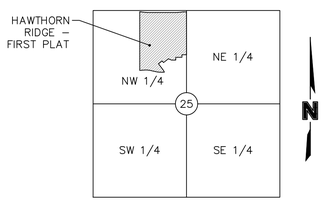
HAWTHORN RIDGE
1ST PLAT
STREET & STORM SEWER PLANS

SECTION 25, TOWNSHIP 47 N., RANGE 32 W.
IN LEE'S SUMMIT, JACKSON, MO

CALL BEFORE YOU DIG
1-800-DIG-RITE
MISSOURI ONE CALL SYSTEM



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

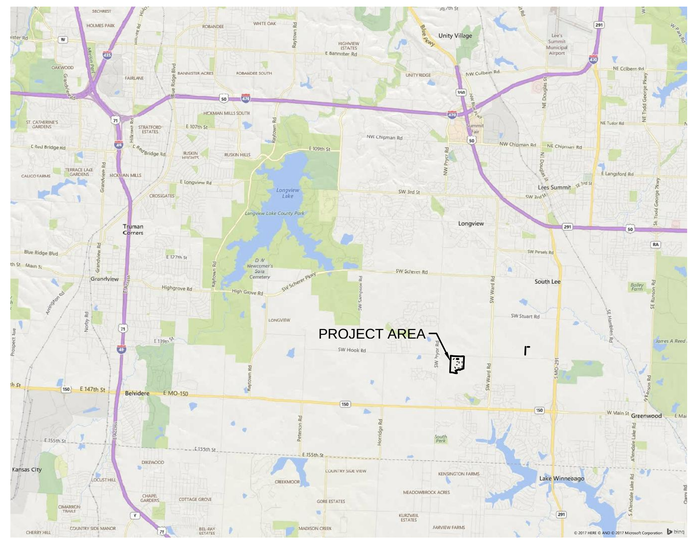
Record Drawing

Sue Pyles 2023.03.10 14:46:34-06'00'

AS BUILT
DATE: 12/19/2018

☐ NOT FOR CONSTRUCTION

☒ REVIEWED FOR CONSTRUCTION



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DEVELOPMENT TEAM CONTACT INFORMATION		
CIVIL ENGINEER		
	MELISSA G DEGONIA, P.E. OLSSON ASSOCIATES	1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 TEL: 816.587.4320 FAX: 816.587.1393 MDEGONIA@OLSSONASSOCIATES.COM
OWNER/DEVLOPER		
	DAVID PRICE CMH PARKS, INC. D/B/A SUMMIT CUSTOM HOMES	120 SE 30TH ST LEE'S SUMMIT, MO 64082 TEL: 816.246.6700 DAVID@SUMMITCUSTOMHOMESKC.COM

UTILITY SERVICE NUMBERS	
LEE'S SUMMIT PUBLIC WORKS	816–969–1800
LEE'S SUMMIT WATER & SEWER DEPARTMENT	816–969–1940
MISSOURI GAS ENERGY	816–756–5252
AT&T	800–286–8313
KCP&L	816–471–5275
TIME WARNER CABLE	816–358–5360
GOOGLE FIBER	877–454–6959

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 being bounded and described as follows: Commencing at the center of said Section 25; thence North 02°18'36" East, along the West line of said Northwest Quarter, 1,392.58 feet to the Point of Beginning of the tract of land to be herein described; thence North 87°41'24" West, 130.00 feet; thence South 02°18'36" West, 72.00 feet; thence North 87°41'24" West, 175.00 feet; thence South 02°18'36" West, 78.00 feet; thence North 87°41'24" West, 121.73 feet; thence North 65°30'07" West, 95.33 feet; thence South 54°57'38" West, 175.90 feet; thence North 35°02'22" West, 58.00 feet; thence South 54°57'38" West, 130.00 feet; thence South 35°02'22" East, 216.00 feet; thence South 26°05'21" East, 59.04 feet; thence South 11°06'36" East, 18.27 feet; thence North 87°41'24" West, 95.00 feet; thence North 85°13'24" West, 75.61 feet; thence North 77°26'18" West, 74.74 feet; thence North 73°51'15" West, 80.00 feet; thence North 75°24'39" West, 87.64 feet; thence North 81°26'34" West, 91.19 feet; thence North 87°51'30" West, 91.19 feet; thence South 86°06'14" West, 105.62 feet to a point on the West line of the East half said Northwest Quarter; thence North 02°27'15" East, along said West line, 1,661.30 feet to a point on the South right–of–way line of SW Hook Road, as now established; thence Easterly along said South right–of–way line, a along a curve to the right, having an initial tangent bearing of South 80°28'37" East with a radius of 470.00 feet, a central angle of 04°08'23" and an arc distance of 33.96 feet; thence Easterly, continuing along said South right–of–way line, along a curve to the left, having a common tangent with the last described course with a radius of 830.00 feet, a central angle of 11°15'17" and an arc distance of 163.04 feet; thence South 87°35'31" East, continuing along said South right–of–way line, 873.16 feet; thence Easterly continuing along said South right–of–way line, along a curve to the left having an initial tangent bearing of South 87°35'30" East with a radius of 830.00 feet, a central angle of 10°48'20" and an arc distance of 156.53 feet; thence South 87°45'42" East, continuing along said South right–of–way line, 95.80 feet to a point on said East line; thence South 02°18'36" West, along said East line, 1,210.33 feet to the Point of Beginning. Containing 1,939,986 square feet or 44.54 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'

REVIEWED BY:

City of Lee's Summit — Date

Olsson Associates has been retained to provide as-built drawings for this project.

Melissa G DeGonia, P.E. — 03/04/2019 Date
Civil Engineer
MO# 2011000892

The Policy of the "Plan Preparation Criteria and Procedure" and Policy Document No. 880544 "As-Built Drawings for Sewer Built by Permit" stipulate the following regarding "as-built" drawings: 1. Drawings are to be provided within thirty (30) days after the date the "Request for As-Builts" letter is issued by the City to the contractor. 2. Drawings must be accepted by the City before any service connections will be allowed. 3. Drawings are part of the permit obligations making them the responsibility of the permittee. 4. The cost of preparing "as-built" drawings shall be included in the performance bond.

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	04.19.2017	Revised per city comments	MGD
2	06.23.2017	Revised per city comments	MGD
3	12.04.2017	Revised per city comments	MGD
4	01.08.2018	Revised entrances and storm structures and prepared for bid	MGD
5	02.14.2018	Revised per city comments	MGD
6	08.08.2018	Revised per city comments	
7	09.27.2018	Revised per utility plan review	
	03.04.2019	Asbuilt Submittal	

TITLE SHEET
STREET & STORM SEWER PLANS

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET
C101

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_TTL01_017-0188.dwg USER: dhernandez
DATE: Feb 19, 2019 5:48pm

GENERAL NOTES:

1. THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE LEE'S SUMMIT, MISSOURI DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813. WHERE DISCREPANCIES EXIST BETWEEN THESE PLANS AND THE DESIGN AND CONSTRUCTION MANUAL, THE DESIGN AND CONSTRUCTION MANUAL SHALL PREVAIL.

2. ALL MANHOLES, CATCH BASINS, UTILITY VALVES, AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.

3. ALL SIGNS (I.E. STREET NAME AND STOP SIGNS) SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF LEE'S SUMMIT, DESIGN AND CONSTRUCTION MANUAL, PRIOR TO SUBSTANTIAL COMPLETION. REFER TO SHEET 135 FOR SIGNAGE DETAILS.

4. THE ASPHALTIC CONCRETE SURFACES ON ALL PERMITTED STREETS SHALL BE VIRGIN MATERIAL.

5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL DOWNSTREAM EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION. EROSION CONTROL PLANS AND PROCEDURES SHALL BE IN PLACE PRIOR TO ANY EXCAVATION.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING ROCK ELEVATIONS AT 25 FOOT (MAXIMUM) INTERVALS WHERE ENCOUNTERED, AND FURNISHING THIS INFORMATION TO THE DESIGN ENGINEER FOR USE ON "AS-BUILT" PLANS.

7. THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.

8. NO SUBSURFACE EXPLORATION FOR THE DETERMINATION OF AND/OR THE LOCATION OF EXISTING ROCK HAS BEEN MADE.

9. CONTRACTOR SHALL PROVIDE EARTHWORK AND MATERIAL TESTING TO COMPLY WITH THE STANDARD SPECIFICATIONS OF THE PUBLIC WORKS DEPARTMENT OR AS REQUIRED BY THE CITY'S FIELD REPRESENTATIVE.

10. CONTRACTOR MUST CONTACT PUBLIC WORKS INSPECTIONS AT 816-969-1827 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES.

11. P.O.S= PROPOSED OPEN SPACE.

CONTROL POINT TABLE				
Point Number	Northing	Easting	Point Elevation	Raw Description
800	983674.9350'	2813892.5500'	1016.38'	CP 800
801	983630.4880'	2815280.9210'	1019.74'	CP 801
802	981004.3220'	2812429.0660'	994.50'	CP 802
803	980493.4250'	2815984.1140'	1024.20'	CP 803
902	983638.8300'	2814391.8860'	1021.01'	CP 902

SITE DISTURBANCE NOTES:

1. THE INTENT OF THIS EROSION CONTROL PLAN IS TO ASSIST THE CONTRACTOR IN HIS RESPONSIBILITY TO PROVIDE ALL MATERIALS, TOOLS, EQUIPMENT AND LABOR NECESSARY TO CONTROL EROSION, SILTATION AND DISCHARGES OF SOIL MATERIAL (SEDIMENT) INTO DOWNSTREAM SYSTEMS OR RECEIVING CHANNELS. THIS SHALL BE REQUIRED DURING ALL PHASES OF CONSTRUCTION AND UNTIL SUITABLE GROUND COVER IS ESTABLISHED FOR ALL DISTURBED AREAS. IF ANY METHOD OF CONTROL FAILS, THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY, SO THAT THE OWNER OR HIS AGENT CAN REVIEW THE CONTRACTOR'S PROPOSED METHOD OF REPAIR.

   THIS PLAN INDICATES THE CRITICAL AREA(S) OF CONCERN AND THESE AREA(S) WILL BE CONTROLLED AS A MINIMUM. THE CONTROL MAY CONSIST OF TEMPORARY CONTROL MEASURES AS SHOWN ON THE PLANS OR ORDERED BY THE OWNER DURING THE LIFE OF THE CONTRACT TO CONTROL EROSION OR WATER POLLUTION, THROUGH THE USE OF BERMS, DIKES, DAMS, SEDIMENT BASINS, FIBER MATS, NETTING, STRAW BALES, GRAVEL, MULCHES, GRASSES, SLOPE DRAINS, DIVERSION SWALES OR OTHER EROSION CONTROL DEVICES OR METHODS. THE OWNER HAS THE AUTHORITY TO LIMIT THE SURFACE AREA OF ERODIBLE EARTH MATERIAL EXPOSED BY THE CONSTRUCTION OPERATIONS AND TO DIRECT THE CONTRACTOR TO PROVIDE IMMEDIATE PERMANENT OR TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT STREAMS OR OTHER WATER COURSES, LAKES, PONDS, OR OTHER AREAS OF WATER IMPOUNDMENT OR CONVEYANCES.

   THE TEMPORARY POLLUTION CONTROL PROVISIONS CONTAINED HEREIN SHALL BE COORDINATED WITH ANY PERMANENT EROSION CONTROL FEATURES SPECIFIED ELSEWHERE IN THE CONTRACT TO THE EXTENT PRACTICAL TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS EROSION CONTROL THROUGHOUT THE CONSTRUCTION AND POST CONSTRUCTION PERIOD.

2. THIS SEDIMENTATION CONTROL PLAN MAKES USE OF THE FOLLOWING APPLICATIONS:
   - ____ PRESERVATION OF EXISTING VEGETATION
   - _X_ SEDIMENT BARRIERS
   - _X_ SEDIMENT TRAPS
   - _X_ INLET PROTECTION
   - ____ OUTLET PROTECTION
   - ____ SOIL RETAINING SYSTEMS
   - ____ SLOPE DRAINS
   - ____ SUBSURFACE DRAINS

   PHYSICAL DESCRIPTION OF EACH SPECIFIC SEDIMENT CONTROL DEVICE TO BE UTILIZED IS CALLED OUT ON THE PLANS WITH INSTALLATION PROCEDURES, CONSTRUCTION SPECIFICATIONS AND MAINTENANCE ARRANGEMENT AS CALLED FOR ON THE DETAIL SHEET. IN ADDITION TO THE MEASURES SPECIFIED, THE FOLLOWING GENERAL PRACTICES SHALL BE ADHERED TO WHEN APPLICABLE.

A) CLEARING AND GRUBBING WITHIN 50' OF A DEFINED DRAINAGE COURSE SHOULD BE AVOIDED WHEN POSSIBLE. WHERE CHANGES TO A DEFINED DRAINAGE COURSE OCCUR, WORK SHOULD BE DELAYED UNTIL ALL MATERIALS AND EQUIPMENT NECESSARY TO PROTECT AND COMPLETE THE DRAINAGE CHANGE ARE ON SITE. CHANGES SHALL BE COMPLETED AS QUICKLY AS POSSIBLE ONCE THE WORK HAS BEEN INITIATED. THE AREA IMPACTED BY THE CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED OR PROTECTED FROM EROSION AS SOON AS POSSIBLE, AREAS WITHIN 50' OF A DEFINED DRAINAGE WAYS SHOULD BE RECONTOURED AS NEEDED OR OTHERWISE PROTECTED WITHIN FIVE (5) WORKING DAYS AFTER GRADING HAS CEASED.

B) WHERE SOIL DISTURBING ACTIVITIES CEASE IN AN AREA FOR MORE THAN 14 DAYS, THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE EROSION CONTROL MEASURES. IF THE SLOPE OF THE AREA IS GREATER THAN 3:1 OR IF THE SLOPE IS GREATER THAN 3% AND GREATER THAN 150 FEET IN LENGTH, THEN THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE EROSION CONTROL MEASURES IF ACTIVITIES CEASE FOR MORE THAN SEVEN (7) DAYS.

C) EXISTING VEGETATION SHALL BE PRESERVED TO THE EXTENT AND WHERE PRACTICAL. IN NO CASE SHALL DISTURBED AREAS REMAIN WITHOUT VEGETATIVE GROUND COVER FOR A PERIOD IN EXCESS OF 60 DAYS.

D) ADDITIONAL SITE MANAGEMENT PRACTICES WHICH SHALL BE ADHERED TO DURING THE CONSTRUCTION PROCESS SHALL INCLUDE:

   SOLID AND HAZARDOUS WASTE MANAGEMENT INCLUDING PROVIDING TRASH CONTAINERS AND REGULAR SITE CLEAN UP FOR PROPER DISPOSAL OF SOLID WASTE SUCH AS BUILDING MATERIAL, PRODUCT/MATERIAL SHIPPING WASTE, FOOD CONTAINERS AND CUPS, AND PROVIDING CONTAINERS FOR THE PROPER DISPOSAL OF WASTE PAINTS SOLVENTS, AND CLEANING COMPOUNDS.

   PROVISIONS OF PORTABLE TOILETS FOR PROPER DISPOSAL OF SANITARY SEWAGE.

   STORAGE OF CONSTRUCTION MATERIALS AWAY FROM DRAINAGE COURSES AND LOW AREAS.

   INSTALLATION OF CONTAINMENT BERMS AND USE OF DRIP PANS AT PETROLEUM PRODUCT AND LIQUID STORAGE TANKS AND CONTAINERS.

3. ALL DISTURBED AREAS SHALL BE SEEDED, FERTILIZED AND MULCHED, OR SODDED, IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS ADOPTED BY THE REVIEWING GOVERNING AGENCY AND GOOD ENGINEERING PRACTICES. THIS SHALL BE COMPLETED WITHIN FOURTEEN (14) DAYS AFTER COMPLETING THE WORK, IN ANY AREA. IF THIS IS OUTSIDE OF THE SEEDING PERIOD, SILT BARRIERS OR OTHER SIMILARLY EFFECTIVE MEASURES SHALL BE PROVIDED UNTIL SUCH TIME THAT THE AREAS CAN BE SEEDED.

4. THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO ALL CURRENT STANDARDS AND SPECIFICATIONS ADOPTED BY THE REVIEWING GOVERNING AGENCY. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING ALL ADDITIONAL STANDARDS, SPECIFICATIONS OR REQUIREMENTS WHICH ARE REQUIRED BY GOVERNING AGENCIES (INCLUDING LOCAL, STATE AND FEDERAL AUTHORITIES) HAVING JURISDICTION OVER THE WORK PROPOSED BY THESE CONSTRUCTION DRAWINGS.

5. ALL EROSION CONTROL MEASURES, TEMPORARY OR PERMANENT, REQUIRE MAINTENANCE TO PRESERVE THEIR EFFECTIVENESS. ALL EROSION CONTROL DEVICES SHALL BE INSPECTED IMMEDIATELY AFTER EACH HEAVY RAINSTORM AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHOULD BE MADE IMMEDIATELY. ALL COSTS ASSOCIATED WITH THE REPAIR WORK INCLUDING RELATED INCIDENTALS WILL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE INCLUDED IN THE CONTRACTOR'S BID FOR THE PROPOSED WORK.

Record Drawing

ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
	STREET			
1	EXCAVATION	C.Y.	143,051	
2	EMBANKMENT	C.Y.	133,144	
3	SUBGRADE STABILIZATION (6" ROCK W/FABRIC)	S.Y.	23,571	
4	SUBGRADE STABILIZATION (6" FLYASH TREATMENT)	S.Y.	15,952	
5	SUBGRADE STABILIZATION (9" FLYASH TREATMENT)	S.Y.	7,619	
6	7.5" ASPHALT PAVEMENT	S.Y.	6416	
7	6" ASPHALT PAVEMENT	S.Y.	12,825	
8	CONCRETE CURB & GUTTER (CG-1)	L.F.	3034	
9	CONCRETE CURB & GUTTER (CG-2)	L.F.	8946	
10	5' SIDEWALK	L.F.	1,111	
11	ADA RAMP	EA.	22	
12	STOP SIGNS	EA.	10	
13	STREET NAME SIGNS	EA.	20	
14	END OF ROAD MARKERS	EA.	12	
	STORM			
15	STD. CURB INLET (5'x3' INSIDE)	EA.	~~20~~	20
16	STD. CURB INLET (5'x4' INSIDE)	EA.	~~3~~	3
17	STD. CURB INLET (5'x5' INSIDE)	EA.	~~2~~	2
18	STD. CURB INLET (6'x3' INSIDE	EA.	~~1~~	1
19	STD. CURB INLET (7'x5' INSIDE)	EA.	~~1~~	1
20	STD. CURB INLET (8'x3' INSIDE)	EA.	~~2~~	2
21	STD. FIELD INLET (4'x4' INSIDE)	EA.	~~6~~	6
22	STD. FIELD INLET (5'x4' INSIDE)	EA.	~~2~~	2
23	STD. MANHOLE (4' DIA. INSIDE)	EA.	~~4~~	4
24	STD. MANHOLE (5' DIA. INSIDE)	EA.	~~2~~	2
25	STD. MANHOLE (6' DIA. INSIDE)	EA.	~~1~~	1
26	DETENTION STRUCTURE (4'x4' INSIDE)	EA.	~~2~~	2
27	DETENTION STRUCTURE (8'x4' INSIDE)	EA.	~~1~~	1
28	15" HDPE	L.F.	~~1255.94~~	1257.96
29	18" HDPE	L.F.	~~1194.85~~	1197.11
30	24" HDPE	L.F.	~~1521.76~~	1526.51
31	30" HDPE	L.F.	~~707.34~~	706.21
32	36" HDPE	L.F.	~~151.50~~	152.78
33	42" HDPE	L.F.	~~173.83~~	171.72
34	12" RCP	L.F.	~~22.02~~	20.98
35	15" RCP	L.F.	~~84.08~~	83.37
36	60" RCP	L.F.	~~101.84~~	106.0000
37	15" CMP END SECTION	EA.	~~1~~	1
38	18" CMP END SECTION	EA.	~~1~~	1
39	30" CMP END SECTION	EA.	~~1~~	1
40	42" CMP END SECTION	EA.	~~1~~	1
41	60" RCP END SECTION	EA.	~~1~~	1
42	RIPRAP	S.Y.	~~455~~	121.0000
	EROSION CONTROL			
43	VEHICLE TRACKING DEVICE	EA.	1	
44	SEDIMENT TRAP	EA.	1	
45	SEDIMENT BASIN	EA.	2	
46	SILT FENCE	LF.	2359	
47	DIVERSION BERM	LF.	4400	
48	ROCK CHECK DAM	EA.	32	
49	INLET PROTECTION	EA.	41	
50	PERMANENT SEEDING	AC.	34	

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.

AS BUILT
DATE: 12/19/2018

ALL NOTES REFERENCED ON THIS PLAN SHEET MAY HAVE APPLICATIONS TO EVERY FACET OF THE CONSTRUCTION PLANS. THE NOTE HEADINGS OR TITLES ARE TO BE USED AS A GENERAL GUIDE TO APPLICABLE SITUATIONS.

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	04.19.2017	Added note	MGD
2	06.23.2017	Revised quantities	MGD
4	01.08.2018	Revised quantities	MGD
5	02.14.2018	Revised quantities	
6	03.08.2018	Revised quantities	
7	06.27.2018	Revised quantities	

GENERAL NOTES

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C102

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_GEN01_017-0188.dwg USER: dhernandez
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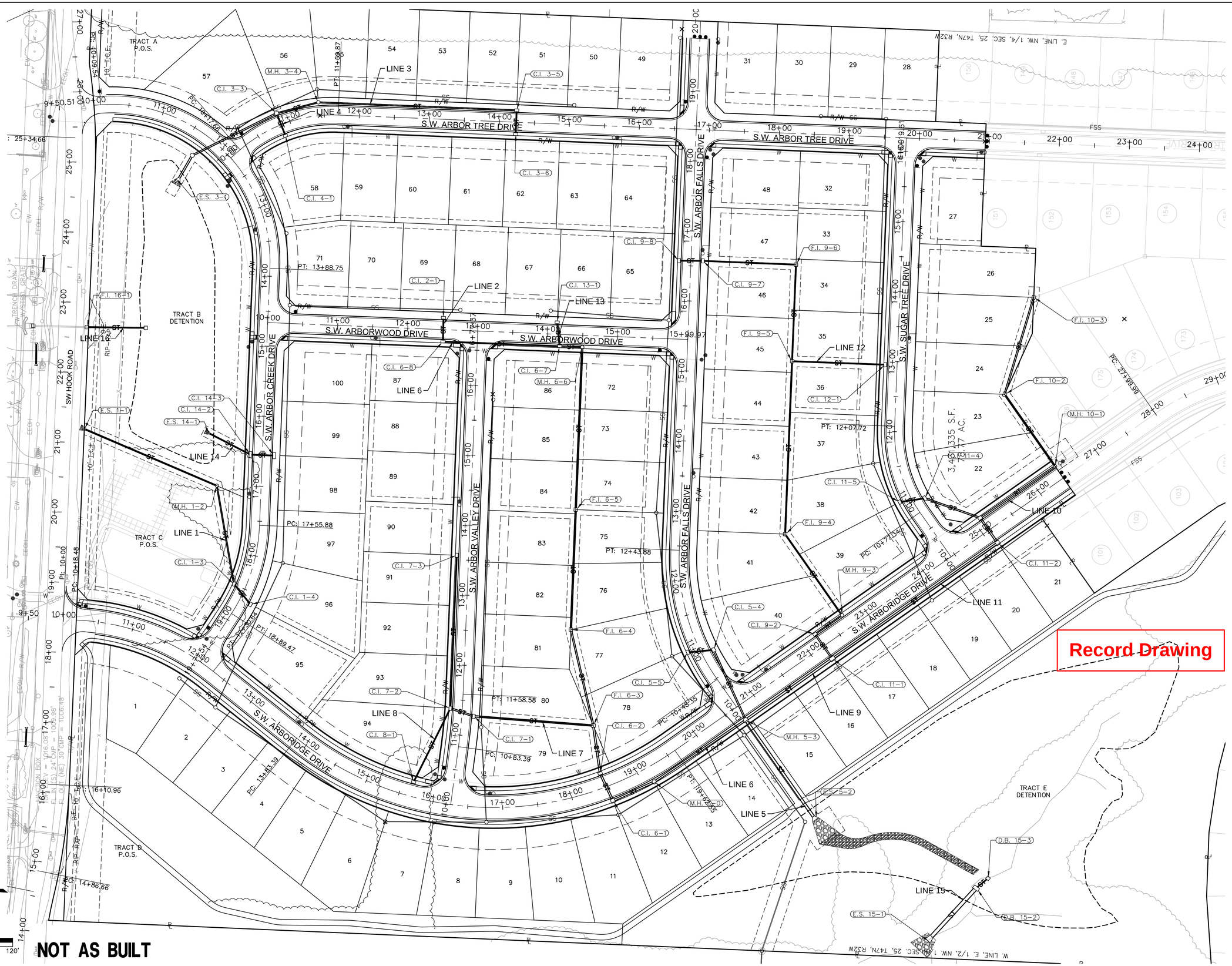

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DATE: Feb 19, 2019 5:50pm

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
4	01.08.2018	Removed Hood Road improvements	MGD

REVISIONS

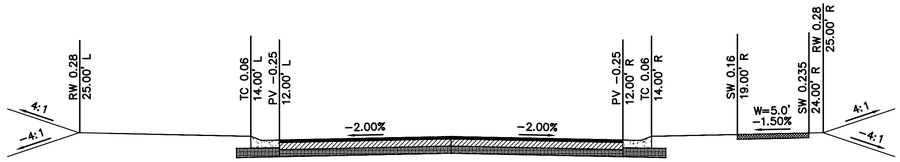
HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

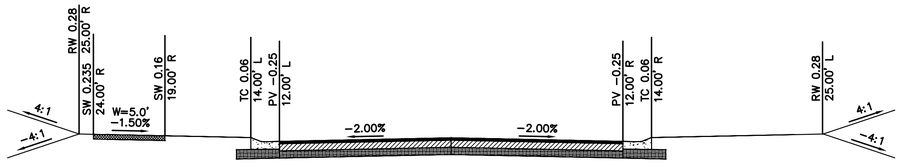
SHEET C103



ARBOR WOOD DRIVE, ARBOR TREE DRIVE, & ARBOR VALLEY TERRACE
RESIDENTIAL LOCAL
N.T.S.

2" TYPE 6 ASPHALTIC CONCRETE SURFACE
4" TYPE 5 ASPHALTIC CONCRETE BASE COURSE
6" MIN. MODOT TYPE 5 STONE BASE
6" FLYASH STABILIZED SUBGRADE
CG-2 CURB & GUTTER

1 Scale: N.T.S.
RESIDENTIAL LOCAL STREET (12' BK-BK)

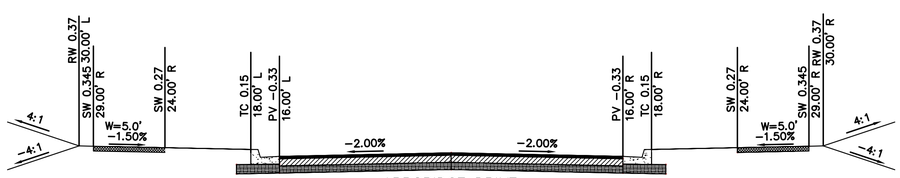


SUGAR TREE DRIVE, ARBOR VALLEY DRIVE, & ARBOR FALLS DRIVE
RESIDENTIAL LOCAL
N.T.S.

2" TYPE 6 ASPHALTIC CONCRETE SURFACE
4" TYPE 5 ASPHALTIC CONCRETE BASE COURSE
6" MIN. MODOT TYPE 5 STONE BASE
6" FLYASH STABILIZED SUBGRADE
CG-2 CURB & GUTTER

2 Scale: N.T.S.
RESIDENTIAL LOCAL STREET (12' BK-BK)

NOT AS BUILT



ARBORIDGE DRIVE
RESIDENTIAL COLLECTOR
N.T.S.

2" TYPE 6 ASPHALTIC CONCRETE SURFACE
5.5" TYPE 5 ASPHALTIC CONCRETE BASE COURSE
6" MIN. MODOT TYPE 5 STONE BASE
9" FLYASH STABILIZED SUBGRADE
CG -1 CURB & GUTTER

3 Scale: N.T.S.
RESIDENTIAL COLLECTOR STREET

Record Drawing

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	04.19.2017	Revised section	MGD
4	01.08.2018	Removed Hook Road section	MGD
5	02.14.2018	Revised asphalt type	

REVISIONS

TYPICAL SECTIONS

HAWTHORN RIDGE
1ST PLAT

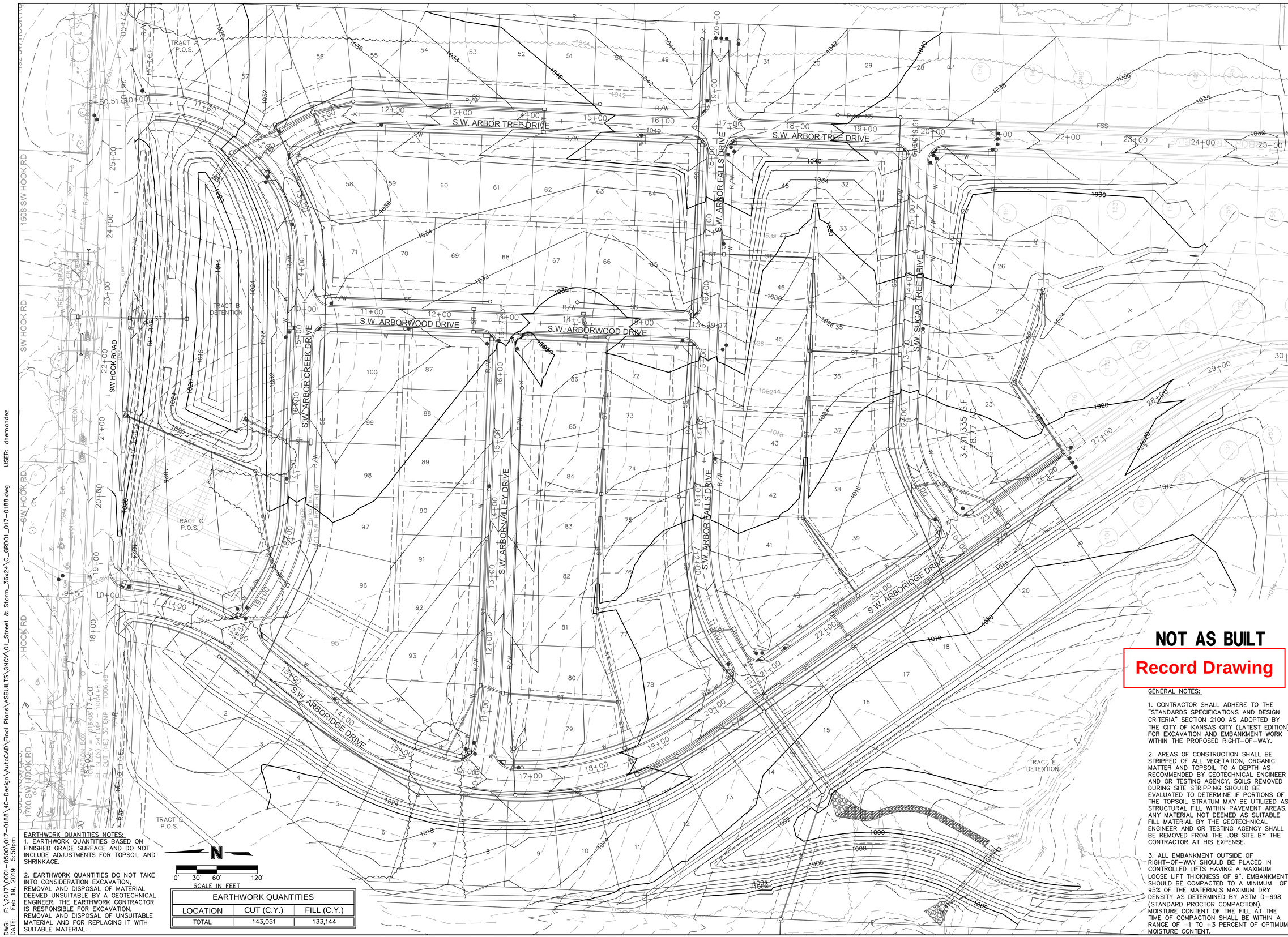
LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET
C104

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_TYP01_017-0188.dwg USER: dhernandez
DATE: Feb 19, 2019 5:50pm



NOT AS BUILT

Record Drawing

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.

EARTHWORK QUANTITIES

LOCATION	CUT (C.Y.)	FILL (C.Y.)
TOTAL	143,051	133,144

GENERAL NOTES:

1. CONTRACTOR SHALL ADHERE TO THE "STANDARDS SPECIFICATIONS AND DESIGN CRITERIA" SECTION 2100 AS ADOPTED BY THE CITY OF KANSAS CITY (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 9". 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 -1 TO +3 PERCENT OF OPTIMUM MOISTURE CONTENT.

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
4	01.08.2018	Removed Hook Road improvements	MGD
6	03.08.2018	Grading Quantities revised	

GRADING PLAN

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
Q/A/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C105

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DATE: Feb 19, 2019 5:50pm

CONCRETE SIDEWALK

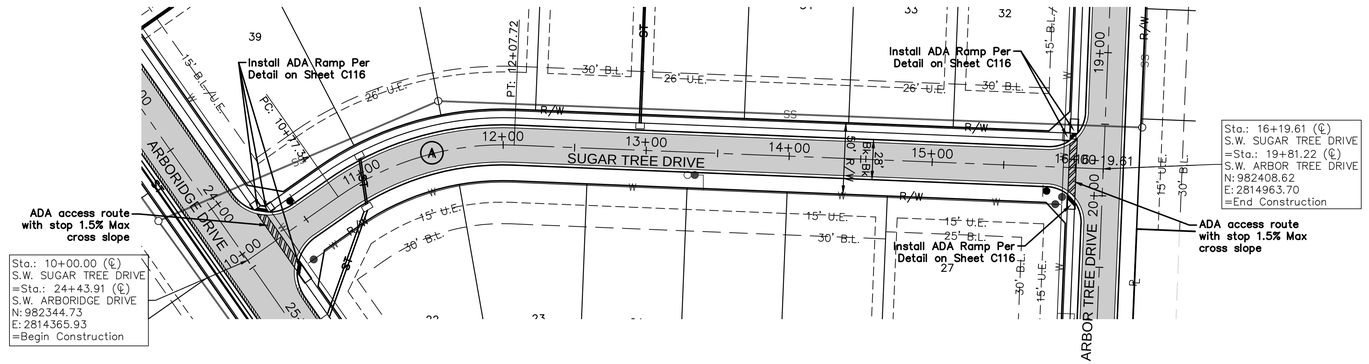
ADA ACCESS ROUTE

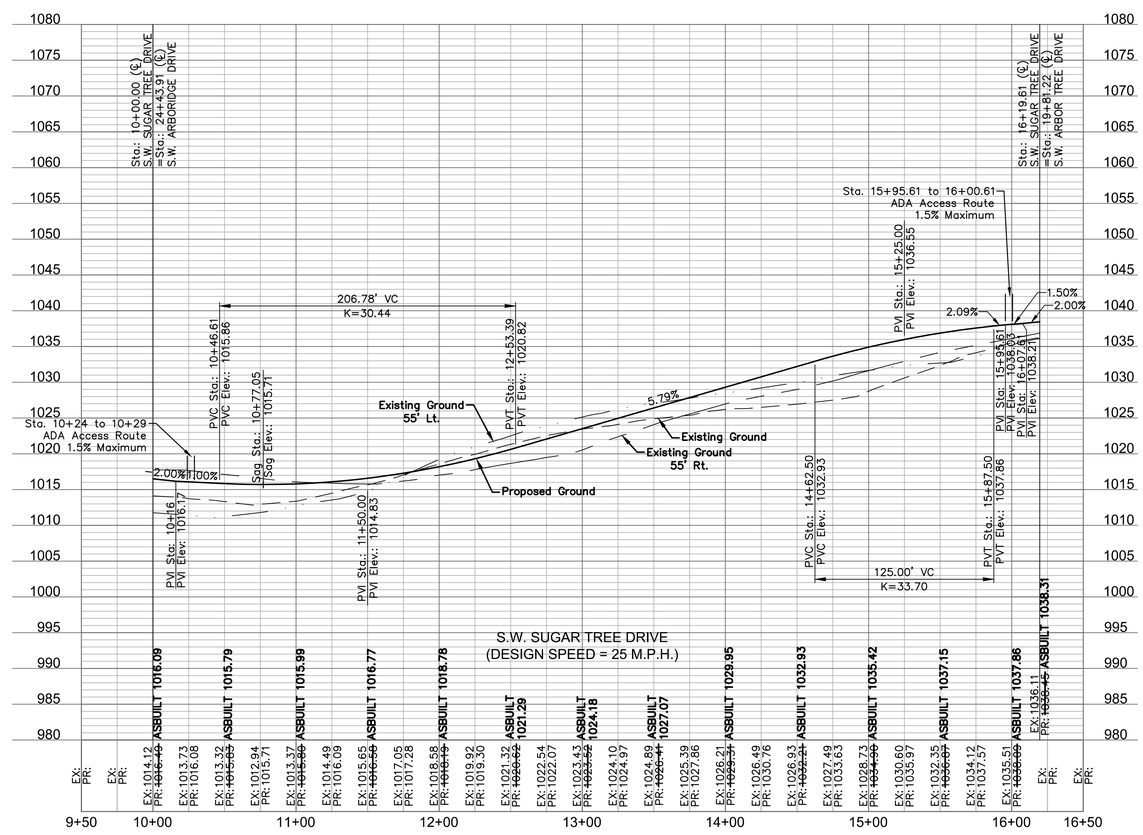
ASPHALT PAVEMENT

CG-2 CURB & GUTTER (See Detail Sheet)

CG-1 CURB & GUTTER (See Detail Sheet)

CURVE	RADIUS	LENGTH	TANGENT	DELTA	P.I. STA. (BK.)
A	200	130.37	67.60	37°20'57"	11+40.12





AS BUILT
DATE: 12/19/2018

Record Drawing

N

0' 25' 50' 100'
SCALE IN FEET

20' 10' 5' 0'

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
5	02.14.2018	Revised ADA access notes	MGD

REVISIONS

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C106

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_RPP01_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 5:52pm

CURVE	RADIUS	LENGTH	TANGENT	DELTA	P.I. STA. (BK.)
A	225	171.24	90.01	43°36'22"	12+98.74
B	250	133.59	68.43	30°37'00"	18+21.04

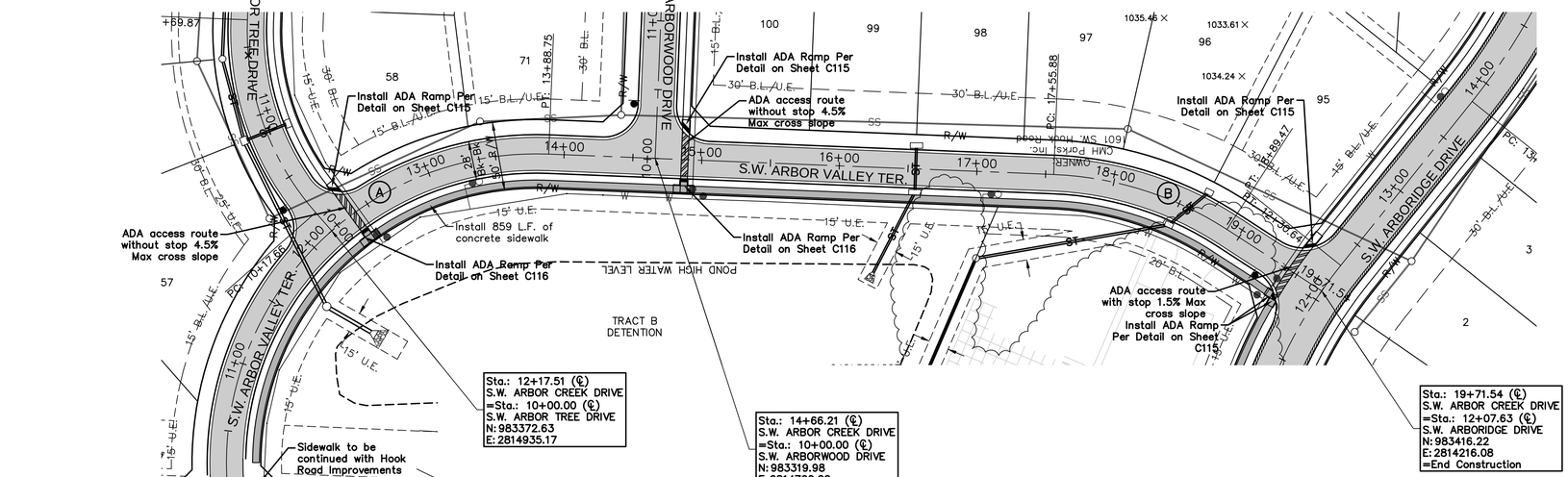
CONCRETE SIDEWALK

ADA ACCESS ROUTE

ASPHALT PAVEMENT

CG-2 CURB & GUTTER (See Detail Sheet)

CG-1 CURB & GUTTER (See Detail Sheet)



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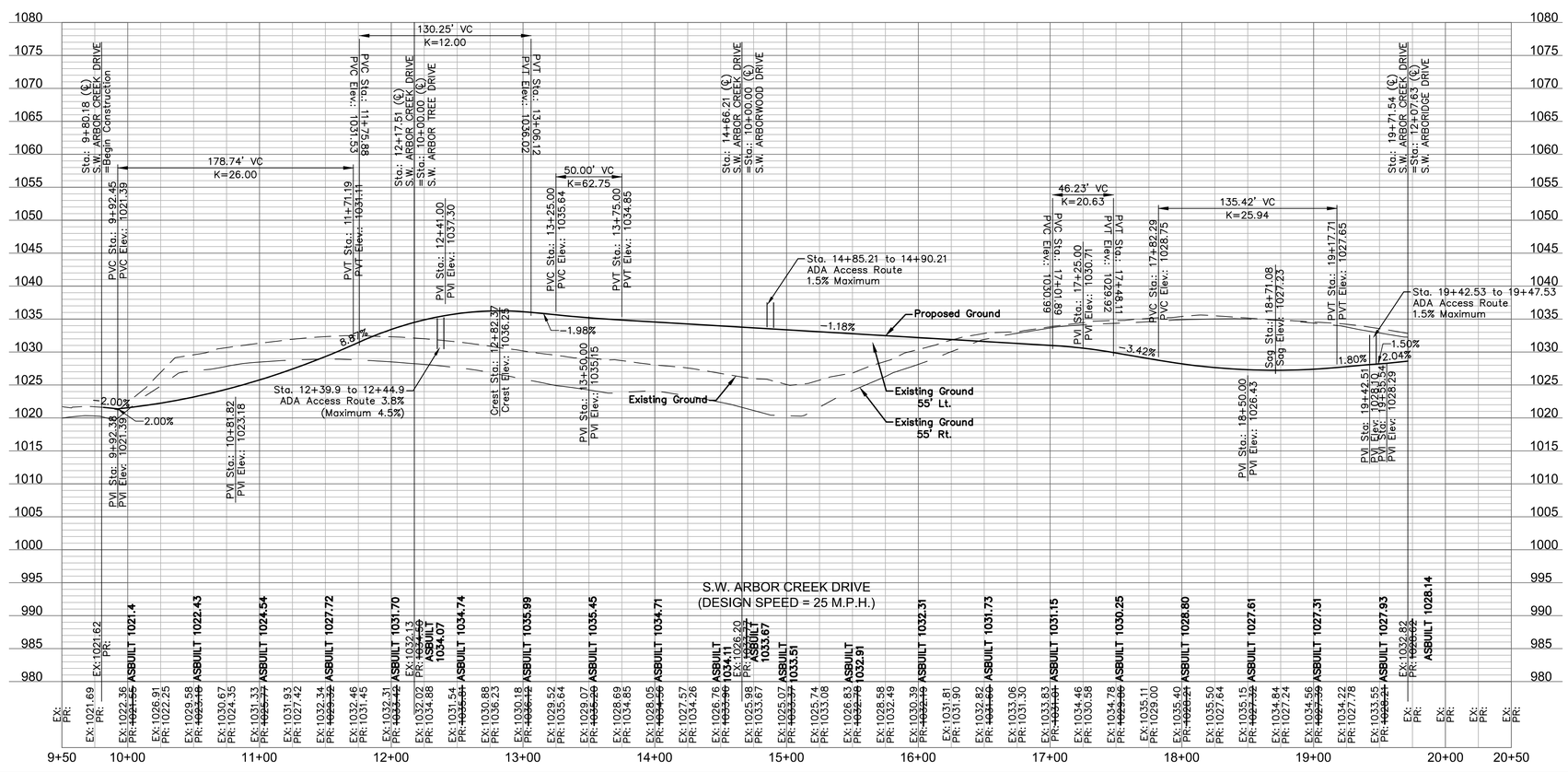

AS BUILT
DATE: 12/19/2018

SCALE IN FEET

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STATE OF MISSOURI — MELISSA G. DEGONIA — NUMBER PE-2011000892 — 03/04/2019 — PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
4	01.09.2018	Removed Hook Road Improvements	MGD
5	02.14.2018	Removed ADA access routes	MGD

REVISIONS

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017.0188
date: 03.03.2017

SHEET C107

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_RPP02_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 5:53pm

CURVE	RADIUS	LENGTH	TANGENT	DELTA	P.I. STA. (BK.)
A	800	75.19	37.63	5°23'08"	11+20.95

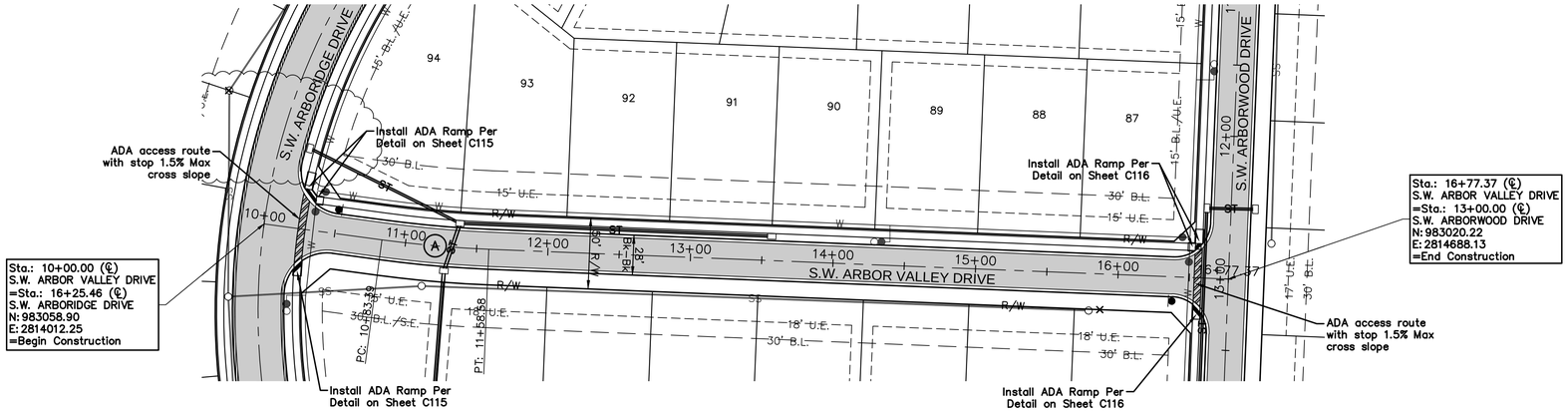
CONCRETE SIDEWALK

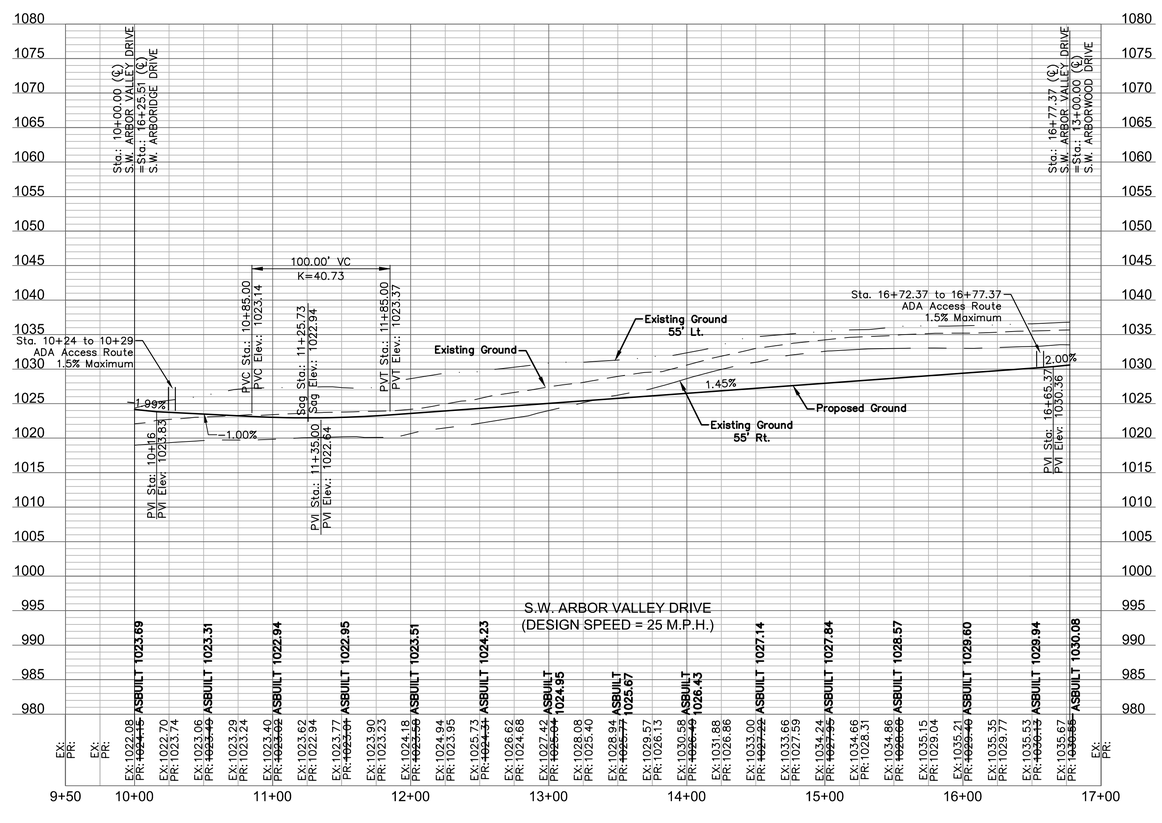
ADA ACCESS ROUTE

ASPHALT PAVEMENT

CG-2 CURB & GUTTER (See Detail Sheet)

CG-1 CURB & GUTTER (See Detail Sheet)





AS BUILT
DATE: 12/19/2018

Record Drawing

N

0' 25' 50' 100'
SCALE IN FEET

20' 10' 5' 0'

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
5	02.14.2018	Revised ADA access routes	MGD

REVISIONS

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C108

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_RPP03_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 5:54pm

CURVE	RADIUS	LENGTH	TANGENT	DELTA	P.I. STA. (BK.)
A	300	195.56	101.40	37°20'58"	11+42.48

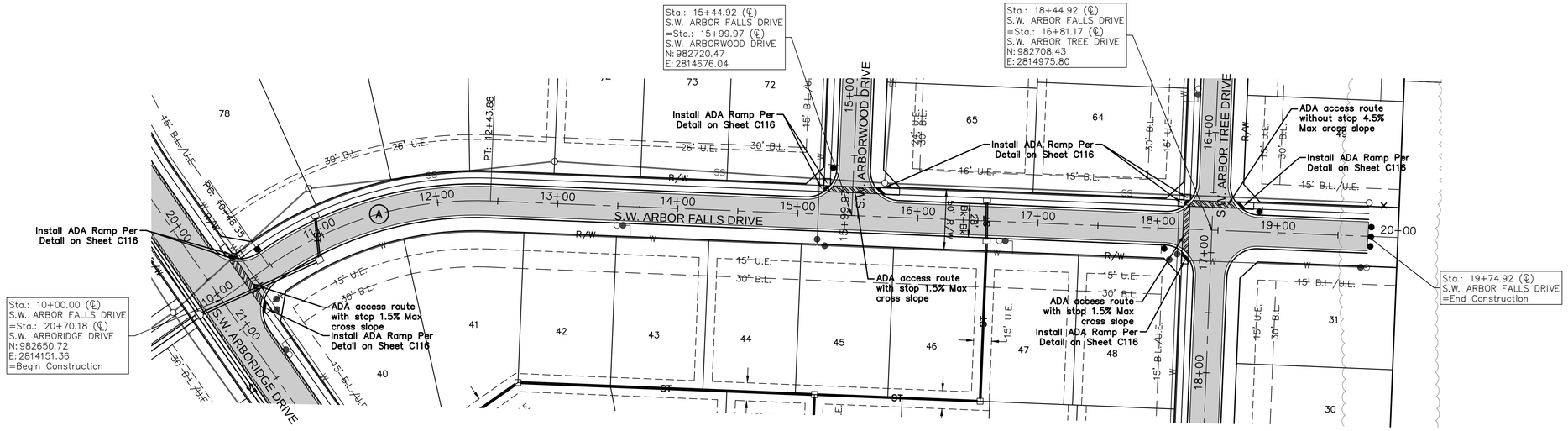
CONCRETE SIDEWALK

ADA ACCESS ROUTE

ASPHALT PAVEMENT

CG-2 CURB & GUTTER (See Detail Sheet)

CG-1 CURB & GUTTER (See Detail Sheet)



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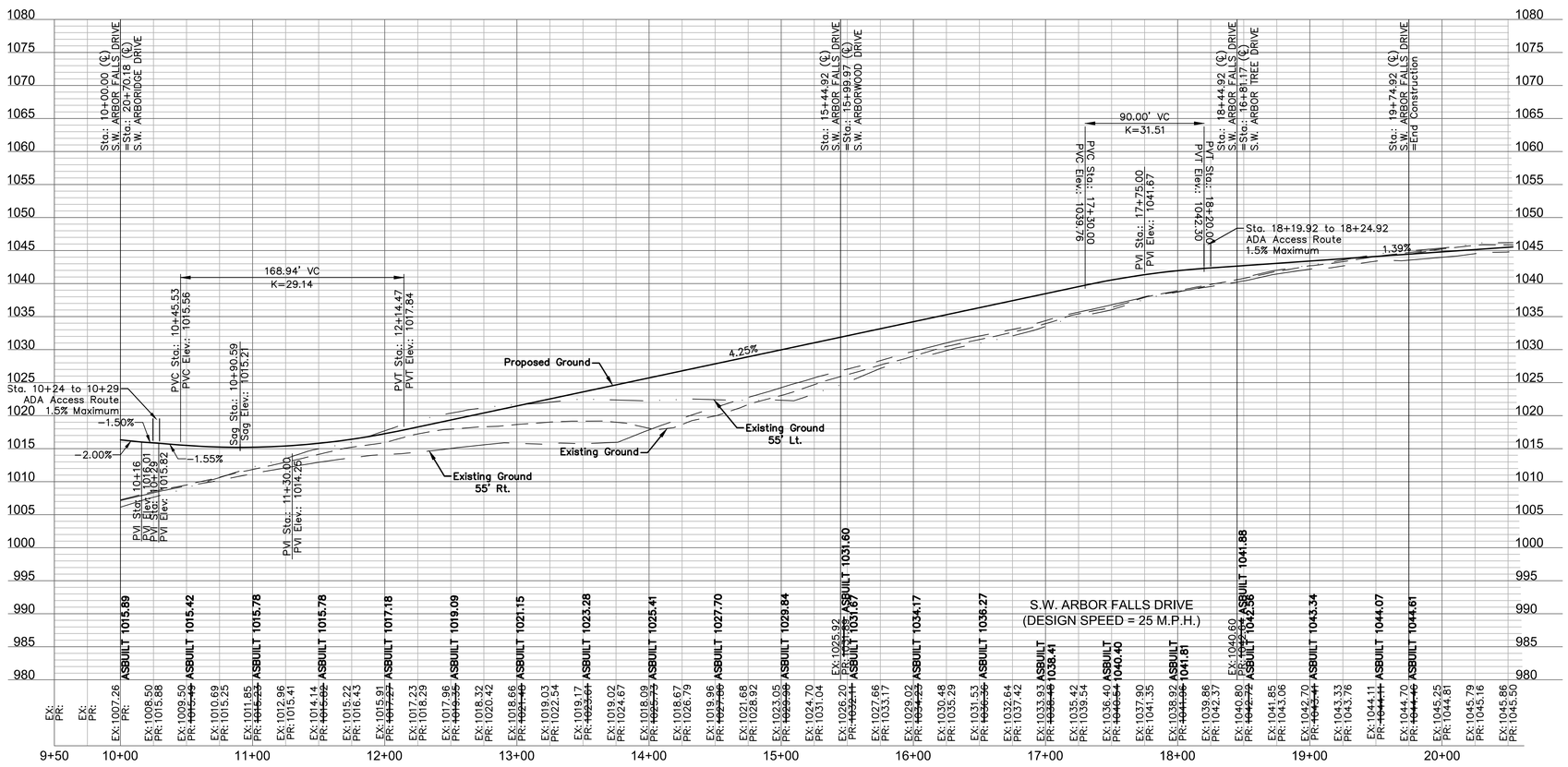
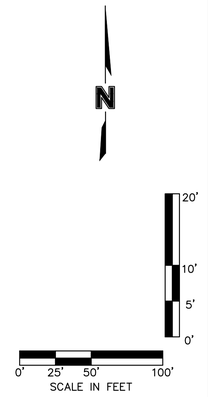


AS BUILT
DATE: 12/19/2018



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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
5	02.14.2018	Revised ADA access routes	MGD
7	06.27.2018	End of Road Revised	

REVISIONS

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C109

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DATE: Feb 19, 2019 5:55pm
USER: dhernandez

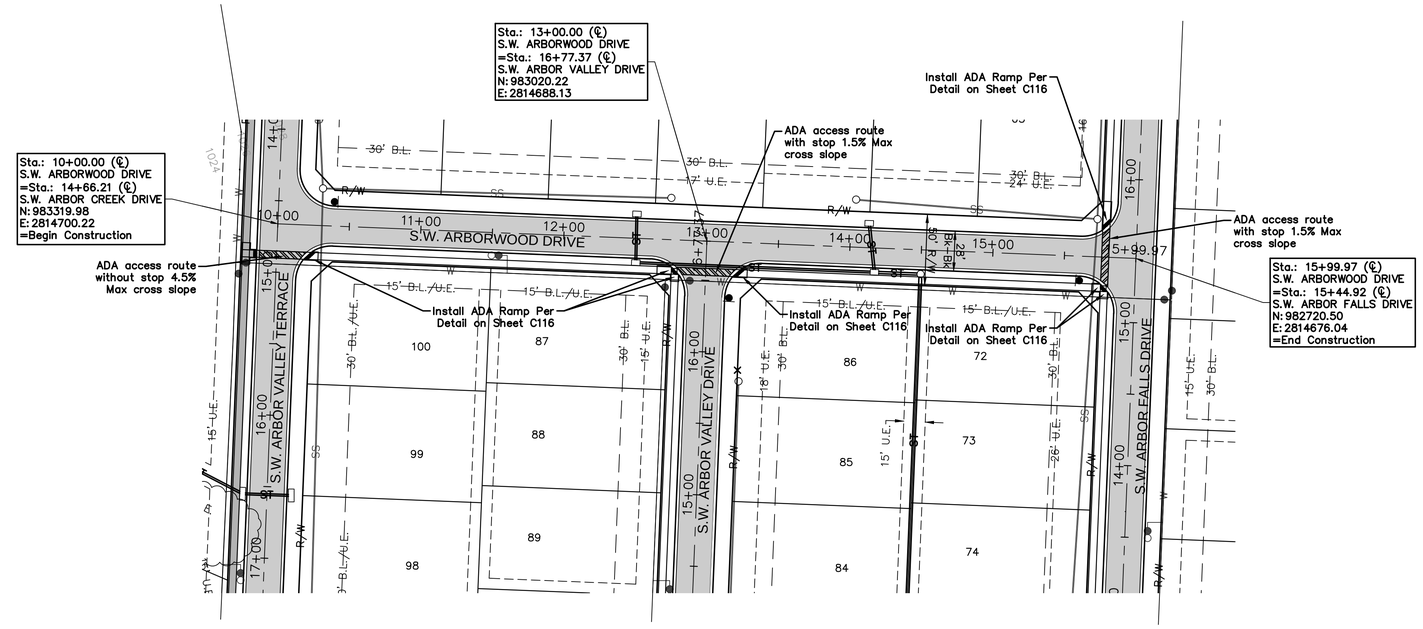
CONCRETE SIDEWALK

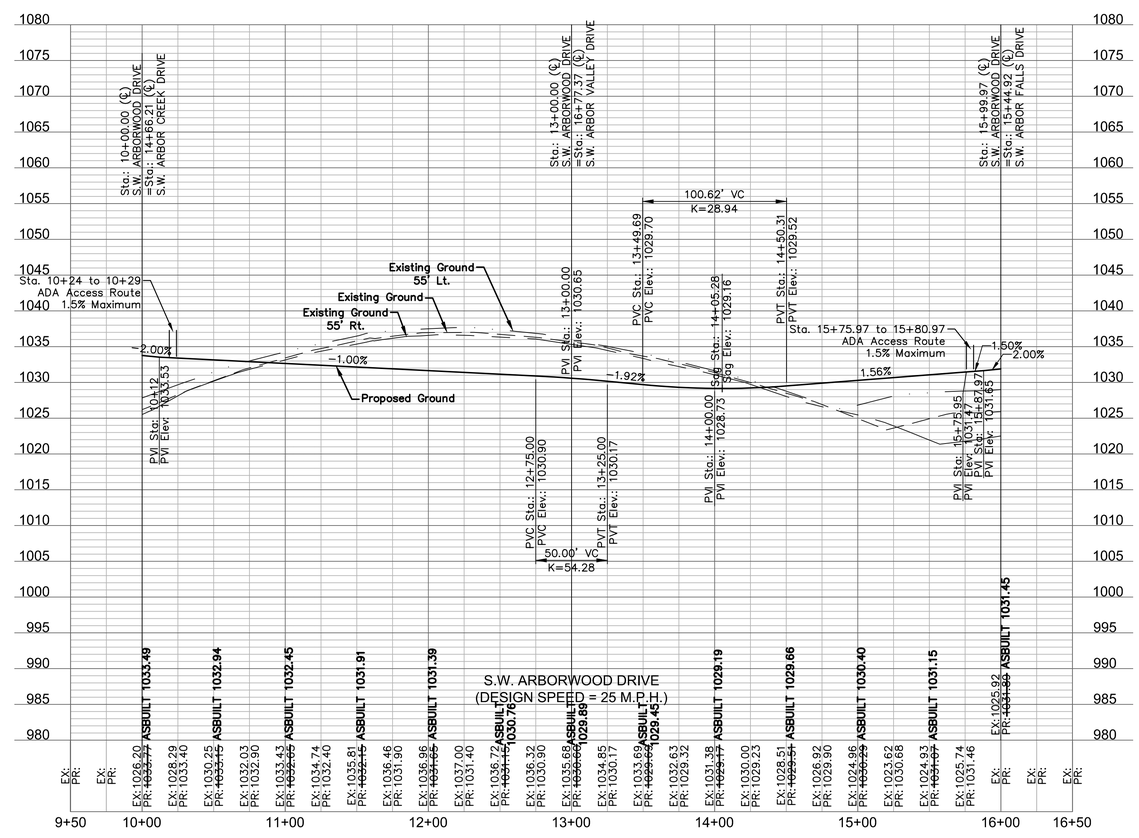
ADA ACCESS ROUTE

ASPHALT PAVEMENT

CG-2 CURB & GUTTER (See Detail Sheet)

CG-1 CURB & GUTTER (See Detail Sheet)





AS BUILT
DATE: 12/19/2018

Record Drawing

SCALE IN FEET

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
5	02.14.2018	Revised ADA access notes	MGD

REVISIONS

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.D
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C110

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_RPP05_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 5:56pm

CURVE	RADIUS	LENGTH	TANGENT	DELTA	P.I. STA. (BK.)
A	200	152.21	80.01	43°36'22"	10+89.86

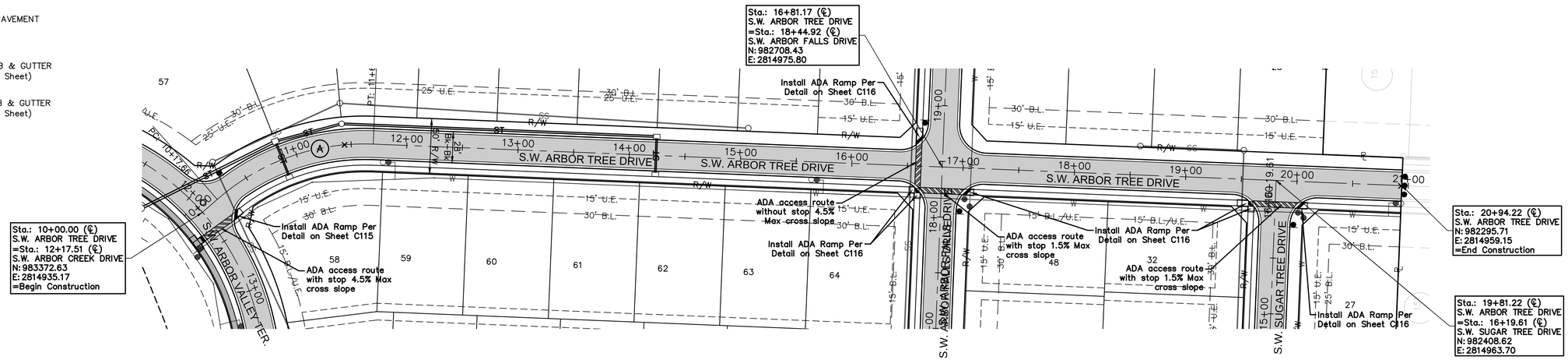
CONCRETE SIDEWALK

ADA ACCESS ROUTE

ASPHALT PAVEMENT

CG-2 CURB & GUTTER (See Detail Sheet)

CG-1 CURB & GUTTER (See Detail Sheet)



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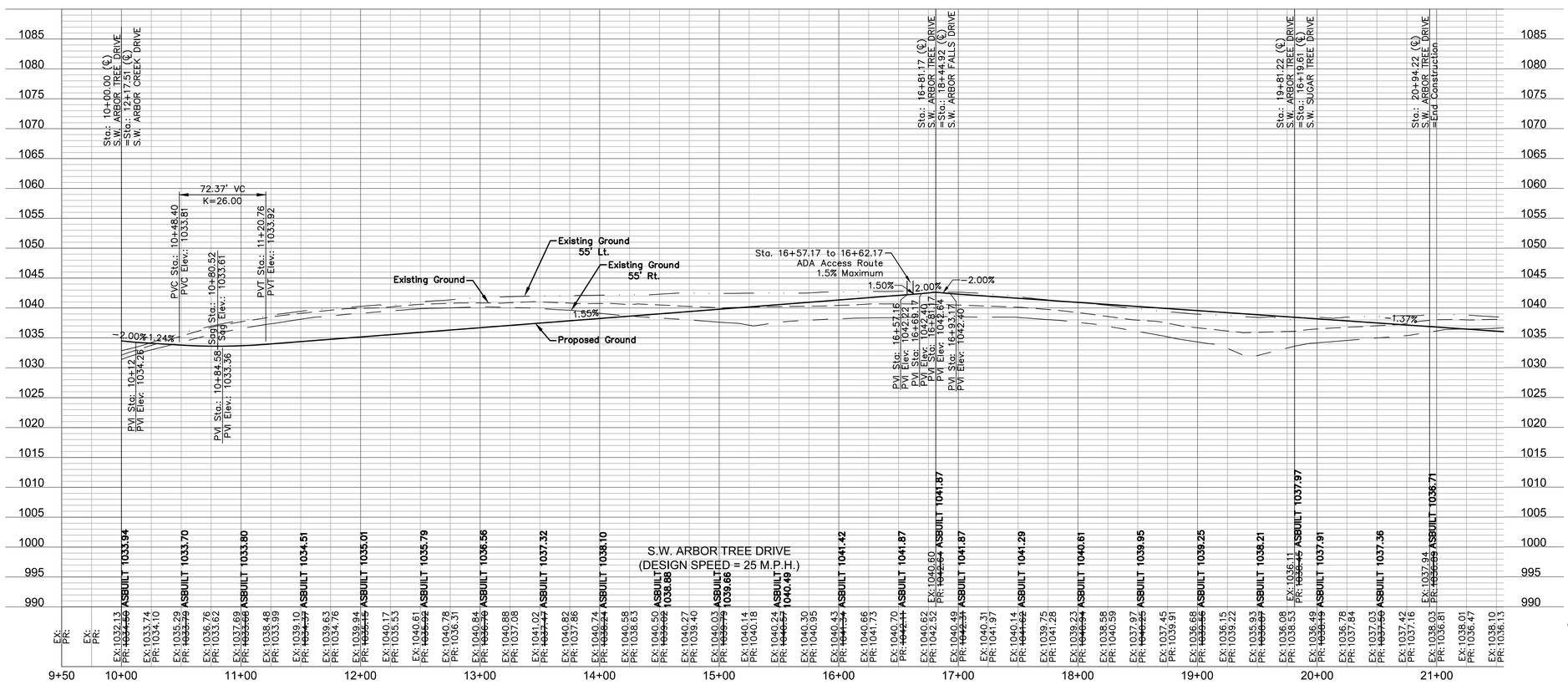

AS BUILT
DATE: 12/19/2018

SCALE IN FEET

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PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
5	02.14.2018	Revised ADA access notes	MGD

REVISIONS

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.Q
checked by: M.G.D.
designed by: P.M.D
Q/A/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C111

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_RPP06_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 5:58pm

CURVE	RADIUS	LENGTH	TANGENT	DELTA	P.I. STA. (BK.)
A	335	189.19	97.19	32°21'27"	11+33.45
B	450	242.12	124.07	30°49'38"	18+38.48

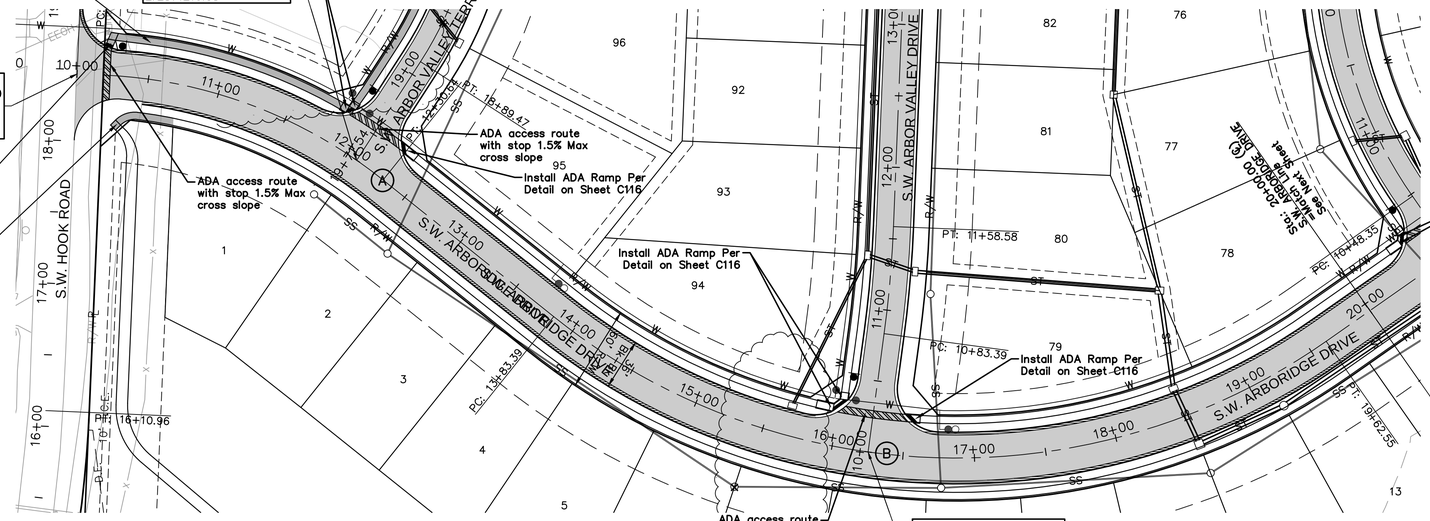
CONCRETE SIDEWALK

ADA ACCESS ROUTE

ASPHALT PAVEMENT

CG-2 CURB & GUTTER (See Detail Sheet)

CG-1 CURB & GUTTER (See Detail Sheet)



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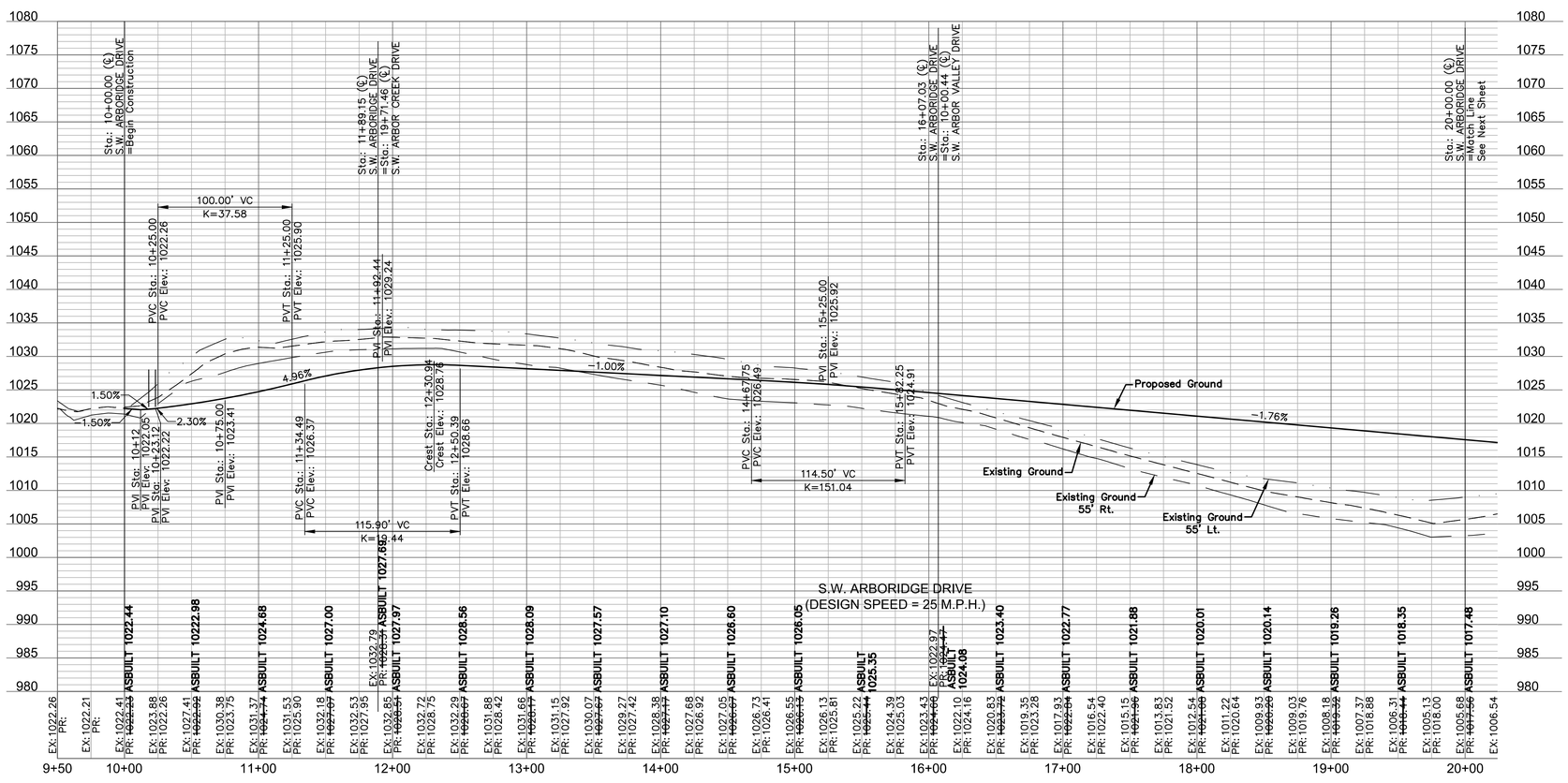

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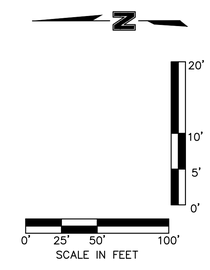
DATE: 12/19/2018



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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
2	06.23.2017	Revised notes	MGD
4	01.08.2018	Removed Hook Road improvements	MGD
5	02.14.2018	Revised ADA access	

REVISIONS

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C112

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_RPP07_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 5:59pm

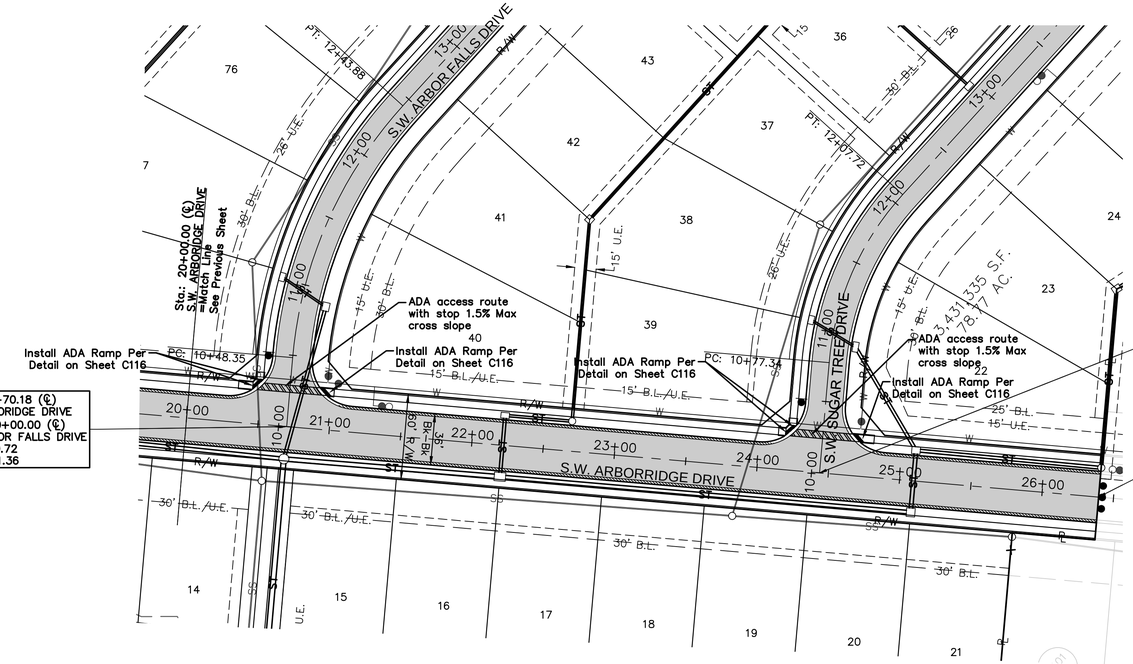
CONCRETE SIDEWALK

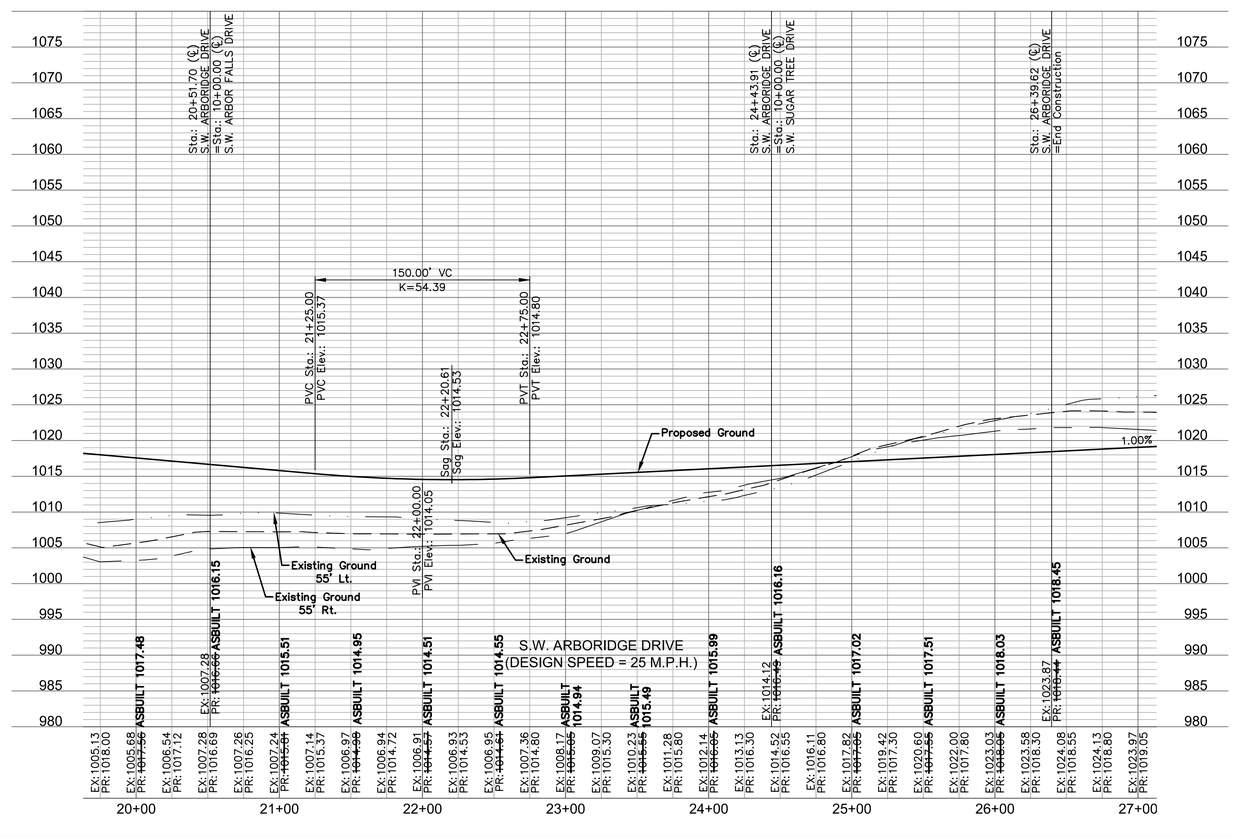
ADA ACCESS ROUTE

ASPHALT PAVEMENT

CG-2 CURB & GUTTER (See Detail Sheet)

CG-1 CURB & GUTTER (See Detail Sheet)

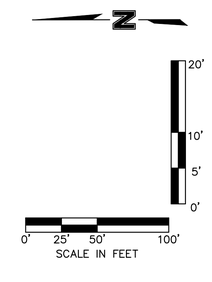




AS BUILT

DATE: 12/19/2018

Record Drawing



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NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
2	06.22.2017	Revised notes	MGD
4	01.08.2018	Removed Hawk Road improvements	MGD
5	02.14.2018	Revised ADA access notes	

ROADWAY PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C113

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_RPP08_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 6:00pm

Note: Contractor to relocate existing signs, mailboxes, utilities with Hook Road Improvements.

Install End of Road Treatment. See detail this sheet.

Install S.W. Arbor Valley Terrace and S.W. Hook Road Street Name Sign w/ Stop Sign.

Install S.W. Arbor Valley Terrace and S.W. Arbor Tree Drive Street Name Sign w/ Stop Sign.

Install S.W. Arbor Falls Drive and S.W. Arbor Tree Drive Street Name Sign w/ Stop Sign.

Install End of Road Treatment. See detail this sheet.

Install S.W. Arbor Falls Drive and S.W. Arbor Tree Drive Street Name Sign w/ Stop Sign.

Install S.W. Sugar Tree Drive and S.W. Arbor Tree Drive Street Name Sign w/ Stop Sign.

Install S.W. Arbor Valley Terrace and S.W. Arborwood Drive Street Name Sign w/ Stop Sign.

Install S.W. Arbor Valley Drive and S.W. Arborwood Drive Street Name Sign w/ Stop Sign.

Install S.W. Arbor Falls Drive and S.W. Arborwood Drive Street Name Sign w/ Stop Sign.

Install End of Road Treatment. See detail this sheet.

Install S.W. Sugar Tree Drive and S.W. Arboridge Drive Street Name Sign w/ Stop Sign.

Install S.W. Arbor Valley Terrace and S.W. Arboridge Drive Street Name Sign w/ Stop Sign.

Install S.W. Arboridge Drive and S.W. Hook Road Street Name Sign w/ Stop Sign.

Install S.W. Arbor Falls Drive and S.W. Arboridge Drive Street Name Sign w/ Stop Sign.

Install S.W. Arbor Valley Drive and S.W. Arboridge Drive Street Name Sign w/ Stop Sign.

TRACT A P.O.S.

TRACT B DETENTION

TRACT C P.O.S.

TRACT D P.O.S.

S.W. ARBOR TREE DRIVE

S.W. ARBORWOOD DRIVE

S.W. ARBOR CREEK DRIVE

S.W. ARBOR VALLEY DRIVE

S.W. ARBOR FALLS DRIVE

S.W. SUGAR TREE DRIVE

S.W. ARBORIDGE DRIVE

SW HOOK ROAD

MARY TRUSTEE, 1508 SW HOOK RD

H & JEAN M. 1516 SW HOOK RD

& SHARRIE A. 1622 SW HOOK RD

D & WF, 1 SW HOOK RD

SUE-TRUSTEES, 1700 SW HOOK RD

NOT AS BUILT

Record Drawing

END OF ROAD TREATMENT

Not To Scale

Object Markers (Type OM4-3, 18"x18") are to be installed 2' from End of Proposed Pavement.

6'-0" 6'-0" 6'-0"

SIGN

GROUND LEVEL

4'-0"

3'-0"

N

0' 30' 60' 120'

SCALE IN FEET

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_TCP02_017-0188.dwg USER: dhernandez

DATE: Feb 19, 2019 6:01pm

OLSSON ASSOCIATES

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1.	04.19.2017	Added sheet	MGD
4.	01.08.2018	Removed Hook Road improvements	MGD
5	06.27.2018	End of Road Treatment location Revised	

TRAFFIC CONTROL PLAN

HAWTHORN RIDGE 1ST PLAT

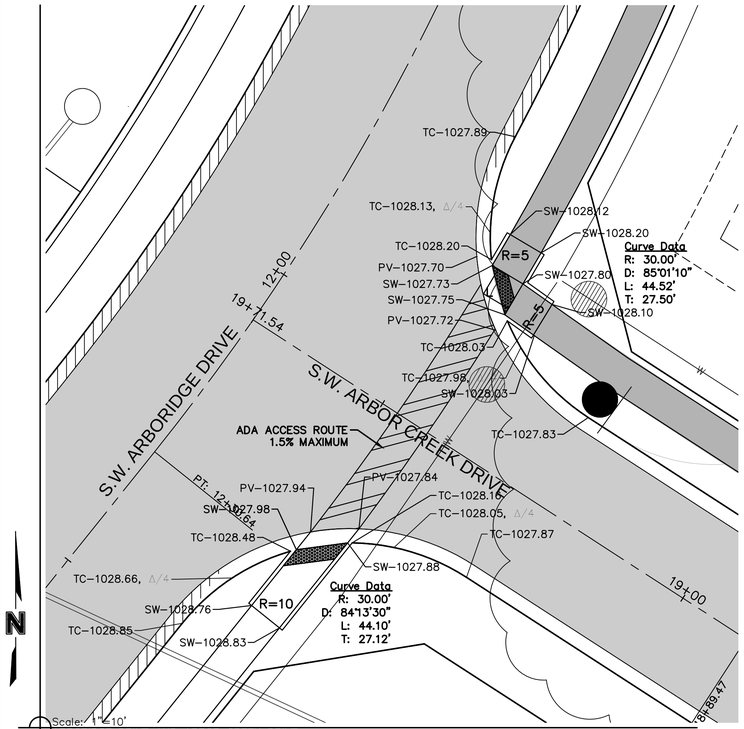
LEE'S SUMMIT, MO

2018

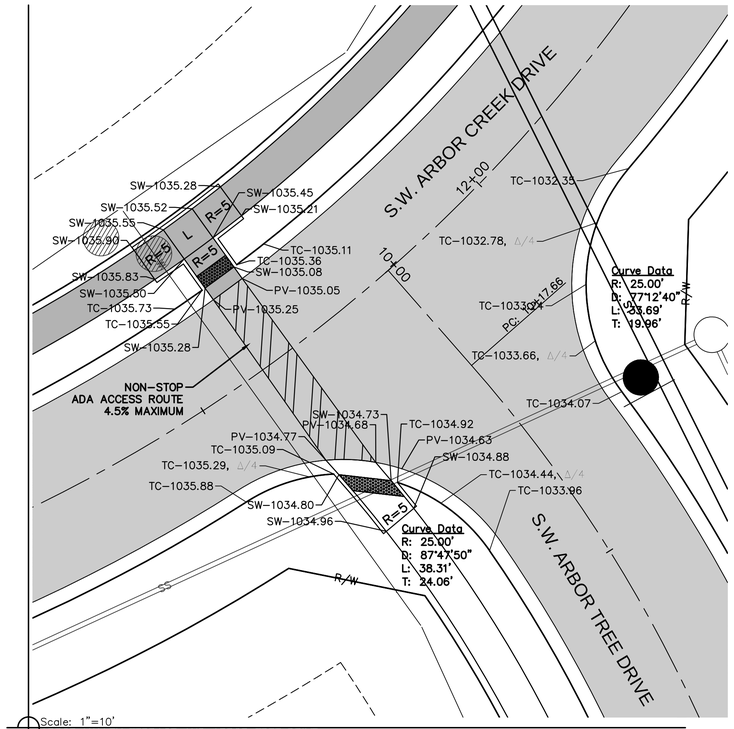
drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
Q/A/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C114

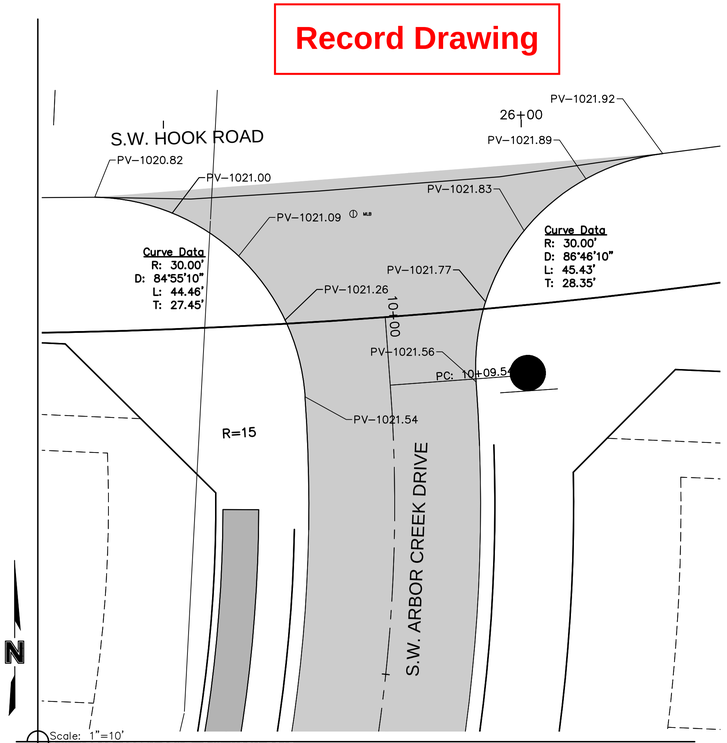
Record Drawing



Scale: 1"=10'
1 ARBORIDGE DRIVE AND ARBOR CREEK DRIVE

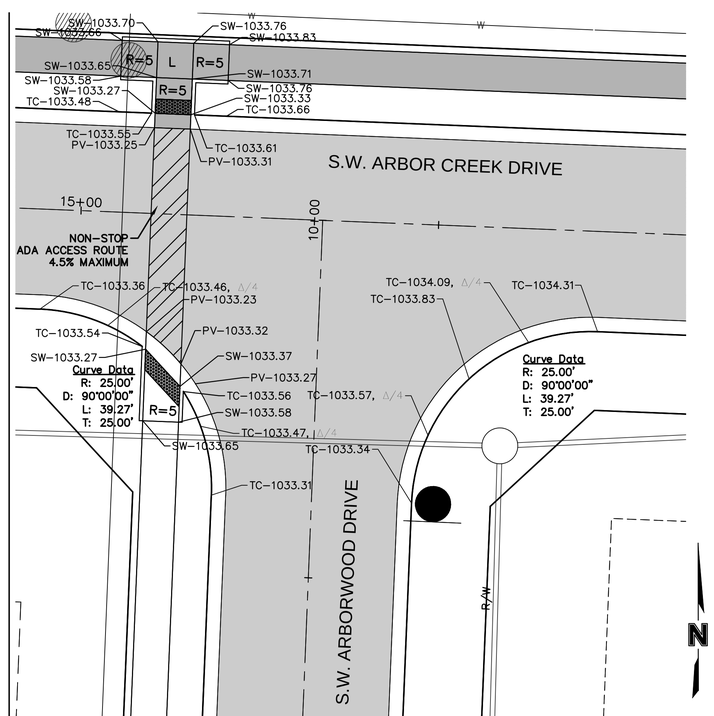


Scale: 1"=10'
2 ARBOR VALLEY TERRACE AND ARBOR TREE DRIVE

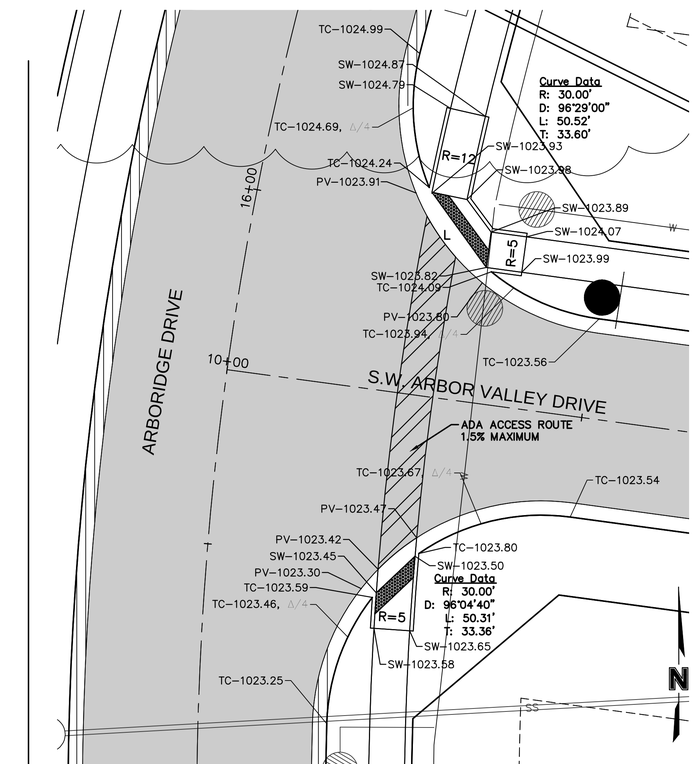


Scale: 1"=10'
5 S.W. ARBOR CREEK DRIVE, S.W. HOOK ROAD

NOT AS BUILT



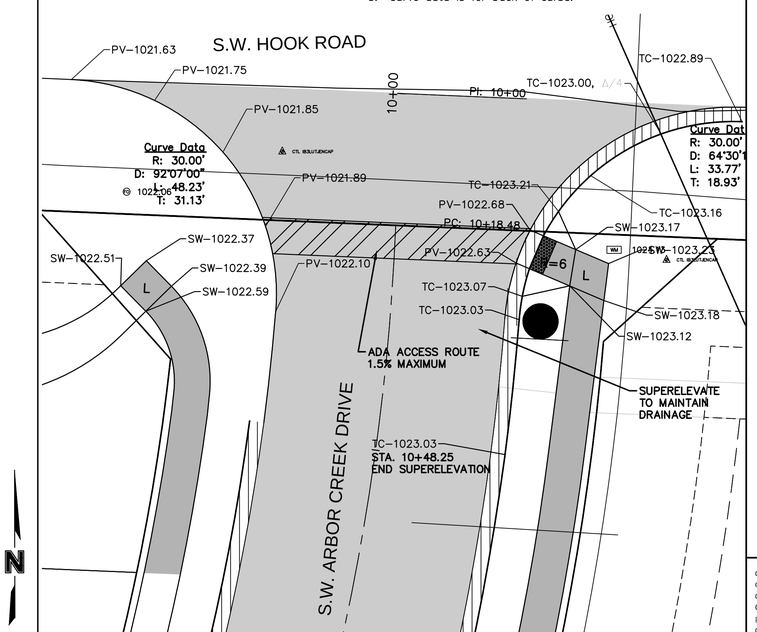
Scale: 1"=10'
3 ARBOR VALLEY TERRACE AND ARBORWOOD DRIVE



Scale: 1"=10'
4 ARBOR VALLEY DRIVE AND ARBORIDGE DRIVE

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

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 slope.
3. A turning space is required at all directional changes, which shall not have a slope greater than 2%.
4. Ramp runs shall have a maximum running slope of 7.5%.
5. Curve data is for back of curbs.



Scale: 1"=10'
6 S.W. ARBOR CREEK DRIVE, S.W. HOOK ROAD

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
2	06.20.2017	Revised ramp elevations	MGD
4	01.08.2018	Removed Hook Road improvements	MGD
5	02.14.2018	Revised ADA access notes	MGD
7	04.25.2018	Revised spot elevations	

HAWTHORN RIDGE
1ST PLAT
LEE'S SUMMIT, MO
2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET
C115

USER: dhernandez
DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_SPT02_017-0188.dwg
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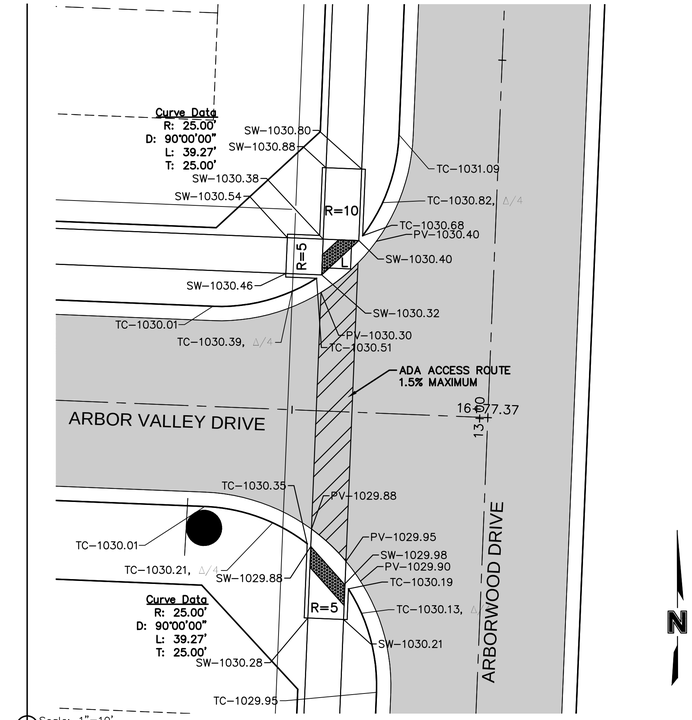
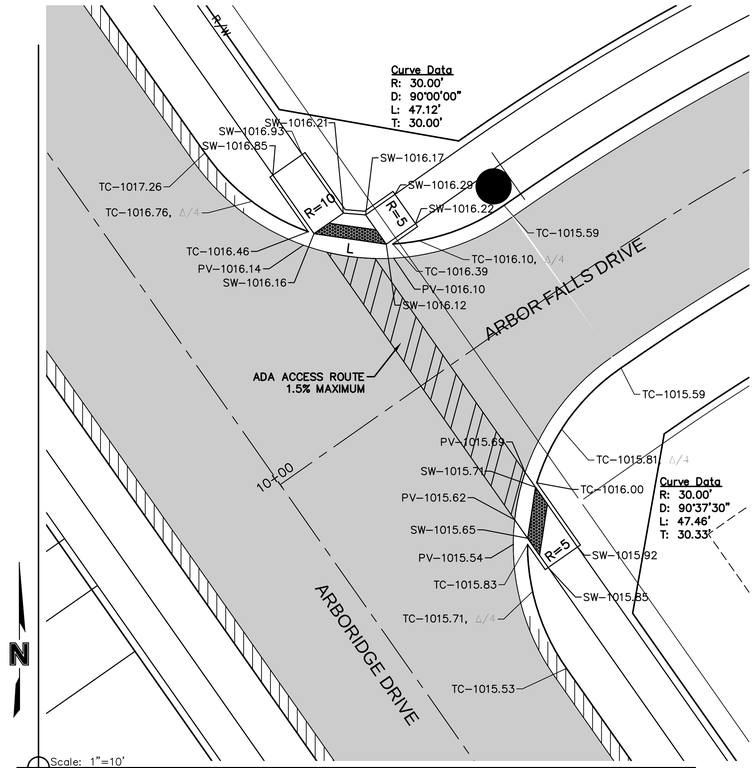
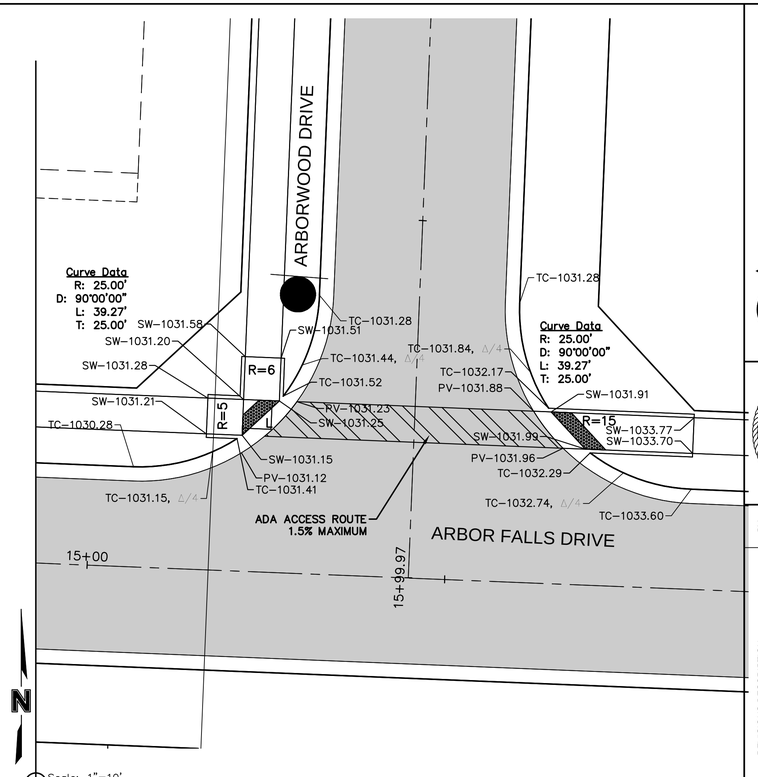


1 Scale: 1"=10'
ARBOR VALLEY DRIVE AND ARBORWOOD DRIVE



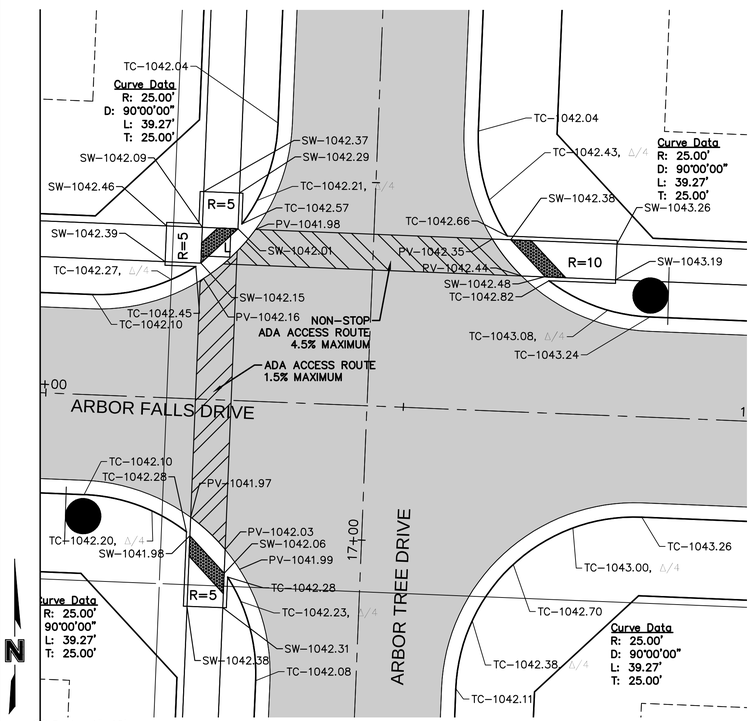
2 Scale: 1"=10'
ARBORIDGE DRIVE AND ARBOR FALLS DRIVE



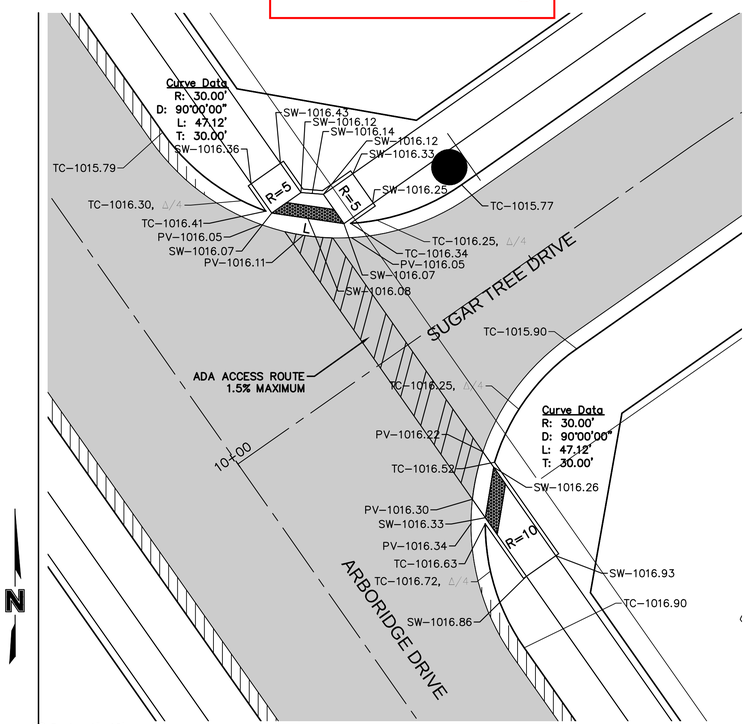
3 Scale: 1"=10'
ARBORWOOD DRIVE AND ARBOR FALLS DRIVE

NOT AS BUILT

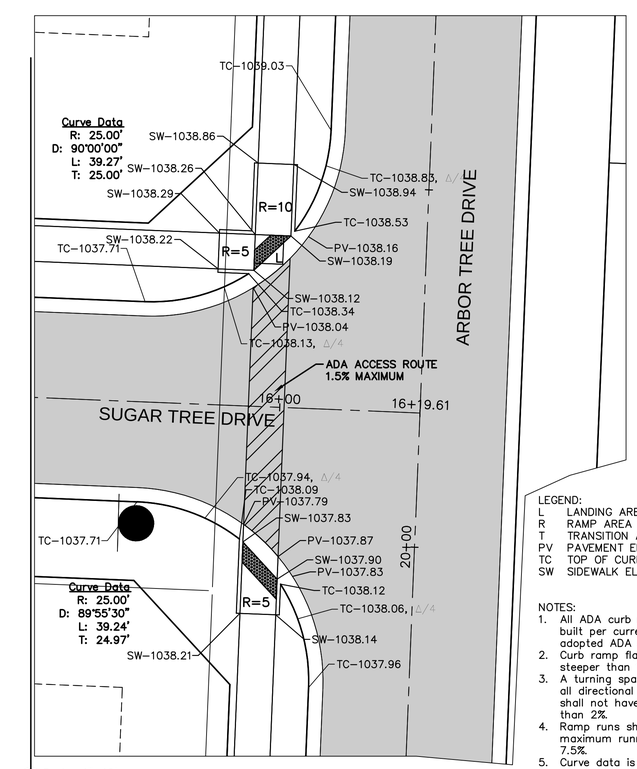
Record Drawing



4 Scale: 1"=10'
ARBOR FALLS DRIVE AND ARBOR TREE DRIVE



5 Scale: 1"=10'
SUGAR TREE DRIVE AND ARBORIDGE DRIVE



6 Scale: 1"=10'
SUGAR TREE DRIVE AND ARBOR TREE DRIVE

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

NOTES:
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2. Curb ramp flares shall not be steeper than 1:10 max slope.
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5. Curve data is for back of curbs.

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
2	06.23.2017	Revised ramp elevations	MGD
5	02.14.2018	Revised ADA access routes	MGD

REVISIONS

HAWTHORN RIDGE
1ST PLAT

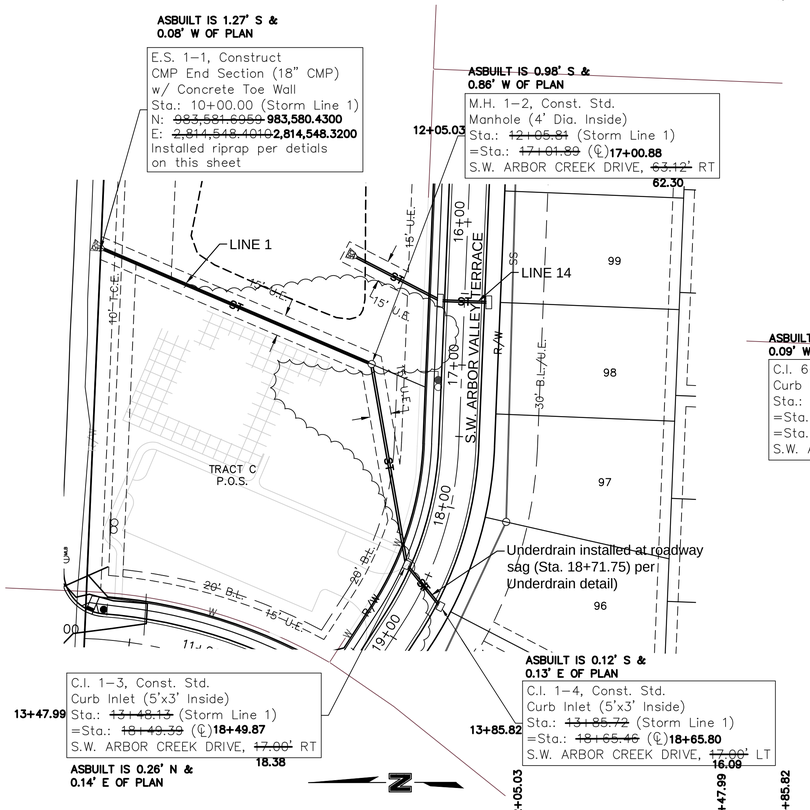
LEE'S SUMMIT, MO

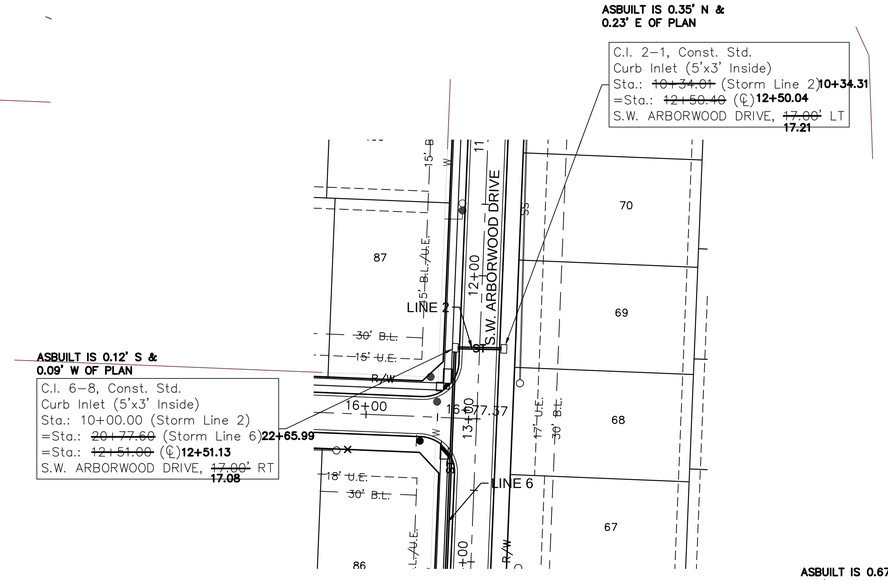
2018

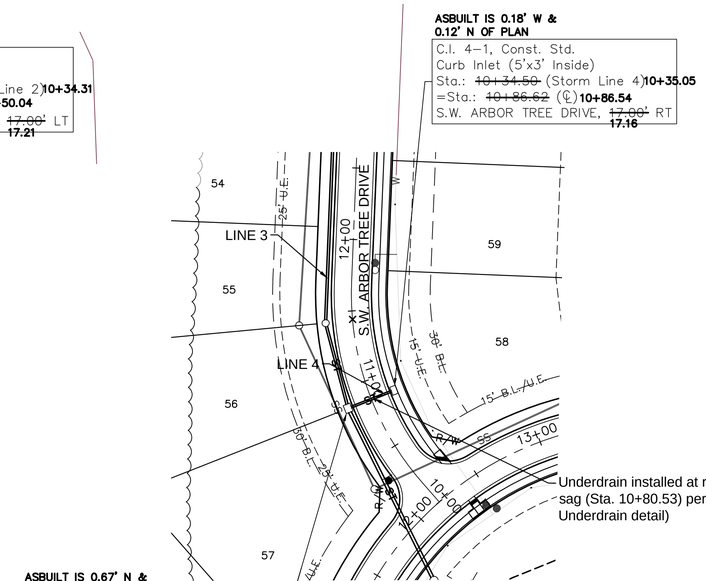
drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET
C116

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_SPT03_017-0188.dwg USER: dhernandez
DATE: Feb 19, 2019 6:05pm

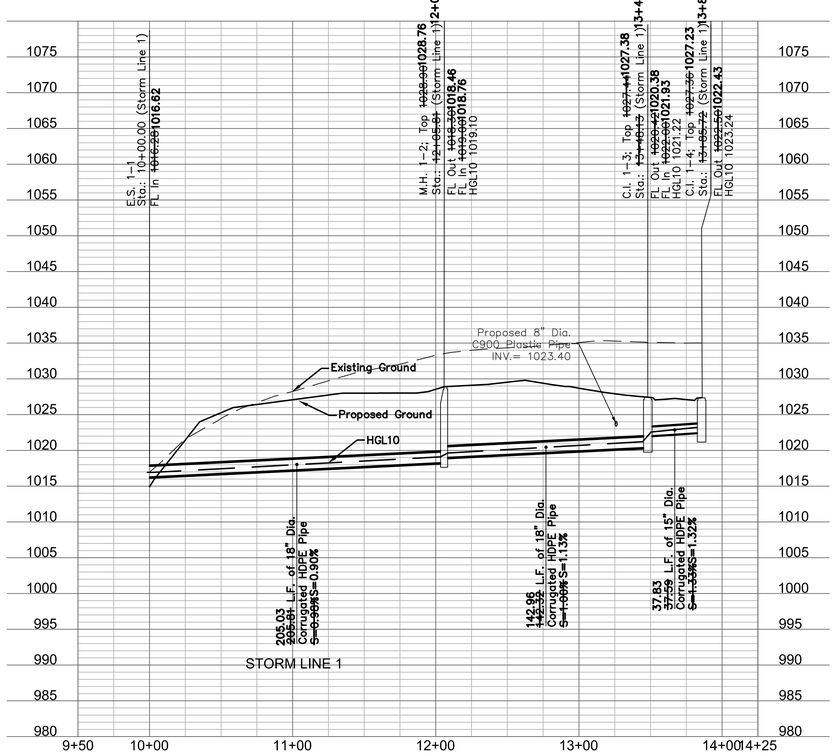


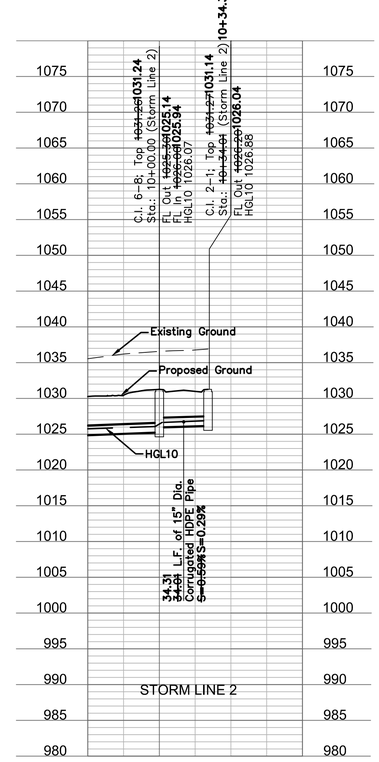


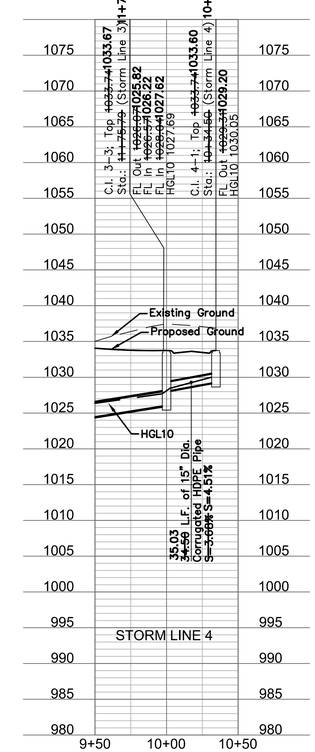


Riprap Calculations								
Structure	Discharge Flow (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Apron Width (ft)	Area (SY)
E.S. 1-1	7.63	1.5	1.00	5.00	6	1.46	8.50	~~4.33~~ 16.75 S.Y.

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







AS BUILT
DATE: 12/19/2018

Record Drawing

0' 25' 50' 100'
SCALE IN FEET

OLSSON ASSOCIATES
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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
3	04.19.2017	Added note	MGD
4	01.08.2018	Revised structures	MGD

HAWTHORN RIDGE 1ST PLAT
LEE'S SUMMIT, MO
2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C117

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_STM01_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 6:07pm

ASBUILT IS 0.27' N & 1.39' E OF PLAN
M.H. 3–4, Const. Std.
Manhole (4' Dia. Inside)
Sta.: ~~12+37.36~~ (Storm Line 3)**12+36.73**
=Sta.: ~~11+43.29~~ (℄)**11+43.08**
S.W. ARBOR TREE DRIVE, ~~18.94'~~ LT
20.35

ASBUILT IS 0.65' S & 0.10' E OF PLAN
C.I. 3–5, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~15+20.62~~ (Storm Line 3)**15+20.96**
=Sta.: ~~14+24.02~~ (℄)**14+24.67**
S.W. ARBOR TREE DRIVE, ~~17.00'~~ LT
17.13

ASBUILT IS 0.67' N & 0.12' E OF PLAN
C.I. 3–3, Const. Std.
Curb Inlet (5'x4' Inside)
Sta.: ~~11+75.79~~ (Storm Line 3)**11+74.43**
=Sta.: 10+00.00 (Storm Line 4)
=Sta.: ~~10+86.60~~ (℄)**10+86.06**
S.W. ARBOR TREE DRIVE, ~~17.50'~~ LT
17.86

ASBUILT IS 0.64' N & 1.23' W OF PLAN
M.H. 3–2, Const. Std.
Manhole (5' Dia. Inside)
Sta.: ~~10+41.28~~ (Storm Line 3)
=Sta.: ~~11+70.98~~ (℄)**11+71.24**
S.W. ARBOR CREEK DRIVE, ~~34.84'~~ RT
36.22

ASBUILT IS 1.09' E & 0.75' N OF PLAN
E.S. 3–1, Constructed
CMP End Section (30" CMP)
w/ Concrete Toe Wall
Sta.: 10+00.00 (Storm Line 3)
=Sta.: ~~11+78.39~~ (℄)**11+76.48**
S.W. ARBOR CREEK DRIVE, ~~75.75'~~ RT
75.37

ASBUILT IS 0.02' E & 0.16' S OF PLAN
C.I. 3–6, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~15+54.62~~ (Storm Line 3)**15+55.07**
=Sta.: ~~14+24.02~~ (℄)**14+24.18**
S.W. ARBOR TREE DRIVE, ~~17.00'~~ RT
16.98

ASBUILT IS 0.18' E & 0.70' S OF PLAN
C.I. 5–4, Const. Std.
Curb Inlet (5'x4' Inside)
Sta.: ~~12+84.08~~ (Storm Line 5)**12+83.51**
=Sta.: ~~10+88.17~~ (℄)**10+88.00**
S.W. ARBOR FALLS DRIVE, ~~17.50'~~ RT
18.21

ASBUILT IS 0.03' S & 0.12' W OF PLAN
C.I. 5–5, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~13+20.93~~ (Storm Line 5)**13+21.06**
=Sta.: ~~11+01.16~~ (℄)**11+01.05**
S.W. ARBOR FALLS DRIVE, ~~17.00'~~ LT
17.02

Underdrain installed at roadway sag (Sta.10+90.48) per underdrain detail.

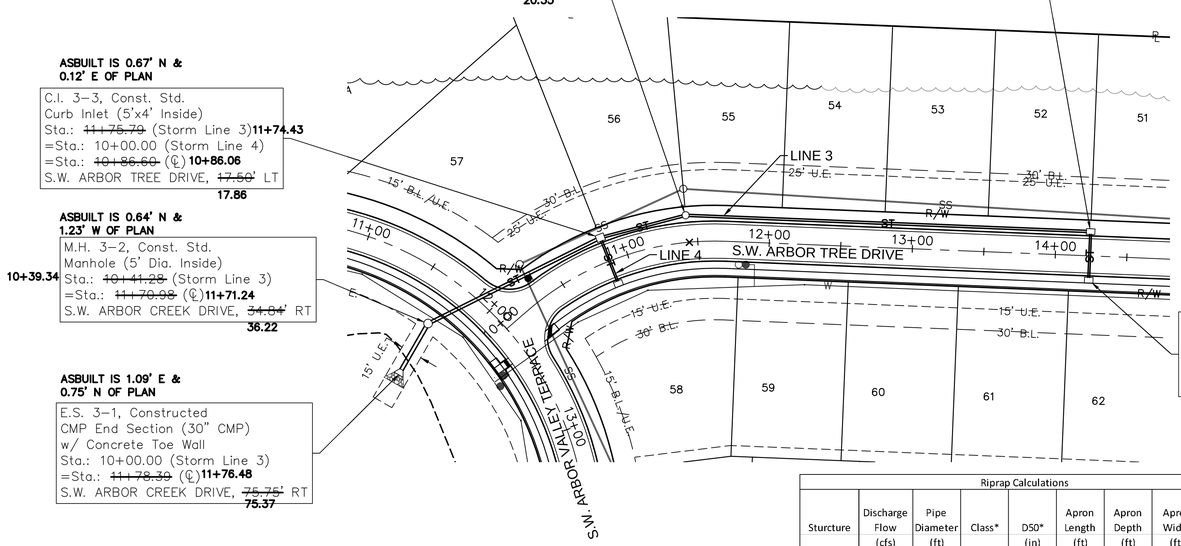
E.S. 5–2, Construct
CMP End Section (42" CMP)
w/ Concrete Toe Wall
Sta.: 10+00.00 (Storm Line 5)
=Sta.: ~~20+70.12~~ (℄)**20+70.06**
S.W. ARBORIDGE DRIVE, ~~196.50'~~ RT
195.81

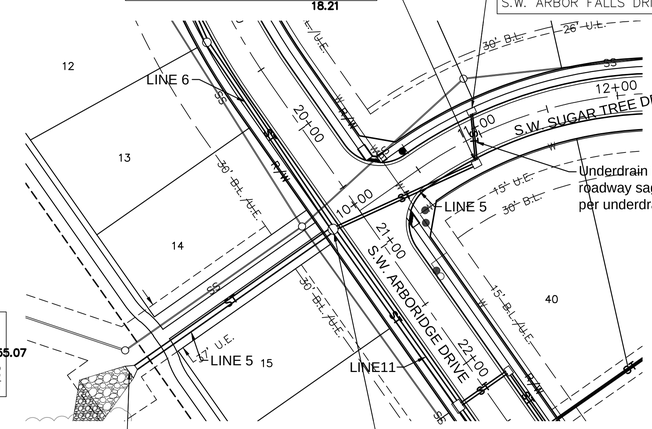
ASBUILT IS 0.53' E & 0.42' N OF PLAN

M.H. 5–3, Const. Std.
Manhole (6' Dia. Inside)
Sta.: ~~11+73.83~~ (Storm Line 5)**11+71.72**
=Sta.: 10+00.00 (Storm Line 11)
=Sta.: 10+00.00 (Storm Line 6)
=Sta.: ~~20+70.12~~ (℄)**20+68.68**
S.W. ARBORIDGE DRIVE, ~~22.67'~~ RT
24.09

ASBUILT IS 0.36' N & 1.98' W OF PLAN

NOTE: CONTRACTOR FILLED AND COMPACTED TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.



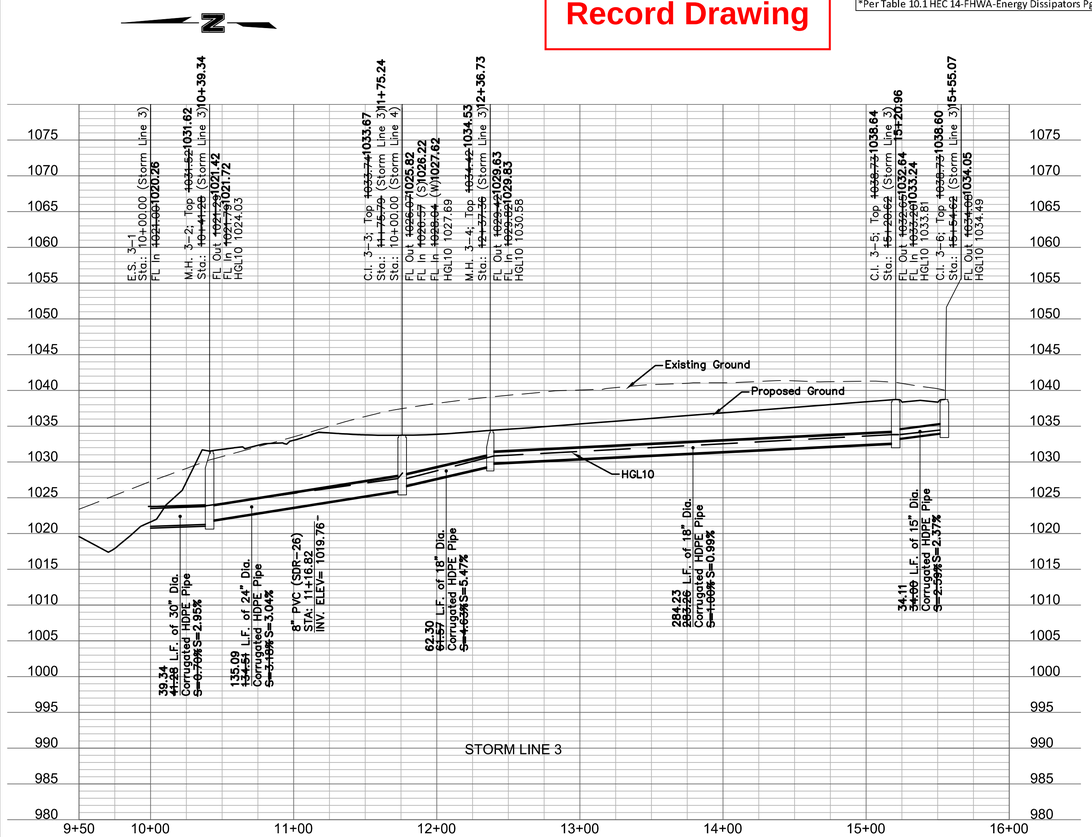


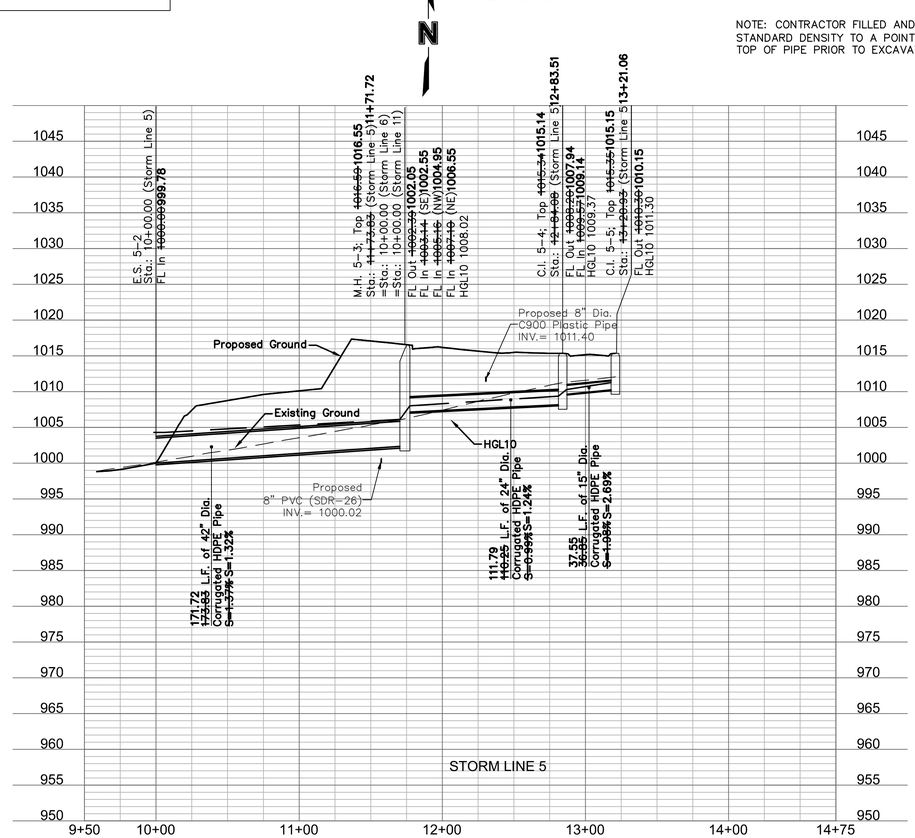
Record Drawing

Riprap Calculations

Sturcture	Discharge Flow (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Apron Width (ft)	Area (SY)
E.S. 3-1	29.82	2.5	3.00	10.00	12.5	2.00	15.83	~~8.49~~ **5.28 S.Y.**
E.S. 5-2	143.51	3.5	6.00	24.00	31.5	4.00	31.50	~~73.50~~ **37.02 S.Y.**

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





AS BUILT
DATE: 12/19/2018

0' 25' 50' 100'
SCALE IN FEET

20'
10'
5'
0'

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MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
4	01.02.2018	Revised elevations	MGD
5	02.14.2018	Revised manhole diameter	
6	03.08.2018	Storm Line Revised	

STORM SEWER PLAN AND PROFILE

HAWTHORN RIDGE
1ST PLAT

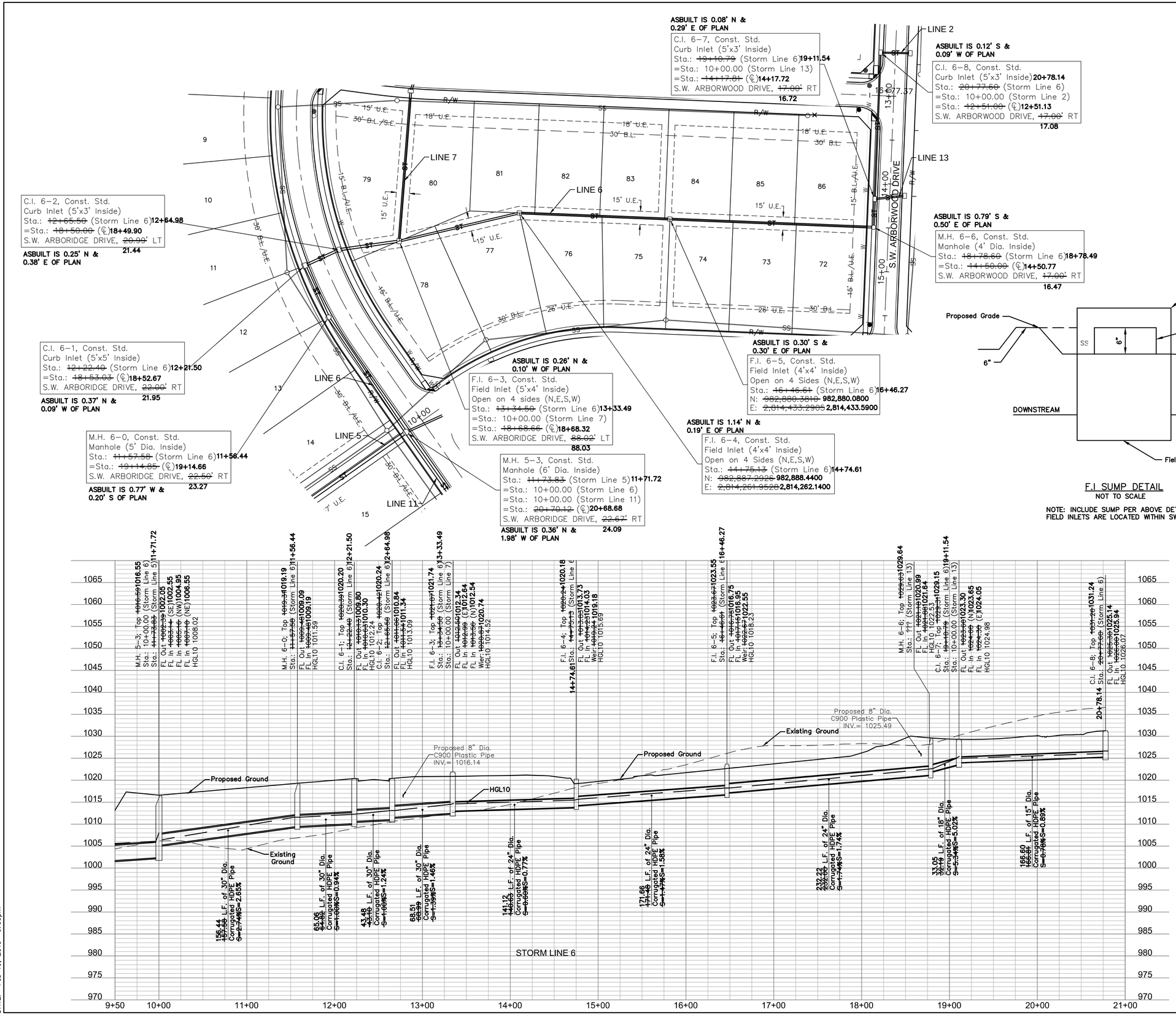
LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET
C118

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_STM02_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 6:08pm



AS BUILT
DATE: 12/19/2018

Record Drawing

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North Kansas City, MO 64116
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FAX 816.587.3393
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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
3	04.19.2017	Added detail	MGD
4	01.08.2018	Revised structures	MGD
5	02.14.2018	Revised manhole diameter	

REVISIONS

STORM SEWER PLAN AND PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C119

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_STM03_017-0188_ASBUILT.dwg USER: dhernandez
DATE: Feb 19, 2019 6:09pm

ASBUILT IS 0.21' N & 0.11' W OF PLAN

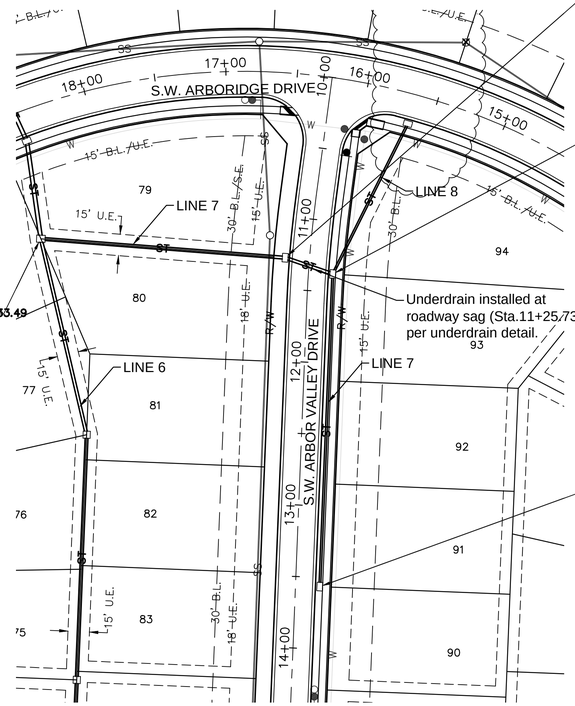
C.I. 7-1, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~11+71.21~~ (Storm Line 7) **11+71.16**
=Sta.: ~~11+28.35~~ (℄) **11+28.22**
S.W. ARBOR VALLEY DRIVE, ~~17.00'~~ RT
16.80

ASBUILT IS 0.07' S & 0.11' W OF PLAN

C.I. 7-2, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~12+06.38~~ (Storm Line 7)
=Sta.: 10+00.00 (Storm Line 8) **12+06.06**
=Sta.: ~~11+37.32~~ (℄) **11+37.21**
S.W. ARBOR VALLEY DRIVE, ~~17.00'~~ LT
16.92

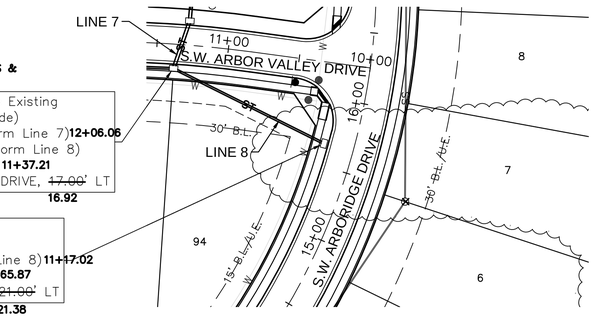
ASBUILT IS 0.26' N & 0.10' W OF PLAN

F.I. 6-3, Const. Std.
Field Inlet (5'x4' Inside)
Open on 4 sides (N,E,S,W)
Sta.: ~~13+34.50~~ (Storm Line 6) **13+33.49**
=Sta.: 10+00.00 (Storm Line 7)
=Sta.: ~~18+68.66~~ (℄) **18+68.32**
S.W. ARBORIDGE DRIVE, ~~88.02'~~ LT
88.03



ASBUILT IS 0.59' W & 0.04' S OF PLAN

C.I. 7-3, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~14+24.98~~ (Storm Line 7) **14+24.17**
=Sta.: ~~13+56.38~~ (℄) **13+55.78**
S.W. ARBOR VALLEY DRIVE, ~~17.00'~~ LT
16.94



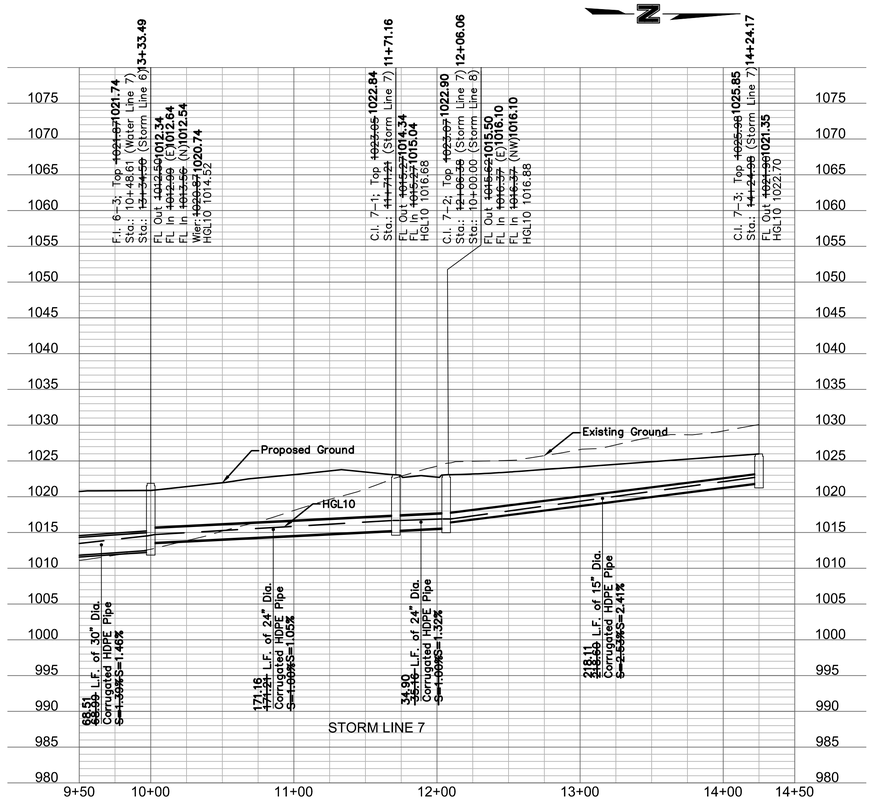
ASBUILT IS 0.07' S & 0.11' W OF PLAN

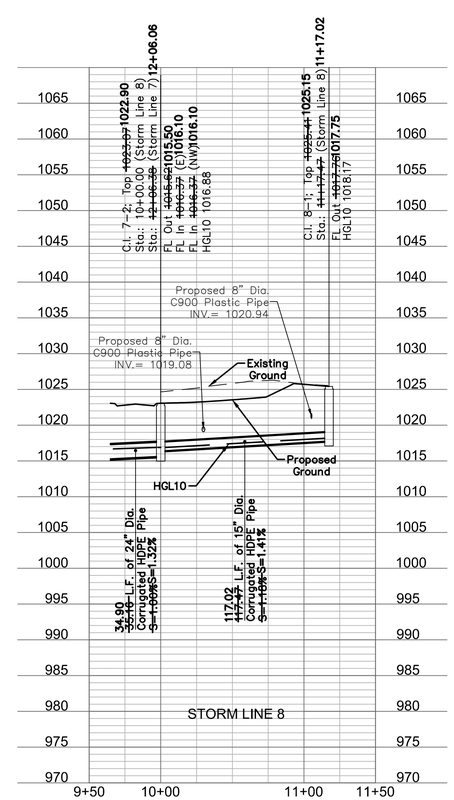
C.I. 7-2, Connect to Existing
Curb Inlet (5'x3' Inside)
Sta.: ~~12+06.38~~ (Storm Line 7) **12+06.06**
=Sta.: 10+00.00 (Storm Line 8)
=Sta.: ~~11+37.32~~ (℄) **11+37.21**
S.W. ARBOR VALLEY DRIVE, ~~17.00'~~ LT
16.92

C.I. 8-1, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~11+17.47~~ (Storm Line 8) **11+17.02**
=Sta.: ~~15+65.79~~ (℄) **15+65.87**
S.W. ARBORIDGE DRIVE, ~~21.00'~~ LT
21.38

ASBUILT IS 0.18' S & 0.34' E OF PLAN

NOTE: CONTRACTOR FILLED AND COMPACTED TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





AS BUILT
DATE: 12/19/2018

Record Drawing

0' 25' 50' 100'
SCALE IN FEET

20'
10'
5'
0'

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STATE OF MISSOURI
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NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
4	01.08.2018	Revised structures	MGD

REVISIONS

STORM SEWER PLAN & PROFILE

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET
C120

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_STM04_017-0188)_ASBUILT.dwg USER: dhernandez
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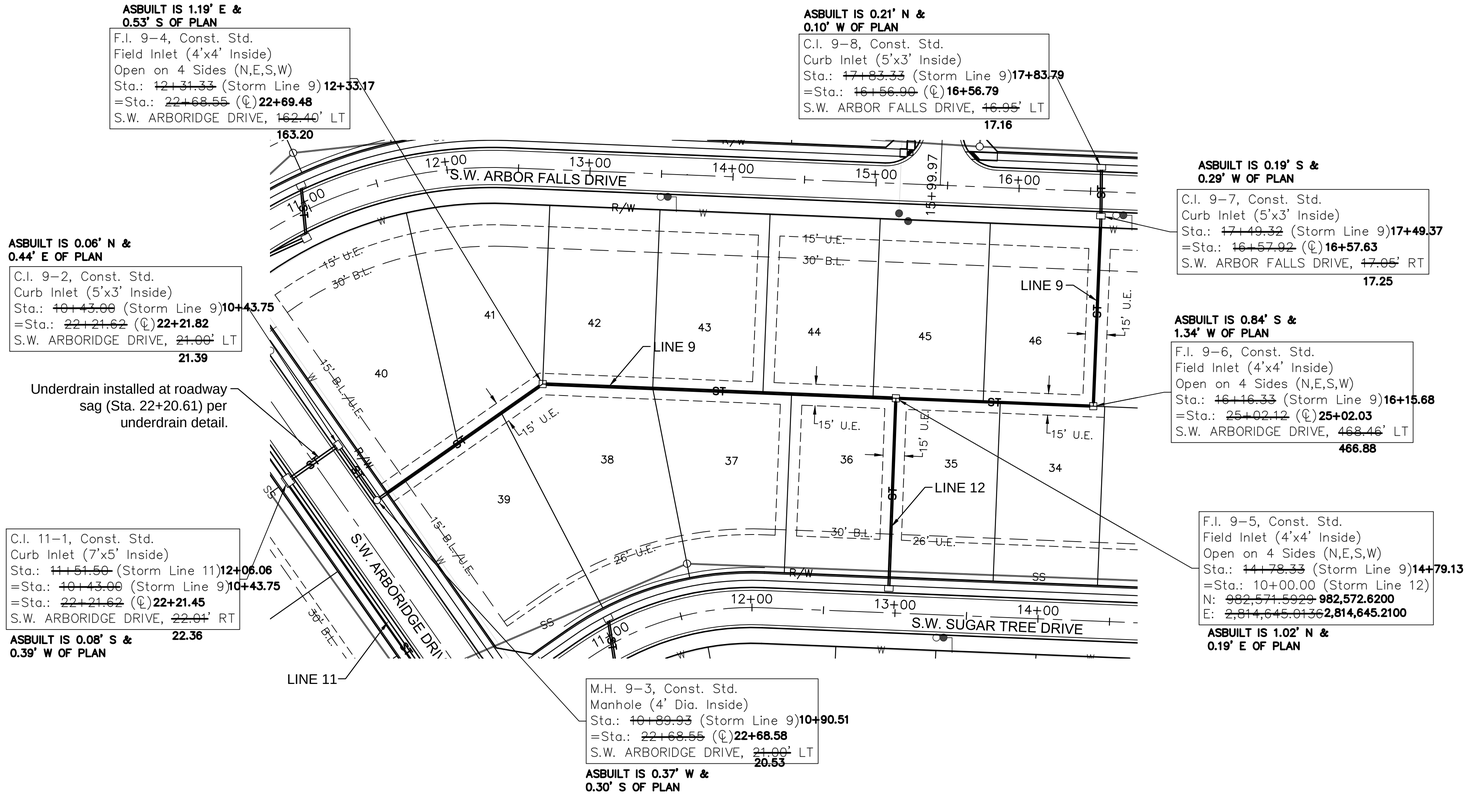
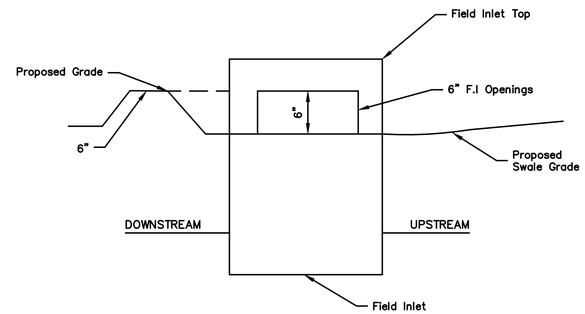
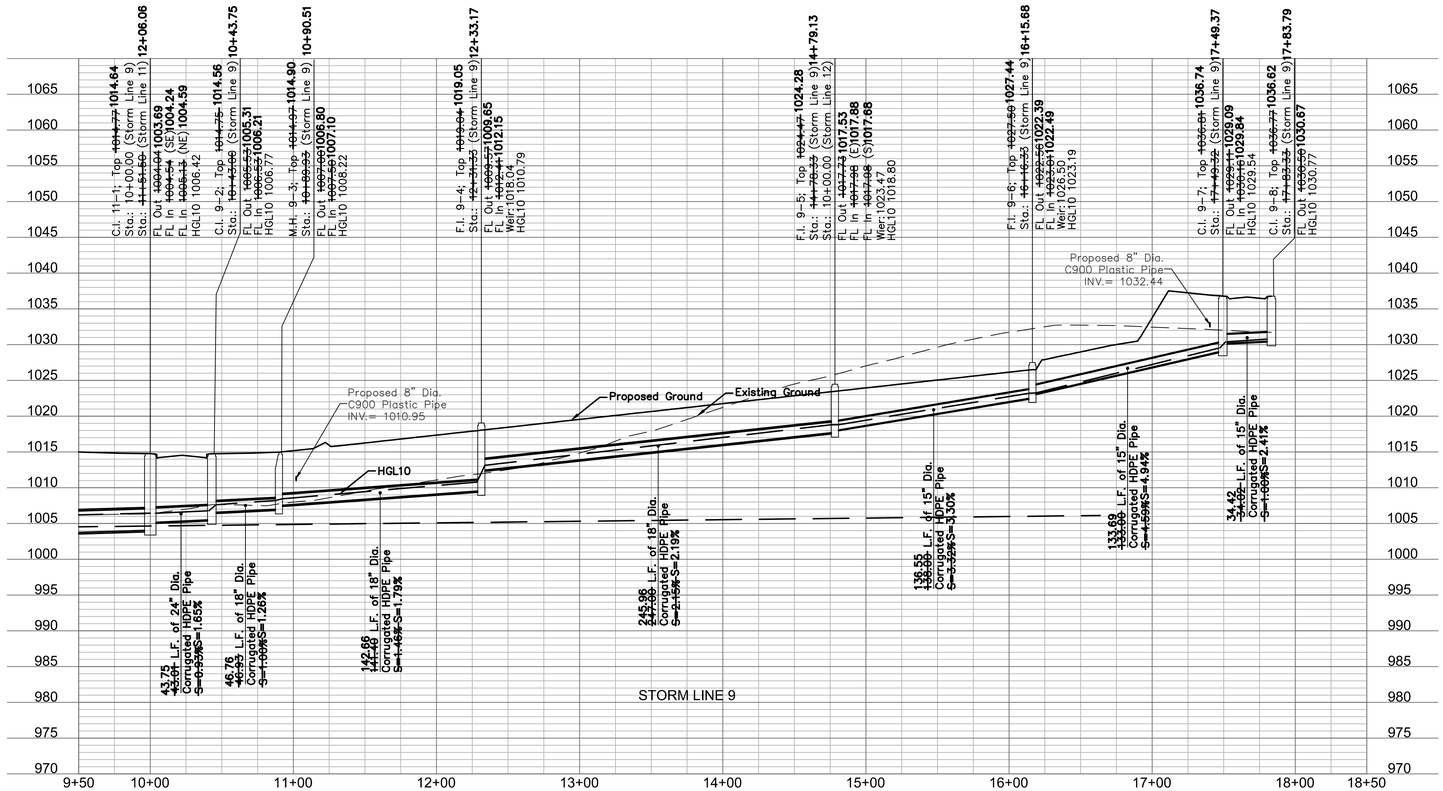




F.I SUMP DETAIL
NOT TO SCALE

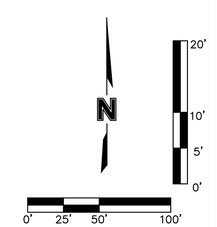
NOTE: INCLUDED SUMP PER ABOVE DETAIL WHERE FIELD INLETS ARE LOCATED WITHIN SWALES.

NOTE: CONTRACTOR FILLED AND COMPACTED TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.



AS BUILT
DATE: 12/19/2018

Record Drawing



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STATE OF MISSOURI
MELISSA G. DEGONIA
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PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
3	04.19.2017	Added detail	MGD
4	01.08.2018	Revised structures	MGD

STORM SEWER PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C121

DWG: F:\2017\0001–0500\017–0188\40–Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_STM05_017–0188_ASBUILT.dwg USER: dhernandez
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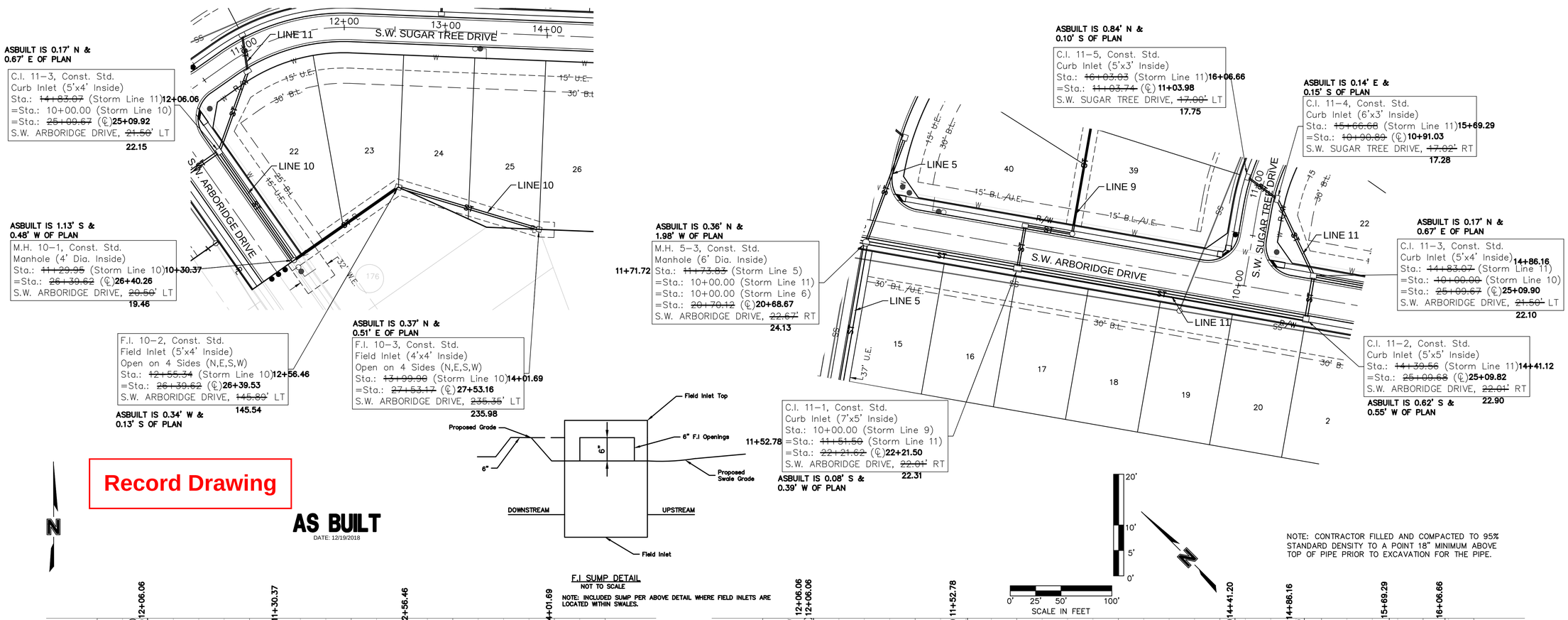

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MELISSA G. DEGONIA
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03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
4	03.08.2018	Revised structures	MGD

REVISIONS

STORM SEWER PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

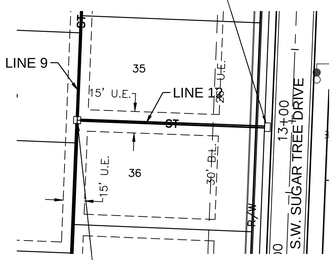
2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C122

ASBUILT IS 0.08' N &
0.33' W OF PLAN

C.I. 12–1, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~11+33.01~~ (Storm Line 12) **11+33.96**
=Sta.: ~~12+95.06~~ (℄)**12+94.73**
S.W. SUGAR TREE DRIVE, ~~17.00'~~ LT
17.07

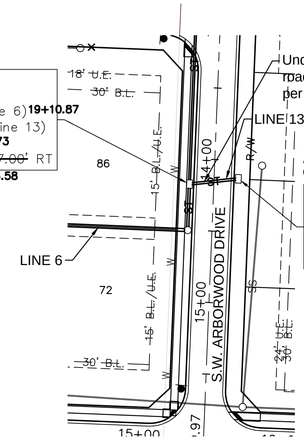


F.I. 9–5, Const. Std.
Field Inlet (4'x4' Inside)
Open on 4 sides (N,E,S,W)
Sta.: ~~14+78.33~~ (Storm Line 9) **14+79.13**
=Sta.: 10+00.00 (Storm Line 12)
=Sta.: ~~12+94.61~~ (℄)**12+94.73**
S.W. SUGAR TREE DRIVE, ~~150.00'~~ LT
150.97

ASBUILT IS 1.02' N &
0.19' E OF PLAN

C.I. 6–7, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~19+10.79~~ (Storm Line 6) **19+10.87**
=Sta.: 10+00.00 (Storm Line 13)
=Sta.: ~~14+17.81~~ (℄)**14+17.73**
S.W. ARBORWOOD DRIVE, ~~17.00'~~ RT
16.58

ASBUILT IS 0.08' N &
0.29' E OF PLAN



Underdrain installed at roadway sag (Sta. 14+05.34) per underdrain detail.

ASBUILT IS 0.07' E &
0.15' N OF PLAN

C.I. 13–1, Const. Std.
Curb Inlet (5'x3' Inside)
Sta.: ~~10+34.37~~ (Storm Line 13) **10+34.16**
=Sta.: ~~14+12.80~~ (℄)**14+12.64**
S.W. ARBORWOOD DRIVE, ~~17.00'~~ LT
17.06

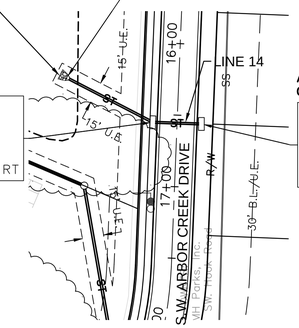
ASBUILT IS 1.06' S &
0.37' W OF PLAN

E.S. 14–1, Construct
15 inch CMP End Section (15" CMP)
w/ Concrete Toe Wall
Sta.: 10+00.00 (Storm Line 14)
=Sta.: ~~16+26.94~~ (℄)**16+27.26**
S.W. ARBOR CREEK DRIVE, ~~78.36'~~ RT
77.28

Installed riprap per details on this sheet

C.I. 14–2, Const. Std.
Curb Inlet (8'x3' Inside) **10+66.68**
Sta.: ~~10+67.74~~ (Storm Line 14)
=Sta.: ~~16+55.65~~ (℄)**16+56.03**
S.W. ARBOR CREEK DRIVE, ~~17.00'~~ RT
17.17

ASBUILT IS 0.48' W &
0.19' N OF PLAN

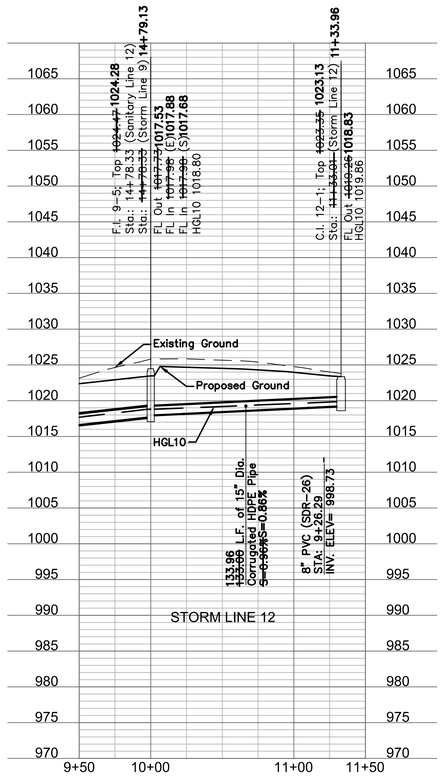


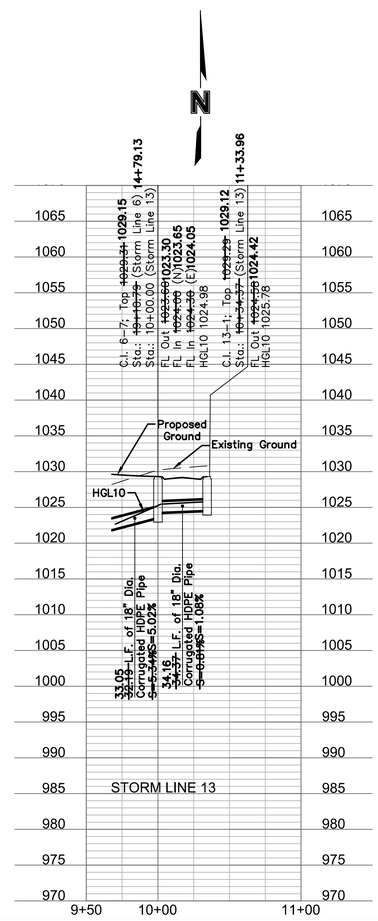
ASBUILT IS 0.14' E &
0.08' S OF PLAN

C.I. 14–3, Const. Std.
Curb Inlet (8'x3' Inside)
Sta.: ~~11+01.74~~ (Storm Line 14) **11+00.93**
=Sta.: ~~16+55.49~~ (℄)**16+55.35**
S.W. ARBOR CREEK DRIVE, ~~17.00'~~ LT
17.07

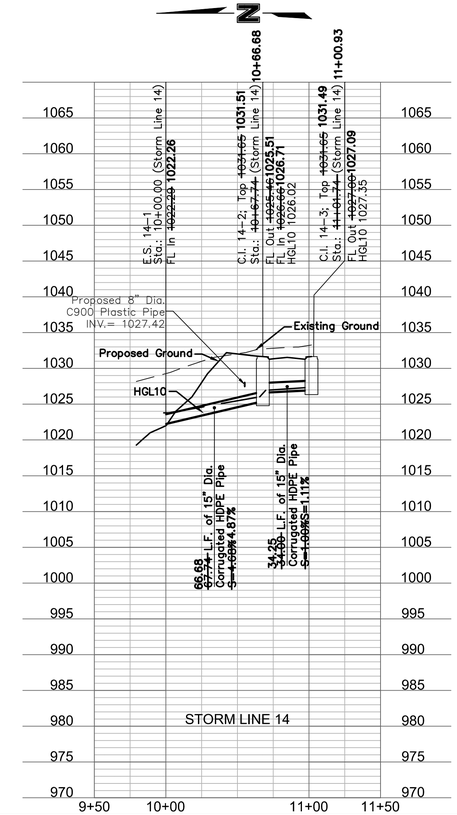
Riprap Calculations								
Sturcture	Discharge Flow (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Apron Width (ft)	Area (SY)
E.S. 14-1	3.49	1.25	1.00	5.00	5	1.46	7.08	~~3.42~~ **2.89 S.Y.**
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18								

NOTE: CONTRACTOR FILLED AND COMPACTED TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





Record Drawing



AS BUILT
DATE: 12/19/2018

SCALE IN FEET

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE–2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

STORM SEWER PLAN & PROFILE

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C123

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_STM07_017-0188_ASBUILT.dwg USER: dhernandez
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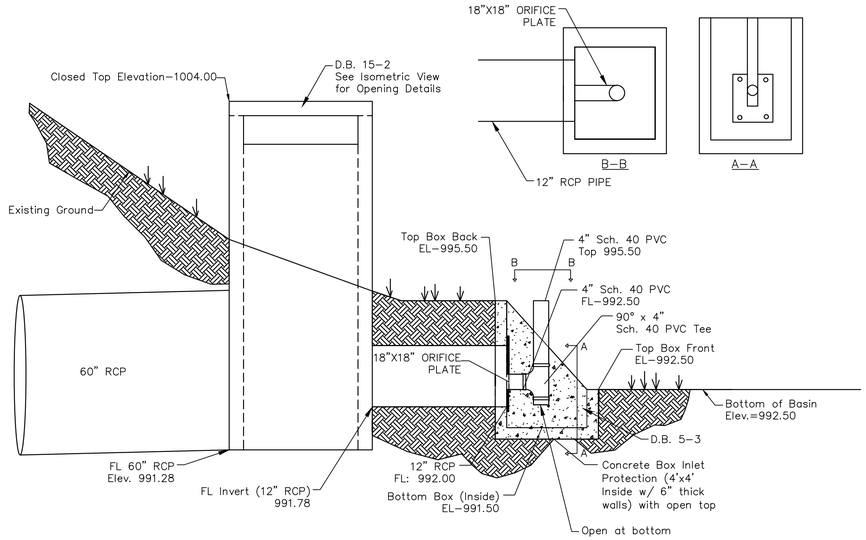
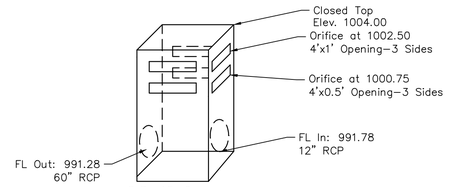
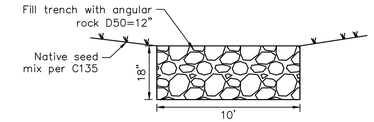


D.B. 15–2 and D.B. 15–3 Detail
N.T.S.



D.B. 15–2
DETENTION BASIN OUTLET CONTROL
N.T.S.

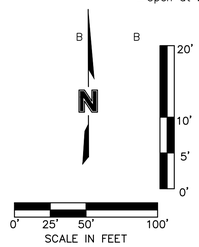
Riprap Calculations								
Sturcture	Discharge Flow (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Apron Width (ft)	Area (SY)
E.S. 15-1	164.51	5	4.00	14.00	30	2.57	35.00	~~74.18~~ 59.18 S.Y.
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18								



ROCK TRENCH
N.T.S.

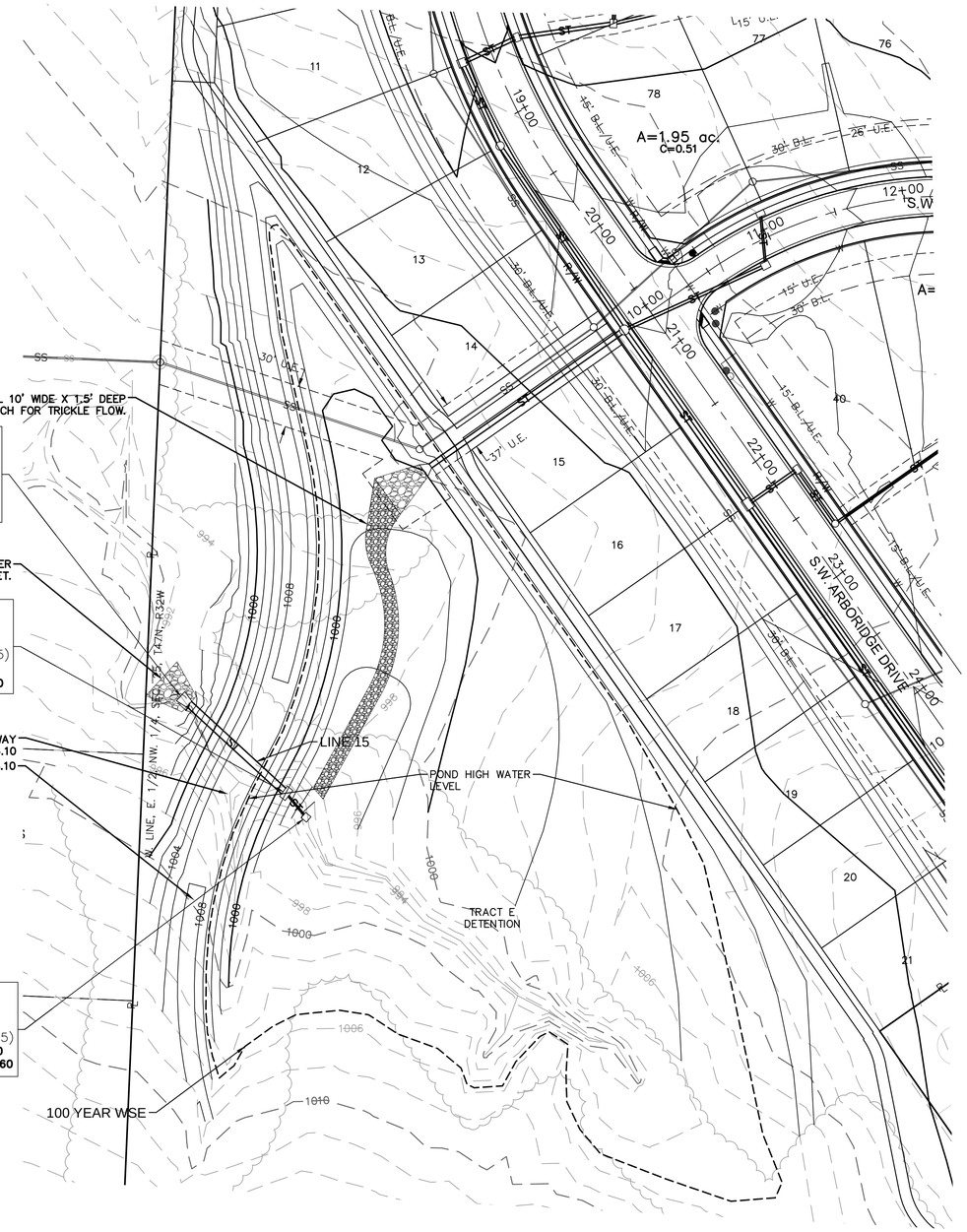
10yr. W.S.E.	100yr. W.S.E.
1003.43	1005.34

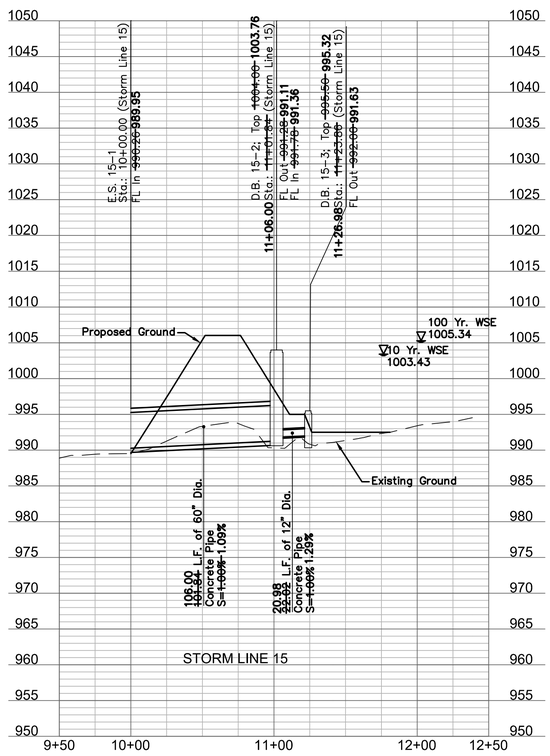
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.



AS BUILT
DATE: 12/19/2018

Record Drawing





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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE–2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	04.19.2017	Revised detail	MGD
4	01.08.2018	Revised structures	MGD
5	02.14.2018	Added notes	MGD
6	03.08.2018	Plan sheet revised per city comments	

REVISIONS

DETENTION BASIN PLAN

HAWTHORN RIDGE 1ST PLAT

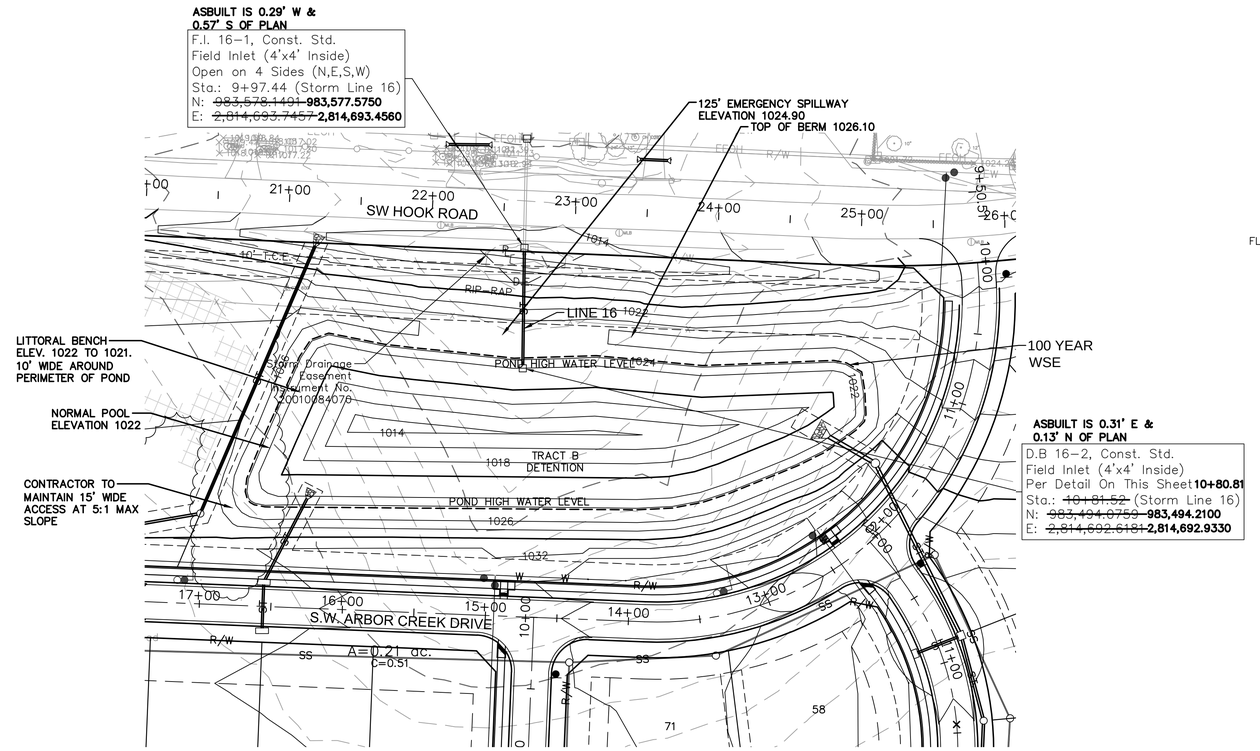
LEE'S SUMMIT, MO

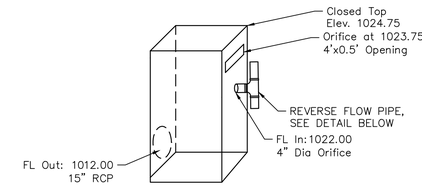
2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

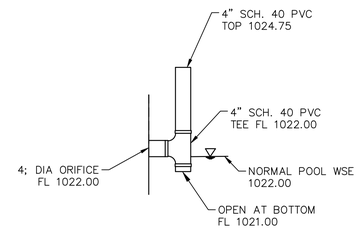
SHEET C124

DWG: F:\2017\0001–0500\017–0188\40–Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_DBP01_017–0188.dwg USER: dhernandez
DATE: Feb 19, 2019 6:15pm





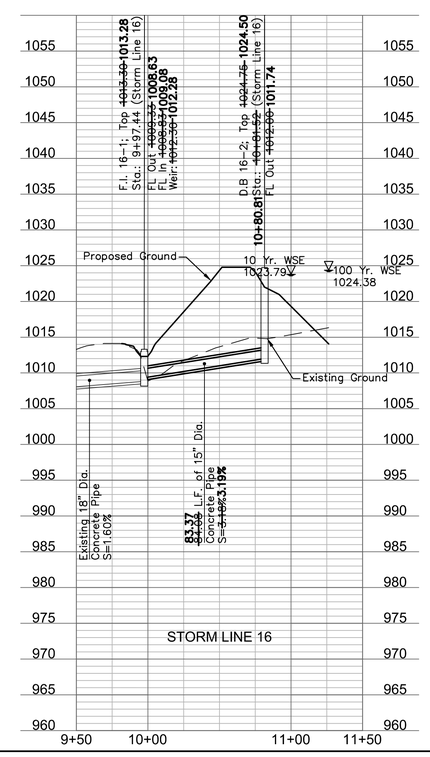
D.B. 16-2
DETENTION BASIN OUTLET CONTROL
N.T.S.



REVERSE FLOW PIPE
N.T.S.

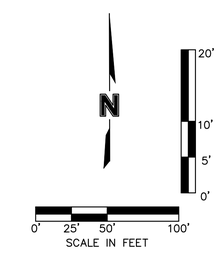
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

AS BUILT
DATE: 12/19/2018



10yr. W.S.E.	100yr. W.S.E.
1023.79	1024.38

Record Drawing



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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
2	06.23.2017	Revised detail	MGD
3	12.04.2017	Revised inlet location	MGD
5	02.14.2018	Added notes	MGD
6	03.08.2018	Detail added and notes revised	MGD

DETENTION BASIN PLAN

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.Q
checked by: M.G.D.
designed by: P.M.D
Q/A/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET
C125

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_DBP02_017-0188.dwg USER: dhernandez
DATE: Feb 19, 2019 6:16pm

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_DRN01_017-0188.dwg USER: dhernandez
DATE: Feb 19, 2019 6:17pm

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MELISSA G. DEGONIA
NUMBER
PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

DRAINAGE PLAN

HAWTHORN RIDGE
1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET
C126

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. 1-3(L)	0.04	0.51	5.00	7.35	1.00	0.15
C.I. 1-3(R)	0.13	0.51	5.00	7.35	1.00	0.49
C.I. 1-3(B)	0.09	0.51	5.00	7.35	1.00	0.34
C.I. 1-3	0.26	0.51	5.00	7.35	1.00	0.98
C.I. 1-4(L)	0.07	0.51	5.00	7.35	1.00	0.26
C.I. 1-4(R)	0.52	0.51	5.00	7.35	1.00	1.95
C.I. 1-4(B)	0.31	0.51	5.00	7.35	1.00	1.16
C.I. 1-4	0.90	0.51	5.00	7.35	1.00	3.38
C.I. 2-1	0.76	0.51	5.00	7.35	1.00	2.85
C.I. 3-3(L)	0.00	0.51	5.00	7.35	1.00	0.00
C.I. 3-3(R)	0.39	0.51	5.00	7.35	1.00	1.46
C.I. 3-3(B)	1.73	0.51	5.00	7.35	1.00	6.49
C.I. 3-3	2.12	0.51	5.00	7.35	1.00	7.95
C.I. 3-5	1.15	0.51	5.00	7.35	1.00	4.31
C.I. 3-6	0.29	0.51	5.00	7.35	1.00	1.09
C.I. 4-1(L)	0.07	0.51	5.00	7.35	1.00	0.26
C.I. 4-1(R)	0.35	0.51	5.00	7.35	1.00	1.31
C.I. 4-1(B)	0.49	0.51	5.00	7.35	1.00	1.84
C.I. 4-1	0.91	0.51	5.00	7.35	1.00	3.41
C.I. 5-4(L)	0.00	0.51	5.00	7.35	1.00	0.00
C.I. 5-4(R)	0.66	0.51	5.00	7.35	1.00	2.48
C.I. 5-4(B)	0.55	0.51	5.00	7.35	1.00	2.06
C.I. 5-4	1.21	0.51	5.00	7.35	1.00	4.54
C.I. 5-5(L)	0.49	0.51	5.00	7.35	1.00	1.84
C.I. 5-5(R)	0.07	0.51	5.00	7.35	1.00	0.26
C.I. 5-5(B)	1.06	0.51	5.00	7.35	1.00	3.98
C.I. 5-5	1.62	0.51	5.00	7.35	1.00	6.08
C.I. 6-1	0.82	0.51	5.00	7.35	1.00	3.08
C.I. 6-2	0.19	0.51	5.00	7.35	1.00	0.71
F.I. 6-3	0.30	0.51	5.00	7.35	1.00	1.13
F.I. 6-4	0.54	0.51	5.00	7.35	1.00	2.03
F.I. 6-5	0.74	0.51	5.00	7.35	1.00	2.78
C.I. 6-7(L)	0.06	0.51	5.00	7.35	1.00	0.23
C.I. 6-7(R)	0.07	0.51	5.00	7.35	1.00	0.26
C.I. 6-7(B)	0.09	0.51	5.00	7.35	1.00	0.34
C.I. 6-7	0.22	0.51	5.00	7.35	1.00	0.83
C.I. 6-8	0.20	0.51	5.00	7.35	1.00	0.75
C.I. 7-1(L)	0.61	0.51	5.00	7.35	1.00	2.29
C.I. 7-1(R)	0.07	0.51	5.00	7.35	1.00	0.26
C.I. 7-1(B)	0.12	0.51	5.00	7.35	1.00	0.45
C.I. 7-1	0.80	0.51	5.00	7.35	1.00	3.00
C.I. 7-2(L)	0.09	0.51	5.00	7.35	1.00	0.34
C.I. 7-2(R)	0.11	0.51	5.00	7.35	1.00	0.41
C.I. 7-2(B)	1.73	0.51	5.00	7.35	1.00	6.49
C.I. 7-2	1.93	0.51	5.00	7.35	1.00	7.24
C.I. 7-3	1.05	0.51	5.00	7.35	1.00	3.94
C.I. 8-1	0.29	0.51	5.00	7.35	1.00	1.09
C.I. 9-2(L)	0.19	0.51	5.00	7.35	1.00	0.71
C.I. 9-2(R)	0.09	0.51	5.00	7.35	1.00	0.34
C.I. -9-2(B)	0.25	0.51	5.00	7.35	1.00	0.94
C.I. 9-2	0.53	0.51	5.00	7.35	1.00	1.99
F.I. 9-4	0.63	0.51	5.00	7.35	1.00	2.36
F.I. 9-5	0.76	0.51	5.00	7.35	1.00	2.85
F.I. 9-6	0.35	0.51	5.00	7.35	1.00	1.31
C.I. 9-7	0.19	0.51	5.00	7.35	1.00	0.71
C.I. 9-8	0.13	0.51	5.00	7.35	1.00	0.49
F.I. 10-2	0.29	0.51	5.00	7.35	1.00	1.09
F.I. 10-3	1.02	0.51	5.00	7.35	1.00	3.83
C.I. 11-1(L)	0.35	0.51	5.00	7.35	1.00	1.31
C.I. 11-1(R)	0.14	0.51	5.00	7.35	1.00	0.53
C.I. 11-1(B)	0.14	0.51	5.00	7.35	1.00	0.53
C.I. 11-1	0.63	0.51	5.00	7.35	1.00	2.36
C.I. 11-2	0.39	0.51	5.00	7.35	1.00	1.46
C.I.11-3	1.33	0.51	5.00	7.35	1.00	4.99
C.I. 11-4(L)	0.23	0.51	5.00	7.35	1.00	0.86
C.I. 11-4(R)	0.05	0.51	5.00	7.35	1.00	0.19
C.I. 11-4(B)	0.59	0.51	5.00	7.35	1.00	2.21
C.I. 11-4	0.87	0.51	5.00	7.35	1.00	3.26
C.I. 11-5(L)	0.21	0.51	5.00	7.35	1.00	0.79
C.I. 11-5(R)	0.19	0.51	5.00	7.35	1.00	0.71
C.I. 11-5(B)	0.85	0.51	5.00	7.35	1.00	3.19
C.I. 11-5	1.25	0.51	5.00	7.35	1.00	4.69
C.I. 12-1	0.60	0.51	5.00	7.35	1.00	2.25
C.I. 13-1(L)	0.21	0.51	5.00	7.35	1.00	0.79
C.I. 13-1(R)	0.20	0.51	5.00	7.35	1.00	0.75
C.I. 13-1(B)	2.16	0.51	5.00	7.35	1.00	8.10
C.I. 13-1	2.57	0.51	5.00	7.35	1.00	9.64
C.I. 14-2	0.32	0.51	5.00	7.35	1.00	1.20
C.I. 14-3	0.21	0.51	5.00	7.35	1.00	0.79

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. 1-3(L)	SAG	0.15	...	...	...	...	...	...	...	...	0.06	2.85	...
C.I. 1-3(R)	SAG	0.49	...	...	...	...	...	...	...	...	0.09	4.51	...
C.I. 1-3	SAG	0.98	0.00	0.98	0.80	19.40	15.52	0.98	0.00	100.00%	...	...	...
C.I. 1-4(L)	SAG	0.26	...	...	...	...	...	...	...	...	0.07	3.52	...
C.I. 1-4(R)	SAG	1.95	...	...	...	...	...	...	...	...	0.15	7.60	...
C.I. 1-4	SAG	3.38	0.00	3.38	0.80	19.40	15.52	3.38	0.00	100.00%	...	...	...
C.I. 2-1	GRADE	2.85	0.00	2.85	1.00	2.40	2.40	2.40	0.45	84.10%	0.20	9.87	...
C.I. 3-3(L)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 3-3(R)	SAG	1.46	...	...	...	...	...	...	...	...	0.18	8.86	...
C.I. 3-3	SAG	7.95	0.00	7.95	0.80	19.40	15.52	7.95	0.00	100.00%	...	...	...
C.I. 3-5	GRADE	4.31	0.00	4.31	1.00	2.90	2.90	2.90	1.41	67.22%	0.21	10.31	...
C.I. 3-6	GRADE	1.09	0.00	1.09	1.00	0.99	0.99	0.99	0.10	90.79%	0.12	6.15	...
C.I. 4-1(L)	SAG	0.26	...	...	...	...	...	...	...	...	0.07	3.58	...
C.I. 4-1(R)	SAG	1.31	...	...	...	...	...	...	...	...	0.14	6.78	...
C.I. 4-1	SAG	3.41	0.00	3.41	0.80	19.40	15.52	3.41	0.00	100.00%	...	...	...
C.I. 5-4(L)	SAG	0.00	...	...	...	...	...	...	...	...	0.04	2.23	...
C.I. 5-4(R)	SAG	2.48	...	...	...	...	...	...	...	...	0.16	7.99	...
C.I. 5-4	SAG	4.54	0.00	4.54	0.80	19.40	15.52	4.54	0.00	100.00%	...	...	...
C.I. 5-5(L)	SAG	1.84	...	...	...	...	...	...	...	...	0.15	7.30	...
C.I. 5-5(R)	SAG	0.26	...	...	...	...	...	...	...	...	0.07	3.44	...
C.I. 5-5	SAG	6.08	0.00	6.08	0.80	19.40	15.52	6.08	0.00	100.00%	...	...	...
C.I. 6-1	GRADE	3.08	0.00	3.08	1.00	2.78	2.78	2.78	0.29	90.55%	0.19	8.79	...
C.I. 6-2	GRADE	0.71	0.00	0.71	1.00	0.71	0.71	0.71	0.00	99.97%	0.11	5.08	...
F.I. 6-3	SAG	1.13	...	...	...	...	...	...	...	...	...	...	0.09
F.I. 6-4	SAG	2.03	...	...	...	...	...	...	...	...	...	...	0.14
F.I. 6-5	SAG	2.78	...	...	...	...	...	...	...	...	...	...	0.17
C.I. 6-7(L)	SAG	0.23	...	...	...	...	...	...	...	...	0.07	3.37	...
C.I. 6-7(R)	SAG	0.26	...	...	...	...	...	...	...	...	0.08	4.02	...
C.I. 6-7	SAG	0.83	0.00	0.83	0.80	19.40	15.52	0.83	0.00	100.00%	...	...	...
C.I. 6-8	GRADE	0.75	0.00	0.75	1.00	0.72	0.72	0.72	0.03	96.30%	0.12	5.99	...
C.I. 7-1(L)	SAG	2.29	...	...	...	...	...	...	...	...	0.17	8.45	...
C.I. 7-1(R)	SAG	0.26	...	...	...	...	...	...	...	...	0.07	3.44	...
C.I. 7-1	SAG	3.00	0.00	3.00	0.80	19.40	15.52	3.00	0.00	100.00%	...	...	...
C.I. 7-2(L)	SAG	0.34	...	...	...	...	...	...	...	...	0.14	7.01	...
C.I. 7-2(R)	SAG	0.41	...	...	...	...	...	...	...	...	0.08	4.10	...
C.I. 7-2	SAG	7.24	0.00	7.24	0.80	19.40	15.52	7.24	0.00	100.00%	...	...	...
C.I. 7-3	GRADE	3.94	0.00	3.94	1.00	2.88	2.88	2.88	1.06	73.20%	0.21	10.40	...
C.I. 8-1	GRADE	1.09	0.00	1.09	1.00	1.08	1.08	1.08	0.01	99.47%	0.13	5.95	...
C.I. 9-2(L)	SAG	0.71	...	...	...	...	...	...	...	...	0.12	5.72	...
C.I. 9-2(R)	SAG	0.34	...	...	...	...	...	...	...	...	0.09	4.32	...
C.I. 9-2	SAG	1.99	0.00	1.99	0.80	19.40	15.52	1.99	0.00	100.00%	...	...	...
F.I. 9-4	SAG	2.36	...	...	...	...	...	...	...	...	...	...	0.15
F.I. 9-5	SAG	2.85	...	...	...	...	...	...	...	...	...	...	0.17
F.I. 9-6	SAG	1.31	...	...	...	...	...	...	...	...	...	...	0.10
C.I. 9-7	GRADE	0.71	0.00	0.71	1.00	0.63	0.63	0.63	0.08	88.55%	...	...	...
C.I. 9-8	GRADE	0.49	0.00	0.49	1.00	0.45	0.45	0.45	0.04	92.32%	...	...	...
F.I. 10-2	SAG	1.09	...	...	...	...	...	...	...	...	...	...	0.09
F.I. 10-3	SAG	3.83	...	...	...	...	...	...	...	...	...	...	0.21
C.I. 11-1(L)	SAG	1.31	...	...	...	...	...	...	...	...	0.17	7.83	...
C.I. 11-1(R)	SAG	0.53	...	...	...	...	...	...	...	...	0.13	6.02	...
C.I. 11-1	SAG	2.36	0.00	2.36	0.80	19.40	15.52	2.36	0.00	100.00%	...	...	...
C.I. 11-2	GRADE	1.46	0.00	1.46	1.00	1.13	1.13	1.13	0.33	77.37%	...	...	...
C.I.11-3	GRADE	4.99	0.00	4.99	1.00	4.33	4.33	4.33	0.66	86.79%	...	...	...
C.I. 11-4(L)	SAG	0.86	...	...	...	...	...	...	...	...	0.11	5.59	...
C.I. 11-4(R)	SAG	0.19	...	...	...	...	...	...	...	...	0.06	3.15	...
C.I. 11-4	SAG	3.26	0.00	3.26	0.80	19.40	15.52	3.26	0.00	100.00%	...	...	...
C.I. 11-5(L)	SAG	0.79	...	...	...	...	...	...	...	...	0.14	7.07	...
C.I. 11-5(R)	SAG	0.71	...	...	...	...	...	...	...	...	0.10	5.20	...
C.I. 11-5	SAG	4.69	0.00	4.69	0.80	19.40	15.52	4.69	0.00	100.00%	...	...	...
C.I. 12-1	GRADE	2.25	0.00	2.25	1.00	1.42	1.42	1.42	0.83	63.32%	0.13	6.52	...
C.I. 13-1(L)	SAG	0.79	...	...	...	...	...	...	...	...	0.11	5.49	...
C.I. 13-1(R)	SAG	0.75	...	...	...	...	...	...	...	...	0.14	6.85	...
C.I. 13-1	SAG	9.64	0.00	9.64	0.80	19.40	15.52	9.64	0.00	100.00%	...	...	...
C.I. 14-2	GRADE	1.20	0.00	1.20	1.00	1.16	1.16	1.16	0.04	96.61%	0.14	6.92	...
C.I. 14-3	GRADE	0.79	0.00	0.79	1.00	0.78	0.78	0.78	0.01	98.63%	0.12	5.91	...

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 (10-year Return Frequency)

Upstream Structure	Downstream Structure	Length	Upstream Invert	Downstream Invert	Slope	Diameter	Manning's n	Total Flow	Velocity	Capacity	Flow Depth	Upstream Struct. HGL	Upstream Top Elev.
		(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(ft/s)	(cfs)	(ft)	(ft)	(ft)
M.H. 1-2	E.S. 1-1	205.81	1018.30	1016.28	0.98	18	0.012	4.36	5.94	11.27	0.80	1019.10	1028.90
C.I. 1-3	M.H. 1-2	142.32	1020.42	1019.00	1.00	18	0.012	4.36	6.00	11.36	0.80	1021.22	1027.43
C.I. 1-4	C.I. 1-3	37.59	1022.50	1022.00	1.33	15	0.012	3.38	6.28	8.07	0.74	1023.24	1027.34
C.I. 2-1	C.I. 6-8	34.01	1026.20	1026.00	0.59	15	0.012	2.85	4.44	5.36	0.68	1026.88	1031.27
M.H. 3-2	E.S. 3-1	41.28	1021.29	1021.00	0.79	30	0.012	20.40	4.16	39.38	2.50	1024.03	1031.52
C.I. 3-3	M.H. 3-2	134.46	1026.07	1021.79	3.18	24	0.012	20.40	6.49	43.72	1.62	1027.69	1033.74
M.H. 3-4	C.I. 3-3	61.52	1029.42	1026.57	4.63	18	0.012	9.04	6.39	24.49	1.16	1030.58	1034.42
C.I. 3-5	M.H. 3-4	283.26	1032.65	1029.82	1.00	18	0.012	9.04	7.14	11.37	1.16	1033.81	1038.73
C.I. 3-6	C.I. 3-5	34.00	1034.08	1033.20	2.59	15	0.012	1.09	1.82	11.25	0.41	1034.49	1038.73
C.I. 4-1	C.I. 3-3	34.00	1029.31	1028.04	3.74	15	0.012	3.41	9.17	13.52	0.74	1030.05	1033.74
M.H. 5-3	E.S. 5-2	169.45	1002.66	999.29	1.73	42	0.012	99.46	10.34	143.51	3.06	1008.02	1016.36
C.I. 5-4	M.H. 5-3	109.56	1008.20	1004.16	3.74	24	0.012	10.62	4.04	47.37	1.17	1009.37	1015.33
C.I. 5-5	C.I. 5-4	36.39	1010.30	1009.57	2.01	15	0.012	6.08	8.48	9.91	1.00	1011.30	1015.35
M.H. 6-0	M.H. 5-3	157.56	1009.48	1005.16	2.74	30	0.012	39.07	15.21	73.57	2.11	1011.59	1019.31
C.I. 6-1	M.H. 6-0	64.77	1010.13	1009.48	1.00	30	0.012	39.07	8.85	44.51	2.11	1012.24	1020.37
C.I. 6-2	C.I. 6-1	42.10	1011.06	1010.63	1.02	30	0.012	35.99	10.16	44.90	2.03	1013.09	1020.42
F.I. 6-3	C.I. 6-2	68.99	1012.50	1011.54	1.39	30	0.012	35.28	11.01	52.41	2.02	1014.52	1021.87
F.I. 6-4	F.I. 6-3	140.64	1013.83	1012.99	0.60	24	0.012	18.88	6.87	18.94	1.63	1015.46	1020.24
F.I. 6-5	F.I. 6-4	171.48	1016.75	1014.23	1.47	24	0.012	16.85	6.85	29.70	1.48	1018.23	1023.67
M.H. 6-6	F.I. 6-5	232.00	1021.18	1017.15	1.74	24	0.012	14.07	8.14	32.29	1.35	1022.53	1029.63
C.I. 6-7	M.H. 6-6	32.19	1023.60	1021.88	5.34	18	0.012	14.07	15.13	26.30	1.38	1024.98	1029.31
C.I. 6-8	C.I. 6-7	166.81	1025.30	1024.00	0.78	15	0.012	3.60	3.48	6.18	0.77	1026.07	1031.26
C.I. 7-1	F.I. 6-3	171.21	1015.27	1013.56	1.00	24	0.012	15.27	8.22	24.49	1.41	1016.68	1023.06
C.I. 7-2	C.I. 7-1	35.16	1015.62	1015.27	1.00	24	0.012	12.27	5.19	24.45	1.26	1016.88	1023.07
C.I. 7-3	C.I. 7-2	218.61	1021.90	1016.37	2.53	15	0.012	3.94	8.29	11.13	0.80	1022.70	1025.98
C.I. 8-1	C.I. 7-2	117.47	1017.76	1016.37	1.18	15	0.012	1.09	2.33	7.61	0.41	1018.17	1025.23
C.I. 9-2	C.I. 11-1	43.01	1005.53	1005.13	0.93	24	0.012	11.96	5.56	23.63	1.24	1006.77	1014.75
M.H. 9-3	C.I. 9-2	46.93	1007.00	1006.53	1.00	18	0.012	9.97	7.26	11.38	1.22	1008.22	1014.97
F.I. 9-4	M.H. 9-3	141.40	1009.57	1007.50	1.46	18	0.012	9.97	8.49	13.76	1.22	1010.79	1018.04
F.I. 9-5	F.I. 9-4	247.00	1017.73	1012.41	2.15	18	0.012	7.61	9.23	16.70	1.07	1018.80	1024.47
F.I. 9-6	F.I. 9-5	138.00	1022.56	1017.98	3.32	15	0.012	2.51	2.95	12.74	0.63	1023.19	1026.50
C.I. 9-7	F.I. 9-6	133.00	1029.11	1023.01	4.59	15	0.012	1.20	7.31	14.98	0.43	1029.54	1036.81
C.I. 9-8	C.I. 9-7	34.02	1030.50	1030.16	1.00	15	0.012	0.49	3.28	6.99	0.27	1030.77	1036.77
M.H. 10-1	C.I. 11-3	129.94	1010.73	1008.49	1.72	24	0.012	14.93	10.05	32.17	1.39	1012.12	1018.66
F.I. 10-2	M.H. 10-1	125.40	1012.41	1010.73	1.34	24	0.012	14.93	6.40	28.36	1.39	1013.80	1022.17
F.I. 10-3	F.I. 10-2	144.55	1016.61	1013.01	2.49	24	0.012	13.84	11.28	38.67	1.34	1017.95	1025.11
C.I. 11-1	M.H. 5-3	151.51	1004.13	1003.16	0.64	36	0.012	49.77	7.75	57.81	2.29	1006.42	1014.77
C.I. 11-2	C.I. 11-1	288.06	1006.66	1004.63	0.70	30	0.012	35.45	8.65	37.30	2.02	1008.68	1017.23
C.I. 11-3	C.I. 11-2	43.00	1007.49	1007.16	0.77	30	0.012	32.52	8.88	38.92	1.94	1009.43	1017.25
C.I. 11-4	C.I. 11-3	84.02	1008.83	1007.99	1.00	24	0.012	7.95	3.28	24.50	1.00	1009.83	1015.86
C.I. 11-5	C.I. 11-4	36.35	1010.75	1010.28	1.29	15	0.012	4.69	6.74	7.95	0.88	1011.63	1015.95
C.I. 12-1	F.I. 9-5	133.00	1019.26	1017.98	0.96	15	0.012	2.25	2.64	6.86	0.60	1019.86	1023.35
C.I. 13-1	C.I. 6-7	34.37	1024.58	1024.30	0.81	18	0.012	9.64	6.60	10.27	1.20	1025.78	1029.29
C.I. 14-2	E.S. 14-1	67.74	1025.46	1022.29	4.68	15	0.012	1.99	1.62	15.13	0.56	1026.02	1031.65
C.I. 14-3	E.S. 14-2	34.00	1027.00	1026.66	1.00	15	0.012	0.79	3.77	7.00	0.35	1027.35	1031.65

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03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

DRAINAGE TABLES - 10 YEAR

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET C127

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_TAB01_017-0188.dwg USER: dhernandez
DATE: Feb 19, 2019 6:17pm

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. 1-3(L)	0.04	0.51	5.00	10.32	1.25	0.26
C.I. 1-3(R)	0.13	0.51	5.00	10.32	1.25	0.86
C.I. 1-3(B)	0.09	0.51	5.00	10.32	1.25	0.59
C.I. 1-3	0.26	0.51	5.00	10.32	1.25	1.71
C.I. 1-4(L)	0.07	0.51	5.00	10.32	1.25	0.46
C.I. 1-4(R)	0.52	0.51	5.00	10.32	1.25	3.42
C.I. 1-4(B)	0.31	0.51	5.00	10.32	1.25	2.04
C.I. 1-4	0.90	0.51	5.00	10.32	1.25	5.92
C.I. 2-1	0.76	0.51	5.00	10.32	1.25	5.00
C.I. 3-3(L)	0.00	0.51	5.00	10.32	1.25	0.00
C.I. 3-3(R)	0.39	0.51	5.00	10.32	1.25	2.57
C.I. 3-3(B)	1.73	0.51	5.00	10.32	1.25	11.38
C.I. 3-3	2.12	0.51	5.00	10.32	1.25	13.95
C.I. 3-5	1.15	0.51	5.00	10.32	1.25	7.57
C.I. 3-6	0.29	0.51	5.00	10.32	1.25	1.91
C.I. 4-1(L)	0.07	0.51	5.00	10.32	1.25	0.46
C.I. 4-1(R)	0.35	0.51	5.00	10.32	1.25	2.30
C.I. 4-1(B)	0.49	0.51	5.00	10.32	1.25	3.22
C.I. 4-1	0.91	0.51	5.00	10.32	1.25	5.99
C.I. 5-4(L)	0.00	0.51	5.00	10.32	1.25	0.00
C.I. 5-4(R)	0.66	0.51	5.00	10.32	1.25	4.34
C.I. 5-4(B)	0.55	0.51	5.00	10.32	1.25	3.62
C.I. 5-4	1.21	0.51	5.00	10.32	1.25	7.96
C.I. 5-5(L)	0.49	0.51	5.00	10.32	1.25	3.22
C.I. 5-5(R)	0.07	0.51	5.00	10.32	1.25	0.46
C.I. 5-5(B)	1.06	0.51	5.00	10.32	1.25	6.98
C.I. 5-5	1.62	0.51	5.00	10.32	1.25	10.66
C.I. 6-1	0.82	0.51	5.00	10.32	1.25	5.40
C.I. 6-2	0.19	0.51	5.00	10.32	1.25	1.25
F.I. 6-3	0.30	0.51	5.00	10.32	1.25	1.97
F.I. 6-4	0.54	0.51	5.00	10.32	1.25	3.55
F.I. 6-5	0.74	0.51	5.00	10.32	1.25	4.87
C.I. 6-7(L)	0.06	0.51	5.00	10.32	1.25	0.39
C.I. 6-7(R)	0.07	0.51	5.00	10.32	1.25	0.46
C.I. 6-7(B)	0.09	0.51	5.00	10.32	1.25	0.59
C.I. 6-7	0.22	0.51	5.00	10.32	1.25	1.45
C.I. 6-8	0.20	0.51	5.00	10.32	1.25	1.32
C.I. 7-1(L)	0.61	0.51	5.00	10.32	1.25	4.01
C.I. 7-1(R)	0.07	0.51	5.00	10.32	1.25	0.46
C.I. 7-1(B)	0.12	0.51	5.00	10.32	1.25	0.79
C.I. 7-1	0.80	0.51	5.00	10.32	1.25	5.26
C.I. 7-2(L)	0.09	0.51	5.00	10.32	1.25	0.59
C.I. 7-2(R)	0.11	0.51	5.00	10.32	1.25	0.72
C.I. 7-2(B)	1.73	0.51	5.00	10.32	1.25	11.38
C.I. 7-2	1.93	0.51	5.00	10.32	1.25	12.70
C.I. 7-3	1.05	0.51	5.00	10.32	1.25	6.91
C.I. 8-1	0.29	0.51	5.00	10.32	1.25	1.91
C.I. 9-2(L)	0.19	0.51	5.00	10.32	1.25	1.25
C.I. 9-2(R)	0.09	0.51	5.00	10.32	1.25	0.59
C.I. -9-2(B)	0.25	0.51	5.00	10.32	1.25	1.65
C.I. 9-2	0.53	0.51	5.00	10.32	1.25	3.49
F.I. 9-4	0.63	0.51	5.00	10.32	1.25	4.15
F.I. 9-5	0.76	0.51	5.00	10.32	1.25	5.00
F.I. 9-6	0.35	0.51	5.00	10.32	1.25	2.30
C.I. 9-7	0.19	0.51	5.00	10.32	1.25	1.25
C.I. 9-8	0.13	0.51	5.00	10.32	1.25	0.86
F.I. 10-2	0.29	0.51	5.00	10.32	1.25	1.91
F.I. 10-3	1.02	0.51	5.00	10.32	1.25	6.71
C.I. 11-1(L)	0.35	0.51	5.00	10.32	1.25	2.30
C.I. 11-1(R)	0.14	0.51	5.00	10.32	1.25	0.92
C.I. 11-1(B)	0.14	0.51	5.00	10.32	1.25	0.92
C.I. 11-1	0.63	0.51	5.00	10.32	1.25	4.15
C.I. 11-2	0.39	0.51	5.00	10.32	1.25	2.57
C.I.11-3	1.33	0.51	5.00	10.32	1.25	8.75
C.I. 11-4(L)	0.23	0.51	5.00	10.32	1.25	1.51
C.I. 11-4(R)	0.05	0.51	5.00	10.32	1.25	0.33
C.I. 11-4(B)	0.59	0.51	5.00	10.32	1.25	3.88
C.I. 11-4	0.87	0.51	5.00	10.32	1.25	5.73
C.I. 11-5(L)	0.21	0.51	5.00	10.32	1.25	1.38
C.I. 11-5(R)	0.19	0.51	5.00	10.32	1.25	1.25
C.I. 11-5(B)	0.85	0.51	5.00	10.32	1.25	5.59
C.I. 11-5	1.25	0.51	5.00	10.32	1.25	8.23
C.I. 12-1	0.60	0.51	5.00	10.32	1.25	3.95
C.I. 13-1(L)	0.21	0.51	5.00	10.32	1.25	1.38
C.I. 13-1(R)	0.20	0.51	5.00	10.32	1.25	1.32
C.I. 13-1(B)	2.16	0.51	5.00	10.32	1.25	14.21
C.I. 13-1	2.57	0.51	5.00	10.32	1.25	16.91
C.I. 14-2	0.32	0.51	5.00	10.32	1.25	2.11
C.I. 14-3	0.21	0.51	5.00	10.32	1.25	1.38

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. 1-3(L)	SAG	0.26	...	...	...	...	...	...	...	...	0.07	3.52	...
C.I. 1-3(R)	SAG	0.86	...	...	...	...	...	...	...	...	0.11	5.57	...
C.I. 1-3	SAG	1.71	0.00	1.71	0.80	19.40	15.52	1.71	0.00	100.00%	...	...	...
C.I. 1-4(L)	SAG	0.46	...	...	...	...	...	...	...	...	0.09	4.35	...
C.I. 1-4(R)	SAG	3.42	...	...	...	...	...	...	...	...	0.19	9.43	...
C.I. 1-4	SAG	5.92	0.00	5.92	0.80	19.40	15.52	5.92	0.00	100.00%	...	...	...
C.I. 2-1	GRADE	5.00	0.00	5.00	1.00	3.68	3.68	3.68	1.32	73.67%	0.24	12.19	...
C.I. 3-3(L)	SAG	0.00	...	...	...	...	...	...	...	...	0.00	0.00	...
C.I. 3-3(R)	SAG	2.57	...	...	...	...	...	...	...	...	0.24	11.84	...
C.I. 3-3	SAG	13.95	0.00	13.95	0.80	19.40	15.52	13.95	0.00	100.00%	...	...	...
C.I. 3-5	GRADE	7.57	0.00	7.57	1.00	3.89	3.89	3.89	3.68	51.41%	0.25	12.73	...
C.I. 3-6	GRADE	1.91	0.00	1.91	1.00	1.60	1.60	1.60	0.31	83.82%	0.15	7.59	...
C.I. 4-1(L)	SAG	0.46	...	...	...	...	...	...	...	...	0.09	4.42	...
C.I. 4-1(R)	SAG	2.30	...	...	...	...	...	...	...	...	0.17	8.54	...
C.I. 4-1	SAG	5.99	0.00	5.99	0.80	19.40	15.52	5.99	0.00	100.00%	...	...	...
C.I. 5-4(L)	SAG	0.00	...	...	...	...	...	...	...	...	0.07	3.38	...
C.I. 5-4(R)	SAG	4.34	...	...	...	...	...	...	...	...	0.20	9.86	...
C.I. 5-4	SAG	7.96	0.00	7.96	0.80	19.40	15.52	7.96	0.00	100.00%	...	...	...
C.I. 5-5(L)	SAG	3.22	...	...	...	...	...	...	...	...	0.18	9.12	...
C.I. 5-5(R)	SAG	0.46	...	...	...	...	...	...	...	...	0.09	4.30	...
C.I. 5-5	SAG	10.66	0.00	10.66	0.80	19.40	15.52	10.66	0.00	100.00%	...	...	...
C.I. 6-1	GRADE	5.40	0.00	5.40	1.00	4.32	4.32	4.32	1.08	80.05%	0.24	10.85	...
C.I. 6-2	GRADE	1.25	0.00	1.25	1.00	1.24	1.24	1.24	0.01	98.94%	0.14	6.27	...
F.I. 6-3	SAG	1.97	...	...	...	...	...	...	...	...	...	...	0.14
F.I. 6-4	SAG	3.55	...	...	...	...	...	...	...	...	...	...	0.20
F.I. 6-5	SAG	4.87	...	...	...	...	...	...	...	...	...	...	0.25
C.I. 6-7(L)	SAG	0.39	...	...	...	...	...	...	...	...	0.08	4.16	...
C.I. 6-7(R)	SAG	0.46	...	...	...	...	...	...	...	...	0.10	5.13	...
C.I. 6-7	SAG	1.45	0.00	1.45	0.80	19.40	15.52	1.45	0.00	100.00%	...	...	...
C.I. 6-8	GRADE	1.32	0.00	1.32	1.00	1.22	1.22	1.22	0.09	92.81%	0.15	7.39	...
C.I. 7-1(L)	SAG	4.01	...	...	...	...	...	...	...	...	0.21	10.43	...
C.I. 7-1(R)	SAG	0.46	...	...	...	...	...	...	...	...	0.09	4.25	...
C.I. 7-1	SAG	5.26	0.00	5.26	0.80	19.40	15.52	5.26	0.00	100.00%	...	...	...
C.I. 7-2(L)	SAG	0.59	...	...	...	...	...	...	...	...	0.20	9.85	...
C.I. 7-2(R)	SAG	0.72	...	...	...	...	...	...	...	...	0.10	5.22	...
C.I. 7-2	SAG	12.70	0.00	12.70	0.80	19.40	15.52	12.70	0.00	100.00%	...	...	...
C.I. 7-3	GRADE	6.91	0.00	6.91	1.00	4.06	4.06	4.06	2.85	58.76%	0.26	12.84	...
C.I. 8-1	GRADE	1.91	0.00	1.91	1.00	1.83	1.83	1.83	0.07	96.13%	0.16	7.35	...
C.I. 9-2(L)	SAG	1.25	...	...	...	...	...	...	...	...	0.15	7.06	...
C.I. 9-2(R)	SAG	0.59	...	...	...	...	...	...	...	...	0.12	5.34	...
C.I. 9-2	SAG	3.49	0.00	3.49	0.80	19.40	15.52	3.49	0.00	100.00%	...	...	...
F.I. 9-4	SAG	4.15	...	...	...	...	...	...	...	...	...	...	0.22
F.I. 9-5	SAG	5.00	...	...	...	...	...	...	...	...	...	...	0.25
F.I. 9-6	SAG	2.30	...	...	...	...	...	...	...	...	...	...	0.15
C.I. 9-7	GRADE	1.25	0.00	1.25	1.00	1.00	1.00	1.00	0.25	80.33%	...	...	...
C.I. 9-8	GRADE	0.86	0.00	0.86	1.00	0.74	0.74	0.74	0.12	86.25%	...	...	...
F.I. 10-2	SAG	1.91	...	...	...	...	...	...	...	...	...	...	0.13
F.I. 10-3	SAG	6.71	...	...	...	...	...	...	...	...	...	...	0.31
C.I. 11-1(L)	SAG	2.30	...	...	...	...	...	...	...	...	0.22	10.07	...
C.I. 11-1(R)	SAG	0.92	...	...	...	...	...	...	...	...	0.18	8.42	...
C.I. 11-1	SAG	4.15	0.00	4.15	0.80	19.40	15.52	4.15	0.00	100.00%	...	...	...
C.I. 11-2	GRADE	2.57	0.00	2.57	1.00	1.65	1.65	1.65	0.92	64.23%	...	...	...
C.I.11-3	GRADE	8.75	0.00	8.75	1.00	6.52	6.52	6.52	2.24	74.44%	...	...	...
C.I. 11-4(L)	SAG	1.51	...	...	...	...	...	...	...	...	0.14	6.90	...
C.I. 11-4(R)	SAG	0.33	...	...	...	...	...	...	...	...	0.08	3.89	...
C.I. 11-4	SAG	5.73	0.00	5.73	0.80	19.40	15.52	5.73	0.00	100.00%	...	...	...
C.I. 11-5(L)	SAG	1.38	...	...	...	...	...	...	...	...	0.19	9.43	...
C.I. 11-5(R)	SAG	1.25	...	...	...	...	...	...	...	...	0.13	6.42	...
C.I. 11-5	SAG	8.23	0.00	8.23	0.80	19.40	15.52	8.23	0.00	100.00%	...	...	...
C.I. 12-1	GRADE	3.95	0.00	3.95	1.00	1.85	1.85	1.85	2.10	46.93%	0.16	8.05	...
C.I. 13-1(L)	SAG	1.38	...	...	...	...	...	...	...	...	0.14	6.87	...
C.I. 13-1(R)	SAG	1.32	...	...	...	...	...	...	...	...	0.18	9.19	...
C.I. 13-1	SAG	16.91	0.00	16.91	0.80	19.40	15.52	15.52	1.39	91.78%	...	...	...
C.I. 14-2	GRADE	2.11	0.00	2.11	1.00	1.94	1.94	1.94	0.17	91.97%	0.17	8.55	...
C.I. 14-3	GRADE	1.38	0.00	1.38	1.00	1.32	1.32	1.32	0.06	95.68%	0.15	7.30	...

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	Upstream Invert	Downstream Invert	Slope	Diameter	Manning's n	Total Flow	Velocity	Capacity	Flow Depth	Upstream Struct. HGL	Upstream Top Elev.
		(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(ft/s)	(cfs)	(ft)	(ft)	(ft)
M.H. 1-2	E.S. 1-1	205.81	1018.30	1016.28	0.98	18	0.012	7.63	6.80	11.27	1.07	1019.37	1028.90
C.I. 1-3	M.H. 1-2	142.32	1020.42	1019.00	1.00	18	0.012	7.63	6.89	11.36	1.07	1021.49	1027.43
C.I. 1-4	C.I. 1-3	37.59	1022.50	1022.00	1.33	15	0.012	5.92	7.18	8.07	0.98	1023.48	1027.34
C.I. 2-1	C.I. 6-8	34.01	1026.20	1026.00	0.59	15	0.012	5.00	4.08	5.36	1.25	1047.50	1031.27
M.H. 3-2	E.S. 3-1	41.28	1021.29	1021.00	0.79	30	0.012	29.82	6.08	39.38	2.50	1024.55	1031.52
C.I. 3-3	M.H. 3-2	134.46	1026.07	1021.79	3.18	24	0.012	29.82	9.49	43.72	1.86	1027.93	1033.74
M.H. 3-4	C.I. 3-3	61.52	1029.42	1026.57	4.63	18	0.012	9.88	5.87	24.49	1.21	1030.63	1034.42
C.I. 3-5	M.H. 3-4	283.26	1032.65	1029.82	1.00	18	0.012	9.88	7.25	11.37	1.21	1033.86	1038.73
C.I. 3-6	C.I. 3-5	34.00	1034.08	1033.20	2.59	15	0.012	1.91	2.90	11.25	0.55	1034.63	1038.73
C.I. 4-1	C.I. 3-3	34.00	1029.31	1028.04	3.74	15	0.012	5.99	10.68	13.52	0.99	1030.30	1033.74
M.H. 5-3	E.S. 5-2	169.45	1002.66	999.29	1.73	42	0.012	167.19	17.38	143.51	3.50	1007.37	1016.36
C.I. 5-4	M.H. 5-3	109.56	1008.20	1004.16	3.69	24	0.012	18.62	5.93	47.37	2.00	1012.69	1015.33
C.I. 5-5	C.I. 5-4	36.39	1010.30	1009.57	2.01	15	0.012	10.66	8.69	9.91	1.25	1014.31	1015.35
M.H. 6-0	M.H. 5-3	157.56	1009.48	1005.16	2.74	30	0.012	68.50	13.96	73.57	2.50	1015.81	1019.31
C.I. 6-1	M.H. 6-0	64.77	1010.13	1009.48	1.00	30	0.012	68.50	13.96	44.51	2.50	1018.05	1020.37
C.I. 6-2	C.I. 6-1	42.10	1011.06	1010.63	1.02	30	0.012	63.10	12.86	44.90	2.50	1023.44	1020.42
F.I. 6-3	C.I. 6-2	68.99	1012.50	1011.54	1.39	30	0.012	61.85	12.60	52.41	2.50	1026.09	1021.87
F.I. 6-4	F.I. 6-3	140.64	1013.83	1012.99	0.60	24	0.012	33.10	10.54	18.94	2.00	1032.28	1020.24
F.I. 6-5	F.I. 6-4	171.48	1016.75	1014.23	1.47	24	0.012	29.55	9.41	29.70	2.00	1035.31	1023.67
M.H. 6-6	F.I. 6-5	232.00	1021.18	1017.15	1.74	24	0.012	24.68	7.86	32.29	2.00	1038.36	1029.63
C.I. 6-7	M.H. 6-6	32.19	1023.60	1021.88	5.34	18	0.012	24.68	13.97	26.30	1.50	1040.83	1029.31
C.I. 6-8	C.I. 6-7	166.81	1025.30	1024.00	0.78	15	0.012	6.32	5.15	6.18	1.25	1046.71	1031.26
C.I. 7-1	F.I. 6-3	171.21	1015.27	1013.56	1.00	24	0.012	26.78	8.53	24.49	2.00	1031.76	1023.06
C.I. 7-2	C.I. 7-1	35.16	1015.62	1015.27	1.00	24	0.012	21.52	6.85	24.45	2.00	1032.60	1023.07
C.I. 7-3	C.I. 7-2	218.61	1021.90	1016.37	2.53	15	0.012	6.91	5.63	11.13	1.25	1035.82	1025.98
C.I. 8-1	C.I. 7-2	117.47	1017.76	1016.37	1.18	15	0.012	1.91	1.56	7.61	1.25	1033.77	1025.23
C.I. 9-2	C.I. 11-1	43.01	1005.53	1005.13	0.93	24	0.012	21.00	6.69	23.63	2.00	1017.23	1014.75
M.H. 9-3	C.I. 9-2	46.93	1007.00	1006.53	1.00	18	0.012	17.51	9.91	11.38	1.50	1019.39	1014.97
F.I. 9-4	M.H. 9-3	141.40	1009.57	1007.50	1.46	18	0.012	17.51	9.91	13.76	1.50	1024.26	1018.04
F.I. 9-5	F.I. 9-4	247.00	1017.73	1012.41	2.15	18	0.012	13.36	7.56	16.70	1.50	1029.18	1024.47
F.I. 9-6	F.I. 9-5	138.00	1022.56	1017.98	3.32	15	0.012	4.41	3.59	12.74	1.25	1031.07	1026.50
C.I. 9-7	F.I. 9-6	133.00	1029.11	1023.01	4.59	15	0.012	2.11	1.72	14.98	1.25	1031.49	1036.81
C.I. 9-8	C.I. 9-7	34.02	1030.50	1030.16	1.00	15	0.012	0.86	0.70	6.99	1.01	1031.51	1036.77
M.H. 10-1	C.I. 11-3	129.94	1010.73	1008.49	1.72	24	0.012	26.19	8.34	32.17	2.00	1029.66	1018.66
F.I. 10-2	M.H. 10-1	125.40	1012.41	1010.73	1.34	24	0.012	26.19	8.34	28.36	2.00	1032.17	1022.17
F.I. 10-3	F.I. 10-2	144.55	1016.61	1013.01	2.49	24	0.012	24.28	7.73	38.67	2.00	1034.92	1025.11
C.I. 11-1	M.H. 5-3	151.51	1004.13	1003.16	0.64	36	0.012	80.07	11.33	57.81	3.00	1013.92	1014.77
C.I. 11-2	C.I. 11-1	288.06	1006.66	1004.63	0.70	30	0.012	54.92	11.19	43.25	2.50	1021.32	1017.23
C.I. 11-3	C.I. 11-2	43.00	1007.49	1007.16	0.77	30	0.012	49.79	10.15	38.92	2.50	1024.78	1017.25
C.I. 11-4	C.I. 11-3	84.02	1008.83	1007.99	1.00	24	0.012	13.96	4.44	24.50	2.00	1028.44	1015.86
C.I. 11-5	C.I. 11-4	36.35	1010.75	1010.28	1.29	15	0.012	8.23	6.71	7.95	1.25	1029.19	1015.95
C.I. 12-1	F.I. 9-5	133.00	1019.26	1017.98	0.96	15	0.012	3.95	3.22	6.86	1.25	1030.94	1023.35
C.I. 13-1	C.I. 6-7	34.37	1024.58	1024.30	0.81	18	0.012	16.91	9.57	10.27	1.50	1046.11	1029.29
C.I. 14-2	E.S. 14-1	67.74	1025.46	1022.29	4.68	15	0.012	3.49	2.84	15.13	0.75	1026.21	1031.65
C.I. 14-3	E.S. 14-2	34.00	1027.00	1026.66	1.00	15	0.012	1.38	4.43	7.00	0.46	1027.46	1031.65

NOT AS BUILT

Record Drawing

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

DRAINAGE TABLES - 100 YEAR

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C128

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_TAB01_017-0188.dwg USER: dhernandez
DATE: Feb 19, 2019 6:17pm

NOTES:

RMBOE – REAR MINIMUM BUILDING OPENING ELEVATION
FMBOE – FRONT 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 Mater 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 per lot lines. Interpolation will be allowed between the right and left side MBOEs shown on the Master Drainage Plan, depending on the location of the lowest opening on the proposed structure.

NOTE: No building permits will be issued until an as–graded Master Drainage Plan has been submitted to the city and approved by the city.

* Swales to be constructed between each of the lots 87 through 94 to drain to the south.

BASEMENT TYPES

(D) DAYLIGHT

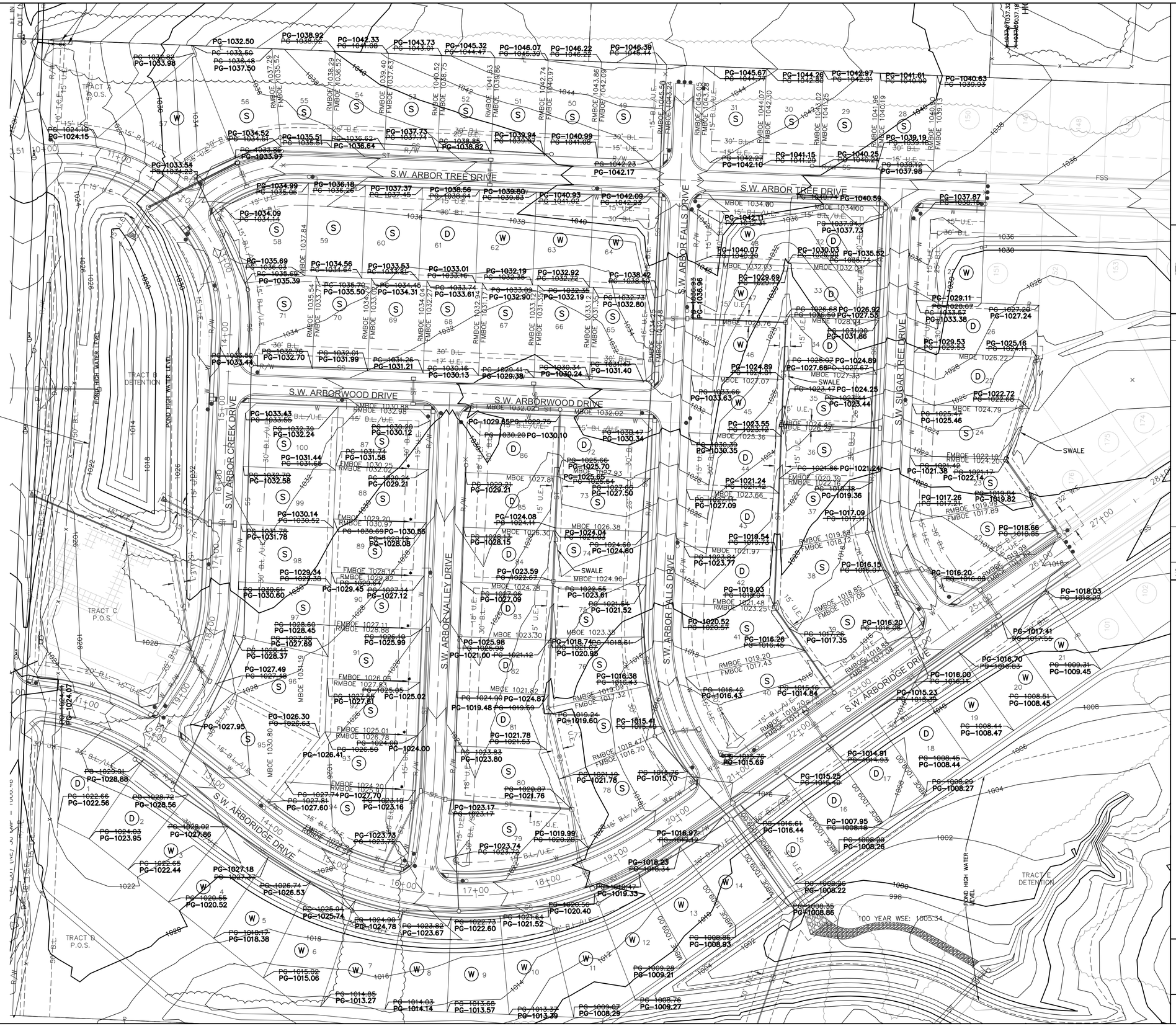
(W) WALKOUT

(S) STANDARD

100 YEAR WSE: 1024.38

AS BUILT
DATE: 12/19/2018

Record Drawing



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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE–2011000892
03/04/2019
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
5	02.14.2018	Added Lot Types	MGD
6	03.02.2018	Grading Revisions	
7	04.23.2018	Revised spot elevations	

MASTER DRAINAGE PLAN
HAWTHORN RIDGE 1ST PLAT
LEE'S SUMMIT, MO
2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C129

DWG: F:\2017\0001–0500\017–0188\40–Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_MDR01_017–0188.dwg USER: dhernandez
DATE: Feb 19, 2019 6:18pm

SEDIMENT BASIN DESIGN DATA SUMMARY				
Design Item:	Basin #1	Basin #2	Units	Notes:
Site Data:				
Tributary Drainage Area to Pond:	31.34	8.09	Acres	
50% (2 yr) Design Flow:	83.92	21.67	cfs	
4% (25 yr) Design Flow:	149.09	38.50	cfs	
Pond Data:				
Minimum Sediment Storage Volume:	4200	1085	cu. yd.	134 cy/acre minimum
Provided Sediment Storage Volume:	4200	1085	cu. yd.	134 cy/acre minimum
Bottom Elevation:	998.00	1014.00	Ft	
Sediment Cleanout Elevation:	1001.60	1016.41	Ft	Elevation Equal to 50% of Original Design Volume.
Top of Riser Elevation:	1002.98	1017.12	Ft	Top of Dry Storage Volume
Emergency Spillway Elevation:	1006.00	1024.90	Ft	at or Above Q-2 elev. 1.0 ft min above principal spillway
Q-25 year Elevation:	1006.82	1025.14	Ft	
Top of Dam Elevation:	1008.00	1026.10	Ft	1.0 ft min above Q-25 elev.
Basin Shape Data:				
A= Area at Normal Pool	36337.18	9000.36	SF	
L = Length of Flow Path	128.00	160.00	Ft	
We = Effective Width = A/L	283.88	56.25	Ft	
Length to Width Ratio = L/We	0.45	2.84		If Length to Width Ratio is less than 2, baffles are required
Principal Spillway Data:				
Riser Pipe Diameter:	48	18	in	15-inch min. Size for 2 year flow minimum
Barrell Pipe Diameter:	36	15	in	15-inch min. Size for 2 year flow minimum
Riser Pipe Base Size:	1.93	0.23	cu. yd.	Size to Prevent Flotation. 1.25 safety factor required.
Skimmer Size:	6.00	4.00	in	
Skimmer Elevation	1002.30	1013.01	Ft	
Emergency Spillway Data:				
Elevation of Spillway:	1006.00	1024.90		
Design Width of Spillway:	75.00	125.00	Ft	
Design Depth in Spillway:	0.82	0.24	Ft	Use $Q_{25yr}=C_vbH^{(3/2)}$ where C_v=2.63, b is the Width of Spillway
Design Velocity in Spillway:	2.44	1.31	Ft/sec	

TEMPORARY SEDIMENT TRAP	1
POND AND PRINCIPAL SPILLWAY DATA:	
DAM TOP ELEVATION	1020.00
EMERGENCY SPILLWAY ELEVATION	1018.71
WET STORAGE VOLUME ELEVATION	1017.65
CLEANOUT ELEVATION	1017.65
DRY BOTTOM ELEVATION	1016.00
VOL. REQ'D @ 134CY/ACRE	732
VOL. PROVIDED BELOW OUTLET CREST (CY)	732
STONE OUTLET DATA:	
LENGTH (L.) FT.	32.94
WIDTH (W.) FT.	10.00
DRAINAGE AREA (AC)	5.49
UPSTREAM D50 (MEDIAN STONE SIZE, IN)	2.00
DOWNSTREAM D50 (MEDIAN STONE SIZE, IN)	10.00

NOTE:
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.

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_ERC01_ 017-0188.dwg USER: dhernandez
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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
6	03.06.2018	Sediment Basins revised	JES

REVISIONS

SITE DISTRUBANCE PLAN - PHASE 1

HAWTHORN RIDGE 1ST PLAT

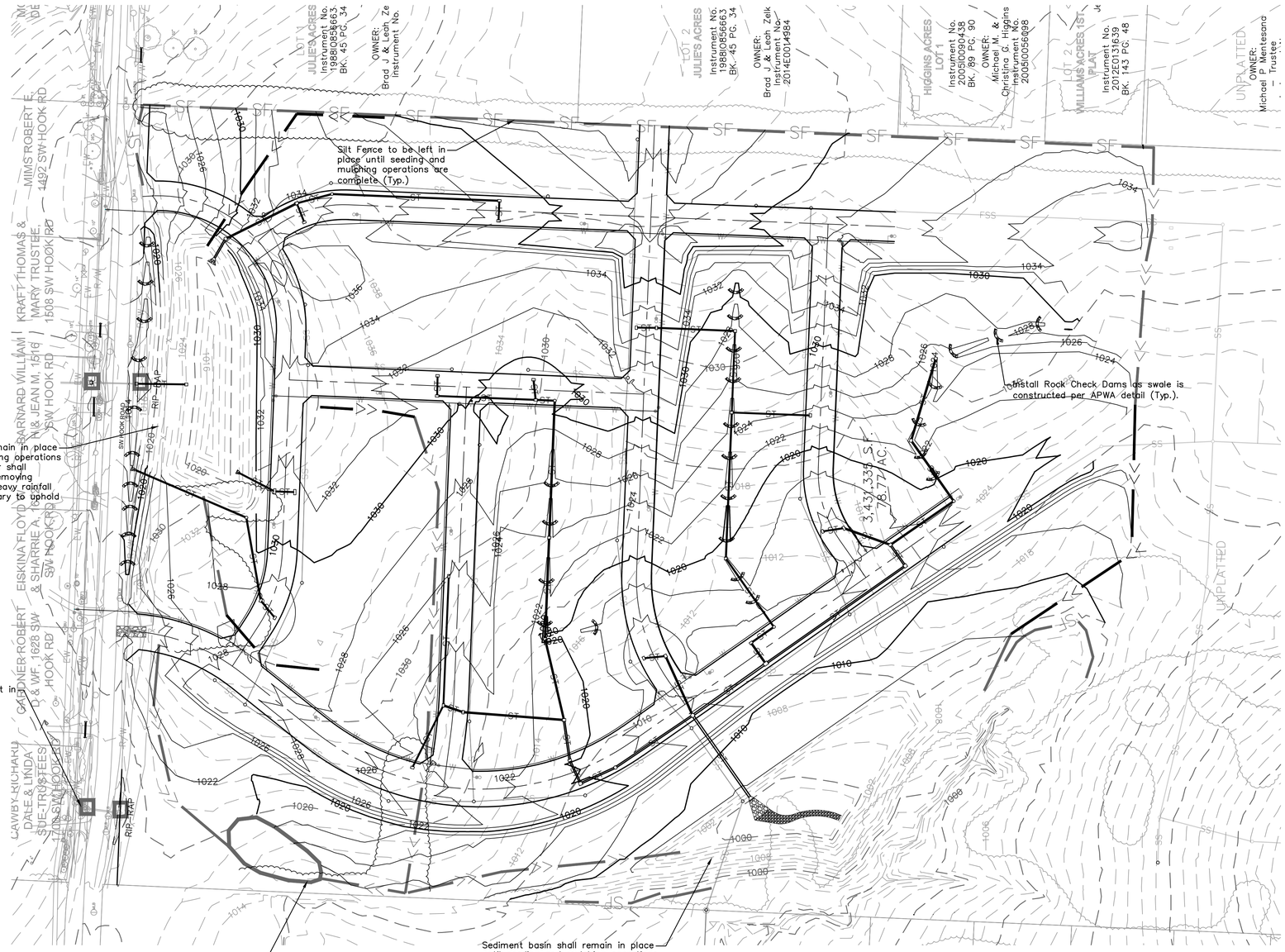
LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C130

NOTE:
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.



LEGEND:

PHASE 1 DEVICES	PHASE 2 DEVICES	
		TEMPORARY STONE CONSTRUCTION ENTRANCE
SF	SF	SILT FENCE
		STORM DRAIN INLET PROTECTION
<<	<<	TEMPORARY DIVERSION BERM

NOT AS BUILT

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N

0' 25' 50' 100'
SCALE IN FEET

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
5	02.14.2018	Added rock check dams	
6	03.08.2018	Phase 2 grading revised per sediment basins	JES

REVISIONS

SITE DISTRUBANCE PLAN - PHASE 2

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C131

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_ERC02_017-0188.dwg USER: dhernandez
DATE: Feb 19, 2019 6:20pm

GENERAL NOTES:

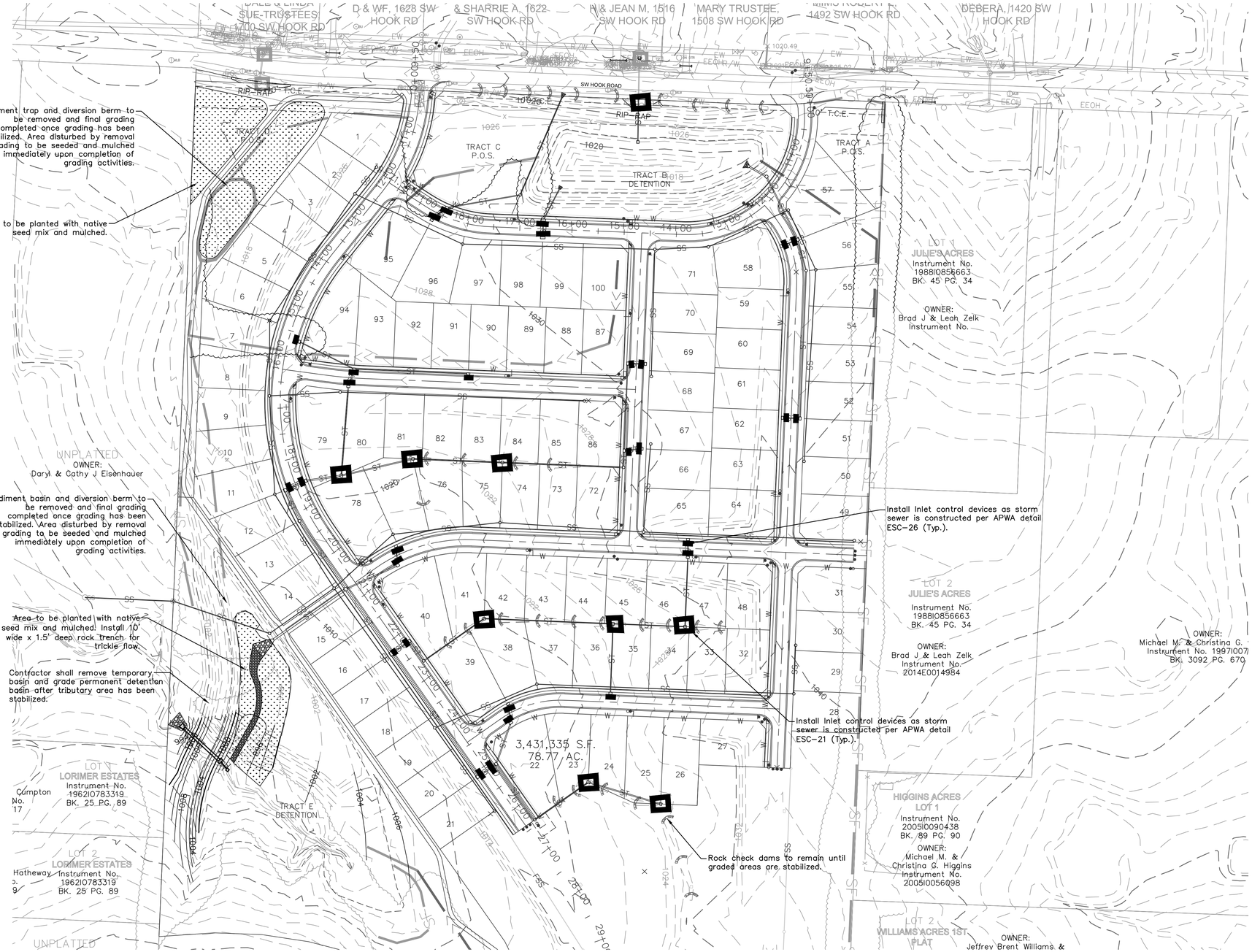
SEED & MULCH NOTES:
SEEDING SHALL BE DONE BEFORE THE PROPOSED SEEDBED BECOMES ERODED, CRUSTED OVER,OR DRIED OUT AND SHALL NOT BE DONE WHEN THE GROUND IS FROZEN, OR COVERED WITH SNOW. THE SEED SHALL COMPLY WITH THE REQUIREMENTS OF THE MISSOURI SEED LAW AND THE FEDERAL SEED ACT. ALSO, IT SHALL CONTAIN 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
LIME ----------2000 LBS. PER ACRE
(50 LBS. PER 1000 SQ. FT.)
FERTILIZER ----------800 TO 1200 LBS.
PER ACRE (25 LBS. PER 1000 SQ. FT.)

DURING THE DATES DECEMBER 15TH THROUGH MAY 31 ALL LIME, 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, LIME, FERTILIZER, SEED, AND MULCH SHALL BE APPLIED AT THE FOLLOWING RATES:
LIME – 100 % OF SPECIFIED QUANTITY
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.

NATIVE SEED MIX
NORTHERN SHORT GRASS MEADOW MIX (6LB PER ACRE)
SUPPLIER:
CRITSITE PRODUCTS, PRAIRIE AND WETLAND CENTER
16245 SOUTH HIGHWAY 71
BELTON, MO 64012
816-331-9736



LEGEND:

PHASE 1 DEVICES	PHASE 2 DEVICES	PHASE 3 DEVICES	
			TEMPORARY STONE CONSTRUCTION ENTRANCE
SF	SF	SF	SILT FENCE
			STORM DRAIN INLET PROTECTION
<<	<<	<<	TEMPORARY DIVERSION BERM
			NATIVE SEED MIX

NOT AS BUILT

Record Drawing

N

0' 25' 50' 100'
SCALE IN FEET

OLSSON ASSOCIATES®
Olsson Associates - Civil Engineering
MO Certificate of Authority # 001592
1301 NE Tiffany Springs Blvd.
North Kansas City, MO 64116
TEL 816.587.8200
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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
4	02.14.2018	Added rock check dams	
5	02.14.2018	Added native vegetation and rock trench	

REVISIONS

SITE DISTRUBANCE PLAN - PHASE 3

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J.
project no.: 017-0188
date: 03.03.2017

SHEET C132

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_ERC03_ 017-0188.dwg USER: dhernandez
DATE: Feb 19, 2019 6:20pm

OUTLET STABILIZATION/RIP–RAP

CONSTRUCTION SPECIFICATIONS

1. Ensure that the subgrade for the filter and riprap follows the required lines and grades shown on the plan. Compact any fill required in the fill to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.
2. The riprap and gravel filter must conform to the specified grading limits shown on the plans.
3. Filter cloth, when used, must meet design requirement and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter cloth over the damaged area. All connecting joints should overlap a minimum of 12 inches. If the damage is extensive, replace the entire filter cloth.
4. Riprap may be placed by equipment, but take care to avoid damaging the filter.
5. The minimum thickness of the riprap should be 1.5 x the maximum stone diameter, but no less than 15 inches.
6. Riprap may be field stone or rough quarry stone. It should be hard, angular, highly weather–resistant and well graded.
7. Construct the apron on zero grade with no overfall at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.
8. Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.

Gradation – riprap materials shall be graded within the following limits.

Weight per Stone in Pounds	Percent of Total Weight Lighter Than
350	100
40	10–20

Not more than 5% shall pass through the 2 inch sieve.

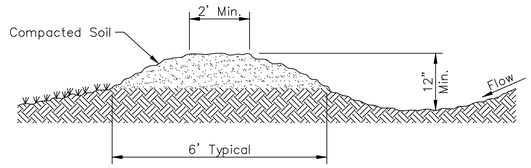
A synthetic filter fabric shall be used with or in place of gravel filters. the permeability of the filter fabric must be greater than that of the soil. the fabric may be made of woven or nonwoven monofilament yarns and should meet the following minimum requirements:

Thickness 20–60 mills

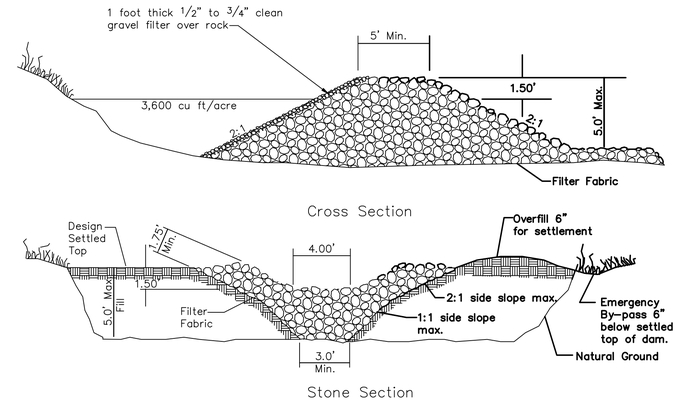
Grab strength 90–120 lbs.

Conform ASTM D–1682 or ASTM D–177

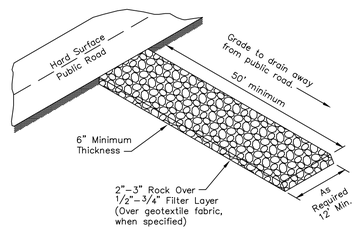
Place the cloth filter directly on the prepared foundation. Overlap the edges by at least 12 inches, and space anchor pins every 3 feet along the overlap. Bury the upper and lower ends of the cloth a minimum of 12 inches below ground. Take care not to damage the cloth when placing the riprap. If damage occurs remove the riprap and repair the sheet by adding another layer of filter material with a minimum overlap of 12 inches around the damaged area. If extensive damage is suspected, remove and replace the entire sheet.



TEMPORARY DIVERSION DIKE DETAIL

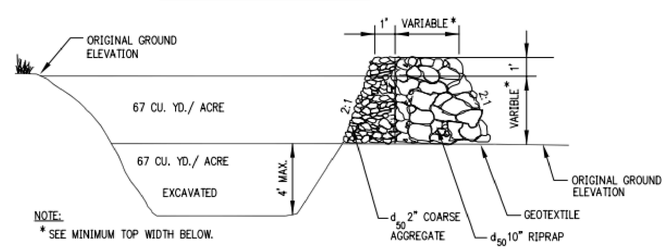


ROCK CHECK DAM DETAIL



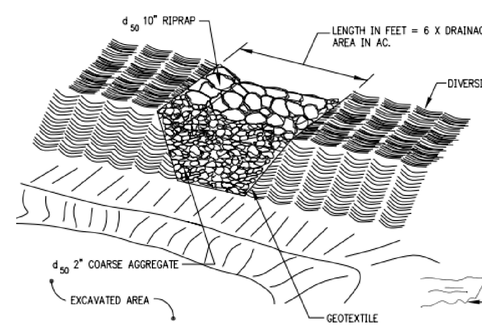
VEHICLE TRACKING CONTROL

TEMPORARY SEDIMENT TRAP

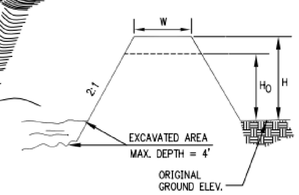


CROSS SECTION OF OUTLET

NOT TO SCALE



OUTLET (PERSPECTIVE VIEW)



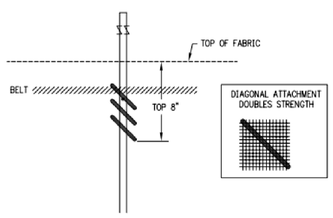
MINIMUM TOP WIDTH

NOT TO SCALE

NOT AS BUILT

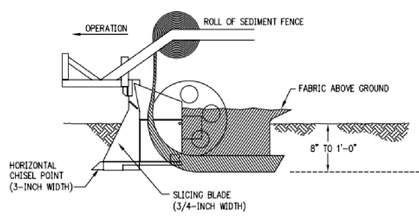
Record Drawing

SEDIMENT FENCE INSTALLATION SLICING METHOD



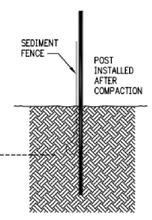
SEDIMENT FENCE INSTALLATION SLICING METHOD NOTES:

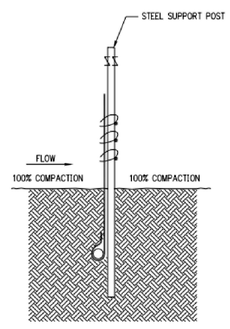
1. LIMIT PONDING HEIGHT TO 24"
2. ATTACH FABRIC TO UPSTREAM SIDE OF POST.
3. DRIVE OVER EACH SIDE OF SEDIMENT FENCE 2 TO 4 TIMES WITH DEVICE EXERTING 60 PSI OR GREATER AFTER MATERIAL IS SLICED INTO THE GROUND.
4. SPACE POSTS A MAX OF 7' ON OPEN RUNS AND 4' ON POOLING AREAS.
5. SINK POSTS AS FAR BELOW GROUND AS FABRIC ABOVE GROUND.



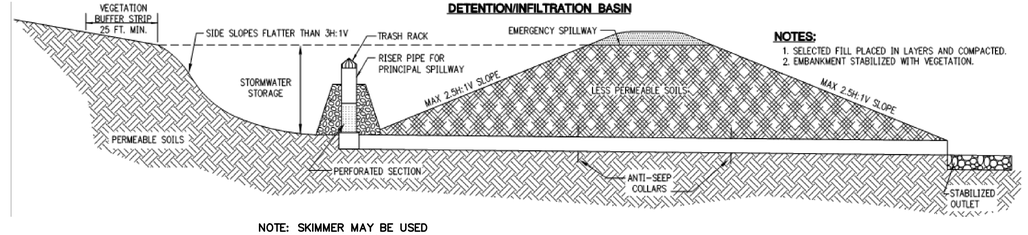
NOTE

VIBRATORY PLOW IS NOT ACCEPTABLE BECAUSE OF HORIZONTAL COMPACTION.





DETENTION/INFILTRATION BASIN



NOTES:

1. SELECTED FILL PLACED IN LAYERS AND COMPACTED.
2. EMBANKMENT STABILIZED WITH VEGETATION.

NOTE: SKIMMER MAY BE USED IN LIEU OF PERFORATED SECTION OF RISER.

NOT TO SCALE

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

LAND DISTURBANCE DETAILS

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.Q
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SHEET C133

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_XSC01_017-0188.dwg USER: dhernandez
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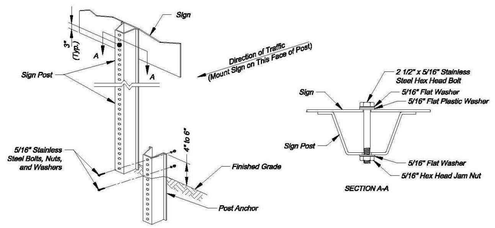
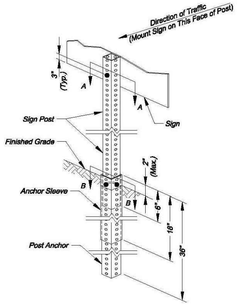


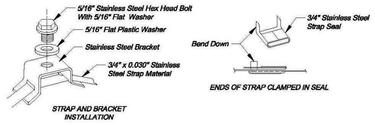
U-STEEL POST DETAILS

U-STEEL POST NOTES:
1. Splice 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 lb./ft., 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.

PERMANENT SIGNING GENERAL NOTES:
1. All signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
2. The Contractor is responsible for avoiding any and all utilities when installing sign posts, whether the utility is indicated on the plans or not.
3. All workmanship and materials shall be subject to the inspection and approval of the Public Works Department of the City of Lee's Summit.
4. The Contractor shall stake the location of all sign posts to be installed. The City Inspector shall inspect the staking prior to installation. Minor relocation to avoid conflicts may be allowed with the approval of the City Traffic Engineer or designee.
5. Signs shown to be installed on the side of metal poles shall be mounted with stainless steel straps or wing brackets as detailed. No signs are to be installed on wood poles. See Traffic Signal Standard Drawings for the installation of signs on mast arms.
6. All post mounted signs shall be installed with breakaway anchors according to the Standard Drawings.
7. All existing signs will be used in place during construction and protected from damage unless otherwise indicated in the plans. If the Contractor damages any existing sign or posts during construction, the Contractor will be required to replace the damaged materials with new signs or posts of the same type and size at the Contractor's expense. The Contractor shall be responsible for removing and storing any signs that are to be reinstalled on the project. All equipment shall be reinstalled in good condition.
8. Existing permanent signs and posts removed by the Contractor for construction purposes which are not to be reinstalled shall be delivered to the City's Public Works Maintenance Facility (1971 SE Hamblen Road). The Contractor shall be responsible for removing and storing equipment in good condition and is fully responsible for the equipment until it is delivered.
9. All Stop, Yield, or street name signs shall be maintained in a conspicuous location for the driving public. All Stop and Yield signs removed for construction purposes can be temporarily erected in reflectorized drums (no less than 7 feet above the pavement surface) until they can be reinstalled. Any temporary Stop or Yield sign installation to be left in place overnight will require prior approval from the City Inspector.

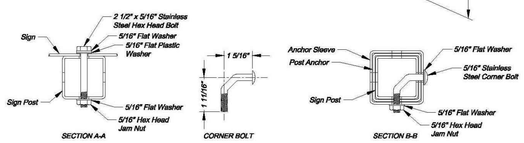


SQUARE STEEL POST INSTALLATION SEQUENCE:
1. Sign post anchor driven partially into the ground using a drive cap with a sledge or power equipment.
2. Anchor sleeve slipped over anchor and drive into the ground together with the sign post anchor.
3. Insert sign post into the post anchor and bolt in place.



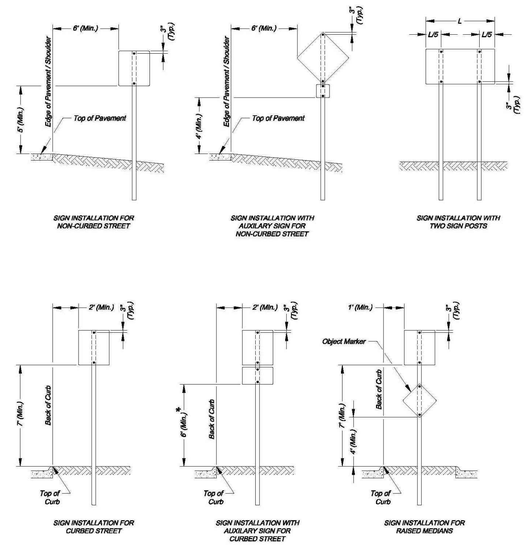
STRAP TYPE SIGN SUPPORT DETAILS

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 201 stainless steel.



SQUARE STEEL POST DETAILS

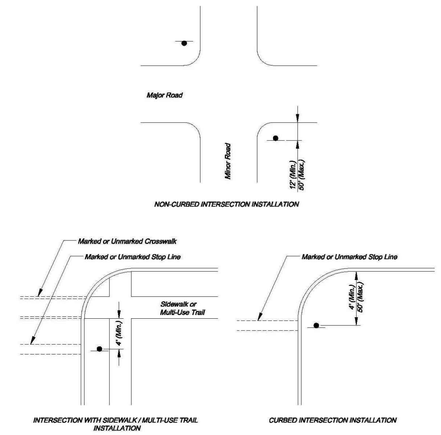
SQUARE STEEL POST NOTES:
1. Square steel sign posts and break-away anchor shall consist of the following materials:
   Sign Post - 14 Ga. 2" x 2" Square Steel Post
   Post Anchor - 12 Ga. 2 1/4" x 2 1/4" x .36" Square Steel Post
   Anchor Sleeve - 12 Ga. 2 1/2" x 2 1/2" x .18" Square Steel Post
2. 14 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 9.0 square feet. A sign or combination of signs with an area greater than 9.0 square feet will require two posts. Also, signs with a width greater than 36" (not including 36" x 36" diamond shaped signs) will require two posts.



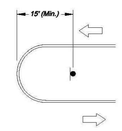
SIGN MOUNTING DETAILS

* The height to the bottom of a sign when it is located in a pedestrian walkway or extends into a walkway shall be a minimum of 80 inches above the walkway.

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



CONTROL SIGN LOCATION



MEDIAN SIGN LOCATION

NOTES:
1. A 4" P.V.C. sleeve shall be installed in new concrete medians at each location where a sign is to be installed.
2. For existing concrete medians, a 4" hole shall be cored into the concrete.

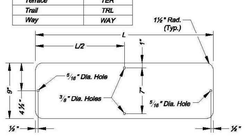
STANDARD ABBREVIATION LISTS

Named Streets	
Avenue	AVE
Boulevard	BLVD
Circle	CIR
Creek	CR
Court	CT
Crossing	XING
Drive	DR
Highway	HWY
Lane	LN
Parkway	PKWY
Place	PL
Road	RD
Street	ST
Terrace	TER
Trail	TRL
Way	WAY

Numbered Streets	
First	ST
Second	ND
Third	RD
Fourth to Tenth	TH

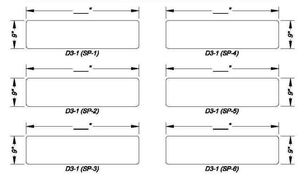
STREET NAME SIGN QUANTITIES

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

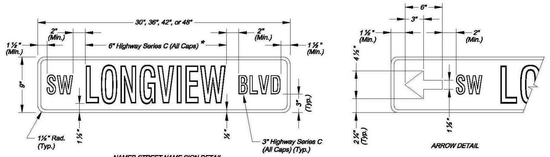


STREET NAME SIGN BLANK DETAILS

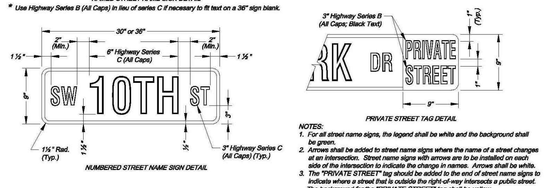
For Mounting on Square Steel Posts



PROJECT SIGN DETAILS

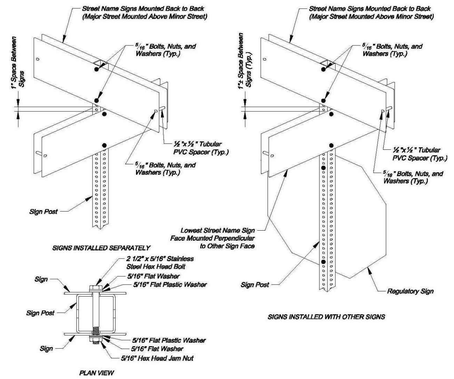


* Use Highway Series B (All Caps) in lieu of series C if necessary to fit text on a 36" sign blank.

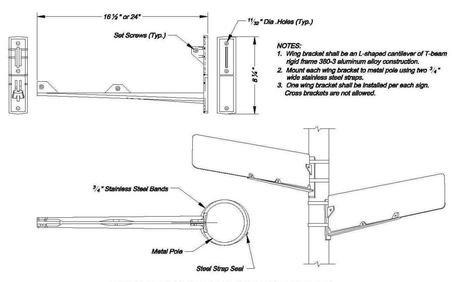


NOTES:
1. For all street name signs, the legend shall be white and the background shall be green.
2. Arrows shall be added to street name signs where the name of a street changes at an intersection. Street name signs with arrows are to be installed on each side of the intersection to indicate the change 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.

STREET NAME SIGN FACE DETAILS



SQUARE STEEL POST MOUNTING DETAILS



NOTES:
1. Wing bracket shall be an L-shaped cantilever of T-beam rigid frame 380-3 aluminum alloy construction.
2. Mount each wing bracket to metal pole using two 3/4" wide stainless steel straps.
3. One wing bracket shall be installed per each sign. Cross brackets are not allowed.

WING BRACKET MOUNTING DETAILS

NOT AS BUILT

Record Drawing

OLSSON ASSOCIATES
Olsson Associates - Civil Engineering
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130 SW Bluefield Parkway, Suite 10
North Kansas City, MO 64116
TEL 816.587.8320
FAX 816.587.3393
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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

SIGN DETAILS

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
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SHEET C134

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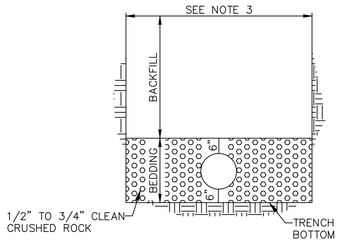


TYPICAL SECTION FOR PLASTIC PIPE
(IN ROCK OR SOIL)

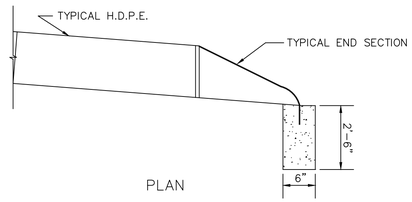
UNDERGROUND PIPE INSTALLATION FOR STORM SEWER LINES

N.T.S.

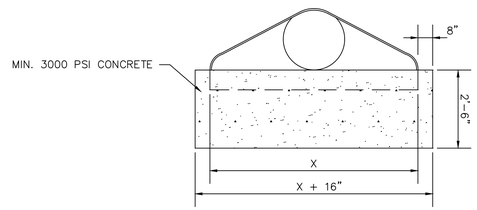
1. BACKFILL SHALL BE JOB EXECAVATED MATERIAL FREE FROM DEBRIS AND STONES COMPACTED TO 90% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698. BACKFILL UNDER PAVEMENT (EXISTING OR PROPOSED), SHALL BE FLOWABLE FILL.

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.



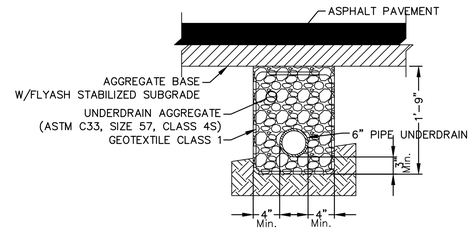
PLAN



END VIEW

TYPICAL END SECTION DETAIL

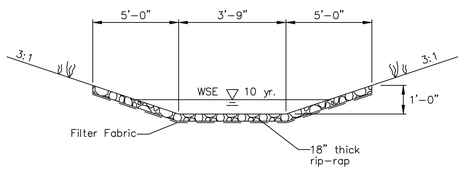
N.T.S.



PIPE UNDERDRAIN LATERAL

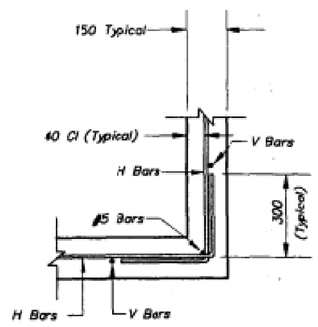
N.T.S.

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 in the street profile.
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, Edge Underdrain and Outlet Pipe shall conform to City of Lee's Summit Specifications.
5. Overlap geotextile at top of trench a minimum of 12".

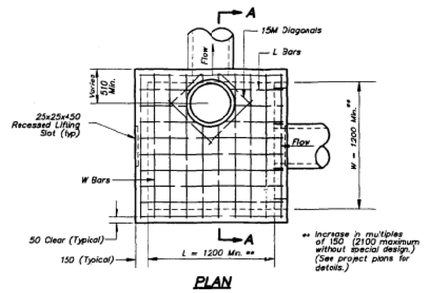


RIP-RAP DETAIL

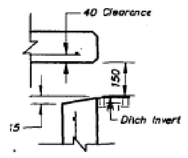
N.T.S.



CORNER DETAIL



PLAN

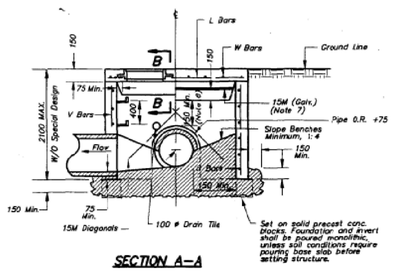


SECTION B-B

REINFORCING

BARS	BAR SIZE	SPACING (mm)
H	10M	300
V	10M	300
L	15M	150
W	15M	150

NOTE: All dimensions in mm.



SECTION A-A

GENERAL NOTES:

1. Locate ring and cover over outlet.
2. All work and materials shall conform to APWA Sect. 2600.
3. Use 20 chamfer strip on all exposed concrete corners.
4. Steps required at 400 O.C when depth from top of casting to invert exceeds 1200.
5. Boxouts will not be allowed to project through the corners of the structure.
6. The minimum reinforcing shall be 1 H-bar over a cast-in place pipe and 2 H-bars over a precast boxout.
7. Limit opening height to 150 with 15M galvanized bars extending to corner rebars.
8. Show field inlet orientation on plans plus number and size of openings.
9. O.R. = outside pipe radius
10. Ring & Cover to be Neenah R-1537, Clay & Bailey #2020, Deeter #2016, or approved equal. (Casting may vary by municipality, refer to plans & contract documents.)
11. 100 ø field tile or precast hole shall be located at entering pipe and in the front face sump points. These tiles or openings shall be capped with 6 galvanized wire mesh on the outside of the inlet and clear the invert and base concrete.

FIELD INLET DETAIL

N.T.S.

NOT AS BUILT

Record Drawing

OLSSON ASSOCIATES®
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North Kansas City, MO 64116
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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
03/04/2019
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

STORM SEWER DETAILS

HAWTHORN RIDGE 1ST PLAT

LEE'S SUMMIT, MO

2018

drawn by: D.A.H.O
checked by: M.G.D.
designed by: P.M.D
QA/QC by: K.S.J
project no.: 017-0188
date: 03.03.2017

SHEET C135

DWG: F:\2017\0001-0500\017-0188\40-Design\AutoCAD\Final Plans\ASBUILTS\GNCV\01_Street & Storm_36x24\C_XSC01_017-0188.dwg USER: dhernandez
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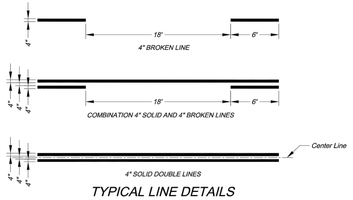
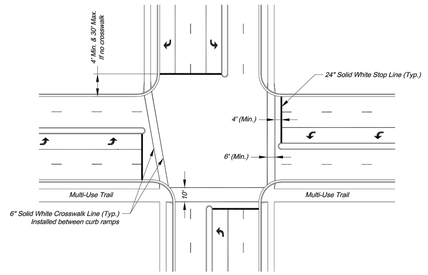


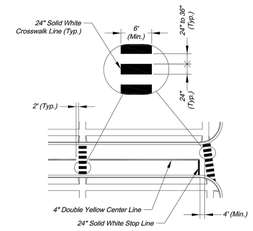
TYPICAL LINE DETAILS

NOTES:
1. All edge line, center line, and lane line pavement markings shall be 4" wide unless otherwise noted.
2. Edge lines shall be continuous solid white or yellow lines. Right side edge lines shall be solid white. Median or left side edge lines on divided roadways are to be solid yellow. Edge lines and center lines shall be continuous across driveways.

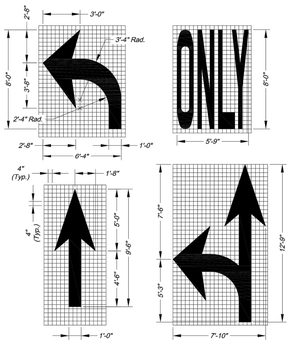


TYPICAL INTERSECTION MARKINGS

NOTES:
1. Transverse crosswalk lines shall be installed such that the distance between lines is at least 6 or 10 feet.
2. Stop lines are required at signalized intersections, on multi-lane stop controlled approaches, or in front of crosswalks at controlled intersections.

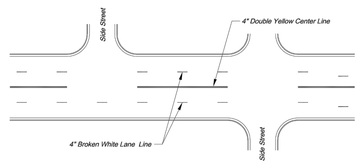


TYPICAL MIDBLOCK OR SCHOOL CROSS WALK

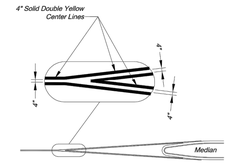


ARROW AND SYMBOL DETAILS

NOTES:
1. All arrow and symbol markings shall be white, and shall be centered in their respective traffic lanes.
2. Right-turn and combination right-turn/straight arrows are reverse of arrows shown.



TYPICAL MARKINGS FOR FOUR-LANE UNDIVIDED ROADWAY



TYPICAL MEDIAN NOSE CENTER LINE DETAIL

PAVEMENT MARKING GENERAL NOTES:
1. All pavement markings shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
2. All words and symbols shall conform to the latest edition of Standard Alphabets for Highway Signs and Pavement Markings printed by the U.S. Department of Transportation, Federal Highway Administration.
3. Pavement markings, either temporary or permanent are required at all times if the roadway is open to traffic.
4. All pavement markings that conflict with the desired markings shall be completely removed. Removals shall not leave the road surface scarred with an image that misleads traffic. Any excess damage or scarring of pavement shall be repaired at the Contractor's expense.
5. The proposed permanent markings shall be laid out by the Contractor in advance of the marking installation. Markings shall not be applied until the layout has been approved by the City Traffic Engineer.
6. Center lines shall be marked on all undivided arterial streets, and any other undivided street with more than two lanes and/or a speed limit of 30 mph or more.
7. Edge lines shall be marked on all non-curbed streets.

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
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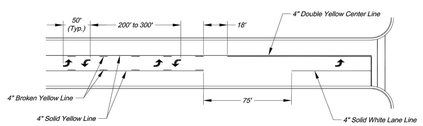
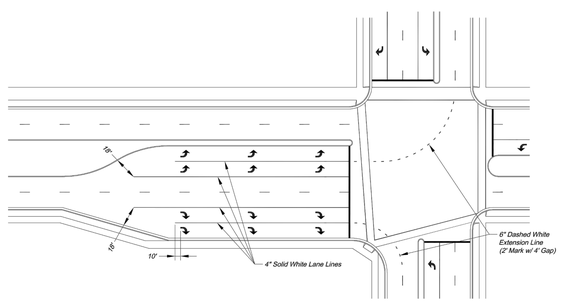
Project:
ROADWAY MARKING DETAILS
Sheet Name:
STANDARD DRAWING PM-1

Drawn By: AS
Checked By: JW
Date: 09/09/2009
Project#

1 OF 2
1

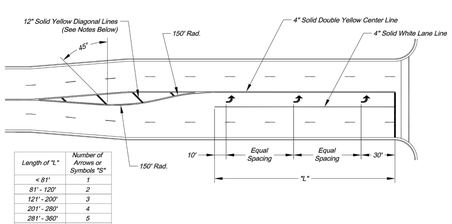


TYPICAL MARKINGS FOR TWO-WAY LEFT-TURN LANE



TYPICAL DUAL TURN LANE MARKINGS

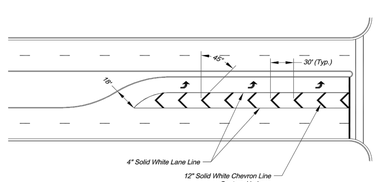
NOTE:
1. Dashed extension lines shall not extend through crosswalks.



Length of "L"	Number of Arrows or Symbols "S"
< 81'	1
81' - 120'	2
121' - 200'	3
201' - 280'	4
281' - 360'	5
361' - 440'	6

TYPICAL TURN LANE MARKINGS

NOTES:
1. Diagonal lines are required between centerlines if the width of the area between the center lines is greater than 12' and/or the length of the area between center lines is greater than 250'.
2. Diagonal lines should be spaced at 5' increments, equal to the posted speed limit.
3. Equal Spacing is calculated as (L - 40) / (S - 1).
4. When a through lane of traffic terminates as a mandatory turn lane, Arrow and "ONLY" symbols should be marked in the turn lane, in alternating order. The first and last symbols should be Arrows.



TYPICAL STRIPED OUT TURN LANE MARKINGS

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
INTERSECTION MARKING DETAILS
Sheet Name:
STANDARD DRAWING PM-2

Drawn By: AS
Checked By: JW
Date: 09/09/2009
Project#

2 OF 2
2

NOT AS BUILT

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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER
PE-2011000892
03/04/2015
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY

REVISIONS

ROADWAY MARKING DETAILS

HAWTHORN RIDGE
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SHEET
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