

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
RIGHT-OF-WAY
SANITARY SEWER MAIN
SANITARY SEWER MAIN - EXIST.
STORM SEWER
STORM SEWER - EXISTING
CABLE TV - EXISTING
FIBER OPTIC CABLE - EXISTING
TELEPHONE LINE - EXIST.
E - ELECTRIC LINE - EXISTING
OHP - OVERHEAD POWER LINE - EXIST.
UG - UNDERGROUND ELECTRIC - EX.
G - GAS LINE - EXISTING
W - WATERLINE - EXISTING
LIGHT - EXISTING
EXISTING MANHOLE
CLEANOUT
EXISTING SANITARY MANHOLE
PROPOSED SANITARY MANHOLE
EXISTING AREA INLET
EXISTING CURB INLET
EXISTING GRATE INLET
EXISTING JUNCTION BOX
EXISTING STORM MANHOLE

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) 399-0663
brent.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

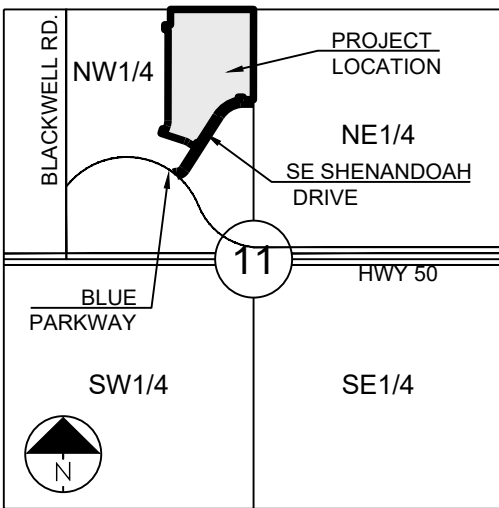
Mark Manion or Marty Loper
500 E. 8th Street, Room 370
Kansas City, MO 64106
(816) 275-2341 or (816) 275-1550

COMCAST CABLE

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

CITY OF LEE'S SUMMIT WATER UTILITIES

Mark Schaulfer
1200 SE Hamblen Road
Lee's Summit, MO 64081
(816) 969-1900



SECTION 11-47-31

LOCATION MAP
SCALE 1" = 2000'

SUMMARY OF QUANTITIES			
	ITEM	QUANTITY	UNITS
1	INSTALL 2" TYPE 5 OR 6 ASPHALT PAVEMENT	7,917	SY
2	INSTALL 4" TYPE 5 ASPHALT PAVEMENT	7,917	SY
3	INSTALL 6" TYPE 5 BASE	9,776	SY
4	INSTALL 9" SUBGRADE STABILIZATION	9,776	SY
5	INSTALL TYPE CG-1 CURB AND GUTTER	1,259	LF
6	INSTALL TYPE CG-2 CURB AND GUTTER	4,047	LF
7	INSTALL KCMMB4K VALLEY GUTTER	446	LF
8	INSTALL TYPE A SIDEWALK RAMPS	2	EA
9	INSTALL 15" HDPE	508	LF
10	INSTALL 18" HDPE	660	LF
11	INSTALL 24" HDPE	416	LF
12	INSTALL 30" HDPE	168	LF
13	INSTALL 36" HDPE	192	LF
14	INSTALL 42" HDPE	138	LF
15	INSTALL 4'x4' AREA INLET	2	EA
16	INSTALL 4'x4' GRATE INLET	1	EA
17	INSTALL 4'x4' JUNCTION BOX	1	EA
18	INSTALL 6'x4' CURB INELT	15	EA
19	INSTALL 5'x5' EWDB OUTLET STRUCTURE	2	EA
20	INSTALL 42" FLARED END SECTION W/ TOEWALL	1	EA
21	INSTALL RIPRAP	37	CY
22	INSTALL 8" C900 DR18 PVC WATER MAIN	1,930	LF
23	INSTALL 8" C900 DR18 PVC WATER MAIN (RESTRAINED JOINTS)	167	LF
24	INSTALL 8" GATE VALVE	5	EA
25	INSTALL FIRE HYDRANT ASSEMBLY	5	EA
26	INSTALL BACKFLOW PREVENTER VAULT	3	EA
27	INSTALL 8" PVC SDR-26	2,240	LF
28	INSTALL 6" PVC SDR-26	680	LF
29	INSTALL STD. 4' DIA. MANHOLE	12	EA
30	EXTRA DEPTH IN MANHOLES	48	VF
31	POST-CONST. MANHOLE BARREL ADJUSTMENTS (EST.)	2	EA
32	POST-CONST. RING (3"-12") ADJUSTMENTS (EST.)	2	EA
33	TRENCHING UNDER FUTURE STREET	3,316	LF
34	EARTHWORK (FINAL GRADING)	1	LS
35	EROSION CONTROL (MAINTENANCE & REMOVAL)	1	LS
36	SEEDING & MULCH DISTRUBED AREAS	1	LS



FEMA NOTE:

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.

OIL/GAS NOTE:

THERE ARE NOT OIL/GAS WELLS PRESENT ON THE PROJECT PER MISSOURI DEPARTMENT OF NATURAL RESOURCES - MISSOURI GEOLOGICAL SURVEY GeoSTRAT MAPPING.

GENERAL NOTES:

- ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 8813.
- ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI.
- LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.
- NO GEOLOGICAL INVESTIGATION HAS BEEN PERFORMED ON THE SITE.
- 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.
- 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. PRIOR TO ORDERING PRECAST STRUCTURES, SHOP DRAWING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL.
- THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE.
- 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.
- ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR, OR AS DIRECTED BY THE OWNER AT NO ADDITIONAL COST.
- ALL EXCAVATIONS SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK EXCAVATION.
- THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASED OF CONSTRUCTION AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS.
- THE CONTRACTOR SHALL CONTACT DEVELOPMENT SERVICES INSPECTIONS AT: 816-969-1800 TO OBTAIN A DEVELOPMENT SERVICES CONSTRUCTION PERMIT. A MINIMUM 48 HOUR NOTICE SHALL BE GIVEN PRIOR TO PERMIT ISSUANCE.
- 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.
- 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).
- ALL SANITARY SEWER LATERALS SHALL HAVE A TRENCH CHECK, CONSISTING OF FLOWABLE BACKFILL, INSTALLED DURING CONSTRUCTION. TRENCH CHECK SHALL EXTEND TO BOTTOM OF TRENCH, TO WIDTH OF TRENCH, TO 12 INCHES ABOVE PIPE, FOR A MINIMUM LENGTH OF 12 INCHES. TRENCH CHECK SHALL BE LOCATED AT LEAST 5 FEET FROM SANITARY MAIN.

EARTHWORK:

- 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.
- ALL BACKFILL MATERIAL 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).
- BACKFILL MATERIALS SHALL NOT INCLUDE ORGANIC MATTER, DEBRIS OR TOPSOIL.
- 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.
- ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE, UNLESS NOTED OTHERWISE THE FOLLOWING GRADES SHALL APPLY:
 - TURF AREAS - 2.5% MINIMUM, 4H:1V MAXIMUM
- ALL DISTURBED AREAS SHALL BE FERTILIZED, SEEDED AND MULCHED IMMEDIATELY AFTER EXCAVATION 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 PIPE INSTALLATION.
- 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:

- 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.
- 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.
- 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.
- UTILITY SEPARATION: WATERLINES SHALL HAVE A MINIMUM OF 10 FEET HORIZONTAL AND 2 FEET (MINIMUM OF 1.5 FEET) VERTICAL SEPARATION FROM ALL SANITARY AND STORM SEWER LINES. IF MINIMUM SEPARATIONS CAN NOT BE OBTAINED, DUCTILE IRON PIPE, DIP, SHALL BE REQUIRED 10 FEET IN EACH DIRECTION OF THE CONFLICT ON THE WATER LINE.
- 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.
- 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.
- TRENCH SPOILS SHALL BE NEATLY PLACED ONSITE ADJACENT TO THE TRENCH, AND COMPACTED TO PREVENT SATURATION AND EXCESS SEDIMENT RUNOFF. UNSUITABLE MATERIALS, ROCK AND SHALE, ASPHALT, CONCRETE, TREES, BRUSH ETC. SHALL BE PROPERLY DISPOSED OF OFFSITE. MATERIALS MAY BE WASHED ONSITE AT THE DIRECTION OF THE OWNER OR HIS APPOINTED REPRESENTATIVE.

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

Sheet List Table	
Sheet Number	Sheet Title
C100	GENERAL NOTES
C101	GENERAL LAYOUT
C201	GRADING PLAN
C202	SPOT ELEVATIONS - PARKING
C203	SPOT ELEVATIONS - PARKING
C204	SPOT ELEVATIONS - PARKING
C205	SPOT ELEVATIONS - PARKING
C206	SPOT ELEVATIONS - PARKING
C207	SPOT ELEVATIONS - BUILDINGS
C208	SPOT ELEVATIONS - BUILDINGS
C209	SPOT ELEVATIONS - BUILDINGS
C210	NORTH SWALE PLAN
C300	PRE-CLEARING EROSION CONTROL PLAN
C301	CONSTRUCTION PHASE EROSION CONTROL PLAN
C302	FINAL STABILIZATION EROSION CONTROL PLAN
C303	EROSION CONTROL DETAILS
C304	EROSION CONTROL DETAILS
C305	OUTLET STRUCTURE 201
C306	OUTLET STRUCTURE 2401
C400	TYPICAL STREET SECTION
C401	SE BRADFREE STREET - PLAN & PROFILE
C402	SE GOLDEN LANE - PLAN & PROFILE
C403	SE 6TH STREET - PLAN & PROFILE
C404	INTERSECTION DETAILS
C405	STREET SIGN PLAN
C406	STREET SIGN DETAILS
C407	STREET DETAILS
C408	STREET DETAILS
C409	STORM DETAILS
C410	STORM DETAILS
C411	STORM DETAILS
C500	UTILITY PLAN
C601	OVERALL DRAINAGE MAP
C602	REUNION - DRAINAGE MAP
C603	STORM CALCS
C604	STORM CALCS
C605	STORM SEWER LINE 500
C606	STORM SEWER LINE 1700
C607	STORM SEWER LINES 1800 & 1900
C608	STORM SEWER LINES 2000 & 2100
C609	STORM SEWER LINES 2200 & 2300
C610	STORM DETAILS
C611	STORM DETAILS
C700	SANITARY SEWER LINE B
C701	SANITARY SEWER LINES D & E
C702	SANITARY SEWER LINES F & G
C703	SANITARY SEWER DETAILS
C800	WATER LINE C - PRIVATE
C801	WATER LINE D & E - PRIVATE
C802	WATER DETAILS
C803	WATER DETAILS
C900	GENERAL DETAILS
C901	GENERAL DETAILS
L100	OVERALL LANDSCAPE PLAN
L200	LANDSCAPE DETAIL PLAN
L201	LANDSCAPE DETAIL PLAN
L202	LANDSCAPE DETAIL PLAN
L203	LANDSCAPE DETAIL PLAN
L204	LANDSCAPE DETAIL PLAN
L205	UNDERSTORY LANDSCAPE PLAN
L206	UNDERSTORY LANDSCAPE PLAN
L300	LANDSCAPE DETAILS
L301	LANDSCAPE DETAILS

DESCRIPTION:

A tract of land lying in the Northwest One-Quarter of Section 11, Township 47 North, Range 31 West in the City of Lee's Summit, Jackson County, Missouri being more particularly described as follows:

Beginning at the Northeast Corner of said Northwest One-Quarter; thence along the East line of said Northwest One-Quarter, South 02 degrees 19 minutes 49 seconds West, a distance of 958.03 feet to the Northeast Corner of the Final Plat of Residences at Blackwell, a subdivision in the City of Lee's Summit, Jackson County, Missouri, said point being on Northernly right-of-way line of NE Shenandoah Drive; thence along the Northernly line of said Residences at Blackwell for the following twelve courses North 87 degrees 44 minutes 22 seconds West, a distance of 88.60 feet to a point of curvature; thence Northwestealy on a curve to the left being tangent to the previous course having a radius of 365.00 feet, a central angle of 01 degree 52 minutes 36 seconds and an arc length of 11.98 feet; thence North 44 degrees 03 minutes 48 seconds West, a distance 12.45 feet; thence North 02 degrees 11 minutes 34 seconds East, a distance of 18.39 feet; thence North 87 degrees 48 minutes 26 seconds West, a distance of 50.00 feet; thence South 02 degrees 11 minutes 34 seconds West, a distance of 28.69 feet; thence South 41 degrees 25 minutes 38 seconds West, a distance of 7.75 feet to a point of curvature; thence Southwestealy along a curve to the left having an initial tangent bearing of South 80 degrees 16 minutes 09 seconds West, a radius of 365.00 feet, a central angle of 45 degrees 16 minutes 22 seconds and an arc length of 288.41 feet; thence South 34 degrees 59 minutes 47 seconds West, a distance of 349.20 feet; thence South 79 degrees 59 minutes 47 seconds West, a distance of 7.20 feet; thence North 54 degrees 59 minutes 26 seconds West, a distance of 12.91 feet; thence South 35 degrees 00 minutes 34 seconds West, a distance of 50.00 feet; thence North 54 degrees 59 minutes 26 seconds West, a distance of 73.81 feet to a point of curvature; thence Northwestealy along a curve to the left being tangent to the previous course having a radius of 175.00 feet, a central angle of 14 degrees 43 minutes 33 seconds and an arc length of 44.98 feet; thence North 09 degrees 42 minutes 59 seconds West, a distance of 262.42 feet; thence North 20 degrees 16 minutes 04 seconds East, a distance of 50.00 feet; thence South 69 degrees 42 minutes 59 seconds East, a distance of 31.72 feet; thence North 65 degrees 17 minutes 01 second East, a distance of 6.06 feet; thence North 20 degrees 17 minutes 01 second East, a distance of 41.33 feet to a point of curvature; thence Northeastealy on a curve to the left being tangent to the previous course having a radius of 175.00 feet, a central angle of 17 degree 51 minutes 20 seconds and an arc length of 54.54 feet; thence North 02 degrees 25 minutes 41 seconds East, a distance of 964.02 feet; thence North 42 degrees 44 minutes 24 seconds West, a distance of 8.44 feet; thence North 87 degrees 53 minutes 59 seconds West, a distance of 29.47 feet; thence North 02 degrees 06 minutes 01 second East, a distance of 50.00 feet; thence South 87 degrees 53 minutes 59 seconds East, a distance of 60.76 feet; thence North 02 degrees 25 minutes 41 seconds East, a distance of 159.36 feet to a point on the North line of the said Northeast One-Quarter; thence along said North line, South 87 degrees 55 minutes 11 seconds East, a distance of 881.87 feet to the Point of Beginning and containing 24.906 acres more or less.

PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

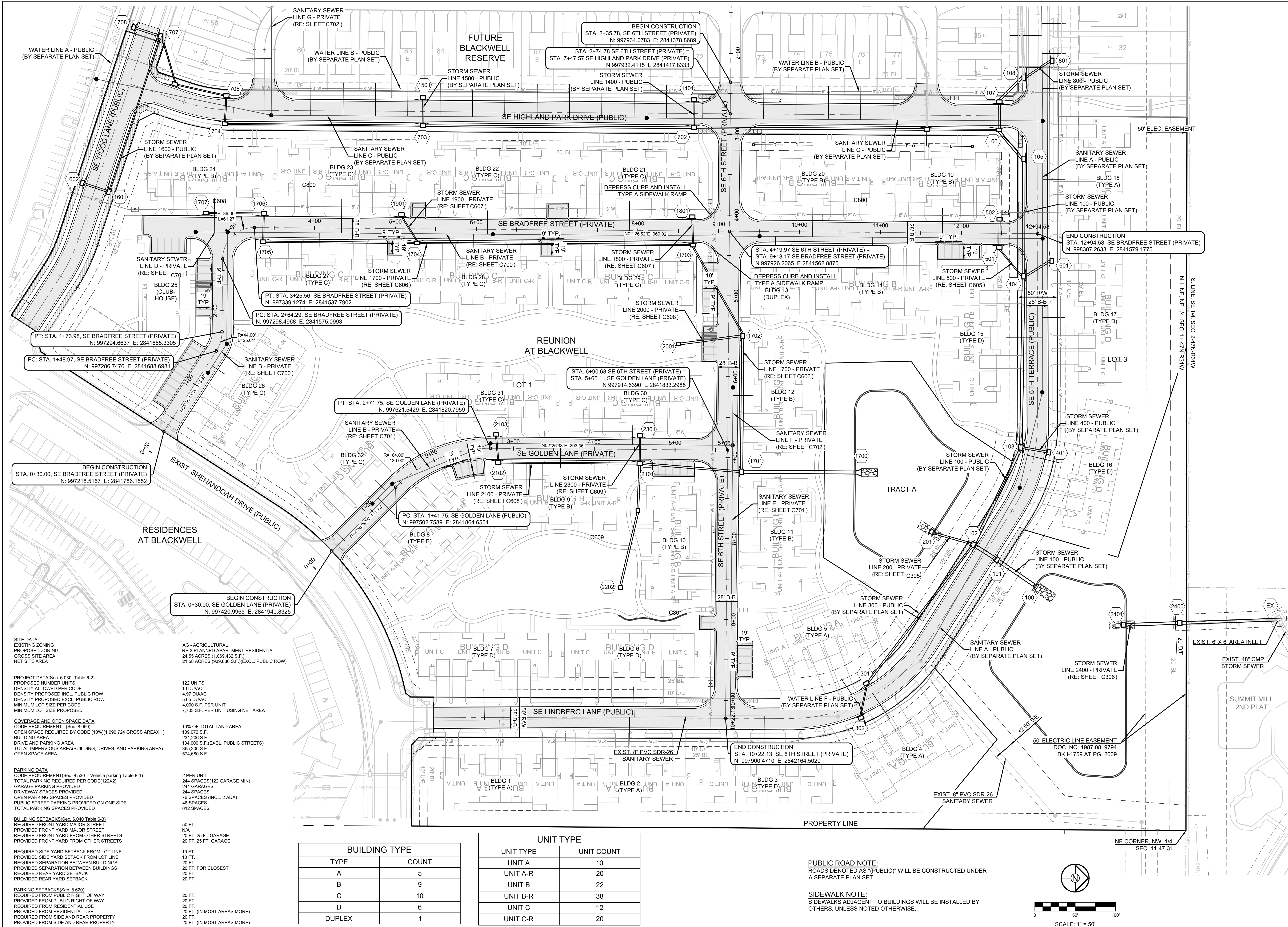
REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION	
	DRAWN BY:	TRC
05/05/23	06/27/23	06/27/23
06/27/23	06/24/23	06/24/23
06/24/23	06/25/23	06/25/23
06/25/23	10/05/23	10/05/23
10/05/23	03/03/2023	03/03/2023
03/03/2023	PROJ. NUMBER:	22-597

GENERAL NOTES

SHEET
C100



SITE DATA
EXISTING ZONING
PROPOSED ZONING
GROSS SITE AREA
NET SITE AREA

PROJECT DATA(Sec. 6.030, Table 6-2)
PROPOSED NUMBER UNITS
DENSITY ALLOWED PER CODE
DENSITY PROPOSED INCL. PUBLIC ROW
DENSITY PROPOSED EXCL. PUBLIC ROW
MINIMUM LOT SIZE PER CODE
MINIMUM LOT SIZE PROPOSED

COVERAGE AND OPEN SPACE DATA
CODE REQUIREMENT (Sec. 6.050)
OPEN SPACE REQUIRED BY CODE (10%)(1,090,724 GROSS AREA)(1)
BUILDING AREA
DRIVE AND PARKING AREA
TOTAL IMPERVIOUS AREA(BUILDING, DRIVES, AND PARKING AREA)
OPEN SPACE AREA

PARKING DATA
CODE REQUIREMENT(Sec. 8.530 - Vehicle parking Table 8-1)
TOTAL PARKING REQUIRED PER CODE(122X2)
GARAGE PARKING PROVIDED
DRIVEWAY SPACES PROVIDED
OPEN PARKING SPACES PROVIDED
PUBLIC STREET PARKING PROVIDED ON ONE SIDE
TOTAL PARKING SPACES PROVIDED

BUILDING SETBACKS(Sec. 6.040 Table 6-3)
REQUIRED FRONT YARD MAJOR STREET
PROVIDED FRONT YARD MAJOR STREET
REQUIRED FRONT YARD FROM OTHER STREETS
PROVIDED FRONT YARD FROM OTHER STREETS

REQUIRED SIDE YARD SETBACK FROM LOT LINE
PROVIDED SIDE YARD SETBACK FROM LOT LINE
REQUIRED SEPARATION BETWEEN BUILDINGS
PROVIDED SEPARATION BETWEEN BUILDINGS
REQUIRED REAR YARD SETBACK
PROVIDED REAR YARD SETBACK

PARKING SETBACKS(Sec. 8.620)
REQUIRED FROM PUBLIC RIGHT OF WAY
PROVIDED FROM PUBLIC RIGHT OF WAY
REQUIRED FROM RESIDENTIAL USE
PROVIDED FROM RESIDENTIAL USE
REQUIRED FROM SIDE AND REAR PROPERTY
PROVIDED FROM SIDE AND REAR PROPERTY

AG - AGRICULTURAL
RP-3 PLANNED APARTMENT RESIDENTIAL
24.55 ACRES (1,069,432 S.F.)
21.58 ACRES (939,886 S.F.)(EXCL. PUBLIC ROW)

122 UNITS
10 DU/AC
4.97 DU/AC
5.85 DU/AC
4,000 S.F. PER UNIT
7,703 S.F. PER UNIT USING NET AREA

10% OF TOTAL LAND AREA
109,072 S.F.
231,206 S.F.
134,000 S.F. (EXCL. PUBLIC STREETS)
365,206 S.F.
574,680 S.F.

2 PER UNIT
244 SPACES(122 GARAGE MIN)
244 GARAGES
244 SPACES
76 SPACES (INCL. 2 ADA)
48 SPACES
612 SPACES

50 FT.
N/A
20 FT. 25 FT. GARAGE
20 FT. 25 FT. GARAGE

10 FT.
10 FT.
20 FT.
20 FT. FOR CLOSEST
20 FT.
20 FT.

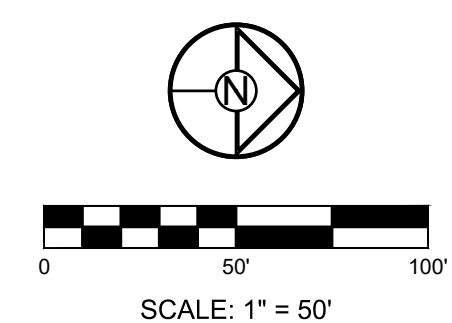
20 FT.
20 FT.
20 FT.
20 FT. (IN MOST AREAS MORE)
20 FT.
20 FT. (IN MOST AREAS MORE)

BUILDING TYPE	
TYPE	COUNT
A	5
B	9
C	10
D	6
DUPLEX	1

UNIT TYPE	
UNIT TYPE	UNIT COUNT
UNIT A	10
UNIT A-R	20
UNIT B	22
UNIT B-R	38
UNIT C	12
UNIT C-R	20

PUBLIC ROAD NOTE:
ROADS DENOTED AS "PUBLIC" WILL BE CONSTRUCTED UNDER A SEPARATE PLAN SET.

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



SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
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WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificate of Authority
#E200200360F #LAC2001005237 #LS2002008659F

PREPARED BY:

10.05.2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

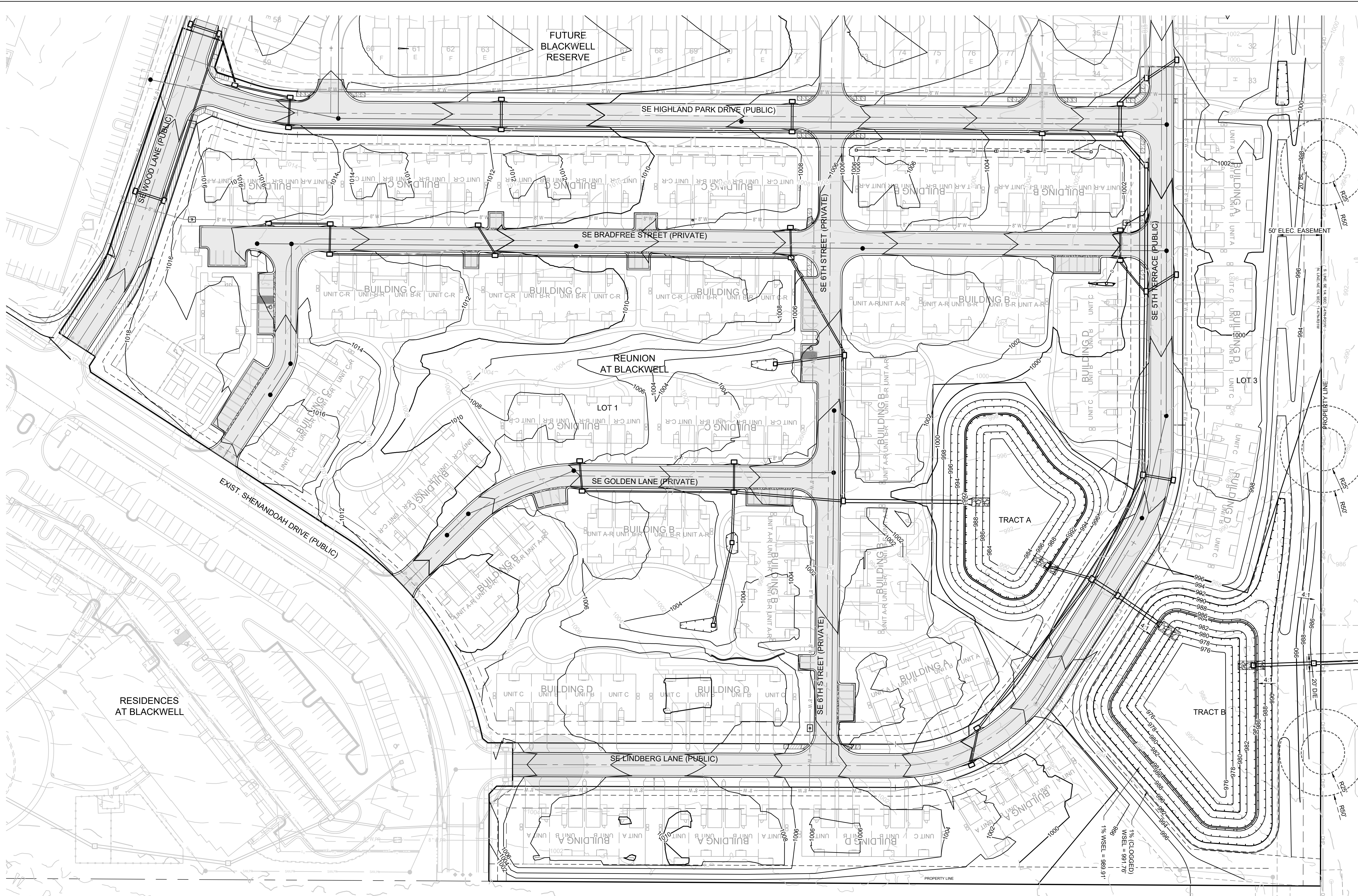
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS

DRAWN BY: TRC	CHECKED BY: MAB	DATE PREPARED: 03/03/2023	PROJ. NUMBER: 22-597
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GENERAL LAYOUT

SHEET
C101



PUBLIC ROAD NOTE:
ROADS DENOTED AS "PUBLIC" WILL BE CONSTRUCTED UNDER A SEPARATE PLAN SET.

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

MO GRS BENCHMARK:

STATION NAME - JA-90

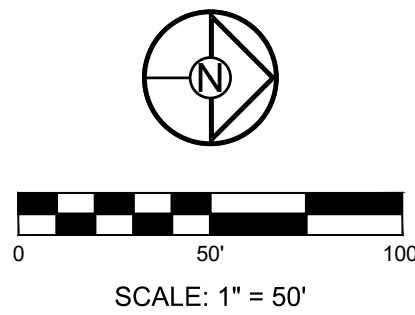
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD. 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

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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PREPARED BY:

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

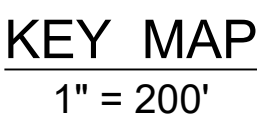
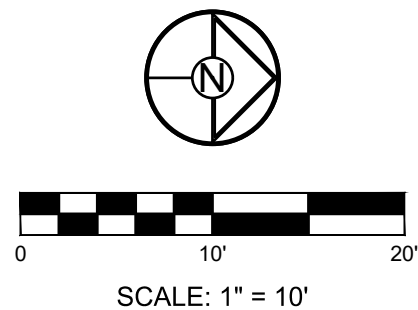
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	
PROJ. NUMBER:	22-597

GRADING PLAN

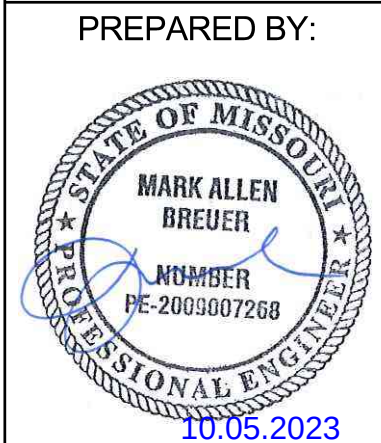
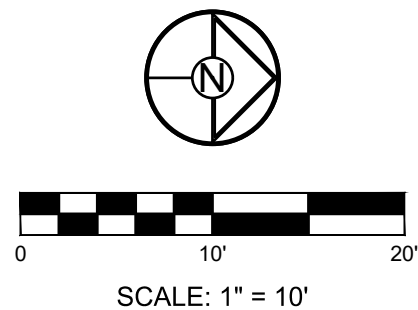
SHEET

C201



REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

SPOT ELEVATIONS - PARKING SHEET C202	DRAWN BY:	1 05/05/23	REVISION DATE	DESCRIPTION
	TRC	2 08/27/23		PER CITY COMMENTS
	CHECKED BY:	3 08/24/23		PER CITY COMMENTS
	MAB	4 09/25/23		PER CITY COMMENTS
	DATE PREPARED:	5 03/02/23		PER CITY COMMENTS
	PROJ. NUMBER:	6 22-097		

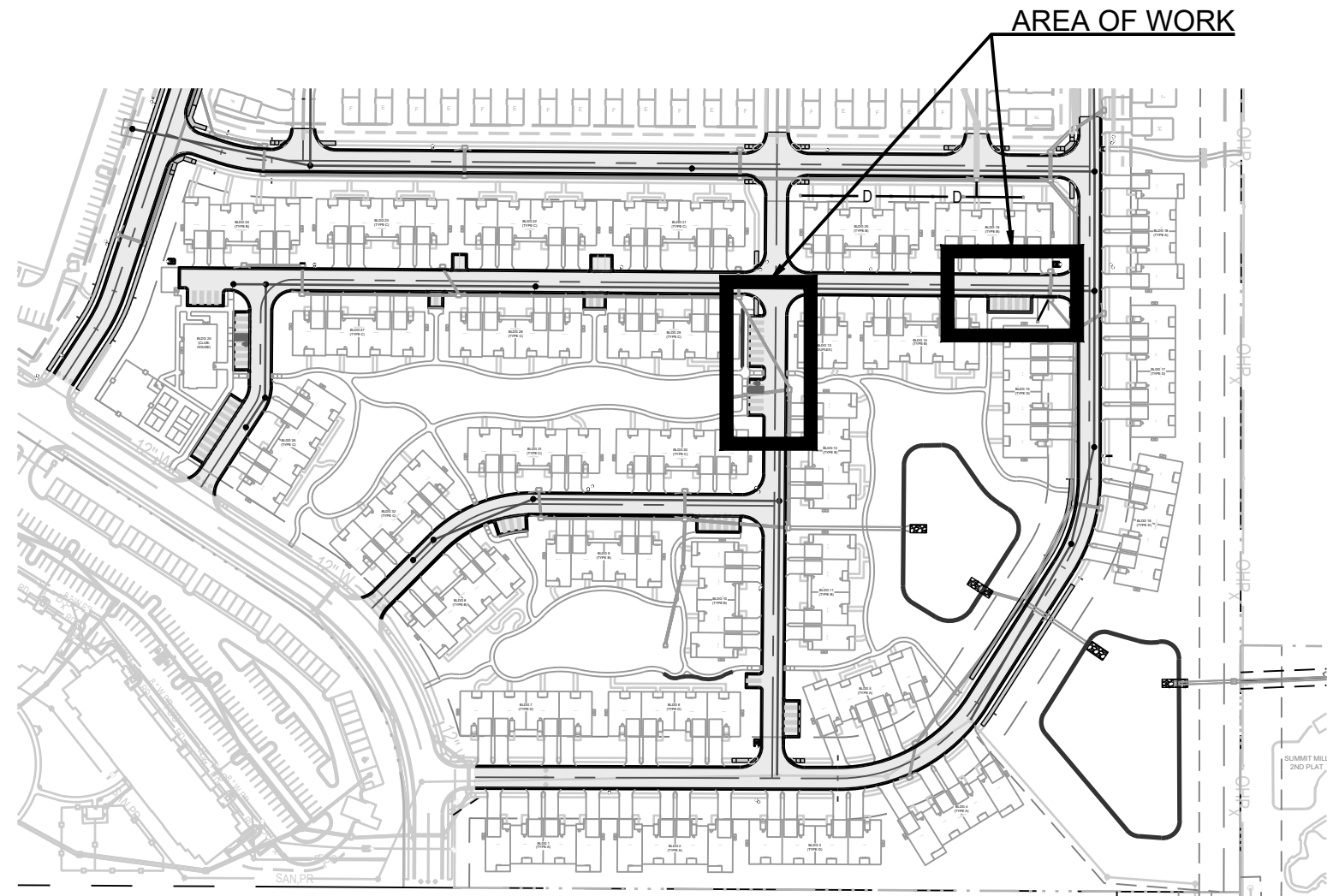
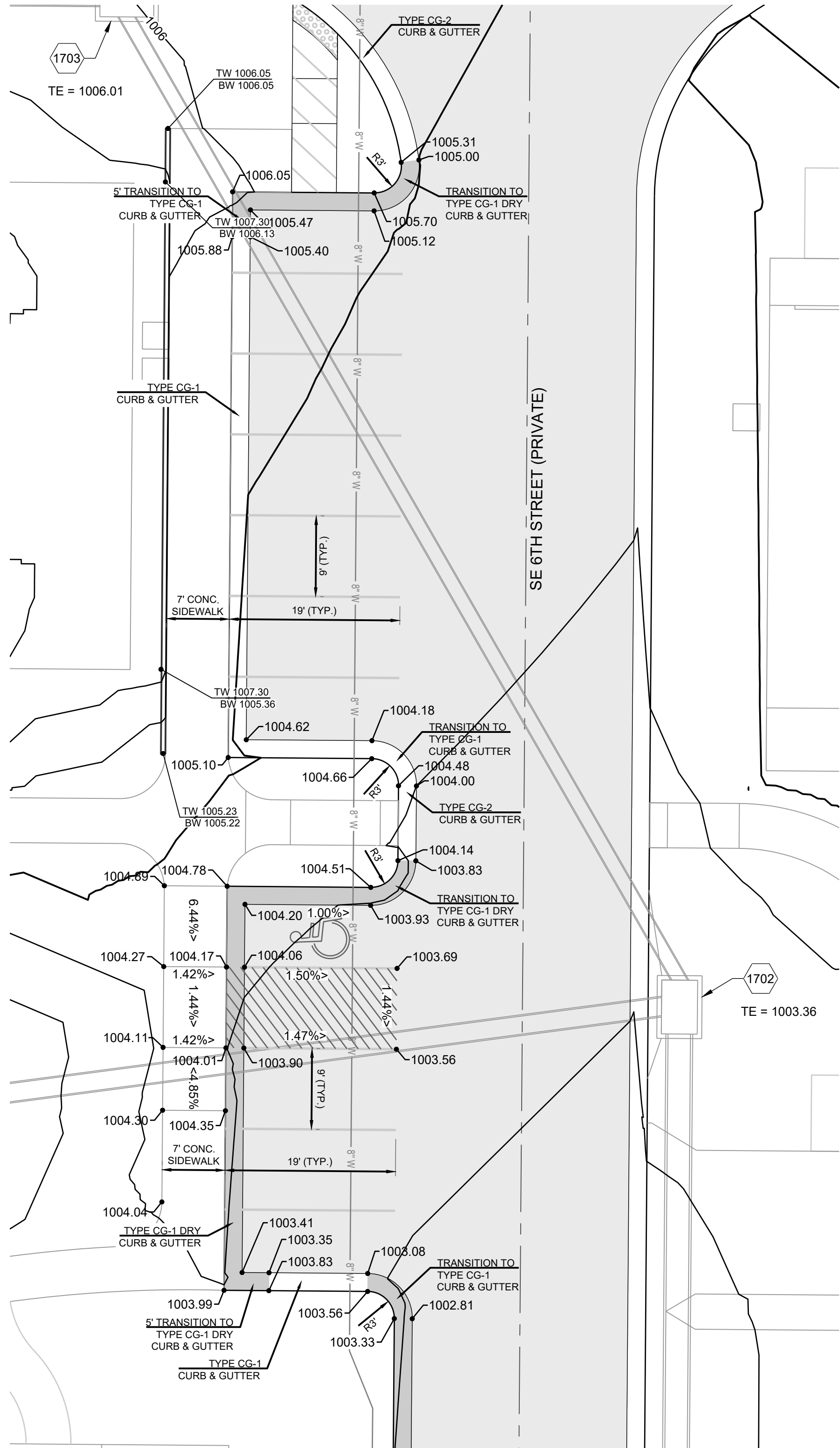
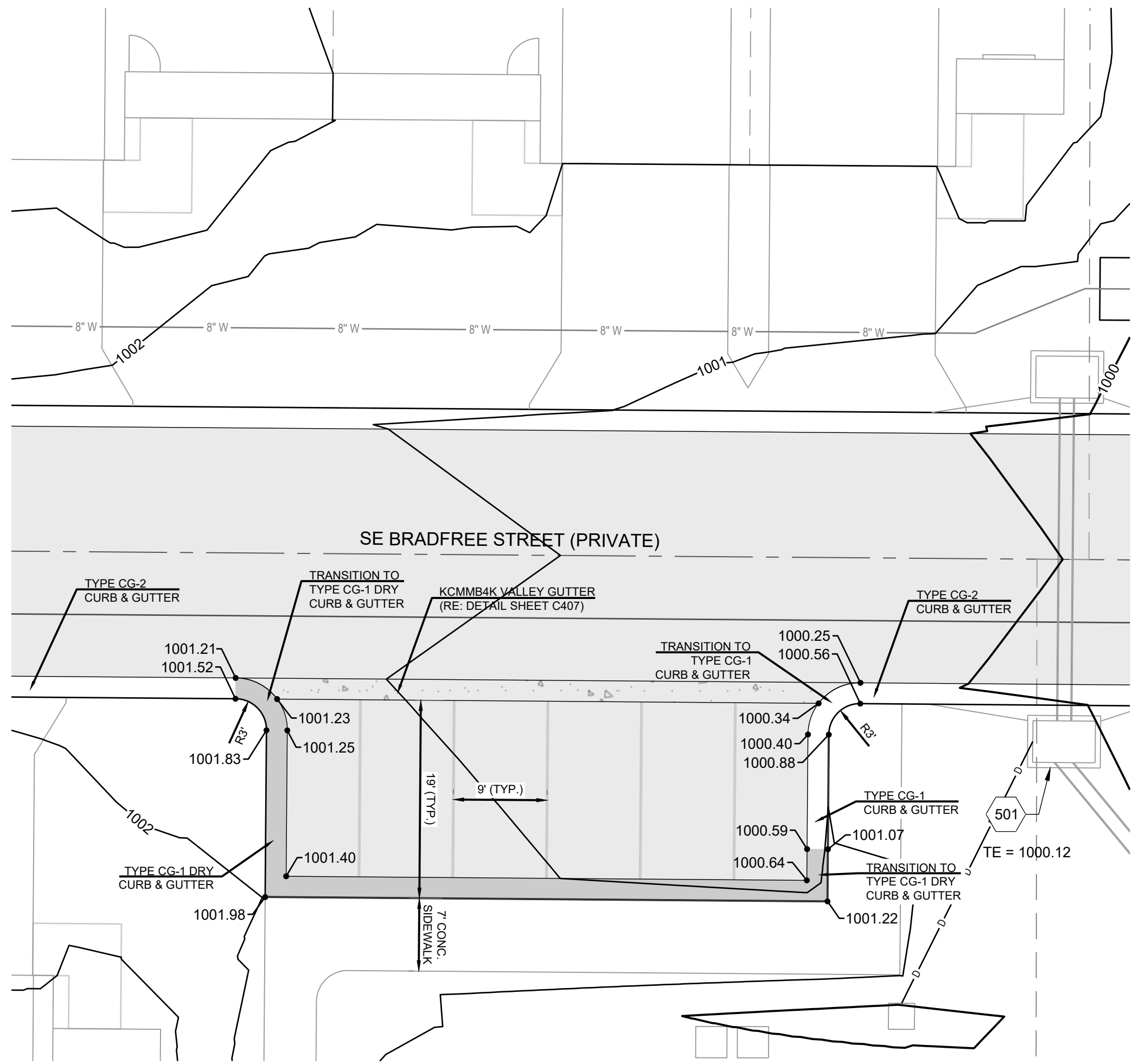


REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

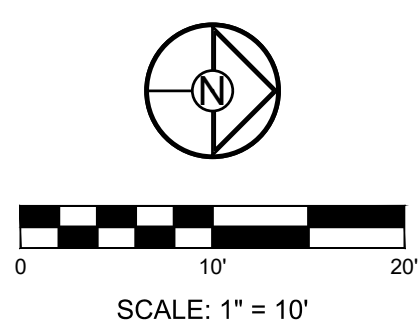
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2	06/27/23	PER CITY COMMENTS
3	08/24/23	PER CITY COMMENTS
4	08/25/23	PER CITY COMMENTS
5	10/05/23	PER CITY COMMENTS
6		
7		
8		
9		

SPOT
ELEVATIONS -
PARKING

SHEET
C203



KEY MAP
1" = 200'



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PREPARED BY:

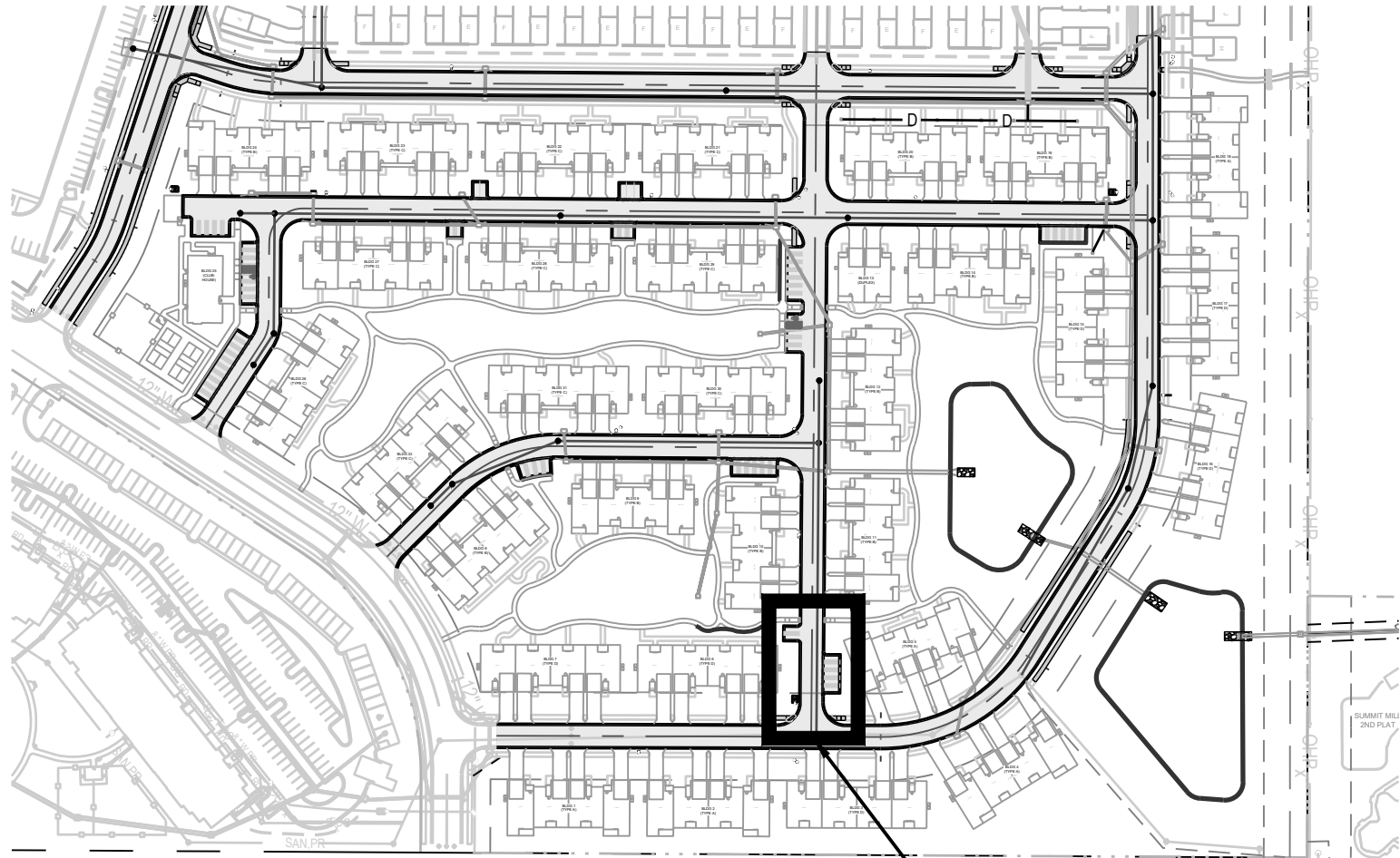
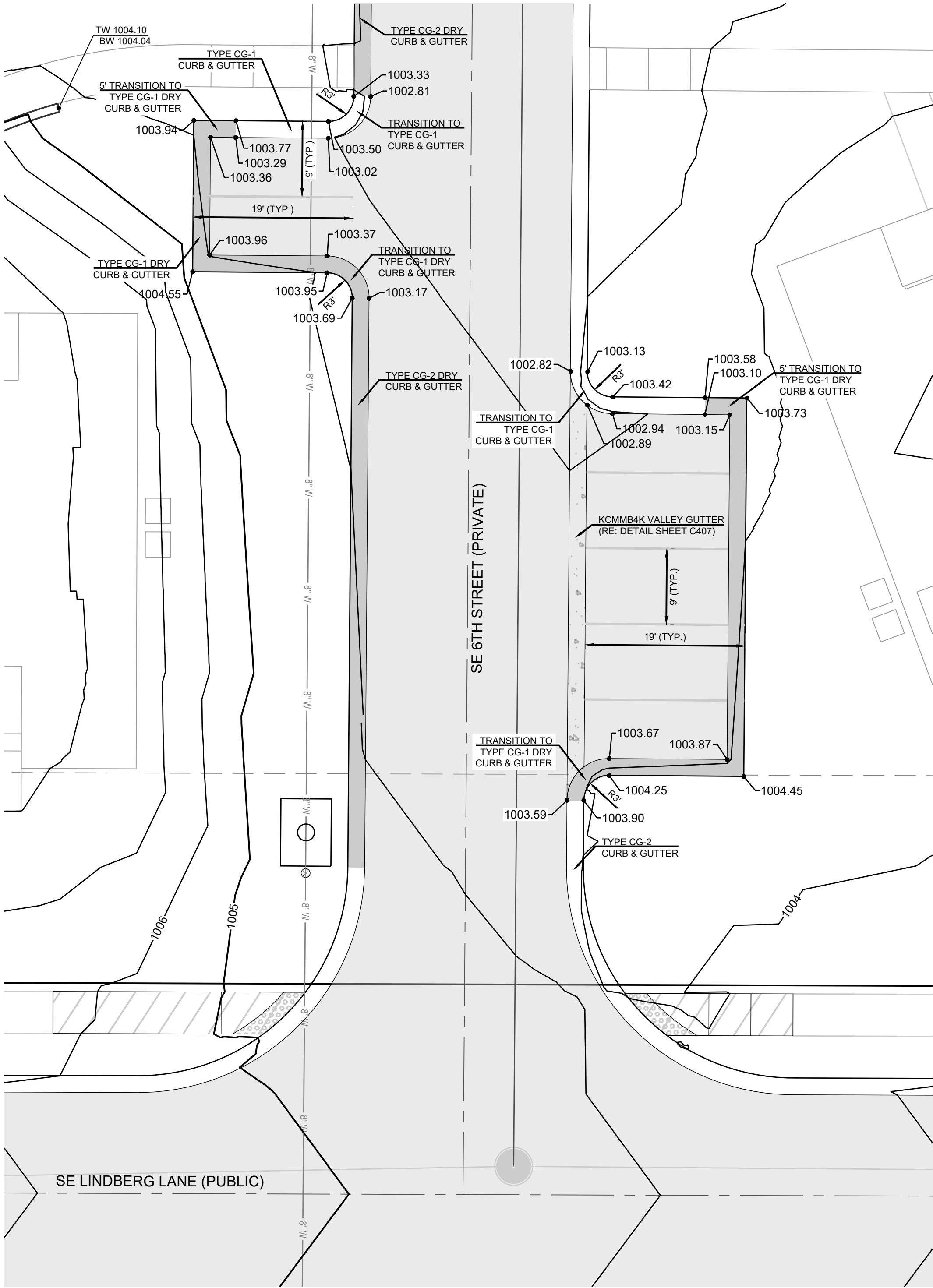
10.05.2023
SCHLAGEL & ASSOCIATES, P.A.

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

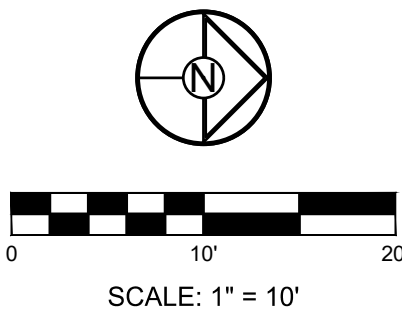
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05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-597

SPOT
ELEVATIONS -
PARKING
SHEET
C204



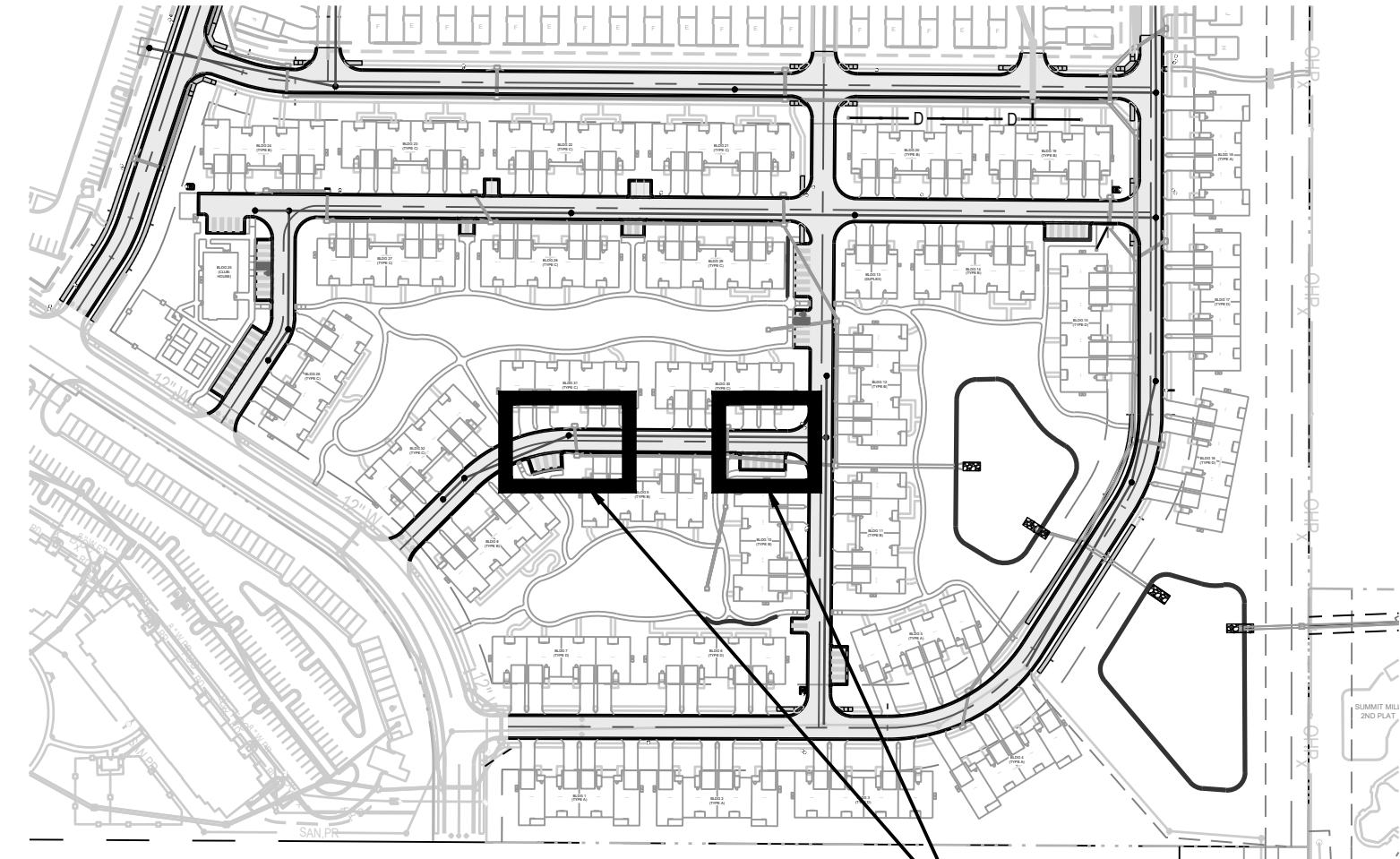
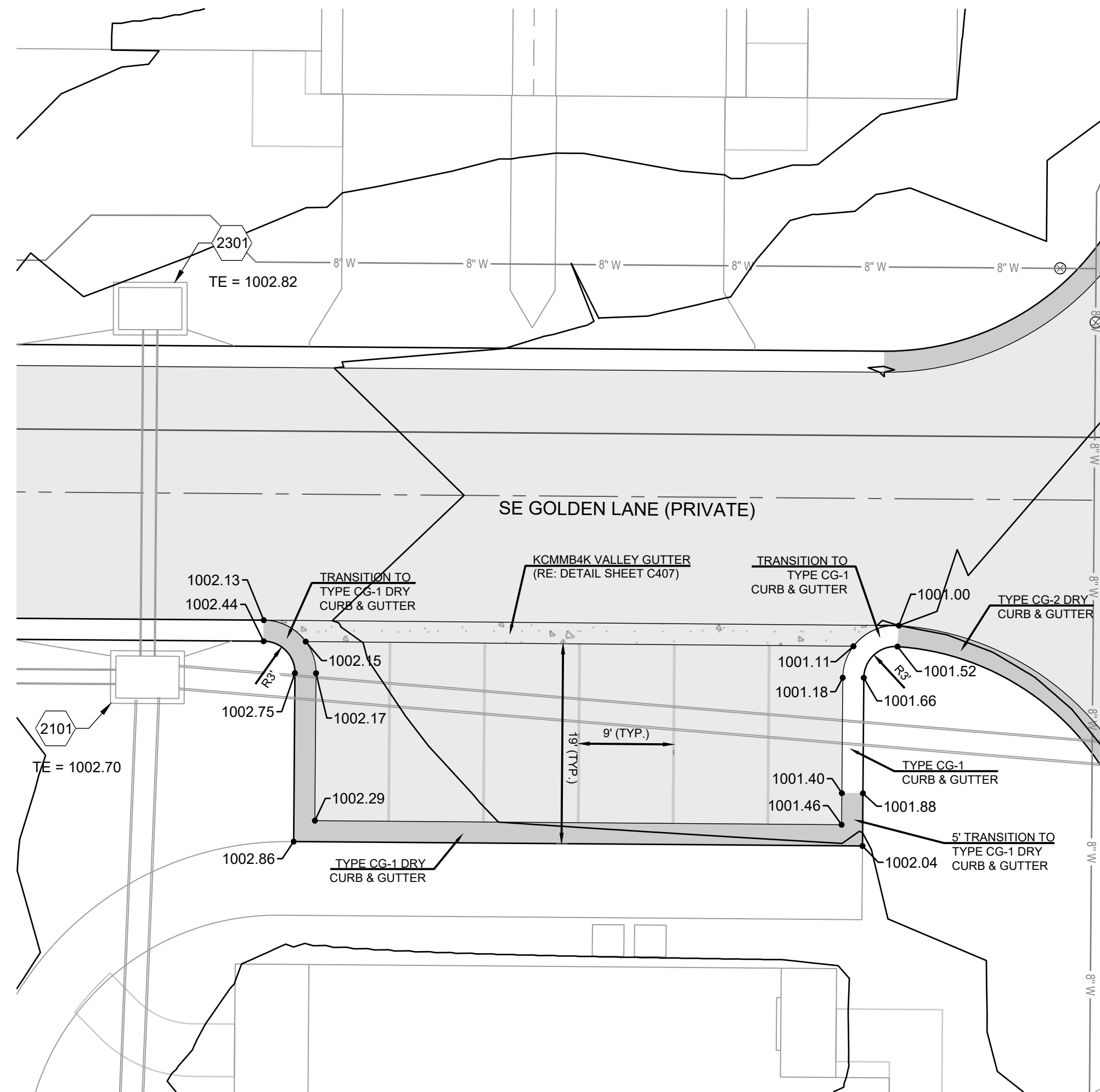
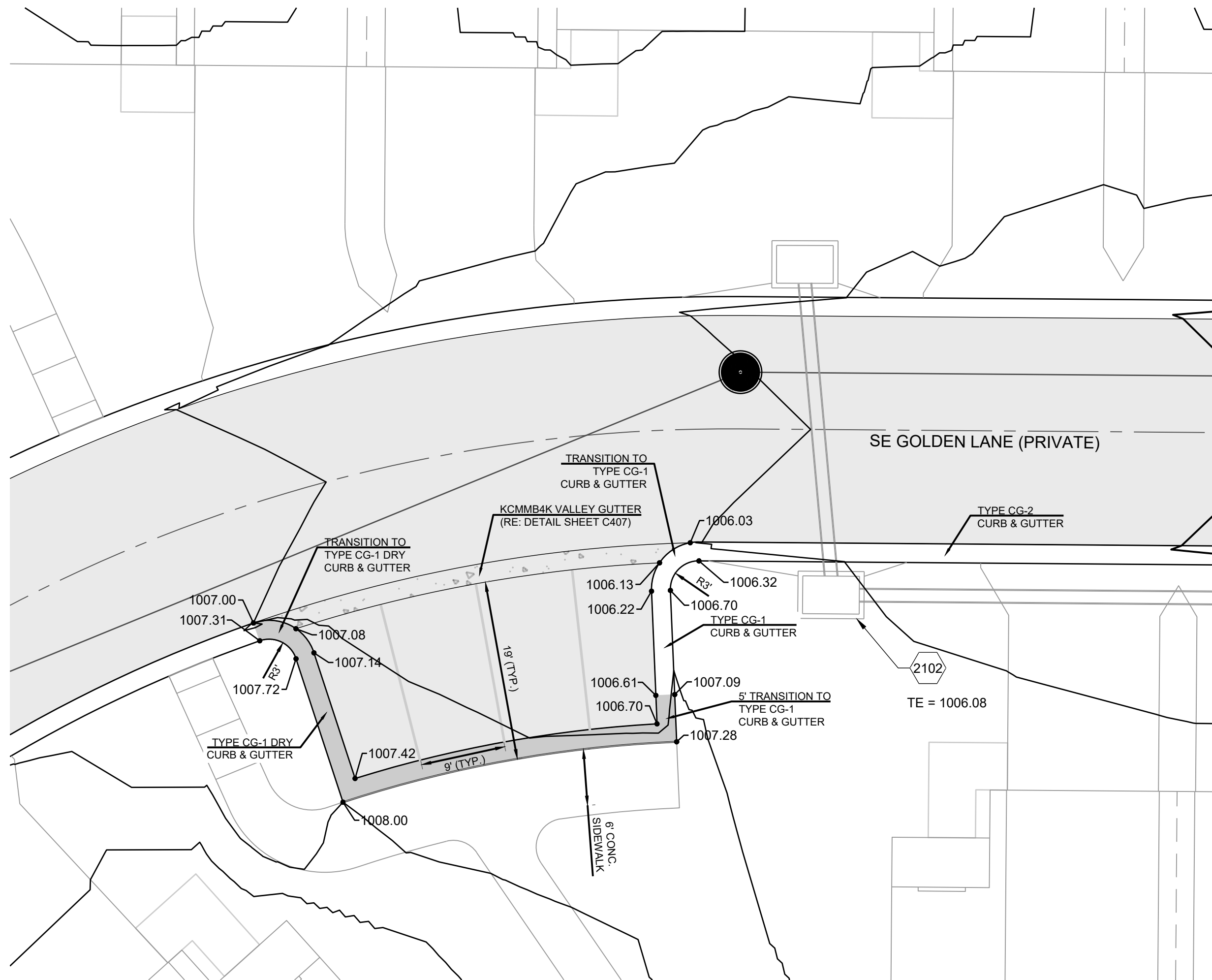
KEY MAP
1" = 200'



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

REVISION DATE	DESCRIPTION
1 05/05/23	PER CITY COMMENTS
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4 09/25/23	PER CITY COMMENTS
5 10/05/23	PER CITY COMMENTS
6	
7	
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DRAWN BY: TRC	03/03/2023
CHECKED BY: MAB	22-597
DATE PREPARED:	
PROJ. NUMBER:	



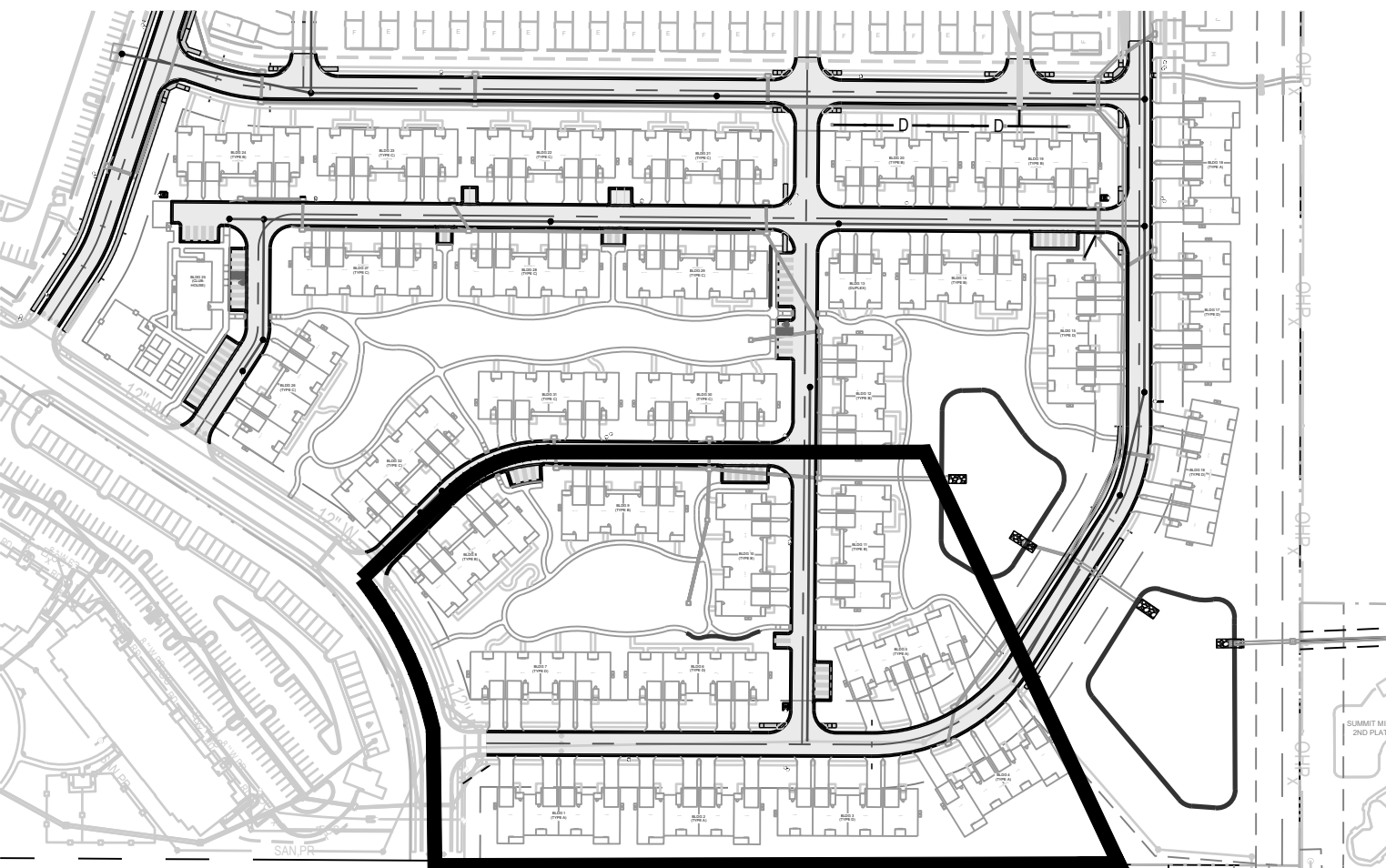
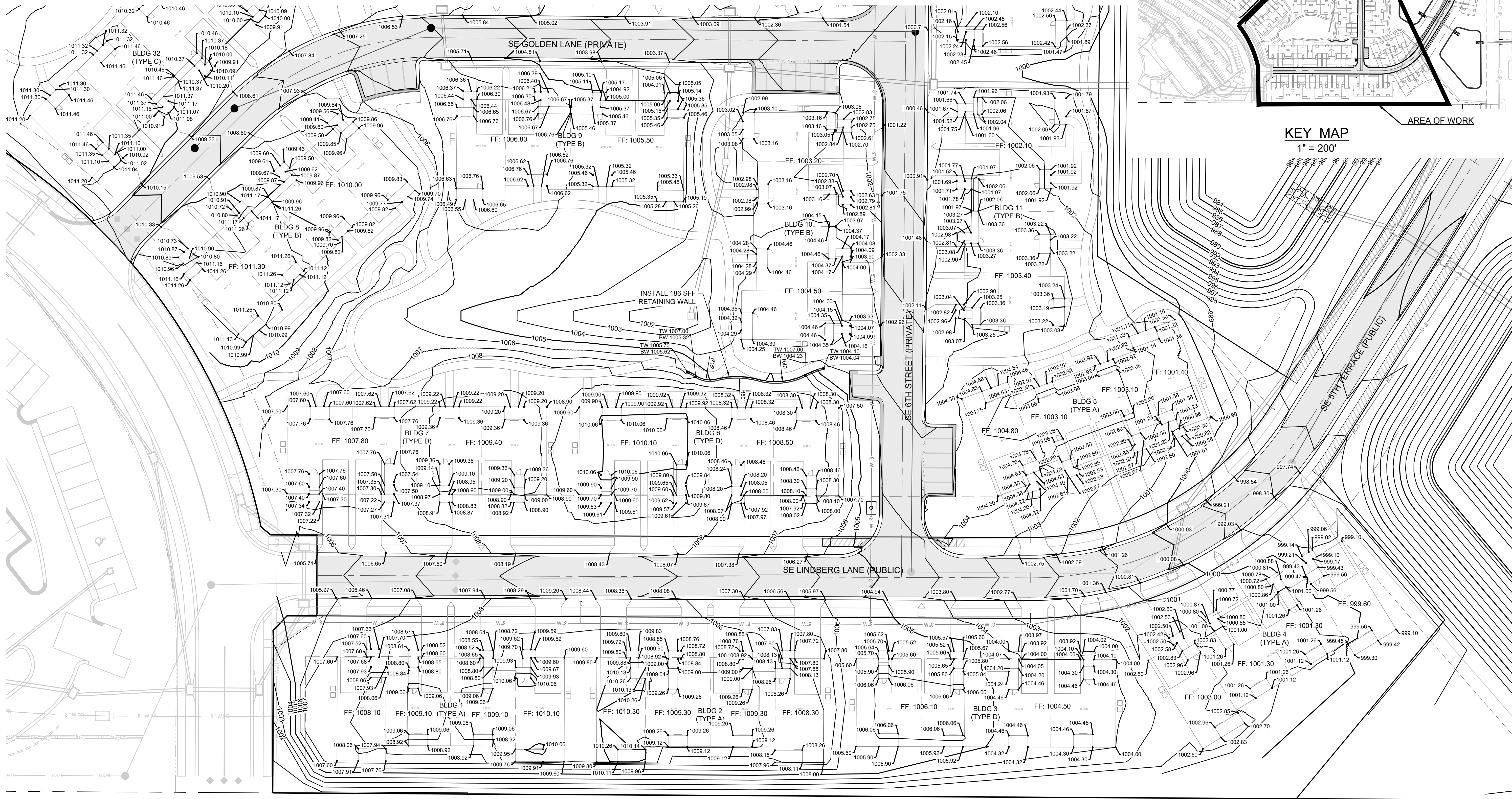
KEY MAP
1" = 200'

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

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03/03/2023	PROJ. NUMBER:
22-597	

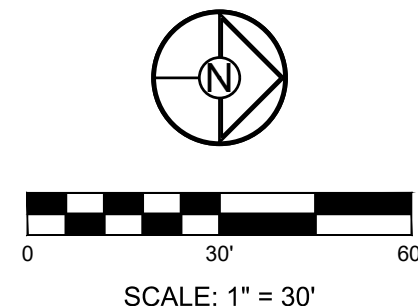
SPOT
ELEVATIONS -
PARKING

SHEET
C206



KEY MAP
1" = 200'

AREA OF WORK



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PREPARED BY:

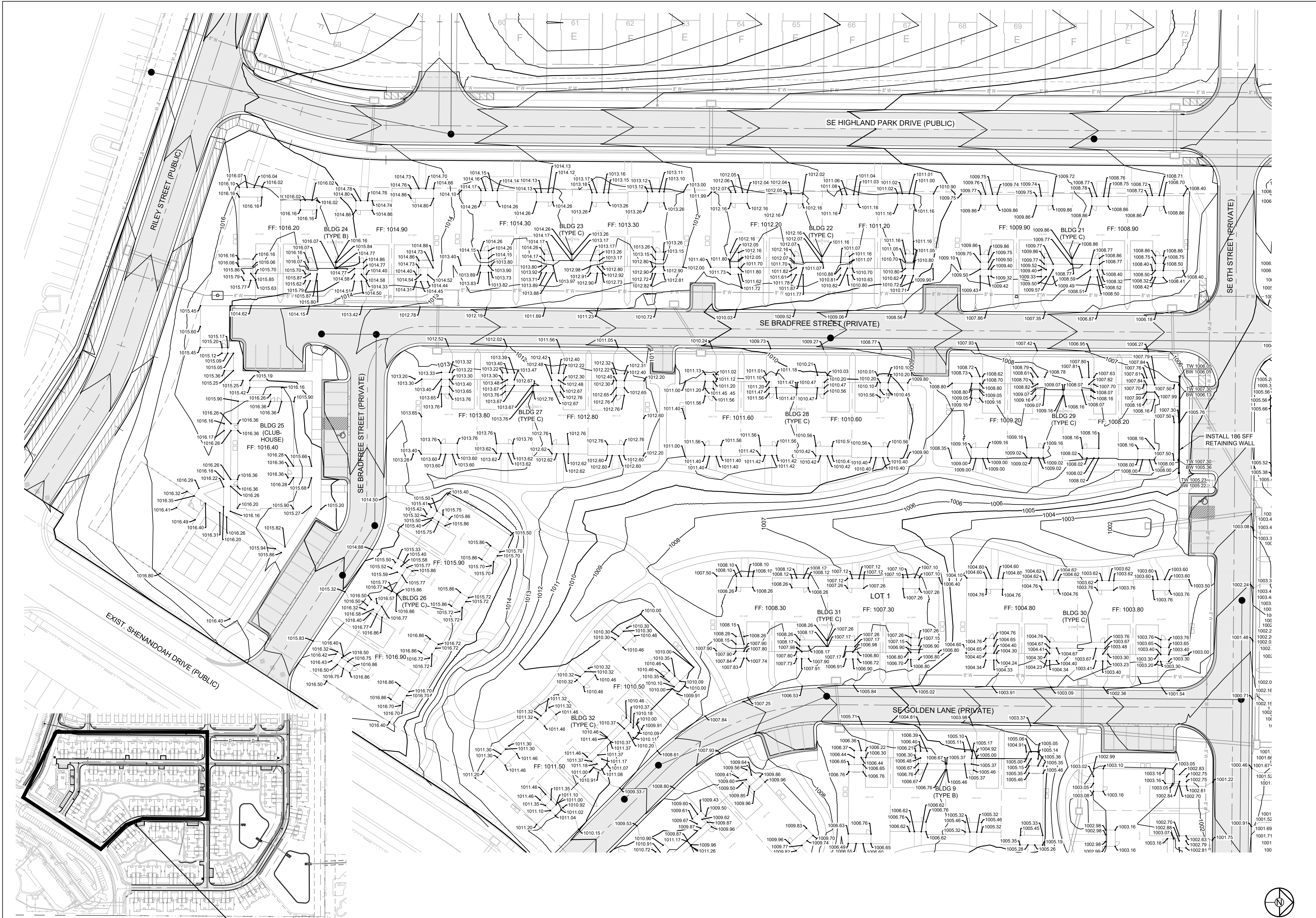
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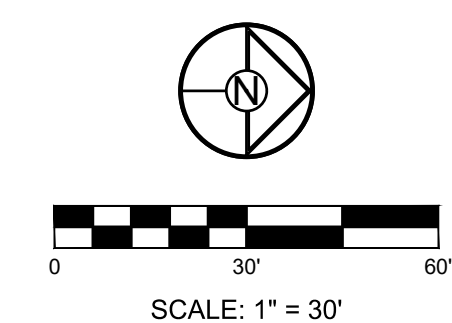
REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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SPOT
ELEVATIONS -
BUILDINGS
SHEET
C207



KEY MAP
1" = 200'
AREA OF WORK



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PREPARED BY:

STATE OF MISSOURI

MARK ALLEN BREUER

REGISTERED PROFESSIONAL ENGINEER

PE-2003607268

10.05.2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
PROJ. NUMBER:	
22-597	

DRAWN BY: TRC

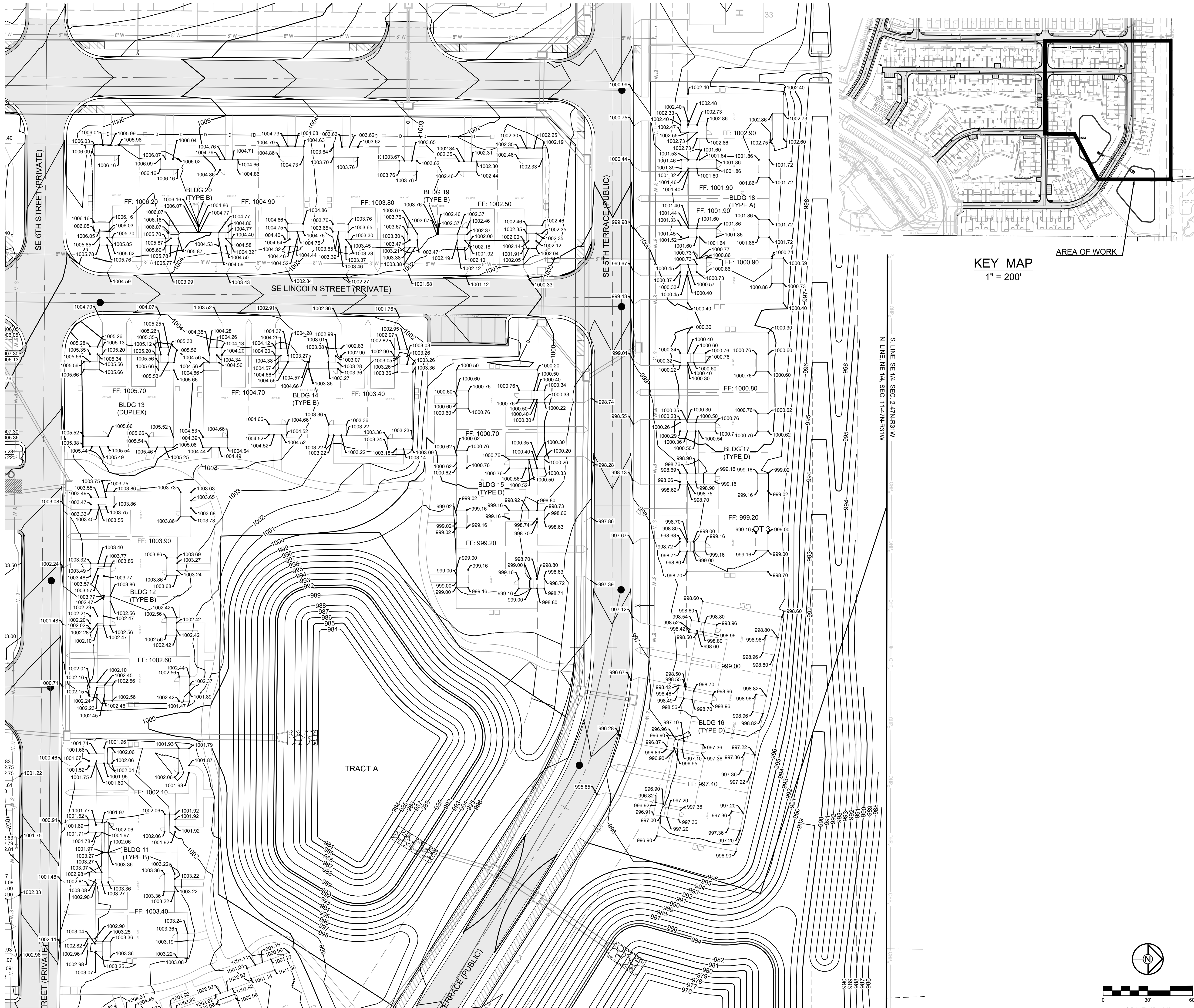
CHECKED BY: MAB

DATE PREPARED: 03/03/2023

PROJ. NUMBER: 22-597

SPOT ELEVATIONS - BUILDINGS

SHEET C208



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STATE OF MISSOURI

MARK ALLEN BREUER

REGISTERED PROFESSIONAL ENGINEER

NUMBER PE-2003607268

10.05.2023

SCHLAGEL & ASSOCIATES, P.A.

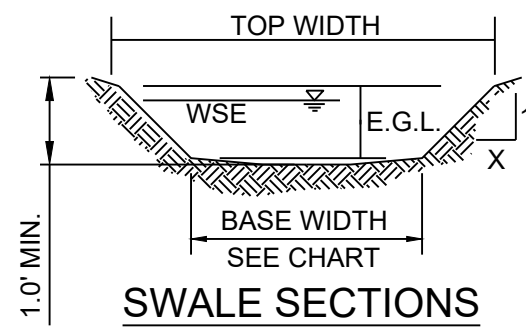
REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
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09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER

SHEET
C209

SPOT
ELEVATIONS -
BUILDINGS

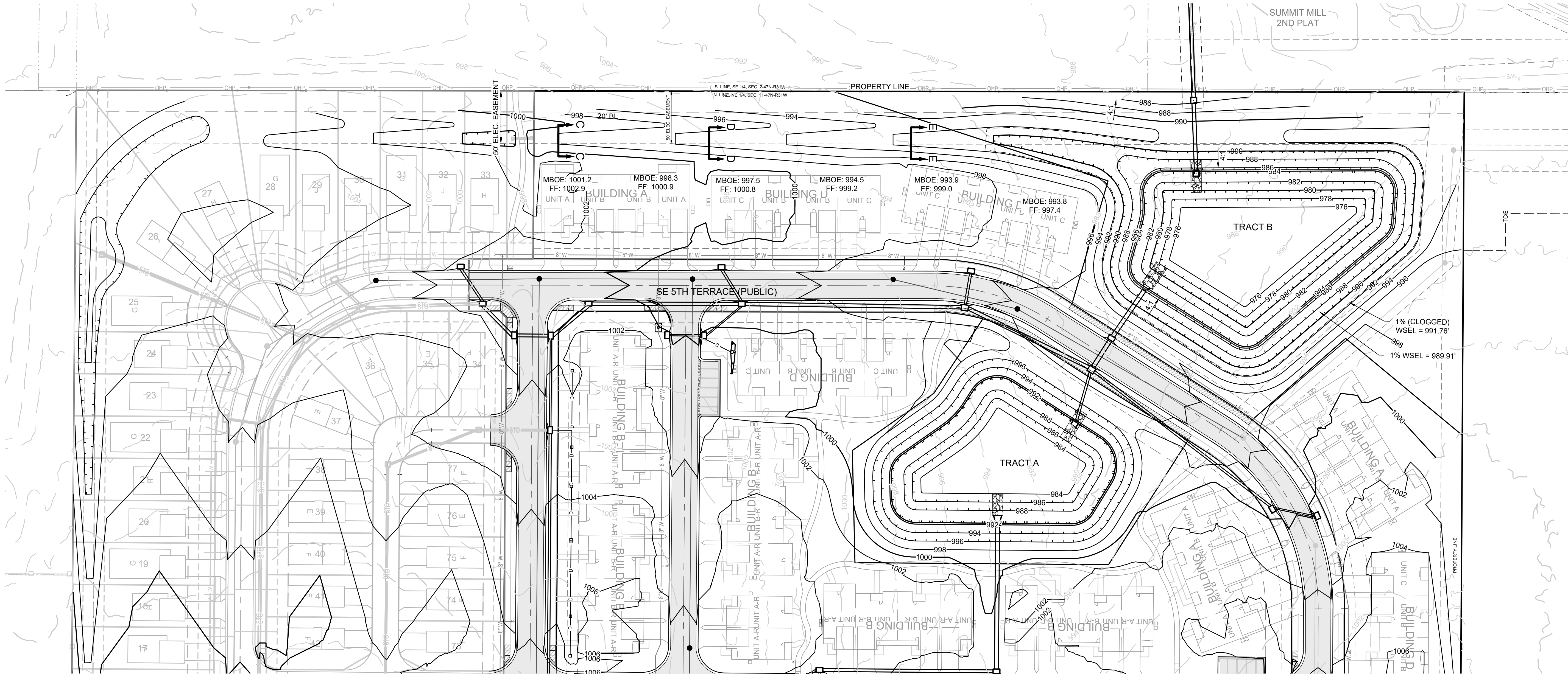


RUNOFF CALCULATIONS:
 $Q = K \cdot C \cdot I \cdot A$
 $K_{100} = 1.25 K_{10} = 1.0 C = 0.51$
 $k_{10} = 7.35 \quad k_{100} = 10.32$
VELOCITY HEAD = $(\text{VELOCITY})^2 / 64.4$
EGL = DEPTH + VELOCITY HEAD

EXISTING CHANNEL															
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW FORMULA	DESIGN OVERFLOW (CFS)	BED SLOPE (%)	SIDE SLOPE (X:1)	SIDE SLOPE (X:2)	BASE WIDTH (FT)	CROSS SECTION AREA (FT2)	TOP WIDTH (FT)	NOMINAL DEPTH (FT.)	AVERAGE VELOCITY (FPS)	VELOCITY HEAD (FT.)	EGL (FT.)
C	0.45	3.83	2.73	Q100(C)	3.83	2.00	4.00	4.00	10.00	2.62	11.92	0.17	2.07	0.07	0.24
D	0.69	5.87	4.18	Q100(C)	5.87	2.00	4.00	4.00	10.00	3.51	12.49	0.22	2.43	0.09	0.31
E	1.01	8.60	6.12	Q100(C)	8.60	2.00	4.00	4.00	10.00	4.65	13.21	0.28	2.79	0.12	0.40

NOTES:

- MBOE = MINIMUM BUILDING OPENING ELEVATION FOR HOUSES ADJACENT TO ENGINEERED OVERFLOW SWALES SHALL BE A MINIMUM OF 2 FEET ABOVE THE WATER SURFACE ELEVATION FOR THE 1% CHANCE STORM EVENT. APPROVED INDIVIDUAL LOT PLOT PLANS MAY ALTER THE CONSTRUCTED SWALES IN ELEVATION (CONTOUR) FROM THE GRADING PLAN AS LONG AS THE MBOE IS ADJUSTED ACCORDING TO THE ABOVE CRITERIA.
- EGL = ENERGY GRADE LINE (100 YR)
- MWSE = MAXIMUM WATER SURFACE ELEVATION (100 YR)
- MBOE'S ADJACENT TO SUMPED AREA INLETS SHALL BE A MINIMUM OF 1' ABOVE TOP OF ADJACENT BERM.



MO GRS BENCHMARK:

STATION NAME - JA-90

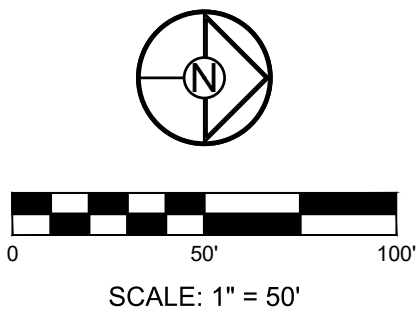
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD. 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD. N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

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

ELEV. 1005.719



PREPARED BY:



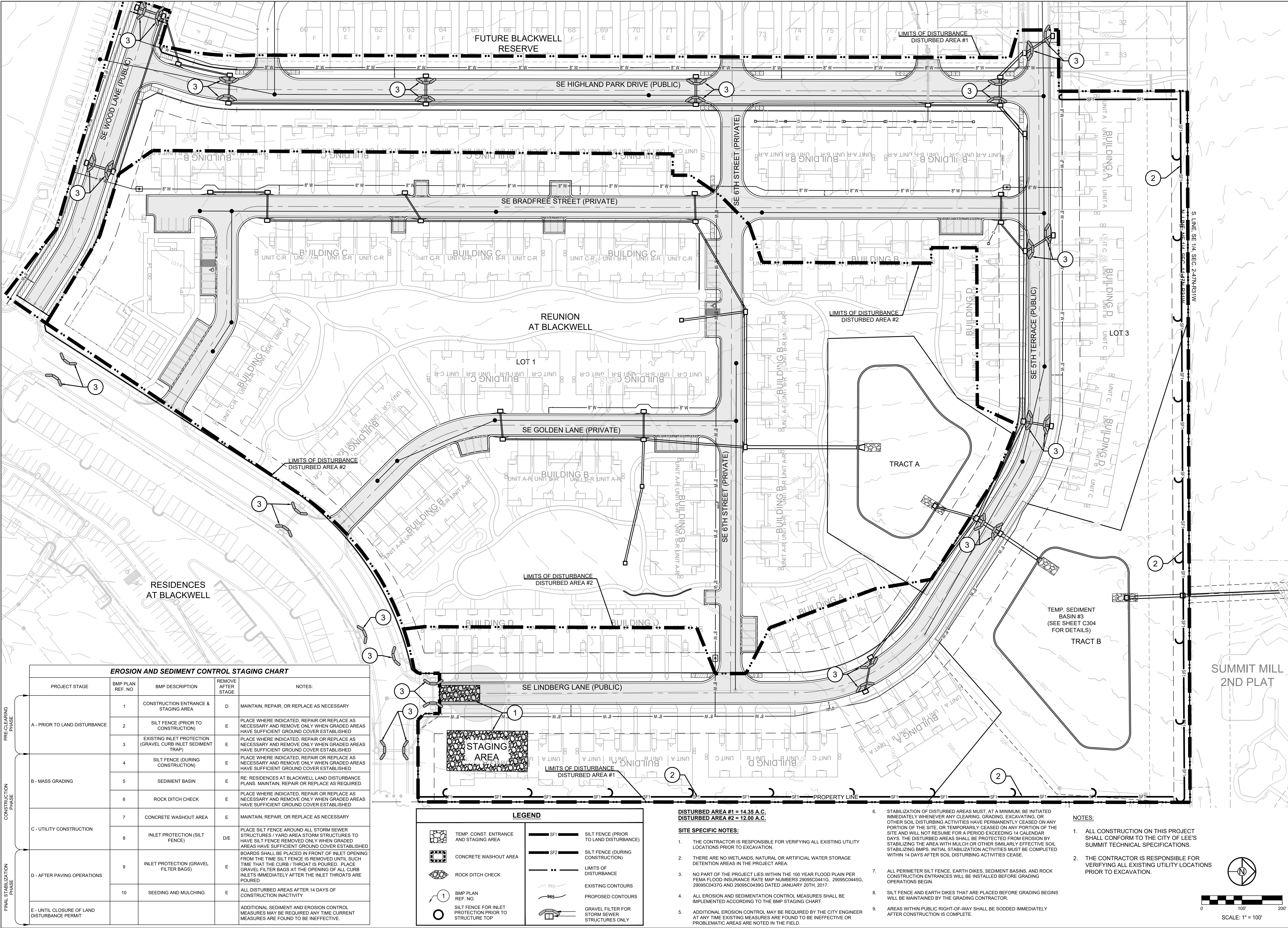
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REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
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08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER

NORTH SWALE PLAN

SHEET
C210



EROSION AND SEDIMENT CONTROL STAGING CHART				
PROJECT STAGE	BMP PLAN REF. NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES
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
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. 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
D - AFTER PAVING OPERATIONS	9	INLET PROTECTION (GRAVEL FILTER BAGS)	E	
	10	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT				ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED ANY TIME CURRENT MEASURES ARE FOUND TO BE INEFFECTIVE.

TEMP. CONST. ENTRANCE AND STAGING AREA

CONCRETE WASHOUT AREA

ROCK DITCH CHECK

BMP PLAN REF. NO.

SILT FENCE FOR INLET PROTECTION PRIOR TO STRUCTURE TOP

SF1

SF2

LIMITS OF DISTURBANCE

EXISTING CONTOURS

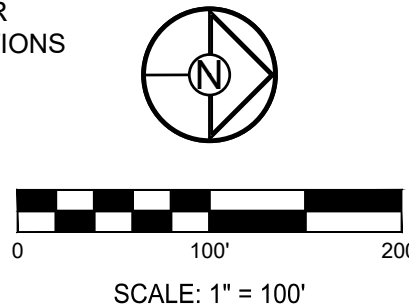
PROPOSED CONTOURS

GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY

- DISTURBED AREA #1 = 14.35 A.C.**
DISTURBED AREA #2 = 12.00 A.C.
- SITE SPECIFIC NOTES:**
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
 - THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
 - NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBERS 29095C0441G, 29095C0445G, 29095C0437G AND 29095C0439G DATED JANUARY 20TH, 2017.
 - ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
 - ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.

- STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE. OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPs. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
- ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
- SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
- AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

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



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PREPARED BY:

10.05.2023
SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

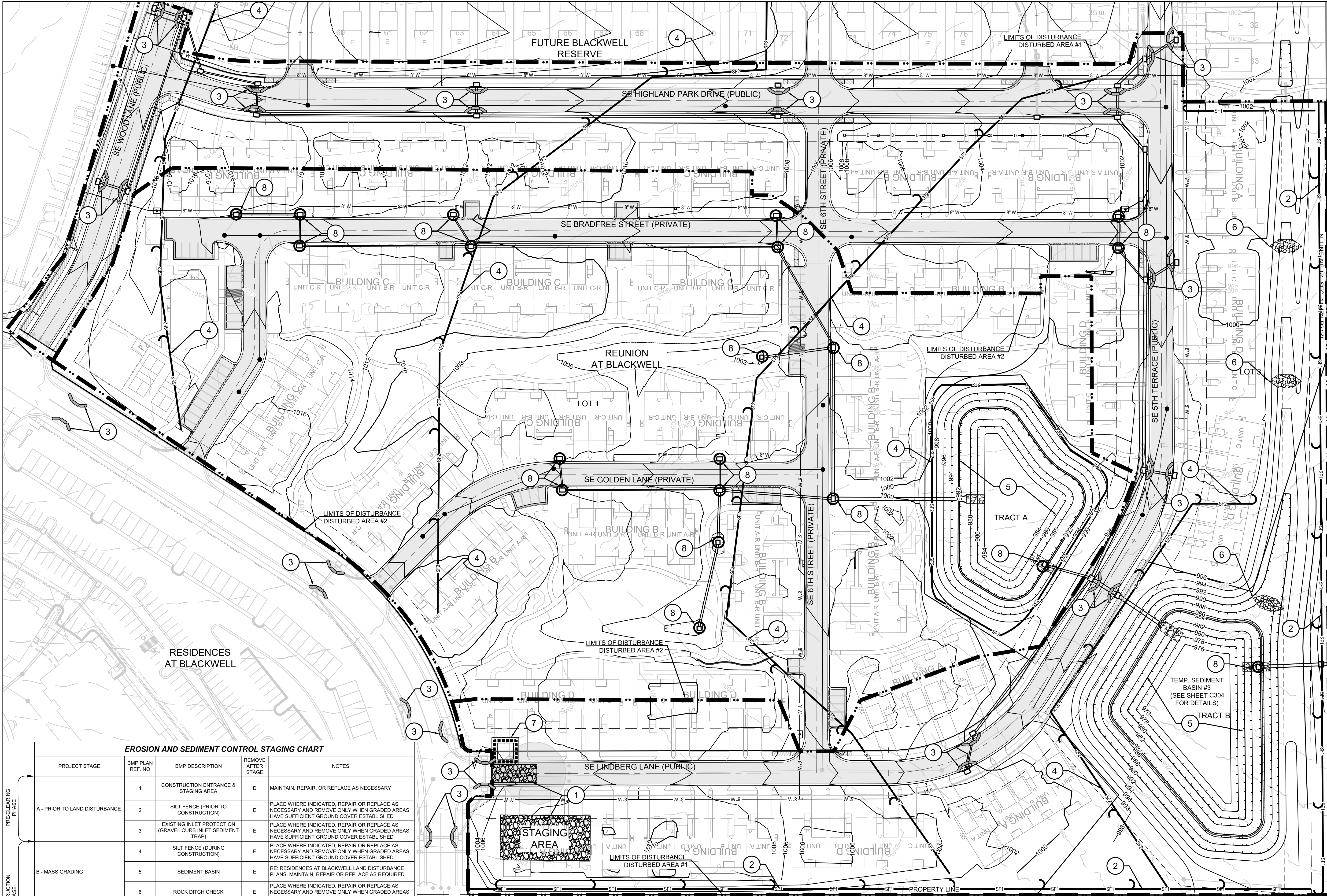
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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10/05/23	PER CITY COMMENTS

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 03/03/2023
PROJ. NUMBER: 22-597

PRE-CLEARING
EROSION
CONTROL PLAN

SHEET
C300



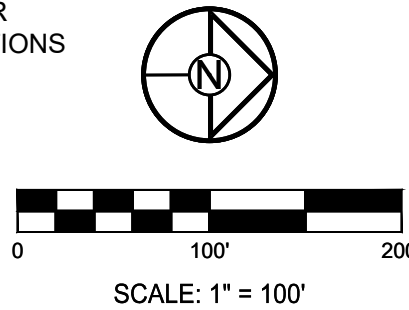
EROSION AND SEDIMENT CONTROL STAGING CHART				
PROJECT STAGE	BMP PLAN REF. NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES
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	2	SILT FENCE (PRIOR TO CONSTRUCTION)	E	PLACE WHERE INDICATED. REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS 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
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. 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
D - AFTER PAVING OPERATIONS	9	INLET PROTECTION (GRAVEL FILTER BAGS)	E	
	10	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT				ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED ANY TIME CURRENT MEASURES ARE FOUND TO BE INEFFECTIVE.

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

- DISTURBED AREA #1 = 14.35 A.C.**
DISTURBED AREA #2 = 12.00 A.C.
- SITE SPECIFIC NOTES:**
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
 - THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
 - NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBERS 2909SC0441G, 2909SC0445G, 2909SC0437G AND 2909SC0439G DATED JANUARY 20TH, 2017.
 - ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
 - ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.

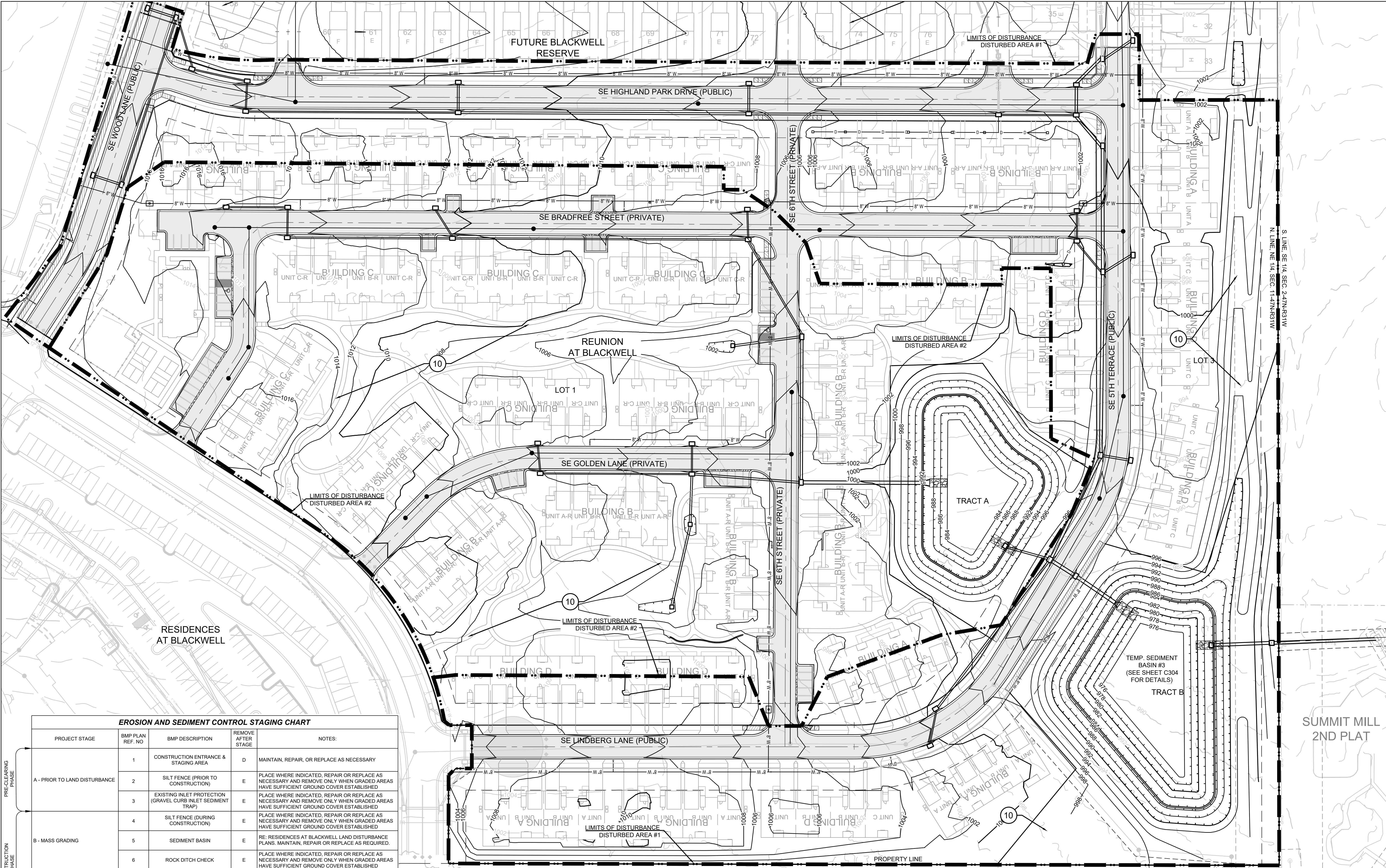
- STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPs. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
- ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
- SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
- AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

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



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

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER



EROSION AND SEDIMENT CONTROL STAGING CHART

PROJECT STAGE	BMP PLAN REF. NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
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
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. 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
D - AFTER PAVING OPERATIONS	9	INLET PROTECTION (GRAVEL FILTER BAGS)	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
	10	SEEDING AND MULCHING	E	ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED ANY TIME CURRENT MEASURES ARE FOUND TO BE INEFFECTIVE.
E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT				

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

DISTURBED AREA #1 = 14.35 A.C.
DISTURBED AREA #2 = 12.00 A.C.

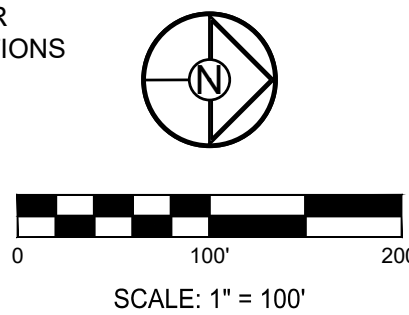
SITE SPECIFIC NOTES:

- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
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- NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBERS 2909SC04413, 2909SC04456, 2909SC0437G AND 2909SC0439G DATED JANUARY 20TH, 2017.
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- AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

NOTES:

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PREPARED BY:



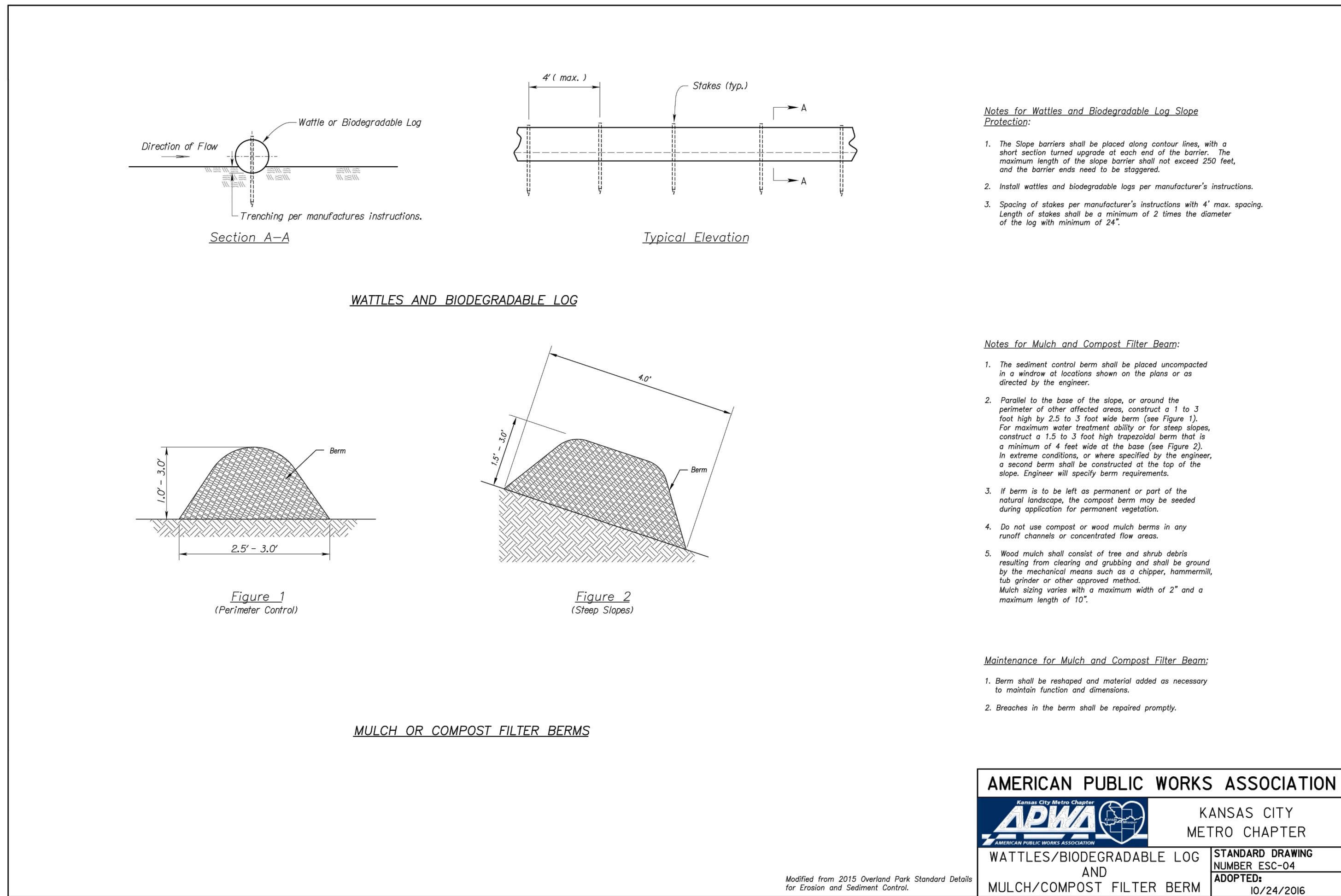
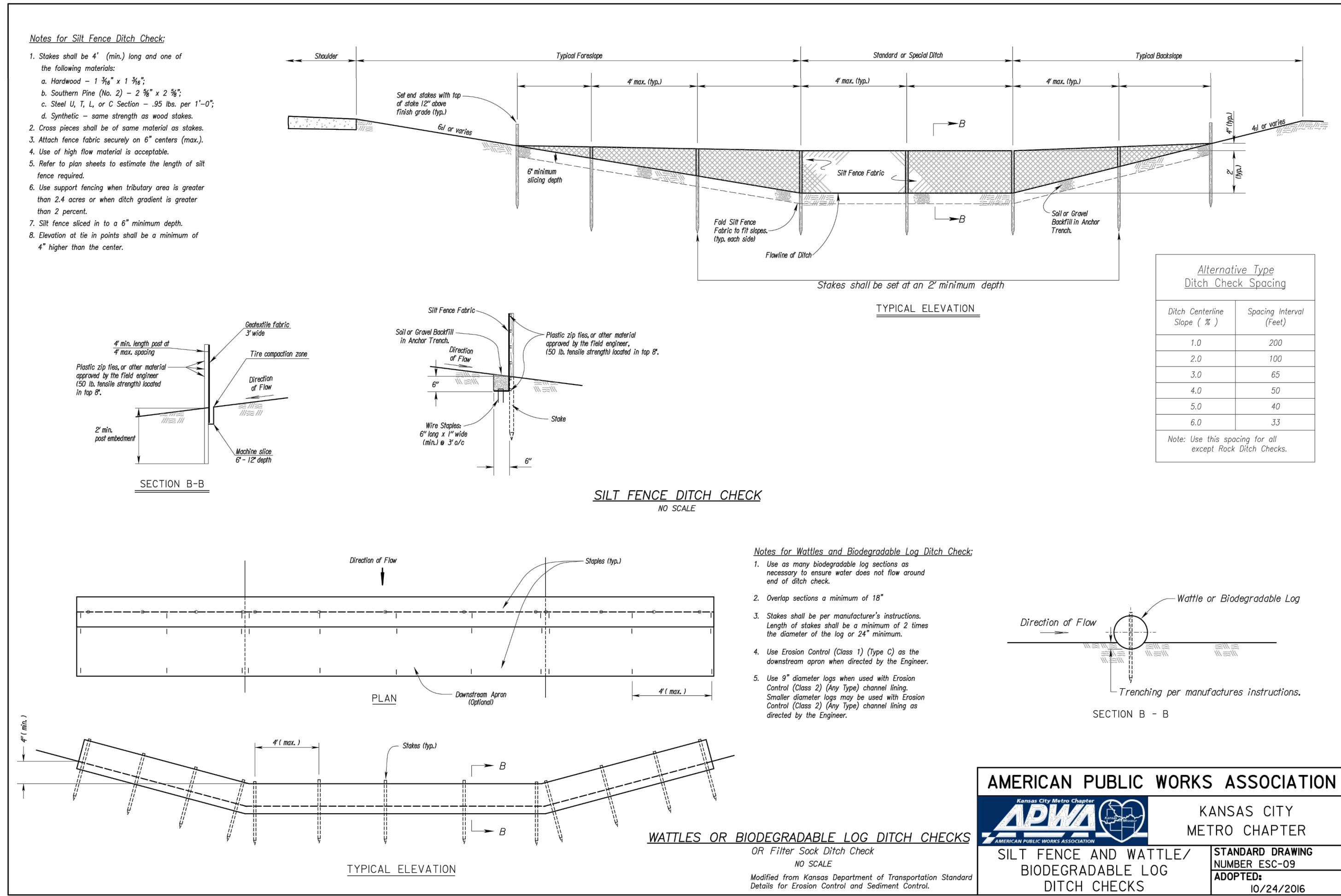
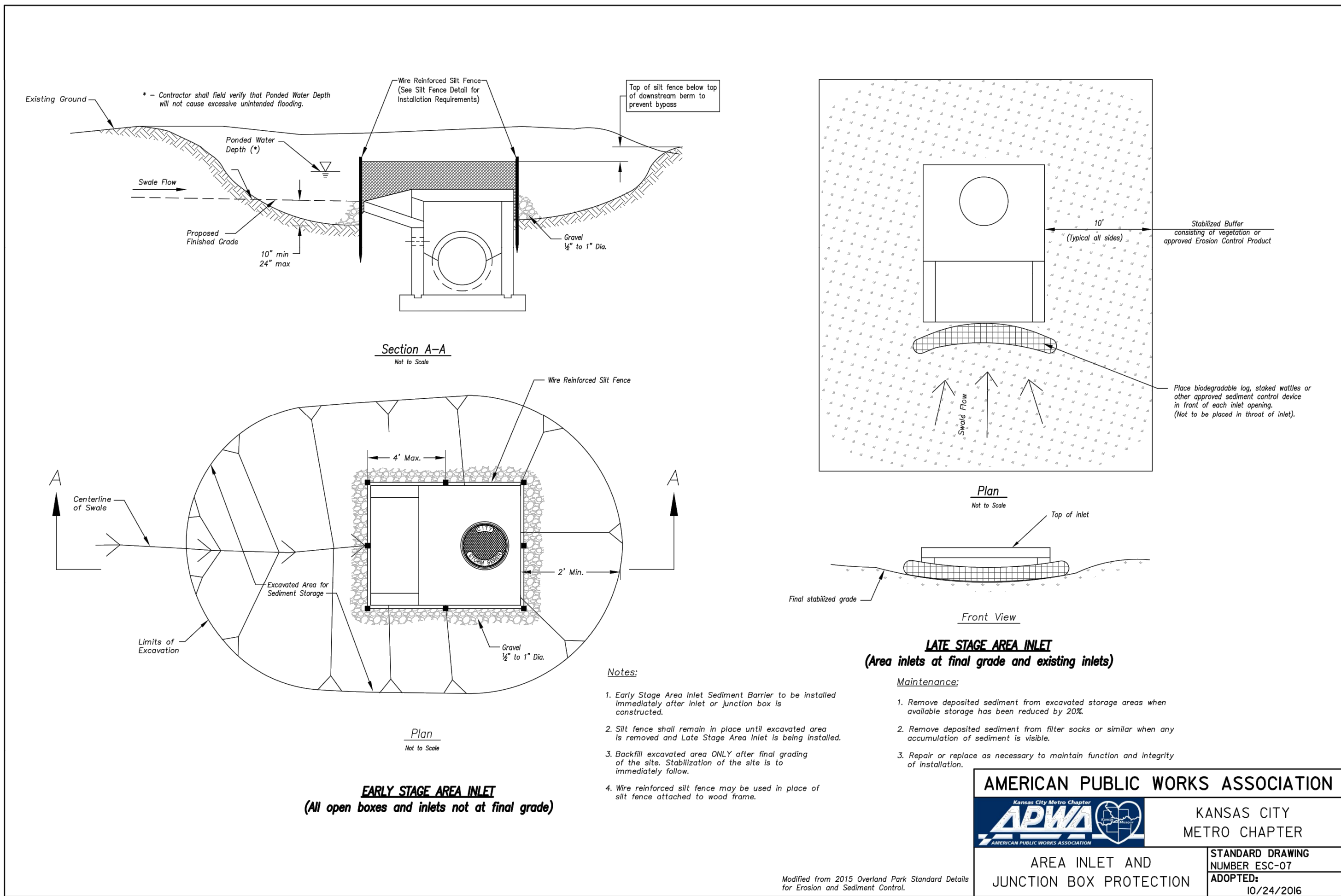
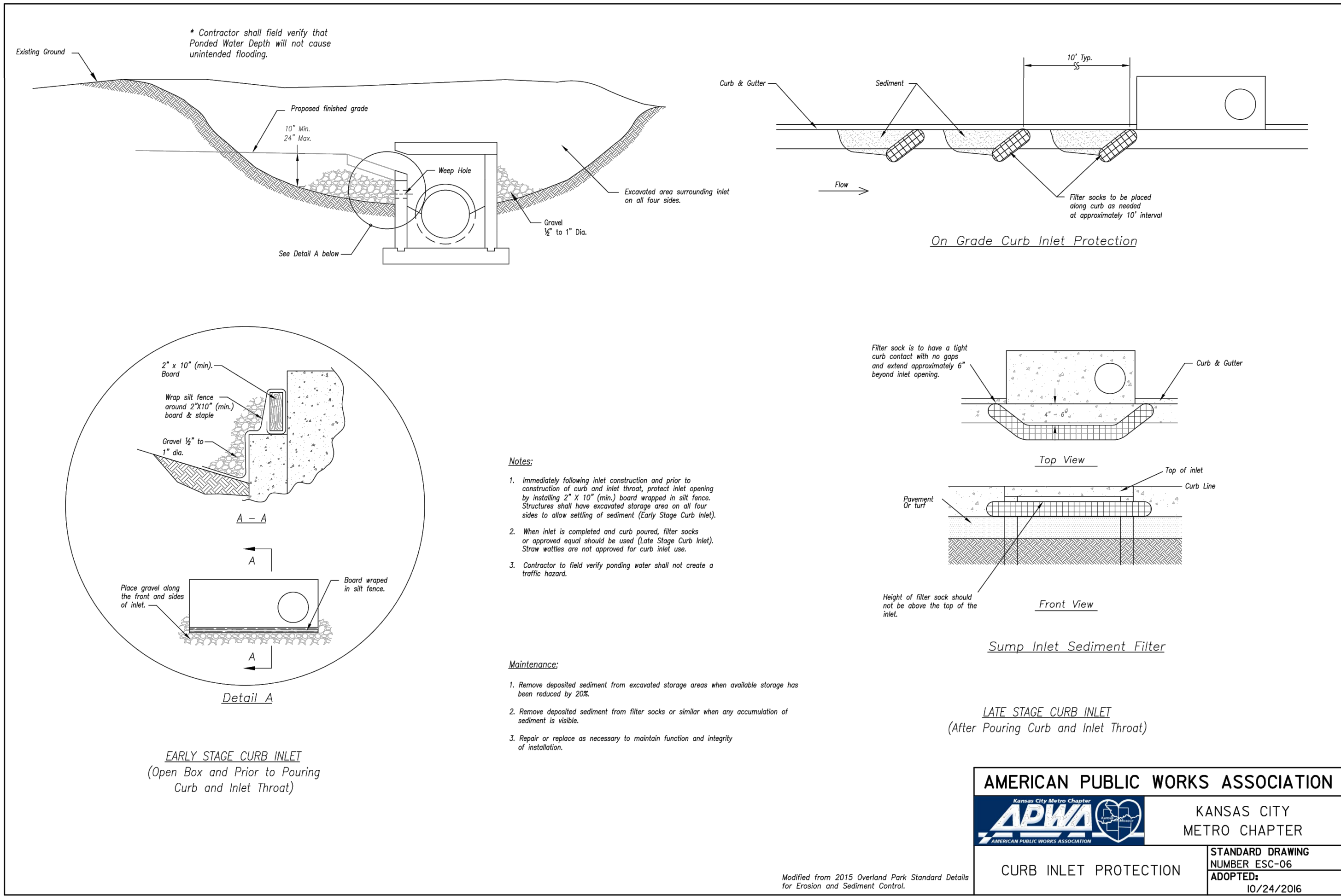
SCHLAGEL & ASSOCIATES, P.A.

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

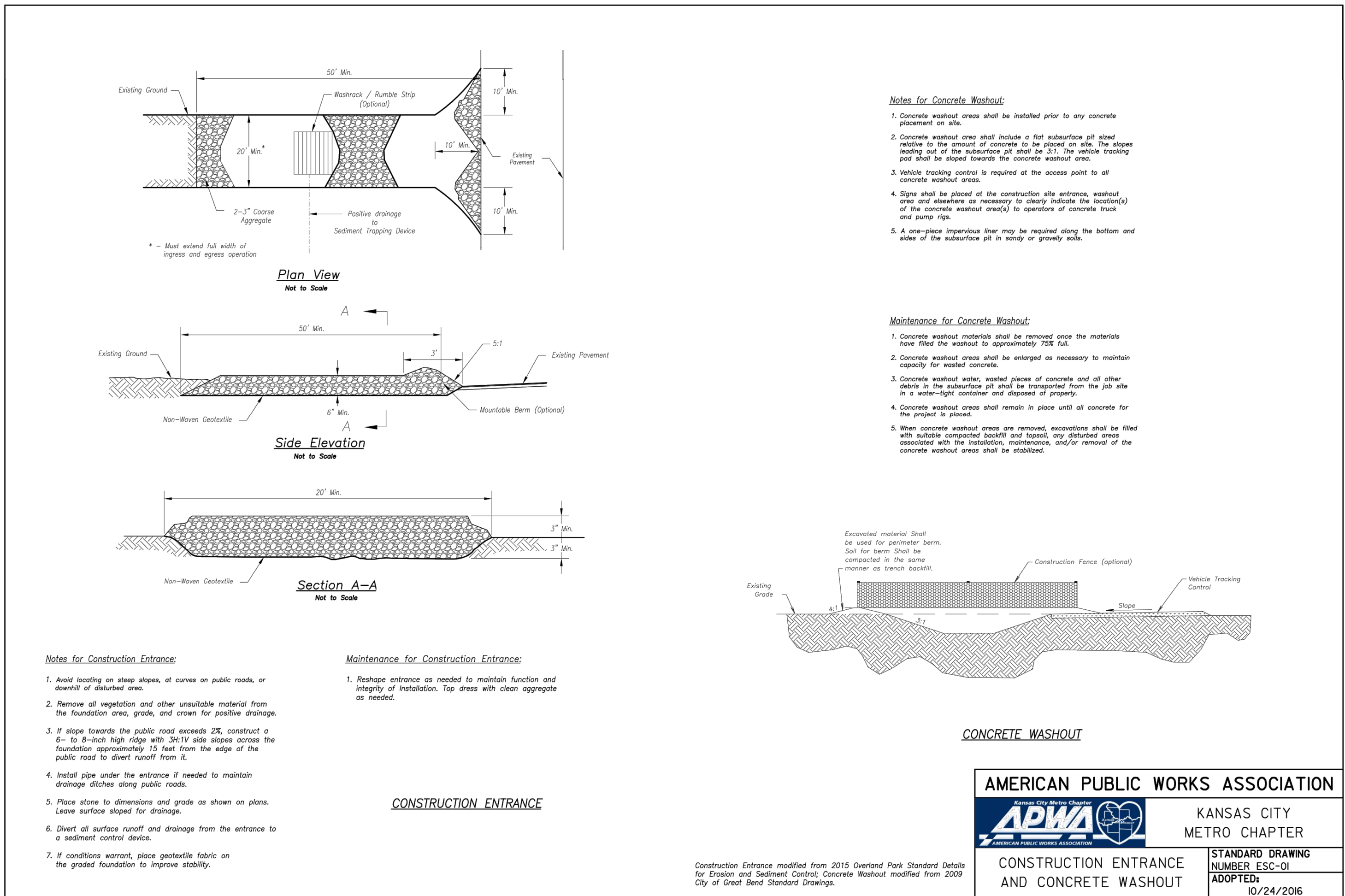
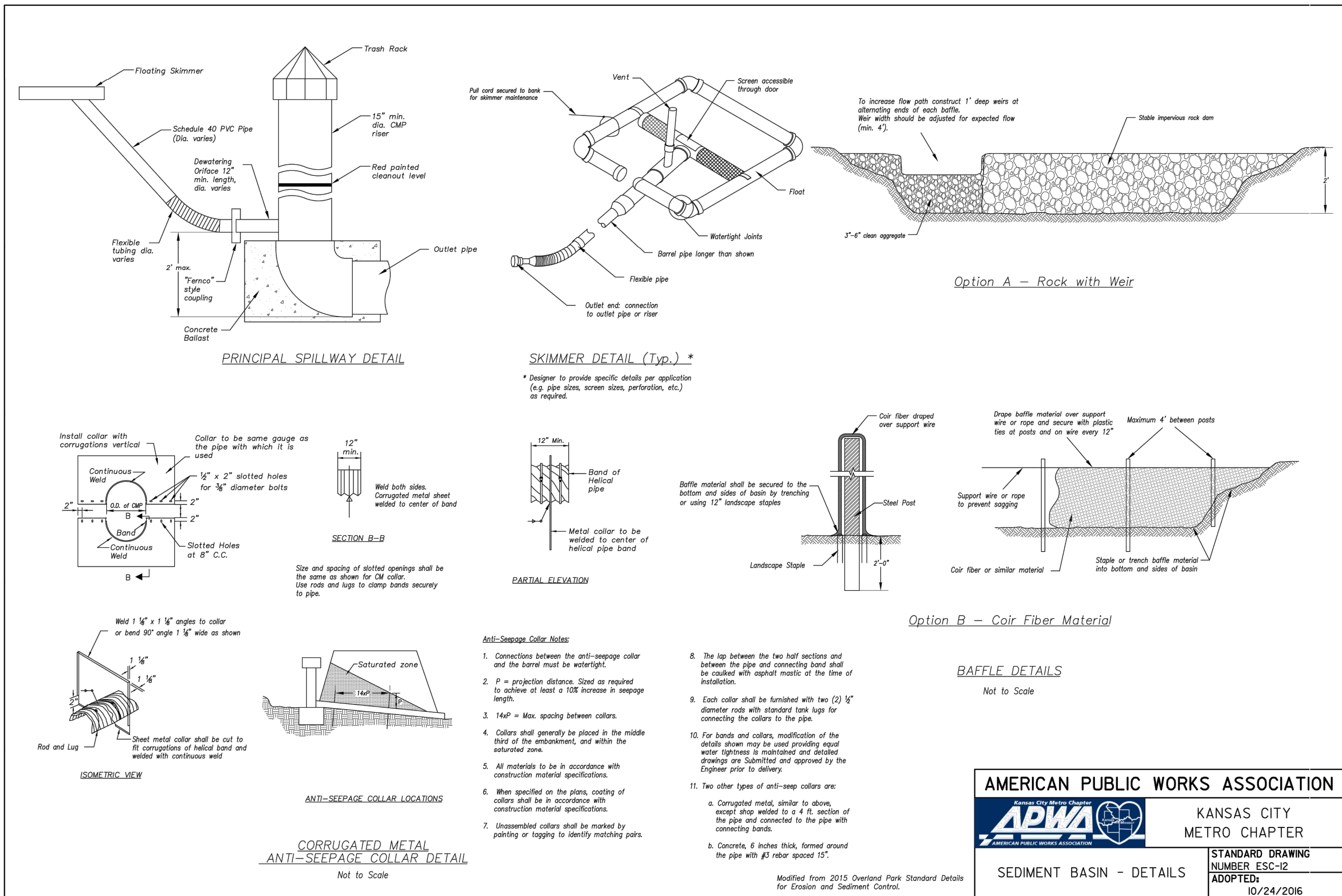
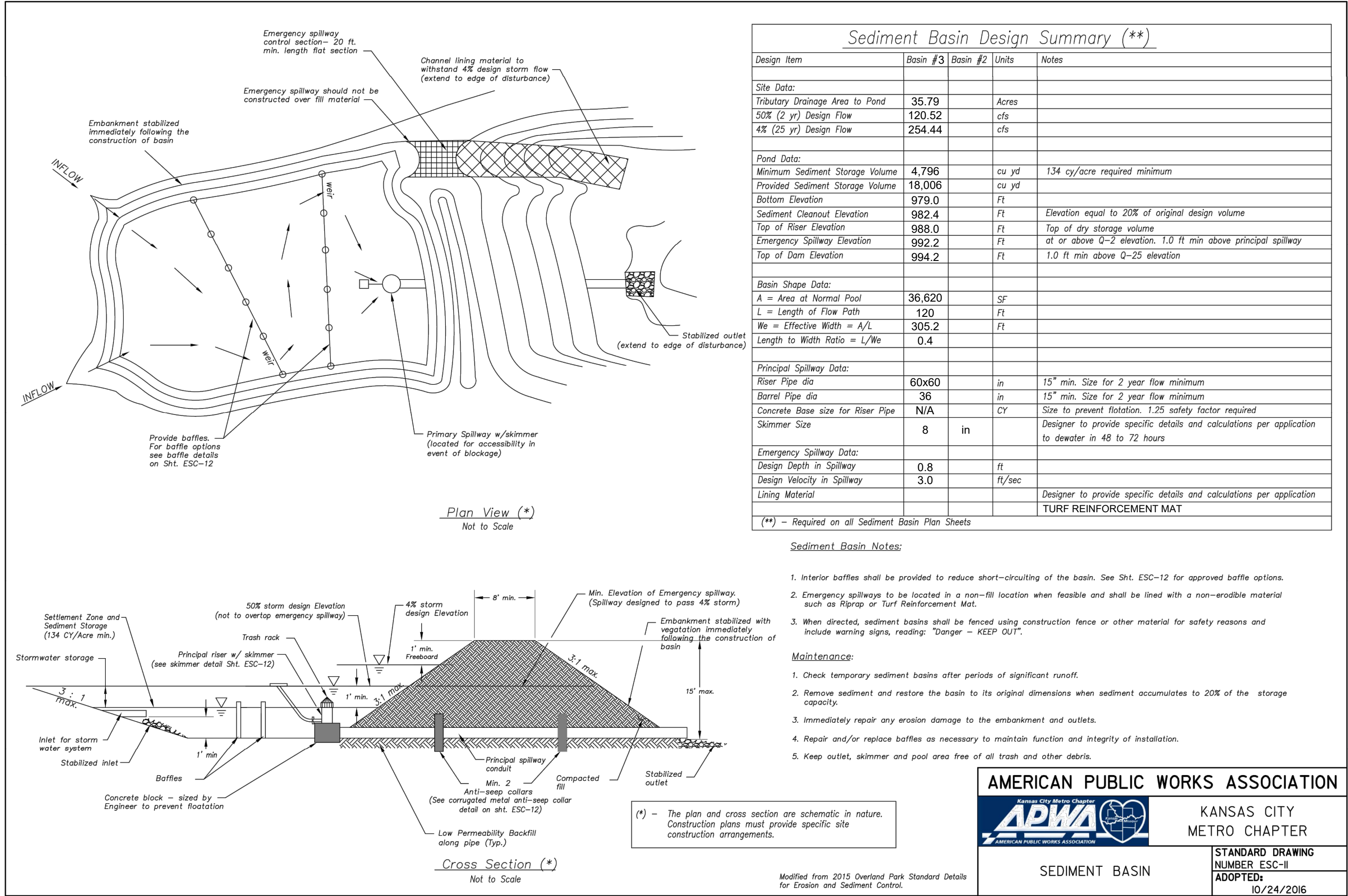
REVISION DATE	DESCRIPTION
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08/24/23	PER CITY COMMENTS
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10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER

FINAL STABILIZATION EROSION CONTROL PLAN

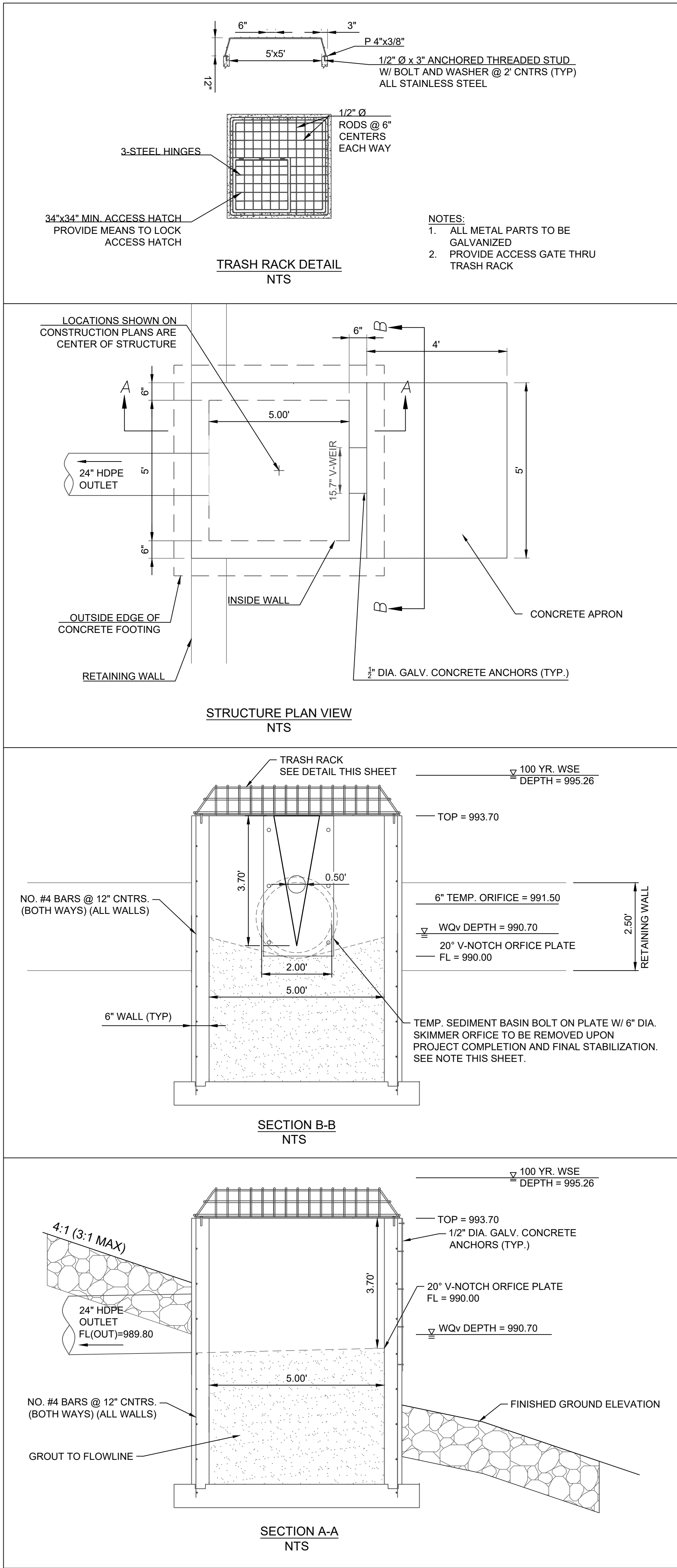
SHEET
C302



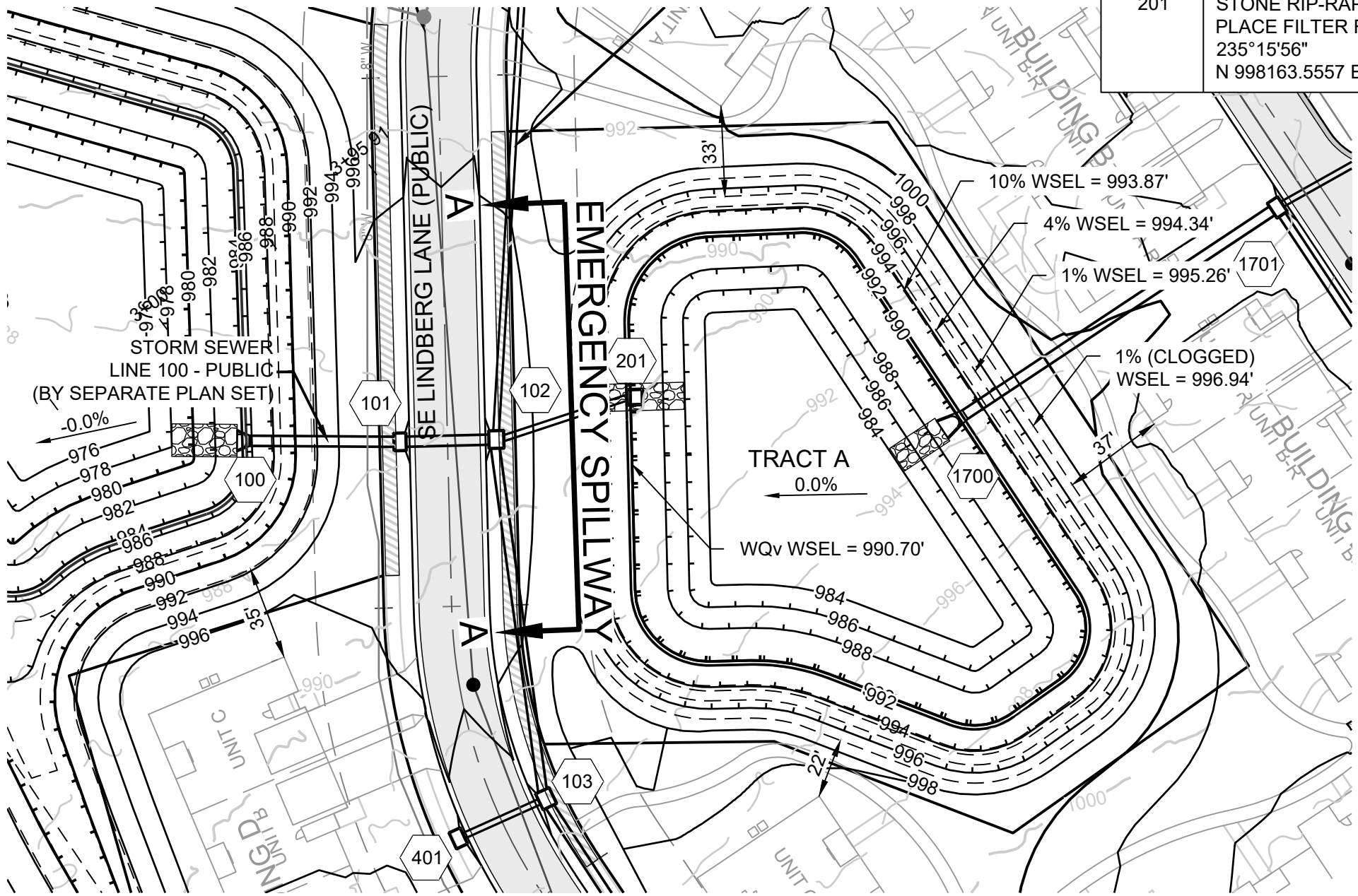
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05/05/23	PER CITY COMMENTS
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10/05/23	PER CITY COMMENTS
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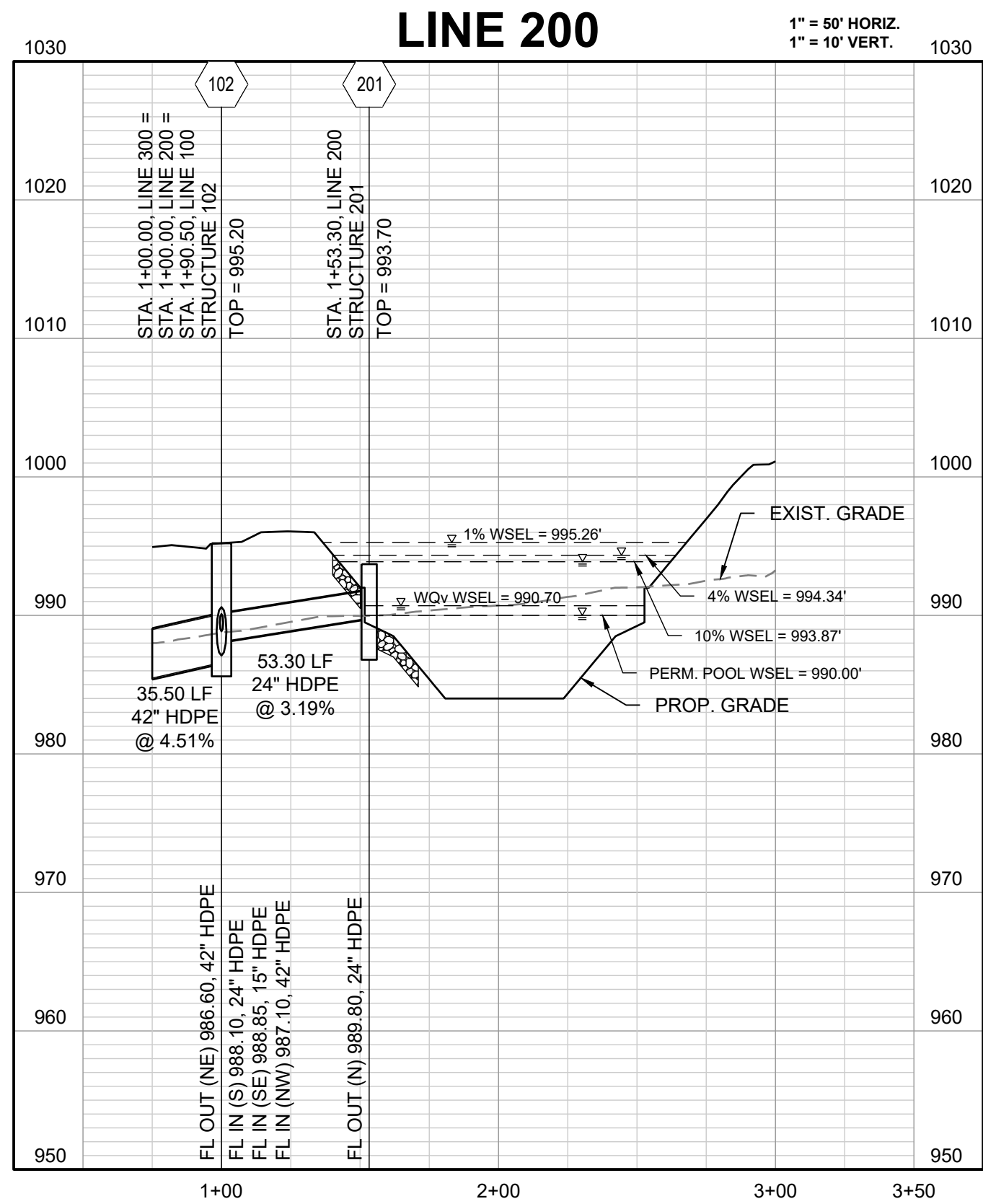
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09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
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NOTE:
TEMPORARY SEDIMENT BASIN AND OUTLET STRUCTURE W/ SKIMMER AND PLATE SHALL BE CONSTRUCTED WITH THE FIRST PHASE OF THE EROSION CONTROL PLAN. UPON FINAL STABILIZATION THE SKIMMER, PLATE, AND SEDIMENT SHALL BE REMOVED AND FINAL CONVERSION TO DETENTION BASIN COMPLETED. AN AS-BUILT RECORD DRAWING ACCEPTED BY THE CITY SHALL BE REQUIRED PRIOR TO OCCUPANCY.



1% STORM STORAGE CAPACITY = 4.19 AC-FT
TOTAL BASIN CAPACITY = 6.02 AC-FT



PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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OUTLET
STRUCTURE 201

SHEET

C305

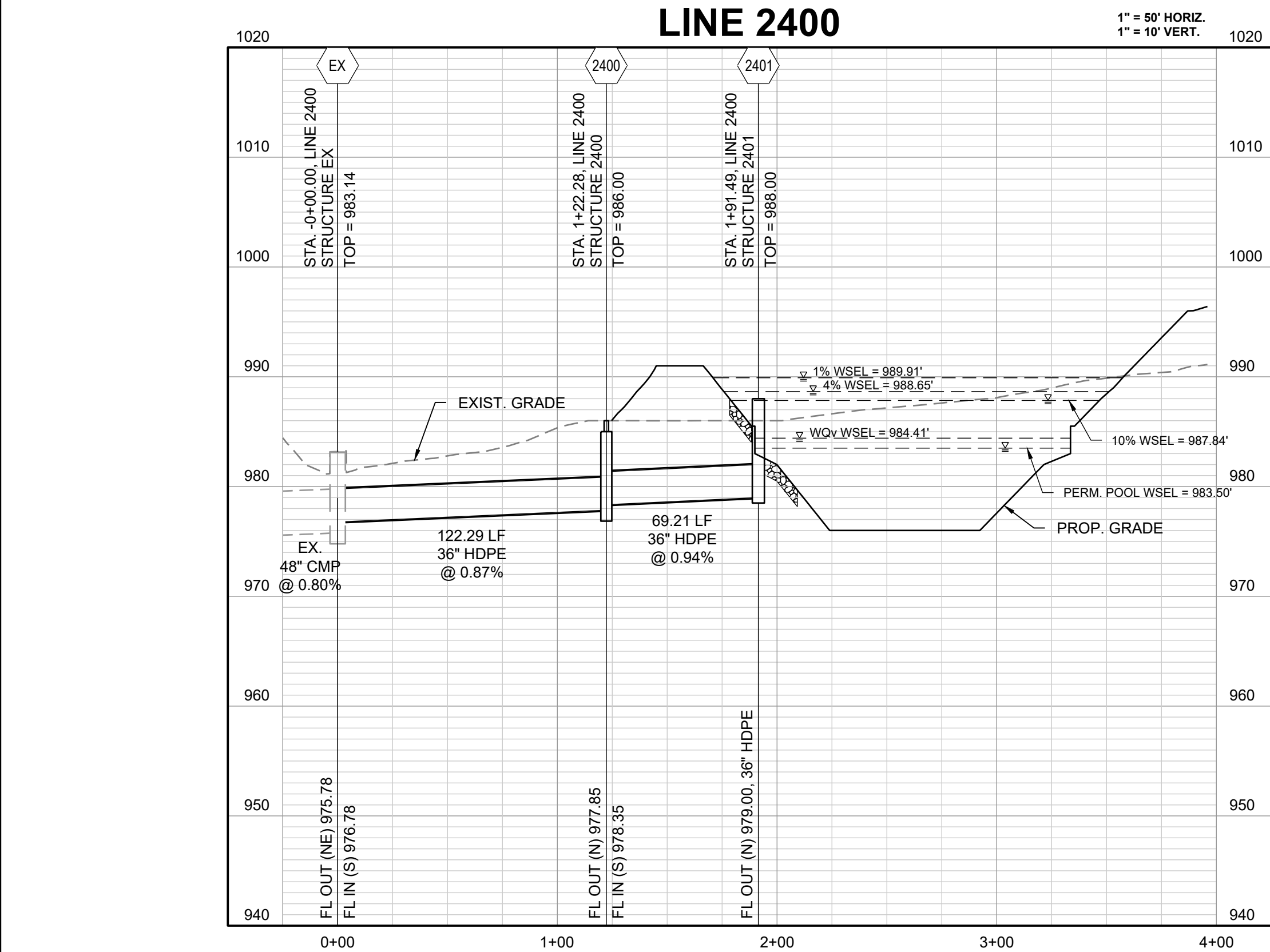
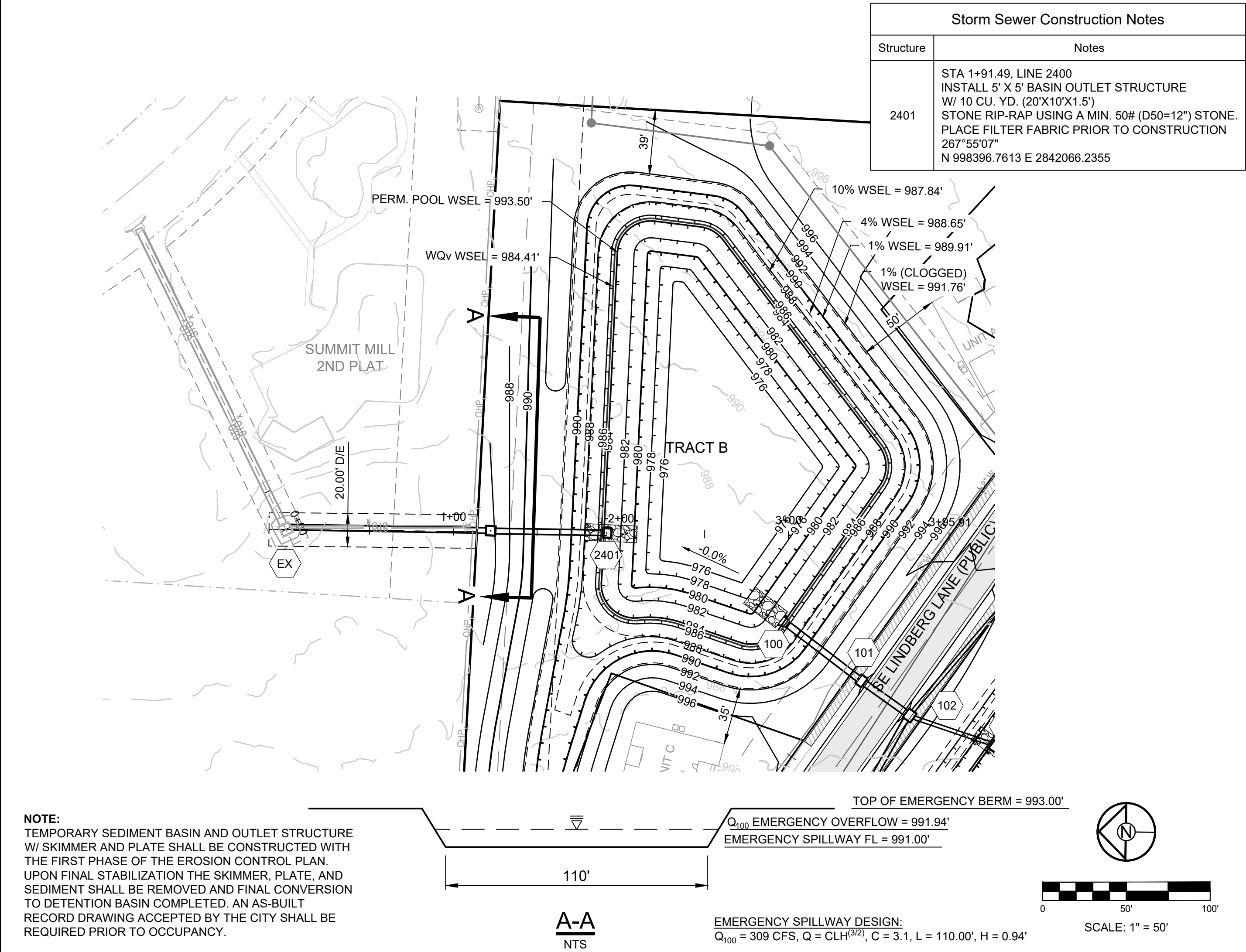
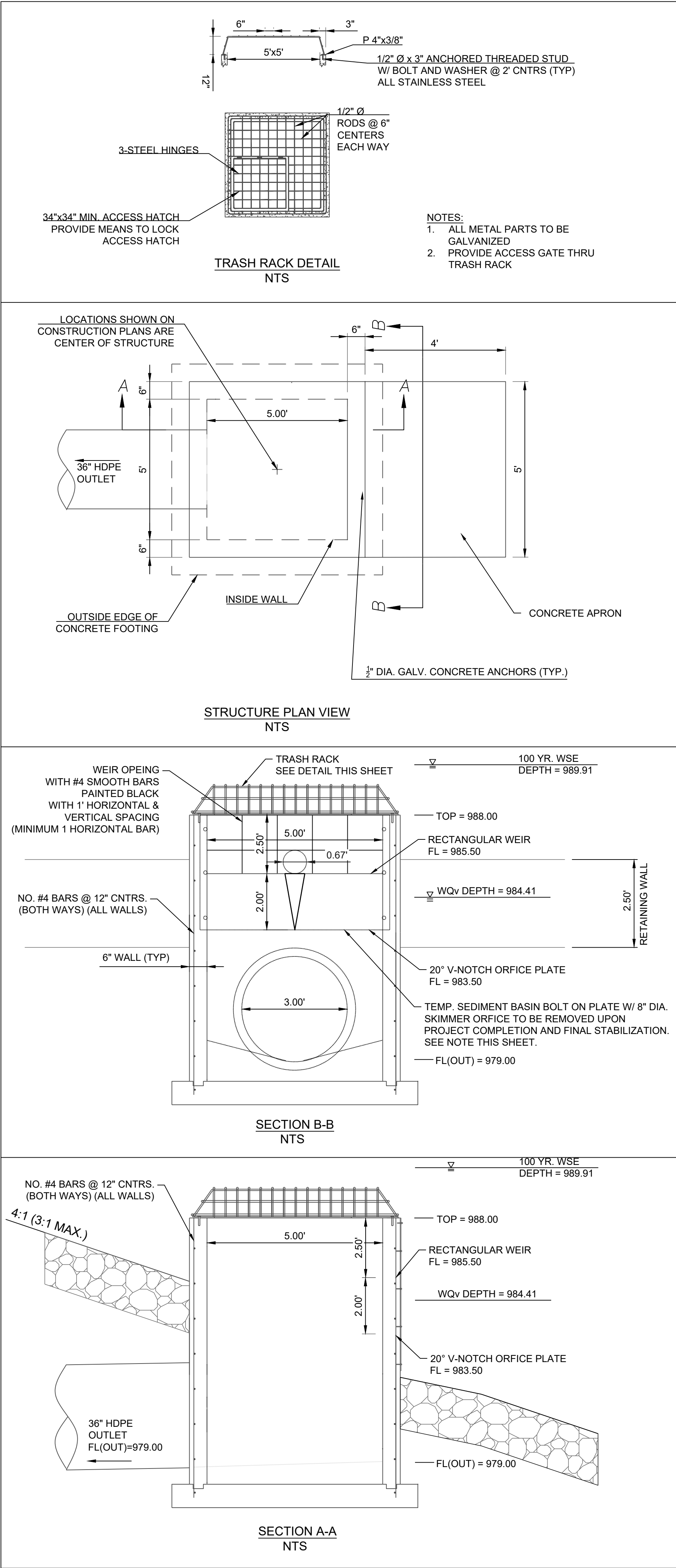


TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES						
Street Classification	Pavement Option	AC Surface (in.)	AC Base (in.)	Aggregate Base (in.)	Chemical Subgrade Stabilization (in.)	Geogrid / Geotextile ⁽¹⁾
PUBLIC STREETS	Residential Local/Access	A	2	4	6	--
		B	2	4	10	Geogrid / Geotextile
	Residential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

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.

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

MO GRS BENCHMARK:

STATION NAME - JA-90

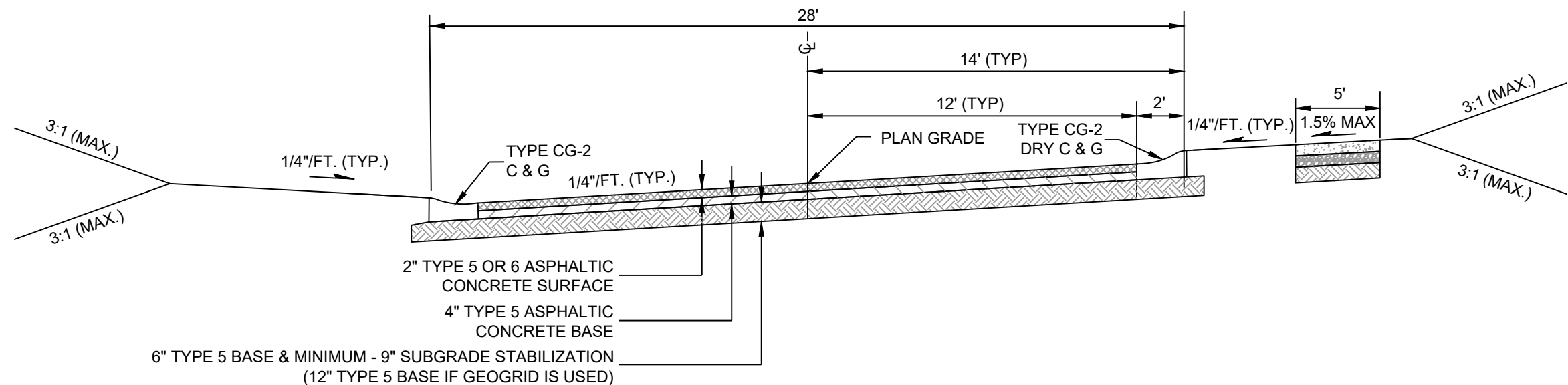
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

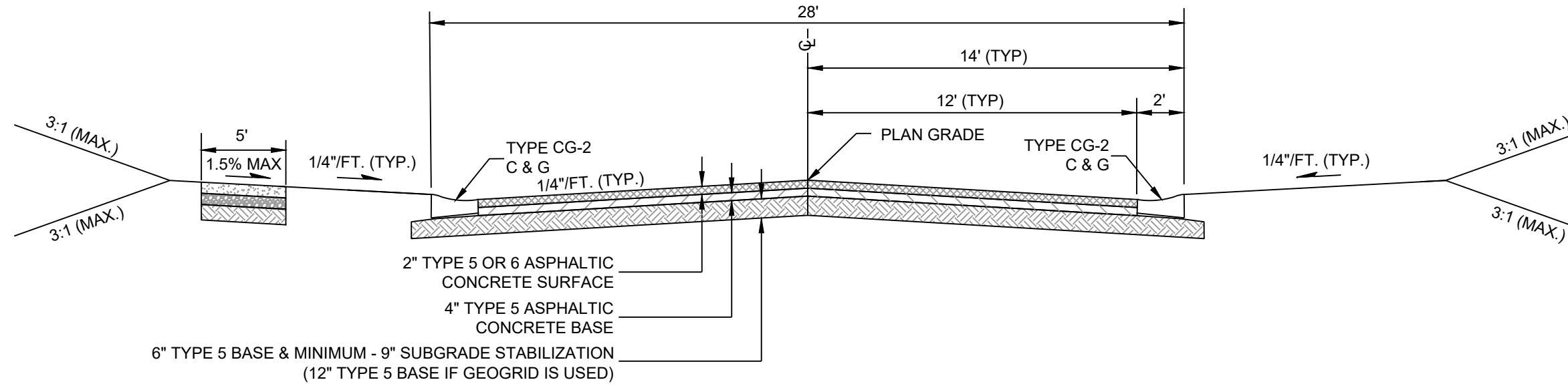
PROJECT BENCHMARK:

"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



PRIVATE STREETS
RESIDENTIAL LOCAL
SE 6TH STREET STA. 2+35.78 TO STA. 9+83.13
(NTS)



PRIVATE STREETS
RESIDENTIAL LOCAL
SE BRADFREET STREET STA. 0+30.00 TO STA. 12+55.57
SE GOLDEN LANE STA. 0+30.00 TO STA. 5+26.90
(NTS)

PREPARED BY:



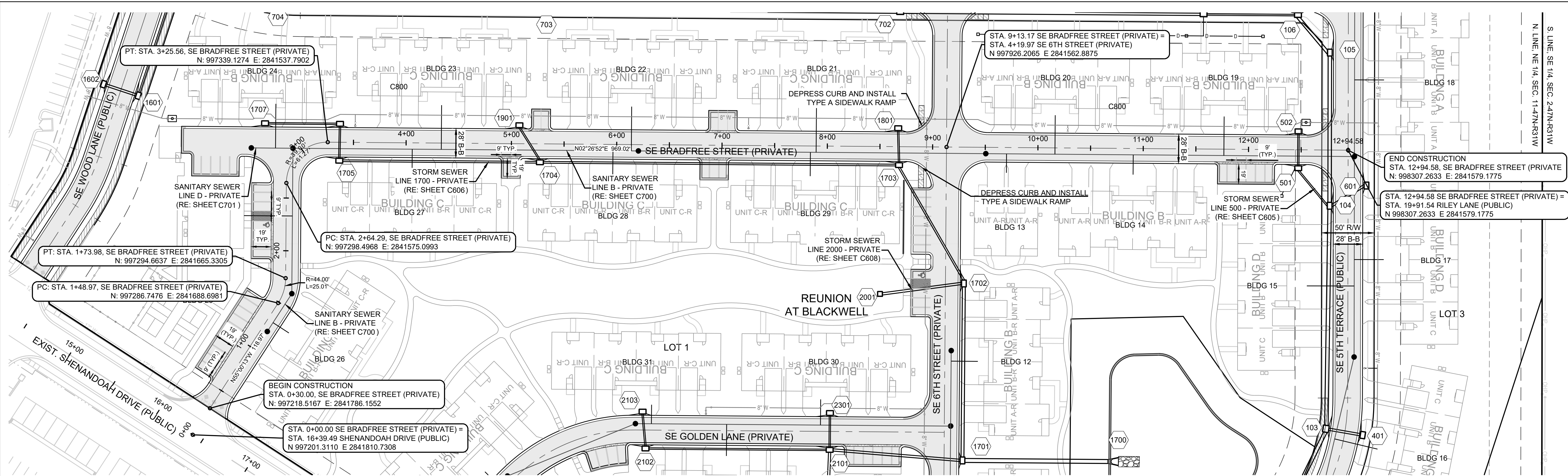
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REUNION AT BLACKWELL
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TYPICAL STREET
SECTION

SHEET
C400



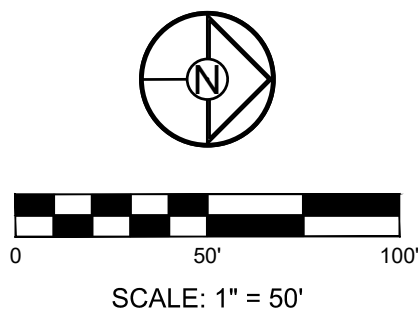
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KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
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ELEV. 997.045

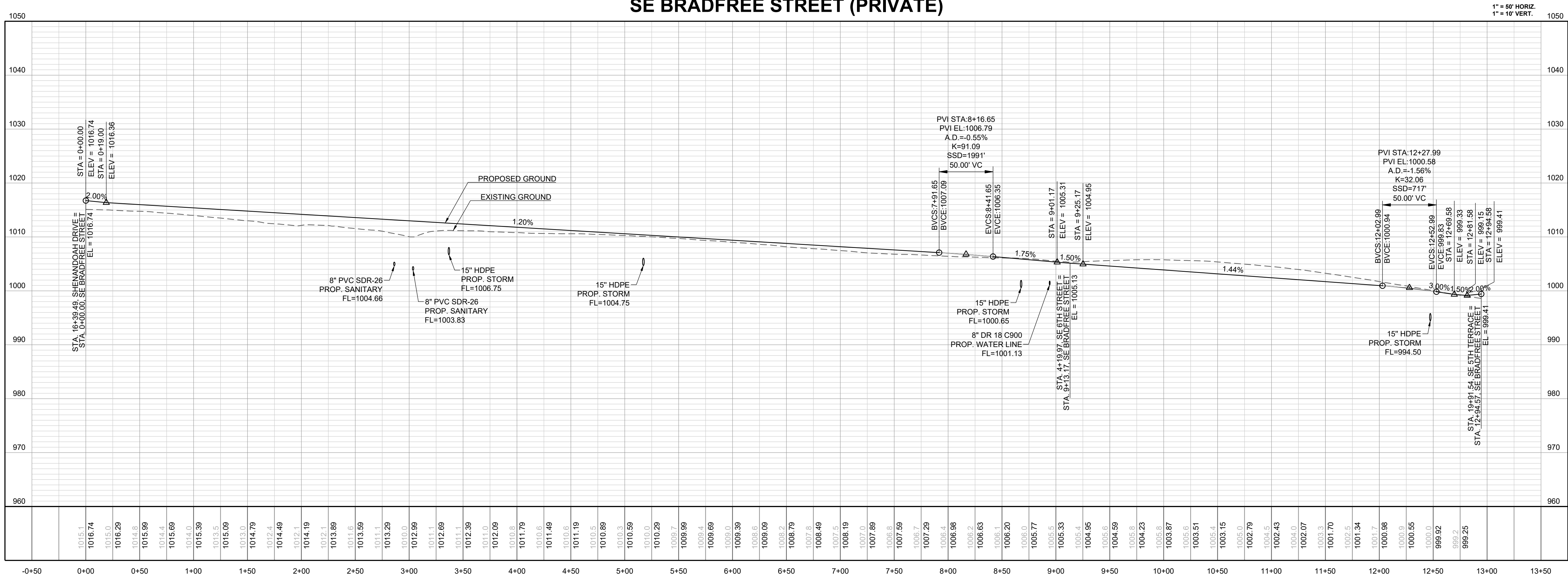
PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE
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N:996874.9690, E:2840937.1365
ELEV. 1005.719

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



SE BRADFREE STREET (PRIVATE)



PREPARED BY:



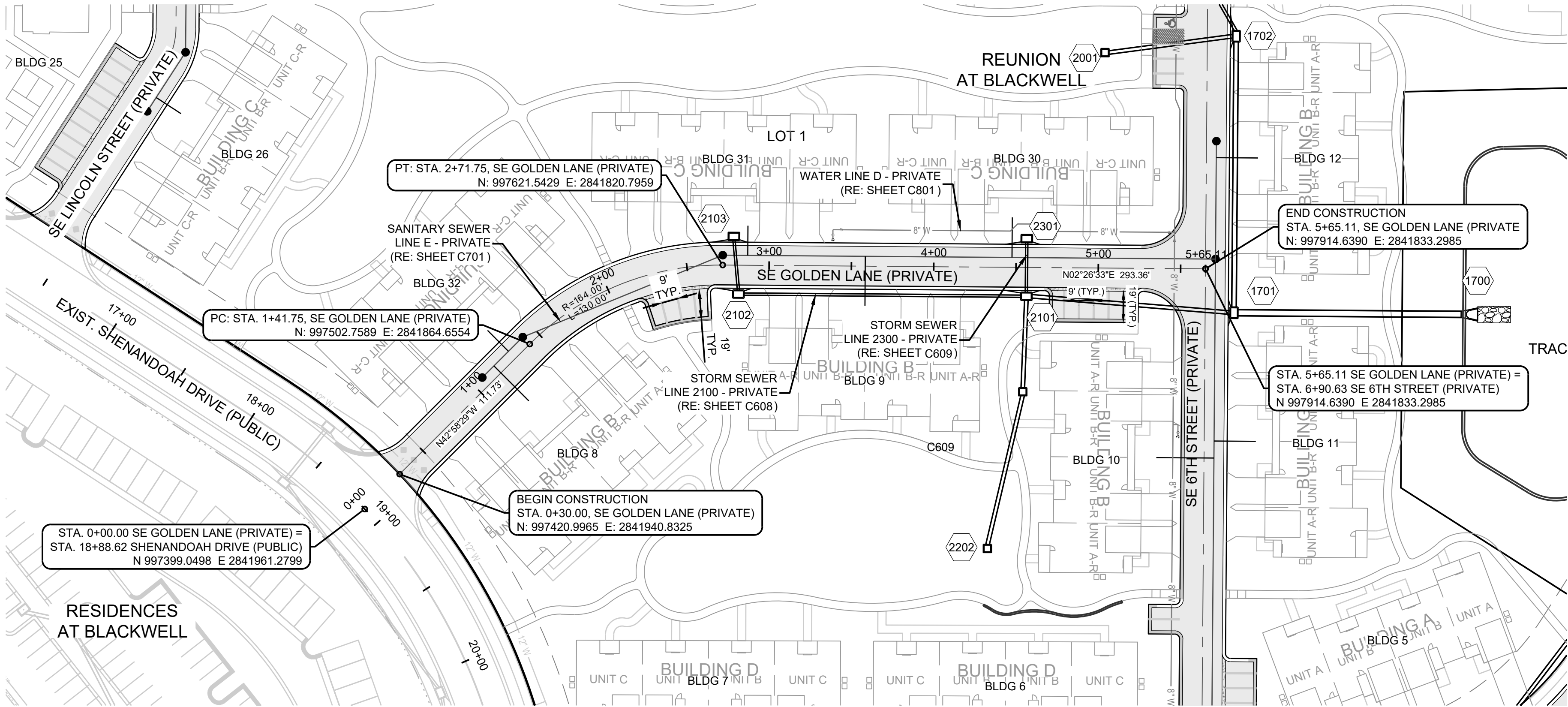
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**REUNION AT BLACKWELL
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**SE BRADFREE
STREET - PLAN &
PROFILE**

SHEET
C401



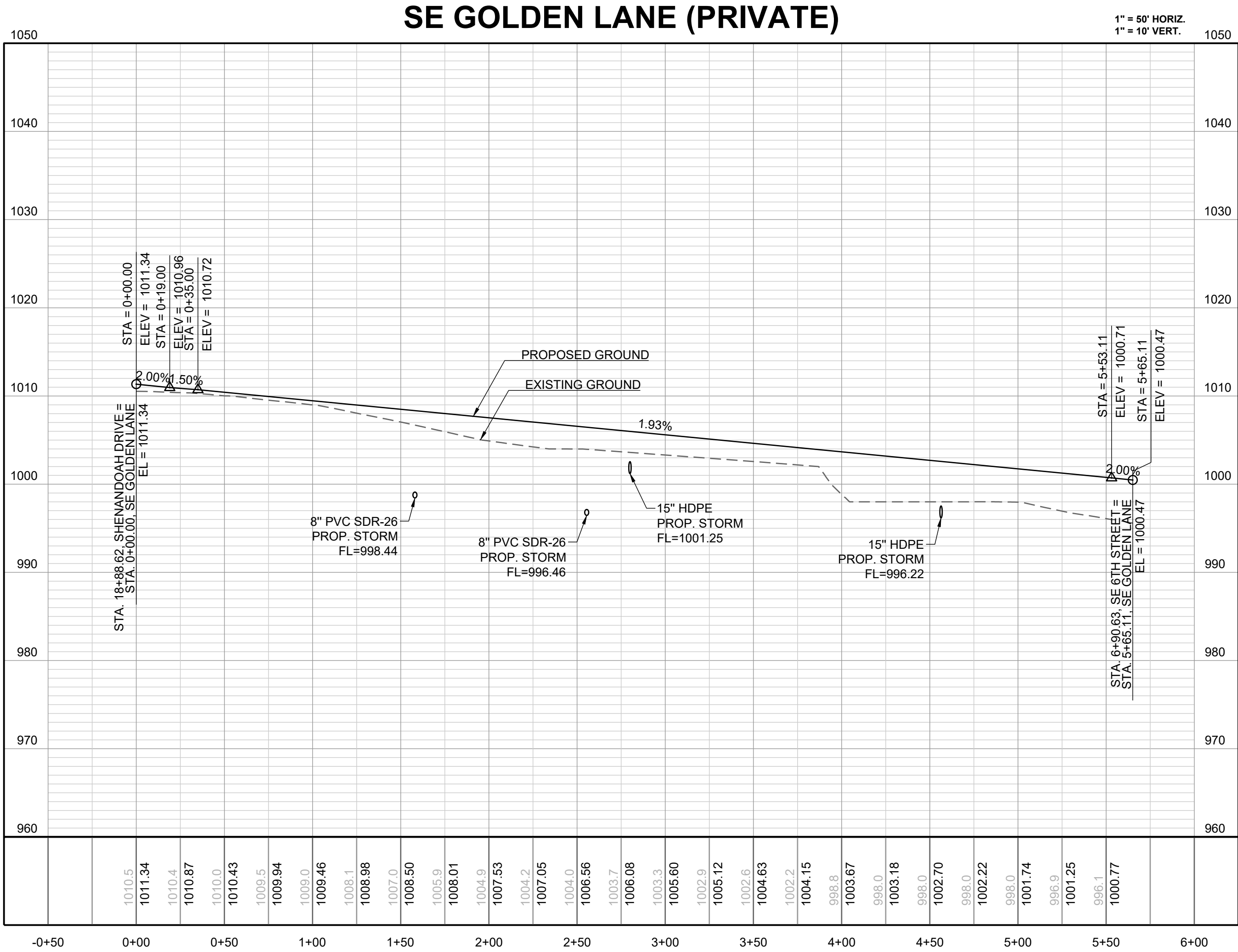
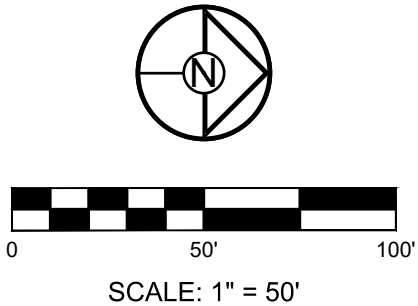
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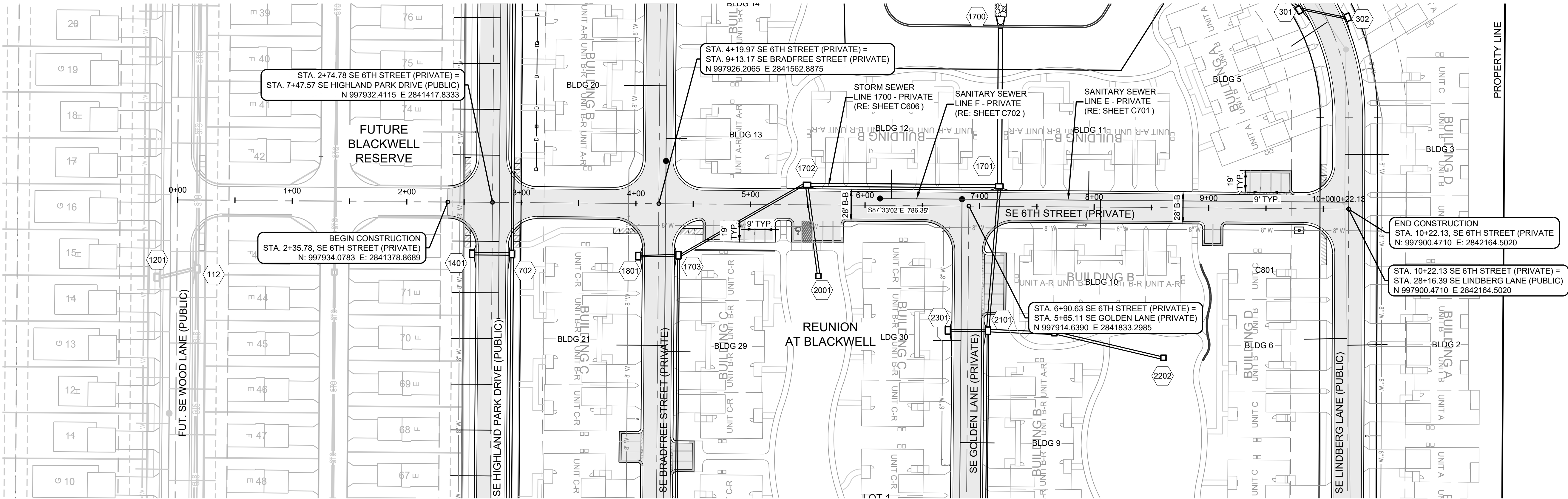
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ELEV. 1005.719

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MO GRS BENCHMARK:

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1998"
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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

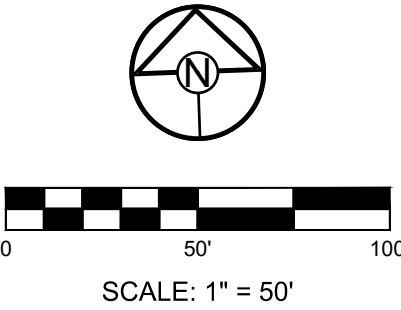
ELEV. 997.045

PROJECT BENCHMARK:

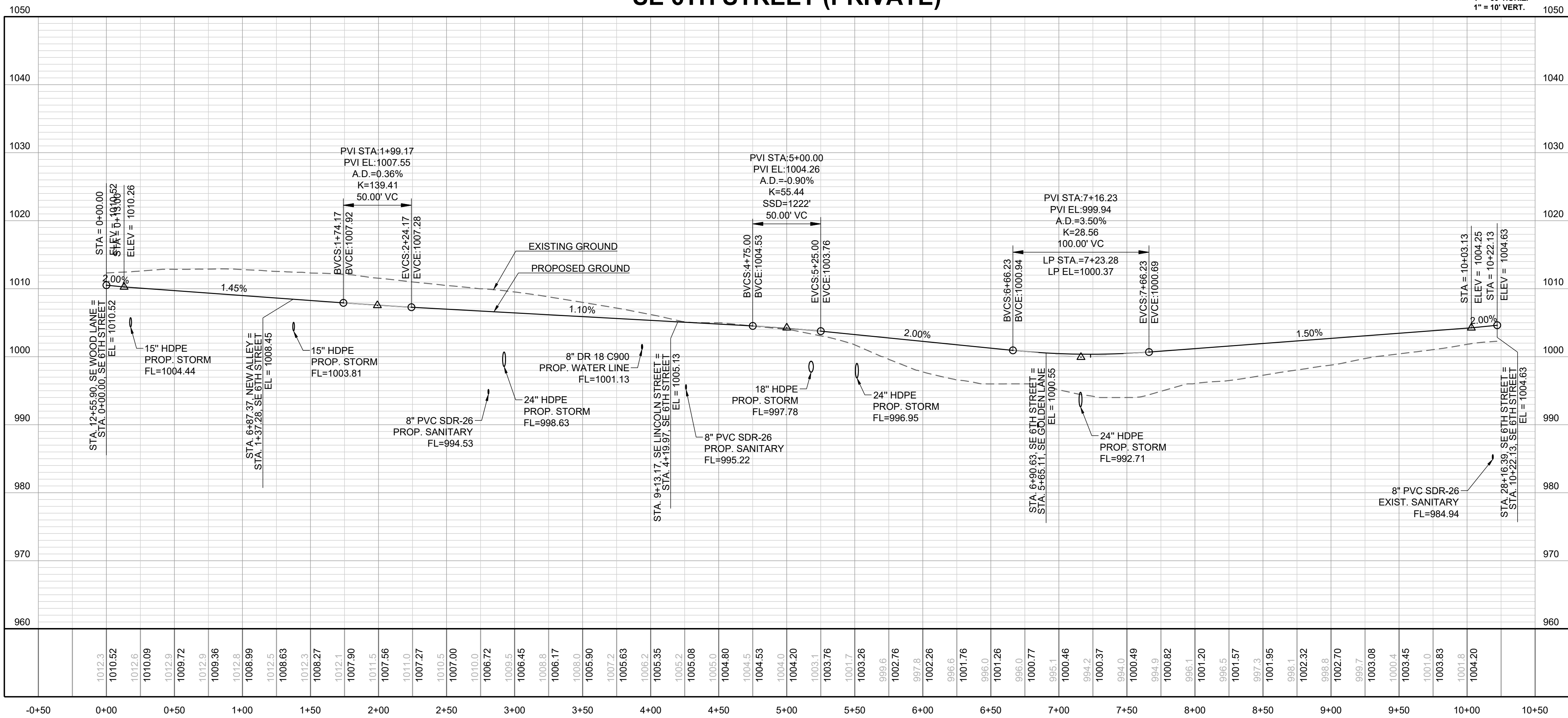
"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE
INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH
OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

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



SE 6TH STREET (PRIVATE)



PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

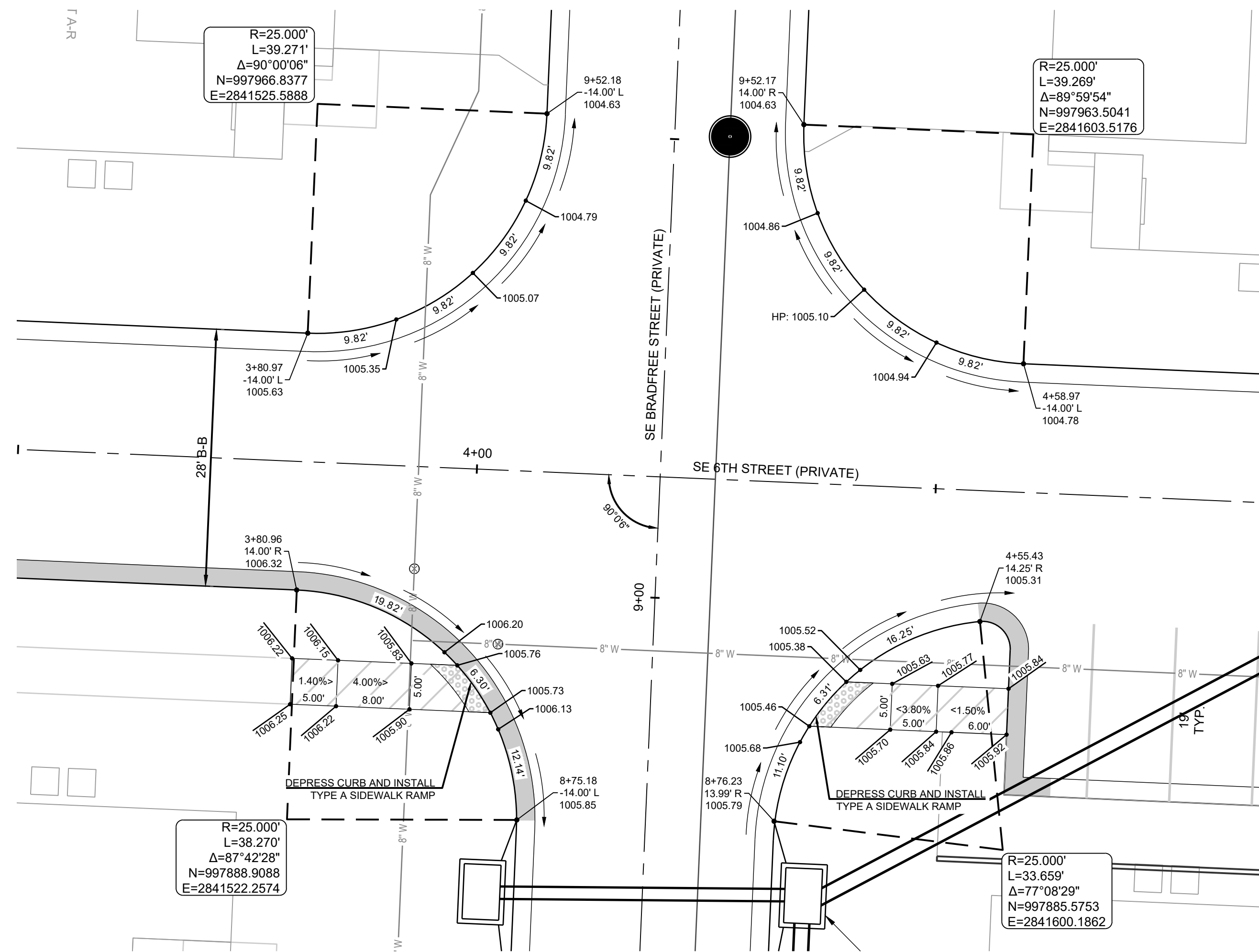
**REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN**

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

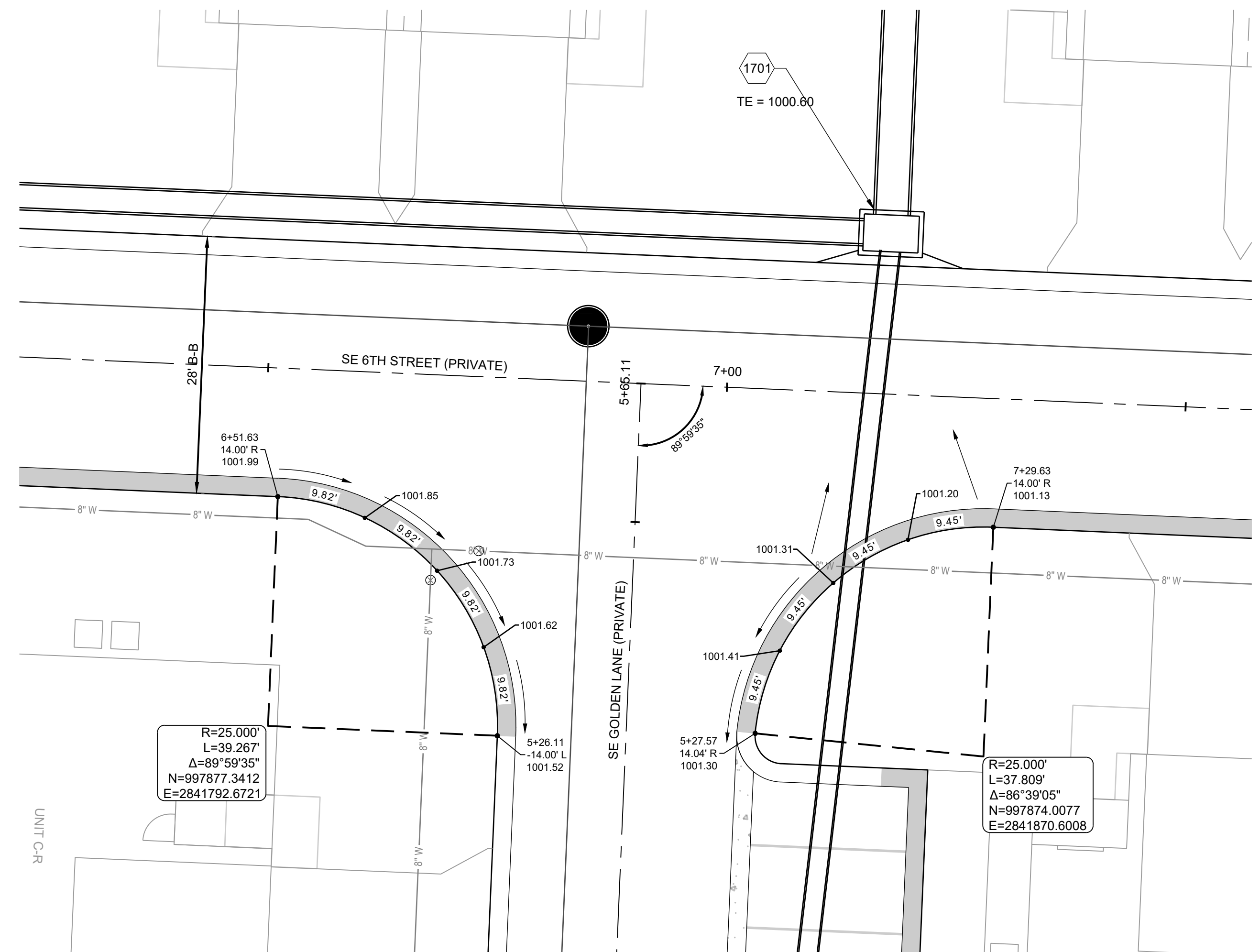
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05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER

**SE 6TH STREET -
PLAN & PROFILE**

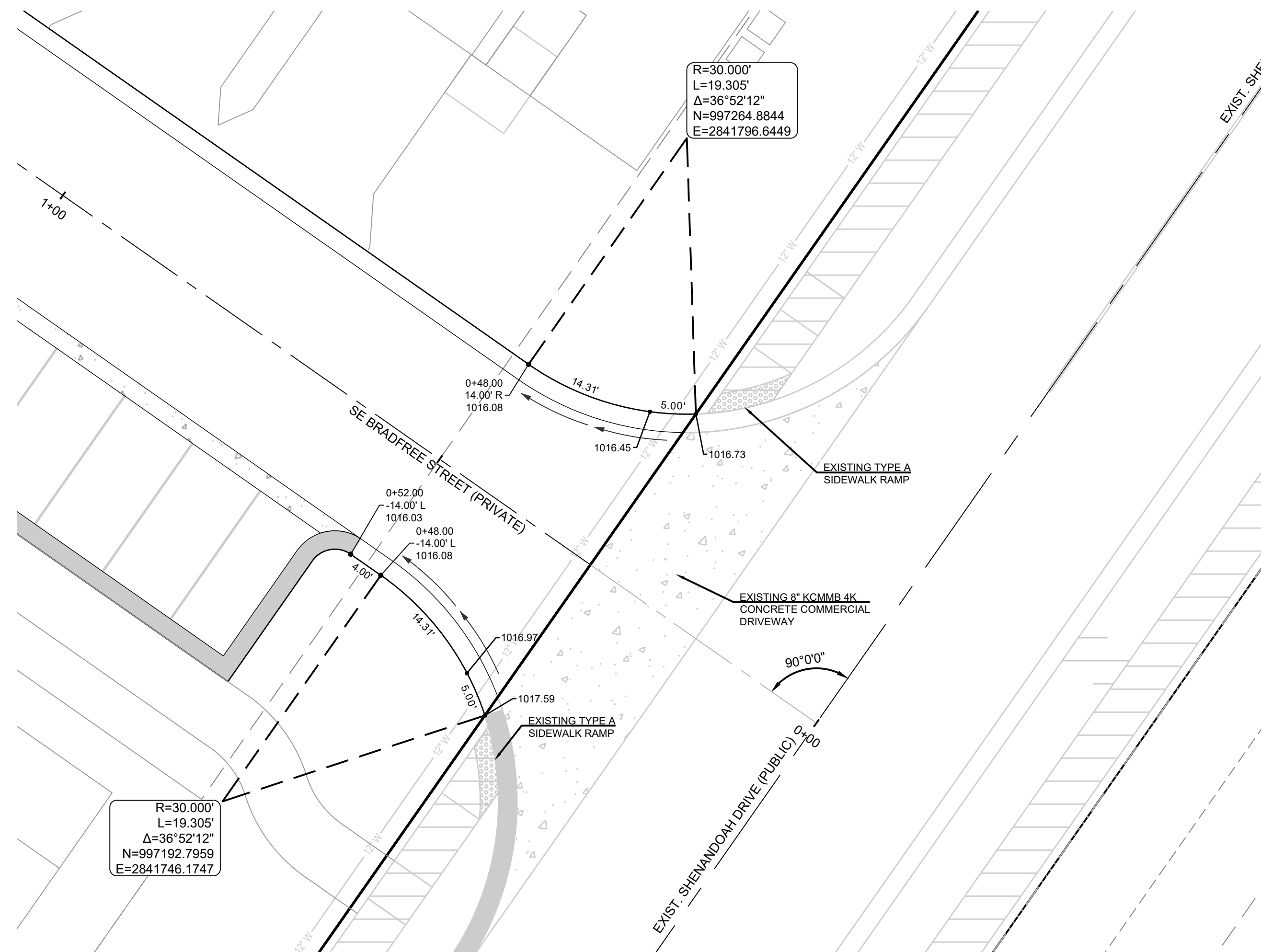
SHEET
C403



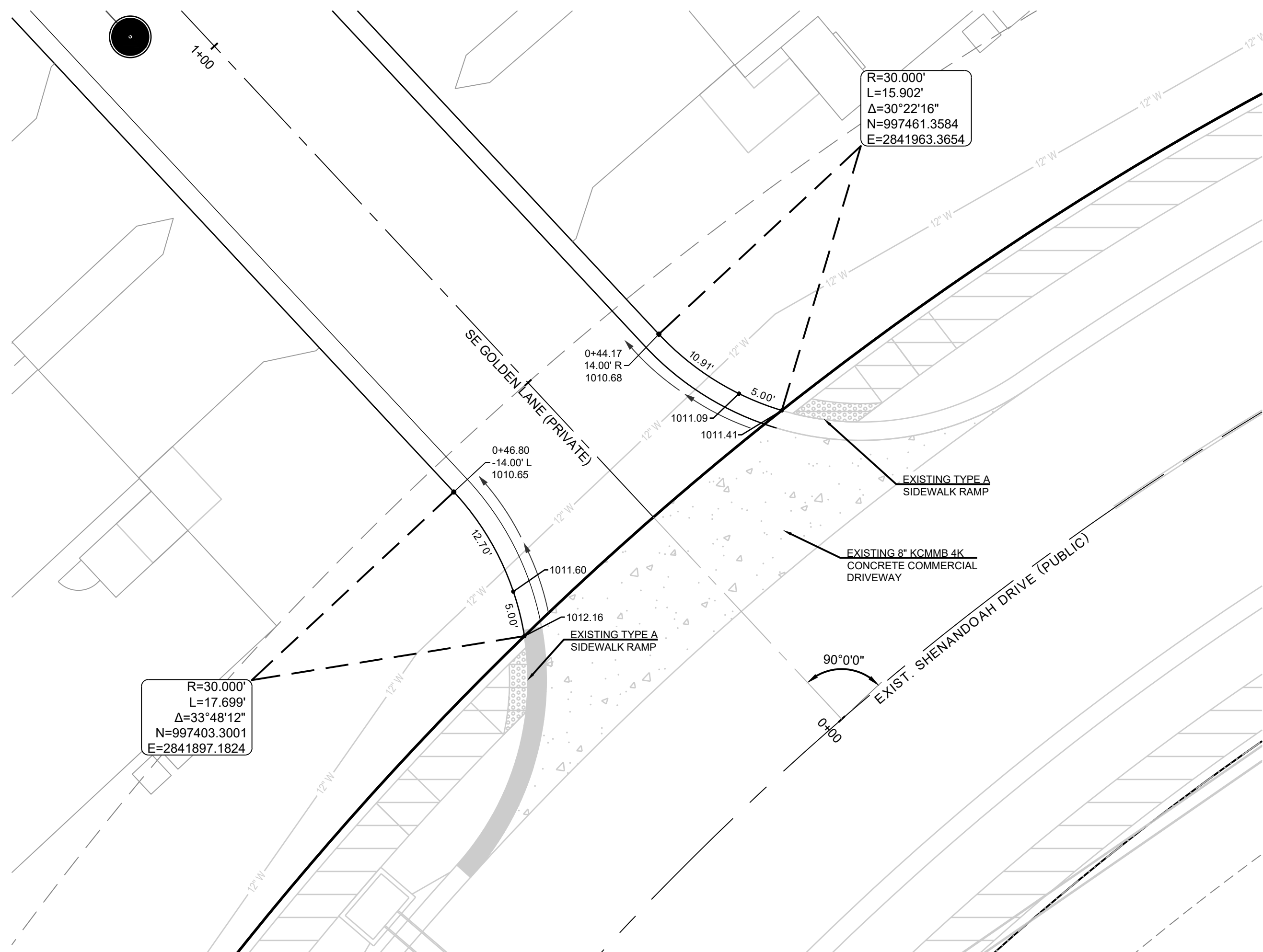
SE BRADFREE STREET (PRIVATE) & SE 6TH STREET (PRIVATE)



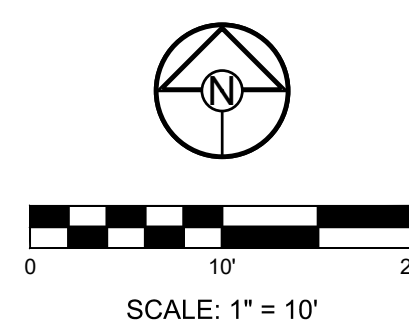
SE GOLDEN LANE (PRIVATE) & SE 6TH STREET (PRIVATE)



SE BRADFREE STREET (PRIVATE) & EXIST. SHENANDOAH DRIVE (PUBLIC)



SE GOLDEN LANE (PRIVATE) & EXIST. SHENANDOAH DRIVE (PUBLIC)



PREPARED BY:



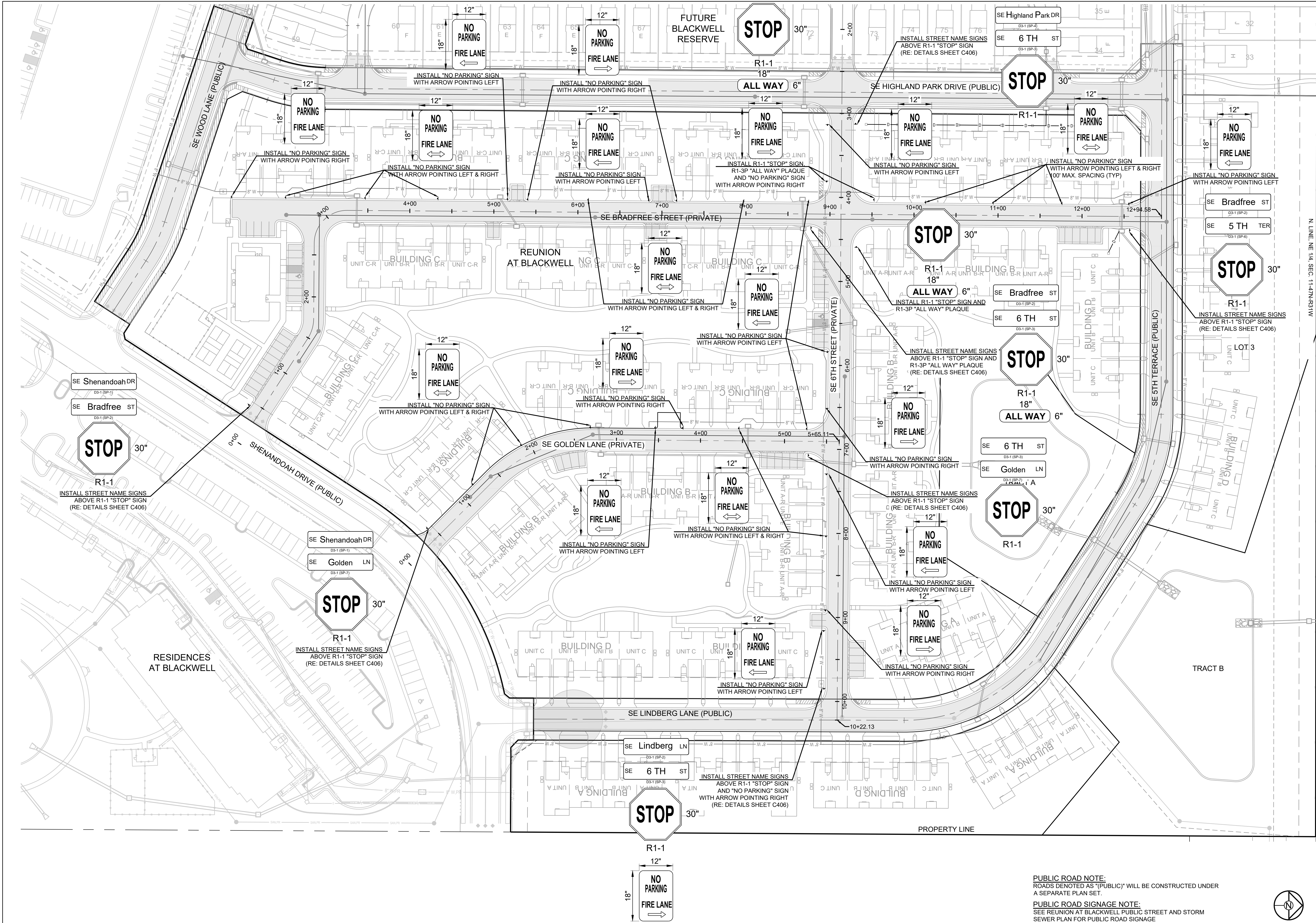
SCHLAGEL & ASSOCIATES, P.A.

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

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
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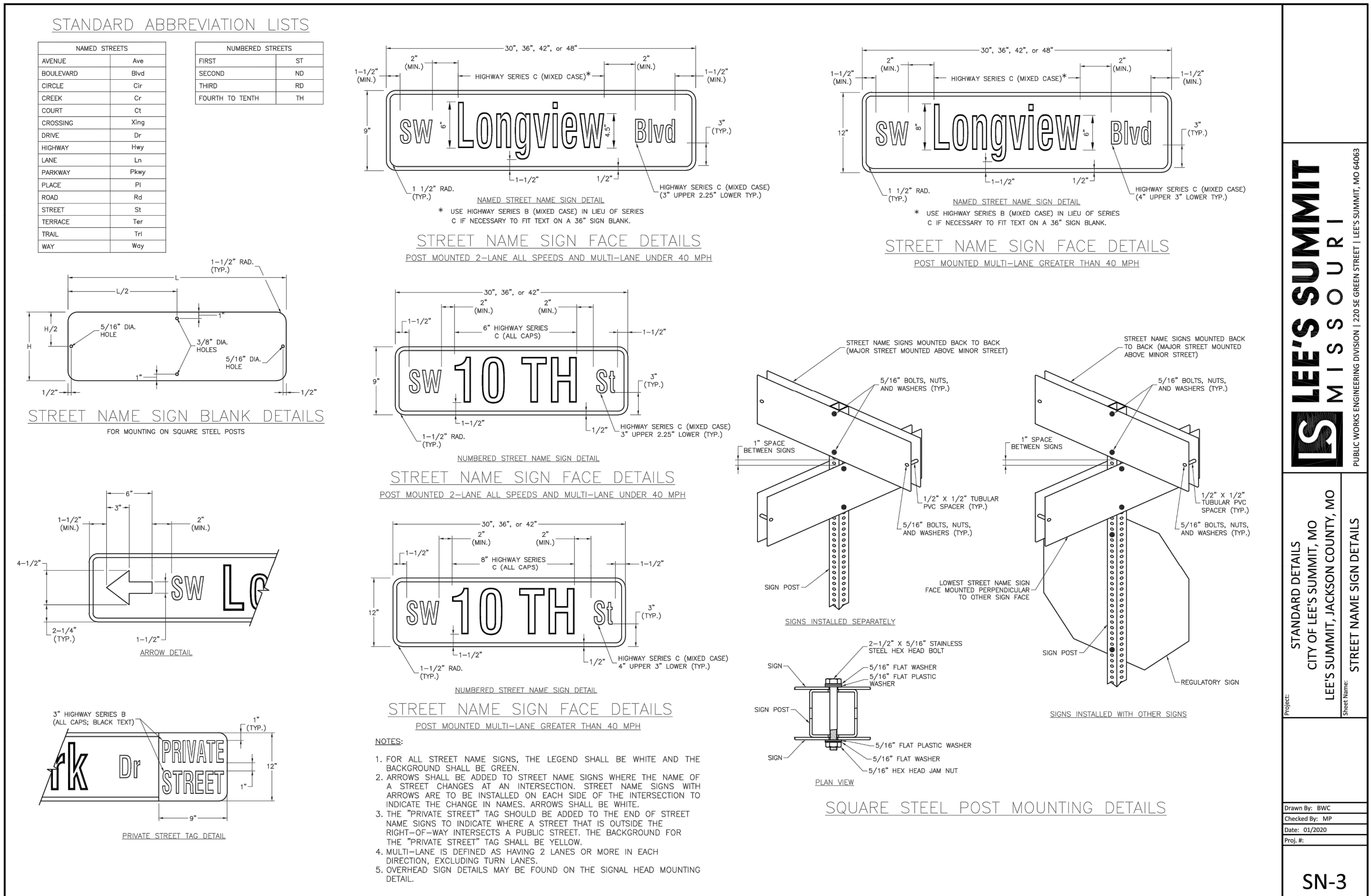
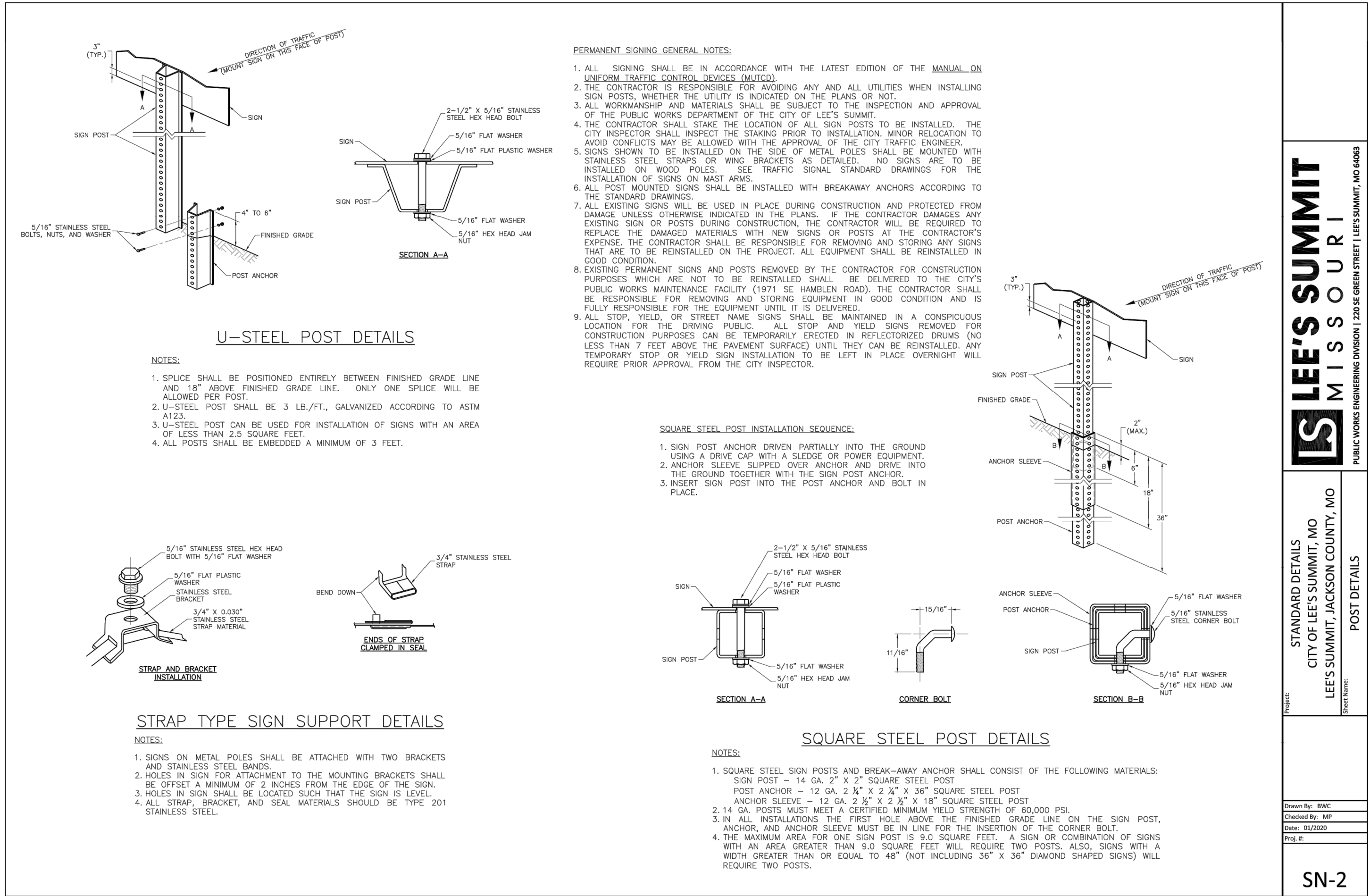
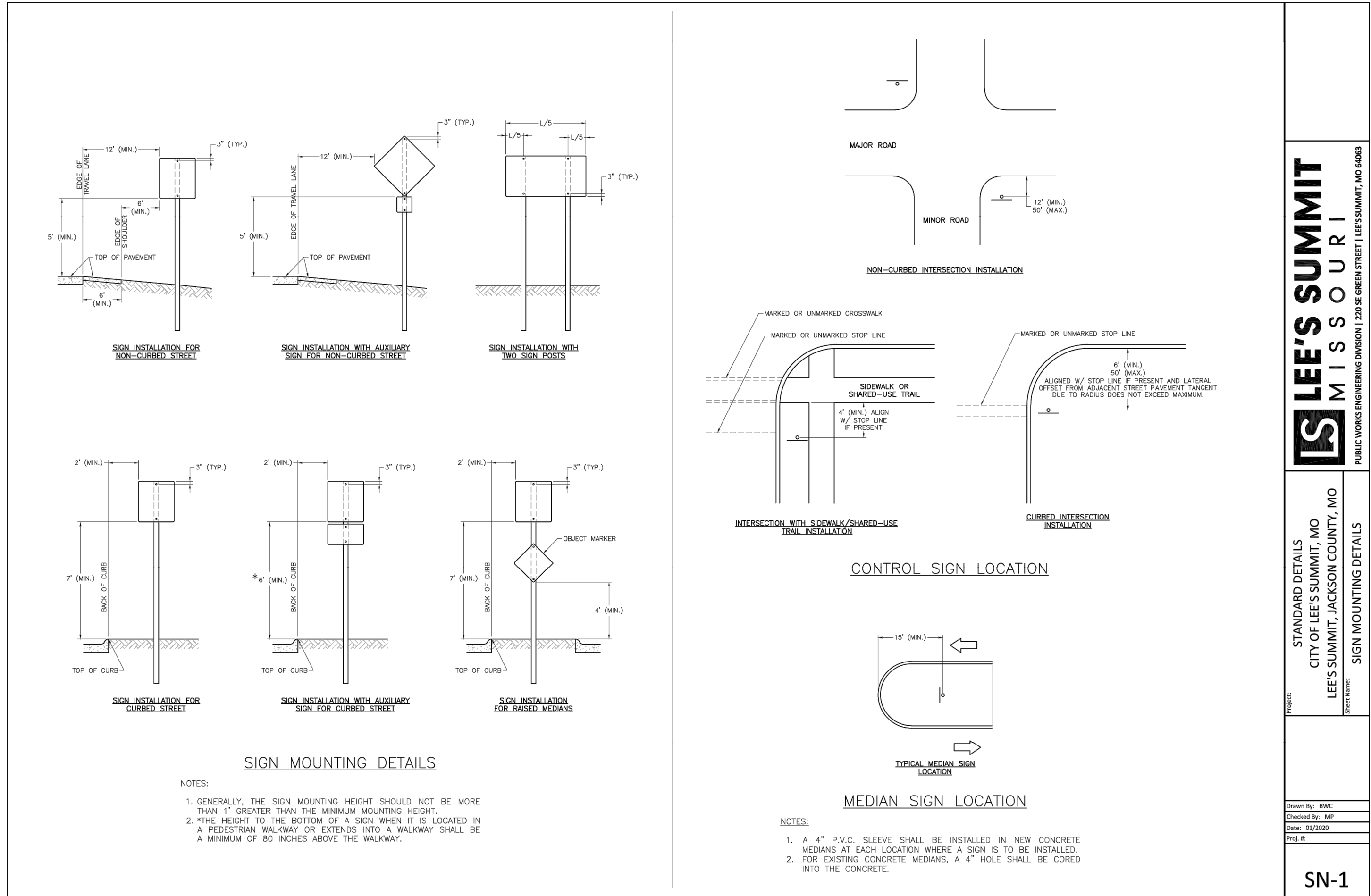
INTERSECTION
DETAILS

SHEET
C404

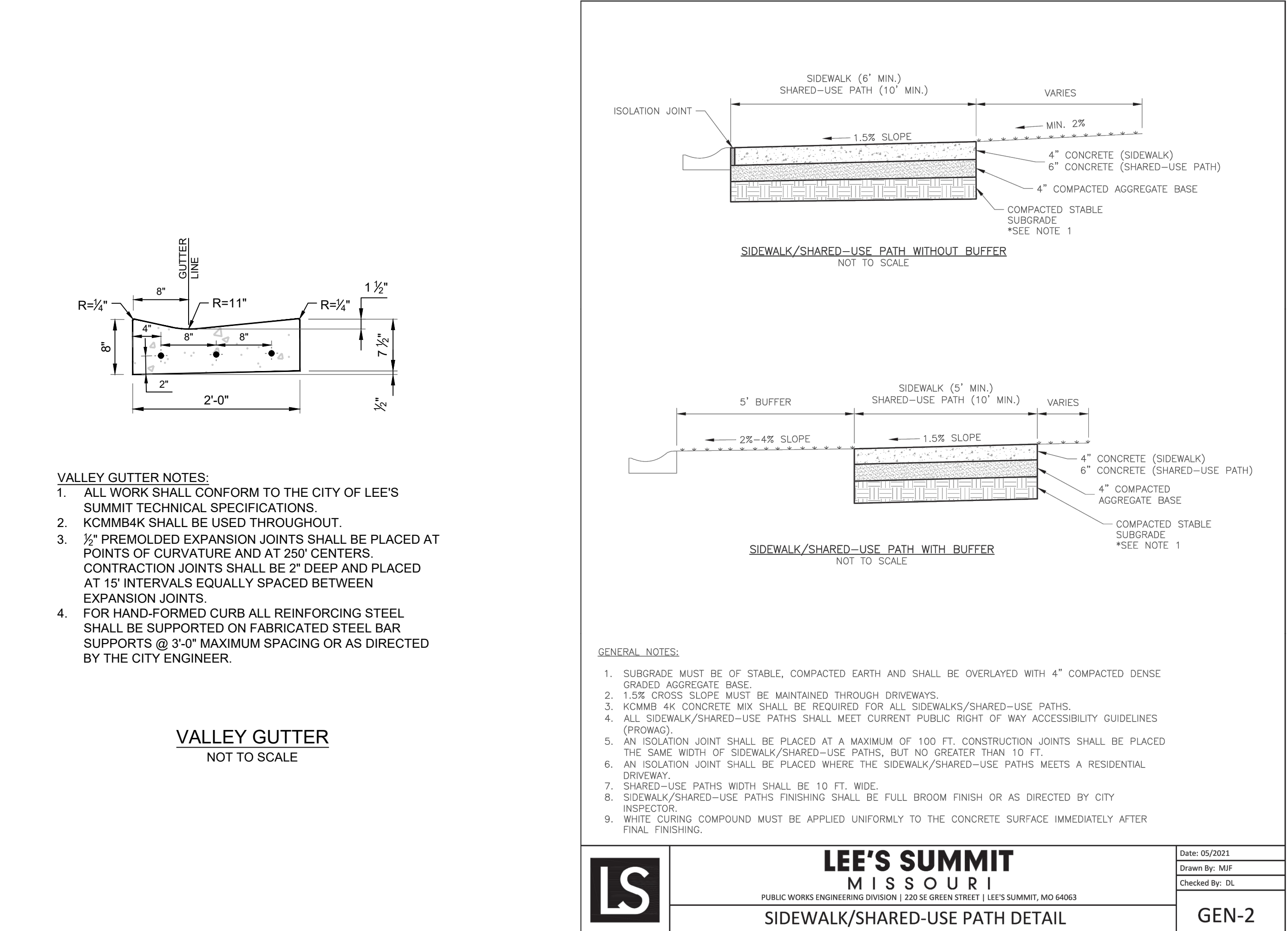
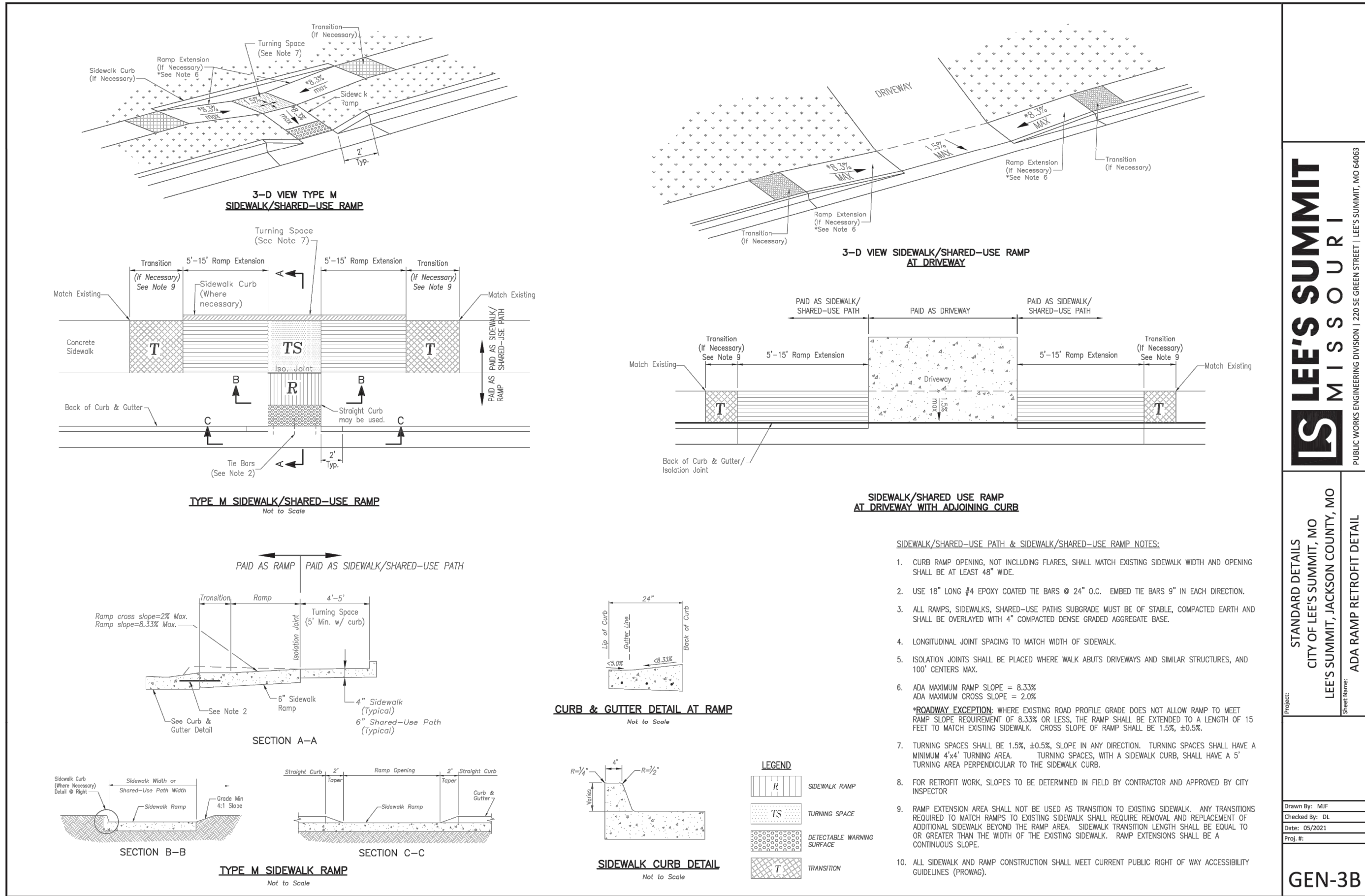
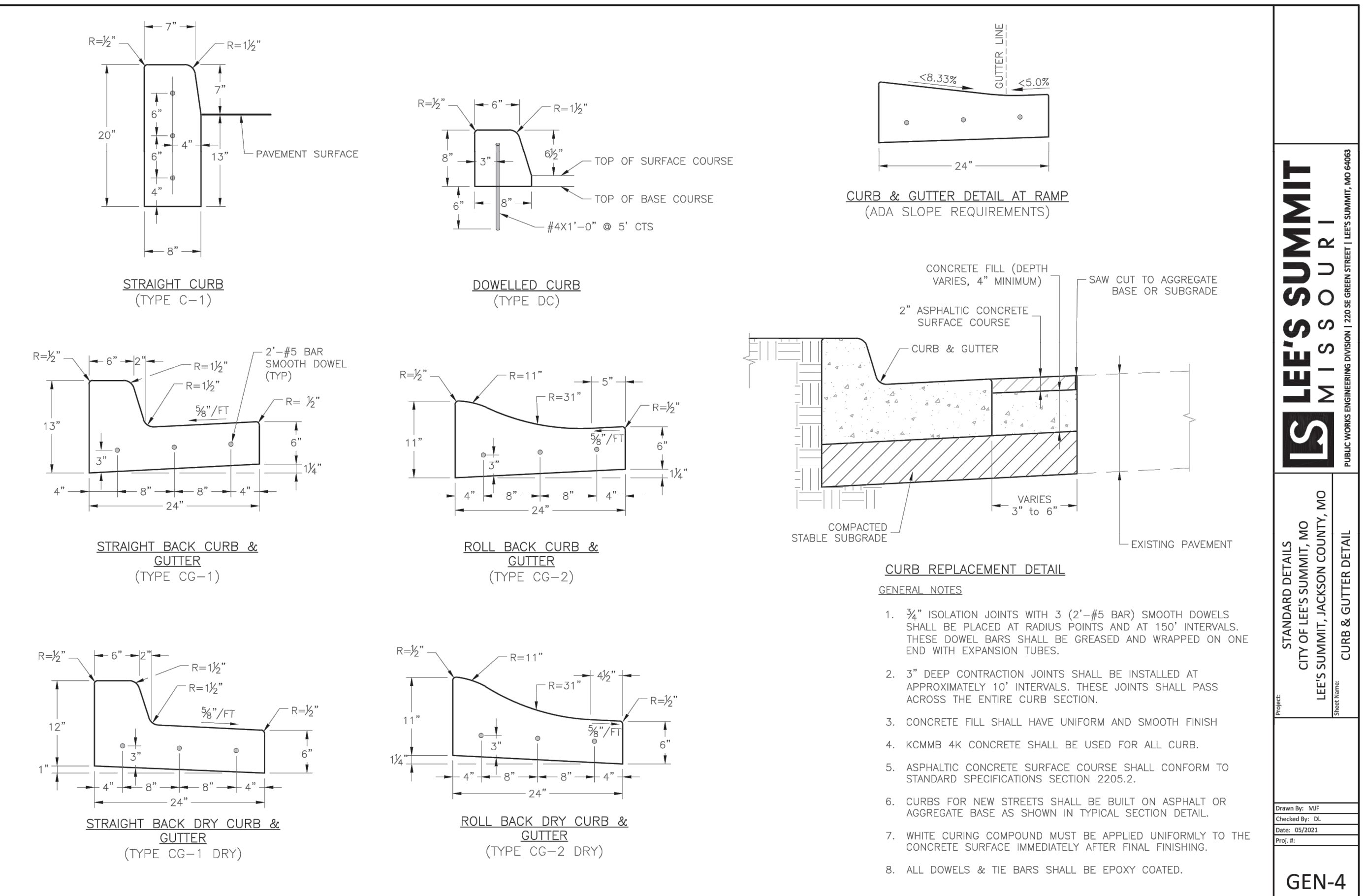
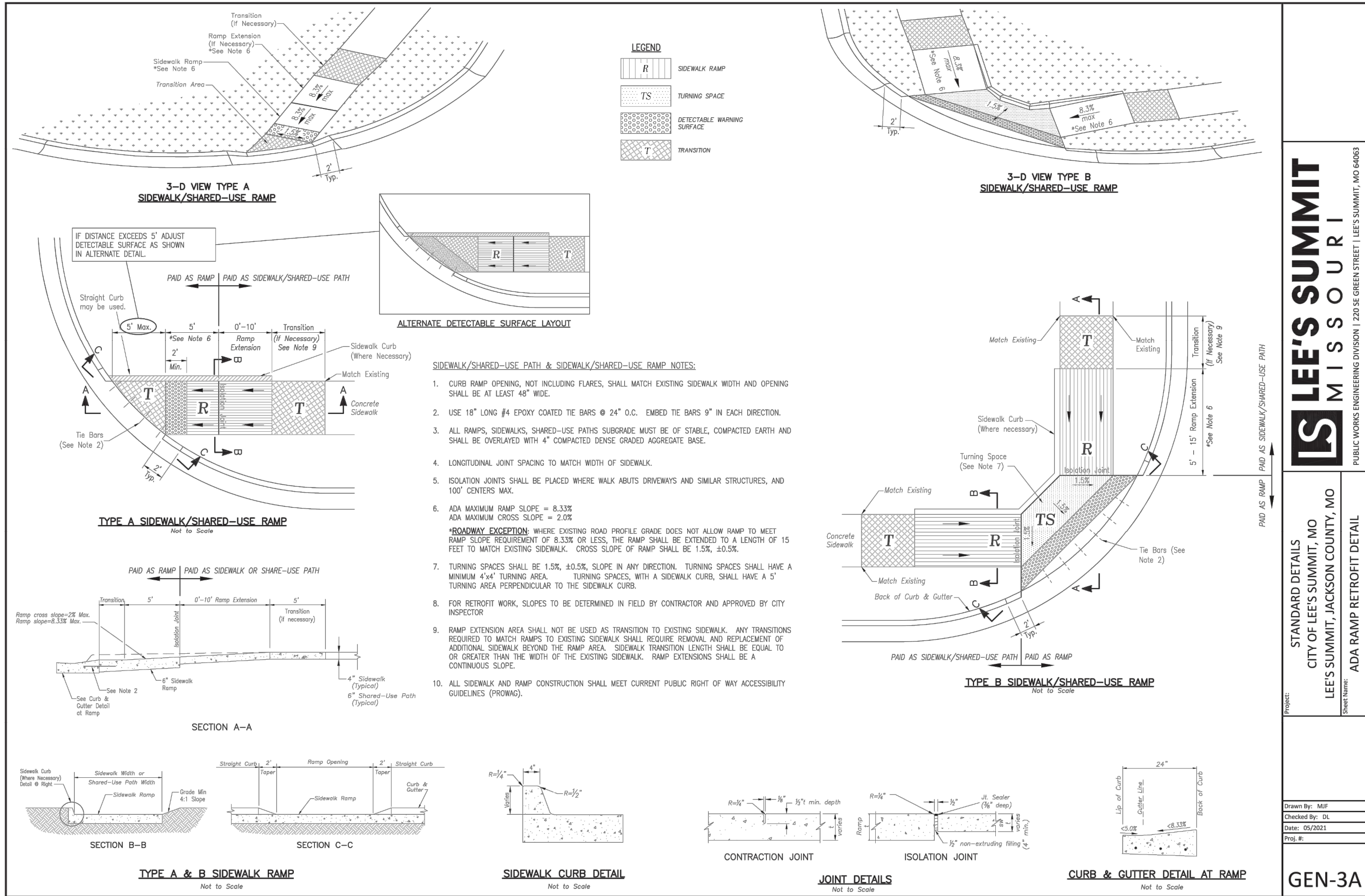


REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
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10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER



REVISION DATE	DESCRIPTION
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06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/04/24	
PROJ. NUMBER:	22-597



SCHLAGEL
ENGINEERS, PLANNERS, SURVEYORS, LANDSCAPE ARCHITECTS
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(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E200200360F #LAC2001005237 #LS2002008659-F

PREPARED BY:

10.05.2023

SCHLAGEL & ASSOCIATES, P.A.

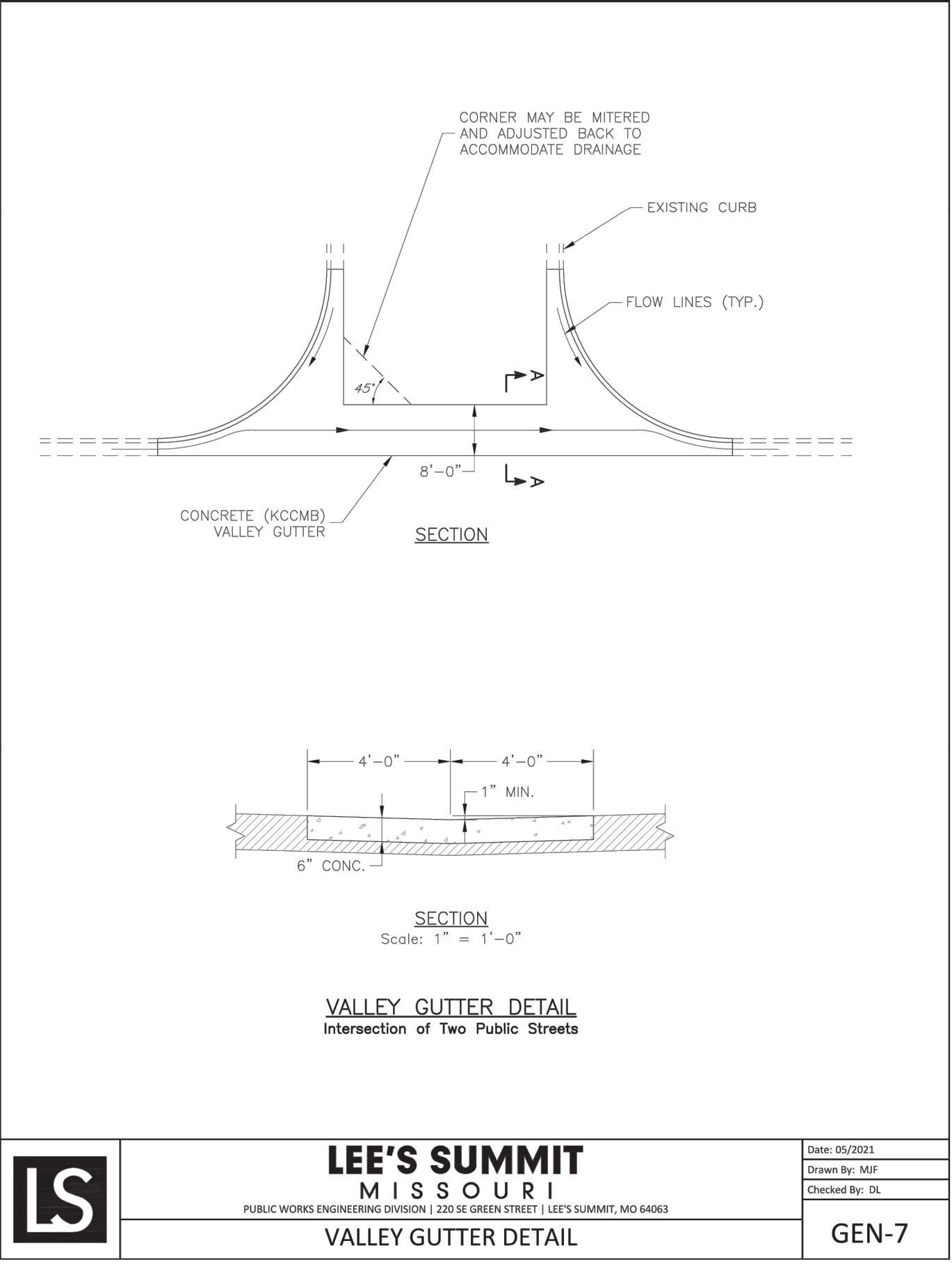
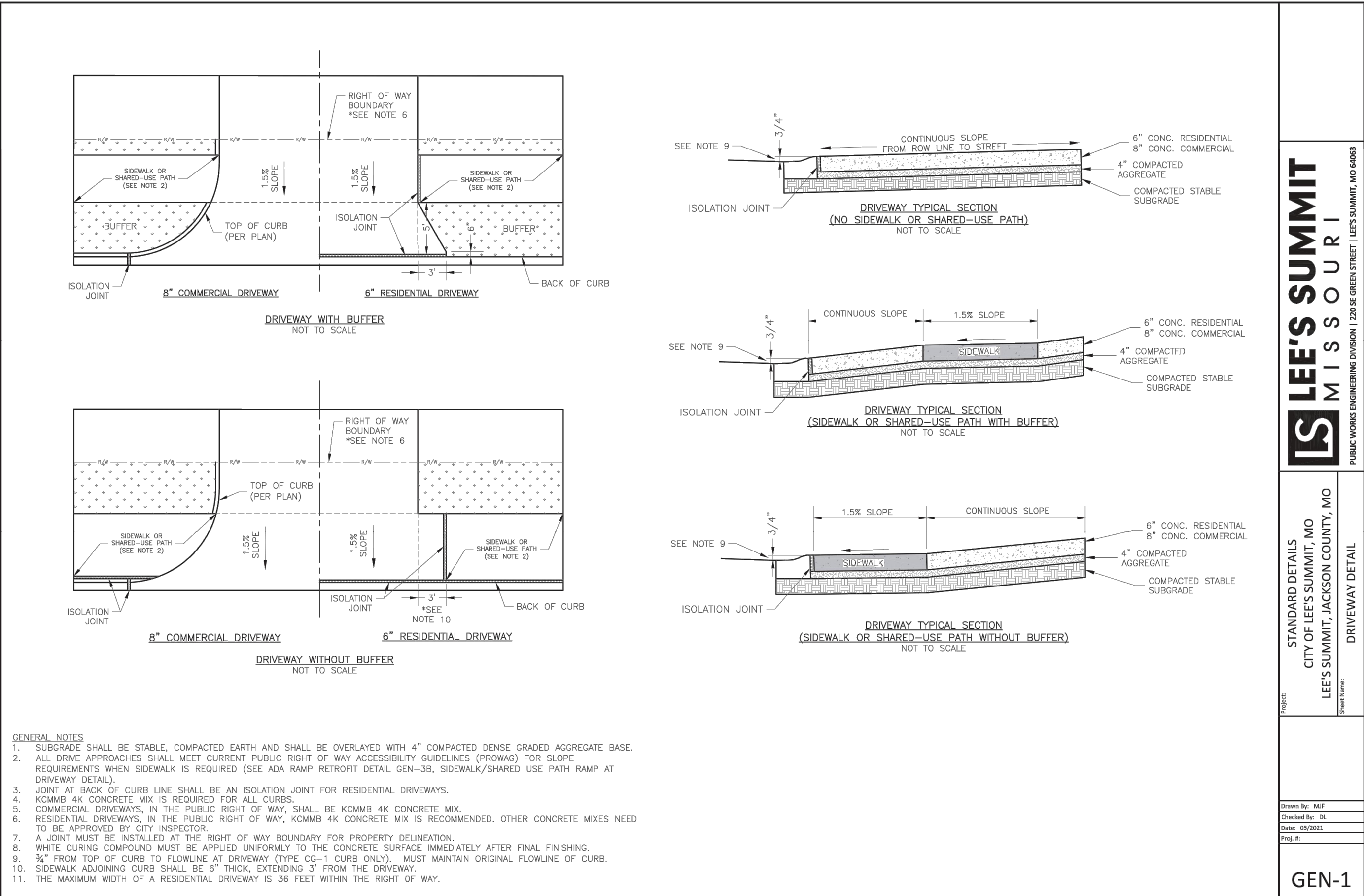
REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
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10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER

STREET DETAILS

SHEET
C407

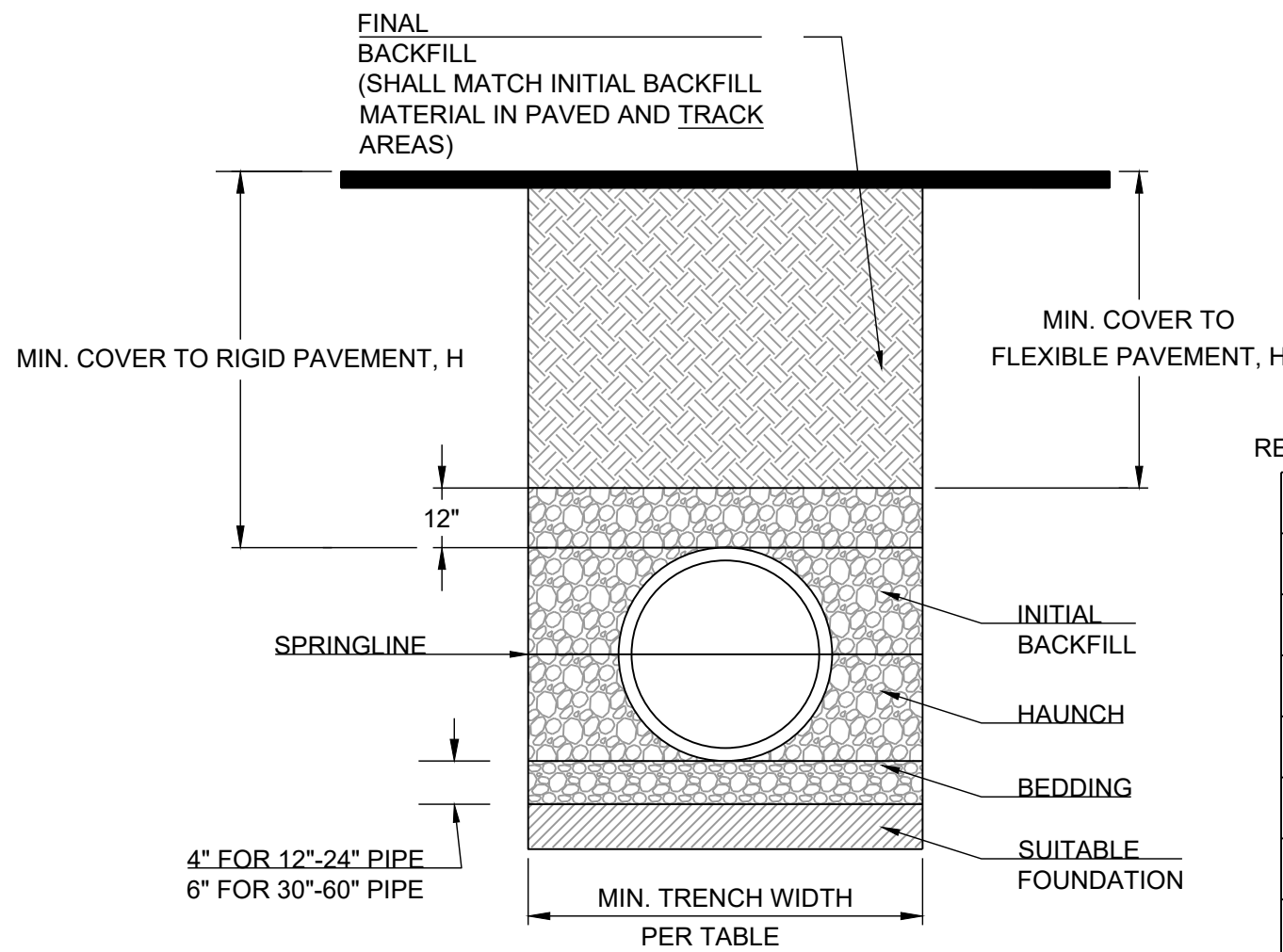


REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
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10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER





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

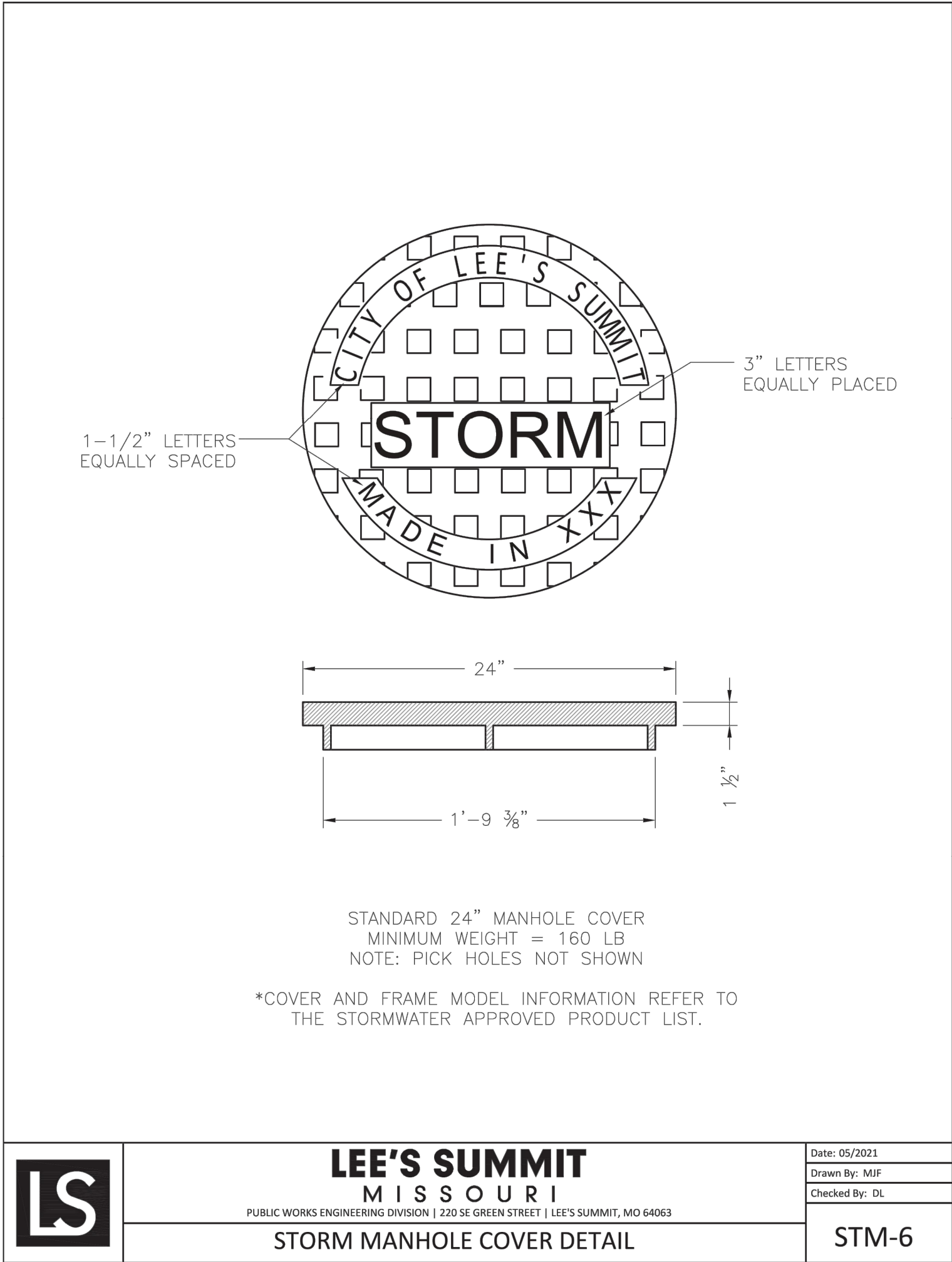
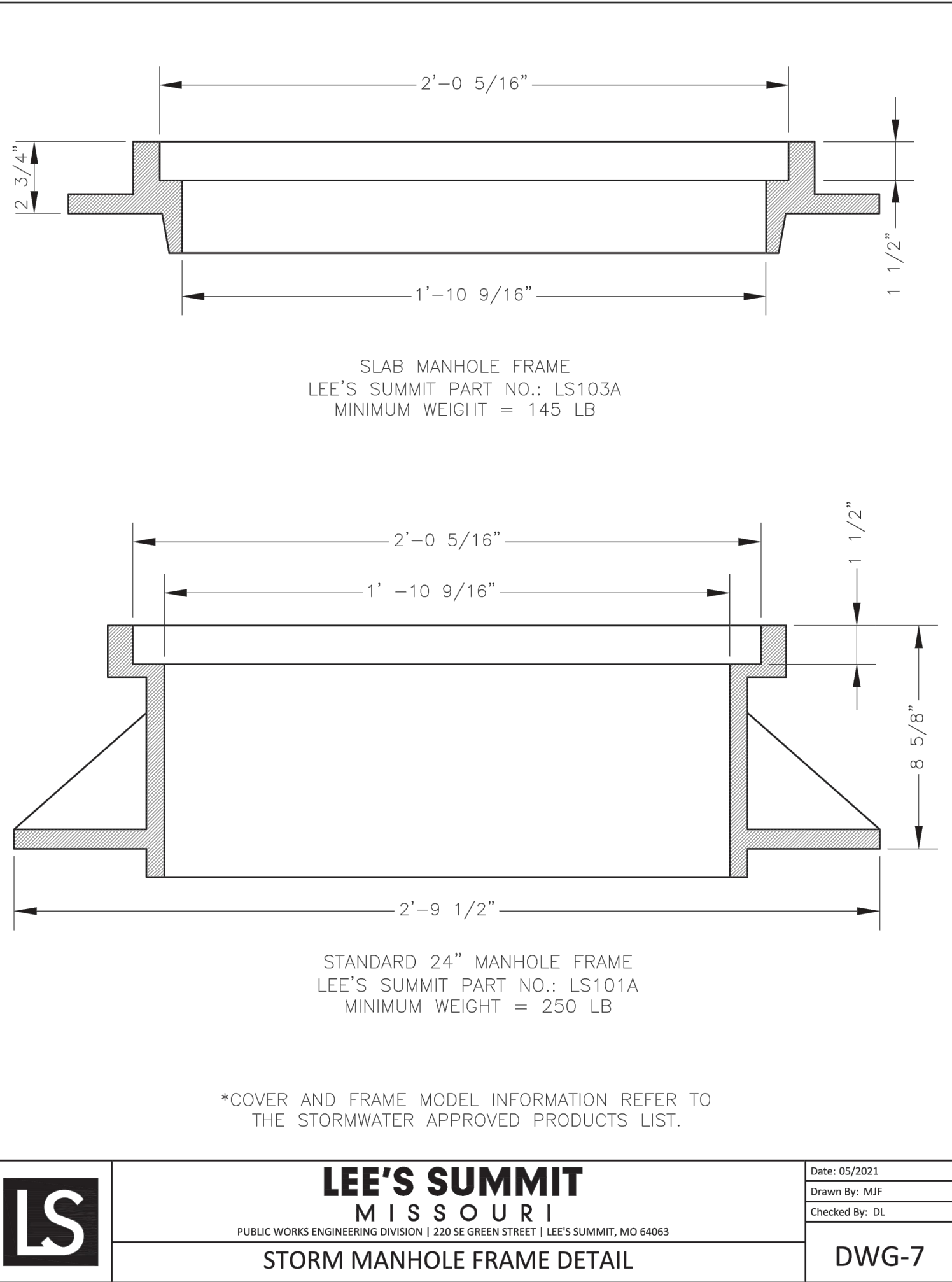
* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

RECOMMENDED MINIMUM TRENCH WIDTHS

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

NOTES:

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



PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

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

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	
22-597	

STORM DETAILS

SHEET

C410

Section 2722

Engineered Surface Drainage Products

GENERAL
PVC surface drainage inlets shall be of the inline drain type as indicated on the contract drawing and referenced within the contract specifications. The ductile iron grates for each of these fittings are to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer. The surface drainage inlets shall be as manufactured by Nyloplast a division of Advanced Drainage Systems, Inc., or prior approved equal.

MATERIALS
The inline drain required for this contract shall be manufactured from PVC pipe stock, utilizing a thermo-molding process to reform the pipe stock to the furnished configuration. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the inline drain body by use of a **swage mechanical joint**. The raw material used to manufacture the pipe stock that is used to manufacture the inline drain body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.

The grates furnished for all surface drainage inlets shall be ductile iron grates for sizes 8", 10", 12", 15", 18", 24" and 30" shall be made specifically for each fitting so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Grates for inline drains shall be capable of supporting H-20 wheel loading for traffic areas or H-10 loading for pedestrian areas. 12" and 15" square grates will be hinged to the frame using pins. Metal used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05 for ductile iron. Grates shall be provided painted black.

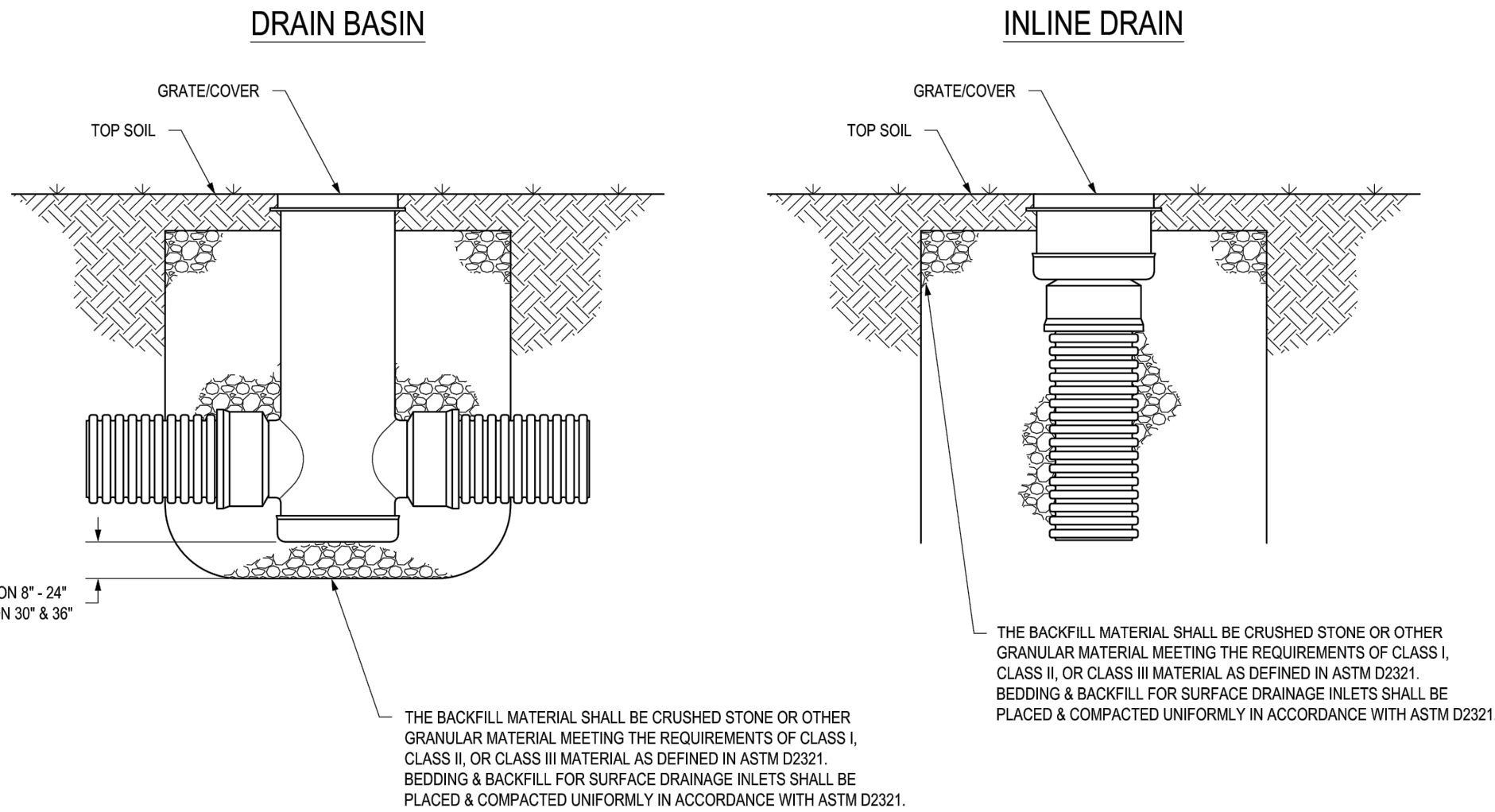
INSTALLATION
The specified PVC surface drainage inlet shall be installed using conventional flexible pipe backfill materials and procedures. The backfill material shall be crushed stone or other granular material meeting the requirements of class 1, class 2, or class 3 material as defined in ASTM D2321. Bedding and backfill for surface drainage inlets shall be well placed and compacted uniformly in accordance with ASTM D2321. The drain basin body will be cut at the time of the final grade. No brick, stone or concrete block will be required to set the grate to the final grade height. For H-20 load rated installations, a concrete ring will be poured under and around the grate and frame. The concrete slab must be designed taking into consideration local soil conditions, traffic loading, and other applicable design factors. For other installation considerations such as migration of fines, ground water, and soft foundations refer to ASTM D2321 guidelines.

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DRAWN BY CJA
DATE 03-10-00
REVISED BY NMH
DATE 03-15-16
PROJECT NO. NAME
DWG NO. 7003-110-009
SCALE 1:1
SHEET 1 OF 1
REV H

3130 VERONA AVE
BURFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com
TITLE
8 IN - 30 IN INLINE DRAIN SPECIFICATIONS

NON TRAFFIC INSTALLATION

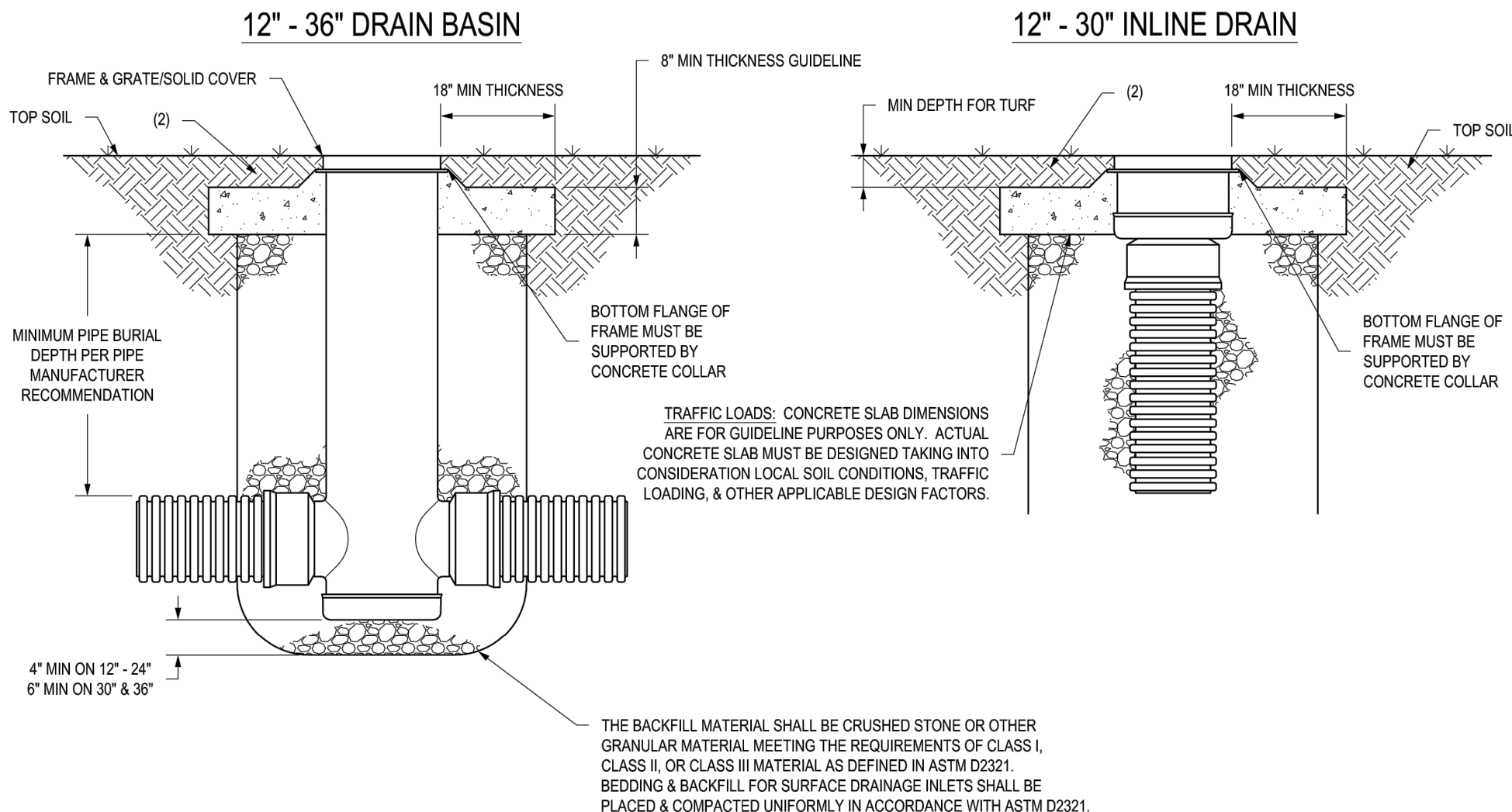


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DRAWN BY CJA
DATE 9-30-99
REVISED BY NMH
DATE 03-11-16
PROJECT NO. NAME
DWG NO. 7001-110-011
SCALE 1:25
SHEET 1 OF 1
REV F

3130 VERONA AVE
BURFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com
TITLE
DRAIN BASIN & INLINE DRAIN
NON TRAFFIC INSTALLATION

NYLOPLAST TURF TRAFFIC INSTALLATION



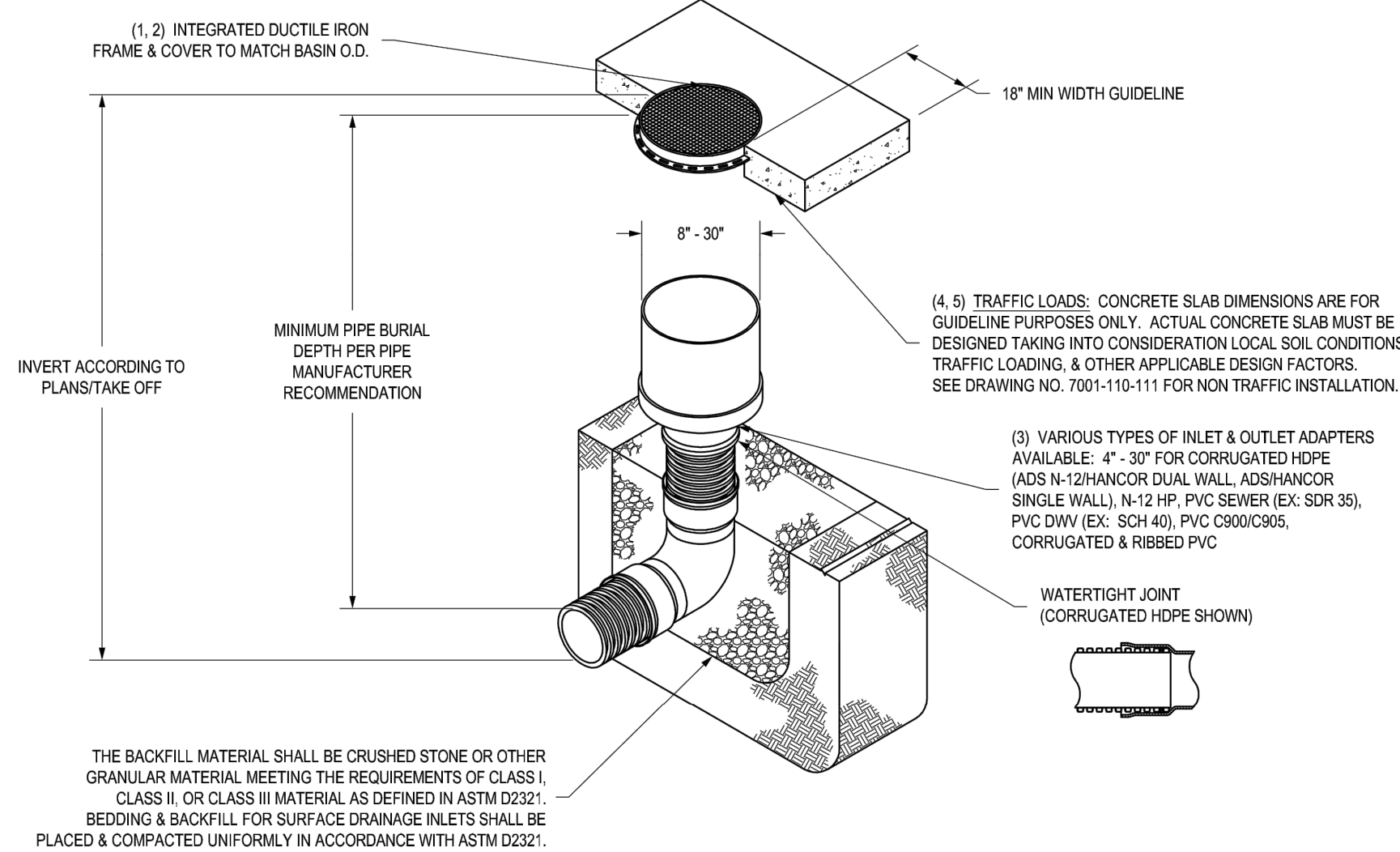
1. GRATES/SOLID COVERS SHALL MEET H-20 LOAD RATING FOR 30" PEDESTRIAN & 12" - 30" STANDARD & SOLID
2. DESIGN SHOULD ACCOUNT FOR ROOT DEPTH TO ALLOW TURF TO GROW AND PREVENT EROSION AROUND GRATE SO THAT HAZARDS DO NOT FORM.

THIS PRINT DISCLOSES SUBJECT MATTER IN WHICH NYLOPLAST HAS PROPRIETARY RIGHTS. THE RECEIPT OR POSSESSION OF THIS PRINT DOES NOT CONFER, TRANSFER, OR LICENSE THE USE OF THE DESIGN OR TECHNICAL INFORMATION SHOWN HEREIN. REPRODUCTION OF THIS PRINT OR ANY INFORMATION CONTAINED HEREIN, OR MANUFACTURE OF ANY ARTICLE HEREFROM, FOR THE DISCLOSURE TO OTHERS IS FORBIDDEN, EXCEPT BY SPECIFIC WRITTEN PERMISSION FROM NYLOPLAST.

DRAWN BY EBC
DATE 01-05-00
REVISED BY NMH
DATE 06-12-16
PROJECT NO. NAME
DWG NO. 7001-110-349
SCALE 1:25
SHEET 1 OF 1
REV G

3130 VERONA AVE
BURFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com
TITLE
DRAIN BASIN & INLINE DRAIN
TURF TRAFFIC INSTALLATION

NYLOPLAST INLINE DRAIN WITH SOLID COVER



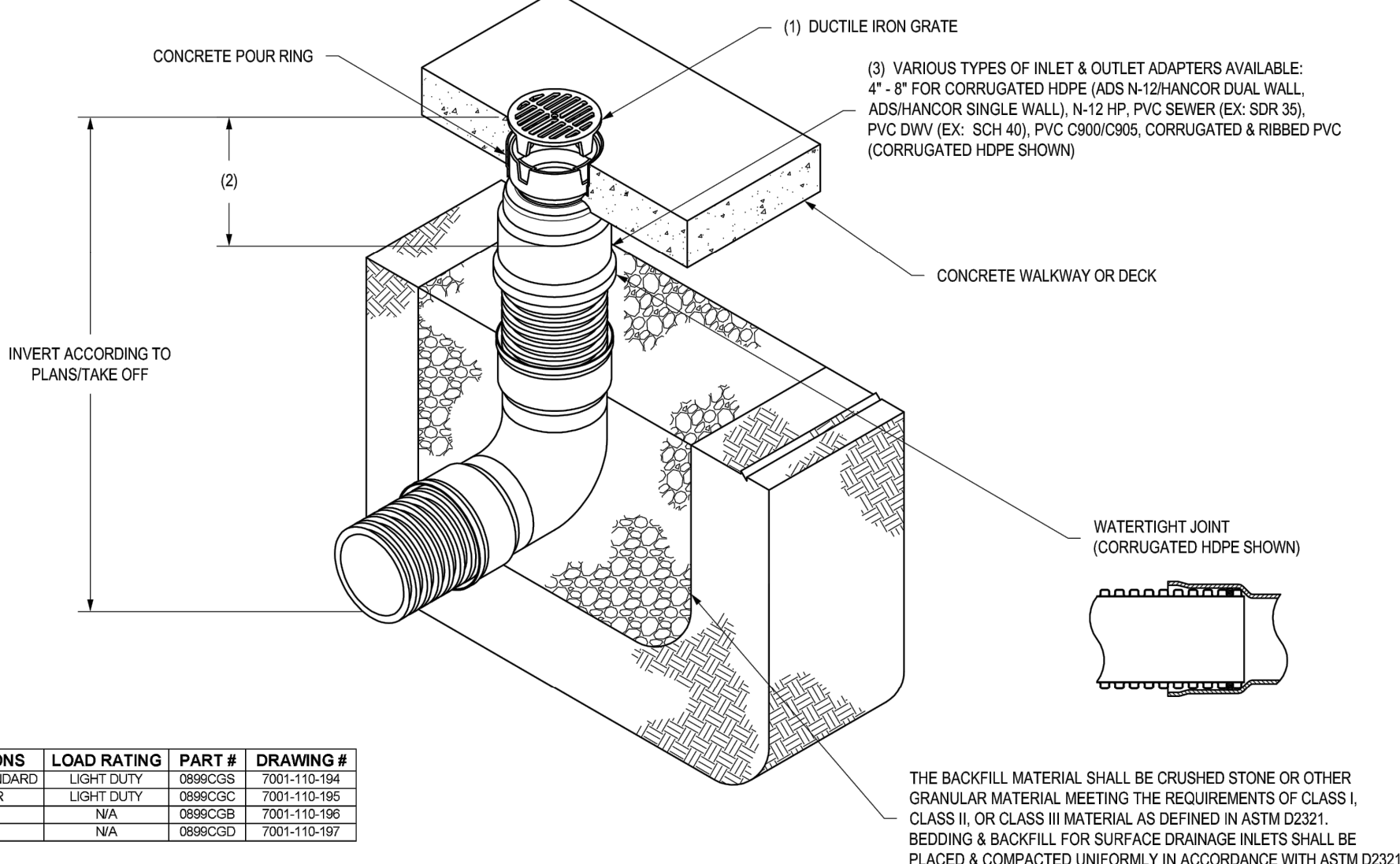
- 1 - 8" - 30" SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
- 2 - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
- 3 - 8" & 10" SOLID COVERS FIT DIRECTLY ONTO INLINE DRAINS SEE DRAWING NO. 7003-110-001 & 7003-110-001.
- 4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12 HANCOR DUAL WALL), N-12 HP, & PVC SEWER (EX. SDR 35).
- 5 - 8" & 10" SOLID COVERS ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY. NO CONCRETE COLLAR NEEDED FOR LIGHT DUTY RATING.

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DRAWN BY EBC
DATE 03-22-10
REVISED BY NMH
DATE 03-15-16
PROJECT NO. NAME
DWG NO. 7003-110-005
SCALE 1:40
SHEET 1 OF 1
REV C

3130 VERONA AVE
BURFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com
TITLE
INLINE DRAIN WITH SOLID COVER
QUICK SPEC INSTALLATION DETAIL

NYLOPLAST 8" INLINE DRAIN: 2708AG __ X



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN/STANDARD	LIGHT DUTY	0890CGS	7001-110-184
SOLID COVER	LIGHT DUTY	0890CGC	7001-110-185
BRONZE	N/A	0890CGB	7001-110-186
DOVE	N/A	0890CGD	7001-110-187

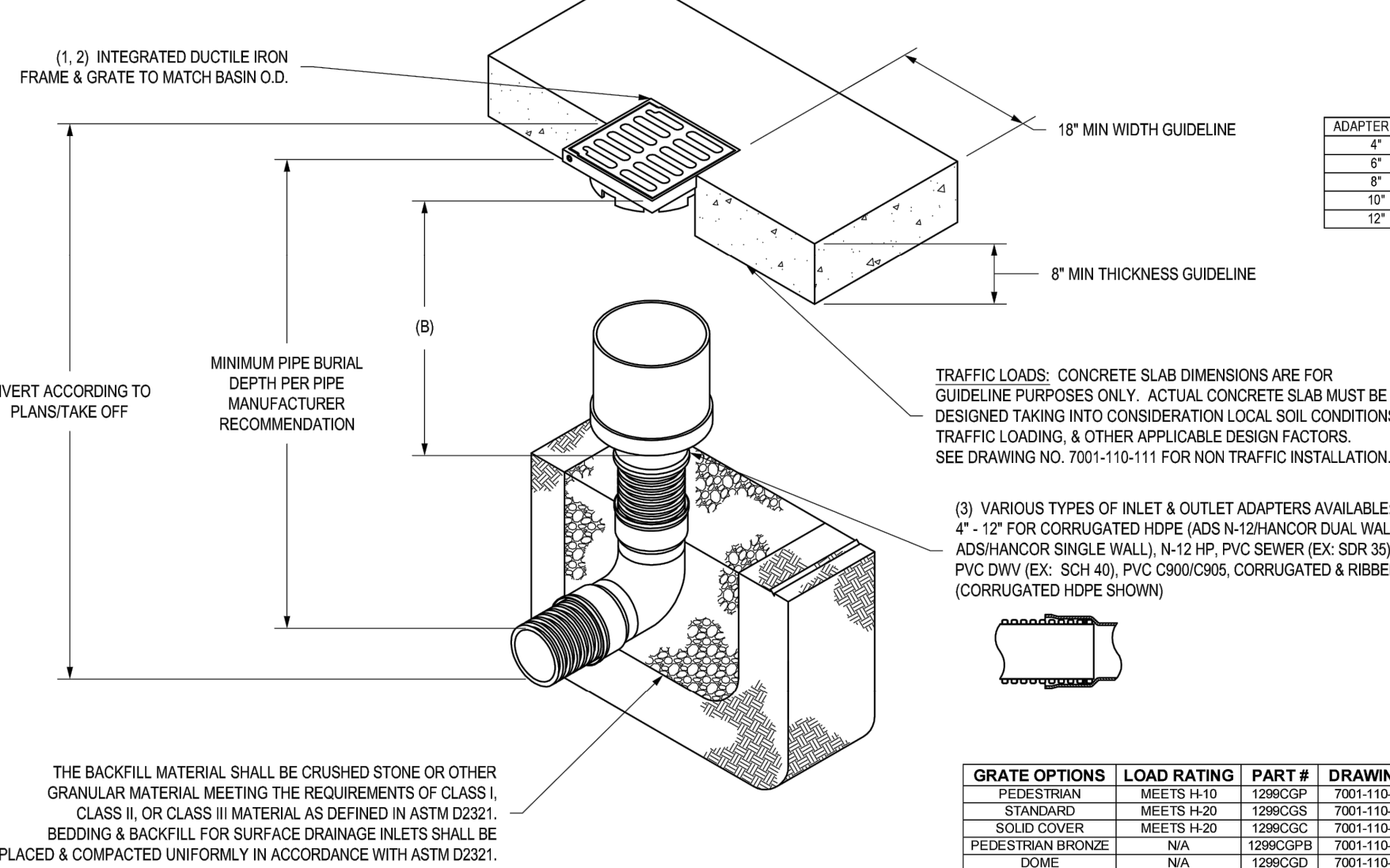
- 1 - GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05 WITH THE EXCEPTION OF THE BRONZE GRATE.
- 2 - FOR COMPLETE DESIGN DETAILS SEE DRAWING NO. 7003-110-001.
- 3 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12 HANCOR DUAL WALL), & PVC SEWER.

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DRAWN BY EBC
DATE 11-15-06
REVISED BY NMH
DATE 03-15-16
PROJECT NO. NAME
DWG NO. 7003-110-033
SCALE 1:16
SHEET 1 OF 1
REV F

3130 VERONA AVE
BURFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com
TITLE
8 IN INLINE DRAIN QUICK SPEC INSTALLATION DETAIL

NYLOPLAST 12" INLINE DRAIN: 2712AG __ X



ADAPTER SIZE	B
4"	10.50
6"	11.50
8"	11.50
10"	11.25
12"	9.00

- 1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05, WITH THE EXCEPTION OF THE BRONZE GRATE.
- 2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
- 3 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12 HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
- 4 - DIMENSIONS ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS MAY VARY.
- 5 - DIMENSIONS ARE IN INCHES.
- 6 - SEE DRAWING NO. 7001-110-275 FOR ADS N-12 & HANCOR DUAL WALL BELL INFORMATION & DRAWING NO. 7001-110-384 FOR N-12 HP BELL INFORMATION.

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DRAWN BY EBC
DATE 04-03-06
REVISED BY NMH
DATE 03-15-16
PROJECT NO. NAME
DWG NO. 7003-110-025
SCALE 1:20
SHEET 1 OF 1
REV E

3130 VERONA AVE
BURFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com
TITLE
12 IN INLINE DRAIN QUICK SPEC INSTALLATION DETAIL

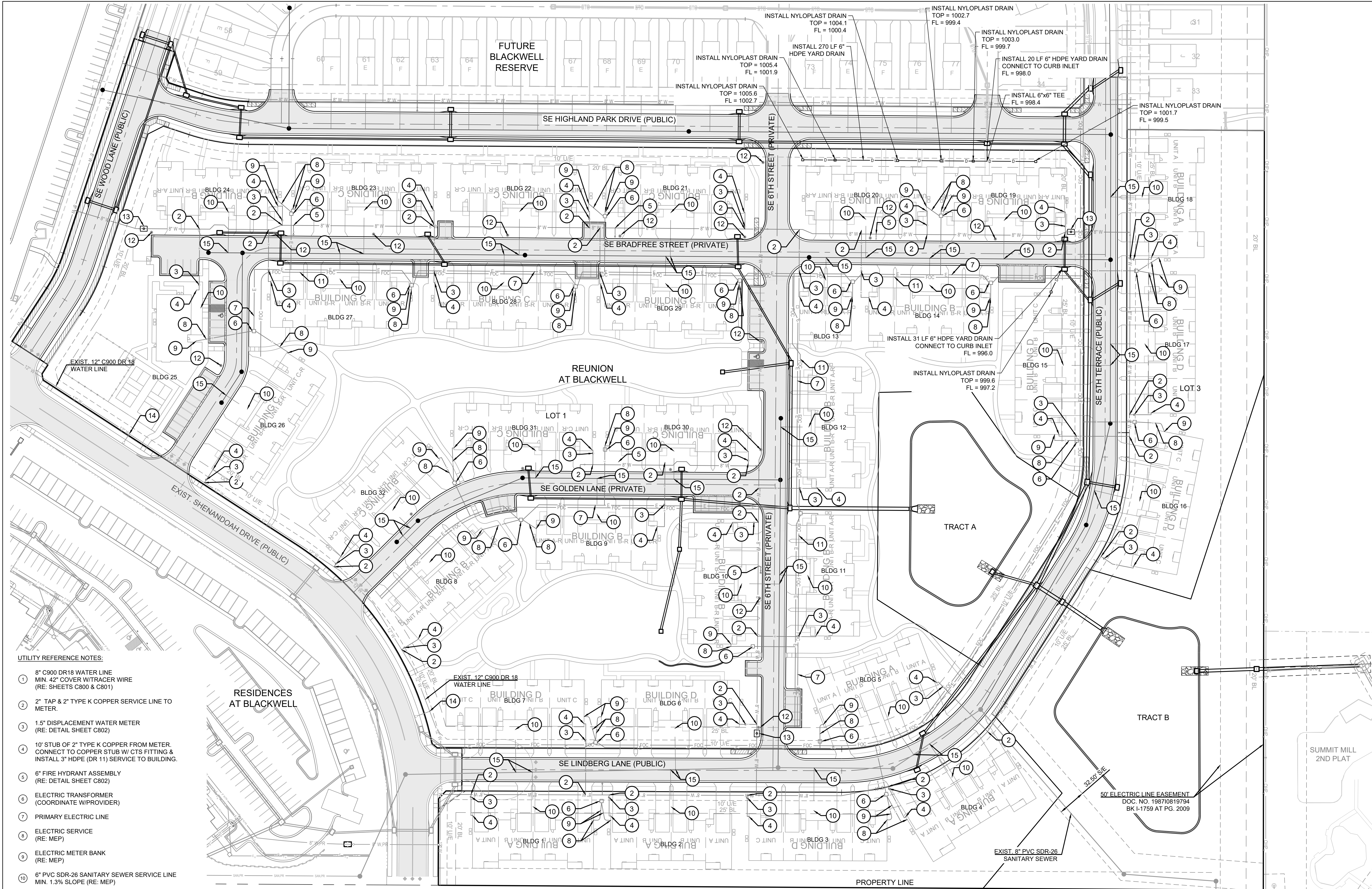
PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

REVISION DATE	DESCRIPTION	PER CITY COMMENTS
05/05/23	TRC	PER CITY COMMENTS
06/27/23	MAB	PER CITY COMMENTS
08/24/23	MAB	PER CITY COMMENTS
09/25/23	MAB	PER CITY COMMENTS
10/05/23	MAB	PER CITY COMMENTS
03/03/2023	PROJ. NUMBER:	22-597

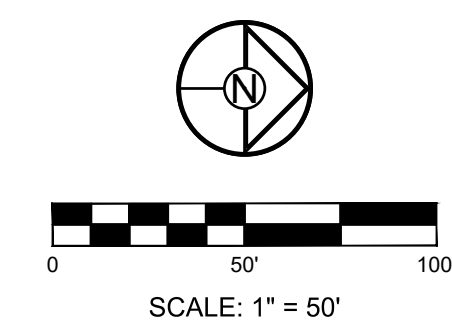
STORM DETAILS



- UTILITY REFERENCE NOTES:
- 1 8" C900 DR18 WATER LINE
MIN. 42" COVER W/TRACER WIRE
(RE: SHEETS C800 & C801)
 - 2 2" TAP & 2" TYPE K COPPER SERVICE LINE TO
METER.
 - 3 1.5" DISPLACEMENT WATER METER
(RE: DETAIL SHEET C802)
 - 4 10' STUB OF 2" TYPE K COPPER FROM METER.
CONNECT TO COPPER STUB W/ CTS FITTING &
INSTALL 3" HDPE (DR 11) SERVICE TO BUILDING.
 - 5 6" FIRE HYDRANT ASSEMBLY
(RE: DETAIL SHEET C802)
 - 6 ELECTRIC TRANSFORMER
(COORDINATE W/PROVIDER)
 - 7 PRIMARY ELECTRIC LINE
 - 8 ELECTRIC SERVICE
(RE: MEP)
 - 9 ELECTRIC METER BANK
(RE: MEP)
 - 10 6" PVC SDR-26 SANITARY SEWER SERVICE LINE
MIN. 1.3% SLOPE (RE: MEP)
 - 11 FIBER OPTIC - 4" SCH 40 CONDUIT
MIN. 36" COVER
 - 12 STREET LIGHT
(COORDINATE W/EVERGY)
 - 13 VAULT FOR DOUBLE CHECK DETECTOR VALVE
(RE: SHEET C803)
 - 14 EXIST. 6" FIRE HYDRANT ASSEMBLY
 - 15 EXIST. 6" PVC SDR-26 SANITARY SEWER SERVICE LINE

PUBLIC ROAD NOTE:
ROADS DENOTED AS "PUBLIC" WILL BE CONSTRUCTED UNDER
A SEPARATE PLAN SET.

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



SCHLAGEL
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Missouri State Certificate of Authority
#E200203600-F #LAC2001005237 #LS200208659-F

PREPARED BY:

10.05.2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

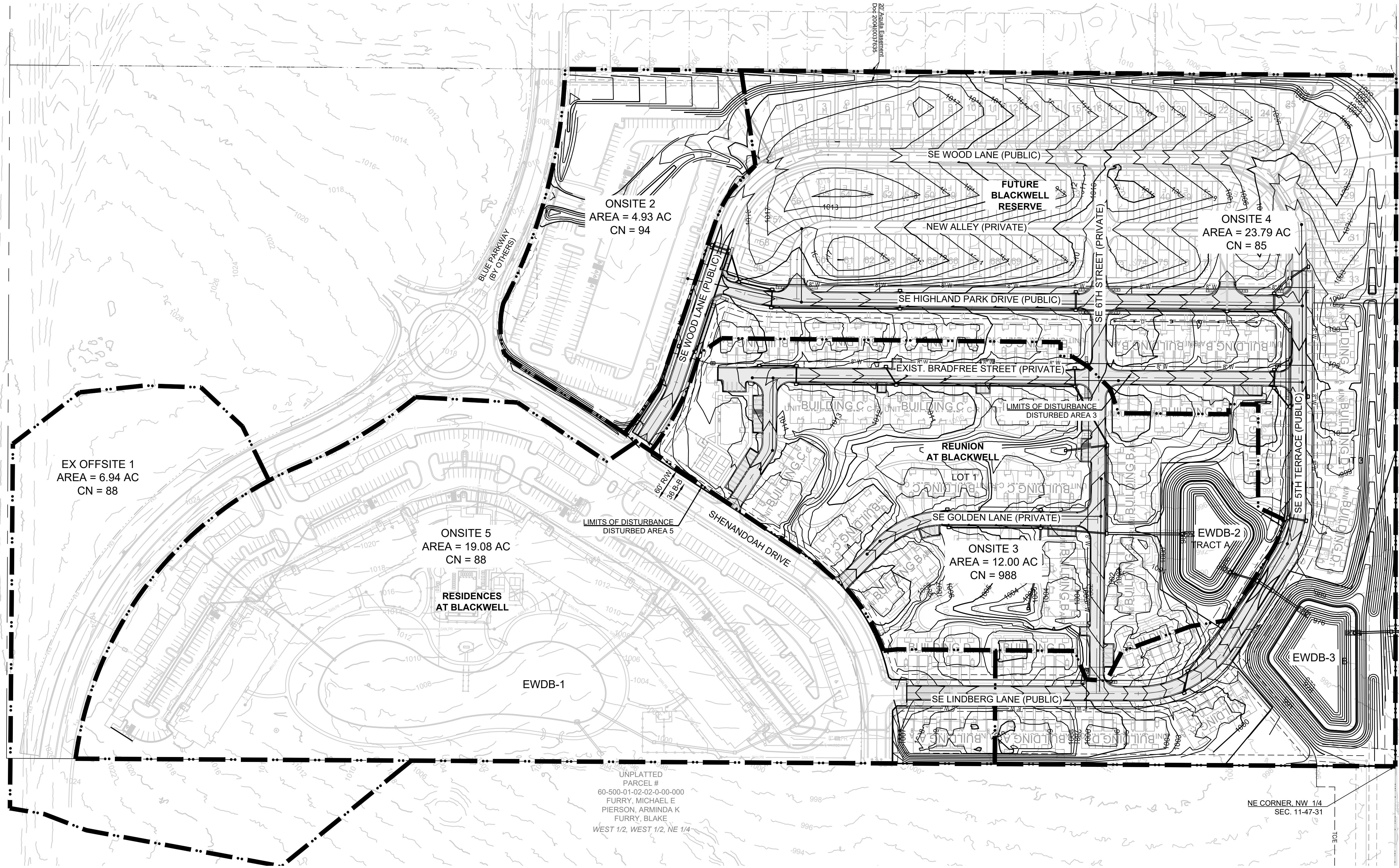
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS

DRAWN BY: TRC	CHECKED BY: MAB	DATE PREPARED: 03/03/2023	PROJ. NUMBER: 22-597
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UTILITY PLAN

SHEET
C500



GRADING LEGEND:
--- 1000 --- EXISTING CONTOUR
—— 1000 —— PROPOSED CONTOUR
(FINISHED GRADE)

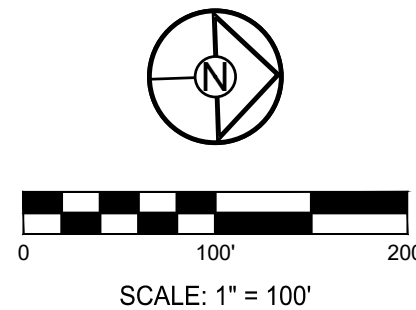
- NOTES:**
- ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
 - THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

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:

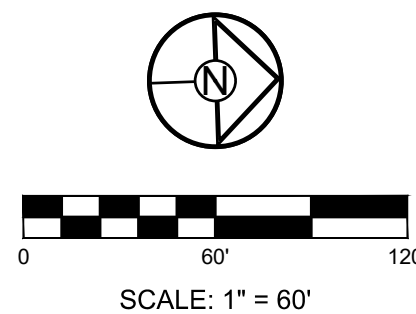
"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE
INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH
OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365
ELEV. 1005.719



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

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/03/2023	DATE PREPARED
22-597	PROJ. NUMBER

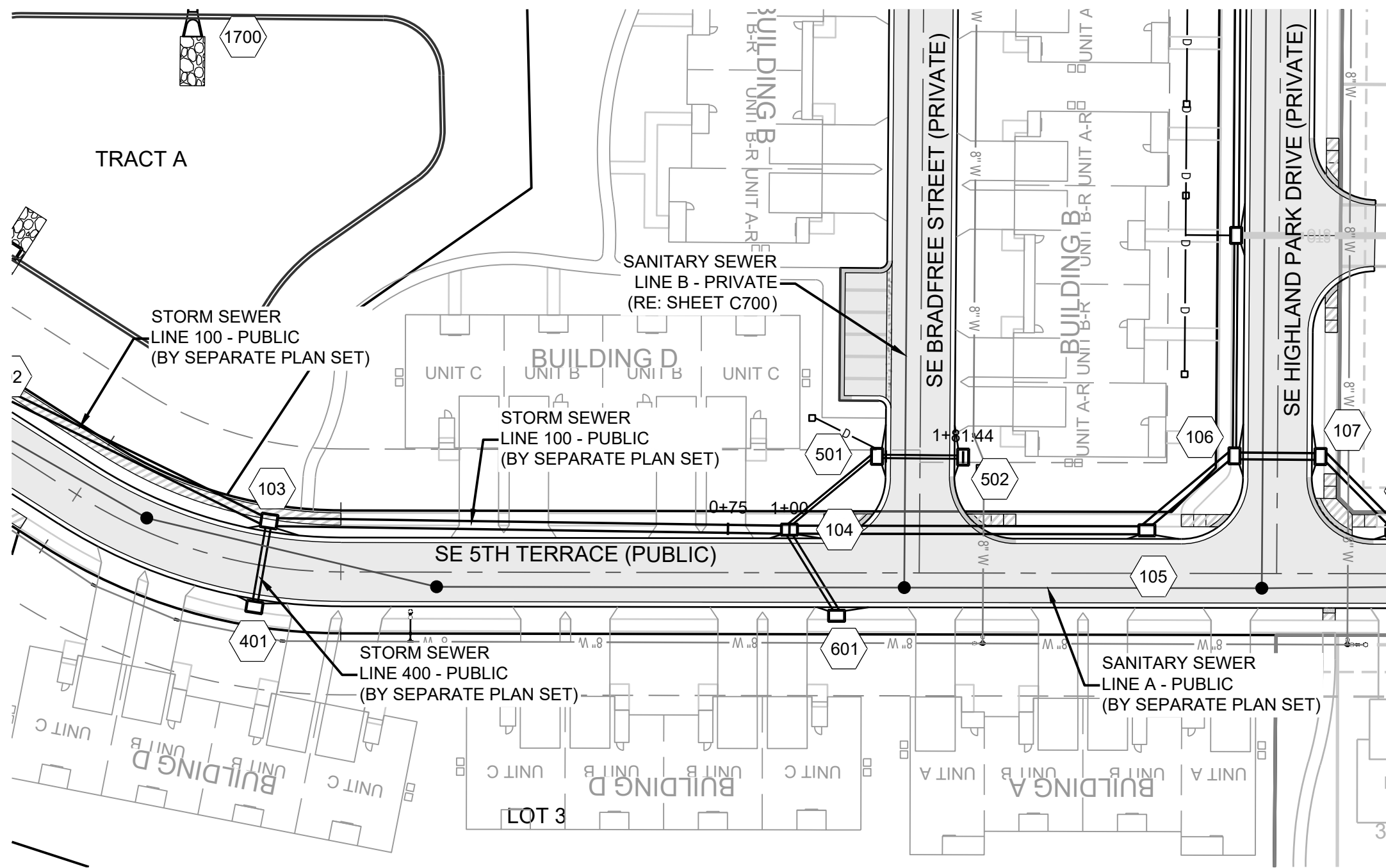
OVERALL
DRAINAGE MAP



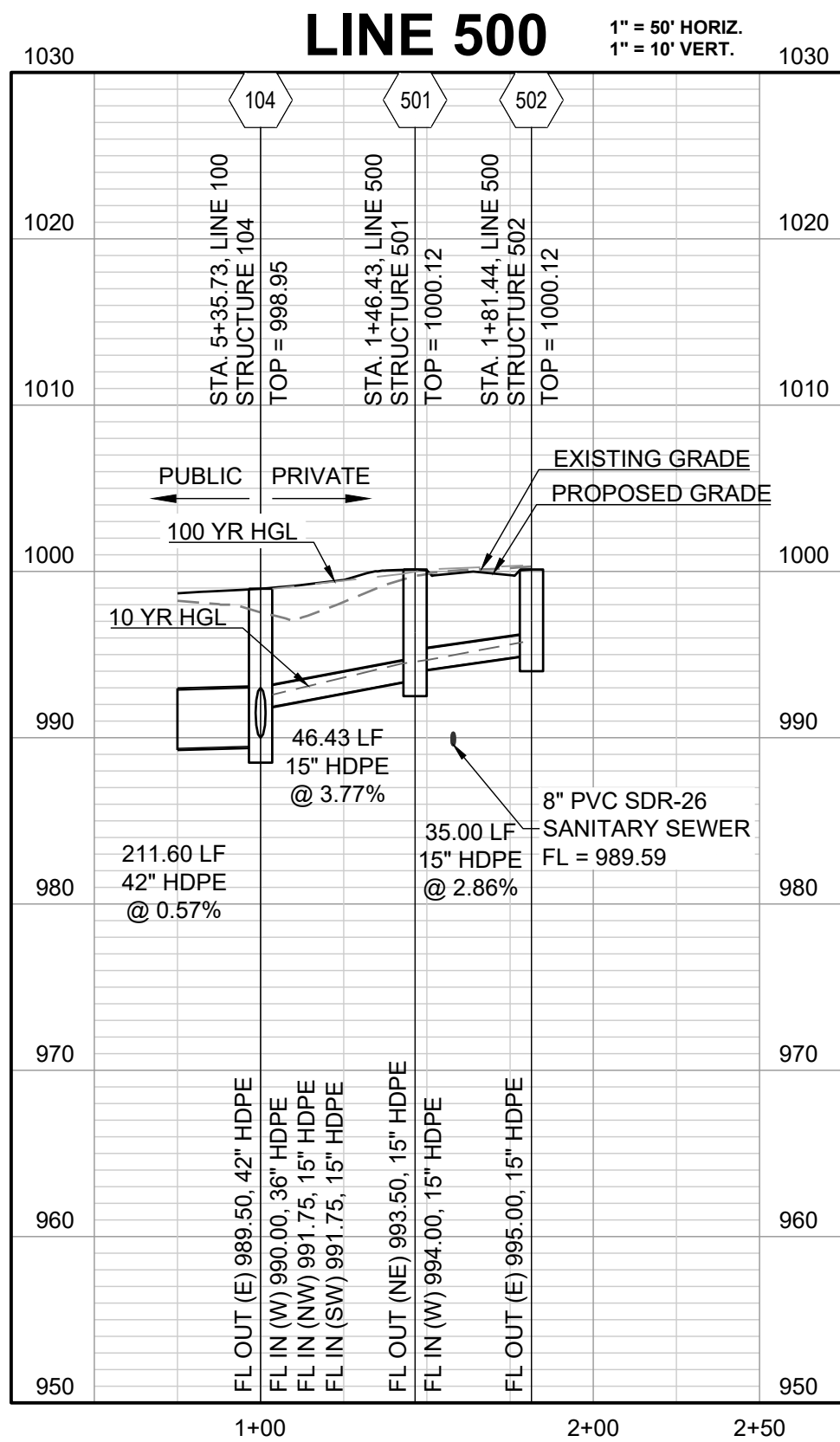
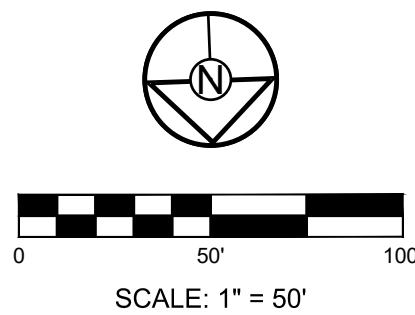
SHEET
C602

Design Storm:							100																						
"K" Value:							1.25																						
"F" Factor:							1.00																						
Runoff Calculations														Pipe Properties															
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cx A	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up Cx A	Up Inlet	Down Inlet	Pipe Type	"n"	Pipe Size	Pipe Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev.			
LINE 100																													
101	0.61	0.66	20.40	13.46	8.6	9.01	4.53	151.62	103.97	10.81			0.00	0.00	101	100	HDPE	0.012	42	55.00	0.91	0.50	DS TAILWATER @ STR #100				989.91		
102	0.40	0.66	19.79	13.06	8.6	9.02	2.98	147.21	231.47	24.06	201	301	3.52	2.32	102	101	HDPE	0.012	42	35.50	4.51	0.50	984.50	984.00	995.20	992.90			
103	0.37	0.66	15.87	10.47	8.3	9.10	2.78	119.20	78.80	8.17	401		0.42	0.28	103	102	HDPE	0.012	42	133.63	0.52	0.50	987.80	987.10	996.81	997.99			
104	0.22	0.66	15.08	9.95	7.9	9.24	1.68	114.85	82.29	8.55	501	601	1.57	1.04	104	103	HDPE	0.012	42	211.60	0.57	0.50	989.50	988.30	998.95	1000.07			
105	0.11	0.66	13.29	8.77	7.7	9.32	0.85	102.23	68.17	9.84			0.00	0.00	105	104	HDPE	0.012	36	145.31	0.89	0.50	991.30	990.00	1000.55	1003.49			
106	0.18	0.66	13.18	8.70	7.6	9.35	1.39	101.69	67.01	9.48			0.73	0.44	106	105	HDPE	0.012	36	46.74	0.86	0.50	992.20	991.80	1001.44	1003.08			
107	0.64	0.66	6.27	4.14	6.9	9.58	5.06	49.53	41.21	8.39			0.00	0.00	107	106	HDPE	0.012	30	35.00	0.86	0.50	993.00	992.70	1001.44	1002.67			
108	0.18	0.66	5.63	3.72	6.8	9.61	1.43	44.63	37.44	7.63	801		0.26	0.17	108	107	HDPE	0.012	30	42.40	0.71	0.50	993.80	993.50	1001.65	1002.51			
109	0.12	0.66	5.19	3.43	6.6	9.70	0.96	41.53	37.18	7.57	901		0.66	0.44	109	108	HDPE	0.012	30	113.76	0.70	0.50	995.10	994.30	1002.98	1003.20			
110	0.11	0.66	4.41	2.91	6.4	9.75	0.89	35.48	22.19	7.06	1001		1.50	0.99	110	109	HDPE	0.012	24	60.72	0.82	0.50	996.09	995.60	1004.13	1005.24			
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	1009.01			
112	0.42	0.66	1.62	1.07	5.6	10.06	3.49	13.45	9.28	7.57	1201		0.47	0.31	112	111	HDPE	0.012	15	306.71	1.76	0.50	1005.49	1000.09	1011.58	1018.29			
113	0.34	0.66	0.73	0.48	5.1	10.29	2.89	6.20	8.96	7.30			0.00	0.00	113	112	HDPE	0.012	15	244.59	1.64	0.50	1010.00	1005.99	1015.97	1013.70			
114	0.39	0.66	0.39	0.26	5.0	10.32	3.32	3.32	8.34	6.80			0.00	0.00	114	113	HDPE	0.012	15	35.14	1.42	N/A	1011.00	1010.50	1016.02	1013.84			
LINE 200																													
201	2.31	0.66	2.31	1.52	5.0	10.32	19.67	19.67	41.95	13.35			0.00	0.00	201	102	HDPE	0.012	24	Drop in Inlet 102		1.50							
																						25	218.69	2.16	N/A	994.51	988.85	999.68	1000.40
LINE 300																													
301	0.52	0.66	1.21	0.80	5.1	10.27	4.41	10.26	11.31	9.21			0.00	0.00	301	102	HDPE	0.012	15	Drop in Inlet 102		2.25							
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	1.61	N/A	995.51	995.01	1000.36	1000.16			
LINE 400																													
401	0.42	0.66	0.42	0.28	5.0	10.32	3.58	3.58	11.46	9.34			0.00	0.00	401	103	HDPE	0.012	15	Drop in Inlet 103		2.25							
																						35	35.48	2.68	N/A	991.00	990.05	996.59	996.77
LINE 500																													
501	0.43	0.66	1.14	0.75	5.1	10.30	3.65	9.68	13.59	11.07			0.00	0.00	501	104	HDPE	0.012	15	Drop in Inlet 104		2.25							
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	3.77	N/A	993.50	991.75	1000.12	1000.32			
LINE 600																													
601	0.43	0.66	0.43	0.28	5.0	10.32	3.66	3.66	12.38	10.09			0.00	0.00	601	104	HDPE	0.012	15	Drop in Inlet 104		2.25							
																						39	39.93	3.13	N/A	993.00	991.75	999.16	999.13
LINE 700																													
701	0.32	0.66	6.73	4.44	7.6	9.35	2.47	51.92	39.24	7.99	1301		2.26	1.49	701	106	HDPE	0.012	30	Drop in Inlet 106		0.50							
702	0.58	0.66	4.15	2.74	7.1	9.51	4.55	32.54	34.14	10.87	1401		0.65	0.43	702	701	HDPE	0.012	24	388.09	1.84	0.50	999.49	993.90	1007.44	1008.82			
703	0.46	0.66	2.92	1.93	6.4	9.79	3.70	23.50	14.30	8.09	1501		0.85	0.56	703	702	HDPE	0.012	18	335.06	1.58	0.50	1005.28	999.99	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	1007.37	1005.78	1014.19	1015.33			
705	0.07	0.66	1.35	0.89	5.5	10.10	0.58	11.25	8.59	4.86			0.00	0.00	705	704	HDPE	0.012	18	35.04	0.57	0.50	1008.07	1007.87	1014.20	1014.86			
706	0.03	0.66	1.28	0.84	5.3	10.18	0.25	10.75	6.71	5.47			0.00	0.00	706	705	HDPE	0.012	15	65.36	0.92	0.50	1009.17	1008.57	1014.96	1016.34			
707	0.49	0.66	1.25	0.83	5.1	10.27	4.15	10.59	6.30	5.13	1601		0.26	0.17	707	706	HDPE	0.012	15	61.70	0.81	0.50	1010.17	1009.67	1015.18	1016.95			
708	0.50	0.66	0.50	0.33	5.0	10.32	4.26	4.26	6.49	5.29			0.00	0.00	708	707	HDPE	0.012	15	35.00	0.86	N/A	1010.97	1010.67	1015.18	1015.40			
LINE 800																													
801	0.26	0.66	0.26	0.17	5.0	10.32	2.21	2.21	15.30	12.47			0.00	0.00	801	108	HDPE	0.012	15	Drop in Inlet 108		1.25							
																						40	40.76	4.78	N/A	997.00	995.05	1001.88	1001.72
LINE 900																													
901	0.66	0.66	0.66	0.44	5.0	10.32	5.62	5.62	15.73	12.81			0.00	0.00	901	109	HDPE	0.012	15	Drop in Inlet 109		1.25							
																						38	38.65	5.09	N/A	998.30	996.35	1003.20	1003.39
LINE 1000																													
1001	1.50	0.66	1.50	0.99	5.0	10.32	12.77	12.77	19.30	6.14			0.00	0.00	1001	110	HDPE	0.012	24	Drop in Inlet 110		0.50							
																						210	210.17	0.62	N/A	997.90	996.59	1002.00	1004.84
LINE 1100																													
1101	0.65	0.66	0.65	0.43	5.0	10.32	5.54	5.54	11.22	9.14			0.00	0.00	1101	111	HDPE	0.012	15	Drop in Inlet 111		0.50							
																						35	35.07	2.57	N/A	1001.00	1000.09	1006.01	1006.41
LINE 1200																													
1201	0.47	0.66	0.47	0.31	5.0	10.32	4.00	4.00	11.69	9.53			0.00	0.00	1201	112	HDPE	0.012	15	Drop in Inlet 112		0.50							
																						35	35.84	2.79	N/A	1006.99	1005.99	1011.71	1011.78
LINE 1300																													
1301	0.30	0.66	2.26	1.49	6.2	9.86	2.44	18.39	14.48	8.20			0.00	0.00	1301	701	HDPE	0.012	18	Drop in Inlet 701		1.00							
1302	0.80	0.66	1.96	1.29	6.0	9.92	6.54	16.03	13.26	10.80			0.00	0.00	1302	1301	HDPE	0.012	15	92.02	3.59	0.50	995.49	994.40	1002.83	1005.51			
1303	0.58	0.66	1.16	0.77	5.4	10.14	4.85	9.71	9.67	7.88			0.00	0.00	1303	1302	HDPE	0.012	15	271.61	1.91	0.50	1004.99	999.80	1009.51	1010.39			
1304	0.58	0.66	0.58	0.38	5.0	10.32	4.94	4.94	9.26	7.54			0.00	0.00	1304	1303	HDPE	0.012	15	200.00	1.75	N/A	1008.99	1005.49	1013.05	1010.64			
LINE 1400																													
1401	0.65	0.66	0.65	0.43	5.0	10.32	5.54	5.54	16.94	13.80			0.00	0.00	1401	702	HDPE	0.012	15	Drop in Inlet 702		0.75							
																						35	35.00	5.86	N/A	1000.29	1000.24	1007.44	1007.82
LINE 1500																													
1501	0.85	0.66	0.85	0.56	5.0	10.32	7.24	7.24	9.90	8.06			0.00	0.00	1501	703	HDPE	0.012	15	Drop in Inlet 703		0.50							
																						35	35.00	2.00	N/A	1006.48	1005.78	1011.51	1012.16
LINE 1600																													
1601	0.13	0.66	0.26	0.17	5.1	10.27	1.10	2.20	6.02	4.91			0.00	0.00	1601	707	HDPE	0.012	15	Drop in Inlet 707		0.50							
1602	0.13	0.66	0.13	0.09	5.0	10.32	1.11	1.11	5.28	4.31			0.00	0.00	1602	1601	HDPE	0.012	15	202.61	0.74	0.50	1012.17	1010.67	1017.15	1015.40			
LINE 1700																													
1701	1.32	0.66	9.77	6.45	7.1	9.52	10.37	76.74	92.48	9.61	2101		2.81	1.85	1701	1700	HDPE	0.012	42	Drop in Inlet 1700		1.00							
1702	0.27	0.66	5.64	3.72	6.9	9.59	2.14	44.63	68.55	13.97	2001		2.17	1.43	1702	1701	HDPE	0.012	30	167.90	2.38	1.00	990.99	990.00	1000.60	996.44			
1703	0.53	0.66	3.20	2.11	6.7	9.67	4.23	25.54	16.84	9.53	1801		0.55	0.36	1703	1702	HDPE	0.012	18	128.04	2.19	0.50	999.79	991.99	1003.36	998.94			
1704	0.28	0.66	2.12	1.40	5.8	9.99	2.31	17.48	11.83	6.69	1901		0.26	0.17	1704	1703	HDPE	0.012	18	341.08	1.08	0.50	1003.98	1000.29	1010.39	1014.82			
1705	0.39	0.66	1.58	1																									

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



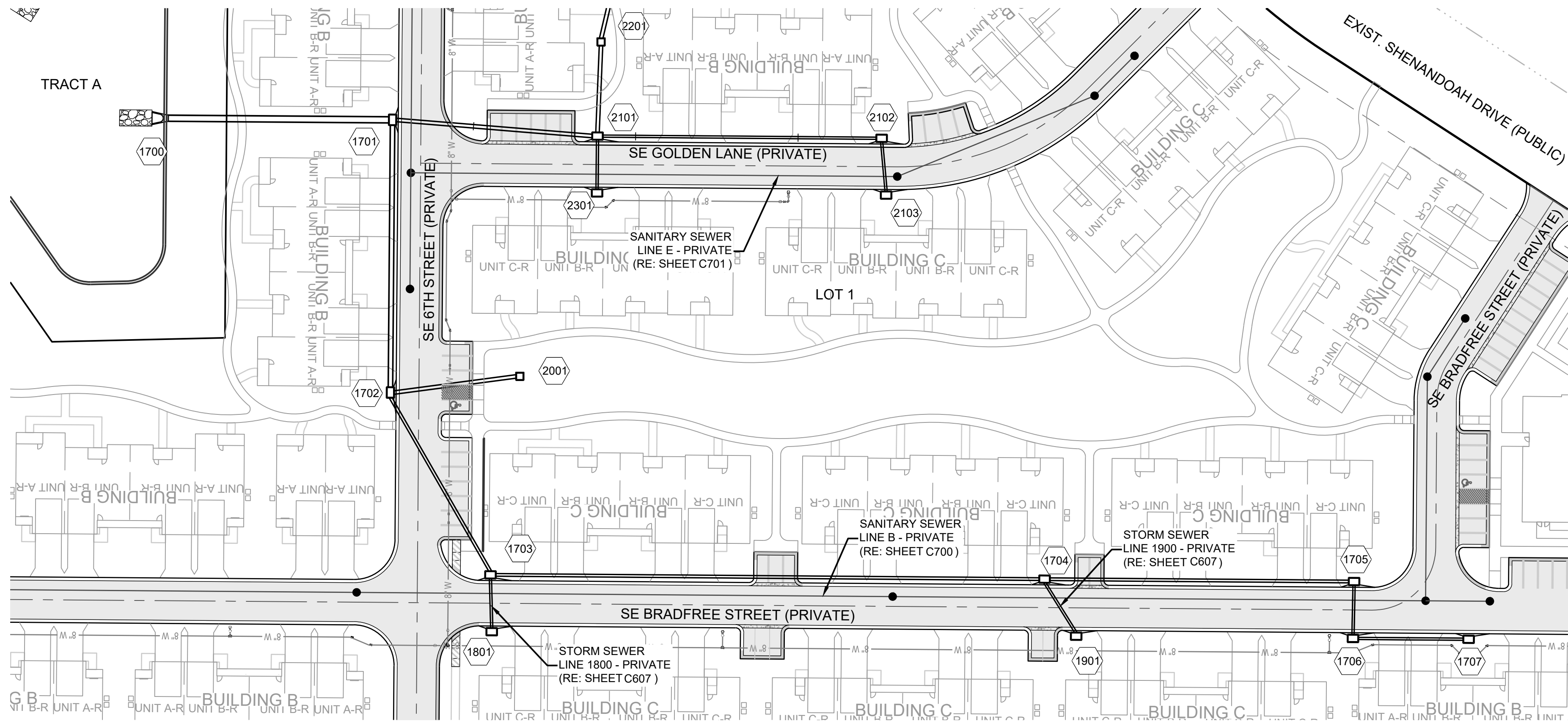
Storm Sewer Construction Notes	
Structure	Notes
501	STA 1+46.43, LINE 500 INSTALL 6 X 4 CURB INLET N 998259.2927 E 2841594.6459
502	STA 1+81.44, LINE 500 INSTALL 6 X 4 CURB INLET N 998260.8165 E 2841559.6759



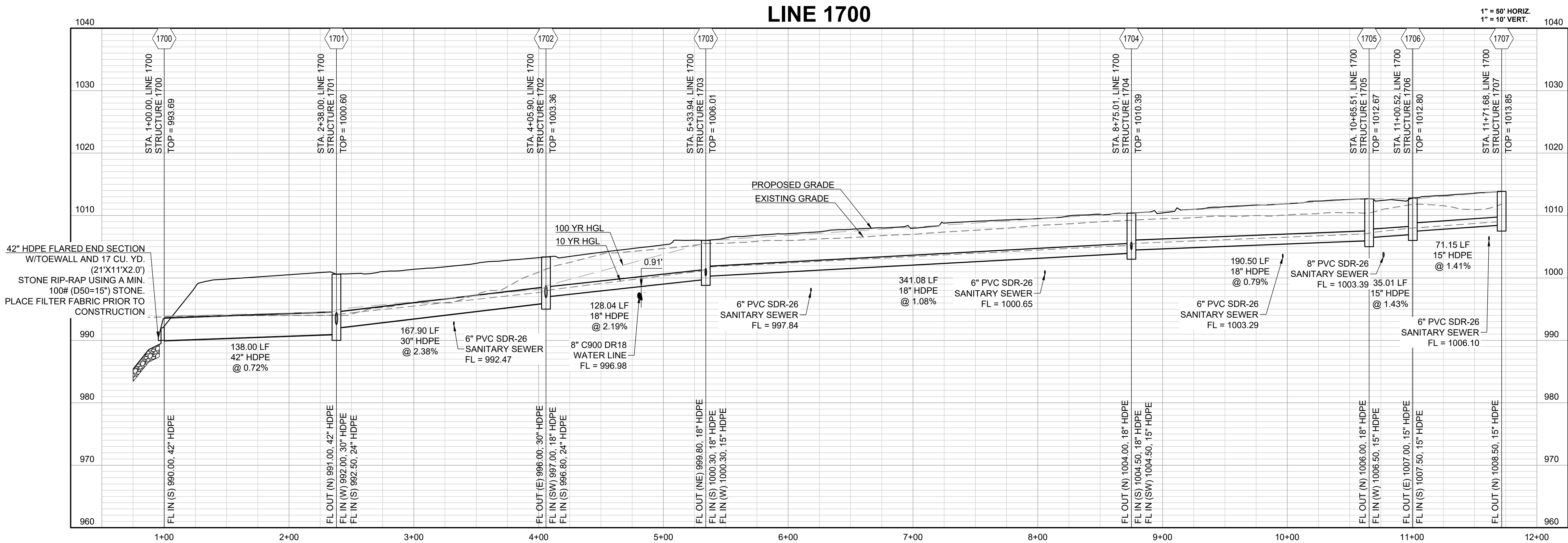
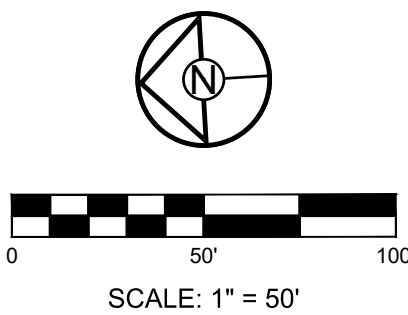
REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED:
22-597	PROJ. NUMBER:

STORM SEWER
LINE 500

SHEET
C605



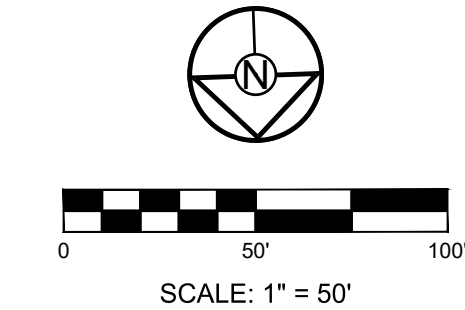
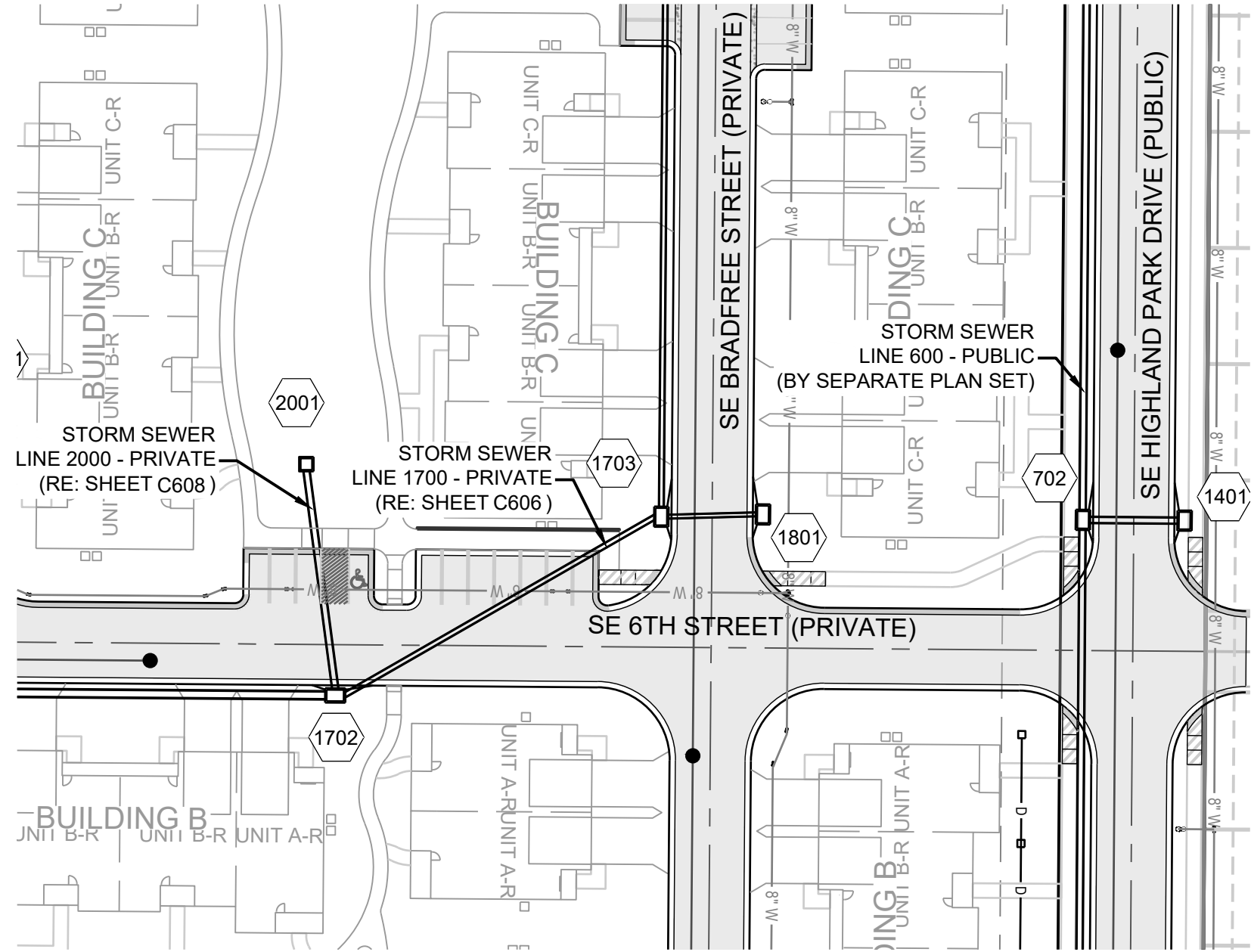
Storm Sewer Construction Notes	
Structure	Notes
1700	STA 1+00.00, LINE 1700 INSTALL 42" HDPE FLARED END SECTION W/TOWE WALL AND 17 CU. YD. (21'X11'X2.0') STONE RIP-RAP USING A MIN. 100# (D50=15") STONE. PLACE FILTER FABRIC PRIOR TO CONSTRUCTION N 998068.8668 E 2841866.3623
1701	STA 2+38.00, LINE 1700 INSTALL 6 X 4 CURB INLET N 997930.9896 E 2841860.5416
1702	STA 4+05.90, LINE 1700 INSTALL 6 X 4 CURB INLET N 997938.1655 E 2841692.7917
1703	STA 5+33.94, LINE 1700 INSTALL 6 X 4 CURB INLET N 997880.5592 E 2841578.4476
1704	STA 8+75.01, LINE 1700 INSTALL 6 X 4 CURB INLET N 997539.7940 E 2841563.8845
1705	STA 10+65.51, LINE 1700 INSTALL 6 X 4 CURB INLET N 997349.4678 E 2841555.7482
1707	STA 11+71.68, LINE 1700 INSTALL 6 X 4 CURB INLET N 997280.2711 E 2841517.7952



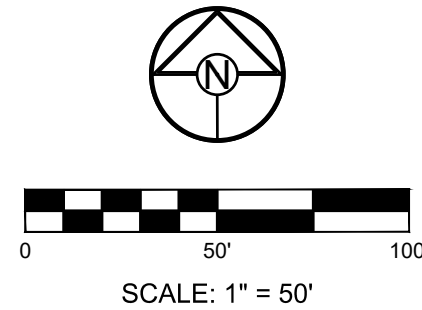
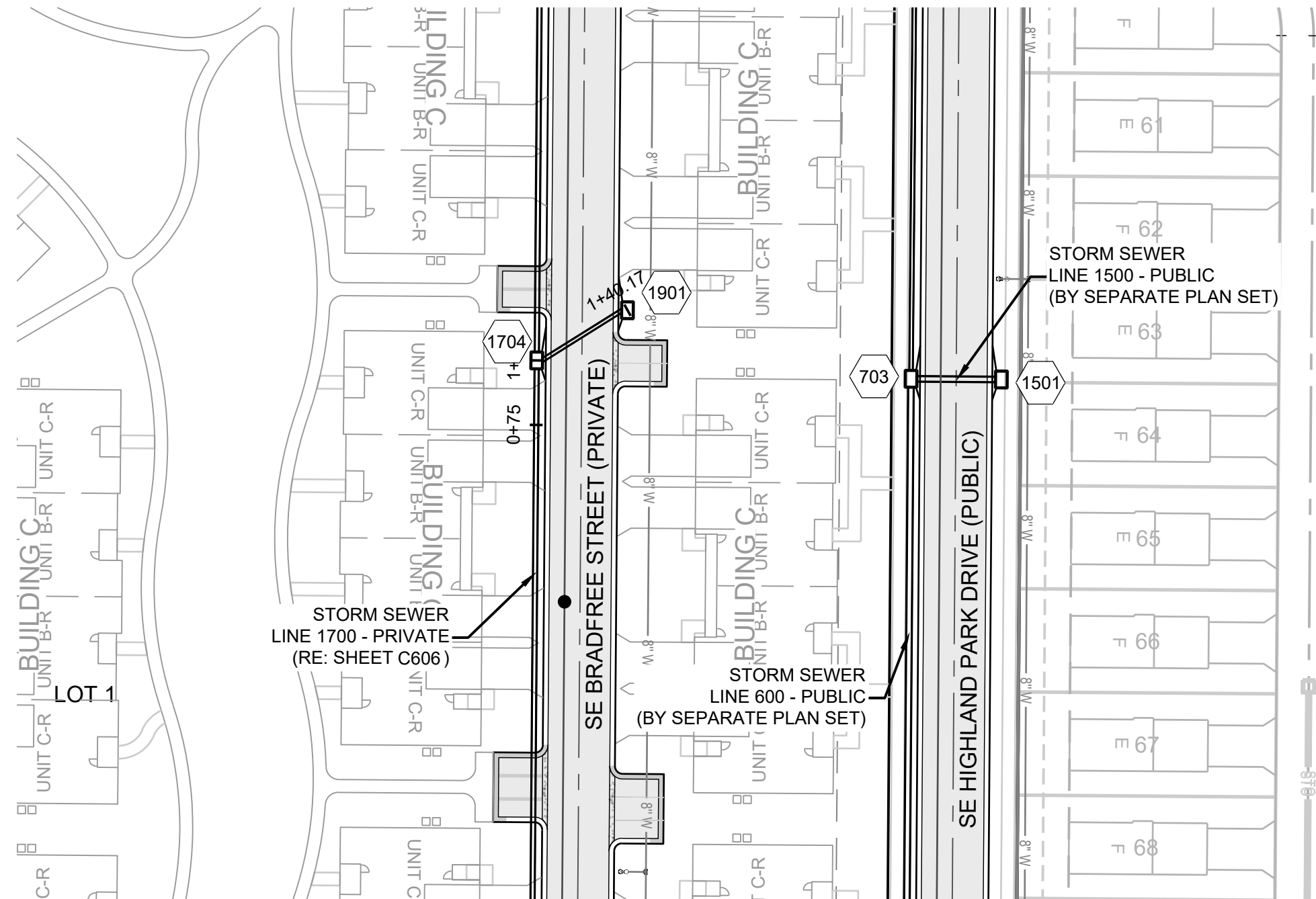
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08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
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STORM SEWER

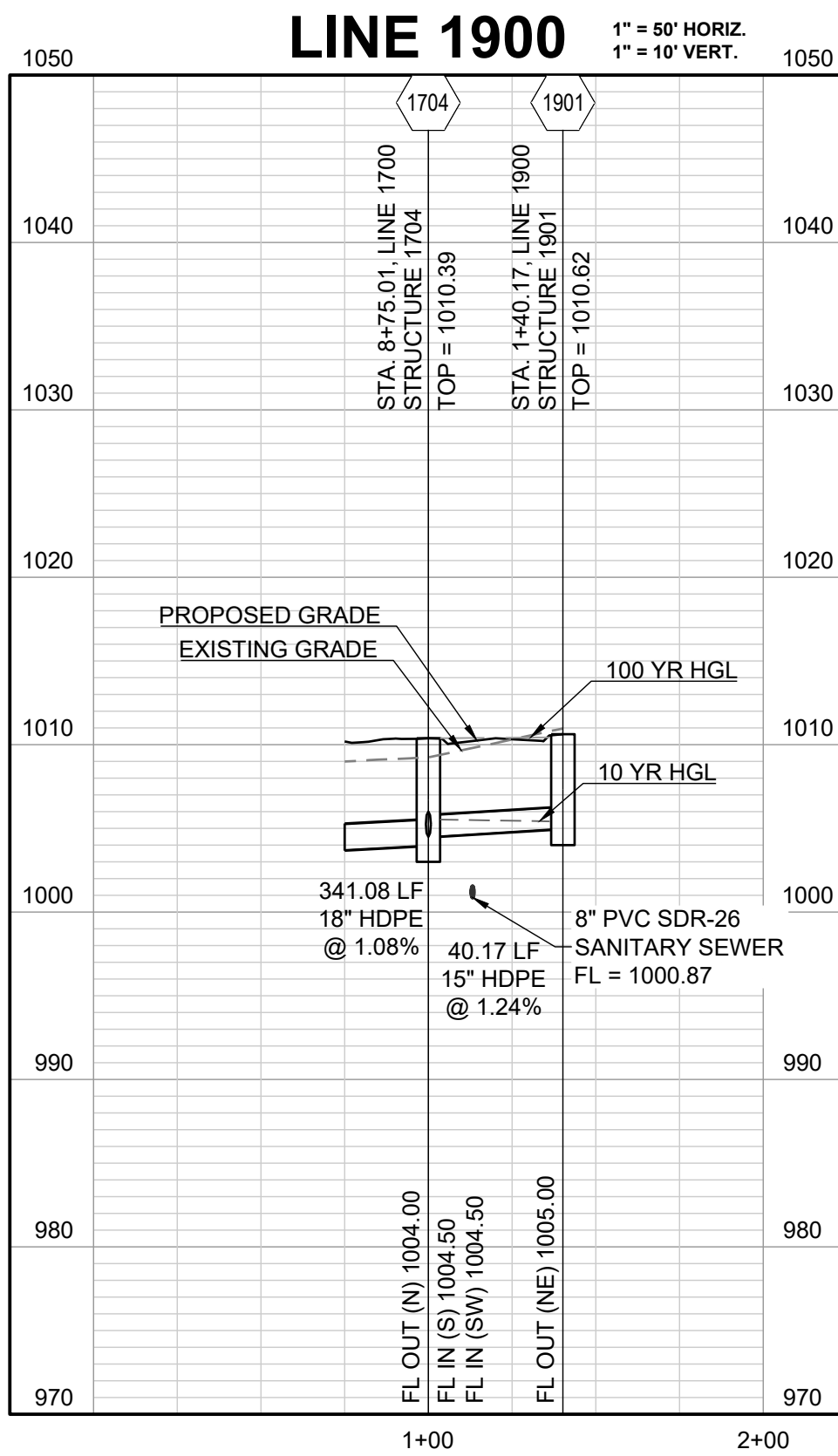
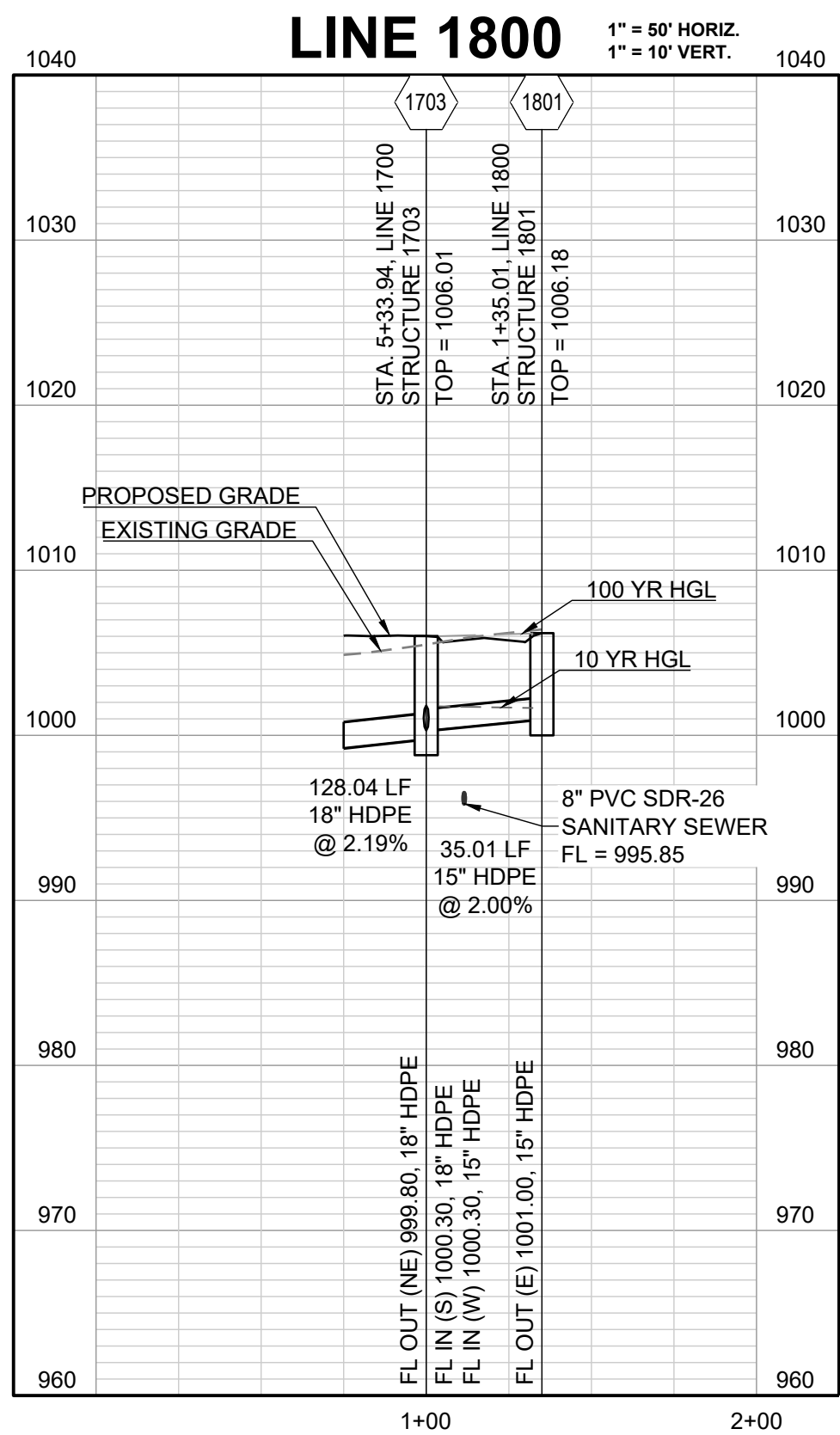
LINE 1700



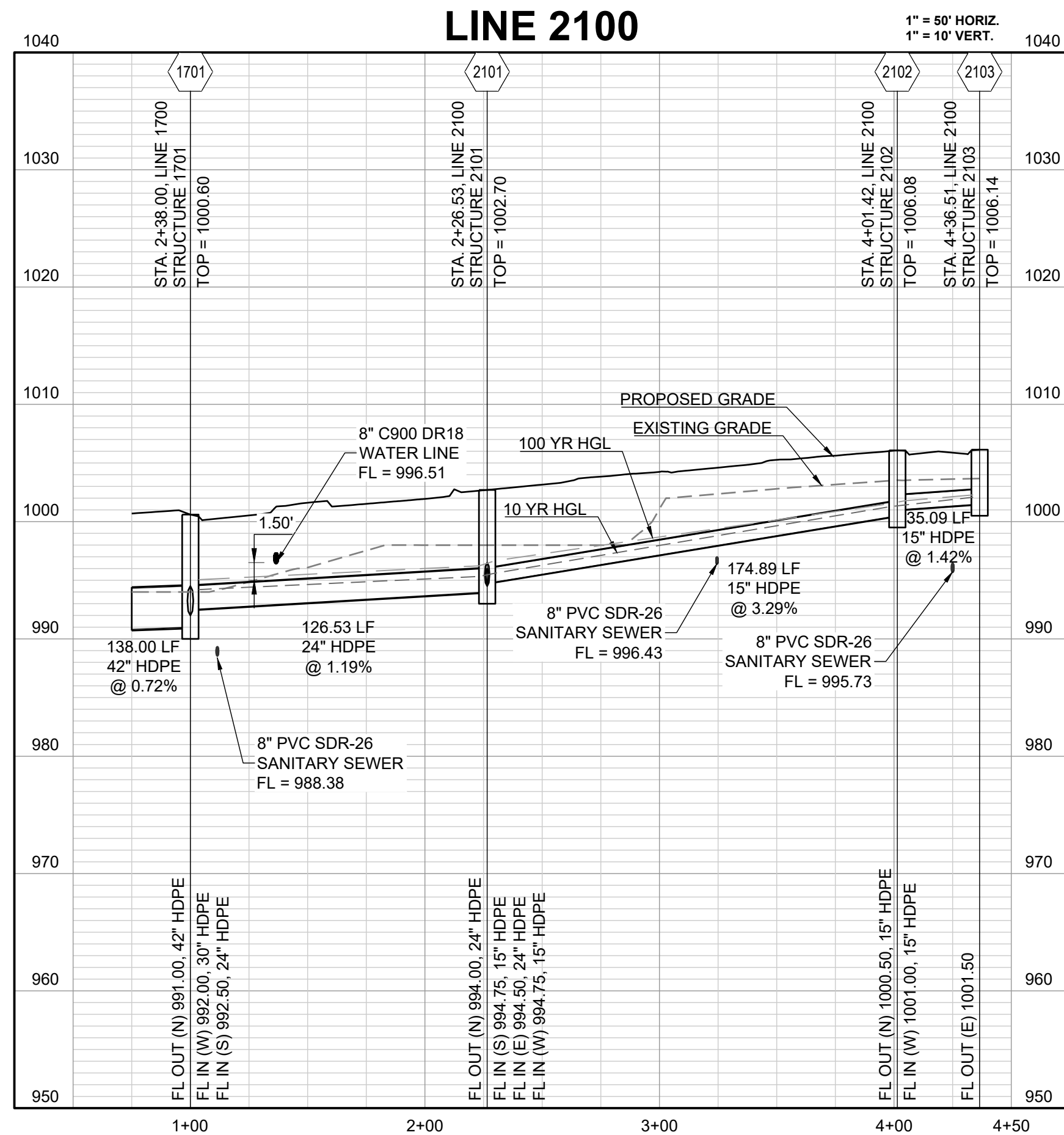
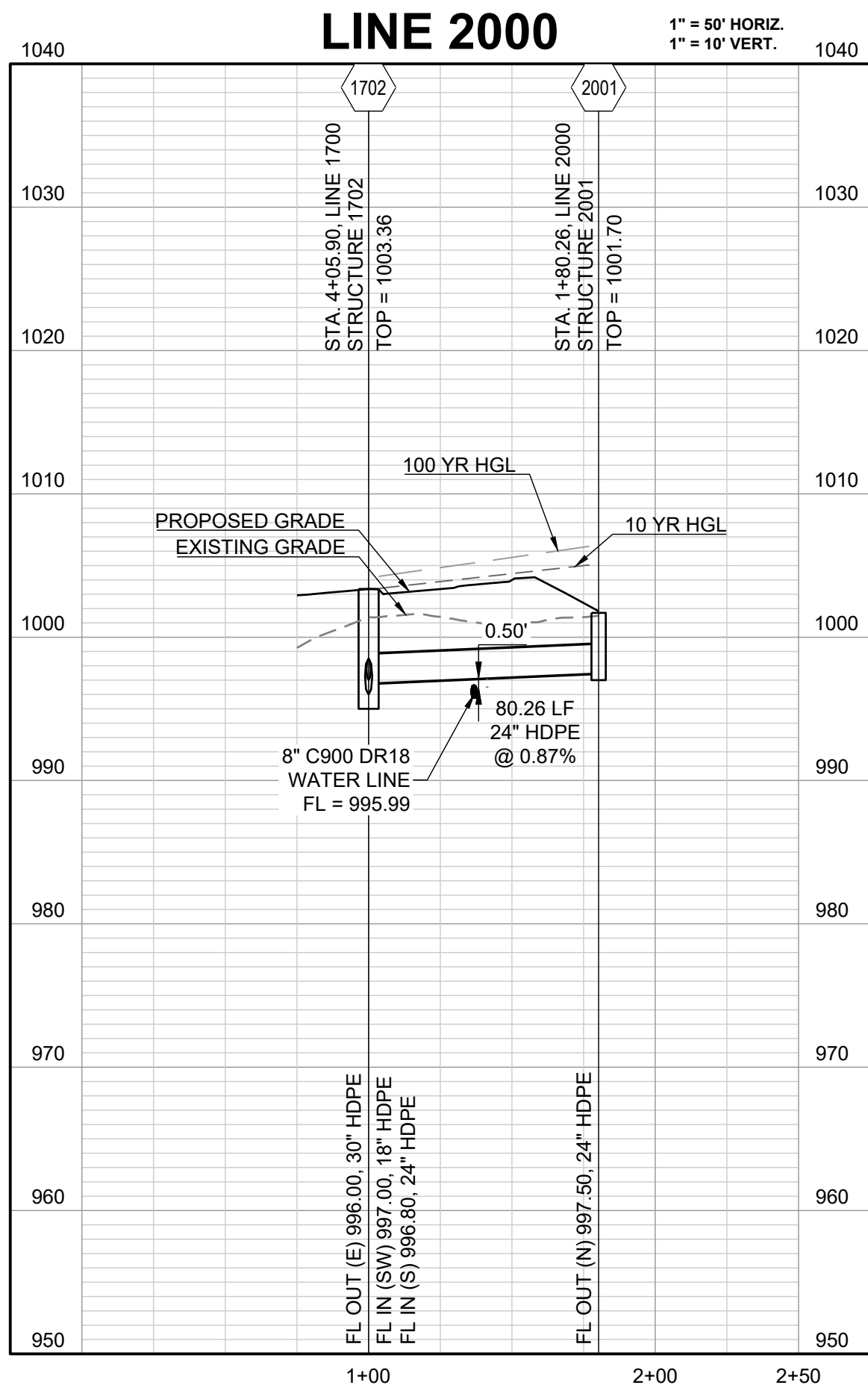
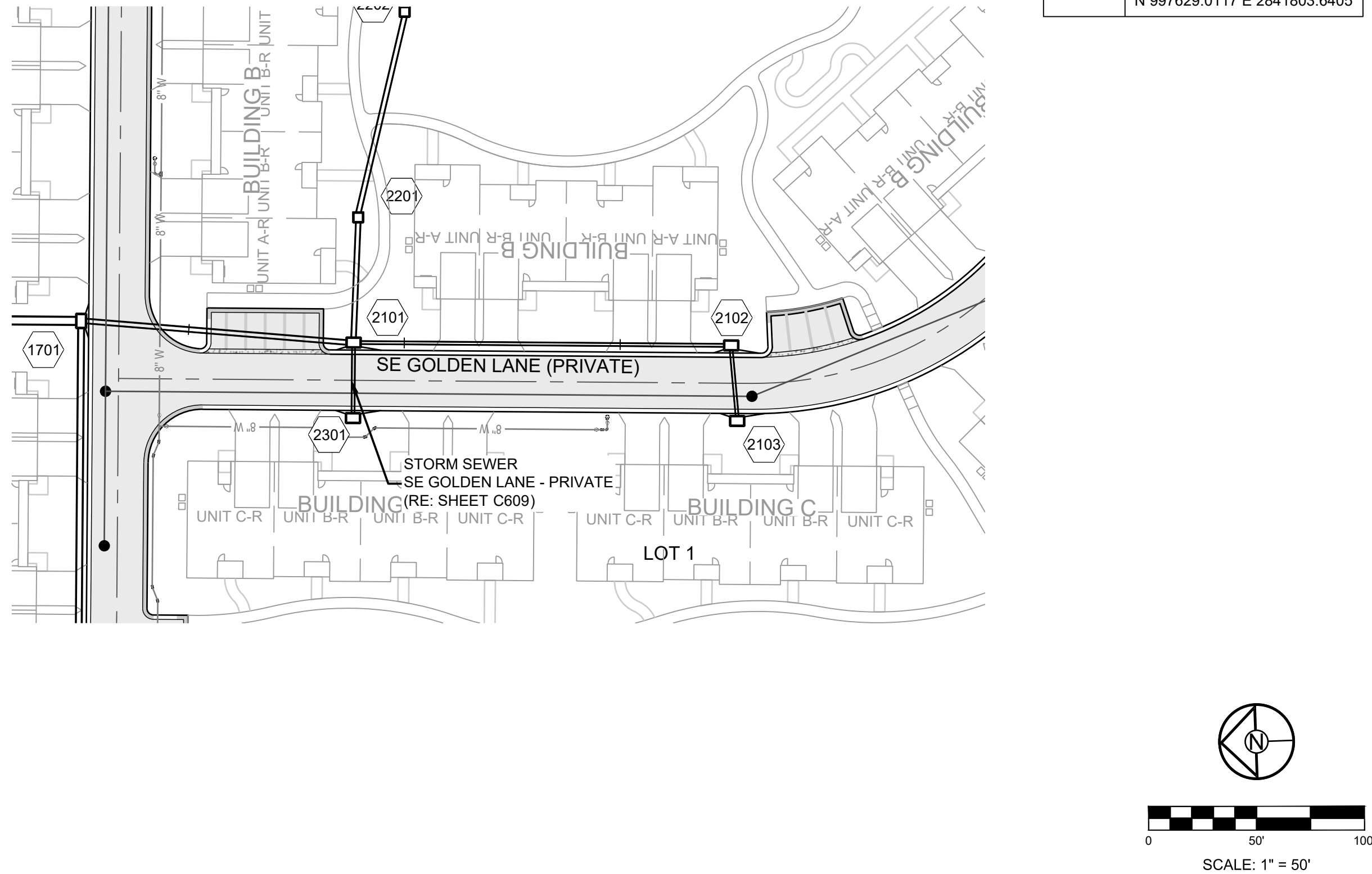
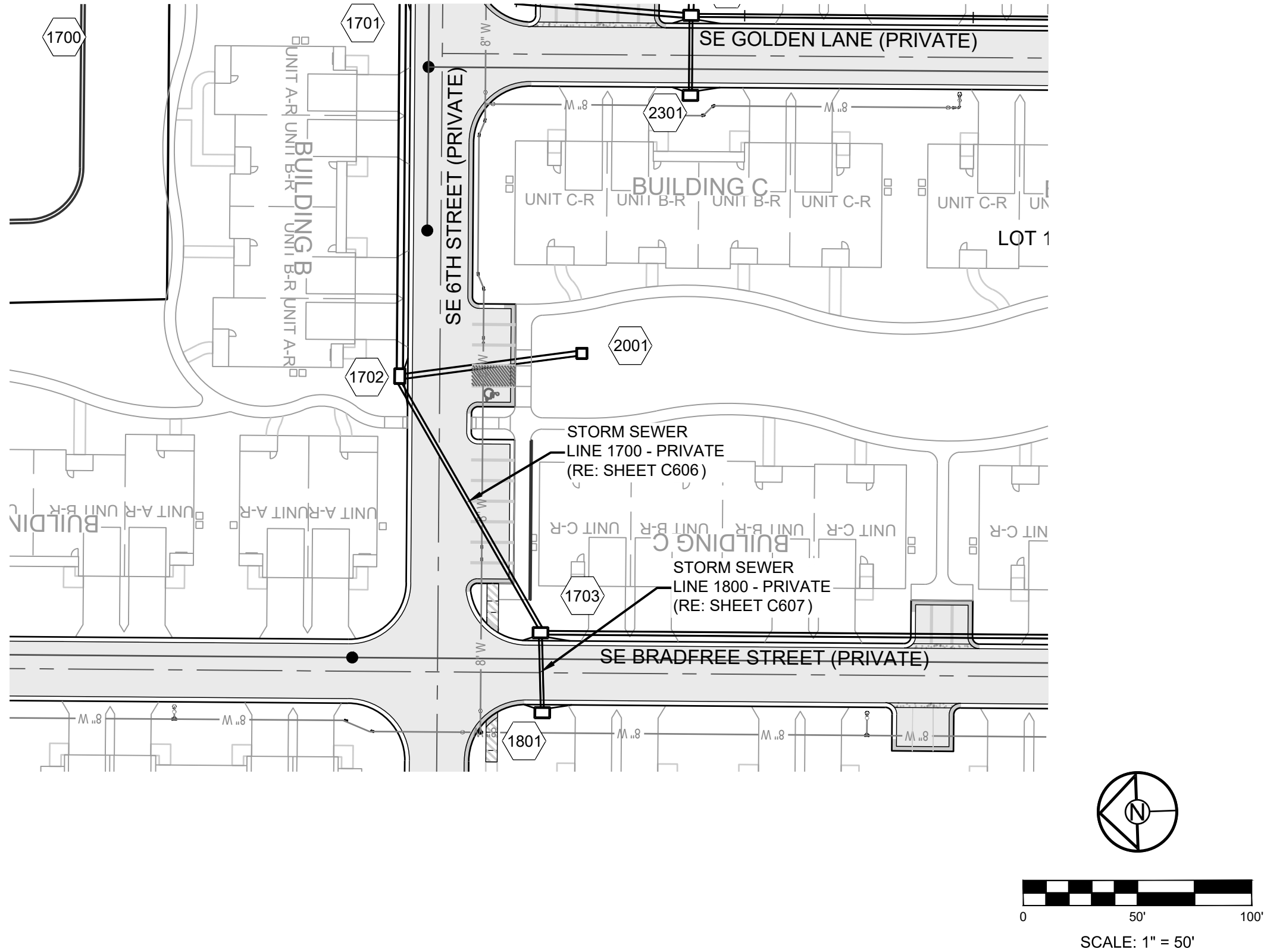
Storm Sewer Construction Notes	
Structure	Notes
1801	STA 1+35.01, LINE 1800 INSTALL 6 X 4 CURB INLET N 997880.9969 E 2841543.4388

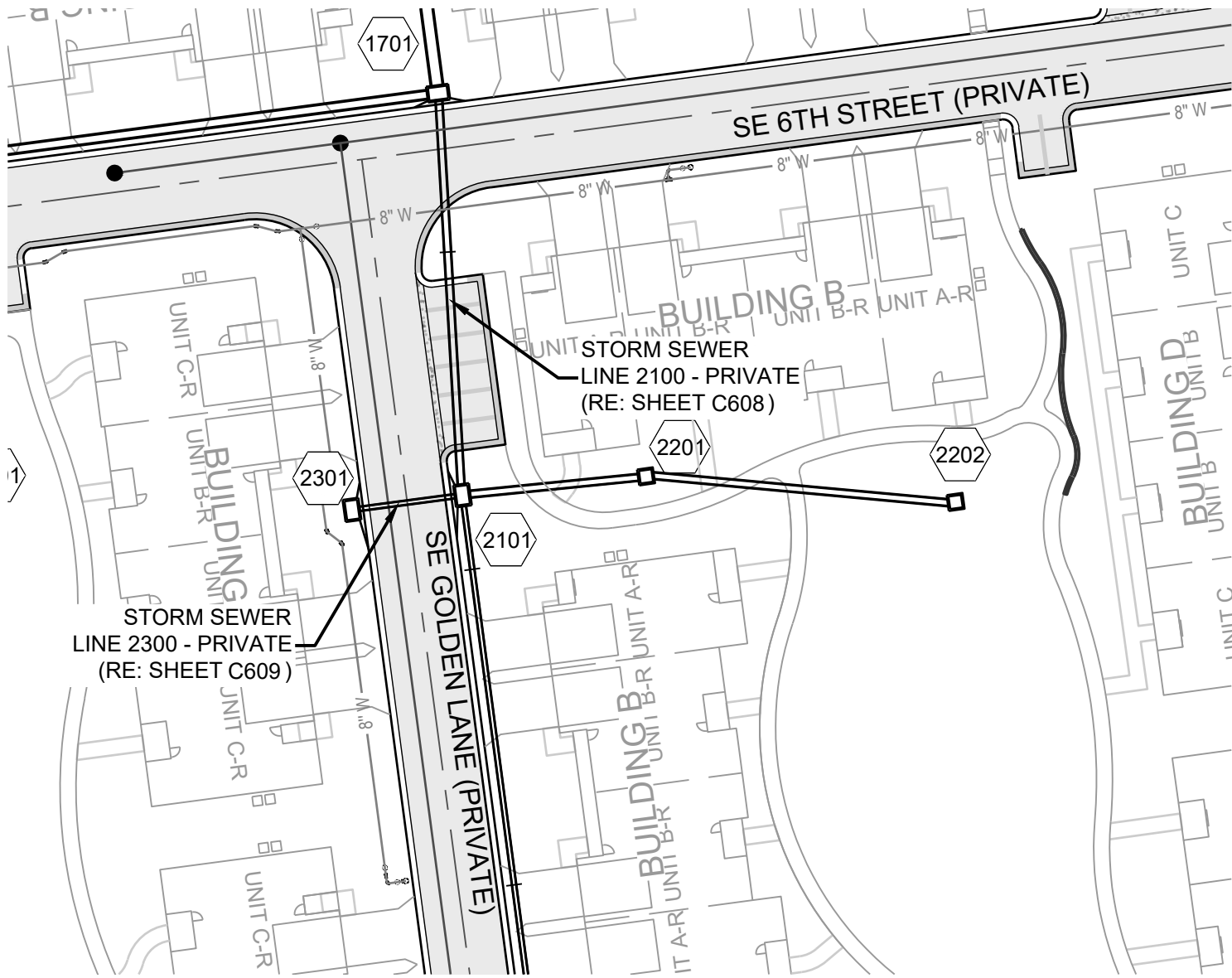


Storm Sewer Construction Notes	
Structure	Notes
1901	STA 1+40.17, LINE 1900 INSTALL 6 X 4 CURB INLET N 997521.5799 E 2841528.0763

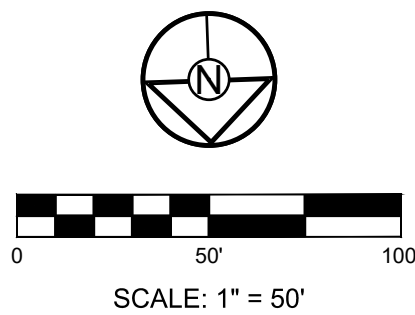
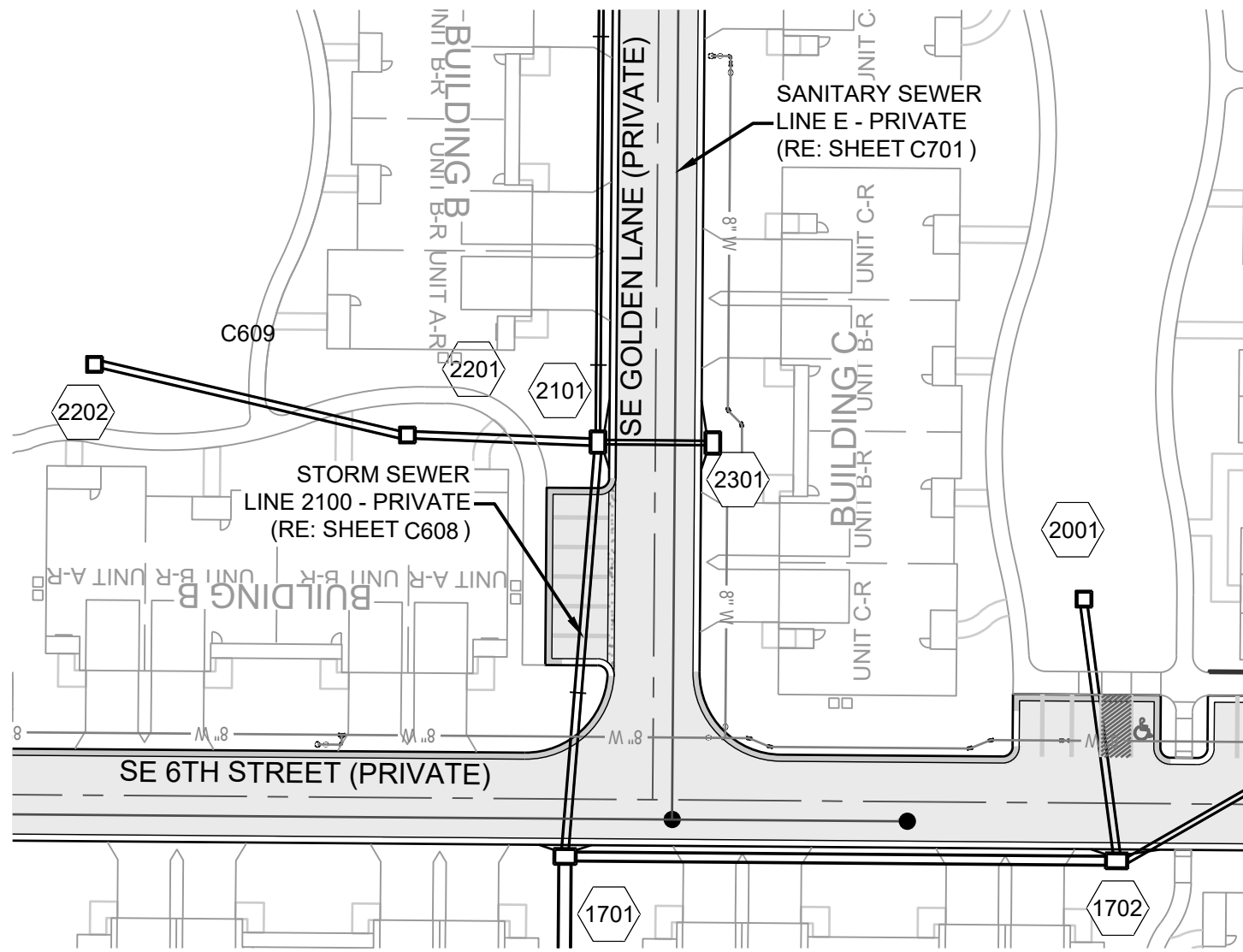
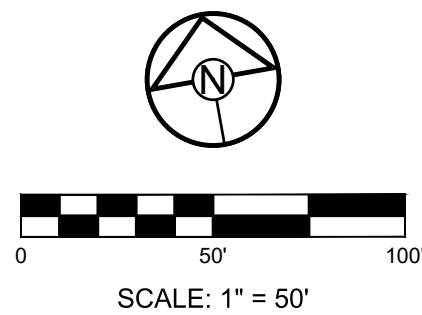


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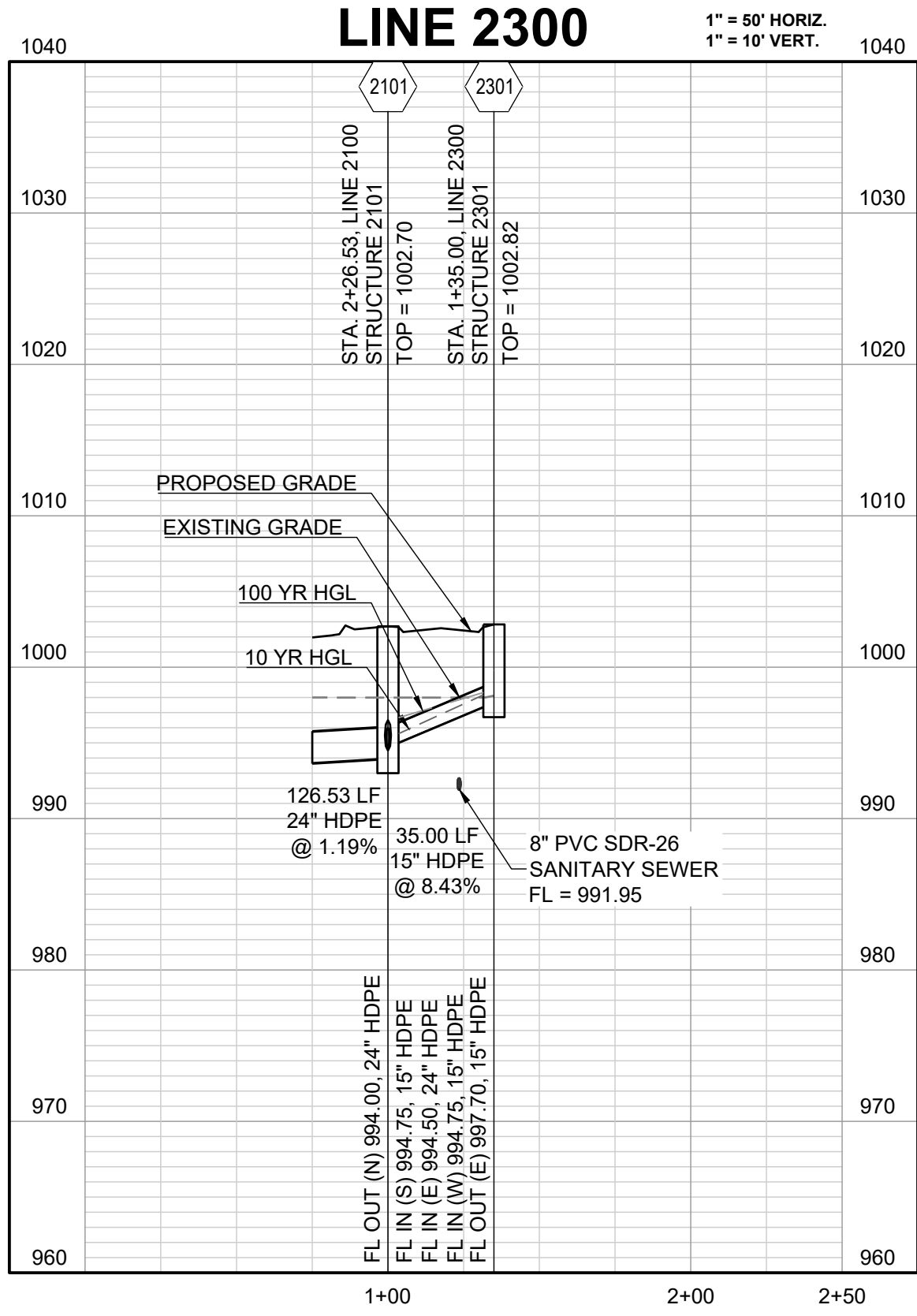
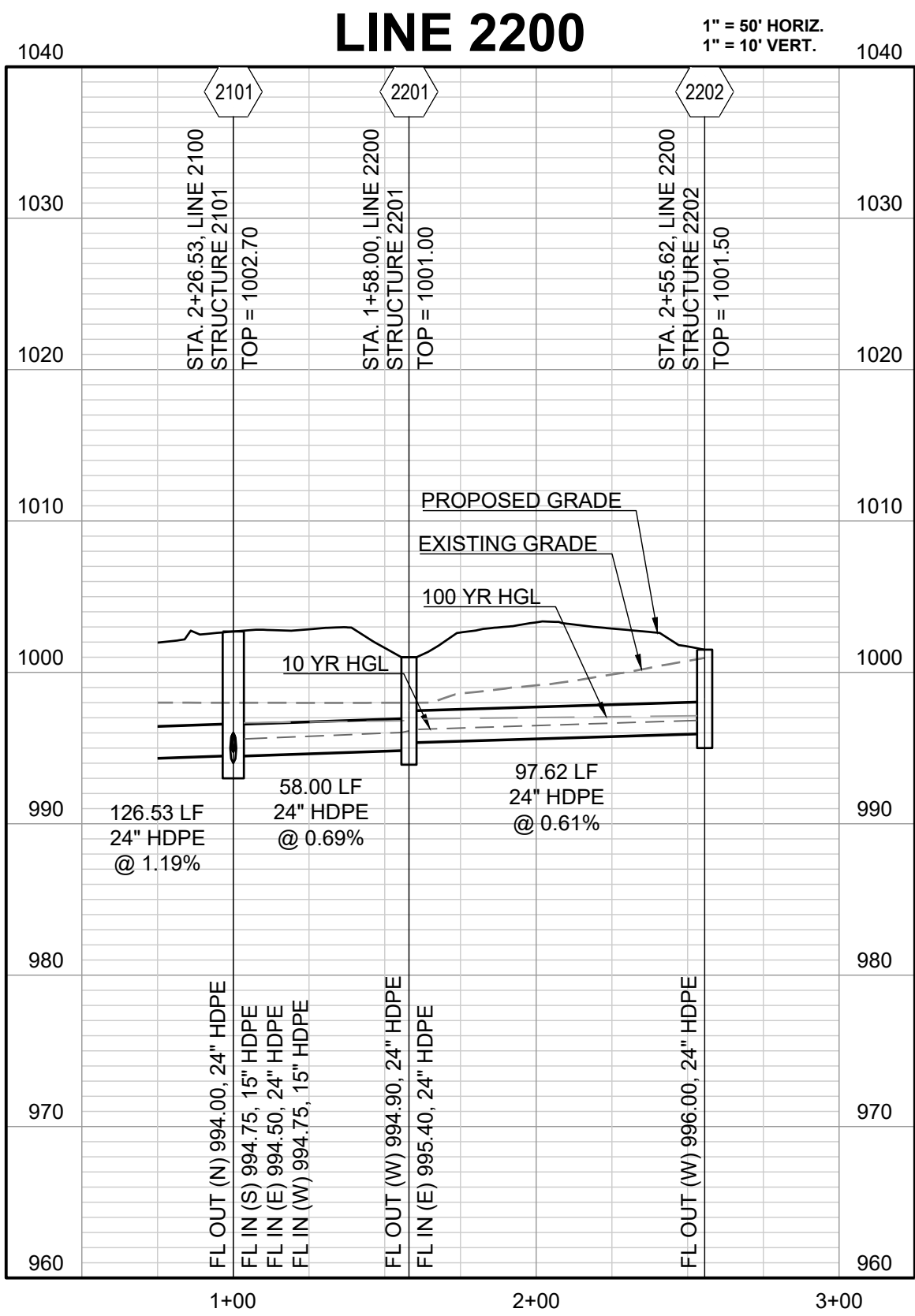




Storm Sewer Construction Notes	
Structure	Notes
2201	STA 1+58.00, LINE 2200 INSTALL 4 X 4 GRATE INLET N 997801.0920 E 2841903.9946
2202	STA 2+55.62, LINE 2200 INSTALL 4 X 4 AREA INLET N 997776.2979 E 2841998.4164

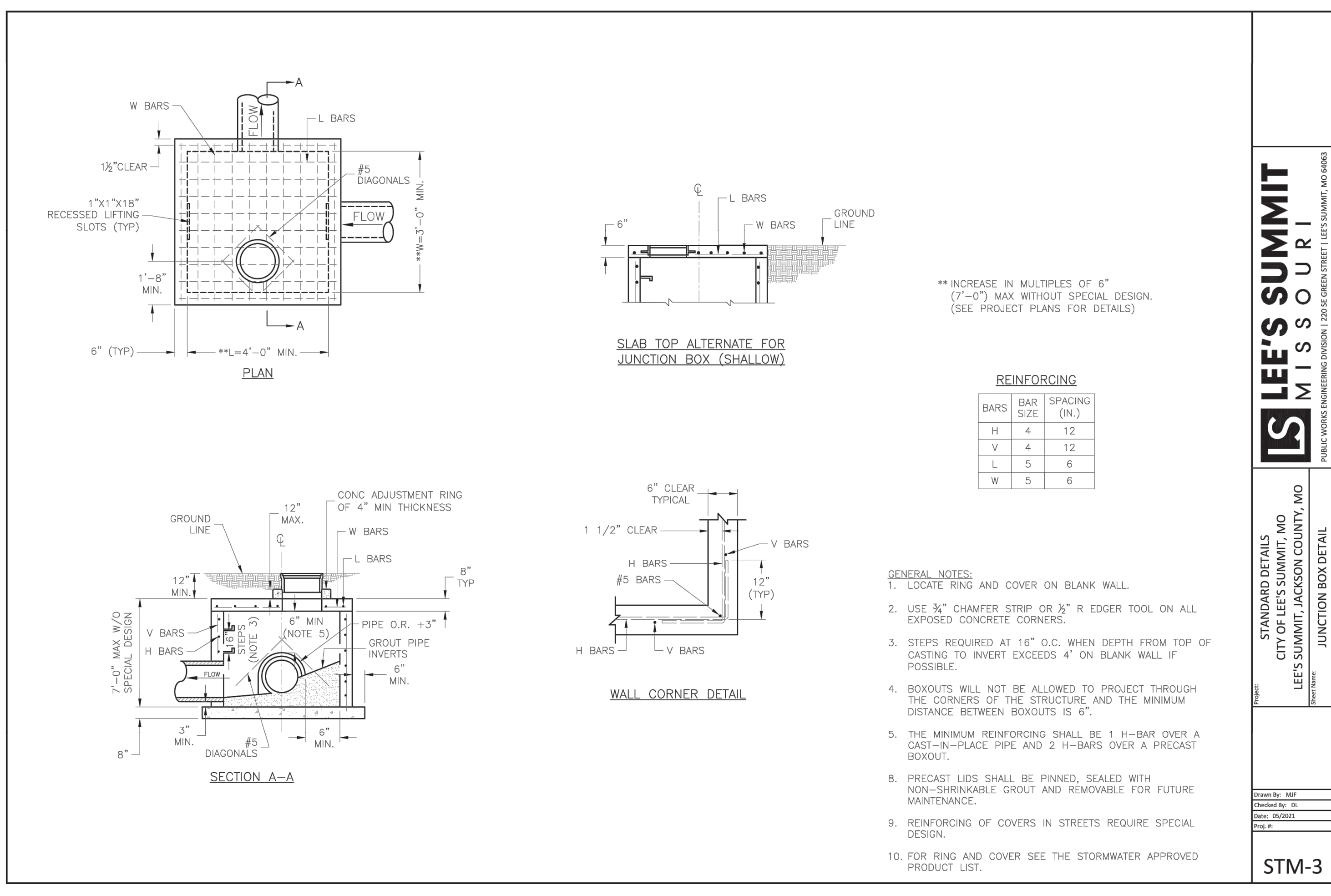
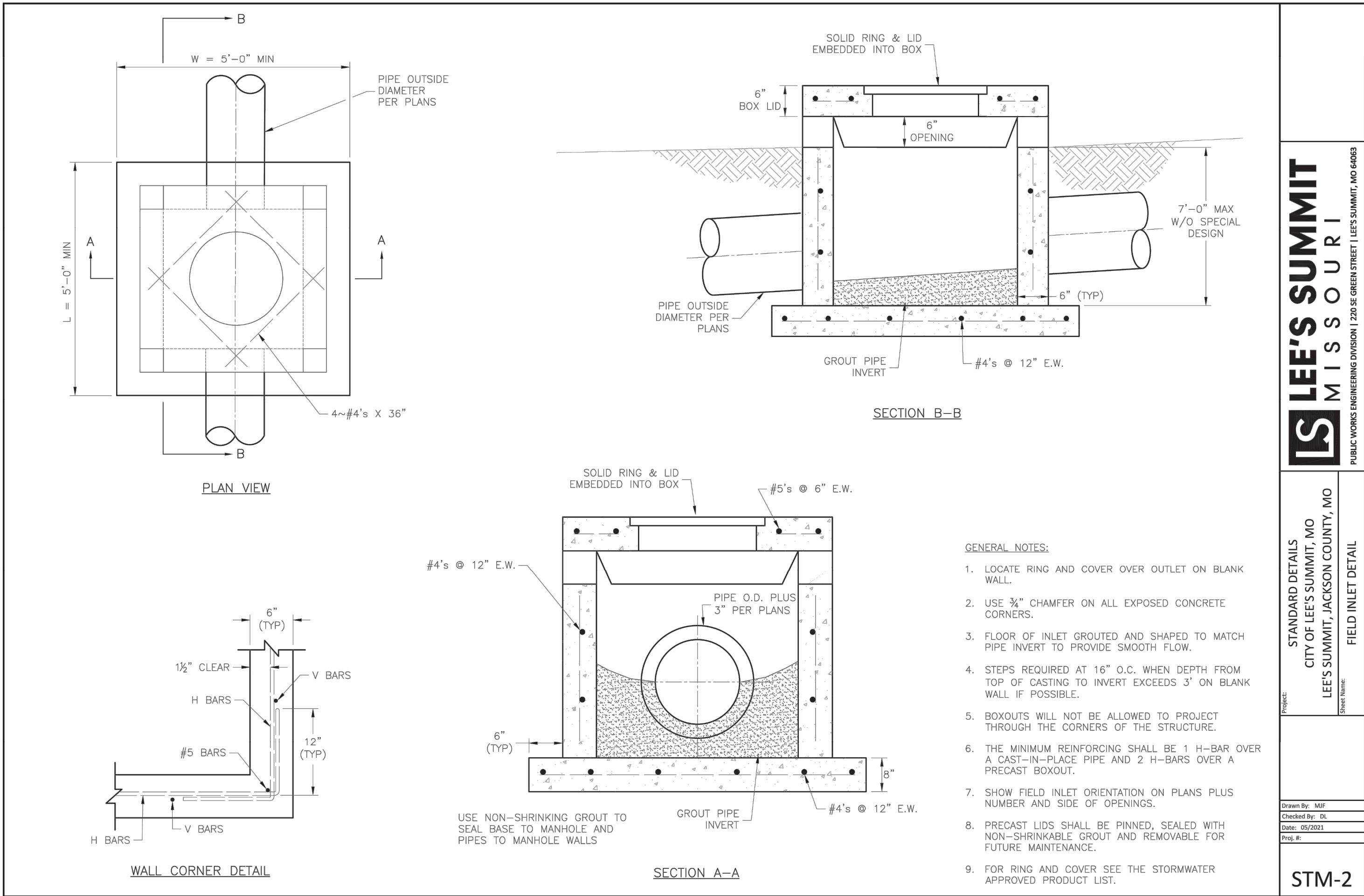
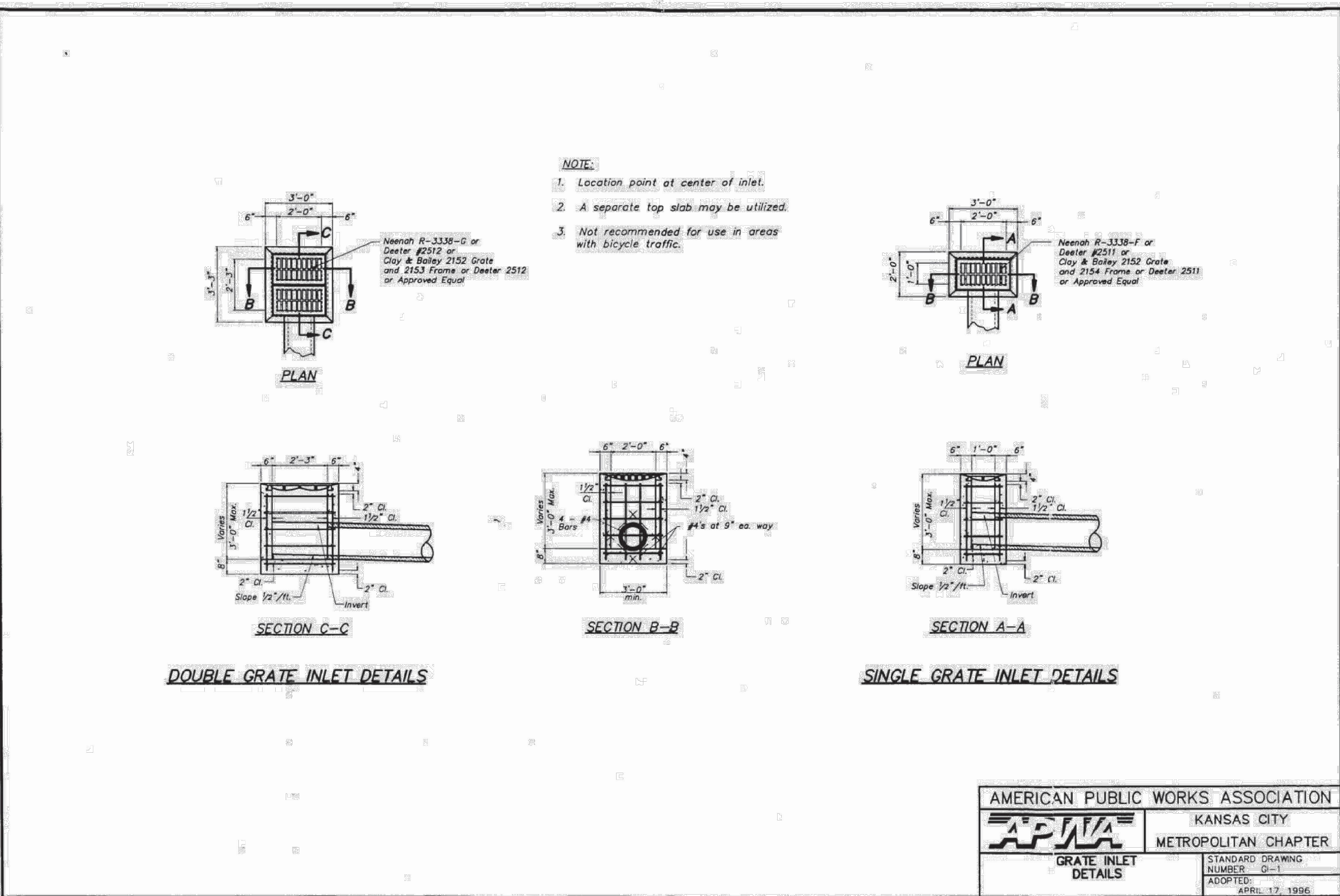
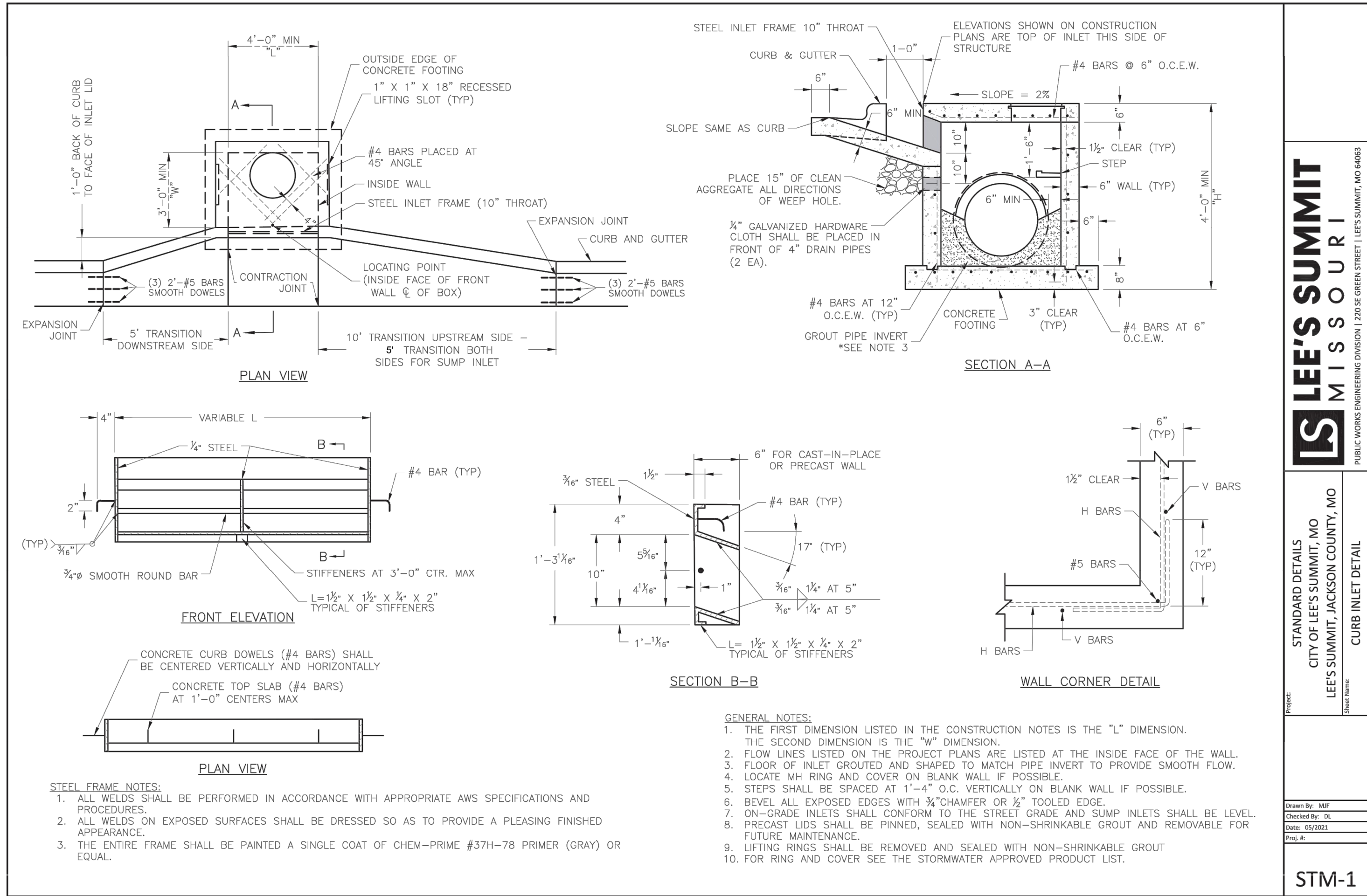


Storm Sewer Construction Notes	
Structure	Notes
2301	STA 1+35.00, LINE 2300 INSTALL 6 X 4 CURB INLET N 997806.7672 E 2841811.1811

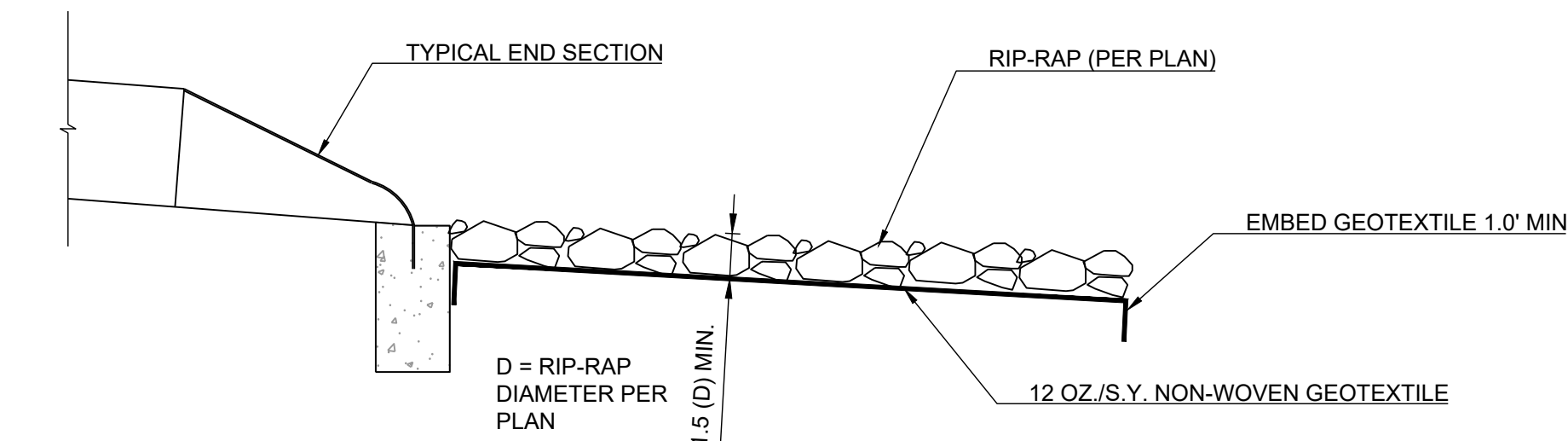
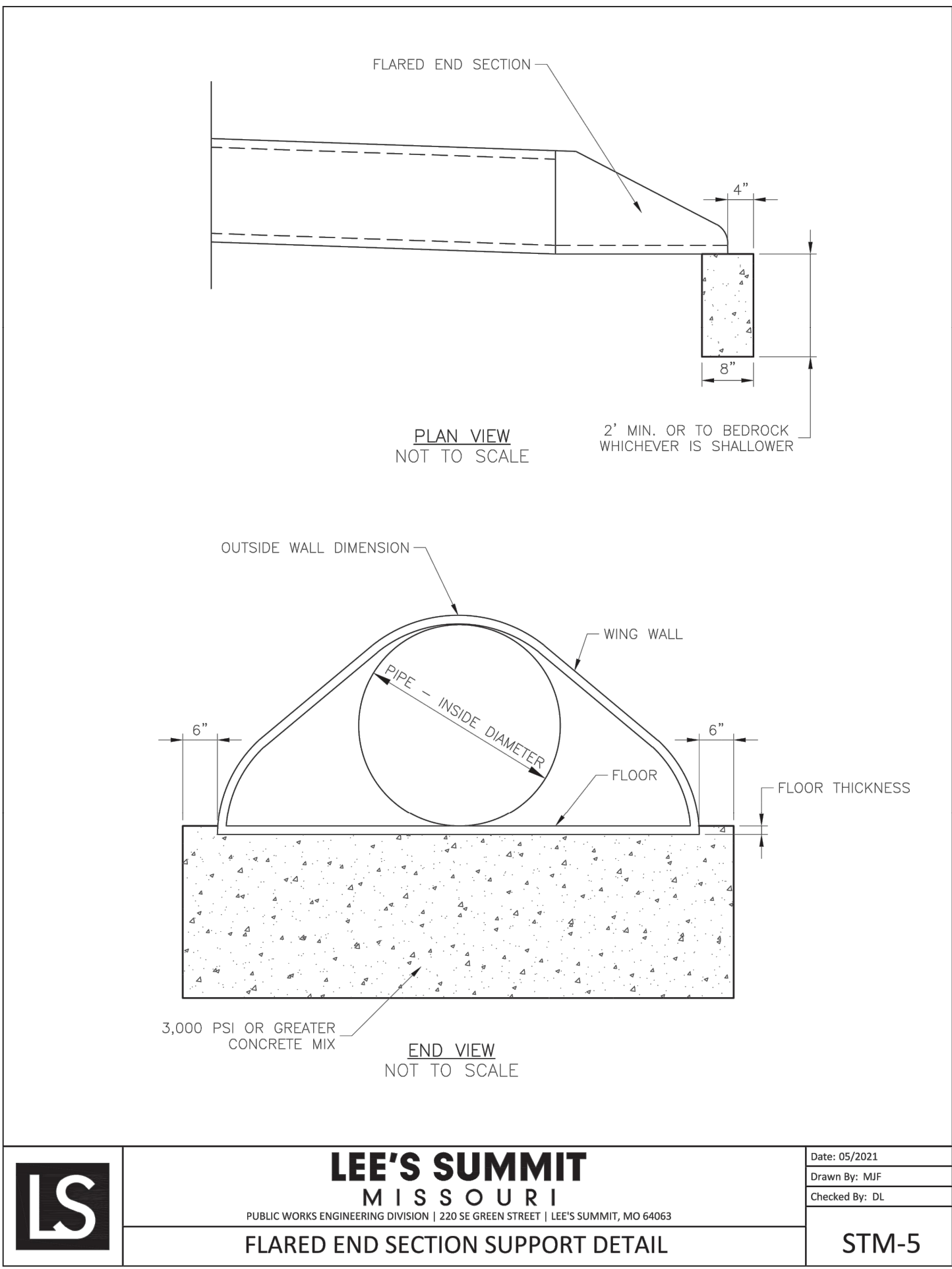


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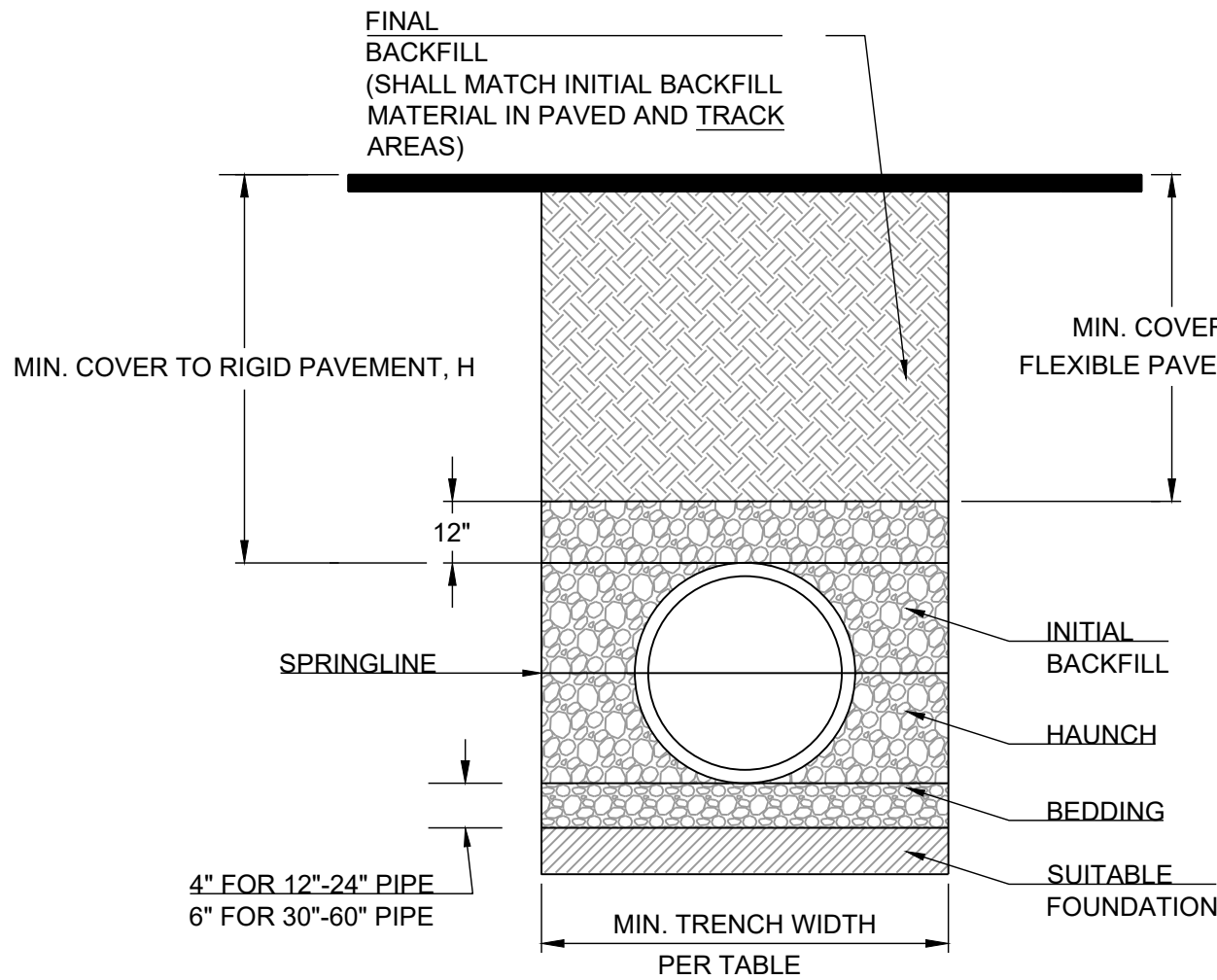
STORM SEWER
LINES 2200 & 2300



REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
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RIP-RAP AT OUTLET



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

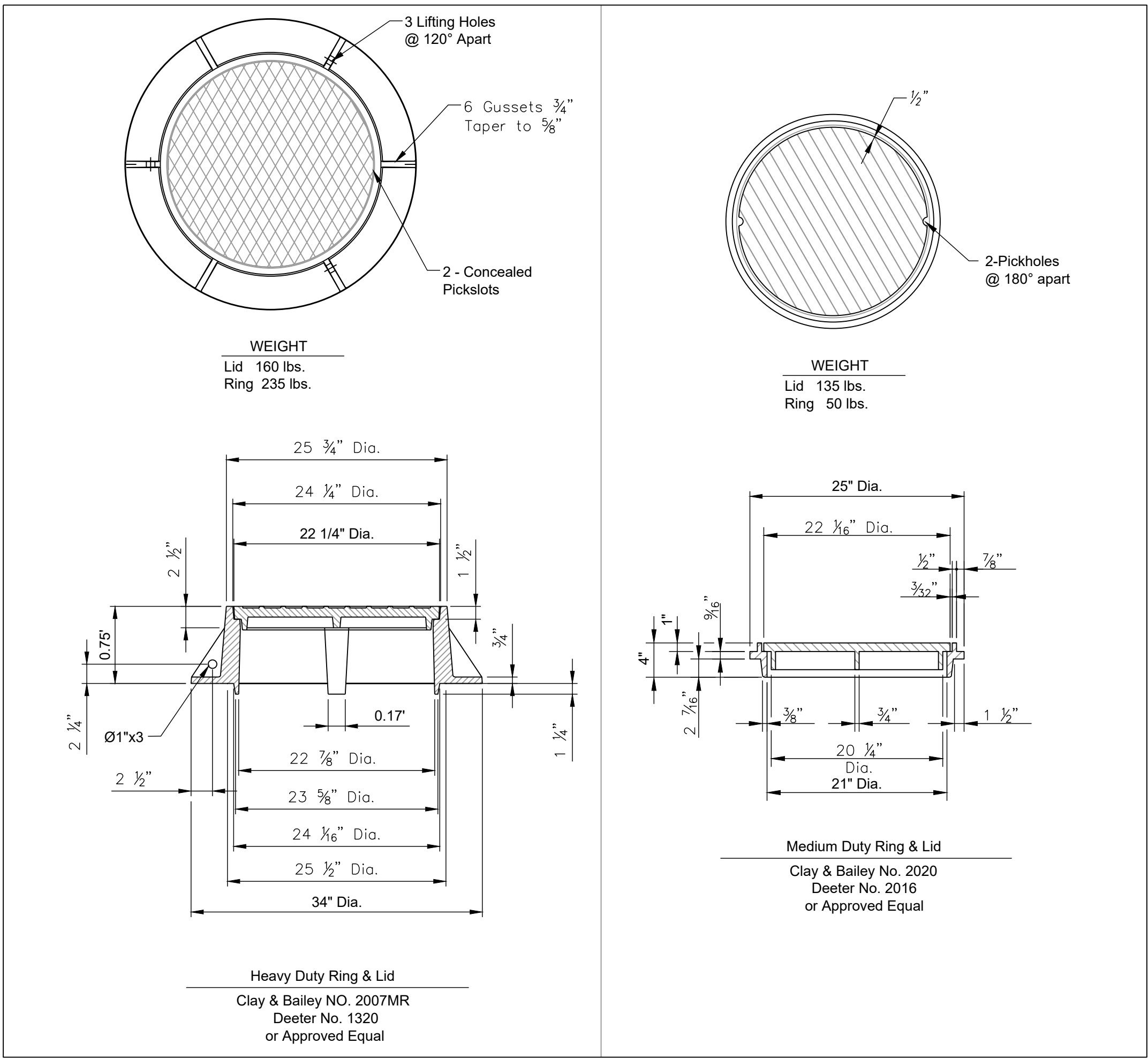
* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

RECOMMENDED MINIMUM TRENCH WIDTHS

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

NOTES:

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



MANHOLE RING AND COVER

PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

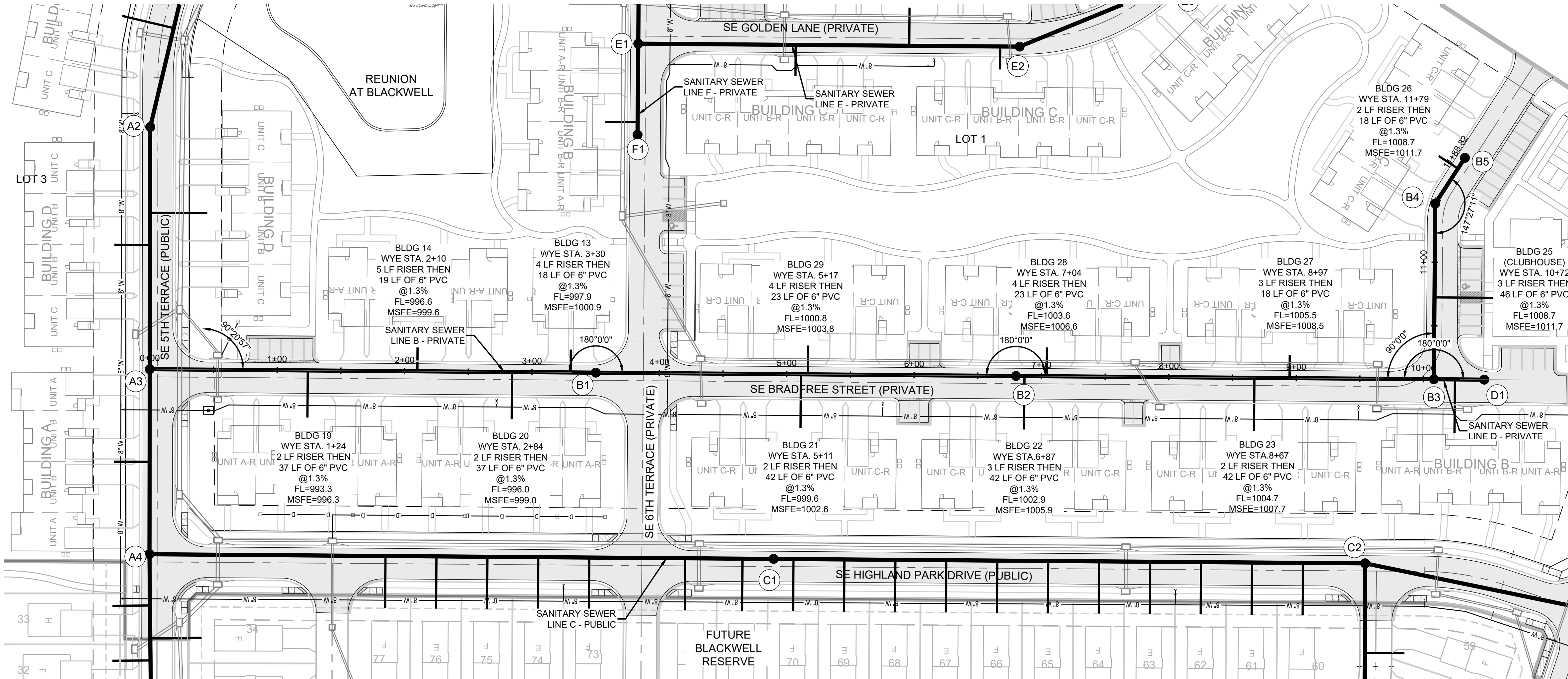
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
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06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	
22-597	

STORM DETAILS

SHEET

C611



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

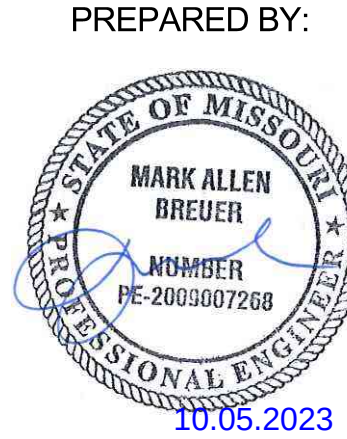
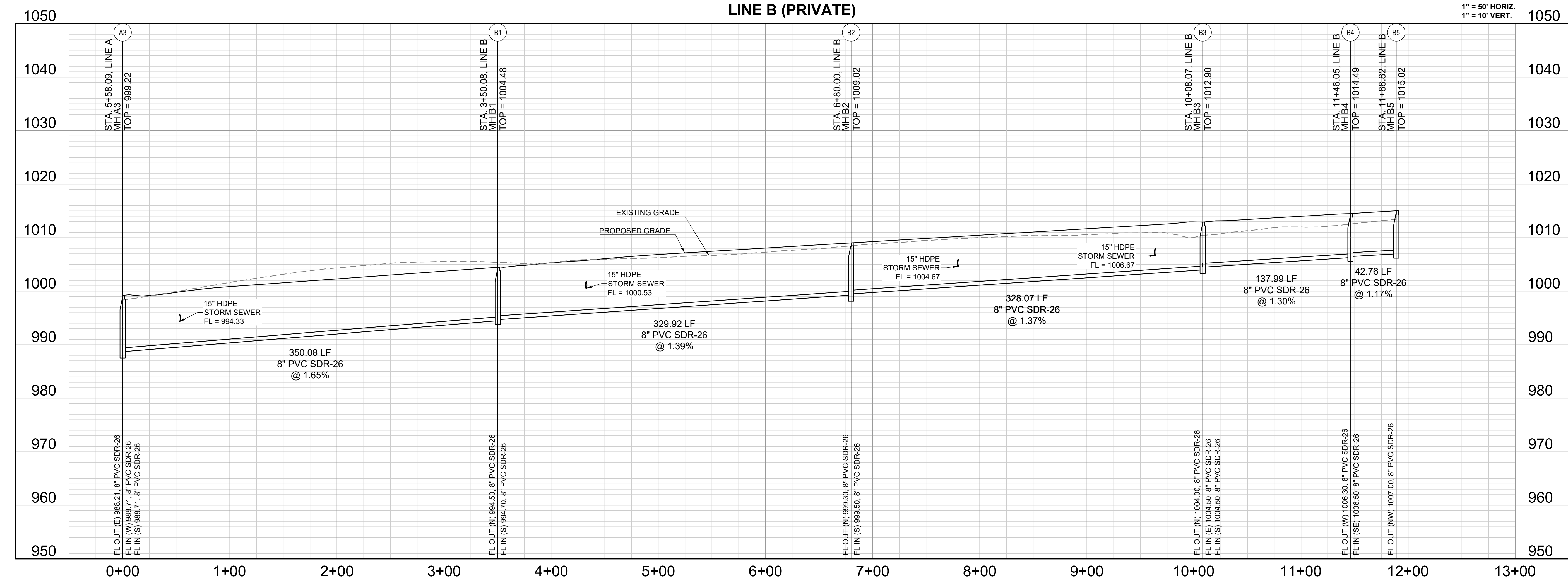
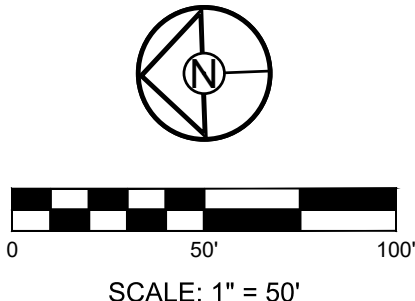
PROJECT BENCHMARK:

"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

- NOTES:**
- ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
 - THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
 - ALL WYES ARE STATIONED USING MAIN LINE STATIONS.
 - ALL EXCAVATION IS CONSIDERED UNCLASSIFIED.
 - ALL SERVICE STUB LINES SHALL HAVE A MINIMUM PIPE STIFFNESS OF SDR-26.
 - ALL SANITARY SEWER MANHOLES ARE 4' DIAMETER UNLESS OTHERWISE NOTED.
 - ALL SERVICE STUBS SHALL BE 90° TO THE MAIN, UNLESS OTHERWISE NOTED.
 - REFERENCE SHEET 7 FOR "MANHOLE IN PAVED AREA" DETAIL FOR PROPOSED MANHOLES IN ASPHALT OR CONCRETE PAVEMENT. REINFORCED CONCRETE COLLARS SHALL BE INSTALLED SO THE CONCRETE COLLAR FORMS A DIAMOND SHAPE WHEN VIEWED ALONG THE STREET.
 - PROPOSED GRADING IS FOR REFERENCE ONLY. CONTRACTOR IS TO GRADE WITHIN THE LIMITS OF DISTURBANCE AND PROVIDE SANITARY COVER AS REQUIRED BY THE CITY'S TECHNICAL SPECIFICATIONS.
 - MSFE = MINIMUM SERVICEABLE FLOOR ELEVATION.
 - SSNR = SEWER SERVICE NOT REQUIRED.
 - DDS = DISTANCE TO DOWNSTREAM MANHOLE.
 - ALL EXCAVATION IS CONSIDERED UNCLASSIFIED.
 - REFERENCE SHEET 7 FOR EXCAVATION BENEATH PROPOSED STREETS DETAIL.
 - EVERY STUB LINE SHALL BE MARKED AT THE END OF THE PIPE WITH A VERTICAL 2"x4" A MINIMUM OF SIX (6) FEET IN LENGTH.

Structure Table		
Structure Name	Structure Northing	Structure Easting
B1	997963.2724	2841570.4958
B2	997633.6584	2841556.3958
B3	997305.8924	2841542.3749
B4	997299.9950	2841680.2379
B5	997275.4687	2841715.2700



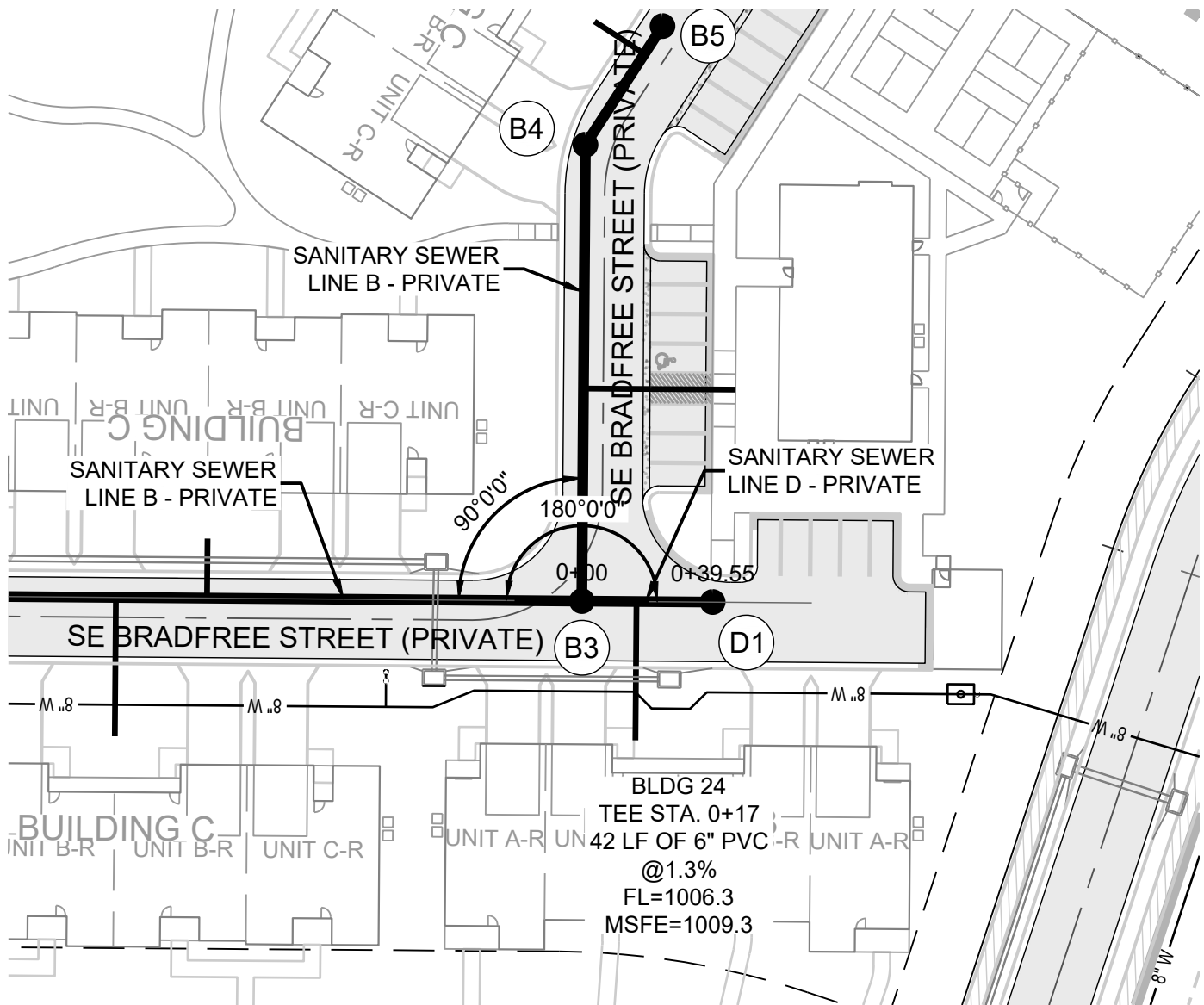
SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

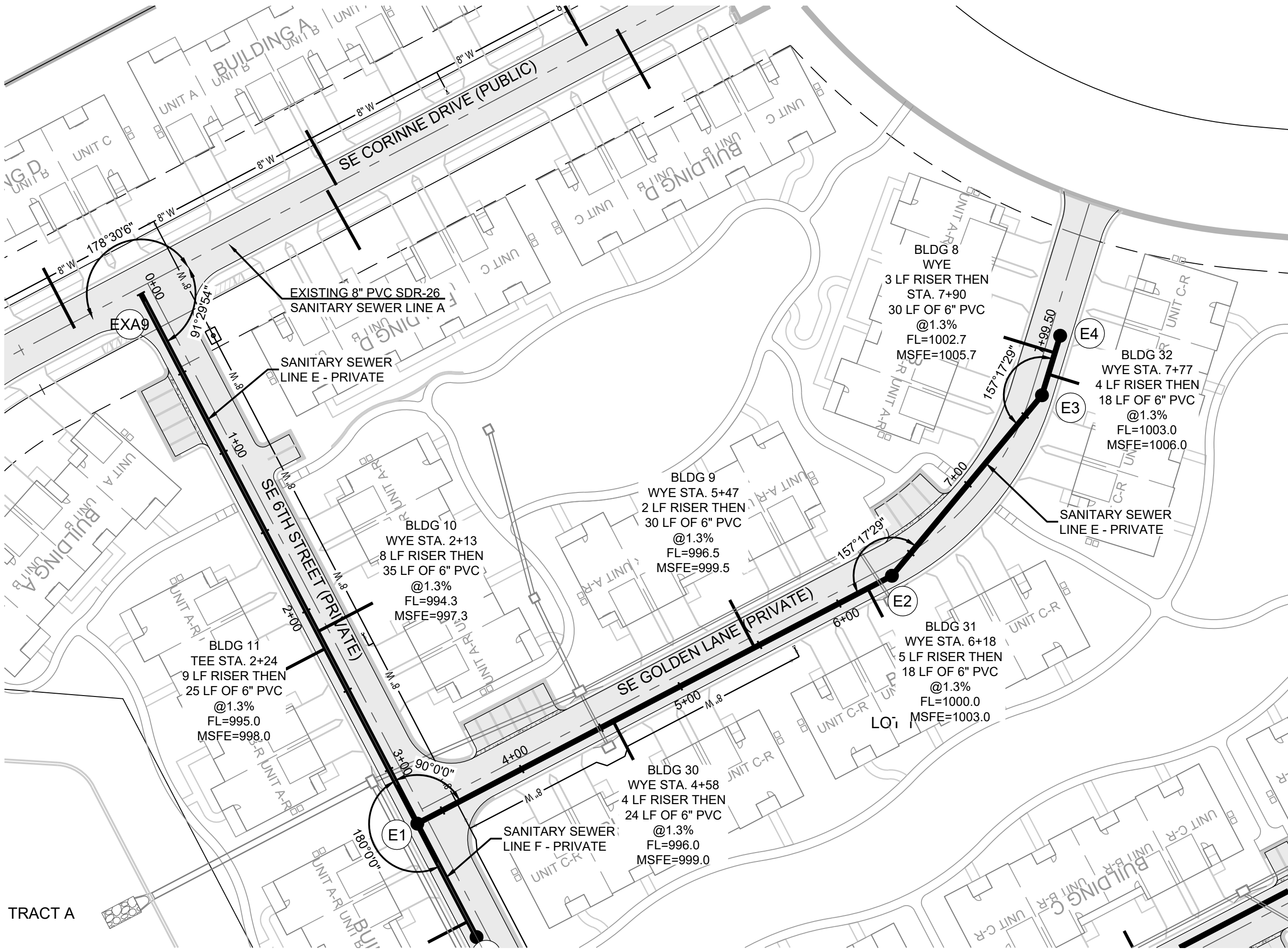
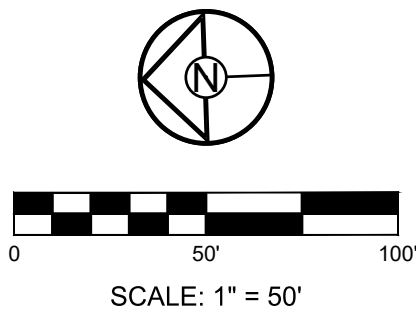
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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SANITARY SEWER
LINE B



Structure Table		
Structure Name	Structure Northing	Structure Easting
D1	997266.3804	2841540.6847



MO GRS BENCHMARK:

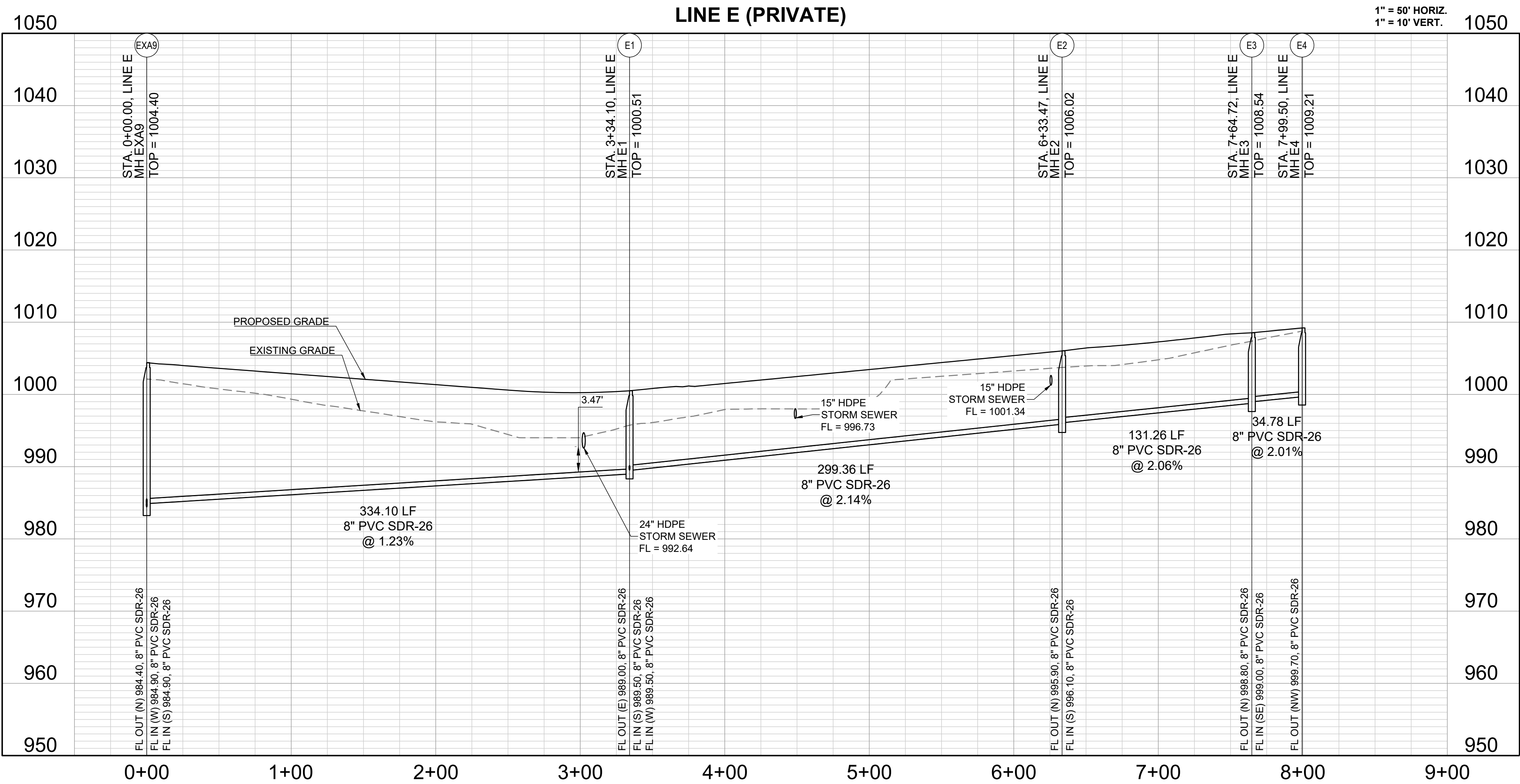
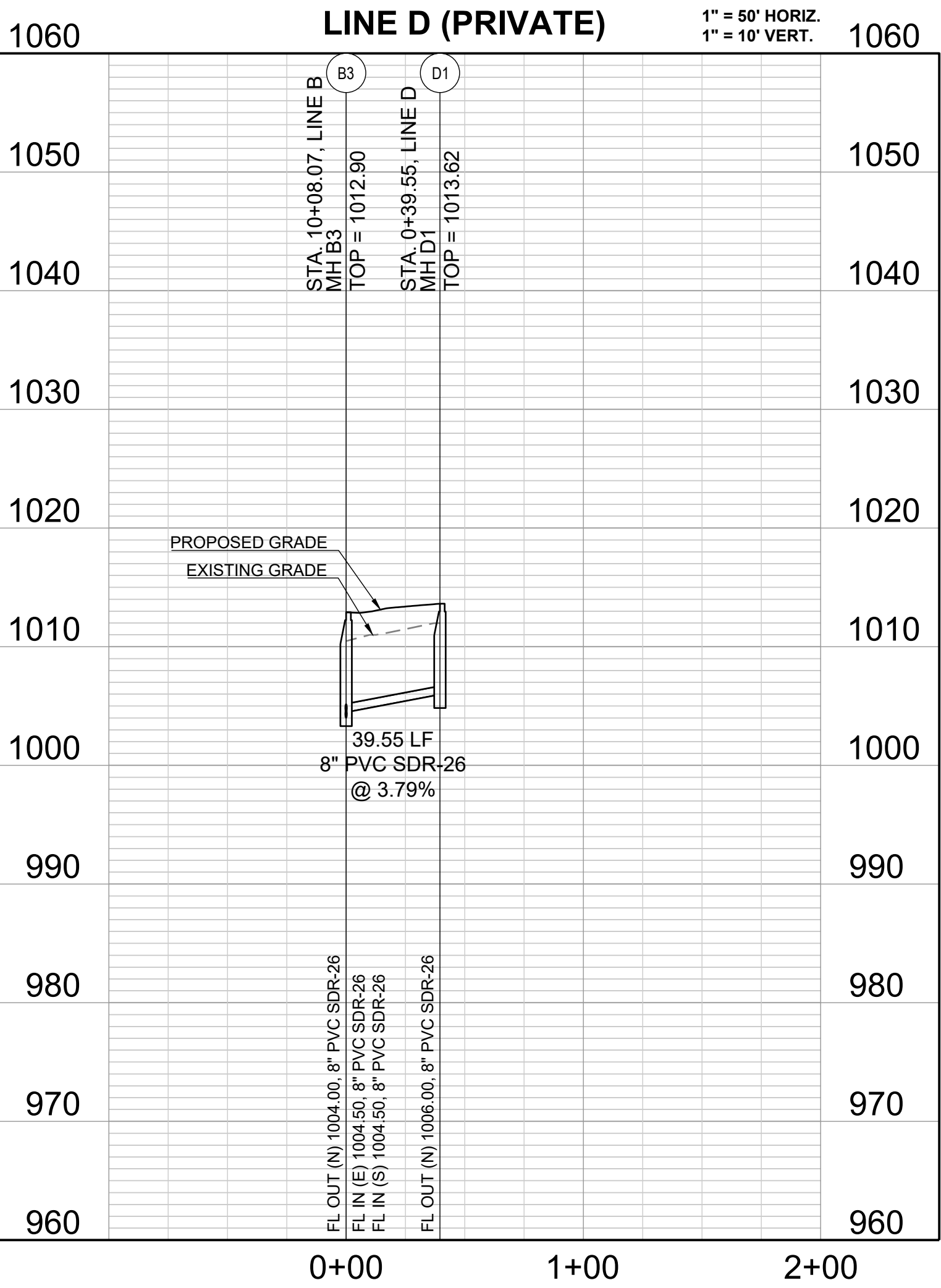
STATION NAME - JA-90
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272
ELEV. 997.045

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:998874.9690, E:2840937.1365
ELEV. 1005.719

- NOTES:**
- MSFE = MINIMUM SERVICEABLE FLOOR ELEVATION.
 - SSNR = SEWER SERVICE NOT REQUIRED.
 - DDS = DISTANCE TO DOWNSTREAM MANHOLE.
 - ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
 - THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
 - ALL EXCAVATION IS CONSIDERED UNCLASSIFIED.
 - ALL EXCAVATION BENEATH PROPOSED STREETS SHALL BE BACKFILLED PER CITY STANDARD DETAIL 40-3 TO FOUR (4) FEET BACK OF CURB.
 - ALL TEES ARE STATIONED USING MAIN LINE STATIONS.
 - ALL SERVICE STUB LINES SHALL HAVE A MINIMUM PIPE STIFFNESS OF SDR 23.5.
 - EVERY STUB LINE SHALL BE MARKED AT THE END OF THE PIPE WITH A VERTICAL 2"x4" A MINIMUM OF SIX (6) FEET IN LENGTH.
 - PRE-BLAST SURVEY LIMITS TO STAY WITHIN THE TOL.

Structure Table		
Structure Name	Structure Northing	Structure Easting
E1	997920.8900	2841827.5597
E2	997621.7987	2841814.8014
E3	997498.6689	2841860.2655
E4	997473.2238	2841883.9724



PREPARED BY:

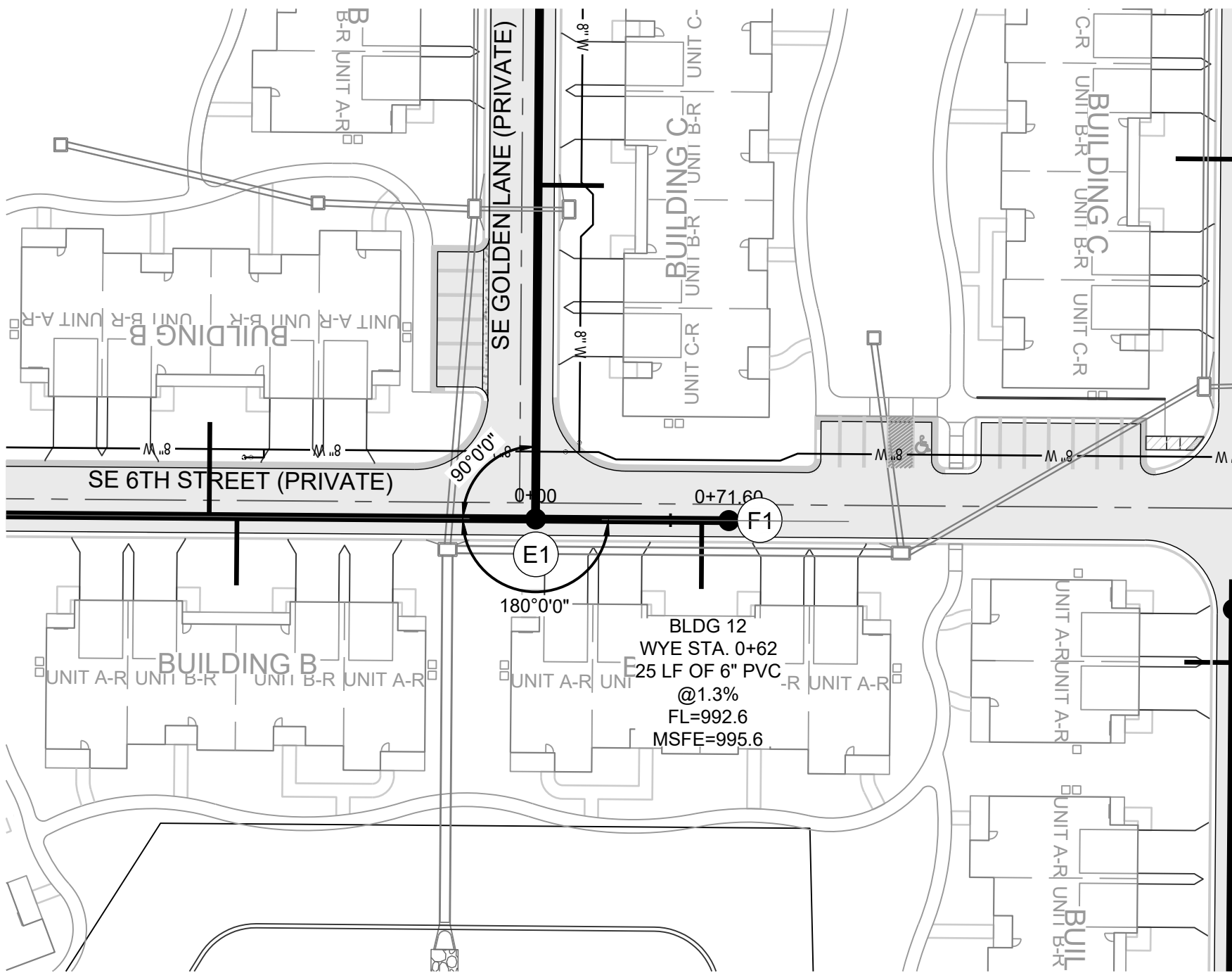


SCHLAGEL & ASSOCIATES, P.A.

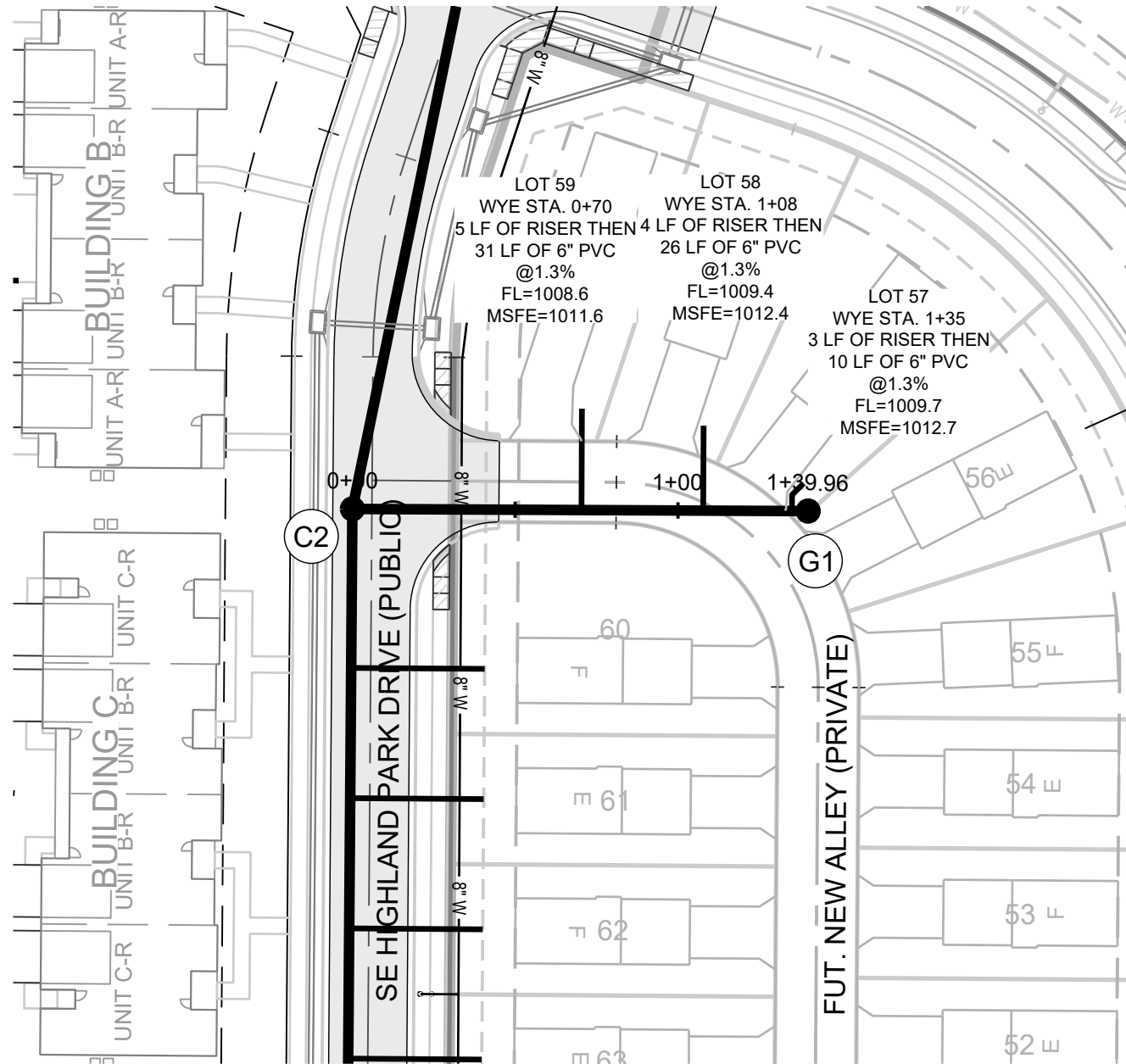
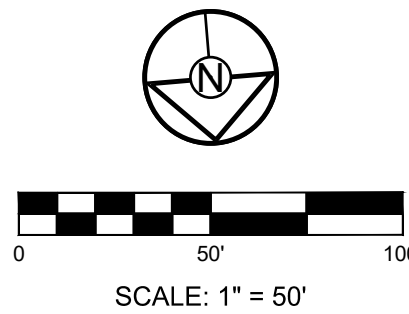
REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-297	PROJ. NUMBER

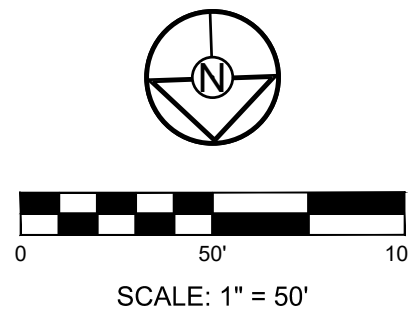
SANITARY SEWER
LINES D & E



Structure Table		
Structure Name	Structure Northing	Structure Easting
F1	997923.9487	2841756.0575



Structure Table		
Structure Name	Structure Northing	Structure Easting
G1	997370.3667	2841259.9255



MO GRS BENCHMARK:

STATION NAME - JA-90
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
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LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD
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N:1001052.8503, E:2845604.8272

ELEV. 997.045

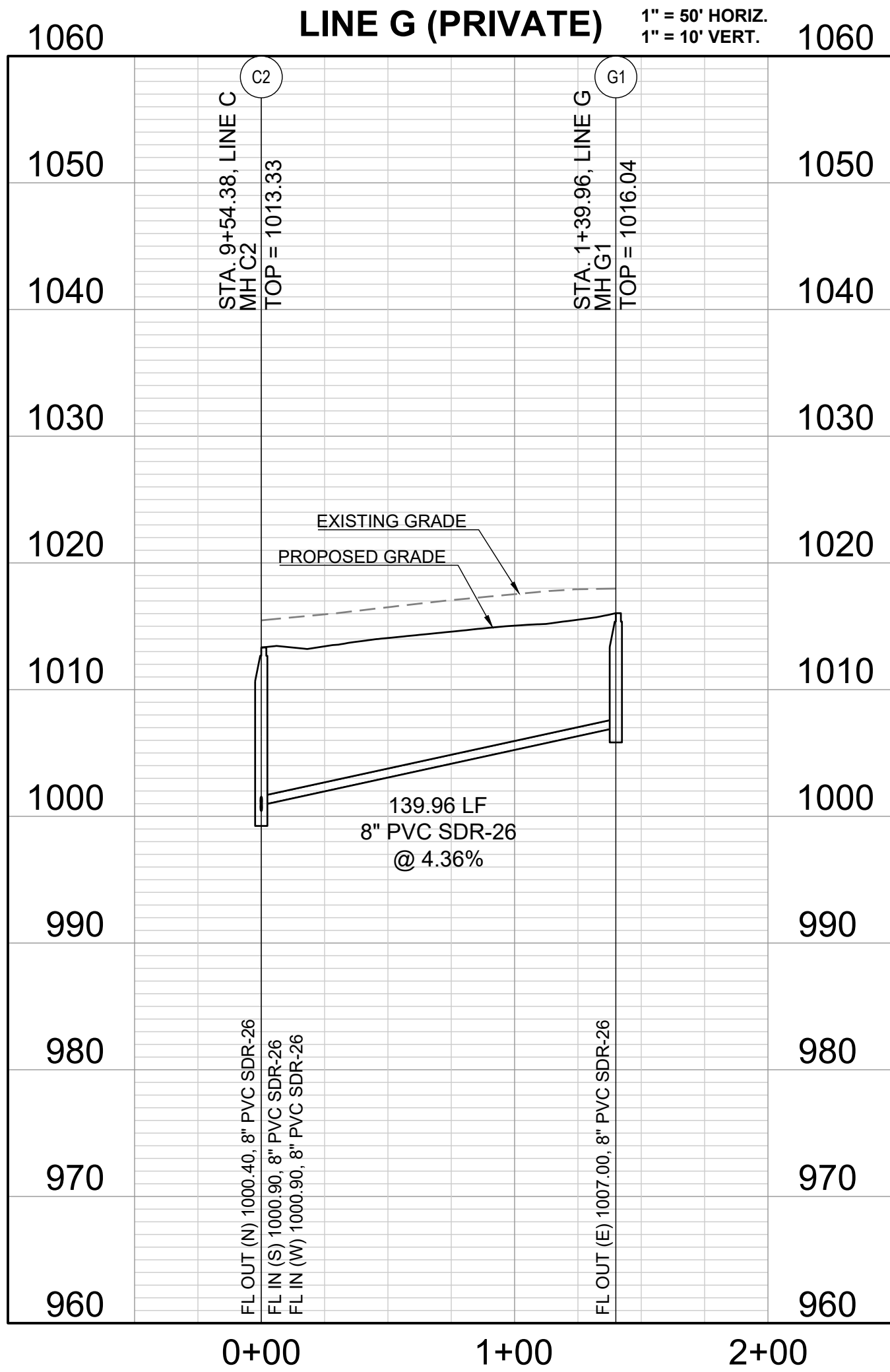
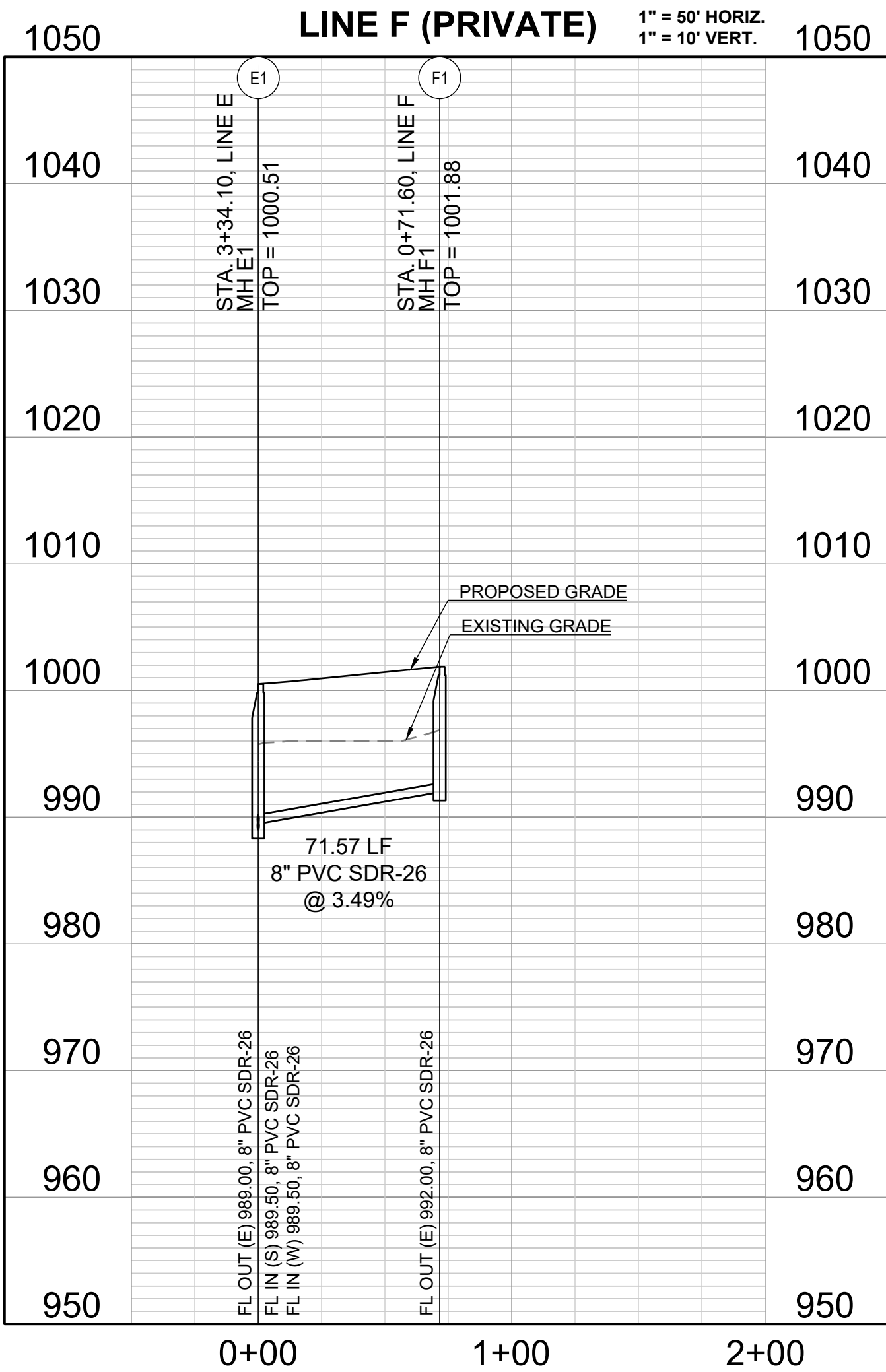
PROJECT BENCHMARK:

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N:996874.9690, E:2840837.1365

ELEV. 1005.719

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11. PRE-BLAST SURVEY LIMITS TO STAY WITHIN THE TC/E.



PREPARED BY:



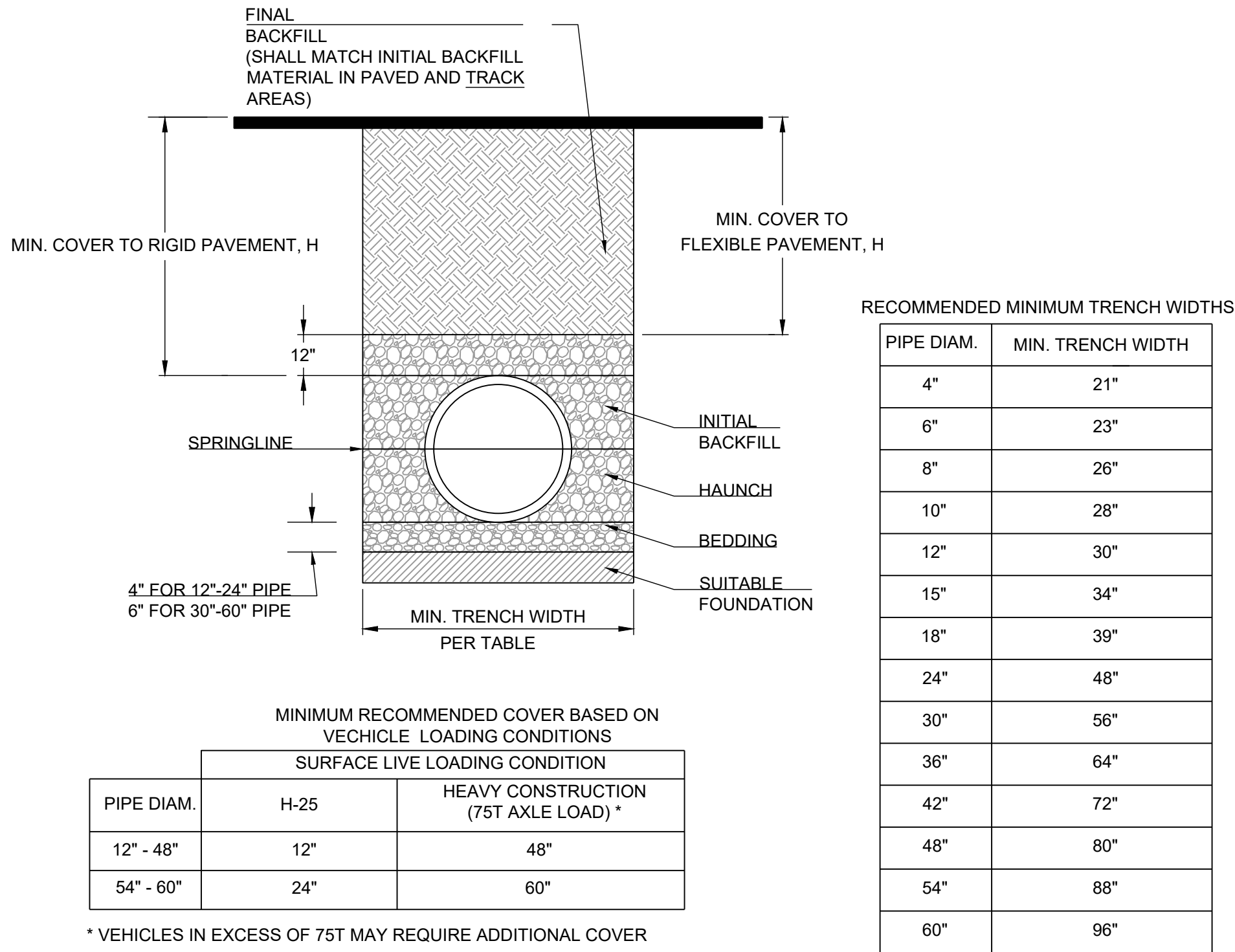
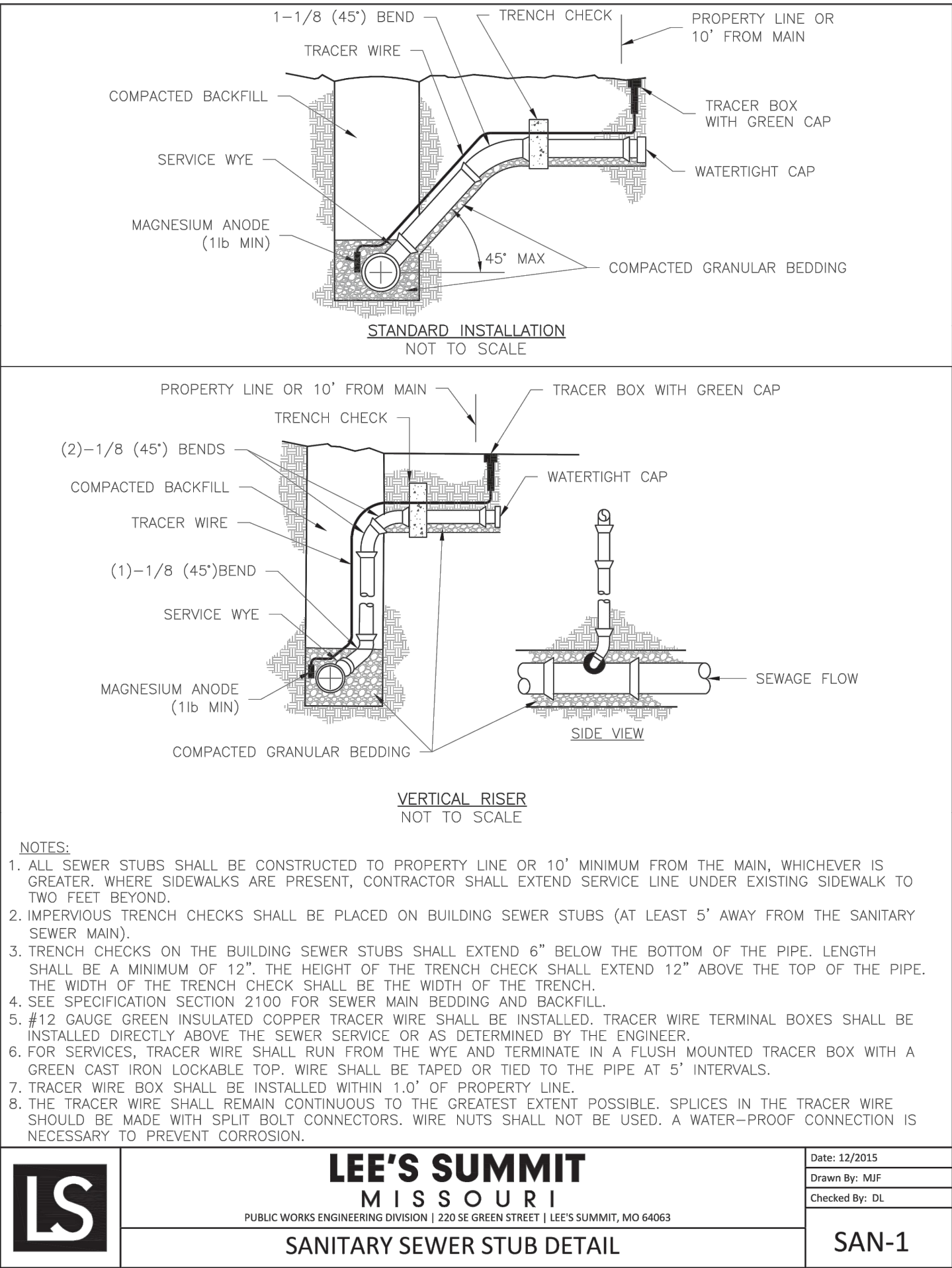
SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

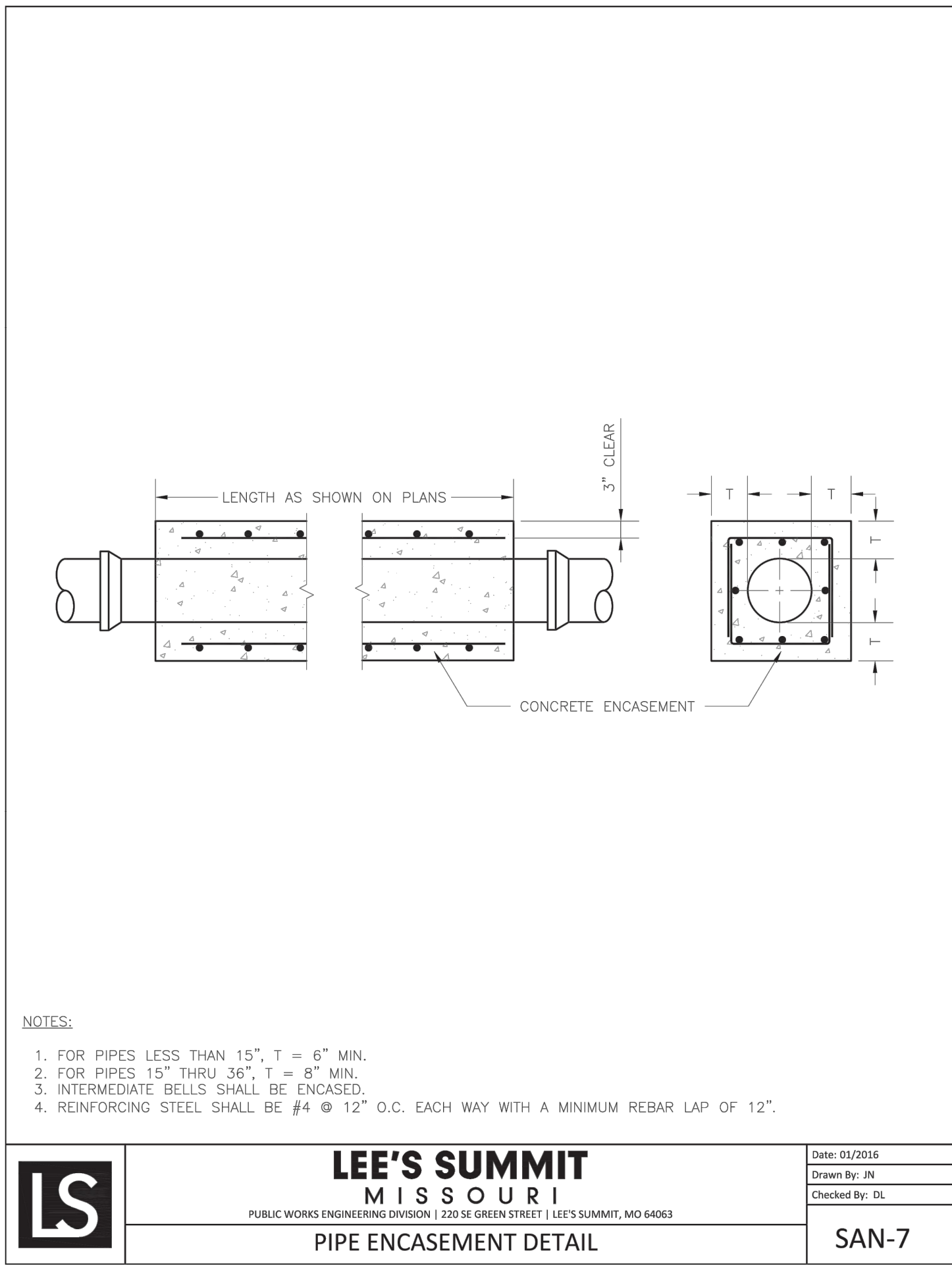
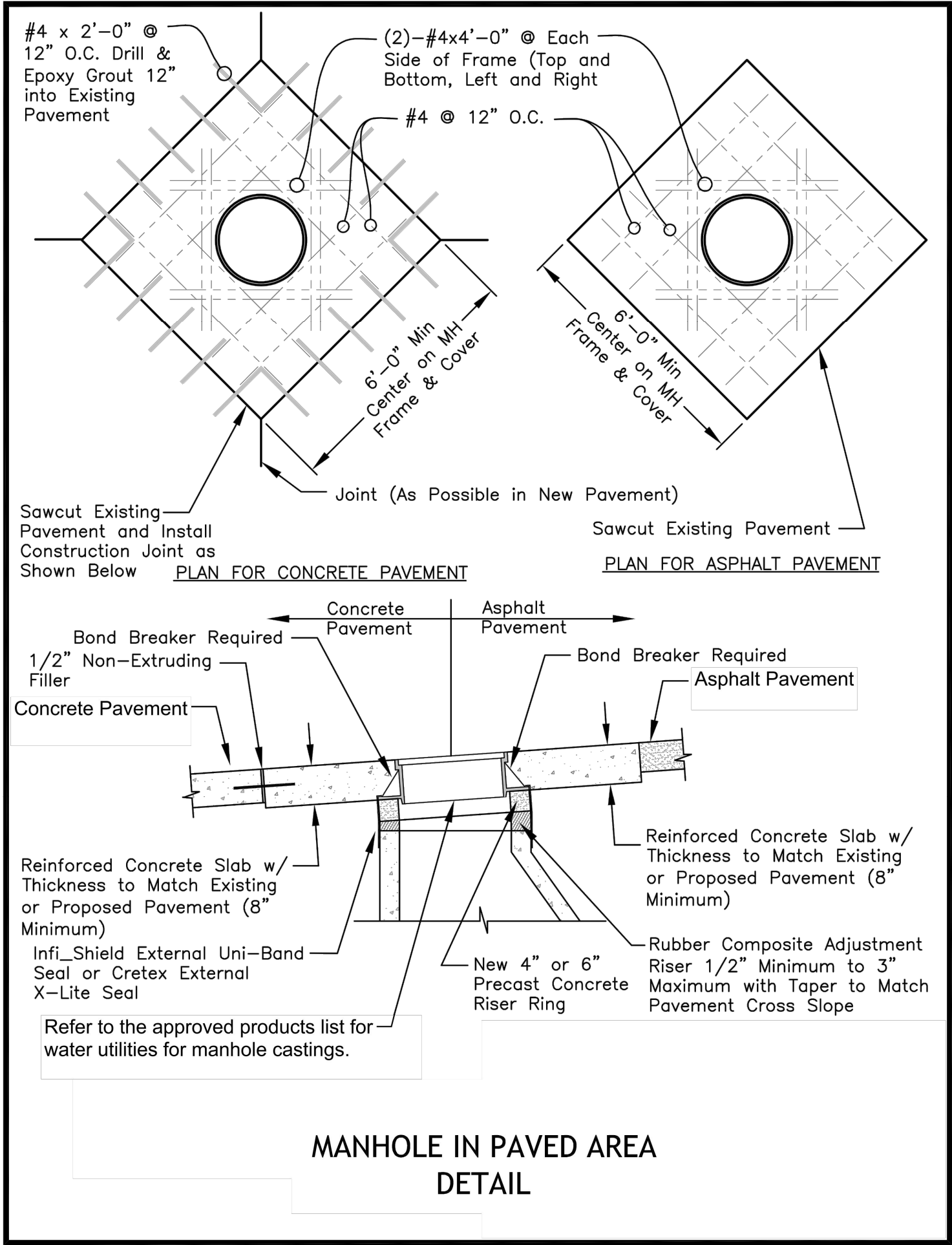
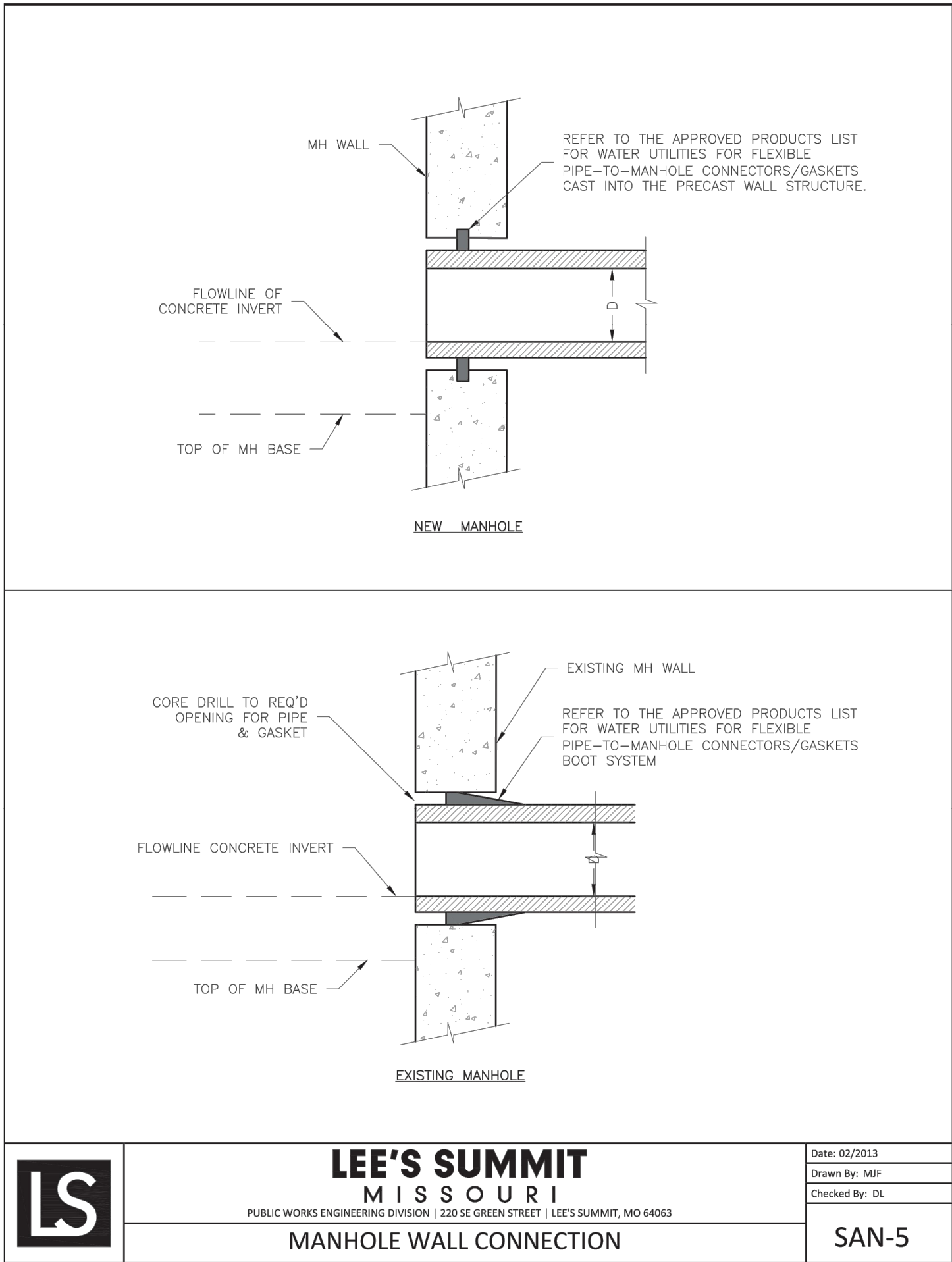
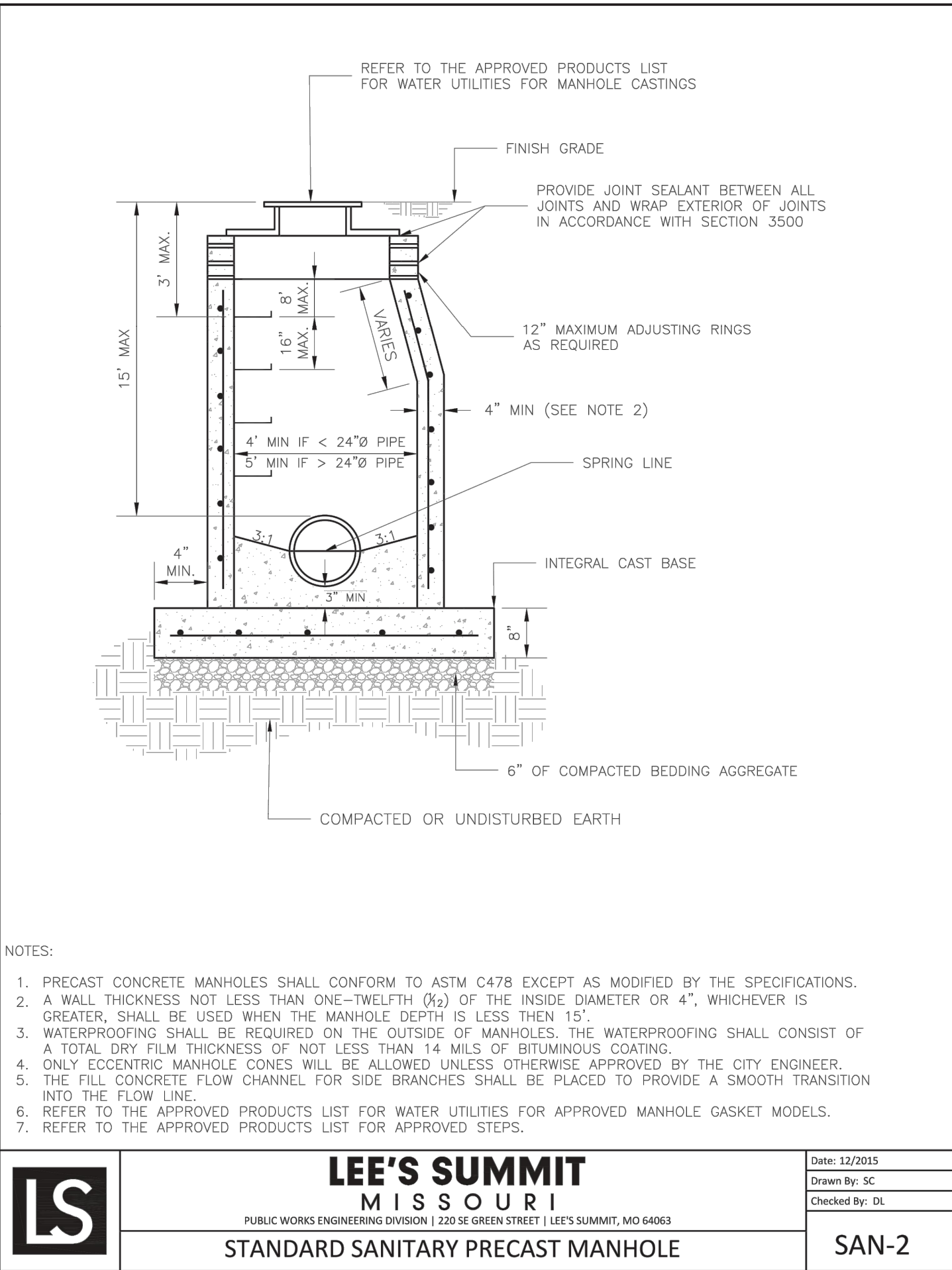
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

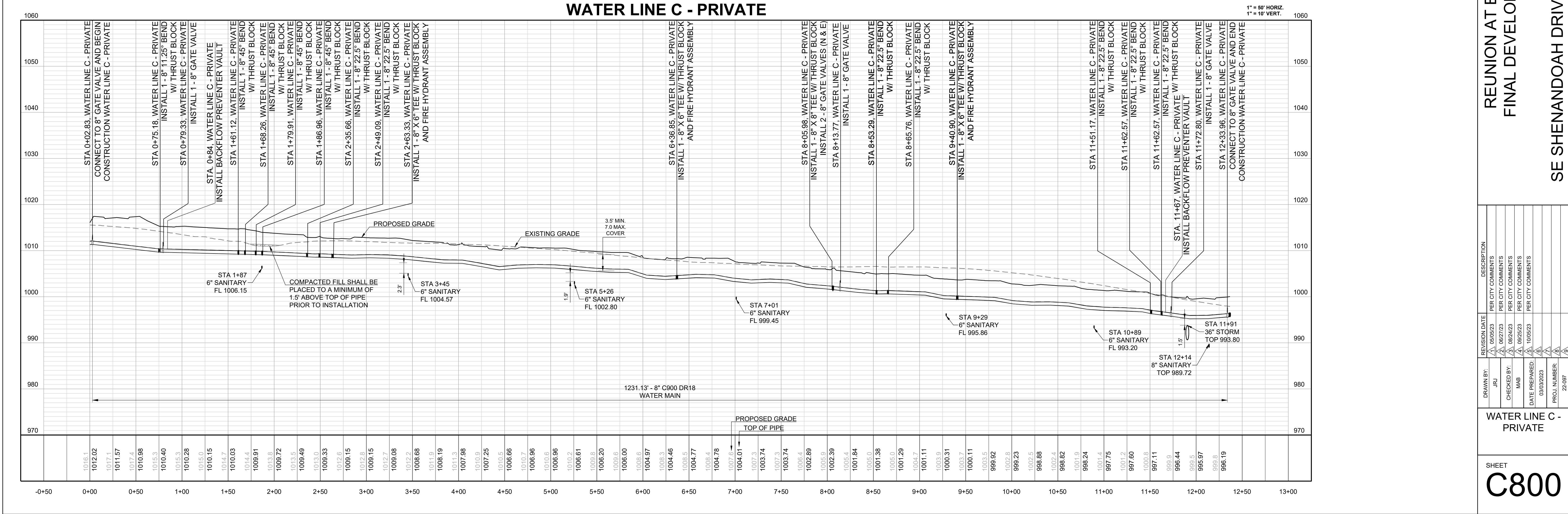
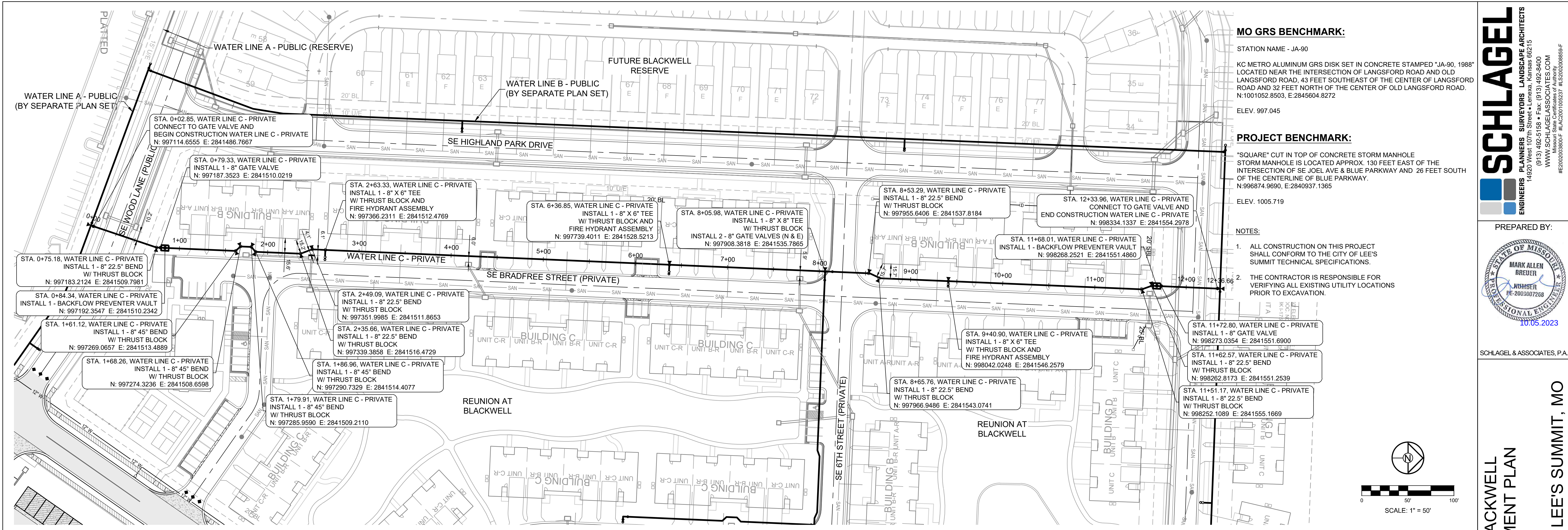
REVISION DATE	DESCRIPTION
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06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER

SANITARY SEWER
LINES F & G



- 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 AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
 4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).
 5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
 6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.
 7. TESTING: CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL MATERIAL TESTING REQUIRED FOR THEIR WORK. THIS INCLUDES SCHEDULING OF TESTS, COORDINATING AND PROVIDING ACCESS TO SAMPLE LOCATIONS, AND SATISFYING ALL TEST RESULT REPORTING REQUIREMENTS.





SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E200200360P #LAC2001003237 #LS200200859F

PREPARED BY:
MARK ALLEN BREUER
MEMBER
PE-2003607268
10.05.2023

SCHLAGEL & ASSOCIATES, P.A.

REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN

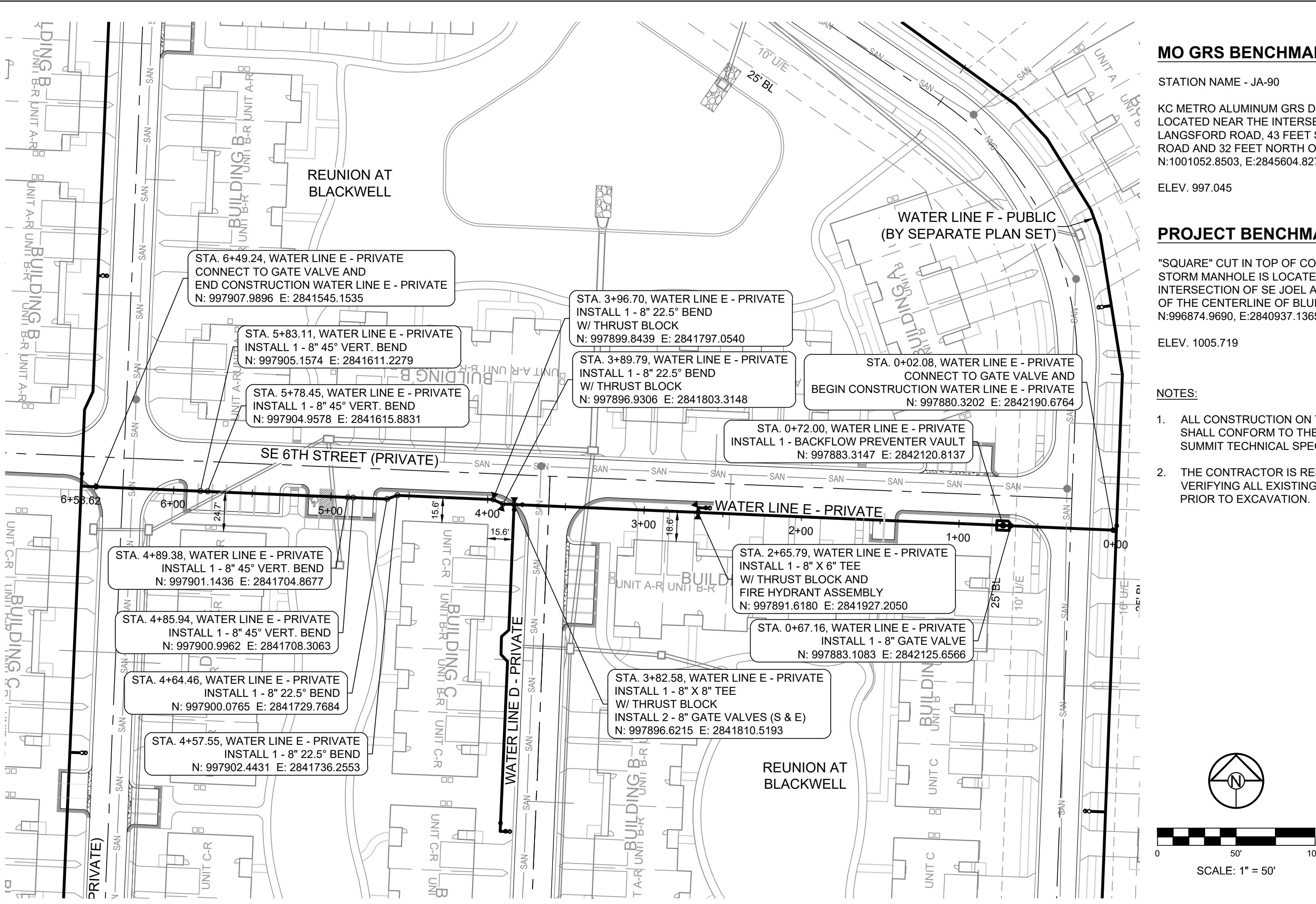
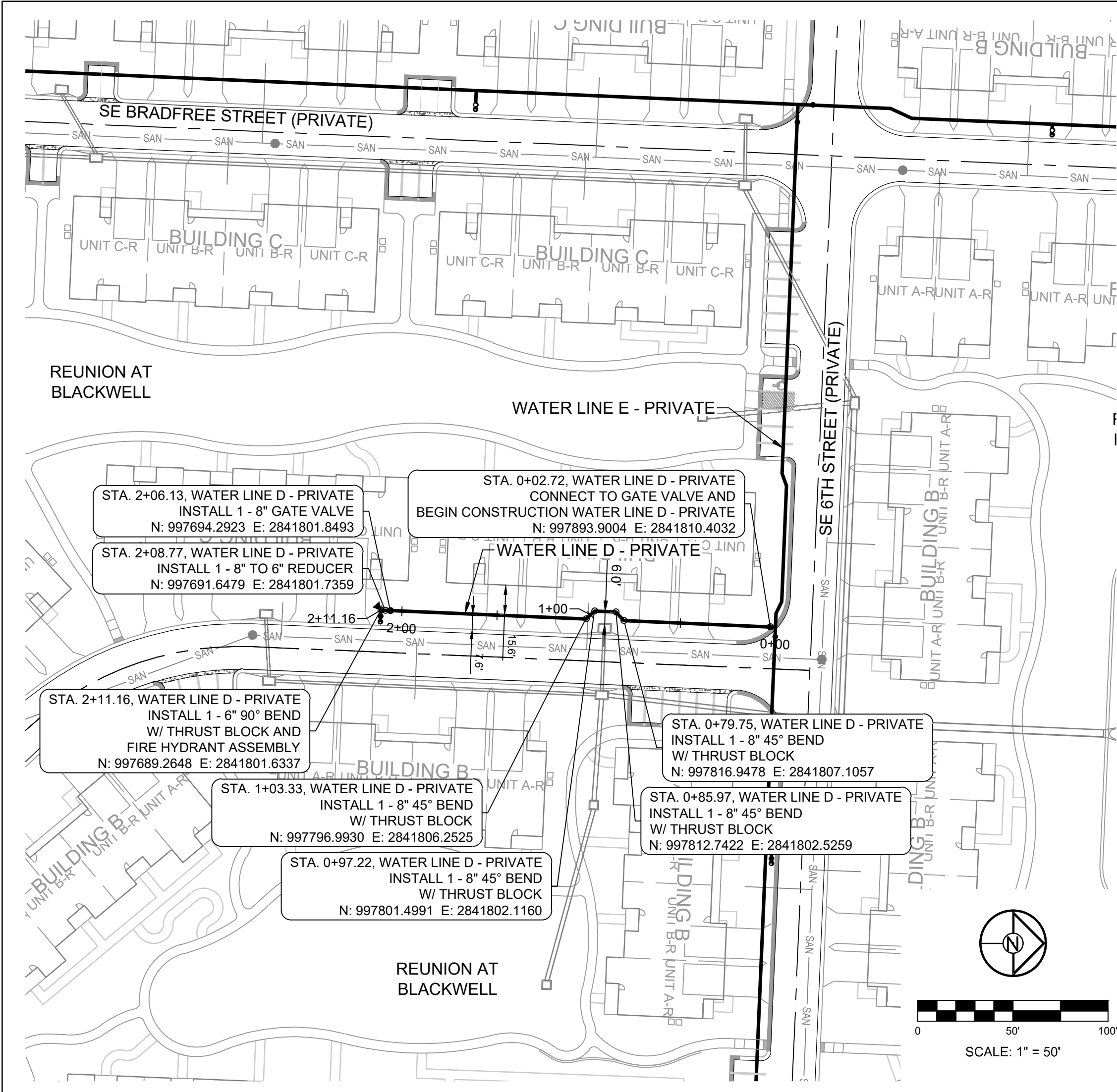
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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06/27/23	PER CITY COMMENTS
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10/05/23	PER CITY COMMENTS

DRAWN BY:	DESCRIPTION
JRJ	PER CITY COMMENTS
MAB	PER CITY COMMENTS
DATE PREPARED:	PER CITY COMMENTS
03/03/2023	PER CITY COMMENTS
PROJ. NUMBER:	PER CITY COMMENTS
22-597	PER CITY COMMENTS

WATER LINE C - PRIVATE

SHEET
C800



MO GRS BENCHMARK:

STATION NAME - JA-90
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988"
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N:996874.9690, E:2840937.1365

ELEV. 1005.719

NOTES:

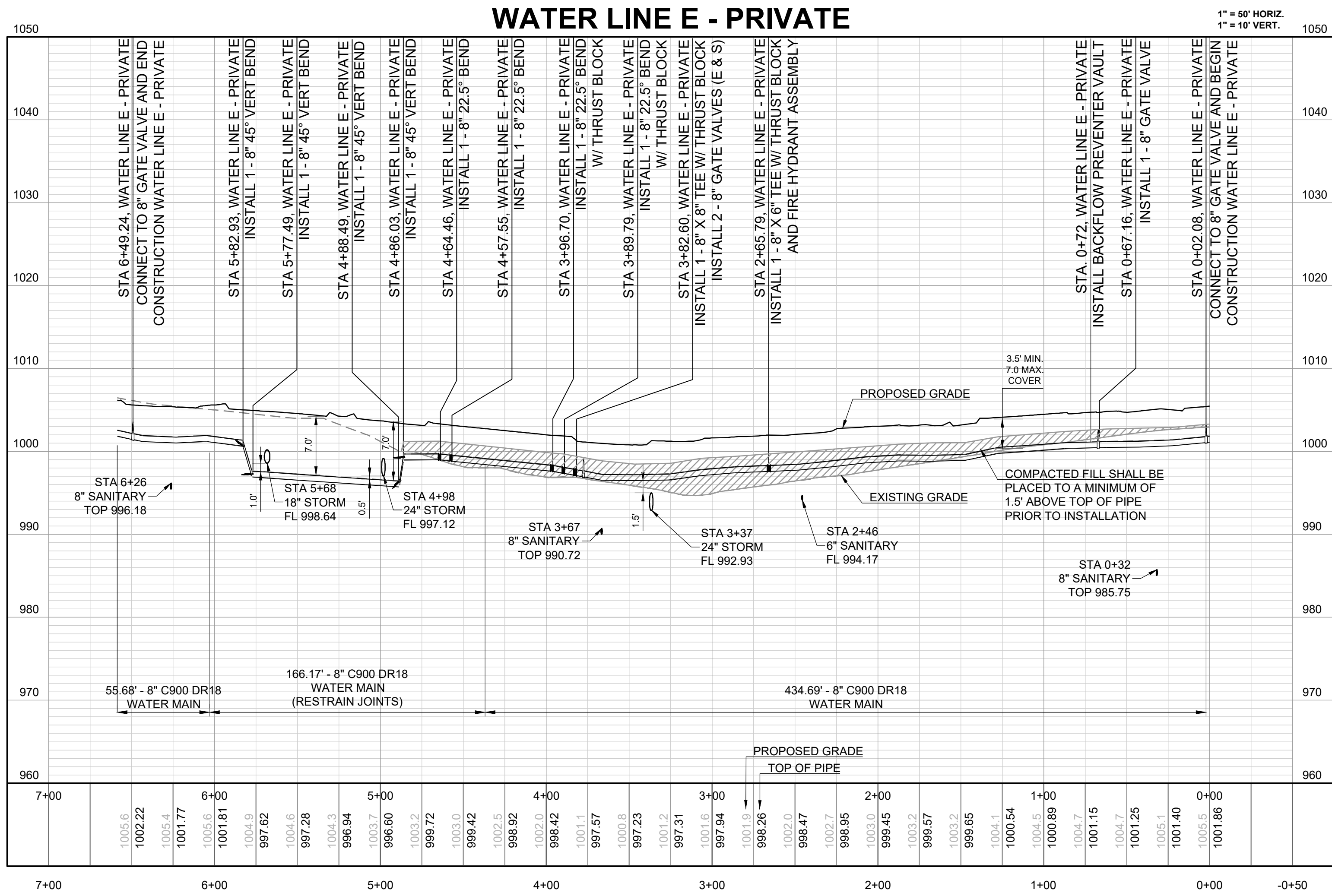
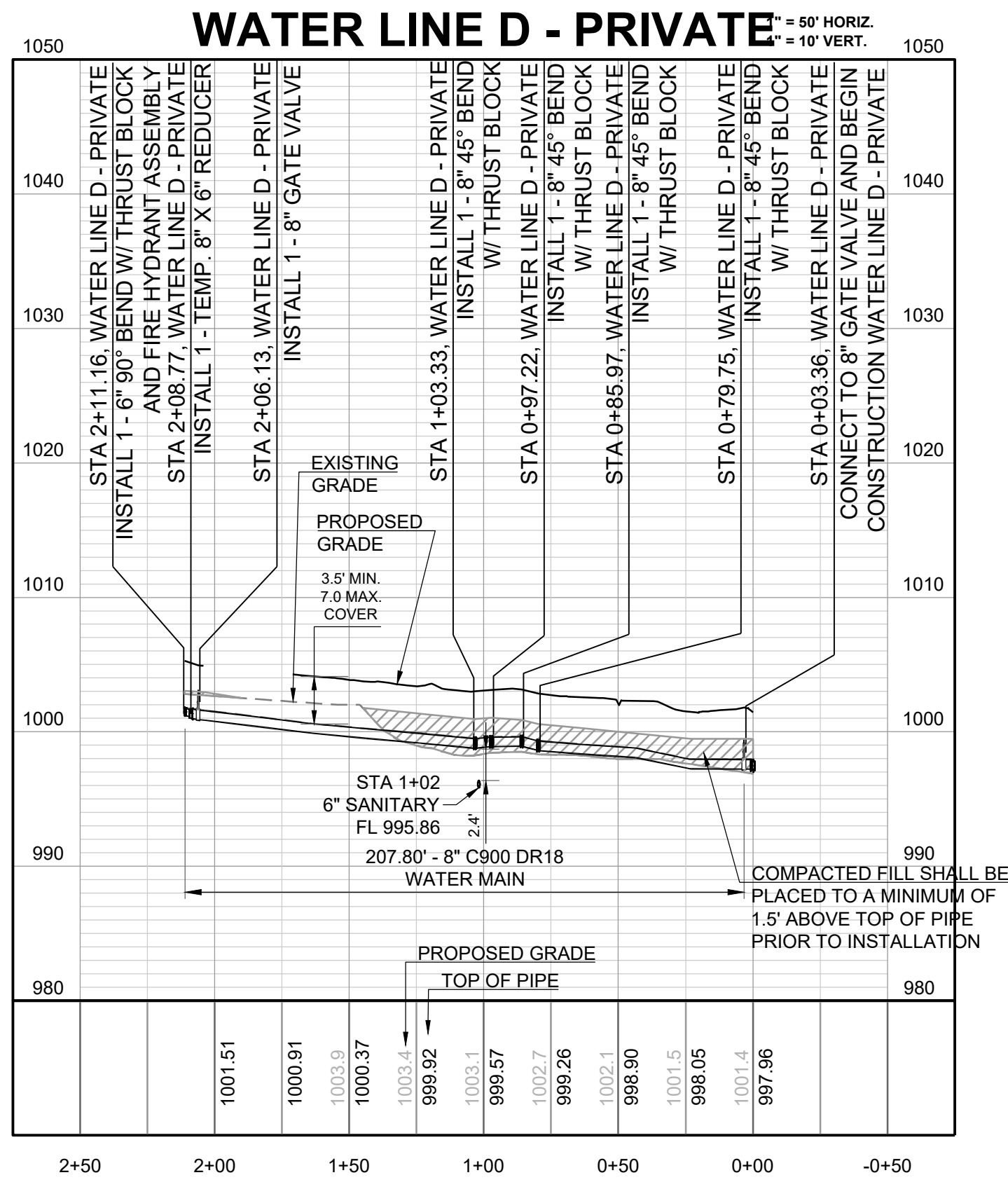
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PREPARED BY:
MARK ALLEN BREUER
MEMBER
PE-2003607268
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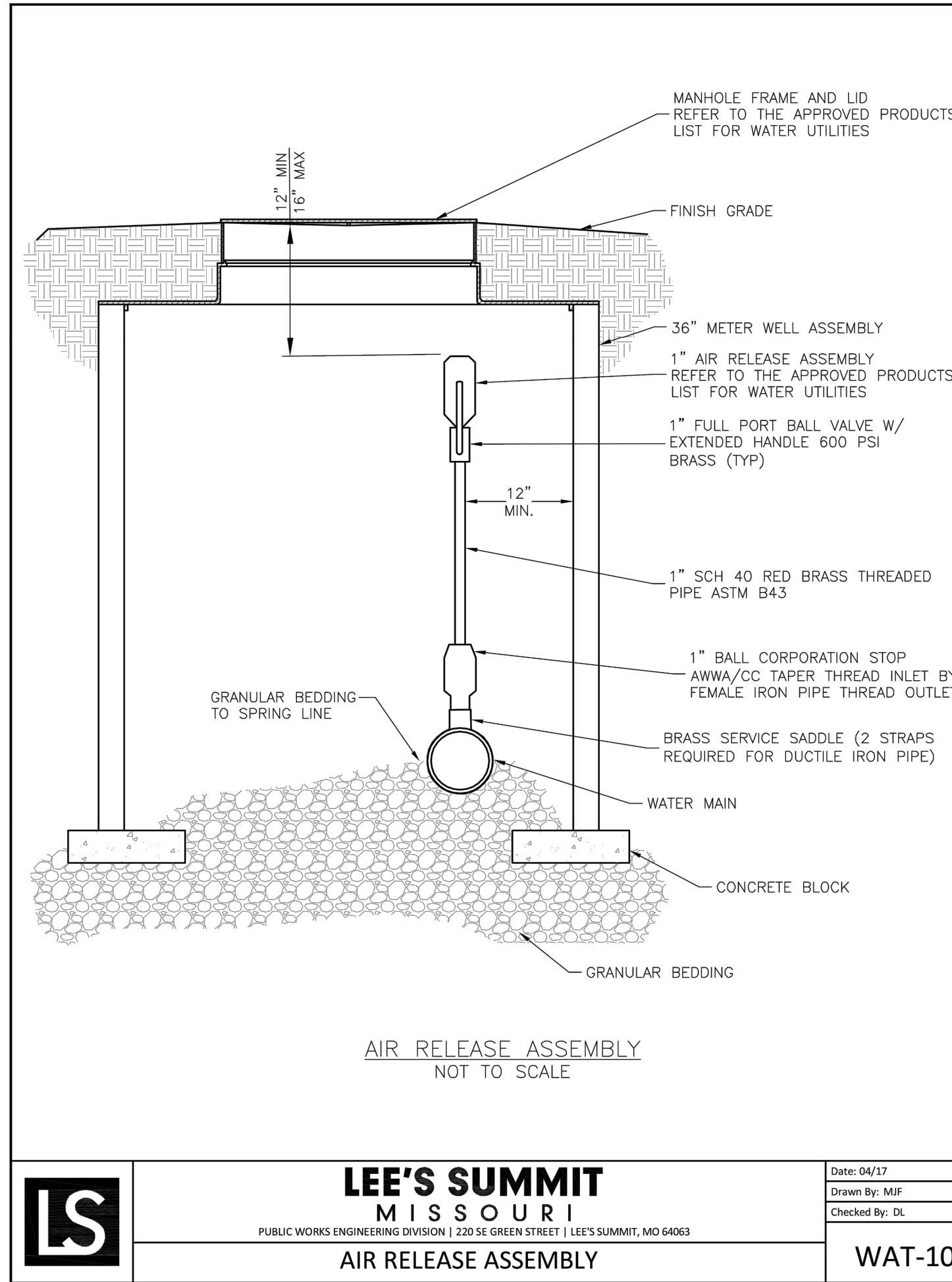
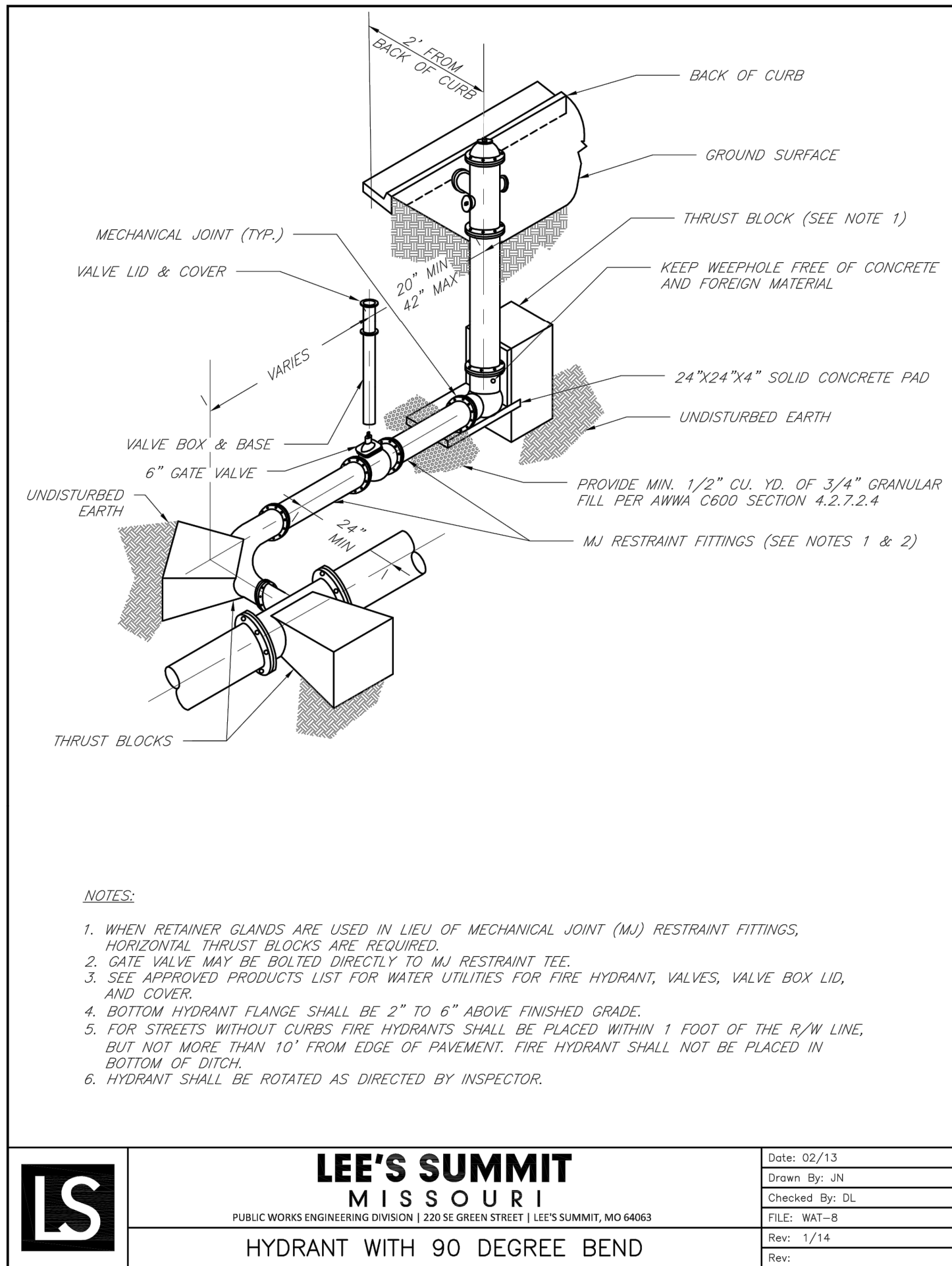
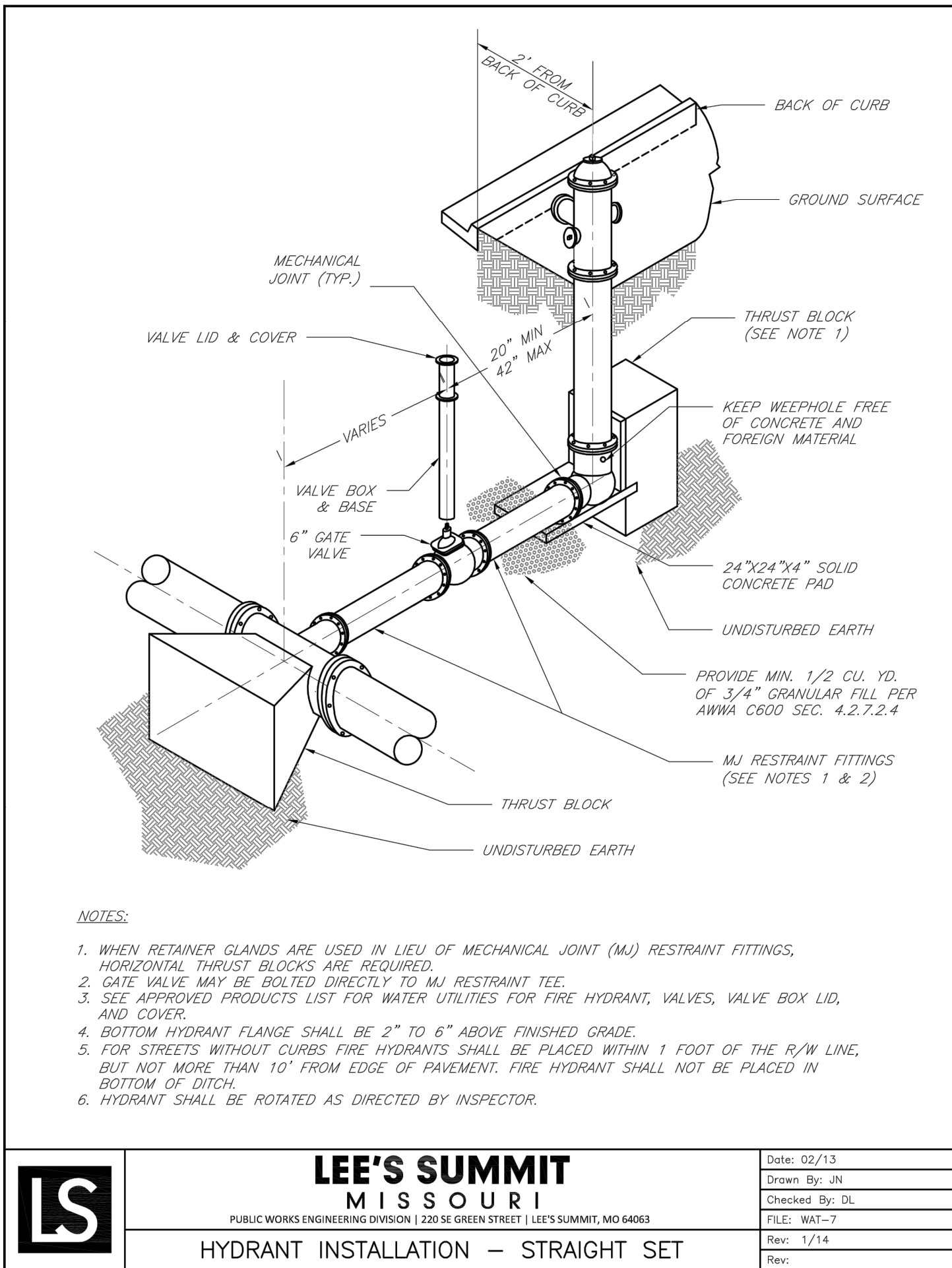
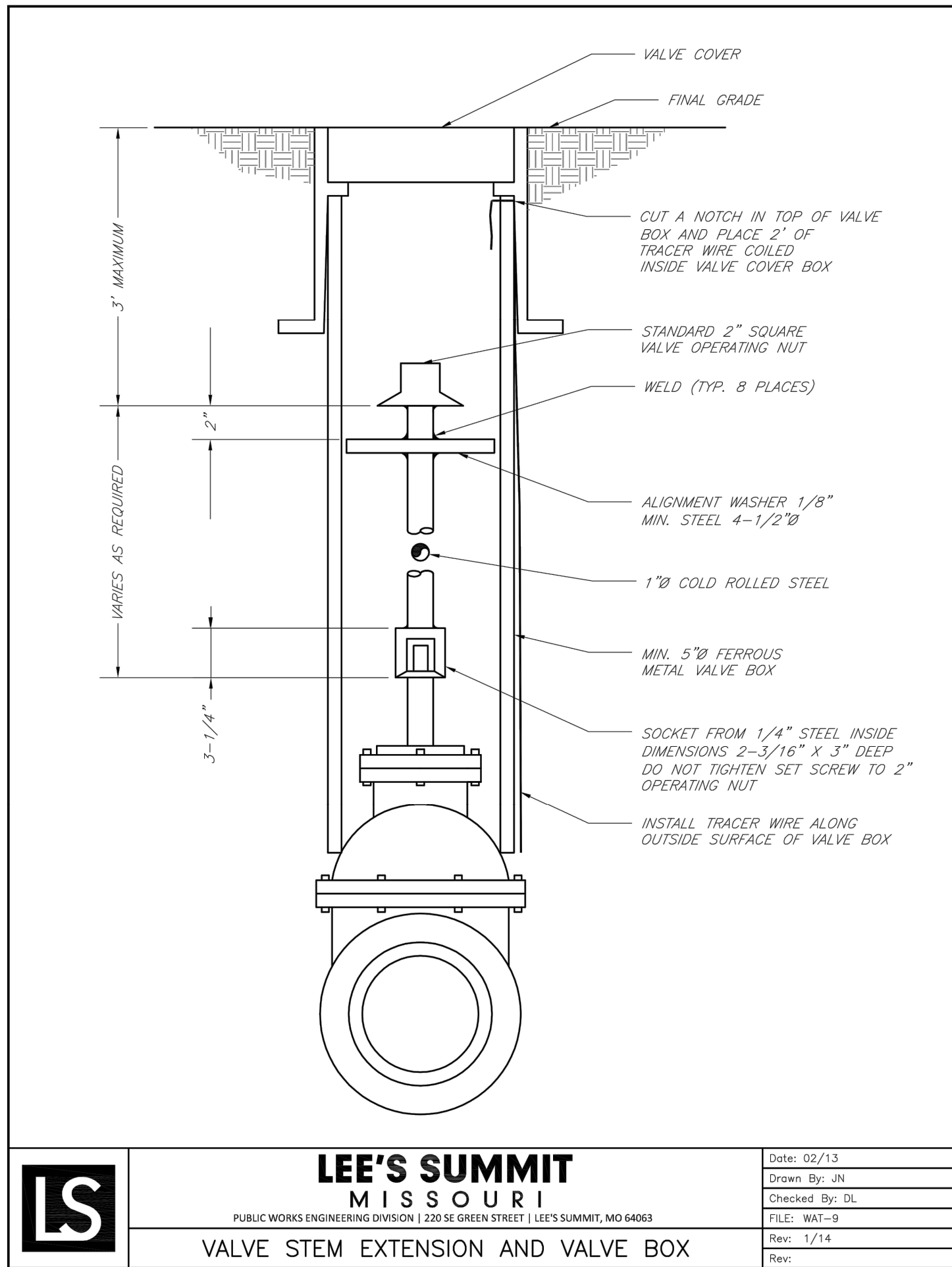
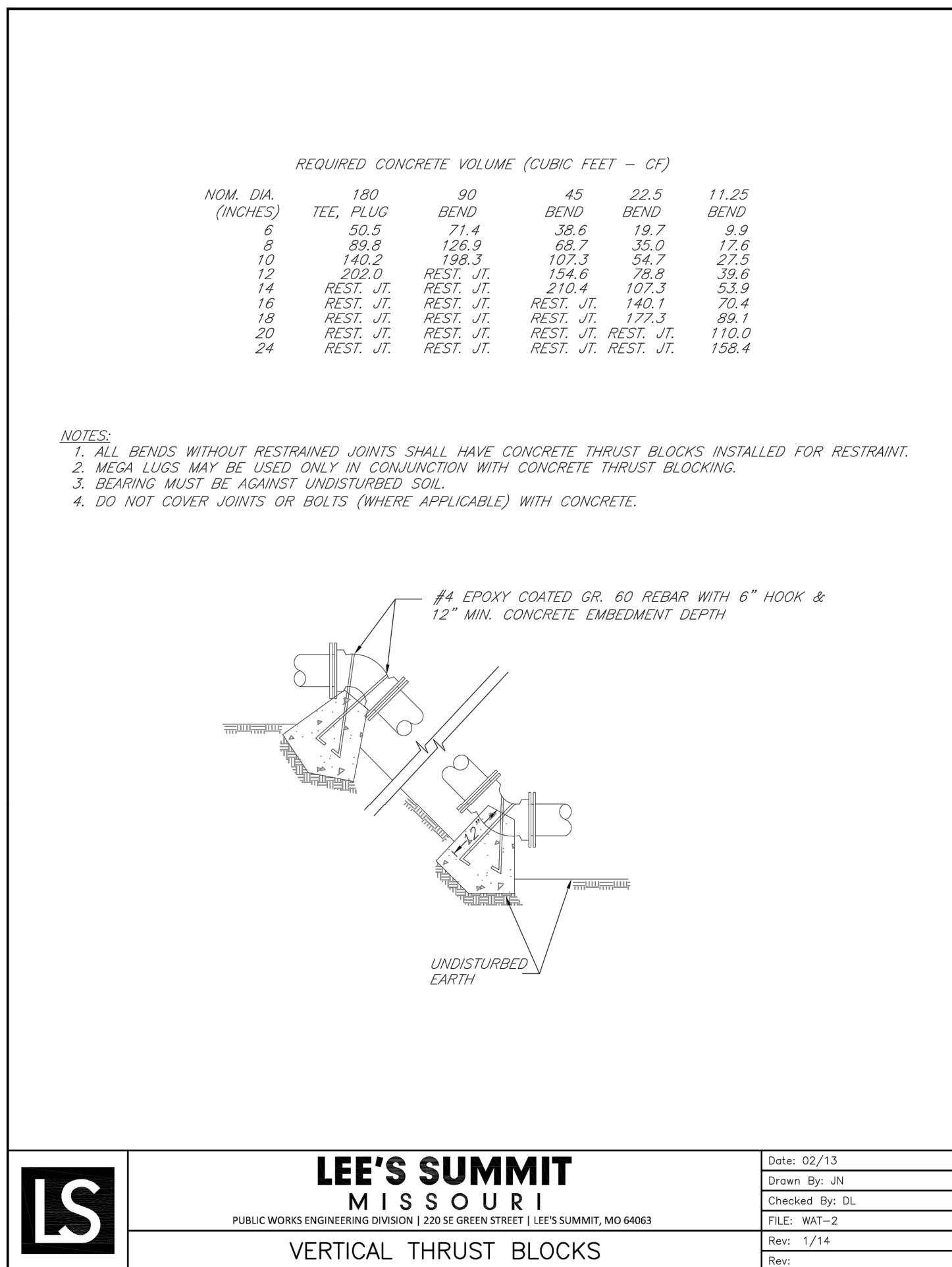
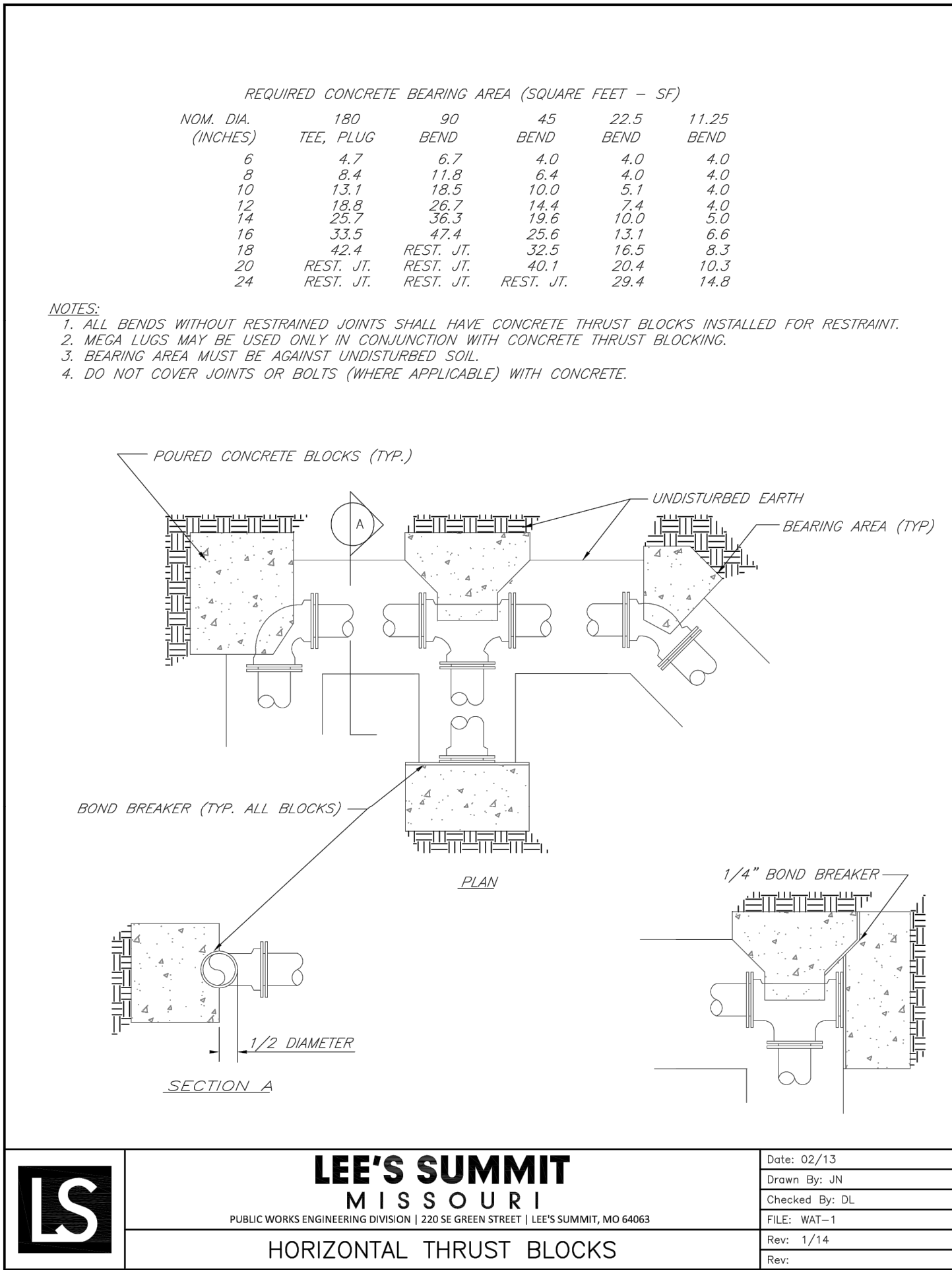
REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO



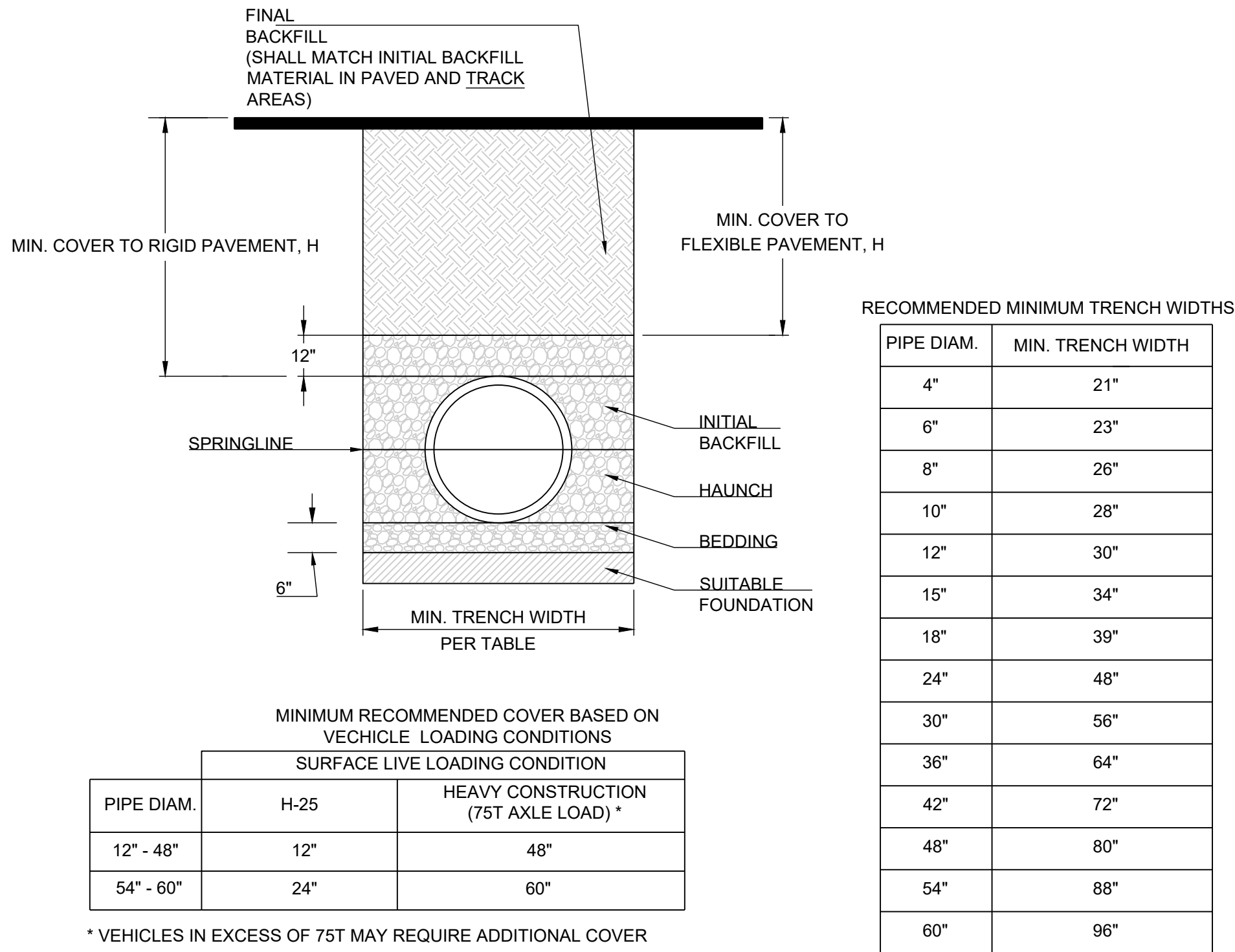
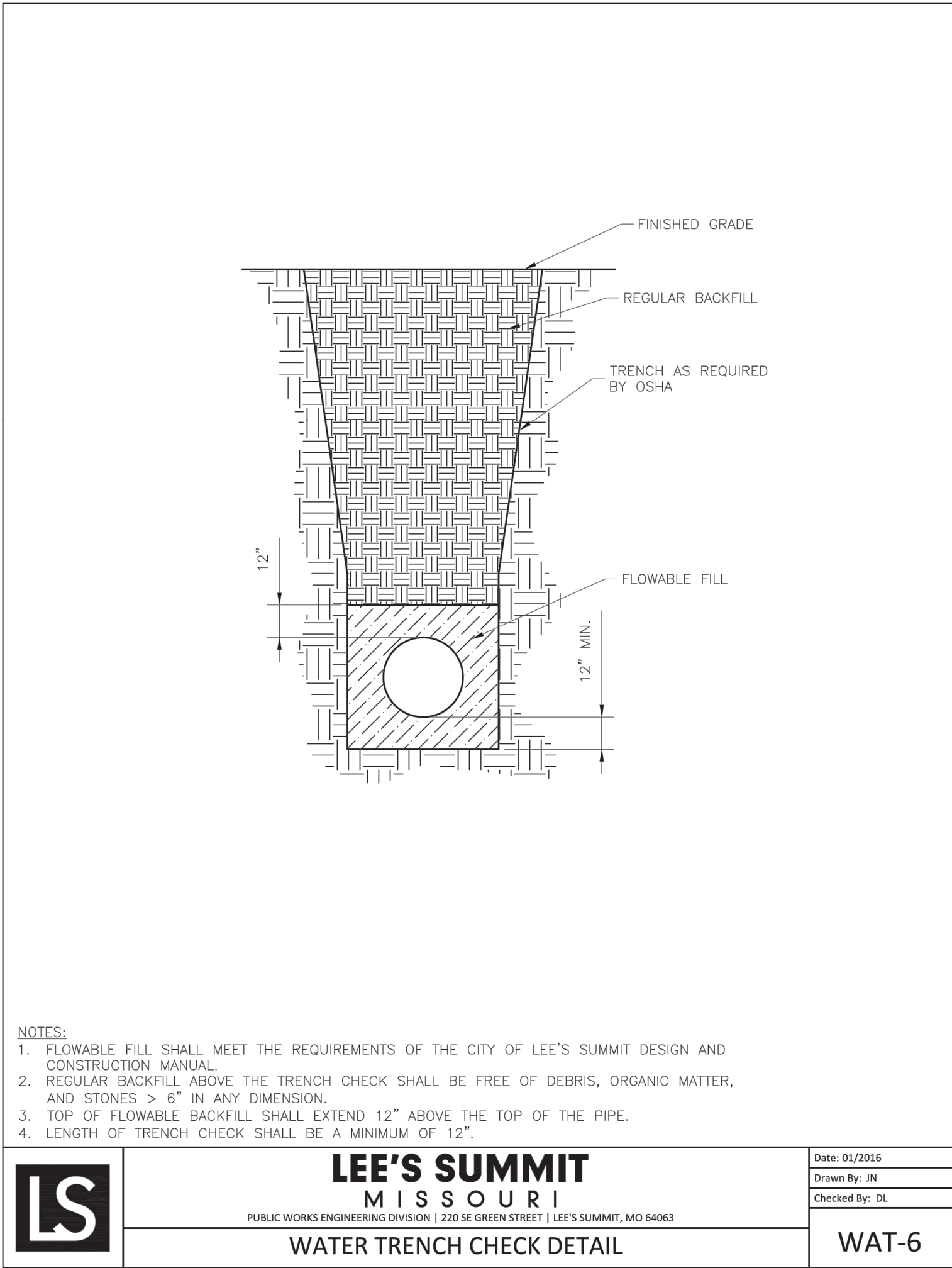
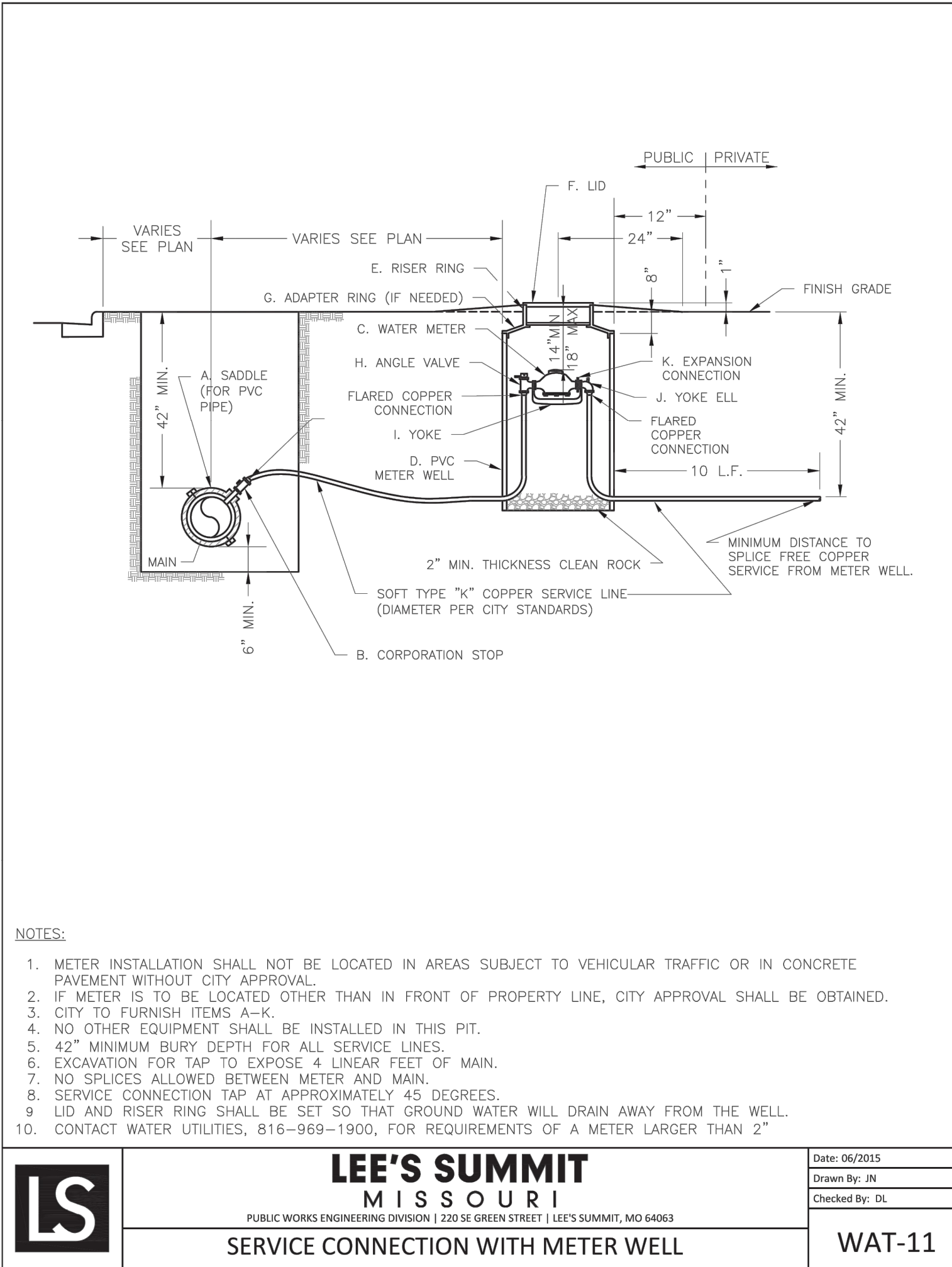
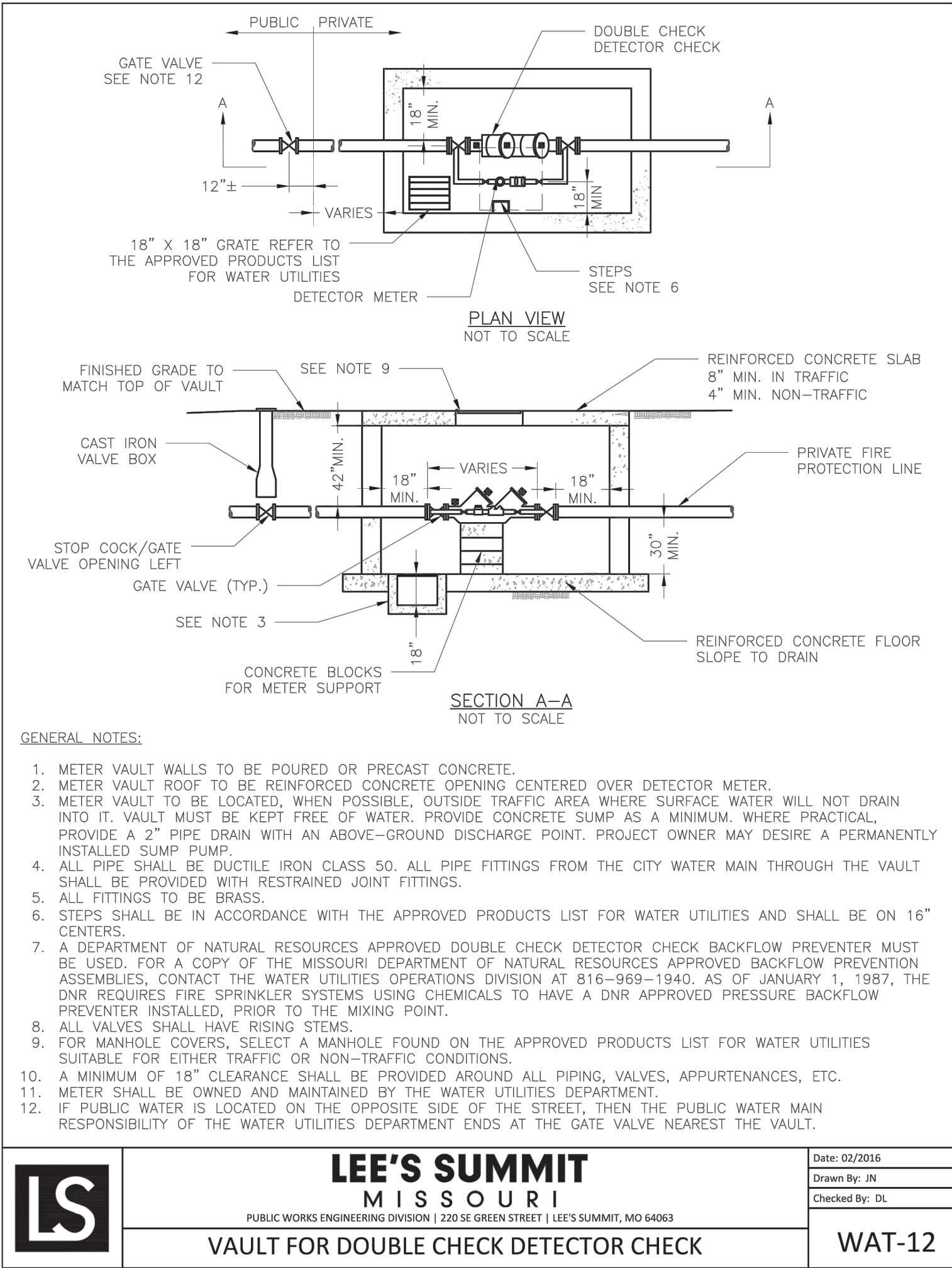
DRAWN BY:	REVISION DATE	DESCRIPTION			
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JRJ	05/05/23				
MAB	06/27/23				
	08/24/23				
	09/25/23				
	10/05/23				
	03/03/2023				
	22-507				

WATER LINE D & E - PRIVATE

SHEET
C801



REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
22-587	PROJ. NUMBER



NOTES:

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PREPARED BY:



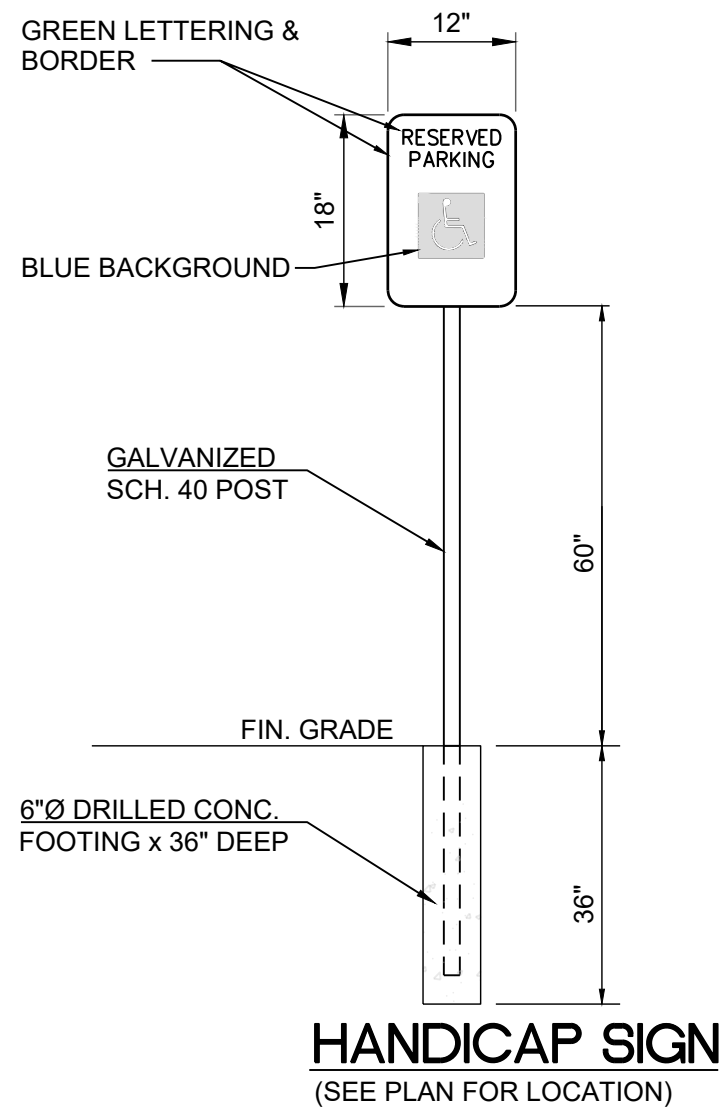
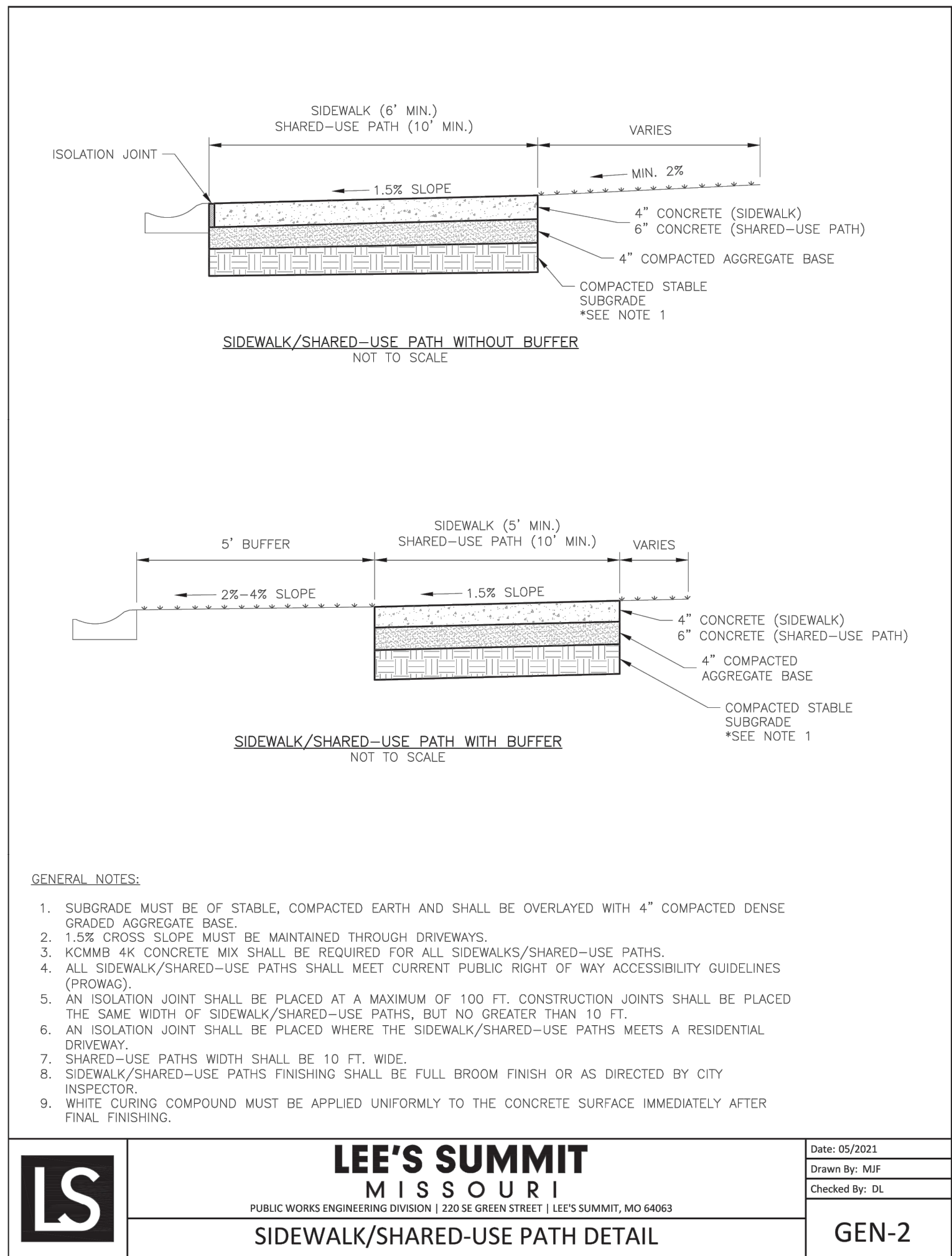
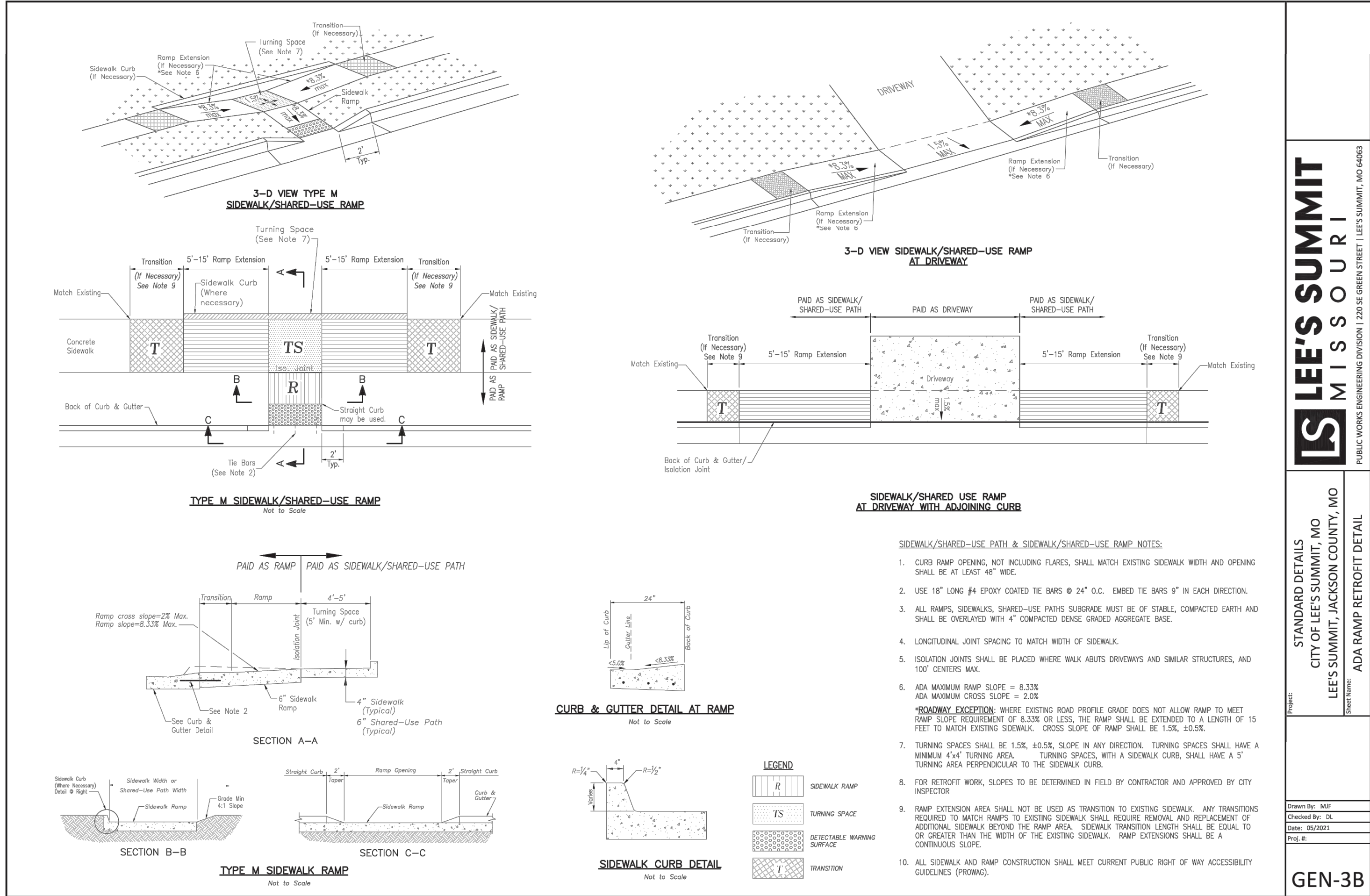
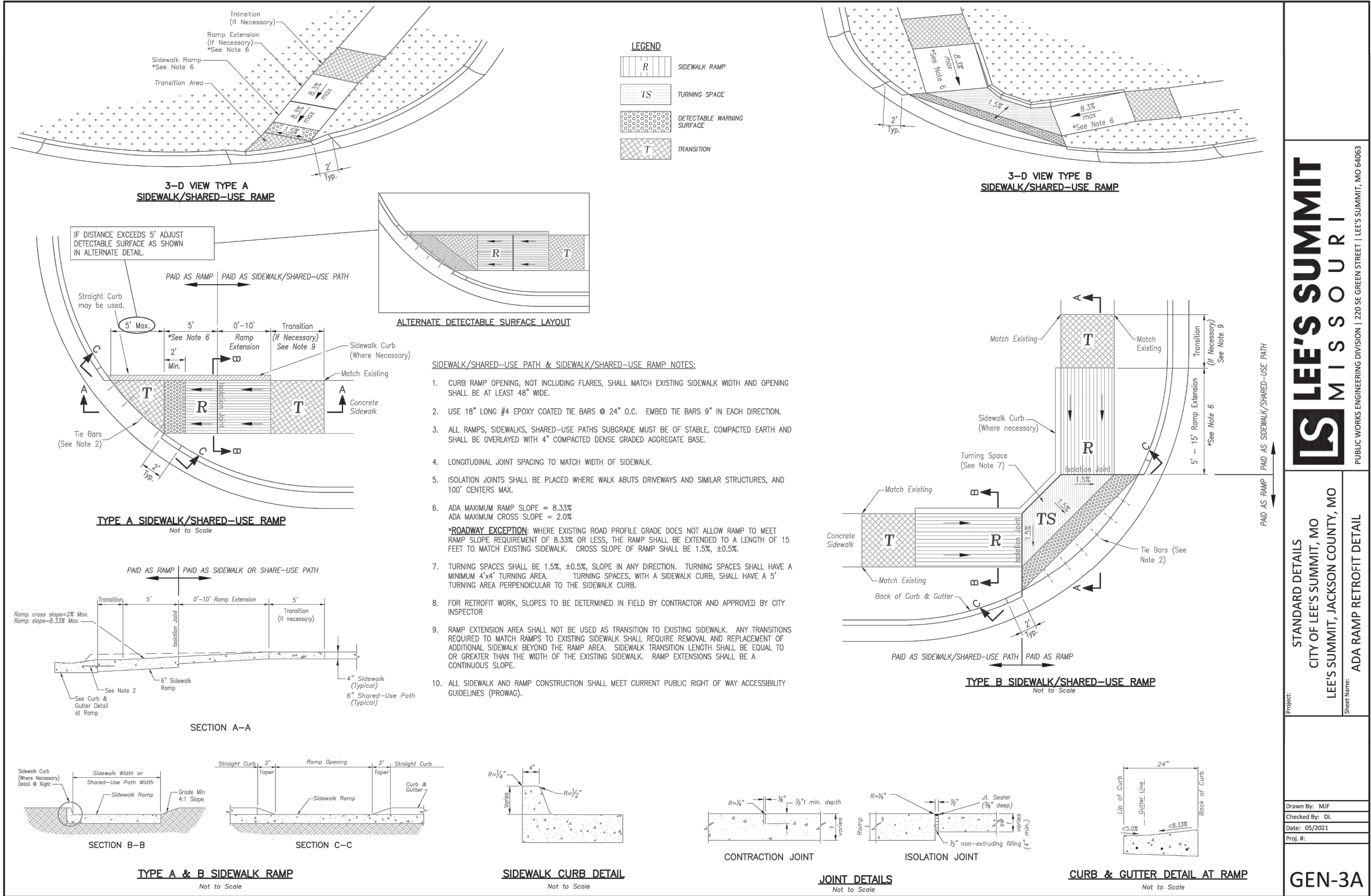
SCHLAGEL & ASSOCIATES, P.A.

**REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO**

REVISION DATE	DESCRIPTION
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09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	PROJ. NUMBER:
22-597	

WATER DETAILS

SHEET
C803



PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

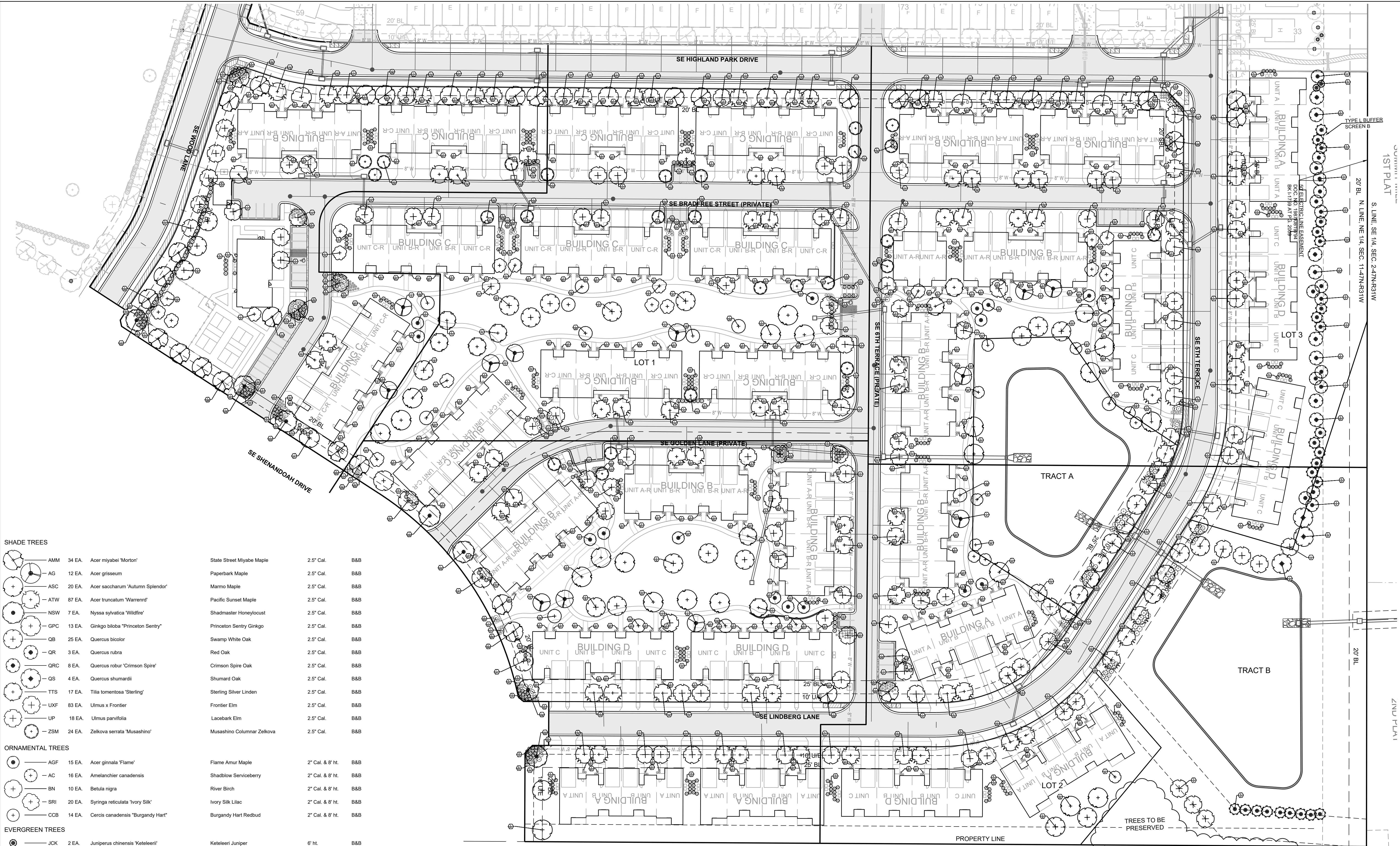
REUNION AT BLACKWELL
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GENERAL
DETAILS

SHEET
C900



SHADE TREES					
AMM	34 EA.	Acer miyabei 'Morton'	State Street Miyabe Maple	2.5" Cal.	B&B
AG	12 EA.	Acer griseum	Paperbark Maple	2.5" Cal.	B&B
ASC	20 EA.	Acer saccharum 'Autumn Splendor'	Marmoe Maple	2.5" Cal.	B&B
ATW	87 EA.	Acer truncatum 'Warrenred'	Pacific Sunset Maple	2.5" Cal.	B&B
NSW	7 EA.	Nyssa sylvatica 'Wildfire'	Shadmaster Honeylocust	2.5" Cal.	B&B
GPC	13 EA.	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	2.5" Cal.	B&B
QB	25 EA.	Quercus bicolor	Swamp White Oak	2.5" Cal.	B&B
QR	3 EA.	Quercus rubra	Red Oak	2.5" Cal.	B&B
QRC	8 EA.	Quercus robur 'Crimson Spire'	Crimson Spire Oak	2.5" Cal.	B&B
QS	4 EA.	Quercus shumardii	Shumard Oak	2.5" Cal.	B&B
TTS	17 EA.	Tilia tomentosa 'Sterling'	Sterling Silver Linden	2.5" Cal.	B&B
UXF	83 EA.	Ulmus x Frontier	Frontier Elm	2.5" Cal.	B&B
UP	18 EA.	Ulmus parvifolia	Lacebark Elm	2.5" Cal.	B&B
ZSM	24 EA.	Zelkova serrata 'Musashino'	Musashino Columnar Zelkova	2.5" Cal.	B&B
ORNAMENTAL TREES					
AGF	15 EA.	Acer ginnala 'Flame'	Flame Amur Maple	2" Cal. & 8' ht.	B&B
AC	16 EA.	Amelanchier canadensis	Shadblow Serviceberry	2" Cal. & 8' ht.	B&B
BN	10 EA.	Betula nigra	River Birch	2" Cal. & 8' ht.	B&B
SRI	20 EA.	Syringa reticulata 'Ivory Silk'	Ivory Silk Lilac	2" Cal. & 8' ht.	B&B
CCB	14 EA.	Cercis canadensis 'Burgandy Hart'	Burgandy Hart Redbud	2" Cal. & 8' ht.	B&B
EVERGREEN TREES					
JCK	2 EA.	Juniperus chinensis 'Keteleeri'	Keteleeri Juniper	6' ht.	B&B
JVC	24 EA.	Juniperus virginiana 'Canaertii'	Canaert Juniper	6' ht.	B&B
SHRUBS					
BGV	966 EA.	Buxus x 'Green Velvet'	Green Velvet Boxwood	5 gal.	Cont.
BSW	141 EA.	Buxus sinica var. 'insularis' 'Wintergreen'	Wintergreen Boxwood	5 gal.	Cont.
RAG	171 EA.	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant sumac	5 gal.	Cont.
SPM	30 EA.	Syringa patula 'Miss Kim'	Miss Kim Lilac	5 gal.	Cont.
SKP	27 EA.	Syringa x 'Penda'	Blooming Lilac	5 gal.	Cont.
VCK	44 EA.	Viburnum carlesii 'Korean Spice'	Koreanspice Viburnum	7 gal.	Cont.
VPS	26 EA.	Viburnum plicatum tomentosum 'Summer Snowflake'	Summer Snowflake Viburnum	7 gal.	Cont.
JHH	471 EA.	Juniperus horizontalis 'Hughes'	Hughes Juniper	5 gal.	Cont.
MODIFICATIONS REQUESTED:					
1. REDUCE THE CALIPER OF THE SHADE TREES FROM 3 INCHES TO 2.5 INCHES FOR THE BUFFER SCREENING AREA.					
2. REDUCE THE HEIGHT OF THE EVERGREEN TREES FROM 8 FEET TO 6 FEET.					
3. REDUCE THE CALIPER OF THE ORNAMENTAL TREES FROM 3" TO 2".					

LANDSCAPE DATA

STREET FRONTAGE LANDSCAPE(Sec. 8.790.A)

SE SHENANDOAH DRIVE(PUBLIC)			
COLLECTOR PUBLIC TREES REQUIRED (1 PER 30'X(1264.58/30'))			
COLLECTOR PUBLIC STREET SHRUBS REQUIRED (1 PER 20'X(1264.58/20'))			
COLLECTOR PUBLIC STREET TREES PROVIDED			
COLLECTOR PUBLIC STREET SHRUBS PROVIDED			
SE GRIFIN STREET(PUBLIC)			
COLLECTOR PUBLIC TREES REQUIRED (1 PER 30'X(1123.09/30'))			
COLLECTOR PUBLIC STREET TREES PROVIDED			
COLLECTOR PUBLIC STREET SHRUBS REQUIRED (1 PER 20'X(1123.09/20'))			
COLLECTOR PUBLIC STREET SHRUBS PROVIDED			
RILEY PLACE(PUBLIC)			
RESIDENTIAL PUBLIC STREET TREES REQUIRED (1 PER 30'X(1391.92/30'))			
RESIDENTIAL PUBLIC STREET TREES PROVIDED			
RESIDENTIAL PUBLIC STREET SHRUBS REQUIRED (1 PER 20'X(1391.92/20'))			
RESIDENTIAL PUBLIC STREET SHRUBS PROVIDED			
RILEY STREET(PUBLIC)			
RESIDENTIAL PUBLIC STREET TREES REQUIRED (1 PER 30'X(326.64/30'))			
RESIDENTIAL PUBLIC STREET TREES PROVIDED			
RESIDENTIAL PUBLIC STREET SHRUBS REQUIRED (1 PER 20'X(326.64/20'))			
RESIDENTIAL PUBLIC STREET SHRUBS PROVIDED			

26 TREES
22 TREES*
40 SHRUBS
40 SHRUBS

WILDFLOWER LANE(PRIVATE)	
RESIDENTIAL STREET TREES REQUIRED (1 PER 30'X(1264.58/30'))	
RESIDENTIAL STREET TREES PROVIDED	
RESIDENTIAL STREET SHRUBS REQUIRED (1 PER 20'X(1264.58/20'))	
RESIDENTIAL STREET SHRUBS PROVIDED	
WILDFLOWER TERRACE(PRIVATE)	
RESIDENTIAL STREET TREES REQUIRED (1 PER 30'X(535.09/30'))	
RESIDENTIAL STREET TREES PROVIDED	
RESIDENTIAL STREET SHRUBS REQUIRED (1 PER 20'X(535.09/20'))	
RESIDENTIAL STREET SHRUBS PROVIDED	
SE 6TH TERRACE(PRIVATE)	
RESIDENTIAL STREET TREES REQUIRED (1 PER 30'X(747.35/30'))	
RESIDENTIAL STREET TREES PROVIDED	
RESIDENTIAL STREET SHRUBS REQUIRED (1 PER 20'X(747.35/20'))	
RESIDENTIAL STREET SHRUBS PROVIDED	
OPEN YARD/SITE LANDSCAPE REQUIRED(Sec. 8.790.B)	
LOT AREA	
BUILDING AREA	
TREES REQUIRED (1 PER 5,000 S.F. OF LOT AREA EXCL. BLDG.)(705.985/63/5000X2)	
TREES PROVIDED	
(12 ADD FOR PRIVATE STREET TREES)	

42 TREES
23 TREES*
63 SHRUBS
63 SHRUBS

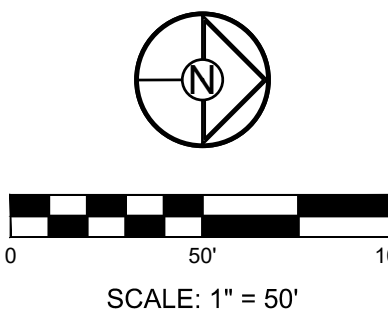
SHRUBS REQUIRED (2 PER 5,000 S.F. OF LOT AREA EXCL. BLDG.)(705.985/63/5000X2)	
SHRUBS PROVIDED	
(INCL. PARKING LOT SCREEN)	
PARKING LOT LANDSCAPE(Sec. 8.810)	
LANDSCAPE AREA REQUIRED (5% OF PARKING AREA)(X.05)	
LANDSCAPE AREA PROVIDED	
TREES REQUIRED	
TREES PROVIDED	
OF PARKING ROW	
SCREENING REQUIRED	
ALONG ENTIRE FRONTAGE ADJ. TO STREET)	
SCREENING PROVIDED	
CODE	
BUFFER SCREENING & LANDSCAPE(Sec. 8.890 Table 8.890&Sec. 8.900)	
MODIFICATION REQUESTED SINCE USES ARE WITHIN THE SAME PROJECT	
*STREET INTERSECTIONS AND DRIVEWAYS PREVENT MEETING REQUIREMENT	

18 TREES
10 TREES*
27 SHRUBS
27 SHRUBS

25 TREES
20 TREES*
37 SHRUBS
37 SHRUBS

282 SHRUBS
282 SHRUBS

N/A
N/A
1 PER ISLAND
1 ON EACH END
(2.5 FT. HT
AS REQUIRED BY



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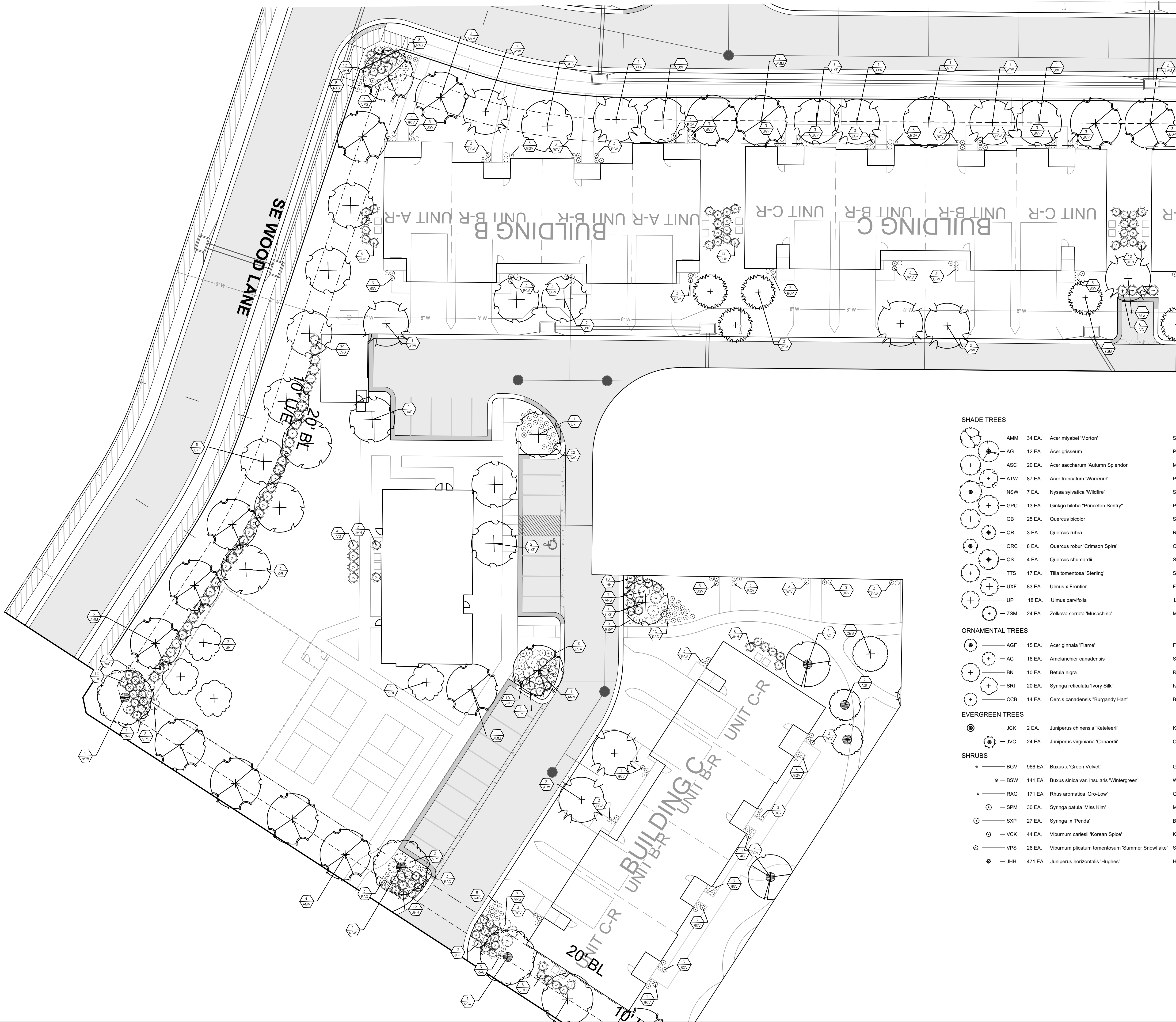
SCHLAGEL & ASSOCIATES, P.A.

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

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	03/03/2023
PROJ. NUMBER:	22-597

OVERALL
LANDSCAPE
PLAN



SHADE TREES

AMM	34 EA.	Acer miyabei 'Morton'	State Street Miyabe Maple	2.5" Cal.	B&B
AG	12 EA.	Acer griseum	Paperbark Maple	2.5" Cal.	B&B
ASC	20 EA.	Acer saccharum 'Autumn Splendor'	Marmo Maple	2.5" Cal.	B&B
ATW	87 EA.	Acer truncatum 'Warrend'	Pacific Sunset Maple	2.5" Cal.	B&B
NSW	7 EA.	Nyssa sylvatica 'Wildfire'	Shadmaster Honeylocust	2.5" Cal.	B&B
GPC	13 EA.	Ginkgo biloba "Princeton Sentry"	Princeton Sentry Ginkgo	2.5" Cal.	B&B
QB	25 EA.	Quercus bicolor	Swamp White Oak	2.5" Cal.	B&B
QR	3 EA.	Quercus rubra	Red Oak	2.5" Cal.	B&B
QRC	8 EA.	Quercus robur 'Crimson Spire'	Crimson Spire Oak	2.5" Cal.	B&B
QS	4 EA.	Quercus shumardii	Shumard Oak	2.5" Cal.	B&B
TTS	17 EA.	Tilia tomentosa 'Sterling'	Sterling Silver Linden	2.5" Cal.	B&B
UXF	83 EA.	Ulmus x Frontier	Frontier Elm	2.5" Cal.	B&B
UP	18 EA.	Ulmus parvifolia	Lacebark Elm	2.5" Cal.	B&B
ZSM	24 EA.	Zelkova serrata 'Musashino'	Musashino Columnar Zelkova	2.5" Cal.	B&B

ORNAMENTAL TREES

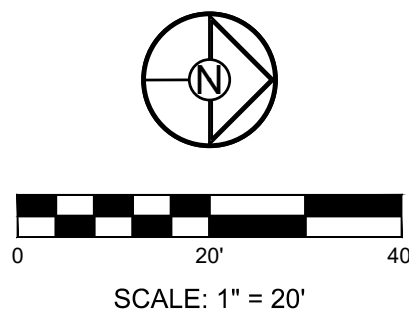
AGF	15 EA.	Acer ginnala 'Flame'	Flame Amur Maple	2" Cal. & 8' ht.	B&B
AC	16 EA.	Amelanchier canadensis	Shadblow Serviceberry	2" Cal. & 8' ht.	B&B
BN	10 EA.	Betula nigra	River Birch	2" Cal. & 8' ht.	B&B
SRI	20 EA.	Syringa reticulata 'Ivory Silk'	Ivory Silk Lilac	2" Cal. & 8' ht.	B&B
CCB	14 EA.	Cercis canadensis 'Burgandy Hart'	Burgandy Hart Redbud	2" Cal. & 8' ht.	B&B

EVERGREEN TREES

JCK	2 EA.	Juniperus chinensis 'Keteleeri'	Keteleeri Juniper	6' ht.	B&B
JVC	24 EA.	Juniperus virginiana 'Canaertii'	Canaert Juniper	6' ht.	B&B

SHRUBS

BGV	966 EA.	Buxus x 'Green Velvet'	Green Velvet Boxwood	5 gal.	Cont.
BSW	141 EA.	Buxus sinica var. 'insularis' 'Wintergreen'	Wintergreen Boxwood	5 gal.	Cont.
RAG	171 EA.	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant sumac	5 gal.	Cont.
SPM	30 EA.	Syringa patula 'Miss Kim'	Miss Kim Lilac	5 gal.	Cont.
SXP	27 EA.	Syringa x 'Penda'	Blooming Lilac	5 gal.	Cont.
VCK	44 EA.	Viburnum carlesii 'Korean Spice'	Koreanspice Viburnum	7 gal.	Cont.
VPS	26 EA.	Viburnum plicatum tomentosum 'Summer Snowflake'	Summer Snowflake Viburnum	7 gal.	Cont.
JHH	471 EA.	Juniperus horizontalis 'Hughes'	Hughes Juniper	5 gal.	Cont.



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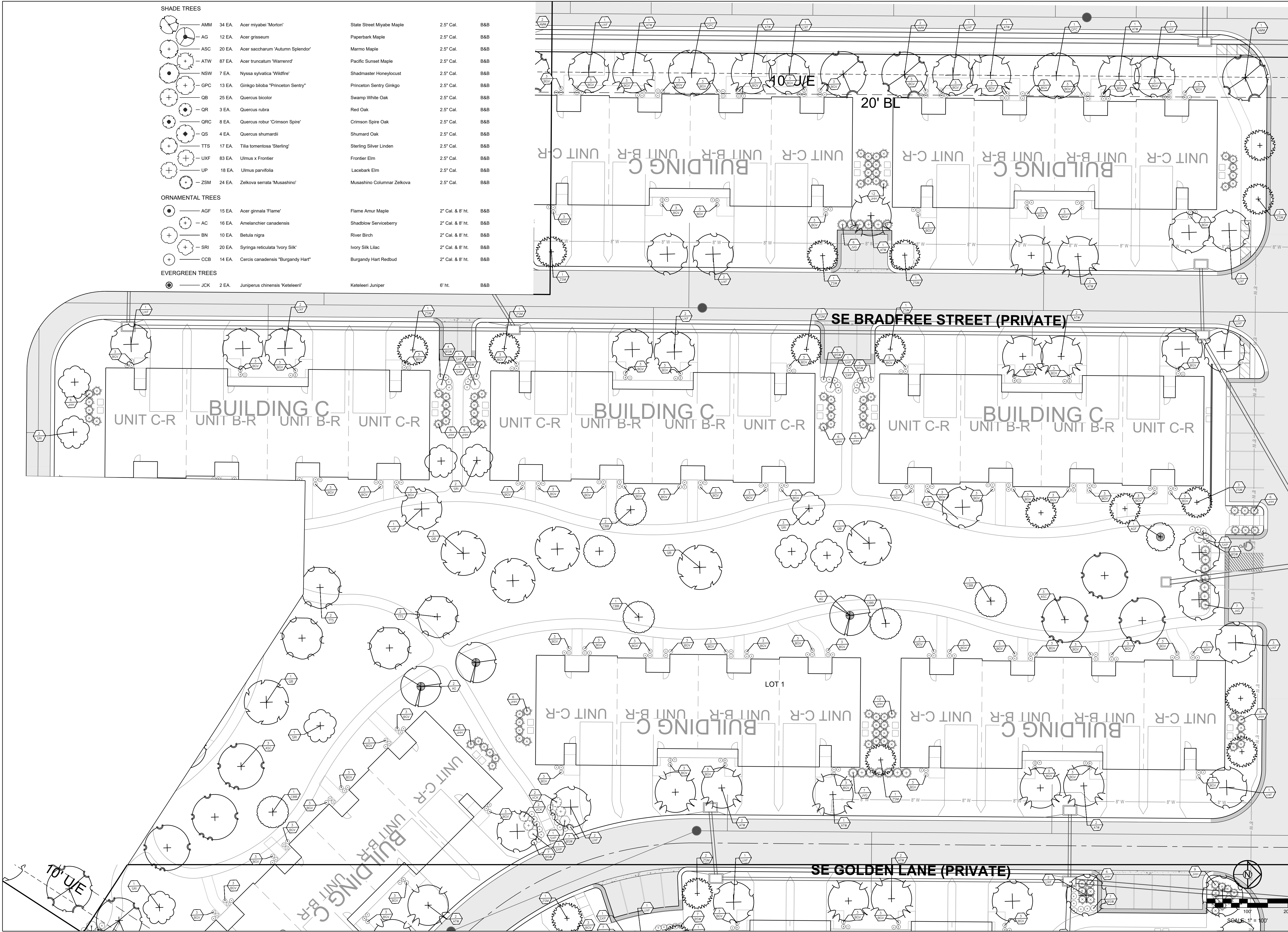
SCHLAGEL & ASSOCIATES, P.A.

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

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

LANDSCAPE
DETAIL PLAN

SHEET
L200



SHADE TREES

AMM	34 EA.	Acer miyabei 'Morton'	State Street Miyabe Maple	2.5" Cal.	B&B
AG	12 EA.	Acer griseum	Paperbark Maple	2.5" Cal.	B&B
ASC	20 EA.	Acer saccharum 'Autumn Splendor'	Marmo Maple	2.5" Cal.	B&B
ATW	87 EA.	Acer truncatum 'Warrend'	Pacific Sunset Maple	2.5" Cal.	B&B
NSW	7 EA.	Nyssa sylvatica 'Wildfire'	Shadmaster Honeylocust	2.5" Cal.	B&B
GPC	13 EA.	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	2.5" Cal.	B&B
QB	25 EA.	Quercus bicolor	Swamp White Oak	2.5" Cal.	B&B
QR	3 EA.	Quercus rubra	Red Oak	2.5" Cal.	B&B
QRC	8 EA.	Quercus robur 'Crimson Spire'	Crimson Spire Oak	2.5" Cal.	B&B
QS	4 EA.	Quercus shumardii	Shumard Oak	2.5" Cal.	B&B
TTS	17 EA.	Tilia tomentosa 'Sterling'	Sterling Silver Linden	2.5" Cal.	B&B
UXF	83 EA.	Ulmus x Frontier	Frontier Elm	2.5" Cal.	B&B
UP	18 EA.	Ulmus parvifolia	Lacebark Elm	2.5" Cal.	B&B
ZSM	24 EA.	Zelkova serrata 'Musashino'	Musashino Columnnar Zelkova	2.5" Cal.	B&B

ORNAMENTAL TREES

AGF	15 EA.	Acer ginnala 'Flame'	Flame Amur Maple	2" Cal. & 8' ht.	B&B
AC	16 EA.	Amelanchier canadensis	Shadblow Serviceberry	2" Cal. & 8' ht.	B&B
BN	10 EA.	Betula nigra	River Birch	2" Cal. & 8' ht.	B&B
SRI	20 EA.	Syringa reticulata 'Ivory Silk'	Ivory Silk Lilac	2" Cal. & 8' ht.	B&B
CCB	14 EA.	Cercis canadensis 'Burgandy Hart'	Burgandy Hart Redbud	2" Cal. & 8' ht.	B&B

EVERGREEN TREES

JCK	2 EA.	Juniperus chinensis 'Keteleeri'	Keteleeri Juniper	6' ht.	B&B
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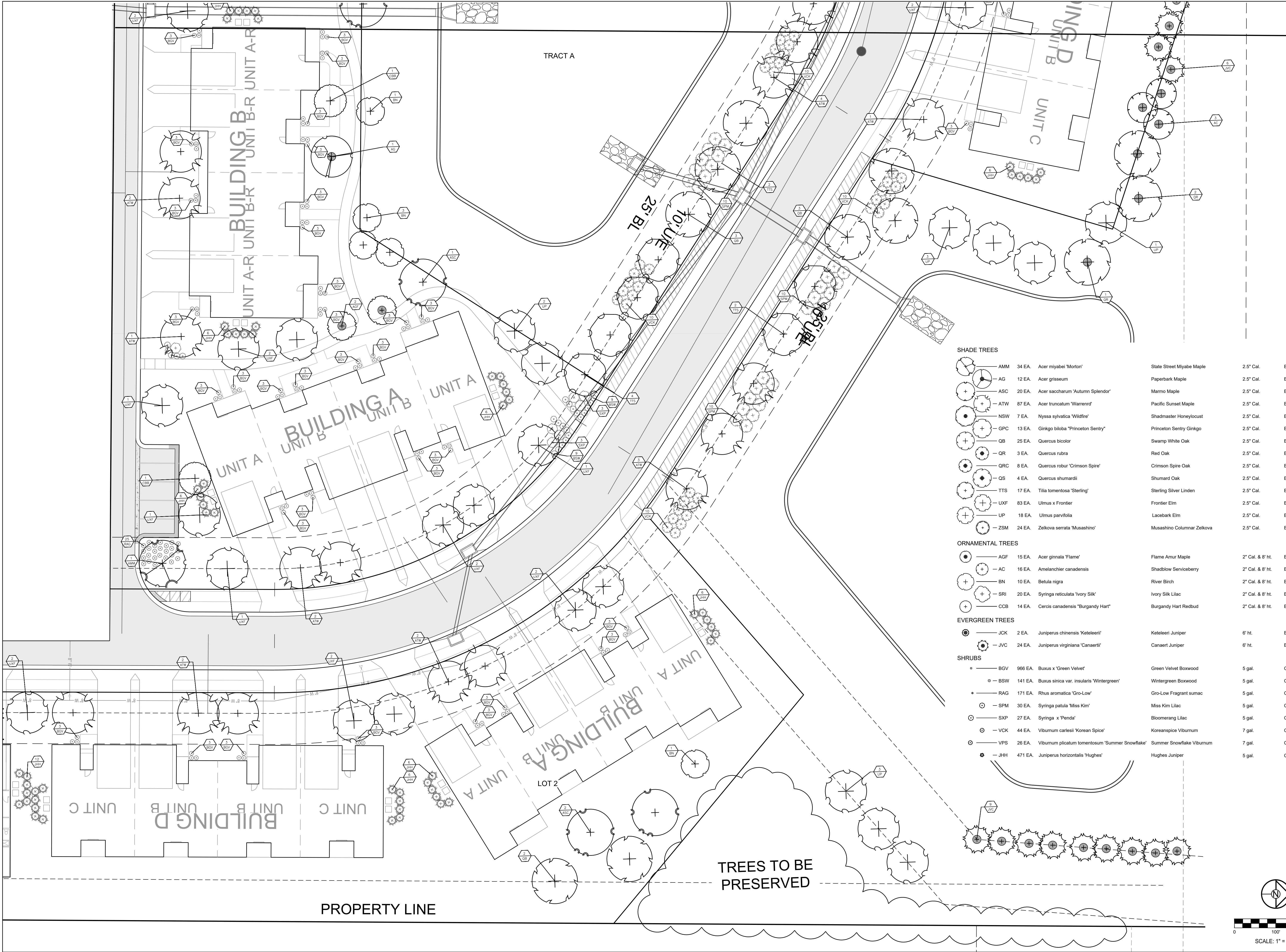
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SCHLAGEL & ASSOCIATES, P.A.

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

REVISION DATE	DESCRIPTION
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10/05/23	PER CITY COMMENTS
03/03/2023	DATE PREPARED
PROJ. NUMBER:	22-597

LANDSCAPE
DETAIL PLAN



PREPARED BY:

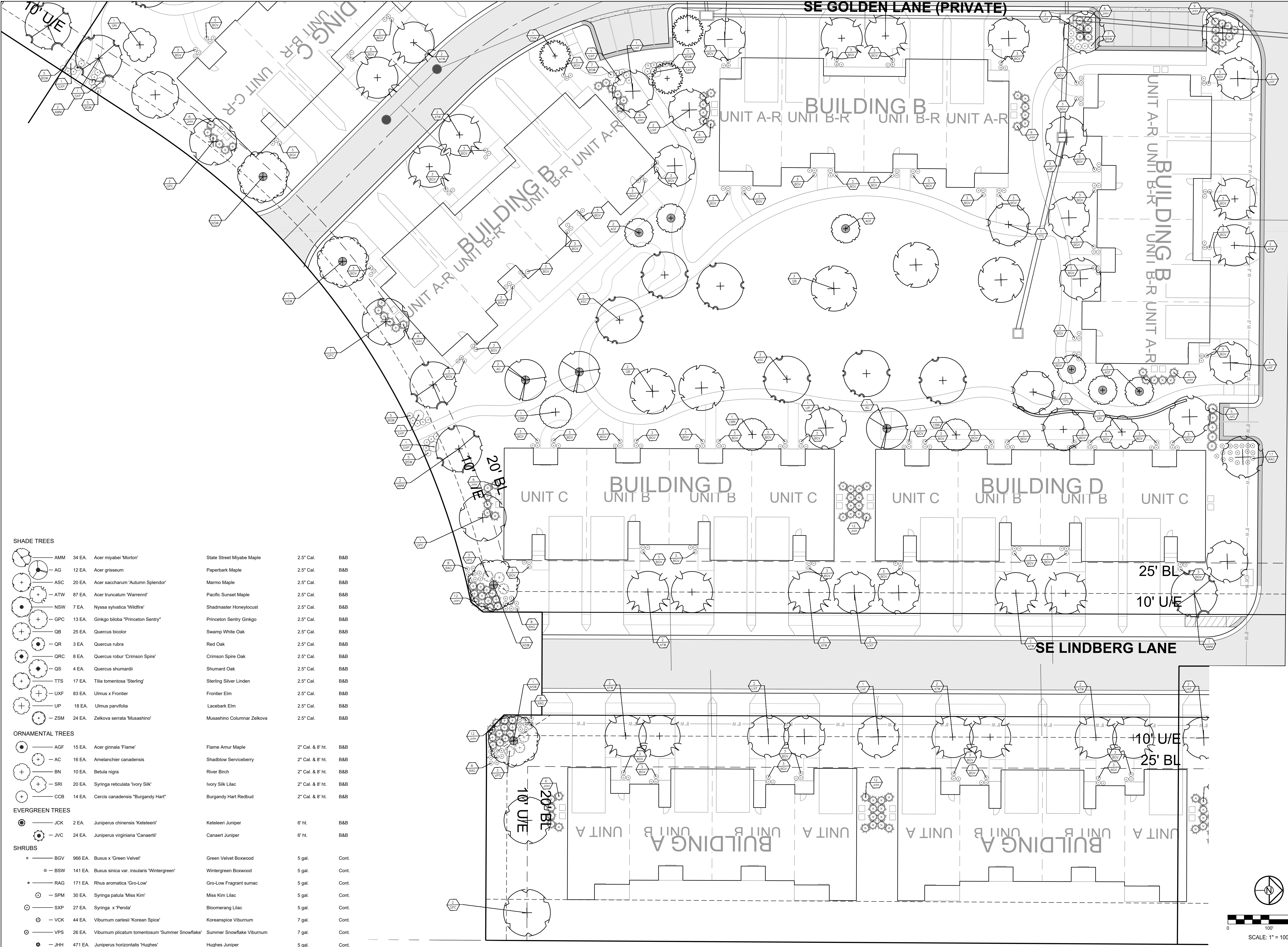
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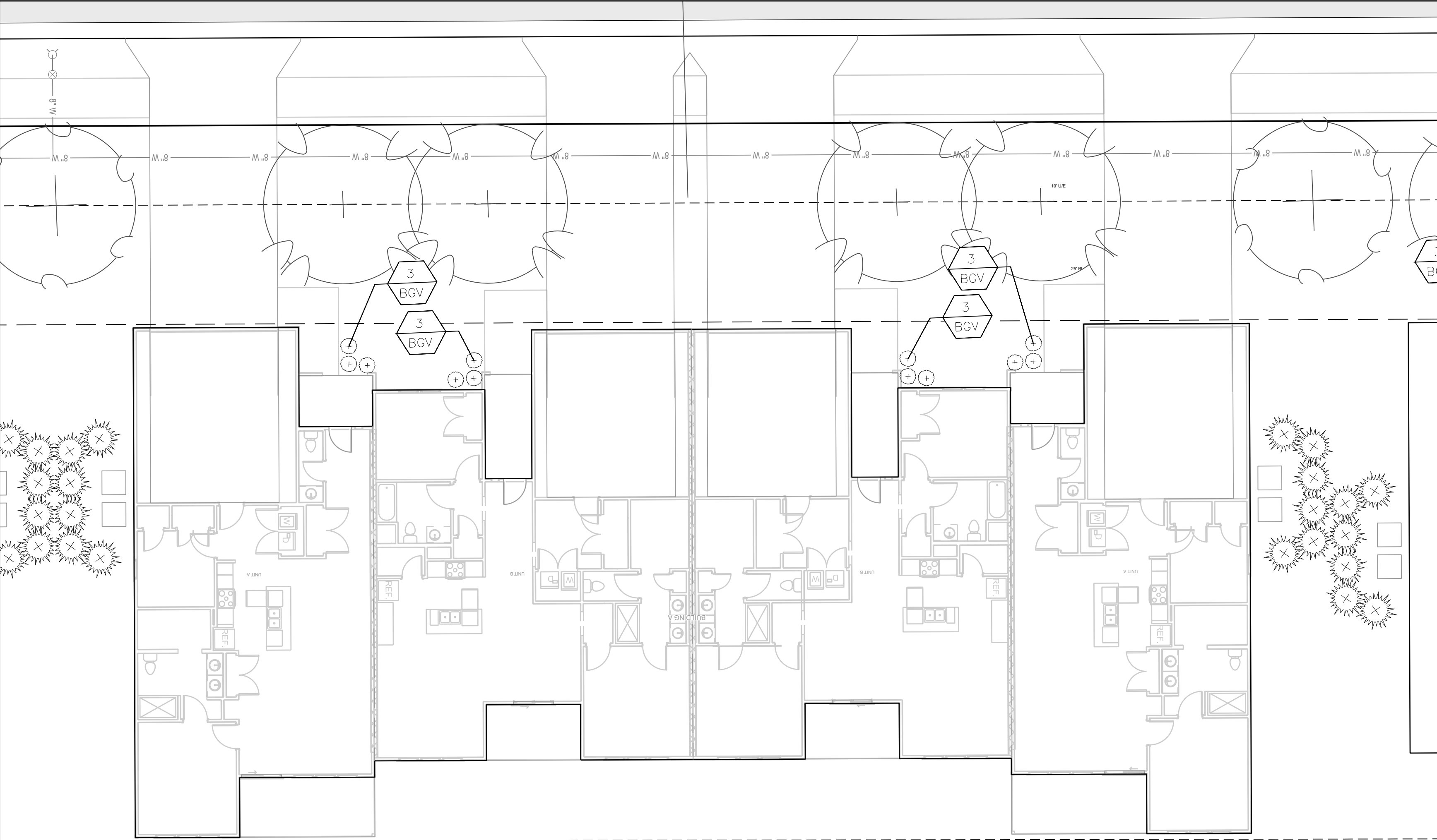
REUNION AT BLACKWELL
FINAL DEVELOPMENT PLAN
SE SHENANDOAH DRIVE LEE'S SUMMIT, MO

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03/03/2023	DATE PREPARED
22-597	PROJ. NUMBER

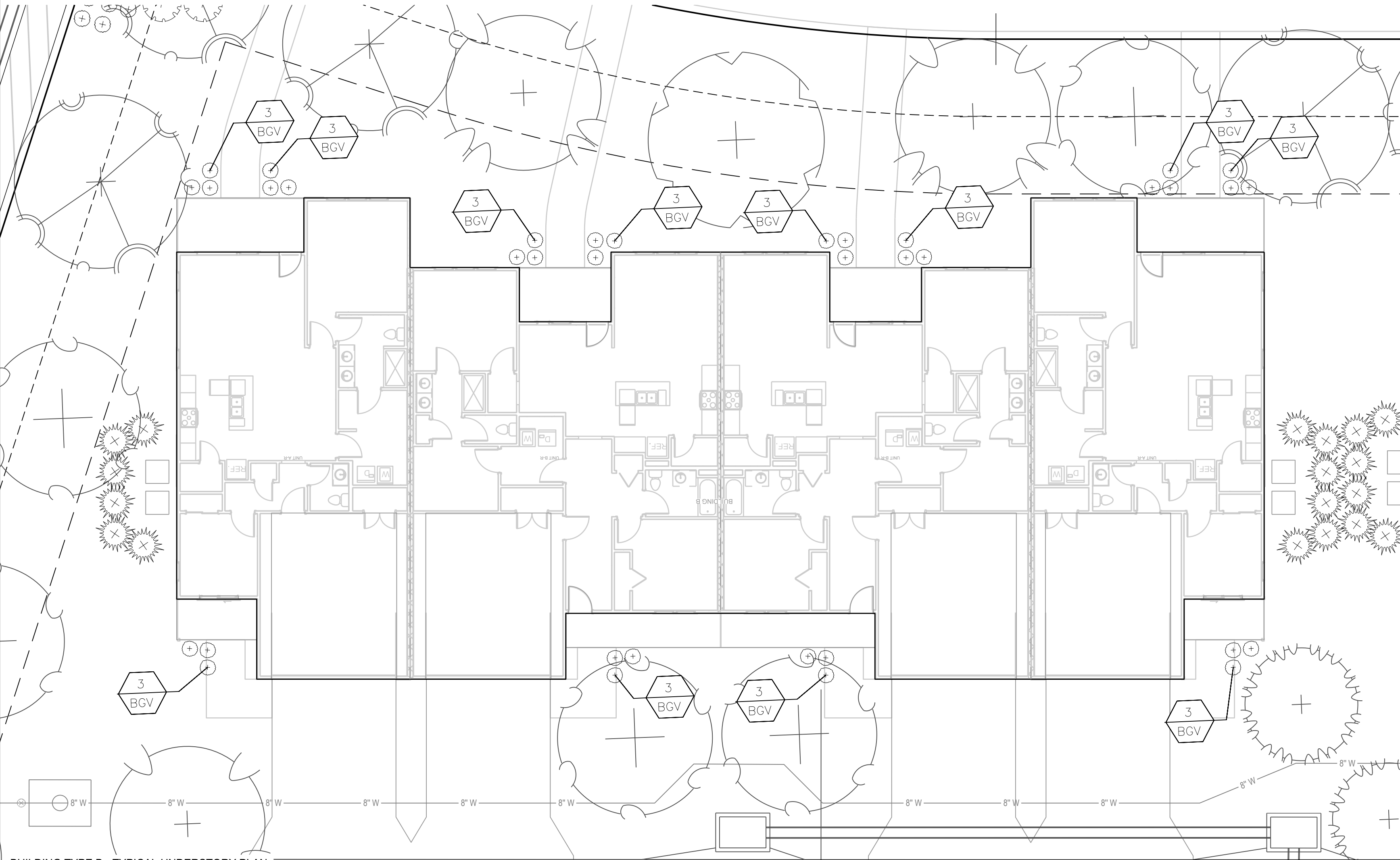
LANDSCAPE
DETAIL PLAN

SHEET
L203

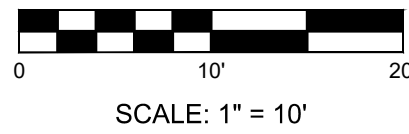




BUILDING TYPE A - TYPICAL UNDERSTORY PLAN



BUILDING TYPE B - TYPICAL UNDERSTORY PLAN



SHADE TREES					
	AMM	34 EA.	Acer miyabei 'Morton'	State Street Miyabe Maple	2.5" Cal.
	AG	12 EA.	Acer griseum	Paperbark Maple	2.5" Cal.
	ASC	20 EA.	Acer saccharum 'Autumn Splendor'	Marmo Maple	2.5" Cal.
	ATW	87 EA.	Acer truncatum 'Warrenrd'	Pacific Sunset Maple	2.5" Cal.
	NSW	7 EA.	Nyssa sylvatica 'Wildfire'	Shadmaster Honeylocust	2.5" Cal.
	GPC	13 EA.	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	2.5" Cal.
	QB	25 EA.	Quercus bicolor	Swamp White Oak	2.5" Cal.
	QR	3 EA.	Quercus rubra	Red Oak	2.5" Cal.
	QRC	8 EA.	Quercus robur 'Crimson Spire'	Crimson Spire Oak	2.5" Cal.
	QS	4 EA.	Quercus shumardii	Shumard Oak	2.5" Cal.
	TTS	17 EA.	Tilia tomentosa 'Sterling'	Sterling Silver Linden	2.5" Cal.
	UXF	83 EA.	Ulmus x Frontier	Frontier Elm	2.5" Cal.
	UP	18 EA.	Ulmus parvifolia	Lacebark Elm	2.5" Cal.
	ZSM	24 EA.	Zeikova serrata 'Musashino'	Musashino Columnar Zeikova	2.5" Cal.
ORNAMENTAL TREES					
	AGF	15 EA.	Acer ginnala 'Flame'	Flame Amur Maple	2" Cal. & 8' ht.
	AC	16 EA.	Amelanchier canadensis	Shadblow Serviceberry	2" Cal. & 8' ht.
	BN	10 EA.	Betula nigra	River Birch	2" Cal. & 8' ht.
	SRI	20 EA.	Syringa reticulata 'Ivory Silk'	Ivory Silk Lilac	2" Cal. & 8' ht.
	CCB	14 EA.	Cercis canadensis 'Burgandy Hart'	Burgandy Hart Redbud	2" Cal. & 8' ht.
EVERGREEN TREES					
	JCK	2 EA.	Juniperus chinensis 'Keteleerii'	Keteleeri Juniper	6' ht.
	JVC	24 EA.	Juniperus virginiana 'Canaertii'	Canaert Juniper	6' ht.
SHRUBS					
	BGV	966 EA.	Buxus x 'Green Velvet'	Green Velvet Boxwood	5 gal.
	BSW	141 EA.	Buxus sinica var. inularis 'Wintergreen'	Wintergreen Boxwood	5 gal.
	RAG	171 EA.	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant sumac	5 gal.
	SPM	30 EA.	Syringa patula 'Miss Kim'	Miss Kim Lilac	5 gal.
	SXP	27 EA.	Syringa x 'Penda'	Bloomerang Lilac	5 gal.
	VCK	44 EA.	Viburnum carlesii 'Korean Spice'	Koreanspice Viburnum	7 gal.
	VPS	26 EA.	Viburnum plicatum tomentosum 'Summer Snowflake'	Summer Snowflake Viburnum	7 gal.
	JHH	471 EA.	Juniperus horizontalis 'Hughes'	Hughes Juniper	5 gal.
	JVG	72 EA.	Juniperus virginiana 'Grey Owl'	Grey Owl Juniper	5 gal.

SCHLAGEL

ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS

14920 West 107th Street • Lenexa, Kansas 66215

(913) 492-5158 • Fax: (913) 492-8400

WWW.SCHLAGELASSOCIATES.COM

Missouri State Certificate of Authority

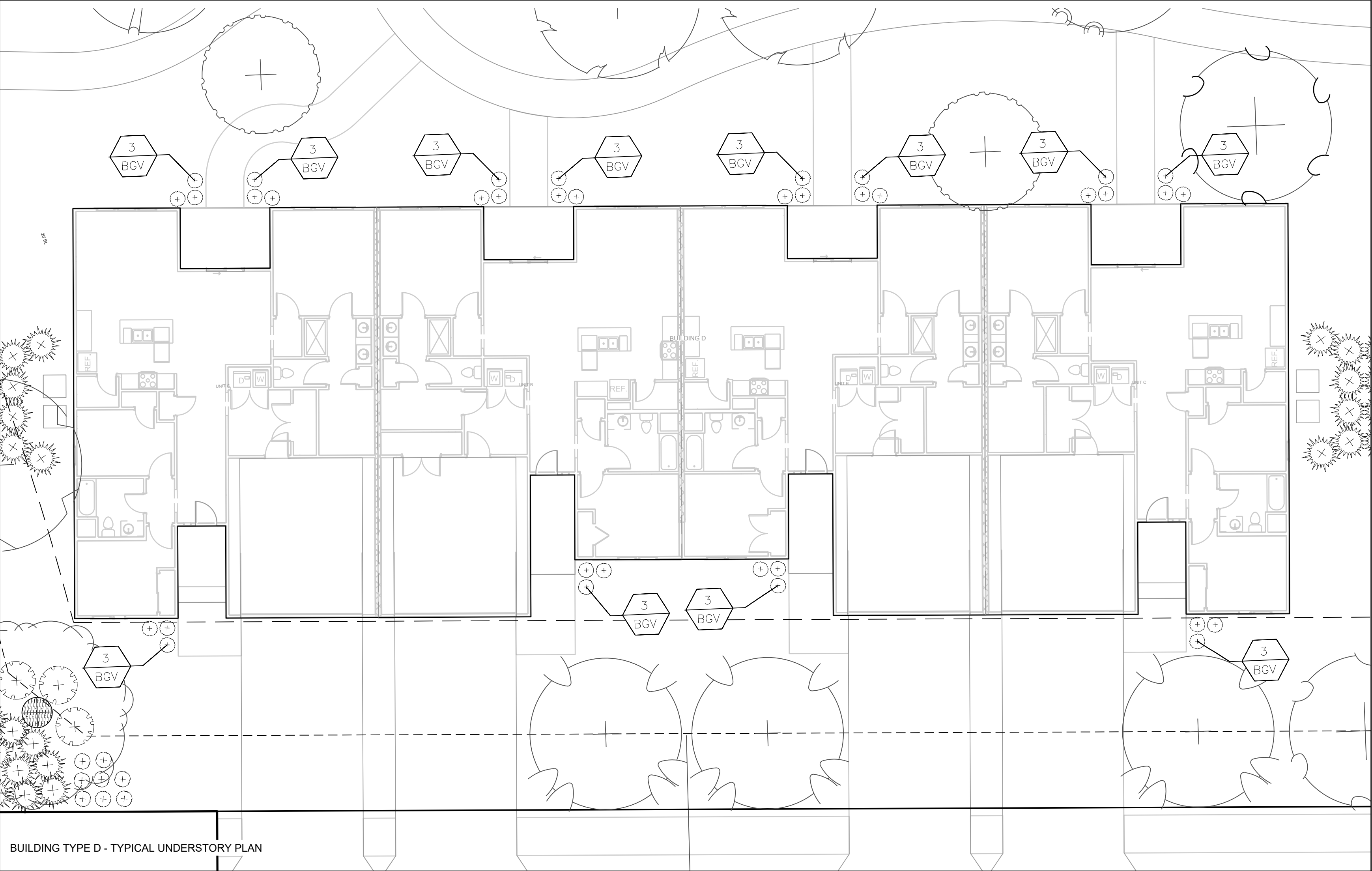
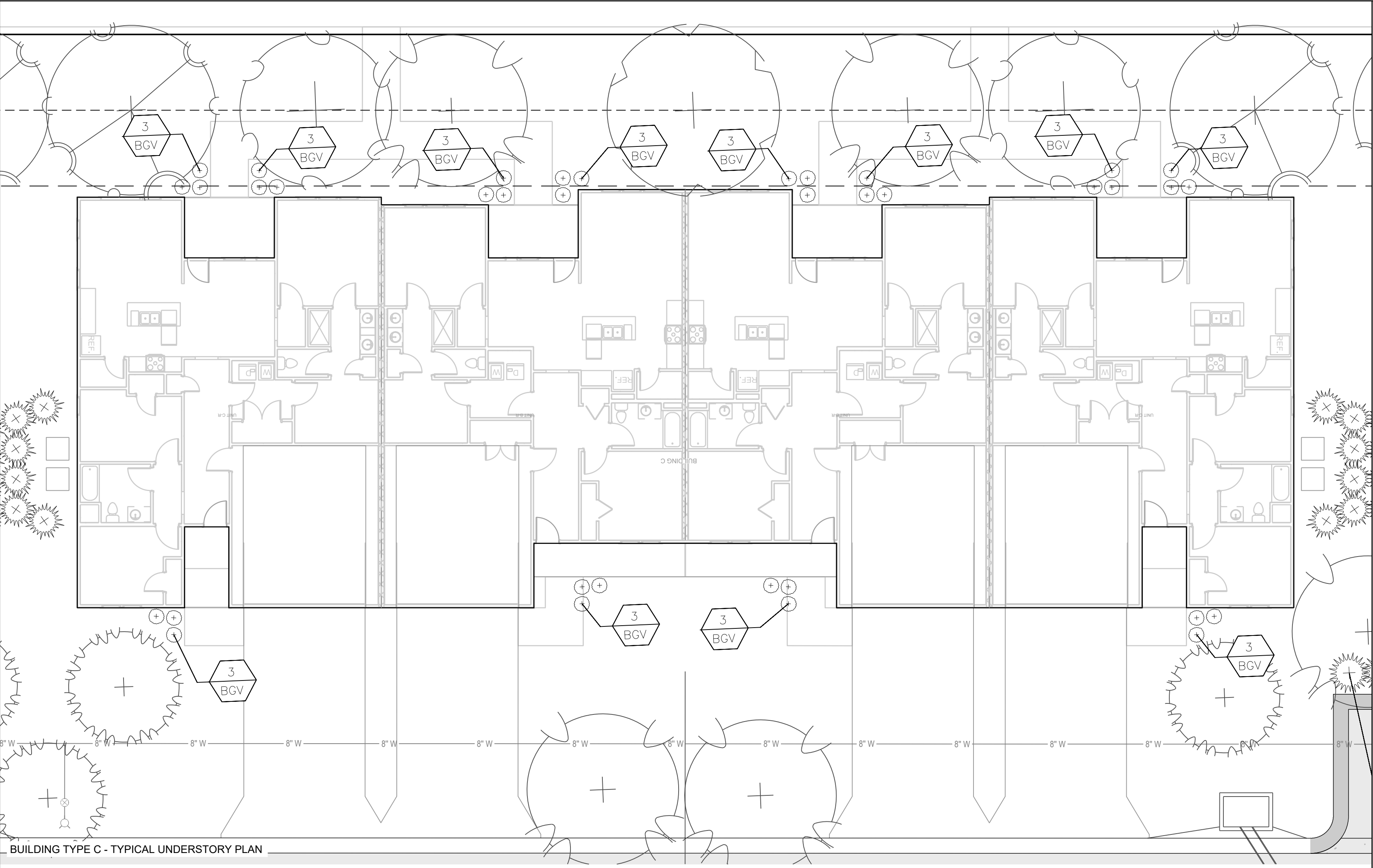
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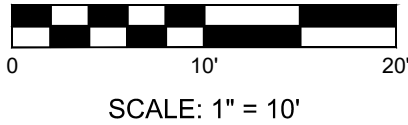
SCHLAGEL & ASSOCIATES, P.A.

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

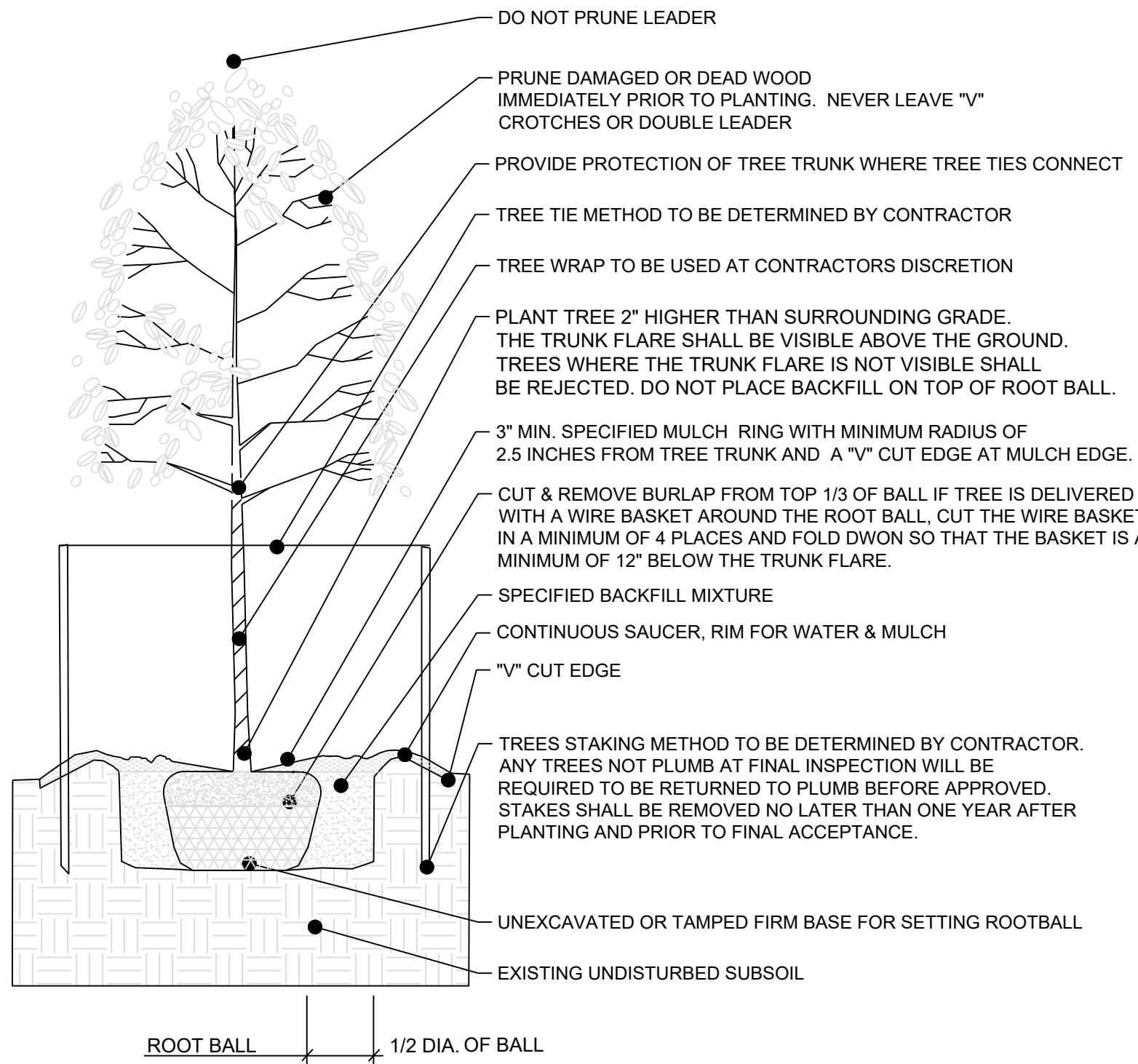
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		PER CITY COMMENTS	PER CITY COMMENTS	PER CITY COMMENTS	PER CITY COMMENTS
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MAB	08/24/23	1	2	3	4
	09/25/23	1	2	3	4
DATE PREPARED:	03/03/2023	1	2	3	4
	22-597	1	2	3	4
UNDERSTORY LANDSCAPE PLAN					
SHEET L205					



SHADE TREES					
	34 EA.	Acer miyabei 'Morton'	State Street Miyabe Maple	2.5" Cal.	B&B
	12 EA.	Acer griseum	Paperbark Maple	2.5" Cal.	B&B
	20 EA.	Acer saccharum 'Autumn Splendor'	Marmo Maple	2.5" Cal.	B&B
	87 EA.	Acer truncatum 'Warrenrd'	Pacific Sunset Maple	2.5" Cal.	B&B
	7 EA.	Nyssa sylvatica 'Wildfire'	Shadmaster Honeylocust	2.5" Cal.	B&B
	13 EA.	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	2.5" Cal.	B&B
	25 EA.	Quercus bicolor	Swamp White Oak	2.5" Cal.	B&B
	3 EA.	Quercus rubra	Red Oak	2.5" Cal.	B&B
	8 EA.	Quercus robur 'Crimson Spire'	Crimson Spire Oak	2.5" Cal.	B&B
	4 EA.	Quercus shumardii	Shumard Oak	2.5" Cal.	B&B
	17 EA.	Tilia tomentosa 'Sterling'	Sterling Silver Linden	2.5" Cal.	B&B
	83 EA.	Ulmus x Frontier	Frontier Elm	2.5" Cal.	B&B
	18 EA.	Ulmus parvifolia	Lacebark Elm	2.5" Cal.	B&B
	24 EA.	Zeikova serrata 'Musashino'	Musashino Columnar Zeikova	2.5" Cal.	B&B
ORNAMENTAL TREES					
	15 EA.	Acer ginnala 'Flame'	Flame Amur Maple	2" Cal. & 8' ht.	B&B
	16 EA.	Amelanchier canadensis	Shadblow Serviceberry	2" Cal. & 8' ht.	B&B
	10 EA.	Betula nigra	River Birch	2" Cal. & 8' ht.	B&B
	20 EA.	Syringa reticulata 'Ivory Silk'	Ivory Silk Lilac	2" Cal. & 8' ht.	B&B
	14 EA.	Cercis canadensis 'Burgandy Hart'	Burgandy Hart Redbud	2" Cal. & 8' ht.	B&B
EVERGREEN TREES					
	2 EA.	Juniperus chinensis 'Keteleerii'	Keteleeri Juniper	6' ht.	B&B
	24 EA.	Juniperus virginiana 'Canaertii'	Canaert Juniper	6' ht.	B&B
SHRUBS					
	966 EA.	Buxus x 'Green Velvet'	Green Velvet Boxwood	5 gal.	Cont.
	141 EA.	Buxus sinica var. insularis 'Wintergreen'	Wintergreen Boxwood	5 gal.	Cont.
	171 EA.	Rhus aromatica 'Gro-Low'	Gro-Low Fragrant sumac	5 gal.	Cont.
	30 EA.	Syringa patula 'Miss Kim'	Miss Kim Lilac	5 gal.	Cont.
	27 EA.	Syringa x 'Penda'	Bloomerang Lilac	5 gal.	Cont.
	44 EA.	Viburnum carlesii 'Korean Spice'	Koreanspice Viburnum	7 gal.	Cont.
	26 EA.	Viburnum plicatum tomentosum 'Summer Snowflake'	Summer Snowflake Viburnum	7 gal.	Cont.
	471 EA.	Juniperus horizontalis 'Hughes'	Hughes Juniper	5 gal.	Cont.
	72 EA.	Juniperus virginiana 'Grey Owl'	Grey Owl Juniper	5 gal.	Cont.

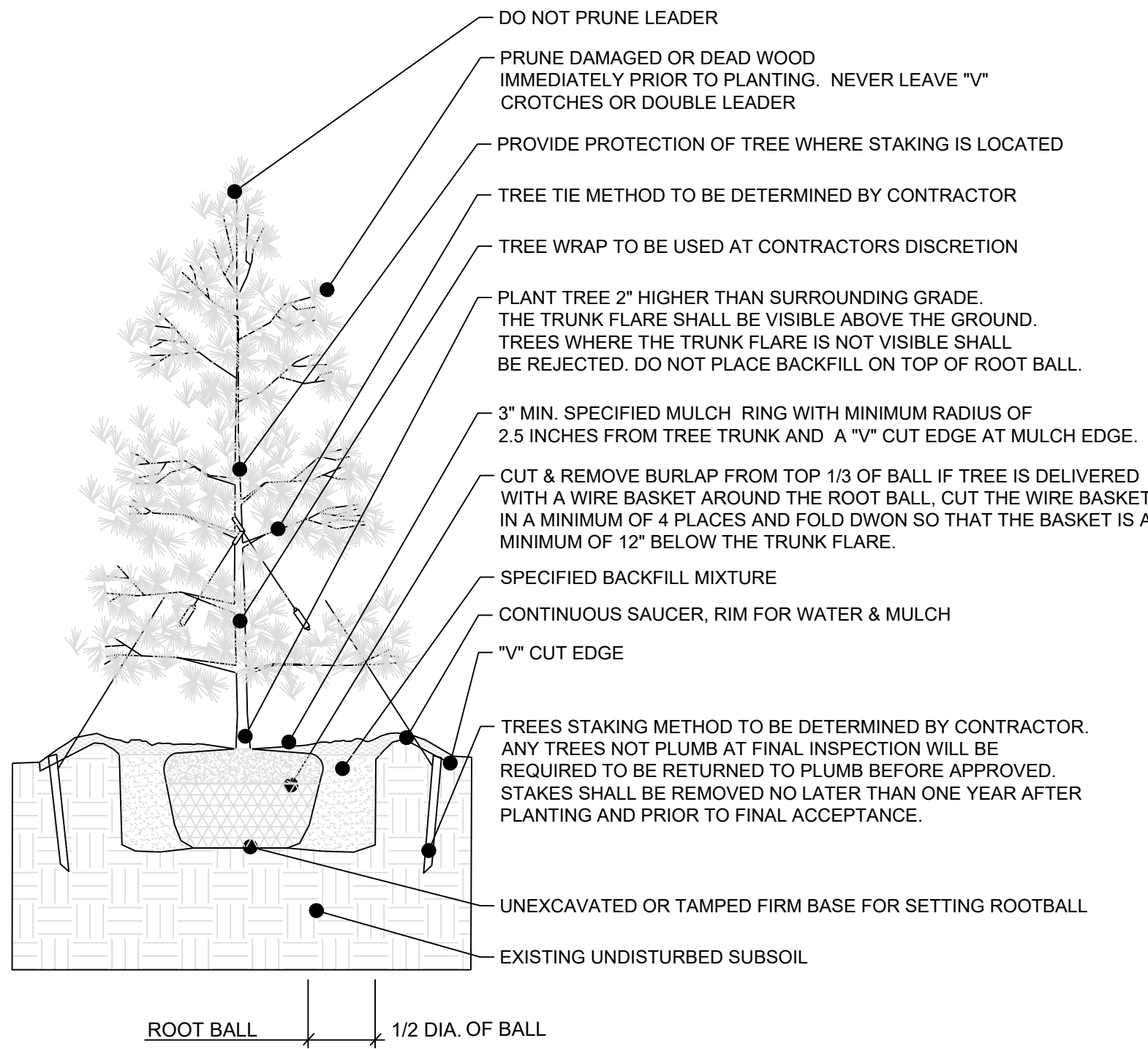


DRAWN BY:	REVISION DATE	DESCRIPTION			
		PER CITY COMMENTS	PER CITY COMMENTS	PER CITY COMMENTS	PER CITY COMMENTS
TRC MAB DATE PREPARED: 03/03/2023 PROJ. NUMBER: 22-597	1	05/05/23	1	05/05/23	1
	2	06/27/23	2	06/27/23	2
	3	08/24/23	3	08/24/23	3
	4	09/25/23	4	09/25/23	4
UNDERSTORY LANDSCAPE PLAN		SHEET			
		L206			



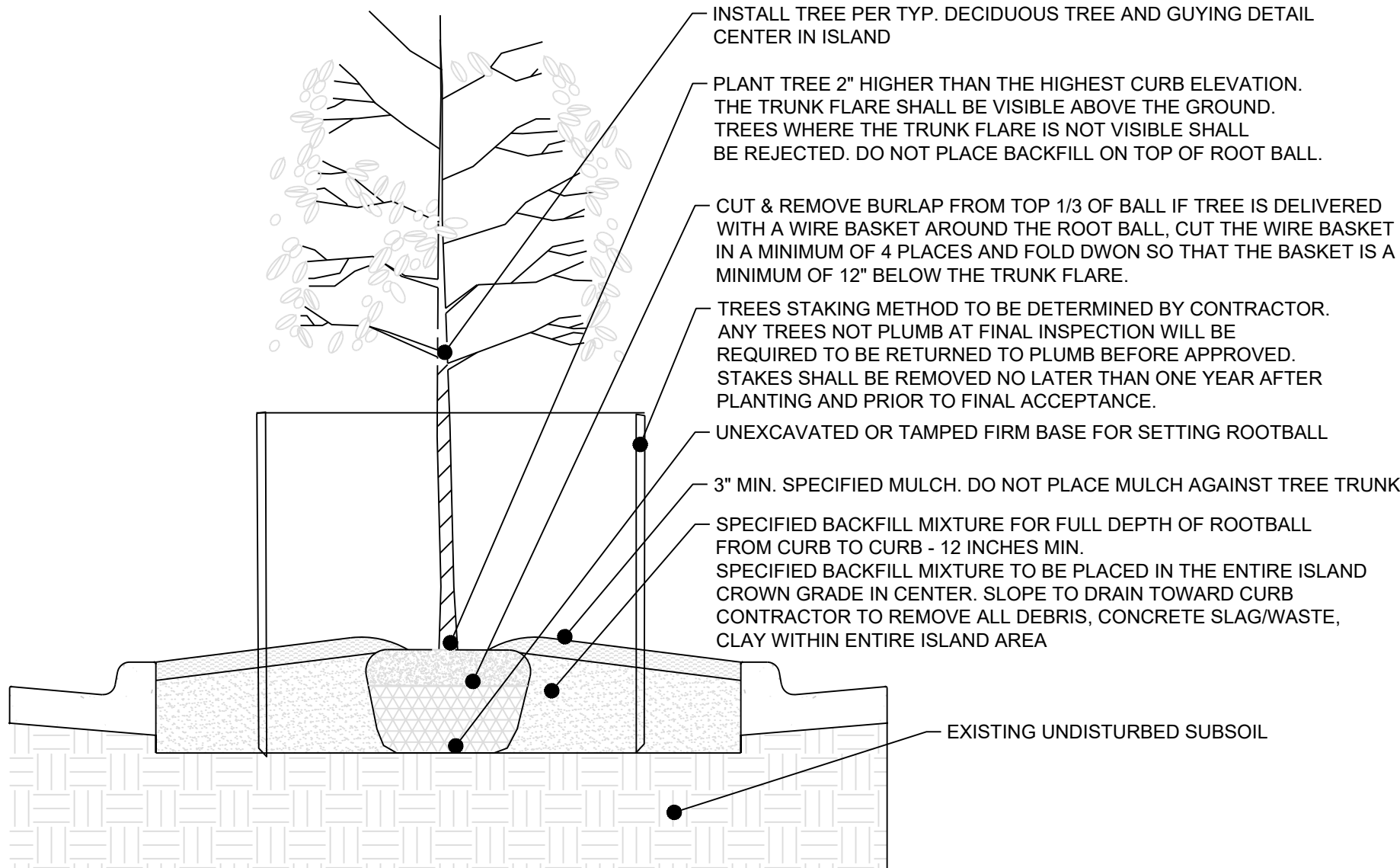
TYP. DECIDUOUS PLANTING & GUYING

NO SCALE



TYP. EVERGREEN PLANTING & GUYING

NO SCALE



TYP. PARKING LOT ISLAND PLANTING

NO SCALE

Shade trees that grow to be large shall have one relatively straight central leader (Figure 1). Heading the tree is acceptable provided the central leader is reestablished in the nursery.

Main branches (Figure 2) shall be well distributed along the central leader, not clustered together. They shall form a balanced crown appropriate for the cultivar or species.

The diameter of branches (Figure 3) that grow from the central leader, or trunk, shall be no larger than two-thirds (one-half is preferred) the diameter of the trunk measured just above the branch.

The largest branches shall be free of bark inclusions that extend into the branch union (Figure 4 A and B).

Small-diameter branches (Figure 5, left), particularly on trees less than 1 inch caliper, should be present along the lower trunk below the lowest main branch. These branches shall be no larger than 3/8 inch in diameter.

The trunk shall be free of wounds, sunburned areas, conks (fungal fruiting bodies), wood cracks, bleeding areas, signs of boring insects, cankers, or lesions. Properly made recent or closed pruning cuts are acceptable.

The trunk caliper (diameter) and taper (Figure 6) shall be sufficient so that the tree remains vertical without a stake.

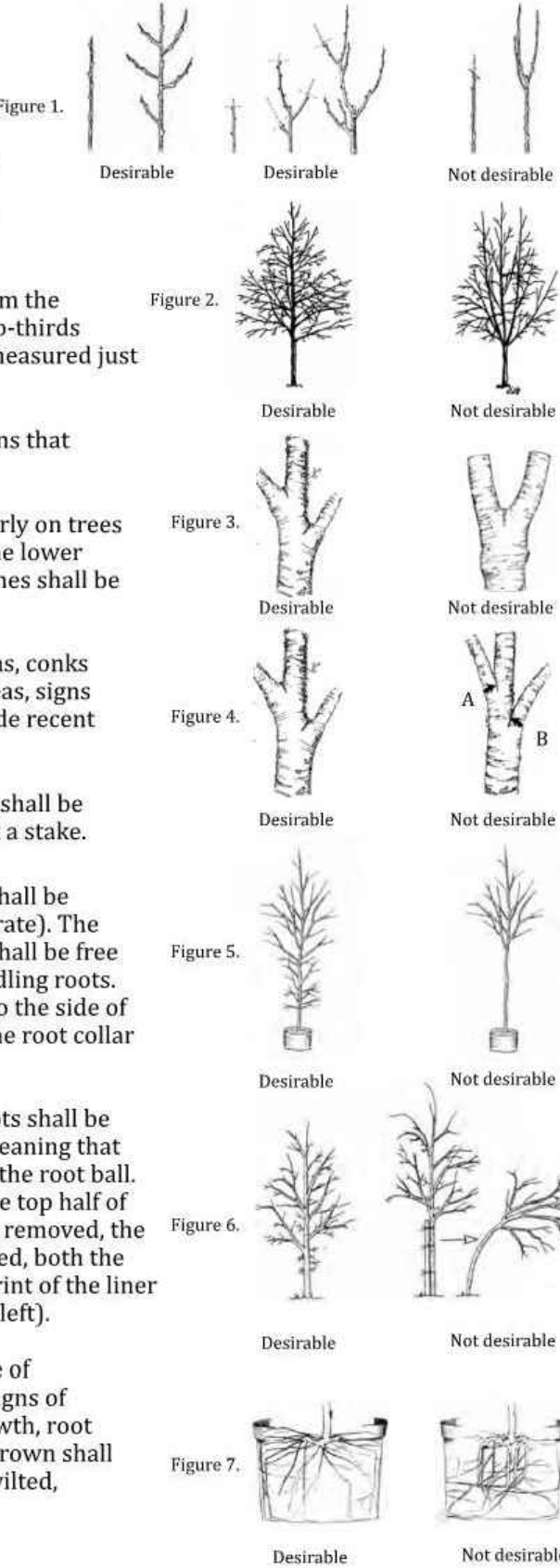
The root collar (the uppermost roots) (Figure 7) shall be within the upper 2 inches of the soil media (substrate). The root collar and the inside portion of the root ball shall be free of defects, including circling, kinked, and stem-girdling roots. Roots at the surface should grow mostly straight to the side of the container. You may need to remove soil near the root collar to inspect for root defects.

The tree shall be well rooted in the soil media. Roots shall be uniformly distributed throughout the container, meaning that roots should not be concentrated at the bottom of the root ball. Some roots should contact the container wall in the top half of the root ball (Figure 7, left). When the container is removed, the root ball shall remain intact. When the trunk is lifted, both the trunk and root system shall move as one. The imprint of the liner or smaller container shall not be visible (Figure 7, left).

The root ball shall be moist throughout at the time of inspection and delivery. The roots shall show no signs of excess soil moisture as indicated by poor root growth, root discoloration, distortion, death, or foul odor. The crown shall show no signs of moisture stress as indicated by wilted, shriveled, or dead leaves or branch dieback.

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NOTES:

- UTILITY INFORMATION SHOWN IS DESIGNED LOCATION OR LOCATIONS BASED ON UTILITY LOCATES. AS BUILT LOCATIONS MAY VARY. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO COMMENCING LANDSCAPE INSTALLATION. NOTIFY THE LANDSCAPE ARCHITECT OF ANY CONFLICTS OR OBSTRUCTIONS.
- QUANTITIES INDICATED ON THE PLAN ARE FOR CONVENIENCE ONLY. CONTRACTOR SHALL VERIFY ALL PLANT QUANTITIES PRIOR TO PLANTING. NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES. THE PLAN QUANTITIES AND NUMBER OF SYMBOLS SHALL SUPERSEDE QUANTITIES IN THE SCHEDULE.
- ALL PLANT MATERIAL SHALL COMPLY WITH CITY STANDARDS AND ANSI A60.1 THE AMERICAN STANDARD FOR NURSERY STOCK.
- ALL TREES SHALL MEET THE SIZE REQUIREMENTS OF CITY ORDINANCE. ALL TREES SHALL BE CALLIPERED AND UNDERSIZED TREES SHALL BE REJECTED.
- ALL SHRUBS TO BE UTILIZED FOR SCREENING SHALL BE 24" HEIGHT AT TIME OF PLANTING.
- ALL PLANTING BEDS CONTAINING SHRUBS, GROUND COVER, PERENNIALS, ANNUALS SHALL BE IN A PLANTING BED WITH 3" MIN. DEPTH OF MULCH AND A "V" CUT EDGE.
- ALL TREES SHALL HAVE A MIN. 3 FT. DIA. AREA THAT HAS 3" MIN. DEPTH OF WOOD MULCH.
- ALL AREAS BETWEEN THE APARTMENT BUILDING AND THE SIDE WALK FROM THE DRIVEWAY TO THE FRONT DOORS SHALL BE MULCHED.
- THE SMALL ISLANDS BETWEEN THE APARTMENT BUILDING DRIVEWAYS SHALL CONTAIN 2" COBBLE ROCK.
- ALL TURF AREAS SHALL BE SODDED UNLESS INDICATED ON THE PLANS.
- ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN SHALL REQUIRE WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT AND THE CITY. PRIOR TO INSTALLATION.
- THE LANDSCAPE ARCHITECT AND OWNER SHALL APPROVE GRADES AND CONDITION OF SITE PRIOR TO SODDING OPERATIONS.
- INSTALLATION AND MAINTENANCE OF LANDSCAPING SHALL COMPLY WITH THE CITY STANDARDS.
- ALL PLANT MATERIAL SHALL BE INSTALLED TO ALLOW A MINIMUM CLEARANCE BETWEEN PLANT AND ADJACENT PAVEMENT OF 1 FT. FOR PERENNIALS AND GROUND COVER AND 1.5 FT. FOR SHRUBS. A 2 FT. CLEARANCE (4 FEET FROM BACK OF CURB TO THE CENTER OF SHRUB) FOR CAR OVERHANG IS REQUIRED AT ALL PARKING ISLANDS AND PERIMETERS.
- AFTER COMPLETE INSTALLATION OF ALL PLANT MATERIAL AND SOD THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT THAT THE WORK IS COMPLETE AND READY FOR REVIEW. THE LANDSCAPE ARCHITECT SHALL REVIEW THE LANDSCAPE INSTALLATION TO DETERMINE COMPLIANCE WITH THE APPROVED PLANS. WHEN THE LANDSCAPE INSTALLATION MEETS THE REQUIREMENTS OF THE APPROVED PLAN, THE LANDSCAPE ARCHITECT SHALL PROVIDE A SIGNED AND SEALED LETTER TO THE CITY STATING THAT ALL LANDSCAPE PLANTINGS HAVE BEEN INSTALLED PER THE APPROVED PLAN.
- AN IRRIGATION SYSTEM OR ROSE BIBS MUST BE WITHIN 100 FEET OF ANY LANDSCAPE AREA IS REQUIRED BY CODE. CONTRACTOR TO PROVIDE IRRIGATION/WATERING PLAN AS DESIGN BUILD.
- IN THE EVENT OF WORK IN OR ON THE SANITARY MAIN, ANY TREES OR PLANTINGS PLACED WITHIN THE SEWER EASEMENT MAY BE REMOVED WITHOUT REPLACEMENT OR COMPENSATION THERE-OF AND SHALL BE REPLACED BY THE PROPERTY OWNER AS REQUIRED BY THE CITY.
- ALL LANDSCAPE PLANTINGS AND LAWN AREAS SHALL BE MAINTAINED AS REQUIRED BY CITY CODE. ALL LANDSCAPE PLANTING AND TURF AREAS WITHIN THE RIGHT OF WAY SHALL BE MAINTAINED BY THE ADJACENT OWNER AS REQUIRED BY THE CITY CODE.
- LANDSCAPING ADJACENT TO THE FIRE DEPARTMENT CONNECTION SHALL ALLOW FOR UNOBSTRUCTED ACCESS TO THE CONNECTION. WITH NO SHRUBS/TREES WITHIN A 3 FOOT RADIUS OF THE CONNECTION.

- All trees shall comply with State and Federal regulations. Trees should be obtained from local sources but must meet the quality guidelines herein. Trees transported from out of the region shall meet all State and Federal regulations and be certified to be disease and insect free.
- Provide healthy stock, grown in a nursery and reasonably free of die-back, disease, insects, eggs, bores, and larvae. At the time of planting all plants shall have a root system, stem, and branch form that will not restrict normal growth, stability and health for the expected life of the plant.
- All trees shall be healthy with the color, shape, size and distribution of trunk, stems, branches, buds and leaves normal to the plant type specified. Tree quality above the soil line shall comply with the following:
 - Main branches shall be distributed along the central leader not clustered together. Potential main branches shall be evenly spaced and have appropriate space between them. They shall form a balanced crown appropriate for the cultivar/species.
 - Branch diameter shall be no larger than two-thirds (one-half is preferred) the diameter of the central leader measured 1 inch above the branch union.
 - The attachment of the largest branches (scaffold branches) shall be free of included bark.
 - Branches shall be distributed radially around and vertically along the trunk, forming a generally symmetrical crown typical for the species.
 - The attachment of scaffold branches shall be free of included bark.
- Branch structure: The better quality, large-maturing shade trees (lower extreme left) have all branches less than about two-thirds the trunk diameter. Poor quality shade trees (lower left center) have larger upright branches. Trees such as crape myrtle and other small-maturing trees can have several trunks. Trees with extensive defects in branches such as cracks and included bark (lower right) represent lesser quality than trees free of these potential problems. Included bark can be seen between the two arrows below. Branches with bark inclusions are weakly attached to the trunk and can split easily.
- Evergreen branch structure: The branch pattern should be dense, symmetrical and the branch stems should be evenly spaced completely around the trunk. The branches shall extend to within 12 inches of the ground and be along the full length of the trunk. Trees which are not symmetrical or that have an "open area" will be rejected. For structural integrity on evergreen trees, all side branches should be less than half the diameter of the adjacent trunk (less than one-third is preferred).
- Trunk: The tree trunk shall be relatively straight, vertical, and free of wounds that penetrate to the wood (properly made pruning cuts, closed or not, are acceptable and are not considered wounds), sunburned areas, conks (fungal fruiting bodies), wood cracks, sap leakage, signs of boring insects, galls, cankers, girdling ties, or lesions (mechanical injury).
- Evergreen tree trunk: Evergreen trees shall have a single trunk that is straight, vertical, and free of wounds that penetrate to the wood (properly made pruning cuts, closed or not, are acceptable and are not considered wounds), sunburned areas, conks (fungal fruiting bodies), wood cracks, sap leakage, signs of boring insects, galls, cankers, girdling ties, or lesions (mechanical injury). Codominant trunks (trunks of similar size) will not be accepted.
- Temporary branches, unless otherwise specified, can be present along the lower trunk below the lowest main (scaffold) branch, particularly for trees less than 1 inch in caliper. These branches should be no greater than 3/8-inch diameter. Clear trunk should be no more than 40% of the total height of the tree.
- Central Leader: **Trees shall have a single(one), relatively straight central leader** and tapered trunk, free of co-dominant stems and vigorous, upright branches that compete with the central leader. Preferably, the central leader should not have been headed. However, in cases where the original leader has been removed, an upright branch at least 1/2 (one-half) the diameter of the original leader just below the pruning point shall be present. All trees are assumed to have one central leader trees unless a different form is specified in the plant list or drawings. If the central leader is broken or damaged during delivery or installation the tree shall be rejected and removed from the site. If the central leader dies within the warranty period the tree shall be replaced at the end of the warranty period.
- All graft unions, where applicable, shall be completely closed without visible sign of graft rejection. All grafts shall be visible above the soil line.
- Trunk caliper and taper shall be sufficient so that the lower five feet of the trunk remains vertical without a stake. Auxiliary stake may be used to maintain a straight leader in the upper half of the tree.
- Plant roots shall be normal to the plant type specified. Root observations shall take place without impacting tree health. Root quality at or below the soil line shall comply with the project Root Acceptance details and the following:
 - The roots shall be reasonably free of scrapes, broken or split wood.
 - The root system shall be reasonably free of injury from biotic (e.g., insects and pathogens) and abiotic (e.g., herbicide toxicity and salt injury) agents. Wounds resulting from root pruning used to produce a high quality root system are not considered injuries.
 - A minimum of three structural roots reasonably distributed around the trunk (not clustered on one side) shall be found in each plant. Root distribution shall be uniform throughout the root ball, and growth shall be appropriate for the species.
- Plants with structural roots on only one side of the trunk (J roots) shall be rejected.
- The root collar shall be within the upper 1 inch of the substrate/soil. Two structural roots shall reach the side of the root ball near the top surface of the root ball. The grower may request a modification to this requirement for species with roots that rapidly descend, provided that the grower removes all stem girdling roots above the structural roots across the top of the root ball. Any excess soil shall be removed from the root ball so that the root flare is visible as indicated in the "Planting Depth Detail". The root collar shall be visible above the mulch layer.
- The root system shall be free of stem girdling roots over the root collar or kinked roots from nursery production practices.
- Plant Grower Certification: The final plant grower shall be responsible to have determined that the plants have been root pruned at each step in the plant production process to remove stem girdling roots and kinked roots, or that the previous production system used practices that produce a root system throughout the root ball that meets these specifications. Regardless of the work of previous growers, the plant's root system shall be modified at the final production stage, if needed, to produce the required plant root quality. The final grower shall certify in writing that all plants are reasonably free of stem girdling and kinked roots as defined in this specification, and that the tree has been grown and harvested to produce a plant that meets these specifications.
- At time of observations and delivery, the root ball shall be moist throughout. Roots shall not show signs of excess soil moisture conditions as indicated by stunted, discolored, distorted, or dead roots.

PREPARED BY:

SCHLAGEL & ASSOCIATES, P.A.

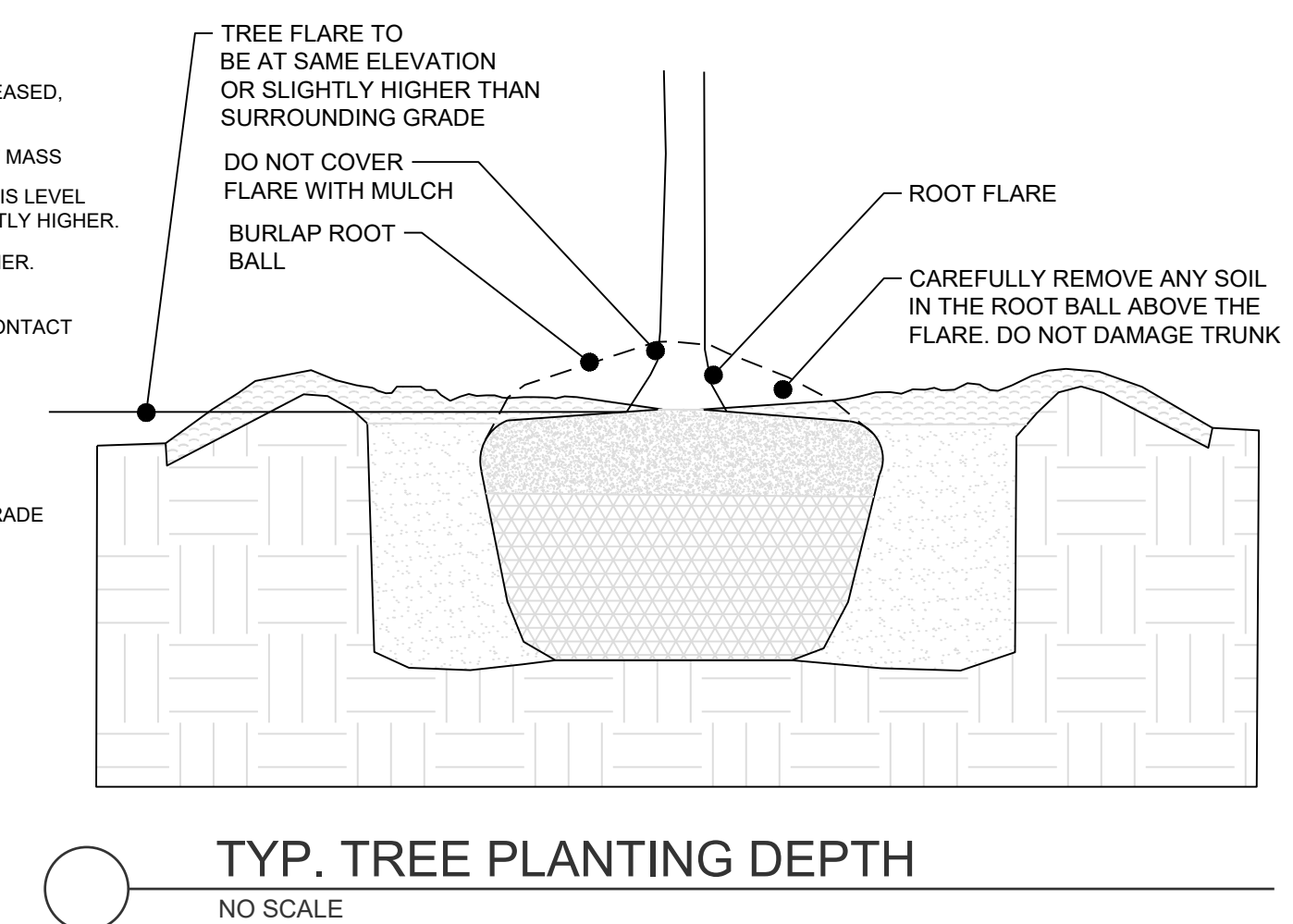
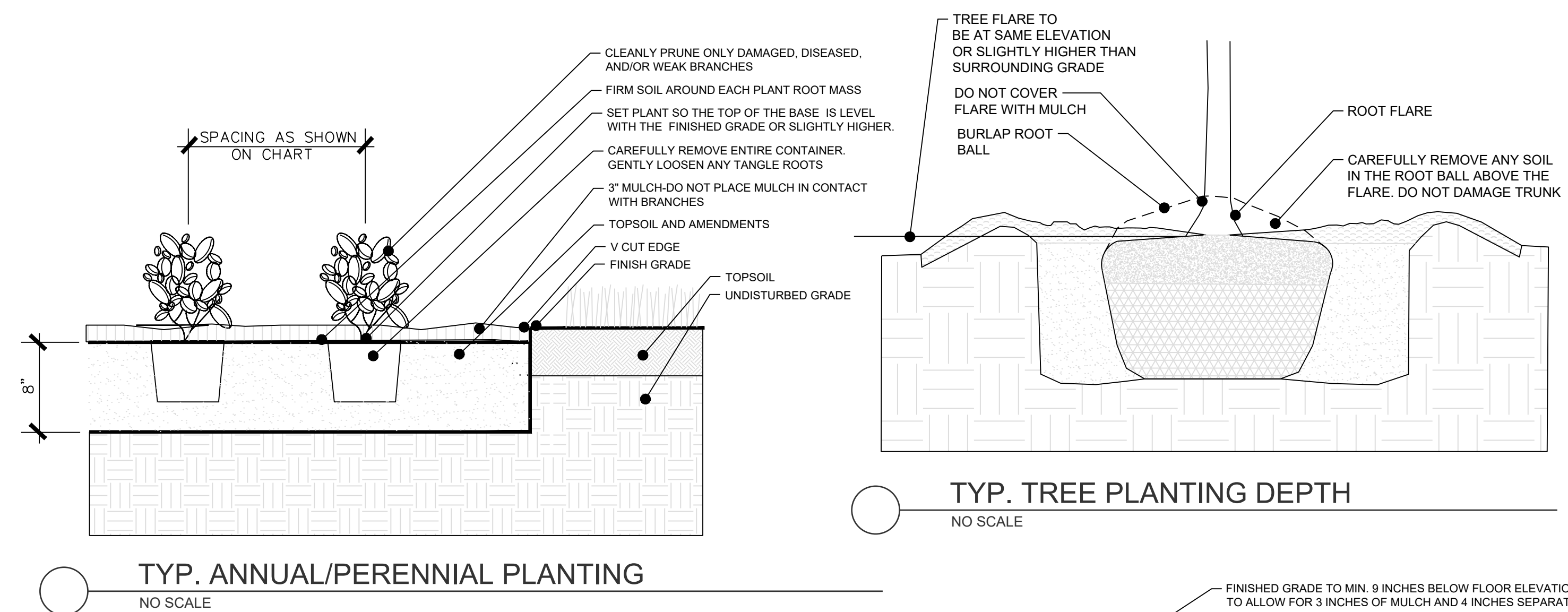
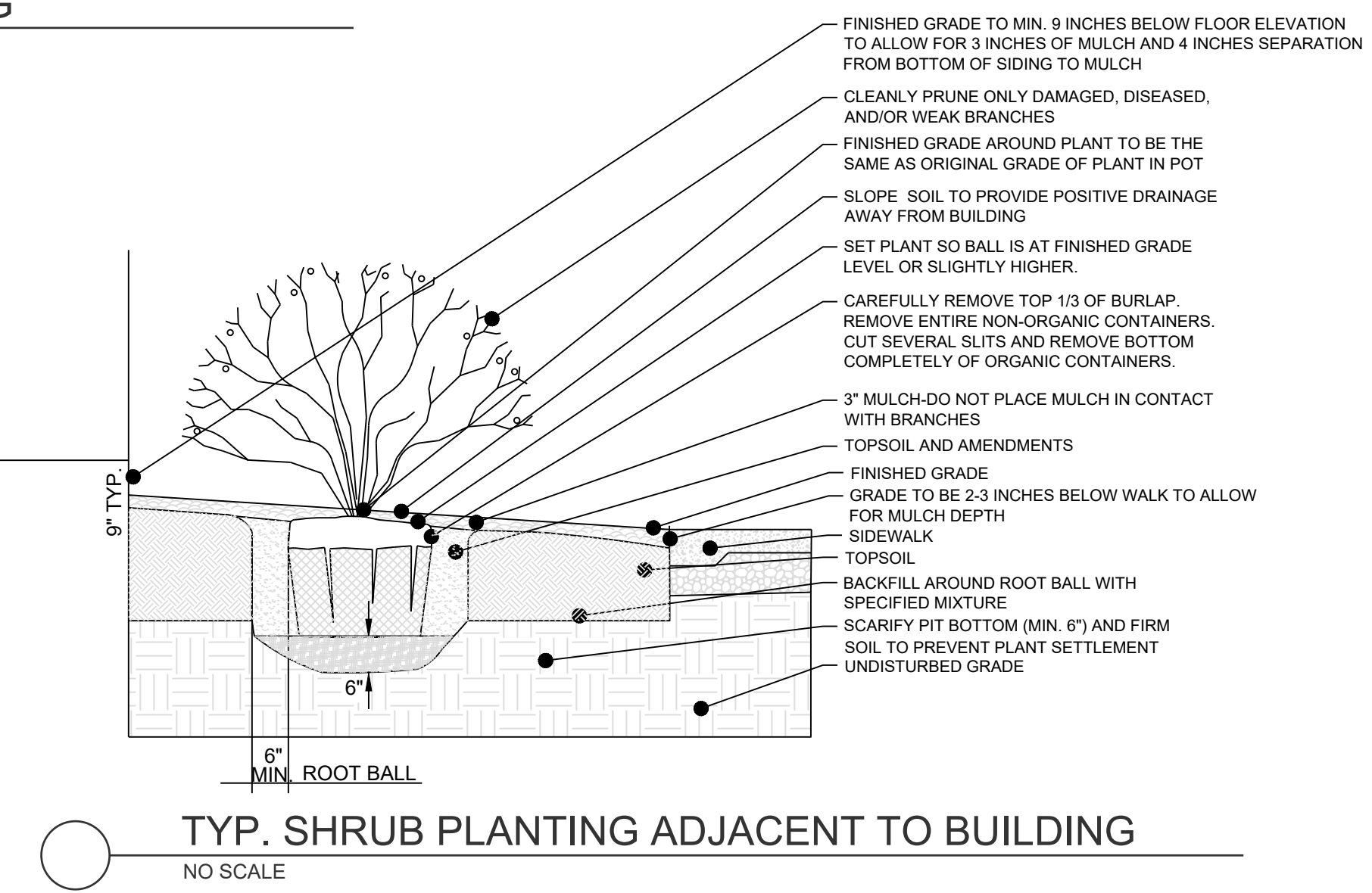
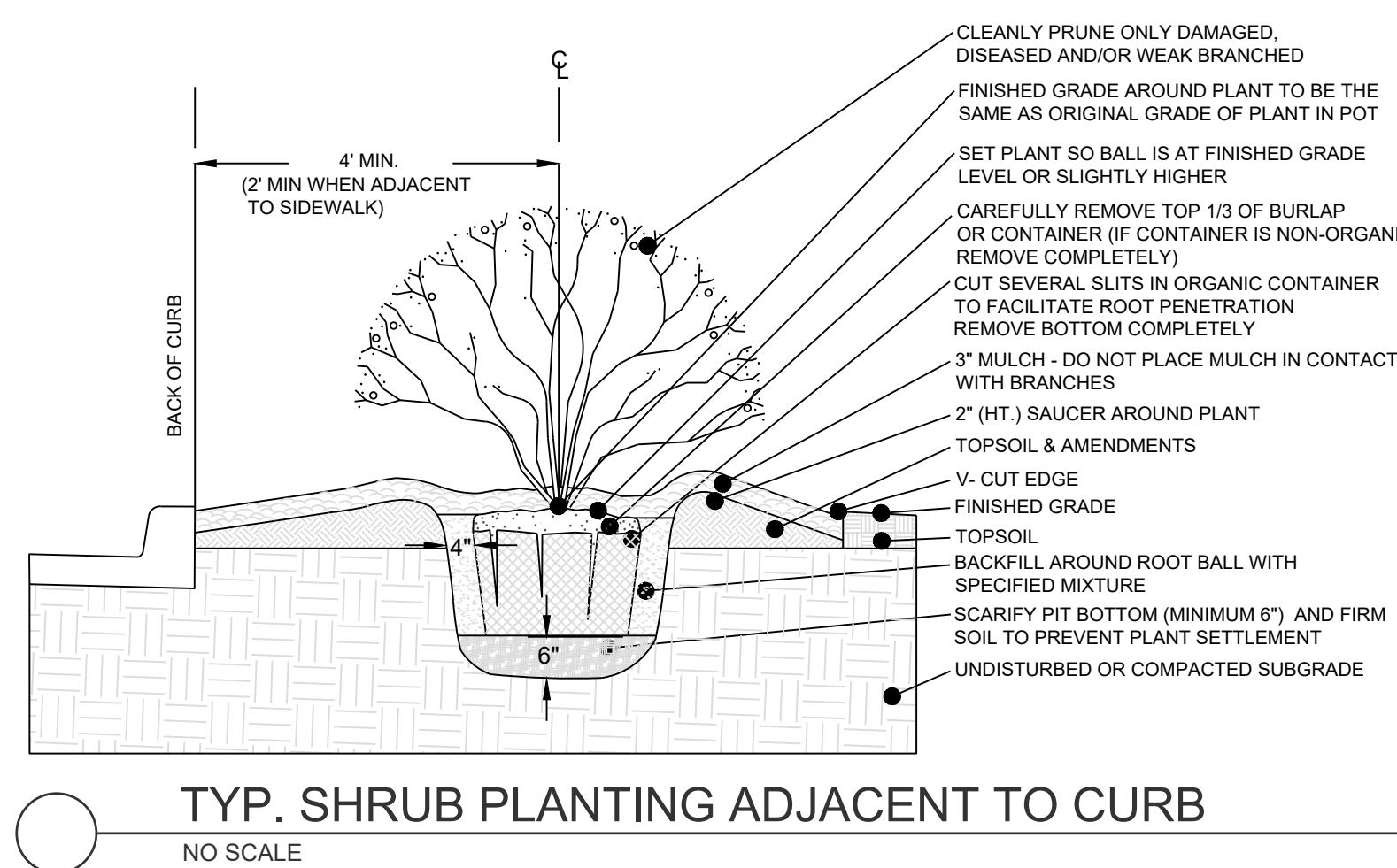
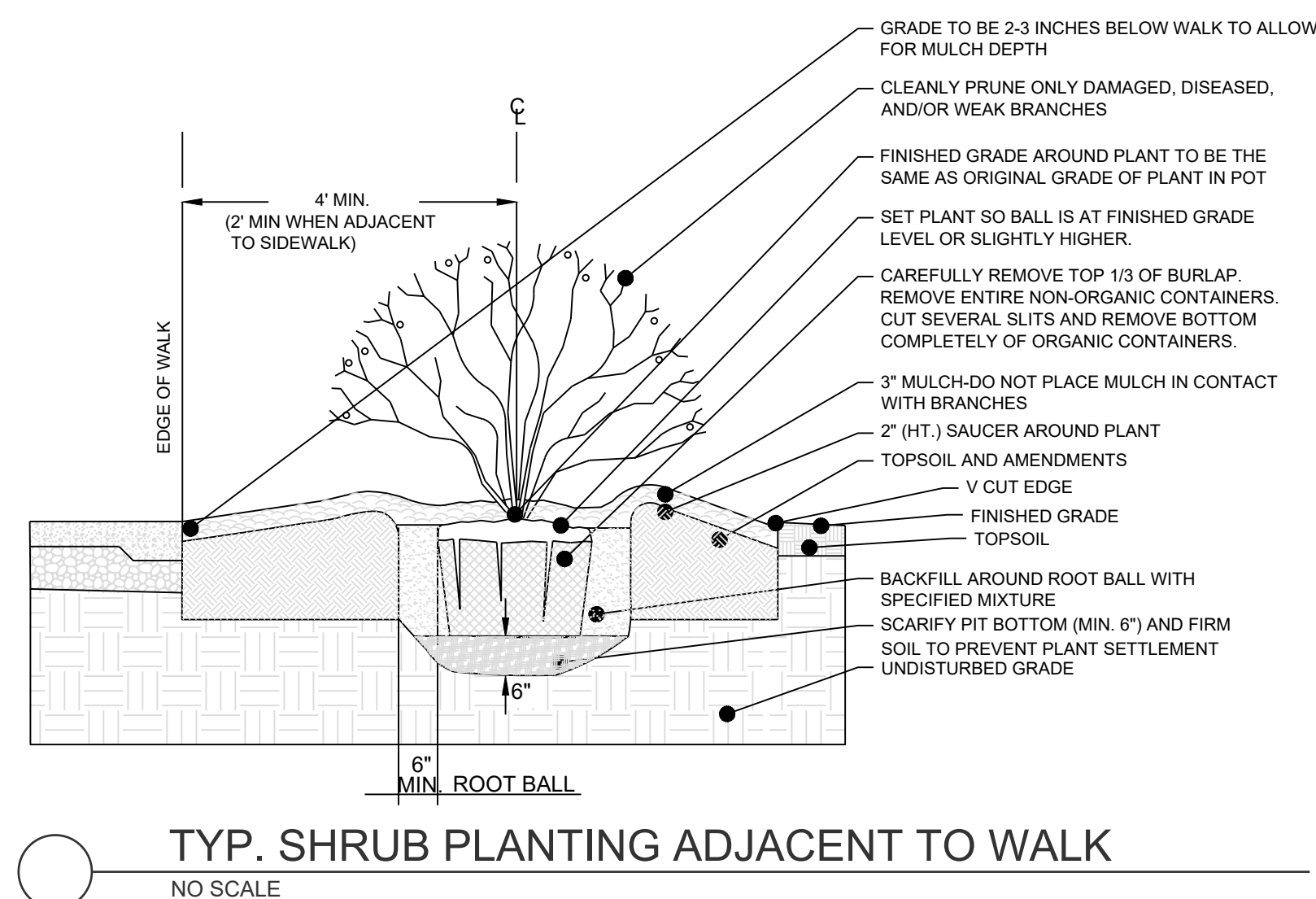
REUNION AT BLACKWELL FINAL DEVELOPMENT PLAN

REVISION DATE	DESCRIPTION
05/05/23	PER CITY COMMENTS
06/27/23	PER CITY COMMENTS
08/24/23	PER CITY COMMENTS
09/25/23	PER CITY COMMENTS
10/05/23	PER CITY COMMENTS
03/03/2023	PROJ. NUMBER:
22-597	

LANDSCAPE DETAILS

SHEET

L300



SHEET L301	LANDSCAPE DETAILS		DRAWN BY:	TRC	REVISION DATE:	05/05/23	PER CITY COMMENTS
			CHECKED BY:	3	06/27/23	2	PER CITY COMMENTS
			MAB	08/24/23	3	PER CITY COMMENTS	
			DATE PREPARED:	09/25/23	4	PER CITY COMMENTS	
			10/03/2023	5	10/05/23	6	PER CITY COMMENTS
			PROJ. NUMBER	22-067	7		
				8			
				9			