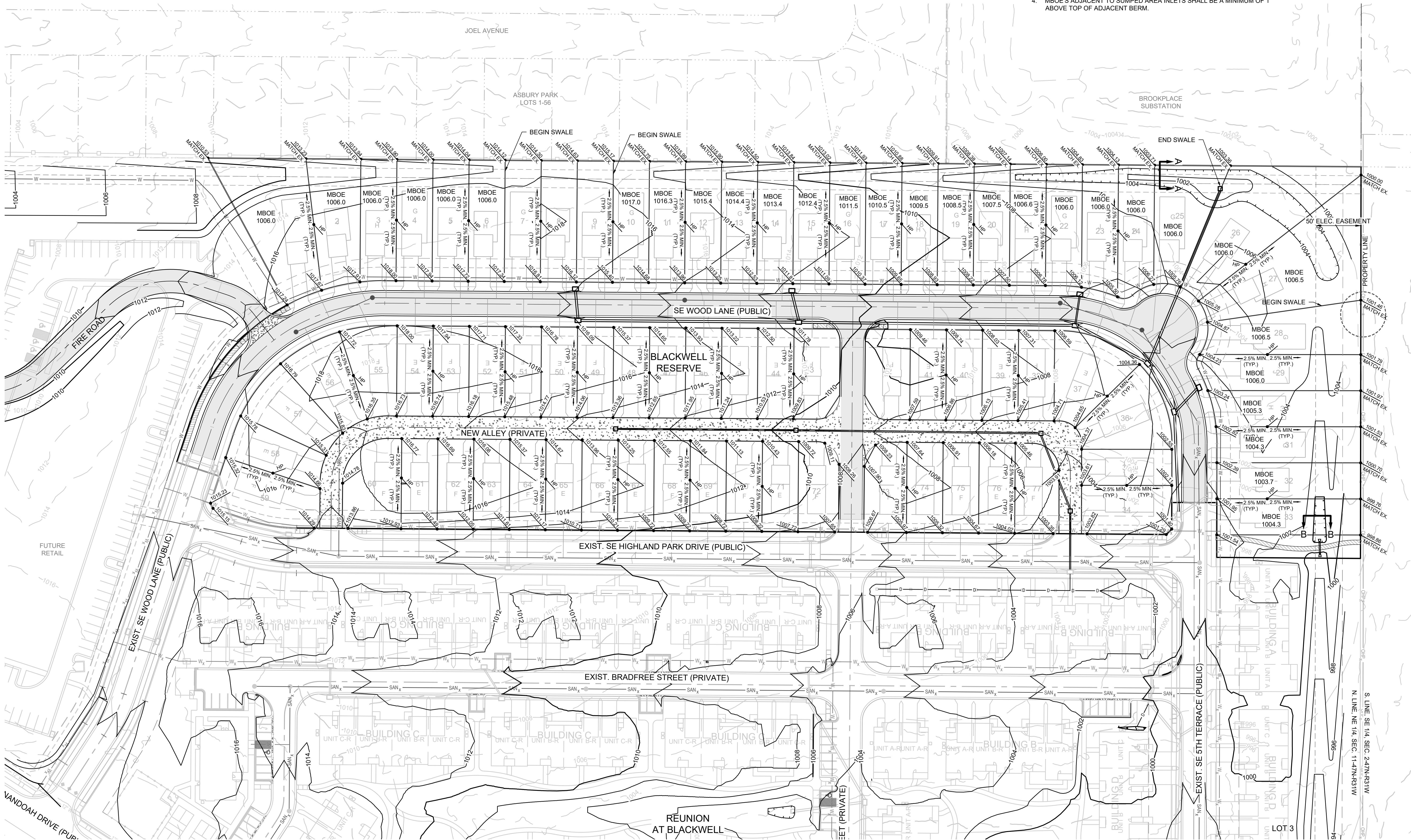


	ENGINEERED CHANNELS														
LOCATION	SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW FORMULA	DESIGN OVERFLOW (CFS)	BED SLOPE (%)	SIDE SLOPE (X:1)	BASE WIDTH (FT)	CROSS SECTION AREA (FT2)	TOP WIDTH (FT)	NOMINAL DEPTH (FT.)	AVERAGE VELOCITY (FPS)	VELOCITY HEAD (FT.)	EGL (FT.)
LOT 25	A	1.25	10.64	6.06	Q100(A)	10.64	2.40	5.00	6.00	5.05	11.70	0.38	3.50	0.19	0.57
LOT 33	B	0.40	3.41	1.94	Q100(B)	3.41	2.00	5.00	6.00	2.16	8.90	0.21	2.27	0.08	0.29

1. MBOE = MINIMUM BUILDING OPENING ELEVATION FOR HOUSES ADJACENT TO ENGINEERED OVERFLOW SWALES SHALL BE A MINIMUM OF 2 FEET ABOVE THE WATER SURFACE ELEVATION FOR THE 1% CHANCE STORM EVENT. ENGINEERED INFILTRATION TRENCHES SHALL BE A MINIMUM OF 1 FOOT ABOVE SWALES IN ELEVATION (CONTOUR) FROM THE GRADING PLAN AS LONG AS THE MBOE IS ADJUSTED ACCORDING TO THE ABOVE CRITERIA.
2. EGL = ENERGY GRADE LINE (100 YR)
3. MBOE = MAXIMUM WATER SURFACE ELEVATION (100 YR)
4. MBOE'S ADJUSTMENT TO SUMPED AREA INLETS SHALL BE A MINIMUM OF 1' ABOVE TOP OF ADJACENT BERM.



1. REFERENCE "MASS GRADING & EROSION SEDIMENT CONTROL PLANS FOR RESIDENCES, TRADITIONS & RESERVE AT BLACKWELL" FOR TURF REINFORCEMENT MAT INSTALLATION.
2. MAINTIAN, REPAIR AND REPLACE TURF REINFORCEMENT MAT AS NECESSARY.

— — — 1000 — — — EXISTING CONTOUR
 ————— 1000 ————— PROPOSED CONTOUR
 (FINISHED GRADE)

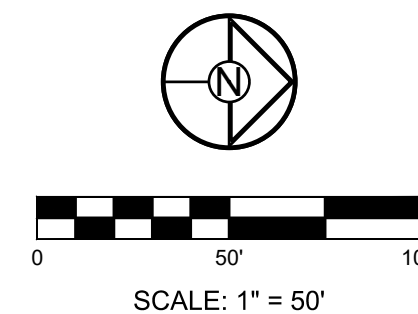
1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

1. EXCAVATION NOT PERMITTED WITHIN 25 FEET OF TRANSMISSION POLES.
2. SOIL SHALL NOT COME INTO CONTACT WITH TRANSMISSION POLES.
3. OPERATION OF EQUIPMENT OVER 14 FEET IN HEIGHT WITHIN TRANSMISSION EASEMENT IS NOT PERMITTED.
4. CONSTRUCTION EQUIPMENT SHALL ALWAYS MAINTAIN A MINIMUM DISTANCE OF 20 FEET FROM ENERGIZED TRANSMISSION LINE CONDUCTORS.
5. ALL SPOILS ARE TO BE MAINTAINED OUTSIDE THE TRANSMISSION EASEMENT IMMEDIATELY AFTER EXCAVATION TO THE REQUIRED CLEARANCES.
6. FOR ADDITIONAL TRANSMISSION EASEMENT ENCROACHMENT REQUIREMENTS SEE <https://www.eversky.com/partner-with-us/transmission-projects/transmission-line-easements>

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

"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



STATE OF MISSOURI
 MARK ALLEN BREUER
 NUMBER
 PE-200907268
 PROFESSIONAL ENGINEER

SCHLAGEL & ASSOCIATES, P.A.

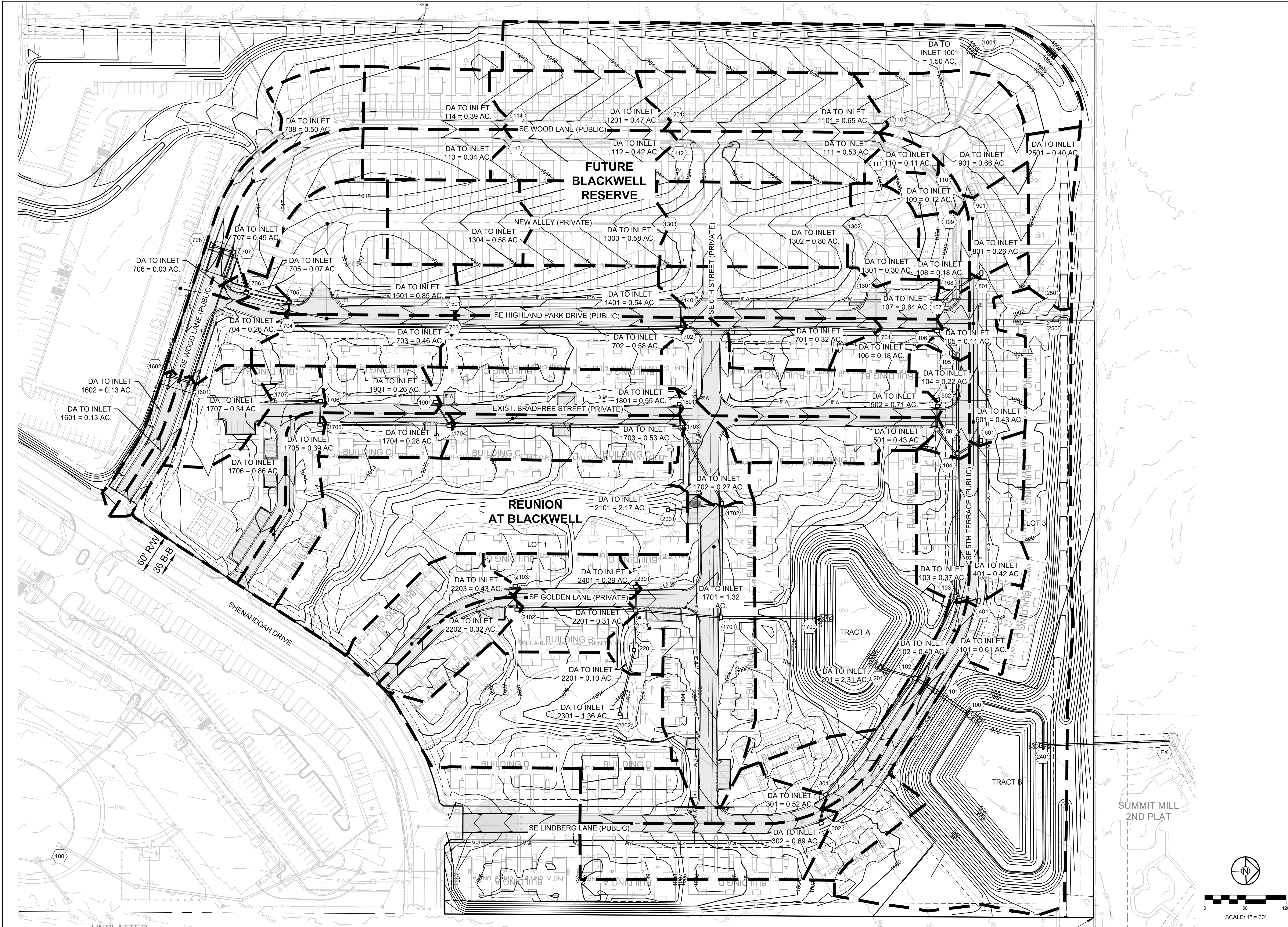
BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SEE SHENANDOAH DRIVE LEE'S SUMMIT, MO

DRAWN BY:	REVISION DATE	DESCRIPTION
TRC	05/05/2023	PER CITY COMMENTS
	06/27/2023	PER CITY COMMENTS
CHECKED BY:	09/06/2023	PER CITY COMMENTS
MAB		
DATE PREPARED:		
03/03/2023		
PROJ. NUMBER:		
22-093		

MASTER
DRAINAGE PLAN
- GRADING PLAN

SHEET



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
#E2002003600F #LAC2001005237 #LS200200859F

PREPARED BY:

09.06.2023

SCHLAGEL & ASSOCIATES, P.A.

**BLACKWELL RESERVE
STREET AND STORM SEWER PLANS**

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

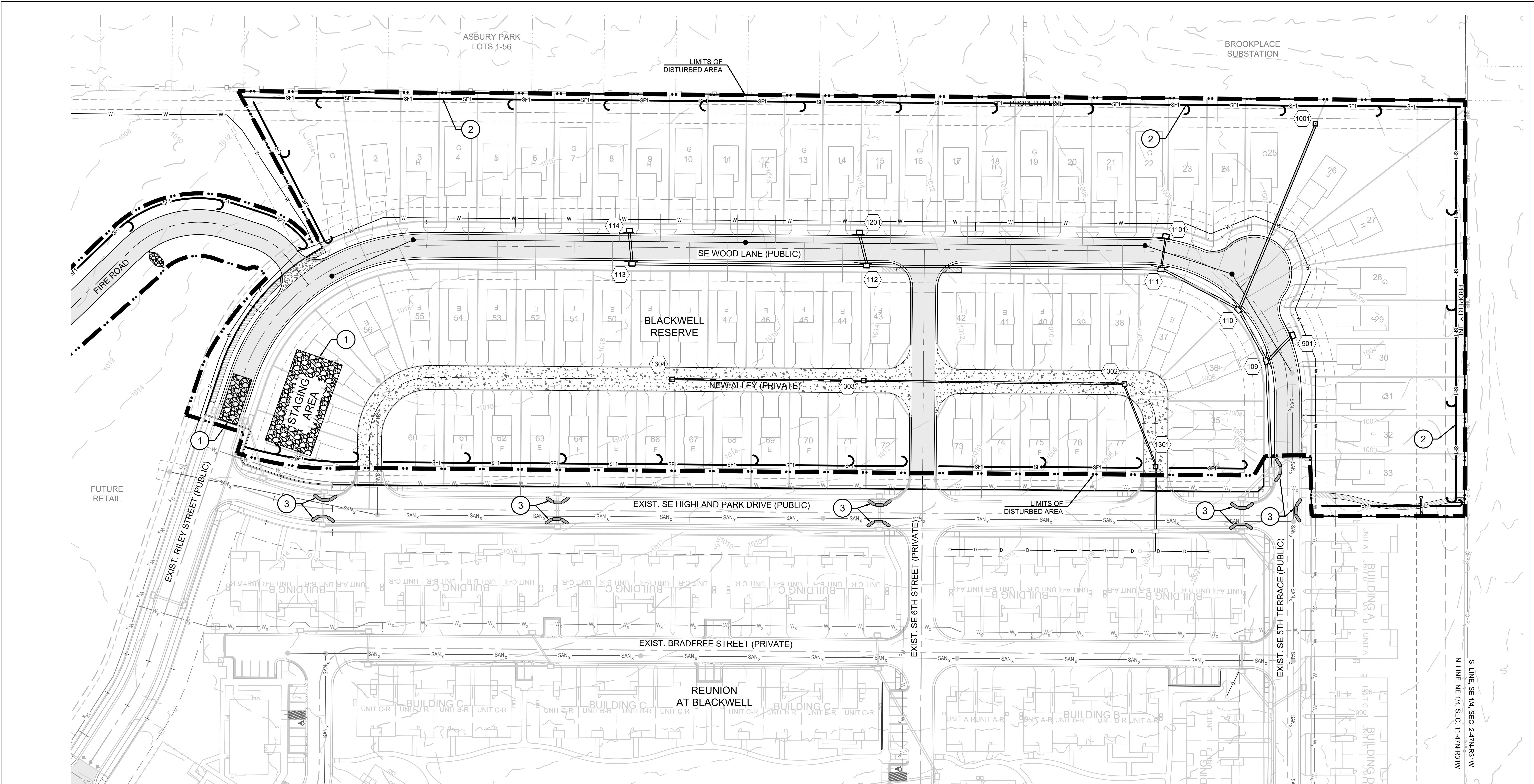
REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS
06/27/2023	PER CITY COMMENTS
09/06/2023	PER CITY COMMENTS

DRAWN BY: ###	CHECKED BY: ###	DATE PREPARED: 03/03/2023	PROJ. NUMBER: 22-593
------------------	--------------------	------------------------------	-------------------------

MASTER
DRAINAGE PLAN
- DRAINAGE MAP

SHEET

6



EROSION AND SEDIMENT CONTROL STAGING CHART					
PROJECT STAGE		BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
PRE-CLEARING PHASE	A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		2	SILT FENCE (PRIOR TO CONSTRUCTION)	E	PLACE WHERE INDICATED. REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		3	EXISTING INLET PROTECTION (GRAVEL CURB INLET SEDIMENT TRAP)	E	PLACE WHERE INDICATED. REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
CONSTRUCTION PHASE	B - MASS GRADING	4	SILT FENCE (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED. REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		5	SEDIMENT BASIN	E	RE: RESIDENCES AT BLACKWELL LAND DISTURBANCE PLANS. MAINTAIN, REPAIR OR REPLACE AS REQUIRED.
		6	ROCK DITCH CHECK	E	PLACE WHERE INDICATED. REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
FINAL STABILIZATION PHASE	C - UTILITY CONSTRUCTION	7	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
	D - AFTER PAVING OPERATIONS	8	INLET PROTECTION (SILT FENCE)	D/E	PLACE SILT FENCE AROUND ALL STORM SEWER STRUCTURES / YARD AREA STORM STRUCTURES TO HAVE SILT FENCE REMOVED ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED BOARDS SHALL BE PLACED IN FRONT OF INLET OPENING FROM THE TIME SILT FENCE IS REMOVED UNTIL SUCH TIME THAT THE CURB / THROAT IS POURED. PLACE GRAVEL FILTER BAGS AT THE OPENING OF ALL CURB INLETS IMMEDIATELY AFTER THE INLET THROATS ARE POURED
		9	INLET PROTECTION (GRAVEL FILTER BAGS)	E	
		10	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
	E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT				ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED ANY TIME CURRENT MEASURES ARE FOUND TO BE INEFFECTIVE.

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

SUPER SEDIMENT SILT FENCE (PRIOR TO LAND DISTURBANCE)

SILT FENCE (PRIOR TO LAND DISTURBANCE)

SILT FENCE (DURING CONSTRUCTION)

LIMITS OF DISTURBANCE

EXISTING CONTOURS

PROPOSED CONTOURS

GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY

DISTURBED AREA = 12.12 A.C.

SITE SPECIFIC NOTES:

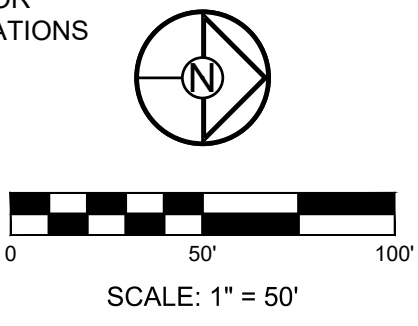
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
- THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
- NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBERS 29095C0441G, 29095C0445G, 29095C0437G AND 29095C0439G DATED JANUARY 20TH, 2017.
- ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
- 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.
- STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED 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 BMP'S. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.

- ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
- SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
- AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SOODED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.
- SEE MASS GRADING & EROSION SEDIMENT CONTROL PLANS FOR RESIDENCES, TRADITIONS & RESERVE AT BLACKWELL FOR SILT FENCE INSTALLATION.

NOTES:

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



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
#E2002003600F #LAC2001005237 #LS200200859F

PREPARED BY:

09.06.2023

SCHLAGEL & ASSOCIATES, P.A.

**BLACKWELL RESERVE
STREET AND STORM SEWER PLANS**

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS
06/27/2023	PER CITY COMMENTS
09/06/2023	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-593	PROJ. NUMBER

DRAWN BY: TRC

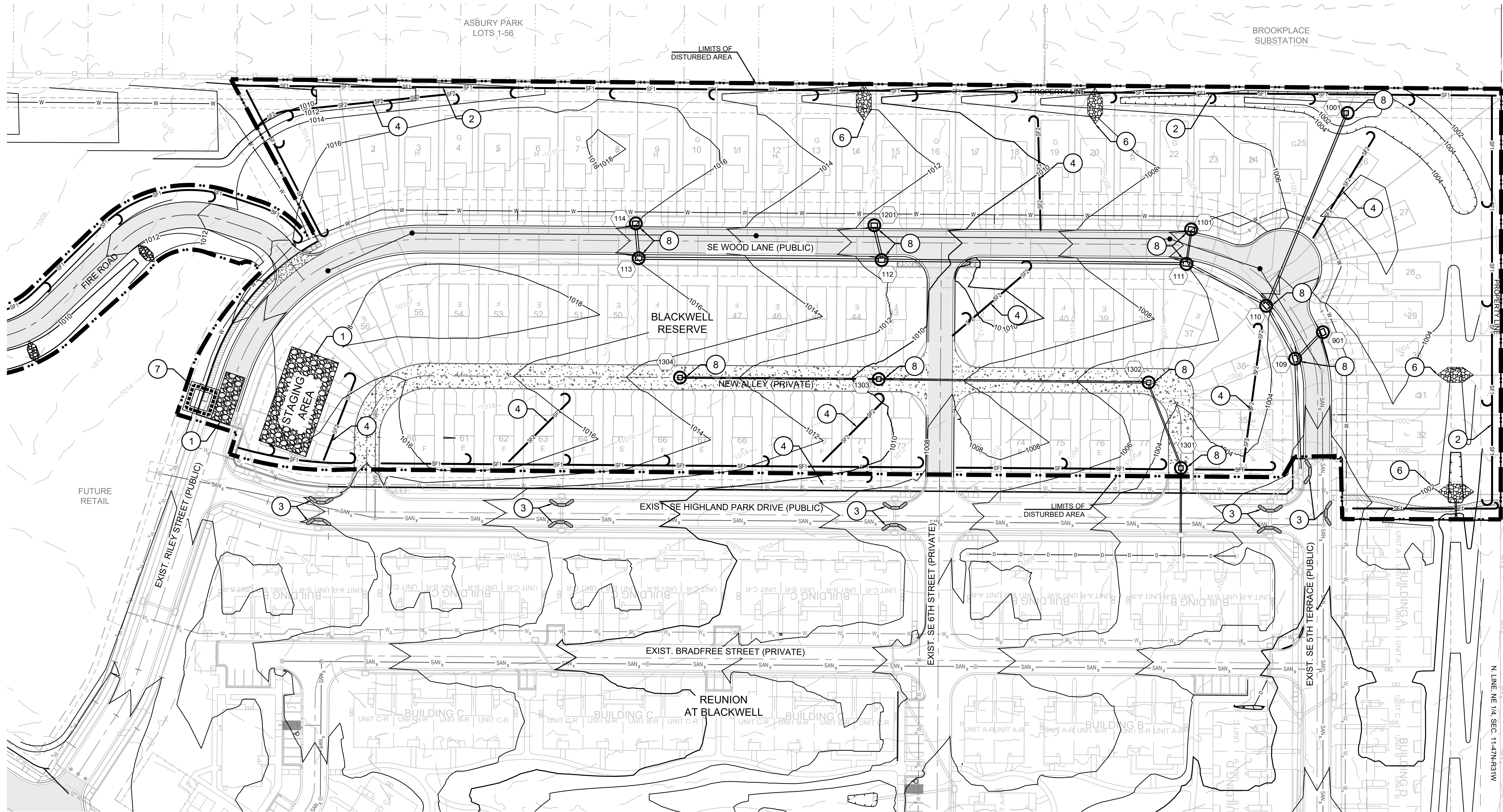
CHECKED BY: MAB

DATE PREPARED: 03/03/2023

PROJ. NUMBER: 22-593

PRE-CONSTRUCTION
EROSION
CONTROL PLAN

SHEET
8



EROSION NOTE:

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

MO GRS BENCHMARK:

STATION NAME - JA-90

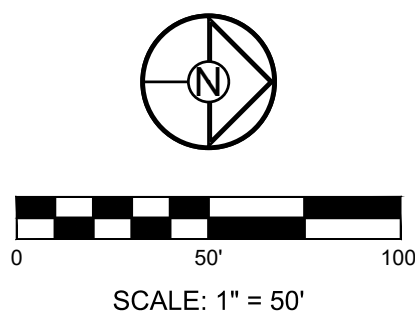
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD. N:1001052.8503, E:2845604.8272

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



**BLACKWELL RESERVE
STREET AND STORM SEWER PLANS**

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS
06/27/2023	PER CITY COMMENTS
08/06/2023	PER CITY COMMENTS
09/03/2023	DATE PREPARED
22-593	PROJ. NUMBER

**EROSION
CONTROL PLAN**

SHEET

9

SCHLAGEL

ENGINEERS

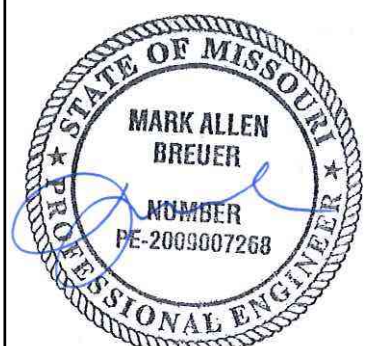
PLANNERS

SURVEYORS

LANDSCAPE ARCHITECTS

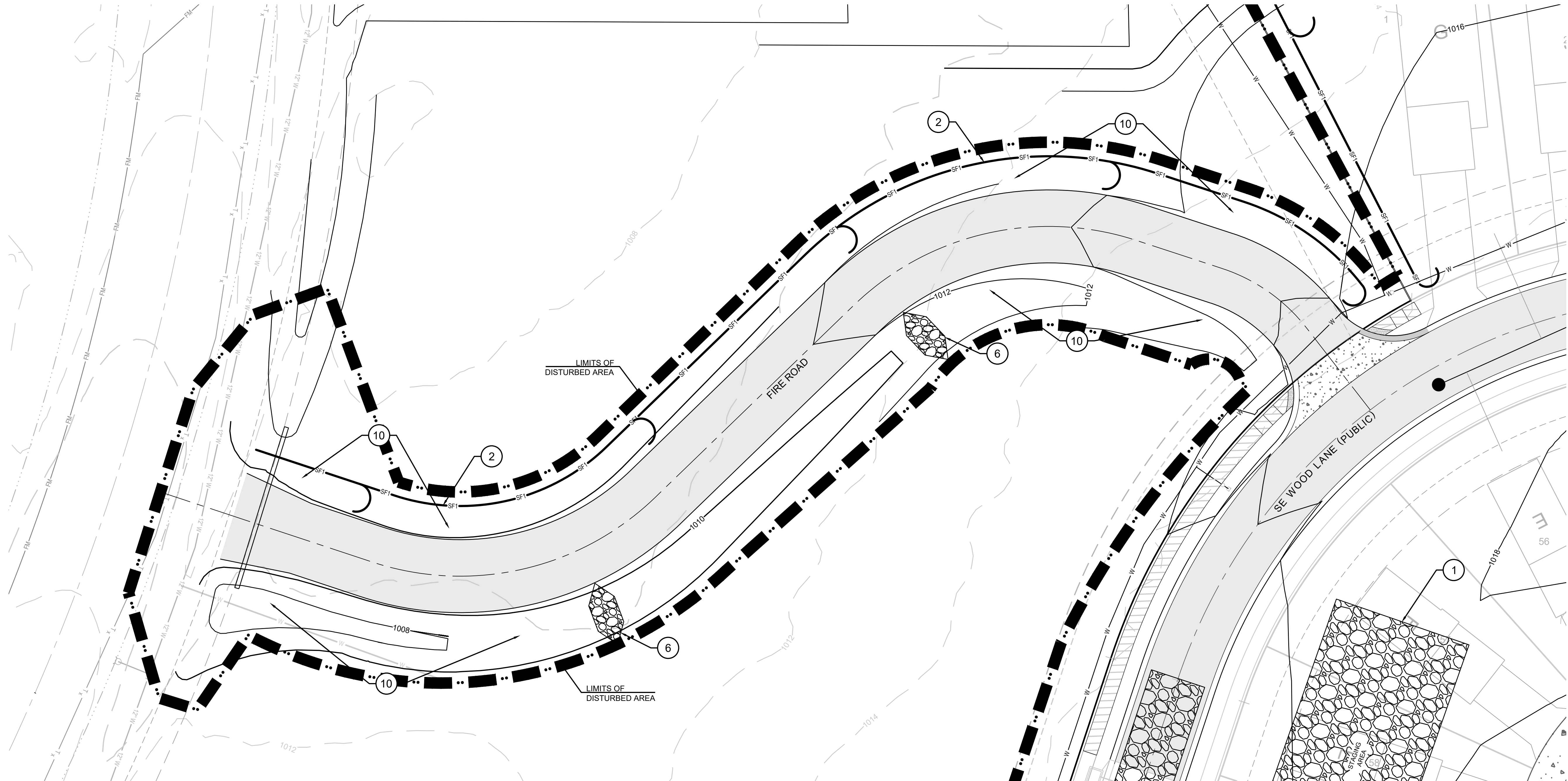
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificate of Authority
#E2002003600-F #LAC2001005237 #LS2002008659-F

PREPARED BY:

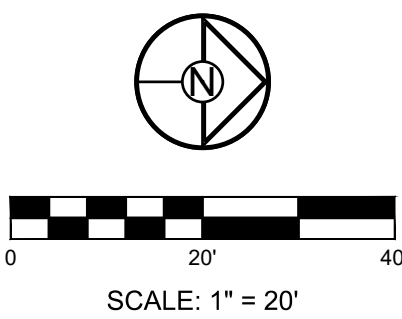


09.06.2023

SCHLAGEL & ASSOCIATES, P.A.



EROSION NOTE:
SEE SHEET 8 FOR EROSION CONTROL STAGING
CHART, LEGEND AND SITE SPECIFIC NOTES.

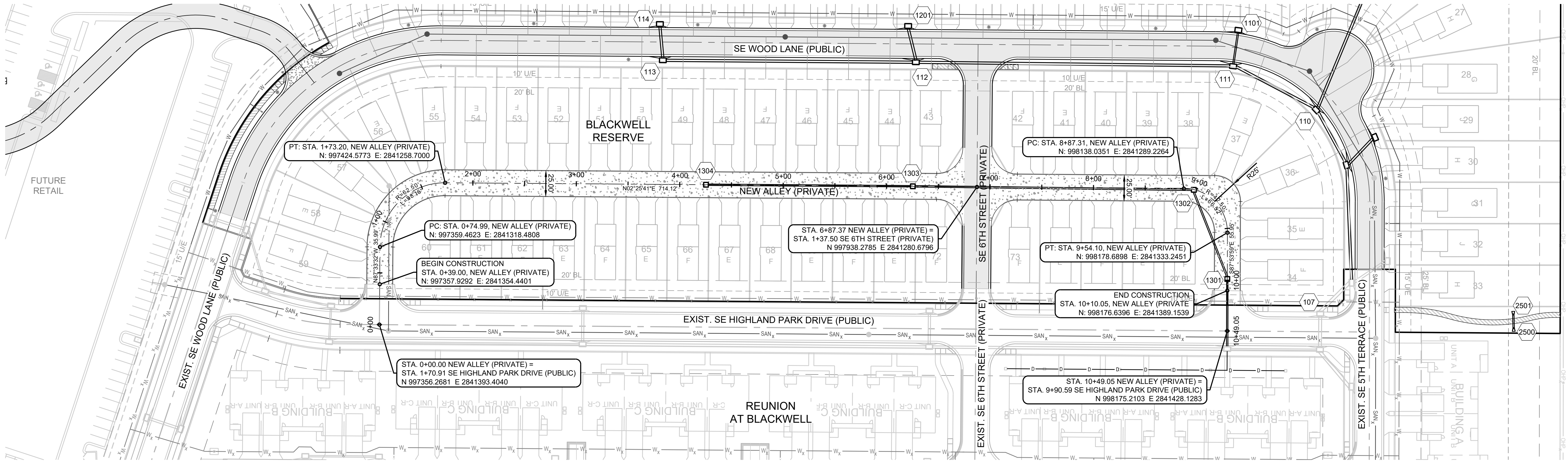


BLACKWELL RESERVE
STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 05/05/2023	PER CITY COMMENTS
2 06/27/2023	PER CITY COMMENTS
3 08/06/2023	PER CITY COMMENTS
4	
5	
6	
7	
8	
9	
10	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-593

FIRE ROAD
EROSION
CONTROL PLAN



STREET NOTES:

1. 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.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
3. ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT DEVELOPMENT ENGINEERING.
4. CURB RETURN RADII SHALL BE 25' AT BACK OF CURB UNLESS OTHERWISE NOTED.
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.
10. SSD = STOPPING SIGHT DISTANCE.
11. ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

NEW ALLEY NOTE:
REFERENCE SHEET 20. FOR TYPICAL ALLEY SECTION.
TYPICAL ALLEY SECTION STA. 0+39.00 TO STA. 10+10.05.

SIDEWALK NOTE:
SIDEWALKS AT BUILDINGS WILL BE INSTALLED BY OTHERS,
UNLESS NOTED OTHERWISE.

MO GRS BENCHMARK:

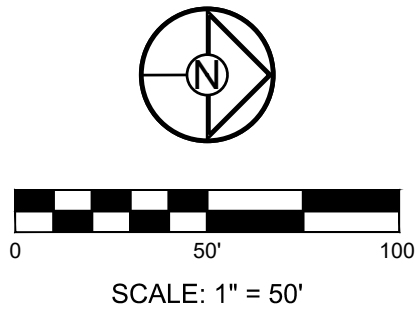
STATION NAME - JA-90
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

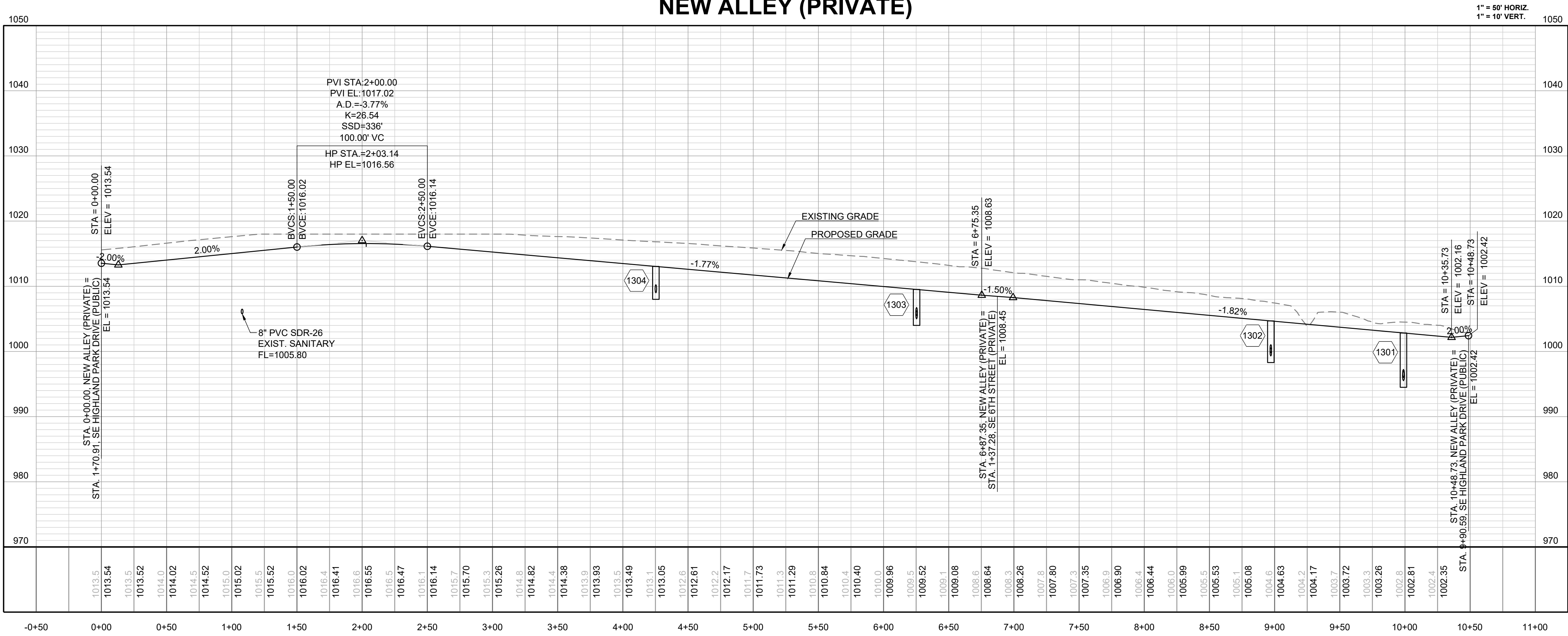
PROJECT BENCHMARK:

"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

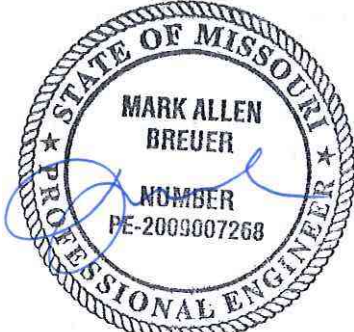
ELEV. 1005.719



NEW ALLEY (PRIVATE)



PREPARED BY:



09.06.2023

SCHLAGEL & ASSOCIATES, P.A.

**BLACKWELL RESERVE
STREET AND STORM SEWER PLANS**
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS
06/27/2023	PER CITY COMMENTS
09/06/2023	PER CITY COMMENTS
09/06/2023	DATE PREPARED
09/06/2023	PROJ. NUMBER: 22-593

DRAWN BY: TRC	CHECKED BY: MAB	DATE PREPARED: 09/06/2023	PROJ. NUMBER: 22-593
---------------	-----------------	---------------------------	----------------------

NEW ALLEY (PRIVATE) - PLAN & PROFILE

SHEET



1. 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.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
3. ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT DEVELOPMENT ENGINEERING.
4. CURB RETURN RADI SHALL BE 25' AT BACK OF CURB UNLESS OTHERWISE NOTED.
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.
10. SSD = STOPPING SIGHT DISTANCE.
11. ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

SIDEWALK NOTE:

SIDEWALKS AT BUILDINGS WILL BE INSTALLED BY OTHERS UNLESS NOTED OTHERWISE.

MO GRS BENCHMARK:

STATION NAME - JA-90

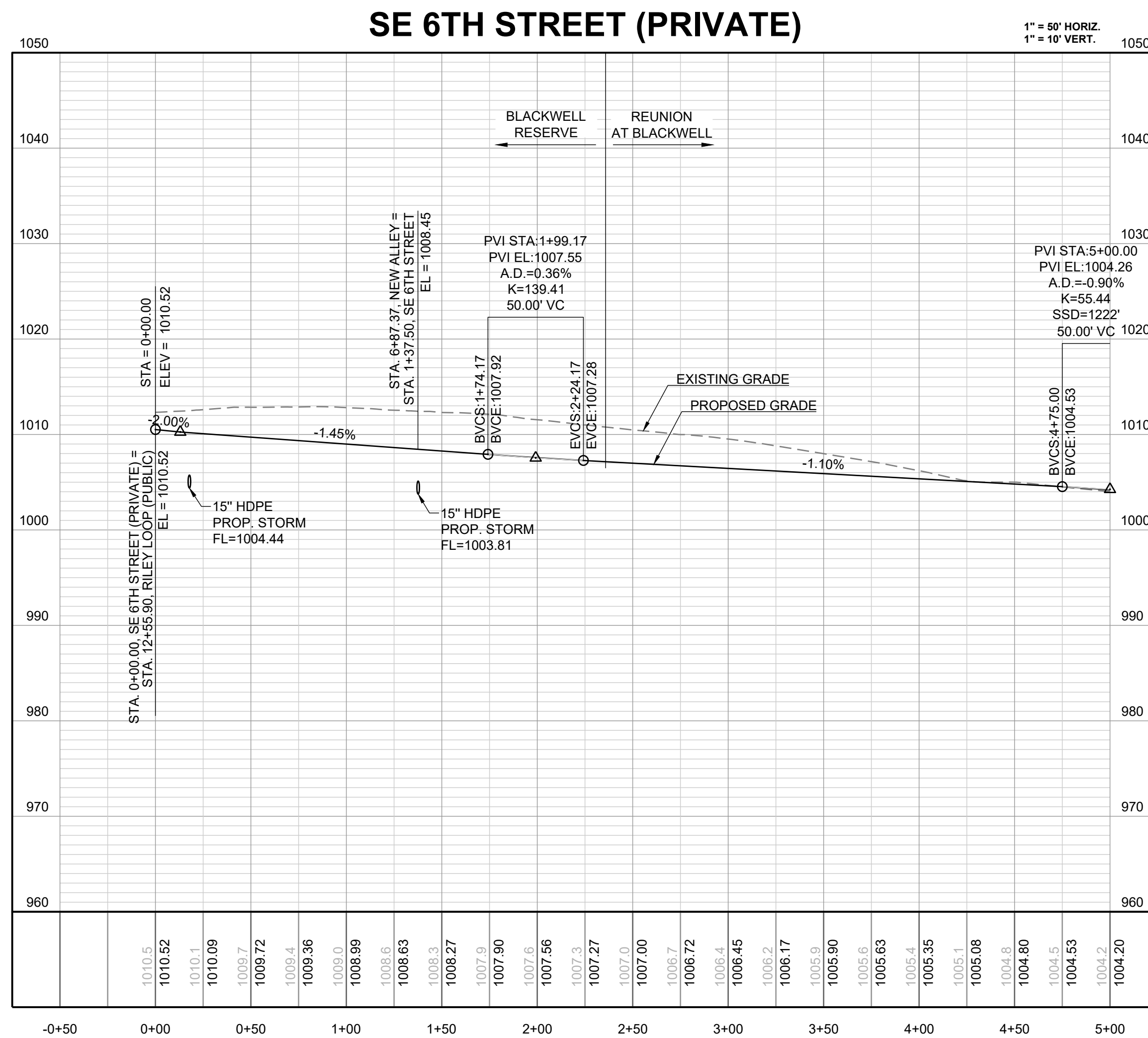
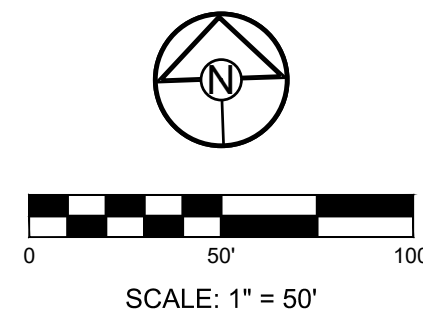
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD
LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD
ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

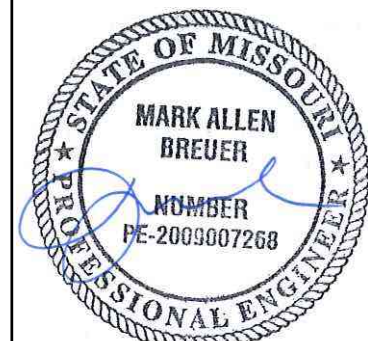
PROJECT BENCHMARK:

"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



PREPARED BY:



09.06.2023

SCHLAGEL & ASSOCIATES, P.A.

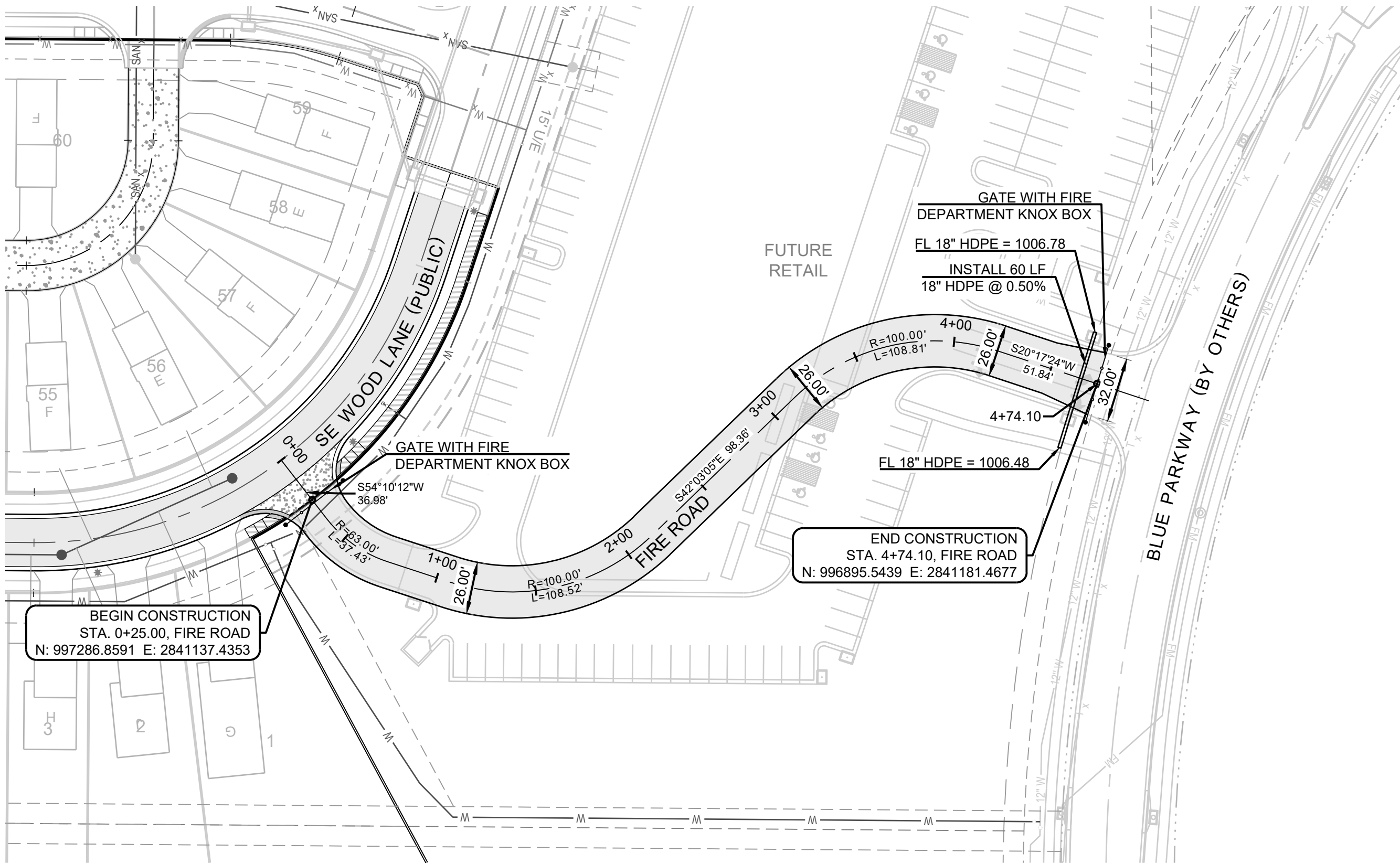
BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

DRAWN BY:	REVISION DATE	DESCRIPTION
TRC	A 05/05/2023	PER CITY COMMENTS
CHECKED BY:	B 06/27/2023	PER CITY COMMENTS
MAB	C 09/06/2023	PER CITY COMMENTS
	D 	
DATE PREPARED	E 	
03/03/2023	F 	
PROJ. NUMBER	G 	
22-0893	H 	

SE 6TH STREET
(PRIVATE) - PLAN
& PROFILE

SHEET

14



- STREET NOTES:**
1. 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
 2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
 3. ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT DEVELOPMENT ENGINEERING.
 4. CURB RETURN RADII SHALL BE 25' AT BACK OF CURB UNLESS OTHERWISE NOTED.
 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.
 10. SSD = STOPPING SIGHT DISTANCE.
 11. ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

MO GRS BENCHMARK:

STATION NAME - JA-90

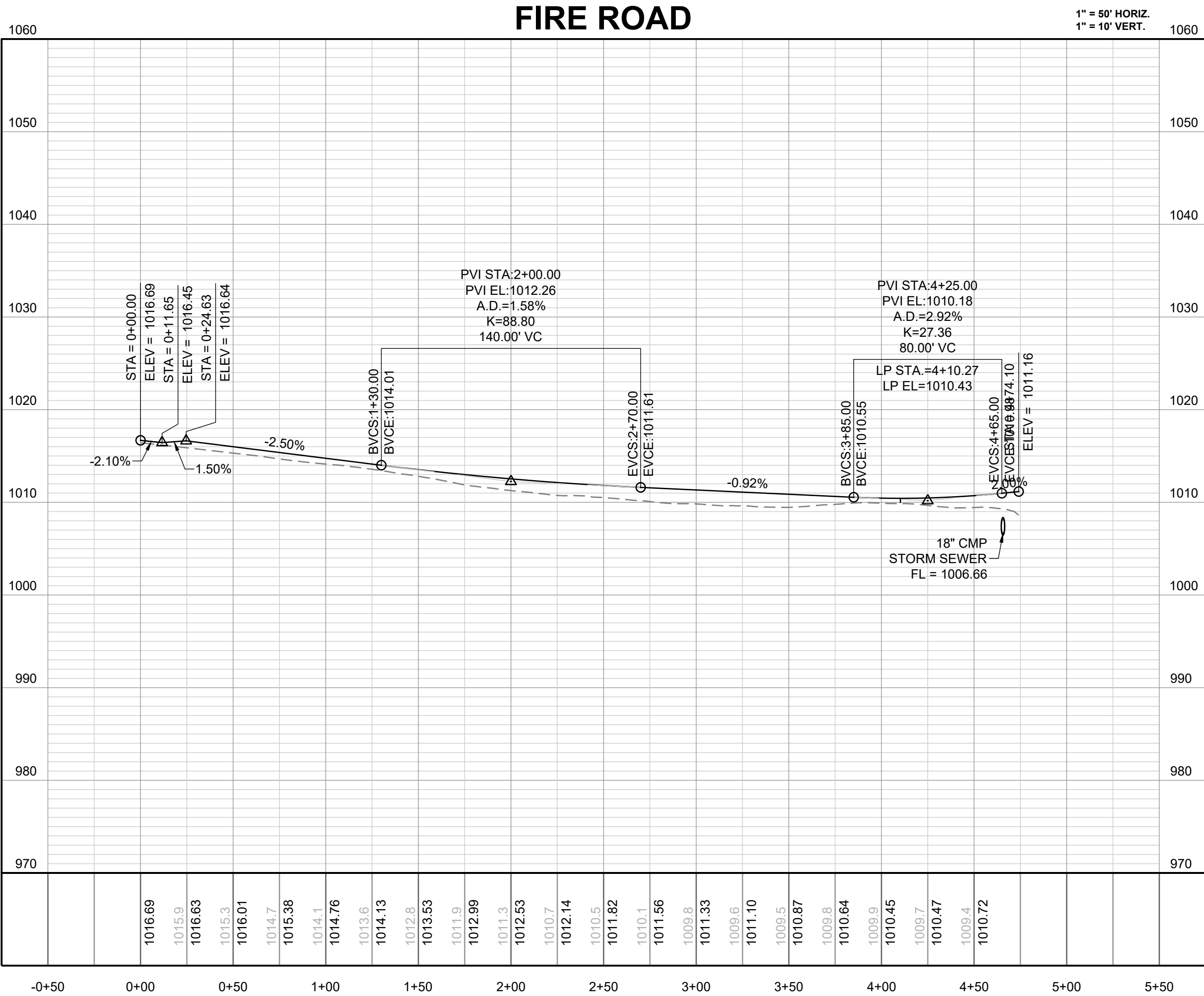
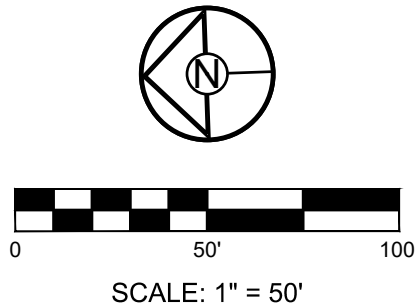
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD. N:1001052.8503, E:2845604.8272

ELEV. 997.045

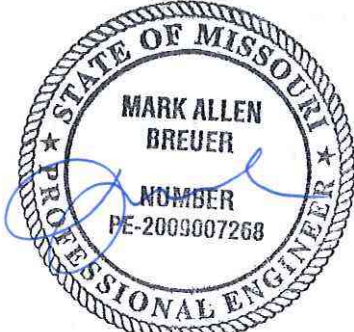
PROJECT BENCHMARK:

"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



PREPARED BY:



09.06.2023

SCHLAGEL & ASSOCIATES, P.A.

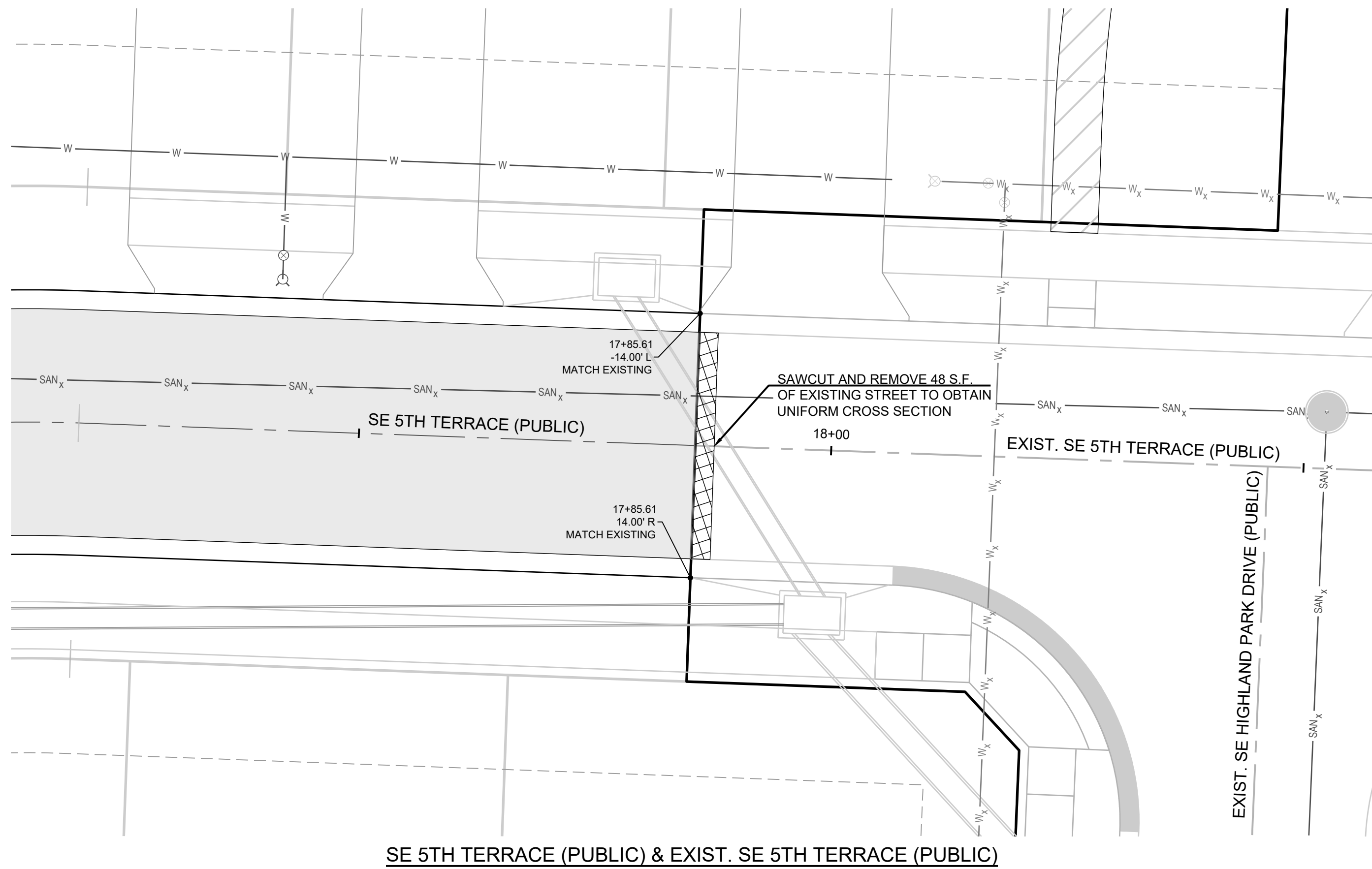
BLACKWELL RESERVE
STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS
06/27/2023	PER CITY COMMENTS
08/06/2023	PER CITY COMMENTS
09/05/2023	
10/03/2023	
11/03/2023	
12/03/2023	
01/03/2024	
02/03/2024	
03/03/2024	
04/03/2024	
05/03/2024	
06/03/2024	
07/03/2024	
08/03/2024	
09/03/2024	
10/03/2024	
11/03/2024	
12/03/2024	

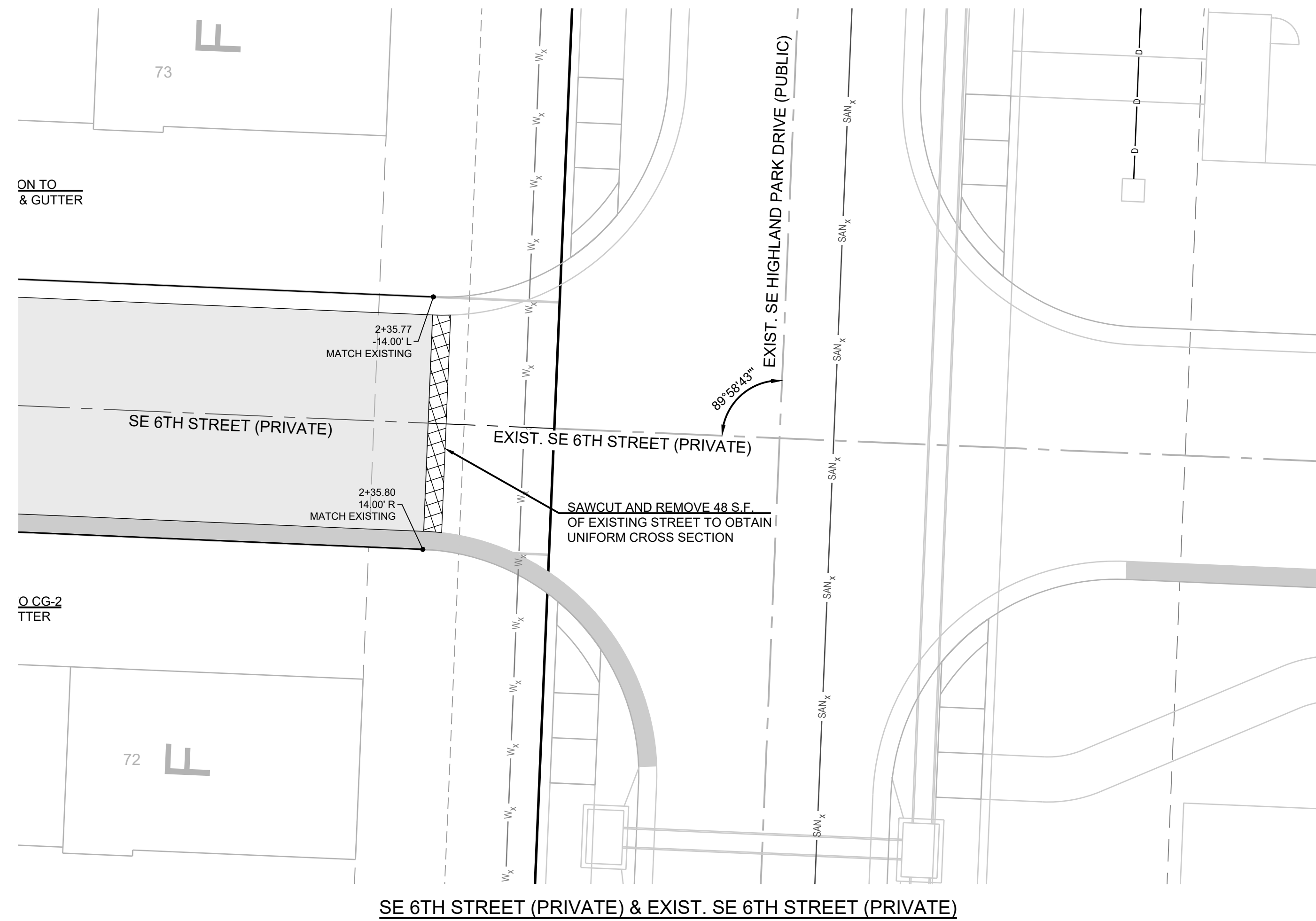
FIRE ROAD -
PLAN & PROFILE

SHEET

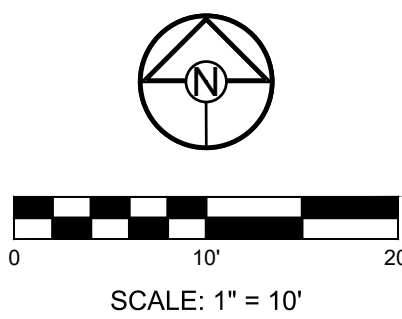
15



SE 5TH TERRACE (PUBLIC) & EXIST. SE 5TH TERRACE (PUBLIC)



SE 6TH STREET (PRIVATE) & EXIST. SE 6TH STREET (PRIVATE)



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

REVISION DATE	DESCRIPTION
1 05/05/2023	PER CITY COMMENTS
2 06/27/2023	PER CITY COMMENTS
3 08/06/2023	PER CITY COMMENTS
4	
5	
6	
7	
8	
9	
10	

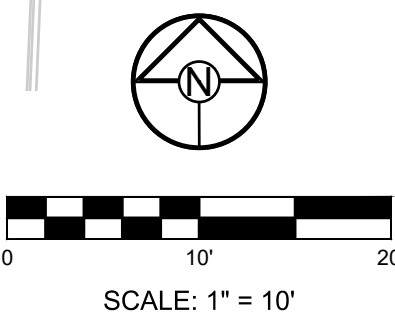
DRAWN BY: TRC	CHECKED BY: MAB	DATE PREPARED: 09/03/2023	PROJ. NUMBER: 22-593
------------------	--------------------	------------------------------	-------------------------

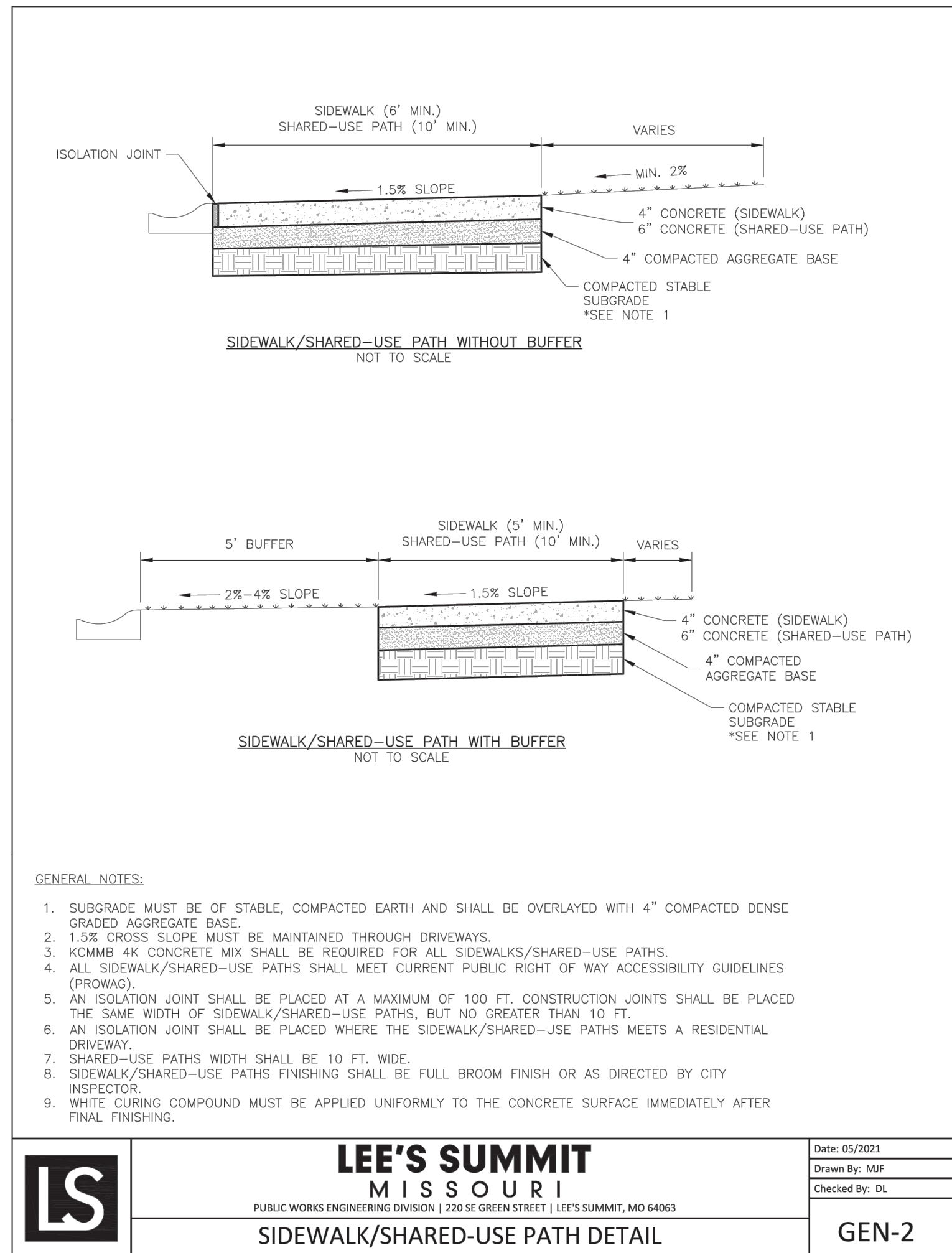
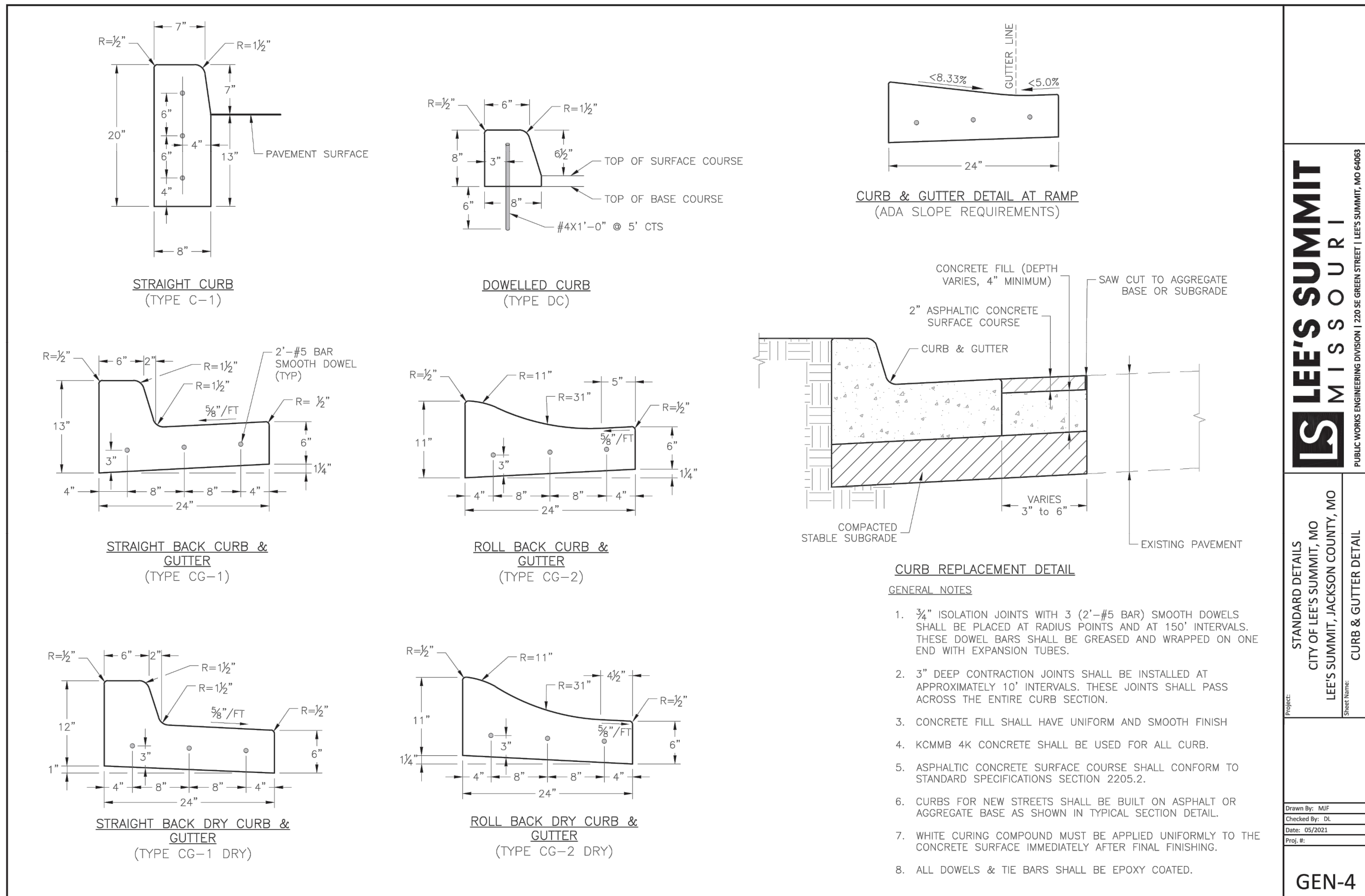
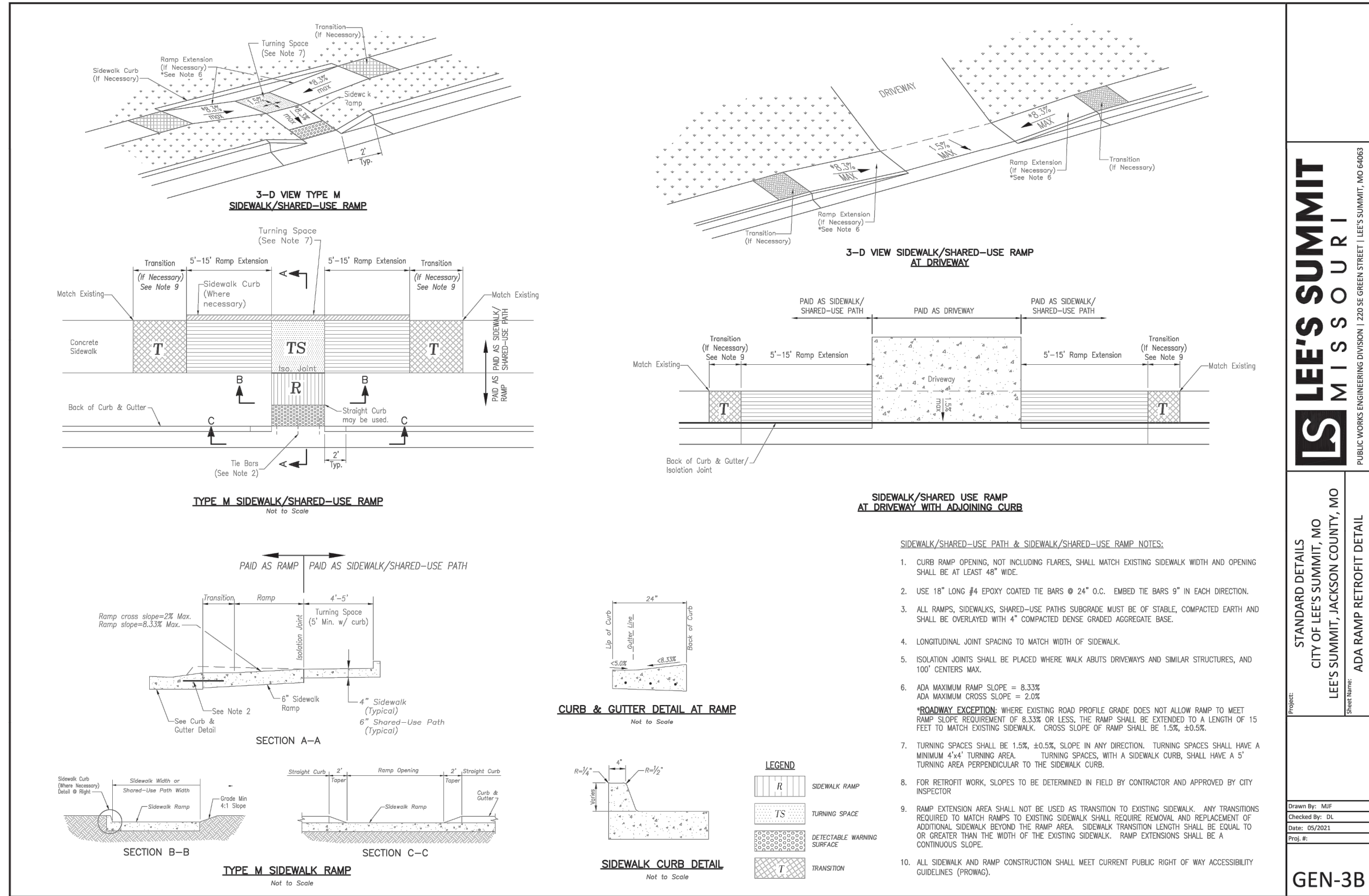
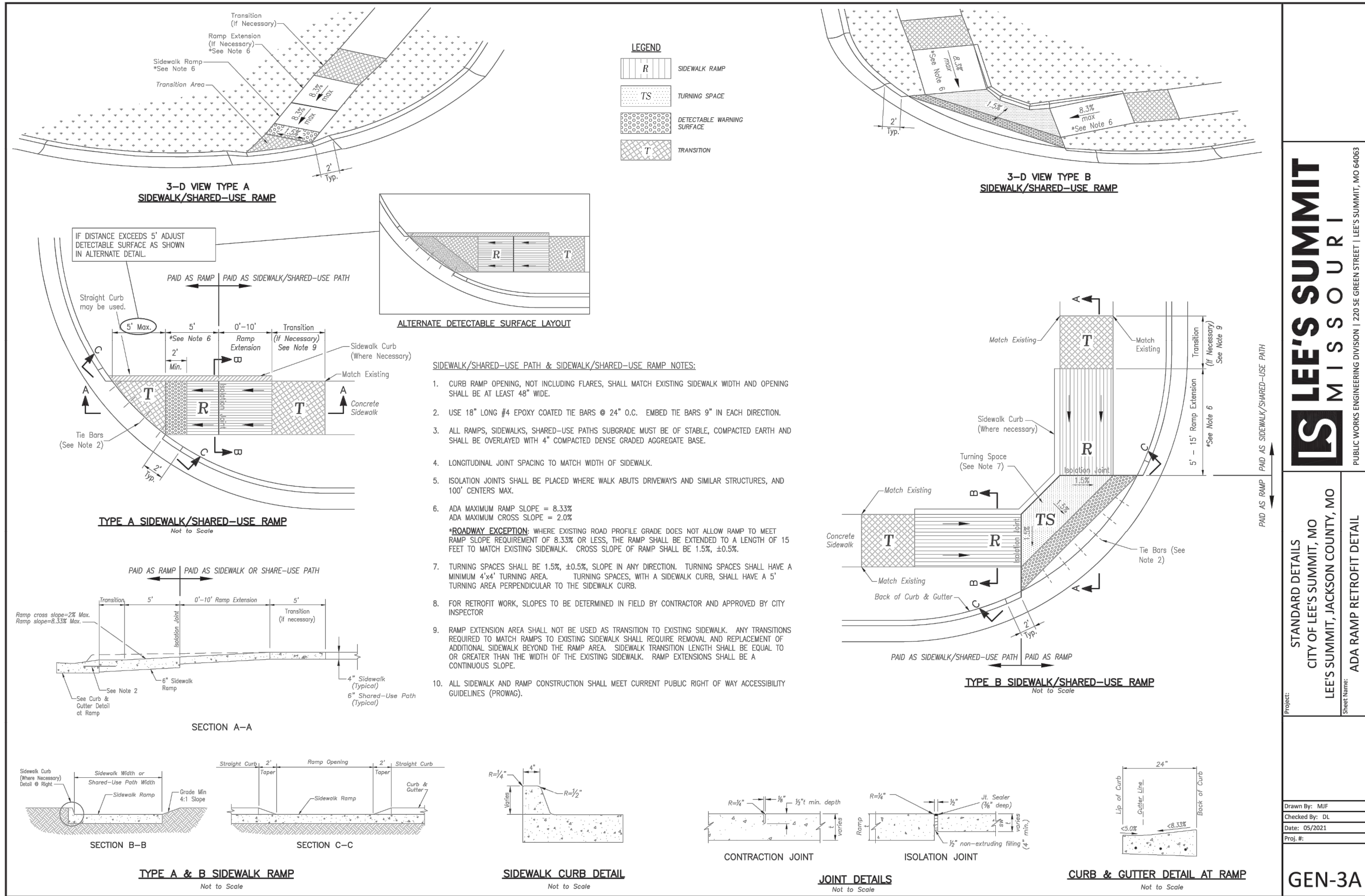
INTERSECTION
DETAILS

NEW ALLEY (PRIVATE) & EXIST. SE HIGHLAND PARK DRIVE (PUBLIC)

NEW ALLEY (PRIVATE) & EXIST. SE 6TH STREET (PRIVATE)

NEW ALLEY (PRIVATE) & EXIST. SE HIGHLAND PARK DRIVE (PUBLIC)



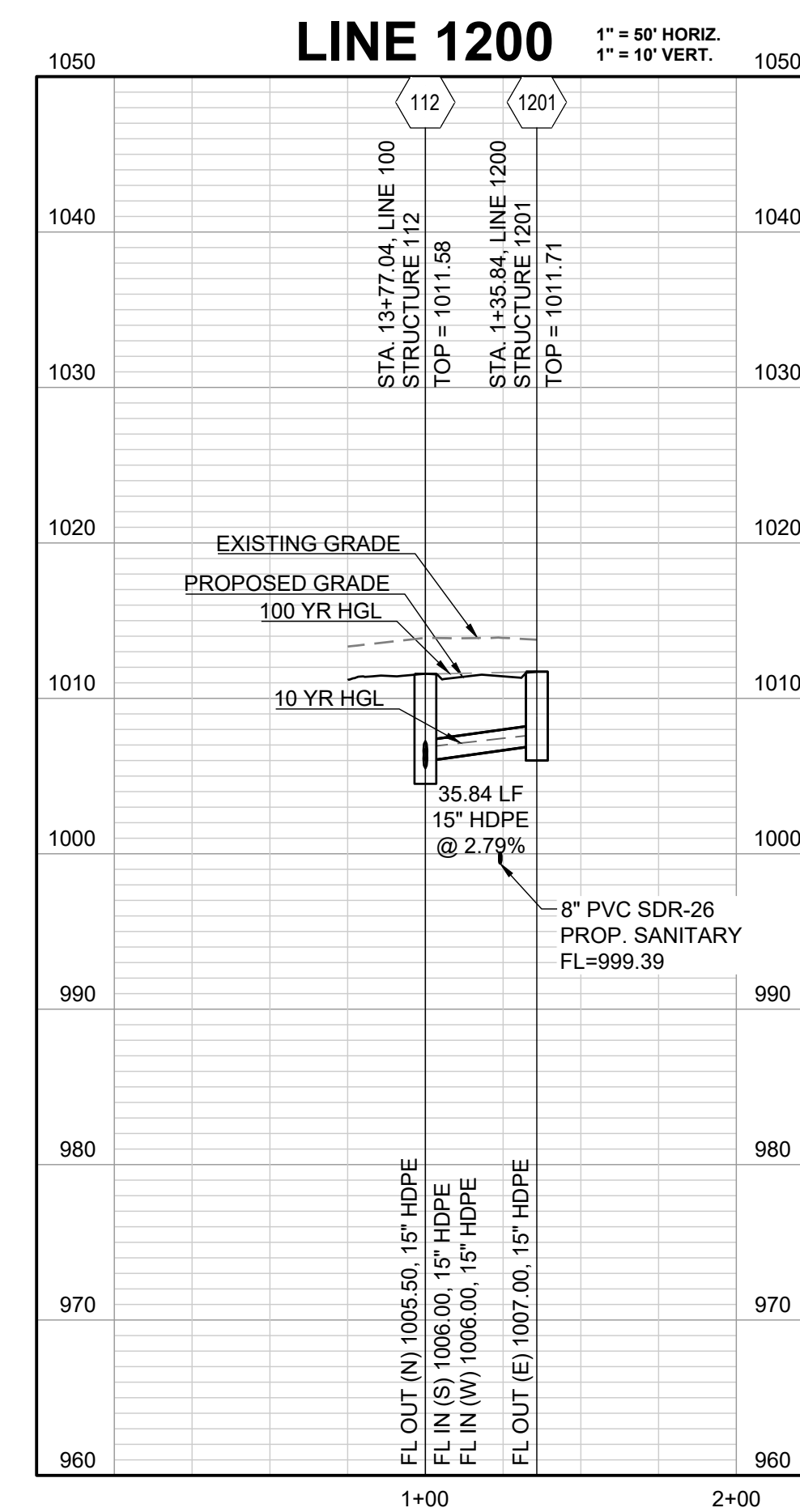
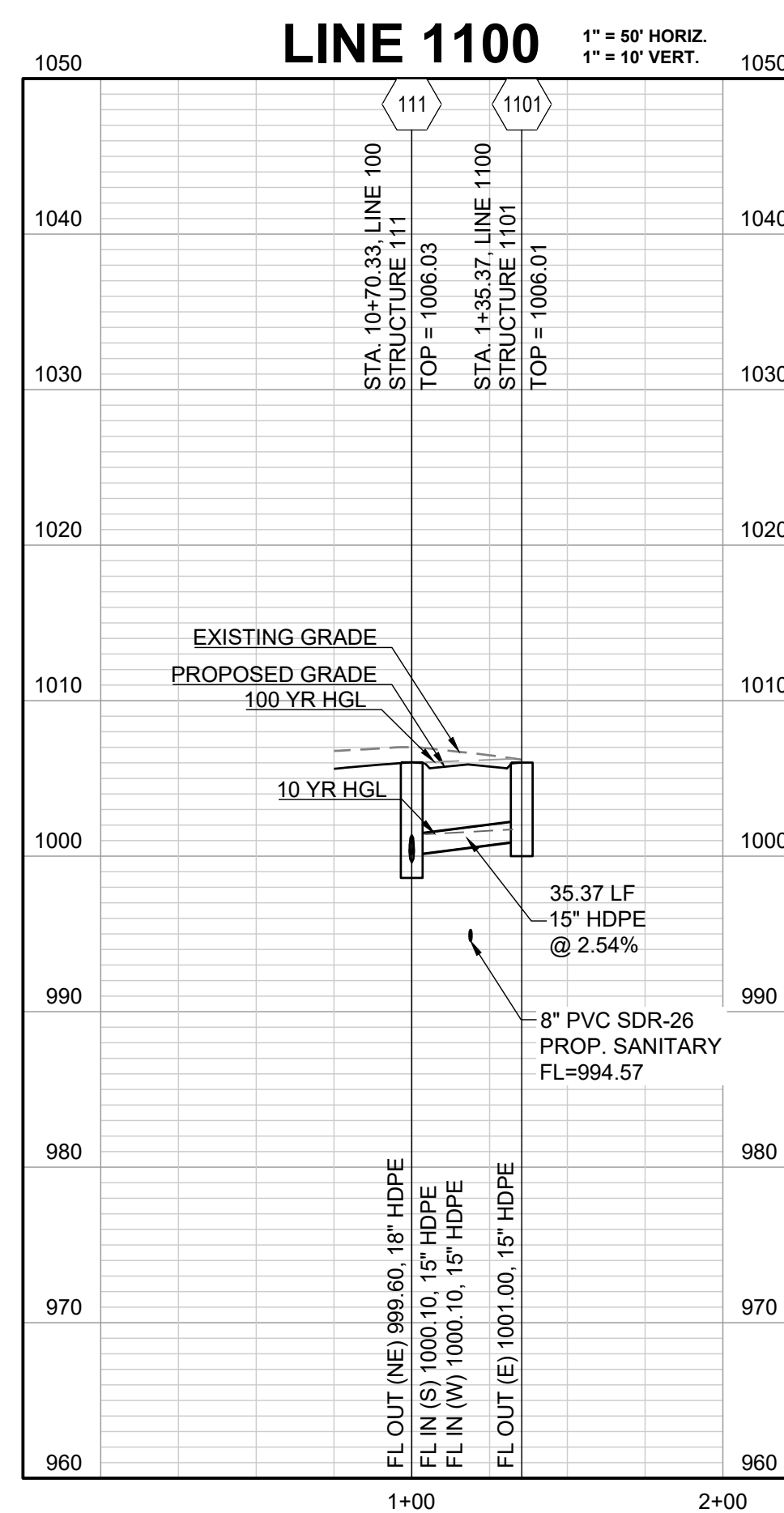
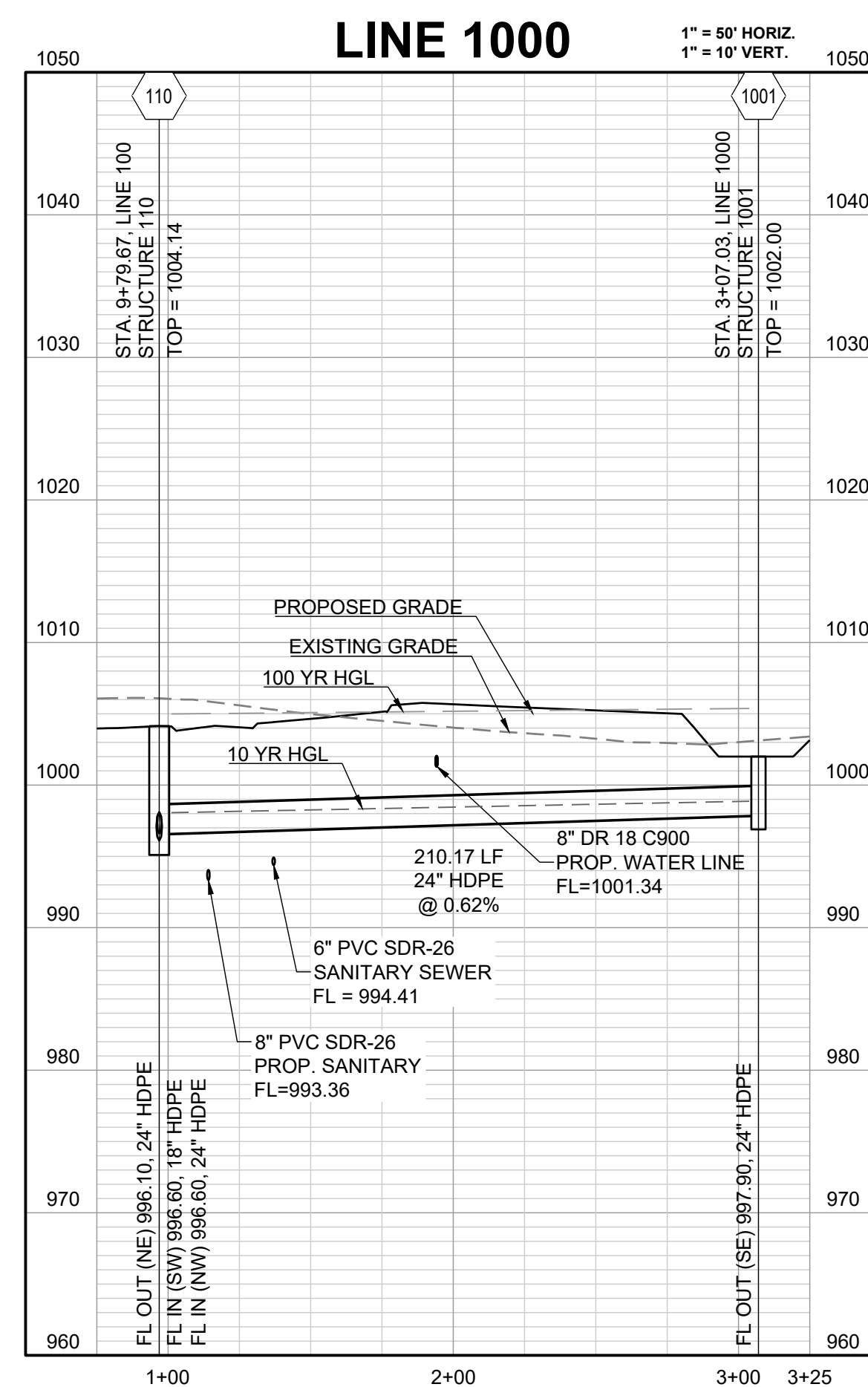
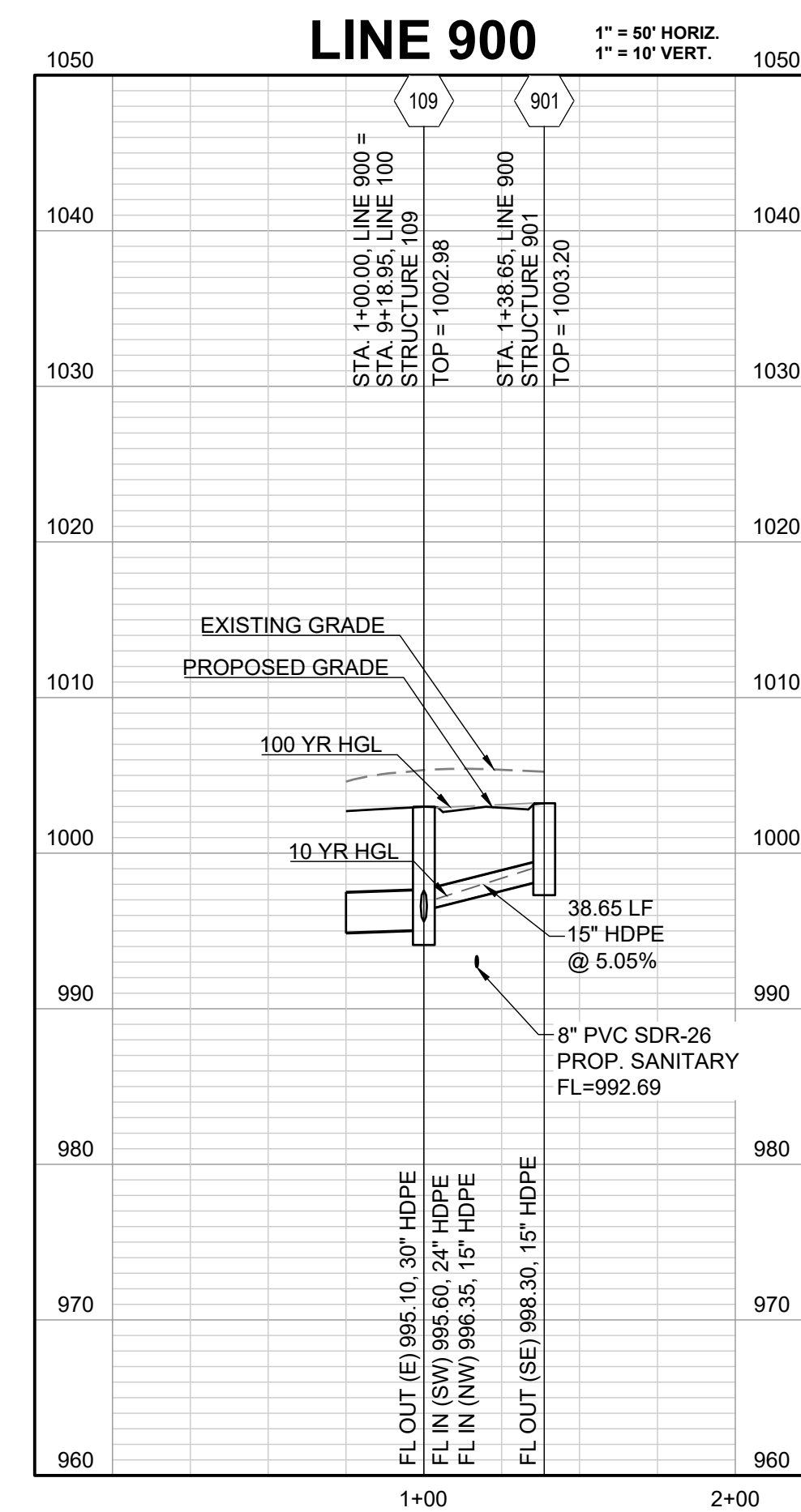
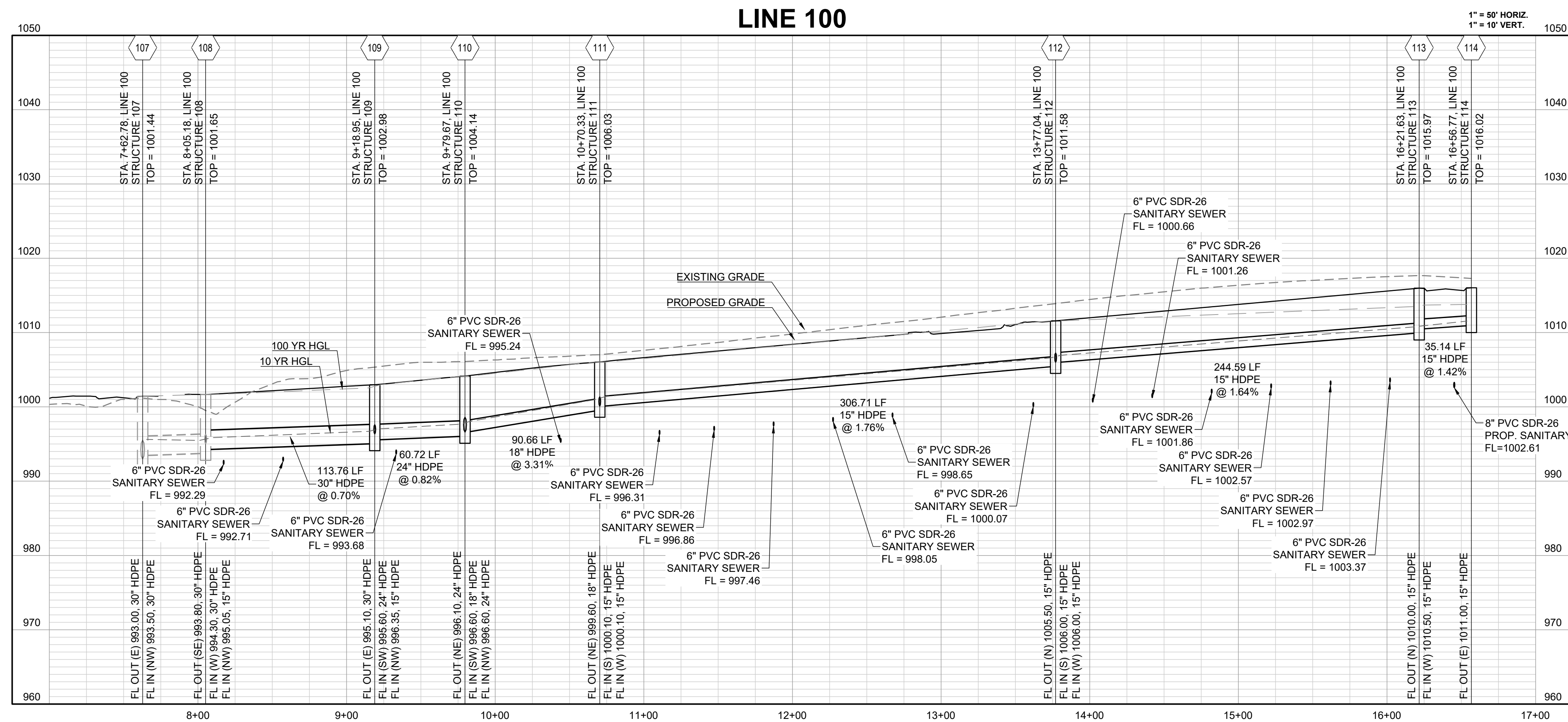


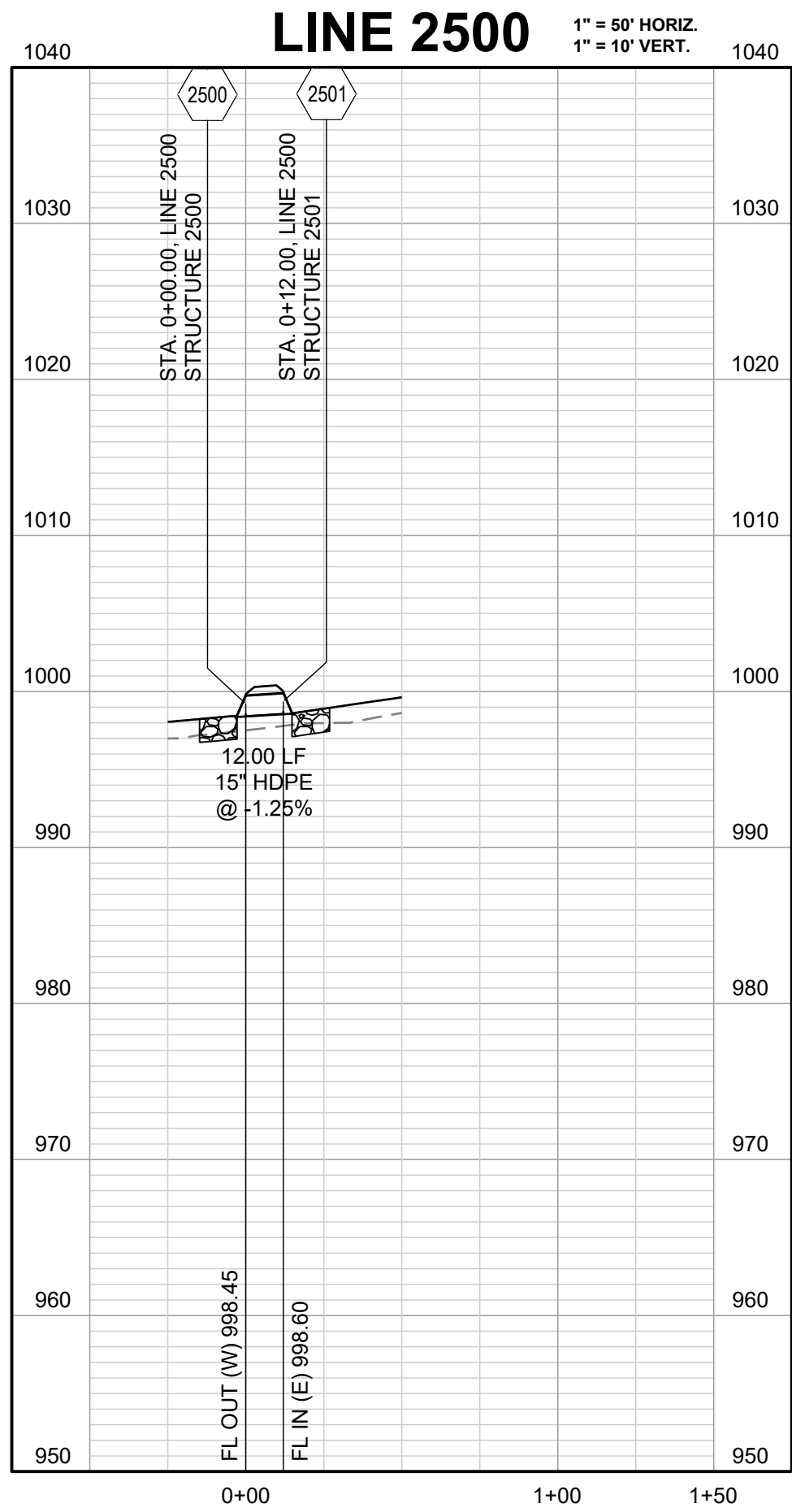
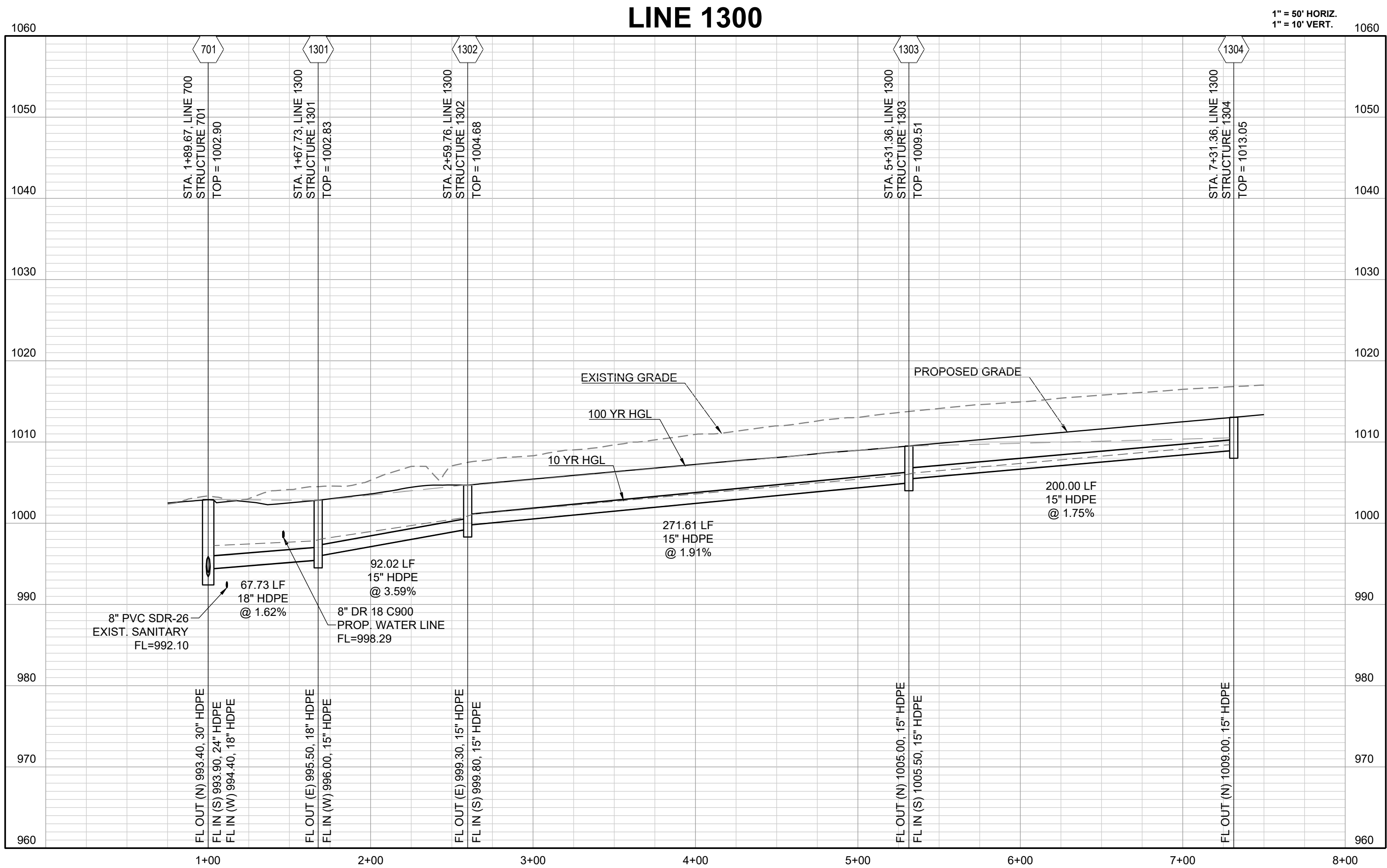
REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS
06/27/2023	PER CITY COMMENTS
08/06/2023	PER CITY COMMENTS
09/05/2023	DATE PREPARED
09/05/2023	PROJ. NUMBER:
22-263	



Design Storm:		100																											
"K" Value:		1.25																											
"F" Factor:		1.00																											
Runoff Calculations															Pipe Properties														
In#	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" Value	Pipe Size	Pipe Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev.			
LINE 100																													
101	0.61	0.66	20.40	13.46	8.6	9.01	4.53	151.62	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	19.79	13.06	8.6	9.02	2.98	147.21	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	992.90			
103	0.37	0.66	15.87	10.47	8.3	9.10	2.78	119.20	78.60	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	997.99			
104	0.22	0.66	15.08	9.95	7.9	9.24	1.68	114.95	82.29	8.55	501	601	1.57	1.04	104	103	HDPE	0.012	42	211.60	0.57	0.50	989.50	988.30	998.95	1000.07			
105	0.11	0.66	13.29	8.77	7.7	9.32	0.85	102.23	68.17	9.64			0.00	0.00	105	104	HDPE	0.012	36	145.31	0.89	0.50	991.30	990.00	1000.55	1003.49			
106	0.18	0.66	13.18	8.70	7.6	9.35	1.39	101.69	67.01	9.48	701		6.73	4.44	106	105	HDPE	0.012	36	46.74	0.86	0.50	992.20	991.80	1001.44	1003.08			
107	0.64	0.66	6.27	4.14	6.9	9.58	5.06	49.53	41.21	8.39			0.00	0.00	107	106	HDPE	0.012	30	35.00	0.86	0.50	993.00	992.70	1001.74	1002.67			
108	0.18	0.66	5.63	3.72	6.8	9.61	1.43	44.63	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	1002.51			
109	0.12	0.66	5.19	3.43	6.6	9.70	0.96	41.53	37.18	7.57	901		0.66	0.44	109	108	HDPE	0.012	30	113.76	0.70	0.50	995.10	994.50	1002.98	1003.20			
110	0.11	0.66	4.41	2.91	6.4	9.75	0.89	35.48	22.19	7.06	1001		1.50	0.99	110	109	HDPE	0.012	24	60.72	0.82	0.50	996.09	995.60	1004.14	1005.23			
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	996.59	1003.83	1009.09			
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	308.71	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	Drop in Inlet 102	1.50	N/A	989.80	988.10	993.70	995.88			
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	999.68	1000.40			
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	35.48	2.68	N/A	991.00	990.05	996.59	996.77			
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	1000.12	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	6.73	4.44	7.6	9.35	2.47	51.92	39.24	7.99	1301		2.26	1.49	701	106	HDPE	0.012	30	89.67	0.78	0.50	993.40	992.70	1002.90	1003.54			
702	0.58	0.66	4.15	2.74	7.1	9.51	4.55	32.54	34.14	10.87	1401		0.65	0.43	702	701	HDPE	0.012	24	288.09	1.94	0.50	999.49	993.90	1007.44	1008.82			
703	0.46	0.66	2.92	1.93	6.4	9.78	3.70	23.50	14.30	8.09	1501		0.85	0.56	703	702	HDPE	0.012	18	335.06	1.58	0.50	1005.28	1001.50	1011.51	1023.11			
704	0.26	0.66	1.61	1.06	5.7	10.06	2.16	13.36	8.17	5.19			0.00	0.00	704	703	HDPE	0.012	18	245.08	0.65	0.50	1007.37	1005.78	1014.19	1015.33			
705	0.07	0.66	1.35	0.89	5.5	10.10	0.58	11.25	8.59	4.86			0.00	0.00	705	704	HDPE	0.012	18	35.04	0.57	0.50	1008.07	1007.87	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	1009.17	1008.57	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	1010.17	1009.67	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	1010.97	1010.67	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	5.05	N/A	998.30	996.35	1003.20	1003.39			
LINE 1000																													
1001	1.50	0.66	1.50	0.99	5.0	10.32	12.77	12.77	19.30	6.14			0.00	0.00	1001	110	HDPE	0.012	24	210.17	0.82	0.50	997.90	996.59	1002.00	1004.84			
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	N/A	1001.00	1000.09	1006.01	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	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	18.39	14.48	8.20			0.00	0.00	1301	701	HDPE	0.012	18	67.73	1.62	0.50	995.49	994.40	1002.83	1005.51			
1302	0.80	0.66	1.96	1.29	6.0	9.92	6.54	16.03	13.26	10.80			0.00	0.00	1302	1301	HDPE	0.012	15	92.02	3.59	0.50	999.30	995.94	1004.68	1008.99			
1303	0.58	0.66	1.16	0.77	5.4	10.14	4.85	9.71	9.67	7.88			0.00	0.00	1303	1302	HDPE	0.012	15	271.61	1.91	0.50	1004.99	999.80	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	0.65	0.66	0.65	0.43	5.0	10.32	5.54	5.54	16.94	13.80			0.00	0.00	1401	702	HDPE	0.012	15	35.00	5.86	N/A	1002.29	1000.24	1007.44	1007.82			
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	N/A	1006.48	1005.78	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	1012.17	1010.67	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	1012.87	1012.67	1017.15	1015.42			
LINE 1700																													
1701	1.32	0.66	9.77	6.45	7.1	9.52	10.37	76.74	92.48	9.61	2101		2.81	1.85	1701	1700	HDPE	0.012	42	138.00	0.72	1.00	990.99	990.00	1000.68	996.44			
1702	0.27	0.66	5.64	3.72	6.9	9.59	2.14	44.63	68.55	13.97	2001		2.17	1.43	1702	1701	HDPE	0.012	30	167.90	2.38	1.00	995.99	991.99	1003.06	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	1.00	999.79	996.99	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	1000.29	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	1005.98	1004.48	1012.67	1013.44			
1706	0.85	0.66	1.19	0.79	5.2	10.25	7.19	10.96	8.37	6.82			0.00	0.00	1706	1705	HDPE	0.0											

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	STREET CROSS SLOPE	CURB TYPE	INLET LENGTH	EFFECTIVE LENGTH 80% CAP	INLET INTERCEPTION	BYPASS TO DOWNSTREAM INLET	STREET GRADE	STREET 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



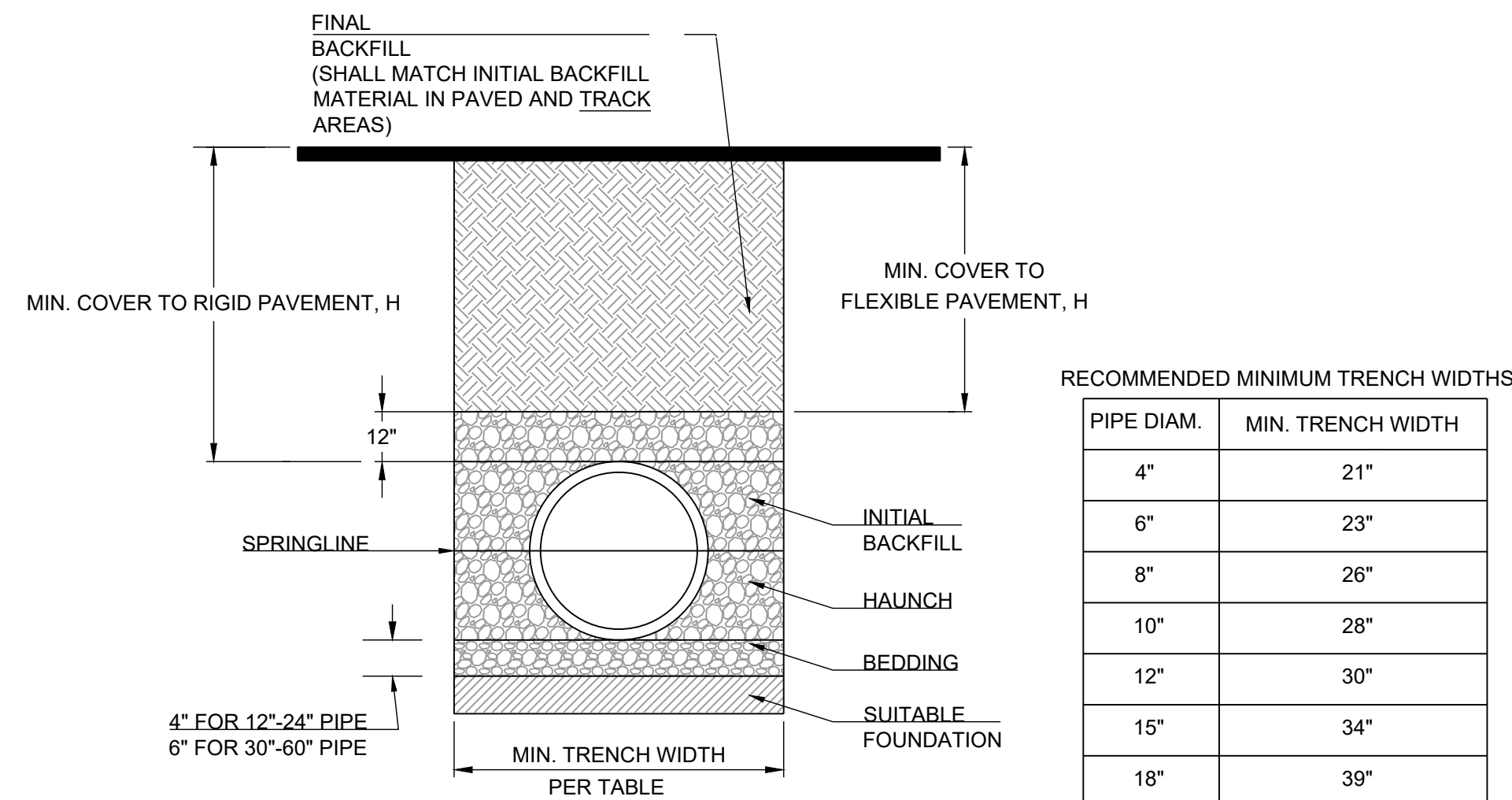
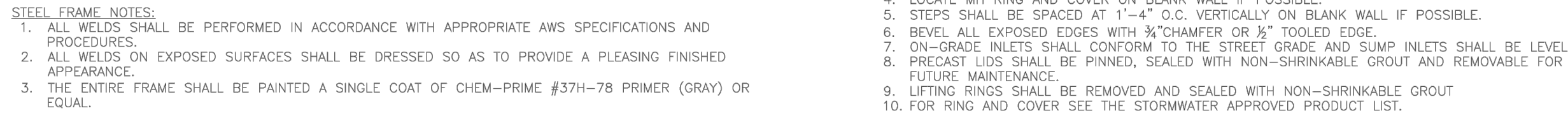


BLACKWELL RESERVE
STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 05/05/2023	PER CITY COMMENTS
2 06/27/2023	PER CITY COMMENTS
3 08/06/2023	PER CITY COMMENTS
4	
5	
6	
7	
8	
9	
10	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	09/03/2023
PROJ. NUMBER:	22-593

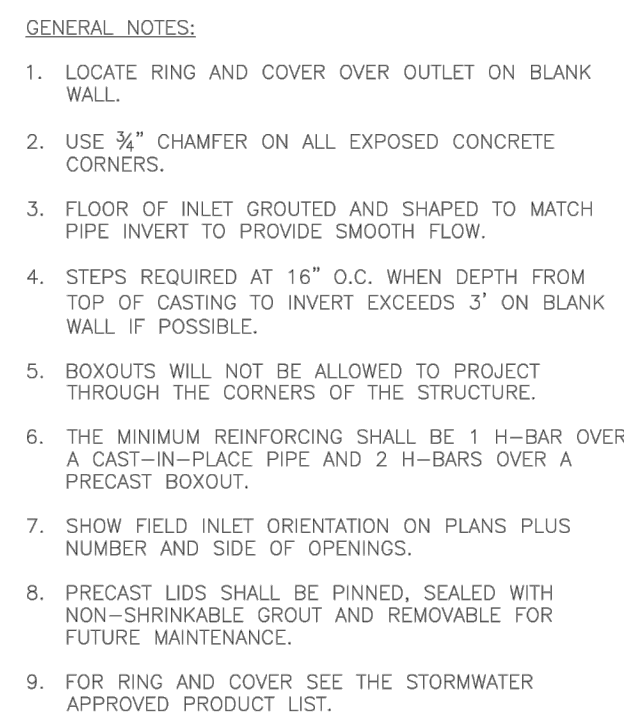
STORM
PROFILES



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

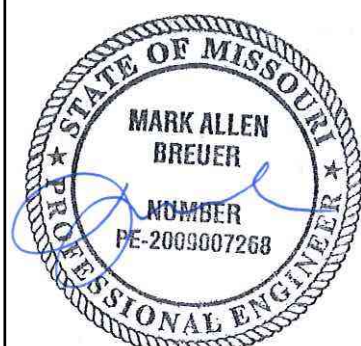
NOTES:

1. 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
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. **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.
4. **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).
5. **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.
6. **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.
7. **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.



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"

PREPARED BY:



09.06.2023

SCHLAGEL & ASSOCIATES, P.A.

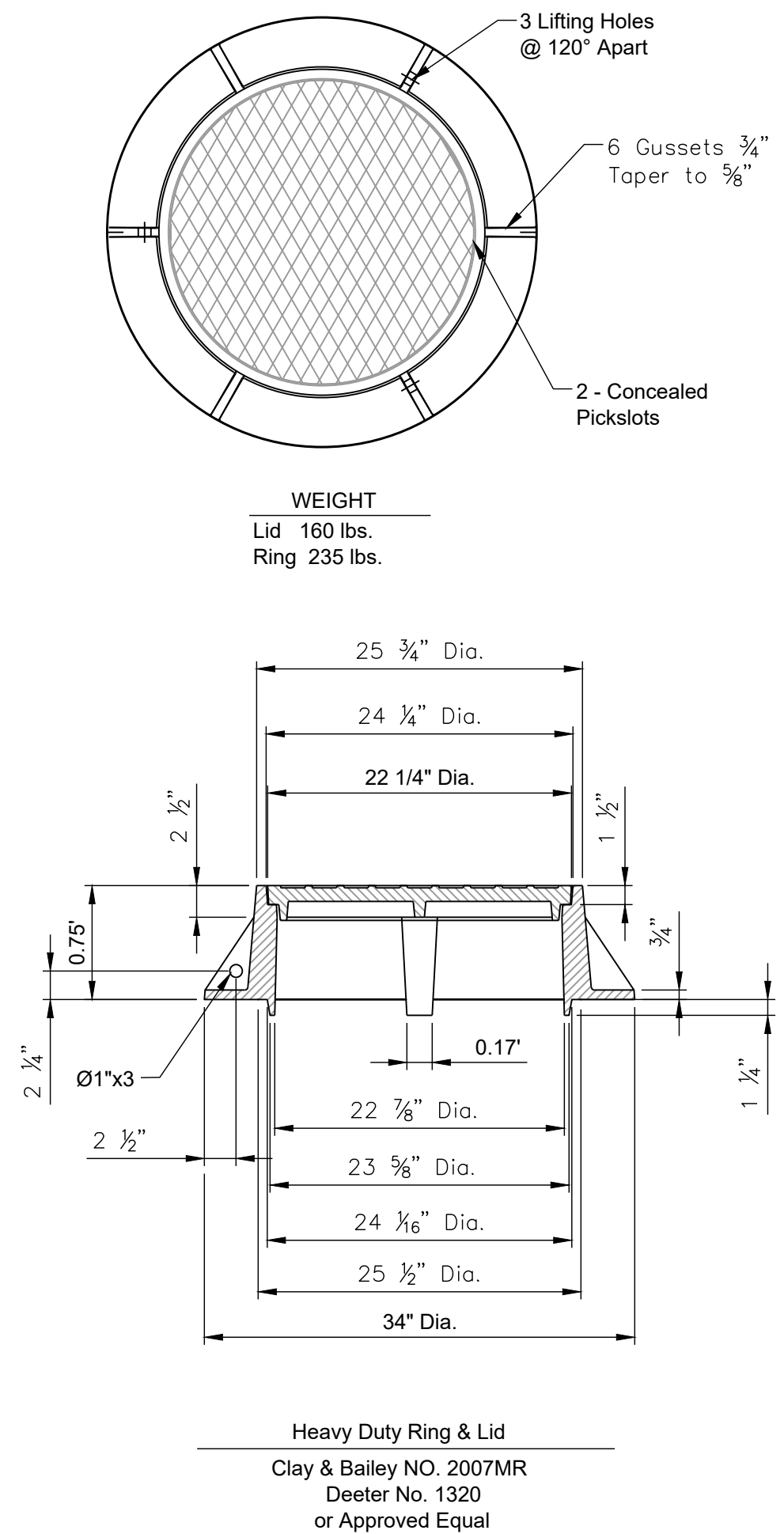
BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

REVISION	DATE	DESCRIPTION
1	05/05/2023	PER CITY COMMENTS
2	06/27/2023	PER CITY COMMENTS
3	09/06/2023	PER CITY COMMENTS
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
75		
76		
77		
78		
79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		

STORM DETAILS

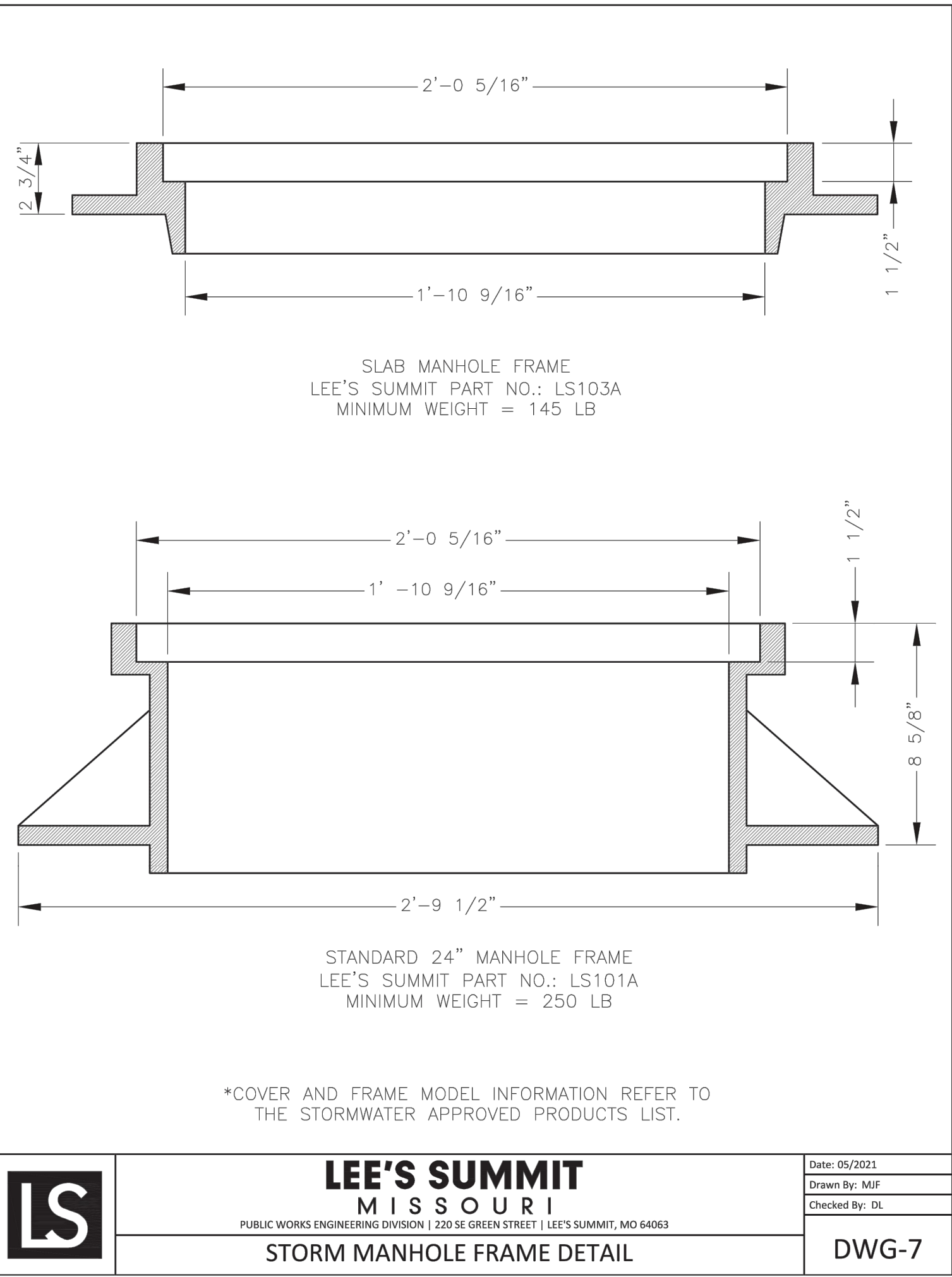
SHEET

26

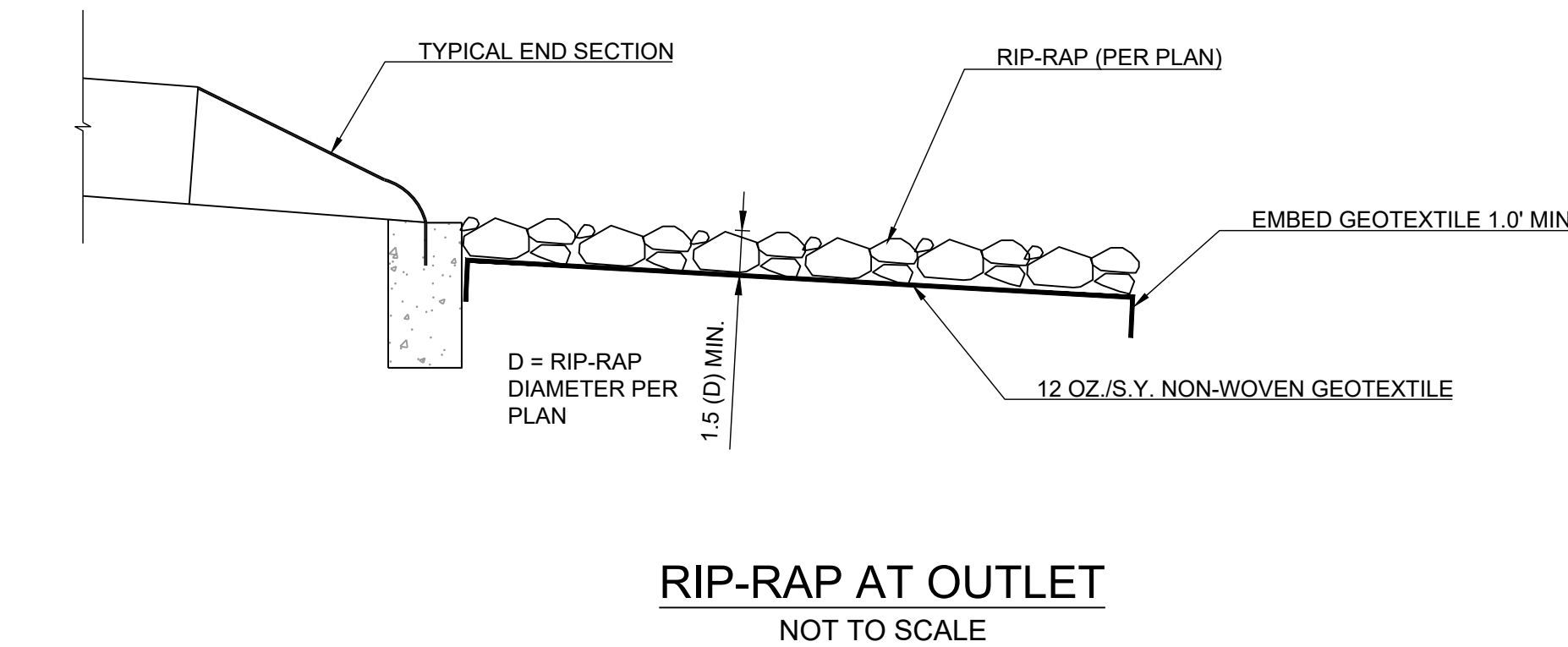
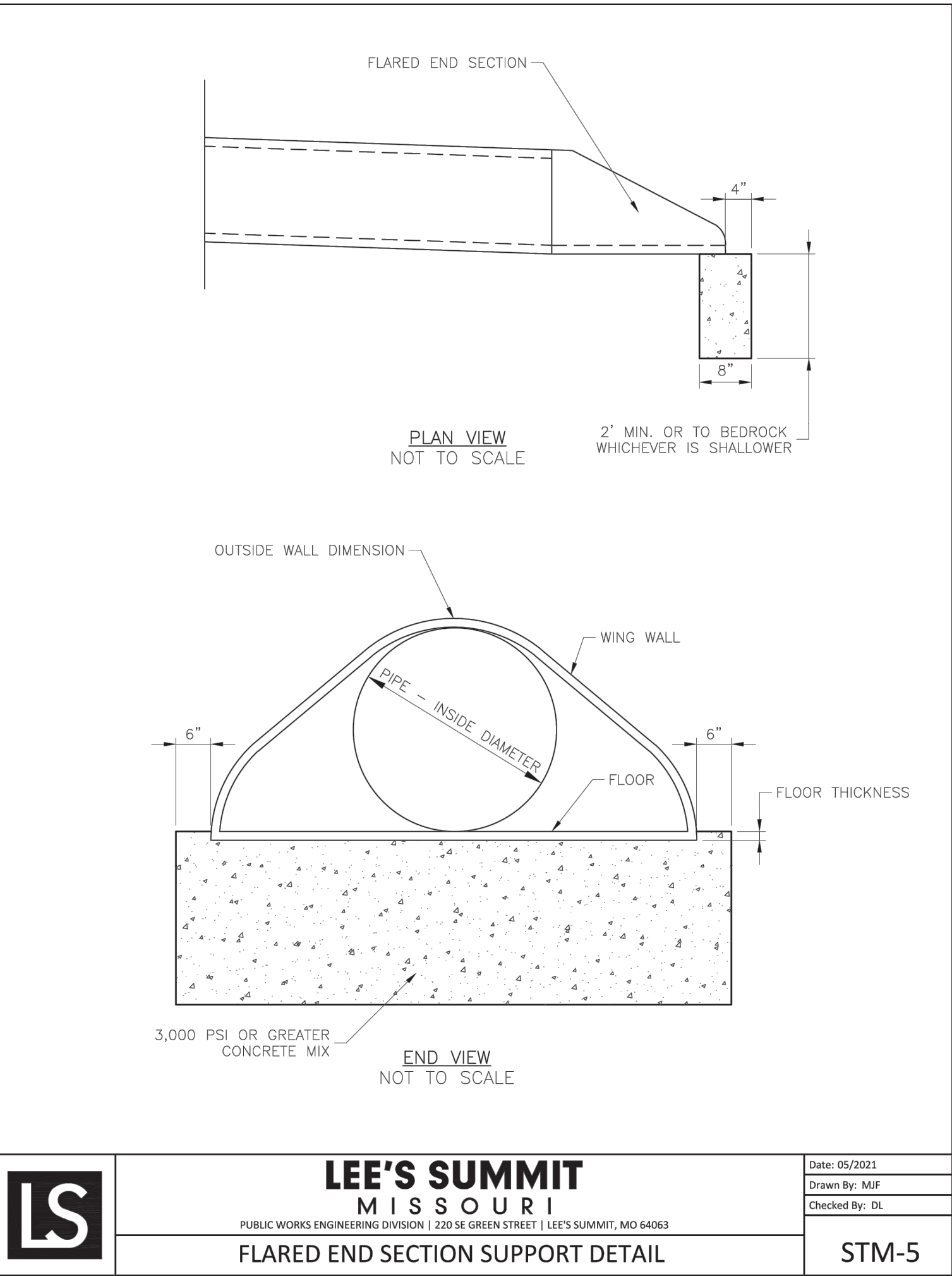
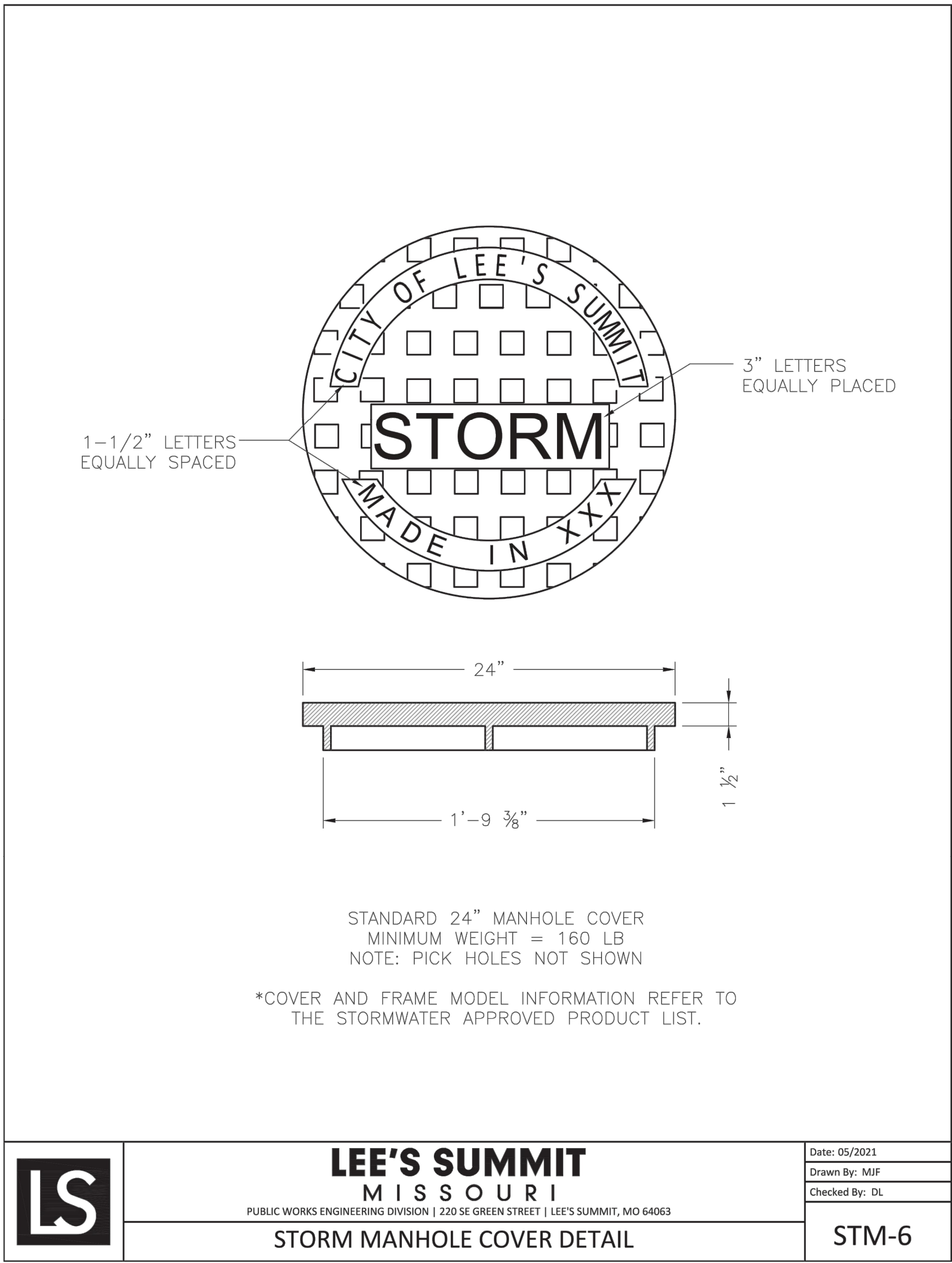


- Manhole Cover Notes:
1. Raised surfaces shall be cast as non-skid finish.
 2. Horizontal bearing surfaces shall be machined.
 3. Mud ring is optional.
 4. Paint is optional unless specified.

PRIVATE STORM RING AND COVER DETAIL



PUBLIC STORM RING AND COVER DETAIL

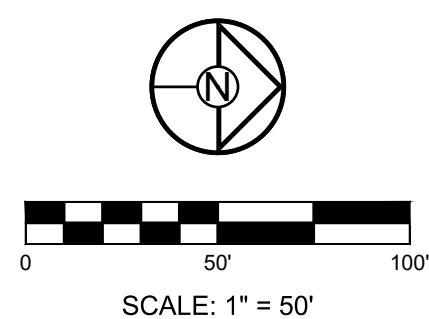


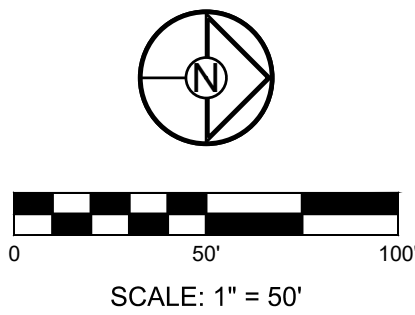
BLACKWELL RESERVE
STREET AND STORM SEWER PLANS
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 05/05/2023	PER CITY COMMENTS
2 06/27/2023	PER CITY COMMENTS
3 08/06/2023	PER CITY COMMENTS
4	
5	
6	
7	
8	
9	
10	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-593

STORM DETAILS





SHEET
30