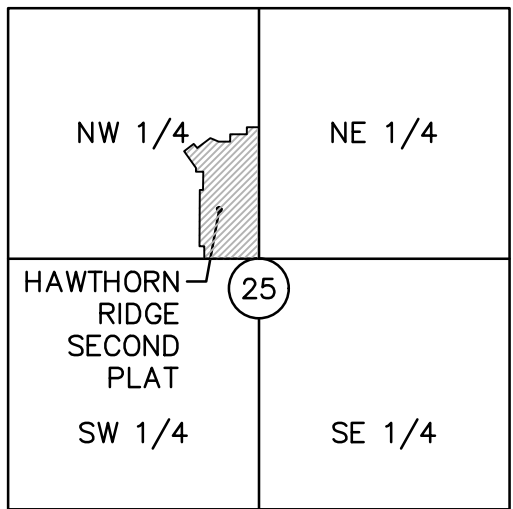


HAWTHORN RIDGE
SECOND PLAT
STREET & STORM SEWER PLANS

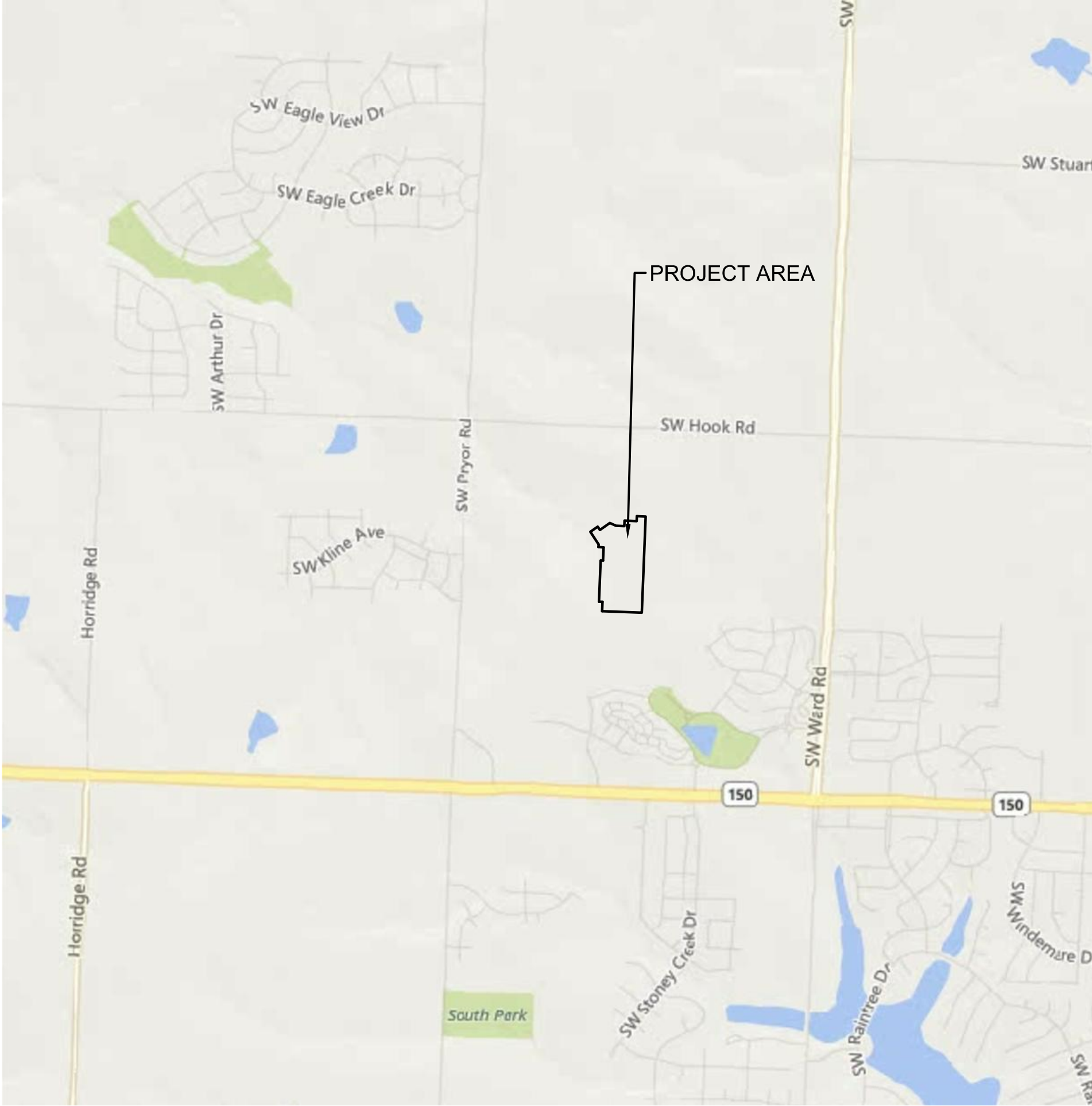
N/W 1/4 SECTION 25, TOWNSHIP 47 N, RANGE 32 W.
IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI



LOCATION MAP
Sec. 25, Twp. 47 N., Rge. 32 W.
(N.T.S.)

PROJECT TEAM & UTILITY CONTACT LIST	
OWNER / DEVELOPER CLAYTON PROPERTIES GROUP, INC. D.B.A. SUMMIT HOMES 120 SE 30TH STREET CONTACT: VINCENT WALKER LEE'S SUMMIT, MO 64082 PHONE: 816.246.6700 EMAIL: VINCENT@SUMMITHOMESKC.COM	UTILITY SERVICE NUMBERS NAME: LEE'S SUMMIT PUBLIC WORKS PHONE: 816-969-1800 NAME: LEE'S SUMMIT WATER & SERVICES DEPARTMENT PHONE: 816-969-1940 NAME: SPIRE (MGE) PHONE: 314-342-0500 NAME: AT&T PHONE: 800-286-8313 NAME: KOP&L PHONE: 816-471-5275 NAME: SPECTRUM (TWC) PHONE: 877-772-2253 NAME: GOOGLE FIBER PHONE: 877-454-6959
ENGINEER OLSSON 1301 BURLINGTON ST. SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JULIE E. SELLERS PHONE: 816.361.1177 EMAIL: JSSELLERS@OLSSON.COM	
SURVEYOR OLSSON 1301 BURLINGTON ST. SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JASON ROUDEBUSH PHONE: 816.361.1177 EMAIL: JROUDEBUSH@OLSSON.COM	

- ☐ NOT FOR CONSTRUCTION
- ☒ REVIEWED FOR CONSTRUCTION



PROPERTY DESCRIPTION:

A TRACT OF LAND IN THE NORTHWEST QUARTER OF SECTION 25, TOWNSHIP 47 NORTH, RANGE 32 WEST OF THE 5TH PRINCIPAL MERIDIAN IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI, AND A PORTION OF TRACT E, OF HAWTHORN RIDGE 1ST PLAT, A SUBDIVISION OF LAND RECORDED AS DOCUMENT 2019E0020897 IN BOOK 182 AT PAGE 83, IN THE OFFICE OF RECORDER OF DEEDS FOR JACKSON COUNTY, MISSOURI ALL BEING BOUNDED AND DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER OF SECTION 25; THENCE SOUTH 87°46'49" EAST ON THE SOUTH LINE OF SAID NORTHWEST QUARTER, 2,653.29 FEET TO THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER, (CENTER OF SECTION) AND THE POINT OF BEGINNING OF THE TRACT OF LAND TO BE HEREIN DESCRIBED; THENCE ON SAID SOUTH LINE OF SAID NORTHWEST QUARTER, NORTH 87°46'49" WEST, 577.00 FEET; THENCE LEAVING SAID SOUTH LINE, NORTH 02°13'11" EAST, 135.00 FEET; THENCE NORTH 87°46'49" WEST, 50.79 FEET; THENCE NORTH 02°18'36" EAST, 596.57 FEET; THENCE SOUTH 87°41'24" EAST, 37.00 FEET; THENCE NORTH 02°18'36" EAST, 192.00 FEET; THENCE NORTH 87°41'24" WEST, 75.58 FEET; THENCE NORTH 02°18'36" EAST, 39.05 FEET; THENCE NORTH 33°13'50" WEST, 218.11 FEET TO THE SOUTHWESTERLY CORNER OF LOT 21 OF SAID HAWTHORN RIDGE 1ST PLAT; THENCE ON THE SOUTHERLY LINE OF SAID HAWTHORN RIDGE 1ST PLAT THE FOLLOWING 9 CALLS, NORTH 54°57'38" EAST, 130.00 FEET; THENCE SOUTH 35°02'22" EAST, 58.00 FEET; THENCE NORTH 54°57'38" EAST, 175.90 FEET; THENCE SOUTH 65°30'07" EAST, 95.33 FEET; THENCE SOUTH 87°41'24" EAST, 121.73 FEET; THENCE NORTH 02°18'36" EAST, 78.00 FEET; THENCE SOUTH 87°41'24" EAST, 175.00 FEET; THENCE NORTH 02°18'36" EAST, 72.00 FEET; THENCE SOUTH 87°41'24" EAST, 130.00 FEET TO THE SOUTHEASTERLY CORNER OF LOT 28 OF SAID HAWTHORN RIDGE 1ST PLAT AND A POINT ON THE EAST LINE OF SAID NORTHWEST QUARTER; THENCE ON SAID EAST LINE, SOUTH 02°18'36" WEST, 1,392.58 FEET TO THE POINT OF BEGINNING. CONTAINING 827,409 SQUARE FEET OR 19.00 ACRES, MORE OR LESS.

BENCHMARK

RR SPIKE IN SOUTH FACE OF POWER POLE ON NORTH SIDE OF SW. HOOK ROAD, IMMEDIATELY WEST OF DRIVEWAY FOR HOUSE#1622. ELEVATION= 1024.63'

SHEET INDEX	
Sheet Number	Sheet Title
C100	COVER SHEET
C101	GENERAL NOTES
C102	GENERAL LAYOUT
C103	GRADING PLAN
C104	TYPICAL SECTIONS
C105	SWALE PLAN & PROFILE
C106	SWALE PLAN & PROFILE
C107	SWALE PLAN & PROFILE
C108	SWALE PLAN & PROFILE
C109	ROAD PLAN & PROFILE
C110	ROAD PLAN & PROFILE
C111	ROAD PLAN & PROFILE
C112	ROAD PLAN & PROFILE
C113	ROAD PLAN & PROFILE
C114	ROAD PLAN & PROFILE
C115	ROAD PLAN & PROFILE
C116	ROAD PLAN & PROFILE
C117	TRAFFIC CONTROL
C118	SIGN DETAILS
C119	ROADWAY MARKING DETAILS
C120	SPOT ELEVATIONS
C121	SPOT ELEVATIONS
C122	SPOT ELEVATIONS
C123	SPOT ELEVATIONS
C124	STORM PLAN & PROFILE
C125	STORM PLAN & PROFILE
C126	STORM PLAN & PROFILE
C127	STORM PLAN & PROFILE
C128	STORM PLAN & PROFILE
C129	STORM PLAN & PROFILE
C130	STORM PLAN & PROFILE
C131	STORM PLAN & PROFILE
C132	STORM PLAN & PROFILE

C133	STORM PLAN & PROFILE
C134	STORM PLAN & PROFILE
C135	STORM PLAN & PROFILE
C136	STORM SEWER DETAILS
C137	STORM SEWER DETAILS
C138	DRAINAGE PLAN
C139	DRAINAGE TABLES
C140	DRAINAGE TABLES
C141	MASTER DRAINAGE PLAN
C142	SITE DISTURBANCE PHASE 1
C143	SITE DISTURBANCE PHASE 2
C144	SITE DISTURBANCE PHASE 3
C145	SITE DISTURBANCE PHASE 4
C146	SEDIMENT BASIN DETAIL
C147	SITE DISTURBANCE DETAILS
C148	SITE DISTURBANCE DETAILS

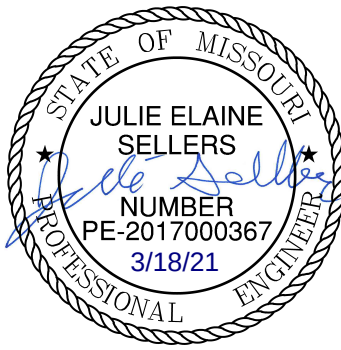
OLSSON HAS BEEN RETAINED TO PROVIDE AS-BUILT DRAWINGS FOR THIS PROJECT.

JULIE E. SELLERS
CIVIL ENGINEER
MO#2017000367

Julie E. Sellers

3/18/21
DATE

AS-BUILT
3/17/2021



JULIE E. SELLERS, P.E.
MO# 2017000367

REVISIONS	
NO. REV.	DATE
1	08-12-2019
2	10-02-2020

COVER SHEET
STREET & STORM SEWER PLANS

HAWTHORN RIDGE
SECOND PLAT

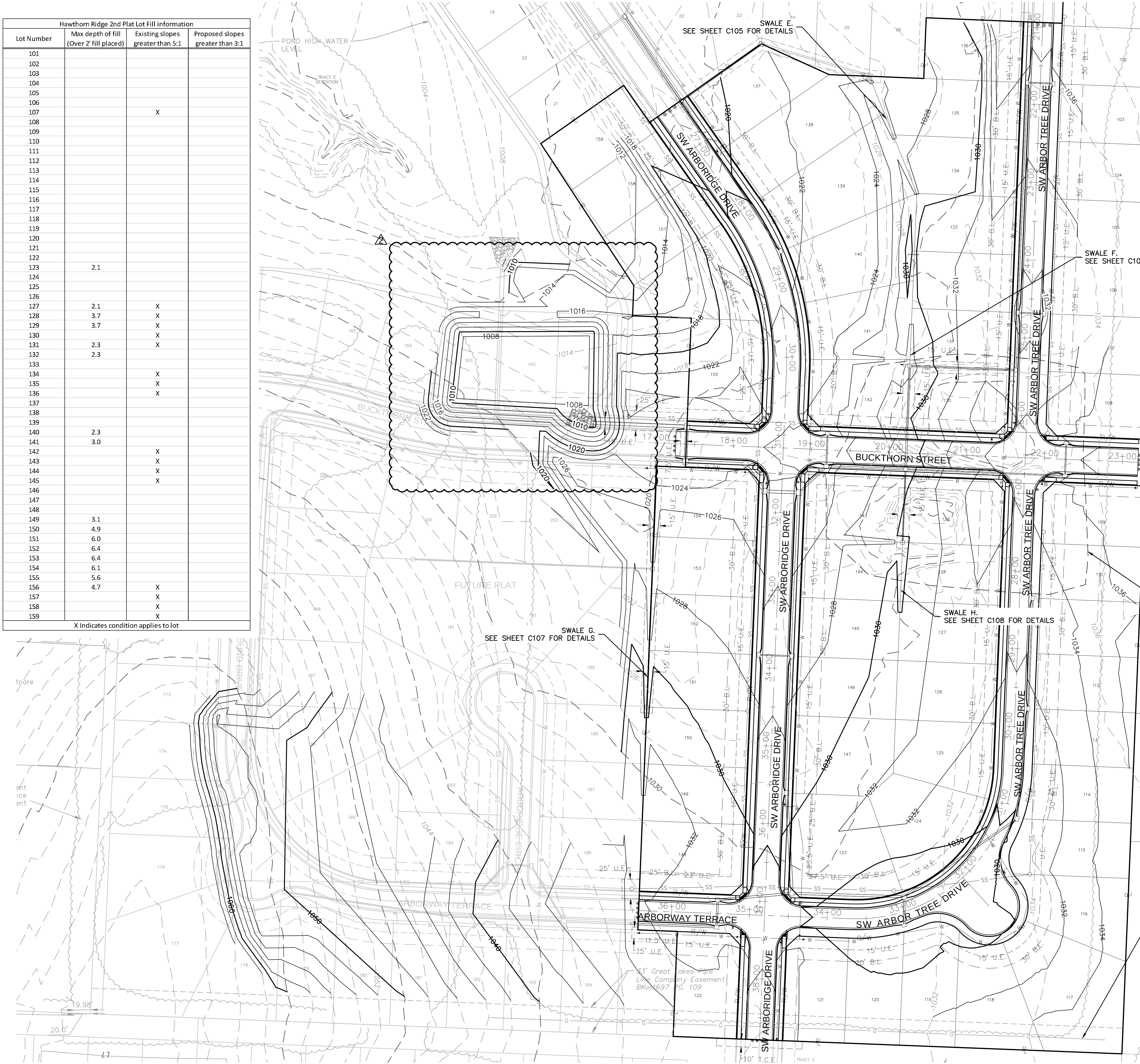
LEE'S SUMMIT, MISSOURI

2019

drawn by: D.A.H.Q.
checked by: M.G.D.
designed by: B.M.W.
QA/QC by: N.D.H.
project no.: 019-1605
date: 07-12-2018

SHEET
C100

Hawthorn Ridge 2nd Plat Lot Fill Information			
Lot Number	Max depth of fill (Over 2' fill placed)	Existing slopes greater than 5:1	Proposed slopes greater than 3:1
101			
102			
103			
104			
105			
106			
107		X	
108			
109			
110			
111			
112			
113			
114			
115			
116			
117			
118			
119			
120			
121			
122			
123	2.1		
124			
125			
126			
127	2.1	X	
128	3.7	X	
129	3.7	X	
130		X	
131	2.3	X	
132	2.3		
133			
134		X	
135		X	
136		X	
137			
138			
139			
140	2.3		
141	3.0		
142		X	
143		X	
144		X	
145		X	
146			
147			
148			
149	3.1		
150	4.9		
151	6.0		
152	6.4		
153	6.4		
154	6.1		
155	5.6		
156	4.7	X	
157		X	
158		X	
159		X	



GRADING NOTES:

1. CONTRACTOR SHALL ADHERE TO THE "STANDARDS, SPECIFICATIONS AND DESIGN CRITERIA" SECTION 2100 AS ADOPTED BY LEE'S SUMMIT, MO (LATEST EDITION), FOR EXCAVATION AND EMBANKMENT WORK WITHIN THE PROPOSED RIGHT-OF-WAY, OR SPECIFICATIONS IN THESE PLANS, WHICHEVER IS STRICTER.
2. AREAS OF CONSTRUCTION SHALL BE STRIPPED OF ALL VEGETATION, ORGANIC MATTER AND TOPSOIL, PRIOR TO PLACEMENT OF FILL MATERIAL. THE EXPOSED GRADES SHALL BE OBSERVED AND PROOF ROLLED USING A LOADED TANDEM AXLE DUMP TRUCK WITH A MINIMUM GROSS WEIGHT OF 20 TONS OR SIMILAR EQUIPMENT.
3. WHERE THE EXISTING GRADE IS STEEPER THAN ONE UNIT VERTICAL IN FIVE UNITS HORIZONTAL AND THE DEPTH OF FILL EXCEEDS 5 FEET, BENCHING OF THE FILL INTO THE NATURAL SLOPE SHALL BE PERFORMED. A KEY SHALL BE PROVIDED AT THE TOE OF THE FILL THAT IS AT LEAST 10 FEET WIDE AND 2 FEET IN DEPTH. BENCHES SHOULD BE CUT AS THE FILL PROGRESSES AND SHOULD HAVE A MAXIMUM BENCH HEIGHT OF 3 FEET.
4. MATERIAL FOR USE AS FILL SHALL BE IDENTIFIED AND SAMPLED FOR CLASSIFICATION, STANDARD PROCTOR (ASTM D-698) AND ATTERBERG LIMITS (ASTM D-4318) TESTING PRIOR TO COMMENCING FILL PLACEMENT.
5. ALL FILL OUTSIDE OF RIGHT-OF-WAY SHOULD BE PLACED IN CONTROLLED LIFTS HAVING A MAXIMUM LOOSE LIFT THICKNESS OF 9".
6. FILL SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 (STANDARD PROCTOR COMPACTION).
7. MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION SHALL BE WITHIN A RANGE OF -1 TO +3 PERCENT OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D-698.
8. SEE SHEET C141 FOR MINIMUM LOW OPENINGS AND THIS SHEET FOR FILL DEPTHS FOR EACH LOT.

EARTHWORK QUANTITIES		
LOCATION	CUT (C.Y.)	FILL (C.Y.)
STREET	7,977	2,205
SITE	41,742	24,259
TOTAL	49,719	26,464

EARTHWORK QUANTITIES NOTES:

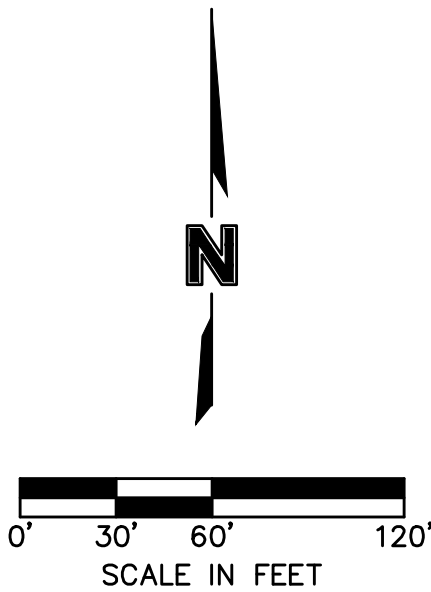
1. EARTHWORK QUANTITIES BASED ON FINISHED GRADE SURFACE AND DO NOT INCLUDE ADJUSTMENTS FOR TOPSOIL AND SHRINKAGE.
2. EARTHWORK QUANTITIES DO NOT TAKE INTO CONSIDERATION EXCAVATION, REMOVAL AND DISPOSAL OF MATERIAL DEEMED UNSUITABLE BY A GEOTECHNICAL ENGINEER. THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR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

CONTRACTOR TO USE THIS STOCKPILED MATERIAL WHEREVER POSSIBLE BEFORE MOVING MATERIAL FROM THE THIRD PLAT

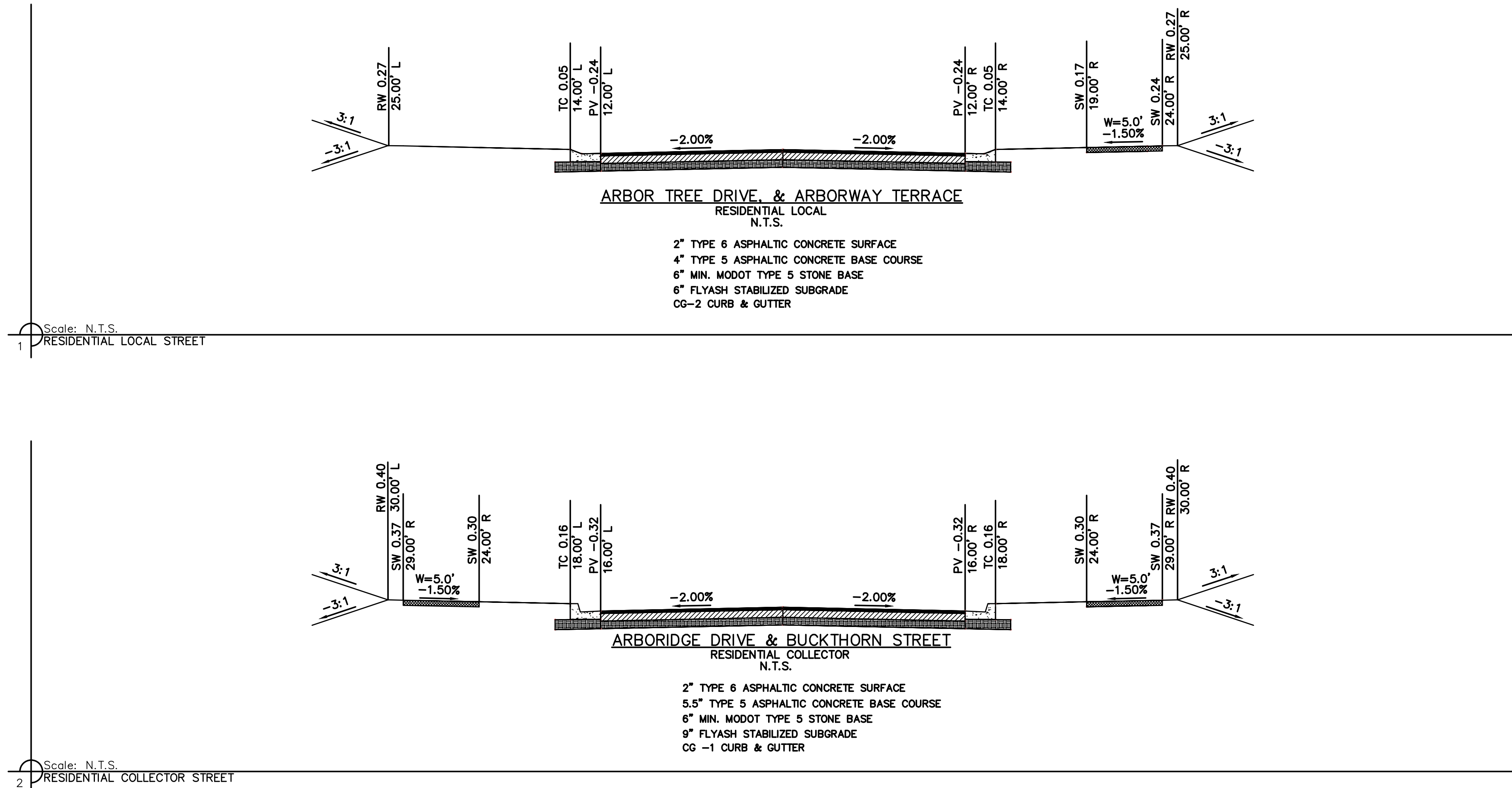
NOT AS-BUILT

**REFER TO MASTER DRAINAGE
PLAN FOR UPDATED GRADING**

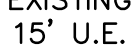
WARNING
HIGH-PRESSURE PIPELINE
EXCAVATION AND/OR CONSTRUCTION PROHIBITED
WITHOUT COMPLIANCE WITH STATE ONE-CALL, AND
WITHOUT WRITTEN PERMISSION FROM
MAGELLAN PIPELINE COMPANY, L.P.



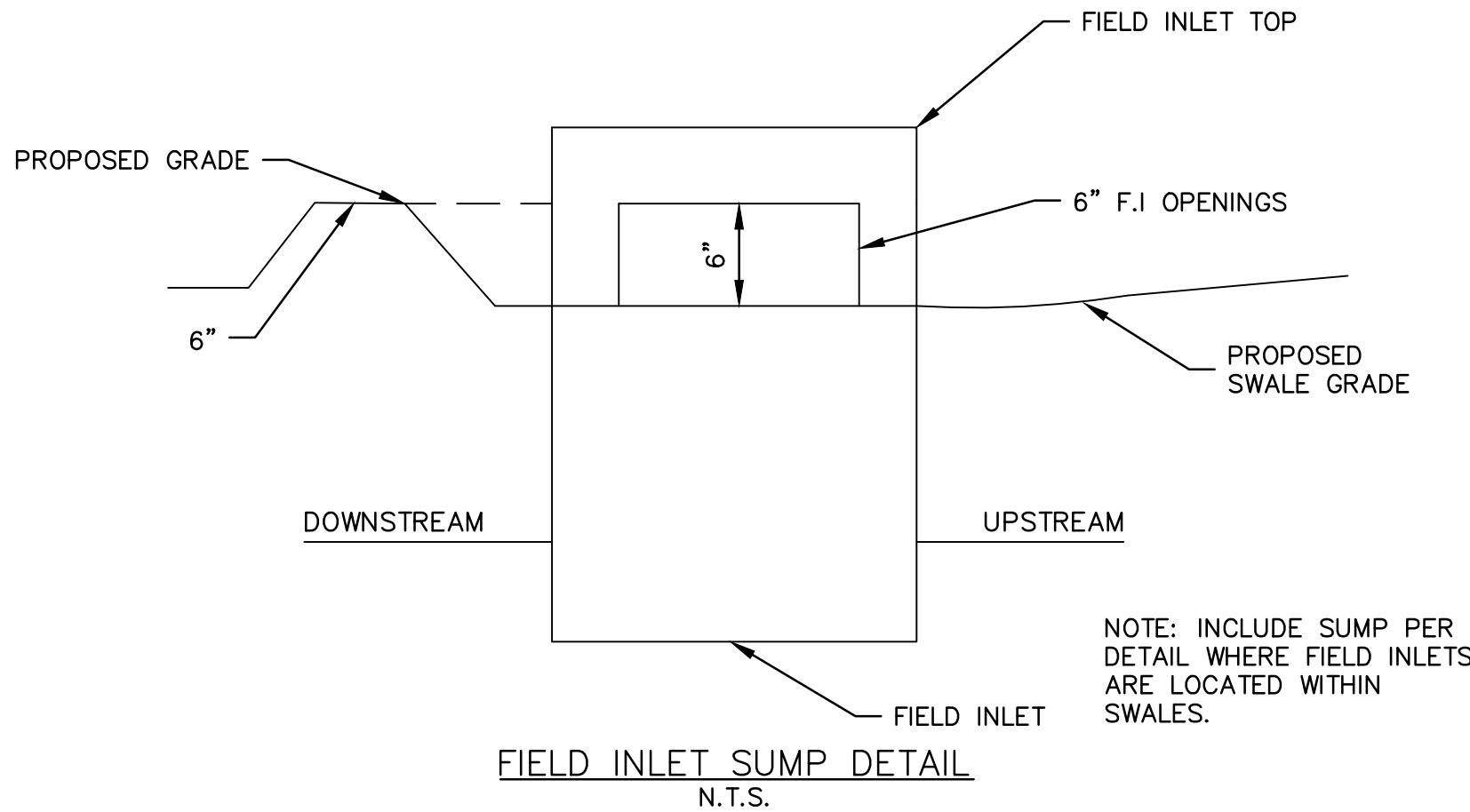
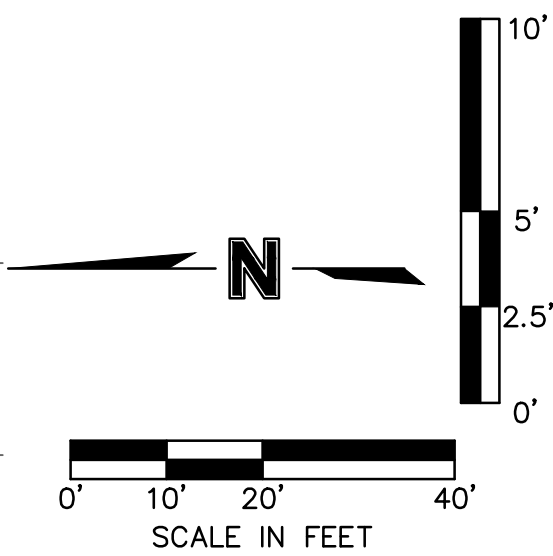
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	EXISTING INDEX CONTOURS
	EXISTING INTERMEDIATE CONTOURS
	PROPOSED INDEX CONTOURS
	PROPOSED INTERMEDIATE CONTOURS



NOT AS-BUILT

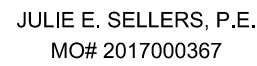


Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
E1-E1	0.60	0.51	5	10.32	1.25	3.92



NOTE:
AS-BUILT PLOT PLAN REQUIRED ON LOTS BORDERING
THIS SWALE. FINAL GRADING OF SWALE TO BE
SHOWN ON THE FINAL PLOT PLAN PER ELEVATIONS
AND SECTIONS SHOWN ON THIS SHEET.

AS-BUILT
3/17/2021

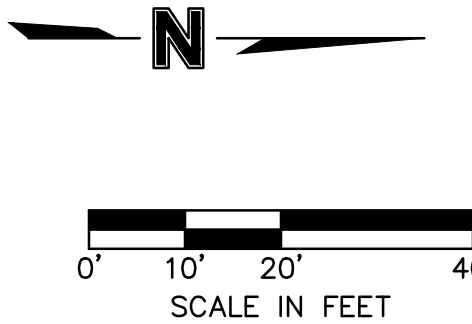


OLSSON - CIVIL ENGINEERING
MO CERTIFICATE OF AUTHORITY #001592
1301 BURLINGTON, SUITE 100
NORTH KANSAS CITY, MO 64116

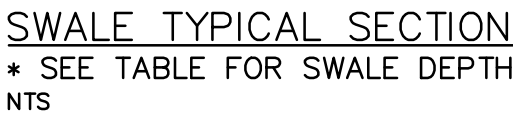
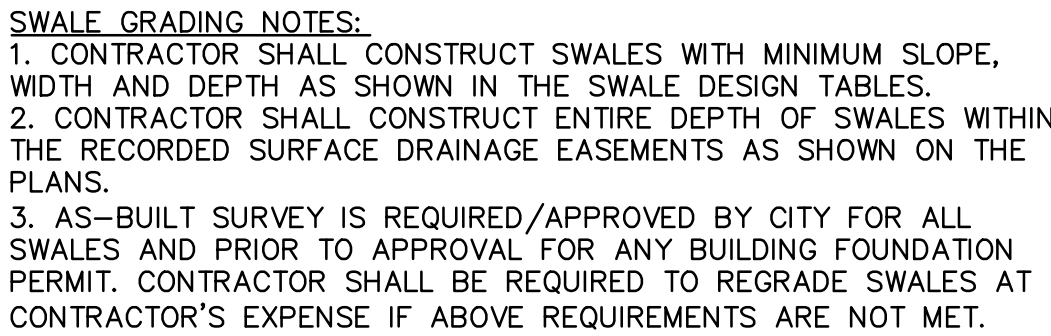
LEE'S SUMMIT MISSOURI

drawn by: D.A.H.C.
checked by: M.G.D.
designed by: B.M.W.
QA/QC by: N.D.H.
project no.: 019-1603
date: 07-12-2019

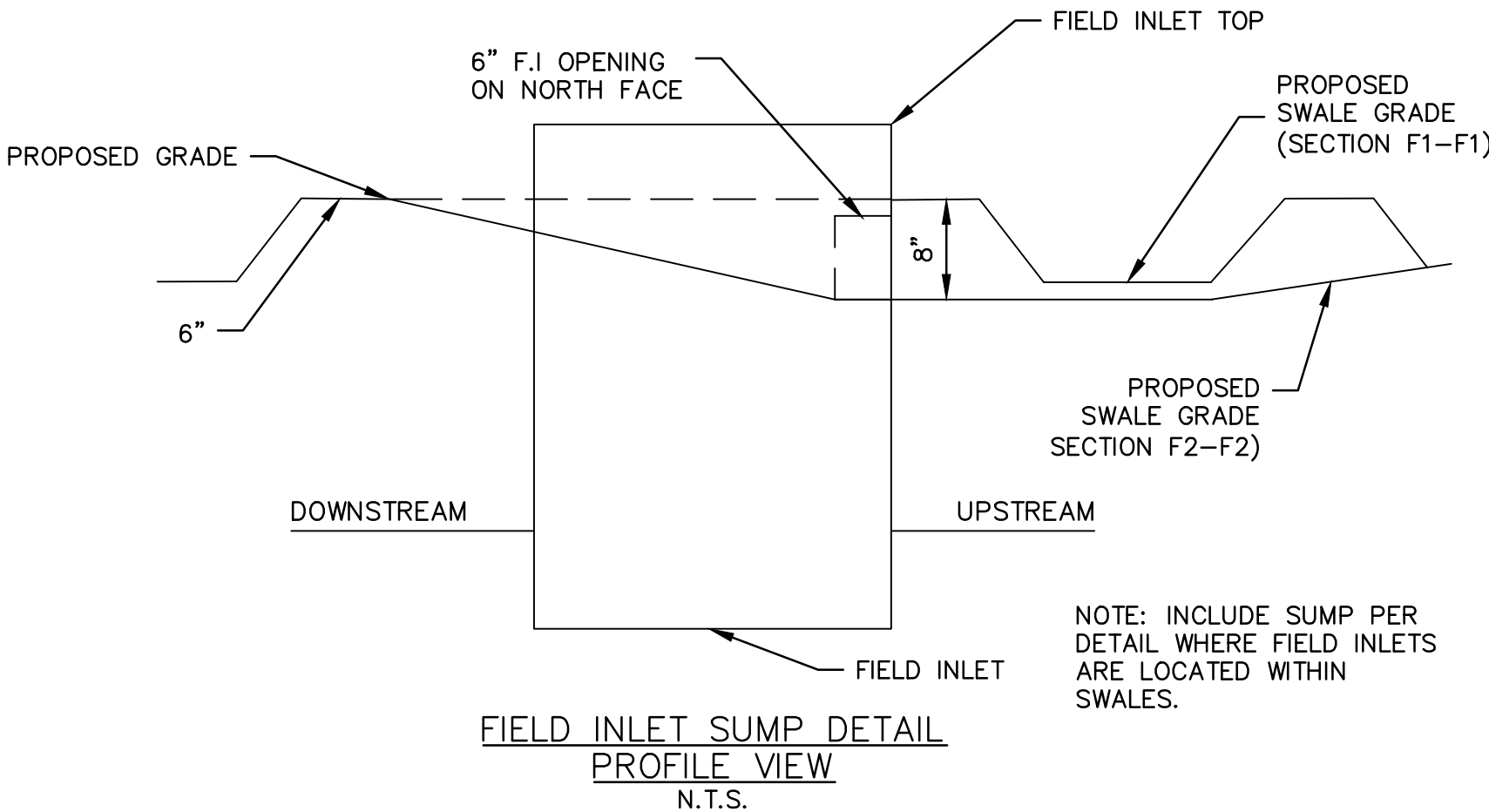
SHEET
C105



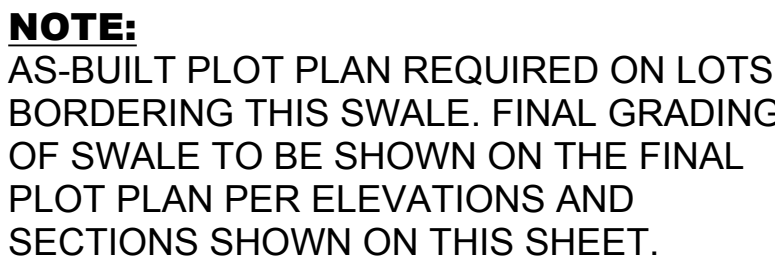
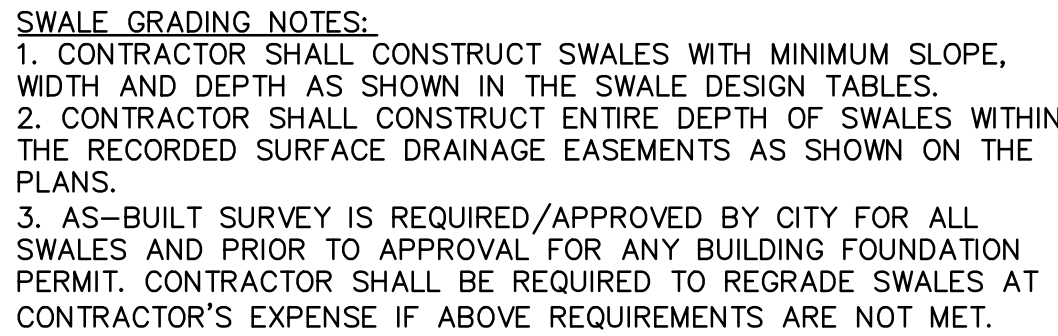
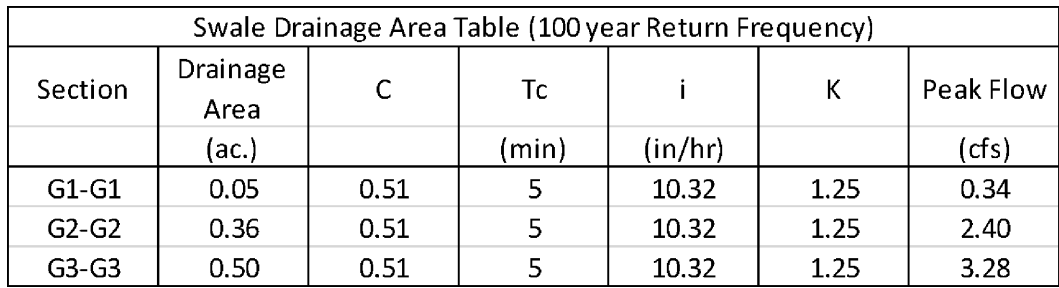
Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
F1-F1	0.38	0.51	5	10.32	1.25	2.50
F2-F2	0.14	0.51	5	10.32	1.25	0.92



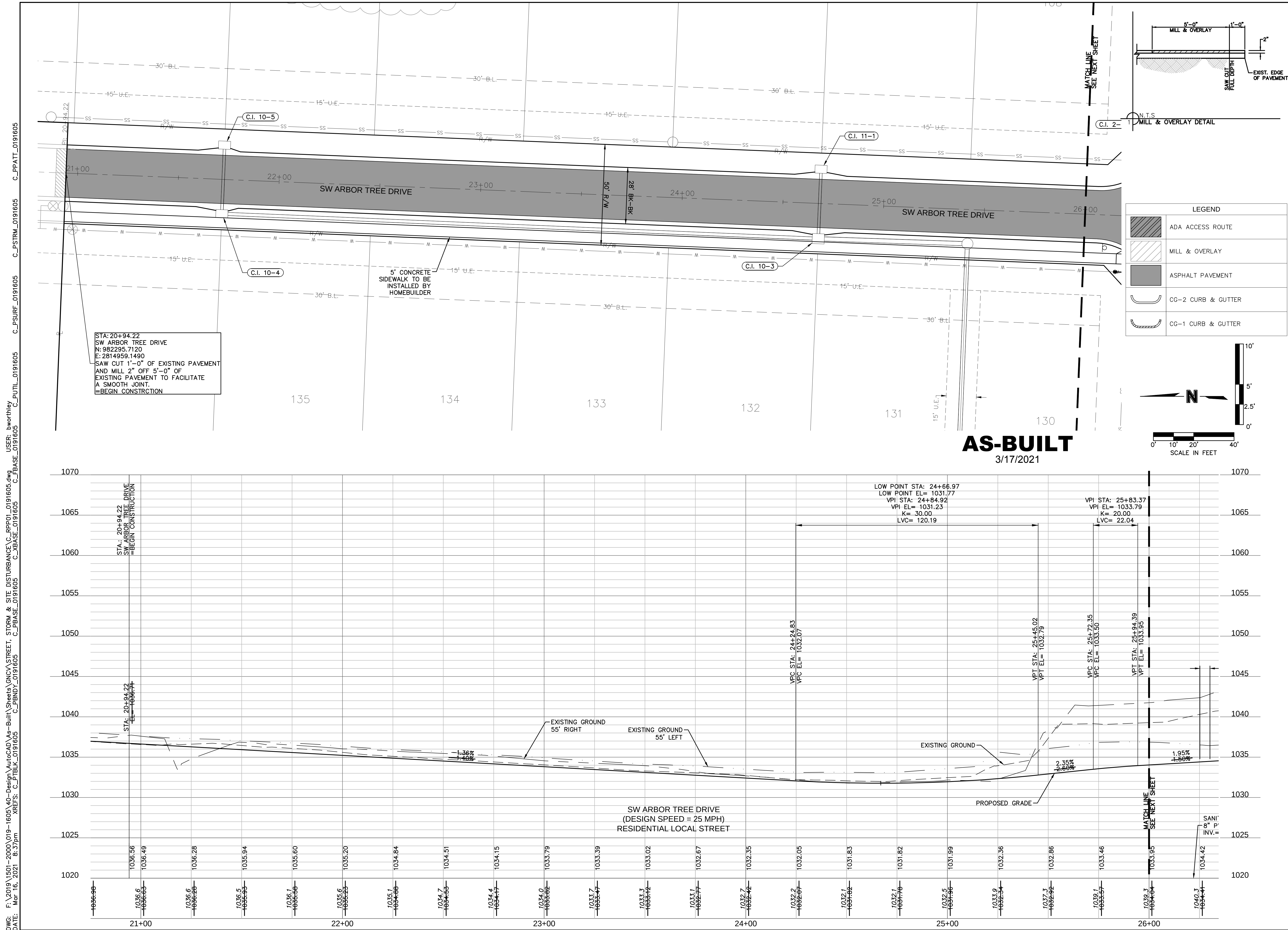
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3/17/2021

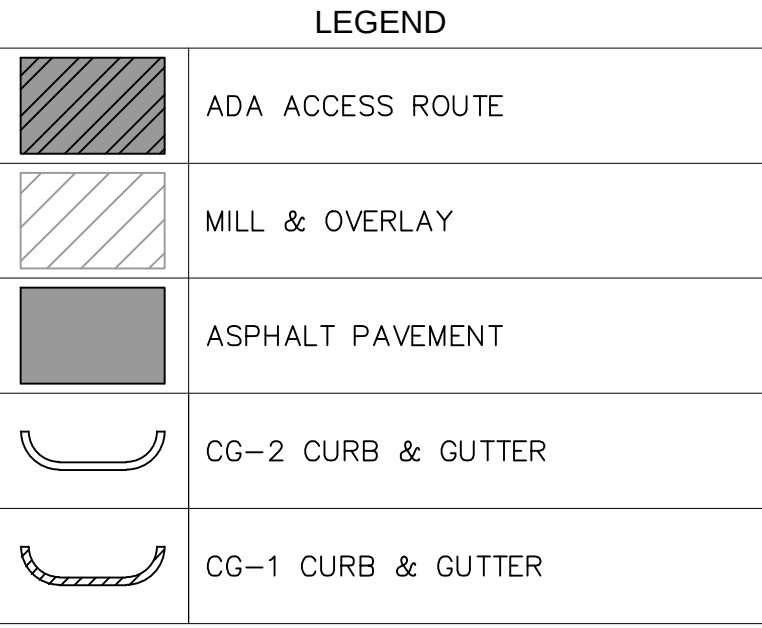


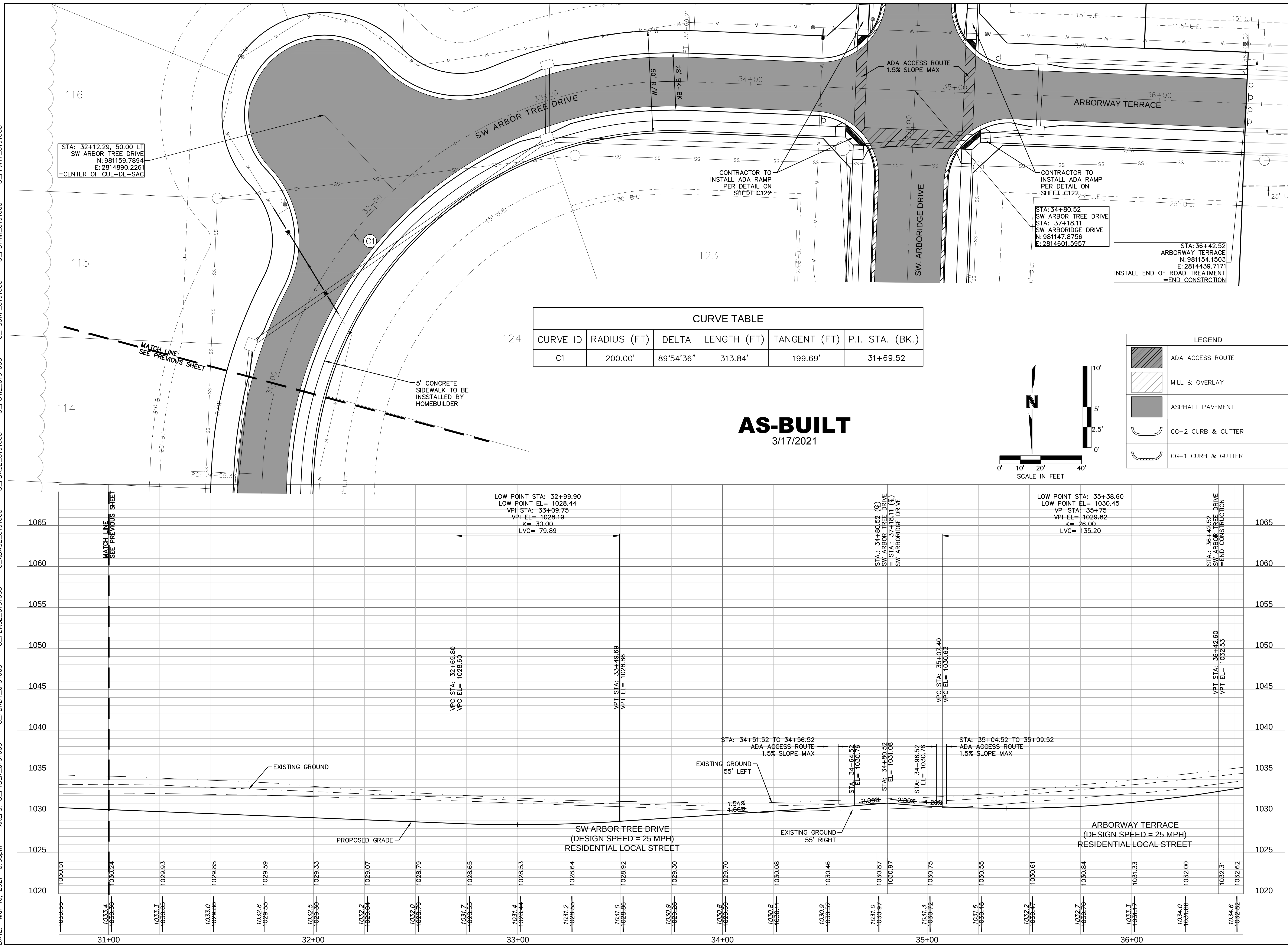
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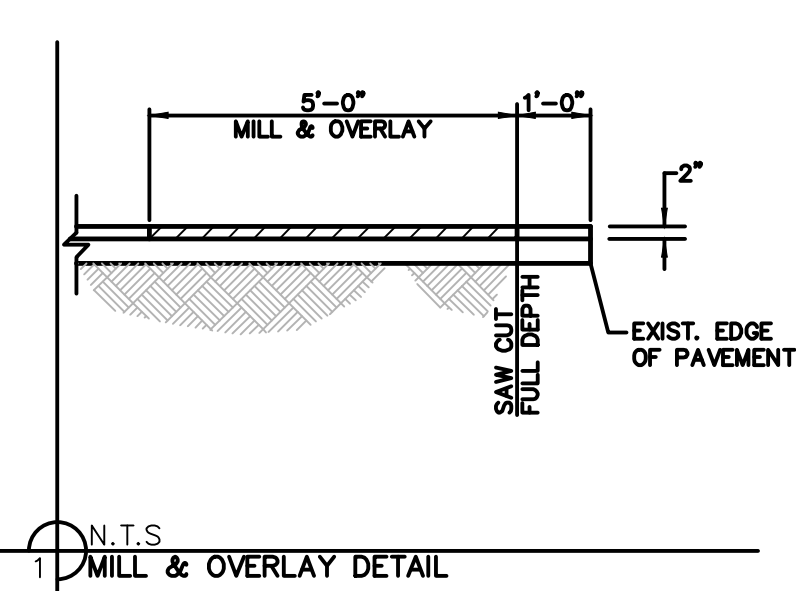
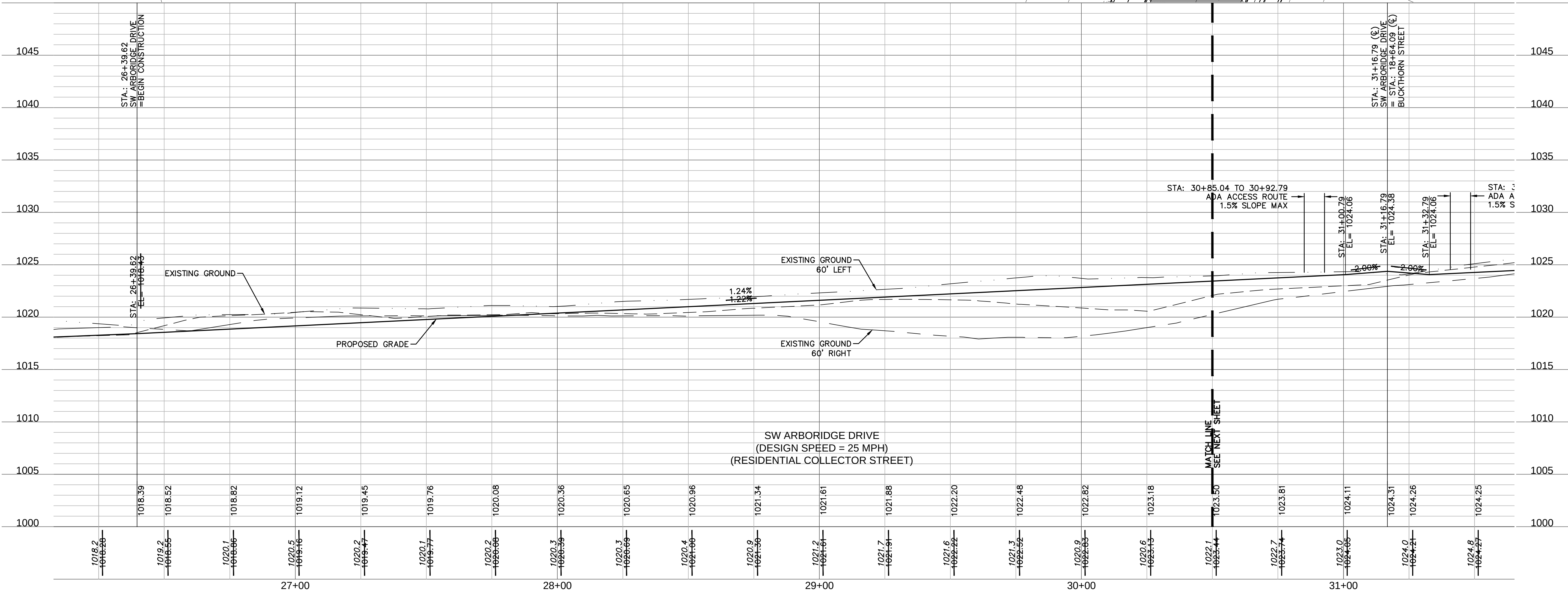
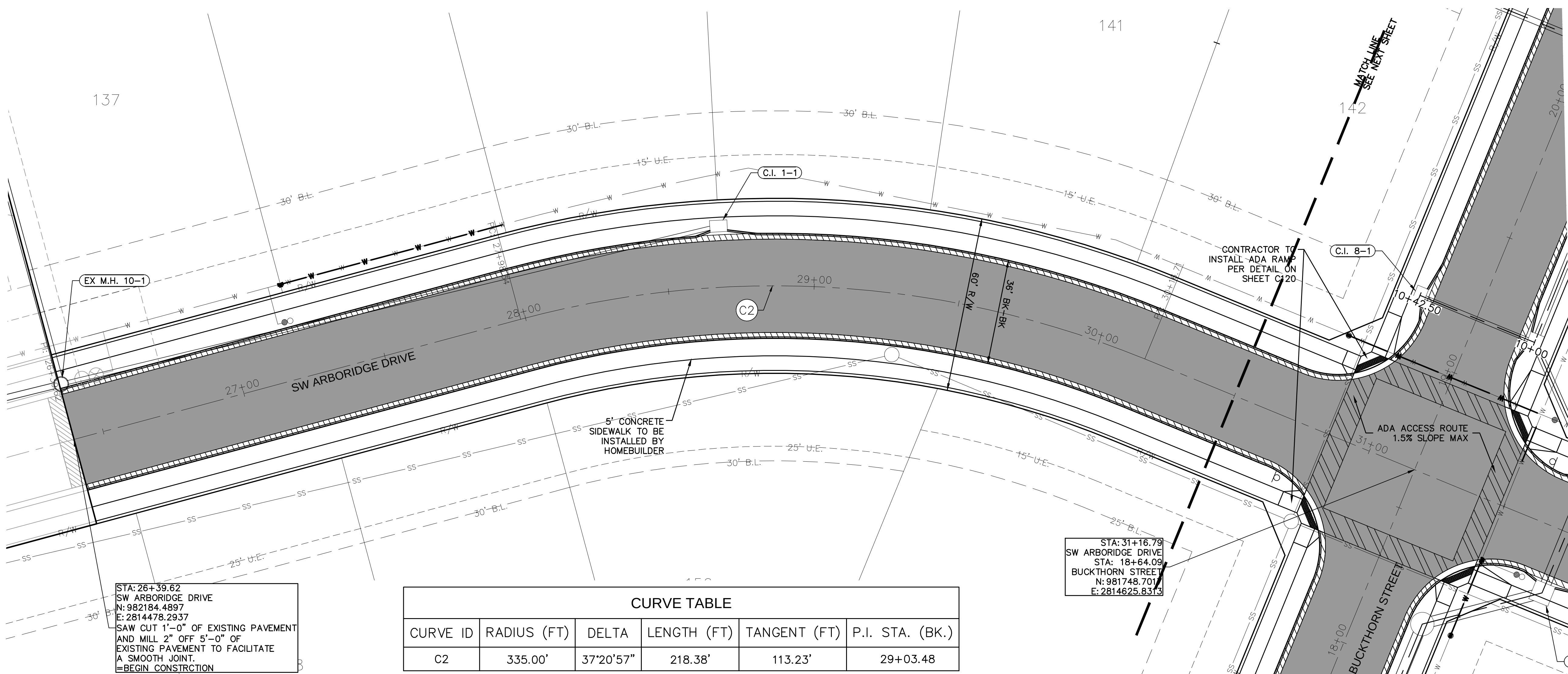


AS-BUILT
3/17/2021

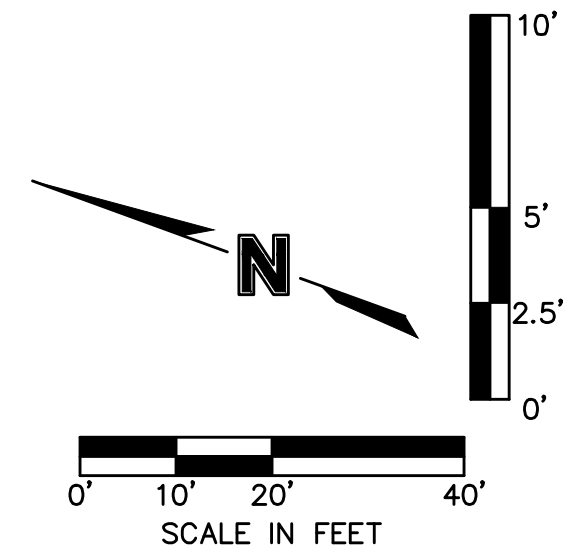


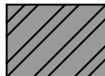


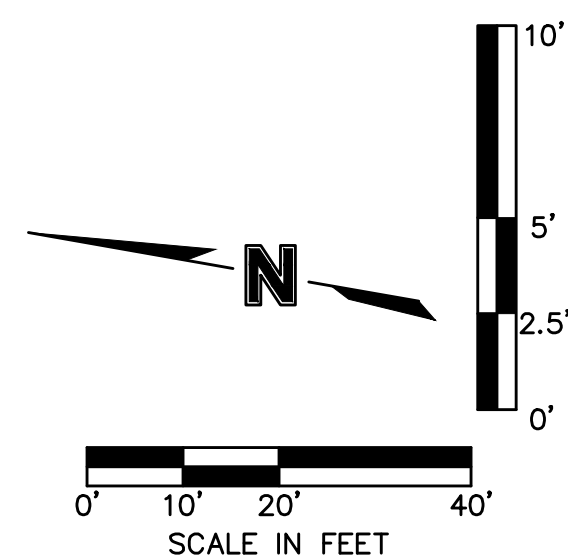
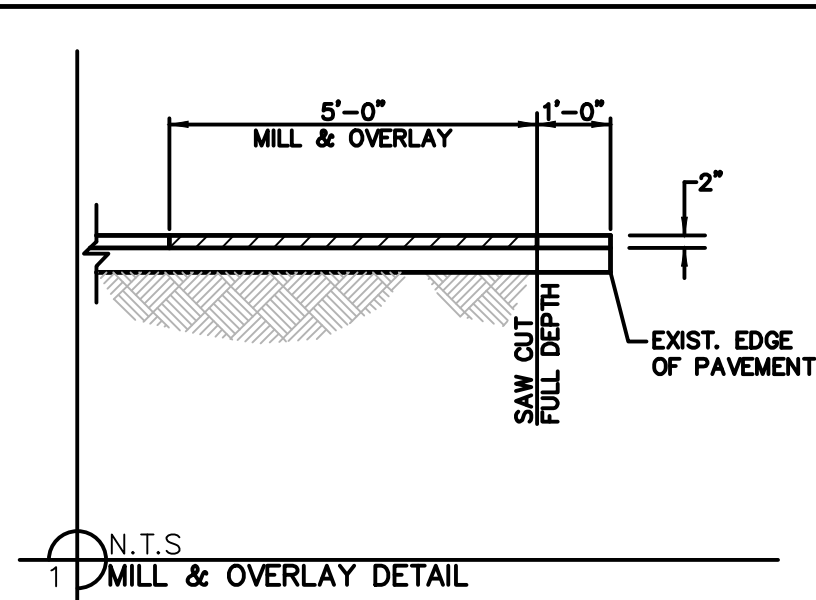
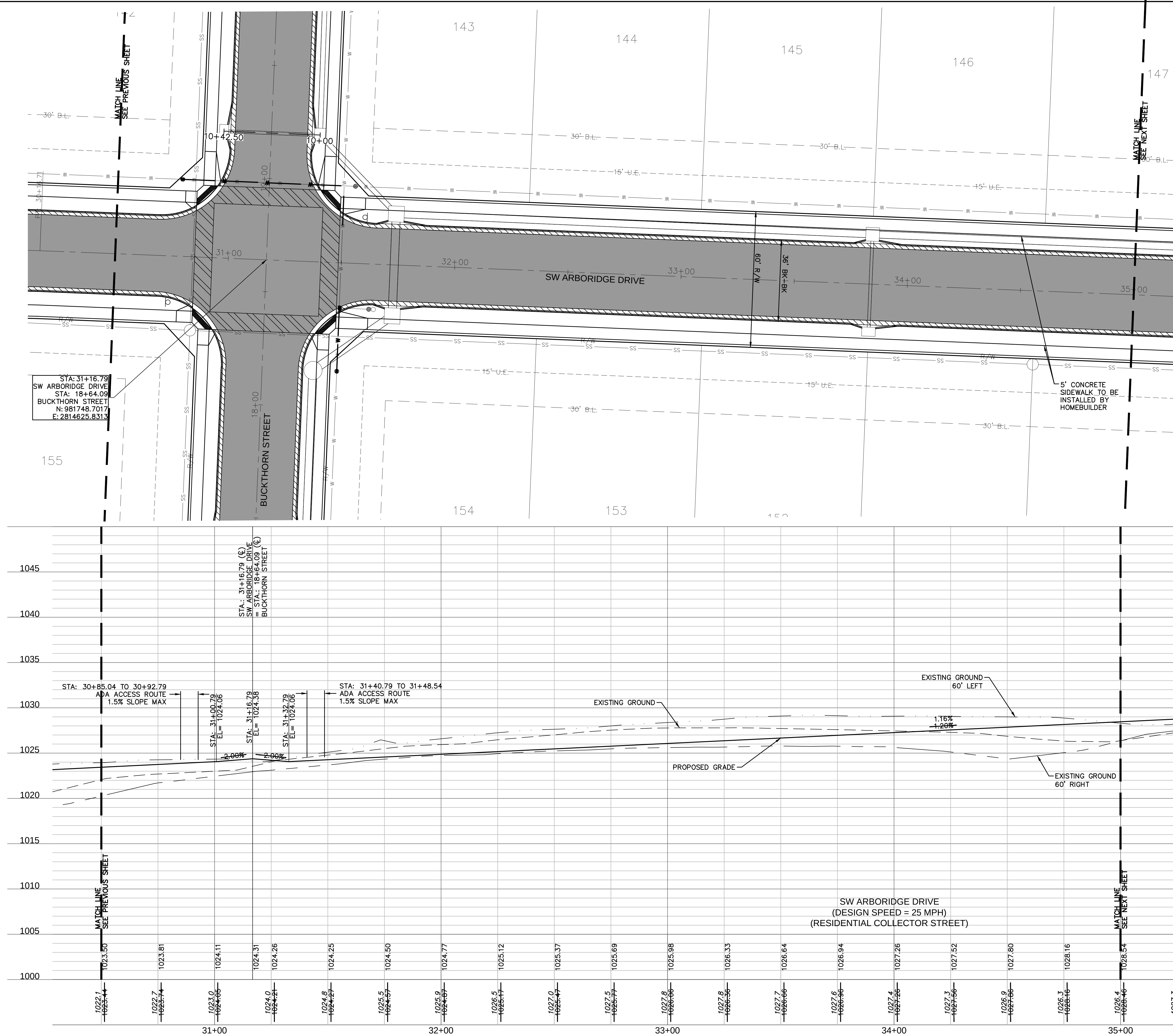


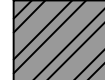


AS-BUILT
3/17/2021

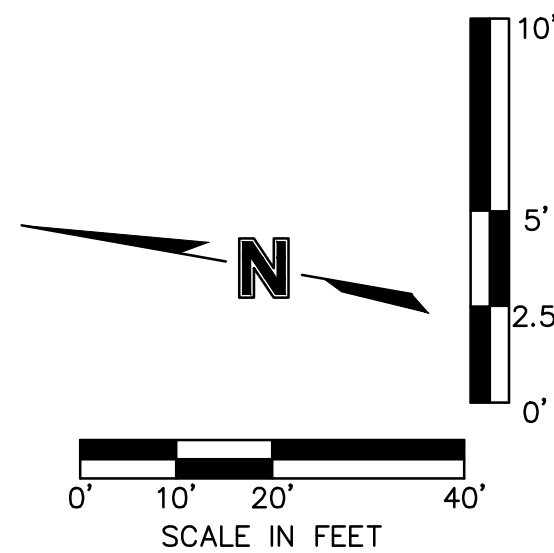
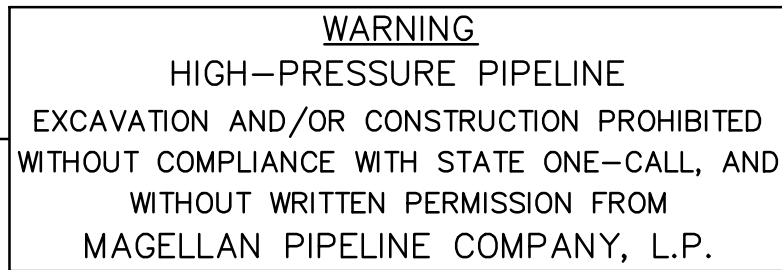


LEGEND	
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	MILL & OVERLAY
	ASPHALT PAVEMENT
	CG-2 CURB & GUTTER
	CG-1 CURB & GUTTER



LEGEND	
	ADA ACCESS ROUTE
	MILL & OVERLAY
	ASPHALT PAVEMENT
	CG-2 CURB & GUTTER
	CG-1 CURB & GUTTER

AS-BUILT
3/17/2021



LEGEND	
	ADA ACCESS ROUTE
	MILL & OVERLAY
	ASPHALT PAVEMENT
	CG-2 CURB & GUTTER
	CG-1 CURB & GUTTER

AS-BUILT
3/17/2021



JULIE E. SELLERS, P.E.
MO# 2017000367

[illegible]ROAD PLAN & PROFILE
STREET & STORM SEWER PLANS

AWTHORN RIDGE
SECOND PLAT

EEF'S SUMMIT MISSOURI

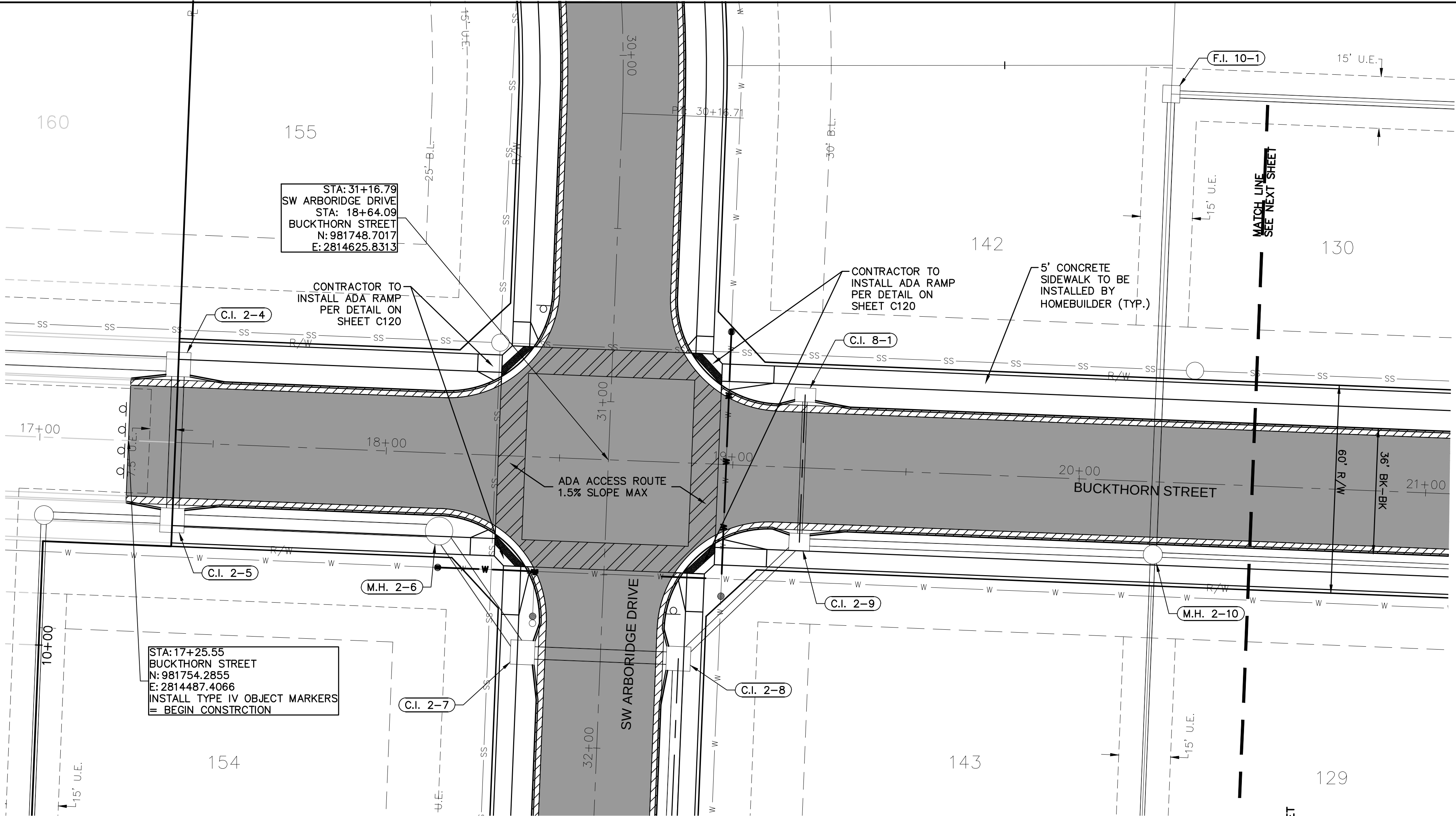
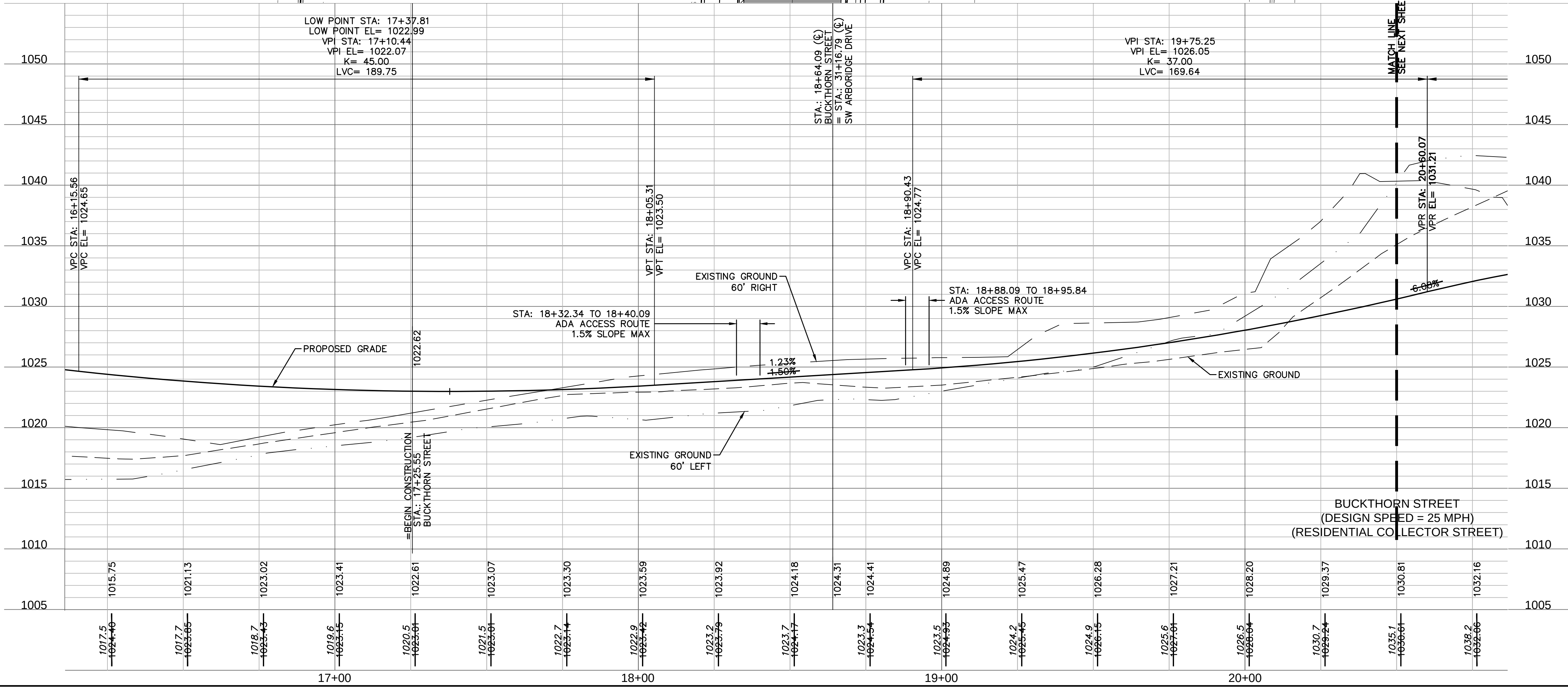
2019

drawn by: D.A.H.O
checked by: M.G.D
designed by: B.M.W
QA/QC by: N.D.H
project no.: 019-1605
date: 07-12-2019

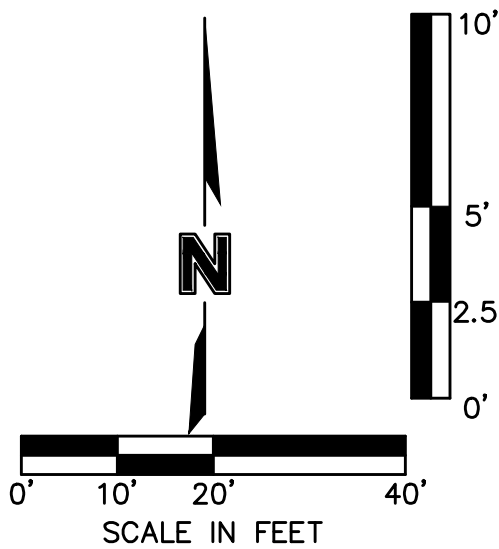
SHEET
C114

OLSSON - CIVIL ENGINEERING
NO CERTIFICATE OF AUTHORITY #001592
1301 BURLINGTON, SUITE 100
MOOREVILLE, NC 28586
TEL 910 204 4477

DWG: F:\2019\1501-2000\019-1605\40-Design\AutoCAD\As-Built\Sheets\CHC\STREET_STORM & SITE DISTURBANCE\C_RPD03_0191605.dwg
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LEGEND	
	ADA ACCESS ROUTE
	MILL & OVERLAY
	ASPHALT PAVEMENT
	CG-2 CURB & GUTTER
	CG-1 CURB & GUTTER



AS-BUILT
3/17/2021

ROAD PLAN & PROFILE
STREET & STORM SEWER PLANS

HAWTHORN RIDGE
SECOND PLAT

LEE'S SUMMIT, MISSOURI

2019

drawn by: D.A.H.O.
checked by: M.G.D.
designed by: B.M.W.
QA/QC by: N.D.H.
project no.: 0191605
date: 07-12-2018

SHEET
C115

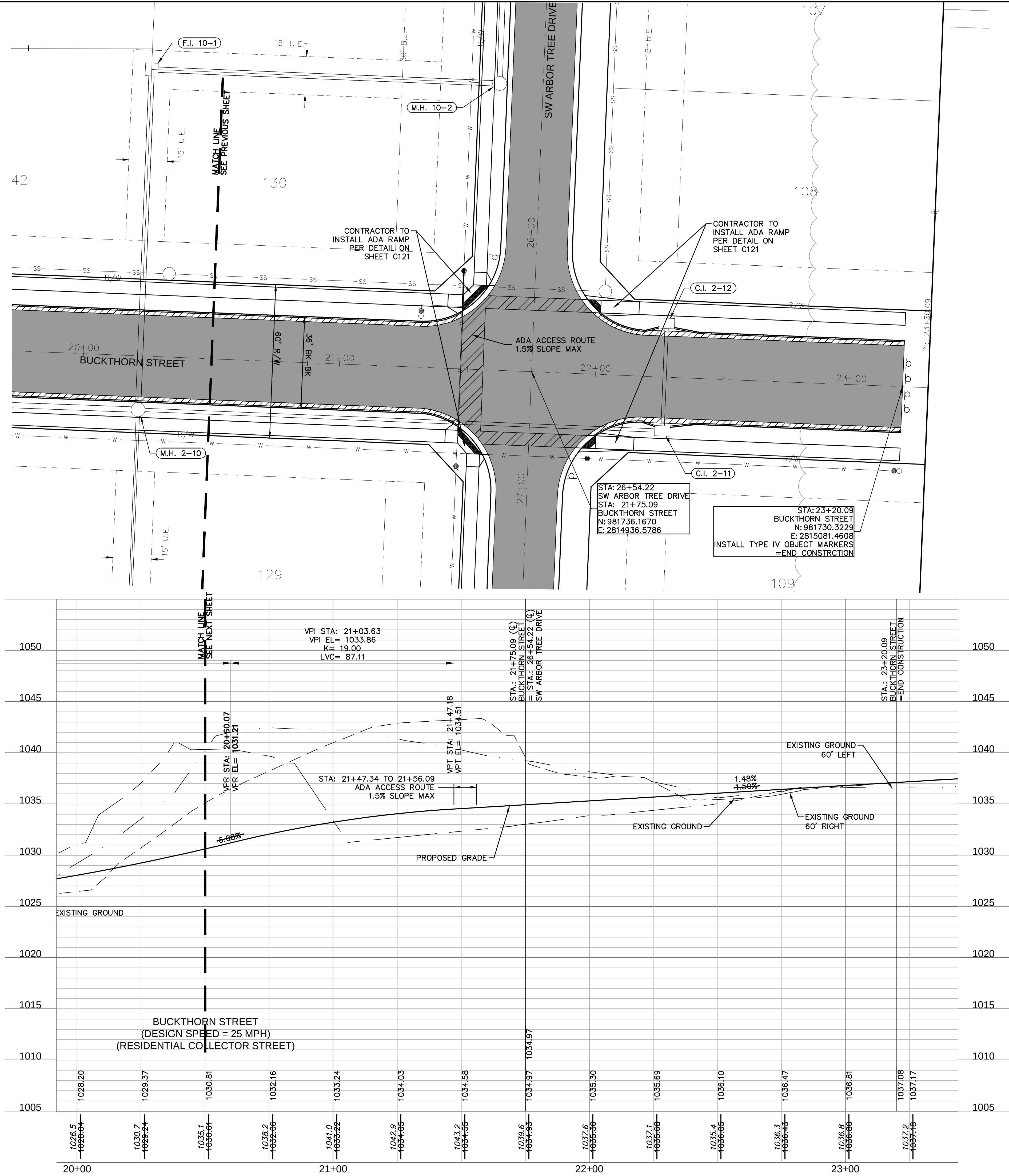
OLSSON - CIVIL ENGINEERING
NO. CERTIFICATE OF AUTHORITY #001592
NORTH KANSAS CITY, MO 64116
TEL. 816.861.1177
WWW.OLSSON.COM

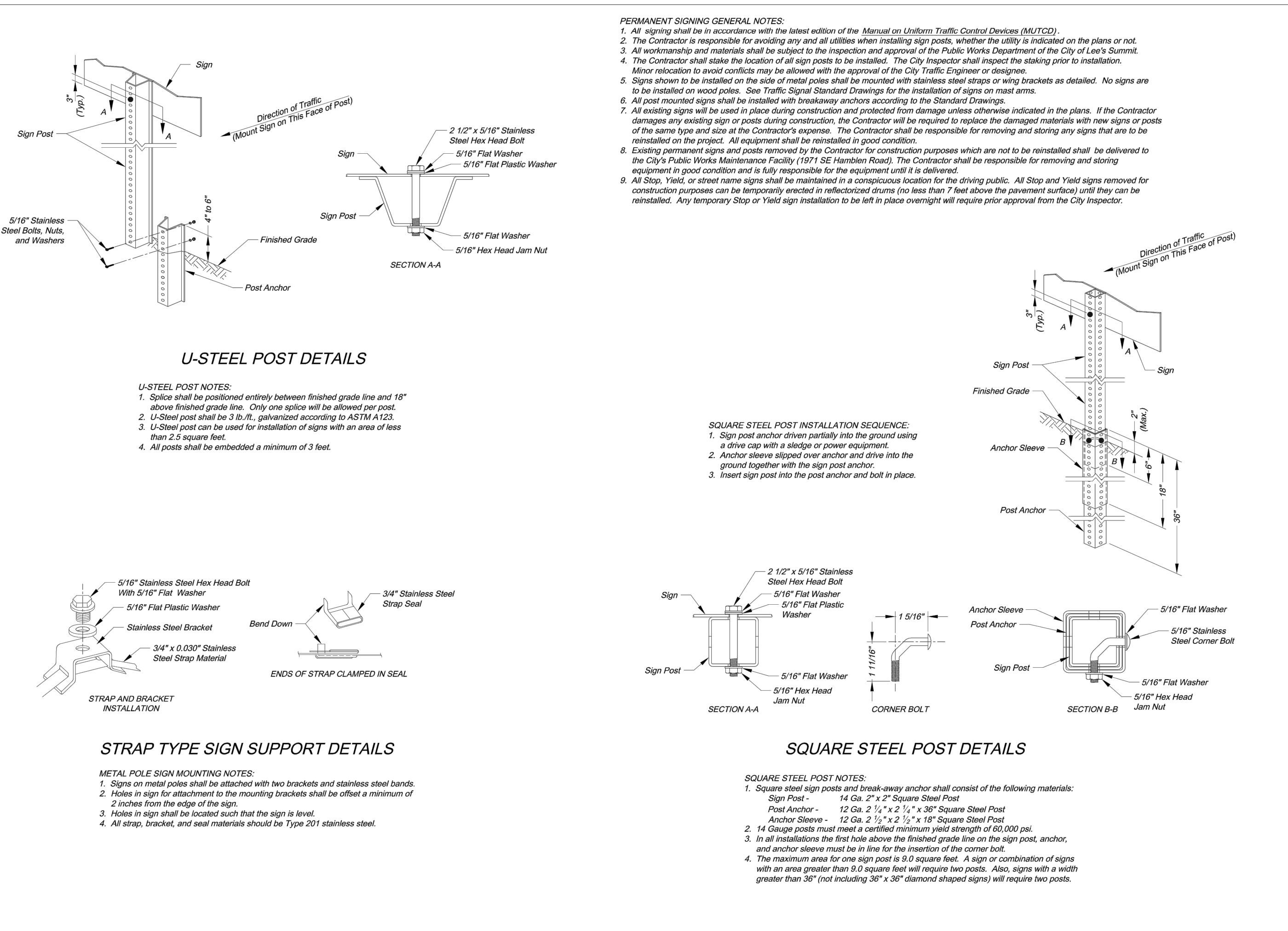
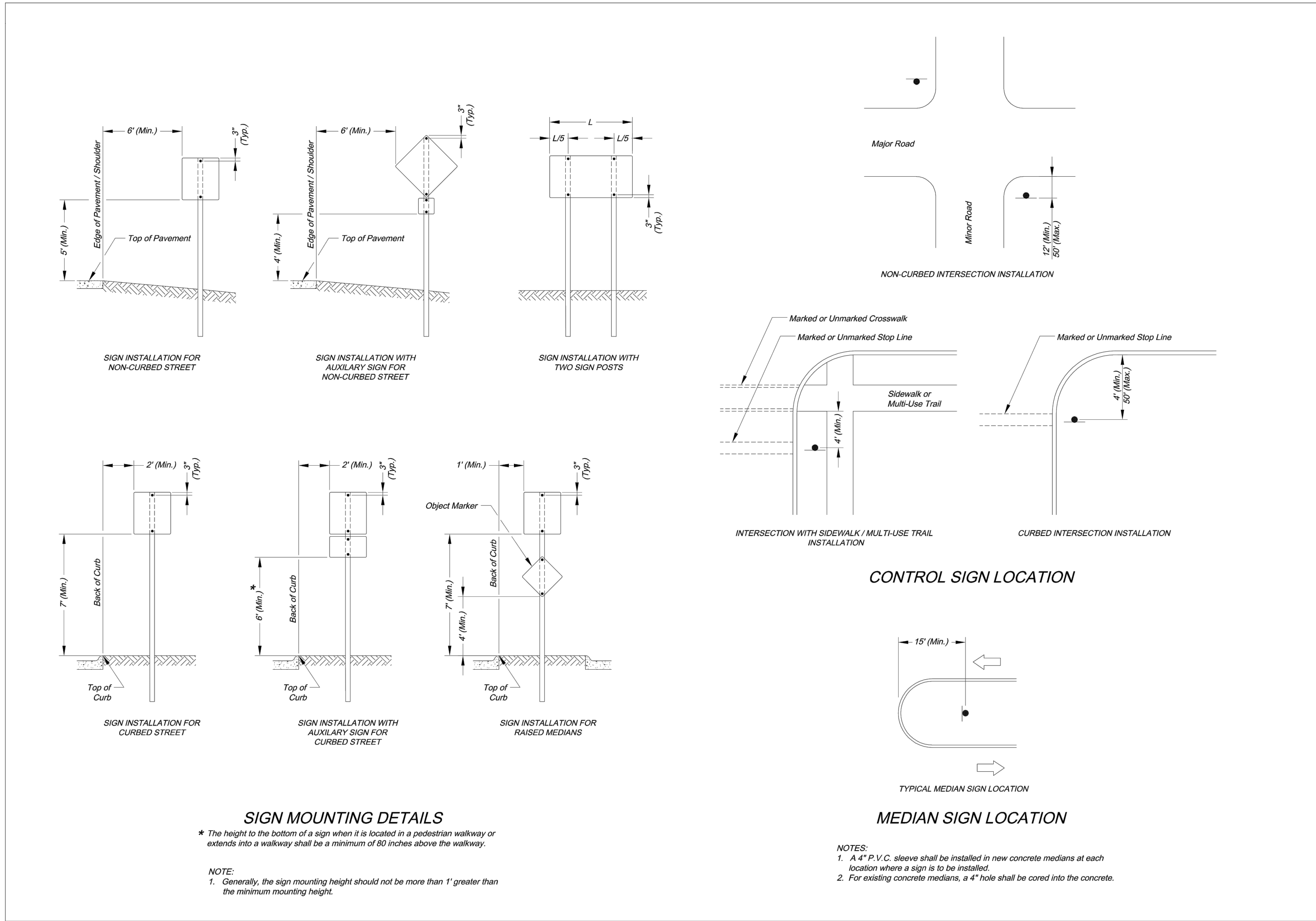
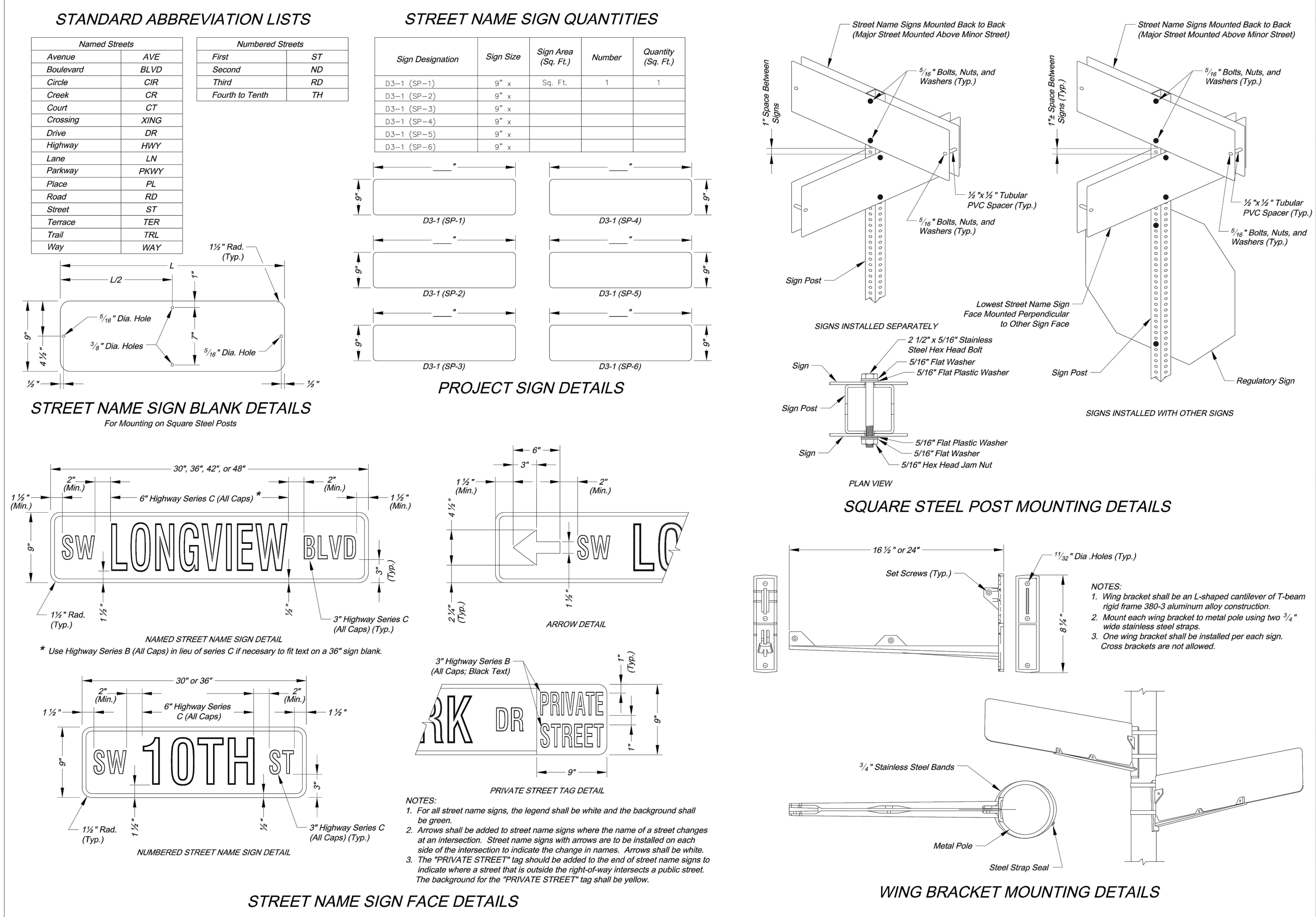
JULIE E. SELLERS, P.E.
MO# 2017000367

BY: [Signature]
NO. REV. 1
DATE 08-12-2019
REVISIONS DESCRIPTION
STOP SIGNS AND STREET NAME SIGNS REMOVED FROM BUCKTHORN STREET

REVISIONS

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NOT AS-BUILT

SIGN DETAILS
STREET AND STORM SEWER PLANS
HAWTHORN RIDGE
SECOND PLAT

LEE'S SUMMIT, MISSOURI
2019
drawn by: D.A.H.O.
checked by: M.G.D.
designed by: B.M.W.
QA/QC by: N.D.H.
project no.: 019-1605
date: 07-12-2018

SHEET
C118

REVISIONS DESCRIPTION

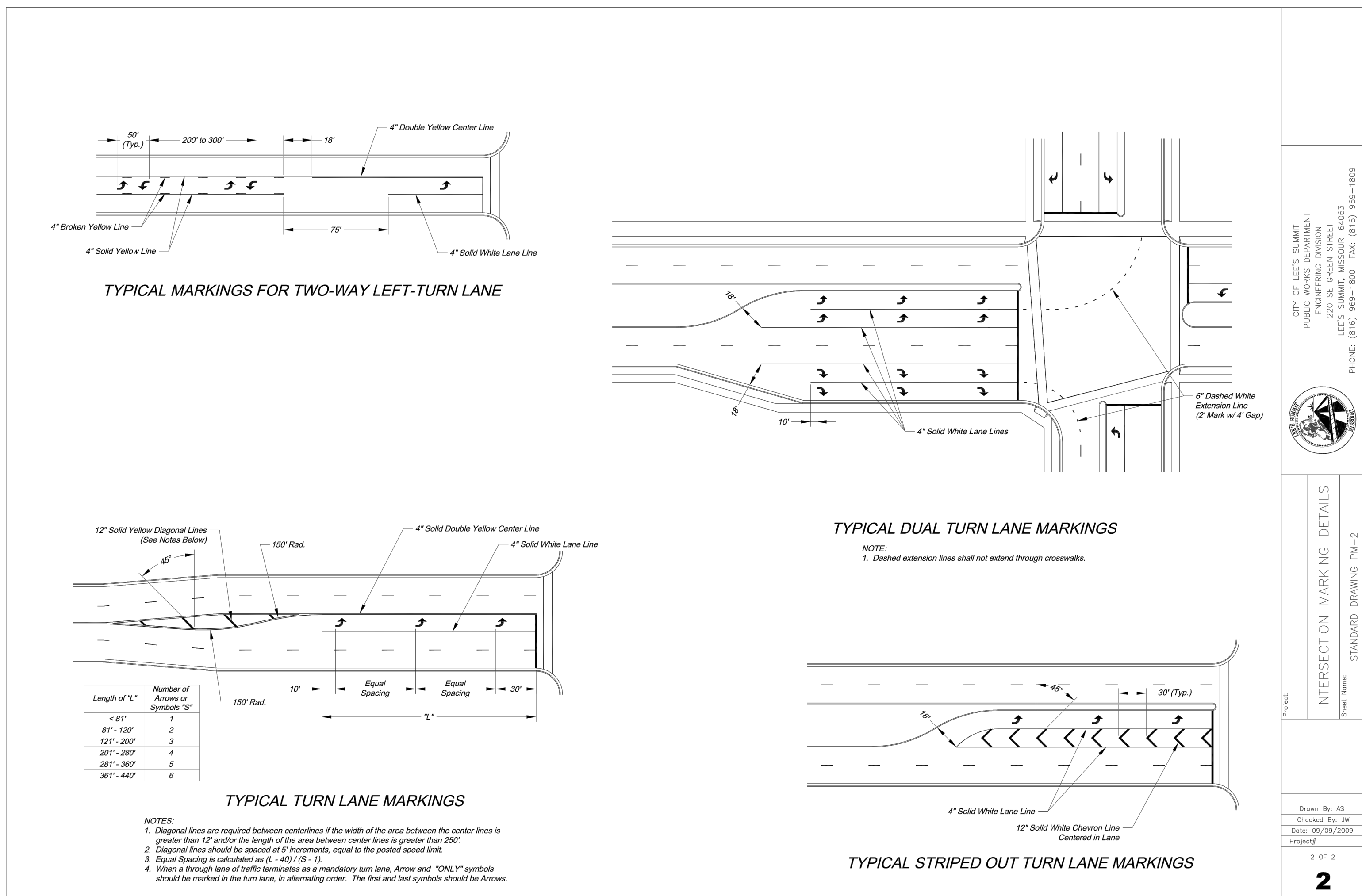
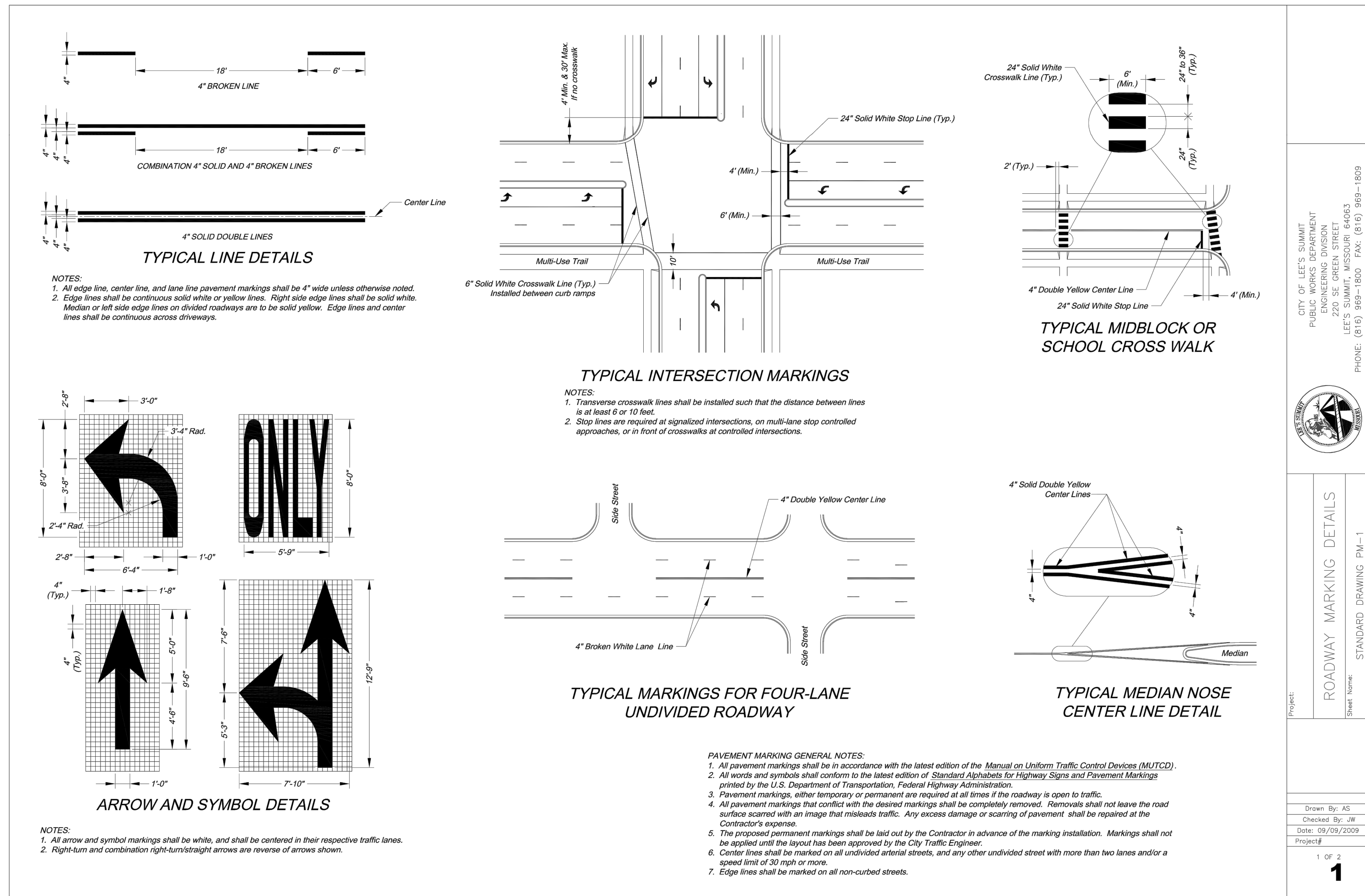
BY

JULIE E. SELLERS, P.E.
MO# 2017000367

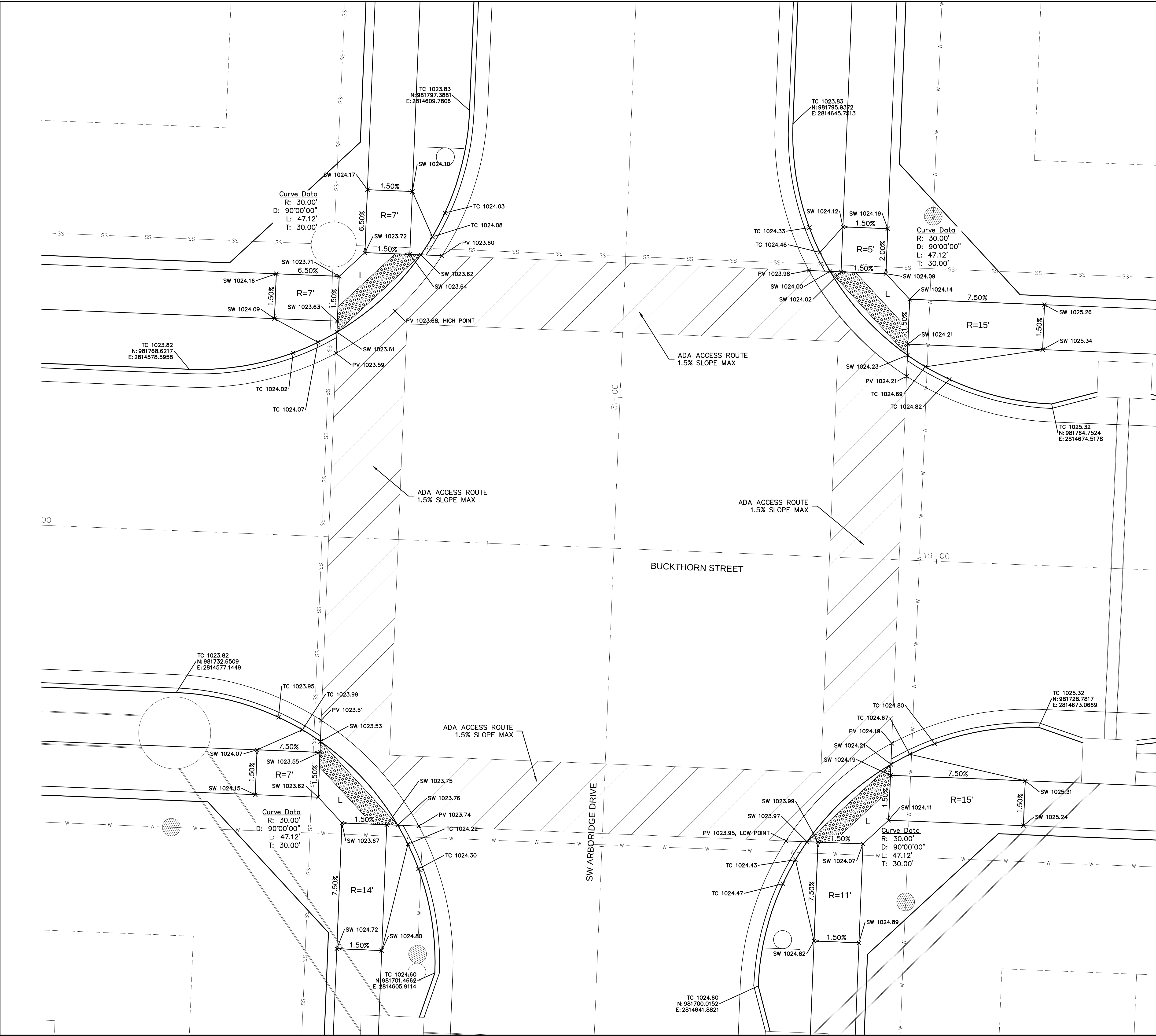
JULIE ELAINE SELLERS
Professional Engineer
NUMBER PE-2017000367
3/18/21

olsson

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INDICATED ON MAPS
1301 WEST 10TH AVENUE
NORTH KANSAS CITY, MO 64116
TEL. 816.861.1177
WWW.OLSSON.COM



NOT AS-BUILT



LEGEND	
TC-	TOP OF CURB
PV-	TOP OF PAVEMENT
SW-	SIDEWALK
L	LANDING AREA
R	RAMP AREA
T	TRANSITION AREA

A north arrow pointing upwards with the letter 'N' in the center. Below it is a scale bar labeled 'SCALE IN FEET' with markings at 0', 2.5', 5', and 10'.

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JULIE E. SELLERS, P.E.
MO# 2017000367

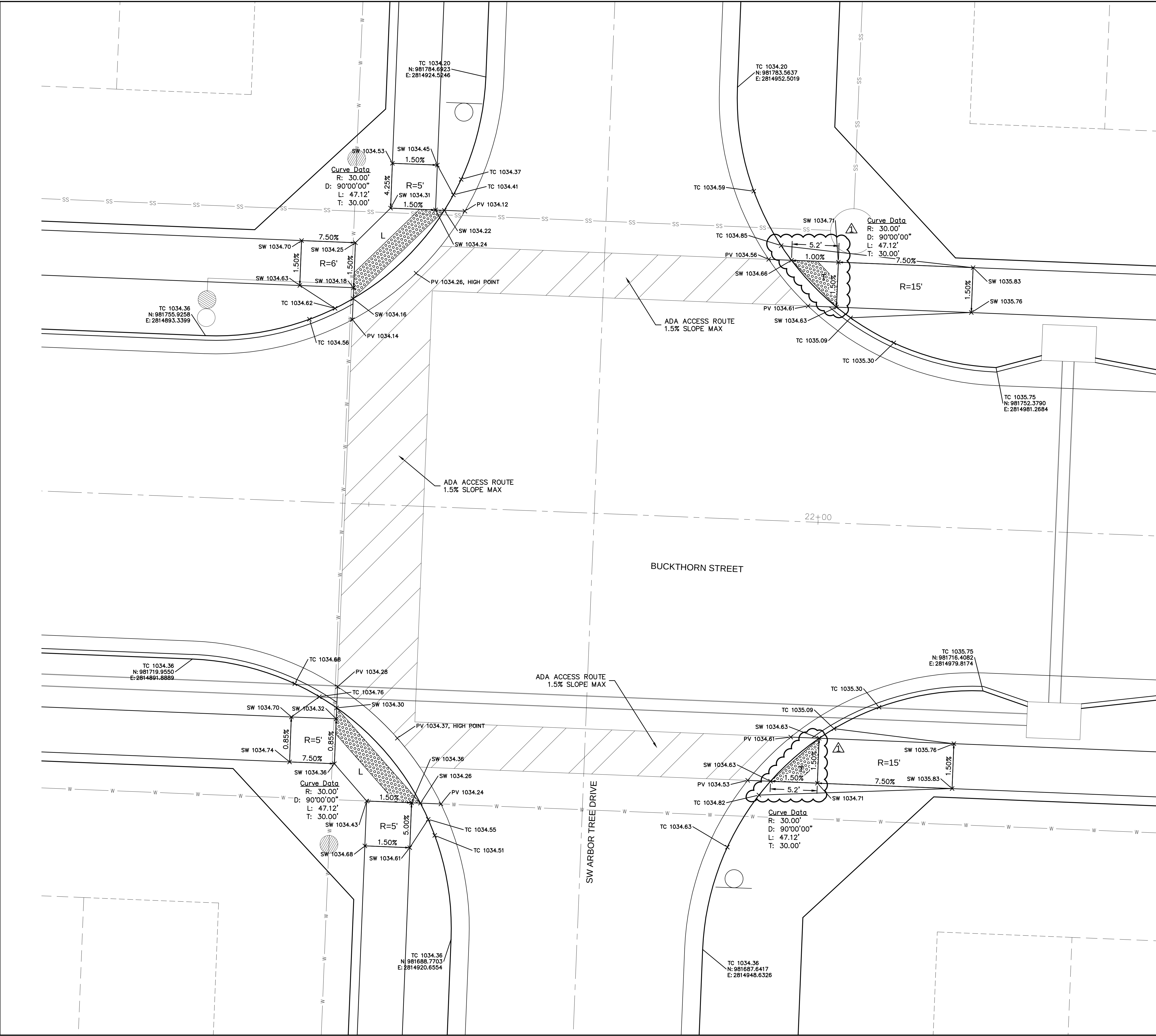
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SPOT ELEVATIONS STREET & STORM SEWER PLANS	
HAWTHORN RIDGE SECOND PLAT	
LEE'S SUMMIT, MISSOURI	2019

drawn by: D.A.H.O
checked by: M.G.D
designed by: B.M.W
QA/QC by: N.D.H
project no.: 019-1605
date: 07-12-2019

SHEET
C120

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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
L	LANDING AREA
R	RAMP AREA
T	TRANSITION AREA

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STATE OF MISSOURI
JULIE ELAINE SELLERS
Professional Engineer
NUMBER PE-2017000367
3/18/21

JULIE E. SELLERS, P.E.
MO# 2017000367

BY

NO. REV.

DATE

REVISIONS DESCRIPTION

1

08-12-2019

TACTILE WARNING STRIP MOVED TO BACK OF CURB

SPOT ELEVATIONS
STREET & STORM SEWER PLANS

HAWTHORN RIDGE
SECOND PLAT

LEE'S SUMMIT, MISSOURI

2019

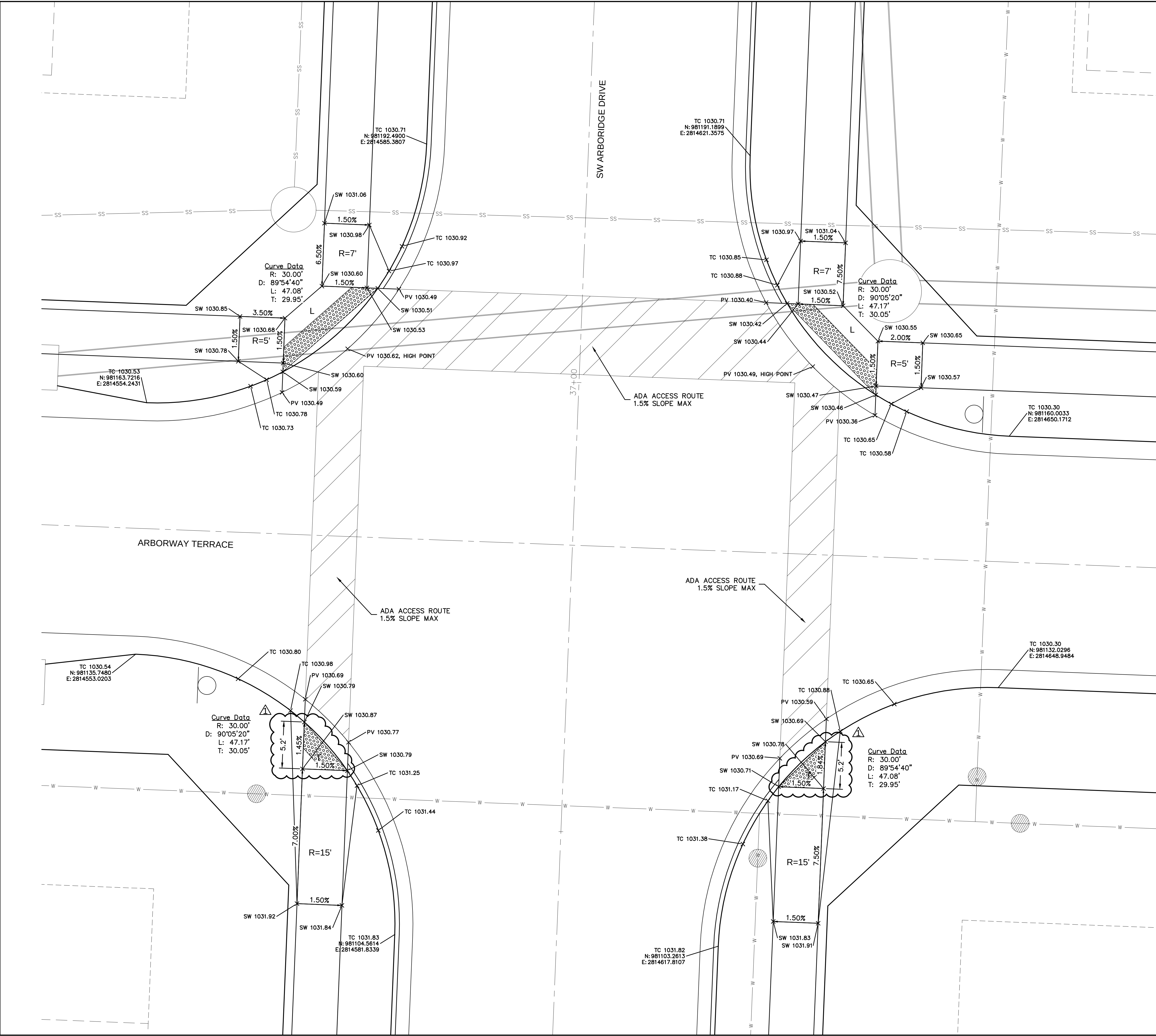
REVISIONS

drawn by: D.A.H.Q.
checked by: M.G.D.
designed by: B.M.W.
QA/QC by: N.D.H.
project no.: 019-1605
date: 07-12-2019

SHEET
C121

NOT AS-BUILT

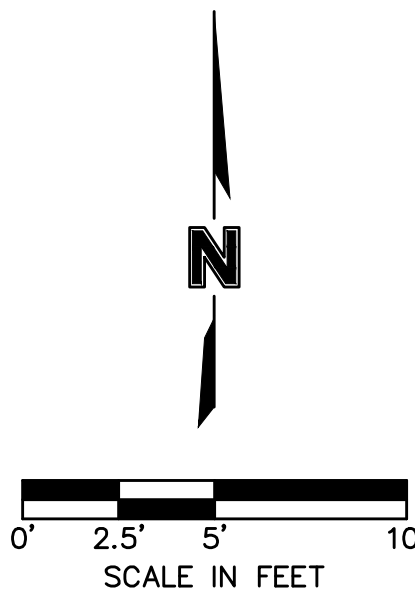
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- INTERSECTION AND ADA DETAIL NOTES:
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 9. CURVE DATA IS FOR BACK OF CURB.

LEGEND	
TC-	TOP OF CURB
PV-	TOP OF PAVEMENT
SW-	SIDEWALK
L	LANDING AREA
R	RAMP AREA
T	TRANSITION AREA

NOT AS-BUILT



SPOT ELEVATIONS
STREET & STORM SEWER PLANS

HAWTHORN RIDGE
SECOND PLAT

LEE'S SUMMIT, MISSOURI

NO. REV. 1

DATE 08-12-2019

REVISIONS DESCRIPTION
TACTILE WARNING STRIP MOVED TO BACK OF CURB

BY

DATE

NO. REV.

2019

REVISIONS

drawn by: D.A.H.Q.

checked by: M.G.D.

designed by: B.M.W.

QA/QC by: N.D.H.

project no.: 019-1605

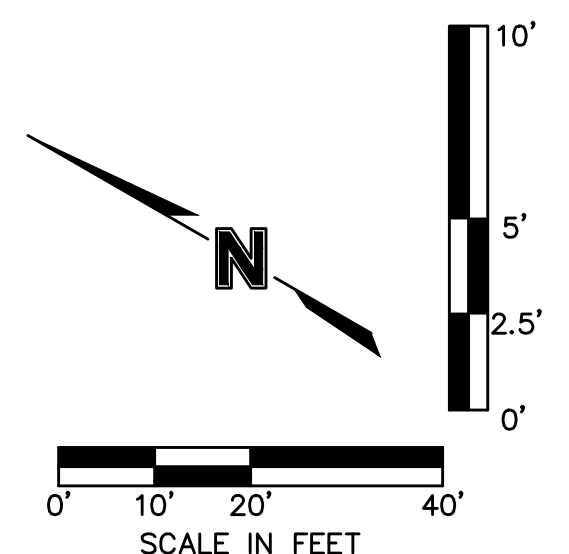
date: 07-12-2019

SHEET
C122

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NORTH KANSAS CITY, MO 64116
TEL. 816.861.1177
WWW.OLSSON.COM

JULIE E. SELLERS, P.E.
M.O.H. 2017000367

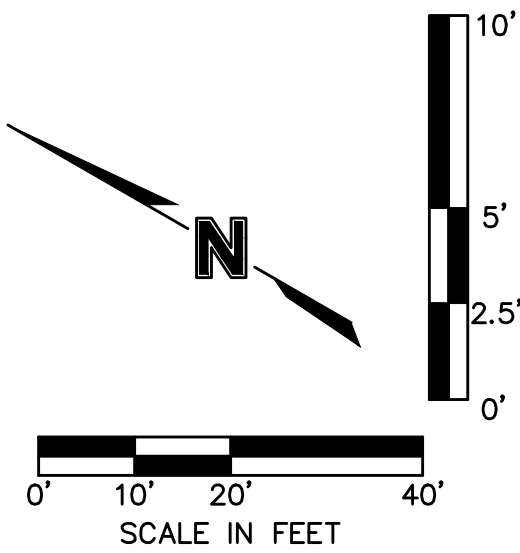
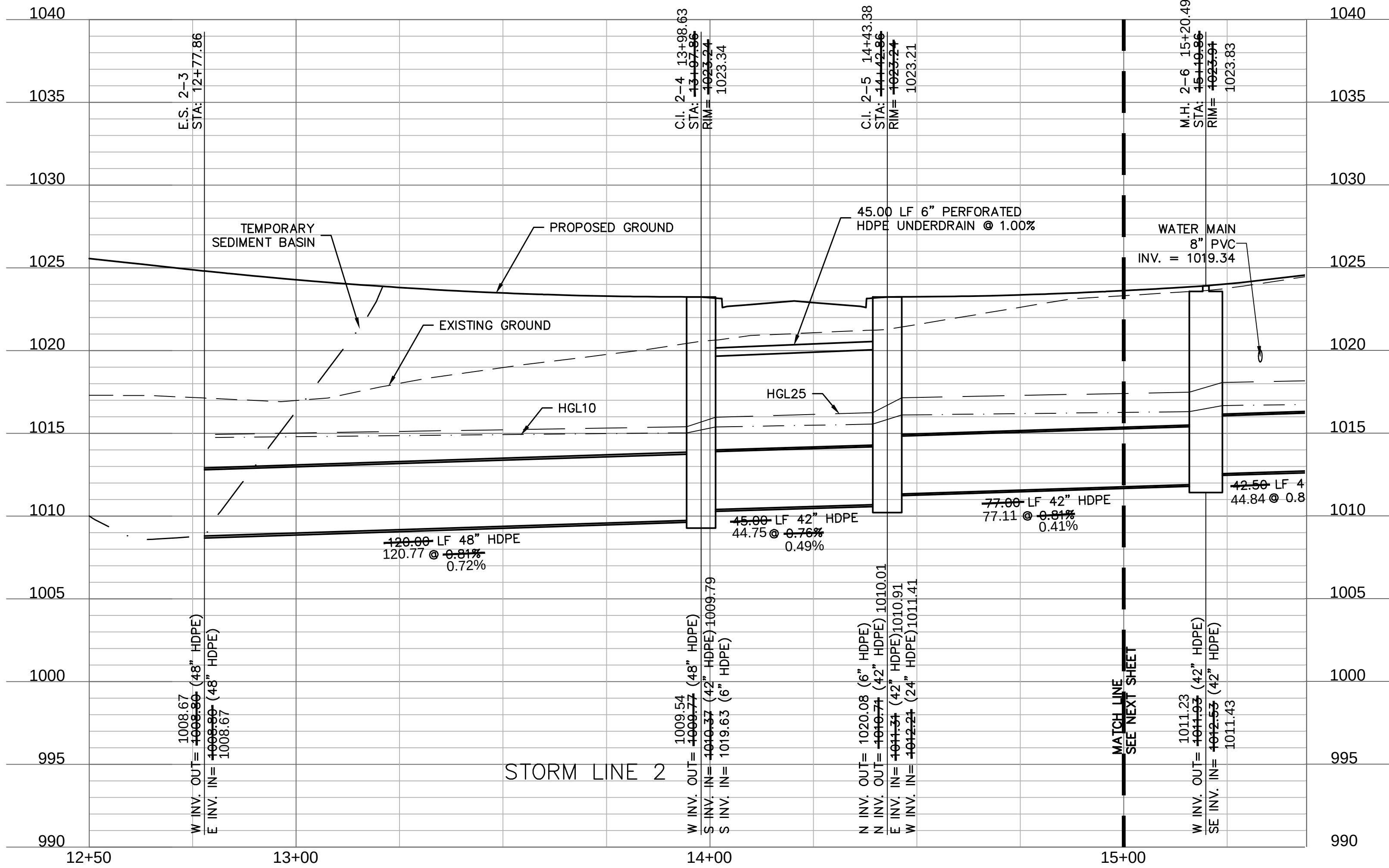
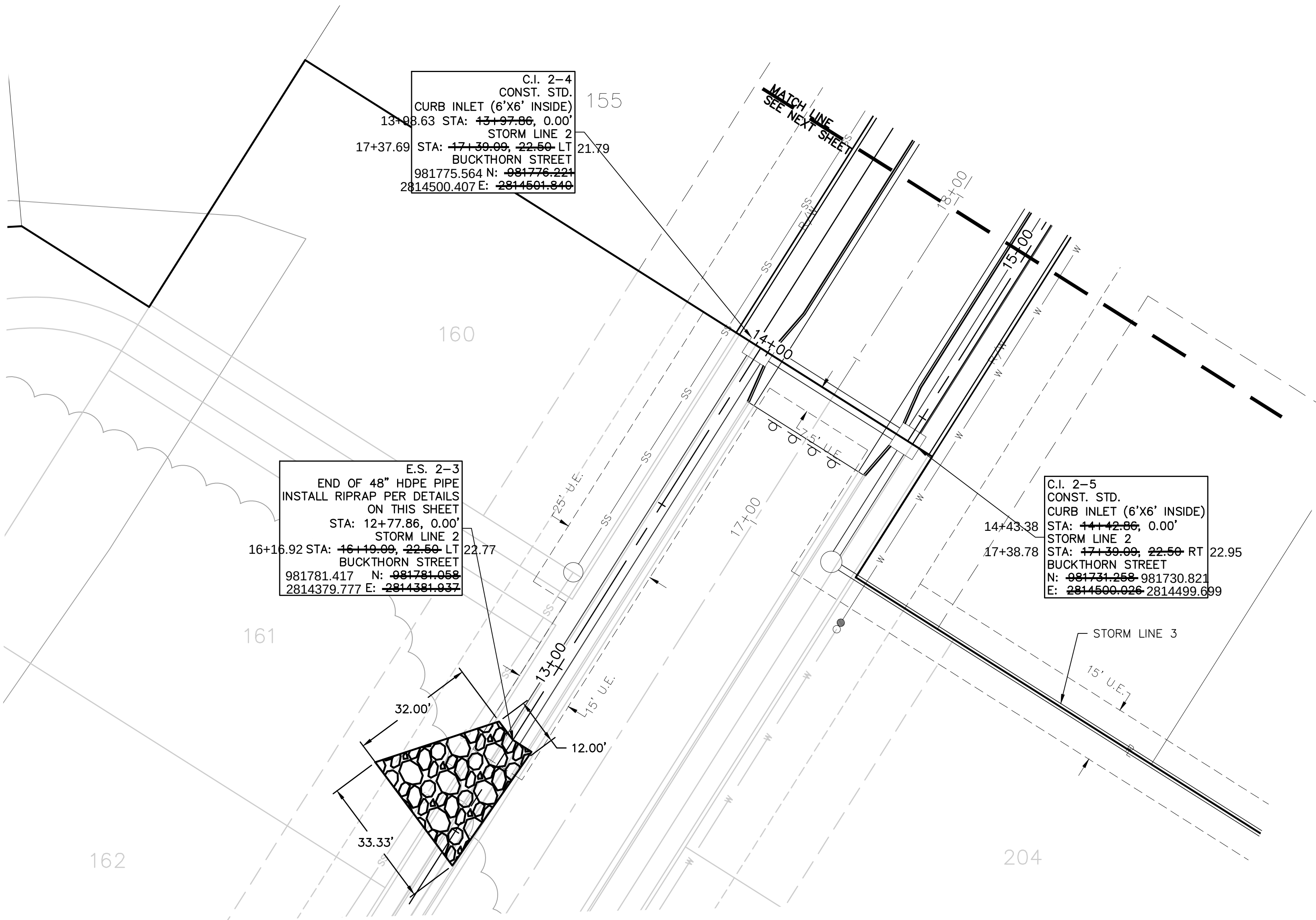


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DATE: Feb 15, 2021 12:12pm XREFS: C_PBDL_0191605 C_PBASE_0191605 C_PUTIL_0191605 C_PBASE_0191605

Riprap Calculations						
End Section	Q ₁₀₀ (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)
E.S. 2-3	164.18	4	6	22	32	3.67
Area (SY)						
80.6						

*Per Table 10.1 HEC-14 FHWA-Energy Dissipators Pg. 10-18
NOTE: CONTRACTOR TO UTILIZE ON-SITE MATERIAL FOR TEMPORARY RIPRAP AT END OF PIPE. RIPRAP WILL BE REMOVED AND PIPE EXTENDED WITH HAWTHORN RIDGE 3RD PLAT CONSTRUCTION DOCUMENTS, CURRENTLY UNDER CITY REVIEW.

NOTE:
DUE TO AS-BUILT PIPE SLOPES BEING MUCH LOWER THAN DESIGNED PIPE SLOPES, THE STORM SEWER HAS BEEN REMODELED USING THE AS-BUILT STORM SEWER INFORMATION. SEE SHEETS C139 & C140 FOR AS-BUILT STORM SEWER DESIGN INFORMATION.



AS-BUILT
3/17/2021

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JULIE E. SELLERS, P.E.
MO# 2017000367

BY		REVISIONS DESCRIPTION	
		1	GEOFABRIC NOTE ADDED AND 10-YEAR STORM HGL ADDED TO PROFILE VIEW
		2	STORM LINE 2 CHANGED TO DAYLIGHT INTO SEDIMENT BASIN
NO. REV.		DATE	
		08-12-2019	
		10-02-2020	

STORM PLAN & PROFILE
STREET & STORM SEWER PLANS

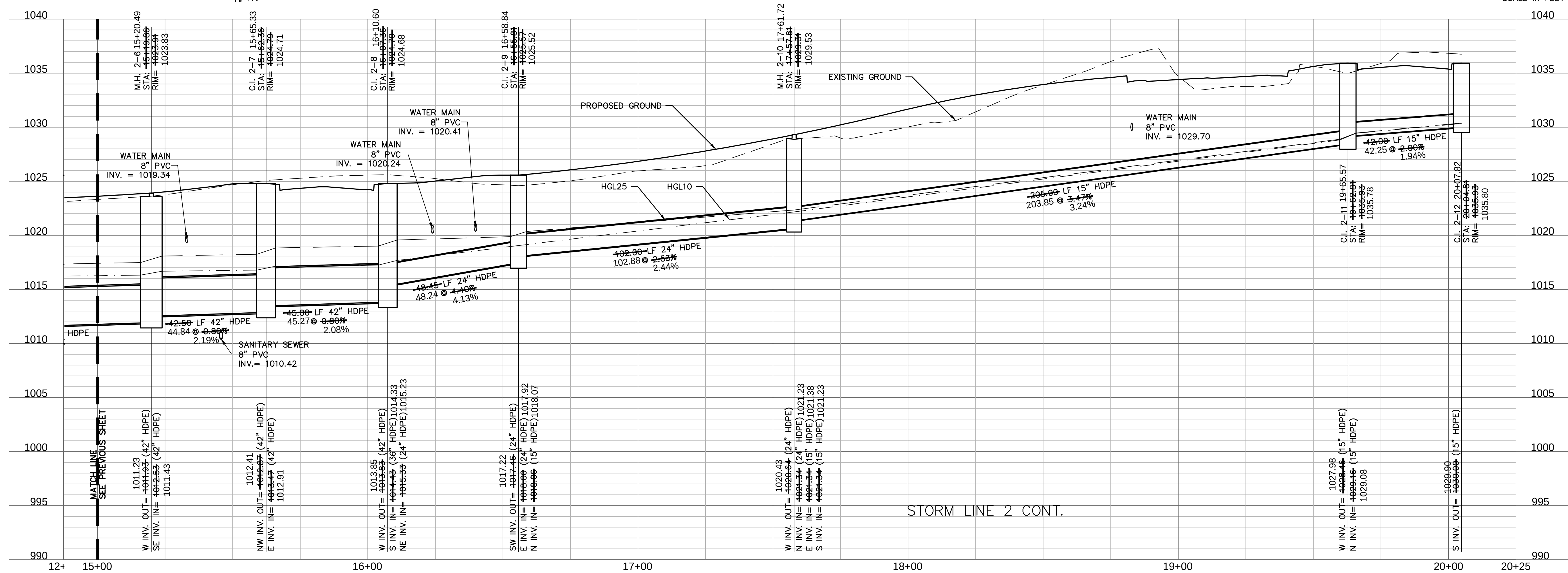
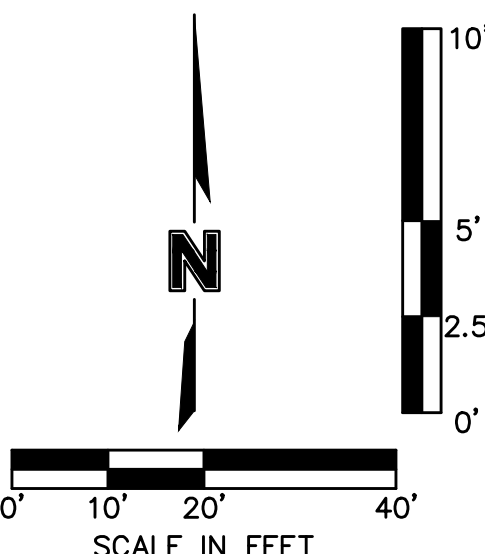
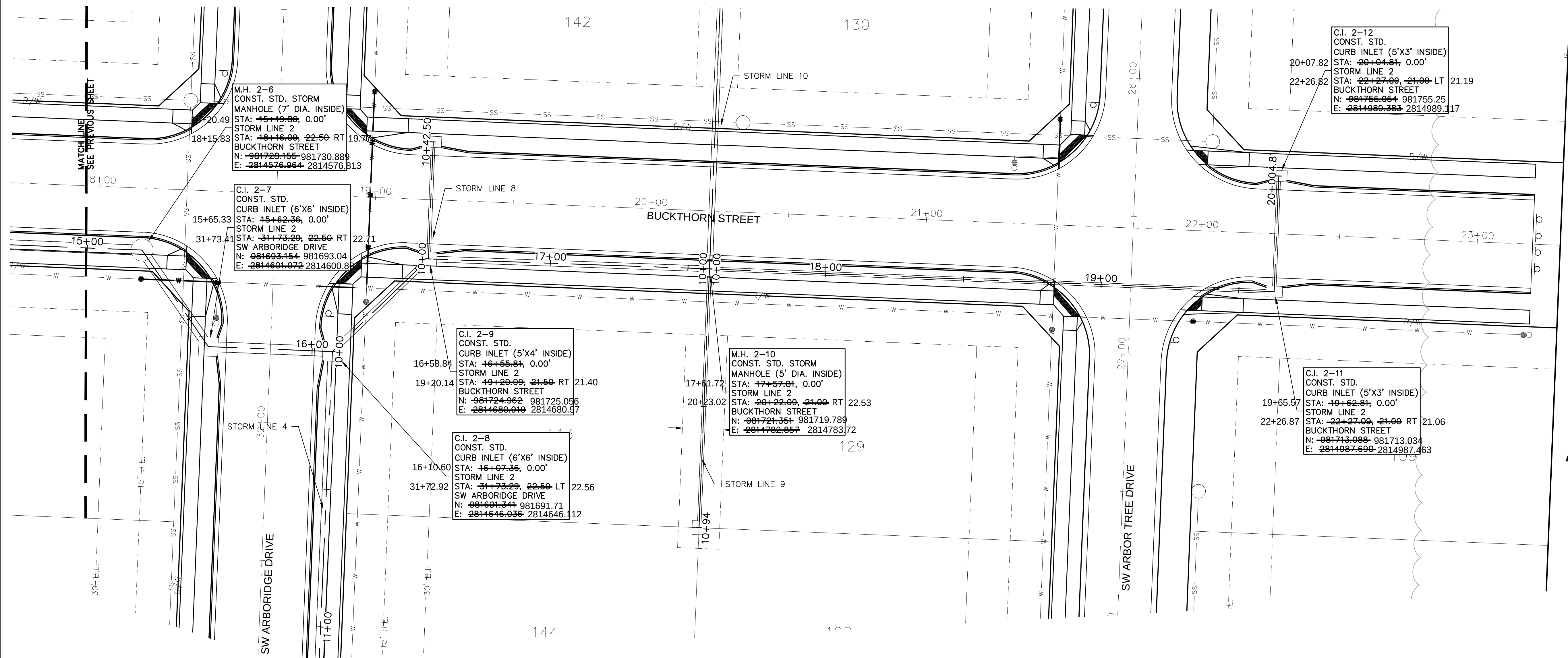
HAWTHORN RIDGE
SECOND PLAT

LEE'S SUMMIT, MISSOURI

2019

drawn by: _____ D.A.H.Q.
checked by: _____ M.G.D.
designed by: _____ B.M.W.
QA/QC by: _____ N.D.H.
project no.: _____ 019-1605
date: _____ 07-12-2018

SHEET
C125



STORM LINE 2 CONT.

STORM PLAN & PROFILE
STREET & STORM SEWER PLANS

HAWTHORN RIDGE
SECOND PLAT

MISSOURI

2019

REVISIONS DESCRIPTION

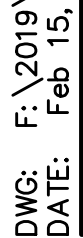
BY

STATE OF MISSOURI
JULIE ELAINE
SELLERS
NUMBER
PE-2017000367
3/18/21
PROFESSIONAL ENGINEER

JULIE E. SELLERS, P.E.
MO# 0017000267

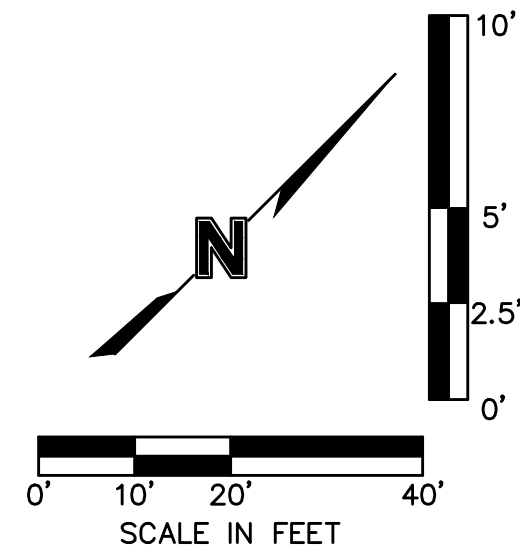
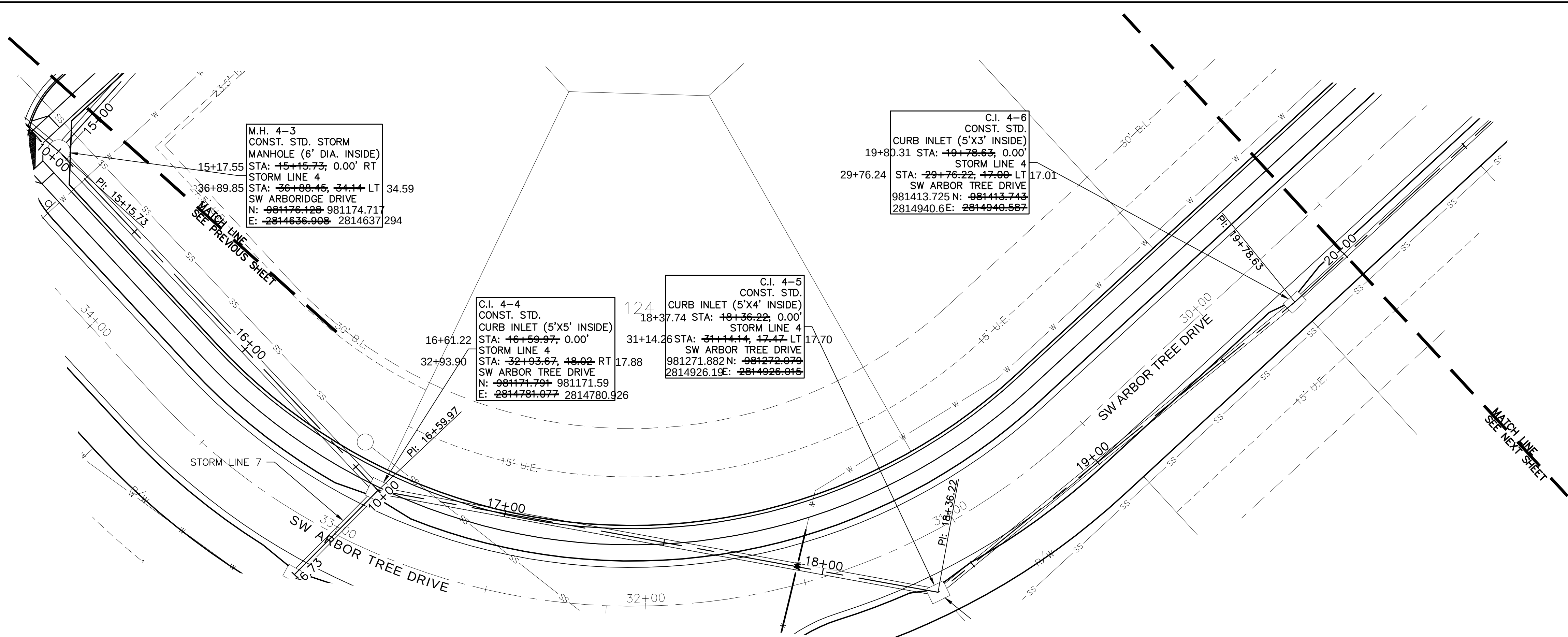
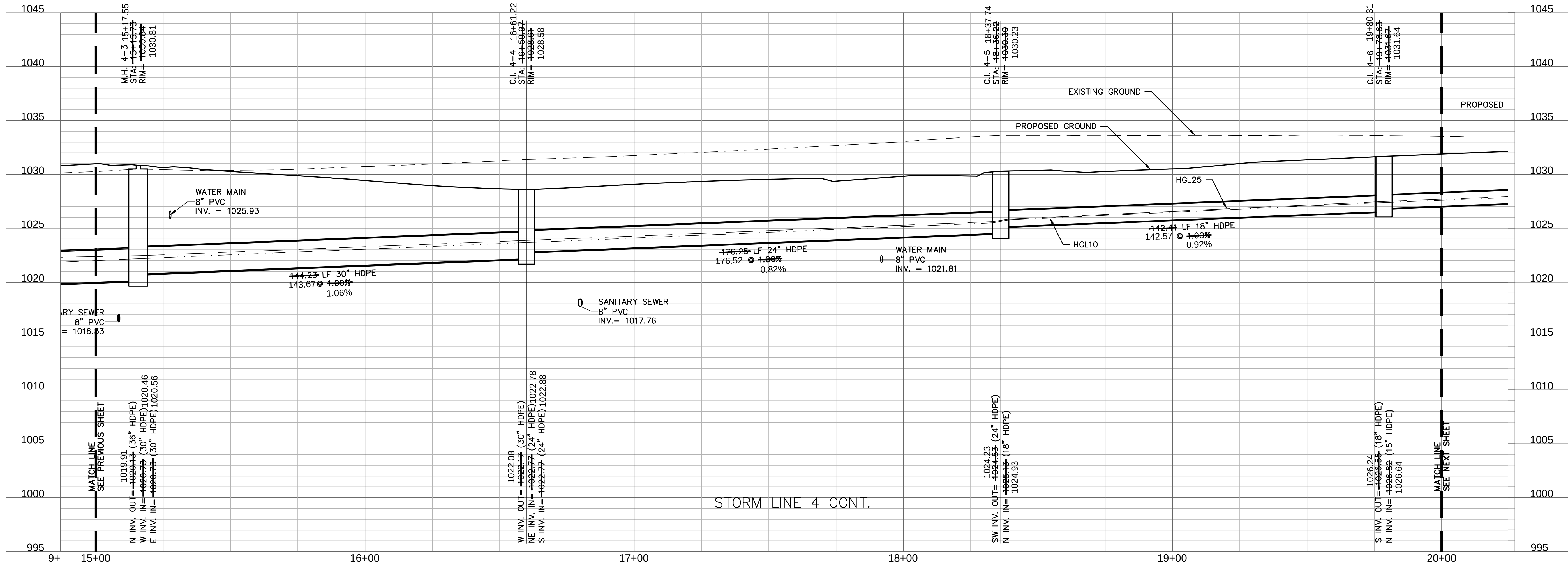
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MO CERTIFICATE OF AUTHORITY #001592
301 BURLINGTON, SUITE 100
NORTH KANSAS CITY, MO 64116
TEL

olson



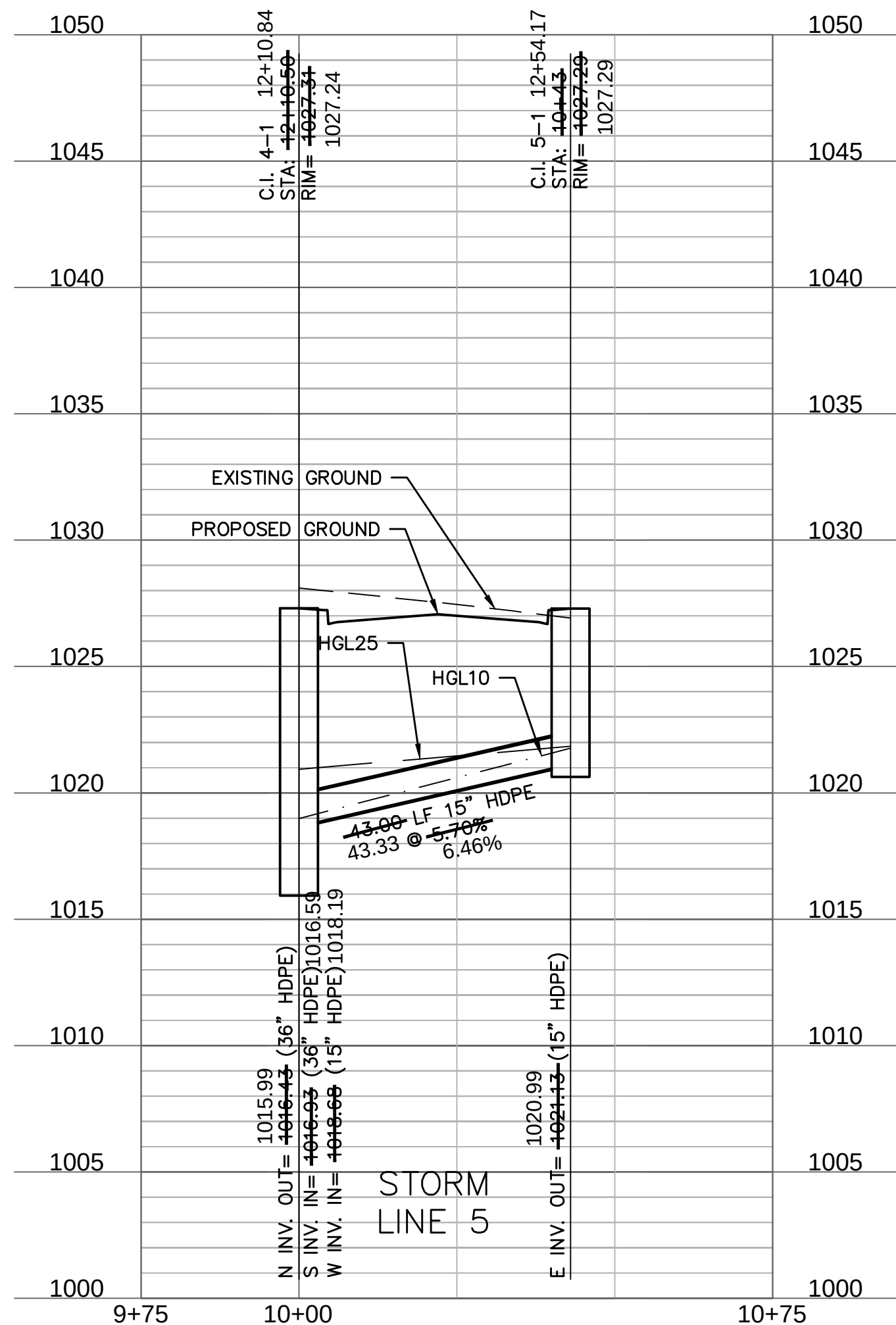
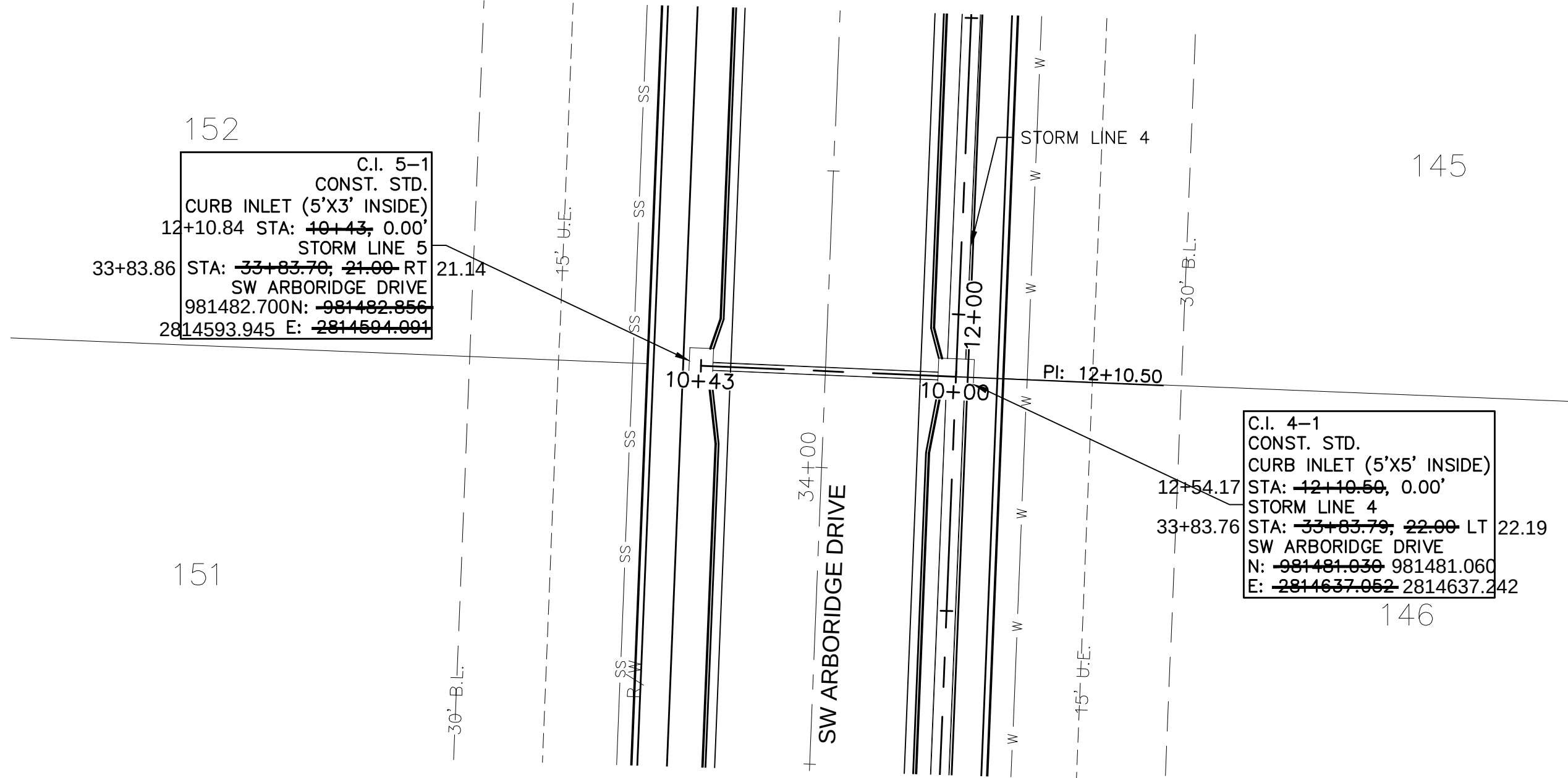
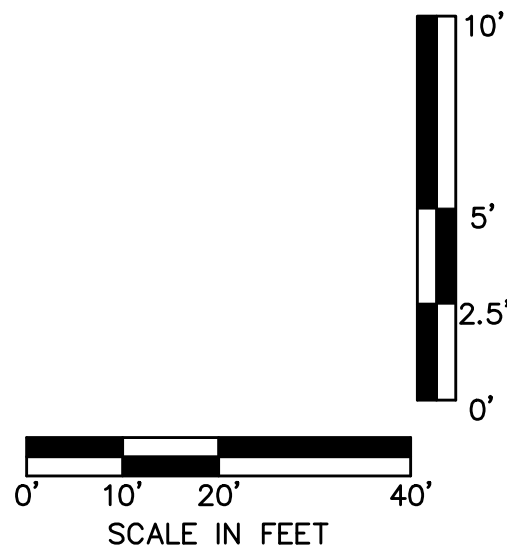
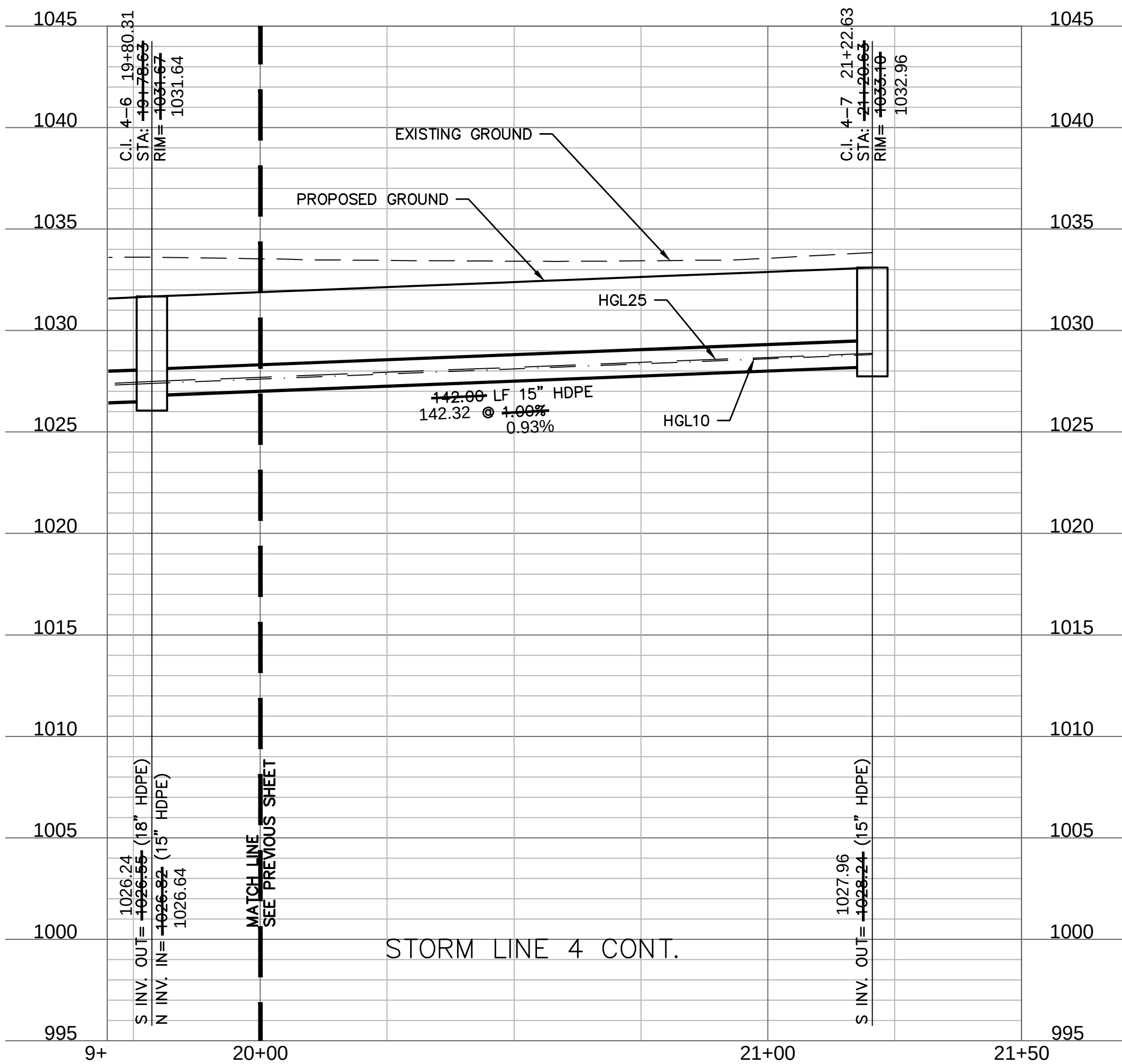
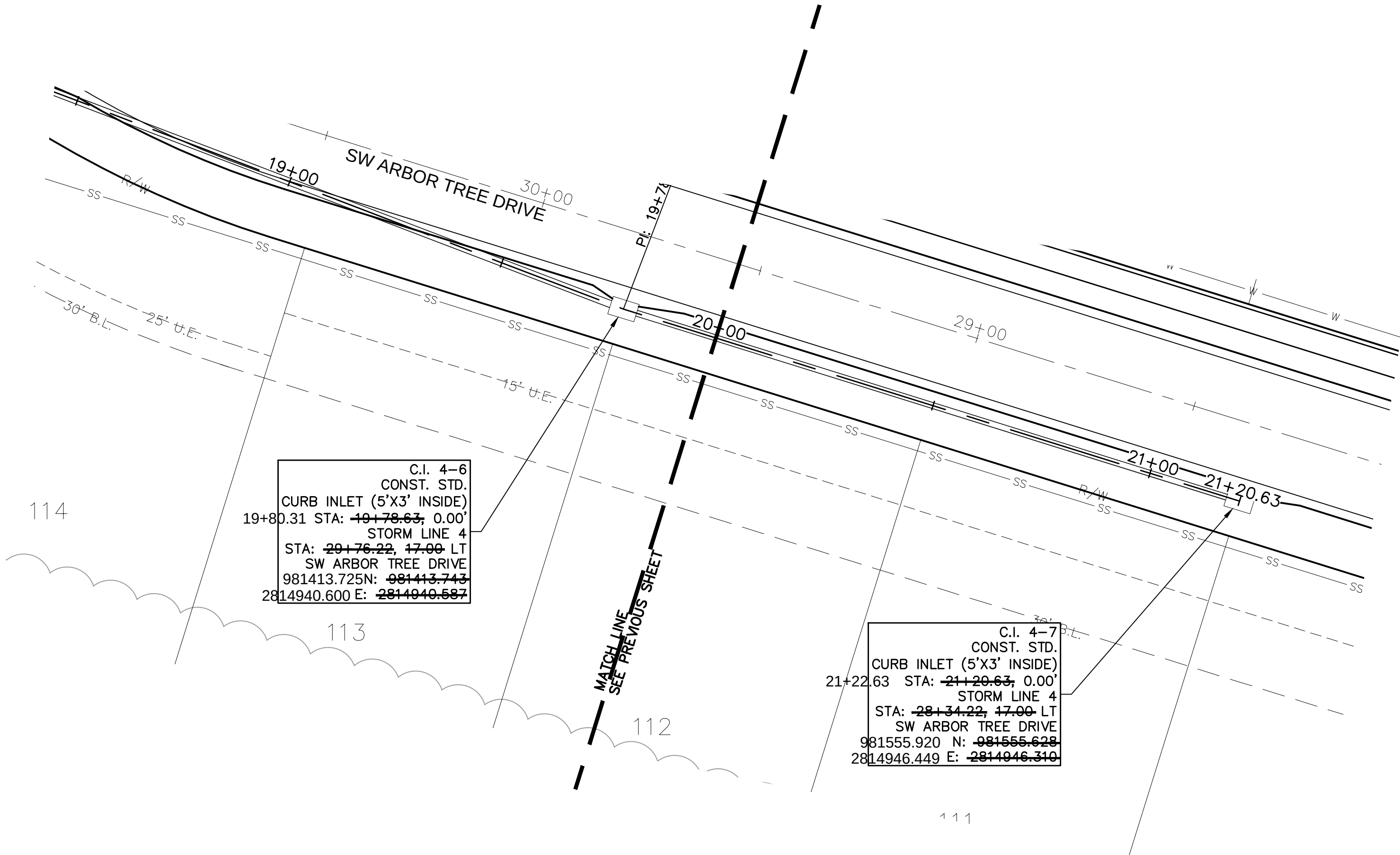
SHEET
C128

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STORM PLAN & PROFILE STREET & STORM SEWER PLANS		2019	
HAWTHORN RIDGE SECOND PLAT		LEE'S SUMMIT, MISSOURI	
drawn by: D.A.H.Q. checked by: M.G.D. designed by: B.M.W. QA/QC by: N.D.H. project no.: 019-1605 date: 07-12-2018		REVISIONS	
SHEET C129		REVISIONS DESCRIPTION	
		NO. REV. DATE	
		1 08-12-2019	
		10-YEAR STORM HGL ADDED TO PROFILE VIEW	
		BY	
		JULIE E. SELLERS, P.E. MO# 2017000367	
		JULIE ELAINE SELLERS Professional Engineer NUMBER PE-2017000367 3/18/21	
		OLSSON - CIVIL ENGINEERING NO. CERTIFICATE OF AUTHORITY #001592 NORTH KANSAS CITY, MO 64116 TEL. 816.861.1177 WWW.OLSSON.COM	
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DWG: F:\2019\1501-2000\19-1605\40-Design\AutoCAD\As-Built\Sheets\CHC\STREET STORM & SITE DISTURBANCE\C-STW03_0191605.dwg USER: bworthley C_PSTRM_0191605
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STATE OF MISSOURI
JULIE ELAINE SELLERS
Professional Engineer
NUMBER PE-2017000367
3/18/21

JULIE E. SELLERS, P.E.
MO# 2017000367

NO. REV.	DATE	REVISIONS DESCRIPTION
1	08-12-2019	10-YEAR STORM HGL ADDED TO PROFILE VIEW

STORM PLAN & PROFILE
STREET & STORM SEWER PLANS

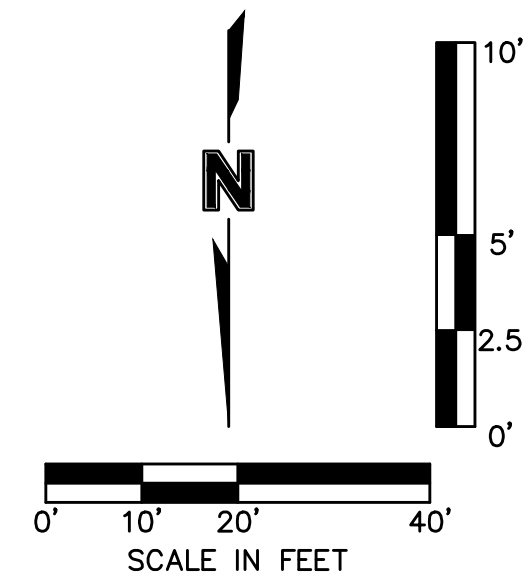
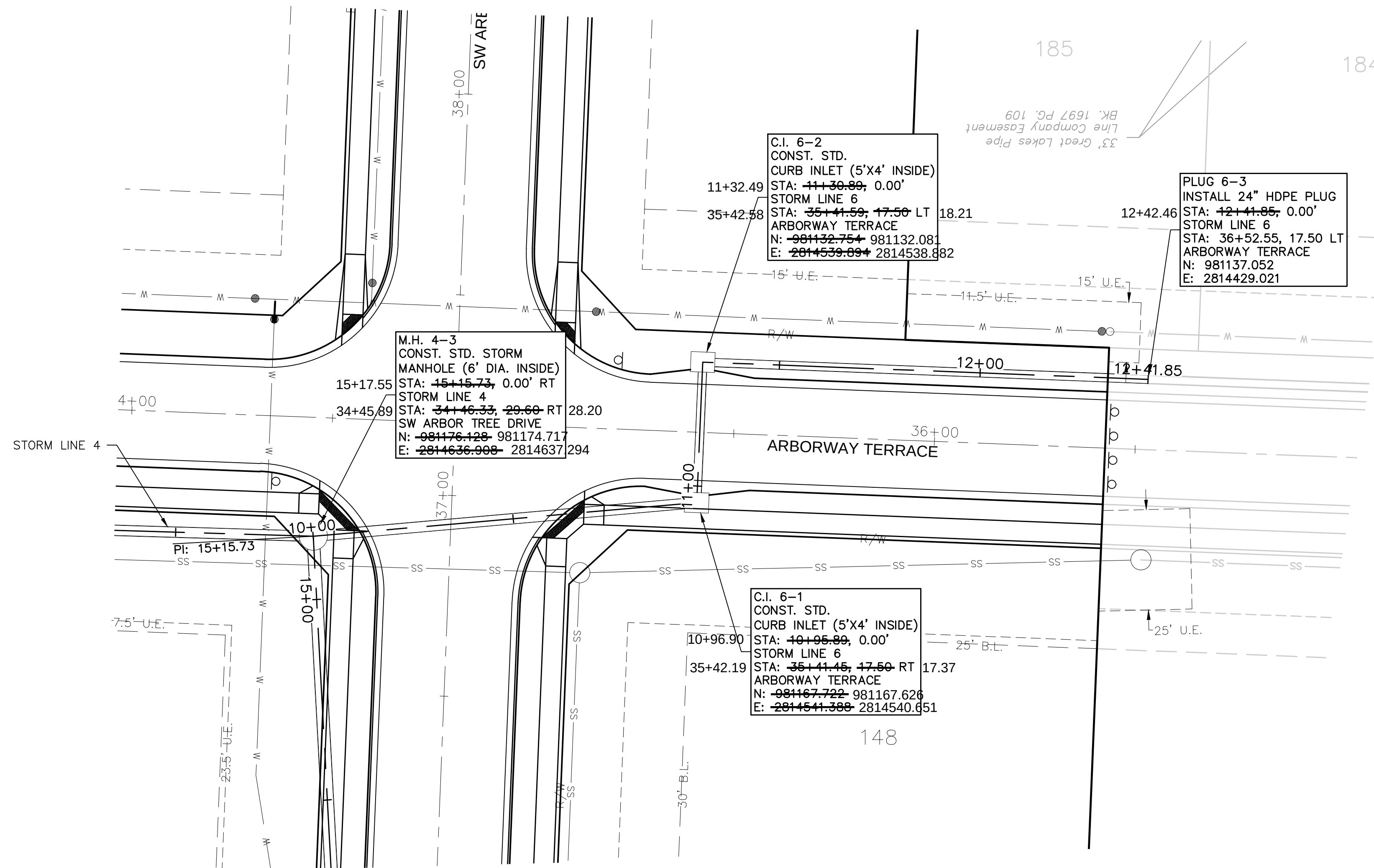
HAWTHORN RIDGE
SECOND PLAT

LEE'S SUMMIT, MISSOURI

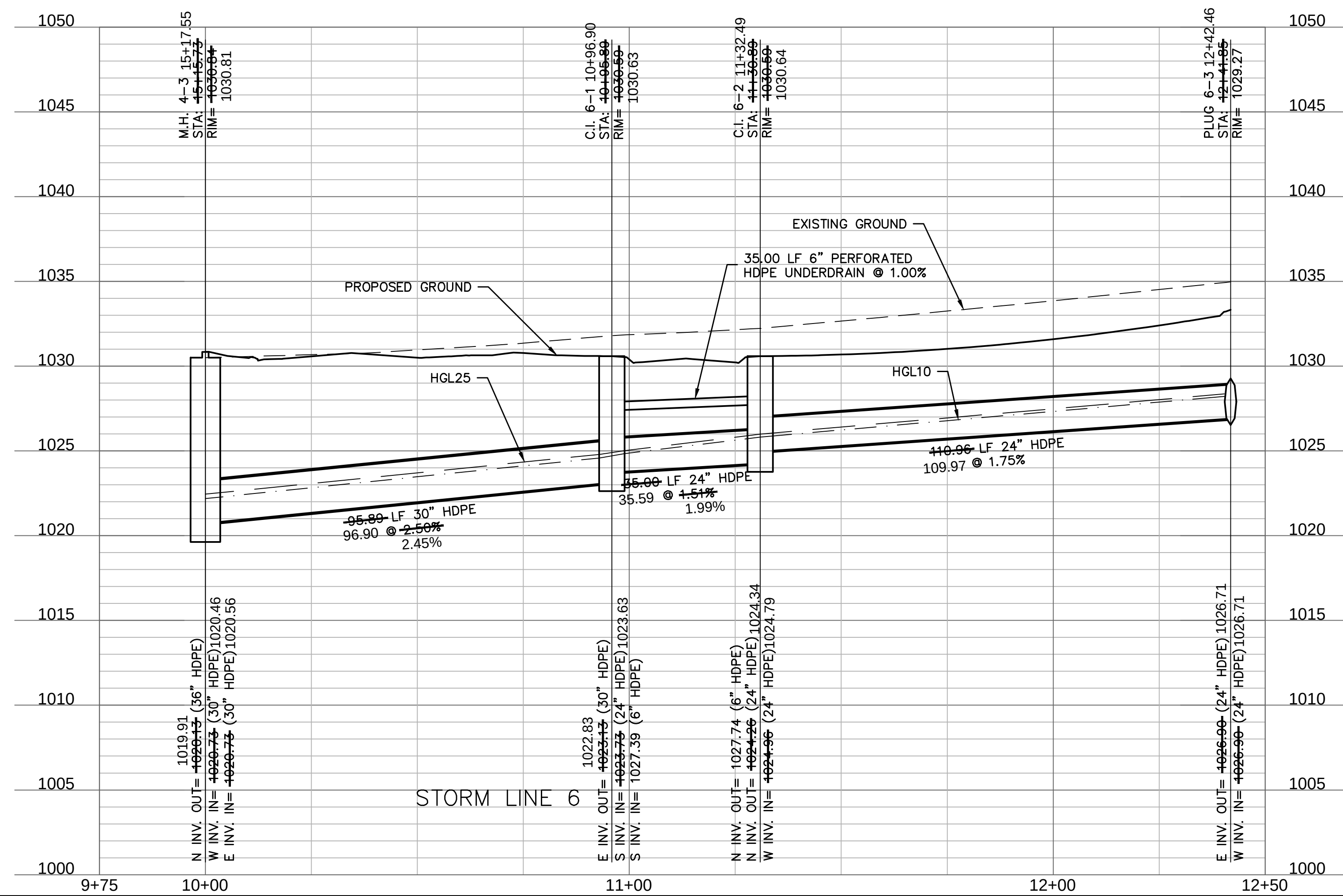
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checked by: M.G.D.
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QA/QC by: N.D.H.
project no.: 019-1605
date: 07-12-2018

SHEET
C130

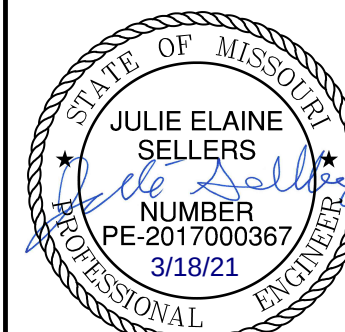
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3/17/2021



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JULIE E. SELLERS, P.E.
MO# 0017000267

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STORM PLAN & PROFILE
STREET & STORM SEWER PLANS

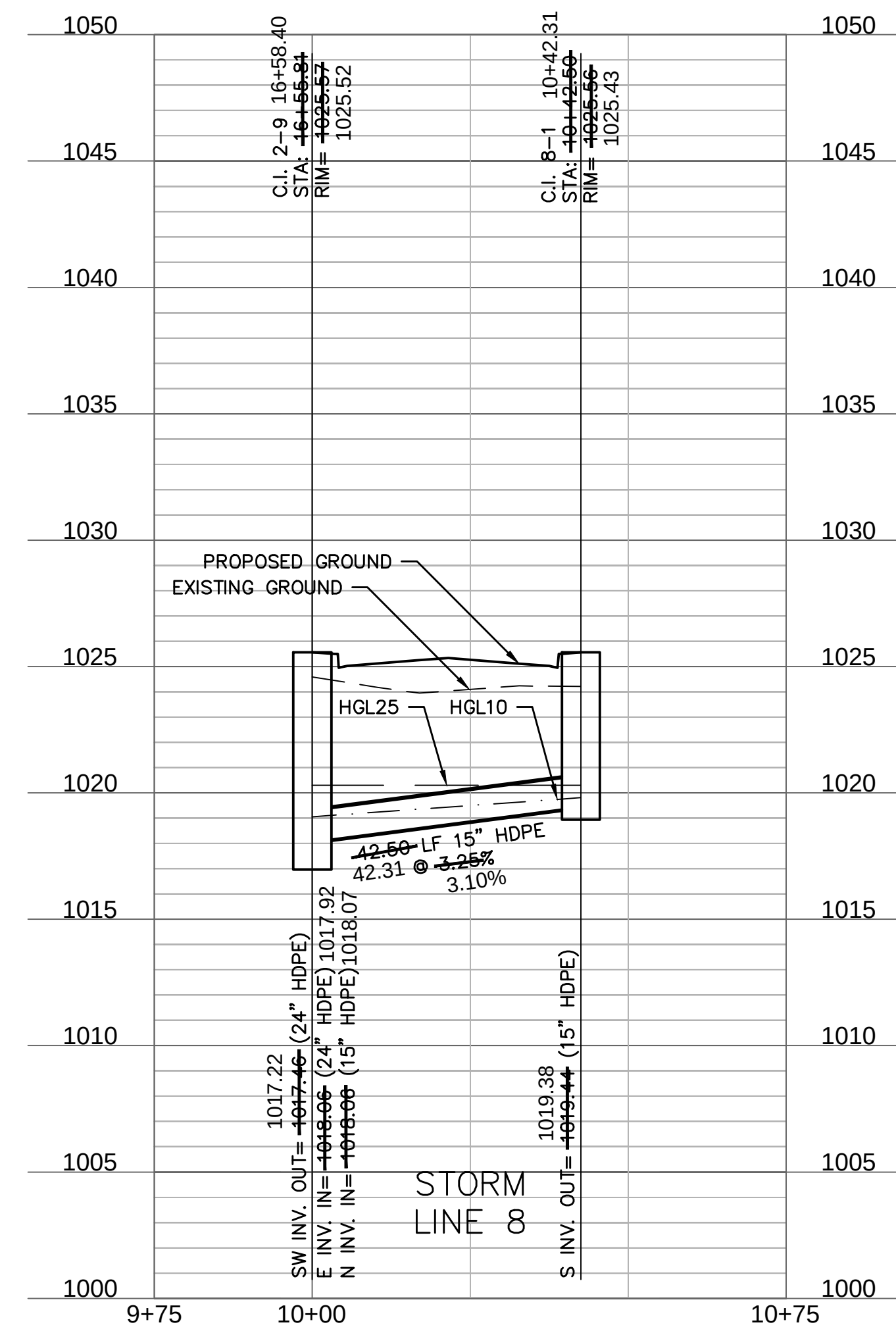
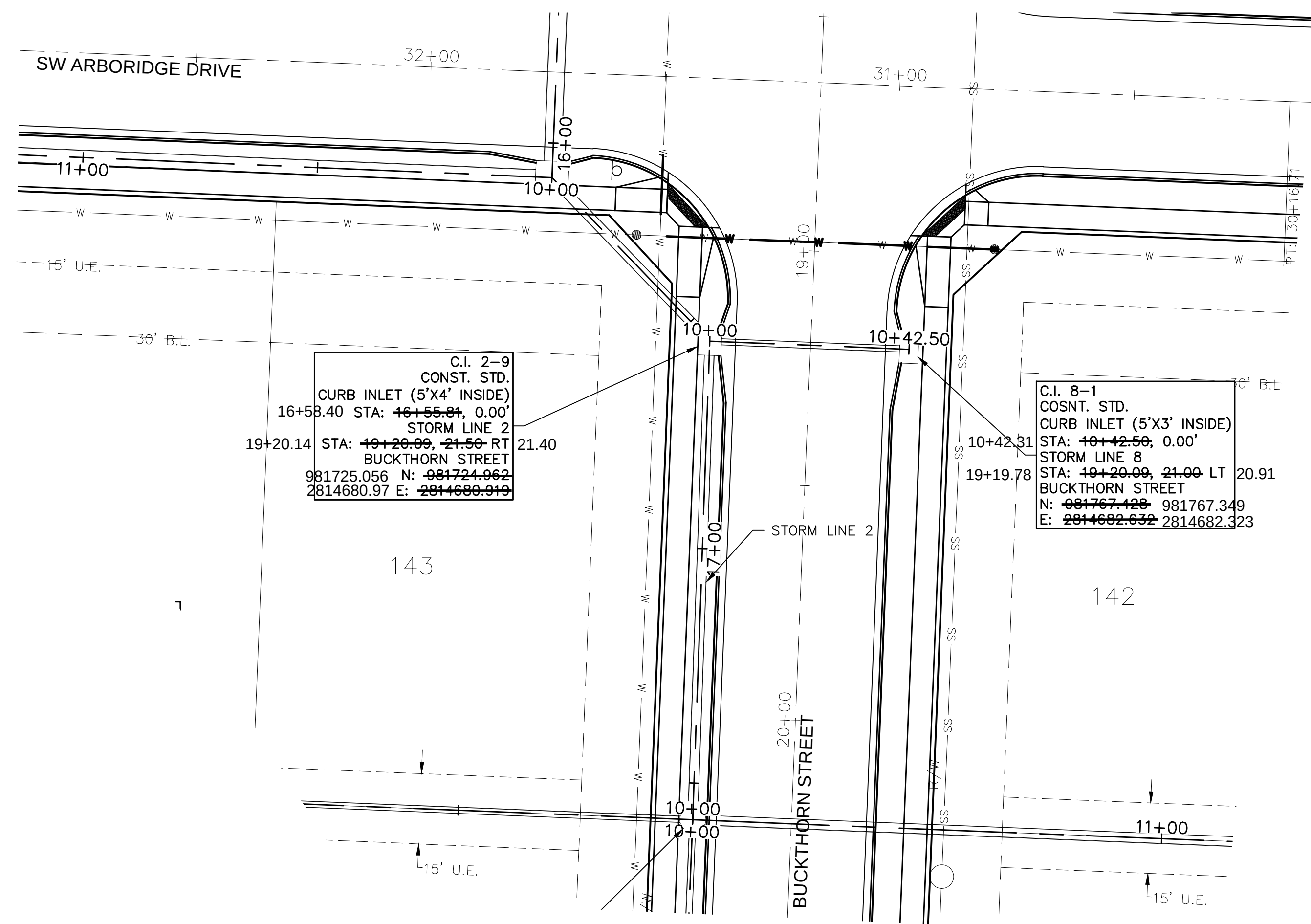
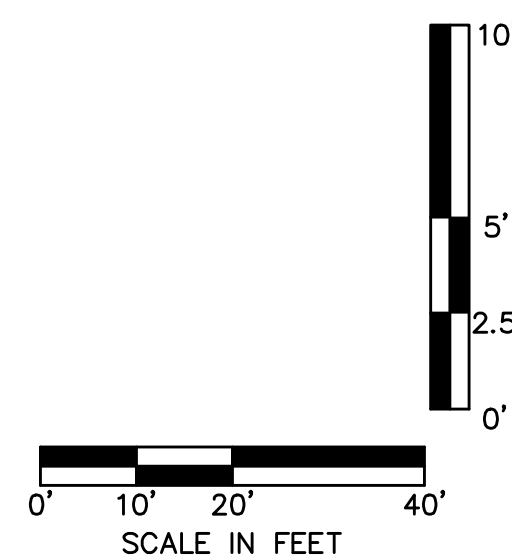
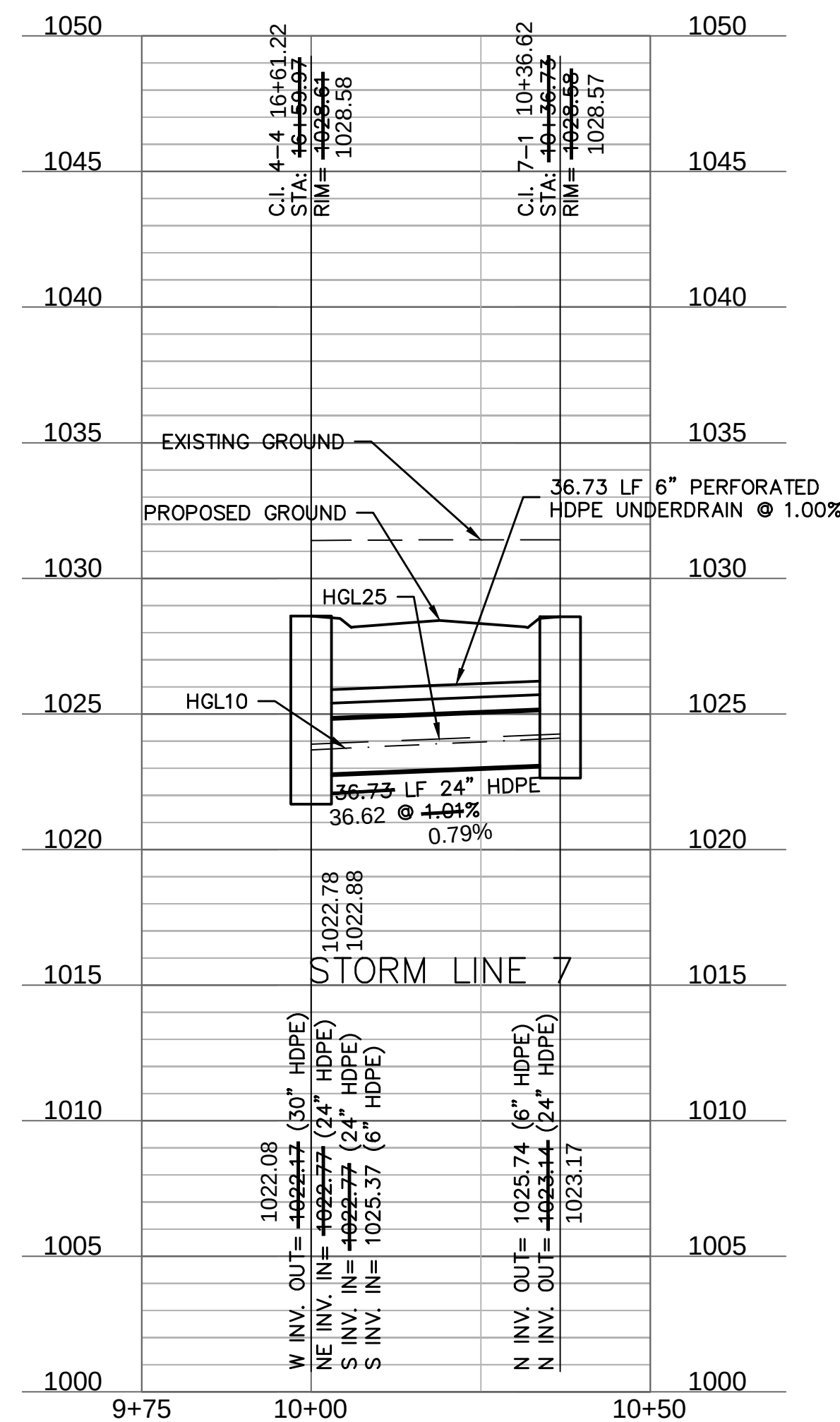
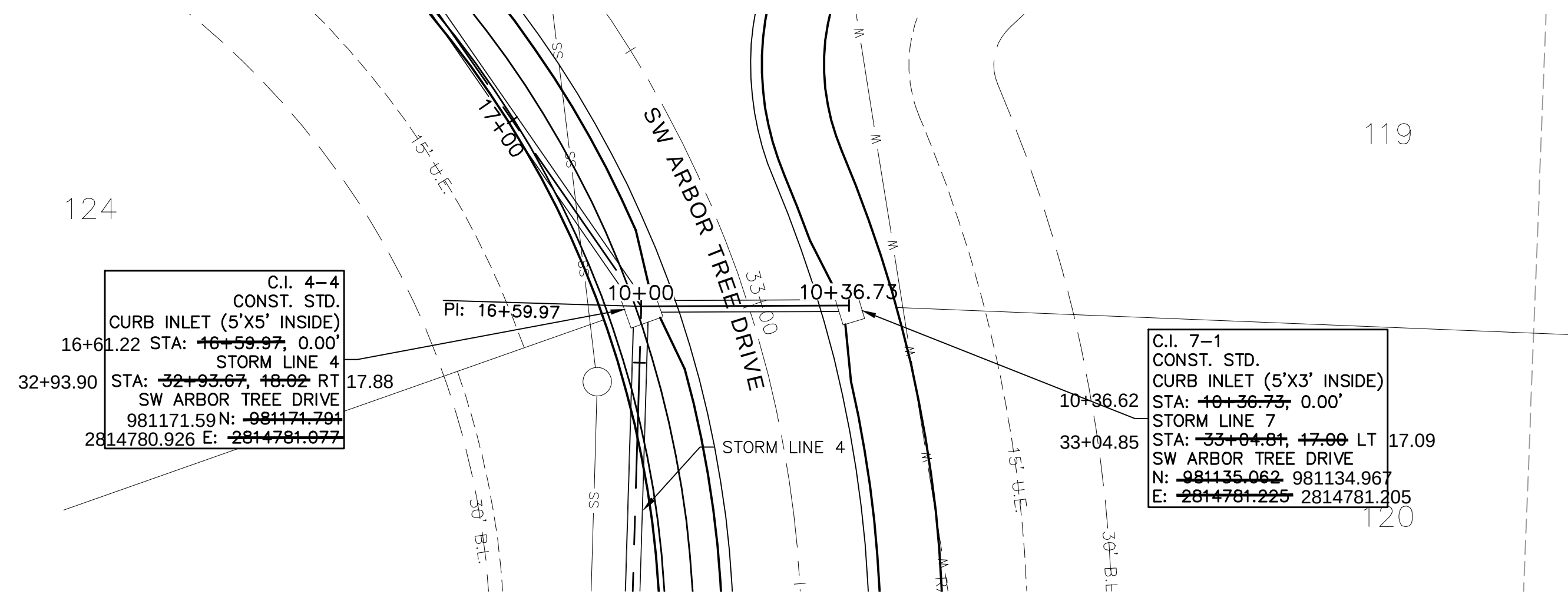
AWTHORN RIDGE
SECOND PLAT

LEE'S SUMMIT MISSOURI

drawn by: D.A.H.O.
checked by: M.G.D.
designed by: B.M.W.
QA/QC by: N.D.H.
project no.: 019-1605
date: 07-12-2019

SHEET
C131

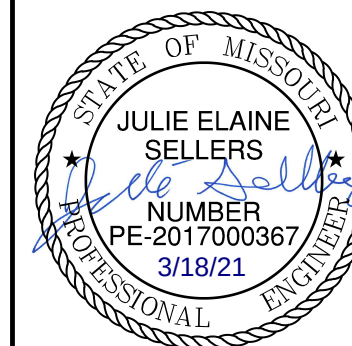
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MO CERTIFICATE OF AUTHORITY #001592
1301 BURLINGTON, SUITE 100
NORTH KANSAS CITY, MO 64116
TEL 816 361 1177
www.olsson.com

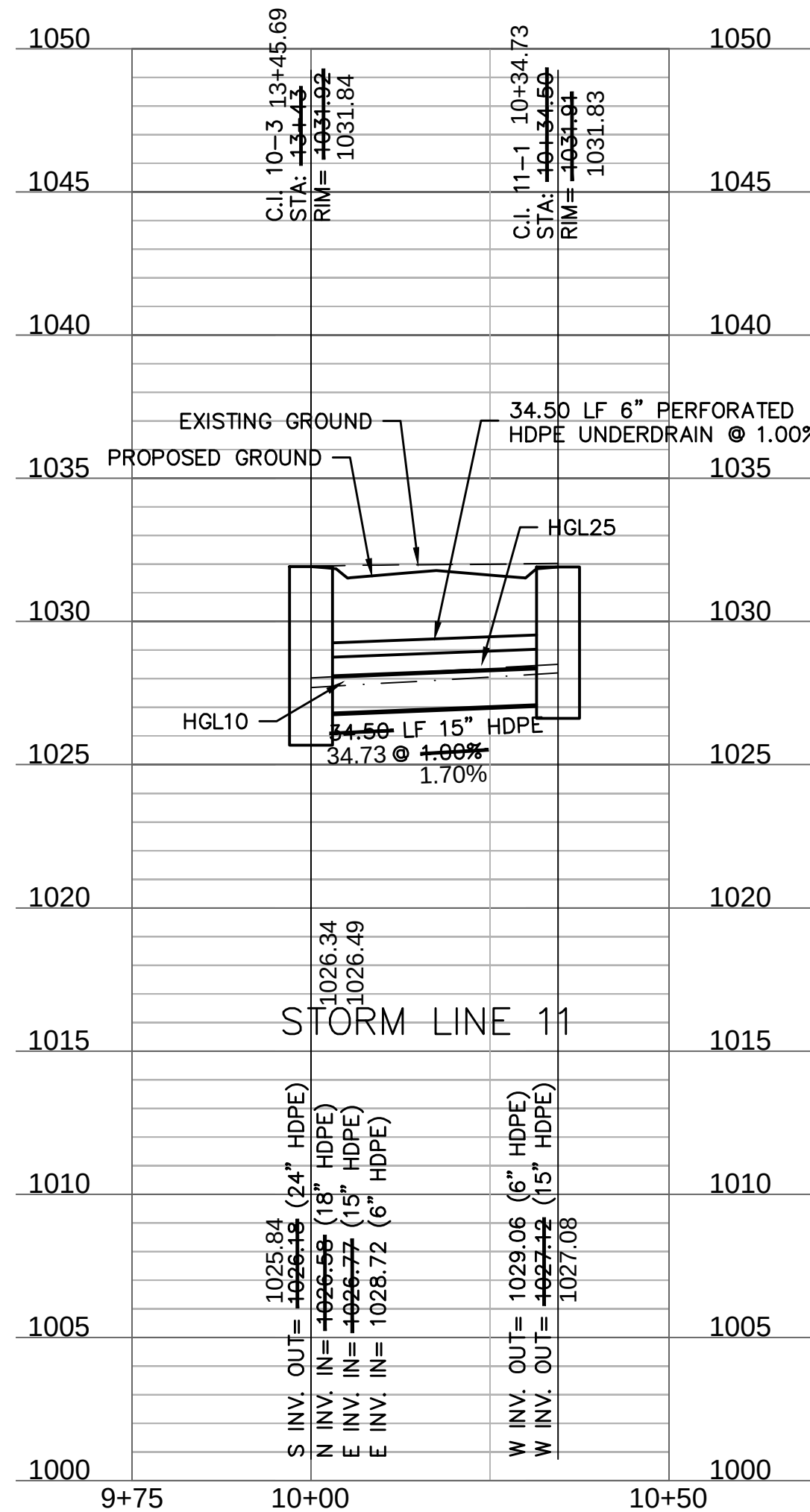
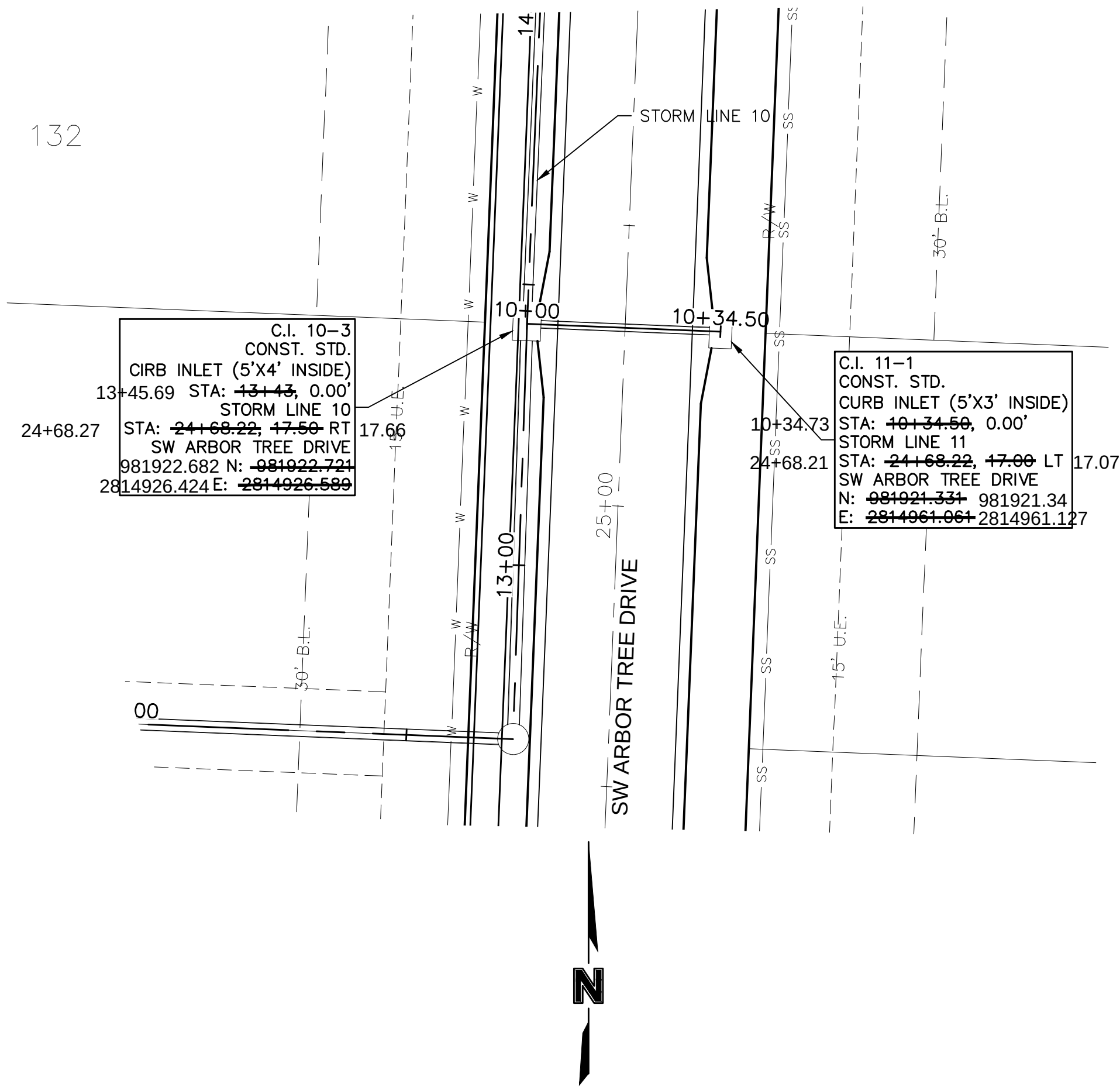
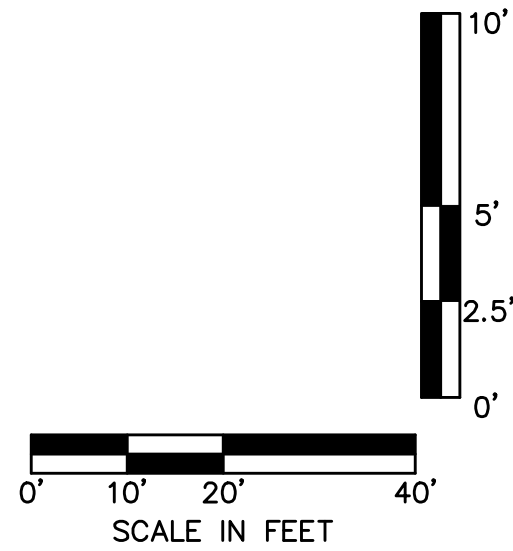
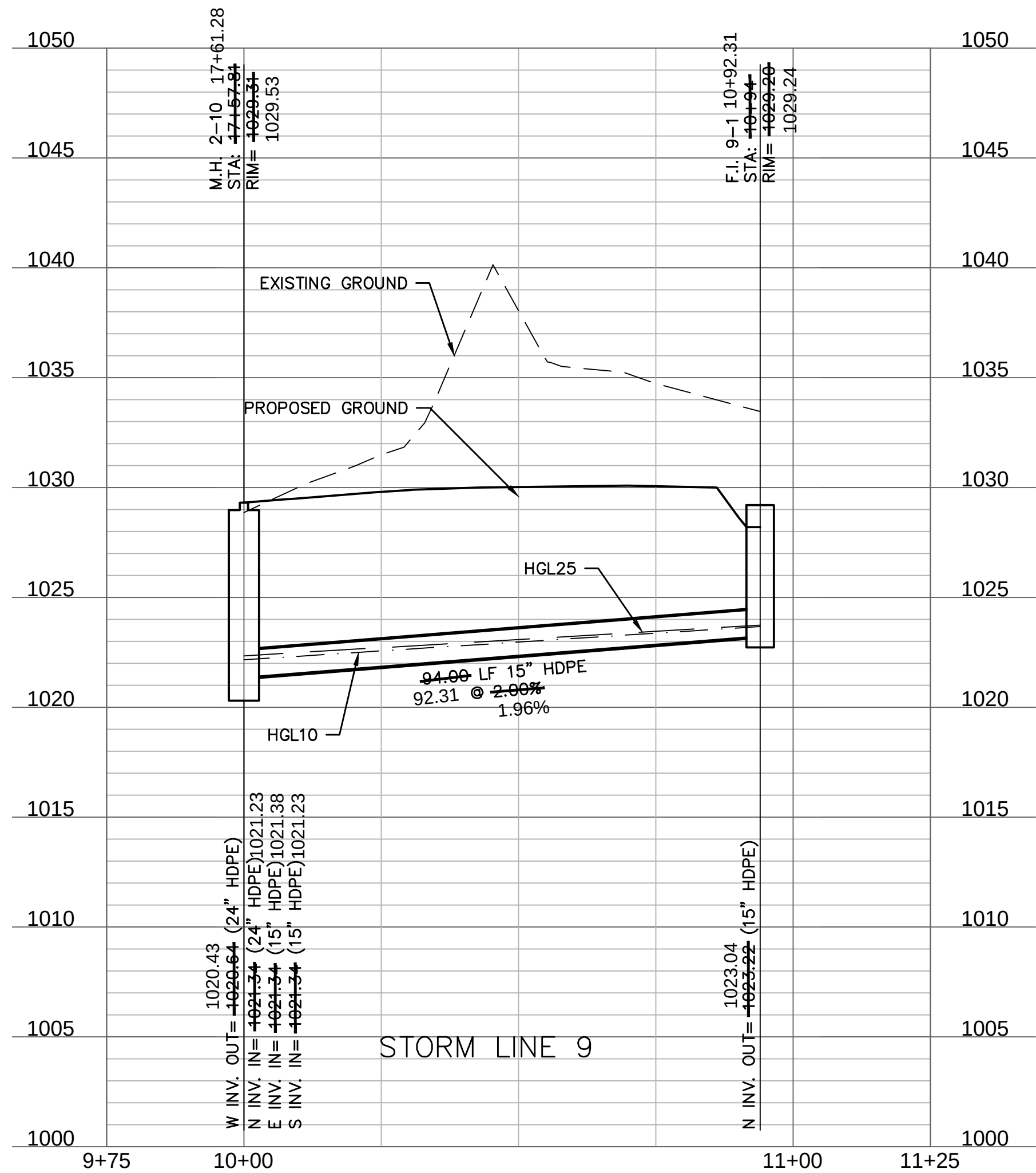
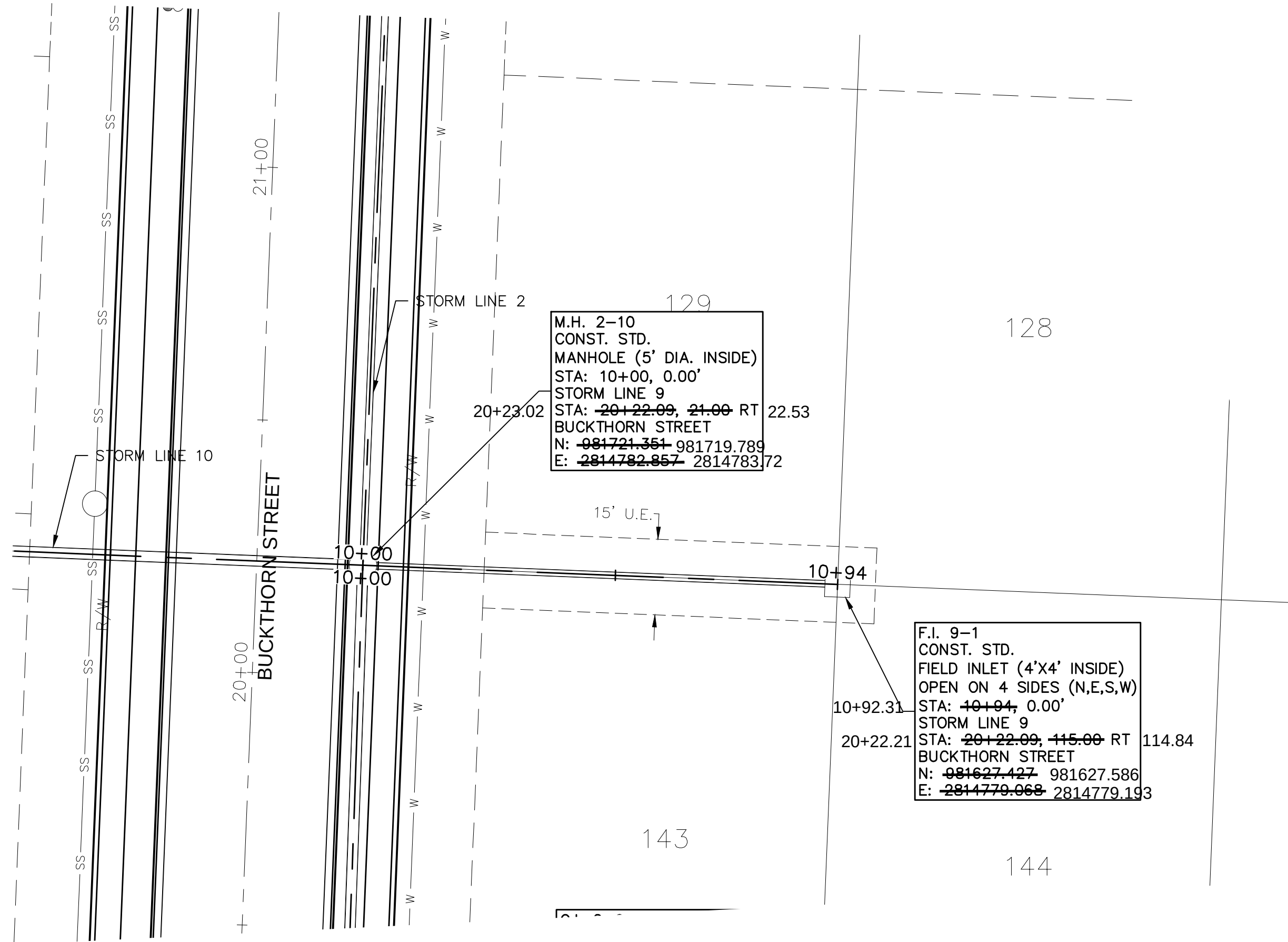


AS-BUILT
3/17/2021

NO	DATE	REVISIONS DESCRIPTION	BY
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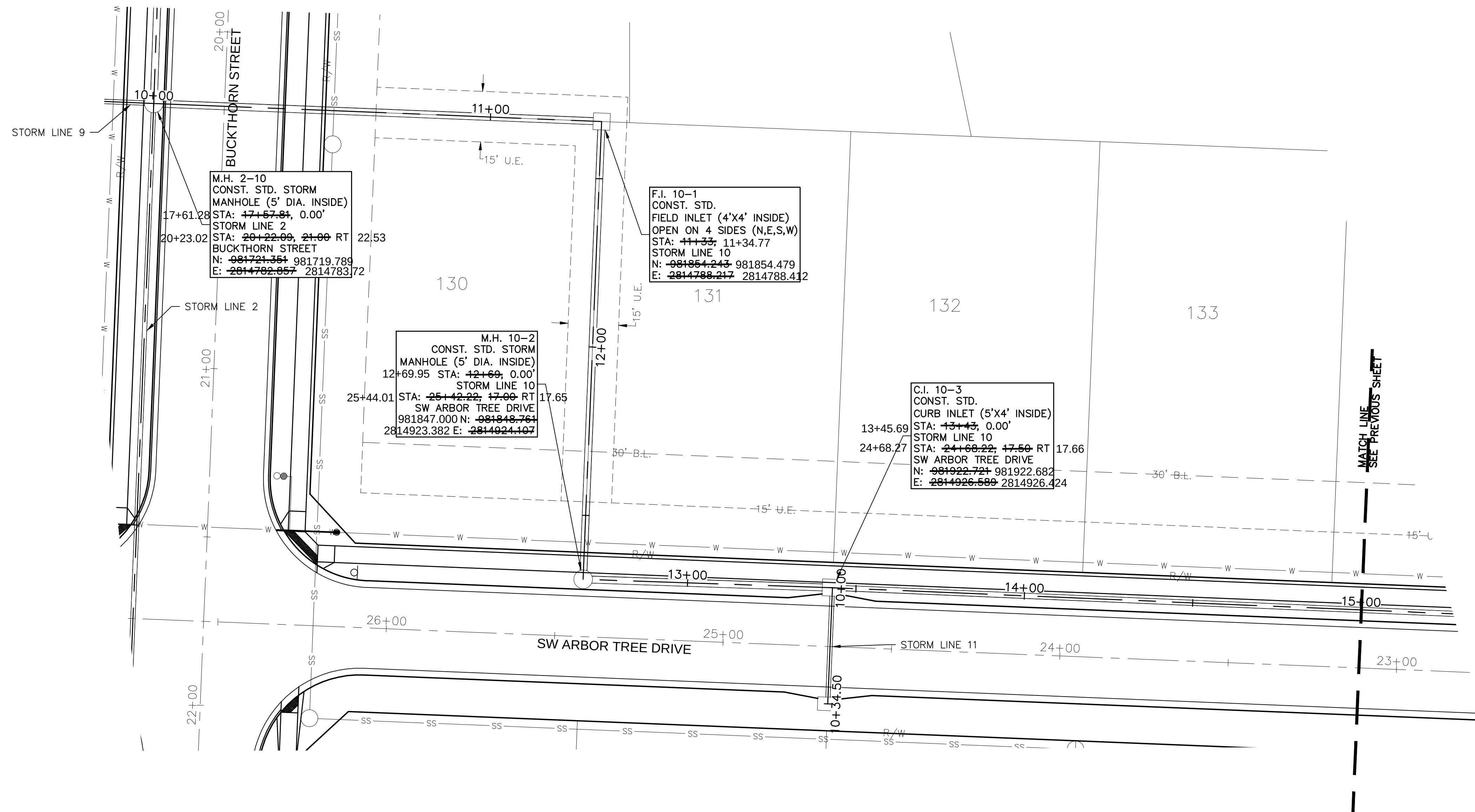
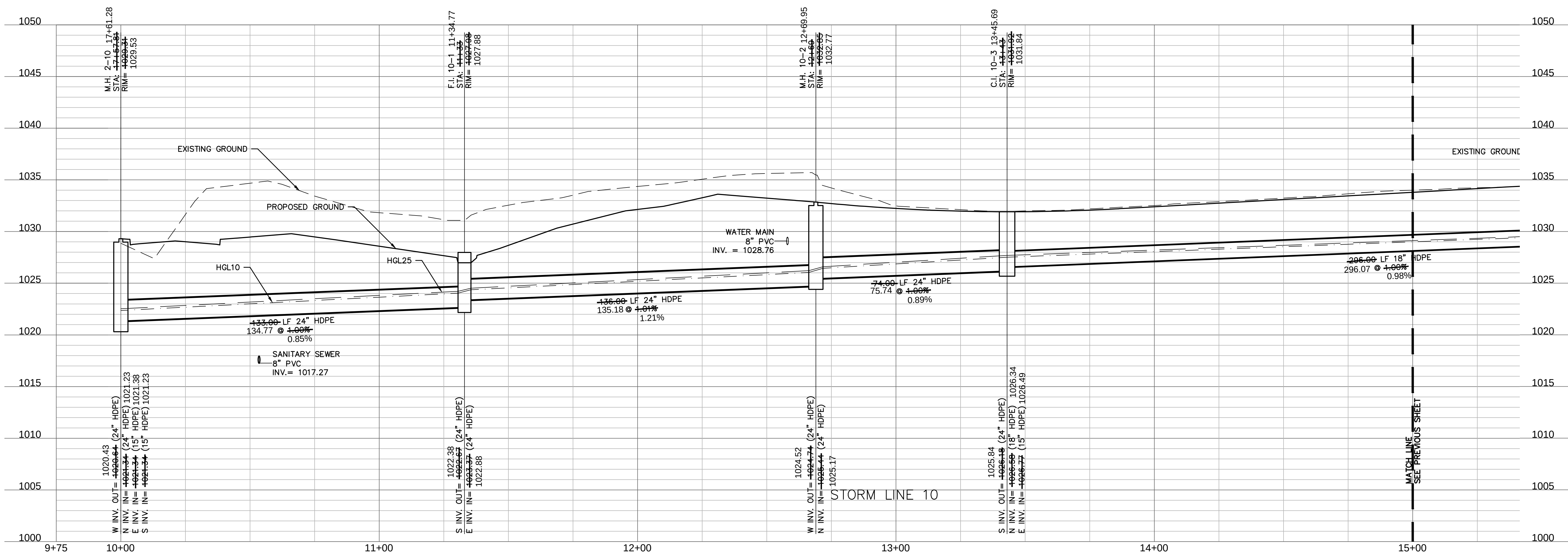
JULIE E. SELLERS, P.E.
MO# 2017000367





AS-BUILT
3/17/2021

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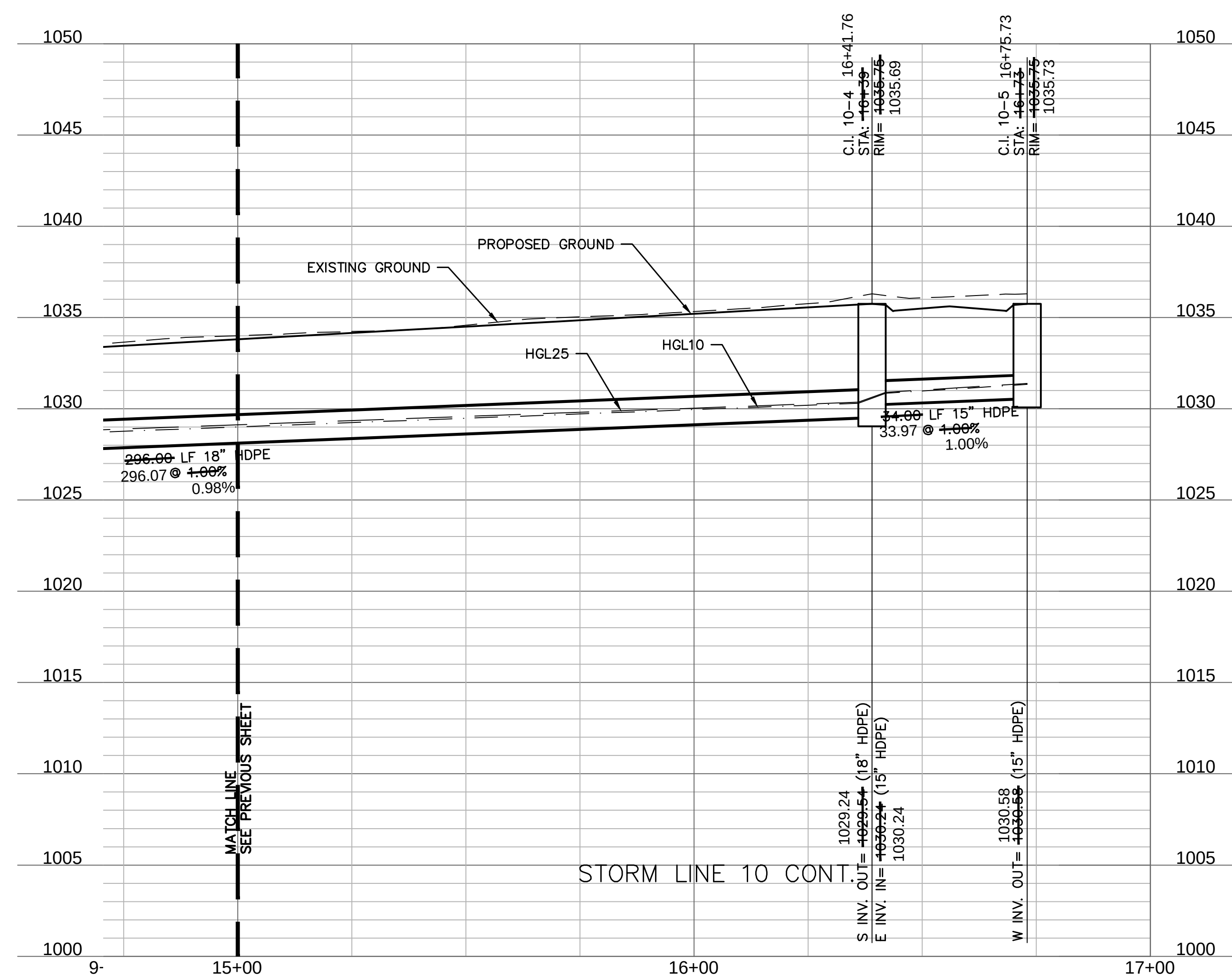
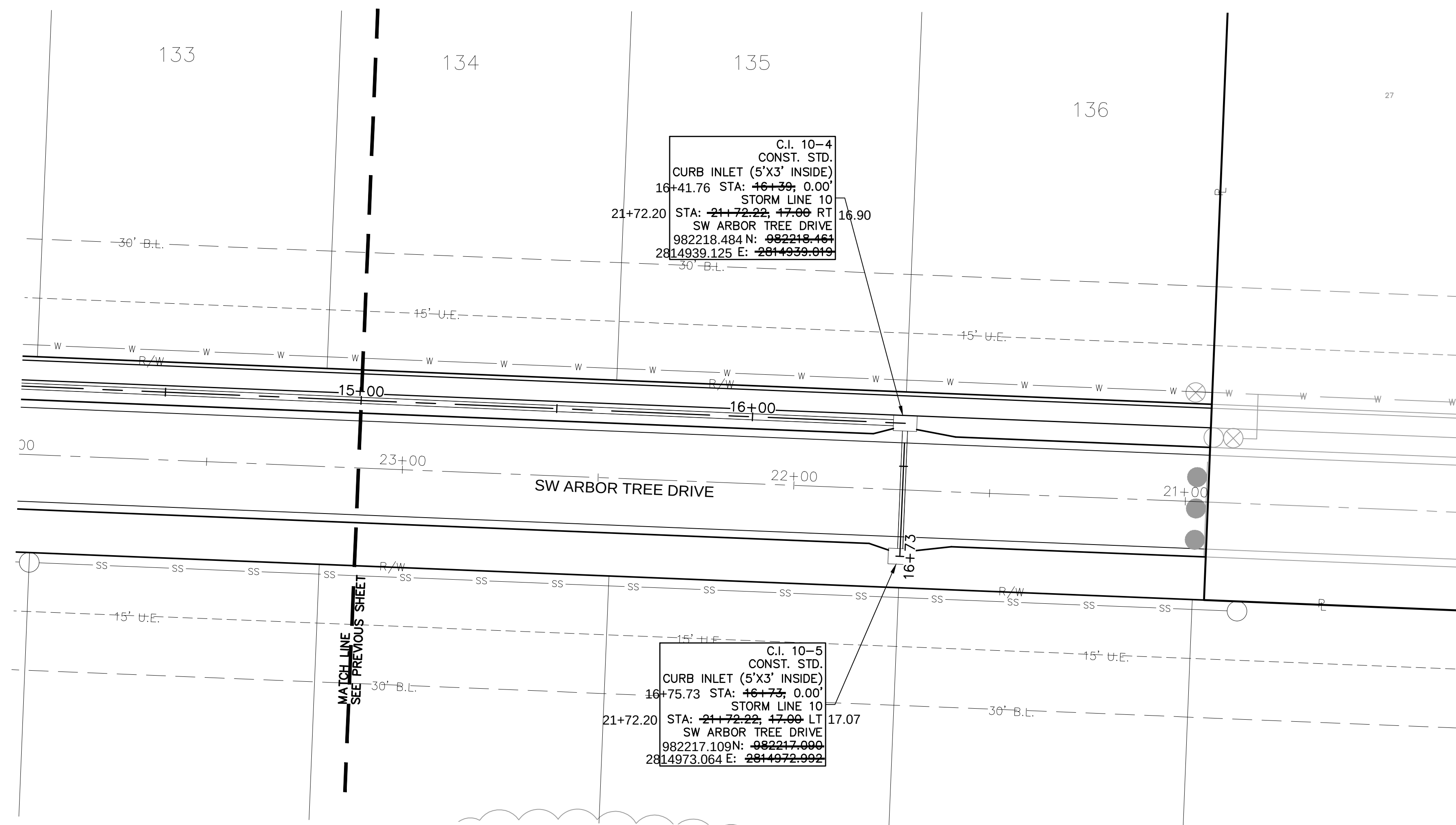


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3/17/2021

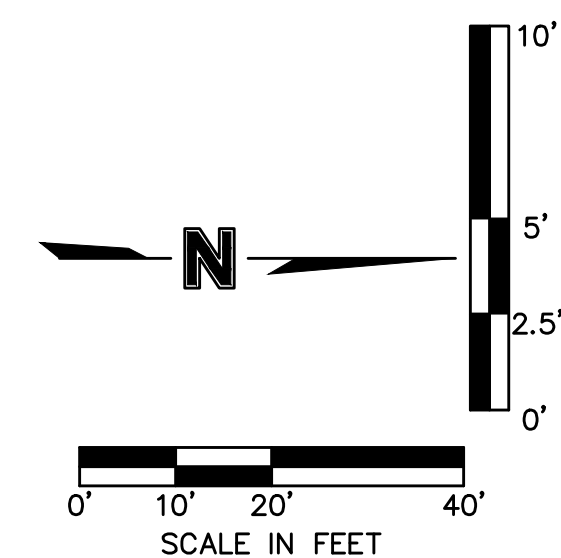
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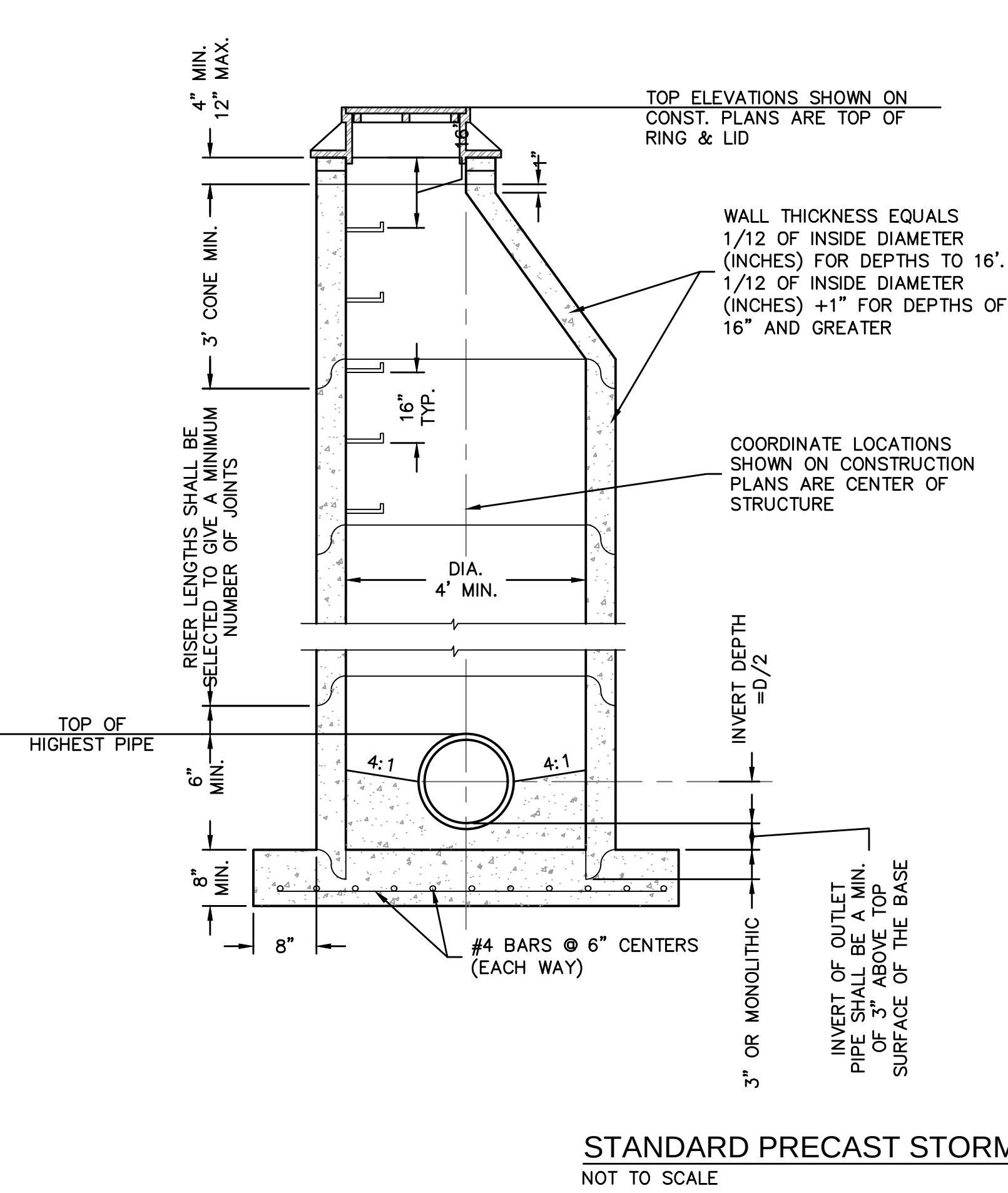
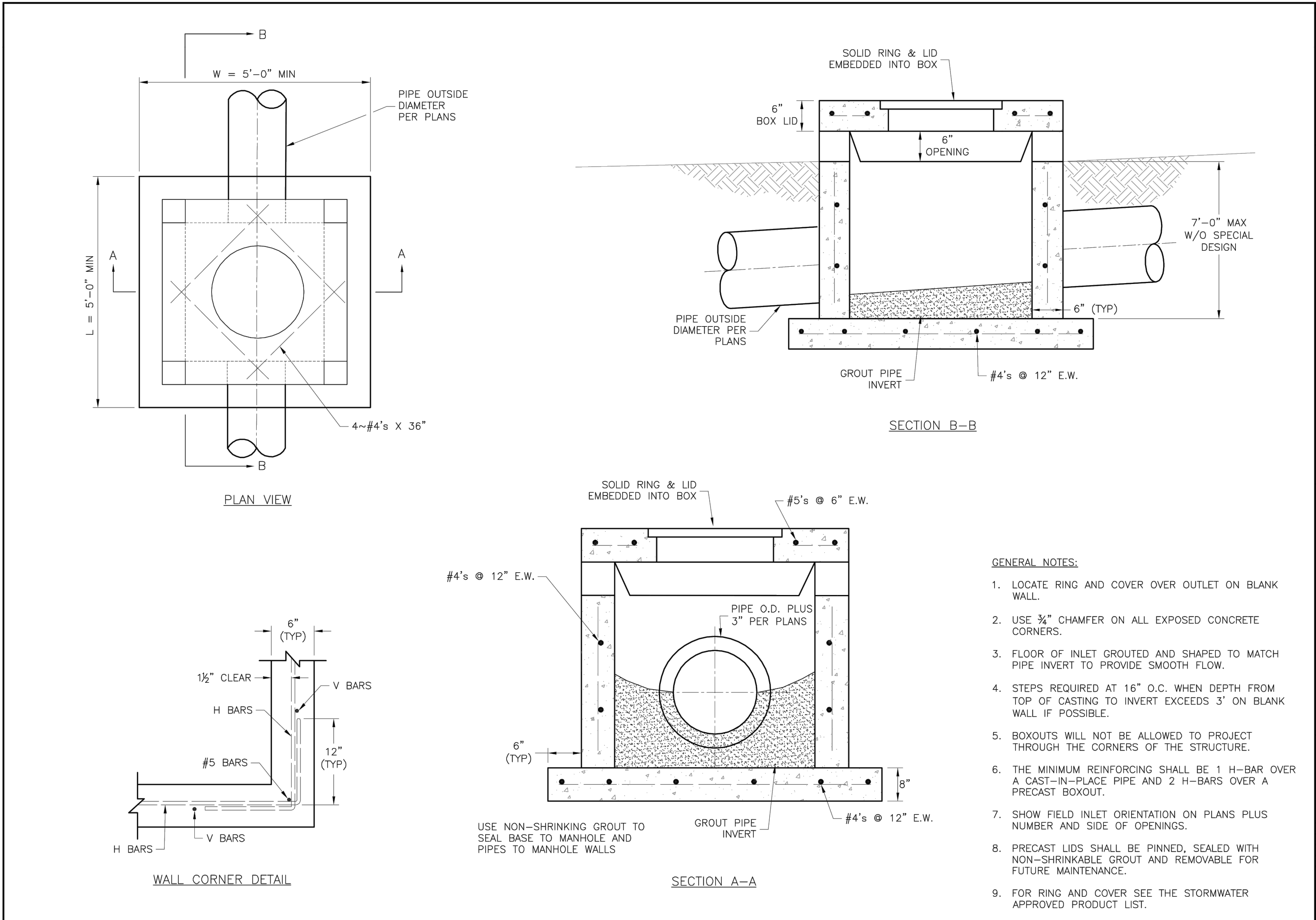
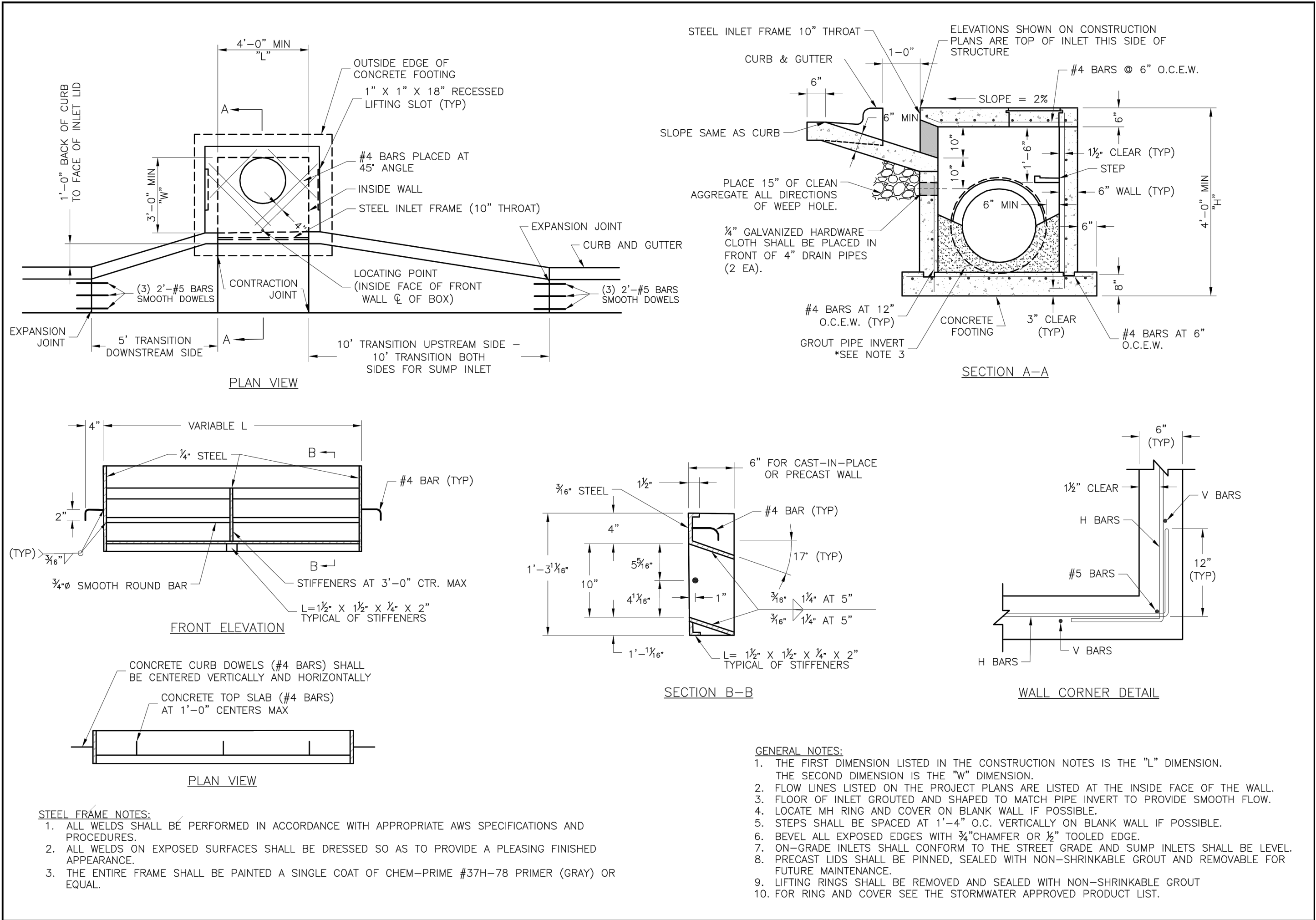
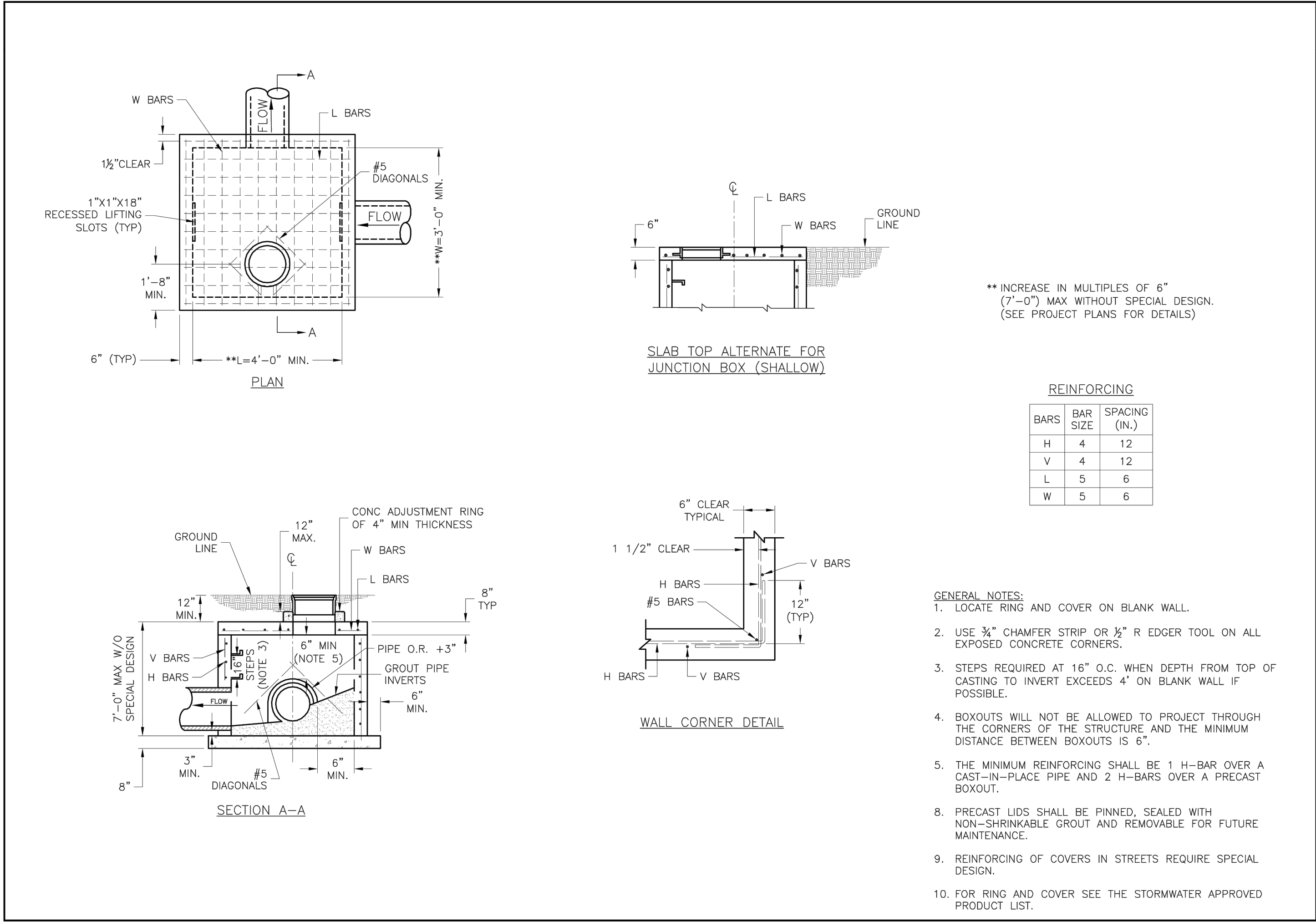
olsson

OLSSON - CIVIL ENGINEERING
130 E. BURLINGTON, SUITE 400
NORTH KANSAS CITY, MO 64116
TEL. 816.861.1177
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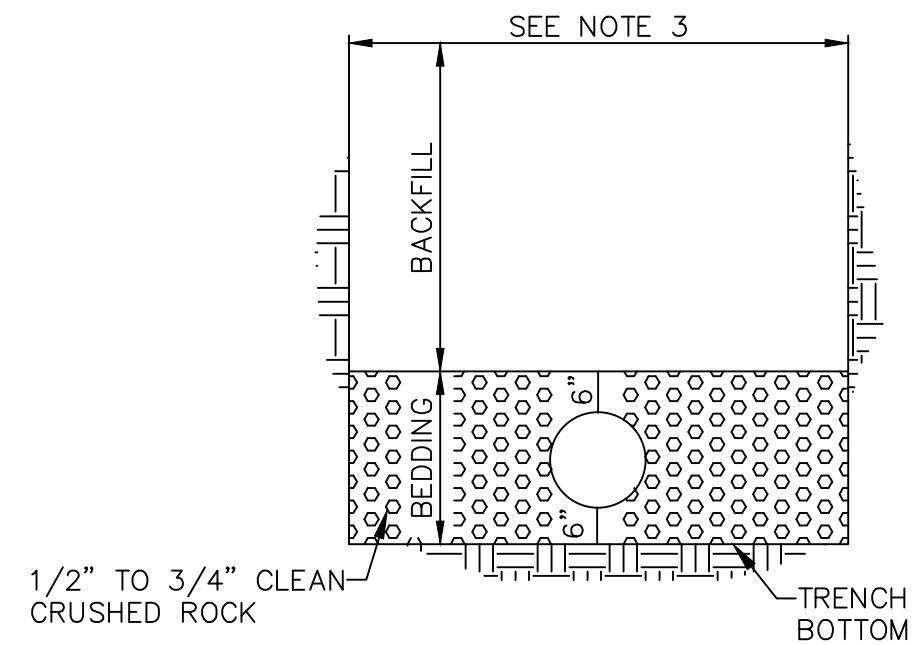
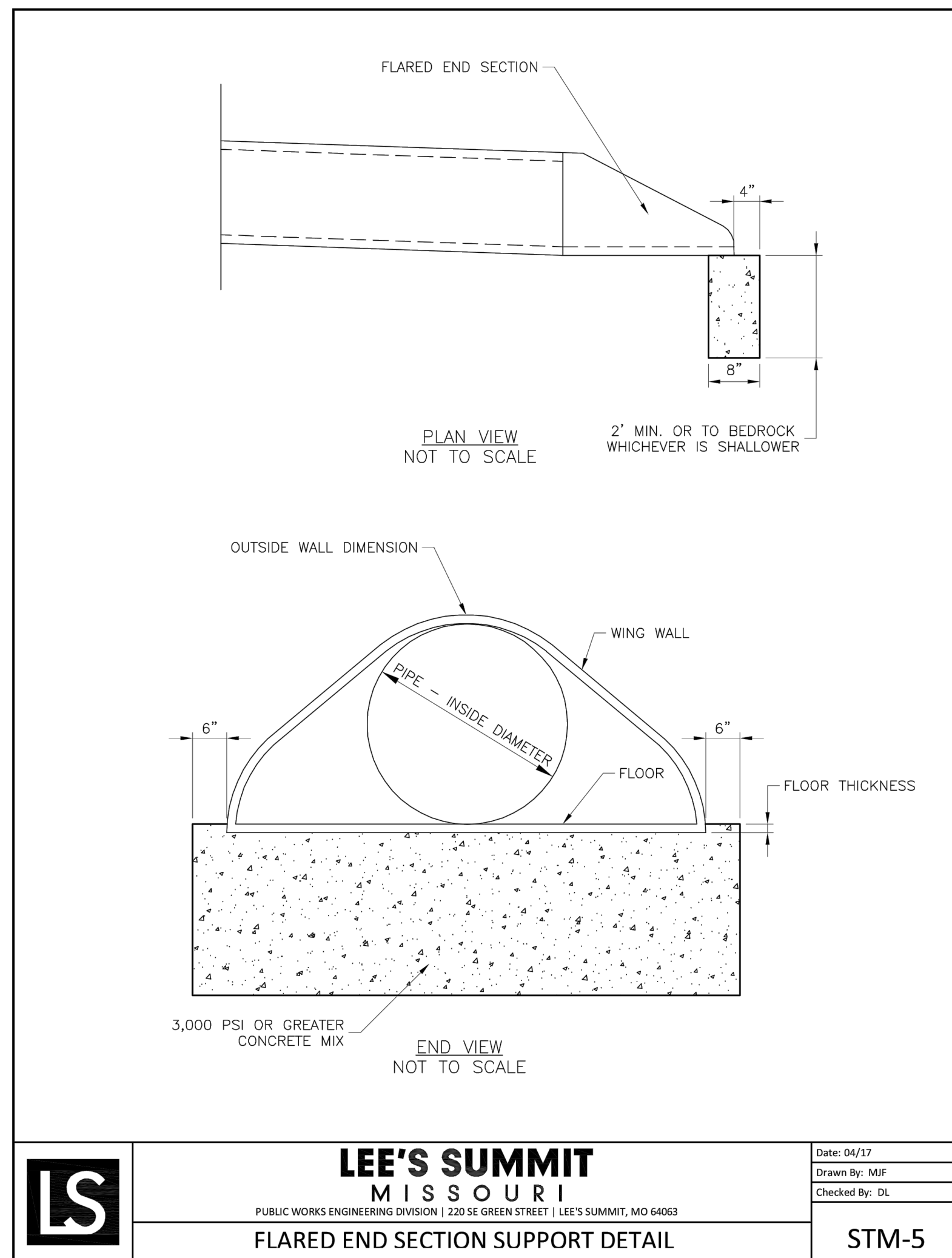
AS-BUILT
3/17/2021





- 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.)

NOT AS-BUILT

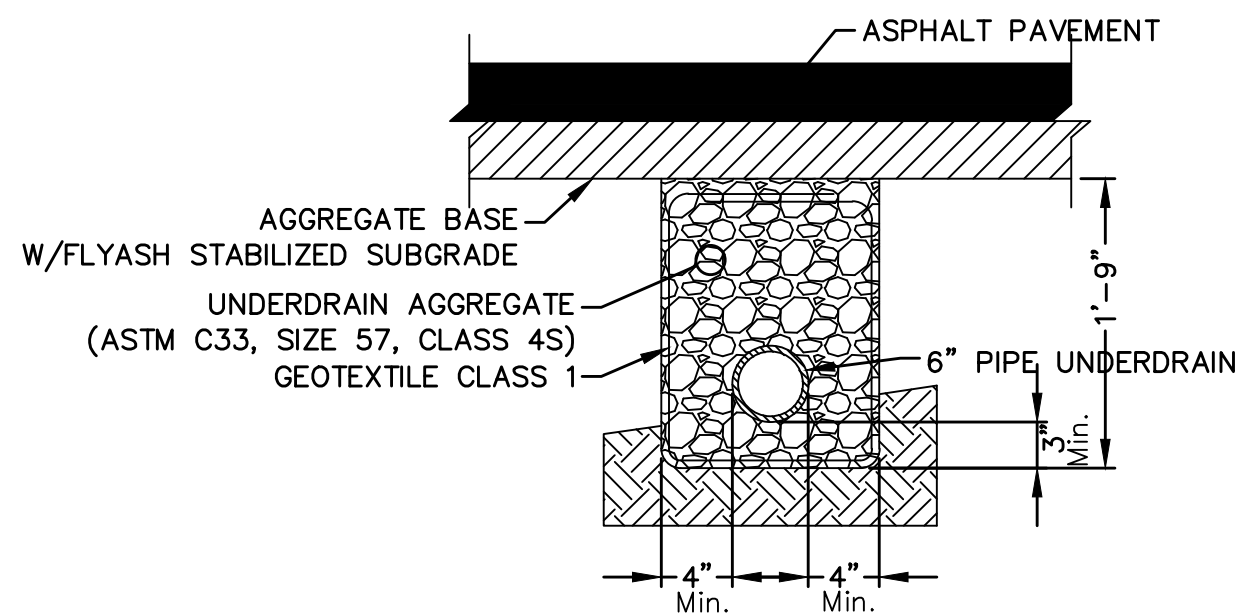
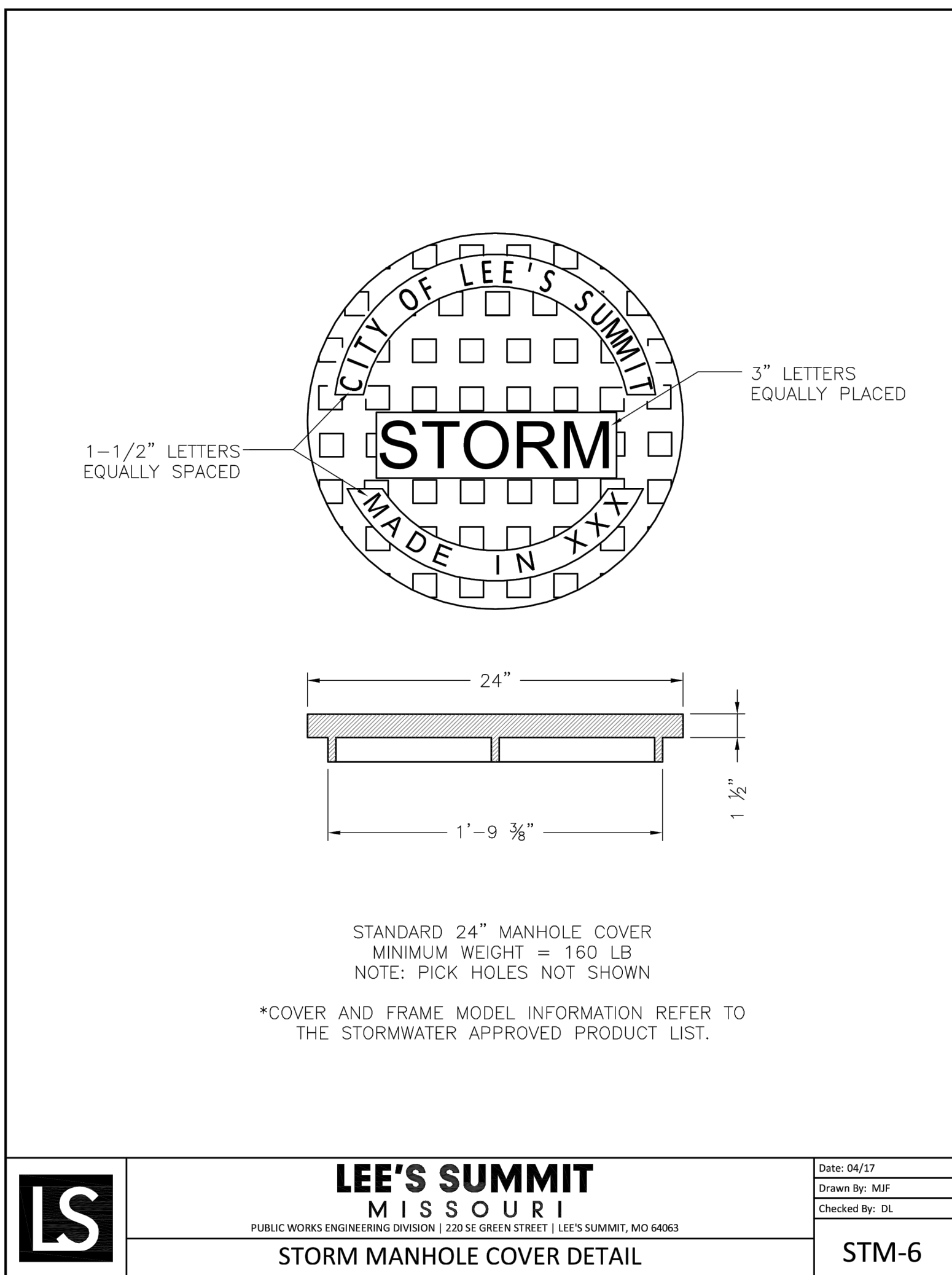


TYPICAL SECTION FOR PLASTIC PIPE
(IN ROCK OR SOIL)

UNDERGROUND PIPE INSTALLATION FOR STORM SEWER LINES

N.T.S.

1. BACKFILL SHALL BE JOB EXCAVATED 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.
2. 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.
3. MINIMUM AND MAXIMUM WIDTHS SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATION AS APPROVED ON ENGINEERING PLANS.

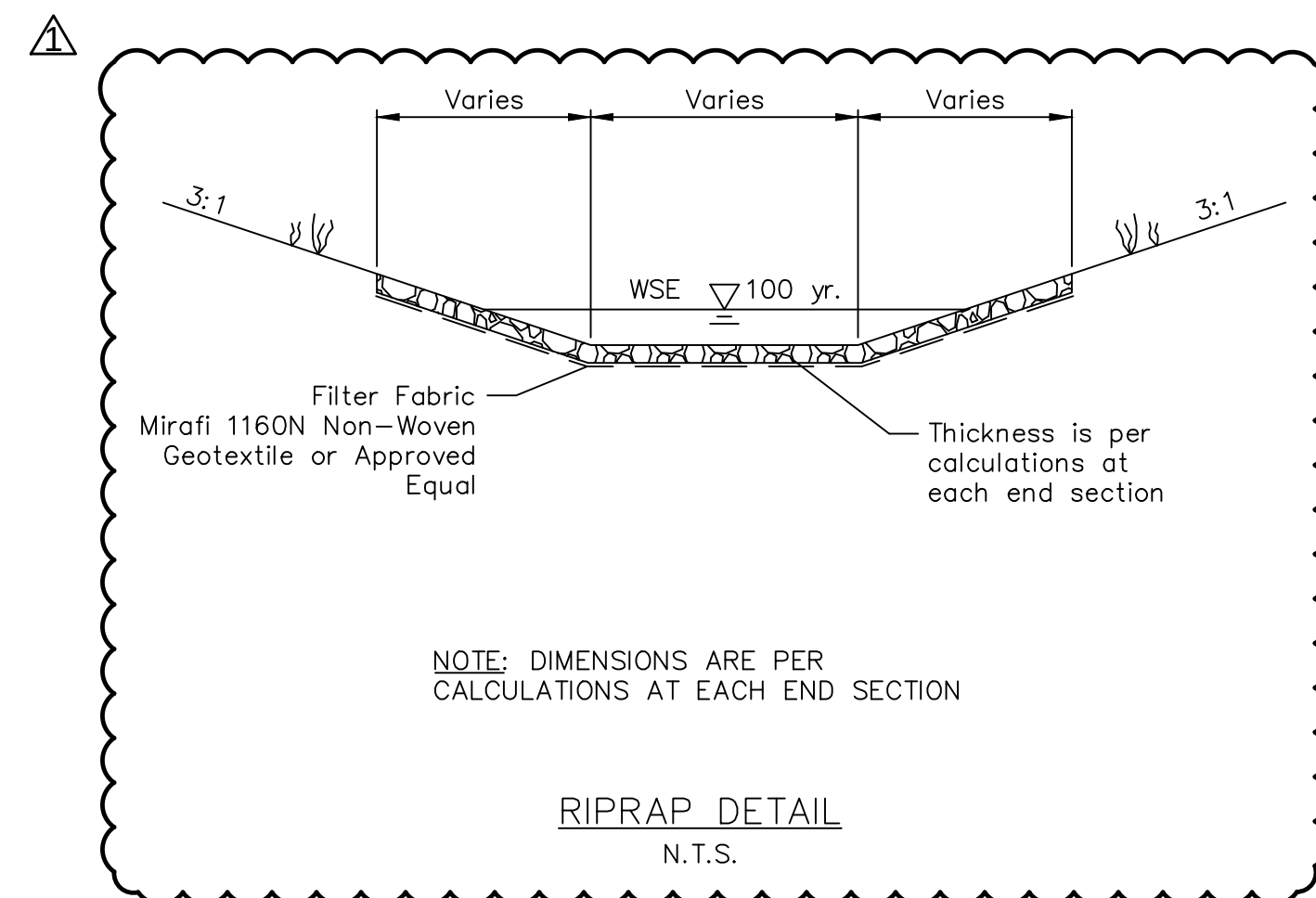
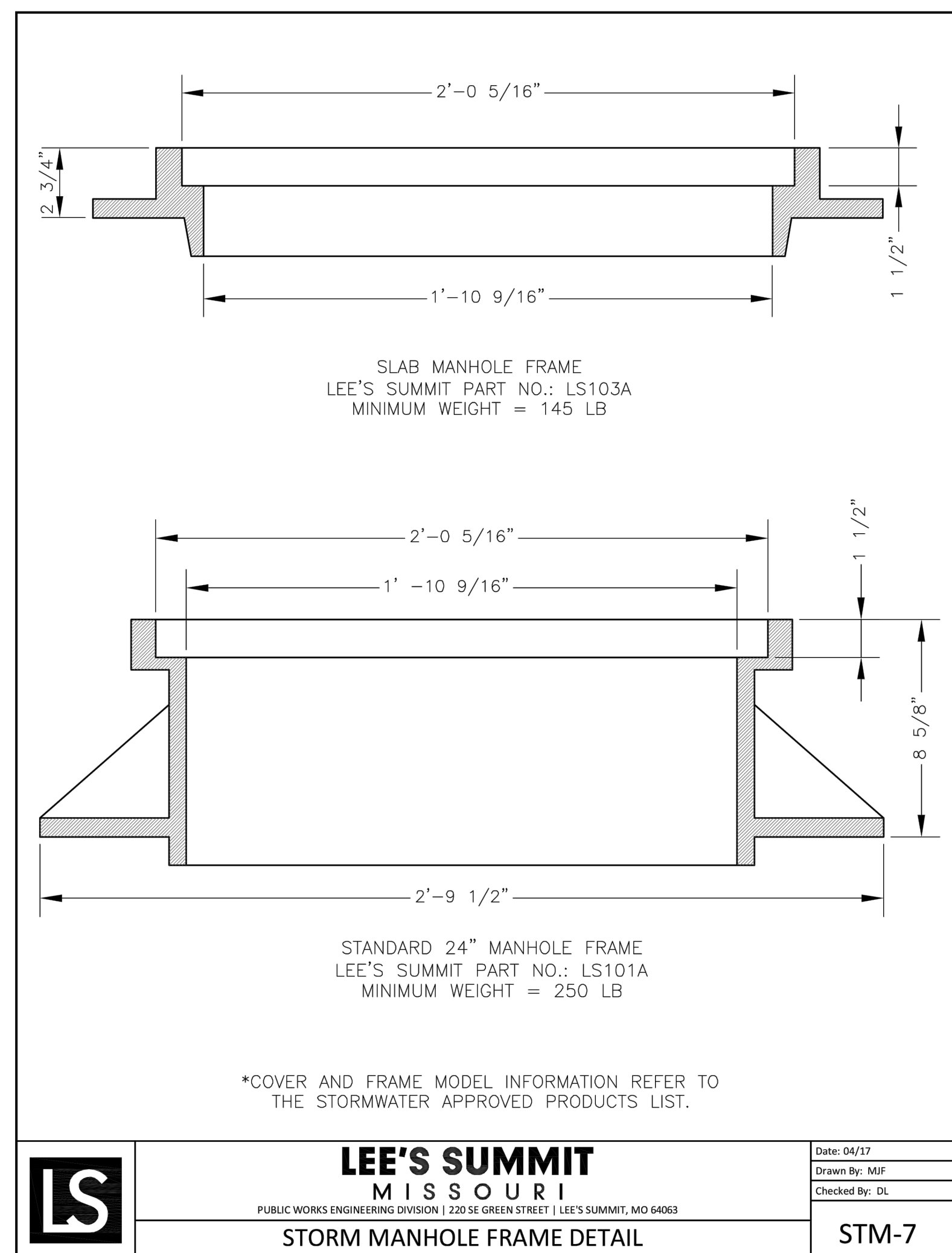


PIPE UNDERDRAIN LATERAL

N.T.S.

NOTES:

1. 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 on Street Closures.
2. All Underdrain Pipes shall be installed at a minimum slope of 1%.
3. Underdrain Pipe shall be installed with the perforations placed down.
4. Blanket Underdrain Aggregate, Pipe Underdrain Aggregate, Pipe Underdrain Aggregate, Edge Inlets and Outlet Pipe shall conform to City of Lee's Summit Specifications.
5. Overlap geotextile at top of trench a minimum of 12".

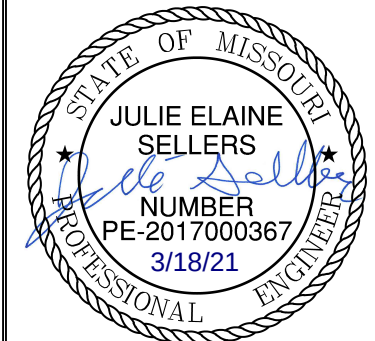


NOTE: DIMENSIONS ARE PER
CALCULATIONS AT EACH END SECTION

RIPRAP DETAIL

N.T.S

NOT AS-BUILT



JULIE E. SELLERS, P.E.
MO# 2017000367

[illegible]

REVISIONS

2019

STORM SEWER DETAILS STREET AND STORM SEWER PLANS

AWTHORN RIDGE
SECOND PLAT

MISSOURI SUMMIT FEE

drawn by: D.A.H.O
checked by: M.G.D
designed by: B.M.W
QA/QC by: N.D.H
project no.: 019-1605
date: 07-12-2019

Drainage Area Design Table						
10 Year Return Frequency						
Inlet ID	Drainage Area	C	Tc	i	K	Peak Flow
	(ac)		(min)	(in/hr)		(cfs)
C.I. 1-1	0.88	0.51	5.00	7.35	1.00	3.30
C.I. 2-4(L)	0.68	0.51	5.00	7.35	1.00	2.56
C.I. 2-4(R)	0.05	0.51	5.00	7.35	1.00	0.18
C.I. 2-4(B)	0.17	0.51	7.00	6.78	1.00	0.59
C.I. 2-4	0.90	0.51	7.00	6.78	1.00	3.11
C.I. 2-5(L)	0.20	0.51	5.00	7.35	1.00	0.74
C.I. 2-5(R)	0.65	0.51	5.00	7.35	1.00	2.46
C.I. 2-5(B)	0.58	0.51	7.00	6.78	1.00	2.00
C.I. 2-5	1.43	0.51	7.00	6.78	1.00	4.95
C.I. 2-7	0.59	0.51	5.00	7.35	1.00	2.21
C.I. 2-8	1.13	0.51	10.88	5.90	1.00	3.40
C.I. 2-9	0.25	0.51	5.00	7.35	1.00	0.94
C.I. 2-11	0.17	0.51	5.00	7.35	1.00	0.64
C.I. 2-12	0.20	0.51	5.00	7.35	1.00	0.75
F.I. 3-2	1.24	0.51	5.00	7.35	1.00	4.65
F.I. 3-3	0.50	0.51	5.00	7.35	1.00	1.88
C.I. 4-1	0.77	0.51	5.00	7.35	1.00	2.89
C.I. 4-2	0.21	0.51	5.00	7.35	1.00	0.79
C.I. 4-4(L)	0.14	0.51	5.00	7.35	1.00	0.51
C.I. 4-4(R)	0.82	0.51	5.00	7.35	1.00	3.09
C.I. 4-4(B)	0.31	0.51	7.00	6.78	1.00	1.07
C.I. 4-4	1.27	0.51	7.00	6.78	1.00	4.39
C.I. 4-5	0.88	0.51	5.00	7.35	1.00	3.30
C.I. 4-6	0.83	0.51	5.00	7.35	1.00	3.11
C.I. 4-7	0.64	0.51	5.00	7.35	1.00	2.40
C.I. 5-1	0.93	0.51	11.83	5.71	1.00	2.71
C.I. 6-1(L)	0.29	0.51	5.00	7.35	1.00	1.08
C.I. 6-1(R)	0.00	0.51	5.00	7.35	1.00	0.00
C.I. 6-1(B)	0.12	0.51	5.00	7.35	1.00	0.46
C.I. 6-1	0.41	0.51	5.00	7.35	1.00	1.54
C.I. 6-2(L)	0.00	0.51	5.00	7.35	1.00	0.00
C.I. 6-2(R)	0.47	0.51	5.00	7.35	1.00	1.77
C.I. 6-2(B)	0.66	0.51	7.00	6.78	1.00	2.28
C.I. 6-2	1.13	0.51	7.00	6.78	1.00	3.91
C.I. 7-1(L)	1.59	0.51	13.45	5.43	1.00	4.40
C.I. 7-1(R)	0.21	0.51	5.00	7.35	1.00	0.79
C.I. 7-1(B)	0.56	0.51	5.00	7.35	1.00	2.10
C.I. 7-1	2.36	0.51	13.45	5.43	1.00	6.53
C.I. 8-1	0.24	0.51	5.00	7.35	1.00	0.90
F.I. 9-1	0.36	0.51	5.00	7.35	1.00	1.35
F.I. 10-1	0.38	0.51	5.00	7.35	1.00	1.43
C.I. 10-3(L)	0.11	0.51	5.00	7.35	1.00	0.41
C.I. 10-3(R)	0.30	0.51	5.00	7.35	1.00	1.13
C.I. 10-3(B)	0.17	0.51	5.00	7.35	1.00	0.64
C.I. 10-3	0.58	0.51	5.00	7.35	1.00	2.18
C.I. 10-4	0.20	0.51	5.00	7.35	1.00	0.75
C.I. 10-5	1.62	0.51	8.83	6.33	1.00	5.23
C.I. 11-1(L)	0.73	0.51	5.00	7.35	1.00	2.75
C.I. 11-1(R)	0.20	0.51	5.00	7.35	1.00	0.73
C.I. 11-1(B)	0.70	0.51	7.00	6.78	1.00	2.42
C.I. 11-1	1.63	0.51	7.00	6.78	1.00	5.64

Drainage Area Design Table						
25 Year Return Frequency						
Inlet ID	Drainage Area	C	Tc	i	K	Peak Flow
	(ac)		(min)	(in/hr)		(cfs)
C.I. 1-1	0.88	0.51	5.00	8.53	1.10	4.21
C.I. 2-4(L)	0.68	0.51	5.00	8.53	1.10	3.26
C.I. 2-4(R)	0.05	0.51	5.00	8.53	1.10	0.23
C.I. 2-4(B)	0.17	0.51	7.00	7.87	1.10	0.75
C.I. 2-4	0.90	0.51	7.00	7.87	1.10	3.97
C.I. 2-5(L)	0.20	0.51	5.00	8.53	1.10	0.94
C.I. 2-5(R)	0.65	0.51	5.00	8.53	1.10	3.13
C.I. 2-5(B)	0.58	0.51	7.00	7.87	1.10	2.55
C.I. 2-5	1.43	0.51	7.00	7.87	1.10	6.31
C.I. 2-7	0.59	0.51	5.00	8.53	1.10	2.82
C.I. 2-8	1.13	0.51	10.88	6.84	1.10	4.34
C.I. 2-9	0.25	0.51	5.00	8.53	1.10	1.20
C.I. 2-11	0.17	0.51	5.00	8.53	1.10	0.81
C.I. 2-12	0.20	0.51	5.00	8.53	1.10	0.96
F.I. 3-2	1.24	0.51	5.00	8.53	1.10	5.93
F.I. 3-3	0.50	0.51	5.00	8.53	1.10	2.39
C.I. 4-1	0.77	0.51	5.00	8.53	1.10	3.68
C.I. 4-2	0.21	0.51	5.00	8.53	1.10	1.00
C.I. 4-4(L)	0.14	0.51	5.00	8.53	1.10	0.65
C.I. 4-4(R)	0.82	0.51	5.00	8.53	1.10	3.94
C.I. 4-4(B)	0.31	0.51	7.00	7.87	1.10	1.37
C.I. 4-4	1.27	0.51	7.00	7.87	1.10	5.61
C.I. 4-5	0.88	0.51	5.00	8.53	1.10	4.21
C.I. 4-6	0.83	0.51	5.00	8.53	1.10	3.97
C.I. 4-7	0.64	0.51	5.00	8.53	1.10	3.06
C.I. 5-1	0.93	0.51	11.83	6.63	1.10	3.46
C.I. 6-1(L)	0.29	0.51	5.00	8.53	1.10	1.38
C.I. 6-1(R)	0.00	0.51	5.00	8.53	1.10	0.00
C.I. 6-1(B)	0.12	0.51	5.00	8.53	1.10	0.59
C.I. 6-1	0.41	0.51	5.00	8.53	1.10	1.96
C.I. 6-2(L)	0.00	0.51	5.00	8.53	1.10	0.00
C.I. 6-2(R)	0.47	0.51	5.00	8.53	1.10	2.25
C.I. 6-2(B)	0.66	0.51	7.00	7.87	1.10	2.91
C.I. 6-2	1.13	0.51	7.00	7.87	1.10	4.99
C.I. 7-1(L)	1.59	0.51	13.45	6.29	1.10	5.61
C.I. 7-1(R)	0.21	0.51	5.00	8.53	1.10	1.00
C.I. 7-1(B)	0.56	0.51	5.00	8.53	1.10	2.68
C.I. 7-1	2.36	0.51	13.45	6.29	1.10	8.33
C.I. 8-1	0.24	0.51	5.00	8.53	1.10	1.15
F.I. 9-1	0.36	0.51	5.00	8.53	1.10	1.72
F.I. 10-1	0.38	0.51	5.00	8.53	1.10	1.82
C.I. 10-3(L)	0.11	0.51	5.00	8.53	1.10	0.53
C.I. 10-3(R)	0.30	0.51	5.00	8.53	1.10	1.44
C.I. 10-3(B)	0.17	0.51	5.00	8.53	1.10	0.81
C.I. 10-3	0.58	0.51	5.00	8.53	1.10	2.78
C.I. 10-4	0.20	0.51	5.00	8.53	1.10	0.96
C.I. 10-5	1.62	0.51	8.83	7.35	1.10	6.68
C.I. 11-1(L)	0.73	0.51	5.00	8.53	1.10	3.51
C.I. 11-1(R)	0.20	0.51	5.00	8.53	1.10	0.94
C.I. 11-1(B)	0.70	0.51	7.00	7.87	1.10	3.09
C.I. 11-1	1.63	0.51	7.00	7.87	1.10	7.19

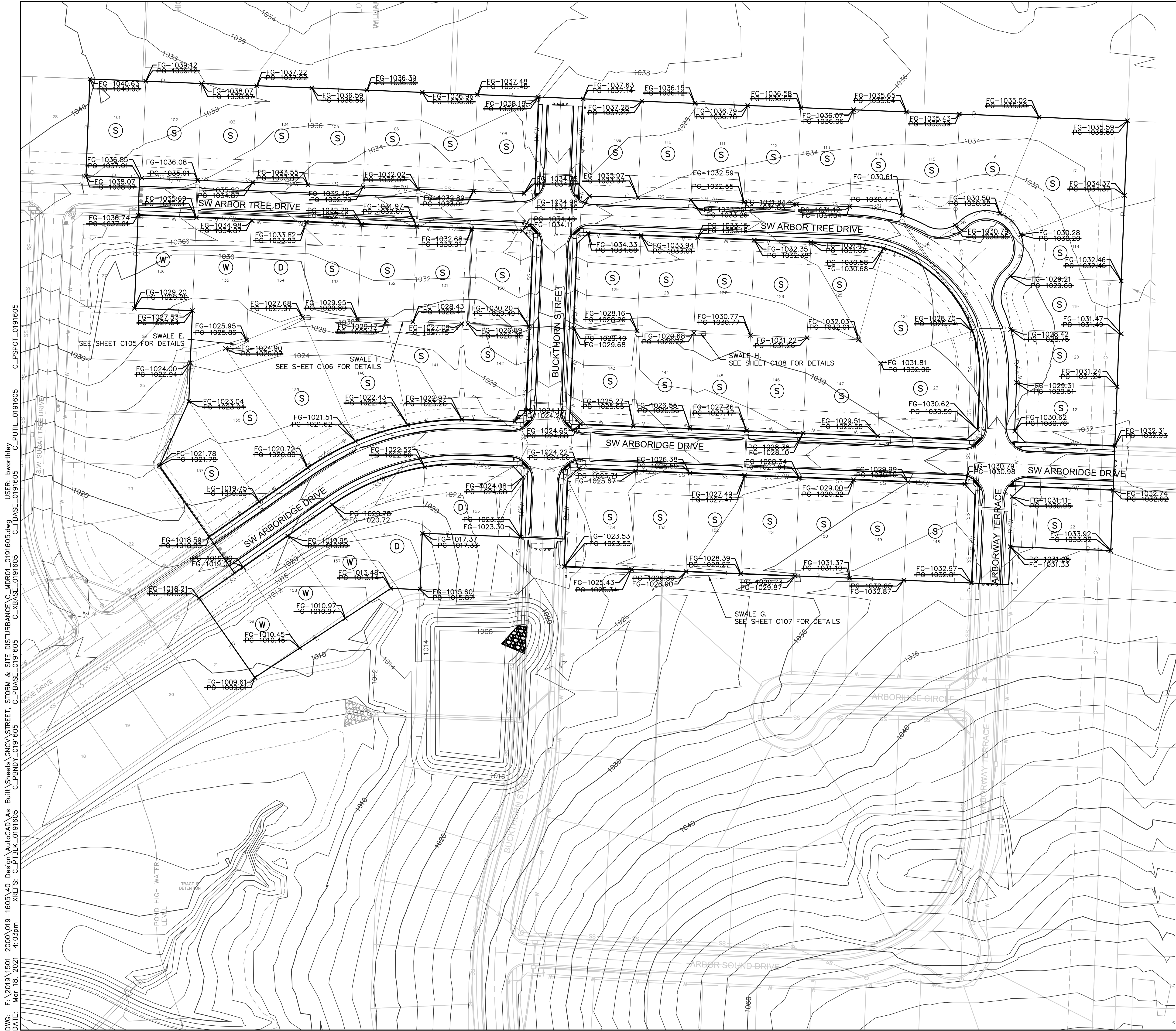
Inlet Design Table														
10 Year Return Frequency														
Inlet ID	Inlet Location	Peak Flow	Upstream Bypass	Total Flow	Clogging Factor	Inlet Capacity	Sag Inlet Capacity (Note 1)	Captured Flow	Bypass Flow	Inlet Efficiency (Note 2)	Gutter Depth	Gutter Spread	Ponding Depth	
		(cfs)	(cfs)	(cfs)		(cfs)	(cfs)	(cfs)	(cfs)	(%)	(ft)	(ft)	(ft)	
C.I. 1-1	GRADE	3.30	0.00	3.30	1.00	3.04	3.04	3.04	0.26	92.05%	0.21	9.66	...	
C.I. 2-4(L)	SAG	2.56	0.00	2.56	...	...	...	...	...	...	0.19	8.70	...	
C.I. 2-4(R)	SAG	0.18	0.00	0.18	...	...	...	...	...	...	0.07	3.21	...	
C.I. 2-4	SAG	3.11	0.00	3.11	0.80	23.28	18.63	3.11	0.00	100.00%	...	...	...	
C.I. 2-5(L)	SAG	0.74	0.39	1.12	...	...	...	...	...	...	0.14	6.35	...	
C.I. 2-5(R)	SAG	2.46	0.79	3.25	...	...	...	...	...	...	0.21	9.52	...	
C.I. 2-5	SAG	4.95	1.18	6.12	0.80	23.28	18.63	6.12	0.00	100.00%	...	...	...	
C.I. 2-7	GRADE	2.21	0.16	2.37	1.00	2.28	2.28	2.28	0.09	96.21%	0.18	8.47	...	
C.I. 2-8	GRADE	3.40	0.19	3.58	1.00	3.29	3.29	3.29	0.29	91.86%	0.21	9.89	...	
C.I. 2-9	GRADE	0.94	0.00	0.94	1.00	0.93	0.93	0.93	0.01	99.42%	0.11	5.29	...	
C.I. 2-11	GRADE	0.64	0.00	0.64	1.00	0.64	0.64	0.64	0.00	99.71%	0.11	4.96	...	
C.I. 2-12	GRADE	0.75	0.00	0.75	1.00	0.75	0.75	0.75	0.00	99.97%	0.11	5.28	...	
F.I. 3-2	SAG	4.65	...	4.65	0.80	18.67	14.93	4.65	0.00	100.00%	...	...	0.20	
F.I. 3-3	SAG	1.88	...	1.88	0.80	18.67	14.93	1.88	0.00	100.00%	...	...	0.11	
C.I. 4-1	GRADE	2.89	0.00	2.89	1.00	2.70	2.70	2.70	0.19	93.53%	0.20	9.12	...	
C.I. 4-2	GRADE	0.79	0.00	0.79	1.00	0.79	0.79	0.79	0.00	99.90%	0.12	5.60	...	
C.I. 4-4(L)	SAG	0.51	0.00	0.51	...	...	...	...	...	...	0.09	4.64	...	
C.I. 4-4(R)	SAG	3.09	0.00	3.09	...	...	...	...	...	...	0.20	10.07	...	
C.I. 4-4	SAG	4.39	0.00	4.39	0.80	19.40	15.52	4.39	0.00	100.00%	...	...	...	
C.I. 4-5	GRADE	3.30	0.65	3.95	1.00	3.10	3.10	3.10	0.85	78.52%	0.22	11.16	...	
C.I. 4-6	GRADE	3.11	0.32	3.44	1.00	2.79	2.79	2.79	0.65	81.07%	0.21	10.59	...	
C.I. 4-7	GRADE	2.40	0.00	2.40	1.00	2.08	2.08	2.08	0.32	86.54%	0.19	9.26	...	
C.I. 5-1	GRADE	2.71	0.00	2.71	1.00	2.55	2.55	2.55	0.16	94.26%	0.19	8.91	...	
C.I. 6-1(L)	SAG	1.08	0.65	1.73	...	...	...	...	...	...	0.14	7.10	...	
C.I. 6-1(R)	SAG	0.00	0.00	0.00	...	...	...	...	...	...	0.00	0.00	...	
C.I. 6-1	SAG	1.54	0.65	2.19	0.80	19.40	15.52	2.19	0.00	100.00%	...	...	...	
C.I. 6-2(L)	SAG	0.00	0.00	0.00	...	...	...	...	...	...	0.00	0.00	...	
C.I. 6-2(R)	SAG	1.77	1.39	3.15	...	...	...	...	...	...	0.18	8.89	...	
C.I. 6-2	SAG	3.91	1.39	5.30	0.80	19.40	15.52	5.30	0.00	100.00%	...	...	...	
C.I. 7-1(L)	SAG	4.40	0.85	5.25	...	...	...	...	...	...	0.24	11.91	...	
C.I. 7-1(R)	SAG	0.79	0.00	0.79	...	...	...	...	...	...	0.11	5.63	...	
C.I. 7-1	SAG	6.53	0.85	7.38	0.80	19.40	15.52	7.38	0.00	100.00%	...	...	...	
C.I. 8-1	GRADE	0.90	0.00	0.90	1.00	0.90	0.90	0.90	0.00	99.54%	0.11	5.21	...	
F.I. 9-1	SAG	1.35	...	1.35	0.80	18.67	14.93	1.35	0.00	100.00%	...	...	0.09	
F.I. 10-1	SAG	1.43	...	1.43	0.80	18.67	14.93	1.43	0.00	100.00%	...	...	0.09	
C.I. 10-3(L)	SAG	0.41	0.00	0.41	...	...	...	...	...	...	0.09	4.26	...	
C.I. 10-3(R)	SAG	1.13	0.04	1.16	...	...	...	...	...	...	0.13	6.62	...	
C.I. 10-3	SAG	2.18	0.04	2.21	0.80	19.40	15.52	2.21	0.00	100.00%	...	...	...	
C.I. 10-4	GRADE	0.75	0.00	0.75	1.00	0.71	0.71	0.71	0.04	95.06%	0.11	5.62	...	
C.I. 10-5	GRADE	5.23	0.00	5.23	1.00	3.50	3.50	3.50	1.73	66.97%	0.23	11.64	...	
C.I. 11-1(L)	SAG	2.75	1.73	4.48	...	...	...	...	...	...	0.22	10.98	...	
C.I. 11-1(R)	SAG	0.73	0.00	0.73	...	...	...	...	...	...	0.11	5.29	...	
C.I. 11-1	SAG	5.64	1.73	7.37	0.80	19.40	15.52	7.37	0.00	100.00%	...	...	...	

Drainage Area Design Table						
100 Year Return Frequency						
Inlet ID	Drainage Area	C	Tc	i	K	Peak Flow
	(ac)		(min)	(in/hr)		(cfs)
C.I. 1-1	0.88	0.51	5.00	10.32	1.25	5.79
C.I. 2-4(L)	0.68	0.51	5.00	10.32	1.25	4.49
C.I. 2-4(R)	0.05	0.51	5.00	10.32	1.25	0.32
C.I. 2-4(B)	0.17	0.51	7.00	9.55	1.25	1.03
C.I. 2-4	0.90	0.51	7.00	9.55	1.25	5.48
C.I. 2-5(L)	0.20	0.51	5.00	10.32	1.25	1.29
C.I. 2-5(R)	0.65	0.51	5.00	10.32	1.25	4.31
C.I. 2-5(B)	0.58	0.51	7.00	9.55	1.25	3.52
C.I. 2-5	1.43	0.51	7.00	9.55	1.25	8.71
C.I. 2-7	0.59	0.51	5.00	10.32	1.25	3.88
C.I. 2-8	1.13	0.51	10.88	8.34	1.25	6.01
C.I. 2-9	0.25	0.51	5.00	10.32	1.25	1.65
C.I. 2-11	0.17	0.51	5.00	10.32	1.25	1.12
C.I. 2-12	0.20	0.51	5.00	10.32	1.25	1.32
F.I. 3-2	1.24	0.51	5.00	10.32	1.25	8.16
F.I. 3-3	0.50	0.51	5.00	10.32	1.25	3.29
C.I. 4-1	0.77	0.51	5.00	10.32	1.25	5.07
C.I. 4-2	0.21	0.51	5.00	10.32	1.25	1.38
C.I. 4-4(L)	0.14	0.51	5.00	10.32	1.25	0.89
C.I. 4-4(R)	0.82	0.51	5.00	10.32	1.25	5.42
C.I. 4-4(B)	0.31	0.51	7.00	9.55	1.25	1.89
C.I. 4-4	1.27	0.51	7.00	9.55	1.25	7.73
C.I. 4-5	0.88	0.51	5.00	10.32	1.25	5.79
C.I. 4-6	0.83	0.51	5.00	10.32	1.25	5.46
C.I. 4-7	0.64	0.51	5.00	10.32	1.25	4.21
C.I. 5-1	0.93	0.51	11.83	8.09	1.25	4.80
C.I. 6-1(L)	0.29	0.51	5.00	10.32	1.25	1.89
C.I. 6-1(R)	0.00	0.51	5.00	10.32	1.25	0.00
C.I. 6-1(B)	0.12	0.51	5.00	10.32	1.25	0.81
C.I. 6-1	0.41	0.51	5.00	10.32	1.25	2.70
C.I. 6-2(L)	0.00	0.51	5.00	10.32	1.25	0.00
C.I. 6-2(R)	0.47	0.51	5.00	10.32	1.25	3.10
C.I. 6-2(B)	0.66	0.51	7.00	9.55	1.25	4.01
C.I. 6-2	1.13	0.51	7.00	9.55	1.25	6.88
C.I. 7-1(L)	1.59	0.51	13.45	7.70	1.25	7.80
C.I. 7-1(R)	0.21	0.51	5.00	10.32	1.25	1.38
C.I. 7-1(B)	0.56	0.51	5.00	10.32	1.25	3.69
C.I. 7-1	2.36	0.51	13.45	7.70	1.25	11.58
C.I. 8-1	0.24	0.51	5.00	10.32	1.25	1.58
F.I. 9-1	0.36	0.51	5.00	10.32	1.25	2.37
F.I. 10-1	0.38	0.51	5.00	10.32	1.25	2.50
C.I. 10-3(L)	0.11	0.51	5.00	10.32	1.25	0.72
C.I. 10-3(R)	0.30	0.51	5.00	10.32	1.25	1.97
C.I. 10-3(B)	0.17	0.51	5.00	10.32	1.25	1.12
C.I. 10-3	0.58	0.51	5.00	10.32	1.25	3.82
C.I. 10-4	0.20	0.51	5.00	10.32	1.25	1.32
C.I. 10-5	1.62	0.51	8.83	8.94	1.25	9.23
C.I. 11-1(L)	0.73	0.51	5.00	10.32	1.25	4.83
C.I. 11-1(R)	0.20	0.51	5.00	10.32	1.25	1.29
C.I. 11-1(B)	0.70	0.51	7.00	9.55	1.25	4.27
C.I. 11-1	1.63	0.51	7.00	9.55	1.25	9.92

Inlet Design Table													
100 Year Return Frequency													
Inlet ID	Inlet Location	Peak Flow	Upstream Bypass	Total Flow	Clogging Factor	Inlet Capacity	Sag Inlet Capacity (Note 1)	Captured Flow	Bypass Flow	Inlet Efficiency (Note 2)	Gutter Depth	Gutter Spread	Ponding Depth
		(cfs)	(cfs)	(cfs)		(cfs)	(cfs)	(cfs)	(cfs)	(%)	(ft)	(ft)	(ft)
C.I. 1-1	GRADE	5.79	0.06	5.85	1.00	4.81	4.81	4.81	1.04	82.22%	0.26	11.96	...
C.I. 2-4(L)	SAG	4.49	0.00	4.49	...	...	...	...	...	...	0.23	10.75	...
C.I. 2-4(R)	SAG	0.32	0.00	0.32	...	...	...	...	...	...	0.09	3.96	...
C.I. 2-4	SAG	5.48	0.00	5.48	0.80	23.28	18.63	5.48	0.00	100.00%	...	...	...
C.I. 2-5(L)	SAG	1.29	1.89	3.18	...	...	...	...	...	...	0.20	9.38	...
C.I. 2-5(R)	SAG	4.31	2.76	7.07	...	...	...	...	...	...	0.28	12.74	...
C.I. 2-5	SAG	8.71	4.64	13.28	0.80	23.28	18.63	13.28	0.00	100.00%	...	...	...
C.I. 2-7	GRADE	3.88	0.68	4.56	1.00	4.03	4.03	4.03	0.53	88.39%	0.23	10.83	...
C.I. 2-8	GRADE	6.01	0.77	6.78	1.00	5.49	5.49	5.49	1.29	80.98%	0.27	12.57	...
C.I. 2-9	GRADE	1.65	0.00	1.65	1.00	1.58	1.58	1.58	0.07	95.98%	0.14	6.53	...
C.I. 2-11	GRADE	1.12	0.00	1.12	1.00	1.11	1.11	1.11	0.01	99.54%	0.13	6.13	...
C.I. 2-12	GRADE	1.32	0.00	1.32	1.00	1.30	1.30	1.30	0.01	98.93%	0.14	6.52	...
F.I. 3-2	SAG	8.16	...	8.16	0.80	18.67	14.93	8.16	0.00	100.00%	...	...	0.29
F.I. 3-3	SAG	3.29	...	3.29	0.80	18.67	14.93	3.29	0.00	100.00%	...	...	0.16
C.I. 4-1	GRADE	5.07	0.01	5.08	1.00	4.30	4.30	4.30	0.77	84.75%	0.24	11.27	...
C.I. 4-2	GRADE	1.38	0.00	1.38	1.00	1.37	1.37	1.37	0.01	99.20%	0.15	6.92	...
C.I. 4-4(L)	SAG	0.89	0.00	0.89	...	...	...	...	...	...	0.11	5.73	...
C.I. 4-4(R)	SAG	5.42	0.00	5.42	...	...	...	...	...	...	0.25	12.43	...
C.I. 4-4	SAG	7.73	0.00	7.73	0.80	19.40	15.52	7.73	0.00	100.00%	...	...	...
C.I. 4-5	GRADE	5.79	2.07	7.86	1.00	4.91	4.91	4.91	2.95	62.43%	0.29	14.45	...
C.I. 4-6	GRADE	5.46	0.96	6.42	1.00	4.35	4.35	4.35	2.07	67.76%	0.27	13.39	...
C.I. 4-7	GRADE	4.21	0.00	4.21	1.00	3.25	3.25	3.25	0.96	77.27%	0.23	11.43	...
C.I. 5-1	GRADE	4.80	0.00	4.80	1.00	4.12	4.12	4.12	0.68	85.83%	0.24	11.04	...
C.I. 6-1(L)	SAG	1.89	1.91	3.80	...	...	...	...	...	...	0.19	9.53	...
C.I. 6-1(R)	SAG	0.00	0.00	0.00	...	...	...	...	...	...	0.00	0.00	...
C.I. 6-1	SAG	2.70	1.91	4.61	0.80	19.40	15.52	4.61	0.00	100.00%	...	...	...
C.I. 6-2(L)	SAG	0.00	0.00	0.00	...	...	...	...	...	...	0.00	0.00	...
C.I. 6-2(R)	SAG	3.10	5.45	8.54	...	...	...	...	...	...	0.26	12.91	...
C.I. 6-2	SAG	6.88	5.45	12.33	0.80	19.40	15.52	12.33	0.00	100.00%	...	...	...
C.I. 7-1(L)	SAG	7.80	2.95	10.76	...	...	...	...	...	...	0.31	15.58	...
C.I. 7-1(R)	SAG	1.38	0.00	1.38	...	...	...	...	...	...	0.14	6.95	...
C.I. 7-1	SAG	11.58	2.95	14.54	0.80	19.40	15.52	14.54	0.00	100.00%	...	...	...
C.I. 8-1	GRADE	1.58	0.00	1.58	1.00	1.52	1.52	1.52	0.06	96.34%	0.14	6.43	...
F.I. 9-1	SAG	2.37	...	2.37	0.80	18.67	14.93	2.37	0.00	100.00%	...	...	0.13
F.I. 10-1	SAG	2.50	...	2.50	0.80	18.67	14.93	2.50	0.00	100.00%	...	...	0.13
C.I. 10-3(L)	SAG	0.72	0.00	0.72	...	...	...	...	...	...	0.11	5.26	...
C.I. 10-3(R)	SAG	1.97	0.12	2.10	...	...	...	...	...	...	0.17	8.26	...
C.I. 10-3	SAG	3.82	0.12	3.94	0.80	19.40	15.52	3.94	0.00	100.00%	...	...	...
C.I. 10-4	GRADE	1.32	0.00	1.32	1.00	1.19	1.19	1.19	0.12	90.72%	0.14	6.94	...
C.I. 10-5	GRADE	9.23	0.00	9.23	1.00	4.70	4.70	4.70	4.53	50.95%	0.29	14.41	...
C.I. 11-1(L)	SAG	4.83	4.53	9.36	...	...	...	...	...	...	0.29	14.48	...
C.I. 11-1(R)	SAG	1.29	0.01	1.30	...	...	...	...	...	...	0.13	6.56	...
C.I. 11-1	SAG	9.92	4.54	14.47	0.80	19.40	15.52	14.47	0.00	100.00%	...	...	...

Notes:
1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing theoretical capacity to 80% capacity, as required per APWA Section 5600.
Both theoretical capacity and reduced capacity are shown.
2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual percentage of flow captured after the capacity has been reduced to 80% of theoretical capacity.

Storm Sewer Design Calculation Table														
100 Year Return Frequency														
Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)	Upstream Top Elev. (ft)	
C.I. 1-1	EX C.I. 10-1	231.79	1015.27	1010.97	1.86	15	0.010	4.81	3.92	11.43	1.25	1030.42	1021.27	
C.I. 2-4	E.S. 2-3	120.77	1009.54	1008.67	0.72	48	0.010	159.86	13.81	158.49	3.31	1013.20	1023.28	
C.I. 2-5	C.I. 2-4	44.75	1010.01	1009.79	0.49	42	0.010	155.05	16.12	91.71	3.50	1013.92	1023.20	
M.H. 2-6	C.I. 2-5	77.11	1011.23	1010.91	0.41	42	0.010	120.58	12.53	84.25	3.50	1016.19	1023.83	
C.I. 2-7	M.H. 2-6	44.84	1012.41	1011.43	2.19	42	0.010	120.58	12.53	193.35	3.50	1017.55	1024.71	
C.I. 2-8	C.I. 2-7	45.27	1013.85	1012.91	2.08	42	0.010	116.55	12.12	188.47	3.50	1018.89	1024.68	
C.I. 2-9	C.I. 2-8	48.24	1017.22	1015.23	4.13	24	0.010	34.68	11.04	59.72	2.00	1020.47	1025.52	
M.H. 2-10	C.I. 2-9	102.89	1020.43	1017.92	2.44	24	0.010	31.58	10.05	45.93	2.00	1022.43	1029.53	
C.I. 2-11	M.H. 2-10	203.86	1027.98	1021.38	3.24	15	0.010	2.41	2.96	15.10	1.25	1028.60	1035.78	
C.I. 2-12	C.I. 2-11	42.25	1029.90	1029.08	1.94	15	0.010	1.30	4.77	11.70	0.28	1030.35	1035.80	
M.H. 3-1	C.I. 2-5	38.47	1012.60	1011.41	3.09	24	0.010	21.19	6.75	51.71	2.00	1015.74	1023.37	
F.I. 3-2	M.H. 3-1	141.17	1020.03	1013.60	4.55	18	0.010	21.19	12.02	29.14	1.50	1021.50	1027.12	
F.I. 3-3	F.I. 3-2	177.37	1024.49	1020.43	2.29	15	0.010	3.29	3.68	12.70	1.07	1025.22	1030.56	
C.I. 4-1	C.I. 2-8	210.84	1015.99	1014.33	0.79	36	0.010	76.38	10.81	76.93	3.00	1021.44	1027.24	
C.I. 4-2	C.I. 4-1	175.96	1018.38	1016.59	1.02	36	0.010	67.96	9.62	87.45	3.00	1023.25	1029.53	
M.H. 4-3	C.I. 4-2	130.75	1019.91	1018.58	1.02	36	0.010	66.59	9.42	87.44	3.00	1024.59	1030.81	
C.I. 4-4	M.H. 4-3	143.67	1022.08	1020.56	1.06	30	0.010	34.78	7.09	54.84	2.50	1025.76	1028.58	
C.I. 4-5	C.I. 4-4	176.52	1024.23	1022.78	0.82	24	0.010	12.51	3.98	26.65	2.00	1026.39	1030.23	
C.I. 4-6	C.I. 4-5	142.57	1026.24	1024.93	0.92	18	0.010	7.60	4.98	13.09	1.50	1027.31	1031.64	
C.I. 4-7	C.I. 4-6	142.32	1027.96	1026.64	0.93	15	0.010	3.25	4.46	8.08	0.67	1028.69	1032.96	
C.I. 5-1	C.I. 4-1	43.33	1020.99	1018.19	6.46	15	0.010	4.12	3.36	21.34	1.25	1022.24	1027.25	
C.I. 6-1	M.H. 4-3	96.90	1022.83	1020.46	2.45	30	0.010	31.81	6.48	83.38	2.50	1025.49	1030.57	
C.I. 6-2	C.I. 6-1	35.59	1024.34	1023.63	1.99	24	0.010	27.20	8.88	41.53	2.00	1026.15	1030.61	
C.I. 7-1	C.I. 4-4	36.62	1023.17	1022.88	0.79	24	0.010	14.54	4.63	26.16	2.00	1026.16	1028.57	
C.I. 8-1	C.I. 2-9	42.32	1019.38	1018.07	3.10	15	0.010	1.52	1.24	17.77	1.25	1021.25	1025.43	
F.I. 9-1	M.H. 2-10	92.31	1023.04	1021.23	1.96	15	0.010	2.37	2.94	17.75	1.25	1023.66	1029.24	
F.I. 10-1	M.H. 2-10	134.77	1022.38	1021.23	0.85	24	0.010	26.80	8.94	27.16	1.83	1024.18	1027.88	
M.H. 10-2	F.I. 10-1	135.18	1024.52	1022.88	1.21	24	0.010	24.30	9.79	32.39	1.30	1026.26	1032.77	
C.I. 10-3	M.H. 10-2	75.74	1025.84	1025.17	0.88	24	0.010	24.30	9.15	27.65	1.45	1027.58	1031.84	
C.I. 10-4	C.I. 10-3	296.08	1029.24	1026.34	0.98	18	0.010	5.89	4.42	13.51	1.24	1030.18	1035.69	
C.I. 10-5	C.I. 10-4	33.97	1030.58	1030.24	1.00	15	0.010	4.70	6.07	8.40	0.67	1031.46	1035.73	
C.I. 11-1	C.I. 10-3	34.73	1027.08	1026.49	1.70	15	0.010	14.47	11.79	10.94	1.25	1028.77	1031.83	



Hawthorn Ridge 2nd Plat Minimum Building Opening Elevation					
Lot	Rear Left MBOE	Rear Right MBOE	Front Left MBOE	Front Right MBOE	As-Built Grading Plan Required
127	1031.67	1030.75			X
128	1030.75	1029.26			X
129	1029.26	1030.88			X
130	1031.40	1027.91			X
131	1027.91	1029.67			X
132	1029.67	1030.85			X
133	1030.85	1028.83			X
134	1028.83	1027.10			X
135	1027.10	1025.15			X
138					X
139					X
140					X
141					X
142					X
143					X
144					X
145					X
149					X
150					X
151					X
152					X
153					X
154					X

MBOE's have been provided per lot lines, facing the lot from the street. Interpolation will be allowed between the right and left side MBOE's provided, depending on the location of the lowest opening on the proposed structure.

NOTES:

MBOE – MINIMUM BUILDING OPENING ELEVATION

NOTES:

1. 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.

2. 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"

3. PLAT IS LOCATED OUTSIDE OF ANY REQUIRED BUFFER ZONES FOR NATURAL STREAMS.

4. 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.

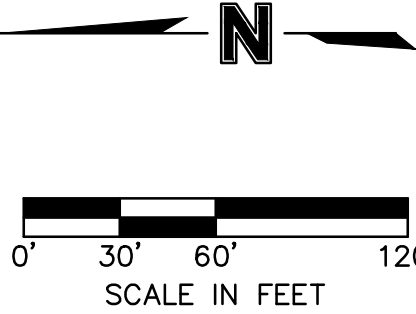
5. REFER TO SHEET C105-C108 FOR SWALE GRADING DETAILS.

6. DRAINAGE PATHS TO BE CONSTRUCTED BETWEEN EACH OF THE LOTS LABELED AS STANDARD LOTS TO DRAIN WEST.

7. NO BUILDING PERMITS WILL BE ISSUED UNTIL AN AS-GRADED MASTER DRAINAGE PLAN HAS BEEN SUBMITTED TO THE CITY AND APPROVED BY THE CITY.

- BASEMENT TYPES**
- (D) DAYLIGHT
 - (W) WALKOUT
 - (S) STANDARD

AS-BUILT
3/17/2021



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STATE OF MISSOURI
JULIE ELAINE SELLERS
Professional Engineer
NUMBER PE-2017000367
3/18/21

JULIE E. SELLERS, P.E.
MO# 2017000367

BY	REVISIONS DESCRIPTION	DATE	NO. REV.
	MBO ABBREVIATION CHANGED TO MBOE. EXISTING GRADE ELEVATIONS ADDED TO LOT CORNERS	08-12-2019	1

MASTER DRAINAGE PLAN
STREET & STORM SEWER PLANS

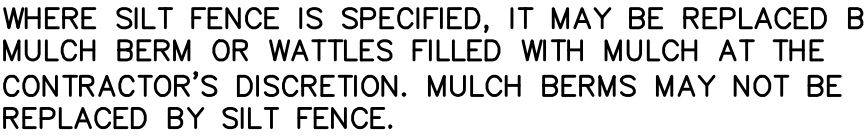
HAWTHORN RIDGE
SECOND PLAT

LEE'S SUMMIT, MISSOURI

drawn by: D.A.H.O.
checked by: M.G.D.
designed by: B.M.W.
QA/QC by: N.D.H.
project no.: 019-1605
date: 07-12-2019

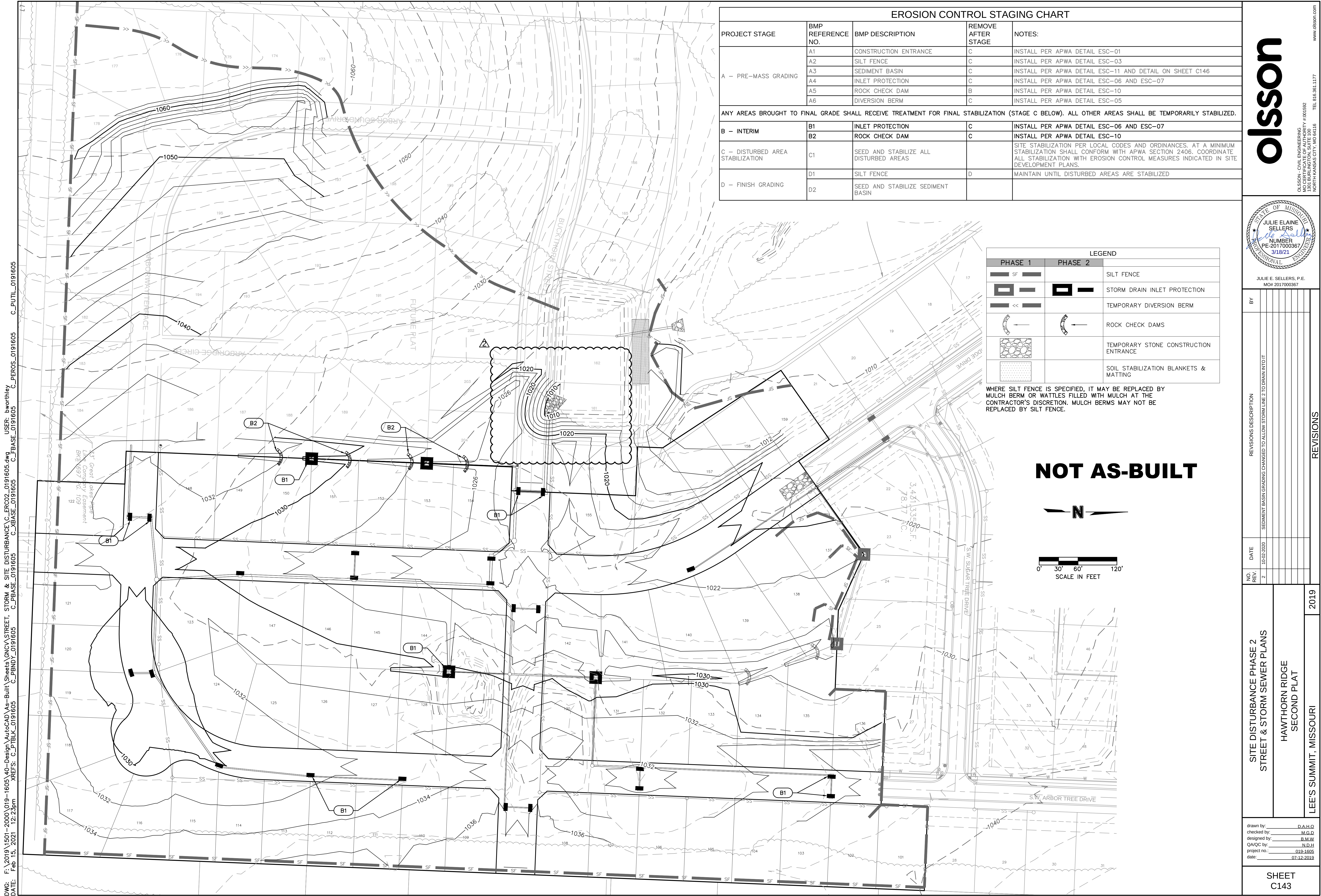
SHEET
C141

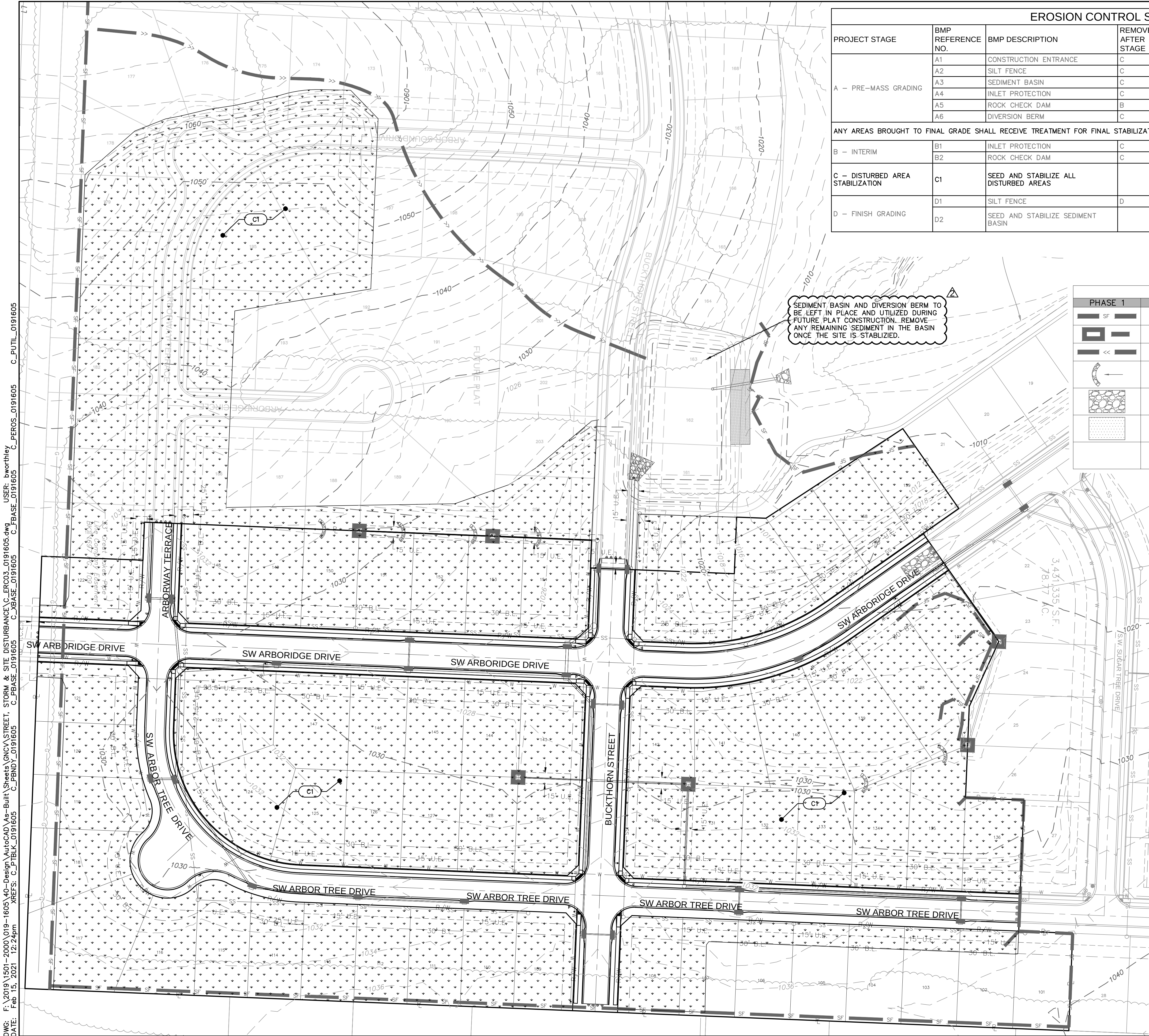
2019



SHEET
C142

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EROSION CONTROL STAGING CHART				
PROJECT STAGE	BMP REFERENCE NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
A - PRE-MASS GRADING	A1	CONSTRUCTION ENTRANCE	C	INSTALL PER APWA DETAIL ESC-01
	A2	SILT FENCE	C	INSTALL PER APWA DETAIL ESC-03
	A3	SEDIMENT BASIN	C	INSTALL PER APWA DETAIL ESC-11 AND DETAIL ON SHEET C146
	A4	INLET PROTECTION	C	INSTALL PER APWA DETAIL ESC-06 AND ESC-07
	A5	ROCK CHECK DAM	B	INSTALL PER APWA DETAIL ESC-10
	A6	DIVERSION BERM	C	INSTALL PER APWA DETAIL ESC-05
ANY AREAS BROUGHT TO FINAL GRADE SHALL RECEIVE TREATMENT FOR FINAL STABILIZATION (STAGE C BELOW). ALL OTHER AREAS SHALL BE TEMPORARILY STABILIZED.				
B - INTERIM	B1	INLET PROTECTION	C	INSTALL PER APWA DETAIL ESC-06 AND ESC-07
	B2	ROCK CHECK DAM	C	INSTALL PER APWA DETAIL ESC-10
C - DISTURBED AREA STABILIZATION	C1	SEED AND STABILIZE ALL DISTURBED AREAS		SITE STABILIZATION PER LOCAL CODES AND ORDINANCES. AT A MINIMUM STABILIZATION SHALL CONFORM WITH APWA SECTION 2406. COORDINATE ALL STABILIZATION WITH EROSION CONTROL MEASURES INDICATED IN SITE DEVELOPMENT PLANS.
D - FINISH GRADING	D1	SILT FENCE	D	MAINTAIN UNTIL DISTURBED AREAS ARE STABILIZED
	D2	SEED AND STABILIZE SEDIMENT BASIN		

LEGEND		
PHASE 1	PHASE 2	PHASE 3
		SILT FENCE
		STORM DRAIN INLET PROTECTION
		TEMPORARY DIVERSION BERM
		ROCK CHECK DAMS
		TEMPORARY STONE CONSTRUCTION ENTRANCE
		SOIL STABILIZATION BLANKETS & MATTING
		TURF GRASS SEEDING

GENERAL NOTES:

CONTRACTOR TO PLACE AT LEAST 12" OF TOP SOIL CAPABLE OF SUPPORTING VEGETATION.

SEED & MULCH NOTES:
SEEDING SHALL BE DONE BEFORE THE PROPOSED SEEDBED BECOMES ERODED, CRUSTED OVER, OR DRIED OUT AND SHALL NOT BE DONE WHEN THE GROUND IS FROZEN, OR COVERED WITH SNOW. THE SEED SHALL COMPLY WITH THE REQUIREMENTS OF THE MISSOURI SEED LAW AND THE FEDERAL SEED ACT. ALSO, IT SHALL CONTAIN NO SEED OF ANY PLANT ON THE FEDERAL NOXIOUS WEED LIST. OTHER WEED SEED SHALL NOT EXCEED ONE PERCENT BY WEIGHT OF MIX.

SEED & FERTILIZER RATE:
MIX I - RYE GRASS / BLUE GRASS -----100 LBS. PER ACRE
MIX II - TALL FESCUE / BLUE GRASS -----195 LBS. PER ACRE
FERTILIZER -----800 TO 1200 LBS. PER ACRE (25 LBS. PER 1000 SQ. FT.)

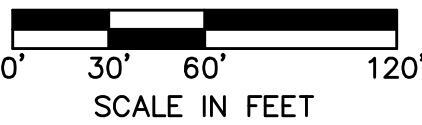
DURING THE DATES DECEMBER 15TH THROUGH MAY 31 ALL FERTILIZER, SEED, AND MULCH SHALL BE APPLIED TO FINISHED SLOPES OF DISTURBED AREAS. DURING THE MONTHS OF JUNE, JULY, OCTOBER, AND NOVEMBER 1ST THROUGH DECEMBER 15TH, FERTILIZER, SEED, AND MULCH SHALL BE APPLIED AT THE FOLLOWING RATES:
FERTILIZER - 75 % OF THE SPECIFIED QUANTITY
SEED - 50 % OF THE SPECIFIED QUANTITY
MULCH - 100 % OF THE SPECIFIED QUANTITY
MULCH SHALL BE VEGETATIVE TYPE, CEREAL STRAW FROM STALKS OF OATS, RYE, OR BARLEY, OR APPROVED EQUAL. THE STRAW SHALL BE FREE OF PROHIBITED WEED SEED AND RELATIVELY FREE OF ALL OTHER NOXIOUS AND UNDESIRABLE SEED. MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE, (70 TO 90 LBS. PER 1000 SQ. FT.). MULCH SHALL BE EMBEDDED BY A MULCH ANCHORING TOOL OR DISK TYPE ROLLER HAVING FLAT SERRATED DISKS SPACED NOT MORE THAN 10 INCHES APART AND CLEANING SCRAPERS SHALL BE PROVIDED.

THE SITE DISTURBANCE PLANS INDICATES THE FINAL PLACEMENT OF EROSION CONTROL DEVICES. THE CONTRACTOR(S) MAY PROCEED WITH THE CONSTRUCTION PRIOR TO THE FINAL PLACEMENT OF THESE DEVICES BY PROVIDING ADDITIONAL DEVICES TO CONTROL EROSION ON THEIR ITEMS OF WORK. THESE DEVICES SHALL BE MAINTAINED UNTIL THE FINAL DEVICES ARE IN PLACE.

ALL DISTURBED AREAS SHALL BE PREPPED FOR SEEDING/SODDING PER KOMO/APWA 2406, APPLICATION OF SEED/SOD SHALL BE DONE IN ACCORDANCE WITH KOMO/APWA 2406.4. THE SITE DISTURBANCE PERMIT SHALL BE MAINTAINED IN AN "OPEN" STATUS UNTIL FINAL ACCEPTANCE PER KOMO/APWA 2407.

NATIVE SEED MIXES AND SLOPES OVER 5:1 TO BE INSTALLED WITH AN EROSION CONTROL BLANKET (NORTH AMERICAN GREEN SC10B OR APPROVED EQUAL) AND INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

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STATE OF MISSOURI
JULIE ELAINE SELLERS
Professional Engineer
NUMBER PE-2017000367
3/18/21

JULIE E. SELLERS, P.E.
MO# 2017000367

BY		REVISIONS DESCRIPTION	NO. REV.	DATE	2019
		NOTE ADDED SAYING SEDIMENT BASIN TO REMAIN IN PLACE	2	10-02-2020	

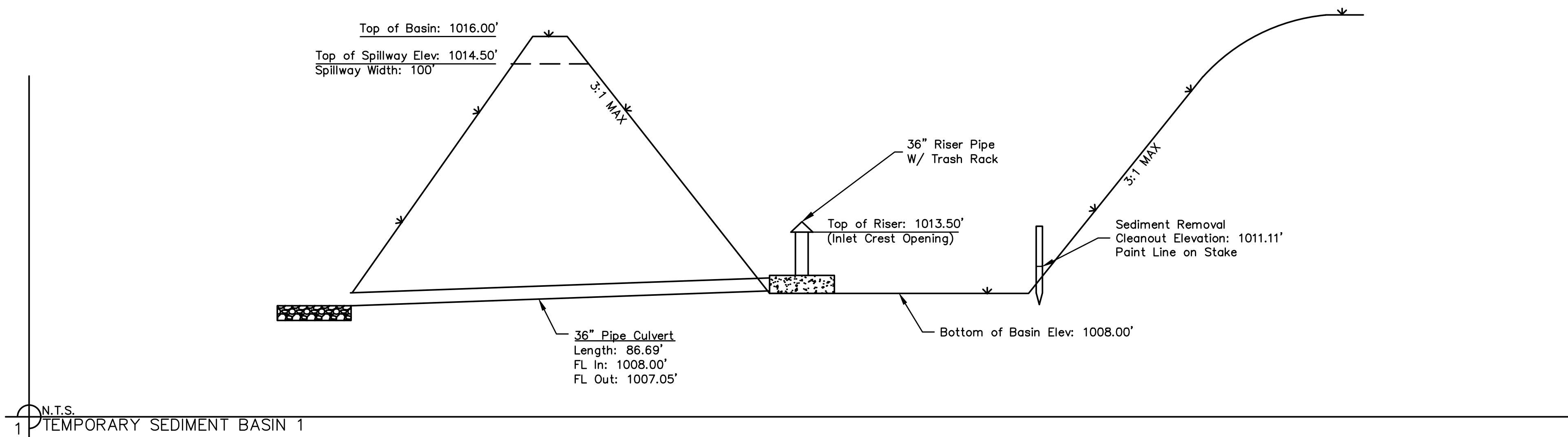
SITE DISTURBANCE PHASE 3
STREET & STORM SEWER PLANS

HAWTHORN RIDGE
SECOND PLAT

LEE'S SUMMIT, MISSOURI

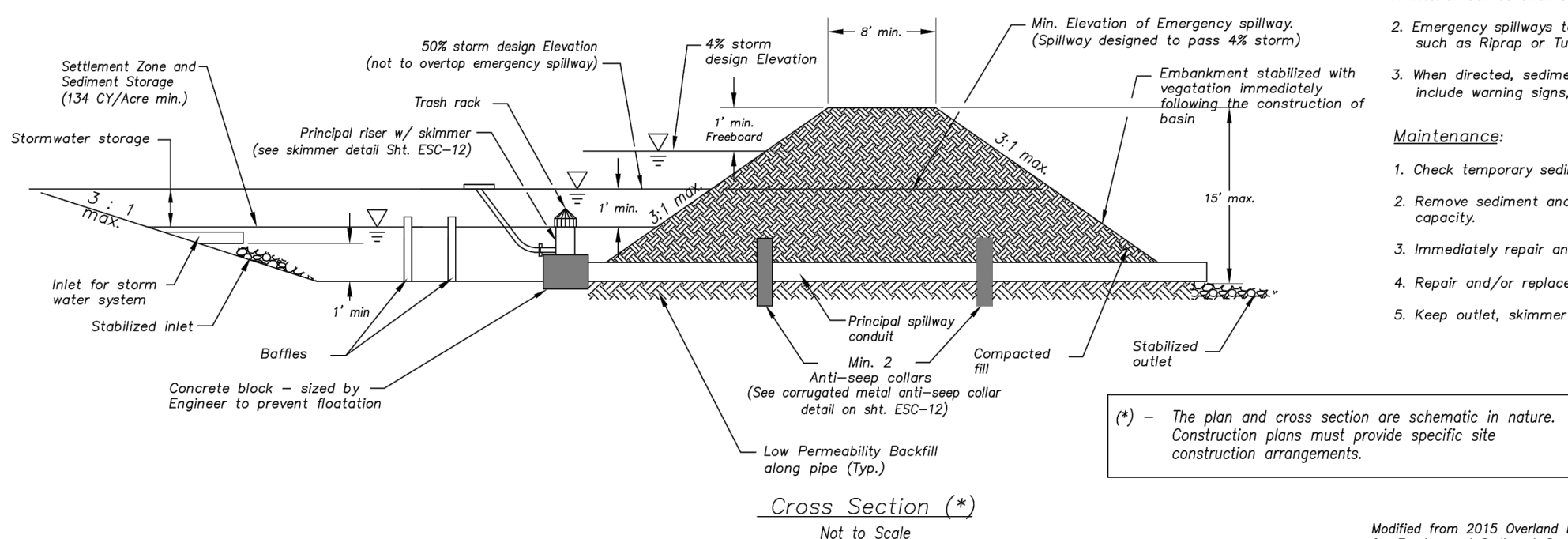
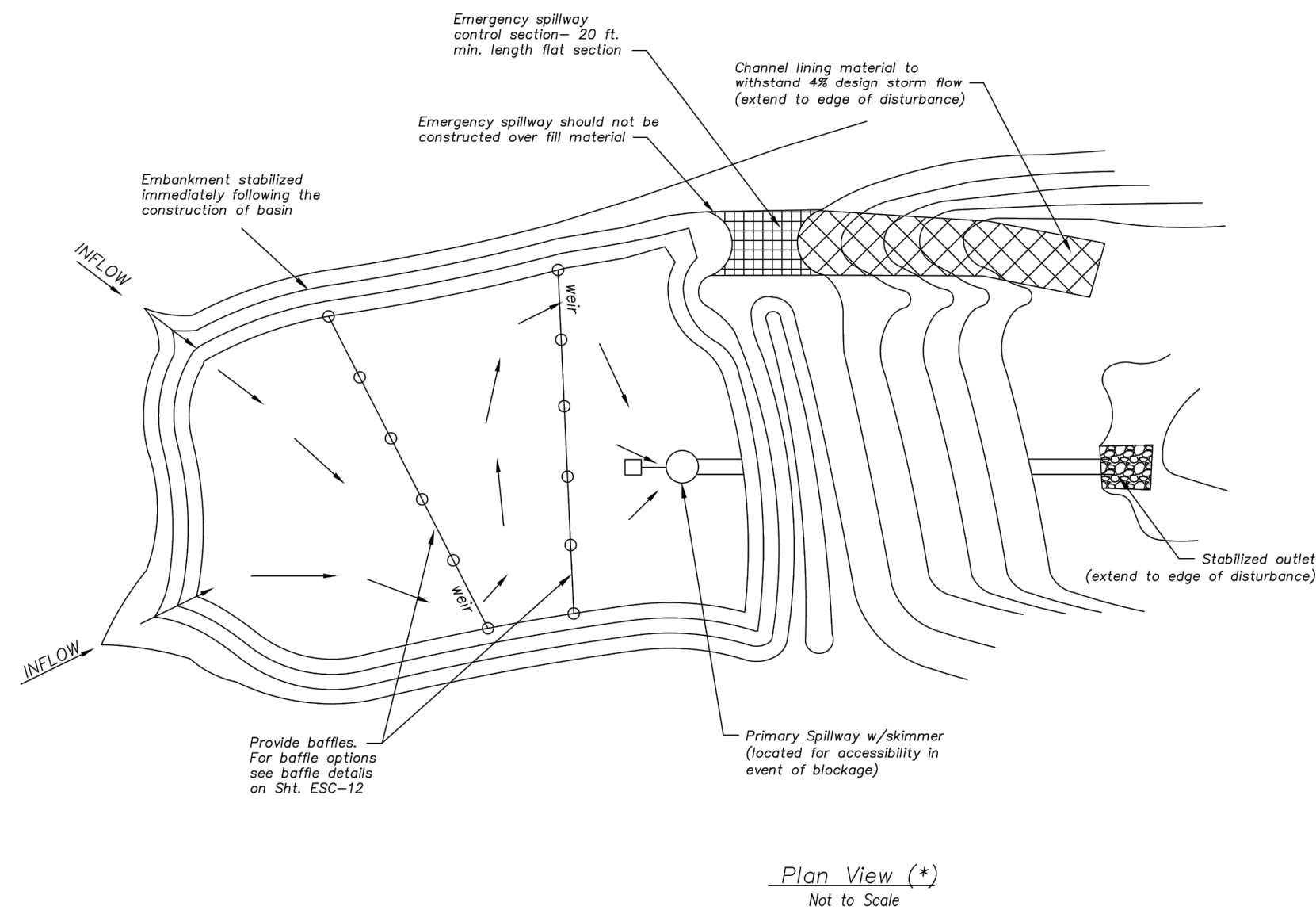
drawn by: D.A.H.Q.
checked by: M.G.D.
designed by: B.M.W.
QA/QC by: N.D.H.
project no.: 019-1605
date: 07-12-2019

SHEET
C144



Sediment Basin #1 Design Summary			
Design Item	Quantity	Units	
Site Data			
Tributary Drainage Area To Pond	27.17	Acres	
50% (2 YR) Design Flow	72.16	cfs	
4% (25 YR) Design Flow	139.96	cfs	
1% (100 YR) Design Flow	177.96	cfs	
Pond Data			
Minimum Sediment Storage Volume	3641	cu yd	
Provided Sediment Storage Volume	4216	cu yd	
Bottom Elevation	1008.00	ft	
Sediment Cleanout Elevation	1011.11	ft	
Sediment Cleanout Volume	2711.63	cu yd	
Top of Riser Elevation	1013.50	ft	
Top of Dam Elevation	1016.00	ft	
Basin Shape Data			
A = Area at Top of Riser	22954	sq ft	
L = Length of Flow Path	180	ft	
WE = Effective Width = A/L	128	ft	
Principal Spillway Data			
Riser Pipe DIA	36	in	
Barrel Pipe DIA	36	in	
Barrel Invert In	1008.00	ft	
Barrel Invert Out	1007.05	ft	
Riser Perforations			
Number of Rows	4		
Perforation DIA	1	in	
Perforations per Row	36		
Lowest Row Elevation	1011.50	ft	
Distance Between Rows	0.5	ft	
Emergency Spillway Data			
Spillway Width	100.00	ft	
Emergency Spillway Elevation	1014.50	ft	
Water Surface Data			
2 year WSE	1014.40	ft	
25 year WSE	1014.94	ft	
100 year WSE	1015.06	ft	
Discharge Data			
2 year	29.88	cfs	
25 year	138.96	cfs	
100 year	178.71	cfs	

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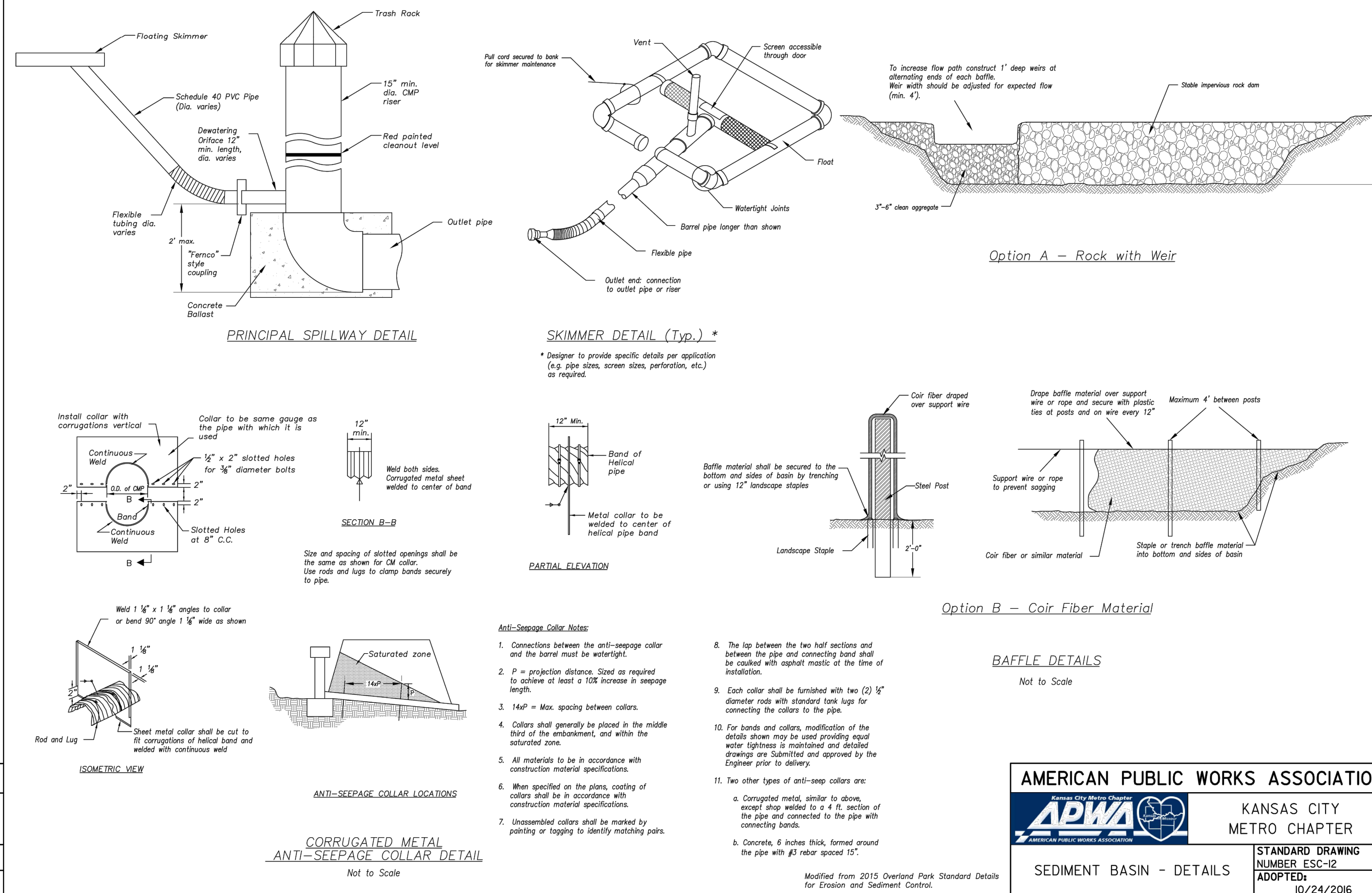
- Sediment Basin Notes

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".

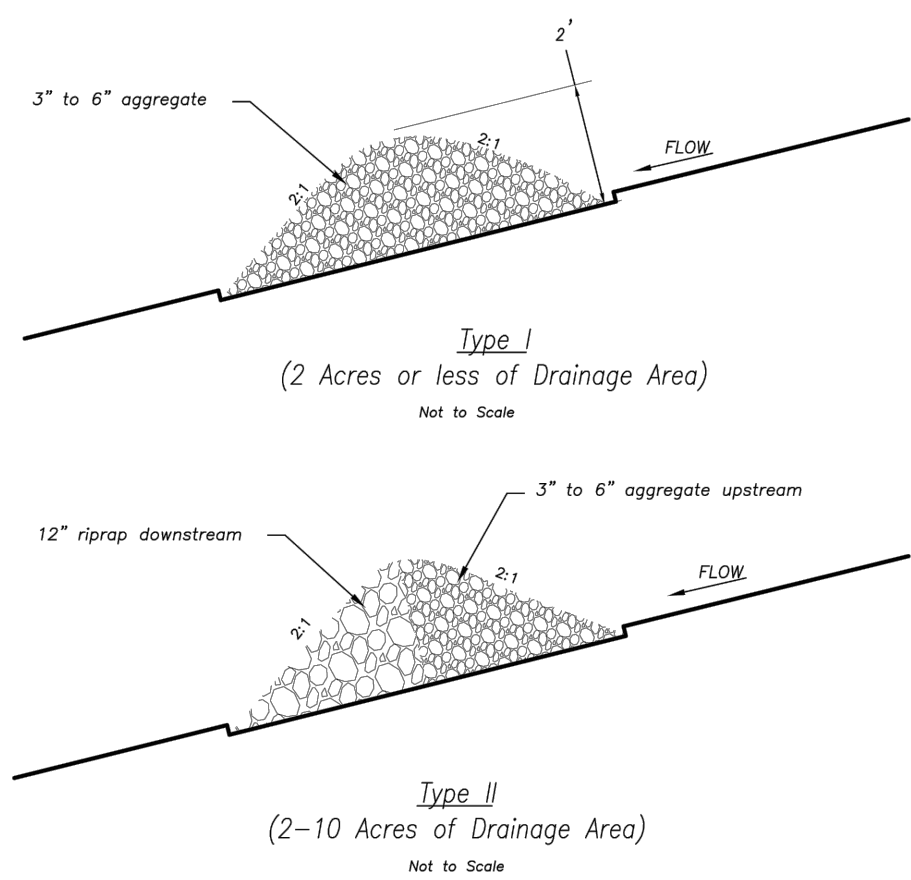
- Maintenance:

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 oil trash and other debris.

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METRO CHAPTER
SEDIMENT BASIN	STANDARD DRAWING NUMBER ESC-II ADOPTED: 10/24/2016

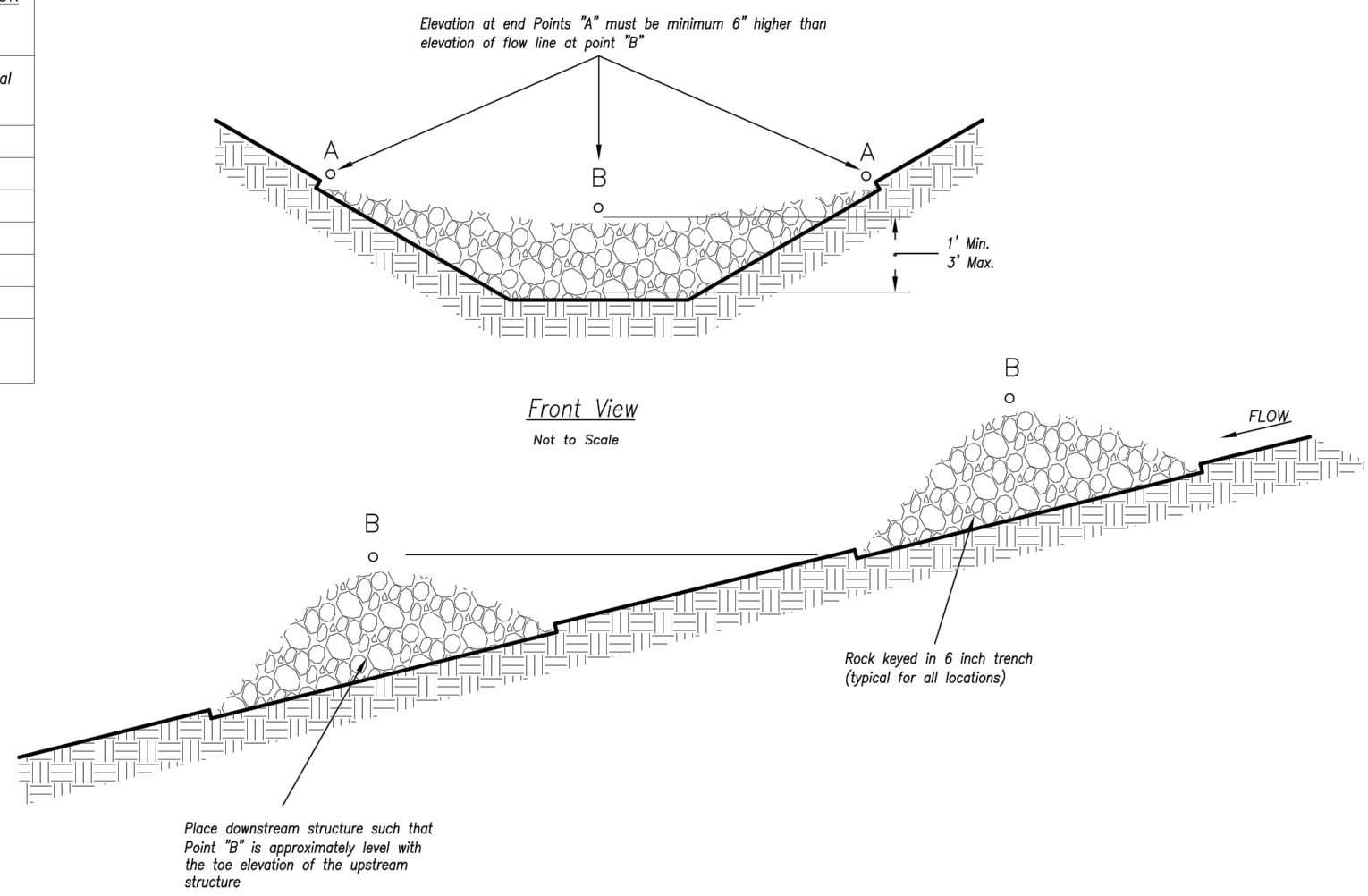


AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METRO CHAPTER
SEDIMENT BASIN - DETAILS	STANDARD DRAWING NUMBER ESC-12 ADOPTED: JULY 24 / 2016



Temporary Rock Ditch Check Spacing	
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 spacing only for Rock Ditch Checks.



Notes:

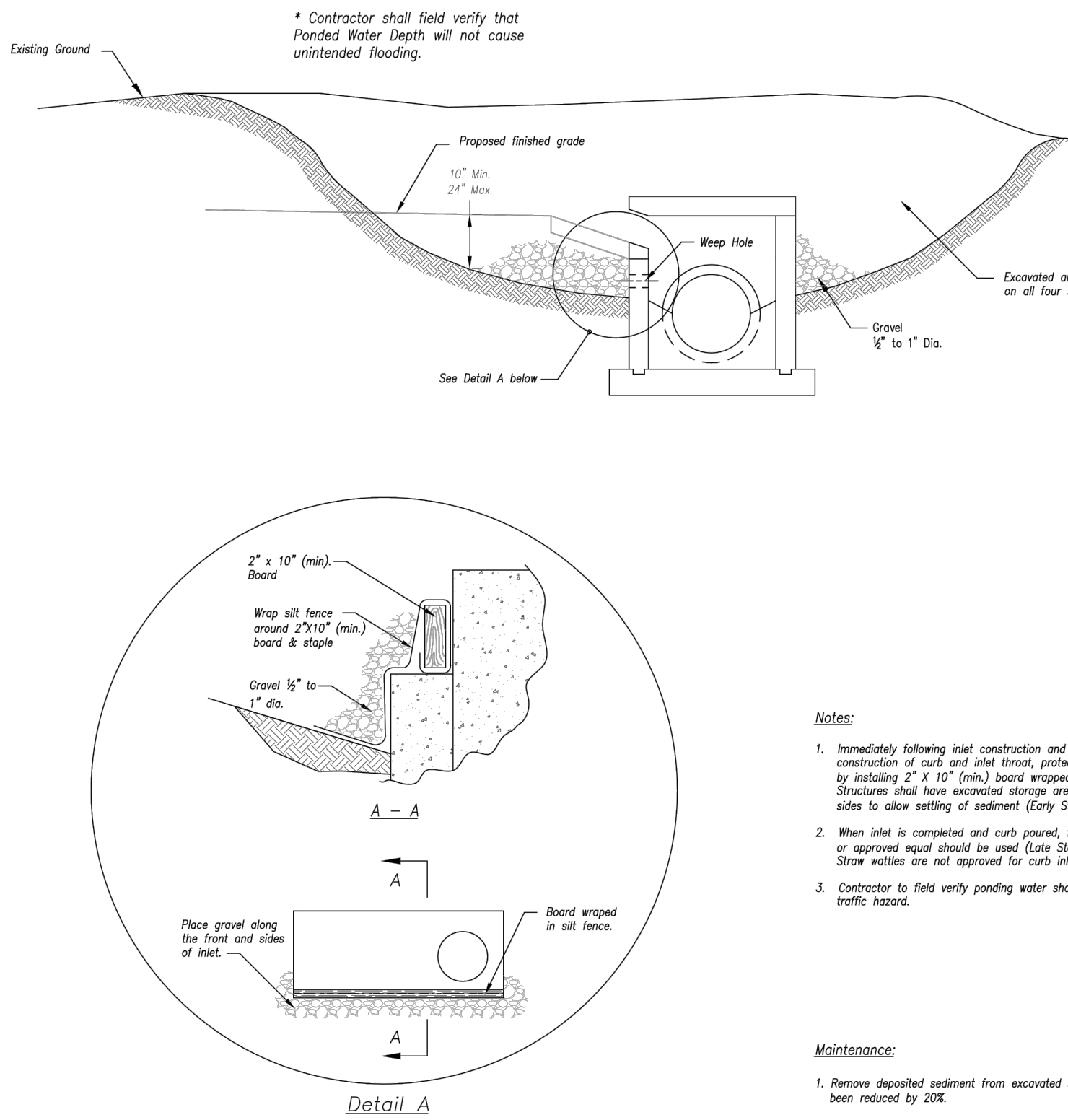
1. Rock check dams shall be used only for drainage areas less than 10 acres unless approved by the City Engineer.
2. Use rock checks only in situations where the ditch slope exceeds 6%.

Maintenance:

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

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

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METRO CHAPTER
ROCK DITCH CHECKS	STANDARD DRAWING NUMBER ESC-10 ADOPTED: 10/24/2016



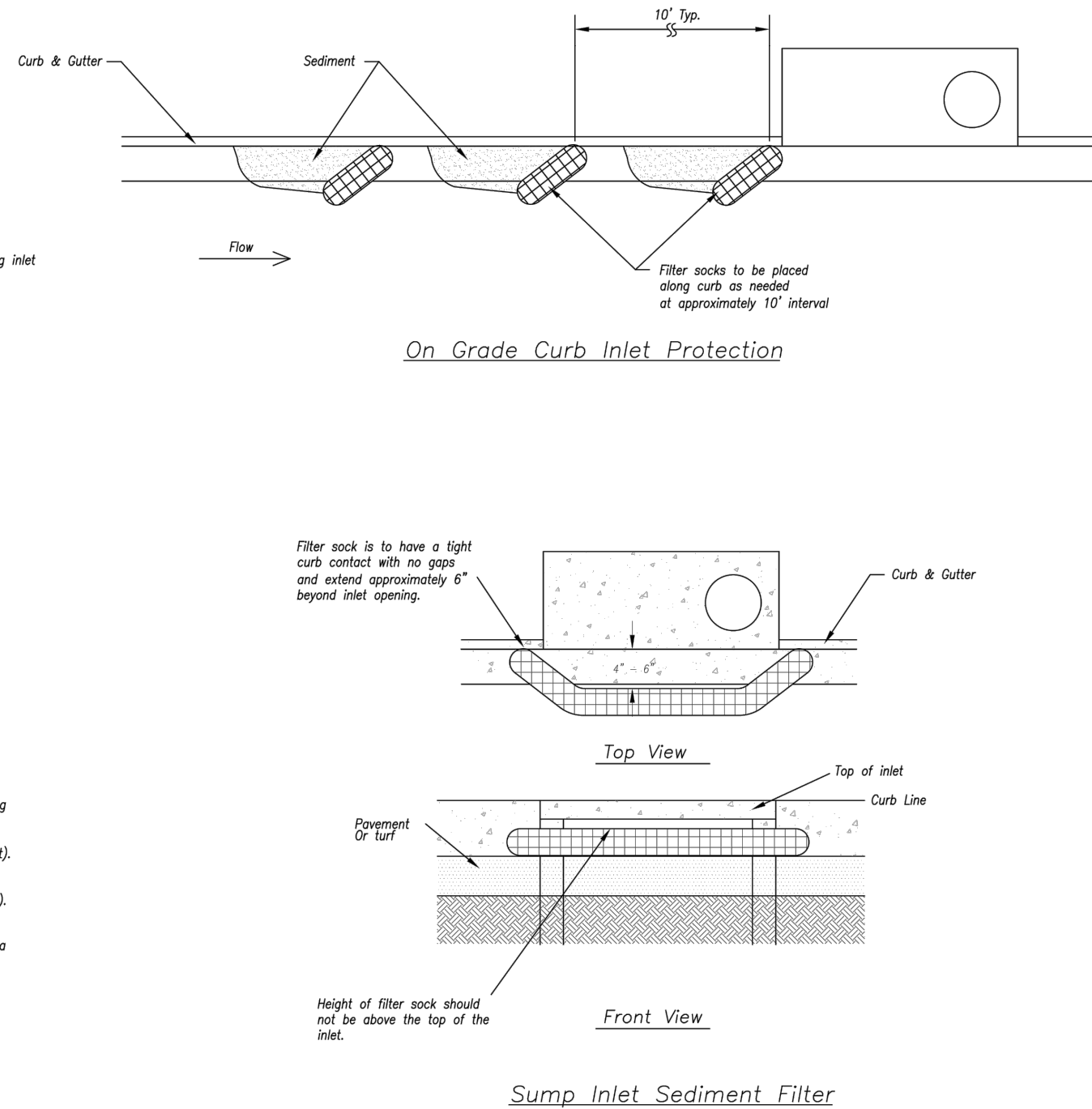
Notes:

1. 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.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

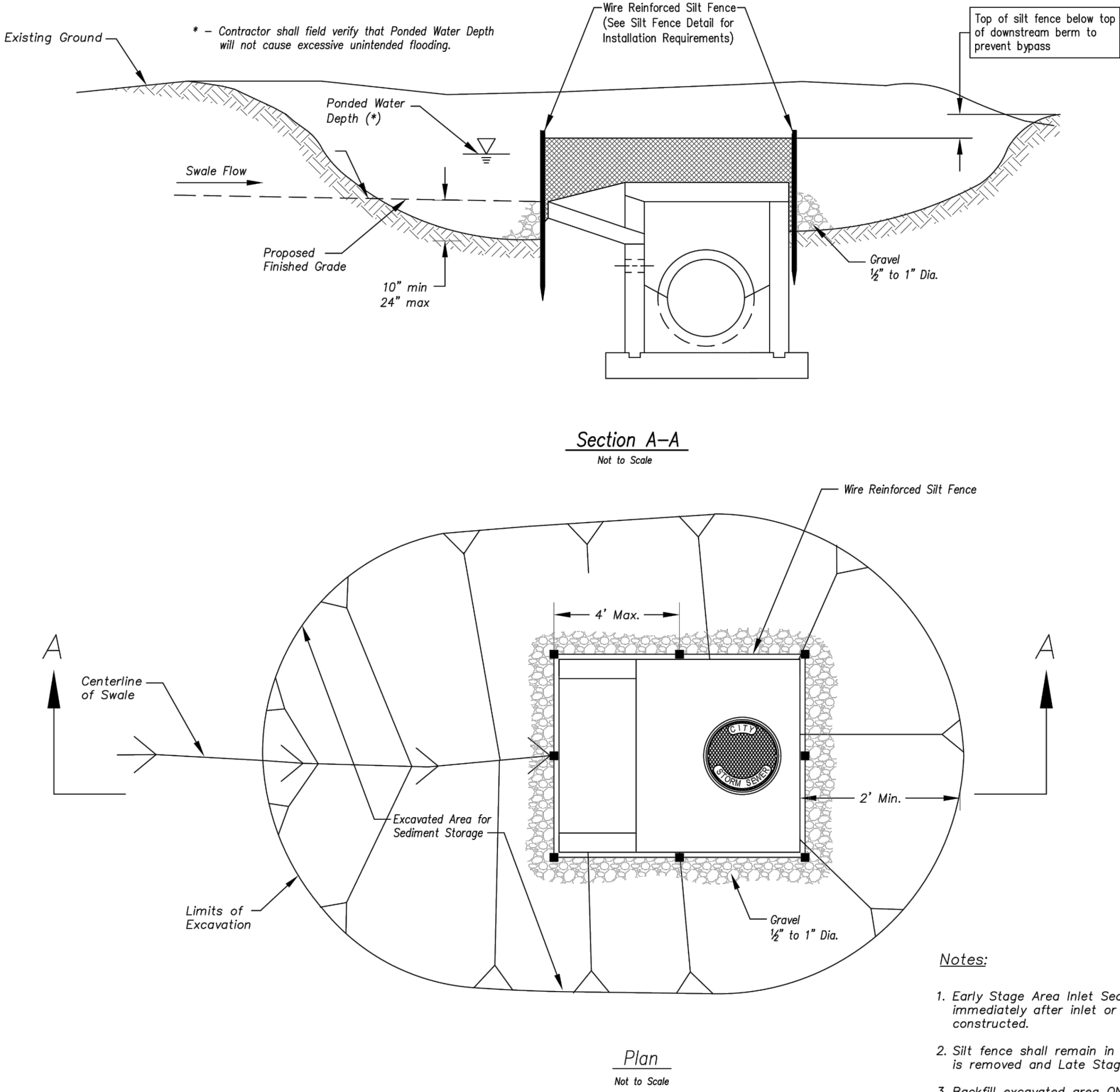
1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

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



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 ADOPTED: 10/24/2016

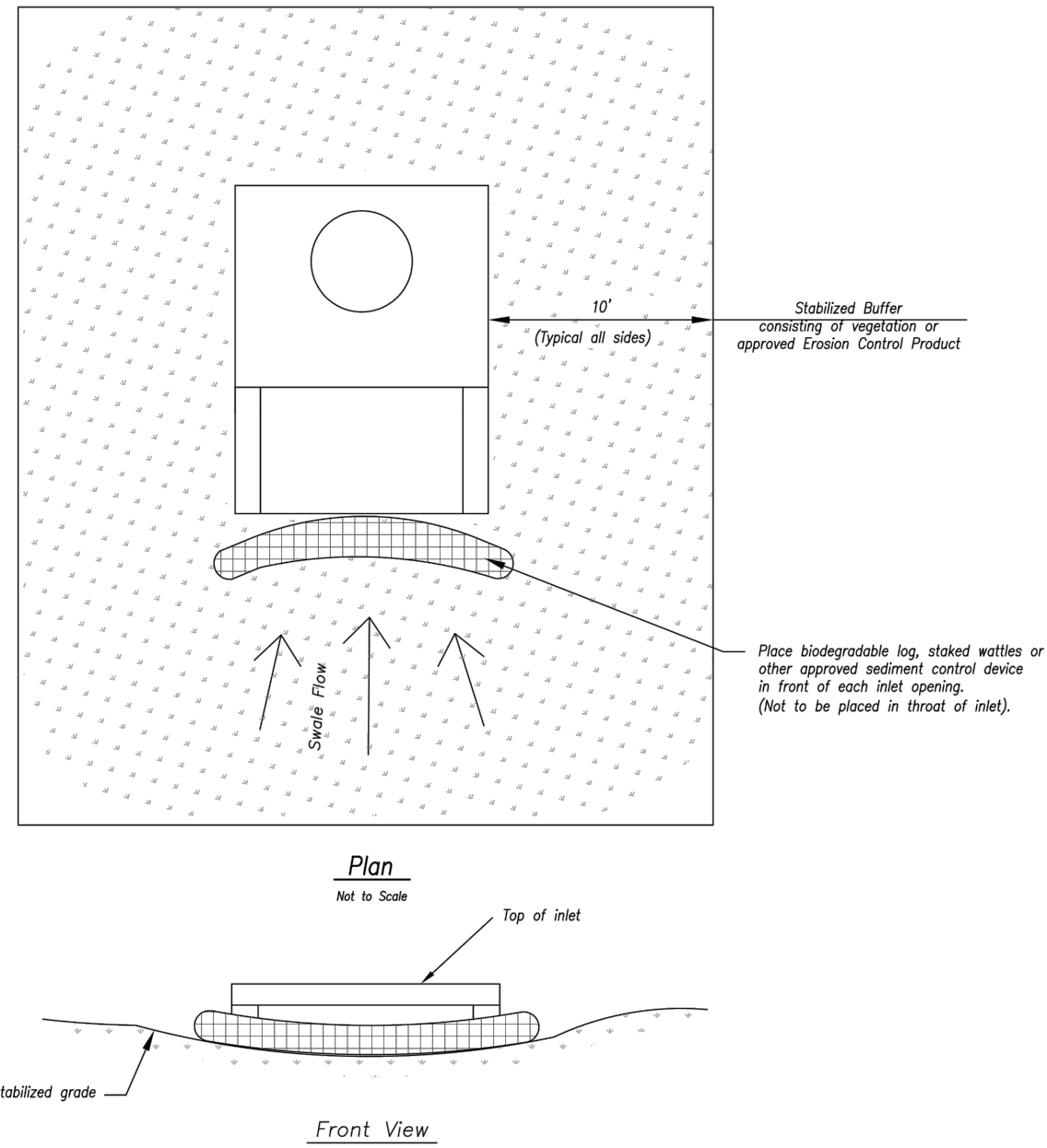


EARLY STAGE AREA INLET
(All open boxes and inlets not at final grade)

Notes:

1. Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
2. Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.
3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
4. Wire reinforced silt fence may be used in place of silt fence attached to wood frame.

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



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

Maintenance:

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.

AMERICAN PUBLIC WORKS ASSOCIATION	
	KANSAS CITY METRO CHAPTER
AREA INLET AND JUNCTION BOX PROTECTION	STANDARD DRAWING NUMBER ESC-07 ADOPTED: 10/24/2016

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BY	
NO. REV.	
DATE	
REVISIONS DESCRIPTION	
SITE DISTURBANCE DETAILS STREET AND STORM SEWER PLANS	
HAWTHORN RIDGE SECOND PLAT	
LEE'S SUMMIT, MISSOURI	
2019	
drawn by: _____ D.A.H.O. checked by: _____ M.G.D. designed by: _____ B.M.W. QA/QC by: _____ N.D.H. project no.: 019-1605 date: 07-12-2018	
SHEET C148	