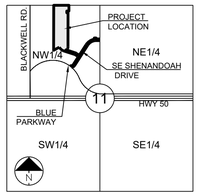
STREET AND STORM SEWER PLANS
FOR
BLACKWELL RESERVE

IN THE CITY OF LEE'S SUMMIT
JACKSON COUNTY, MO

LEGEND:

A/E	-	ACCESS EASEMENT
BC	-	BACK OF CURB
B/B	-	BACK TO BACK
BM	-	BENCHMARK
BL or B.L.	-	BUILDING LINE
CO	-	CLEANOUT
TJB	-	TELEPHONE JUNCTION BOX
C&G	-	CURB AND GUTTER
D/E	-	DRAINAGE EASEMENT
E/E	-	ELECTRICAL EASEMENT
EL	-	ELEVATION
FL	-	FLOW LINE
G/E	-	GAS LINE EASEMENT
HDPE	-	HIGH-DENSITY POLYETHYLENE
L/E	-	LANDSCAPE EASEMENT
MSFE	-	MINIMUM SERVICEABLE FLOOR ELEVATION
PVC	-	POLYVINYL CHLORIDE
P/L	-	PROPERTY LINE
PUB/E	-	PUBLIC EASEMENT
RCP	-	REINFORCED CONCRETE PIPE
ROW or R/W	-	RIGHT-OF-WAY
S/E	-	SANITARY SEWER EASEMENT
SL	-	SERVICE LINE
S/W	-	SIDEWALK
TE	-	TOP ELEVATION
U/E	-	UTILITY EASEMENT
WSE	-	WATER SURFACE ELEVATION
W/E	-	WATERLINE EASEMENT

ASPHALT PAVEMENT - EXISTING
ASPHALT PAVEMENT - PROPOSED
CONCRETE PAVEMENT - EXISTING
ASPHALT PAVEMENT - EXISTING
CONCRETE SIDEWALK - EXISTING
CONCRETE SIDEWALK - PROPOSED
CURB & GUTTER
CURB & GUTTER - EXISTING
TREELINE
EXISTING LOT AND R/W LINES
EXISTING PLAT LINES
P/L — PROPERTY LINES
ROW — RIGHT-OF-WAY
SANITARY SEWER MAIN
SANITARY SEWER MAIN - EXIST.
STO — STORM SEWER
STORM SEWER - EXISTING
CATV$_X$ — CABLE TV - EXISTING
FOC$_X$ — FIBER OPTIC CABLE - EXISTING
T$_X$ — TELEPHONE LINE - EXIST.
E$_X$ — ELECTRIC LINE - EXISTING
OHP$_X$ — OVERHEAD POWER LINE - EXIST.
UGE$_X$ — UNDERGROUND ELECTRIC - EX.
G$_X$ — GAS LINE - EXISTING
W$_X$ — WATERLINE - EXISTING
LIGHT - EXISTING
EXISTING MANHOLE
CO — CLEANOUT
EXISTING SANITARY MANHOLE
PROPOSED SANITARY MANHOLE
AI — EXISTING AREA INLET
CI — EXISTING CURB INLET
GI — EXISTING GRATE INLET
JB — EXISTING JUNCTION BOX
D — EXISTING STORM MANHOLE



SECTION 11-47-31

LOCATION MAP
SCALE 1" = 2000'

UTILITY CONTACTS:

MISSOURI DEPARTMENT OF TRANSPORTATION (MODOT)
Steve Holloway
600 NE Colbern Road
Lee's Summit, MO 64086
(816) 607-2186

SPIRE
Brent Jones
3025 SE Clover Drive
Lee's Summit, MO 64082
(816) 399-0663brent.jones@spireenergy.com

EVERGY
Philip Ingram
1300 SE Hamblin Road
Lee's Summit, MO 64081
Office: (816) 347-347-4339
philip.ingham@evergy.com

CITY OF LEES SUMMIT PUBLIC WORKS
Dena Mezger
220 SE Green Street
Lee's Summit, MO 64063
(816) 969-1800

AT&T
Mark Manion or Marty Loper
500 E. 8th Street, Room 370
Kansas City, MO 64106
(816) 275-2341 or (816) 275-1550

COMCAST CABLE
John Meadows
4700 Little Blue Parkway
Independence, MO 64057
(816) 795-2257

CITY OF LEE'S SUMMIT WATER UTILITIES
Mark Schaufler
1200 SE Hamblen Road
Lee's Summit, MO 64081
(816) 969-1900

MISSOURI ONE CALL SYSTEM
811 or
1-800-344-7483
mo1call.com

SUMMARY OF QUANTITIES

	ITEM	QUANTITY	UNITS
1	2" TYPE 5 OR 6 ASPHALT PAVEMENT	4,537	SY
2	4" TYPE 5 ASPHALT PAVEMENT	4,537	SY
3	6" TYPE 5 BASE	5,608	SY
4	9" SUBGRADE STABILIZATION	5,608	SY
5	TYPE CG-2 CURB AND GUTTER	3,025	LF
6	5' CONCRETE SIDEWALK	216	LF
7	TYPE A SIDEWALK RAMPS	4	EA
12	6 X 4 CURB INLET	9	EA
	4 X 4 FIELD INLET	1	EA
	4 X 4 DOUBLE GRATE INLET	4	EA
15	30" HDPE STORM SEWER PIPE	114	LF
16	24" HDPE STORM SEWER PIPE	271	LF
17	18" HDPE STORM SEWER PIPE	159	LF
18	15" HDPE STORM SEWER PIPE	1,262	LF
21	TRENCHING UNDER FUTURE STREET	846	LF
22	CLEARING, GRUBBING & DISPOSAL	1	LS
23	EARTHWORK	1	LS
24	INLET PROTECTION (SILT FENCE)	13	EA
25	INLET PROTECTION (GRAVEL FILTER BAGS)	17	EA
26	SEEDING & MULCHING	1	LS
27	STRIPING & SIGNAGE	1	LS
28	BONDS	1	LS

GENERAL NOTES:

1. ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
2. ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI.
3. LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.
4. NO GEOLOGICAL INVESTIGATION HAS BEEN PERFORMED ON THE SITE.
5. THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND APPARENT FIELD LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL ADHERE TO THE PROVISIONS OF THE SENATE BILL NUMBER 583, 78TH GENERAL ASSEMBLY OF THE STATE OF MISSOURI. THE BILL REQUIRES THAT ANY PERSON OR FIRM DOING EXCAVATION ON PUBLIC RIGHT OF WAY DO SO ONLY AFTER GIVING NOTICE TO, AND OBTAINING INFORMATION FROM, UTILITY COMPANIES. STATE LAW REQUIRES 48 HOURS ADVANCE NOTICE. THE CONTRACTOR MAY ALSO UTILIZE THE FOLLOWING TOLL FREE PHONE NUMBER PROVIDED BY "MISSOURI ONE CALL SYSTEM, INC.": 1-800-DIG-RITE. THIS PHONE NUMBER IS APPLICABLE ANYWHERE WITHIN THE STATE OF MISSOURI. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY ALL THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED.
7. PRIOR TO ORDERING PRECAST STRUCTURES, SHOP DRAWING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL. AFTER APPROVAL OF THE SHOP DRAWINGS, A COPY OF THE APPROVED AND SIGNED SHOP DRAWINGS SHALL BE PROVIDED TO THE CITY INSPECTOR UPON REQUEST.
8. THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE.
9. CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND ORDINANCES.
10. ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR, OR AS DIRECTED BY THE OWNER.
11. ALL EXCAVATIONS SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK EXCAVATION.
12. THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASED OF CONSTRUCTION, AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS.
13. ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.
14. THE CONTRACTOR SHALL CONTACT DEVELOPMENT SERVICES INSPECTIONS AT: 816-969-1200 TO OBTAIN A DEVELOPMENT SERVICES CONSTRUCTION PERMIT. A MINIMUM 48 HOUR NOTICE SHALL BE GIVEN PRIOR TO PERMIT ISSUANCE.
15. THE CONTRACTOR SHALL CONTACT THE RIGHT OF WAY INSPECTOR AT 816-969-1800 PRIOR TO ANY LAND DISTURBANCE ACTIVITIES WITHIN THE RIGHT OF WAY. THESE ACTIVITIES MAY REQUIRE A PERMIT.
16. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL TRAFFIC HANDLING MEASURES NECESSARY TO ENSURE THAT THE GENERAL PUBLIC IS PROTECTED AT ALL TIMES. TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD-LATEST EDITION).

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.

DESIGN SPEED = 30 MPH

POSTED SPEED = 25 MPH

EARTHWORK:

1. It is recommended that a Geotechnical Engineer observe and document all earthwork activities.
2. Contours have been shown at 1-foot or 2-foot intervals, as indicated. Grading shall consist of completing the earthwork required to bring the physical ground elevations of the existing site to the finished grade (or sub-grade) elevations provided on the plans as spot grades, contours or others means as indicated on the plans.
3. The existing site topography depicted on the plans by contouring has been established by aerial photography and field verified by g.p.s. observation near 11/11/2021 .The contour elevations provided may not be exact ground elevations, but rather interpretations of such. Accuracy shall be considered to be such that not more than 10 percent of spot elevation checks shall be in error by more than one-half the contour interval provided, as defined by the National Map Accuracy Standards. Any quantities provided for earthwork volumes are established using this topography contour accuracy, and therefore the inherent accuracy of any earthwork quantity is assumed from the topography accuracy.
4. Proposed contours are to approximate finished grade.
5. Unless otherwise noted, payment for earthwork shall include backfilling of the curb and gutter, sidewalk and further manipulation of utility trench spoils. The site shall be left in a mowable condition and positive drainage maintained throughout.
6. Unless otherwise noted, all earthwork is considered Unclassified. No additional compensation will be provided for rock or shale excavation, unless specifically stated otherwise.
7. Prior to earthwork activities, pre-disturbance erosion and sediment control devices shall be in place per the Storm Water Pollution Prevention plan and/or the Erosion and Sediment Control Plan prepared for this site.
8. All topsoil shall be stripped from all areas to be graded and stockpiled adjacent to the site at an area specified by the project owner or his appointed representative. Vegetation, trash, trees, brush, tree roots and limbs, rock fragments greater then 6-inches and other deleterious materials shall be removed and properly disposed of offsite or as directed by the owner or his appointed representative.
9. Unless otherwise specified in the Geotechnical Report, all fills shall be placed in maximum 6-inch lifts and compacted to 95-percent of maximum density as defined using a standard proctor test (AASHTO T99/ASTM 698).
10. Subgrade for pavements shall be proof-rolled prior to paving operations utilizing a fully loaded tandem axle dump truck. All areas exhibiting excessive pumping and heaving shall be removed, filled and compacted with suitable materials and retested until acceptable results are achieved and final approval has been obtained from the Geotechnical Engineer.
11. Subgrade for building pad shall include a minimum of 18-inches of Low Volume Change (LVC) material, or as identified in the site specific Geotechnical Report.
12. Fill materials shall be per Geotechnical Report and shall not include organic matter, debris or topsoil. All fills placed on slopes greater than 6:1 shall be benched.
13. The Contractor shall be responsible for redistributing the topsoil over proposed turf and landscaped areas to a minimum depth of 6-inches below final grade.
14. All areas shall be graded for positive drainage. Unless noted otherwise the following grades shall apply:
    a. Turf Areas – 2.5% Minimum, 4H:1V Maximum
    b. Paved Areas – 1.2% Minimum, 5% Maximum
15. A.D.A. parking stalls shall not be sloped greater then 2% in any direction and constructed per A.D.A. requirements.
16. All disturbed areas shall be fertilized, seeded and mulched immediately after earthwork activities have ceased. Seeding shall be per the Erosion and Sediment Control Plan and/or Landscape Plan. If not specified seeding shall be per APWA Section 2400, latest edition. Unless otherwise noted, seeding shall be subsidiary to the contract price for earthwork and grading activities.
17. All disturbed areas in the right-of-way shall be sodded.
18. Underdrains are recommended for all paved areas adjacent to irrigated turf and landscaped beds.
19. Contractor shall adhere to the reporting requirements outlined in the Storm Water Pollution Prevention Plan (SWPPP) prepared for this project. Erosion and Sediment control devices shall be properly maintained and kept clean of silt and debris and in good working order. Additional erosion and sediment control measures shall be installed as required.

UTILITIES:

1. Existing utilities have been shown to the greatest extent possible based upon information provided to the Engineer. The contractor is responsible for contacting the respective utility companies and field locating utilities prior to construction and identifying any potential conflicts. All conflicts shall immediately be brought to the attention of the Engineer.
2. The contractor shall be responsible for coordinating any required utility relocations. Utilities damaged through the negligence of the contractor shall be repaired at the contractor's expense.
3. Contractor shall verify flow-lines and structure tops prior to construction, and shall notify Engineer of any discrepancies. Provide shop drawings for all precast and manufactured utility structures for review by the Engineer prior to construction of the structures.
4. Utility Separation: Waterlines shall have a minimum of 10 feet horizontal and 2 feet vertical separation from all sanitary sewer lines, manholes, and sanitary sewer service laterals, as measured from edge to edge. If minimum separations can not be obtained, concrete encasement of the sanitary line shall be required 10 feet in each direction of the conflict.
5. Payment for trenching, backfilling, pipe embedment, flowable fill, backfill materials, clean up, seeding, sodding and any other items necessary for the construction of the utility line shall be included in the contract price for the utility installation.
6. The Contractor shall be responsible for contacting respective utility companies 48-hours in advance for the inspection of any proposed utility main extension or service line or service connection to any existing main.
7. Trench spoils shall be neatly placed onsite adjacent to the trench, and compacted to prevent saturation and excess sediment runoff. Unsuitable materials, excess rock and shale, asphalt, concrete, trees, brush etc. shall be properly disposed of offsite. Materials may be wasted onsite at the direction of the Owner or his appointed representative.
8. All excavation is considered unclassified, unless noted otherwise. Unclassified excavation for utility trenching is subsidiary to the unit price provided for the pipe. Any quantity provided for rock excavation is estimated based on the best information provided to the Project Engineer. The Engineer has the authority to identify and define the physical characteristics to determine the classification. Unit price quantities for rock excavation will be paid at a trench width of the nominal pipe diameter of the installed main plus 18 inches. Contractor is required to dispose of excess rock from their trenches by disposing it in areas as specified by the Project Engineer.

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3	OVERALL GRADING PLAN
4	MASTER DRAINAGE PLAN - GRADING PLAN
5	MASTER DRAINAGE PLAN - OVERALL DRAINAGE MAP
6	MASTER DRAINAGE PLAN - DRAINAGE MAP
7	PRE-CONSTRUCTION EROSION CONTROL PLAN
8	EROSION CONTROL PLAN
9	POST-CONSTRUCTION EROSION CONTROL PLAN
10	RILEY TERRACE (PUBLIC) - PLAN & PROFILE
11	NEW ALLEY (PRIVATE) - PLAN & PROFILE
12	SE 6TH TERRACE (PRIVATE) - PLAN & PROFILE
13	FIRE ROAD - PLAN & PROFILE
14	INTERSECTION DETAILS
15	INTERSECTION DETAILS
16	INTERSECTION DETAILS
17	STREET DETAILS
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19	STORM PLAN
20	STORM CALCS
21	STORM CALCS
22	STORM PROFILES
23	STORM PROFILES
24	STORM DETAILS
25	STORM DETAILS
26	STREET SIGN PLAN
27	STREET SIGN DETAILS
28	LANDSCAPE PLAN

APPROVED BY:

FOR REVIEW ONLY

CITY ENGINEER — DATE
APPROVED FOR ONE YEAR FROM THIS DATE

OWNER/DEVELOPER:

GRIFFIN RILEY PROPERTY GROUP
JAKE LOVELESS, VICE PRESIDENT
21 SE 29TH TERRACE
LEE'S SUMMIT
p 816-366-7900
JAKE@GRIFFINRILEY.COM

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

SCHLAGEL
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WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificate of Authority
#E2002000380-F #LA2001005237 #LS2002000859-F

PREPARED BY:
STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

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

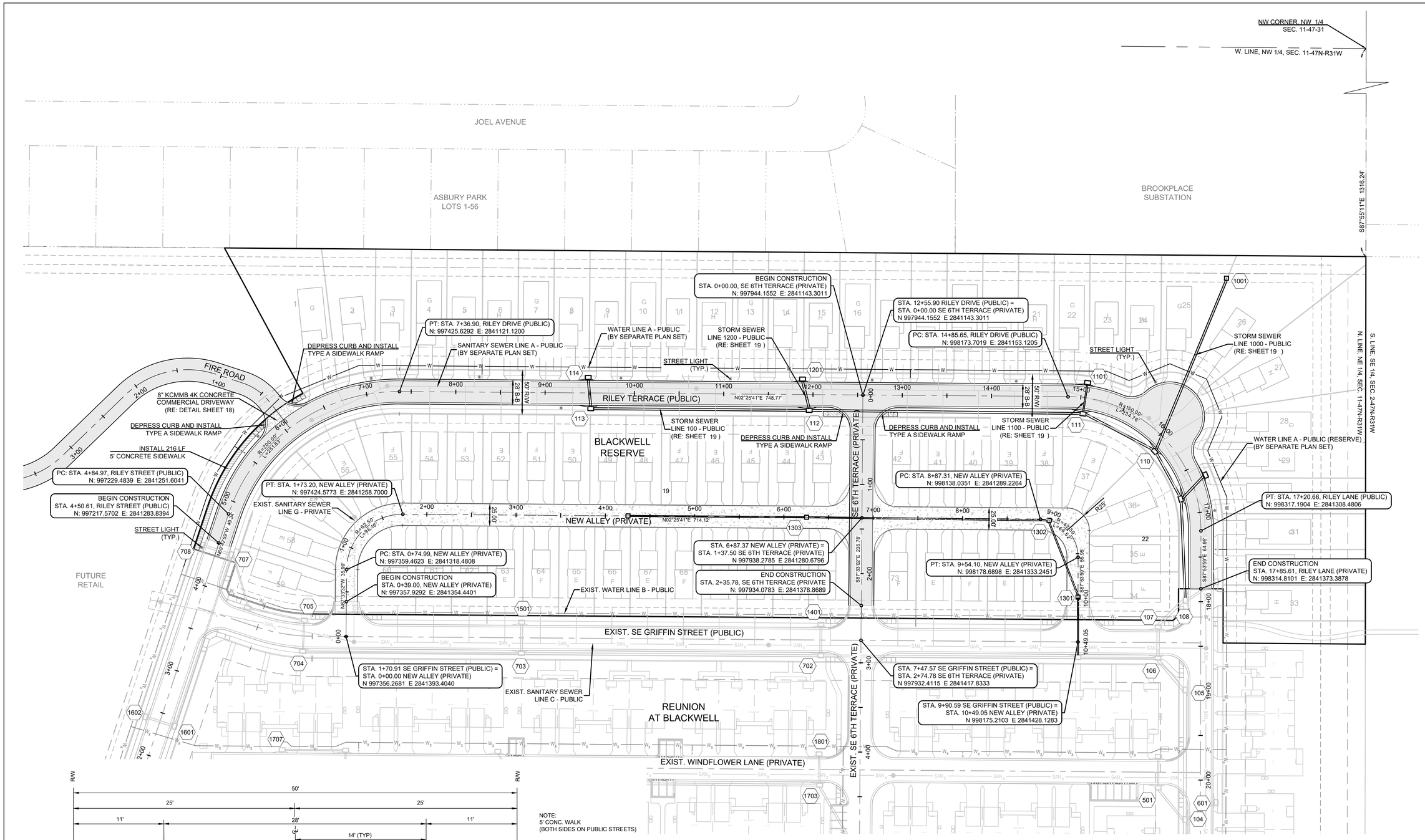
REVISION	DATE	DESCRIPTION
1	05/05/2023	PER CITY COMMENTS
2		
3		
4		
5		
6		
7		
8		

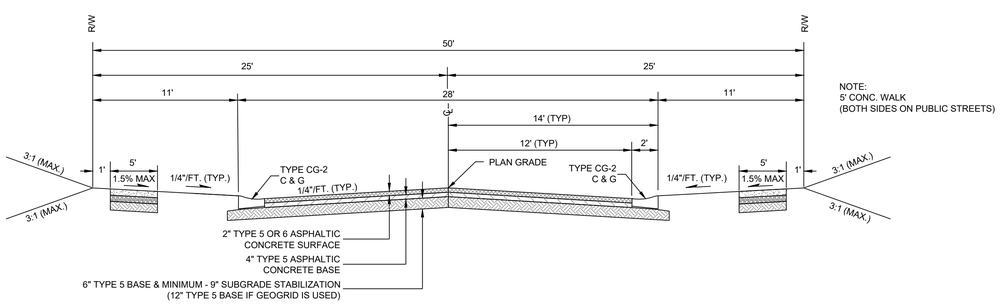
DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 03/03/2023
PROJ. NUMBER: 22-093

COVER SHEET

SHEET 1

I:\PROJECTS\2022\22-093\.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - COV.dwg, 1 COVER SHEET, 1:1

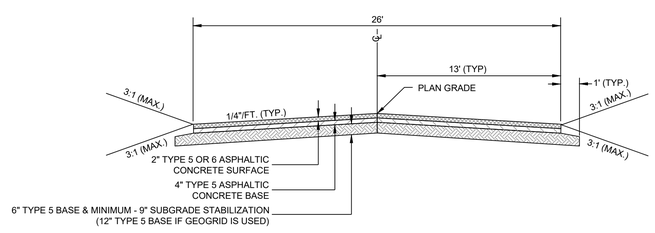




NOTE:
5' CONC. WALK
(BOTH SIDES ON PUBLIC STREETS)

PUBLIC STREETS
RESIDENTIAL LOCAL
RILEY STREET STA. 4+50.61 TO STA. 7+50.00
RILEY TERRACE STA. 7+50.00 TO STA. 17+20.66
RILEY LANE STA. 17+20.66 TO STA. 17+85.61
(NTS)

NEW ALLEY NOTE:
REFERENCE SHEET 18 FOR TYPICAL ALLEY SECTION.
TYPICAL ALLEY SECTION STA. 0+39.00 TO STA. 10+10.05.



FIRE ROAD
FIRE ROAD STA. 0+25.00 TO STA. 4+00.00
(NTS)

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

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.

0 50' 100'
SCALE: 1" = 50'

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PREPARED BY:
STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
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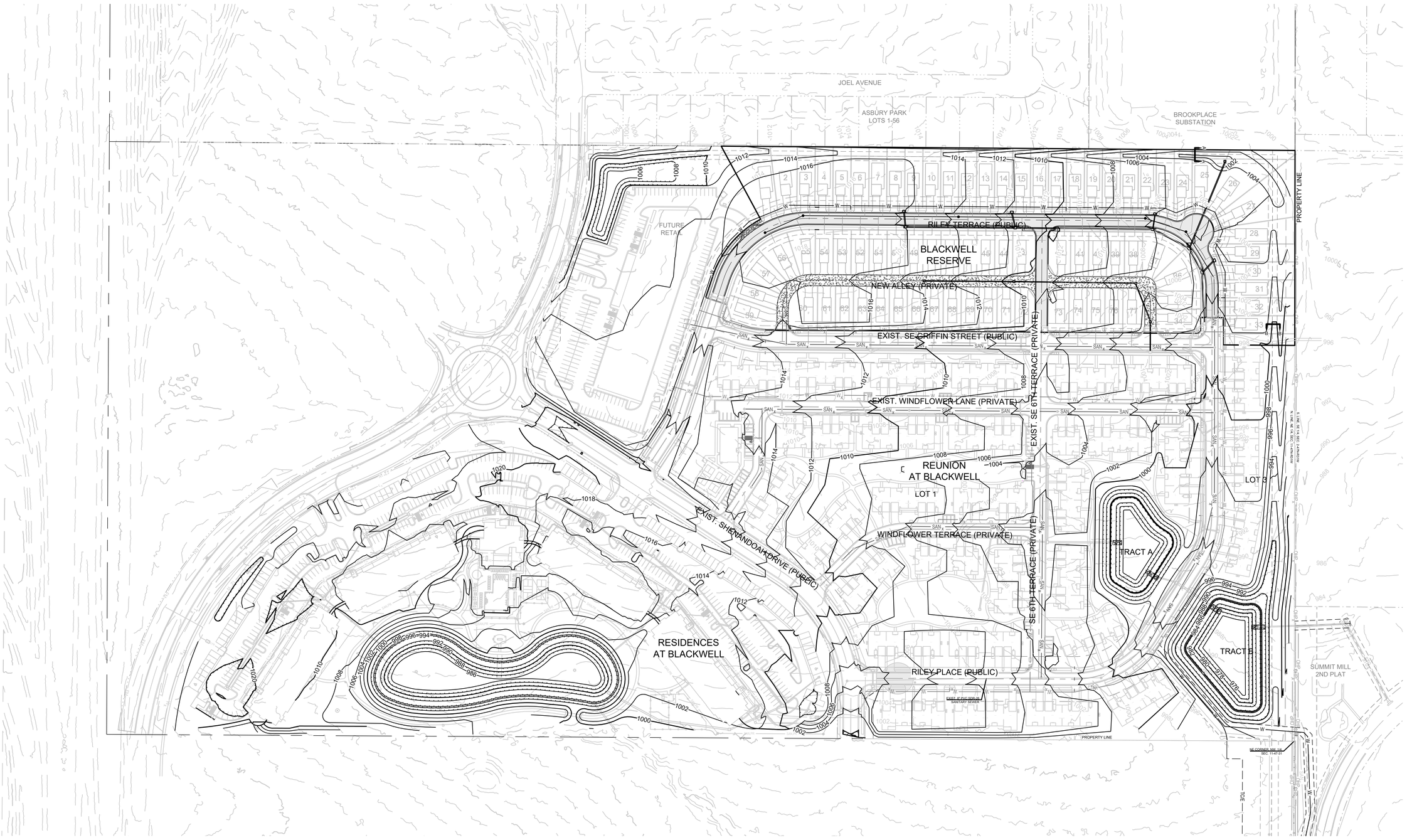
2	
3	
4	
5	

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 03/03/2023
PROJ. NUMBER: 22-003

GENERAL LAYOUT

SHEET 2

I:\PROJECTS\2022\22-0933.0 Design\3.0 DWG Planet\.0 SS\22-2693 - SS - GEN.dwg, 2 GENERAL LAYOUT, 1:1



GRADING LEGEND:

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

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ELEV. 1005.719

N

0 100' 200'

SCALE: 1" = 100'

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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER
PE-2003007260
PROFESSIONAL ENGINEER

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BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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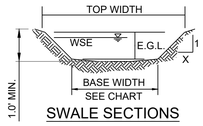
DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

OVERALL
GRADING PLAN

SHEET
3

I:\PROJECTS\2022\22-093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - GRD.dwg, 3 OVERALL GRADING PLAN, 1:1



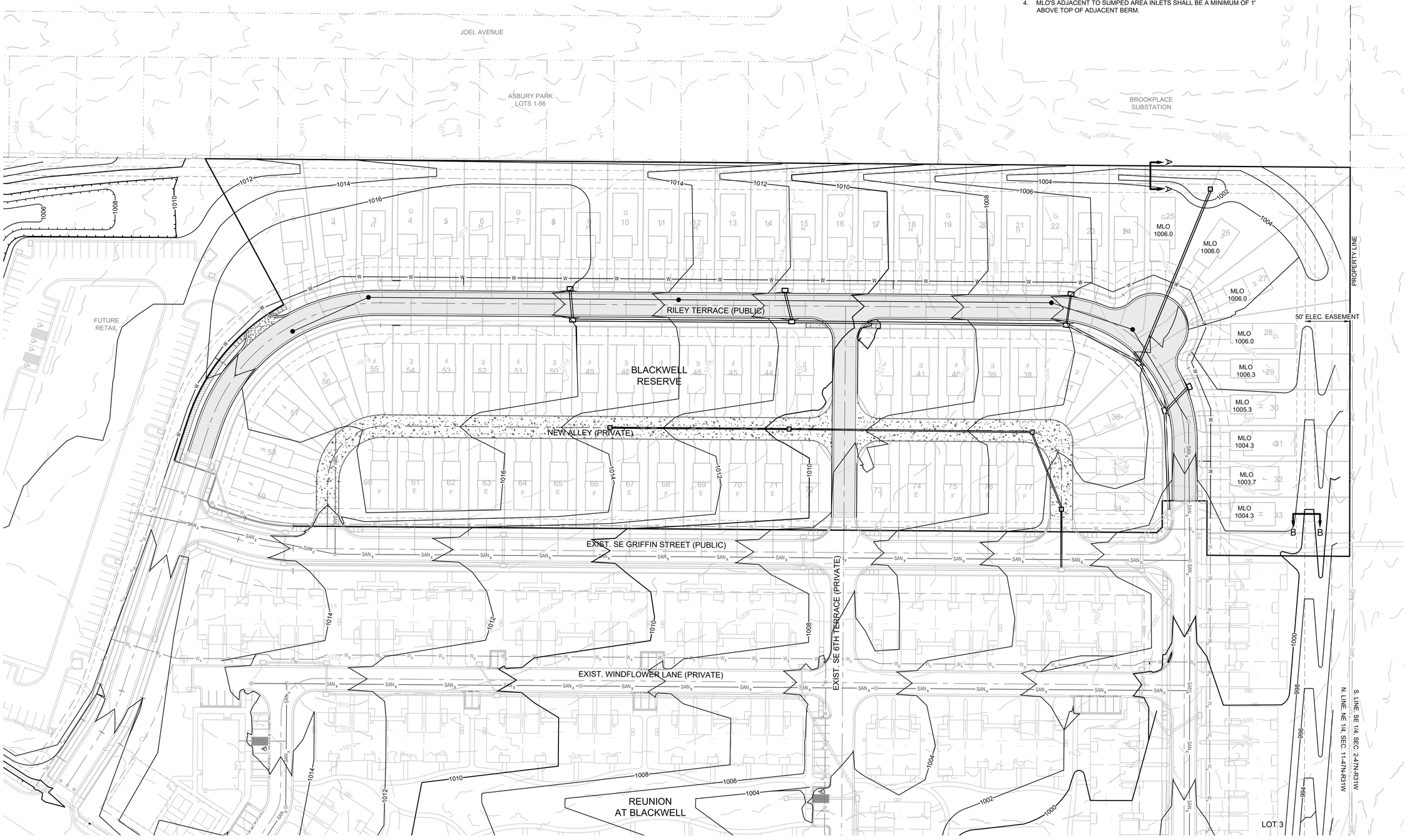
SWALE SECTIONS

RUNOFF CALCULATIONS:
Q = K * C * I * A
K_{100} = 1.25 K_{10} = 1.0 C = 0.51
I_{10} = 7.35 I_{100} = 10.32
VELOCITY HEAD = $(VELOCITY)^2$ / 64.4
EGL = DEPTH + VELOCITY HEAD

	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	0.66	5.62	3.20	Q100(B)	5.62	2.00	5.00	6.00	3.12	9.92	0.28	2.68	0.11	0.39

NOTES:

1. MLO = MINIMUM LOW OPENING FOR HOUSES ADJACENT TO ENGINEERED OVERFLOW SWALES SHALL BE A MINIMUM OF 1 FOOT ABOVE ENERGY GRADE LINE (NORMAL DEPTH + VELOCITY HEAD + 1' FREEBOARD). APPROVED INDIVIDUAL LOT PLOT PLANS MAY ALTER THE CONSTRUCTED SWALES IN ELEVATION (CONTOUR) FROM THE GRADING PLAN AS LONG AS THE MLO IS ADJUSTED ACCORDING TO THE ABOVE CRITERIA.
2. EGL = ENERGY GRADE LINE (100 YR)
3. MWSE = MAXIMUM WATER SURFACE ELEVATION (100 YR)
4. MLO'S ADJACENT TO SUMPED AREA INLETS SHALL BE A MINIMUM OF 1' ABOVE TOP OF ADJACENT BERM.



TURF REINFORCEMENT MAT NOTES:

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.

GRADING LEGEND:

1000 — EXISTING CONTOUR

1000 — PROPOSED CONTOUR (FINISHED GRADE)

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.

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

0 50' 100'
SCALE: 1" = 50'

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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE 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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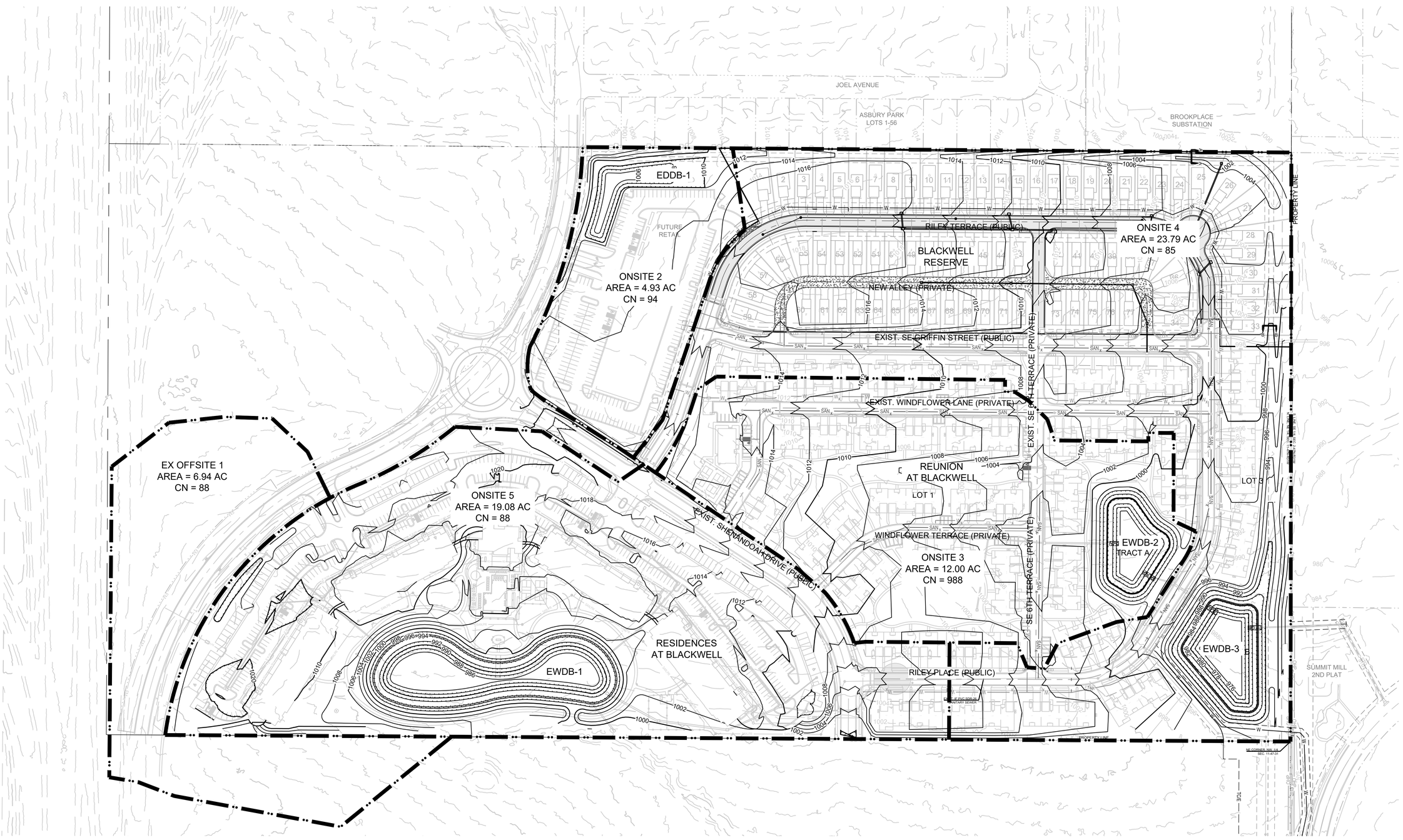
DRAWN BY: TRC	CHECKED BY: MAB
DATE PREPARED: 03/03/2023	PROJ. NUMBER: 22-093

MASTER DRAINAGE PLAN - GRADING PLAN

SHEET 4

I:\PROJECTS\2022\22-093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - GRD.dwg, 4 MASTER DRAINAGE PLAN - GRADING PLAN, 1:1



GRADING LEGEND:

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

NOTES:

1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
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ELEV. 1005.719

0 100' 200'

SCALE: 1" = 100'

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MARK ALLEN BREUER
NUMBER
PE-2003007260
PROFESSIONAL ENGINEER

5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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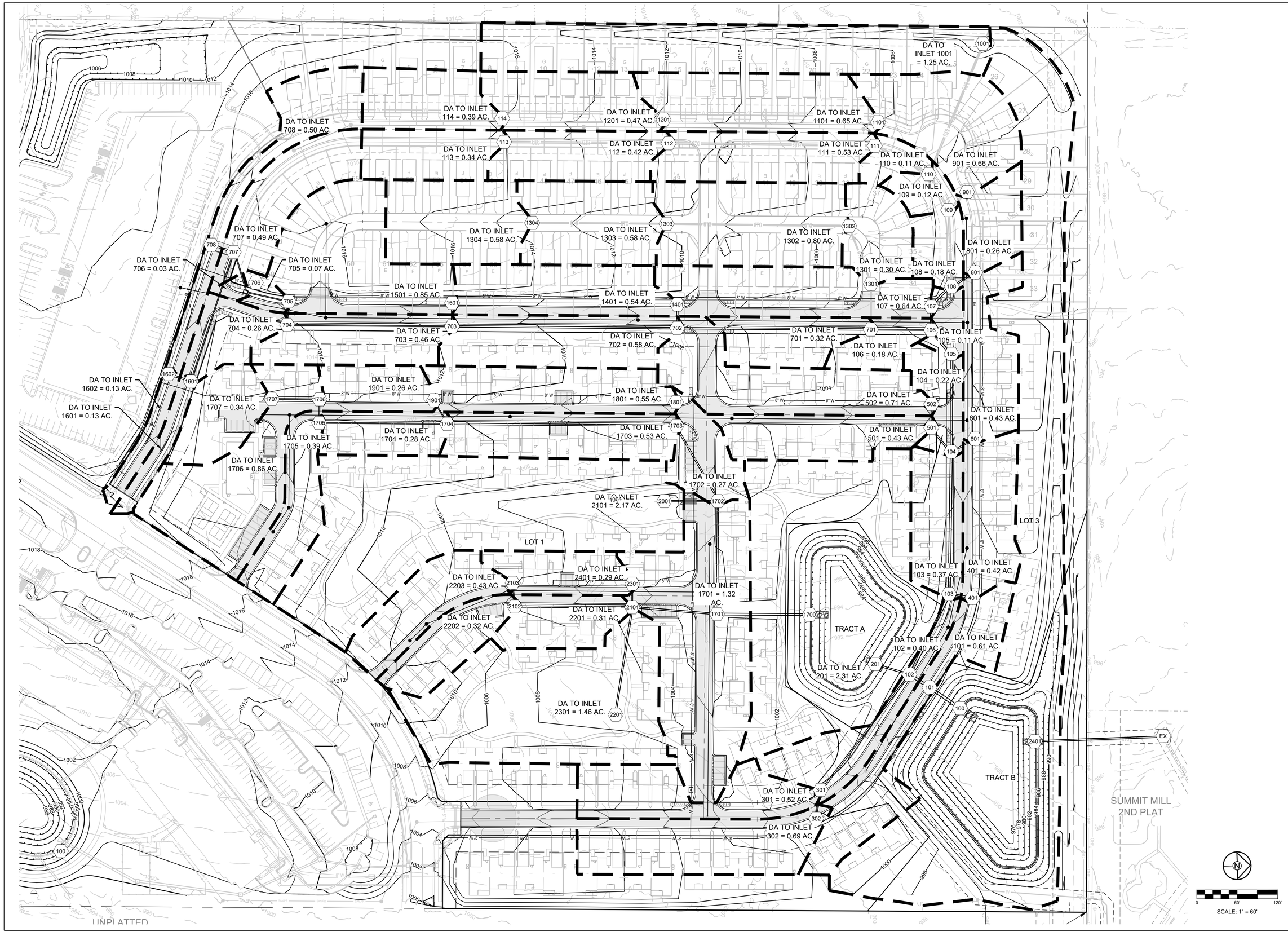
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-993

MASTER DRAINAGE PLAN - OVERALL DRAINAGE MAP

SHEET

5

I:\PROJECTS\2022\22-0093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - GRD.dwg, 5 MASTER DRAINAGE PLAN - OVERALL DRAINAGE MAP, 1:1



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BLACKWELL RESERVE STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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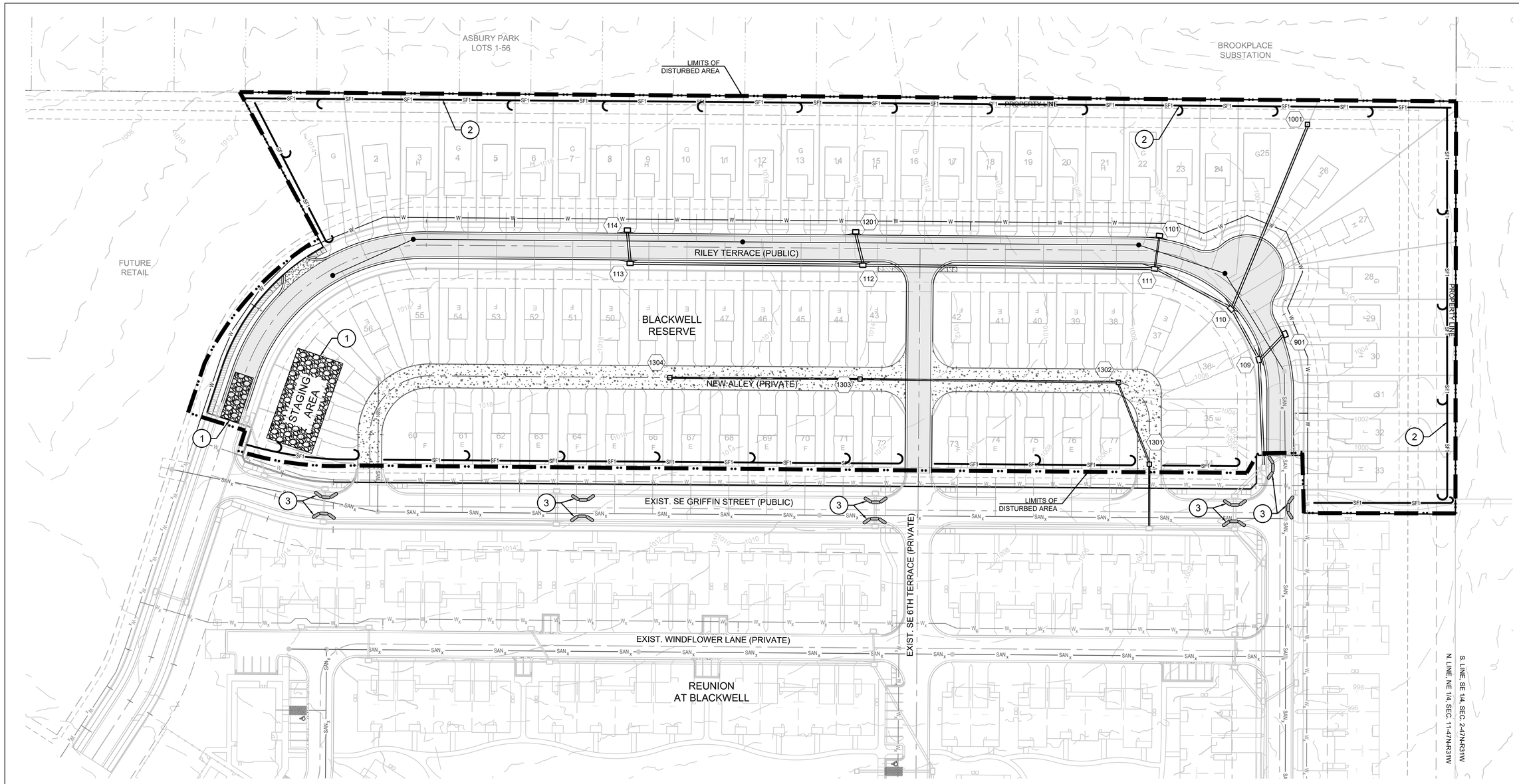
CHECKED BY:	####
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-003

MASTER DRAINAGE PLAN - DRAINAGE MAP

SHEET 6

I:\PROJECTS\2022\22-097\3.0 Design\3.0 DWG Plans\4.0 SDP\22-097 - SDP - DRAIN.dwg, 6 MASTER DRAINAGE PLAN - DRAINAGE MAP, 1:1



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
	C - UTILITY CONSTRUCTION	7	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		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
FINAL STABILIZATION PHASE	D - AFTER PAVING OPERATIONS	9	INLET PROTECTION (GRAVEL FILTER BAGS)	E	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
		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
- SF — SUPER SEDIMENT SILT FENCE (PRIOR TO LAND DISTURBANCE)
- SF1 — SILT FENCE (PRIOR TO LAND DISTURBANCE)
- SF2 — SILT FENCE (DURING CONSTRUCTION)
- LIMITS OF DISTURBANCE
- 965 — EXISTING CONTOURS
- 965 — PROPOSED CONTOURS
- GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY

DISTURBED AREA = 11.49 A.C.

SITE SPECIFIC NOTES:

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 29095C0441G, 29095C0445G, 29095C0437G AND 29095C0439G DATED JANUARY 20TH, 2017.
4. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
5. 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.
6. 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 BMPS. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
7. ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
8. SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
9. AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.
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.

0 50' 100'

SCALE: 1" = 50'

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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE 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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CHECKED BY: MAB
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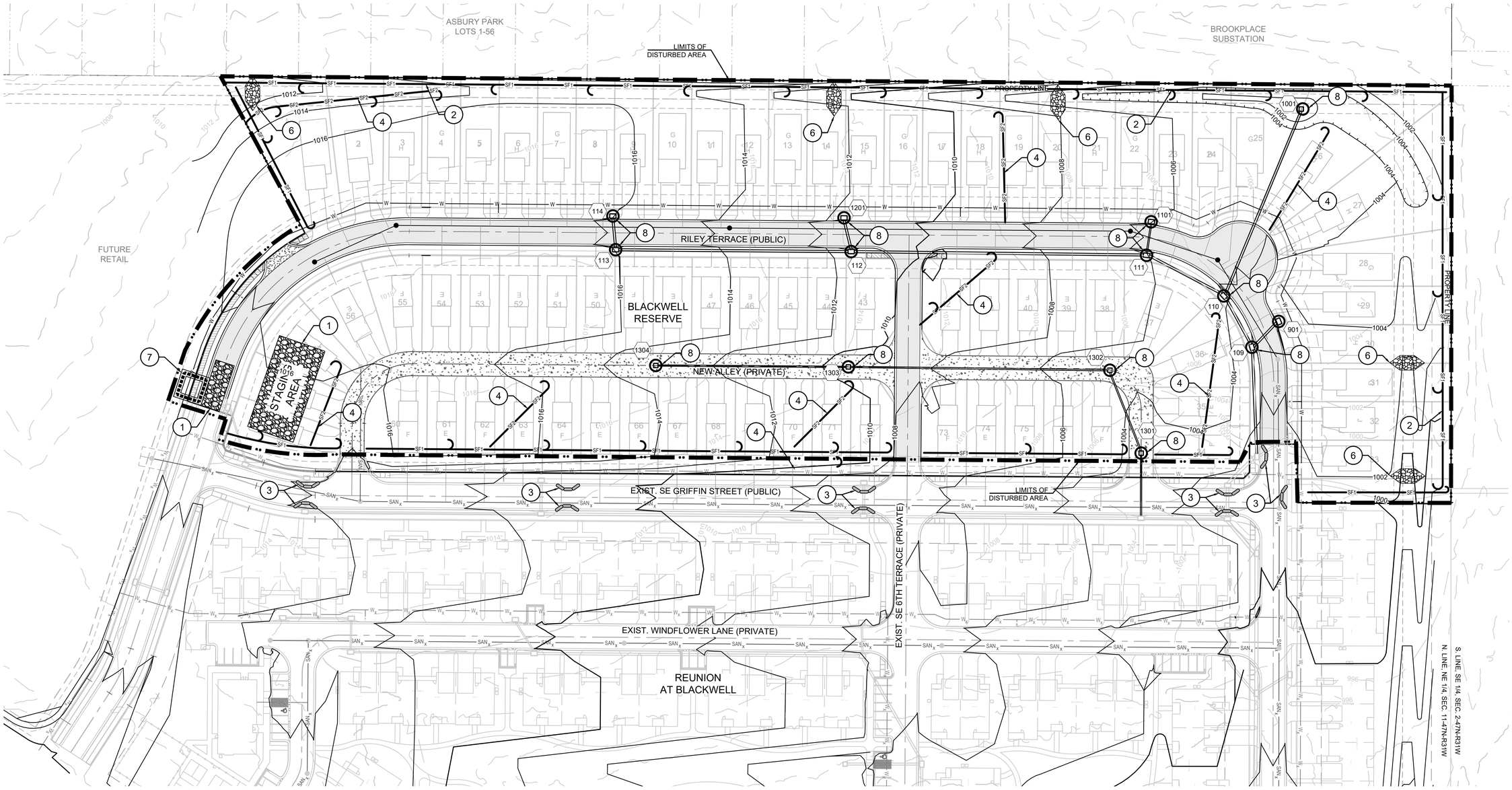
PROJ. NUMBER: 22-003

PRE-CONSTRUCTION EROSION CONTROL PLAN

SHEET 7

/PROJECTS/2022/22-0033.0 Design/3.0 DWG Plans/6.0 SS/22-0033 - SS - EROS.dwg; 7 PRE-CONSTRUCTION EROSION CONTROL PLAN, 1:1



EROSION NOTE:

SEE SHEET 7 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

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5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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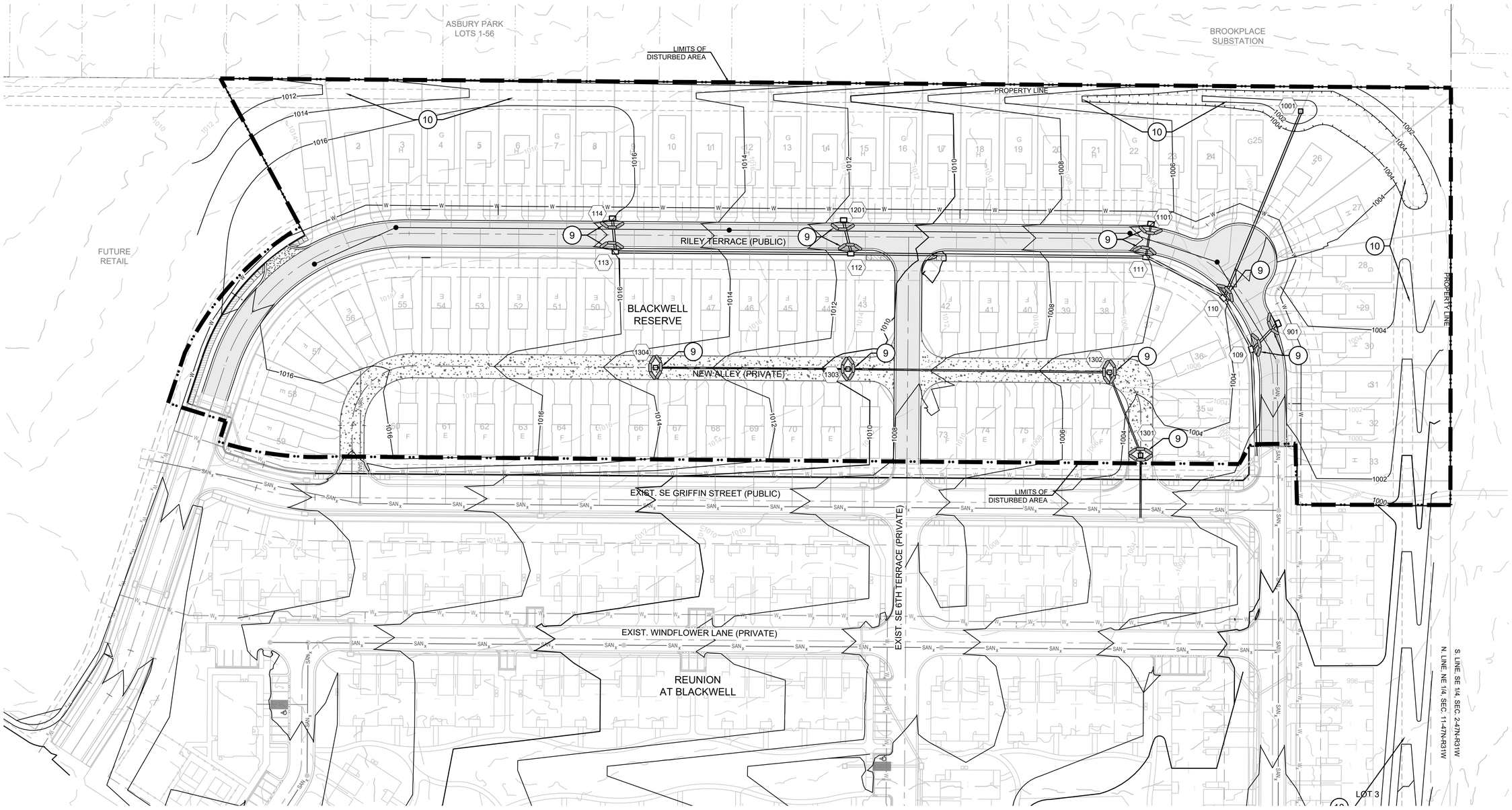
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

EROSION CONTROL PLAN

SHEET 8

I:\PROJECTS\2022\22-093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - EROS.dwg, 8 EROSION CONTROL PLAN, 1:1



EROSION NOTE:

SEE SHEET 7 FOR EROSION CONTROL STAGING CHART, LEGEND AND SITE SPECIFIC NOTES.

MO GRS BENCHMARK:

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BLACKWELL RESERVE STREET AND STORM SEWER PLANS

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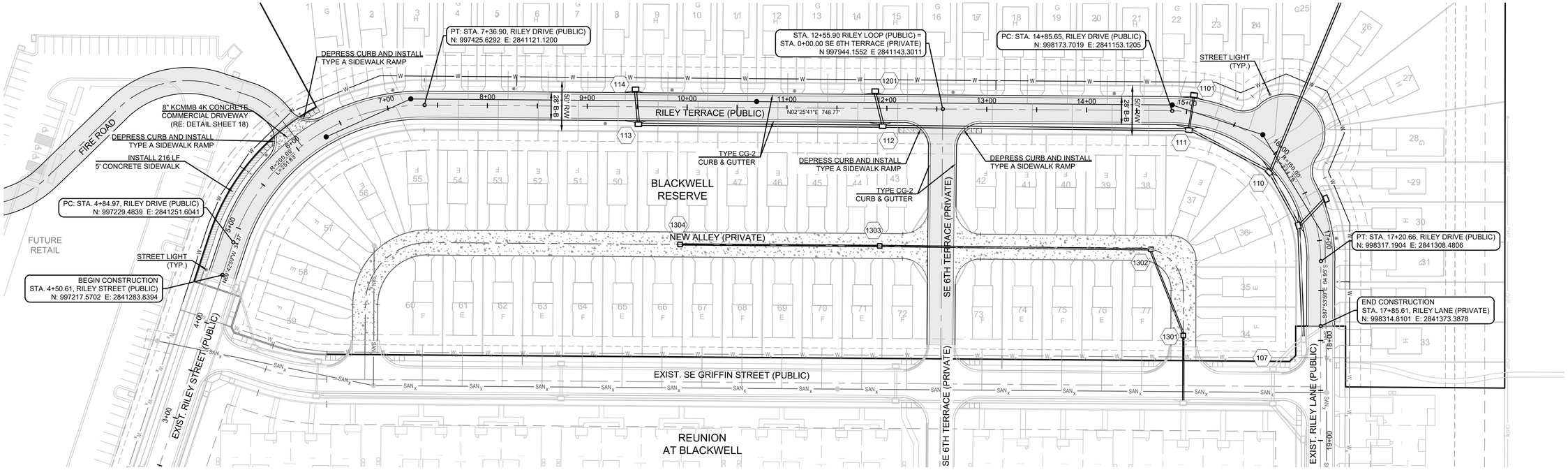
PROJ. NUMBER:	22-003

POST-CONSTRUCTION EROSION CONTROL PLAN

SHEET 9

P:\PROJECTS\2022\22-003\3.0 Design\3.0 DWG Plans\6.0 SS\22-003 - SS - EROS.dwg, 9 POST-CONSTRUCTION EROSION CONTROL PLAN, 1:1



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.

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

MO GRS BENCHMARK:

STATION NAME - JA-90

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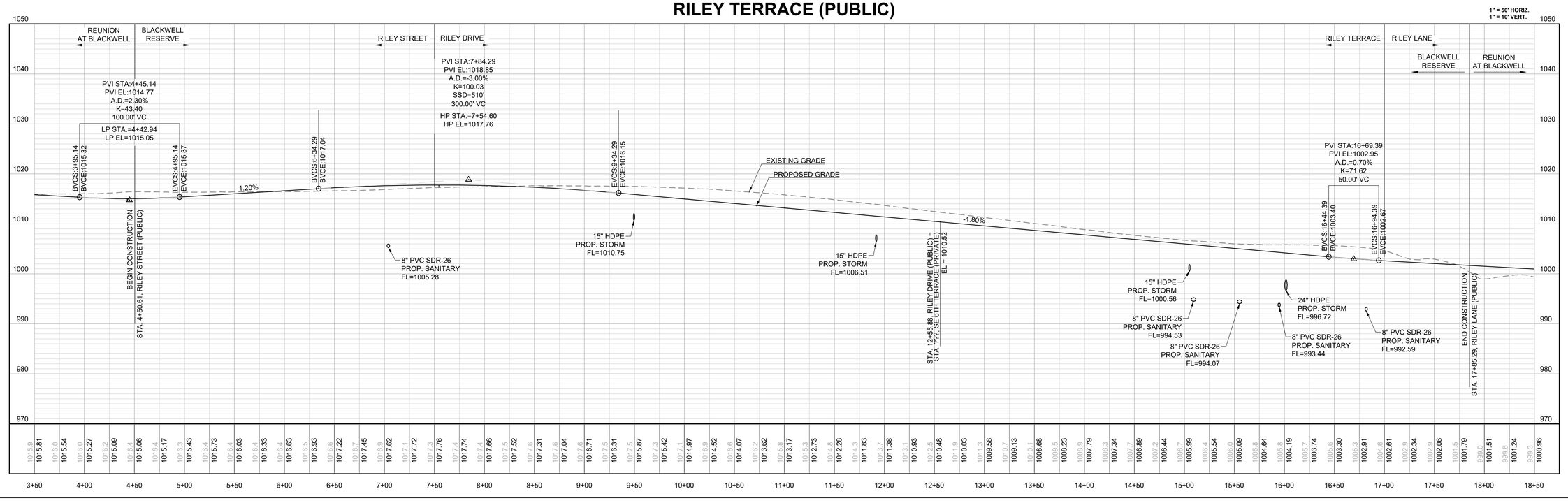
SCALE: 1" = 50'

RILEY TERRACE (PUBLIC)

1" = 50' HORIZ.
1" = 10' VERT.



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PREPARED BY:
STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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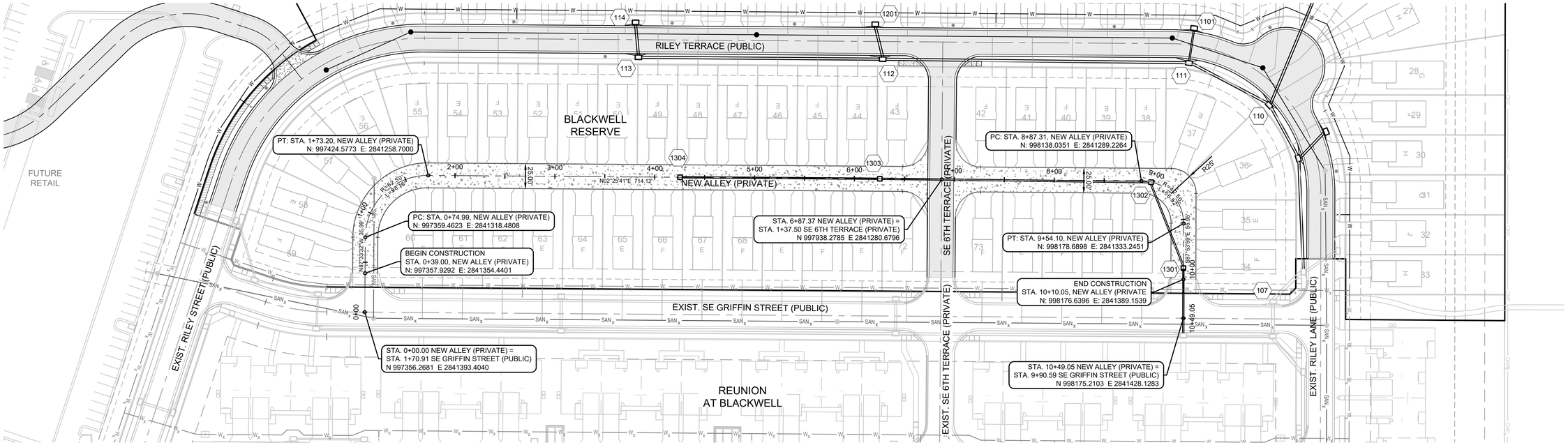
RILEY TERRACE (PUBLIC) - PLAN & PROFILE

SHEET
10

P:\PROJECTS\2022\22-093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - PP.dwg, 10 RILEY TERRACE (PUBLIC) - PLAN & PROFILE, 1:1



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 18 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:

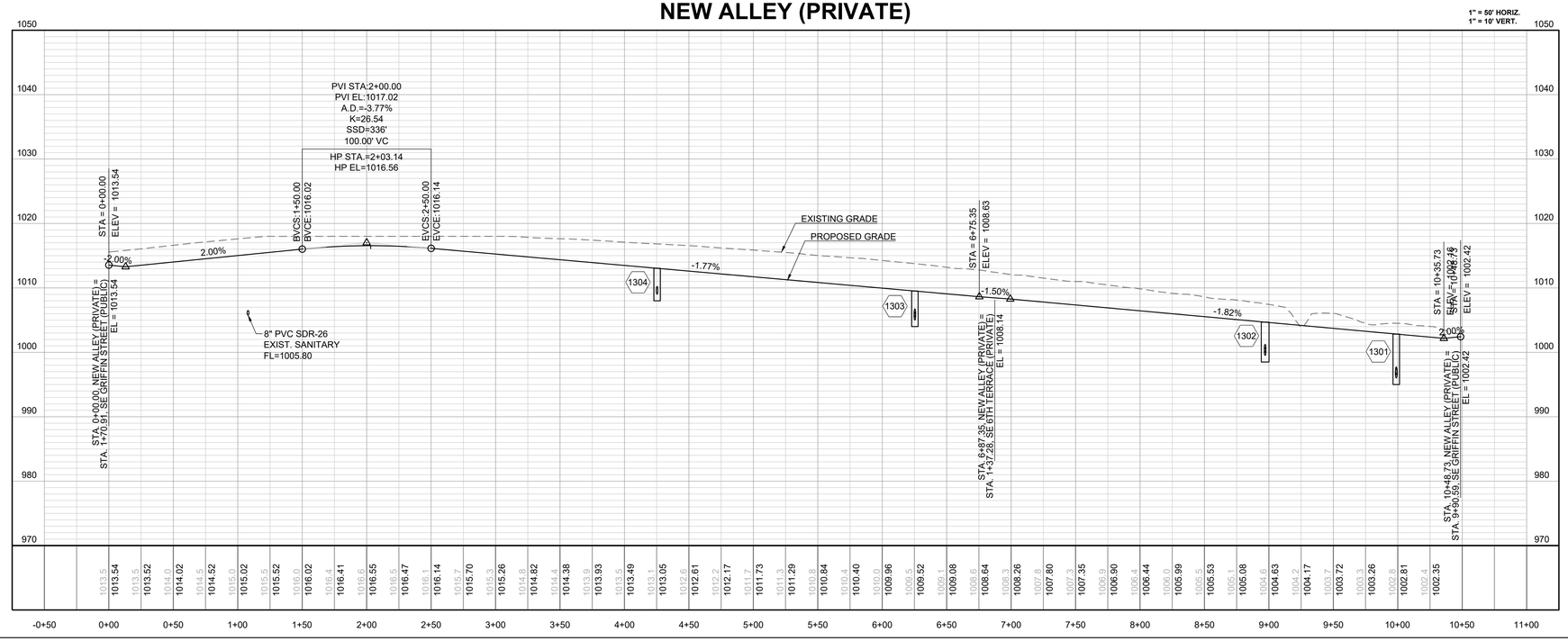
"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

0 50' 100'
SCALE: 1" = 50'

NEW ALLEY (PRIVATE)

1" = 50' HORIZ.
1" = 10' VERT.



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#E2000200380-F #LA2001005237 #LS2002008859-F

PREPARED BY:
STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 06/06/2023	PER CITY COMMENTS
2	
3	
4	
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7	
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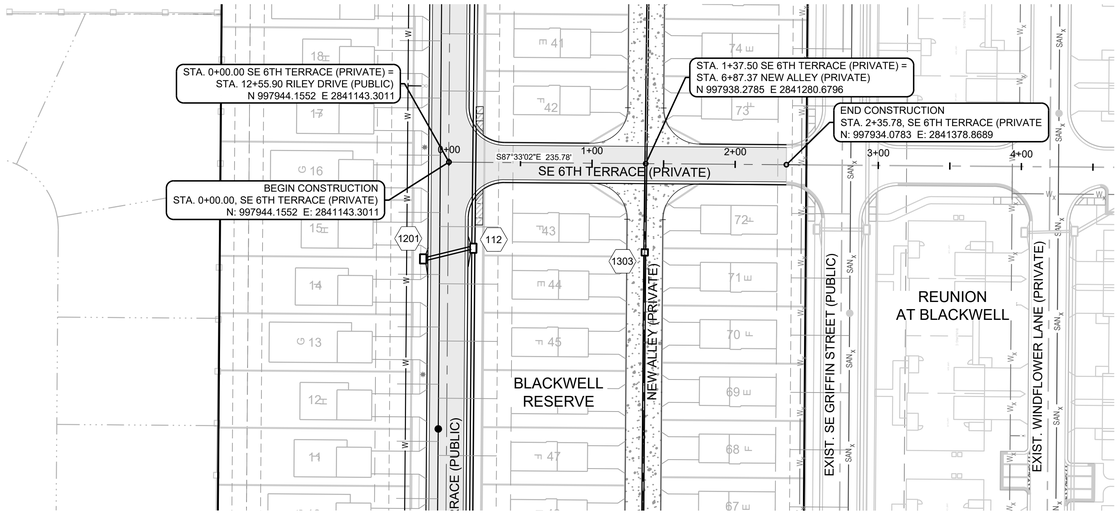
9	

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 03/03/2023
PROJ. NUMBER: 22-003

NEW ALLEY (PRIVATE) - PLAN & PROFILE

SHEET
11

I:\PROJECTS\2022\22-003\3.0 Design\3.0 DWG Plans\6.0 SS\22-003 - SS - PP.dwg, 11 NEW ALLEY (PRIVATE) - PLAN & PROFILE, 1:1



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0 50' 100'
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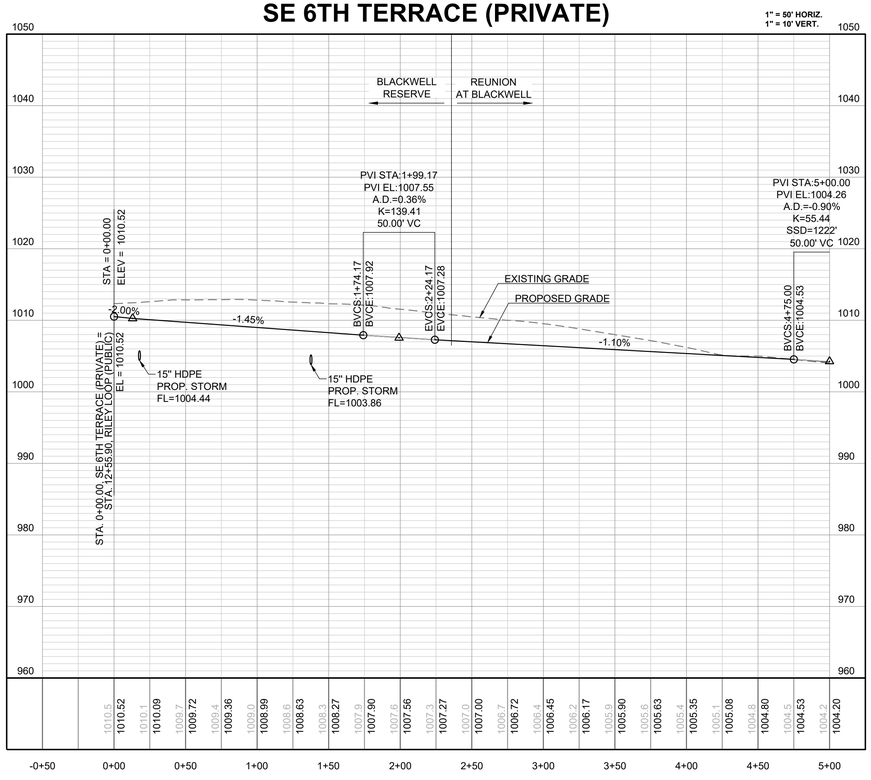
SE 6TH TERRACE (PRIVATE)

1" = 50' HORIZ.
1" = 10' VERT.



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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

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

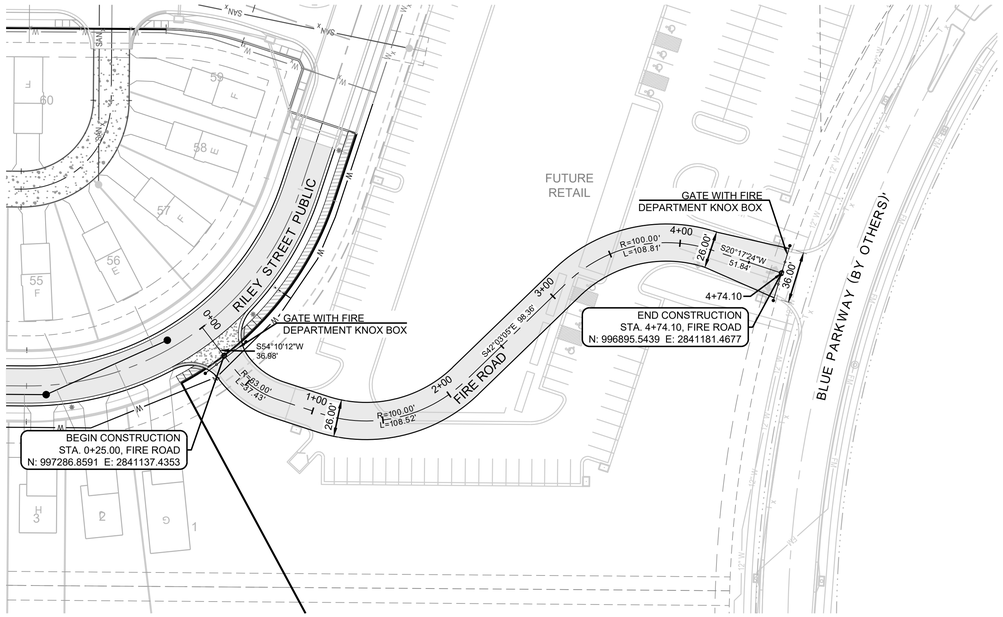
REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

SE 6TH TERRACE (PRIVATE) - PLAN & PROFILE

SHEET
12

I:\PROJECTS\2022\22-093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - PP.dwg, 12 SE 6TH TERRACE (PRIVATE) - PLAN & PROFILE, 1:1



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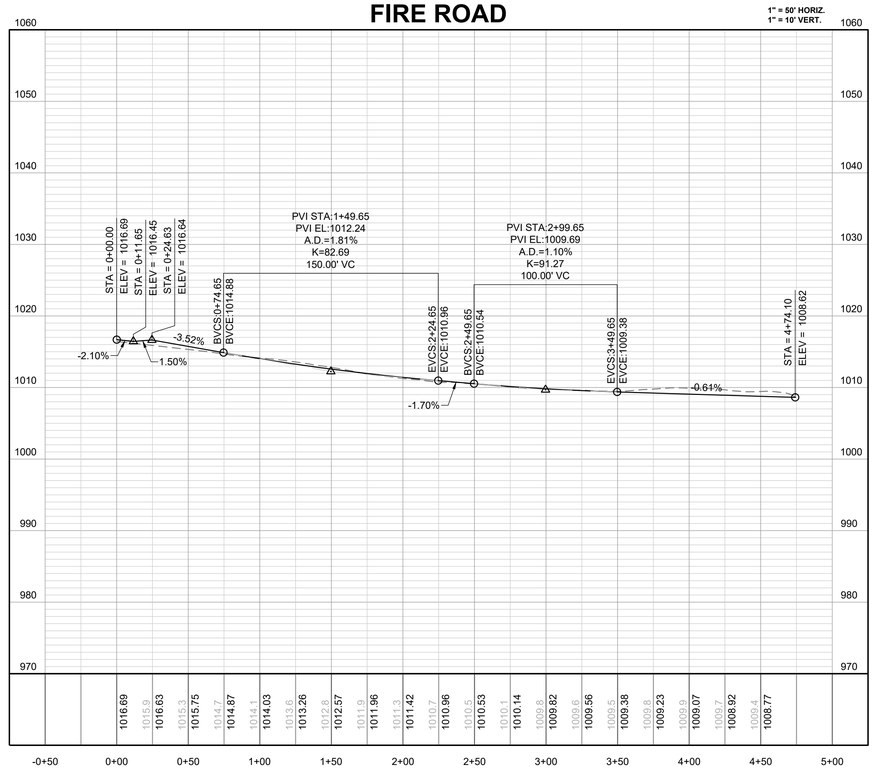

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MARK ALLEN BREUER
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PROFESSIONAL ENGINEER
5.8.2023

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BLACKWELL RESERVE
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SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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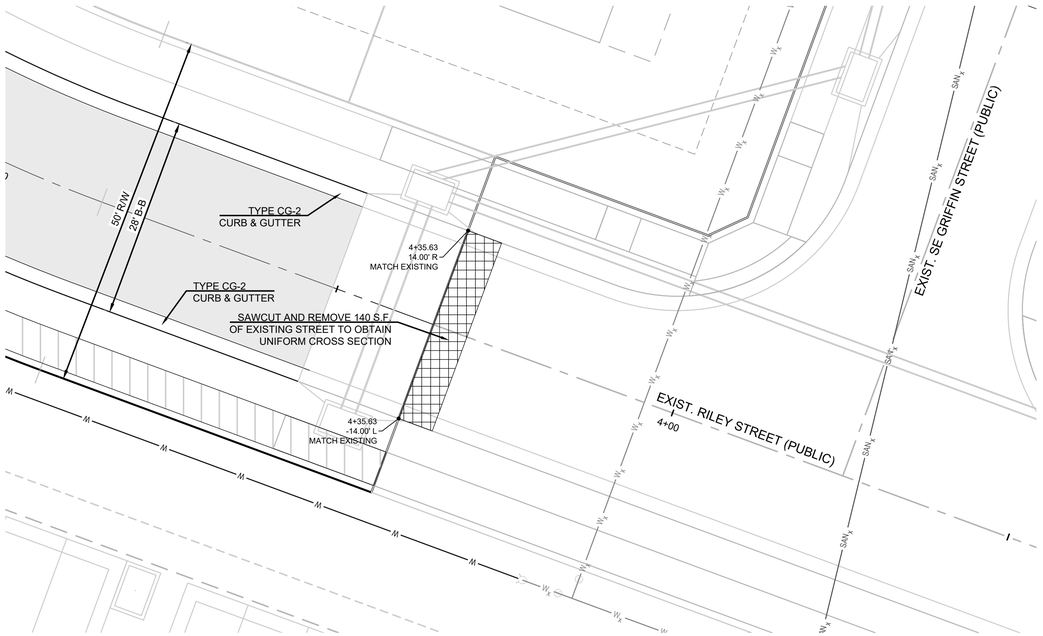
DRAWN BY:	CHECKED BY:	DATE PREPARED:	PROJ. NUMBER:
TRC	MAB	03/03/2023	22-003

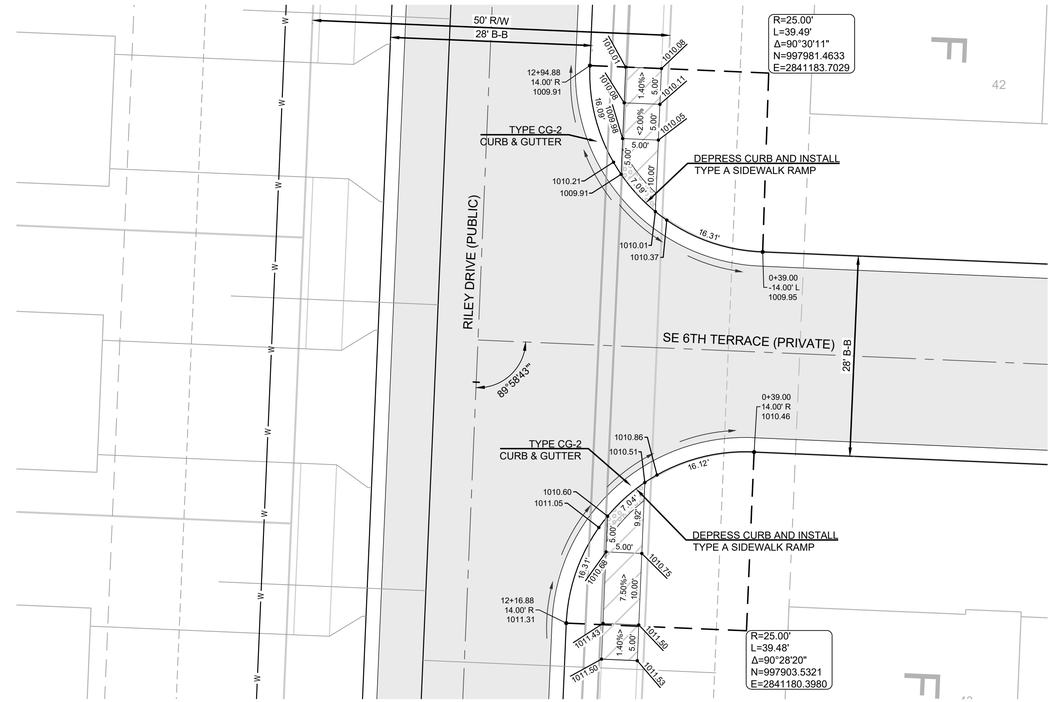
FIRE ROAD - PLAN & PROFILE

SHEET 13

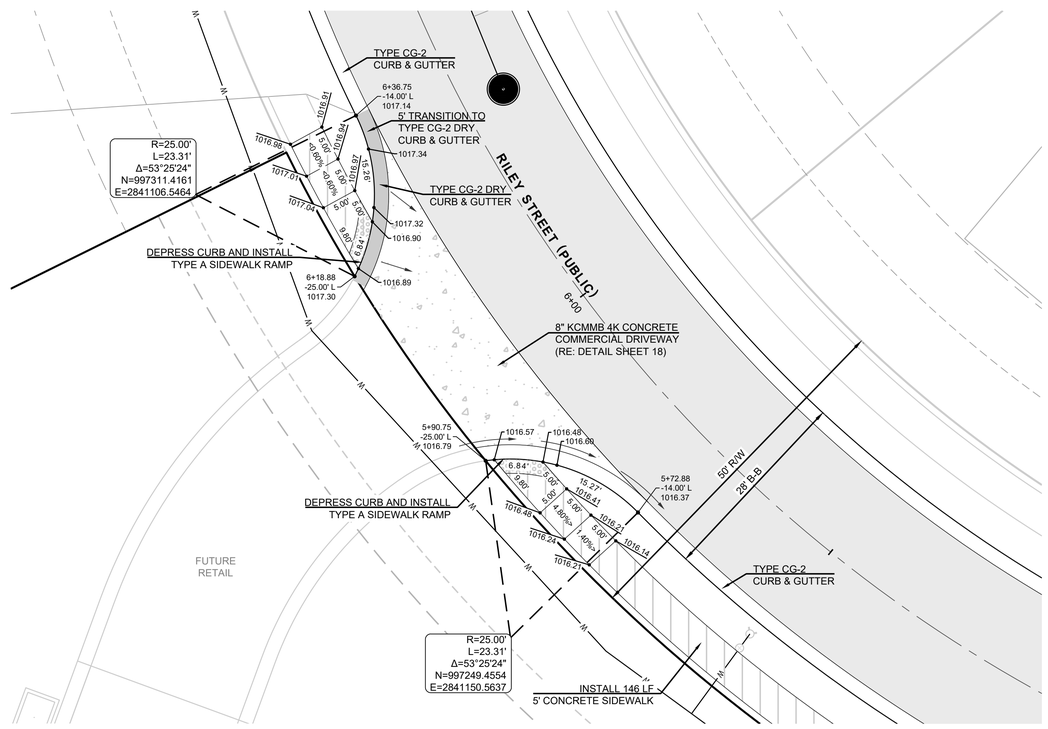
I:\PROJECTS\2022\22-003\3.0 Design\3.0 DWG Plans\6.0 SS\22-003 - SS - PP.dwg, 13 FIRE ROAD - PLAN & PROFILE, 1:1



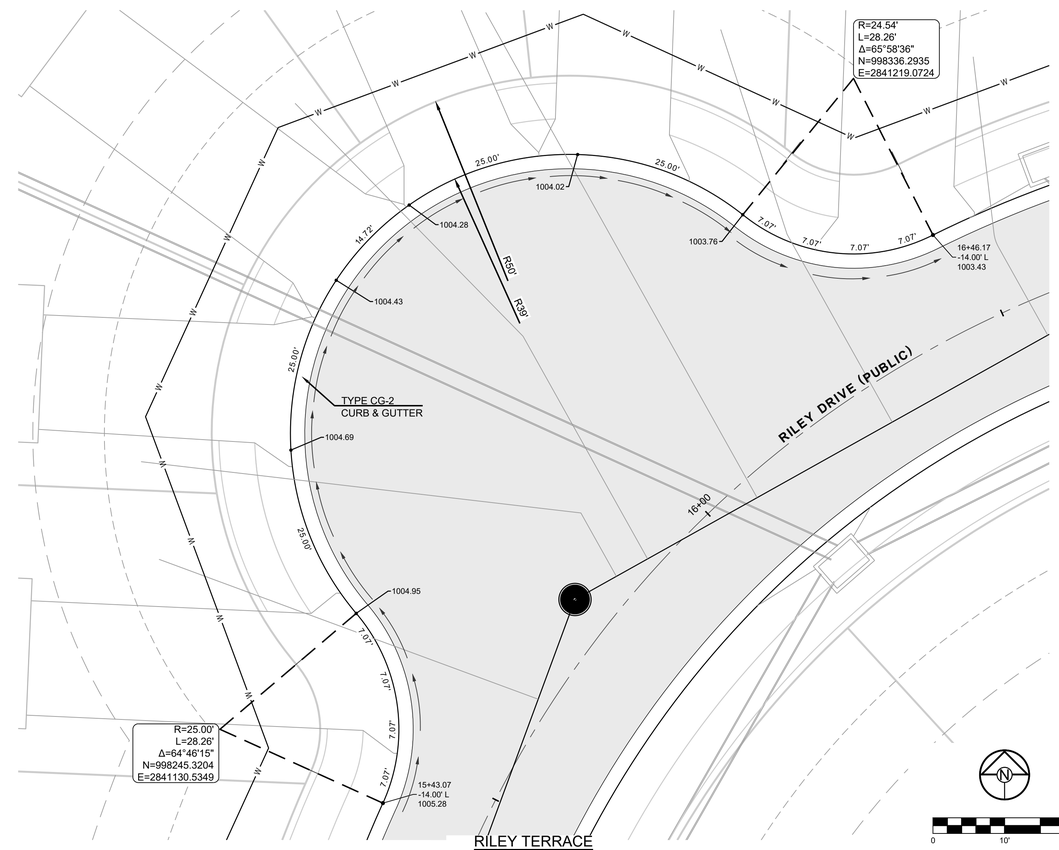
RILEY STREET (PUBLIC) & EXIST. RILEY STREET (PUBLIC)



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



RILEY STREET (PUBLIC) & RETAIL ENTRANCE



RILEY TERRACE
(PUBLIC)

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PREPARED BY:

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MARK ALLEN BREUER
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PROFESSIONAL ENGINEER

5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
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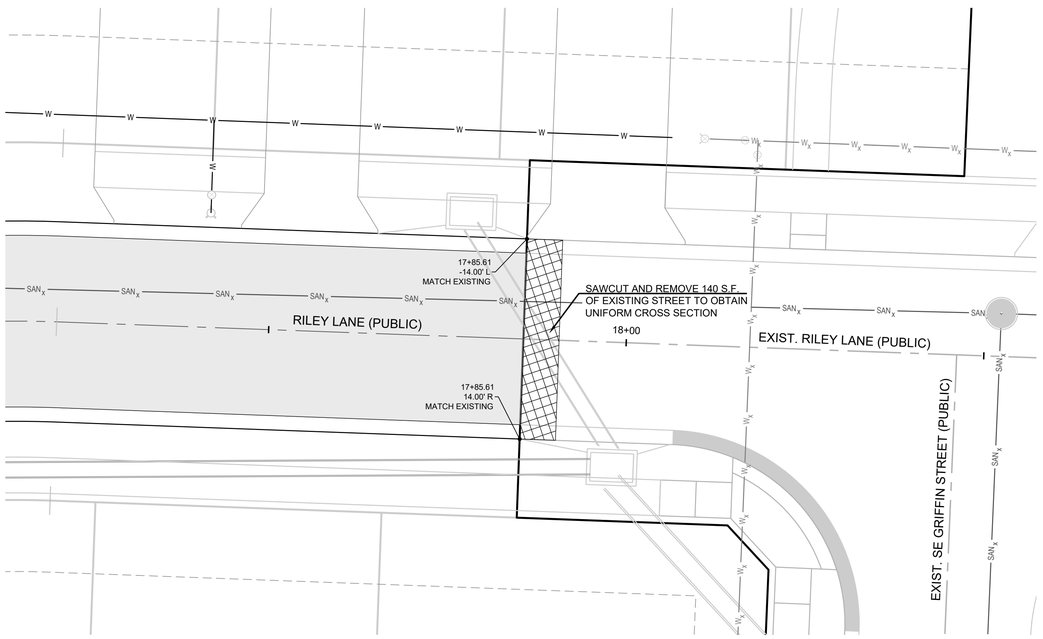
DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

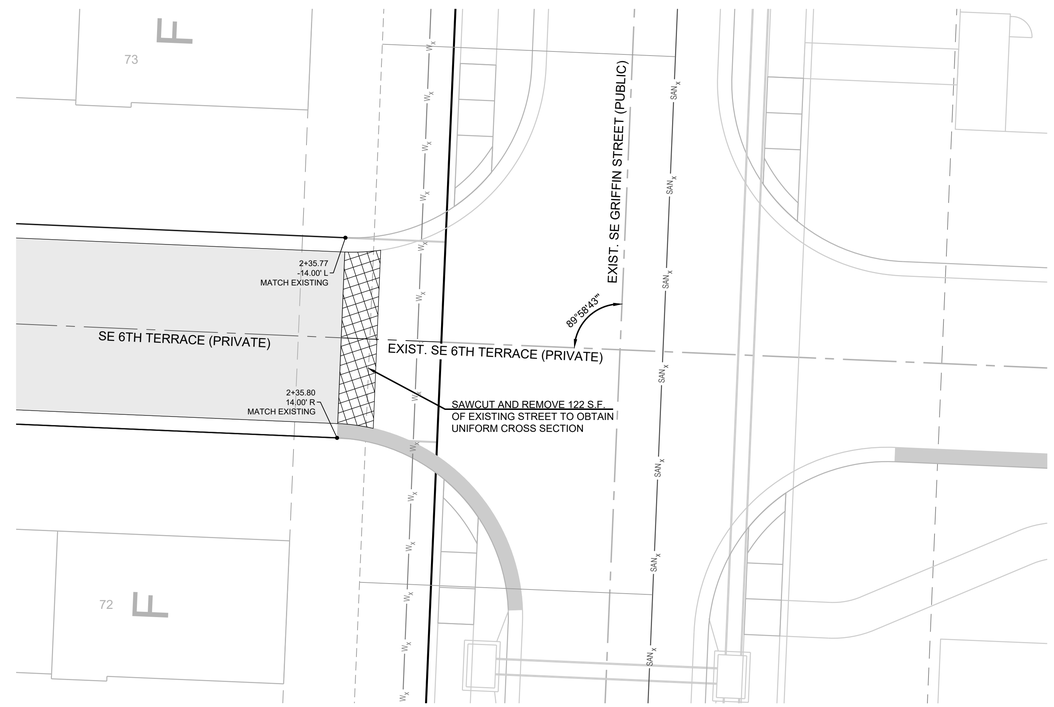
INTERSECTION DETAILS

SHEET
14

I:\PROJECTS\2022\22-093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - INT dwg, 14 INTERSECTION DETAILS, 1:1



RILEY LANE (PUBLIC) & EXIST. RILEY LANE (PUBLIC)



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

0 10' 20'

SCALE: 1" = 10'

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BLACKWELL RESERVE 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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8	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

INTERSECTION DETAILS

SHEET 15

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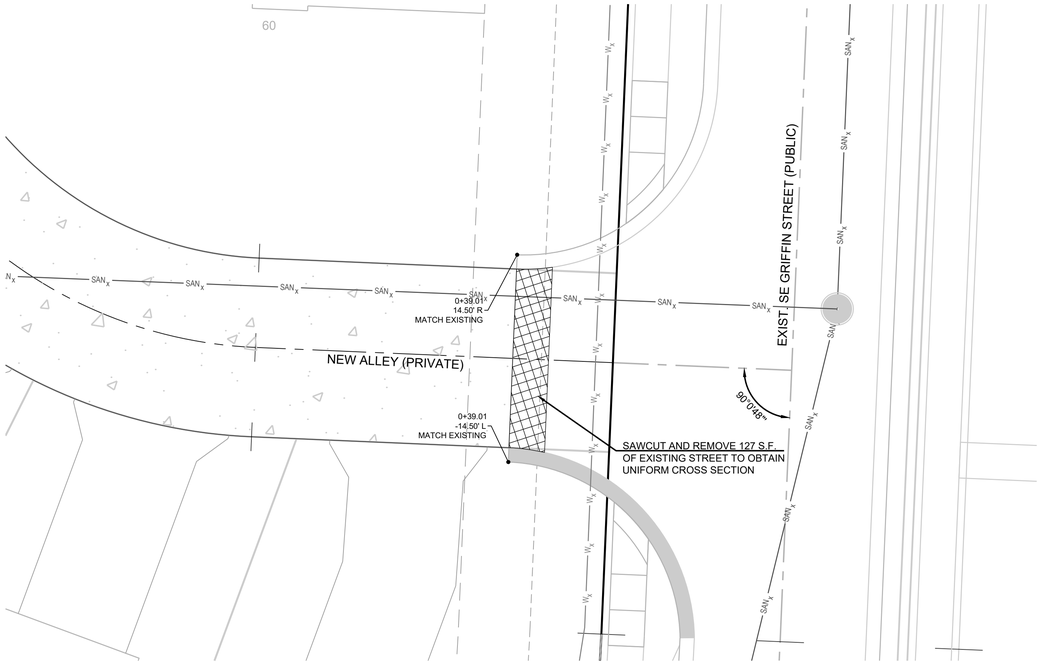
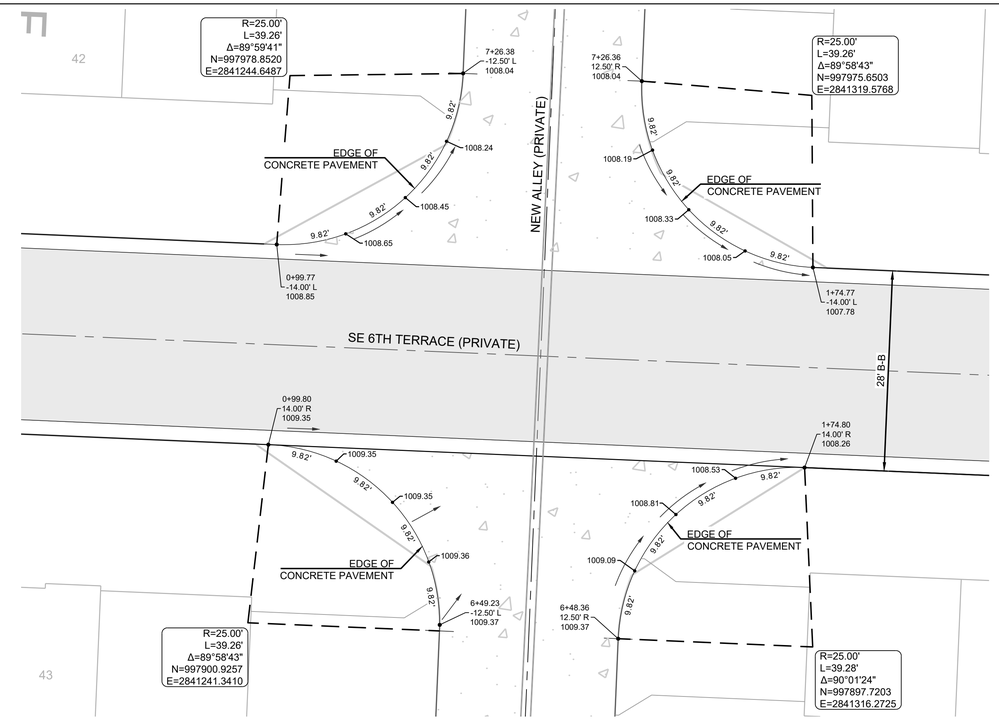
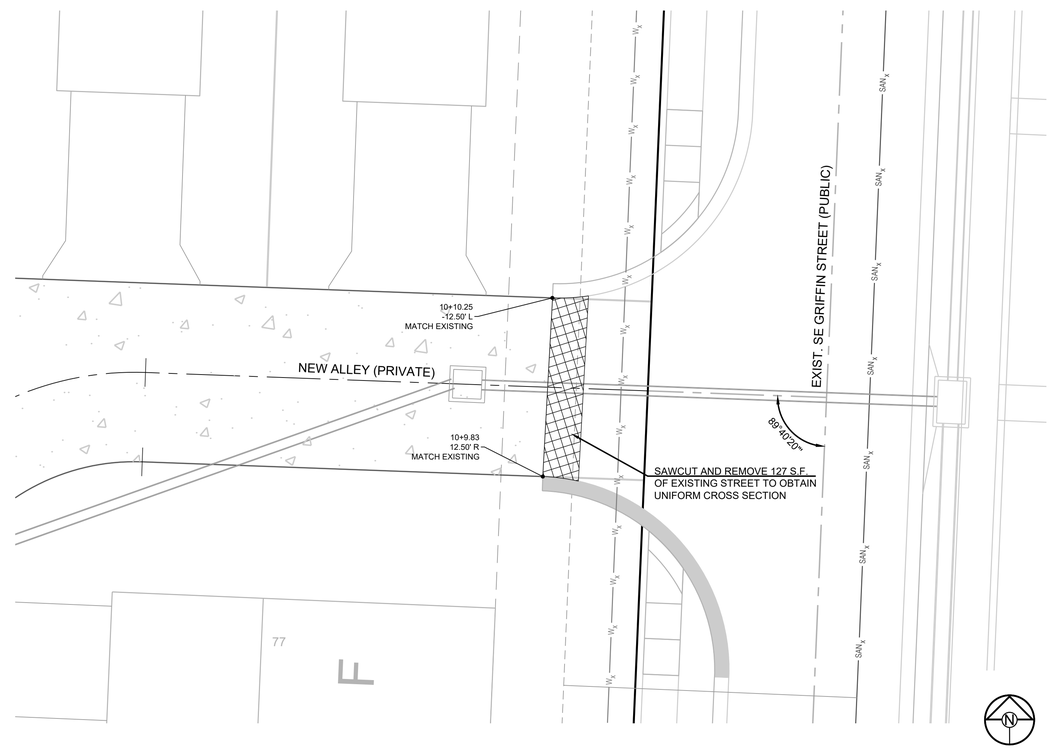


NEW ALLEY (PRIVATE) & EXIST. SE GRIFFIN STREET (PUBLIC)



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



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

SCALE: 1" = 10'

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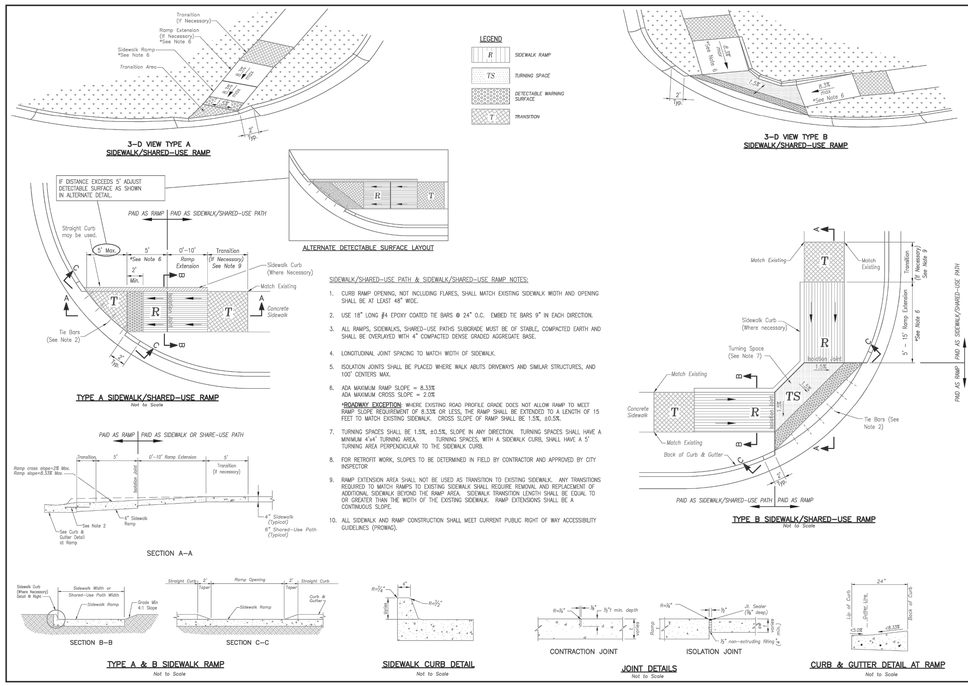
INTERSECTION DETAILS

SHEET 16

I:\PROJECTS\2022\22-093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - INT.dwg, 16 INTERSECTION DETAILS, 1:1

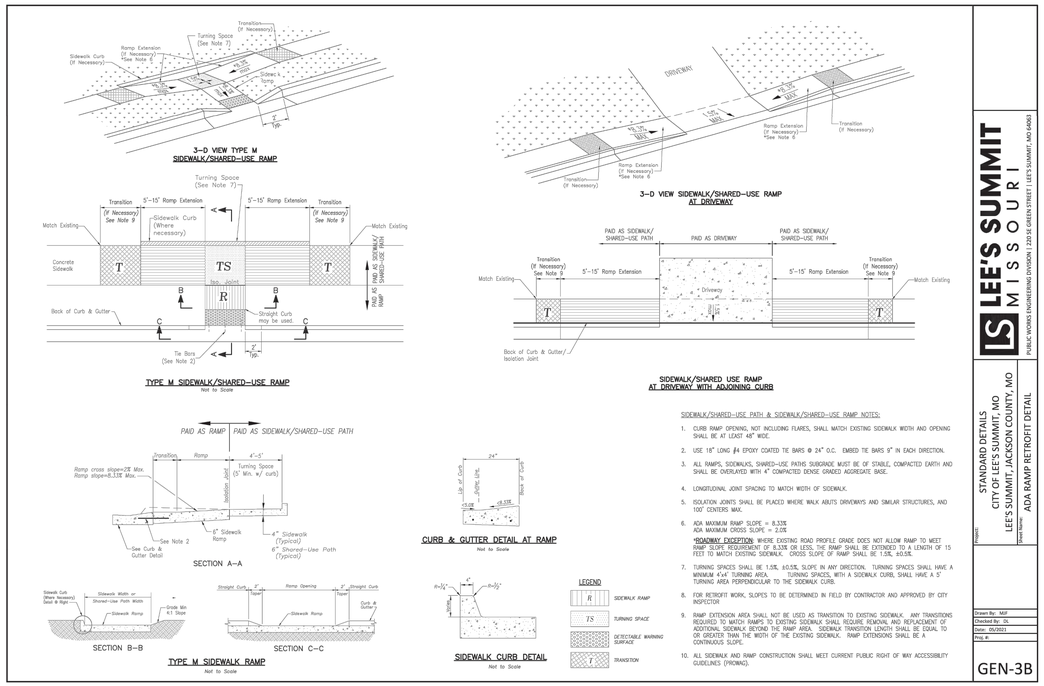


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
ADA RAMP RETROFIT DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

GEN-3A

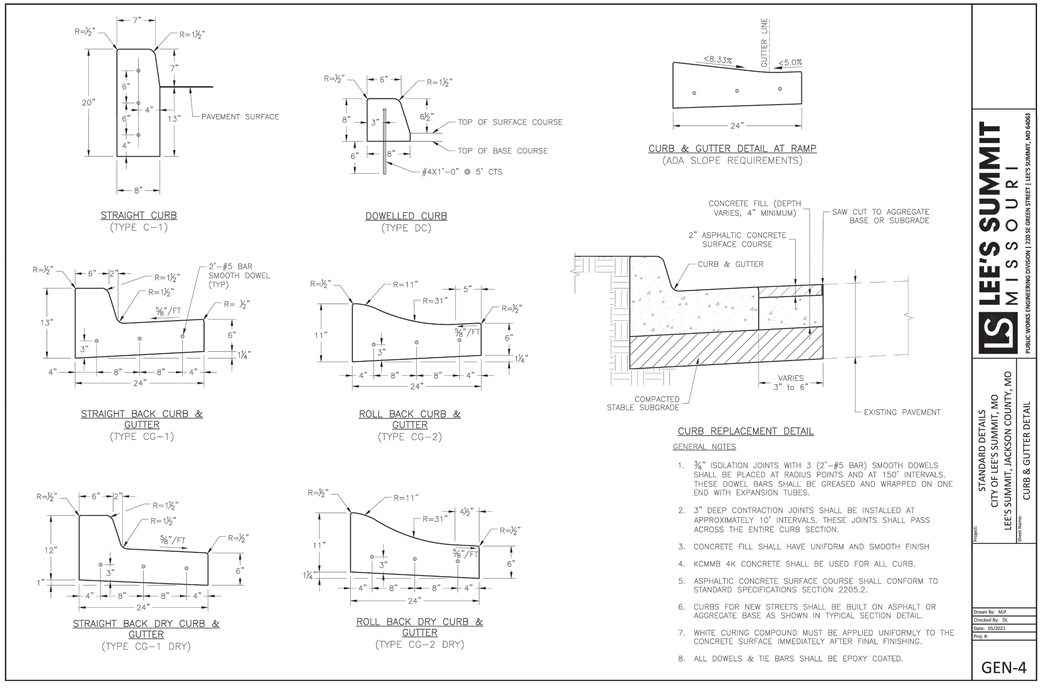


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
ADA RAMP RETROFIT DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

GEN-3B



GENERAL NOTES

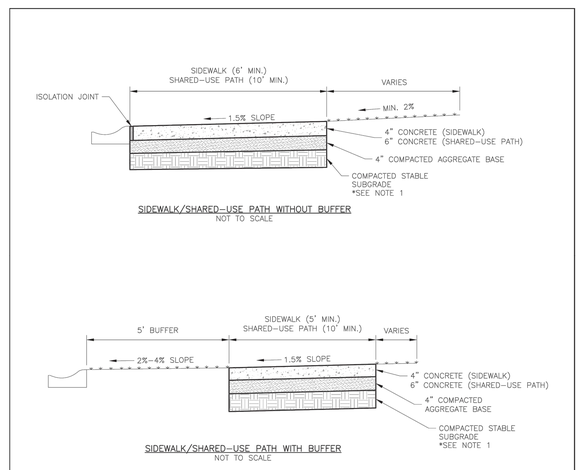
1. 3/4" ISOLATION JOINTS WITH 3 (2"-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH
4. KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURB.
5. ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
6. CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
8. ALL DOWELS & TIE BARS SHALL BE EPOXY COATED.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
CURB & GUTTER DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

GEN-4



GENERAL NOTES:

1. SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. 1.5% CROSS SLOPE MUST BE MAINTAINED THROUGH DRIVEWAYS.
3. KCMMB 4K CONCRETE MIX SHALL BE REQUIRED FOR ALL SIDEWALKS/SHARED-USE PATHS.
4. ALL SIDEWALK/SHARED-USE PATHS SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
5. AN ISOLATION JOINT SHALL BE PLACED AT A MAXIMUM OF 100 FT. CONSTRUCTION JOINTS SHALL BE PLACED THE SAME WIDTH OF SIDEWALK/SHARED-USE PATHS, BUT NO GREATER THAN 10 FT.
6. AN ISOLATION JOINT SHALL BE PLACED WHERE THE SIDEWALK/SHARED-USE PATHS MEETS A RESIDENTIAL DRIVEWAY.
7. SHARED-USE PATHS WIDTH SHALL BE 10 FT. WIDE.
8. SIDEWALK/SHARED-USE PATHS FINISHING SHALL BE FULL BROOM FINISH OR AS DIRECTED BY CITY INSPECTOR.
9. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

SIDEWALK/SHARED-USE PATH DETAIL

Date: 05/2021
Drawn By: MJF
Checked By: DL

GEN-2

SCHLAGEL
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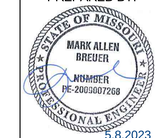
Missouri State Certificate of Authority
#E2002000380-F #LA2001005237 #LS2002000859-F

PREPARED BY:



5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

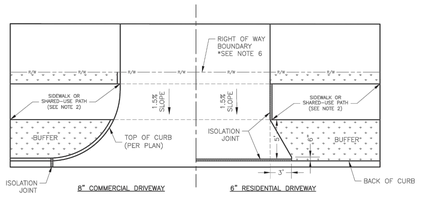
REVISION DATE	DESCRIPTION
03/05/2023	PER CITY COMMENTS

DRAWN BY:	CHECKED BY:	DATE PREPARED:	PROJ. NUMBER:
TRC	MAB	03/03/2023	22-003

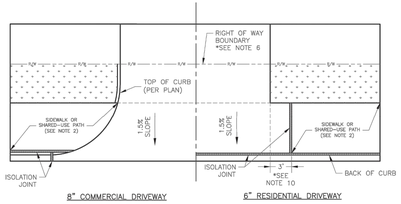
STREET DETAILS

SHEET 17

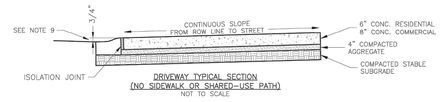
I:\PROJECTS\2022\22-00313.0 Design\3.0 DWG Plans\6.0 SS\22-003 - SS - DET.dwg, 17 STREET DETAILS, 1:1



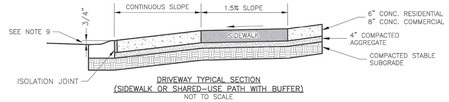
DRIVEWAY WITH BUFFER
NOT TO SCALE



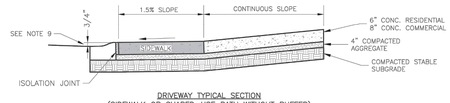
DRIVEWAY WITHOUT BUFFER
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(NO SIDEWALK OR SHARED-USE PATH)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITH BUFFER)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITHOUT BUFFER)
NOT TO SCALE

GENERAL NOTES
1. SUBGRADE SHALL BE STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. ALL DRIVE APPROACHES SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) FOR SLOPE REQUIREMENTS WHEN SIDEWALK IS REQUIRED (SEE ADA RAMP RETROFIT DETAIL GEN-38, SIDEWALK/SHARED USE PATH RAMP AT DRIVEWAY DETAIL).
3. JOINT AT BACK OF CURB LINE SHALL BE AN ISOLATION JOINT FOR RESIDENTIAL DRIVEWAYS.
4. KCMMB 4K CONCRETE MIX IS REQUIRED FOR ALL CURBS.
5. COMMERCIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, SHALL BE KCMMB 4K CONCRETE MIX.
6. RESIDENTIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, KCMMB 4K CONCRETE MIX IS RECOMMENDED. OTHER CONCRETE MIXES NEED TO BE APPROVED BY CITY INSPECTOR.
7. A JOINT MUST BE INSTALLED AT THE RIGHT OF WAY BOUNDARY FOR PROPERTY DELINEATION.
8. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
9. ¾" FROM TOP OF CURB TO FLOWLINE AT DRIVEWAY (TYPE CC-1 CURB ONLY). MUST MAINTAIN ORIGINAL FLOWLINE OF CURB.
10. SIDEWALK ADJOINING CURB SHALL BE 6" THICK, EXTENDING 3' FROM THE DRIVEWAY.
11. THE MAXIMUM WIDTH OF A RESIDENTIAL DRIVEWAY IS 36 FEET WITHIN THE RIGHT OF WAY.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO

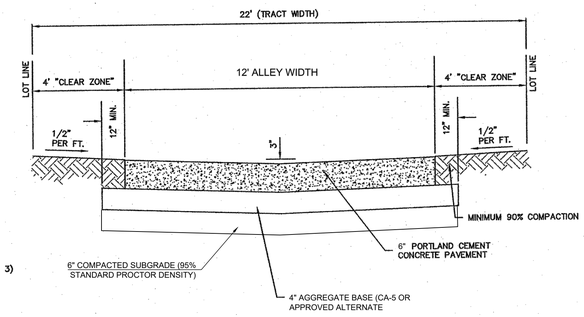
Project:

DRIVEWAY DETAIL

Sheet Name:

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

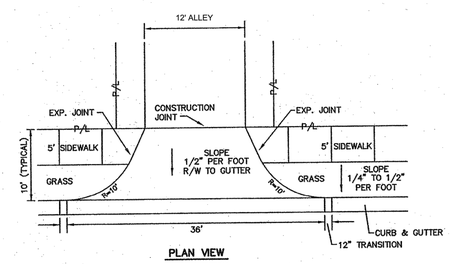
GEN-1



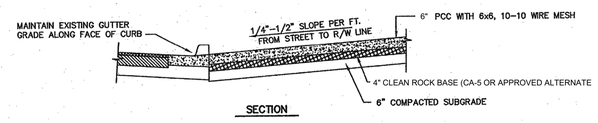
TYPICAL ALLEY SECTION

NOTES

1. COMPACTION JOINTS TO BE SAWED AT INTERVALS OF 20 FEET MAXIMUM. JOINTS SHALL BE FILLED WITH BITUMINOUS COMPOUND IMMEDIATELY FOLLOWING SAWING.
2. DOWELED EXPANSION JOINTS SHALL BE LOCATED EVERY 100 FEET MAXIMUM.
3. REINFORCE CONCRETE WITH 6x6x6 WOVEN WIRE MESH.
4. USE ADDITIONAL REINFORCEMENT AROUND DRAINAGE STRUCTURES AS NECESSARY.

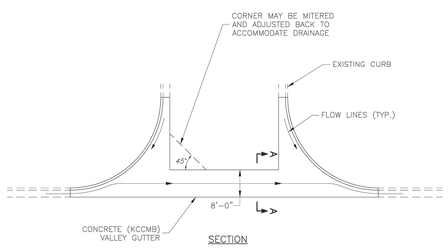


PLAN VIEW

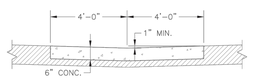


SECTION

ALLEY APRON



SECTION



SECTION
Scale: 1" = 1'-0"

VALLEY GUTTER DETAIL
Intersection of Two Public Streets

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

VALLEY GUTTER DETAIL

Date: 05/2021
Drawn By: MJF
Checked By: DL

GEN-7

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#E2000200380-F #LA2001005237 #LS2002000859-F

PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER

5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

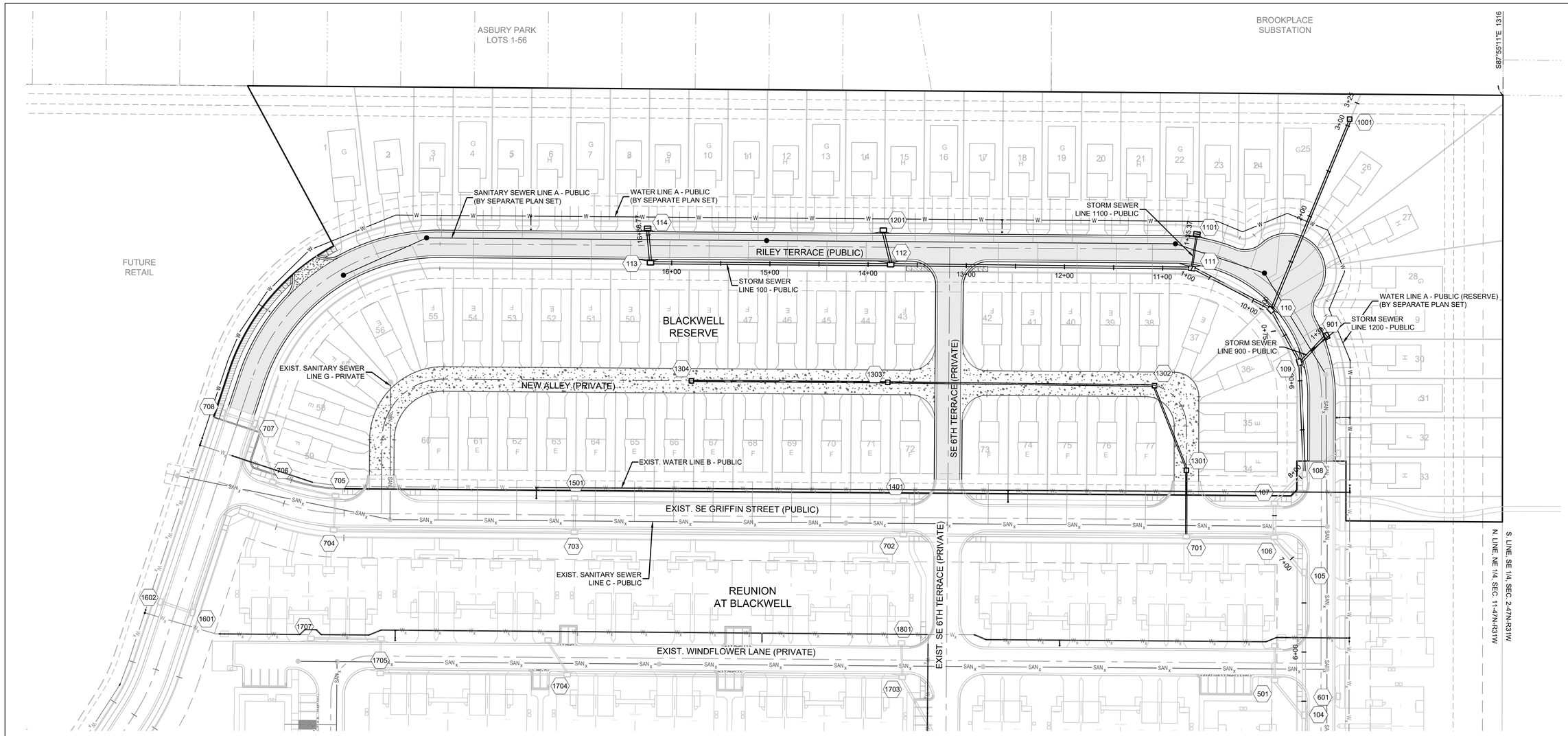
REVISION DATE	DESCRIPTION
05/05/2023	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

STREET DETAILS

SHEET
18

I:\PROJECTS\2022\22-0093.0 SS\22-093 - SS - DET.dwg, 18 STREET DETAILS, 1:1



Storm Sewer Construction Notes	
Structure	Notes
109	STA 9+18.95, LINE 100 INSTALL 6 X 4 CURB INLET N 998295.8027 E 2841271.9796
110	STA 9+79.67, LINE 100 INSTALL 6 X 4 CURB INLET N 998268.4964 E 2841217.7404
111	STA 10+70.33, LINE 100 INSTALL 6 X 4 CURB INLET N 998189.7687 E 2841172.7919
112	STA 13+77.04, LINE 100 INSTALL 6 X 4 CURB INLET N 997883.4033 E 2841158.2175
113	STA 16+21.63, LINE 100 INSTALL 6 X 4 CURB INLET N 997639.0338 E 2841147.7641
114	STA 16+56.77, LINE 100 INSTALL 6 X 4 CURB INLET N 997637.4132 E 2841112.6641

Storm Sewer Construction Notes	
Structure	Notes
901	STA 1+38.65, LINE 900 INSTALL 6 X 4 CURB INLET N 998324.6108 E 2841246.2188
1001	STA 3+07.03, LINE 1000 INSTALL 4 X 4 FIELD INLET W/OPENINGS ON NORTH, EAST, SOUTH & WEST N 998355.6970 E 2841026.5189
1101	STA 1+35.37, LINE 1100 INSTALL 6 X 4 CURB INLET N 998196.1124 E 2841137.9995
1201	STA 1+00.00, LINE 1200 INSTALL 6 X 4 CURB INLET N 997877.1874 E 2841122.9204
1301	STA 1+67.73, LINE 1300 INSTALL 4 X 4 DOUBLE GRATE INLET N 998177.0512 E 2841377.9295
1302	STA 2+59.76, LINE 1300 INSTALL 4 X 4 DOUBLE GRATE INLET N 998147.6085 E 2841290.7423

Storm Sewer Construction Notes	
Structure	Notes
1303	STA 5+31.36, LINE 1300 INSTALL 4 X 4 DOUBLE GRATE INLET N 997876.3091 E 2841277.8309
1304	STA 7+31.36, LINE 1300 INSTALL 4 X 4 DOUBLE GRATE INLET N 997676.4887 E 2841269.3582

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.

0 50' 100'
SCALE: 1" = 50'

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#E2000200380-F #LA2000105237 #LS2002008859-F

PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 09/05/2023	PER CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

STORM PLAN

SHEET
19

I:\PROJECTS\2022\22-093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - STORM.dwg, 18 STORM PLAN, 1:1

Design Storm: 10
"K" Value: 1.00
"F" Factor: 1.00

Runoff Calculations																Pipe Properties														
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	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																							DS TAILWATER @ STR #100			987.84
101	0.61	0.66	20.04	13.23	8.7	6.37	2.56	84.23	103.97	10.81			0.00	0.00	101	100	HDPE	0.012	42	55.00	0.91	0.50	984.50	984.00	995.20	988.77
102	0.40	0.66	19.43	12.82	8.7	6.37	1.68	81.74	231.47	24.06	201	301	3.52	2.32	102	101	HDPE	0.012	42	35.50	4.51	0.50	986.60	985.00	995.20	990.17
103	0.37	0.66	15.51	10.24	8.4	6.44	1.57	65.90	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	990.94
104	0.22	0.66	14.72	9.72	8.0	6.54	0.95	63.51	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	992.58
105	0.11	0.66	12.93	8.53	7.7	6.60	0.48	56.31	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	994.38
106	0.18	0.66	12.82	8.46	7.6	6.62	0.79	56.01	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	995.27
107	0.64	0.66	6.02	3.97	6.9	6.80	2.87	27.02	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	995.62
108	0.18	0.66	5.38	3.55	6.8	6.82	0.81	24.23	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	995.85
109	0.12	0.66	4.94	3.26	6.6	6.89	0.55	22.47	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	997.06
110	0.11	0.66	4.16	2.75	6.4	6.93	0.50	19.03	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	1044.14	998.07
111	0.53	0.66	2.80	1.85	6.3	6.97	2.44	12.87	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	1006.03	1001.40
112	0.42	0.66	1.62	1.07	5.6	7.16	1.98	7.65	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	1006.94
113	0.34	0.66	0.73	0.48	5.1	7.33	1.64	3.53	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	1010.92
114	0.39	0.66	0.39	0.26	5.0	7.35	1.89	1.89	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	1011.66
LINE 200																				Drop in Inlet 102		1.50				
201	2.31	0.66	2.31	1.52	5.0	7.35	11.21	11.21	43.77	13.93			0.00	0.00	201	102	HDPE	0.012	24	53.30	3.19	N/A	989.80	988.10	993.70	991.25
LINE 300																				Drop in Inlet 102		2.25				
301	0.52	0.66	1.21	0.80	5.1	7.32	2.51	5.84	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	995.74
302	0.69	0.66	0.69	0.46	5.0	7.35	3.35	3.35	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	996.40
LINE 400																				Drop in Inlet 103		2.25				
401	0.42	0.66	0.42	0.28	5.0	7.35	2.04	2.04	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	991.66
LINE 500																				Drop in Inlet 104		2.25				
501	0.43	0.66	1.14	0.75	5.1	7.33	2.08	5.52	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	994.69
502	0.71	0.66	0.71	0.47	5.0	7.35	3.45	3.45	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	995.91
LINE 600																				Drop in Inlet 104		2.25				
601	0.43	0.66	0.43	0.28	5.0	7.35	2.09	2.09	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	993.69
LINE 700																				Drop in Inlet 106		1.00				
701	0.32	0.66	6.62	4.37	7.6	6.62	1.40	28.92	31.67	10.08	1301		2.26	1.49	701	106	HDPE	0.012	24	89.67	1.67	0.50	994.70	993.20	1002.90	997.25
702	0.58	0.66	4.04	2.67	7.1	6.74	2.58	17.98	30.61	9.74	1401		0.54	0.36	702	701	HDPE	0.012	24	288.09	1.56	0.50	999.69	995.20	1007.44	1001.60
703	0.46	0.66	2.92	1.93	6.4	6.93	2.10	13.36	14.03	7.94	1501		0.85	0.56	703	702	HDPE	0.012	18	335.06	1.52	0.50	1005.28	1000.19	1011.51	1007.13
704	0.26	0.66	1.61	1.06	5.7	7.16	1.23	7.60	9.17	5.19			0.00	0.00	704	703	HDPE	0.012	18	245.08	0.65	0.50	1007.38	1005.78	1014.19	1008.69
705	0.07	0.66	1.35	0.89	5.5	7.19	0.33	6.41	8.59	4.86			0.00	0.00	705	704	HDPE	0.012	18	35.04	0.57	0.50	1008.08	1007.88	1014.20	1009.27
706	0.03	0.66	1.28	0.84	5.3	7.25	0.14	6.13	6.71	5.47			0.00	0.00	706	705	HDPE	0.012	15	65.36	0.92	0.50	1009.18	1008.58	1014.96	1010.50
707	0.49	0.66	1.25	0.83	5.1	7.31	2.36	6.03	6.30	5.13	1601		0.26	0.17	707	706	HDPE	0.012	15	61.70	0.81	0.50	1010.18	1009.68	1015.18	1011.43
708	0.50	0.66	0.50	0.33	5.0	7.35	2.43	2.43	6.49	5.29			0.00	0.00	708	707	HDPE	0.012	15	35.00	0.86	N/A	1010.98	1010.68	1015.18	1011.72
LINE 800																				Drop in Inlet 108		1.25				
801	0.26	0.66	0.26	0.17	5.0	7.35	1.26	1.26	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	997.52
LINE 900																				Drop in Inlet 109		1.25				
901	0.66	0.66	0.66	0.44	5.0	7.35	3.20	3.20	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	999.17
LINE 1000																				Drop in Inlet 110		0.50				
1001	1.25	0.66	1.25	0.83	5.0	7.35	6.07	6.07	9.31	5.27			0.00	0.00	1001	110	HDPE	0.012	18	210.17	0.67	N/A	998.00	996.59	1002.00	999.16
LINE 1100																				Drop in Inlet 111		0.50				
1101	0.65	0.66	0.65	0.43	5.0	7.35	3.15	3.15	11.22	9.14			0.00	0.00	1101	111	HDPE	0.012	15	35.07	2.57	N/A	1001.00	1000.09	1006.02	1001.86
LINE 1200																				Drop in Inlet 112		0.50				
1201	0.47	0.66	0.47	0.31	5.0	7.35	2.28	2.28	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	1007.71
LINE 1300																				Drop in Inlet 701		0.50				
1301	0.30	0.66	2.26	1.49	6.2	7.01	1.39	10.45	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	998.09
1302	0.80	0.66	1.96	1.29	6.0	7.05	3.72	9.12	12.64	10.30			0.00	0.00	1302	1301	HDPE	0.012	15	92.02	3.26	0.50	999.49	996.49	1004.68	1001.11
1303	0.58	0.66	1.16	0.77	5.4	7.22	2.76	5.53	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	1006.18
1304	0.58	0.66	0.58	0.38	5.0	7.35	2.81	2.81	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	1009.80
LINE 1400																				Drop in Inlet 702		0.75				
1401	0.54	0.66	0.54	0.36	5.0	7.35	2.62	2.62	16.94	13.80			0.00	0.00	1401	702	HDPE	0.012	15	35.00	5.86	N/A	1002.49	1000.44	1007.44	1003.27
LINE 1500																				Drop in Inlet 703		0.50				
1501	0.85	0.66	0.85	0.56	5.0	7.35	4.13	4.13	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	1007.49
LINE 1600																				Drop in Inlet 707		0.50				
1601	0.13	0.66	0.26	0.17	5.1	7.31	0.63	1.25	6.02	4.91			0.00	0.00	1601	707	HDPE	0.012	15	202.61	0.74	0.50	1012.18	1010.68	1017.15	1012.69
1602	0.13	0.66	0.13	0.09	5.0	7.35	0.63	0.63	5.28	4.31			0.00	0.00	1602	1601	HDPE	0.012	15	35.00	0.57	N/A	1012.88	1012.68	1017.15	1013.24
LINE 1700																							DS TAILWATER @ STR #1700			993.87
1701	1.32	0.66	9.77	6.45	7.1	6.76	5.89	43.58	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	994.18
1702	0.27	0.66	5.64	3.72	6.9	6.81	1.21	25.36	66.80	13.61	2001		2.17	1.43	1702	1701	HDPE	0.012	30	167.90	2.26	1.00	996.00	992.20	1003.40	998.10
1703	0.53	0.66	3.20	2.11	6.7	6.87	2.40	14.51	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	1001.75
1704	0.28	0.66	2.12	1.40	5.8	7.11	1.31	9.95	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	1005.53
1705	0.39	0.66	1.58	1.04	5.3	7.27	1.87	7.58	10.11	5.72			0.00	0.00	1705	1704	HDPE	0.012	18	190.50	0.79	0.50	1005.99	1004.48	1012.67	1007.30
1706	0.85	0.66	1.19	0.79	5.2	7.30	4.09	5.73	8.37	6.82			0.00	0.00	1706	1705	HDPE	0.012	15	35.01	1.43	0.50	1006.99	1006.49	1012.67	1008.20
1707	0.34	0.66	0.34	0.22	5.0	7.35	1.65	1.65	8.31	6.77			0.00	0.00	1707	1706	HDPE	0.012	15	71.15	1.41	N/A	1008.49	1007.49	1013.79	1009.09
LINE 1800																				Drop in Inlet 1703		0.50				
1801	0.55	0.66	0.55	0.36	5.0	7.35	2.67	2.67	9.90	8.06			0.00	0.00	1801	1703	HDPE	0.012	15	35.01	2.00	N/A	1001.00	1000.30	1006.03	1001.79
LINE 1900																				Drop in Inlet 1704		0.50				
1901	0.26	0.66	0.26	0.17	5.0	7.35	1.26	1.26	7.79	6.35			0.00	0.00	1901	1704	HDPE	0.012	15	40.17	1.24	N/A	1004.98	1004.48	1010.62	1005.51
LINE 2000																				Drop in Inlet 1702		1.00				
2001	2.17	0.66	2.17	1.43	5.0	7.35	10.53	10.53	15.60	8.83			0.00	0.00	2001	1702	HDPE	0.012	18	79.65	1.88	N/A	998.49	997.00	1002.90	1000.09
LINE 2100																				Drop in Inlet 1701		1.50				
2101	0.31	0.66	2.81	1.85	5.4	7.24	1.48	13.42	27.51	8.76	2201	2301	1.75	1.16	2101	1701	HDPE	0.012	24	126.53	1.26	0.75	994.29	992.70	1002.70	995.90
2102	0.32	0.66	0.75	0.50	5.1	7.33	1.55	3.63	12.36	10.07			0.00	0.00	2102	2101	HDPE	0.012	15	174.89	3.12	0.50	1000.50	995.04	1006.08	1001.43
2103	0.43	0.66	0.43	0.28	5.0	7.35	2.09	2.09	8.34	6.80			0.00	0.00	2103	2102	HDPE	0.012	15	35.09	1.42	N/A	1001.50	1001.00	1006.14	1002.19
LINE 2200																				Drop in Inlet 2101		0.50				
2201	1.46	0.66	1.46	0.96	5.0	7.35	7.09	7.09	21.08	6.71			0.00	0.00	2201	2101	HDPE	0.012	24	161.57	0.74	N/A	995.99	994.79	1001.50	997.12
LINE 2300																				Drop in Inlet 2101		0.75				
2301	0.29	0.66	0.29	0.19	5.0	7.35	1.41	1.41	20.32	16.56			0.00	0.00	2301	2101	HDPE	0.012	15	35.00	8.43	N/A	998.00	995.04	1002.70	998.55

Design Storm: 100
"K" Value: 1.25
"F" Factor: 1.00

Runoff Calculations																Pipe Properties														
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	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																							DS TAILWATER @ STR #100			989.91
101	0.61	0.66	20.04	13.23	8.7	8.99	4.52	148.61	103.97	10.81			0.00	0.00	101	100	HDPE	0.012	42	55.00	0.91	0.50	984.50	984.00	995.20	992.79
102	0.40	0.66	19.43	12.82	8.7	9.00	2.97	144.21	231.47	24.06	201	301	3.52	2.32	102	101	HDPE	0.012	42	35.50	4.51	0.50	986.60	985.00	995.20	995.16
103	0.37	0.66	15.51	10.24	8.4	9.08	2.77	116.23	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	997.81
104	0.22	0.66	14.72	9.72	8.0	9.22	1.67	111.94	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	999.90
105	0.11	0.66	12.93	8.53	7.7	9.30	0.84	99.23	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	1003.22
106	0.18	0.66	12.82	8.46	7.6	9.33	1.39	98.68	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	1002.94
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	1003.05
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	1044.14	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	996.59	1006.03	1009.86
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																				Drop in Inlet 102		1.50				
201	2.31	0.66	2.31	1.52	5.0	10.32	19.67	19.67	43.77	13.93			0.00	0.00	201	102	HDPE	0.012	24	53.30	3.19	N/A	989.80	988.10	993.70	995.81
LINE 300																				Drop in Inlet 102		2.25				
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	1000.36
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																				Drop in Inlet 103		2.25				
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																				Drop in Inlet 104		2.25				
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																				Drop in Inlet 104		2.25				
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																				Drop in Inlet 106		1.00				
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	0.50	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	30.61	9.74	1401		0.54	0.36	702	701	HDPE	0.012	24	288.09	1.56	0.50	999.69	995.20	1007.44	1008.50
703	0.46	0.66	2.92	1.93	6.4	9.76	3.70	23.50	14.03	7.94	1501		0.85	0.56	703	702	HDPE	0.012	18	335.06	1.52	0.50	1005.28	1000.19	1011.51	1023.11
704	0.26	0.66	1.61	1.06	5.7	10.06	2.16	13.36	9.17	5.19			0.00	0.00	704	703	HDPE	0.012	18	245.08	0.65	0.50	1007.38	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	1008.08	1007.88	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	1009.18	1008.58	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	1010.18	1009.68	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	1010.98	1010.68	1015.18	1015.40
LINE 800																				Drop in Inlet 108		1.25				
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																				Drop in Inlet 109		1.25				
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																				Drop in Inlet 110		0.50				
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	N/A	998.00	996.59	1002.00	1007.12
LINE 1100																				Drop in Inlet 111		0.50				
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	1006.02	1006.41
LINE 1200																				Drop in Inlet 112		0.50				
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

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**

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Missouri State Certificate of Authority
#E2000200380-F #LA2001005237 #LS2002008859-F

PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

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	
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DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 03/03/2023
PROJ. NUMBER: 22-003

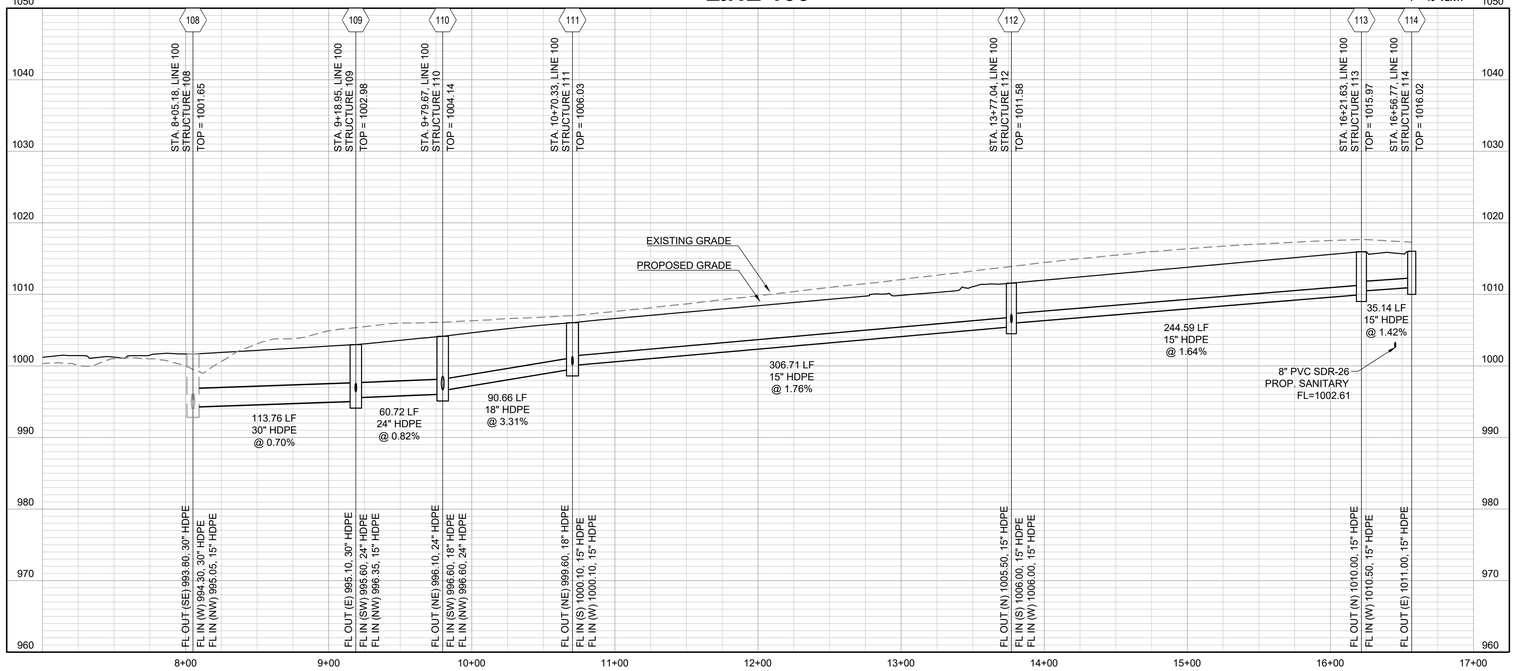
STORM CALCS

SHEET
21

I:\PROJECTS\2022\22-0933.0 Design\3.0 DWG Planet\6.0 SS\22-093 - SS - STORM.dwg, 20 STORM CALCS, 1:1

LINE 100

1" = 50' HORIZ.
1" = 10' VERT.



LINE 900

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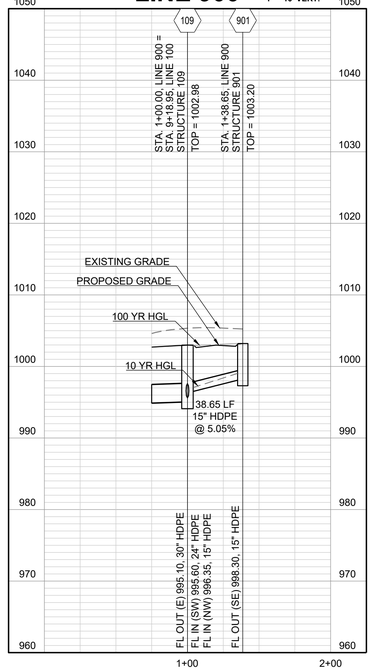
1" = 10' VERT.



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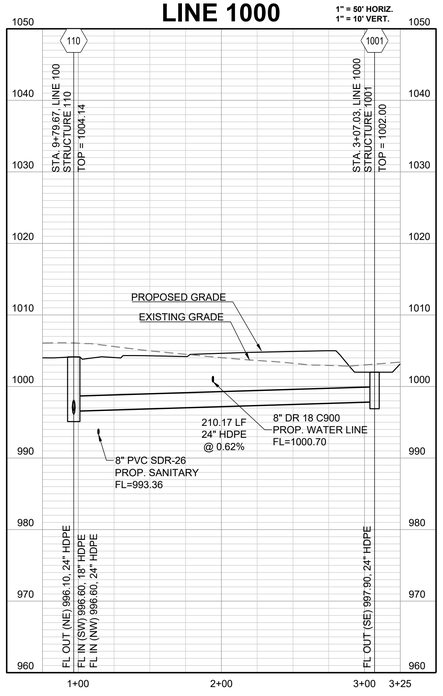
1" = 10' VERT.



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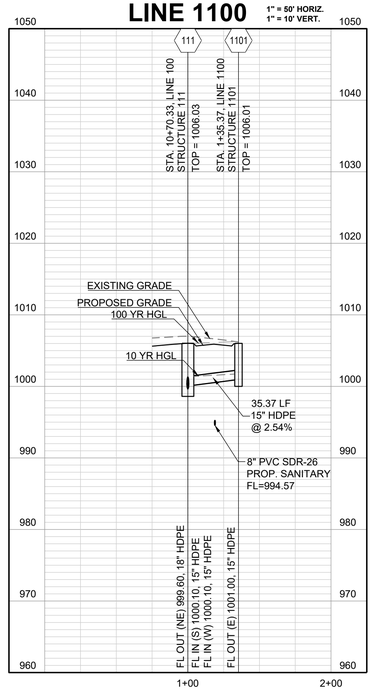
1" = 50' HORIZ.
1" = 10' VERT.



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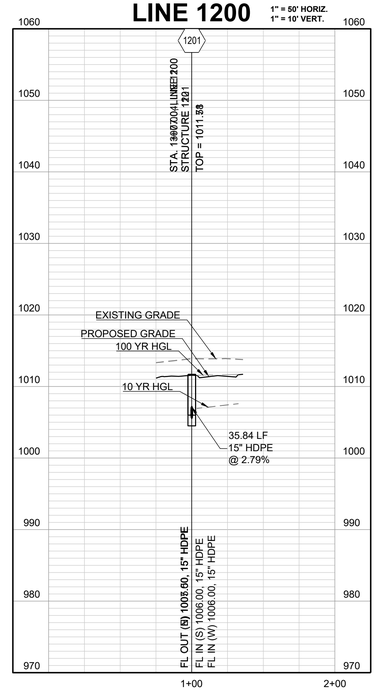
1" = 50' HORIZ.
1" = 10' VERT.



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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER

5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
03/05/2023	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

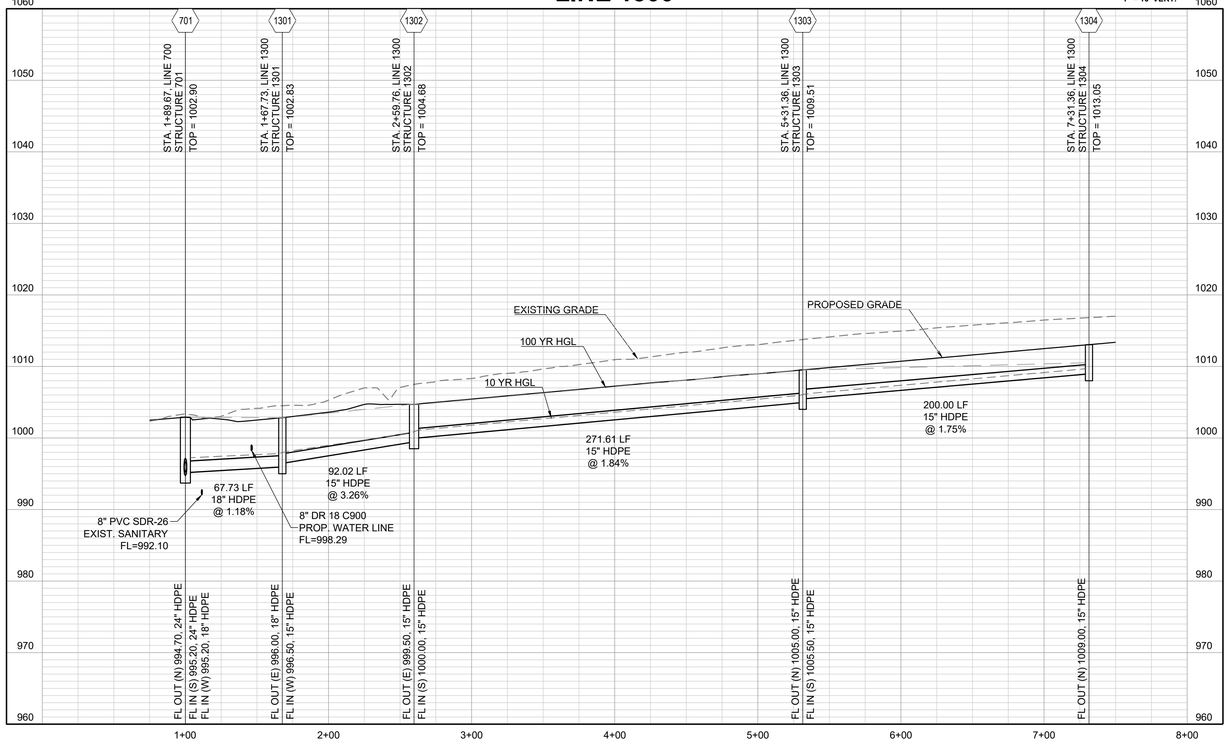
STORM PROFILES

SHEET
22

I:\PROJECTS\2022\22-0093.0 BS\22-093 - SS - STORM.dwg, 21 STORM PROFILES, 1:1

LINE 1300

1" = 50' HORIZ.
1" = 10' VERT.



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5.8.2023

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BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
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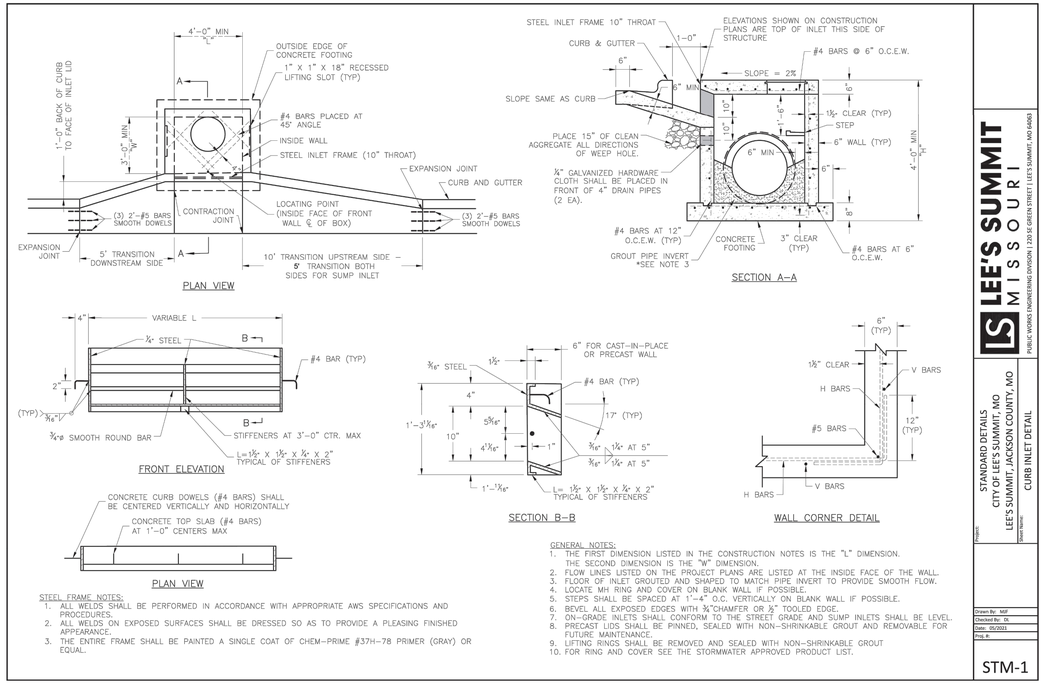
DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

STORM PROFILES

SHEET
23

I:\PROJECTS\2022\22-093\3.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - STORM.dwg, 22 STORM PROFILES, 1:1



STEEL FRAME NOTES:
1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM–PRIME #37H–78 PRIMER (GRAY) OR EQUAL.

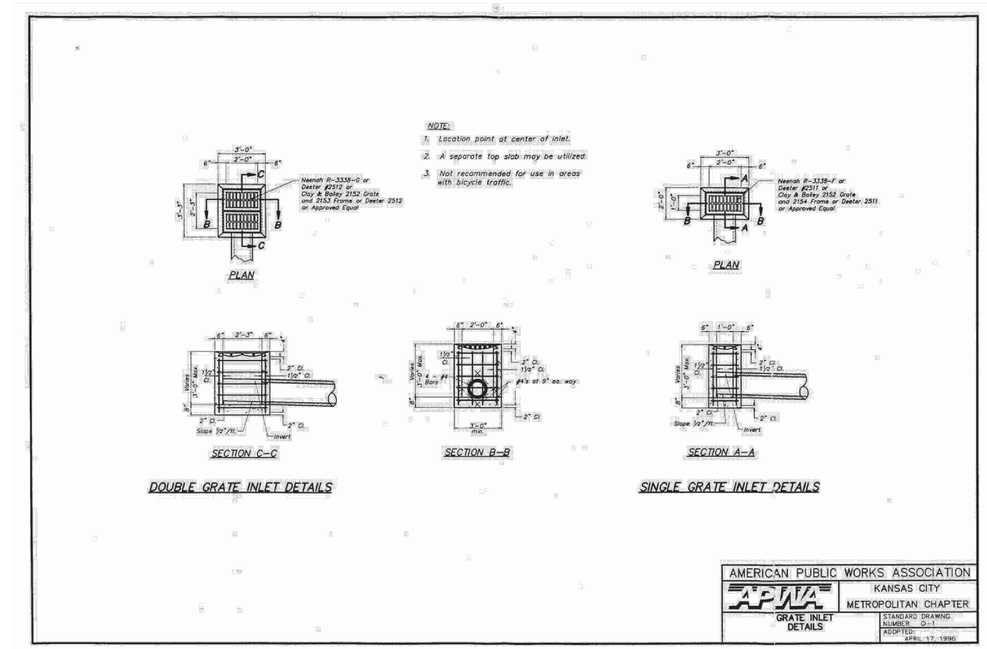
GENERAL NOTES:
1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. LOCATE MH RING AND COVER ON BLANK WALL IF POSSIBLE.
5. STEPS SHALL BE SPACED AT 1'–4" O.C. VERTICALLY ON BLANK WALL IF POSSIBLE.
6. BEVEL ALL EXPOSED EDGES WITH ¾"CHAMFER OR ½" TOOLED EDGE.
7. ON–GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. LIFTING RINGS SHALL BE REMOVED AND SEALED WITH NON–SHRINKABLE GROUT
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

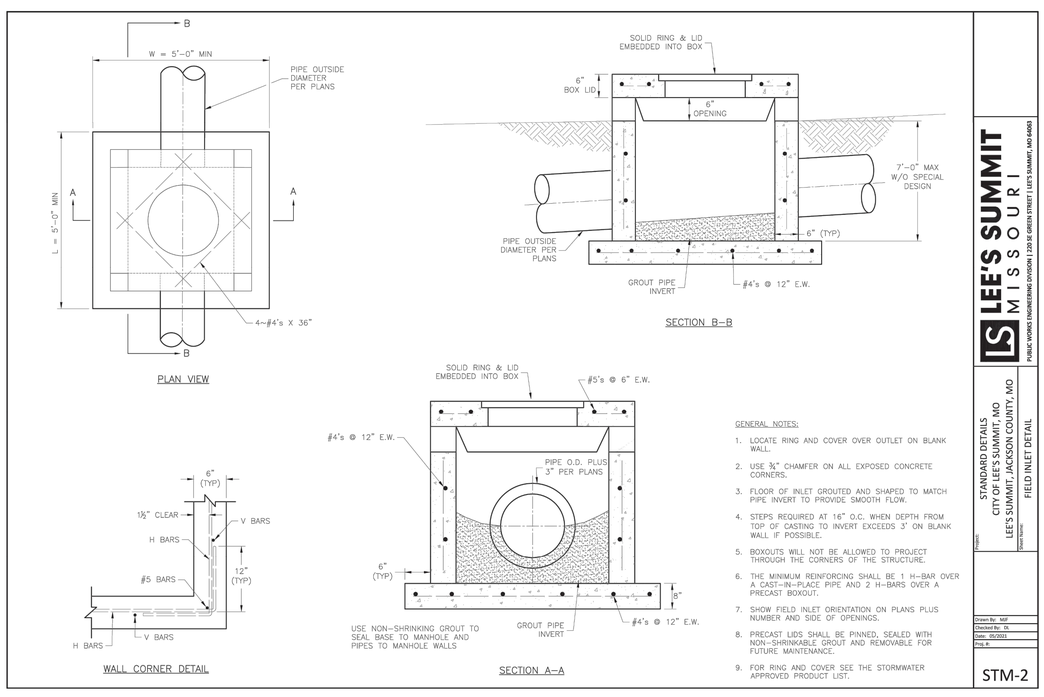
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

PROJECT: STANDARD DETAILS CITY OF LEE'S SUMMIT, MO LEE'S SUMMIT, JACKSON COUNTY, MO
DRAWING TITLE: CURB INLET DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

STM-1





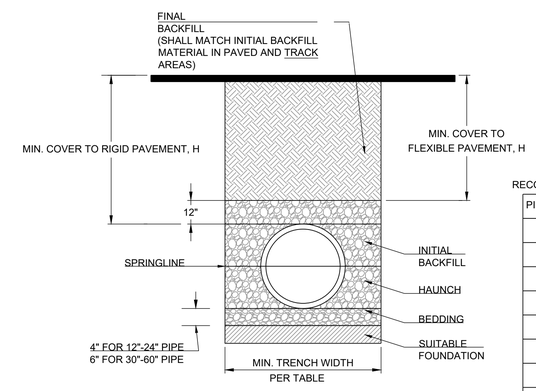
GENERAL NOTES:
1. LOCATE RING AND COVER OVER OUTLET ON BLANK WALL.
2. USE ¾" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 3' ON BLANK WALL IF POSSIBLE.
5. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE.
6. THE MINIMUM REINFORCING SHALL BE 1 H–BAR OVER A CAST–IN–PLACE PIPE AND 2 H–BARS OVER A PRECAST BOXOUT.
7. SHOW FIELD INLET ORIENTATION ON PLANS PLUS NUMBER AND SIDE OF OPENINGS.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

PROJECT: STANDARD DETAILS CITY OF LEE'S SUMMIT, MO LEE'S SUMMIT, JACKSON COUNTY, MO
DRAWING TITLE: FIELD INLET DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

STM-2



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"

MINIMUM RECOMMENDED COVER BASED ON VECHICLE LOADING CONDITIONS

	SURFACE 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

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 FLOATION. 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.

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Missouri State Certificates of Authority
#E2000030800-F #LA2000105237 #LS2000208859-F

PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE 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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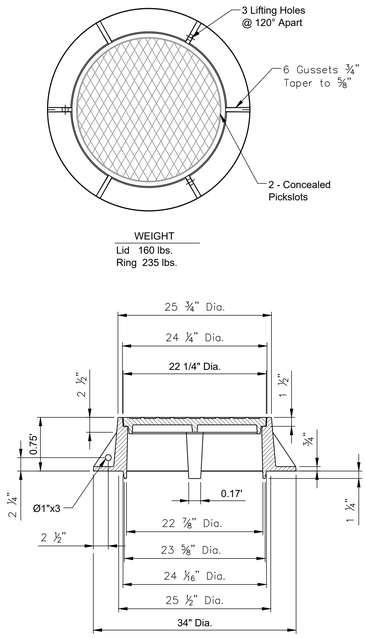
DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 03/03/2023
PROJ. NUMBER: 22-003

STORM DETAILS

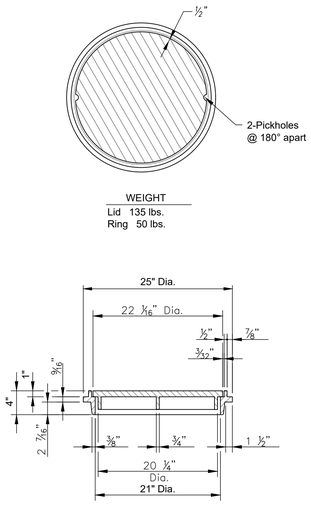
SHEET 24

P:\PROJECTS\2022\22-003\3.0 Design\3.0 DWG Plans\6.0 SS\22-003 - SS - DET.dwg, 24 STORM DETAILS, 1:1



WEIGHT
Lid 160 lbs.
Ring 235 lbs.

Heavy Duty Ring & Lid
Clay & Bailey NO. 2007MR
Deeter No. 1320
or Approved Equal



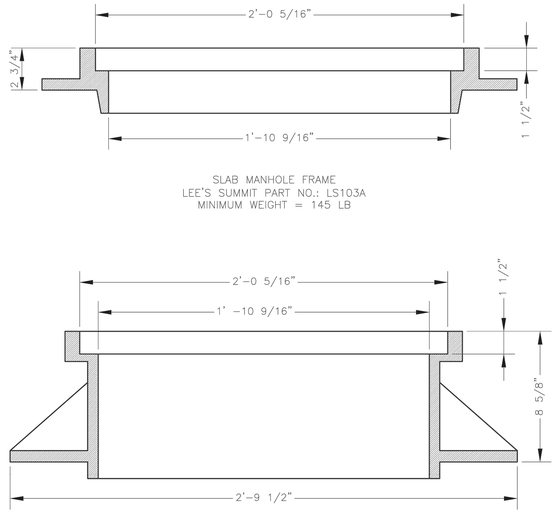
WEIGHT
Lid 135 lbs.
Ring 50 lbs.

Medium Duty Ring & Lid
Clay & Bailey No. 2020
Deeter No. 2016
or Approved Equal

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

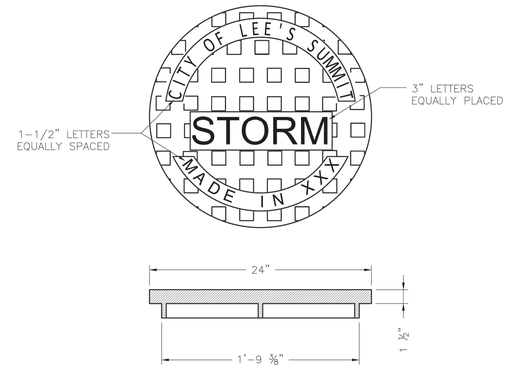


SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS103A
MINIMUM WEIGHT = 145 LB

STANDARD 24" MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS101A
MINIMUM WEIGHT = 250 LB

*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCTS LIST.

LS	**LEE'S SUMMIT** MISSOURI PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063 STORM MANHOLE FRAME DETAIL	Date: 05/2021 Drawn By: MJF Checked By: DL DWG-7

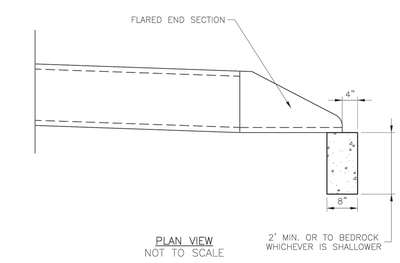


STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 160 LB
NOTE: PICK HOLES NOT SHOWN

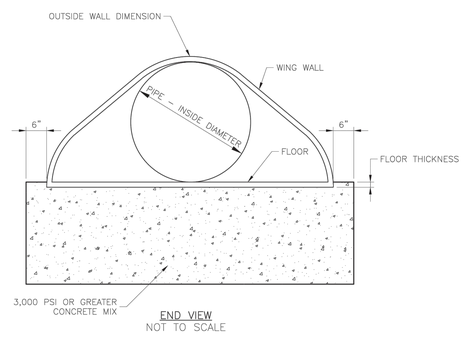
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCT LIST.

LS	**LEE'S SUMMIT** MISSOURI PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063 STORM MANHOLE COVER DETAIL	Date: 05/2021 Drawn By: MJF Checked By: DL STM-6

PUBLIC STORM RING AND COVER DETAIL

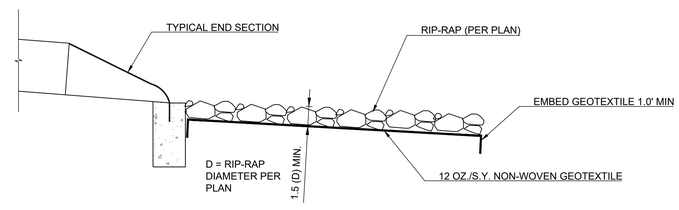


PLAN VIEW
NOT TO SCALE



END VIEW
NOT TO SCALE

LS	**LEE'S SUMMIT** MISSOURI PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063 FLARED END SECTION SUPPORT DETAIL	Date: 05/2021 Drawn By: MJF Checked By: DL STM-5



RIP-RAP AT OUTLET
NOT TO SCALE

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#E2000200380-F #LA2001005237 #LS2000200859-F

PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

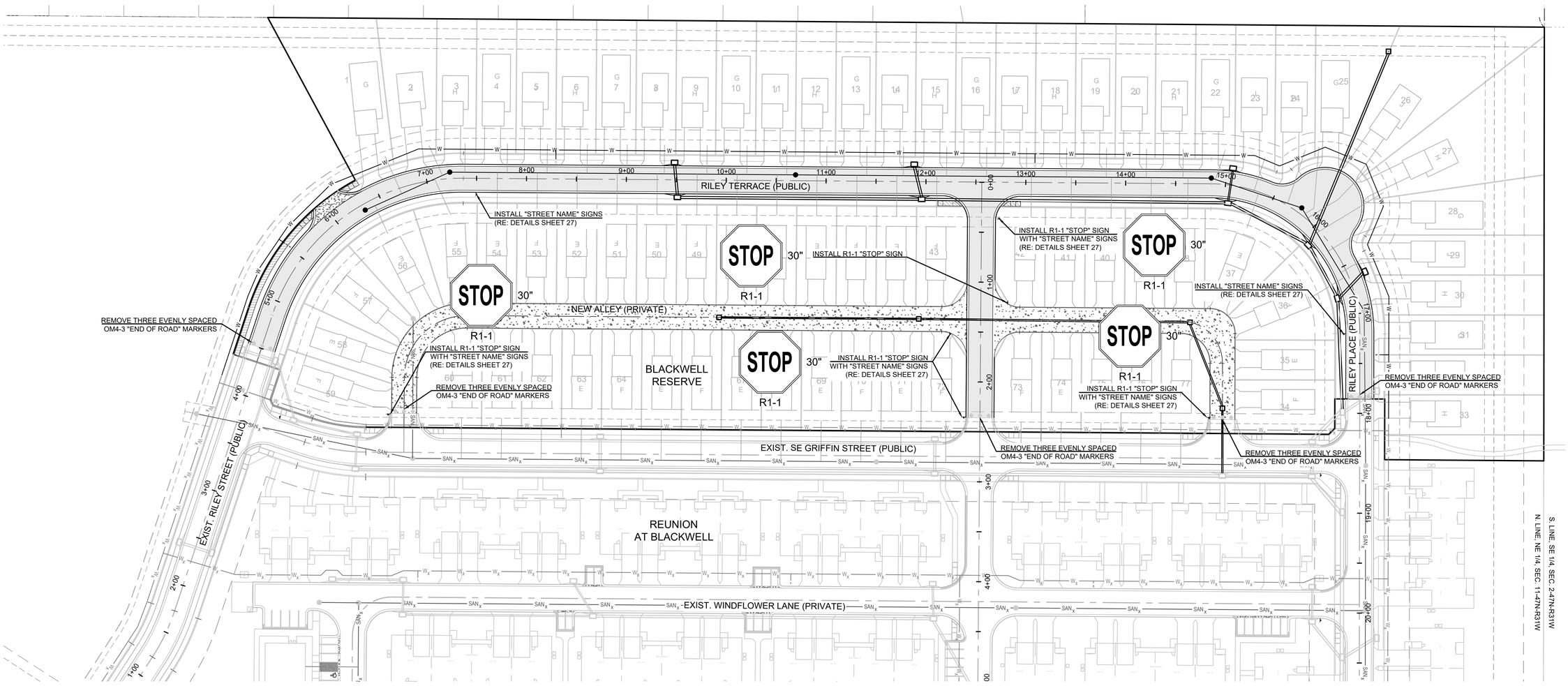
REVISION DATE	DESCRIPTION
1 05/05/2023	PER CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	
9	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-003

STORM DETAILS

SHEET
25

P:\PROJECTS\2022\22-003\3.0 Design\3.0 DWG Plans\6.0 SS\22-003 - SS - DET.dwg, 25 STORM DETAILS, 1:1



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MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER

5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

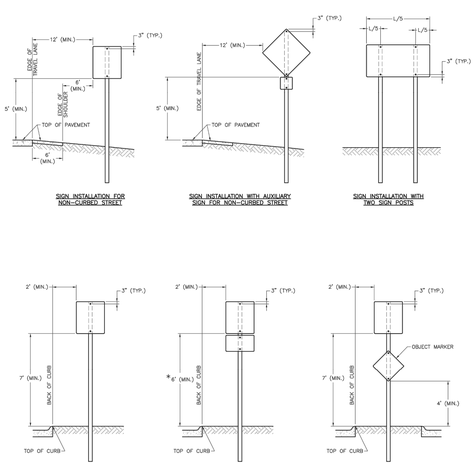
REVISION	DATE	DESCRIPTION
1	05/05/2023	PER CITY COMMENTS
2		
3		
4		
5		
6		
7		
8		
9		
10		

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

STREET SIGN PLAN

SHEET 26

I:\PROJECTS\2022\22-093\.0 Design\3.0 DWG Plans\6.0 SS\22-093 - SS - SIGN.dwg, 26 STREET SIGN PLAN, 1:1



SIGN INSTALLATION FOR NON-CURBED STREET

SIGN INSTALLATION WITH AUXILIARY SIGN FOR NON-CURBED STREET

SIGN INSTALLATION WITH TWO SIGN POSTS

SIGN INSTALLATION FOR CURBED STREET

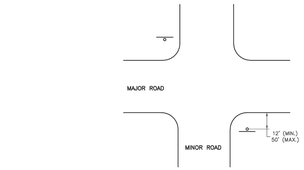
SIGN INSTALLATION WITH AUXILIARY SIGN FOR CURBED STREET

SIGN INSTALLATION FOR RAISED MEDIANS

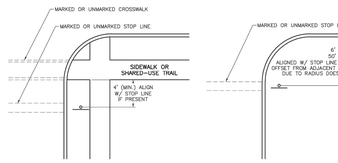
SIGN MOUNTING DETAILS

NOTES:

1. GENERALLY, THE SIGN MOUNTING HEIGHT SHOULD NOT BE MORE THAN 1" GREATER THAN THE MINIMUM MOUNTING HEIGHT.
2. *THE HEIGHT TO THE BOTTOM OF A SIGN WHEN IT IS LOCATED IN A PEDESTRIAN WALKWAY OR EXTENDS INTO A WALKWAY SHALL BE A MINIMUM OF 80 INCHES ABOVE THE WALKWAY.



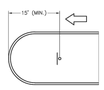
NON-CURBED INTERSECTION INSTALLATION



INTERSECTION WITH SIDEWALK/SHARED-USE TRAIL INSTALLATION

CURBED INTERSECTION INSTALLATION

CONTROL SIGN LOCATION



TYPICAL MEDIAN SIGN LOCATION

MEDIAN SIGN LOCATION

NOTES:

1. A 4" P.V.C. SLEEVE SHALL BE INSTALLED IN NEW CONCRETE MEDIANS AT EACH LOCATION WHERE A SIGN IS TO BE INSTALLED.
2. FOR EXISTING CONCRETE MEDIANS, A 4" HOLE SHALL BE CORED INTO THE CONCRETE.

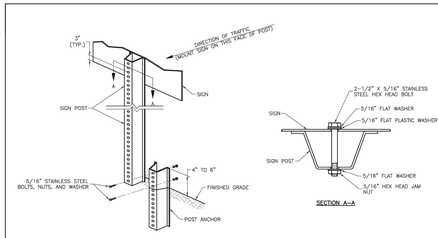
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO

Project:
Sheet Name: SIGN MOUNTING DETAILS

Drawn By: BWC
Checked By: MP
Date: 01/2020
Proj. #:

SN-1



SECTION A-A

U-STEEL POST DETAILS

NOTES:

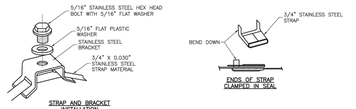
1. SPLICE SHALL BE POSITIONED ENTIRELY BETWEEN FINISHED GRADE LINE AND 18" ABOVE FINISHED GRADE LINE. ONLY ONE SPLICE WILL BE ALLOWED PER POST.
2. U-STEEL POST SHALL BE 3 LB./FT., GALVANIZED ACCORDING TO ASTM A123.
3. U-STEEL POST CAN BE USED FOR INSTALLATION OF SIGNS WITH AN AREA OF LESS THAN 2.5 SQUARE FEET.
4. ALL POSTS SHALL BE EMBEDDED A MINIMUM OF 3 FEET.

PERMANENT SIGNING GENERAL NOTES:

1. ALL SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. THE CONTRACTOR IS RESPONSIBLE FOR AVOIDING ANY AND ALL UTILITIES WHEN INSTALLING SIGN POSTS, WHETHER THE UTILITY IS INDICATED ON THE PLANS OR NOT.
3. ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE PUBLIC WORKS DEPARTMENT OF THE CITY OF LEE'S SUMMIT.
4. THE CONTRACTOR SHALL STAKE THE LOCATION OF ALL SIGN POSTS TO BE INSTALLED. THE CITY INSPECTOR SHALL INSPECT THE STAKING PRIOR TO INSTALLATION. MINOR RELOCATION TO AVOID CONFLICTS MAY BE ALLOWED WITH THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
5. SIGNS SHOWN TO BE INSTALLED ON THE SIDE OF METAL POLES SHALL BE MOUNTED WITH STAINLESS STEEL STRAPS OR WING BRACKETS AS DETAILED. NO SIGNS ARE TO BE INSTALLED ON WOOD POLES. SEE TRAFFIC SIGNAL STANDARD DRAWINGS FOR THE INSTALLATION OF SIGNS ON MAST ARMS.
6. ALL POST MOUNTED SIGNS SHALL BE INSTALLED WITH BREAKAWAY ANCHORS ACCORDING TO THE STANDARD DRAWINGS.
7. ALL EXISTING SIGNS WILL BE USED IN PLACE DURING CONSTRUCTION AND PROTECTED FROM DAMAGE UNLESS OTHERWISE INDICATED IN THE PLANS. IF THE CONTRACTOR DAMAGES ANY EXISTING SIGN OR POSTS DURING CONSTRUCTION, THE CONTRACTOR WILL BE REQUIRED TO REPLACE THE DAMAGED MATERIALS WITH NEW SIGNS OR POSTS AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND STORING ANY SIGNS THAT ARE TO BE REINSTALLED ON THE PROJECT. ALL EQUIPMENT SHALL BE REINSTALLED IN GOOD CONDITION.
8. EXISTING PERMANENT SIGNS AND POSTS REMOVED BY THE CONTRACTOR FOR CONSTRUCTION PURPOSES WHICH ARE NOT TO BE REINSTALLED SHALL BE DELIVERED TO THE CITY'S PUBLIC WORKS MAINTENANCE FACILITY (1971 SE HAMBLEN ROAD). THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND STORING EQUIPMENT IN GOOD CONDITION AND IS FULLY RESPONSIBLE FOR THE EQUIPMENT UNTIL IT IS DELIVERED.
9. ALL STOP, YIELD, OR STREET NAME SIGNS SHALL BE MAINTAINED IN A CONSPICUOUS LOCATION FOR THE DRIVING PUBLIC. ALL STOP AND YIELD SIGNS REMOVED FOR CONSTRUCTION PURPOSES CAN BE TEMPORARILY ERECTED IN REFLECTORIZED DRUMS (NO LESS THAN 7 FEET ABOVE THE PAVEMENT SURFACE) UNTIL THEY CAN BE REINSTALLED. ANY TEMPORARY STOP OR YIELD SIGN INSTALLATION TO BE LEFT IN PLACE OVERNIGHT WILL REQUIRE PRIOR APPROVAL FROM THE CITY INSPECTOR.

SQUARE STEEL POST INSTALLATION SEQUENCE:

1. SIGN POST ANCHOR DRIVEN PARTIALLY INTO THE GROUND USING A DRIVE CAP WITH A SLEDGE OR POWER EQUIPMENT.
2. ANCHOR SLEEVE SLIPPED OVER ANCHOR AND DRIVE INTO THE GROUND TOGETHER WITH THE SIGN POST ANCHOR.
3. INSERT SIGN POST INTO THE POST ANCHOR AND BOLT IN PLACE.

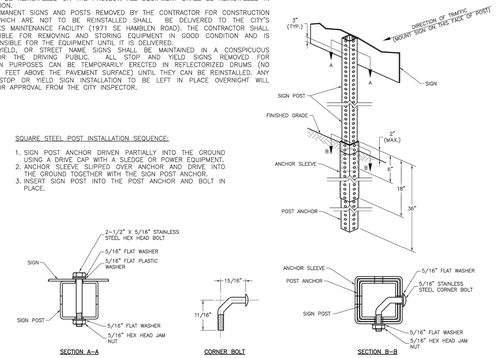


STRAP AND BRACKET INSTALLATION

STRAP TYPE SIGN SUPPORT DETAILS

NOTES:

1. SIGNS ON METAL POLES SHALL BE ATTACHED WITH TWO BRACKETS AND STAINLESS STEEL BANDS.
2. HOLES IN SIGN FOR ATTACHMENT TO THE MOUNTING BRACKETS SHALL BE OFFSET A MINIMUM OF 2 INCHES FROM THE EDGE OF THE SIGN.
3. HOLES IN SIGN SHALL BE LOCATED SUCH THAT THE SIGN IS LEVEL.
4. ALL STRAP, BRACKET, AND SEAL MATERIALS SHOULD BE TYPE 201 STAINLESS STEEL.



SECTION A-A

CORNER BOLT

SECTION B-B

SQUARE STEEL POST DETAILS

NOTES:

1. SQUARE STEEL SIGN POSTS AND BREAK-AWAY ANCHOR SHALL CONSIST OF THE FOLLOWING MATERIALS:
   SIGN POST – 14 GA. 2" X 2" SQUARE STEEL POST
   POST ANCHOR – 12 GA. 2 ¾" X 2 ¾" X 36" SQUARE STEEL POST
   ANCHOR SLEEVE – 12 GA. 2 3/8" X 2 3/8" X 18" SQUARE STEEL POST
2. 14 GA. POSTS MUST MEET A CERTIFIED MINIMUM YIELD STRENGTH OF 60,000 PSI.
3. IN ALL INSTALLATIONS THE FIRST HOLE ABOVE THE FINISHED GRADE LINE ON THE SIGN POST, ANCHOR, AND ANCHOR SLEEVE MUST BE IN LINE FOR THE INSERTION OF THE CORNER BOLT.
4. THE MAXIMUM AREA FOR ONE SIGN POST IS 9.0 SQUARE FEET. A SIGN OR COMBINATION OF SIGNS WITH AN AREA GREATER THAN 9.0 SQUARE FEET WILL REQUIRE TWO POSTS. ALSO, SIGNS WITH A WIDTH GREATER THAN OR EQUAL TO 48" (NOT INCLUDING 36" X 36" DIAMOND SHAPED SIGNS) WILL REQUIRE TWO POSTS.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO

Project:
Sheet Name: POST DETAILS

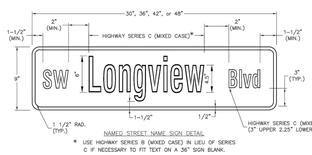
Drawn By: BWC
Checked By: MP
Date: 01/2020
Proj. #:

SN-2

STANDARD ABBREVIATION LISTS

NAMED STREETS	
AVENUE	Ave
BOULEVARD	Blvd
CIRCLE	Cir
CREEK	Cr
COURT	Ct
CROSSING	Xing
DRIVE	Dr
HIGHWAY	Hwy
LANE	Ln
PARKWAY	Pkwy
PLACE	Pl
ROAD	Rd
STREET	St
TERRACE	Ter
TRAIL	Trl
WAY	Way

NUMBERED STREETS	
FIRST	ST
SECOND	ND
THIRD	RD
FOURTH TO TENTH	TH

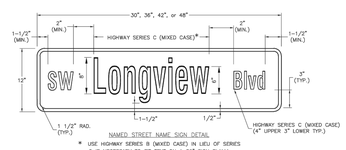


NAMED STREET NAME SIGN DETAIL

* USE HIGHWAY SERIES B (MIXED CASE) IN LIEU OF SERIES C IF NECESSARY TO FIT TEXT ON A 36" SIGN BLANK.

STREET NAME SIGN FACE DETAILS

POST MOUNTED 2-LANE ALL SPEEDS AND MULTI-LANE UNDER 40 MPH

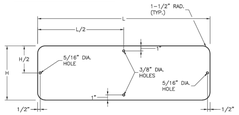


NAMED STREET NAME SIGN DETAIL

* USE HIGHWAY SERIES B (MIXED CASE) IN LIEU OF SERIES C IF NECESSARY TO FIT TEXT ON A 36" SIGN BLANK.

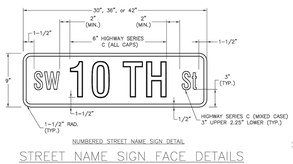
STREET NAME SIGN FACE DETAILS

POST MOUNTED MULTI-LANE GREATER THAN 40 MPH



STREET NAME SIGN BLANK DETAILS

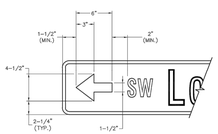
FOR MOUNTING ON SQUARE STEEL POSTS



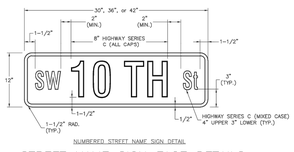
NUMBERED STREET NAME SIGN DETAIL

STREET NAME SIGN FACE DETAILS

POST MOUNTED 2-LANE ALL SPEEDS AND MULTI-LANE UNDER 40 MPH



ARROW DETAIL



NUMBERED STREET NAME SIGN DETAIL

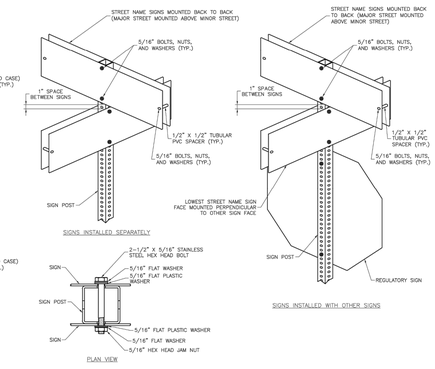
STREET NAME SIGN FACE DETAILS

POST MOUNTED MULTI-LANE GREATER THAN 40 MPH

PRIVATE STREET TAG DETAIL

NOTES:

1. FOR ALL STREET NAME SIGNS, THE LEGEND SHALL BE WHITE AND THE BACKGROUND SHALL BE GREEN.
2. ARROWS SHALL BE ADDED TO STREET NAME SIGNS WHERE THE NAME OF A STREET CHANGES AT AN INTERSECTION. STREET NAME SIGNS WITH ARROWS ARE TO BE INSTALLED ON EACH SIDE OF THE INTERSECTION TO INDICATE THE CHANGE IN NAMES. ARROWS SHALL BE WHITE.
3. THE "PRIVATE STREET" TAG SHOULD BE ADDED TO THE END OF STREET NAME SIGNS TO INDICATE WHERE A STREET THAT IS OUTSIDE THE RIGHT-OF-WAY INTERSECTS A PUBLIC STREET. THE BACKGROUND FOR THE "PRIVATE STREET" TAG SHALL BE YELLOW.
4. MULTI-LANE IS DEFINED AS HAVING 2 LANES OR MORE IN EACH DIRECTION, EXCLUDING TURN LANES.
5. OVERHEAD SIGN DETAILS MAY BE FOUND ON THE SIGNAL HEAD MOUNTING DETAIL.



SQUARE STEEL POST MOUNTING DETAILS

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO

Project:
Sheet Name: STREET NAME SIGN DETAILS

Drawn By: BWC
Checked By: MP
Date: 01/2020
Proj. #:

SN-3

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Walkwell State Certificates of Authority
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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007260
PROFESSIONAL ENGINEER
5.8.2023

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-003

STREET SIGN DETAILS

SHEET 27

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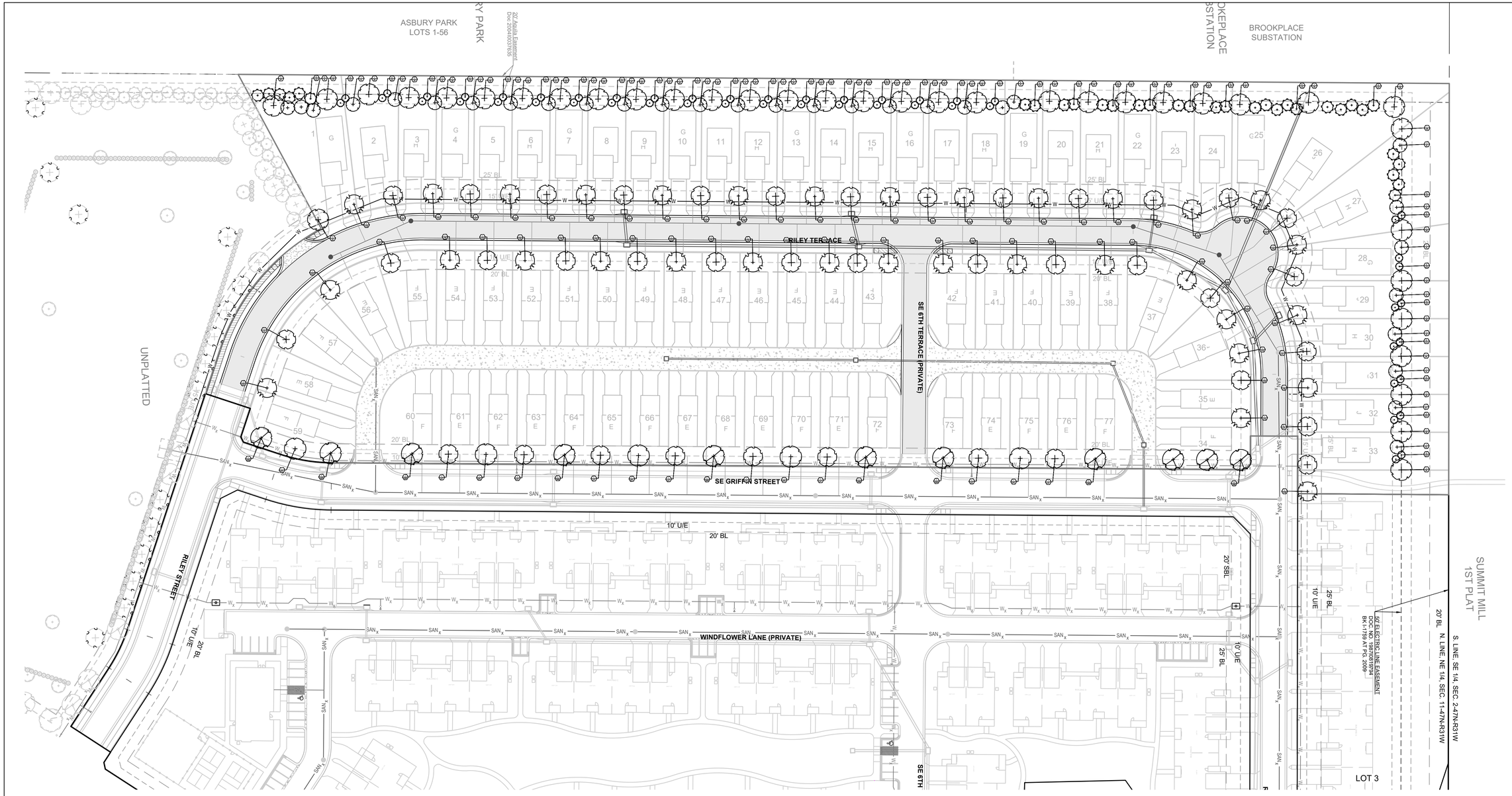

SHADE TREES

AMM	11 EA.	Acer miyabei 'Morton'	State Street Miyabe Maple	2.5" Cal.	B&B
ATW	33 EA.	Acer truncatum 'Warrenrd'	Pacific Sunset Maple	2.5" Cal.	B&B
GPC	5 EA.	Ginkgo biloba "Princeton Sentry"	Princeton Sentry Ginkgo	2.5" Cal.	B&B
QR	35 EA.	Quercus rubra	Red Oak	2.5" Cal.	B&B
QS	1 EA.	Quercus shumardii	Shumard Oak	2.5" Cal.	B&B
UXF	38 EA.	Ulmus x Frontier	Frontier Elm	2.5" Cal.	B&B

ORNAMENTAL TREES

AC	30 EA.	Amelanchier canadensis	Shadblow Serviceberry	2" Cal. & 8' ht.	B&B

EVERGREEN TREES

JCK	50 EA.	Juniperus chinensis 'Keteleerii'	Keteleeri Juniper	6' ht.	B&B
JVC	33 EA.	Juniperus virginiana 'Canaertii'	Canaert Juniper	6' ht.	B&B

0 50' 100'

SCALE: 1" = 50'

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PREPARED BY:

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL RESERVE
STREET AND STORM SEWER PLANS

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-093

LANDSCAPE PLAN

SHEET 28

I:\PROJECTS\2022\22-0933.0 Design\3.0 DWG Plans\3.0 FDP\22-093 - FDP - LP.dwg, 28 LANDSCAPE PLAN, 1:1