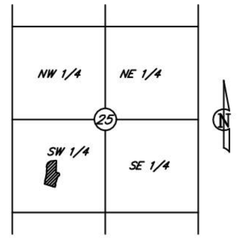
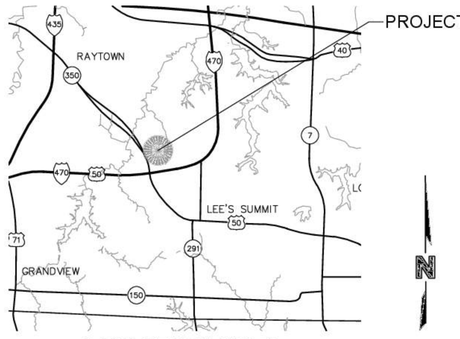
PL2017104
PRPWFC20172852

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT
PUBLIC IMPROVEMENT PLANS

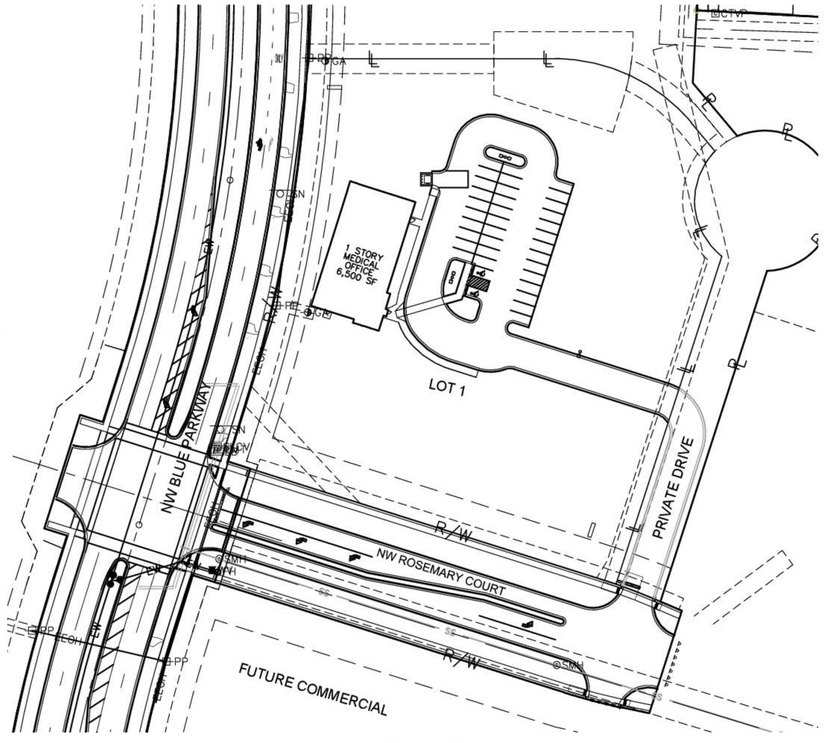
SECTION 25, TOWNSHIP 48N, RANGE 32W
IN LEE S SUMMIT, JACKSON COUNTY, MO



VICINITY MAP
S25, T48N, R32W
N.T.S.



LOCATION MAP
N.T.S.



SITE MAP
N.T.S.

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DEVELOPMENT TEAM CONTACT INFORMATION		
CIVIL ENGINEER		
	PAUL OSBORNE, P.E. OLSSON ASSOCIATES	1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 TEL: 816.587.4320 FAX: 816.587.1393 POSBORNE@OLSSONASSOCIATES.COM
OWNER/DEVLOPER		
	GUY SWANSON UNITY REALTY, LLC	1901 NW BLUE PARKWAY UNITY VILLAGE, MO 64065 TEL: 816.251.3593 FAX: 816.607.0602 SWANSONGS@UNITYONLINE.ORG

UTILITY SERVICE NUMBERS	
LEE'S SUMMIT PUBLIC WORKS	816–969–1800
LEE'S SUMMIT WATER SERVICES DEPARTMENT	816–969–1900
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 Southwest Quarter of Section 25, Township 48 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 Northeast corner of said Southwest Quarter; thence South 03°02'10" West, along the East line of said Southwest Quarter, 1,073.34 feet to a point on the South right–of–way line of Colbern Road, as now established; thence South 84°44'05" West, along said South right–of–way line, 551.26 feet; thence South 03°02'10" West, continuing along said South right–of–way line, 6.06 feet to the Point of Beginning of the tract of land to be herein described; thence continuing South 03°02'10" West, 329.02 feet; thence South 03°01'16" West, 61.03 feet; thence South 39°49'54" East, 58.31 feet; thence Southerly, along a curve to the right, having an initial tangent bearing of North 67°04'27" East with a radius of 59.00 feet, a central angle of 200°58'59" and an arc distance of 206.96 feet; thence South 17°52'19" West, 291.89 feet; thence South 66°44'31" East, 19.66 feet; thence South 17°37'56" West, 90.31 feet; thence North 78°13'39" West, 23.25 feet; thence Westerly, along a curve to the right, being tangent to the last described course with a radius of 500.00 feet, a central angle of 05°44'34" and an arc distance of 50.11 feet; thence North 72°29'05" West, 308.18 feet to a point on the East right–of–way line of NW Blue Parkway, as now established; thence North 17°30'55" East, along said East right–of–way line, 100.00 feet; thence North 72°29'05" West, continuing along said East right–of–way line, 20.00 feet; thence North 17°30'55" East, continuing along said East right–of–way line, 49.59 feet; thence Northerly, continuing along said East right–of–way line, on a curve to the left, being tangent to the last described course with a radius of 1,155.00 feet, a central angle of 22°10'54" and an arc distance of 447.15 feet; thence Northeasterly, continuing along said East right–of–way line, on a curve to the right, having a common tangent with the last described course with a radius of 181.00 feet, a central angle of 84°19'06" and an arc distance of 266.37 feet to a point on the South right–of–way line of said Colbern Road; thence Easterly, along said South right–of–way line, on a curve to the right, having a common tangent with the last described course with a radius of 1,954.00 feet, a central angle of 05°04'58" and an arc distance of 173.34 feet; thence North 84°44'05" East, continuing along said South right–of–way line, 27.18 feet to the Point of Beginning. Containing 309,501 square feet or 7.11 acres, more or less.

BENCHMARK

Benchmark #2: Chiseled X near the Southwest corner of a curb inlet on the South side of Colbern Road, East of the intersection of NW Blue Parkway and Colbern Road.
Elevation: 949.12
Benchmark #3: Railroad Spike along East side of NE Blue Parkway, located near electrical pole, South of the intersection of NW Blue Parkway and Colbern Road.
Elevation: 961.62

NOTES:

Any quantities shown within these 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.

I have reviewed these plans and understand what is proposed. Any incidental work not specifically permitted must be performed by the permit holder.

ACCEPTED:

Guy Swanson — Date

I hereby certify that this project has been designed, and these plans prepared, to meet or exceed the design criteria of Lee s Summit, Missouri, in current usage, except as indicated below.

Exceptions:
1. NONE
2.
3.
4.

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

Paul Osborne, P.E. — 7/5/2017 Date
Civil Engineer
MO# 2001018786

OLSSON ASSOCIATES
Olsson Associates - Civil Engineering
MO Certificate of Authority #001592
1301 Burlington, Suite 100
North Kansas City, MO 64116
TEL 816.587.4320
FAX 816.587.1393
www.olssonassociates.com

REVISIONS

NO/REV	DATE	DESCRIPTION	BY
1	06-05-2017	City Review Comments	
2	06-23-2017	City Review Comments	
3	07-05-2017	City Review Comments	

COVER SHEET
PUBLIC IMPROVEMENT PLANS
SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT
LEE S SUMMIT, MO
2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no: 016-3182
date: 2017.03.23

SHEET
C401

DWG: F:\2016\3001-3500\016-3182\40-Design\AutoCAD\Final Plans\Sheets\GNCV\01_Street & Storm_36x24\C_TTL01_63182.dwg USER: ahilgedick
DATE: Jul 10, 2017 12:30pm

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 SHEETS C416 AND C417 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.

SANITARY SEWER NOTES:

1. LINEAR FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS (NOT SLOPE MEASUREMENTS) FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

3. THE DEVELOPER SHALL PERFORM ALIGNMENT AND GRADE, INFILTRATION - EXFILTRATION, DEFLECTION, SOIL DENSITY, AND MANHOLE TESTS AS CALLED OUT IN SECTION 2500 OF THE CURRENT APWA (AMERICAN PUBLIC WORKS ASSOCIATION) STANDARDS AND SPECIFICATIONS. ANY SECTION OF SEWER FAILING ANY OF THE ABOVE MENTIONED TESTS SHALL BE RETESTED BY THE DEVELOPER AFTER REPLACEMENT OR REPAIR.

4. THE DEVELOPER MAY, AS AN ALTERNATE, SUBSTITUTE A.B.S. OR V.C.P. PIPE FOR P.V.C. PIPE. THE FOLLOWING PIPE DEFLECTION TEST SHALL BE IMPLEMENTED ON A.B.S. AND P.V.C. PIPE:

5. THE DEVELOPER SHALL PERFORM DIAMETRICAL DEFLECTION TESTS ON FLEXIBLE AND SEMI-FLEXIBLE (I.E. POLY-VINYL-CHLORIDE AND ACRYLONITRILE BUTADIENE STYRENE) PIPE WHEN USED AS A PUBLIC SEWER PRIOR TO FINAL ACCEPTANCE. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE 5% OF THE INSIDE DIAMETER. ALL TESTS SHALL BE CONDUCTED BETWEEN MANHOLES. SEWER TESTED SHALL BE 100% OF THE TOTAL SEWER INSTALLED. A MANDREL WITH A DIAMETER EQUAL TO 95% OF THE INSIDE DIAMETER OF THE PIPE BEING INSTALLED SHALL BE USED.

6. PRIOR TO ORDERING PRE-CAST STRUCTURES, SHOP DRAWINGS ARE TO BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL. THE DESIGN ENGINEER SHALL INDICATE APPROVAL OF THE SHOP DRAWINGS.

7. DEVELOPER SHALL PROVIDE EARTHWORK AND MATERIAL TESTING TO COMPLY WITH THE STANDARD SPECIFICATIONS OF THE CITY OF LEE'S SUMMIT.

8. DURING CONSTRUCTION OF THE PROJECT, THE DEVELOPER SHALL KEEP ONE RECORD COPY OF ALL SPECIFICATIONS, DRAWINGS, ADDENDA, MODIFICATIONS, AND SHOP DRAWINGS AT THE SITE IN GOOD CONDITION. THESE DOCUMENTS SHALL BE ANNOTATED TO SHOW ALL CHANGES MADE DURING CONSTRUCTION. THE EXACT LOCATION OF ALL SEWER WYES, TEES, AND SERVICE LINES SHALL BE RECORD ON THESE DOCUMENTS. AT THE CONCLUSION OF CONSTRUCTION, THESE DOCUMENTS SHALL BE FORWARDED TO THE DESIGN ENGINEER FOR PREPARATION OF AS-BUILT DRAWINGS.

9. THE PROJECT BENCHMARKS AND ALL ELEVATIONS SHOWN ON THE PROFILES ARE N.G.V.D.

10. THE DEVELOPER IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE DEVELOPER MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT IS THE DEVELOPERS RESPONSIBILITY TO RELOCATE AND/OR ADJUST ALL EXISTING UTILITIES, CONFLICT WITH PROPOSED SITE IMPROVEMENTS.

11. THE DEVELOPER SHALL ALSO UTILIZE THE FOLLOWING TOLL FREE PHONE NUMBER PROVIDED BY "MISSOURI ONE CALL SYSTEM, INC." 1-800-DIG-RITE. THIS PHONE NUMBER IS APPLICABLE ANYWHERE WITHIN THE STATE OF MISSOURI. THE NAMES AND TELEPHONE NUMBERS OF UTILITY COMPANIES, EVEN IF ONLY REMOTELY INVOLVED WITH THIS HIS PROJECT ARE LISTED UNDER "UTILITY CONTACTS" THIS SHEET.

12. THE DEVELOPER SHALL PROVIDE AND MAINTAIN ALL TRAFFIC CONTROL MEASURES NECESSARY TO ENSURE THAT THE GENERAL PUBLIC IS PROTECTED AT ALL TIMES. TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD-LATEST EDITION).

13. THE SITE PLAN IS BASED ON SURVEY BY OLSSON ASSOCIATES, COMPLETED 1-12-17. CONDITIONS ON SITE AT THE TIME OF CONSTRUCTION MAY VARY FROM THE SURVEYED CONDITIONS. DEVELOPER SHALL VERIFY EXISTING SITE CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.

14. THE DEVELOPER IS RESPONSIBLE FOR OBTAINING ALL PERMITS (EXCEPT LAND DISTURBANCE), BONDS, INSURANCE, ETC. AND PAYING ALL FEES. THE COST OF DEVELOPERS BONDS AND INSURANCE AS REQUIRED BY THE CITY OF LEE'S SUMMIT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.

15. DEVELOPER SHALL COMPLY WITH ALL APPLICABLE REGULATIONS REQUIRED BY THE CITY AND THE STATE.

16. THE DEVELOPER MUST REMOVE AT HIS COST ANY BAD SUBSURFACE SOIL WHICH WOULD NOT BE ABLE TO SUPPORT ANY PROPOSED PUBLIC IMPROVEMENT. BACKFILL SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTIONS 2100 AND 2201 ENTITLED "GRADING AND SITE PREPARATION" AND "SUBGRADE PREPARATION".

17. VERTICAL CONTROL IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). THE DEVELOPER IS ADVISED TO USE BENCHMARK INFORMATION FOR VERTICAL CONTROL.
HORIZONTAL CONTROL (CONTROL POINT INFORMATION) IS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83). THE DEVELOPER IS ADVISED TO USE CONTROL POINT INFORMATION FOR HORIZONTAL CONTROL.

WATER NOTES:

1. CONTRACTOR SHALL POTHOLE AND EXPOSE ALL TIE-IN AND CROSSING LOCATIONS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL FITTINGS REQUIRED TO PROVIDE PROPER HORIZONTAL AND VERTICAL ALIGNMENT FOR NEW WATER MAINS, CONNECTIONS TO EXISTING WATER MAINS AND INSTALLATION OF FIRE HYDRANTS AT THE PROPER LOCATION AND ELEVATION, WHETHER OR NOT THE PROPER FITTINGS, LOCATION OR ELEVATIONS ARE CALLED OUT ON THE DRAWINGS, INCLUDING MODIFICATION OF EXISTING INFRASTRUCTURE REQUIRED TO MAKE ALL OF THE WORK CONFORM TO THE CURRENT DESIGN AND CONSTRUCTION MANUAL OF THE CITY OF LEE'S SUMMIT, MISSOURI.

2. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY BLOW-OFF ASSEMBLIES, FITTINGS, THRUST BLOCKING, AND RESTRAINING DEVICES REQUIRED FOR TEMPORARY CONNECTIONS FOR FLUSHING, PRESSURE TESTING, CHLORINATION, AND DE-CHLORINATION OF THE NEW WATER MAINS. PRIOR TO PLACING NEW MAINS IN SERVICE THE CONTRACTOR SHALL REMOVE ANY CORPORATION COCKS USED FOR TESTING OR CHLORINATION AND REPLACE THEM WITH TAPERED BRASS PLUGS.

3. SCHEDULING OF WATER MAIN SHUTS AND CONNECTION TO EXISTING MAINS SHALL BE AT THE DISCRETION OF THE PUBLIC WORKS DEPARTMENT.

4. ALL FIRE HYDRANT BRANCHES SHALL BE RESTRAINED USING APPROVED RESTRAINING DEVICES. HYDRANTS SHALL BE INSTALLED SO THAT THE CENTERLINE OF THE OUTLET NOZZLE IS BETWEEN EIGHTEEN AND TWENTY-ONE INCHES (18" - 21") ABOVE FINISHED GRADE, AND SO THAT THERE IS A MINIMUM CLEAR AREA OF 5' IN EACH DIRECTION TO ALLOW OPERATION OF THE HYDRANT.

5. SECTIONS OF WATER MAIN REQUIRING MULTIPLE BENDS, SUCH AS CUL-DE-SACS, SHALL BE RESTRAINED WITH APPROVED JOINT RESTRAINING DEVICES AND STRADDLE BLOCKS IN LIEU OF BACKING BLOCKS.

6. THE LOCATIONS OF EXISTING UTILITIES, AS SHOWN, ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES. CONTRACTORS SHALL POTHOLE AND EXPOSE ALL UTILITIES (INDICATED ON THE DRAWINGS, LOCATED AT GRADE BY A UTILITY LOCATING SERVICE, OR EVIDENT FROM UTILITY COMPANY INFORMATION) AT LEAST 500 FEET IN ADVANCE OF WATER MAIN CONSTRUCTION, DETERMINING THE DEPTH, SIZE, AND MATERIAL OF THE UTILITIES IN PROXIMITY TO THE PROPOSED WATER MAIN ALIGNMENT. CONTRACTOR SHALL PROVIDE THIS INFORMATION TO THE ENGINEER & ADVISE OF ANY POTENTIAL CONFLICTS WITH THE PROPOSED PIPELINE ALIGNMENT. DEFLECT PIPE TO MAINTAIN MINIMUM 5 FEET HORIZONTAL AND 18 INCH VERTICAL CLEARANCES BETWEEN PROPOSED WATER MAIN AND ALL EXISTING UTILITIES.

7. THE CONTRACTOR SHALL COMPLY WITH STATE LAW REQUIRING ANY PERSON OR FIRM DOING EXCAVATION ON THE PUBLIC RIGHT-OF-WAY DO SO ONLY AFTER GIVING NOTICE TO AND OBTAINING INFORMATION FROM UTILITY COMPANIES.

8. STREETS AND PARKING AREAS ARE TO BE TO GRADE AND CURBS IN PLACE PRIOR TO CONSTRUCTION OF WATER MAINS. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM GROUND COVER OF 42 INCHES BELOW FINISHED GRADE. SIXTEEN (16)-INCH AND LARGER WATER MAINS SHALL BE INSTALLED WITH A MINIMUM GROUND COVER OF 60 INCHES BELOW FINISHED GRADE.

9. WATER MAINS SHALL BE LAID AT LEAST 10 FEET, HORIZONTALLY FROM ANY SEWER. WHEN LOCAL CONDITIONS PREVENT A HORIZONTAL SEPARATION OF 10 FEET, A WATER MAIN MAY BE LAID CLOSER THAN 10 FEET TO A SEWER, PROVIDED THAT THE WATER MAIN IS LAID IN A SEPARATE TRENCH, OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER, AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER. WATER MAINS SHALL BE LAID SUCH THAT THERE IS A MINIMUM OF 18 INCHES CLEARANCE BETWEEN THE PIPE WALL AND THE EXTERIOR OF ANY MANHOLE AND/OR INLET ON THE SEWER LINE.

WHENEVER A WATER MAIN MUST CROSS ABOVE A SEWER, A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE WATER MAIN AND THE TOP OF THE SEWER SHALL BE MAINTAINED. WHENEVER A WATER MAIN MUST CROSS UNDER A SEWER, A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE SEWER AND THE TOP OF THE WATER MAIN SHALL BE MAINTAINED. A FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ON THE SEWER TO BE CROSSED SO THAT THE JOINTS WILL BE EQUALLY DISTANT FROM THE SEWER AND AS FAR AWAY AS POSSIBLE. THE 18-INCH VERTICAL SEPARATION SHALL BE MAINTAINED FOR THAT PORTION OF THE WATER MAIN LOCATED WITHIN 10 FEET, HORIZONTALLY, OF ANY SEWER IT CROSSES.

10. AN EXCAVATION PERMIT MUST BE OBTAINED FROM THE CITY ENGINEER PRIOR TO COMMENCING CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF WAY. CONTACT THE PUBLIC WORKS DEPARTMENT PERMIT COUNTER AT CITY HALL.

11. ALL WORK SHALL CONFORM TO THE LATEST REVISION OF THE KANSAS CITY, MISSOURI EROSION AND SEDIMENT CONTROL SPECIFICATIONS, WHICH ARE MADE A PART HEREOF BY REFERENCE. EROSION CONTROL PLANS SHALL BE SUBMITTED TO THE CITY ENGINEER, PUBLIC WORKS DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE START OF THIS PROJECT.

12. COVERS, LIDS, AND STANDPIPES ON ALL ABANDONED VALVES SHALL BE REMOVED TO AT LEAST TWO FEET (2') BELOW GRADE AND THE AREA SHALL BE PROPERLY BACKFILLED. IN PAVED AREAS REMOVAL OF VALVE LID AND FILLING OF VALVE BOX WITH CONCRETE MAY BE ALLOWED AT WATER SERVICES DEPARTMENT DISCRETION.

13. EXISTING FIRE HYDRANTS THAT ARE REMOVED SHALL BE RETURNED TO THE PUBLIC WORKS DEPARTMENT STORE YARD.

14. THE CONTRACTOR SHALL VERIFY THE OUTSIDE DIAMETER (O.D.) OF THE EXISTING WATER MAIN PRIOR TO SCHEDULING CONNECTION. PROVIDE SOLID SLEEVES AS REQUIRED.

15. CONTRACTORS SHALL PROTECT EXISTING POWER POLES AND LIGHT POLES FROM DAMAGE AND SHALL PROVIDE BRACING, SHORING, OR OTHER WORK NECESSARY FOR SUCH PROTECTION. ANY STRUCTURES REMOVED DURING CONSTRUCTION OPERATIONS SHALL BE REPLACED.

16. UTILITY MARKING TAPE AND TRACER WIRE SHALL BE INSTALLED WITH THE WATER MAIN IN CONFORMANCE WITH SECTION 3900 OF THE STANDARD SPECIFICATIONS.

LEGEND

	NEW	EXISTING
WATER MAINS		
ENCASEMENT PIPE		
FIRE HYDRANTS ASSEMBLY		
FIRE HYDRANTS ASSEMBLY		
SOLID SLEEVE		
NON-CONNECTING MAINS		
BACKING BLOCK		
STRADDLE BLOCK		
VALVES		
BLOWOFF ASSEMBLY/ FLUSHING ASSEMBLY		
TAPPING SLEEVE & VALVE		
CHECK VALVES		
AIR RELEASE VALVE		
REDUCER		
TEE		
PLUG		
PLUG ON TEE		
PLUG ON CROSS		
CROSSES		
SERVICE LINES		
CONNECTION	W/S	W/S
CURB STOP		
METER		M
EASEMENTS		

UNDERGROUND UTILITIES

CABLE TV	CTV
ELECTRIC	E
GAS	G
MANHOLE	
STORM SEWER	ST
SANITARY SEWER	S
TELEPHONE	T
POWER POLE	PP

TEST BORINGS

LOCATION	
REFUSAL	
NO REFUSAL	

MISCELLANEOUS

TREE REMOVAL	
EXISTING RIGHT-OF-WAY	ER/W
PROPOSED RIGHT-OF-WAY	R/W
FUTURE RIGHT-OF-WAY	FR/W
PROPERTY LINE	PL

PLUMBING NOTES:

1. ALL LOTS HAVE BEEN SUPPLIED WITH WYES, TEES OR LATERALS. PLUMBER SHALL CONNECT HOUSE SERVICE TO MAIN AT LOCATIONS INDICATED.

2. ALL SERVICE LINES SHALL BE LAID AT 2% MINIMUM SLOPE, UNLESS OTHERWISE NOTED.

3. M.S.E. ELEVATION - INDICATES BASEMENT FLOOR ELEVATION OR LOWEST FLOOR ELEVATION SERVICEABLE BY PROPOSED SANITARY SEWER.

EXCAVATING NOTES:

1. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO CONTROL DOWNSTREAM EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION.

2. THE DEVELOPER 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-BUILTS.

3. THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES. EROSION CONTROL PLANS AND PROCEDURES SHALL BE IN PLACE PRIOR TO ANY EXCAVATION.

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

5. WHEN SEWER LINES CROSS A LOW POINT IN A CREEK, THE SEWER LINE MUST BE ENCASED ACCORDING TO LEE'S SUMMIT.

6. DEVELOPER IS RESPONSIBLE FOR KEEPING ALL PUBLIC ROADWAYS ADJACENT TO THE CONSTRUCTION SITE FREE OF DIRT AND DEBRIS RESULTING FROM ACTIVITIES RELATED TO THE CONSTRUCTION OF THIS PROJECT. INSPECTIONS AND CLEANUP TO OCCUR ON A DAILY BASIS.

7. DEVELOPER SHALL KEEP THE ENTIRE PROJECT SITE FREE OF DEBRIS AND TRASH AT ALL TIMES. DEVELOPER SHALL EXECUTE WORK USING METHODS THAT MINIMIZE EXCESSIVE NOISE OR DUST EMISSIONS. DEVELOPER SHALL PROVIDE METHODS, MEANS AND FACILITIES TO PREVENT CONTAMINATION OF SOIL OR WATER FROM DISCHARGE OF REGULATED MATERIALS (I.E. FUEL) USED DURING CONSTRUCTION.

8. THE DEVELOPER SHALL ERECT AND MAINTAIN ORANGE COLORED TEMPORARY CONSTRUCTION FENCE AROUND ALL AREAS INDICATED ON THE PLANS TO BE LEFT UNDISTURBED BOTH TEMPORARY AND PERMANENTLY. THE DEVELOPER WILL BE GIVEN NOTICE WHEN HE MAY ENTER THESE AREAS MARKED TEMPORARY BY THE OWNER ONCE PERMITS HAVE BEEN OBTAINED. THE FENCE MATERIAL SHALL BE 48" TALL. HIGH DENSITY POLYETHYLENE (HDPE) WITH NOMINAL MESH OPENING SIZE OF 1.25 INCHES X 1.25 INCHES.

3

ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
	STREET			
1	TOPSOIL REMOVAL AND DISTRIBUTION	C.Y.	810	
2	EXCAVATION	C.Y.	1083	
3	EMBANKMENT	C.Y.	845	
4	9.5" ASPHALT PAVEMENT	S.Y.	1870	
5	SUBGRADE STABILIZATION	S.Y.	2308	
6	FINE GRADING (SUBGRADE)	S.Y.	2308	
7	CONCRETE CURB & GUTTER (CG-1)	L.F.	1357	
8	HANDICAPPED RAMP	EA.	4	
9	STOP SIGNS	EA.	2	
10	TYPE IV OBJECT MARKERS	EA.	11	
11	STREET NAME SIGNS	EA.	2	
12	5' SIDEWALK	L.F.	755	
13	PAVEMENT MARKING ARROW	EA.	6	
14	4" SOLID WHITE PAVEMENT MARKING STRIPING	L.F.	321	
15	6" SOLID WHITE PAVEMENT MARKING STRIPING	L.F.	117	
16	24" SOLID WHITE PAVEMENT MARKING STRIPING	L.F.	27	
17	CLEARING (NO BURNING)	AC.	1	
18	SEED & MULCH	AC.	1	
	STORM SEWER			
19	STD. CURB INLET (5'x3' INSIDE)	EA.	3	
20	STD. CURB INLET (5'x4' INSIDE)	EA.	2	
21	STD. CURB INLET (5'x5' INSIDE)	EA.	1	
22	15" HDPE	L.F.	162	
23	36" HDPE	L.F.	444	
24	42" HDPE	L.F.	100	
25	42" CMP END SECTION	EA.	1	
26	CONNECTION TO EXISTING STRUCTURE	EA.	1	
27	RIP-RAP (GROUTED)	S.Y.	40	
	SANITARY SEWER			
28	8" SANITARY PVC (SDR-26)	L.F.	543	
29	MANHOLES, STD. 4' DIA.	EA.	3	
30	CONNECTION TO EXISTING M.H.	EA.	1	
31	ADJUST EXISTING MANHOLE	V.F.	3	
32	SANITARY SEWER ENCASEMENT	L.F.	20	
	WATER MAIN			
33	CONNECT TO EXISTING	EA,	1	
34	8" C900 PVC PIPE	L.F.	471	
35	8" PLUG	EA.	1	
36	8" GATE VALVES	EA.	1	
37	8" 90° BEND	EA.	1	
38	8" SOLID SLEEVE	EA.	1	
39	8" TEE	EA.	1	
40	8"x6" REDUCER	EA.	1	
41	FIRE HYDRANT ASSEMBLY	EA.	3	
42	REMOVE HYDRANT ASSEMBLY	EA.	1	
43	STRADDLE BLOCK	EA.	2	
44	TEMPORARY FLUSHING ASSEMBLY	EA.	1	

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 / SERVICE LINE NOTE

1.) Contractor shall place 2"x4" timber or metallic tape at end of each service line stub. Standard 8' length may be varied with 3' exposed when placed directly over the service line termination point. 2"x4" timber shall be marked appropriately to identify sewer service stub.

2.) Contractor shall be responsible for recording of Rock Elevations at 25' intervals where encountered. Contractor shall also be responsible for recording service line locations from the downstream or upstream manhole and service line lengths during construction operations. Contractor shall also record vertical elevations with a reference point. All information shall be provided to the engineer of record for preparation of As-Built plans.

Note: All construction shall follow the City of Lee s Summit Design and Construction Manual as adopted by Ordinance 5813.

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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2	06-27-2017	City Review Comments	
3	07-06-2017	City Review Comments	

GENERAL NOTES
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C402

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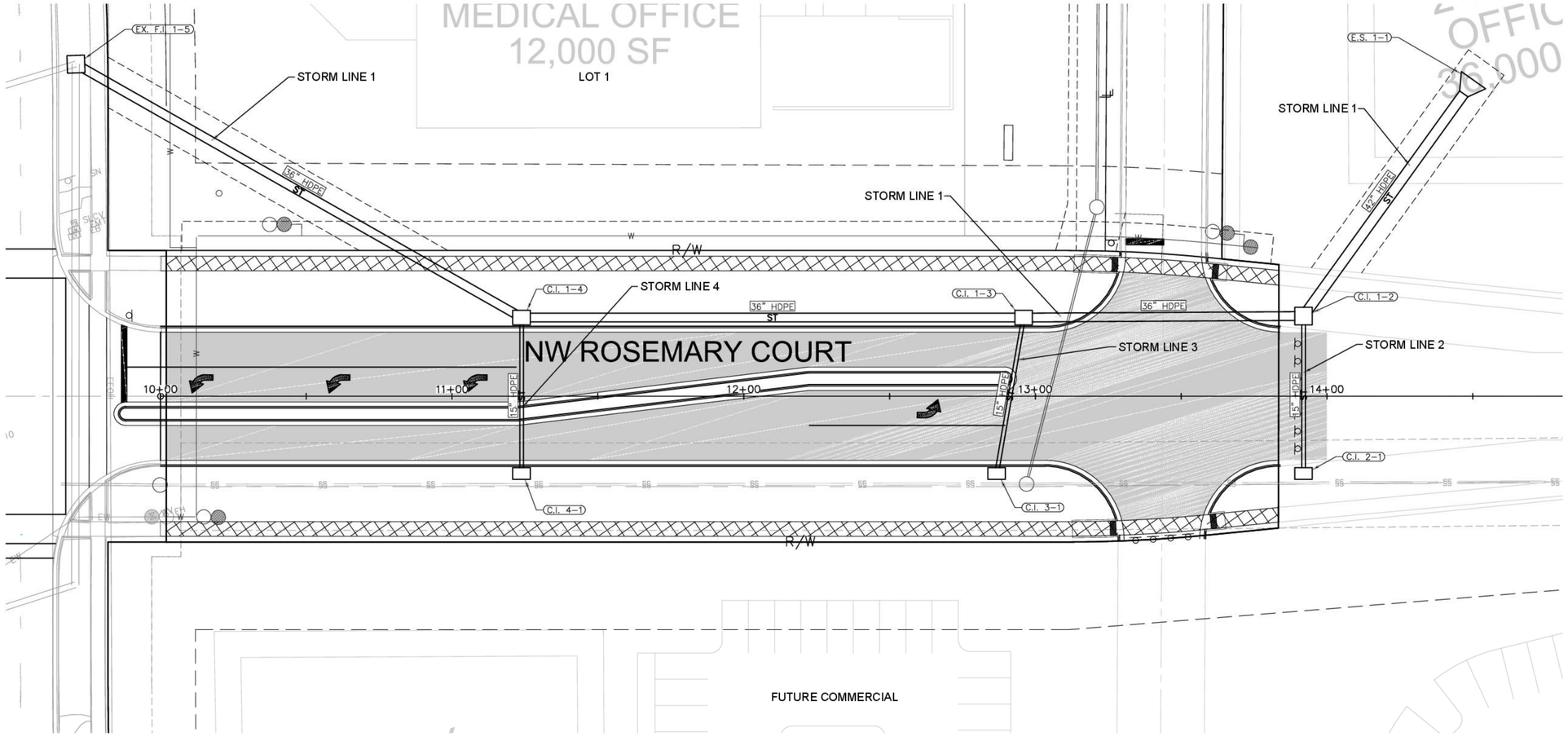

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SCALE IN FEET

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STREET AND STORM GENERAL LAYOUT
PUBLIC IMPROVEMENT PLANS

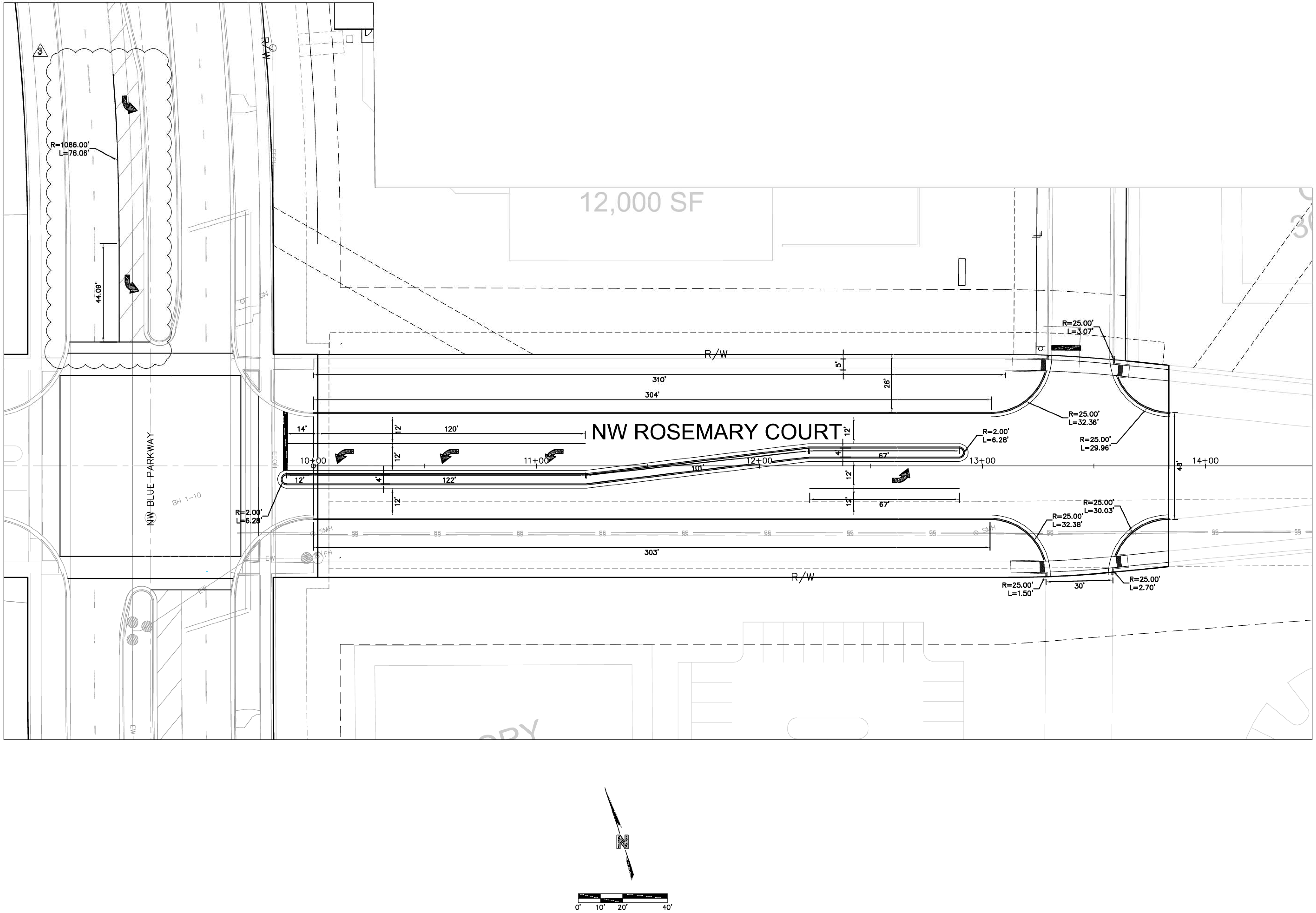
SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C403



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STATE OF MISSOURI PAUL J. OSBORNE NUMBER PE-2001018786 PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	06-05-2017	City Review Comments	
2	06-12-2017	City Review Comments	
3	07-05-2017	City Review Comments	

REVISIONS

2017

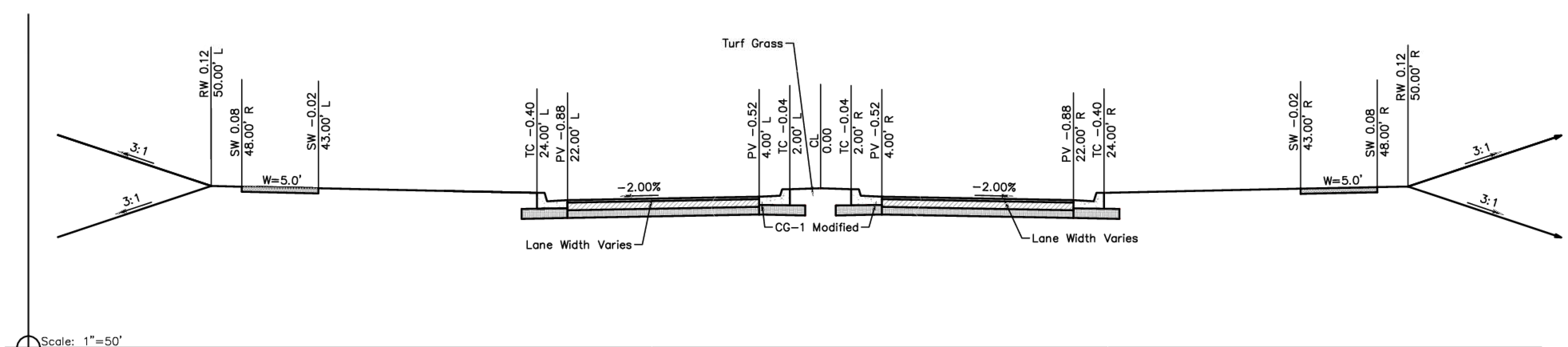
GEOMETRIC PLAN
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE S SUMMIT, MO

drawn by: G.S.
checked by: P.J.O
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C404



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Rosemary Court
STA. 10+00.00 TO STA. 14+03.50

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TYPICAL SECTIONS
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

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checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C405

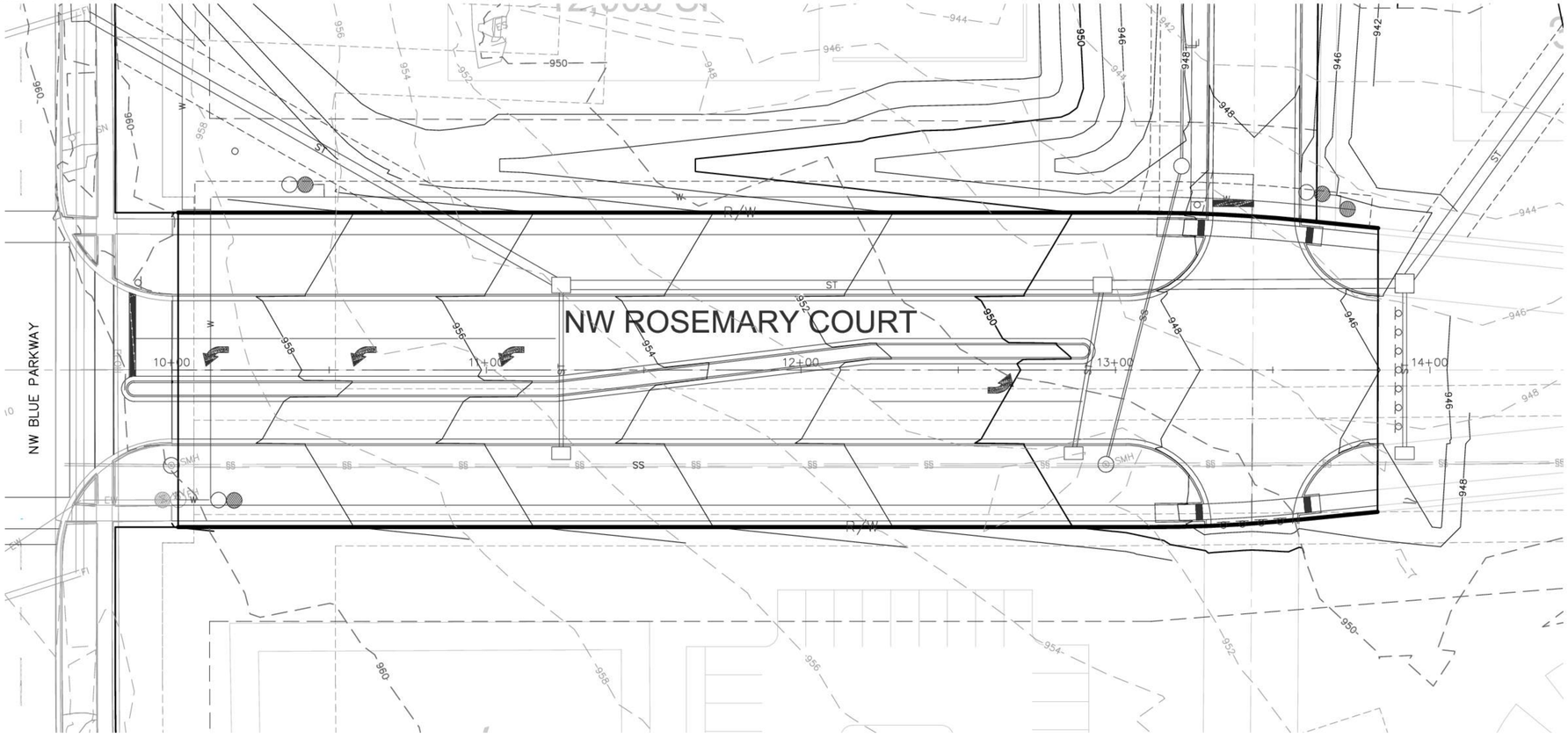
GENERAL NOTES:

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

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

3. CONTRACTOR SHALL ADHERE TO THE SITE PREPARATION AND STRUCTURAL FILL RECOMMENDATIONS AS CALLED OUT IN THE GEOTECHNICAL REPORT AND ENGINEERING EVALUATION AS PROVIDED BY THE GEOTECHNICAL ENGINEER.

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

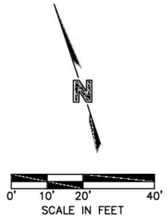


3

EARTHWORK QUANTITIES		
LOCATION	CUT (C.Y.)	FILL (C.Y.)
STREET	1,087	843
SITE	21,363	22,230
TOTAL	22,450	23,073

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

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



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GRADING PLAN
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no: 016-3182
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SHEET
C406

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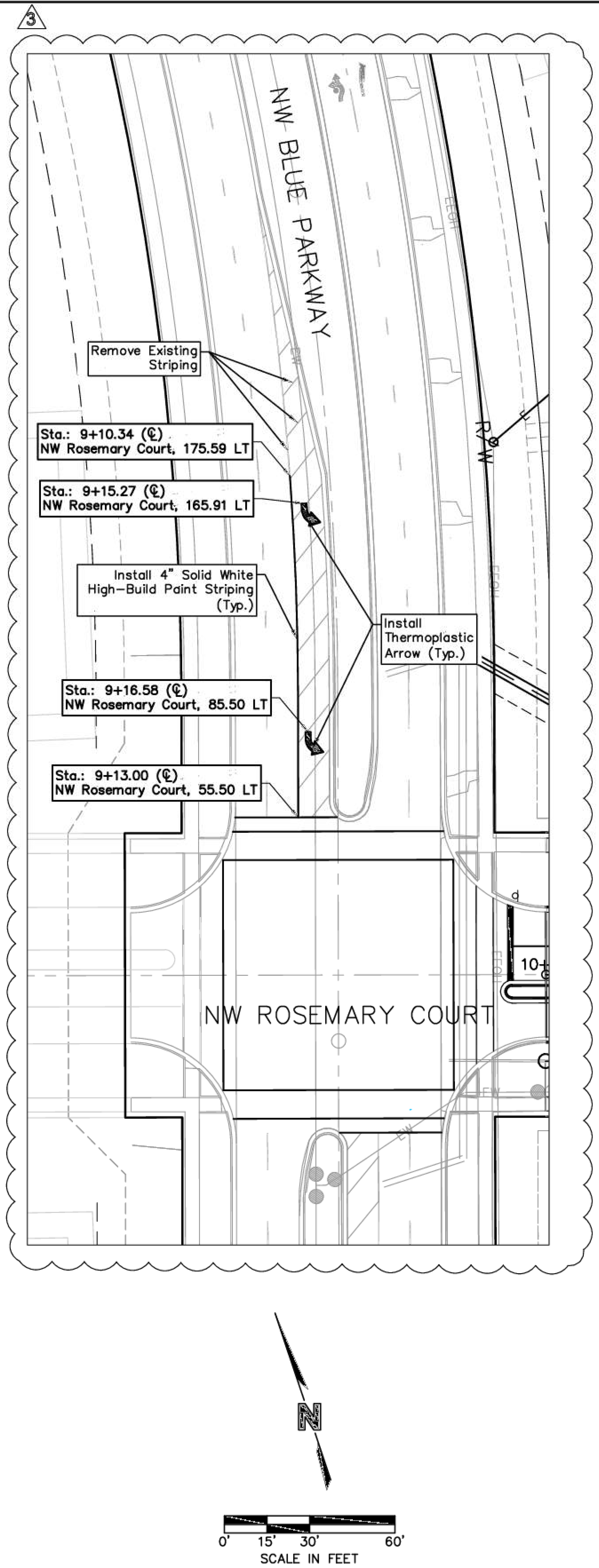
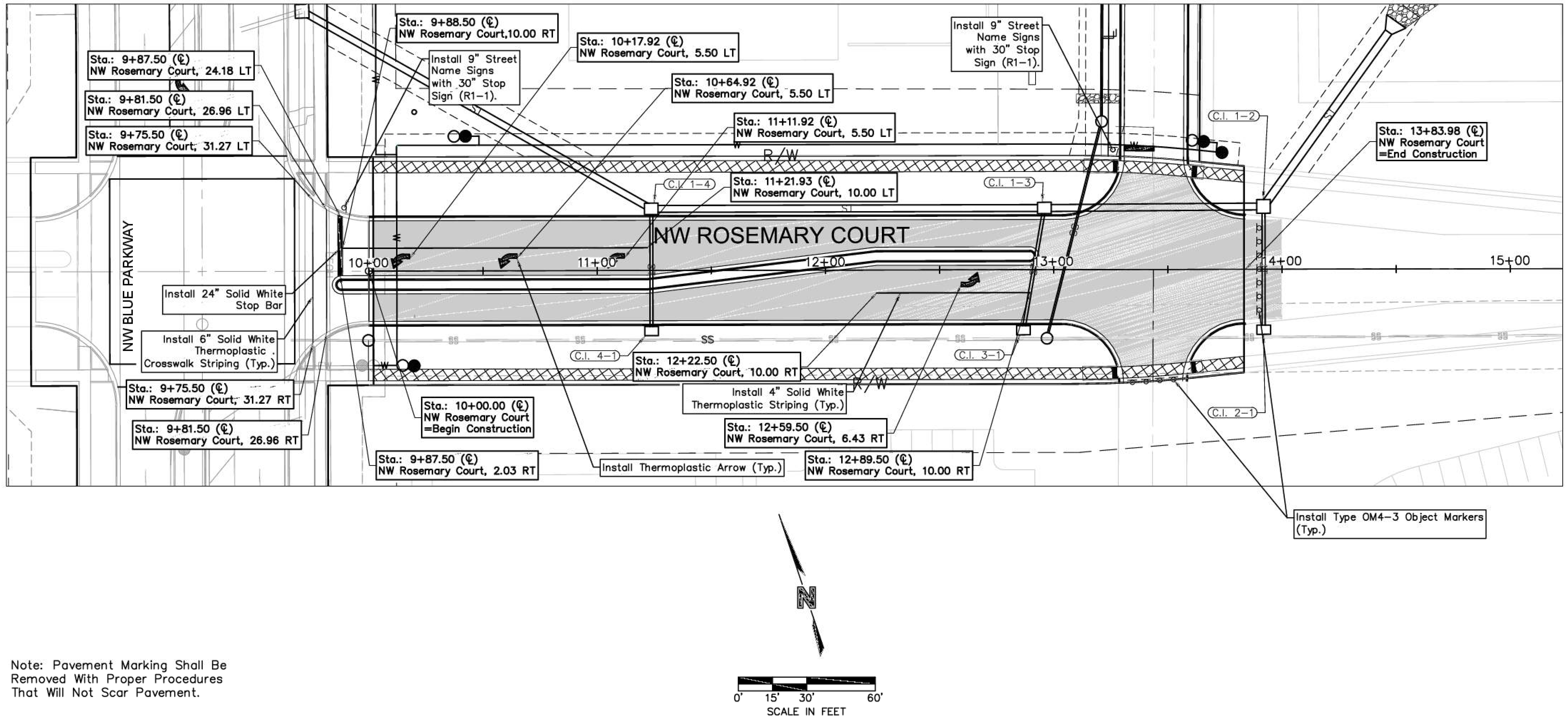
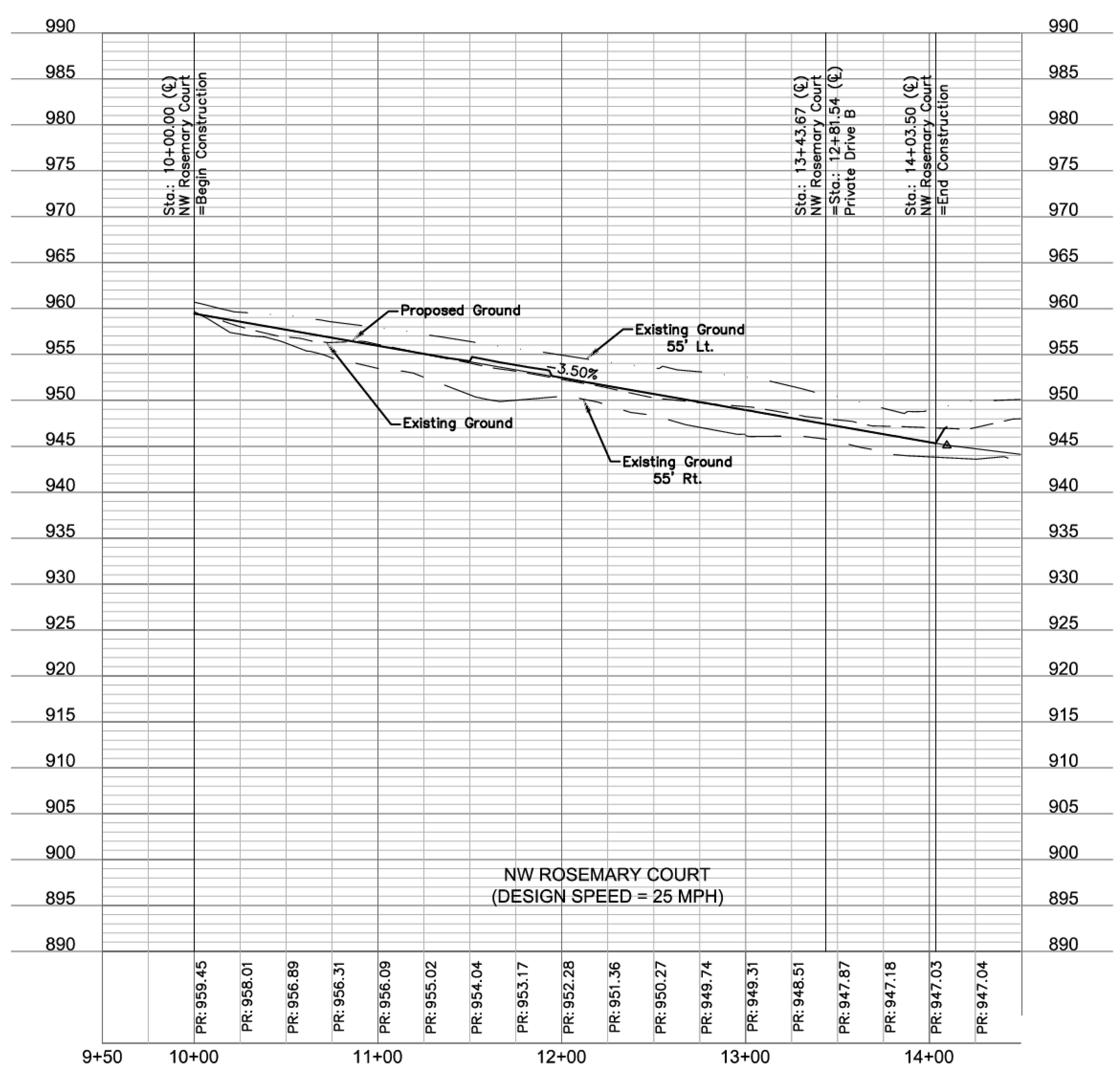




Note: Pavement Marking Shall Be Removed With Proper Procedures That Will Not Scar Pavement.



PROPOSED SIGNS

CONCRETE SIDEWALK

ASPHALT PAVEMENT

CG-1 CURB & GUTTER (See Detail Sheet)

MODIFIED CG-1 CURB & GUTTER (See Detail Sheet)

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2017

ROADWAY PLAN & PROFILE
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C407

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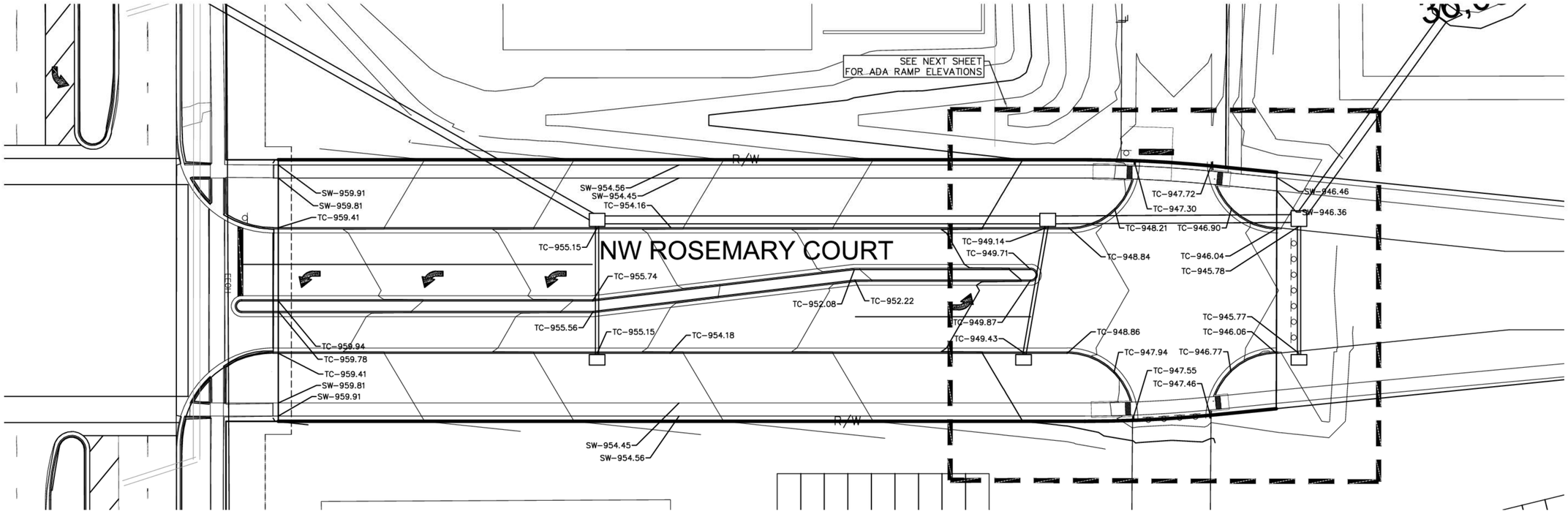

LEGEND:
L LANDING AREA
R RAMP AREA
T TRANSITION AREA
PV PAVEMENT ELEVATION
TC TOP OF CURB ELEVATION
SW SIDEWALK ELEVATION

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. Landing shall be provided at top of curb ramps. Landing length shall be 36" minimum.
4. Ramp runs shall have a maximum running slope of 1:12.
5. Curve data is for back of curbs.

N

0' 10' 20' 40'
SCALE IN FEET

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INTERSECTION DETAILS
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016.3182
date: 2017.04.06

SHEET
C408

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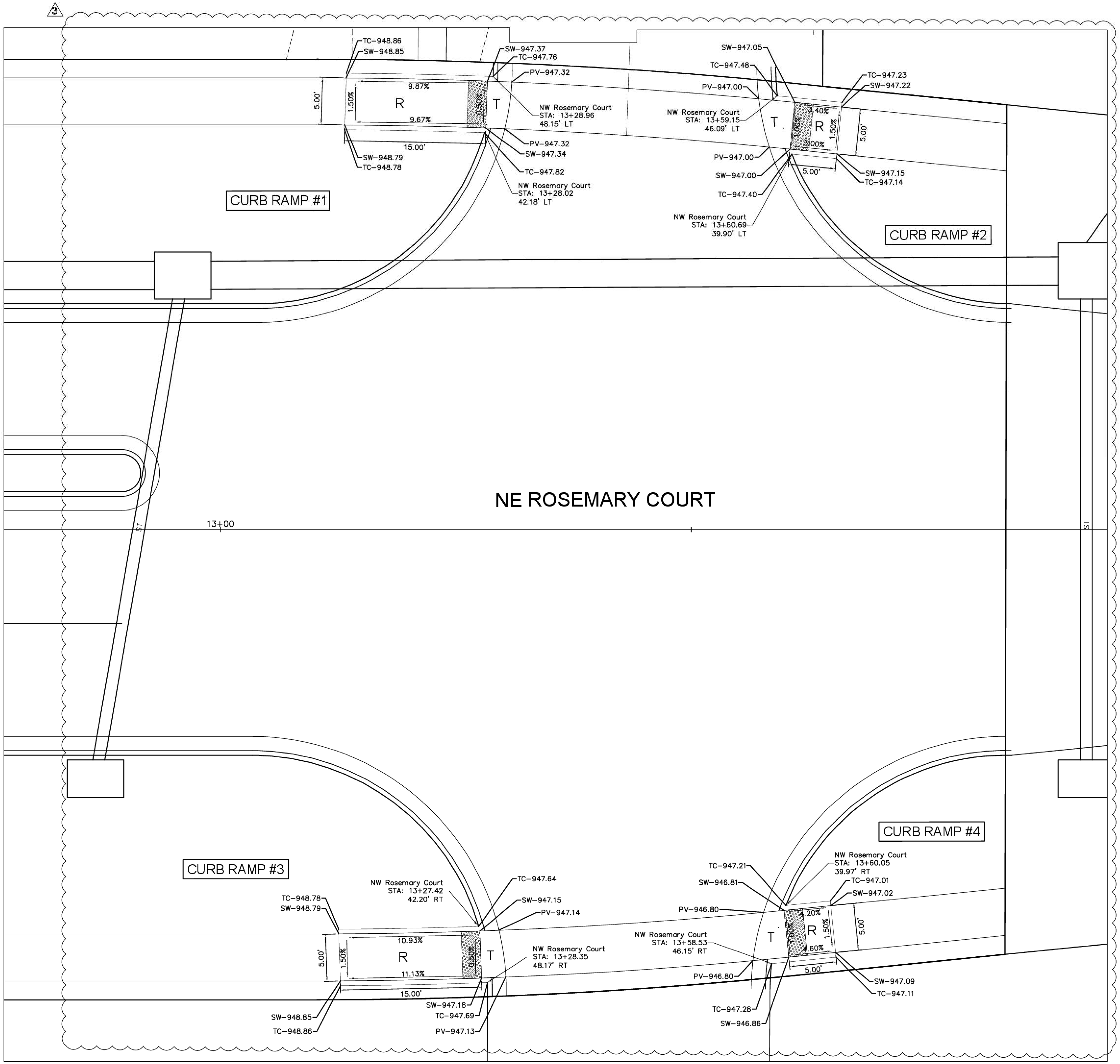

LEGEND:
L LANDING AREA
R RAMP AREA
T TRANSITION AREA
PV PAVEMENT ELEVATION
TC TOP OF CURB ELEVATION
SW SIDEWALK ELEVATION

NOTES:
1. See Detail Sheet (C419–C420) for ADA ramp details including typical slopes and cross sections.
2. Max Distance between detectable surface and back of curb is 5'.

N

0' 2.5' 5' 10'
SCALE IN FEET

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INTERSECTION DETAILS
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

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checked by: P.J.O.
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project no.: 016-3182
date: 2017.04.06

SHEET
C409

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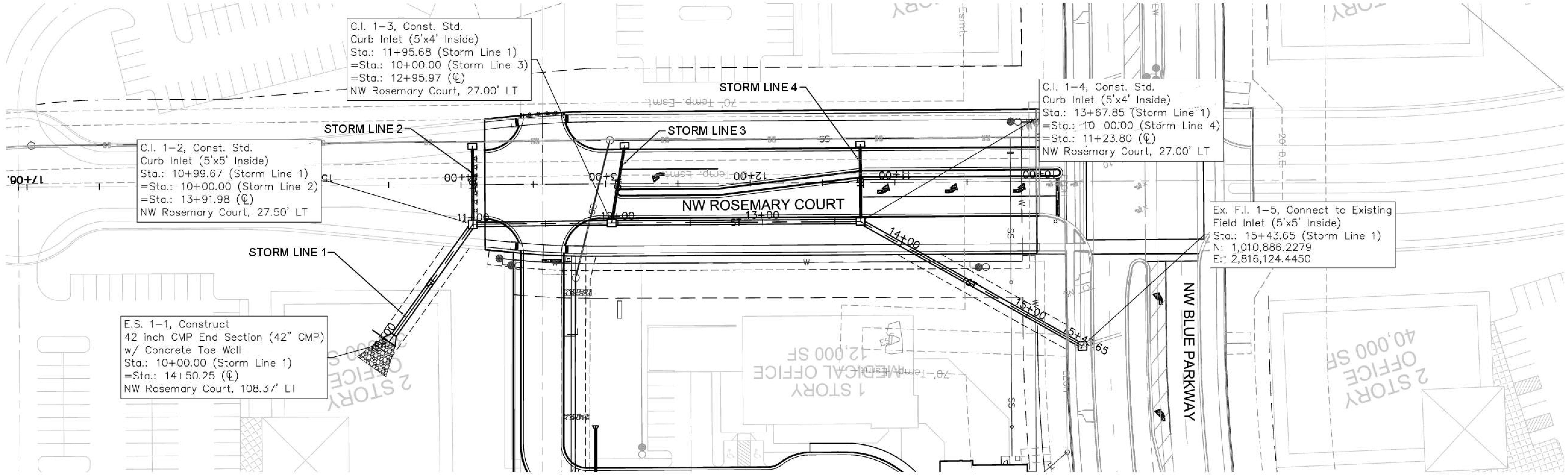

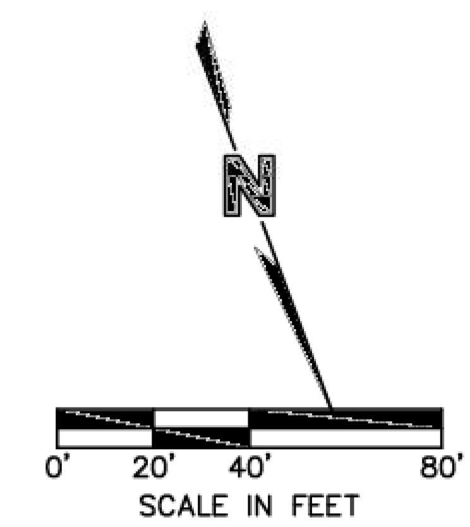

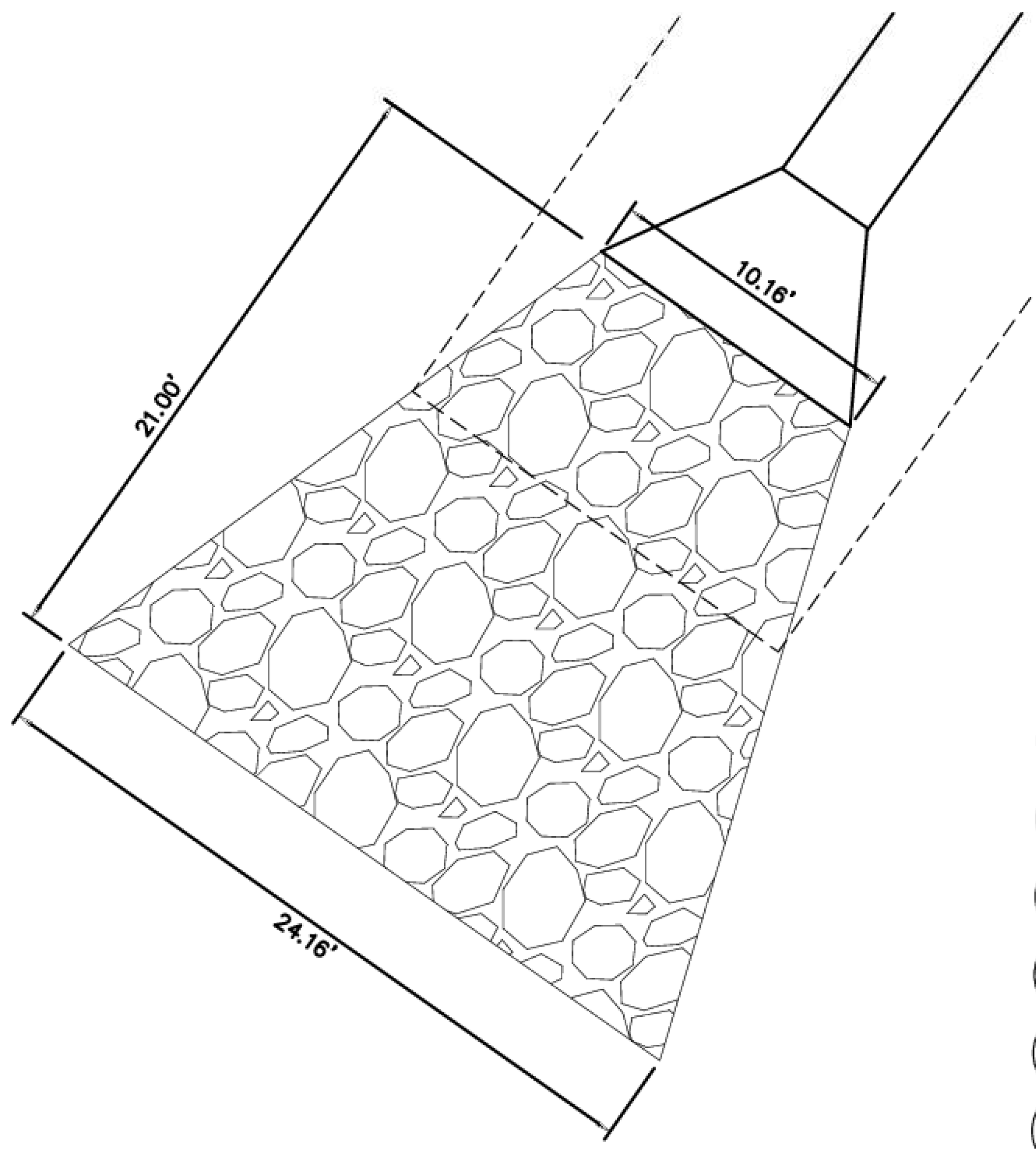

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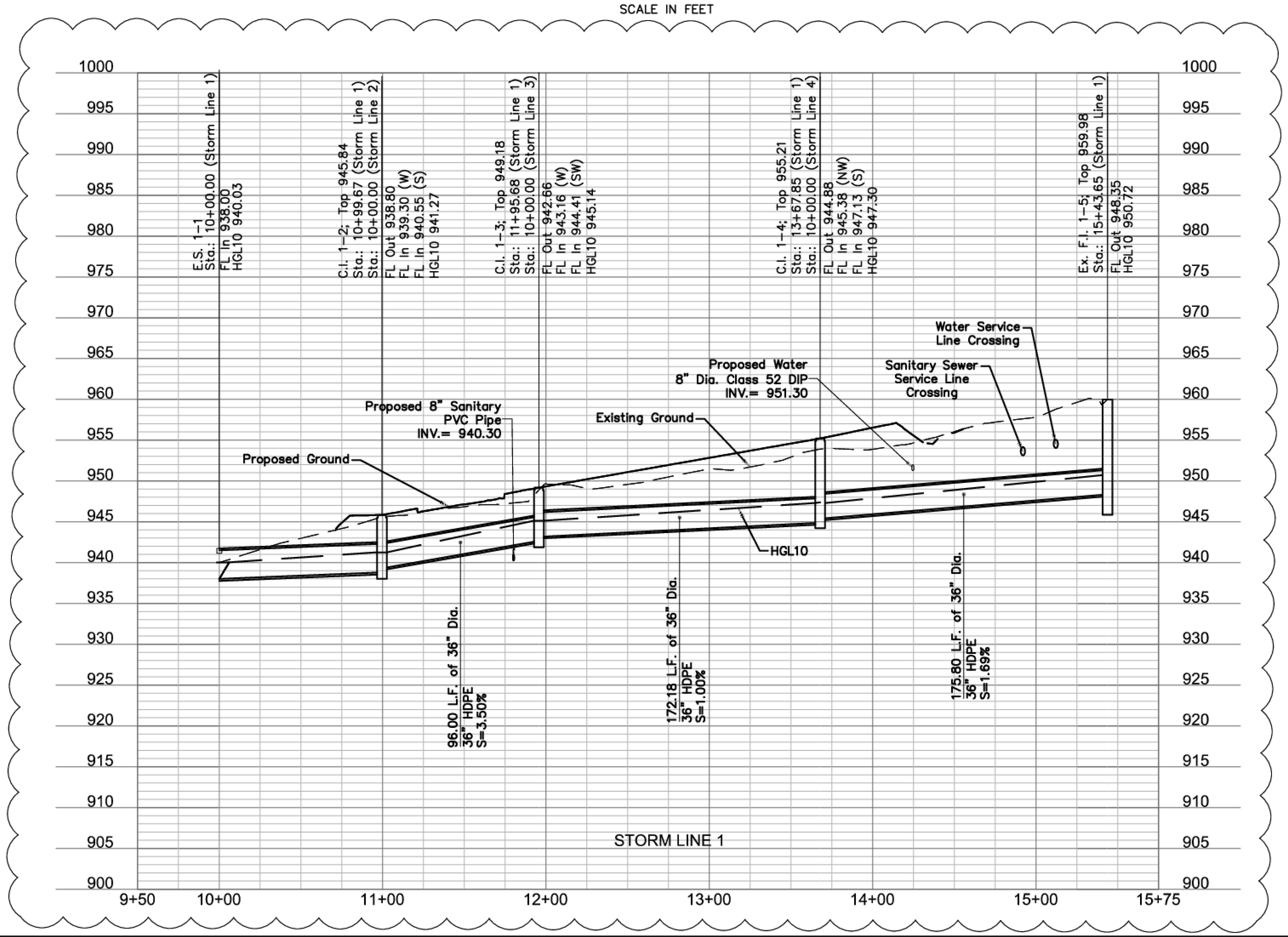

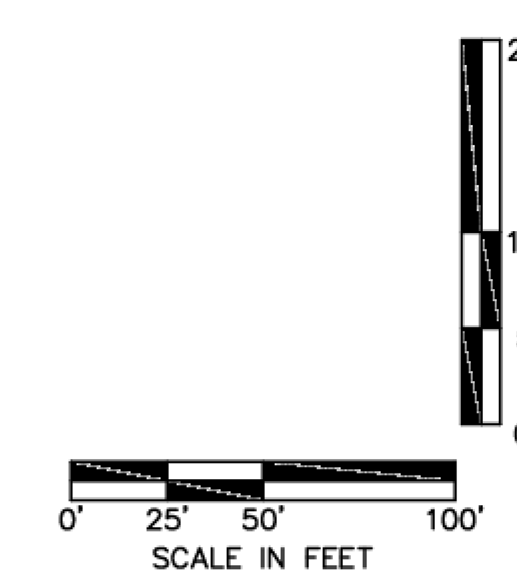

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REVISIONS

2017

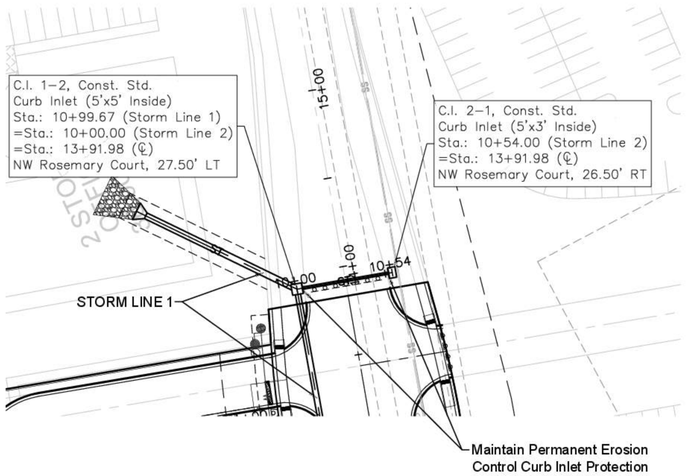
STORM SEWER PLAN & PROFILE
PUBLIC IMPROVEMENT PLANS

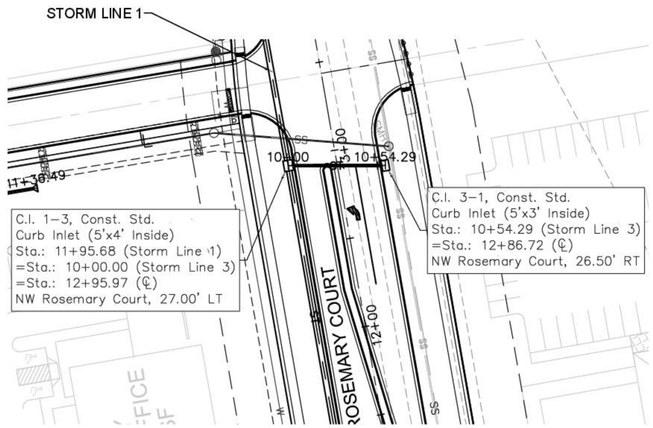
SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

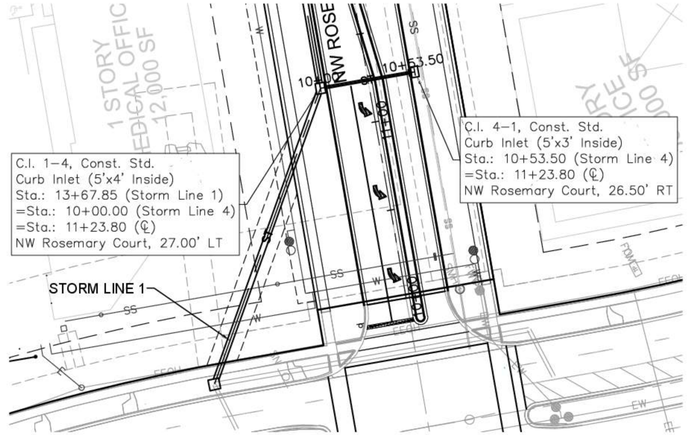
LEE S SUMMIT, MO

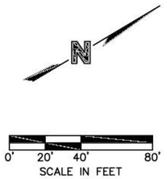
drawn by: G.S.
checked by: P.J.O
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

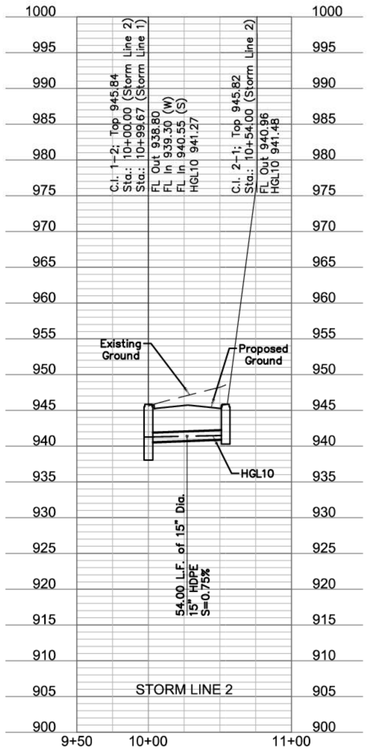
SHEET
C410

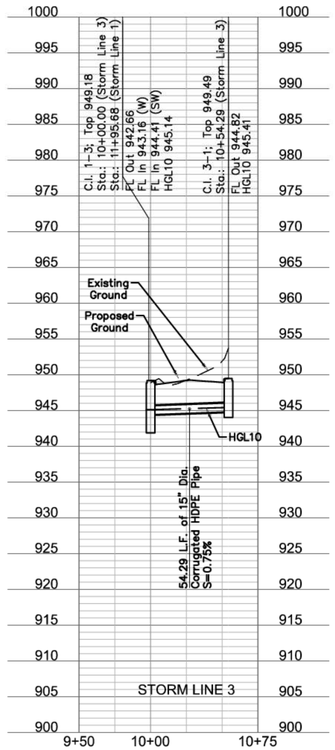


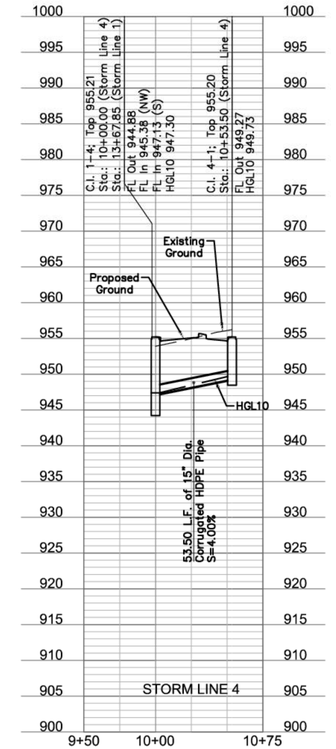


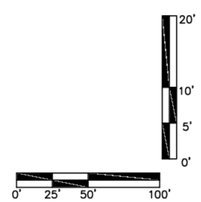












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STORM SEWER PLAN & PROFILE
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
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SHEET
C411

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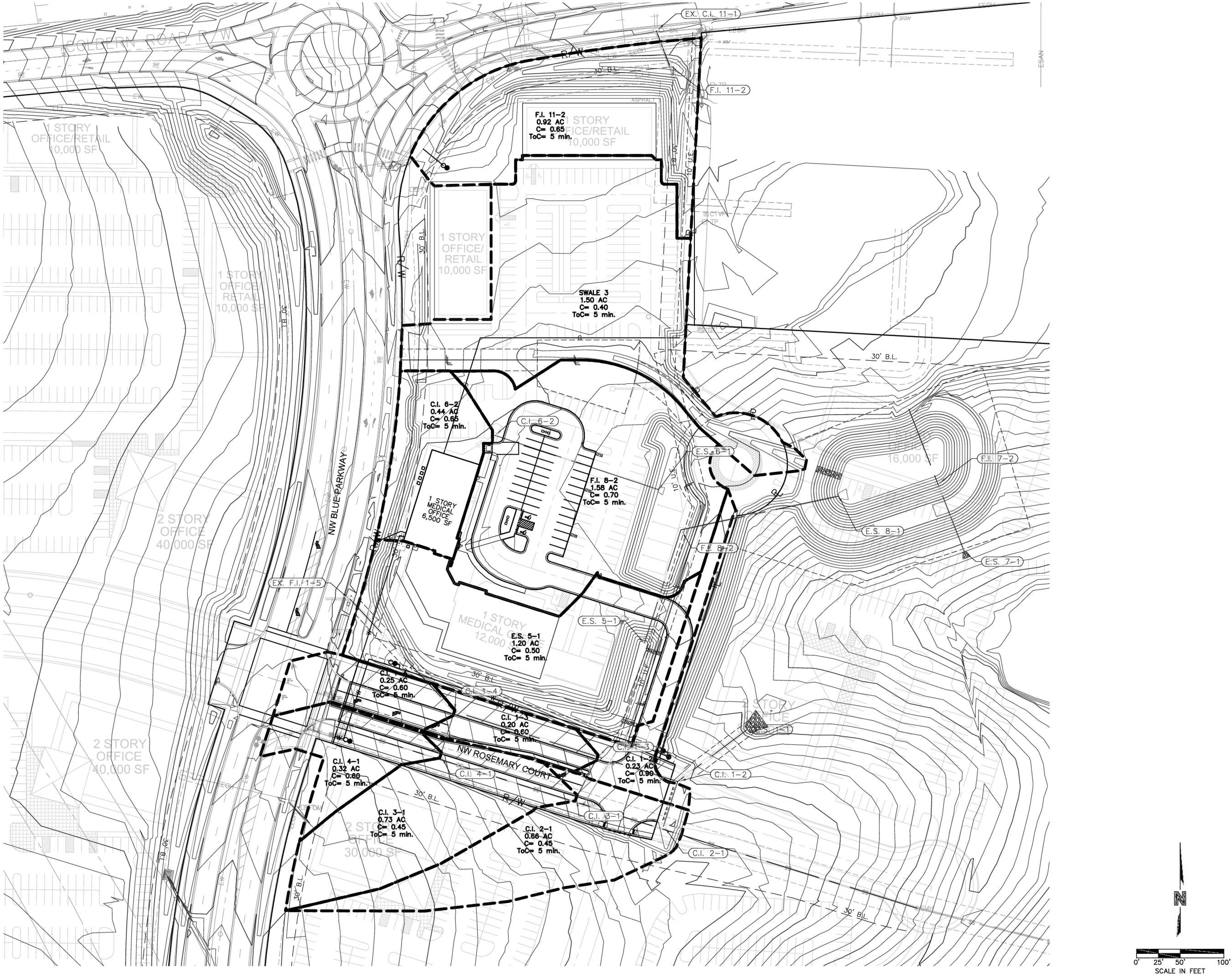

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1	06-05-2017	City Review Comments	
2	06-12-2017	City Review Comments	
3	07-05-2017	City Review Comments	

REVISIONS

DRAINAGE PLAN
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C412

DWG: F:\2016\3001-3500\016-3182\40-Design\AutoCAD\Final Plans\Sheets\GNCV\01_Street & Storm_36x24\C_DRN01_63182.dwg USER: chilgedick
DATE: Jul 10, 2017 12:37pm

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. 1-2	0.23	0.90	5.00	7.35	1.00	1.52
C.I. 1-3	0.20	0.60	5.00	7.35	1.00	0.88
C.I. 1-4	0.25	0.60	5.00	7.35	1.00	1.10
C.I. 2-1	0.66	0.45	5.00	7.35	1.00	2.18
C.I. 3-1	0.73	0.45	5.00	7.35	1.00	2.42
C.I. 4-1	0.32	0.60	5.00	7.35	1.00	1.41

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. 1-2	0.23	0.90	5.00	10.32	1.25	2.67
C.I. 1-3	0.20	0.60	5.00	10.32	1.25	1.55
C.I. 1-4	0.25	0.60	5.00	10.32	1.25	1.94
C.I. 2-1	0.66	0.45	5.00	10.32	1.25	3.83
C.I. 3-1	0.73	0.45	5.00	10.32	1.25	4.24
C.I. 4-1	0.32	0.60	5.00	10.32	1.25	2.48

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. 1-2	GRADE	1.52	0.01	1.53	1.00	1.45	1.45	1.45	0.08	94.62%	0.13	5.89	...
C.I. 1-3	GRADE	0.88	0.03	0.91	1.00	0.90	0.90	0.90	0.01	98.68%	0.10	4.84	...
C.I. 1-4	GRADE	1.10	0.00	1.10	1.00	1.08	1.08	1.08	0.03	97.52%	0.11	5.20	...
C.I. 2-1	GRADE	2.18	0.30	2.48	1.00	1.73	1.73	1.73	0.75	69.59%	0.15	7.41	...
C.I. 3-1	GRADE	2.42	0.06	2.48	1.00	2.18	2.18	2.18	0.30	88.05%	0.15	7.05	...
C.I. 4-1	GRADE	1.41	0.00	1.41	1.00	1.35	1.35	1.35	0.06	95.47%	0.12	5.71	...

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 5500.
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.

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. 1-2	GRADE	2.67	0.11	2.78	1.00	2.39	2.39	2.39	0.39	86.01%	0.16	7.36	...
C.I. 1-3	GRADE	1.55	0.16	1.71	1.00	1.59	1.59	1.59	0.11	93.42%	0.13	6.13	...
C.I. 1-4	GRADE	1.94	0.00	1.94	1.00	1.78	1.78	1.78	0.16	91.82%	0.14	6.42	...
C.I. 2-1	GRADE	3.83	1.12	4.95	1.00	2.50	2.50	2.50	2.46	50.38%	0.19	9.61	...
C.I. 3-1	GRADE	4.24	0.30	4.53	1.00	3.41	3.41	3.41	1.12	75.25%	0.19	8.84	...
C.I. 4-1	GRADE	2.48	0.00	2.48	1.00	2.18	2.18	2.18	0.30	88.07%	0.15	7.05	...

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 (10-yr Frequency)

Upstream Structure	Downstream Structure	Length	Upstream Invert	Downstream Invert	Slope	Diameter	Manning's N	Total Flow	Velocity	Capacity	Flow Depth	HGL Upstream	Upstream Rim Elevation
		(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(ft/s)	(cfs)	(ft)	(ft)	(ft)
C.I. 1-2	E.S. 1-1	99.67	938.80	938.00	0.8	42	0.012	62.11	10.75	97.64	2.47	941.27	945.84
C.I. 1-3	C.I. 1-2	96.00	942.66	939.30	3.5	36	0.012	58.93	11.99	135.17	2.48	945.14	949.19
C.I. 1-4	C.I. 1-3	172.18	944.88	943.16	1	36	0.012	55.85	11.28	72.21	2.42	947.30	955.21
Ex. F.I. 1-5	C.I. 1-4	175.80	948.35	945.38	1.69	36	0.012	53.42	11.17	93.91	2.37	950.72	959.98
C.I. 2-1	C.I. 1-2	54.00	940.96	940.55	0.76	15	0.012	1.73	2.37	6.10	0.52	941.48 j	945.82
C.I. 3-1	C.I. 1-3	54.30	944.82	944.41	0.76	15	0.012	2.18	2.93	6.08	0.59	945.41 j	949.50
C.I. 4-1	C.I. 1-4	53.50	949.27	947.13	4	15	0.012	1.85	7.21	13.99	0.46	949.73	955.20

STORM SEWER DESIGN CALCULATION (100-yr Frequency)

Upstream Structure	Downstream Structure	Length	Upstream Invert	Downstream Invert	Slope	Diameter	Manning's N	Total Flow	Velocity	Capacity	Flow Depth	HGL Upstream	Upstream Rim Elevation
		(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(ft/s)	(cfs)	(ft)	(ft)	(ft)
C.I. 1-2	E.S. 1-1	99.67	938.80	938.00	0.8	42	0.012	88.08	11.50	97.64	2.93	941.73	945.84
C.I. 1-3	C.I. 1-2	96.00	942.66	939.30	3.5	36	0.012	84.41	13.78	135.17	2.81	945.47	949.19
C.I. 1-4	C.I. 1-3	172.18	944.88	943.16	1	36	0.012	79.41	11.24	72.21	3.00	948.24	955.21
Ex. F.I. 1-5	C.I. 1-4	175.80	948.35	945.38	1.69	36	0.012	75.45	10.68	93.91	2.72	951.07	959.98
C.I. 2-1	C.I. 1-2	54.00	940.96	940.55	0.76	15	0.012	2.18	1.82	6.10	0.59	941.55	945.82
C.I. 3-1	C.I. 1-3	54.30	944.82	944.41	0.76	15	0.012	3.41	3.08	6.08	0.74	945.56 j	949.50
C.I. 4-1	C.I. 1-4	53.50	949.27	947.13	4	15	0.012	2.18	1.78	13.99	0.59	949.86 j	955.20

USER: ahilgedick

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DATE: Jul 10, 2017 12:37pm

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DRAINAGE TABLES
PUBLIC IMPROVEMENT PLANS

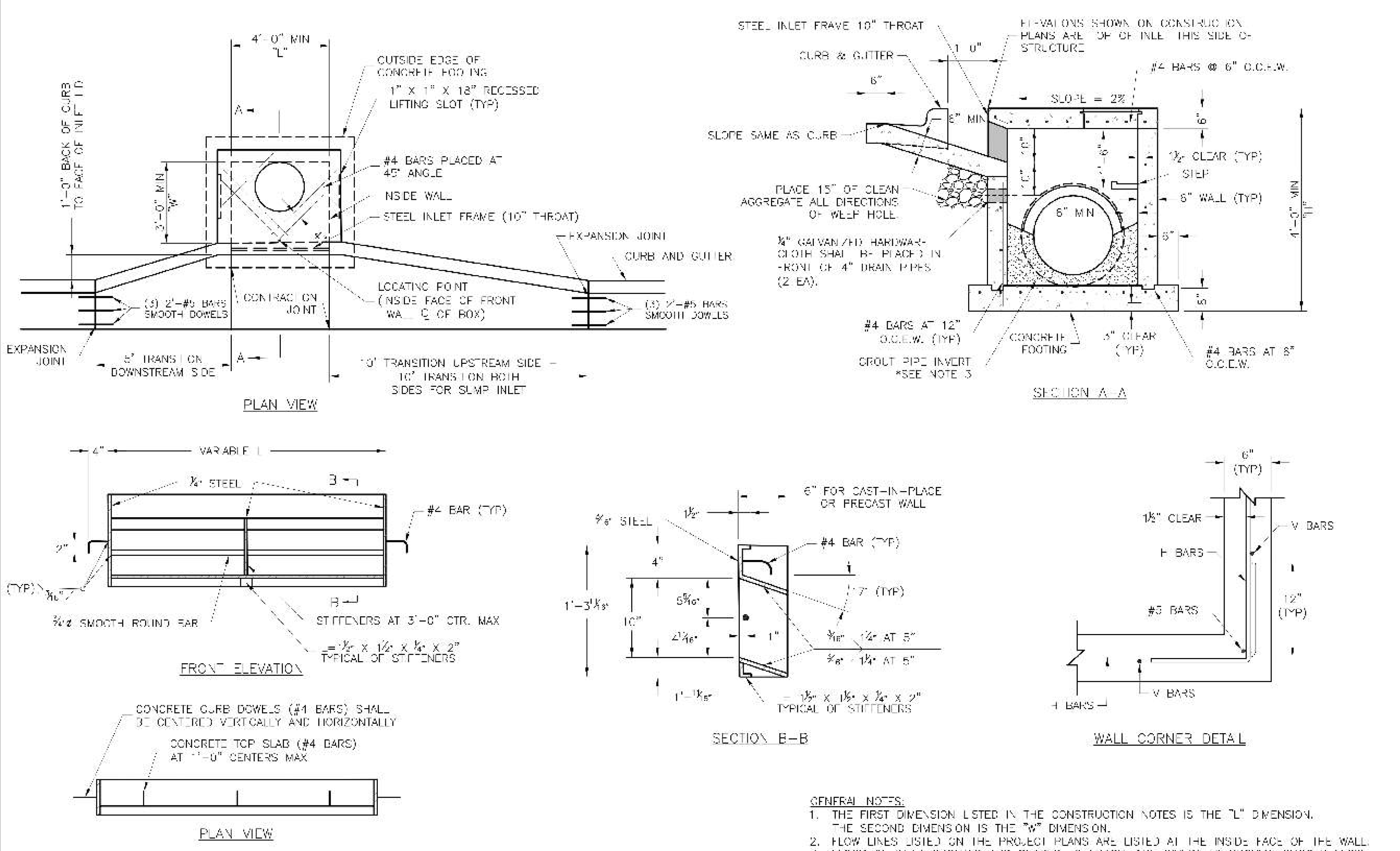
SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.B.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C413



STEEL FRAME NOTES:

1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM PRIME #37F 78 PRIMER (GRAY) OR EQUAL.

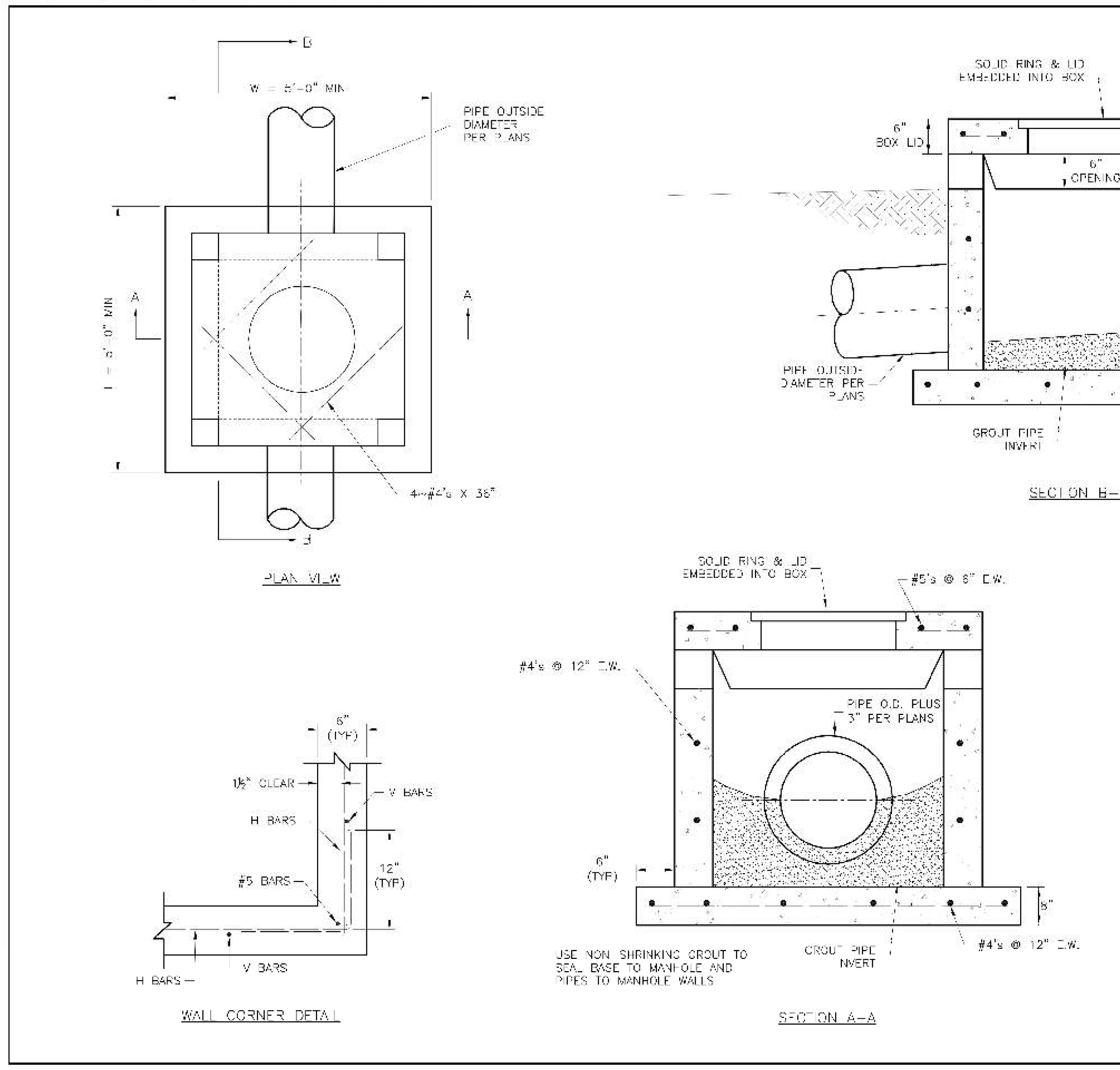
GENERAL NOTES:

1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. LOCATE MH RING AND COVER ON BLANK WALL IF POSSIBLE.
5. STEPS SHALL BE SPACED AT 1'-4" O.C. VERTICALLY ON BLANK WALL IF POSSIBLE.
6. BEVEL ALL EXPOSED EDGES WITH ¾" CHAMFER OR ½" TOOLED EDGE.
7. ON GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. LIFTING RINGS SHALL BE REMOVED AND SEALED WITH NON-SHRINKABLE GROUT
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
CURB INLET DETAIL

STM-1



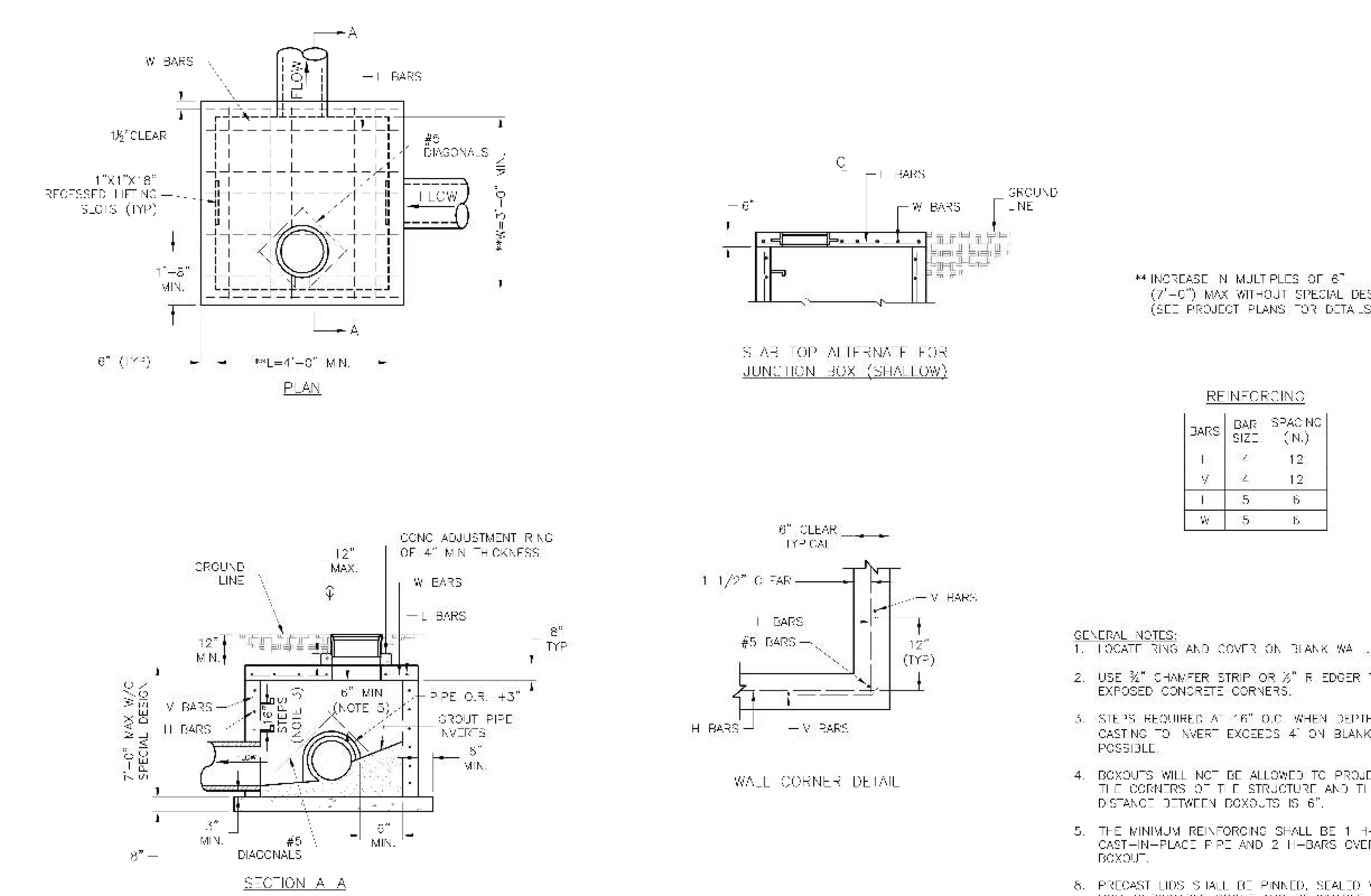
GENERAL NOTES:

1. LOCATE RING AND COVER OVER OUTLET ON BLANK WALL.
2. USE ¾" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 5' ON BLANK WALL IF POSSIBLE.
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 BOXCUT.
7. SHOW FIELD INLET ORIENTATION ON PLANS PLUS NUMBER AND SIDE OF OPENINGS.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON-SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
FIELD INLET DETAIL

STM-2



** INCREASE IN MULTIPLES OF 6" (7'-0" MAX WITHOUT SPECIAL DESIGN. (SEE PROJECT PLANS FOR DETAILS)

REINFORCING

BARS	BAR SIZE	SPACING (IN.)
I	4	12
V	4	12
I	5	6
W	5	6

GENERAL NOTES:

1. LOCATE RING AND COVER ON BLANK WALL.
2. USE ¾" CHAMFER STRIP OR ½" R EDGER TOOL ON ALL EXPOSED CONCRETE CORNERS.
3. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 4' ON BLANK WALL IF POSSIBLE.
4. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE AND THE MINIMUM DISTANCE BETWEEN BOXOUTS IS 6".
5. THE MINIMUM REINFORCING SHALL BE 1 H-BAR OVER A CAST-IN-PLACE PIPE AND 2 H-BARS OVER A PRECAST BOXOUT.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. REINFORCING OF COVERS IN STREETS REQUIRE SPECIAL DESIGN.
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

LEE'S SUMMIT MISSOURI

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
JUNCTION BOX DETAIL

STM-3

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REVISIONS

2017

STORM SEWER DETAILS
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

drawn by: G.S.
checked by: P.J.O.
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project no.: 016-3182
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SHEET
C414

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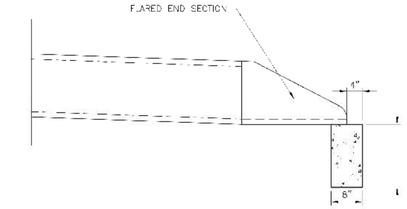
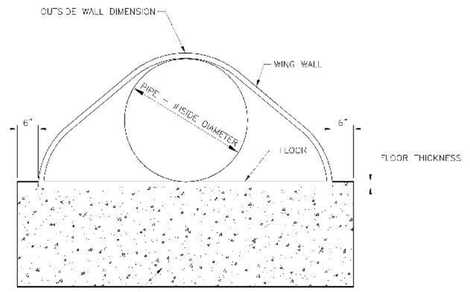


PLAN VIEW
NOT TO SCALE

2' MIN. OR TO BEDROCK WHICHEVER IS SHALLOWER



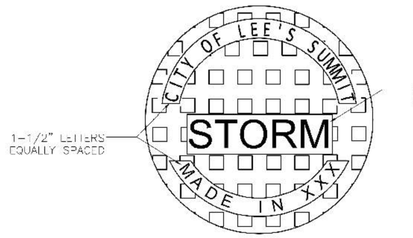
3,000 PSI OR GREATER CONCRETE MIX

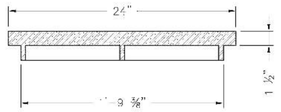
END VIEW
NOT TO SCALE

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Date: 04/17
Drawn By: MJT
Checked By: KA

FLARED END SECTION SUPPORT DETAIL — STM-5





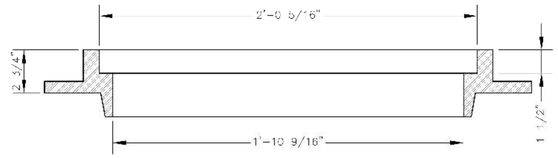
STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 150 LB
NOTE: PICK HOLES NOT SHOWN

*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCT LIST.

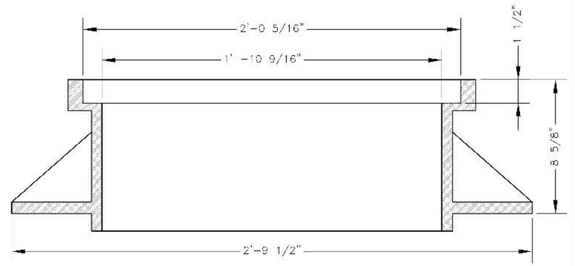
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Date: 04/17
Drawn By: MJT
Checked By: DL

STORM MANHOLE COVER DETAIL — STM-6



SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS105A
MINIMUM WEIGHT = 145 LB



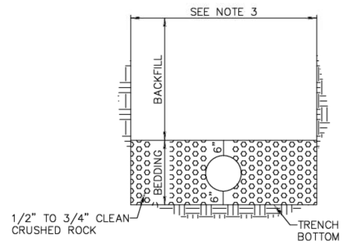
STANDARD 24" MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS101A
MINIMUM WEIGHT = 250 LB

*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCTS LIST.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Date: 04/17
Drawn By: MJT
Checked By: DL

STORM MANHOLE FRAME DETAIL — STM-7



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.

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STORM SEWER DETAILS 2
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

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SHEET
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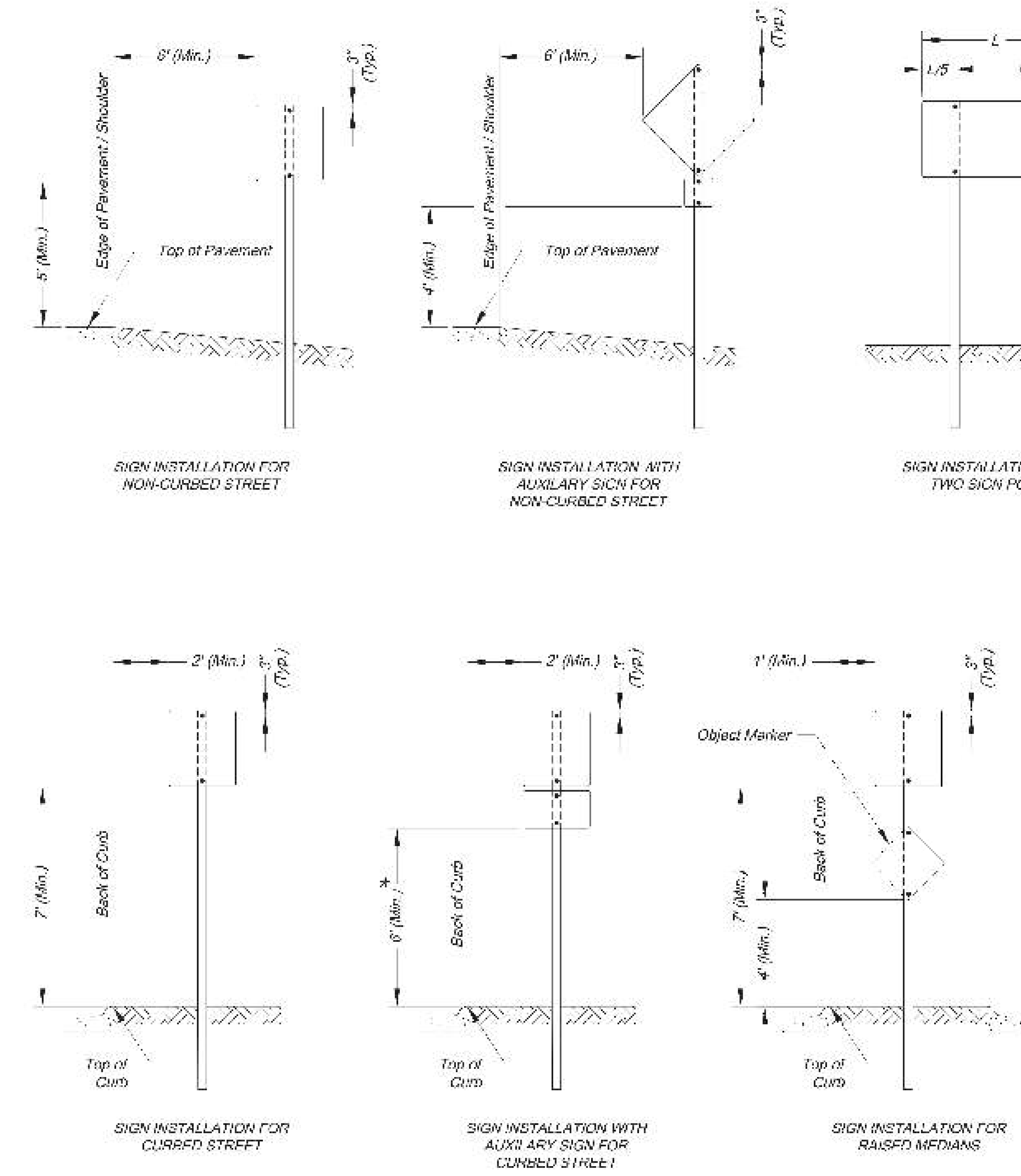
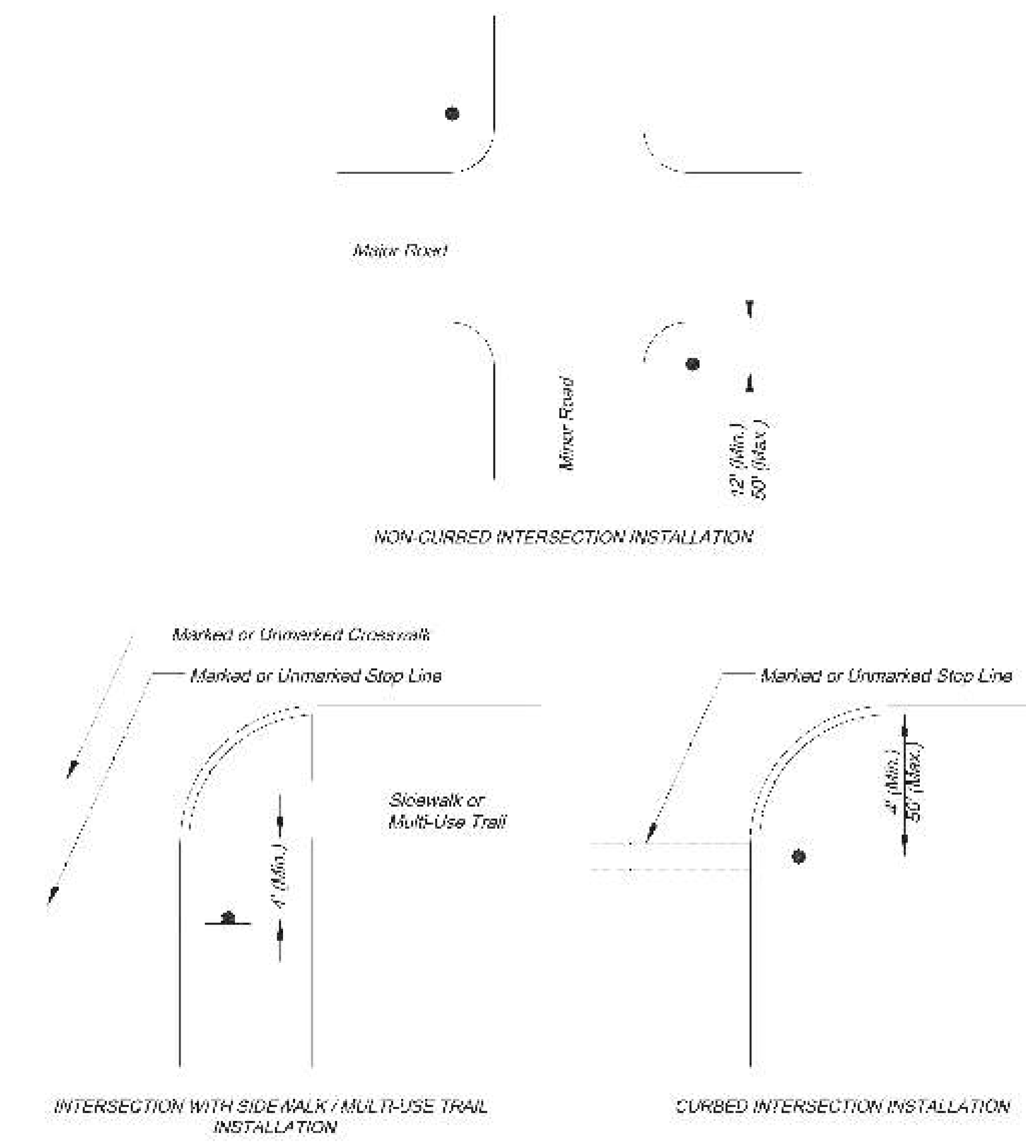


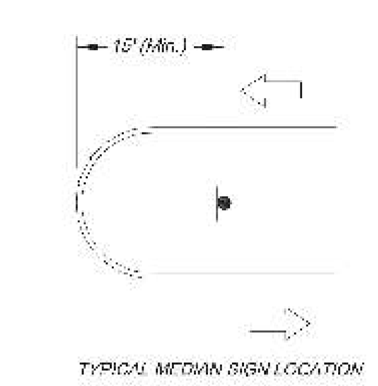
SIGN MOUNTING DETAILS

* 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 60 inches above the walkway.

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



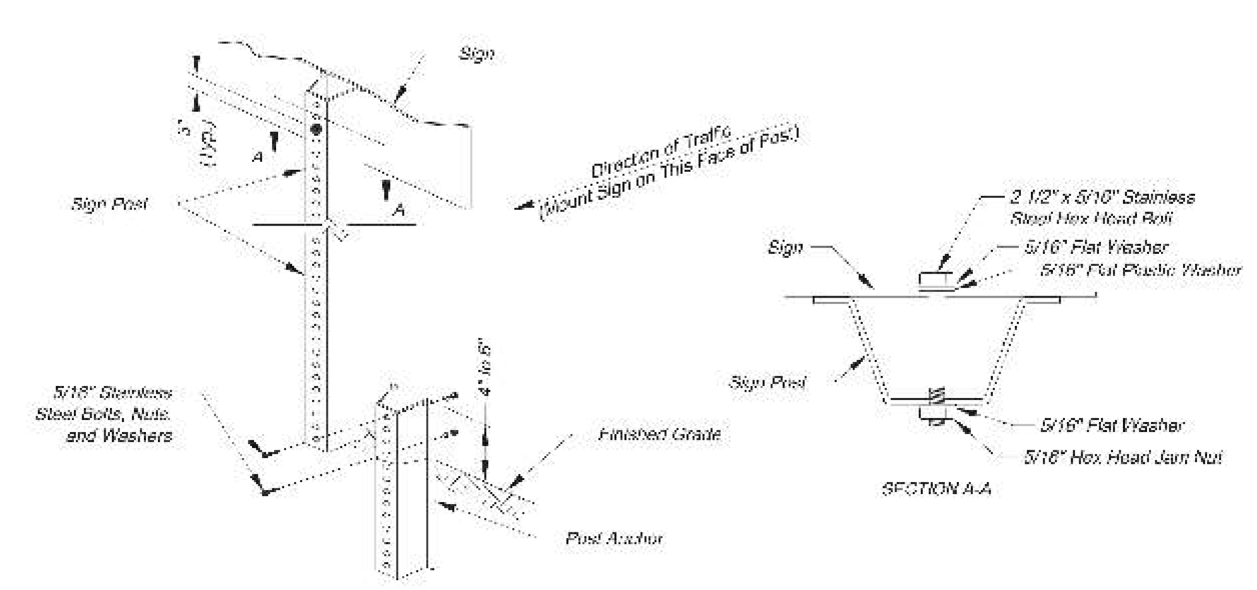
CONTROL SIGN LOCATION



MEDIAN SIGN LOCATION

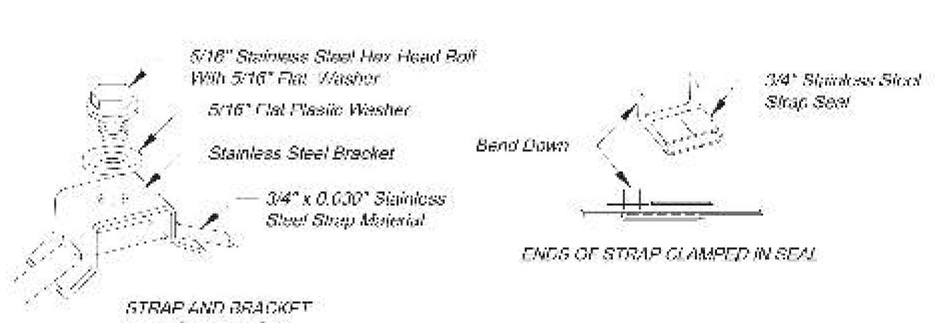
NOTES:
1. A 4" P.V.C. sleeve shall be installed in new concrete medians at each location where a sign is to be installed.
2. For existing concrete medians, a 4" hole shall be cored into the concrete.

1



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.

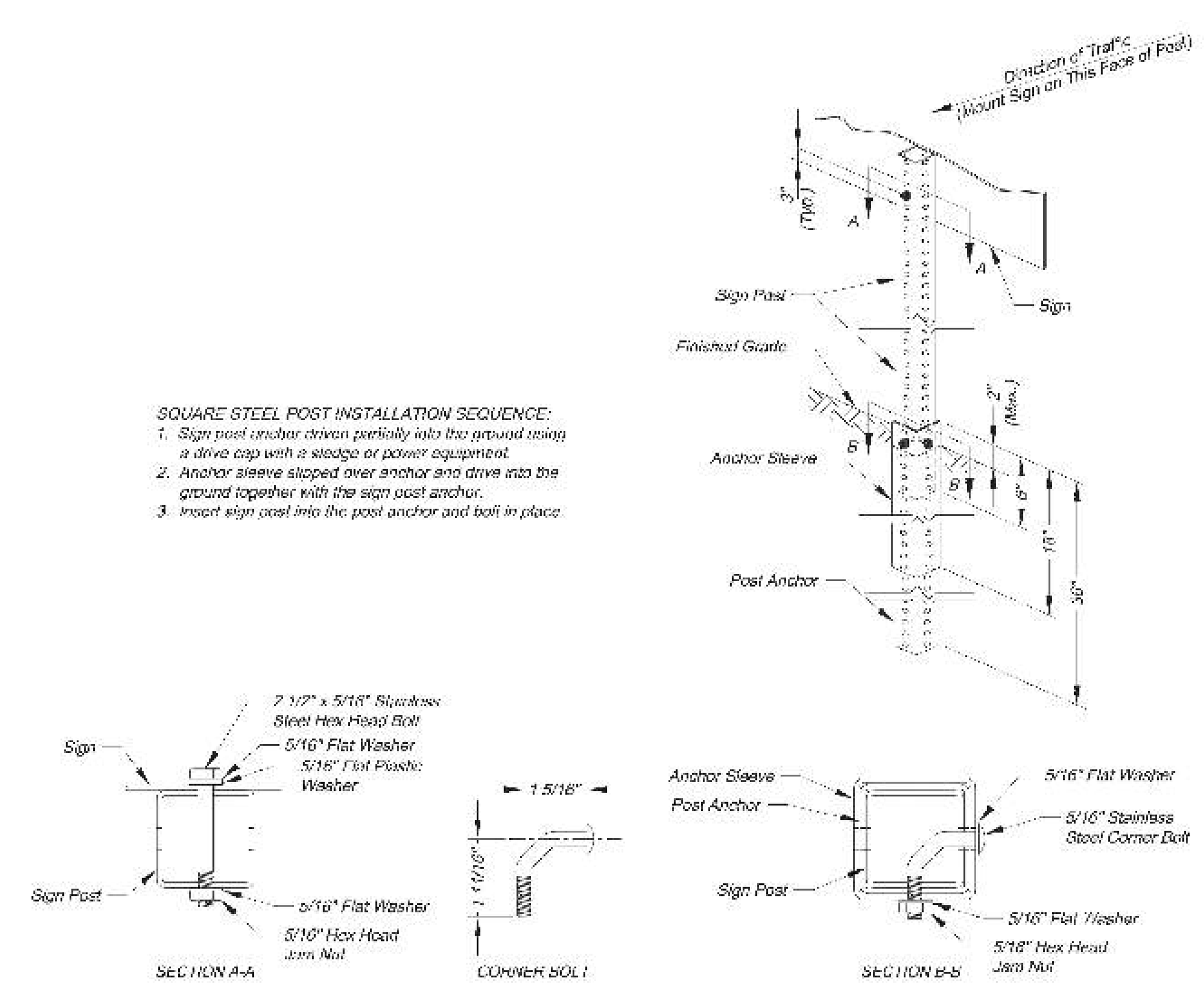


STRAP TYPE SIGN SUPPORT DETAILS

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.

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.



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 ¼" x 2 ¼" x 36" Square Steel Post
   - Anchor Sleeve - 12 Ga. 2 ½" x 2 ½" 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.

2

OLSSON® ASSOCIATES
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1301 Burlington, Suite 100
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www.olssonassociates.com

NO. REV	DATE	REVISIONS DESCRIPTION	BY
1	06-05-2017	City Review Comments	
2	06-12-2017	City Review Comments	
3	07-05-2017	City Review Comments	

REVISIONS

SIGN DETAILS
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

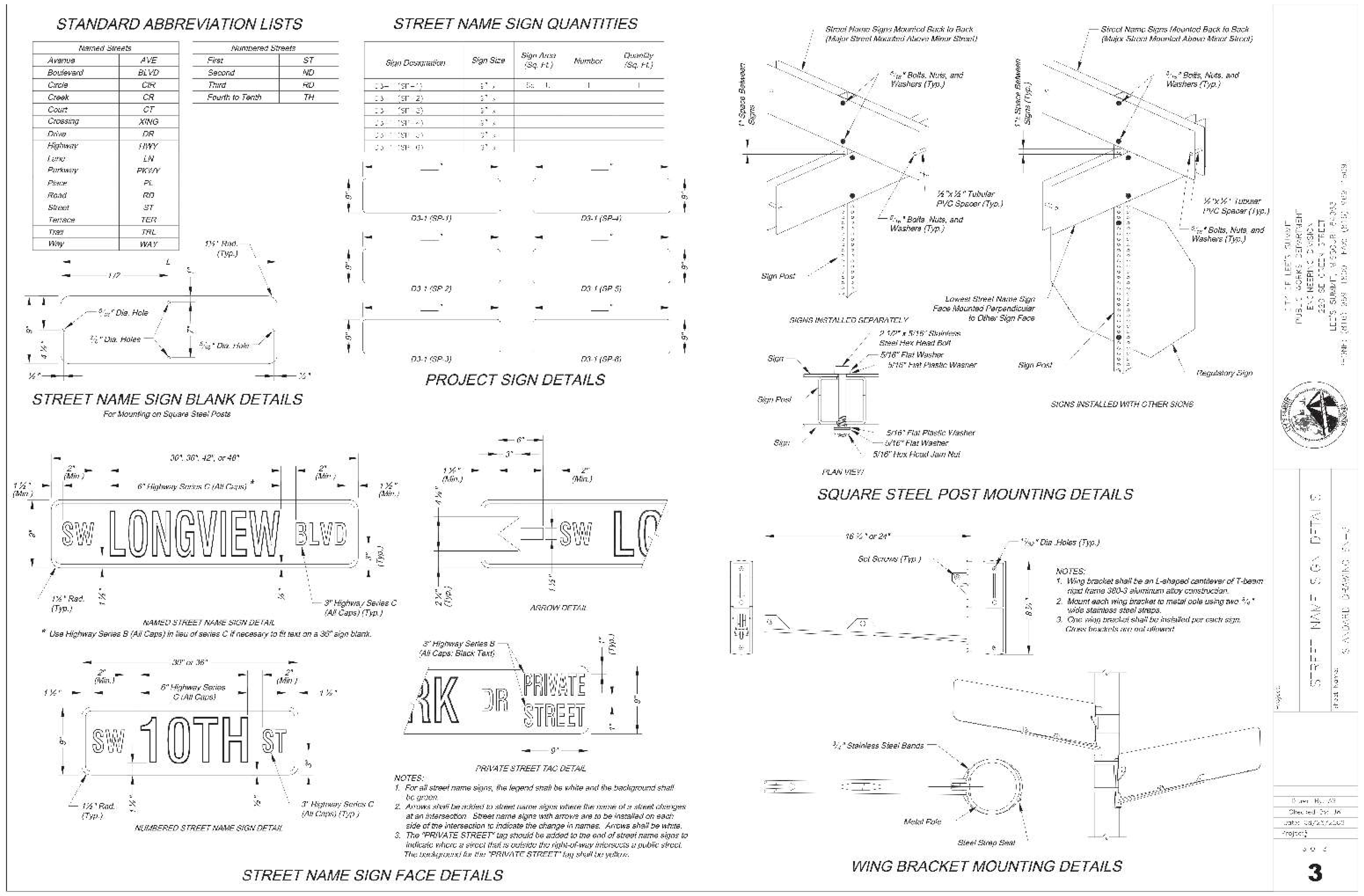
LEE'S SUMMIT, MO

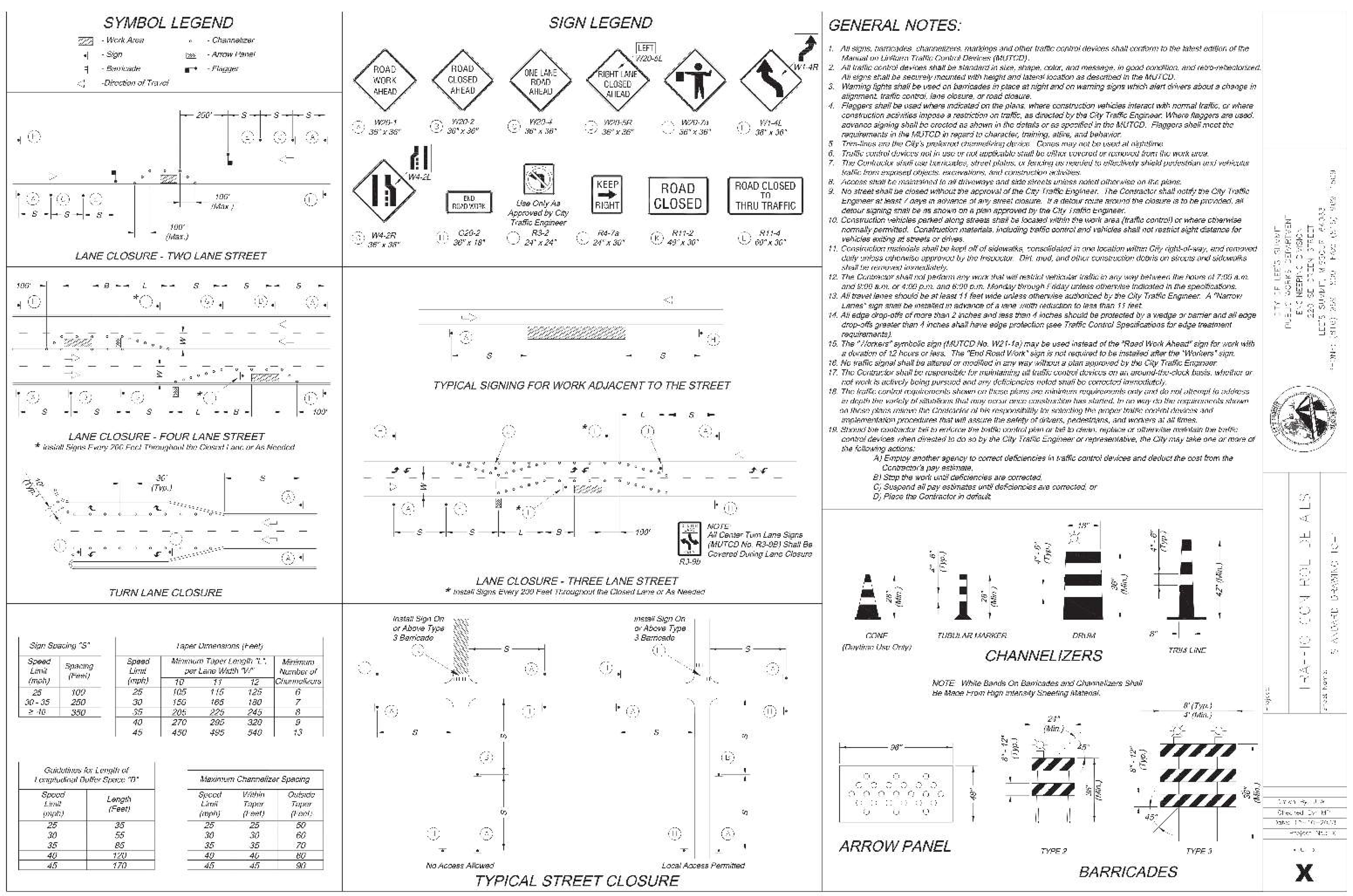
2017

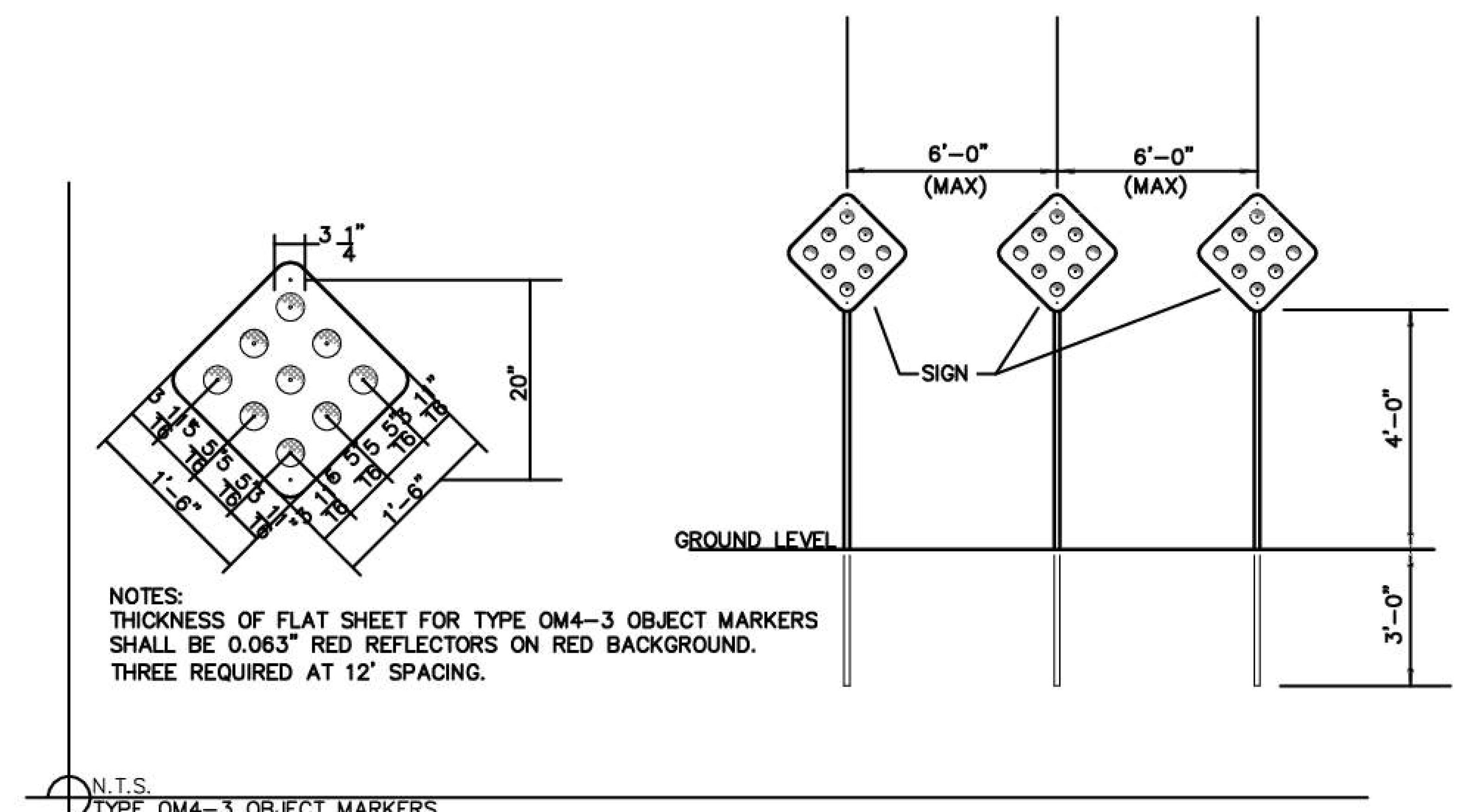
drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C416

DWG: F:\2016\3001-3500\016-3182\40-Design\AutoCAD\Final Plans\Sheets\GNCV\01_Street & Storm_36x24\C_DTL01_63182.dwg USER: ahilgedick
DATE: Jul 10, 2017 12:38pm







NOTES:
THICKNESS OF FLAT SHEET FOR TYPE OM4-3 OBJECT MARKERS SHALL BE 0.063" RED REFLECTORS ON RED BACKGROUND.
THREE REQUIRED AT 12' SPACING.

N.T.S.
TYPE OM4-3 OBJECT MARKERS

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3	07-05-2017	City Review Comments	

2017

SIGN AND TTC DETAILS
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C417

DWG: F:\2016\3001-3500\016-3182\40-Design\AutoCAD\Final Plans\Sheets\GNCV\01_Street & Storm_36x24\C_DTL01_63182.dwg USER: ahilgedick
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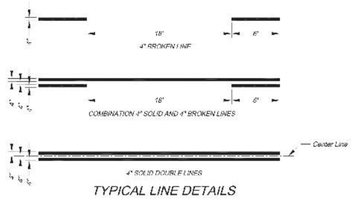
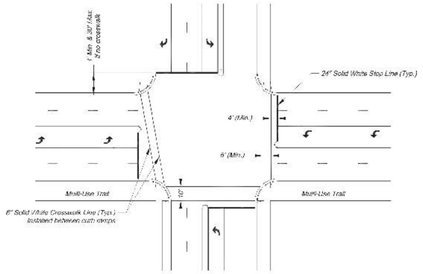


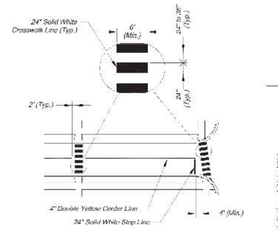
TYPICAL LINE DETAILS

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 lines.Lane or left side edge lines on divided roadways are to be solid yellow. Edge lines and center lines shall be continuous across driveways.

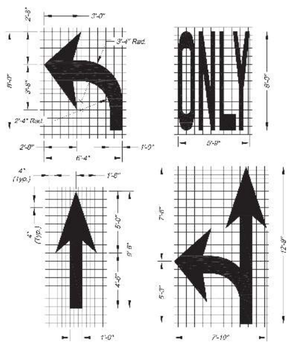


TYPICAL INTERSECTION MARKINGS

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.

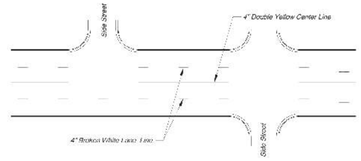


TYPICAL MIDBLOCK OR SCHOOL CROSS WALK

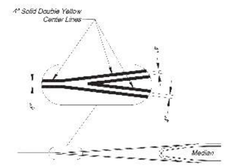


ARROW AND SYMBOL DETAILS

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.

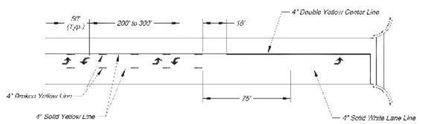


TYPICAL MARKINGS FOR FOUR-LANE UNDIVIDED ROADWAY

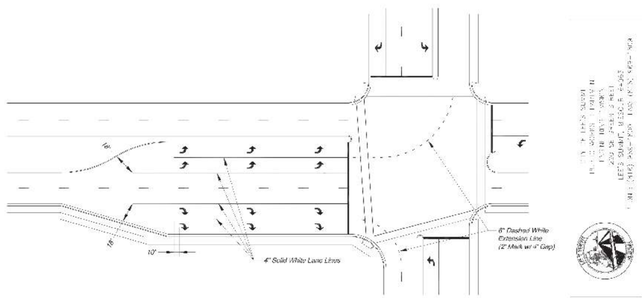


TYPICAL MEDIAN NOSE CENTER LINE DETAIL

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 two-lane/two-way streets.

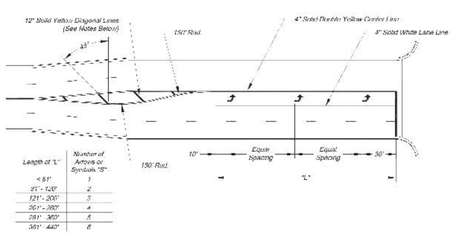


TYPICAL MARKINGS FOR TWO-WAY LEFT-TURN LANE



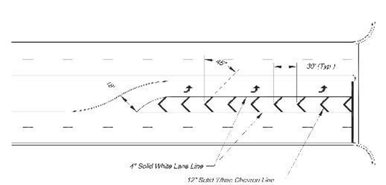
TYPICAL DUAL TURN LANE MARKINGS

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



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 253'.
2. Diagonal lines should be spaced at 2' increments, equal to the posted speed limit.
3. Equal Spacing is calculated as (L ÷ (S) / (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

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NO/REV	DATE	DESCRIPTION	BY
1	06-05-2017	City Review Comments	
2	06-23-2017	City Review Comments	
3	07-05-2017	City Review Comments	

PVMT MARKING DETAILS
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3162
date: 2017.04.06

SHEET
C418

DWG: F:\2016\3001-3500\016-3182\40-Design\AutoCAD\Final Plans\Sheets\GNCV\01_Street & Storm_36x24\C_DTL01_63182.dwg USER: ahilgedick
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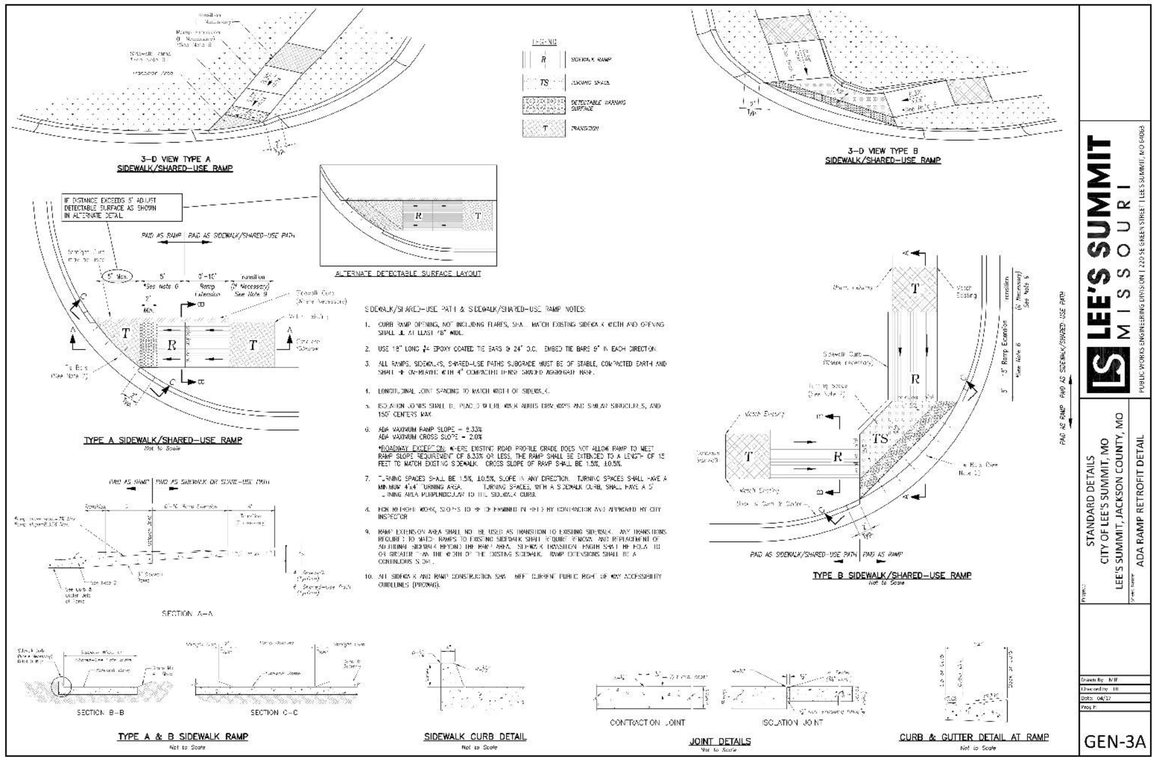
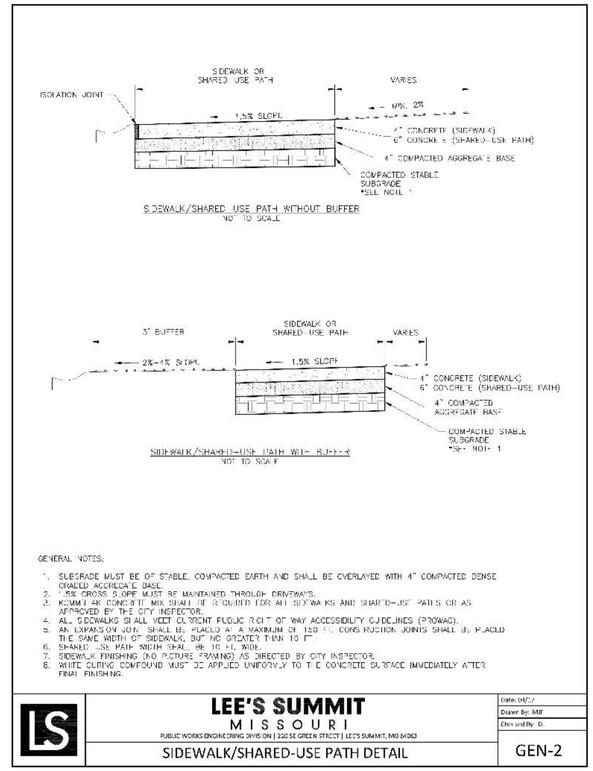


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
ADA RAMP RETROFIT DETAIL

Drawn By: MJF
Checked By: MB
Date: 04/17
Proj #:

GEN-3A



GENERAL NOTES:

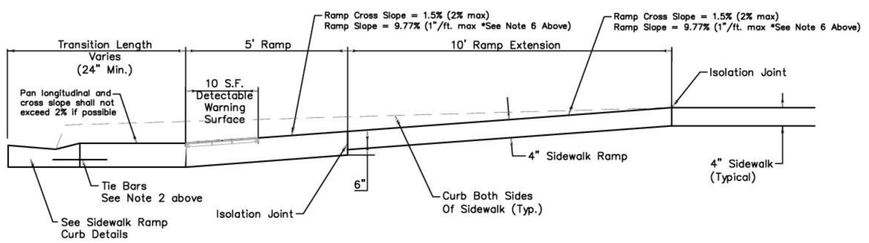
1. SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. 1.5% CROSS SLOPE MUST BE MAINTAINED THROUGH DRIVEWAYS.
3. COMMERCIAL CONCRETE MIX SHALL BE REQUIRED FOR ALL SIDEWALKS AND SHARED-USE PATHS OR AS APPROVED BY THE CITY INSPECTOR.
4. ALL SIDEWALKS SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
5. AN EXPANSION JOINT SHALL BE PLACED AT A MAXIMUM OF 150 FT. CONSTRUCTION JOINTS SHALL BE PLACED THE SAME WIDTH OF SIDEWALK, BUT NO GREATER THAN 10 FT.
6. SHARED USE PATH WIDTH SHALL BE 10 FT. WIDE.
7. SIDEWALK FINISHING (NO PICTURE FRAMING) AS DIRECTED BY CITY INSPECTOR.
8. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

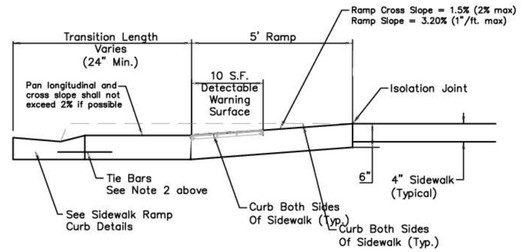
SIDEWALK/SHARED-USE PATH DETAIL

Date: 04/17
Drawn By: MJF
Chkd and By: PJO

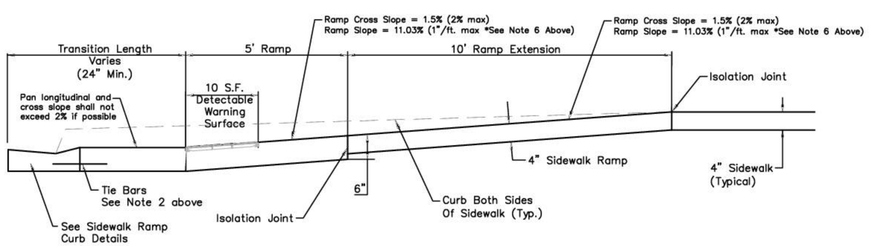
GEN-2



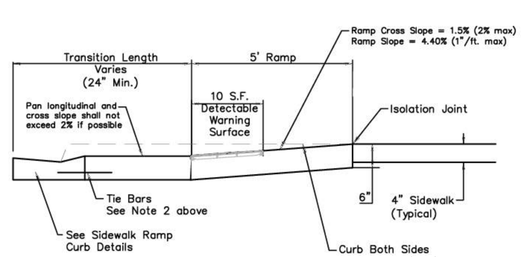
SIDEWALK RAMP 1



SIDEWALK RAMP 2



SIDEWALK RAMP 3



SIDEWALK RAMP 4

LONGITUDINAL JOINT SPACING AND LANDING LENGTH TO MATCH WIDTH OF SIDEWALK

ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 250' CENTERS MAX

3 N.T.S.
SECTION A-A

OLSSON ASSOCIATES
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REVISIONS

NO/REV	DATE	BY	REVISIONS DESCRIPTION
1	06-05-2017		City Review Comments
2	06-23-2017		City Review Comments
3	07-05-2017		City Review Comments

ADA DETAILS
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C419

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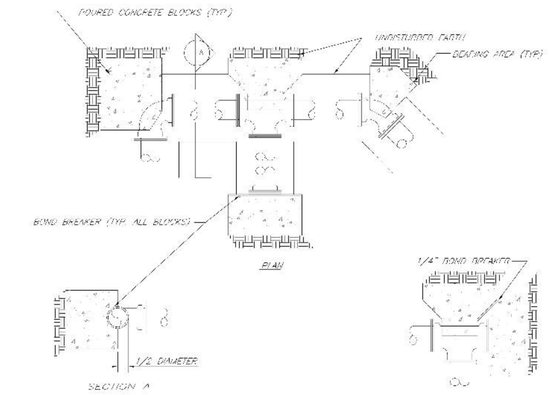
DATE: Jul 10, 2017 12:38pm

HORIZONTAL THRUST BLOCKS

REQUIRED CONCRETE BEARING AREA (SQUARE FEET – SF)

NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	1.1	5.1	1.0	1.0	1.0
8	6.4	11.6	6.4	4.0	4.0
10	11.1	19.5	12.0	5.1	4.0
12	18.6	26.1	14.4	7.1	5.0
14	25.1	36.4	19.5	10.0	5.0
16	33.9	47.4	26.6	13.1	6.6
18	43.4	REST. JT.	33.5	16.5	8.3
20	REST. JT.	REST. JT.	40.1	20.4	10.3
24	REST. JT.	REST. JT.	REST. JT.	29.4	14.8

NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

HORIZONTAL THRUST BLOCKS

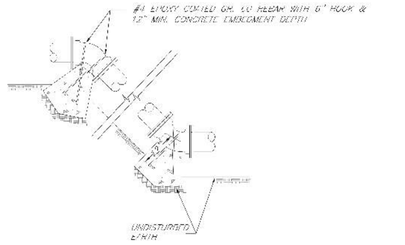
Date: 05/13
Drawn By: JN
Checked By: EL
File: WA-1
Sec: 7/14
Rev:

VERTICAL THRUST BLOCKS

REQUIRED CONCRETE VOLUME (CUBIC FEET – CF)

NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	30.3	71.1	38.6	19.7	9.9
8	89.8	126.9	69.7	39.0	17.6
10	140.2	198.3	107.3	54.7	22.9
12	202.5	REST. JT.	154.6	78.9	35.6
14	REST. JT.	REST. JT.	210.4	107.3	53.9
16	REST. JT.	REST. JT.	REST. JT.	140.1	70.4
18	REST. JT.	REST. JT.	REST. JT.	177.3	89.1
20	REST. JT.	REST. JT.	REST. JT.	REST. JT.	110.0
24	REST. JT.	REST. JT.	REST. JT.	REST. JT.	158.4

NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.

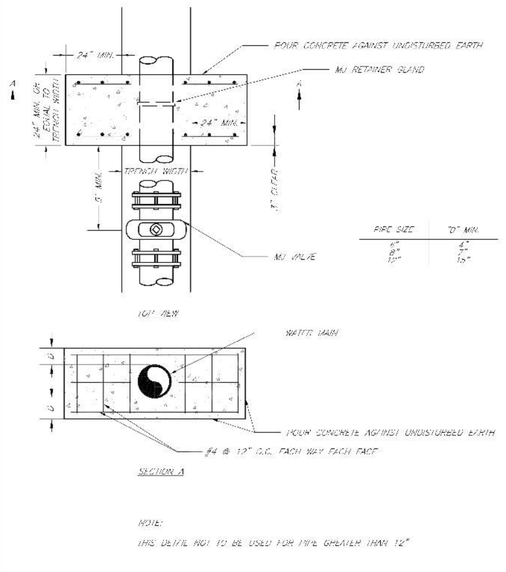


LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

VERTICAL THRUST BLOCKS

Date: 05/13
Drawn By: JN
Checked By: EL
File: WA-2
Sec: 7/14
Rev:

STRADDLE BLOCK



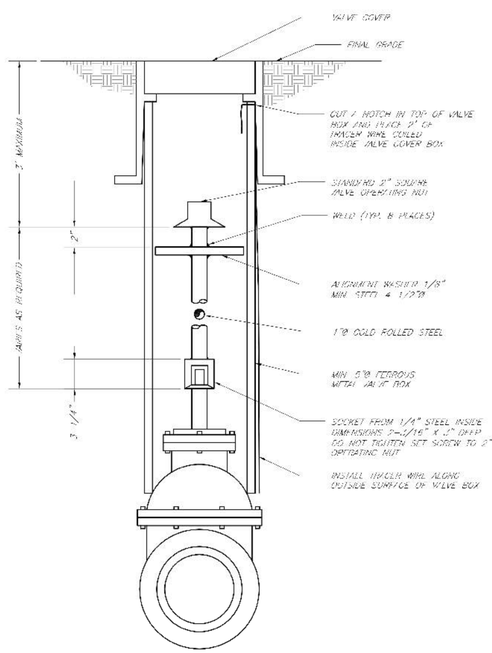
NOTE:
THIS DETAIL NOT TO BE USED FOR PIPE GREATER THAN 12"

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STRADDLE BLOCK

Date: 05/13
Drawn By: JN
Checked By: EL
File: WA-3
Sec: 7/14
Rev:

VALVE STEM EXTENSION AND VALVE BOX

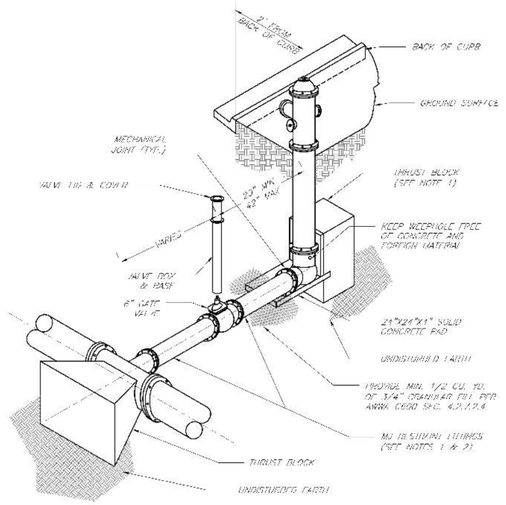


LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

VALVE STEM EXTENSION AND VALVE BOX

Date: 05/13
Drawn By: JN
Checked By: EL
File: WA-4
Sec: 7/14
Rev:

HYDRANT INSTALLATION – STRAIGHT SET



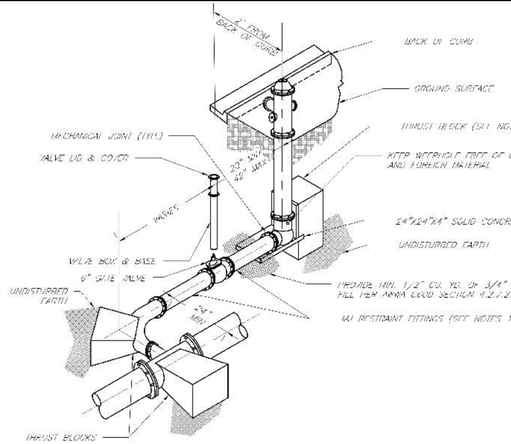
NOTES:
1. WHEN RESTRAINT GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
2. GATE VALVE MAY BE OMITTED DIRECTLY TO MJ RESTRAINT TEE.
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
4. HYDRANT HYDRANT LEADS SHALL BE 3' TO 6' ABOVE FINISHED GRADE.
5. FOR STREETS WITHOUT CURBS, FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

HYDRANT INSTALLATION – STRAIGHT SET

Date: 05/13
Drawn By: JN
Checked By: EL
File: WA-7
Sec: 7/14
Rev:

HYDRANT WITH 90 DEGREE BEND



NOTES:
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
2. GATE VALVE MAY BE OMITTED DIRECTLY TO MJ RESTRAINT TEE.
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
4. HYDRANT HYDRANT LEADS SHALL BE 3' TO 6' ABOVE FINISHED GRADE.
5. FOR STREETS WITHOUT CURBS, FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

HYDRANT WITH 90 DEGREE BEND

Date: 05/13
Drawn By: JN
Checked By: EL
File: WA-8
Sec: 7/14
Rev:

OLSSON ASSOCIATES
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www.olssonassociates.com

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NO/REV	DATE	DESCRIPTION	BY
1	06-05-2017	City Review Comments	
2	06-23-2017	City Review Comments	
3	07-05-2017	City Review Comments	

WATER MAIN DETAIL SHEET
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3162
date: 2017.04.06

SHEET
C603

N

0' 25' 50' 100'
SCALE IN FEET

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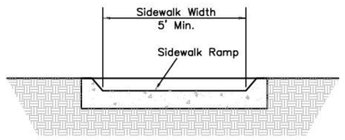
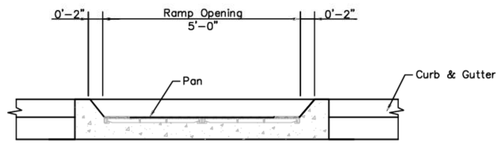
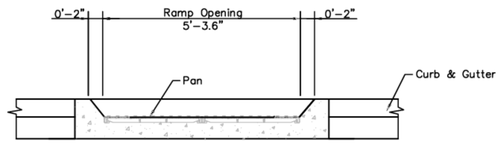


SIDEWALK RAMP (ALL RAMPS)

4 N.T.S.
SECTION B–B (FOR ALL RAMPS)

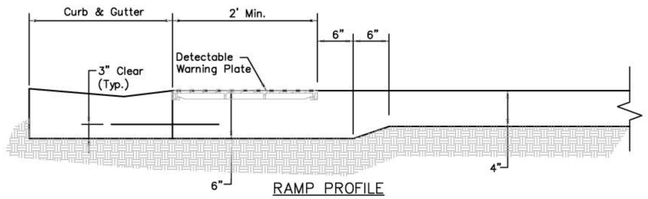


SIDEWALK RAMP #1 & #3

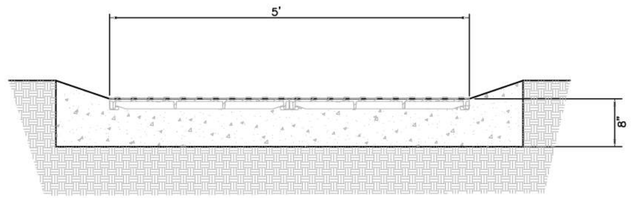


SIDEWALK RAMP #2 & #4

5 N.T.S.
SECTION C–C



RAMP PROFILE



RAMP SECTION

7 N.T.S.
DETECTABLE WARNING PLATE INSTALLATION DETAIL

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ADA DETAILS
PUBLIC IMPROVEMENT PLANS

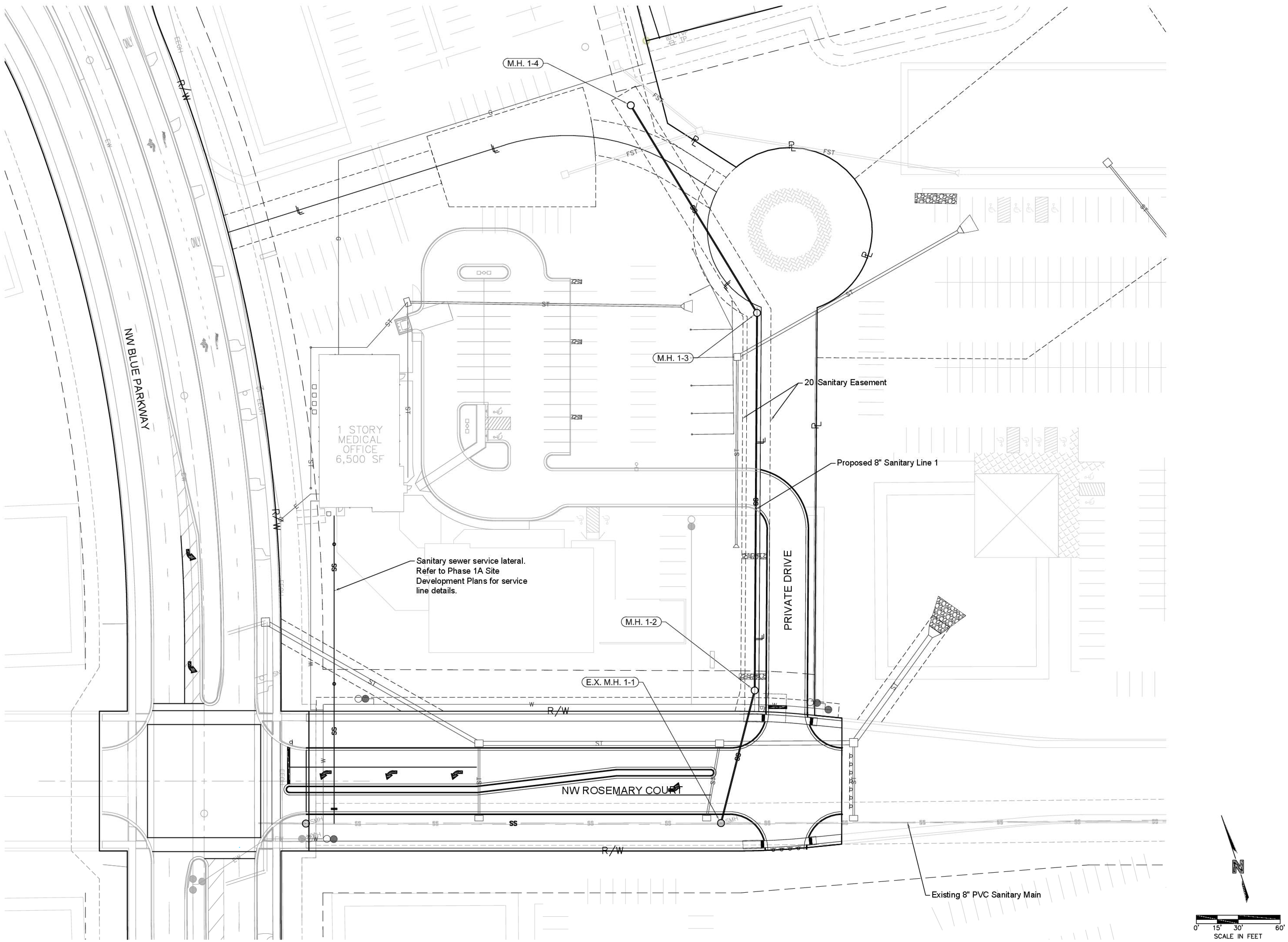
SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C420



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2017

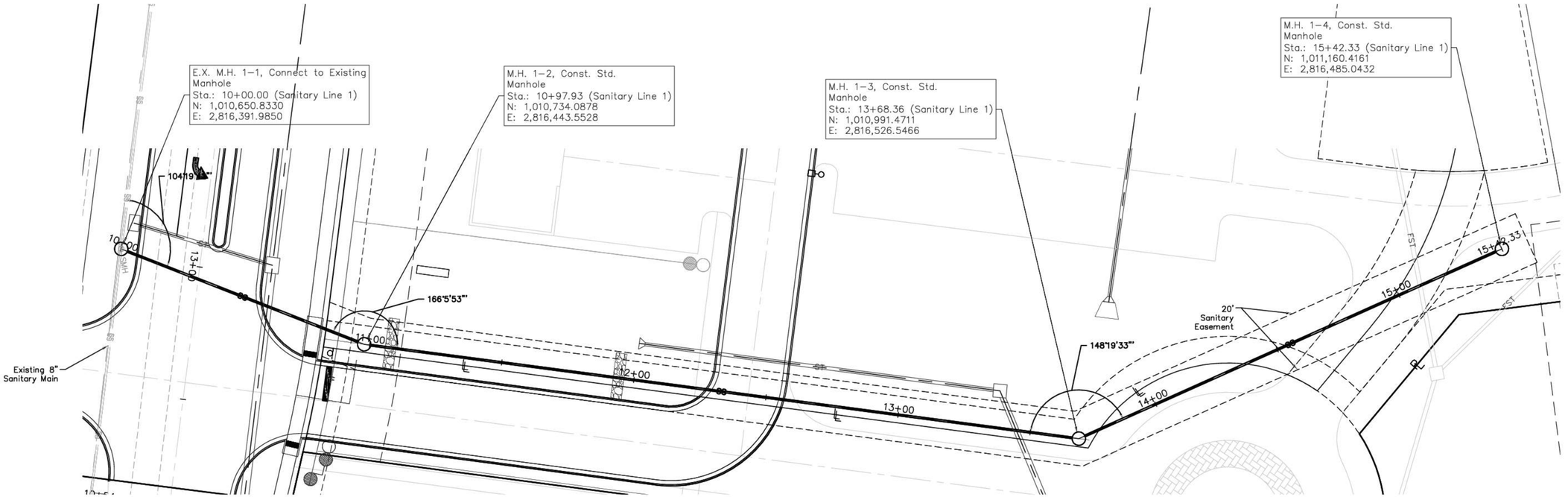
SANITARY SEWER GENERAL LAYOUT
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

drawn by:	G.S.
checked by:	P.J.O.
designed by:	M.J.D.
QA/QC by:	K.S.J.
project no.:	016-3182
date:	2017.04.06

SHEET
C501



Sanitary Sewer Design Information

Upstream Manhole	Downstream Pipe Slope	Downstream Pipe Diameter	Proposed Cumulative Area	Future Cumulative Area	Minimum Hourly Peak Design Flow	Proposed Cumulative Peak Flows	Future Cumulative Peak Flows	Downstream Pipe Mannings N	Downstream Pipe Capacity	Downstream Pipe Full Flow Velocity
	(%)	(in)	(Ac.)	(Ac.)	(cfs/ac)	(cfs)	(cfs)		(cfs)	(fps)
EX. M.H. 1-1	3.43%	8	0.00	11.32	0.02	0.000	0.226	0.013	2.24	6.42
M.H. 1-2	0.60%	8	0.00	1.53	0.02	0.000	0.031	0.013	0.93	2.68
M.H. 1-3	0.80%	8	0.00	1.53	0.02	0.000	0.031	0.013	1.08	3.09
M.H. 1-4	0.99%	8	0.00	0.83	0.02	0.000	0.017	0.013	1.20	3.44

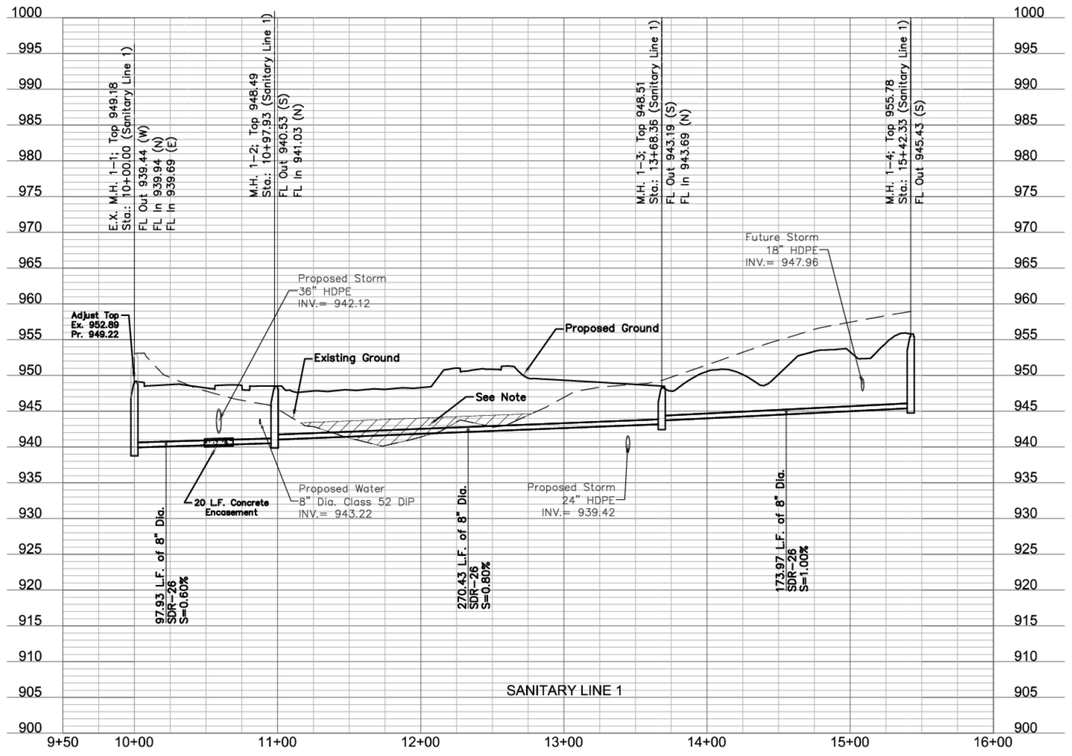
NOTES:
ALL SERVICE LINE CONNECTIONS SHALL BE MADE WITH AN 8"X4" PVC WYE, 4"PVC 45° BEND, OR AN 8"X4" TEE, AND THE APPROPRIATE LENGTH OF 4" PVC LATERAL (UNLESS OTHERWISE SHOWN) AND CAP.

MBFE– INDICATES LOWEST FLOOR SERVICEABLE BY PROPOSED SANITARY SEWER.

*IF THE SERVICE LINE IS TERMINATED AT THE WYE CONNECTION WITH NO ADDITIONAL 4"PVC LATERAL, THE LENGTH SHOWN IS "0".

MAXIMUM DEVIATION FROM LATERAL STATION LOCATIONS AS CALLED OUT SHALL BE 2.0' TO AVOID PIPE JOINT.

SANITARY LATERALS ARE DESIGNED @ 2.00% SLOPE. IF RISER IS INDICATED, IS TO BE AT THE SANITARY MAIN, UNLESS OTHERWISE NOTED.



COMPACTION NOTE: Contractor shall fill and compact to 95% standard density to a point 18" Minimum above the top of pipe prior to excavation for the pipe.

20' 10' 5' 0'
0' 25' 50' 100'
SCALE IN FEET

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SANITARY SEWER PLAN & PROFILE
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C502

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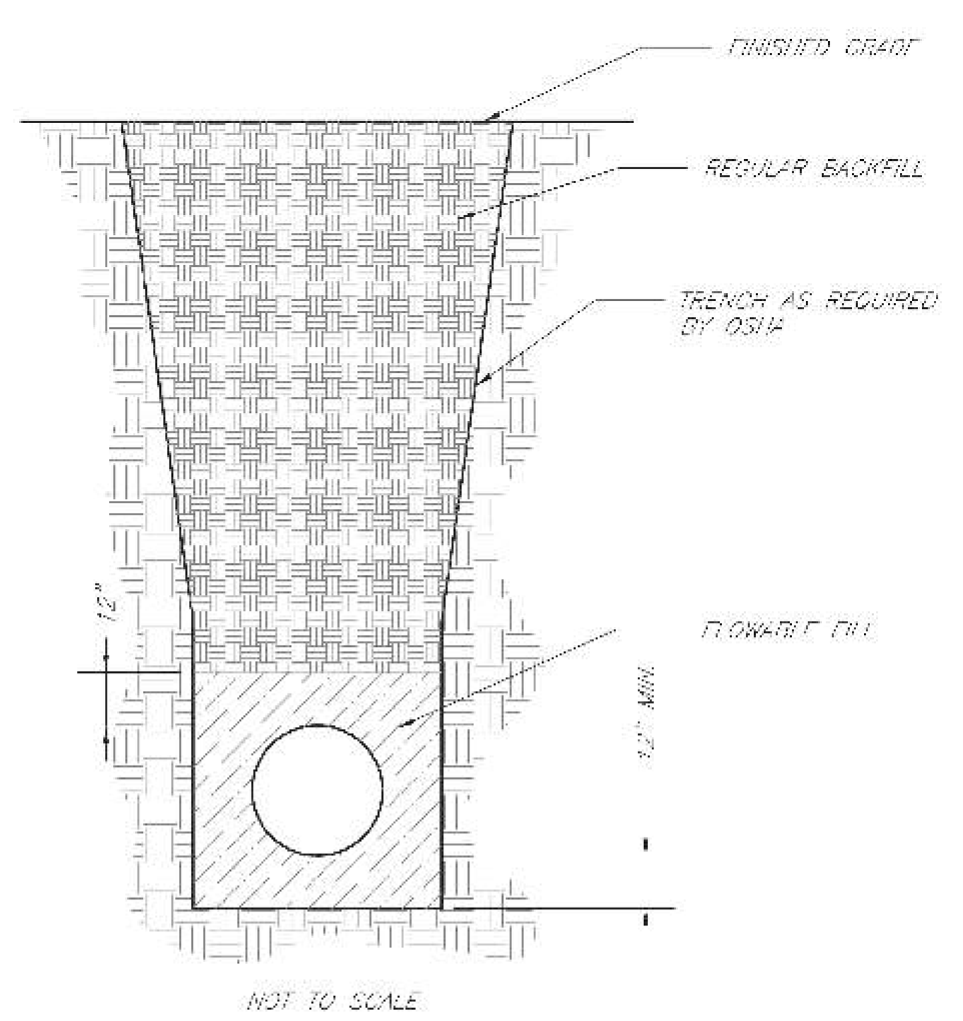
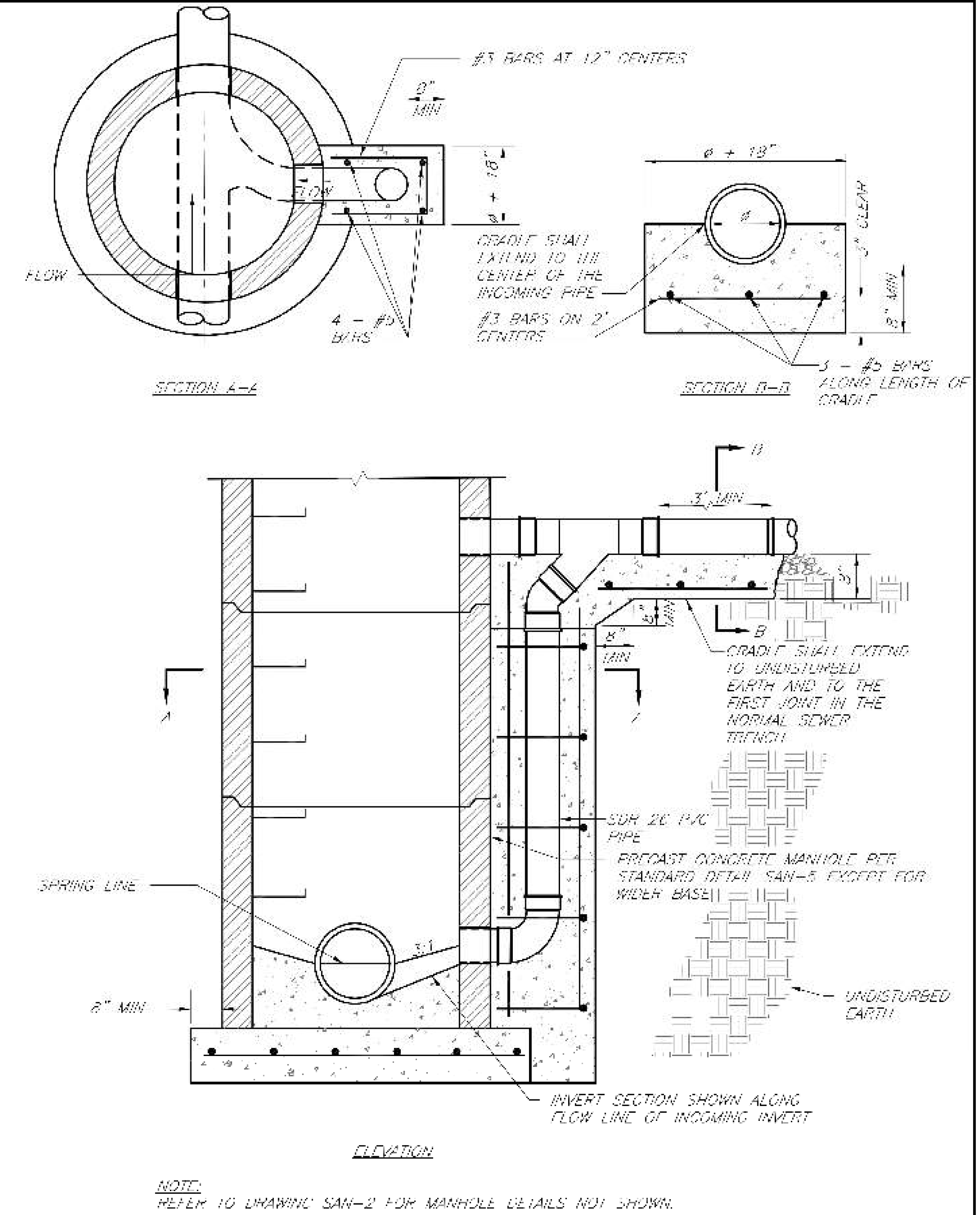


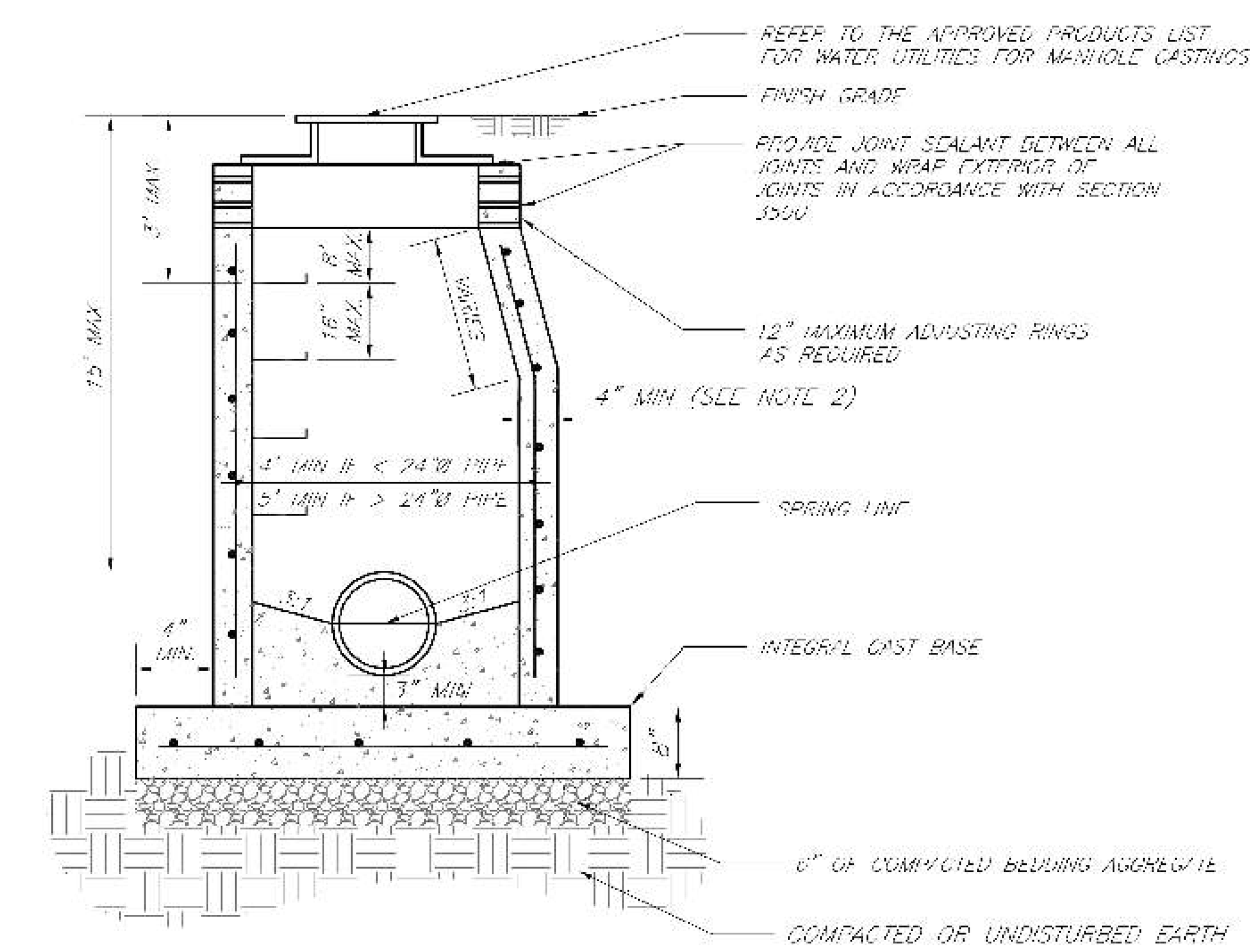
NOTES:
1. FLOWABLE FILL SHALL MEET THE REQUIREMENTS OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.
2. REGULAR BACKFILL ABOVE THE TRENCH CHECK SHALL BE FREE OF DEBRIS, ORGANIC MATTER, AND STONES > 6" IN ANY DIMENSION.
3. TOP OF FLOWABLE BACKFILL SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE.
4. LENGTH OF TRENCH CHECK SHALL BE A MINIMUM OF 12'.

LEE'S SUMMIT MISSOURI — TRENCH CHECK



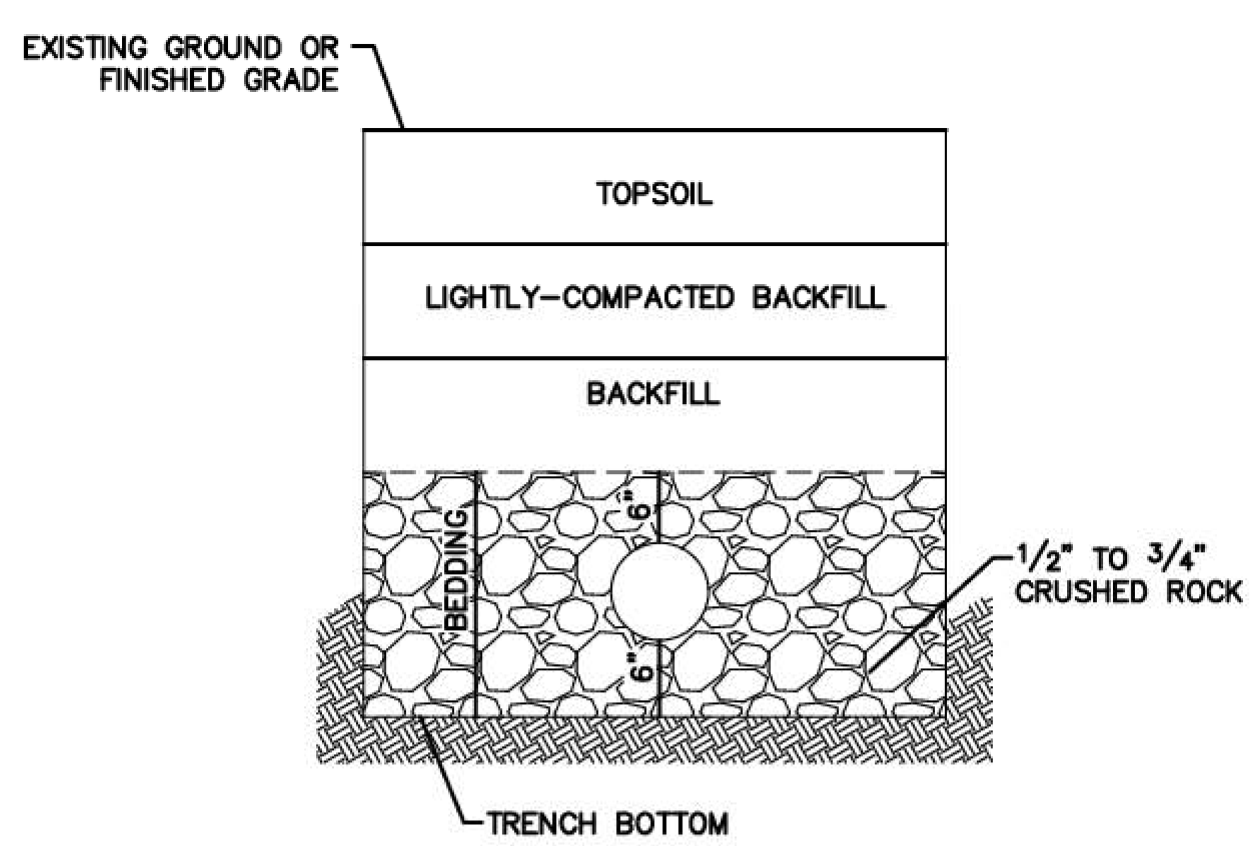
NOTE: REFER TO DRAWING SAN-2 FOR MANHOLE DETAILS NOT SHOWN.

LEE'S SUMMIT MISSOURI — DROP SANITARY SEWER MANHOLE



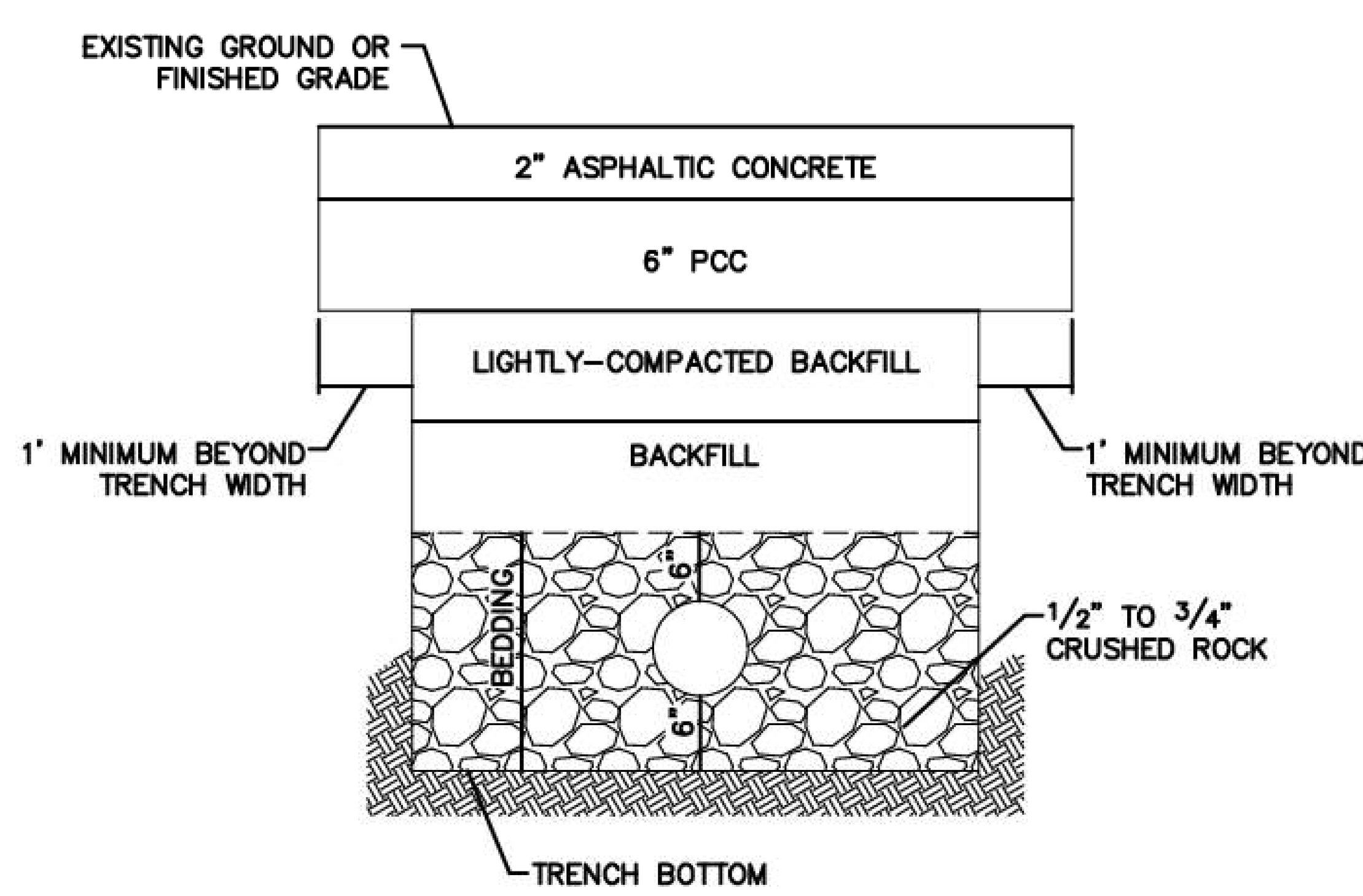
NOTES:
1. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478 EXCEPT AS MODIFIED BY THE SPECIFICATIONS.
2. A WALL THICKNESS NOT LESS THAN ONE-TWELFTH (1/12) OF THE INSIDE DIAMETER OR 4", WHICHEVER IS GREATER, SHALL BE USED WHEN THE MANHOLE DEPTH IS LESS THEN 15'.
3. WATERPROOFING SHALL BE REQUIRED ON THE OUTSIDE OF MANHOLES. THE WATERPROOFING SHALL CONSIST OF A TOTAL DRY FILM THICKNESS OF NOT LESS THAN 14 MILS OF BITUMINOUS COATING.
4. ONLY ECCENTRIC MANHOLE CONES WILL BE ALLOWED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
5. THE FILL CONCRETE FLOW CHANNEL FOR SIDE BRANCHES SHALL BE PLACED TO PROVIDE A SMOOTH TRANSITION INTO THE FLOW LINE.
6. REFER TO THE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR APPROVED MANHOLE GASKET MODELS.
7. REFER TO THE APPROVED PRODUCTS LIST FOR APPROVED STEPS.

LEE'S SUMMIT MISSOURI — STANDARD PRECAST MANHOLE – SANITARY SEWER



UNDERGROUND PIPE INSTALLATION FOR SANITARY SEWER

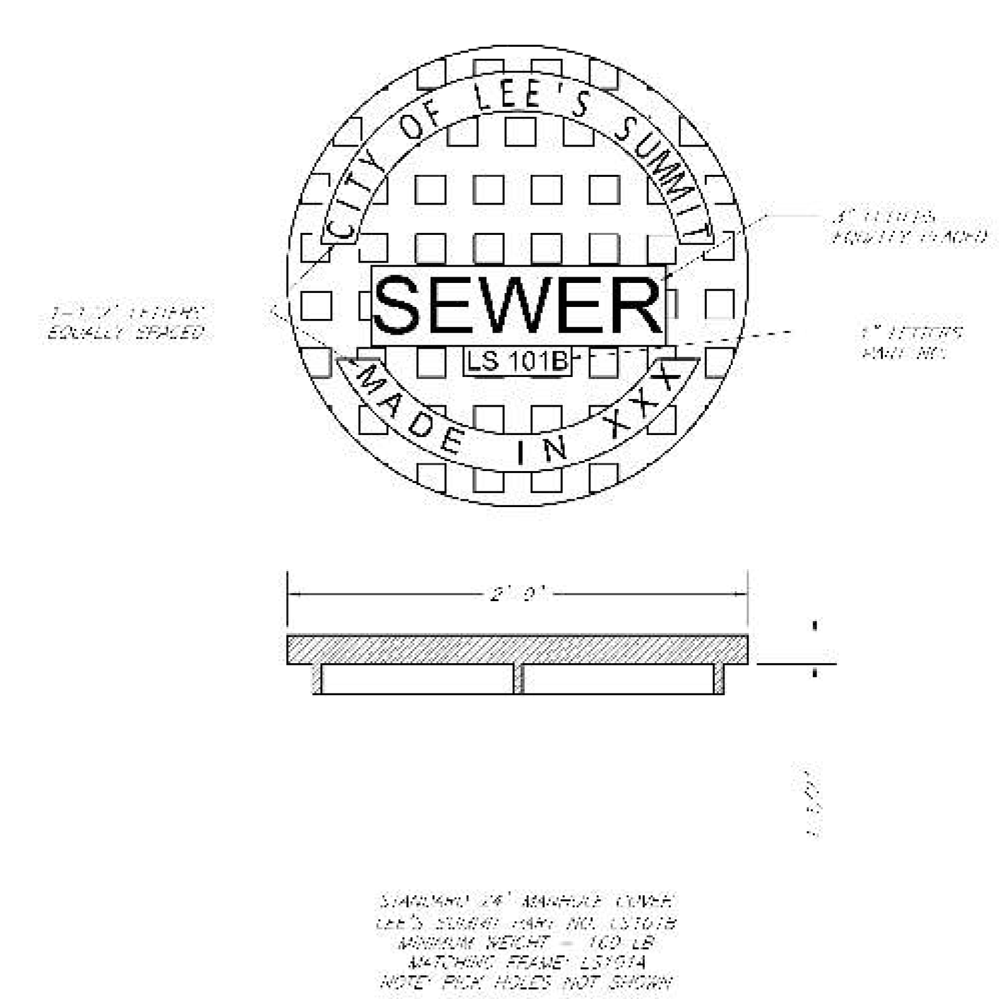
N.T.S.



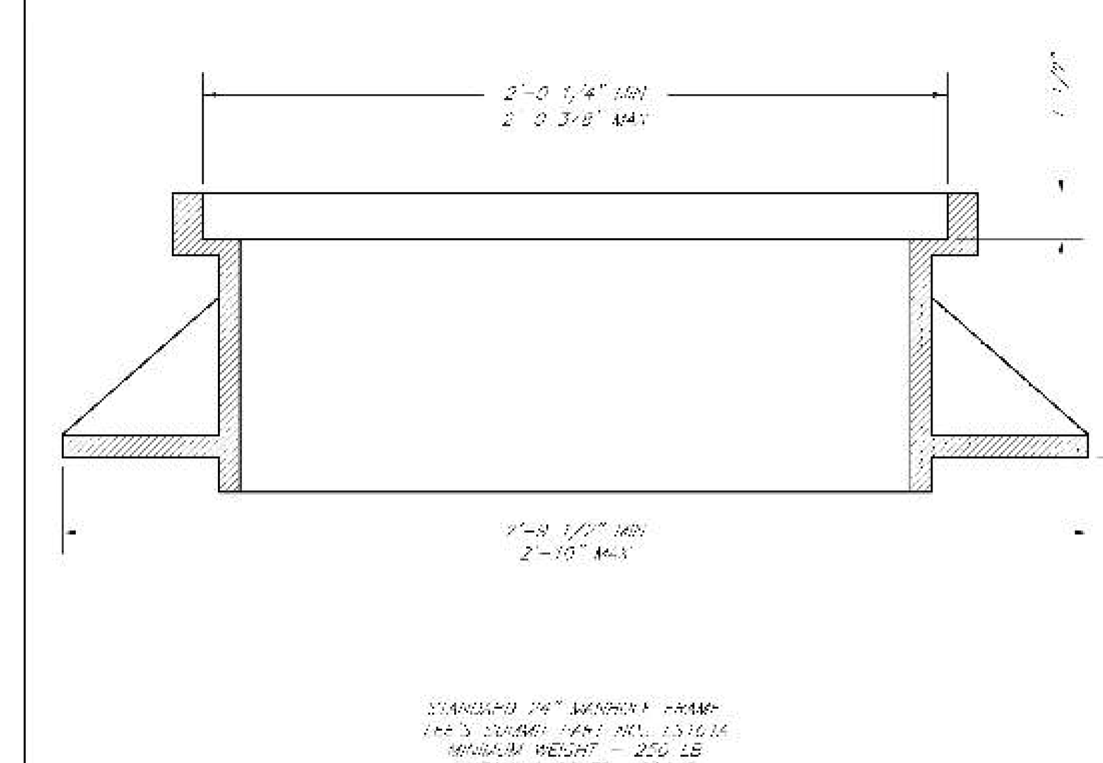
UNDERGROUND PIPE INSTALLATION FOR SANITARY SEWER WHEN PAVEMENT PRESENT

N.T.S.

NOTES:
1. A MINIMUM OF 36 INCHES OF COVER SHALL BE OVER THE TOP OF THE PIPE. THIS MINIMUM OF COVER SHALL BE FROM THE TOP OF PIPE TO THE FINISHED GRADE.
2. BEDDING AGGREGATE SHALL BE PLACED FROM A LEVEL 6 INCHES BELOW THE BOTTOM OF THE PIPE TO A LEVEL 6 INCHES ABOVE THE TOP OF THE PIPE.
3. TRENCH BACKFILL IN PAVED AREAS WITHIN STREET OR ALLEY RIGHT OF WAYS
a. NARROW TRENCH: SUITABLE BACKFILL MATERIAL FOR TRENCHES 24 INCHES OR LESS IN WIDTH AND SHALL BE TYPE A FLOWABLE FILL.
b. STANDARD TRENCH: SUITABLE BACKFILL MATERIAL FOR TRENCHES BETWEEN 24 TO 48 INCHES WIDE SHALL BE EITHER TYPE A FLOWABLE FILL OR DENSE, WELL GRADED AGGREGATE BASE MATERIAL. AGGREGATE BASE MATERIAL SHALL MEET THE REQUIREMENTS FOR KDOT AB-3; MODOT TYPES 1 OR 5; OR APWA 2202.2.
c. WIDE TRENCH: SUITABLE BACKFILL MATERIAL FOR TRENCHES GREATER THAN 48 INCHES WIDE SHALL BE SUITABLE MATERIAL AS SPECIFIED FOR EARTH EMBANKMENT IN APWA STANDARD SPECIFICATIONS, SECTION 2102.2.C.
4. SUITABLE BACKFILL MATERIAL OUTSIDE OF PAVED AREAS WITHIN RIGHT OF WAY, AND ALL AREAS OUTSIDE RIGHT OF WAY, MAY BE SUITABLE MATERIAL AS SPECIFIED FOR EARTH EMBANKMENT IN APWA STANDARD SPECIFICATIONS, SECTION 2102.2.C. SUITABLE BACKFILL MATERIAL MAY ALSO BE OTHER TRENCH BACKFILL MATERIAL (FLOWABLE FILL OR AGGREGATE BASE) DEPENDING ON SITE CONDITIONS, TRENCH WIDTHS OR AT THE DIRECTION OF THE CITY'S ON SITE INSPECTOR.



CITY OF LEE'S SUMMIT, MO
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
STANDARD 24" MANHOLE COVER



CITY OF LEE'S SUMMIT, MO
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
STANDARD 24" MANHOLE FRAME

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	06-05-2017	City Review Comments	
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3	07-05-2017	City Review Comments	

REVISIONS

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SANITARY SEWER DETAIL SHEET
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C503

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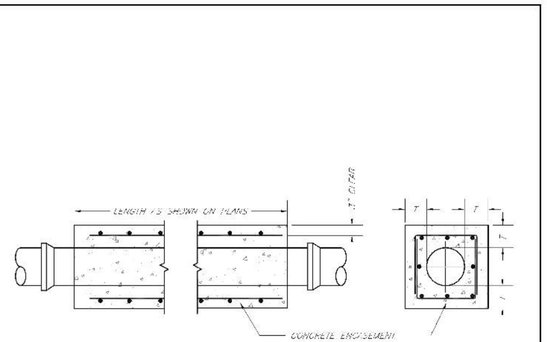
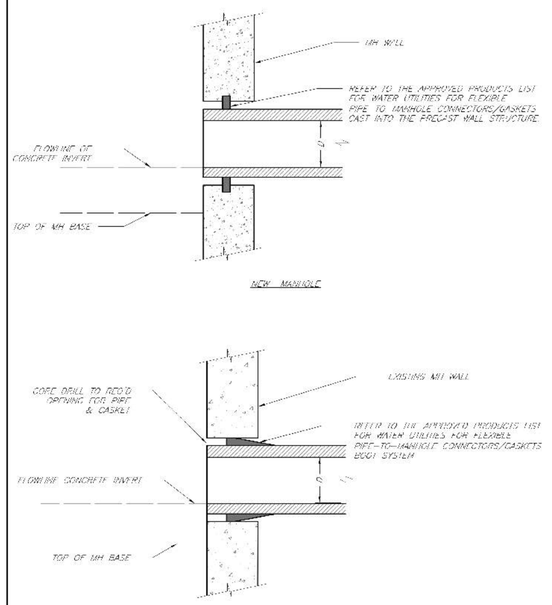
USER: ohilgedick



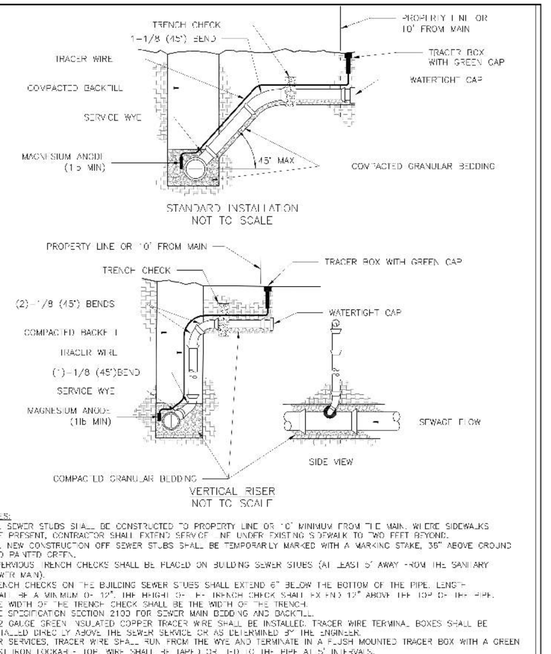
NOTES:

1. FOR PIPES LESS THAN 15", T = 6" MIN.
2. FOR PIPES 15" THRU 30", T = 9" MIN.
3. INTERMEDIATE BELLS SHALL BE ENCASED.
4. REINFORCING STEEL SHALL BE #4 @ 12" O.C. EACH WAY WITH A MINIMUM REBAR LAP OF 12".

LS	**LEE'S SUMMIT** MISSOURI PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063	Date: 09/11 Drawn By: JH Checked By: ? D.E. Tab: ? Rev: 7/14 Rev:
	SANITARY PIPE ENCASEMENT	



LS	**LEE'S SUMMIT** MISSOURI PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063	Date: 04/15 Drawn By: JH Checked By: ID Tab: SM-6 Rev: 7/14 Rev:
	MANHOLE WALL CONNECTIONS	



NOTES:

1. ALL SEWER STUBS SHALL BE CONSTRUCTED TO PROPERTY LINE OR "0" MINIMUM FROM THE MAIN. WHERE SIDEWALKS ARE PRESENT, CONTRACTOR SHALL EXTEND SERVICE LINE UNDER EXISTING SIDEWALK TO TWO FEET BEYOND.
2. ALL NEW CONSTRUCTION OFF SEWER STUBS SHALL BE TEMPORARILY MARKED WITH A MARKING STAKE, 36" ABOVE GROUND AND PAINTED GREEN.
3. IMPERVIOUS TRENCH CHECKS SHALL BE PLACED ON BUILDING SEWER STUBS (AT LEAST 5' AWAY FROM THE SANITARY SEWER MAIN).
4. TRENCH CHECKS ON THE BUILDING SEWER STUBS SHALL EXTEND 6" BELOW THE BOTTOM OF THE PIPE. LENGTH SHALL BE A MINIMUM OF 12". THE HEIGHT OF THE TRENCH CHECK SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE. THE WIDTH OF THE TRENCH CHECK SHALL BE THE WIDTH OF THE TRENCH.
5. SEE SPECIFICATION SECTION 2100 FOR SEWER MAIN BEDDING AND BACKFILL.
6. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER.
7. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP. WIRE SHALL BE TAPED OFF AND TIED TO THE PIPE AT 5' INTERVALS.
8. TRACER WIRE BOX SHALL BE INSTALLED WITHIN 1.0' OF PROPERTY LINE.
9. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

LS	**LEE'S SUMMIT** MISSOURI PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063	Date: 04/17 Drawn By: MJF Checked By: DL
	BUILDING SEWER STUB AND RISER	SAN-1

OLSSON ASSOCIATES

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3		07-06-2017		City Review Comments

SANITARY SEWER DETAIL SHEET
PUBLIC IMPROVEMENT PLANS

SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

LEE'S SUMMIT, MO

2017

drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.S.J.
project no.: 016-3182
date: 2017.04.06

SHEET
C504

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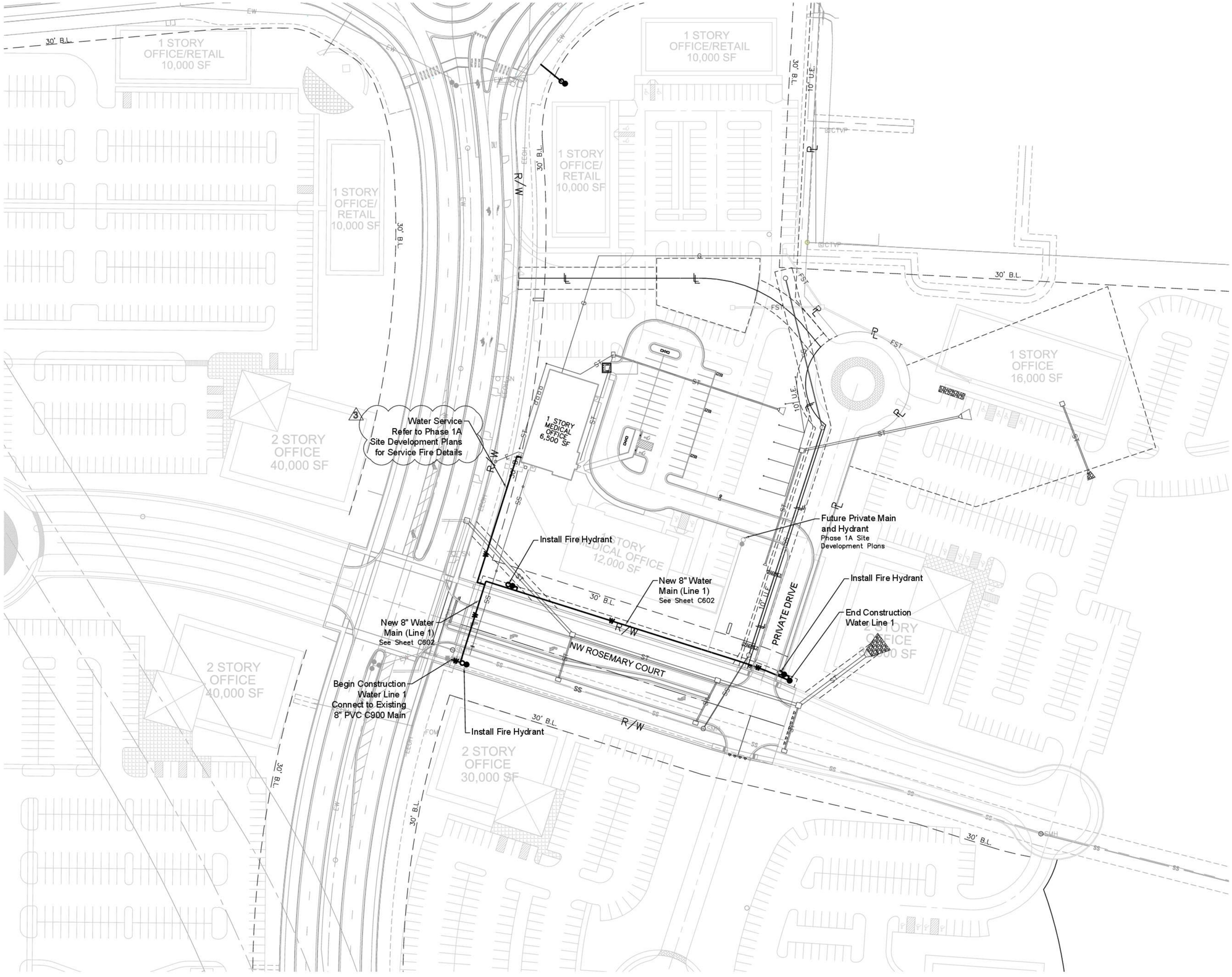

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WATER MAIN GENERAL LAYOUT
PUBLIC IMPROVEMENT PLANS

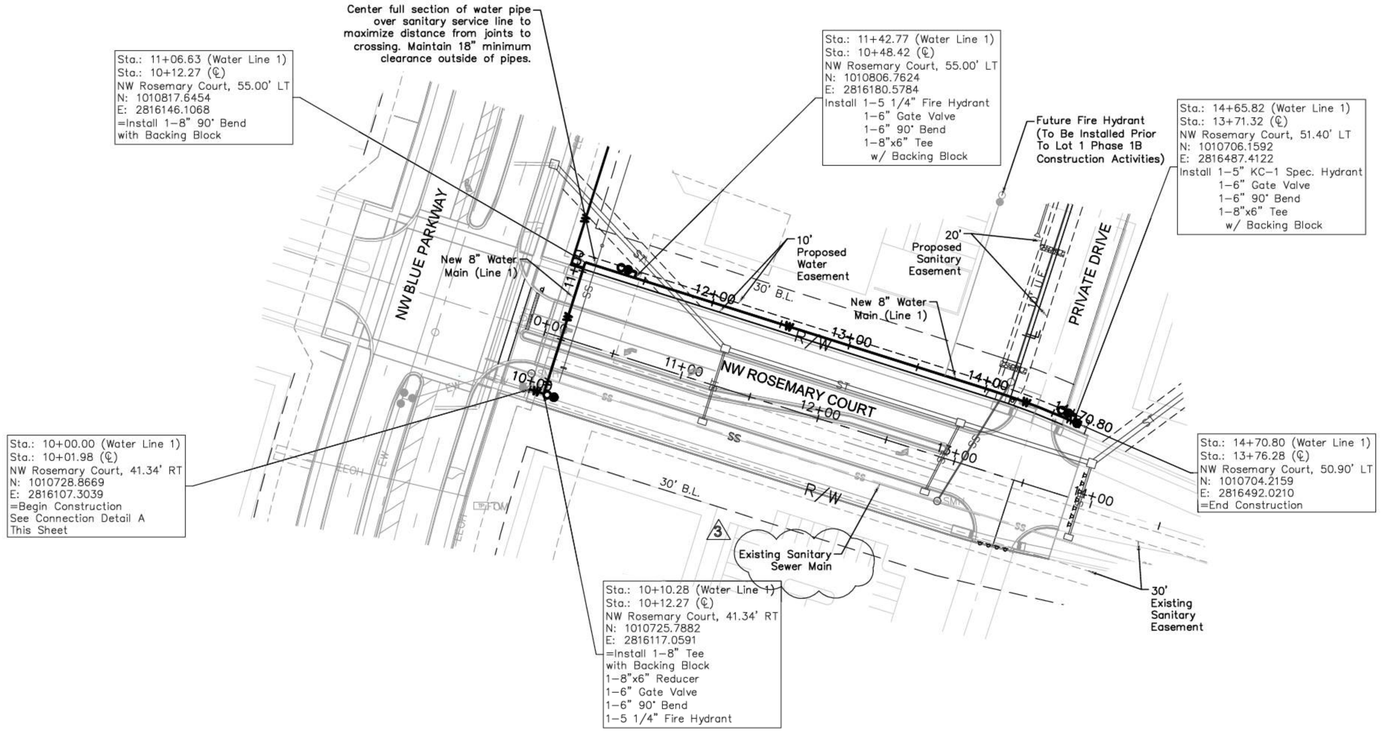
SUMMIT VILLAGE CORPORATE PARK
FIRST PLAT

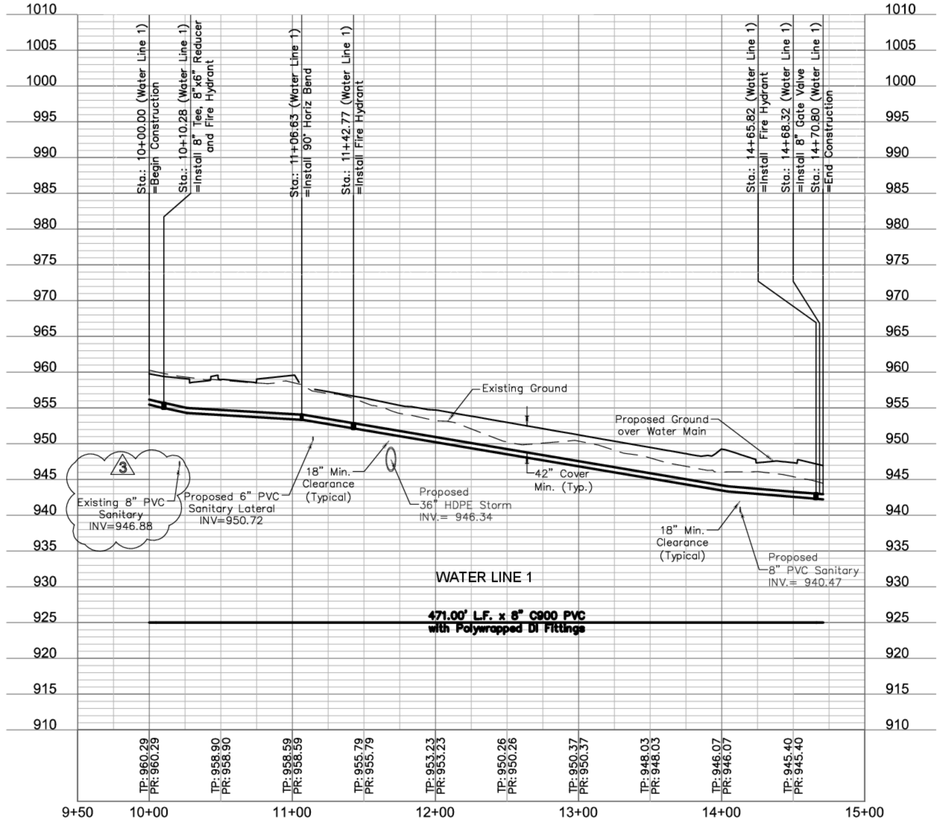
LEE'S SUMMIT, MO

2017

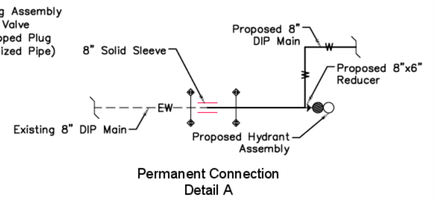
drawn by: G.S.
checked by: P.J.O.
designed by: M.J.D.
QA/QC by: K.B.J.
project no: 016-3182
date: 2017.04.06

SHEET
C601

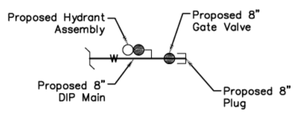




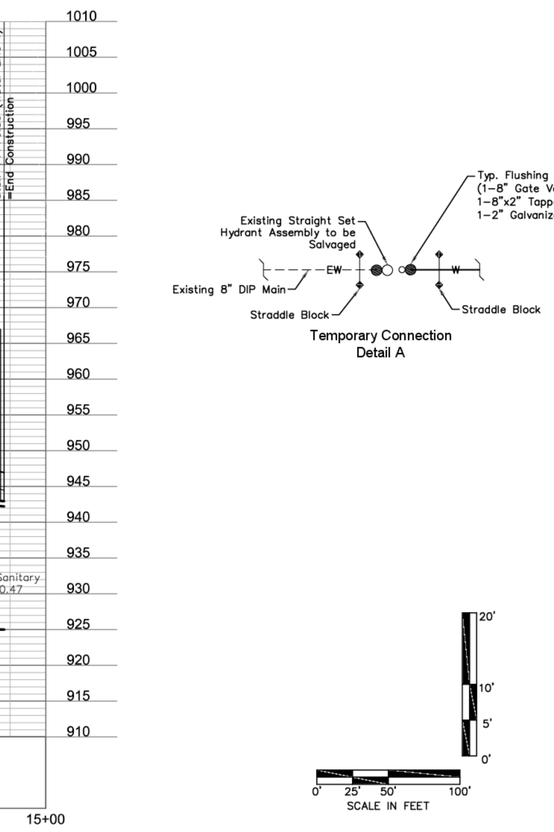
Temporary Connection
Detail A



Permanent Connection
Detail A



Permanent Connection
Detail B



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REVISIONS

NO/REV	DATE	DESCRIPTION	BY
1	06-05-2017	City Review Comments	
2	06-27-2017	City Review Comments	
3	07-05-2017	City Review Comments	

WATER MAIN PLAN & PROFILE
PUBLIC IMPROVEMENT PLANS

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SHEET
C602

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DATE: Jul 10, 2017 12:42pm