HIGHLAND MEADOWS - 5TH PLAT STREET, STORM SEWER, AND EROSION CONTROL PLANS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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

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





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

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

RICHARD FROCK PHONE (816) 472-3489

FEMA FLOOD INFORMATION:

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

MISSOURI GAS ENERGY: 3025 SW CLOVER DRIVE LEE'S SUMMIT, MO 64082

SURVEY CONTROL.

WATERSHED: LITTLE BLUE RIVER

DATE: 1/15/2021

COORDINATES ARE BASED ON THE MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE, USING JACKSON COUNTY, MISSOURI, GEOGRAPHIC REFERENCE SYSTEM MONUMENT JA-148 (2003) ADJUSTMENT) AND ARE MODIFIED FROM GRIS COORDINATÉS TO GROUND COORDINATES BY UTILIZING A GRID SCALE FACTOR OF 0.9999020 AT REFERENCE MONUMENT JA-148.

PROJECT ELEVATIONS ARE BASED ON JACKSON COUNTY, MISSOURI, GEOGRAPHIC REFERENCE SYSTEM MONUMENT JA-148 (2003 ADJUSTMENT).

"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.

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.

DEVELOPER: VINCENT WALKER SUMMIT HOMES KC 120 SE 30TH STREET LEE'S SUMMIT, MO 64082 VINCENT@SUMMITHOMESKC.COM (816) 246-6700

DISTURBED AREA: 15.3 AC

CIVIL ENGINEER:

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

SHEET INDEX:

LOTS: 134-159 (26 TOTAL)

- GENERAL NOTES - DRAINAGE AREA PLAN

- STORM SEWER DETAILS (2)

- CONSTRUCTION ENTRANCE DETAILS - STEEP SLOPE PROTECTION DETAILS

CURB INLET PROTECTION DETAILS

C420 - TEMPORARY DIVERSION BERM C421 - SIGN POST & MOUNTING DETAILS C422 - STREET NAME SIGN 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.

DATE

PREPARED & SUBMITTED BY:

ANDERSON ENGINEERING INC. KANSAS CITY, MISSOURI

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

APPROVED BY:

CITY OF LEE'S SUMMIT, MISSOURI

90	ZM	PE-2012009232	12/2/2020	FOR REVIEW	20KC10057	000062	
BY DATE DRAWN BY:	GC 1/15/21 CHECK BY:	LICENSE NO.	DATE:	ISSUED FOR:	JOB NUMBER: 20KC10057	MO COA NO.	
DATE	1/15/21						
ВУ	29					2020	
DESCRIPTION	REVISED PER CITY COMMENT					© COPYRIGHT ANDERSON ENGINEERING, INC. 2020	
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SHEET NUMBER OF 38

GENERAL NOTES

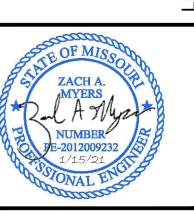
- 1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ACQUIRE ALL STATE AND CITY PERMITS, INCLUDING PERMITS REQUIRED BY OTHER GOVERNING BODIES, REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT.
- 2. PRIOR TO BEGINNING CONSTRUCTION, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND NOTIFYING ALL 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.
- 37. CONTRACTOR TO CONSTRUCT STORMWATER MANAGEMENT FACILITIES, SPECIFICALLY THOSE FEATURES RELATED TO DETENTION, PRIOR TO ANY LAND DISTURBANCE OF THE SITE AND PRIOR TO THE CONSTRUCTION OF ANY OTHER SITE DEVELOPMENT WORK AS NOT TO EFFECT DOWNSTREAM NEIGHBORS WITH UNDETAINED STORMWATER DISCHARGE.
- 38. AN AS-GRADED AND AS-BUILT DRAWING SHALL BE SUBMITTED TO AND REVIEWED BY THE CITY FIR THE DETENTION BASIN. THIS SHALL BE REQUIRED PRIOR TO ISSUANCE OF A CERTIFICATE OF SUBSTANTIAL COMPLETION. ALL PRECAUTIONS SHOULD BE TAKEN TO ENSURE DETENTION POND AND OUTLET STRUCTURE ARE CONSTRUCTED ACCORDING TO THE APPROVED PLANS; VOLUMES AND ELEVATIONS ARE CRITICAL FOR AS-BUILT APPROVAL. THE CITY SHALL BE PROVIDED WITH AN AS-BUILT SURVEY OF THE DETENTION, OUTLET STRUCTURE INCLUDING ALL WEIR ELEVATIONS AND STORM SYSTEM INCLUDING ALL THE INVERTS, STAMPED BY A MISSOURI LICENSED ENGINEER.

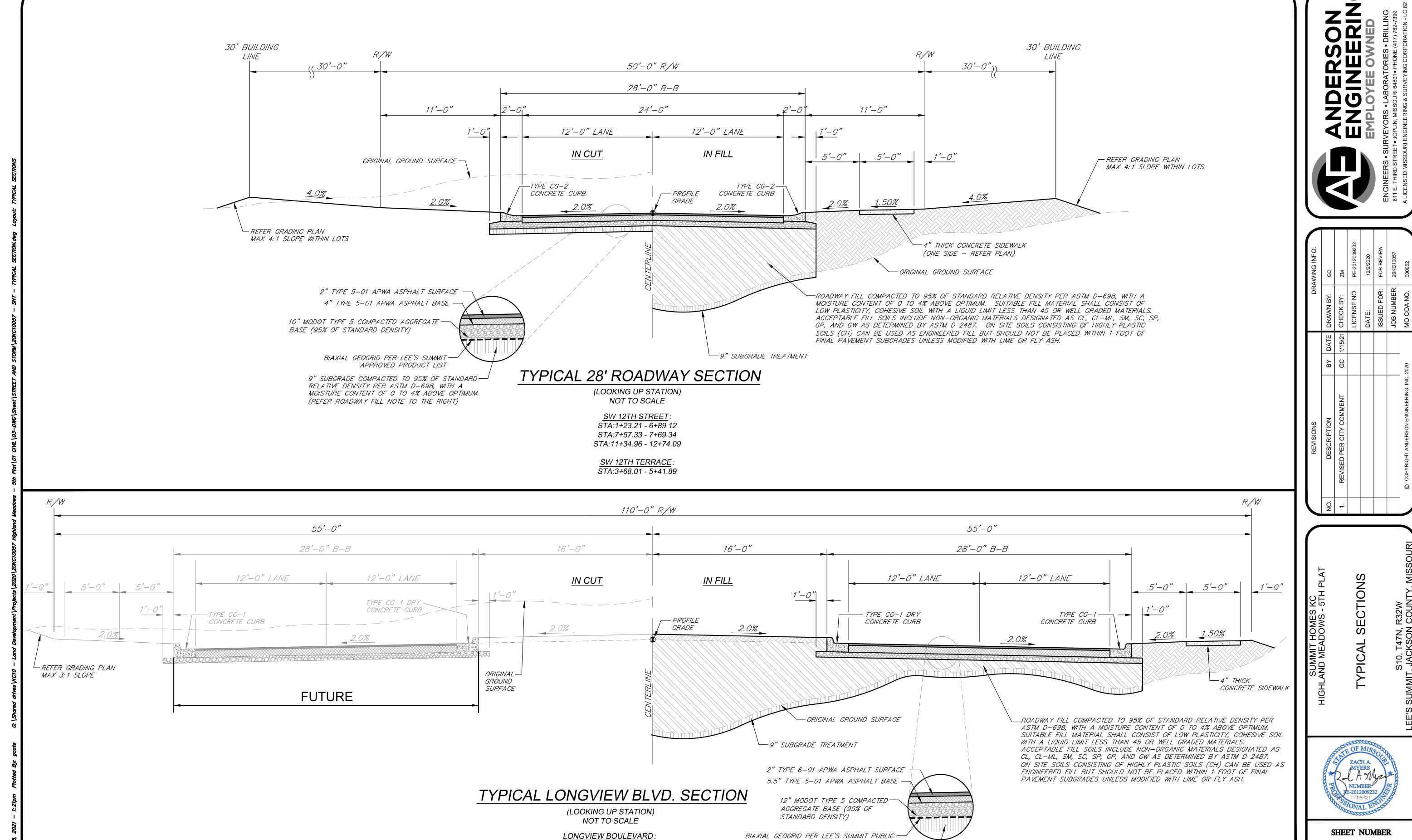


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				DATE:	12/2/2020
				ISSUED FOR:	FOR REVIEW
				JOB NUMBER:	20KC10057
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GENERAL NOTES



SHEET NUMBER COSO 2 OF 38



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WORKS APPROVED MATERIALS LIST

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

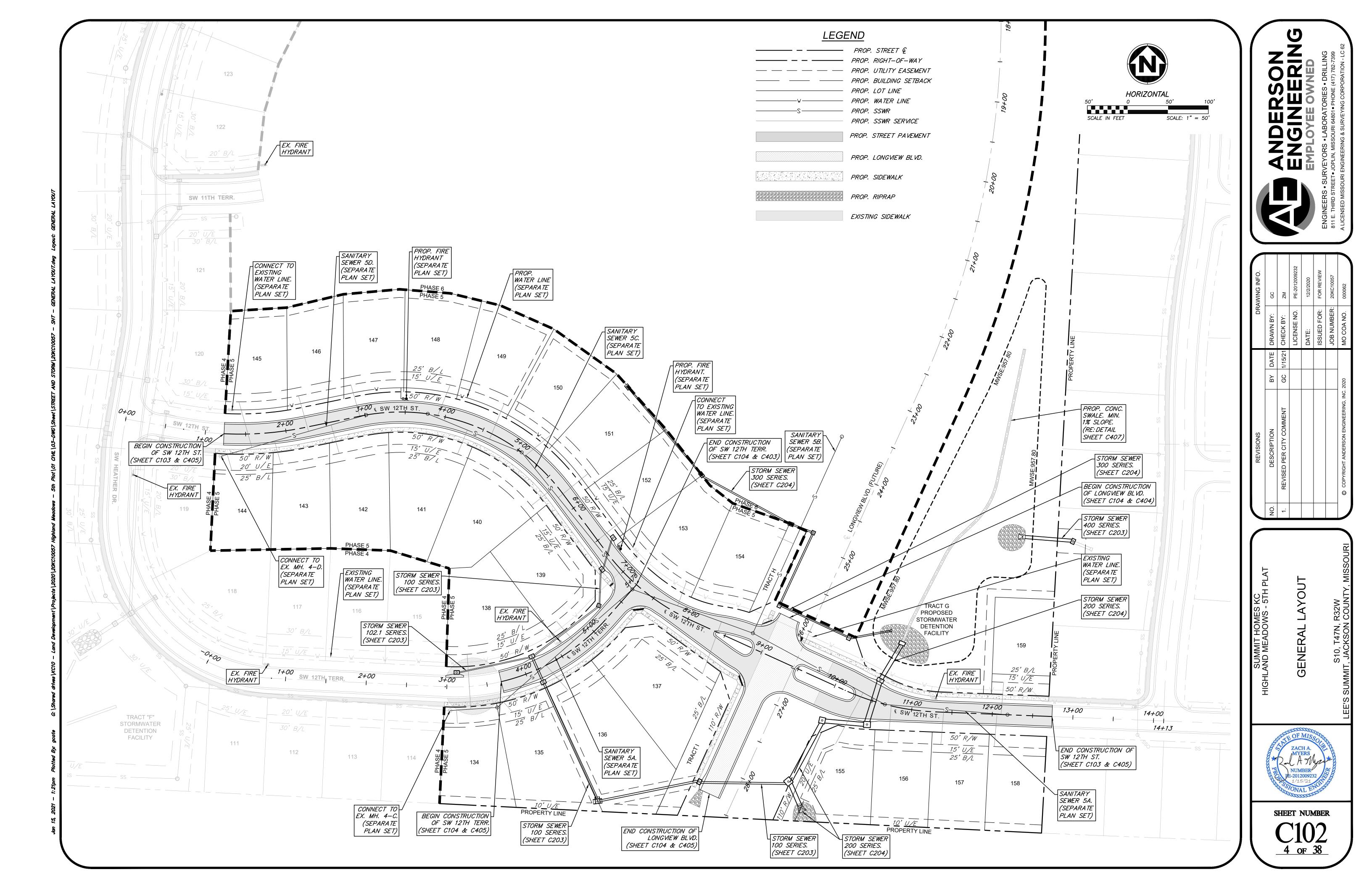
MOISTURE CONTENT OF 0 TO 4% ABOVE OPTIMUM.

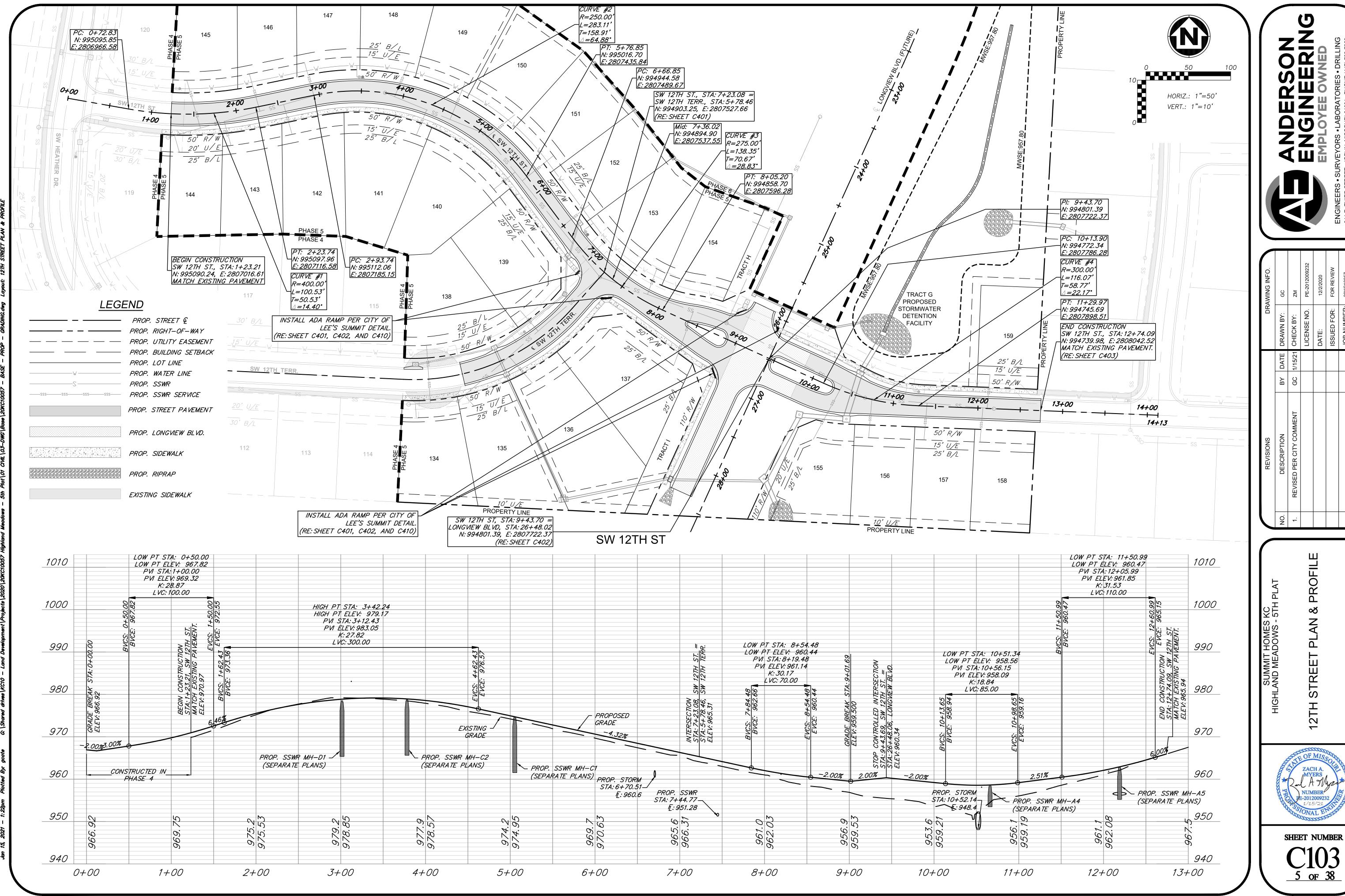
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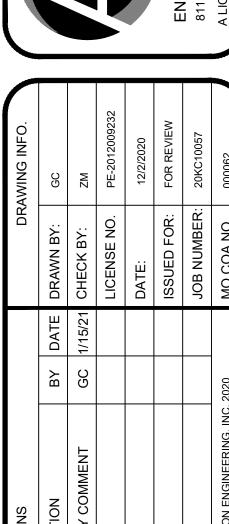
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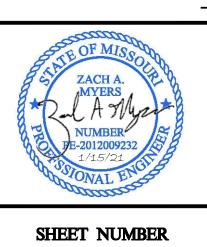


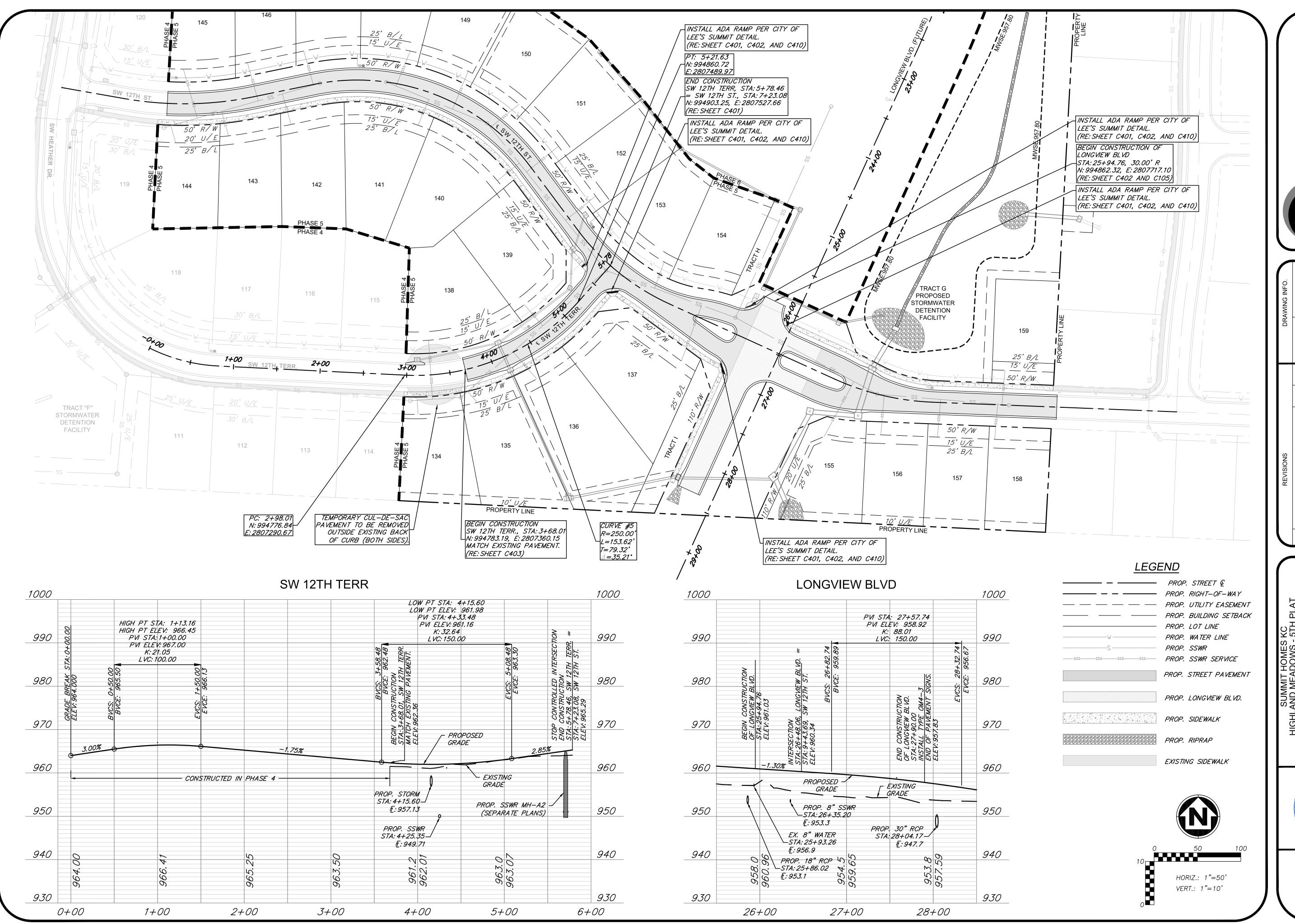
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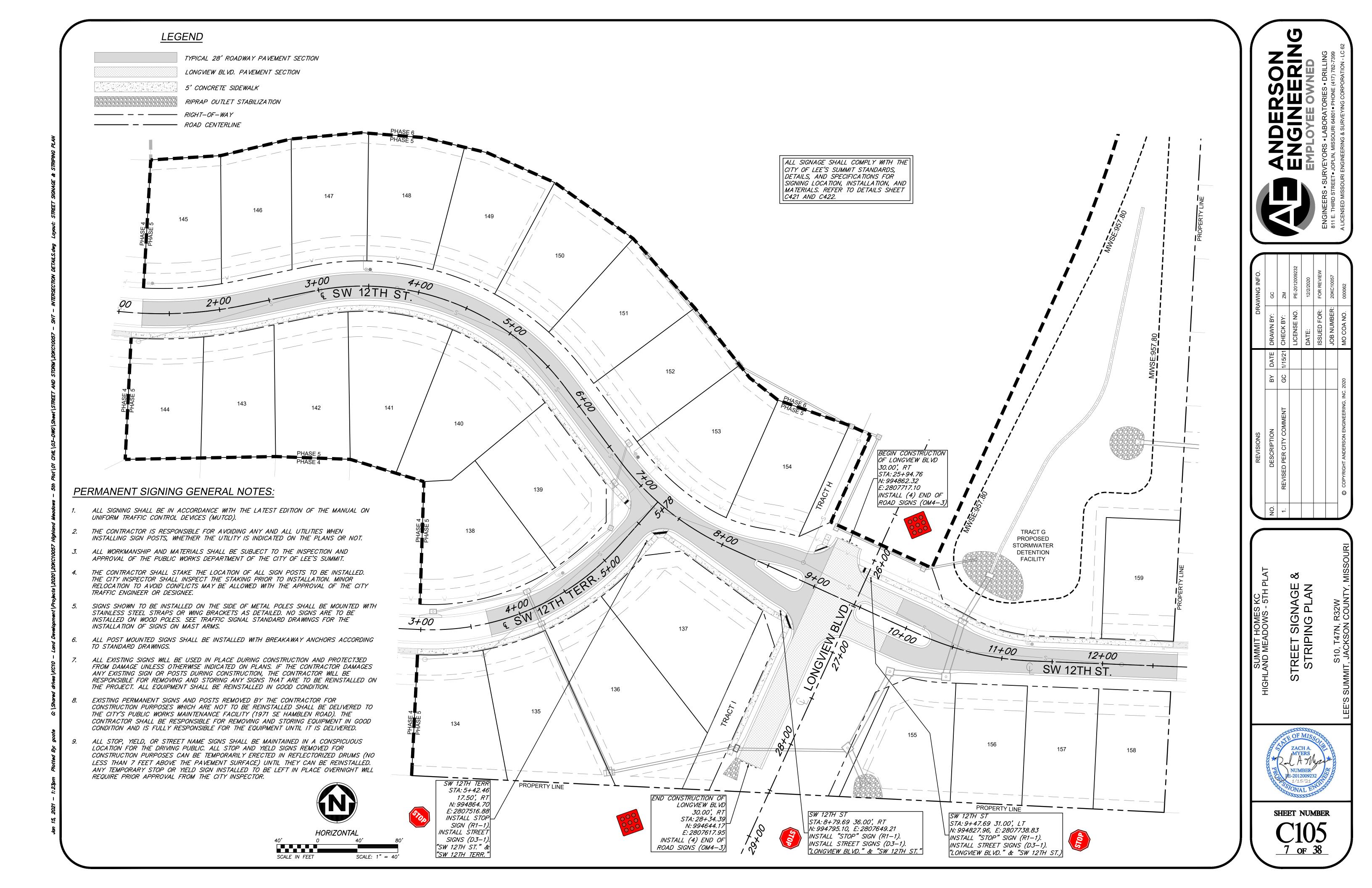


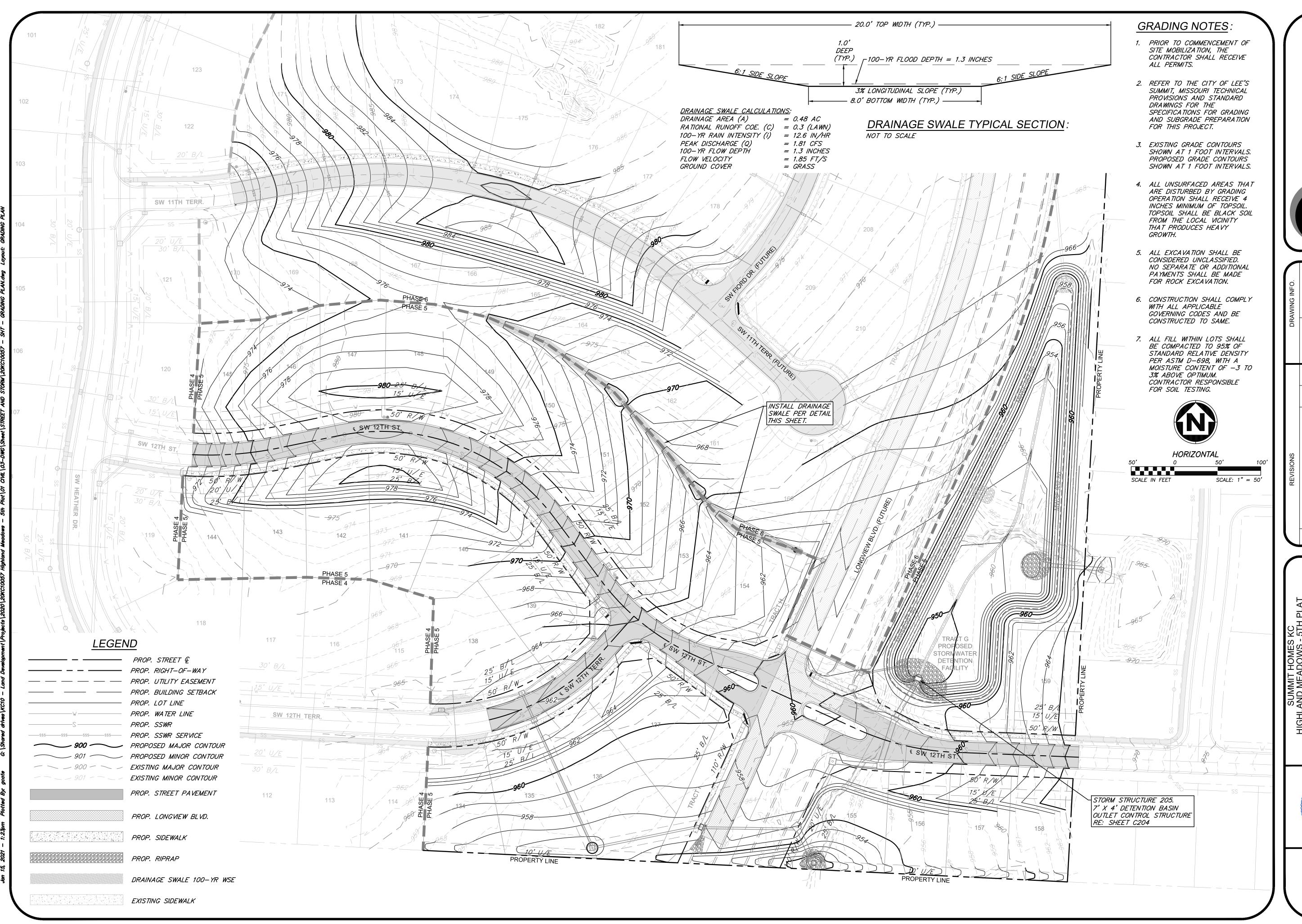
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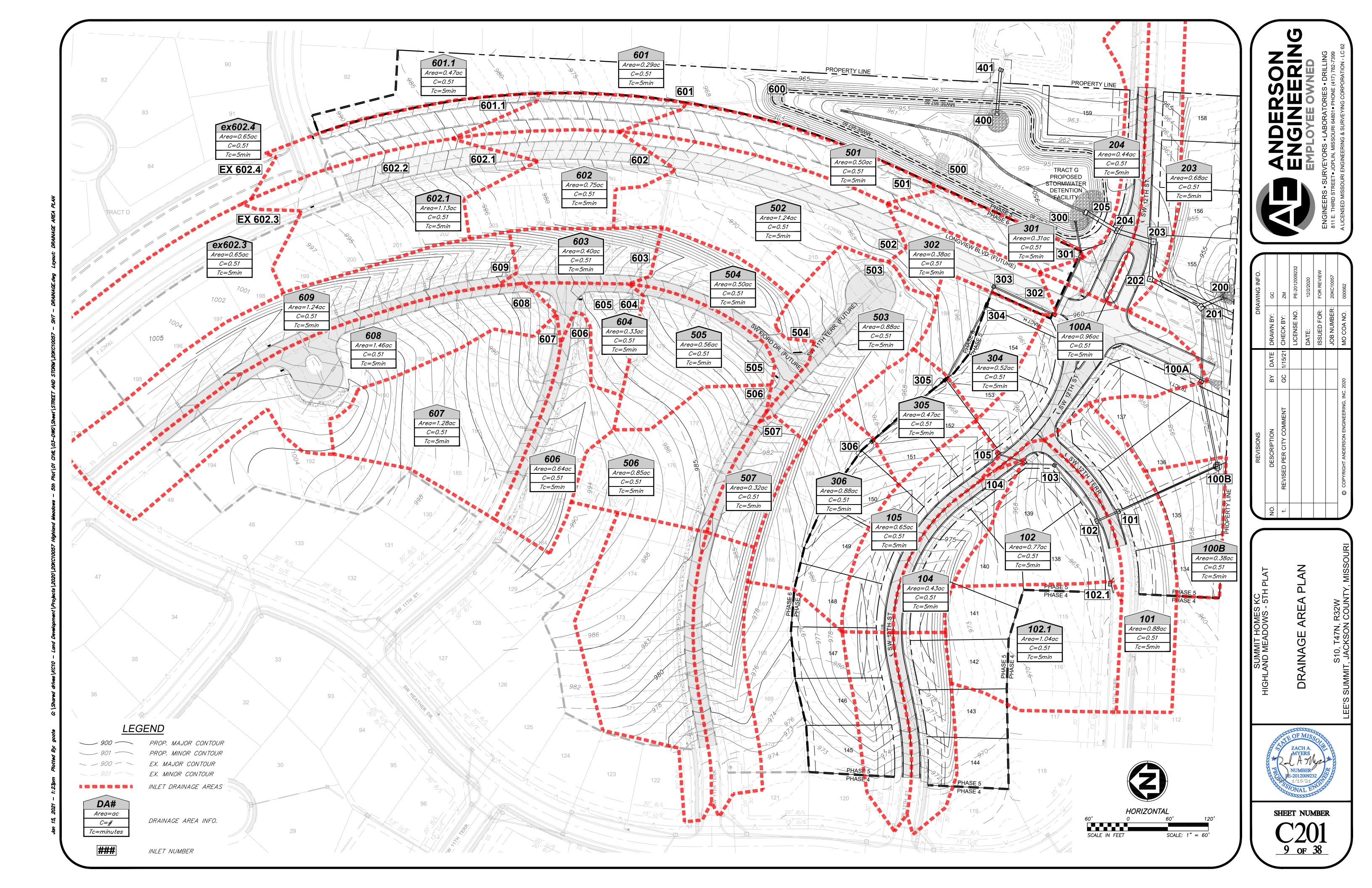
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GRADING PLAN

S10, T47N, R32\



C106
8 of 38



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					HYDROLOG	Ϋ́												HYDRA	ULICS									GUT	TER/INLET	DESIGN		
Line No.	Inlet ID	Downstream Line No.	DrainageA rea	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 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)
1	401	Outfall	0.00	0.00	0	0	0.0	0.00	0.00	0.00	0.00	LINE 401	401	967.50	958.15	952.20	59.49	10.00	36	0.013	210.92	0.00	9.01	9.01	960.54	954.59	LINE 401					
2	EX. DET.	1	0.00	0.00	0	0	0.0	0.00	0.00	54.51	0.00	LINE 402 (EX)	402	969.00	963.77	963.22	22.98	2.39	36	0.012	111.78	0.00	12.36	15.71	966.16	964.70	LINE 402 (EX)					
3	201	Outfall	0.00	0.00	0	0	7.7	0.00	7.06	0.00	22.43	LINE 201	201	957.83	946.93	946.77	31.01	0.50	54	0.013	141.26	22.43	9.71	9.71	950.10	949.94	LINE 201					
4	100A	3	0.96	0.51	0.49	0.49	7.2	8.34	7.26	4.09	18.92	LINE 100A	100A	956.50	948.13	947.13	110.34	0.91	30	0.013	39.04	18.92	4.03	3.86	950.29	950.10	LINE 100A	1.64	5.41	0.020	11.76	2.00
5	100B	4	0.38	0.51	0.19	0.19	6.7	8.34	7.45	1.62	15.77	LINE 100B	100B	955.00	950.55	948.63	128.30	1.50	24	0.012	29.97	15.77	5.94	5.31	951.98	950.42	LINE 100B	1.62		Sag		
6	101	5	0.88	0.51	0.45	0.45	6.2	8.34	7.72	3.75	14.85	LINE 101	101	962.13	954.29	951.05	162.07	2.00	24	0.013	31.98	14.85	8.19	9.99	955.68	952.01	LINE 101	3.75		Sag		
7	102	6	0.77	0.51	0.39	0.39	6.0	8.34	7.80	3.28	11.50	LINE 102	102	962.13	954.84	954.49	35.00	1.00	24	0.013	22.62	11.50	5.83	5.92	956.06	955.68	LINE 102	7.60	****	Sag		
8	103	7	0.00	0.00	0	0	5.5	0.00	8.05	0.00	4.44	LINE 103	103	964.01	956.63	955.59	104.21	1.00	15	0.012	6.99	4.44	5.50	6.03	957.48	956.31	LINE 103					
9	104	8	0.43	0.51	0.22	0.22	5.3	8.34	8.17	1.83	4.50	LINE 104	104	966.98	959.08	956.83	44.95	5.00	15	0.012	15.65	4.50	5.97	6.94	959.94	957.48	LINE 104	0.65	1.18	0.050	5.34	2.00
10	105	9	0.65	0.51	0.33	0.33	5.0	8.34	8.34	2.77	2.77	LINE 105	105	968.25	961.66	959.58	41.61	5.00	15	0.013	14.44	2.77	6.61	9.06	962.33	959.95	LINE 105	0.81	1.95	0.050	6.50	2.00
11	102.1	7	1.04	0.51	0.53	0.53	5.0	8.34	8.34	4.43	4.43	LINE 102.1	102.1	963.94	958.67	955.59	95.18	3.24	15	0.012	12.58	4.43	7.16	9.35	959.52	956.10	LINE 102.1	1.28	3.14	0.020	9.73	2.00
12	202	3	0.00	0.00	0	0	5.3	0.00	8.17	0.00	4.66	LINE 202	202	959.00	947.56	947.13	86.54	0.50	54	0.013	138.62	4.66	8.95	8.85	950.48	950.10	LINE 202					
13	203	12	0.68	0.51	0.35	0.35	5.2	8.34	8.25	2.89	4.71	LINE 203	203	959.00	948.04	947.76	55.83	0.50	54	0.013	139.27	4.71	9.28	9.50	950.96	950.56	LINE 203	2.89		Sag		
14	204	13	0.44	0.51	0.22	0.22	5.0	8.34	8.34	1.87	1.87	LINE 204	204	959.00	948.53	948.24	57.23	0.50	43 x 68	0.012	149.61	1.87	6.01	6.01	954.24	954.12	LINE 204	2.65		Sag		
15	205	14	0.00	0.00	0	0	0.0	0.00	0.00	94.04	0.00	LINE 205	205	958.30	949.00	948.73	53.16	0.50	54	0.013	140.16	0.00	5.91	5.91	954.64	954.52	LINE 205					
16	302	Outfall	0.31	0.51	0.16	0.16	7.6	8.34	7.09	1.32	9.25	LINE 301	301	960.84	952.42	950.58	45.96	4.00	18	0.013	21.01	9.25	6.23	6.23	953.60	951.76	LINE 301	0.54	0.78	0.050	4.50	2.00
17	303	16	0.38	0.51	0.19	0.19	7.0	8.34	7.34	1.62	8.42	LINE 302	302	960.57	953.57	952.62	95.01	1.00	18	0.013	22.62	8.42	5.34	5.54	954.60	953.60	LINE 302	0.61	1.01	0.050	5.01	2.00
18	304	17	0.00	0.00	0	0	6.6	0.00	7.52	0.00	7.17	LINE 303	303	962.04	955.55	954.07	98.87	1.50	18	0.012	13.92	7.17	6.72	7.93	956.59	954.83	LINE 303					
19	305	18	0.52	0.51	0.27	0.27	6.5	8.34	7.57	2.21	7.22	LINE 304	304	960.21	956.34	956.05	28.60	1.00	18	0.012	11.46	7.22	6.19	6.85	957.38	956.91	LINE 304	2.21		Sag		
20	306	19	0.47	0.51	0.24	0.24	5.8	8.34	7.91	2.00	5.45	LINE 305	305	964.74	+	956.54	126.66	2.00	18	0.012	16.08	5.45	5.14	5.35	959.97	957.38	LINE 305	2.00		Sag		
21	307	20	0.88	0.51	0.45	0.45	5.0	8.34	8.34	3.75	3.75	LINE 306	306	969.90	965.15	959.47	141.99	4.00	15	0.012	13.99	3.75	6.42	8.20	965.93	959.97	LINE 306	3.75		Sag		
100-	-YEAR								<u> </u>		<u> </u>		<u> </u>			· · · · · ·		· ·											· ·			

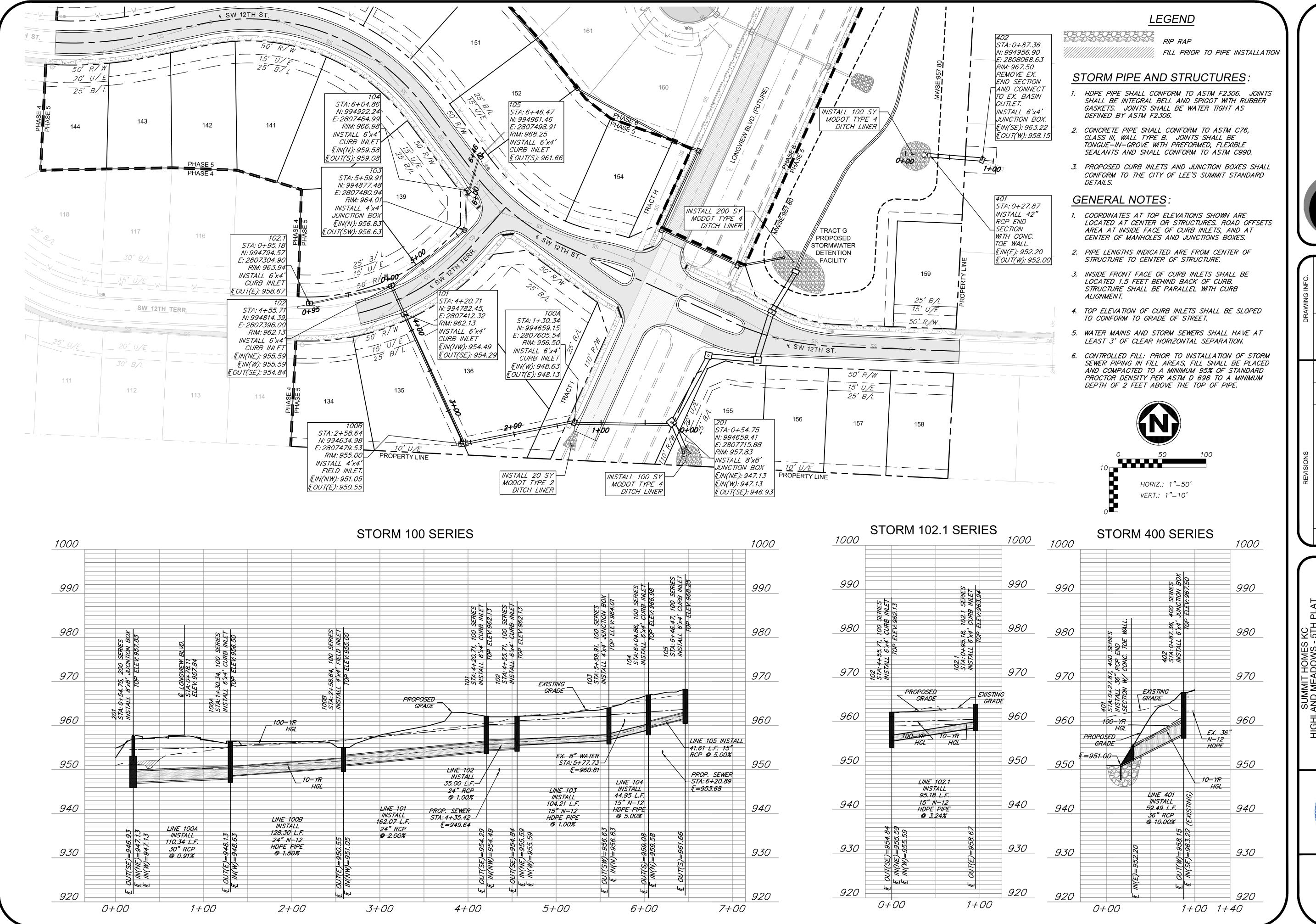
100-Y	/EAR		· · · · · · · · · · · · · · · · · · ·	:	<u>'</u>	•	•	•				•	:	•	•		:	•							:	'						
					HYDROLOG	Υ												HYDRA	ULICS									GUT	TER/INLET	DESIGN		
Line No.	Inlet ID	Downstream Line No.	DrainageA rea	Runoff Coefficient	Local CxA	System CxA	Тс	Local Intensity	System Intensity	Incremental 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)
1	401	Outfall	0.00	0.00	0	0	0.0	0.00	0.00	0.00	0.00	LINE 401	401	967.50	958.15	952.20	59.49	10.00	36	0.013	210.92	0.00	15.99	15.99	961.08	955.13	LINE 401					
2	EX. DET.	1	0.00	0.00	0	0	0.0	0.00	0.00	112.38	0.00	LINE 402 (EX)	402	969.00	963.77	963.22	22.98	2.39	36	0.012	111.78	0.00	17.01	18.02	966.70	965.69	LINE 402 (EX)					
3	201	Outfall	0.00	0.00	0	0	6.8	0.00	11.18	0.00	35.51	LINE 201	201	957.83	946.93	946.77	31.01	0.50	54	0.013	141.26	35.51	14.65	14.86	951.56	950.97	LINE 201					
4	100A	3	0.96	0.51	0.49	0.49	6.4	12.60	11.41	6.17	29.74	LINE 100A	100A	956.50	948.13		110.34	0.91	30	0.013	39.04	29.74	6.06	6.06	955.15	954.57	LINE 100A	2.07	8.95	0.020	14.05	2.00
5	100B	4	0.38	0.51	0.19	0.19	6.1	12.60	11.63	2.44	24.61	LINE 100B	100B	955.00	950.55	948.63	128.30	1.50	24	0.012	29.97	24.61	7.83	7.83	956.73	955.43	LINE 100B	2.44	****	Sag		
6	101	5	0.88	0.51	0.45	0.45	5.8	12.60	11.93	5.65	22.94	LINE 101	101	962.13	954.29	951.05	162.07	2.00	24	0.013	31.98	22.94	7.30	7.30	959.80	958.13	LINE 101	5.65		Sag		
7	102	6	0.77	0.51	0.39	0.39	5.7	12.60	12.02	4.95	17.71	LINE 102	102	962.13	954.84	954.49	35.00	1.00	24	0.013	22.62	17.71	5.64	5.64	960.43	960.21	LINE 102	11.99		Sag		
8	103	7	0.00	0.00	0	0	5.3	0.00	12.29	0.00	6.77	LINE 103	103	964.01	956.63	955.59	104.21	1.00	15	0.012	6.99	6.77	5.52	5.52	962.13	961.15	LINE 103					
9	104	8	0.43	0.51	0.22	0.22	5.2	12.60	12.41	2.76	6.84	LINE 104	104	966.98	959.08	956.83	44.95	5.00	15	0.012	15.65	6.84	5.57	5.57	962.93	962.50	LINE 104	0.81	1.95	0.050	6.50	2.00
10	105	9	0.65	0.51	0.33	0.33	5.0	12.60	12.60	4.18	4.18	LINE 105	105	968.25	961.66	959.58	41.61	5.00	15	0.013	14.44	4.18	3.40	3.40	963.34	963.17	LINE 105	1.00	3.17	0.050	7.82	2.00
11	102.1	7	1.04	0.51	0.53	0.53	5.0	12.60	12.60	6.68	6.68	LINE 102.1	102.1	963.94	958.67	955.59	95.18	3.24	15	0.012	12.58	6.68	5.45	5.45	962.02	961.15	LINE 102.1	1.59	5.09	0.020	11.51	2.00
12	202	3	0.00	0.00	0	0	5.2	0.00	12.46	0.00	7.12	LINE 202	202	959.00	947.56	947.13	86.54	0.50	54	0.013	138.62	7.12	12.65	12.65	955.47	954.57	LINE 202			*****		
13	203	12	0.68	0.51	0.35	0.35	5.1	12.60	12.53	4.37	7.15	LINE 203	203	959.00	948.04	-	55.83	0.50	54	0.013	139.27	7.15	12.65	12.65	958.37	957.79	LINE 203	4.37	****	Sag		
14	204	13	0.44	0.51	0.22	0.22	5.0	12.60	12.60	2.83	2.83	LINE 204	204	959.00	948.53	948.24	57.23	0.50	43 x 68	0.012	149.61	2.83	12.34	12.34	965.04	964.54	LINE 204	4.14		Sag		
15	205	14	0.00	0.00	0	0	0.0	0.00	0.00	194.00	0.00	LINE 205	205	958.30	949.00	948.73	53.16	0.50	54	0.013	140.16	0.00	12.20	12.20	966.74	966.23	LINE 205					
16	302	Outfall	0.31	0.51	0.16	0.16	6.7	12.60	11.21	1.99	14.64	LINE 301	301	960.84	952.42		45.96	4.00	18	0.013	21.01	14.64	8.54	8.54	953.82	951.98	LINE 301	0.68	1.31	0.050	5.56	2.00
17	303	16	0.38	0.51	0.19	0.19	6.3	12.60	11.50	2.44	13.19	LINE 302	302	960.57	953.57	952.62	95.01	1.00	18	0.013	22.62	13.19	6.40	6.72	954.88	953.82	LINE 302	0.76	1.68	0.050	6.13	2.00
18	304	17	0.00	0.00	0	0	6.0	0.00	11.70	0.00	11.16	LINE 303	303	962.04	955.55	954.07	98.87	1.50	18	0.012	13.92	11.16	7.86	8.75	956.83	955.09	LINE 303					
19	305	18	0.52	0.51	0.27	0.27	6.0	12.60	11.76	3.34	11.22	LINE 304	304	960.21	956.34	956.05	28.60	1.00	18	0.012	11.46	11.22	7.19	7.39	957.62	957.25	LINE 304	3.34		Sag		
20	306	19	0.47	0.51	0.24	0.24	5.5	12.60	12.14	3.02	8.36	LINE 305	305	964.74	959.07	956.54	126.66	2.00	18	0.012	16.08	8.36	6.03	6.14	960.19	957.62	LINE 305	3.02		Sag		
21	307	20	0.88	0.51	0.45	0.45	5.0	12.60	12.60	5.65	5.65	LINE 306	306	969.90	965.15	959.47	141.99	4.00	15	0.012	13.99	5.65	6.66	7.74	966.11	960.19	LINE 306	5.65		Sag		

DRAWING INFO.	BY DATE DRAWN BY: GC	GC 1/15/21 CHECK BY: ZM	LICENSE NO. PE-2012009232	DATE: 12/2/2020	ISSUED FOR: FOR REVIEW	JOB NUMBER: 20KC10057	MO COA NO. 000062
	DATE	/15/21 C			31	J	2
	ВУ	GC 1					2020
REVISIONS	DESCRIPTION	REVISED PER CITY COMMENT					© COPYRIGHT ANDERSON ENGINEERING, INC. 2020
	NO.	1.					

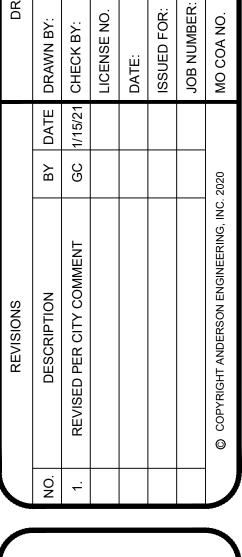
DRAINAGE CALCULATIONS



SHEET NUMBER C202



SON



STORM SEWER PLAN & PROFILE

ZACH A.

MYERS

NUMBER

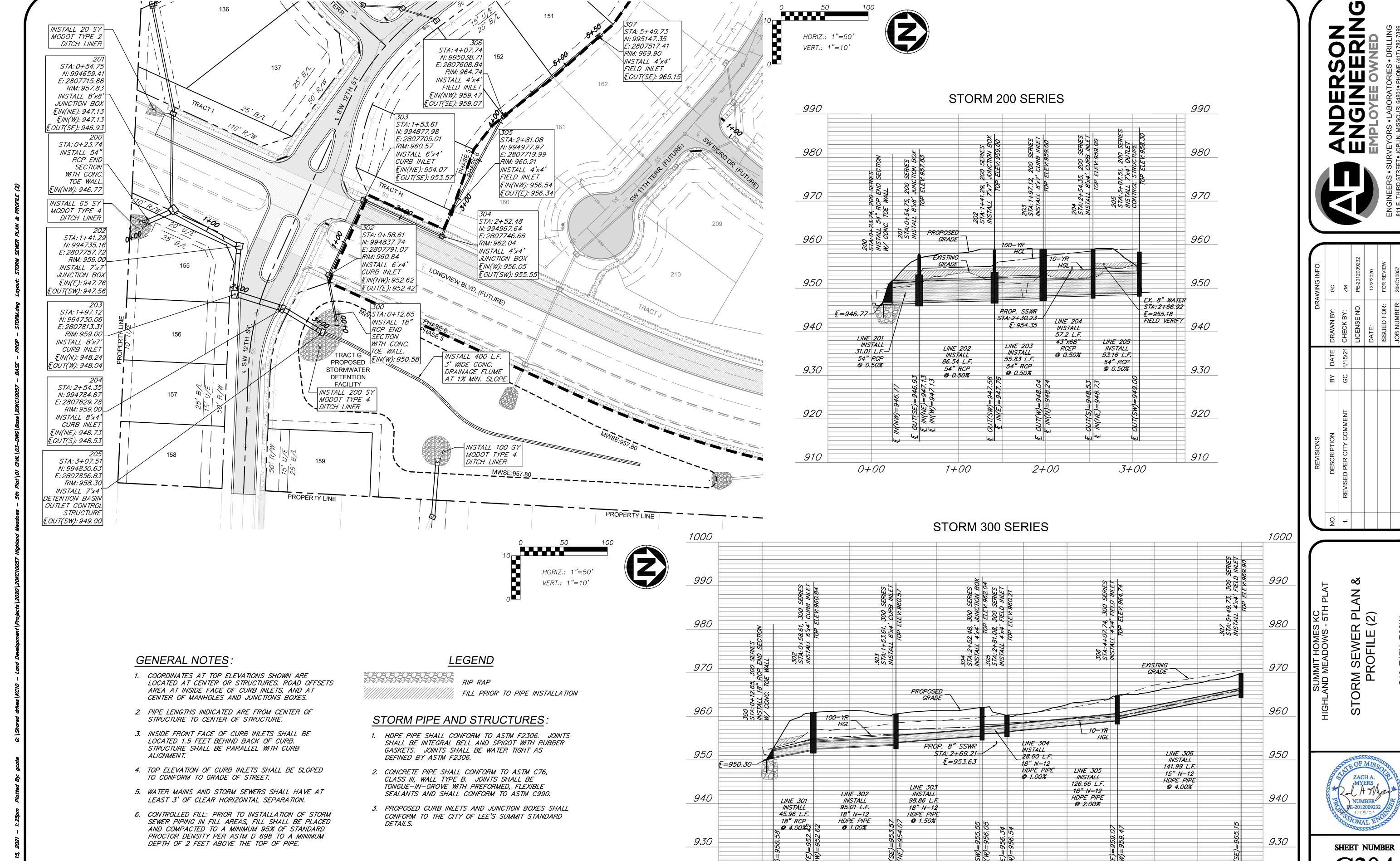
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SHEET NUMBER

C203

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ON O	DESCRIPTION	ВУ	DATE	BY DATE DRAWN BY:	၁ဗ
<u>←</u>	REVISED PER CITY COMMENT	CC	1/15/21	GC 1/15/21 CHECK BY:	ZM
				LICENSE NO.	PE-20
				DATE:	12/2/2
				ISSUED FOR:	FOR R
				JOB NUMBER:	20KC1
	© COPYRIGHT ANDERSON ENGINEERING, INC. 2020	2020		MO COA NO.	90000

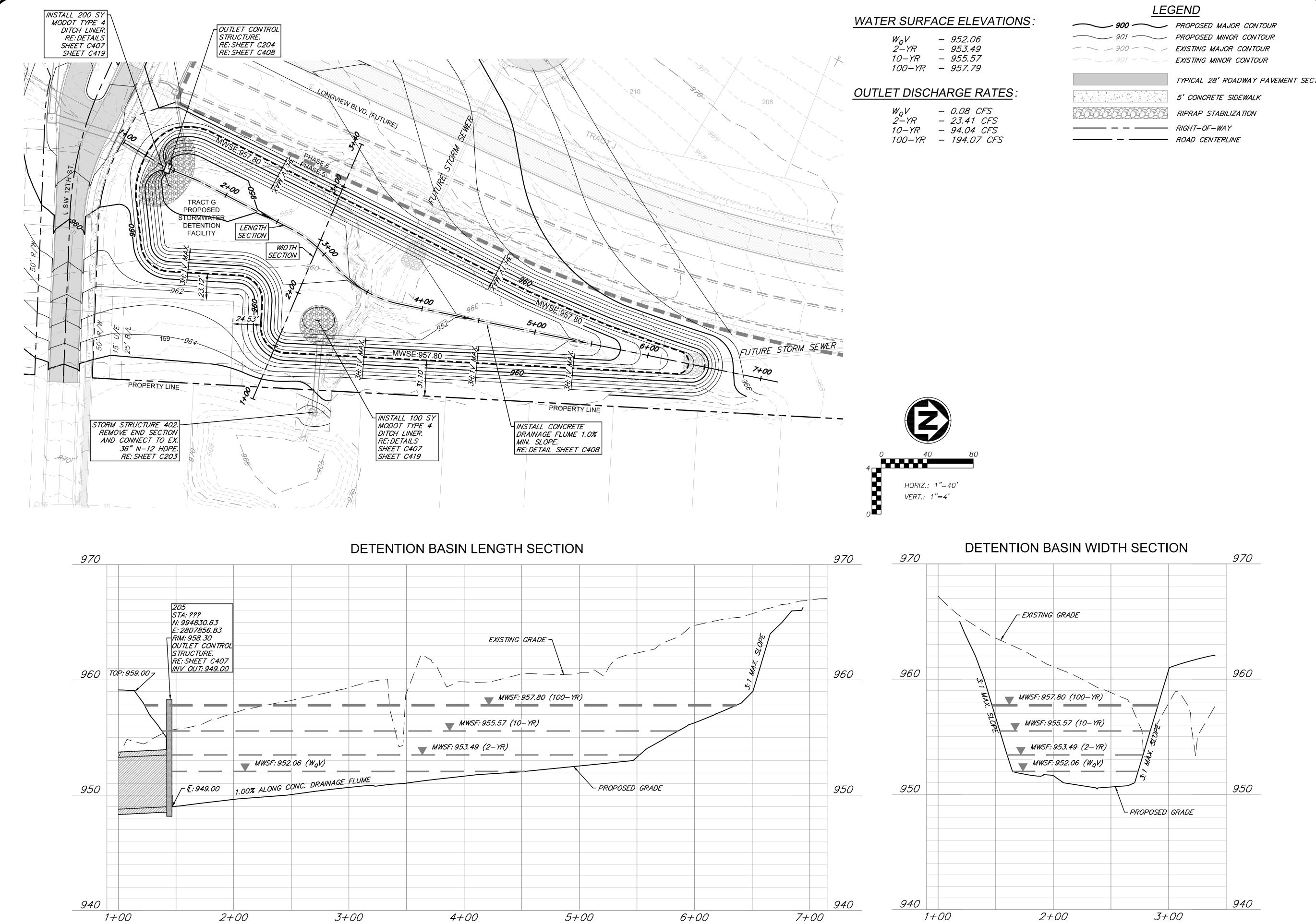
12 of 38

920

5+75

5+00

4+00



TYPICAL 28' ROADWAY PAVEMENT SECTION

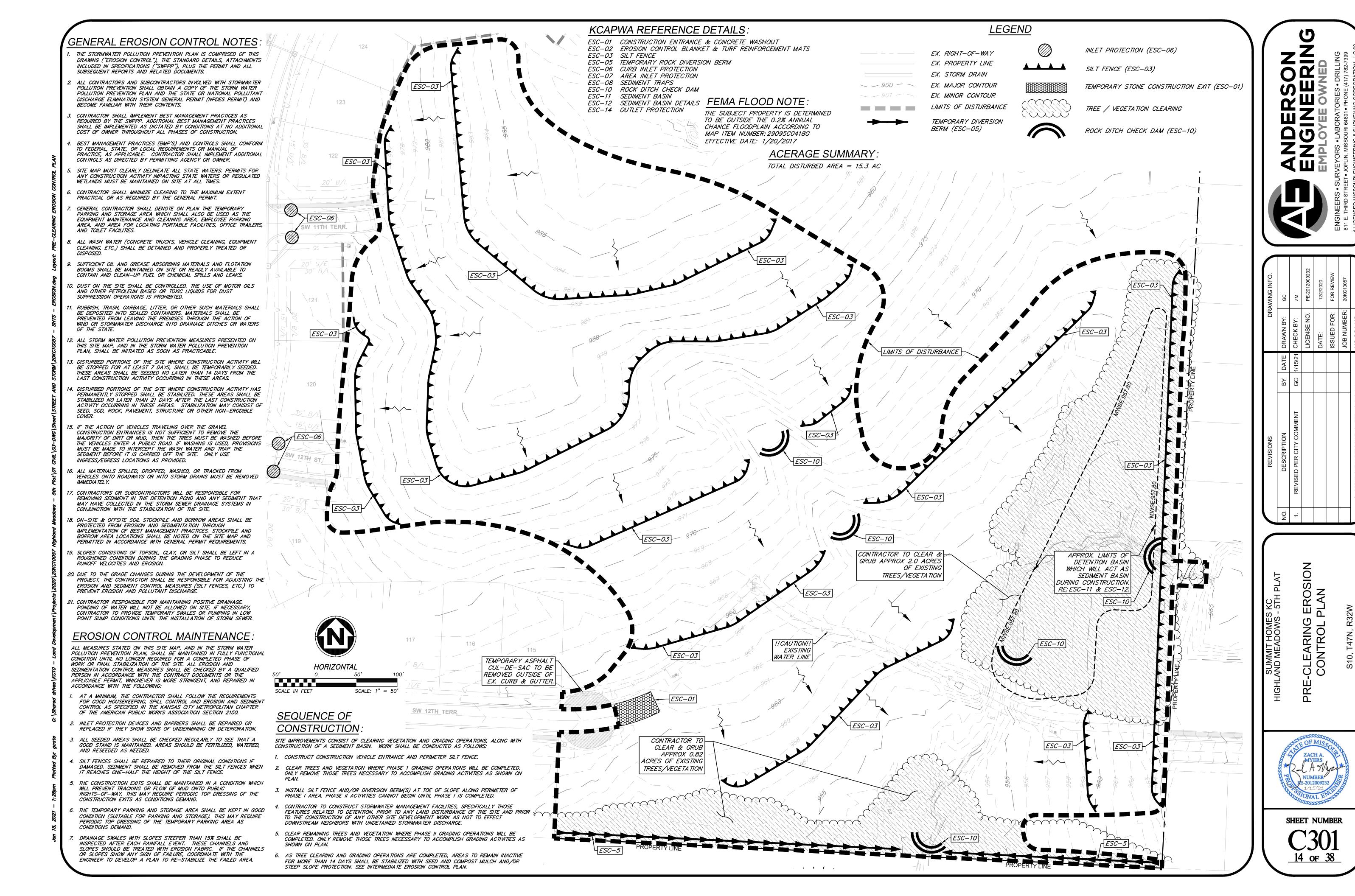


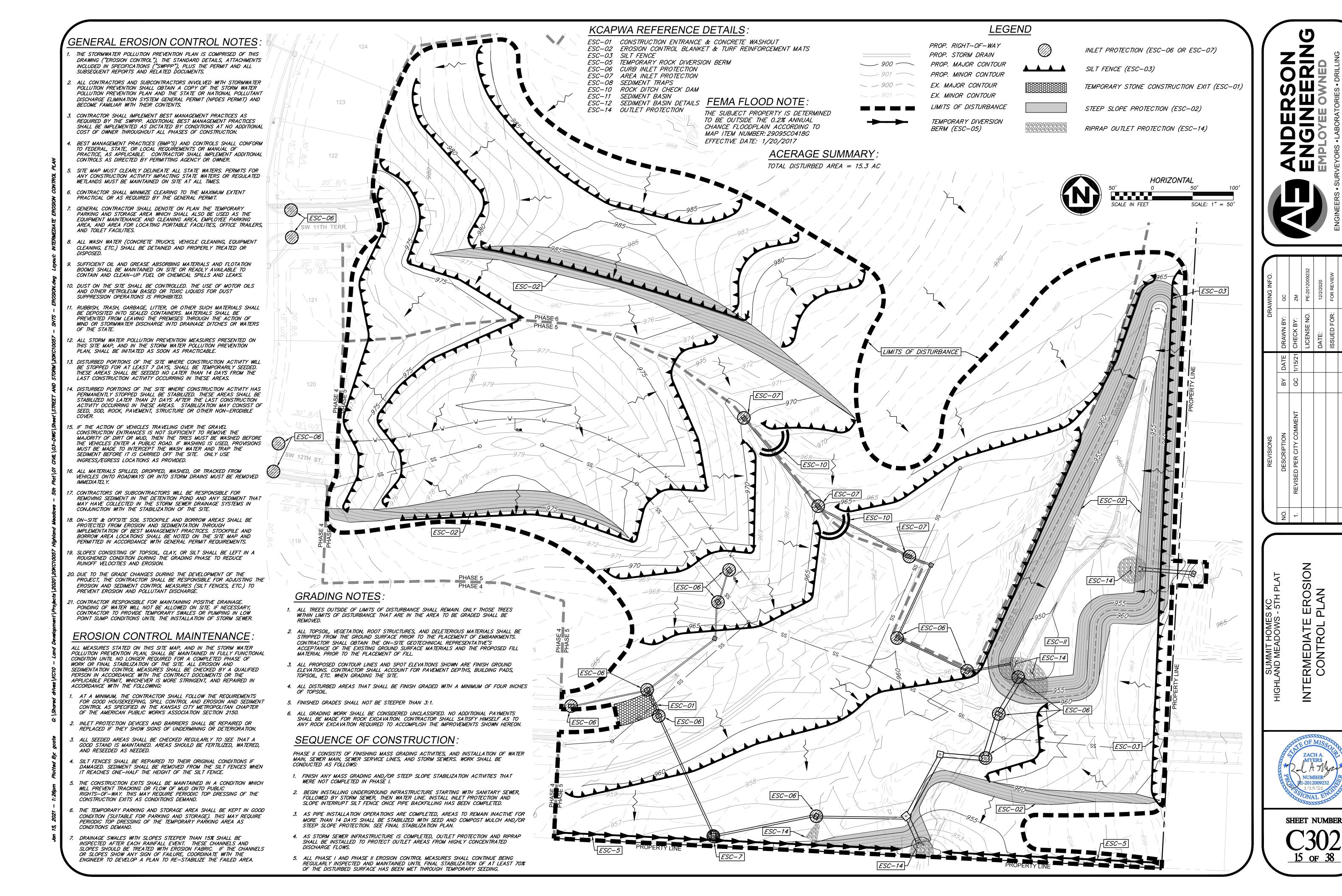
NO.	DESCRIPTION	ВУ	DATE	BY DATE DRAWN BY:	GC
1.	REVISED PER CITY COMMENT	CC	1/15/21	GC 1/15/21 CHECK BY:	ZM
				LICENSE NO.	PE-2012009232
				DATE:	12/2/2020
				ISSUED FOR:	FOR REVIEW
				JOB NUMBER:	20KC10057
	© COPYRIGHT ANDERSON ENGINEERING, INC. 2020	2020		MO COA NO.	000062

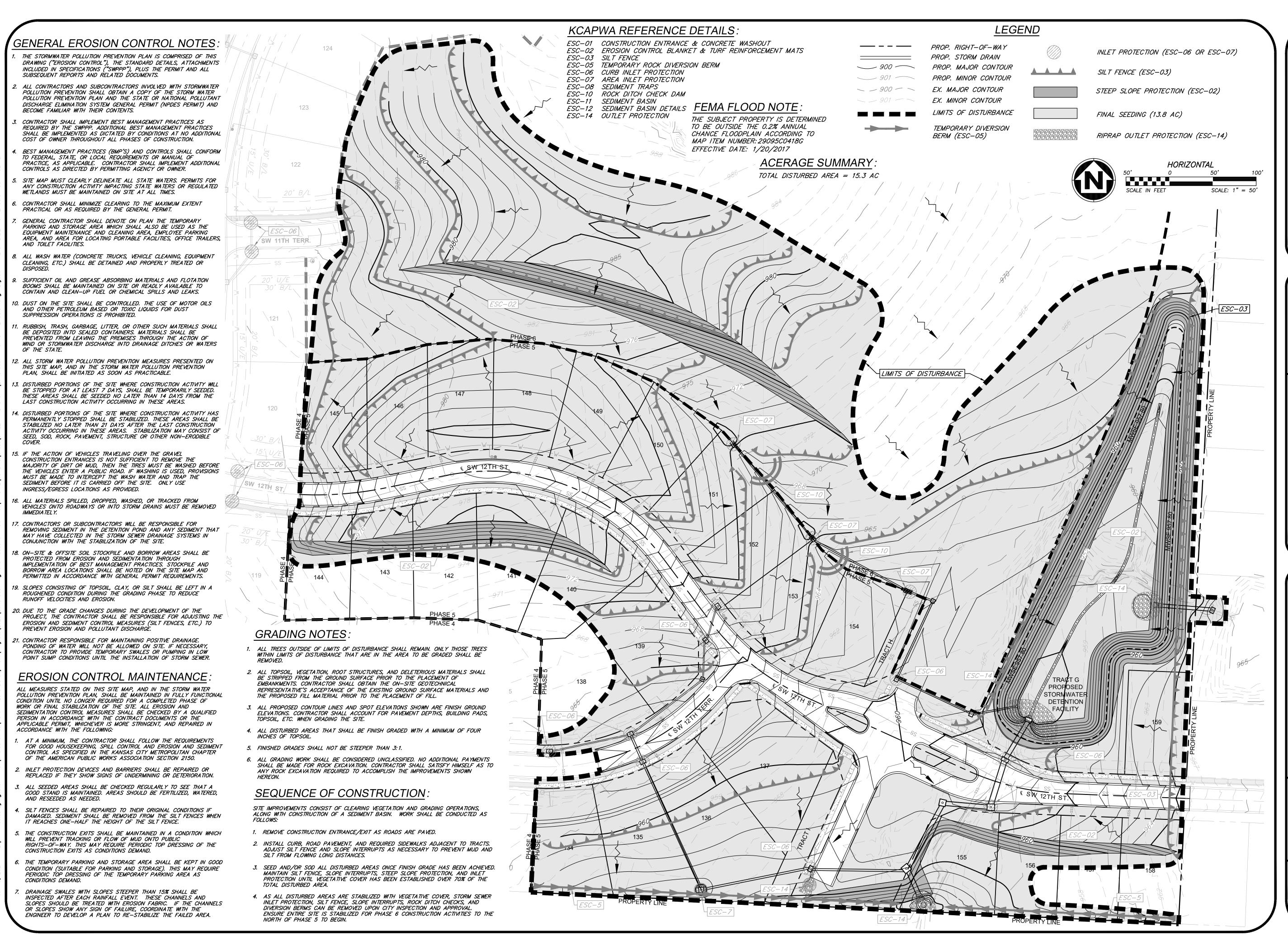
DETENTION BASIN PLAN & PROFILE



SHEET NUMBER 13 of 38







ANDERSON
ENGINEERING
EMPLOYEE OWNED
SURVEYORS - LABORATORIES - DRILLING

 RIPTION
 BY
 DATE
 DRAWN BY:
 GC

 CITY COMMENT
 GC
 1/15/21
 CHECK BY:
 ZM

 LICENSE NO.
 PE-2012009232

 DATE:
 12/2/2020

 ISSUED FOR:
 FOR REVIEW

 JOB NUMBER:
 20KC10057

STABILIZATION N CONTROL PLAN

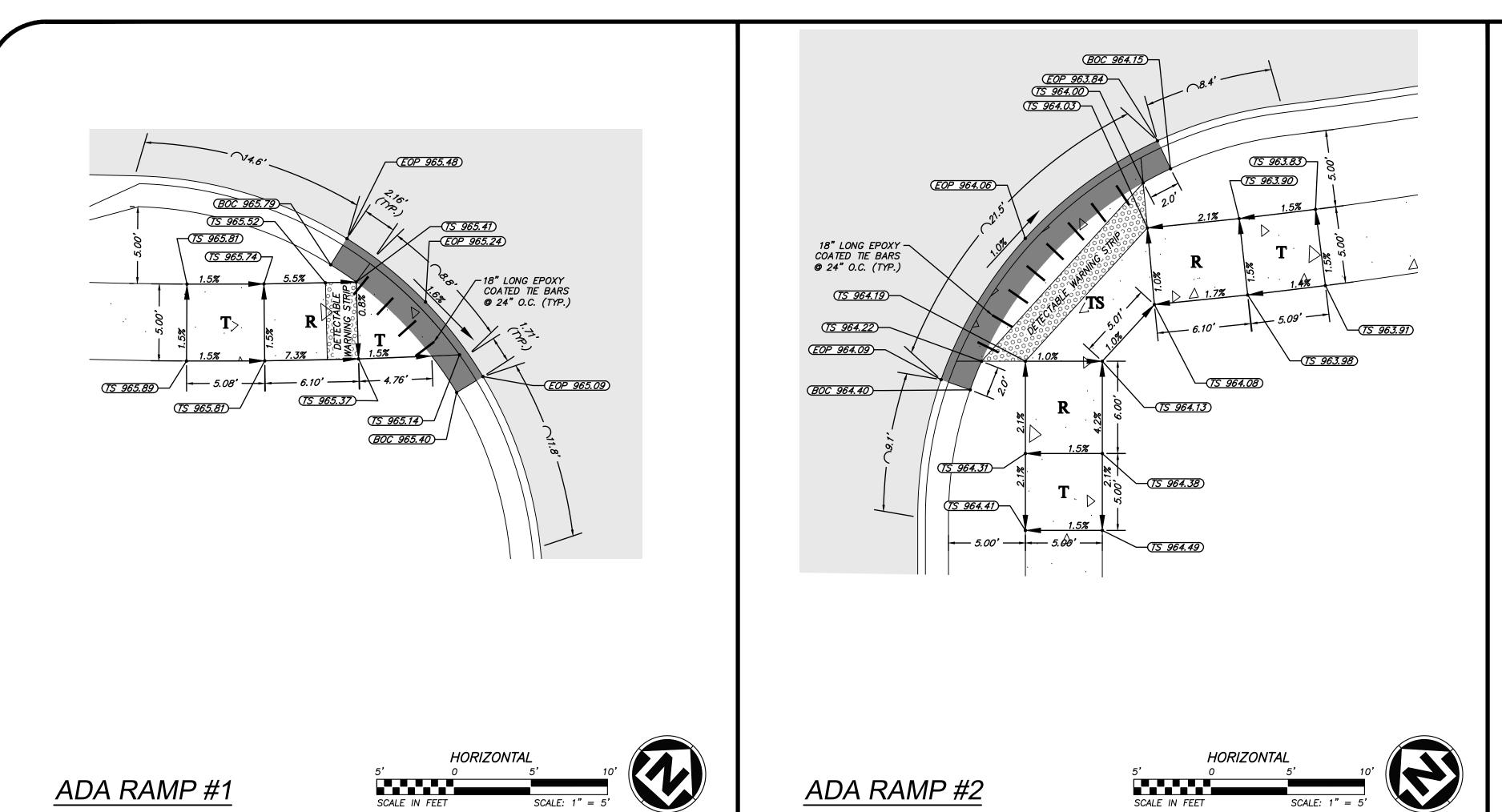
S10, T47N, R3

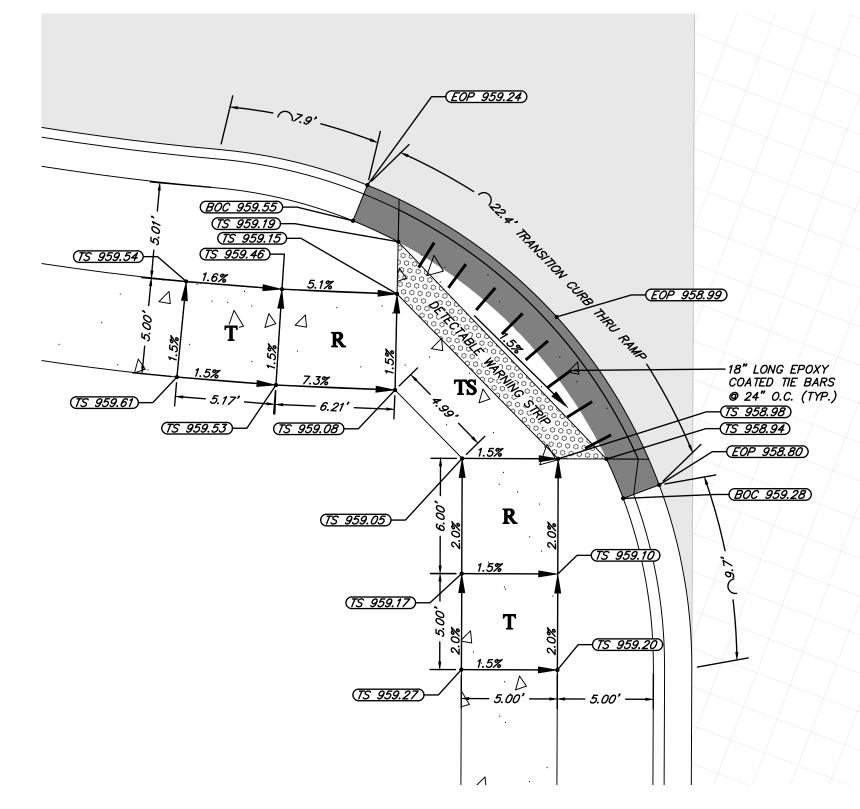
ZACH A.
MYERS

NUMBER
JE-2012009232
1/15/21

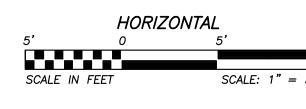
SHEET NUMBER

C303





ADA RAMP #3



DRY CURB & GUTTER

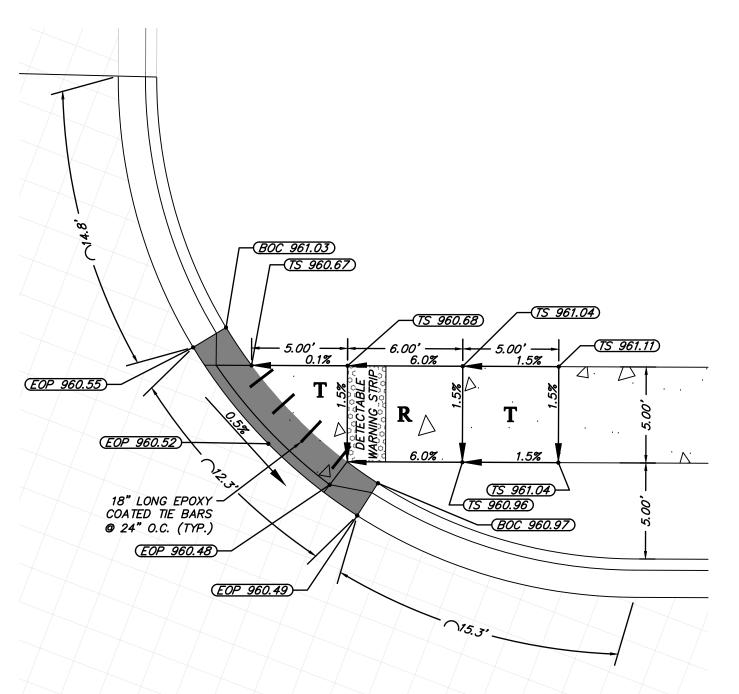
DETECTIBLE WARNING STRIP

KCMMB4K CONCRETE SIDEWALK

SCALE: 1" = 100"

TYPICAL 28' ROADWAY PAVEMENT SECTION





TS = TURNING SPACE $\mathbf{R} = RAMP$ **GENERAL NOTES:**

= TRANSITION

<u>LEGEND</u>

EOP = EDGE OF PAVEMENT

= TOP OF SIDEWALK

. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED THE BARS 9" IN EACH DIRECTION. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED

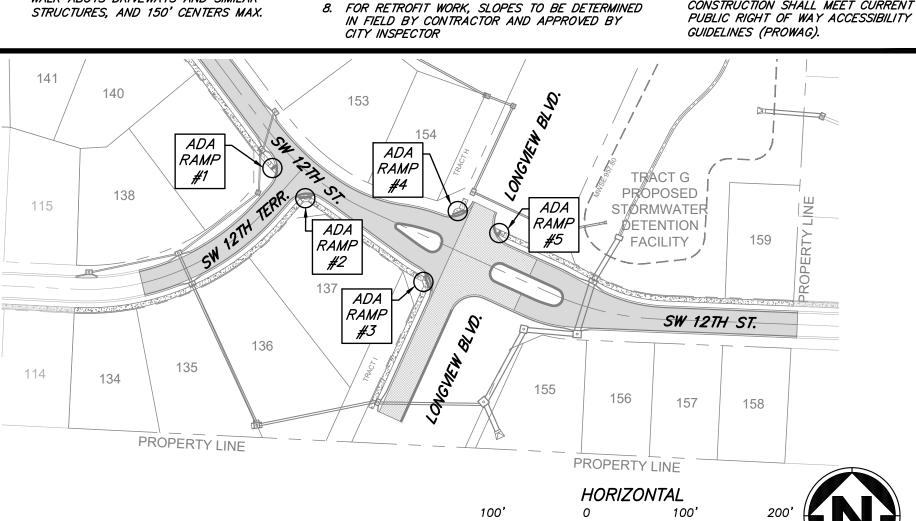
COMPACTED DENSE GRADED AGGREGATE BASE. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR

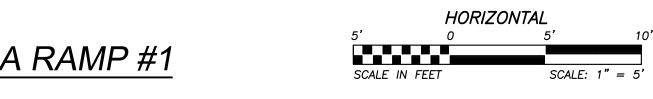
CURB RAMP OPENING, NOT INCLUDING FLARES, 6. ADA MAXIMUM RAMP SLOPE = 8.33%, ADA SHALL MATCH EXISTING SIDEWALK WITH AN MAXIMUM CROSS SLOPE = 2.0%. *ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5% ±0.5%. 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.

9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRASITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A

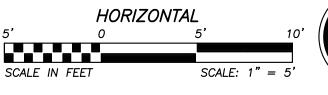
CONTINUOUS SLOPE. 10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT

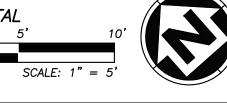


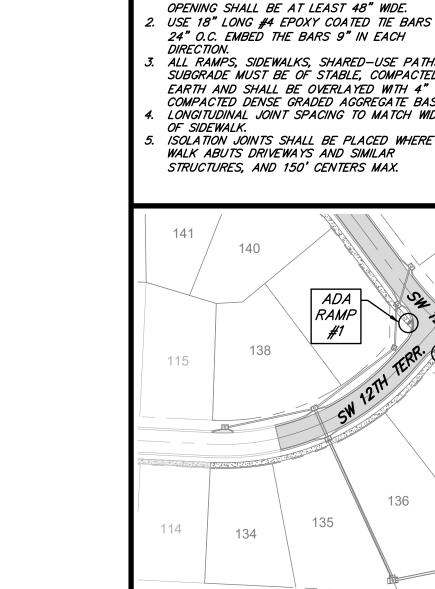


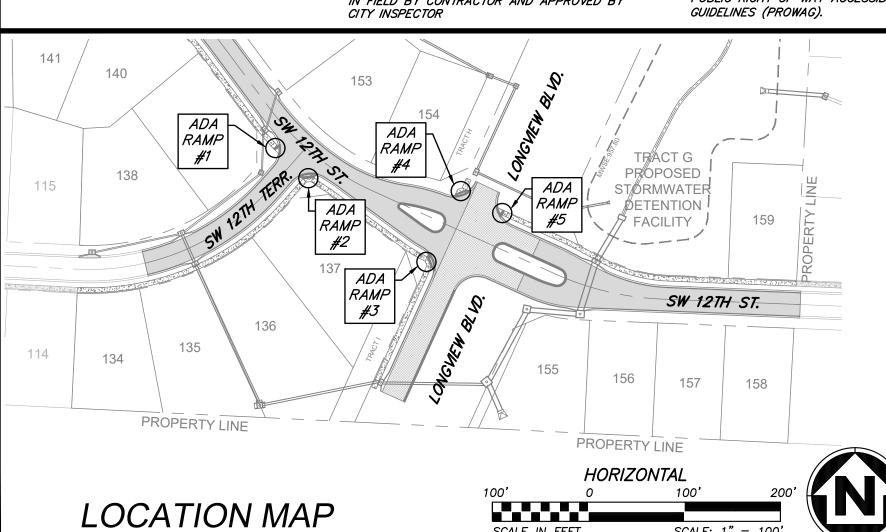


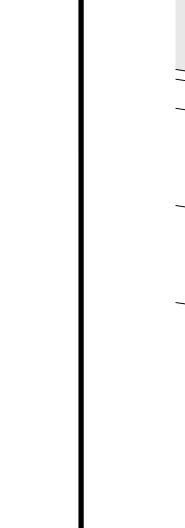






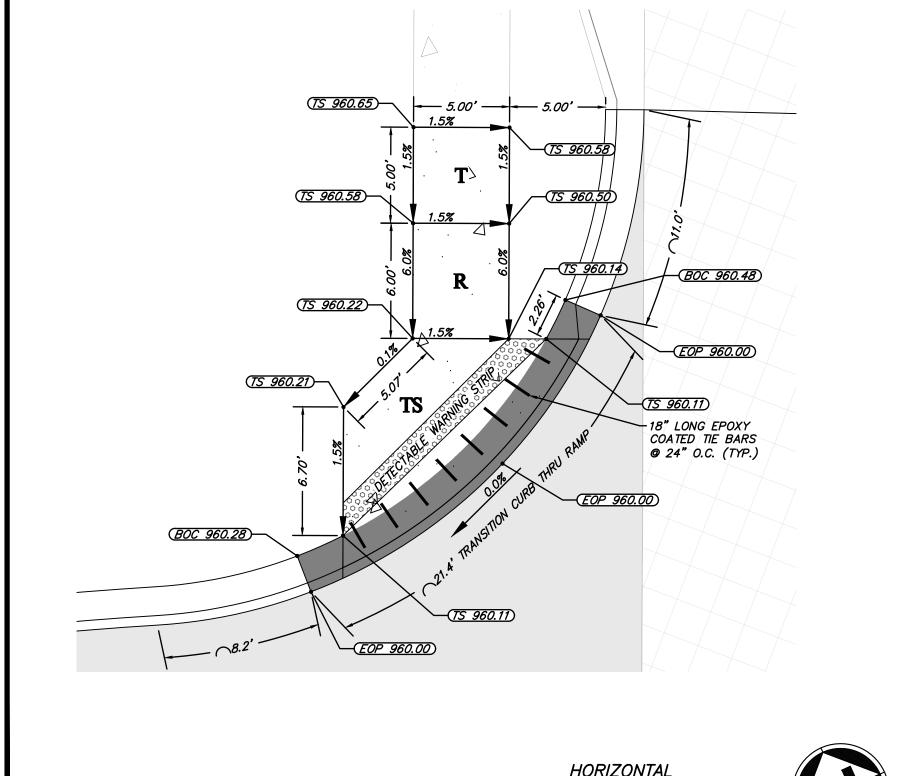






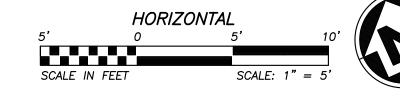
ADA

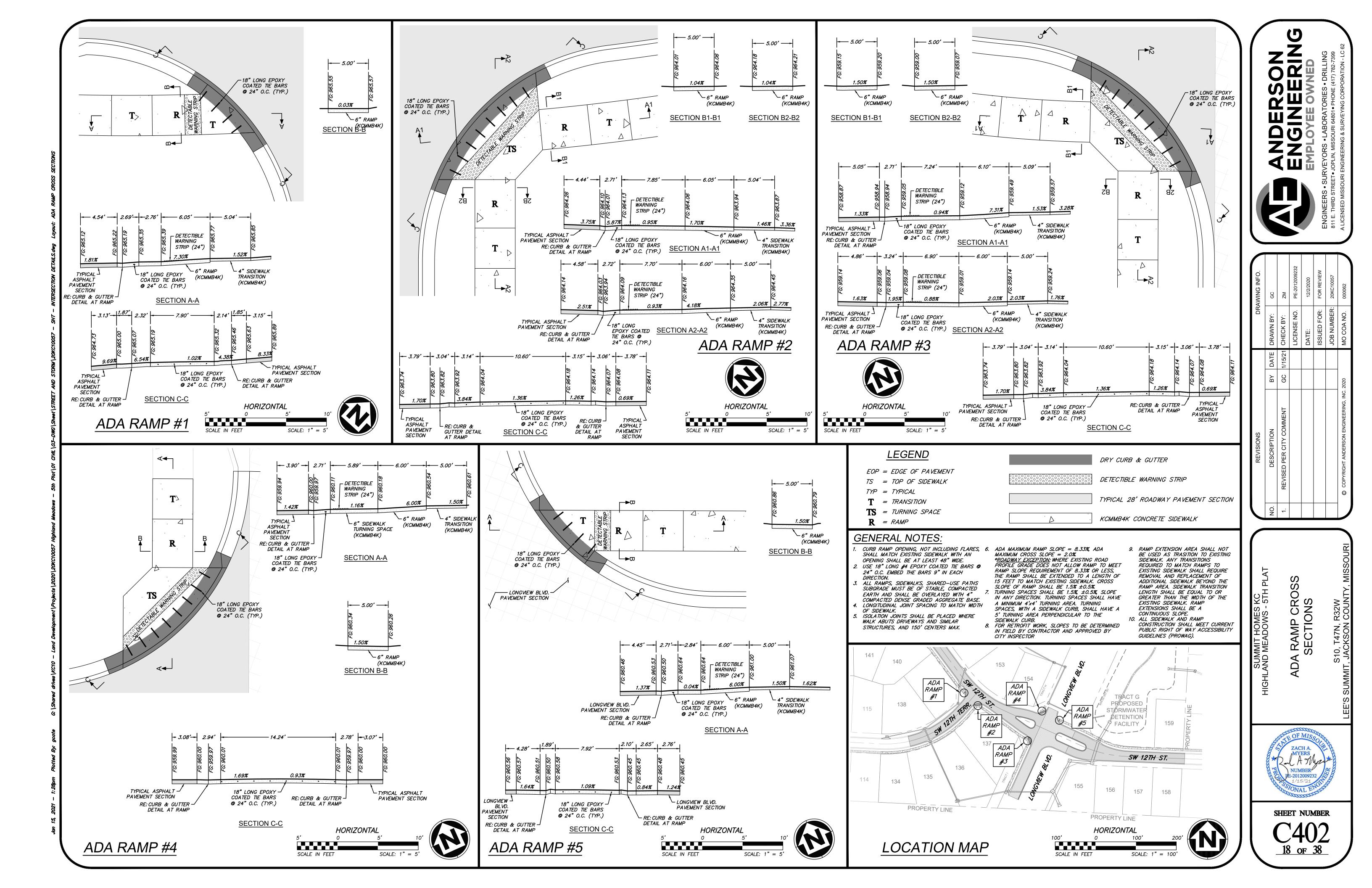
SHEET NUMBER 17 of 38

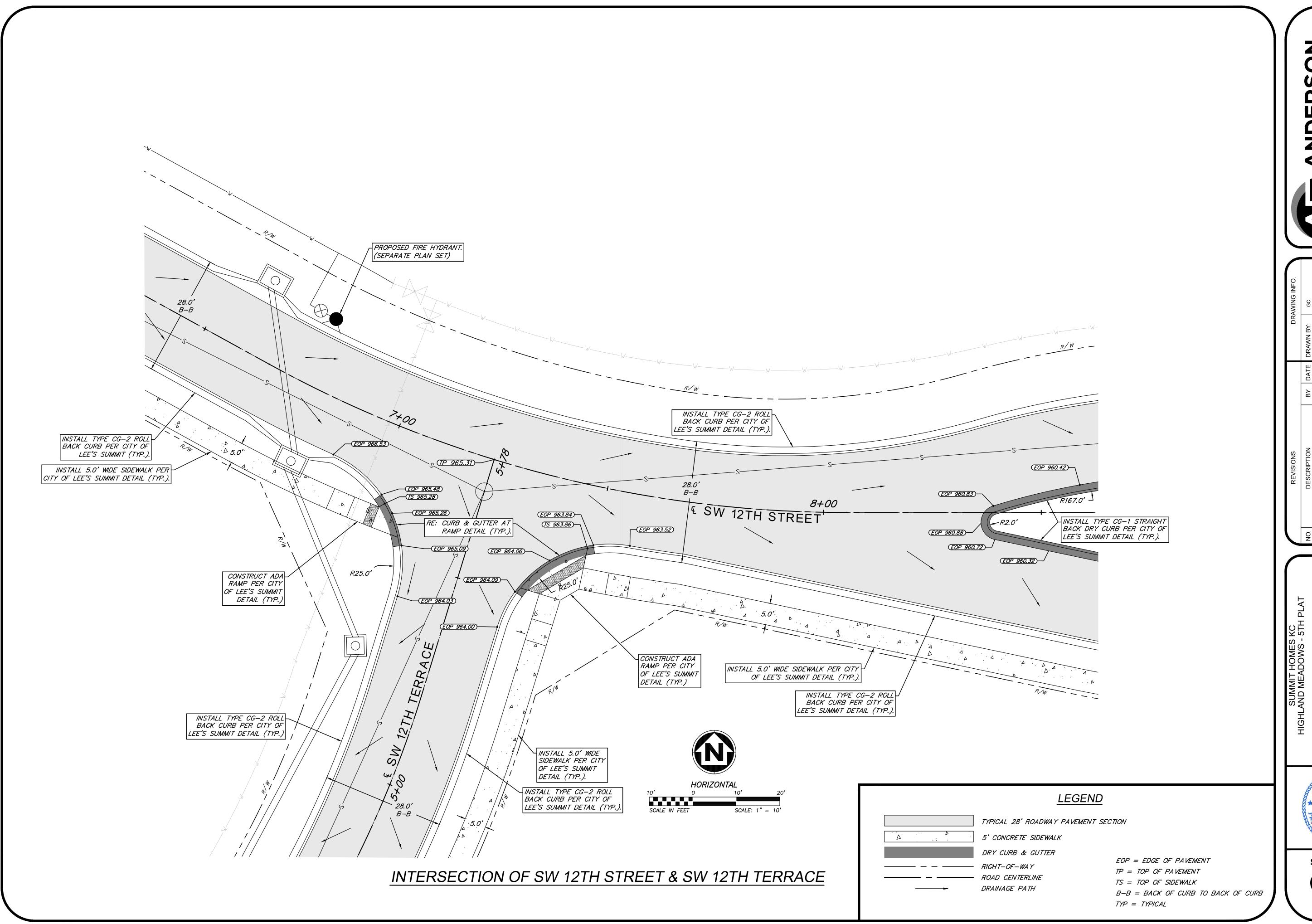


ADA RAMP #4









ANDERSON
ENGINEERS • SURVEYORS • LABORATORIES • DRILLING
811 E. THIRD STREET • JOPLIN, MISSOURI 64801 • PHONE (417) 782-7399

	REVISIONS			DR4	DRAWING INFO.
NO.	DESCRIPTION	ΒΥ	DATE	DATE DRAWN BY:	39
1.	REVISED PER CITY COMMENT	CC	1/15/21	GC 1/15/21 CHECK BY:	ZM
				LICENSE NO.	PE-2012009232
				DATE:	12/2/2020
				ISSUED FOR:	FOR REVIEW
				JOB NUMBER:	20KC10057
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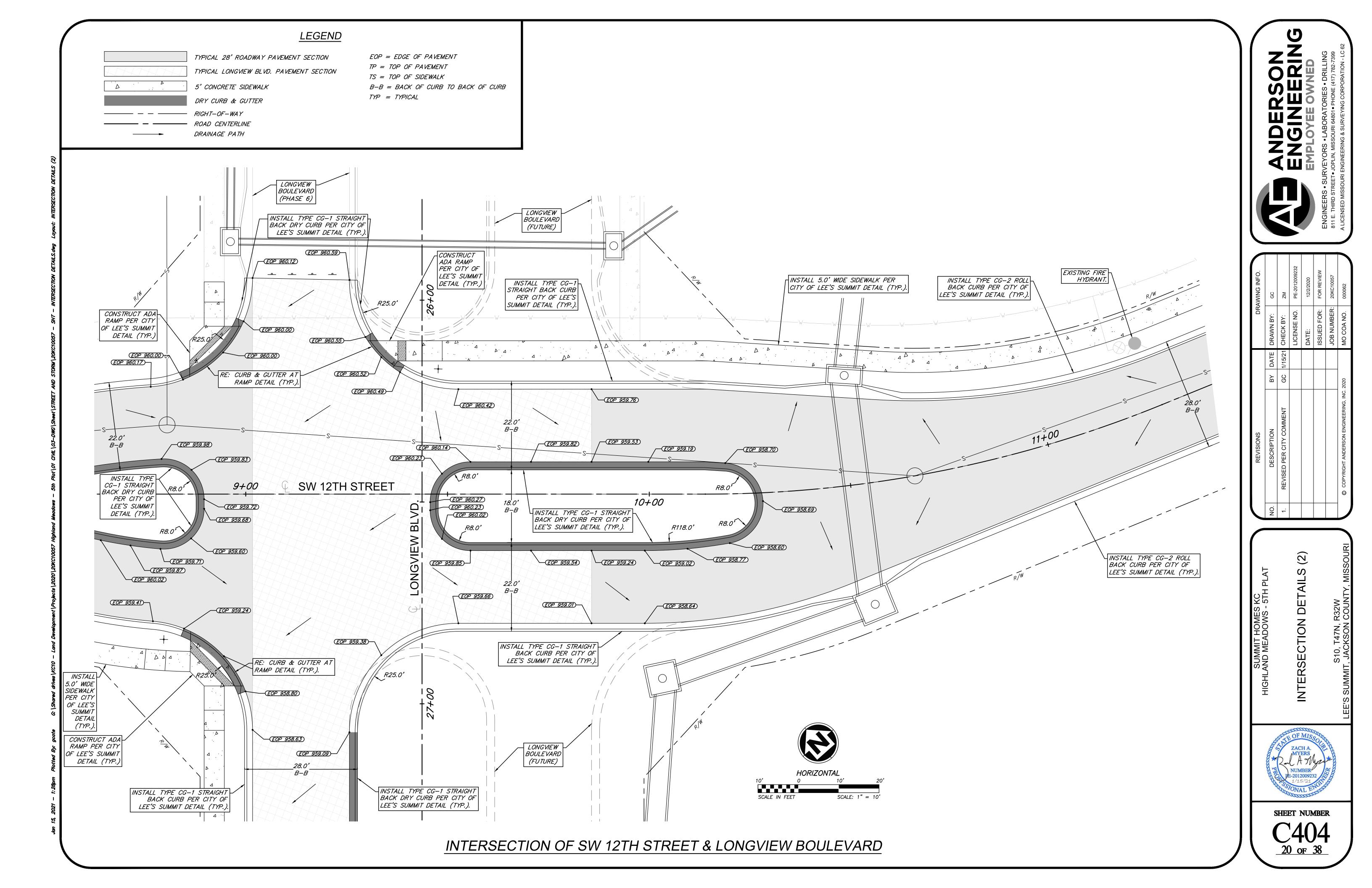
INTERSECTION DETAILS

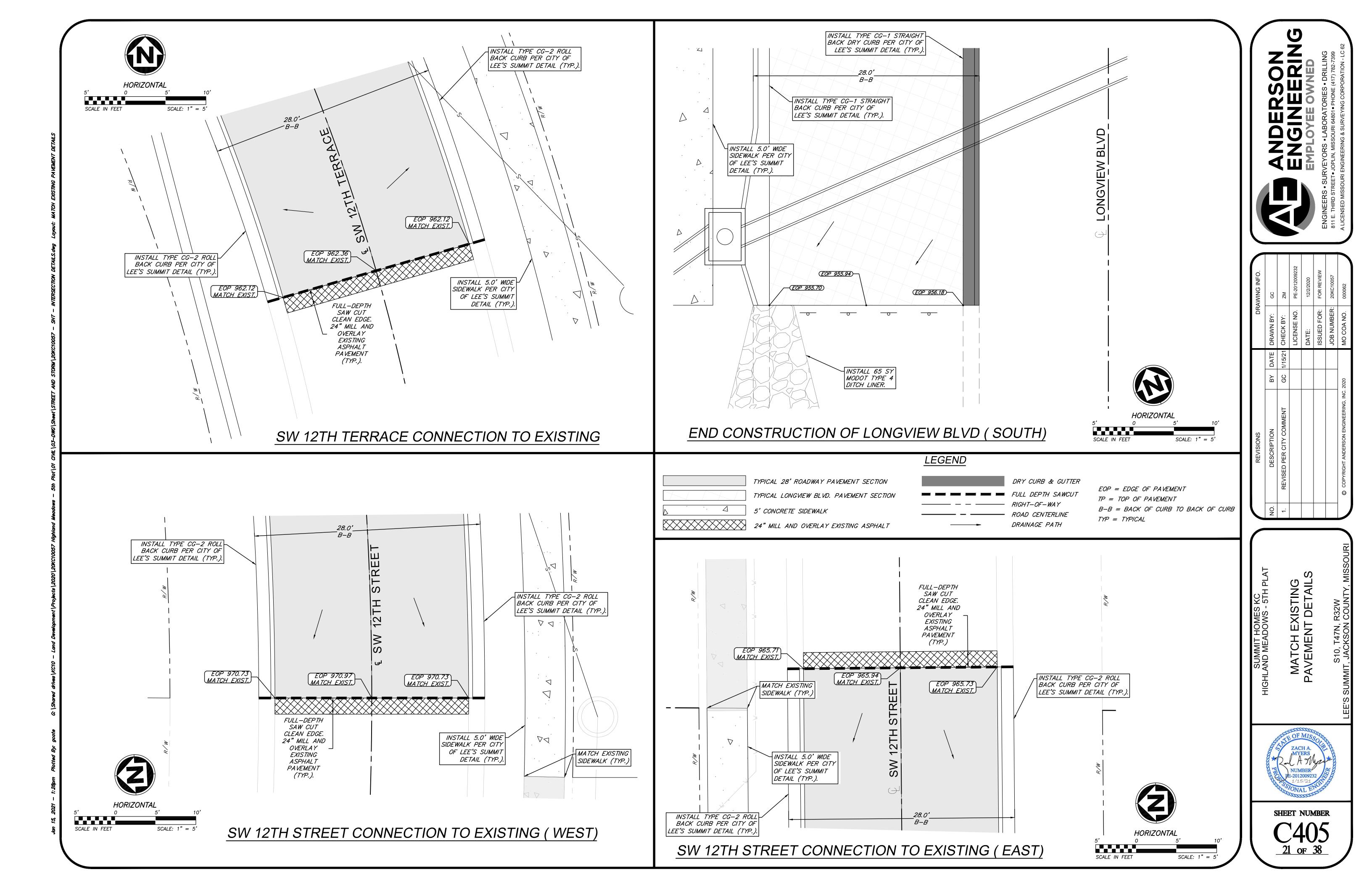


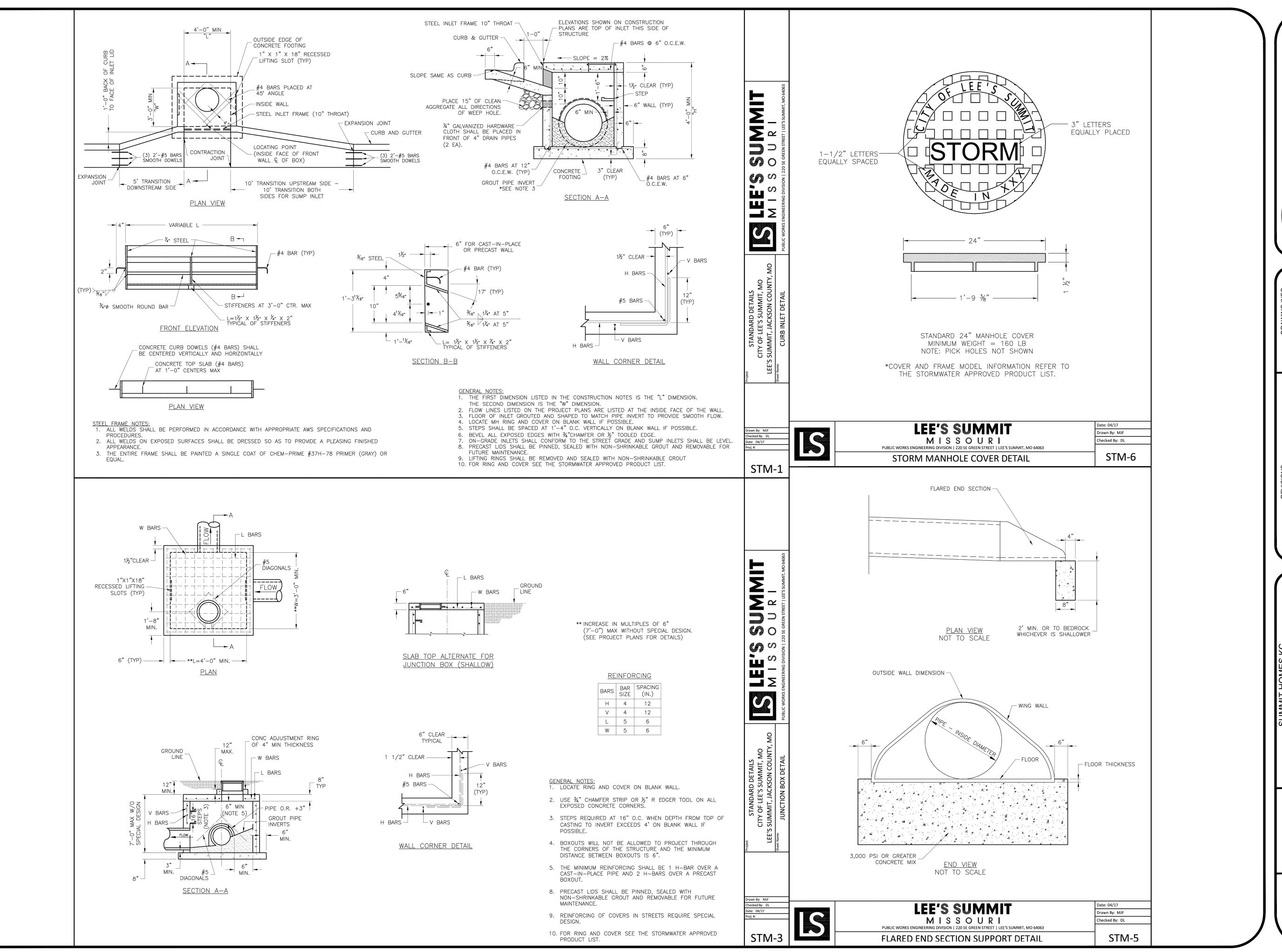
SHEET NUMBER

C403

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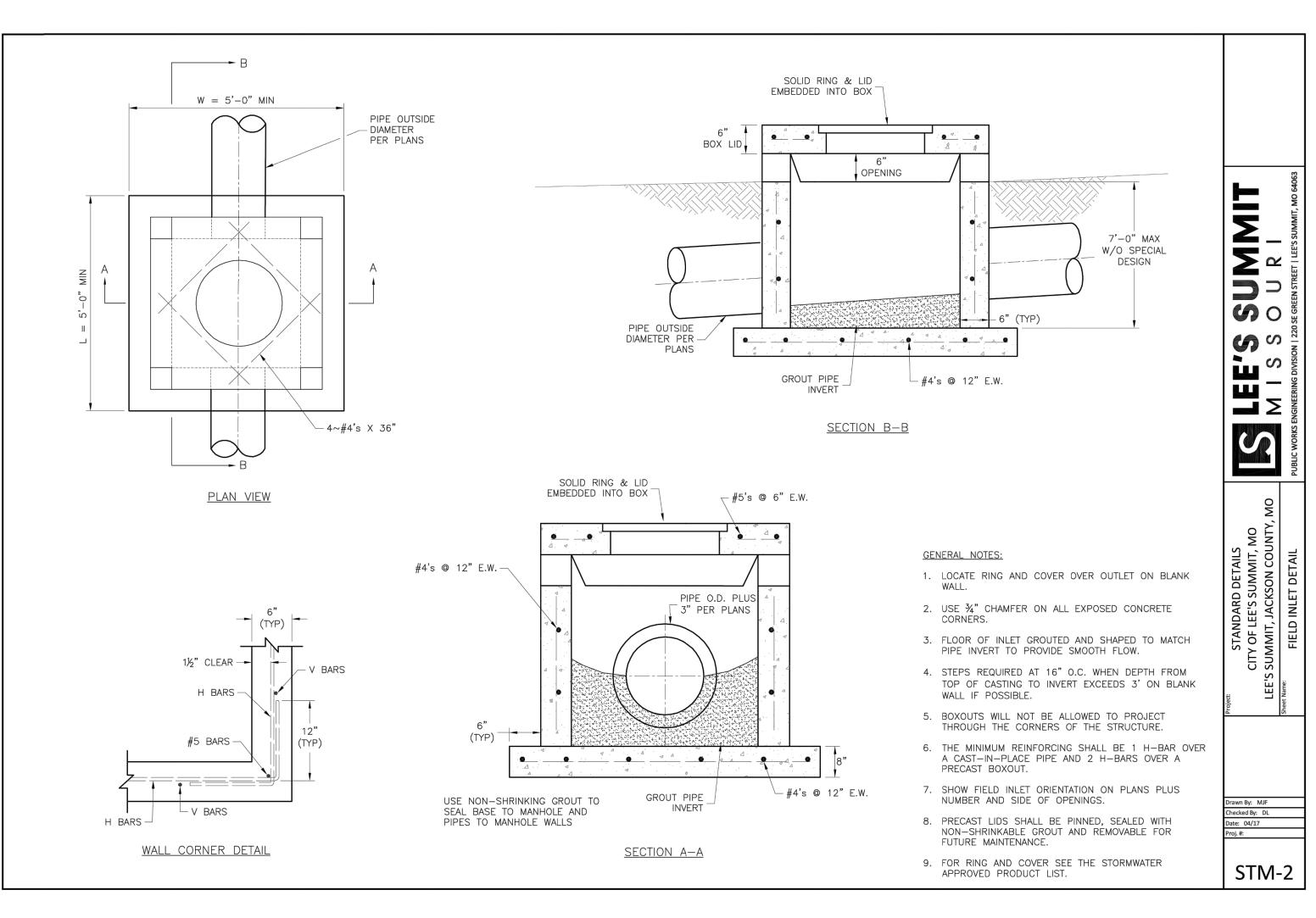


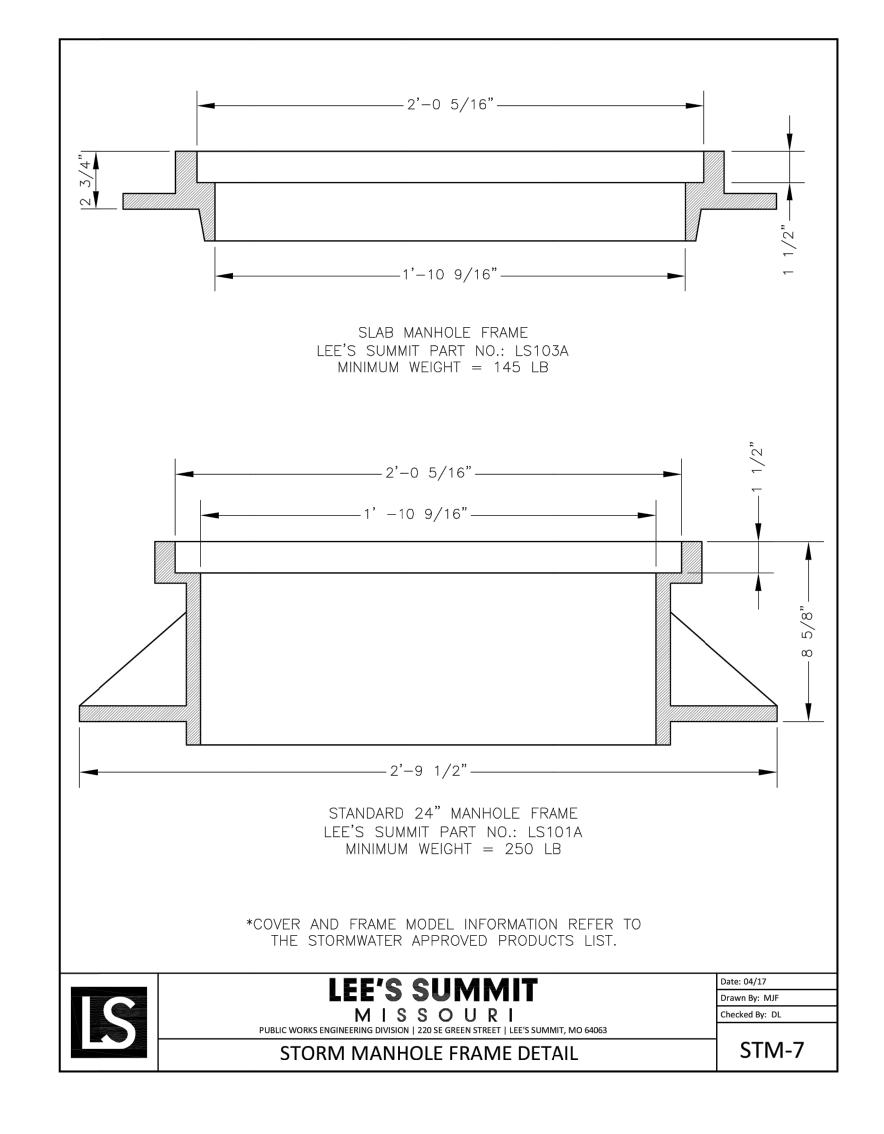
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SHEET NUMBER





RIP-RAP NOTES:

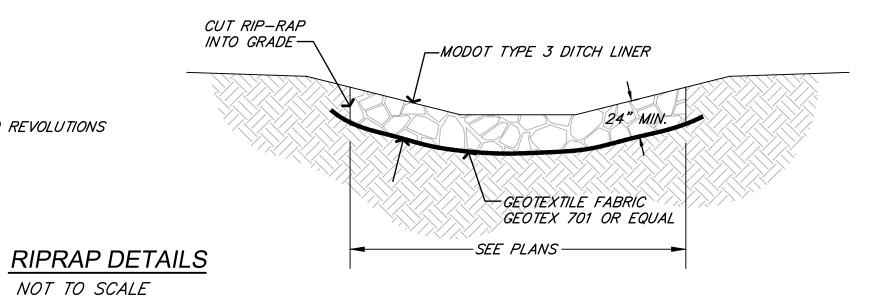
- ROCK TO BE USED FOR RIP-RAP SHALL CONSIST OF INDIVIDUAL ROCK FRAGMENTS THAT ARE DENSE, SOUND, AND RESISTANT TO ABRASION. THE ROCK SHALL BE FREE OF CRACKS, SEAMS, AND OTHER DEFECTS THAT WOULD TEND TO INCREASE THE DESTRUCTION OF THE INDIVIDUAL ROCK FRAGMENTS DUE TO WATER AND FRONT ACTION. REFER APWA SECTION 2600.
- 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 = 12") AND CONFORM TO THE TABLE BELOW:

PERCENT LIGHTER	WEIGHT.
100	700
<i>85–95</i>	<i>525</i>
<i>30–50</i>	<i>175</i>
<i>0</i> –15	<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.

RIP-RAP REQUIREMENTS:

- 1. SPECIFIC GRAVITY: (BULK SATURATED SURFACE DRY) METHOD: AASHTO T85 OR EQUILALENT REQUIREMENT: GREATER THAN 2.45
- 2. ABRASION: (L.A. ABRASION)
- METHOD: AASHTO T96 OR EQUILALENT REQUIREMENT: LESS THAN 40% LOSS OF WATER AFTER 500 REVOLUTIONS
- 3. FREEZING AND THAWING: METHOD: AASHTO T103 REQUIREMENT: LESS THAN 15% LOSS AFTER 12 CYCLES



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

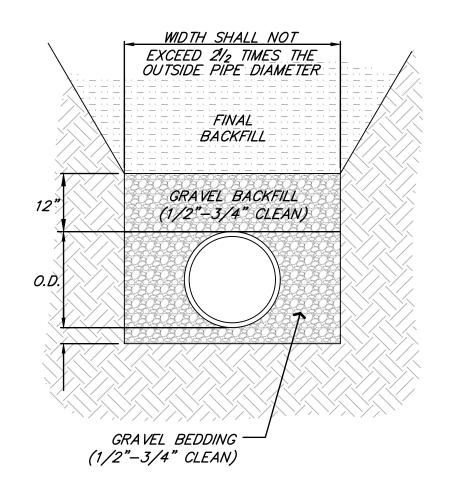
INITIAL BACKFILL -UNDER PAVED AREAS OR WITHIN 4' HORIZONTAL OF PAVED AREAS 1/2"-3/4" CLEAN AGGREGATE, HAND TAMPED OR MECHANICALLY COMPACTED IN MAX. 4" LIFTS -UNDER OPEN AREAS

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

FINAL BACKFILL -UNDER PAVED AREAS OR WITHIN 4' HORIZONTAL OF PAVED AREAS ON-SITE OR IMPORTED MATERIAL FREE OF MUCK, FROZEN MATERIAL, EXCESS MOISTURE, ORGANICS, TOPSOIL, RUBBISH, CONSTRUCTION DEBRIS, ROCK OR BRICK LARGER THAN 8", COMPACTED TO 95% OF STANDARD DENSITY PER ASTM D-698 -UNDER OPEN AREAS

ON-SITE OR IMPORTED MATERIAL FREE OF MUCK, FROZEN MATERIAL, EXCESS MOISTURE, ORGANICS, TOPSOIL, RUBBISH, CONSTRUCTION DEBRIS, ROCK OR BRICK LARGER THAN 8", COMPACTED TO 90% OF STANDARD DENSITY PER ASTM D-698

BEDDING DEPTH	BELOW PI	PE
PIPE DIAMETER	IN SOIL	IN ROCK
24" AND LESS	4"	6"
27" THRU 60"	4"	9"

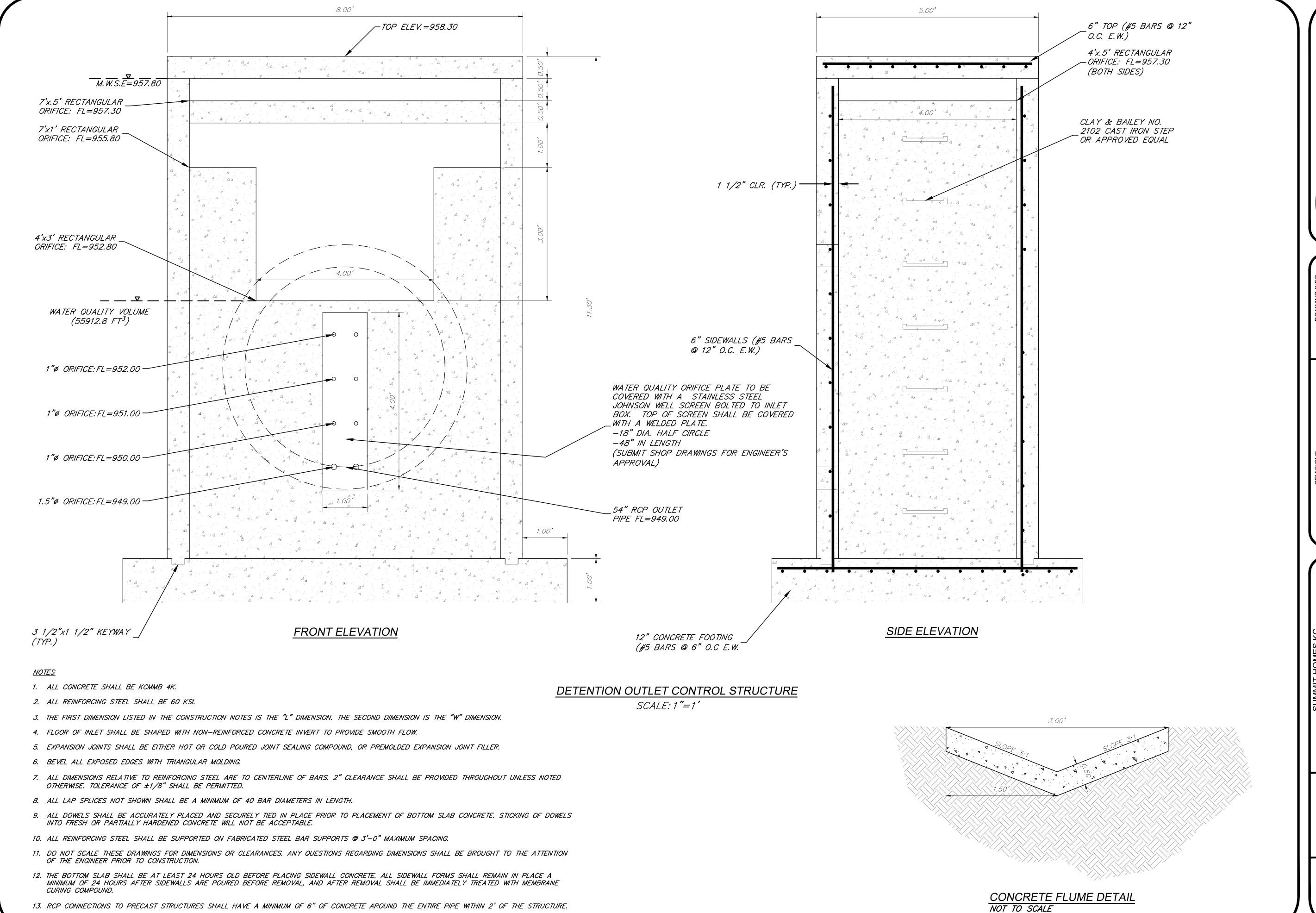


PIPE BEDDING DETAIL

NOT TO SCALE

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20KC100	JOB NUMBER: 20KC100				
FOR RE	ISSUED FOR:				
12/2/202	DATE:				
PE-20120	LICENSE NO.				
ZM	GC 1/15/21 CHECK BY:	1/15/21	CC	REVISED PER CITY COMMENT	1.
GC	BY DATE DRAWN BY:	DATE	ЬĄ	DESCRIPTION	NO.
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SHEET NUMBER



ANDERSON
ENGINEERING
S.SURVEYORS . LABORATORIES . DRILLING

ENGINEERS - SURVEYORS

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-	REVISED PER CITY COMMENT	29	1/15/21	GC 1/15/21 CHECK BY:	ZM
				LICENSE NO.	PE-20120092
				DATE:	12/2/2020
				ISSUED FOR:	FOR REVIEV
				JOB NUMBER: 20KC10057	20KC10057
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STORM SEWER DETAILS (3)

ZACH A.

MYERS

NUMBER

1/15/21

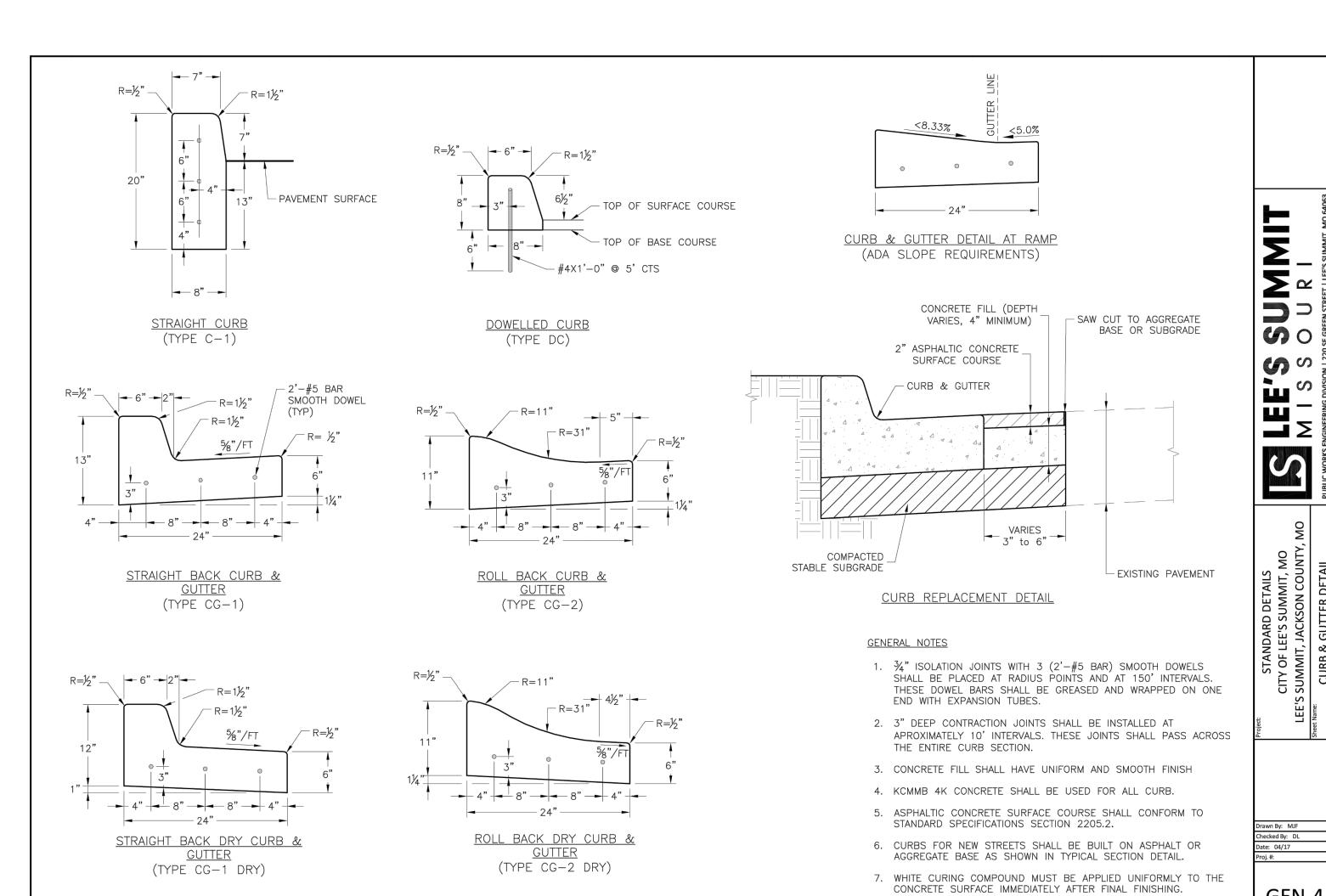
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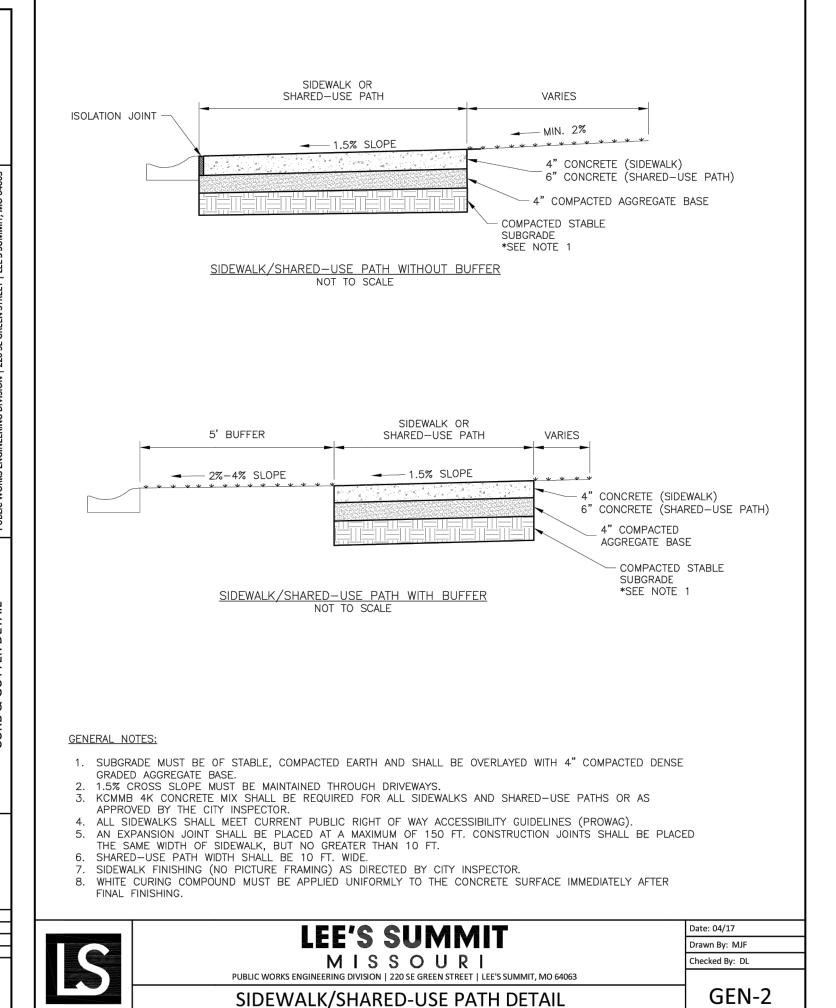
NONAL ENGINEER

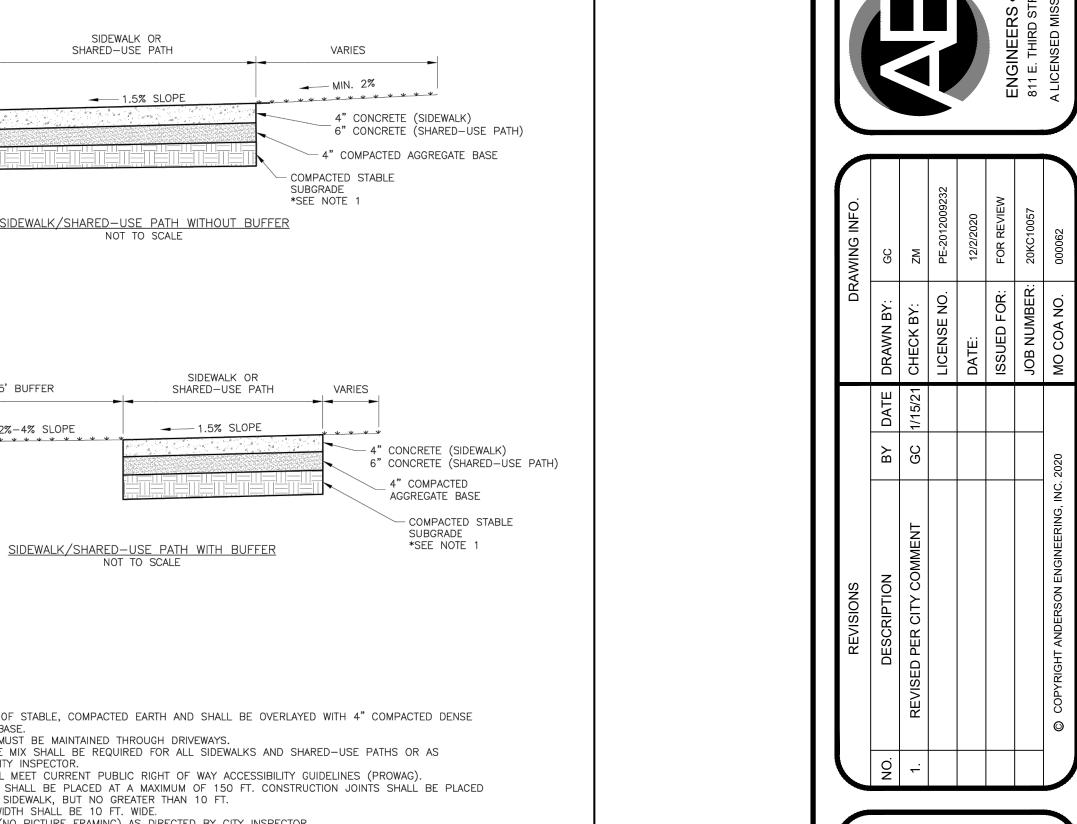
NUMBER

C408

24 of 38

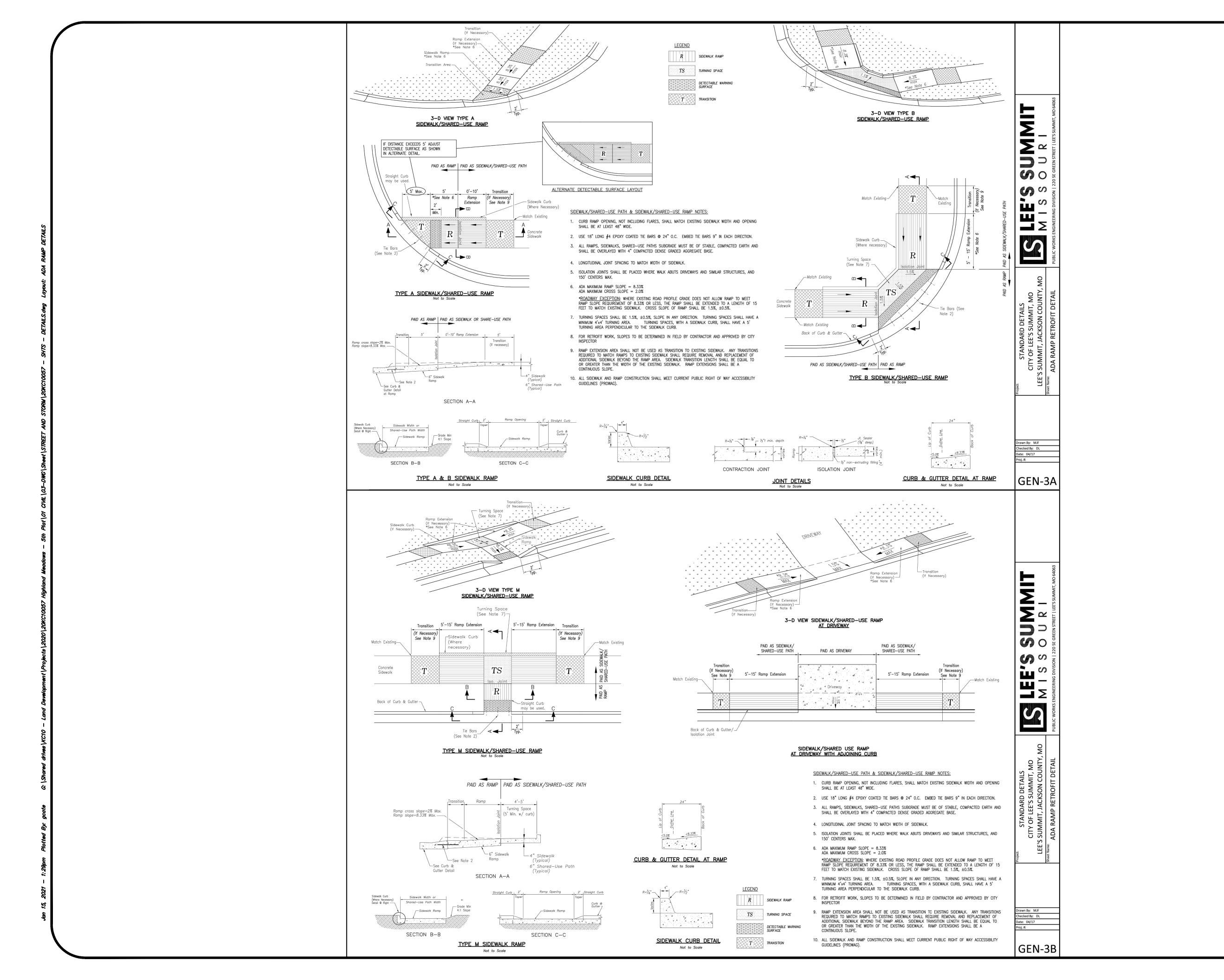






SIDEWAL ∞

SHEET NUMBER



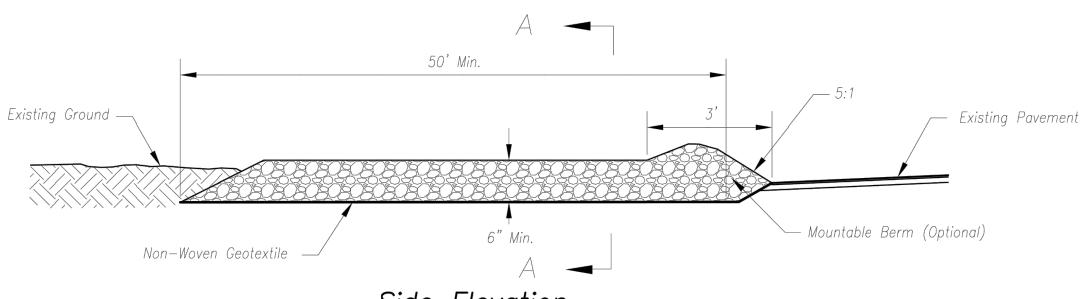


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				LICENSE NO.	PE-2012009232
				DATE:	12/2/2020
				ISSUED FOR:	FOR REVIEW
				JOB NUMBER:	20KC10057
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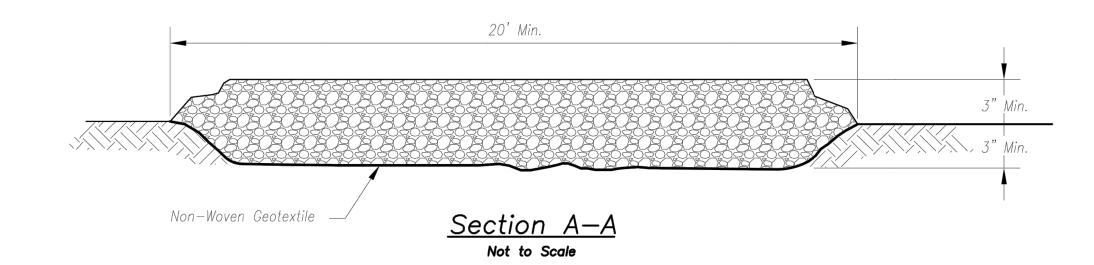
S10,

SHEET NUMBER

Plan View



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.

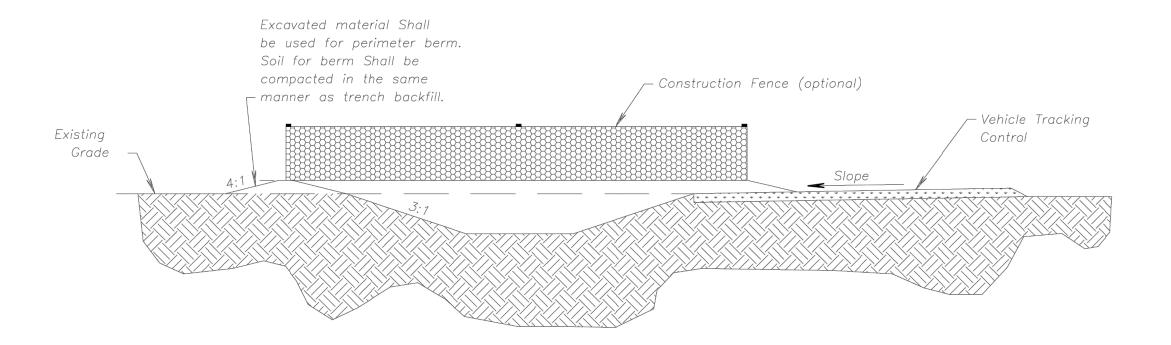
CONSTRUCTION ENTRANCE

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.
- 3. Vehicle tracking control is required at the access point to all concrete washout areas.
- 4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
- 5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

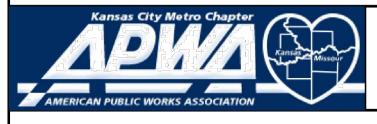
Maintenance for Concrete Washout:

- 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.
- 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

ANDERSOP ENGINEERI EMPLOYEE OWNED

SC 1/15/21 CHECK BY: GC

LICENSE NO. PE-2012009232

DATE: 12/2/2020
ISSUED FOR: FOR REVIEW

NO COA NO. 000062

A LICENSE OCCURS

A LICENSE

NO. DESCRIPTION BY DATE DRAWN BY

1. REVISED PER CITY COMMENT GC 1/15/21 CHECK BY

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CONSTRUCTION NTRANCE DETAILS

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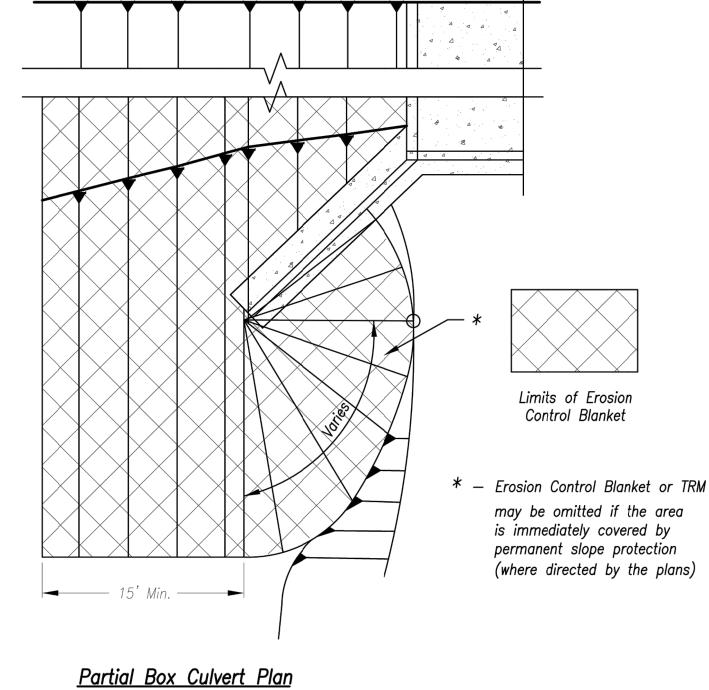
SHEET NUMBER

C411

27 OF 38

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.



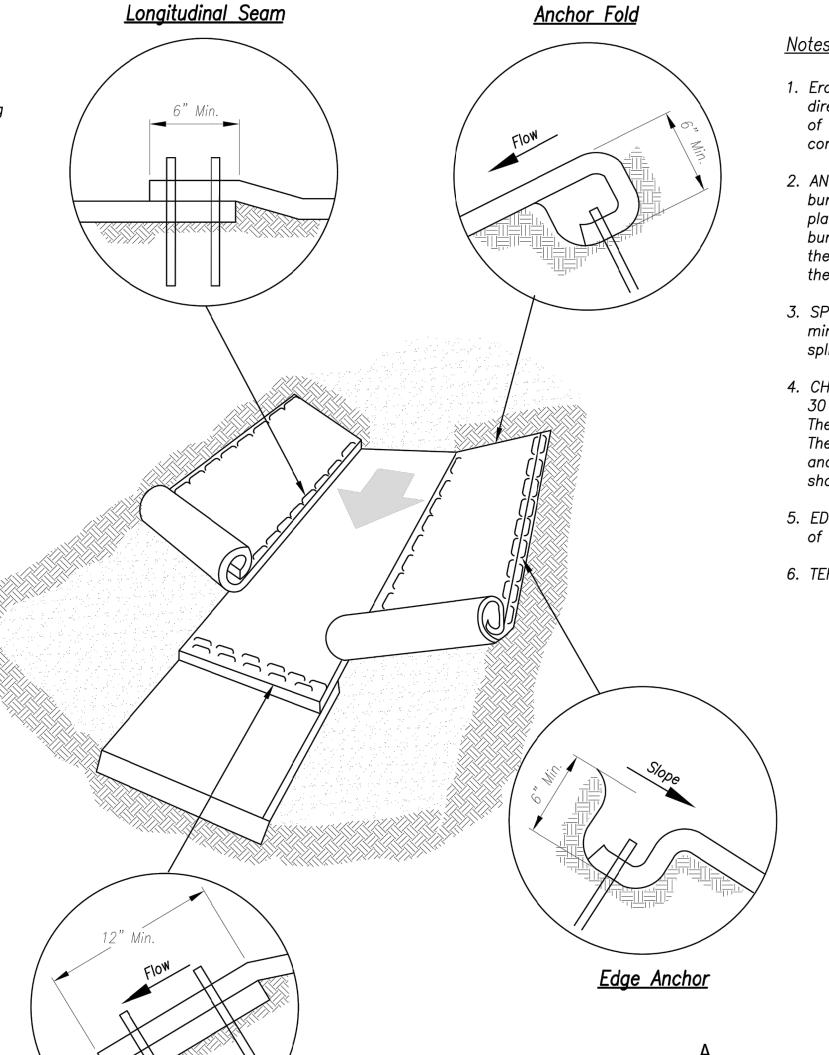


Not to Scale

<u>Installation Around Culvert Slope</u>

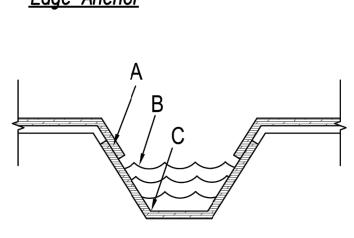
Notes for Installation on Slopes:

- 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.



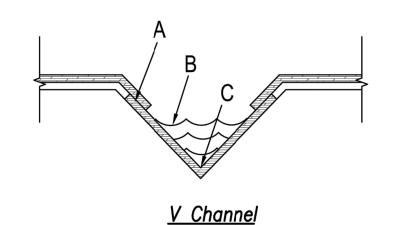
Trapezoidal Channel

Critical Points:

A – Overlaps and seams;

B - Projected water line;

C — Channel bottom / side slope vertices;



<u>Installation in Channels</u>

Splice Seam

AMERICAN PUBLIC WORKS ASSOCIATION



KANSAS CITY METRO CHAPTER

EROSION CONTROL BLANKETS AND TURF REINFORMENT MATS ADOPTED:

NUMBER ESC-02

STANDARD DRAWING 10/24/2016

STEEP SLOPE ROTECTION DETAI



SHEET NUMBER 28 of 38

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

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"

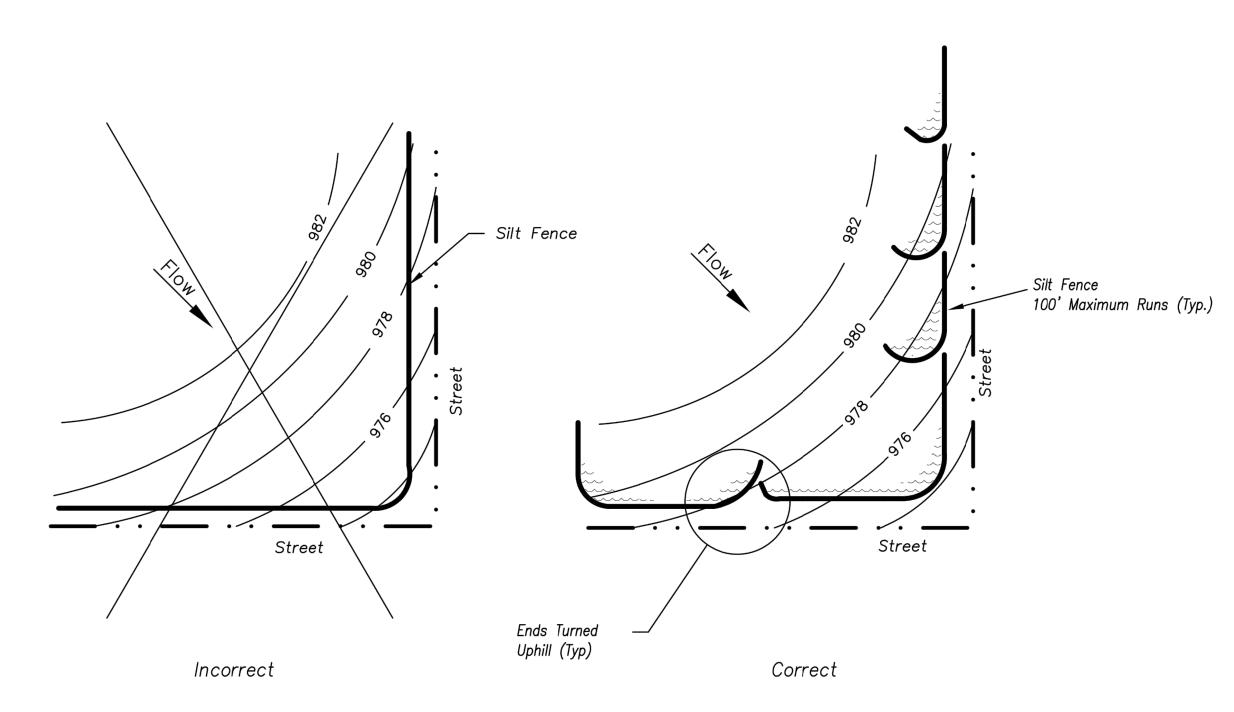
- NO.2 SOUTHERN PINE 2 %" x 2 %"

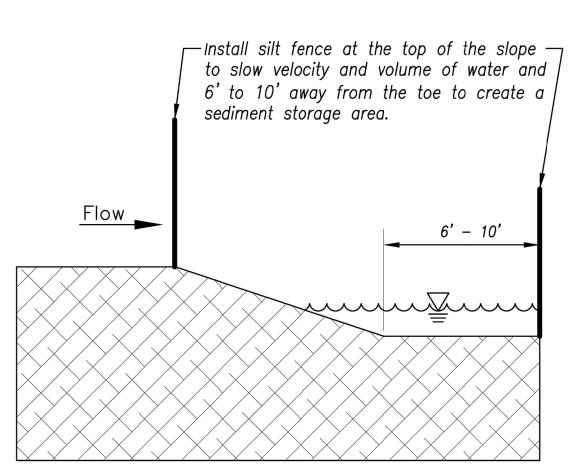
- STEEL 1.33 LB/FT

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

SILT FENCE DETAILS

Not to Scale





<u>Figure A</u>

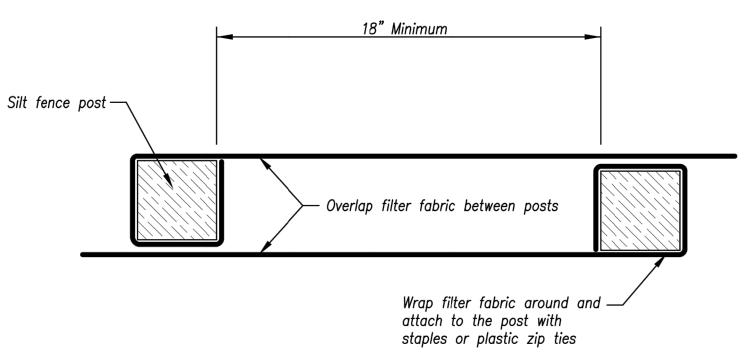
SILT FENCE LAYOUT Not to Scale

<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

AMERICAN PUBLIC WORKS ASSOCIATION



KANSAS CITY METRO CHAPTER

SILT FENCE

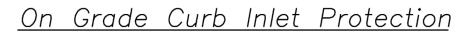
STANDARD DRAWING NUMBER ESC-03 ADOPTED: 10/24/2016

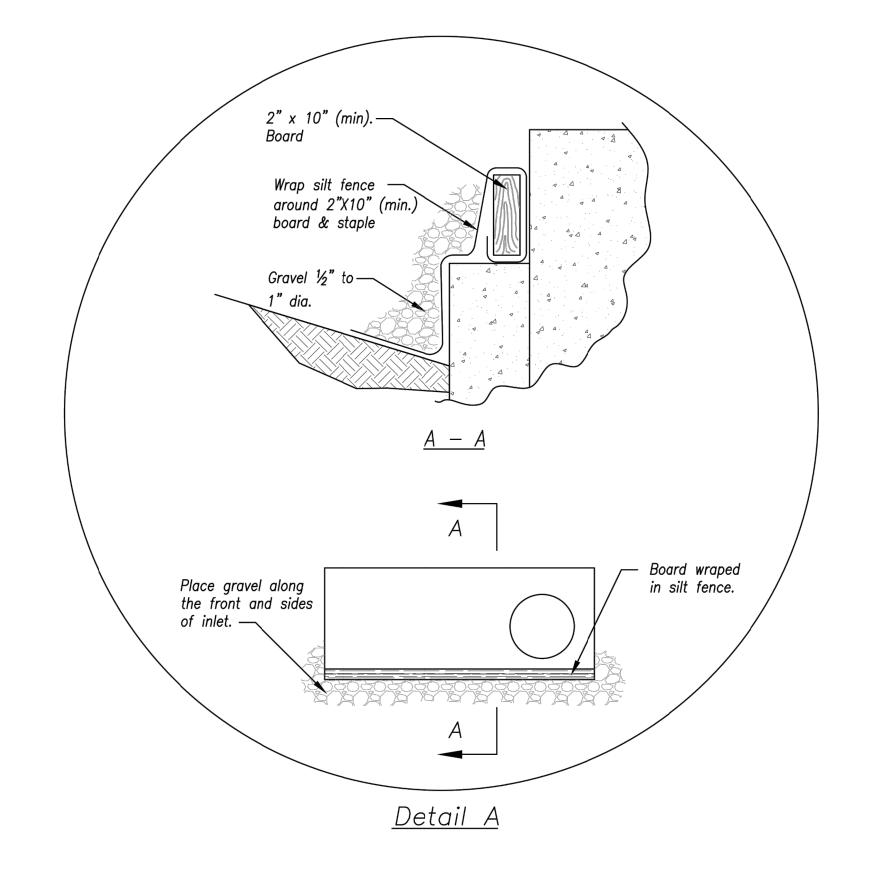
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ON	DESCRIPTION	ВУ	DATE	BY DATE DRAWN BY:	29
1.	REVISED PER CITY COMMENT	CC	1/15/21	GC 1/15/21 CHECK BY:	ZM
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DET, FENCE

SHEET NUMBER 29 of 38

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





See Detail A below

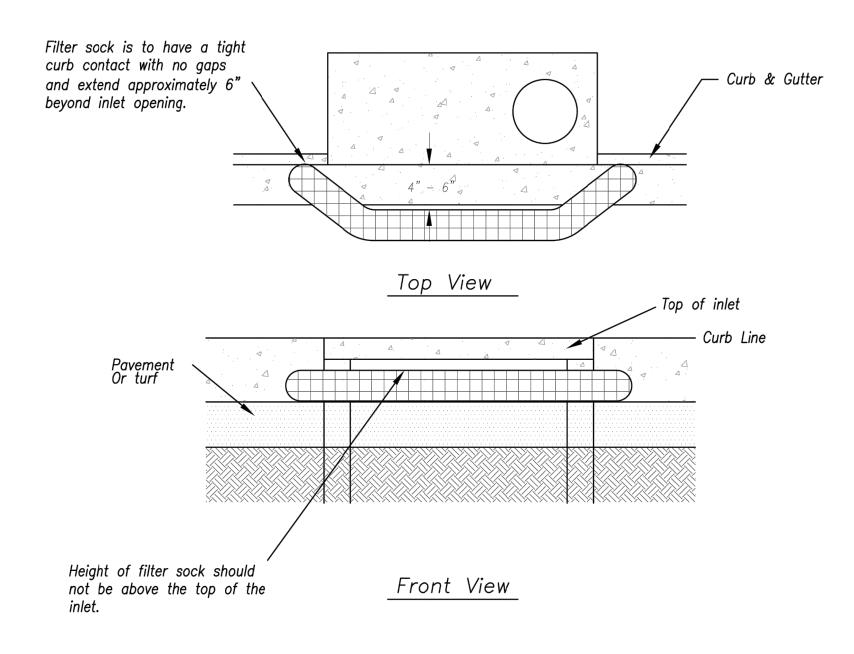
EARLY STAGE CURB INLET (Open Box and Prior to Pouring Curb and Inlet Throat)

<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).
- 2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
- 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.
- 3. Repair or replace as necessary to maintain function and integrity of installation.



Sump Inlet Sediment Filter

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

AMERICAN PUBLIC WORKS ASSOCIATION



KANSAS CITY METRO CHAPTER

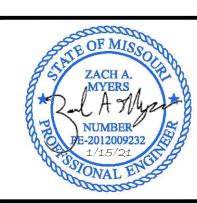
CURB INLET PROTECTION

STANDARD DRAWING NUMBER ESC-06 10/24/2016

ADOPTED:

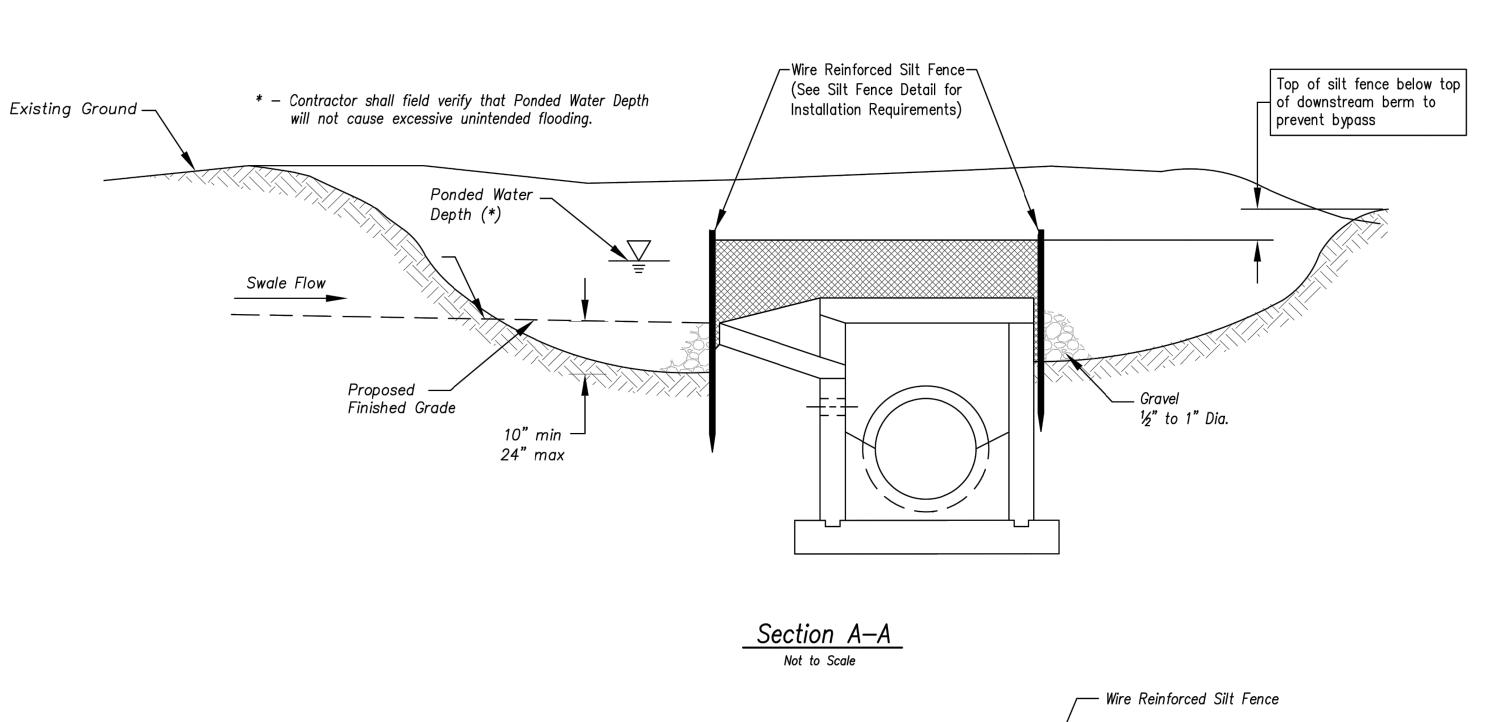
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				LICENSE NO.	PE-20120092
				DATE:	12/2/2020
				ISSUED FOR:	FOR REVIEW
				JOB NUMBER:	20KC10057
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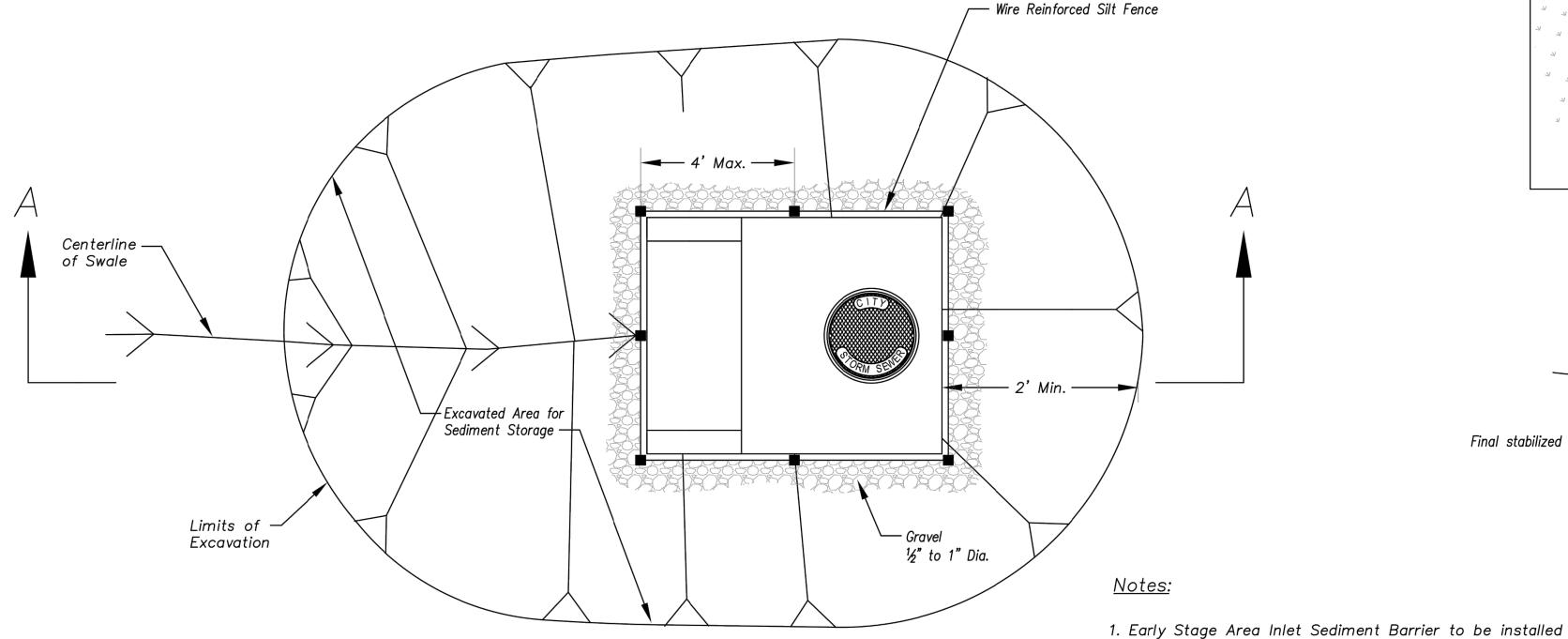
CURB INLET PROTECTION DET,



SHEET NUMBER 30 of 38

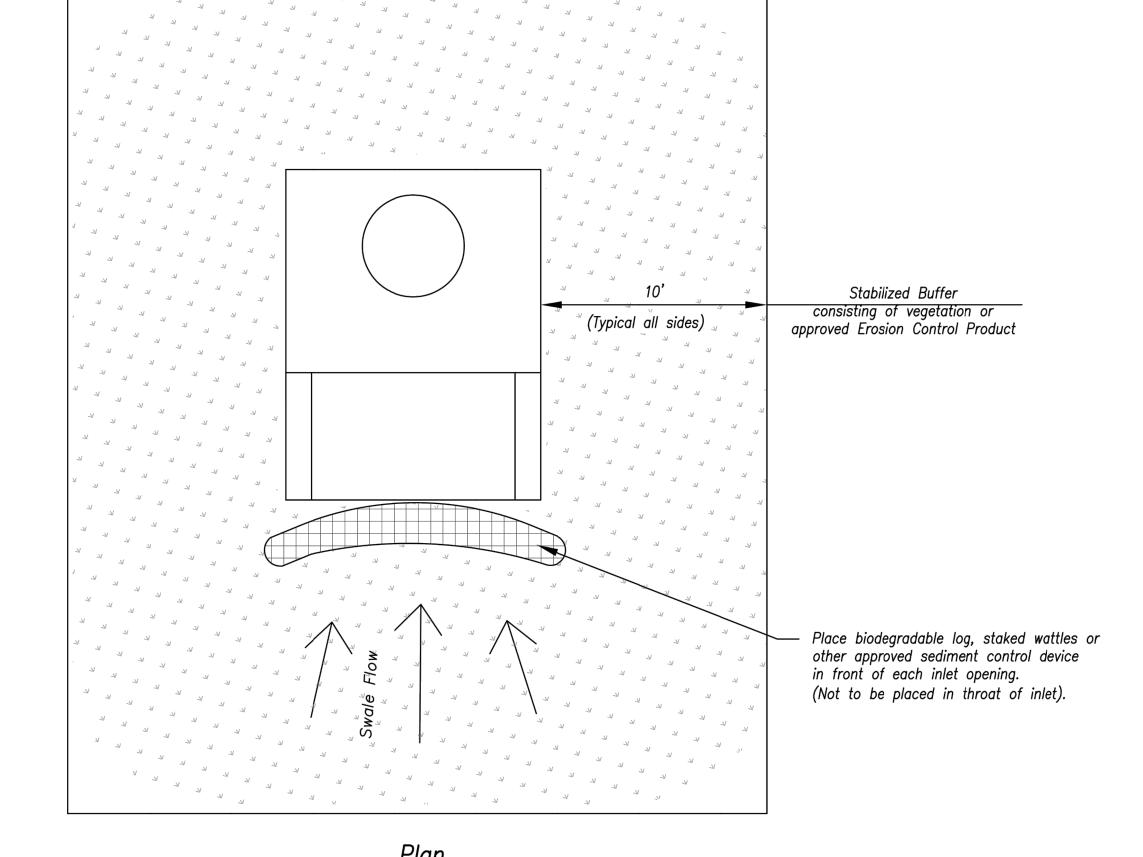
Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.





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

Not to Scale



Final stabilized grade Front View

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

SHEET NUMBER

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

immediately after inlet or junction box is

2. Silt fence shall remain in place until excavated area

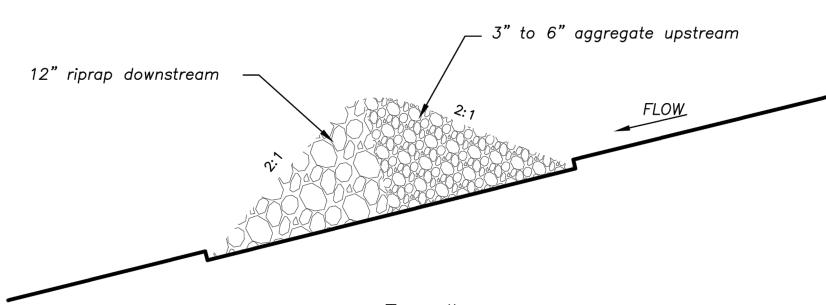
3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to

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

immediately follow.

is removed and Late Stage Area Inlet is being installed.

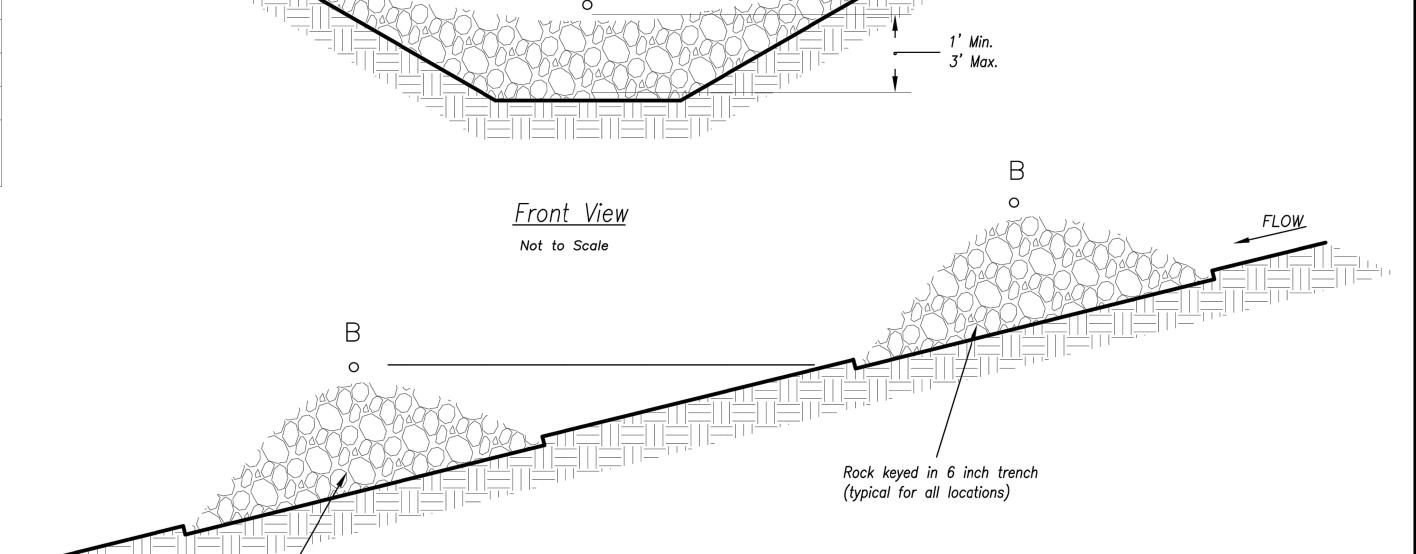
<u>Type</u> I (2 Acres or less of Drainage Area) Not to Scale



<u>Type I</u>I (2-10 Acres of Drainage Area) Not to Scale

ROCK DITCH CHECK

<u>Temporary Roc</u>	<u>ck Ditch Check</u>
<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	9



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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DESCRIPTION	ВУ	DATE	DATE DRAWN BY:	GC
REVISED PER CITY COMMENT	CC	1/15/21	GC 1/15/21 CHECK BY:	ZM
			LICENSE NO.	PE-2012009232
			DATE:	12/2/2020
			ISSUED FOR:	FOR REVIEW
			JOB NUMBER:	20KC10057
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CHECKS ROCK DITCH

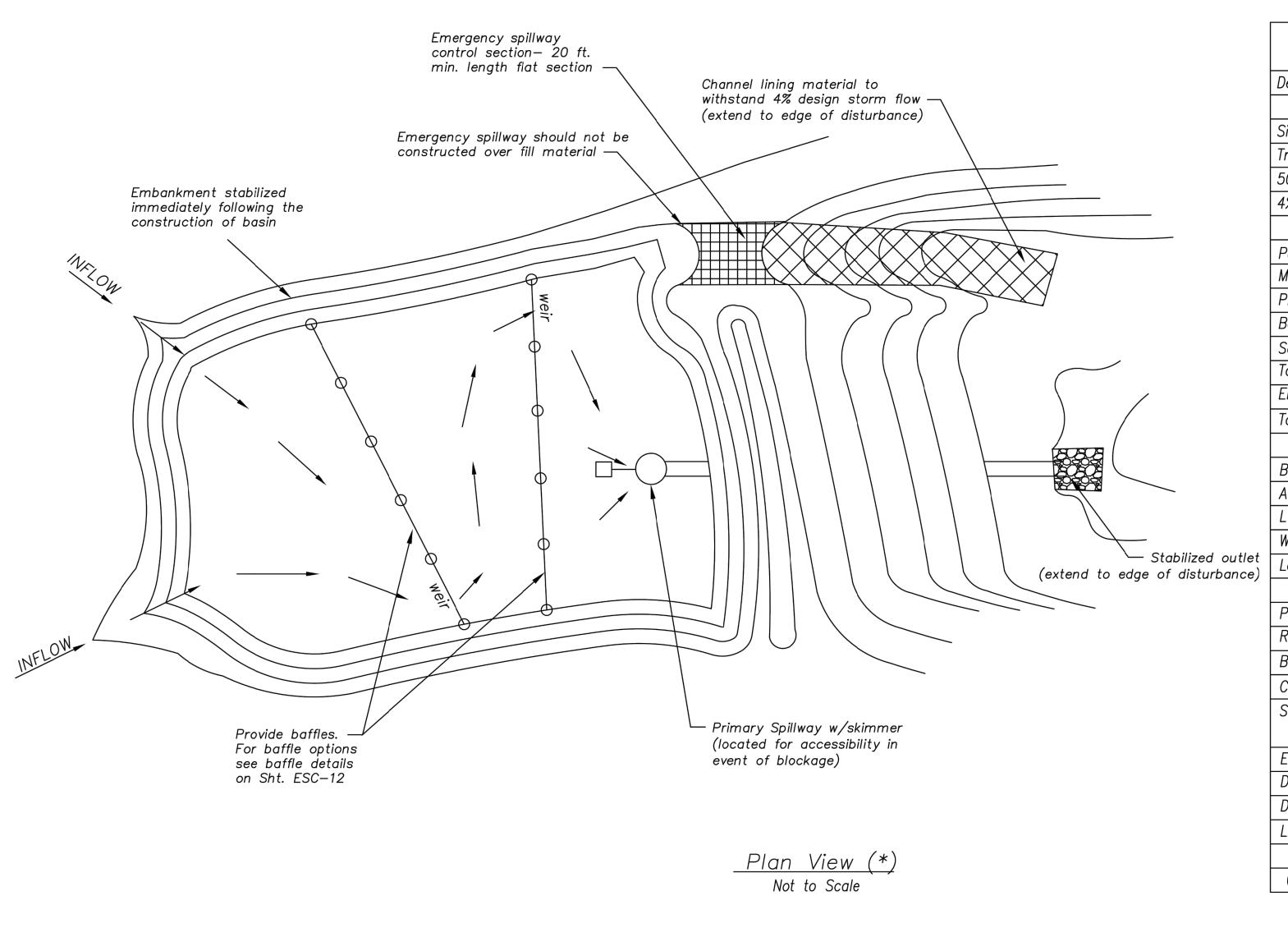
SHEET NUMBER 32 of 38

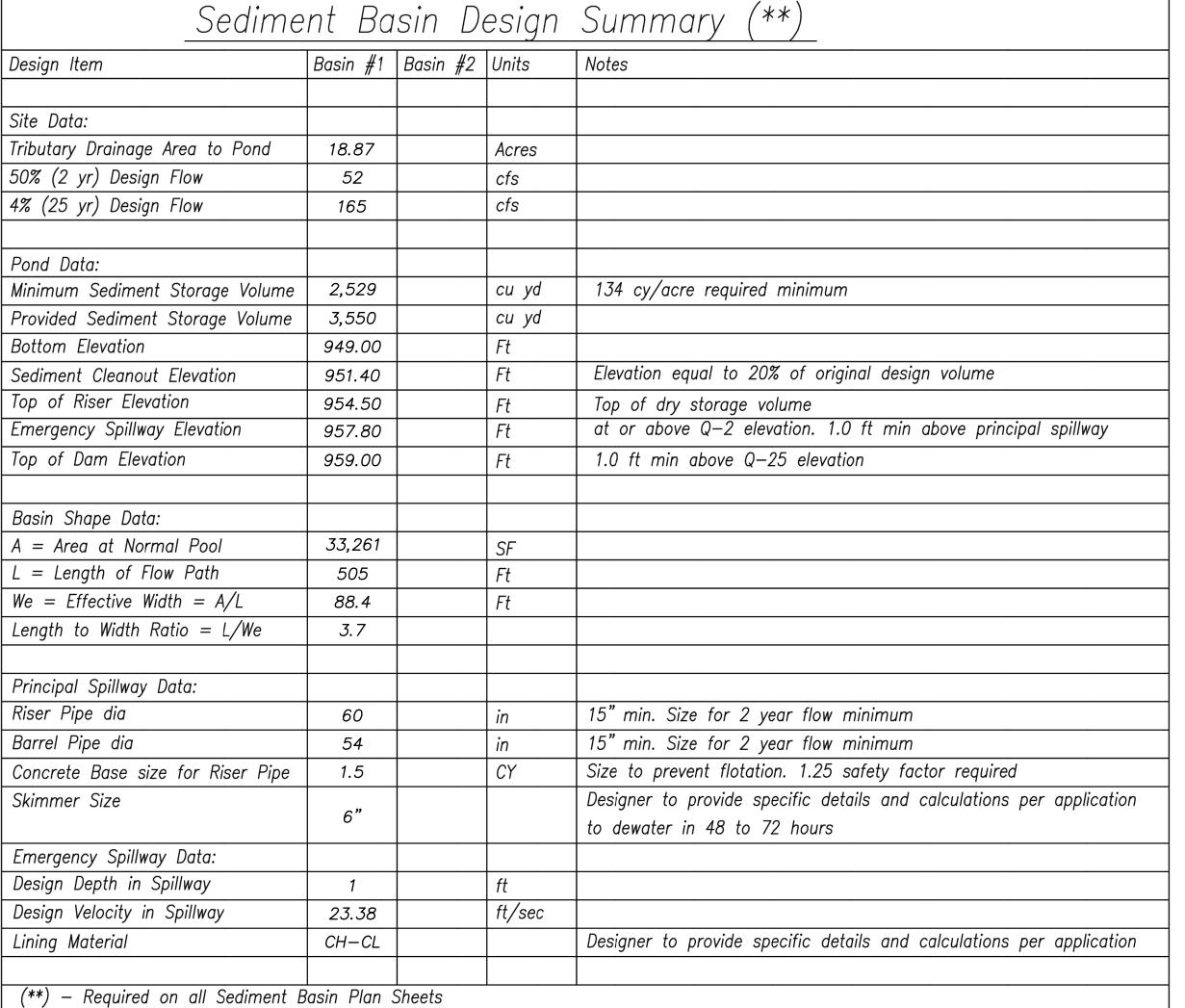
Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

Place downstream structure such that

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

structure





Sediment Basin Notes:

— Min. Elevation of Emergency spillway.

(Spillway designed to pass 4% storm)

- 1. Interior baffles shall be provided to reduce short—circuiting of the basin. See Sht. ESC—12 for approved baffle options.
- 2. Emergency spillways to be located in a non-fill location when feasible and shall be lined with a non-erodible material such as Riprap or Turf Reinforcement Mat.
- 3. When directed, sediment basins shall be fenced using construction fence or other material for safety reasons and include warning signs, reading: "Danger — KEEP OUT".
- 1. Check temporary sediment basins after periods of significant runoff.
- 2. Remove sediment and restore the basin to its original dimensions when sediment accumulates to 20% of the storage capacity.
- 3. Immediately repair any erosion damage to the embankment and outlets.
- 4. Repair and/or replace baffles as necessary to maintain function and integrity of installation.
- 5. Keep outlet, skimmer and pool area free of all trash and other debris.

Modified from 2015 Overland Park Standard Details

for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION KANSAS CITY



SEDIMENT BASIN

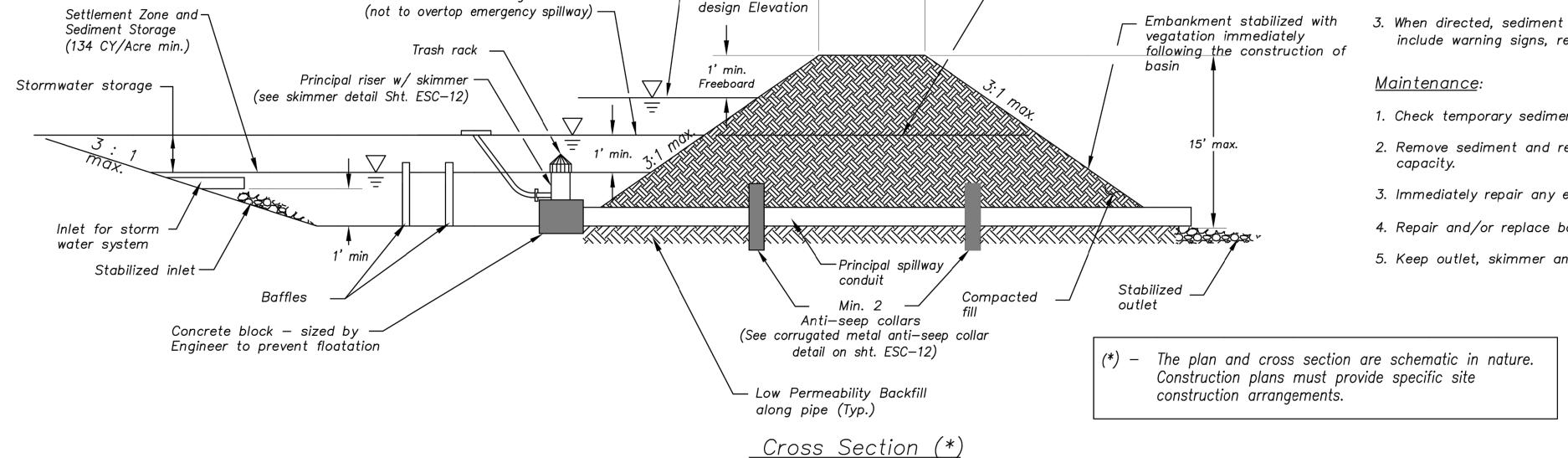
METRO CHAPTER

NUMBER ESC-II ADOPTED: 10/24/2016

STANDARD DRAWING

SIN SEDIMENT

SHEET NUMBER 33 of 38



— 4% storm

50% storm design Elevation

→ 8' min. → →

Not to Scale

PRINCIPAL SPILLWAY DETAIL

Use rods and lugs to clamp bands securely

-Saturated zone

Concrete Ballast

Collar to be same gauge as

the pipe with which it is

 $-\frac{1}{2}$ " x 2" slotted holes

-Slotted Holes

at 8" C.C.

for 3/4" diameter bolts

Install collar with

Rod and Lug

corrugations vertical

Continuous —

Band

∠Continuous

В ◀┛

Weld 1 1/6" x 1 1/8" angles to collar

or bend 90° angle 1 1/6" wide as shown

Sheet metal collar shall be cut to

fit corrugations of helical band and

welded with continuous weld

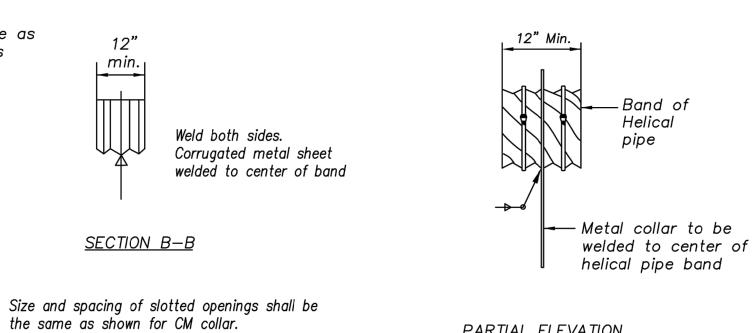
Weld

ISOMETRIC VIEW

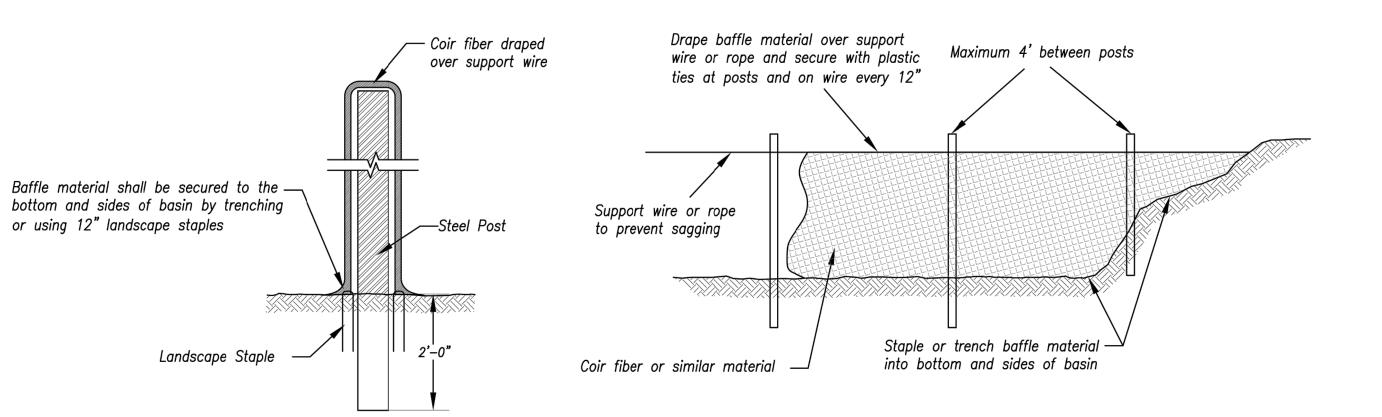
SKIMMER DETAIL (Typ.) *

to outlet pipe or riser

* Designer to provide specific details per application (e.g. pipe sizes, screen sizes, perforation, etc.) as required.



PARTIAL ELEVATION



<u> Option B - Coir Fiber Material</u>

- 1. Connections between the anti-seepage collar
- 2. P = projection distance. Sized as required to achieve at least a 10% increase in seepage
- 3. 14xP = Max. spacing between collars.
- 4. Collars shall generally be placed in the middle third of the embankment, and within the
- construction material specifications.
- collars shall be in accordance with construction material specifications.
- 7. Unassembled collars shall be marked by

- 8. The lap between the two half sections and between the pipe and connecting band shall be caulked with asphalt mastic at the time of
- 9. Each collar shall be furnished with two (2) ½" diameter rods with standard tank lugs for connecting the collars to the pipe.
- 10. For bands and collars, modification of the details shown may be used providing equal water tightness is maintained and detailed drawings are Submitted and approved by the Engineer prior to delivery.
- 11. Two other types of anti-seep collars are:
- a. Corrugated metal, similar to above, except shop welded to a 4 ft. section of the pipe and connected to the pipe with connecting bands.
- b. Concrete, 6 inches thick, formed around the pipe with #3 rebar spaced 15".

Modified from 2015 Overland Park Standard Details

for Erosion and Sediment Control.

BAFFLE DETAILS

Not to Scale



KANSAS CITY METRO CHAPTER

SEDIMENT BASIN - DETAILS

NUMBER ESC-12 ADOPTED:

SHEET NUMBER 34 of 38

BASIN

EDIMENT

S10, T47N, F. JACKSON

CORRUGATED METAL ANTI-SEEPAGE COLLAR DETAIL

ANTI-SEEPAGE COLLAR LOCATIONS

Not to Scale

Anti-Seepage Collar Notes:

and the barrel must be watertight.

saturated zone.

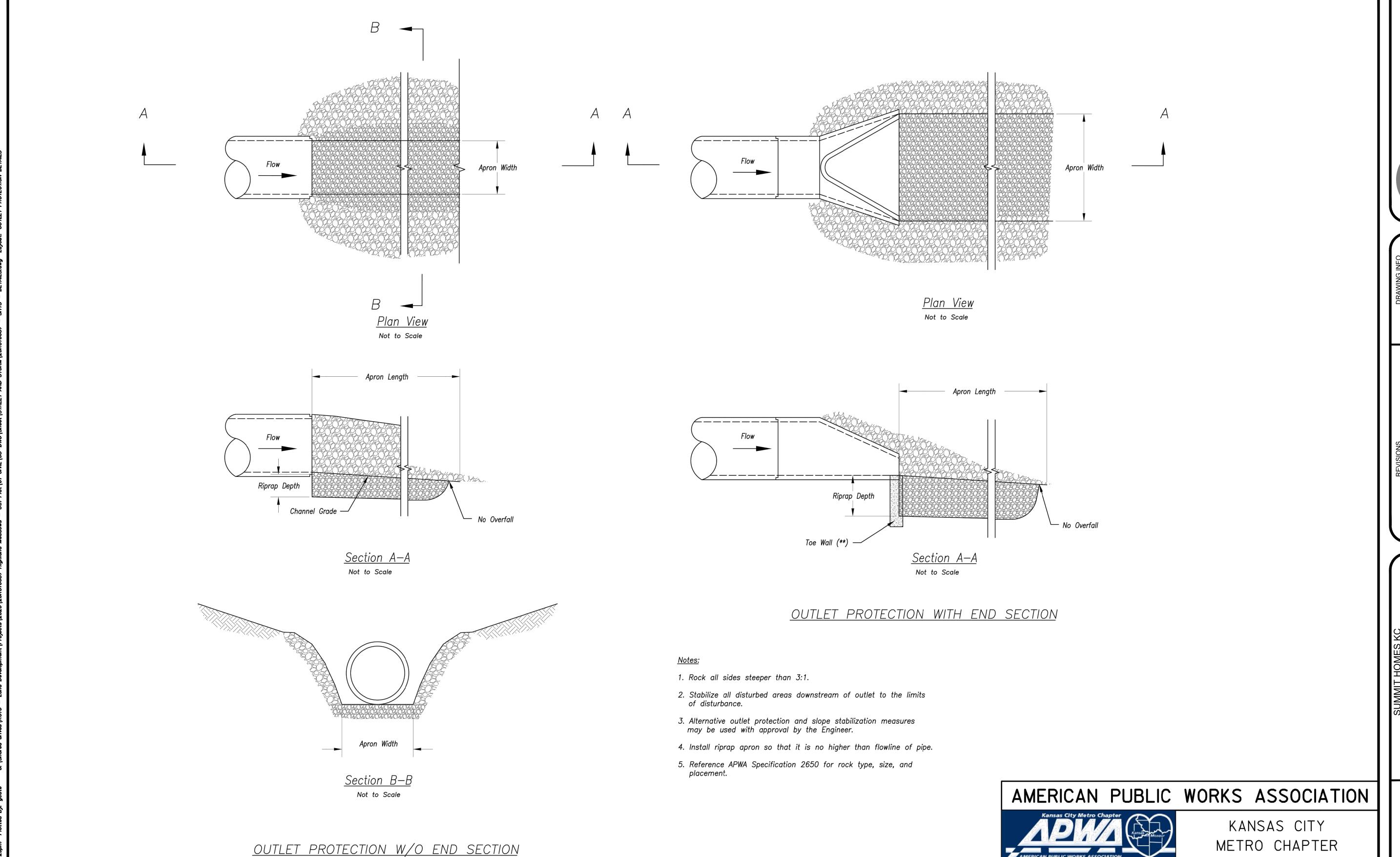
5. All materials to be in accordance with

6. When specified on the plans, coating of

painting or tagging to identify matching pairs.

AMERICAN PUBLIC WORKS ASSOCIATION

STANDARD DRAWING 10/24/2016





REVISIONS			/Na	DRAWING INFO.
DESCRIPTION	ВУ	DATE	DATE DRAWN BY:	29
/ISED PER CITY COMMENT	CC	1/15/21	GC 1/15/21 CHECK BY:	ZM
			LICENSE NO.	PE-2012009232
			DATE:	12/2/2020
			ISSUED FOR:	FOR REVIEW
			JOB NUMBER:	20KC10057
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DET **PROTECTION**

SHEET NUMBER <u>35 of 38</u>

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



METRO CHAPTER

OUTLET PROTECTION

STANDARD DRAWING NUMBER ESC-14 ADOPTED: 10/24/2016

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>

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

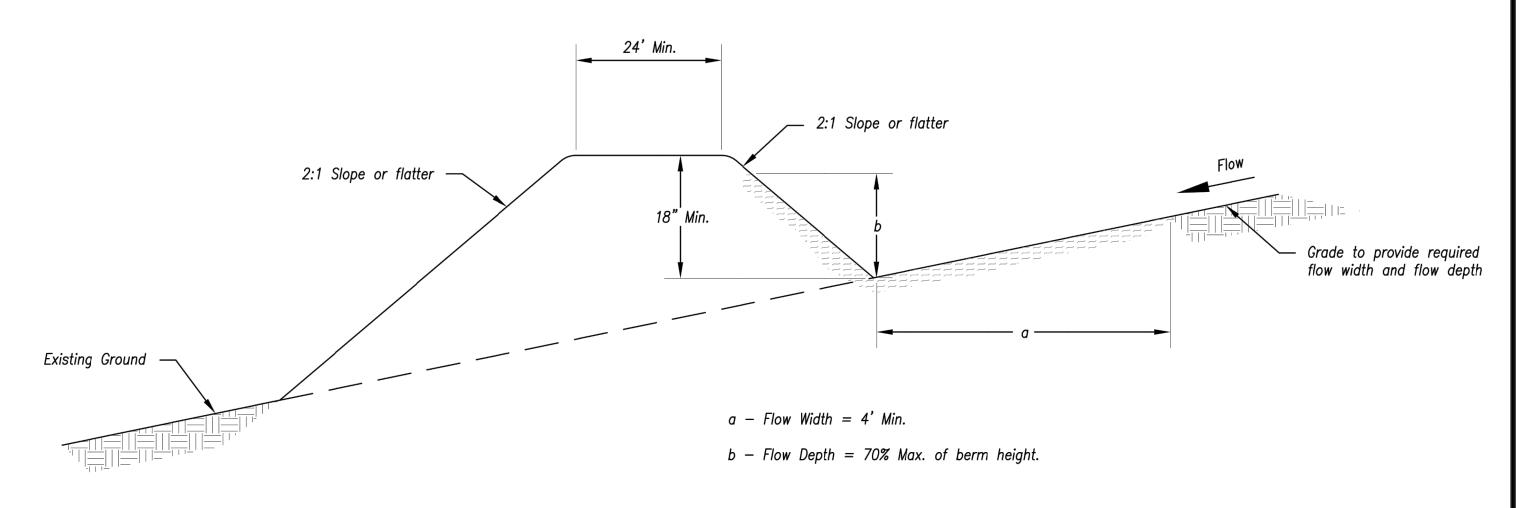
Notes for Slope Drain:

- Slope Drain and Diversion Berm may be used on either project foreslopes or project backslopes.
- 2. 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.

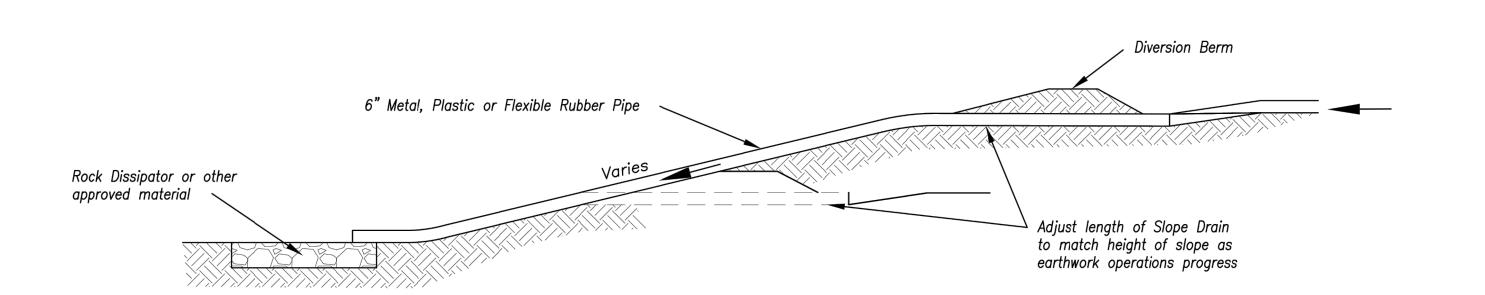
<u>Maintenance:</u>

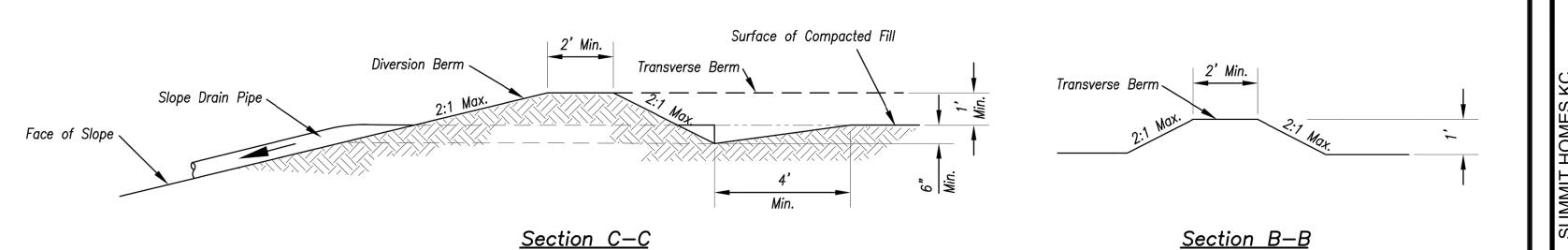
- Accumulation of any visible sediment at the inlet and outlet shall be removed promptly.
- Outlet conditions shall be repaired if scour is observed.
 Leaking or damaged section of pipe shall be repaired immediately.
- Barriers directing water to the inlet shall be monitored for continuity and effectiveness.

TYPICAL PROFILE OF DIVERSION BEAM Not to Scale



TYPICAL PROFILE OF DIVERSION BERM





TYPICAL PROFILE OF DIVERSION BERM WITH SLOPE DRAIN

AMERICAN PUBLIC WORKS ASSOCIATION



KANSAS CITY METRO CHAPTER

DIVERSION BERMS AND SLOPE DRAINS

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

ENDERKSOURIER SURVEYING SURVEYING & SURVEYING CORPORATION - LC

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PORARY DIVERSION BERM

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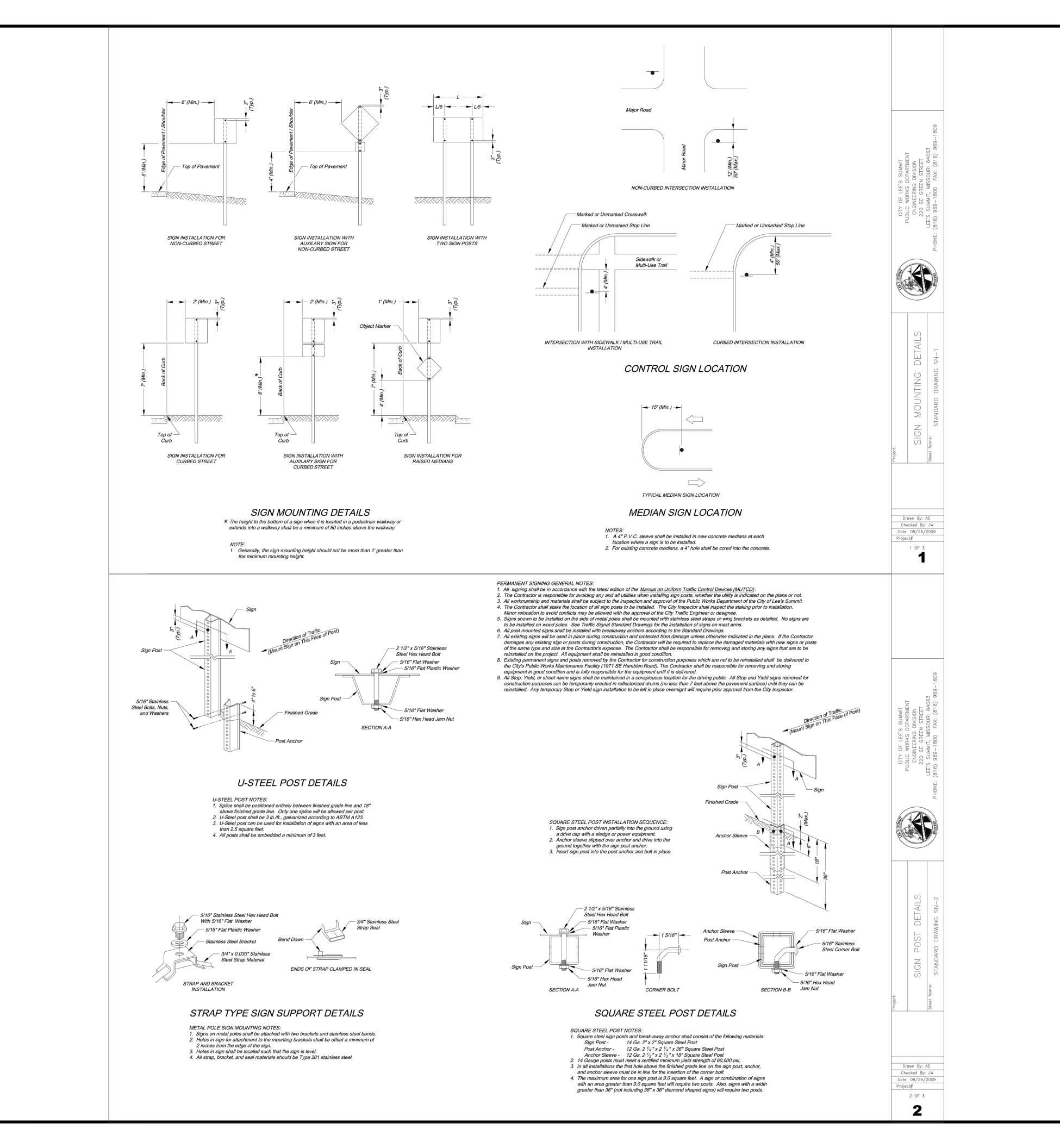
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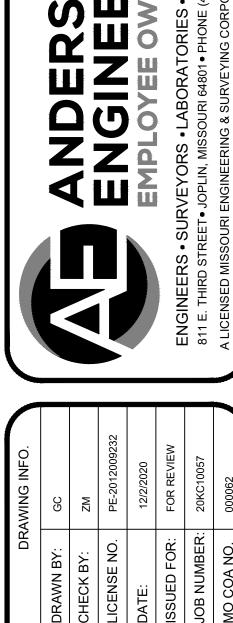
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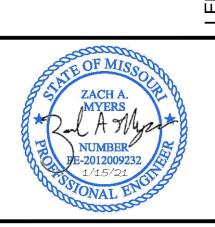




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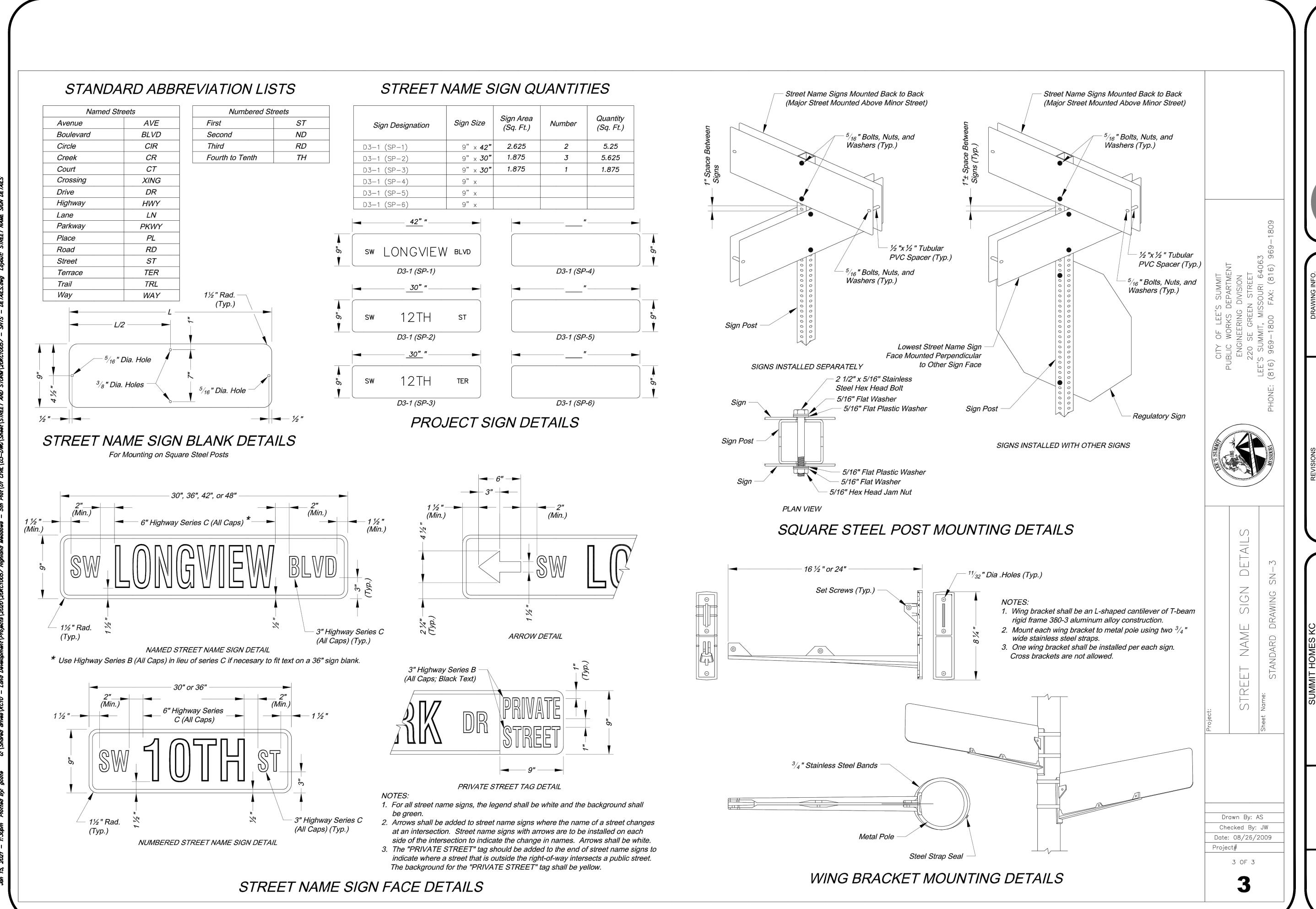
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37 OF 38



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