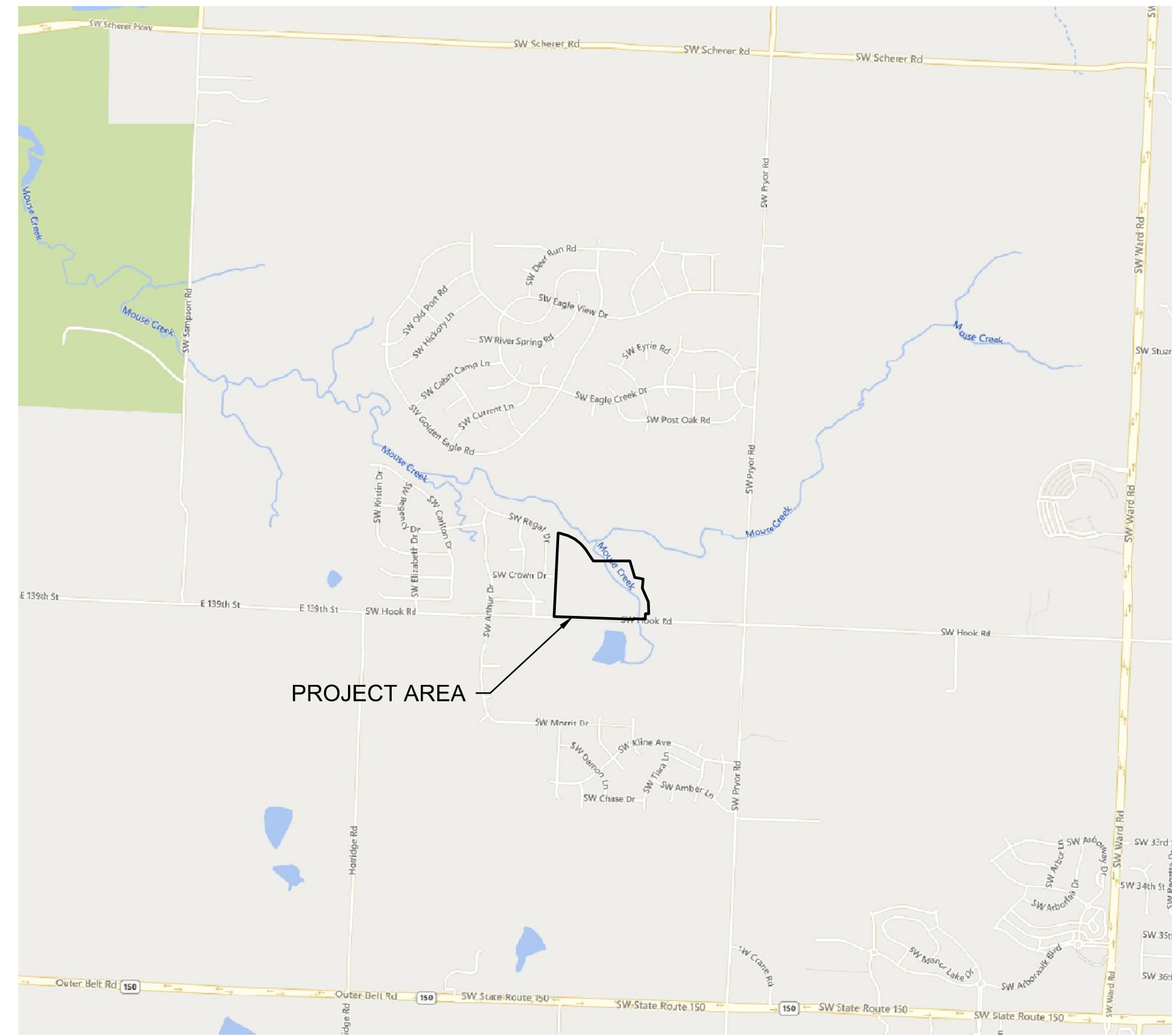
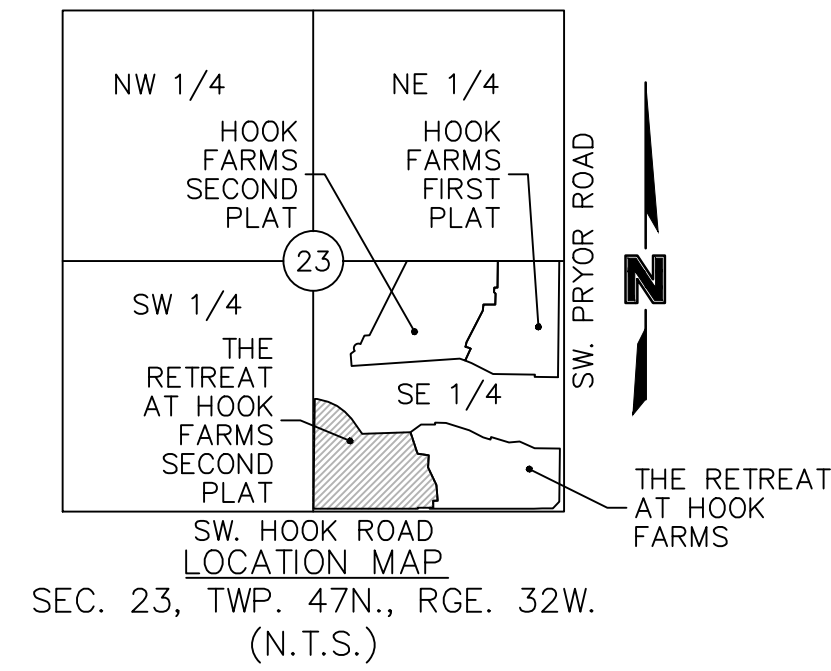


# THE RETREAT AT HOOK FARMS SECOND PLAT

## STREET & STORM SEWER PLANS

SECTION 23, TOWNSHIP 47 N, RANGE 32 W  
IN LEE'S SUMMIT, JACKSON COUNTY, MO



### PROPERTY DESCRIPTION

A TRACT OF LAND IN THE SOUTHEAST QUARTER OF SECTION 23, TOWNSHIP 47 NORTH, RANGE 32 WEST OF THE 5TH PRINCIPAL MERIDIAN IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI BEING BOUNDED AND DESCRIBED BY OR UNDER THE DIRECT SUPERVISION OF JASON S. ROUDEBUSH, P.L.S. 2002014092 AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE NORTH 87°58'53" WEST, ON THE SOUTH LINE OF SAID SOUTHEAST QUARTER, 2,651.35 FEET TO THE SOUTHEAST CORNER OF MONARCH VIEW 1ST PLAT, A SUBDIVISION OF LAND IN SAID LEE'S SUMMIT RECORDED AS INSTRUMENT NUMBER 98169637 IN BOOK 163 AT PAGE 62 IN JACKSON COUNTY RECORDER OF DEEDS OFFICE, ALSO BEING THE SOUTHWEST CORNER OF SAID SOUTHEAST QUARTER; THENCE NORTH 02°43'00" EAST, ON THE WEST LINE OF SAID SOUTHEAST QUARTER, ALSO BEING THE EAST LINE OF SAID MONARCH VIEW 1ST PLAT, 30.00 FEET TO THE NORTHWEST CORNER OF SW HOOK ROAD AS ESTABLISHED BY RIGHT-OF-WAY DEED RECORDED AS INSTRUMENT NUMBER 199910077639 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE, ALSO BEING THE POINT OF BEGINNING OF THE TRACT OF LAND TO BE HEREIN DESCRIBED; THENCE NORTH 02°43'00" EAST, ON SAID WEST AND EAST LINES, AND ALSO BEING EAST LINE OF MONARCH VIEW 2ND PLAT, A SUBDIVISION OF LAND IN SAID LEE'S SUMMIT, RECORDED AS INSTRUMENT NUMBER 200010047892 IN BOOK 167 AT PAGE 87 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE, 1,163.24 FEET; THENCE LEAVING SAID WEST AND EAST LINES, SOUTH 87°16'25" EAST, 25.54 FEET; THENCE SOUTH 73°15'30" EAST, 121.46 FEET; THENCE SOUTH 62°39'56" EAST, 102.90 FEET; THENCE SOUTH 52°04'22" EAST, 102.90 FEET; THENCE SOUTH 41°28'48" EAST, 102.90 FEET; THENCE SOUTH 33°05'07" EAST, 195.12 FEET; THENCE NORTH 90°00'00" EAST, 510.19 FEET TO A POINT ON THE WESTERLY LINE OF PROPOSED THE RETREAT AT HOOK FARMS; THENCE SOUTH 16°31'39" EAST, ALONG SAID WESTERLY LINE, 238.84 FEET; THENCE SOUTH 78°36'20" EAST, ALONG SAID WESTERLY LINE, 118.51 FEET; THENCE SOUTH 04°39'35" WEST, ALONG SAID WESTERLY LINE, 128.06 FEET; THENCE SOUTH 23°04'06" EAST, ALONG SAID WESTERLY LINE, 206.79 FEET; THENCE SOUTH 02°38'45" EAST, ALONG SAID WESTERLY LINE, 164.78 FEET; THENCE NORTH 87°58'48" WEST, ALONG SAID WESTERLY LINE, 45.85 FEET; THENCE SOUTH 01°54'56" WEST, ALONG SAID WESTERLY LINE, 76.13 FEET; THENCE NORTH 87°58'53" WEST, ALONG SAID WESTERLY LINE, 38.61 FEET TO A POINT ON THE EXISTING NORTHERLY RIGHT-OF-WAY LINE OF SW HOOK ROAD, AS ESTABLISHED BY RIGHT OF WAY DEED RECORDED AS INSTRUMENT NUMBER 2007E0016663 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE LEAVING SAID WESTERLY LINE, CONTINUING NORTH 87°58'53" WEST, ALONG SAID EXISTING NORTHERLY RIGHT-OF-WAY LINE, 125.00 FEET; THENCE SOUTH 02°01'07" WEST, ALONG SAID EXISTING NORTHERLY RIGHT-OF-WAY LINE, 10.00 FEET; THENCE NORTH 87°58'53" WEST, ALONG SAID EXISTING NORTHERLY RIGHT-OF-WAY LINE, 853.20 FEET TO THE NORTHWEST CORNER OF SAID RIGHT-OF-WAY DEED, ALSO BEING THE NORTHEAST CORNER OF SW HOOK ROAD, AS ESTABLISHED BY SAID RIGHT-OF-WAY DEED INSTRUMENT NUMBER 199910077639; THENCE CONTINUING NORTH 87°58'53" WEST ALONG THE EXISTING NORTHERLY RIGHT-OF-WAY LINE OF SAID SW HOOK ROAD, 252.00 FEET TO THE POINT OF BEGINNING. CONTAINING 1,085,519 SQUARE FEET OR 24.92 ACRES, MORE OR LESS.

### BENCHMARK

JA-74  
ELEVATION: 1058.10  
N: 978461.2779  
E: 2809447.9650  
DESCRIPTION: KC METRO ALUMINUM GRS DISK SET IN CONCRETE. THE STATION IS STAMPED JA-74, 1988, AND PROJECTS ABOUT 1 INCH

### SHEET LIST

NUMBER	TITLE
C101	TITLE SHEET
C102	GENERAL NOTES
C103	GENERAL LAYOUT
C104	TYPICAL SECTIONS
C105	GRADING PLAN
C106	GRADING PLAN
C107	SWALE 1 PLAN & PROFILE
C108	SWALE 2 PLAN & PROFILE
C109	SW HEARTLAND ROAD PLAN & PROFILE
C110	SW HEARTLAND ROAD PLAN & PROFILE
C111	SW HEARTLAND ROAD PLAN & PROFILE
C112	SW CROWN DRIVE PLAN & PROFILE
C113	SW HEARTLAND COURT PLAN & PROFILE
C114	TRAFFIC CONTROL PLAN
C115	SW HOOK ROAD & SW HEARTLAND ROAD DETAILS
C116	SW HEARTLAND ROAD & SW CROWN DRIVE DETAILS
C117	SW HEARTLAND ROAD & SW HEARTLAND COURT DETAILS
C118	SW HEARTLAND CIRCLE CUL-DE-SAC DETAILS
C119	SW HEARTLAND COURT CUL-DE-SAC DETAILS
C120	STORM SEWER PLAN & PROFILE (LINE 1)
C121	STORM SEWER PLAN & PROFILE (LINE 1)
C122	STORM SEWER PLAN & PROFILE (LINE 2)
C123	STORM SEWER PLAN & PROFILE (LINE 3)
C124	STORM SEWER PLAN & PROFILE (LINE 4)
C125	STORM SEWER PLAN & PROFILE (LINE 5)
C126	STORM SEWER PLAN & PROFILE (LINE 6)
C127	STORM SEWER PLAN & PROFILE (LINE 6)
C128	WATER QUALITY BASIN PLAN
C129	MASTER DRAINAGE PLAN
C130	DRAINAGE PLAN
C131	DRAINAGE TABLES
C132	DETAIL SHEET
C133	DETAIL SHEET
C134	DETAIL SHEET

PROJECT TEAM & UTILITY CONTACT LIST	
<p><b>OWNER / DEVELOPER</b> HUNT MIDWEST REAL ESTATE DEVELOPMENT, INC. 8300 NE UNDERGROUND DRIVE KANSAS CITY, MO 64161 CONTACT: AARON SCHMIDT PHONE: 816.455.2500</p>	<p><b>UTILITY SERVICE NUMBERS</b> NAME: LEE'S SUMMIT PUBLIC WORKS PHONE: 816-969-1800  NAME: LEE'S SUMMIT WATER &amp; SERVICES DEPARTMENT PHONE: 816-969-1940  NAME: SPIRE (MGE) PHONE: 314-342-0500  NAME: AT&amp;T PHONE: 800-286-8313  NAME: EVERGY PHONE: 816-471-5275  NAME: SPECTRUM (TWC) PHONE: 877-772-2253  NAME: GOOGLE FIBER PHONE: 877-454-6959</p>
<p><b>ENGINEER</b> OLSSON 1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JULIE E. SELLERS, P.E. PHONE: 816.361.1177 EMAIL: JSSELLERS@OLSSON.COM</p>	
<p><b>SURVEYOR</b> OLSSON 1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JASON ROUDEBUSH, P.L.S. PHONE: 816.361.1177 EMAIL: JROUDEBOUSH@OLSSON.COM</p>	

<input type="checkbox"/>	NOT FOR CONSTRUCTION
<input type="checkbox"/>	REVIEWED FOR CONSTRUCTION



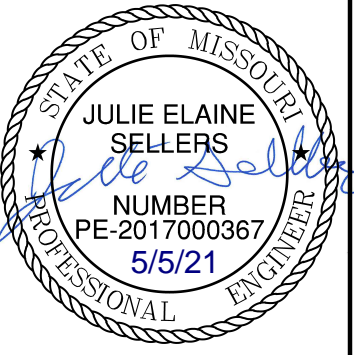
OLSSON HAS BEEN RETAINED TO PROVIDE AS-BUILT DRAWINGS FOR THIS PROJECT.

JULIE E. SELLERS, P.E.  
 CIVIL ENGINEER  
 MO # PE-2017000367

5/5/21  
DATE

**olsson**

Olsson - Civil Engineering  
Missouri Certificate of Authority #001592  
1301 Burlington Street  
North Kansas City, MO 64116  
TEL 816.361.1177  
FAX 816.361.1888  
www.olsosn.com



BY	REVISIONS DESCRIPTION	DATE

REVISIONS

TITLE SHEET  
STREET & STORM SEWER PLANS  
THE RETREAT AT HOOK FARMS  
SECOND PLAT

2021

LEE'S SUMMIT, MO

drawn by: B.M.W./A.A.  
 checked by: B.M.W.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

SHEET  
C101

USER: bworthley

DWG: F:\2019\4001-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNV\Street & Storm Sewer Plans\C\_TTL01\_A194059.dwg  
DATE: May 05, 2021 4:58pm XREFS: C\_PBDLK\_A194059

DWG: F:\2019\4001-4500\019-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street & Storm Sewer Plans\C\_TTL01\_A194059.dwg  
 DATE: May 05, 2021 3:40pm  
 USER: bworthley

**GENERAL NOTES**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE PLANS IN THEIR POSSESSION ARE THE MOST CURRENT VERSION ISSUED, ARE FULLY COORDINATED WITH ALL SUBCONTRACTORS, AND PRESENT ON SITE AT ALL TIMES. CURRENT PLANS PREPARED BY OLSSON MAY BE OBTAINED AT THE DIRECTION OF OLSSON'S CLIENT. DIRECT REQUESTS TO OLSSON MAY REQUIRE ADDITIONAL AUTHORIZATIONS, AGREEMENTS, AND/OR FEES. PLEASE CONTACT THE ENGINEER FOR INFORMATION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEVIATIONS FROM THESE PLANS UNLESS WRITTEN APPROVAL FROM ENGINEER, OWNER, AND DEVELOPER.
3. ALL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
4. ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES AND ITEMS OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO COMPLETE THE WORK SHOWN IN THE PLANS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS, PAYING ALL FEES, AND FOR OTHERWISE COMPLYING WITH ALL APPLICABLE REGULATIONS GOVERNING THE WORK.
7. THE CONTRACTOR SHALL NOT ENGAGE IN ACTIVITIES THAT MAY ENCROACH ON WATERS OF THE U.S., INCLUDING WETLANDS, UNTIL ANY NECESSARY PERMITS MAY BE OBTAINED. THE CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL CONDITIONS DESCRIBED IN THE PERMIT.
8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, THE SAFETY OF ALL PERSONS INCLUDING VISITORS AND THE GENERAL PUBLIC, AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY THROUGHOUT THE PROJECT AND NOT BE LIMITED BY WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES.
9. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH ALL UTILITY COMPANIES AND OBTAIN ANY RELEVANT INFORMATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL BOUNDARY CORNERS AND SECTION CORNERS. ANY BOUNDARY CORNER AND/OR SECTION CORNER DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESET BY A LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI, AT THE CONTRACTOR'S EXPENSE.
11. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ADJACENT PROPERTIES AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE DURING CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR REPAIRING ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITIES.
12. PRIOR TO MOVING OFF THE JOB THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER TO PERFORM A FINAL WALK-THROUGH OF THE CONSTRUCTION SITE.

**REFERENCES**

1. UNLESS EXPLICITLY DESCRIBED OTHERWISE WITHIN THESE PLANS THE FOLLOWING SHALL APPLY:
  - A. ALL CONSTRUCTION, INCLUDING THOSE LISTED BELOW, SHALL CONFORM TO THE LATEST CODES AND ORDINANCES OF LEE'S SUMMIT, MISSOURI.
  - B. ALL CONSTRUCTION IN MODOT RIGHT-OF-WAY SHALL CONFORM TO THE LATEST SPECIFICATIONS ADOPTED BY U.S. DEPARTMENT OF TRANSPORTATION AND MODOT.
  - C. ALL TRAFFIC CONTROL SIGNAGE SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
  - D. ALL UTILITY EXTENSIONS AND CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE UTILITY COMPANIES.
  - E. ALL EXTERIOR PAVEMENT (PCC, ASPHALT, ETC.) SHALL BE IN CONFORMANCE WITH THE SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI AND THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
4. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE DELIVERY MANAGER AND COORDINATING ANY MAILBOXES THAT MAY BE DISTURBED. FAILURE TO DO SO MAY SUBJECT THE CONTRACTOR TO PROSECUTION BY THE FEDERAL GOVERNMENT.

**EXISTING CONDITIONS**

1. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS OF THE PROJECT AREA.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING THEIR OWN INVESTIGATIONS AND MAKING THEIR OWN ASSUMPTIONS REGARDING SITE SURFACE AND SUBSURFACE CONDITIONS. THIS INCLUDES THE LOCATION AND CONSISTENCY OF ANY EXISTING ROCK LAYERS UNDERLYING THE PROJECT SITE. CONTACT THE ENGINEER REGARDING ANY DISCREPANCIES THAT MAY AFFECT THE ABILITY TO CONSTRUCT FROM THESE PLANS AS DESIGNED.
3. EXISTING CONDITIONS WERE DETERMINED THROUGH A VARIETY OF METHODS THAT MAY INCLUDE SURVEY, AERIAL IMAGERY, AVAILABLE RECORDS, GIS DATA, ETC. SUBSURFACE CONDITIONS ARE APPROXIMATE AND MAY NOT INCLUDE ALL UTILITIES AND OTHER SITE IMPROVEMENTS PRESENT ON SITE. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS WHEN CONFLICTS AND DISCREPANCIES ARE FOUND.

**CONSTRUCTION**

1. THE CONTRACTOR SHALL INSTALL TRAFFIC CONTROL WHILE WORKING IN THE PUBLIC RIGHT-OF-WAY AS SHOWN IN THESE PLANS. IF PLANS ARE NOT PROVIDED, CONTRACTOR SHALL COORDINATE AND PROVIDE CONTROLS TO THE SATISFACTION OF THE RIGHT-OF-WAY OWNER.
2. THE CONTRACTOR SHALL PROTECT ALL TREES OVER 3" CALIPER FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE ON THESE PLANS.
3. THE CONTRACTOR SHALL DISPOSE ALL WASTE MATERIAL RESULTING FROM THE PROJECT OFF-SITE AND IN STRICT CONFORMANCE WITH ALL LOCAL CODES AND ORDINANCES.
4. ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS ARE TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED. NOT ALL ADJUSTMENTS ARE INDICATED IN THE PLANS.
5. THE CONTRACTOR SHALL STREET SWEEP OR OTHERWISE CLEAN ALL ACCESS ROUTES TO THE SITE AT CONCLUSION OF THE PROJECT.

**SHOP DRAWINGS**

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS A MINIMUM OF 7 DAYS PRIOR TO THE REQUESTED DATE OF APPROVAL. ENGINEER SHALL REVIEW SHOP DRAWINGS OR SAMPLES IN CONFORMANCE WITH THE DESIGN FOR THIS PROJECT AS DESCRIBED IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS. THE ENGINEER'S REVIEW SHALL NOT EXTEND TO MEANS OR METHODS OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY VARIATION FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS UNLESS CONTRACTOR HAS NOTIFIED ENGINEER OF EACH SUCH VARIATION AT THE TIME OF SUBMISSION, AND OBTAINED ENGINEER'S WRITTEN APPROVAL OF EACH SUCH VARIATION. PRIOR TO SUBMITTING EACH SHOP DRAWING OR SAMPLE, CONTRACTOR SHALL HAVE REVIEWED AND VERIFIED:
  - A. ALL FIELD MEASUREMENTS, QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS AND SIMILAR INFORMATION WITH RESPECT THERETO;
  - B. ALL MATERIALS WITH RESPECT TO INTENDED USE, FABRICATION, SHIPPING, HANDLING, STORAGE, ASSEMBLY AND INSTALLATION PERTAINING TO THE PERFORMANCE OF THE WORK;
  - C. ALL INFORMATION RELATIVE TO MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENT THERETO;
  - D. CONTRACTOR SHALL ALSO HAVE REVIEWED AND COORDINATED EACH SHOP DRAWING OR SAMPLE WITH OTHER SHOP DRAWINGS AND SAMPLES, AND WITH THE REQUIREMENTS OF THE WORK AND THE CONTRACT DOCUMENTS.
  - E. ALL SUBMITTED SHOP DRAWINGS SHALL BEAR A STAMP OR SPECIFIC WRITTEN INDICATION AND SIGNATURE THAT CONTRACTOR HAS FULLY COMPLETED THE ABOVE TASKS.
2. SHOP DRAWINGS AS DESCRIBED ABOVE ARE REQUIRED FOR, BUT NOT LIMITED TO, THE FOLLOWING:
  - A. ALL STORM SEWER STRUCTURES TO BE INSTALLED WITH THIS PROJECT.
  - B. ANY ITEMS IN THESE PLANS THAT ALLOW FOR AN "APPROVED EQUAL" ALTERNATIVE.

**STORM SEWER GENERAL NOTES:**

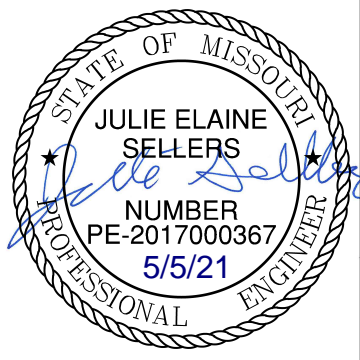
1. STORM STRUCTURES SHALL BE PER CURRENT CITY DETAILS. IF CITY DOES NOT HAVE PUBLISHED DETAILS STRUCTURES SHALL BE PER CURRENT APWA SPECIFICATIONS.
2. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH CITY OF LEE'S SUMMIT, MISSOURI.
3. ALL PIPE LENGTHS AND ELEVATIONS ARE CALCULATED LINEARLY FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
4. ALL STRUCTURE DIMENSIONS ARE TO INSIDE FACE OF STRUCTURE.
5. COORDINATES ARE PROVIDED AT THE CENTER OF STRUCTURE. ADDITIONAL COORDINATES PROVIDED ARE PER LOCAL CODES AND ORDINANCES OR AS AN AID WHEN ORIENTING THE BOX DURING INSTALLATION.
6. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF STORM SEWER.
7. STORM SEWER TRENCHES SHALL BE CONSTRUCTED SUCH THAT UNDISTURBED EXISTING SOIL OR FILL COMPACTED TO 95% PROCTOR DENSITY IS AT A DEPTH THAT IS 18" ABOVE TOP OF PROPOSED PIPE.
8. STRUCTURE INVERT CHANNELS SHALL BE SMOOTH, CIRCULAR, AND CONFORMING TO 1/2 THE ADJACENT PIPE SECTION (INVERT TO CENTER). CHANGES IN DIRECTION OF FLOW SHALL BE MADE WITH A SMOOTH CURVE AND MAINTAIN SHAPE THROUGHOUT. CHANGES IN GRADE OF ADJACENT PIPES SHALL BE TRANSITIONED SMOOTHLY AND EVENLY THROUGH THE STRUCTURE.
9. PIPE PENETRATIONS SHALL BE GROUTED TO ENSURE WATERTIGHT SEALS.
10. MAINTAIN MINIMUM DEPTH OF COVER PER APWA 5606.06

ESTIMATE OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
STREET				
	EXCAVATION	C.Y.	4389	
	EMBANKMENT	C.Y.	9192	
	SUBGRADE STABILIZATION (6" FLYASH TREATMENT)	S.Y.	8579	
	6" ASPHALT PAVEMENT	S.Y.	6895	
	CONCRETE CURB & GUTTER (CG-2)	L.F.	4467	
	CONCRETE CURB & GUTTER (CG-2 DRY)	L.F.	153	
	MILL & OVERLAY	S.Y.	68	
	5' CONCRETE SIDEWALK	L.F.	111	
	ADA RAMP	EA.	8	
	STOP SIGNS	EA.	3	
	STREET NAME SIGNS	EA.	7	
STORM				
	STD. CURB INLET (5'x3' INSIDE)	EA.	14	
	STD. CURB INLET (5'x4' INSIDE)	EA.	1	
	STD. STORM MANHOLE (4' DIA. INSIDE)	EA.	1	
	STD. FIELD INLET (4'x4' INSIDE)	EA.	6	
	WATER QUALITY BASIN OUTLET STRUCTURE	EA.	1	
	12" PVC	L.F.	82.41	
	15" HDPE	L.F.	1,460.89	
	18" HDPE	L.F.	436.92	
	24" HDPE	L.F.	422.15	
	30" HDPE	L.F.	200.93	
	12" HDPE END SECTION	EA.	1	
	24" HDPE END SECTION	EA.	1	
	30" HDPE END SECTION	EA.	1	
	RIPRAP	S.Y.	44.45	
	TURF REINFORCEMENT MAT	S.Y.	91	

SUMMARY OF QUANTITIES AS INDICATED ABOVE AND ANY QUANTITIES AS SHOWN WITHIN THE PLANS HAVE BEEN PROVIDED FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR USE IN PREPARATION OF CONTRACT DOCUMENTS. QUANTITIES INTENDED FOR, BUT NOT LIMITED TO, THE PREPARATION OF PROPOSALS AND BID DOCUMENTS SHALL BE INDEPENDENTLY EVALUATED BY THE ESTIMATING PARTY BASED UPON THE CONTENTS OF THESE PLANS.



Olsson - Civil Engineering  
 Missouri Certificate of Authority #001592  
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 North Kansas City, MO 64116  
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 www.olsson.com

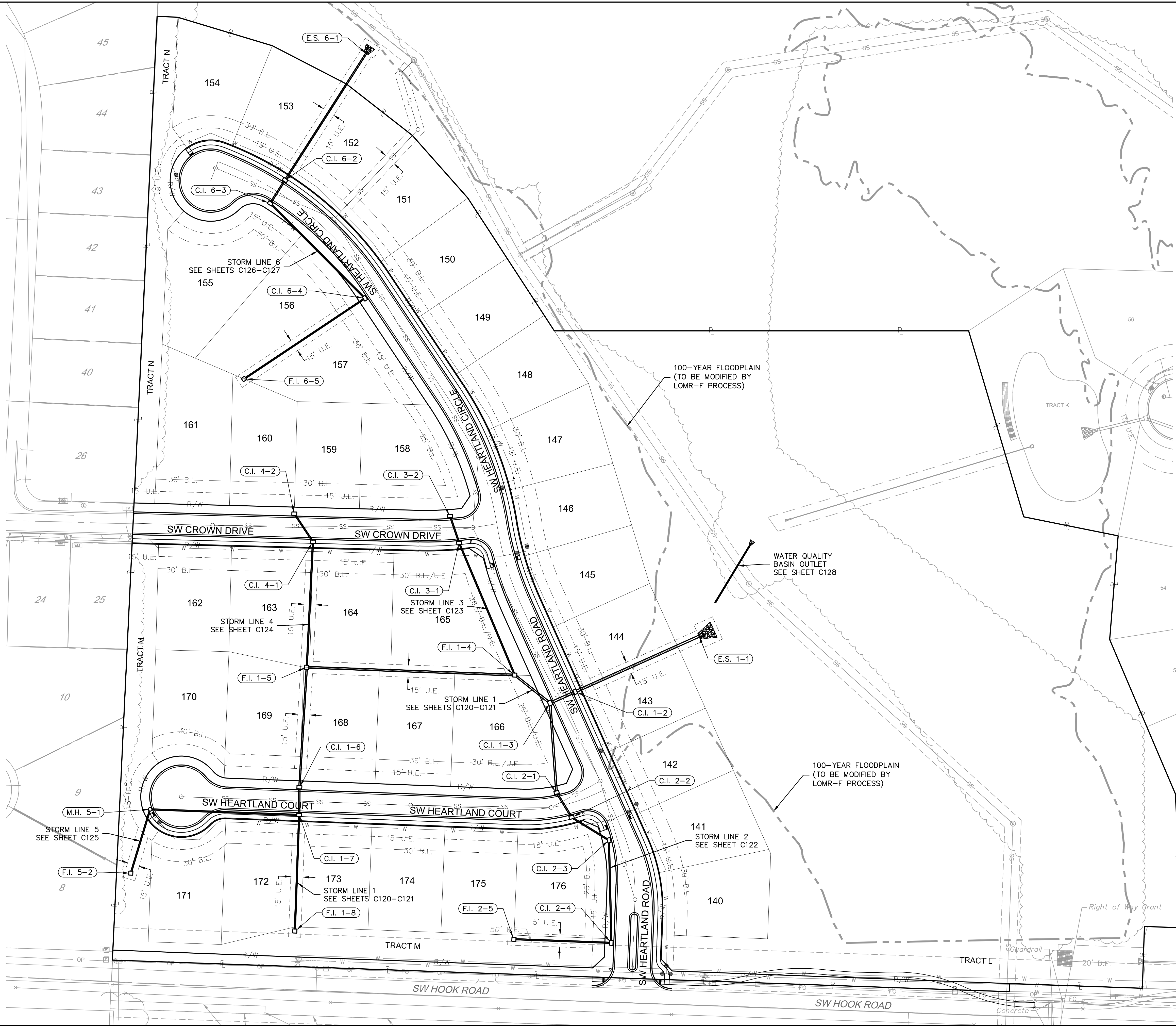


REV. NO.	DATE	REVISIONS DESCRIPTION	BY

GENERAL NOTES  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEE'S SUMMIT, MO  
 2021

drawn by: B.M.W./A.A.  
 checked by: B.M.W.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

DWG: F:\2019\4001-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNCA\Street & Storm Sewer Plans\C\_GEN01\_A194059.dwg USER: bworthley  
 DATE: May 05, 2021 3:41pm XREFS: C\_PTBK\_A194059 C\_PENDY\_A194059 C\_PUTIL\_A194059 C\_XBASE\_A194059



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STATE OF MISSOURI  
 JULIE ELAINE  
 SELLERS  
 PE-2017000367  
 5/5/21  
 PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

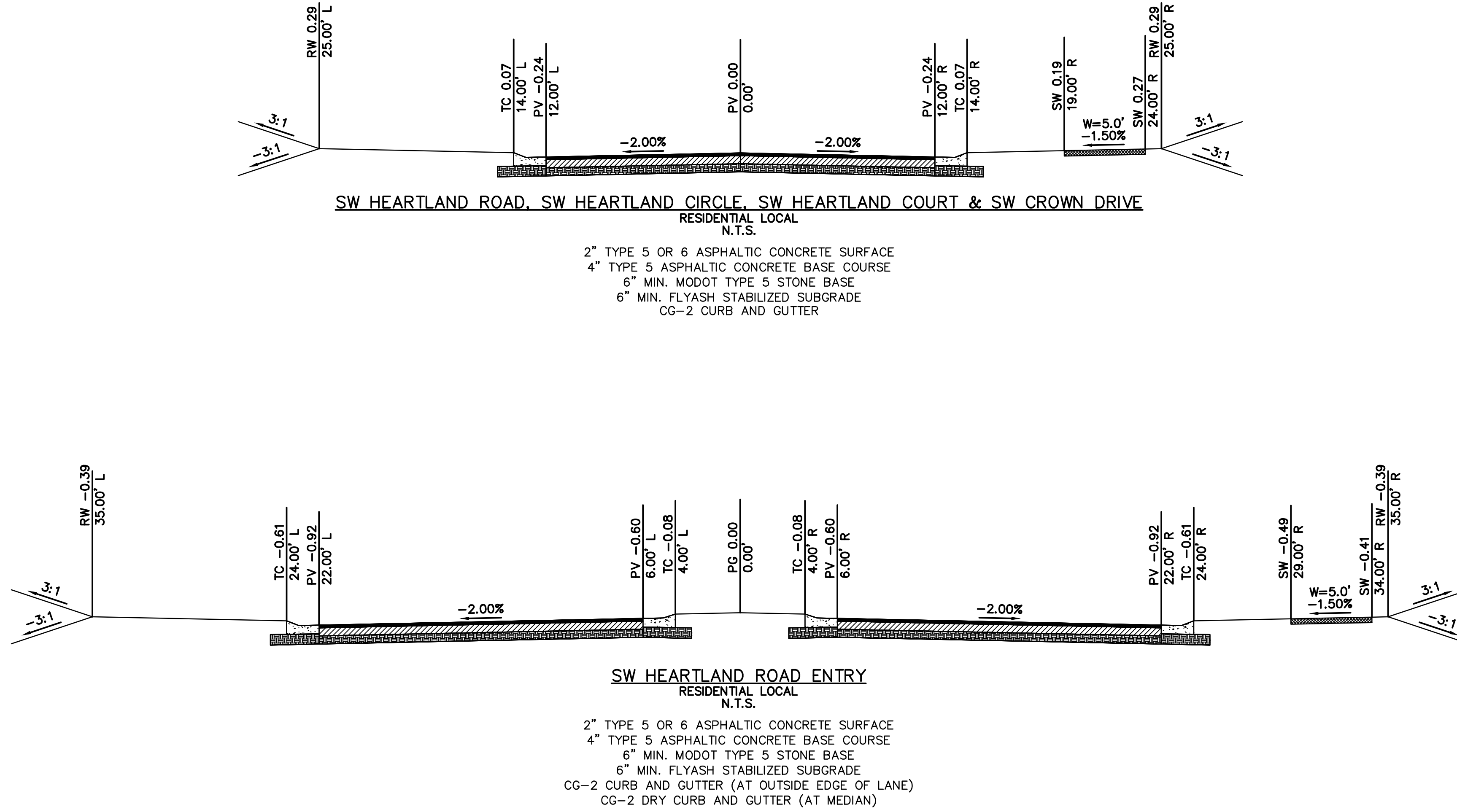
GENERAL LAYOUT  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT

2021

REVISIONS

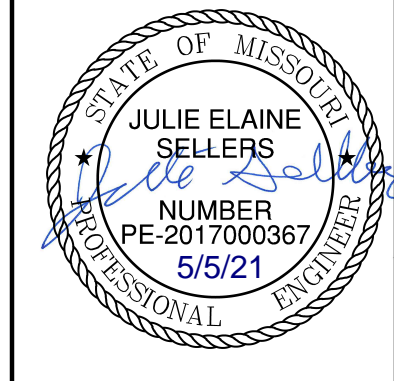
drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

**SHEET**  
**C103**



TYPICAL SECTIONS		REV. NO.	DATE	REVISIONS DESCRIPTION	BY
STREET & STORM SEWER PLANS					
THE RETREAT AT HOOK FARMS					
SECOND PLAT					
LEE'S SUMMIT, MO					
					REVISIONS

drawn by: B.M.W./A.A.  
 checked by: B.M.W.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021



**GENERAL NOTES:**

1. CONTRACTOR SHALL ADHERE TO THE "DESIGN AND CONSTRUCTION MANUAL" SECTION 2100 AS ADOPTED BY THE CITY OF LEE'S SUMMIT (LATEST EDITION), FOR EXCAVATION AND EMBANKMENT WORK WITHIN THE PROPOSED RIGHT-OF-WAY.

2. AREAS OF CONSTRUCTION SHALL BE STRIPPED OF ALL VEGETATION, ORGANIC MATTER AND TOPSOIL TO A DEPTH AS RECOMMENDED BY GEOTECHNICAL ENGINEER AND OR TESTING AGENCY. SOILS REMOVED DURING SITE STRIPPING SHOULD BE EVALUATED TO DETERMINE IF PORTIONS OF THE TOPSOIL STRATUM MAY BE UTILIZED AS STRUCTURAL FILL WITHIN PAVEMENT AREAS. ANY MATERIAL NOT DEEMED AS SUITABLE FILL MATERIAL BY THE GEOTECHNICAL ENGINEER AND OR TESTING AGENCY SHALL BE REMOVED FROM THE JOB SITE BY THE CONTRACTOR AT HIS EXPENSE.

3. ALL EMBANKMENT OUTSIDE OF RIGHT-OF-WAY SHOULD BE PLACED IN CONTROLLED LIFTS HAVING A MAXIMUM LOOSE LIFT THICKNESS OF 8". EMBANKMENT SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 (STANDARD PROCTOR COMPACTION). MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION SHALL BE WITHIN A RANGE OF -0 TO +4 PERCENT OF OPTIMUM MOISTURE CONTENT.

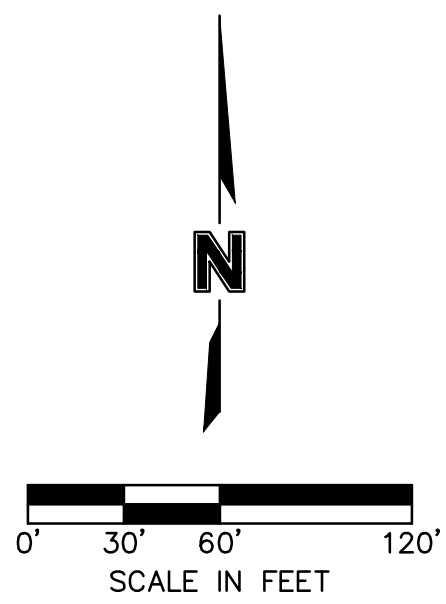
EARTHWORK QUANTITIES		
LOCATION	CUT (C.Y.)	FILL (C.Y.)
STREET	4,389	9,192
SITE	45,873	31,198
TOTAL	50,262	40,390

**EARTHWORK QUANTITIES NOTES:**

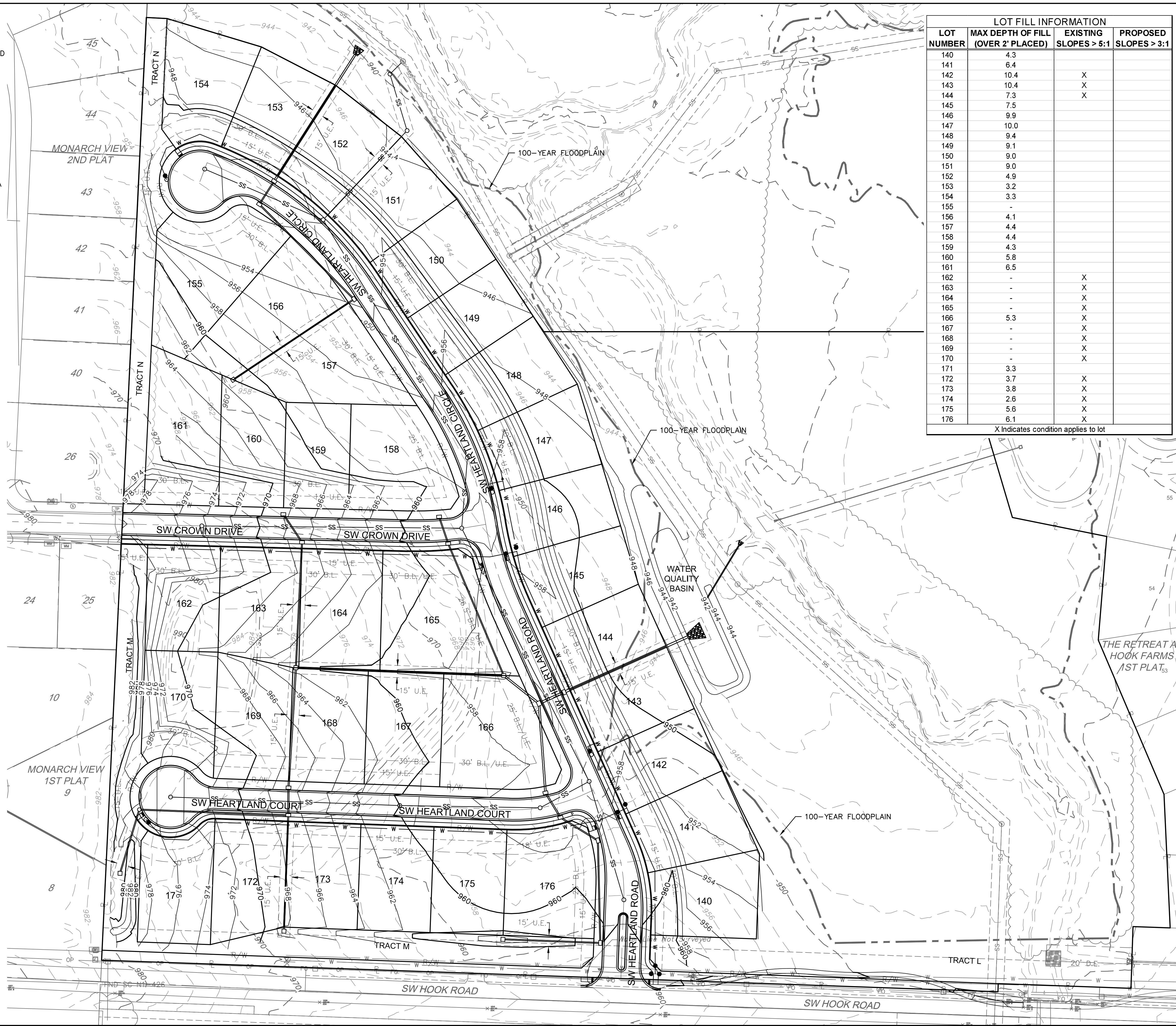
1. EARTHWORK QUANTITIES BASED ON FINISHED GRADE SURFACE AND DO NOT INCLUDE ADJUSTMENTS FOR TOPSOIL AND SHRINKAGE.

2. EARTHWORK QUANTITIES DO NOT TAKE INTO CONSIDERATION EXCAVATION, REMOVAL AND DISPOSAL OF MATERIAL DEEMED UNSUITABLE BY A GEOTECHNICAL ENGINEER. THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR EXCAVATION, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL AND FOR REPLACING IT WITH SUITABLE MATERIAL.

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 USER: bworthley



LEGEND	
- -100-	EXISTING INDEX CONTOURS
- -100-	EXISTING INTERMEDIATE CONTOURS
- -100-	PROPOSED INDEX CONTOURS
- -100-	PROPOSED INTERMEDIATE CONTOURS



LOT FILL INFORMATION			
LOT NUMBER	MAX DEPTH OF FILL (OVER 2' PLACED)	EXISTING SLOPES > 5:1	PROPOSED SLOPES > 3:1
140	4.3		
141	6.4		
142	10.4	X	
143	10.4	X	
144	7.3	X	
145	7.5		
146	9.9		
147	10.0		
148	9.4		
149	9.1		
150	9.0		
151	9.0		
152	4.9		
153	3.2		
154	3.3		
155	-		
156	4.1		
157	4.4		
158	4.4		
159	4.3		
160	5.8		
161	6.5		
162	-	X	
163	-	X	
164	-	X	
165	-	X	
166	5.3	X	
167	-	X	
168	-	X	
169	-	X	
170	-	X	
171	3.3		
172	3.7	X	
173	3.8	X	
174	2.6	X	
175	5.6	X	
176	6.1	X	

X Indicates condition applies to lot

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REV. NO.	DATE	REVISIONS DESCRIPTION

GRADING PLAN  
STREET & STORM SEWER PLANS

THE RETREAT AT HOOK FARMS  
SECOND PLAT

2021

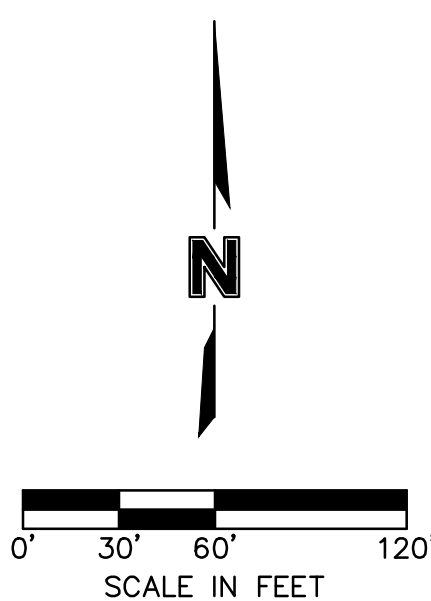
REVISIONS

LEE'S SUMMIT, MO

drawn by:	B.M.W./A.A.
checked by:	B.M.W.
designed by:	B.M.W./A.A.
QA/QC by:	J.E.S.
project no.:	A19-4059
date:	05-05-2021

**GENERAL NOTES:**

- CONTRACTOR SHALL ADHERE TO THE "DESIGN AND CONSTRUCTION MANUAL" SECTION 2100 AS ADOPTED BY THE CITY OF LEE'S SUMMIT (LATEST EDITION), FOR EXCAVATION AND EMBANKMENT WORK WITHIN THE PROPOSED RIGHT-OF-WAY.
- AREAS OF CONSTRUCTION SHALL BE STRIPPED OF ALL VEGETATION, ORGANIC MATTER AND TOPSOIL TO A DEPTH AS RECOMMENDED BY GEOTECHNICAL ENGINEER AND OR TESTING AGENCY. SOILS REMOVED DURING SITE STRIPPING SHOULD BE EVALUATED TO DETERMINE IF PORTIONS OF THE TOPSOIL STRATUM MAY BE UTILIZED AS STRUCTURAL FILL WITHIN PAVEMENT AREAS. ANY MATERIAL NOT DEEMED AS SUITABLE FILL MATERIAL BY THE GEOTECHNICAL ENGINEER AND OR TESTING AGENCY SHALL BE REMOVED FROM THE JOB SITE BY THE CONTRACTOR AT HIS EXPENSE.
- ALL EMBANKMENT OUTSIDE OF RIGHT-OF-WAY SHOULD BE PLACED IN CONTROLLED LIFTS HAVING A MAXIMUM LOOSE LIFT THICKNESS OF 8". EMBANKMENT SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 (STANDARD PROCTOR COMPACTION). MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION SHALL BE WITHIN A RANGE OF -0 TO +4 PERCENT OF OPTIMUM MOISTURE CONTENT.

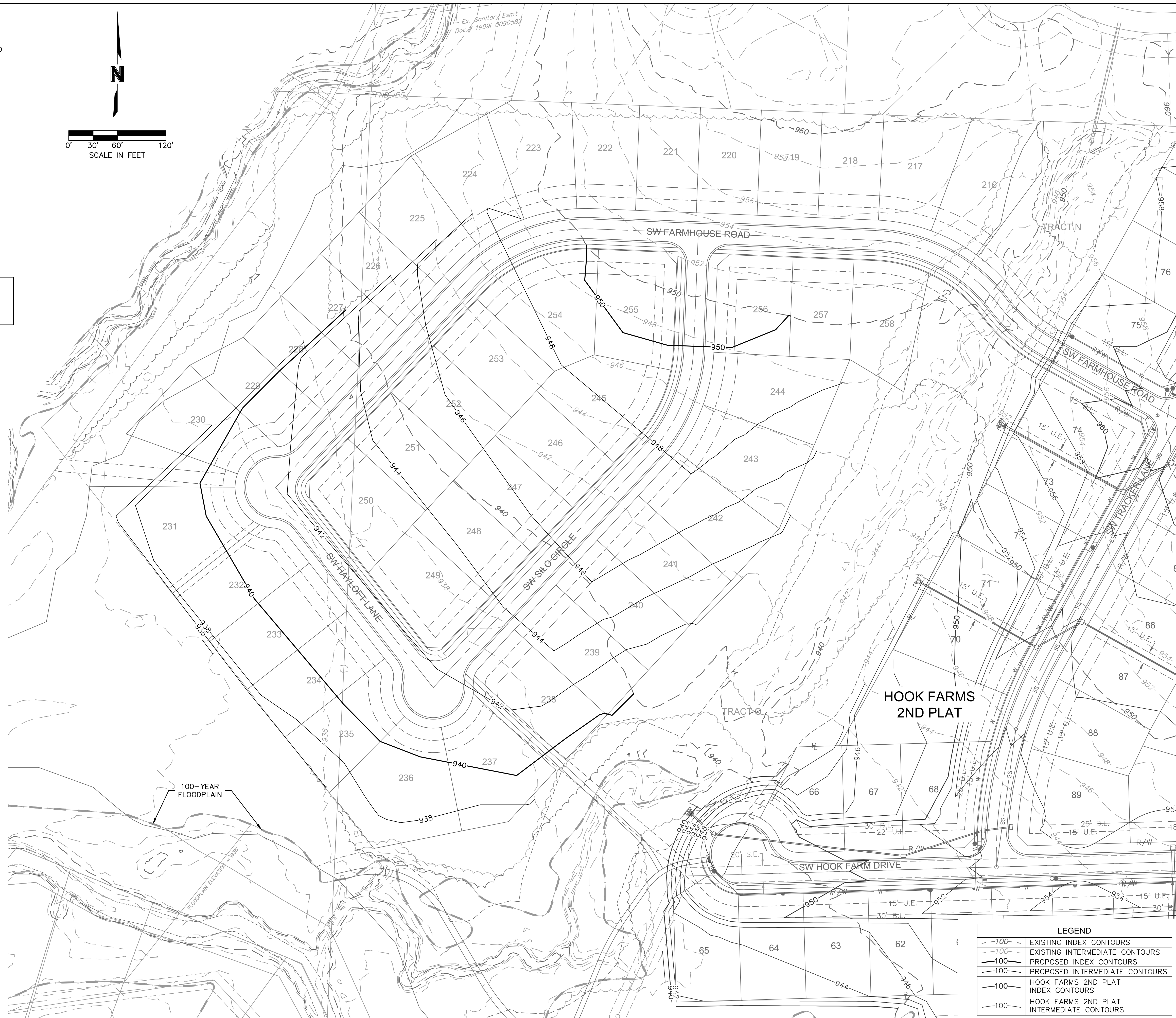


EARTHWORK QUANTITIES		
LOCATION	CUT (C.Y.)	FILL (C.Y.)
FUTURE PHASE	0	54,547

FUTURE PHASE EARTHWORK CONTRIBUTIONS	
LOCATION	FILL (C.Y.)
HOOK FARMS 2ND PLAT	42,194
RETREAT AT HOOK FARMS 2ND PLAT	9,872
EXCESS	2,481

**EARTHWORK QUANTITIES NOTES:**

- EARTHWORK QUANTITIES BASED ON FINISHED GRADE SURFACE AND DO NOT INCLUDE ADJUSTMENTS FOR TOPSOIL AND SHRINKAGE.
- EARTHWORK QUANTITIES DO NOT TAKE INTO CONSIDERATION EXCAVATION, REMOVAL AND DISPOSAL OF MATERIAL DEEMED UNSUITABLE BY A GEOTECHNICAL ENGINEER. THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR EXCAVATION, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL AND FOR REPLACING IT WITH SUITABLE MATERIAL.



LEGEND	
---100---	EXISTING INDEX CONTOURS
- - -100-	EXISTING INTERMEDIATE CONTOURS
---100---	PROPOSED INDEX CONTOURS
- - -100-	PROPOSED INTERMEDIATE CONTOURS
---100---	HOOK FARMS 2ND PLAT INDEX CONTOURS
- - -100-	HOOK FARMS 2ND PLAT INTERMEDIATE CONTOURS

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STATE OF MISSOURI

JULIE ELAINE SELLERS

NUMBER PE-2017000367

5/5/21

PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

**GRADING PLAN**

**STREET & STORM SEWER PLANS**

**THE RETREAT AT HOOK FARMS**

**SECOND PLAT**

2021

LEE'S SUMMIT, MO

drawn by: B.M.W./A.A.

checked by: B.M.W.

designed by: B.M.W./A.A.

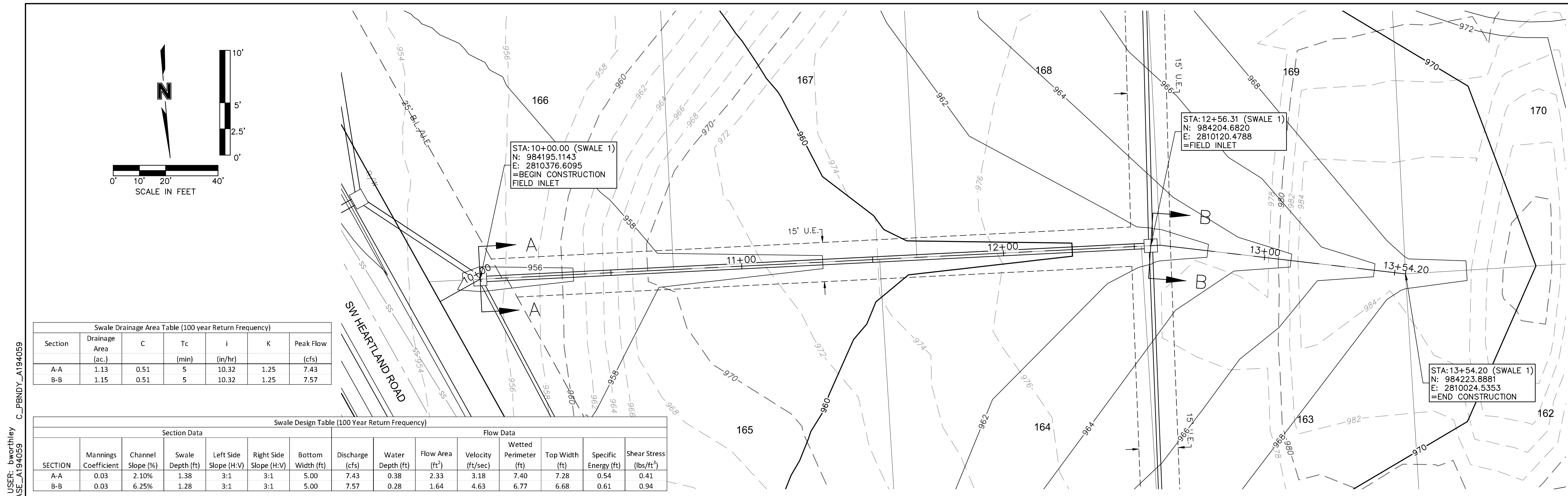
QA/QC by: J.E.S.

project no.: A19-4059

date: 05-05-2021

**SHEET**

**C106**

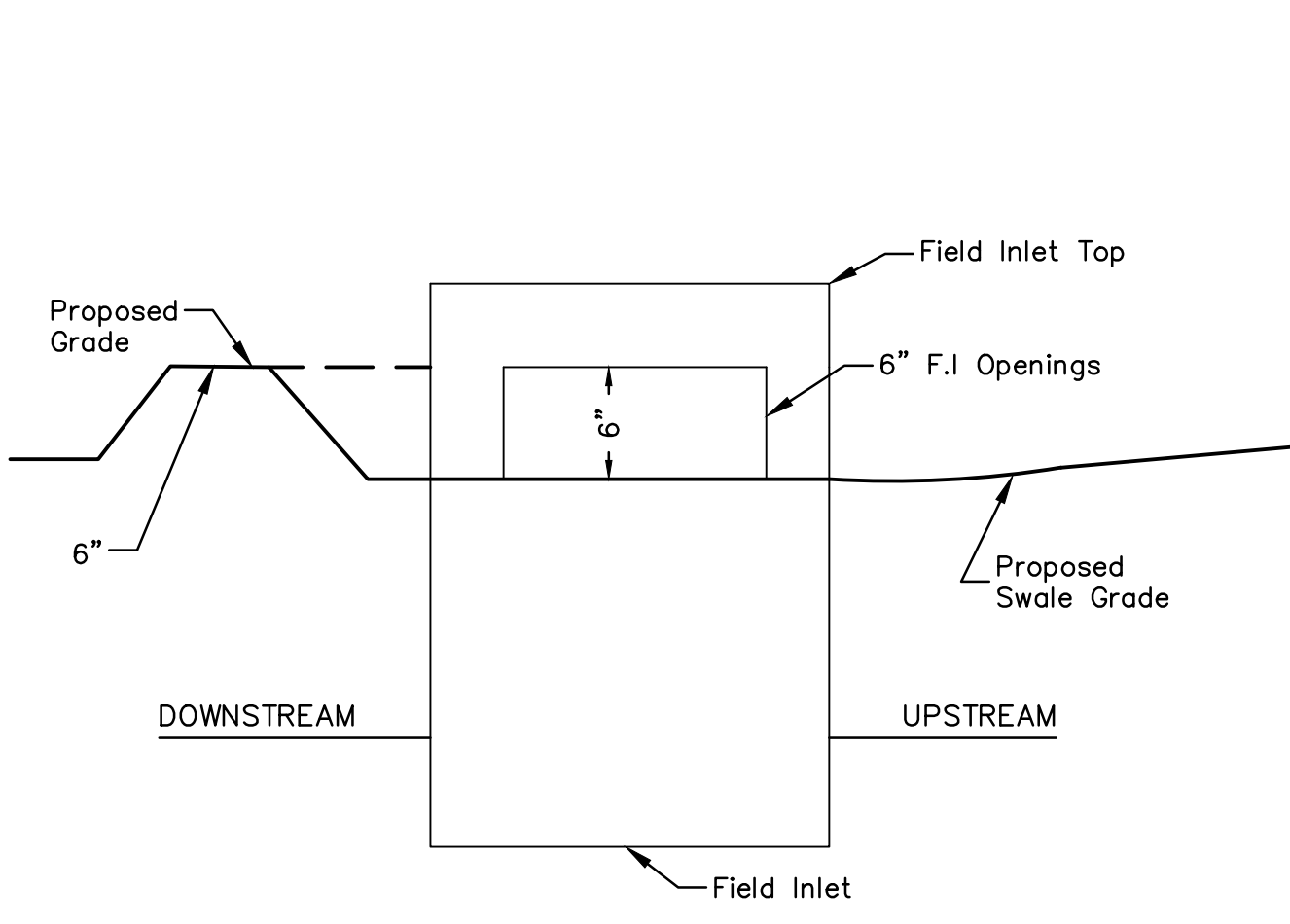


Swale Drainage Area Table (100 year Return Frequency)

Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
A-A	1.13	0.51	5	10.32	1.25	7.43
B-B	1.15	0.51	5	10.32	1.25	7.57

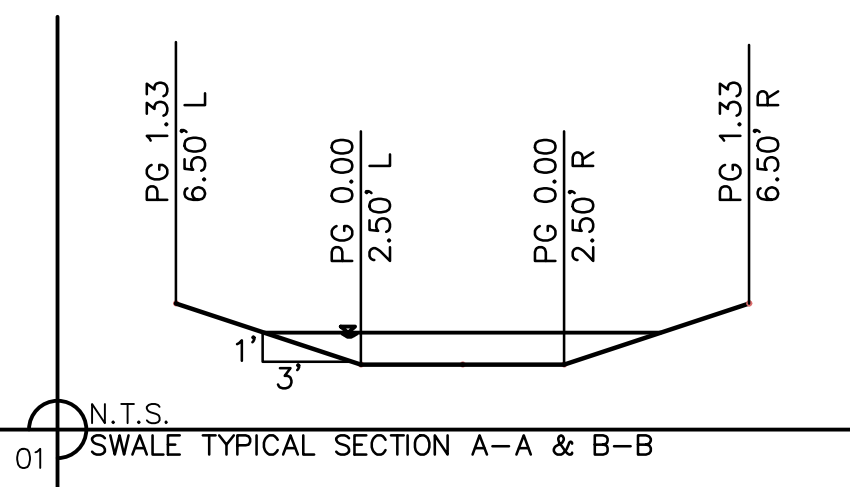
Swale Design Table (100 Year Return Frequency)

Section Data						Flow Data								
SECTION	Mannings Coefficient	Channel Slope (%)	Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft <sup>2</sup> )	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft <sup>2</sup> )
A-A	0.03	2.10%	1.38	3:1	3:1	5.00	7.43	0.38	2.33	3.18	7.40	7.28	0.54	0.41
B-B	0.03	6.25%	1.28	3:1	3:1	5.00	7.57	0.28	1.64	4.63	6.77	6.68	0.61	0.94

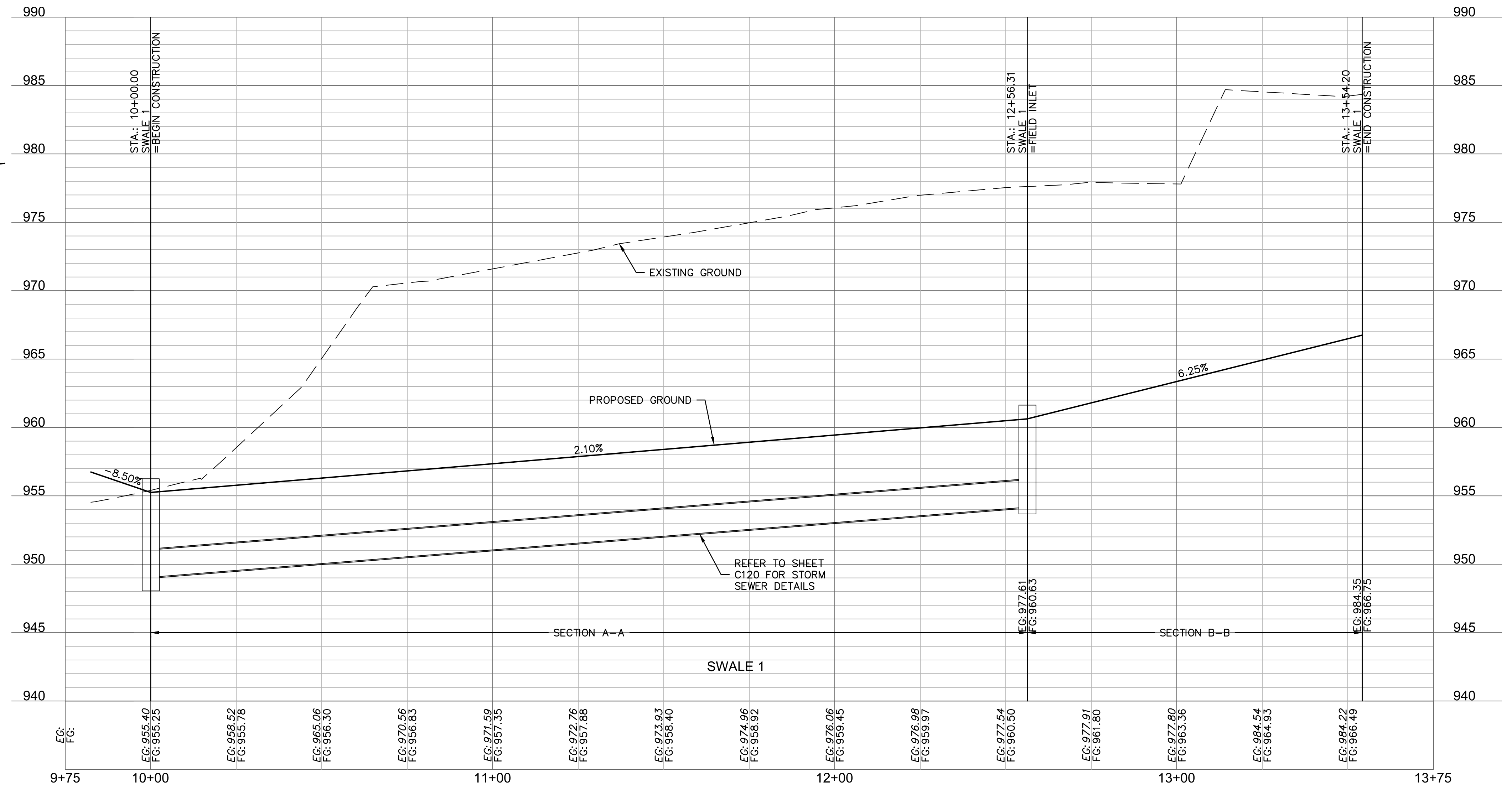


NOTE: INCLUDE SUMP PER ABOVE DETAIL WHERE FIELD INLETS ARE LOCATED WITHIN SWALES.

SUMP DETAIL  
N.T.S.



- SWALE GRADING NOTES:**
- CONTRACTOR SHALL CONSTRUCT SWALES WITH MINIMUM SLOPE, WIDTH AND DEPTH AS SHOWN IN THE SWALE DESIGN TABLES.
  - AS-BUILT SURVEY IS REQUIRED/APPROVED BY CITY FOR ALL SWALES AND PRIOR TO APPROVAL FOR ANY BUILDING FOUNDATION PERMIT. CONTRACTOR SHALL BE REQUIRED TO REGRADE SWALES AT CONTRACTOR'S EXPENSE IF ABOVE REQUIREMENTS ARE NOT MET.



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**JULIE ELAINE SELLERS**  
 LICENSED PROFESSIONAL ENGINEER  
 NUMBER PE-2017000367  
 5/5/21

REV. NO.	DATE	REVISIONS DESCRIPTION

SWALE 1 PLAN & PROFILE  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEE'S SUMMIT, MO

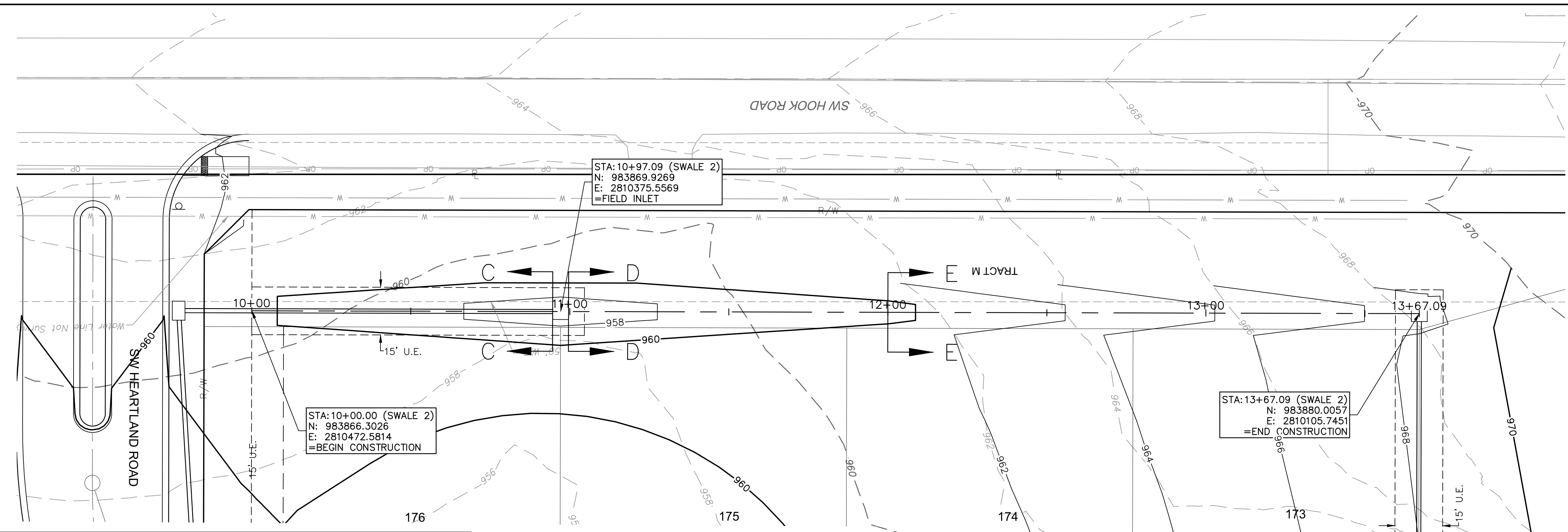
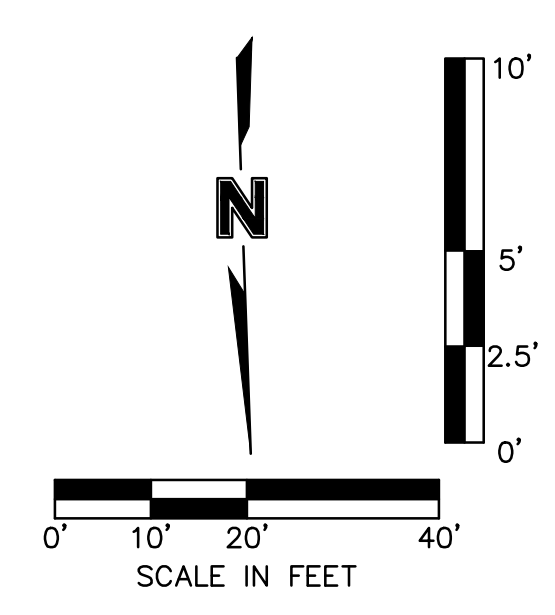
2021

REVISIONS

drawn by: _____	B.M.W./A.A.
checked by: _____	B.M.W./A.A.
designed by: _____	B.M.W./A.A.
QA/QC by: _____	J.E.S.
project no.: _____	A19-4059
date: _____	05-05-2021

**SHEET C107**

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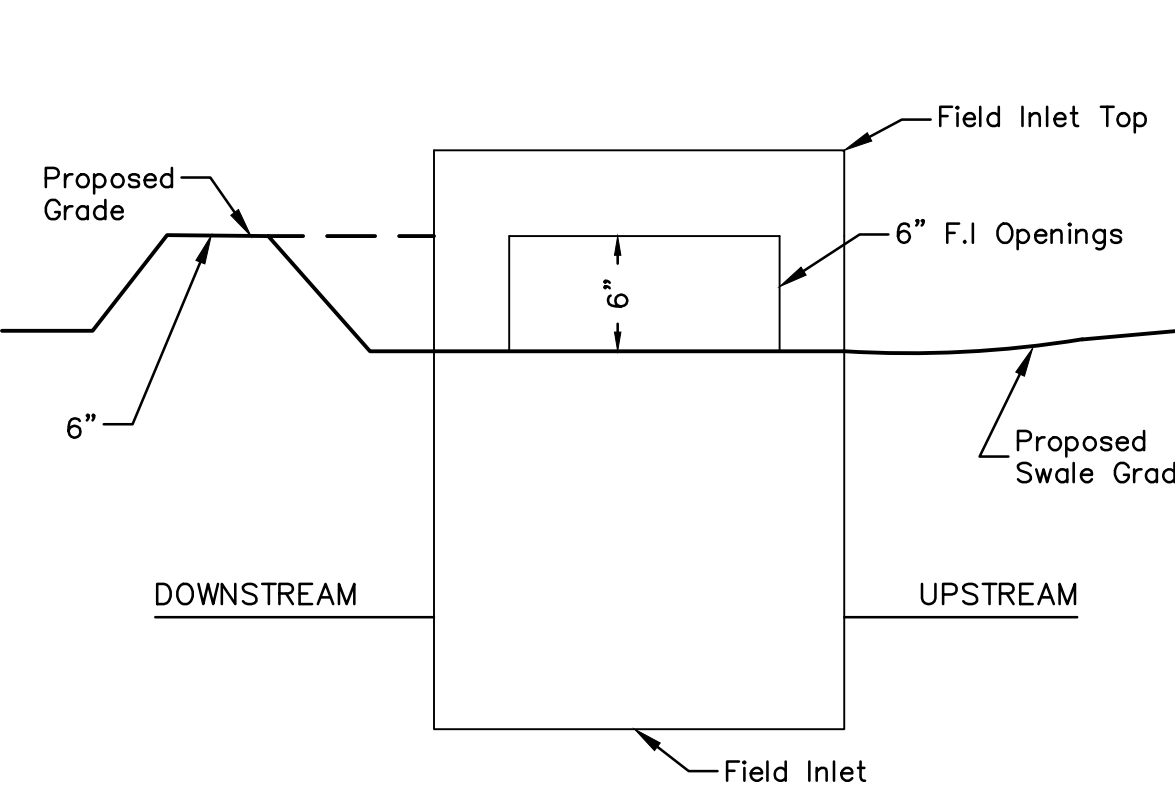
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 E: 2810375.5569  
 =FIELD INLET

STA: 10+00.00 (SWALE 2)  
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 E: 2810105.7451  
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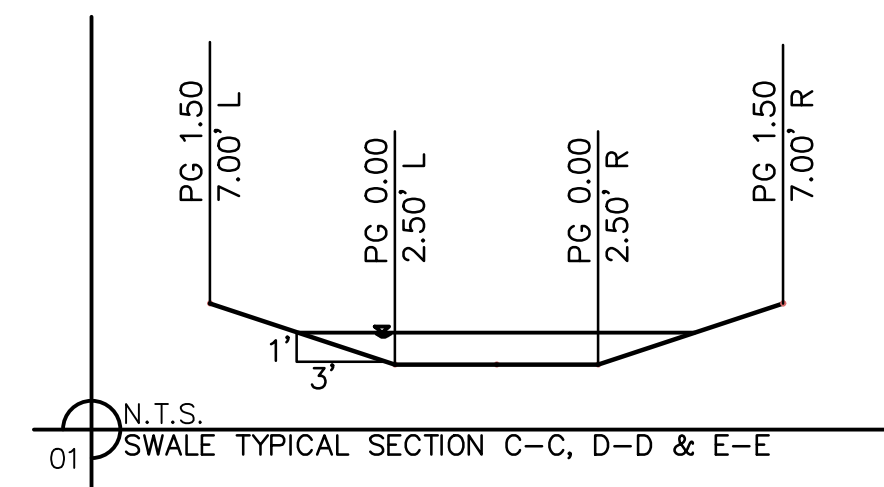
SECTION	Section Data						Flow Data							
	Manning's Coefficient	Channel Slope (%)	Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft <sup>2</sup> )	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft <sup>2</sup> )
C-C	0.03	2.25%	1.14	3:1	3:1	5.00	1.38	0.14	0.76	1.82	5.89	5.84	0.19	0.18
D-D	0.03	2.25%	1.24	3:1	3:1	5.00	3.62	0.24	1.39	2.60	6.67	6.60	0.35	0.29
E-E	0.03	4.25%	1.14	3:1	3:1	5.00	1.97	0.14	0.76	2.60	5.89	5.84	0.24	0.34

Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
C-C	0.21	0.51	5	10.32	1.25	1.38
D-D	0.55	0.51	5	10.32	1.25	3.62
E-E	0.30	0.51	5	10.32	1.25	1.97



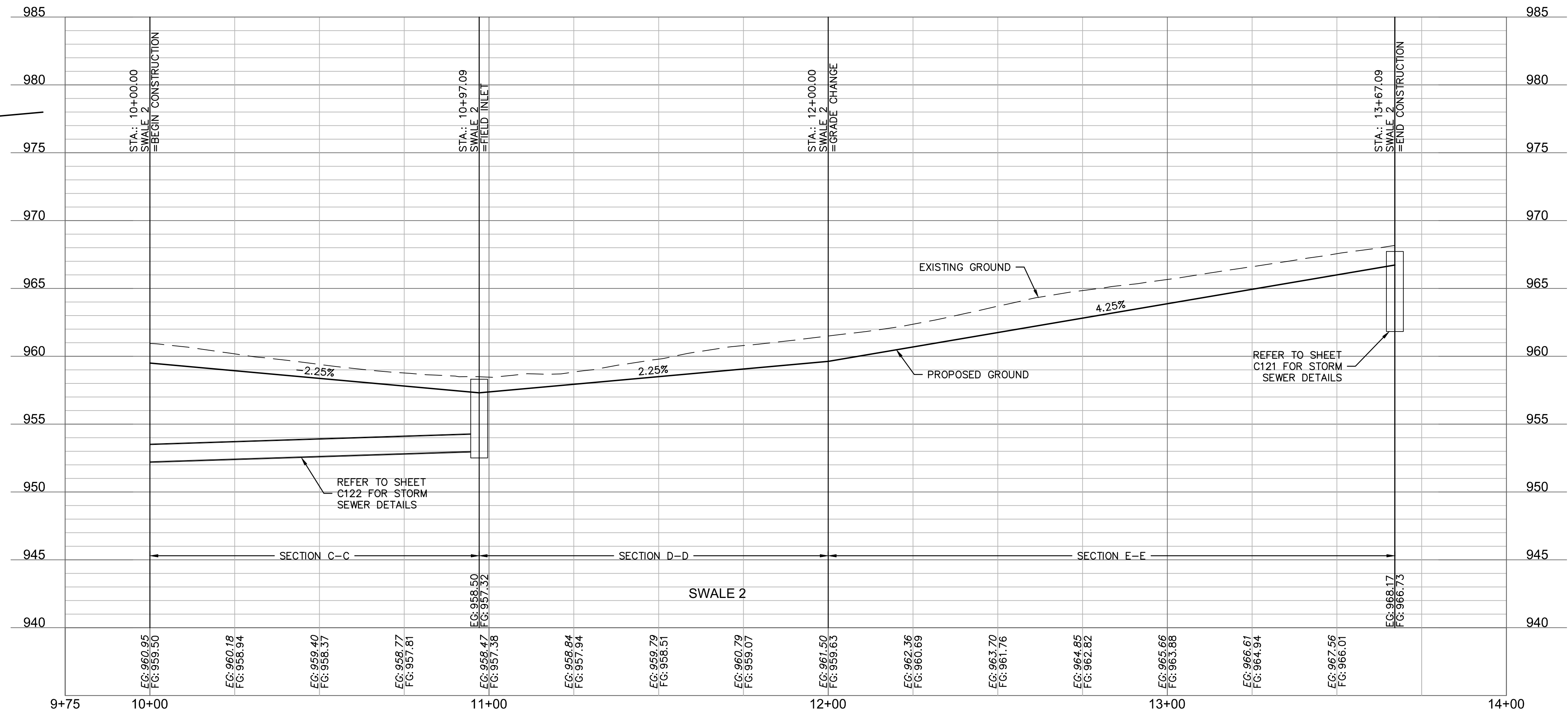
NOTE: INCLUDE SUMP PER ABOVE DETAIL WHERE FIELD INLETS ARE LOCATED WITHIN SWALES.

SUMP DETAIL  
 N.T.S.

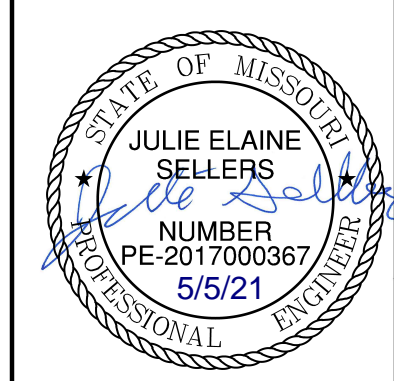


SWALE GRADING NOTES:

- CONTRACTOR SHALL CONSTRUCT SWALES WITH MINIMUM SLOPE, WIDTH AND DEPTH AS SHOWN IN THE SWALE DESIGN TABLES.
- AS-BUILT SURVEY IS REQUIRED/APPROVED BY CITY FOR ALL SWALES AND PRIOR TO APPROVAL FOR ANY BUILDING FOUNDATION PERMIT. CONTRACTOR SHALL BE REQUIRED TO REGRADE SWALES AT CONTRACTOR'S EXPENSE IF ABOVE REQUIREMENTS ARE NOT MET.



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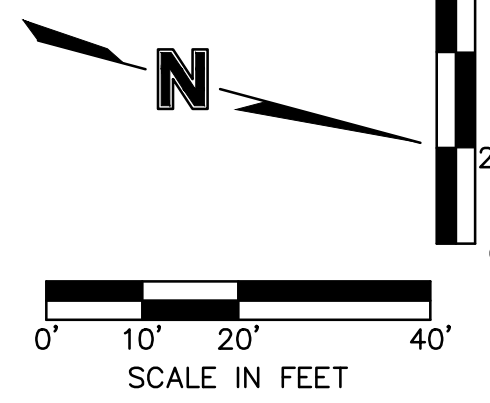
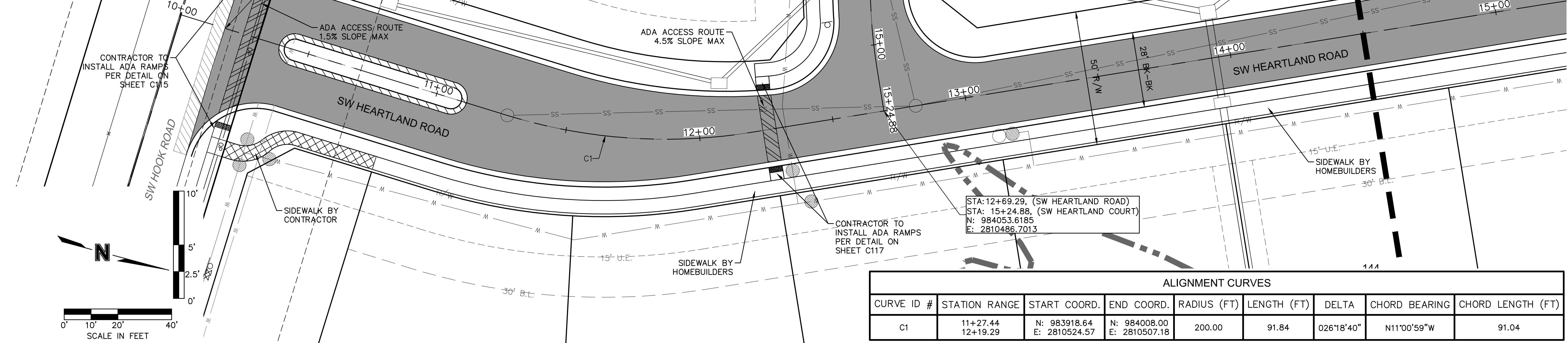
SWALE 2 PLAN & PROFILE  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEES SUMMIT, MO  
 2021

drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021



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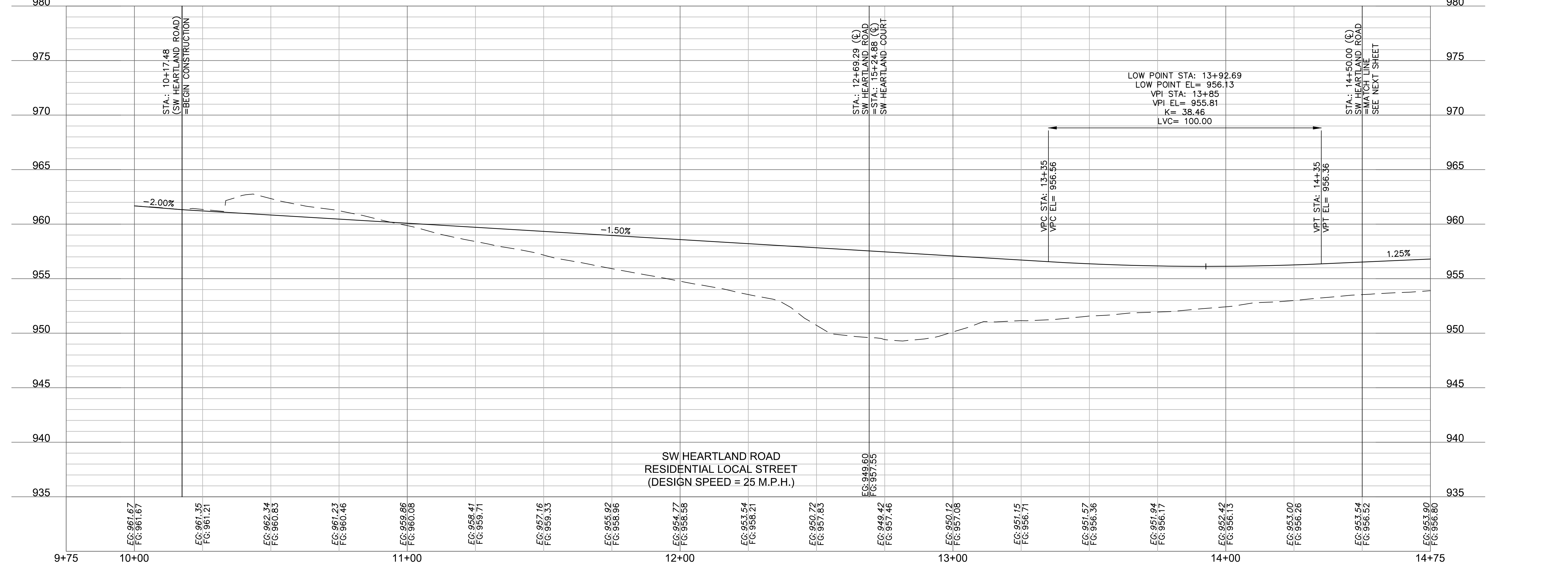
LEGEND	
	ADA ACCESS ROUTE
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	MILL & OVERLAY
	CG-2 CURB & GUTTER
	CG-2 DRY CURB & GUTTER



STA: 10+17.66, (SW HEARTLAND ROAD)  
 N: 983808.9338  
 E: 2810520.4733  
 SAW CUT 1'-0" OF EXISTING PAVEMENT. MILL 2" OFF 5'-0" OF EXISTING PAVEMENT TO FACILITATE A SMOOTH JOINT.  
 =BEGIN CONSTRUCTION

STA: 12+69.29, (SW HEARTLAND ROAD)  
 STA: 15+24.88, (SW HEARTLAND COURT)  
 N: 984053.6185  
 E: 2810486.7013

ALIGNMENT CURVES								
CURVE ID #	STATION RANGE	START COORD.	END COORD.	RADIUS (FT)	LENGTH (FT)	DELTA	CHORD BEARING	CHORD LENGTH (FT)
C1	11+27.44 12+19.29	N: 983918.64 E: 2810524.57	N: 984008.00 E: 2810507.18	200.00	91.84	026°18'40"	N11°00'59"W	91.04



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STATE OF MISSOURI  
 JULIE ELAINE SELLERS  
 PE-2017000367  
 5/5/21  
 PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

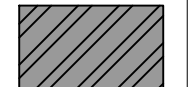


SW HEARTLAND ROAD PLAN & PROFILE  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEE'S SUMMIT, MO

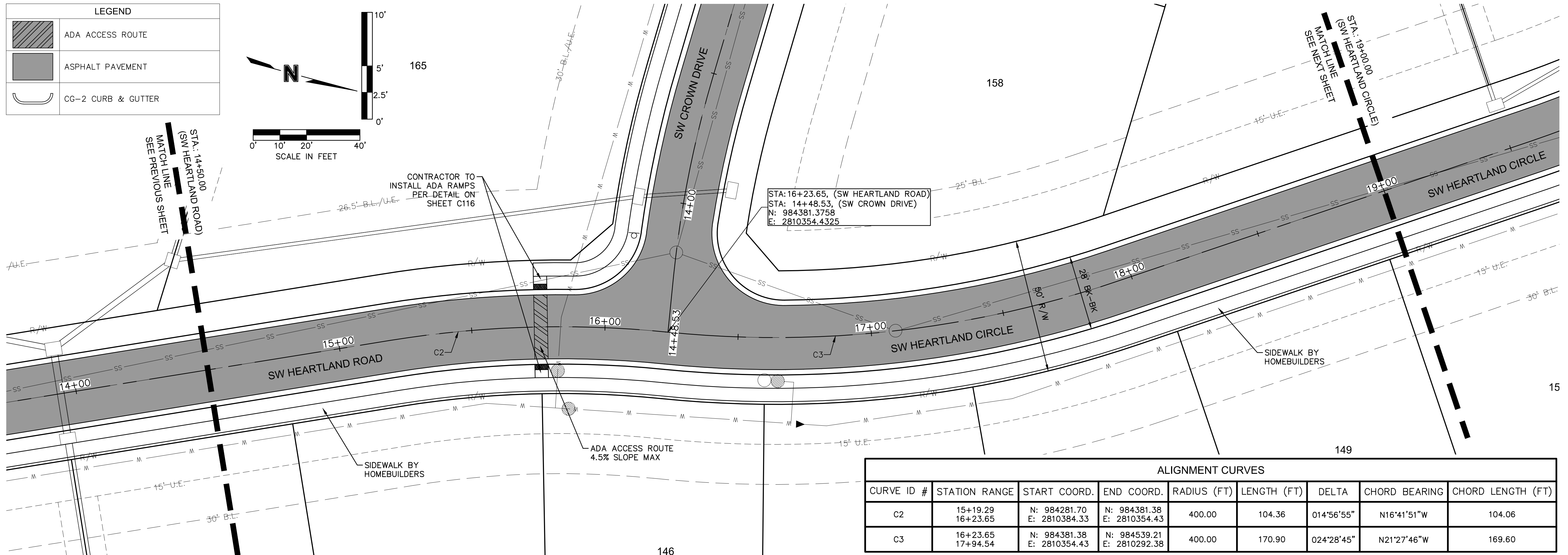
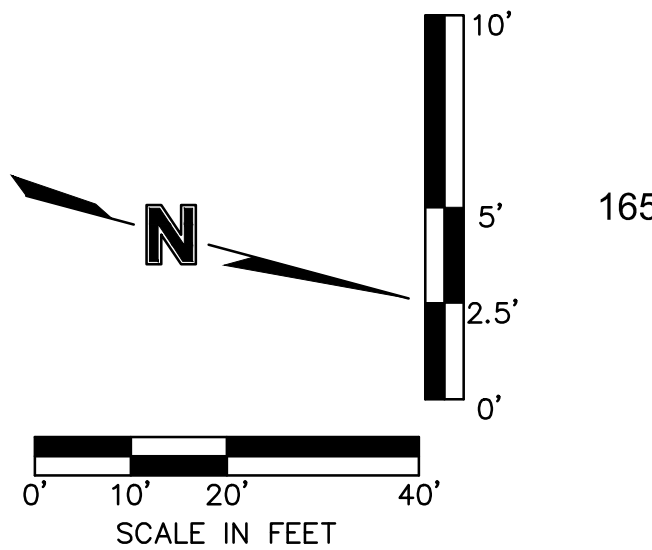
drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

SHEET  
 C109

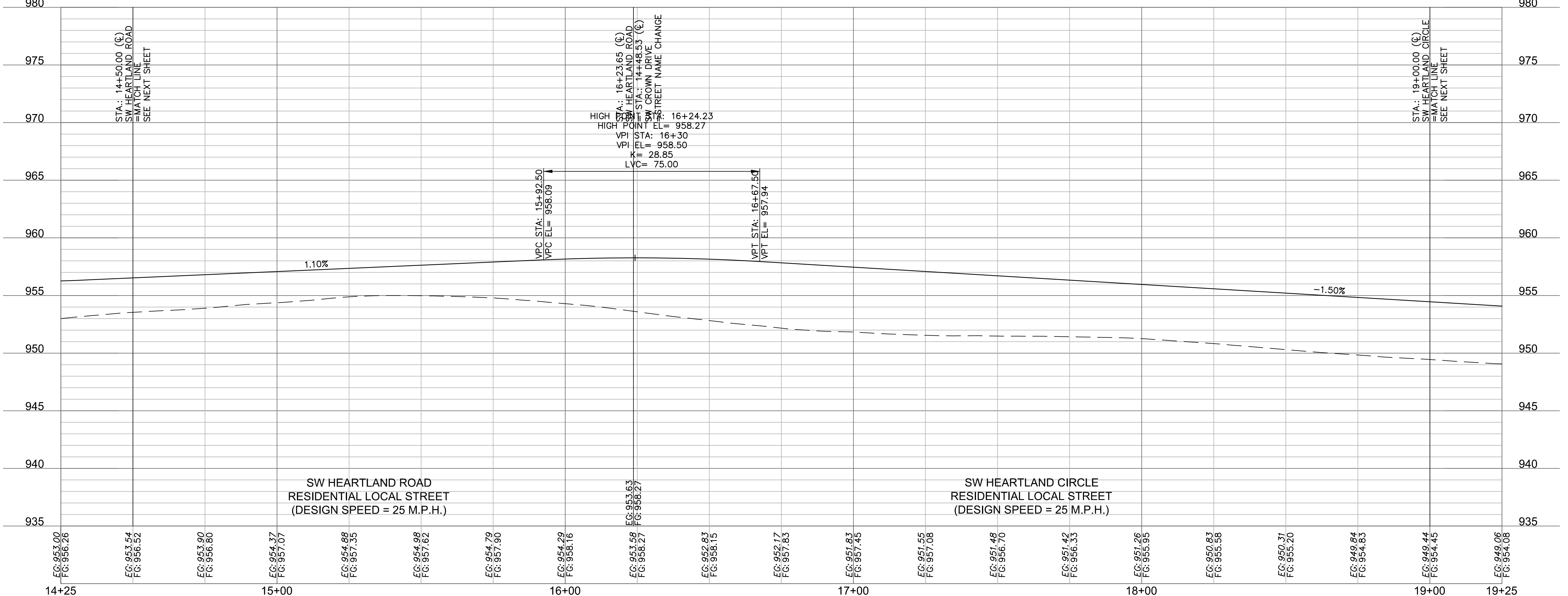
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 USER: bworthley

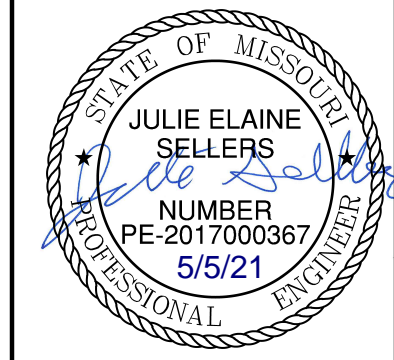
LEGEND	
	ADA ACCESS ROUTE
	ASPHALT PAVEMENT
	CG-2 CURB & GUTTER



ALIGNMENT CURVES								
CURVE ID #	STATION RANGE	START COORD.	END COORD.	RADIUS (FT)	LENGTH (FT)	DELTA	CHORD BEARING	CHORD LENGTH (FT)
C2	15+19.29 16+23.65	N: 984281.70 E: 2810384.33	N: 984381.38 E: 2810354.43	400.00	104.36	014°56'55"	N16°41'51"W	104.06
C3	16+23.65 17+94.54	N: 984381.38 E: 2810354.43	N: 984539.21 E: 2810292.38	400.00	170.90	024°28'45"	N21°27'46"W	169.60



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REV. NO.	DATE	REVISIONS DESCRIPTION

SW HEARTLAND ROAD PLAN & PROFILE  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEES SUMMIT, MO

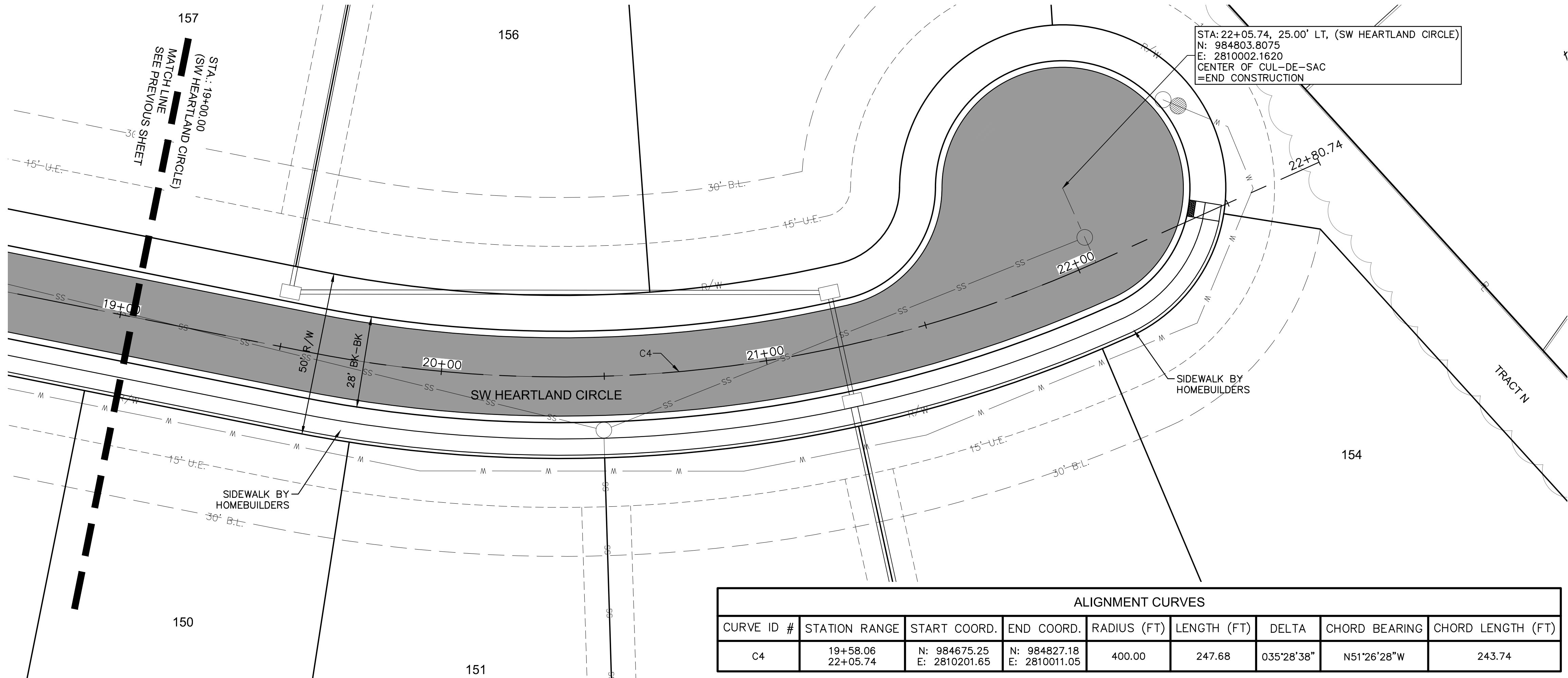
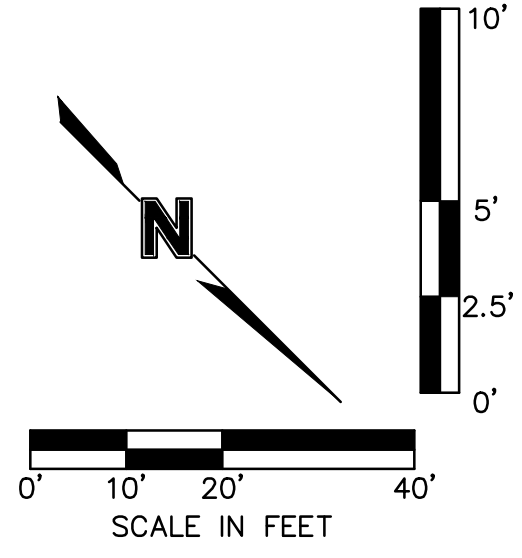
2021

drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

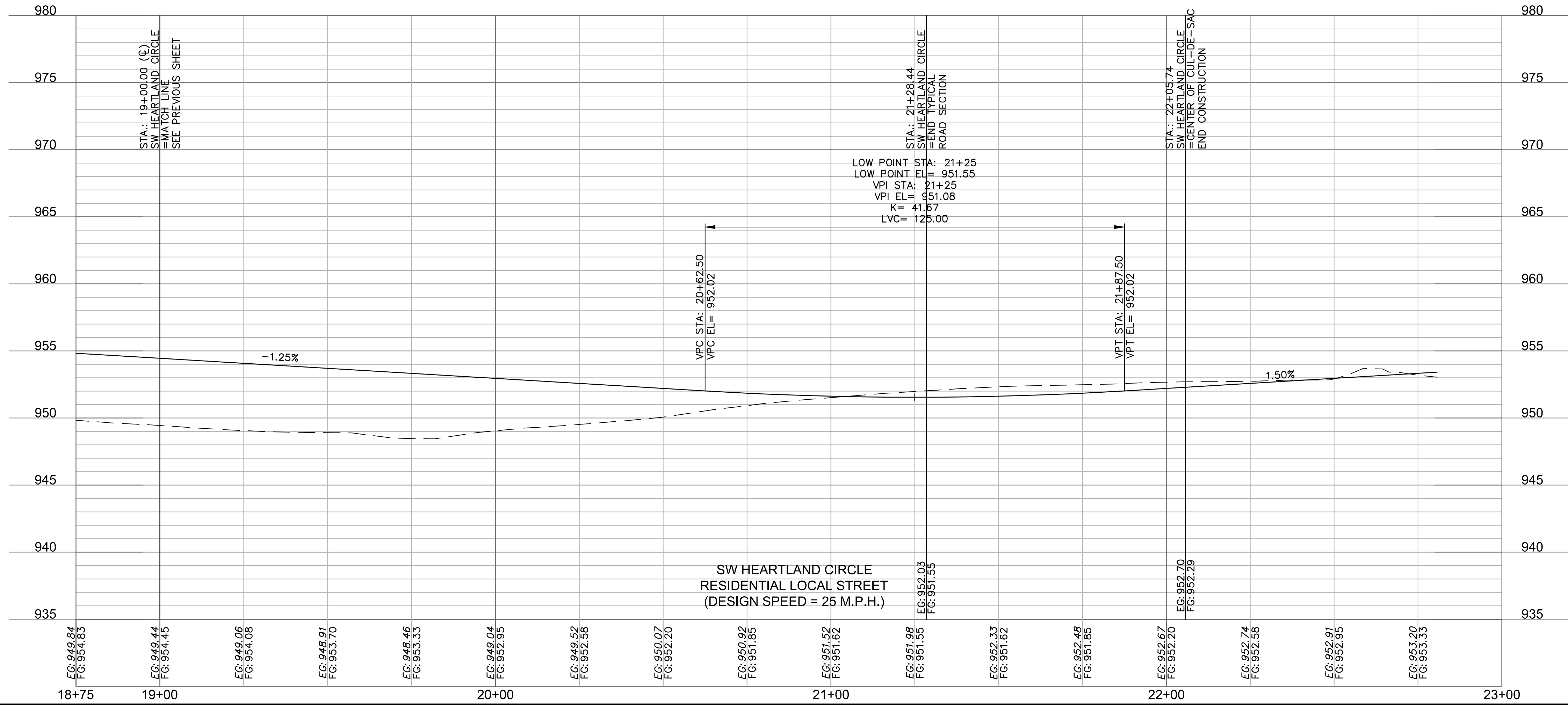
**SHEET C110**

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 DATE: May 05, 2021 3:48pm XREFS: C\_PTBK\_A194059 C\_PBASE\_A194059 C\_PJUL\_A194059 C\_PBNBY\_A194059 C\_PPRAT\_A194059

LEGEND	
	ASPHALT PAVEMENT
	CG-2 CURB & GUTTER



ALIGNMENT CURVES								
CURVE ID #	STATION RANGE	START COORD.	END COORD.	RADIUS (FT)	LENGTH (FT)	DELTA	CHORD BEARING	CHORD LENGTH (FT)
C4	19+58.06 22+05.74	N: 984675.25 E: 2810201.65	N: 984827.18 E: 2810011.05	400.00	247.68	035°28'38"	N51°26'28"W	243.74



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REV. NO.	DATE	REVISIONS DESCRIPTION	BY

SW HEARTLAND ROAD PLAN & PROFILE  
 STREET & STORM SEWER PLANS

THE RETREAT AT HOOK FARMS  
 SECOND PLAT

LEE'S SUMMIT, MO

2021

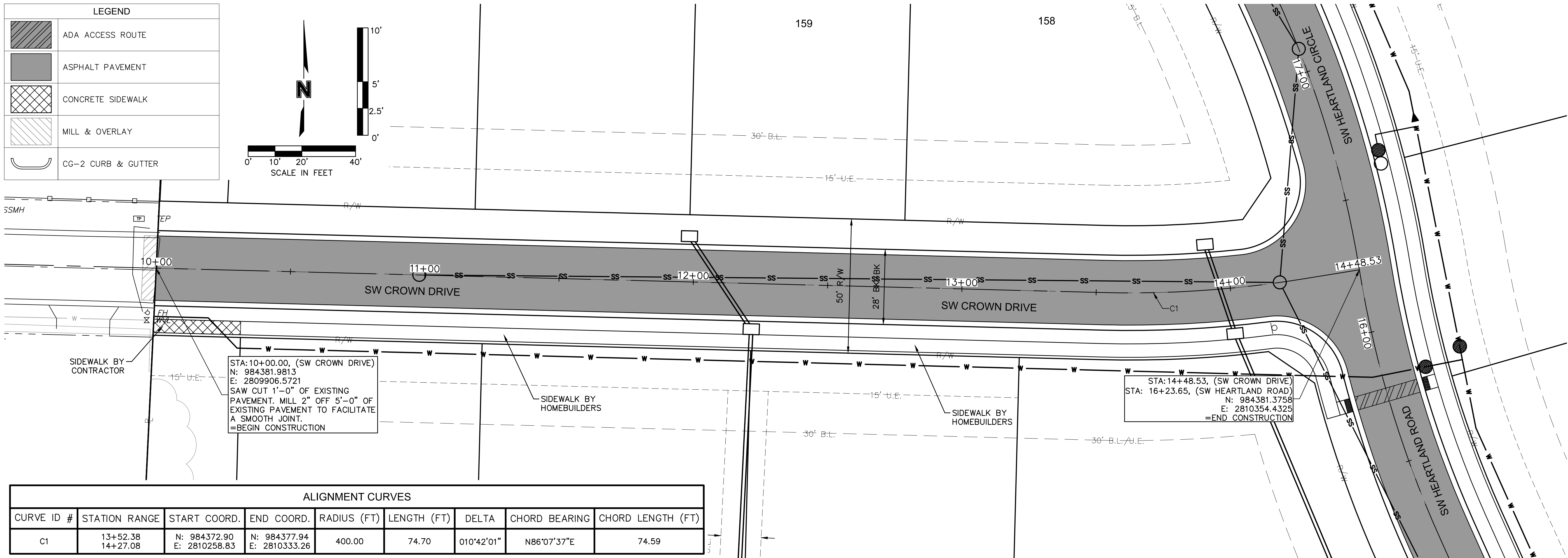
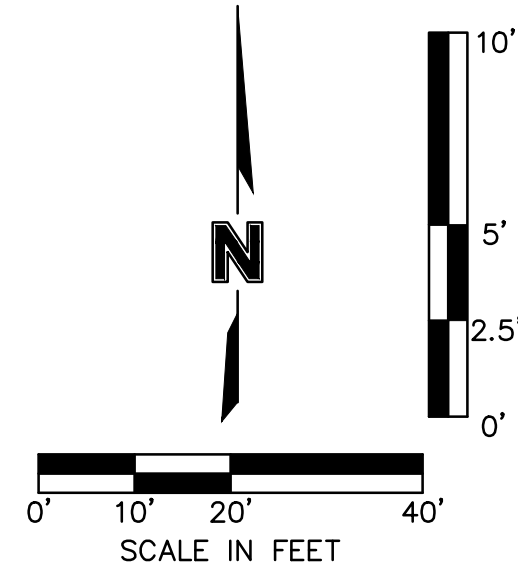
REVISIONS

drawn by: B.M.W./A.A.
checked by: B.M.W.
designed by: B.M.W./A.A.
QA/QC by: J.E.S.
project no.: A19-4059
date: 05-05-2021

**SHEET**  
C111

DWG: F:\2019\4001-4500\019-4059-A 40-Design\AutoCAD\Final Plans\Sheets\GNCA\Street & Storm Sewer Plans\C\_RP02\_A194059.dwg  
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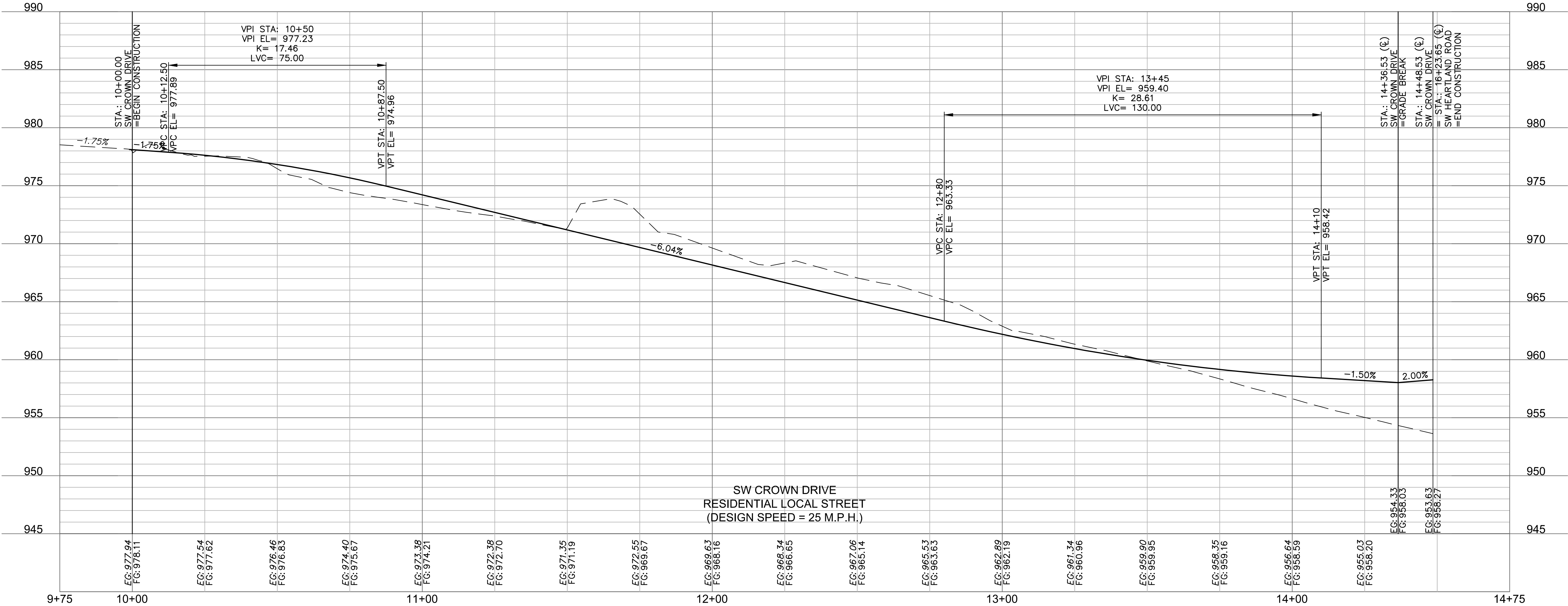
LEGEND	
	ADA ACCESS ROUTE
	ASPHALT PAVEMENT
	CONCRETE SIDEWALK
	MILL & OVERLAY
	CG-2 CURB & GUTTER



STA: 10+00.00, (SW CROWN DRIVE)  
 N: 984381.9813  
 E: 2809906.5721  
 SAW CUT 1'-0" OF EXISTING PAVEMENT, MILL 2" OFF 5'-0" OF EXISTING PAVEMENT TO FACILITATE A SMOOTH JOINT.  
 =BEGIN CONSTRUCTION

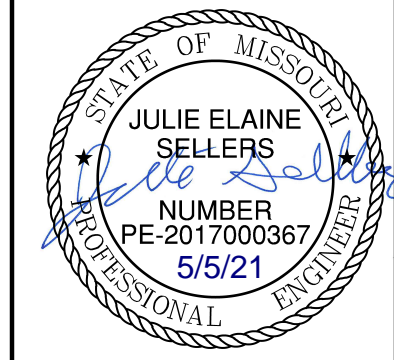
STA: 14+48.53, (SW CROWN DRIVE)  
 STA: 16+23.65, (SW HEARTLAND ROAD)  
 N: 984381.3758  
 E: 2810354.4325  
 =END CONSTRUCTION

ALIGNMENT CURVES								
CURVE ID #	STATION RANGE	START COORD.	END COORD.	RADIUS (FT)	LENGTH (FT)	DELTA	CHORD BEARING	CHORD LENGTH (FT)
C1	13+52.38 14+27.08	N: 984372.90 E: 2810258.83	N: 984377.94 E: 2810333.26	400.00	74.70	010°42'01"	N86°07'37"E	74.59



SW CROWN DRIVE  
 RESIDENTIAL LOCAL STREET  
 (DESIGN SPEED = 25 M.P.H.)

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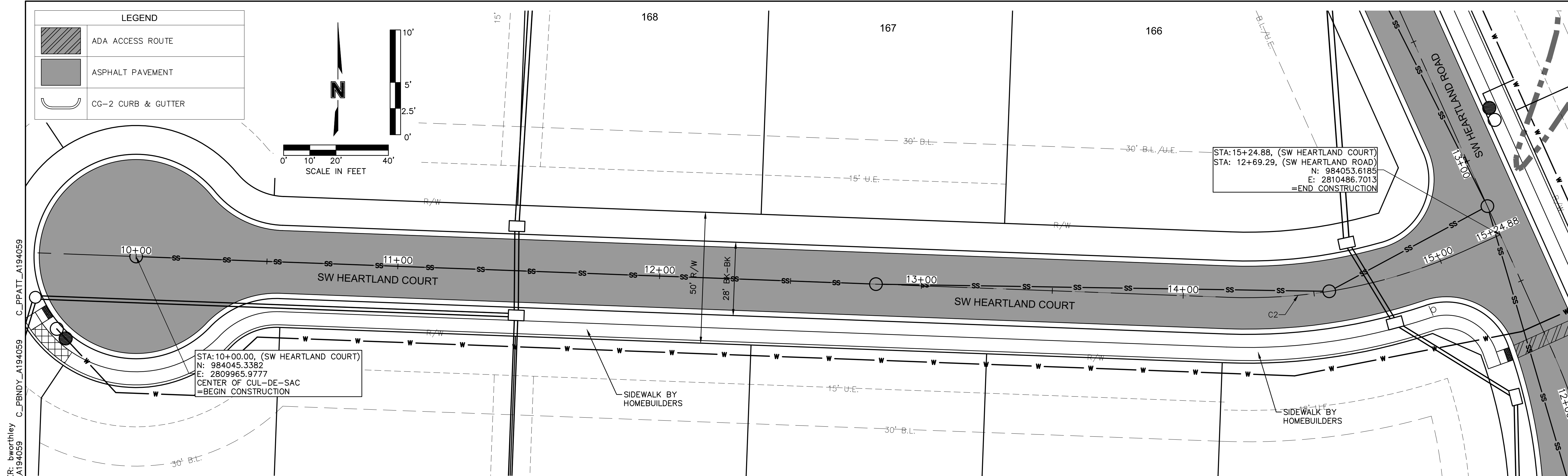


REV. NO.	DATE	REVISIONS DESCRIPTION	BY

SW CROWN DRIVE PLAN & PROFILE  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEE'S SUMMIT, MO  
 2021

drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

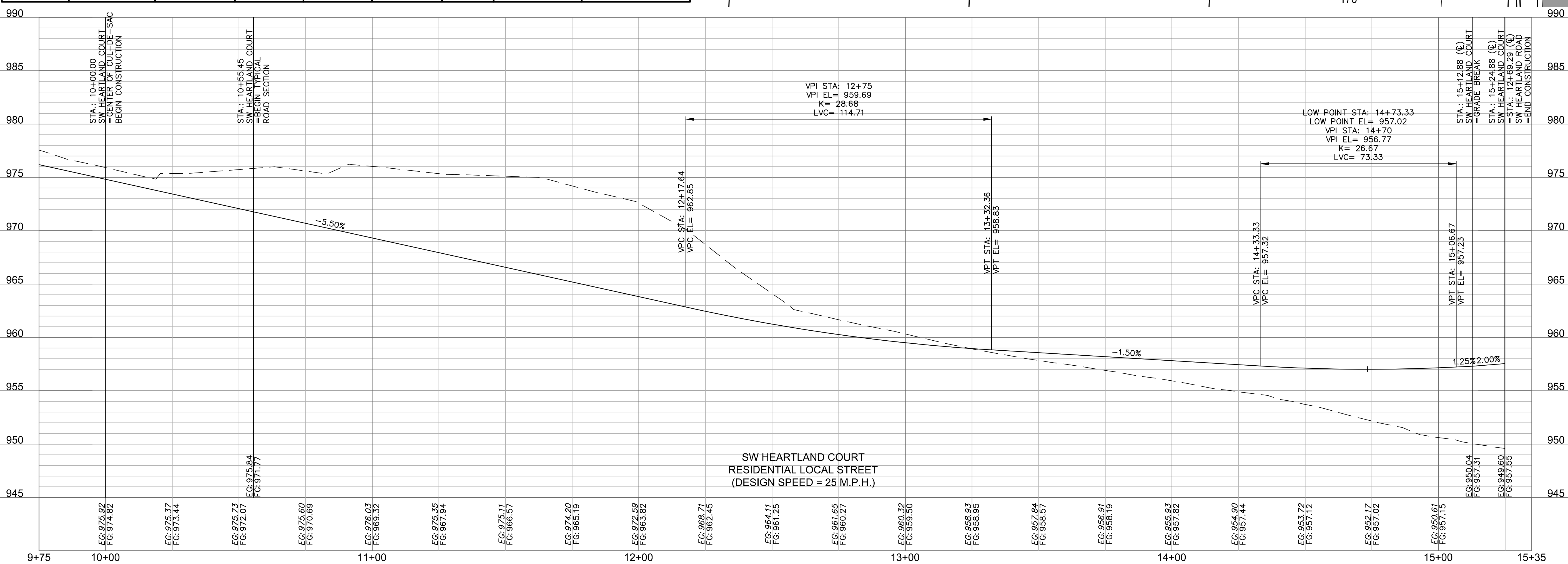
SHEET  
 C112



STA: 10+00.00, (SW HEARTLAND COURT)  
 N: 984045.3382  
 E: 2809965.9777  
 CENTER OF CUL-DE-SAC  
 =BEGIN CONSTRUCTION

STA: 15+24.88, (SW HEARTLAND COURT)  
 STA: 12+69.29, (SW HEARTLAND ROAD)  
 N: 984053.6185  
 E: 2810486.7013  
 =END CONSTRUCTION

ALIGNMENT CURVES								
CURVE ID #	STATION RANGE	START COORD.	END COORD.	RADIUS (FT)	LENGTH (FT)	DELTA	CHORD BEARING	CHORD LENGTH (FT)
C2	14+17.26 15+09.10	N: 984029.76 E: 2810382.95	N: 984047.16 E: 2810472.31	200.00	91.84	026°18'40"	N78°59'01"E	91.04



DWG: F:\2019\4001-4500\019-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNV\Street & Storm Sewer Plans\C\_RP02\_A194059.dwg  
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 USER: bworthley

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 FAX 816.361.7888  
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STATE OF MISSOURI  
 JULIE ELAINE  
 SELLERS  
 PE-2017000367  
 5/5/21  
 PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

**SW HEARTLAND COURT PLAN & PROFILE  
 STREET & STORM SEWER PLANS**

**THE RETREAT AT HOOK FARMS  
 SECOND PLAT**

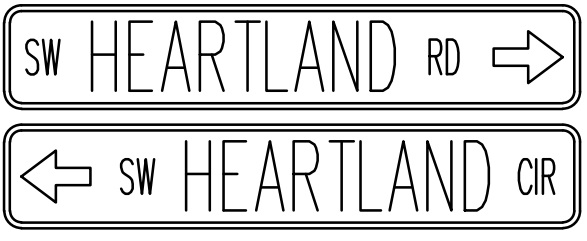
LEE'S SUMMIT, MO

2021

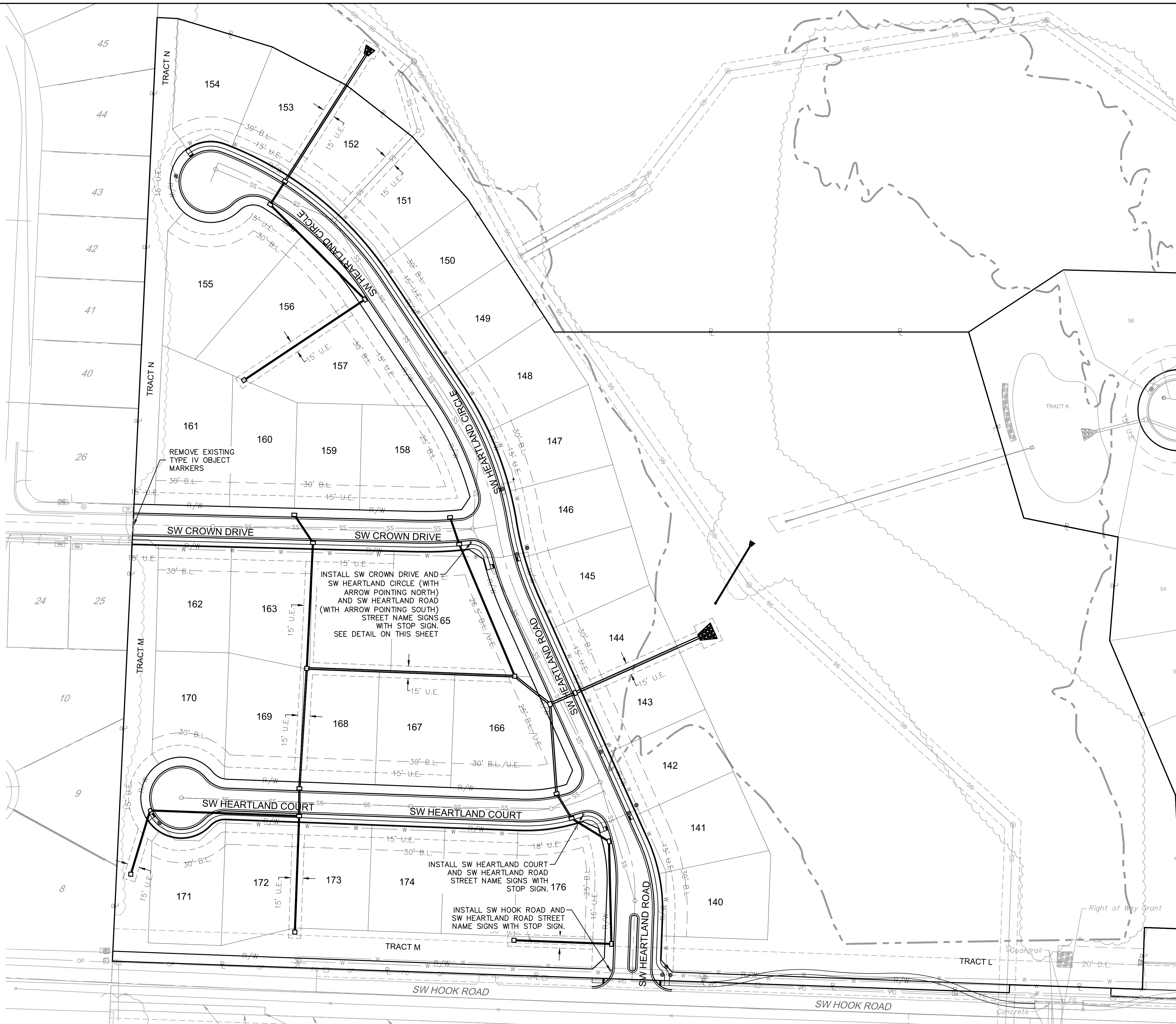
drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

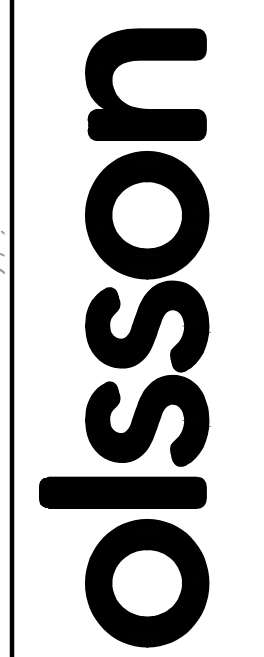
**SHEET  
 C113**

DWG: F:\2019\4001-4500\019-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNCA\Street & Storm Sewer Plans\C\_TCP01\_A194059.dwg USER: bworthley  
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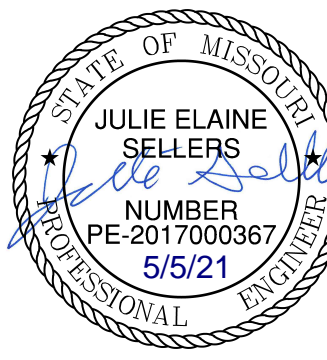


SW HEARTLAND ROAD & SW HEARTLAND CIRCLE  
SIGN DETAILS  
N.T.S.





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REV. NO.	DATE	REVISIONS DESCRIPTION

TRAFFIC CONTROL PLAN  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT

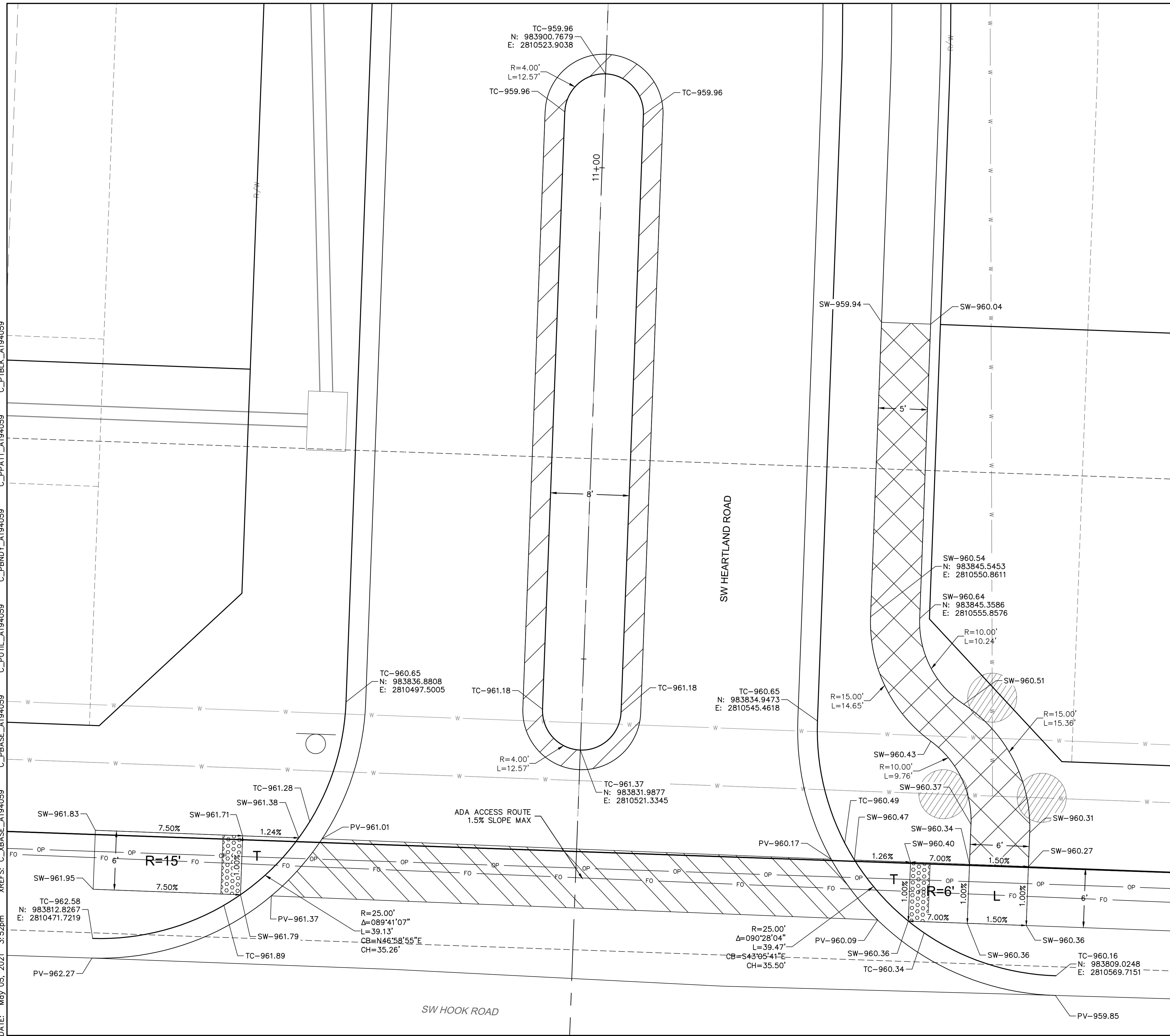
2021

REVISIONS

drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

**SHEET**  
C114

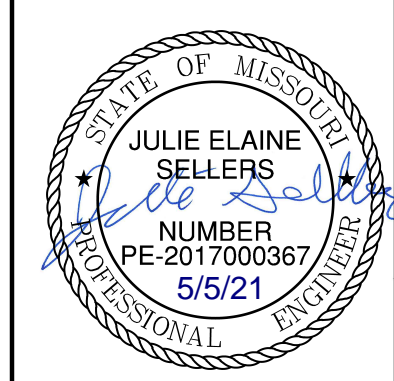
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- INTERSECTION AND ADA DETAIL NOTES:**
1. ALL ADA CURB RAMP SHALL BE BUILT PER CURRENT MUNICIPALITY ADOPTED ADA STANDARDS.
  2. CURB RAMP FLARES SHALL NOT BE STEEPER THAN 1:10 MAX SLOPES.
  3. LANDING SHALL BE PROVIDED WHERE INDICATED ON PLAN SHEET OR BY PROWAG STANDARDS. LANDING SHALL BE 4'X4' MINIMUM. RAMP RUNS SHALL HAVE A MAXIMUM RUNNING SLOPE OF 1:12 UNLESS THE RAMP LENGTH IS OVER 15 FEET, THEN THE SLOPE CAN BE GREATER AS INDICATED IN DETAILS TO REACH STREET GRADES.
  4. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
  5. CROSS SLOPE FOR RAMPS AND SIDEWALK SHALL NOT EXCEED 2%.
  6. AFTER CURBS HAVE BEEN CONSTRUCTED, AND BEFORE ASPHALT OR CONCRETE PAVEMENT IS POURED, CURBS SHOULD BE MEASURED WITH A LEVEL TO ENSURE CURB ALONG ADA RAMPS AND LANDINGS WILL MEET ADA REQUIREMENTS.
  7. ADA RAMP CONSTRUCTION WILL BE INSPECTED THOROUGHLY BY THE CITY INSPECTOR. CONTRACTOR SHALL BE REQUIRED TO RECONSTRUCT RAMPS, CURBS AND/OR PAVEMENT AT CONTRACTOR'S EXPENSE IF ADA RAMPS AND LANDINGS CANNOT MEET THE ADA REQUIREMENTS, PER APPROVED PLAN OR APPROVED ALTERNATIVE.
  8. CURVE DATA IS FOR BACK OF CURB.

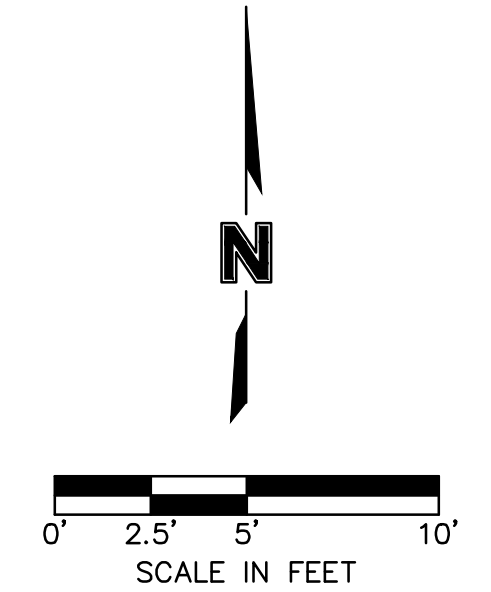
LEGEND	
TC-	TOP OF CURB
PV-	TOP OF PAVEMENT
SW-	SIDEWALK
L	LANDING AREA
R	RAMP AREA
T	TRANSITION AREA
	ADA ACCESS ROUTE
	CG-2 CURB & GUTTER
	CG-2 DRY CURB & GUTTER

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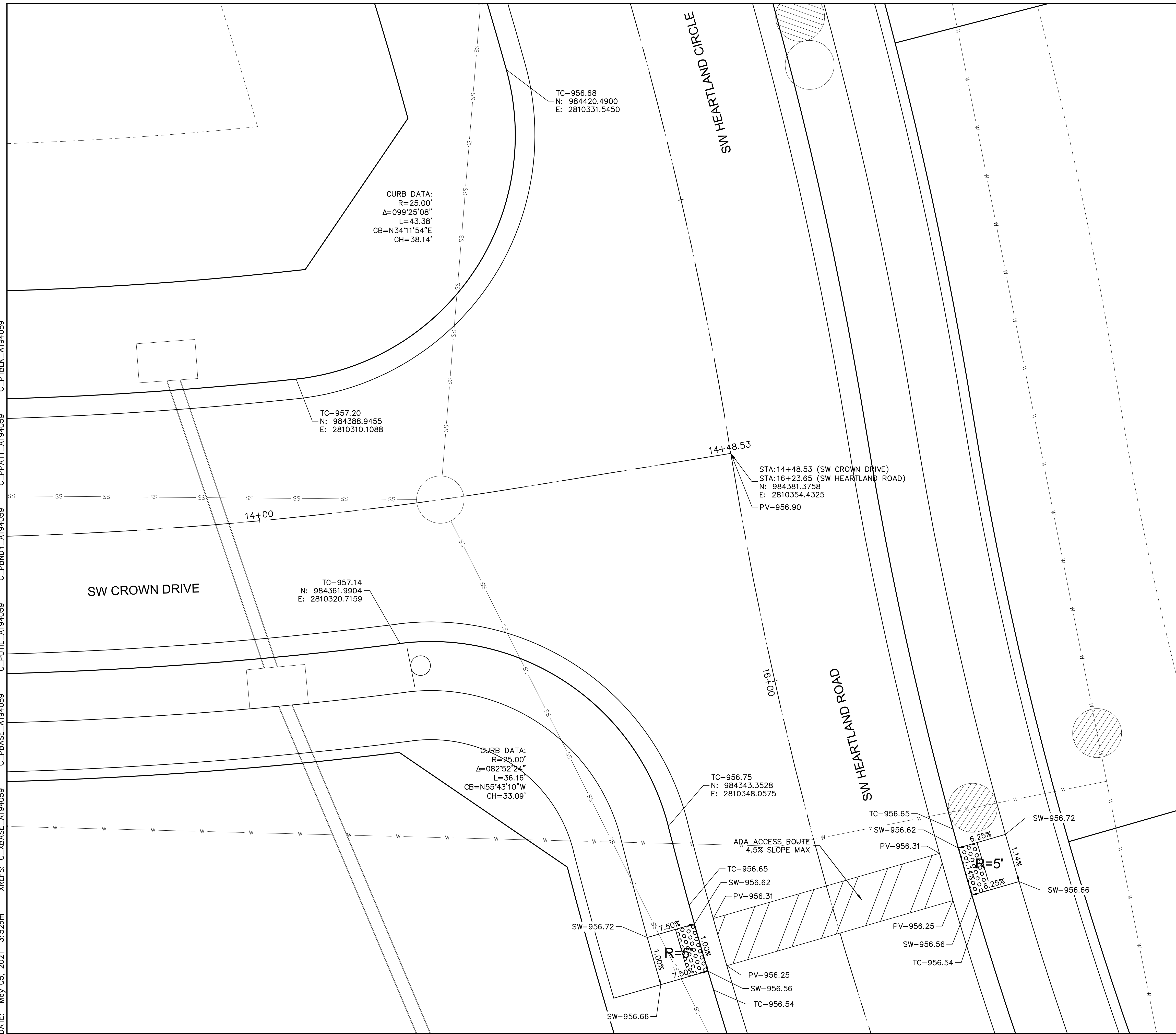
REV. NO.	DATE	REVISIONS DESCRIPTION	BY

SW HOOK ROAD & SW HEARTLAND ROAD DETAILS  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEE'S SUMMIT, MO  
 2021



drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

DWG: F:\2019\4001-4500\019-4059-A 40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street & Storm Sewer Plans\C\_INT01\_A194059.dwg USER: bworthley  
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CURB DATA:  
 R=25.00'  
 $\Delta=099^{\circ}25'08''$   
 L=43.38'  
 CB=N34 $^{\circ}11'54''$ E  
 CH=38.14'

TC-957.20  
 N: 984388.9455  
 E: 2810310.1088

TC-957.14  
 N: 984361.9904  
 E: 2810320.7159

CURB DATA:  
 R=25.00'  
 $\Delta=082^{\circ}52'24''$   
 L=36.16'  
 CB=N55 $^{\circ}43'10''$ W  
 CH=33.09'

TC-956.68  
 N: 984420.4900  
 E: 2810331.5450

TC-956.75  
 N: 984343.3528  
 E: 2810348.0575

STA: 14+48.53 (SW CROWN DRIVE)  
 STA: 16+23.65 (SW HEARTLAND ROAD)  
 N: 984381.3758  
 E: 2810354.4325  
 PV-956.90

TC-956.65  
 SW-956.62  
 PV-956.31

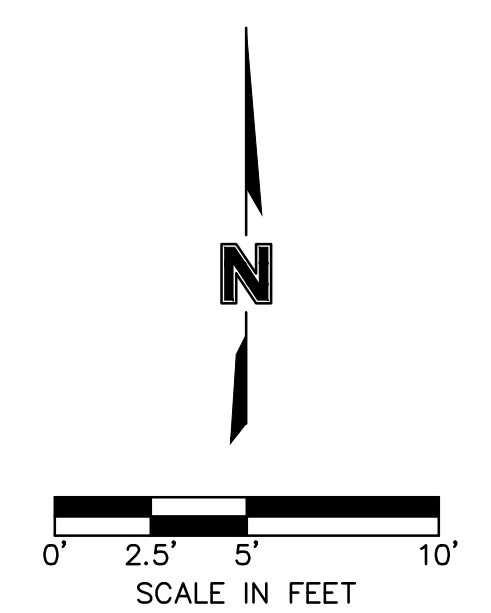
TC-956.65  
 SW-956.62  
 PV-956.31  
 SW-956.72  
 SW-956.66

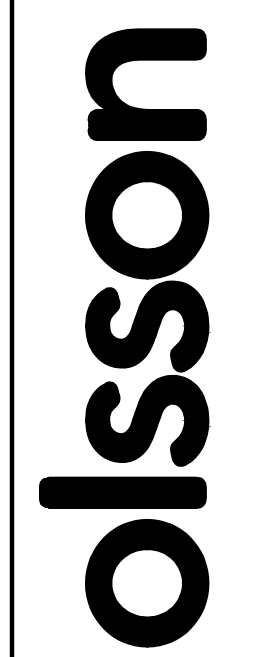
PV-956.25  
 SW-956.56  
 TC-956.54

SW-956.72  
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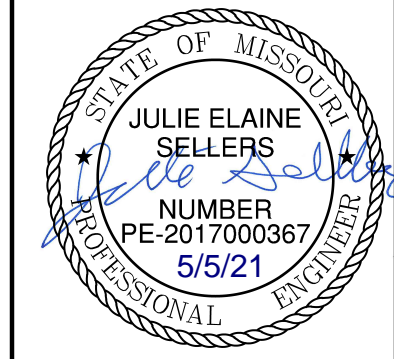
- INTERSECTION AND ADA DETAIL NOTES:
1. ALL ADA CURB RAMPS SHALL BE BUILT PER CURRENT MUNICIPALITY ADOPTED ADA STANDARDS.
  2. CURB RAMP FLARES SHALL NOT BE STEEPER THAN 1:10 MAX SLOPES.
  3. LANDING SHALL BE PROVIDED WHERE INDICATED ON PLAN SHEET OR BY PROWAG STANDARDS. LANDING SHALL BE 4'X4' MINIMUM. RAMP RUNS SHALL HAVE A MAXIMUM RUNNING SLOPE OF 1:12 UNLESS THE RAMP LENGTH IS OVER 15 FEET, THEN THE SLOPE CAN BE GREATER AS INDICATED IN DETAILS TO REACH STREET GRADES.
  4. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
  5. CROSS SLOPE FOR RAMPS AND SIDEWALK SHALL NOT EXCEED 2%.
  6. AFTER CURBS HAVE BEEN CONSTRUCTED, AND BEFORE ASPHALT OR CONCRETE PAVEMENT IS POURED, CURBS SHOULD BE MEASURED WITH A LEVEL TO ENSURE CURB ALONG ADA RAMPS AND LANDINGS WILL MEET ADA REQUIREMENTS.
  7. ADA RAMP CONSTRUCTION WILL BE INSPECTED THOROUGHLY BY THE CITY INSPECTOR. CONTRACTOR SHALL BE REQUIRED TO RECONSTRUCT RAMPS, CURBS AND/OR PAVEMENT AT CONTRACTOR'S EXPENSE IF ADA RAMPS AND LANDINGS CANNOT MEET THE ADA REQUIREMENTS, PER APPROVED PLAN OR APPROVED ALTERNATIVE.
  8. CURVE DATA IS FOR BACK OF CURB.

LEGEND	
TC-	TOP OF CURB
PV-	TOP OF PAVEMENT
SW-	SIDEWALK
L	LANDING AREA
R	RAMP AREA
T	TRANSITION AREA
	ADA ACCESS ROUTE
	CG-2 CURB & GUTTER
	CG-2 DRY CURB & GUTTER





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 North Kansas City, MO 64116  
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REV. NO.	DATE	REVISIONS DESCRIPTION	BY

SW HEARTLAND ROAD & SW CROWN DRIVE DETAILS  
 STREET & STORM SEWER PLANS

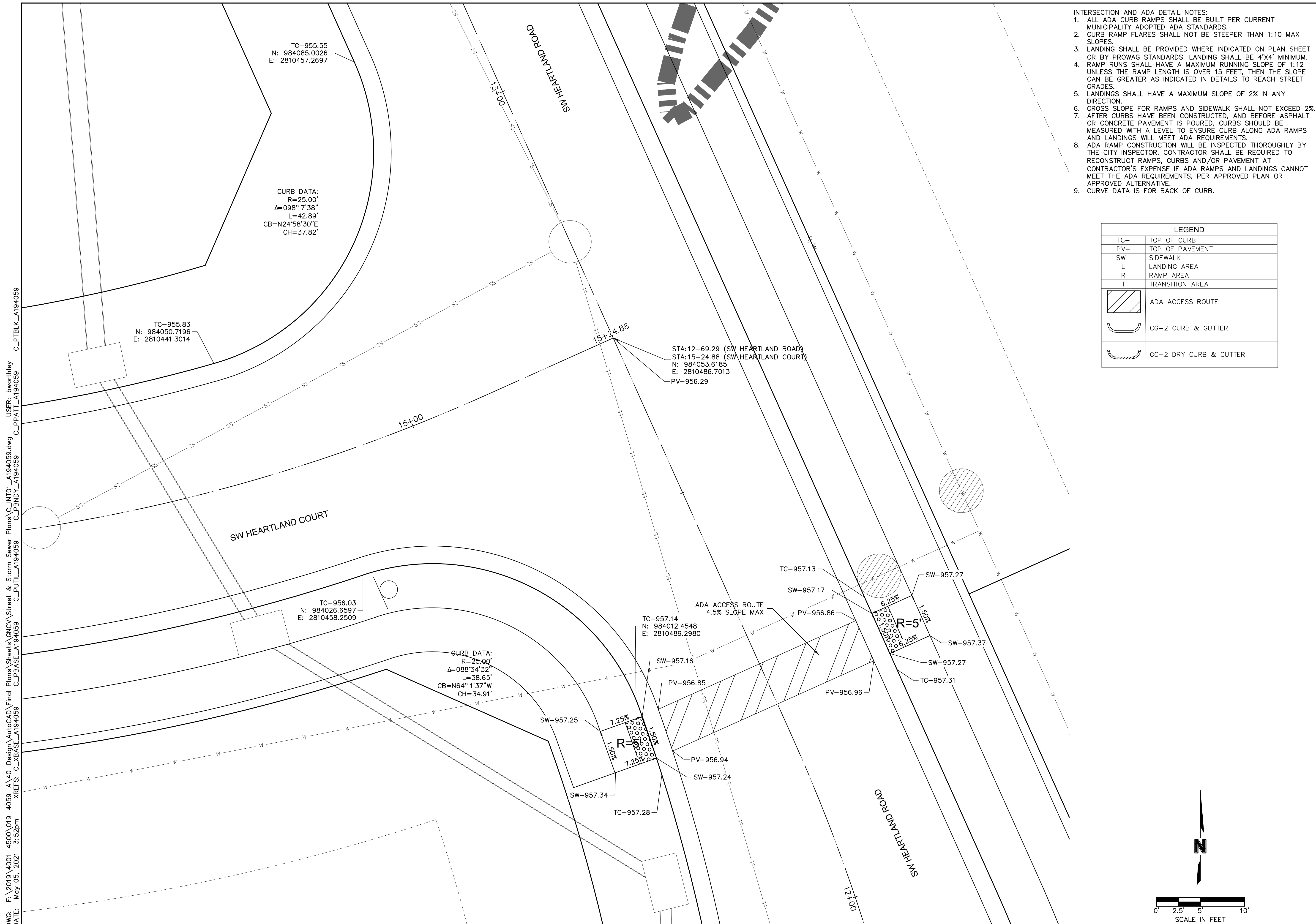
THE RETREAT AT HOOK FARMS  
 SECOND PLAT

REVISIONS  
 2021

drawn by: B.M.W./A.A.  
 checked by: B.M.W.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

**SHEET**  
**C116**





TC-955.55  
N: 984085.0026  
E: 2810457.2697

CURB DATA:  
R=25.00'  
Δ=098°17'38"  
L=42.89'  
CB=N24°58'30"E  
CH=37.82'

TC-955.83  
N: 984050.7196  
E: 2810441.3014

15+24.88

STA: 12+69.29 (SW HEARTLAND ROAD)  
STA: 15+24.88 (SW HEARTLAND COURT)  
N: 984053.6185  
E: 2810486.7013  
PV-956.29

TC-956.03  
N: 984026.6597  
E: 2810458.2509

CURB DATA:  
R=25.00'  
Δ=088°34'32"  
L=38.65'  
CB=N64°11'37"W  
CH=34.91'

TC-957.14  
N: 984012.4548  
E: 2810489.2980

SW-957.25  
SW-957.34  
TC-957.28

PV-956.85  
PV-956.94  
SW-957.24

TC-957.13  
SW-957.17  
PV-956.86

PV-956.96

SW-957.27  
SW-957.37  
TC-957.31

- INTERSECTION AND ADA DETAIL NOTES:
1. ALL ADA CURB RAMPS SHALL BE BUILT PER CURRENT MUNICIPALITY ADOPTED ADA STANDARDS.
  2. CURB RAMP FLARES SHALL NOT BE STEEPER THAN 1:10 MAX SLOPES.
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  9. CURVE DATA IS FOR BACK OF CURB.

LEGEND	
TC-	TOP OF CURB
PV-	TOP OF PAVEMENT
SW-	SIDEWALK
L	LANDING AREA
R	RAMP AREA
T	TRANSITION AREA
	ADA ACCESS ROUTE
	CG-2 CURB & GUTTER
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STATE OF MISSOURI  
JULIE ELAINE  
SELLERS  
NUMBER  
PE-2017000367  
5/5/21  
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

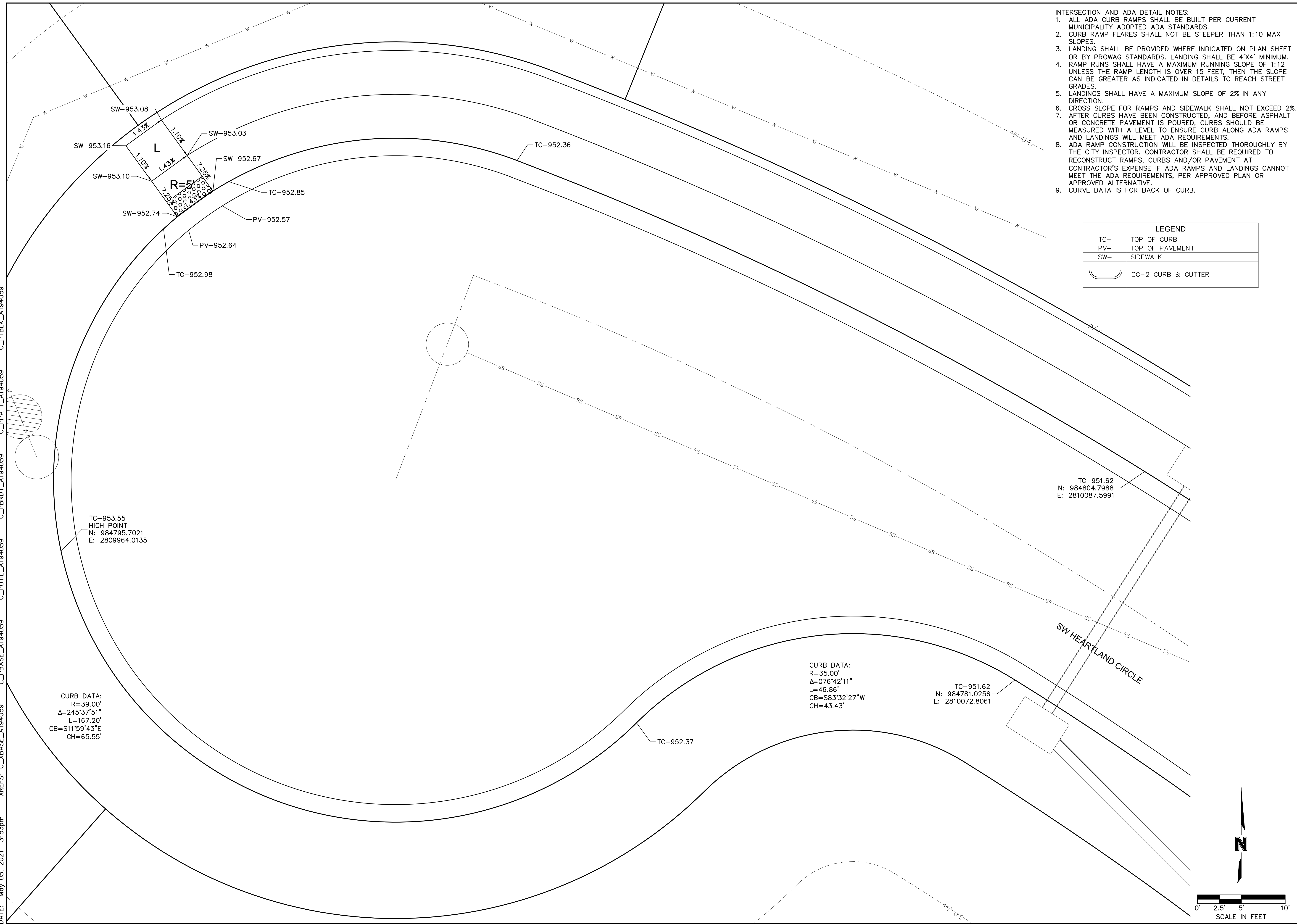
SW HEARTLAND ROAD & SW HEARTLAND COURT DETAIL  
STREET & STORM SEWER PLANS  
THE RETREAT AT HOOK FARMS  
SECOND PLAT  
LEE'S SUMMIT, MO  
2021

drawn by: B.M.W./A.A.  
checked by: B.M.W./A.A.  
designed by: B.M.W./A.A.  
QA/QC by: J.E.S.  
project no.: A19-4056  
date: 05-05-2021

SHEET  
C117

DWG: F:\2019\4001-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNCA\Street & Storm Sewer Plans\C\_INT01\_A194059.dwg  
DATE: May 05, 2021 3:52pm  
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USER: bworthley

DWG: F:\2019\4001-4500\019-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street & Storm Sewer Plans\C\_INT02\_A194059.dwg USER: bworthley  
 DATE: May 05, 2021 3:53pm XREFS: C\_XBASE\_A194059 C\_PUTIL\_A194059 C\_PBASE\_A194059 C\_PBNBY\_A194059 C\_PPAT\_A194059 C\_PTBLK\_A194059

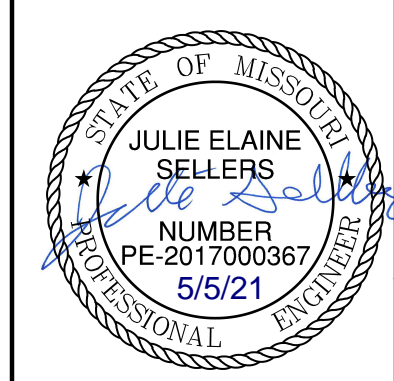


- INTERSECTION AND ADA DETAIL NOTES:
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  9. CURVE DATA IS FOR BACK OF CURB.

LEGEND	
TC-	TOP OF CURB
PV-	TOP OF PAVEMENT
SW-	SIDEWALK
	CG-2 CURB & GUTTER

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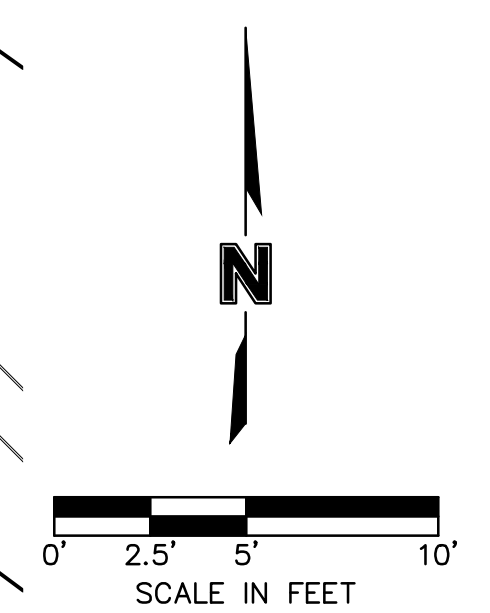
REV. NO.	DATE	REVISIONS DESCRIPTION	BY

SW HEARTLAND CIRCLE CUL-DE-SAC DETAILS  
 STREET & STORM SEWER PLANS

THE RETREAT AT HOOK FARMS  
 SECOND PLAT

LEE'S SUMMIT, MO 2021

drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021



CURB DATA:  
 R=39.00'  
 Δ=245°37'51"  
 L=167.20'  
 CB=S11°59'43"E  
 CH=65.55'

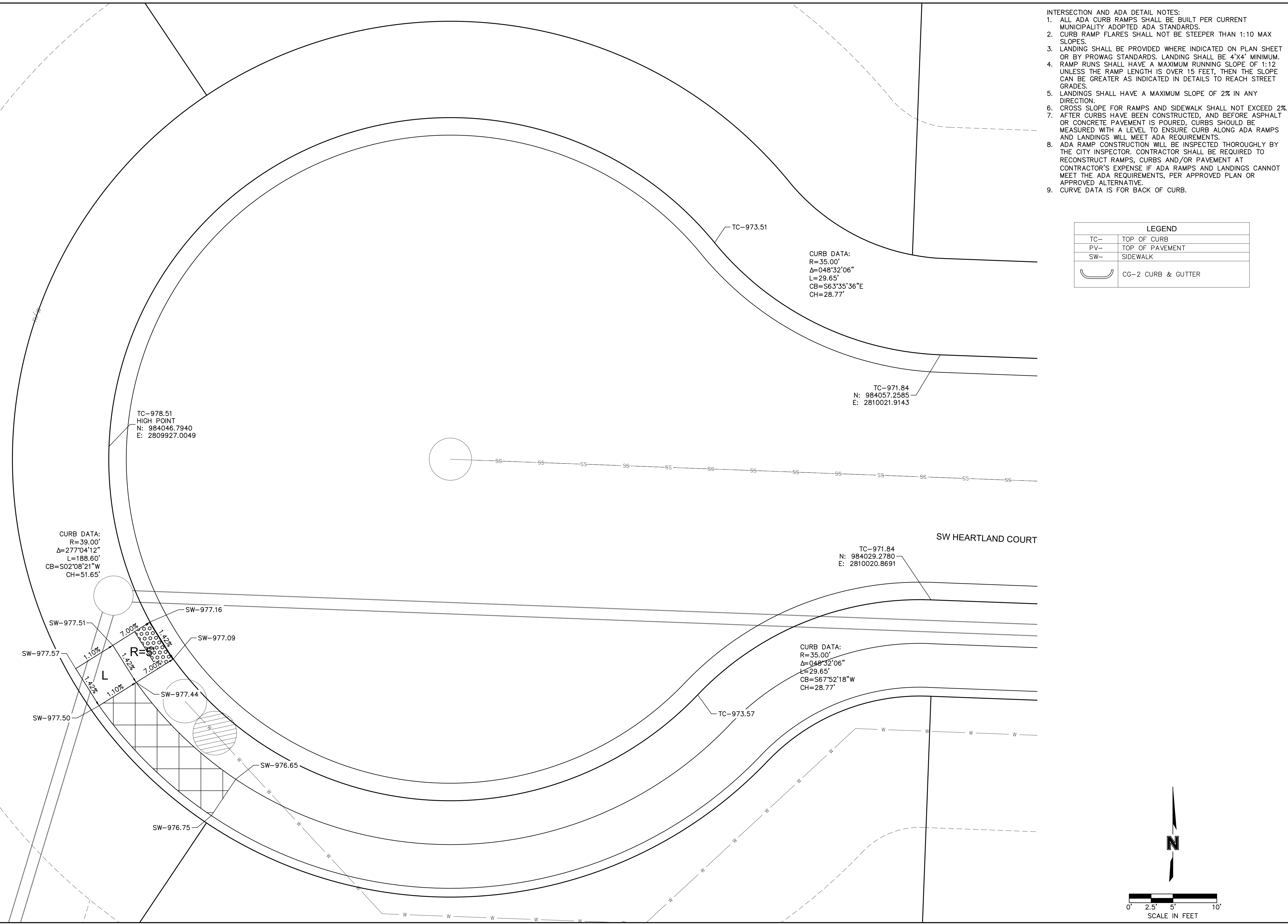
CURB DATA:  
 R=35.00'  
 Δ=076°42'11"  
 L=46.86'  
 CB=S83°32'27"W  
 CH=43.43'

TC-951.62  
 N: 984804.7988  
 E: 2810087.5991

TC-951.62  
 N: 984781.0256  
 E: 2810072.8061

TC-953.55  
 HIGH POINT  
 N: 984795.7021  
 E: 2809964.0135

DWG: F:\2019\4001-4500\019-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street & Storm Sewer Plans\C\_INT02\_A194059.dwg USER: bworthley  
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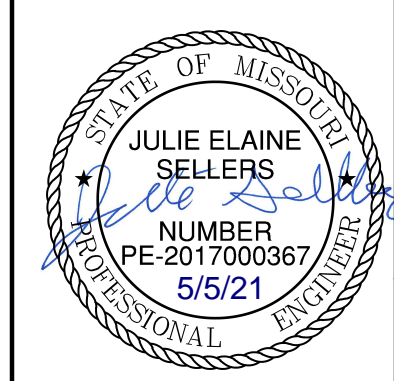


- INTERSECTION AND ADA DETAIL NOTES:
1. ALL ADA CURB RAMPS SHALL BE BUILT PER CURRENT MUNICIPALITY ADOPTED ADA STANDARDS.
  2. CURB RAMP FLARES SHALL NOT BE STEEPER THAN 1:10 MAX SLOPES.
  3. LANDING SHALL BE PROVIDED WHERE INDICATED ON PLAN SHEET OR BY PROWAG STANDARDS. LANDING SHALL BE 4'X4' MINIMUM.
  4. RAMP RUNS SHALL HAVE A MAXIMUM RUNNING SLOPE OF 1:12 UNLESS THE RAMP LENGTH IS OVER 15 FEET, THEN THE SLOPE CAN BE GREATER AS INDICATED IN DETAILS TO REACH STREET GRADES.
  5. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
  6. CROSS SLOPE FOR RAMPS AND SIDEWALK SHALL NOT EXCEED 2%.
  7. AFTER CURBS HAVE BEEN CONSTRUCTED, AND BEFORE ASPHALT OR CONCRETE PAVEMENT IS POURED, CURBS SHOULD BE MEASURED WITH A LEVEL TO ENSURE CURB ALONG ADA RAMPS AND LANDINGS WILL MEET ADA REQUIREMENTS.
  8. ADA RAMP CONSTRUCTION WILL BE INSPECTED THOROUGHLY BY THE CITY INSPECTOR. CONTRACTOR SHALL BE REQUIRED TO RECONSTRUCT RAMPS, CURBS AND/OR PAVEMENT AT CONTRACTOR'S EXPENSE IF ADA RAMPS AND LANDINGS CANNOT MEET THE ADA REQUIREMENTS, PER APPROVED PLAN OR APPROVED ALTERNATIVE.
  9. CURVE DATA IS FOR BACK OF CURB.

LEGEND	
TC-	TOP OF CURB
PV-	TOP OF PAVEMENT
SW-	SIDEWALK
	CG-2 CURB & GUTTER

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REV. NO.	DATE	REVISIONS DESCRIPTION	BY

SW HEARTLAND COURT CUL-DE-SAC DETAILS  
 STREET & STORM SEWER PLANS

THE RETREAT AT HOOK FARMS  
 SECOND PLAT

LEE'S SUMMIT, MO

2021

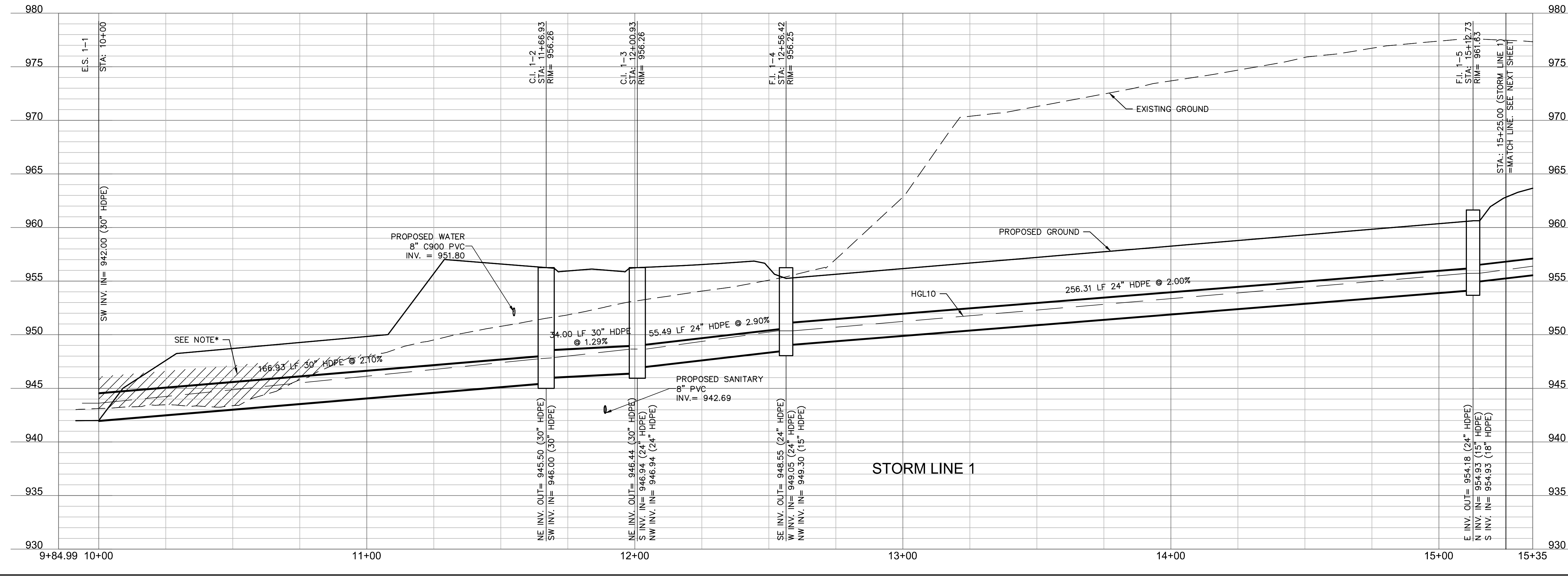
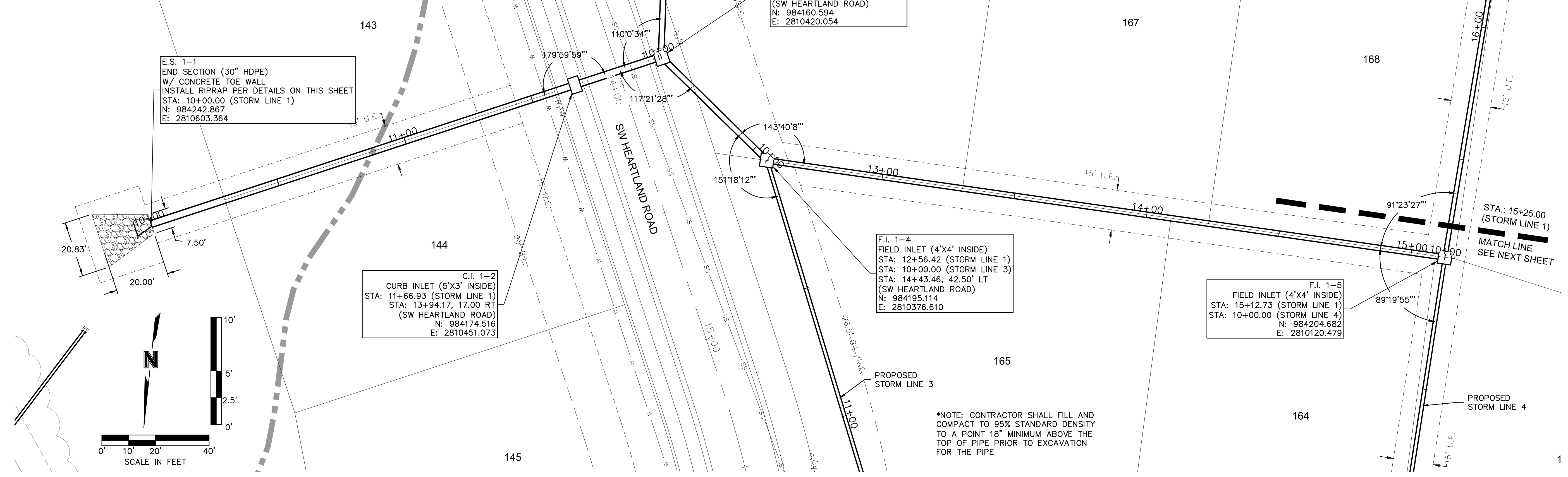
drawn by: B.M.W./A.A.  
 checked by: B.M.W.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

**SHEET C119**

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Riprap Calculations							
End Section	Q <sub>200</sub> (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
E.S. 1-1	83.68	2.5	6	22	20	3.67	31.5

\*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18



C.I. 1-3  
 CURB INLET (5'X4' INSIDE)  
 STA: 10+00.00 (STORM LINE 2)  
 STA: 12+00.93 (STORM LINE 1)  
 STA: 13+94.17, 17.00' LT  
 (SW HEARTLAND ROAD)  
 N: 984160.594  
 E: 2810420.054

F.I. 1-4  
 FIELD INLET (4'X4' INSIDE)  
 STA: 12+56.42 (STORM LINE 1)  
 STA: 10+00.00 (STORM LINE 3)  
 STA: 14+43.46, 42.50' LT  
 (SW HEARTLAND ROAD)  
 N: 984195.114  
 E: 2810376.610

F.I. 1-5  
 FIELD INLET (4'X4' INSIDE)  
 STA: 15+12.73 (STORM LINE 1)  
 STA: 10+00.00 (STORM LINE 4)  
 N: 984204.682  
 E: 2810120.479

\*NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE

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REV. NO.	DATE	REVISIONS DESCRIPTION

STORM SEWER PLAN & PROFILE (LINE 1)  
 STREET & STORM SEWER PLANS

THE RETREAT AT HOOK FARMS  
 SECOND PLAT

LEE'S SUMMIT, MO

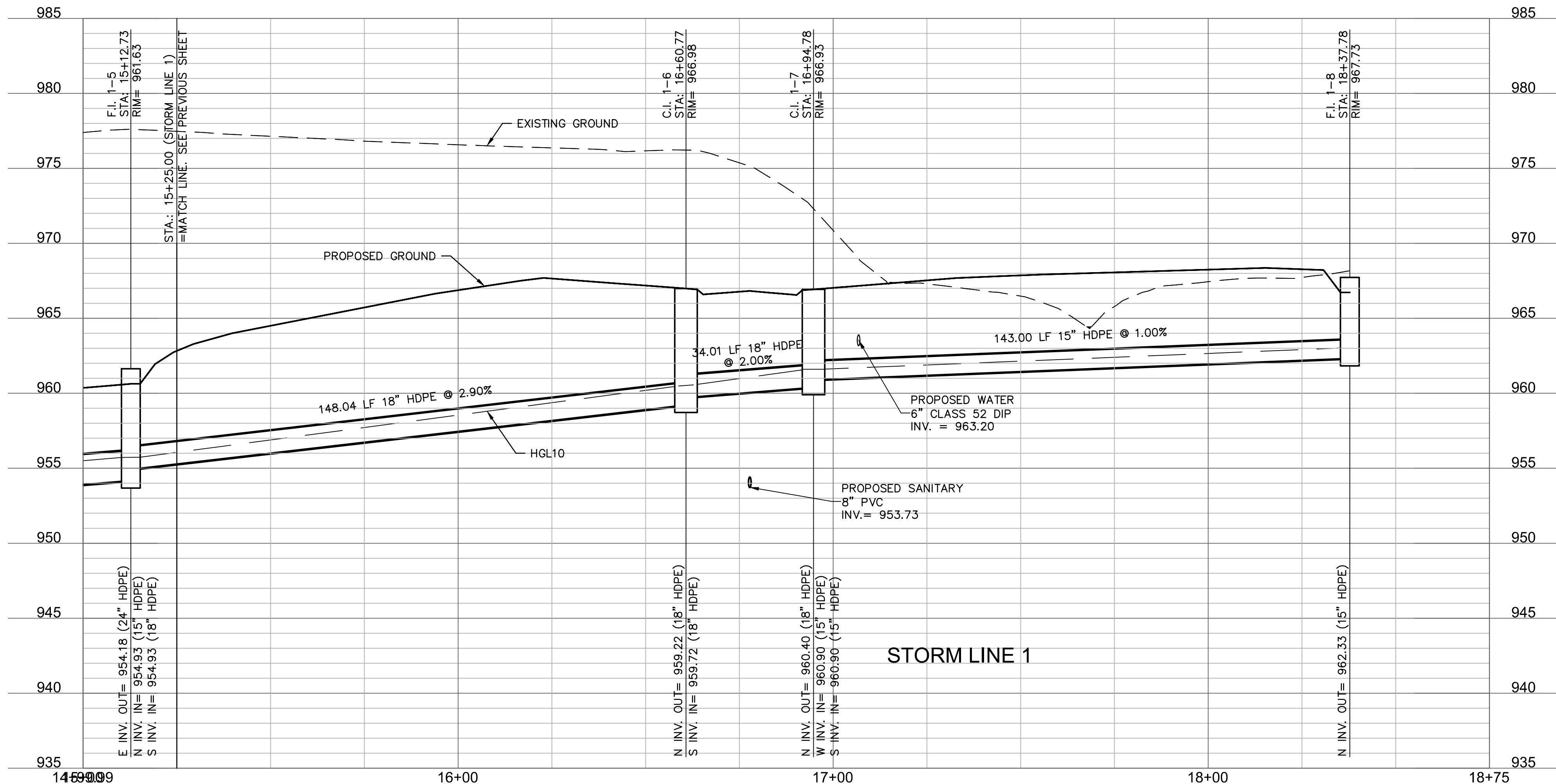
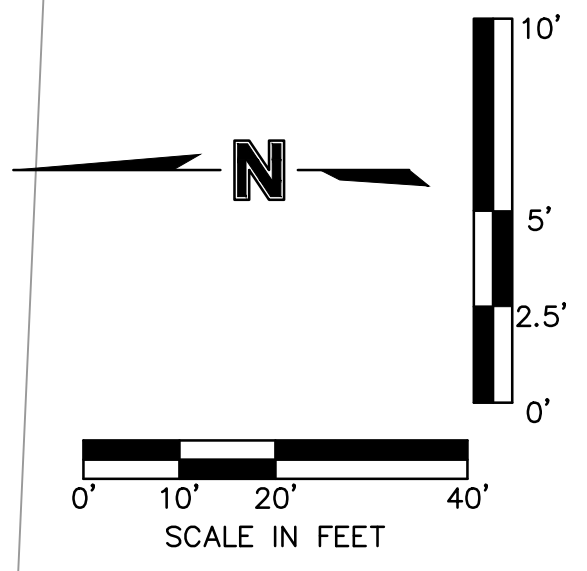
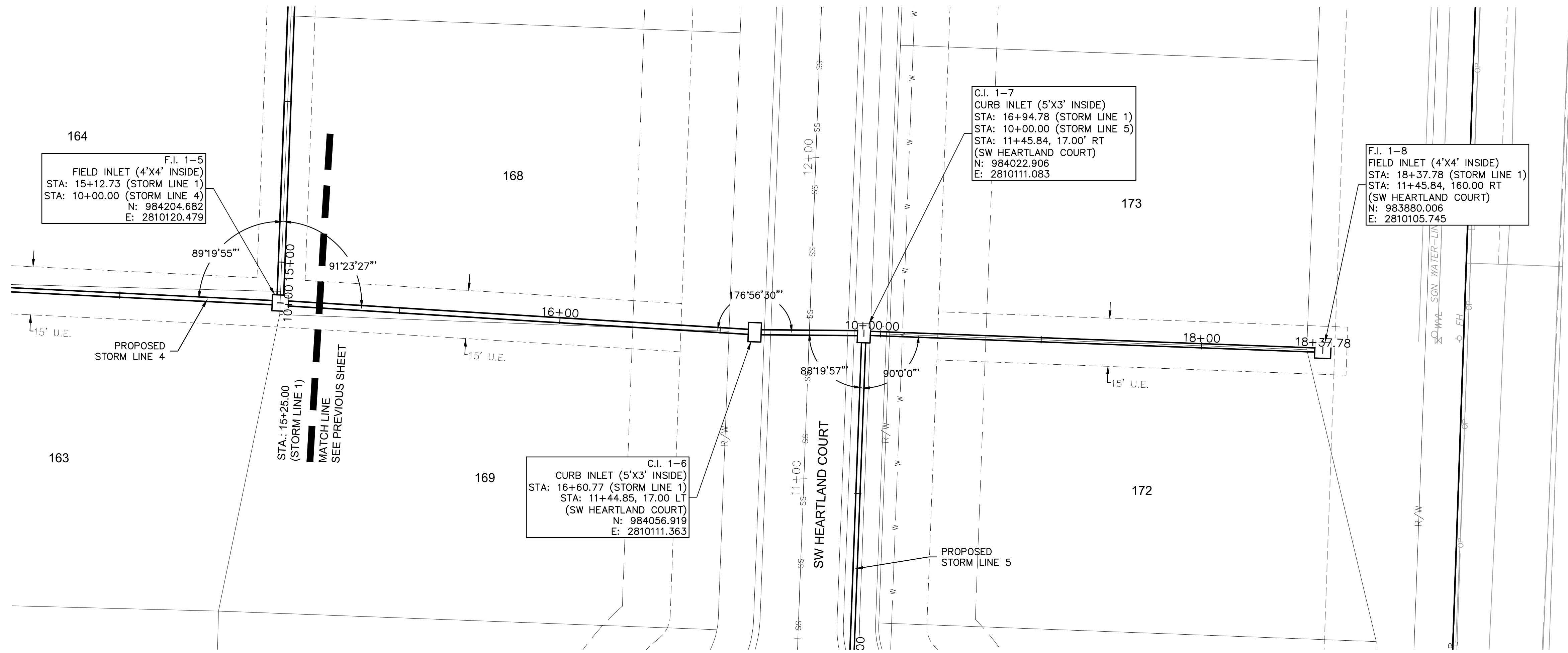
2021

REVISIONS

drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

SHEET  
 C120

DWG: F:\2019\4001-4500\019-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street & Storm Sewer Plans\C\_STM01\_A194059.dwg USER: bworthley  
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STATE OF MISSOURI  
 JULIE ELAINE SELLERS  
 PE-2017000367  
 5/5/21  
 PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

BY \_\_\_\_\_

2021

REVISIONS

**STORM SEWER PLAN & PROFILE (LINE 1)  
 STREET & STORM SEWER PLANS**

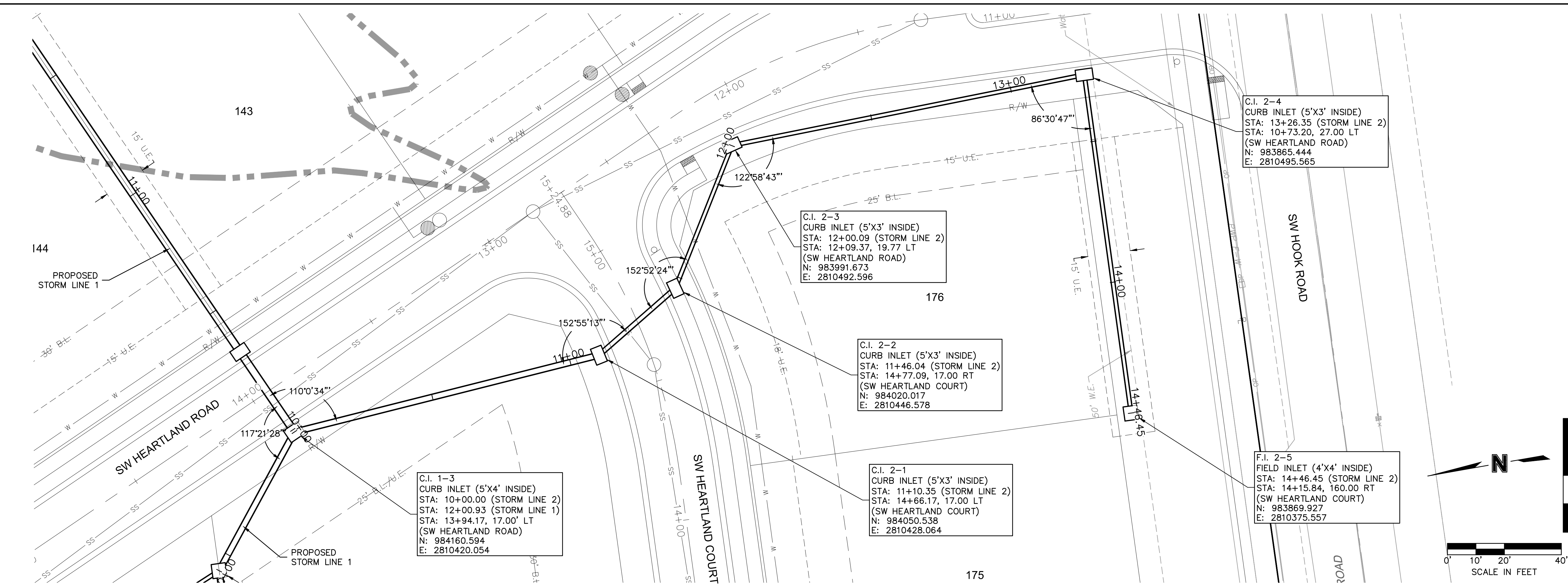
**THE RETREAT AT HOOK FARMS  
 SECOND PLAT**

LEE'S SUMMIT, MO

drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

**SHEET  
 C121**

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C.I. 2-4  
 CURB INLET (5'X3' INSIDE)  
 STA: 13+26.35 (STORM LINE 2)  
 STA: 10+73.20, 27.00 LT  
 (SW HEARTLAND ROAD)  
 N: 983865.444  
 E: 2810495.565

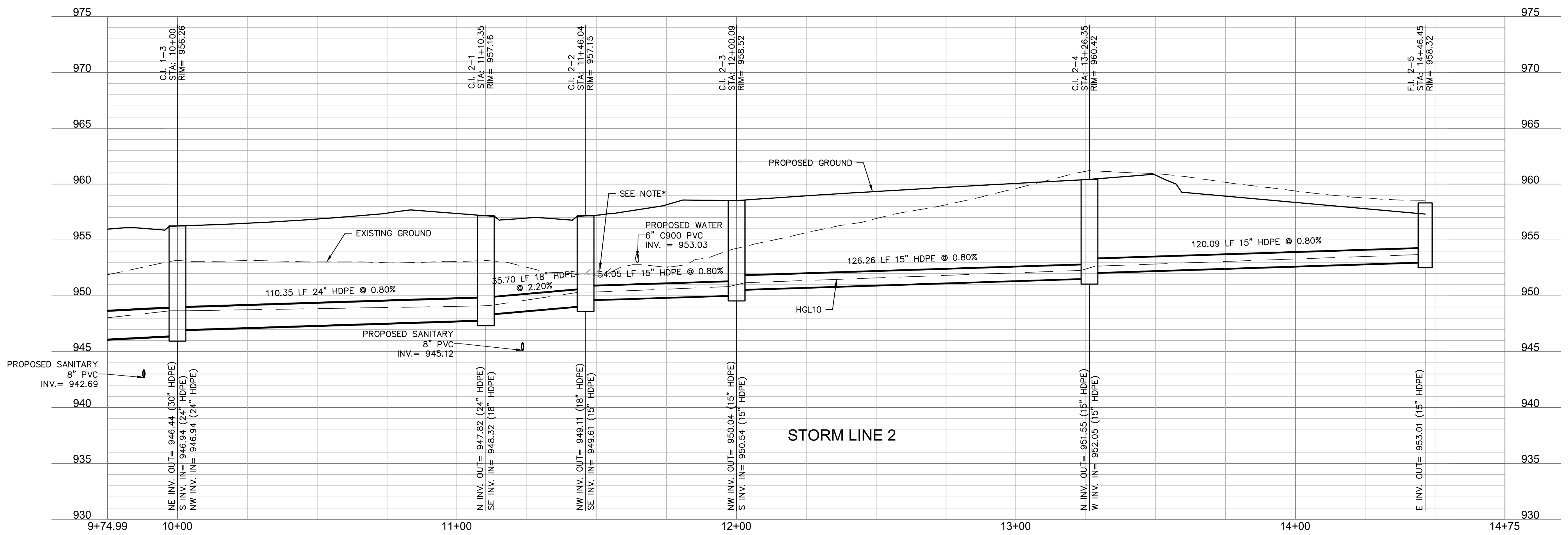
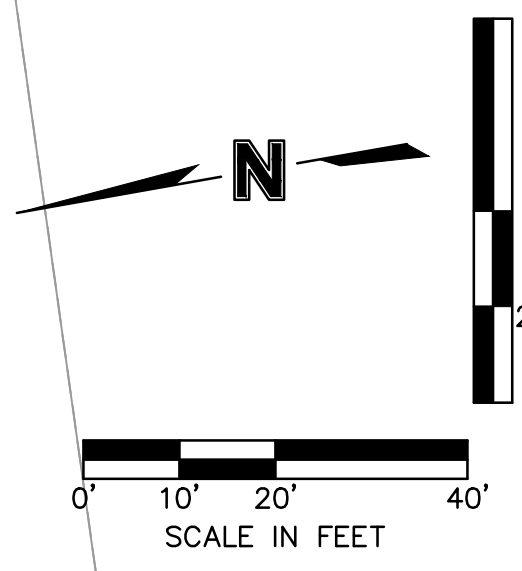
C.I. 2-3  
 CURB INLET (5'X3' INSIDE)  
 STA: 12+00.09 (STORM LINE 2)  
 STA: 12+09.37, 19.77 LT  
 (SW HEARTLAND ROAD)  
 N: 983991.673  
 E: 2810492.596

C.I. 2-2  
 CURB INLET (5'X3' INSIDE)  
 STA: 11+46.04 (STORM LINE 2)  
 STA: 14+77.09, 17.00 RT  
 (SW HEARTLAND COURT)  
 N: 984020.017  
 E: 2810446.578

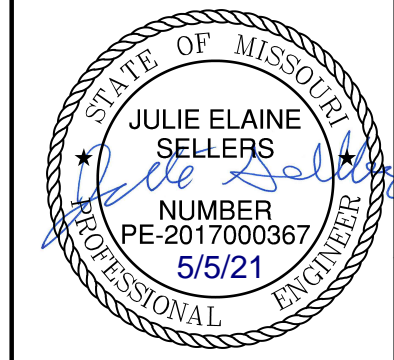
C.I. 2-1  
 CURB INLET (5'X3' INSIDE)  
 STA: 11+10.35 (STORM LINE 2)  
 STA: 14+66.17, 17.00 LT  
 (SW HEARTLAND COURT)  
 N: 984050.538  
 E: 2810428.064

C.I. 1-3  
 CURB INLET (5'X4' INSIDE)  
 STA: 10+00.00 (STORM LINE 2)  
 STA: 12+00.93 (STORM LINE 1)  
 STA: 13+94.17, 17.00' LT  
 (SW HEARTLAND ROAD)  
 N: 984160.594  
 E: 2810420.054

F.I. 2-5  
 FIELD INLET (4'X4' INSIDE)  
 STA: 14+46.45 (STORM LINE 2)  
 STA: 14+15.84, 160.00 RT  
 (SW HEARTLAND COURT)  
 N: 983869.927  
 E: 2810375.557



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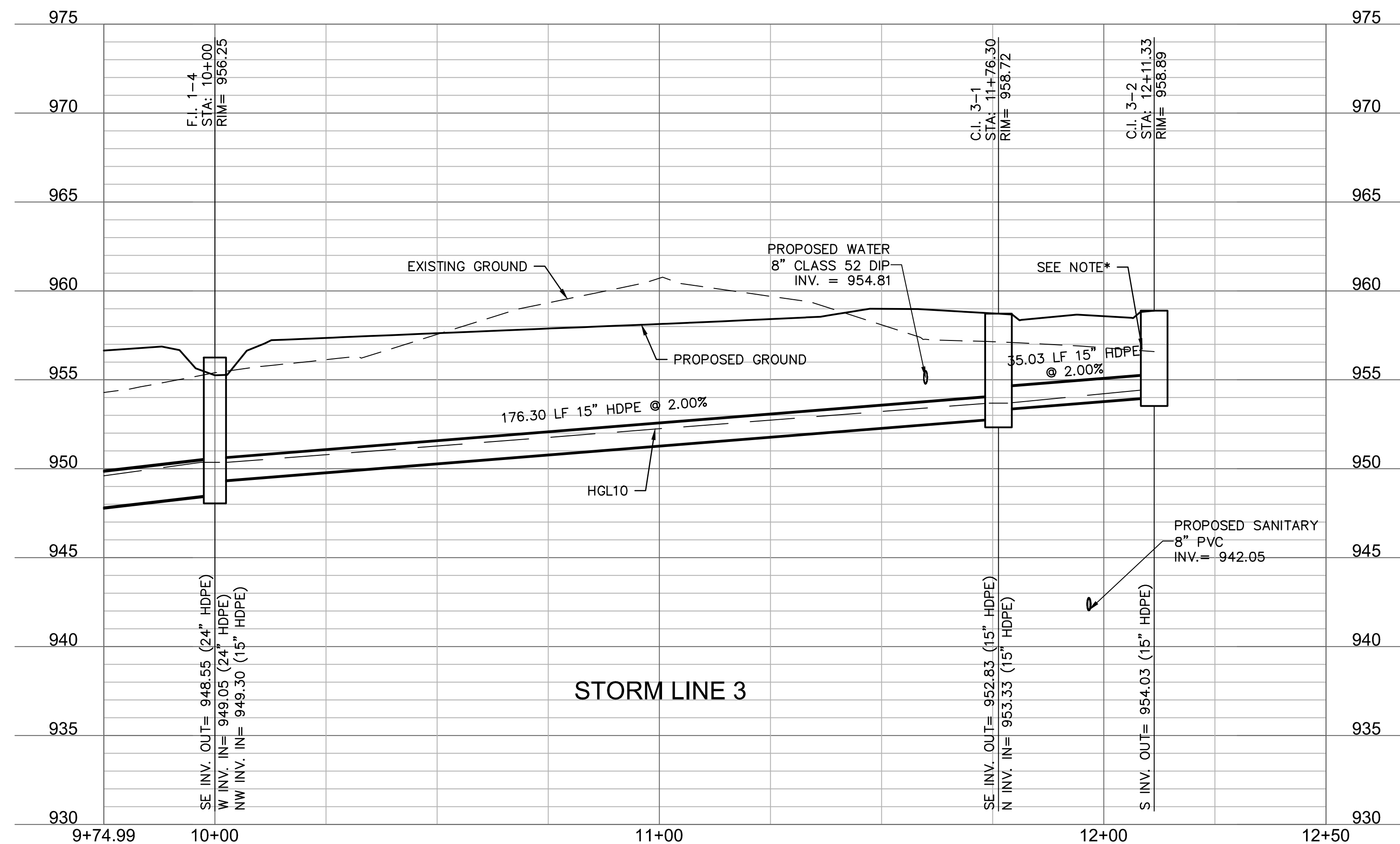
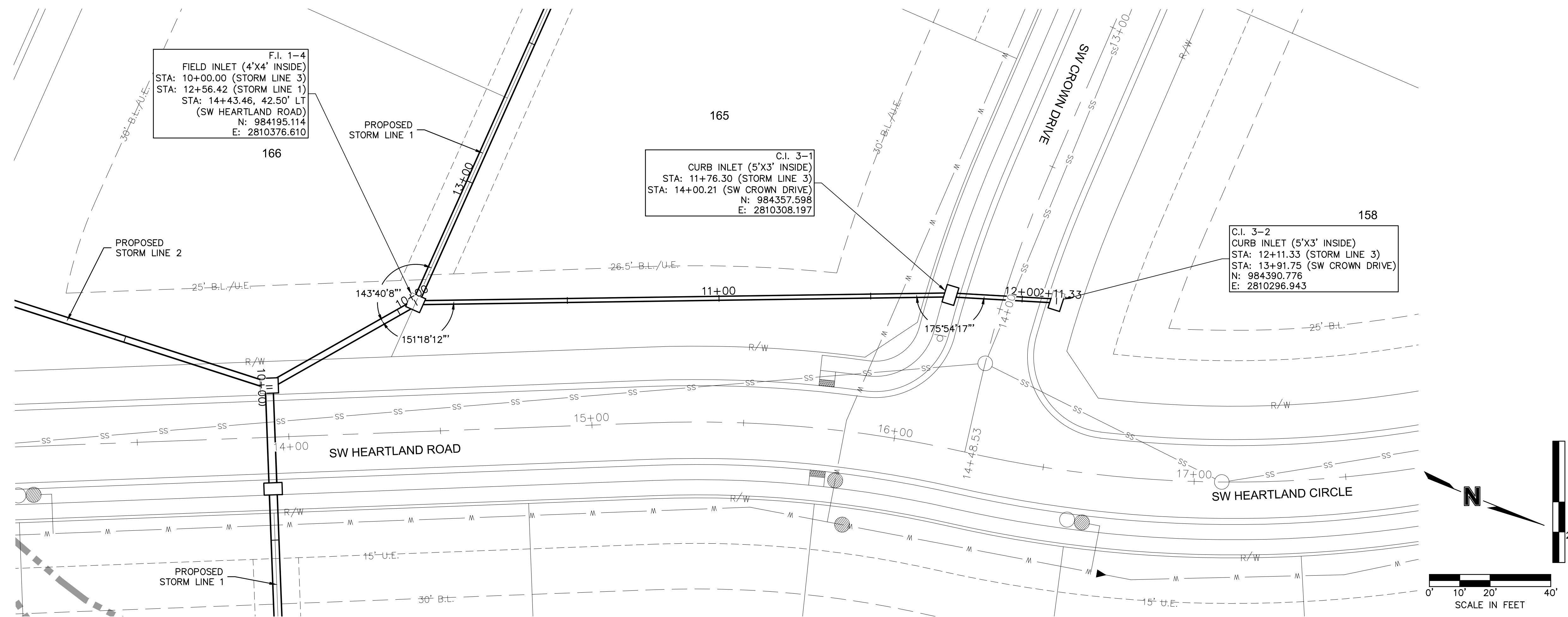


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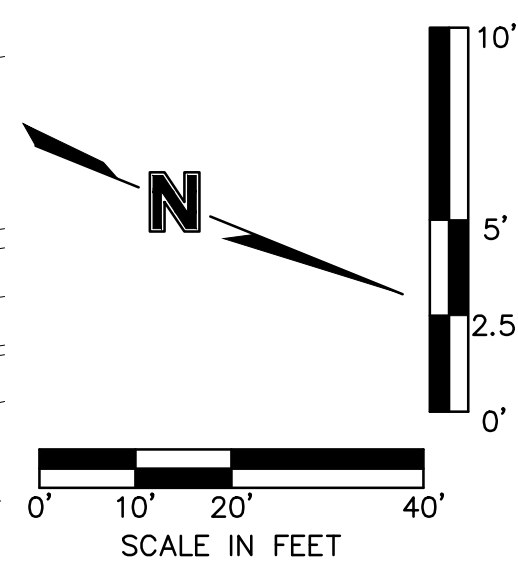
STORM SEWER PLAN & PROFILE (LINE 2)  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEE'S SUMMIT, MO  
 2021

drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

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\*NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE



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STATE OF MISSOURI  
**JULIE ELAINE SELLERS**  
 PE-2017000367  
 5/5/21  
 PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION

BY: \_\_\_\_\_  
 REVISIONS

STORM SEWER PLAN & PROFILE (LINE 3)  
 STREET & STORM SEWER PLANS

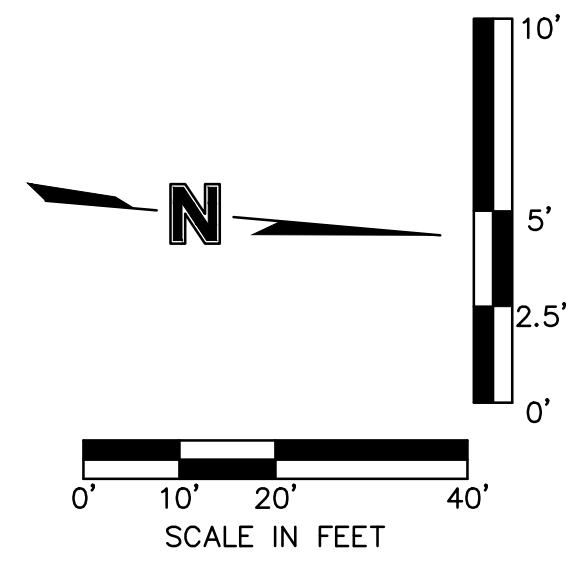
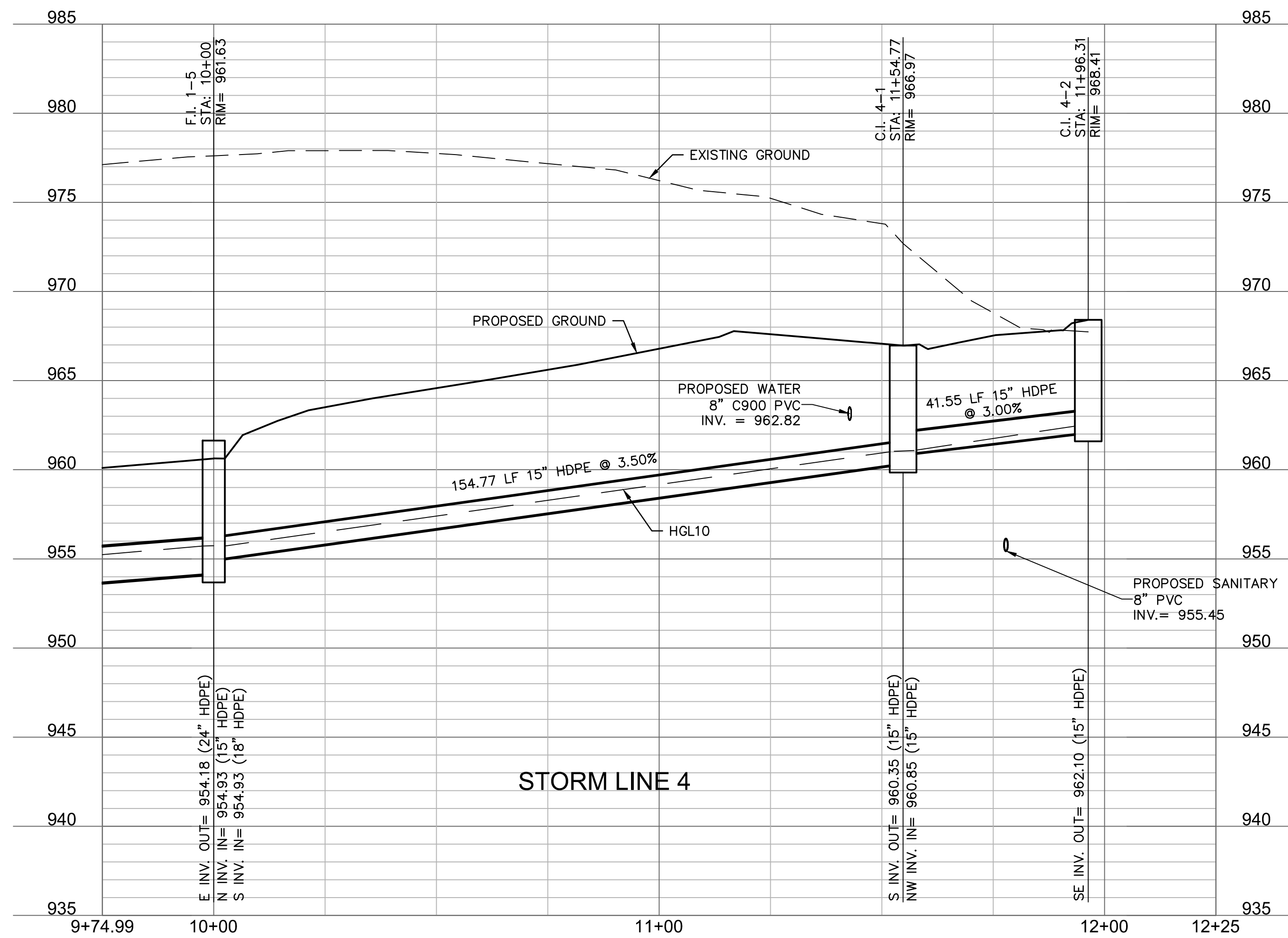
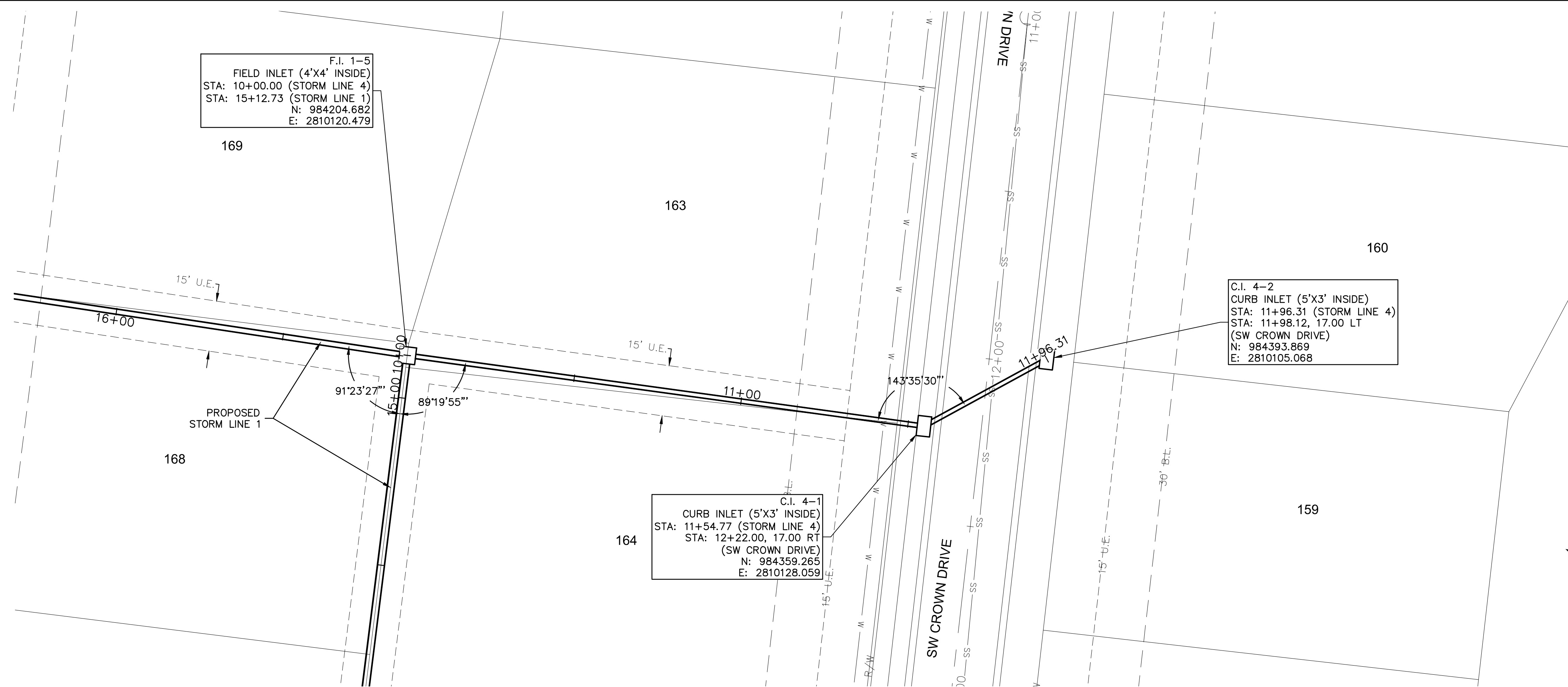
THE RETREAT AT HOOK FARMS  
 SECOND PLAT

LEE'S SUMMIT, MO  
 2021

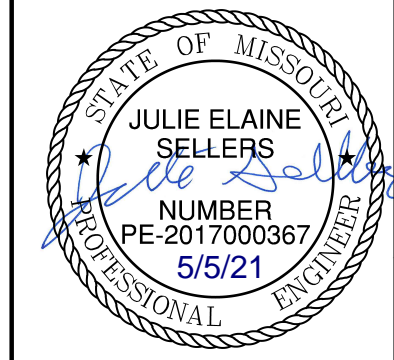
drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

**SHEET C123**

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REV. NO.	DATE	REVISIONS DESCRIPTION

**STORM SEWER PLAN & PROFILE (LINE 4)  
 STREET & STORM SEWER PLANS**

THE RETREAT AT HOOK FARMS  
 SECOND PLAT

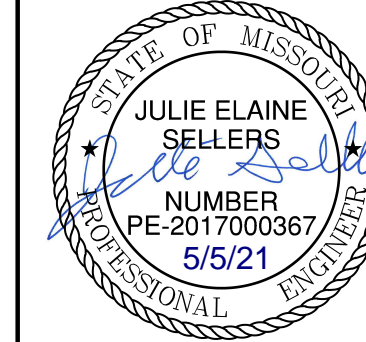
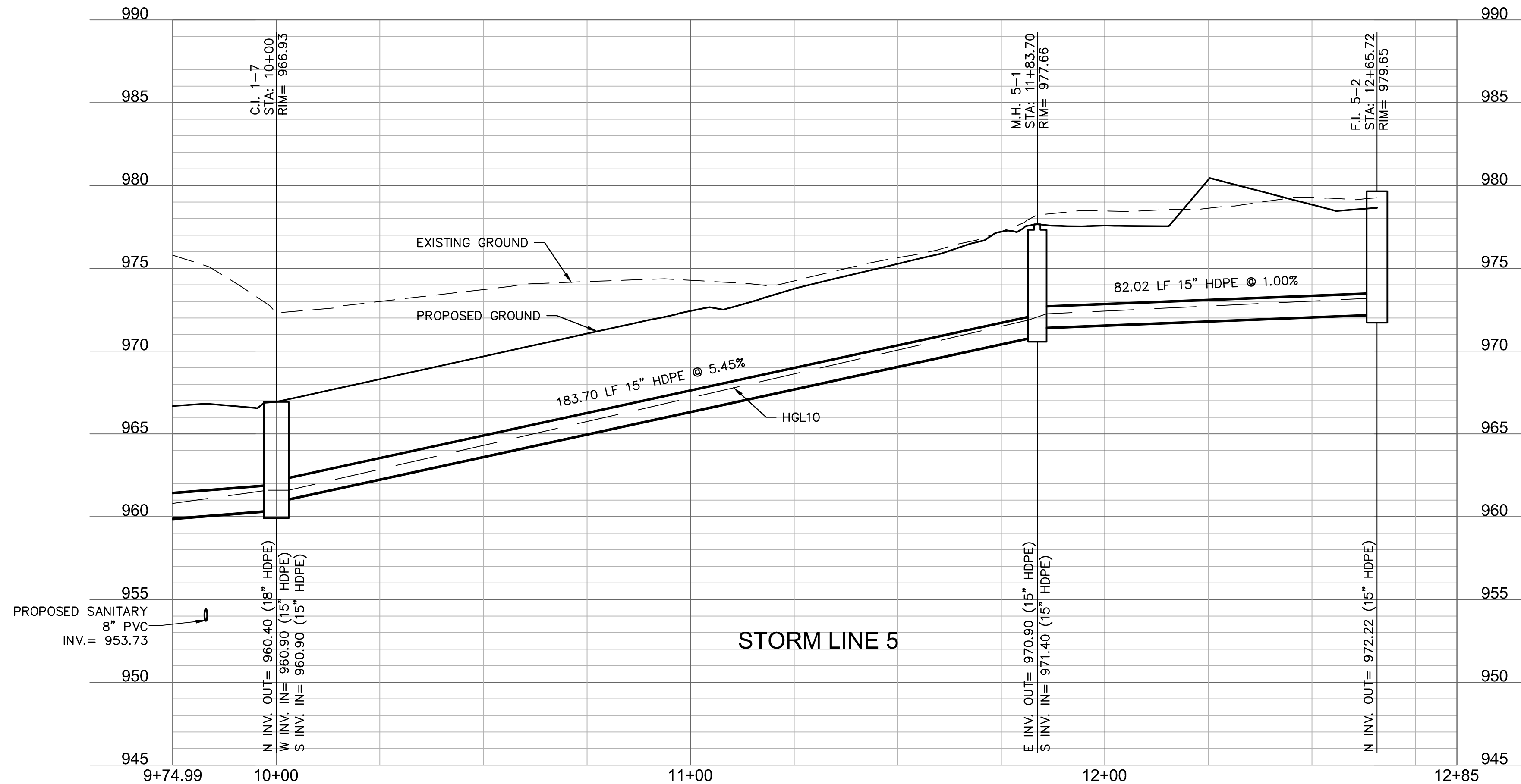
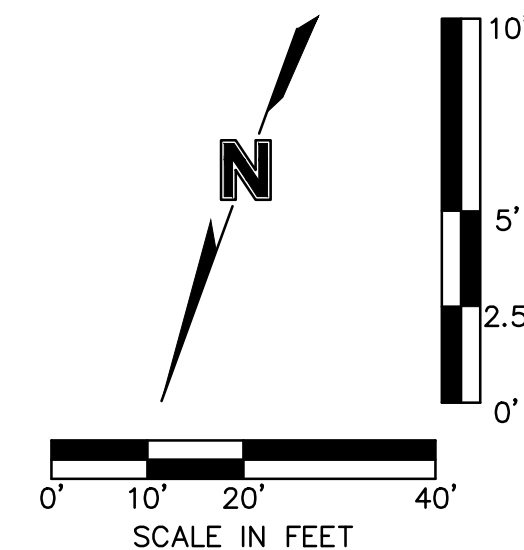
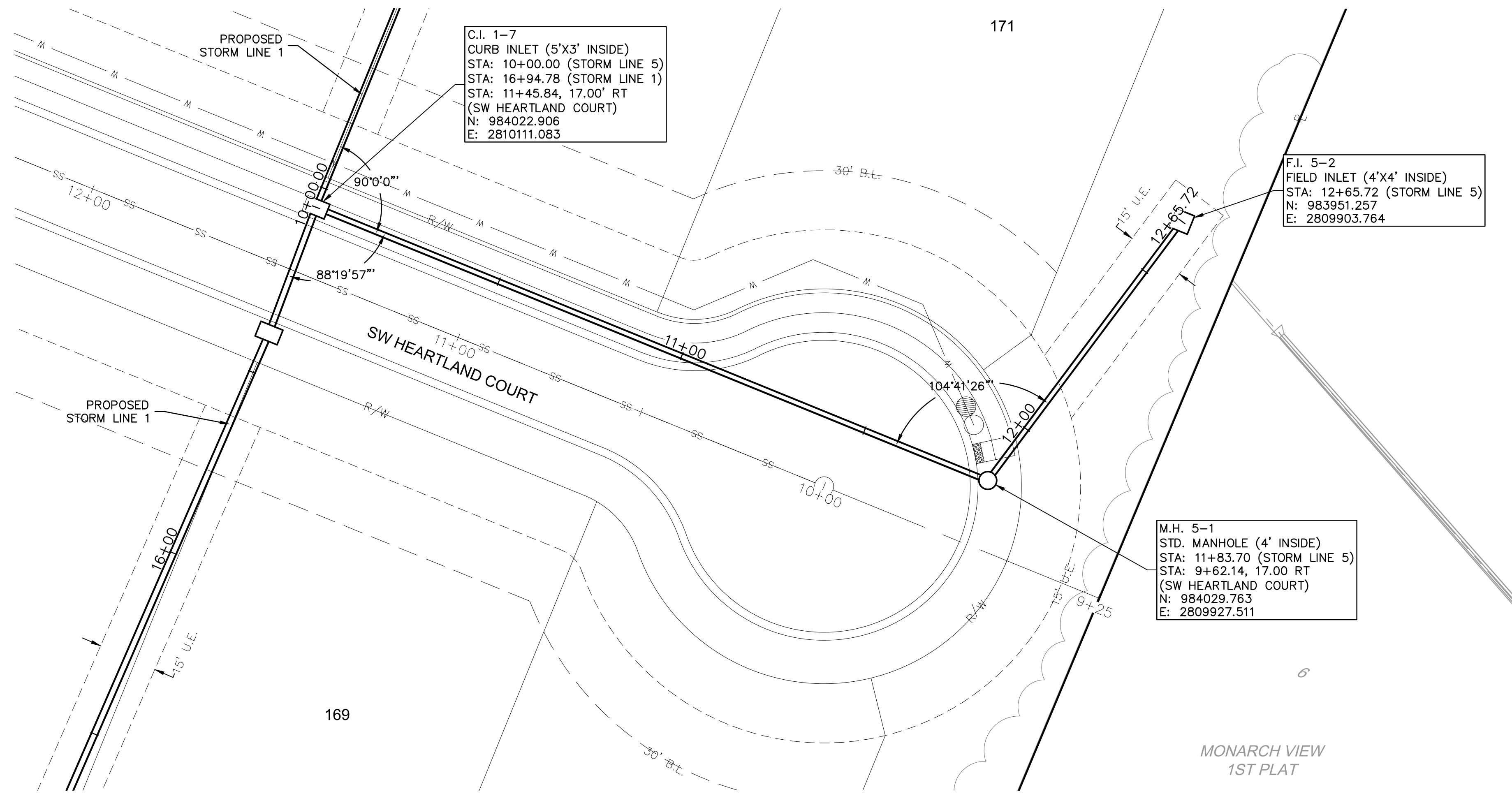
LEE'S SUMMIT, MO

2021

drawn by: B.M.W./A.A.  
 checked by: B.M.W.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021



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REV. NO.	DATE	REVISIONS DESCRIPTION

STORM SEWER PLAN & PROFILE (LINE 5)  
 STREET & STORM SEWER PLANS

THE RETREAT AT HOOK FARMS  
 SECOND PLAT

2021

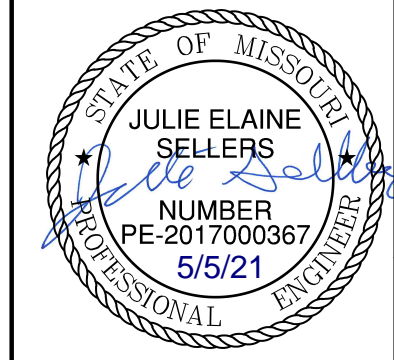
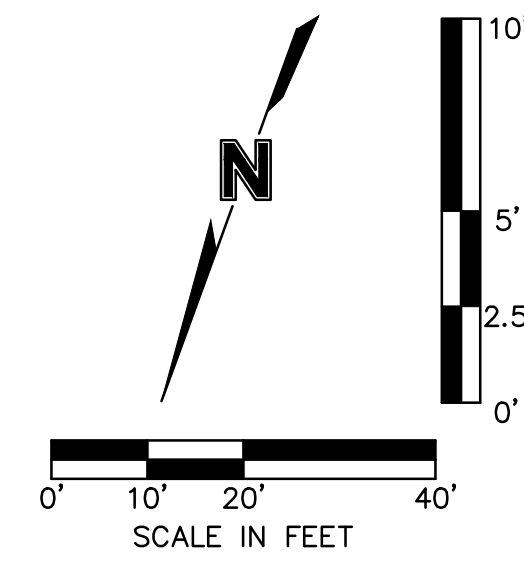
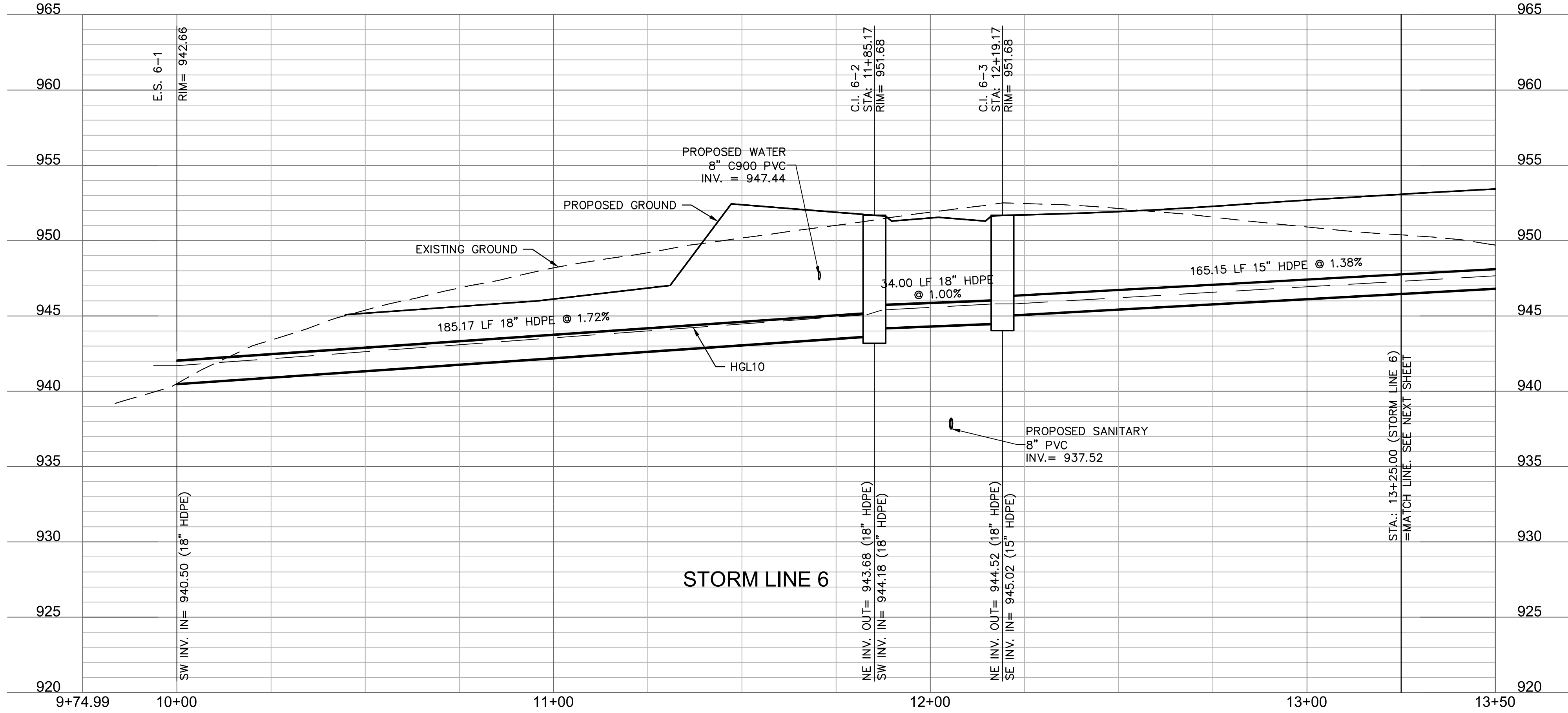
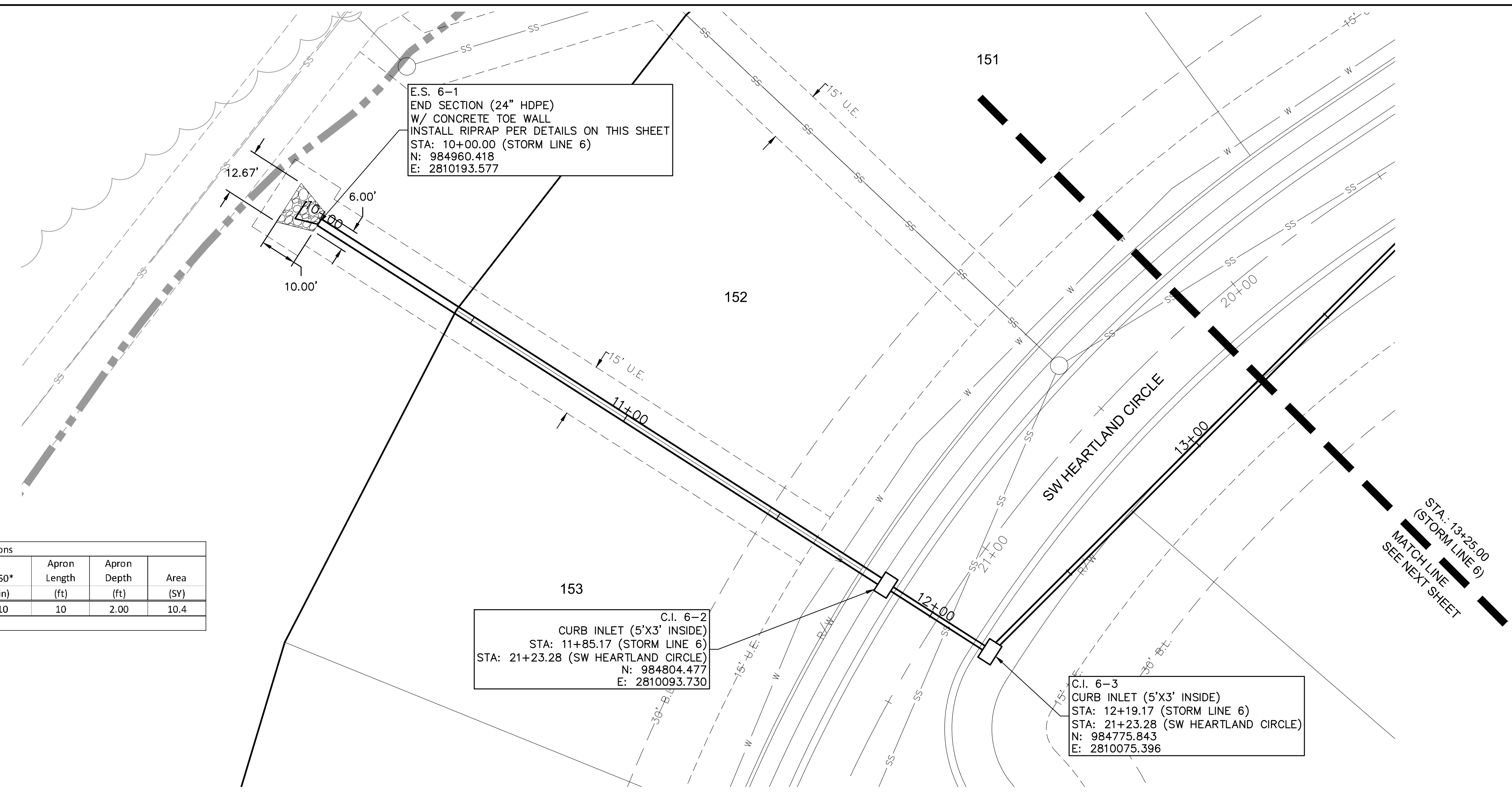
LEE'S SUMMIT, MO

drawn by: B.M.W./A.A.  
 checked by: B.M.W.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

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Riprap Calculations							
End Section	Q <sub>100</sub> (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
E.S. 6-1	25.96	2	3	10	10	2.00	10.4

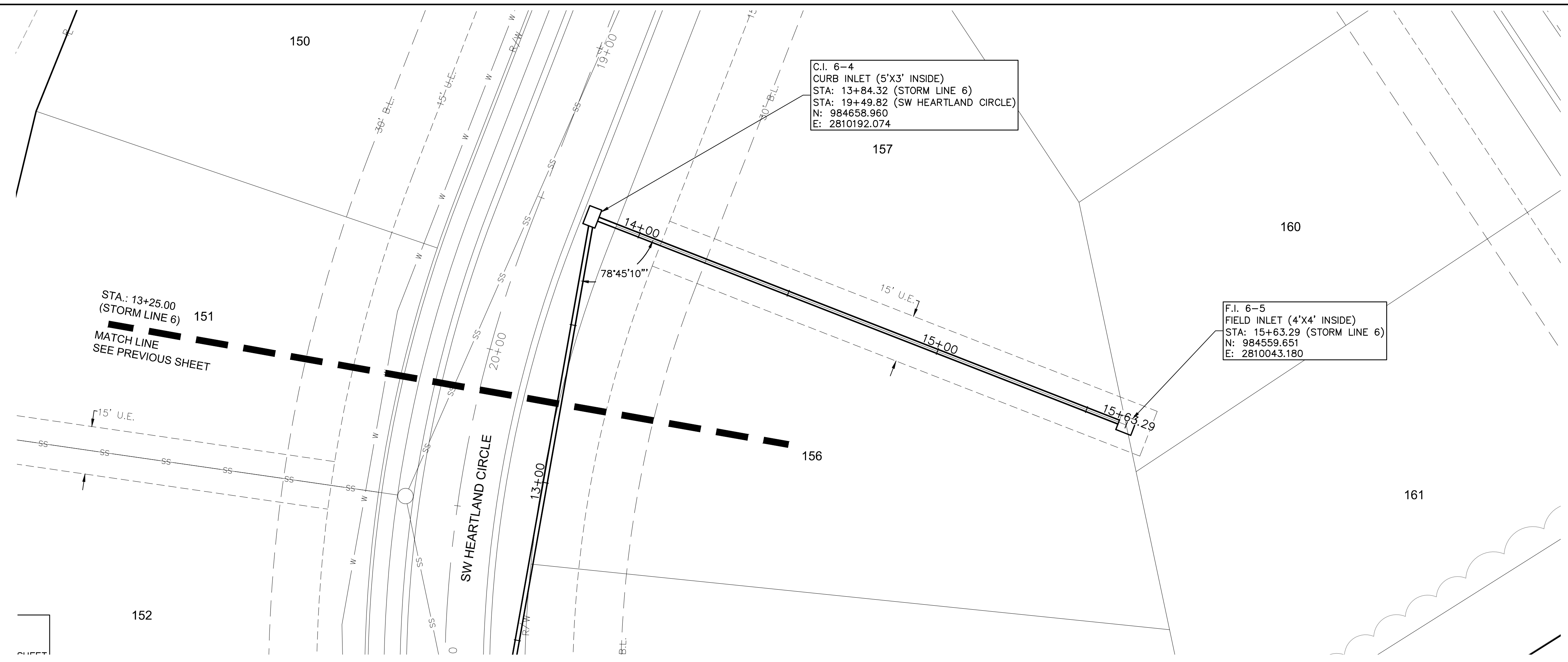
\*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18



REV. NO.	DATE	REVISIONS DESCRIPTION

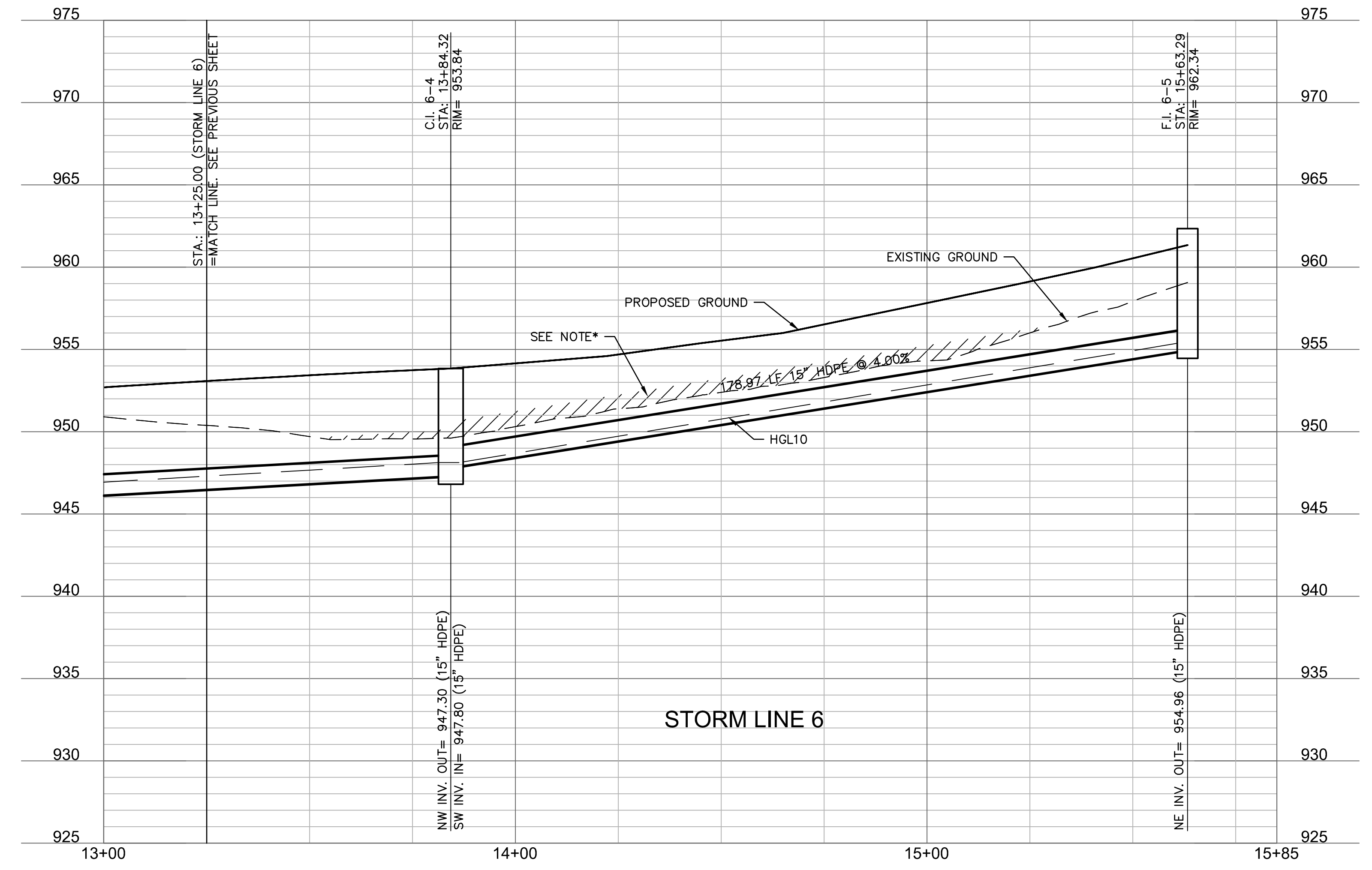
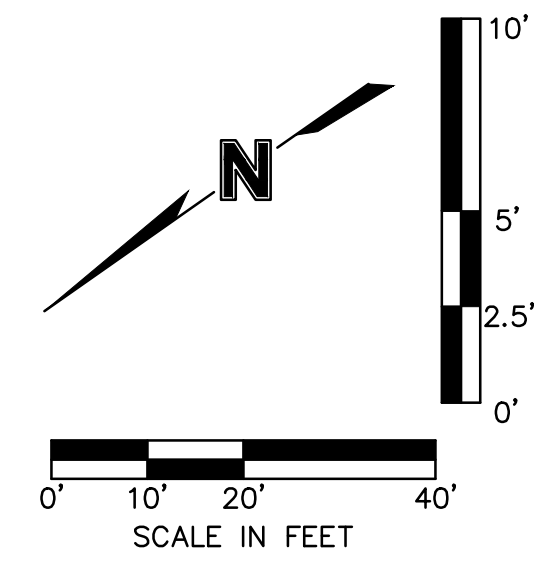
STORM SEWER PLAN & PROFILE (LINE 6)  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEE'S SUMMIT, MO  
 2021

DWG: F:\2019\4001-4500\019-4059-A\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Street & Storm Sewer Plans\C\_STM02\_A194059.dwg USER: bworthley  
 DATE: May 05, 2021 3:58pm XREFS: C:\XBASE\_A194059 C\_PBASE\_A194059 C\_PSTRM\_A194059 C\_PBLK\_A194059



C.I. 6-4  
 CURB INLET (5'X3' INSIDE)  
 STA: 13+84.32 (STORM LINE 6)  
 STA: 19+49.82 (SW HEARTLAND CIRCLE)  
 N: 984658.960  
 E: 2810192.074

F.I. 6-5  
 FIELD INLET (4'X4' INSIDE)  
 STA: 15+63.29 (STORM LINE 6)  
 N: 984559.651  
 E: 2810043.180



\*NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE

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REV. NO.	DATE	REVISIONS DESCRIPTION

STORM SEWER PLAN & PROFILE (LINE 6)  
 STREET & STORM SEWER PLANS

THE RETREAT AT HOOK FARMS  
 SECOND PLAT

LEE'S SUMMIT, MO

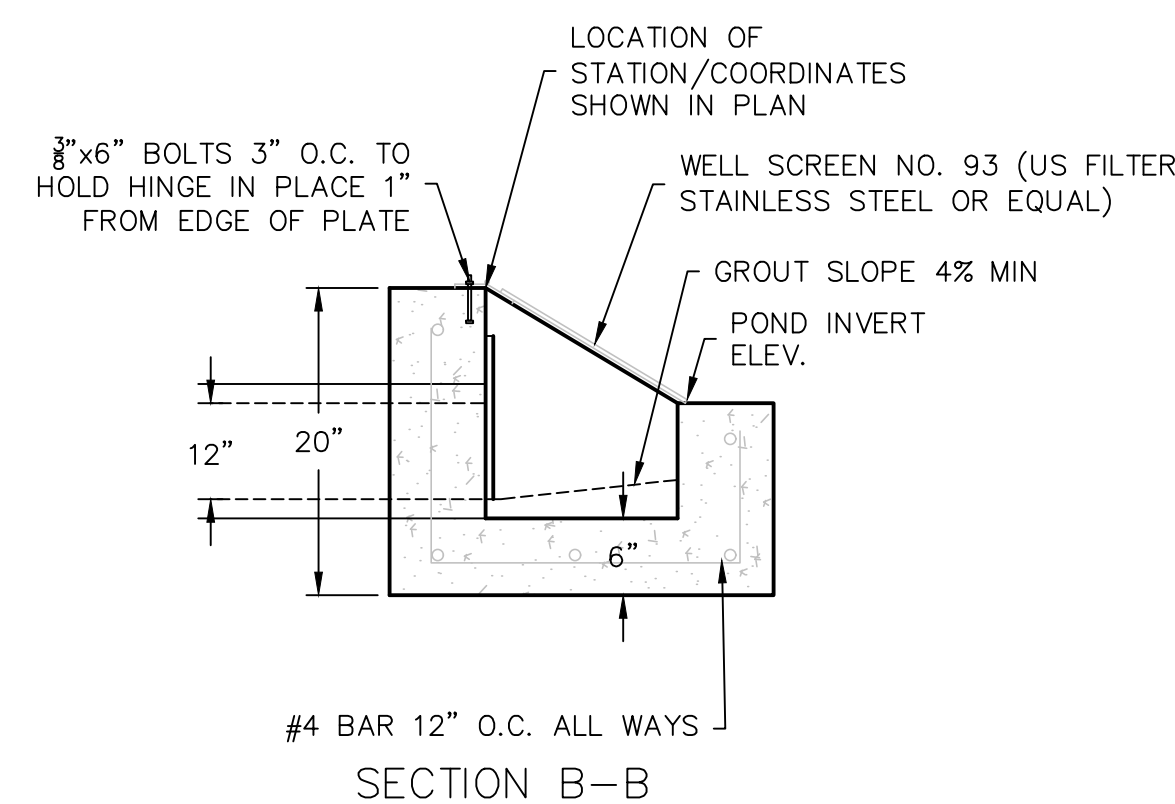
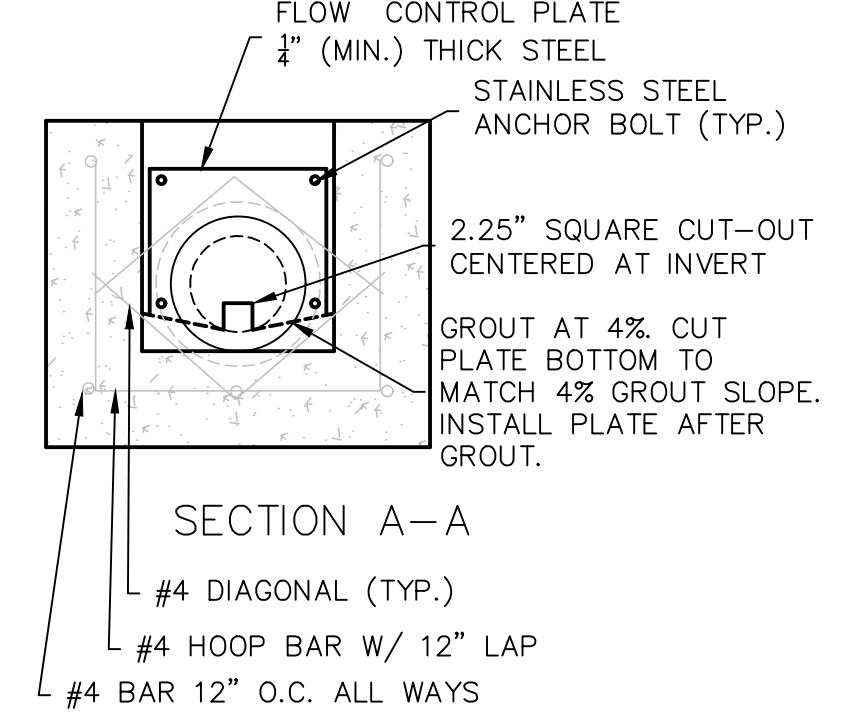
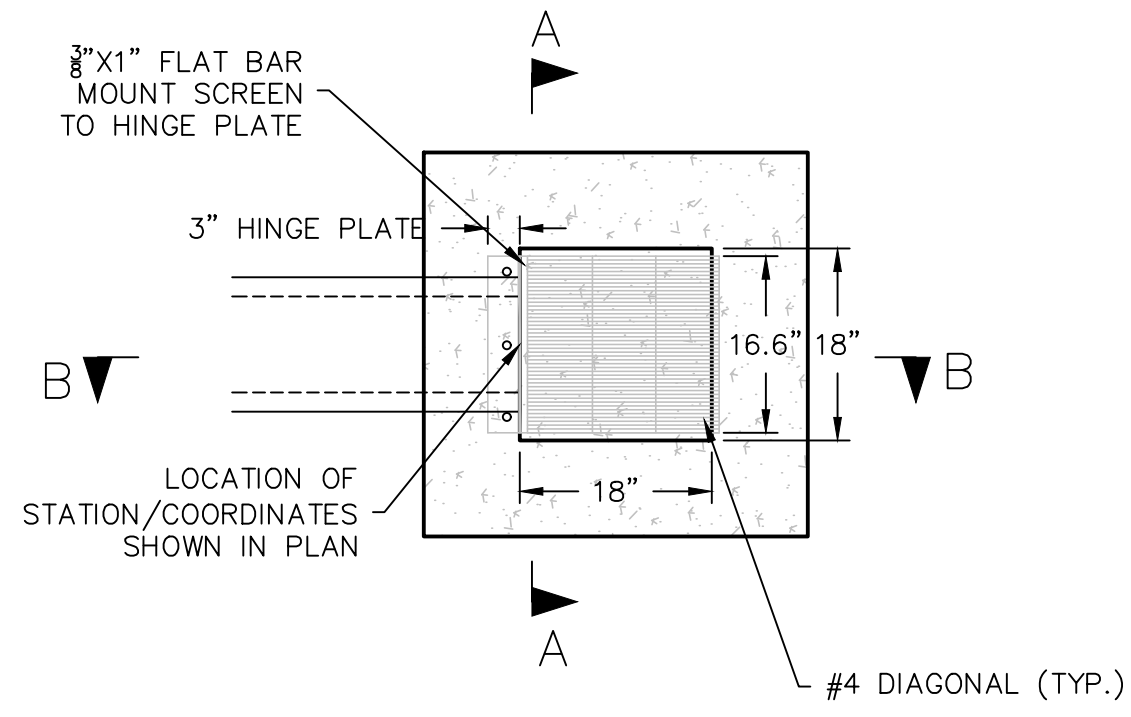
2021

REVISIONS

drawn by: B.M.W./A.A.  
 checked by: B.M.W.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

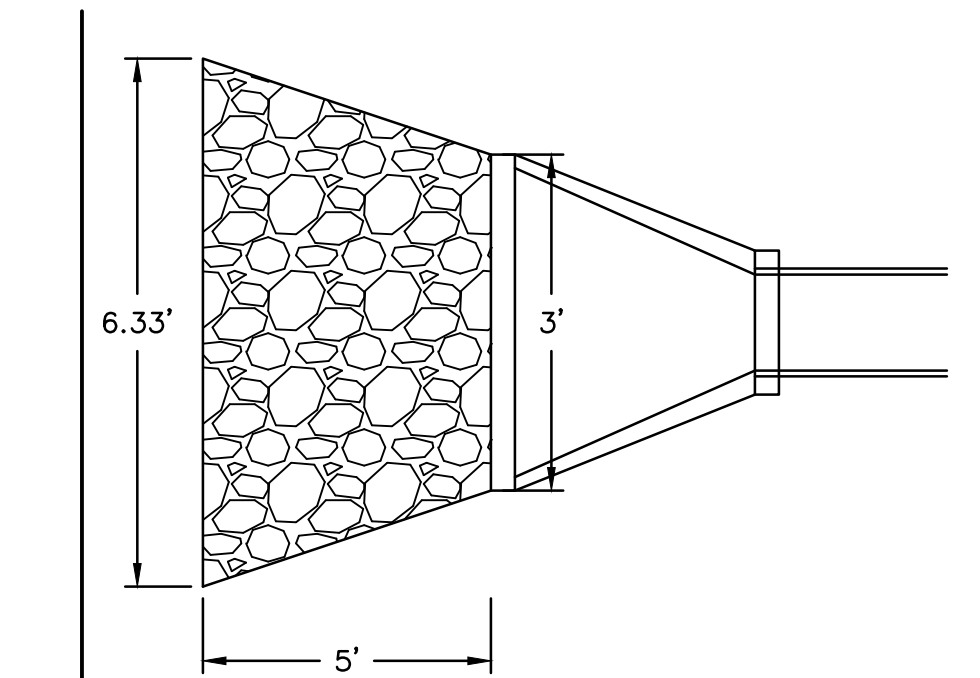
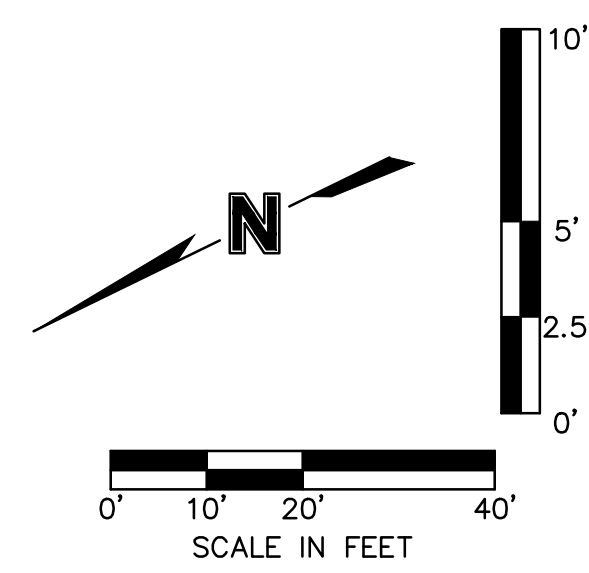
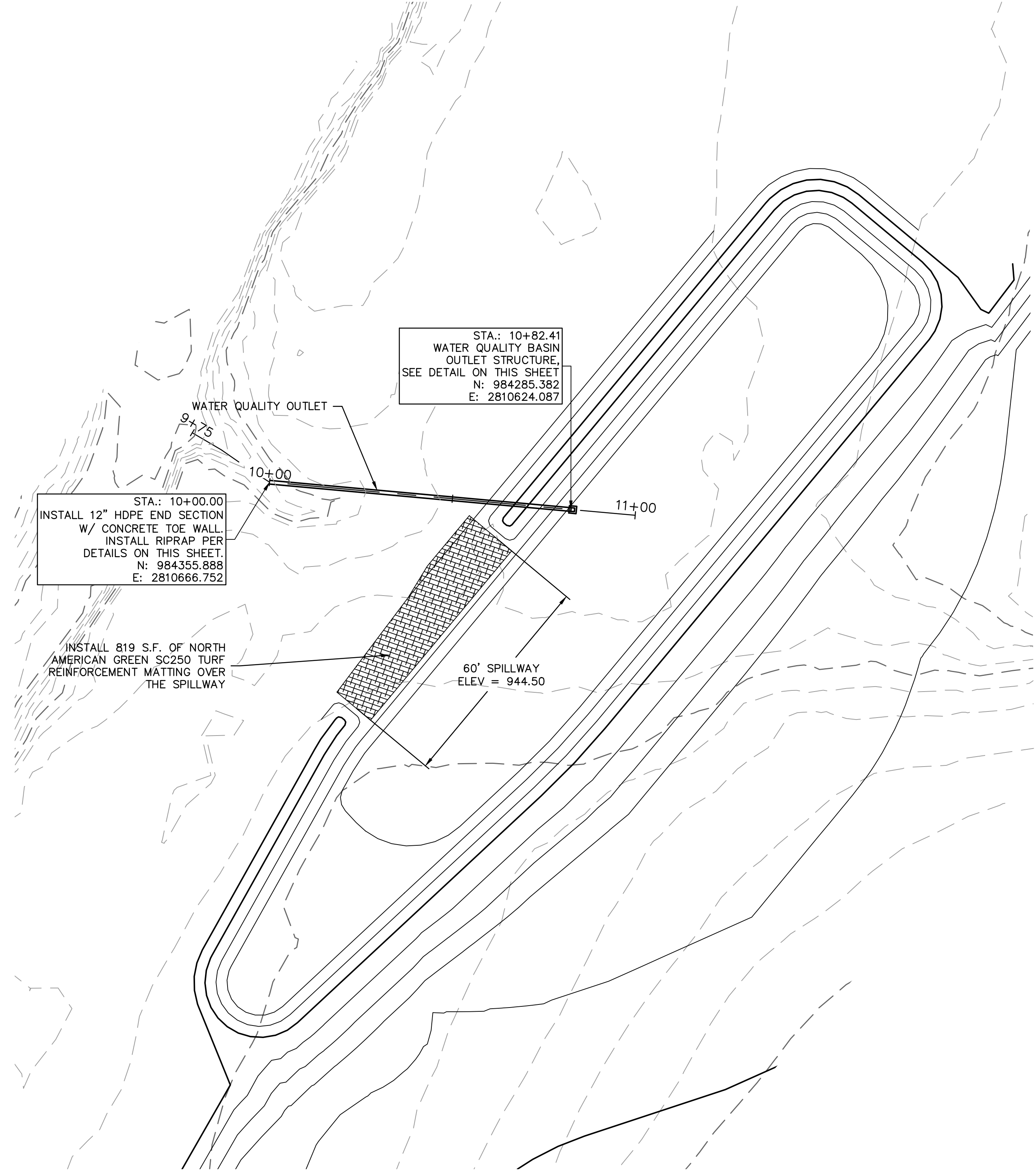
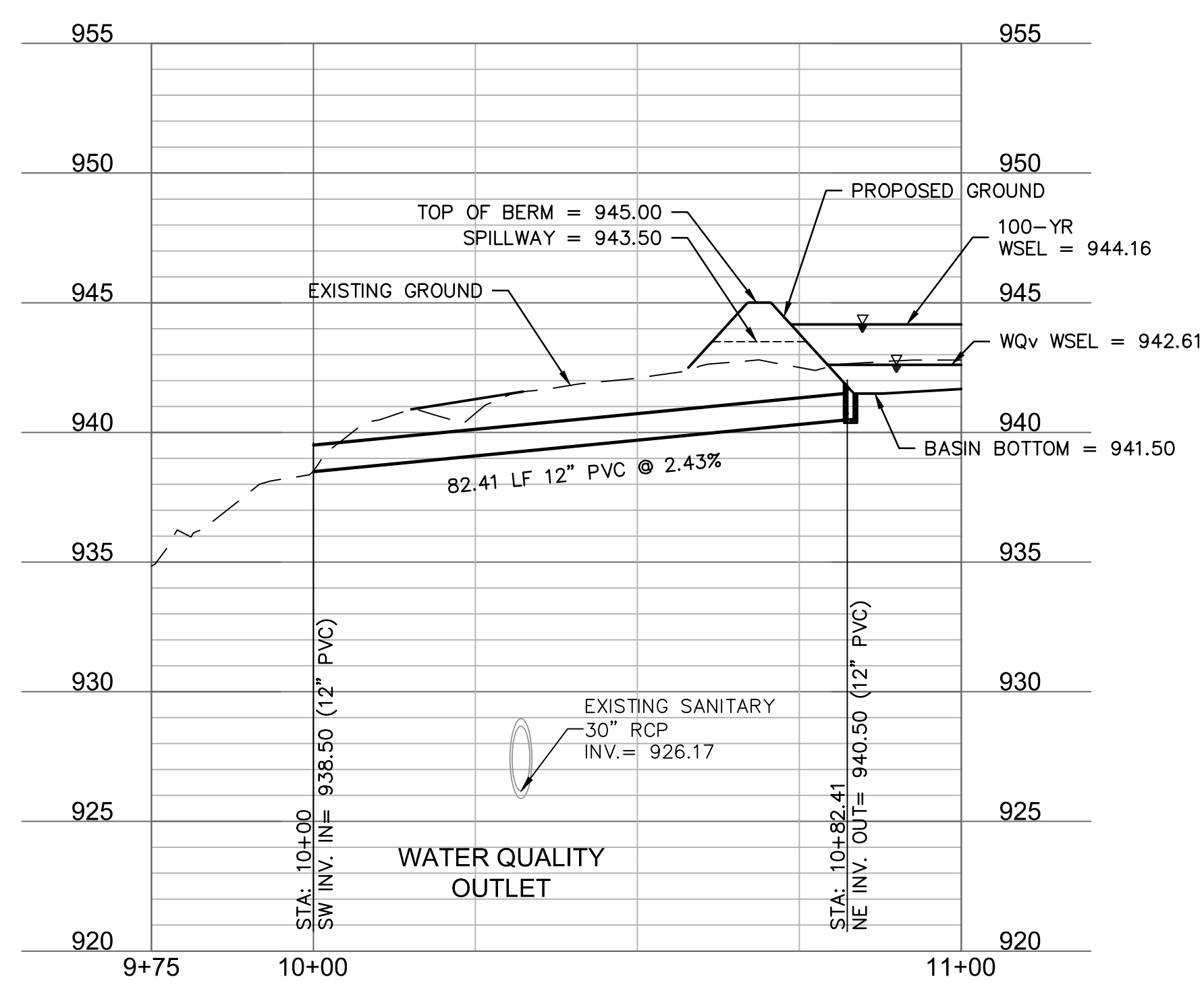
SHEET  
 C127

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 DATE: May 05, 2021 3:59pm XREFS: C\_PBASE\_A194059 C\_PUTIL\_A194059 C\_PBLK\_A194059 C\_XBASE\_A194059 USER: bworthley



- GENERAL NOTES:
1. CONCRETE SHALL BE CLASS B
  2. REINFORCING BARS SHALL BE EPOXY COATED AND DEFORMED, AND SHALL HAVE MINIMUM 2" CLEARANCE.
  3. ALL MOUNTING HARDWARE TO BE STAINLESS STEEL AND PROVIDED WITH HINGES AND LOCKABLE OR BOLTABLE ACCESS.

01 N.T.S. WATER QUALITY BASIN OULET STRUCTURE



02 N.T.S. RIPRAP OULET PROTECTION

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REV. NO.	DATE	REVISIONS DESCRIPTION	BY

WATER QUALITY BASIN PLAN  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEE'S SUMMIT, MO

drawn by: B.M.W./A.A.  
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 designed by: B.M.W./A.A.  
 project no.: A19-4059  
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SHEET  
 C128

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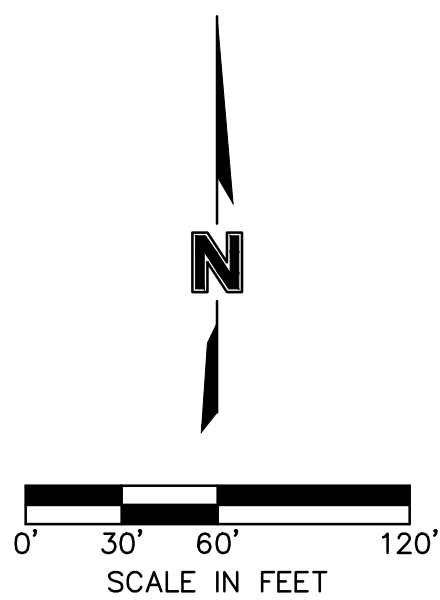
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- NOTES:
- INDIVIDUAL LOT OWNERS SHALL NOT CHANGE OR OBSTRUCT THE DRAINAGE FLOW LINES OR PATHS ON THE LOTS, AS SHOWN ON THE MASTER DRAINAGE PLAN, UNLESS SPECIFIC APPLICATION IS MADE AND APPROVED BY THE CITY ENGINEER.
  - PLAT IS LOCATION IN ZONE X, "AREAS OUTSIDE THE 1-PERCENT ANNUAL CHANCE FLOODPLAINS, AREAS OF 1-PERCENT ANNUAL CHANCE SHEET FLOW FLOODING WHERE THE AVERAGE DEPTHS ARE LESS THAN 1 FOOT, AREAS OF 1-PERCENT ANNUAL CHANCE STREAM FLOODING WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 1 SQUARE MILE, OR AREAS PROTECTED FROM THE 1-PERCENT ANNUAL CHANCE FLOOD BY LEVEES. NO BASE FLOOD ELEVATIONS OR DEPTHS ARE SHOWN WITHIN THIS ZONE"
  - PLAT IS LOCATED OUTSIDE OF ANY REQUIRED BUFFER ZONES FOR NATURAL STREAMS.
  - MBOE ELEVATIONS HAVE BEEN PROVIDED AT EACH LOT CORNER. INTERPOLATION WILL BE ALLOWED BETWEEN THE RIGHT AND LEFT SIDE MBOE'S SHOWN ON THE MASTER DRAINAGE PLAN, DEPENDING ON THE LOCATION OF THE LOWEST OPENING ON THE PROPOSED STRUCTURE.
  - REFER TO SHEET C107-C108 FOR SWALE GRADING DETAILS.
  - DRAINAGE PATHS TO BE CONSTRUCTED BETWEEN EACH OF THE LOTS LABELED AS STANDARD LOTS.
  - NO BUILDING PERMITS WILL BE ISSUED UNTIL AN AS-GRADED MASTER DRAINAGE PLAN HAS BEEN SUBMITTED TO THE CITY AND APPROVED BY THE CITY.

NOTES:  
 MBOE - MINIMUM BUILDING OPENING ELEVATION  
 FG - FINISHED GRADE

**BASEMENT TYPES**

- (S) STANDARD
- (W) WALKOUT
- (D) DAYLIGHT



LEGEND	
	FINISHED INDEX CONTOURS
	FINISHED INTERMEDIATE CONTOURS



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**MASTER DRAINAGE PLAN  
 STREET & STORM SEWER PLANS**

**THE RETREAT AT HOOK FARMS  
 SECOND PLAT**

2021

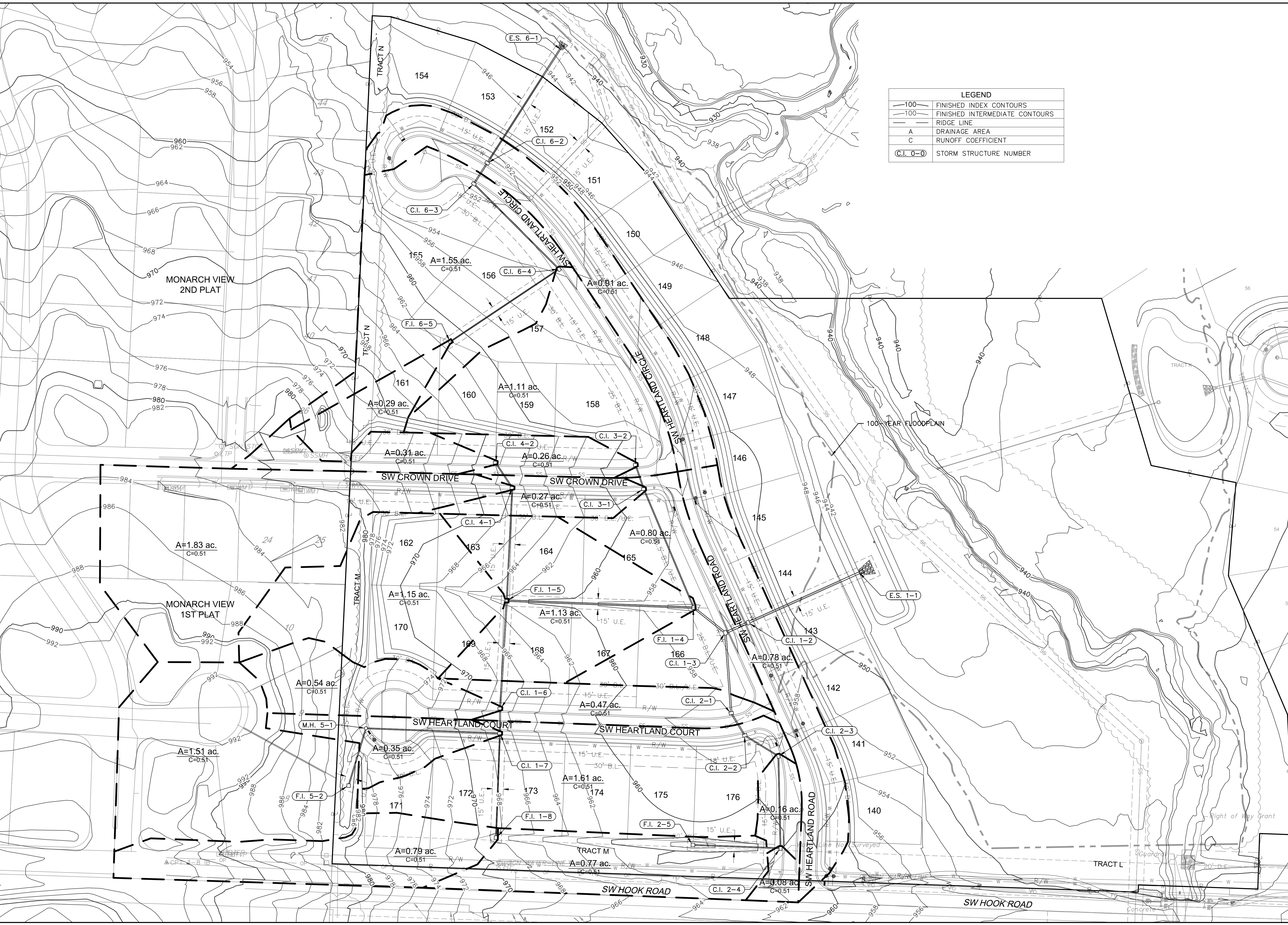
REVISIONS

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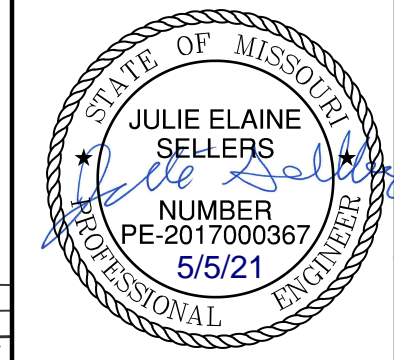
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LEGEND	
	100 FINISHED INDEX CONTOURS
	100 FINISHED INTERMEDIATE CONTOURS
	RIDGE LINE
A	DRAINAGE AREA
C	RUNOFF COEFFICIENT
	STORM STRUCTURE NUMBER



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REV. NO.	DATE	REVISIONS DESCRIPTION

BY: \_\_\_\_\_  
 USER: bworthley

DRAINAGE PLAN  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT

LEE'S SUMMIT, MO

2021

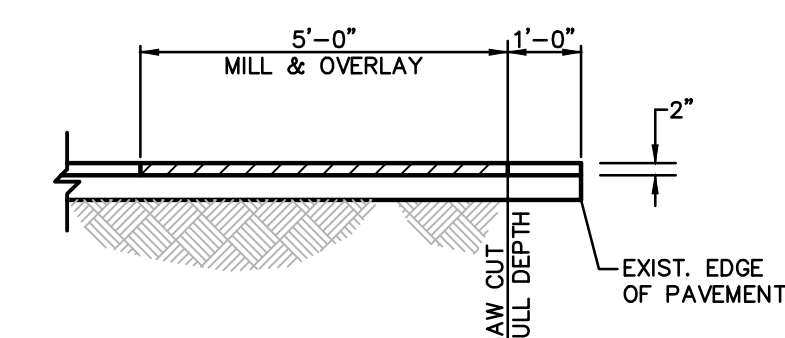
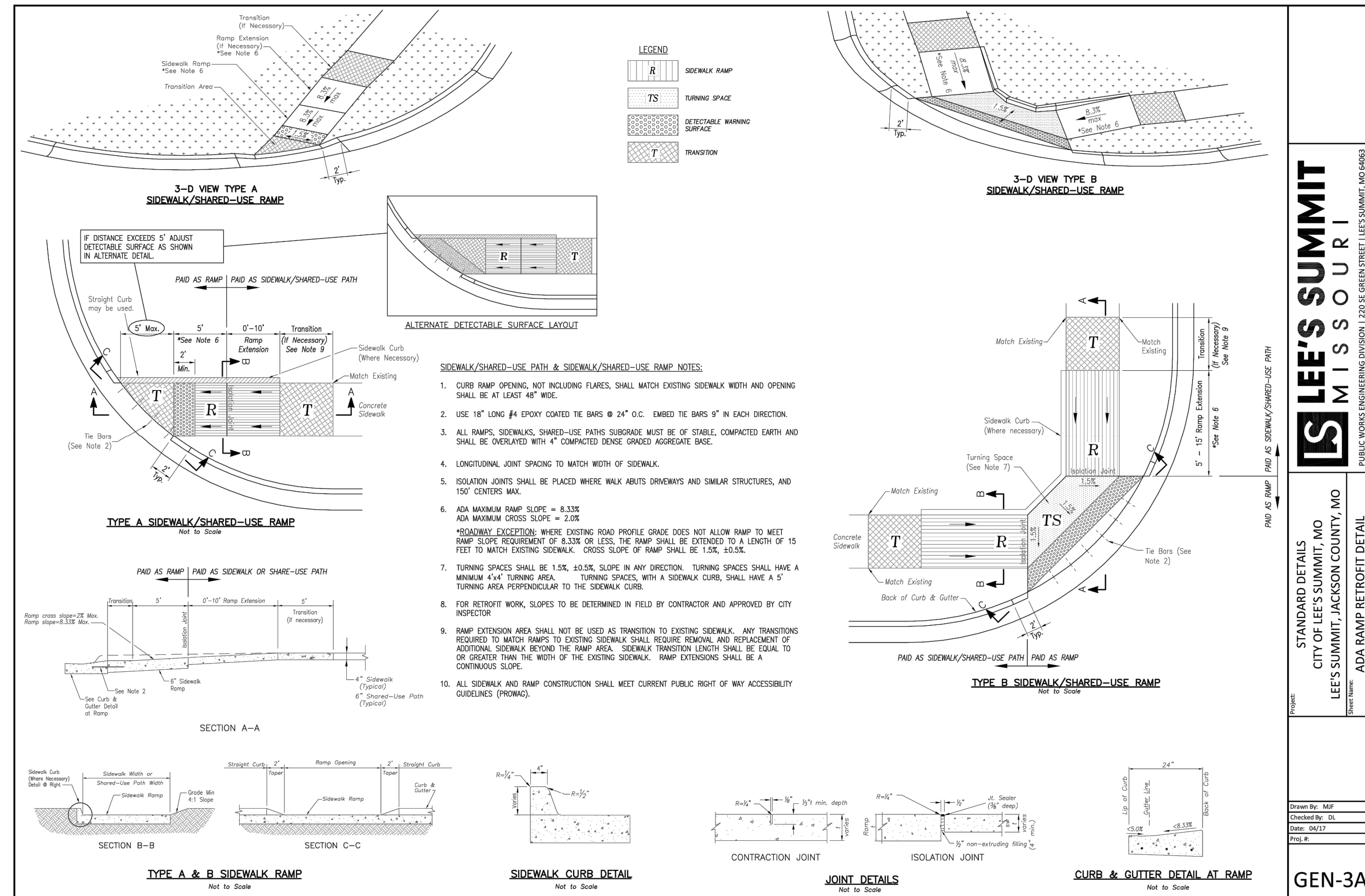
drawn by: B.M.W./A.A.  
 checked by: B.M.W./A.A.  
 designed by: B.M.W./A.A.  
 QA/QC by: J.E.S.  
 project no.: A19-4059  
 date: 05-05-2021

SHEET  
 C130

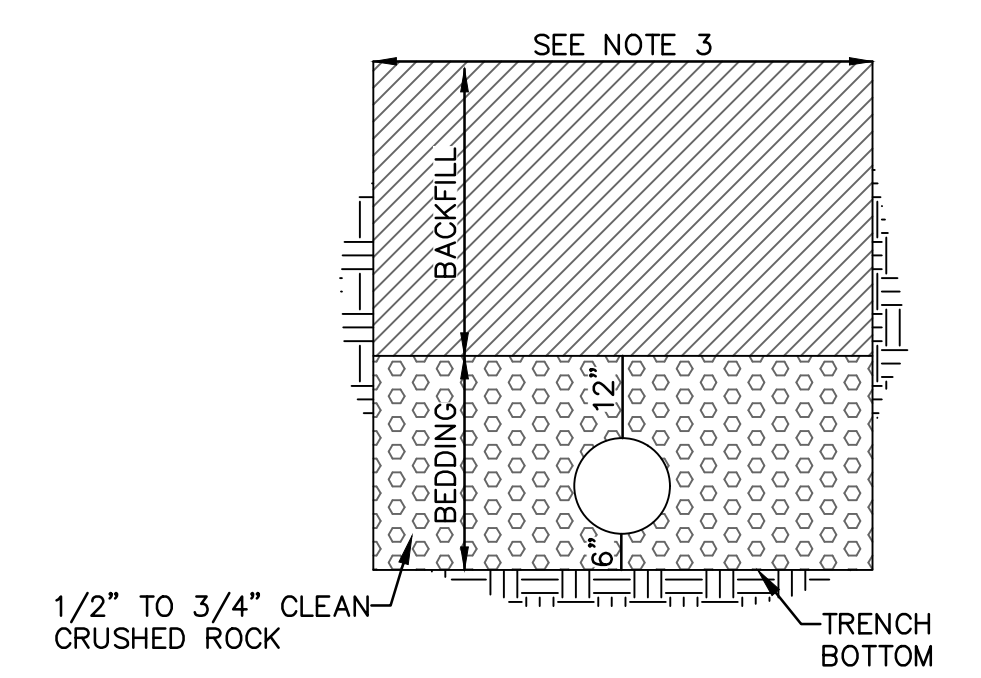


USER: bworthy

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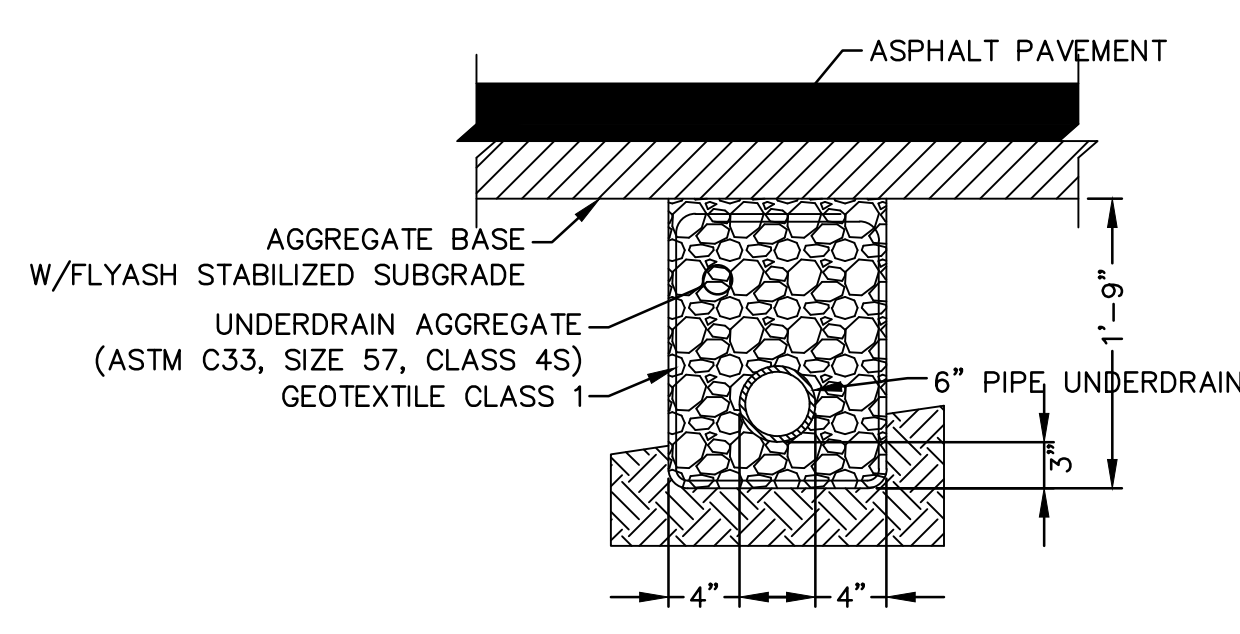
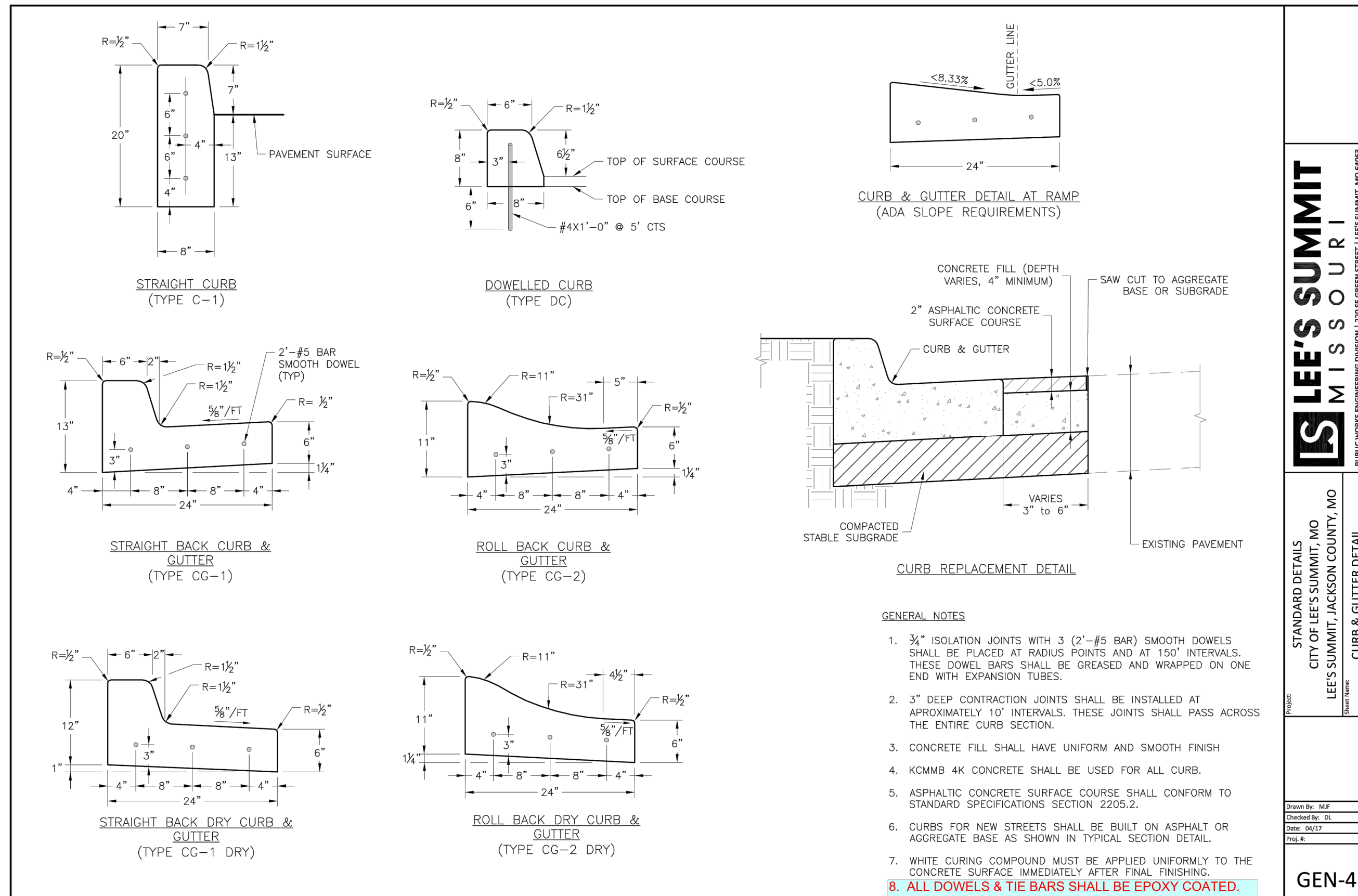
MILL & OVERLAY DETAIL  
N.T.S.



TYPICAL SECTION FOR PLASTIC PIPE (IN ROCK OR SOIL)

UNDERGROUND PIPE INSTALLATION FOR STORM SEWER LINES  
N.T.S.

- BACKFILL SHALL BE JOB EXECAVATED MATERIAL FREE FROM DEBRIS AND STONES COMPACTED TO 90% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698. BACKFILL UNDER PAVEMENT (EXISTING OR PROPOSED), SHALL BE FLOWABLE FILL.
- TRENCH BANKS MAY BE CUT BACK ON SLOPES IN ACCORDANCE WITH CURRENT OSHA REGULATIONS, BUT ONLY IN AREAS WHERE THE INCREASED TRENCH WIDTH WILL NOT INTERFERE WITH SURFACE FEATURES. SLOPES MUST NOT EXTEND BELOW TOP OF BEDDING.
- MINIMUM AND MAXIMUM WIDTHS SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATION AS APPROVED ON ENGINEERING PLANS.



PIPE UNDERDRAIN LATERAL  
N.T.S.

- NOTES:**
- Where Pipe Underdrains are used, all Underdrain Outlet Pipes shall be solid wall with watertight joints. All Outlets Pipes shall be tied into the nearest storm sewer inlets at roadway sag locations as indicated in the street profile.
  - All Underdrain Pipes shall be installed at a minimum slope of 1%.
  - Underdrain Pipe shall be installed with the perforations placed down.
  - Blanket Underdrain Aggregate, Pipe Underdrain Aggregate, Pipe Underdrain, Edge Underdrain and Outlet Pipe shall conform to City of Lee's Summit Specifications.
  - Overlap geotextile at top of trench a minimum of 12".

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JULIE ELAINE SELLERS  
PE-2017000367  
5/5/21

REV. NO.	DATE	REVISIONS DESCRIPTION	BY

DETAIL SHEET  
STREET & STORM SEWER PLANS  
THE RETREAT AT HOOK FARMS  
SECOND PLAT  
LEE'S SUMMIT, MO

2021

drawn by: B.M.W./A.A.  
 checked by: B.M.W.  
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 QA/QC by: J.E.S.  
 project no.: A19-4059  
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SHEET C132





**SIGN MOUNTING DETAILS**

NOTE:  
 1. Generally, the sign mounting height should not be more than 1' greater than the minimum mounting height.

CITY OF LEE'S SUMMIT  
 PUBLIC WORKS DEPARTMENT  
 ENGINEERING DIVISION  
 220 SE GREEN STREET  
 LEE'S SUMMIT, MISSOURI 64063  
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Project: SIGN MOUNTING DETAILS  
 Sheet Name: SIGN MOUNTING DETAILS  
 Drawn By: AS  
 Checked By: JW  
 Date: 05/04/2020  
 Project: 1 OF 3

**U-STEEL POST DETAILS**

U-STEEL POST NOTES:  
 1. Signs shall be positioned entirely between finished grade line and 18" above finished grade line. Only one splice will be allowed per post.  
 2. U-Steel post shall be 3 B.U.F. galvanized according to ASTM A123.  
 3. U-Steel post can be used for installation of signs with an area of less than 2.5 square feet.  
 4. All posts shall be embedded a minimum of 3 feet.

STRAP TYPE SIGN SUPPORT DETAILS  
 METAL POLE SIGN MOUNTING NOTES:  
 1. Signs on metal poles shall be attached with two brackets and stainless steel bands.  
 2. Holes in sign for attachment to the mounting brackets shall be offset a minimum of 2 inches from the edge of the sign.  
 3. Holes in sign shall be located such that the sign is level.  
 4. All strap, bracket, and seal materials should be Type 301 stainless steel.

SQUARE STEEL POST NOTES:  
 1. Square steel sign posts and break-away anchor shall consist of the following materials:  
 Sign Post - 14 Ga. 2" x 2" Square Steel Post  
 Post Anchor - 12 Ga. 2 1/2" x 2 1/2" x 36" Square Steel Post  
 Anchor Sleeve - 12 Ga. 2 1/2" x 2 1/2" x 18" Square Steel Post  
 2. 14 Gauge posts must meet a certified minimum yield strength of 60,000 psi.  
 3. In all installations, the first hole above the finished grade line on the sign post, anchor, and anchor sleeve must be in line for the insertion of the corner bolt.  
 4. The maximum area for one sign post is 0.9 square feet. A sign or combination of signs with an area greater than 0.9 square feet will require two posts. Also, signs with a width greater than 36" (not including 30" x 30" diamond shaped signs) will require two posts.

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Project: SIGN POST DETAILS  
 Sheet Name: SIGN POST DETAILS  
 Drawn By: AS  
 Checked By: JW  
 Date: 05/04/2020  
 Project: 2 OF 3

**STREET NAME SIGN DETAILS**

STREET NAME SIGN QUANTITIES

Sign Designation	Sign Size	Sign Area (Sq. Ft.)	Number	Quantity (Sq. Ft.)
D3-1 (SP-1)	9" x 9"	Sq. Ft.	1	1
D3-1 (SP-2)	9" x 9"	Sq. Ft.	1	1
D3-1 (SP-3)	9" x 9"	Sq. Ft.	1	1
D3-1 (SP-4)	9" x 9"	Sq. Ft.	1	1
D3-1 (SP-5)	9" x 9"	Sq. Ft.	1	1
D3-1 (SP-6)	9" x 9"	Sq. Ft.	1	1

STREET NAME SIGN FACE DETAILS

NOTE:  
 1. For all street name signs, the legend shall be white and the background shall be green.  
 2. Arrows shall be added to street name signs where the name of a street changes at an intersection. Street name signs with arrows are to be installed on each side of the intersection to indicate the change in names. Arrows shall be white.  
 3. The "PRIVATE STREET" tag should be added to the end of street name signs to indicate where a street that is outside the right-of-way intersects a public street. The background for the "PRIVATE STREET" tag shall be yellow.

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Project: STREET NAME SIGN DETAILS  
 Sheet Name: STREET NAME SIGN DETAILS  
 Drawn By: AS  
 Checked By: JW  
 Date: 05/04/2020  
 Project: 3 OF 3

**STANDARD PRECAST STORM SEWER MANHOLE**  
 NOT TO SCALE

STORM MANHOLE NOTES:  
 1. ALL MANHOLES ARE TO BE PRECAST CONCRETE AND OF ECCENTRIC CONE TYPE UNLESS OTHERWISE SPECIFIED.  
 2. MANHOLE TOP ADJUSTMENTS SHALL BE ACCOMPLISHED BY THE USE OF CONCRETE ADJUSTMENT RINGS.  
 3. TOP OF MANHOLE CASTING SHALL BE SET FLUSH AND ON SAME SLOPE AS FINISHED SURFACE OR AS DIRECTED BY THE ENGINEER.  
 4. REINFORCEMENT IN ALL SECTIONS SHALL EQUAL OR EXCEED A.S.T.M. C-478 SPECIFICATIONS.  
 5. THE ENGINEER SHALL DESIGNATE MODIFICATIONS FOR MANHOLES WITH SPECIAL DESIGNS.  
 6. THE INSIDE DIAMETER OF THE MANHOLE SHALL BE 4'-0" FOR PIPE DIAMETERS FROM 12" THRU 24", 5'-0" FOR PIPE DIAMETERS FROM 27" THRU 36", AND 6'-0" FOR PIPE DIAMETERS 42" THRU 48".  
 7. CLEARANCE TOLERANCE OF PIPE OPENINGS: THE MAXIMUM ALLOWABLE PIPE OPENING ON A HORIZONTAL AXIS SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 12". THE MAXIMUM ALLOWABLE PIPE OPENING ON VERTICAL AXIS SHALL BE THE OUTSIDE DIAMETER PLUS 8". THE MAXIMUM CLEARANCE BETWEEN THE OUTSIDE SURFACE OF AN INSTALLED PIPE AND THE CONCRETE OF THE MANHOLE SHALL BE 2".  
 8. INSTALLATION OF PIPE OPENINGS: ALL REQUIRED PIPE OPENINGS SHALL BE PLANT CAST IN MANHOLE UNITS. FIELD ALTERATIONS OF OPENINGS WILL BE PERMITTED PROVIDED WALLS ARE SCORED WITH A MASONRY SAW TO A DEPTH SUFFICIENT TO SEVER REINFORCING STEEL. A CHIPPING HAMMER MAY THEN BE USED TO REMOVE THE CONCRETE. MINIMUM DISTANCE BETWEEN ANY TWO ADJACENT PIPES SHALL BE 2".  
 9. NO DIRECT PAYMENT FOR SHAPING FLOOR OR CONNECTING PIPES AS SHOWN ON PLANS.  
 10. RING AND COVER TO BE NEENAH R-1736, CLAY & BAILEY #2008, DEETER # 1316, OR APPROVED EQUAL. (CASTING MAY VARY BY MUNICIPALITY, REFER TO PLANS & CONTRACT DOCUMENTS.)

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Project: STANDARD PRECAST STORM SEWER MANHOLE  
 Sheet Name: STANDARD PRECAST STORM SEWER MANHOLE  
 Drawn By: AS  
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 Date: 05/04/2020  
 Project: 1 OF 1

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JULIE ELAINE SELLERS  
 MISSOURI PROFESSIONAL ENGINEER  
 NUMBER PE-2017000367  
 5/5/21

BY: \_\_\_\_\_  
 REVISIONS DESCRIPTION  
 REV. NO. DATE  
 2021

DETAIL SHEET  
 STREET & STORM SEWER PLANS  
 THE RETREAT AT HOOK FARMS  
 SECOND PLAT  
 LEE'S SUMMIT, MO

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SHEET C134