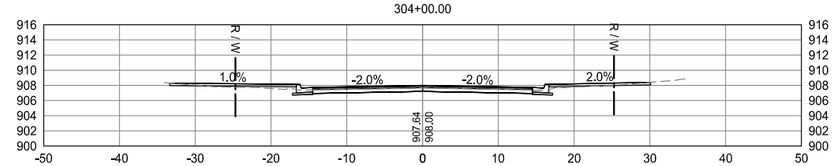

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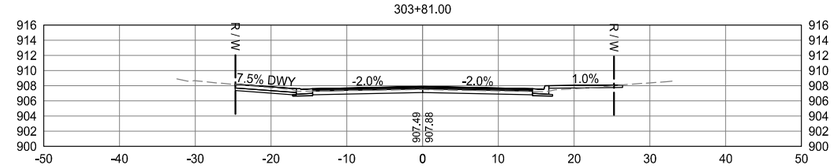

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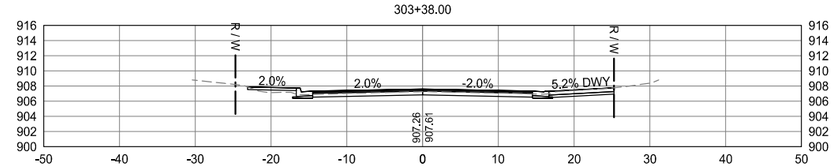

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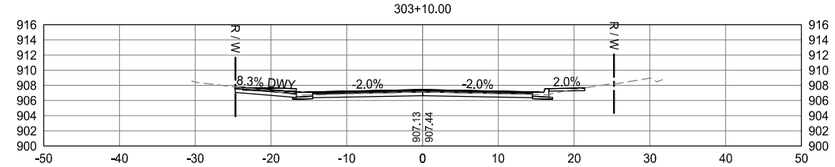

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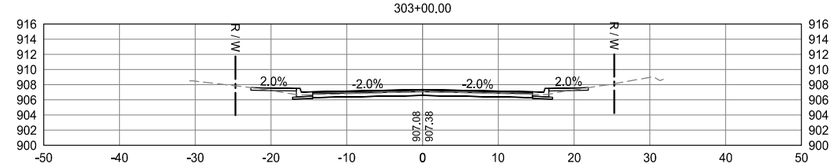

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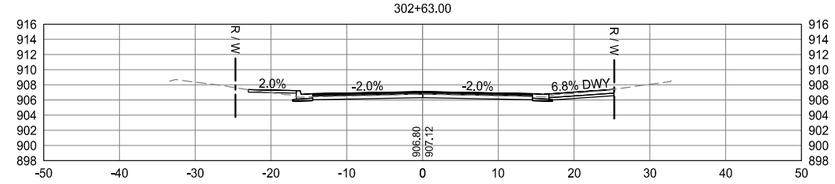

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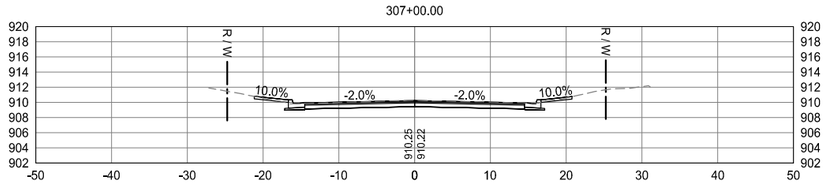

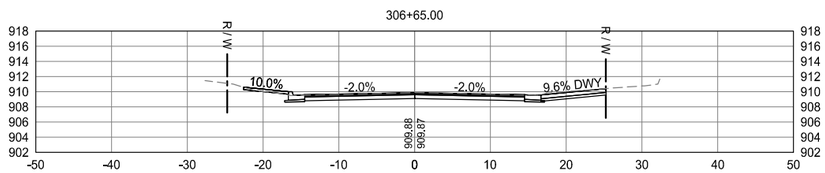

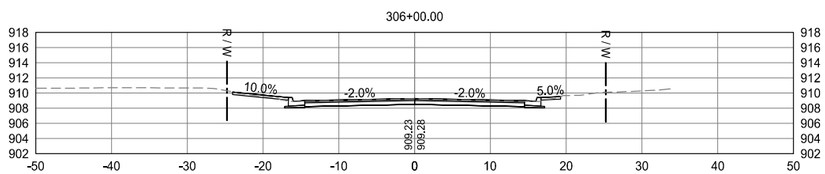

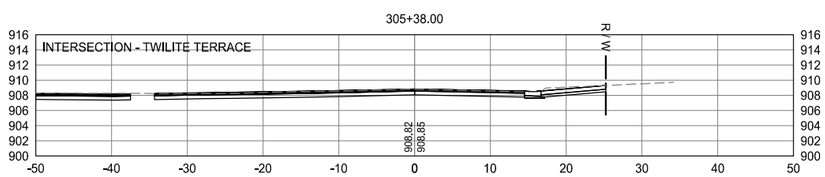

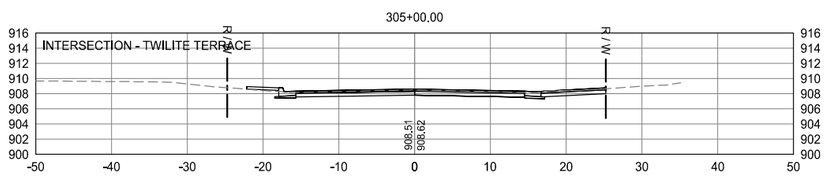

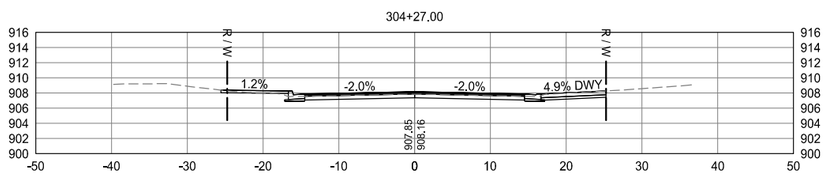

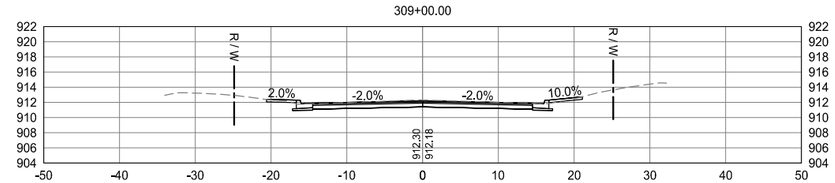

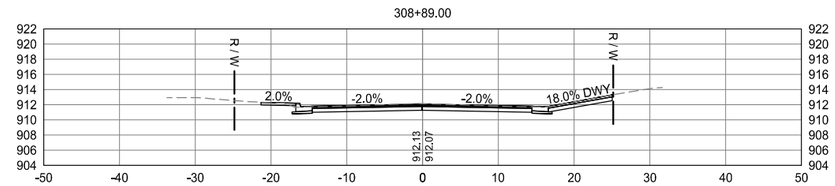

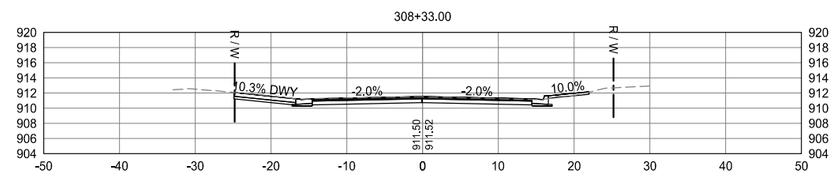

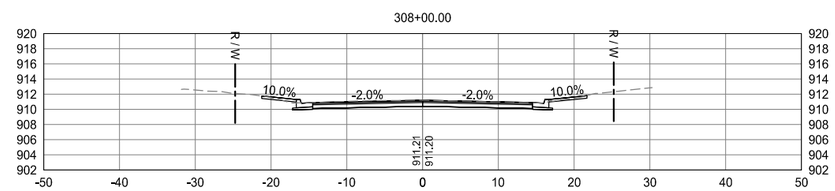

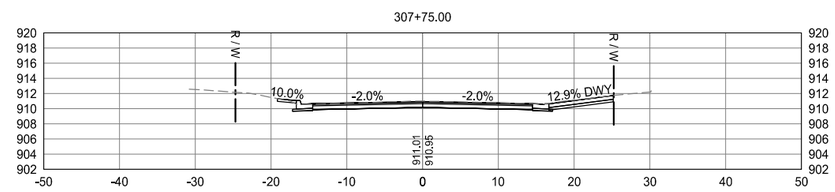

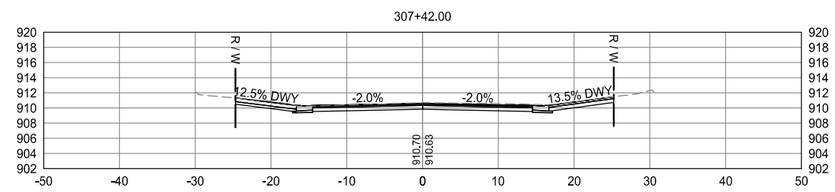

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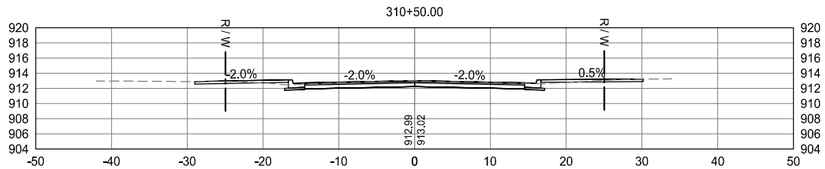

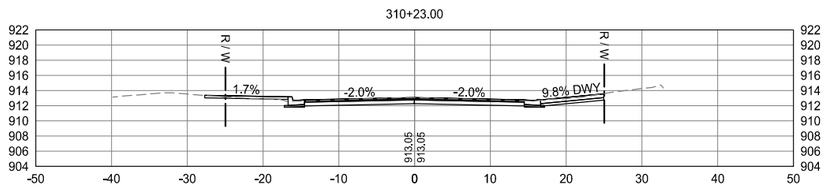

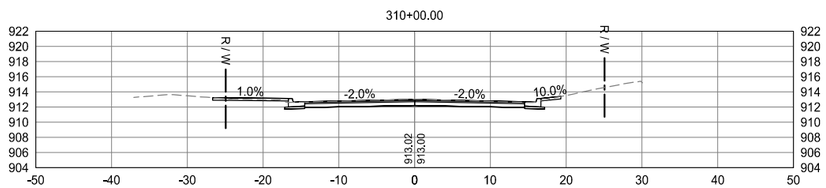

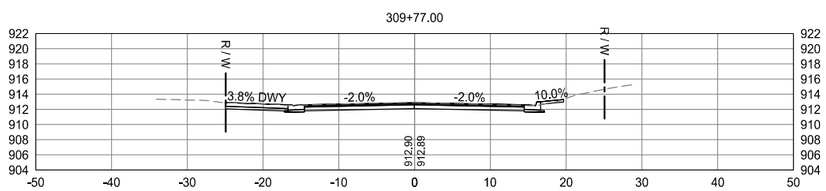

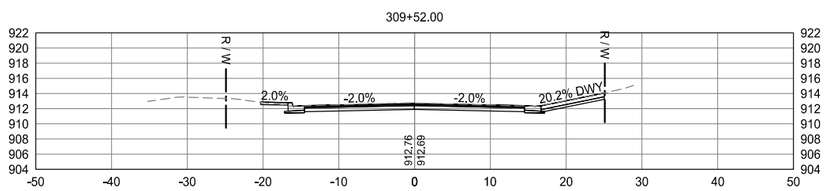

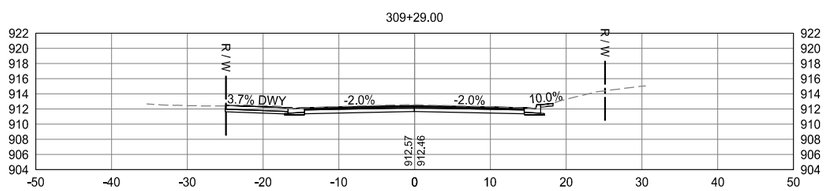

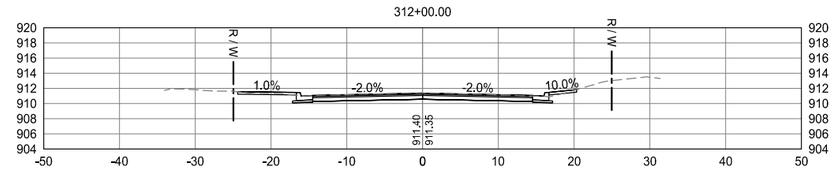

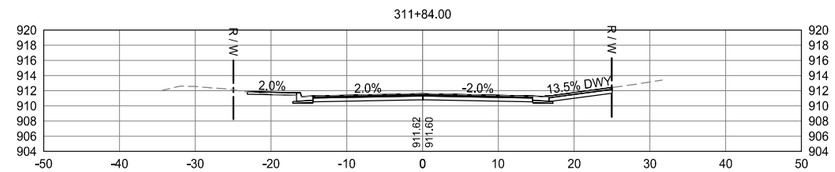

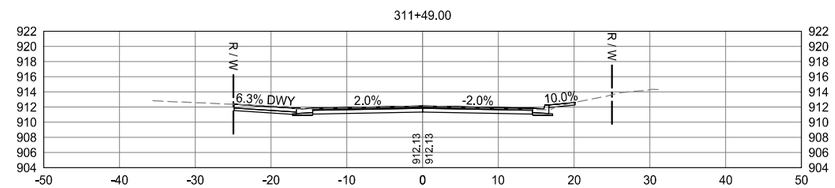

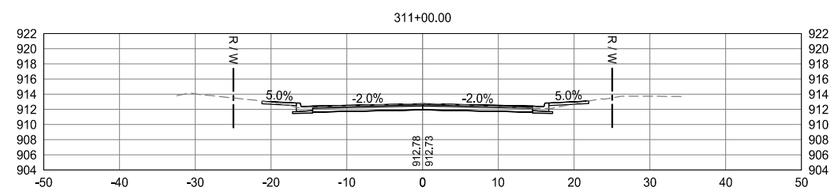

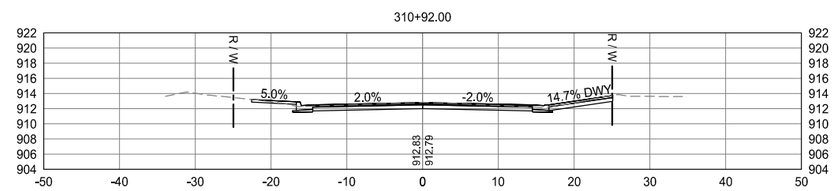

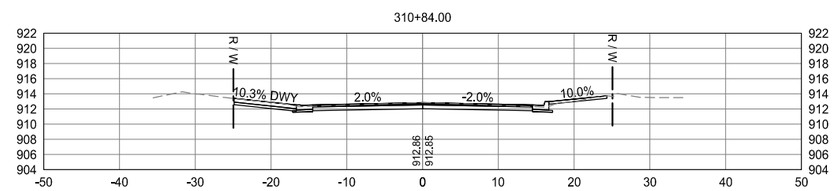

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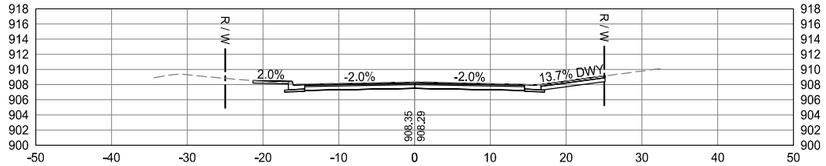

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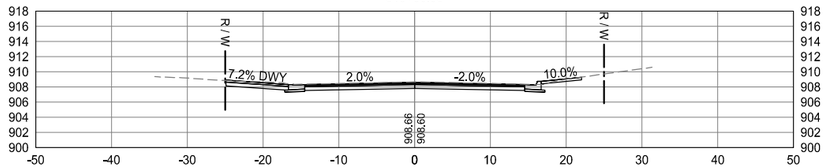

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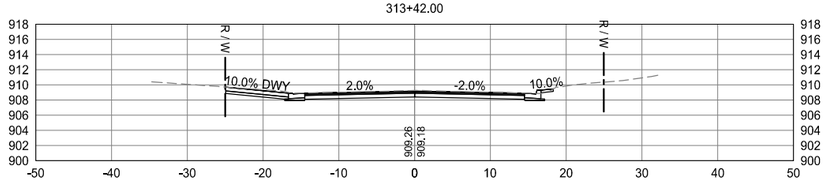

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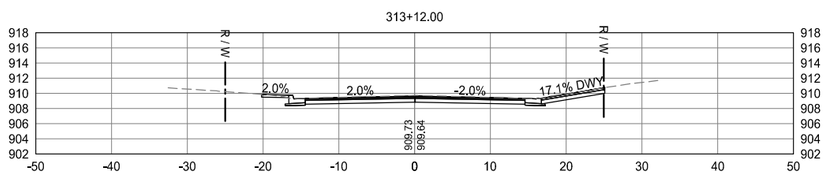

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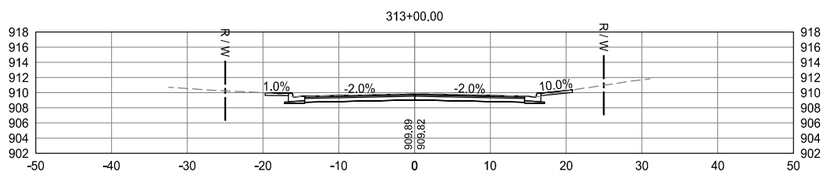

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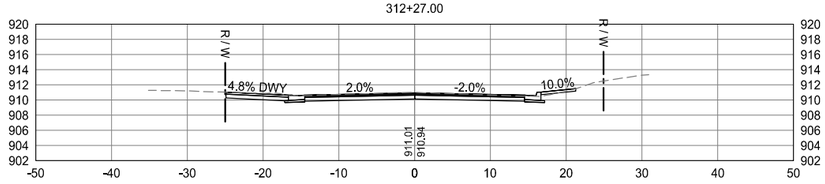

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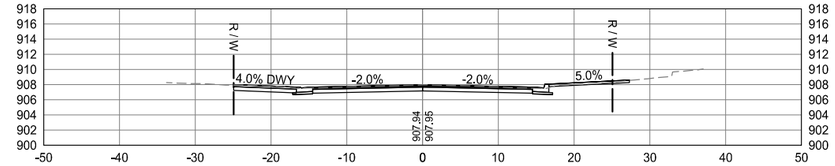

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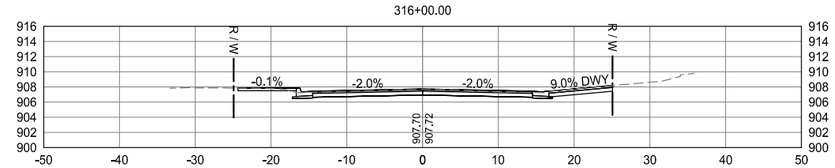

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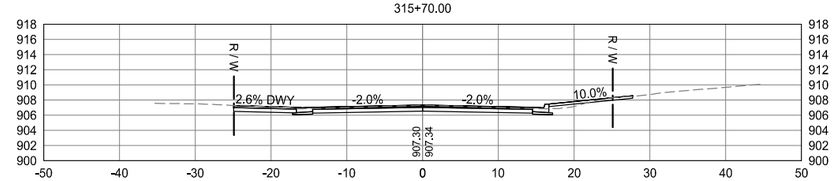

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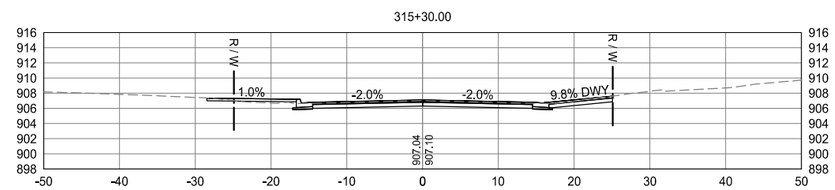

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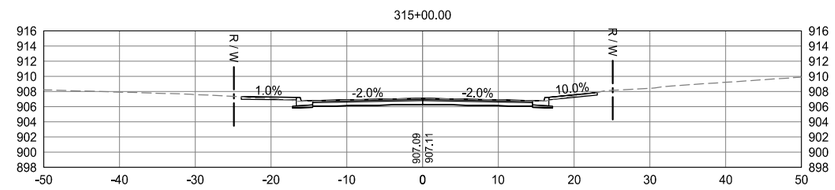

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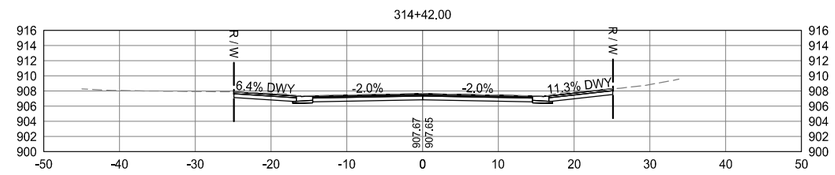

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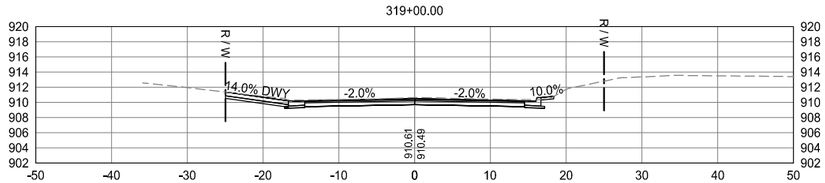

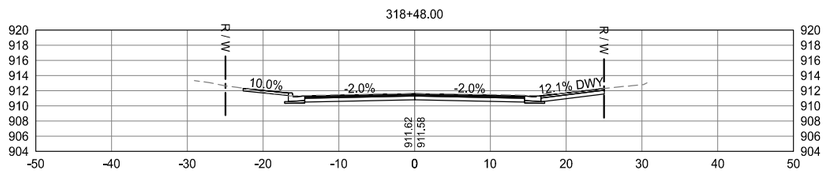

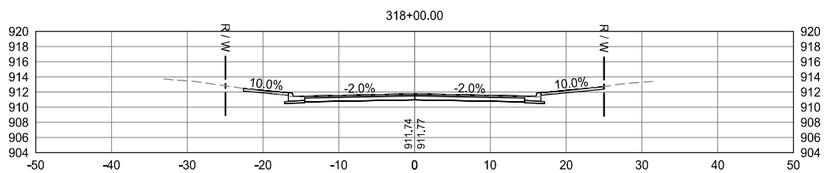

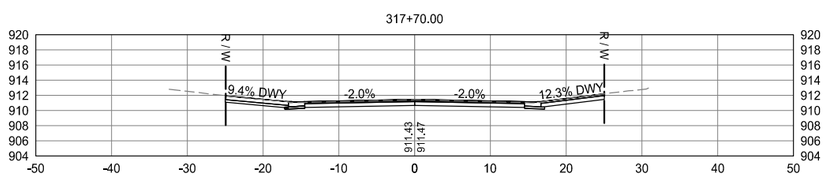

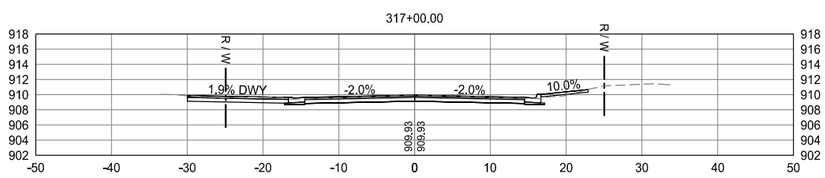

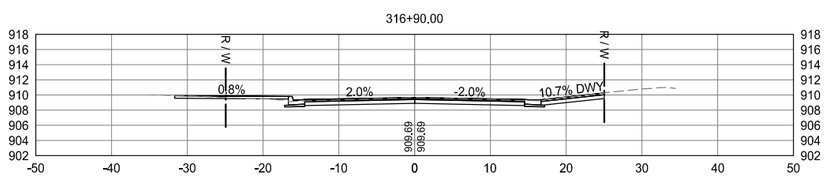

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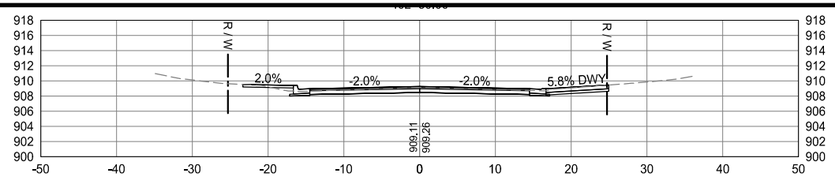

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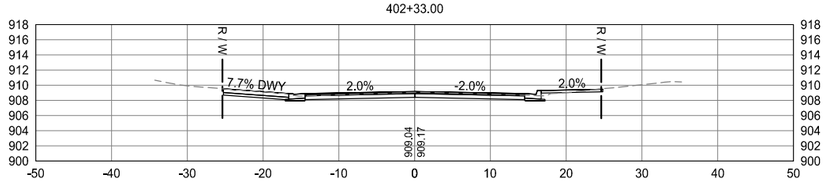

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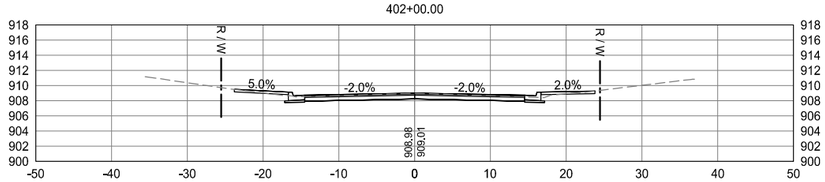

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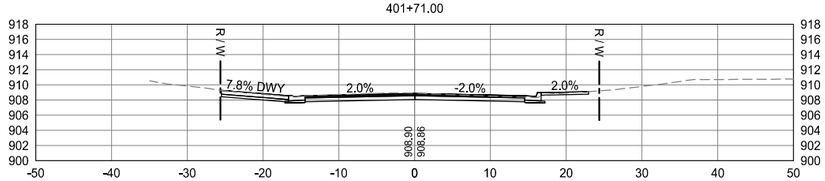

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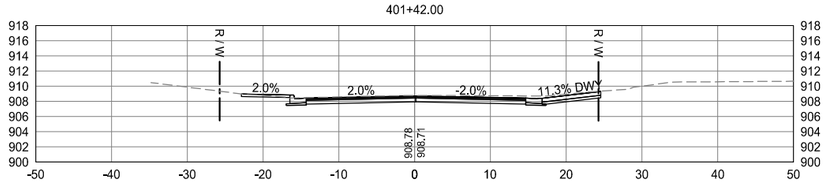

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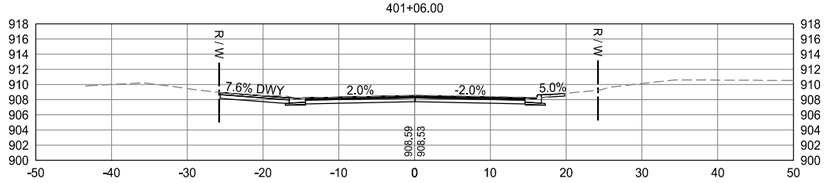

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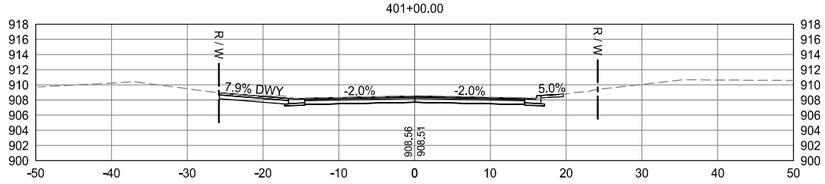

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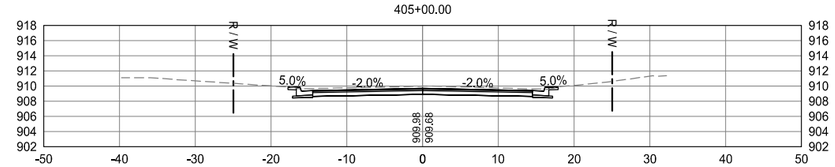

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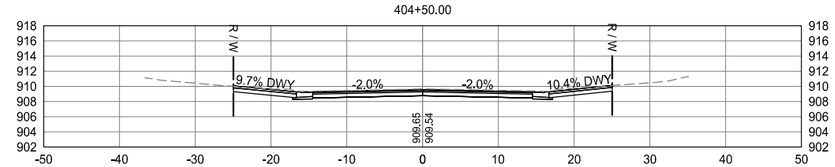

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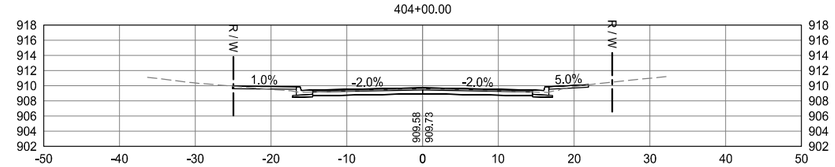

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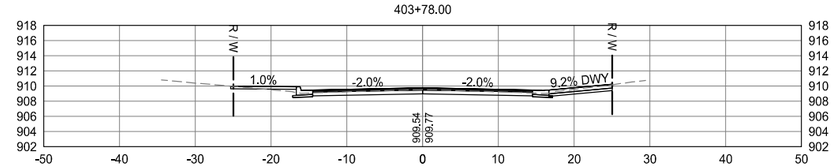

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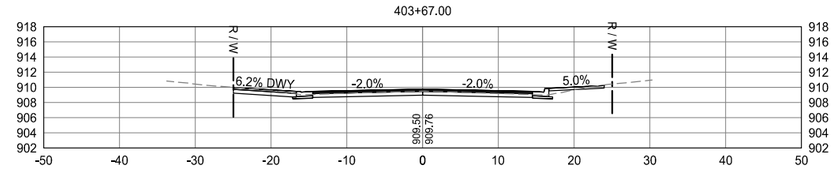

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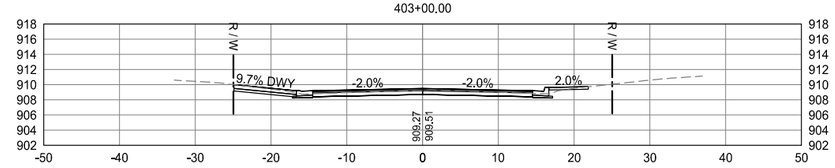

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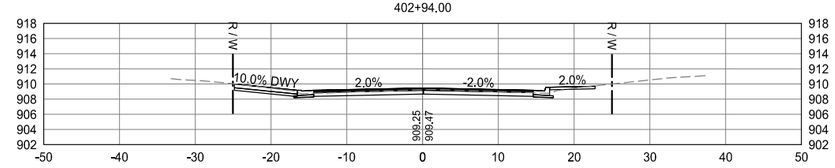

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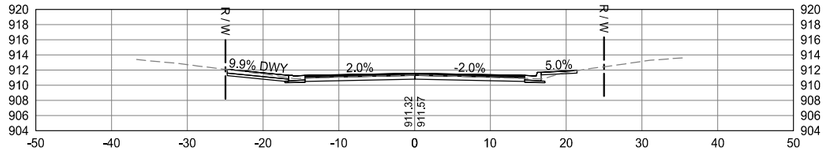

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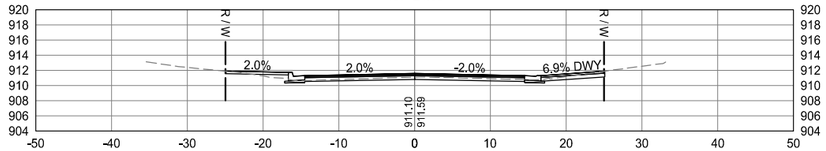

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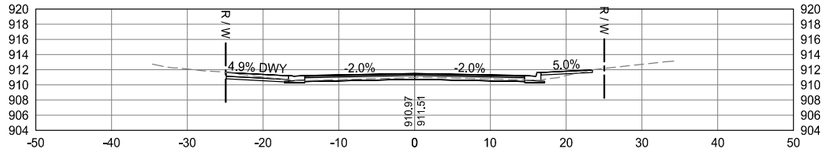

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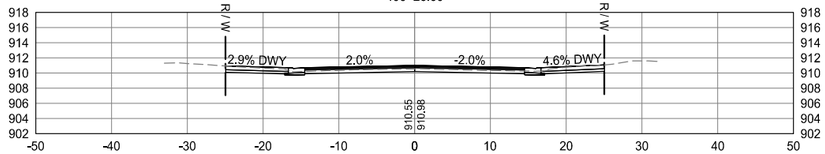

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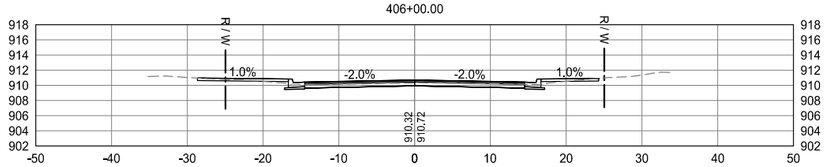

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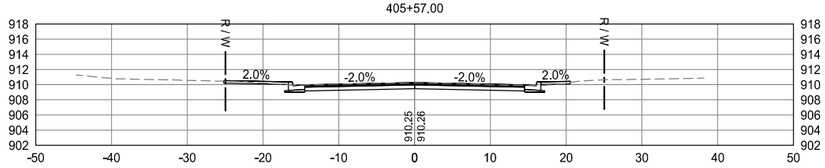

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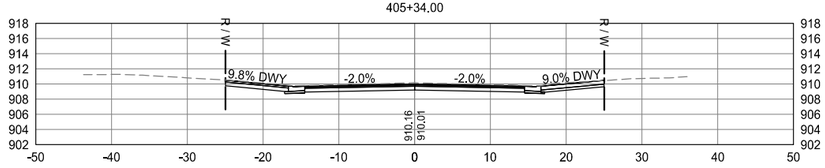

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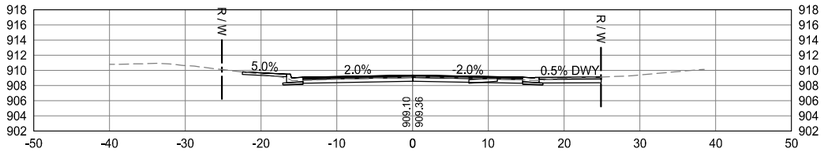

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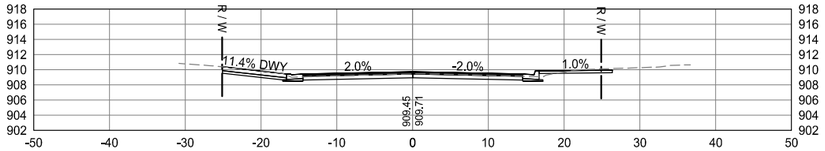

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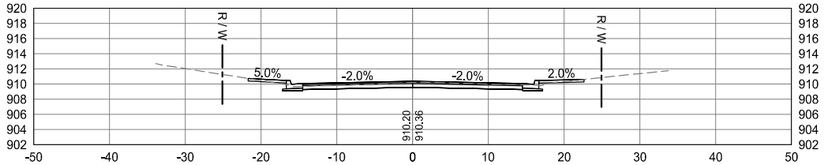

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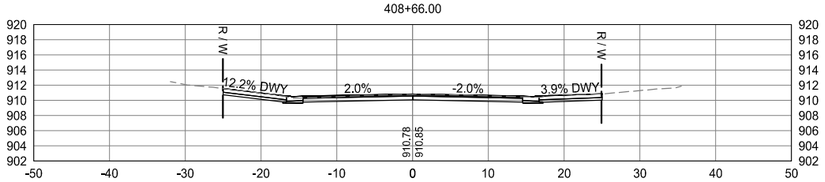

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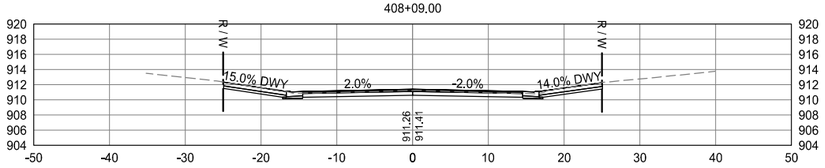

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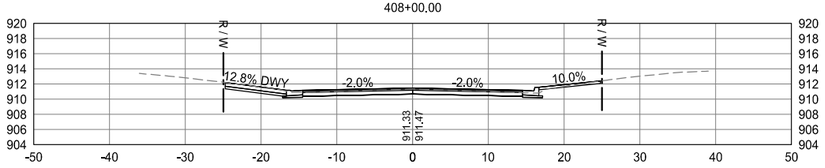

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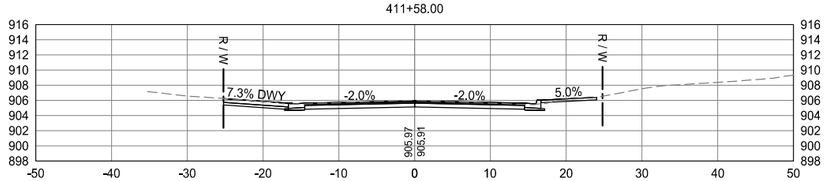

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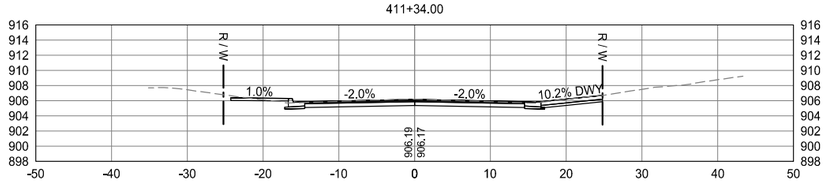

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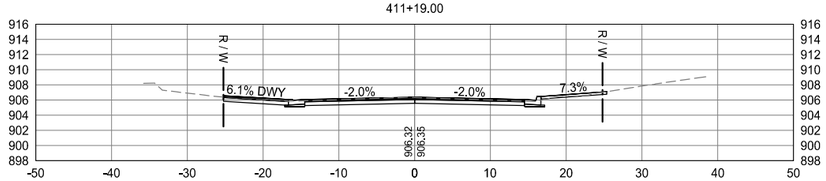

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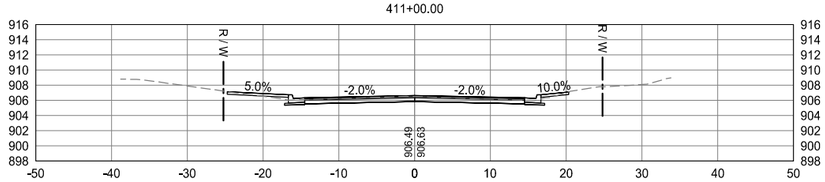

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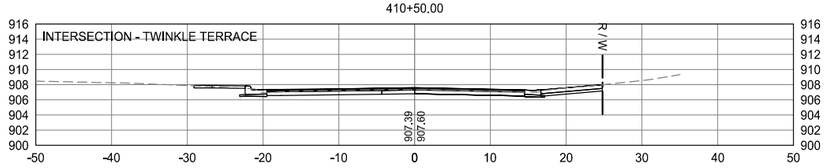

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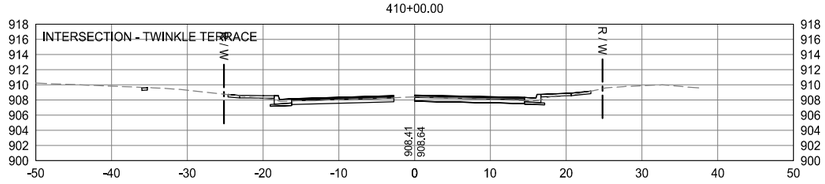

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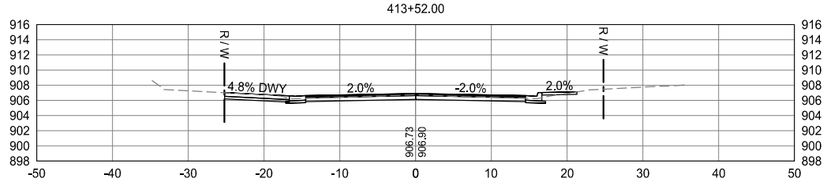

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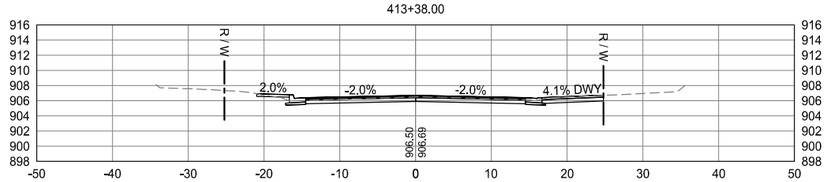

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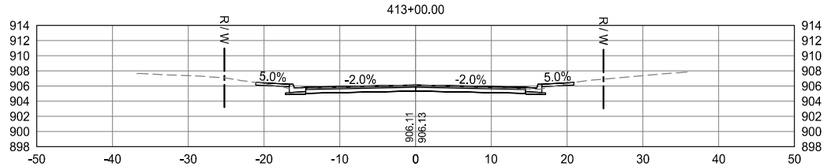

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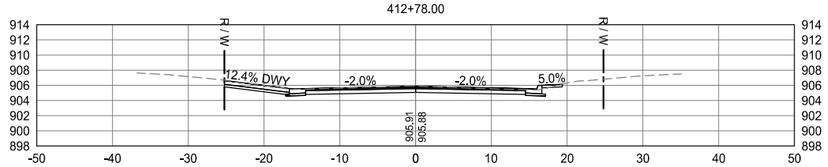

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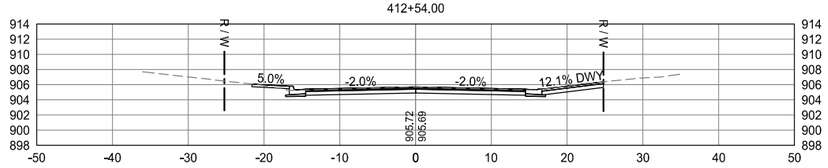

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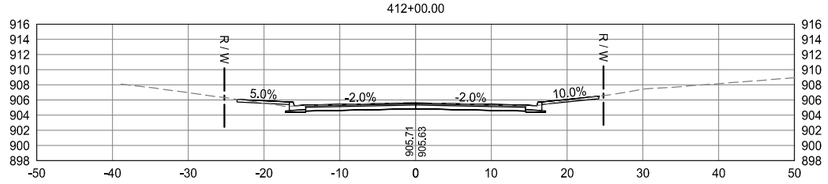

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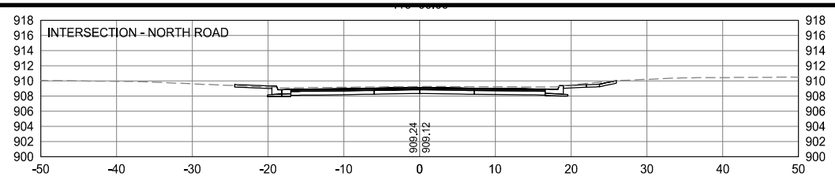

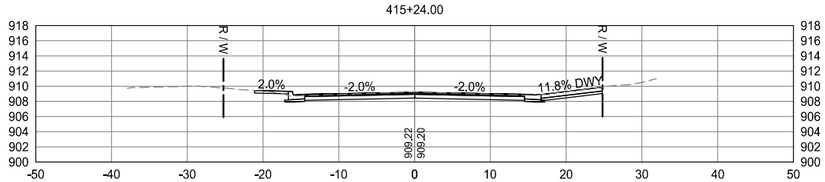

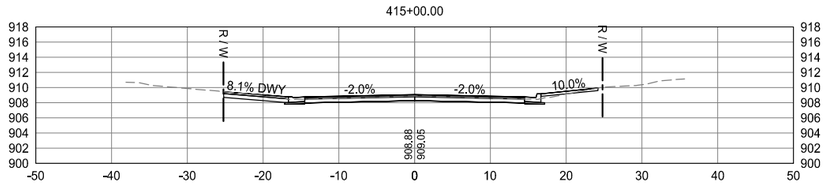

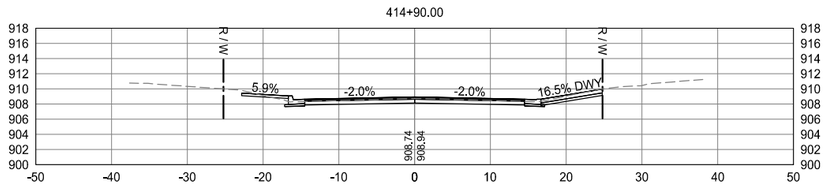

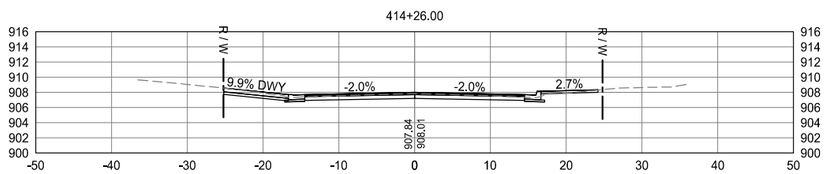

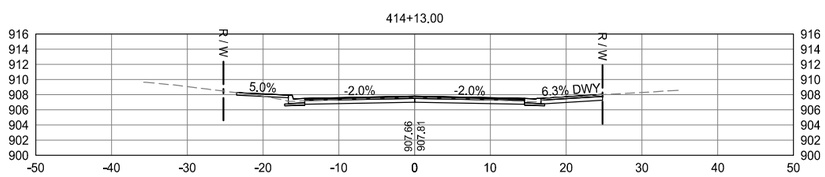

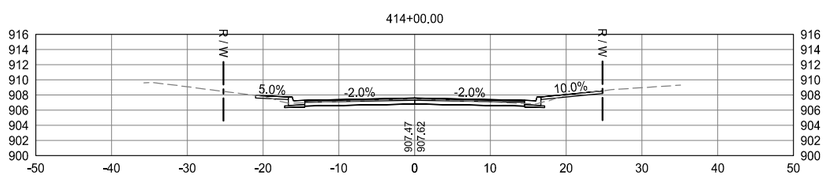

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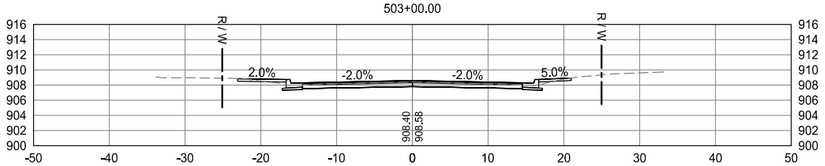

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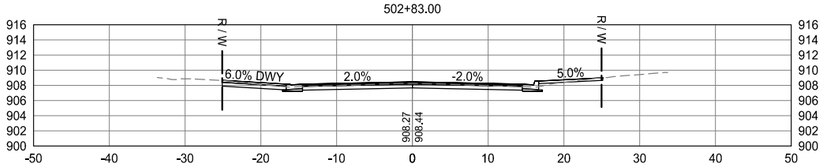

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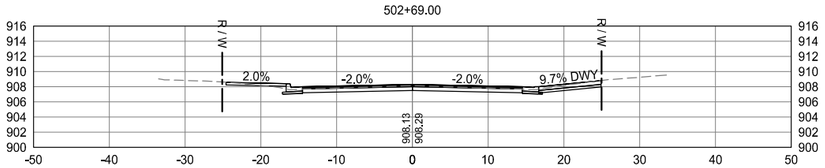

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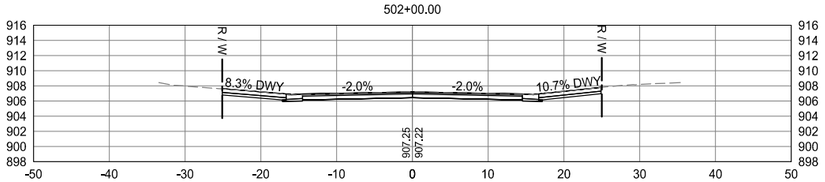

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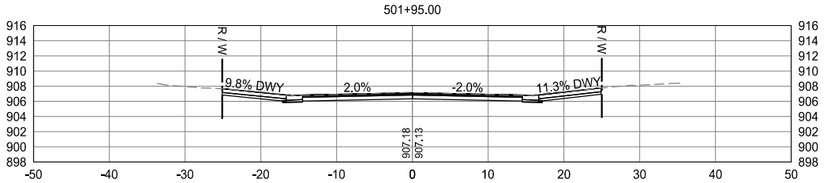

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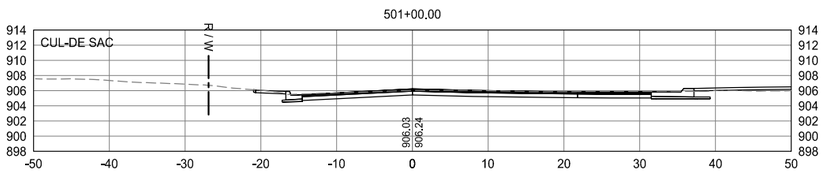

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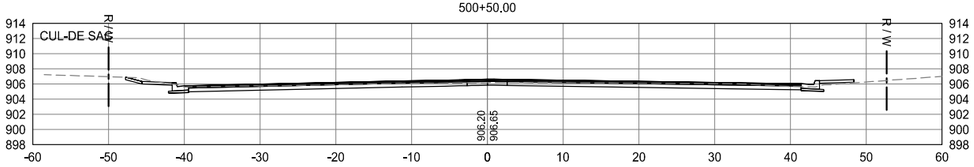

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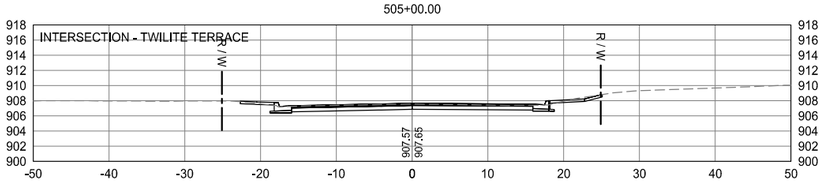

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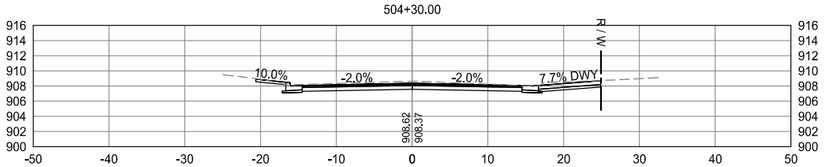

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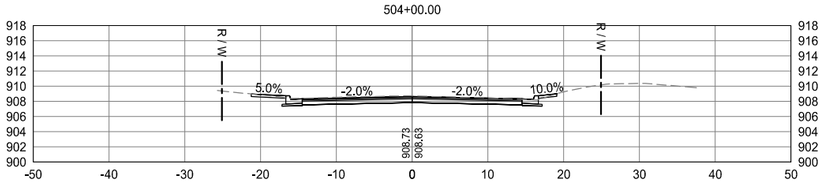

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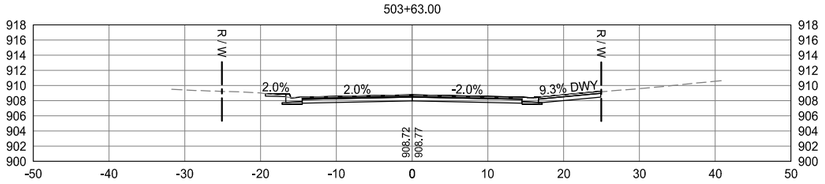

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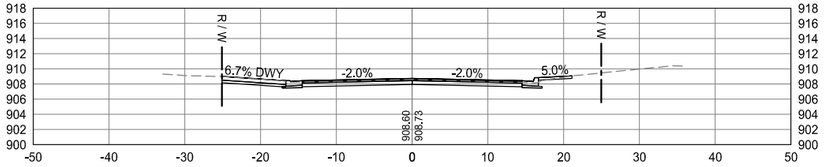

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