HIGHLAND MEADOWS - 6TH PLAT STREET, STORM, & EROSION CONTROL PLANS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEC. 10, TWP. 47N, RNG. 32W

DATE: 2/11/2021

VICINITY MAP

SECTION 10, TOWNSHIP 47, RANGE 32 LEE'S SUMMIT, JACKSON COUNTY, MISSOURI NOT TO SCALE

LEGAL DESCRIPTION:

THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 10, TOWNSHIP 47 NORTH, RANGE 32 WEST, EXCEPT THOSE PARTS PLATTED AS HIGHLAND MEADOWS FIRST PLAT, HIGHLAND MEADOWS SECOND PLAT, HIGHLANDS MEADOWS THIRD PLAT, HIGHLAND MEADOWS 4TH PLAT, SUBDIVISIONS IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI.

OIL AND GAS WELL NOTES:

NO ABANDONED OIL OR GAS WELLS HAVE BEEN IDENTIFIED WITHIN THE PROPERTY LIMITS OF THE PROPOSED CONSTRUCTION ACTIVITIES, PER THE MISSOURI DEPARTMENT OF NATURAL RESOURCES (MDNR) PERMITTED OIL AND GAS DATABASE, DATED JUNE 2, 2020.





UTILITY CONTACTS:

SANITARY & WATER:

CITY OF LEE'S SUMMIT JEFF THORN 220 SE GREEN STREET LEE'S SUMMIT. MO 64063 PHONE (816) 969-1900

<u>STREETS:</u> CITY OF LEE'S SUMMIT MICHAEL PARK 220 SE GREEN STREET LEE'S SUMMIT. MO 64063 PHONE (816) 275-1550

PHONE (816) 969-1900

EVERGY: DOUG DAVIN 1300 SE HAMBLEN ROAD LEE'S SUMMIT, MO 64081 PHONE (816) 347-4320

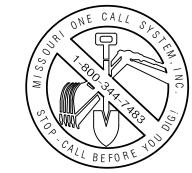
PHONE (816) 969-1800

MISSOURI GAS ENERGY: RICHARD FROCK 3025 SW CLOVER DRIVE LEE'S SUMMIT, MO 64082 PHONE (816) 472-3489

THE SITE IS LOCATED IN ZONE X, AREA OF MINIMAL FLOOD HAZARD, PER FEMA FIRM MAP 29095C0418G: EFFECTIVE DATE OF JANUARY 20, 2017. NO LETTERS OF MAP AMENDMENT OR REVISIONS ARE BEING PROPOSED.

BENCHMARK:

BM #1 N=999843.9665 E=2898946.9717 ELEV=935.04 DESCRIPTION = "JA-148" REFERENCE SYSTEM MONUMENT



STORMWATER:

CITY OF LEE'S SUMMIT PUBLIC WORKS 220 SE GREEN STREET LEE'S SUMMIT, MO 64063

RONALD GIPFERT 500 E 8TH STREET KANSAS CITY, MO 64106

PROJECT ELEVATIONS ARE BASED ON JACKSON FEMA FLOOD INFORMATION: COUNTY, MISSOURI, GEOGRAPHIC REFERENCE

"JA-148" - STANDARD KC METRO ALUMINUM GRS DISK SET IN CONCRETE FLUSH WITH THE GROUND AND STAMPED "JA-148, 2002" LOCATED ON THE NORTH SIDE OF 3RD STREET, 12.5 FEET NORTH OF A SIDEWALK AND 102.5 FEET WEST OF THE PARKING LOT EXIT OF CEDAR CREEK

ELEMENTARY SCHOOL.

AT REFERENCE MONUMENT JA-148.

WATERSHED: LITTLE BLUE RIVER

SURVEY CONTROL.

COORDINATES ARE BASED ON THE MISSOURI

STATE PLANE COORDINATE SYSTEM, WEST ZONE,

USING JACKSON COUNTY, MISSOURI, GEOGRAPHIC

REFERENCE SYSTEM MONUMENT JA-148 (2003)

UTILIZING A GRID SCALE FACTOR OF 0.9999020

SYSTEM MONUMENT JA-148 (2003 ADJUSTMENT).

ADJUSTMENT) AND ARE MODIFIED FROM GRIS

COORDINATÉS TO GROUND COORDINATES BY

GENERAL NOTES:

- 1. CONTRACTOR SHALL SATISFY THEMSELVES AS TO THE EXISTING CONDITIONS OF THE SITE AND HAVE ALL UTILITIES MARKED PRIOR TO COMMENCING CONSTRUCTION.
- 2. CONTRACTOR SHALL POTHOLE ALL CONNECTION POINTS TO EXISTING UTILITIES AND POTENTIAL UTILITY CONFLICT LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITIES. NOTIFY ENGINEER IMMEDIATELY IF CONFLICT OR DISCREPANCY EXISTS.
- 3. CONTRACTOR SHALL PROTECT EXISTING STRUCTURES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION. ANY DAMAGE SHALL BE REPAIRED/ REPLACED TO PRE-CONSTRUCTION CONDITION AT CONTRACTOR'S EXPENSE.
- 4. CONTRACTOR SHALL CONTACT THE CITY'S DEVELOPMENT SERVICES ENGINEERING INSPECTORS 48 HOURS PRIOR TO ANY LAND DISTURBANCE WORK AT (816) 969-1200.

DISTURBED AREA: 14.9 AC

DEVELOPER: BRAD KEMPF SUMMIT HOMES KC 120 SE 30TH STREET LEE'S SUMMIT, MO 64082 BRADLEY@SUMMITHOMESKC.COM (816) 927–9711

CIVIL ENGINEER:

ZACH MYERS ANDERSON ENGINEERING, INC. 941 W 141ST TERR KANSAS CITY, MO 64145 ZMYERS@ANDERSONENGINEERINGINC.COM (816) 380-4821

SHEET INDEX

C111 - SW 11TH TERR. STA.5+50-9+06 PLAN & PROFILE

- PRE-CLEARING EROSION CONTROL PLAN C302 - INTERMEDIATE EROSION CONTROL PLAN C303 - FINAL STABILIZATION EROSION CONTROL PLAN

C403 - MATCH EXISTING PAVEMENT DETAILS

C405 - ADA RAMP CROSS SECTIONS

C506 - ROCK DITCH CHECK DETAILS C507 - DIVERSION BERM DETAILS

C508 - OUTLET PROTECTION DETAILS

PROJECT SPECIFICATIONS:

THE SPECIFICATIONS FOR THIS PROJECT SHALL BE THE FOLLOWING:

1. MOST CURRENT VERSION OF THE DESIGN AND CONSTRUCTION MANUAL OF THE CITY OF LEE'S SUMMIT AS ADOPTED BY ORDINANCE 5813.

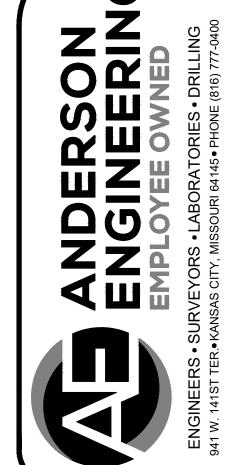
THE STANDARD SPECIFICATIONS THROUGH AND INCLUDING THE LATEST AMENDMENTS SHALL BE PART OF THESE PROJECT DRAWINGS AND SPECIFICATIONS AND ARE INCORPORATED HEREIN BY REFERENCE. THE MORE STRINGENT OF THESE STANDARD SPECIFICATIONS AND THOSE PREPARED BY THE ENGINEER PREPARING THESE PLANS SHALL GOVERN.

PREPARED & SUBMITTED BY:

ANDERSON ENGINEERING INC. KANSAS CITY, MISSOURI

ZACH MYERS, P.E. MISSOURI P.E. NO. 2012009232

DATE



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NO.	DESCRIPTION	ВУ	DATE	DRAWN BY:	29
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				LICENSE NO.	PE-201200923
				DATE:	1/7/2021
				ISSUED FOR:	FOR REVIEW
				JOB NUMBER: 20KC10058	20KC10058
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SHEET NUMBER 1 of 42

GENERAL NOTES

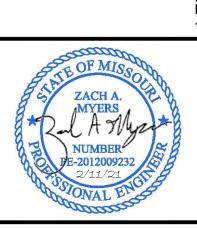
- 1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ACQUIRE ALL STATE AND CITY PERMITS, INCLUDING PERMITS REQUIRED BY OTHER GOVERNING BODIES, REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT.
- 2. PRIOR TO BEGINNING CONSTRUCTION, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND NOTIFYING ALL UTILITY COMPANIES AND SHALL FIELD VERIFY ALL UTILITIES THAT MAY BE ENCOUNTERED. THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR COMPLETE. IN THE EVENT THAT EXISTING UTILITIES ARE CONTACTED, DISRUPTED, OR IN ANY WAY ALTERED, CONTACT THE RESPECTIVE UTILITY COMPANY IMMEDIATELY. IN CASE OF EMERGENCY, DIAL 911.
- 3. THE CONTRACTOR SHALL PROVIDE EROSION AND SILT PROTECTION AS REQUIRED DURING CONSTRUCTION AND SHALL BE RESPONSIBLE FOR KEEPING EXISTING STREET AND ADJACENT LAND FEATURES AND PROPERTY FREE OF MUD AND SILT. SEE "EROSION CONTROL PLAN" FOR MINIMUM EROSION CONTROL MEASURES REQUIRED BY THESE PLANS. EROSION CONTROLS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ONCE CONSTRUCTION BEGINS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL EROSION CONTROL MEASURES AND SHALL PROMPTLY REPAIR ANY AREA REQUIRING ATTENTION UNTIL SUBSTANTIAL COMPLETION.
- 4. WARRANTY/DISCLAIMER: THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR ITS PERSONNEL CAN OR DO CERTIFY THESE DESIGNS OR PLANS AS CONSTRUCTED EXCEPT IN THE SPECIFIC CASES WHERE THE ENGINEER OBSERVES AND CONTROLS THE PHYSICAL CONSTRUCTION AND THE CONTINUAL BASIS AT THE SITE.
- 5. ALL CONSTRUCTION SHALL FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813. WHERE DISCREPANCIES EXIST BETWEEN THESE PLANS AND THE DESIGN AND CONSTRUCTION MANUAL, THE DESIGN AND CONSTRUCTION MANUAL SHALL PREVAIL.
- 6. THE CONTRACTOR SHALL PROVIDE AT LEAST ONE (1) CHEMICALLY TREATED PORTABLE TOILET UNIT, "SATELLITE CORPORATION", OR EQUAL FOR EVERY 20 WORKMEN ON THE JOB SITE. IN NO CASE SHALL LESS THAN ONE (1) BE PROVIDED. THE UNITS(S) SHALL REMAIN ON THE SITE DURING ALL ACTIVE PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL ENFORCE THE USE OF THE PUBLIC VIEW TO THE GREATEST EXTENT PRACTICABLE.
- 7. ALL AREA TO BE FILLED AND SUBGRADES UNDER PAVEMENTS SHALL BE PROOF—ROLLED WITH A LOADED, RUBBER TIRED TRUCK PRIOR TO FILL PLACEMENT OR ROADWAY PAVING OPERATIONS BEGIN. SOFT OR UNSTABLE AREA SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL.
- 8. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A COPY OF AND BECOME FAMILIAR WITH THE GEOTECHNICAL REPORT BY ANDERSON ENGINEERING INC., UNLESS SPECIFICALLY NOTED ON THE PLANS. THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT ARE HEREBY INCORPORATED INTO THE PROJECT REQUIREMENTS AND SPECIFICATIONS.
- 9. THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION LAYOUT AND STAKING FOR THIS PROJECT.
- 10. ALL PIPE LENGTHS ARE SHOWN FROM STRUCTURE CENTER TO STRUCTURE CENTER.
- 11. ALL STRUCTURE STATION AND OFFSET CALLOUTS ARE TO THE CENTER OF STRUCTURE.
- 12. ALL CURB STATIONS, OFFSETS AND ELEVATIONS ARE TO THE TOP BACK OF CURB UNLESS OTHERWISE NOTED.
- 13. ALL CONNECTIONS TO EXISTING DRAINAGE STRUCTURES SHALL BE <u>SUBSIDIARY</u> TO NEW DRAINAGE CONSTRUCTION.
- 14. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ACCESS TO ALL PROPERTIES IS AVAILABLE DURING CONSTRUCTION OF THE PROJECT.
- 15. ALL SAW CUTS SHOWN ON THE PLANS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED <u>SUBSIDIARY</u> TO OTHER ITEMS OF THE CONTRACT. THE DEPTH OF THE CUT SHALL BE FULL DEPTH.
- 16. EXISTING CONCRETE PAVEMENT AND EXISTING BITUMINOUS PAVEMENT THAT IS REMOVED WILL BECOME THE PROPERTY OF THE CONTRACTOR & DISPOSED OF AT HIS EXPENSE.
- 17. EXISTING DRAINAGE STRUCTURES THAT ARE REMOVED, INCLUDING END SECTIONS, SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE NOTED ON THE PLANS.
- 18. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPE ELEVATIONS.
- 19. CHANNELS SHALL BE CUT AT BOX CULVERTS (UNLESS OTHERWISE NOTED) TO FLOW LINE ELEVATIONS AND TO A WIDTH OF ONE FOOT OUTSIDE OF EACH OUTSIDE WALL AND WITH SLOPES OF 2 TO 1 PRIOR TO CONSTRUCTION OF THE CULVERT.

- 20. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE UTILITY OWNERS TO LOCATE AND FLAG ALL RELOCATED UNDERGROUND UTILITIES PRIOR TO EXCAVATION TO AVOID DAMAGING THE UTILITIES. THE LOCATIONS SHOWN ON THE PLANS ARE THE ORIGINAL SURVEYED LOCATION, PRIOR TO RELOCATION IN SOME CASES. THE INFORMATION SHOWN IN THESE PLANS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL—INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES PROVIDED FOR FIELD LOCATION OF ALL UNDERGROUND FACILITIES PRIOR TO ANY EXCAVATION. THE CONTRACTOR SHALL COORDINATE WITH THE PROPER UTILITY OWNERS DURING CONSTRUCTION OF THE PROPOSED STORM SEWER SYSTEM TO AVOID DAMAGES TO EXISTING FACILITIES. DAMAGE TO ANY FACILITIES WILL BE PAID FOR AT THE CONTRACTOR'S EXPENSE.
- 21. ALL TREES, SHRUBS, BUSHES, AND BRUSH WITHIN THE GRADING LIMITS SHALL BE REMOVED BY THE CONTRACTOR UNLESS SPECIFICALLY INDICATED TO BE SAVED ON THE PLANS.
- 22. ALL SIGNS REMOVED BY THE CONTRACTOR SHALL BECOME PROPERTY OF THE CITY, UNLESS NOT DESIRED BY CITY. IF NOT DESIRED BY CITY, CONTRACTOR SHALL REMOVE AND DISPOSE OF SIGNS AT HIS EXPENSE.
- 23. DRAINAGE STRUCTURES WHICH ARE TO REMAIN, WHETHER EXTENDED OR NOT, SHALL BE CLEANED OUT BY THE CONTRACTOR, AS DIRECTED BY THE CITY.
- 24. CONTRACTOR SHALL ACCOMPANY A DESIGNATED CITY REPRESENTATIVE DURING A PHOTOGRAPHY & VIDEO TOUR BEFORE ANY CONSTRUCTION BEGINS TO RECORD EXISTING CONDITIONS.
- 25. THE CONTRACTOR SHALL THOROUGHLY REVIEW AND BECOME FAMILIAR WITH THE PROJECT PLANS, SPECIFICATIONS AND ANY SPECIAL CONDITIONS OF THE CONTRACT DOCUMENTS PRIOR TO BEGINNING CONSTRUCTION OF THIS PROJECT.
- 26. DRIVEWAYS, SIDEWALKS, PARKING LOTS, YARD LIGHTS, FENCES, SPRINKLER SYSTEMS, UTILITY SERVICE LINE CONNECTIONS, LANDSCAPING, SEPTIC SYSTEMS, AND OTHER AREAS OUTSIDE THE CONSTRUCTION EASEMENTS THAT ARE DAMAGED BY THE CONTRACTOR SHALL BE RESTORED AT HIS EXPENSE TO A CONDITION EQUAL TO OR BETTER THAN EXISTING BEFORE DAMAGE OCCURRED.
- 27. ALL WORK SHALL BE CONFINED WITHIN THE EASEMENTS AND/OR GRADING LIMITS AS DIRECTED BY THE ENGINEER. ALL TEMPORARY CONSTRUCTION EASEMENTS SHALL BE STAKED BY THE CONTRACTOR PRIOR TO BEGINNING OF CONSTRUCTION. ALL GRADING LIMITS SHOWN ARE APPROXIMATE AND MAY BE EXTENDED OR REDUCED AT THE DIRECTION OF THE ENGINEER.
- 28. THE CONTRACTOR SHALL PROVIDE ADEQUATE SEDIMENT AND EROSION CONTROL TO PREVENT SEDIMENT AND/OR DEBRIS FROM ENTERING STREETS OPEN TO TRAFFIC THE COMPLETED STORM SEWER SYSTEM, OR YARDS OF ADJACENT RESIDENCES AND BUSINESSES.
- 29. ALL TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST M.U.T.C.D. THE TRAFFIC CONTROL PLANS SHOWN ARE MINIMUM REQUIREMENTS ONLY AND DO NOT ATTEMPT TO ADDRESS IN DEPTH THE VARIETY OF SITUATIONS THAT MAY OCCUR ONCE CONSTRUCTION BEGINS. THE REQUIREMENTS SHOWN IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR SELECTING & IMPLEMENTING THE PROPER DEVICES AND PROCEDURES THAT WILL ASSURE THE SAFETY OF MOTORISTS, PEDESTRIANS, & WORKERS AT ALL TIMES.
- 30. LABOR, TOOLS, MATERIALS, AND EQUIPMENT REQUIRED FOR TEMPORARY CONNECTIONS TO MAINTAIN POSITIVE DRAINAGE DURING CONSTRUCTION SHALL BE <u>SUBSIDIARY</u> TO OTHER PAY ITEMS.
- 31. REMOVAL OF EXISTING STRUCTURES SHALL INCLUDE, BUT NOT BE LIMITED TO, THE ITEMS NOTED IN THE PLANS AND IN THE SUMMARY OF QUANTITIES. WORK SHALL BE PAID FOR UNDER BID ITEM "REMOVAL OF EXISTING STRUCTURES". CONTRACTOR WILL DISPOSE OF EXISTING STRUCTURES AT HIS EXPENSE.
- 32. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUPPORTING AND PROTECTING ALL EXPOSED UTILITIES IN OPEN TRENCHES. WORK SHALL BE <u>SUBSIDIARY</u> TO OTHER PAY ITEMS.
- 33. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF THE EXISTING STORM SEWER PIPES AND ADJUST THE PROPOSED FLOWLINE ELEVATIONS, PIPE LENGTHS, AND STRUCTURES AS EACH SECTION OF THE EXISTING DRAINAGE STRUCTURE IS REMOVED AND UNCOVERED.
- 34. EXCESS MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR DISPOSAL.
- 35. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY AT ALL TIMES.
- 36. CONTRACTOR RESPONSIBLE FOR CONSTRUCTION OF ALL ADA—ACCESSIBLE RAMPS, AS WELL AS ANY SIDEWALK ADJACENT TO TRACTS OR UNPLATTED LAND, AT THE TIME OF INFRASTRUCTURE IMPROVEMENTS



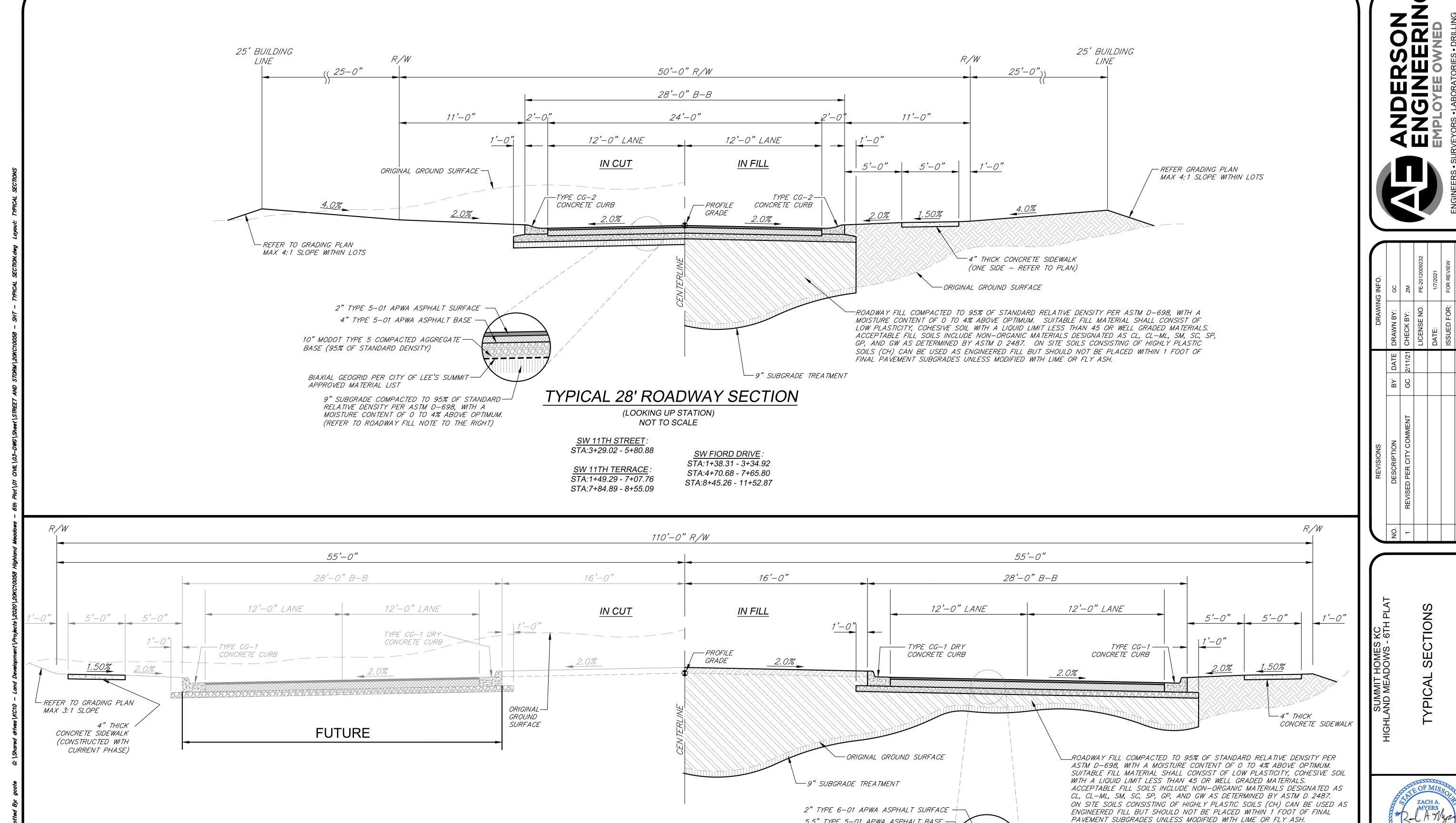
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ENERAL NOTES



SHEET NUMBER

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TYPICAL LONGVIEW BLVD. SECTION

(LOOKING UP STATION)

NOT TO SCALE

LONGVIEW BOULEVARD:

STA:14+55.61 - 25+94.51

5.5" TYPE 5-01 APWA ASPHALT BASE

AGGREGATE BASE (95% OF

BIAXIAL GEOGRID PER CITY OF LEE'S SUMMIT-

STANDARD DENSITY)

APPROVED MATERIAL LIST

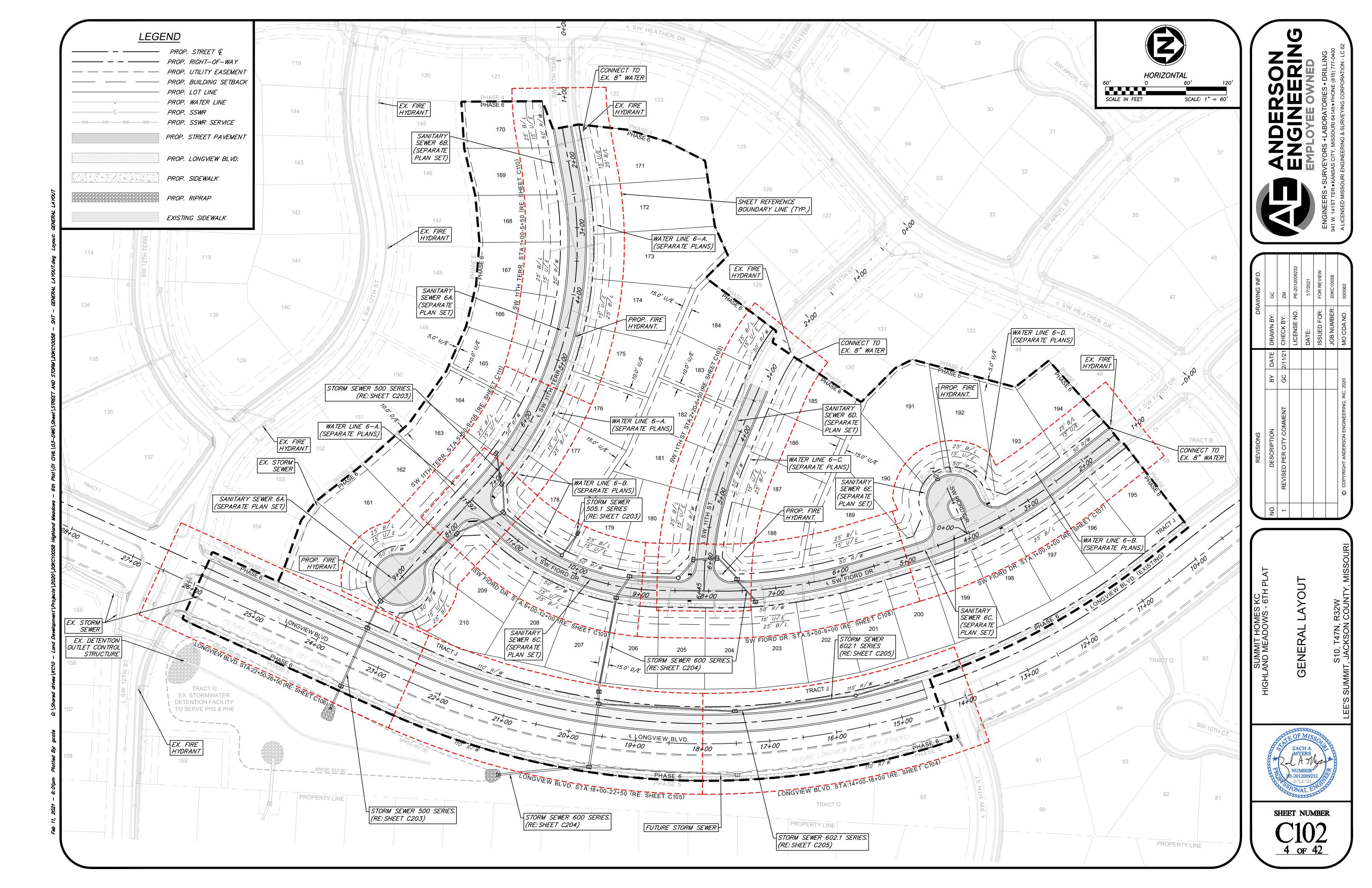
12" MODOT TYPE 5 COMPACTED

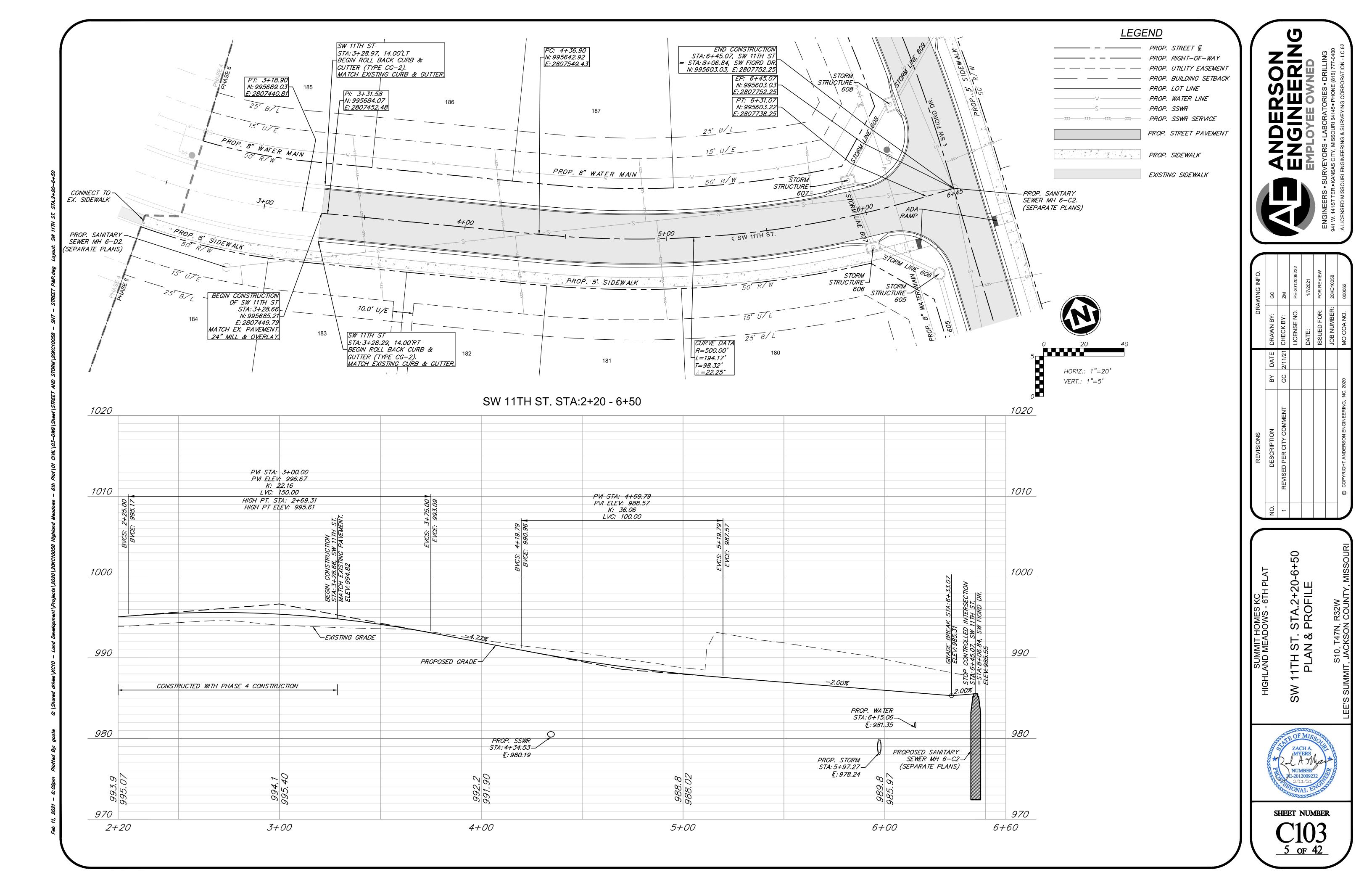
9" SUBGRADE COMPACTED TO 95% OF STANDARD -RELATIVE DENSITY PER ASTM D-698, WITH A

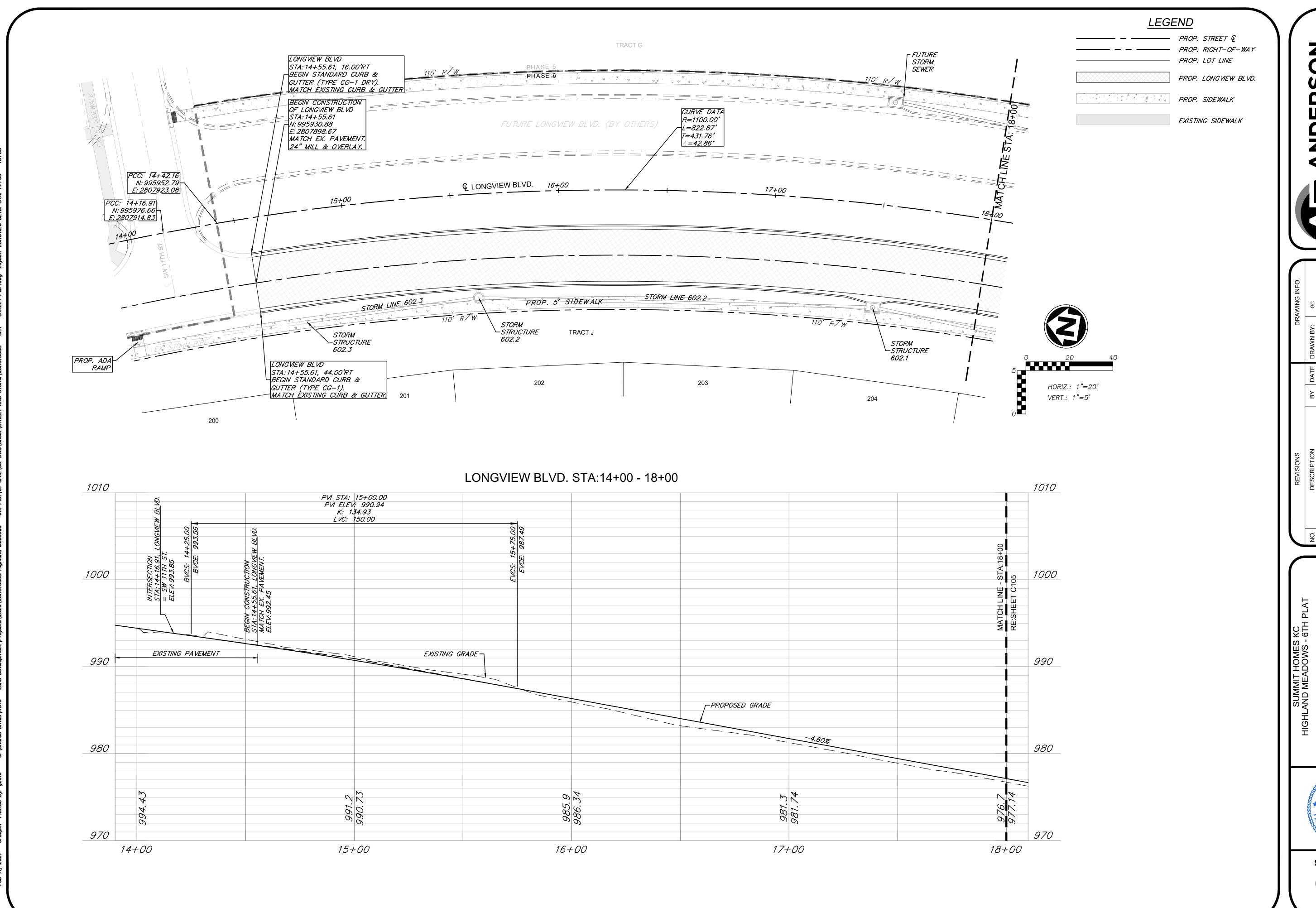
MOISTURE CONTENT OF 0 TO 4% ABOVE OPTIMUM.

(REFER ROADWAY FILL NOTE TO THE RIGHT)

SHEET NUMBER 3 of 42









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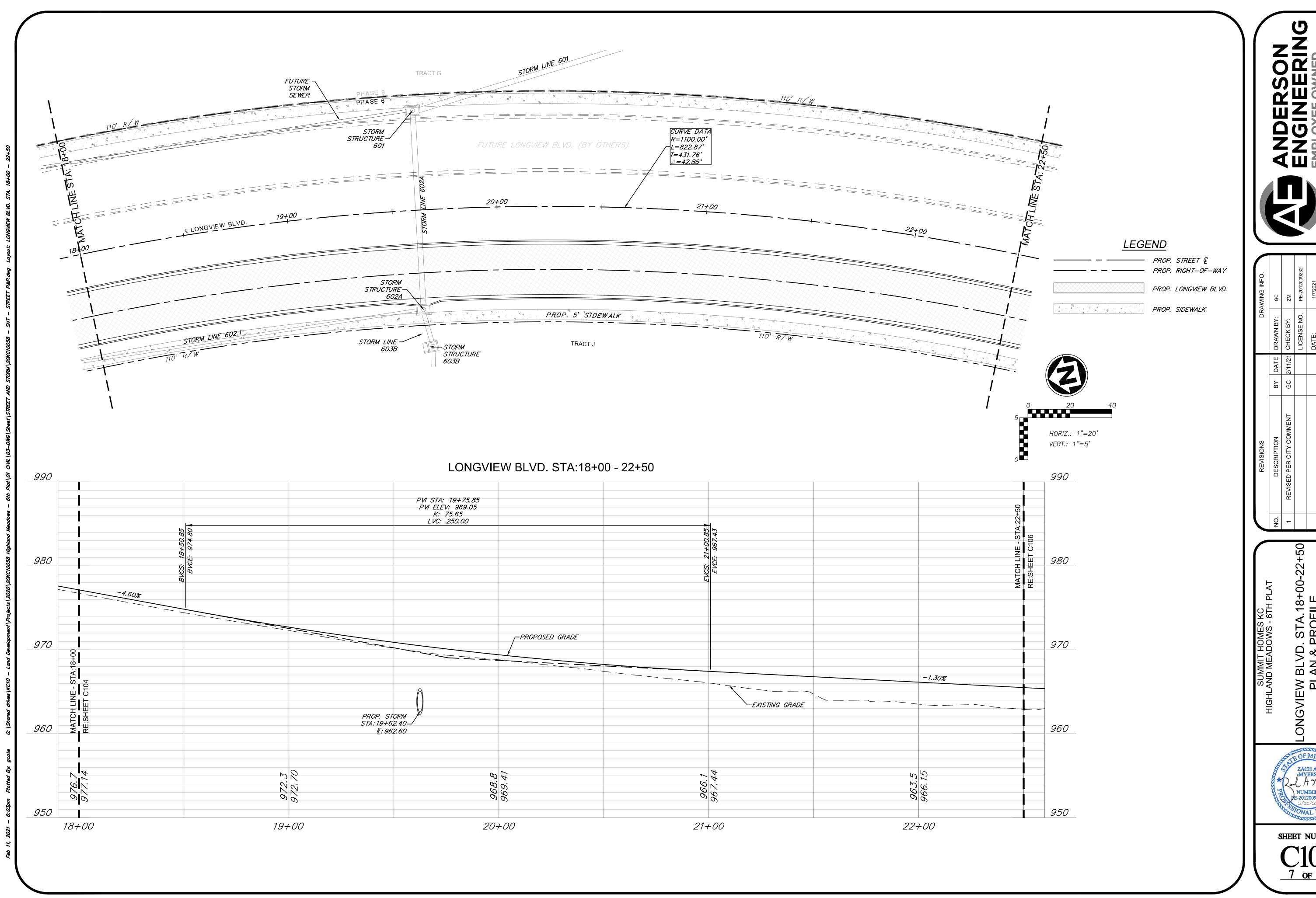
STA.14+00-18+00 PLAN & PROFILE

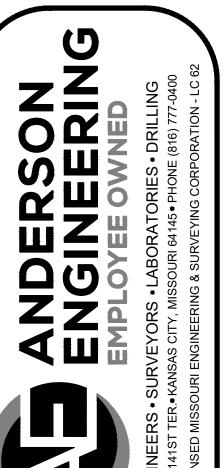


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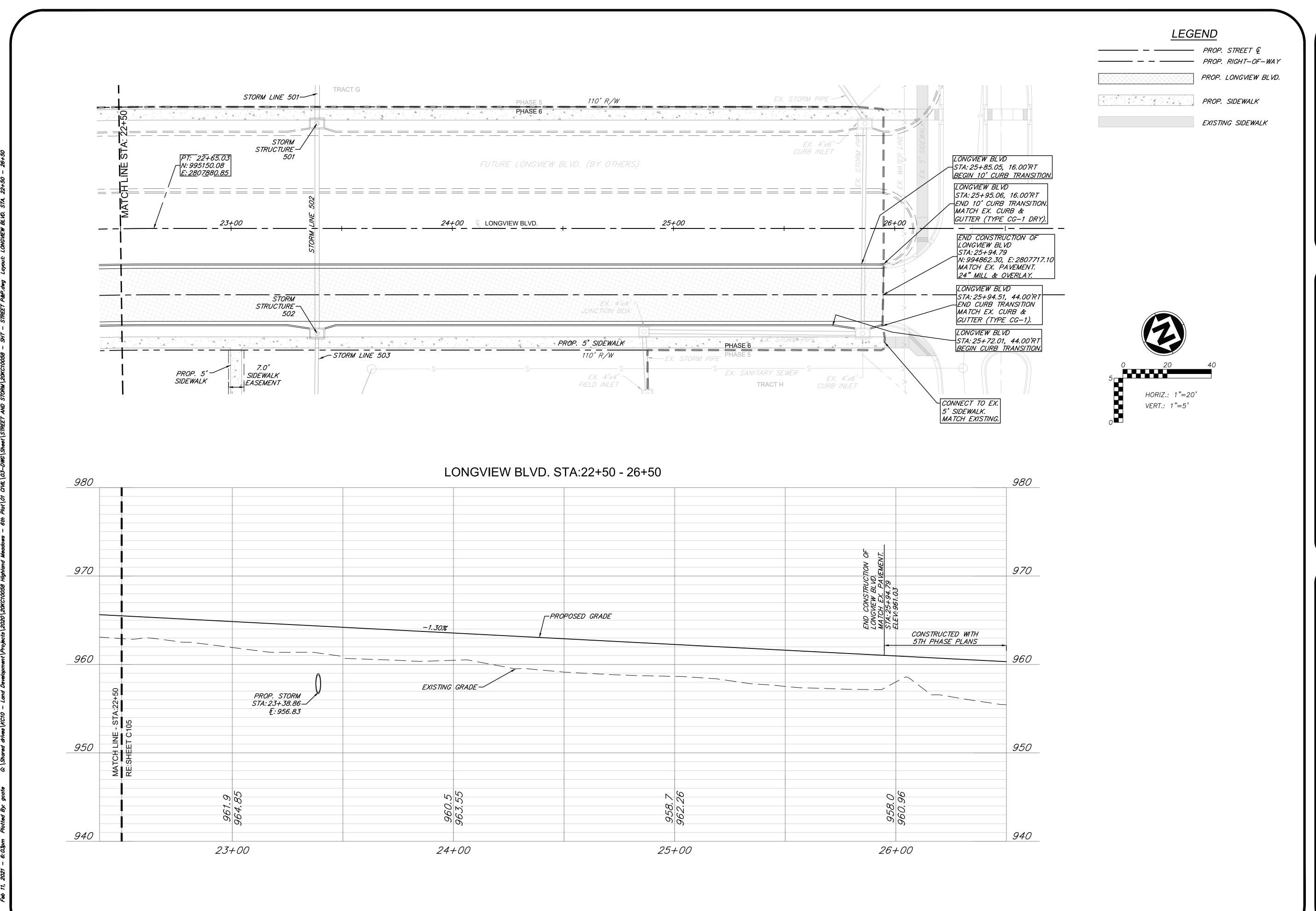




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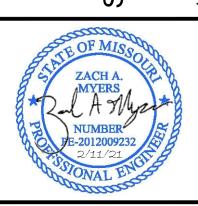


ANDERSON
ENGINEERING
EMPLOYEE OWNED
SURVEYORS - LABORATORIES - DRILLING



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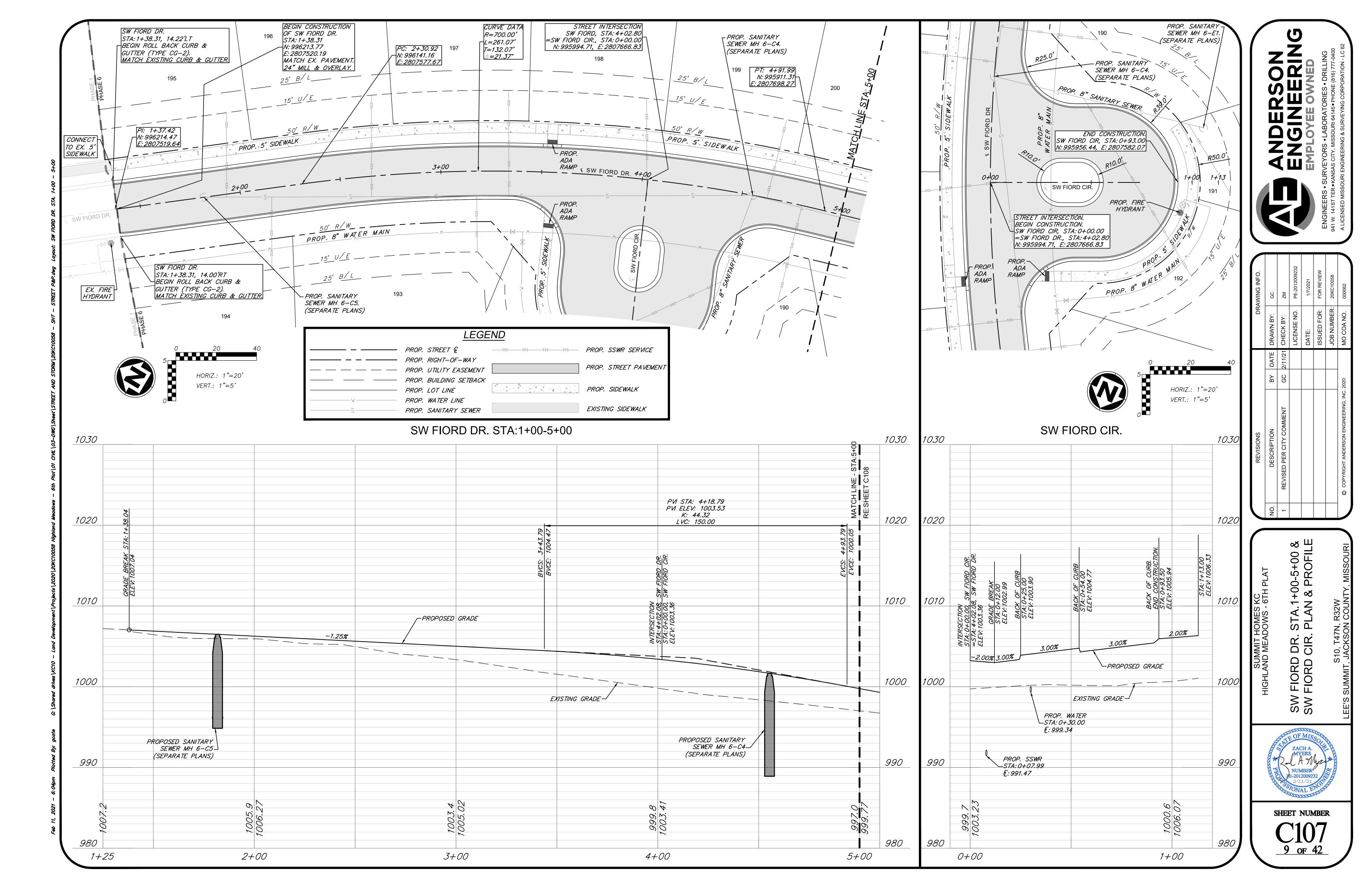
LONGVIEW BLVD. TA.22+50-26+50 PLAN & PROFIL

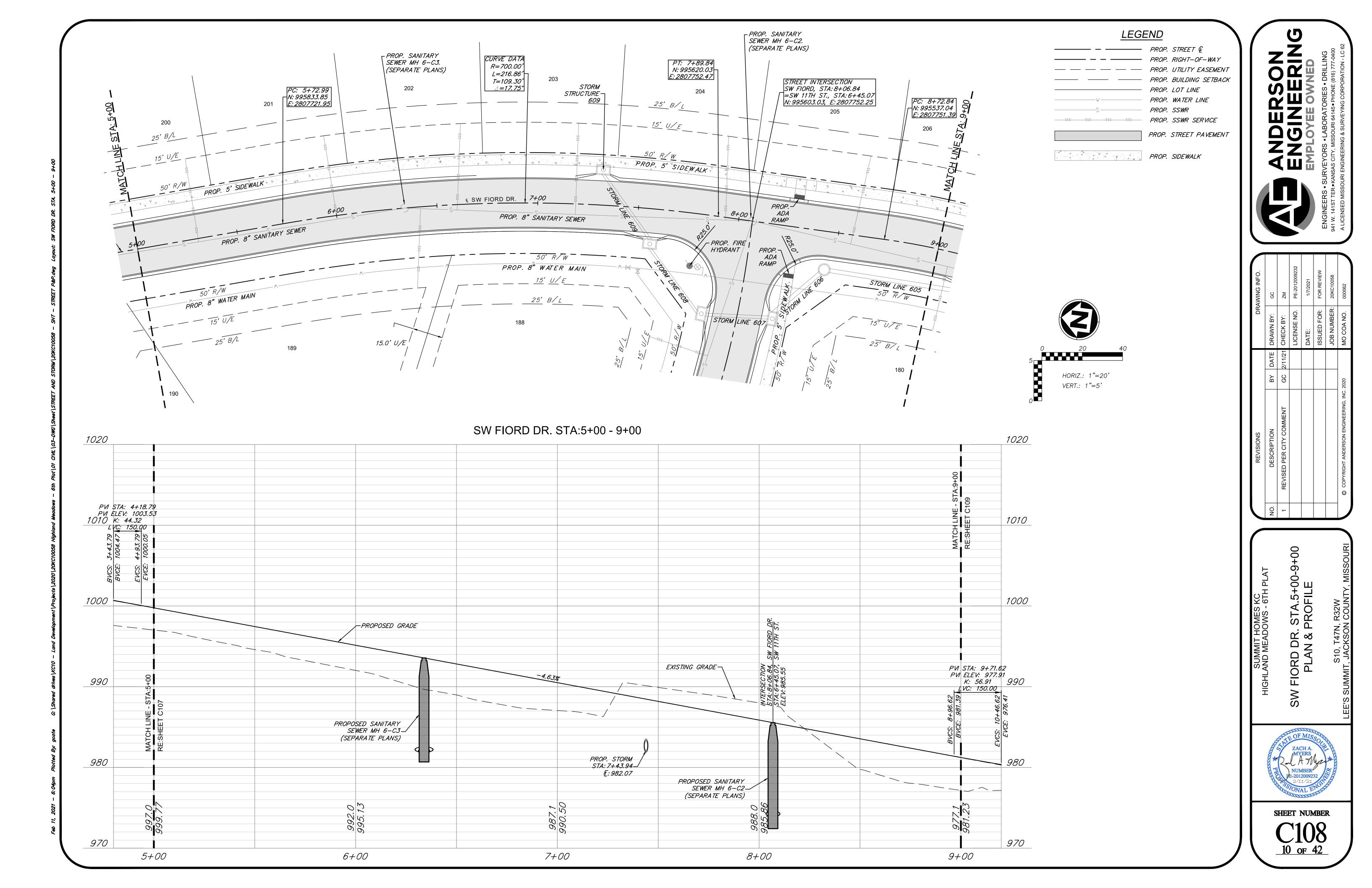


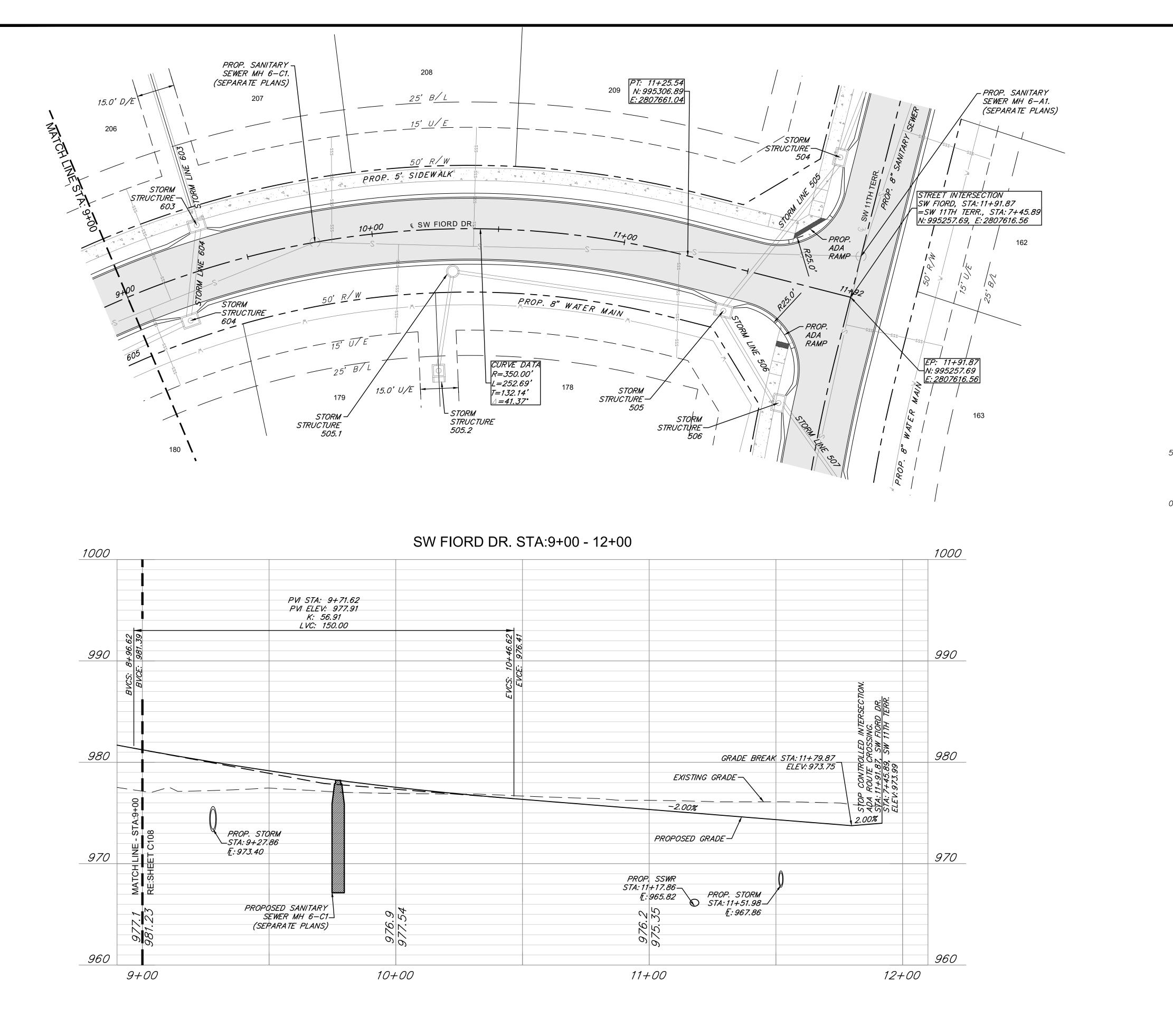
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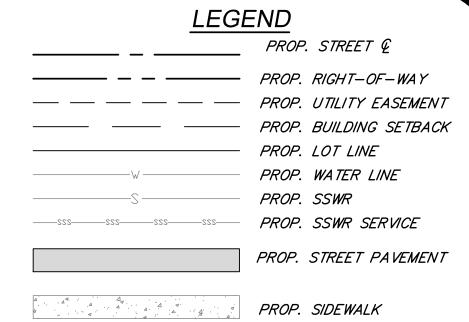
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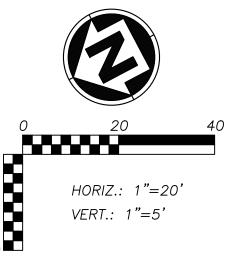
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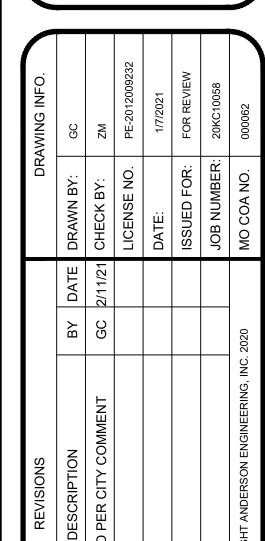












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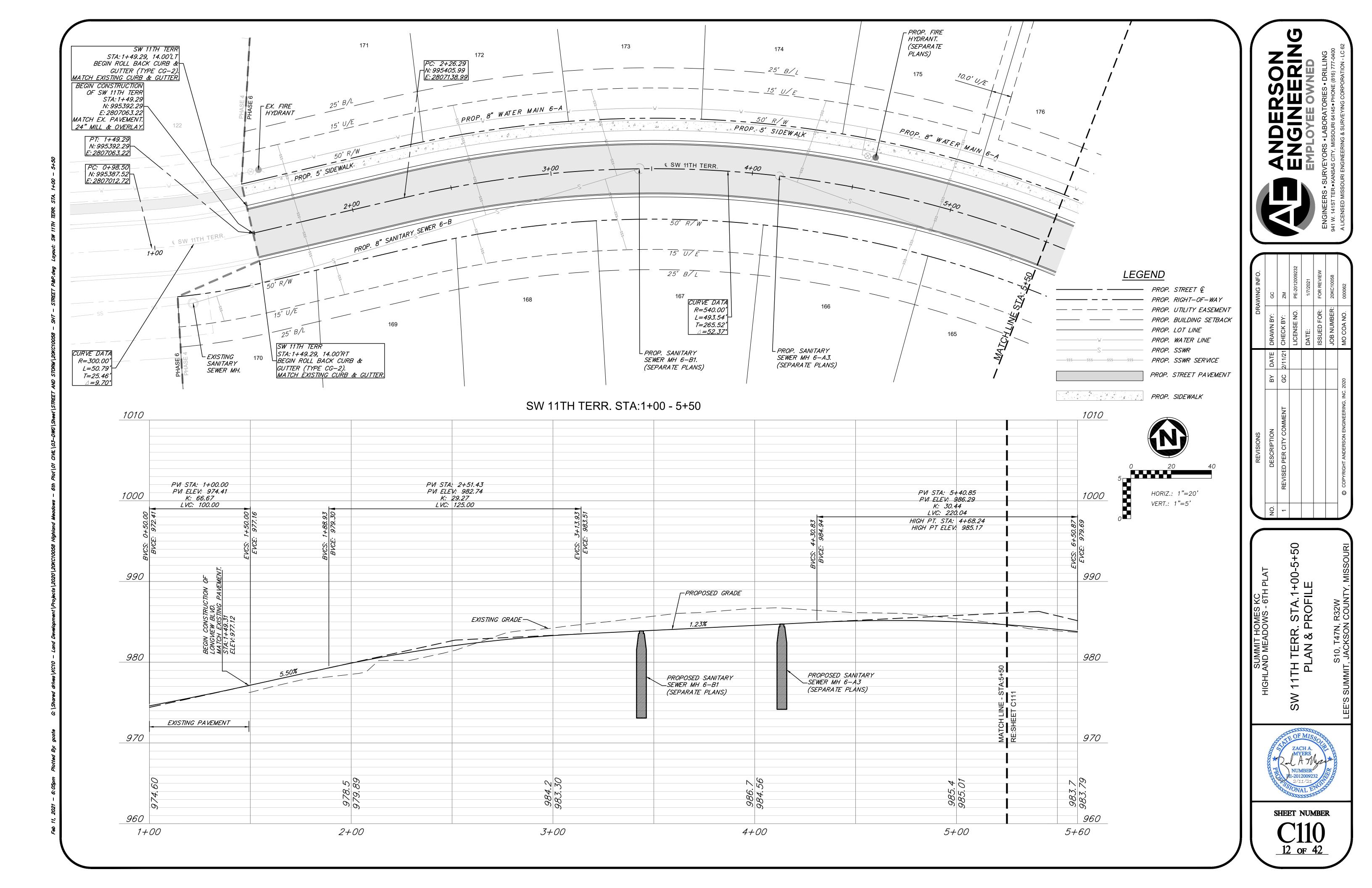
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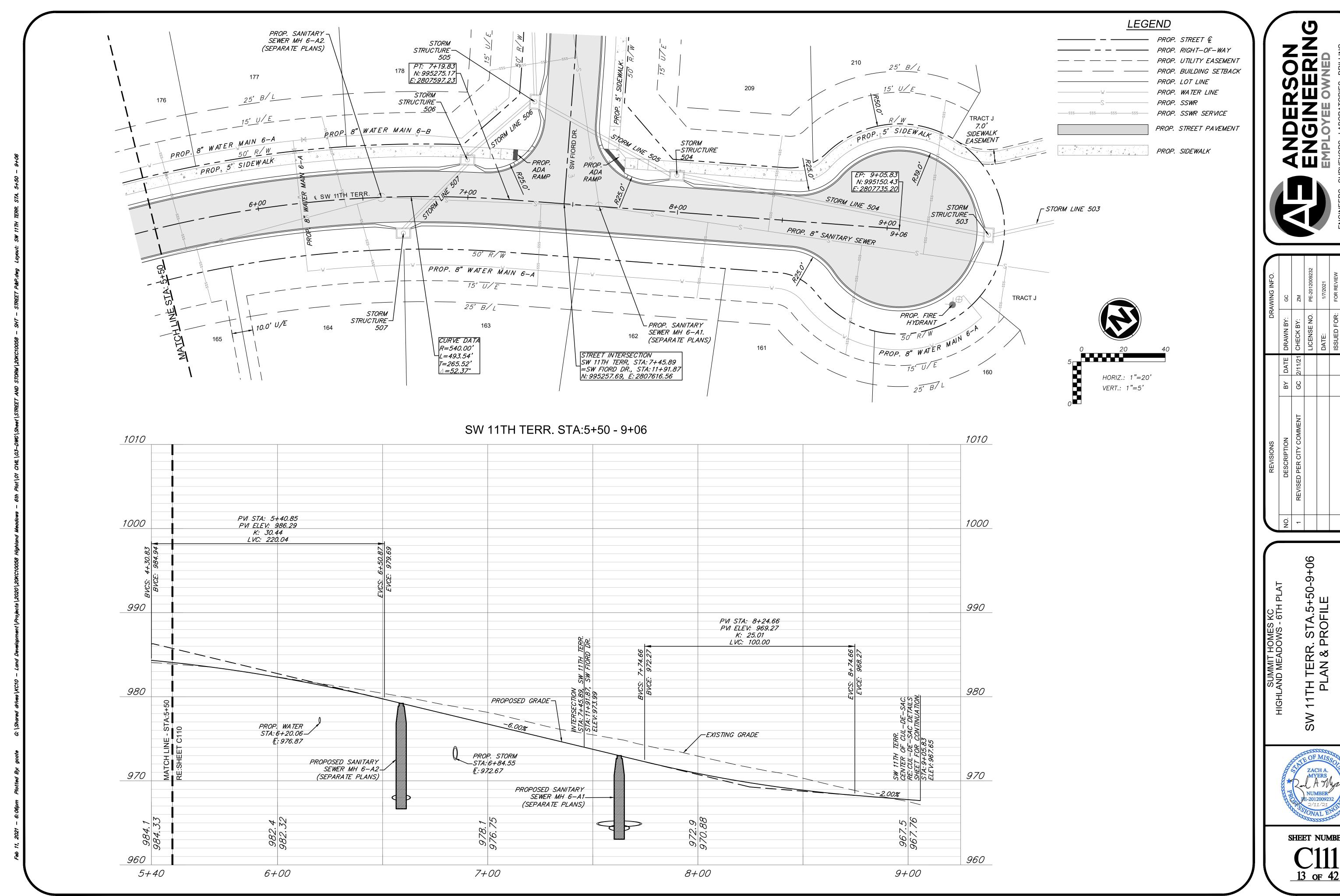
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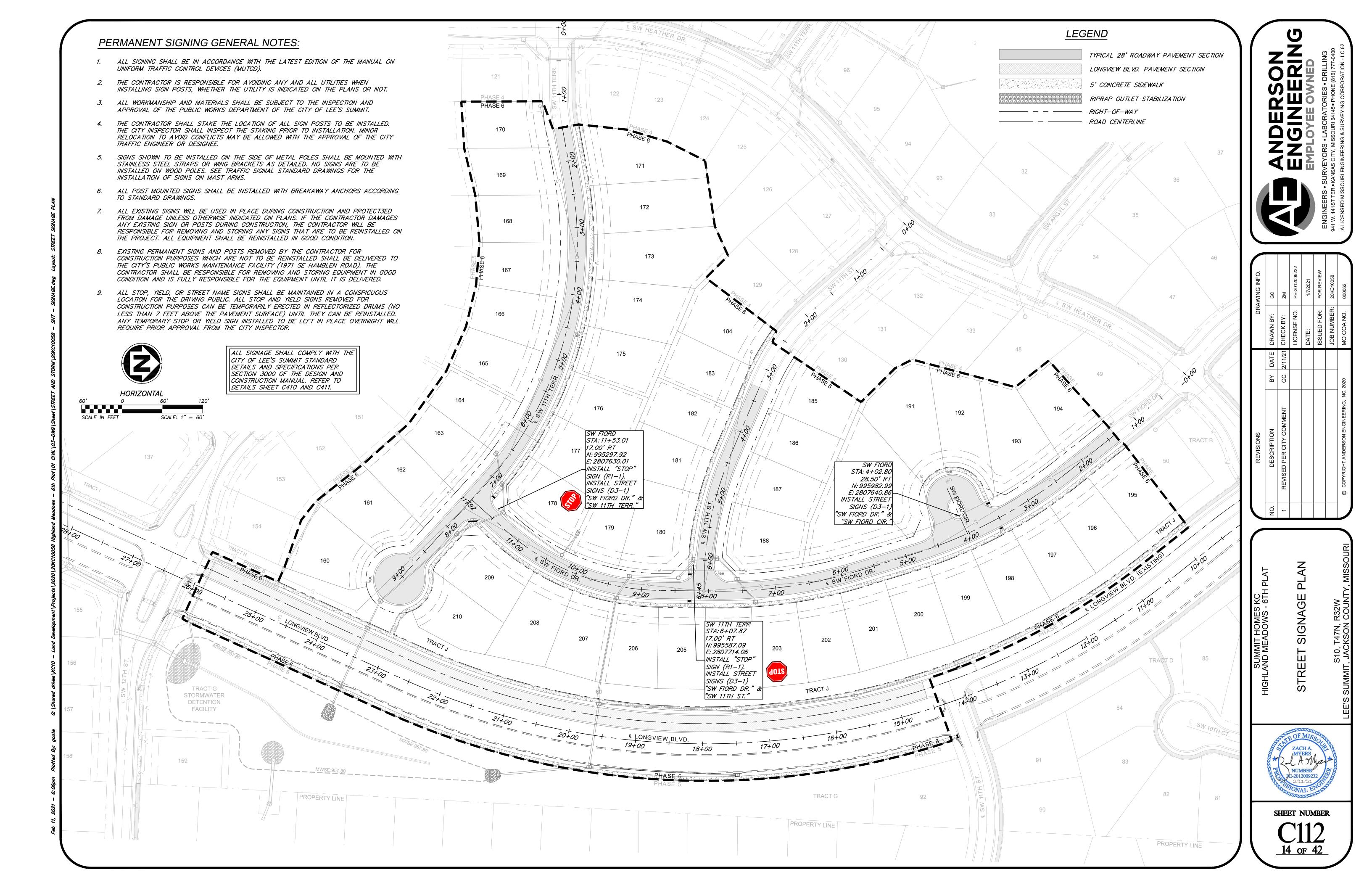


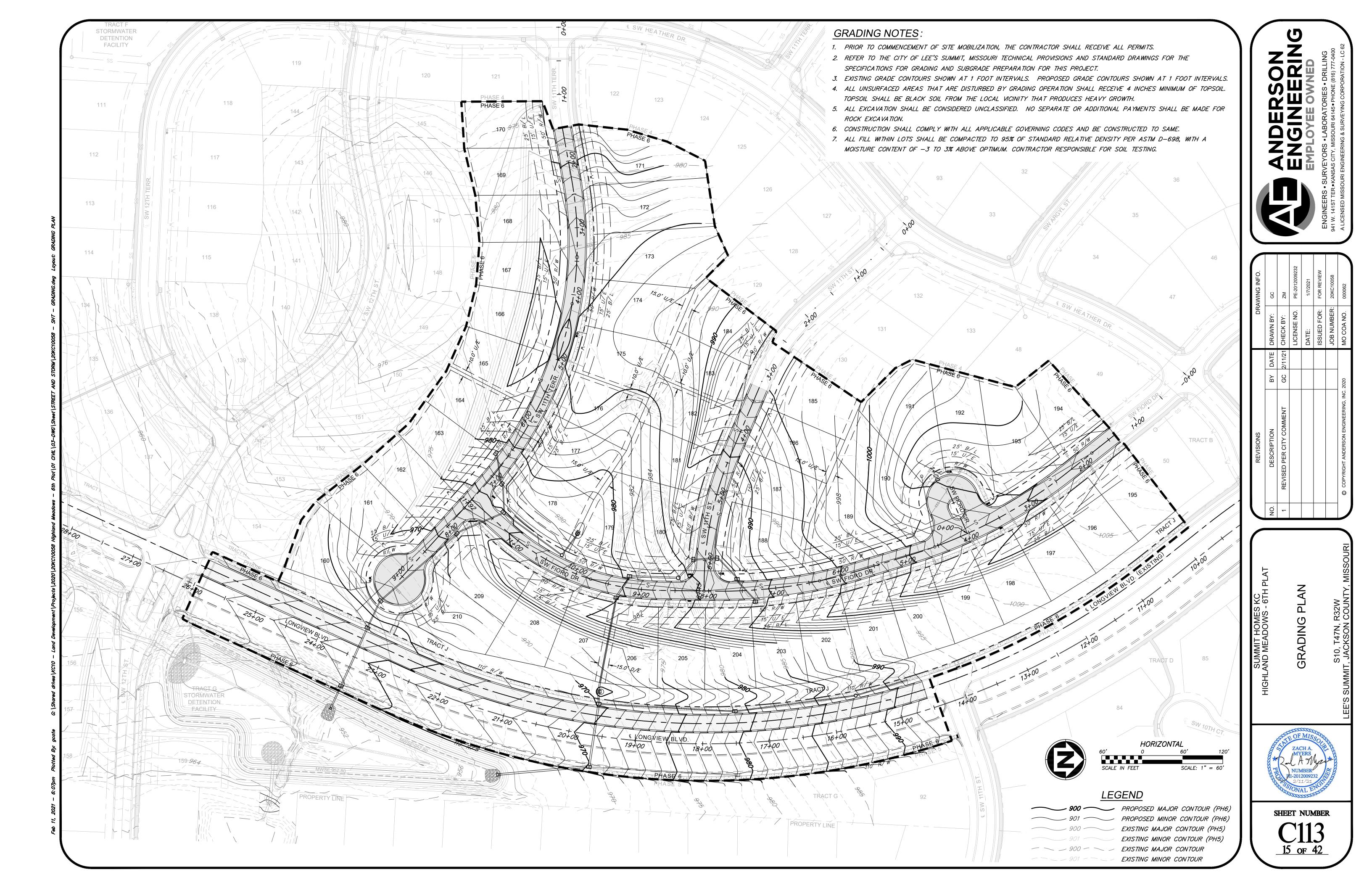
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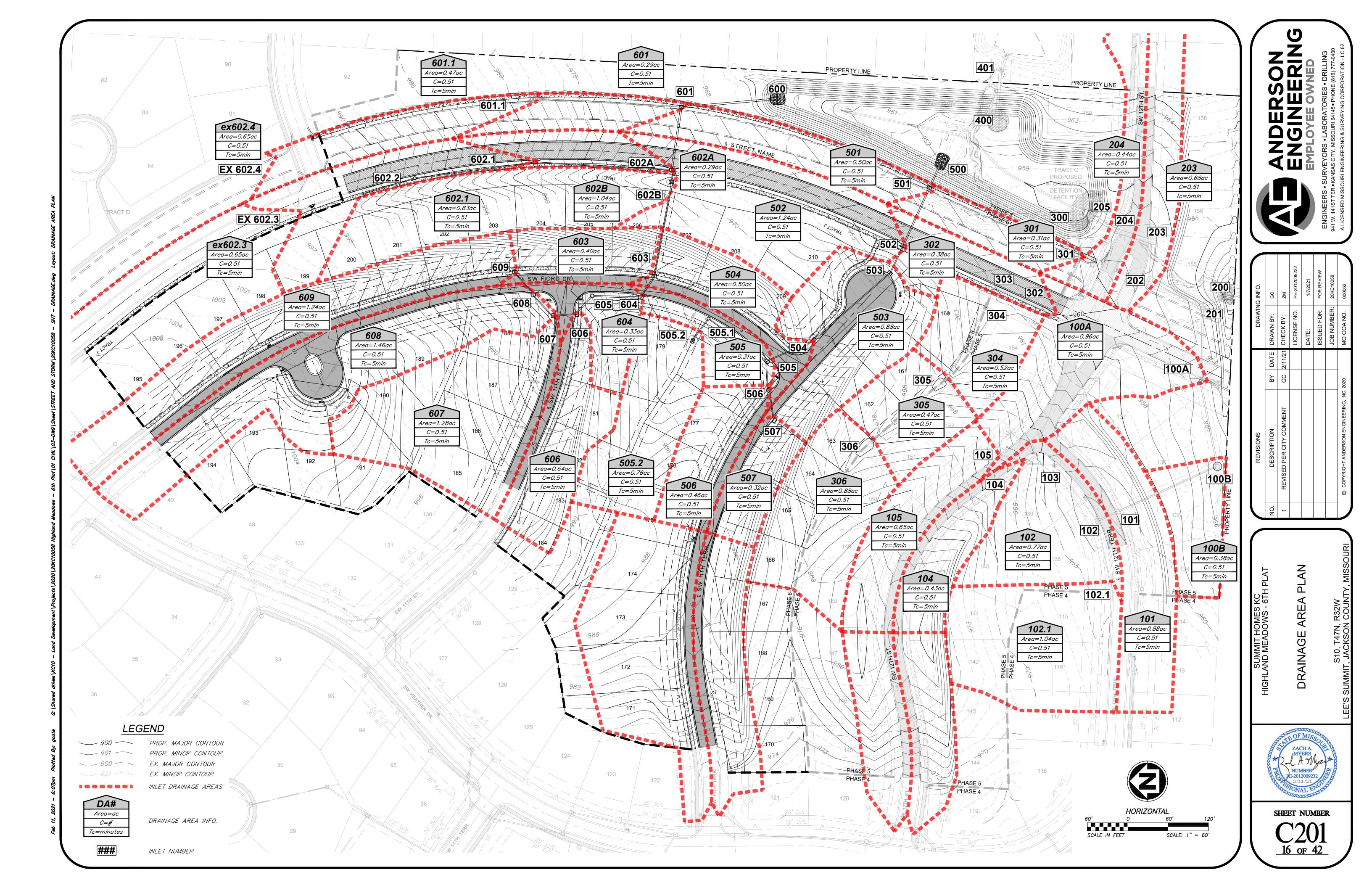
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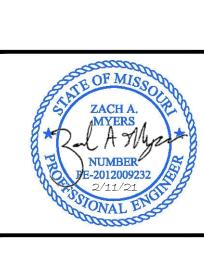


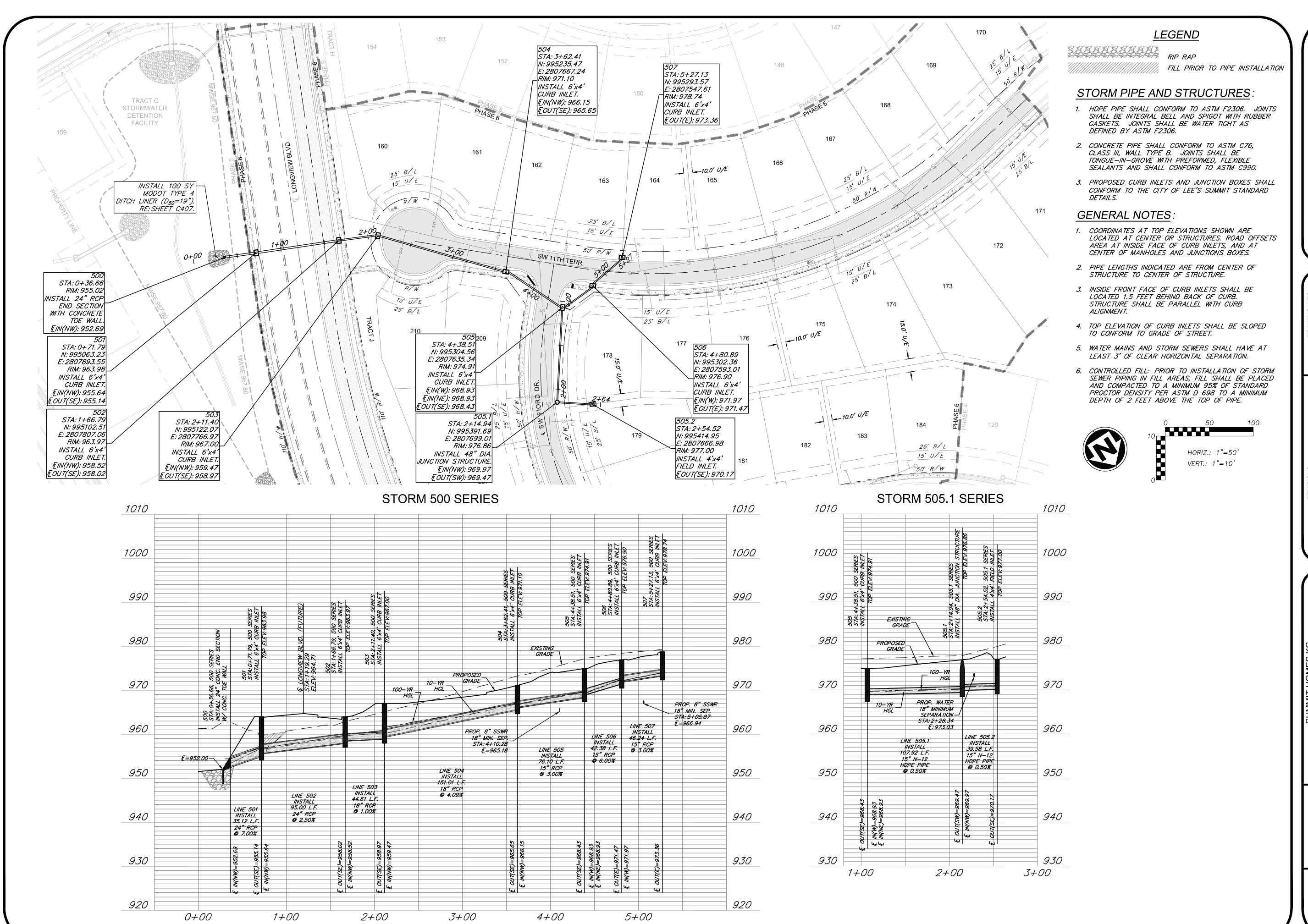
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Line No.	Inlet ID	Downstream Line No.	Drainage Area	Runoff Coefficient	Local CxA	System CxA	Тс	Local Intensity	System Intensity	Incremental Flow	Total Runoff	Line No.	Line	U/S Ground Elev.	U/S Invert	D/S Invert	Length	Slope	Size	n	Capacity Full	Total Runoff	Velocity	Velocity Out	HGLUp	HGLDn	Line ID	Local Q	QBypass	Gutter Slope	Gutter Spread	Gutter Width
			(ac)	(C)			(min)	(in/hr)	(in/hr)	(cfs)	(cfs)			(ft)	(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)	(ft/s)	(ft/s)	(ft)	(ft)		(cfs)	(cfs)	(ft/ft)	(ft)	(ft)
1	601	Outfall	0.29	0.51	0.15	0.15	8.5	7.24	6.36	1.07	28.36	1	LINE 601	970.12	961.62	958.33	131.62	2.50	30	0.013	64.84	28.36	10.10	12.76	963.43	959.49	LINE 601	1.07	0.00	0.013	5.71	2.00
2	602A	1	0.29	0.51	0.15	0.15	8.2	7.24	6.42	1.07	27.68	2	LINE 602A	970.12	963.07	962.12	95.00	1.00	30	0.013	41.01	27.68	8.16	8.97	964.86	963.62	LINE 602A	1.07	0.00	0.013	5.71	2.00
3	602.1	2	1.13	0.51	0.58	0.58	7.3	7.24	6.64	4.17	6.03	3	LINE 602.1	979.06	973.71	963.57	202.76	5.00	18	0.012	25.44	6.03	4.42	3.72	974.66	964.86	LINE 602.1	2.96	1.21	0.013	10.38	2.00
4	602.2	3	0.00	0.00	0.00	0.00	5.7	0.00	7.05	0.00	2.34	4	LINE 602.2	987.79	981.62	974.21	181.23	4.09	15	0.012	14.15	2.34	4.92	5.91	982.23	974.66	LINE 602.2	****				
5	602.3	4	0.65	0.51	0.33	0.33	5.0	7.24	7.24	2.40	2.40	5	LINE 602.3	989.22	987.98	982.12	79.70	7.35	15	0.012	18.97	2.40	7.27	10.58	988.60	982.42	LINE 602.3					
6	602B	2	1.04	0.51	0.53	0.53	6.2	7.24	6.90	3.84	22.50	6	LINE 602B	969.00	963.93	963.57	18.00	2.00	24	0.012	34.65	22.49	9.21	10.48	965.62	964.86	LINE 602B	3.84				
7	603	6	0.40	0.51	0.20	0.20	5.8	7.24	7.01	1.48	19.13	7	LINE 603	980.09	972.24	964.43	142.00	5.50	24	0.012	57.46	19.12	8.52	9.82	973.81	965.62	LINE 603	2.72	0.88	0.013	9.76	2.00
8	604	7	0.33	0.51	0.17	0.17	5.7	7.24	7.04	1.22	17.77	8	LINE 604	980.47	974.06	972.74	37.71	3.50	24	0.013	42.32	17.77	8.66	10.37	975.58	973.81	LINE 604	3.83	2.98	0.013	12.64	2.00
9	605	8	0.00	0.00	0.00	0.00	5.5	0.00	7.10	0.00	16.74	9	LINE 605	983.93	975.29	974.56	73.00	1.00	24	0.012	24.50	16.74	7.57	8.39	976.76	975.77	LINE 605					
10	606	9	0.64	0.51	0.33	0.33	5.4	7.24	7.14	2.36	16.81	10	LINE 606	986.03	976.85	975.79	35.29	3.00	24	0.012	42.47	16.81	8.92	11.07	978.33	976.76	LINE 606	1.72	0.64	0.020	7.44	2.00
11	607	10	1.28	0.51	0.65	0.65	5.3	7.24	7.16	4.73	14.53	11	LINE 607	986.70	979.12	977.35	35.33	5.00	18	0.013	23.50	14.53	10.20	11.92	980.51	978.33	LINE 607	2.50	2.23	0.020	10.00	2.00
12	608	11	1.46	0.51	0.74	0.74	5.2	7.24	7.18	5.39	9.89	12	LINE 608	987.99	980.48	979.62	43.04	2.00	15	0.012	9.89	9.89	8.71	9.18	981.66	980.64	LINE 608	2.67	2.72	0.020	10.55	2.00
13	609	12	1.24	0.51	0.63	0.63	5.0	7.24	7.24	4.58	4.58	13	LINE 609	989.18	983.15	980.98	43.36	5.00	15	0.013	14.45	4.58	5.87	6.70	984.02	981.66	LINE 609	2.46	2.12	0.020	9.87	2.00
14	501	Outfall	0.50	0.51	0.26	0.26	7.3	7.24	6.62	1.85	16.78	14	LINE 501	963.98	955.14		35.12	7.00	24	0.013	59.74	16.78	11.54	16.32	956.62	953.42	LINE 501	1.75	0.09	0.013	7.34	2.00
15	502	14	1.24	0.51	0.63	0.63	7.0	7.24	6.70	4.58	15.28	15	LINE 502	963.97	958.02	955.64	95.00	2.50	24	0.012	38.78	15.28	8.25	10.04	959.43	956.62	LINE 502	3.11	1.47	0.013	10.78	2.00
16	503	15	0.88	0.51	0.45	0.45	6.9	7.24	6.73	3.25	11.09	16	LINE 503	967.00	958.97	958.52	44.61	1.00	18	0.012	11.43	11.09	7.15	7.37	960.24	959.71	LINE 503	6.41				
17	504	16	0.50	0.51	0.26	0.26	6.3	7.24	6.87	1.85	8.23	17	LINE 504	971.10	965.65	959.47	151.01	4.09	18	0.013	21.24	8.23	7.42	8.96	966.76	960.24	LINE 504	2.11	2.92	0.060	8.14	2.00
18	505	17	0.31	0.51	0.16	0.16	6.1	7.24	6.93	1.14	6.54	18	LINE 505	976.24	968.43	966.15	76.10	3.00	15	0.013	11.18	6.54	7.76	9.46	969.46	966.84	LINE 505	2.33	1.79	0.020	9.45	2.00
19	506	18	0.46	0.51	0.23	0.23	5.8	7.24	7.01	1.70	2.79	19	LINE 506	977.30		968.93	42.38	6.00	15	0.012	17.13	2.79	4.91	5.65	972.14	969.46	LINE 506	1.19	0.51	0.060	4.90	2.00
20	507	19	0.32	0.51	0.16	0.16	5.0	7.24	7.24	1.18	1.18	20	LINE 507	978.74	973.36	971.97	46.24	3.00	15	0.013	11.20	1.18	4.55	5.92	973.79	972.24	LINE 507	0.95	0.24	0.060	4.02	2.00
21	505.1	18	0.00	0.00	0.00	0.00	5.3	0.00	7.15	0.00	2.77	21	LINE 505.1	976.86	969.47	968.93	107.92	0.50	15	0.012	4.95	2.77	4.14	4.14	970.14	969.60	LINE 505.1					
22	505.2	21	0.76	0.51	0.39	0.39	5.0	7.24	7.24	2.81	2.81	22	LINE 505.2	977.00	970.17	969.97	39.58	0.50	15	0.012	4.97	2.81	4.16	4.17	970.85	970.64	LINE 505.2	2.81				

					HYDROLOG	Y												HYD	RAULICS									GU	TTER/INLE	T DESIGN		
ine No.	Inlet ID	Downstream Line No.	Drainage Area	Runoff Coefficient	Local CxA	System CxA	Тс	Local Intensity	System Intensity	Incremental Flow	Total Runoff	Line No.	Line	U/S Ground Elev.	U/S Invert	D/S Invert	Length	Slope	Size	n	Capacity Full	Total Runoff	Velocity	Velocity Out	HGLUp	HGLDn	Line ID	Local Q	QBypass	Gutter Slope	Gutter Spread	Gutter Width
·			(ac)	(C)			(min)	(in/hr)	(in/hr)	(cfs)	(cfs)			(ft)	(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)	(ft/s)	(ft/s)	(ft)	(ft)		(cfs)	(cfs)	(ft/ft)	(ft)	(ft)
1	601	Outfall	0.29	0.51	0.15	0.15	7.6	9.83	9.01	1.45	40.22	1	LINE 601	970.12	961.62	958.33	131.62	2.50	30	0.013	64.84	40.22	9.02	9.02	963.75	960.46	LINE 601	1.44	0.01	0.013	6.59	2.00
2	602A	1	0.29	0.51	0.15	0.15	7.4	9.83	9.07	1.45	39.14	2	LINE 602A	970.12	963.07	962.12	95.00	1.00	30	0.013	41.01	39.14	9.18	9.51	965.18	964.07	LINE 602A	1.44	0.01	0.013	6.59	2.00
3	602.1	2	1.13	0.51	0.58	0.58	6.7	9.83	9.28	5.67	8.43	3	LINE 602.1	979.06	973.71	963.57	202.76	5.00	18	0.012	25.44	8.43	5.35	4.77	974.83	965.18	LINE 602.1	3.49	2.18	0.013	11.75	2.00
4	602.2	3	0.00	0.00	0.00	0.00	5.5	0.00	9.66	0.00	3.20	4	LINE 602.2	987.79	981.62		181.23	4.09	15	0.012	14.15	3.20	4.81	5.24	982.34	974.83	LINE 602.2		****		····	
5	602.3	4	0.65	0.51	0.33	0.33	5.0	9.83	9.83	3.26	3.26	5	LINE 602.3	989.22	987.98	982.12	79.70	7.35	15	0.012	18.97	3.26	7.98	11.56	988.71	982.47	LINE 602.3					
6	602B	2	1.04	0.51	0.53	0.53	5.9	9.83	9.53	5.22	31.06	6	LINE 602B	969.00	963.93	963.57	18.00	2.00	24	0.012	34.65	31.06	10.81	11.47	965.81	965.18	LINE 602B	5.22				
7	603	6	0.40	0.51	0.20	0.20	5.6	9.83	9.63	2.01	26.27	7	LINE 603	980.09		964.43	142.00	5.50	24	0.012	57.46	26.27	10.12	11.39	974.03	965.81	LINE 603	3.39	1.98	0.013	11.49	2.00
8	604	7	0.33	0.51	0.17	0.17	5.5	9.83	9.66	1.65	24.37	8	LINE 604	980.47	974.06	972.74	37.71	3.50	24	0.013	42.32	24.37	9.88	11.37	975.80	974.03	LINE 604	4.75	5.82	0.013	15.04	2.00
9	605	8	0.00	0.00	0.00	0.00	5.3	0.00	9.71	0.00	22.89	9	LINE 605	983.93			73.00	1.00	24	0.012	24.50	22.89	8.45	8.86	976.99	976.09	LINE 605		****			
10	606	9	0.64	0.51	0.33	0.33	5.3	9.83	9.74	3.21	22.95	10	LINE 606	986.03	976.85	975.79	35.29	3.00	24	0.012	42.47	22.95	9.85	11.64	978.55	976.99	LINE 606	2.04	1.17	0.020	8.50	2.00
11	607	10	1.28	0.51	0.65	0.65	5.2	9.83	9.76	6.42	19.81	11	LINE 607	986.70	979.12	977.35	35.33	5.00	18	0.013	23.50	19.81	12.15	13.03	980.59	978.55	LINE 607	2.91	3.51	0.020	11.32	2.00
12	608	11	1.46	0.51	0.74	0.74	5.1	9.83	9.78	7.32	13.47	12	LINE 608	987.99	980.48	979.62	43.04	2.00	15	0.012	9.89	13.47	10.98	10.98	982.47	980.87	LINE 608	3.09	4.23	0.020	11.94	2.00
13	609	12	1.24	0.51	0.63	0.63	5.0	9.83	9.83	6.22	6.22	13	LINE 609	989.18	983.15	+	43.36	5.00	15	0.013	14.45	6.22	5.47	5.07	984.16	983.40	LINE 609	2.86	3.36	0.020	11.18	2.00
14	501	Outfall	0.50	0.51	0.26	0.26	6.7	9.83	9.27	2.51	23.49	14	LINE 501	963.98	955.14	952.69	35.12	7.00	24	0.013	59.74	23.49	8.18	8.18	956.86	954.41	LINE 501	2.18	0.34	0.013	8.40	2.00
15	502	14	1.24	0.51	0.63	0.63	6.5	9.83	9.34	6.22	21.30	15	LINE 502	963.97	958.02	955.64	95.00	2.50	24	0.012	38.78	21.30	9.15	10.62	959.67	956.86	LINE 502	3.66	2.57	0.013	12.20	2.00
16	503	15	0.88	0.51	0.45	0.45	6.4	9.83	9.37	4.41	15.44	16	LINE 503	967.00	958.97	958.52	44.61	1.00	18	0.012	11.43	15.44	8.74	8.74	960.84	960.02	LINE 503	11.66		0.000	40.00	2.00
17	504	10	0.50	0.51	0.26	0.26	6.0	9.83	9.50	2.51	11.38	17	LINE 504	971.10	965.65	959.47	151.01	4.09	18	0.013	21.24	11.38	6.75	6.44	966.94 j	961.63	LINE 504	2.85	6.79	0.060	10.69	2.00
18	505 506	1/	0.31	0.51 0.51	0.16 0.23	0.16 0.23	5.8 5.6	9.83 9.83	9.55 9.63	1.55 2.31	9.01 3.83	18 19	LINE 505 LINE 506	976.24 977.30	968.43 971.47	966.15 968.93	76.10 42.38	3.00 6.00	15 15	0.013 0.012	11.18	9.01 3.83	5.28	10.13 5.88	969.59 972.26	967.00 969.59	LINE 505 LINE 506	3.10 1.41	4.27 0.89	0.020 0.060	11.97 5.72	2.00
20	507	10	0.40	0.51	0.23	0.23	5.0	9.83	9.83	1.60	1.60	20	LINE 500	978.74	973.36	971.97	46.24	3.00	15	0.012	11.20	1.60	4.98	6.47	973.86	972.29	LINE 500	1.41	0.89	0.060	4.76	2.00
21	505.1	18	0.00	0.00	0.10	0.00	5.2	0.00	9.76	0.00	3.78	21	LINE 507	976.74	969.47	968.93	107.92	0.50	15	0.013	4.95	3.78	4.44	4.44	970.29	969.75	LINE 507	1.10				
22	505.1	21	0.76	0.51	0.00	0.39	5.0	9.83	9.83	2.00	3.81	22	LINE 505.1	977.00		969.97	39.58	0.50	15	0.012	4.93	3.81	4.44	4.47	970.29	970.79	LINE 505.1	3.81	••••			

DRAWING INFO.	95	ZM	PE-2012009232	1/7/2021	FOR REVIEW	20KC10058	
DRAWIN	BY DATE DRAWN BY:	GC 2/11/21 CHECK BY:	TICENSE NO:	DATE:	ISSUED FOR:	JOB NUMBER:	
	DATE	2/11/21					
	ВУ	29					
		MMENT					

	NO.	DESCRIPTION	ВУ	BY DAT
		REVISED PER CITY COMMENT	CC	GC 2/11/2
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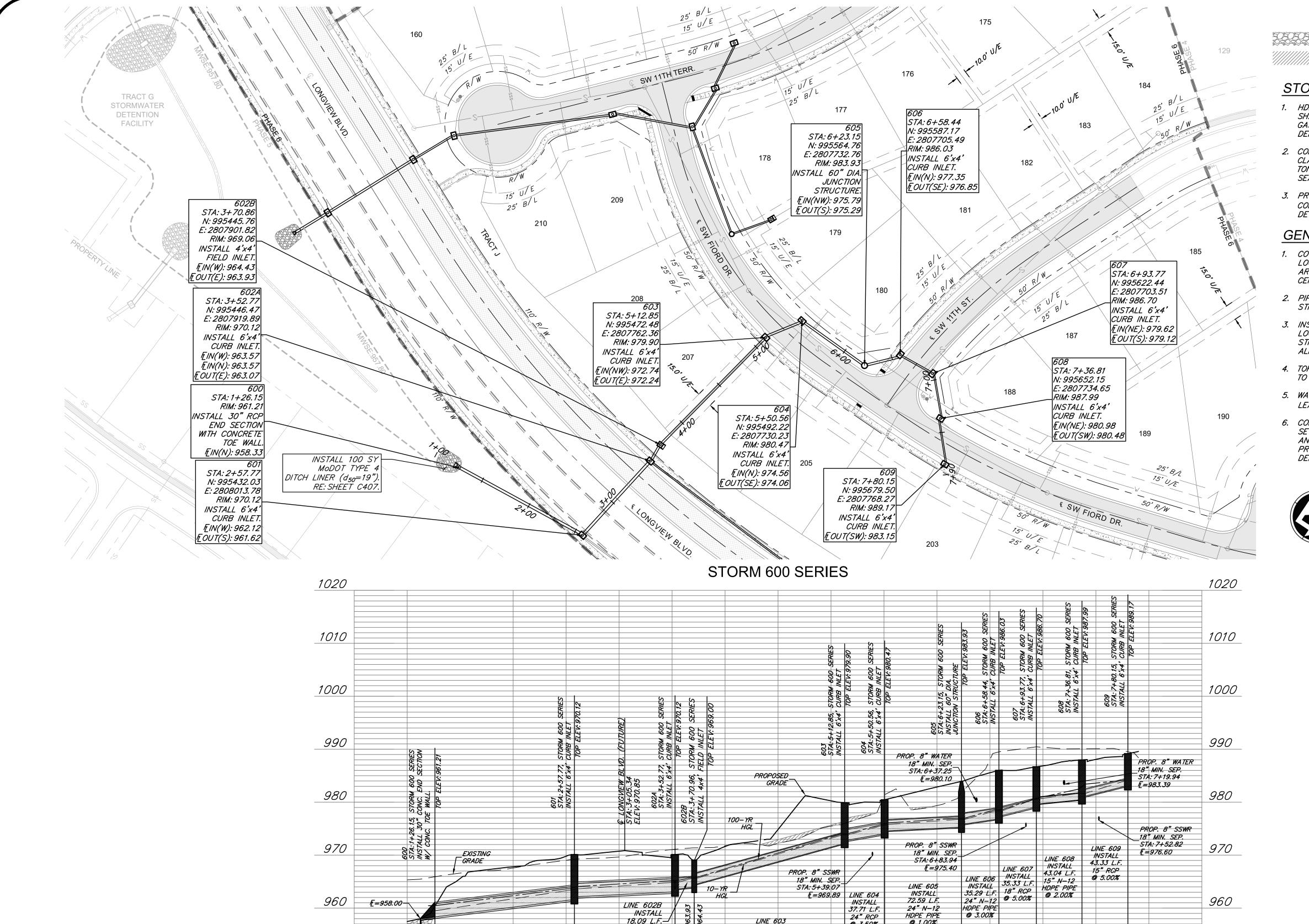
NO.	DESCRIPTION	ВУ	DATE	BY DATE DRAWN BY:	GC
_	REVISED PER CITY COMMENT	OS.	2/11/21	GC 2/11/21 CHECK BY:	MZ
				LICENSE NO.	PE-20120092
				DATE:	1/7/2021
				ISSUED FOR:	FOR REVIEW
				JOB NUMBER:	20KC10058
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STORM SEWER 500 SERIES PLAN & PROFILE



SHEET NUMBER

C203
18 OF 42



LINE 602B

LINE 602A INSTALL 95.00 L.F.

30" RCP @ 1.00%

3+00

LINE 601 INSTALL 131.62 L.F.

30" RCP @ 2.50%

2+00

INSTALL 18.09 L.F.— 24" RCP @ 2.00%

LINE 603 INSTALL 142.00 L.F. 24" N-12

HDPE PIPE @ 5.50%

4+00

₹=958.00

1+00

950

940

930

INSTALL 72.59 L.F.

24" N-12

HDPE PIPE @ 1.00%

6+00

@ 3.50%

5+00

HDPE PIPE @ 3.00%

7+00

LEGEND

RIP RAP

FILL PRIOR TO PIPE INSTALLATION

STORM PIPE AND STRUCTURES:

- HDPE PIPE SHALL CONFORM TO ASTM F2306. JOINTS SHALL BE INTEGRAL BELL AND SPIGOT WITH RUBBER GASKETS. JOINTS SHALL BE WATER TIGHT AS DEFINED BY ASTM F2306.
- 2. CONCRETE PIPE SHALL CONFORM TO ASTM C76, CLASS III, WALL TYPE B. JOINTS SHALL BE TONGUE-IN-GROVE WITH PREFORMED, FLEXIBLE SEALANTS AND SHALL CONFORM TO ASTM C990.
- 3. PROPOSED CURB INLETS AND JUNCTION BOXES SHALL CONFORM TO THE CITY OF LEE'S SUMMIT STANDARD DETAILS.

GENERAL NOTES.

- 1. COORDINATES AT TOP ELEVATIONS SHOWN ARE LOCATED AT CENTER OR STRUCTURES. ROAD OFFSETS AREA AT INSIDE FACE OF CURB INLETS, AND AT CENTER OF MANHOLES AND JUNCTIONS BOXES.
- 2. PIPE LENGTHS INDICATED ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
- 3. INSIDE FRONT FACE OF CURB INLETS SHALL BE LOCATED 1.5 FEET BEHIND BACK OF CURB. STRUCTURE SHALL BE PARALLEL WITH CURB ALIGNMENT.
- 4. TOP ELEVATION OF CURB INLETS SHALL BE SLOPED TO CONFORM TO GRADE OF STREET.
- 5. WATER MAINS AND STORM SEWERS SHALL HAVE AT LEAST 3' OF CLEAR HORIZONTAL SEPARATION.
- 6. CONTROLLED FILL: PRIOR TO INSTALLATION OF STORM SEWER PIPING IN FILL AREAS, FILL SHALL BE PLACED AND COMPACTED TO A MINIMUM 95% OF STANDARD PROCTOR DENSITY PER ASTM D 698 TO A MINIMUM DEPTH OF 2 FEET ABOVE THE TOP OF PIPE.



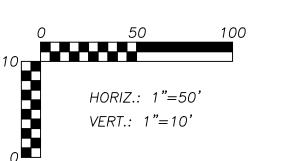
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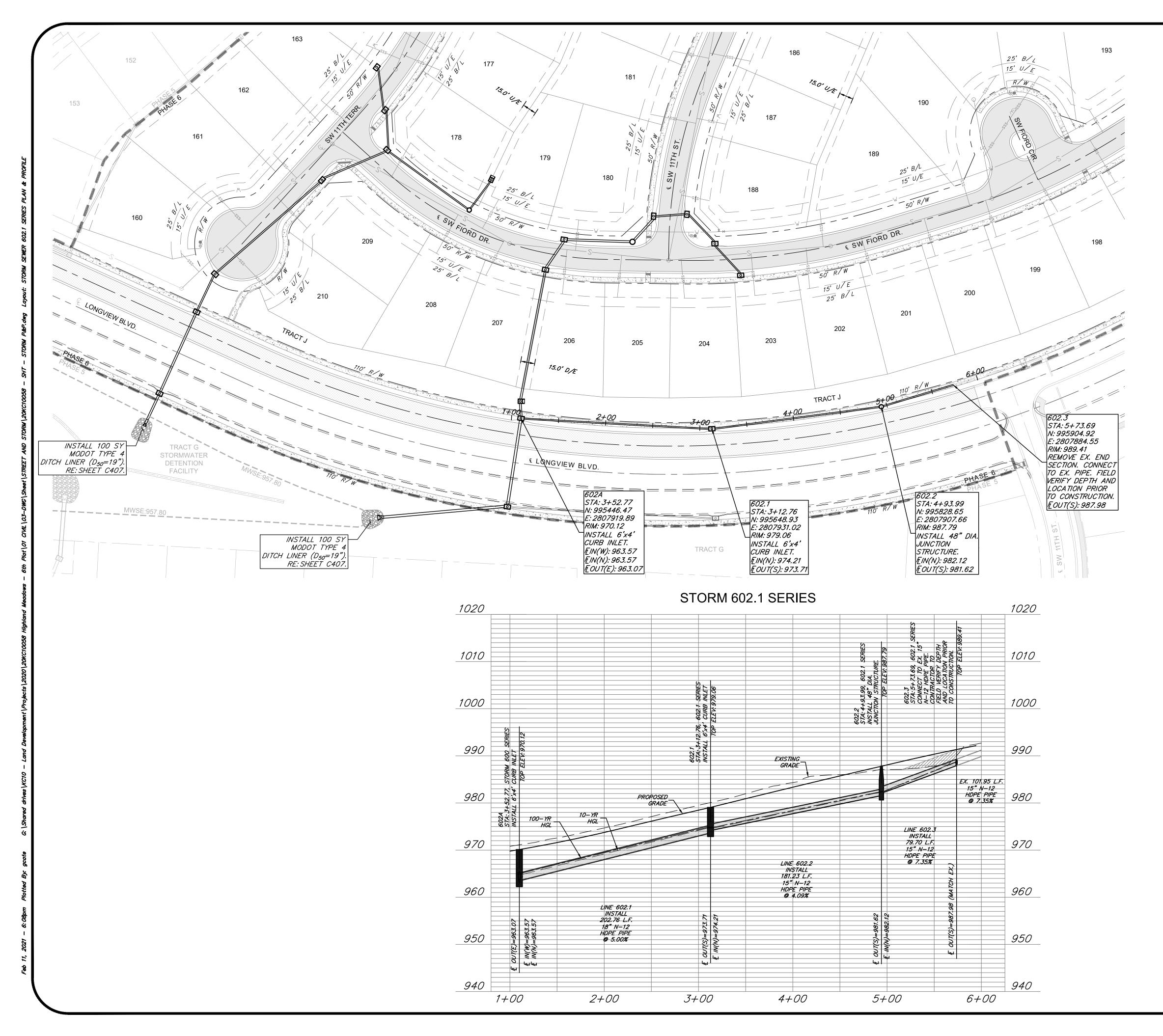


).	DESCRIPTION	ВУ	DATE	BY DATE DRAWN BY:	CC
	REVISED PER CITY COMMENT	CC	2/11/21	GC 2/11/21 CHECK BY:	MZ
				LICENSE NO.	PE
				DATE:	/1
				ISSUED FOR:	FO
				JOB NUMBER:	201
	© COPYRIGHT ANDERSON ENGINEERING, INC. 2020	2020		MO COA NO.	000
	© COPYRIGHT ANDERSON ENGINEERING, INC. 2	2020			MO COA NO.

ER 600 SERIES PROFILE SEWER AN & PR

STORM PL.





LEGEND

RIP RAP

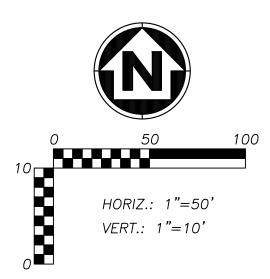
FILL PRIOR TO PIPE INSTALLATION

STORM PIPE AND STRUCTURES:

- 1. HDPE PIPE SHALL CONFORM TO ASTM F2306. JOINTS SHALL BE INTEGRAL BELL AND SPIGOT WITH RUBBER GASKETS. JOINTS SHALL BE WATER TIGHT AS DEFINED BY ASTM F2306.
- 2. CONCRETE PIPE SHALL CONFORM TO ASTM C76, CLASS III, WALL TYPE B. JOINTS SHALL BE TONGUE—IN—GROVE WITH PREFORMED, FLEXIBLE SEALANTS AND SHALL CONFORM TO ASTM C990.
- 3. PROPOSED CURB INLETS AND JUNCTION BOXES SHALL CONFORM TO THE CITY OF LEE'S SUMMIT STANDARD DETAILS.

GENERAL NOTES:

- 1. COORDINATES AT TOP ELEVATIONS SHOWN ARE LOCATED AT CENTER OR STRUCTURES. ROAD OFFSETS AREA AT INSIDE FACE OF CURB INLETS, AND AT CENTER OF MANHOLES AND JUNCTIONS BOXES.
- 2. PIPE LENGTHS INDICATED ARE FROM CENTER OF STRUCTURE.
- 3. INSIDE FRONT FACE OF CURB INLETS SHALL BE LOCATED 1.5 FEET BEHIND BACK OF CURB. STRUCTURE SHALL BE PARALLEL WITH CURB ALIGNMENT.
- 4. TOP ELEVATION OF CURB INLETS SHALL BE SLOPED TO CONFORM TO GRADE OF STREET.
- 5. WATER MAINS AND STORM SEWERS SHALL HAVE AT LEAST 3' OF CLEAR HORIZONTAL SEPARATION.
- 6. CONTROLLED FILL: PRIOR TO INSTALLATION OF STORM SEWER PIPING IN FILL AREAS, FILL SHALL BE PLACED AND COMPACTED TO A MINIMUM 95% OF STANDARD PROCTOR DENSITY PER ASTM D 698 TO A MINIMUM DEPTH OF 2 FEET ABOVE THE TOP OF PIPE.







	REVISIONS			DR	DRAWING INFO
ON	DESCRIPTION	ВУ	DATE	BY DATE DRAWN BY:	29
~	REVISED PER CITY COMMENT	CC	2/11/21	GC 2/11/21 CHECK BY:	ZM
				LICENSE NO.	PE-2012009
				DATE:	1/7/2021
				ISSUED FOR:	FOR REVIE
				JOB NUMBER:	20KC10058
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STORM SEWER 602.1 SEF PLAN & PROFILE

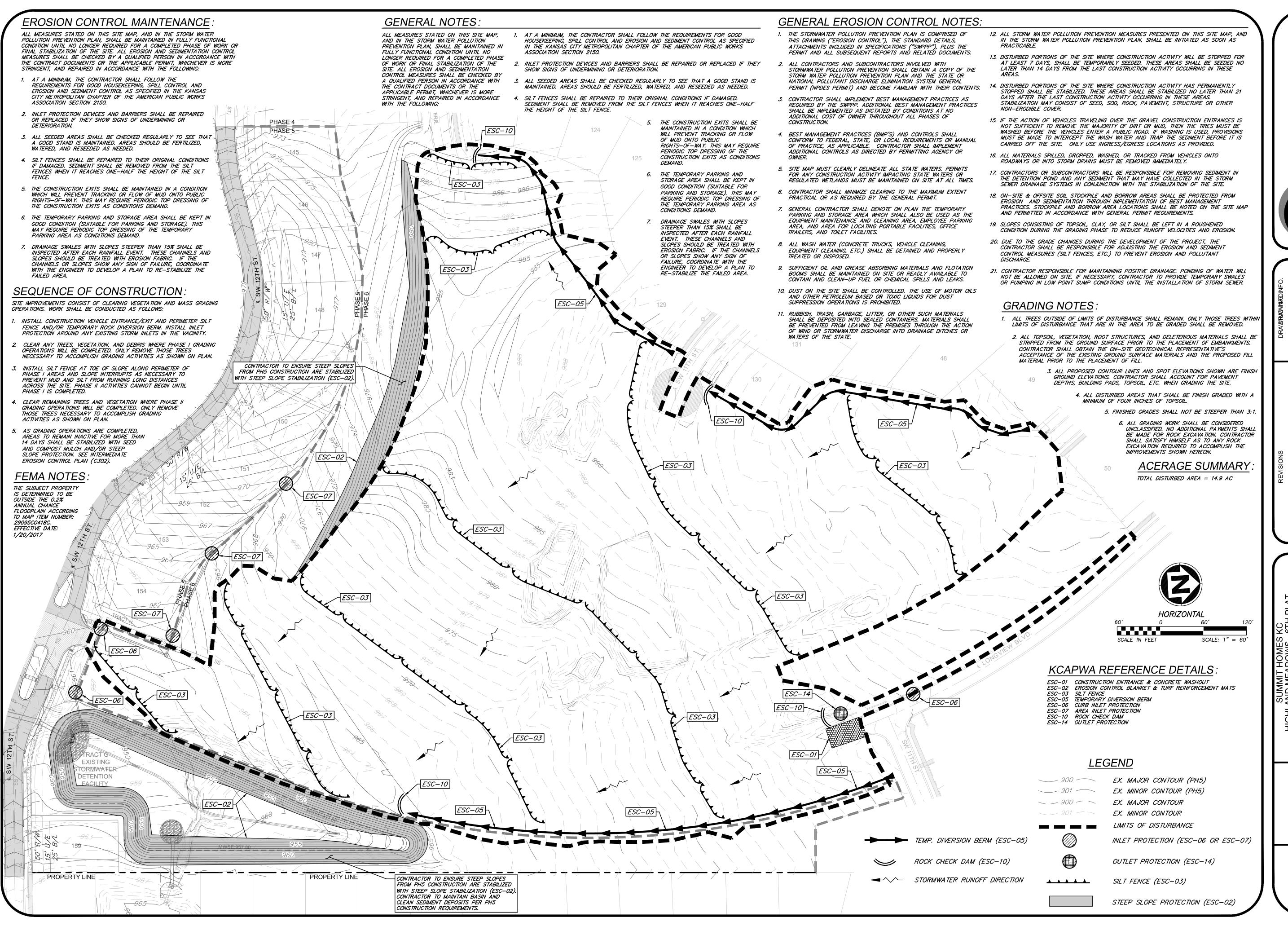
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SHEET NUMBER

C205

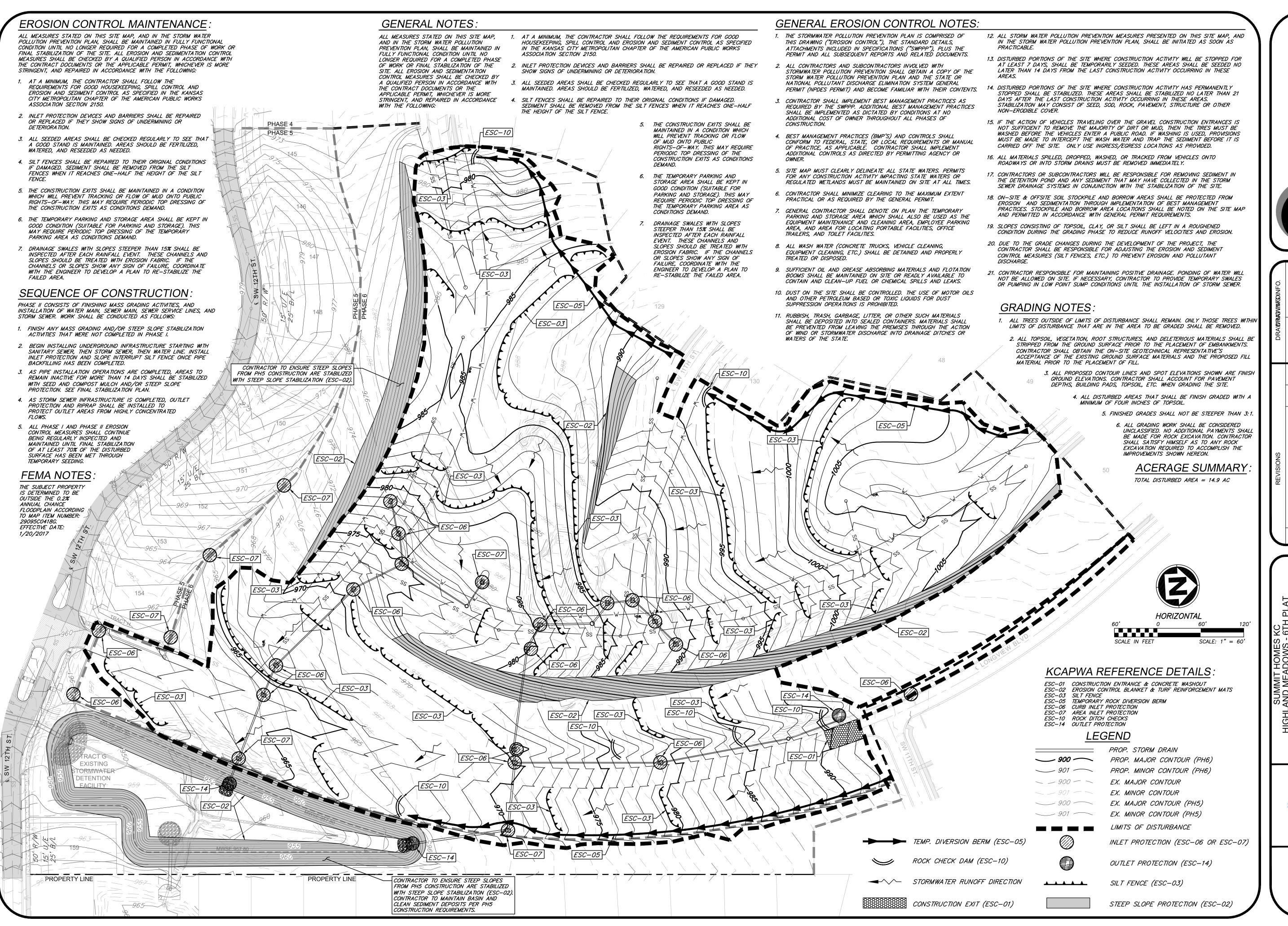
20 of 42



SHEET NUMBER

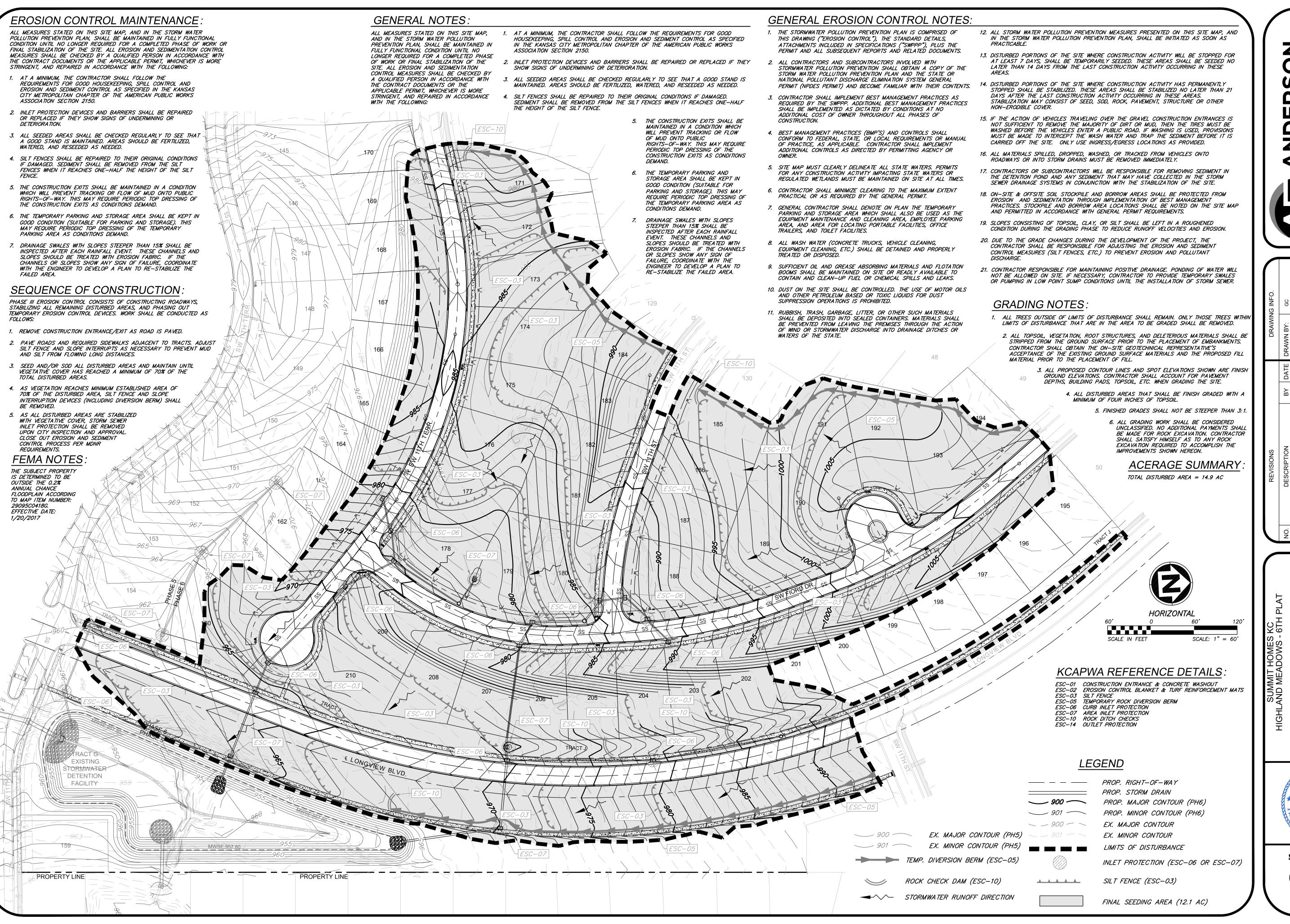
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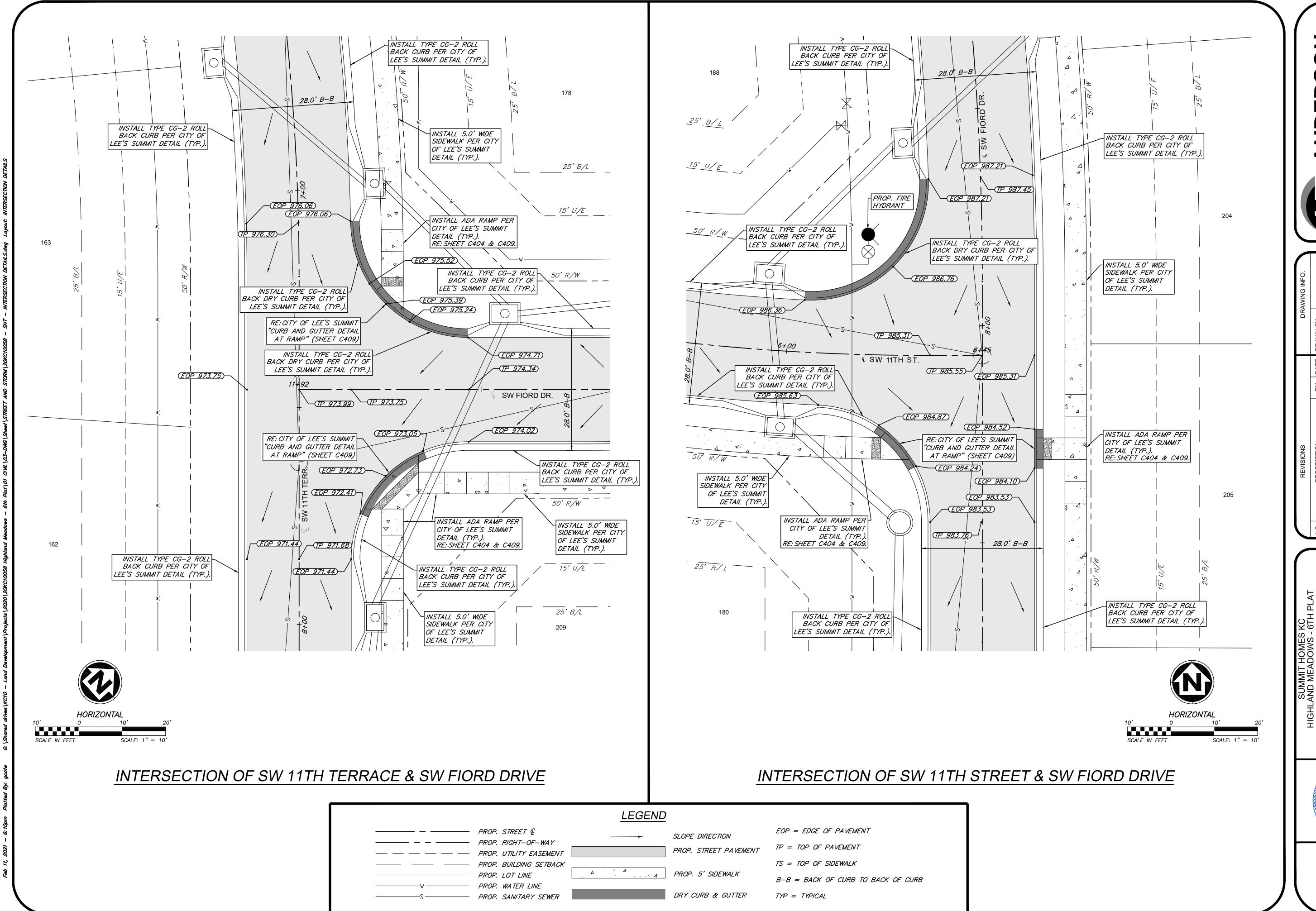
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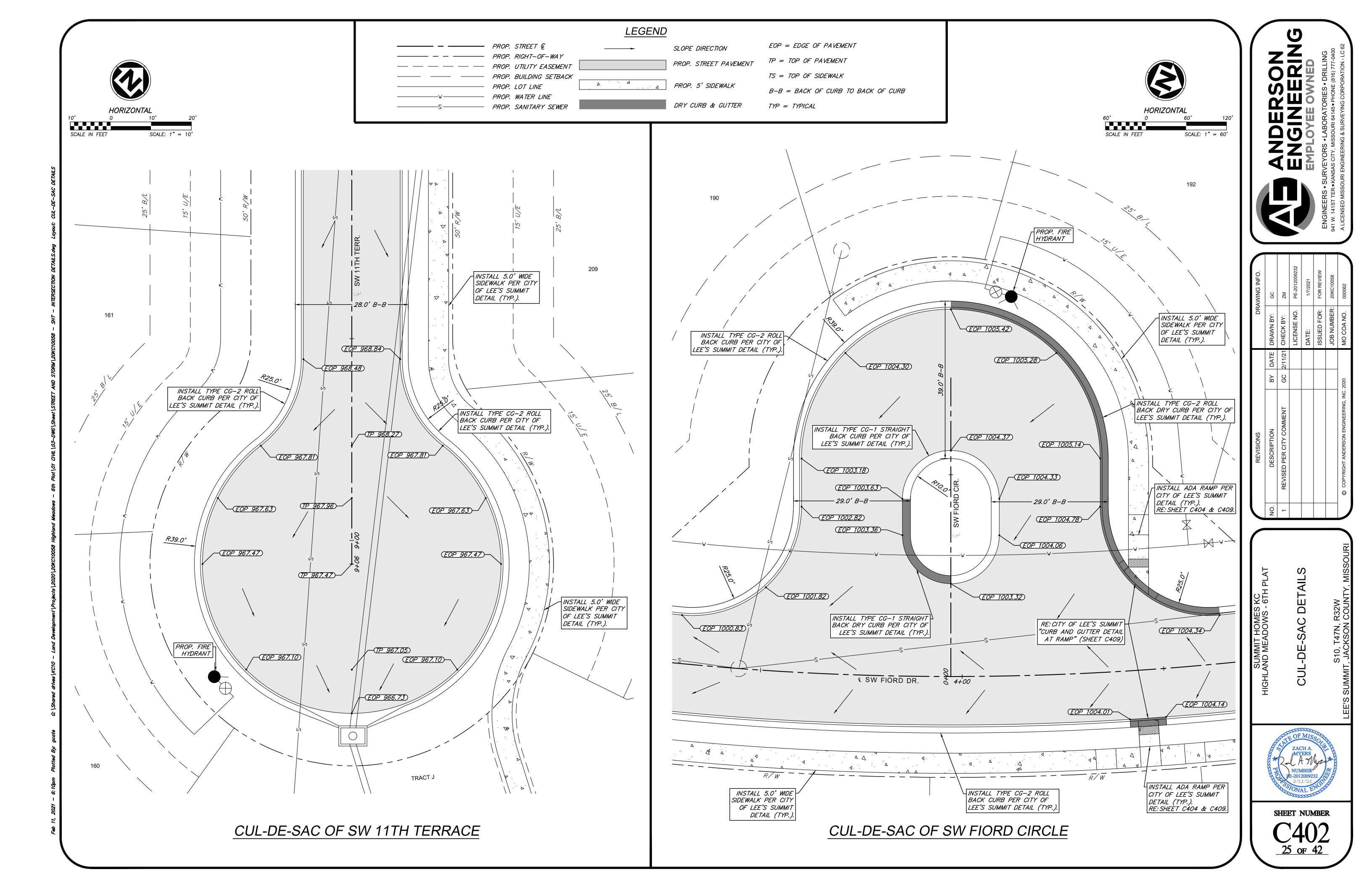


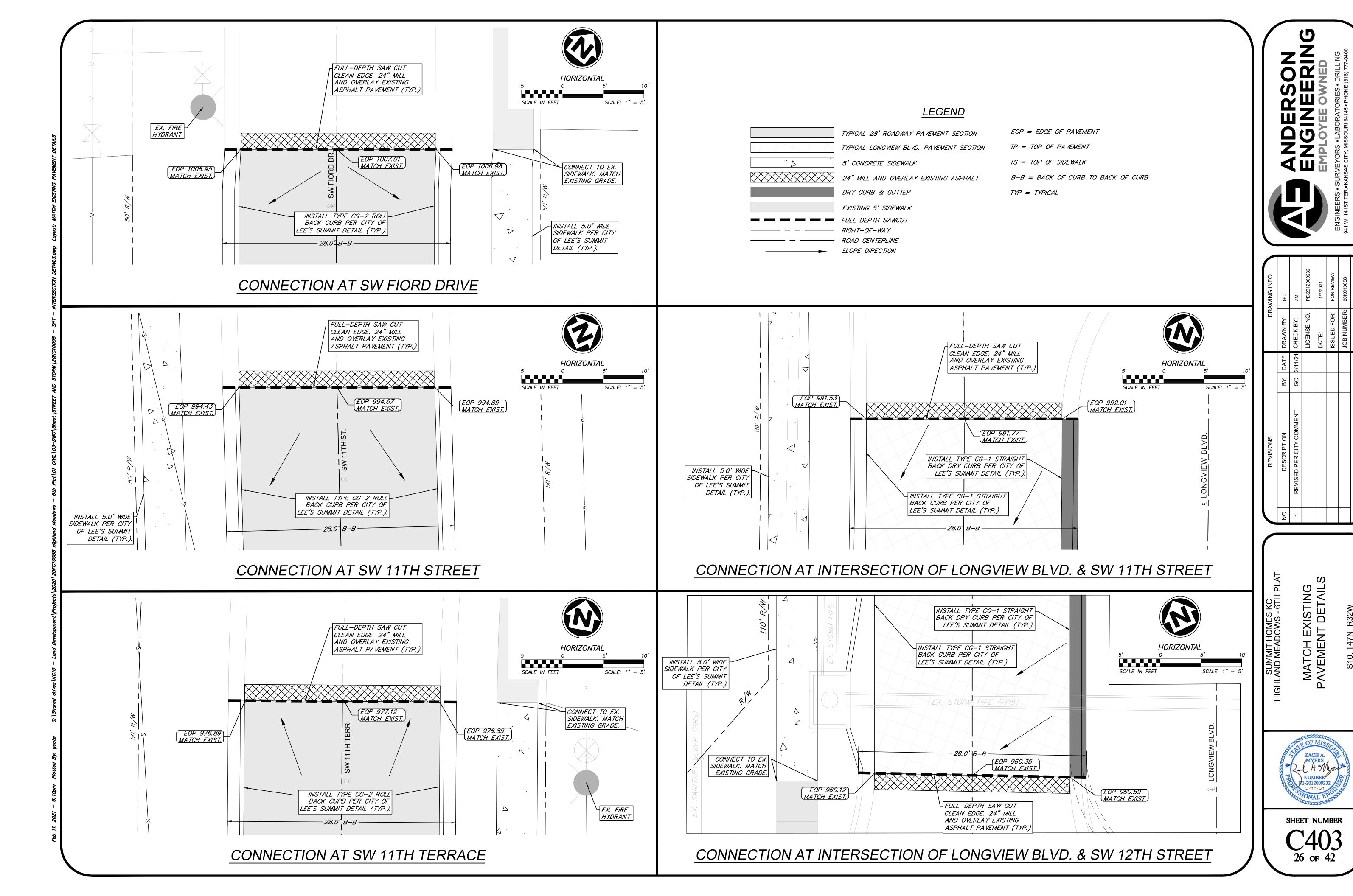


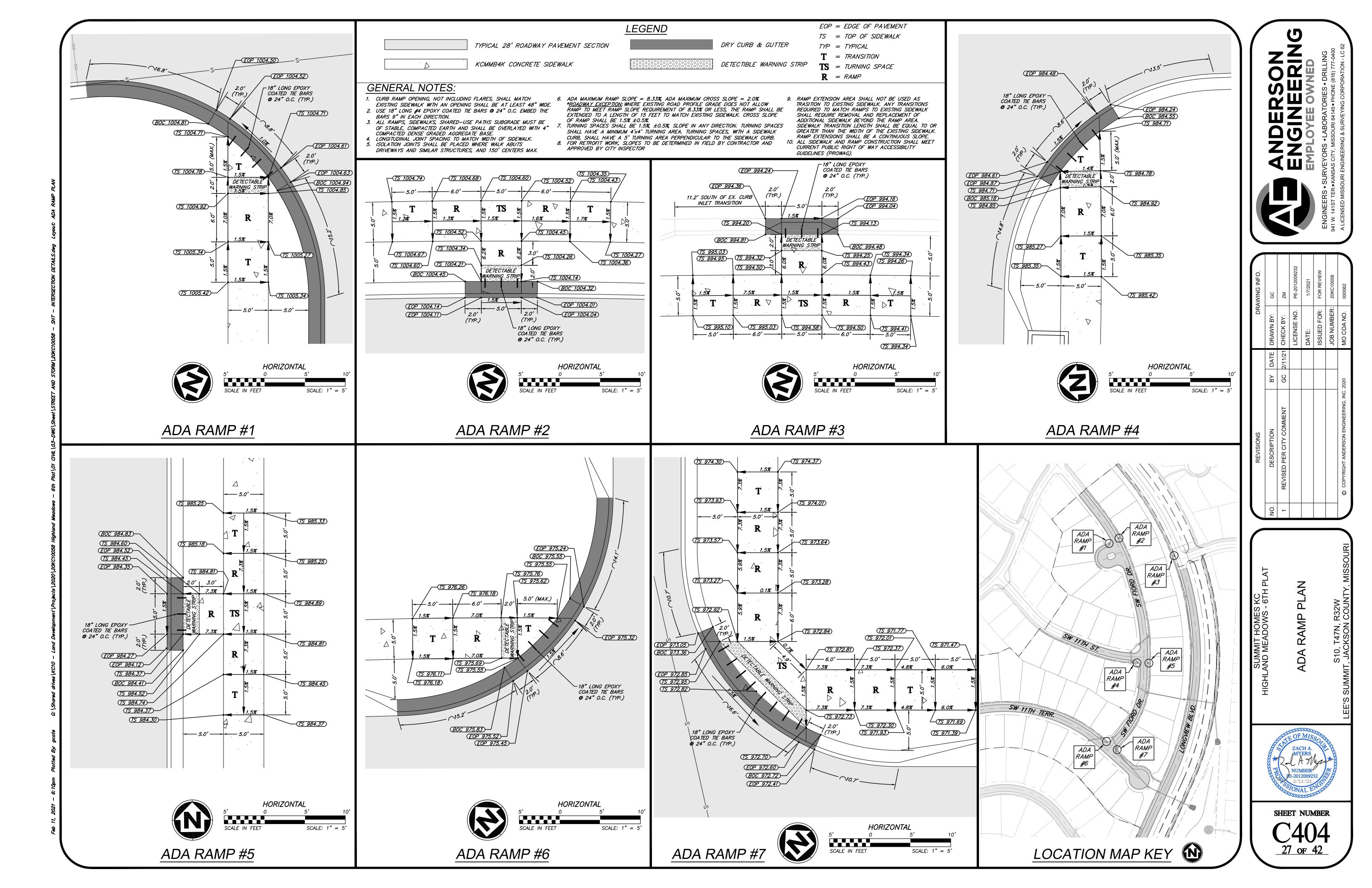
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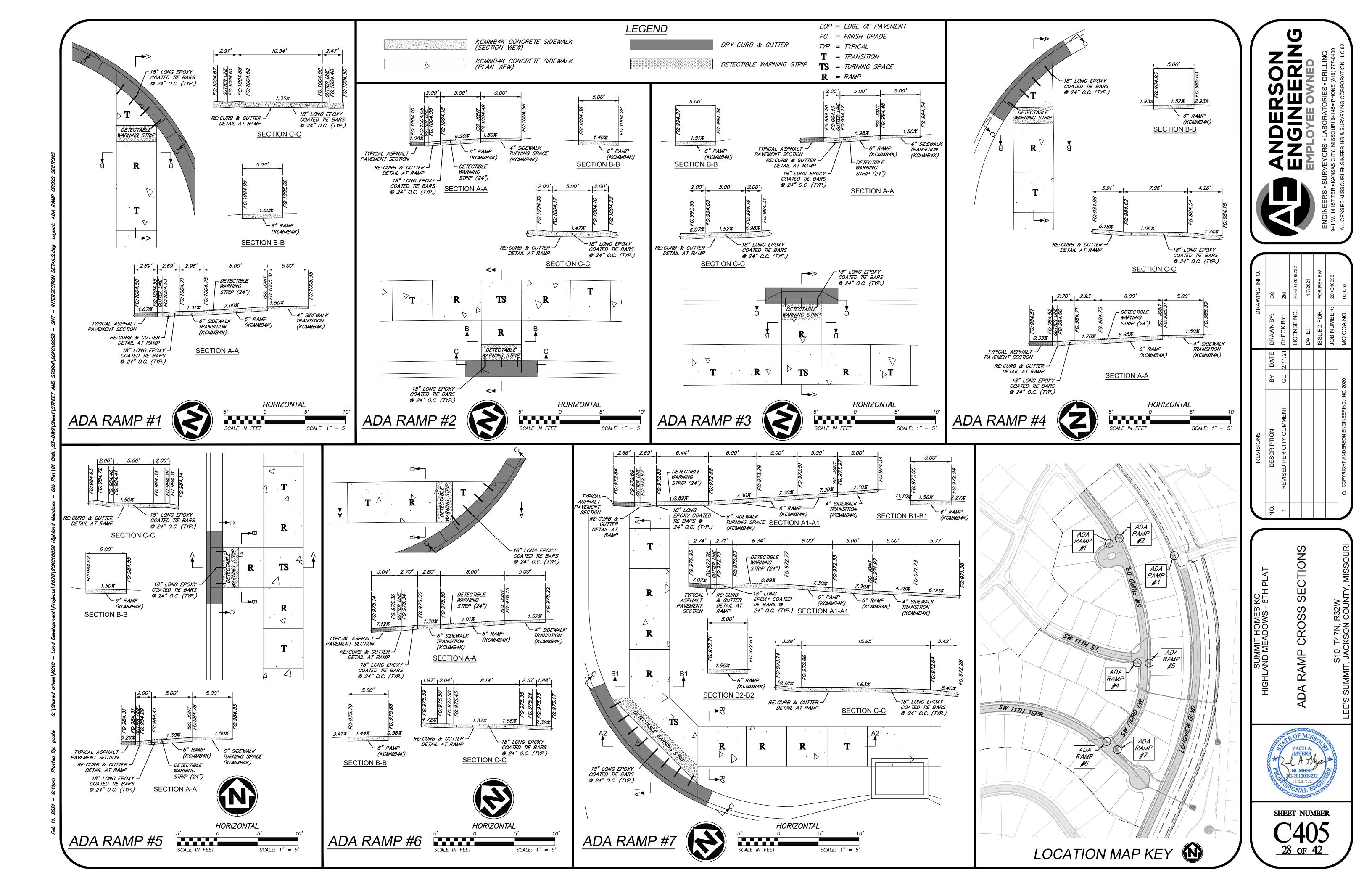


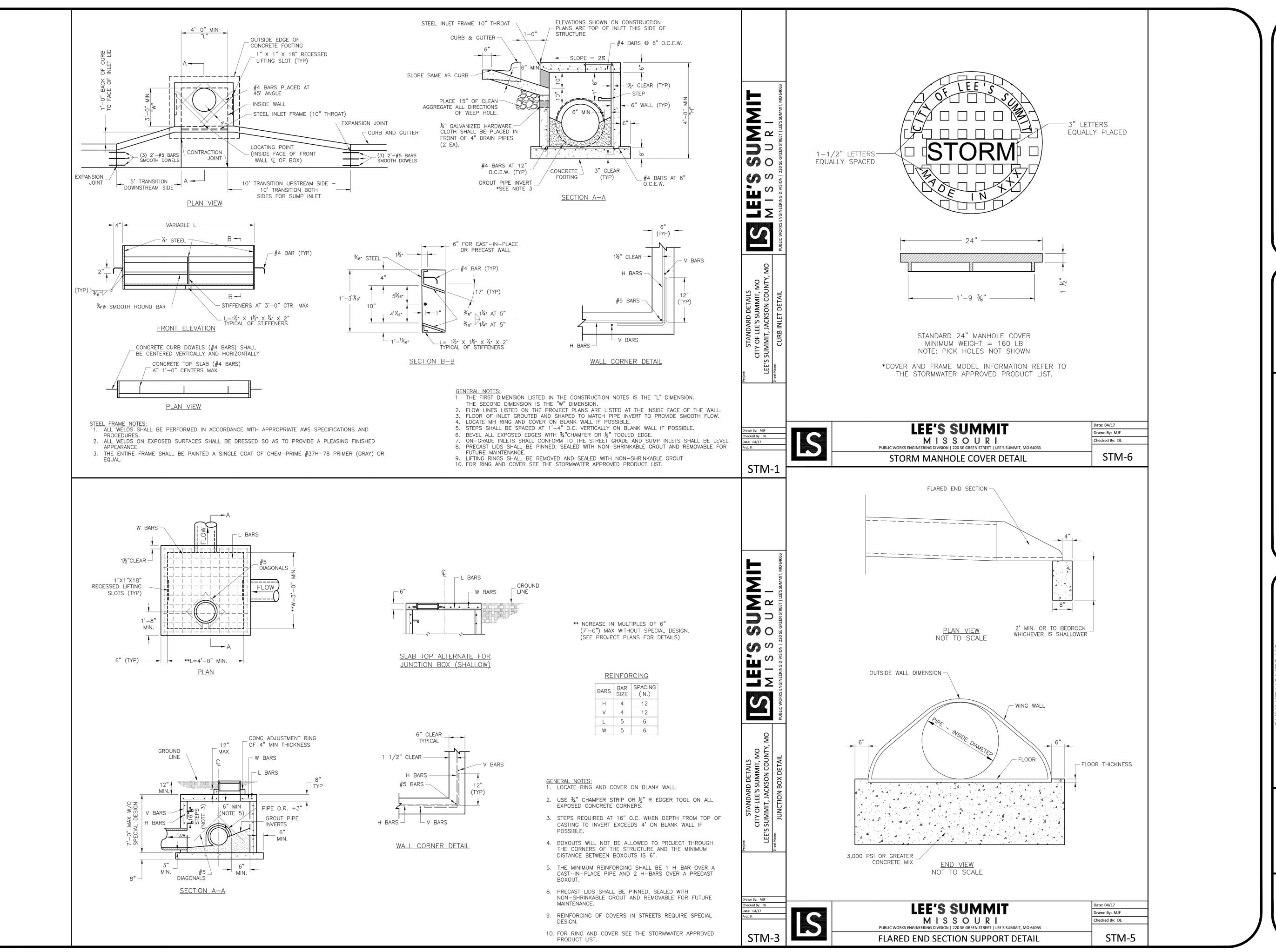
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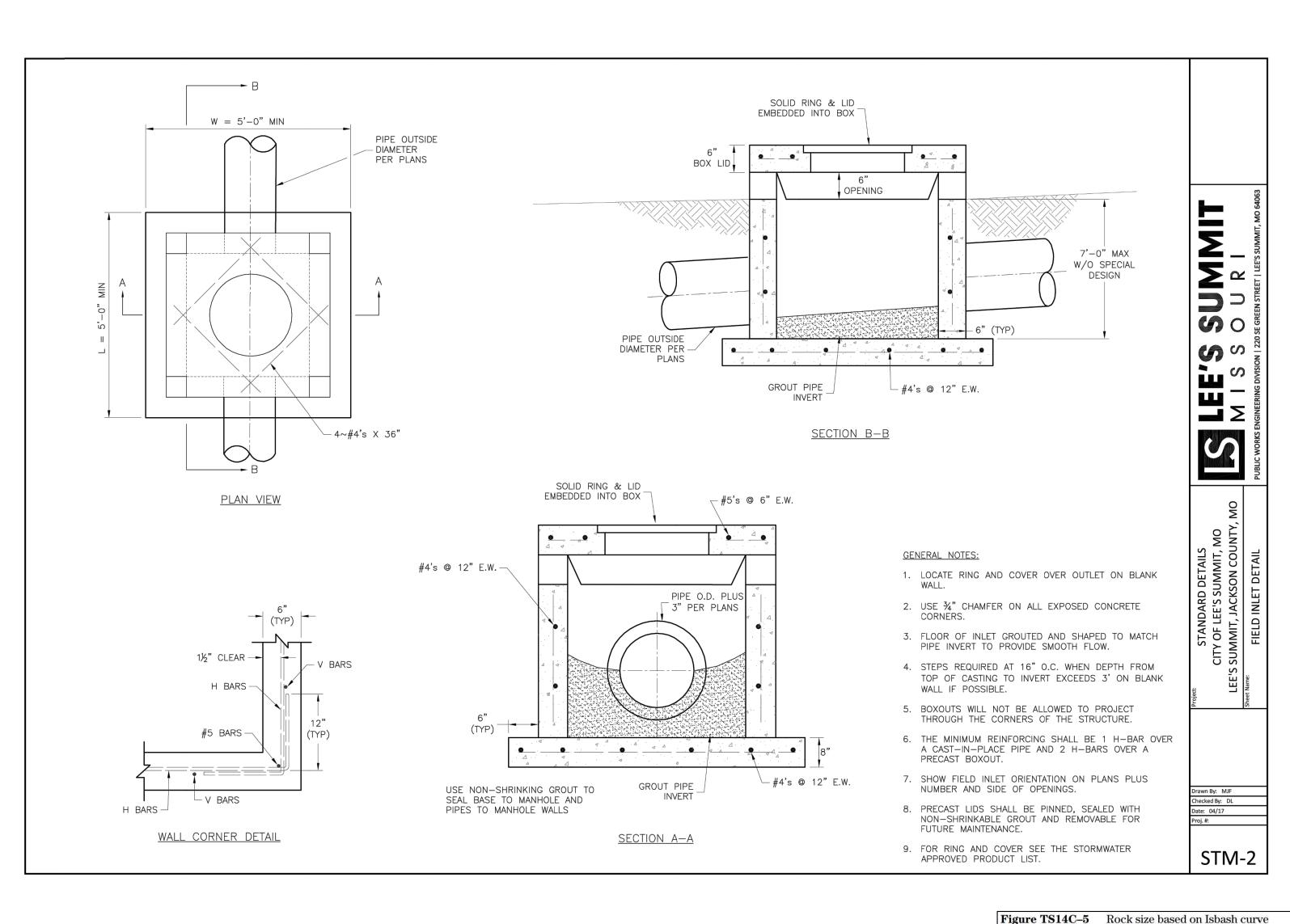
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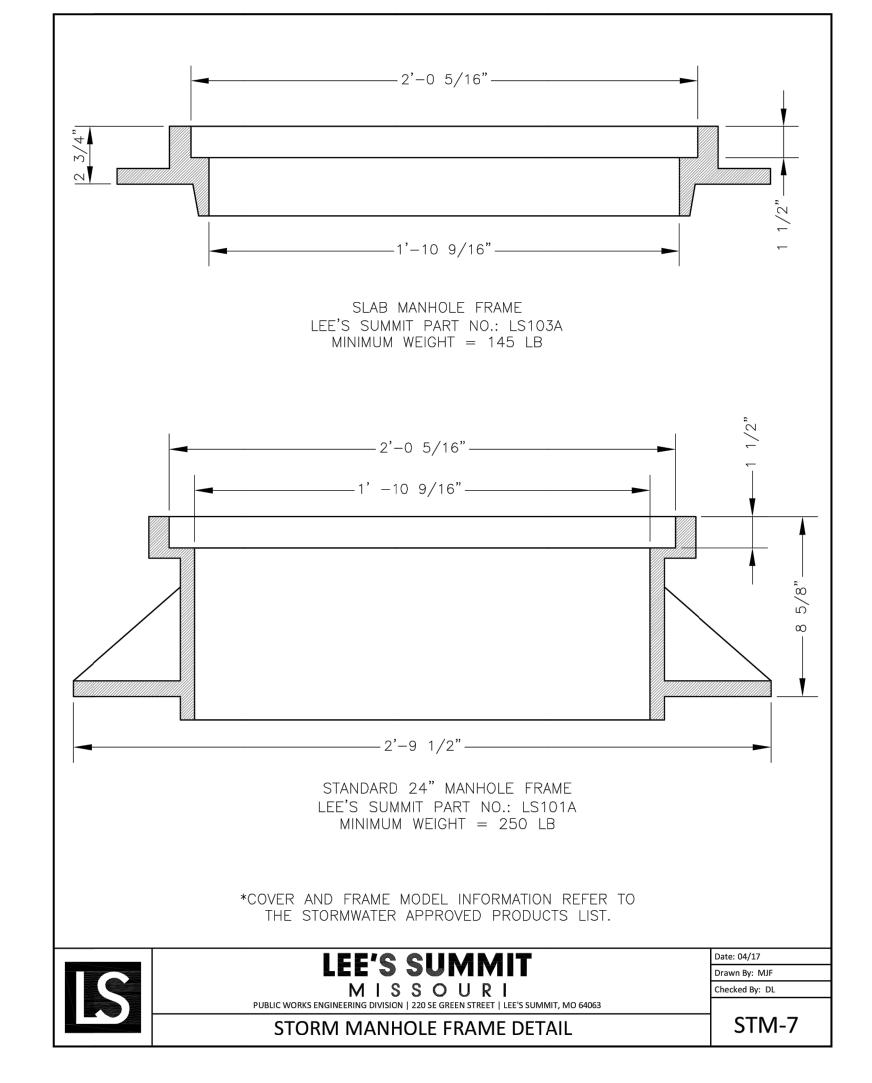
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29 OF 42



WIDTH SHALL NOT

EXCEED 21/2 TIMES THE OUTSIDE PIPE DIAMETER

FINAL



1/2"-3/4" CLEAN AGGREGATE, HAND TAMPED OR MECHANICALLY COMPACTED IN MAX. 4" LIFTS INITIAL BACKFILL

-UNDER PAVED AREAS OR WITHIN 4' HORIZONTAL OF PAVED AREAS 1/2"-3/4" CLEAN AGGREGATE, HAND TAMPED OR MECHANICALLY COMPACTED IN MAX. 4" LIFTS -UNDER OPEN AREAS

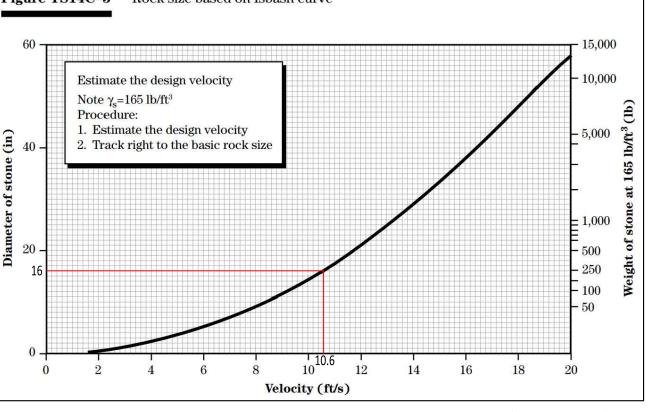
1/2"-3/4" CLEAN AGGREGATE, HAND TAMPED OR MECHANICALLY COMPACTED IN MAX. 4" LIFTS FINAL BACKFILL

-UNDER PAVE ON-S/7 MA TERIA CONSTR COMPAC -UNDER OPEN

ON-SIT MA TERIA CONSTR COMPAC

<u>KFILL</u> R PAVED AREAS OR WIT DN SITE OR WIDORTED A					BACKFILL
ON—SITE OR IMPORTED M MATERIAL, EXCESS MOIS CONSTRUCTION DEBRIS, I COMPACTED TO 95% OF R OPEN AREAS	TURE, ORGANI ROCK OR BRI	ICS, TOPSOI CK LARGER	, RUBBISH, THAN 8",	12"	GRAVEL BACKFILL (1/2"-3/4" CLEAN)
ON-SITE OR IMPORTED M MATERIAL, EXCESS MOIS CONSTRUCTION DEBRIS, I COMPACTED TO 90% OF	TURE, ORGAN. ROCK OR BRI	ICS, TOPSOI CK LARGER	, RUBBISH, THAN 8",	O.D.	7
BEDDING DEP	TH BELOW PI	PE			
PIPE DIAMETER	IN SOIL	IN ROCK			
24" AND LESS	4"	<i>6"</i>			GRAVEL BEDDING
27" THRU 60"	4"	9"		(1)	/2"-3/4" CLEAN)

PIPE BEDDING DETAIL NOT TO SCALE



MAXIMUM 100-YR OUTLET VELOCITY PER DRAINAGE CALCULATIONS (SHEET C202) ≈ 10.6 FT/S.

PER TABLE ABOVE, 10.6 FT/S = 14.5" STONE.

16" STONE X 1.2 SAFETY FACTOR = 19" STONE

19" STONE ≈ MoDOT TYPE 4 DITCH LINER SPECIFICATION

"TYPE 4 ROCK DITCH LINER SHALL CONSIST OF MATERIAL WITH A PREDOMINAT ROCK SIZE OF 19 INCHES, A MAXIMUM ROCK SIZE OF 28 INCHES AND A GRADATION SUCH THAT NO MORE THAN 15% WILL BE LESS THAN 6 INCHES" PER SECTION 609.60.2.4 OF THE 2018 MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

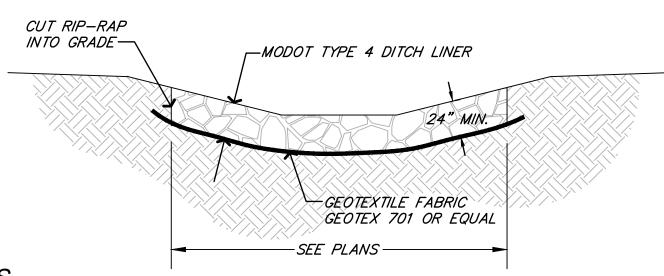
RIP—RAP NOTES:

1. ROCK TO BE USED FOR RIP—RAP SHALL CONSIST OF INDIVIDUAL ROCK FRAGMENTS THAT ARE DENSE, SOUND, AND RESISTANT TO ABRASION. THE ROCK SHALL BE FREE OF CRACKS, SEAMS, AND OTHER DEFECTS THAT WOULD TEND TO INCREASE THE DESTRUCTION OF THE INDIVIDUAL ROCK FRAGMENTS DUE TO WATER AND FRONT ACTION. REFER APWA SECTION

- 2. RIP-RAP SHALL HAVE A MINIMUM THICKNESS OF 24" AT ALL LOCATIONS SHOWN ON THE PLANS. RIP-RAP SHALL BE PLACED ON GEOTEXTILE FABRIC AS SHOWN IN THE DETAIL.
- 3. 24" THICK RIP-RAP SHALL BE WELL-GRADED (D50 = 19") AND CONFORM TO THE TABLE BELOW:

WEIGHT, LBS.
700
<i>525</i>
<i>175</i>
<i>30</i>

- 4. A SAMPLE OF ALL ROCK TO BE PLACED SHALL BE SET ASIDE AT A QUARRY CHOSEN BY THE CONTRACTOR. THE ENGINEER WILL VIST THE QUARRY TO VISUALLY INSPECT THE ROCK PRIOR TO DELIVERY.
- 5. VISUAL OBSERVATION AND TEST SHALL DETERMINE THE ACCEPTABILITY OF THE ROCK USED FOR RIP-RAP. IN GENERAL, LEDGE ROCK USED FOR DUMPED RIP-RAP MATERIALS SHALL MEET THE FOLLOWING REQUIREMENTS WHEN TESTED BY THE SPECIFIED PROCEDURES.



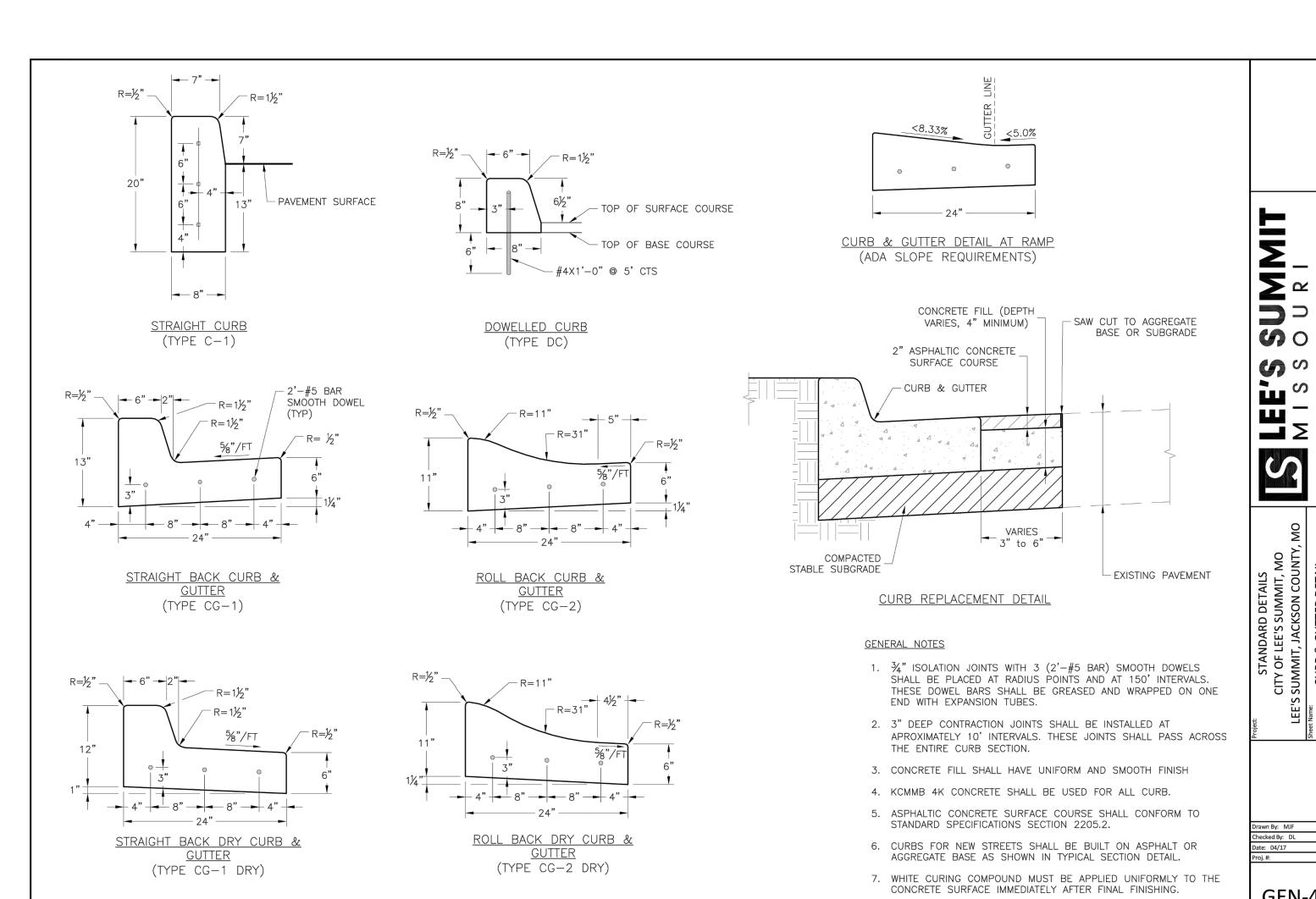


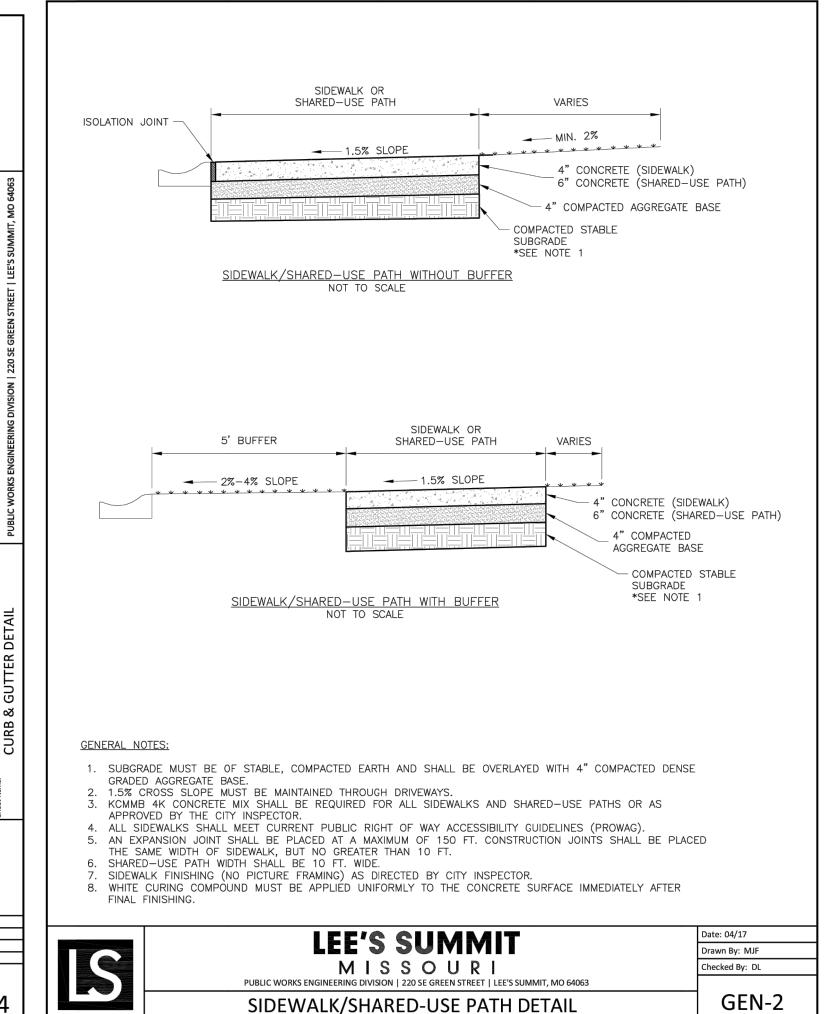
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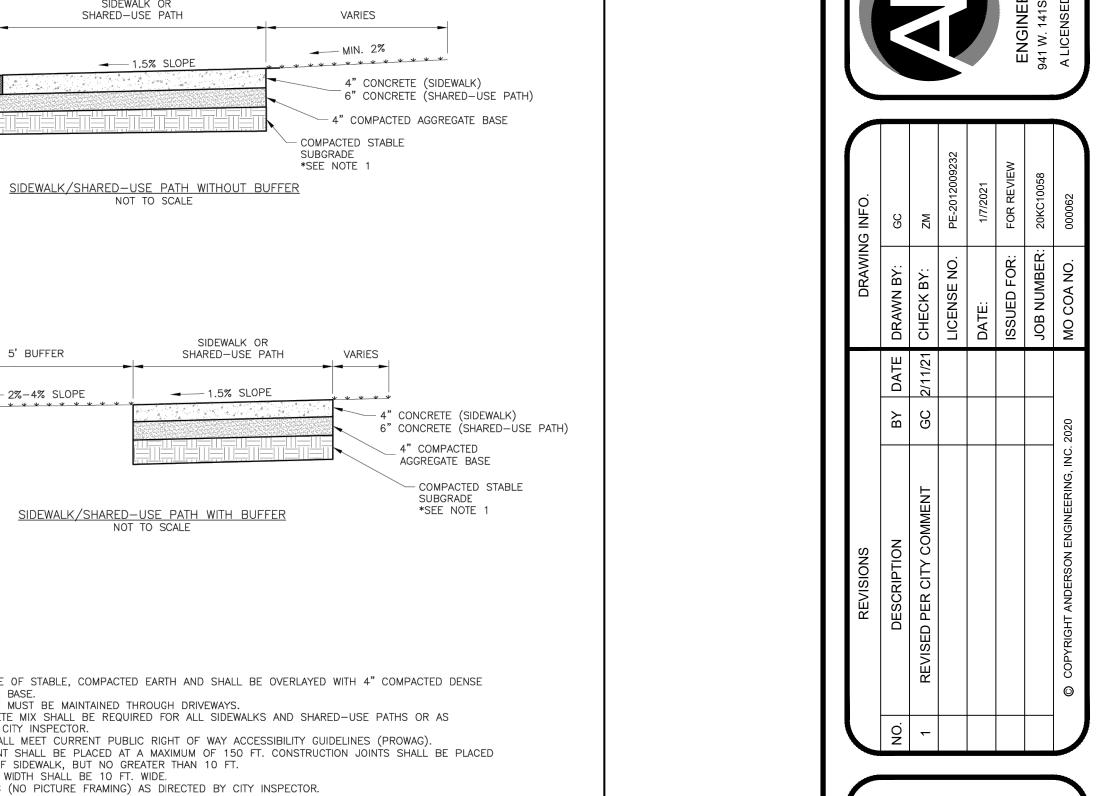
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SHEET NUMBER 30 of 42

RIPRAP DETAILS NOT TO SCALE

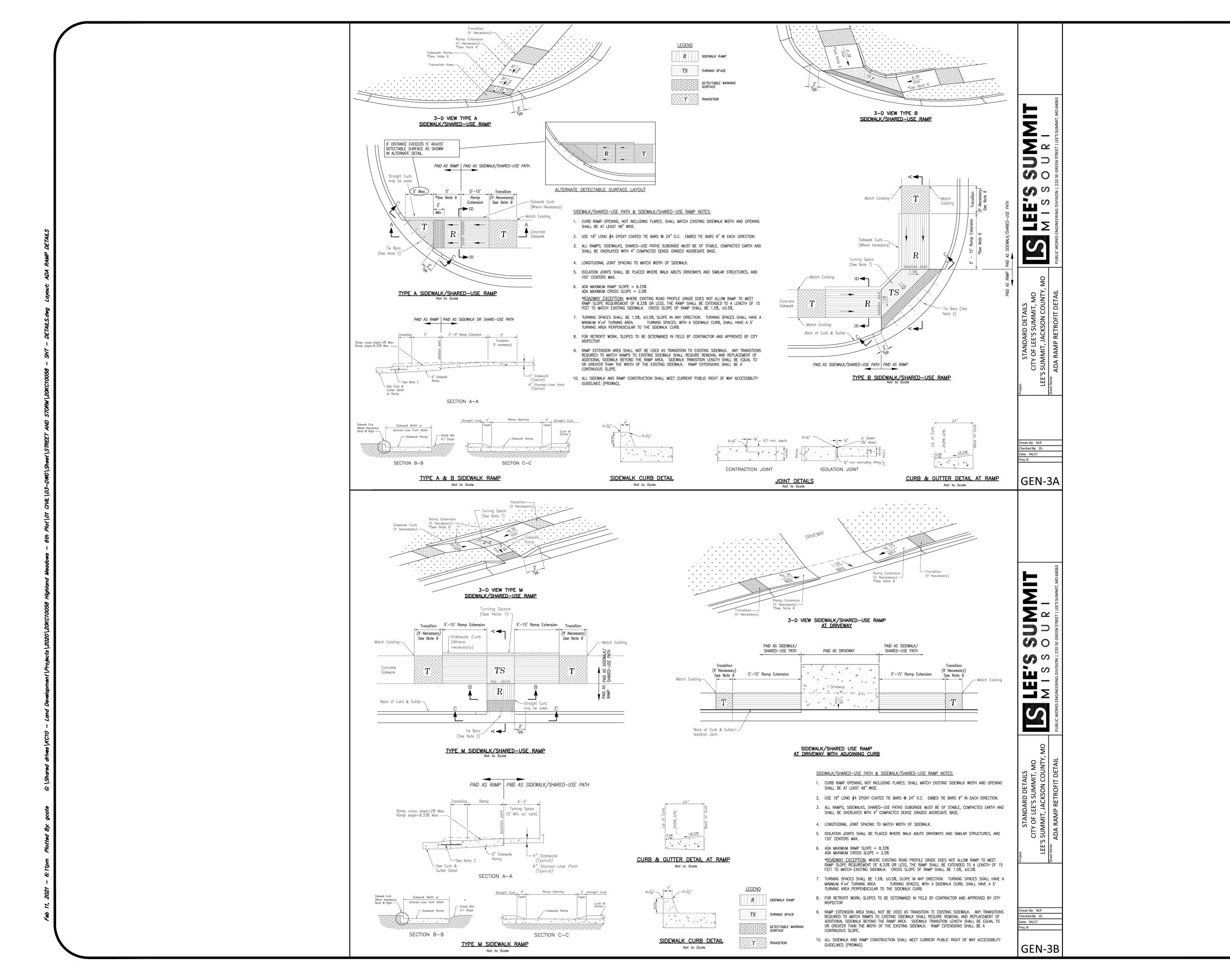






SIDEWAL ∞

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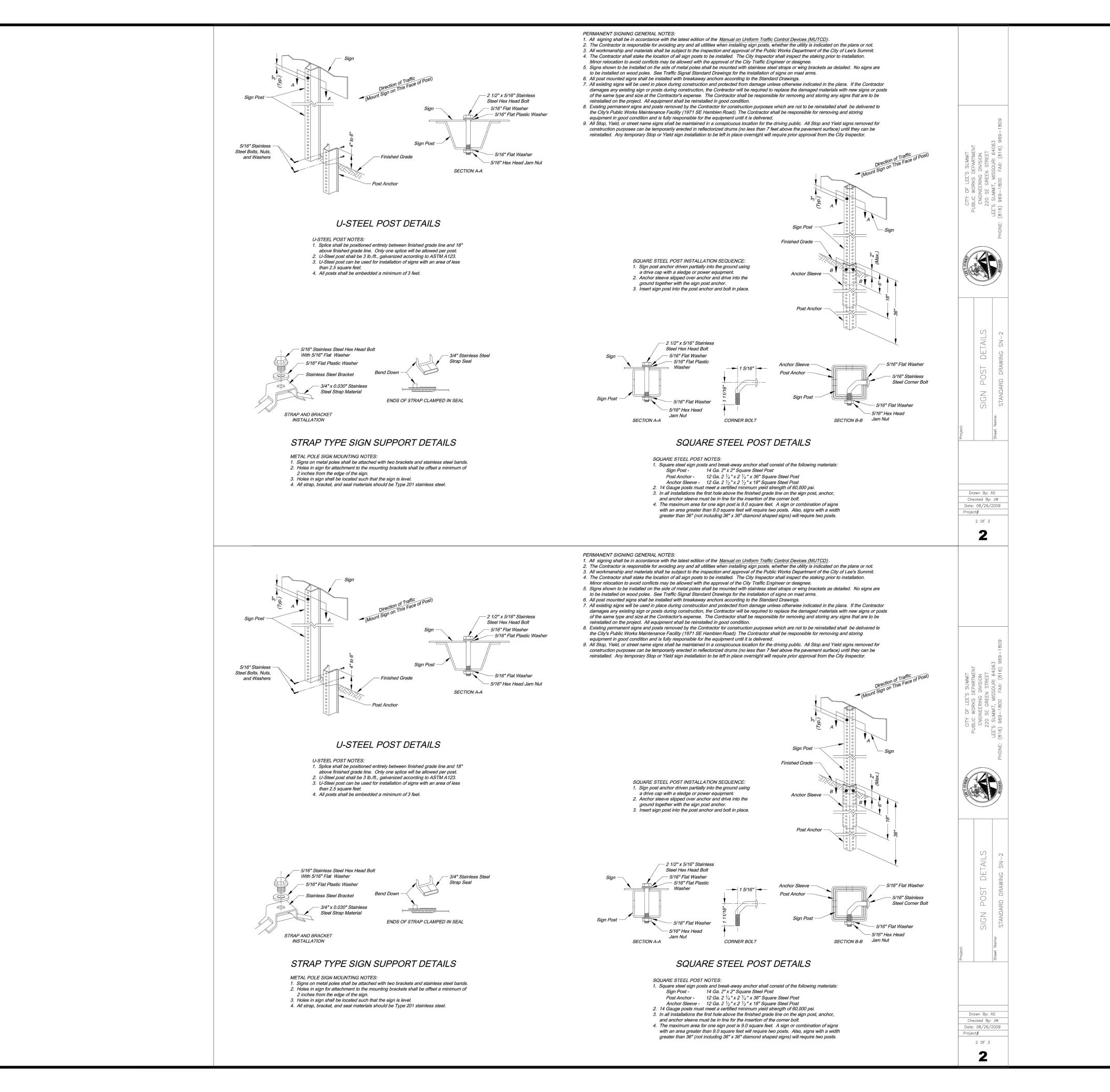




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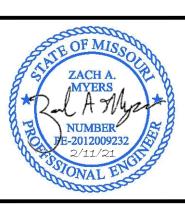




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POST & MOUNTIN DETAILS

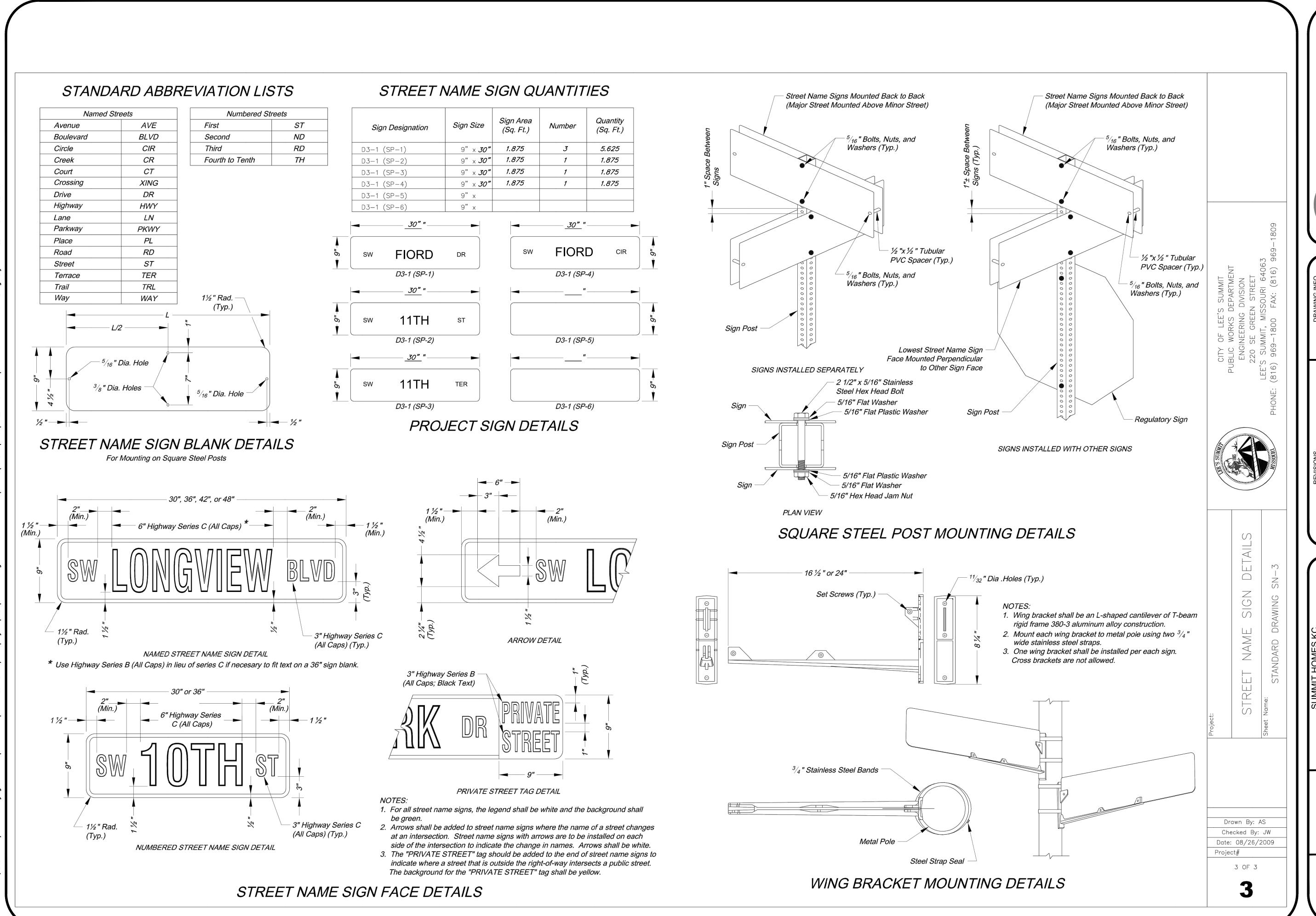
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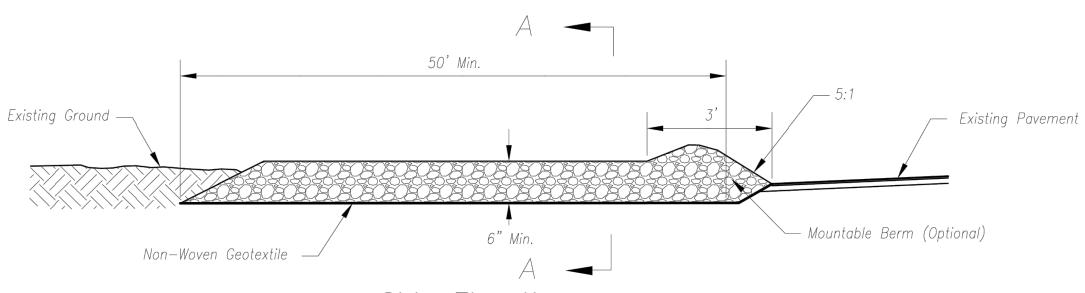
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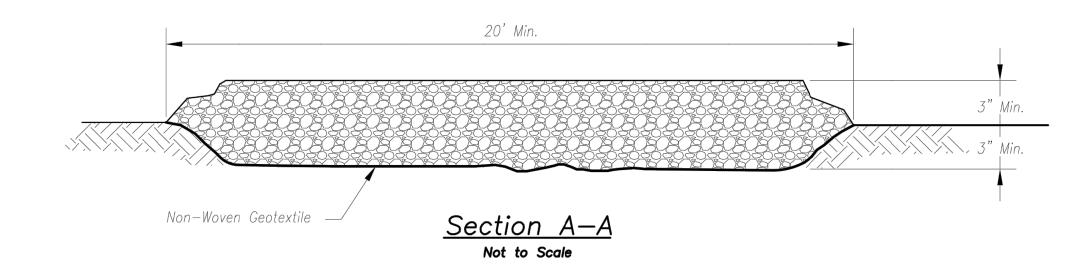
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<u>Plan View</u>



Side Elevation Not to Scale



Notes for Construction Entrance:

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

Maintenance for Construction Entrance:

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

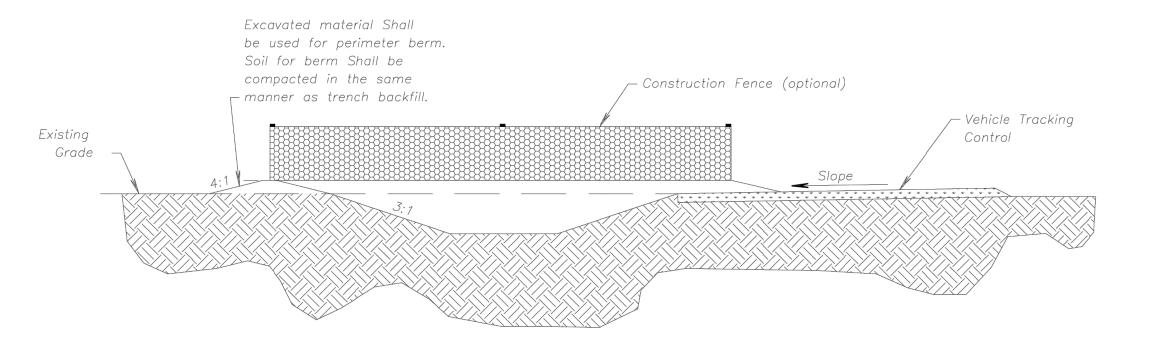
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

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

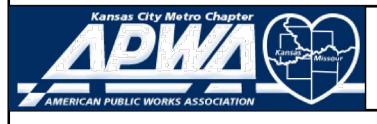
Maintenance for Concrete Washout:

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



CONCRETE WASHOUT

AMERICAN PUBLIC WORKS ASSOCIATION



KANSAS CITY METRO CHAPTER

CONSTRUCTION ENTRANCE
AND CONCRETE WASHOUT

STANDARD DRAWING
NUMBER ESC-0I
ADOPTED:
10/24/2016

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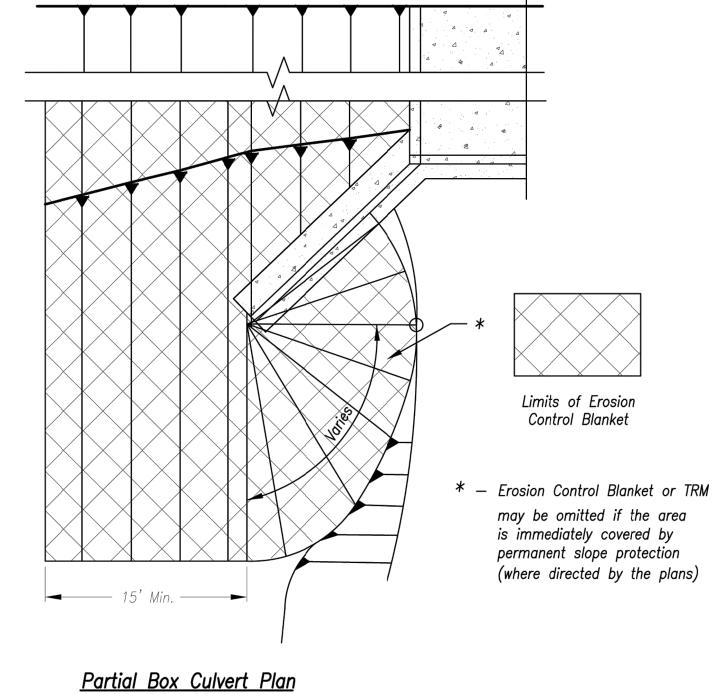
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Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.



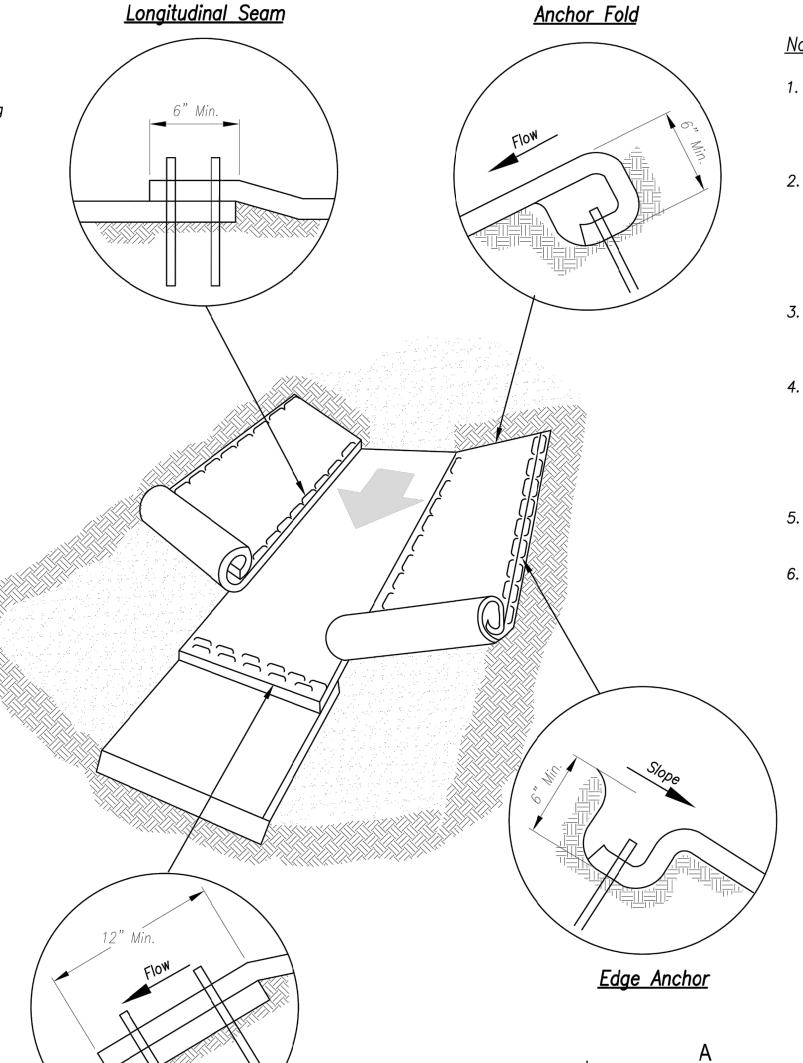


Not to Scale

Installation Around Culvert Slope

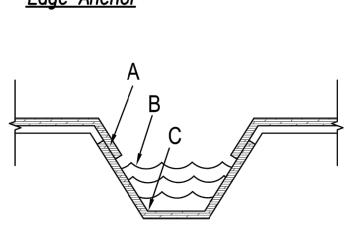
Notes for Installation on Slopes:

- 1. Erosion Control Blankets and TRMs shall be laid in the direction of the slope. In order for blanket to be in contact with the soil, lay blanket loosely, avoiding stretching.
- 2. ANCHOR SLOTS: The top of the blanket should be "slotted in" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.
- 3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 8 inches in direction of water flow. Stagger splice
- 4. TERMINAL FOLD: The bottom edge of the blanket shall be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.



Notes for Installation in Channels:

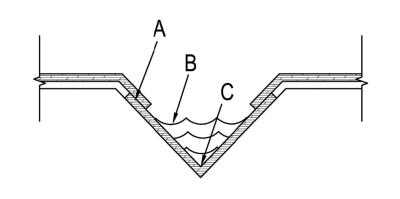
- 1. Erosion Control Blankets and TRMs shall be laid in the direction of the flow, with the first course at the centerline of channel, where applicable. In order for the mat to be in contact with the soil, lay the mat loosely, avoiding stretching.
- 2. ANCHOR FOLD: The top of the mat should be folded under, buried and secured with wood or other approved anchors placed 6 inches apart. The top edge of the mat should be buried in a slot 6 inches wide x 6 inches deep, anchored in the bottom of the slot, backfilled, and the mat folded over the top as shown in detail.
- 3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 12 inches in direction of water flow. Stagger splice seams.
- 4. CHECK SLOTS: Establish check slots transverse to slope every 30 feet. The slots should be 6 inches wide x 6 inches deep. The mat shall be cut to a length 12 inches beyond the slot. The top of the downstream mat shall be slotted in, secured and buried similar to the edge anchor fold. The upstream mat shall then cover the slot and be anchored as shown.
- 5. EDGE ANCHORS: Lay outside edge of mat into trench at top of the slope and anchor.
- 6. TERMINUS: The bottom edge of the mat shall be anchored.



Trapezoidal Channel

Critical Points:

- A Overlaps and seams;
- B Projected water line;
- C Channel bottom / side slope vertices;



<u>V Channel</u>

<u>Installation in Channels</u>

Splice Seam

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KANSAS CITY METRO CHAPTER

EROSION CONTROL BLANKETS AND TURF REINFORMENT MATS ADOPTED:

STANDARD DRAWING NUMBER ESC-02 10/24/2016

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

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SHEET NUMBER 36 of 42

4' min length post at 4' max spacing Geotextile fabric 3' wide Staples, plastic zip ties or other material approved by the field engineer, (50 lb tensile strength) located in top 8" Tire compaction zone Direction of Flow 2' Min. Post embedment Machine slice (See Note 6.) 6" — 12" depth

(*) <u>POSTS</u>

- MIN, LENGTH 4'

- HARDWOOD 1 3/6" x 1 3/6" - NO.2 SOUTHERN PINE 2 %" x 2 %"

- STEEL 1.33 LB/FT

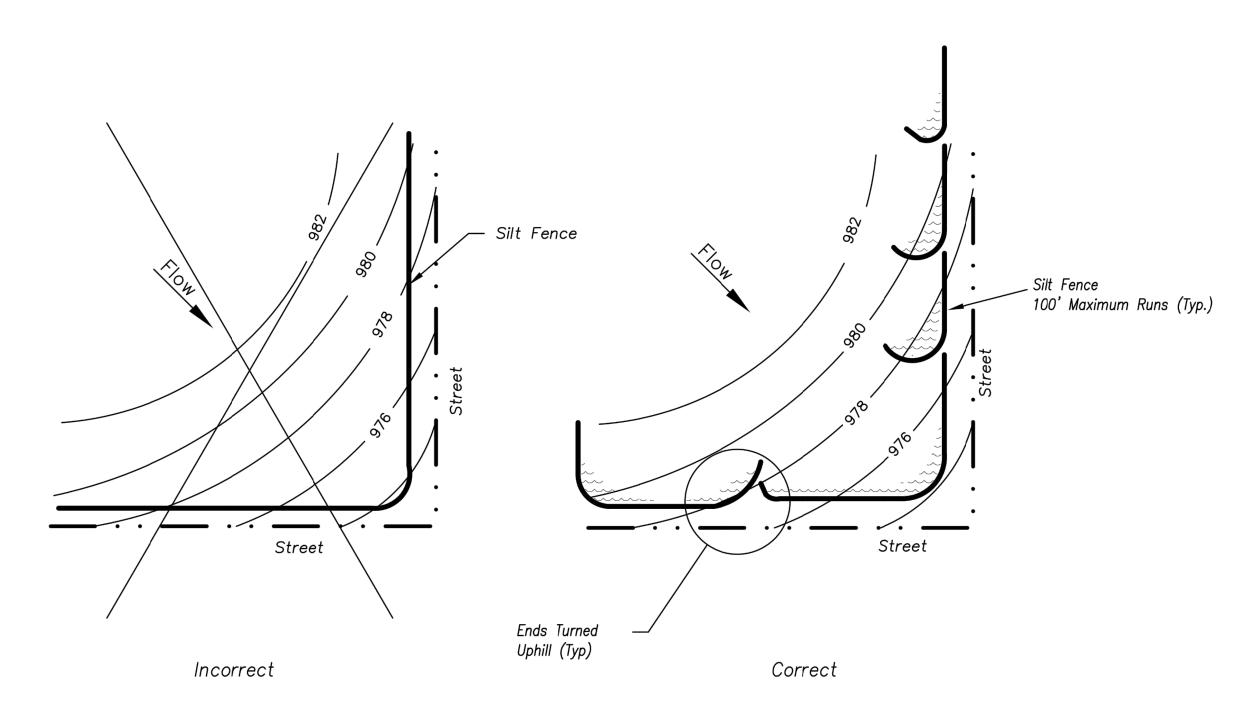
(**) — Geotextile Fabric shall meet the requirements of AASHTO M288

SILT FENCE DETAILS

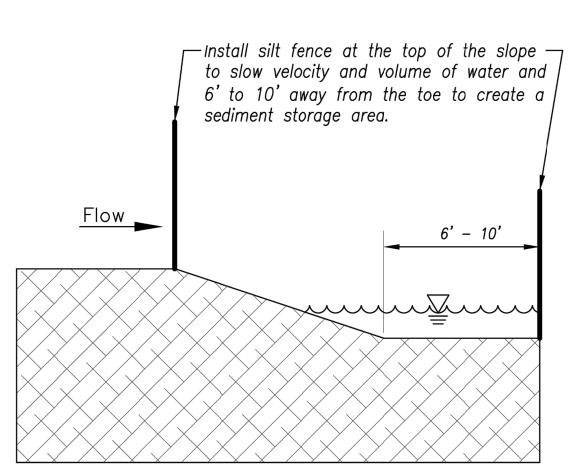
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SILT FENCE LAYOUT

Not to Scale



<u>Figure A</u>

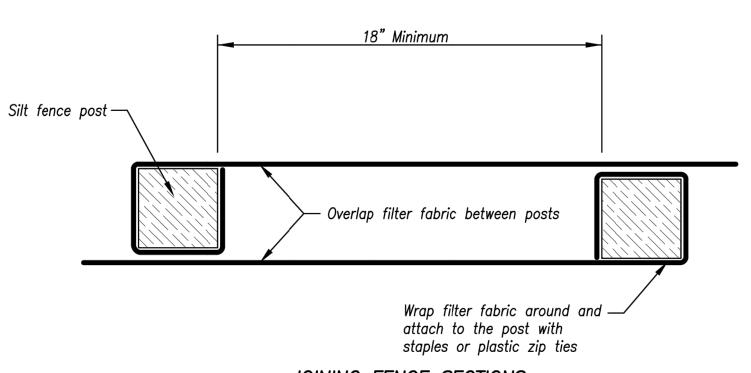


<u>Notes:</u>

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

<u>Maintenance:</u>

- 1. Remove and dispose of sediment deposits when the deposit approaches 1/3 the height of silt fence.
- 2. Repair as necessary to maintain function and structure.



JOINING FENCE SECTIONS

Not to Scale

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KANSAS CITY METRO CHAPTER

STANDARD DRAWING NUMBER ESC-03 ADOPTED: 10/24/2016

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

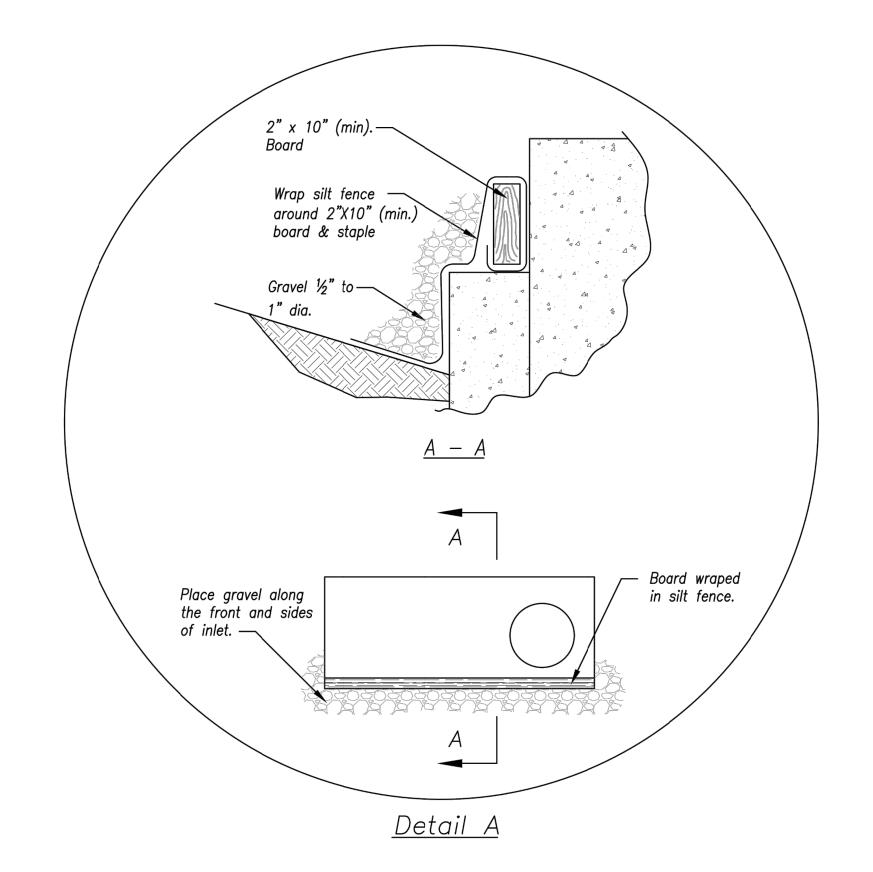
SILT FENCE

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SHEET NUMBER 37 of 42



See Detail A below

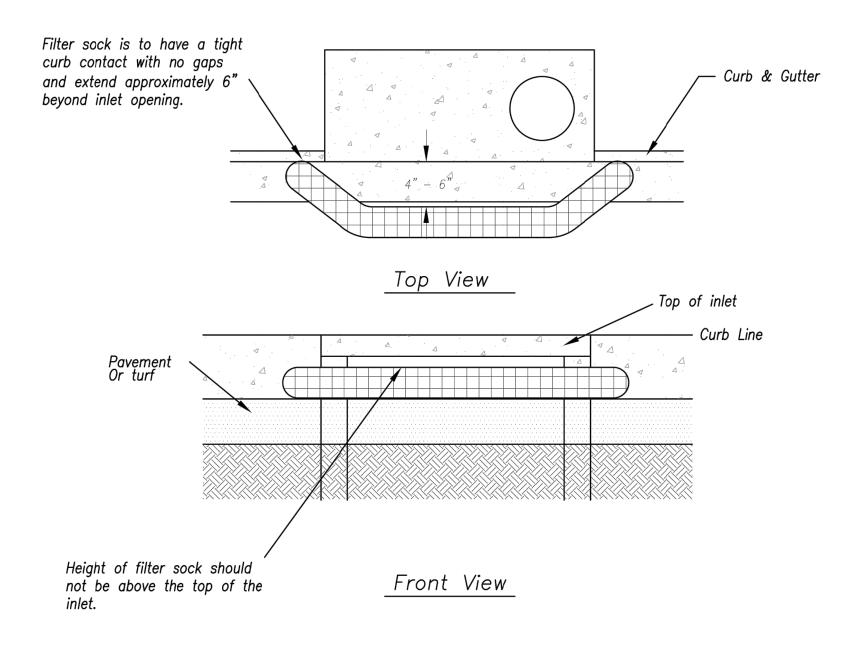
<u>EARLY STAGE CURB INLET</u> (Open Box and Prior to Pouring Curb and Inlet Throat)

<u>Notes:</u>

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

<u>Maintenance:</u>

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



Sump Inlet Sediment Filter

<u>LATE STAGE CURB INLET</u> (After Pouring Curb and Inlet Throat)

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KANSAS CITY METRO CHAPTER

CURB INLET PROTECTION

STANDARD DRAWING
NUMBER ESC-06
ADOPTED:
10/24/2016

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HIGHLAND MEADOWS - 6TH PLAT

CURB INLET PROTECTION

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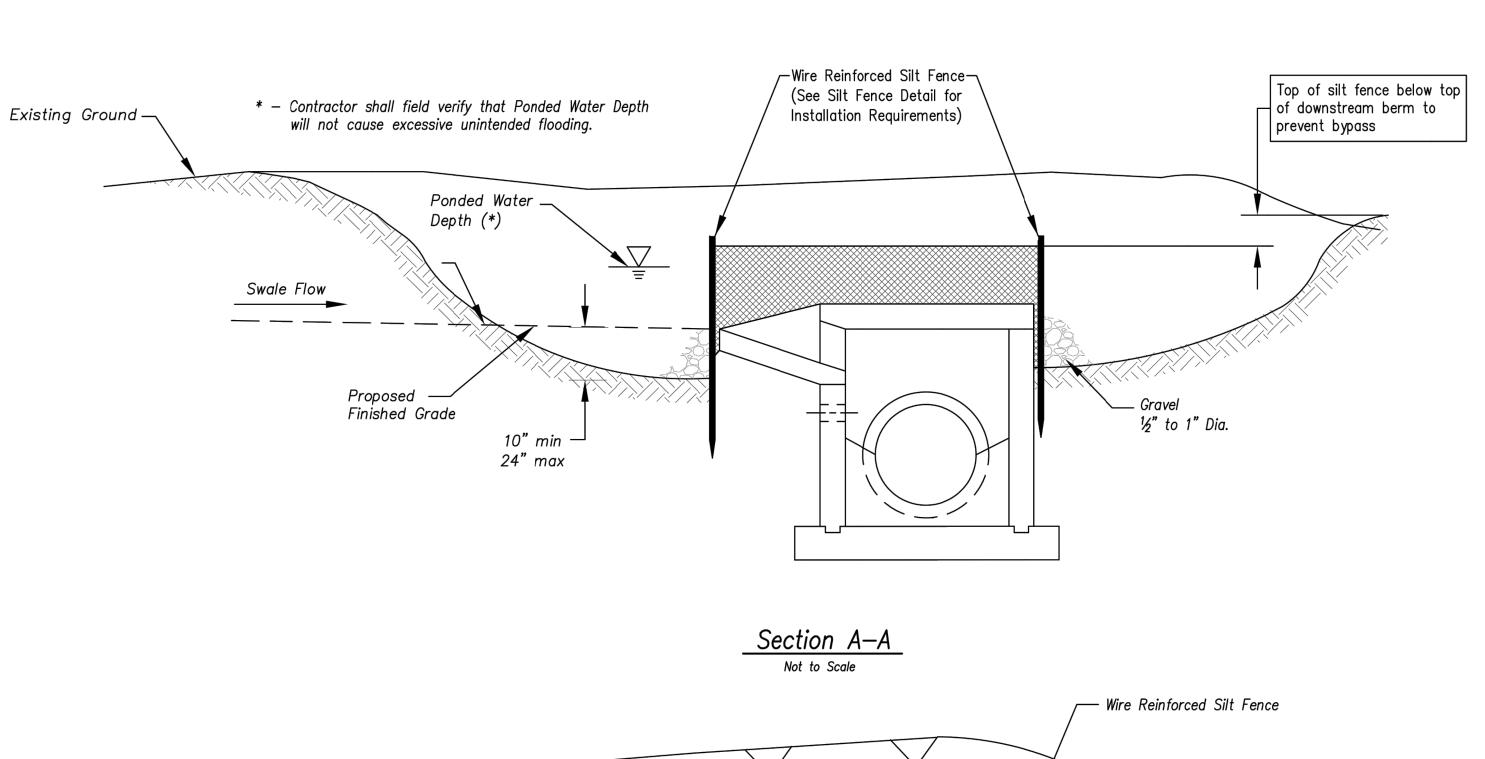
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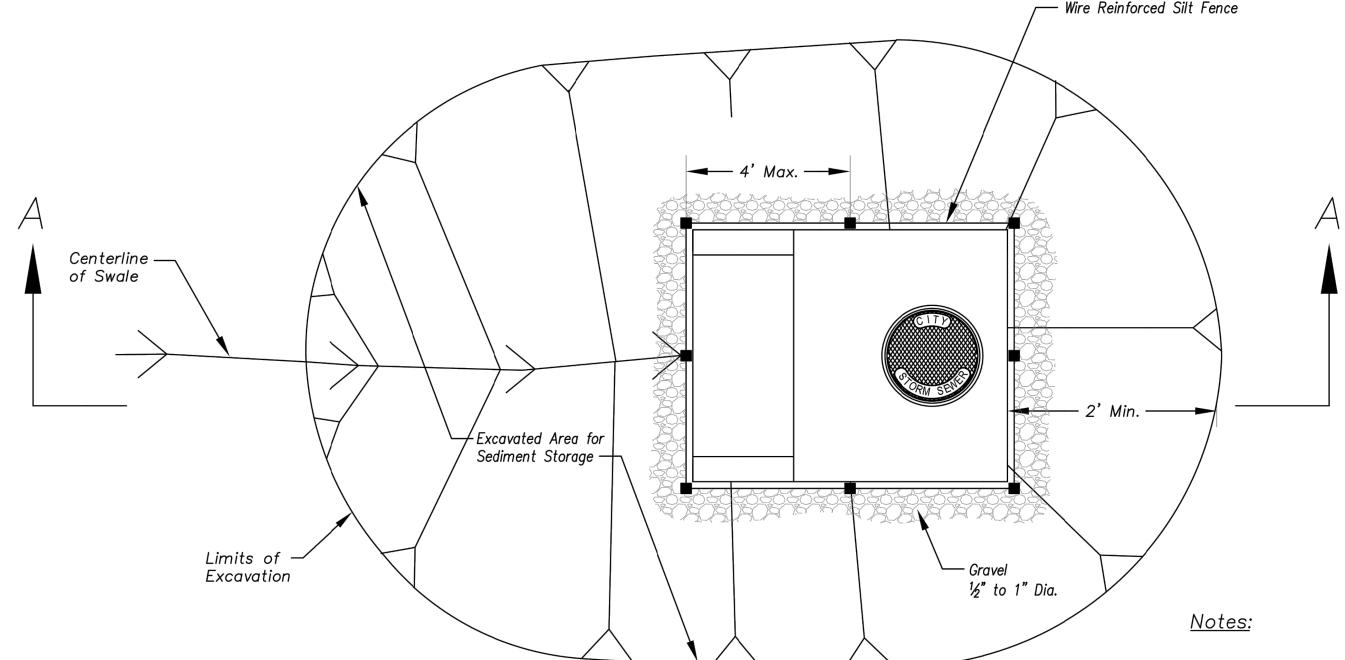
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EARLY STAGE AREA INLET (All open boxes and inlets not at final grade)

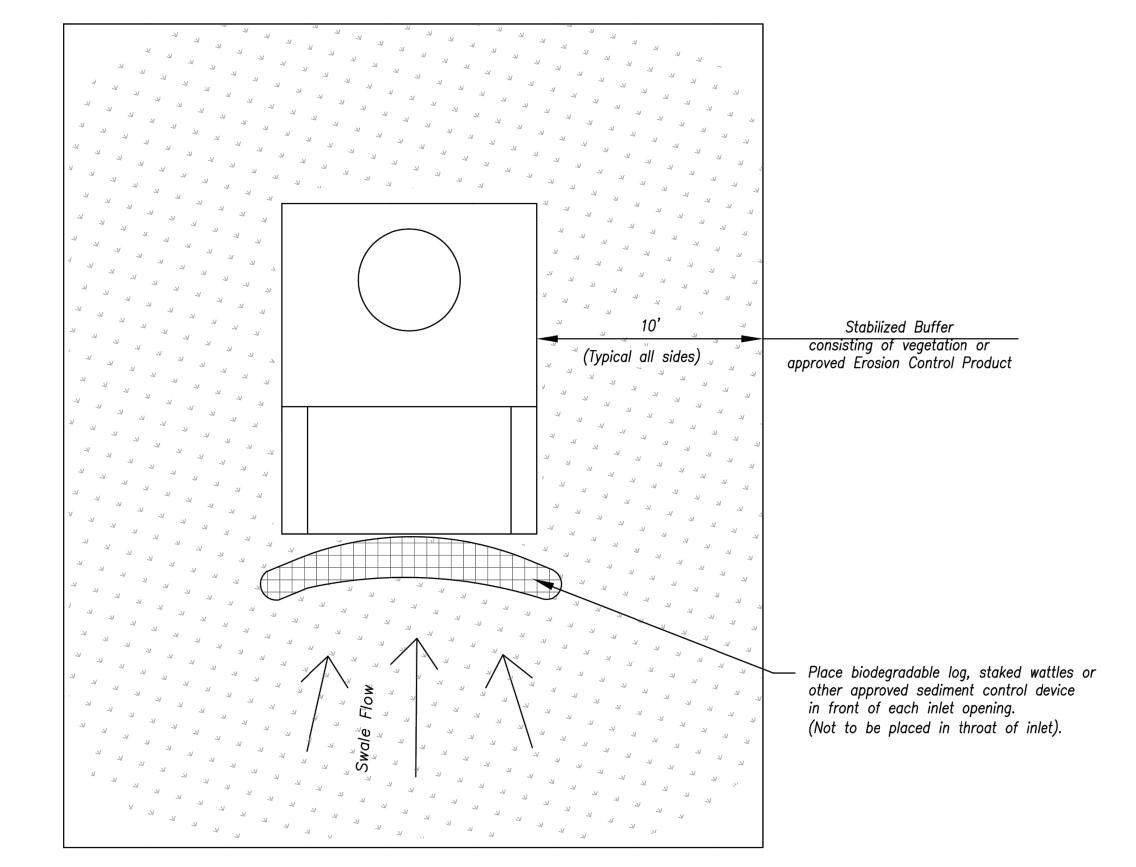
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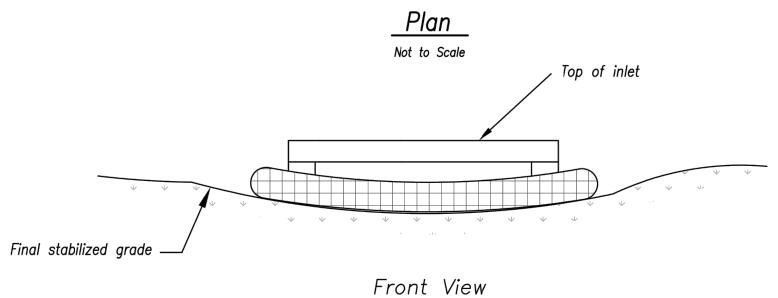
1. Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.

2. Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.

3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.

4. Wire reinforced silt fence may be used in place of silt fence attached to wood frame.





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

<u>Maintenance:</u>

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





KANSAS CITY METRO CHAPTER

AREA INLET AND JUNCTION BOX PROTECTION

NUMBER ESC-07 ADOPTED: 10/24/2016

STANDARD DRAWING

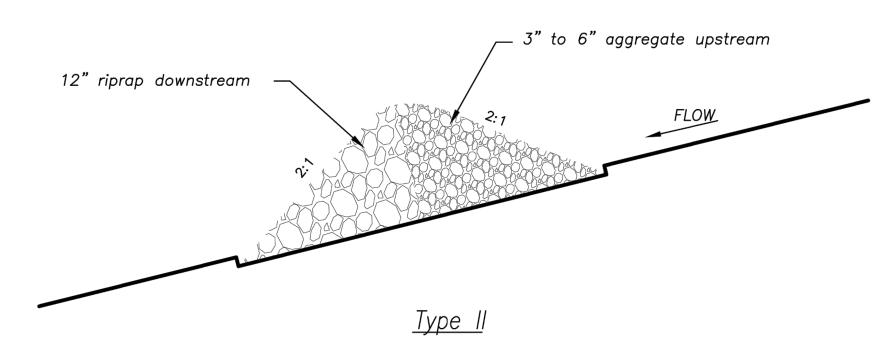
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 NO.	DESCRIPTION	ВУ	DATE	BY DATE DRAWN BY:	GC
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				LICENSE NO.	PE-201200923
				DATE:	1/7/2021
				ISSUED FOR:	FOR REVIEW
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AREA INLET PROTECTION DETAILS

SHEET NUMBER 39 of 42

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<u>Type</u> I (2 Acres or less of Drainage Area) Not to Scale

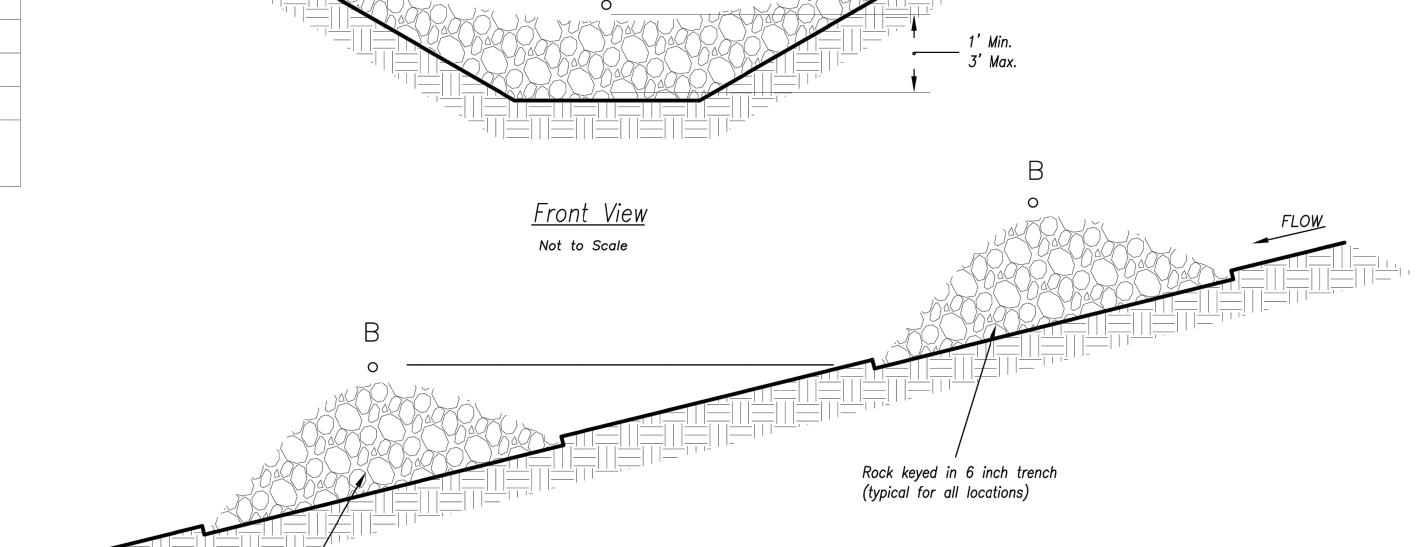


(2-10 Acres of Drainage Area)

Not to Scale

ROCK DITCH CHECK

<u>Temporary</u> Roo	ck Ditch Check
<u>Spa</u>	cing
Ditch Centerline Slope (%)	Spacing Interval (Feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29
Note: Use this spo Rock Ditch	5



Elevation at end Points "A" must be minimum 6" higher than elevation of flow line at point "B"

Spacing Between Check Dams (all types) Not to Scale

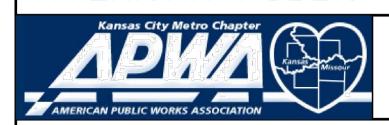
<u>Notes:</u>

- 1. Rock check dams shall be used only for drainage areas less that 10 acres unless approved by the City Engineer.
- 2. Use rock checks only in situations where the ditch slope exceeds 6%.

<u>Maintenance:</u>

- 1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of the ditch check.
- 2. Replace and reshape as necessary to maintain function and integrity of installation.

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KANSAS CITY METRO CHAPTER

ROCK DITCH CHECKS

STANDARD DRAWING NUMBER ESC-IO ADOPTED:

10/24/2016

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DETAILS

CHECK

DITCH

ROCK

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

Place downstream structure such that

Point "B" is approximately level with the toe elevation of the upstream

structure

TYPICAL PLAN VIEW OF DIVERSION BERM AND SLOPE DRAIN

Notes for Diversion Berm:

- 1. Slope drains are optional, but may be required by the engineer if the berm is at the top of a steep slope.
- 2. Diversion berms must be installed as a first step in the land-disturbing activity and must be functional prior to upslope land disturbance.
- 3. The berm should be adequately compacted to prevent failure.
- 4. Temporary or permanent seeding and mulch shall be applied to the berm immediately following its construction.
- Place the berm so to minimize damages by construction operations and traffic.
- The berm must discharge to a temporary sediment trap or stabilized area.
- 7. All trees, brush, stumps, obstructions and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of diversion.
- 8. The diversion shall be excavated or shaped to line, grade and cross—section as required to meet the criteria specified herein, free of irregularities which will impede flow.
- 9. Fills shall be compacted as needed to prevent unequal settlement that would cause damage in the completed diversion. Fill shall be composed of soil which is free from excessive organic debris, rocks or other objectionable materials.

<u>Maintenance:</u>

- Berm shall be reshaped, compacted, and stabilized as necessary to maintain its function.
- 2. Breaches in the berm shall be repaired immediately.

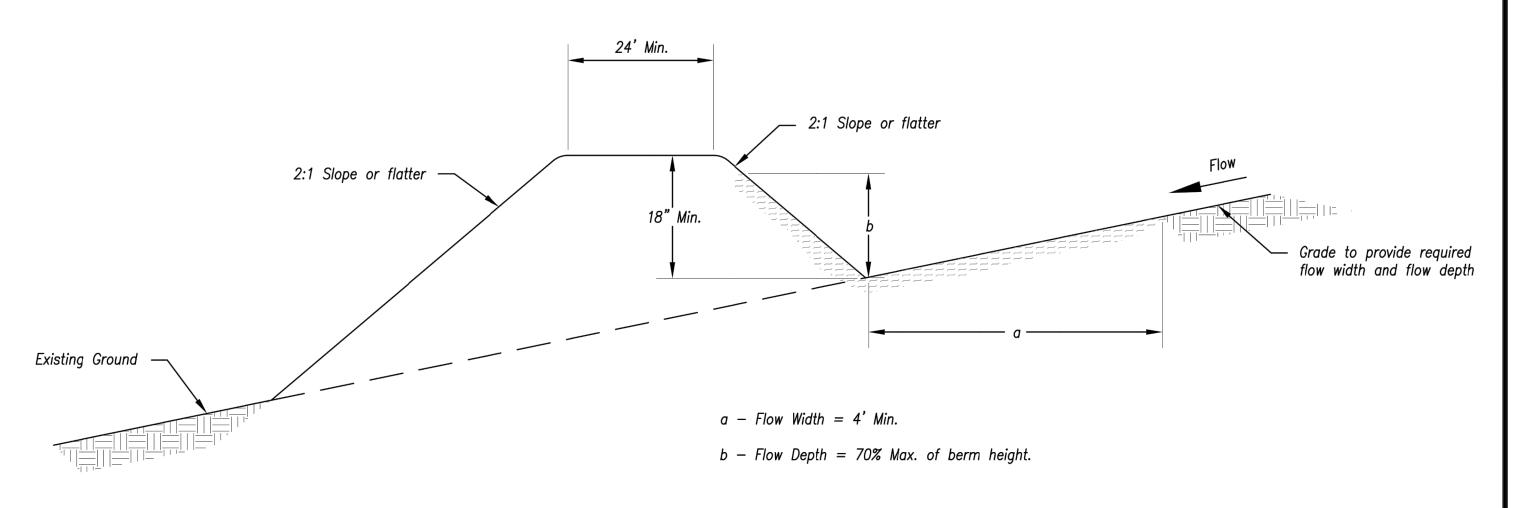
Notes for Slope Drain:

- Slope Drain and Diversion Berm may be used on either project foreslopes or project backslopes.
- Discharge of Slope Drains shall be into stabilized ditch or area, or into Sediment Basin.
- 3. Pipe shall be secured in place as approved by Engineer.

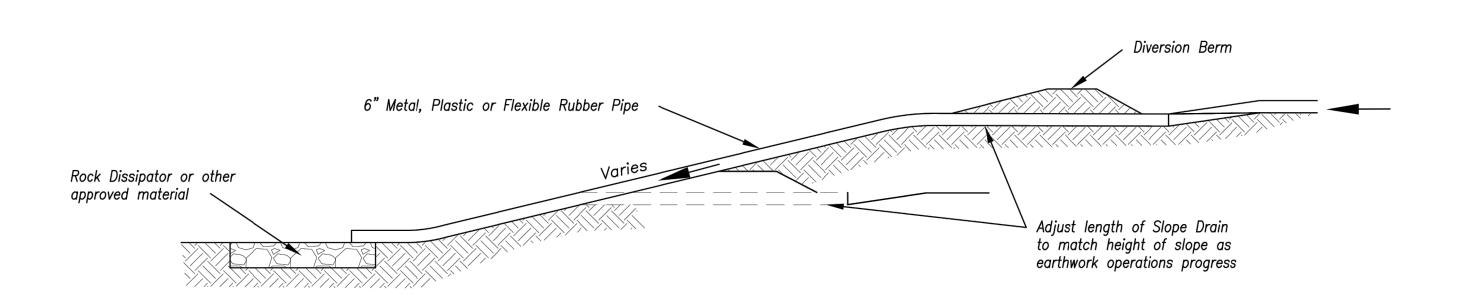
<u>Maintenance:</u>

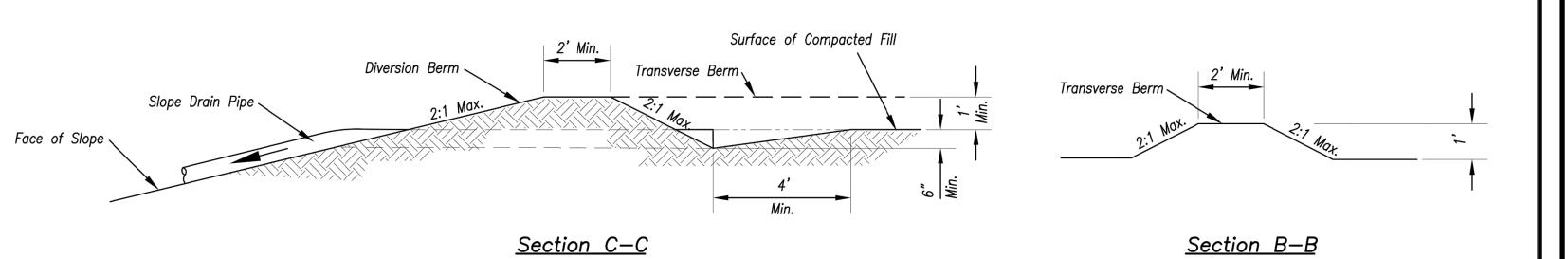
- Accumulation of any visible sediment at the inlet and outlet shall be removed promptly.
- Outlet conditions shall be repaired if scour is observed.
 Leaking or damaged section of pipe shall be repaired immediately.
- 3. Barriers directing water to the inlet shall be monitored for continuity and effectiveness.

TYPICAL PROFILE OF DIVERSION BEAM Not to Scale



TYPICAL PROFILE OF DIVERSION BERM





TYPICAL PROFILE OF DIVERSION BERM WITH SLOPE DRAIN

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DIVERSION BERMS AND SLOPE DRAINS

STANDARD DRAWING
NUMBER ESC-05
ADOPTED:
10/24/2016

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SHEET NUMBER

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TTER. KANSAS CITY, MISSOURI 64145 - PHONE (816) 777-0400

ENGINEERS • SURVEYORS 941 W. 141ST TER.• KANSAS CITY, M

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DIVERSION BERM DETAILS

ZACH A.

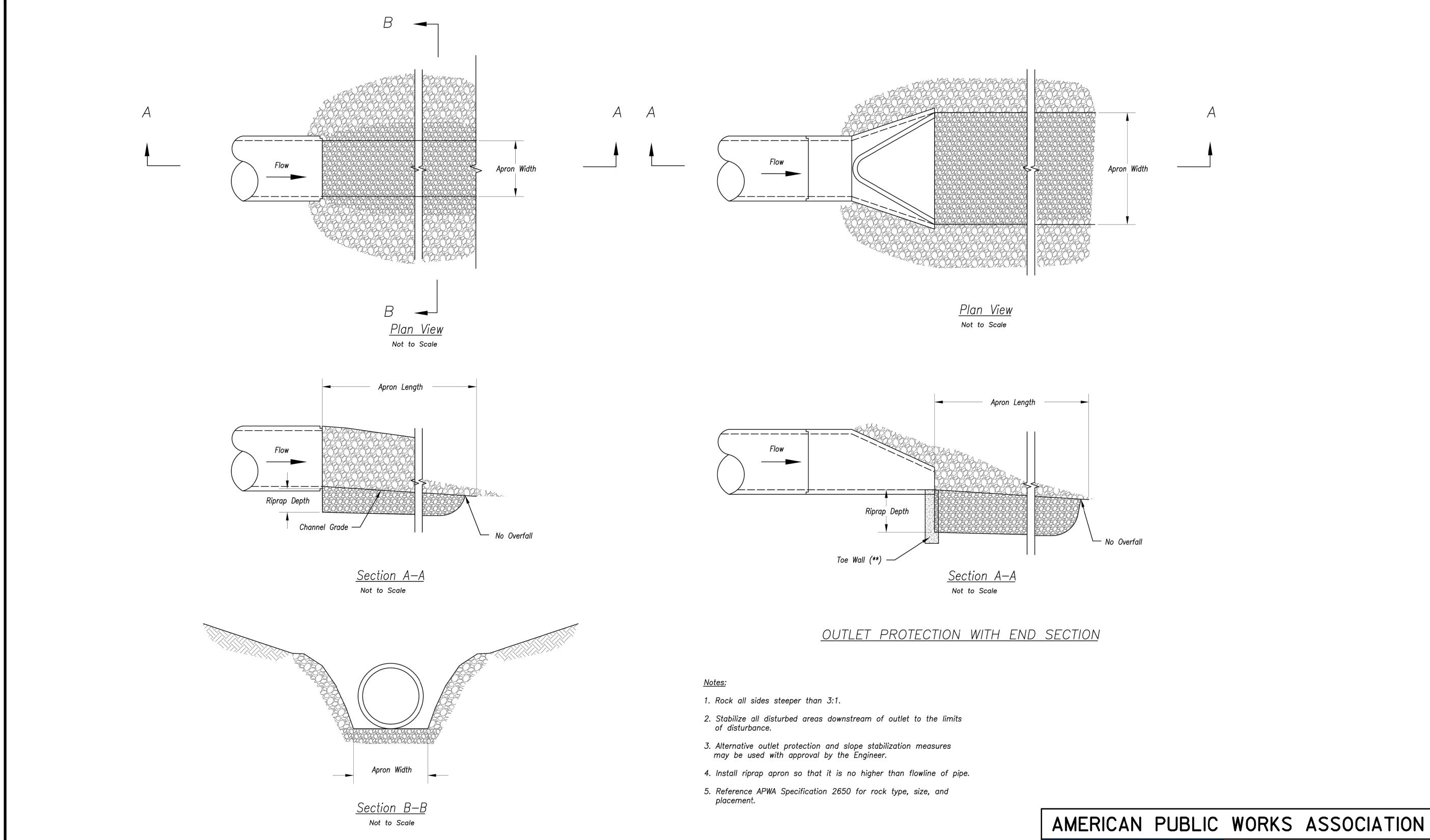
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OUTLET PROTECTION W/O END SECTION

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KANSAS CITY METRO CHAPTER

OUTLET PROTECTION

STANDARD DRAWING NUMBER ESC-14 ADOPTED:

10/24/2016

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