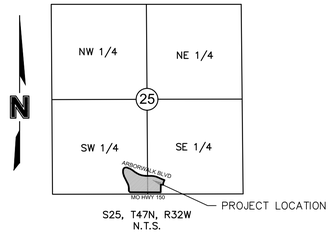
RAINTREE VILLAGE

FINAL DEVELOPMENT PLAN

1501 SW ARBORWALK BLVD.

LEE'S SUMMIT, MO



S25, T47N, R32W
N.T.S.

LOCATION MAP

PROJECT CONTACTS

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CIVIL ENGINEER:

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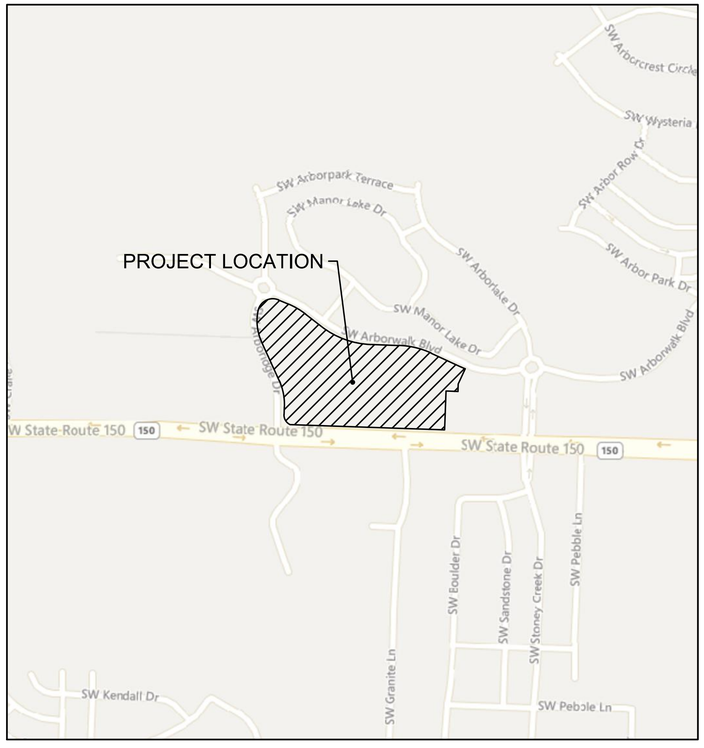

VICINITY MAP

PROPERTY DESCRIPTION:

A TRACT OF LAND IN THE SOUTHWEST AND SOUTHEAST 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 BY OR UNDER THE DIRECT SUPERVISION OF JASON S ROUDEBUSH, P.L.S. 2002014092 AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTHWEST QUARTER, ALSO BEING THE SOUTHWEST CORNER OF SAID SOUTHEAST QUARTER; THENCE SOUTH 87°53'43" EAST, 391.50 FEET TO THE SOUTHWEST CORNER OF AMENDED ARBORWALK – 6TH PLAT, LOTS 3001 THRU 3003 AND TRACT 6–A, A MINOR SUBDIVISION IN SAID LEE'S SUMMIT RECORDED JANUARY 6, 2006 AS INSTRUMENT NUMBER 2006I0002453 IN BOOK I91 AT PAGE 53 IN JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE NORTH 02°06'17" EAST, ON THE WESTERLY LINE OF SAID AMENDED ARBORWALK – 6TH PLAT, LOTS 3001 THRU 3003 AND TRACT 6–A, 70.00 FEET; THENCE NORTH 02°05'48" EAST, ON SAID WESTERLY LINE, 7.33 FEET TO A POINT ON THE EXISTING NORTHERLY RIGHT–OF–WAY LINE OF MISSOURI STATE HIGHWAY NO. 150, AS ESTABLISHED BY A MISSOURI STATE HIGHWAY NO. 150 SURVEY RECORDED ON JULY 9, 2009 AS INSTRUMENT NUMBER 2009E0068194 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE AND ALSO BEING THE POINT OF BEGINNING OF THE TRACT OF LAND TO BE HEREIN DESCRIBED; THENCE NORTH 88°02'15" WEST, ON SAID EXISTING NORTHERLY RIGHT–OF–WAY LINE, 864.32 FEET TO A POINT ON THE EXISTING EASTERLY RIGHT–OF–WAY LINE OF SW. ARBORIDGE DRIVE AS ESTABLISHED BY ARBORWALK 4TH PLAT, A–4 THRU K–4, RECORDED MAY 6, 2005 AS INSTRUMENT NUMBER 2005I0038320 IN BOOK I86 AT PAGE 73 IN SAID JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE NORTHWESTERLY ON SAID EXISTING EASTERLY RIGHT–OF–WAY LINE, ON A CURVE TO THE RIGHT HAVING AN INITIAL TANGENT BEARING OF NORTH 63°56'56" WEST WITH A RADIUS OF 60.00 FEET, A CENTRAL ANGLE OF 66°03'30" AND AN ARC DISTANCE OF 69.18 FEET; THENCE NORTH 02°06'35" EAST, ON SAID EXISTING EASTERLY RIGHT–OF–WAY LINE, 43.75 FEET; THENCE NORTHERLY, ON SAID EXISTING EASTERLY RIGHT–OF–WAY LINE, ON A CURVE TO THE LEFT BEING TANGENT TO THE LAST DESCRIBED COURSE WITH A RADIUS OF 325.00 FEET, A CENTRAL ANGLE OF 26°31'46" AND AN ARC DISTANCE OF 150.48 FEET; THENCE NORTH 24°25'11" WEST, ON SAID EXISTING EASTERLY RIGHT–OF–WAY LINE, 240.58 FEET; THENCE NORTHERLY, ON SAID EXISTING EASTERLY RIGHT–OF–WAY LINE ON A CURVE TO THE RIGHT BEING TANGENT TO THE LAST DESCRIBED COURSE WITH A RADIUS OF 275.00 FEET, A CENTRAL ANGLE OF 36°32'00" AND AN ARC DISTANCE OF 175.35 FEET; THENCE NORTHEASTERLY, ON SAID EXISTING EASTERLY RIGHT–OF–WAY LINE, ON A CURVE TO THE RIGHT HAVING A COMMON TANGENT WITH THE LAST DESCRIBED COURSE WITH A RADIUS OF 84.00 FEET, A CENTRAL ANGLE OF 100°32'29" AND AN ARC DISTANCE OF 147.40 FEET; TO A POINT ON THE EXISTING SOUTHERLY RIGHT–OF–WAY LINE OF SW. ARBORWALK BOULEVARD AS ESTABLISHED BY SAID ARBORWALK 4TH PLAT, A–4 THRU K–4; THENCE SOUTH 67°20'42" EAST, ON SAID EXISTING SOUTHERLY RIGHT–OF–WAY LINE, 59.12 FEET; THENCE SOUTHEASTERLY, ON SAID EXISTING SOUTHERLY RIGHT–OF–WAY LINE ON A CURVE TO THE RIGHT HAVING AN INITIAL TANGENT BEARING OF SOUTH 67°20'44" EAST WITH A RADIUS OF 420.00 FEET, A CENTRAL ANGLE OF 15°11'39" AND AN ARC DISTANCE OF 111.38 FEET; THENCE SOUTH 52°09'04" EAST, ON SAID EXISTING SOUTHERLY RIGHT–OF–WAY LINE, 113.01 FEET; THENCE EASTERLY, ON SAID EXISTING SOUTHERLY RIGHT–OF–WAY LINE, ON A CURVE TO THE LEFT BEING TANGENT TO THE LAST DESCRIBED COURSE WITH A RADIUS OF 480.00 FEET, A CENTRAL ANGLE OF 35°42'22" AND AN ARC DISTANCE OF 299.13 FEET; THENCE SOUTH 87°51'25" EAST, ON SAID EXISTING SOUTHERLY RIGHT–OF–WAY LINE, 157.54 FEET; THENCE EASTERLY, ON SAID EXISTING SOUTHERLY RIGHT–OF–WAY LINE, ON A CURVE TO THE RIGHT HAVING AN INITIAL TANGENT BEARING OF SOUTH 87°51'23" EAST WITH A RADIUS OF 470.00 FEET, A CENTRAL ANGLE OF 22°40'59" AND AN ARC DISTANCE OF 186.07 FEET; THENCE SOUTH 65°10'24" EAST, ON SAID EXISTING SOUTHERLY RIGHT–OF–WAY LINE, 183.16 FEET; THENCE SOUTHEASTERLY, ON SAID EXISTING SOUTHERY RIGHT–OF–WAY LINE, ON A CURVE TO THE LEFT BEING TANGENT TO THE LAST DESCRIBED COURSE WITH A RADIUS OF 530.03 FEET, A CENTRAL ANGLE OF 02°47'35" AND AN ARC DISTANCE OF 25.84 FEET TO THE NORTHWEST CORNER OF SAID AMENDED ARBORWALK – 6TH PLAT, LOTS 3001 THRU 3003 AND TRACT 6–A; THENCE ALONG A LINE NON–TANGENT TO SAID CURVE, SOUTH 24°49'36" WEST, ON SAID WESTERLY LINE OF SAID AMENDED ARBORWALK – 6TH PLAT, LOTS 3001 THRU 3003 AND TRACT 6–A; 92.90 FEET; THENCE SOUTH 02°05'48" WEST, ON SAID WESTERLY LINE, 41.91 FEET; THENCE NORTH 87°54'12" WEST, ON SAID WESTERLY LINE, 66.85 FEET; THENCE SOUTH 02°05'48" WEST, ON SAID WESTERLY LINE, 217.62 FEET TO THE POINT OF BEGINNING. CONTAINING 516,669 SQUARE FEET OR 11.86 ACRES, MORE OR LESS.

Note:

NO OIL OR GAS WELLS ARE LOCATED ON THE PROPERTY.
INFORMATION VERIFIED VIA MISSOURI DNR
https: //dnr.mo.gov/geology/geosrv/oilandgas.htm

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/2/23
PROFESSIONAL ENGINEER

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

TITLE SHEET

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN
LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_TTL01_A2104054
date: 08.10.2022

SHEET
C0.0

DWG: F:\2021\04001-04500\021-04054-01\40-design\AutoCAD\final plans\Sheets\GNCV\C_TTL01_A2104054.dwg USER: jhodson
DATE: Mar 01, 2023 4:41pm XREFS: C_PTBLK_A2104054

GENERAL NOTES

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

REFERENCES

1. ARCHITECTURAL AND STRUCTURAL ELEMENTS SHOWN IN THESE PLANS ARE FOR REFERENCE ONLY. CONTRACTORS AND SURVEYORS SHALL REFERENCE THEIR RESPECTIVE PLANS FOR DESIGN INFORMATION.
2. THE CONTRACTOR SHALL ADHERE TO THE SITE PREPARATION AND STRUCTURAL FILL RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AS PROVIDED BY THE GEOTECHNICAL ENGINEER INCLUDING ALL CURRENT ADDENDUMS. THE STANDARDS AND SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI SHALL ALSO APPLY AND TAKE PRECEDENCE WHEN STRICTER THAN THE GEOTECHNICAL REPORT OR WHEN NO GEOTECHNICAL REPORT IS GIVEN.
3. UNLESS EXPLICITLY DESCRIBED OTHERWISE WITHIN THESE PLANS THE FOLLOWING SHALL APPLY;
   A. ALL CONSTRUCTION, INCLUDING THOSE LISTED BELOW, SHALL CONFORM TO THE LATEST CODES AND ORDINANCES OF LEE'S SUMMIT, MISSOURI.
   B. ALL CONSTRUCTION IN MoDOT RIGHT-OF-WAY SHALL CONFORM TO THE LATEST SPECIFICATIONS ADOPTED BY U.S. DEPARTMENT OF TRANSPORTATION AND MoDOT.
   C. ALL TRAFFIC CONTROL SIGNAGE SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
   D. ALL UTILITY EXTENSIONS AND CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE UTILITY COMPANIES..
   E. ALL EXTERIOR PAVEMENT (PCC, ASPHALT, ETC.) SHALL BE IN CONFORMANCE WITH THE SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI AND THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
4. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE DELIVERY MANAGER AND COORDINATING ANY MAILBOXES THAT MAY BE DISTURBED. FAILURE TO DO SO MAY SUBJECT THE CONTRACTOR TO PROSECUTION BY THE FEDERAL GOVERNMENT.

EXISTING CONDITIONS

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

CONSTRUCTION

1. THE CONTRACTOR SHALL INSTALL TRAFFIC CONTROL WHILE WORKING IN THE PUBLIC RIGHT-OF-WAY AS SHOWN IN THESE PLANS. IF PLANS ARE NOT PROVIDED, CONTRACTOR SHALL COORDINATE AND PROVIDE CONTROLS TO THE SATISFACTION OF THE RIGHT-OF-WAY OWNER.
2. THE CONTRACTOR SHALL PROTECT ALL TREES OVER 3" CALIPER FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE ON THESE PLANS.
3. IN ADDITION TO THE CONDITIONS OF THE GEOTECHNICAL REPORT AND AS A MINIMUM THE CONTRACTOR SHALL PERFORM THE GRADING AS FOLLOWS:
   A. THE CONSTRUCTION AREA SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL AND ORGANIC MATTER FROM ALL AREAS TO BE OCCUPIED BY BUILDING AND PAVING. STRIPPING EXISTING TOPSOIL AND ORGANIC MATTER SHALL BE TO A MINIMUM DEPTH OF 6 INCHES. TOPSOIL FOR REPLACEMENT ON SLOPES MAY BE STOCKPILED ON SITE IN AREAS DESIGNATED BY THE OWNER. CONTRACTOR SHALL REMOVE EXCESS STRIPPINGS AND EXCESS EXCAVATION WITHIN 30 DAYS OF COMPLETION OF GRADING OPERATIONS.
   B. AREAS TO RECEIVE FILL AND AREAS CUT TO SUBGRADE LEVEL SHALL BE SCARIFIED AND THE TOP 8-INCH DEPTH COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE SUBGRADE SHALL BE PROOF ROLLED WITH A MODERATELY HEAVY LOADED DUMP TRUCK OR SIMILAR APPROVED CONSTRUCTION EQUIPMENT TO DETECT UNSUITABLE SOIL CONDITIONS. ANY UNSUITABLE AREAS SHALL BE UNDERCUT AND REPLACED WITH SUITABLE MATERIAL BEFORE ANY FILL MATERIAL CAN BE APPLIED.
   C. FILL SHALL BE PLACED IN MAXIMUM OF 8 INCH LIFTS.
   D. TOPSOIL SHALL BE PLACED TO A MINIMUM DEPTH OF 6 INCHES OVER ALL AREAS DISTURBED BY THE WORK. LARGE STONES, STICKS AND LUMPS SHALL BE REMOVED OR BROKEN UP, AND THE TOPSOIL SHALL BE LEVELED AND RAKED. ALL DISTURBED AREAS SHALL BE LANDSCAPED PER LANDSCAPE PLANS OR SHALL BE SEEDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED.
   E. CONTRACTOR SHALL PROVIDE COMPACTION TEST RESULTS AS REQUIRED.
4. THE CONTRACTOR SHALL DISPOSE ALL WASTE MATERIAL RESULTING FROM THE PROJECT OFF-SITE AND IN STRICT CONFORMANCE WITH ALL LOCAL CODES AND ORDINANCES.
5. ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS ARE TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED. NOT ALL ADJUSTMENTS ARE INDICATED IN THE PLANS.
6. THE CONTRACTOR SHALL STREET SWEEP OR OTHERWISE CLEAN ALL ACCESS ROUTES TO THE SITE AT CONCLUSION OF THE PROJECT.

SHOP DRAWINGS

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

SITE PLAN NOTES

1. ALL PAVEMENT DIMENSIONS ARE TO BACK OF CURB, OR EDGE OF PAVEMENT WHERE NO CURB IS PRESENT, UNLESS OTHERWISE NOTED. DIMENSIONED TIES BETWEEN PROPERTY LINES AND BUILDING FACES OR PAVEMENT ARE AS INDICATED. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ANY ADJUSTMENTS NECESSARY FOR FOUNDATIONS, BEDDING EXTENSIONS, SURCHARGING, ETC.
2. INSTALLED PAVEMENT SHALL MATCH EXISTING PAVEMENT IN GRADE AND ALIGNMENT TO PROVIDE SMOOTH SURFACE TRANSITIONS. INSTALLED CURB & GUTTER SHALL MATCH EXISTING CURB & GUTTER IN SIZE AND TYPE OR CONTRACTOR SHALL INCLUDE A TRANSITION FROM NEW TO EXISTING OF NO LESS THAN 5' AS MEASURED ALONG BACK OF CURB.
3 ALL ASPHALT PAVING SHALL BE IN CONFORMANCE WITH ALL LOCAL CODES AND ORDINANCES AND THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT. WHERE NOT COVERED BY THE ABOVE, ASPHALT PAVING SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF MoDOT.
4. ALL PCC PAVING SHALL BE IN CONFORMANCE WITH LOCAL CODES AND ORDINANCES AND THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT. WHERE NOT COVERED BY THE ABOVE, PCC PAVING SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF MoDOT.
5. CONCRETE PAVEMENT JOINTS SHALL BE CONSTRUCTED AS FOLLOWS (REFER TO HARDSCAPE PLANS FOR SPECIFIC TREATMENT OF THESE AREAS):
   A. CONTROL JOINTS SPACED AS SHOWN IN THESE PLANS OR AT INTERVALS NOT GREATER THAN 1.5x PANEL WIDTH OR 12 FEET (WHICHEVER IS SMALLER).
   B. CONTROL JOINTS SHALL BE TOOLED OR SAWCUT TO ¼ THE SLAB THICKNESS. LOCAL STANDARDS AND SPECIFICATIONS SHALL TAKE PRECEDENCE WHERE MORE STRICT THAN THOSE LISTED HERE.
   C. CONSTRUCTION JOINTS PLACED AT THE END OF EACH POUR AND WHEN PAVING OPERATIONS ARE SUSPENDED FOR 30 MINUTES OR MORE.
   D. ISOLATION JOINTS PLACED WHERE THE PAVEMENT ABUTS THE BUILDING, DRAINAGE STRUCTURES AND OTHER FIXED STRUCTURES, CONSTRUCTED WITH A 1/2" NON-EXTRUDING FILLER, CLOSED-CELL FOAM RUBBER OR A BITUMEN-TREATED FIBER-BOARD, AND WITH A THICKENED EDGE, INCREASED BY 20 PERCENT, TAPERED TO THE REGULAR THICKNESS IN 5 FEET.
   E. ALL EXPANSION JOINTS SHALL BE FILLED AND SEALED WITH A PLASTIC JOINT SEALANT MATERIAL.
6. ACCESSIBLE PARKING
   A. STALLS SHALL BE SIGNED WITH CITY/ADA APPROVED SIGN AND CONSTRUCTED IN STRICT ACCORDANCE WITH CITY/ADA CODES AND ORDINANCES.
   B. ACCESSIBLE PARKING STALLS SHALL NOT EXCEED 2.00 PERCENT IN ANY DIRECTION. ACCESSIBLE SIDEWALKS HAVE A MAXIMUM CROSS SLOPE OF 2 PERCENT AND A MAXIMUM LONGITUDINAL SLOPE OF 5 PERCENT.
   C. STALLS SHALL BE MARKED BY THE INTERNATIONAL HANDICAPPED SYMBOL AT INDICATED PARKING SPACES. USE A SUITABLE TEMPLATE THAT WILL PROVIDE A PAVEMENT MARKING WITH SHARP EDGES AND ENDS.
7. PAVEMENT MARKINGS SHALL NOT BE APPLIED UNTIL LAYOUT, COLORS AND PLACEMENT HAVE BEEN VERIFIED WITH THE ARCHITECT AND ENGINEER, THE INSTALLED PAVEMENT IS ALLOWED TO AGE AS RECOMMENDED BY THE MANUFACTURER (MINIMUM OF 24 HOURS), AND THE PAVEMENT SURFACE HAS BEEN SWEPT AND CLEANED.
8. PAVEMENT MARKINGS SHALL INCLUDE TRAFFIC LANES, PARKING BAYS, AREAS RESTRICTED TO HANDICAPPED PERSONS, CROSSWALKS, AND OTHER DETAIL PAVEMENT MARKINGS SHOWN IN THESE PLANS.
9. ALL PARKING LOT STRIPING SHALL BE SINGLE LINE 4" WIDE WHITE STRIPES UNLESS OTHERWISE INDICATED WITHIN THESE PLANS. ALL ROAD STRIPING SHALL BE AS INDICATED WITHIN THESE PLANS.
10. CURBS AT FIRE LANES AS DESIGNATIONS BY THE FIRE MARSHAL SHALL BE PAINTED OR OTHERWISE INDICATED PER CITY OF CITY CODES AND ORDINANCES.
11. PAINT FOR MARKING PAVEMENT SHALL CONFORM TO FEDERAL HIGHWAY MARKING STANDARDS (FHMS) AND CITY OF CITY CODES AND ORDINANCES. USE FLAT BLACK, WHITE, OR YELLOW AS DIRECTED WITHIN PLANS OR IN CONFORMANCE WITH THE FHMS. UNLESS OTHERWISE SPECIFIED USE LATEX, WATER-BASE EMULSION, READY-MIXED, COMPLYING WITH FS TT-P-1952 WITH DRYING TIME OF LESS THAN 45 MINUTES.
12. APPLY ALL MARKINGS USING APPROVED MECHANICAL EQUIPMENT (WITH PROVISIONS FOR CONSTANT AGITATION OF PAINT), CAPABLE OF APPLYING THE MARKING WIDTHS AS SHOWN AND A MINIMUM WET FILM THICKNESS OF 15 MILS. USE PNEUMATIC SPRAY GUNS FOR HAND APPLICATION OF PAINT. ALL PAINTING EQUIPMENT AND OPERATIONS SHALL BE UNDER THE CONTROL OF EXPERIENCED TECHNICIANS THOROUGHLY FAMILIAR WITH EQUIPMENT AND MATERIALS AND MARKING LAYOUTS.

GRADING PLAN NOTES

1. THE CONTOUR LINES, SPOT ELEVATIONS AND BUILDING FLOOR ELEVATIONS SHOWN ARE TO FINISH GRADE, SURFACE OF PAVEMENT, TOP OF CURBS, ETC. REFER TO TYPICAL SECTIONS FOR PAVING, SLAB AND AGGREGATE BASE THICKNESS TO DEDUCT PAVEMENT DEPTH FROM ELEVATIONS SHOWN.
2. THE CONTRACTOR SHALL FINISH GRADE SLOPES AS SHOWN NO STEEPER THAN 1 FOOT VERTICAL IN 3 FEET HORIZONTAL.
3. THE CONTRACTOR SHALL GRADE LANDSCAPED AREAS TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING AND SIDEWALKS WHEN FINISH LANDSCAPE MATERIALS ARE IN PLACE.
4. SPOT ELEVATIONS ARE TO EDGE OF PAVEMENT, LIP OF CURB, OR FINISHED GRADE UNLESS OTHERWISE INDICATED. (SEE LEGEND)

STORM SEWER PLAN NOTES

1. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH LEE'S SUMMIT, MISSOURI.
2. ALL PIPE LENGTHS AND ELEVATIONS ARE CALCULATED LINEARLY FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
3. COORDINATES ARE PROVIDED AT THE CENTER OF STRUCTURE. ADDITIONAL COORDINATES PROVIDED ARE PER LOCAL CODES AND ORDINANCES OR AS AN AID WHEN ORIENTING THE BOX DURING INSTALLATION.
4. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF STORM SEWER.
5. STORM SEWER TRENCHES SHALL BE CONSTRUCTED SUCH THAT UNDISTURBED EXISTING SOIL OR FILL COMPACTED TO 95% PROCTOR DENSITY IS AT A DEPTH THAT IS 18" ABOVE TOP OF PROPOSED PIPE.
6. STRUCTURE INVERT CHANNELS SHALL BE SMOOTH, CIRCULAR, AND CONFORMING TO ½ THE ADJACENT PIPE SECTION (INVERT TO CENTER). CHANGES IN DIRECTION OF FLOW SHALL BE MADE WITH A SMOOTH CURVE AND MAINTAIN SHAPE THROUGHOUT. CHANGES IN GRADE OF ADJACENT PIPES SHALL BE TRANSITIONED SMOOTHLY AND EVENLY THROUGH THE STRUCTURE.
7. PIPE PENETRATIONS SHALL BE GROUTED TO ENSURE WATERTIGHT SEALS.

SANITARY SEWER PLAN NOTES

1. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH LEE'S SUMMIT, MISSOURI.
2. ALL PIPE LENGTHS ARE CALCULATED LINEARLY FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
3. COORDINATES ARE PROVIDED AT THE CENTER OF STRUCTURE. ADDITIONAL COORDINATES PROVIDED ARE PER LOCAL CODES AND ORDINANCES OR AS AN AID WHEN ORIENTING THE LID DURING INSTALLATION.
4. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF SANITARY SEWER.
5. SANITARY SEWER TRENCHES SHALL BE CONSTRUCTED SUCH THAT UNDISTURBED EXISTING SOIL OR FILL COMPACTED TO 95% PROCTOR DENSITY IS AT A DEPTH THAT IS 18" ABOVE TOP OF PROPOSED PIPE.
6. MANHOLE INVERT CHANNELS SHALL BE SMOOTH, CIRCULAR, AND CONFORMING TO ½ THE ADJACENT PIPE SECTION (INVERT TO CENTER). CHANGES IN DIRECTION OF FLOW SHALL BE MADE WITH A SMOOTH CURVE AND MAINTAIN SHAPE THROUGHOUT. CHANGES IN GRADE OF ADJACENT PIPES SHALL BE TRANSITIONED SMOOTHLY AND EVENLY THROUGH THE MANHOLE.
7. PIPE PENETRATIONS SHALL BE USE GASKETS TO ENSURE WATERTIGHT SEALS.
8. TRACING TAPE SHALL BE INSTALLED ALONG ALL NON-METALLIC SURFACES OR AS DIRECTED BY LOCAL CODES AND ORDINANCES.
9. SEWER LINE INSPECTIONS AND TESTING MUST BE SCHEDULED A MINIMUM OF TWO FULL BUSINESS DAYS IN ADVANCE. CONTRACTOR SHALL FURNISH ALL TESTING EQUIPMENT. TESTING SHALL INCLUDE
   A. MANDREL TEST OF ALL GRAVITY SEWERS. IF THE MANDREL TEST FAILS ON ANY SECTION OF PIPE, THAT SECTION SHALL BE UNCOVERED AND REPLACED.
   B. AIR PRESSURE TEST OF ALL GRAVITY SEWERS.
   C. VACUUM TEST OF ALL MANHOLES.
10. GRAVITY SANITARY SEWER AND WATER LINES SHALL BE SEPARATED BY A MINIMUM OF 10' HORIZONTALLY WHEN PARALLEL AND 2' VERTICALLY WHEN CROSSING. WATER LINES SHALL CROSS ABOVE SANITARY SEWERS.

WATER PLAN NOTES

1. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH UTILITY OWNER.
2. ALL PIPE LENGTHS ARE CALCULATED LINEARLY FROM CENTER OF FITTING OR WALL OF VAULT.
3. COORDINATES ARE PROVIDED ALONG PIPE CENTERLINE. ADDITIONAL COORDINATES PROVIDED ARE PER LOCAL CODES AND ORDINANCES OR AS AN AID WHEN ORIENTING INSTALLATIONS.
4. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF WATER.
5. WATER PIPE TRENCHES SHALL BE CONSTRUCTED SUCH THAT UNDISTURBED EXISTING SOIL OR FILL COMPACTED TO 95% PROCTOR DENSITY IS AT A DEPTH THAT IS 18" ABOVE TOP OF PROPOSED PIPE.
6. ALL PRIVATE WATER LINES SHALL BE A MINIMUM OF 48 INCHES AND MAXIMUM OF 60 INCHES BELOW THE FINISHED GRADE ELEVATIONS SHOWN HEREIN UNLESS OTHERWISE NOTED.
7. IF AN AS-BUILT OF A WATER LINE IS REQUIRED OR EXPECTED THE CONTRACTOR SHALL NOT BACKFILL THE TRENCH UNTIL AN AS-BUILT SURVEY IS CONDUCTED.
8. DISINFECTION AND PRESSURE TESTING OF WATER LINES SHALL BE PERFORMED AND PAID FOR BY THE CONTRACTOR AND AS REQUIRED BY THE UTILITY OWNER.
9. BALL EXISTING FIRE HYDRANTS ON SITE OR IN THE RIGHT-OF-WAY BETWEEN PROPERTY AND ROADWAY SHALL BE REPAINTED PER LOCAL CODES AND ORDINANCES.
10. TRACING TAPE SHALL BE INSTALLED ALONG ALL NON-METALLIC SURFACES OR AS DIRECTED BY LOCAL CODES AND ORDINANCES.

DEMOLITION PLAN NOTES

1. ALL NECESSARY DEMOLITION IS EXPECTED TO BE PERFORMED AS INDICATED IN THE SITE DISTURBANCE, MASS GRADING, AND PUBLIC IMPROVMENT PLANS. CONTRACTOR SHALL CONTACT ENGINEER AND OWNER PRIOR TO PERFORMING ANY ADDITIONAL DEMOLITION ACTIVITIES.
2. THE CONTRACTOR SHALL COORDINATE ALL ITEMS TO BE SALVAGED AND/OR PROTECTED WITH SITE OWNER AND UTILITY OWNERS.
3. THE CONTRACTOR SHALL NOT INTERRUPT ANY UTILITY SERVICES TO ANY ADJACENT PROPERTIES. SHOULD ANY INTERRUPTIONS BECOME NECESSARY, THE CONTRACTOR SHALL COORDINATE WITH THE ADJACENT PROPERTY AND UTILITY OWNER AND MINIMIZE THE LENGTH OF TIME THE UTILITY IS INTERRUPTED TO THE GREATEST EXTENT POSSIBLE.
4. SECONDARY WIRING, SERVICES, IRRIGATION AND OTHER MINOR SITE IMPROVEMENTS THAT ARE NOT TO REMAIN IN SERVICE ARE TO BE DEMOLISHED AND REMOVED.
5. ALL PAVEMENT SAWCUTS ARE TO BE MADE IN STRAIGHT, CLEAN LINES LEAVING A CLEAN AND STABLE EDGE AT FULL PAVEMENT DEPTH.
6. ALL PCC PAVEMENT AND ALL CURB SHALL BE REMOVED TO NEAREST JOINT.
7. ALL MATERIALS REMOVED FROM THE SITE SHALL BE DISPOSED OF IN STRICT CONFORMANCE WITH LOCAL CODES AND ORDINANCES.
8. ALL TREE REMOVAL SHALL INCLUDE STUMPS AND ROOTS. DEPRESSIONS CREATED SHALL BE FILLED TO PROVIDE DRAINAGE.

DRY UTILITY PLAN NOTES

1. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH UTILITY OWNER.
2. ALL ON-SITE WIRING AND CABLES SHALL BE PLACED UNDERGROUND AND WITHIN CONDUIT UNLESS OTHERWISE SPECIFIED IN THESE PLANS. IF NOT SPECIFIED, ALL CONDUIT SHALL BE IN CONFORMANCE WITH UTILITY OWNER STANDARDS AND SPECIFICATIONS.
3. TELEPHONE AND COMMUNICATION SERVICE ROUTING AND CONDUITS, IF SHOWN AT ALL, ARE SUGGESTED ALIGNMENTS ONLY. CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUIT AS REQUIRED BY MEP AND RELATED PLANS AS WELL AS SERVICE PROVIDER PRIOR TO PAVEMENT INSTALLATION.
4. ALL CONDUIT SHALL BE SCHEDULE 40 PVC PIPE AND SIZED PER MEP PLANS OR AS NOTED. CONDUIT SHALL BE SUFFICIENTLY FLEXIBLE TO ALLOW IT TO CONFORM TO MINOR CHANGES IN TRENCH DIRECTION OR ELEVATION. ALL OTHER BENDS SHALL BE MADE USING PRE-FORMED SWEEPS.

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/2/23
PROFESSIONAL ENGINEER

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

GENERAL NOTES

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21.04054
drawing no.: C_TTL01_A2104054
date: 08.10.2022

SHEET
C1.0

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DATE: Mar 01, 2023 4:41pm XREFS: C_PTBLK_A2104054

R=84.00'
Δ=100°32'29"
L=147.40'
ITB=N12°06'48"E

S67°20'42"E 59.12'

R=420.00'
Δ=015°11'39"
L=111.38'
ITB=S67°20'44"E

S52°09'04"E 113.01'

R=480.00'
Δ=035°42'22"
L=299.13'
ITB=S52°09'04"E

R=275.00'
Δ=036°32'00"
L=175.35'
ITB=N24°25'11"W

EXISTING 8" WATER STUB

SW ARBORWALK BLVD

SAW CUT & REMOVE 80 LF OF CURB AND GUTTER TO FULL DEPTH

S87°51'25"E 157.54'

SAW CUT & REMOVE 75 LF OF CURB AND GUTTER TO FULL DEPTH

R=470.00'
Δ=022°40'59"
L=186.07'
ITB=S87°51'23"E

S65°10'24"E 183.16'

R=530.03'
Δ=002°47'35"
L=25.84'
ITB=S65°10'24"E

SW ARBORIDGE DRIVE

N24°25'11"W 240.58'

REMOVE 20 L.F. 24 CORRIGATED METAL PIPE AND FES, ALONG WITH ASSOCIATED RIP RAP

S24°49'36"W 92.90'

15' U.E. 20' Block Wall (Plat)

MASONRY WALL

S02°05'48"W 41.91'

℄ 24' A.E. PER PLAT

N87°54'12"W 66.85'

LINE OF BUSHES

℄ 10' S.E. Per Plat

℄ 24' I.E. PER PLAT

R=325.00'
Δ=026°31'46"
L=150.48'
ITB=N02°06'35"E

N02°06'35"E 43.75'

REMOVE EXISTING LANDSCAPING (TYP.)

REMOVE EXISTING VEGETATION (TYP.)

TREELINE

STONE WALL

RIP RAP

EXISTING CONCRETE RETENTION WALL

S02°05'48"W 217.62'

℄ 24' I.E. PER PLAT

10' U.E 20' B.L. (Plat) (Plat)

N88°02'15"W 864.32'

R=60.00'
Δ=066°03'30"
L=69.18'
ITB=N63°56'56"W

MISSOURI STATE HW 150

EXISTING LEGEND

- SURVEY CONTROL POINT
- SURVEY BENCHMARK
- CABLE BOX
- TELEPHONE BOX
- ELECTRIC BOX
- ELECTRICAL POLE
- SIGN
- STORM MANHOLE
- STORM INTAKE
- SANITARY MANHOLE
- PROPERTY BOUNDARY
- 1370 EXISTING CONTOUR
- 1371 EXISTING CONTOUR
- SS EXISTING SANITARY LINE
- SD EXISTING STORM LINE
- W EXISTING WATER LINE
- REMOVE CURB AND GUTTER TO FULL DEPTH
- REMOVE EXISTING PIPE
- REMOVE EXISTING TREE/SHRUB

N

0' 25' 50' 100'
SCALE IN FEET

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
PROFESSIONAL ENGINEER
3/2/23

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1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

EXISTING CONDITIONS & DEMOLITION PLAN

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_EXC01_A2104054
date: 08.10.2022

SHEET
C2.0

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USER: jhodson

SITE DEVELOPMENT DATA

PHASE	Number of Floors	GROSS AREA (AC.)	NET AREA (AC.)	LAND USE	GROSS FLOOR AREA PARKING GARAGE (SF)	GROSS FLOOR AREA 1ST FLOOR (SF)	GROSS FLOOR AREA 2ND FLOOR (SF)	BUILDING COVERAGE (SF)	F.A.R.	# OF Dwelling Units	# OF BEDS	MAX # EMPLOYEES	PARKING STALLS REQUIRED				OPEN SPACE (SF / %)	IMPERVIOUS COVERAGE (SF / %)
													RATIO	REQUIRED*	PROVIDED			
Main Campus (ALU, ILU, SNF Wings)	2	11.86	11.86	Skilled Nursing	23,471	85,707	52,124	161,302	0.31	126	138	62	1 Space for 2 beds (138/2) + 1 Space (plus1) employee on max shift (62+1)	131	Surface	91	338,012.57 SF 65.4%	178,609.03 SF 34.6%
															Garage	46		
*PARKING CALCULATIONS BASED ON NUMBER OF BEDS OF RESIDENTS ALLOWED TO OWN AND OPERATE VECHICALS															TOTAL	137		

LEGEND

- INSTALL SIDEWALK PER SECTION ON SHEET C10.0
- INSTALL DRIVE AREA ASPHALT PAVEMENT PER SECTION ON SHEET C10.0
- INSTALL PARKING AREA ASPHALT PAVEMENT PER SECTION ON SHEET C10.0
- INSTALL HEAVY PCC PAVEMENT PER SECTION ON SHEET C10.0
- INSTALL STRAIGHT BACK "WET" CURB & GUTTER
- INSTALL STRAIGHT BACK "DRY" CURB & GUTTER
- TRANSITION BETWEEN "WET" AND "DRY" CURB & GUTTER
- INSTALL RIBBON CURB

KEYNOTES (X)

1. CONSTRUCT CONCRETE CURB & GUTTER, SEE LEGEND.
2. ACCESSIBLE PARKING AND RELATED CURB RAMP. SEE SPOT ELEVATION DETAILS FOR DETAILED DESIGN ON SHEET C4.5–C4.6.
3. ACCESSIBLE CURB RAMP. SEE SPOT ELEVATION DETAILS FOR DETAILED DESIGN ON SHEET C10.0
4. PROPOSED ACCESSIBLE PARKING SPACE SIGN, REFERENCE SHEET C10.0 FOR DETAIL.
5. PROPOSED GENERATOR. REFERENCE MEP PLANS FOR DETAILS
6. PROPOSED TRANSFORMER. REFERENCE MEP PLANS FOR DETAILS
7. PROPOSED TRASH ENCLOSURE, REFERENCE ARCHITECTURAL PLANS
8. CONTRACTOR SHALL ADJUST THE CURB PLACEMENT AS NECESSARY WITHIN 5' OF EXISTING CURB TO PROVIDE A SMOOTH TRANSITION FROM PROPOSED TO EXISTING. IF EXISTING CURB IS TO BE REMOVED, IT SHALL BE REMOVED TO THE NEAREST JOINT.
9. CONSTRUCT 5' WIDE PUBLIC SIDEWALK
10. FLAG POLE, SEE ARCHITECTURAL PLANS FOR DETAILS
11. MONUMENT SIGN, SEE ARCHITECTURAL PLANS FOR DETAILS
12. VINYL FENCE, SEE ARCHITECTURAL PLANS FOR DETAILS

15' (P.U.E.) PUBLIC UTILITY EASEMENT
SW ARBORWALK BLVD
LOT LINE
20.00' LANDSCAPE BUFFER
5' PUBLIC SIDEWALK
SW ARBORIDGE DRIVE
20' LANDSCAPE BUFFER
2' SIDEWALK EASEMENT
STONE WALL
36.00' UTILITY EASEMENT
CCRC BLDG 91,380 SF
ROCK WALL
PROPERTY LINE
20' LANDSCAPE BUFFER
MISSOURI STATE HW 150

0' 20' 40' 80'
SCALE IN FEET

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
PROFESSIONAL ENGINEER
3/2/23

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1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

SITE PLAN

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN
LEE'S SUMMIT, MO
2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_SIT01_A2104054
date: 08.10.2022

SHEET
C3.0

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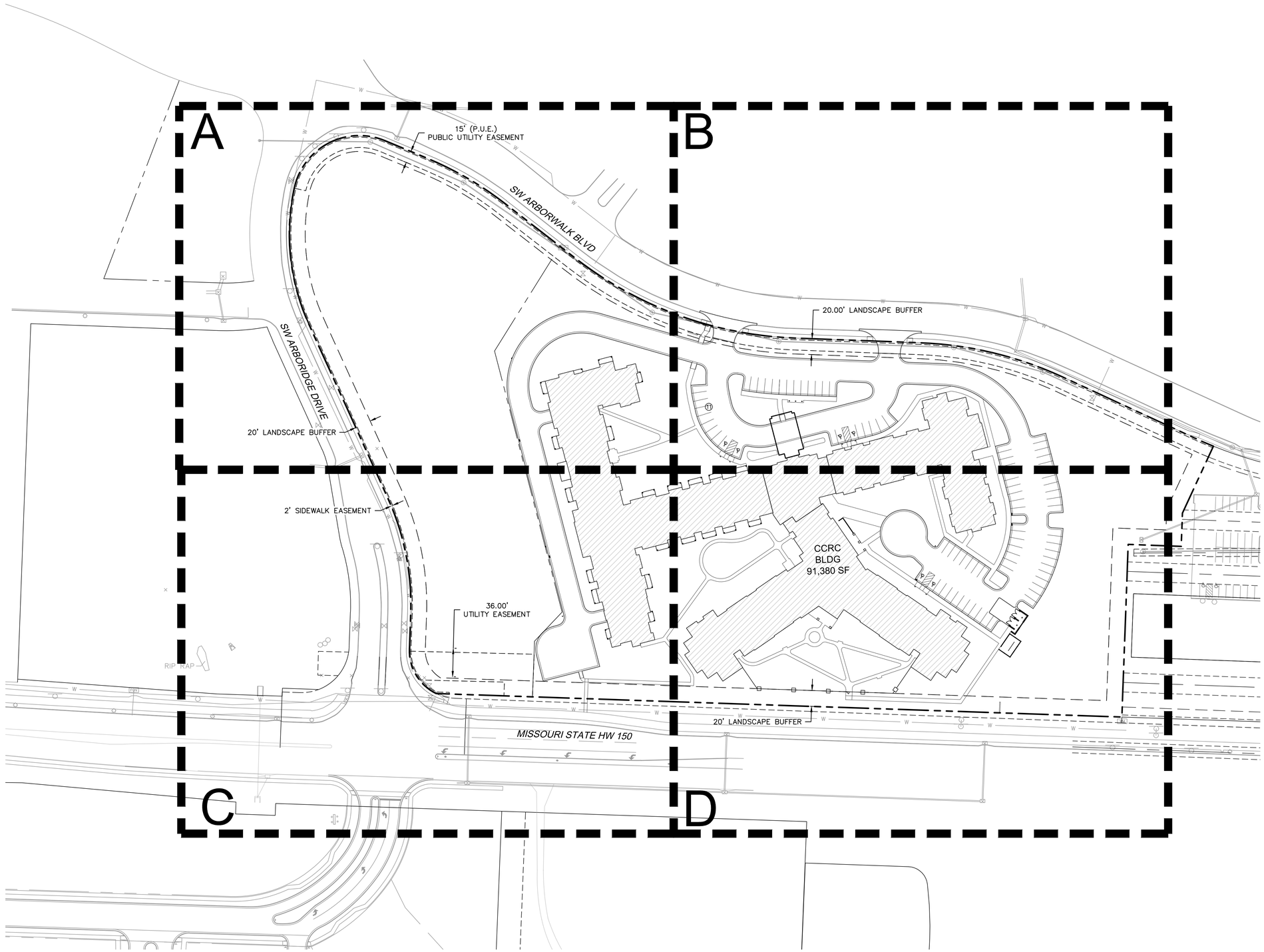

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PROFESSIONAL ENGINEER

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3	03.03.2023	CITY COMMENTS	

OVERALL DIMENSION PLAN

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

2023

LEE'S SUMMIT, MO

drawn by:	CSM
checked by:	CSM
approved by:	JS
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date:	08.10.2022

SHEET
C3.1

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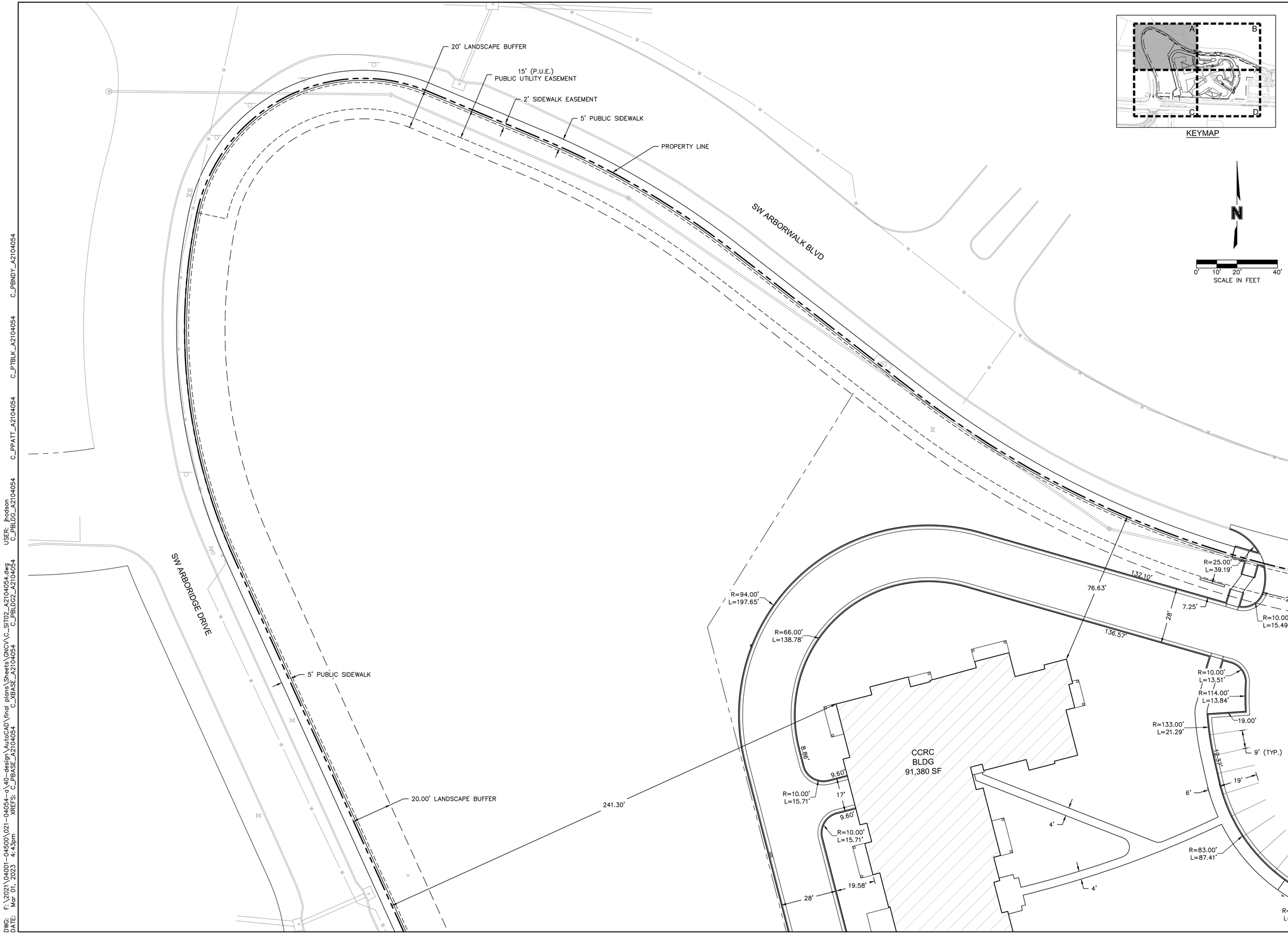

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C_PPATT_A2104054 C_PTBLK_A2104054 C_PBNDY_A2104054

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3/2/23

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1	05.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

DIMENSION PLAN (A)

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

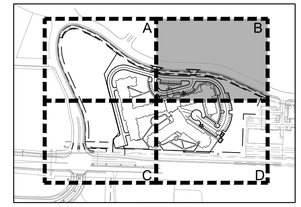
2023

drawn by:	CSM
checked by:	CSM
approved by:	JS
QA/QC by:	JS
project no.:	A21-04054
drawing no.:	C_SIT02_A2104054
date:	08.10.2022

SHEET
C3.2

KEYNOTES (X)

1. SEE TYPICAL ADA PARKING SPACE LAYOUT DETAIL ON SHEET C10.0 AND GRADING DETAILS SHEET C4.5–C4.6 FOR ADA DIMENSION DETAILS



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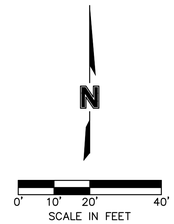

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/2/23
PROFESSIONAL ENGINEER

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

REVISIONS

DIMENSION PLAN (B)

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by:	CSM
checked by:	CSM
approved by:	JS
QA/QC by:	JS
project no.:	A21-04054
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date:	08.10.2022

SHEET
C3.3

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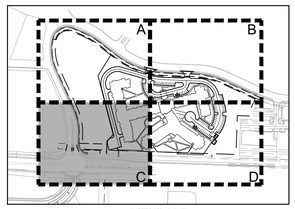
USER: jhodson



KEYMAP

N

0' 10' 20' 40'
SCALE IN FEET

PROPERTY LINE
2' SIDEWALK EASEMENT
20' LANDSCAPE BUFFER
SW ARBORIDGE DRIVE
5' PUBLIC SIDEWALK
STONE WALL
CCRC
BLDG
91,380 SF
223.63'
274.93'
13.83'
28'
13.08'
17.00'
17.08'
R=10.00'
L=15.71'
R=10.00'
L=15.71'
6.00'
R=6.00'
L=9.42'
254.78'
R=30.00'
L=47.12'
46.15'
4'
4'
4'
65.56'
34.00'
74.00'
134.76'
36.00' UTILITY EASMENT
20'
10'
20' LANDSCAPE BUFFER
MISSOURI STATE HW 150

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USER: jhodson

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JULIE ELAINE SELLERS
NUMBER PE-2017000367
PROFESSIONAL ENGINEER
3/2/23

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

DIMENSION PLAN (C)

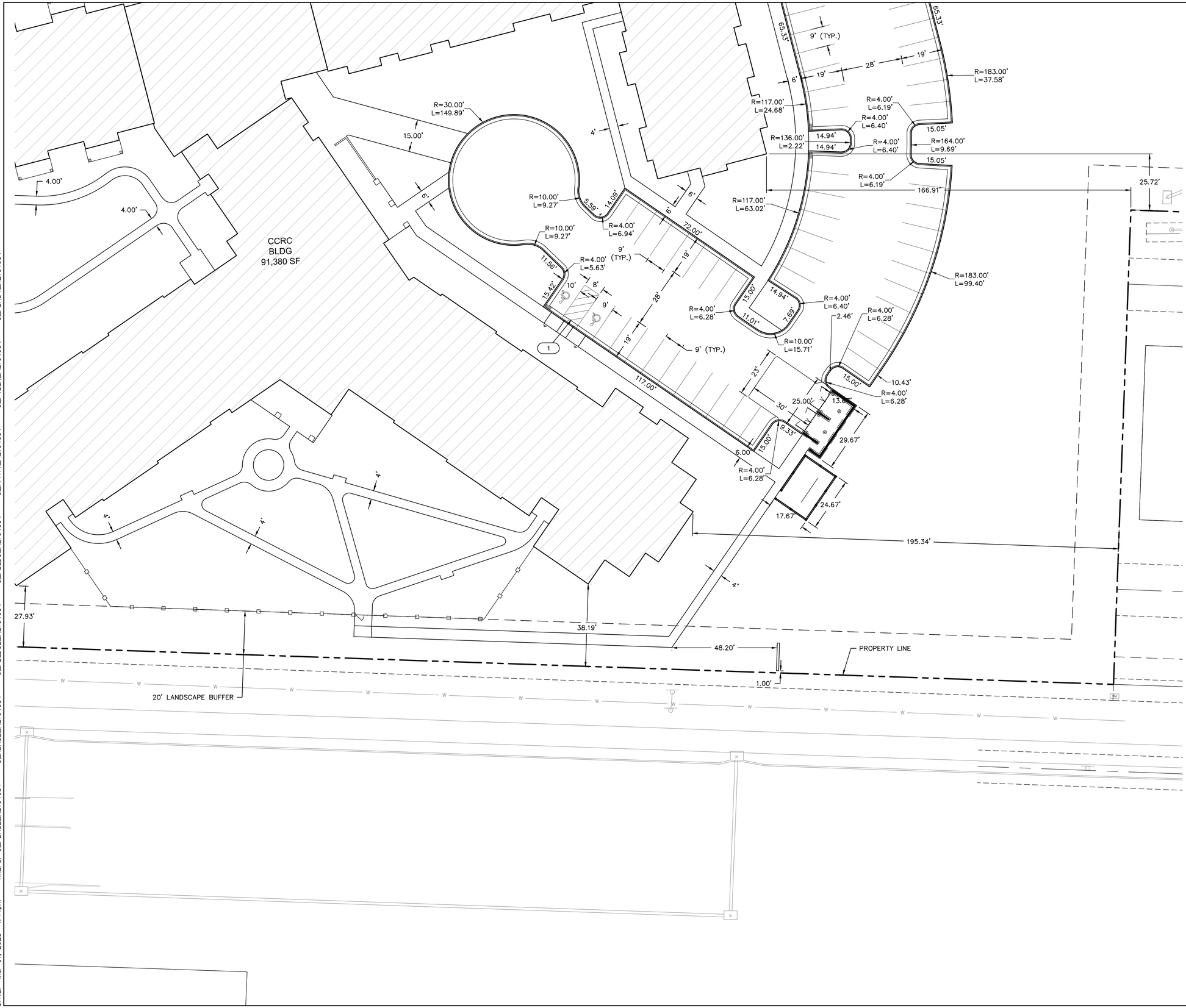
RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

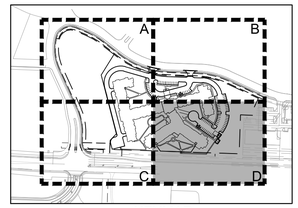
2023

LEE'S SUMMIT, MO

drawn by:	CSM
checked by:	CSM
approved by:	JS
QA/QC by:	JS
project no.:	A21-04054
drawing no.:	C_SIT02_A2104054
date:	08.10.2022

SHEET
C3.4





KEYMAP

KEYNOTES (X)

1. SEE TYPICAL ADA PARKING SPACE LAYOUT DETAIL ON SHEET C10.0 AND GRADING DETAILS SHEET C4.5–C4.6 FOR ADA DIMENSION DETAILS

N

0' 10' 20' 40'
SCALE IN FEET

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2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

DIMENSION PLAN (D)

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_SIT02_A2104054
date: 08.10.2022

SHEET
C3.5

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USER: jhodson C_PBLDG_A2104054

LEGEND

FIRE LANE

PAINT CURB RED THAT INCLUDES THE WORDS NO PARKING – FIRE LANE PER 2018 INTERNATIONAL FIRE CODE

KEYNOTES (X)

1. INSTALL NO PARKING – FIRE LANE SIGN.

SW ARBORWALK BLVD

CCRC
BLDG
91,380 SF

MISSOURI STATE HW 150

N

0' 15' 30' 60'
SCALE IN FEET

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FIRE LANE PLAN

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_FIRE01_A2104054
date: 08.10.2022

SHEET
C3.6

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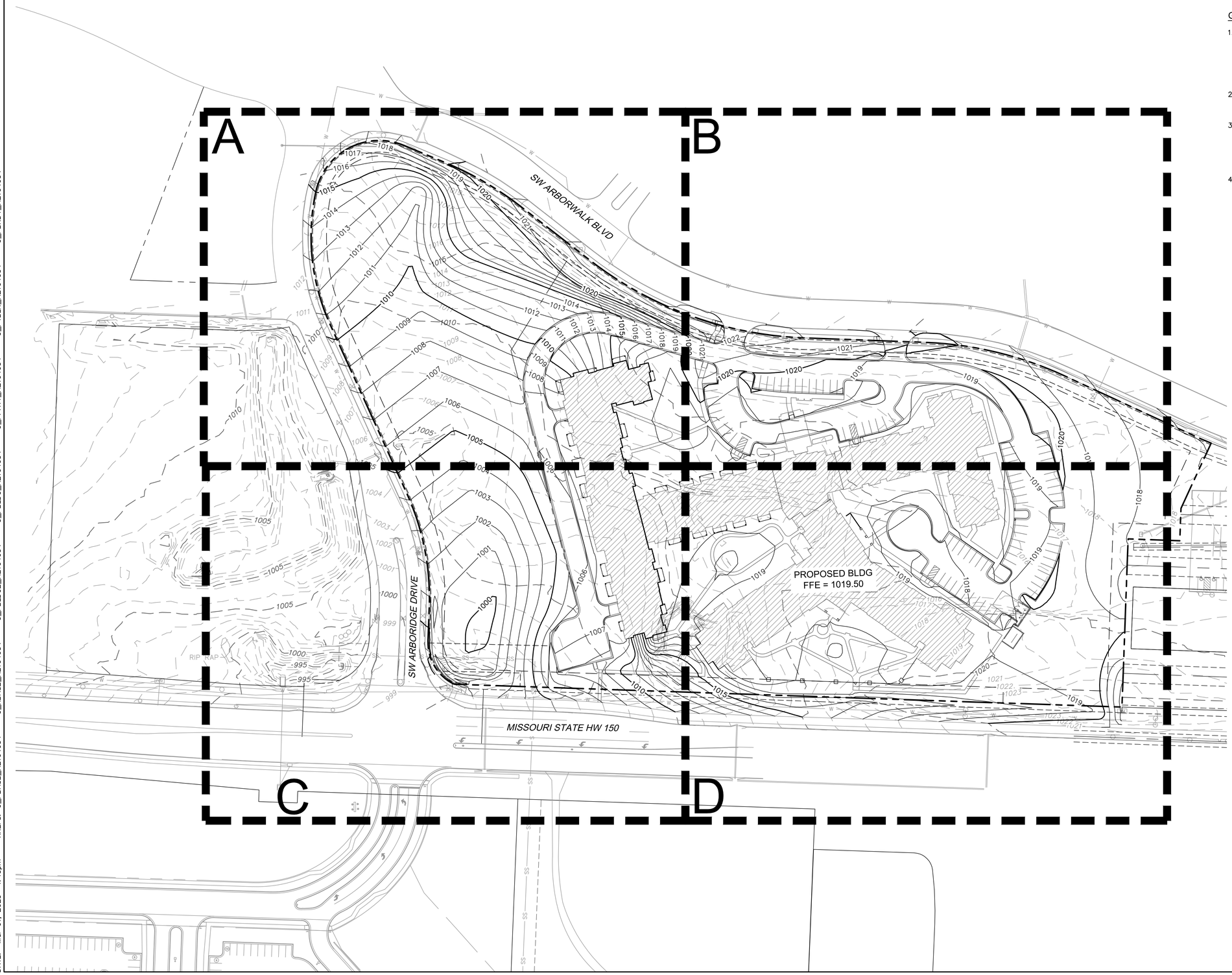
USER: jhodson



GRADING PLAN LEGEND

- 1020 — FINISHED GRADE MAJOR CONTOUR
- 1021 — FINISHED GRADE MINOR CONTOUR
- 1020 — EXISTING GRADE MAJOR CONTOUR
- 1021 — EXISTING GRADE MINOR CONTOUR
- PROPOSED PROPERTY LINE

GRADING PLAN NOTES

1. THE FINISHED GRADE CONTOUR LINES, SPOT ELEVATIONS AND BUILDING FLOOR ELEVATIONS SHOWN ARE TO SURFACE OF PAVEMENT, FINISHED GRADE EXCLUDING GRADES ADJACENT TO STRUCTURES ETC. REFER TO TYPICAL SECTIONS FOR PAVING, SLAB AND AGGREGATE BASE THICKNESS TO DEDUCT PAVEMENT DEPTH FROM ELEVATIONS SHOWN.
2. THE CONTRACTOR SHALL FINISH GRADE SLOPES AS SHOWN NO STEEPER THAN 1 FOOT VERTICAL IN 3 FEET HORIZONTAL.
3. THE CONTRACTOR SHALL GRADE LANDSCAPED AREAS TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING AND SIDEWALKS WHEN FINISH LANDSCAPE MATERIALS ARE IN PLACE. THE CONTRACTOR SHALL CONTACT THE ENGINEER REGARDING ANY LOCATIONS WHERE THIS MAY NOT BE FEASIBLE.
4. SPOT ELEVATIONS ARE TO EDGE OF PAVEMENT, LIP OF CURB, OR FINISHED GRADE UNLESS OTHERWISE INDICATED. (SEE LEGEND)

EARTHWORK QUANTITIES		
CUT (C.Y.)	FILL (C.Y.)	NET (C.Y.)
14,832	36,703	21,871 (FILL)

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.

N

0' 30' 60' 120'
SCALE IN FEET

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OVERALL GRADING PLAN

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_GRD01_A2104054
date: 08.10.2022

SHEET
C4.0

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USER: jhodson C_PBLDG_A2104054

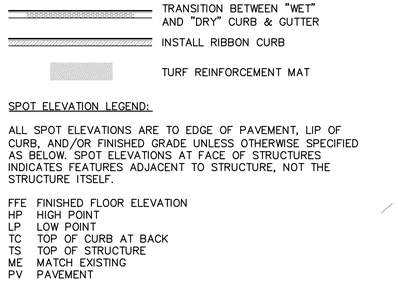
LEGEND

- 1020 — FINISHED GRADE MAJOR CONTOUR
- 1021 — FINISHED GRADE MINOR CONTOUR
- *1020* — EXISTING GRADE MAJOR CONTOUR
- *1021* — EXISTING GRADE MINOR CONTOUR
- PROPOSED PROPERTY LINE
- PROPOSED FLOWLINE
- PROPOSED RIDGE LINE
- INSTALL STRAIGHT BACK "WET" CURB & GUTTER
- INSTALL STRAIGHT BACK "DRY" CURB & GUTTER
- TRANSITION BETWEEN "WET" AND "DRY" CURB & GUTTER
- INSTALL RIBBON CURB
- TURF REINFORCEMENT MAT

SPOT ELEVATION LEGEND:

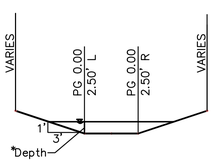
ALL SPOT ELEVATIONS ARE TO EDGE OF PAVEMENT, LIP OF CURB, AND/OR FINISHED GRADE UNLESS OTHERWISE SPECIFIED AS BELOW. SPOT ELEVATIONS AT FACE OF STRUCTURES INDICATES FEATURES ADJACENT TO STRUCTURE, NOT THE STRUCTURE ITSELF.

FFE FINISHED FLOOR ELEVATION
HP HIGH POINT
LP LOW POINT
TC TOP OF CURB AT BACK
TS TOP OF STRUCTURE
ME MATCH EXISTING
PV PAVEMENT

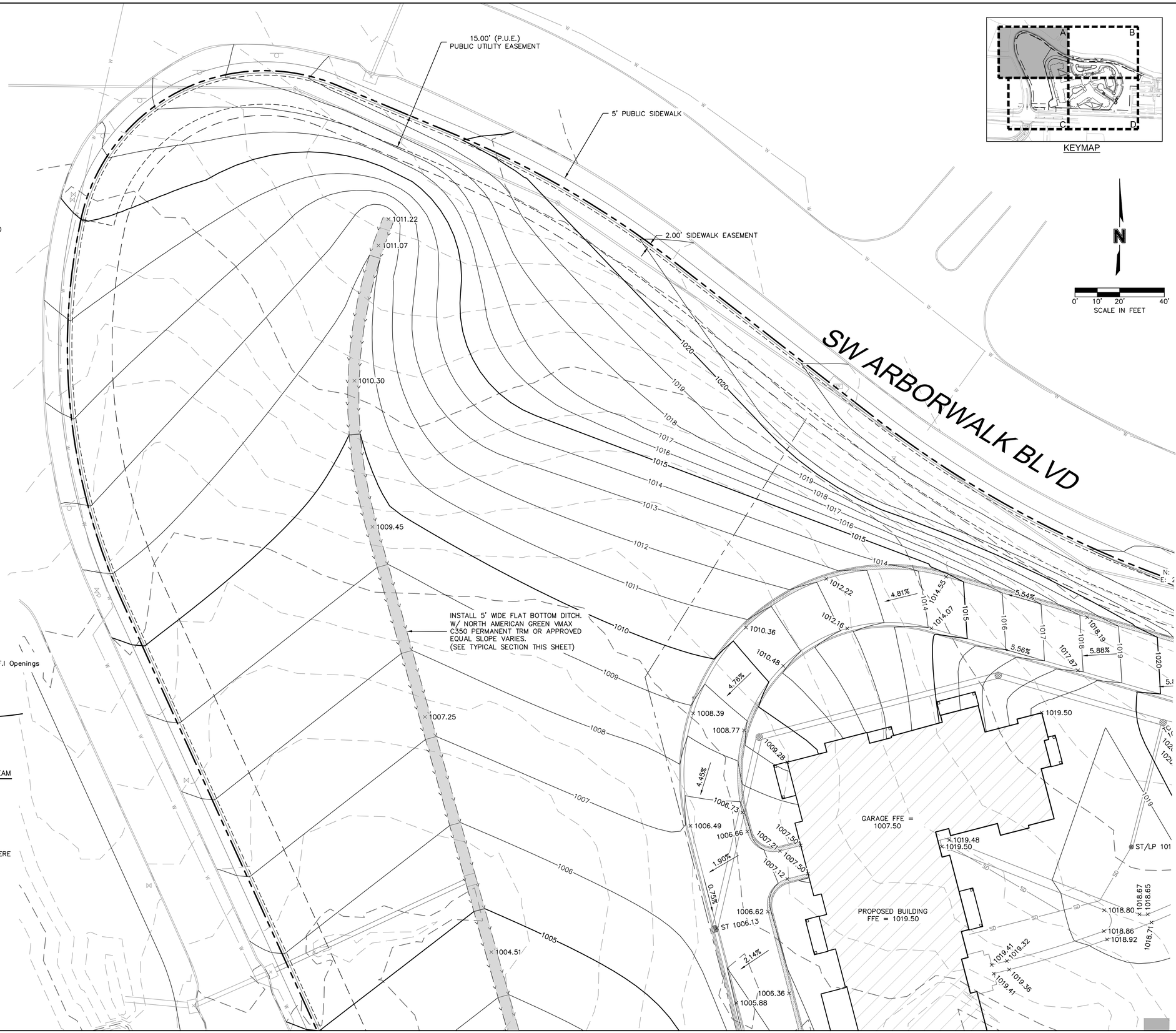


F.I SUMP DETAIL
NOT TO SCALE

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



Swale Typical Section



KEYMAP

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REVISIONS

SPOT ELEVATIONS (A)

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_GRD02_A2104054
date: 08.10.2022

SHEET
C4.1

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USER: jhodson

LEGEND

- 1020 — FINISHED GRADE MAJOR CONTOUR
- 1021 — FINISHED GRADE MINOR CONTOUR
- *1020* — EXISTING GRADE MAJOR CONTOUR
- *1021* — EXISTING GRADE MINOR CONTOUR
- PROPOSED PROPERTY LINE
- PROPOSED FLOWLINE
- PROPOSED RIDGE LINE
- INSTALL STRAIGHT BACK "WET" CURB & GUTTER
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- TRANSITION BETWEEN "WET" AND "DRY" CURB & GUTTER
- INSTALL RIBBON CURB

SPOT ELEVATION LEGEND:

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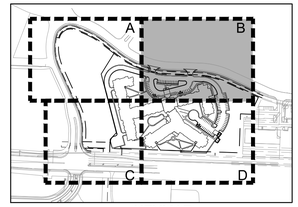
FFE FINISHED FLOOR ELEVATION
HP HIGH POINT
LP LOW POINT
TC TOP OF CURB AT BACK
TS TOP OF STRUCTURE
ME MATCH EXISTING
PV PAVEMENT



KEYMAP

N

0' 10' 20' 40'
SCALE IN FEET

SEE DETAIL A, SHEET C4.5
SEE DETAIL B, SHEET C4.5
SEE DETAIL C, SHEET C4.6
SEE DETAIL D, SHEET C4.6
SEE DETAIL E, SHEET C4.6
SW ARBORWALK BLVD
5' PUBLIC SIDEWALK
PROPOSED BUILDING FFE = 1019.50

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PROFESSIONAL ENGINEER
3/2/23

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1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

REVISIONS

SPOT ELEVATIONS (B)

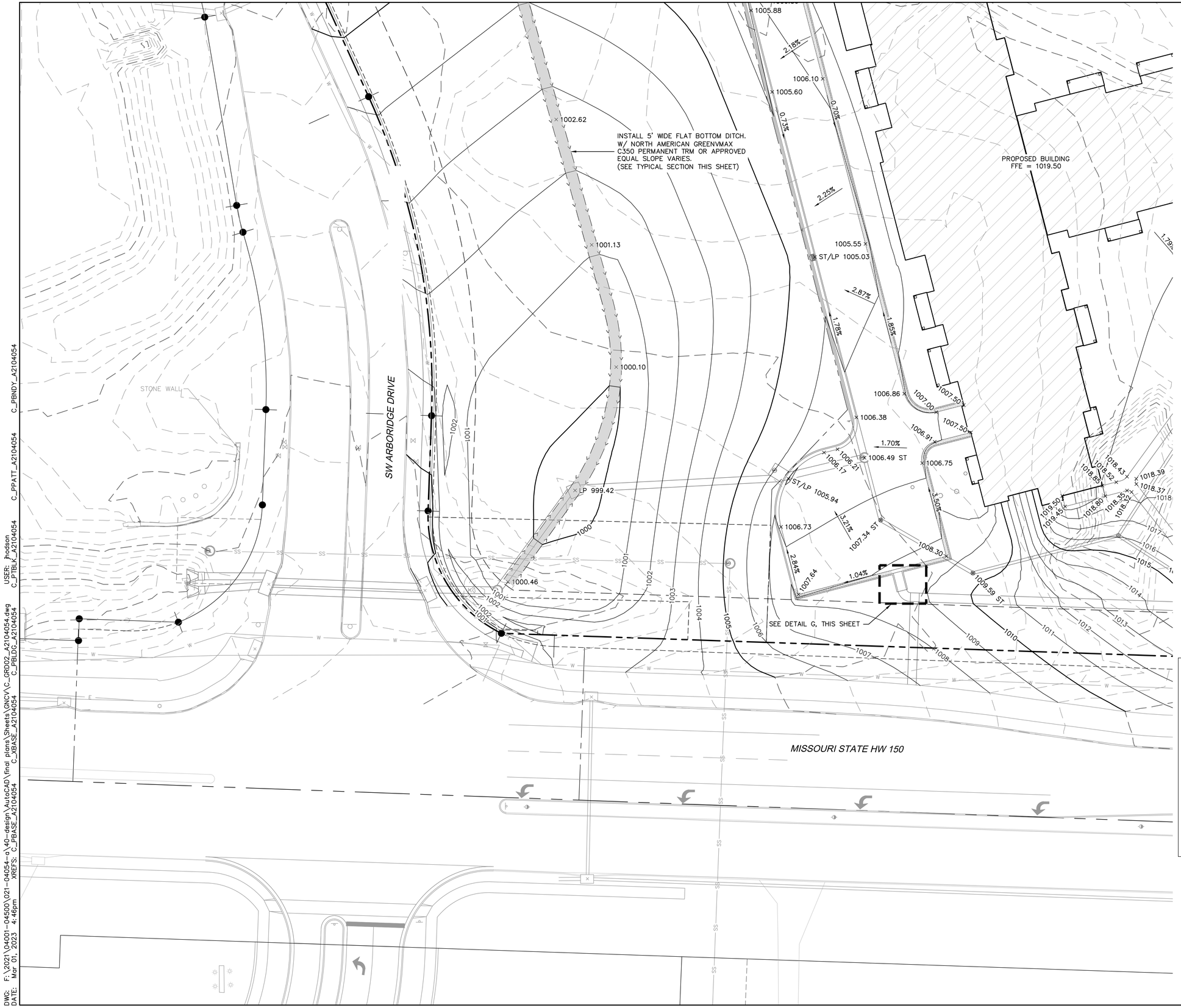
RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

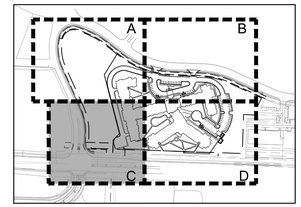
LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_GRD02_A2104054
date: 08.10.2022

SHEET
C4.2





KEYMAP

N

0' 10' 20' 40'
SCALE IN FEET

LEGEND

- 1020 — FINISHED GRADE MAJOR CONTOUR
- 1021 — FINISHED GRADE MINOR CONTOUR
- 1020 — EXISTING GRADE MAJOR CONTOUR
- 1021 — EXISTING GRADE MINOR CONTOUR
- PROPOSED PROPERTY LINE
- PROPOSED FLOWLINE
- PROPOSED RIDGE LINE
- INSTALL STRAIGHT BACK "WET" CURB & GUTTER
- INSTALL STRAIGHT BACK "DRY" CURB & GUTTER
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- TURF REINFORCEMENT MAT

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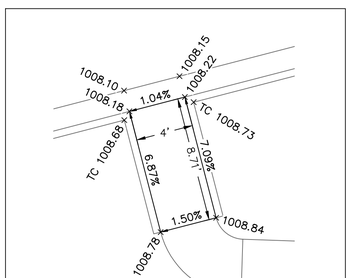
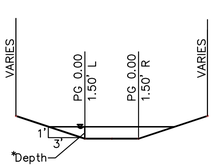
FFE FINISHED FLOOR ELEVATION
HP HIGH POINT
LP LOW POINT
TC TOP OF CURB AT BACK
TS TOP OF STRUCTURE
ME MATCH EXISTING
PV PAVEMENT



DETAIL 'G'
SCALE: 1"=5'



Swale Typical Section

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3/2/23

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SPOT ELEVATIONS (C)

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_GRD02_A2104054
date: 08.10.2022

SHEET
C4.3

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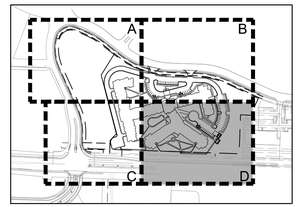
USER: jhodson

PROPOSED BUILDING
FFE = 1019.50

SEE DETAIL F, SHEET C4.6

INSTALL V BOTTOM DITCH.
SLOPE VARIES.



KEYMAP

N

0' 10' 20' 40'
SCALE IN FEET

LEGEND

- 1020 — FINISHED GRADE MAJOR CONTOUR
- 1021 — FINISHED GRADE MINOR CONTOUR
- 1020 — EXISTING GRADE MAJOR CONTOUR
- 1021 — EXISTING GRADE MINOR CONTOUR
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FFE FINISHED FLOOR ELEVATION
HP HIGH POINT
LP LOW POINT
TC TOP OF CURB AT BACK
TS TOP OF STRUCTURE
ME MATCH EXISTING
PV PAVEMENT

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SPOT ELEVATIONS (D)

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_GRD02_A2104054
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SHEET
C4.4

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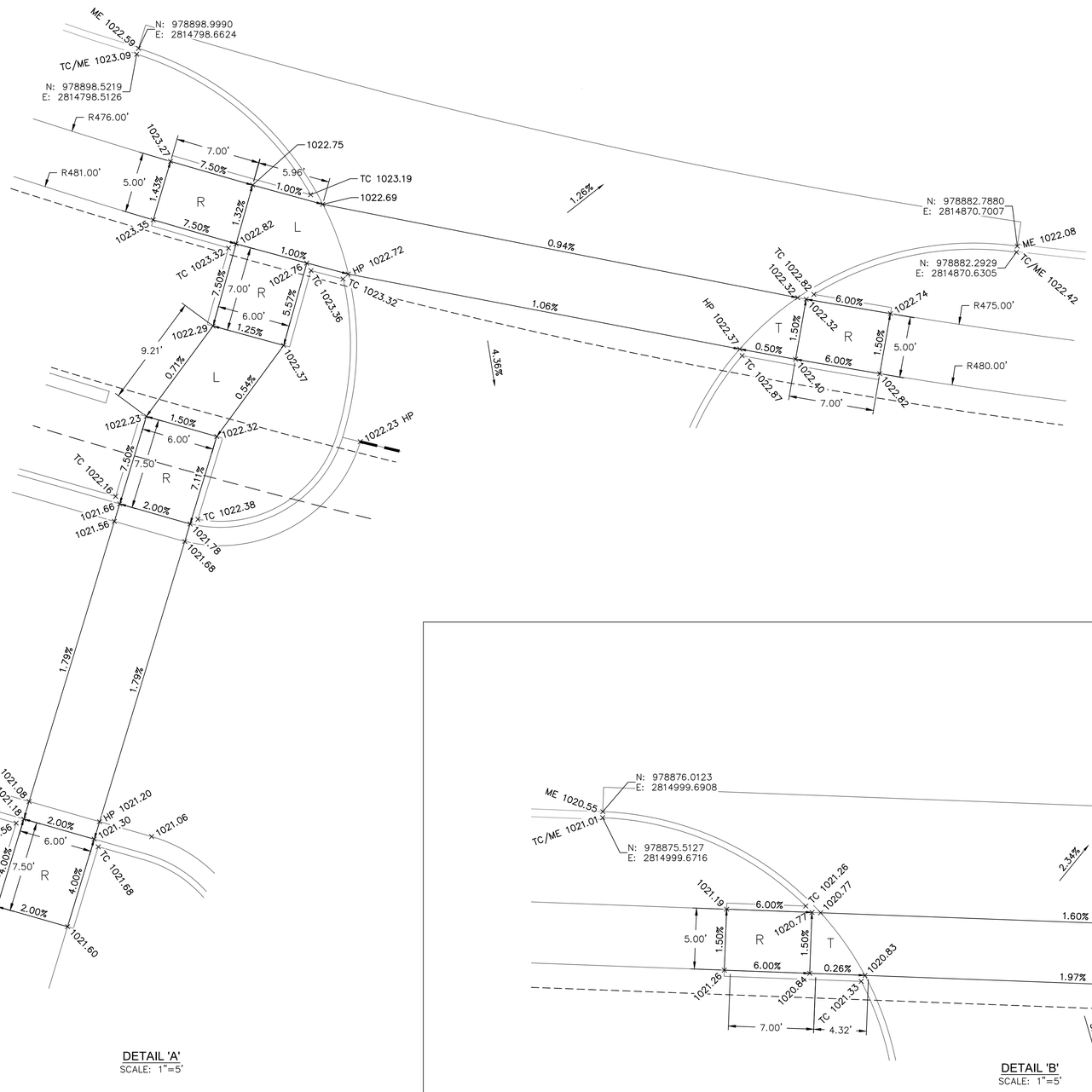
USER: jhodson C_PTBLK_A2104054



DETAIL 'A'
SCALE: 1"=5'

DETAIL 'B'
SCALE: 1"=5'

SPOT ELEVATION LEGEND:

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FFE	FINISHED FLOOR ELEVATION
HP	HIGH POINT
LP	LOW POINT
TC	TOP OF CURB AT BACK
TS	TOP OF STRUCTURE
ME	MATCH EXISTING
PV	PAVEMENT

SIDEWALK RAMP LEGEND:

T	TRANSITION
L	LANDING
R	RAMP

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GRADING DETAILS

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

2023

LEE'S SUMMIT, MO

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SHEET
C4.5

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USER: jhodson

DETAIL 'C'
SCALE: 1"=5'

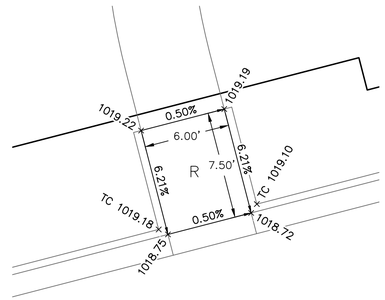
SPOT ELEVATION LEGEND:

ALL SPOT ELEVATIONS ARE TO EDGE OF PAVEMENT, LIP OF CURB, AND/OR FINISHED GRADE UNLESS OTHERWISE SPECIFIED AS BELOW. SPOT ELEVATIONS AT FACE OF STRUCTURES INDICATES FEATURES ADJACENT TO STRUCTURE, NOT THE STRUCTURE ITSELF.

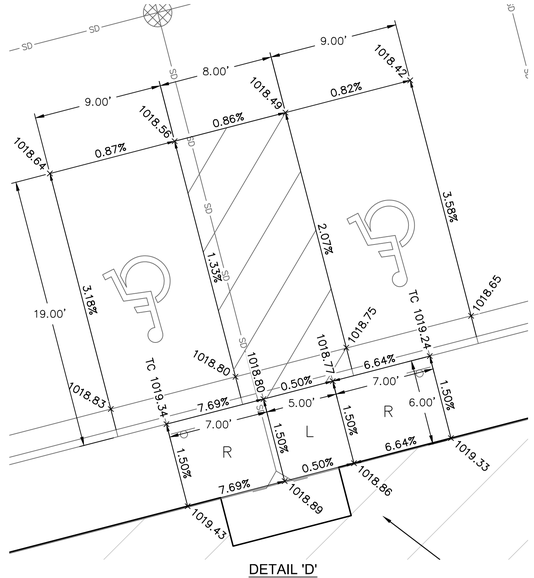
FFE FINISHED FLOOR ELEVATION
HP HIGH POINT
LP LOW POINT
TC TOP OF CURB AT BACK
TS TOP OF STRUCTURE
ME MATCH EXISTING
PV PAVEMENT

SIDEWALK RAMP LEGEND:

T TRANSITION
L LANDING
R RAMP



DETAIL 'E'
SCALE: 1"=5'



DETAIL 'D'
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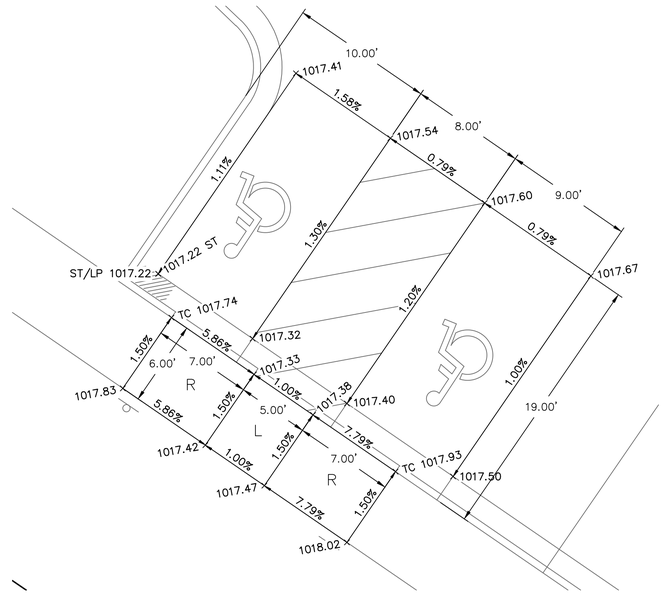

DETAIL 'F'
SCALE: 1"=5'

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JULIE ELAINE SELLERS
NUMBER PE-2017000367
PROFESSIONAL ENGINEER
3/2/23

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

GRADING DETAILS

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_GRD02_A2104054
date: 08.10.2022

SHEET
C4.6

DWG: F:\2021\04001-04500\021-04054-0\40-design\AutoCAD\final plans\Sheets\GNCV\C_GRD02_A2104054.dwg USER: jhodson
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LEGEND

GAS	NATURAL GAS SERVICE
P-UG	POWER SERVICE
SS	SANITARY SEWER SERVICE (SHEET C7.0)
SD	STORM SEWER (SHEETS C6.1–C6.3)
W	DOMESTIC WATER LINE (SHEET C8.0)
FP	FIRE PROTECTION LINE (SHEET C8.0)
P-UG	EXISTING POWER SERVICE
SS	EXISTING SANITARY SEWER
SD	EXISTING STORM SEWER
W	EXISITNG WATER SERVICE

STORM SEWER (ST)

NOTE: THE STORM SEWER DESIGN IS DETAILED ON SHEETS C7.0 TO C7.6. REFER TO MEP PLANS FOR CONTINUATION THROUGH BUILDING

SANITARY SEWER (SS)

NOTE: THE SANITARY SEWER DESIGN IS DETAILED ON SHEET C8.0. REFER TO MEP PLANS FOR CONTINUATION INTO BUILDING.

WATER MAIN (W)

NOTE: THE WATER MAIN DESIGN IS DETAILED ON SHEET C9.0 TO C9.5 REFER TO MEP PLANS FOR CONTINUATION INTO BUILDING.

POWER SERVICE (P)

NOTE: CONTRACTOR SHALL COORDINATE ALL POWER INSTALLATIONS WITH MEP PLANS AND SHALL CONFORM WITH ALL LOCAL CODES AND ORDINANCES. CONTRACTOR SHALL CONTACT ENGINEER WITH ANY CONFLICT PRIOR TO INSTALLATION.

NOTE: PRIMARY CONDUIT ROUTING SHOWN IS PROPOSED ONLY. FINAL DESIGN BY SERVICE PROVIDER. CONTRACTOR SHALL CONTACT ENGINEER WITH ANY CONFLICTS.

P1 INSTALL 379 LF OF 2" CONDUIT WITH PULL WIRE FOR PRIMARY POWER SERVICE. COORDINATE INSTALLATION WITH SERVICE PROVIDER.

P2 INSTALL TRANSFORMER PAD AND RISERS PER SERVICE PROVIDER'S STANDARDS AND SPECIFICATIONS. COORDINATE INSTALLATION OF TRANSFORMER WITH UTILITY.

P3 INSTALL GENERATOR, SEE MEP PLANS FOR ADDITIONAL INFORMATION

P4 INSTALL 613 LF OF 2" CONDUIT WITH PULL WIRE FOR PRIMARY POWER SERVICE, COORDINATE INSTALLATION WITH SERVICE PROVIDER.

P5 INSTALL 305 LF OF 2" CONDUIT WITH PULL WIRE FOR PRIMARY POWER SERVICE. COORDINATE INSTALLATION WITH SERVICE PROVIDER.

COMMUNICATIONS (C)

C1 INSTALL 217 LF OF TWO (2) X" CONDUITS WITH PULL WIRE FOR COMMUNICATION SERVICE. COORDINATE INSTALLATION WITH SERVICE PROVIDER

NATURAL GAS SERVICE (G)

NOTE: NATURAL GAS SERVICE ROUTING SHOWN IS PROPOSED ONLY. FINAL DESIGN BY SERVICE PROVIDER. CONTRACTOR SHALL CONTACT ENGINEER WITH ANY CONFLICTS. METER LOCATION AND SERVICE SIZING PER MEP PLAN AND SERVICE PROVIDER.

G1 INSTALL 202 LF OF PIPE FOR NATURAL GAS SERVICE. COORDINATE SIZE AND MATERIAL WITH SERVICE PROVIDER.

G2 INSTALL GAS METER AND CONNECT TO BUILDING. SEE MEP PLANS FOR CONTINUATION.

15.00' (P.U.E.) PUBLIC UTILITY EASEMENT
SW ARBORWALK BLVD
EXISTING 8" WATER STUB
EXISTING HYDRANT
SW ARBORIDGE DRIVE
HYDRANT
STORM LINE #1 SEE SHEET C7.1
STORM LINE #4 SEE SHEET C7.3
20.00' LANDSCAPE BUFFER
2.00' PUBLIC ACCESS EASEMENT
EXISTING HYDRANT
STORM LINE #1 SEE SHEET C7.0–C7.3
HYDRANT
STORM LINE #1 SEE SHEET C7.0–C7.3
SEE PUBLIC STORM PLANS FOR PUBLIC STORM CROSSING
PUBLIC SANITARY SEWER EXTENSION, SEE SEPARATE PLANS FOR DESIGN DATA.
MISSOURI STATE HW 150
20.00' LANDSCAPE BUFFER
STORM LINE #1 SEE SHEET C7.0–C7.3
STORM LINE #5 SEE SHEET C7.5
STORM LINE #7 SEE SHEET C7.5
STORM LINE #8 SEE SHEET C7.5
HYDRANT
STORM LINE #6 SEE SHEET C7.5
FDC
FOR DOWNSPOUT CONNECTIONS SEE SHEET C7.2
HYDRANT
FOR DOWNSPOUT CONNECTIONS SEE SHEET C7.2
STORM LINE #1 SEE SHEET C7.0–C7.3
STORM LINE #3 SEE SHEET C7.4
HYDRANT
STORM LINE #2 SEE SHEET C7.4
STORM LINE #1 SEE SHEET C7.0–C7.3
HYDRANT

0' 20' 40' 80'
SCALE IN FEET

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1	10.10.2022	CITY COMMENTS	CSM
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REVISIONS

OVERALL UTILITY PLAN

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

2023

LEE'S SUMMIT, MO

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_UTL01_A2104054
date: 08.10.2022

SHEET
C5.0

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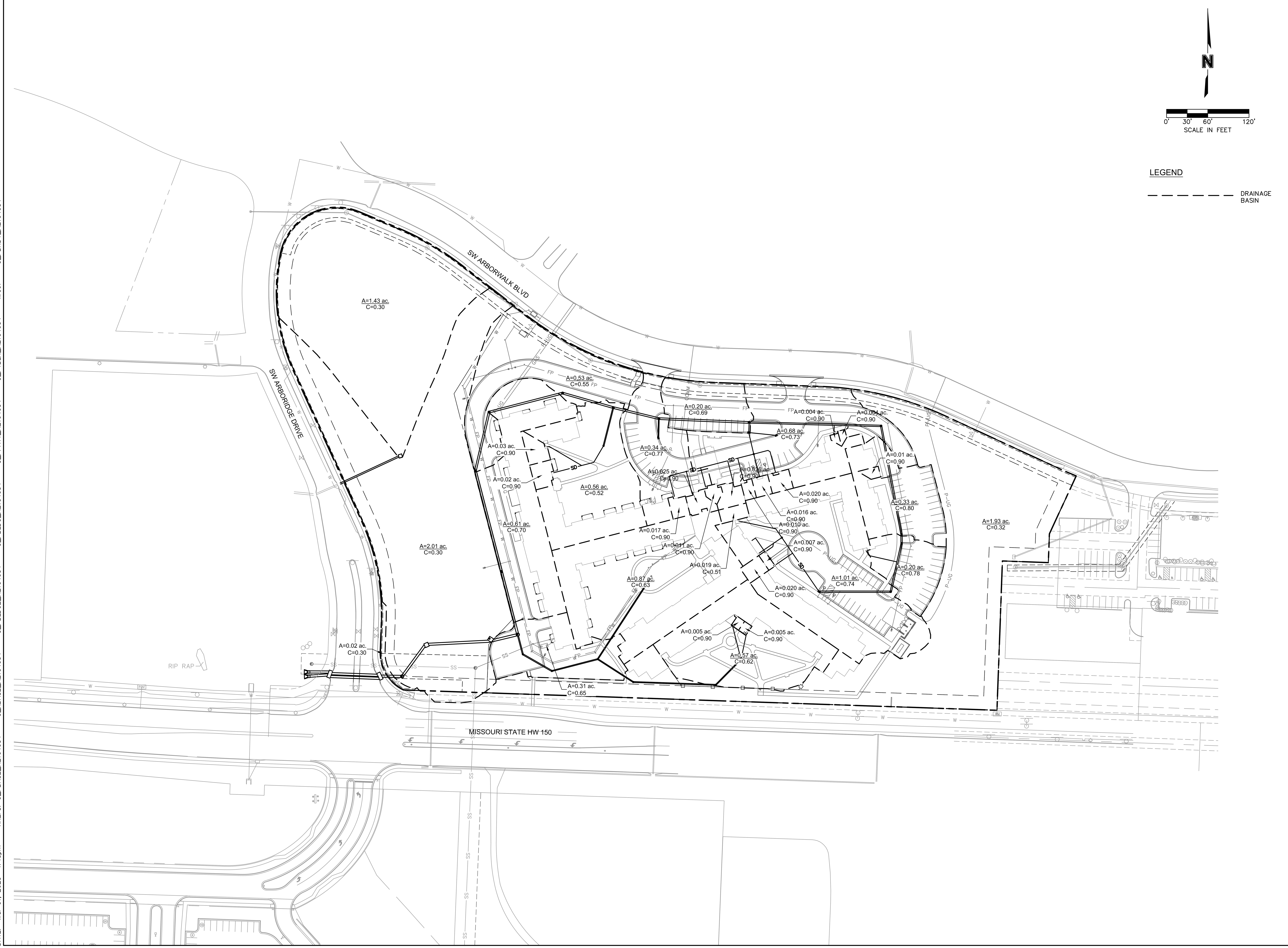

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REVISIONS

2023

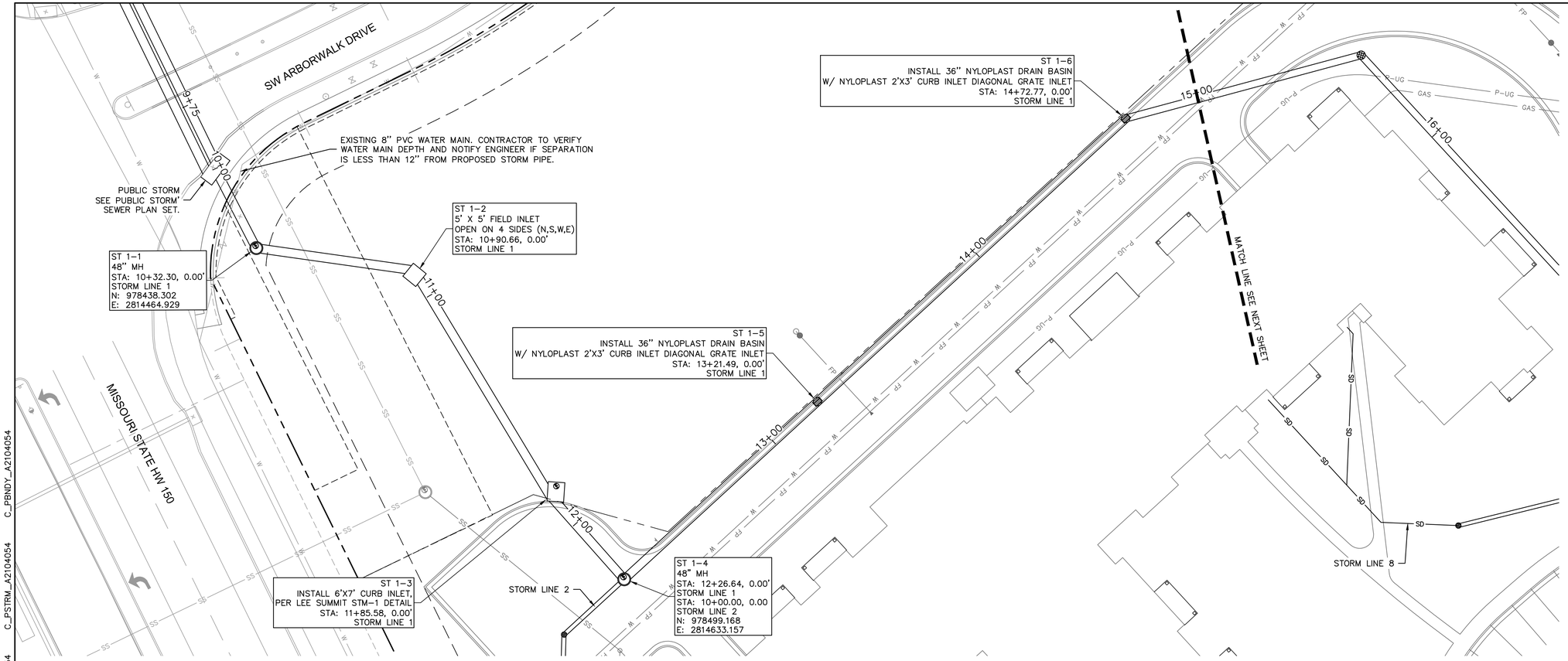
STORMWATER MANAGEMENT PLAN

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

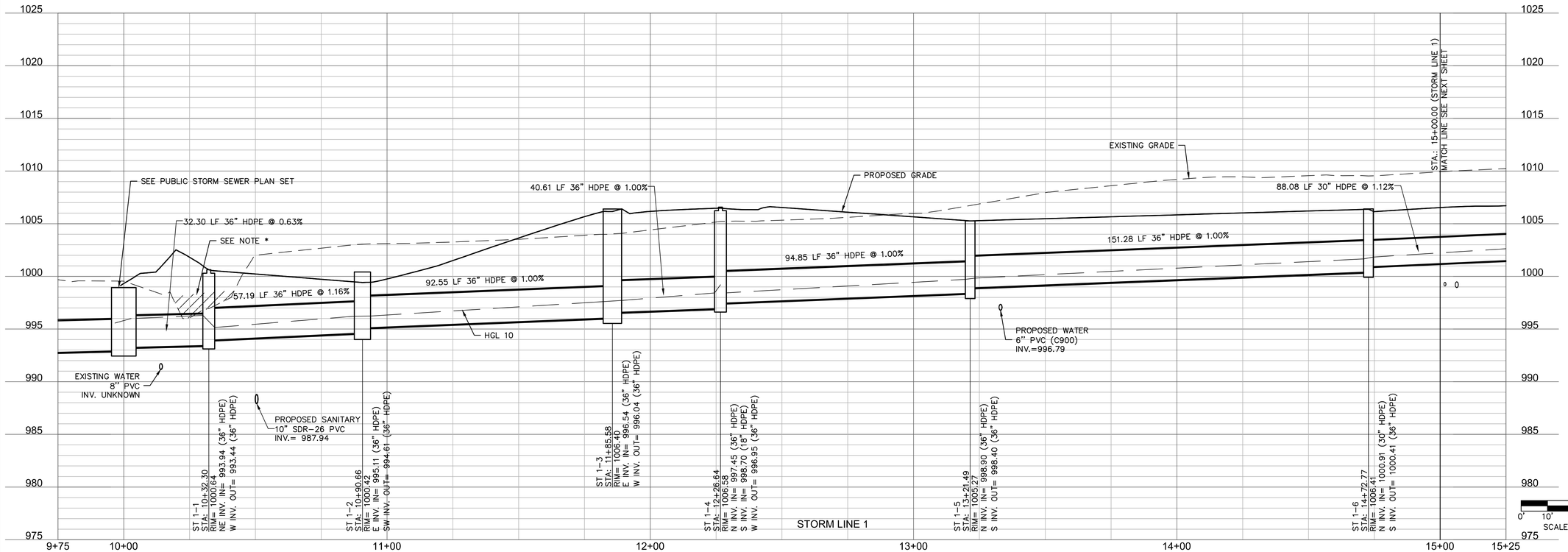
LEE'S SUMMIT, MO

drawn by:	CSM
checked by:	CSM
approved by:	JS
QA/QC by:	JS
project no.:	A21-04054
drawing no.:	C_STM01_A2104054
date:	08.10.2022

SHEET
C6.0



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



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STORM PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
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drawing no.: C_STM02_A2104054
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SHEET
C7.0

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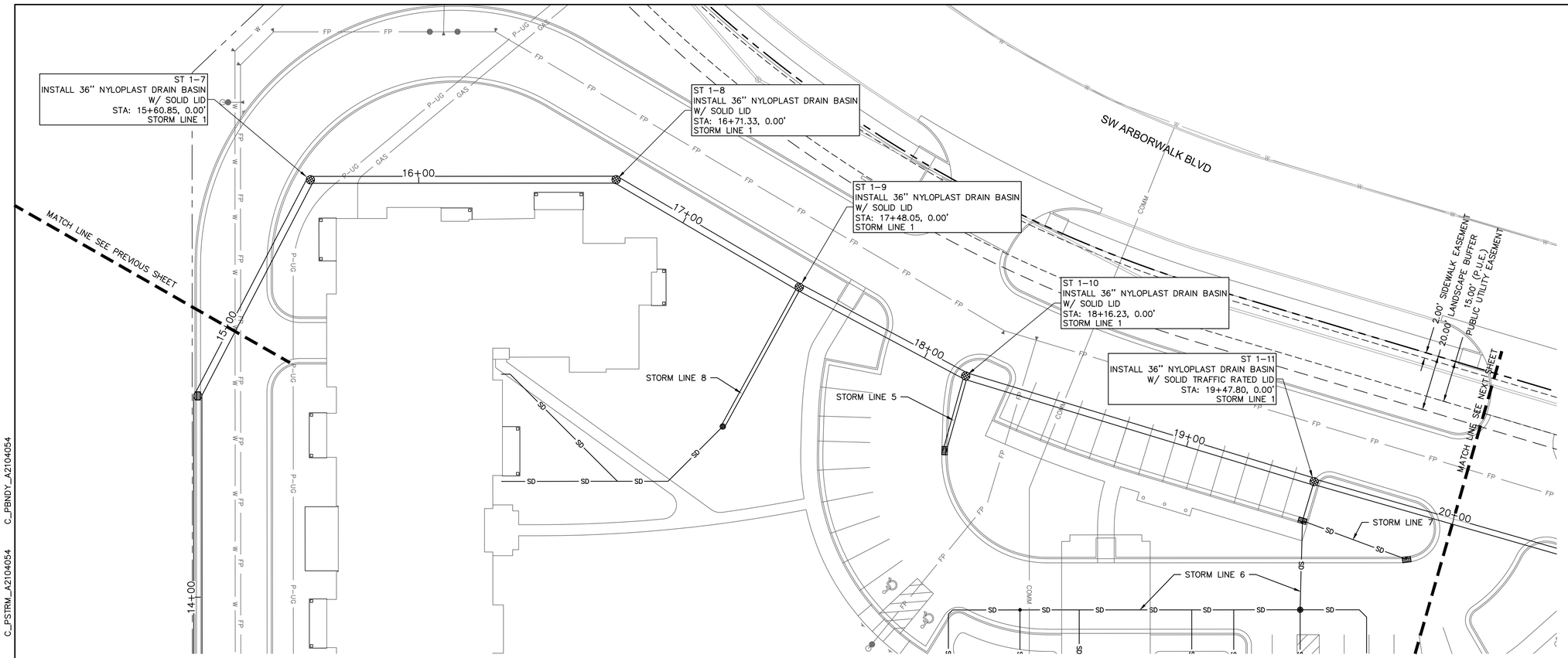

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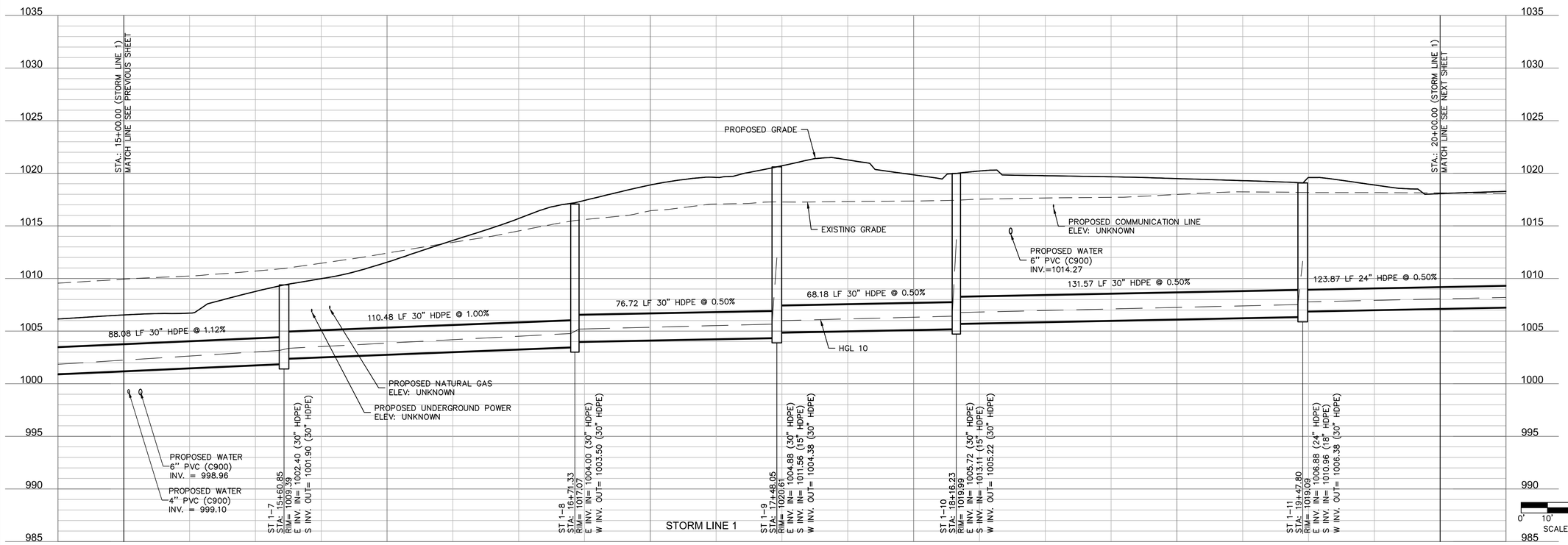

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STORM PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

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date: 08.10.2022

SHEET
C7.1

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ST 1–16
INSTALL 24" NYLOPLAST DRAIN BASIN
W/ NYLOPLAST 2'X3' CURB INLET DIAGONAL GRATE INLET
STA: 23+01.17, 0.00'
STORM LINE 1

ST 1–18
INSTALL 6" ADS INSERTA–TEE
STA: 23+41.59, 0.00'
STORM LINE 1

ST 1–19
INSTALL 30" NYLOPLAST DRAIN BASIN
W/ SOLID LID
STA: 23+85.93, 0.00' RT
STORM LINE 1

ST 1–14
INSTALL 30" NYLOPLAST DRAIN BASIN
W/ SOLID TRAFFIC RATED LID
STA: 21+39.91, 0.00'
STORM LINE 1

ST 1–13
INSTALL 6" ADS INSERTA–TEE
STA: 20+91.84, 0.00'
STORM LINE 1

ST 1–17
INSTALL 24" NYLOPLAST DRAIN BASIN
W/ NYLOPLAST 2'X3' CURB INLET DIAGONAL GRATE INLET
STA: 23+14.27, 0.01' LT
STORM LINE 1

42.22 LF 6" HDPE @ 1.54%

INSTALL 6" 45° BEND
SW INV. IN= 1014.40 (6" HDPE)
N INV. OUT= 1014.40 (6" HDPE)

CONNECT TO BUILDING ROOF DRAIN
SEE MEP PLANS FOR CONTINUATION
INV.= 1014.50 (6" HDPE)

CONNECT TO BUILDING ROOF DRAIN
SEE MEP PLANS FOR CONTINUATION
INV.= 1014.50 (6" HDPE)

INSTALL 6" 45° BEND
SE INV. IN= 1014.40 (6" HDPE)
N INV. OUT= 1014.40 (6" HDPE)

CONNECT TO BUILDING ROOF DRAIN
SEE MEP PLANS FOR CONTINUATION
INV.= 1015.95 (6" HDPE)

8.33 LF 6" HDPE @ 0.76%

INSTALL 6" 45° BEND WITH CLEAN
NW INV. IN= 1015.88 (6" HDPE)
E INV. OUT= 1015.88 (6" HDPE)

ST 1–12
INSTALL 6" ADS INSERTA–TEE
STA: 20+71.67, 0.00'
STORM LINE 1

ST 1–20
INSTALL 24" NYLOPLAST DRAIN BASIN
W/ NYLOPLAST 2'X3' CURB INLET DIAGONAL GRATE INLET
STA: 24+90.22, 0.00'
STORM LINE 1

22+00 23+00 24+00 25+00 21+00 20+00 26+01.19

2.00' SIDEWALK EASEMENT
20.00' LANDSCAPE BUFFER
15.00' (P.U.E.) PUBLIC UTILITY EASEMENT

SW ARBORWALK BLVD

MATCH LINE SEE PREVIOUS SHEET

MATCH LINE SEE NEXT SHEET

STORM LINE 7

*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.

N

STA.: 20+00.00 (STORM LINE 1)
MATCH LINE SEE PREVIOUS SHEET

PROPOSED GRADE

EXISTING GRADE

PROPOSED WATER
6" PVC (C900)
INV.=1015.00

123.87 LF 24" HDPE @ 0.50%
20.17 LF 24" HDPE @ 0.50%
48.07 LF 24" HDPE @ 0.50%
75.09 LF 24" HDPE @ 0.50%
86.16 LF 24" HDPE @ 0.50%
13.11 LF 24" HDPE @ 0.50%
27.32 LF 24" HDPE @ 0.50%
44.33 LF 24" HDPE @ 0.50%
104.29 LF 24" HDPE @ 0.50%

HGL 10

STA.: 25+00.00 (STORM LINE 1)
MATCH LINE SEE NEXT SHEET

ST 1–12
STA: 20+71.67
INV.= 1007.50

ST 1–13
STA: 20+91.84
INV.= 1007.80

ST 1–14
STA: 21+39.91
RIM= 1019.22
S INV. IN= 1008.34 (24" HDPE)
W INV. OUT= 1007.84 (24" HDPE)

ST 1–15
STA: 22+77.15
INV.= 1008.72

STORM LINE 1

ST 1–16
STA: 23+01.17
RIM= 1018.33
S INV. IN= 1009.65 (24" HDPE)
N INV. OUT= 1009.15 (24" HDPE)

ST 1–17
STA: 23+14.27
RIM= 1018.24
S INV. IN= 1010.22 (24" HDPE)
N INV. OUT= 1009.72 (24" HDPE)

ST 1–18
STA: 23+41.59
INV.= 1010.36

ST 1–19
STA: 23+85.93
RIM= 1019.19
W INV. IN= 1011.08 (24" HDPE)
N INV. OUT= 1010.58 (24" HDPE)

ST 1–20
STA: 24+90.22
RIM= 1017.47
NW INV. IN= 1012.60 (10" HDPE)
E INV. OUT= 1011.60 (24" HDPE)

10' 5' 2.5' 0'
0' 10' 20' 40'
SCALE IN FEET

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STORM PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_STM02_A2104054
date: 08.10.2022

SHEET
C7.2

DWG: F:\2021\04001-04500\021-04054-01\40-design\AutoCAD\final plans\Sheets\GNCV\C_STM02_A2104054.dwg USER: jhodson
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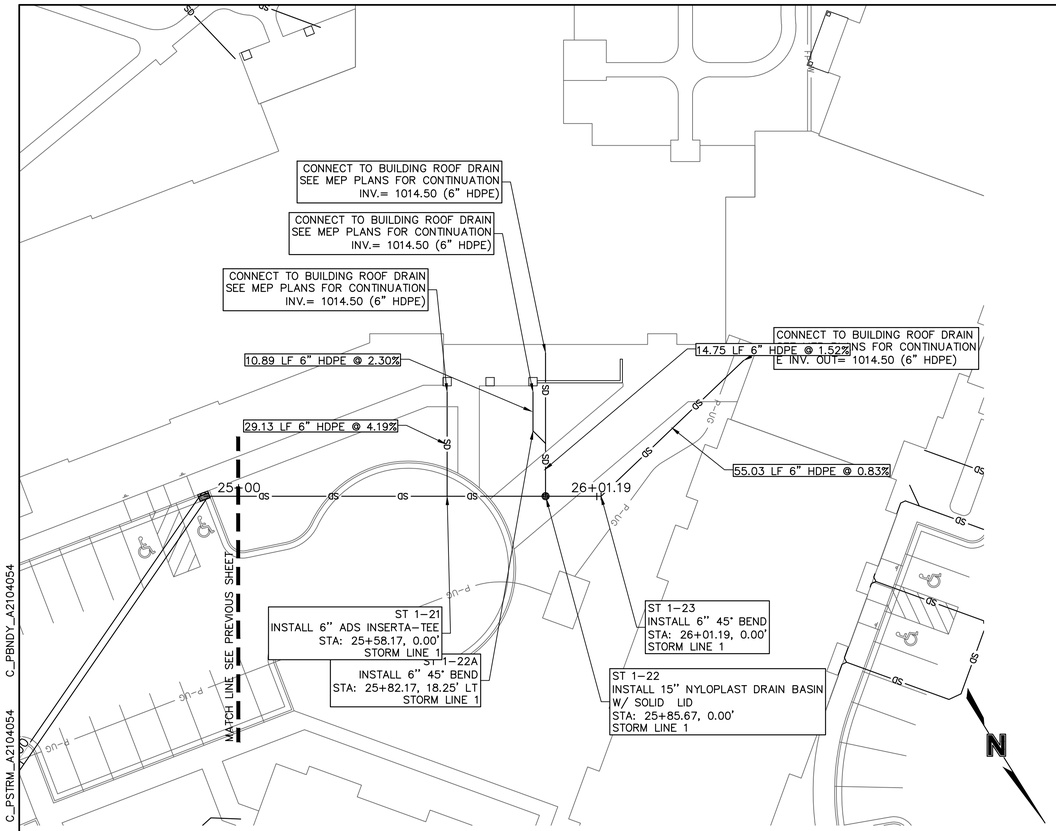
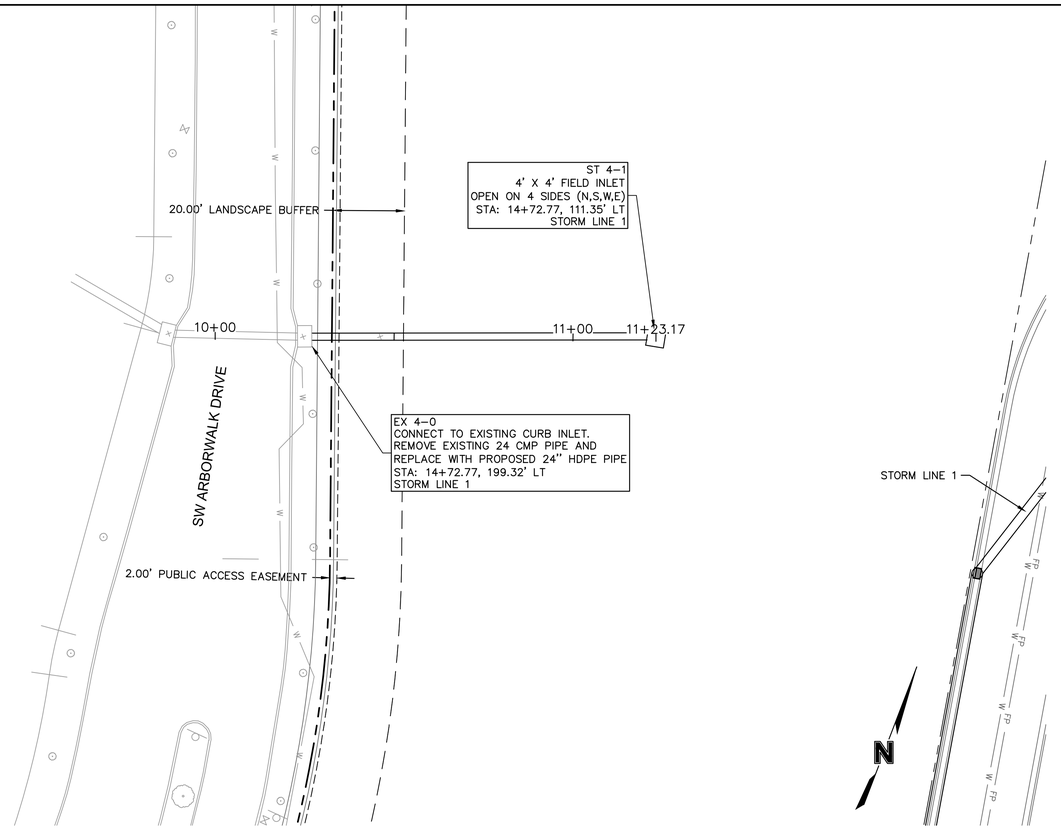
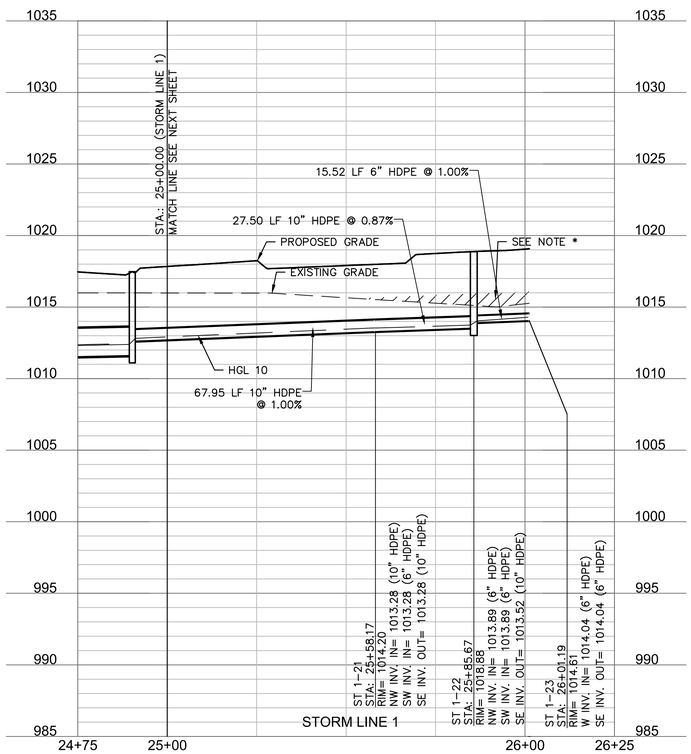
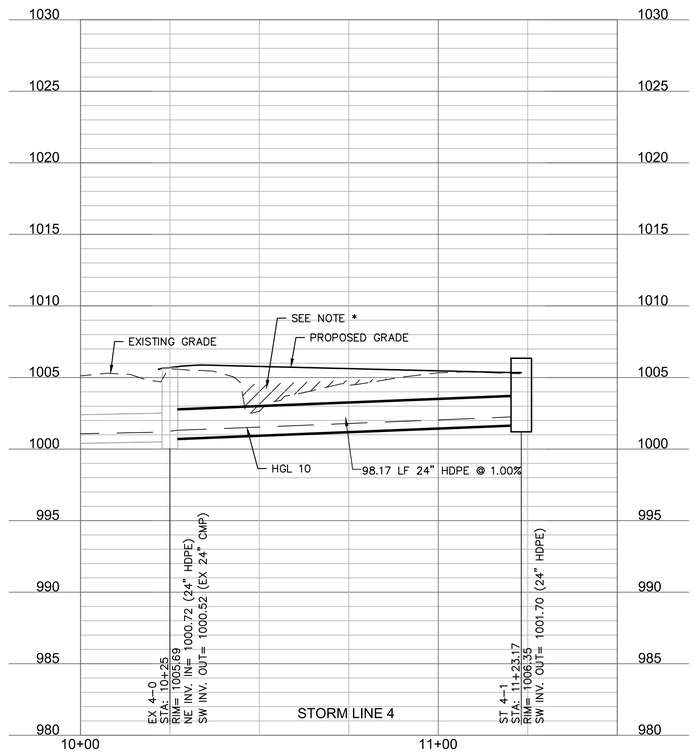
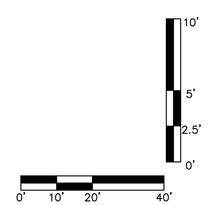






*NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





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STORM PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_STM02_A2104054
date: 08.10.2022

SHEET
C7.3

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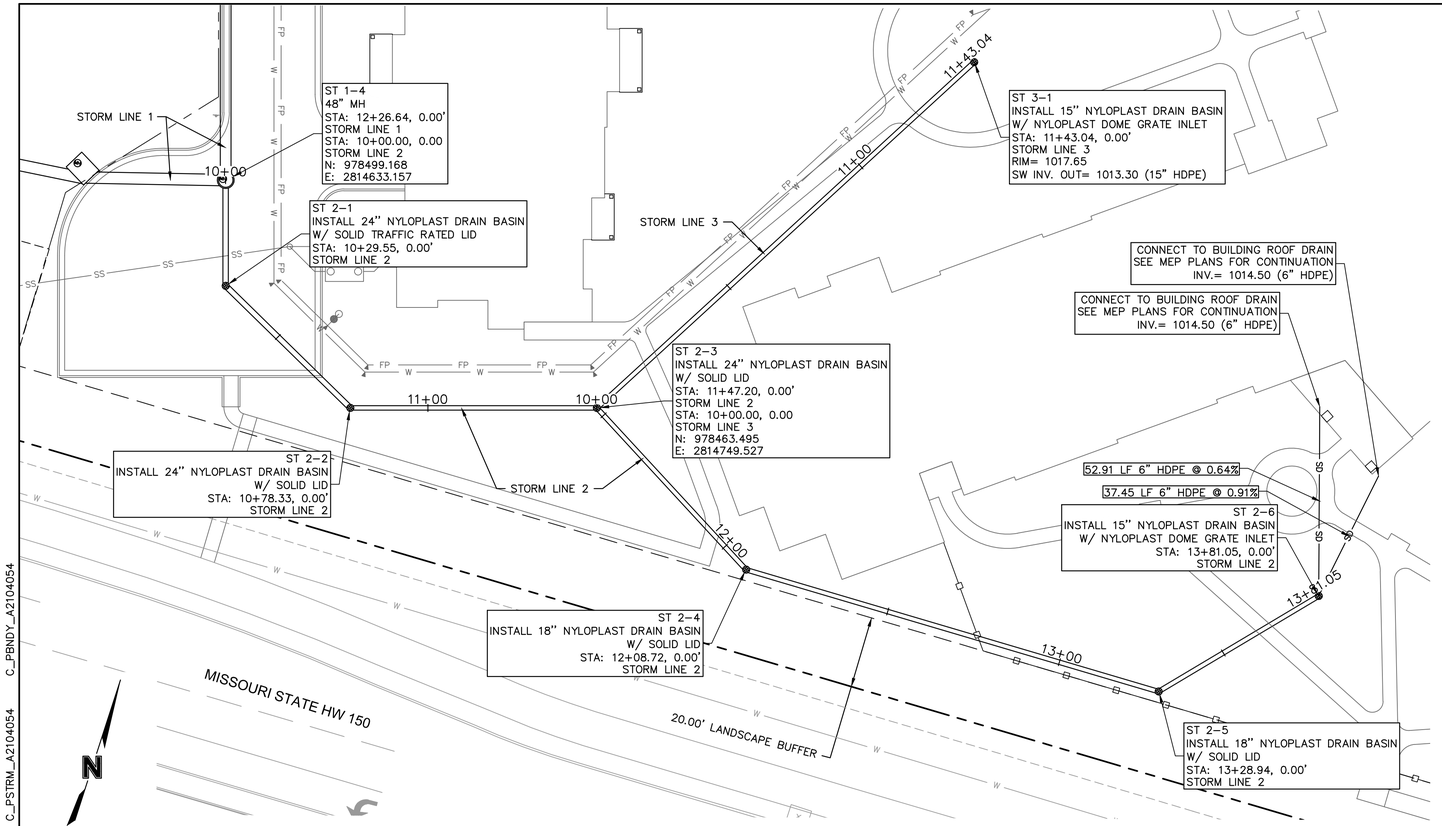
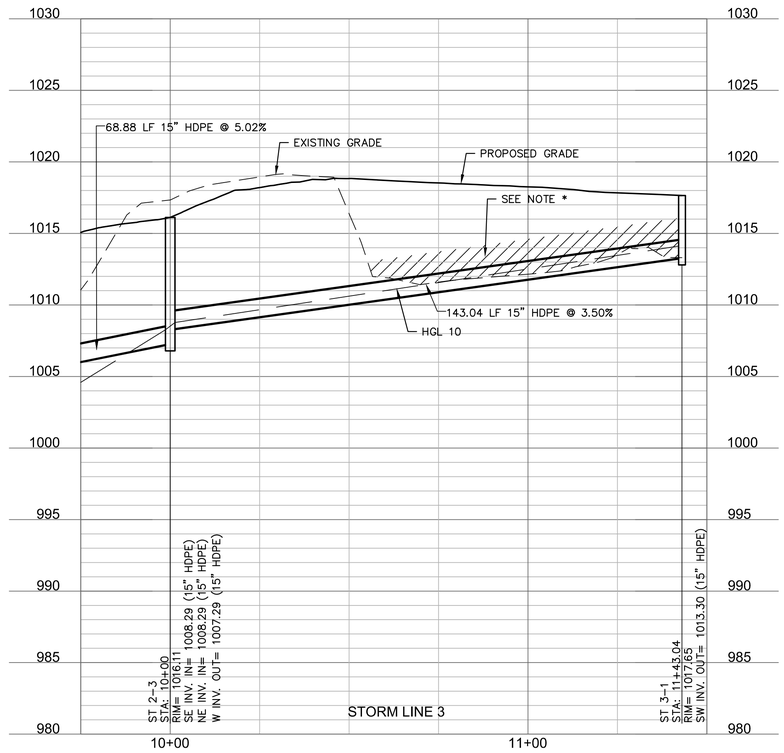
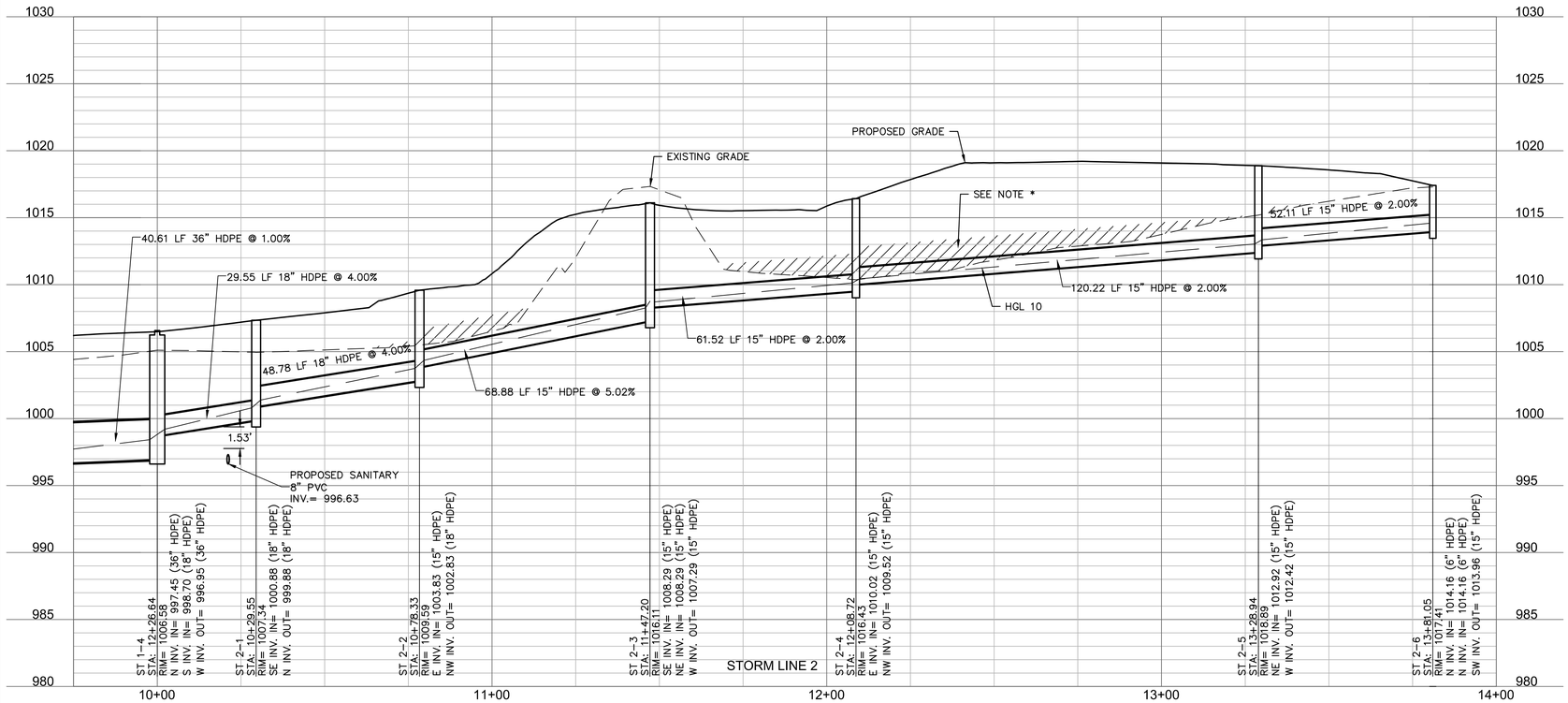
USER: jhodson C_PBLDG_A2104054







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

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/2/23
PROFESSIONAL ENGINEER

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

STORM PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_STM02_A2104054
date: 08.10.2022

SHEET
C7.4

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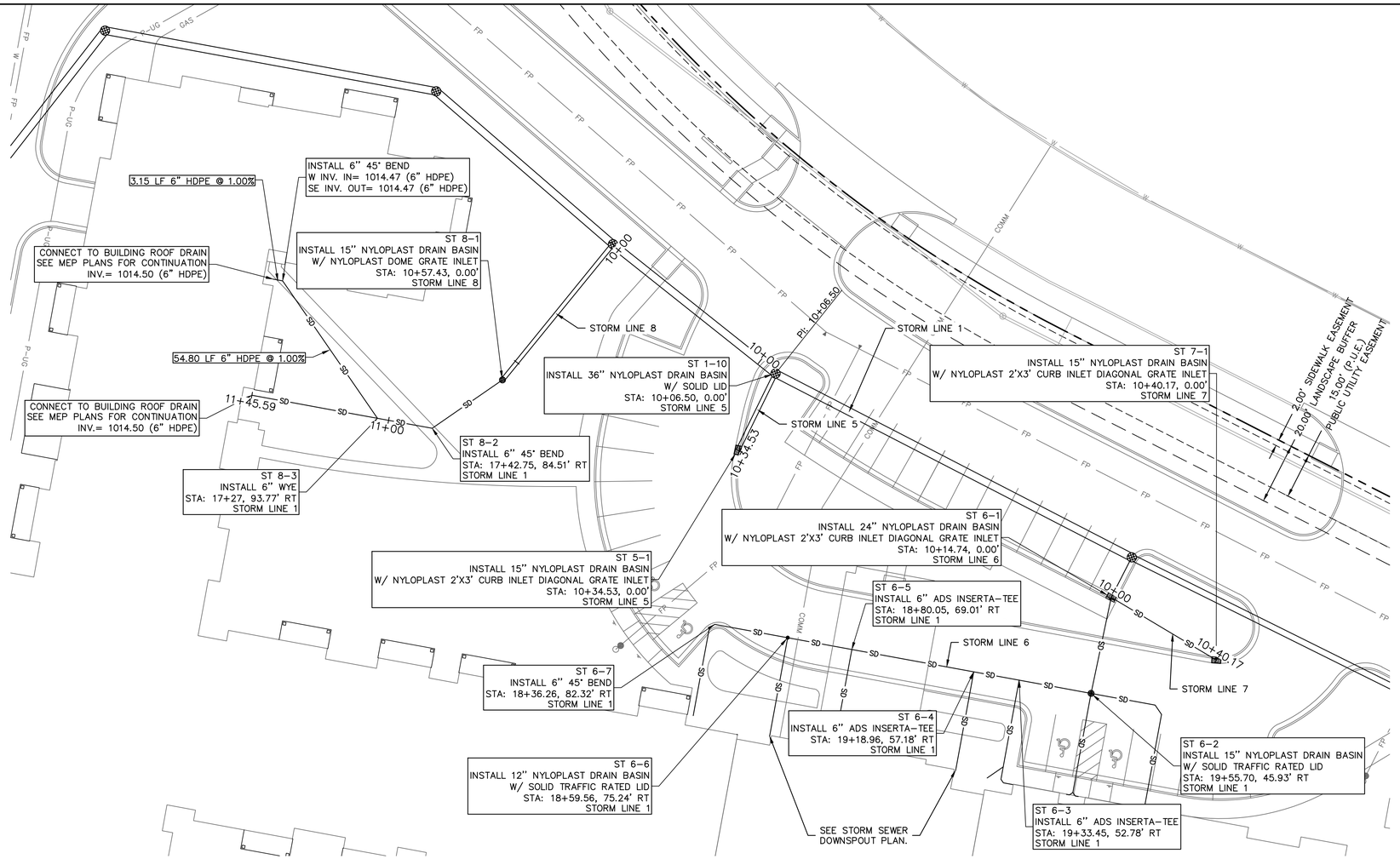

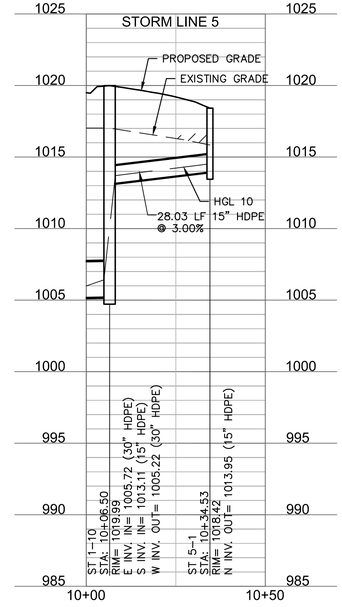

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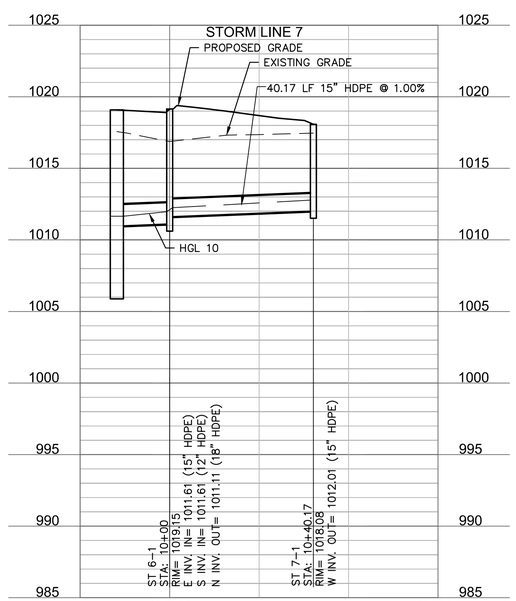

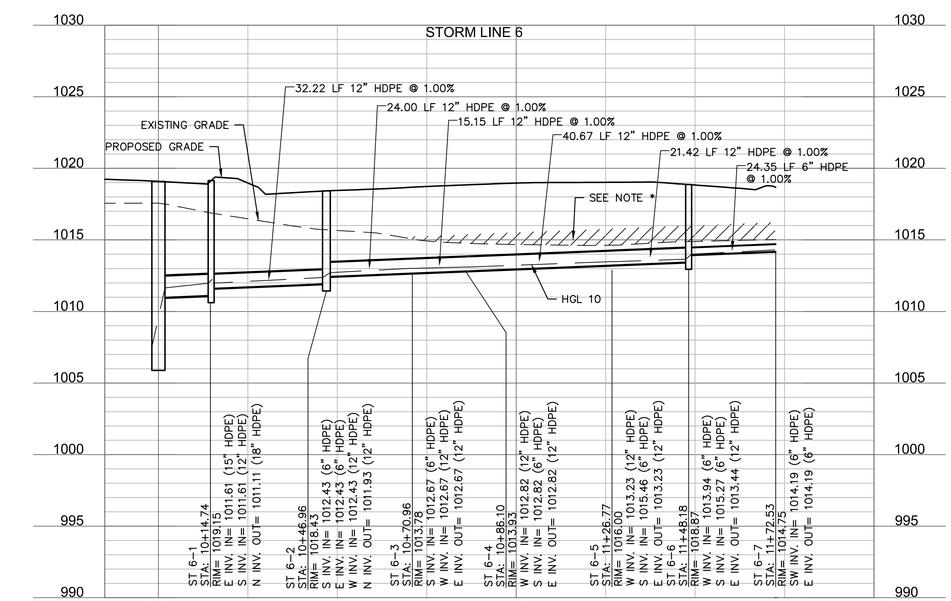

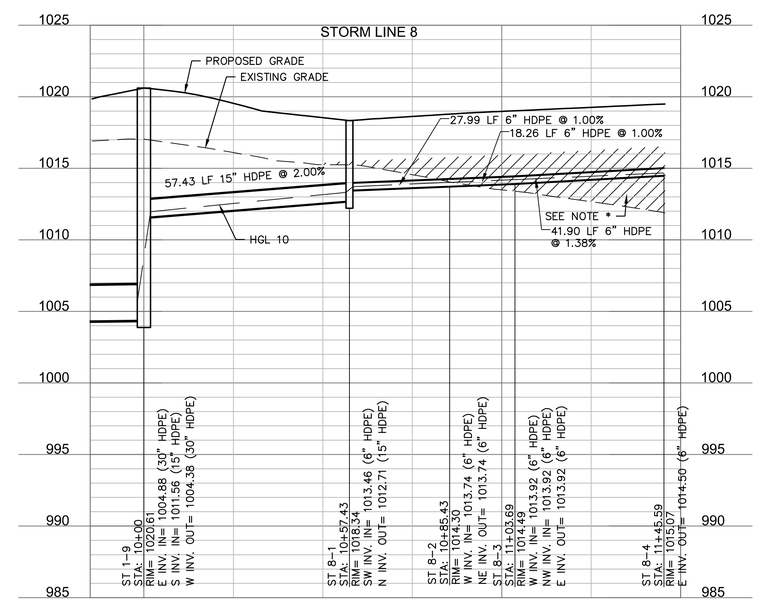

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3	03.03.2023	CITY COMMENTS	

REVISIONS

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_STM02_A2104054
date: 08.10.2022

STORM PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

SHEET
C7.5

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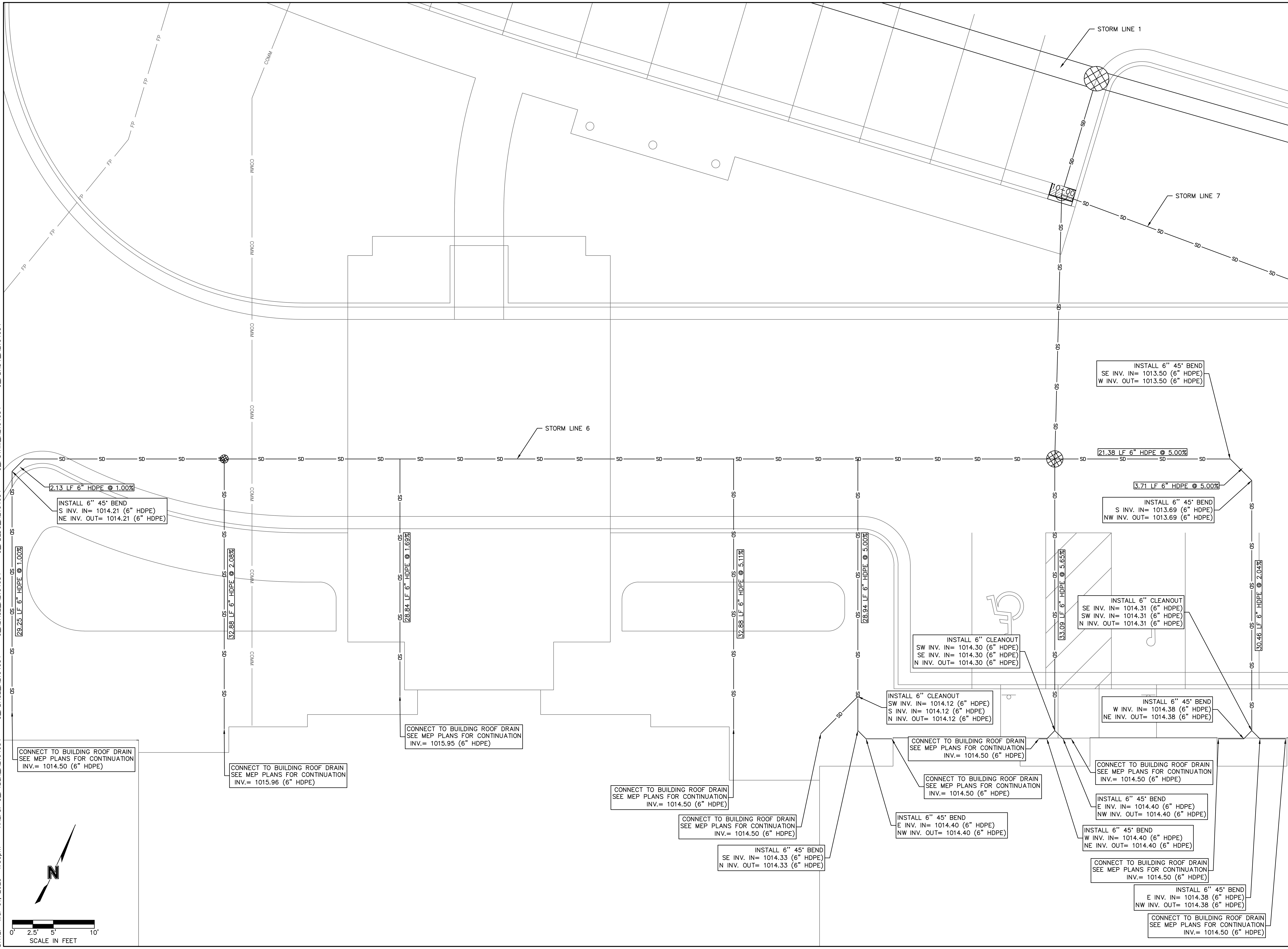

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2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

REVISIONS

STORM PLAN - DOWNSPOUT CONNECTION A

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by:	CSM
checked by:	CSM
approved by:	JS
QA/QC by:	JS
project no.:	A21-04054
drawing no.:	C_STM02_A2104054
date:	08.10.2022

SHEET
C7.6

Storm Sewer Design Calculation Table

10 Year Return Frequency

Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)
ST 1-1	ST P1-3	19.372	993.44	993.24	1.03	36	0.012	24.74	7.5	73.42	1.28	995.04
ST 1-2	ST 1-1	66.087	994.61	993.94	1.01	36	0.012	24.91	7.89	72.75	1.21	996.22
ST 1-3	ST 1-2	92.547	996.08	995.11	1.05	36	0.012	22.22	7.68	73.97	1.13	997.6
ST 1-4	ST 1-3	40.614	996.95	996.58	0.91	36	0.012	21.34	7.36	68.96	1.15	998.43
ST 1-5	ST 1-4	94.846	998.4	997.45	1	36	0.012	17.06	7.03	72.31	0.99	999.72
ST 1-6	ST 1-5	151.279	1000.41	998.9	1	36	0.012	15.33	6.81	72.18	0.94	1001.66
ST 1-7	ST 1-6	88.08	1001.9	1000.91	1.12	30	0.012	14	7.01	47.1	0.93	1003.16
ST 1-8	ST 1-7	110.483	1003.5	1002.4	1	30	0.012	14.21	6.86	44.33	0.97	1004.77
ST 1-9	ST 1-8	76.719	1004.38	1004	0.5	30	0.012	14.36	5.97	31.27	1.19	1005.66
ST 1-10	ST 1-9	68.177	1005.22	1004.88	0.5	30	0.012	12.7	5.76	31.37	1.11	1006.42
ST 1-11	ST 1-10	131.568	1006.38	1005.72	0.5	30	0.012	11.55	5.61	31.47	1.05	1007.52
ST 1-12	ST 1-11	123.87	1007.5	1006.88	0.5	24	0.012	7.22	5.07	17.33	0.9	1008.45
ST 1-13	ST 1-12	20.174	1007.6	1007.5	0.5	24	0.012	7.14	4.85	17.25	0.95	1008.55
ST 1-14	ST 1-13	48.072	1007.84	1007.6	0.5	24	0.012	7.1	4.85	17.31	0.95	1008.79
ST 1-15	ST 1-14	75.093	1008.72	1008.34	0.51	24	0.012	7.21	5.08	17.43	0.9	1009.67
ST 1-16	ST 1-15	86.161	1009.15	1008.72	0.5	24	0.012	7.28	4.92	17.31	0.95	1010.11
ST 1-17	ST 1-16	13.107	1009.72	1009.65	0.53	24	0.012	5.74	4.81	17.9	0.78	1010.57
ST 1-18	ST 1-17	27.321	1010.36	1010.22	0.51	24	0.012	4.85	4.54	17.54	0.72	1011.14
ST 1-19	ST 1-18	44.334	1010.58	1010.36	0.5	24	0.012	4.86	4.32	17.26	0.77	1011.36
ST 1-20	ST 1-19	104.293	1011.6	1011.08	0.5	24	0.012	5.02	4.56	17.3	0.74	1012.39
ST 1-21	ST 1-20	67.95	1013.28	1012.6	1	10	0.012	0.36	2.8	2.37	0.22	1013.54
ST 1-22	ST 1-21	27.501	1013.52	1013.28	0.87	10	0.012	0.25	1.96	2.22	0.26	1013.74
ST 1-23	ST 1-22	15.517	1014.04	1013.89	0.97	6	0.012	0.13	2.22	0.6	0.16	1014.22
ST 2-1	ST 1-4	29.549	999.88	998.7	3.99	18	0.012	5.65	7.83	22.73	0.51	1000.8
ST 2-2	ST 2-1	48.776	1002.83	1000.88	4	18	0.012	5.69	7.85	22.75	0.51	1003.75
ST 2-3	ST 2-2	68.879	1007.29	1003.83	5.02	15	0.012	5.73	8.7	15.68	0.52	1008.26
ST 2-4	ST 2-3	61.517	1009.52	1008.29	2	15	0.012	2.35	5.27	9.89	0.42	1010.13
ST 2-5	ST 2-4	120.22	1012.42	1010.02	2	15	0.012	2.43	5.32	9.88	0.42	1013.04
ST 2-6	ST 2-5	52.11	1013.96	1012.92	2	15	0.012	2.47	5.34	9.88	0.43	1014.59
ST 3-1	ST 2-3	143.036	1013.3	1008.29	3.5	15	0.012	4.03	7.08	13.09	0.48	1014.11
ST 4-1	EX 4-0	98	1001.7	1000.72	1	24	0.012	3.15	4.58	24.5	0.48	1002.32
ST 5-1	ST 1-10	28.026	1013.95	1013.11	3	15	0.012	1.92	5.45	12.11	0.34	1014.5
ST 6-1	ST 1-11	14.736	1011.11	1010.96	1.02	18	0.012	4.99	5.52	11.48	0.69	1011.97
ST 6-2	ST 6-1	32.221	1011.93	1011.61	0.99	12	0.012	1.12	3.77	3.84	0.37	1012.37
ST 6-3	ST 6-2	24	1012.67	1012.43	1	12	0.012	0.68	3.27	3.86	0.28	1013.01
ST 6-4	ST 6-3	15.147	1012.82	1012.67	0.99	12	0.012	0.46	2.23	3.84	0.34	1013.1
ST 6-5	ST 6-4	40.665	1013.23	1012.82	1.01	12	0.012	0.36	2.19	3.87	0.28	1013.48
ST 6-6	ST 6-5	21.415	1013.44	1013.23	0.98	12	0.012	0.25	1.9	3.82	0.25	1013.65
ST 6-7	ST 6-6	24.351	1014.19	1013.94	1.03	6	0.012	0.13	2.26	0.62	0.15	1014.37
ST 7-1	ST 6-1	40.175	1012.01	1011.61	1	15	0.012	3.65	5.17	6.98	0.64	1012.78
ST 8-1	ST 1-9	57.435	1012.71	1011.56	2	15	0.012	2.33	5.25	9.9	0.41	1013.32
ST 8-2	ST 8-1	27.994	1013.74	1013.46	1	6	0.012	0.31	2.93	0.61	0.26	1014.02
ST 8-3	ST 8-2	18.263	1013.92	1013.74	0.99	6	0.012	0.32	2.75	0.6	0.28	1014.21
ST 8-4	ST 8-3	41.897	1014.5	1013.92	1.38	6	0.012	0.13	1.61	0.71	0.28	1014.68

Storm Sewer Design Calculation Table

100 Year Return Frequency

Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)
ST 1-1	ST P1-3	19.372	993.44	993.24	1.03	36	0.012	51.85	10.01	73.42	1.86	995.78
ST 1-2	ST 1-1	66.087	994.61	993.94	1.01	36	0.012	52.07	9.99	72.75	1.88	996.95
ST 1-3	ST 1-2	92.547	996.08	995.11	1.05	36	0.012	46.27	9.21	73.97	1.84	998.29
ST 1-4	ST 1-3	40.614	996.95	996.58	0.91	36	0.012	44.35	9.23	68.96	1.75	999.12
ST 1-5	ST 1-4	94.846	998.4	997.45	1	36	0.012	35.24	8.04	72.31	1.67	1000.33
ST 1-6	ST 1-5	151.279	1000.41	998.9	1	36	0.012	31.34	8.23	72.18	1.43	1002.22
ST 1-7	ST 1-6	88.08	1001.9	1000.91	1.12	30	0.012	28.49	8.75	47.1	1.4	1003.72
ST 1-8	ST 1-7	110.483	1003.5	1002.4	1	30	0.012	28.76	8.54	44.33	1.47	1005.33
ST 1-9	ST 1-8	76.719	1004.38	1004	0.5	30	0.012	28.94	7.23	31.27	1.9	1006.28
ST 1-10	ST 1-9	68.177	1005.22	1004.88	0.5	30	0.012	25.49	7.07	31.37	1.72	1006.94
ST 1-11	ST 1-10	131.568	1006.38	1005.72	0.5	30	0.012	22.97	6.89	31.47	1.59	1008.01
ST 1-12	ST 1-11	123.87	1007.5	1006.88	0.5	24	0.012	14.21	6.16	17.33	1.38	1008.88
ST 1-13	ST 1-12	20.174	1007.6	1007.5	0.5	24	0.012	14.04	5.27	17.25	1.61	1009.15
ST 1-14	ST 1-13	48.072	1007.84	1007.6	0.5	24	0.012	13.92	5.01	17.31	1.73	1009.43
ST 1-15	ST 1-14	75.093	1008.72	1008.34	0.51	24	0.012	14.04	6.18	17.43	1.36	1010.08
ST 1-16	ST 1-15	86.161	1009.15	1008.72	0.5	24	0.012	14.07	5.68	17.31	1.6	1010.52
ST 1-17	ST 1-16	13.107	1009.72	1009.65	0.53	24	0.012	11.08	5.83	17.9	1.14	1010.91
ST 1-18	ST 1-17	27.321	1010.36	1010.22	0.51	24	0.012	9.33	5.5	17.54	1.04	1011.45
ST 1-19	ST 1-18	44.334	1010.58	1010.36	0.5	24	0.012	9.3	5.32	17.26	1.09	1011.67
ST 1-20	ST 1-19	104.293	1011.6	1011.08	0.5	24	0.012	9.47	5.49	17.3	1.06	1012.7
ST 1-21	ST 1-20	67.95	1013.28	1012.6	1	10	0.012	0.66	3.34	2.37	0.3	1013.64
ST 1-22	ST 1-21	27.501	1013.52	1013.28	0.87	10	0.012	0.45	2.32	2.22	0.36	1013.81
ST 1-23	ST 1-22	15.517	1014.04	1013.89	0.97	6	0.012	0.23	2.64	0.6	0.21	1014.28
ST 2-1	ST 1-4	29.549	999.88	998.7	3.99	18	0.012	10.75	9.74	22.73	0.73	1001.14
ST 2-2	ST 2-1	48.776	1002.83	1000.88	4	18	0.012	10.8	9.76	22.75	0.73	1004.09
ST 2-3	ST 2-2	68.879	1007.29	1003.83	5.02	15	0.012	10.84	11.37	15.68	0.76	1008.49
ST 2-4	ST 2-3	61.517	1009.52	1008.29	2	15	0.012	4.42	6.4	9.89	0.59	1010.37
ST 2-5	ST 2-4	120.22	1012.42	1010.02	2	15	0.012	4.5	6.44	9.88	0.59	1013.28
ST 2-6	ST 2-5	52.11	1013.96	1012.92	2	15	0.012	4.54	6.45	9.88	0.59	1014.82
ST 3-1	ST 2-3	143.036	1013.3	1008.29	3.5	15	0.012	7.07	8.61	13.09	0.65	1014.36
ST 4-1	EX 4-0	98	1001.7	1000.72	1	24	0.012	5.53	5.39	24.5	0.65	1002.53
ST 5-1	ST 1-10	28.026	1013.95	1013.11	3	15	0.012	3.38	6.46	12.11	0.45	1014.69
ST 6-1	ST 1-11	14.736	1011.11	1010.96	1.02	18	0.012	9.51	6.79	11.48	1.04	1012.3
ST 6-2	ST 6-1	32.221	1011.93	1011.61	0.99	12	0.012	2.11	3.89	3.84	0.69	1012.55
ST 6-3	ST 6-2	24	1012.67	1012.43	1	12	0.012	1.28	3.93	3.86	0.4	1013.15
ST 6-4	ST 6-3	15.147	1012.82	1012.67	0.99	12	0.012	0.86	2.69	3.84	0.48	1013.21
ST 6-5	ST 6-4	40.665	1013.23	1012.82	1.01	12	0.012	0.66	2.59	3.87	0.39	1013.57
ST 6-6	ST 6-5	21.415	1013.44	1013.23	0.98	12	0.012	0.45	2.23	3.82	0.34	1013.72
ST 6-7	ST 6-6	24.351	1014.19	1013.94	1.03	6	0.012	0.23	2.68	0.62	0.21	1014.43
ST 7-1	ST 6-1	40.175	1012.01	1011.61	1	15	0.012	6.4	6.21	6.98	0.94	1013.03
ST 8-1	ST 1-9	57.435	1012.71	1011.56	2	15	0.012	4.2	6.3	9.9	0.57	1013.54
ST 8-2	ST 8-1	27.994	1013.74	1013.46	1	6	0.012	0.57	3.51	0.61	0.38	1014.12
ST 8-3	ST 8-2	18.263	1013.92	1013.74	0.99	6	0.012	0.57	3.49	0.6	0.39	1014.31
ST 8-4	ST 8-3	41.897	1014.5	1013.92	1.38	6	0.012	0.23	1.85	0.71	0.46	1014.74

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JULIE ELAINE SELLERS
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PROFESSIONAL ENGINEER

REVISIONS

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2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

STORM DESIGN TABLES

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_STM04_A2104054
date: 08.10.2022

SHEET
C7.8

DWG: F:\2021\04001-04500\021-04054-a\40-design\AutoCAD\final plans\Sheets\GNCV\C_STM04_A2104054.dwg USER: jhodson
DATE: Mar 01, 2023 4:50pm XREFS: C_PTBLK_A2104054

INSTALL SANITARY SEWER CLEANOUT
E INV. IN= 999.55 (8" PVC)
W INV. OUT= 999.55 (8" PVC)
N: 978491.950
E: 2814679.451

INSTALL 4" SANITARY SEWER 45° BEND
E INV. IN= 999.68 (4" PVC)
SW INV. OUT= 999.68 (4" PVC)
N: 978492.257
E: 2814684.102

INSTALL 25.09 LF 8" PVC @ 4.00%

INSTALL 2.50 LF 4" PVC @ 5.83%

CONNECT TO BUILDING
SEE MEP PLANS FOR CONTINUATION
W INV. OUT= 999.83 (8" PVC)
N: 978493.723
E: 2814686.305

INSTALL SANITARY SEWER CLEANOUT
E INV. IN= 998.54 (8" PVC)
SE INV. IN= 998.54 (4" PVC)
SW INV. OUT= 998.54 (8" PVC)
N: 978485.669
E: 2814655.159

CONNECT TO BUILDING
SEE MEP PLANS FOR CONTINUATION
W INV. OUT= 999.83 (4" PVC)
N: 978492.883
E: 2814686.522

36.00' UTILITY EASEMENT

INSTALL 88.72 LF 8" PVC @ 10.57%

INSTALL 8.62 LF 4" PVC @ 6.00%

INSTALL 9.85 LF 4" PVC @ 3.50%

INSTALL 4" SANITARY SEWER 45° BEND
NE INV. IN= 999.17 (4" PVC)
W INV. OUT= 999.17 (4" PVC)
N: 978484.829
E: 2814679.726

INSTALL 4" SANITARY SEWER 45° BEND
E INV. IN= 998.88 (4" PVC)
NW INV. OUT= 998.88 (4" PVC)
N: 978480.671
E: 2814663.643

INSTALL 1,500 GAL
GREASE INTERCEPTOR
PER MEP PLANS

CONNECT TO EXISTING 48" MANHOLE
PER LEE'S SUMMIT STANDARD DETAILS
AND SPECIFICATIONS.
CONTRACTOR TO VIELD VERIFY INVERT.
NE INV. IN= 988.96 (8" PVC)
W INV. IN= 987.46 (10" PVC)(EXISTING)
S INV. OUT= 986.96 (10" PVC) (EXISTING)
N: 978450.612
E: 2814571.529

PUBLIC SANITARY SEWER EXTENSION,
SEE SEPARATE PLANS FOR DESIGN DATA.

20.00' LANDSCAPE BUFFER

MISSOURI STATE HW 150

N

0' 5' 10' 20'
SCALE IN FEET

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STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/2/23
PROFESSIONAL ENGINEER

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

SANITARY SEWER PLAN

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

2023

LEE'S SUMMIT, MO

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_SAN01_A2104054
date: 08.10.2022

SHEET
C8.0

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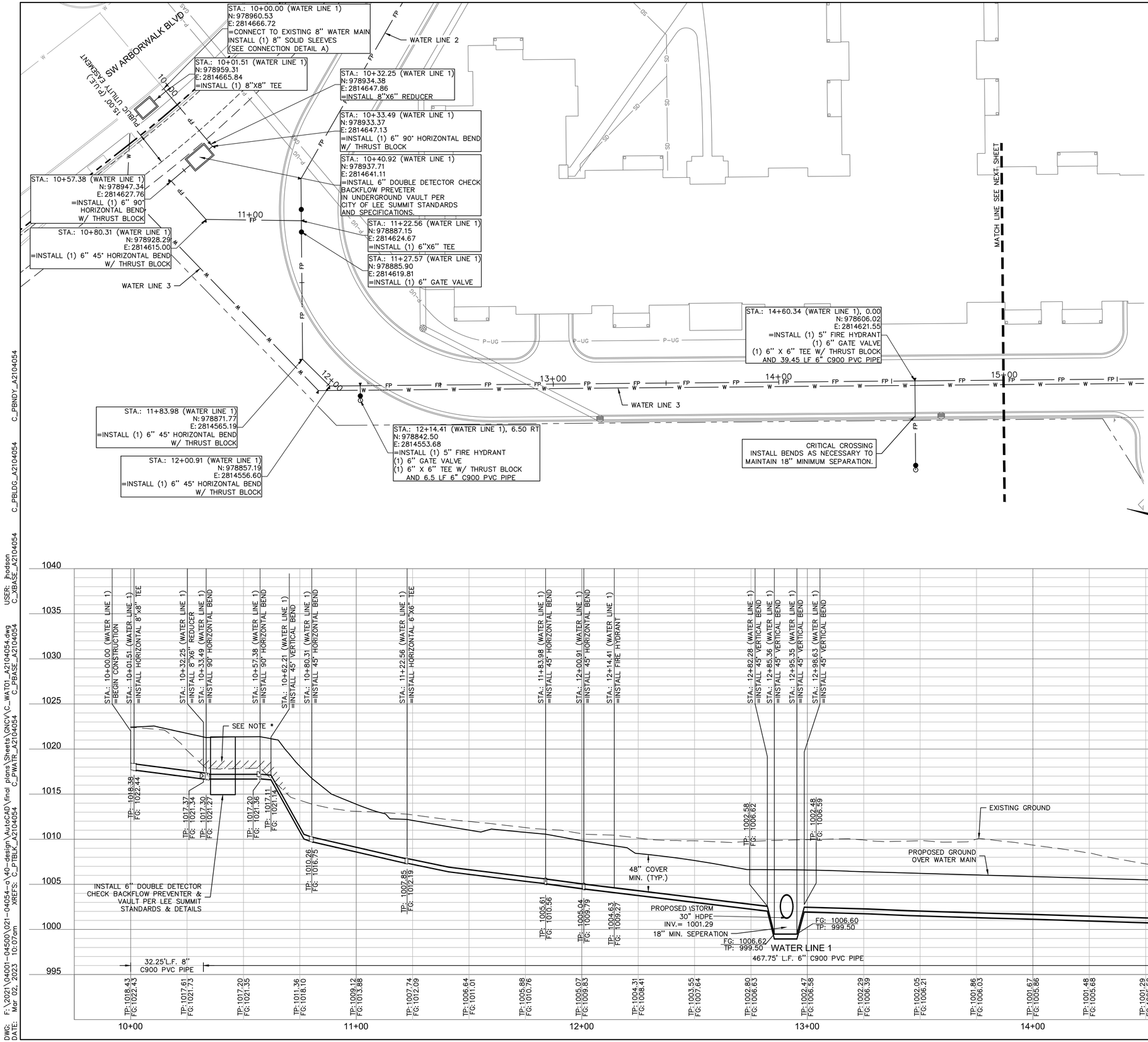

WATER PLAN NOTES

1. PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE CONSTRUCTION WITH UTILITY OWNER.
2. ALL PIPE LENGTHS ARE CALCULATED LINEARLY FROM CENTER OF FITTING OR WALL OF VAULT.
3. COORDINATES ARE PROVIDED ALONG PIPE CENTERLINE. ADDITIONAL COORDINATES PROVIDED ARE PER LOCAL CODES AND ORDINANCES OR AS AN AID WHEN ORIENTING INSTALLATIONS.
4. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT LOCATIONS OF POSSIBLE CONFLICT AND POINTS OF CONNECTION PRIOR TO ANY CONSTRUCTION OF WATER.
5. WATER PIPE TRENCHES SHALL BE CONSTRUCTED SUCH THAT UNDISTURBED EXISTING SOIL OR FILL COMPACTED TO 95% PROCTOR DENSITY IS AT A DEPTH THAT IS 18" ABOVE TOP OF PROPOSED PIPE.
6. ALL PRIVATE WATER LINES SHALL BE A MINIMUM OF 48 INCHES AND MAXIMUM OF 60 INCHES BELOW THE FINISHED GRADE ELEVATIONS SHOWN HEREIN UNLESS OTHERWISE NOTED.
7. IF AN AS-BUILT OF A WATER LINE IS REQUIRED OR EXPECTED THE CONTRACTOR SHALL NOT BACKFILL THE TRENCH UNTIL AN AS-BUILT SURVEY IS CONDUCTED.
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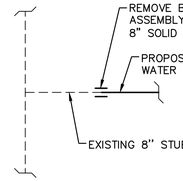
11. ALL WATER SERVICE INSTALLATIONS INCLUDING BACKFLOW DEVICES ARE SUBJECT TO FIELD VERIFICATION AND APPROVAL BY THE WATER DEPARTMENT INSPECTOR.



CONNECTION DETAIL A

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

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WATER PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by:	CSM
checked by:	CSM
approved by:	JS
QA/QC by:	JS
project no.:	A21-04054
drawing no.:	C_WAT01_A2104054
date:	08.10.2022

SHEET
C9.0

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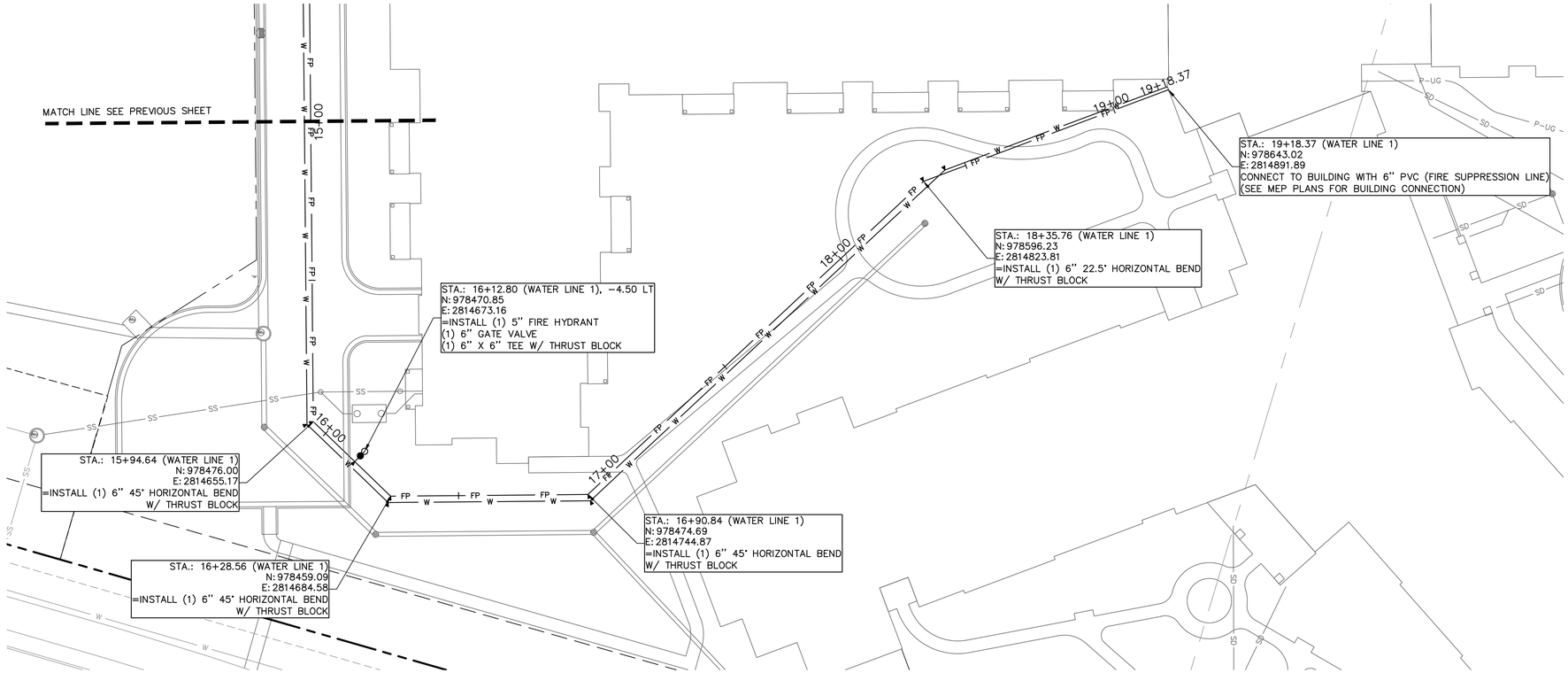

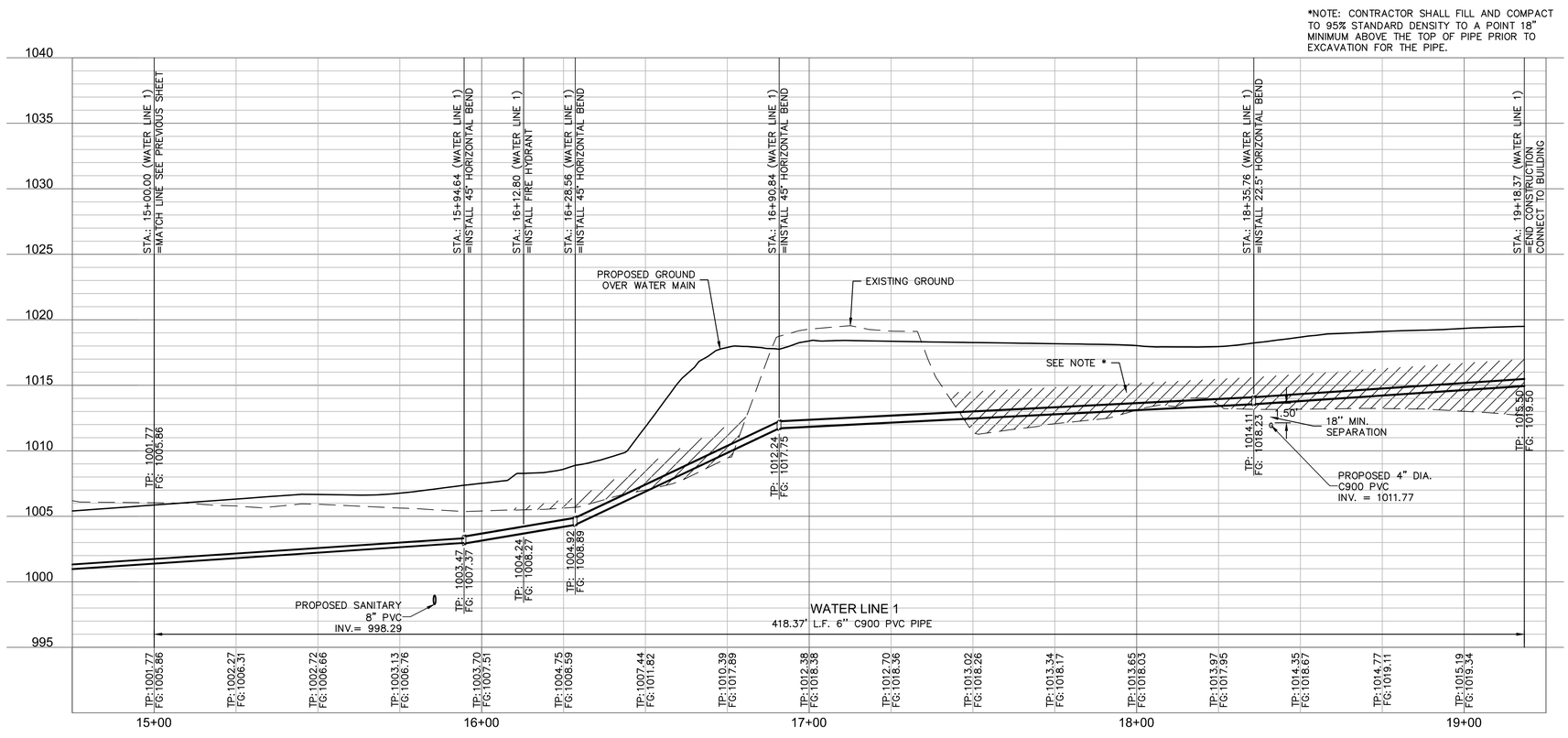

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WATER PLAN & PROFILE

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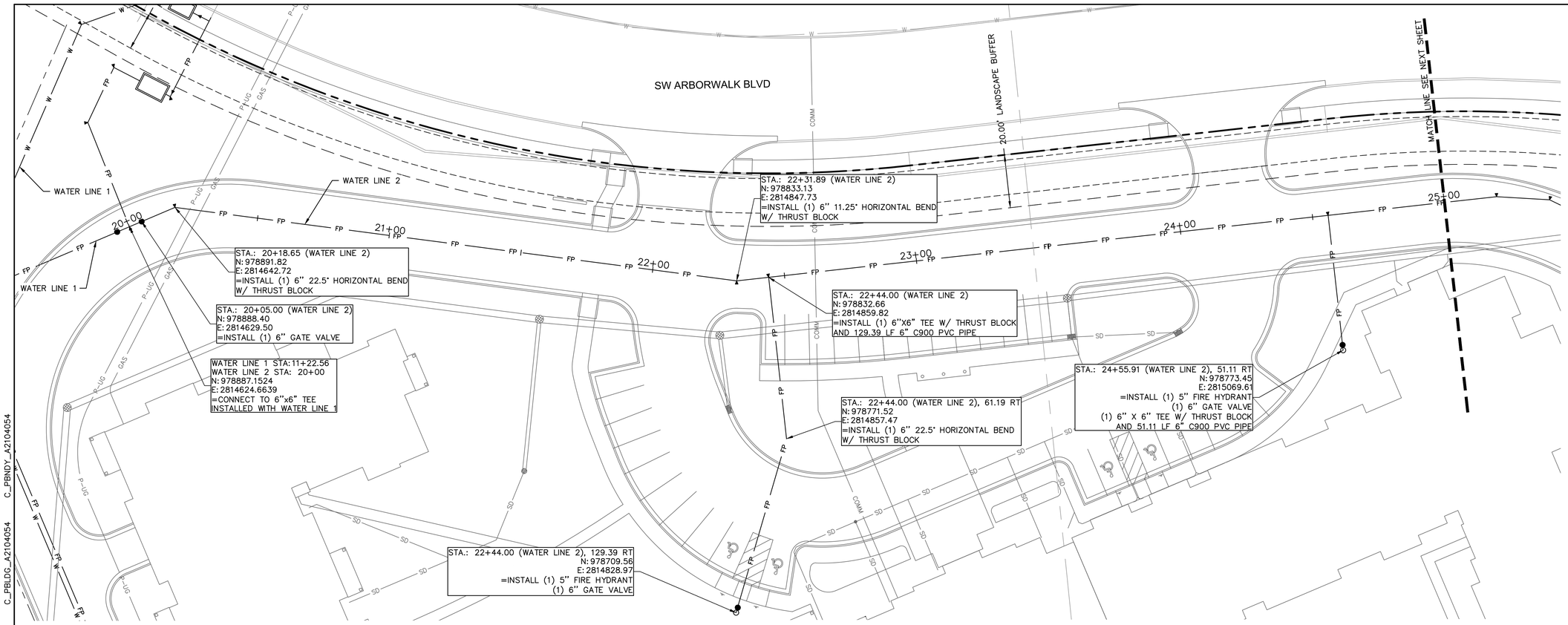
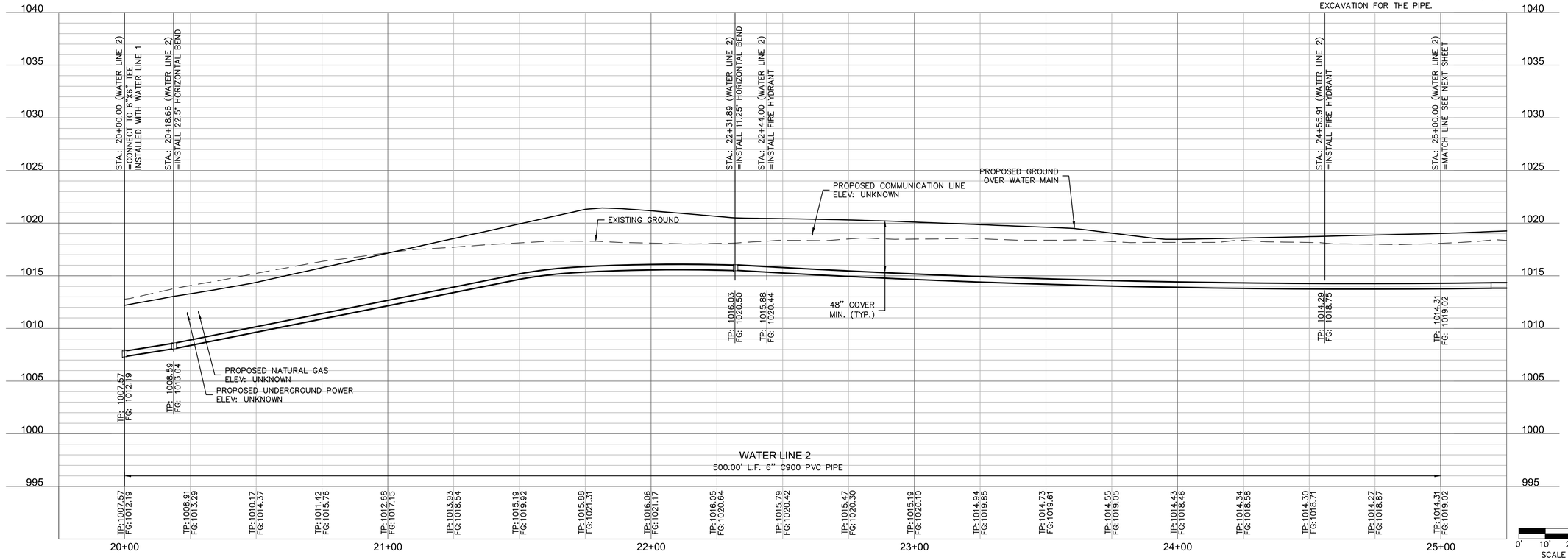
SHEET
C9.1



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



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WATER PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN
LEE'S SUMMIT, MO
2023

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SHEET
C9.2

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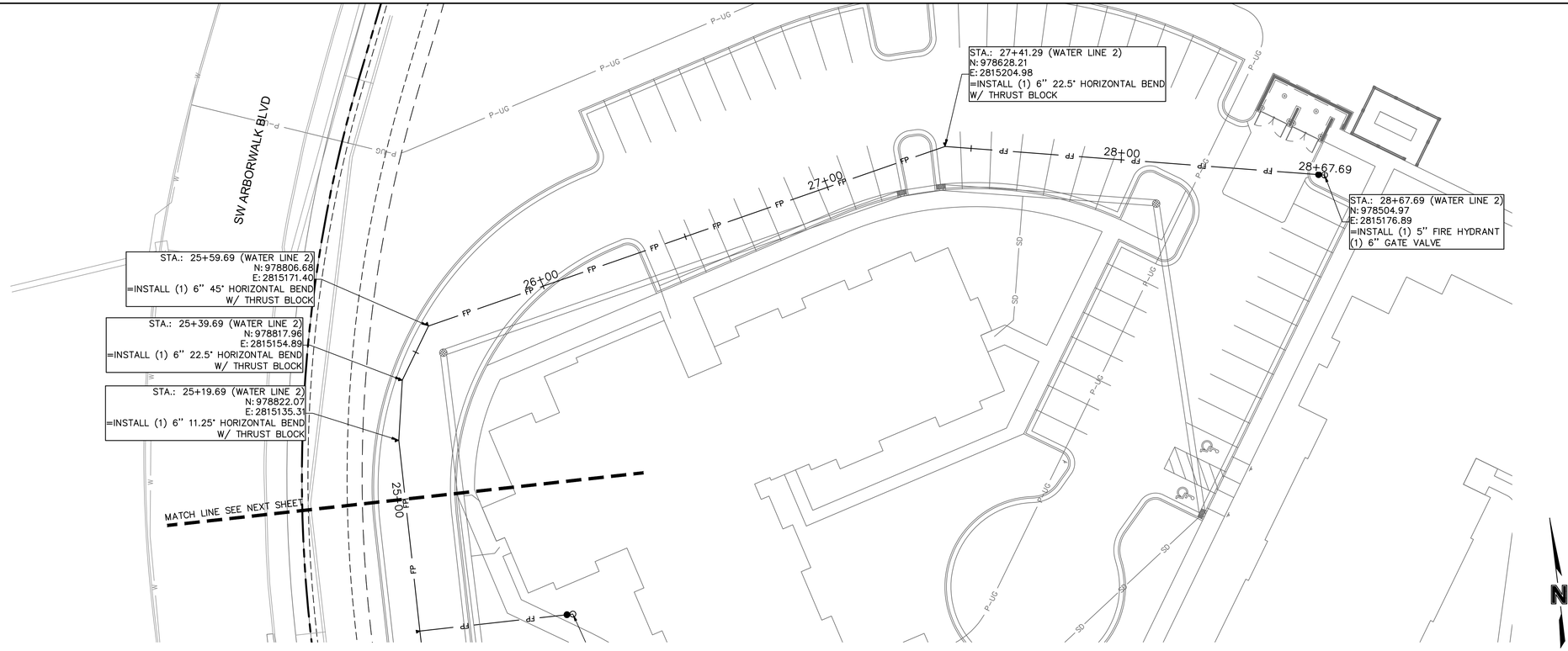

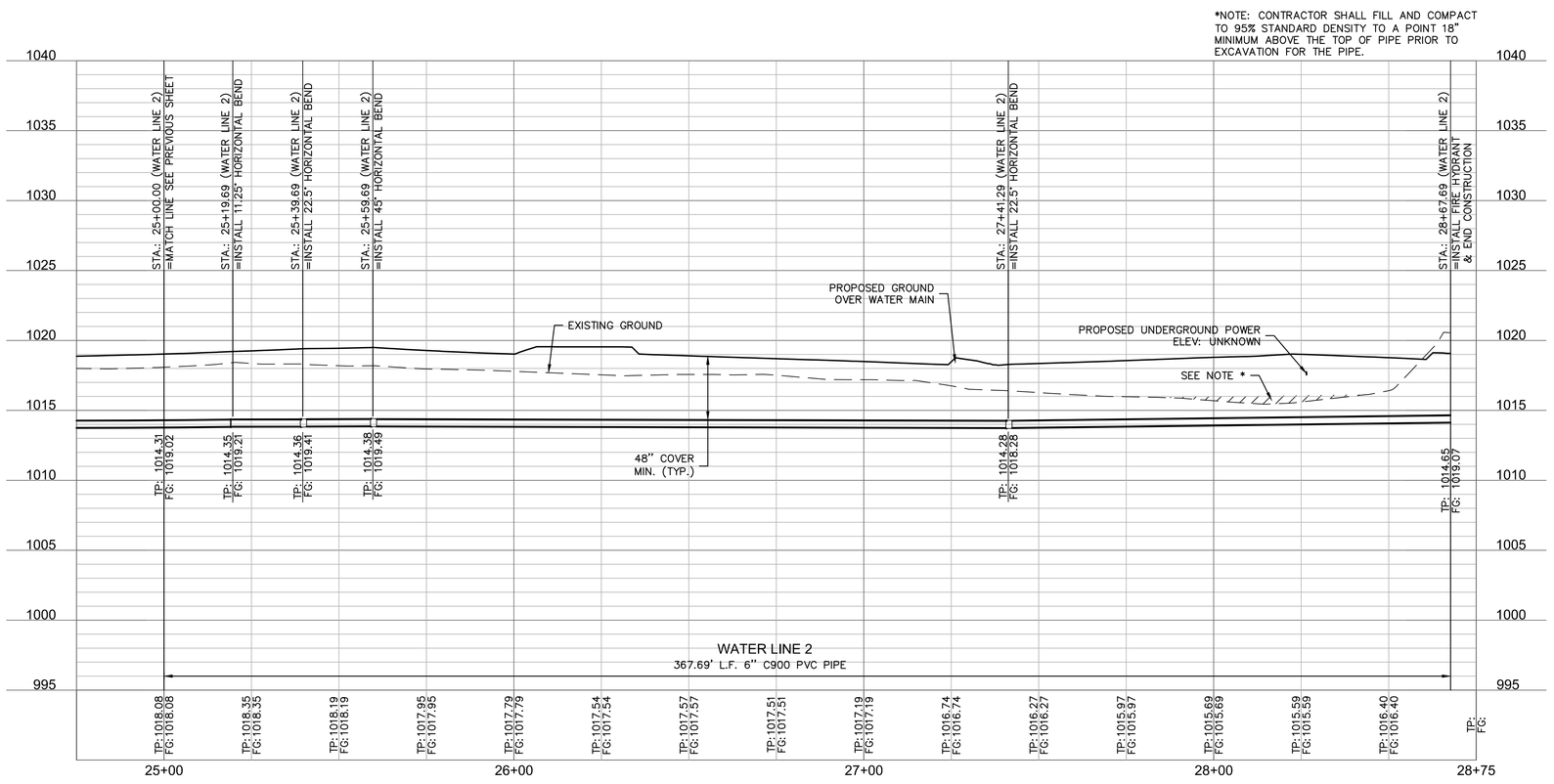

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WATER PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

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SHEET
C9.3

10'
5'
2.5'
0'
0' 10' 20' 40'
SCALE IN FEET

DWG: F:\2021\04001-04500\021-04054-0\40-design\AutoCAD\final plans\Sheets\GNCV\C_WAT01_A2104054.dwg USER: jhodson
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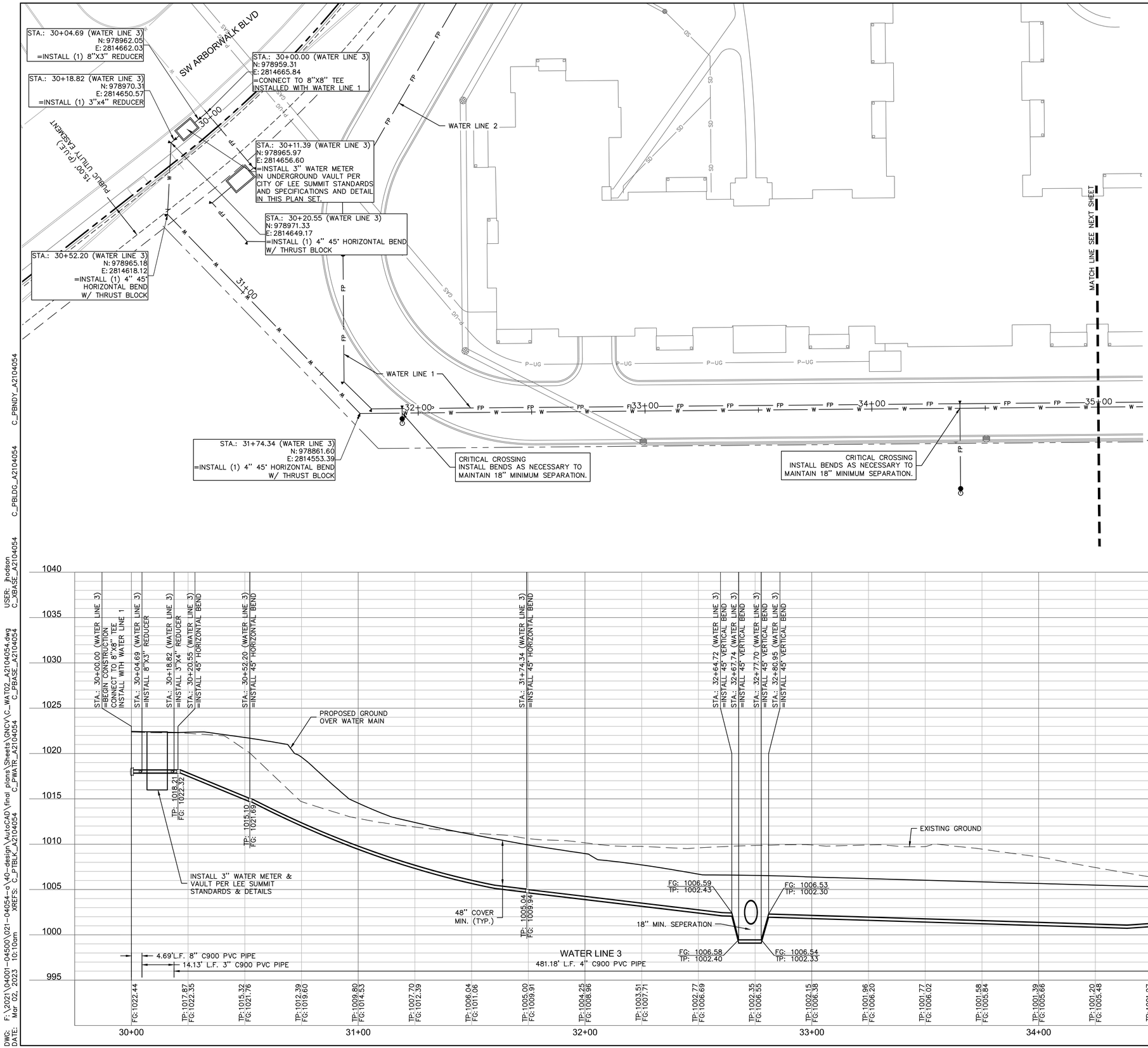

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3/2/23

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WATER PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
drawing no.: C_WAT02_A2104054
date: 08.10.2022

SHEET
C9.4

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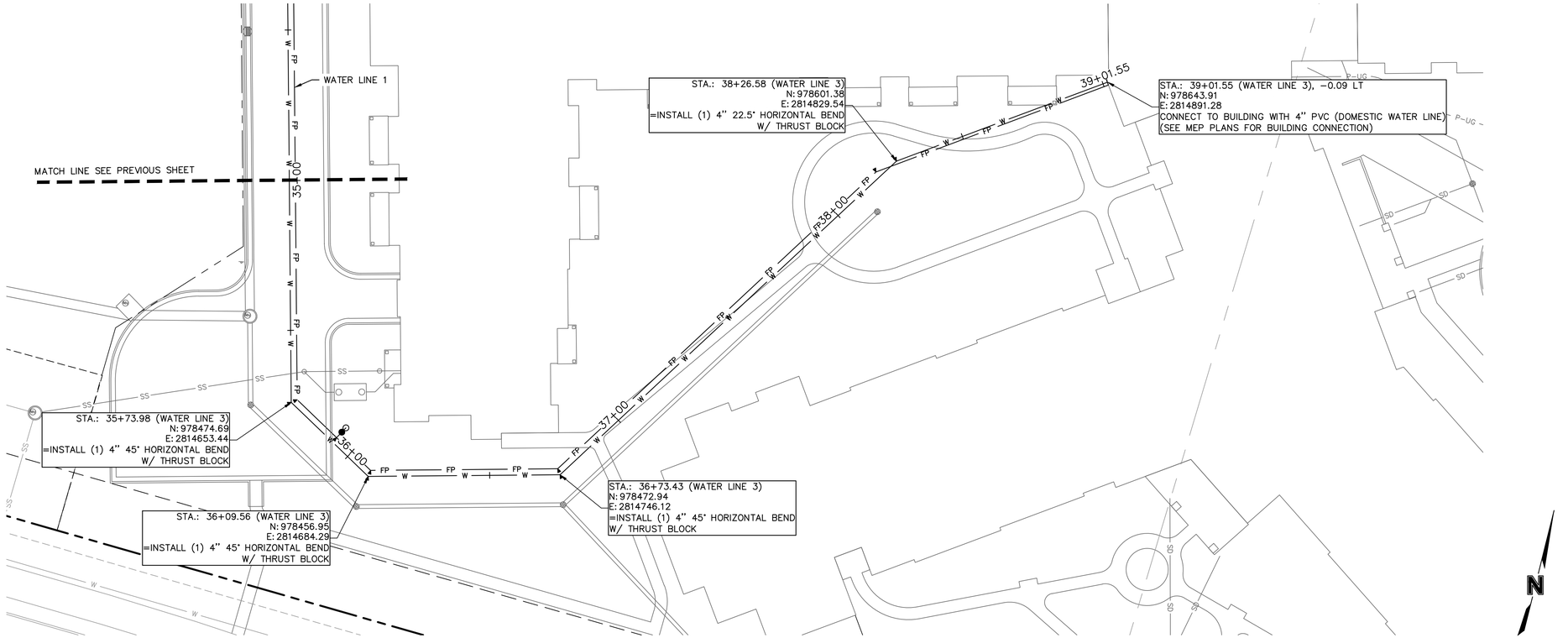

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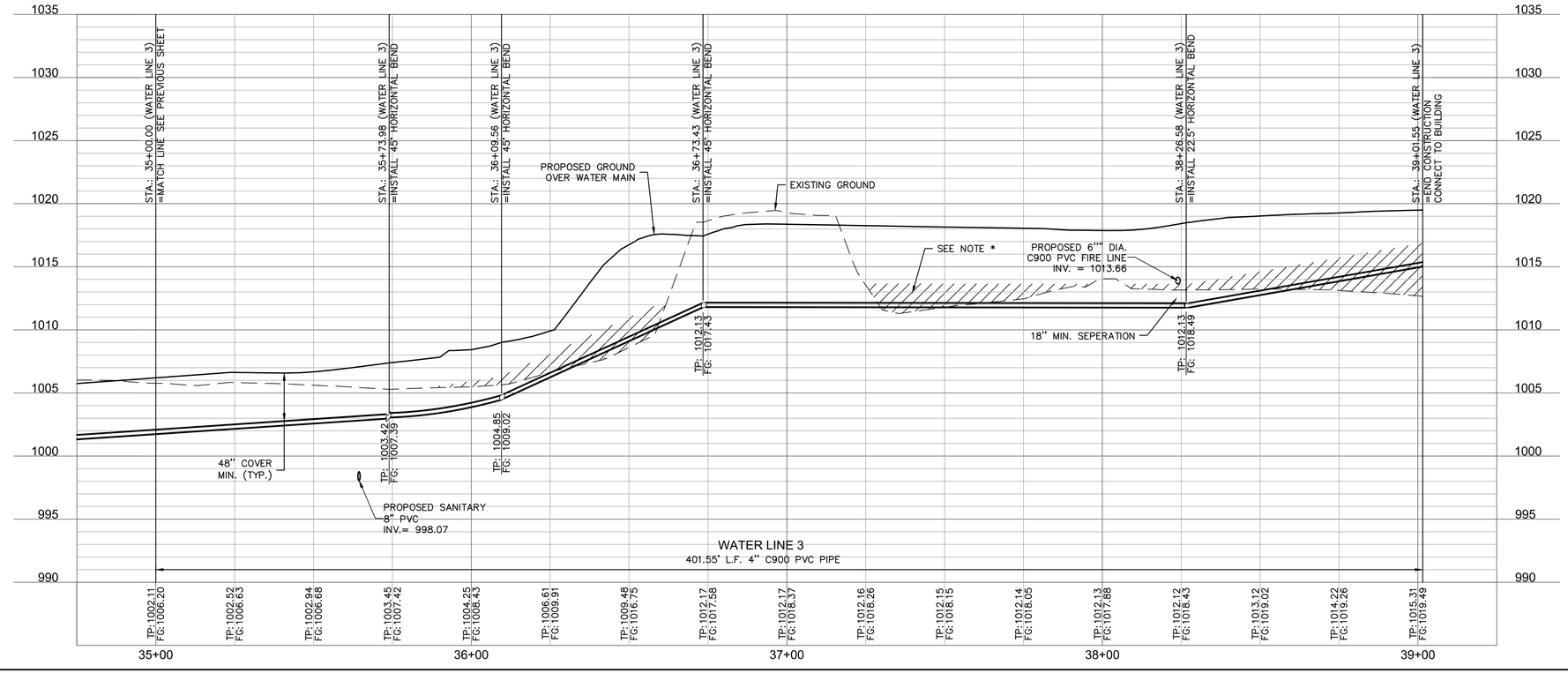

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WATER PLAN & PROFILE

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
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SHEET
C9.5

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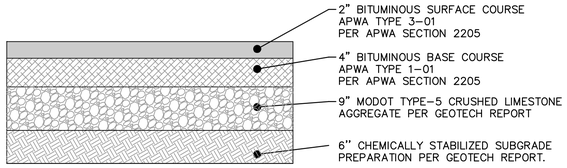
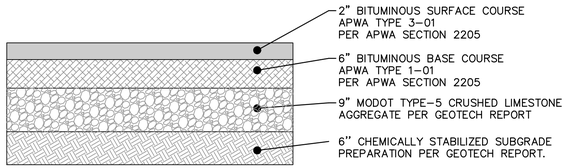


NOTE: ALL CONSTRUCTION, SITE PREPARATION, GRADING, AND EXCAVATION PROCEDURES SHALL CONFORM TO RECOMMENDATIONS AS OUTLINED IN THE GEOTECHNICAL REPORT INCLUDING ADDENDUMS. CONTRACTOR SHALL CONTACT ENGINEER WITH ANY DISCREPANCIES OR CONCERNS BASED ON ACTUAL SITE CONDITIONS.

PARKING AREA ASPHALT SECTION

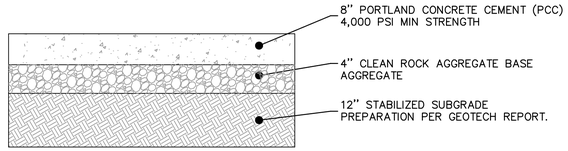
NOT TO SCALE



NOTE: ALL CONSTRUCTION, SITE PREPARATION, GRADING, AND EXCAVATION PROCEDURES SHALL CONFORM TO RECOMMENDATIONS AS OUTLINED IN THE GEOTECHNICAL REPORT INCLUDING ADDENDUMS. CONTRACTOR SHALL CONTACT ENGINEER WITH ANY DISCREPANCIES OR CONCERNS BASED ON ACTUAL SITE CONDITIONS.

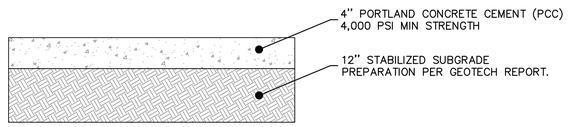
DRIVE AREA ASPHALT SECTION

NOT TO SCALE



HEAVY PCC SECTION

NOT TO SCALE



PCC SIDEWALK SECTION

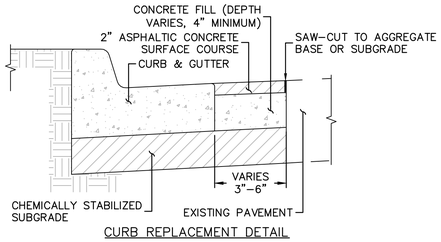
NOT TO SCALE

NOTES

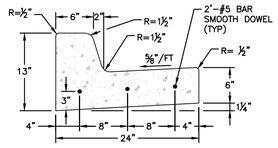
1. 5,000 PSI KCMMB CONCRETE SHALL BE USED FOR STRUCTURES WITH ORIFICE PLATE
2. STRUCTURES MAY BE PRE-CAST OR CAST IN PLACE AT THE CONTRACTOR'S OPTION. FOR PRE-CAST CONSTRUCTION CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE DESIGN ENGINEER, AND PROVIDE A COPY OF THE APPROVED SHOP DRAWINGS TO THE CITY.

GENERAL NOTES:

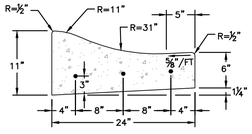
1. ¾" ISOLATION JOINTS WITH 3 (2'-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH.
4. KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURBS.
5. ASPHALTIC CONCRETE SURFACE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
6. CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
8. AGGREGATE BASE AND SUBGRADE PREPARATION SHALL EXTEND A MINIMUM ONE FOOT BEYOND THE BACK OF CURB



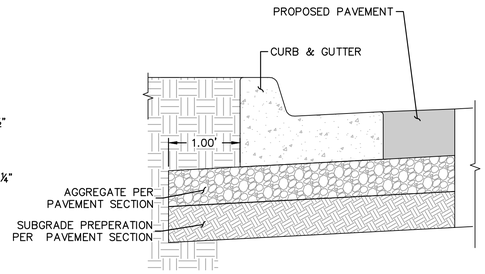
CURB REPLACEMENT DETAIL



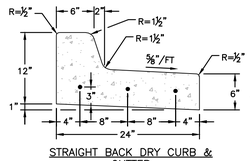
STRAIGHT BACK CURB & GUTTER
(TYPE CG-1)



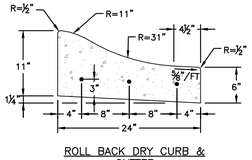
ROLL BACK CURB & GUTTER
(TYPE CG-2)



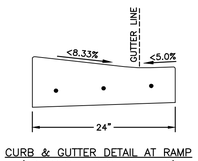
CURB & GUTTER SUBGRADE PREPARATION



STRAIGHT BACK DRY CURB & GUTTER
(TYPE CG-1 DRY)



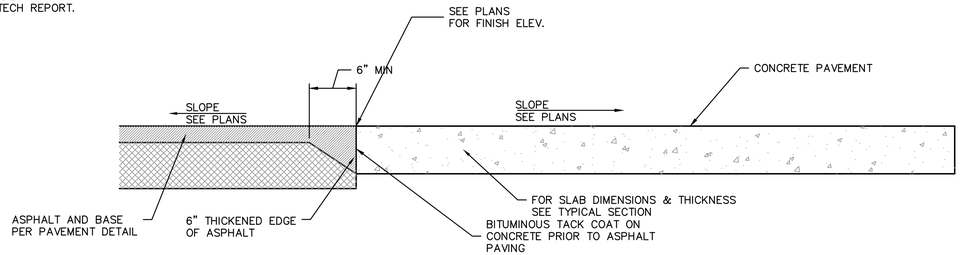
ROLL BACK DRY CURB & GUTTER
(TYPE CG-2 DRY)



CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)

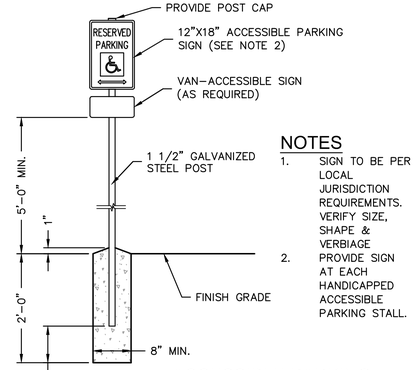
CURB & GUTTER DETAIL

NOT TO SCALE



TYPICAL JOINT SECTION AT CONCRETE AND ASPHALT PAVEMENT

NOT TO SCALE

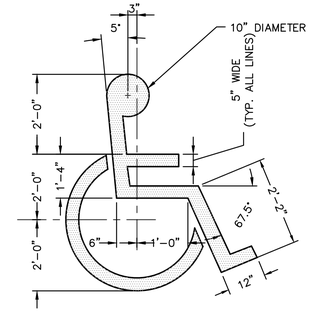


NOTES

1. SIGN TO BE PER LOCAL JURISDICTION REQUIREMENTS. VERIFY SIZE, SHAPE & VERBIAGE
2. PROVIDE SIGN AT EACH HANDICAPPED ACCESSIBLE PARKING STALL.

ACCESSIBLE PARKING SPACE SIGNAGE

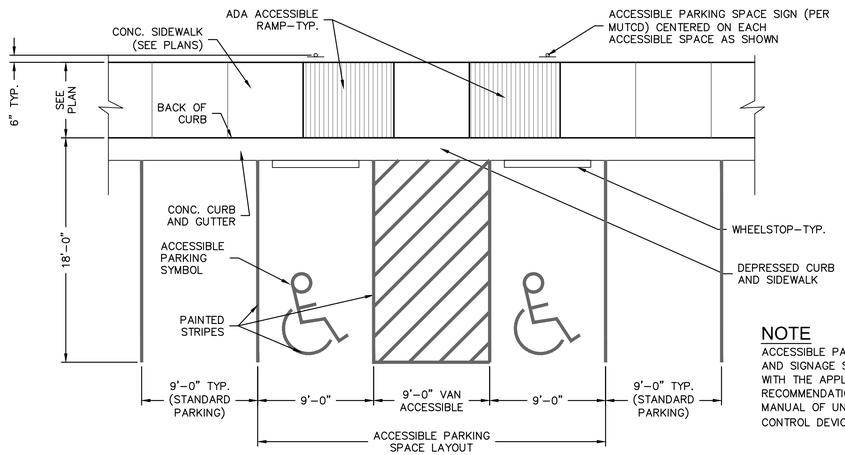
NOT TO SCALE



PROVIDE PAINTED SYMBOL AT EACH DESIGNATED ACCESSIBLE PARKING STALL. CENTER SYMBOL IN EACH STALL.

ACCESSIBLE PARKING SYMBOL

NOT TO SCALE



TYPICAL ADA PARKING SPACE LAYOUT DETAIL

NOT TO SCALE

NOTE

ACCESSIBLE PARKING SYMBOL AND SIGNAGE SHALL COMPLY WITH THE APPLICABLE RECOMMENDATIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

olsson
Olsson - Civil Engineering
Master Consultant Authority #
1301 Burlington Street
North Kansas City, MO 64116
TEL 816.361.1177
www.olsson.com

STATE OF MISSOURI
JULIE ELAINE SELLERS
NUMBER PE-2017000367
3/2/23
PROFESSIONAL ENGINEER

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
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2	01.20.2023	CITY COMMENTS	
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CONSTRUCTION DETAILS

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

2023

drawn by: CSM
checked by: CSM
approved by: JS
QA/QC by: JS
project no.: A21-04054
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SHEET
C10.0

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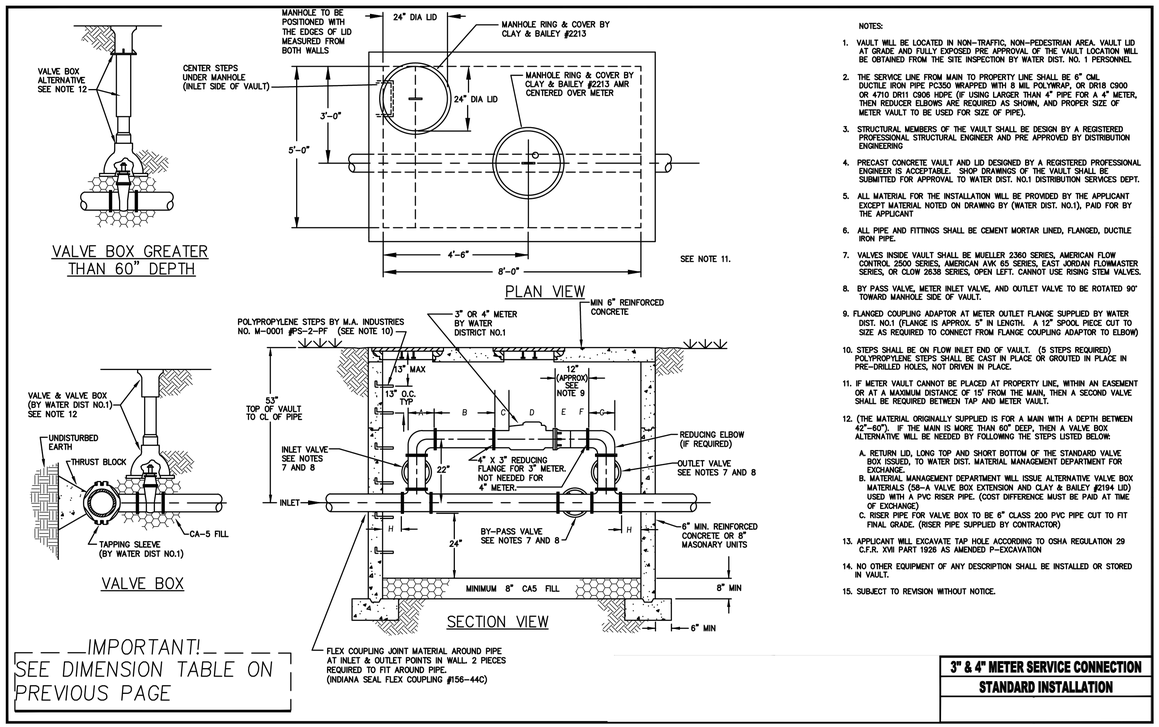
USER: jhodson

3" METER LAYOUT DIMENSIONS	A	B	C	D	E	F	G	H	Total Laying Length	Vault	Approx OD Pipe
Meter (and strainer) Lay Length	4x3 90	Upstream	Strainer	Meter	FxMJ SB911	15" Spool	4x3 90	Edge Vault To Risers	C/L Inlet to Outlet	Inside Length	to C/L
3" Compound Sensus	6.5	15	0	17	7.88	12	6.5	13.2	**64.9**	96	4.8
3" Compound Neptune	6.5	15	6	17	7.88	12	6.5	10.2	**70.9**	96	4.8
3" Compound Badger	6.5	15	7	17	7.88	12	6.5	9.7	**71.9**	96	4.8
3" Turbine Sensus	6.5	15	0	19	7.88	12	6.5	12.2	**66.9**	96	4.8
3" Turbine Neptune	6.5	15	6	12	7.88	12	6.5	12.7	**65.9**	96	4.8
3" Turbine Badger	6.5	15	7	12	7.88	12	6.5	12.2	**66.9**	96	4.8

4" METER LAYOUT DIMENSIONS	A	B	C	D	E	F	G	Edge Vault	Total Laying Length	Vault	Approx OD Pipe
Meter (and strainer) Lay Length	4" 90	Upstream	Strainer	Meter	FxMJ SB911	15" Spool	6"90	To Risers	C/L Inlet to Outlet	Inside Length	to C/L
4" Compound Sensus	6.5	20	0	20	7.88	12	6.5	9.2	**72.9**	96	4.8
4" Compound Neptune	6.5	20	7.5	20	7.88	12	6.5	5.4	**80.4**	96	4.8
4" Compound Badger	6.5	20	9	20	7.88	12	6.5	4.7	**81.9**	96	4.8
4" Turbine Sensus	6.5	20	0	23	7.88	12	6.5	7.7	**75.9**	96	4.8
4" Turbine Neptune	6.5	20	7.5	14	7.88	12	6.5	8.4	**74.4**	96	4.8
4" Turbine Badger	6.5	20	9	14	7.88	12	6.5	7.7	**75.9**	96	4.8



IMPORTANT!
SEE DIMENSION TABLE ON PREVIOUS PAGE

NOTES:

1. VAULT WILL BE LOCATED IN NON-TRAFFIC, NON-PEDESTRIAN AREA. VAULT LID AT GRADE AND FULLY EXPOSED PRE APPROVAL OF THE VAULT LOCATION WILL BE OBTAINED FROM THE SITE INSPECTION BY WATER DIST. NO. 1 PERSONNEL
2. THE SERVICE LINE FROM MAIN TO PROPERTY LINE SHALL BE 6" CML DUCTILE IRON PIPE PC350 WRAPPED WITH 8 MIL POLYWRAP, OR DR18 C900 OR 4710 DR11 C906 HDPE (IF USING LARGER THAN 4" PIPE FOR A 4" METER, THEN REDUCER ELBOWS ARE REQUIRED AS SHOWN, AND PROPER SIZE OF METER VAULT TO BE USED FOR SIZE OF PIPE).
3. STRUCTURAL MEMBERS OF THE VAULT SHALL BE DESIGN BY A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER AND PRE APPROVED BY DISTRIBUTION ENGINEERING
4. PRECAST CONCRETE VAULT AND LID DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER IS ACCEPTABLE. SHOP DRAWINGS OF THE VAULT SHALL BE SUBMITTED FOR APPROVAL TO WATER DIST. NO.1 DISTRIBUTION SERVICES DEPT.
5. ALL MATERIAL FOR THE INSTALLATION WILL BE PROVIDED BY THE APPLICANT EXCEPT MATERIAL NOTED ON DRAWING BY (WATER DIST. NO.1), PAID FOR BY THE APPLICANT
6. ALL PIPE AND FITTINGS SHALL BE CEMENT MORTAR LINED, FLANGED, DUCTILE IRON PIPE.
7. VALVES INSIDE VAULT SHALL BE MUELLER 2360 SERIES, AMERICAN FLOW CONTROL 2500 SERIES, AMERICAN AVK 65 SERIES, EAST JORDAN FLOWMASTER SERIES, OR CLOW 2638 SERIES, OPEN LEFT. CANNOT USE RISING STEM VALVES.
8. BY PASS VALVE, METER INLET VALVE, AND OUTLET VALVE TO BE ROTATED 90° TOWARD MANHOLE SIDE OF VAULT.
9. FLANGED COUPLING ADAPTOR AT METER OUTLET FLANGE SUPPLIED BY WATER DIST. NO.1 (FLANGE IS APPROX. 5" IN LENGTH. A 12" SPOOL PIECE CUT TO SIZE AS REQUIRED TO CONNECT FROM FLANGE COUPLING ADAPTOR TO ELBOW)
10. STEPS SHALL BE ON FLOW INLET END OF VAULT. (5 STEPS REQUIRED) POLYPROPYLENE STEPS SHALL BE CAST IN PLACE OR GROUTED IN PLACE IN PRE-DRILLED HOLES, NOT DRIVEN IN PLACE.
11. IF METER VAULT CANNOT BE PLACED AT PROPERTY LINE, WITHIN AN EASEMENT OR AT A MAXIMUM DISTANCE OF 15' FROM THE MAIN, THEN A SECOND VALVE SHALL BE REQUIRED BETWEEN TAP AND METER VAULT.
12. (THE MATERIAL ORIGINALLY SUPPLIED IS FOR A MAIN WITH A DEPTH BETWEEN 42"-60"). IF THE MAIN IS MORE THAN 60" DEEP, THEN A VALVE BOX ALTERNATIVE WILL BE NEEDED BY FOLLOWING THE STEPS LISTED BELOW:
    A. RETURN LID, LONG TOP AND SHORT BOTTOM OF THE STANDARD VALVE BOX ISSUED, TO WATER DIST. MATERIAL MANAGEMENT DEPARTMENT FOR EXCHANGE.
    B. MATERIAL MANAGEMENT DEPARTMENT WILL ISSUE ALTERNATIVE VALVE BOX MATERIALS (58-A VALVE BOX EXTENSION AND CLAY & BAILEY #2194 LID) USED WITH A PVC RISER PIPE. (COST DIFFERENCE MUST BE PAID AT TIME OF EXCHANGE)
    C. RISER PIPE FOR VALVE BOX TO BE 8" CLASS 200 PVC PIPE CUT TO FIT FINAL GRADE. (RISER PIPE SUPPLIED BY CONTRACTOR)
13. APPLICANT WILL EXCAVATE TAP HOLE ACCORDING TO OSHA REGULATION 29 C.F.R. XVII PART 1926 AS AMENDED P-EXCAVATION
14. NO OTHER EQUIPMENT OF ANY DESCRIPTION SHALL BE INSTALLED OR STORED IN VAULT.
15. SUBJECT TO REVISION WITHOUT NOTICE.

3" & 4" METER SERVICE CONNECTION
STANDARD INSTALLATION

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

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JULIE ELAINE SELLERS
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PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CALIPER
	AX	23	ACER TRUNCATUM X PLATANOIDES 'WARRENRED' TM PACIFIC SUNSET MAPLE	B & B	3"
	GA	15	GINKGO BILOBA 'AUTUMN GOLD' TM AUTUMN GOLD MAIDENHAIR TREE	B & B	3"
	LS	9	LIQUIDAMBAR STYRACIFLUA 'SLENDER SILHOUETTE' SLENDER SILHOUETTE SWEET GUM	B & B	3"
	TM	11	TILIA AMERICANA 'MCKSENTRY' TM AMERICAN SENTRY LINDEN	B & B	3"
	ZG	10	ZELKOVA SERRATA 'GREEN VASE' GREEN VASE SAWLEAF ZELKOVA	B & B	3"
ORNAMENTAL TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CALIPER
	AG	11	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' AUTUMN BRILLIANCE APPLE SERVICEBERRY	B & B	3"
	CE	12	CERCIS CANADENSIS EASTERN REDBUD MULTI-TRUNK	B & B	3"
	CK	13	CORNUS KOUSA KOUSA DOGWOOD	B&B, 8` HT.	
EVERGEEN TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	
	PA	4	PICEA ABIES NORWAY SPRUCE	B&B, 8` HT.	
	PC	7	PICEA PUNGENS COLORADO SPRUCE	B&B, 8` HT.	
	PS	9	PINUS STROBUS WHITE PINE	B&B, 8` HT.	
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	
	BB2	11	BOUTELOUA GRACILIS 'BLONDE AMBITION' BLONDE AMBITION BLUE GRAMA	1 GAL	
	BB	14	BUDDLEJA X 'BLUE CHIP JR.' TM BLUE CHIP JR. LO & BEHOLD BUTTERFLY BUSH	2 GAL	
	BG2	34	BUXUS X 'GREEN VELVET' GREEN VELVET BOXWOOD	3 GAL	
	CK2	87	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' KARL FOERSTER FEATHER REED GRASS	1 GAL	
	DD	17	DEUTZIA X 'NCDX2' TM YUKI CHERRY BLOSSOM DEUTZIA	2 GAL	
	Hem oro	34	HEMEROCALLIS X 'STELLA DE ORO' STELLA DE ORO DAYLILY	4" POT	
	HJ	18	HYDRANGEA PANICULATA 'JANE' TM LITTLE LIME PANICLE HYDRANGEA	3 GAL	
	IS	29	ITEA VIRGINICA 'SPRICH' TM LITTLE HENRY SWEETSPIRE	3 GAL	
	JF	49	JUNIPERUS CHINENSIS 'SEA GREEN' SEA GREEN JUNIPER	3 GAL	
	JO	24	JUNIPERUS VIRGINIANA 'GREY OWL' GREY OWL EASTERN REDCEDAR	3 GAL	
	PL	27	PHYSOCARPUS OPULIFOLIUS 'LITTLE DEVIL' TM LITTLE DEVIL DWARF NINEBARK	3 GAL	
	ST	23	SPOROBOLUS HETEROLEPIS 'TARA' TARA PRAIRIE DROPSEED	1 GAL	
GROUND COVERS	CODE	QTY	BOTANICAL / COMMON NAME	CONT	
	TD	25,163 SF	TURF SEED (SANITARY SEWER EXTENSION RESEED)	SEED	
	TD2	230,971 SF	TURF SEED DROUGHT TOLERANT DWARF FESCUE BLEND	SEED	
	TS	79,815 SF	TURF SOD DROUGHT TOLERANT FESCUE BLEND	N/A	
		5,170 SF	MISSOURI RAINBOW ROCK MULCH (1"-3") -		
		15,232 SF	DOUBLE GROUND HARDWOOD MULCH -		

RAINTREE VILLAGE PDP - LANDSCAPE CALCULATIONS

BUILDING COVERAGE (SF)	PARKING SPACES	LANDSCAPE ISLANDS AREA (SF)	PARKING LOT AREA (SF)	PARKING AREA LANDSCAPE ISLAND % (5% MIN.)	R/W LENGTH (LF)		(1) LANDSCAPE STRIP BETWEEN PARKING/LOADING AREA AND R/W	(1) STREET FRONTAGE TREES	(2) STREET FRONTAGE SHRUBS	(3) OPEN YARD AREA PROVIDED (SF)	(3A) OPEN YARD AREA TREES	(3B) OPEN YARD AREA SHRUBS	(4A) BUFFER TREES: DECIDUOUS / ORNAMENTAL / EVERGREEN	(4B) BUFFER SHRUBS	(5) PARKING LOT SCREENING SHRUBS
149,439	137	6,015	73,049	8.23%	1,190	REQUIRE	20' WIDE	40	106	367,229	73	147	8/15/15	15	45
						PROVIDE	20' WIDE	40	109		55 (18 WITH TO BE PLANTED IN PHASE 2)	151	8/15/15	15	47

LANDSCAPE REQUIREMENTS DESCRIPTIONS

(1) ANY PARKING OR LOADING AREA VISIBLE FROM A STREET SHALL BE SEPARATED FROM THE STREET RIGHT-OF-WAY WITH A LANDSCAPE STRIP AT LEAST 20' WIDE, PLANTED WITH 1 TREE PER 30 LF OF STREET
(2) ANY PARKING OF LOADING AREA LANDSCAPE STRIP SHALLL BE PLANTED WITH ONE (1) SHRUB FOR EVERY 20 LF OF STREET FRONTAGE.
(3A) IN ADDITION TO STREET FRONTAGE TREES, ONE (1) TREE SHALL BE PROVIDED FOR EVERY 5,000 SF OF OPEN YARD AREA
(3B) OPEN YARD AREAS SHALL BE LANDSCAPED WITH TWO (2) SHRUBS PER 5,000 SF OF TOTAL LOT AREA.
(4) A 20' WIDE BUFFER SCREEN SHALL BE PROVIDED PER PLAN, IN THE FORM OF (4A) 1 SHADE TREE PER 1,000 SF; 1 ORNAMENTAL TREE PER 500 SF; 1 EVERGREEN TREE PER 500; AND (4B) 1 SHRUB PER 500 SF
(5) A HEDGE CONSISTING OF AT LEAST 12 SHRUBS PER 40 LINEAR FEET

PART 1 - GENERAL

1.1 PROJECT CONDITIONS

A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.

B. Site Examination: Contractor shall verify all conditions, dimensions, and elevations in the field before starting work, and notify the project engineer or Landscape Architect immediately of any discrepancies between drawings and field conditions if encountered.

C. Interruption of Existing Services or Utilities: Do not interrupt services or utilities to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary services or utilities according to requirements indicated:
1. Notify Landscape Architect no fewer than seven (7) days in advance of proposed interruption of each service or utility.
2. Do not proceed with interruption of services or utilities without Landscape Architect's written permission.

D. Site Conditions:
1. Contractor shall keep the premises clean and free from rubbish and all debris associated with the work at all times. All unused materials and debris shall be removed from the site.
2. Contractor is responsible for repairs or damage to any existing improvements during construction such as but not limited to: drainage utilities, pavement, striping, curb, etc. Any repair work in the city R.O.W. shall be equal to or better than existing conditions.
3. Contractor shall comply with specifications prior to commencement of any type of work.
4. All disturbed areas outside of the project limits as shown on the plans are to be restored back to the original conditions with turf-type, tall fescue seed.
5. Contractor shall not commence with work until the site is free of debris caused by ongoing construction operations. Removal of debris shall be the responsibility of the General Contractor.
6. Contractor shall coordinate all work with other Contractors on site throughout the construction.

E. Safety:
1. Neither the Owner nor the Landscape Architect will enforce safety measures or regulations. The Contractor shall design, construct and maintain all safety devices, and shall be solely responsible for conforming to all local, state and federal safety and health standards, laws and regulations.

F. Utilities:
1. Contractor shall take all necessary precautions and responsibility to locate and protect any and all public and private underground or concealed conduit, plumbing or other utilities where new work is being performed. Contractor is responsible for repairing any and all damage to utilities, structures, site appurtenances, etc., which occur as a result of the landscape construction. Contractor shall maintain stakes set by others until all parties concerned mutually agree upon removal. In no case shall landscape material be planted in a way which will interfere with or cause damage to overhead or underground utilities.
2. MISSOURI one call system: 1-800-344-7483

G. Requirements:
1. All work shall conform to all federal, state, and local requirements for installation and maintenance.
2. The final, approved landscape plan must be available for onsite inspection at all times.

H. Clearzone:
1. The clearzone shall be maintained at all intersections that ingress and egress to the site. It is the Owner's responsibility to maintain the plant material at a height of not over thirty (30) inches above pavement and provide unobstructed sight distance for drivers in vehicles approaching the intersection.
2. Vertical clearance of at least eighty (80) inches must be provided above walks at all times. It is the Owner's responsibility to maintain trees and other overhanging objects to provide adequate headroom to comply with ADA guidelines.

I. Conflicts:
1. Should a conflict arise between specifications, codes, standards, ordinances and plans, the most stringent requirements shall apply.
2. Where no construction details are shown or noted for any part of the work, such details shall be the same as for similar work shown on the drawing and shall meet with Manufacturer's specifications.

J. Measurements:
1. Before commencing work or ordering any materials, the Contractor shall verify all measurements and shall be responsible for their accuracy. Any discrepancies shall be reported to the project Landscape Architect. The Contractor shall be responsible for the differences between actual dimensions and measurements indicated.
2. Written dimensions shall prevail. In no case shall working dimensions be scaled from plans, sections or details on the drawing.
3. Landscape Contractor shall supply bid to Olsson Associates for review. Bid shall include unit costs for all materials.

K. Plan Changes:
1. All drawings, specifications, and other work products developed by Olsson Associates are instruments of service for this project only and shall remain the property of Olsson Associates. Instruments of service may not be used, reproduced or changed in any form without the prior written permission of Olsson Associates.
2. In the event any changes are made to the plans and specifications by Owner or persons other than Olsson Associates, any liability arising out of such changes is waived against Olsson Associates. Owner assumes full responsibility for such changes unless Owner has given Olsson Associates prior notice and has received written consent for such changes.

L. Substitutions:
1. Any changes or deviations from these plans must be approved in writing by Owner, Olsson Associates and the Local Municipal Agencies. Changes shall possess the same characteristics as indicated on the plans and specifications.

M. Delegated design irrigation system:
1. If an irrigation system is not provided with the Landscape Plans, the Contractor is to design a 100 percent coverage irrigation system, including comprehensive engineering analysis by a qualified Professional Engineer, using performance requirements and design criteria indicated per Owner's direction.
2. Irrigation Contractor to design and install irrigation system and shall include all required components including, but not limited to, rain shut off sensor, controller, taps, backflow preventers, all approvals, and all fees required by city.
3. Irrigation Contractor shall submit a copy of plan to Owner's Representative or Project Landscape Architect for review prior to installation of system.
4. Irrigation Contractor shall conduct a training session with the owner (or representatives) demonstrating the operation of the system and the controller. As part of this training, Contractor shall provide one spring start-up and one fall shut-down of the system.
5. Landscape Contractor to provide cost estimates for irrigation system for all plant material indicated on plans.
6. Irrigation system shall be tested and approved by Owner's Representative or Landscape Architect prior to backfilling trenches. Irrigation system shall be fully operational prior to the installation of any plant materials.
7. All planting beds shall be watered by drip and micro mist irrigation system.
8. General Contractor to supply all power required to operate irrigation system.
9. Irrigation Contractor shall notify Owner's Representative or Project Landscape Architect of any changes to irrigation conduit locations or sizes.
10. It is the Landscape Contractor's responsibility to determine water application rates and timer cycling. The Irrigation Contractor will instruct the Owner on the operation and programming of the controller.
11. All zones and main lines will be pressure-tested at the time of installation and again prior to building turnover. Results shall be submitted in writing to Project Landscape Architect and Owner or Owner's Representative.
12. Irrigation shall not spray on building, sidewalks, and drives.
13. Irrigation controller location shall be coordinated with other wall-mounted service panels per Owner's approval.
14. Landscape Contractor shall hand-water all trees, turf grass areas, and native seed mix areas until substantial completion.
15. Treegator bags (or approved equal) shall be used for all proposed trees on site.

1.2 SUBMITTALS

A. Qualification Data for qualified Landscape Installers: Include list of similar projects completed by Landscape Contractor demonstrating Landscape Contractor's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of Owners' contact persons.

B. Samples shall be approved by Landscape Architect prior to installation on project.

C. Product Data: Provide for each type of product indicated, including soils.
1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
2. Pesticides and Herbicides: Include product label and Manufacturer's application instructions specific to the Project.
3. Plant Photographs: Include color photographs in digital format of each required species and size of plant material as it will be furnished to the Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery.

D. Samples for Verification: Provide as listed for each of the following:
1. Trees and Shrubs: Three samples of each variety and size must be delivered to the site for review. Maintain approved samples on-site as a standard for comparison.
2. Hardwood Mulch, Leaf Compost Mulch, & Rock Mulch: 1-quart volume of each organic mulch, in sealed plastic bags labeled with composition of materials by percentage weight and source of mulch, is required. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.
3. Weed Control Barrier: 12 by 12 inches.

E. Product Certificates: Each type of manufactured product, from Manufacturer, shall comply with the following:
1. Manufacturer's certified analysis of standard products.
2. All plant material inspection certificates required by federal, state or other governing authorities will accompany each shipment and be turned over to the Owner's Representative upon delivery.
3. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
4. Invoice:
   a. Vendor or Grower's invoice for each shipment of plants shall show sizes, quantities, and root treatment of plants, i.e. containerized, balled and burlapped, or plug.
   b. Invoice for each shipment of soil amendments and seed mixtures.
5. Label data substantiating that plants, trees, shrubs, perennials, seed and planting materials comply with specifications.
6. Seed Vendor's certified statement for each seed mixture required stating botanical and common name, percentages by weight, and percentages of purity, germination, and weed seed for each seed mixture.

F. Material Test Reports: For standardized ASTM D5268 topsoil, existing native surface topsoil, existing in-place surface soil and imported or manufactured topsoil.

G. Maintenance Instructions: Recommended typewritten instructions and procedures to be established by the Owner for maintenance of plants during a calendar year. Submit before start of required maintenance periods and prior to final acceptance of landscape material.

H. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful establishment of plants.
1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: A minimum of five (5) years experience on projects similar in characteristics and size. Contractor shall be a company specializing in landscape installation.
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on project site when work is in progress.
4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
   a. Certified Landscape Technician - Exterior, with designated CLT-Exterior.
   b. Certified Ornamental Landscape Professional, designated COLP.
5. Pesticide Applicator: State licensed, commercial.

B. Soil Testing
1. Laboratory Qualifications: An independent or university laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in the types of tests to be performed.
2. The Contractor shall be responsible for having both the topsoil and existing soil tested for proposed plant material locations. Topsoil shall be tested by an independent soil testing agency. The Contractor shall furnish one (1) copy of the soil analysis plus recommended amendments prepared to meet the desired pH and nutritional and organic levels determined to be adequate for the area by the County Extension Agent or approved independent soil testing agency to the Landscape Architect prior to application of any amendments or fertilizer.

C. Soil Analysis: For each unamended soil type, furnish soil analysis and a written report by a qualified soil testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of the soil.
1. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
2. The soil testing laboratory shall oversee soil sampling with depth, location, and number of samples to be taken per instructions from Landscape Architect. A minimum of three representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
3. Report suitability of tested soil for plant growth.
   a. Based upon the test results, state the recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1000 sq. ft. or volume per cubic yard for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
   b. Report presence of problem salts, minerals, or heavy metals including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.

D. Measurements: Measure according to ANSI Z60.1 - American Standard for Nursery Stock. Do not prune to obtain required sizes.
1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
2. Other Plants: Measure with stems, petioles, and foliage in their normal position.

E. Quality and Size:
1. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1 - American Standard for Nursery Stock.
2. Required plant materials shall conform to type stated on the plant list. Sizes shall be the minimum stated on the plant list or larger. All installation and measurements shall be in accordance with the latest editions of the American Standard for Nursery Stock (ANSI Z60.1) and with the general planting specifications as set forth by the local municipal agency's landscape ordinance.
3. Landscape plant material shall satisfy AAN American Standards, be State Department of Agriculture inspected, and no. 1 grade with straight, unscarred trunk and well developed uniform crown (park grade trees will not be accepted).
4. The plant material shall be nursery grown and inspected by the Owner's Representative before planting.
5. Plants designated "b&b" shall be balled and burlapped, with firm balls of earth.
6. All installed plant materials shall be certified by the State to be disease-free and pest-free and not of a species known to carry or be host to destructive pathogens or pests. Plants shall be healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practices, free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions or disfigurement.
7. All trees shall have a central leader and a radial branching structure.
8. Plant materials delivered to site and not planted within 24 hours of delivery shall be "heeled" and watered in a shaded area, protected from weather, mechanical damage and dehydration prior to planting.
9. Each tree and shrub shall be securely labeled with a waterproof tag indicating the botanical name, common name, and size for delivery to site.
10. Provide healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practices, free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions or disfigurement. Place all plants in shaded area, protected from weather, mechanical damage and dehydration prior to planting.
11. All plant surfaces shall receive emulsion type, film-forming anti-desiccant agent designed to permit transpiration, but retard excessive loss of moisture from plants. Anti-desiccant to be delivered in Manufacturer's fully identified containers and mixed in accordance with Manufacturer's specifications.

F. Plant Material Observation: Landscape Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Landscape Architect retains right to observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site.
1. Notify Landscape Architect of sources of planting materials seven (7) days in advance of delivery to site.
2. Inspections and Testing:
   a. The Landscape Architect reserves the right to inspect and/or tag plants at place of growth with Landscape Contractor.
   b. All plants must be inspected and approved by the Landscape Architect before they are planted. Inspection and approval by the Landscape Architect at place of growth or upon delivery shall be for quality, size, and variety only and shall not in any way impair the right of rejection for failure to meet other requirements during progress of work. Plants damaged during delivery or at job site shall be rejected.
3. All site work, including plant locations, shall be staked by the Landscape Contractor and shall be approved by the Landscape Architect prior to installation. Any walks, walls or edging shall be installed in a manner consistent with the plans as shown, and shall be installed free of kinks, bends or abrupt curves.
4. All dead plant materials shall be removed and replaced as required in order to maintain an attractive landscape at all times.

G. Quantities:
1. Contractor is responsible for verifying all quantities shown on these plans before pricing the work. Any difference in quantities should be brought to the attention of the Landscape Architect for clarification.
2. Quantities listed in the plant list schedule are for estimates only. Trees, shrubs, and groundcover of contract quantities shall be the number of items shown on the drawings. Contractor shall supply the quantities necessary to complete the work as shown on the drawings. Quantities listed on the plant list are approximate only. Any difference in quantities should be brought to the attention of the Project Landscape Architect for clarification.
3. Contractor shall provide trees, shrubs, and plants of quantity, size, genus, species and variety shown and scheduled for landscape work.

H. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
1. Spring Planting: April 1st to June 15th
2. Fall Planting: August 15th to November 1st

I. Weather Limitations: Proceed with plant material installation and sodding only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to Manufacturer's written instructions and warranty requirements.

J. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.
1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of Manufacturer, and indication of conformance with state and federal laws if applicable.

B. Bulk Materials:
1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk fertilizers, lime, and soil amendments with appropriate certificates.

C. Deliver bare-root stock plants freshly dug. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting.

D. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

E. Handle planting stock by root ball.

F. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.
1. Heel-in bare-root stock. Soak roots that are in dry condition in water for two hours. Reject dried-out plants.
2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
3. Do not remove container-grown stock from containers before time of planting.
4. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly-wet condition.

G. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod in time for planting within 24 hours of harvesting. Protect sod from breakage and drying.

1.5 WARRANTY

A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
1. Failures include, but are not limited to, the following:
   a. Death, unhealthy condition, plant material with more than 25% die back and unsatisfactory growth as determined by the Owner's Representative, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
   b. Structural failures including plantings falling or blowing over.
   c. Faulty performance of tree stabilization.
2. Warranty Periods from Date of Substantial Completion:
   a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
   b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.
   c. Annuals: Two months.
3. Include the following remedial actions as a minimum:
   a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
   b. Replace plants that are not in good condition or in an unhealthy condition as judged by the Owner's Representative prior to Substantial Completion and at end of the warranty period at no additional cost to the Owner.
   c. A limit of one replacement of each plant will be required except for losses or replacements due to failure to comply with requirements.
   d. Provide extended warranty for period equal to original warranty period for replaced plant material.

1.6 MAINTENANCE SERVICE

A. Installation Maintenance:
1. Maintenance shall begin immediately after installation of each plant, sod or turf. All plant material, sod and/or shall be maintained in a vigorous, thriving condition until all planting is completed and accepted.
2. Maintain turf, material and plants until Substantial Completion or until Owner accepts landscape installation.
3. Maintenance activities of turf or sod shall include watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth sodded surface, free of eroded or bare areas, free of weeds and acceptable by Owner.
4. Maintenance activities of plant material - trees, shrubs, ornamental grasses, perennials, annuals, and groundcover - include watering, weeding, cultivating, mulching, adjusting of stakes, removal of dead materials, resetting plants to proper grades or upright positions, restoration of the planting saucer, and any other procedures consistent with good horticultural practices necessary to insure normal, vigorous, and healthy growth.

B. Initial Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of Landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than the maintenance period below.
1. Maintenance Period: Twelve (12) months from date of Substantial Completion.

C. Initial Maintenance Service for Ground Cover and Other Plants: Provide maintenance by skilled employees of Landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than the maintenance period below.
1. Maintenance Period: Twelve (12) months from date of Substantial Completion.

D. Initial Maintenance Service for Turf: Provide full maintenance by skilled employees of Landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:
1. Sodded Turf: Twelve (12) months from date of Substantial Completion.

E. Continuing Maintenance Proposal: From Installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant Schedule or Plant Legend shown on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots will be rejected.
2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated. Park Grade material is not acceptable.

B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Landscape Architect, with a proportionate increase in size of roots or balls.

C. Root Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

D. Labeling: Label each plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant as shown on Drawings.

E. If formal arrangements or consecutive order of plants is shown on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.

F. Perennials: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery.

2.2 NATIVE SEED

A. All disturbed areas, fills and embankments shall be seeded and fertilized as specified on the plans.

B. Native seed shall be obtained from sources specified on plans or approved alternate source.

2.3 TURF SEED

A. All disturbed areas, fills and embankments shall be seeded and fertilized as specified on the plans.

B. Grass seed shall have a rating of 6.0 or better in the Kansas State Turf Grass Test, with the following characteristics: Purity - 98%, and Inert - 1.75%

2.4 TURF SOD

A. Sod shall be grown from a seed with a rating of 6.0 or better in the Kansas State Turf Grass Test.

B. Sod shall be composed of fescue blend free from insects, disease, weeds and other grasses, cut in uniform strips consisting of 1 square yard per strip or approved equal.

2.5 PLANTING SOILS

A. Soil Testing:
1. Landscape Contractor to test soil on site and provide results to the Owner and Landscape Architect prior to commencement of work.
2. Landscape Contractor to verify and guarantee that the onsite topsoil will support grass seed, sod, and plant material.
3. Landscape Contractor to recommend soil amendments if soil test is not acceptable.

B. Planting Soil:
1. Existing, in-place surface soil. Verify suitability of existing surface soil to produce viable planting soil. Remove stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
2. ASTM D5268 topsoil, with pH range of 5.5 to 7, a minimum of five (5) percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth. Soil shall be free from clay lumps, coarse sand, plant roots, sticks and other foreign materials. Mix ASTM D5268 topsoil with the following soil amendments and fertilizers as recommended by soil analysis.
3. Topsoil shall be fertile, friable, natural topsoil, typical of the locality, obtained from well-drained areas possessing characteristics of soils in the vicinity that produce heavy growth or grasses and other vegetative material. Stockpiled topsoil may be used. It shall be without admixture of subsoil or slag and shall be free of subsoil, stones, lumps, sticks, plants or their roots, toxic substances or other extraneous matter that may be harmful to plant growth.

2.6 MULCHES

A. Hardwood Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of the following:
1. Type: Double-shredded hardwood
2. Size Range: $\frac{1}{2}$ inch minimum to 3 inches maximum
3. Color: Dark brown

B. Leaf Compost Mulch: Free from deleterious materials and suitable as a top dressing for ornamental grasses, perennials, and groundcovers.

C. Mineral Mulch: Hard, durable stone, washed free of loam, sand, clay, and other foreign substances, of following type, size, range, and color:
1. Type: Washed Cobble
2. Size Range: 8-inch maximum, 4-inch minimum
3. Color: Uniform tan-beige color range acceptable to Landscape Architect

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STATE OF MISSOURI
JACOB HODSON
NUMBER PLA-2023000549
PROFESSIONAL LANDSCAPE ARCHITECT
03/03/23

REV. NO.	DATE	REVISIONS DESCRIPTION	BY
1	10.10.2022	CITY COMMENTS	CSM
2	01.20.2023	CITY COMMENTS	
3	03.03.2023	CITY COMMENTS	

REVISIONS

2023

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

drawn by:	CSM
checked by:	CSM
approved by:	JS
QA/QC by:	JS
project no.:	A21-04054
drawing no.:	
date:	08.10.2022

SHEET

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PROPOSED RETAINING WALL
MAX. HEIGHT ± 10'

5' PUBLIC SIDEWALK

SW ARBORWALK BLVD

CONC CURB & GUTTER

ARBORIDGE DRIVE

20' LANDSCAPE BUFFER

V-TRENCH EDGE (TYP.)

MONUMENT SIGN
Item on 14

7' (TYP.)

R5'

5' (TYP.)

1.50' ROCK MULCH BORDER (TYP.)

TRANSFORMER

EXISTING STREET TREES TO REMAIN (TYP.)

STONE WALL

RIP-RAP

CONCRETE SIDEWALK
CONC CURB & GUTTER

MISSOURI STATE HW 150

CONCRETE SIDEWALK & GUTTER

CONCRETE SIDEWALK

GENERATOR

MONUMENT SIGN
Item on 20

15' U.E. (Plat)
20' B.L. (Plat)

ROCK WALL

45,825 SF OF AREA SHALL BE RESEEDED FOLLOWING SANITARY SEWER EXTENSION

N

0' 150' 300'
SCALE IN FEET

N

0' 20' 40' 80'
SCALE IN FEET

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STATE OF MISSOURI
JACOB HODSON
NUMBER 2021037723
PROFESSIONAL LANDSCAPE ARCHITECT

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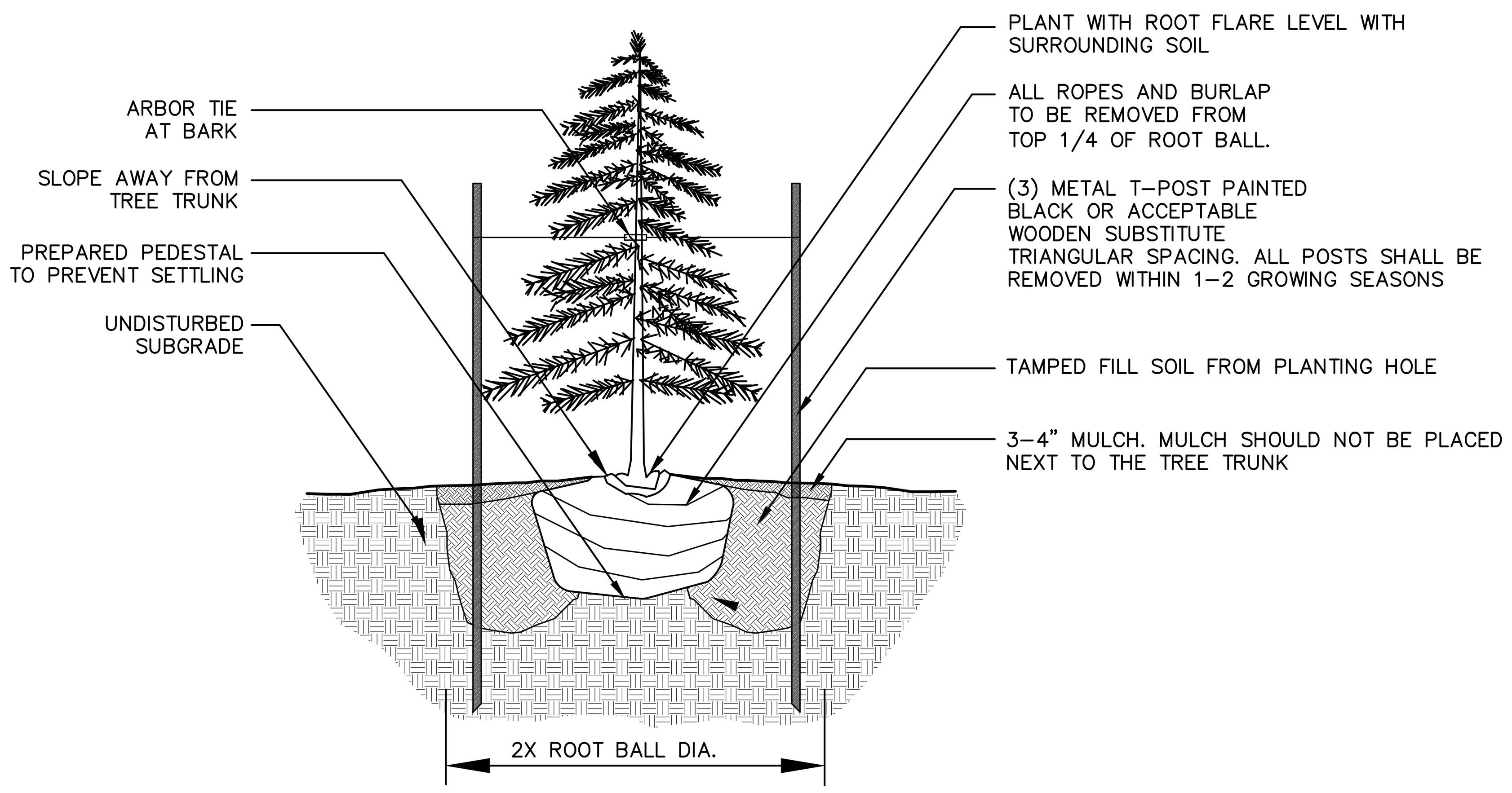
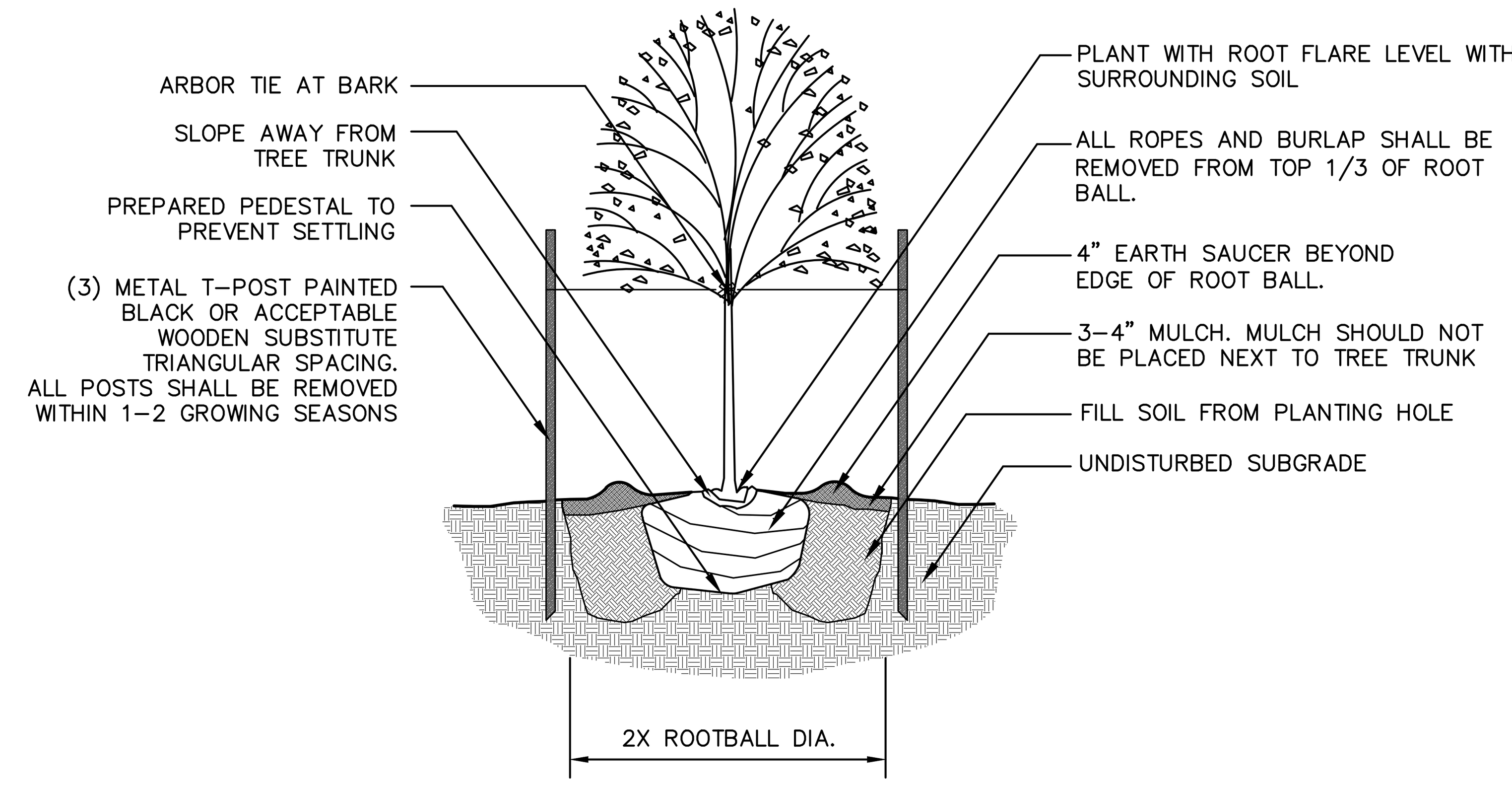


NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
2. IN AREAS OF TURF, SURROUND BED WITH 6' DIAMETER OF MULCH

1 Evergreen Tree Planting Detail

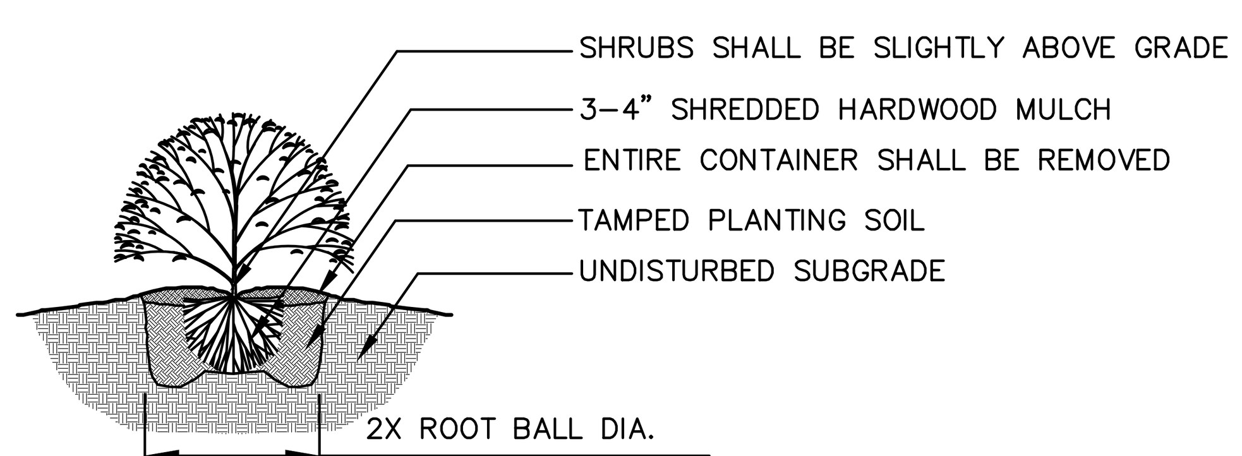
not to scale



NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
2. IN AREAS OF TURF, SURROUND BED WITH 6' DIAMETER OF MULCH

2 Deciduous Tree Planting Detail

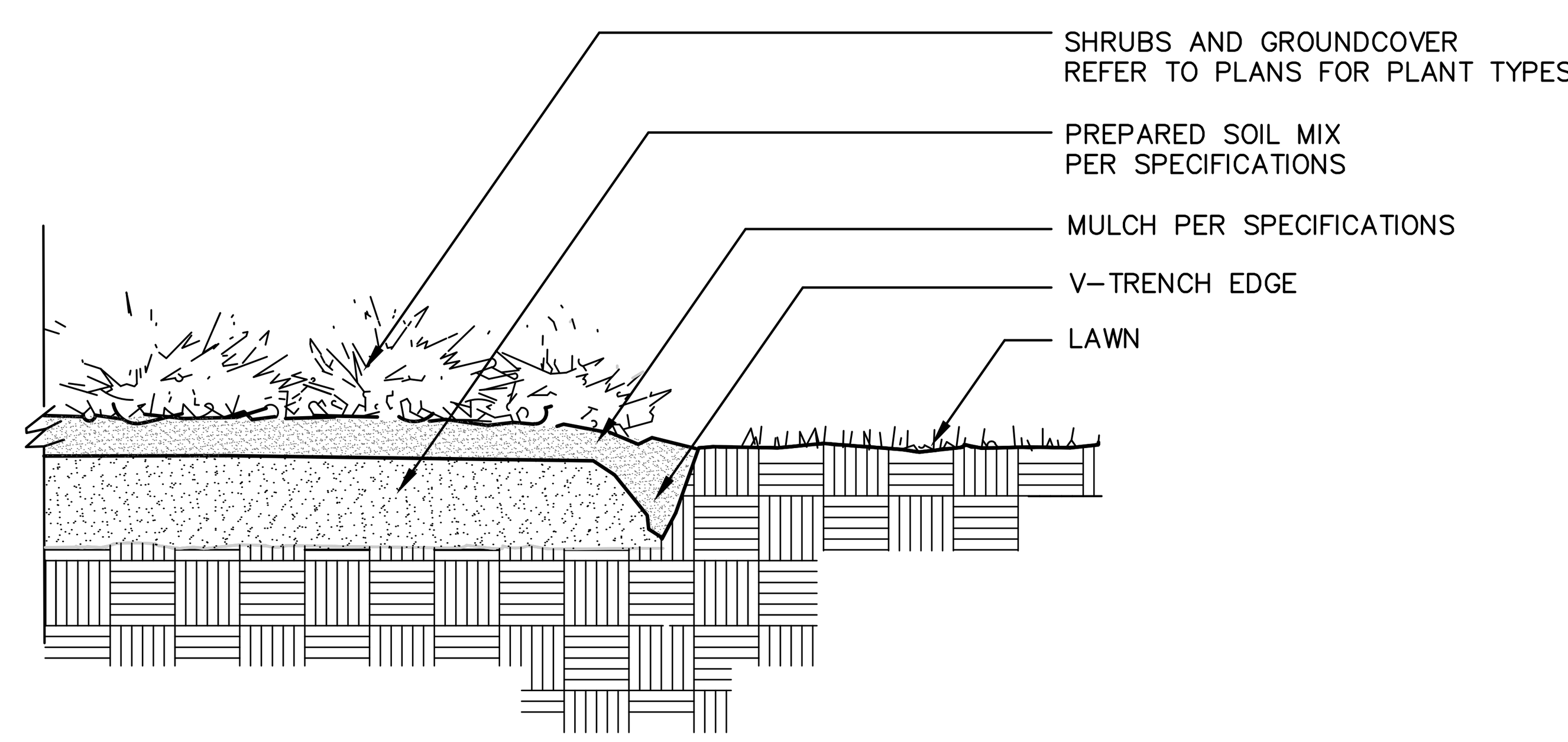
not to scale



NOTES:
1. MINIMUM ROOT SPREAD TO BE IN ACCORDANCE WITH ANLA STANDARDS
2. PRUNE DAMAGED LIMBS OR ROOTS AFTER INSTALLATION
3. MAKE SURE ROOTS DO NOT DRY OUT DURING INSTALLATION
4. SOAK GENEROUSLY TO COMPACT AND SETTLE

3 Shrub Planting Detail

not to scale



4 V-Trench Edging Detail

not to scale

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03/03/23

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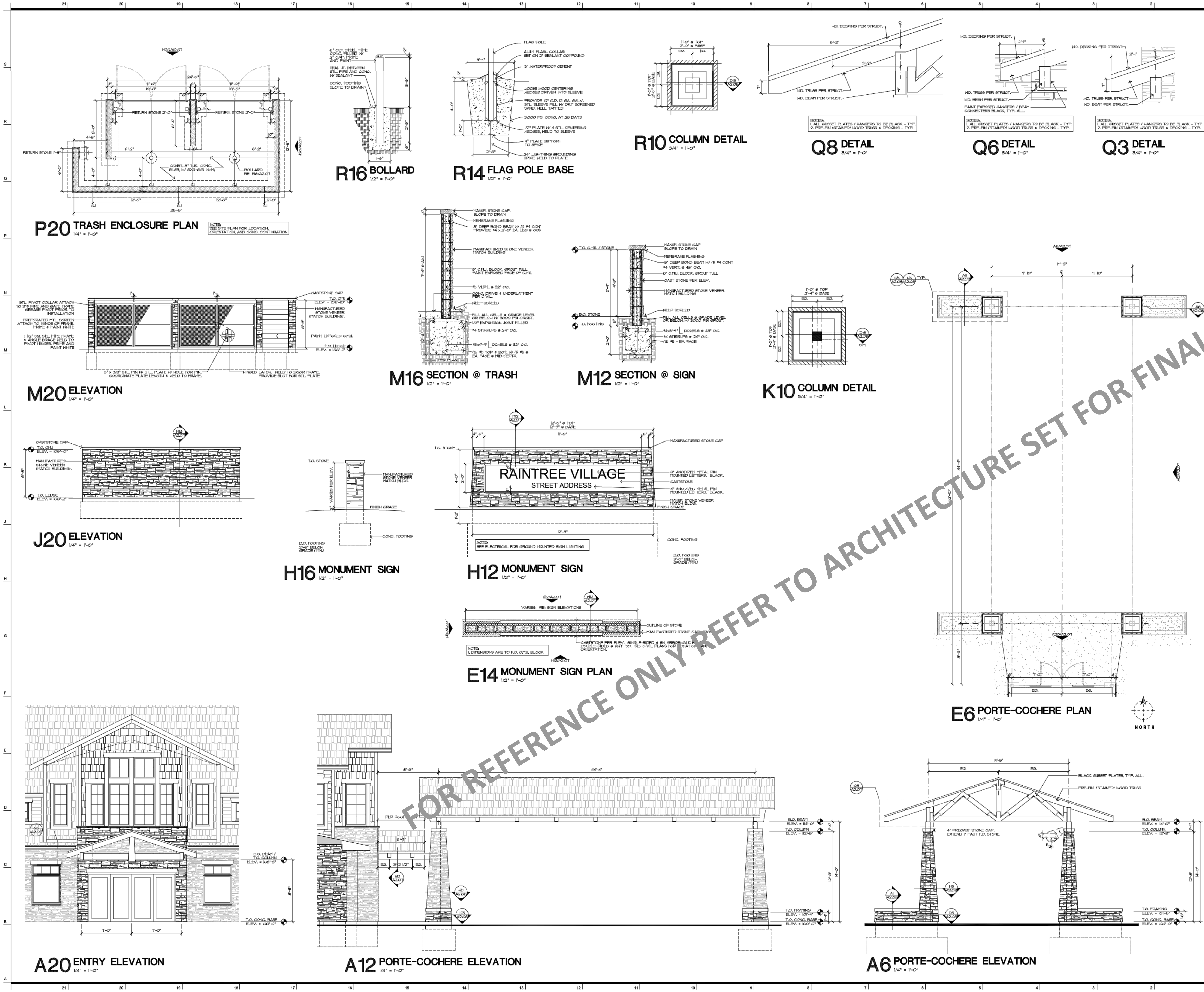

JOB NUMBER 2144
ISSUE DATE 08/08/22
REVISIONS

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RAINTREE VILLAGE
CCRC OF LEE'S SUMMIT
1501 SW ARBORWALK BLVD, LEE'S SUMMIT, MO
SCENIC DEVELOPMENT, LLC

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FISHER ARCHITECTS, P.A. · P.O. BOX 7603 · OVERLAND PARK, KS 66207 · P|816.529.1354 · F|877.270.8955

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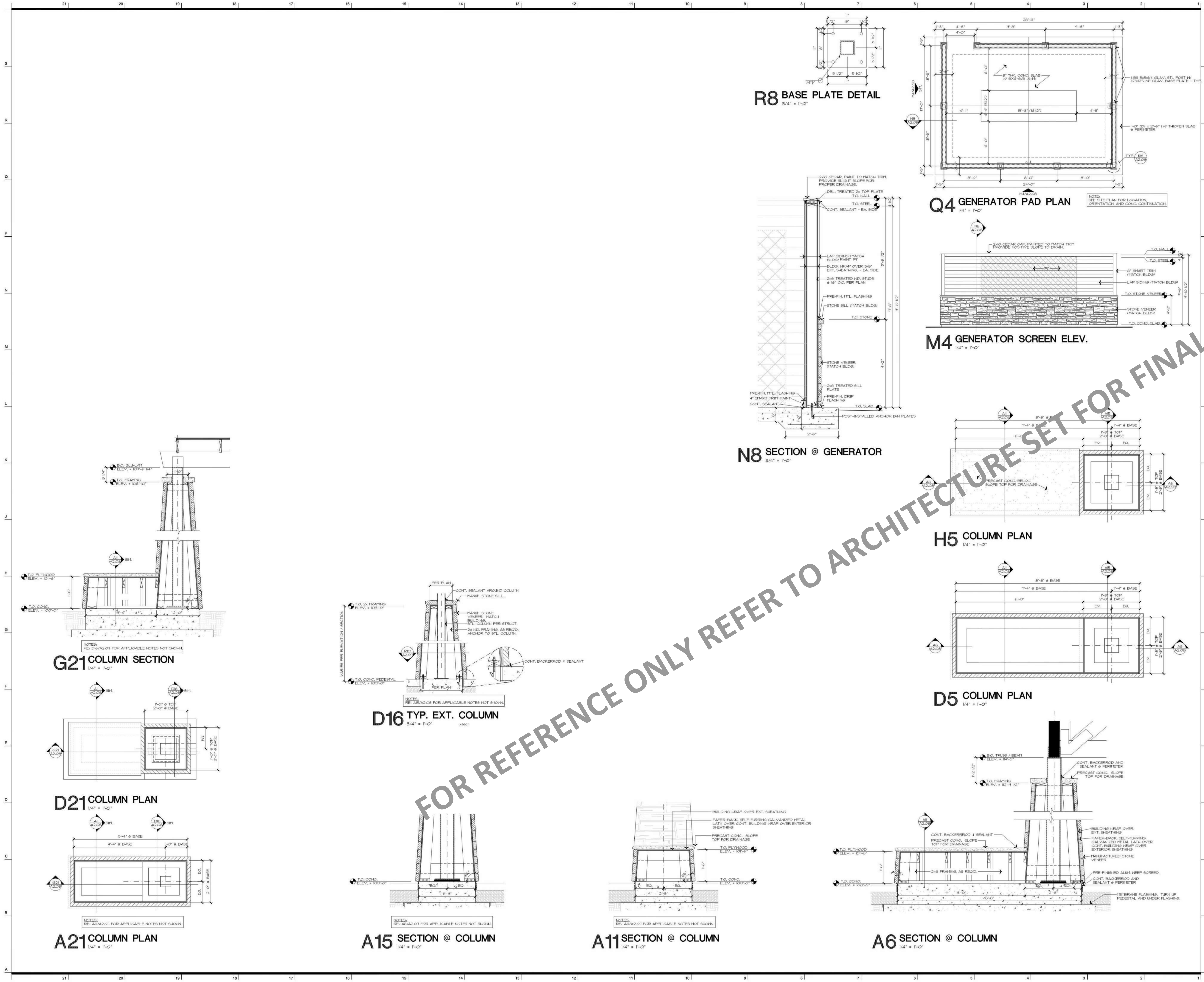

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ISSUE DATE — 08 / 05 / 22 —
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STATE OF MISSOURI
TIMOTHY JOHN FISHER
NUMBER A-2003507409
ARCHITECT
08.05.22

RAINTREE VILLAGE
CCRC OF LEE'S SUMMIT
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PORTE-COCHERE DETAILS

A2.08

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3	03.03.2023	CITY COMMENTS	

REVISIONS

2023

RAINTREE VILLAGE
FINAL DEVELOPMENT PLAN

LEE'S SUMMIT, MO

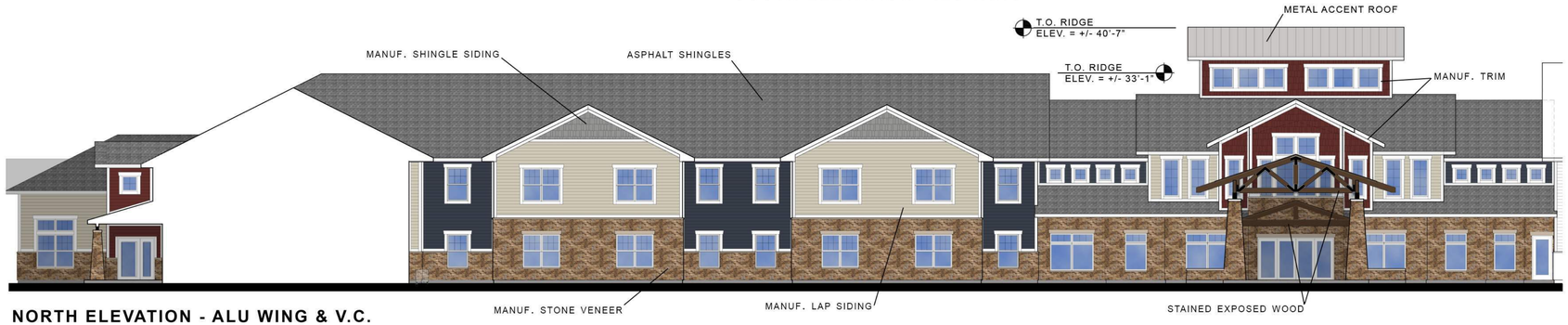
drawn by:	CSM
checked by:	CSM
approved by:	JS
QA/QC by:	JS
project no.:	A21-04054
drawing no.:	
date:	08.10.2022

SHEET

NORTH ELEVATION - ILU WING

SOUTH ELEVATION - ILU WING

EAST ELEVATION - ILU WING



NORTH ELEVATION - ALU WING & V.C.

SOUTH COURTYARD ELEVATION - ILU WING

NORTH ELEVATION - ILU WING

EAST ELEVATION - ILU WING

EXTERIOR MATERIALS

- MANUF. SHINGLE SIDING
- MANUF. LAP SIDING
- MANUF. TRIM
- MANUF. STONE VENEER
- ASPHALT SHINGLES
- STAINED EXPOSED WOOD
- VINYL WINDOWS

EXTERIOR COLORS

- SW7036: Accessible Beige
- SW2739: Charcoal Blue
- SW7669: Summit Gray
- SW2802: Rockwood Red
- SW7005: Pure White

RAINTREE VILLAGE

LEE'S SUMMIT, MO

SCENIC DEVELOPMENT LLC
RETIREMENT COMMUNITY DEVELOPERS

FISHER ARCHITECTS, P.A.

A2.01

NORTH ELEVATION - ALU WING

EAST ELEVATION - ALU WING

SOUTH ELEVATION - ILU WING

WEST ELEVATION - ALU WING

SOUTH ELEVATION - ALU WING

WEST ELEVATION - ILU WING

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RAINTREE VILLAGE

LEE'S SUMMIT, MO

SCENIC DEVELOPMENT LLC
RETIREMENT COMMUNITY DEVELOPERS

FISHER ARCHITECTS, P.A.

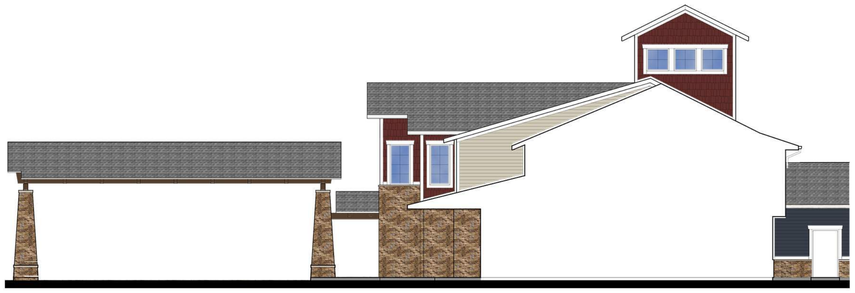
A2.02

NORTH ELEVATION - SNF WING

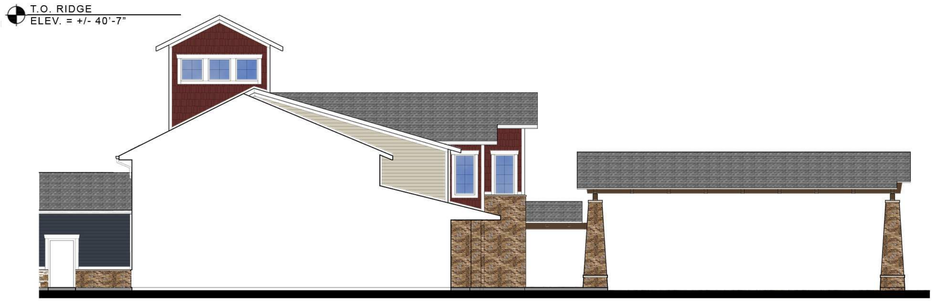
SOUTH AND WEST ELEVATION - SNF WING

SOUTH COURTYARD ELEVATION - SNF WING

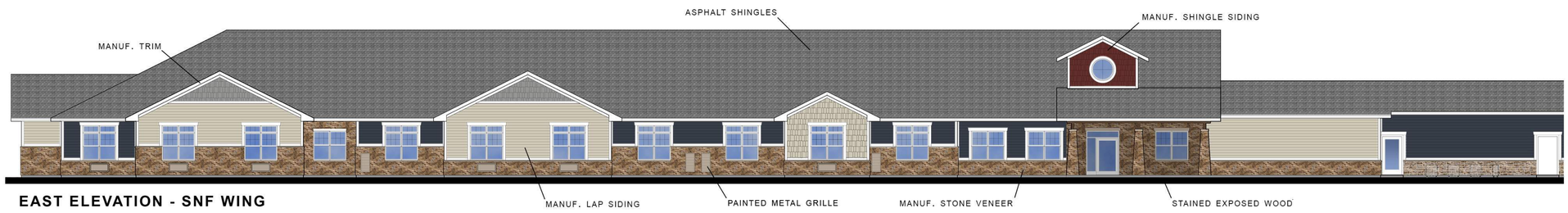
S.W. ELEVATION - SNF WING



WEST ELEVATION - VC & SNF WING



EAST ELEVATION - VC & SNF WING



EAST ELEVATION - SNF WING

WEST COURTYARD ELEVATION - SNF WING

EXTERIOR MATERIALS

- MANUF. SHINGLE SIDING
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- MANUF. TRIM
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RAINTREE VILLAGE

LEE'S SUMMIT, MO

SCENIC DEVELOPMENT LLC
RETIREMENT COMMUNITY DEVELOPERS

FISHER ARCHITECTS, P.A.

A2.03

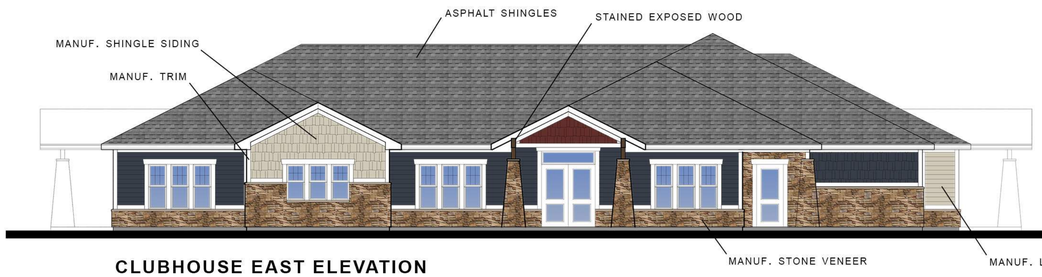
TYPICAL FRONT ELEVATION - MEMORY CARE BUILDING

TYPICAL REAR ELEVATION - MEMORY CARE BUILDING

TYPICAL SIDE ELEVATION - MEMORY CARE BUILDING

CLUBHOUSE WEST ELEVATION

CLUBHOUSE SOUTH ELEVATION



CLUBHOUSE EAST ELEVATION

CLUBHOUSE NORTH ELEVATION

EXTERIOR MATERIALS

- MANUF. SHINGLE SIDING
- MANUF. LAP SIDING
- MANUF. TRIM
- MANUF. STONE VENEER
- ASPHALT SHINGLES
- STAINED EXPOSED WOOD
- VINYL WINDOWS

EXTERIOR COLORS

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RAINTREE VILLAGE

LEE'S SUMMIT, MO

SCENIC DEVELOPMENT LLC
RETIREMENT COMMUNITY DEVELOPERS

FISHER ARCHITECTS, P.A.

A2.04

SITE NOTES

1	THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR A COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEM.
2	MATERIALS AND INSTALLATION SHALL COMPLY WITH CODES, UTILITY REQUIREMENTS, LAWS AND ORDINANCES OF FEDERAL, STATE, OSHA AND LOCAL GOVERNING BODIES HAVING JURISDICTION.
3	THE CONTRACTOR SHALL COMPLY WITH ALL CODES AND STANDARDS APPLICABLE TO THIS PROJECT THAT ARE LISTED BUT NOT LIMITED TO: NEC, NFPA, NEMA, ANSI, IES, IEEE, NFPA LIFE SAFETY 101, ASHRAE 90.1, IECC ENERGY CODE AND IBC BUILDING CODE.
4	PRIOR TO ANY DIGGING, TRENCHING, ETC. CONTACT ALL LOCAL UTILITY COMPANIES AND MUNICIPALITIES AND CONFIRM EXACT LOCATIONS OF ALL EXISTING UTILITIES.
5	MATERIALS AND EQUIPMENT SHALL BE LISTED AND/OR LABELED BY UL OR ANOTHER NATIONALLY RECOGNIZED TESTING LABORATORY.
6	ALL MATERIAL, EQUIPMENT, WIRING DEVICES, ETC SHALL BE NEW, UNLESS SPECIFICALLY NOTED AS EXISTING TO BE REUSED.
7	ALL MATERIALS AND EQUIPMENT SHALL BE STORED, HANDLED, ERECTED, INSTALLED, CONNECTED, CLEANED, ADJUSTED, TESTED, CONDITIONED AND PLACED IN SERVICE IN ACCORDANCE WITH THE MANUFACTURERS DIRECTIONS AND RECOMMENDATIONS.
8	COORDINATE THE UTILITY COMPANY SERVICE FEEDS AND INSTALLATION.
9	ALL POLE FIXTURES TO BE LOCATED 4' AWAY FROM EDGE OF CURB.
10	ALL EXTERIOR LIGHT FIXTURES TO BE CONNECTED TO A COMMON EQUIPMENT GROUND. USE #8, TYPE THWN.
11	ALL CIRCUIT TO BE PLACED IN 1" CONDUITS UNLESS OTHERWISE NOTED. CIRCUIT TO USE COPPER WIRE, TYPE THWN.
12	THE CONTROLLING LIGHTING CONTACTORS SHALL BE MOUNTED INSIDE THE BUILDING WITH TIME-CLOCK CONTROL & REMOTE PHOTOCELLS LOCATED ON THE EXTERIOR SIDE OF THE BUILDING WALL. INSTALL PHOTOCELLS AT LOCATIONS WHERE BUILDING OR OTHER OBSTRUCTIONS WILL NOT INTERFERE WITH THEIR PROPER OPERATION. FINAL BRANCH CIRCUIT SUPPLY CONNECTIONS WILL BE PROVIDED BY THE BUILDING ELECTRICAL CONTRACTORS.
13	MIN. BURIAL DEPTH FOR THE LIGHTING CIRCUIT SHALL BE 24". A SLIGHT DECREASE IN DEPTH IS ALLOWED WITHIN 10' OF THE POLES.
14	VERIFY CONSTRUCTION AREAS ON OTHER SITE PLANS FOR POTENTIAL OBSTACLES AND CONSTRUCTION LIMITS.

ELECTRICAL GENERAL NOTES

1	ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL ELECTRICAL CODES.
2	COORDINATE WORK WITH ALL OTHER TRADES.
3	EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4	ALL WIRING SHALL BE INSTALLED IN APPROVED RACEWAYS.
5	ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSTALLED AT ALL LOCATIONS.
6	ALL MEASUREMENTS TO TOP OF BOX. RECEPTACLES SHALL BE 20" A.F.F. SWITCHES SHALL BE 48" A.F.F.
7	GFI PROTECT ALL RECEPTACLES WITHIN 6' OF EVERY SINK.
8	DRAWINGS ONLY REPRESENT AN APPROXIMATE LOCATION OF ALL RECEPTACLES, SWITCHES, LIGHTS, TV/DATA JACKS, ELECTRICAL EQUIPMENT, ETC. FINAL LOCATIONS WILL BE DETERMINED IN THE FIELD AND MAY VARY FROM DRAWINGS DUE TO UNFORESEEN CIRCUMSTANCES.
9	PROVIDE GFCI PROTECTION FOR ALL AREAS LISTED UNDER NEC 210.8.
10	PROVIDE TAMPER RESISTANT RECEPTACLES IN ALL AREAS LISTED UNDER NEC 406.12.

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURE	MODEL	LAMPS	WATTAGE	DESCRIPTION	NOTES
AA	–	–	LED	20	SMALL EXTERIOR WALL PACK	–
BB	–	–	LED	30	MEDIUM EXTERIOR WALL PACK	–
CC	–	–	LED	15	EXTERIOR RECESSED DOWNLIGHT	–
DD	–	–	LED	70	POLE MOUNT FIXTURE, TYPE II OPTICS, 20' POLE	–
EE	–	–	LED	70	POLE MOUNT FIXTURE, TYPE III OPTICS, 20' POLE	–
FF	–	–	LED	100	POLE MOUNT FIXTURE, TYPE V OPTICS, 20' POLE	–
GG	–	–	–	–	DUAL HEAD FLOOD LIGHTS	–

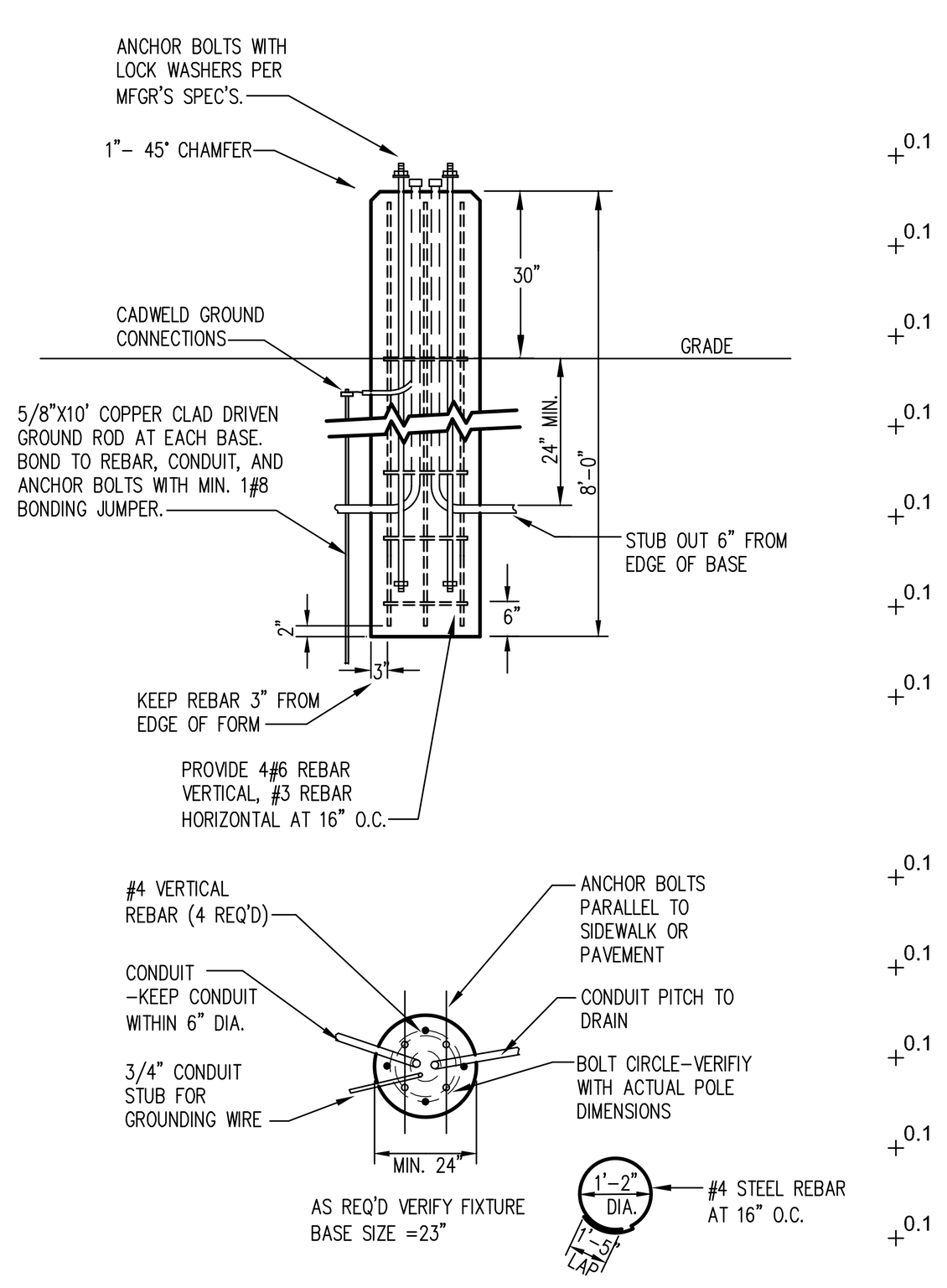
NOTES:

POWER & COMMUNICATION LEGEND

- 120V DUPLEX OUTLET
- 120V QUAD OUTLET
- 240 VOLT RECEPTACLE
- DATA/COMMUNICATIONS OUTLET
- TELEPHONE OUTLET
- TELEVISION OUTLET
- DATA/TV COMBO OUTLET
- FLOOR OUTLET
- JUNCTION BOX
- EMERGENCY E-STOP FOR GRILL OR FIREPIT
- TIME CLOCK
- TIMER FOR GRILL OR FIREPIT
- BC BELOW COUNTER OUTLET
- AC ABOVE COUNTER OUTLET
- MOTOR CONNECTION
- ELECTRICAL DISCONNECT
- ELECTRICAL STARTER DISCONNECT
- ELECTRICAL CONNECTION W/NON-FUSED DISCONNECT
- ELECTRICAL CONNECTION W/WEATHER PROOF DISCONNECT3
- PANELBOARD
- THERMOSTAT MOUNTED AT 48" A.F.F.
- SMOKE/CO ALARM
- SMOKE ALARM
- NITROGEN DIOXIDE DETECTOR
- CARBON MONOXIDE DETECTOR
- GFI GROUND FAULT CIRCUIT INTERRUPTER
- WP/GFI WEATHER PROOF COVER WITH GROUND FAULT CIRCUIT INTERRUPTER

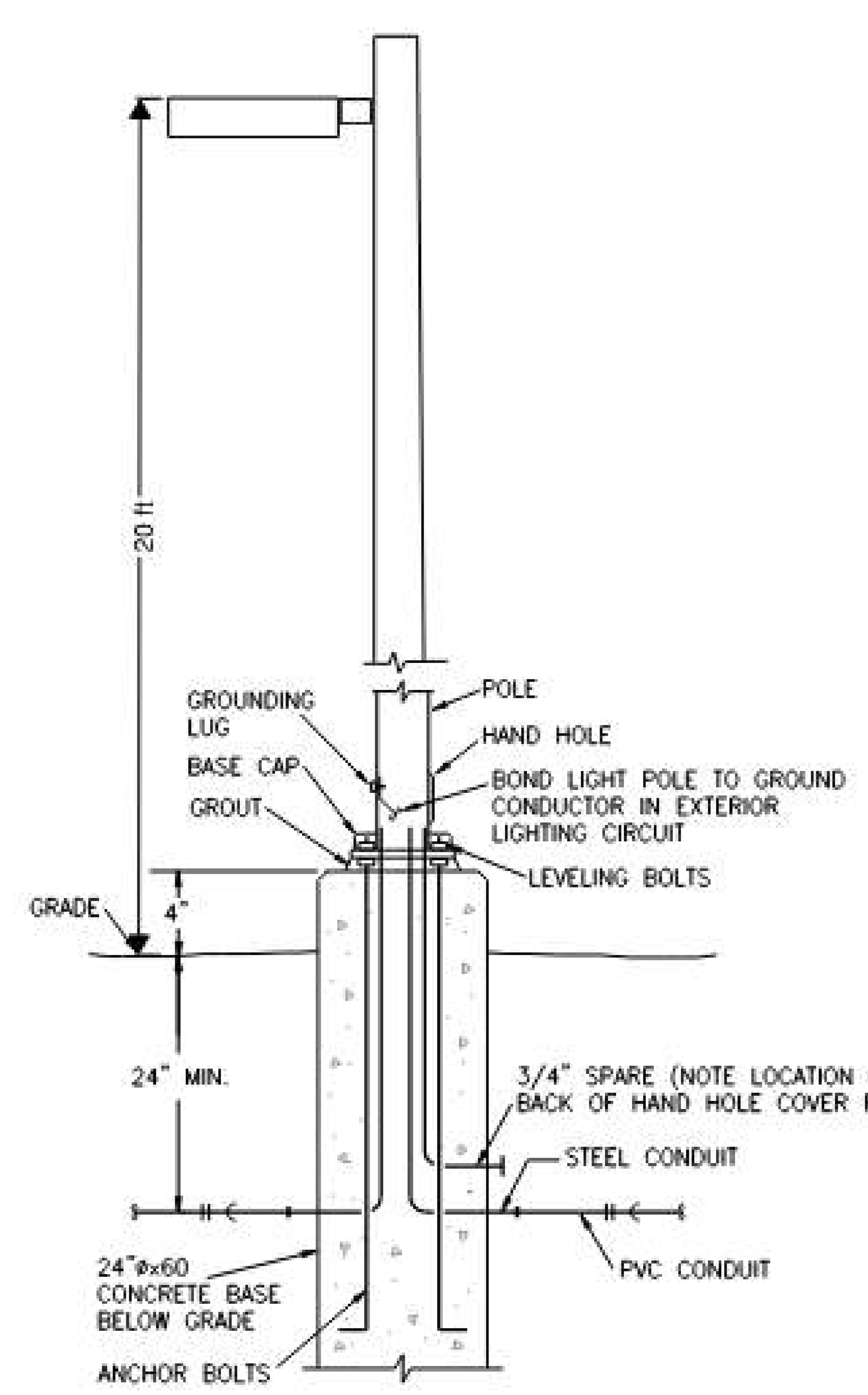
LIGHTING LEGEND

- RECESSED 2x4 FIXTURE
- RECESSED 2x2 FIXTURE
- INDICATES NIGHTLIGHT FIXTURE
- INDICATES EMERGENCY FIXTURE
- INDICATES EMERGENCY/NIGHTLIGHT FIXTURE
- SURFACE MOUNT 1x4 FIXTURE
- HIGH BAY 2x4 FIXTURE
- SURFACE WALL MOUNTED FIXTURE
- SURFACE CEILING MOUNT FIXTURE
- RECESSED DOWNLIGHT OR DISC FIXTURE
- SURFACE WALL MOUNTED FIXTURE
- SURFACE MOUNTED FIXTURE
- SURFACE MOUNTED PENDANT FIXTURE
- OUTSIDE POLE-MOUNT LIGHT FIXTURE
- EXTERIOR GROUND MOUNTED LIGHT FIXTURE
- EMERGENCY LIGHTING FIXTURE
- LED EXIT SIGN-SHADED AREA INDICATES ILLUMINATED FACE
- LED EXIT/EMERGENCY SIGN-SHADED AREA INDICATES ILLUMINATED FACE
- EXTERIOR EMERGENCY EGRESS LIGHT
- $ SINGLE POLE SWITCH
- $2 2-POLE SWITCH
- $3 3-WAY SWITCH
- $4 4-WAY SWITCH
- OS1 WALL MOUNTED SINGLE LEVEL OCCUPANCY SENSOR – SEE SCHEDULE
- OS2 WALL MOUNTED DUAL LEVEL OCCUPANCY SENSOR – SEE SHEDULE
- OS3 CEILING MOUNTED OCCUPANCY SENSOR – SEE SCHEDULE
- NL INDICATES FIXTURE TO REMAIN ON FOR SECURITY PURPOSES
- a,b INDICATES LIGHT FIXTURE SWITCH-LEGS
- P-X INDICATES PANEL AND CIRCUIT NUMBER
- 1 INDICATES LIGHT FIXTURE TYPE
- EX INDICATES EXISTING FIXTURE
- RL INDICATES RELOCATED FIXTURE
- TC INDICATES FIXTURE CONTROLLED BY TIMECLOCK
- EM INDICATES FIXTURE ON EMERGENCY OR STANDBY POWER

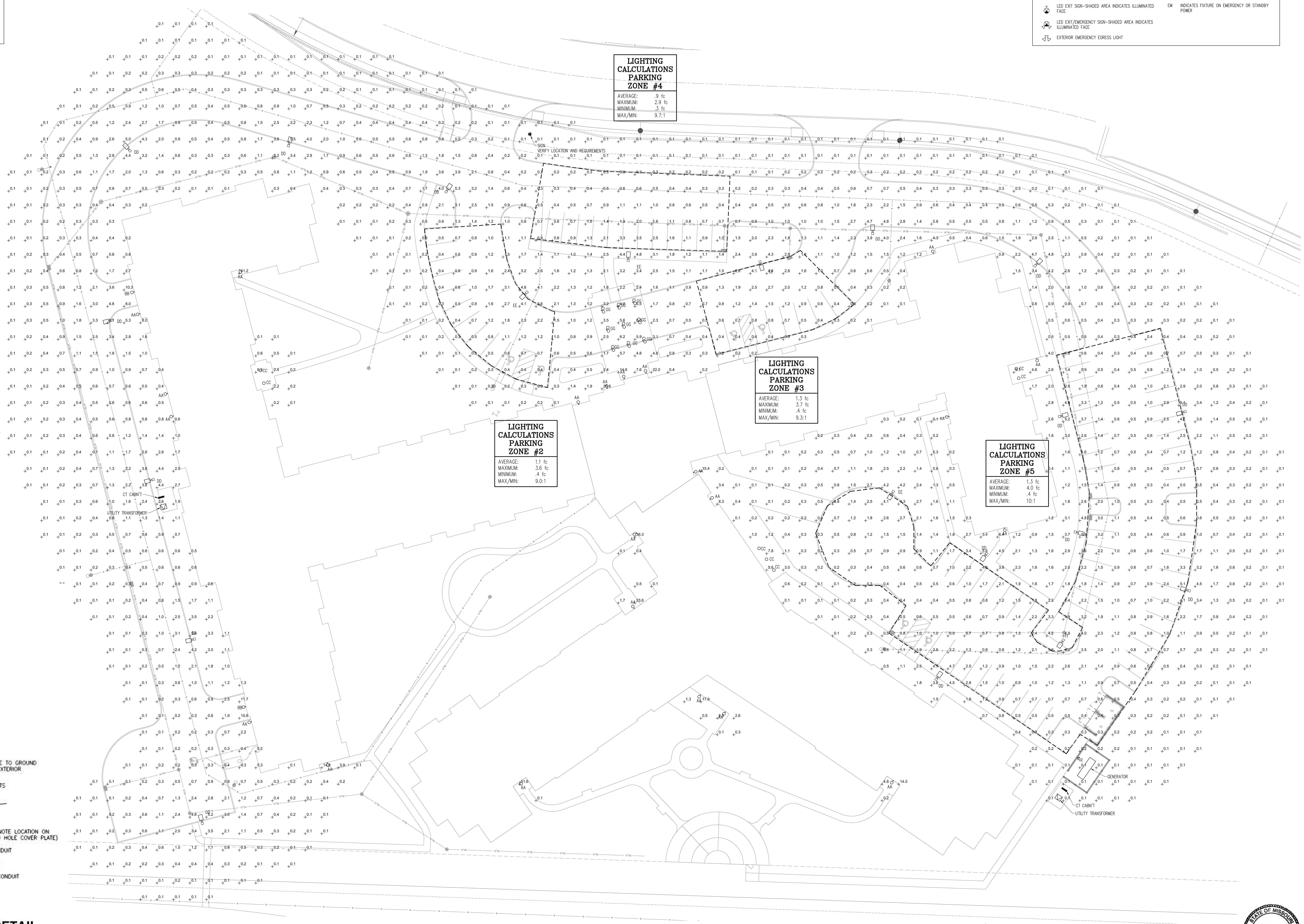


NOTE:
1.) USE MFGR'S DIMENSIONS FOR EXACT ANCHOR BOLT AND COVER PLACEMENT.
2.) INSTALL INLINE FUSES IN EACH UNGROUNDED CONDUCTOR WITHIN POLE BASE HAND HOLE.
3.) TROWEL FINISH EXPOSED PORTION OF BASE TO REMOVE/COVER FORM MARKS.

2 / E1.1 **POLE BASE DETAIL**
NOT TO SCALE



X **LIGHTING POLE BASE DETAIL**
NO SCALE



1 / E1.1 ELECTRICAL SITE PLAN
SCALE: 1" = 20'-0"

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF MISSOURI.
TIMOTHY J. AUTH
DATE: 8/18/22 REG. NO. 2011037415

A·C/a Auth·Consulting/associates
CORPORATE OFFICE: 406 Technology Drive E. Suite A, Menomonie, WI 54751, Tel 715-232-8490, Fax 715-232-8492
BRANCH OFFICE: 2320 Enloe Street Suite 101, Hudson, WI 54016, Tel 715-381-5277

BERD! ELECTRIC LLC
1 Industrial Boulevard • Sauk Rapids, MN 56379
Phone: 320-656-0847
FAX: 320-656-0312

DATE	REVISION	DESCRIPTION	BY
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DATE: -/-/-
SCALE: AS SHOWN
DRAWN BY: DK
CHECKED BY: ---
JOB NO. 656

RAINTREE VILLAGE
CCRC OF LEE'S SUMMIT
LEE'S SUMMIT, MO
ELECTRICAL SITE PLAN

STATE OF MISSOURI
TIMOTHY J. AUTH
NUMBER PE-2011037415
PROFESSIONAL ENGINEER

DRAWING NO.
E1.1