

TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES						
Street Classification	Pavement Option	AC Surface (in.)	AC Base (in.)	Aggregate Base (in.)	Chemical Subgrade Stabilization (in.)	Geogrid / Geotextile ⁽¹⁾
PUBLIC STREETS → Residential Local/Access	A	2	4	6	6	--
	B	2	4	10	--	Geogrid / Geotextile
Residential Collector	A	2	5.5	6	9	--
	B	2	5.5	12	--	Geogrid / Geotextile
Commercial Industrial Local/Collector	A	2	7.5	6	9	--
	B	2	7.5	12	--	Geogrid / Geotextile

Notes:
(1) Geogrid shall be polypropylene material and Geotextile shall be woven, polypropylene as shown in the City's Approved Products List

Asphalt location	Mix Type	Recycled Mix Allowed?	Upper PG Limit	Lower PG limit
Industrial/Arterial surface	5 or 6	no	70 or greater	-22 or less
Base courses greater than 2 inches below the surface on industrial and arterial streets	5	yes	64 or greater	-22 or less
Local and Collector surface	5 or 6	no	64 or greater	-22 or less
Base courses greater than 2 inches below the surface on local and collector streets	5	yes	64 or greater	-22 or less

STREET NOTES:

- ALL STREET CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL. ALL APPLICABLE AASHTO STANDARDS HAVE BEEN MET.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
- ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT DEVELOPMENT ENGINEERING.
- CURB RETURN RADII SHALL BE 25' AT BACK OF CURB UNLESS OTHERWISE NOTED.
- SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- ASSUMED DESIGN SPEED = 25 MPH (RESIDENTIAL LOCAL).
- MINIMUM STOPPING SIGHT DISTANCE = 155 FEET.
- MINIMUM K, SAG CURVE = 26 (14 WITH LIGHTING), CREST CURVE = 12.
- GRADE INTERSECTIONS TO DRAIN AS SHOWN.
- SSD = STOPPING SIGHT DISTANCE.
- ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

MO GRS BENCHMARK:

STATION NAME - JA-90

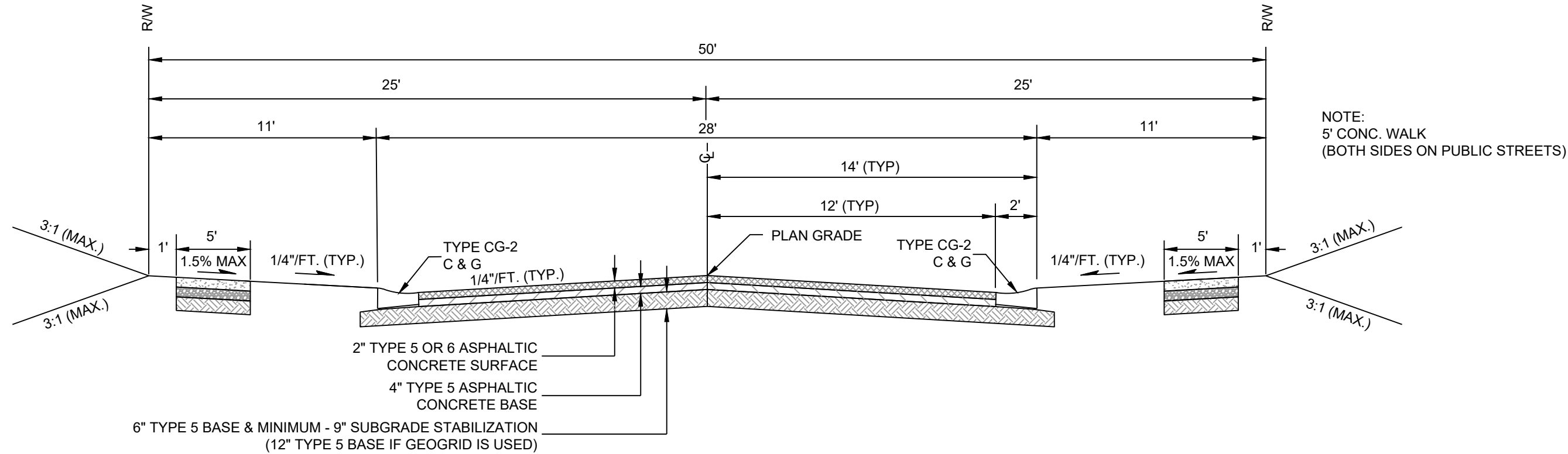
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

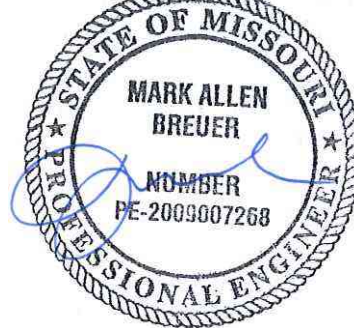
"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719



PUBLIC STREETS
RESIDENTIAL LOCAL
RILEY STREET STA. 0+48.00 TO STA. 4+50.61
SE GRIFFIN STREET STA. 0+39.00 TO STA. 11+28.09
RILEY LANE STA. 17+85.61 TO STA. 25+50.00
RILEY PLACE STA. 25+50.00 TO STA. 31+77.53
(NTS)

PREPARED BY:



5.9.2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
PUBLIC STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 05/05/2023	PER CITY COMMENTS
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DRAWN BY: TRC	CHECKED BY: MAB	DATE PREPARED: 03/03/2023	PROJ. NUMBER: 22-597
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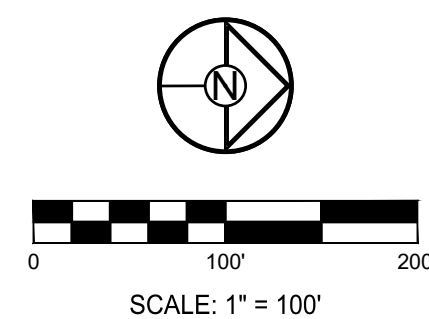
TYPICAL
SECTIONS

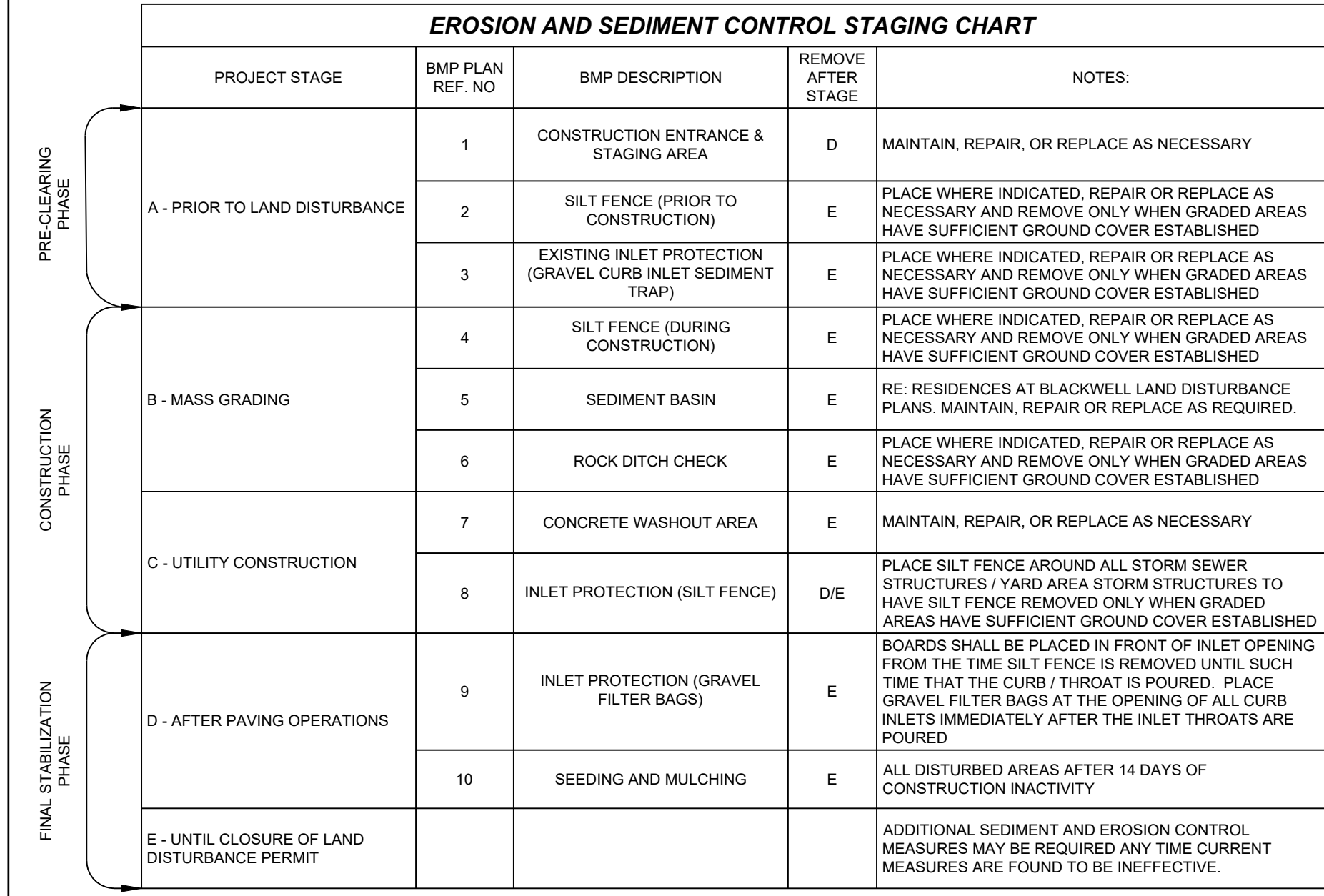
SHEET

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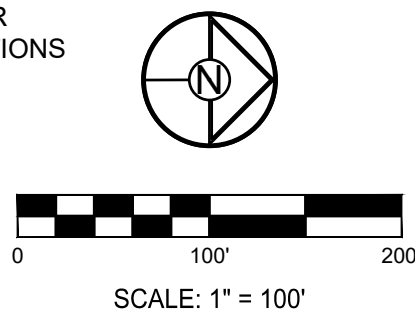


LEGEND	
	TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA
	CONCRETE WASHOUT AREA
	ROCK DITCH CHECK
	BMP PLAN REF. NO.
	SILT FENCE FOR INLET PROTECTION PRIOR TO STRUCTURE TOP
	5F
	SF1
	SF2
	LIMITS OF DISTURBANCE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY

DISTURBED AREA #1 = 11.02 A.C. DISTURBED AREA #2 = 14.14 A.C.		IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS, THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPs. INITIAL STABILIZATION ACTIVITIES SHALL BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
<u>SITE SPECIFIC NOTES:</u>		
1.	THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.	
2.	THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.	
3.	NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBERS 290905C044(G), 290905C044(G), 290905C043(G) AND 290905C043(G) DATED JANUARY 20TH, 2017.	7. ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
4.	ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.	8. SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
	ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.	9. AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.
6.	STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED	10. SEE MASS GRADING & EROSION SEDIMENT CONTROL PLANS FOR RESIDENCES, TRADITIONS & RESERVE AT BLACKWELL FOR SILT FENCE INSTALLATION.

NOTES:

1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.



PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

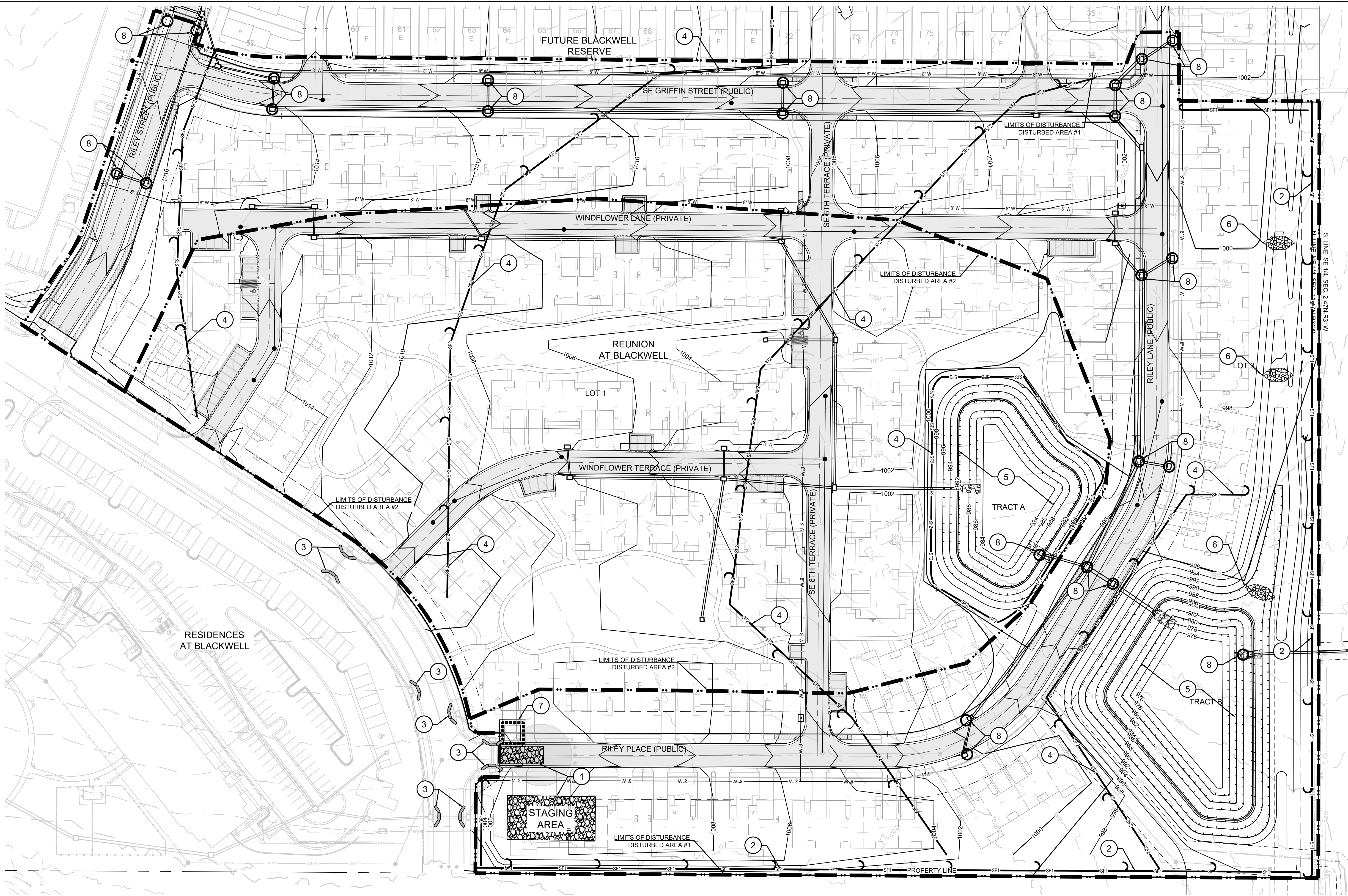
REUNION AT BLACKWELL
PUBLIC STREET AND STORM SEWER PLANS
SEE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS
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PRE-CONSTRUCTION EROSION CONTROL PLAN

SHEET

8



PRIVATE ROAD NOTE:
WINDFLOWER LANE, WINDFLOWER COURT & SE 6TH TERRACE ARE PRIVATE ROADS AND WILL BE CONSTRUCTED UNDER A SEPARATE PLAN SET.

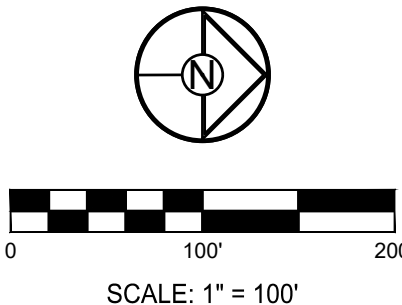
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 - SEE SHEET 8 FOR EROSION CONTROL NOTES, LEGEND AND STAGING CHART.

MO GRS BENCHMARK:

STATION NAME - JA-90
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ELEV. 997.045

PROJECT BENCHMARK:

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SCHLAGEL

ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS

14920 West 107th Street • Lenexa, Kansas 66215

(913) 492-5158 • Fax: (913) 492-8400

WWW.SCHLAGELASSOCIATES.COM

Missouri State Certificates of Authority
#E2002003609-F #LAC2001005237 #LS200200859-F

PREPARED BY:

STATE OF MISSOURI

MARK ALLEN BREUER

PROFESSIONAL ENGINEER

NUMBER RE-2003007268

5.9.2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
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SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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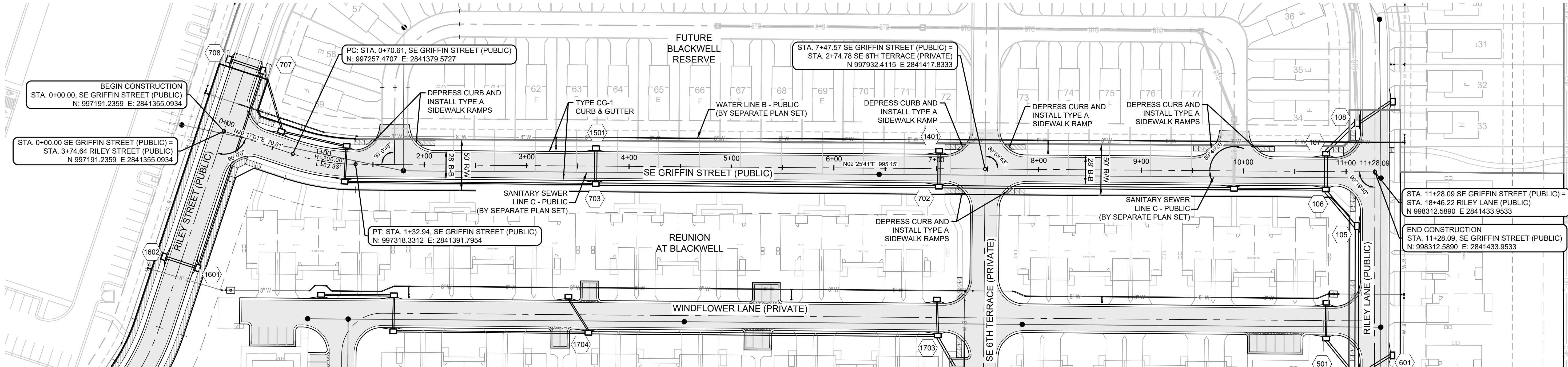
CHECKED BY: MAB

DATE PREPARED: 03/03/2023

PROJ. NUMBER: 22-297

EROSION CONTROL PLAN

SHEET
9



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5. SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
6. ASSUMED DESIGN SPEED = 25 MPH (RESIDENTIAL LOCAL).
7. MINIMUM STOPPING SIGHT DISTANCE = 155 FEET.
8. MINIMUM K, SAG CURVE = 26 (14 WITH LIGHTING), CREST CURVE = 12.
9. GRADE INTERSECTIONS TO DRAIN AS SHOWN.
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11. ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

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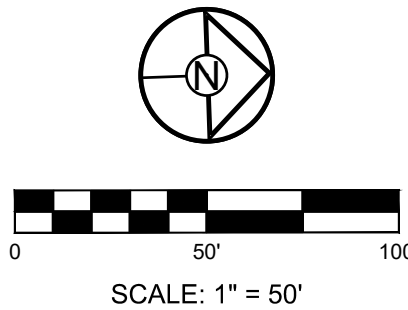
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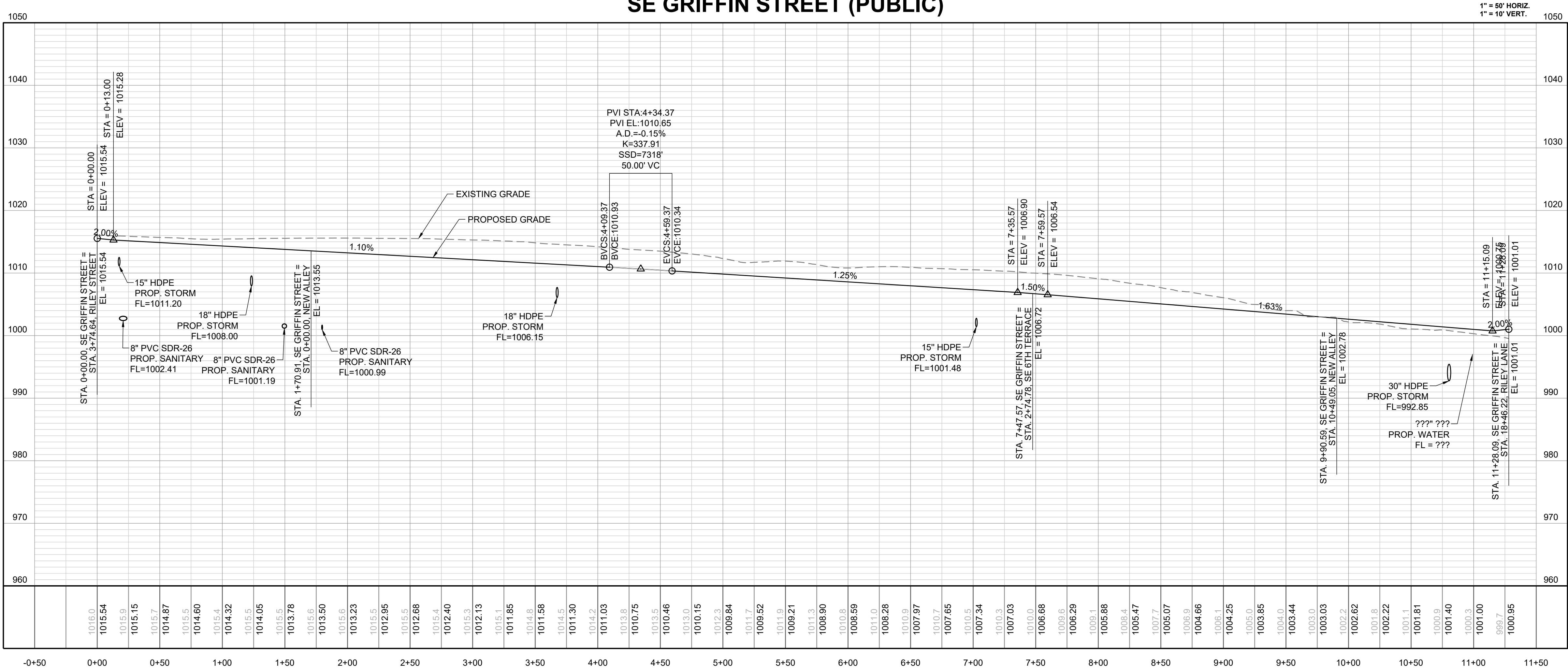
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SIDEWALK NOTE:
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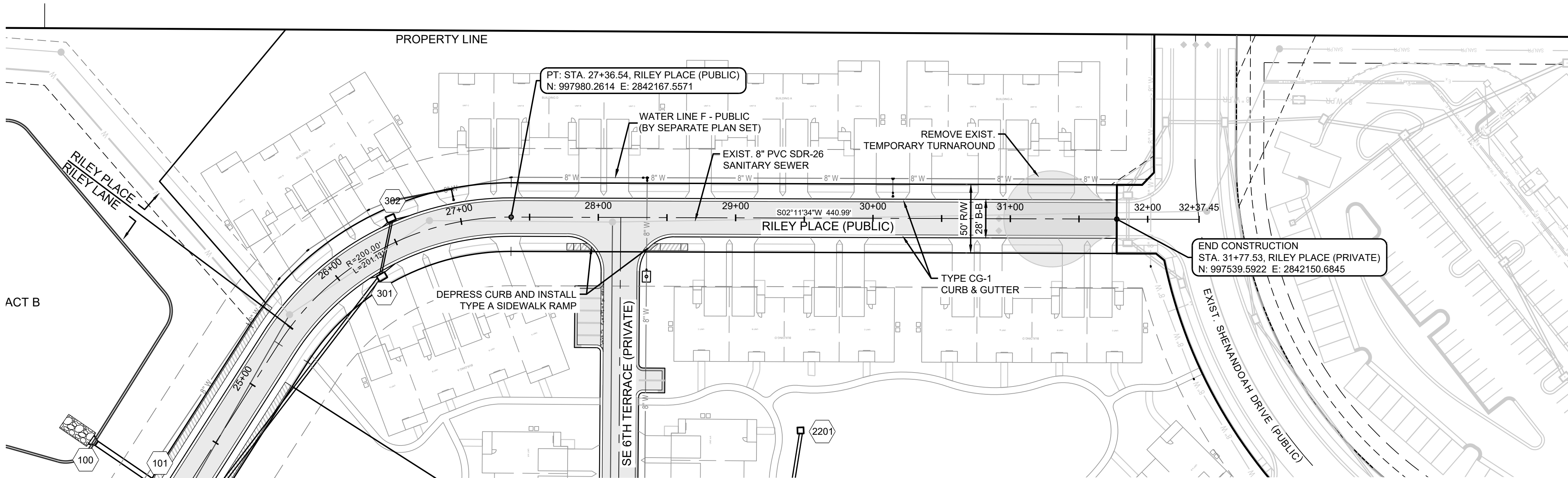


SE GRIFFIN STREET (PUBLIC)



REUNION AT BLACKWELL
PUBLIC STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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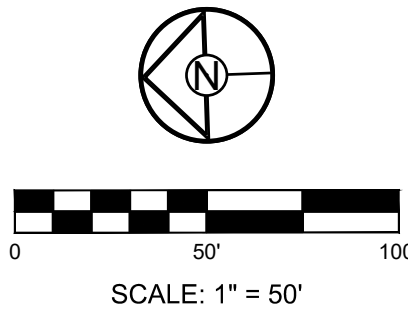
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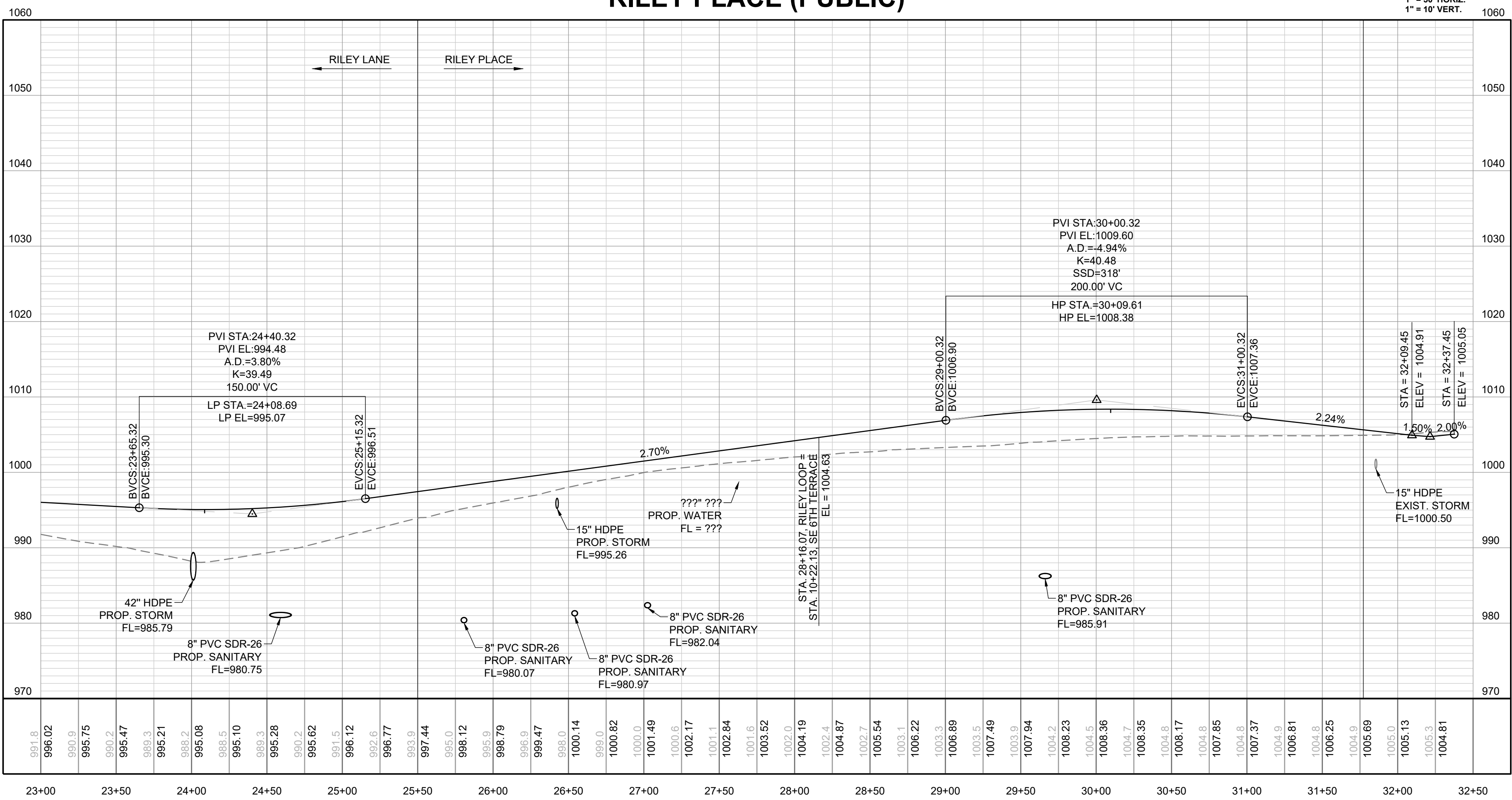
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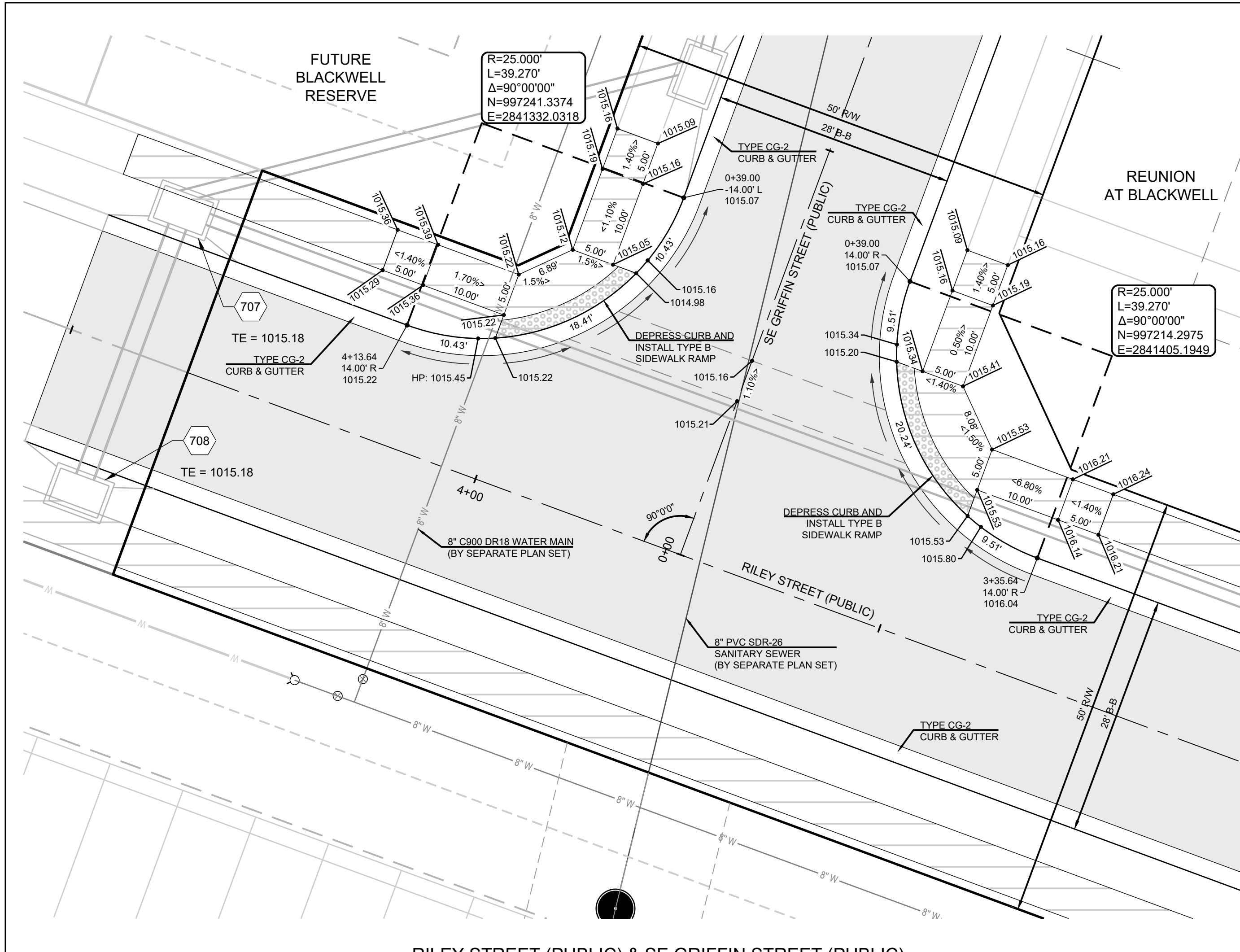
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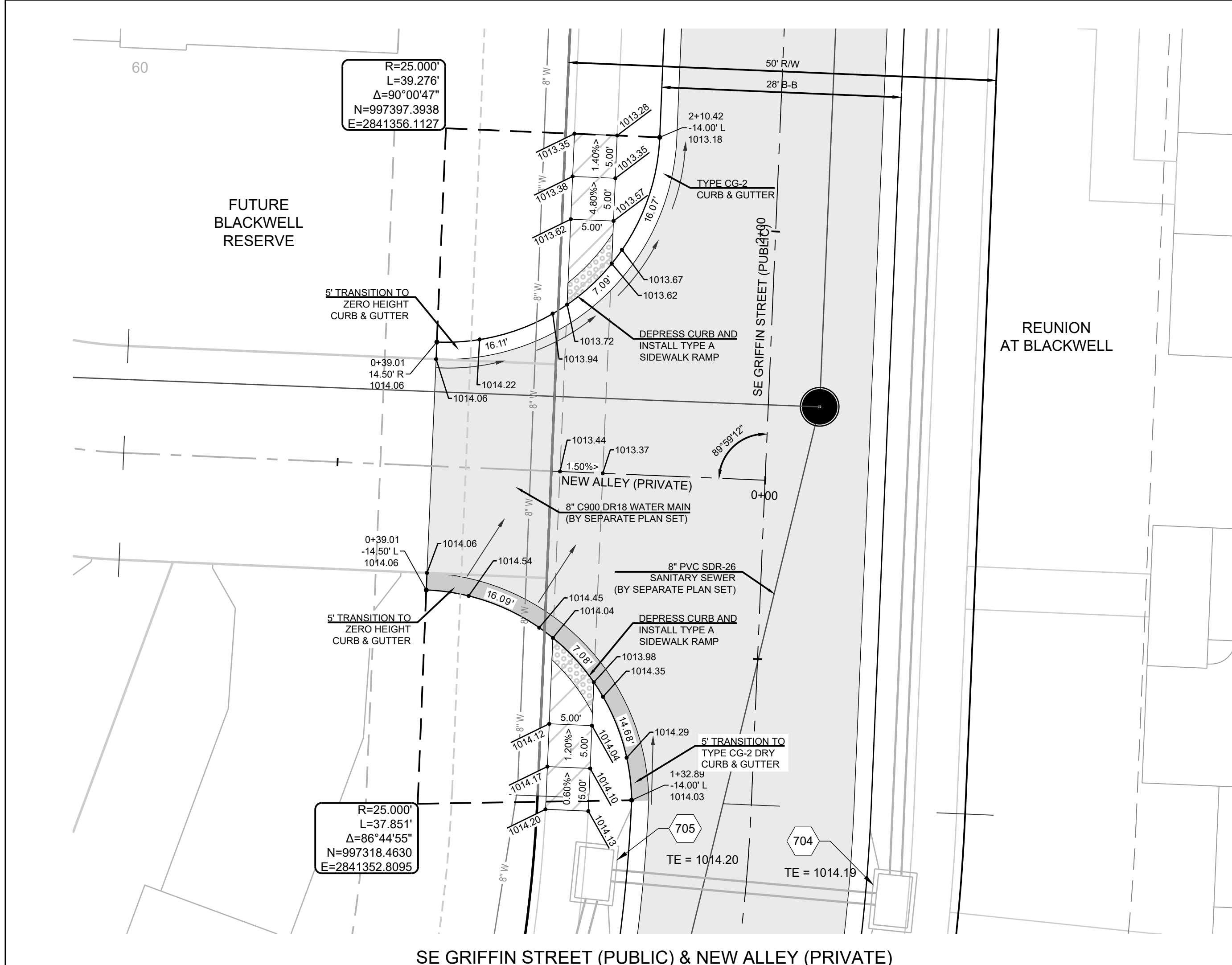
RILEY PLACE (PUBLIC)



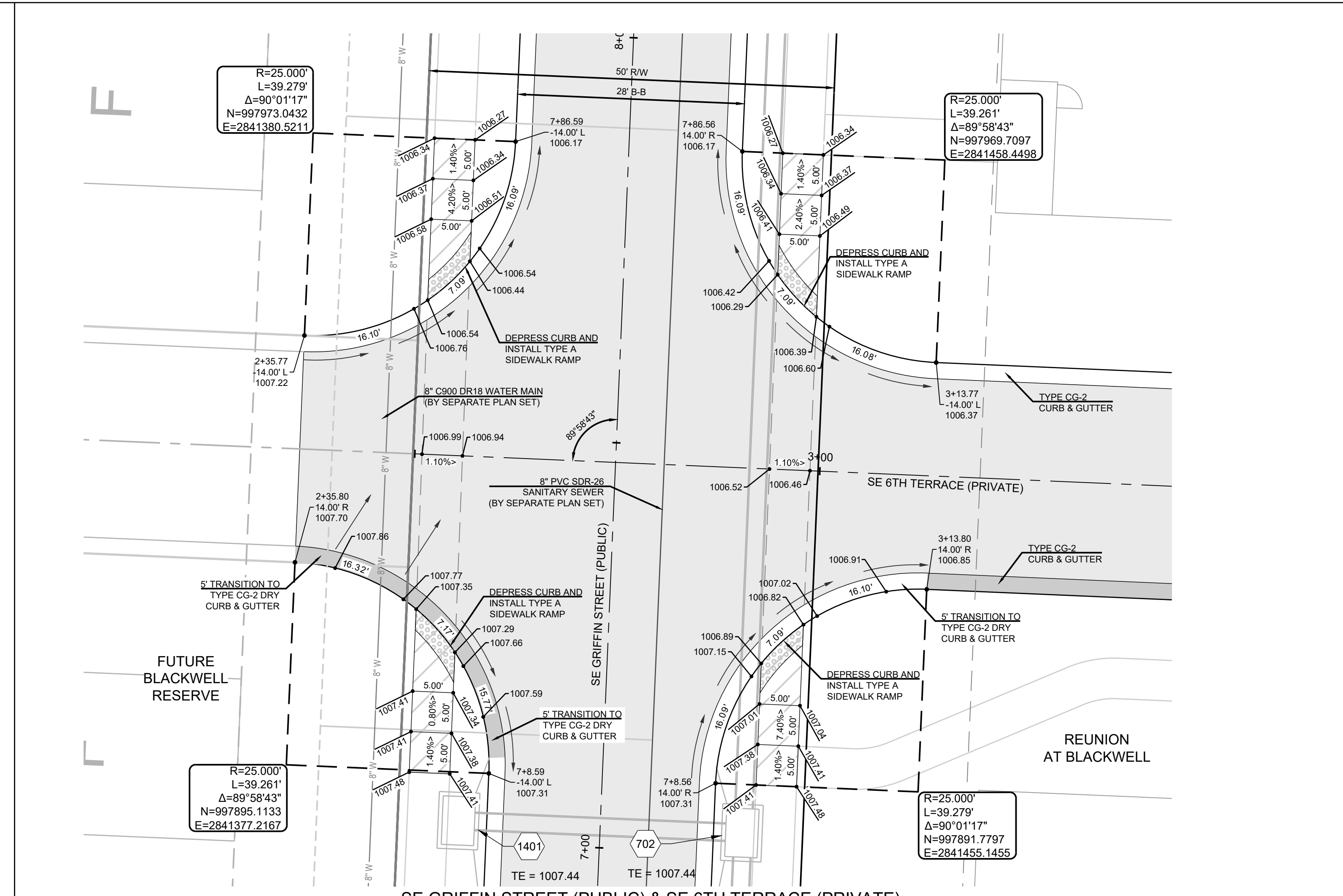
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05/05/2023	MAB
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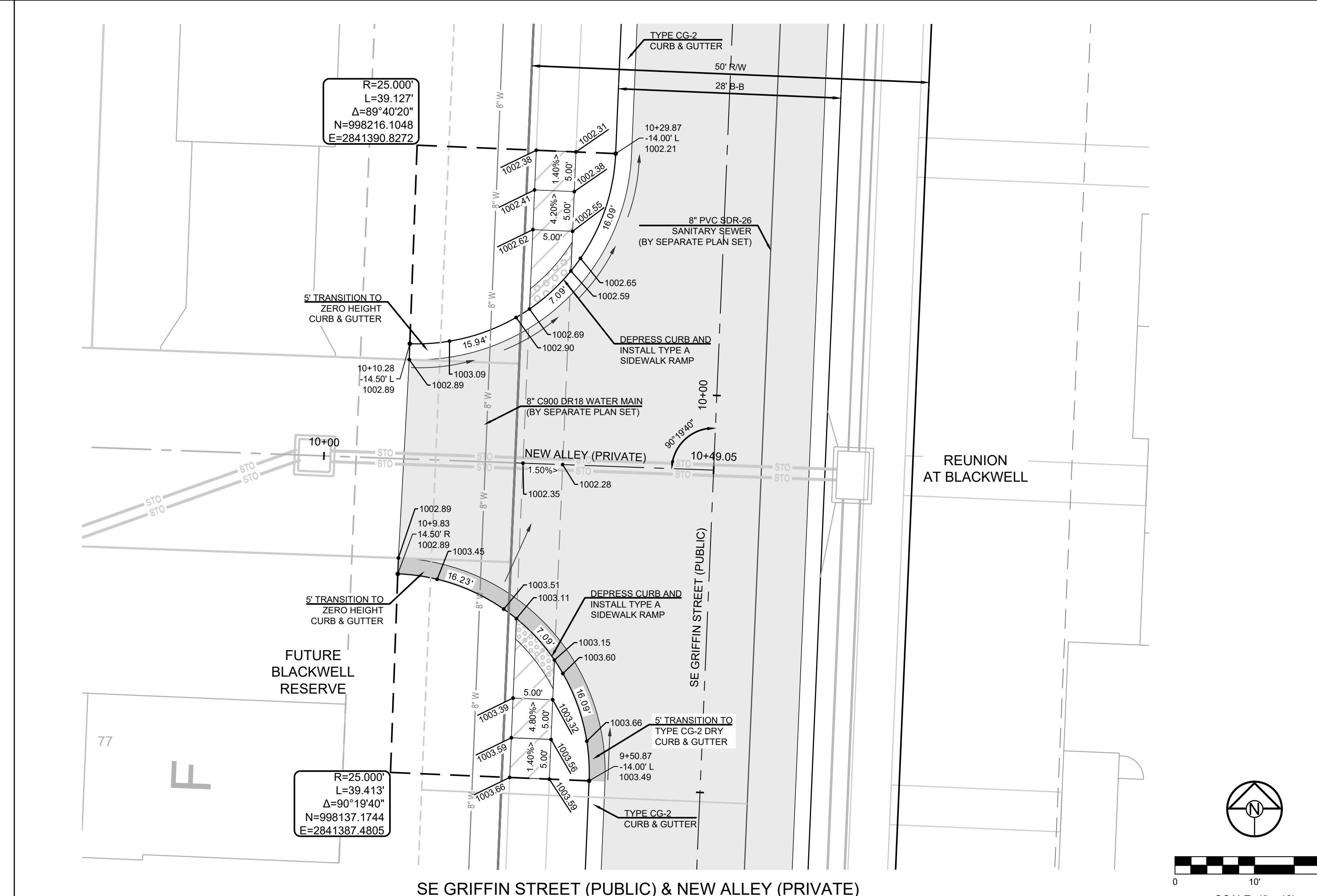
RILEY STREET (PUBLIC) & SE GRIFFIN STREET (PUBLIC)



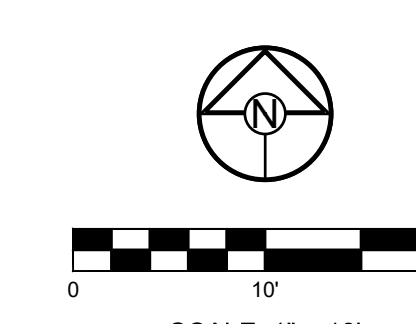
SE GRIFFIN STREET (PUBLIC) & NEW ALLEY (PRIVATE)



SE GRIFFIN STREET (PUBLIC) & SE 6TH TERRACE (PRIVATE)



SE GRIFFIN STREET (PUBLIC) & NEW ALLEY (PRIVATE)



SCHLAGEL

ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS

14920 West 107th Street • Lenexa, Kansas 66215

(913) 492-5158 • Fax: (913) 492-8400

WWW.SCHLAGELASSOCIATES.COM

Missouri State Certificate of Authority
#E2002003600-F #LAC2001005237 #LS2002008659-F

PREPARED BY:

STATE OF MISSOURI

MARK ALLEN BREUER

PROFESSIONAL ENGINEER

NUMBER
PE-2003007268

5.9.2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
PUBLIC STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

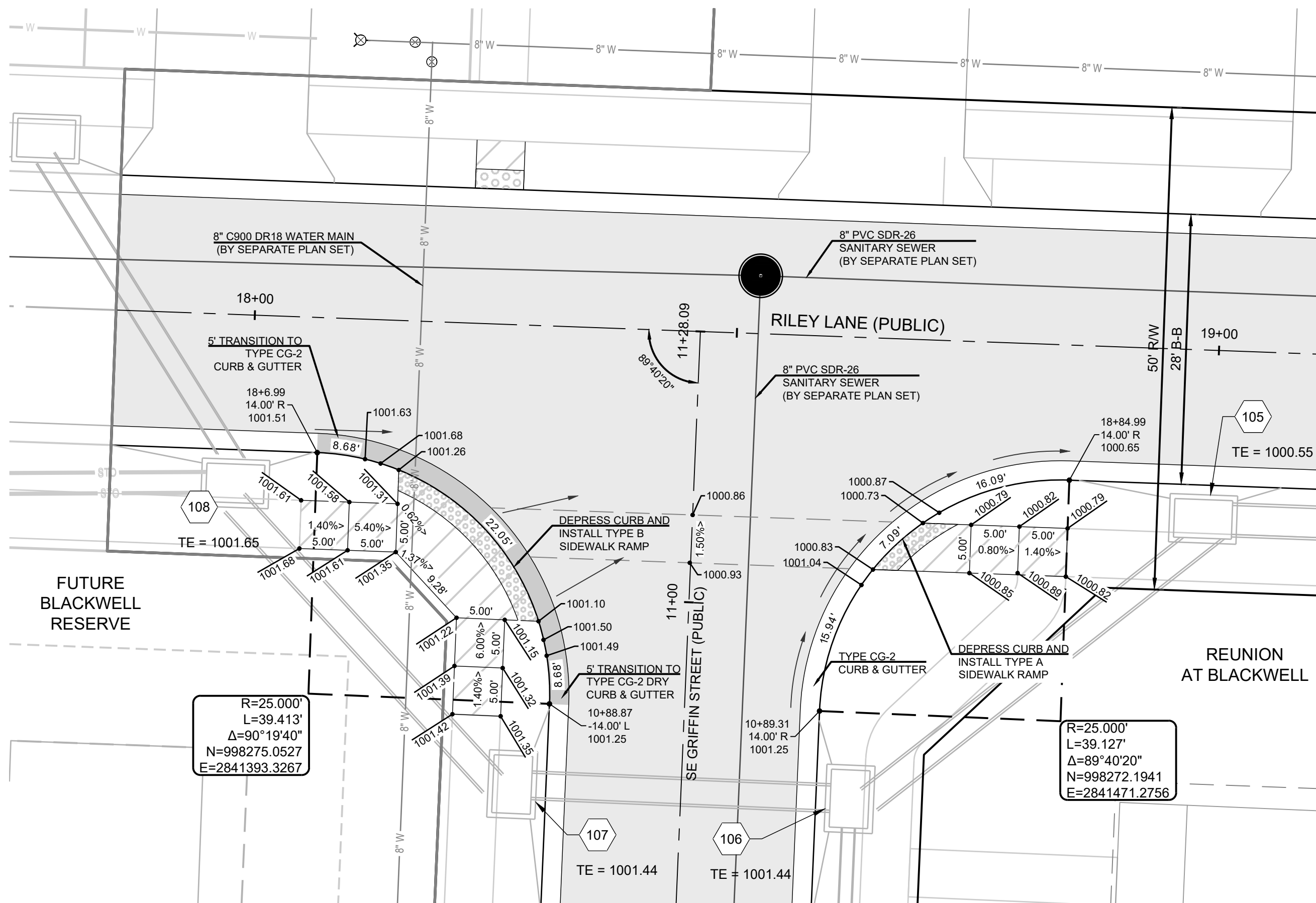
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05/05/2023	PER CITY COMMENTS
05/05/2023	TRC
05/05/2023	MAB
05/05/2023	DATE PREPARED
05/05/2023	PROJ. NUMBER

INTERSECTION DETAILS

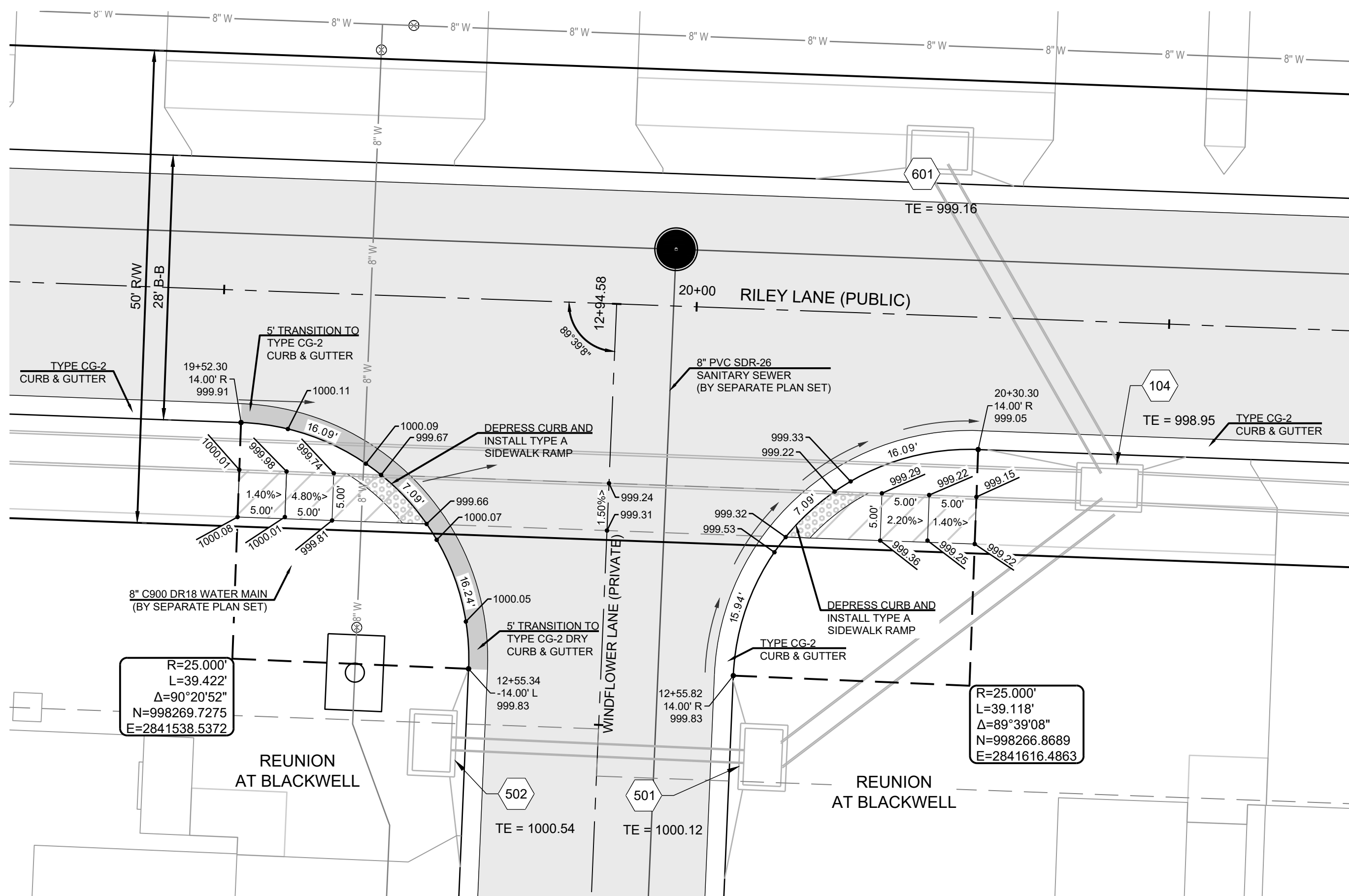
SHEET

15

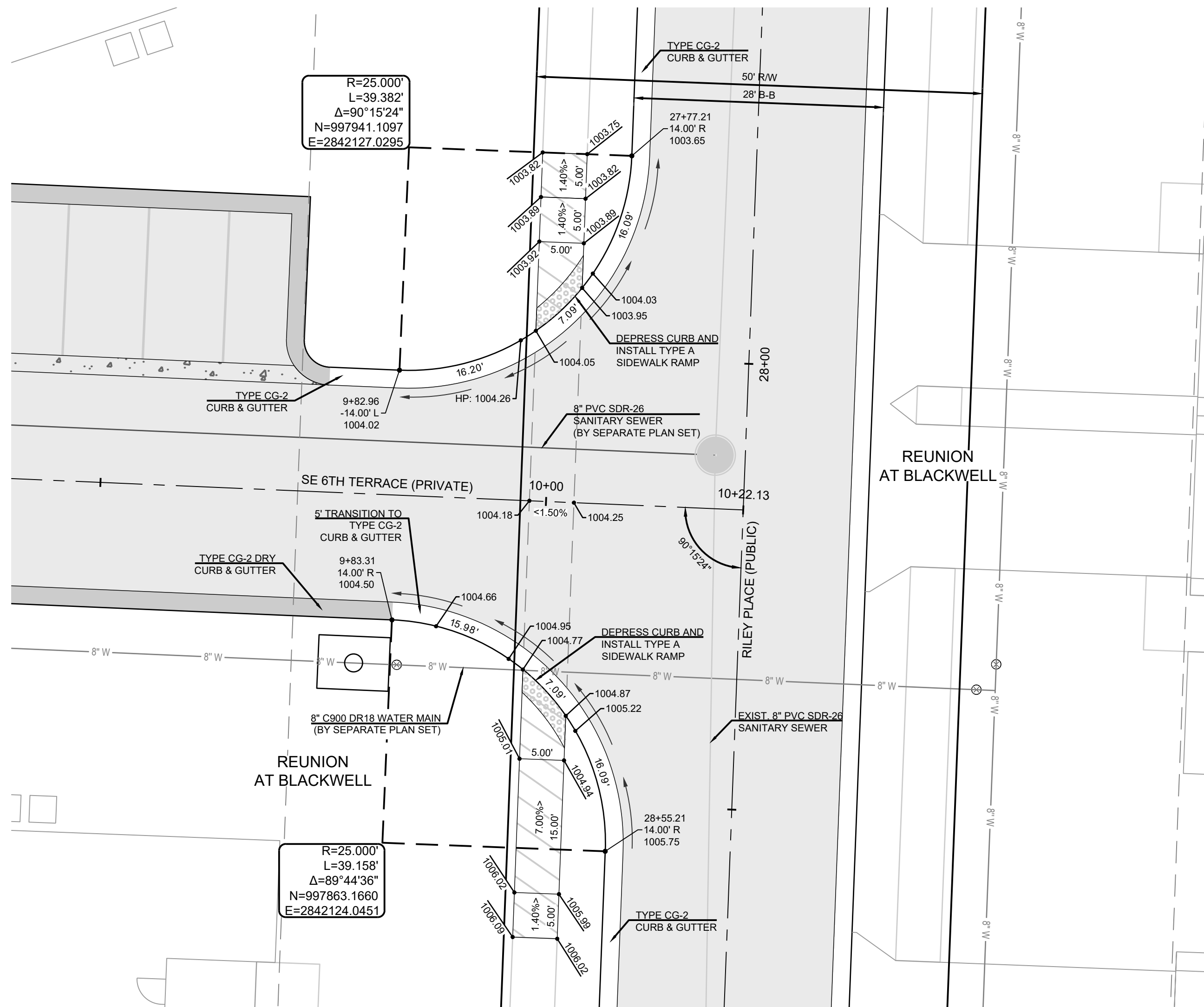
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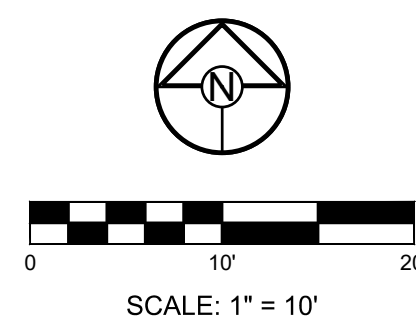
RILEY LANE (PUBLIC) & SE GRIFFIN STREET (PUBLIC)



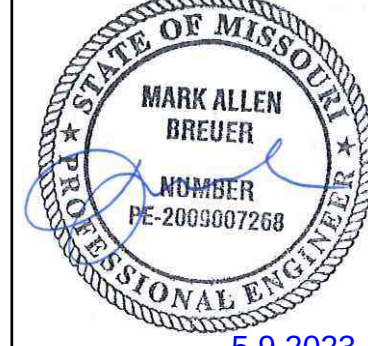
RILEY LANE (PUBLIC) & WINDFLOWER LANE (PRIVATE)



RILEY PLACE (PUBLIC) & SE 6TH TERRACE (PRIVATE)



PREPARED BY:



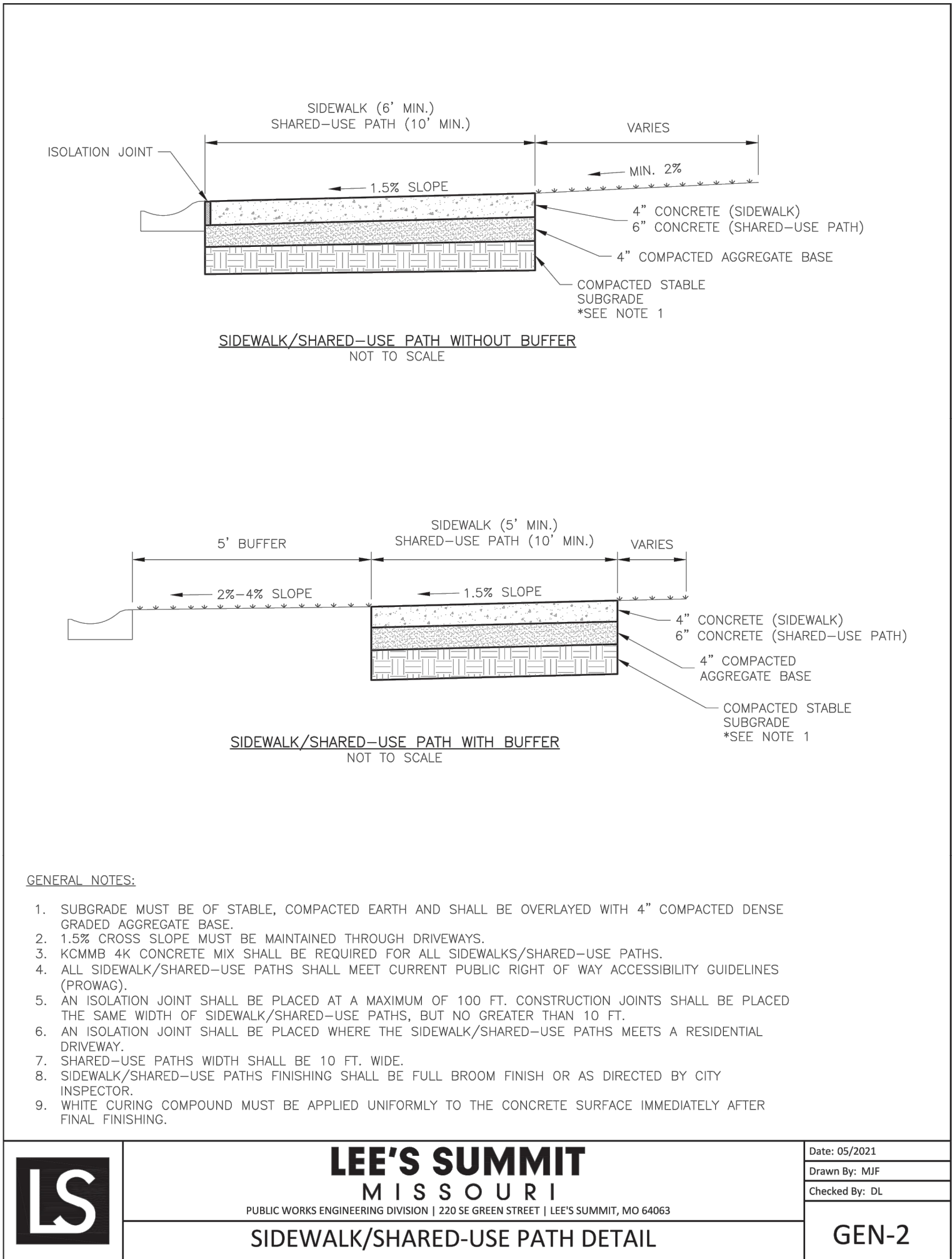
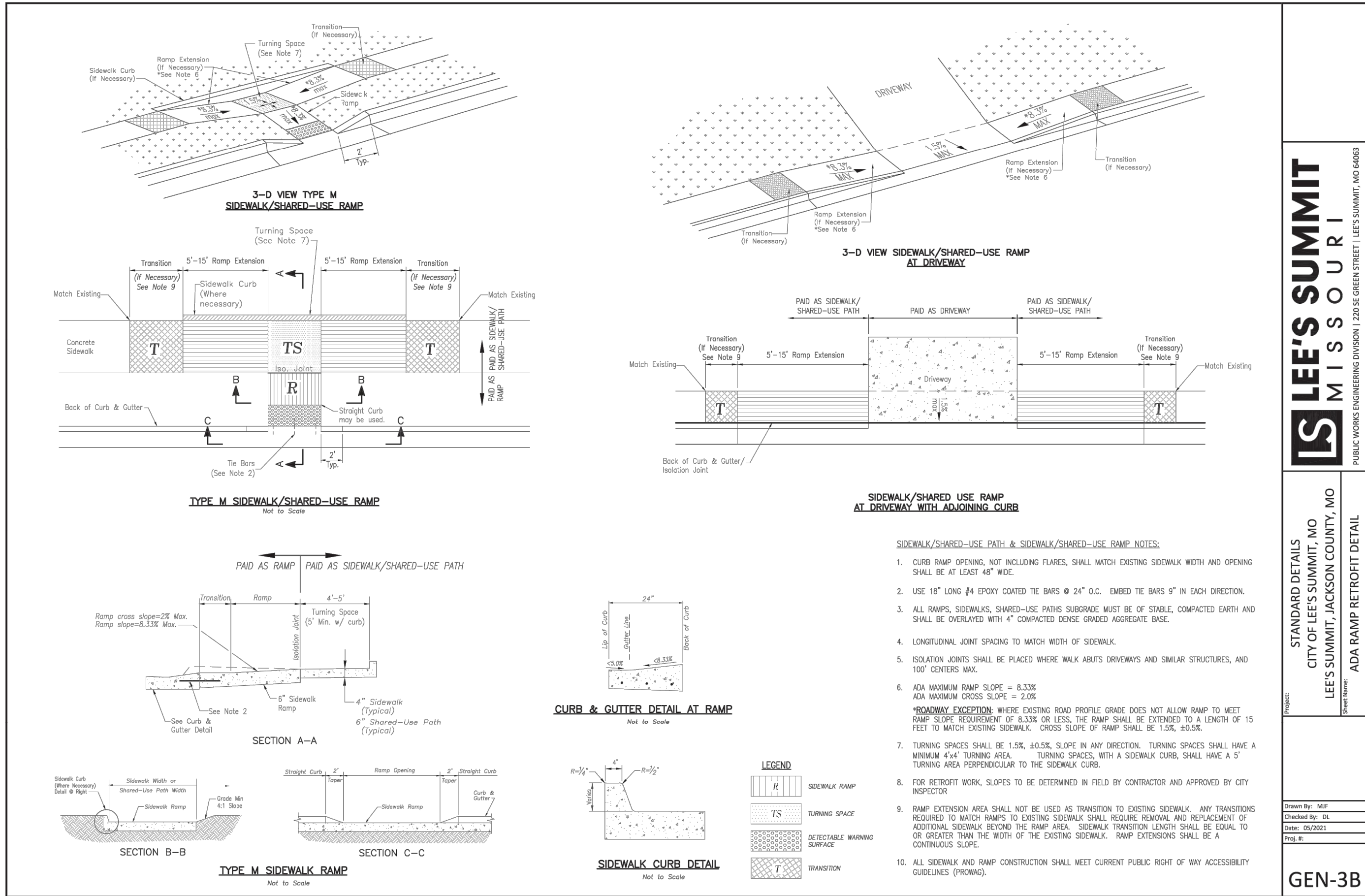
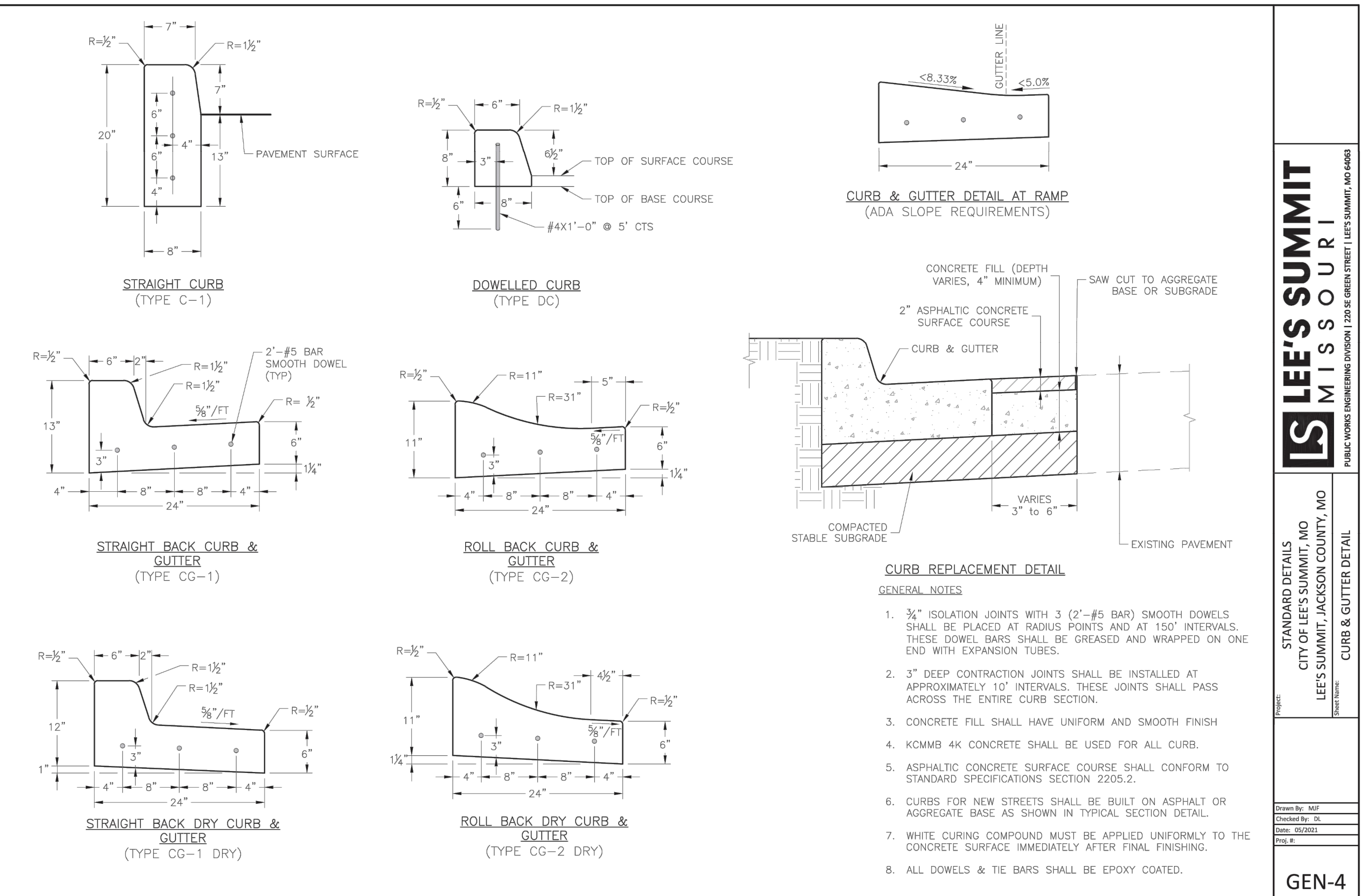
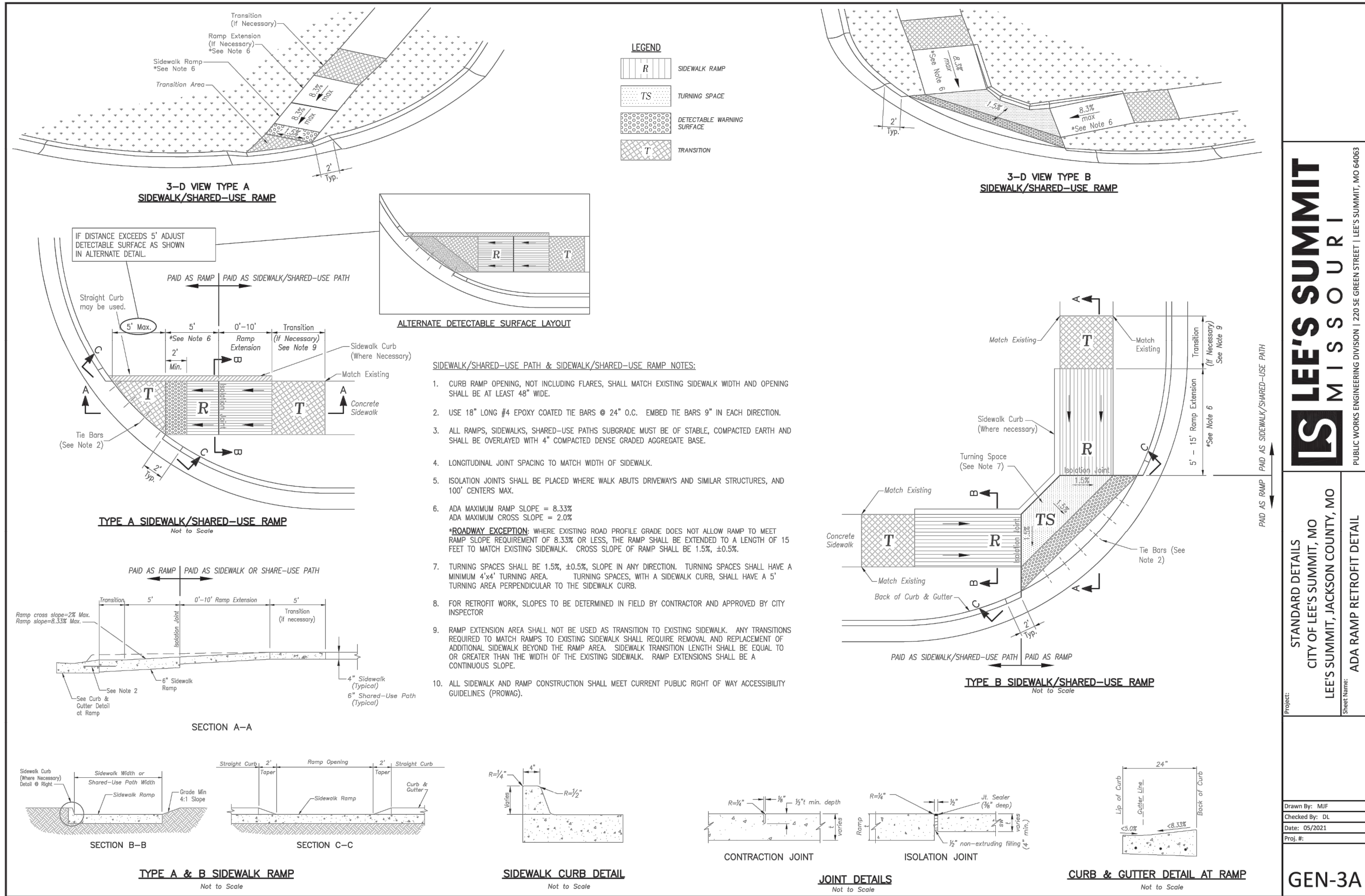
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PUBLIC STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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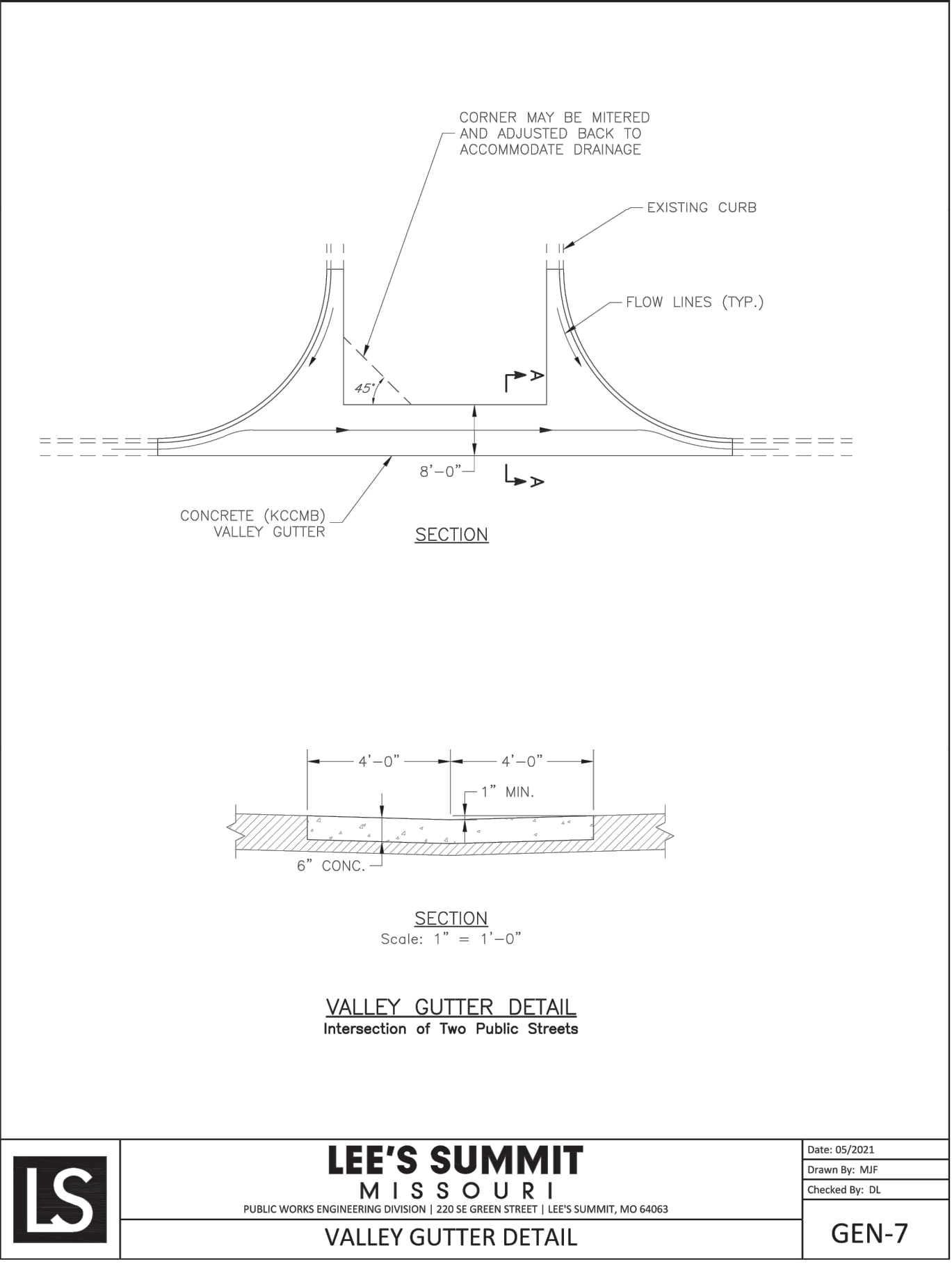
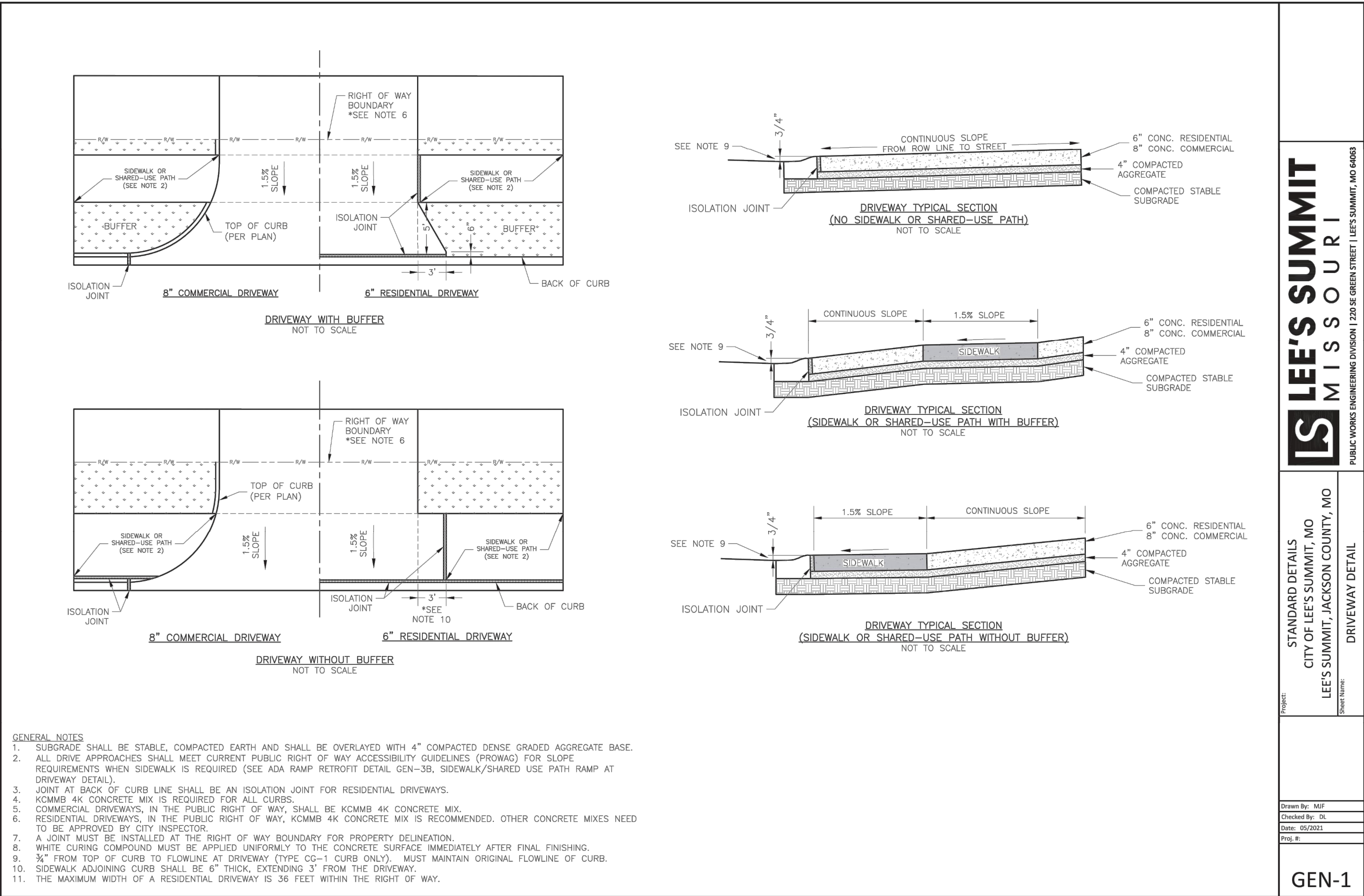
INTERSECTION
DETAILS

SHEET



REVISION DATE	DESCRIPTION	PER CITY COMMENTS
05/05/2023	1	
	2	
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DRAWN BY: TRC	CHECKED BY: MAB	DATE PREPARED: 03/03/2023	PROJ. NUMBER: 22-267
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REUNION AT BLACKWELL
PUBLIC STREET AND STORM SEWER PLANS

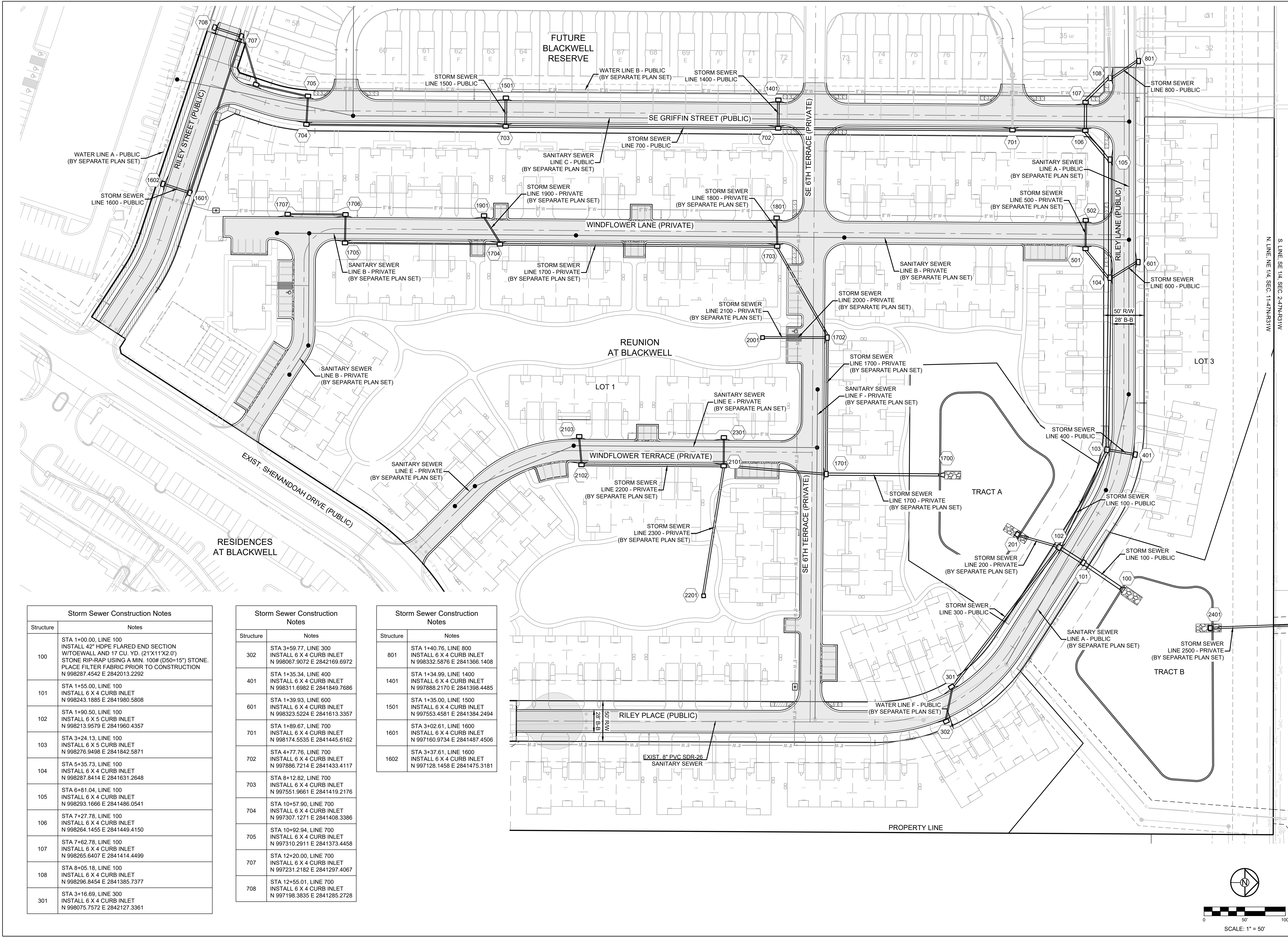
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 05/05/2023	PER CITY COMMENTS
2	
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DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-597

STREET DETAILS

I:\PROJECTS\2022\22-267\3.0 DWG Plans\3.0 SS-22-267 - SS - STORM.dwg, 19 STORM PLAN, 1:1



Storm Sewer Construction Notes	
Structure	Notes
100	STA 1+00.00, LINE 100 INSTALL 42" HDPE FLARED END SECTION W/TOEWALL AND 17 CU. YD. (21'X11'X2.0') STONE RIP-RAP USING A MIN. 100# (D50=15") STONE. PLACE FILTER FABRIC PRIOR TO CONSTRUCTION N 998287.4542 E 2842013.2292
101	STA 1+55.00, LINE 100 INSTALL 6 X 4 CURB INLET N 998243.1885 E 2841980.5808
102	STA 1+90.50, LINE 100 INSTALL 6 X 5 CURB INLET N 998213.9579 E 2841960.4357
103	STA 3+24.13, LINE 100 INSTALL 6 X 5 CURB INLET N 998276.9498 E 2841842.5871
104	STA 5+35.73, LINE 100 INSTALL 6 X 4 CURB INLET N 998287.8414 E 2841631.2648
105	STA 6+81.04, LINE 100 INSTALL 6 X 4 CURB INLET N 998293.1666 E 2841486.0541
106	STA 7+27.78, LINE 100 INSTALL 6 X 4 CURB INLET N 998264.1455 E 2841449.4150
107	STA 7+62.78, LINE 100 INSTALL 6 X 4 CURB INLET N 998265.6407 E 2841414.4499
108	STA 8+05.18, LINE 100 INSTALL 6 X 4 CURB INLET N 998296.8454 E 2841385.7377
301	STA 3+16.69, LINE 300 INSTALL 6 X 4 CURB INLET N 998075.7572 E 2842127.3361

Storm Sewer Construction Notes	
Structure	Notes
302	STA 3+59.77, LINE 300 INSTALL 6 X 4 CURB INLET N 998067.9072 E 2842169.6972
401	STA 1+35.34, LINE 400 INSTALL 6 X 4 CURB INLET N 998311.6982 E 2841849.7686
601	STA 1+39.93, LINE 600 INSTALL 6 X 4 CURB INLET N 998323.5224 E 2841613.3357
701	STA 1+89.67, LINE 700 INSTALL 6 X 4 CURB INLET N 998174.5535 E 2841445.6162
702	STA 4+77.76, LINE 700 INSTALL 6 X 4 CURB INLET N 997886.7214 E 2841433.4117
703	STA 8+12.82, LINE 700 INSTALL 6 X 4 CURB INLET N 997551.9661 E 2841419.2176
704	STA 10+57.90, LINE 700 INSTALL 6 X 4 CURB INLET N 997307.1271 E 2841408.3386
705	STA 10+92.94, LINE 700 INSTALL 6 X 4 CURB INLET N 997310.2911 E 2841373.4458
707	STA 12+20.00, LINE 700 INSTALL 6 X 4 CURB INLET N 997231.2182 E 2841297.4067
708	STA 12+55.01, LINE 700 INSTALL 6 X 4 CURB INLET N 997198.3835 E 2841285.2728

Storm Sewer Construction Notes	
Structure	Notes
801	STA 1+40.76, LINE 800 INSTALL 6 X 4 CURB INLET N 998332.5876 E 2841366.1408
1401	STA 1+34.99, LINE 1400 INSTALL 6 X 4 CURB INLET N 997888.2170 E 2841398.4485
1501	STA 1+35.00, LINE 1500 INSTALL 6 X 4 CURB INLET N 997553.4581 E 2841384.2494
1601	STA 3+02.61, LINE 1600 INSTALL 6 X 4 CURB INLET N 997160.9734 E 2841487.4506
1602	STA 3+37.61, LINE 1600 INSTALL 6 X 4 CURB INLET N 997128.1458 E 2841475.3181

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DRAWN BY: TRC	CHECKED BY: MAB	DATE PREPARED: 03/03/2023	PROJ. NUMBER: 22-267
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STORM PLAN

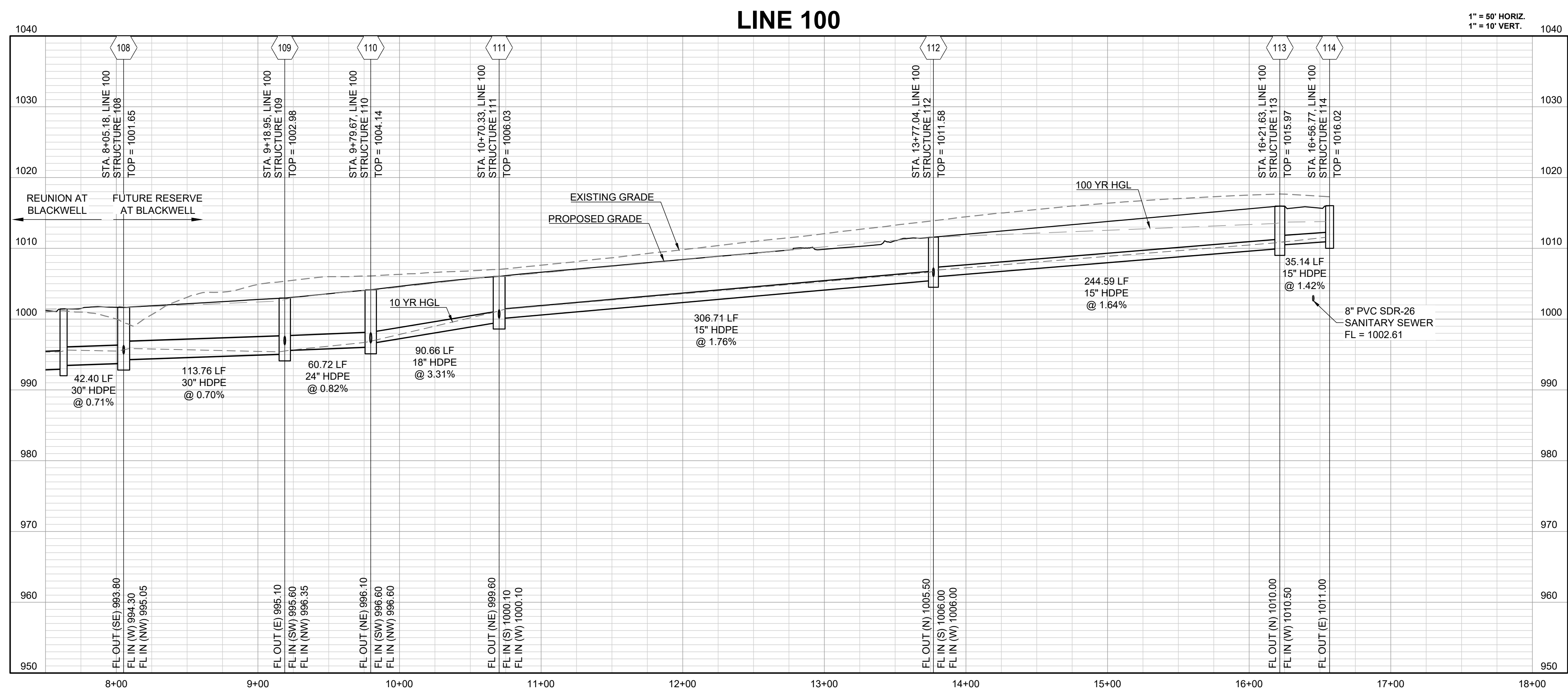
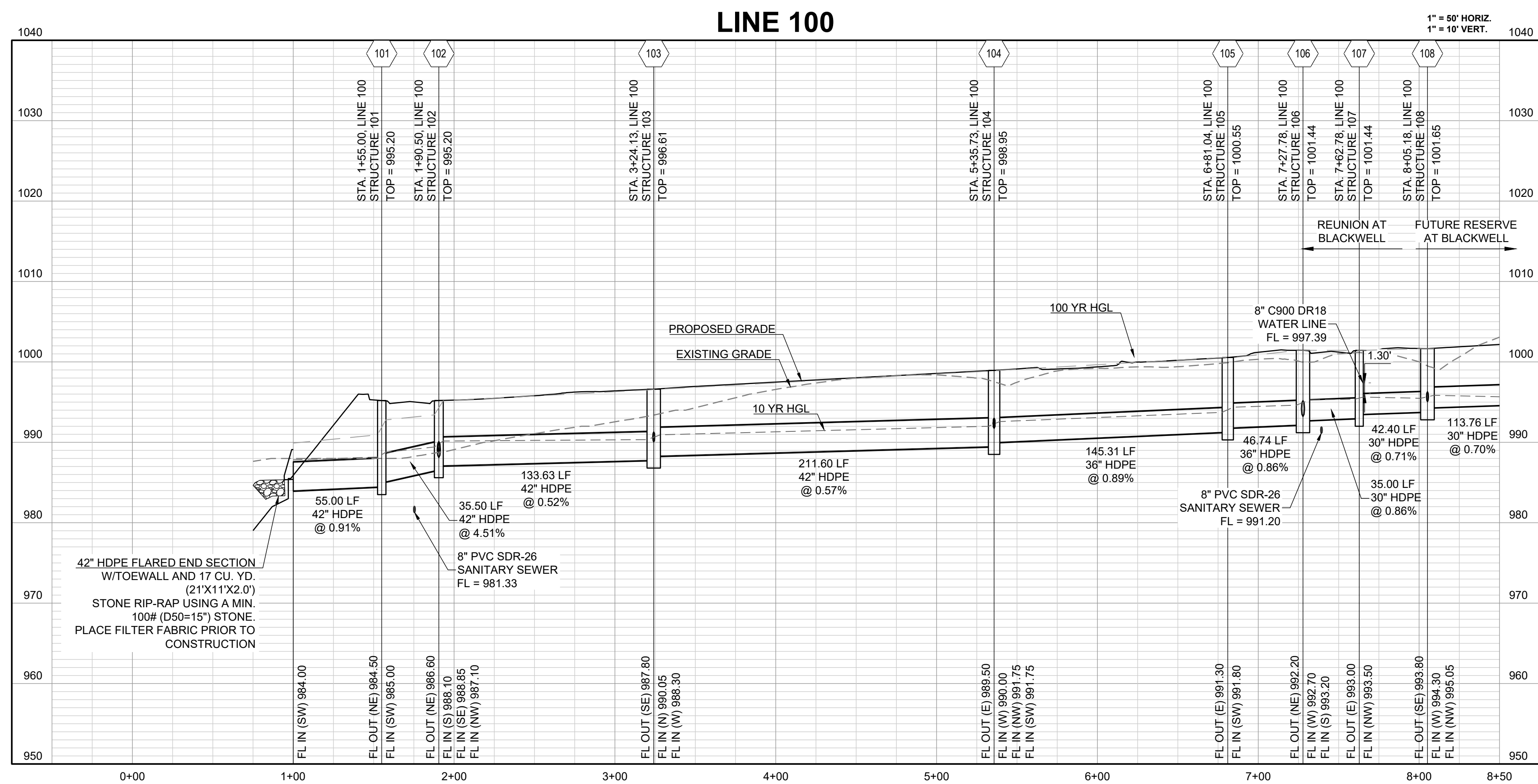
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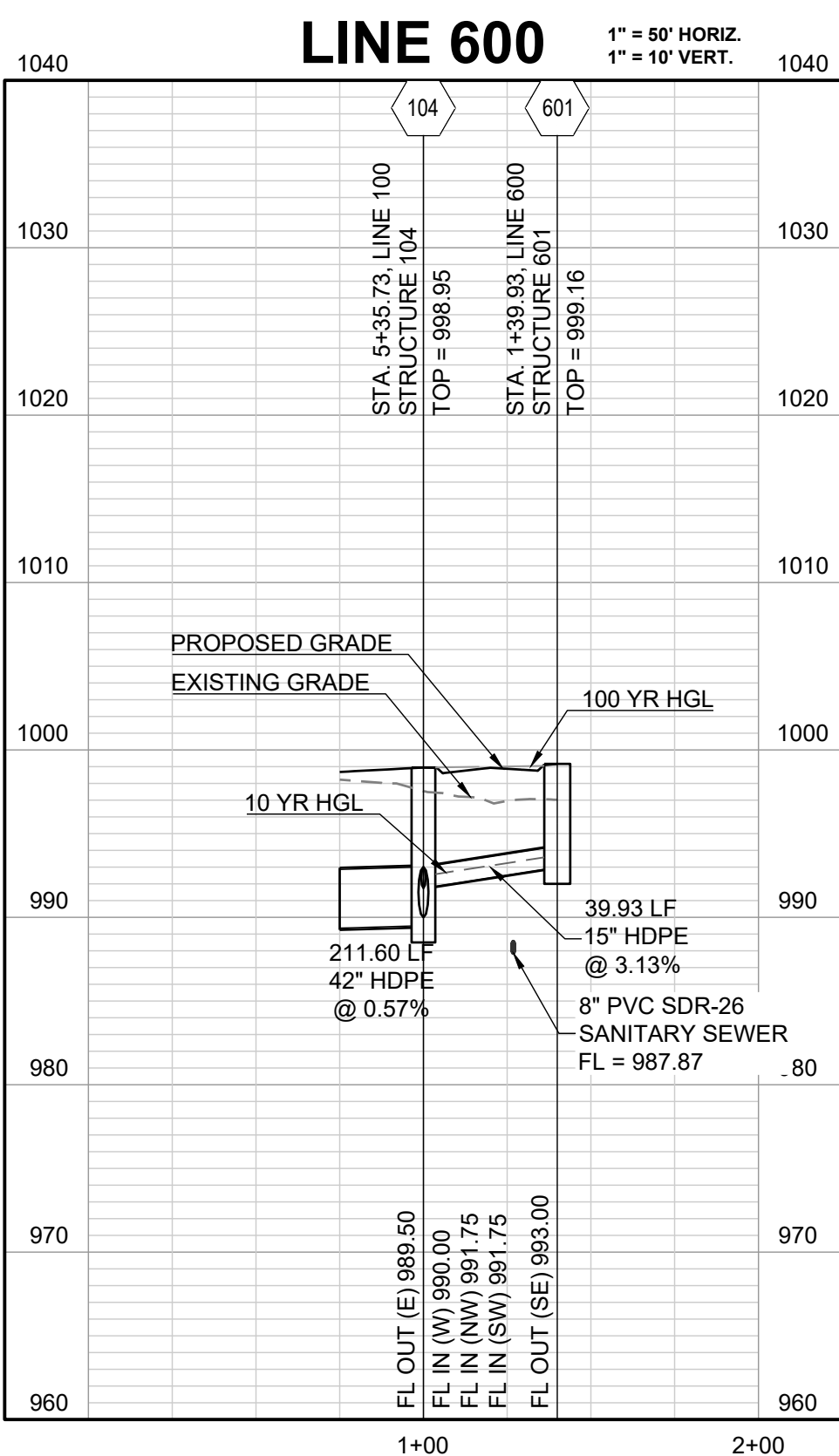
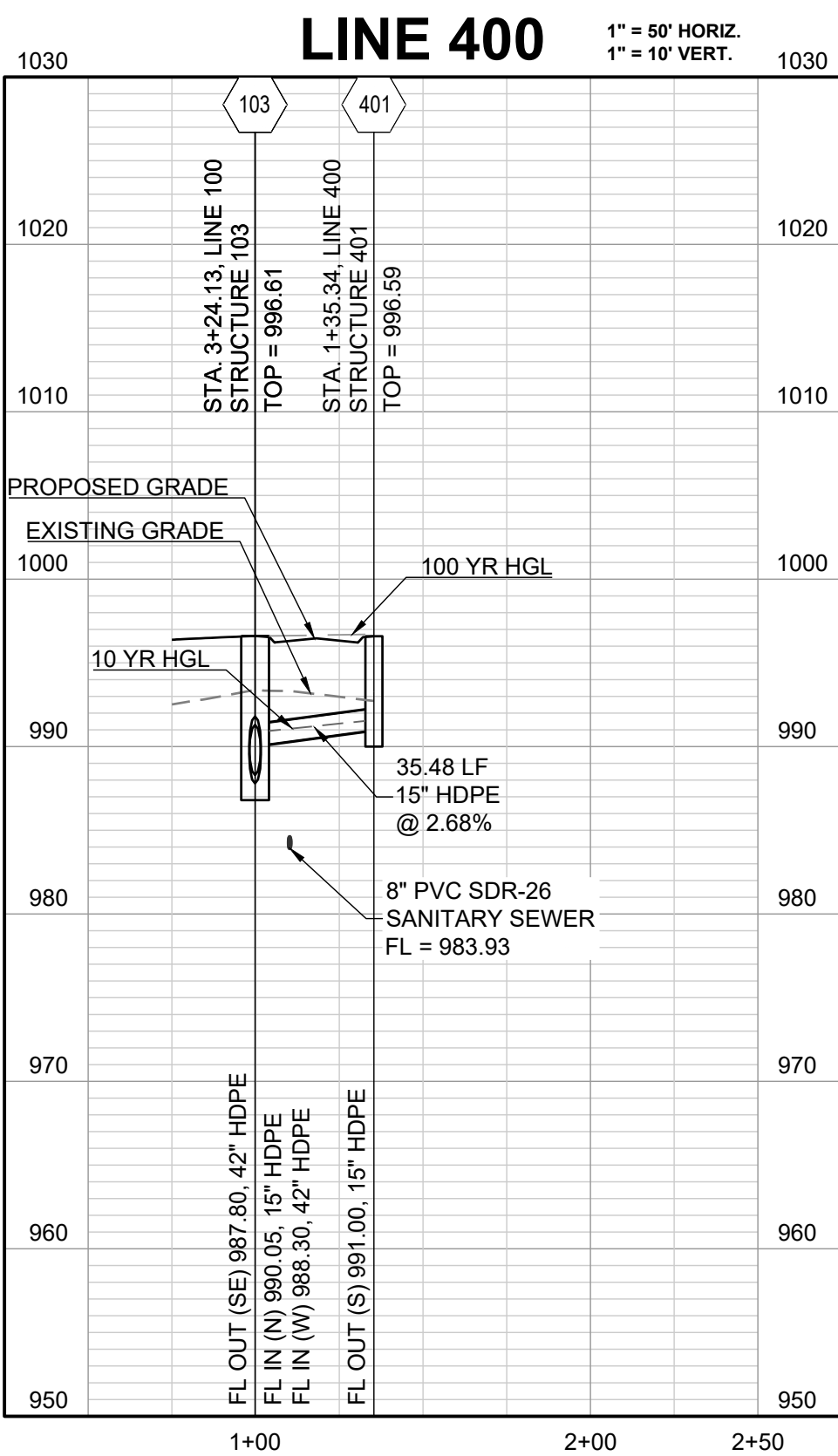
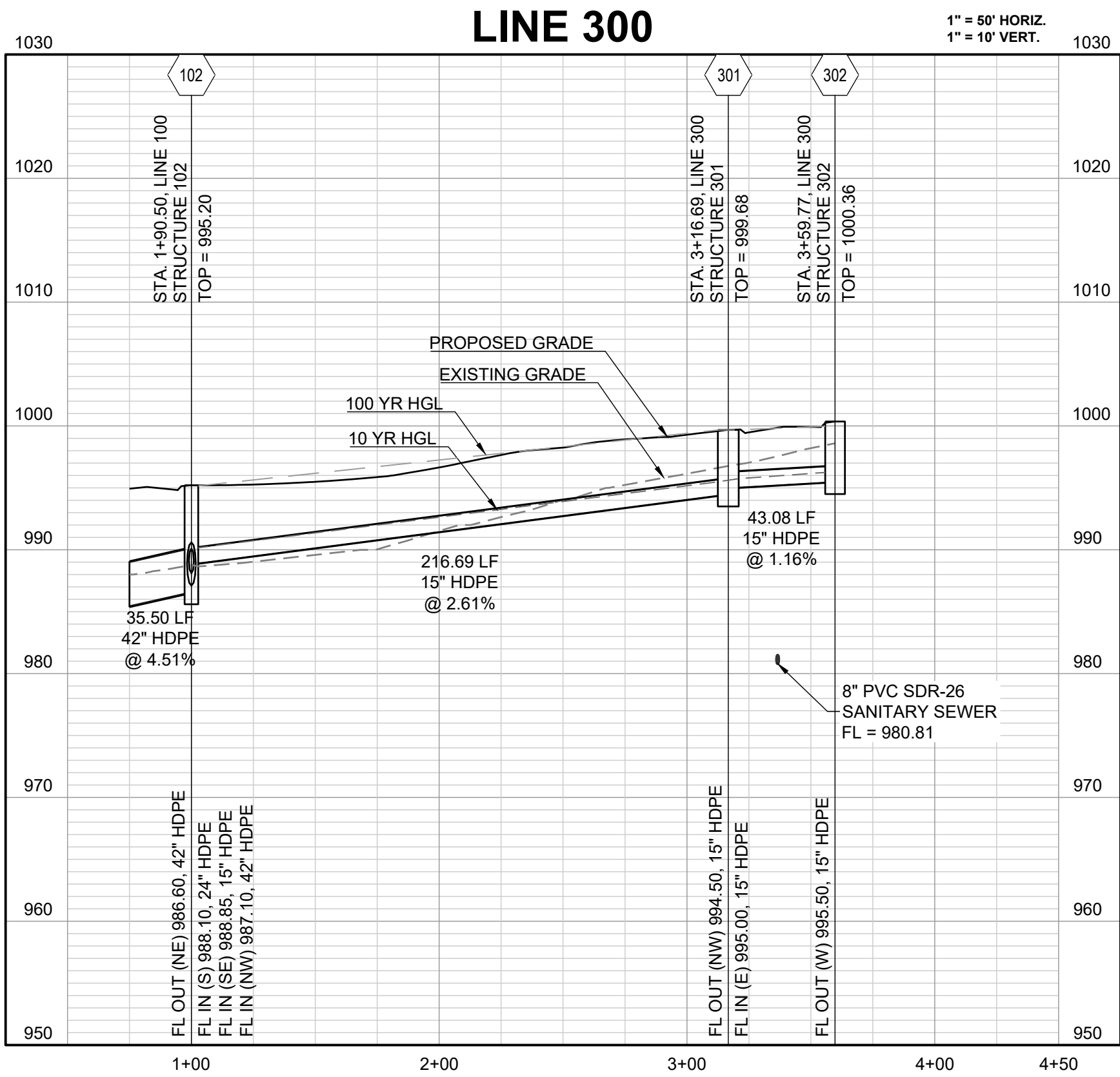
19

Design Storm:		100																									
"K" Value:		1.25																									
"F" Factor:		1.00																									
Runoff Calculations														Pipe Properties													
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. Cx/A	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up Cx/A	Up Inlet	Down Inlet	Pipe Type	"n"	Pipe Size	Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev.	
LINE 100																											
101	0.61	0.66	20.04	13.23	8.7	8.99	4.52	148.62	103.97	10.81			0.00	0.00	101	100	HDPE	0.012	42	55.00	0.91	0.50	DS TAILWATER @ STR #100			989.91	
102	0.40	0.66	19.43	12.82	8.7	9.00	2.97	144.22	231.47	24.06	201	301	3.52	2.32	102	101	HDPE	0.012	42	35.50	4.51	0.50	984.50	984.00	995.20	992.79	
103	0.37	0.66	15.51	10.24	8.4	8.90	2.77	116.24	78.80	8.17	401		0.42	0.28	103	102	HDPE	0.012	42	133.63	0.52	0.50	987.80	987.10	996.61	997.81	
104	0.22	0.66	14.72	9.72	8.0	9.22	1.67	111.96	82.29	8.35	501	601	1.57	1.04	104	103	HDPE	0.012	42	213.60	0.57	0.50	989.50	988.30	998.95	999.90	
105	0.11	0.66	12.93	8.53	7.7	9.30	0.84	99.24	68.17	9.64			0.00	0.00	105	104	HDPE	0.012	36	145.31	0.90	0.50	991.30	990.00	1000.55	1003.22	
106	0.19	0.66	12.82	8.46	7.6	9.33	1.39	98.69	67.01	9.48	701		6.62	4.37	106	105	HDPE	0.012	36	46.74	0.86	0.50	992.20	991.80	1001.44	1002.54	
107	0.64	0.66	6.02	3.97	6.9	9.58	5.06	47.56	41.21	8.39			0.00	0.00	107	106	HDPE	0.012	30	35.00	0.86	0.50	993.00	992.70	1001.44	1002.57	
108	0.18	0.66	5.38	3.55	6.8	9.61	1.43	42.65	37.44	7.63	801		0.26	0.17	108	107	HDPE	0.012	30	42.40	0.71	0.50	993.80	993.50	1001.65	1002.42	
109	0.12	0.66	4.94	3.26	6.6	9.70	0.96	39.53	37.18	7.57	901		0.66	0.44	109	108	HDPE	0.012	30	113.76	0.70	0.50	995.10	994.30	1002.98	1005.05	
110	0.11	0.66	4.16	2.75	6.4	9.75	0.89	33.47	22.19	7.06	1001		1.25	0.83	110	109	HDPE	0.012	24	60.72	0.82	0.50	996.09	995.60	1004.14	1004.99	
111	0.53	0.66	2.80	1.85	6.3	9.80	4.29	22.64	20.70	11.72	1101		0.65	0.43	111	110	HDPE	0.012	18	90.66	3.31	0.50	999.59	999.59	1006.03	1009.20	
112	0.42	0.66	1.62	1.07	5.6	10.06	3.49	13.45	9.28	7.57	1201		0.47	0.31	112	111	HDPE	0.012	15	306.71	1.76	0.50	1005.49	1000.09	1011.58	1018.29	
113	0.34	0.66	0.73	0.48	5.1	10.29	2.89	6.20	8.96	7.30			0.00	0.00	113	112	HDPE	0.012	15	244.59	1.64	0.50	1010.00	1005.99	1015.97	1013.70	
114	0.39	0.66	0.39	0.26	5.0	10.32	3.32	3.32	8.34	6.80			0.00	0.00	114	113	HDPE	0.012	15	35.14	1.42	N/A	1011.00	1010.50	1016.02	1013.84	
LINE 200																											
201	2.31	0.66	2.31	1.52	5.0	10.32	19.67	19.67	41.95	13.35			0.00	0.00	201	102	HDPE	0.012	24	58.100	2.93	1.50	N/A	989.80	988.10	993.70	995.84
LINE 300																											
301	0.52	0.66	1.21	0.80	5.1	10.27	4.41	10.26	11.31	9.21			0.00	0.00	301	102	HDPE	0.012	15	216.69	2.61	0.50	994.51	988.85	996.68	1000.36	
302	0.69	0.66	0.69	0.46	5.0	10.32	5.88	5.88	7.54	6.14			0.00	0.00	302	301	HDPE	0.012	15	43.08	1.16	N/A	995.51	995.01	1000.36	1000.16	
LINE 400																											
401	0.42	0.66	0.42	0.28	5.0	10.32	3.58	3.58	11.46	9.34			0.00	0.00	401	103	HDPE	0.012	15	34.98	2.68	N/A	990.98	990.05	996.59	996.76	
LINE 500																											
501	0.43	0.66	1.14	0.75	5.1	10.30	3.65	9.68	13.59	11.07			0.00	0.00	501	104	HDPE	0.012	15	46.43	3.77	0.50	993.50	991.75	1000.12	1000.32	
502	0.71	0.66	0.71	0.47	5.0	10.32	6.05	6.05	11.83	9.64			0.00	0.00	502	501	HDPE	0.012	15	35.00	2.86	N/A	995.00	994.00	1000.54	1000.57	
LINE 600																											
601	0.43	0.66	0.43	0.28	5.0	10.32	3.66	3.66	12.38	10.09			0.00	0.00	601	104	HDPE	0.012	15	39.93	3.13	N/A	993.00	991.75	999.16	999.13	
LINE 700																											
701	0.32	0.66	6.62	4.37	7.6	9.33	2.46	50.96	31.67	10.08	1301		2.26	1.49	701	106	HDPE	0.012	24	89.67	1.67	1.00	994.70	993.20	1002.90	1007.36	
702	0.58	0.66	4.04	2.67	7.1	9.50	4.55	31.67	30.64	9.75	1401		0.54	0.36	702	701	HDPE	0.012	24	288.09	1.56	0.50	999.70	995.20	1007.44	1008.50	
703	0.46	0.66	2.92	1.93	6.4	9.76	3.70	23.50	14.04	7.95	1501		0.85	0.56	703	702	HDPE	0.012	18	335.06	1.52	0.50	1005.30	1000.20	1011.51	1023.11	
704	0.26	0.66	1.61	1.06	5.7	9.60	2.16	13.36	9.19	5.20			0.00	0.00	704	703	HDPE	0.012	18	245.08	0.85	0.50	1007.40	1004.80	1014.19	1015.33	
705	0.07	0.66	1.35	0.89	5.5	10.10	0.58	11.25	8.61	4.87			0.00	0.00	705	704	HDPE	0.012	18	35.04	0.57	0.50	1008.10	1007.90	1014.20	1014.85	
706	0.03	0.66	1.28	0.84	5.3	10.18	0.25	10.75	6.71	5.47			0.00	0.00	706	705	HDPE	0.012	15	65.36	0.92	0.50	1009.20	1008.60	1014.96	1016.34	
707	0.49	0.66	1.25	0.83	5.1	10.27	4.15	10.59	6.30	5.13	1601		0.26	0.17	707	706	HDPE	0.012	15	61.70	0.81	0.50	1010.20	1009.70	1015.18	1016.95	
708	0.50	0.66	0.50	0.33	5.0	10.32	4.26	4.26	6.49	5.29			0.00	0.00	708	707	HDPE	0.012	15	35.00	0.86	N/A	1011.00	1010.70	1015.18	1015.40	
LINE 800																											
801	0.26	0.66	0.26	0.17	5.0	10.32	2.21	2.21	15.30	12.47			0.00	0.00	801	108	HDPE	0.012	15	40.76	4.78	N/A	997.00	995.05	1001.88	1001.72	
LINE 900																											
901	0.66	0.66	0.66	0.44	5.0	10.32	5.62	5.62	15.73	12.81			0.00	0.00	901	109	HDPE	0.012	15	38.65	5.09	1.25	N/A	998.30	996.35	1003.20	1003.39
LINE 1000																											
1001	1.25	0.66	1.25	0.83	5.0	10.32	10.65	10.65	9.31	5.27			0.00	0.00	1001	110	HDPE	0.012	18	210.17	0.67	0.50	N/A	998.00	996.59	1002.00	1006.26
LINE 1100																											
1101	0.65	0.66	0.65	0.43	5.0	10.32	5.54	5.54	11.22	9.14			0.00	0.00	1101	111	HDPE	0.012	15	35.07	2.57	0.50	N/A	1001.00	1000.09	1006.02	1006.41
LINE 1200																											
1201	0.47	0.66	0.47	0.31	5.0	10.32	4.00	4.00	11.69	9.53			0.00	0.00	1201	112	HDPE	0.012	15	35.84	2.79	0.50	N/A	1006.99	1005.99	1011.71	1011.78
LINE 1300																											
1301	0.30	0.66	2.26	1.49	6.2	9.86	2.44	18.38	12.36	7.00			0.00	0.00	1301	701	HDPE	0.012	18	67.73	1.18	0.50	995.99	995.20	1002.83	1005.51	
1302	0.80	0.66	1.96	1.29	6.0	9.91	6.54	16.03	12.64	10.30			0.00	0.00	1302	1301	HDPE	0.012	15	92.72	3.26	0.50	999.49	999.49	1004.68	1008.98	
1303	0.58	0.66	1.16	0.77	5.4	10.14	4.85	9.71	9.49	7.74			0.00	0.00	1303	1302	HDPE	0.012	15	271.61	1.84	0.50	1004.99	999.99	1009.51	1010.39	
1304	0.58	0.66	0.58	0.38	5.0	10.32	4.94	4.94	9.26	7.54			0.00	0.00	1304	1303	HDPE	0.012	15	200.00	1.75	N/A	1008.99	1005.49	1013.05	1010.64	
LINE 1400																											
1401	0.54	0.66	0.54	0.36	5.0	10.32	4.60	4.60	16.94	13.80			0.00	0.00	1401	702	HDPE	0.012	15	35.00	5.86	0.75	N/A	1002.50	1000.45	1007.44	1007.70
LINE 1500																											
1501	0.85	0.66	0.85	0.56	5.0	10.32	7.24	7.24	9.90	8.06			0.00	0.00	1501	703	HDPE	0.012	15	35.00	2.00	0.50	N/A	1006.50	1005.80	1011.51	1012.16
LINE 1600																											
1601	0.13	0.66	0.26	0.17	5.1	10.27	1.10	2.20	6.02	4.91			0.00	0.00	1601	707	HDPE	0.012	15	202.61	0.74	0.50	1012.20	1010.70	1017.15	1015.40	
1602	0.13	0.66	0.13	0.09	5.0	10.32	1.11	1.11	5.28	4.31			0.00	0.00	1602	1601	HDPE	0.012	15	35.00	0.57	N/A	1012.90	1012.70	1017.15	1015.42	
LINE 1700																											
1701	1.32	0.66	9.77	6.45	7.1	9.52	10.37	76.72	101.66	10.57	2101		2.81	1.85	1701	1700	HDPE	0.012	42	138.00	0.87	1.00	991.20	990.00	1000.50	996.44	
1702	0.27	0.66	5.64	3.72	6.9	9.59	2.14	44.63	66.80	13.61	2001		2.17	1.43	1702	1701	HDPE	0.012	30	167.90	2.26	1.00	996.00	992.00	1003.40	998.94	
1703	0.53	0.66	3.20	2.11	6.7	9.67	4.23	25.54	16.84	9.53	1801		0.55	0.36	1703	1702	HDPE	0.012	18	128.04	2.19	0.50	999.80	997.00	1006.01	1007.01	
1704	0.28	0.66	2.12	1.40	5.8	9.99	2.31	17.48	11.83	6.69	1901		0.26	0.17	1704	1703	HDPE	0.012	18	341.08	1.08	0.50	1003.98	1000.30	1010.39	1014.82	
1705	0.39	0.66	1.58	1.04	5.3	10.22	3.29	13.32	10.11	5.72			0.00	0.00	1705	1704	HDPE	0.012	18	190.50	0.79	0.50	1005.80	1004.48	1012.67	1013.42	
1706	0.85	0.66	1.19	0.79	5.2	10.25	7.19	10.06	8.37	6.82																	

SHEET	20																													
	STORM CALCS																													
	<table><tr><td>DRAWN BY:</td><td>TRC</td></tr><tr><td>CHECKED BY:</td><td>MAB</td></tr><tr><td>DATE PREPARED:</td><td>03/03/2023</td></tr><tr><td>PROJ. NUMBER:</td><td>22-097</td></tr></table>	DRAWN BY:	TRC	CHECKED BY:	MAB	DATE PREPARED:	03/03/2023	PROJ. NUMBER:	22-097	REUNION AT BLACKWELL PUBLIC STREET AND STORM SEWER PLANS SE SHENANDOAH DRIVE LEE'S SUMMIT, MO																				
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5.9.2023																														
																														
PREPARED BY:																														
																														
SCHLAGEL ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS 14920 West 107th Street • Lenexa, Kansas 66215 (913) 492-5158 • Fax: (913) 492-9400 WWW.SCHLAGELASSOCIATES.COM Missouri State Certificates of Authority RE20200308004F HLA20010105237 #LS200208859-F																														

RUNOFF CALCULATIONS											INLET DESIGN											GUTTER DESIGN			
INLET #	COMPOSITE "C"	AREA	INLET Tc	INTENSITY	RUNOFF	UPSTREAM INLET	UPSTREAM INLET	UPSTREAM INLET	UPSTREAM INLET	BYPASS FROM UPSTREAM INLET	TOTAL RUNOFF	STREET GRADE	CROSS SLOPE	CURB TYPE	INLET LENGTH	EFFECTIVE LENGTH 80% CAP	INLET INTERCEPTION	BYPASS TO DOWNSTREAM INLET	STREET GRADE	CROSS SLOPE	DEPTH AT CURB	SPREAD OF FLOW			
LINE 1																									
101	0.66	0.61	5	7.35	2.96	302	401			1.31	4.27	SUMP	2.00	A	6	4.8	13.44	0.00	SUMP	2.00	< 0.21	< 12			
102	0.66	0.40	5	7.35	1.94	103	301			0.82	2.76	SUMP	2.00	A	6	4.8	13.44	0.00	SUMP	2.00	< 0.21	< 12			
103	0.66	0.37	5	7.35	1.79	104				0.23	2.03	1.20	2.00	A	6	6	1.81	0.22	1.20	2.00	0.18	9.27			
104	0.66	0.22	5	7.35	1.07	501	502			1.02	2.08	1.20	2.00	A	6	6	1.85	0.23	1.20	2.00	0.18	9.36			
105	0.66	0.11	5	7.35	0.53	106	107	108		0.86	1.39	1.20	2.00	A	6	6	1.29	0.10	1.20	2.00	0.15	8.11			
106	0.66	0.18	5	7.35	0.87	701				0.12	1.00	1.20	2.00	A	6	6	0.95	0.05	1.20	2.00	0.13	7.22			
107	0.66	0.64	5	7.35	3.10	1401				0.68	3.78	1.20	2.00	A	6	6	3.00	0.77	1.20	2.00	0.22	11.57			
108	0.66	0.18	5	7.35	0.87	109				0.02	0.89	1.20	2.00	A	6	6	0.85	0.03	1.20	2.00	0.13	6.93			
109	0.66	0.12	5	7.35	0.58	110				0.08	0.66	1.21	2.00	A	6	6	0.64	0.02	1.21	2.00	0.11	6.25			
110	0.66	0.11	5	7.35	0.53	111				0.58	1.11	1.66	2.00	A	6	6	1.03	0.08	1.66	2.00	0.13	7.08			
111	0.66	0.53	5	7.35	2.57	112				0.34	2.91	1.66	2.00	A	6	6	2.33	0.58	1.66	2.00	0.19	9.94			
112	0.66	0.42	5	7.35	2.04	113				0.18	2.22	1.66	2.00	A	6	6	1.88	0.34	1.66	2.00	0.17	9.03			
113	0.66	0.34	5	7.35	1.65					0.00	1.65	1.66	2.00	A	6	6	1.47	0.18	1.66	2.00	0.15	8.13			
114	0.66	0.39	5	7.35	1.89					0.00	1.89	1.64	2.00	A	6	6	1.65	0.24	1.64	2.00	0.16	8.55			
LINE 3																									
301	0.66	0.52	5	7.35	2.52					0.00	2.52	2.70	2.00	A	6	6	1.92	0.60	2.70	2.00	0.16	8.67			
302	0.66	0.69	5	7.35	3.35					0.00	3.35	2.70	2.00	A	6	6	2.33	1.02	2.70	2.00	0.18	9.59			
LINE 4																									
401	0.66	0.42	5	7.35	2.04	601				0.30	2.34	1.20	2.00	A	6	6	2.04	0.30	1.20	2.00	0.18	9.75			
LINE 5																									
501	0.66	0.43	5	7.35	2.09					0.00	2.09	1.09	2.00	A	6	6	1.87	0.22	1.09	2.00	0.18	9.52			
502	0.66	0.71	5	7.35	3.44	702				0.52	3.97	1.09	2.00	A	6	6	3.17	0.80	1.09	2.00	0.23	11.98			
LINE 6																									
601	0.66	0.43	5	7.35	2.09	801				0.27	2.35	1.20	2.00	A	6	6	2.05	0.30	1.20	2.00	0.19	9.77			
LINE 7																									
701	0.66	0.32	5	7.35	1.55					0.00	1.55	1.20	2.00	A	6	6	1.43	0.12	1.20	2.00	0.16	8.43			
702	0.66	0.58	5	7.35	2.81	703				0.29	3.10	1.19	2.00	A	6	6	2.58	0.52	1.19	2.00	0.21	10.80			
703	0.66	0.46	5	7.35	2.23	704				0.08	2.31	1.19	2.00	A	6	6	2.02	0.29	1.19	2.00	0.18	9.72			
704	0.66	0.26	5	7.35	1.26	1601				0.02	1.28	1.19	2.00	A	6	6	1.20	0.08	1.19	2.00	0.15	7.88			
705	0.66	0.07	5	7.35	0.34					0.00	0.34	1.19	2.00	A	6	6	0.34	0.00	1.19	2.00	0.09	4.99			
706	0.66	0.03	5	7.35	0.15					0.00	0.15	1.19	2.00	A	6	6	0.15	0.00	1.19	2.00	0.07	3.77			
707	0.66	0.49	5	7.35	2.38	1601				0.02	2.39	SUMP	2.00	A	6	4.8	13.44	0.00	SUMP	2.00	< 0.21	< 12			
707	0.66	0.50	5	7.35	2.43					0.00	2.43	SUMP	2.00	A	6	4.8	13.44	0.00	SUMP	2.00	< 0.21	< 12			
LINE 8																									
801	0.66	0.26	5	7.35	1.26	901				0.95	2.21	1.20	2.00	A	6	6	1.95	0.27	1.20	2.00	0.18	9.56			
LINE 9																									
901	0.66	0.66	5	7.35	3.20	1101				0.86	4.07	1.33	2.00	A	6	6	3.11	0.95	1.33	2.00	0.22	11.66			
LINE 11																									
1101	0.66	0.65	5	7.35	3.15	1201				0.44	3.59	1.66	2.00	A	6	6	2.73	0.86	1.66	2.00	0.20	10.72			
LINE 12																									
1201	0.66	0.47	5	7.35	2.28	114				0.24	2.52	1.66	2.00	A	6	6	2.09	0.44	1.66	2.00	0.18	9.45			
LINE 14																									
1401	0.66	0.54	5	7.35	2.62	1501				0.91	3.53	1.19	2.00	A	6	6	2.86	0.68	1.19	2.00	0.22	11.31			
LINE 15																									
1501	0.66	0.85	5	7.35	4.12	705				0.00	4.13	1.19	2.00	A	6	6	3.21	0.91	1.19	2.00	0.23	11.96			
LINE 16																									
1601	0.66	0.13	5	7.35	0.63					0.00	0.63	1.33	2.00	A	6	6	0.61	0.02	1.33	2.00	0.11	6.05			
1602	0.66	0.13	5	7.35	0.63					0.00	0.63	1.33	2.00	A	7	7	0.62	0.01	1.33	2.00	0.11	6.05			
LINE 17																									
1701	0.66	1.32	5	7.35	6.40	1702	2101	2301		0.03	6.43	SUMP	2.00	A	6	4.8	13.44	0.00	SUMP	2.00	< 0.21	< 12			
1702	0.66	0.27	5	7.35	1.31	1703	1801			0.02	1.33	1.20	2.00	A	6	6	1.24	0.09	1.20	2.00	0.15	7.98			
1703	0.66	0.53	5	7.35	2.57	1704				0.01	2.58	1.33	2.00	A	6	6	2.19	0.39	1.33	2.00	0.19	9.91			
1704	0.66	0.28	5	7.35	1.36	1705				0.01	1.37	1.33	2.00	A	6	6	1.27	0.10	1.33	2.00	0.15	7.92			
1705	0.66	0.39	5	7.35	1.89					0.00	1.89	1.33	2.00	A	6	6	1.69	0.21	1.33	2.00	0.17	8.88			
1706	0.66	0.86	5	7.35	4.17	1707				0.01	4.18	1.25	2.00	A	6	6	3.22	0.97	1.25	2.00	0.23	11.91			
1707	0.66	0.34	5	7.35	1.65					0.00	1.65	1.40	2.00	A	6	6	1.49	0.16	1.40	2.00	0.16	8.38			
LINE 18																									
1801	0.66	0.55	5	7.35	2.67	1901				0.01	2.68	1.33	2.00	A	6	6	2.26	0.42	1.33	2.00	0.19	10.04			
LINE 19																									
1901	0.66	0.26	5	7.35	1.26	1706				0.01	1.27	1.33	2.00	A	6	6	1.18	0.09	1.33	2.00	0.14	7.72			
LINE 21																									
2101	0.66	0.31	5	7.35	1.50	2102				0.01	1.51	1.99	2.00	A	6	6	1.34	0.18	1.99	2.00	0.14	7.64			
2102	0.66	0.32	5	7.35	1.55					0.00	1.55	1.99	2.00	A	6	6	1.37	0.19	1.99	2.00	0.14	7.71			
2103	0.66	0.43	5	7.35	2.09					0.00	2.09	1.99	2.00	A	6	6	1.75	0.34	1.99	2.00	0.16	8.56			
LINE 23																									
2301	0.66	0.29	5	7.35	1.41	2103				0.01	1.42	1.99	2.00	A	6	6	1.26	0.15	1.99	2.00	0.14	7.47			

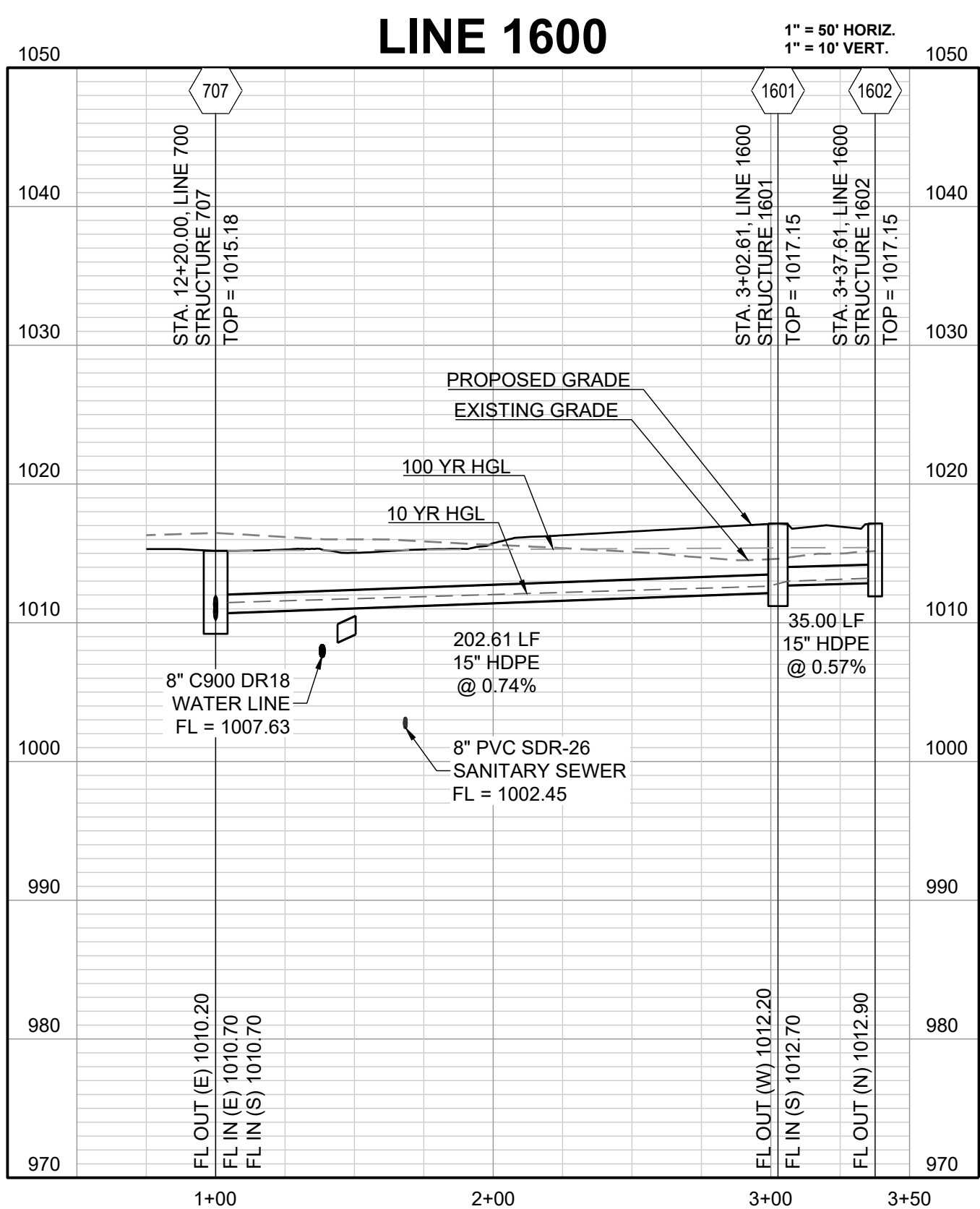
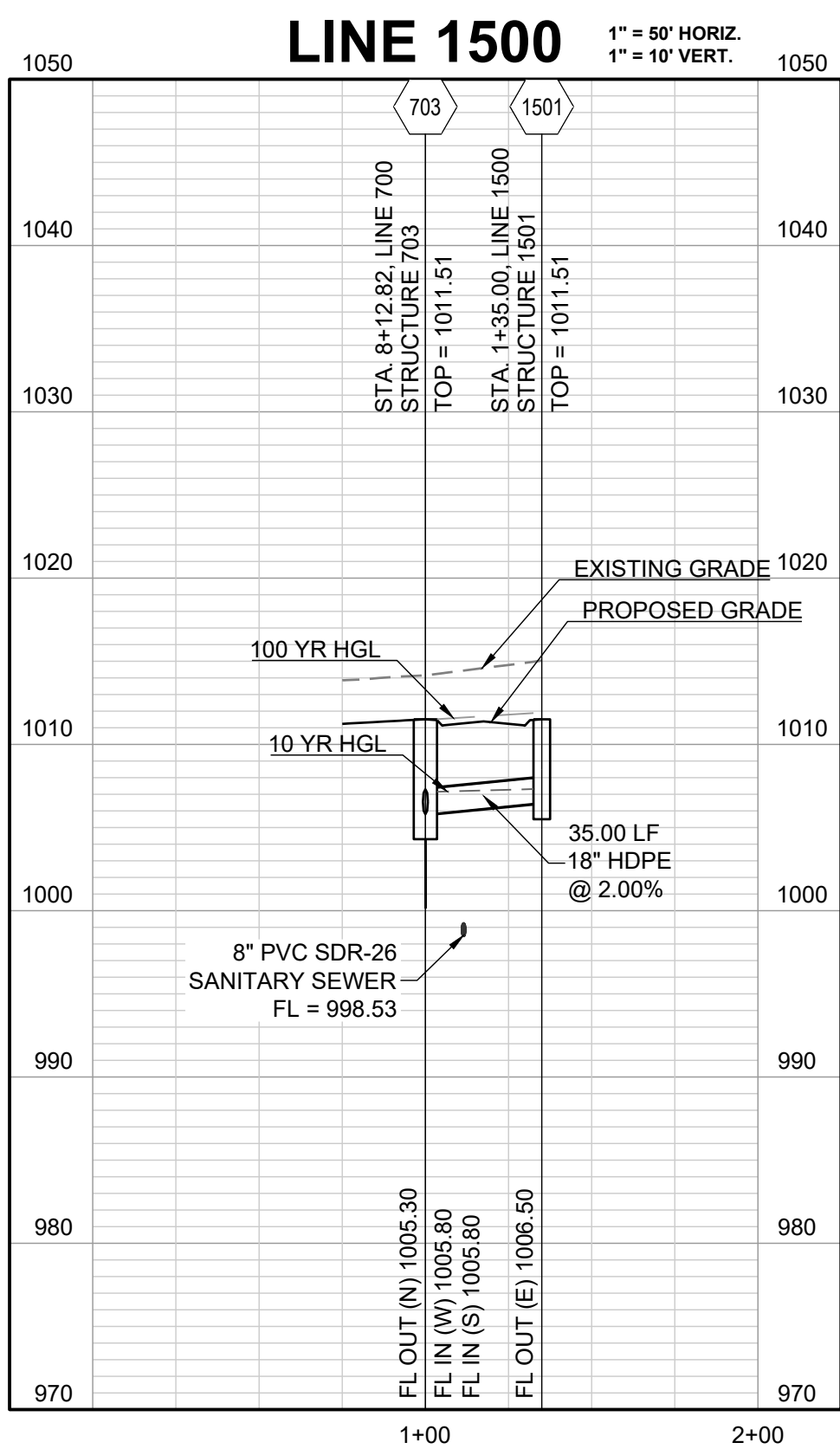
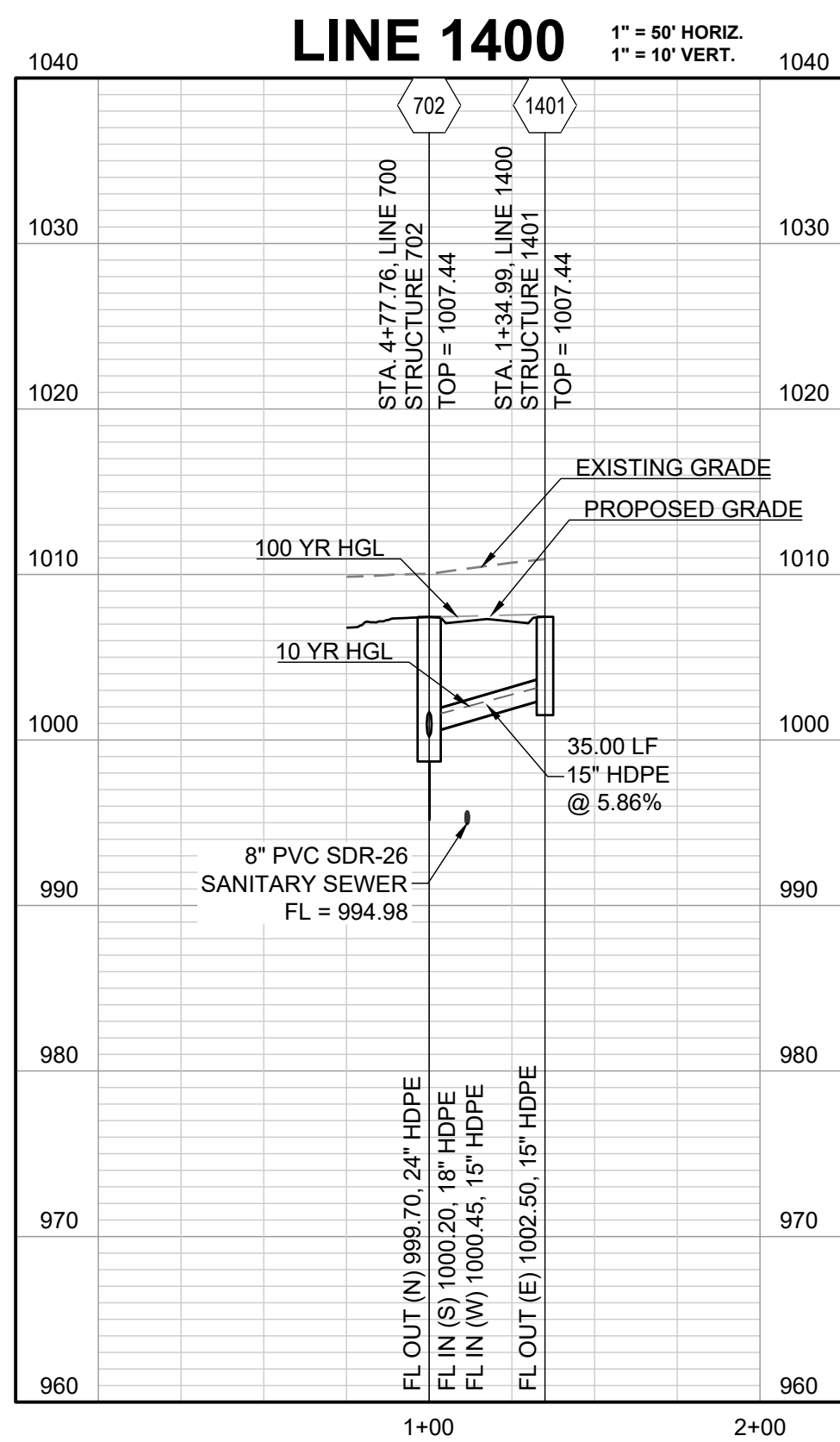
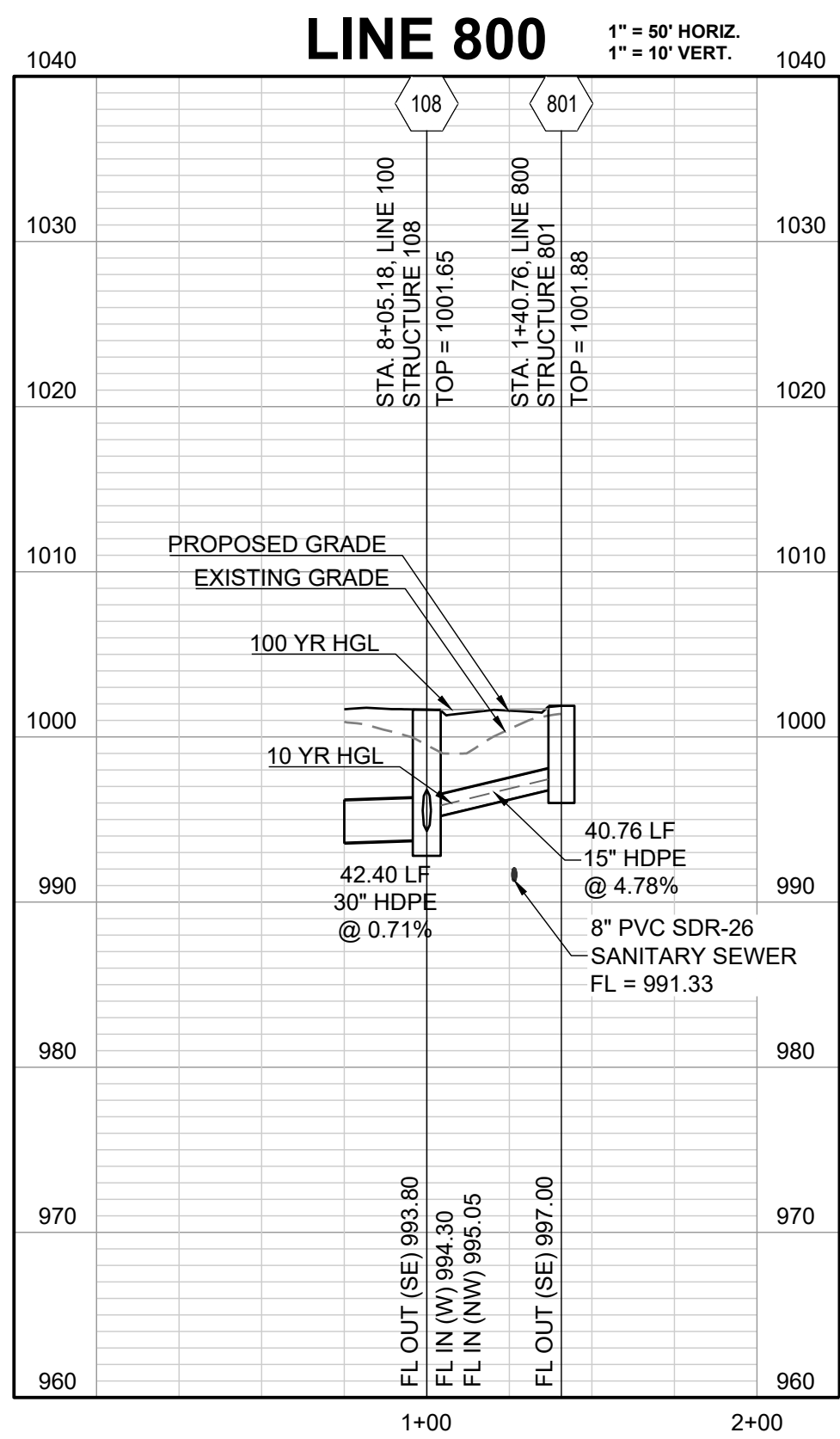
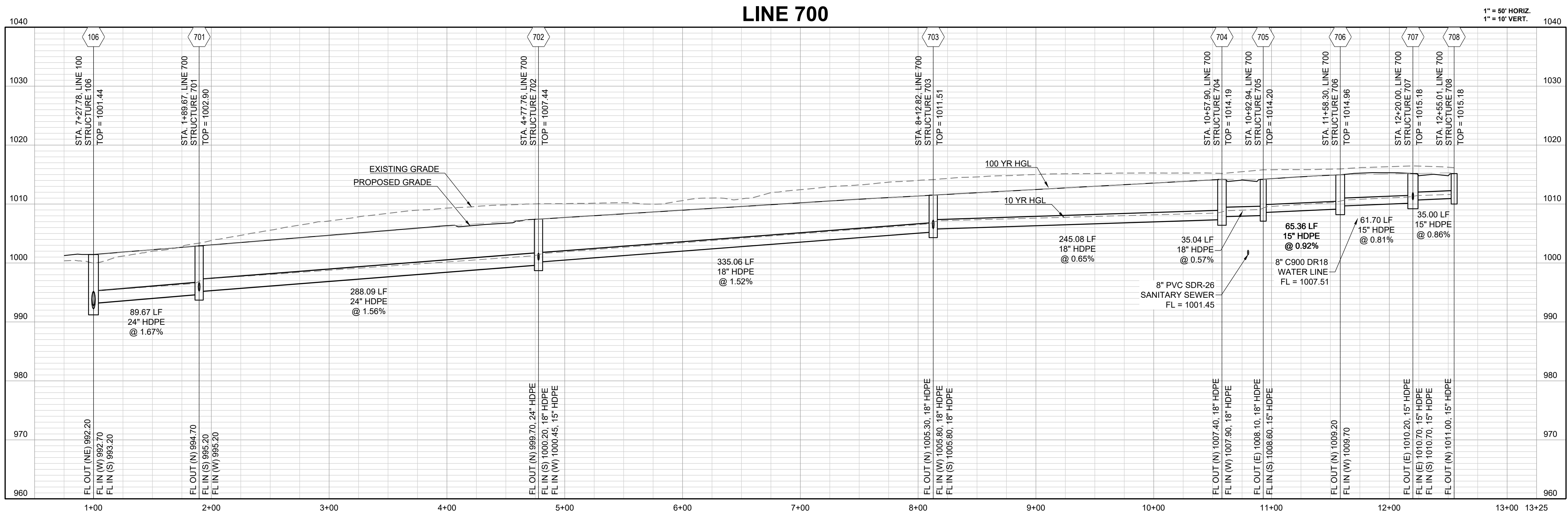
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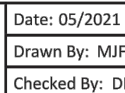
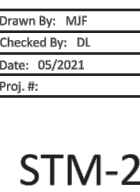
REUNION AT BLACKWELL
PUBLIC STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

DRAWN BY:	REVISION DATE	DESCRIPTION	
		PER CITY COMMENTS	
TRC	1	05/05/2023	
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	3		
	4		
MAB	5		
	6		
DATE PREPARED:	03/03/2023		
	PROJ. NUMBER:		
22-597			

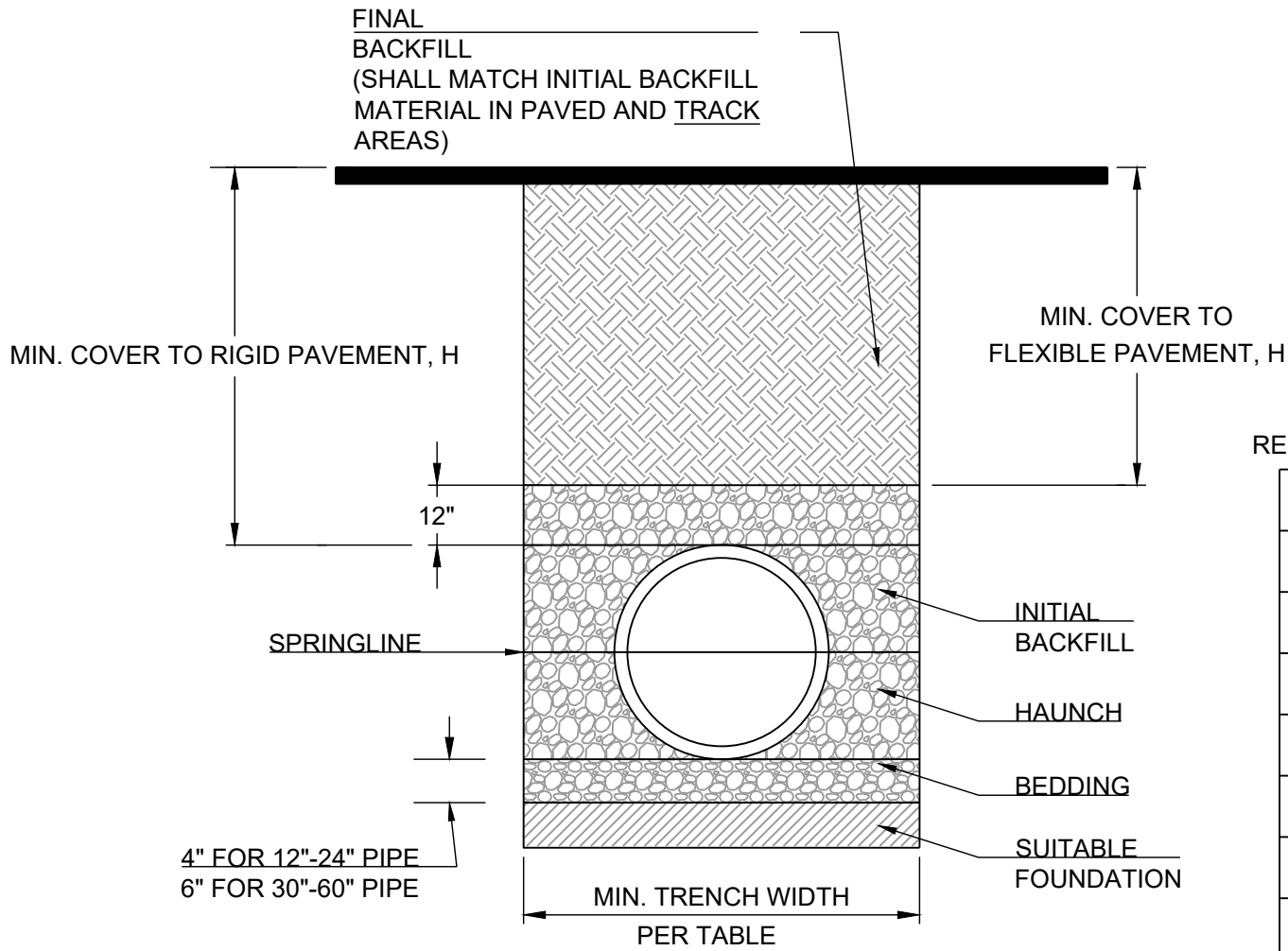
22 STORM
PROFILES



REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS
05/05/2023	TRC
05/05/2023	MAB
05/05/2023	DATE PREPARED
05/05/2023	PROJ. NUMBER
22-597	



STORM DETAILS



MINIMUM RECOMMENDED COVER BASED ON VEHICLE LIVE LOADING CONDITION		
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48"	12"	48"
54" - 60"	24"	60"

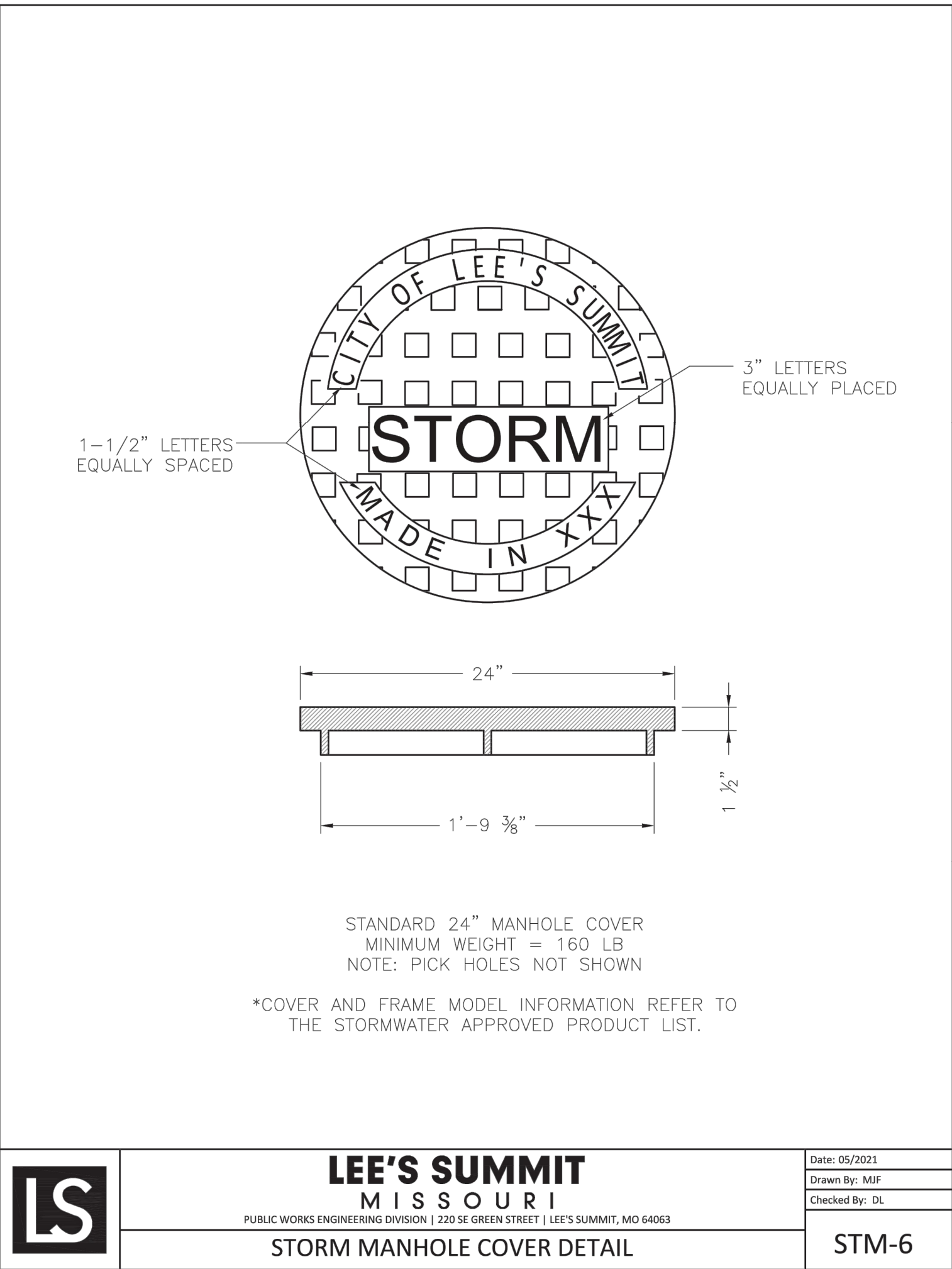
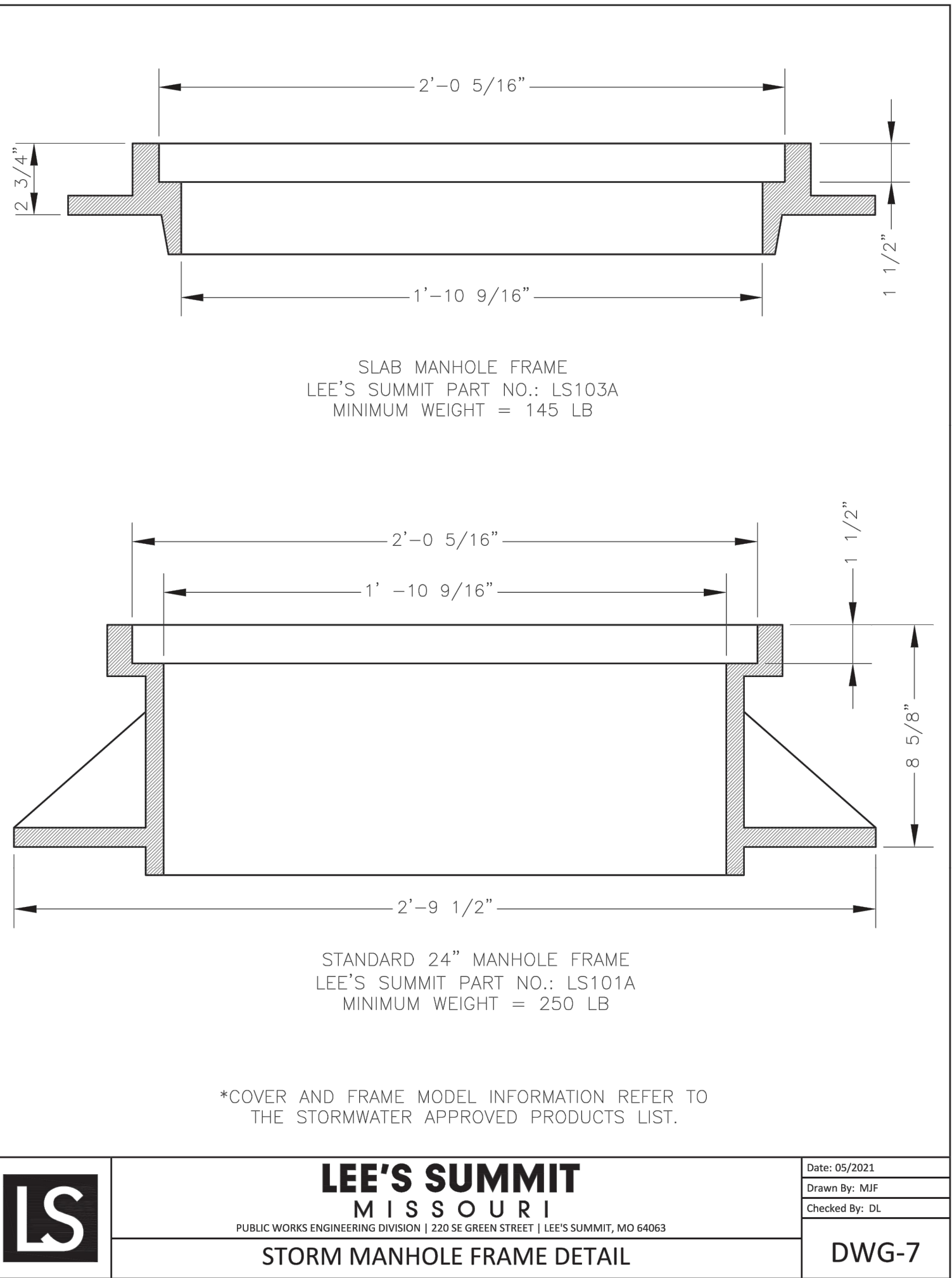
* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

RECOMMENDED MINIMUM TRENCH WIDTHS

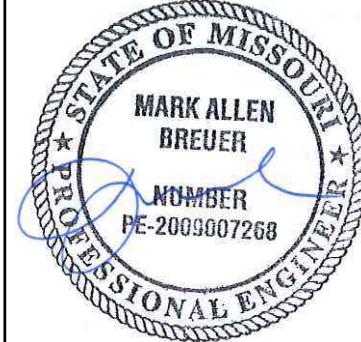
PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

NOTES:

- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION
- MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
- FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).
- INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
- MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.
- TESTING: CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL MATERIAL TESTING REQUIRED FOR THEIR WORK. THIS INCLUDES SCHEDULING OF TESTS, COORDINATING AND PROVIDING ACCESS TO SAMPLE LOCATIONS, AND SATISFYING ALL TEST RESULT REPORTING REQUIREMENTS.



PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
PUBLIC STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION	PER CITY COMMENTS
DRAWN BY: TRC		
CHECKED BY: MAB		
DATE PREPARED: 03/03/2023		
PROJ. NUMBER: 22-597		
STORM DETAILS		
SHEET		
26		



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