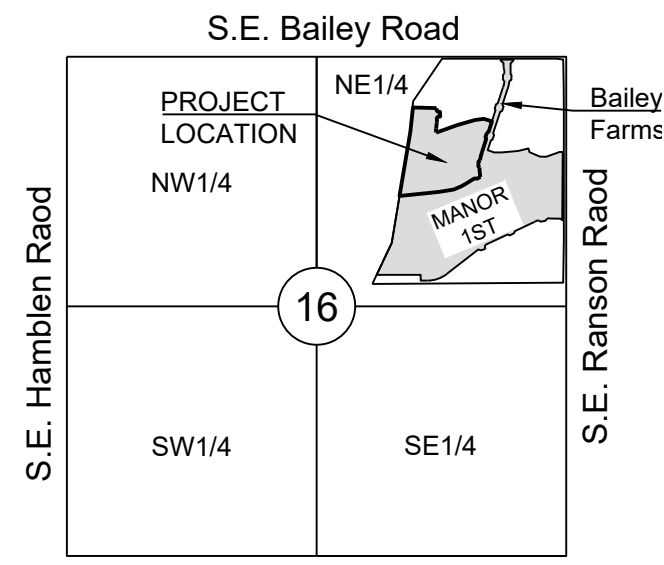


**LEGEND:**

- 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 RW - RIGHT-OF-WAY
- S/E - SANITARY SEWER EASEMENT
- SL - SERVICE LINE
- SW - 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
- 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.
- ELECTRIC LINE - EXISTING
- OVERHEAD POWER LINE - EXIST.
- UNDERGROUND ELECTRIC - EX.
- GAS LINE - EXISTING
- 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



**LOCATION MAP**  
SCALE 1" = 2000'  
BASIS OF BEARINGS:  
MISSOURI COORDINATE  
SYSTEM 1983,  
WEST ZONE

**UTILITY CONTACTS:**

**MISSOURI DEPARTMENT OF TRANSPORTATION (MODOT)**  
Steve Holloway  
600 NE Colbern Road  
Lee's Summit, MO 64086  
(816) 399-2186

**MISSOURI GAS ENERGY (MGE)**  
Brent Jones  
3025 SE Clover Drive  
Lee's Summit, MO 64082  
(816) 399-9633  
brent.jones@spireenergy.com

**KANSAS CITY POWER & LIGHT COMPANY (KCP&L)**  
Ron Dejamette  
1300 SE Hamblin Road  
Lee's Summit, MO 64081  
Office: (816) 347-4316  
Cell: (816) 810-5234  
ron.dejamette@kcpcl.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 Schauler  
1200 SE Hamblin Road  
Lee's Summit, MO 64081  
(816) 969-1900

SUMMARY OF QUANTITIES			
	ITEM	QUANTITY	UNITS
1	CLEARING AND GRUBBING	1	LS
2	GRADING	1	LS
3	8" ASPHALT PAVEMENT - LOCAL-RESIDENTIAL STREET	5025	SY
4	FLY ASH OR COMPACTED AGGREGATE BASE	6150	SY
5	CURB AND GUTTER (TYPE CG-2)	3340	LF
6	TYPE A SIDEWALK RAMP	2	EA
7	TYPE M SIDEWALK RAMP	4	EA
8	6"x4" CURB INLET	12	EA
9	6"x5" CURB INLET	1	EA
10	6"x6" CURB INLET	2	EA
11	8"x4" CURB INLET	1	EA
12	4"x4" JUNCTION BOX	2	EA
13	4"x4" AREA INLET WITH ONE OPENING	1	EA
14	4"x4" AREA INLET WITH TWO OPENINGS	1	EA
15	6"x6" WATER QUALITY STRUCTURE (#3901)	1	EA
16	24" END SECTION WITH TOE WALL	1	EA
17	30" END SECTION WITH TOE WALL	2	EA
18	36" END SECTION WITH TOE WALL	1	EA
19	50# STONE RIPRAP WITH FILTER FABRIC	12	EA
20	100# STONE RIPRAP WITH FILTER FABRIC	12	CY
21	150# STONE RIPRAP WITH FILTER FABRIC	7	CY
22	15" HDPE	460	LF
23	18" HDPE	150	LF
24	24" HDPE	425	LF
25	30" HDPE	385	LF
26	36" HDPE	670	LF
27	EROSION CONTROL	1	LS
28	END OF ROAD MARKERS (OM 4-1)	6	EA
29	SEEDING AND MULCHING ALL DISTURBED AREAS	1	LS

# STREET, STORMWATER, AND MASTER DRAINAGE PLAN

## FOR

# CORNERSTONE AT BAILEY FARMS, FIRST PLAT

## IN THE CITY OF LEE'S SUMMIT

## JACKSON COUNTY, MISSOURI

**GENERAL NOTES:**

- ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
- 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. AFTER APPROVAL OF THE SHOP DRAWINGS, A COPY OF THE APPROVED AND SIGNED SHOP DRAWINGS SHALL BE PROVIDED TO THE CITY INSPECTOR UPON REQUEST.
- 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.
- 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.
- ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.
- THE CONTRACTOR SHALL CONTACT DEVELOPMENT SERVICES INSPECTIONS AT: 816-969-1200 TO OBTAIN A DEVELOPMENT SERVICES CONSTRUCTION PERMIT. A MINIMUM 48 HOUR NOTICE SHALL BE GIVEN PRIOR TO PERMIT ISSUANCE.
- 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).

**STREET NOTES:**

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

**EARTHWORK:**

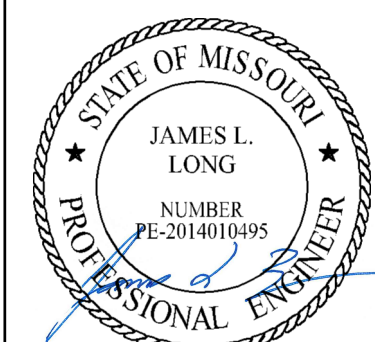
- It is recommended that a Geotechnical Engineer observe and document all earthwork activities.
- Contours have been shown at 1-foot or 2-foot intervals, as indicated. Grading shall consist of completing the earthwork required to bring the physical ground elevations of the existing site to the finished grade (or sub-grade) elevations provided on the plans as spot grades, contours or others means as indicated on the plans.
- The existing site topography depicted on the plans by contouring has been established by aerial photography and field verified by p.s. observation near 2-20-19. The contour elevations provided may not be exact ground elevations, but rather interpretations of such. Accuracy shall be considered to be such that not more than 10 percent of spot elevation checks shall be in error by more than one-half the contour interval provided, as defined by the National Map Accuracy Standards. Any quantities provided for earthwork volumes are established using this topography contour accuracy, and therefore the inherent accuracy of any earthwork quantity is assumed from the topography accuracy.
- Proposed contours are to approximate finished grade.
- Unless otherwise noted, payment for earthwork shall include backfilling of the curb and gutter, sidewalk and further manipulation of utility trench spoils. The site shall be left in a movable condition and positive drainage maintained throughout.
- Unless otherwise noted, all earthwork is considered Unclassified. No additional compensation will be provided for rock or shale excavation, unless specifically stated otherwise.
- 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 topsoil shall be stripped from all areas to be graded and stockpiled adjacent to the site at an area specified by the project owner or his appointed representative. Vegetation, trash, trees, brush, tree roots and limbs, rock fragments greater than 6-inches and other deleterious materials shall be removed and properly disposed of offsite or as directed by the owner or his appointed representative.
- Unless otherwise specified in the Geotechnical Report, all fills shall be placed in maximum 6-inch lifts and compacted to 95-percent of maximum density as defined using a standard proctor test (AASHTO T99/ASTM 698).
- Fill materials shall be per Geotechnical Report and shall not include organic matter, debris or topsoil. All fills placed on slopes greater than 6:1 shall be benched.
- 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
  - Paved Areas - 1.2% Minimum, 5% Maximum
- All disturbed areas shall be fertilized, seeded and mulched immediately after earthwork activities have ceased. Seeding shall be per the Erosion and Sediment Control Plan and/or Landscape Plan. If not specified seeding shall be per APWA Section 2400, latest edition. Unless otherwise noted, seeding shall be subsidiary to the contract price for earthwork and grading activities.
- All disturbed areas in the right-of-way shall be sodded.
- Underdrains are recommended for all paved areas adjacent to irrigated turf and landscaped beds.
- The 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 vertical separation from all sanitary sewer lines, manholes, and sanitary sewer service laterals, as measured from edge to edge. If minimum separations can not be obtained, concrete encasement of the sanitary line shall be required 10 feet in each direction of the conflict.
- 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, excess rock and shale, asphalt, concrete, trees, brush etc. shall be properly disposed of offsite. Materials may be wasted onsite at the direction of the Owner or his appointed representative.
- All excavation is considered unclassified, unless noted otherwise. Unclassified excavation for utility trenching is subsidiary to the unit price provided for the pipe. Any quantity provided for rock excavation is estimated based on the best information provided to the Project Engineer. The Engineer has the authority to identify and define the physical characteristics to determine the classification. Unit price quantities for rock excavation will be paid at a trench width of the nominal pipe diameter of the installed main plus 18 inches. Contractor is required to dispose of excess rock from their trenches by disposing it in areas as specified by the Project Engineer.

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL LAYOUT
3	MASTER DRAINAGE PLAN-GRADING PLAN
4	SE CRONIN ST PLAN AND PROFILE
5	SE SILO ST PLAN AND PROFILE
6	SE WINDBREAK DR (WEST) AND ARBORETUM DR PLAN AND PROFILE
7	INTERSECTION DETAILS
8	MASTER DRAINAGE PLAN-DRAINAGE AREA MAP
9	MASTER DRAINAGE PLAN-DRAINAGE CALCULATIONS
10	STORM PLAN
11	STORM PROFILE
12	STORM PROFILE
13	DETENTION BASIN DESIGN
14	STREET DETAIL SHEET
15	STREET DETAIL SHEET
16	STORM DETAIL SHEET
17	STORM DETAIL SHEET
18	STREET SIGN PLAN
19	SIGN DETAILS

PREPARED BY:



2/11/2022

SCHLAGEL & ASSOCIATES, P.A.

**APPROVED BY:**

CITY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED FOR ONE YEAR FROM THIS DATE

**OWNER/DEVELOPER:**

CLAYTON PROPERTIES GROUP INC., DBA SUMMIT HOMES  
BRADLEY KEMPFF  
120 SE 30TH STREET  
LEE'S SUMMIT, MO 64082  
p (816) 246-6700  
BRADLEY@SUMMITHOMESKC.COM



**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCHMARK:**

BM JA-45, IS A KC METRO ALUMINUM GRS DISK SET IN CONCRETE AND ABOUT 3 INCHES BELOW THE PAVEMENT ON THE SHOULDER OF SE RANSON ROAD. IT IS STAMPED JA45, 1987.

ELEV. = 1046.25

CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
 STREET, STORMWATER, AND MASTER  
 DRAINAGE PLAN  
 SE BAILEY ROAD AND SE RANSON ROAD  
 LEE'S SUMMIT, MISSOURI

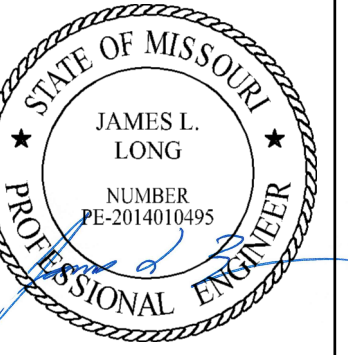
REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

COVER SHEET

SHEET



PREPARED BY:



2/11/2022

SCHLAGEL & ASSOCIATES, P.A.

CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
 STREET, STORMWATER, AND MASTER DRAINAGE  
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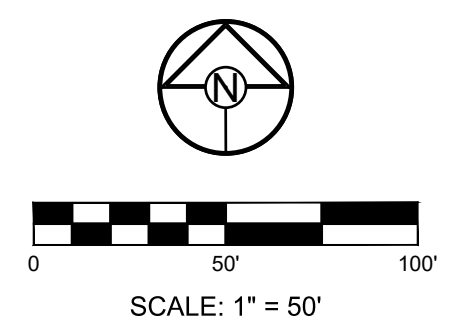
GENERAL LAYOUT

SHEET  
**2**

**BASIS OF BEARINGS:**  
 MISSOURI STATE PLANE COORDINATE SYSTEM  
 (NAD) 1983, MISSOURI, WEST ZONE

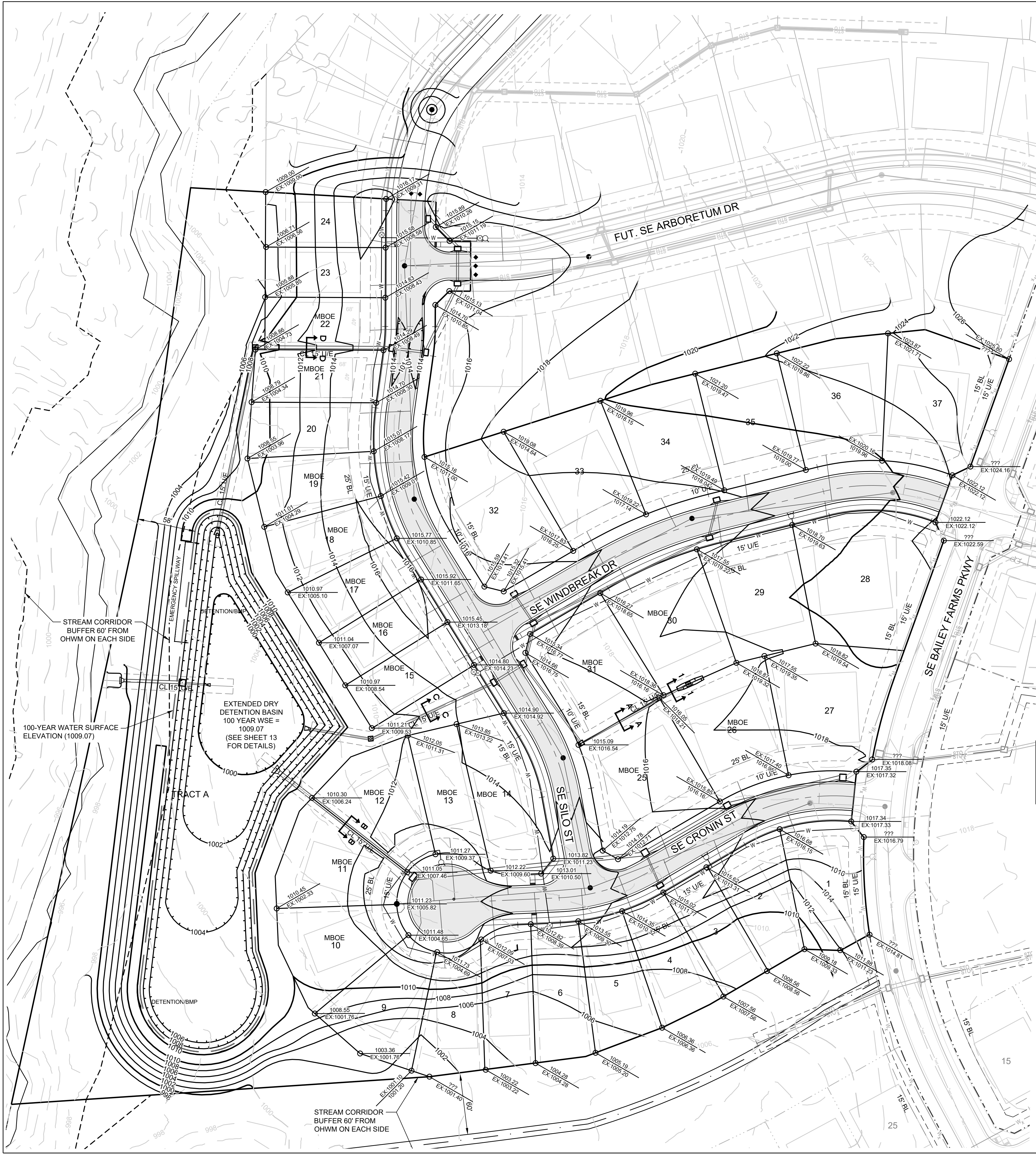
**NOTES:**  
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 CITY OF LEES SUMMIT TECHNICAL SPECIFICATIONS.

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL  
 EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.



I:\PROJECTS\2021\21-136\3.0 DWG Plans\6.0 SS\21-136-SS-GEN.dwg





LOT TYPE TABLE		
LOT NUMBER	BASEMENT TYPE	MBOE
1	STANDARD	
2	DAYLIGHT	
3	DAYLIGHT	
4	DAYLIGHT	
5	WALKOUT	
6	WALKOUT	
7	WALKOUT	
8	WALKOUT	
9	DAYLIGHT	
10	STANDARD	1012.00
11	STANDARD	1014.00
12	STANDARD	1014.00
13	STANDARD	1015.00
14	STANDARD	1015.00
15	STANDARD	1012.00
16	STANDARD	1012.00
17	STANDARD	1012.00
18	STANDARD	1012.00
19	DAYLIGHT	1012.00
20	DAYLIGHT	
21	DAYLIGHT	1014.00
22	DAYLIGHT	1014.00
23	DAYLIGHT	
24	DAYLIGHT	
25	STANDARD	1018.00
26	STANDARD	1019.00
27	STANDARD	
28	STANDARD	
29	STANDARD	
30	STANDARD	1019.00
31	STANDARD	1018.00
32	STANDARD	
33	STANDARD	
34	STANDARD	
35	STANDARD	
36	STANDARD	
37	STANDARD	

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MISSOURI STATE PLANE COORDINATE SYSTEM (NAD) 1983, MISSOURI, WEST ZONE

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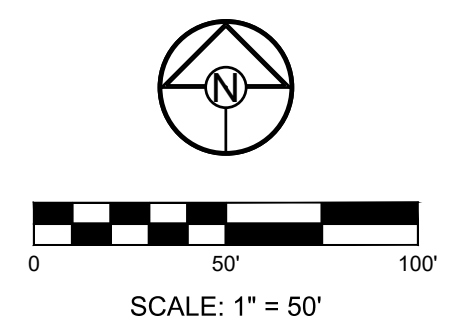
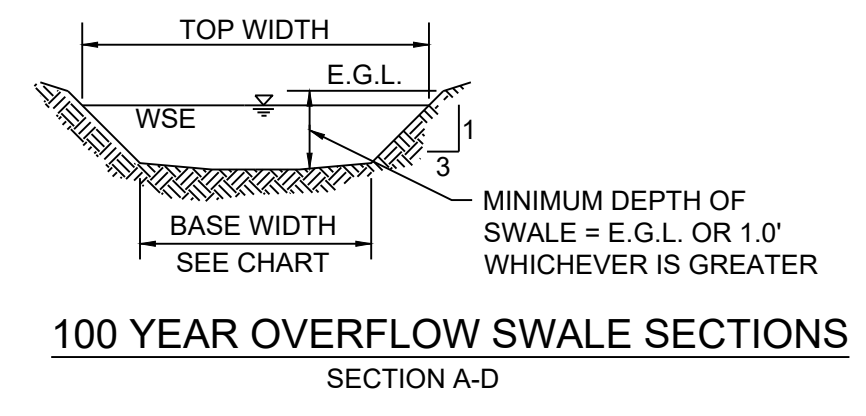
**GRADING LEGEND:**  
--- 1023 --- EXISTING CONTOUR  
— 1023 — PROPOSED CONTOUR

- NOTES:**
- MBOE = MINIMUM BUILDING OPENING ELEVATION FOR HOUSES ADJACENT TO ENGINEERED OVERFLOW SWALES SHALL BE MINIMUM 2 FEET ABOVE THE 100-YEAR WATER SURFACE ELEVATION.
  - EGL = ENERGY GRADE LINE (100-YEAR)
  - WSE = WATER SURFACE ELEVATION (100-YEAR)
  - ENGINEERED SWALES TO BE GRADED TO NORMAL DEPTH OF FLOW (WATER SURFACE ELEVATION) OR 1.0 FT, WHICHEVER IS GREATER. MINIMUM SLOPE OF ENGINEERED SWALES SHALL BE AS NOTED.
  - MINIMUM BUILDING OPENING ELEVATIONS (MBOEs) ADJACENT TO SUMPED INLETS SHALL BE A MINIMUM OF 1' ABOVE TOP OF ADJACENT BERM

WEIR CALCULATIONS (Q = CLH <sup>3/2</sup> )									
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW (CFS)	WEIR ELEVATION	WEIR COEFFICIENT	LENGTH (FT.)	HEAD REQUIRED (FT.)	WSE
1	0.60	5.11	2.91	2.20	1016.30	3.33	10	0.16	1016.46

100 YEAR OVERFLOW SWALES												
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW (CFS)	BED SLOPE (%)	BASE WIDTH (FT.)	SIDE SLOPE	TOP WIDTH (FT.)	NORMAL DEPTH (FT.)	VELOCITY (FPS)	VELOCITY HEAD (FT.)	EGL (FT.)
A-A	0.76	6.47	3.69	2.78	2.2	5	4:1	4.00	0.50	2.78	0.12	0.62
B-B	3.21	27.33	15.57	11.76	2.0	5	4:1	8.84	0.48	3.54	0.19	0.67
C-C	3.56	30.31	17.27	13.04	2.4	0	4:1	6.96	0.87	4.31	0.29	1.16
D-D	8.77	74.67	42.54	32.12	5.3	5	4:1	10.04	0.63	6.78	0.71	1.34

**RUNOFF CALCULATIONS:**  
 $Q = K \cdot C \cdot I \cdot A$   
 $K_{10} = 1.0 \quad K_{100} = 1.25 \quad C = 0.66 \quad I = \text{INTENSITY}$   
 DESIGN OVERFLOW = Q<sub>OVERFLOW</sub> = Q<sub>100</sub> - Q<sub>10</sub>  
 MANNINGS "n" = 0.030 FOR SWALES



**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 #E200203690F #LAC201005237 #LS200208695F

PREPARED BY:  
**JAMES L. LONG**  
PROFESSIONAL ENGINEER  
NUMBER PE-314018-05  
2/11/2022  
SCHLAGEL & ASSOCIATES, P.A.

CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
STREET, STORMWATER, AND MASTER DRAINAGE  
PLAN

SE BAILEY ROAD AND SE RANSON ROAD  
LEES SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

DRAWN BY: JRJ	CHECKED BY: JLL
DATE PREPARED: 1/22/2021	PROJ. NUMBER: 21-136

**MASTER DRAINAGE PLAN-GRADING PLAN**

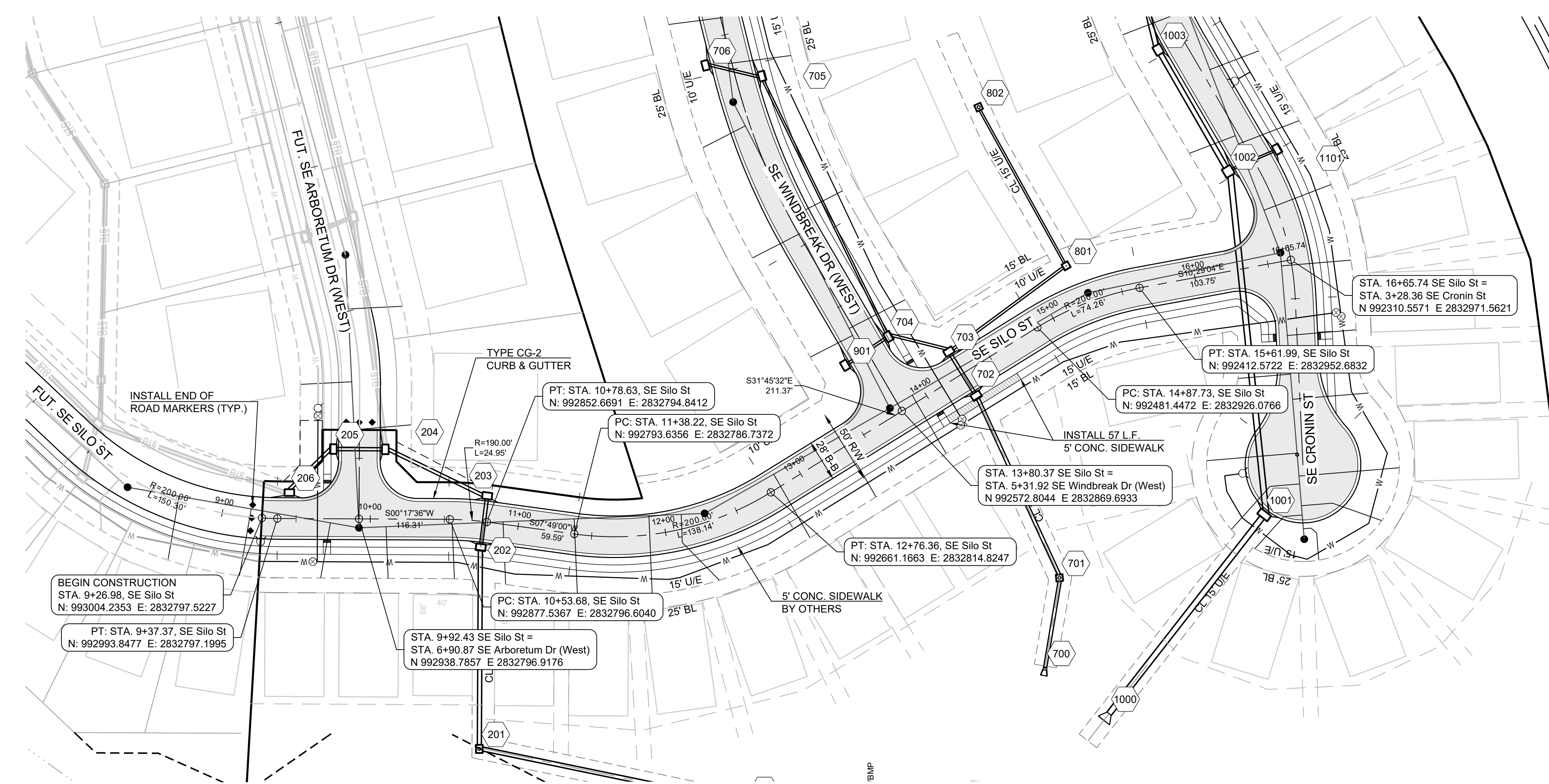
SHEET

3









**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCHMARK:**

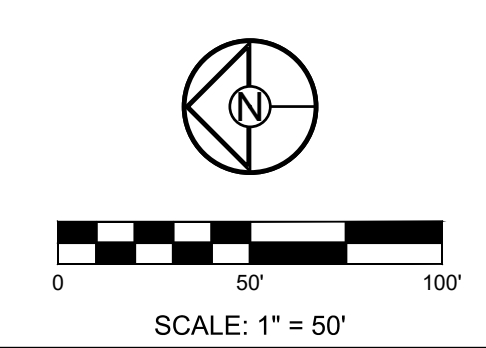
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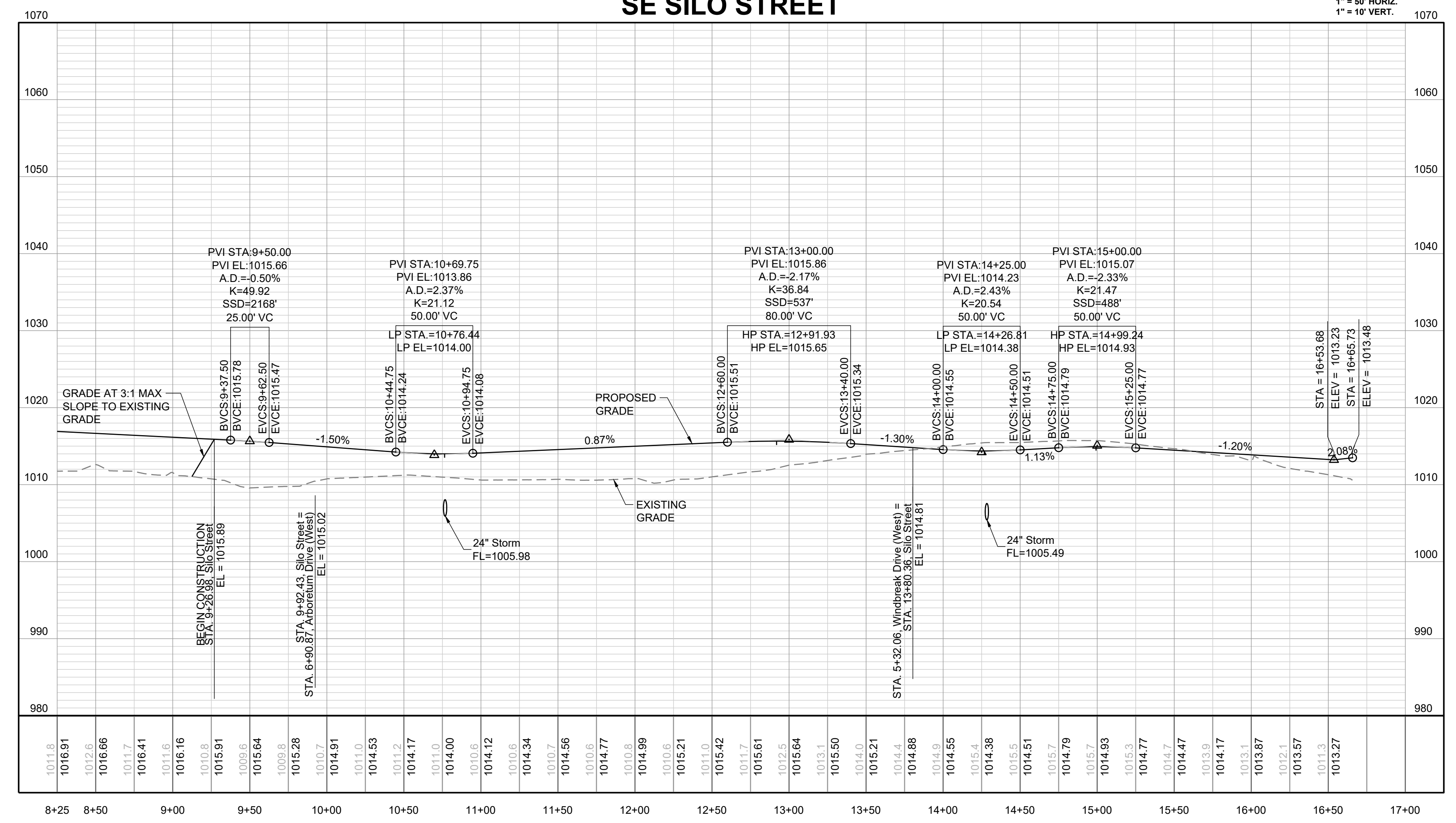
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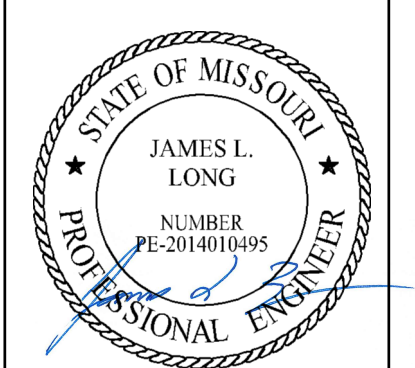
**SE SILO STREET**

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



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ENGINEERS, PLANNERS, SURVEYORS, LANDSCAPE ARCHITECTS  
14920 West 107th Street • Lenexa, Kansas 66215  
(913) 492-5158 • Fax: (913) 492-8400  
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PREPARED BY:



2/11/2022  
SCHLAGEL & ASSOCIATES, P.A.

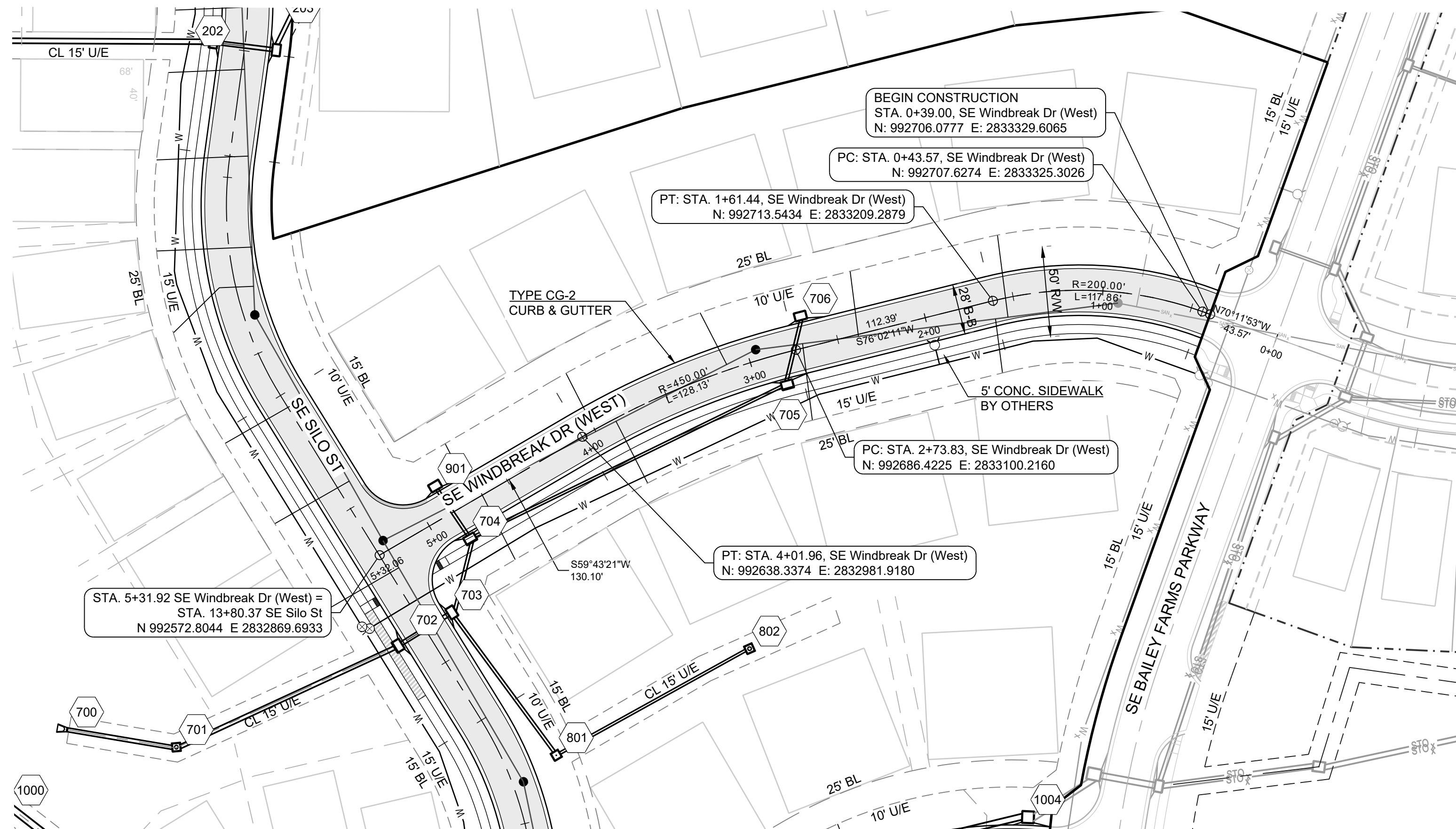
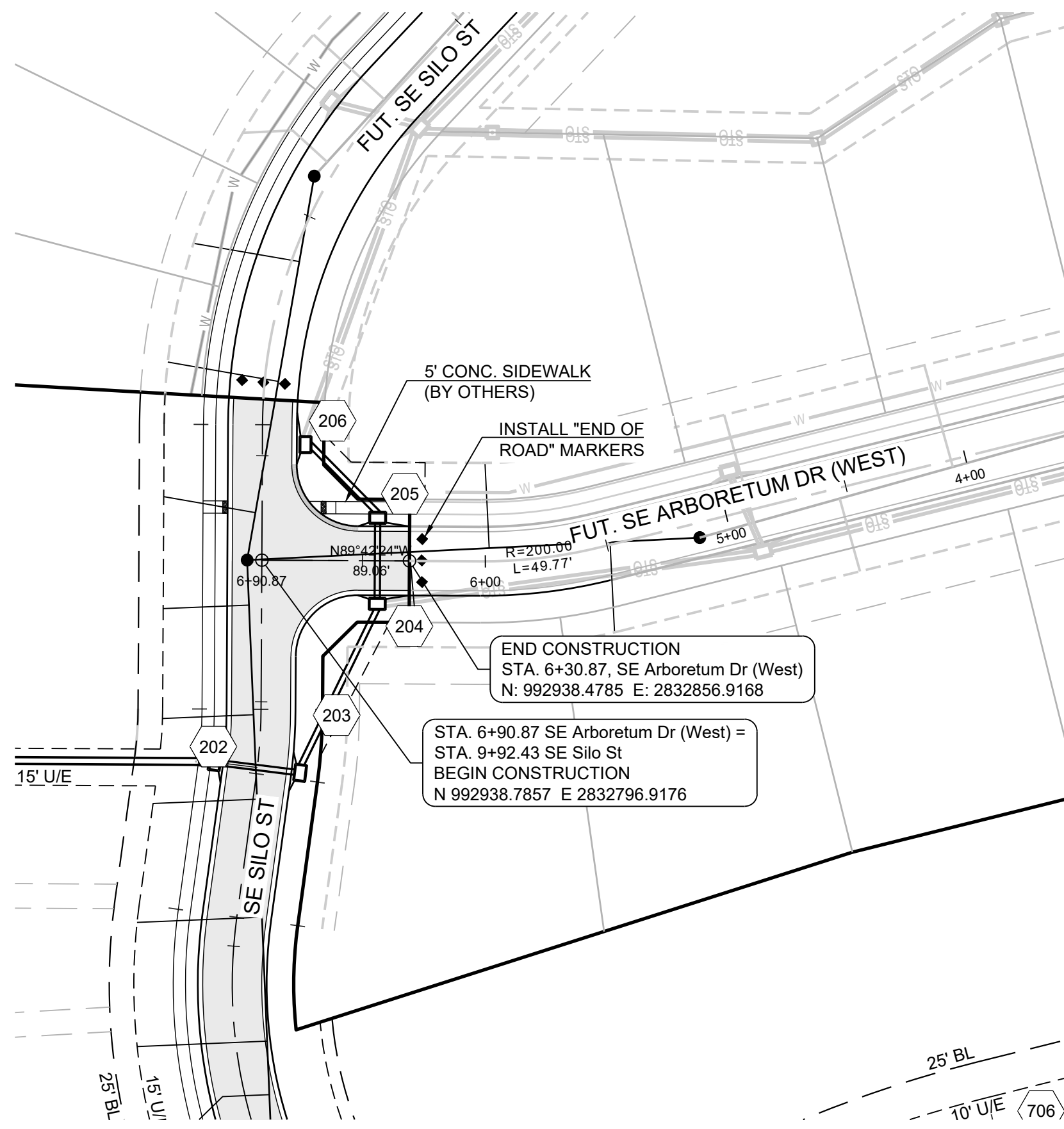
**CORNERSTONE AT BAILEY FARMS, FIRST PLAT STREET, STORMWATER, AND MASTER DRAINAGE PLAN**  
**SE BAILEY ROAD AND SE RANSON ROAD LEE'S SUMMIT, MISSOURI**

REVISION DATE	DESCRIPTION
2/11/2022	PER CITY COMMENTS DATED 01/10/2022
1/20/2021	
12/20/2021	
12/20/2021	
12/20/2021	
12/20/2021	
12/20/2021	
12/20/2021	
12/20/2021	
12/20/2021	
12/20/2021	

**SE SILO ST PLAN AND PROFILE**

I:\PROJECTS\2021\121-136\3.0 Design\3.0 DWG Plans\6.0 SSD\1-36-SS-PP.dwg





**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCHMARK:**

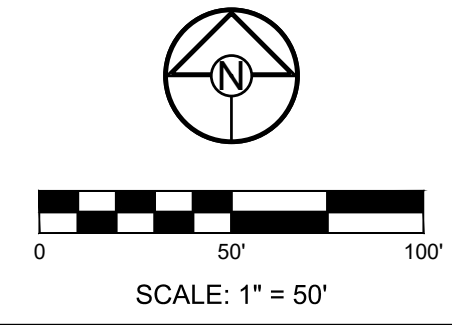
BM JA-45, IS A KC METRO ALUMINUM CRS DISK SET IN CONCRETE AND ABOUT 3 INCHES BELOW THE PAVEMENT ON THE SHOULDER OF SE RANSON ROAD. IT IS STAMPED JA45, 1987.

ELEV. = 1046.25

**NOTES:**

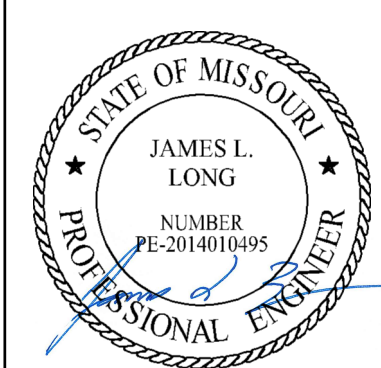
ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEES SUMMIT TECHNICAL SPECIFICATIONS.

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.



**SCHLAGEL**  
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 WWW.SCHLAGELASSOCIATES.COM  
 State of Missouri Professional Engineer License #200200895-F  
 #E200200895-F

PREPARED BY:



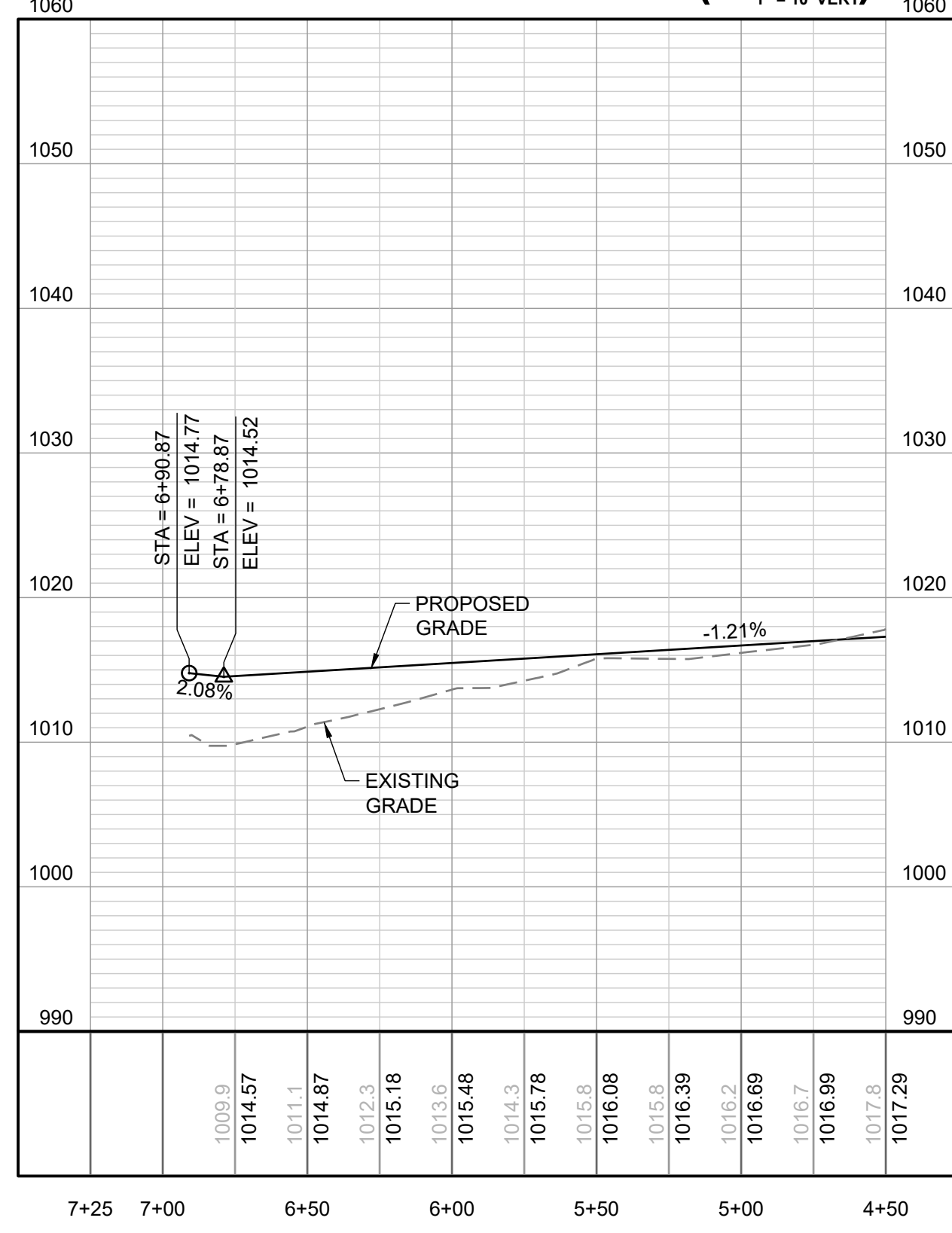
2/11/2022  
 SCHLAGEL & ASSOCIATES, P.A.

CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
 STREET, STORMWATER, AND MASTER  
 DRAINAGE PLAN  
 SE BAILEY ROAD AND SE RANSON ROAD  
 LEE'S SUMMIT, MISSOURI

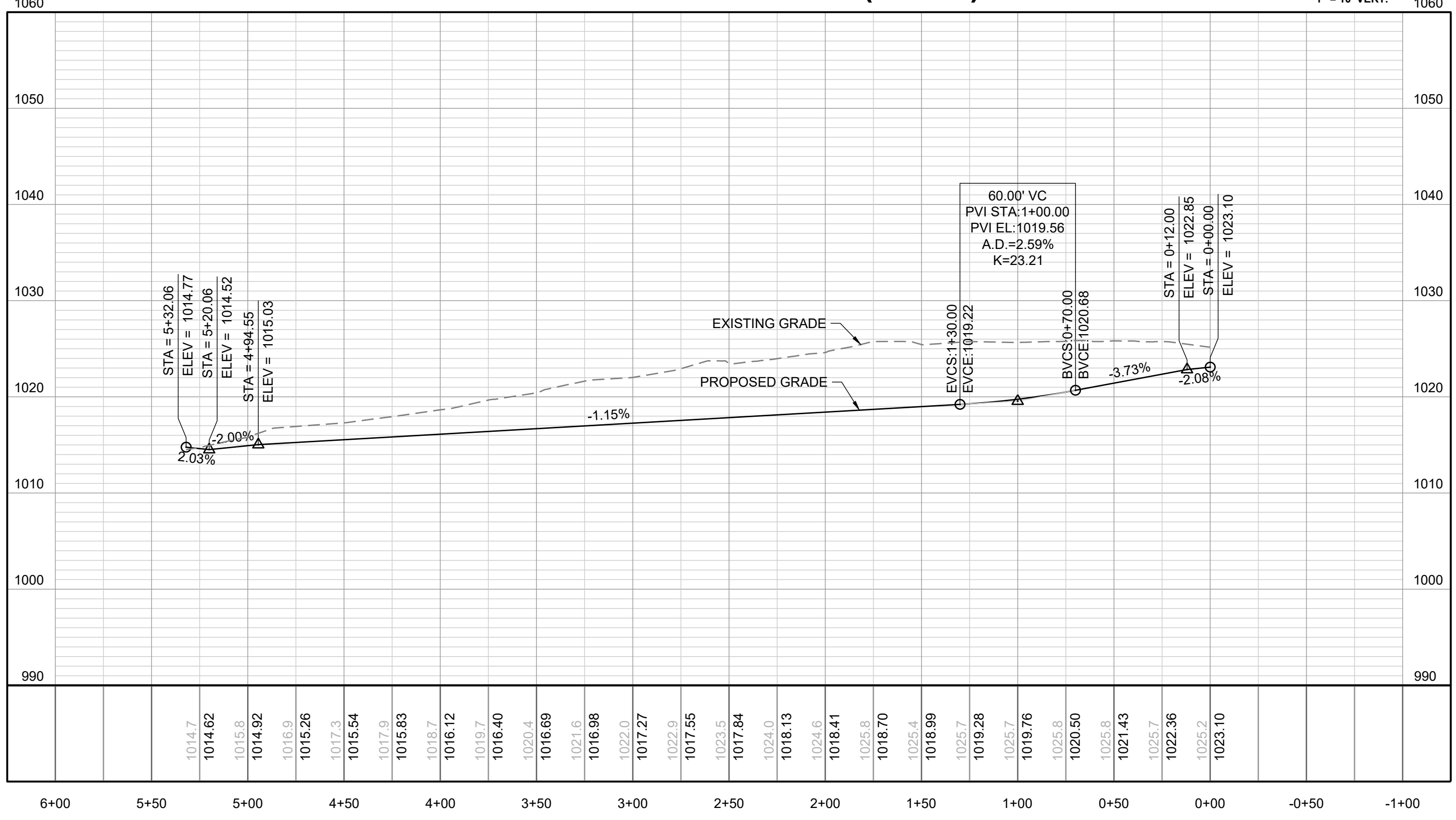
REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

SE WINDBREAK DR (WEST) AND ARBORETUM DR PLAN AND PROFILE SHEET  
**6**

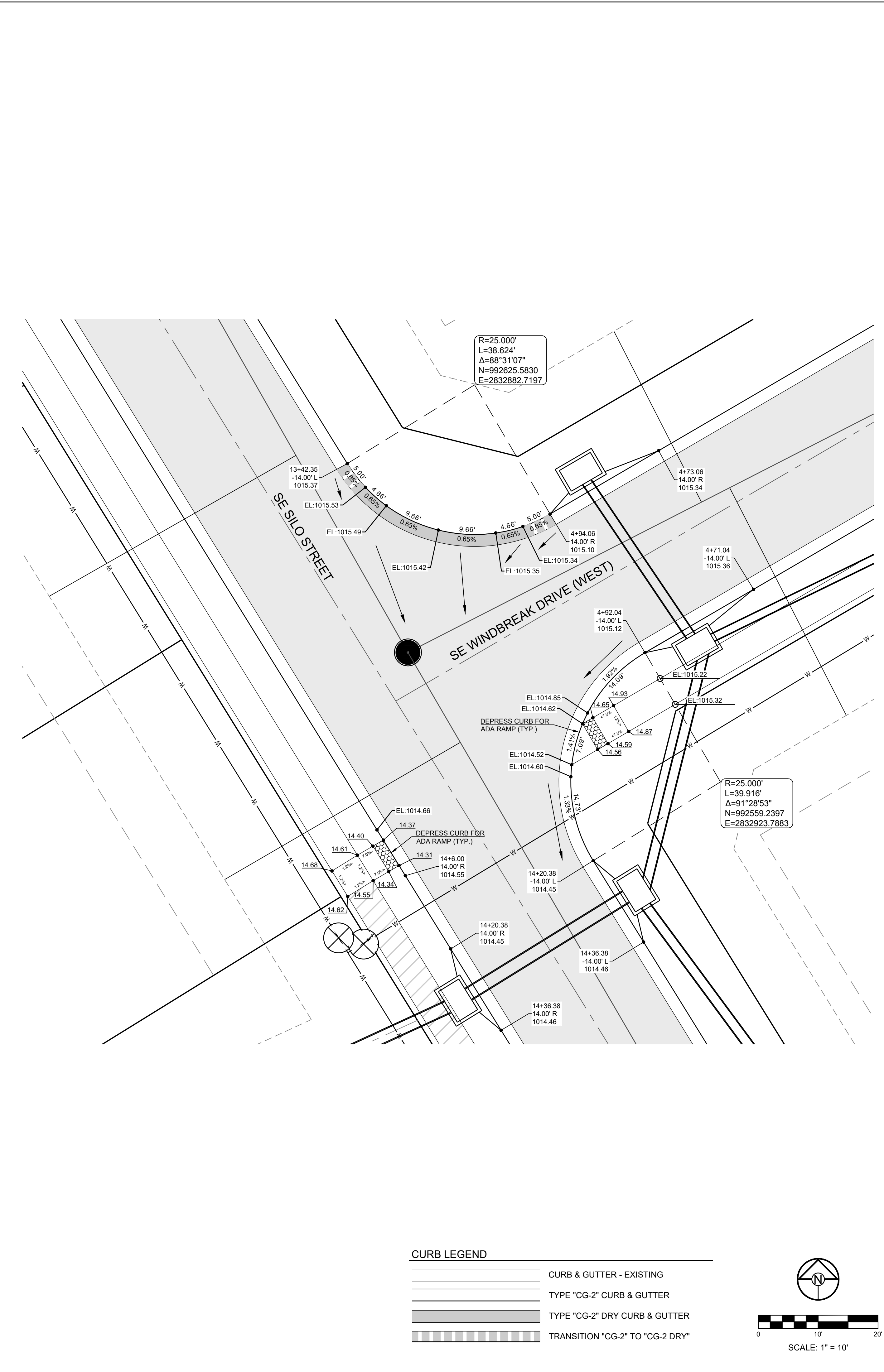
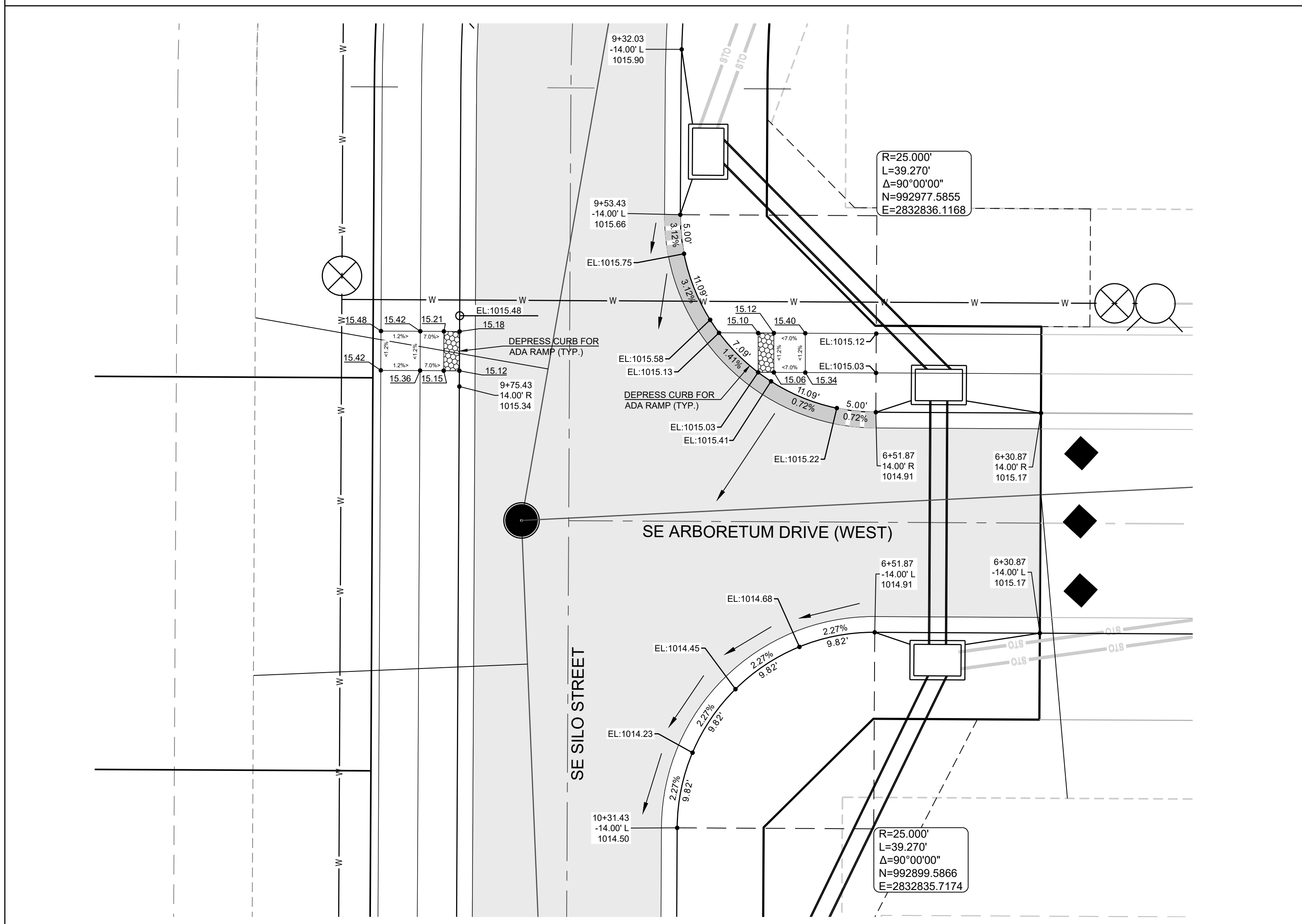
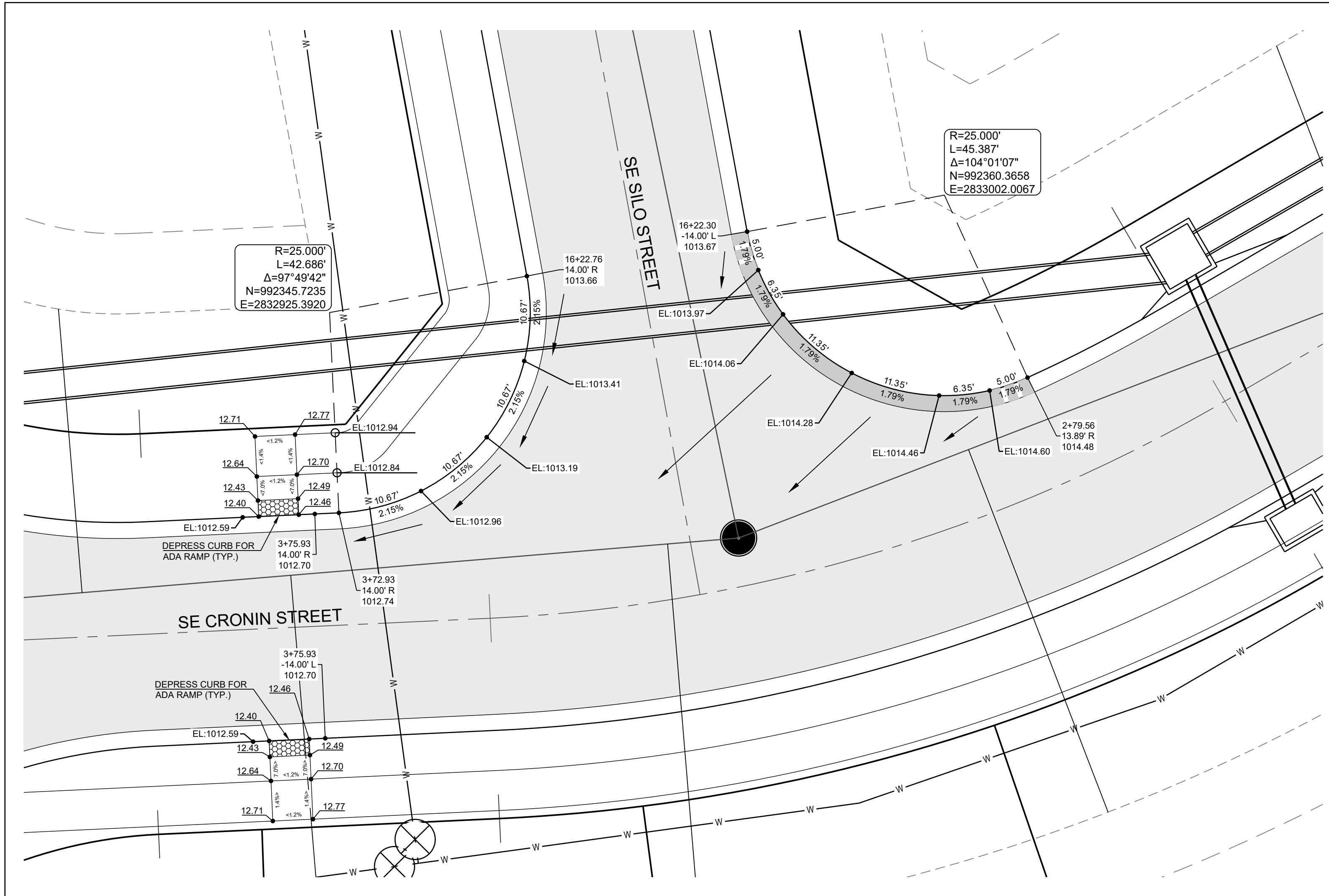
**SE ARBORETUM DRIVE (WEST)**



**SE WINDBREAK DRIVE (WEST)**

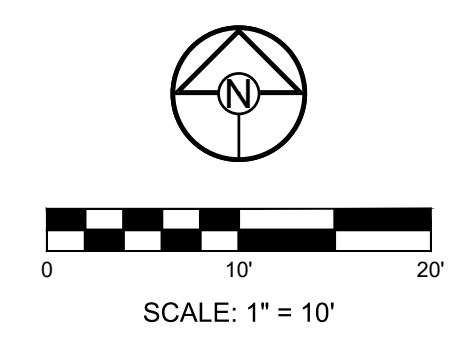






**CURB LEGEND**

[Symbol]	CURB & GUTTER - EXISTING
[Symbol]	TYPE "CG-2" CURB & GUTTER
[Symbol]	TYPE "CG-2" DRY CURB & GUTTER
[Symbol]	TRANSITION "CG-2" TO "CG-2 DRY"



CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
 STREET, STORMWATER, AND MASTER DRAINAGE  
 PLAN  
 SE BAILEY ROAD AND SE RANSON ROAD  
 LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

DRAWN BY: JRJ  
 CHECKED BY: JLL  
 DATE PREPARED: 1/22/2021  
 PROJ. NUMBER: 21-136

I:\PROJECTS\2021\21-136\3.0 Design\3.0 DWG Plans\6.0 SS\21-136-SS-INT.dwg





**MISSOURI GEOGRAPHIC REFERENCE SYSTEM  
BENCHMARK:**

BM JA-45, IS A KC METRO ALUMINUM GRS DISK SET IN CONCRETE AND ABOUT 3 INCHES BELOW THE PAVEMENT ON THE SHOULDER OF SE RANSON ROAD. IT IS STAMPED JA45, 1987.

ELEV. = 1046.25

**SCHLAGEL**  
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Missouri State Certificates of Authority  
#E2002003690-F #LAC2001005237 #LS2002008659-F

PREPARED BY:

JAMES L. LONG  
NUMBER PE-31848-MS  
PROFESSIONAL ENGINEER

2/11/2022

SCHLAGEL & ASSOCIATES, P.A.

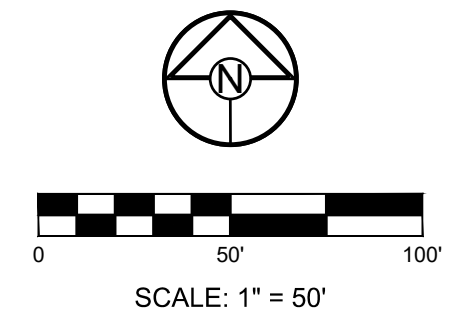
CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
STREET, STORMWATER, AND MASTER DRAINAGE  
PLAN

SE BAILEY ROAD AND SE RANSON ROAD  
LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

MASTER DRAINAGE  
PLAN-DRAINAGE  
AREA MAP

SHEET  
**8**





10-YEAR RUNOFF CALCULATIONS

Design Storm:		10																									
"K" Value:		1.00																									
"F" Factor:		1.00																									
Runoff Calculations										Pipe Properties																	
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top		
LINE 200																											
201	0.00	0.66	3.73	2.46	7.5	6.64	0.00	16.35	44.77	9.12					0.00	0.00	201	200	HDPE	0.012	30	184.94	1.02	0.40	1003.38	1001.50	1008.75
202	0.69	0.66	3.73	2.46	7.3	6.71	3.05	16.51	44.44	9.05					0.00	0.00	202	201	HDPE	0.012	30	135.90	1.00	0.40	1005.14	1003.78	1013.49
203	0.39	0.66	3.04	2.01	7.2	6.72	1.73	13.48	38.83	12.36					0.00	0.00	203	202	HDPE	0.012	24	35.04	2.51	0.40	1006.42	1005.54	1013.50
204	0.51	0.66	2.65	1.75	7.1	6.75	2.27	11.80	37.75	12.02					0.00	0.00	204	203	HDPE	0.012	24	75.49	2.37	0.40	1008.61	1006.82	1015.11
205	0.55	0.66	2.14	1.41	7.1	6.76	2.46	9.55	24.51	7.80					0.00	0.00	205	204	HDPE	0.012	24	35.00	1.00	0.40	1009.36	1009.01	1015.11
206	0.14	0.66	1.59	1.05	7.0	6.79	0.63	7.13	21.92	6.98					0.00	0.00	206	205	HDPE	0.012	24	41.74	0.80	0.40	1010.09	1009.76	1015.83
207	0.30	0.66	1.45	0.96	6.6	6.88	1.36	6.58	21.92	6.98					0.00	0.00	207	206	HDPE	0.012	24	136.91	0.80	0.50	1011.59	1010.49	1017.37
208	0.25	0.66	1.15	0.76	6.0	7.04	1.16	5.35	11.38	6.44					0.00	0.00	208	207	HDPE	0.012	18	229.29	1.00	0.50	1014.38	1012.09	1019.71
209	0.31	0.66	0.90	0.59	5.6	7.17	1.47	4.26	7.00	5.70					0.00	0.00	209	208	HDPE	0.012	15	147.18	1.00	0.50	1016.35	1014.88	1021.32
210	0.32	0.66	0.59	0.39	5.1	7.32	1.55	2.85	7.00	5.70					0.00	0.00	210	209	HDPE	0.012	15	172.48	1.00	0.50	1018.58	1016.85	1025.06
211	0.27	0.66	0.27	0.18	5.0	7.35	1.31	1.31	7.00	5.70					0.00	0.00	211	210	HDPE	0.012	15	39.07	1.00	N/A	1019.47	1019.08	1025.96
DS TAILWATER @ STR #200																											
LINE 700																											
701	0.00	0.66	3.10	2.05	5.7	7.14	0.00	14.60	44.18	14.06					0.00	0.00	701	700	HDPE	0.012	24	61.51	3.25	0.50	1001.64	999.64	1010.71
702	0.24	0.66	3.10	2.05	5.5	7.20	1.14	14.72	34.66	11.03					0.00	0.00	702	701	HDPE	0.012	24	135.04	2.00	0.30	1004.84	1002.14	1014.47
703	0.32	0.66	2.86	1.89	5.5	7.21	1.52	13.61	34.66	11.03	801				1.12	0.74	703	702	HDPE	0.012	24	35.00	2.00	0.40	1005.84	1005.14	1014.47
704	0.30	0.66	1.42	0.94	5.4	7.23	1.43	6.78	19.71	11.15	901				0.74	0.49	704	703	HDPE	0.012	18	41.96	3.00	0.40	1007.50	1006.24	1015.29
705	0.38	0.66	0.38	0.25	5.0	7.35	1.84	1.84	9.90	8.06					0.00	0.00	705	704	HDPE	0.012	15	195.23	2.00	0.40	1011.80	1007.90	1017.49
706	0.88	0.66	0.88	0.58	5.0	7.35	4.27	4.27	9.90	8.06					0.00	0.00	706	705	HDPE	0.012	15	38.73	2.00	N/A	1012.98	1012.20	1017.78
DS TAILWATER @ STR #700																											
LINE 800																											
801	0.41	0.66	1.12	0.74	5.3	7.28	1.97	5.38	16.09	9.11					0.00	0.00	801	703	HDPE	0.012	18	97.97	2.00	0.50	1008.30	1006.34	1014.92
802	0.71	0.66	0.71	0.47	5.0	7.35	3.45	3.45	9.90	8.06					0.00	0.00	802	801	HDPE	0.012	15	122.16	2.00	0.50	1011.24	1008.80	1015.80
Drop in Inlet 703 0.50																											
LINE 900																											
901	0.74	0.66	0.74	0.49	5.0	7.35	3.59	3.59	9.90	8.06					0.00	0.00	901	704	HDPE	0.012	15	35.06	2.00	N/A	1008.70	1008.00	1015.06
Drop in Inlet 704 0.50																											
LINE 1000																											
1001	1.18	0.66	5.45	3.60	7.9	6.56	5.11	23.61	102.19	14.46					0.00	0.00	1001	1000	HDPE	0.012	36	170.00	2.00	0.30	1002.58	999.18	1010.90
1002	0.11	0.66	4.27	2.82	7.4	6.67	0.48	18.79	64.63	9.14	1101				0.30	0.20	1002	1001	HDPE	0.012	36	232.81	0.80	0.40	1004.74	1002.88	1014.95
1003	0.15	0.66	3.86	2.55	7.3	6.71	0.66	17.10	64.63	9.14					0.00	0.00	1003	1002	HDPE	0.012	36	94.66	0.80	0.40	1005.90	1005.14	1016.07
1004	0.06	0.66	3.71	2.45	7.1	6.77	0.27	16.57	64.63	9.14					0.00	0.00	1004	1003	HDPE	0.012	36	118.64	0.80	0.40	1007.25	1006.30	1017.25
1005	0.25	0.66	3.65	2.41	7.0	6.79	1.12	16.36	65.83	9.31					0.00	0.00	1005	1004	HDPE	0.012	36	43.60	0.83	0.40	1008.01	1007.65	1018.09
1006	0.25	0.66	3.40	2.24	6.9	6.81	1.12	15.28	63.40	8.97					0.00	0.00	1006	1005	HDPE	0.012	36	36.49	0.77	0.40	1008.69	1008.41	1018.06
1007	0.15	0.66	3.15	2.08	6.6	6.89	0.68	14.32	34.75	11.06					0.00	0.00	1007	1006	HDPE	0.012	24	203.36	2.01	0.40	1013.18	1009.09	1022.19
1008	0.25	0.66	3.00	1.98	6.5	6.91	1.14	13.68	34.49	10.98					0.00	0.00	1008	1007	HDPE	0.012	24	45.39	1.98	0.40	1014.48	1013.58	1023.40
1009	0.95	0.66	2.75	1.82	6.5	6.92	4.34	12.57	30.21	9.62					0.00	0.00	1009	1008	HDPE	0.012	24	34.98	1.52	0.40	1015.41	1014.88	1023.40
1010	0.20	0.66	1.80	1.19	6.4	6.95	0.92	8.26	24.01	9.55					0.00	0.00	1010	1009	HDPE	0.012	24	41.71	0.96	0.40	1016.21	1015.81	1024.16
1011	0.25	0.66	1.60	1.06	6.2	7.01	1.16	7.40	30.02	9.55					0.00	0.00	1011	1010	HDPE	0.012	24	119.75	1.50	0.50	1018.41	1016.61	1025.83
1012	0.30	0.66	1.35	0.89	6.0	7.06	1.40	6.29	16.09	9.11					0.00	0.00	1012	1011	HDPE	0.012	18	94.22	2.00	0.50	1020.79	1018.91	1027.16
1013	0.20	0.66	1.05	0.69	5.9	7.08	0.93	4.91	16.17	9.15					0.00	0.00	1013	1012	HDPE	0.012	18	45.49	2.02	0.50	1022.21	1021.29	1028.35
1014	0.25	0.66	0.85	0.56	5.5	7.20	1.19	4.04	6.96	5.67					0.00	0.00	1014	1013	HDPE	0.012	15	139.99	0.99	0.50	1024.10	1022.71	1029.95
1015	0.15	0.66	0.60	0.40	5.1	7.32	0.72	2.90	8.28	6.75					0.00	0.00	1015	1014	HDPE	0.012	15	160.54	1.40	0.50	1026.84	1024.60	1032.58
1016	0.45	0.66	0.45	0.30	5.0	7.35	2.18	2.18	7.00	5.70					0.00	0.00	1016	1015	HDPE	0.012	15	37.05	1.00	N/A	1027.72	1027.34	1032.95
Drop in Inlet 1002 1.75																											
LINE 1100																											
1101	0.30	0.66	0.30	0.20	5.0	7.35	1.46	1.46	12.12	9.88					0.00	0.00	1101	1002	HDPE	0.012	15	36.19	3.00	N/A	1007.58	1006.49	1014.88

100-YEAR RUNOFF CALCULATIONS

Design Storm:		100																									
"K" Value:		1.25																									
"F" Factor:		1.00																									
Runoff Calculations										Pipe Properties																	
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top		
LINE 200																											
201	0.00	0.66	3.73	2.46	7.5	9.36	0.00	28.81	44.77	9.12					0.00	0.00	201	200	HDPE	0.012	30	184.94	1.02	0.40	1003.38	1001.50	1008.75
202	0.69	0.66	3.73	2.46	7.3	9.45	5.38	29.07	44.44	9.05					0.00	0.00	202	201	HDPE	0.012	30	135.90	1.00	0.40	1005.14	1003.78	1013.49
203	0.39	0.66	3.04	2.01	7.2	9.46	3.05	23.74	38.83	12.36					0.00	0.00	203	202	HDPE	0.012	24	35.04	2.51	0.40	1006.42	1005.54	1013.50
204	0.51	0.66	2.65	1.75	7.1	9.50	4.00	20.77	37.75	12.02					0.00	0.00	204	203	HDPE	0.012	24	75.49	2.37				





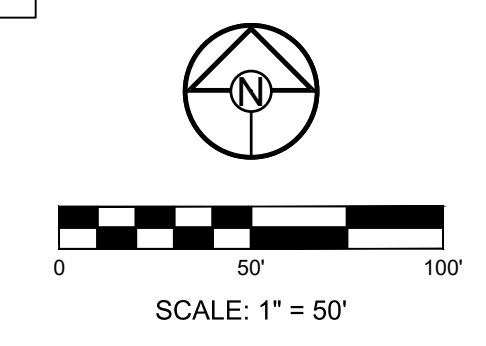
Storm Sewer Construction Notes	
Structure	Notes
200	STA 0+00.00, LINE 200 INSTALL 30" HDPE FLARED END SECTION W/ TOEWALL AND 7 CU. YD (16'X8'X1.5') STONE RIP-RAP USING A MIN. 50# (D50=12") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP. N 992676.4508 E 2832604.7511
201	STA 1+84.94, LINE 200 INSTALL 4 X 4 JUNCTION BOX N 992857.6387 E 2832641.8233
202	STA 3+20.84, LINE 200 INSTALL 6 X 4 CURB INLET N 992856.6949 E 2832777.7216
203	STA 3+55.88, LINE 200 INSTALL 6 X 4 CURB INLET N 992852.3684 E 2832812.4917
204	STA 4+31.37, LINE 200 INSTALL 6 X 4 CURB INLET N 992921.0453 E 2832843.8274
205	STA 4+66.37, LINE 200 INSTALL 6 X 4 CURB INLET N 992956.0449 E 2832844.0066
206	STA 5+08.11, LINE 200 INSTALL 6 X 4 CURB INLET N 992985.7268 E 2832814.6582
700	STA -0+00.00, LINE 700 INSTALL 24" HDPE FLARED END SECTION W/ TOEWALL AND 5 CU. YD (14'X6'X1.5') STONE RIP-RAP USING A MIN. 50# (D50=12") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP. N 992476.2527 E 2832696.4116
701	STA 0+61.50, LINE 700 INSTALL 4 X 4 JUNCTION BOX N 992466.5519 E 2832757.1471
702	STA 1+96.54, LINE 700 INSTALL 6 X 4 CURB INLET N 992522.6991 E 2832879.9587
703	STA 2+31.54, LINE 700 INSTALL 6 X 4 CURB INLET N 992541.1211 E 2832909.7182
704	STA 2+73.50, LINE 700 INSTALL 6 X 4 CURB INLET N 992561.8404 E 2832919.8570
705	STA 4+68.73, LINE 700 INSTALL 6 X 4 CURB INLET N 992667.1149 E 2833095.4758
706	STA 5+07.46, LINE 700 INSTALL 6 X 4 CURB INLET N 992705.1565 E 2833102.7289
801	STA 0+97.97, LINE 800 INSTALL 4 X 4 AREA INLET OPEN TO EAST N 992462.0478 E 2832967.5530
802	STA 2+20.13, LINE 800 INSTALL 4 X 4 AREA INLET OPEN TO EAST & WEST N 992521.0360 E 2833074.5302
901	STA 0+35.06, LINE 900 INSTALL 6 X 4 CURB INLET N 992611.0492 E 2832900.4685
1000	STA 0+00.00, LINE 1000 INSTALL 36" HDPE FLARED END SECTION W/ TOEWALL AND 12 CU. YD. (18'X9'X2") STONE RIP-RAP USING A MIN. 100# (D50=15") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP N 992433.0590 E 2832665.5966
1001	STA 1+70.00, LINE 1000 INSTALL 8 X 4 CURB INLET N 992328.5259 E 2832799.6593
1002	STA 4+02.81, LINE 1000 INSTALL 6 X 6 CURB INLET N 992352.7296 E 2833031.2069
1003	STA 4+97.47, LINE 1000 INSTALL 6 X 5 CURB INLET N 992399.9823 E 2833113.2254
1004	STA 6+16.30, LINE 1000 INSTALL 6 X 6 CURB INLET N 992427.8021 E 2833228.7610
1101	STA 0+36.19, LINE 1100 INSTALL 6 X 4 CURB INLET N 992319.7811 E 2833046.1733
3900	STA -0+00.00, LINE 3900 INSTALL 30" HDPE FLARED END SECTION W/ TOEWALL AND 7 CU. YD (16'X8'X1.5') STONE RIP-RAP USING A MIN. 50# (D50=12") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP. N 992524.5740 E 2832510.7297
3901	STA 0+58.28, LINE 3900 INSTALL 6 X 6 WATER QUALITY STRUCTURE RE: SHEET 13 N 992522.4674 E 2832568.9714

CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
STREET, STORMWATER, AND MASTER  
DRAINAGE PLAN  
SE BAILEY ROAD AND SE RANSON ROAD  
LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

DRAWN BY:	JRJ
CHECKED BY:	JLL
DATE PREPARED:	1/22/2021
PROJ. NUMBER:	21-136

STORM PLAN



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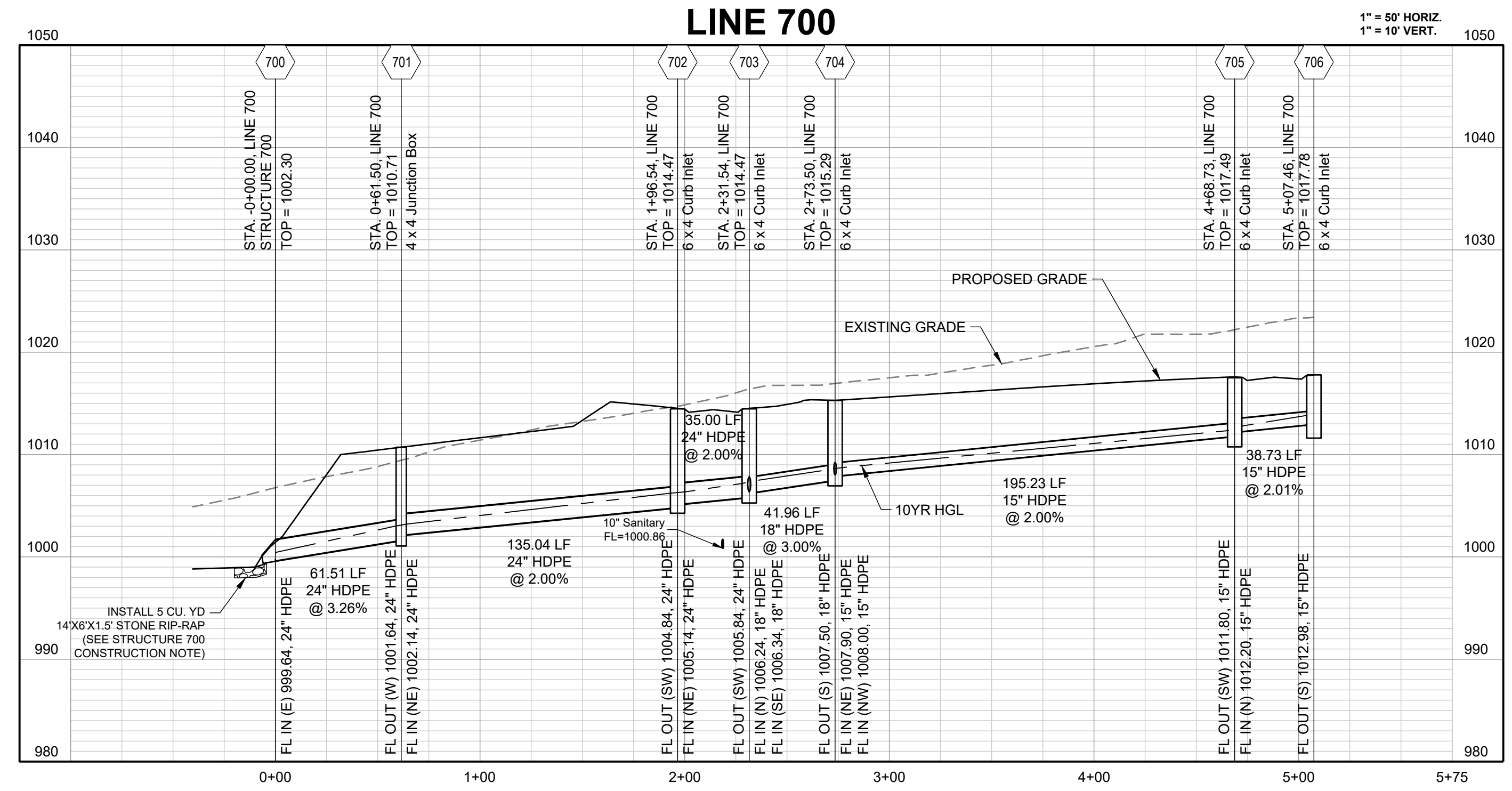
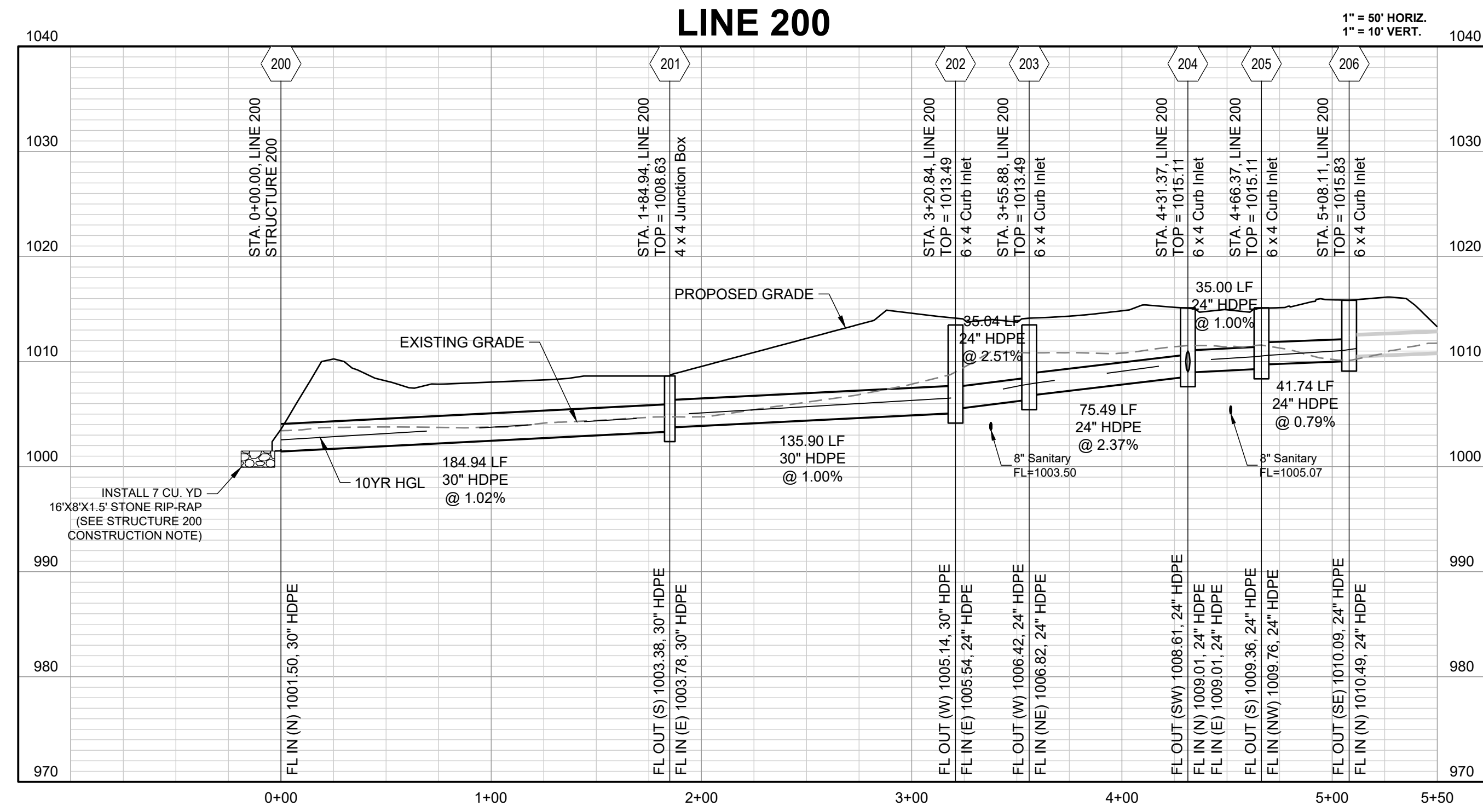


PREPARED BY:



2/11/2022

SCHLAGEL & ASSOCIATES, P.A.



CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
 STREET, STORMWATER, AND MASTER DRAINAGE  
 PLAN  
 SE BAILEY ROAD AND SE RANSON ROAD  
 LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

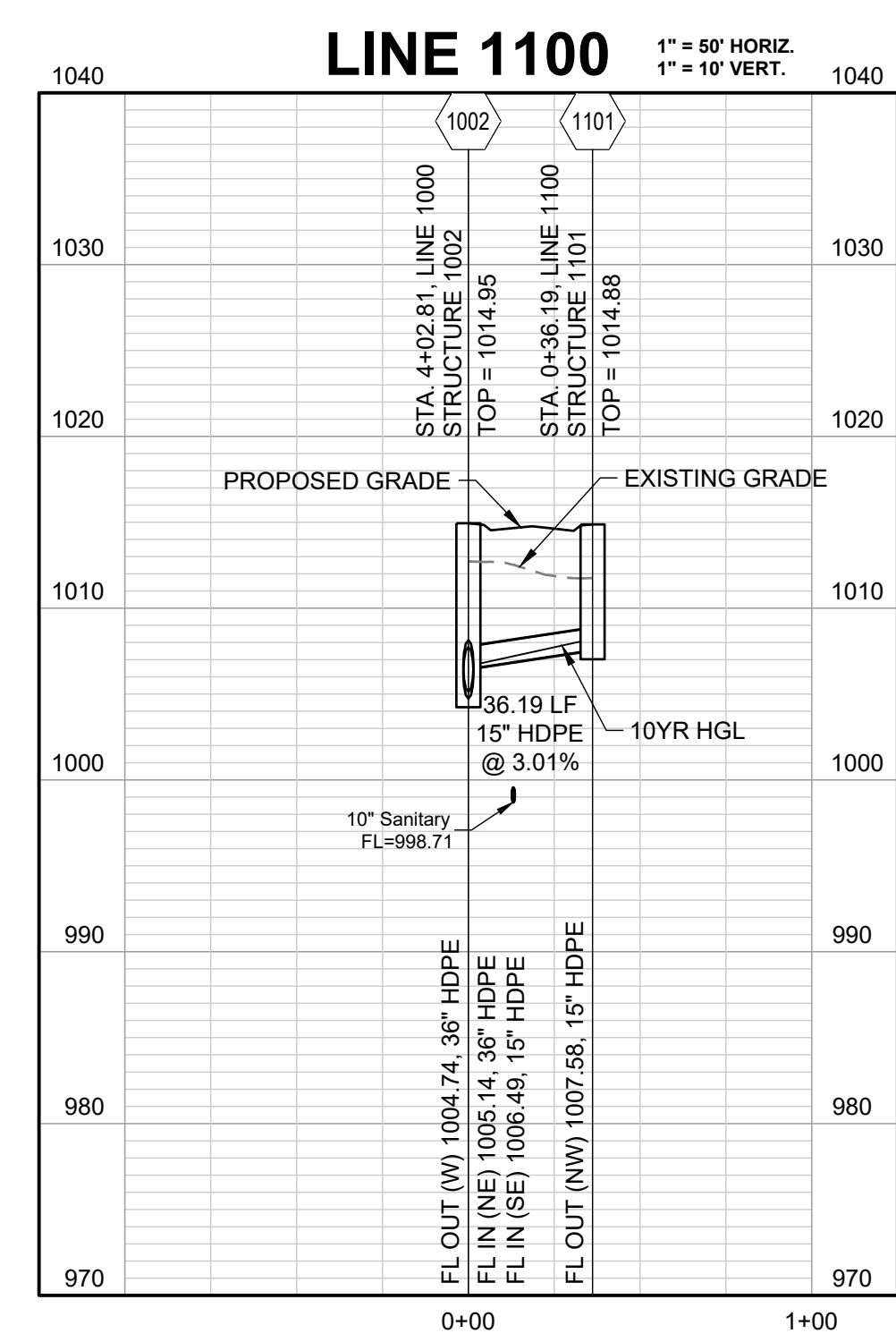
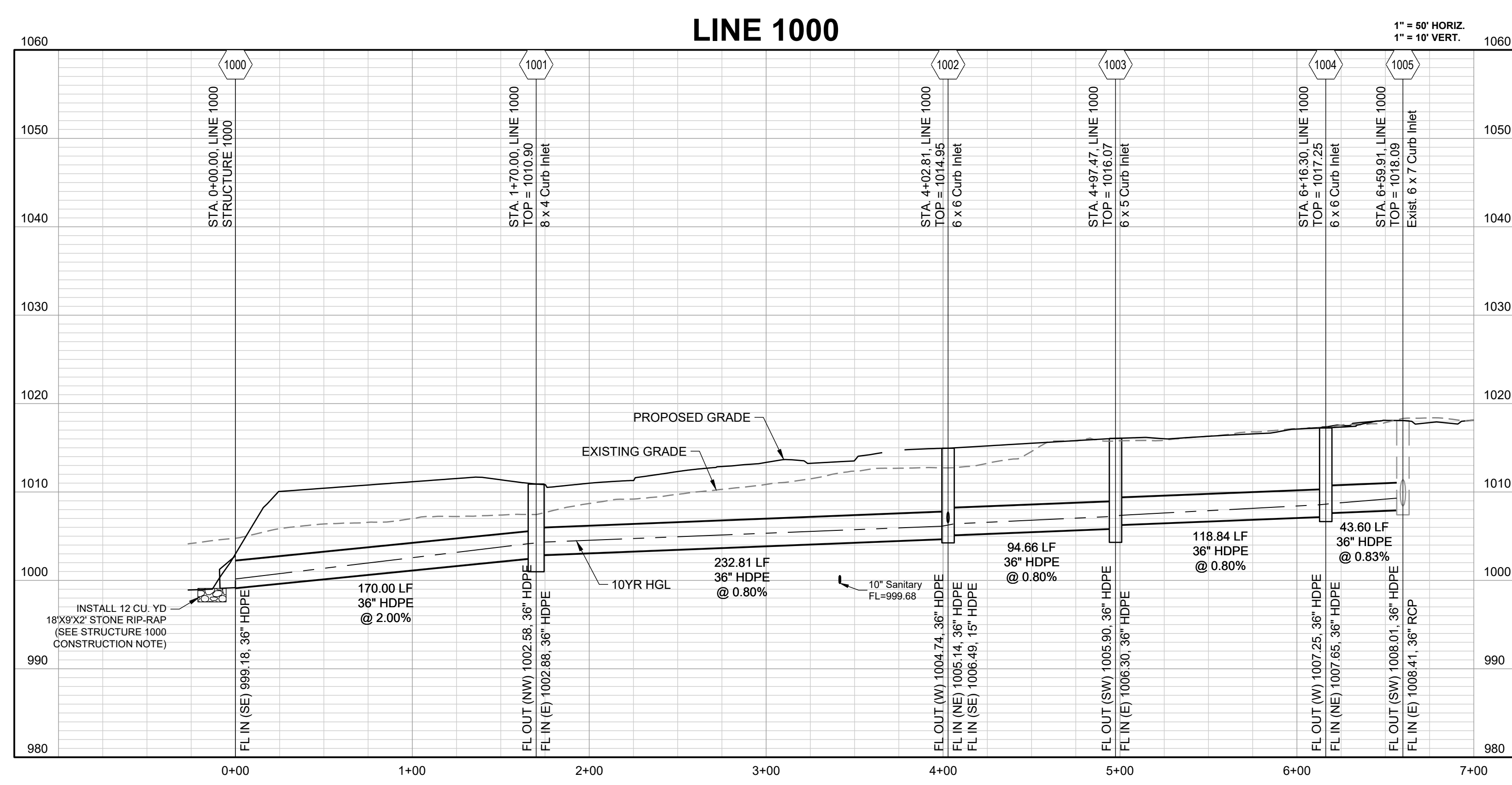
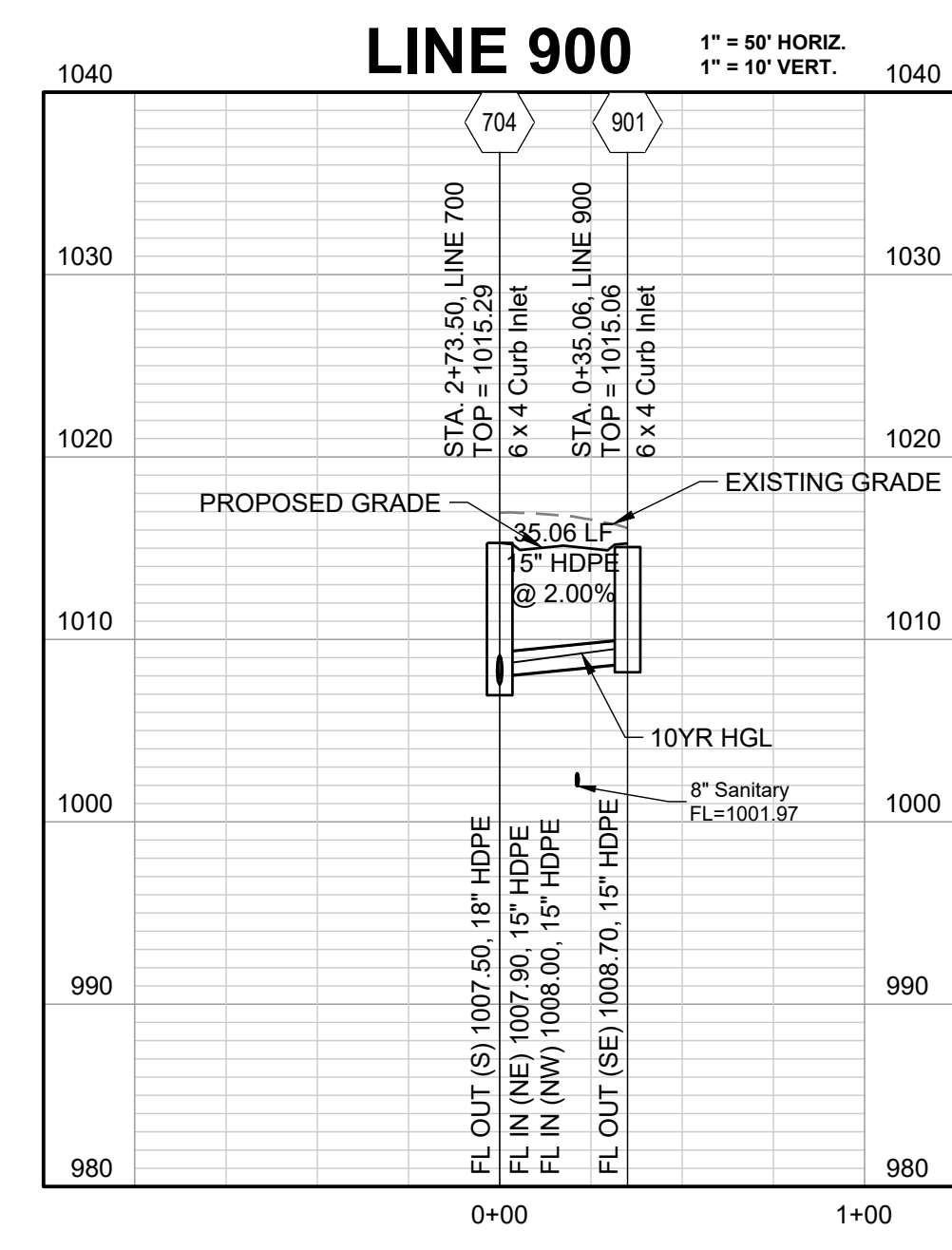
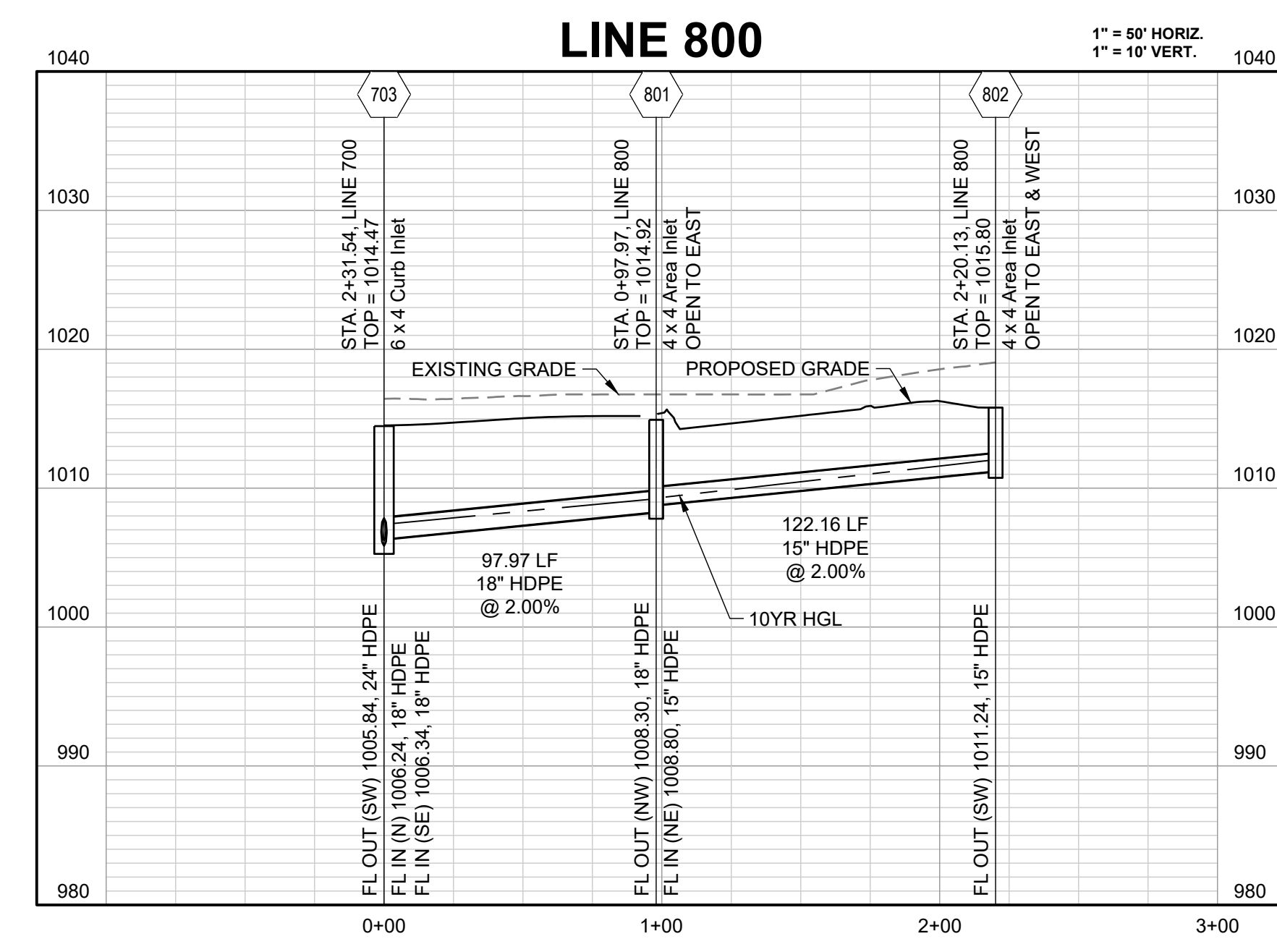
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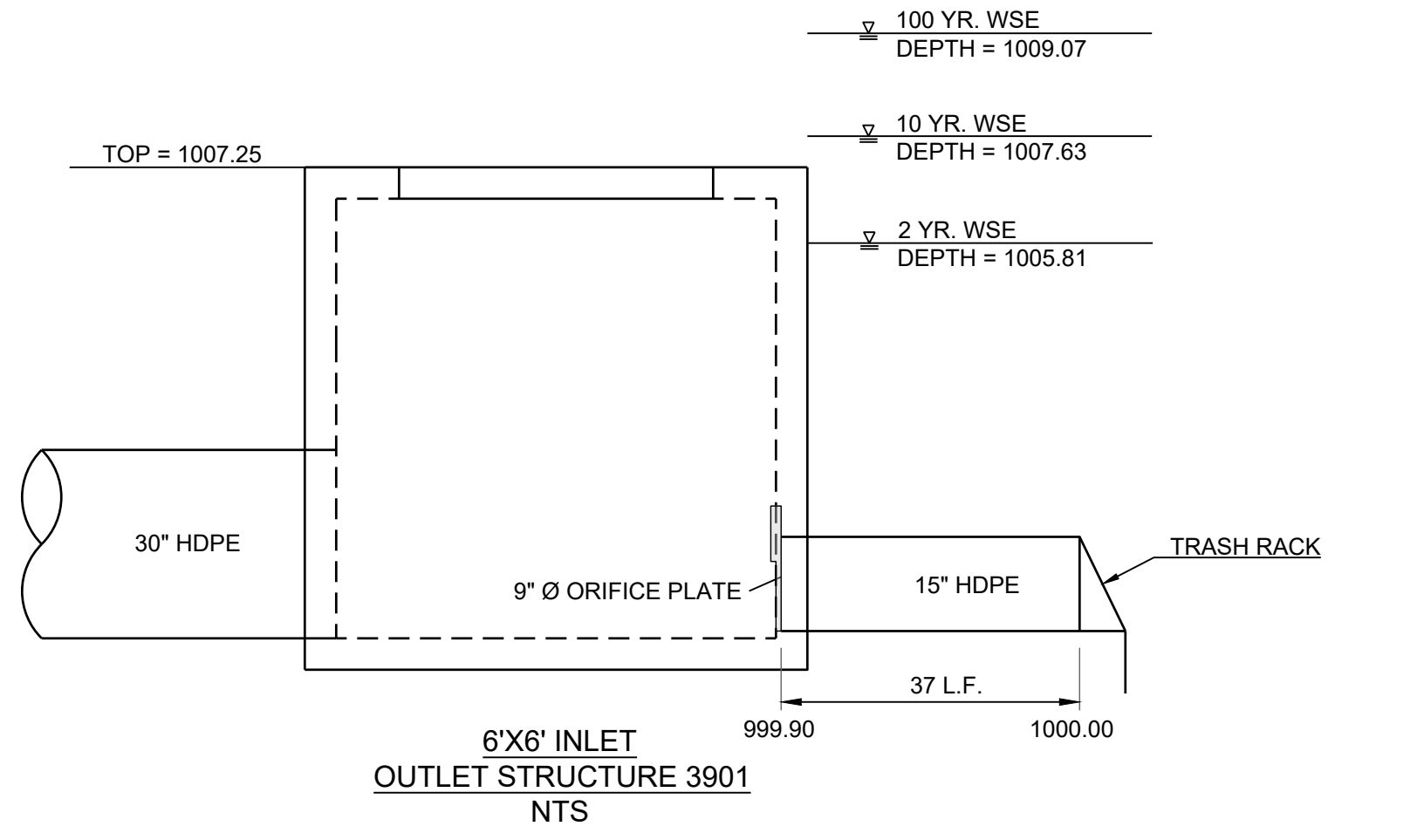
CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
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 LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
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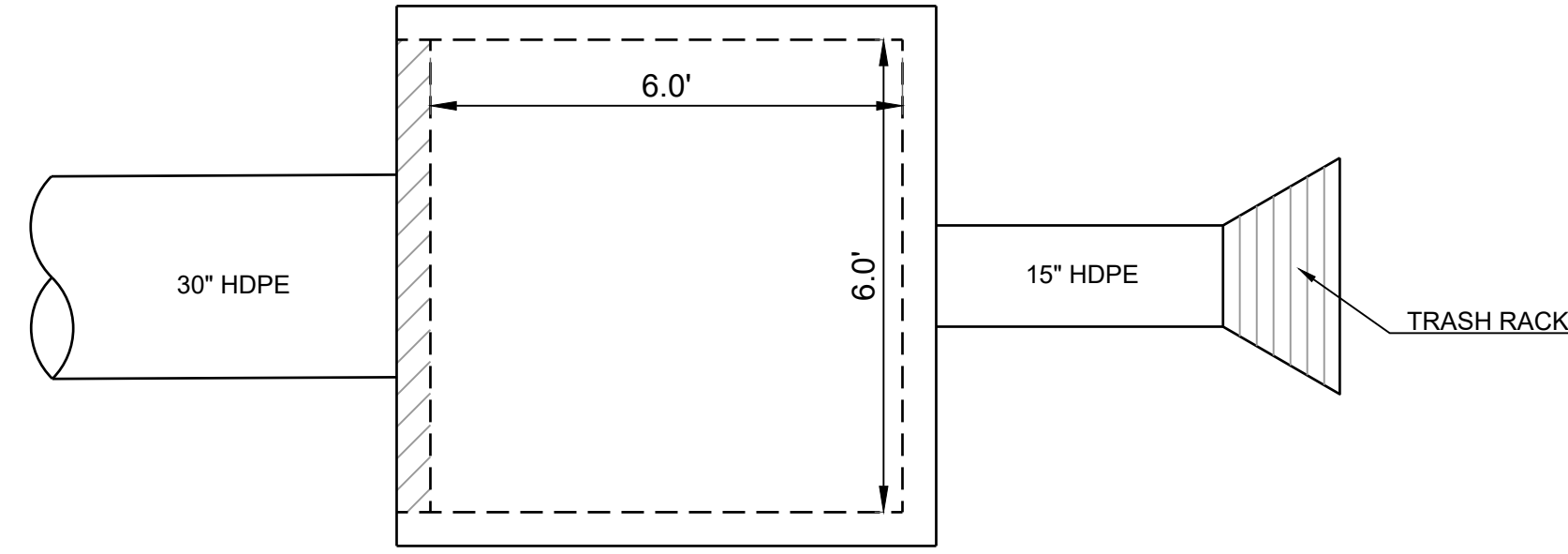


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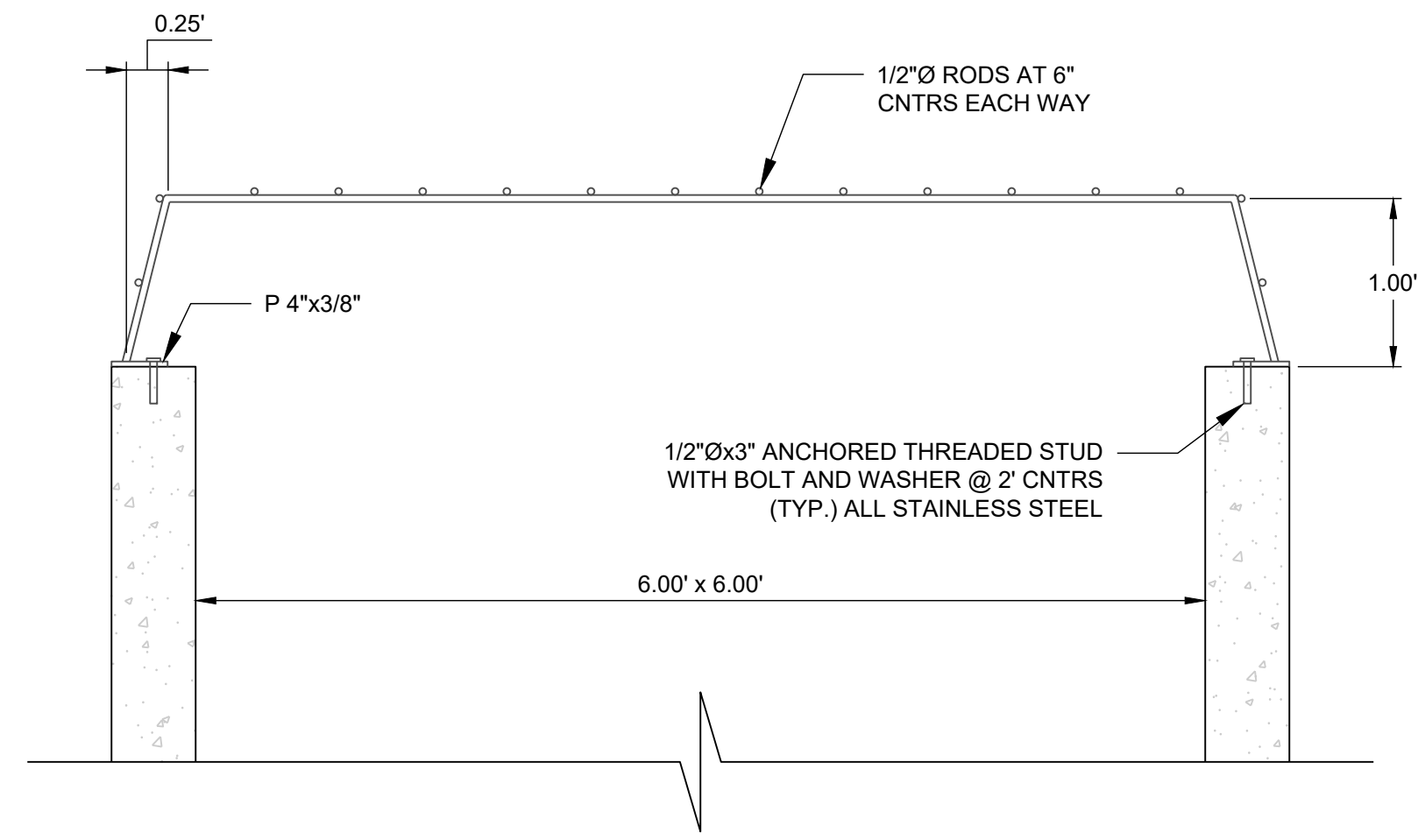




6'X6' INLET  
OUTLET STRUCTURE 3901  
NTS

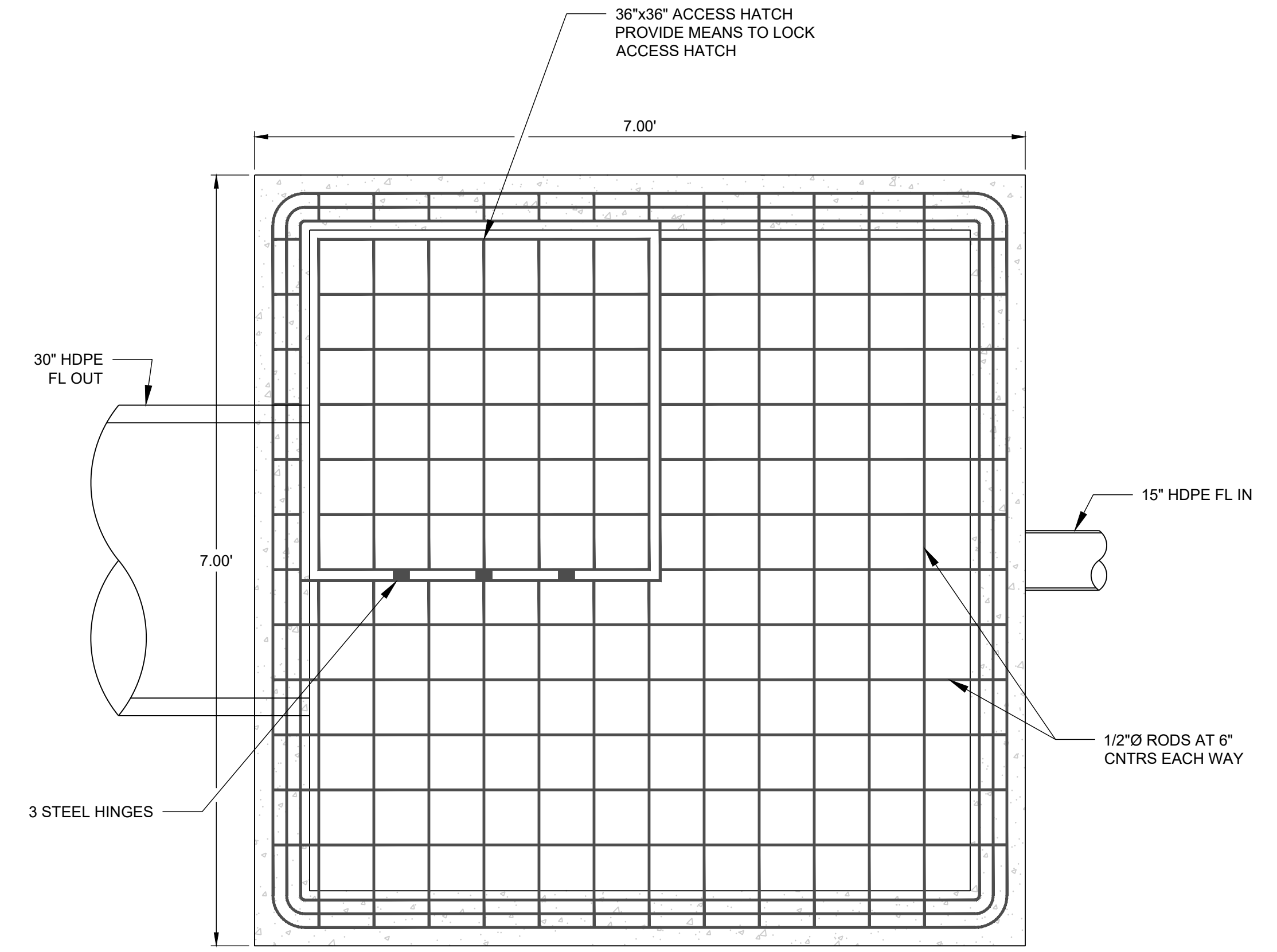


TOP VIEW 6'X6' INLET  
OUTLET STRUCTURE 3901  
NTS



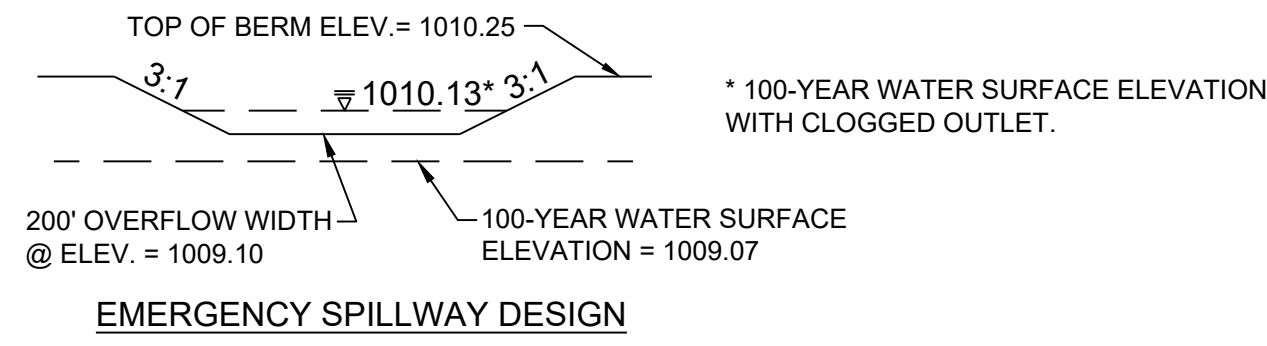
TRASH RACK DETAIL (NOT TO SCALE)

- NOTES:
1. ALL METAL PARTS TO BE GALVANIZED
  2. PROVIDE ACCESS THROUGH TRASH RACK
  3. PROVIDE LATCH TO ENABLE THE HATCH TO BE LOCKED.
  4. OUTFLOW STRUCTURE TO BE WATERTIGHT.
  5. BAR GRATING TO BE INSTALLED OVER V-NOTCH CASTING AFTER THE REMOVAL OF THE TEMPORARY SEDIMENT PERFORATED STEEL PLATE. (RE: EROSION CONTROL PLAN)

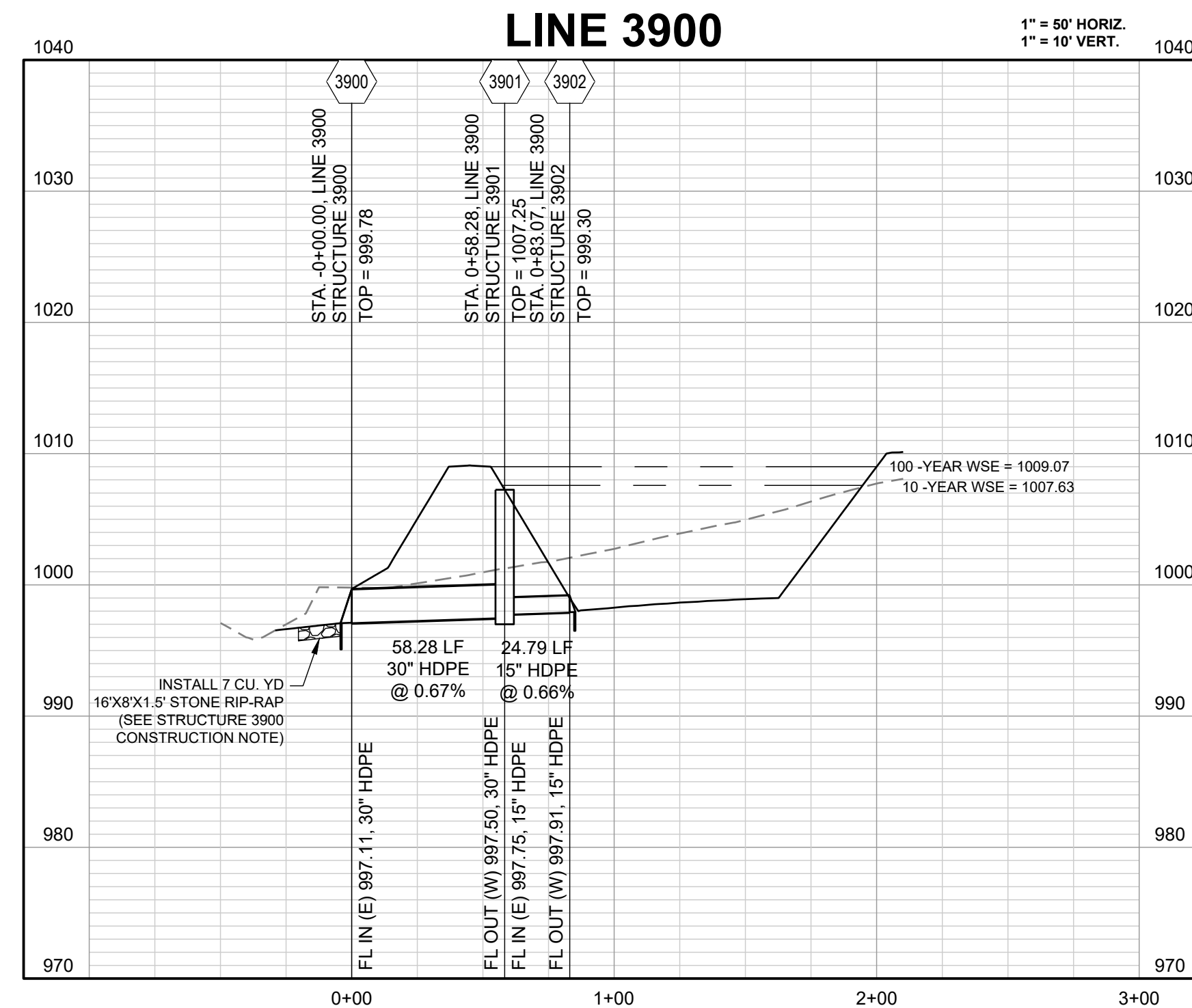
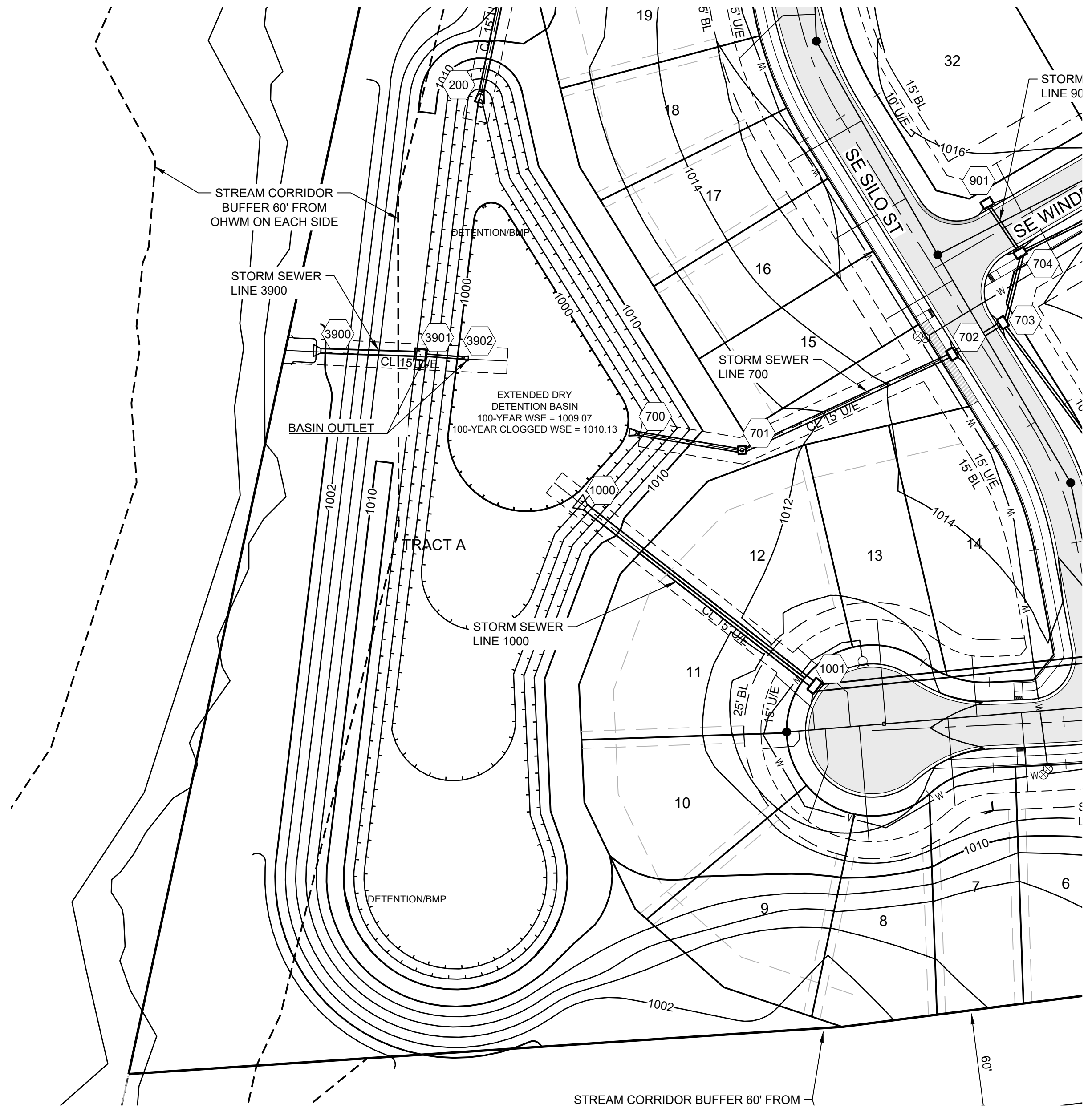


NOTE:  
DETENTION BASIN SHALL BE CONSTRUCTED ALONG WITH ALL OTHER EROSION AND SEDIMENT CONTROL DEVICES AND PRIOR TO ANY INFRASTRUCTURE BEING CONSTRUCTED.

DETENTION STORAGE:  
100 YEAR, 24 HR. RAINFALL - MAXIMUM WSE = 1009.07 (SEE FINAL STORMWATER MGMT. PLAN)  
AUXILIARY SPILLWAY SET AT 0.5 FEET ABOVE MAX. WSE, SPILLWAY ELEV. = 1009.60  
AUXILIARY SPILLWAY DESIGN:  
Q(100)= 254.36 CFS, Q=CLH<sup>3/2</sup>, C=3.33, L= 200 FT., 254.36 CFS = 3.33 \* 200 FT. \* (H<sup>3/2</sup>), H=0.53 FT.



DETENTION BASIN STORAGE VOLUME	
DESIGN STORM	VOLUME (CUBIC FEET)
2-YEAR	164,454
10-YEAR	255,846
100-YEAR	338,650



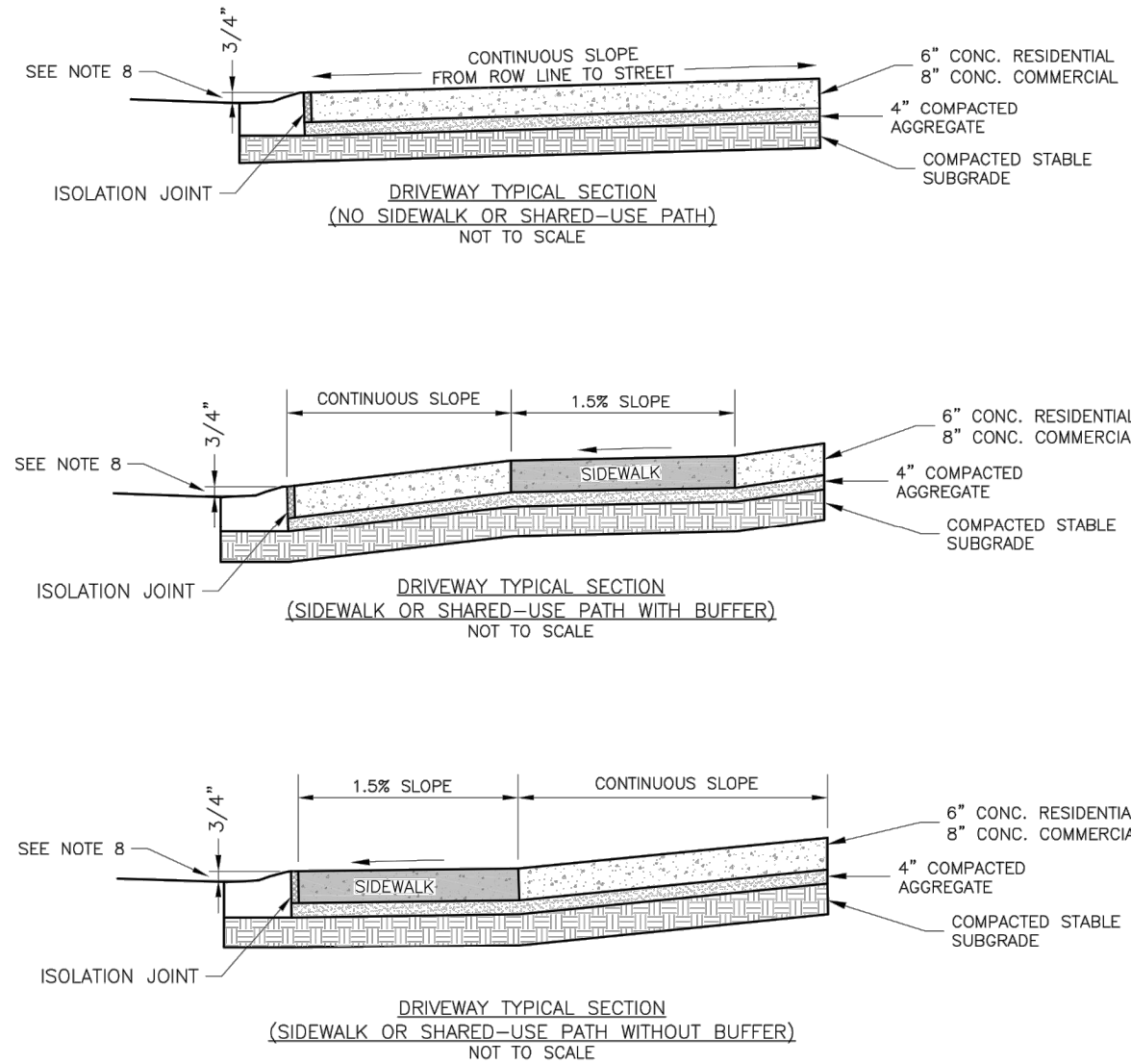
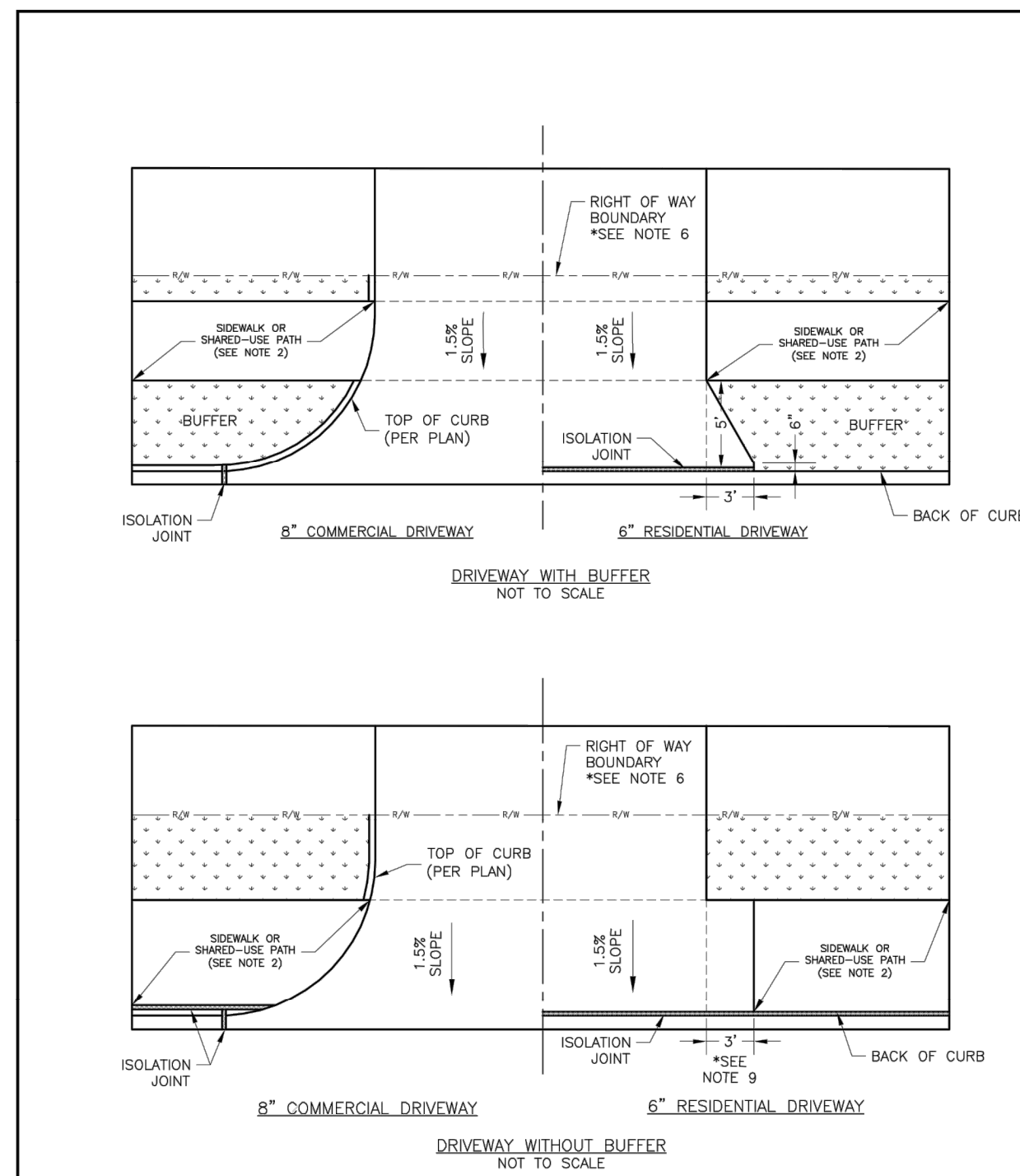
REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

DETENTION  
BASIN DESIGN



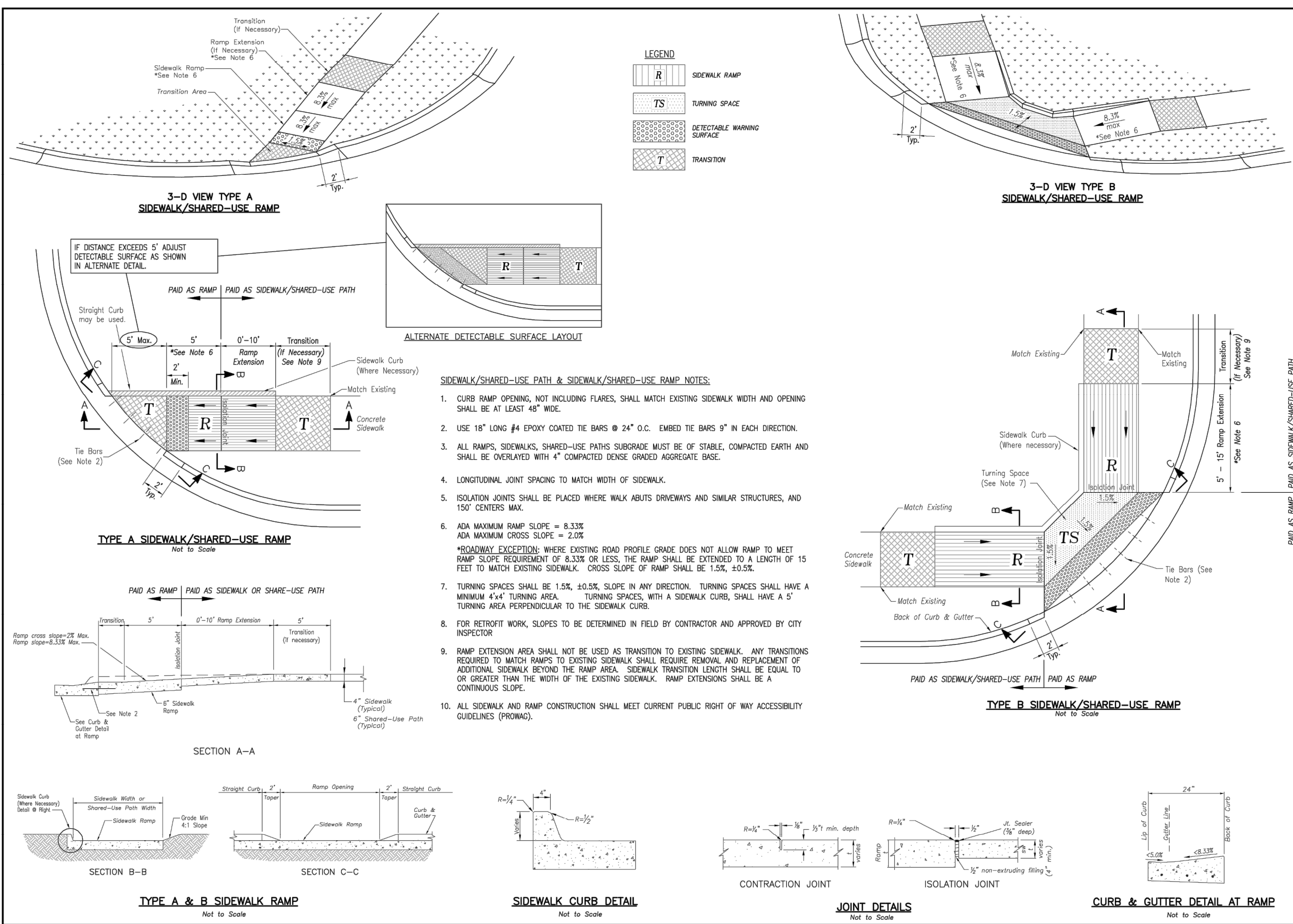






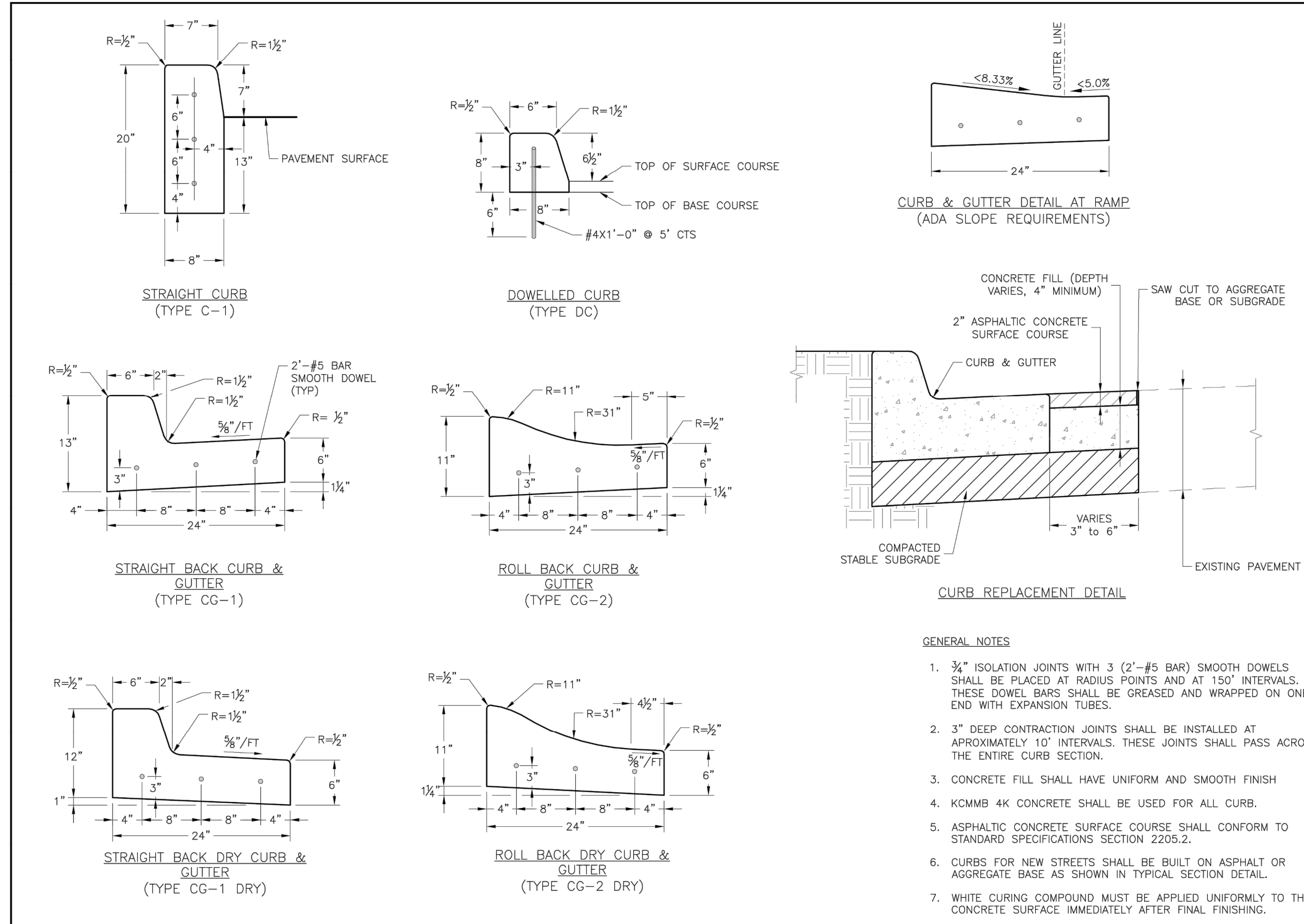
- GENERAL NOTES**
- SUBGRADE SHALL BE STABLE, COMPACTED EARTH AND SHALL BE OVERLAIN WITH 4\"/>
  - ALL DRIVE APPROACHES SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) FOR SLOPE REQUIREMENTS WHEN SIDEWALK IS REQUIRED (SEE ADA RAMP RETROFIT DETAIL).
  - JOINT AT BACK OF CURB LINE SHALL BE AN ISOLATION JOINT FOR RESIDENTIAL DRIVEWAYS.
  - KCMBB 4K CONCRETE MIX IS REQUIRED FOR ALL CURBS.
  - COMMERCIAL DRIVEWAYS AND DRIVEWAY APPROACHES, IN THE PUBLIC RIGHT OF WAY, SHALL BE KCMBB 4K CONCRETE MIX.
  - A JOINT MUST BE INSTALLED AT THE RIGHT OF WAY BOUNDARY FOR PROPERTY DELINEATION.
  - WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
  - 3/4\"/>
  - SIDEWALK ADJOINING CURB SHALL BE 6\"/>
  - THE MAXIMUM WIDTH OF A RESIDENTIAL DRIVEWAY IS 36 FEET WITHIN THE RIGHT OF WAY.

**LEE'S SUMMIT MISSOURI**  
 STANDARD DETAILS  
 CITY OF LEE'S SUMMIT, MO  
 LEE'S SUMMIT, JACKSON COUNTY, MO  
 DRIVEWAY DETAIL  
 GEN-1



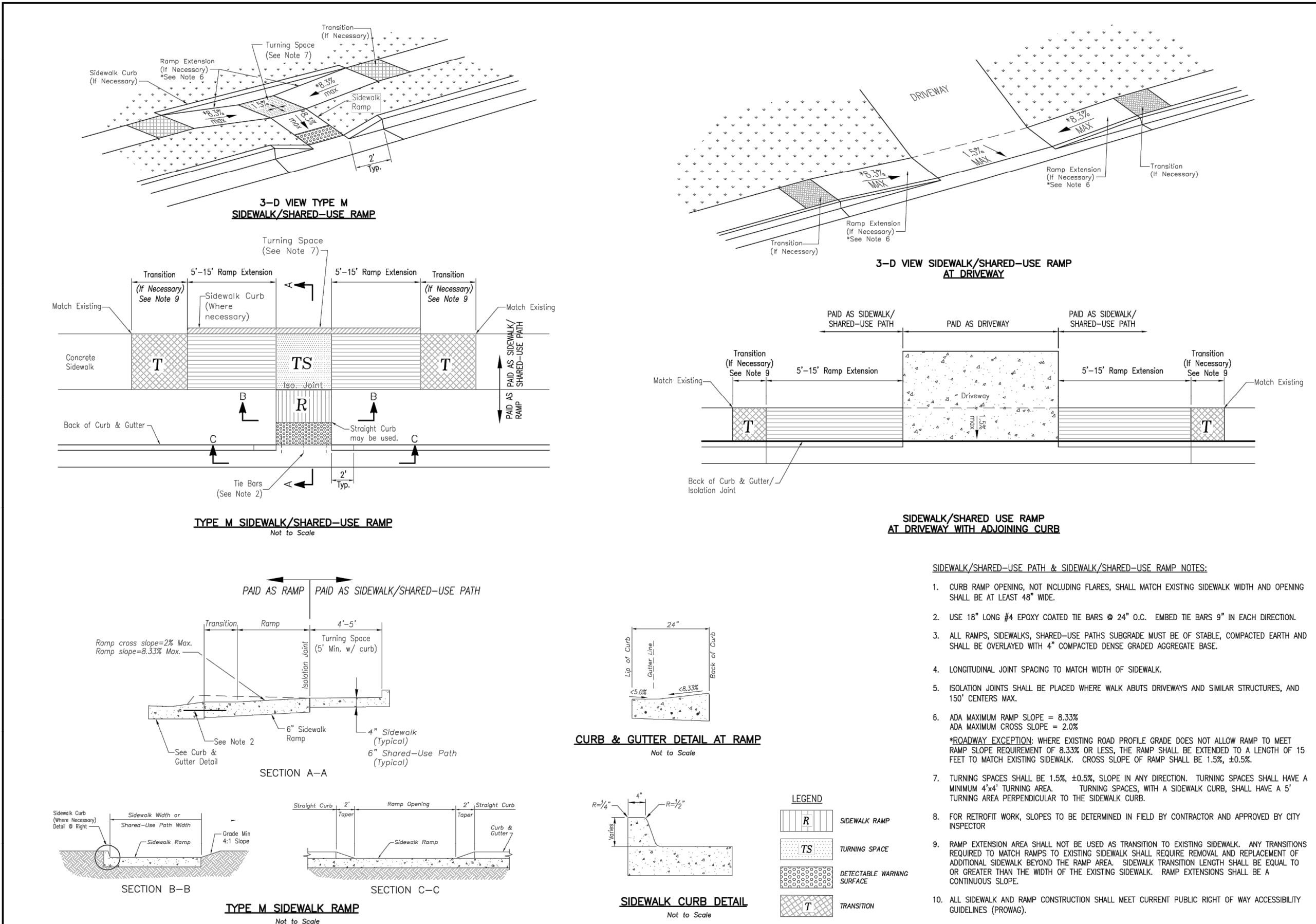
- SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:**
- CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48\"/>
  - USE 18\"/>
  - ALL RAMP, SIDEWALK, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAIN WITH 4\"/>
  - LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
  - ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 150\"/>
  - ADA MAXIMUM RAMP SLOPE = 0.33%  
 ADA MAXIMUM CROSS SLOPE = 2.0%
  - HORIZONTAL EXCEPTION:** WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 0.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
  - TURNING SPACES SHALL BE 1.5%, ±0.5% SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
  - FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR.
  - RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMP TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
  - ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).

**LEE'S SUMMIT MISSOURI**  
 STANDARD DETAILS  
 CITY OF LEE'S SUMMIT, MO  
 LEE'S SUMMIT, JACKSON COUNTY, MO  
 ADA RAMP RETROFIT DETAIL  
 GEN-3A



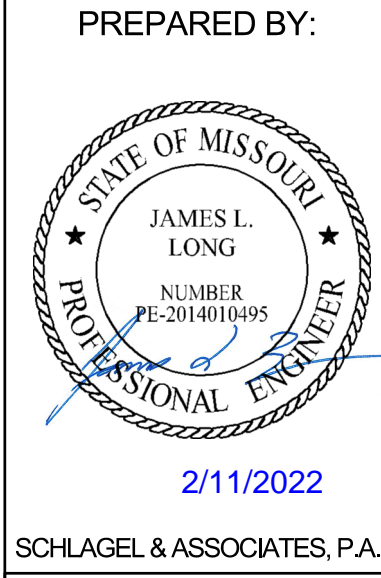
- GENERAL NOTES**
- 3/4\"/>
  - 3\"/>
  - CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH.
  - KCMBB 4K CONCRETE SHALL BE USED FOR ALL CURB.
  - ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
  - CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
  - WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

**LEE'S SUMMIT MISSOURI**  
 STANDARD DETAILS  
 CITY OF LEE'S SUMMIT, MO  
 LEE'S SUMMIT, JACKSON COUNTY, MO  
 CURB & GUTTER DETAIL  
 GEN-4



- SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:**
- CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48\"/>
  - USE 18\"/>
  - ALL RAMP, SIDEWALK, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAIN WITH 4\"/>
  - LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
  - ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 150\"/>
  - ADA MAXIMUM RAMP SLOPE = 0.33%  
 ADA MAXIMUM CROSS SLOPE = 2.0%
  - HORIZONTAL EXCEPTION:** WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 0.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
  - TURNING SPACES SHALL BE 1.5%, ±0.5% SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
  - FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR.
  - RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMP TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
  - ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).

**LEE'S SUMMIT MISSOURI**  
 STANDARD DETAILS  
 CITY OF LEE'S SUMMIT, MO  
 LEE'S SUMMIT, JACKSON COUNTY, MO  
 ADA RAMP RETROFIT DETAIL  
 GEN-3B



SCHLAGEL & ASSOCIATES, P.A.

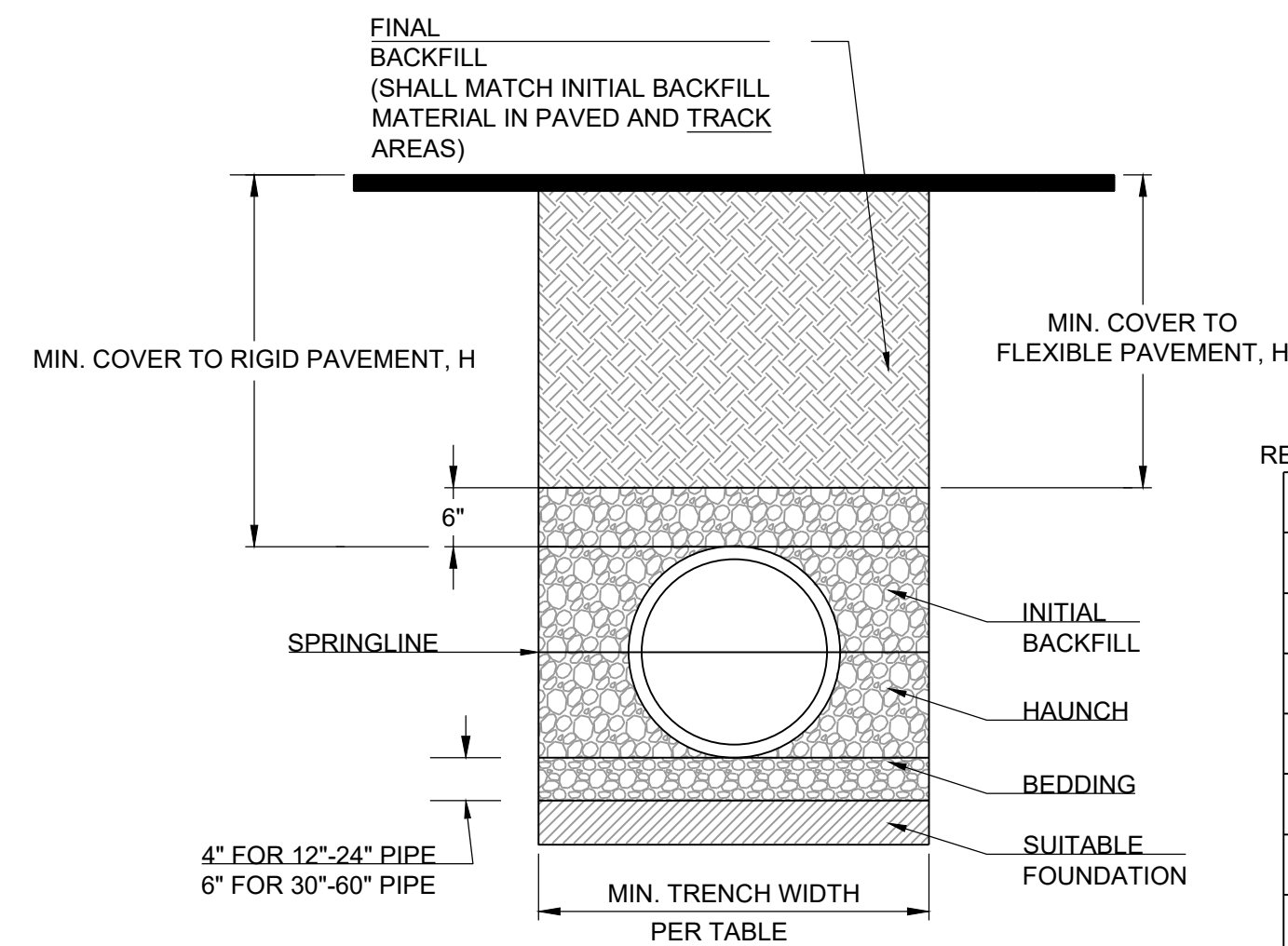
CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
 STREET, STORMWATER, AND MASTER  
 DRAINAGE PLAN  
 SE BAILEY ROAD AND SE RANSON ROAD  
 LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

DRAWN BY: JRL	CHECKED BY: JLL	DATE PREPARED: 1/22/2021	PROJ. NUMBER: 21-136
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STREET DETAIL SHEET





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"

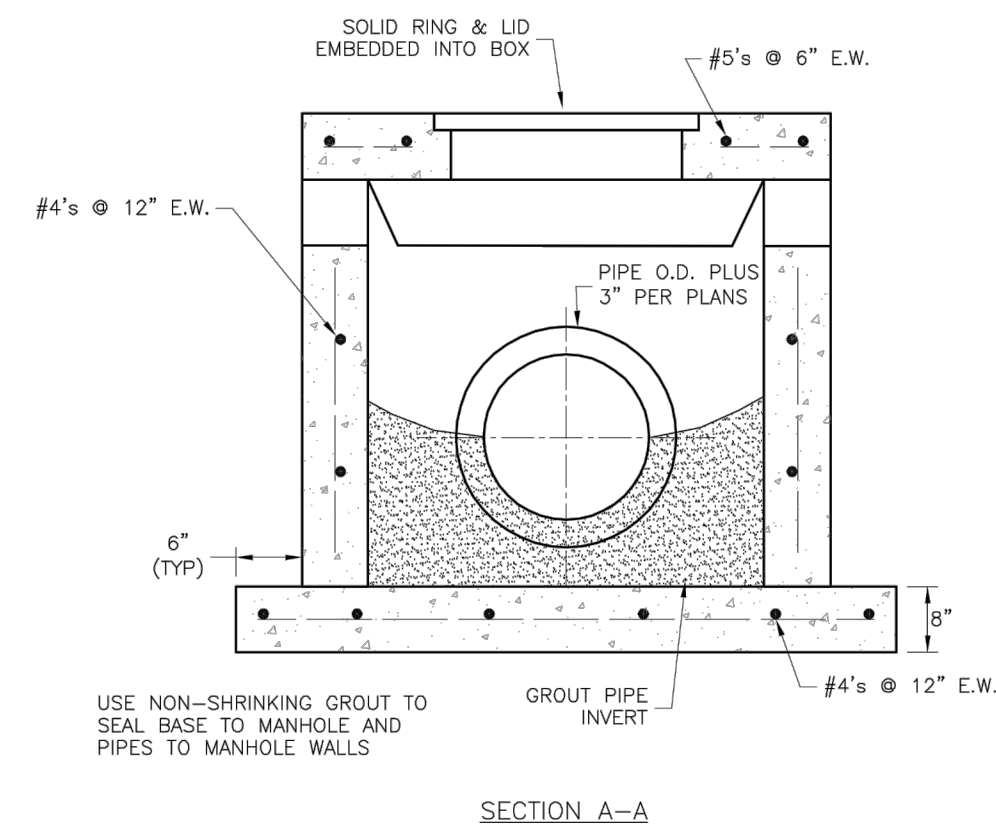
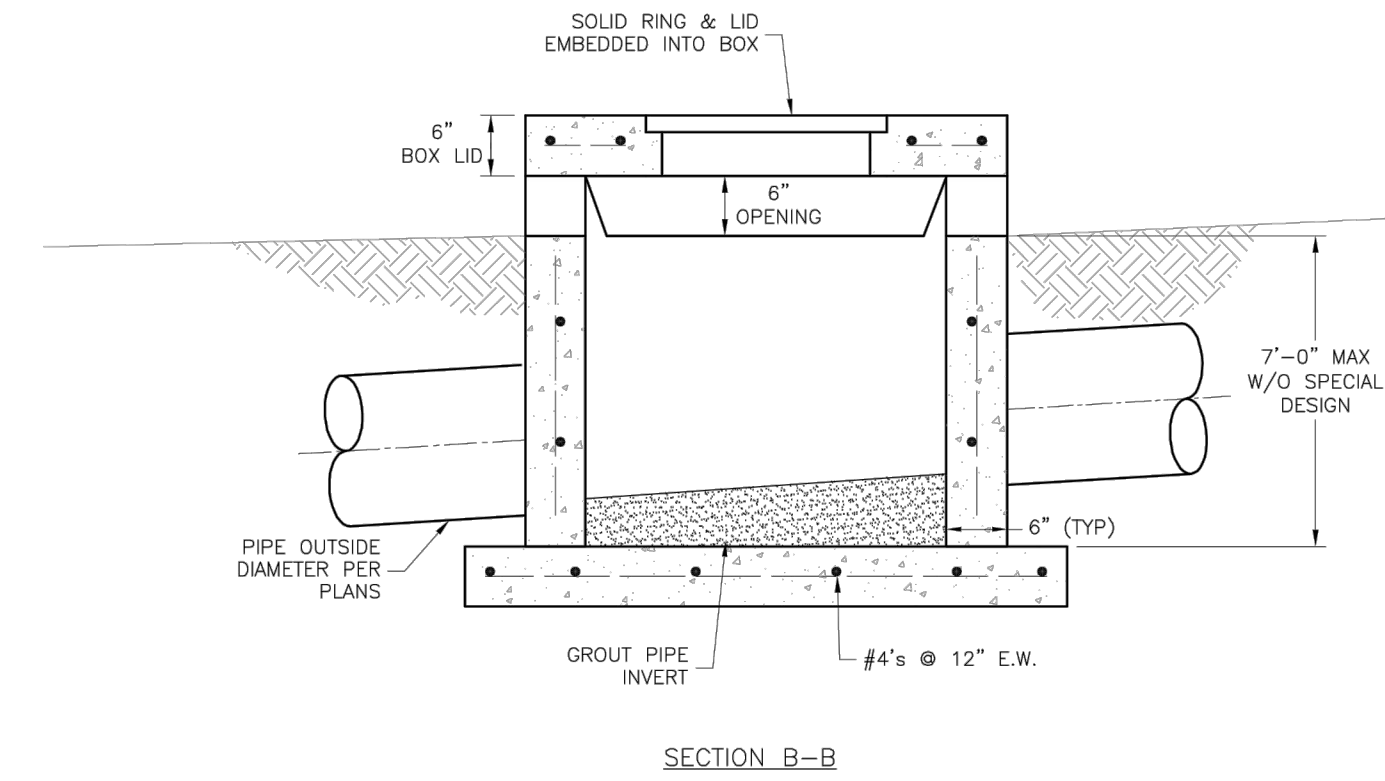
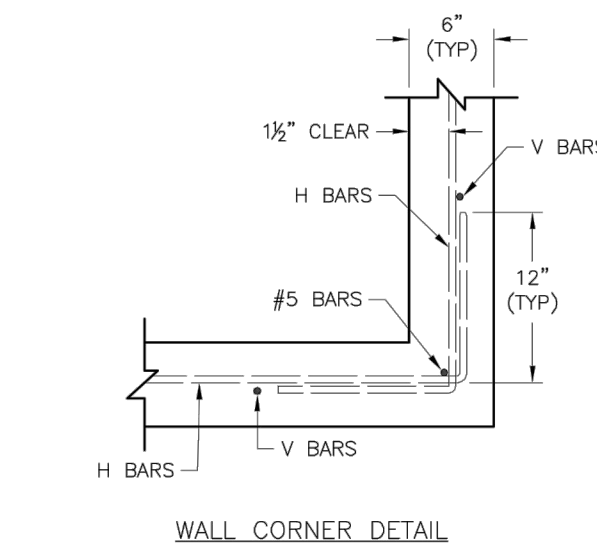
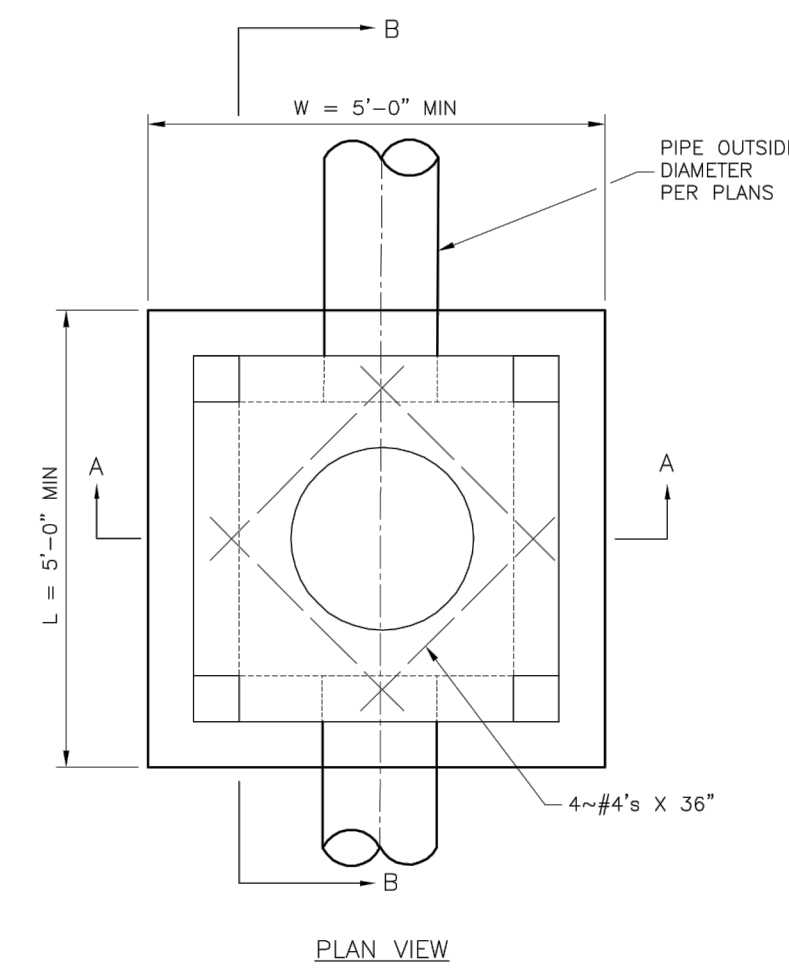
\* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

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"

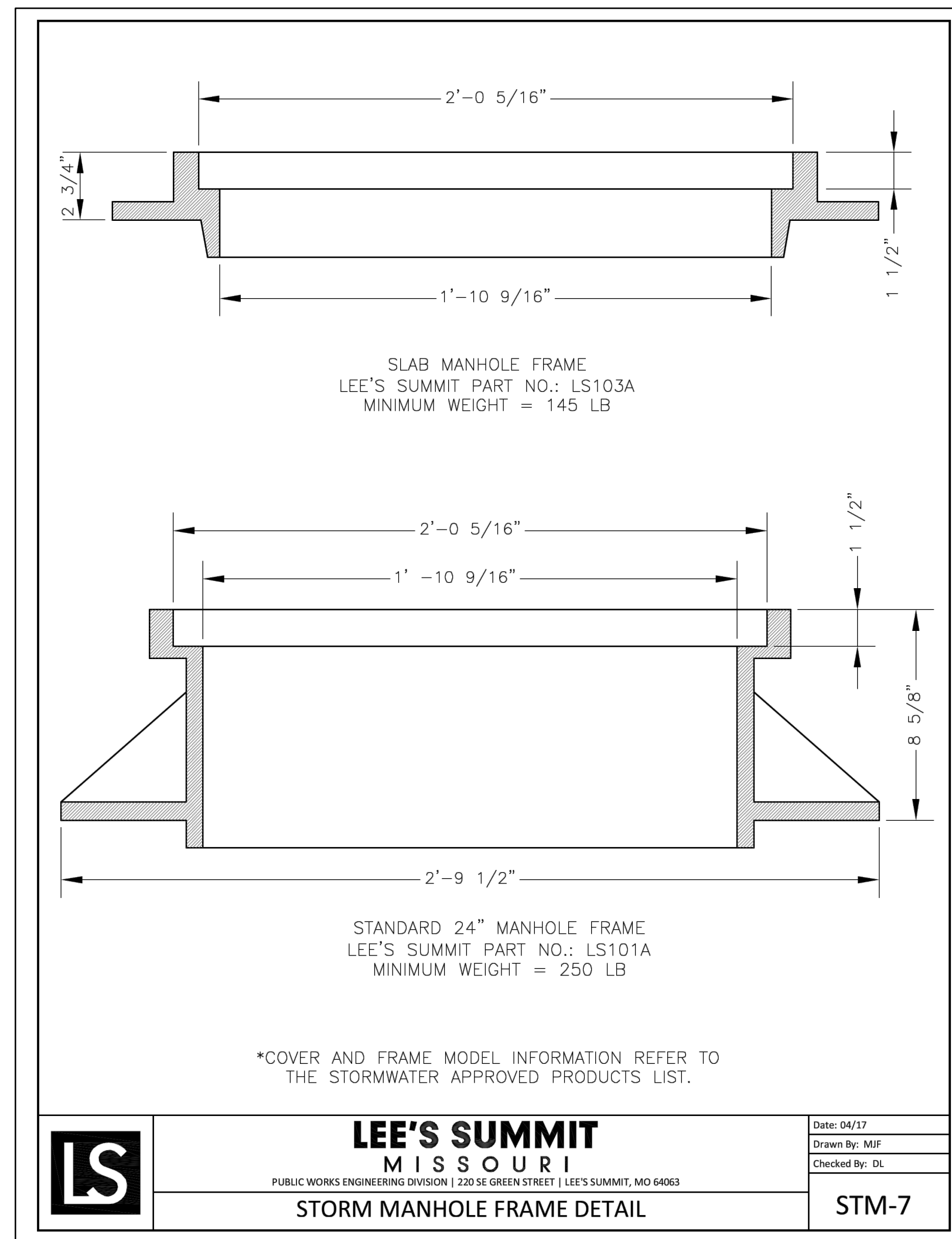
NOTES:

- 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.

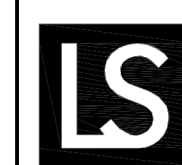


GENERAL NOTES:

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



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



**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64668

Date: 04/17  
Drawn By: MIF  
Checked By: DL

STM-7

**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64668

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

STM-2



PREPARED BY:



2/11/2022

SCHLAGEL & ASSOCIATES, P.A.

CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
STREET, STORMWATER, AND MASTER  
DRAINAGE PLAN  
SE BAILEY ROAD AND SE RANSON ROAD  
LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

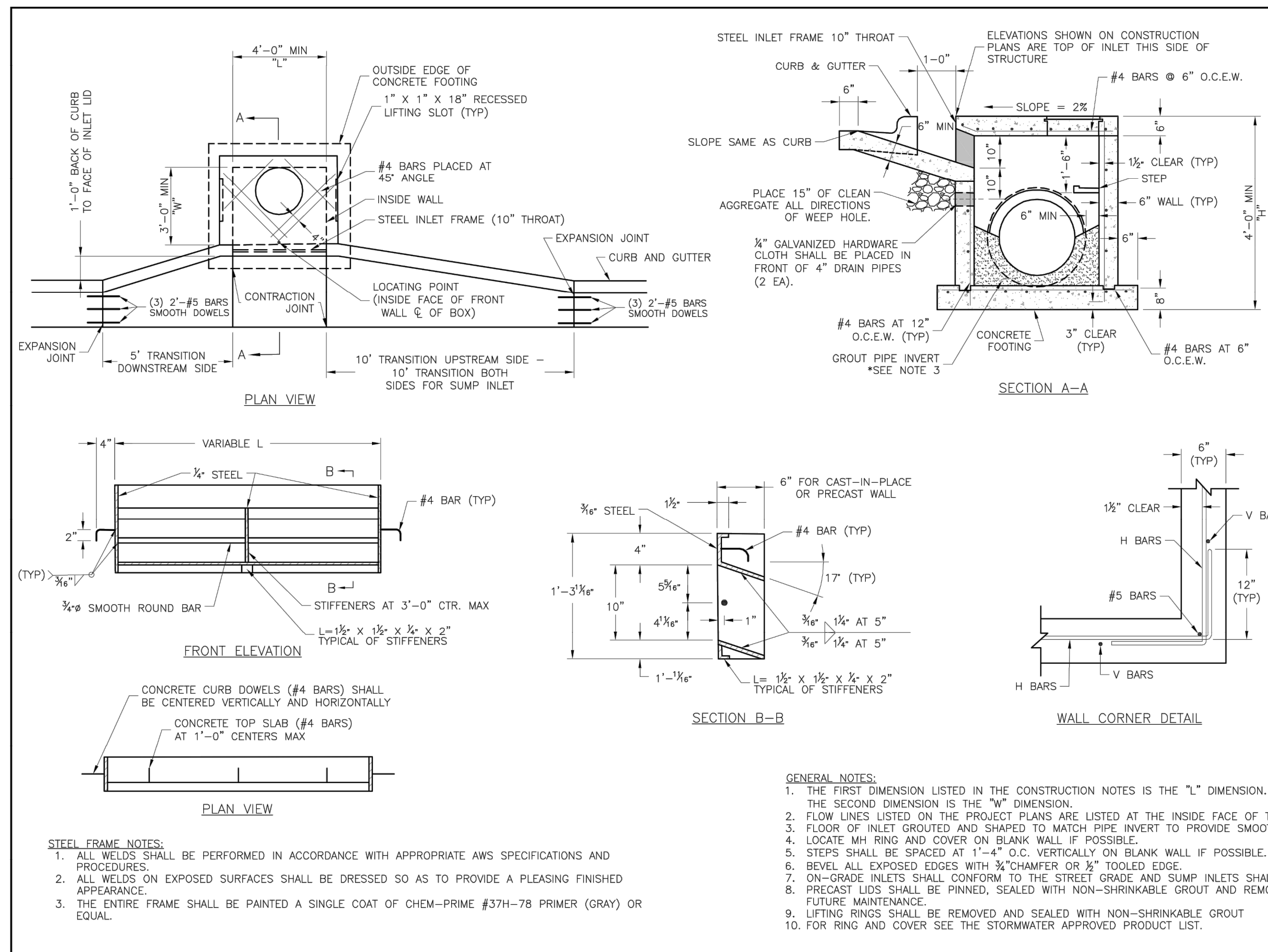
DRAWN BY: JRJ	CHECKED BY: JLL	DATE PREPARED: 1/22/2021	PROJ. NUMBER: 21-138
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STORM DETAIL SHEET

SHEET

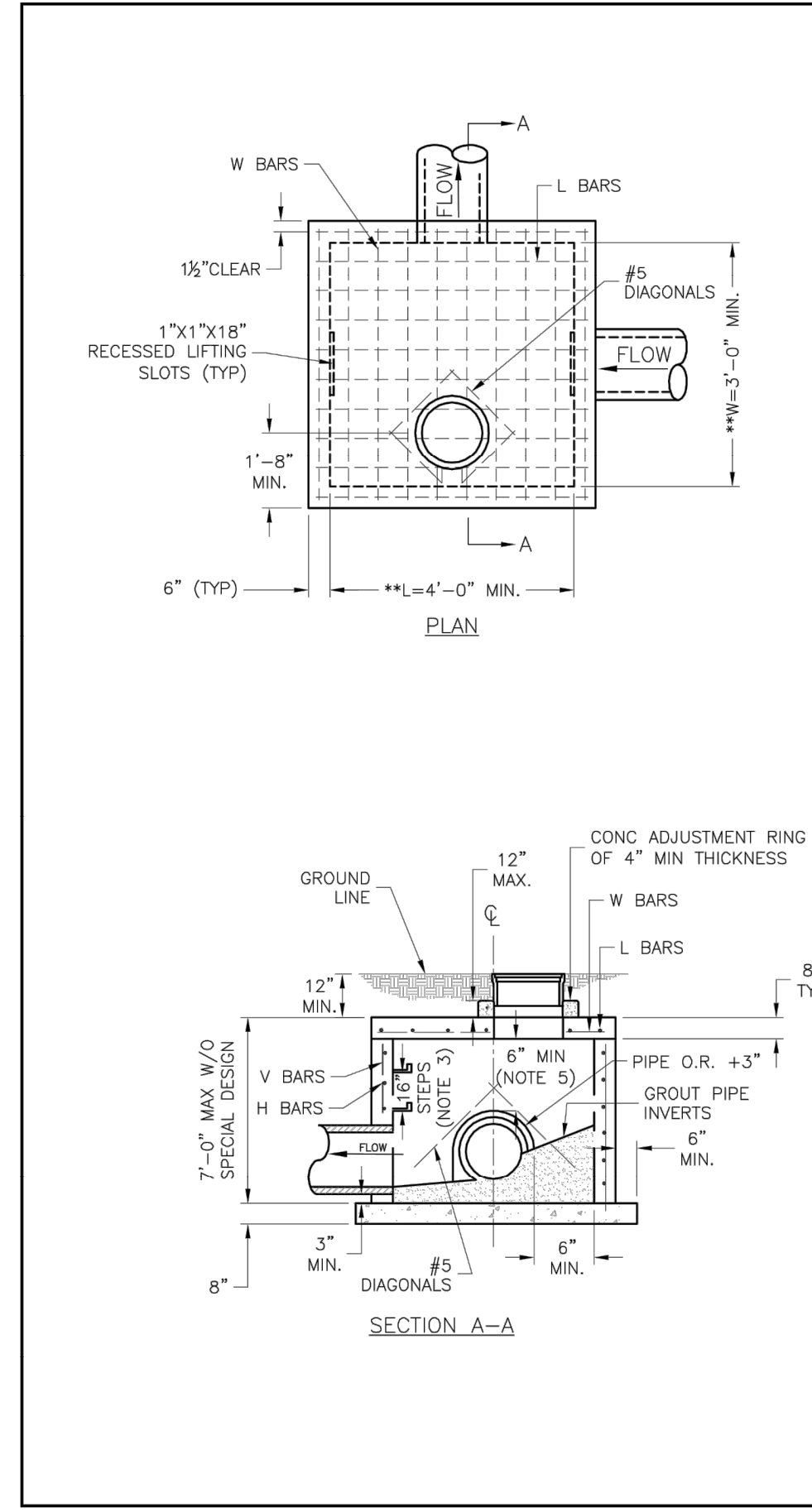
16





**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64603

STANDARD DETAILS  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO  
CURB INLET DETAIL  
STM-1



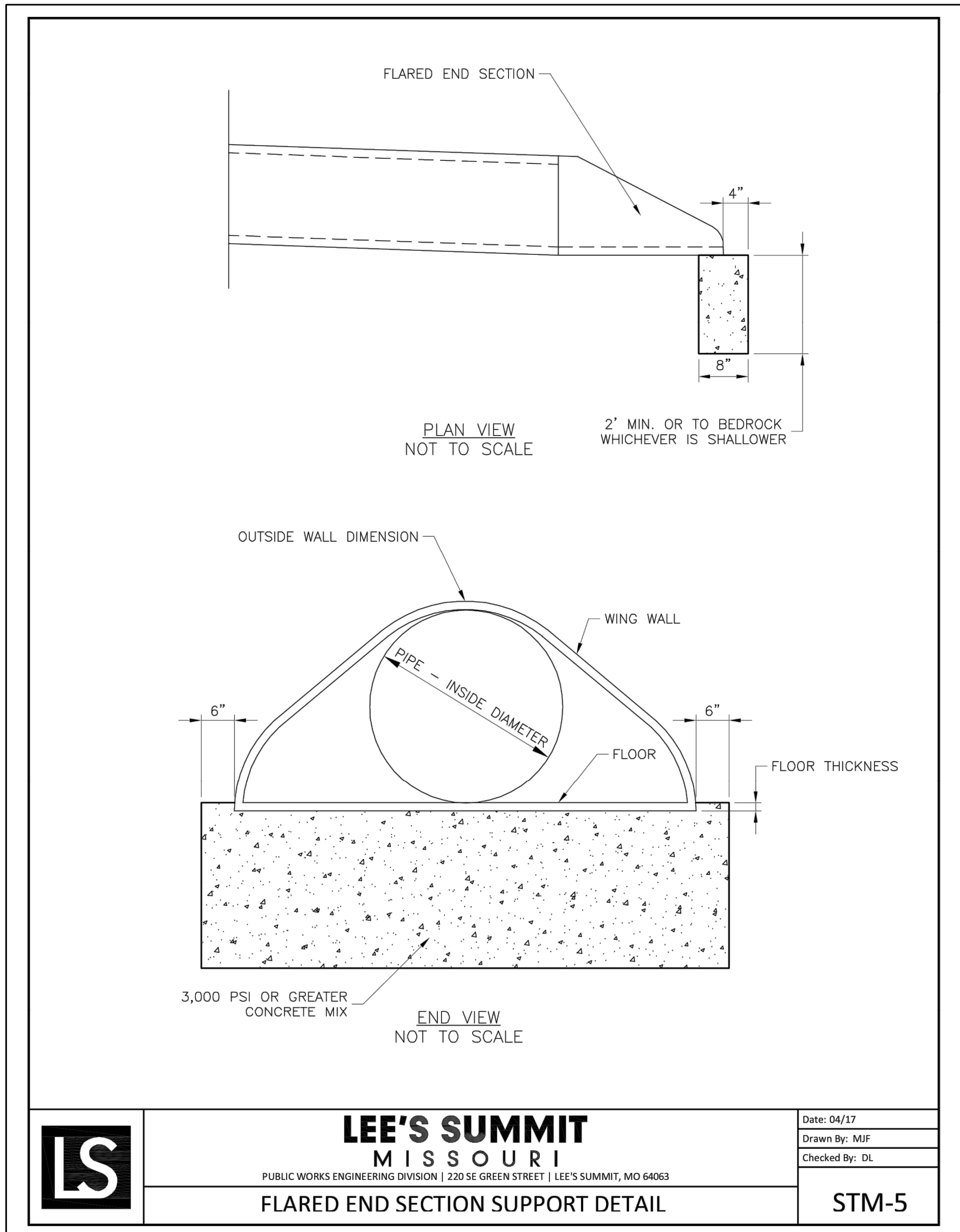
**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64603

STANDARD DETAILS  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO  
JUNCTION BOX DETAIL  
STM-3

REINFORCING

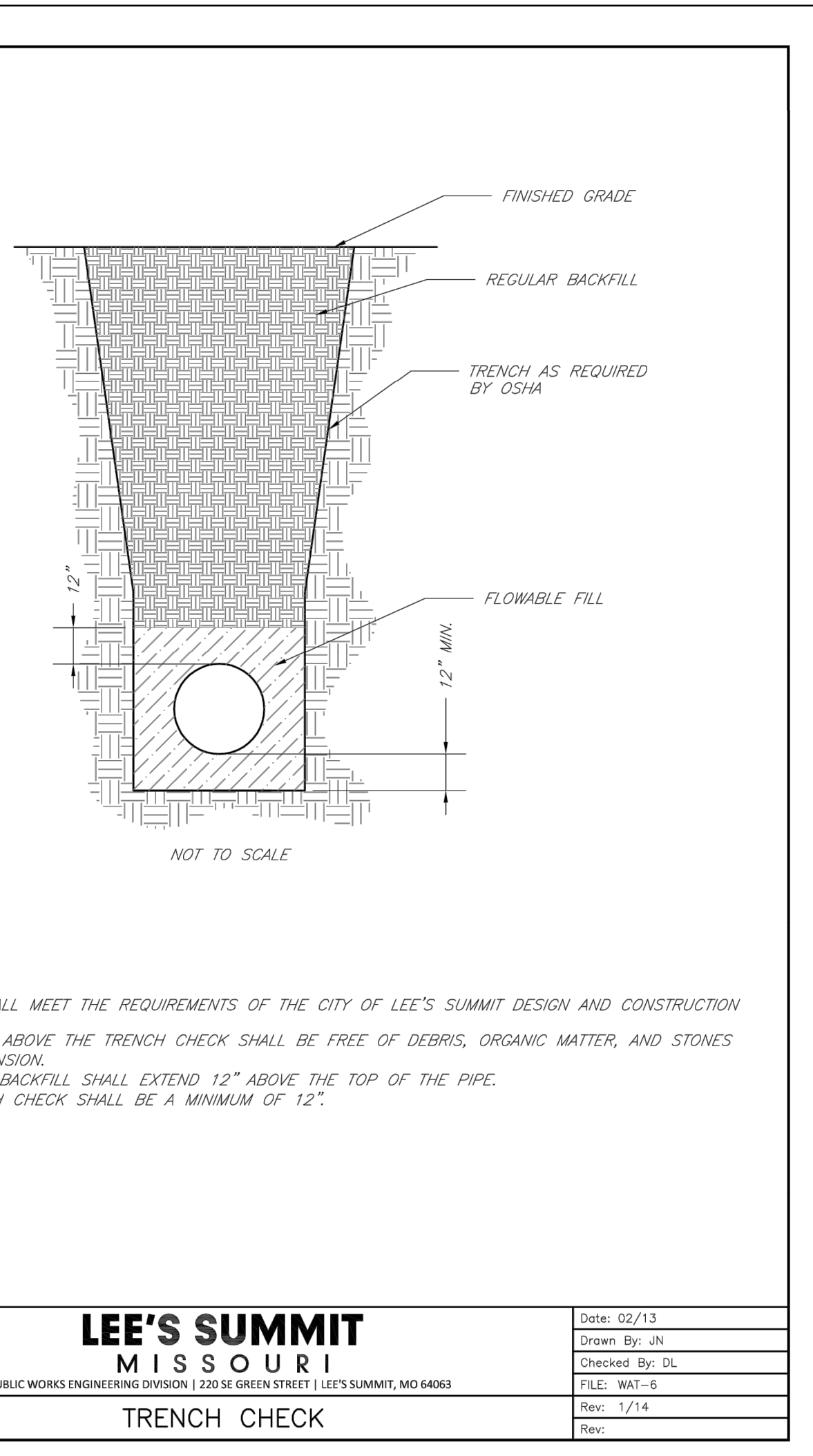
BARS	BAR SIZE	SPACING (IN.)
H	4	12
V	4	12
L	5	6
W	5	6

- GENERAL NOTES:
1. LOCATE RING AND COVER ON BLANK WALL.
  2. USE 3/4" CHAMFER STRIP OR 1/2" R EDGER TOOL ON ALL EXPOSED CONCRETE CORNERS.
  3. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 4' ON BLANK WALL IF POSSIBLE.
  4. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE AND THE MINIMUM DISTANCE BETWEEN BOXOUTS IS 6".
  5. THE MINIMUM REINFORCING SHALL BE 1 H-BAR OVER A CAST-IN-PLACE PIPE AND 2 H-BARS OVER A PRECAST BOXOUT.
  6. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON-SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
  7. REINFORCING OF COVERS IN STREETS REQUIRE SPECIAL DESIGN.
  8. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.



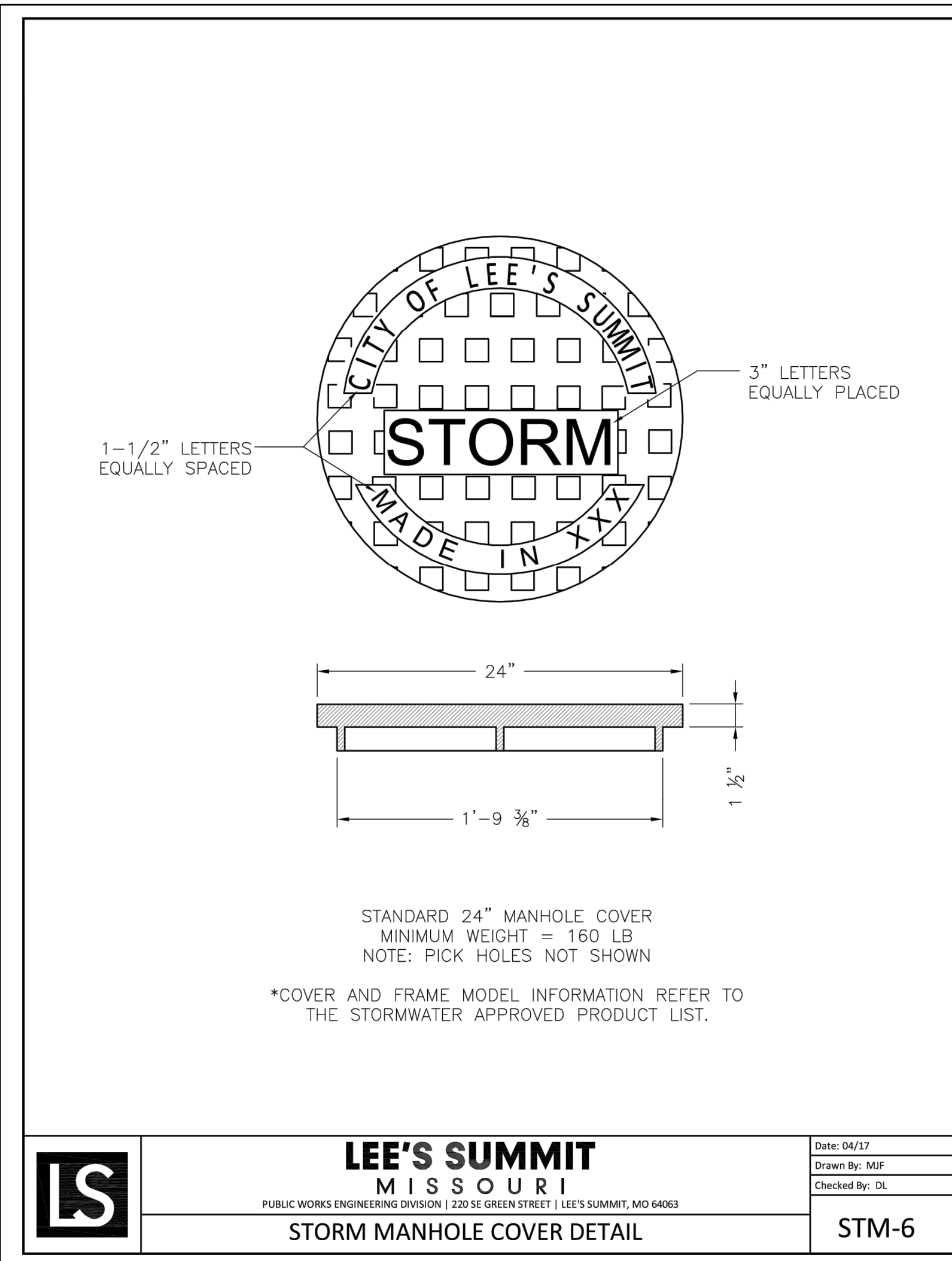
**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64603

FLARED END SECTION SUPPORT DETAIL  
STM-5



**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64603

TRENCH CHECK  
STM-6



**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64603

STORM MANHOLE COVER DETAIL  
STM-6

**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  
#E220020360F #LAC201005237 #LS200200869F

PREPARED BY:  
**JAMES L. LONG**  
PROFESSIONAL ENGINEER  
NUMBER PE-211418195  
2/11/2022  
SCHLAGEL & ASSOCIATES, P.A.

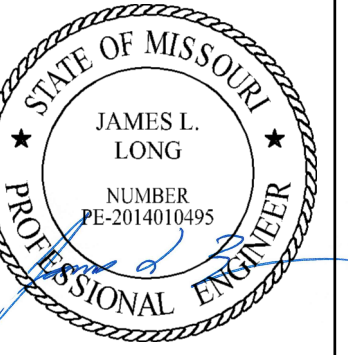
CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
STREET, STORMWATER, AND MASTER  
DRAINAGE PLAN  
SE BAILEY ROAD AND SE RANSON ROAD  
LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

STORM DETAIL SHEET  
SHEET



PREPARED BY:



2/11/2022

SCHLAGEL & ASSOCIATES, P.A.

CORNERSTONE AT BAILEY FARMS, FIRST PLAT  
 STREET, STORMWATER, AND MASTER DRAINAGE  
 PLAN  
 SE BAILEY ROAD AND SE RANSON ROAD  
 LEE'S SUMMIT, MISSOURI

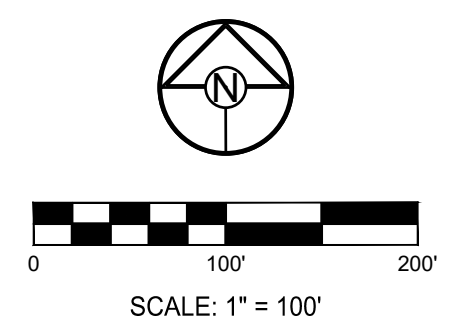
REVISION DATE	DESCRIPTION
02/03/2022	PER CITY COMMENTS DATED 01/10/2022

DRAWN BY: JRJ	CHECKED BY: JLL	DATE PREPARED: 1/22/2021	PROJ. NUMBER: 21-138
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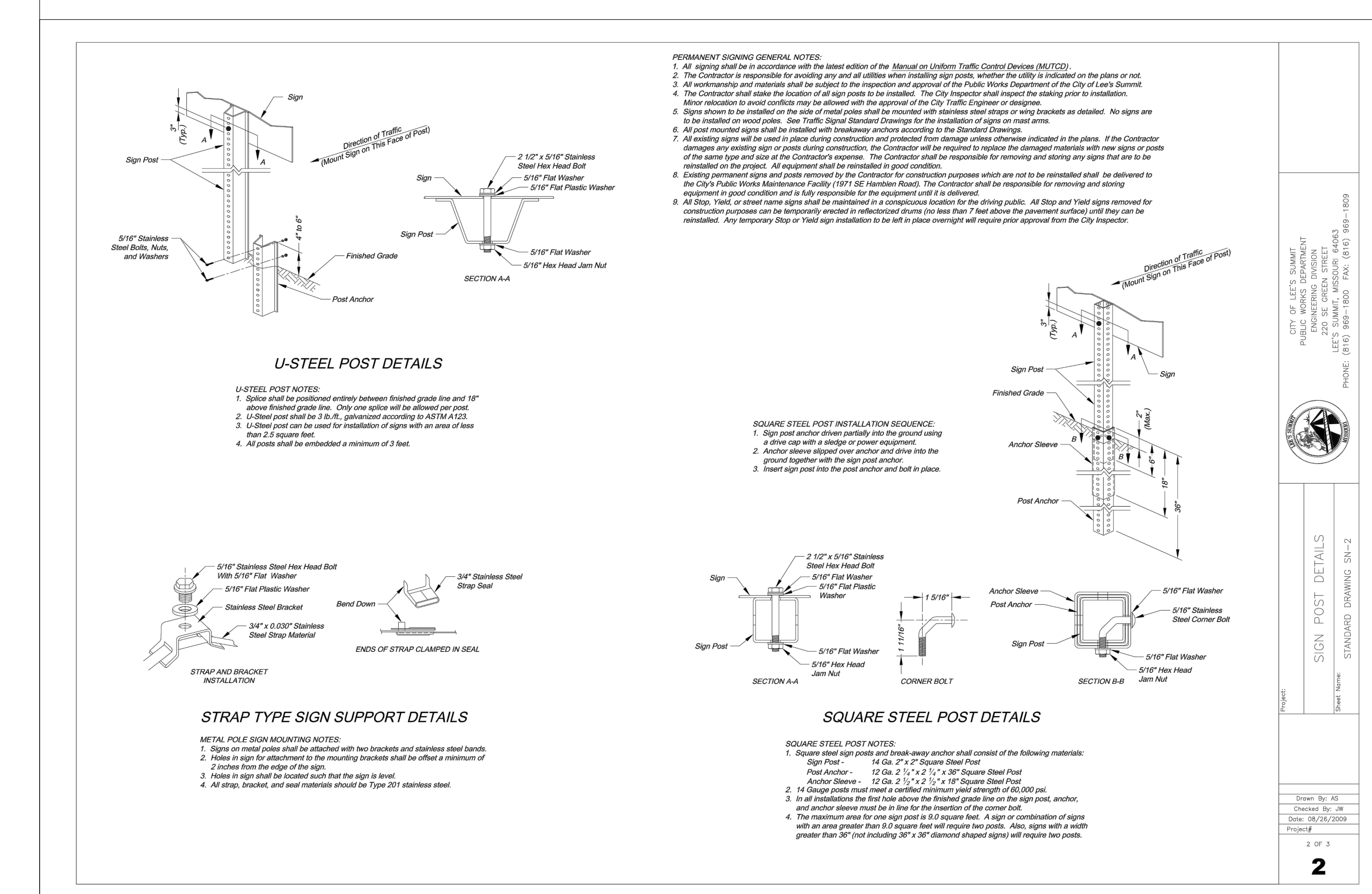
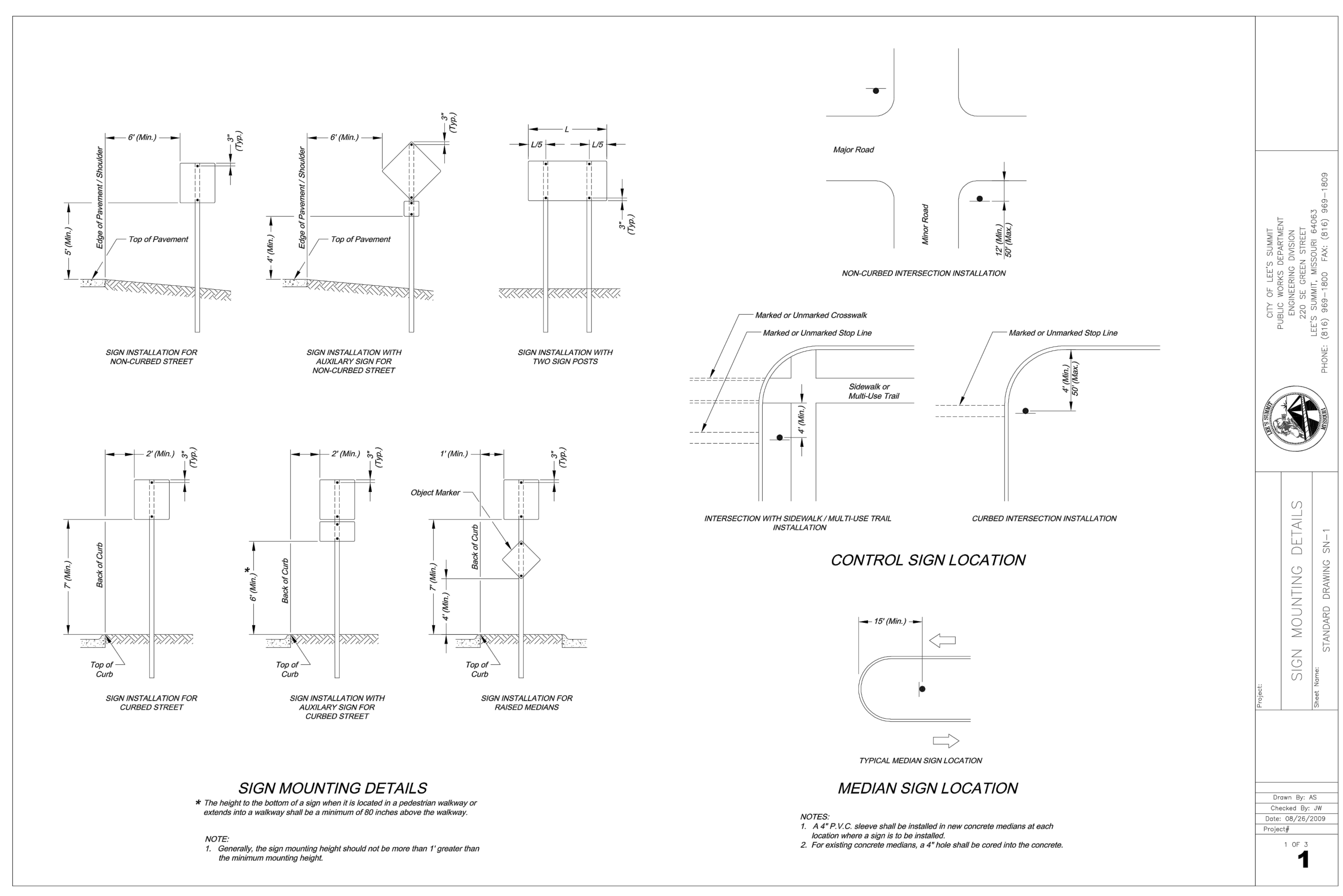
STREET SIGN PLAN

SHEET

18





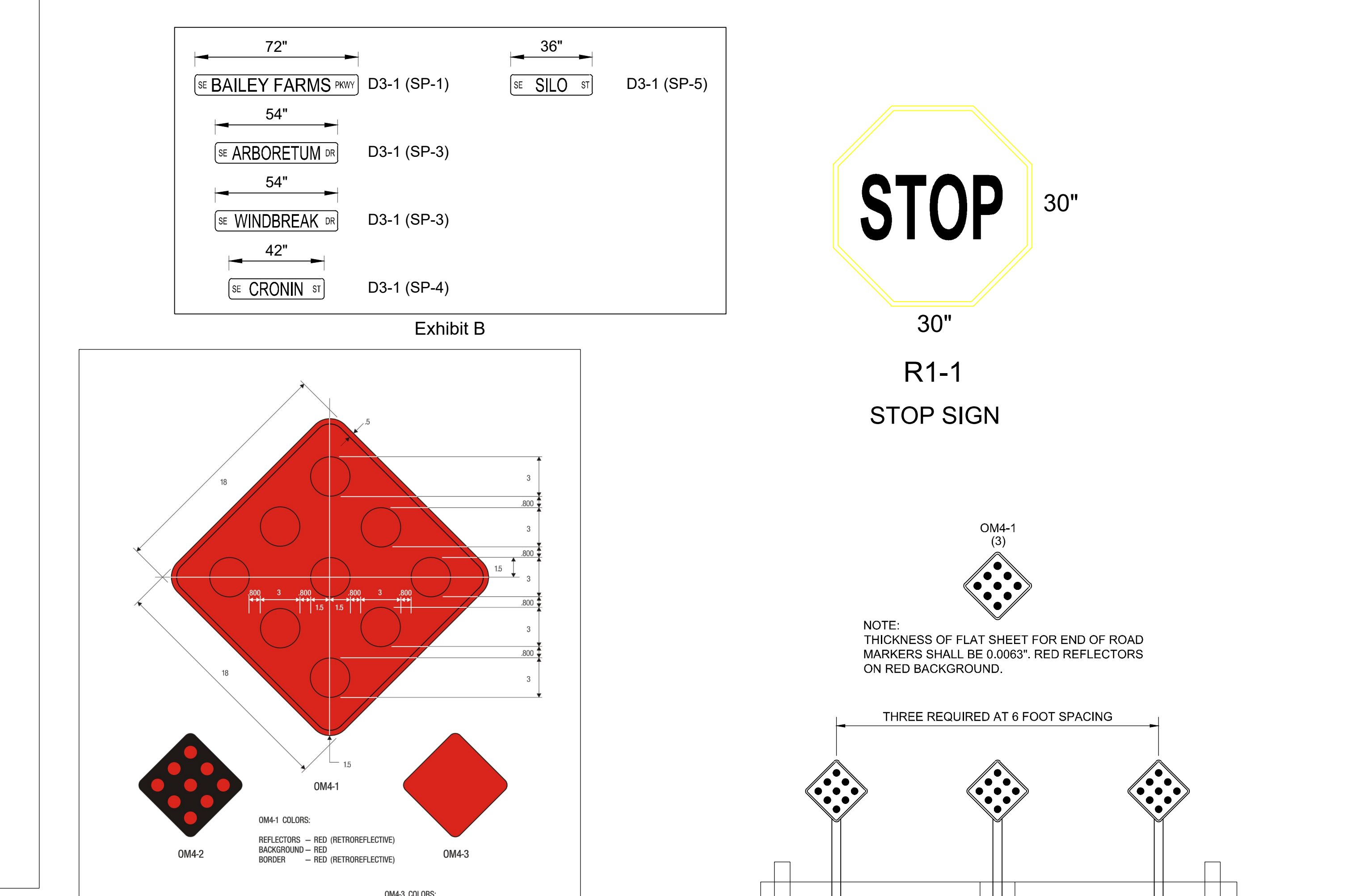
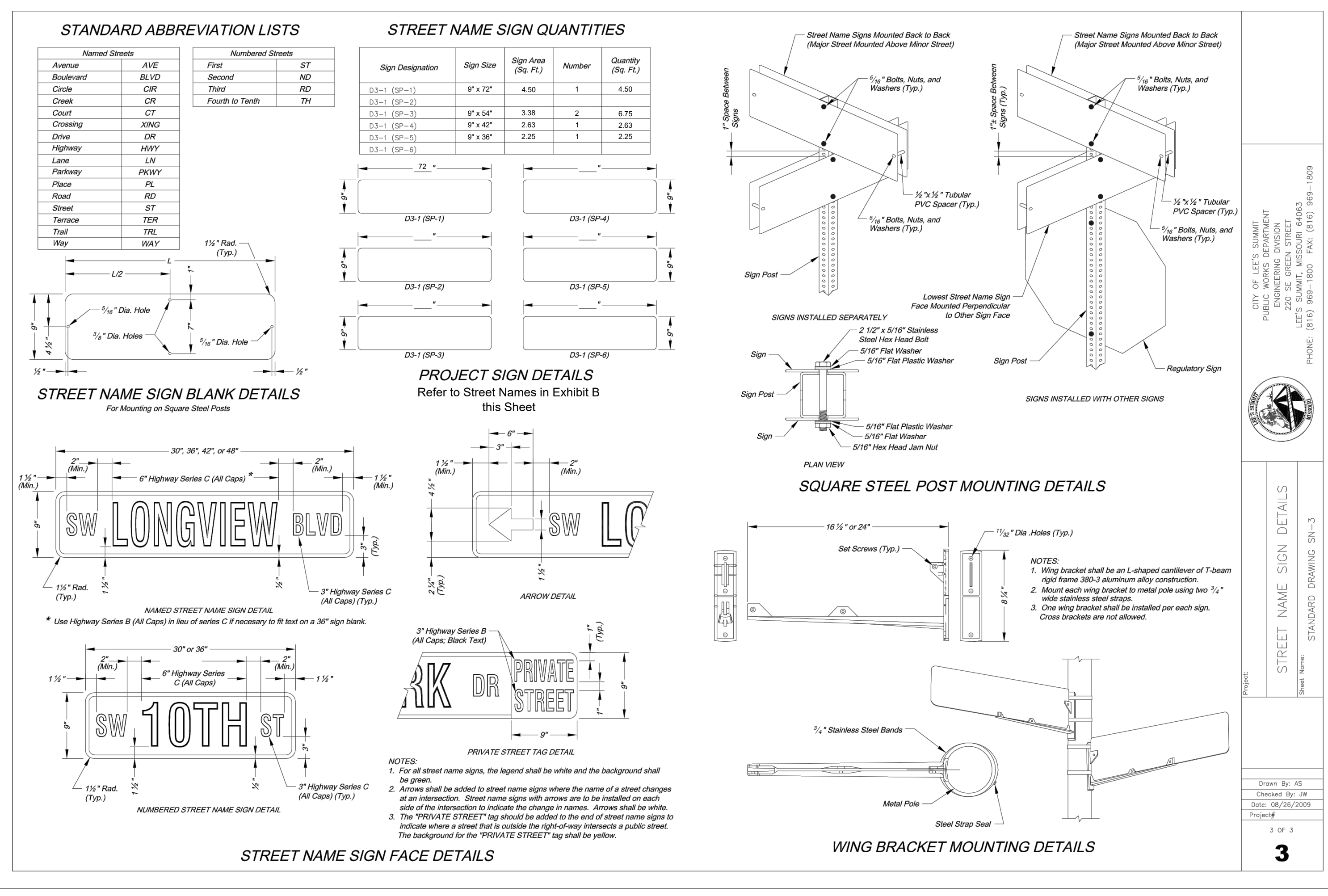


CITY OF LEE'S SUMMIT  
PUBLIC WORKS DEPARTMENT  
220 SE GREEN STREET  
LEE'S SUMMIT, MISSOURI 64063  
PHONE: (816) 989-1800 FAX: (816) 989-1809

Project: STREET NAME SIGN MOUNTING DETAILS  
Standard Drawing: SN-1

Drawn By: AS  
Checked By: JH  
Date: 08/29/2009  
Project#

1 OF 3



CITY OF LEE'S SUMMIT  
PUBLIC WORKS DEPARTMENT  
220 SE GREEN STREET  
LEE'S SUMMIT, MISSOURI 64063  
PHONE: (816) 989-1800 FAX: (816) 989-1809

Project: SIGN POST DETAILS  
Standard Drawing: SN-2

Drawn By: AS  
Checked By: JH  
Date: 08/29/2009  
Project#

2 OF 3

**SCHLAGEL & ASSOCIATES, P.A.**  
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Missouri State Certificates of Authority  
#E200203600F #LAC201005237 #S200200895F

**JAMES L. LONG**  
PROFESSIONAL ENGINEER  
NUMBER FE-201401095  
2/11/2022

**CORNERSTONE AT BAILEY FARMS, FIRST PLAT**  
**STREET, STORMWATER, AND MASTER**  
**DRAINAGE PLAN**  
**SE BAILEY ROAD AND SE RANSON ROAD**  
**LEE'S SUMMIT, MISSOURI**

REVISION DATE PER CITY COMMENTS DATED 07/14/2022

REVISION DATE	DESCRIPTION
08/03/2022	PER CITY COMMENTS DATED 07/14/2022

DRAWN BY: JRJ  
CHECKED BY: JLL  
DATE PREPARED: 12/20/21  
PROJ. NUMBER: 21-136

**SIGN DETAILS**

SHEET

**19**