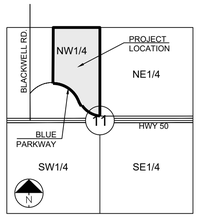
STREET, STORMWATER AND EROSION & SEDIMENT CONTROL
FOR
RESIDENCES AT BLACKWELL

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.ingram@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

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 30' AT BACK OF CURB UNLESS OTHERWISE NOTED.
5. SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
6. ASSUMED DESIGN SPEED = 30 MPH (RESIDENTIAL COLLECTOR).
7. MINIMUM STOPPING SIGHT DISTANCE = 200 FEET.
8. MINIMUM K, SAG CURVE = 37 (20 WITH LIGHTING), CREST CURVE = 19.
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.

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.

SUMMARY OF QUANTITIES

	ITEM	QUANTITY	UNITS
1	2" TYPE 5 OR 6 ASPHALT PAVEMENT	3,910	SY
2	5.5" TYPE 5 ASPHALT PAVEMENT	3,910	SY
3	6" TYPE 5 BASE	4,661	SY
4	9" SUBGRADE STABILIZATION	4,661	SY
5	CONCRETE COMMERCIAL DRIVE	312	SY
6	TYPE CG-1 CURB AND GUTTER	1,828	LF
7	5' CONCRETE SIDEWALK	1692	LF
8	TYPE A SIDEWALK RAMPS	6	EA
9	TYPE B SIDEWALK RAMPS	4	EA
10	"END OF ROAD" MARKERS (5 LOCATIONS)	15	EA
11	6 X 4 CURB INLET	8	EA
12	18" RCP STORM SEWER PIPE	43	LF
13	15" HDPE STORM SEWER PIPE	492	LF
14	TRENCHING UNDER FUTURE STREET	121	LF
15	CLEARING, GRUBBING & DISPOSAL	1	LS
16	EARTHWORK	1	LS
17	SILT FENCE	2490	LF
18	INLET PROTECTION (SILT FENCE)	8	EA
19	INLET PROTECTION (GRAVEL FILTER BAGS)	8	EA
20	SEEDING & MULCHING	1	LS
21	STRIPING & SIGNAGE	1	LS
22	BONDS	1	LS

DESIGN SPEED = 30 MPH

POSTED SPEED = 25 MPH

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL LAYOUT - OVERALL
3	GENERAL LAYOUT - SHENANDOAH DRIVE
4	OVERALL GRADING PLAN
5	OVERALL DRAINAGE MAP
6	SHENANDOAH DRIVE - DRAINAGE MAP
7	PRE-CONSTRUCTION EROSION CONTROL PLAN
8	EROSION CONTROL PLAN
9	POST-CONSTRUCTION EROSION CONTROL PLAN
10	EROSION CONTROL DETAILS
11	SHENANDOAH DRIVE - PLAN & PROFILE
12	INTERSECTION DETAILS
13	INTERSECTION DETAILS
14	STORM PLAN
15	STORM CALCS
16	STORM PROFILES
17	STREET DETAILS
18	STREET DETAILS
19	STORM DETAILS
20	STORM DETAILS
21	STREET SIGN & PAVEMENT MARKING PLAN
22	STREET SIGN & PAVEMENT MARKING DETAILS

RELEASED FOR CONSTRUCTION
As Noted on Plan Review

Development Services Department
Lee's Summit, Missouri

04/13/2023
Gene Williams
Digitally signed by Gene Williams
DN: cn=Gene Williams, ou=Development Services, ou=Civil, ou=Users, o=LSGOV, c=US
Date: 2023.04.13 09:39:32 -05'00'

APPROVED BY:

CITY ENGINEER
APPROVED FOR ONE YEAR FROM THIS DATE

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
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
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WWW.SCHLAGEL-ASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2000208859-F

PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREVER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
03.29.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION & SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/2023	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

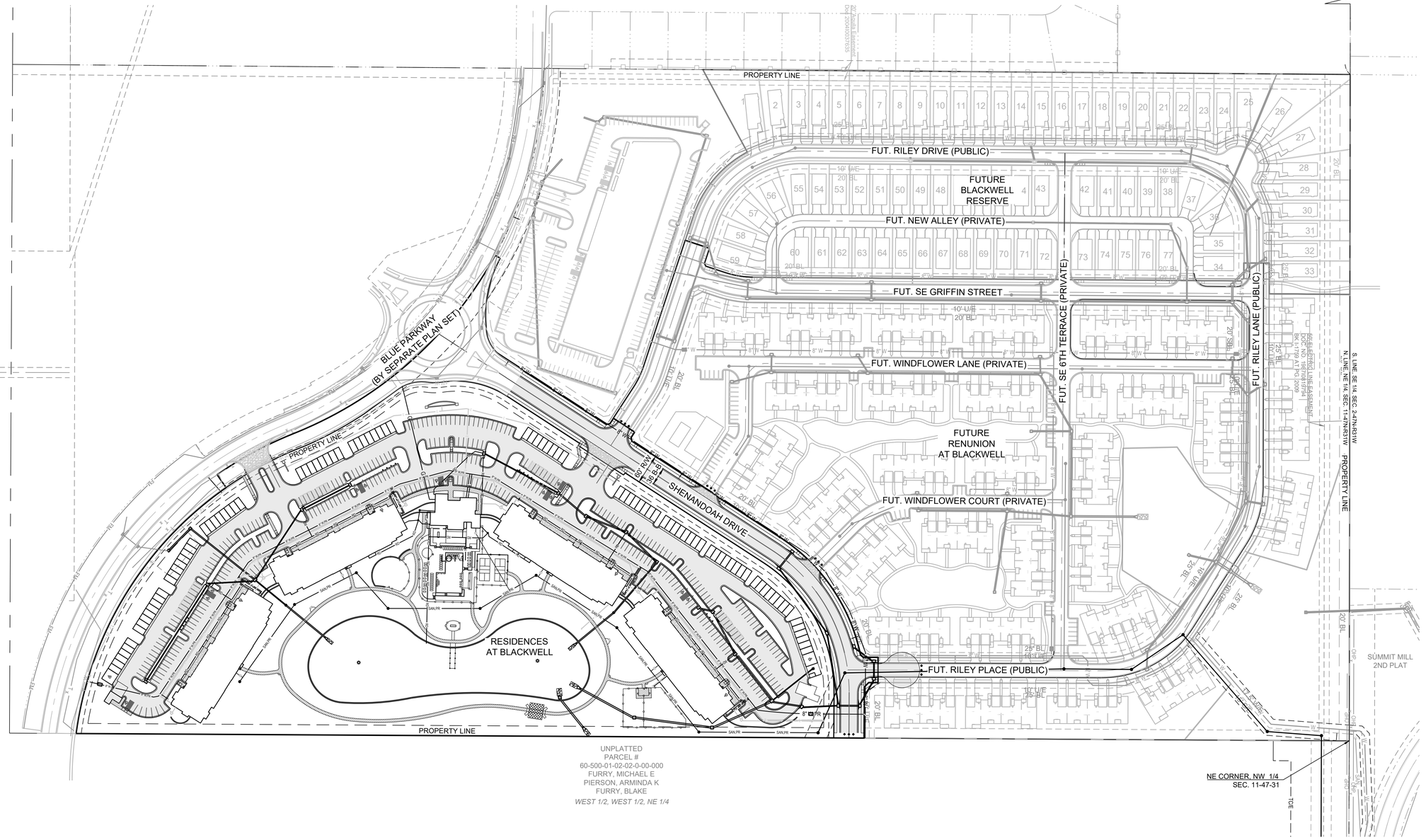
COVER SHEET

SHEET 1

RELEASED FOR CONSTRUCTION
As Noted on Plan Review

Development Services Department
Lee's Summit, Missouri

04/13/2023



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.
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3. ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT DEVELOPMENT ENGINEERING.
4. CURB RETURN RADII SHALL BE 30' AT BACK OF CURB UNLESS OTHERWISE NOTED.
5. SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
6. ASSUMED DESIGN SPEED = 30 MPH (RESIDENTIAL COLLECTOR).
7. MINIMUM STOPPING SIGHT DISTANCE = 200 FEET.
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MO GRS BENCHMARK:

STATION NAME - JA-90

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ELEV. 997.045

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N:996874.9690, E:2840937.1365

ELEV. 1005.719

N

0 100' 200'

SCALE: 1" = 100'

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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREDER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
03.29.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION & SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 01/20/2023	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS

DRAWN BY: ####
CHECKED BY: ####
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

GENERAL LAYOUT - OVERALL

SHEET 2

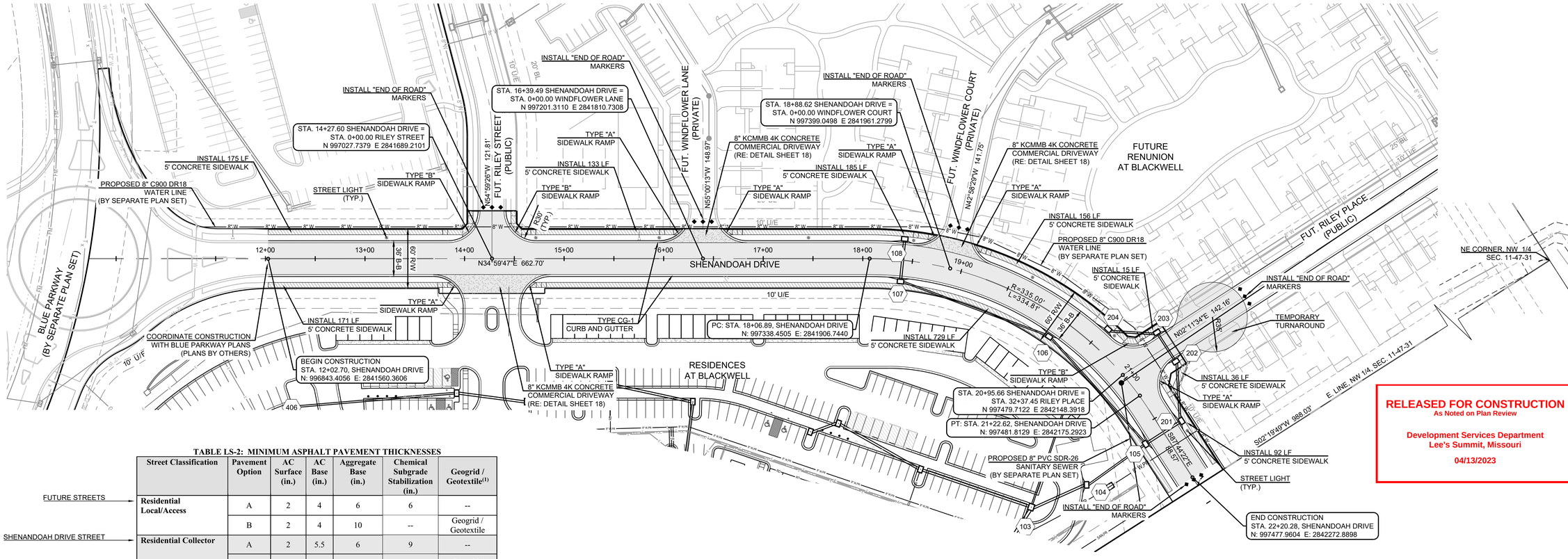


TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES

	Street Classification	Pavement Option	AC Surface (in.)	AC Base (in.)	Aggregate Base (in.)	Chemical Subgrade Stabilization (in.)	Geogrid / Geotextile[(1)]
FUTURE STREETS →	**Residential Local/Access**	A	2	4	6	6	--
		B	2	4	10	--	Geogrid / Geotextile
SHENANDOAH DRIVE STREET →	**Residential Collector**	A	2	5.5	6	9	--
		B	2	5.5	12	--	Geogrid / Geotextile
	Commercial Industrial Local/Collector	A	2	7.5	6	9	--
		B	2	7.5	12	--	Geogrid / Geotextile

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

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

STREET NOTES:

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 30' AT BACK OF CURB UNLESS OTHERWISE NOTED.
5. SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
6. ASSUMED DESIGN SPEED = 30 MPH (RESIDENTIAL COLLECTOR).
7. MINIMUM STOPPING SIGHT DISTANCE = 200 FEET.
8. MINIMUM K, SAG CURVE = 37 (20 WITH LIGHTING), CREST CURVE = 19.
9. GRADE INTERSECTIONS TO DRAIN AS SHOWN.
10. SSD = STOPPING SIGHT DISTANCE.
11. ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

MO GRS BENCHMARK:

STATION NAME - JA-90

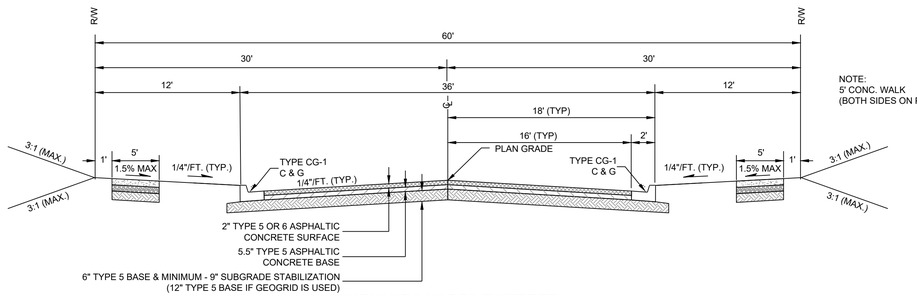
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

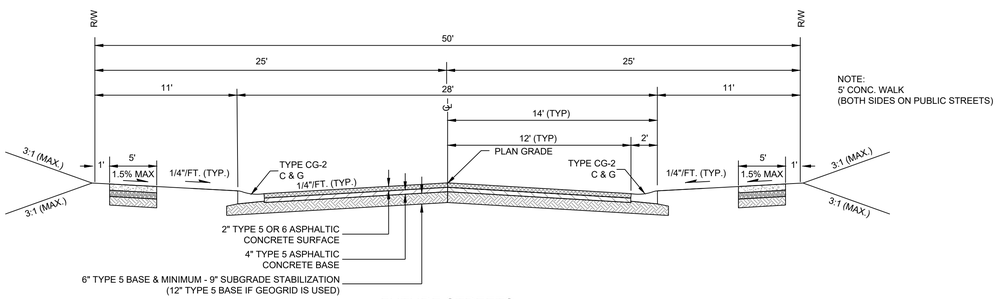
PROJECT BENCHMARK:

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

ELEV. 1005.719



SHENANDOAH DRIVE STREET
RESIDENTIAL COLLECTOR
(NTS)



FUTURE STREETS
RESIDENTIAL LOCAL
(NTS)

RELEASED FOR CONSTRUCTION
As Noted on Plan Review

Development Services Department
Lee's Summit, Missouri

04/13/2023

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

SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
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Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2000008859-F

PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREDER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
03.29.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION & SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/2023	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	11/30/2022
PROJ. NUMBER:	22-102

GENERAL LAYOUT - SHENANDOAH DRIVE

SHEET
3

RELEASED FOR CONSTRUCTION
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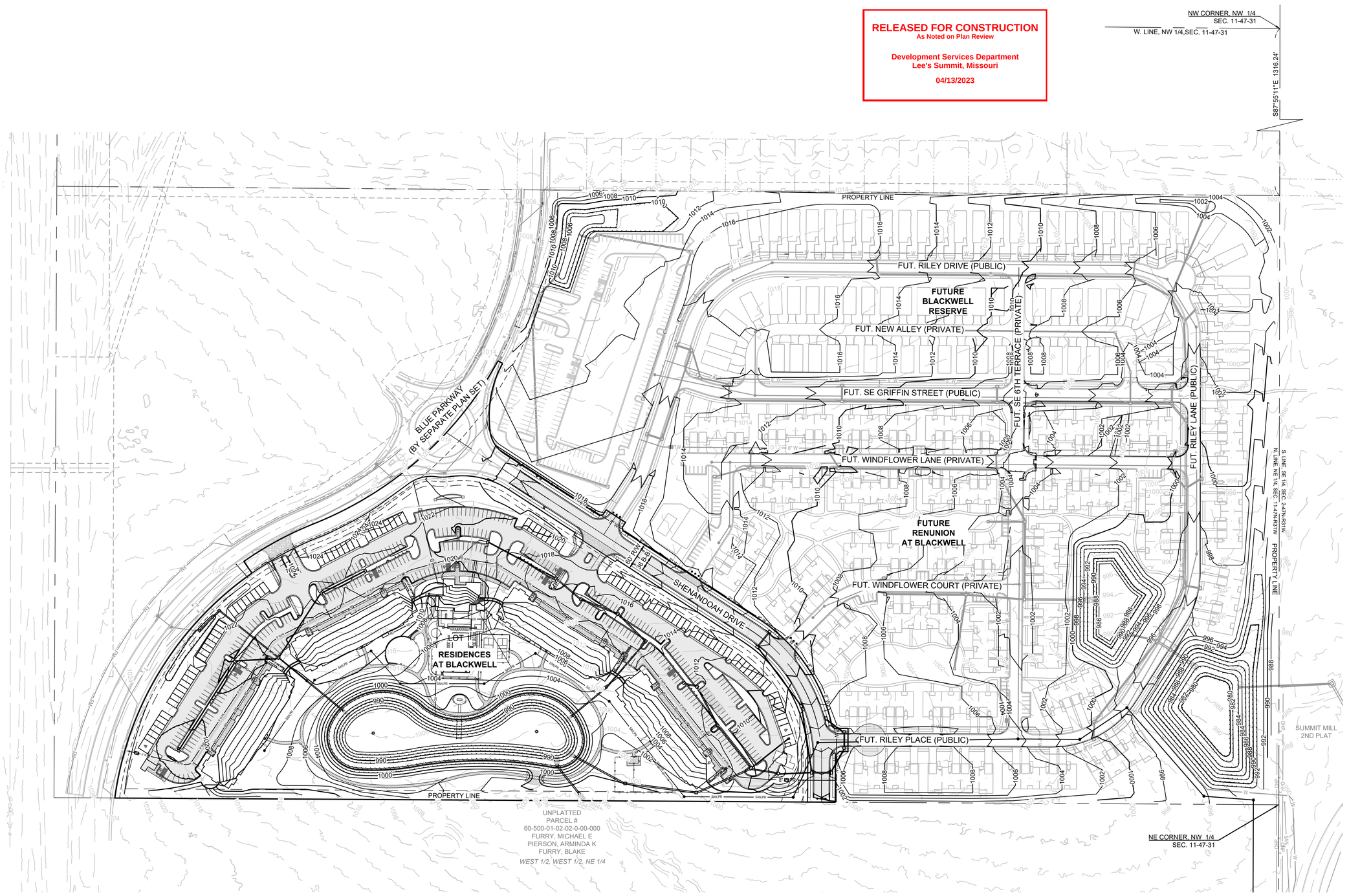
Lee's Summit, Missouri

04/13/2023



GRADING LEGEND:

— — 1000 — — EXISTING CONTOUR

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

NOTES:

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ELEV. 1005.719

N

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SCALE: 1" = 100'

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CHECKED BY: ####
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OVERALL GRADING PLAN

SHEET 4

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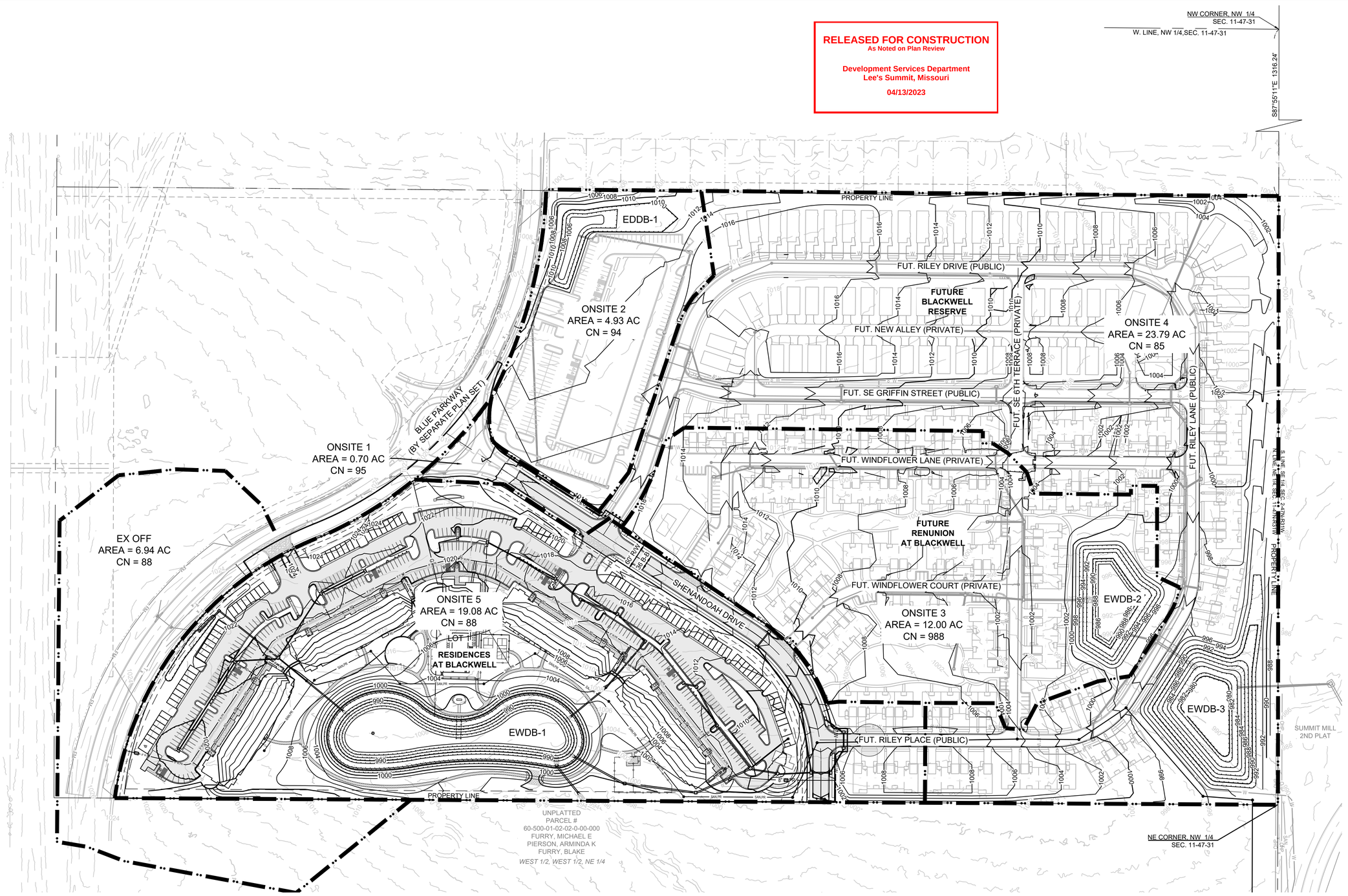
Lee's Summit, Missouri

04/13/2023



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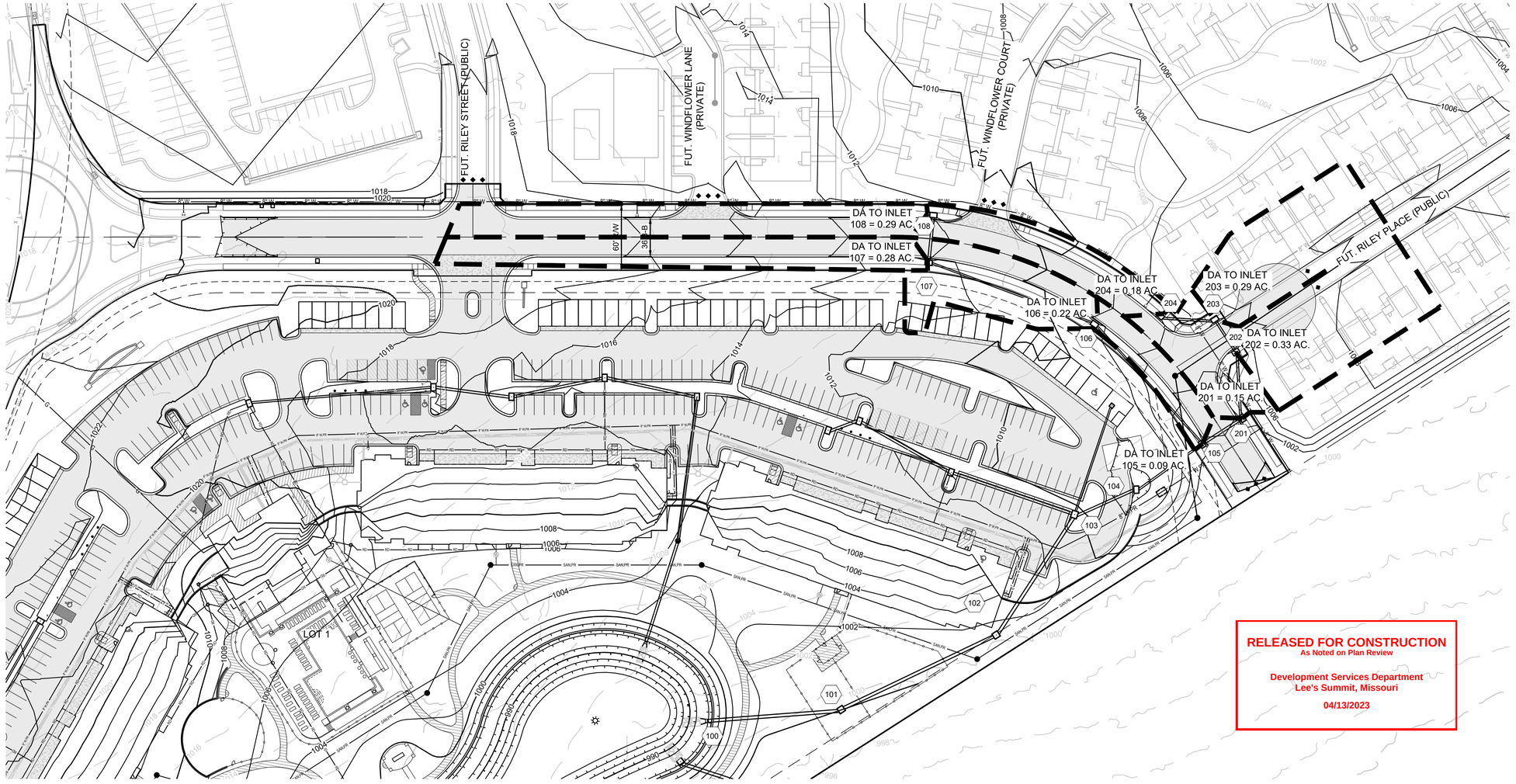
####	####	11/30/2022	22-102

OVERALL DRAINAGE MAP

SHEET 5

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\6.0 SS\22-102 - SS - DRAIN.dwg, 6 OVERALL DRAINAGE MAP, 1:1



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SHENANDOAH DRIVE - DRAINAGE MAP

SHEET 6

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Planet\6.0 SS\22-102 - SS - DRAIN.dwg, 6 SHENANDOAH DRIVE - DRAINAGE MAP, 1:1

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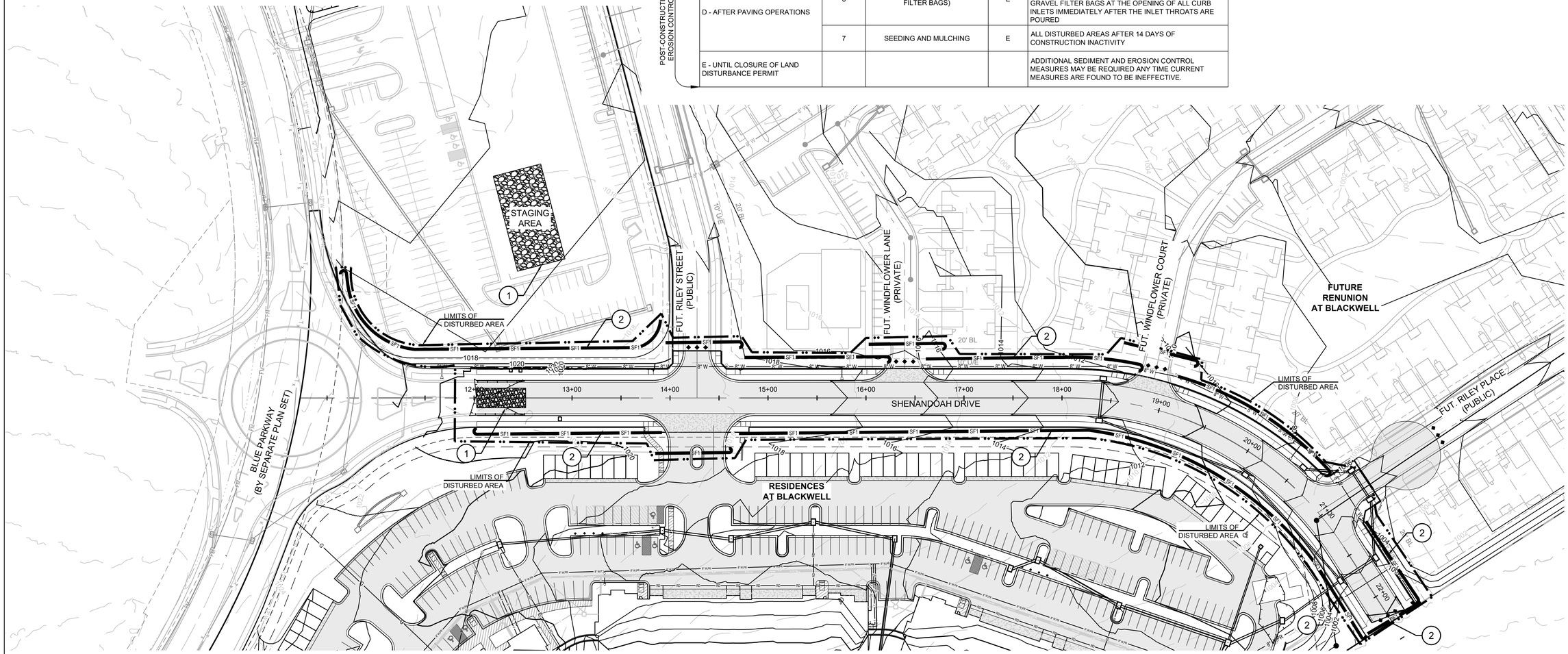
EROSION AND SEDIMENT CONTROL STAGING CHART

	PROJECT STAGE	BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
PRE-CONSTRUCTION EROSION CONTROL	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
EROSION CONROL	B - MASS GRADING	3	SILT FENCE (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	C - UTILITY CONSTRUCTION	4	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		5	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
POST-CONSTRUCTION EROSION CONTROL	D - AFTER PAVING OPERATIONS	6	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
		7	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
- SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS
- 1 — 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 = 2.37 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.

GRADING LEGEND:

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

NOTES:

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N

0 50' 100'

SCALE: 1" = 50'

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RESIDENCES AT BLACKWELL
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REVISION DATE	DESCRIPTION
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CHECKED BY: MAB
DATE PREPARED: 11/30/2022
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PRE-CONSTRUCTION EROSION CONTROL PLAN

SHEET 7

RELEASED FOR CONSTRUCTION
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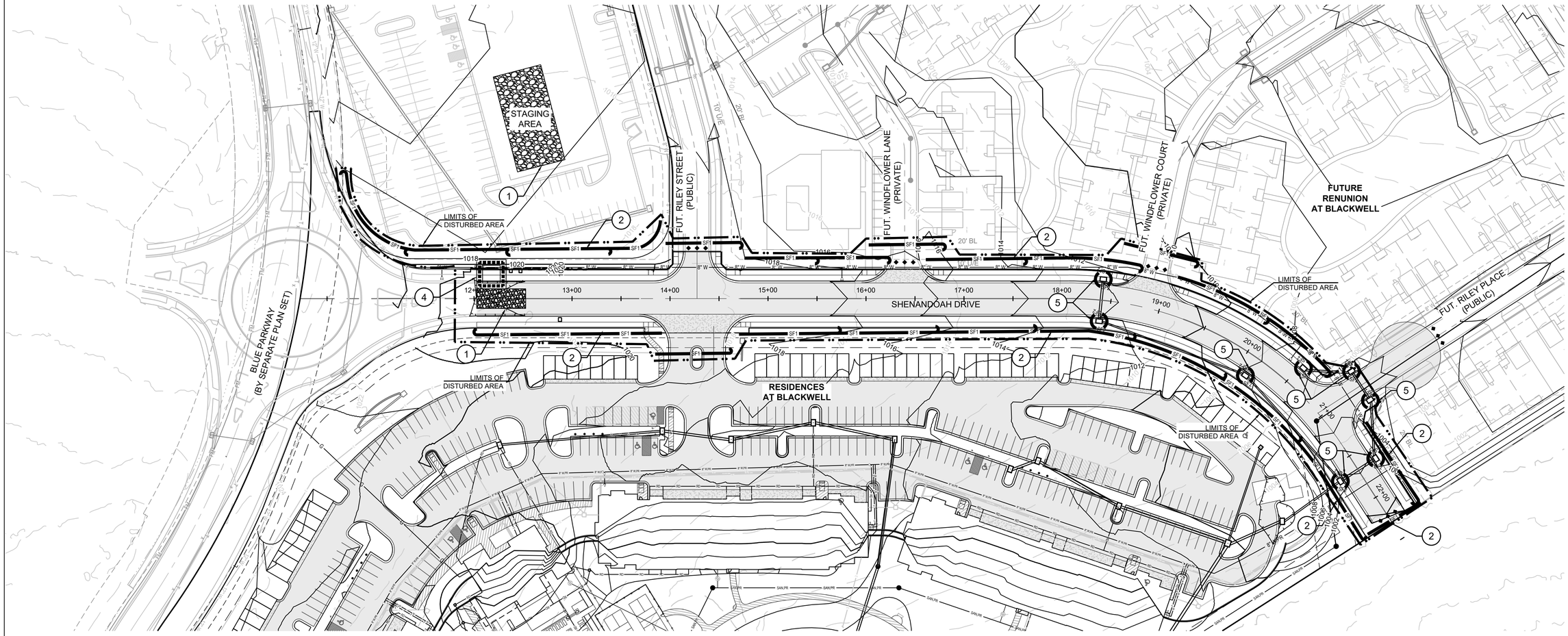
Development Services Department
Lee's Summit, Missouri

04/13/2023



GRADING LEGEND:

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1000 — PROPOSED CONTOUR (FINISHED GRADE)

EROSION CONTROL NOTE:

1. SEE SHEET 7 FOR EROSION AND SEDIMENT LEGEND, NOTES AND STAGING CHART.

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EROSION CONTROL PLAN

SHEET 8

RELEASED FOR CONSTRUCTION
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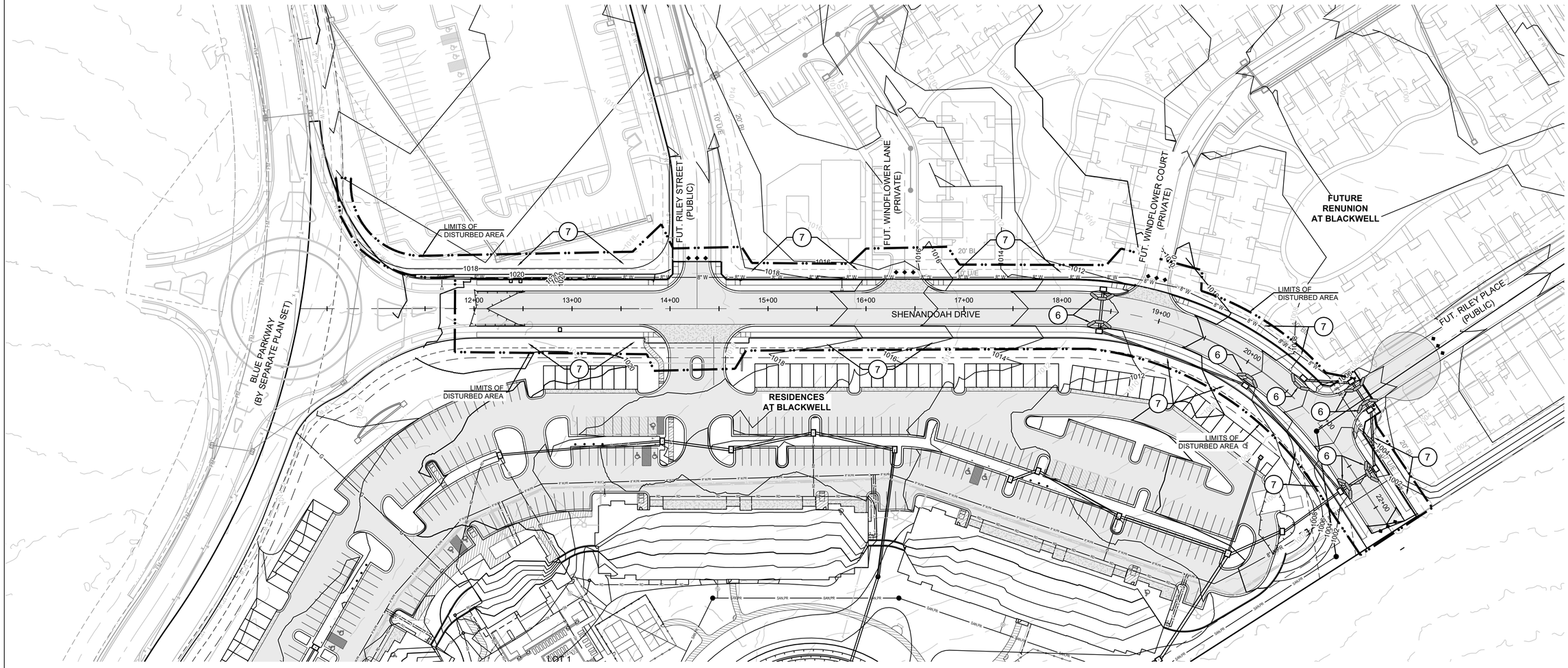

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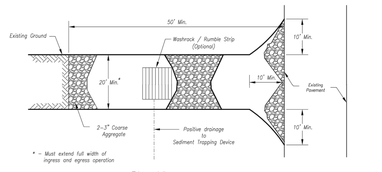
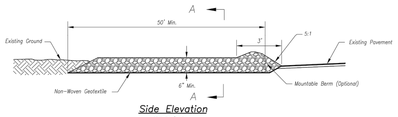
POST-CONSTRUCTION EROSION CONTROL PLAN

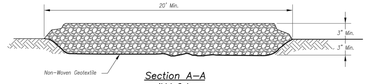
SHEET 9



Plan View
Not to Scale



Side Elevation
Not to Scale



Section A–A
Not to Scale

Notes for Construction Entrance:

1. Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6– to 8–inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

1. Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

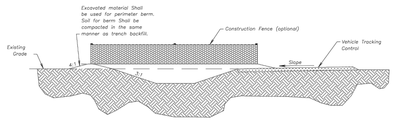
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one–piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

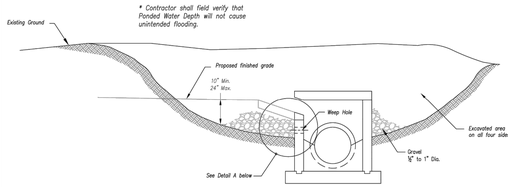
1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water–tight container and disposed of properly.
4. Concrete washout areas shall remain in place until all concrete for the project is placed.
5. When concrete washout areas are removed, excavations shall be filled and compacted to prevent settling. Any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.

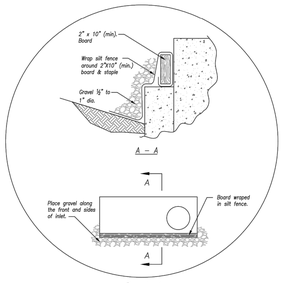


CONCRETE WASHOUT

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control, Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

AMERICAN PUBLIC WORKS ASSOCIATION	KANSAS CITY METRO CHAPTER
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT	STANDARD DRAWING NUMBER ESC-01
	ADOPTED: 10/24/2016





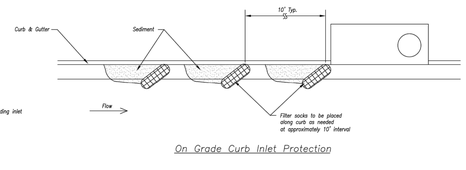
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

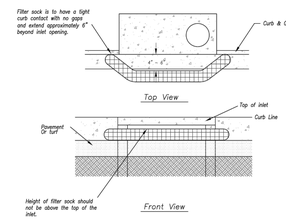
1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" X 10" (min.) board wrapped in silt fence. Silt fence shall extend a minimum of 24" on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

1. Remove deposited sediment from excavated storage area when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.



On Grade Curb Inlet Protection

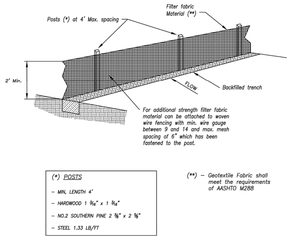


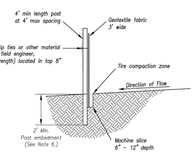
Sump Inlet Sediment Filter

LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	KANSAS CITY METRO CHAPTER
CURB INLET PROTECTION	STANDARD DRAWING NUMBER ESC-06
	ADOPTED: 10/24/2016





Notes:

1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
2. Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
4. Attach fabric to upstream side of post.
5. Install posts a minimum of 2' into the ground.
6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of silt fence.
2. Repair as necessary to maintain function and structure.

SILT FENCE DETAILS
Not to Scale

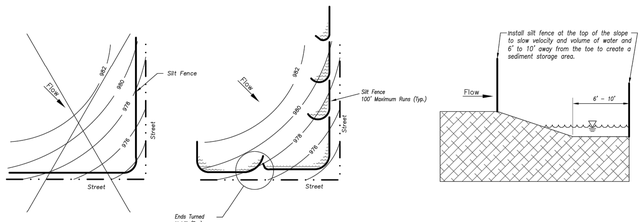
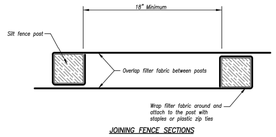


Figure A

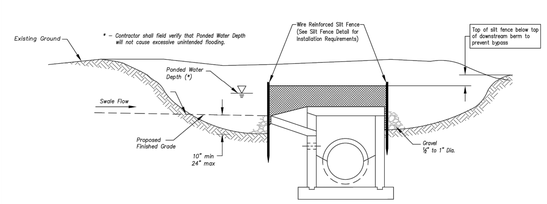
SILT FENCE LAYOUT
Not to Scale



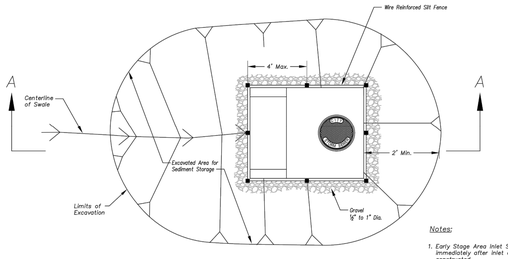
JOINING FENCE SECTIONS
Not to Scale

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	KANSAS CITY METRO CHAPTER
SILT FENCE	STANDARD DRAWING NUMBER ESC-03
	ADOPTED: 10/24/2016



Section A–A
Not to Scale

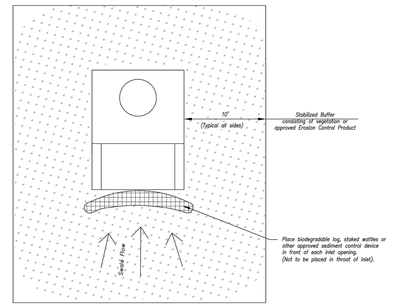


Plan
Not to Scale

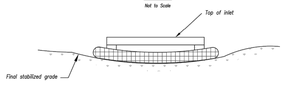
EARLY STAGE AREA INLET
(All open boxes and inlets not at final grade)

Notes:

1. Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
2. Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.
3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
4. Wire reinforced silt fence may be used in place of silt fence attached to wood frame.



Plan
Not to Scale



Front View

LATE STAGE AREA INLET
(Area inlets at final grade and existing inlets)

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	KANSAS CITY METRO CHAPTER
AREA INLET AND JUNCTION BOX PROTECTION	STANDARD DRAWING NUMBER ESC-07
	ADOPTED: 10/24/2016

RELEASED FOR CONSTRUCTION
As Noted on Plan Review

Development Services Department
Lee's Summit, Missouri

04/13/2023

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Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2002008859-F

PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
03.29.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION &
SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

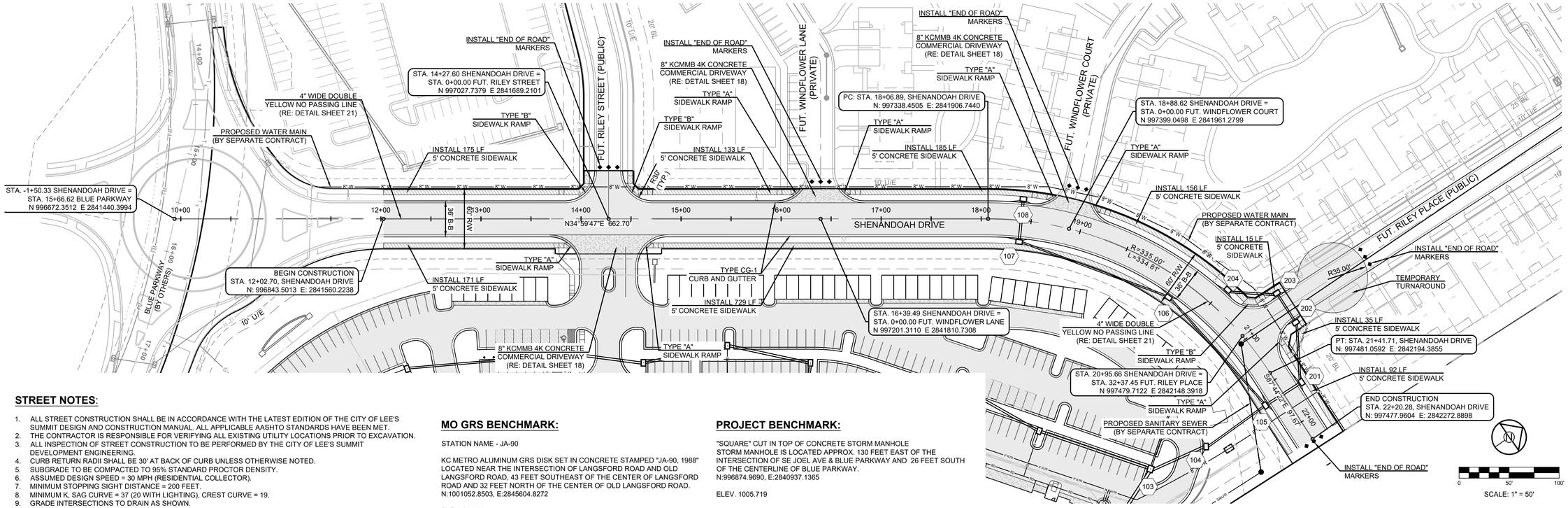
REVISION	DATE	DESCRIPTION
1	01/23/2023	PER CITY COMMENTS
2	03/24/2023	PER CITY COMMENTS
3		
4		
5		
6		
7		
8		

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

EROSION CONTROL DETAILS

SHEET
10

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\6.0 SS\22-102 - SS - EROS.dwg, 10 EROSION CONTROL DETAILS, 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 30' AT BACK OF CURB UNLESS OTHERWISE NOTED.
5. SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
6. ASSUMED DESIGN SPEED = 30 MPH (RESIDENTIAL COLLECTOR).
7. MINIMUM STOPPING SIGHT DISTANCE = 200 FEET.
8. MINIMUM K, SAG CURVE = 37 (20 WITH LIGHTING), CREST CURVE = 19.
9. GRADE INTERSECTIONS TO DRAIN AS SHOWN.
10. SSD = STOPPING SIGHT DISTANCE.
11. ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

MO GRS BENCHMARK:

STATION NAME - JA-90

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

ELEV. 997.045

PROJECT BENCHMARK:

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

ELEV. 1005.719

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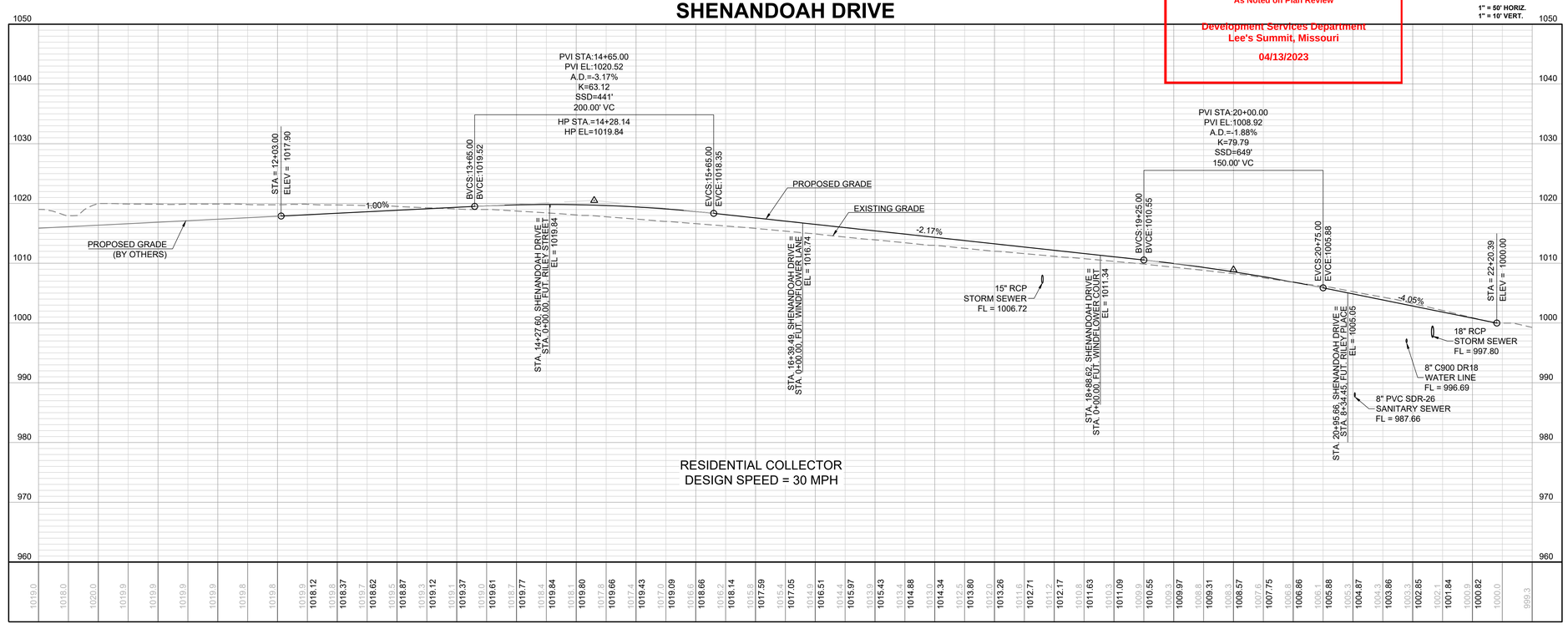
As Noted on Plan Review
Development Services Department
Lee's Summit, Missouri
04/13/2023



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Missouri State Certificate of Authority
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PREPARED BY:

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MARK ALLEN BREDER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
03.29.2023

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STREET, STORMWATER AND EROSION &
SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/2023	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY: ####
CHECKED BY: ###
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

SHENANDOAH DRIVE - PLAN & PROFILE

SHEET 11

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\6.0 SS\22-102 - SS - PP.dwg, 11 SHENANDOAH DRIVE - PLAN & PROFILE, 1:1

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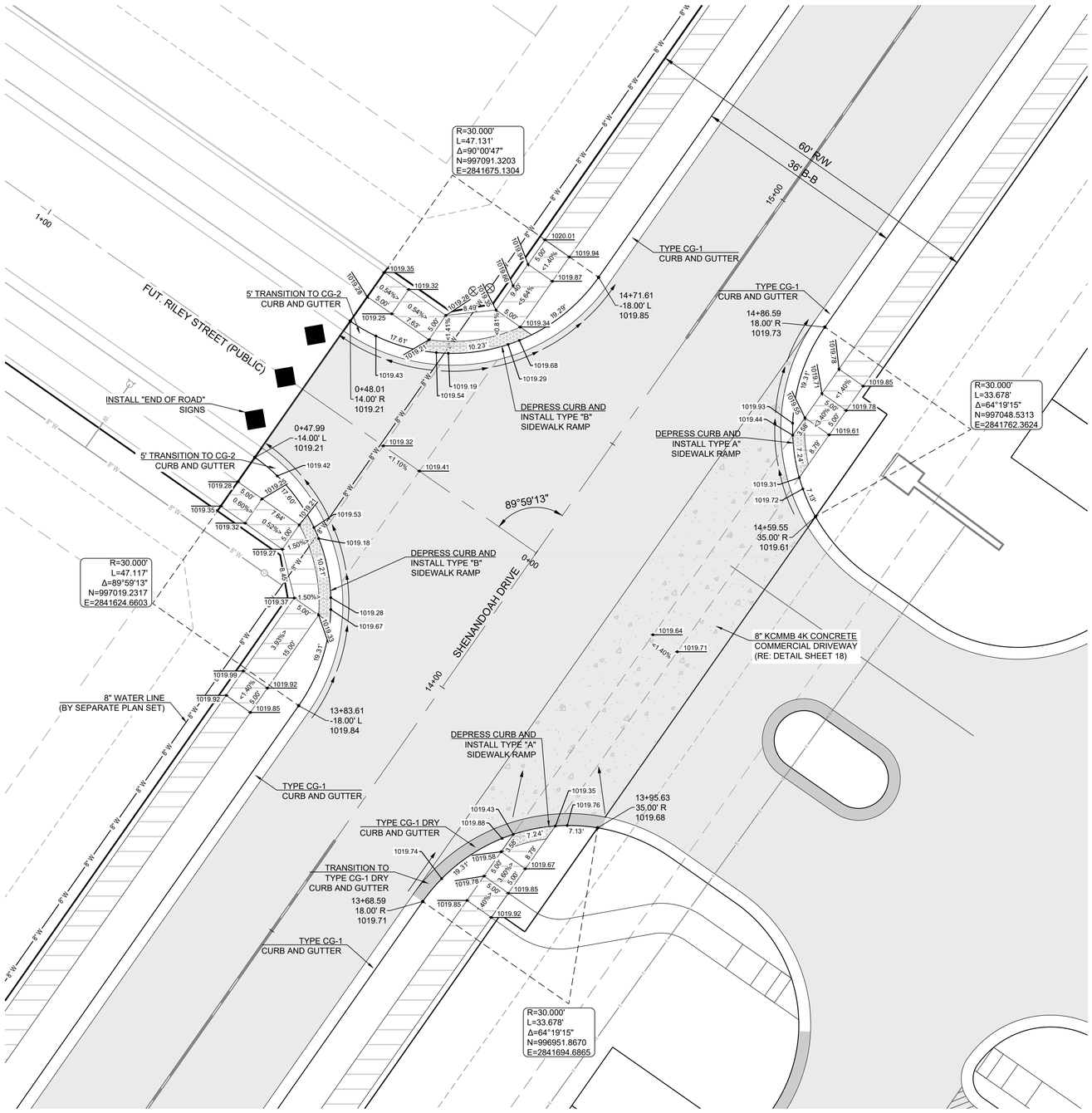
Development Services Department
Lee's Summit, Missouri

04/13/2023



SHENANDOAH DRIVE & FUT. RILEY STREET

0 10' 20'

SCALE: 1" = 10'

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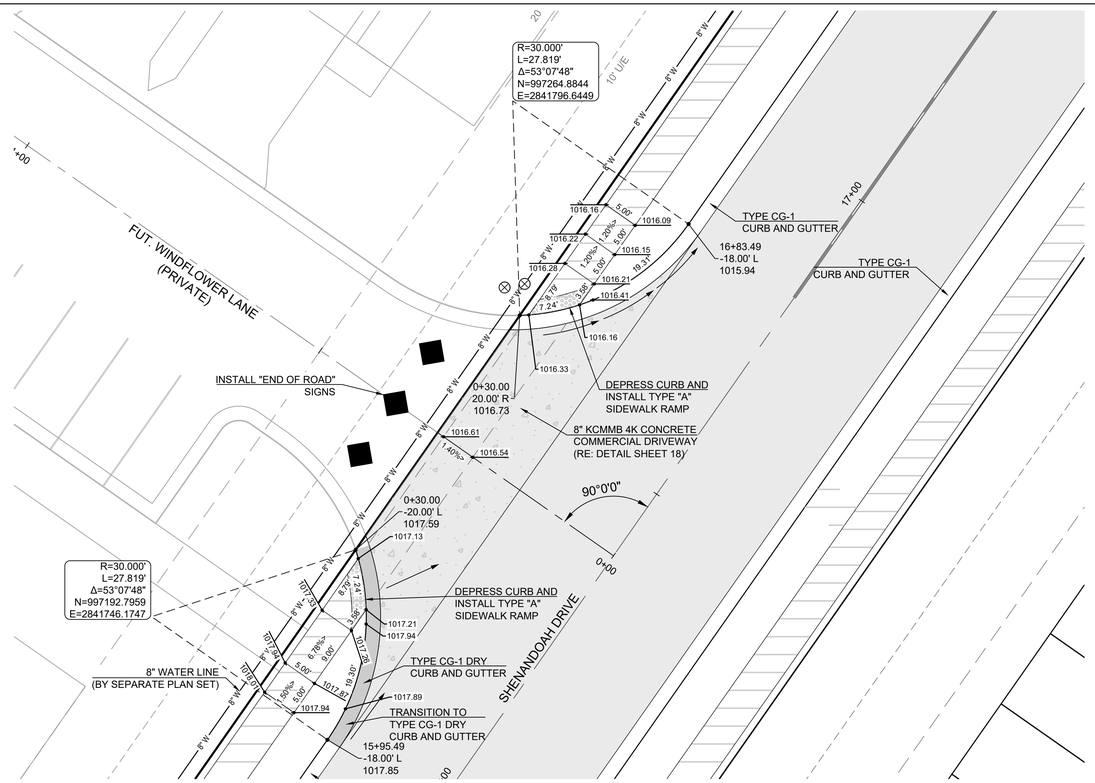
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/2023	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

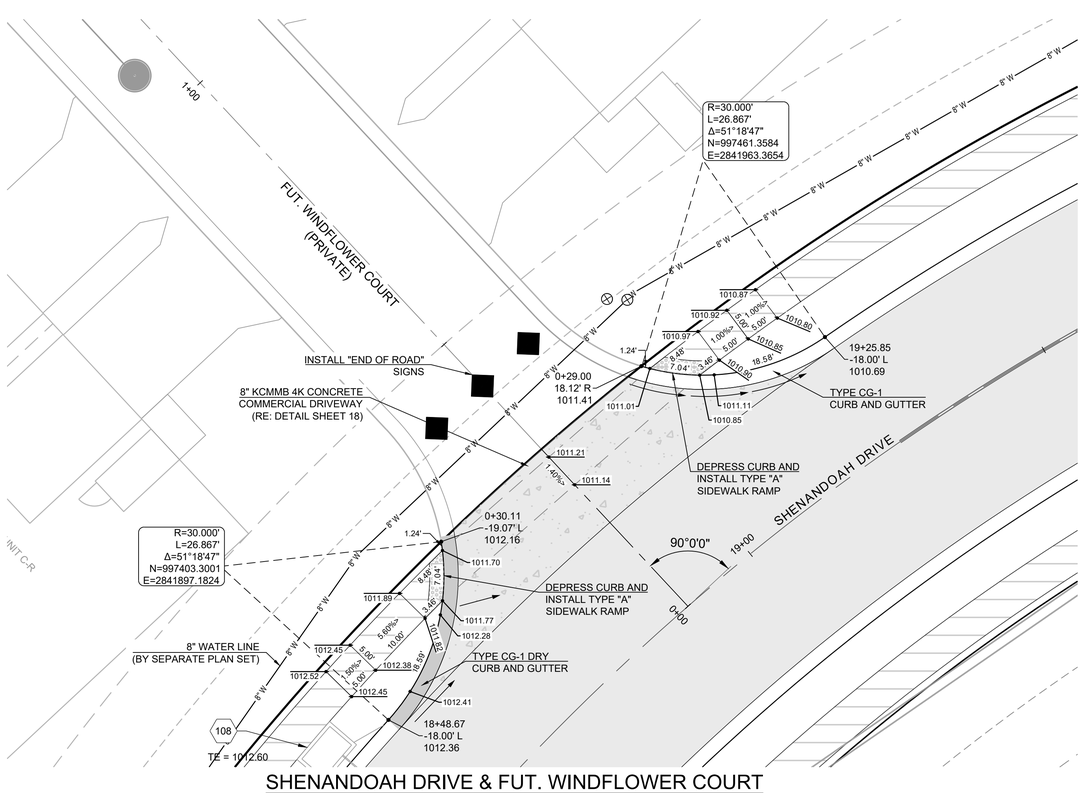
DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	11/30/2022
PROJ. NUMBER:	22-102

INTERSECTION DETAILS

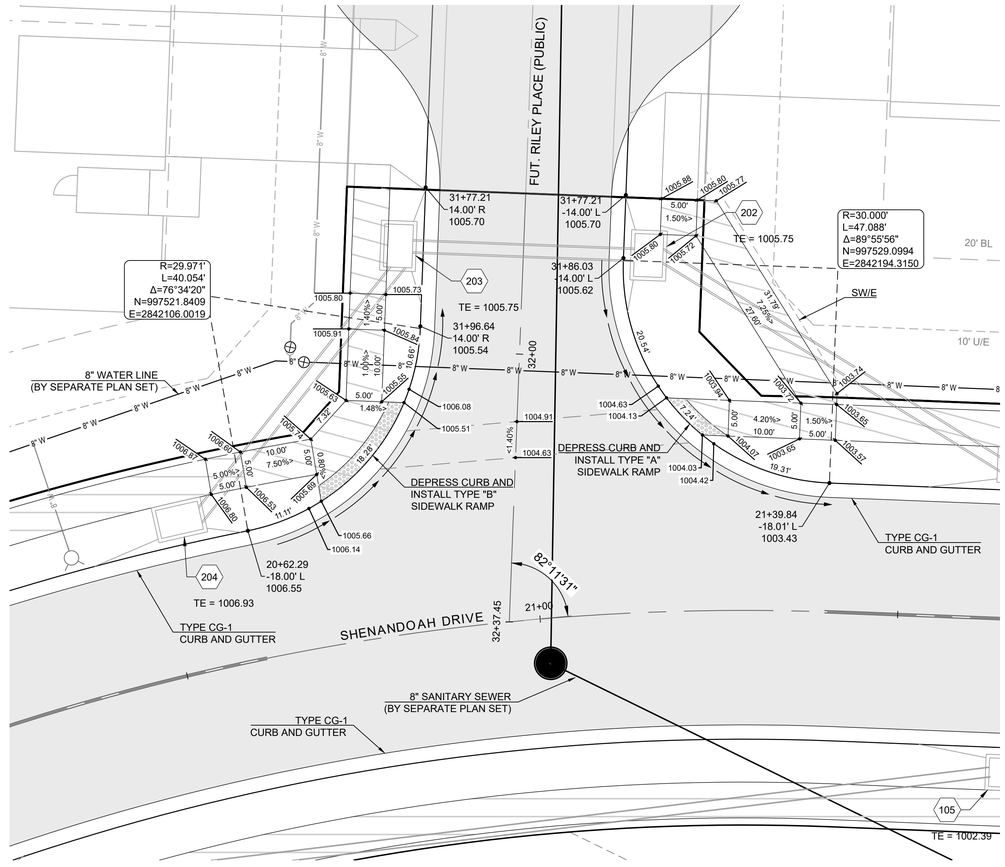
SHEET 12



SHENANDOAH DRIVE & FUT. WINDFLOWER LANE



SHENANDOAH DRIVE & FUT. WINDFLOWER COURT



SHENANDOAH DRIVE & FUT. RILEY PLACE

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As Noted on Plan Review

Development Services Department
Lee's Summit, Missouri

04/13/2023

SCALE: 1" = 10'

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03/24/2023	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	11/30/2022
PROJ. NUMBER:	22-102

INTERSECTION DETAILS

SHEET 13

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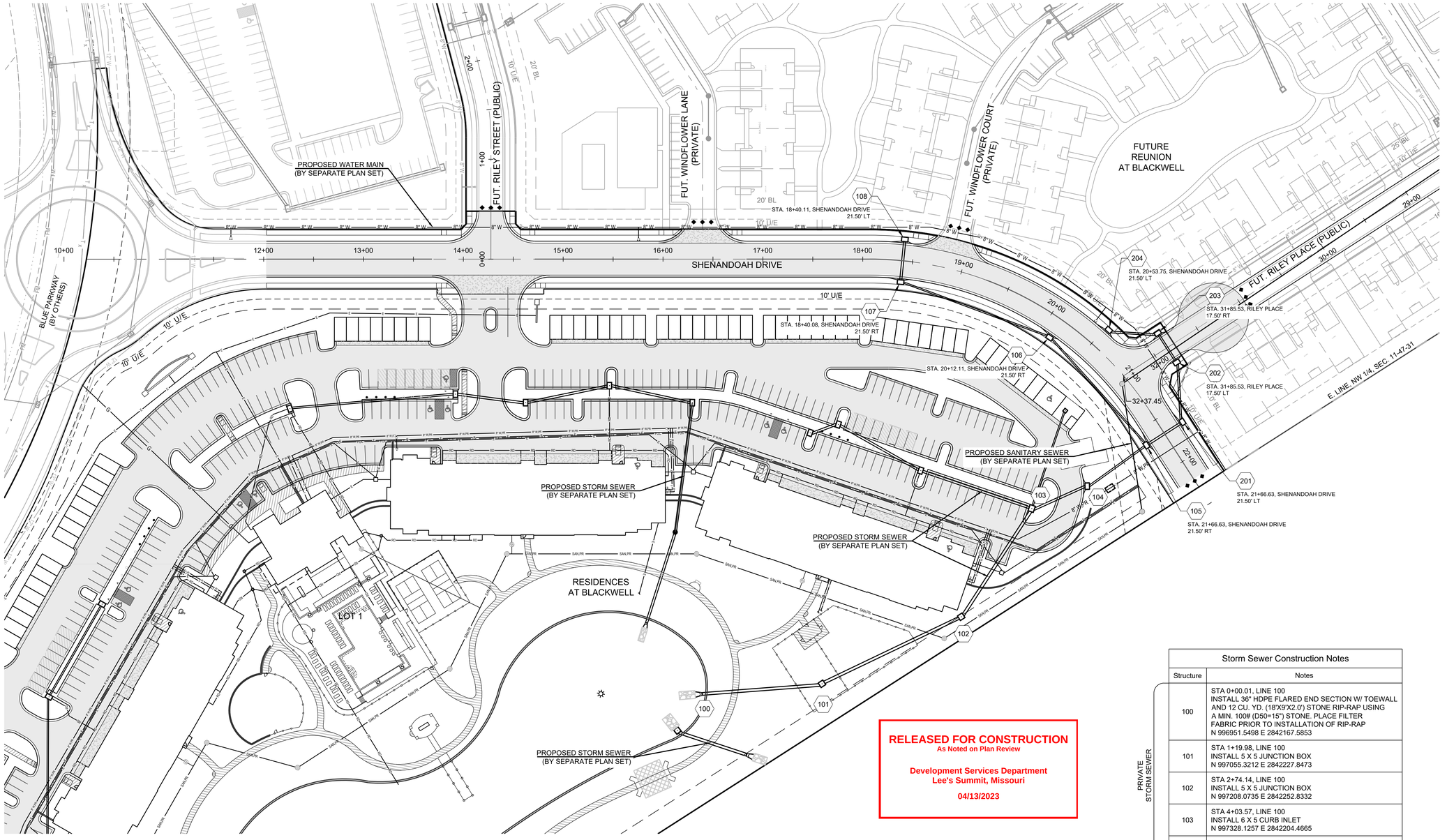

RELEASED FOR CONSTRUCTION
As Noted on Plan Review

Development Services Department
Lee's Summit, Missouri

04/13/2023

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

	Storm Sewer Construction Notes	
	Structure	Notes
PRIVATE STORM SEWER	100	STA 0+00.01, LINE 100 INSTALL 36" HDPE FLARED END SECTION W/ TOEWALL AND 12 CU. YD. (18'X9'X2.0') STONE RIP-RAP USING A MIN. 100# (D50=15") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP N 996951.5498 E 2842167.5853
	101	STA 1+19.98, LINE 100 INSTALL 5 X 5 JUNCTION BOX N 997055.3212 E 2842227.8473
	102	STA 2+74.14, LINE 100 INSTALL 5 X 5 JUNCTION BOX N 997208.0735 E 2842252.8332
	103	STA 4+03.57, LINE 100 INSTALL 6 X 5 CURB INLET N 997328.1257 E 2842204.4665
	104	STA 4+63.54, LINE 100 INSTALL 6 X 4 CURB INLET N 997386.5369 E 2842218.0616
PUBLIC STORM SEWER	105	STA 5+35.60, LINE 100 INSTALL 6 X 4 CURB INLET N 997458.5932 E 2842218.4336
	106	STA 6+80.65, LINE 100 INSTALL 6 X 4 CURB INLET N 997441.0920 E 2842074.4403
	107	STA 8+39.88, LINE 100 INSTALL 6 X 4 CURB INLET N 997350.6401 E 2841943.3993
	108	STA 8+82.88, LINE 100 INSTALL 6 X 4 CURB INLET N 997378.6818 E 2841910.8017
	201	STA 0+43.00, LINE 200 - PUBLIC INSTALL 6 X 4 CURB INLET N 997501.5598 E 2842220.1297
	202	STA 1+02.95, LINE 200 - PUBLIC INSTALL 6 X 4 CURB INLET N 997530.9285 E 2842167.8656
	203	STA 1+37.95, LINE 200 - PUBLIC INSTALL 6 X 4 CURB INLET N 997532.2676 E 2842132.8913
	204	STA 1+86.96, LINE 200 - PUBLIC INSTALL 6 X 4 CURB INLET N 997493.9804 E 2842102.2912

SCALE: 1" = 50'

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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREDER
NUMBER PE-2009007268
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03.29.2023

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RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION & SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/2023	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

STORM PLAN

SHEET 14

Design Storm: 25
"K" Value: 1.10
"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	Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev.
PRIVATE STORM	LINE 100																						DS TAILWATER @ STR #100			FREE	
	101	0.00	0.66	3.90	2.88	7.5	7.73	0.00	24.52	31.42	6.40			0.00	0.00	101	100	HDPE	0.012	30	120.00	0.50	0.50	992.60	992.00	999.50	994.66
	102	0.00	0.66	3.90	2.88	7.1	7.85	0.00	24.89	32.04	6.53			0.00	0.00	102	101	HDPE	0.012	30	154.78	0.52	0.50	993.90	993.10	1001.00	995.99
	103	0.27	0.66	3.90	2.88	6.7	7.95	1.56	25.21	32.65	6.65	401		1.18	0.78	103	102	HDPE	0.012	30	129.43	0.54	0.50	995.10	994.40	1010.59	997.20
	104	0.90	0.66	2.45	1.93	6.6	8.00	5.22	16.95	19.91	6.34			0.00	0.00	104	103	HDPE	0.012	24	60.97	0.66	0.50	996.01	995.60	1007.82	997.85
	105	0.09	0.66	1.55	1.33	6.4	8.05	0.53	11.81	20.65	6.57	301		0.48	0.63	105	104	HDPE	0.012	24	70.54	0.71	0.75	997.01	996.51	1002.39	998.50
	106	0.22	0.66	0.98	0.65	6.1	8.15	1.30	5.80	9.63	7.85			0.00	0.00	106	105	HDPE	0.012	15	145.05	1.90	0.50	1000.51	997.76	1008.41	1001.73
	107	0.23	0.66	0.76	0.50	5.8	8.24	1.38	4.55	12.31	10.03	201		0.23	0.15	107	106	HDPE	0.012	15	159.23	3.10	0.50	1005.93	1001.01	1012.31	1006.99
	108	0.15	0.66	0.30	0.20	5.1	8.48	0.92	1.85	9.88	8.05			0.00	0.00	108	107	HDPE	0.012	15	338.32	1.99	0.50	1013.18	1006.43	1018.82	1013.82
PUBLIC STORM	109	0.15	0.66	0.15	0.10	5.0	8.53	0.93	0.93	6.46	5.26			0.00	0.00	109	108	RCP	0.013	15	43.00	1.00	N/A	1014.11	1013.68	1018.82	1014.56
	LINE 200																						Drop in Inlet 107			0.50	
	201	0.23	0.66	0.23	0.15	5.0	8.53	1.42	1.42	6.46	5.26			0.00	0.00	201	107	RCP	0.013	15	43.00	1.00	N/A	1006.86	1006.43	1012.31	1007.42
	LINE 300																						Drop in Inlet 105			0.75	
	301	0.15	0.66	0.48	0.63	5.1	8.48	0.92	5.85	7.94	6.47			0.00	0.00	301	105	RCP	0.013	15	43.00	1.51	0.50	998.41	997.76	1002.39	999.63
	302	0.33	0.66	0.33	0.53	5.0	8.53	2.04	4.95	8.57	6.98			0.00	0.00	302	301	HDPE	0.012	15	59.95	1.50	0.50	999.81	998.91	1005.55	1000.92
	303	0.29	0.66	0.29	0.31	5.0	8.53	1.80	2.91	8.37	6.82			0.00	0.00	303	302	HDPE	0.012	15	35.00	1.43	0.50	1000.81	1000.31	1005.56	1001.63
	304	0.18	0.66	1.36	0.12	5.3	8.41	1.10	1.10	8.37	6.82			0.00	0.00	304	303	HDPE	0.012	15	49.01	1.43	N/A	1002.01	1001.31	1006.94	1002.49
	LINE 400																						Drop in Inlet 103			1.25	
	401	0.29	0.66	1.18	0.78	5.2	8.47	1.78	7.25	13.61	11.09			0.00	0.00	401	103	HDPE	0.012	15	113.50	3.78	0.50	1000.64	996.35	1011.94	1002.04
	402	0.60	0.66	0.89	0.59	5.0	8.51	3.71	5.50	15.90	12.95			0.00	0.00	402	401	HDPE	0.012	15	98.48	5.16	0.50	1006.23	1001.14	1012.47	1007.41
	403	0.29	0.66	0.29	0.19	5.0	8.53	1.80	1.80	12.81	10.44			0.00	0.00	403	402	HDPE	0.012	15	29.41	3.35	N/A	1007.71	1006.73	1013.19	1008.36
PRIVATE STORM (BY SEPARATE PLAN SET)	LINE 500																						DS TAILWATER @ STR #500			FREE	
	501	0.00	0.66	3.35	2.21	6.0	8.17	0.00	19.88	32.42	10.32			0.00	0.00	501	500	HDPE	0.012	24	95.00	1.75	0.50	996.66	995.00	1003.41	998.69
	502	0.39	0.66	3.35	2.21	5.9	8.21	2.32	19.96	68.88	21.93			0.00	0.00	502	501	HDPE	0.012	24	130.82	7.90	0.50	1007.50	997.16	1014.83	1009.53
	503	0.24	0.66	2.96	1.95	5.8	8.27	1.44	17.76	25.11	7.99			0.00	0.00	503	502	HDPE	0.012	24	84.77	1.05	0.50	1008.89	1008.00	1015.55	1010.78
	504	0.34	0.66	2.72	1.80	5.6	8.33	2.06	16.45	24.51	7.80			0.00	0.00	504	503	HDPE	0.012	24	85.59	1.00	0.50	1010.24	1009.39	1015.36	1012.05
	505	0.81	0.66	2.38	1.57	5.4	8.38	4.93	14.48	24.51	7.80			0.00	0.00	505	504	HDPE	0.012	24	70.28	1.00	0.50	1011.45	1010.74	1016.56	1013.13
	506	1.57	0.66	1.57	1.04	5.0	8.53	9.72	9.72	11.38	6.44			0.00	0.00	506	505	HDPE	0.012	18	163.59	1.00	N/A	1013.58	1011.95	1018.71	1015.10
	LINE 600																						DS TAILWATER @ STR #600			FREE	
	601	0.00	0.66	8.09	5.34	5.8	8.26	0.00	48.50	70.43	9.96			0.00	0.00	601	600	HDPE	0.012	36	95.00	0.95	2.20	995.60	994.70	1008.99	998.43
	602	0.00	0.66	8.09	5.34	5.7	8.28	0.00	48.61	76.21	24.26	701	801	6.21	4.10	602	601	HDPE	0.012	24	78.57	9.67	0.75	1005.40	997.80	1021.23	1009.26
	603	1.20	0.66	1.88	1.24	5.6	8.31	7.24	11.35	17.23	14.04			0.00	0.00	603	602	HDPE	0.012	15	94.25	6.06	0.50	1011.86	1006.15	1019.78	1013.78
	604	0.68	0.66	0.68	0.45	5.0	8.53	4.21	4.21	7.54	6.14			0.00	0.00	604	603	HDPE	0.012	15	227.50	1.16	N/A	1015.00	1012.36	1019.06	1016.02
	LINE 700																						Drop in Inlet 602			0.75	
	701	0.58	0.66	0.86	0.57	5.3	8.42	3.54	5.26	17.01	13.86			0.00	0.00	701	602	HDPE	0.012	15	166.79	5.91	0.50	1016.01	1006.15	1021.46	1017.16
	702	0.28	0.66	0.28	0.18	5.0	8.53	1.73	1.73	6.89	5.62			0.00	0.00	702	701	HDPE	0.012	15	107.00	0.97	N/A	1017.55	1016.51	1021.34	1018.17
	LINE 800																						Drop in Inlet 602			0.50	
	801	0.12	0.66	5.35	3.53	5.1	8.50	0.74	33.00	34.22	10.89			0.00	0.00	801	602	HDPE	0.012	24	163.48	1.95	0.50	1009.09	1005.90	1020.82	1013.08
	802	5.23	0.66	5.23	3.45	5.0	8.53	32.39	32.39	34.49	10.98			0.00	0.00	802	801	HDPE	0.012	24	61.13	1.98	N/A	1010.80	1009.59	1019.00	1014.98
	LINE 1000																						Drop in Inlet 103			1.25	
	1001	0.10	0.51	0.10	0.05	5.0	8.53	0.48	0.48	19.34	15.76			0.00	0.00	1001	103	HDPE	0.012	15	100.16	7.64	N/A	1004.01	996.35	1008.00	1004.32

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	Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev.
PRIVATE STORM	LINE 100																						DS TAILWATER @ STR #100			FREE	
	101	0.00	0.66	3.90	2.88	7.5	9.39	0.00	33.85	31.42	6.40			0.00	0.00	101	100	HDPE	0.012	30	120.00	0.50	0.50	992.60	992.00	999.50	995.23
	102	0.00	0.66	3.90	2.88	7.1	9.53	0.00	34.35	32.04	6.53			0.00	0.00	102	101	HDPE	0.012	30	154.78	0.52	0.50	993.90	993.10	1001.00	996.56
	103	0.27	0.66	3.90	2.88	6.7	9.64	2.15	34.77	32.65	6.65	401		1.18	0.78	103	102	HDPE	0.012	30	129.43	0.54	0.50	995.10	994.40	1010.59	997.76
	104	0.90	0.66	2.45	1.93	6.6	9.70	7.20	23.37	19.91	6.34			0.00	0.00	104	103	HDPE	0.012	24	60.97	0.66	0.50	996.01	995.60	1007.82	998.74
	105	0.09	0.66	1.55	1.33	6.4	9.77	0.73	16.28	20.65	6.57	301		0.48	0.63	105	104	HDPE	0.012	24	70.54	0.71	0.75	997.01	996.51	1002.39	999.27
	106	0.22	0.66	0.98	0.65	6.1	9.88	1.79	7.99	9.63	7.85			0.00	0.00	106	105	HDPE	0.012	15	145.05	1.90	0.50	1000.51	997.76	1008.41	1001.99
	107	0.23	0.66	0.76	0.50	5.8	9.99	1.89	6.26	12.31	10.03	201		0.23	0.15	107	106	HDPE	0.012	15	159.23	3.10	0.50	1005.93	1001.01	1012.31	1007.21
	108	0.15	0.66	0.30	0.20	5.1	10.27	1.27	2.54	9.88	8.05			0.00	0.00	108	107	HDPE	0.012	15	338.32	1.99	0.50	1013.18	1006.43	1018.82	1013.95
PUBLIC STORM	109	0.15	0.66	0.15	0.10	5.0	10.32	1.28	1.28	6.46	5.26			0.00	0.00	109	108	RCP	0.013	15	43.00	1.00	N/A	1014.11	1013.68	1018.82	1014.64
	LINE 200																						Drop in Inlet 107			0.50	
	201	0.23	0.66	0.23	0.15	5.0	10.32	1.96	1.96	6.46	5.26			0.00	0.00	201	107	RCP	0.013	15	43.00	1.00	N/A	1006.86	1006.43	1012.31	1007.53
	LINE 300																						Drop in Inlet 105			0.75	
	301	0.15	0.66	0.48	0.63	5.1	10.26	1.27	8.04	7.94	6.47			0.00	0.00	301	105	RCP	0.013	15	43.00	1.51	0.50	998.41	997.76	1002.39	1000.27
	302	0.33	0.66	0.33	0.53	5.0	10.32	2.81	6.81	8.57	6.98			0.00	0.00	302	301	HDPE	0.012	15	59.95	1.50	0.50	999.81	998.91	1005.55	1001.15
	303	0.29	0.66	0.29	0.31	5.0	10.32	2.47	4.00	8.37	6.82			0.00	0.00	303	302	HDPE	0.012	15	35.00	1.43	0.50	1000.81	1000.31	1005.56	1001.79
	304	0.18	0.66	1.36	0.12	5.3	10.18	1.51	1.51	8.37	6.82			0.00	0.00	304	303	HDPE	0.012	15	49.01	1.43	N/A	1002.01	1001.31	1006.94	1002.58
	LINE 400																						Drop in Inlet 103			1.25	
	401	0.29	0.66	1.18	0.78	5.2	10.25	2.45	9.98	13.61	11.09			0.00	0.00	401	103	HDPE	0.012	15	113.50	3.78	0.50	1000.64	996.35	1011.94	1002.36
	402	0.60	0.66	0.89	0.59	5.0	10.30	5.10	7.57	15.90	12.95			0.00	0.00	402	401	HDPE	0.012	15	98.48	5.16	0.50	1006.23	1001.14	1012.47	1007.66
	403	0.29	0.66	0.29	0.19	5.0	10.32	2.47	2.47	12.81	10.44			0.00	0.00	403	402	HDPE	0.012	15	29.41	3.35	N/A	1007.71	1006.73	1013.19	1008.46
PRIVATE STORM (BY SEPARATE PLAN SET)	LINE 500																						DS TAILWATER @ STR #500			FREE	
	501	0.00	0.66	3.35	2.21	6.0	9.91	0.00	27.39	32.42	10.32			0.00	0.00	501	500	HDPE	0.012	24	95.00	1.75	0.50	996.66	995.00	1003.41	999.13
	502	0.39	0.66	3.35	2.21	5.9	9.95	3.20	27.49	68.88	21.93			0.00	0.00	502	501	HDPE	0.012	24	130.82	7.90	0.50	1007.50	997.16	1014.83	1009.97
	503	0.24	0.66	2.96	1.95	5.8	10.02	1.98	24.46	25.11	7.99			0.00	0.00	503	502	HDPE	0.012	24	84.77	1.05	0.50	1008.89	1008.00	1015.55	1011.18
	504	0.34	0.66	2.72	1.80	5.6	10.09	2.83	22.64	24.51	7.80			0.00	0.00	504	503	HDPE	0.012	24	85.59	1.00	0.50	1010.24	1009.39	1015.36	1012.43
	505	0.81	0.66	2.38	1.57	5.4	10.15	6.78	19.93	24.51	7.80			0.00	0.00	505	504	HDPE	0.012	24	70.28	1.00	0.50	1011.45	1010.74	1016.56	1013.47
	506	1.57	0.66	1.57	1.04	5.0	10.32	13.37	13.37	11.38	6.44			0.00	0.00	506	505	HDPE	0.012	18	163.59	1.00	N/A	1013.58	1011.95	1018.71	1016.18
	LINE 600																						DS TAILWATER @ STR #600			FREE	
	601	0.00	0.66	8.09	5.34	5.8	10.01	0.00	66.79	70.43	9.96			0.00	0.00	601	600	HDPE	0.012	36	95.00	0.95	2.20	995.60	994.70	1008.99	999.03
	602	0.00	0.66	8.09	5.34	5.7	10.03	0.00	66.93	76.21	24.26	701	801	6.21	4.10	602	601	HDPE	0.012	24	78.57	9.67	0.75	1005.40	997.80	1021.23	1010.92
	603	1.20	0.66	1.88	1.24	5.6	10.07	9.97	15.62	17.23	14.04			0.00	0.00	603	602	HDPE	0.012	15	94.25	6.06	0.50	1011.86	1006.15	1019.78	1016.88
	604	0.68	0.66	0.68	0.45	5.0	10.32	5.79	5.79	7.54	6.14			0.00	0.00	604	603	HDPE	0.012	15	227.50	1.16	N/A	1015.00	1012.36	1019.06	1018.61
	LINE 700																						Drop in Inlet 602			0.75	
	701	0.58	0.66	0.86	0.57	5.3	10.19	4.88	7.23	17.01	13.86			0.00	0.00	701	602	HDPE	0.012	15	166.79	5.91	0.50	1016.01	1006.15	1021.46	1017.40
	702	0.28	0.66	0.28	0.18	5.0	10.32	2.38	2.38	6.89	5.62			0.00	0.00	702	701	HDPE	0.012	15	107.00	0.97	N/A	1017.55	1016.51	1021.34	1018.28
	LINE 800																						Drop in Inlet 602			0.50	
	801	0.12	0.66	5.35	3.53	5.1	10.28	1.02	45.39	34.22	10.89			0.00	0.00	801	602	HDPE	0.012	24	163.48	1.95	0.50	1009.09	1005.90	1020.82	1018.16
	802	5.23	0.66	5.23	3.45	5.0	10.32	44.54	44.54	34.49	10.98			0.00	0.00	802	801	HDPE	0.012	24	61.13	1.98	N/A	1010.80	1009.59	1019.00	1021.74
	LINE 1000																						Drop in Inlet 103			1.25	
	1001	0.10	0.51	0.10	0.05	5.0	10.32	0.66	0.66	19.34	15.76			0.00	0.00	1001	103	HDPE	0.012	15	100.16	7.64	N/A	1004.01	996.35	1008.00	1004.38

GUTTER SPREAD AND INLET CAPACITY CALCULATIONS - RESIDENCES AT BLACKWELL

DESIGN STORM 10
"K" FACTOR 1.00

CURB TYPE "A" = LAZY BACK
CURB TYPE "B" = HIGH BACK

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	0.00	5	7.35	0.00					0.00	0.00	N/A	N/A	B	6	4.8	N/A	N/A	N/A	N/A	N/A	**N/A**
102	0.66	0.00	5	7.35	0.00					0.00	0.00	N/A	N/A	B	6	4.8	N/A	N/A	N/A	N/A	N/A	**N/A**
103	0.66	0.27	5	7.35	1.31					0.00	1.31	SUMP	N/A	B	6	4.8	12.00	0.00	SUMP	N/A	< 0.21	**< 10.50**
104	0.66	0.90	5	7.35	4.37					0.00	4.37	SUMP	2.08	B	6	4.8	12.00	0.00	SUMP	2.08	< 0.21	**< 10.50**
105	0.66	0.09	5	7.35	0.44	106				0.01	0.45	4.05	2.08	B	8	6.4	0.45	0.00	4.05	2.08	0.08	**4.32**
106	0.66	0.22	5	7.35	1.07	107	108			0.07	1.14	2.17	2.08	B	6	4.8	1.12	0.01	2.17	2.08	0.13	**6.57**
107	0.66	0.28	5	7.35	1.36					0.00	1.36	2.17	2.08	B	6	4.8	1.33	0.03	2.17	2.08	0.13	**6.99**
108	0.66	0.29	5	7.35	1.41					0.00	1.41	2.17	2.08	B	6	4.8	1.37	0.04	2.17	2.08	0.14	**7.08**
LINE 2																						
201	0.66	0.15	5	7.35	0.73	202	203	204		0.11	0.84	4.05	2.08	B	6	4.8	0.83	0.01	4.05	2.08	0.10	**5.33**
202	0.66	0.33	5	7.35	1.60					0.00	1.60	2.24	2.08	B	6	4.8	1.54	0.06	2.24	2.08	0.14	**7.36**
203	0.66	0.29	5	7.35	1.41					0.00	1.41	2.24	2.08	B	6	4.8	1.37	0.04	2.24	2.08	0.14	**7.04**
204	0.66	0.18	5	7.35	0.87	108				0.04	0.91	4.05	2.08	B	6	4.8	0.89	0.02	4.05	2.08	0.10	**5.47**

NOTES:
1. CAPCITY OF INLETS ON GRADE DETERMINED USING ROUTINE OUTLINED ON PGS 56-95 TO 56-97, SECTION 5600 APWA
2. CAPACITY OF SUMP INLETS CALCULATED USING FIGURE 5604-21, SECTION 5600 APWA
3. MANNINGS "n" VALUE FOR COMBINED ASPHALT PAVEMENT AND CONCRETE CURB - 0.014

RELEASED FOR CONSTRUCTION
As Noted on Plan Review

Development Services Department
Lee's Summit, Missouri

04/13/2023

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Missouri State Certificate of Authority #E2000030800-F #LA2001005237 #LS2000208859-F

PREPARED BY:

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
STREET, STORMWATER & SEDIMENT CONTROL
SE SHENANDOAH DRIVE & SE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/2023	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

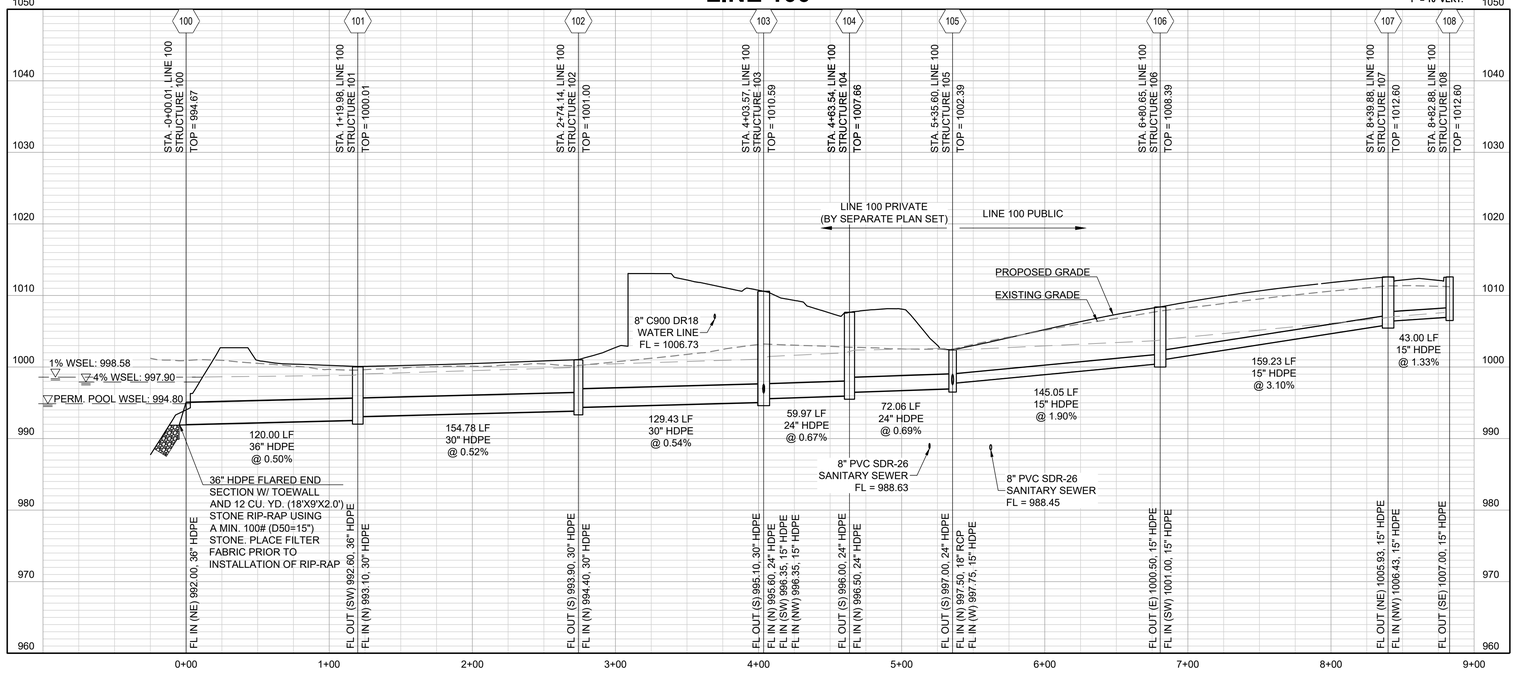
DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

STORM CALCS

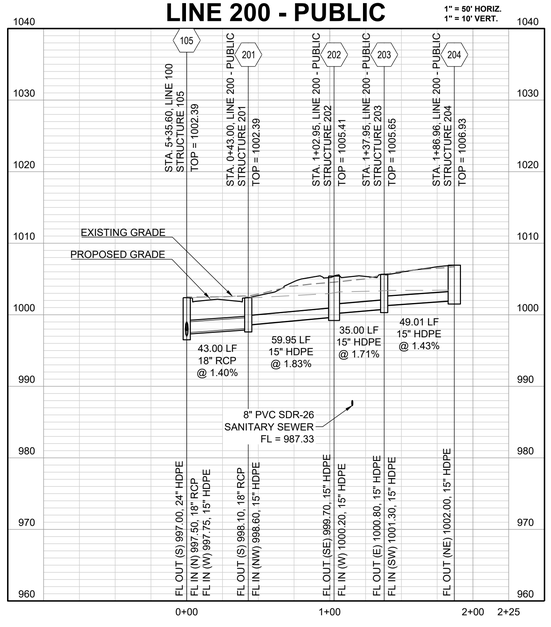
SHEET 15

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\6.0 SS\22-102 - SS - STORM.dwg, 15 STORM CALCS, 1:1

LINE 100



LINE 200 - PUBLIC



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Development Services Department
Lee's Summit, Missouri

04/13/2023

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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREDER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
03.29.2023

SCHLAGEL & ASSOCIATES, P.A.

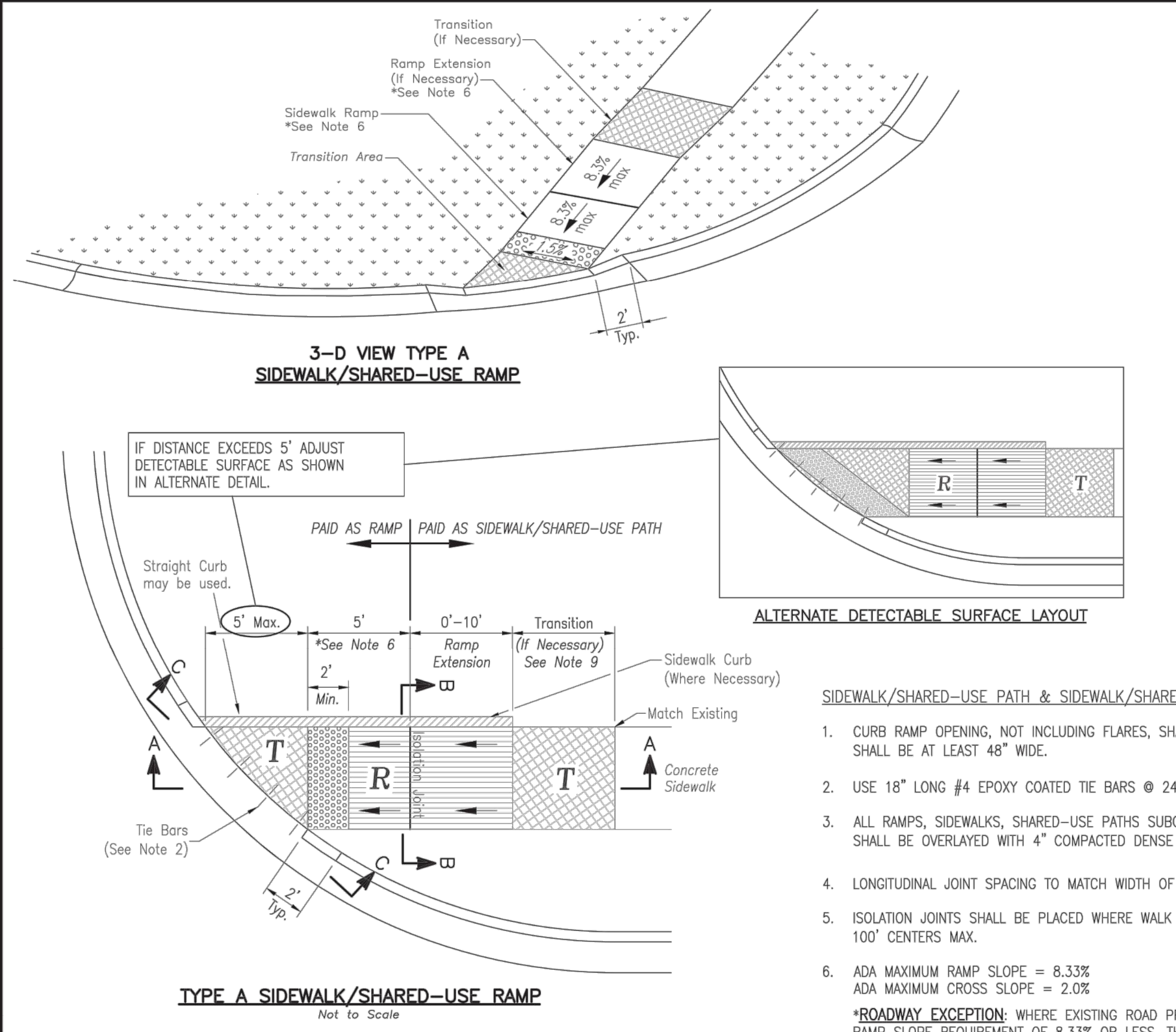
RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION &
SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/20/2023	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

STORM PROFILES

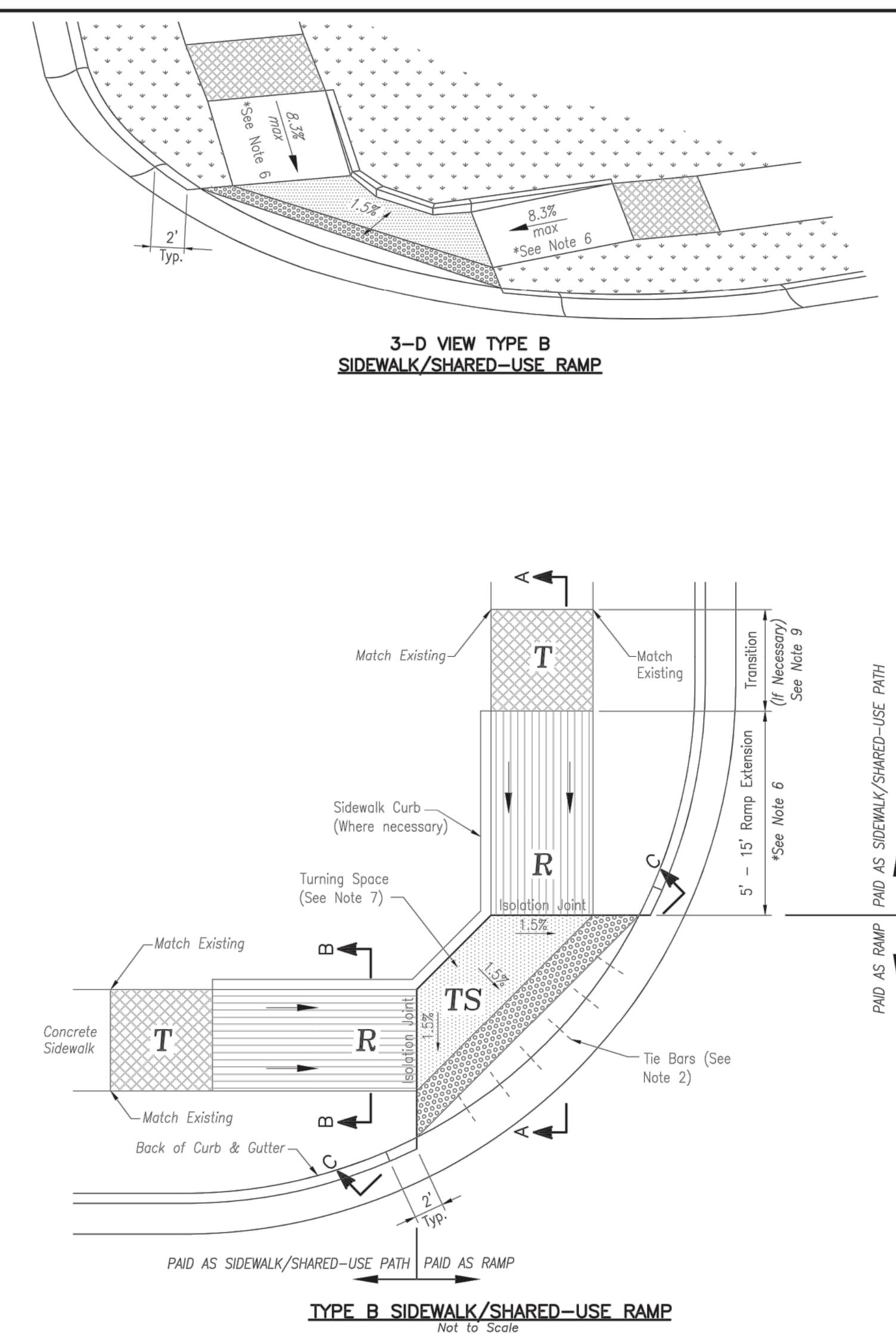
SHEET 16



3-D VIEW TYPE A SIDEWALK/SHARED-USE RAMP

ALTERNATE DETECTABLE SURFACE LAYOUT

TYPE A SIDEWALK/SHARED-USE RAMP
Not to Scale



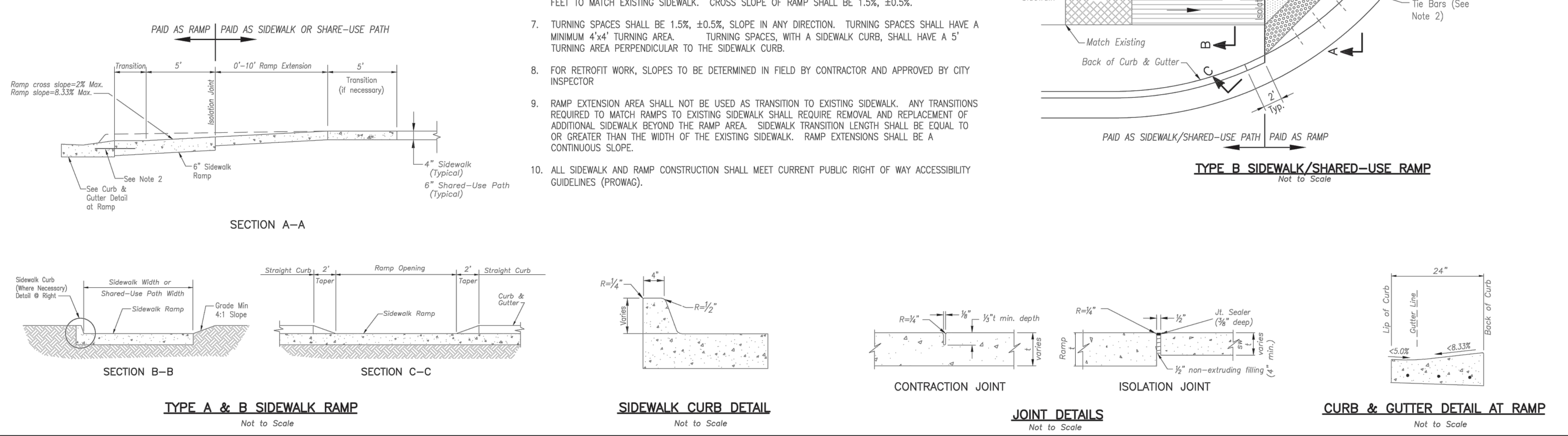
3-D VIEW TYPE B SIDEWALK/SHARED-USE RAMP

TYPE B SIDEWALK/SHARED-USE RAMP
Not to Scale

SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:

1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 100' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
   ADA MAXIMUM CROSS SLOPE = 2.0%

   *ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5%, SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).



SECTION A-A

TYPE A & B SIDEWALK RAMP
Not to Scale

SIDEWALK CURB DETAIL
Not to Scale

JOINT DETAILS
Not to Scale

CURB & GUTTER DETAIL AT RAMP
Not to Scale

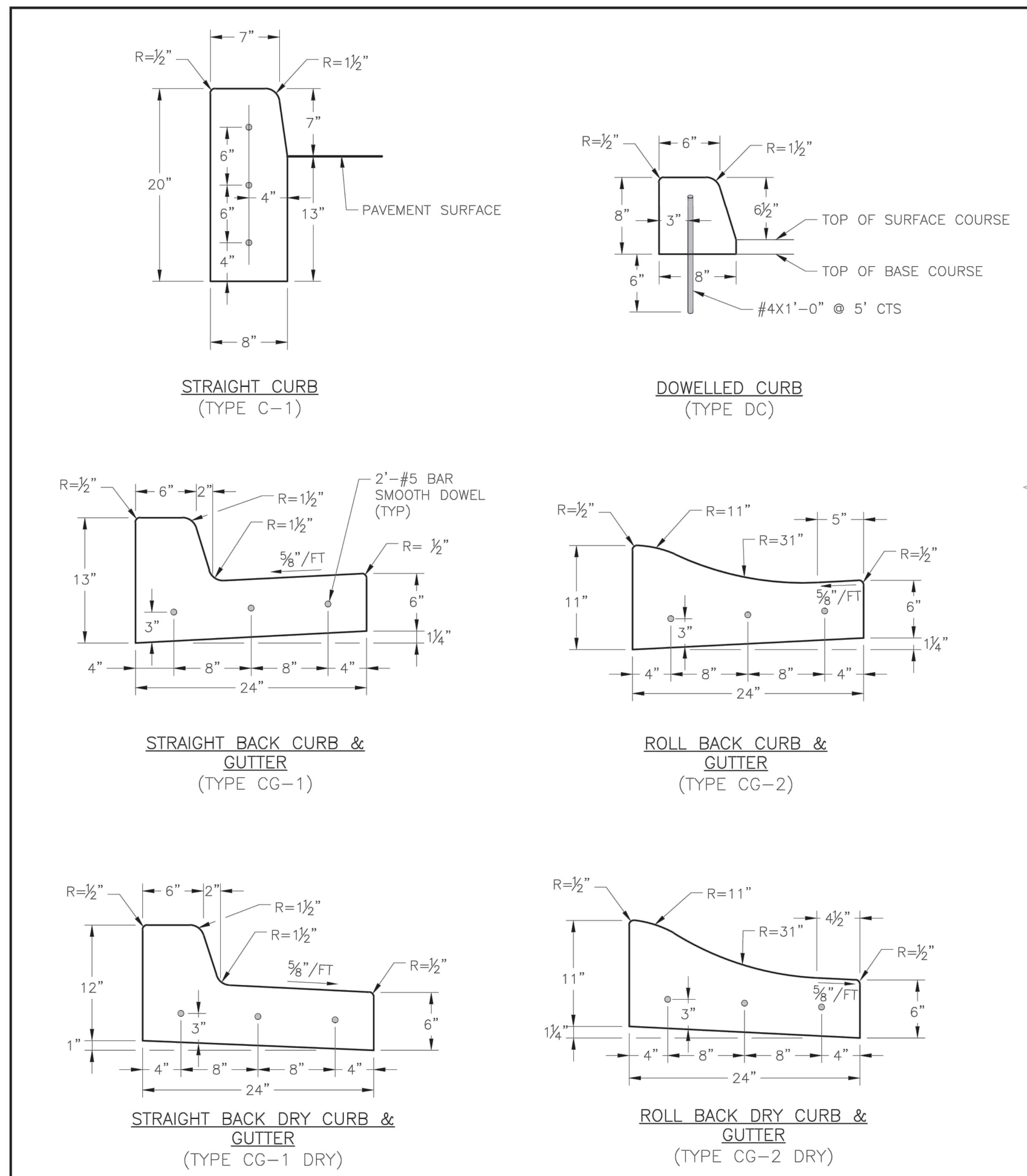
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

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

RELEASED FOR CONSTRUCTION
As Noted on Plan Review
Development Services Department
Lee's Summit, Missouri
04/13/2023



STRAIGHT CURB (TYPE C-1)

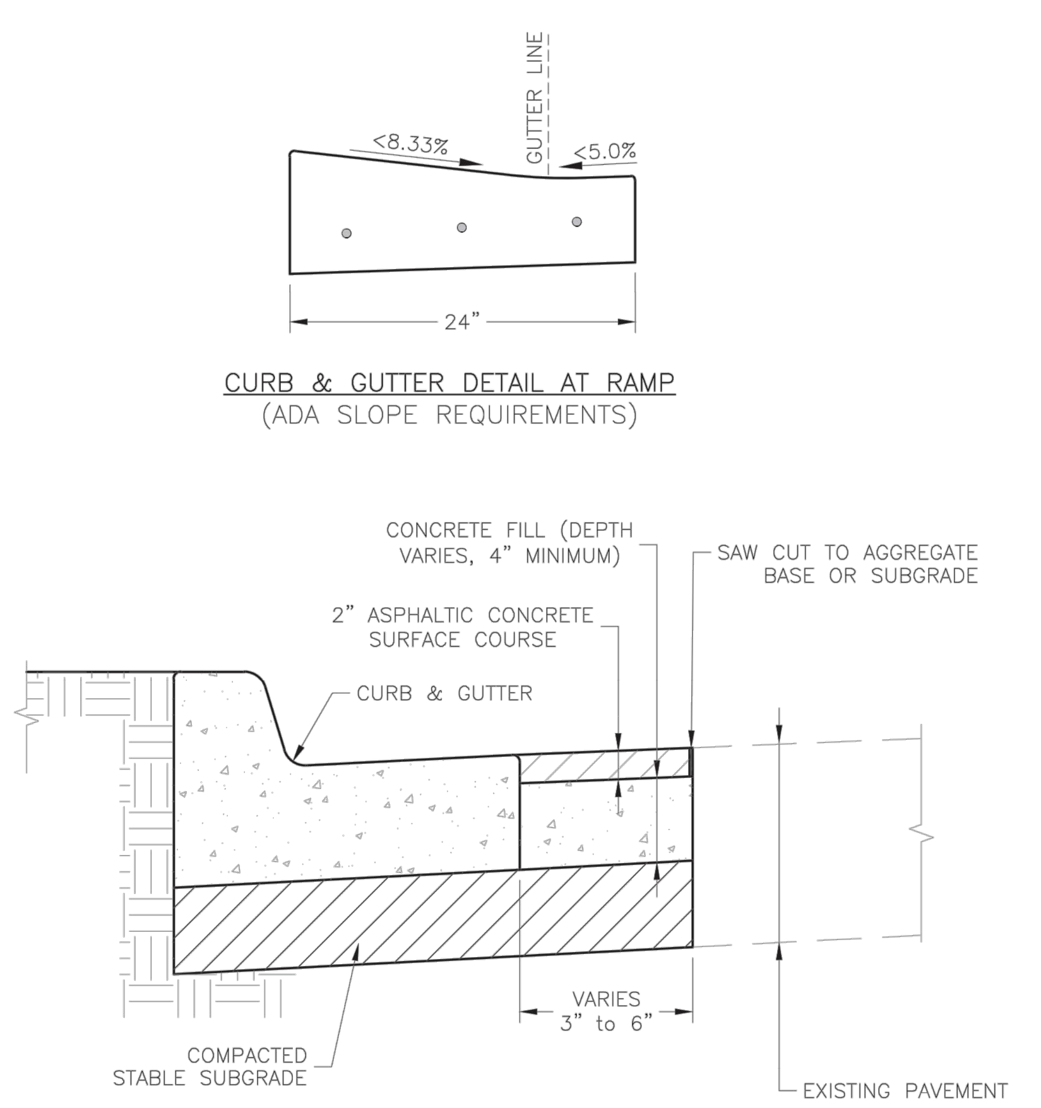
DOWELLED CURB (TYPE DC)

STRAIGHT BACK CURB & GUTTER (TYPE CG-1)

ROLL BACK CURB & GUTTER (TYPE CG-2)

STRAIGHT BACK DRY CURB & GUTTER (TYPE CG-1 DRY)

ROLL BACK DRY CURB & GUTTER (TYPE CG-2 DRY)



CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)

CURB REPLACEMENT DETAIL

GENERAL NOTES

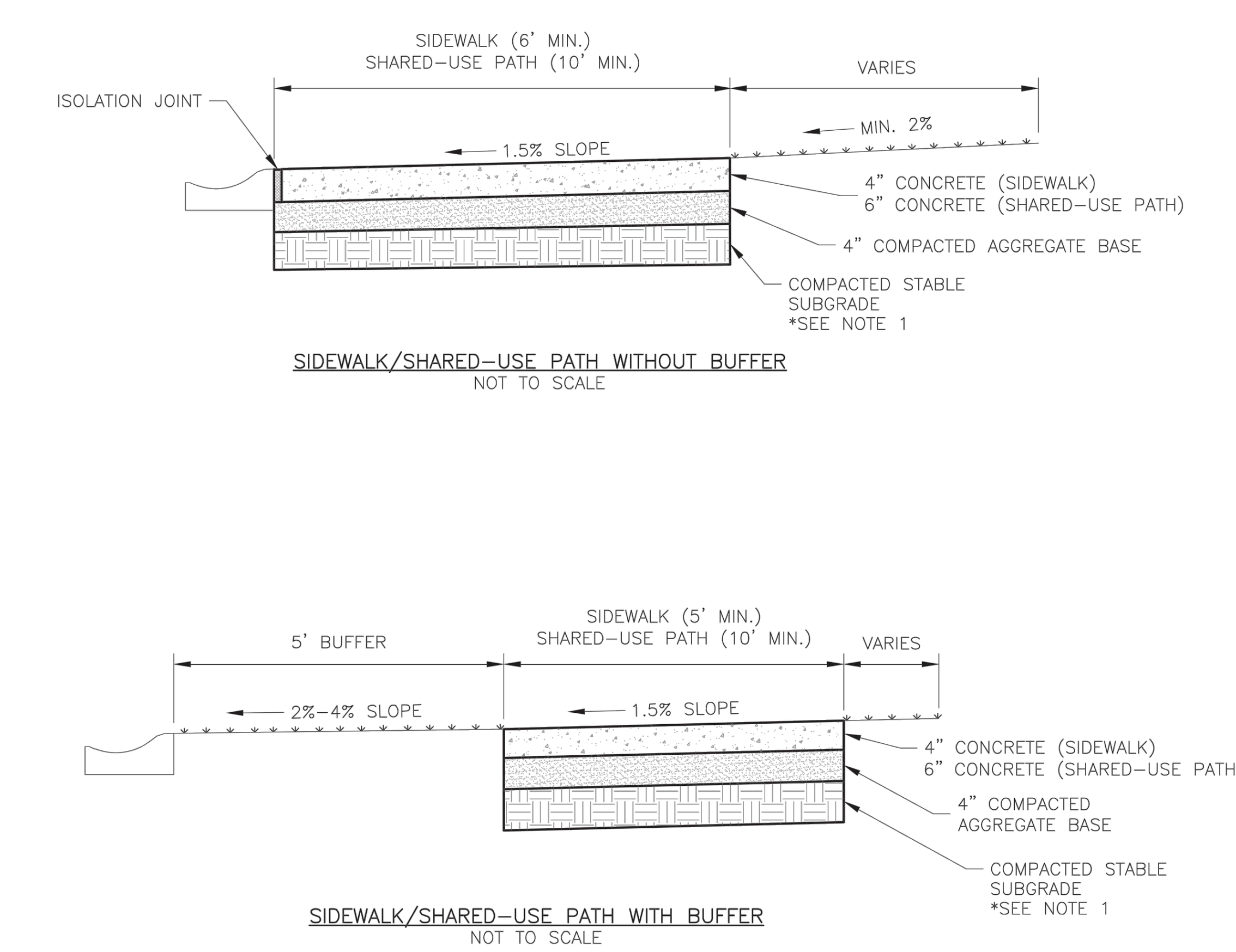
1. ¾" ISOLATION JOINTS WITH 3 (2'–#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS 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



SIDEWALK/SHARED-USE PATH WITHOUT BUFFER
NOT TO SCALE

SIDEWALK/SHARED-USE PATH WITH BUFFER
NOT TO SCALE

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

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PREPARED BY:
STATE OF MISSOURI — MARK ALLEN BREUER — NUMBER PE-2009007268 — PROFESSIONAL ENGINEER
03.29.2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION & SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

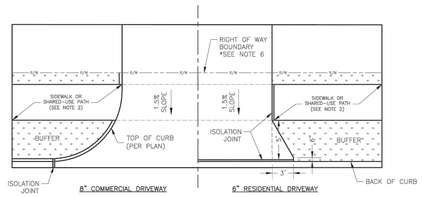
REVISION	DATE	DESCRIPTION
1	01/23/2023	PER CITY COMMENTS
2	03/24/2023	PER CITY COMMENTS
3		
4		
5		
6		
7		
8		
9		

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

STREET DETAILS

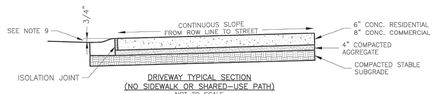
SHEET
17

P:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\6.0 SS\22-102 - SS - DET.dwg, 17 STREET DETAILS, 1:1

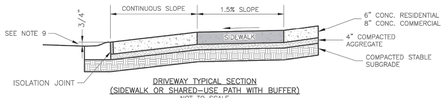


8" COMMERCIAL DRIVEWAY — 6" RESIDENTIAL DRIVEWAY

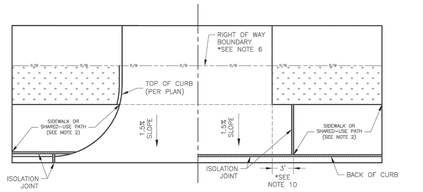
DRIVEWAY WITH BUFFER
NOT TO SCALE



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

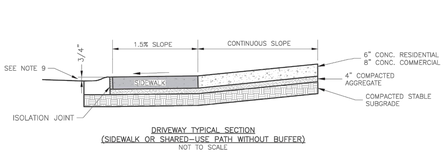


DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITH BUFFER)
NOT TO SCALE



8" COMMERCIAL DRIVEWAY — 6" RESIDENTIAL DRIVEWAY

DRIVEWAY WITHOUT 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-3B, 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.

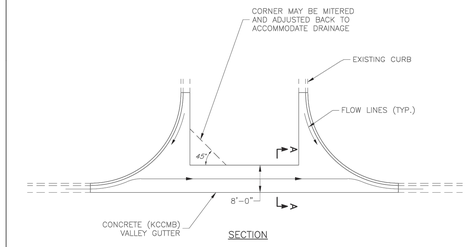
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

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

Project: DRIVEWAY DETAIL
Detail Name:

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

GEN-1



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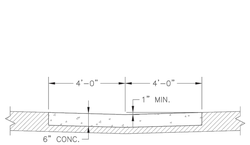

SECTION
Scale: 1" = 1'-0"

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

RELEASED FOR CONSTRUCTION
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Development Services Department
Lee's Summit, Missouri

04/13/2023

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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREDER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
05.29.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION &
SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/2023	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	11/30/2022
PROJ. NUMBER	22-102

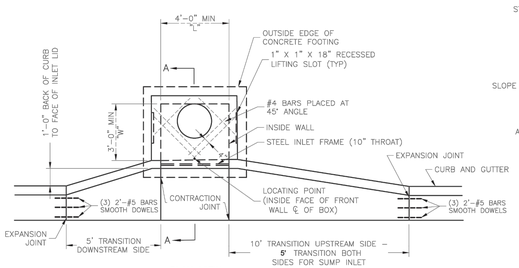
STREET DETAILS

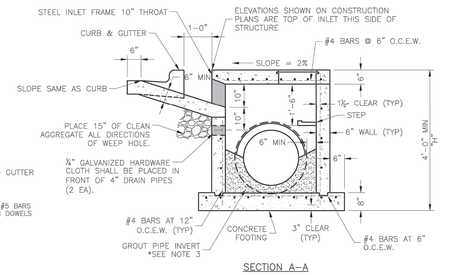
SHEET
18

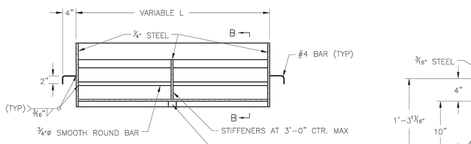
RELEASED FOR CONSTRUCTION
As Noted on Plan Review

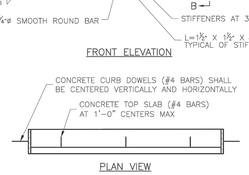
Development Services Department
Lee's Summit, Missouri

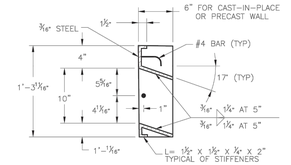
04/13/2023

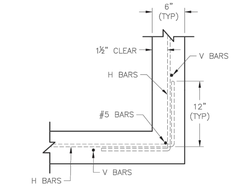












GENERAL NOTES:
1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
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 ¾" 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.

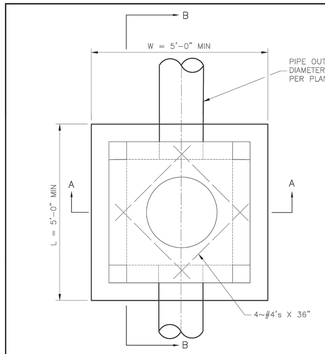
STEEL FRAME NOTES:
1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM–PRIME #37H–78 PRIMER (GRAY)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

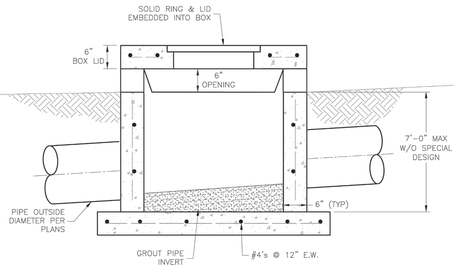
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

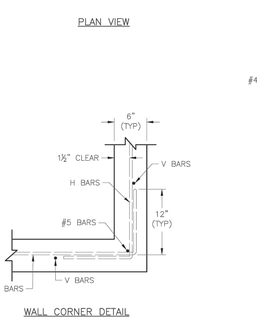
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Project:
Sheet Name: CURB INLET DETAIL

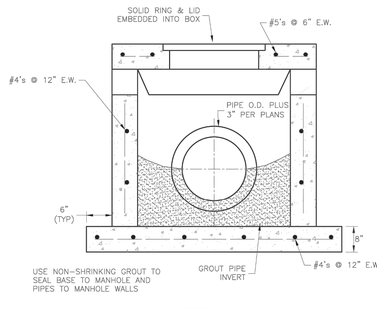
Drawn By: MAF
Checked By: DS
Date: 05/2021
Proj. #:

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
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STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Project:
Sheet Name: FIELD INLET DETAIL

Drawn By: MAF
Checked By: DS
Date: 05/2021
Proj. #:

STM-2

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PREPARED BY:

SCHLAGEL & ASSOCIATES, P.A.

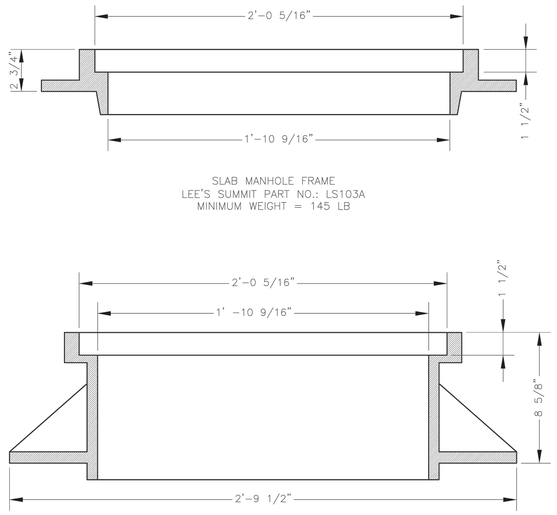
RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION &
SEDIMENT CONTROL
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/2023	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

STORM DETAILS

SHEET
19



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.

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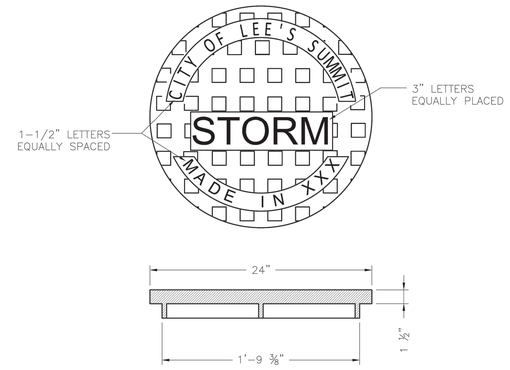
STORM MANHOLE FRAME DETAIL

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.

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STORM MANHOLE COVER DETAIL

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

STM-6

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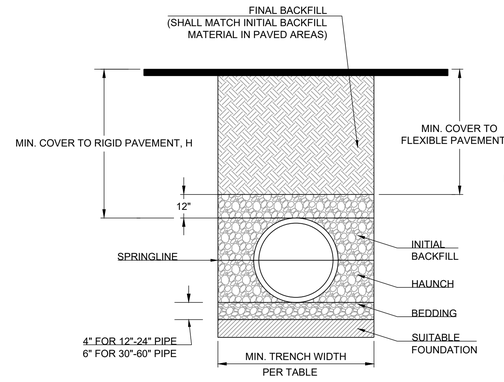
Development Services Department
Lee's Summit, Missouri

04/13/2023



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.

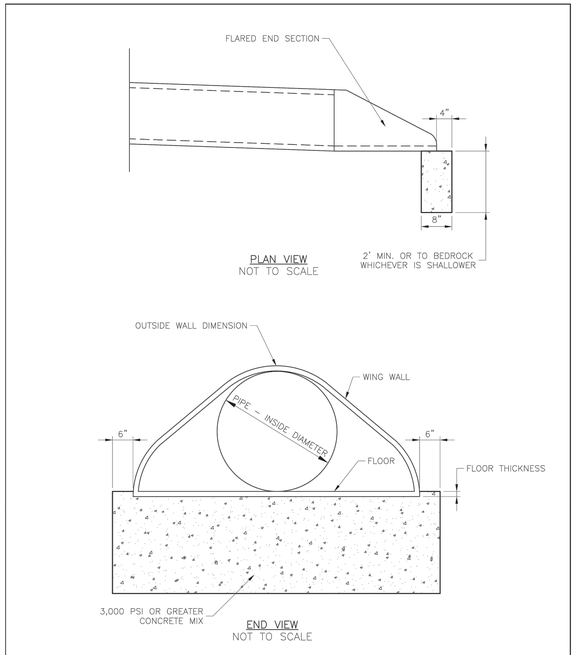
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).

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.

PIPE EMBEDMENT
NOT TO SCALE



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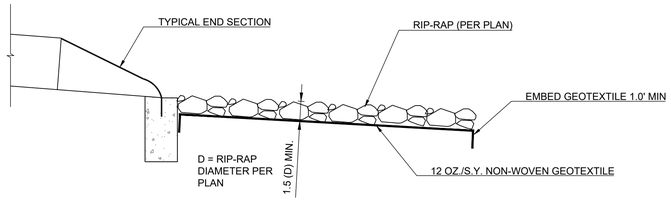
FLARED END SECTION SUPPORT DETAIL

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

STM-5



RIP-RAP AT OUTLET
NOT TO SCALE

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PREPARED BY:

STATE OF MISSOURI
MARK ALLEN BREDER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
03.29.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
STREET, STORMWATER AND EROSION &
SEDIMENT CONTROL
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REVISION	DATE	DESCRIPTION
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2	02/24/2023	PER CITY COMMENTS

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 11/30/2022
PROJ. NUMBER: 22-102

STORM DETAILS

SHEET
20

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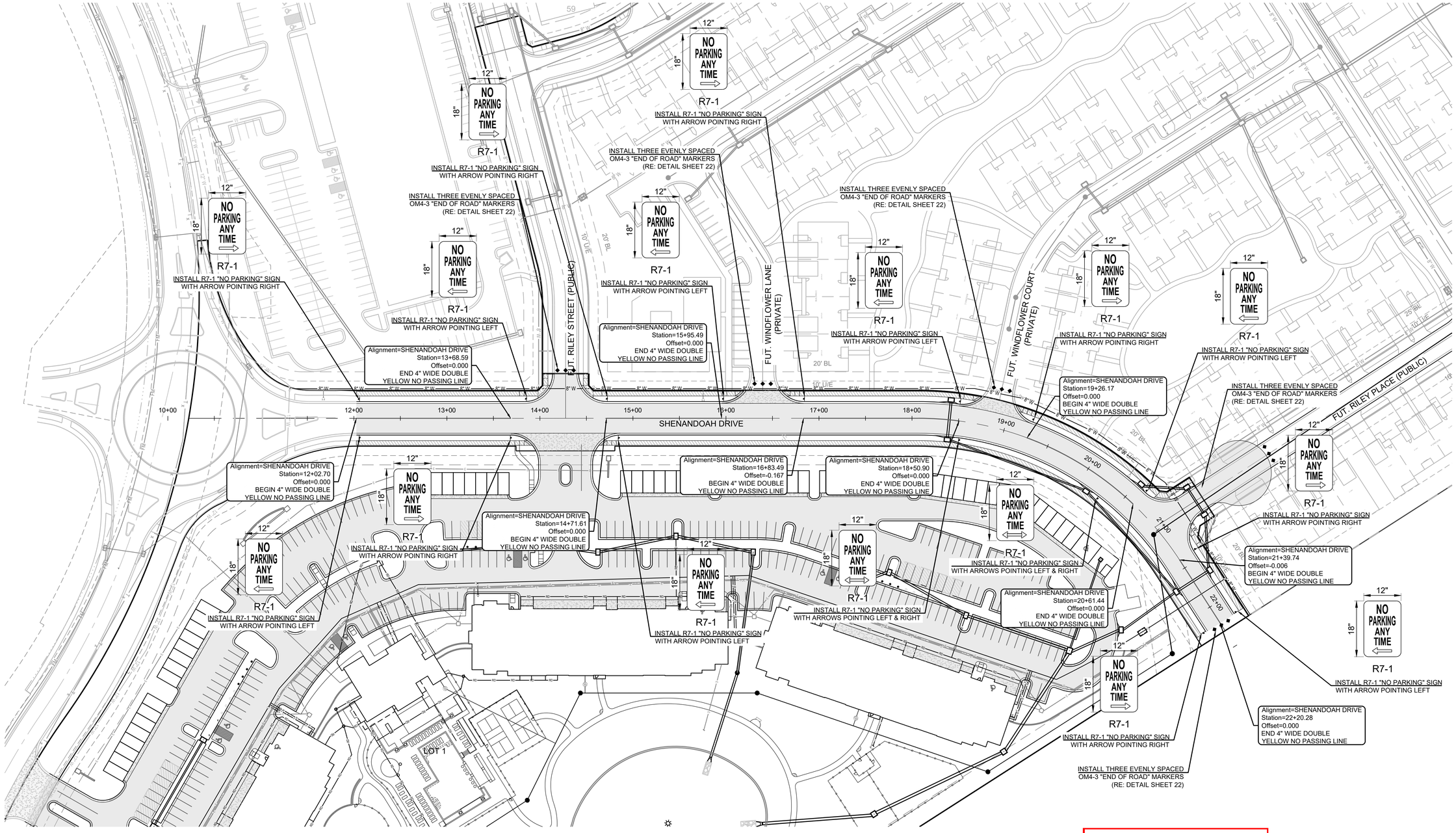

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Lee's Summit, Missouri

04/13/2023

SCALE: 1" = 50'

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STREET SIGN & PAVEMENT MARKING PLAN

SHEET 21

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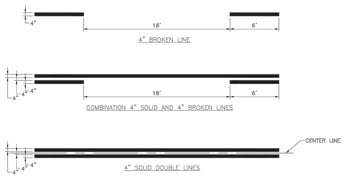
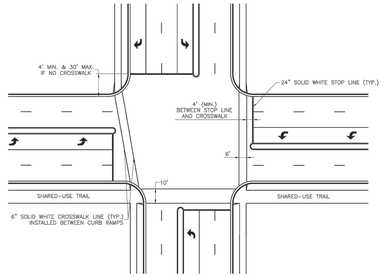
04/13/2023



TYPICAL LINE DETAILS

NOTES:

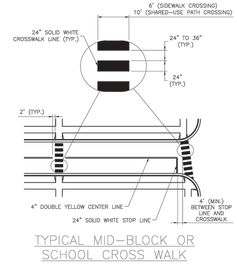
1. ALL EDGE LINE, CENTER LINE, AND LANE LINE PAVEMENT MARKINGS SHALL BE 4" WIDE UNLESS OTHERWISE NOTED.
2. EDGE LINES SHALL BE CONTINUOUS SOLID WHITE OR YELLOW LINES. RIGHT SIDE EDGE LINES SHALL BE SOLID WHITE. MEDIAN OR LEFT SIDE EDGE LINES ON DIVIDED ROADWAYS ARE TO BE SOLID YELLOW. EDGE LINES AND CENTER LINES SHALL BE CONTINUOUS ACROSS DRIVEWAYS.



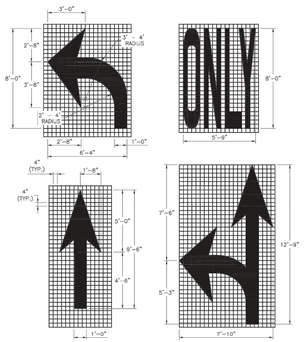
TYPICAL INTERSECTION MARKINGS

NOTES:

1. TRANSVERSE CROSSWALK LINES SHALL BE INSTALLED SUCH THAT THE DISTANCE BETWEEN LINES IS AT LEAST 6 FEET OR 10 FEET.
2. STOP LINES ARE REQUIRED AT SIGNALIZED INTERSECTIONS, ON MULTI-LANE STOP CONTROLLED APPROACHES, OR ADVANCE OF CROSSWALKS AT CONTROLLED INTERSECTIONS.



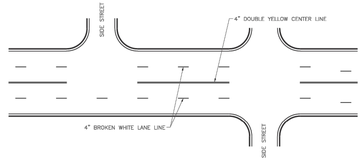
TYPICAL MID-BLOCK OR SCHOOL CROSS WALK



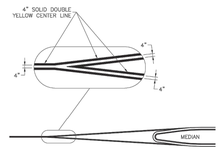
ARROW AND SYMBOL DETAILS

NOTES:

1. ALL ARROW AND SYMBOL MARKINGS SHALL BE WHITE, AND SHALL BE CENTERED IN THEIR RESPECTIVE TRAFFIC LANES.
2. RIGHT-TURN AND COMBINATION RIGHT-TURN/STRAIGHT ARROWS ARE REVERSE OF ARROWS SHOWN.



TYPICAL MARKINGS FOR FOUR-LANE UNDIVIDED ROADWAY



TYPICAL MEDIAN NOSE CENTER LINE DETAIL

PAVEMENT MARKING GENERAL NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL WORDS AND SYMBOLS SHALL CONFORM TO THE LATEST EDITION OF STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS PRINTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.
3. PAVEMENT MARKINGS, EITHER TEMPORARY OR PERMANENT ARE REQUIRED AT ALL TIMES IF THE ROADWAY IS OPEN TO TRAFFIC.
4. ALL PAVEMENT MARKINGS THAT CONFLICT WITH THE DESIRED MARKINGS SHALL BE COMPLETELY REMOVED. REMOVALS SHALL NOT LEAVE THE ROAD SURFACE SCARRED WITH AN IMAGE THAT MISLEADS TRAFFIC. ANY EXCESS DAMAGE OR SCARRING OF PAVEMENT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. THE PROPOSED PERMANENT MARKINGS SHALL BE LAID OUT BY THE CONTRACTOR IN ADVANCE OF THE MARKING INSTALLATION. MARKINGS SHALL NOT BE APPLIED UNTIL THE LAYOUT HAS BEEN APPROVED BY THE CITY TRAFFIC ENGINEER.
6. CENTER LINES SHALL BE MARKED ON ALL UNDIVIDED ARTERIAL STREETS, AND ANY OTHER UNDIVIDED STREET WITH MORE THAN TWO LANES AND/OR A SPEED LIMIT OF 30 MPH OR MORE.
7. EDGE LINES SHALL BE MARKED ON ALL NON-CURBED STREETS.

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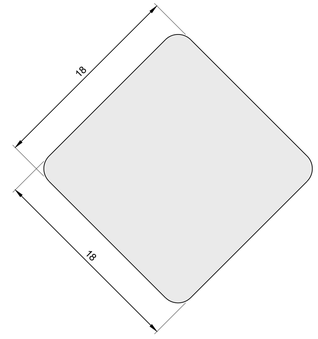
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO

Sheet Name: ROADWAY MARKING DETAILS

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

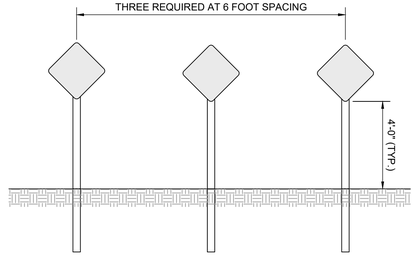
PM-1



OM4-3
OM4-3 COLORS:
BACKGROUND - SOLID RED

OM4-3

NOTE:
THICKNESS OF FLAT SHEET FOR END OF ROAD MARKERS SHALL BE 0.0063". RED BACKGROUND.



"END OF ROAD" MARKERS

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SHEET
22