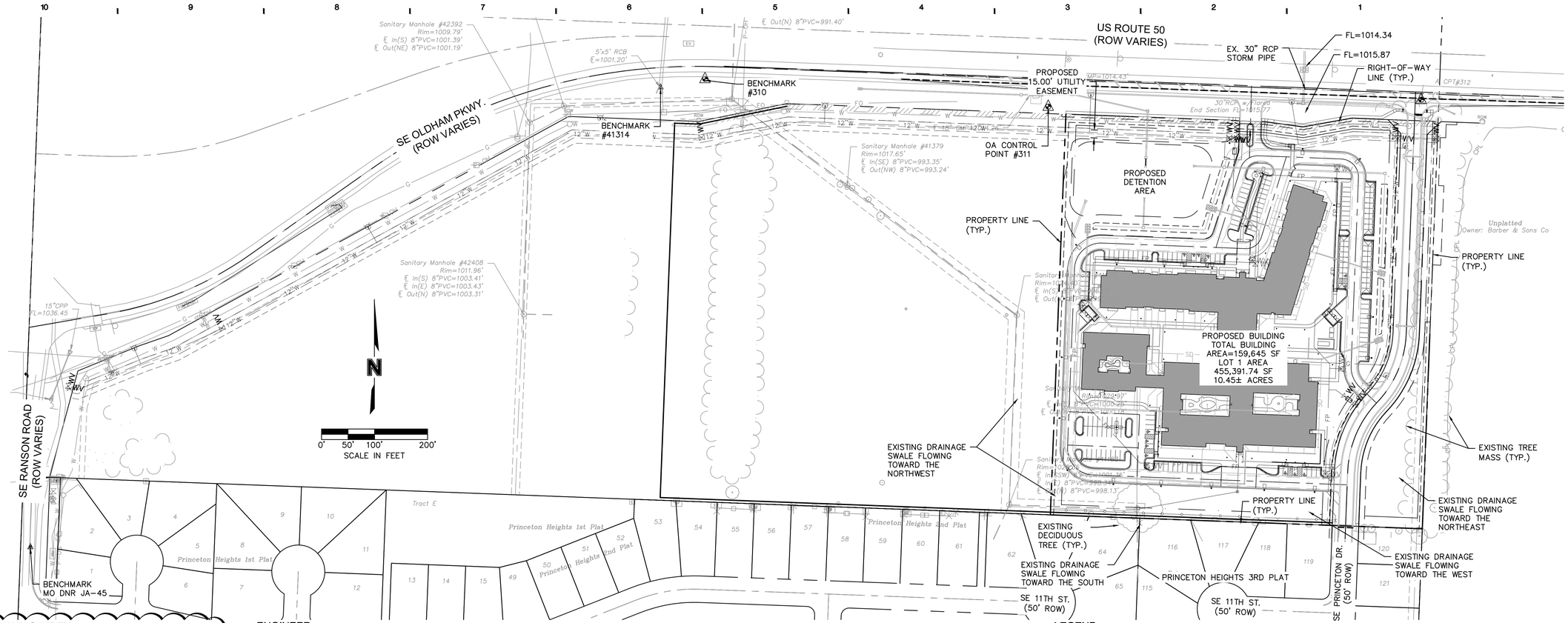

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ENGINEER:

OLSSON
CONTACT: RYAN JEPPSON
550 ST. LOUIS STREET
SPRINGFIELD, MO 65806
TELE: (417) 890-8802
FAX: (417) 890-8805

SURVEYOR:

OLSSON
7301 W. 133rd STREET, SUITE 200
OVERLAND PARK, KS. 66213
TELE: (913) 381-1170
FAX: (913) 381-1174

OWNER/APPLICANT/DEVELOPER:

LEE'S SUMMIT SENIOR COMMUNITY, LLC.
CONTACT: DENISE K. HEINTZ
5051 S. NATIONAL AVENUE, STE 4-110
SPRINGFIELD, MISSOURI 65810
TELE: (417)893-6006
FAX: (417)862-9501

UTILITY COMPANIES:

WATER & SANITARY SEWER:
CITY OF LEE'S SUMMIT CITY UTILITIES
1200 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64081
(816) 969-1900

ELECTRIC SERVICE:
KANSAS CITY POWER & LIGHT
TELE: (816) 471-5275

GAS SERVICE:
SPIRE
(800) 582-1234

FIRE DEPARTMENT:
LEE'S SUMMIT FIRE DEPARTMENT
207 SE DOUGLAS STREET
LEE'S SUMMIT, MO. 64063
(816) 969.1300

AMBULANCE SERVICE:
TELE: 911

SCHOOL DISTRICT:
LEE'S SUMMIT OFFICE OF SUPERINTENDENT
(816) 986-1000

COMMUNICATION:

AT&T	1-800-246-8464
CENTURYLINK	1-800-246-4237
COMCAST	1-888-262-5101
GOOGLE FIBER NOC	1-866-954-1572
SPRINT/ERICSSON	1-800-521-0579
TIME WARNER CABLE	1-866-967-7611
TW TELECOM	1-800-829-0420
UNITE PRIVATE NETWORKS	1-866-963-4237
VERIZON COMMUNICATIONS INC.	1-800-624-9675

VICINITY MAP
SEC. 10, TWP. 47N, RNG. 31W
NOT TO SCALE

BENCHMARKS:

MO DNR JA-45: KC METRO ALUMINUM GRS DISK SET IN CONCRETE 3"± BELOW PAVEMENT ON THE SHOULDER OF SE RANSON ROAD STAMPED "JA-45"
ELEV.=1046.26'
PUBLISHED COORDINATES (1988 ADJUSTMENT):
N: 303273.664M
E: 863885.886M
GRID=GROUND
N: 994990.3460
E: 2834265.6110
CAF: 0.99989860A

BENCHMARK #41314:
NORTHING: 995873.9570
EASTING: 2835453.8010
SET SQUARE CUT IN CENTER OF CONCRETE HEADWALL FOR REINFORCED CONCRETE BOX
ELEVATION=1007.13' (NAVD 88)

OA CONTROL POINT #310
NORTHING: 995873.4445
EASTING: 2835537.7320
FOUND 1/2" REBAR W/CAP 8' SOUTH OF PAVEMENT EAST OF REINFORCED CONCRETE BOX
ELEVATION=1008.08' (NAVD 88

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND ABILITY THAT ALL LAND DISTURBANCE ACTIVITY, CONSTRUCTION, AND DEVELOPMENT ASSOCIATED WITH THIS PROJECT WILL BE DONE PURSUANT TO THIS PLAN

OWNER/DEVELOPER/OPERATOR/CONTRACTOR DATE

LEGEND

- PROPERTY LINES
- RIGHT-OF-WAY (ROW)
- ROAD CENTERLINE
- EASEMENT LINES
- SETBACK LINES
- FOUND MONUMENT
- TEMPORARY BENCHMARK
- EXIST. POWER POLE
- EXIST. ELECTRIC BOX
- EXIST. ELECTRIC VAULT
- EXIST. ELECTRIC METER
- EXIST. GUY WIRE
- EXIST. TELEPHONE PEDESTAL
- EXIST. FIRE HYDRANT
- EXIST. WATER METER
- EXIST. WATER VALVE
- EXIST. GAS MARKER
- EXIST. CABLE VAULT
- EXIST. SANITARY MANHOLE
- EXIST. FLARED END SECTION
- EXIST. DECIDIOUS TREE
- EXIST. SIGN
- PROP. SANITARY SEWER CLEANOUT
- PROP. FIRE HYDRANT
- PROP. GATE VALVE
- PROP. SIGN
- EXIST. OVERHEAD ELECTRIC
- EXIST. UNDERGROUND TELEPHONE
- EXIST. GAS LINE
- EXIST. STORM SEWER LINE
- EX. WOOD FENCE
- PROP. SANITARY SEWER SERVICE
- PROP. STORM SEWER 12" OR LARGER
- PROP. STORM SEWER 10" OR SMALLER
- PROP. UNDERGROUND ELECTRIC
- PROP. PUBLIC WATER MAIN
- PROP. IRRIGATION LINE
- PROP. WATER SERVICE
- PROP. FIRE PROTECTION LINE
- PROP. FENCE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- STRAIGHT BACK DRY CURB & GUTTER (TYPE CG-1 DRY)
- STRAIGHT BACK CURB & GUTTER (TYPE CG-1)
- STRAIGHT CURB (TYPE C-1)
- "FLUSH" CURB
- B-B BACK OF CURB TO BACK OF CURB

PROPERTY DESCRIPTION:

ALL THAT PART OF THE SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 47 NORTH, RANGE 31 WEST, IN THE CITY OF LEE'S SUMMIT, JACKSON COUNTY, MISSOURI, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF THE SOUTHWEST QUARTER OF SECTION 10, TOWNSHIP 47 NORTH, RANGE 31 WEST, SAID POINT ALSO LYING ON THE CENTERLINE OF WESTBOUND U.S. ROUTE 50 RIGHT OF WAY, AS ESTABLISHED IN MODOT JOB NO. J4P1191, DATED 12/14/98; THENCE SOUTH 87 DEGREES 49 MINUTES 47 SECONDS EAST, ALONG THE NORTH LINE OF SAID SOUTHWEST QUARTER, AND ALONG SAID CENTERLINE, A DISTANCE OF 1938.21 FEET TO A POINT; THENCE SOUTH 02 DEGREES 10 MINUTES 13 SECONDS WEST, DEPARTING SAID NORTH LINE AND SAID CENTERLINE, A DISTANCE OF 246.56 FEET TO A POINT ON THE SOUTH LINE OF SAID U.S. ROUTE 50 RIGHT OF WAY, AS ESTABLISHED IN SAID MODOT JOB NO. J4P1191, DATED 12/14/98, THE POINT OF BEGINNING; THENCE SOUTH 87 DEGREES 48 MINUTES 47 SECONDS EAST, ALONG SAID SOUTH LINE, A DISTANCE OF 375.44 FEET TO A POINT; THENCE SOUTH 82 DEGREES 16 MINUTES 26 SECONDS EAST, CONTINUING ALONG SAID SOUTH LINE, A DISTANCE OF 72.52 FEET TO A POINT; THENCE NORTH 79 DEGREES 54 MINUTES 16 SECONDS EAST, CONTINUING ALONG SAID SOUTH LINE, A DISTANCE OF 94.02 FEET TO A POINT; THENCE SOUTH 87 DEGREES 48 MINUTES 47 SECONDS EAST, CONTINUING ALONG SAID SOUTH LINE, A DISTANCE OF 162.49 FEET TO A POINT ON THE EAST LINE OF SAID SOUTHWEST QUARTER; THENCE SOUTH 02 DEGREES 13 MINUTES 14 SECONDS WEST, DEPARTING SAID SOUTH LINE, ALONG SAID EAST LINE, A DISTANCE OF 769.10 FEET TO THE NORTHEAST CORNER OF PRINCETON HEIGHTS 3RD PLAT, A SUBDIVISION IN THE CITY OF LEE'S SUMMIT, JACKSON COUNTY, MISSOURI; THENCE NORTH 87 DEGREES 51 MINUTES 04 SECONDS WEST, DEPARTING SAID EAST LINE, ALONG THE NORTH LINE OF SAID PRINCETON HEIGHTS 3RD PLAT, AND ALONG THE NORTH LINE OF PRINCETON HEIGHTS 2ND PLAT, A SUBDIVISION IN THE CITY OF LEE'S SUMMIT, JACKSON COUNTY, MISSOURI, A DISTANCE OF 701.97 FEET TO A POINT; THENCE NORTH 02 DEGREES 13 MINUTES 14 SECONDS EAST, DEPARTING SAID NORTH LINES, A DISTANCE OF 756.57 FEET TO THE POINT OF BEGINNING, CONTAINING 533,062 SQUARE FEET OR 12.2374 ACRES, MORE OR LESS.

FEMA:

SUBJECT PROPERTY LIES WITHIN "ZONE X – AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN," ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP NUMBER 29095C0439G, MAP REVISED JANUARY 20, 2017.

CITY APPROVAL

RELEASED FOR CONSTRUCTION DATE

MISSOURI ONE CALL SYSTEM
1-800-DIG-RITE OR 811
www.mo1call.com

olsson

Olsson Engineering MO State Certificate of Authority #001592
Olsson Landscape Architecture MO State Cert. of Authority #2005000285
550 St. Louis St. TEL 417.890.8802
Springfield, MO 65806 FAX 417.890.8805 www.olsson.com
Olsson Project #018-1450

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ARCHITECTURAL CORPORATION
MISSOURI CERTIFICATE
OF AUTHORITY NO. 000073

STARK WILSON DUNCAN ARCHITECTS INC.
315 NICHOLS RD. STE 228 - KANSAS CITY, MO 64112 - T 816.531.1698 F 816.531.1978

LEE'S SUMMIT SENIOR COMMUNITY
1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

TITLE SHEET

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENGR. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

C100

DWG: F:\2018\1001-1500\018-1450\40-Design\AutoCAD\Final Plans\Sheets\GNCV\C_TTL_81450.dwg
DATE: Jul 18, 2019 2:08pm
USER: rjungbauer
XREFS: C_TBLK_81450 v_topo_81450 v_xbou_81450 C_LEGEND_81450 T_PBASE_81450
c_pbase_81450

GENERAL NOTES:

1. THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL LINES PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL "1-800-DIG-SAFE", 1(800)344-7233 OR 811 AND COORDINATE FIELD LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING ACTIVITIES. !!STOP!! CALL BEFORE YOU DIG!!
2. THE CONTRACTOR SHALL NOT CHANGE OR DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE OWNER AND ENGINEER.
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 INFORMATION PURPOSES ONLY. CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL QUANTITIES AND FOR BRINGING THE PROJECT TO THE LINES AND GRADES SHOWN HEREIN. CONTRACTOR SHALL PROVIDE ALL WORK AND MATERIALS REQUIRED TO FULFILL THE PLANS IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE EARTHWORK QUANTITIES AND TO ACCOUNT FOR HAUL IN OR HAUL OFF OF MATERIAL AS NECESSARY TO MEET THE LINES AND GRADES OF THE PLANS EVEN IF QUANTITY ESTIMATES ARE SHOWN WITHIN THESE DOCUMENTS. NO ADDITIONAL PAYMENTS WILL BE MADE FOR IMPORT OR EXPORT OF MATERIAL OR FOR ADJUSTMENTS TO QUANTITY ESTIMATES.
5. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF THE CITY OF LEE'S SUMMIT, MO, EXCEPT WHERE SHOWN OTHERWISE. NOTIFY ENGINEER OF DISCREPANCIES.
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 ADHERE TO THE PROVISIONS OF MISSOURI STATE LAW WHICH REQUIRES THAT ANY PERSON OR FIRM DOING EXCAVATION ON PUBLIC RIGHT-OF-WAY DO SO ONLY AFTER GIVING NOTICE TO, AND OBTAINING INFORMATION FROM UTILITY COMPANIES.
8. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY ALL THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED.
9. THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE ON THESE PLANS.
10. CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND ORDINANCES.
11. ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR.
12. ALL UTILITY EXTENSIONS AND CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE APPLICABLE UTILITY COMPANIES.
13. ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS ARE TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.
14. ALL DISTURBED AREAS SHALL BE LANDSCAPED, SEEDED OR SODDED, AS SHOWN ON THE LANDSCAPE PLAN.
15. ACCESSIBLE PARKING STALLS SHALL BE SIGNED WITH CITY/ADA APPROVED SIGN AND CONSTRUCTED IN STRICT ACCORDANCE WITH CITY/ADA STANDARDS AND 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.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROL OF SURFACE EROSION DURING CONSTRUCTION AND UNTIL THE OWNER ACCEPTS THE WORK AS COMPLETE. EROSION CONTROL MEASURES INCLUDING, BUT NOT LIMITED TO, THE SILT FENCES AND GRAVEL FILTER BAGS SHOWN ON THE EROSION CONTROL PLAN SHALL BE IN PLACE FOR THE DURATION OF THE SITE IMPROVEMENTS.
17. ALL HDPE PIPE SHALL BE ADS (N-12) OR APPROVED EQUAL, AND CONFORM TO AASHTO M294 SPECIFICATIONS. ALL PIPE LENGTHS ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
18. IF PRECAST CONCRETE STORM SEWER STRUCTURES ARE TO BE USED ON THIS PROJECT, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND HAVE THEM APPROVED BY THE ENGINEER PRIOR TO FABRICATION OF THE STRUCTURES. FAILURE TO DO SO SHALL BE CAUSE FOR REJECTION.
19. EXISTING TOPSOIL SHALL BE STRIPPED TO A POINT WHERE ALL VEGETATION IS REMOVED. REFER TO THE GEOTECHNICAL REPORT PROVIDED BY OLSSON, INC. DATED FEBRUARY 15, 2019 AND ALL ADDENDUMS FOR ADDITIONAL REQUIREMENTS.
20. THE CONTRACTOR SHALL, BY HIS OWN INVESTIGATION, AND PRIOR TO COMMENCING WORK, SATISFY HIMSELF AS TO THE SURFACE AND SUBSURFACE CONDITIONS TO BE ENCOUNTERED.
21. ALL WATER LINES SHALL BE INSTALLED PER CITY STANDARDS. ALL WATER LINES SHALL BE A MINIMUM OF 48 INCHES BELOW THE FINISHED GRADE ELEVATIONS SHOWN HEREIN.
22. 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.
23. NO FEDERALLY OWNED MAILBOX MAY BE DISTURBED. THE CONTRACTOR SHALL GIVE AT LEAST TWENTY-FOUR (24) HOURS ADVANCE NOTICE TO THE MANAGER OF DELIVERY AND COLLECTIONS. TAMPERING WITH FEDERAL MAIL FACILITIES MAY SUBJECT THE CONTRACTOR TO PROSECUTION BY THE FEDERAL GOVERNMENT.
24. THE CONTOUR LINES, SPOT ELEVATIONS AND BUILDING FLOOR ELEVATIONS SHOWN ARE TO FINISH GRADE FOR SURFACE OF PAVEMENT, TOP OF SIDEWALKS AND CURBS, TOP OF FLOOR SLABS, ETC. REFER TO TYPICAL SECTIONS FOR PAVING, SLAB AND AGGREGATE BASE THICKNESS TO DEDUCT FOR GRADING LINE ELEVATIONS.
25. THE CONTRACTOR SHALL FINISH GRADE SLOPES AS SHOWN NO STEEPER THAN 1 FOOT VERTICAL IN 3 FEET HORIZONTAL.
26. THE CONTRACTOR SHALL GRADE LANDSCAPED AREAS TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING AND SIDEWALKS WHEN FINISH LANDSCAPE MATERIALS ARE IN PLACE.
27. ALL EXTERIOR CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI MEET KCMMB STANDARDS AND SPECIFICATIONS, AND BE AIR ENTRAINED. FLYASH IS NOT A SUITABLE REPLACEMENT FOR PORTLAND CEMENT.
28. ALL ON-SITE WIRING AND CABLES SHALL BE PLACED UNDERGROUND.
29. THE CONTRACTOR SHALL MAKE HIS OWN ASSUMPTIONS ON THE LOCATION AND CONSISTENCY OF ANY EXISTING ROCK LAYERS UNDERLYING THE PROJECT SITE. ALL ROCK EXCAVATION AND REMOVAL SHALL BE INCLUDED IN THE CONTRACTORS' BID.
30. SITE PREPARATION, GRADING AND EXCAVATION PROCEDURES SHALL CONFORM TO THE RECOMMENDATIONS AS OUTLINED IN THE GEOTECHNICAL REPORT PROVIDED BY OLSSON, INC. DATED FEBRUARY 15, 2019 AND ALL ADDENDUMS.
31. CONCRETE PAVEMENT JOINTS SHALL BE CONSTRUCTED AS FOLLOWS (REFER TO HARDSCAPE PLANS FOR SPECIFIC TREATMENT OF THESE AREAS):
    A. CONTROL JOINTS SPACED AT INTERVALS NOT GREATER THAN 12 FEET AND TOOLED TO 1/3 THE SLAB THICKNESS.
    B. CONSTRUCTION JOINTS AT THE END OF EACH POUR AND WHEN PAVING OPERATIONS ARE SUSPENDED FOR 30 MINUTES OR MORE.
    C. ISOLATION JOINTS PLACED WHERE THE PAVEMENT ABUTS THE BUILDING, DRAINAGE STRUCTURES AND OTHER FIXED STRUCTURES, CONSTRUCTED WITH A 1/2" NONEXTRUDING 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.
    D. ALL EXPANSION JOINTS SHALL BE FILLED AND SEALED WITH A PLASTIC JOINT SEALANT MATERIAL.
32. CONTRACTOR TO FIELD VERIFY ELEVATIONS AND LOCATIONS OF EXISTING UTILITIES AND INFRASTRUCTURE PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN PLANS AND FIELD CONDITIONS.
33. TELEPHONE AND COMMUNICATION SERVICE ROUTING AND CONDUITS NOT SHOWN ON PLANS. CONTRACTOR SHALL INSTALL NECESSARY CONDUIT PRIOR TO PAVEMENT INSTALLATION. CONTRACTOR SHALL COORDINATE ROUTING AND INSTALLATION SCOPE WITH SERVICE PROVIDER.
34. BY ACCEPTING AND UTILIZING ANY ELECTRONIC FILE OF ANY DRAWING, REPORT OR DATA TRANSMITTED BY OLSSON, THE RECIPIENT AGREES FOR ITSELF, ITS SUCCESSORS, ASSIGNS, INSURERS AND ALL THOSE CLAIMING UNDER OR THROUGH IT, THAT BY USING ANY OF THE INFORMATION CONTAINED IN THE ELECTRONIC FILE, ALL USERS AGREE TO BE BOUND BY THE FOLLOWING TERMS. ALL OF THE INFORMATION CONTAINED IN THIS ELECTRONIC FILE IS THE WORK PRODUCT AND INSTRUMENT OF SERVICE OF OLSSON, WHO SHALL BE DEEMED THE AUTHOR, AND SHALL RETAIN ALL COMMON LAW, STATUTORY LAW AND OTHER RIGHTS, INCLUDING COPYRIGHTS, UNLESS THE SAME HAVE PREVIOUSLY BEEN TRANSFERRED IN WRITING TO THE RECIPIENT. THE INFORMATION CONTAINED IN THE ELECTRONIC FILE IS PROVIDED FOR THE CONVENIENCE OF THE RECIPIENT AND IS PROVIDED IN "AS IS" CONDITION. THE RECIPIENT IS AWARE THAT DIFFERENCES MAY EXIST BETWEEN THE ELECTRONIC FILES AND THE PRINTED HARD-COPY ORIGINAL SIGNED AND SEALED DRAWINGS OR REPORTS. IN THE EVENT OF A CONFLICT BETWEEN THE SIGNED AND SEALED ORIGINAL DOCUMENTS PREPARED BY OLSSON AND THE ELECTRONIC FILES TRANSFERRED HEREWITH, THE SIGNED AND SEALED ORIGINAL DOCUMENTS SHALL GOVERN. OLSSON SPECIFICALLY DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ELECTRONIC FILES. IT SHALL BE THE RECIPIENT'S RESPONSIBILITY TO CONFIRM THE ACCURACY OF THE INFORMATION CONTAINED IN THE ELECTRONIC FILE AND THAT IF ACCURATELY REFLECTS THE INFORMATION NEEDED BY THE RECIPIENT. THE RECIPIENT SHALL NOT RETRANSMIT THE ELECTRONIC FILE, OR ANY PORTION THEREOF, WITHOUT INCLUDING THIS DISCLAIMER AS PART OF ANY SUCH TRANSMISSION. IN ADDITION, THE RECIPIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS OLSSON, ITS OFFICERS, DIRECTORS, EMPLOYEES AND SUBCONSULTANTS AGAINST ANY AND ALL DAMAGES, LIABILITIES, CLAIMS OR COSTS, INCLUDING REASONABLE ATTORNEY'S AND EXPERT WITNESS FEES AND DEFENSE COSTS, ARISING FROM ANY CHANGES MADE BY ANYONE OTHER THAN OLSSON OR FROM ANY REUSE OF THE ELECTRONIC FILES WITHOUT THE PRIOR WRITTEN CONSENT OF OLSSON.
35. DESIGN PROFESSIONAL SHALL REVIEW SHOP DRAWINGS OR SAMPLES FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPTS ON THE PROJECT AND FOR COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS, AND SHALL NOT EXTEND TO MEANS OR METHODS OF CONSTRUCTION. THE DESIGN PROFESSIONAL'S REVIEW SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ANY VARIATION FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS UNLESS CONTRACTOR HAS IN WRITING CALLED DESIGN PROFESSIONAL'S ATTENTION TO EACH SUCH VARIATION AT THE TIME OF SUBMISSION, AND DESIGN PROFESSIONAL HAS GIVEN WRITTEN APPROVAL OF EACH SUCH VARIATION BY SPECIFIC WRITTEN NOTATION THEREOF INCORPORATED INTO OR ACCOMPANYING THE SHOP DRAWING OR SAMPLE; NOR WILL ANY APPROVAL BY THE DESIGN PROFESSIONAL RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS WITH CONFORMANCE TO CONTRACT DOCUMENTS.

    BEFORE SUBMITTING EACH SHOP DRAWING OR SAMPLE, CONTRACTOR SHALL HAVE DETERMINED 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.

    ALL SUBMITTED SHOP DRAWINGS SHALL BEAR A STAMP OR SPECIFIC WRITTEN INDICATION AND SIGNATURE THAT CONTRACTOR HAS FULLY REVIEWED THE SUBMISSION AND CHECKED ALL DATA AND DETAILS. BY CONTRACTOR SIGNATURE, CONTRACTOR CERTIFIES SHOP DRAWING CONFORMANCE AND ACCURACY TO THE CONTRACT DOCUMENTS.
36. ANY CONTRACTOR BIDDING ANY PORTION OF THIS WORK SHALL HAVE IN HIS OR HER POSSESSION A COMPLETE SET OF CONSTRUCTION DOCUMENTS AND BE FAMILIAR WITH ALL SCOPES OF WORK AND TRADES TO UNDERSTAND THEIR INTERACTIONS.
37. ACCORDING TO MDNR STATE OIL & GAS COUNCIL THERE ARE NO OIL AND GAS WELLS LOCATED WITHIN OR ADJACENT TO THE PROPERTY.
38. ACCORDING TO FEMA MAPS, MAP#29095C0439G DATED JANUARY 20, 2017, THERE IS NO 100-YR FLOOD PLAN LOCATED WITHIN THE PROPERTY.

PAVEMENT MARKING NOTES:

1. PAVEMENT MARKING PAINT: LATEX, WATER-BASE EMULSION, READY-MIXED, COMPLYING WITH FS TT-P-1952 WITH DRYING TIME OF LESS THAN 45 MINUTES.
2. DO NOT APPLY PAVEMENT MARKING PAINT UNTIL LAYOUT, COLORS AND PLACEMENT HAVE BEEN VERIFIED WITH THE ARCHITECT.
3. ALLOW PAVING TO AGE FOR 24 HOURS BEFORE MARKING.
4. SWEEP AND CLEAN SURFACE.
5. APPLY PAINT WITH MECHANICAL EQUIPMENT TO PRODUCE MARKINGS WITH UNIFORM STRAIGHT EDGES. PROVIDE A MINIMUM WET FILM THICKNESS OF 15 MILS.
6. THIS WORK SHALL CONSIST OF FURNISHING AND APPLYING PAINT ON PAVEMENT SURFACES, IN TRAFFIC LANES, PARKING BAYS, AREAS RESTRICTED TO DISABLED PERSONS, CROSSWALKS, AND OTHER DETAIL PAVEMENT MARKINGS, IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS.
7. DETAILS NOT SHOWN SHALL BE IN CONFORMITY WITH THE STATE STANDARDS FOR TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, AND SIMILAR REQUIREMENTS ESTABLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.
8. ALL PARKING LOT STRIPING SHALL BE SINGLE LINE 4" WIDE AS PER THE SITE PLANS.
9. PAINT FOR MARKING PAVEMENT SHALL CONFORM TO FEDERAL HIGHWAY MARKING STANDARDS. USE SHERWIN WILLIAMS PROMAR TRAFFIC MARKING PAINT, COLORS TO MATCH THE EXISTING ADJACENT INSTALLATIONS. USE FLAT BLACK, WHITE OR YELLOW, WHERE APPROPRIATE. UNLESS OTHERWISE DIRECTED, USE THE FOLLOWING:
    A. BLACKTOP OR BITUMINOUS ASPHALT PAVING: USE WHITE COLOR.
    B. PORTLAND CEMENT CONCRETE PAVING: USE YELLOW COLOR.
    C. ADA ACCESSIBLE PARKING AND ENTRYWAYS: USE WHITE COLOR WITH WHITE STRIPES.
    D. PROVIDE PAINTED CURBS AT FIRE LANE DESIGNATIONS PER FIRE MARSHAL REQUIREMENTS.
10. APPLY ALL MARKINGS USING APPROVED MECHANICAL EQUIPMENT (WITH PROVISIONS FOR CONSTANT AGITATION OF PAINT), CAPABLE OF APPLYING THE MARKING WIDTHS AS SHOWN. 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.
11. DETAIL PAVEMENT MARKINGS SHALL BE THAT MARKING, EXCLUSIVE OF ACTUAL TRAFFIC LANE MARKING, AT EXIT AND ENTRANCE ISLANDS AND TURNOUTS, ON CURBS, AT CROSSWALKS, AT PARKING BAYS AND AT SUCH OTHER LOCATIONS AS SHOWN. ADA ACCESSIBLE PARKING SPACES SHALL BE MARKED BY THE INTERNATIONAL ACCESSIBILITY SYMBOL AT INDICATED PARKING SPACES. USE A SUITABLE TEMPLATE THAT WILL PROVIDE A PAVEMENT MARKING WITH TRUE, SHARP EDGES AND ENDS.

TIME OF INSTALLATION:

WHERE FIRE APPARATUS ACCESS ROADS OR A WATER SUPPLY FOR FIRE PROTECTION ARE REQUIRED TO BE INSTALLED, SUCH PROTECTION SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING TIME OF CONSTRUCTION EXCEPT WHERE APPROVED ALTERNATIVE METHOD OF PROTECTION ARE PROVIDED.

TEMPORARY STREET SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHERE CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES IN ACCORDANCE WITH SECTION 505.2. IFC 507.1 - AN APPROVED WATER SUPPLY CAPABLE OF SUPPLYING THE REQUIRED FIRE FLOW FOR PROTECTION SHALL BE PROVIDED TO PREMISES UPON WHICH FACILITIES, BUILDINGS OR PORTIONS OF BUILDINGS ARE HEREAFTER CONSTRUCTED OR MOVED INTO OR WITHIN JURISDICTION.

3

DETENTION AND BIORETENTION GRADING NOTE:

AFTER EROSION CONTROL MEASURES HAVE BEEN INSTALLED, THE DETENTION BASIN AND BIORETENTION BASINS SHALL BE CONSTRUCTED PRIOR TO ANY OTHER ACTIVITY ON SITE.

BIORENTION BASIN'S UNDERDRAIN PIPE, CLEAN ROCK, GEOTEXTILE FABRIC, AND PLANTING SOIL SHALL NOT BE INSTALLED UNTIL THE UPSTREAM DRAINAGE AREA IS COMPLETELY STABILIZED. ANY SEDIMENT AND FINES ACCUMULATED IN THE BIORETENTION BASIN DURING CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF OFFSITE FOLLOWING FEDERAL, STATE, AND LOCAL REGULATIONS.

3

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SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

GENERAL NOTES

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

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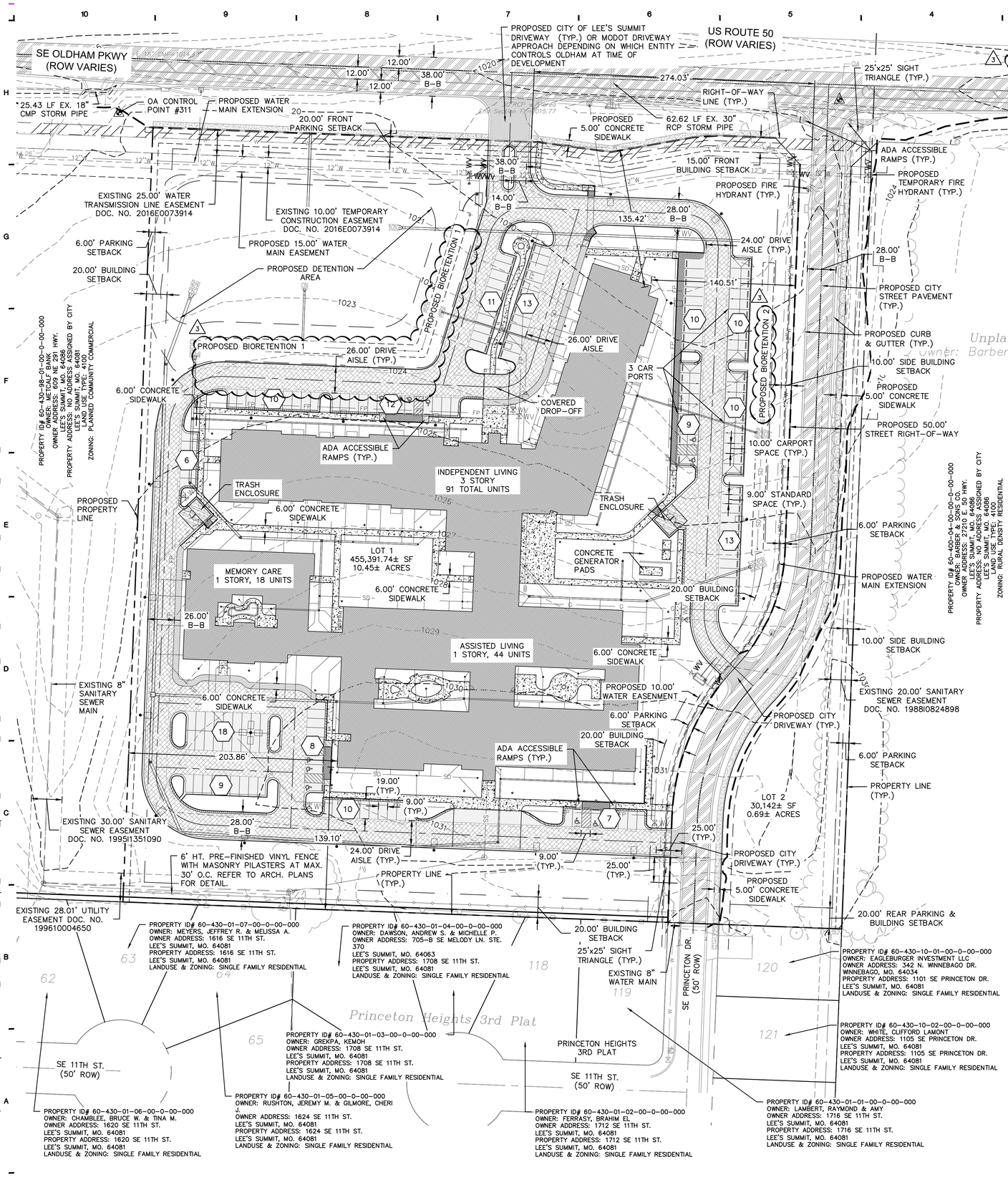

BUILDING SETBACKS:

FRONT = 15' MINIMUM
REAR = 20' MINIMUM
SIDE = 20' MINIMUM FOR LOT 1, 10' MINIMUM FOR LOT 2

PARKING SETBACKS:

NORTH = 20' MIN. ALONG STREET FRONTAGE
EAST = 6' MIN. FROM SIDE PROPERTY LINE; ALONG STREET FRONTAGE
SOUTH = 20' MIN. FROM RESIDENTIAL DISTRICT (LANDSCAPE BUFFER
WEST = 6' MIN. FROM SIDE PROPERTY LINE

GREEN SPACE:

PERIMETER GREEN = 20' MINIMUM LANDSCAPE STRIP ALONG STREET FRONTAGE

INTERIOR GREEN REQUIRED = 5% OF VEHICULAR USE AREA (REFER TO PLANTING PLAN FOR ADDITIONAL INFORMATION)

ZONING:

ZONING EXISTING: CP-2 PLANNED COMMUNITY COMMERCIAL
EAST: AG - AGRICULTURE
SOUTH: R-1 SINGLE FAMILY RESIDENTIAL
WEST: CP-2 PLANNED COMMUNITY COMMERCIAL
NORTH: HIGHWAY 50 AND CP-2 PLANNED COMMUNITY COMMERCIAL

SITE AREA:

TOTAL SITE = 533,061.97 SQUARE FEET OR 12.24 ACRES±
STREET R/W TO BE DEDICATED: 0.91 ACRES
NET LAND AREA REMAINING: 11.33 ACRES
LOT 1 = 10.45 ACRES
LOT 2 = 0.87 ACRES

PRESENT USE:

UNDEVELOPED

PLANNED USE:

SENIOR LIVING COMMUNITY

BUILDING HEIGHT:

HEIGHT ABOVE GRADE:
MEMORY CARE = 21'-0"±
ASSISTED LIVING = 26'-10"±
INDEPENDENT LIVING = 50'-3"±
NUMBER OF FLOORS:
MEMORY CARE = 1 FLOOR (18 UNITS)
ASSISTED LIVING = 1 FLOOR (44 UNITS)
INDEPENDENT LIVING = 3 FLOORS (91 TOTAL UNITS)
MAX. BUILDING HEIGHT = 50'-6"± (3 STORIES)

BUILDING AREA:

GROSS FLOOR AREA RATIO (F.A.R.):

ASSISTED LIVING		= 39,960 SF
INDEPENDENT LIVING	FLOOR 1	= 39,750 SF
	FLOOR 2	= 33,490 SF
	FLOOR 3	= 34,160 SF
MEMORY CARE		= 12,285 SF
TOTAL BUILDING SF		= 159,645 SF

MAX. FLOOR AREA RATIO (F.A.R.):
MAX. F.A.R. ALLOWED = 0.55 F.A.R. = 250,465 SF MAX.
ACTUAL F.A.R. = 0.35 F.A.R.
DWELLING UNITS PER ACRE = 14.74 DU/AC

PARKING:

REQUIRED:
MEMORY CARE: NURSING HOME/ELDERLY CARE
1 FOR EACH 2 BEDS: 18 BEDS = 9 PARKING SPACES
PLUS 1 FOR EACH EMPLOYEE ON MAXIMUM SHIFT: 8
EMPLOYEES = 8 PARKING SPACES

ASSISTED LIVING: NURSING HOME/ELDERLY CARE
1 FOR EACH 2 BEDS: 44 BEDS = 22 PARKING SPACES
PLUS 1 FOR EACH EMPLOYEE ON MAXIMUM SHIFT: 8
EMPLOYEES = 8 PARKING SPACES

INDEPENDENT LIVING: RETIREMENT COMMUNTY
1 FOR EACH DWELLING UNIT: 91 UNITS = 91 PARKING SPACES
PLUS 1 FOR EACH EMPLOYEE ON MAXIMUM SHIFT: 16
EMPLOYEES = 16 PARKING SPACES

TOTAL PARKING SPACES REQUIRED = 154
TOTAL PARKING SPACES PROVIDED = 156
TOTAL ADA SPACES REQUIRED = 6
TOTAL ADA SPACES PROVIDED = 13

IMPERVIOUS COVERAGE:

VEHICULAR USE AREA = 104,944.26 SF
BUILDING & SIDEWALK = 115,755.95 SF
TOTAL IMPERVIOUS = 220,700.21 SF
TOTAL SITE AREA = 455,391.70 SF (LOT 1)
% IMPERVIOUS = 48.46%

UTILITY COMPANIES:

WATER & SANITARY SEWER:
CITY OF LEE'S SUMMIT CITY UTILITIES
1200 SE HAMBLEN ROAD
LEE'S SUMMIT, MISSOURI 64081
(816) 969-1900

ELECTRIC SERVICE:
KANSAS CITY POWER & LIGHT
TELE: (816) 471-5275

GAS SERVICE:
SPIRE
(800) 582-1234

FIRE DEPARTMENT:
LEE'S SUMMIT FIRE DEPARTMENT
207 SE DOUGLAS STREET
LEE'S SUMMIT, MO. 64063
(816) 969.1300

AMBULANCE SERVICE:
TELE: 911

SCHOOL DISTRICT:
LEE'S SUMMIT OFFICE OF SUPERINTENDENT
(816) 986-1000

COMMUNICATION:

AT&T	1-800-246-8464
CENTURYLINK	1-800-246-4237
COMCAST	1-888-262-5101
GOOGLE FIBER NOC	1-866-954-1572
SPRINT/ERICSSON	1-800-521-0579
TIME WARNER CABLE	1-866-967-7611
TW TELECOM	1-800-829-0420
UNITE PRIVATE NETWORKS	1-866-963-4237
VERIZON COMMUNICATIONS INC.	1-800-624-9675

LEGEND

PROPERTY LINES
RIGHT-OF-WAY (ROW)
ROAD CENTERLINE
EASEMENT LINES
SETBACK LINES
FOUND MONUMENT
TEMPORARY BENCHMARK
EXIST. POWER POLE
EXIST. ELECTRIC BOX
EXIST. ELECTRIC VAULT
EXIST. ELECTRIC METER
EXIST. GUY WIRE
EXIST. TELEPHONE PEDESTAL
EXIST. FIRE HYDRANT
EXIST. WATER METER
EXIST. WATER VALVE
EXIST. GAS MARKER
EXIST. CABLE VAULT
EXIST. SANITARY MANHOLE
EXIST. FLARED END SECTION
EXIST. DECIDIOUS TREE
EXIST. SIGN
PROP. SANITARY SEWER CLEANOUT
PROP. FIRE HYDRANT
PROP. GATE VALVE
PROP. SIGN
EXIST. OVERHEAD ELECTRIC
EXIST. UNDERGROUND TELEPHONE
EXIST. GAS LINE
EXIST. STORM SEWER LINE
EX. WOOD FENCE
PROP. SANITARY SEWER SERVICE
PROP. STORM SEWER 12" OR LARGER
PROP. STORM SEWER 10" OR SMALLER
PROP. UNDERGROUND ELECTRIC
PROP. PUBLIC WATER MAIN
PROP. IRRIGATION LINE
PROP. WATER SERVICE
PROP. FIRE PROTECTION LINE
PROP. FENCE
EXISTING CONTOUR
PROPOSED CONTOUR
STRAIGHT BACK DRY CURB & GUTTER (TYPE CG-1 DRY)
STRAIGHT BACK CURB & GUTTER (TYPE CG-1)
STRAIGHT CURB (TYPE C-1) "FLUSH" CURB
B-B BACK OF CURB TO BACK OF CURB

BENCHMARKS:

MO DNR JA-45: KC METRO ALUMINUM GRS DISK SET IN CONCRETE 3"± BELOW PAVEMENT ON THE SHOULDER OF SE RANSON ROAD STAMPED "JA-45"
ELEV.=1046.26'
PUBLISHED COORDINATES (1988 ADJUSTMENT):
N: 303273.664M
E: 863885.886M
GRID=GROUND
N: 994990.3460
E: 2834265.6110
CAF: 0.9998986OA

BENCHMARK #41314:
NORTHING: 995857.9570
EASTING: 2835453.8010
SET SQUARE CUT IN CENTER OF CONCRETE HEADWALL FOR REINFORCED CONCRETE BOX
ELEVATION=1007.13' (NAVD 88)

OA CONTROL POINT #310
NORTHING: 995873.4445
EASTING: 2835537.7320
FOUND 1/2" REBAR W/CAP 8' SOUTH OF PAVEMENT EAST OF REINFORCED CONCRETE BOX
ELEVATION=1008.08' (NAVD 88

N

0' 25' 50' 100'
SCALE IN FEET

HATCH LEGEND

HEAVY DUTY ASPHALT PAVEMENT
LIGHT DUTY ASPHALT PAVEMENT
CITY STREET ASPHALT PAVEMENT (REFER TO TABLES LS-1 & LS-2 ON SHEET C6.1)
TYPICAL CITY DRIVEWAY (REFER TO GEN-1 DETAIL ON SHEET C6.0)

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RYAN V. JEPPSON NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

GENERAL LAYOUT PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

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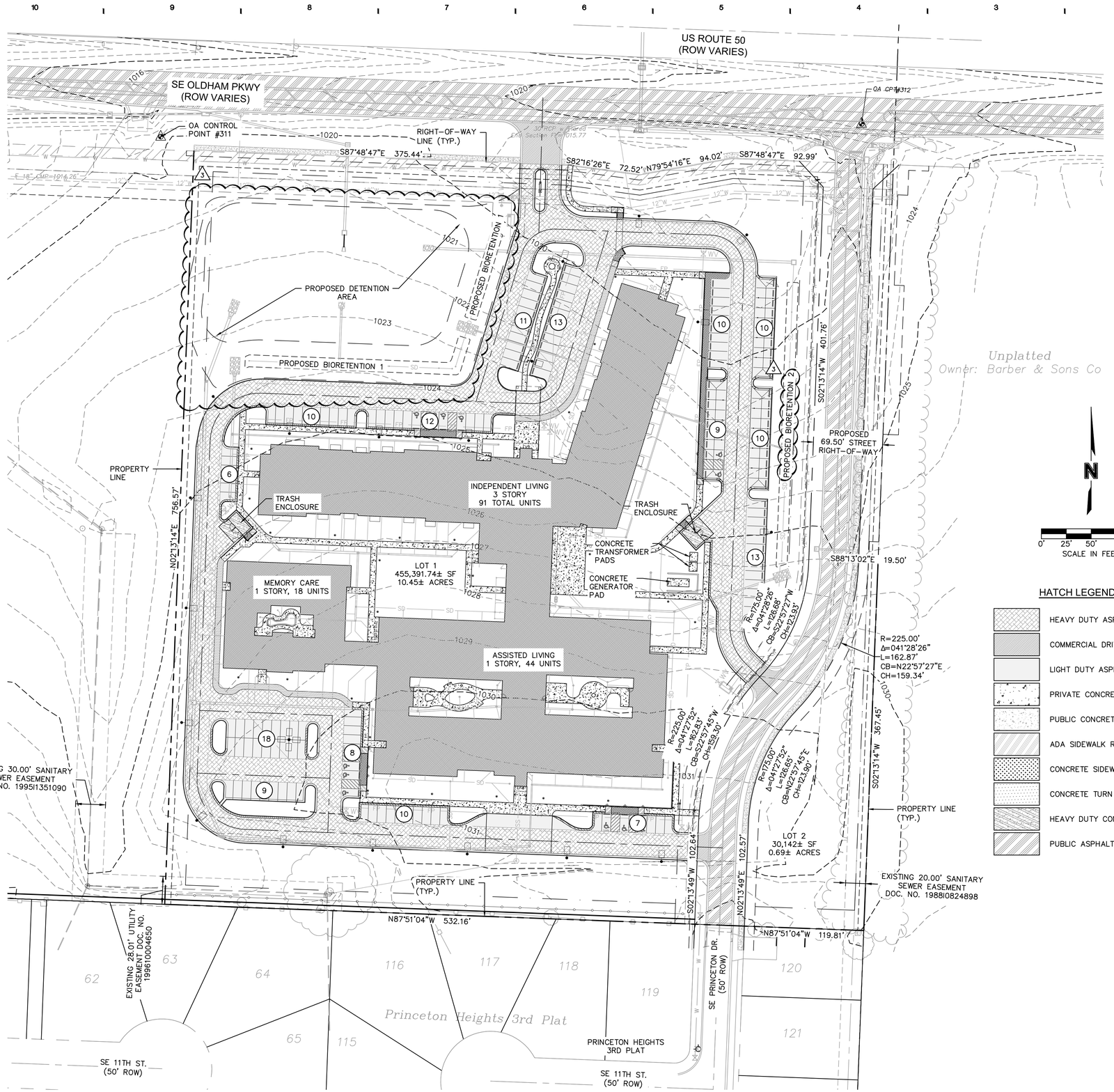


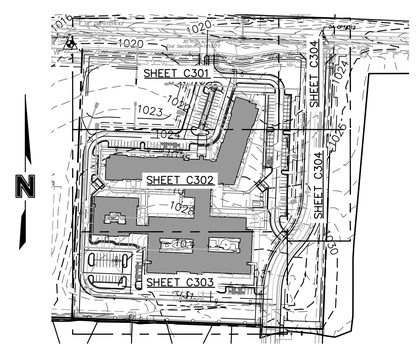
LEGEND

- PROPERTY LINES
- RIGHT-OF-WAY (ROW)
- ROAD CENTERLINE
- EASEMENT LINES
- SETBACK LINES
- FOUND MONUMENT
- TEMPORARY BENCHMARK
- EXIST. POWER POLE
- EXIST. ELECTRIC BOX
- EXIST. ELECTRIC VAULT
- EXIST. ELECTRIC METER
- EXIST. GUY WIRE
- EXIST. TELEPHONE PEDESTAL
- EXIST. FIRE HYDRANT
- EXIST. WATER METER
- EXIST. WATER VALVE
- EXIST. GAS MARKER
- EXIST. CABLE VAULT
- EXIST. SANITARY MANHOLE
- EXIST. FLARED END SECTION
- EXIST. DECIDIOUS TREE
- EXIST. SIGN
- PROP. SANITARY SEWER CLEANOUT
- PROP. FIRE HYDRANT
- PROP. GATE VALVE
- PROP. SIGN
- EXIST. OVERHEAD ELECTRIC
- EXIST. UNDERGROUND TELEPHONE
- EXIST. GAS LINE
- EXIST. STORM SEWER LINE
- EX. WOOD FENCE
- PROP. SANITARY SEWER SERVICE
- PROP. STORM SEWER 12" OR LARGER
- PROP. STORM SEWER 10" OR SMALLER
- PROP. UNDERGROUND ELECTRIC
- PROP. PUBLIC WATER MAIN
- PROP. IRRIGATION LINE
- PROP. WATER SERVICE
- PROP. FIRE PROTECTION LINE
- PROP. FENCE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- STRAIGHT BACK DRY CURB & GUTTER (TYPE CG-1 DRY)
- STRAIGHT BACK CURB & GUTTER (TYPE CG-1)
- STRAIGHT CURB (TYPE C-1)
- "FLUSH" CURB
- BACK OF CURB TO BACK OF CURB

B-B

HATCH LEGEND

- HEAVY DUTY ASPHALT PAVEMENT
- COMMERCIAL DRIVEWAY
- LIGHT DUTY ASPHALT PAVEMENT
- PRIVATE CONCRETE SIDEWALK
- PUBLIC CONCRETE SIDEWALK
- ADA SIDEWALK RAMP – SLOPE AT 8.33% MAX.
- CONCRETE SIDEWALK AND BANDING FLUSH
- CONCRETE TURN DOWN SIDEWALK
- HEAVY DUTY CONCRETE PAVEMENT
- PUBLIC ASPHALT ROADWAY



SITE KEY
SCALE: 1" = 200'

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PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

OVERALL DIMENSION PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

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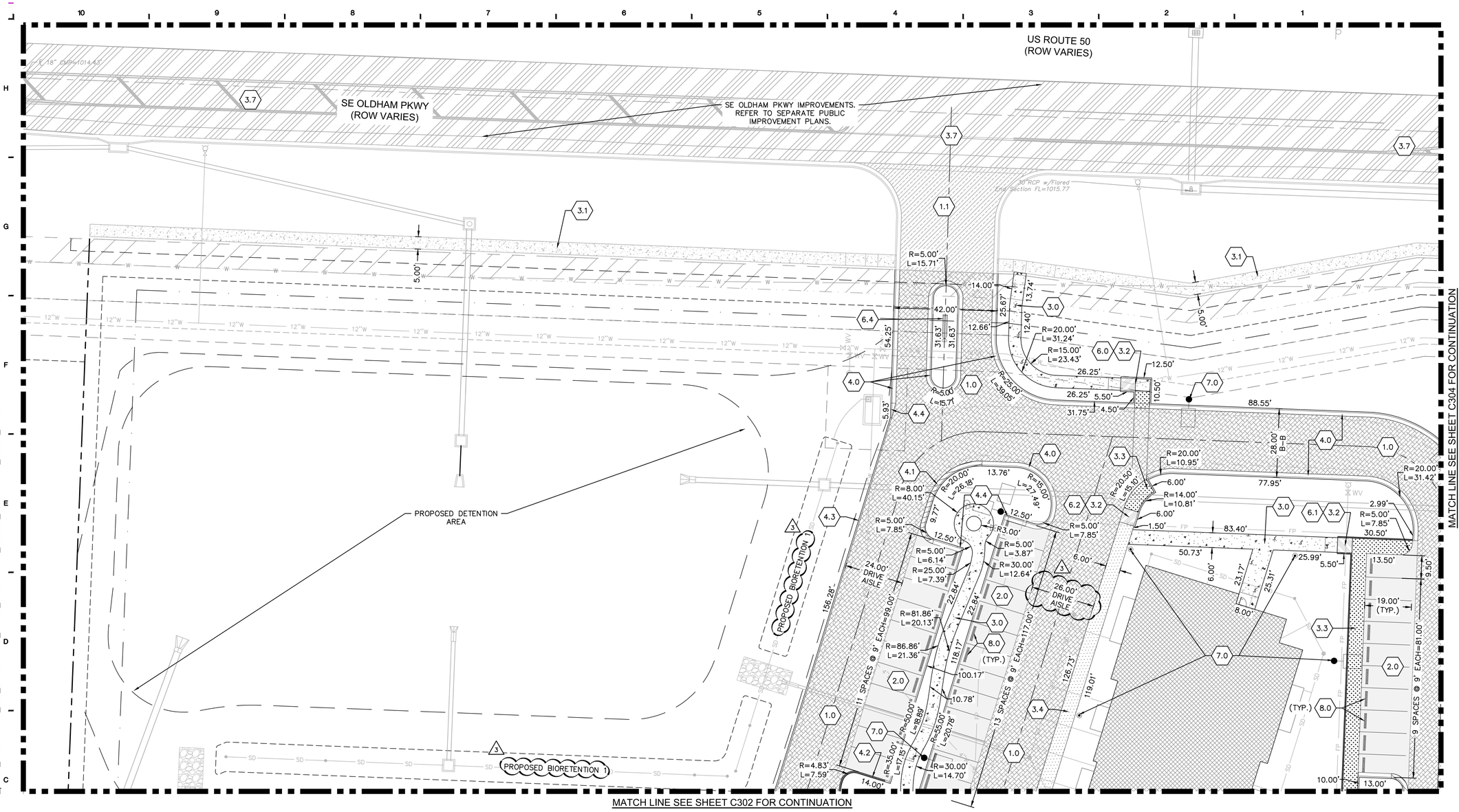

DIMENSION PLAN 1
SCALE:1"=20'

KEYNOTES:

1.0	INSTALL HEAVY DUTY ASPHALT PAVEMENT (REFER TO SHEET C702 FOR DETAIL)	
1.1	COMMERCIAL DRIVEWAY CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.	
2.0	INSTALL LIGHT DUTY ASPHALT PAVEMENT (REFER TO SHEET C702 FOR DETAIL)	
3.0	CONSTRUCT PRIVATE CONCRETE SIDEWALK (REFER TO SHEET C701 FOR DETAILS)	
3.1	PUBLIC CONCRETE SIDEWALK CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.	
3.2	CONSTRUCT SIDEWALK RAMP – SLOPE AT 8.33% MAX.	
3.3	CONSTRUCT CONCRETE SIDEWALK AND BANDING FLUSH WITH PAVEMENT. (REFER TO SHEET C702 FOR DETAIL)	
3.4	CONSTRUCT CONCRETE TURN DOWN SIDEWALK. (REFER TO SHEET C701 FOR DETAIL)	
3.5	PAVEMENT STRIPPING, 4" SINGLE SOLID WHITE STRIPES @ 45', 2' O.C. (REFER TO SHEET C101 FOR PAVEMENT MARKING NOTES)	
3.6	INSTALL HEAVY DUTY CONCRETE PAVEMENT. (REFER TO SHEET C702 FOR DETAIL)	
3.7	PUBLIC ASPHALT ROADWAY CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.	
4.0	CONSTRUCT STRAIGHT BACK CURB & GUTTER (TYPE CG-1)(REFER TO CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)	
4.1	CONSTRUCT STRAIGHT BACK "DRY" CURB & GUTTER (TYPE CG-1 DRY) (CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)	
4.2	CONSTRUCT STRAIGHT CURB (TYPE C-1)(REFER TO CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)	
4.3	CONSTRUCT FLUSH CURB (REFER TO DETAIL SHEET C702)	
4.4	TRANSITION CURB FROM CG-1 TO FLUSH CURB (REFER TO SHEET C702 FOR DETAIL)	
5.0	CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT TO PROVIDE CLEAN EDGE FOR SMOOTH TRANSITION BETWEEN NEW & EXISTING PAVEMENT	
6.0	CONSTRUCT TYPE 1 SIDEWALK RAMP (REFER TO SHEET C702 FOR DETAILS)	
6.1	CONSTRUCT TYPE 2 SIDEWALK RAMP (REFER TO SHEET C702 FOR DETAILS)	
6.2	CONSTRUCT TYPE B SIDEWALK/SHARED USE RAMP (REFER TO SHEET C700 FOR DETAILS)	
6.3	CONSTRUCT DRIVEWAY FLUSH WITH SIDEWALK (REFER TO SHEET C701 FOR DETAIL)	
6.4	SITE SIGNAGE (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
6.5	ACCESSIBLE STALLS & SIGNAGE (REFER TO SHEET C702 FOR DETAILS)	
6.6	CONTRUCT TYPE M SIDEWALK/SHARED USE RAMP (REFER TO SHEET C700 FOR DETAILS)	
7.0	PROPOSED LIGHTING (TYP.)(REFER TO ARCHITECTURAL AND MEP PLANS FOR DETAILS)	
8.0	INSTALL PRECAST WHEEL STOPS (REFER TO SHEET C702 FOR DETAIL)	
9.0	TRASH ENCLOSURE (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.1	INSTALL FENCE. (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.2	CONCRETE PAD FOR GENERATOR (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.3	SCREENING WALL (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.4	RAISED PLANTER (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.5	CARPORT (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.6	CONCRETE PAD FOR ELECTRIC TRANSFORMER (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
10.0	CONCRETE RETAINING WALL WITH HANDRAIL (REFER TO SHEET C701 FOR DETAILS)	

N

0' 10' 20' 40'
SCALE IN FEET

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7-19-19
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MO# PE-2012024241

DIMENSION PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

C301

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MATCH LINE SEE SHEET C301 FOR CONTINUATION

MATCH LINE SEE SHEET C304 FOR CONTINUATION

INDEPENDENT LIVING
3 STORY
91 TOTAL UNITS

MEMORY CARE
1 STORY, 18 UNITS

ASSISTED LIVING
1 STORY, 44 UNITS

REFER TO ENLARGED DIMENSION PLAN #1 SHEET C305

MATCH LINE SEE SHEET C303 FOR CONTINUATION

DIMENSION PLAN 2
SCALE:1"=20'

KEYNOTES:

1.0	INSTALL HEAVY DUTY ASPHALT PAVEMENT (REFER TO SHEET C702 FOR DETAIL)	
1.1	COMMERCIAL DRIVEWAY CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.	
2.0	INSTALL LIGHT DUTY ASPHALT PAVEMENT (REFER TO SHEET C702 FOR DETAIL)	
3.0	CONSTRUCT PRIVATE CONCRETE SIDEWALK (REFER TO SHEET C701 FOR DETAILS)	
3.1	PUBLIC CONCRETE SIDEWALK CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.	
3.2	CONSTRUCT SIDEWALK RAMP – SLOPE AT 8.33% MAX.	
3.3	CONSTRUCT CONCRETE SIDEWALK AND BANDING FLUSH WITH PAVEMENT. (REFER TO SHEET C702 FOR DETAIL)	
3.4	CONSTRUCT CONCRETE TURN DOWN SIDEWALK. (REFER TO SHEET C701 FOR DETAIL)	
3.5	PAVEMENT STRIPPING, 4" SINGLE SOLID WHITE STRIPES @ 45°, 2' O.C. (REFER TO SHEET C101 FOR PAVEMENT MARKING NOTES)	
3.6	INSTALL HEAVY DUTY CONCRETE PAVEMENT. (REFER TO SHEET C702 FOR DETAIL)	
3.7	PUBLIC ASPHALT ROADWAY CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.	
4.0	CONSTRUCT STRAIGHT BACK CURB & GUTTER (TYPE CG-1)(REFER TO CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)	
4.1	CONSTRUCT STRAIGHT BACK "DRY" CURB & GUTTER (TYPE CG-1 DRY) (CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)	
4.2	CONSTRUCT STRAIGHT CURB (TYPE C-1)(REFER TO CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)	
4.3	CONSTRUCT FLUSH CURB (REFER TO DETAIL SHEET C702)	
4.4	TRANSITION CURB FROM CG-1 TO FLUSH CURB (REFER TO SHEET C702 FOR DETAIL)	
5.0	CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT TO PROVIDE CLEAN EDGE FOR SMOOTH TRANSITION BETWEEN NEW & EXISTING PAVEMENT	
6.0	CONSTRUCT TYPE 1 SIDEWALK RAMP (REFER TO SHEET C702 FOR DETAILS)	
6.1	CONSTRUCT TYPE 2 SIDEWALK RAMP (REFER TO SHEET C702 FOR DETAILS)	
6.2	CONSTRUCT TYPE B SIDEWALK/SHARED USE RAMP (REFER TO SHEET C700 FOR DETAILS)	
6.3	CONSTRUCT DRIVEWAY FLUSH WITH SIDEWALK (REFER TO SHEET C701 FOR DETAIL)	
6.4	SITE SIGNAGE (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
6.5	ACCESSIBLE STALLS & SIGNAGE (REFER TO SHEET C702 FOR DETAILS)	
6.6	CONTRUCT TYPE M SIDEWALK/SHARED USE RAMP (REFER TO SHEET C700 FOR DETAILS)	
7.0	PROPOSED LIGHTING (TYP.)(REFER TO ARCHITECTURAL AND MEP PLANS FOR DETAILS)	
8.0	INSTALL PRECAST WHEEL STOPS (REFER TO SHEET C702 FOR DETAIL)	
9.0	TRASH ENCLOSURE (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.1	INSTALL FENCE. (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.2	CONCRETE PAD FOR GENERATOR (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.3	SCREENING WALL (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.4	RAISED PLANTER (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.5	CARPORT (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.6	CONCRETE PADS FOR ELECTRIC TRANSFORMERS (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
10.0	CONCRETE RETAINING WALL WITH HANDRAIL (REFER TO SHEET C701 FOR DETAILS)	

N

0' 10' 20' 40'
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1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241
7-18-19

DIMENSION PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

C302

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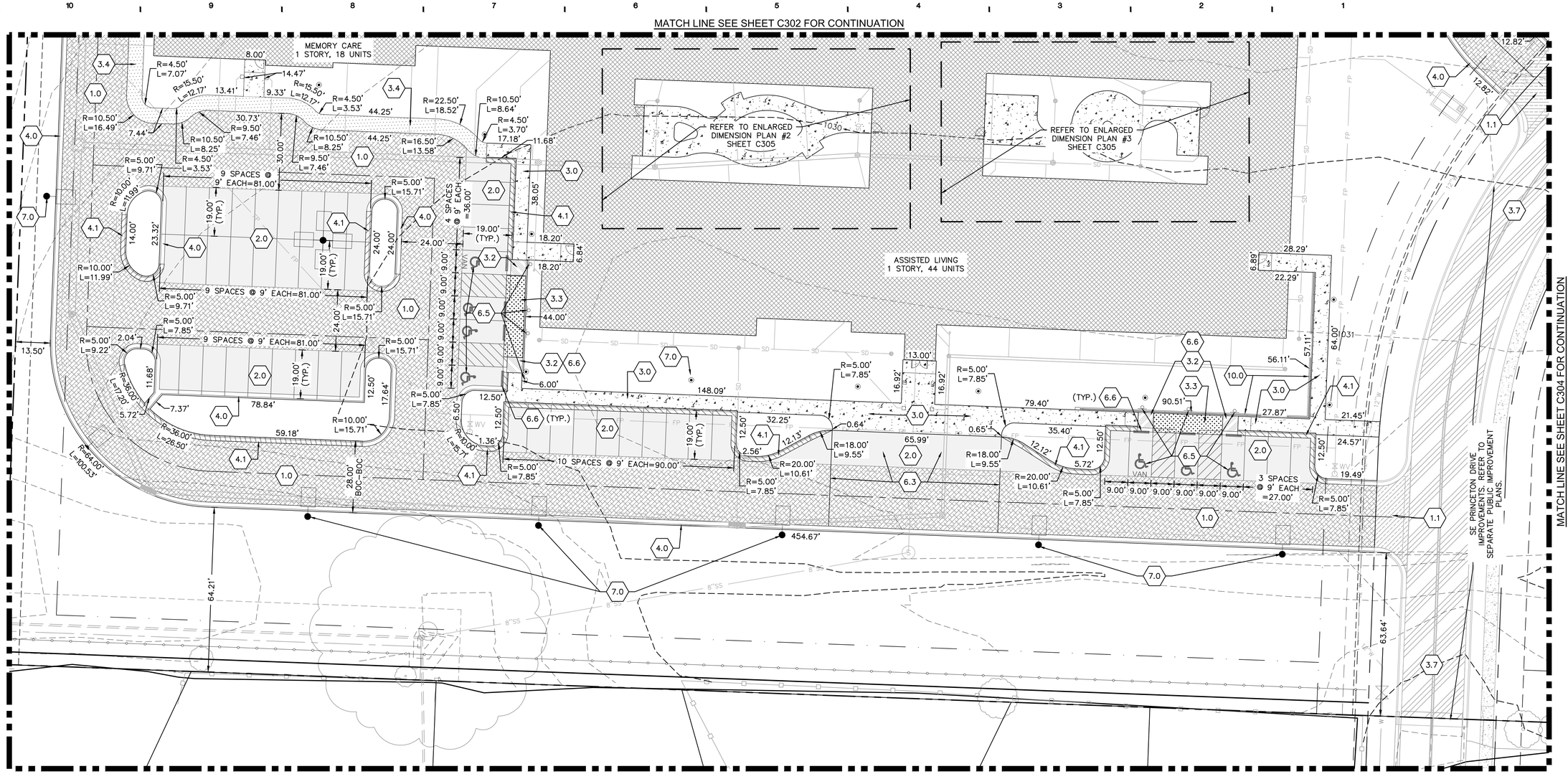

DIMENSION PLAN 3
SCALE:1"=20'

KEYNOTES:

- 1.0 — INSTALL HEAVY DUTY ASPHALT PAVEMENT (REFER TO SHEET C702 FOR DETAIL)
- 1.1 — COMMERCIAL DRIVEWAY CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.
- 2.0 — INSTALL LIGHT DUTY ASPHALT PAVEMENT (REFER TO SHEET C702 FOR DETAIL)
- 3.0 — CONSTRUCT PRIVATE CONCRETE SIDEWALK (REFER TO SHEET C701 FOR DETAILS)
- 3.1 — PUBLIC CONCRETE SIDEWALK CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.
- 3.2 — CONSTRUCT SIDEWALK RAMP – SLOPE AT 8.33% MAX.
- 3.3 — CONSTRUCT CONCRETE SIDEWALK AND BANDING FLUSH WITH PAVEMENT. (REFER TO SHEET C702 FOR DETAIL)
- 3.4 — CONSTRUCT CONCRETE TURN DOWN SIDEWALK. (REFER TO SHEET C701 FOR DETAIL)
- 3.5 — PAVEMENT STRIPPING, 4" SINGLE SOLID WHITE STRIPES @ 45°, 2' O.C. (REFER TO SHEET C101 FOR PAVEMENT MARKING NOTES)
- 3.6 — INSTALL HEAVY DUTY CONCRETE PAVEMENT. (REFER TO SHEET C702 FOR DETAIL)
- 3.7 — PUBLIC ASPHALT ROADWAY CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.
- 4.0 — CONSTRUCT STRAIGHT BACK CURB & GUTTER (TYPE CG-1)(REFER TO CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)
- 4.1 — CONSTRUCT STRAIGHT BACK "DRY" CURB & GUTTER (TYPE CG-1 DRY) (CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)
- 4.2 — CONSTRUCT STRAIGHT CURB (TYPE C-1)(REFER TO CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)
- 4.3 — CONSTRUCT FLUSH CURB (REFER TO DETAIL SHEET C702)
- 4.4 — TRANSITION CURB FROM CG-1 TO FLUSH CURB (REFER TO SHEET C702 FOR DETAIL)
- 5.0 — CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT TO PROVIDE CLEAN EDGE FOR SMOOTH TRANSITION BETWEEN NEW & EXISTING PAVEMENT
- 6.0 — CONSTRUCT TYPE 1 SIDEWALK RAMP (REFER TO SHEET C702 FOR DETAILS)
- 6.1 — CONSTRUCT TYPE 2 SIDEWALK RAMP (REFER TO SHEET C702 FOR DETAILS)
- 6.2 — CONSTRUCT TYPE B SIDEWALK/SHARED USE RAMP (REFER TO SHEET C700 FOR DETAILS)
- 6.3 — CONSTRUCT DRIVEWAY FLUSH WITH SIDEWALK (REFER TO SHEET C701 FOR DETAIL)
- 6.4 — SITE SIGNAGE (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
- 6.5 — ACCESSIBLE STALLS & SIGNAGE (REFER TO SHEET C702 FOR DETAILS)
- 6.6 — CONSTRUCT TYPE M SIDEWALK/SHARED USE RAMP (REFER TO SHEET C700 FOR DETAILS)
- 7.0 — PROPOSED LIGHTING (TYP.)(REFER TO ARCHITECTURAL AND MEP PLANS FOR DETAILS)
- 8.0 — INSTALL PRECAST WHEEL STOPS (REFER TO SHEET C702 FOR DETAIL)
- 9.0 — TRASH ENCLOSURE (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
- 9.1 — INSTALL FENCE. (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
- 9.2 — CONCRETE PAD FOR GENERATOR (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
- 9.3 — SCREENING WALL (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
- 9.4 — RAISED PLANTER (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
- 9.5 — CARPORT (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
- 3 9.6 — CONCRETE PAD FOR ELECTRIC TRANSFORMER (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
- 10.0 — CONCRETE RETAINING WALL WITH HANDRAIL (REFER TO SHEET C701 FOR DETAILS)

N

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MO# PE-2012024241

DIMENSION PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

C303

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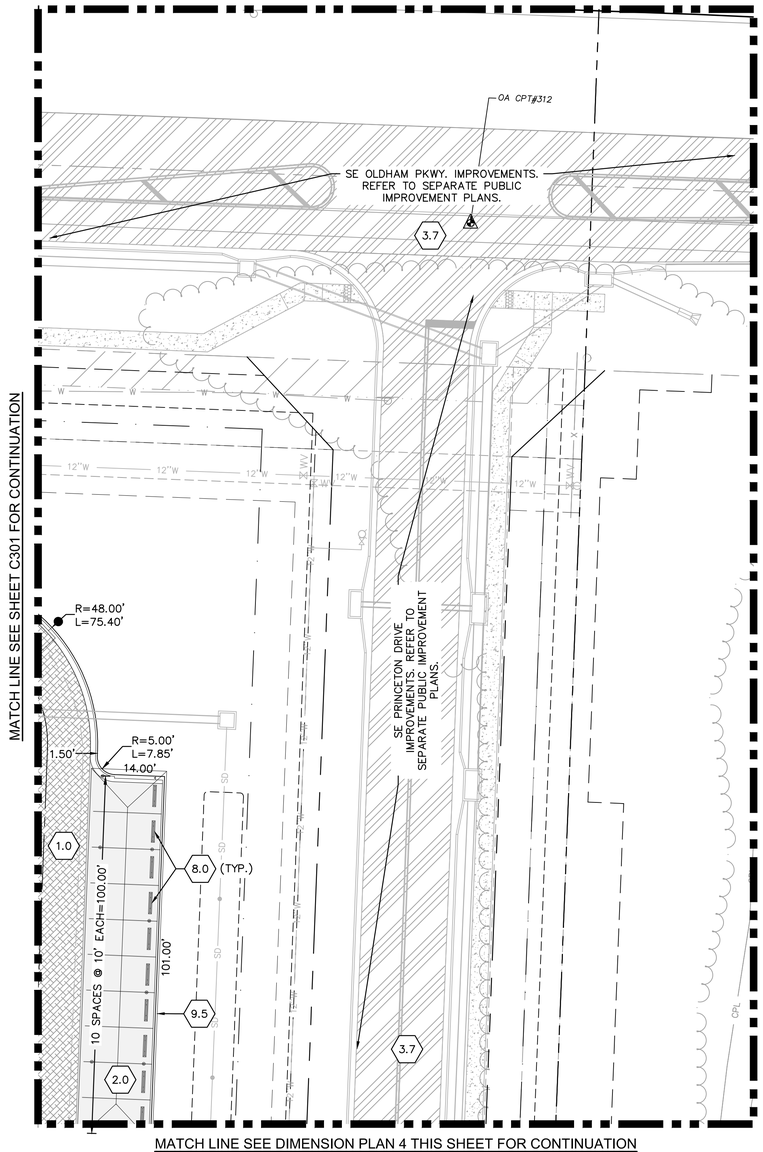
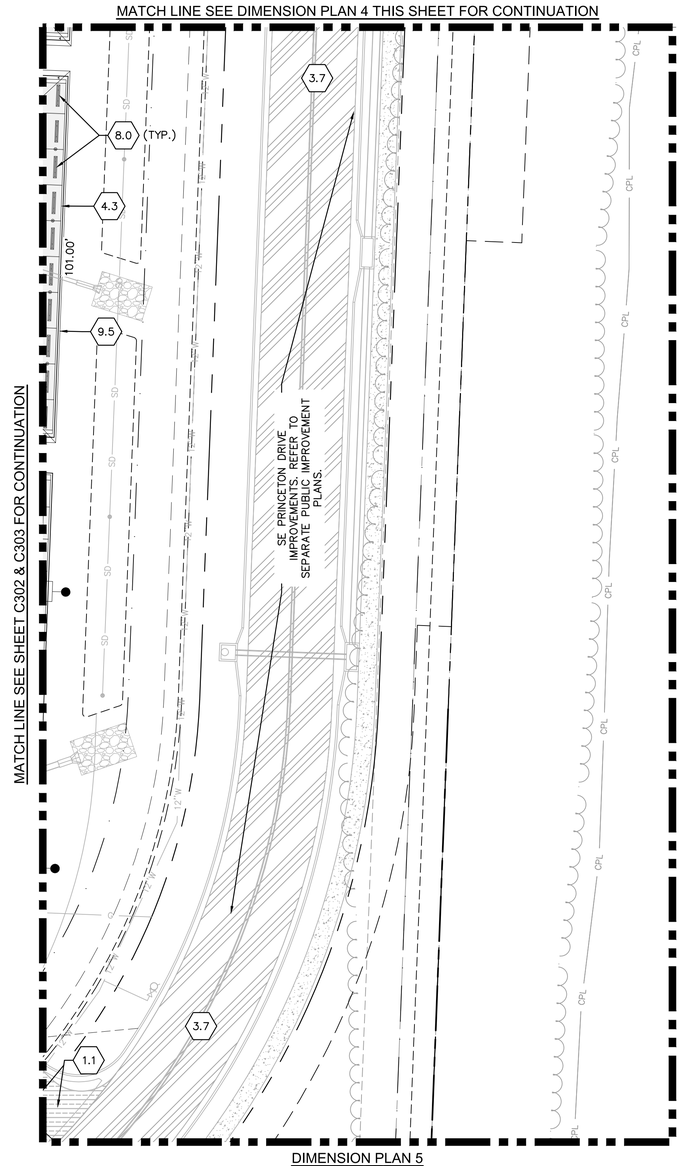


MATCH LINE SEE DIMENSION PLAN 4 THIS SHEET FOR CONTINUATION

DIMENSION PLAN 4
SCALE:1"=20'



DIMENSION PLAN 5
SCALE:1"=20'

KEYNOTES:

1.0	INSTALL HEAVY DUTY ASPHALT PAVEMENT (REFER TO SHEET C702 FOR DETAIL)	
1.1	COMMERCIAL DRIVEWAY CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.	
2.0	INSTALL LIGHT DUTY ASPHALT PAVEMENT (REFER TO SHEET C702 FOR DETAIL)	
3.0	CONSTRUCT PRIVATE CONCRETE SIDEWALK (REFER TO SHEET C701 FOR DETAILS)	
3.1	PUBLIC CONCRETE SIDEWALK CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.	
3.2	CONSTRUCT SIDEWALK RAMP – SLOPE AT 8.33% MAX.	
3.3	CONSTRUCT CONCRETE SIDEWALK AND BANDING FLUSH WITH PAVEMENT. (REFER TO SHEET C702 FOR DETAIL)	
3.4	CONSTRUCT CONCRETE TURN DOWN SIDEWALK. (REFER TO SHEET C701 FOR DETAIL)	
3.5	PAVEMENT STRIPPING, 4" SINGLE SOLID WHITE STRIPES @ 45°, 2' O.C. (REFER TO SHEET C101 FOR PAVEMENT MARKING NOTES)	
3.6	INSTALL HEAVY DUTY CONCRETE PAVEMENT. (REFER TO SHEET C702 FOR DETAIL)	
3.7	PUBLIC ASPHALT ROADWAY CONSTRUCTED UNDER SEPARATE CONTRACT. REFER TO PUBLIC IMPROVEMENT PLANS.	
4.0	CONSTRUCT STRAIGHT BACK CURB & GUTTER (TYPE CG-1)(REFER TO CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)	
4.1	CONSTRUCT STRAIGHT BACK "DRY" CURB & GUTTER (TYPE CG-1 DRY) (CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)	
4.2	CONSTRUCT STRAIGHT CURB (TYPE C-1)(REFER TO CITY OF LEE'S SUMMIT STANDARD DETAIL GEN-4 SHEET C701)	
4.3	CONSTRUCT FLUSH CURB (REFER TO DETAIL SHEET C702)	
4.4	TRANSITION CURB FROM CG-1 TO FLUSH CURB (REFER TO SHEET C702 FOR DETAIL)	
5.0	CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT TO PROVIDE CLEAN EDGE FOR SMOOTH TRANSITION BETWEEN NEW & EXISTING PAVEMENT	
6.0	CONSTRUCT TYPE 1 SIDEWALK RAMP (REFER TO SHEET C702 FOR DETAILS)	
6.1	CONSTRUCT TYPE 2 SIDEWALK RAMP (REFER TO SHEET C702 FOR DETAILS)	
6.2	CONSTRUCT TYPE B SIDEWALK/SHARED USE RAMP (REFER TO SHEET C700 FOR DETAILS)	
6.3	CONSTRUCT DRIVEWAY FLUSH WITH SIDEWALK (REFER TO SHEET C701 FOR DETAIL)	
6.4	SITE SIGNAGE (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
6.5	ACCESSIBLE STALLS & SIGNAGE (REFER TO SHEET C702 FOR DETAILS)	
6.6	CONTRUCT TYPE M SIDEWALK/SHARED USE RAMP (REFER TO SHEET C700 FOR DETAILS)	
7.0	PROPOSED LIGHTING (TYP.)(REFER TO ARCHITECTURAL AND MEP PLANS FOR DETAILS)	
8.0	INSTALL PRECAST WHEEL STOPS (REFER TO SHEET C702 FOR DETAIL)	
9.0	TRASH ENCLOSURE (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.1	INSTALL FENCE. (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.2	CONCRETE PAD FOR GENERATOR (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.3	SCREENING WALL (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.4	RAISED PLANTER (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.5	CARPORT (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
9.6	CONCRETE PAD FOR ELECTRIC TRANSFORMER (REFER TO ARCHITECTURAL PLANS FOR DETAILS)	
10.0	CONCRETE RETAINING WALL WITH HANDRAIL (REFER TO SHEET C701 FOR DETAILS)	

N

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7-19-19
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MO# PE-2012024241

DIMENSION PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

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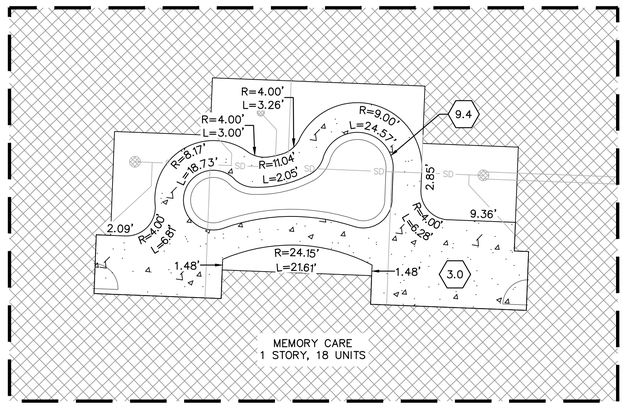

ENLARGED DIMENSION PLAN 1
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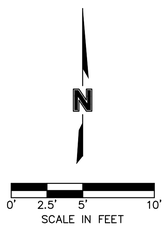

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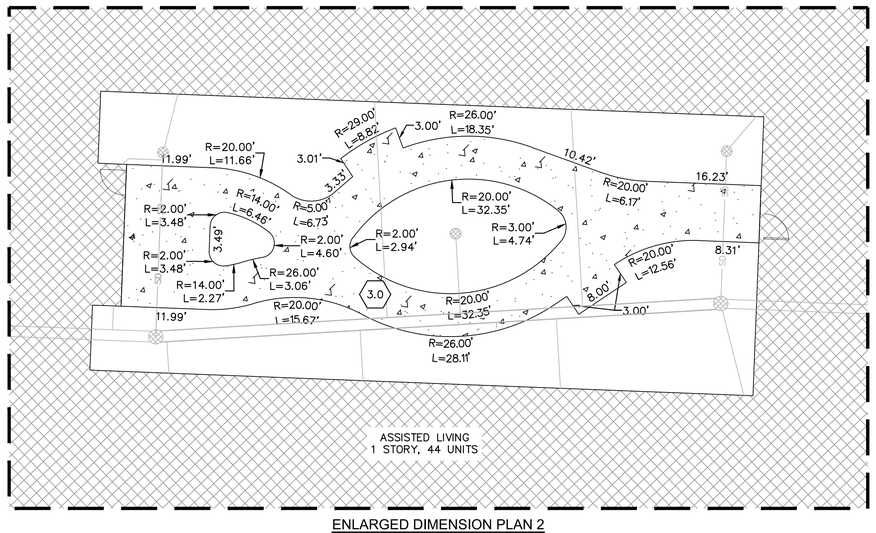

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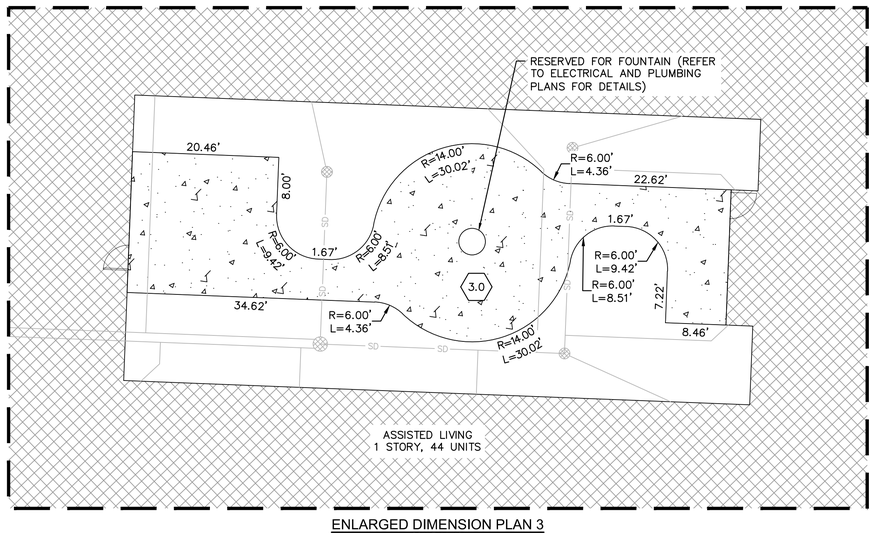
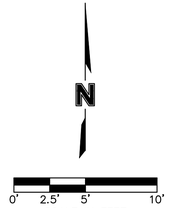


ENLARGED DIMENSION PLAN 3
SCALE: 1"=10'



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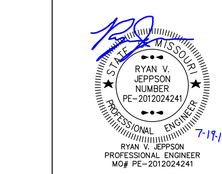

ENLARGED DIMENSION PLAN

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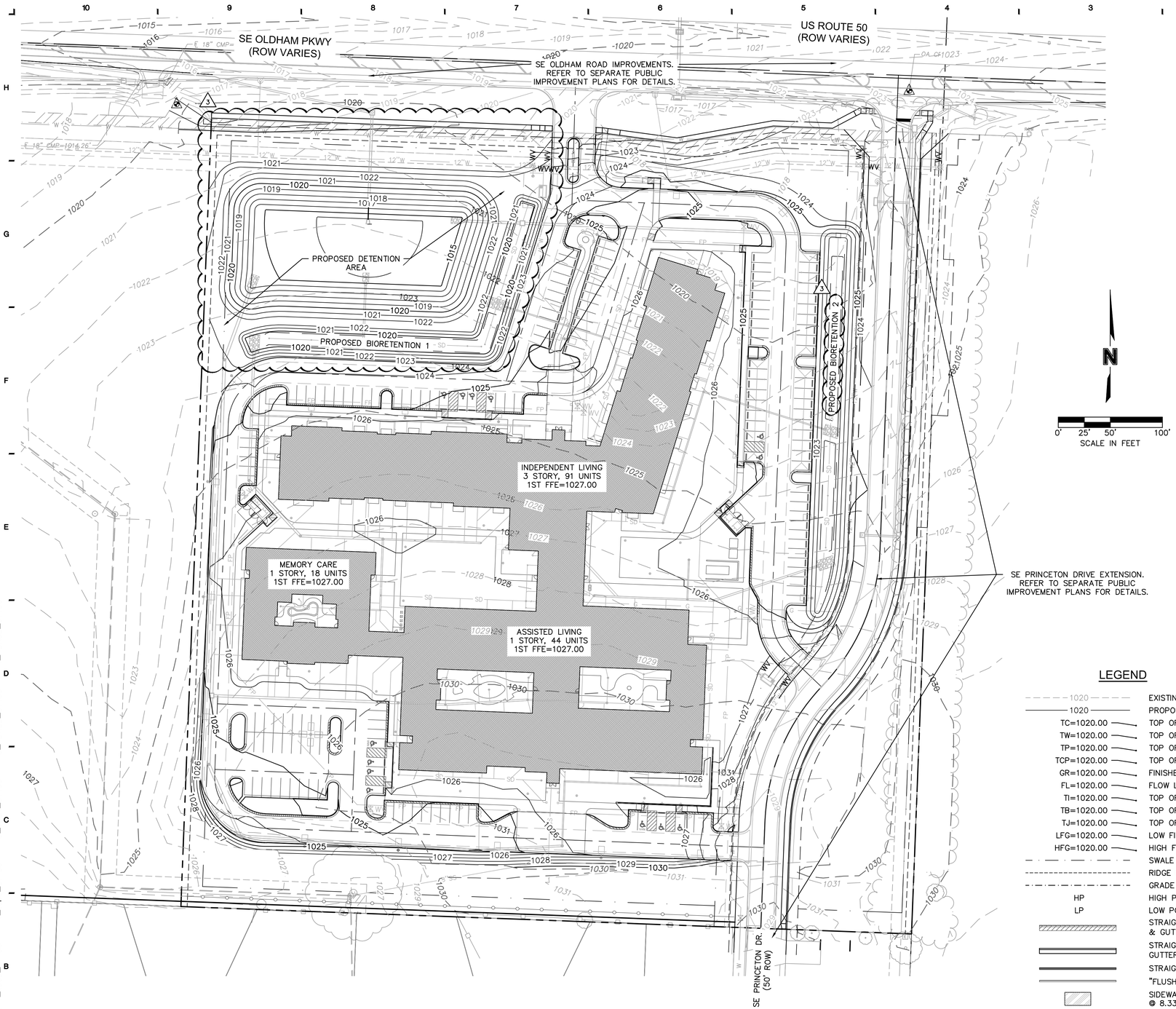


GRADING NOTES:

1. ALL ELEVATIONS ARE TO NORTH AMERICAN VERTICAL DATUM (N.A.V.D. 1988).

2. STRIPPINGS ARE TO BE STOCKPILED ON-SITE AS DIRECTED BY THE ENGINEER. FOLLOWING THE COMPLETION OF THE GRADING, THIS TOPSOIL SHALL BE USED AS FILL MATERIAL ON ALL LANDSCAPED AREAS. IF STOCKPILE IS INACTIVE FOR MORE THAN 14 DAYS, STABILIZE OR PROTECT THE PERIMETER AS SHOWN ON SHEET C600.

3. ALL HERBACEOUS VEGETATION SHALL BE REMOVED FROM WITHIN THE LIMITS OF THE GRADING AND REDISTRIBUTED WITH THE TOPSOIL AS OUTLINED IN NOTE #2.

4. CONTRACTOR SHALL USE CAUTION AROUND ANY EXISTING UTILITIES LOCATED ON-SITE. THEY SHALL BE RESPONSIBLE FOR THE REPAIRS OF SUCH STRUCTURES WHEN BROKEN OR OTHERWISE DAMAGED BY THE NEW CONSTRUCTION.

5. THE PROPOSED CONTOURS REPRESENT TOP OF SLAB IN PAVEMENT AREAS AND FINISHED GRADE IN ALL OTHER AREAS. QUANTITIES DO NOT TAKE INTO ACCOUNT CORE-OUT OR ANY OVER-EXCAVATION.

6. CONTRACTOR SHALL ADDRESS ANY GRADING RECOMMENDATIONS IDENTIFIED IN THE GEOTECHNICAL INVESTIGATION. PRIOR TO MOVING OFF THE JOB THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DO A FINAL WALK-THROUGH OF THE CONSTRUCTION SITE.

7. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES, PIPES AND STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS AND TO THE BEST OF OUR KNOWLEDGE CONSTITUTES ALL KNOWN FACILITIES. HOWEVER, THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING UTILITIES OR STRUCTURES LOCATED AT THE WORK SITE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT AN UNDERGROUND LOCATE SERVICE IN ADVANCE OF ANY EXCAVATION FOR THE MARK-OUT OF THE LOCATION OF UTILITIES AND NOTIFICATION OF COMMENCEMENT OF WORK.

8. BEFORE EXCAVATING FOR THIS CONTRACT, THE CONTRACTOR SHALL FIELD VERIFY LOCATION OF UNDERGROUND UTILITIES. CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES.

9. CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER EXISTING LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE SEDIMENT CONTROL BARRIERS FOR A PERIOD OF 1 YEAR OR UNTIL THEY ARE RELEASED FROM THIS RESPONSIBILITY BY THE ENGINEER, WHICHEVER PERIOD IS SHORTER.

11. ALL ITEMS REMOVED SHALL BE DISPOSED OFF SITE BY THE CONTRACTOR AS PER CITY OF LEE'S SUMMIT REQUIREMENTS.

12. IN ALL LOCATIONS WHERE NEW PAVEMENT ABUTS EXISTING, SAW CUT EXISTING PAVEMENT AS NECESSARY TO PROVIDE A SMOOTH TRANSITION AT THE JOINT. MATCH EXISTING GRADES AT THE JOINT IN ALL LOCATIONS.

13. ALL SIDEWALKS SHALL BE ADA ACCESSIBLE WITH RUNNING SLOPE BEING NO STEEPER THAN 5.00% AND CROSS SLOPES NO STEEPER THAN 2.00%. ALL LANDINGS OUTSIDE OF EXTERIOR ENTRANCES/EXITS SHALL BE NO STEEPER THAN 2.00% FOR THE FIRST 5'-0".

14. CONTRACTOR SHALL FINISH GRADE SLOPES AS SHOWN NO STEEPER THAN 1 FOOT VERTICAL IN 3 FEET HORIZONTAL.

15. ALL FINISH GRADES AROUND BUILDING SHALL BE 6" BELOW FINISH FLOOR UNLESS SPECIFIED OTHERWISE. CONTRACTOR SHALL FINISH GRADE TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING.

BENCHMARKS:

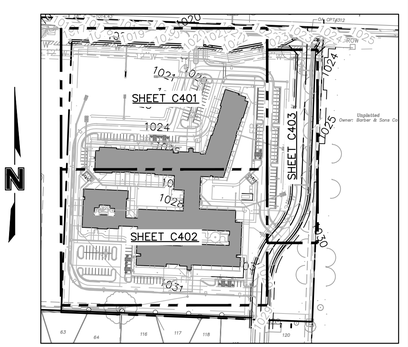
MO DNR JA-45: KC METRO ALUMINUM GRS DISK SET IN CONCRETE 3"± BELOW PAVEMENT ON THE SHOULDER OF SE RANSON ROAD STAMPED "JA-45"
ELEV.=1046.26'
PUBLISHED COORDINATES (1988 ADJUSTMENT):
N: 303273.664M
E: 863885.886M
GRID=GROUND
N: 994990.3460
E: 2834265.6110
CAF: 0.99989860A

BENCHMARK #41314:
NORTHING: 995857.9570
EASTING: 2835453.8010
SET SQUARE CUT IN CENTER OF CONCRETE HEADWALL FOR REINFORCED CONCRETE BOX
ELEVATION=1007.13' (NAVD 88)

OA CONTROL POINT #310
NORTHING: 995873.4445
EASTING: 2835537.7320
FOUND 1/2" REBAR W/CAP 8' SOUTH OF PAVEMENT EAST OF REINFORCED CONCRETE BOX
ELEVATION=1008.08' (NAVD 88

LEGEND

1020	EXISTING CONTOUR
1020	PROPOSED CONTOUR
TC=1020.00	TOP OF CURB
TW=1020.00	TOP OF SIDEWALK
TP=1020.00	TOP OF PAVEMENT
TCP=1020.00	TOP OF CONCRETE PAD
GR=1020.00	FINISHED GROUND
FL=1020.00	FLOW LINE
TI=1020.00	TOP OF INLET
TB=1020.00	TOP OF BASIN
TJ=1020.00	TOP OF JUNCTION BOX
LFG=1020.00	LOW FINISHED GROUND
HFG=1020.00	HIGH FINISHED GROUND
	SWALE
	RIDGE LINE
	GRADE BREAK
HP	HIGH POINT
LP	LOW POINT
	STRAIGHT BACK DRY CURB & GUTTER (TYPE CG-1 DRY)
	STRAIGHT BACK CURB & GUTTER (TYPE CG-1)
	STRAIGHT CURB (TYPE C-1)
	"FLUSH" CURB
	SIDEWALK RAMP - SLOPES @ 8.33% MAX.



SITE KEY
SCALE: 1" = 200'

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SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

OVERALL GRADING PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

C400

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SE OLDHAM PKWY
(ROW VARIES)

SE OLDHAM ROAD IMPROVEMENTS. REFER TO SEPARATE PUBLIC IMPROVEMENT PLANS FOR DETAILS.

PROPOSED DETENTION AREA

PROPOSED BIORETENTION 1

TAPER CURB FROM 6" HT. TO 0" HT. OVER 2' (REFER TO SHEET C702 FOR DETAIL)

TAPER CURB FROM 6" HT. TO 0" HT. OVER 6' (REFER TO SHEET C702 FOR DETAIL)

TAPER CURB FROM 6" HT. TO 0" HT. OVER 2' (REFER TO SHEET C702 FOR DETAIL)

TAPER CURB FROM 6" HT. TO 0" HT. OVER 2' (REFER TO SHEET C702 FOR DETAIL)

TAPER CURB FROM 6" HT. TO 0" HT. OVER 6" (REFER TO SHEET C702 FOR DETAIL)

TAPER CURB FROM 6" HT. TO 0" HT. OVER 2' (REFER TO SHEET C702 FOR DETAIL)

DRIVEWAY FLUSH WITH PAVEMENT. REFER DETAIL ON SHEET C701.

REFER TO TYPICAL PATIO GRADING DETAIL ON SHEET C403

REFER TO TYPICAL PATIO GRADING DETAIL ON SHEET C403

INDEPENDENT LIVING
3 STORY, 91 UNITS
1ST FFE=1027.00

MATCHLINE - REFER TO GRADING PLAN #3 ON SHEET C403 FOR CONTINUATION

MATCHLINE - REFER TO GRADING PLAN #2 ON SHEET C402 FOR CONTINUATION

LEGEND

1020	EXISTING CONTOUR
1020	PROPOSED CONTOUR
TC=1020.00	TOP OF CURB
TW=1020.00	TOP OF SIDEWALK
TP=1020.00	TOP OF PAVEMENT
TCP=1020.00	TOP OF CONCRETE PAD
GR=1020.00	FINISHED GROUND
FL=1020.00	FLOW LINE
TI=1020.00	TOP OF INLET
TB=1020.00	TOP OF BASIN
TJ=1020.00	TOP OF JUNCTION BOX
LFG=1020.00	LOW FINISHED GROUND
HFG=1020.00	HIGH FINISHED GROUND
	SWALE
	RIDGE LINE
	GRADE BREAK
HP	HIGH POINT
LP	LOW POINT

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

STRAIGHT BACK CURB & GUTTER (TYPE CG-1)

STRAIGHT CURB (TYPE C-1)

"FLUSH" CURB

SIDEWALK RAMP – SLOPES @ 8.33% MAX.

GRADING PLAN #1
SCALE: 1"=20'

0' 10' 20' 40'
SCALE IN FEET

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STATE OF MISSOURI
RYAN V. JEPPSON
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PROFESSIONAL ENGINEER
7-18-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

GRADING PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
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MATCHLINE - REFER TO GRADING PLAN #1 ON SHEET C401 FOR CONTINUATION

MATCHLINE - REFER TO GRADING PLAN #3 ON SHEET C403 FOR CONTINUATION

INDEPENDENT LIVING
3 STORY, 91 UNITS
1ST FFE=1027.00

MEMORY CARE
1 STORY, 18 UNITS
1ST FFE=1027.00

ASSISTED LIVING
1 STORY, 44 UNITS
1ST FFE=1027.00

REFER TO TYPICAL PATIO GRADING DETAIL ON SHEET C403

REFER TO ENLARGED GRADING DETAIL #1 ON SHEET C404

REFER TO ENLARGED GRADING DETAIL #2 ON SHEET C404

REFER TO ENLARGED GRADING DETAIL #3 ON SHEET C404

TRANSITION TO FULL HT. CURB. REFER TO SHEET C702 FOR DETAIL.

SE PRINCETON DRIVE EXTENSION. REFER TO SEPARATE PUBLIC IMPROVEMENT PLANS FOR DETAILS.

LEGEND

1020	EXISTING CONTOUR
1020	PROPOSED CONTOUR
TC=1020.00	TOP OF CURB
TW=1020.00	TOP OF SIDEWALK
TP=1020.00	TOP OF PAVEMENT
TCP=1020.00	TOP OF CONCRETE PAD
GR=1020.00	FINISHED GROUND
FL=1020.00	FLOW LINE
TI=1020.00	TOP OF INLET
TB=1020.00	TOP OF BASIN
TJ=1020.00	TOP OF JUNCTION BOX
LFG=1020.00	LOW FINISHED GROUND
HFG=1020.00	HIGH FINISHED GROUND
	SWALE
	RIDGE LINE
	GRADE BREAK
HP	HIGH POINT
LP	LOW POINT
	STRAIGHT BACK DRY CURB & GUTTER (TYPE CG-1 DRY)
	STRAIGHT BACK CURB & GUTTER (TYPE CG-1)
	STRAIGHT CURB (TYPE C-1)
	"FLUSH" CURB
	SIDEWALK RAMP – SLOPES @ 8.33% MAX.

GRADING PLAN #2
SCALE: 1"=20'

0' 10' 20' 40'
SCALE IN FEET

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PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

GRADING PLAN

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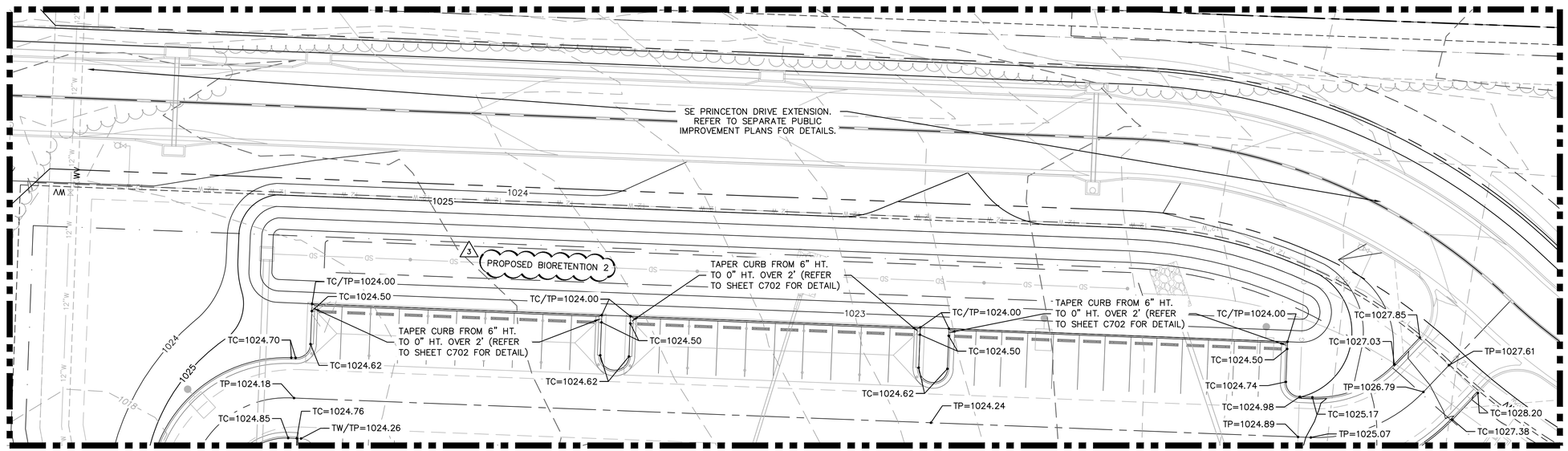
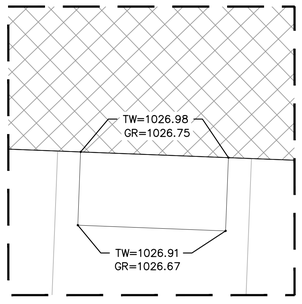


MATCHLINE - REFER TO GRADING PLAN #1 AND #2 FOR CONTINUATION

GRADING PLAN #3

SCALE: 1"=20'



TYPICAL PATIO GRADING DETAIL

SCALE: 1"=5'

LEGEND

1020	EXISTING CONTOUR
1020	PROPOSED CONTOUR
TC=1020.00	TOP OF CURB
TW=1020.00	TOP OF SIDEWALK
TP=1020.00	TOP OF PAVEMENT
TCP=1020.00	TOP OF CONCRETE PAD
GR=1020.00	FINISHED GROUND
FL=1020.00	FLOW LINE
TI=1020.00	TOP OF INLET
TB=1020.00	TOP OF BASIN
TJ=1020.00	TOP OF JUNCTION BOX
LFG=1020.00	LOW FINISHED GROUND
HFG=1020.00	HIGH FINISHED GROUND
	SWALE
	RIDGE LINE
	GRADE BREAK
HP	HIGH POINT
LP	LOW POINT
	STRAIGHT BACK DRY CURB & GUTTER (TYPE CG-1 DRY)
	STRAIGHT BACK CURB & GUTTER (TYPE CG-1)
	STRAIGHT CURB (TYPE C-1)
	"FLUSH" CURB
	SIDEWALK RAMP - SLOPES @ 8.33% MAX.

N

0' 10' 20' 40'

SCALE IN FEET

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PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

GRADING PLAN

ISSUE DATE:
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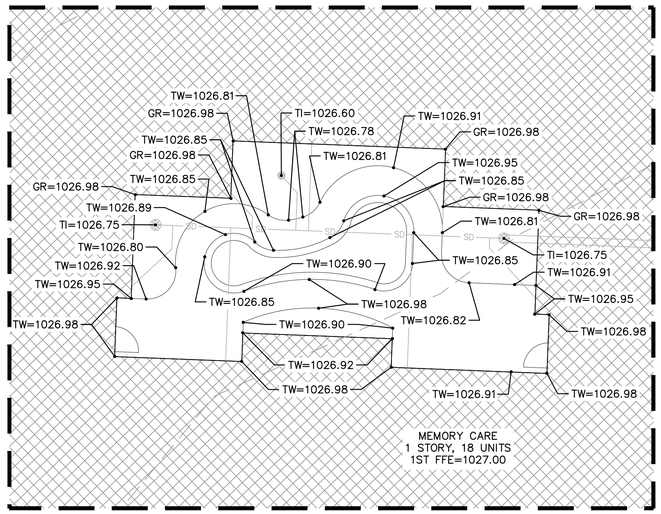
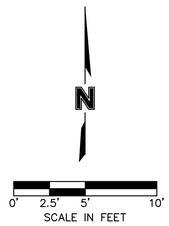


ENLARGED GRADING DETAIL #1

SCALE: 1"=5'



LEGEND

1020	EXISTING CONTOUR
1020	PROPOSED CONTOUR
TC=1020.00	TOP OF CURB
TW=1020.00	TOP OF SIDEWALK
TP=1020.00	TOP OF PAVEMENT
TCP=1020.00	TOP OF CONCRETE PAD
GR=1020.00	FINISHED GROUND
FL=1020.00	FLOW LINE
TI=1020.00	TOP OF INLET
TB=1020.00	TOP OF BASIN
TJ=1020.00	TOP OF JUNCTION BOX
LFG=1020.00	LOW FINISHED GROUND
HFG=1020.00	HIGH FINISHED GROUND
	SWALE
	RIDGE LINE
	GRADE BREAK
HP	HIGH POINT
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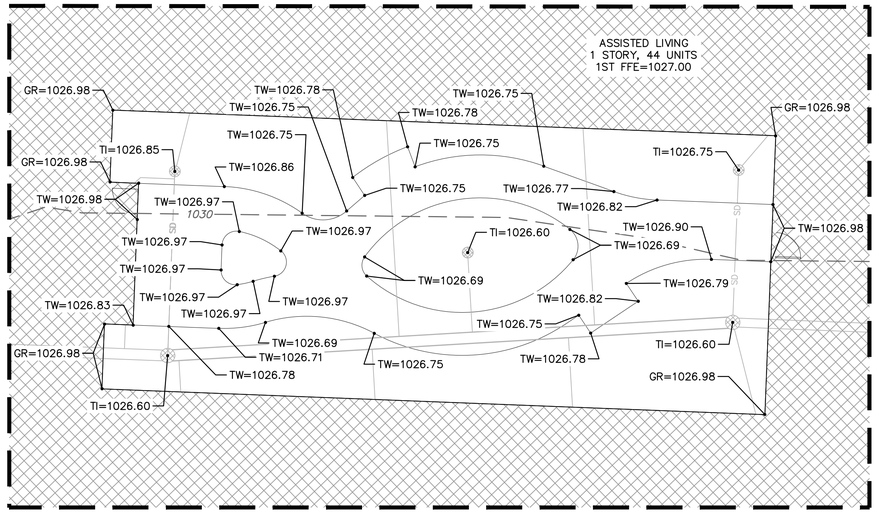
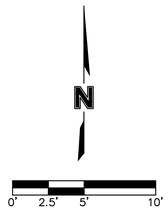
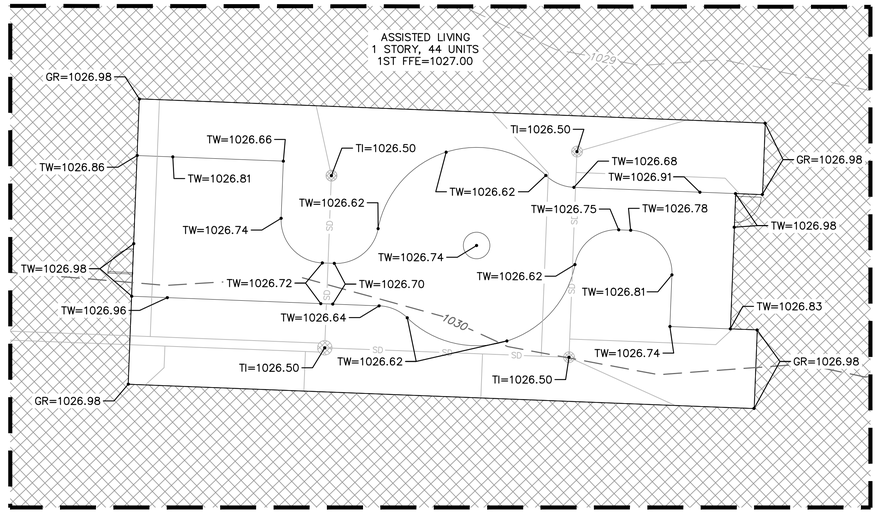
	STRAIGHT BACK DRY CURB & GUTTER (TYPE CG-1 DRY)
	STRAIGHT BACK CURB & GUTTER (TYPE CG-1)
	STRAIGHT CURB (TYPE C-1)
	"FLUSH" CURB
	SIDEWALK RAMP – SLOPES @ 8.33% MAX.



ENLARGED GRADING DETAIL #2

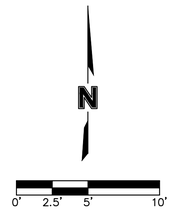
SCALE: 1"=5'





ENLARGED GRADING DETAIL #3

SCALE: 1"=5'



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PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
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MO# PE-2012024241

ENLARGED GRADING DETAILS

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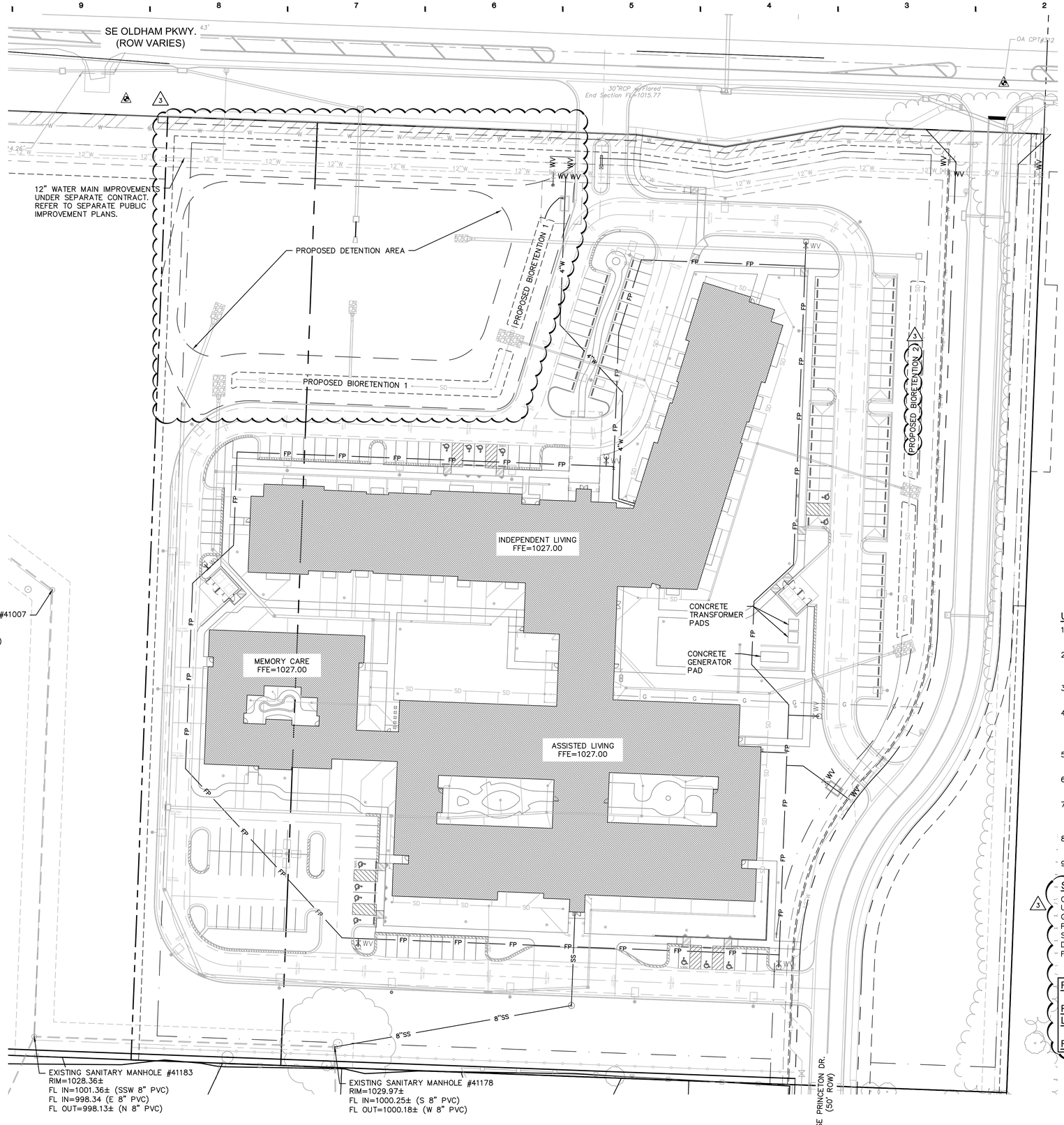

LEGEND

- PROPERTY LINES
- RIGHT-OF-WAY (ROW)
- ROAD CENTERLINE
- EASEMENT LINES
- SETBACK LINES
- FOUND MONUMENT
- TEMPORARY BENCHMARK
- EXIST. POWER POLE
- EXIST. ELECTRIC BOX
- EXIST. ELECTRIC VAULT
- EXIST. ELECTRIC METER
- EXIST. GUY WIRE
- EXIST. TELEPHONE PEDESTAL
- EXIST. FIRE HYDRANT
- EXIST. WATER METER
- EXIST. WATER VALVE
- EXIST. GAS MARKER
- EXIST. CABLE VAULT
- EXIST. SANITARY MANHOLE
- EXIST. FLARED END SECTION
- EXIST. DECIDIOUS TREE
- EXIST. SIGN
- PROP. SANITARY SEWER CLEANOUT
- PROP. FIRE HYDRANT
- PROP. GATE VALVE
- PROP. SIGN
- EXIST. OVERHEAD ELECTRIC
- EXIST. UNDERGROUND TELEPHONE
- EXIST. GAS LINE
- EXIST. STORM SEWER LINE
- EX. WOOD FENCE
- PROP. SANITARY SEWER SERVICE
- PROP. STORM SEWER 12" OR LARGER
- PROP. STORM SEWER 10" OR SMALLER
- PROP. UNDERGROUND ELECTRIC
- PROP. PUBLIC WATER MAIN
- PROP. IRRIGATION LINE
- PROP. WATER SERVICE
- PROP. FIRE PROTECTION LINE
- PROP. FENCE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- STRAIGHT BACK DRY CURB & GUTTER (TYPE CG-1 DRY)
- STRAIGHT BACK CURB & GUTTER (TYPE CG-1)
- STRAIGHT CURB (TYPE C-1)
- "FLUSH" CURB
- BACK OF CURB TO BACK OF CURB

UTILITY NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. THE SIZE AND LOCATION OF SERVICES SHALL BE VERIFIED WITH THE ARCHITECTURAL AND MPE PLANS PRIOR TO CONSTRUCTION. IF DISCREPANCIES EXIST, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
3. INSTALL ALL PIPE LENGTHS, BENDS. AND FITTINGS NECESSARY FOR UTILITY CONNECTIONS.
4. CONTRACTOR SHALL VERIFY ALL CROSSING ELEVATIONS AND LOCATIONS, SIZES AND ELEVATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION OF STORM LINES AND ALL UTILITY SERVICE CONNECTIONS. ANY CONFLICTS SHALL BE MADE KNOWN TO THE ENGINEER AND RESOLVED PRIOR TO CONSTRUCTION.
5. CONTRACTOR RESPONSIBLE FOR PAYING ALL TAP AND CONNECTION FEES AND SHALL CONTRACT AND PAY FOR ANY REQUIRED SUB CONTRACTORS BY UTILITY COMPANIES.
6. CONTRACTOR TO REPAIR ALL AREA DAMAGE BY CONSTRUCTION TO EXISTING CONDITIONS OR BETTER.
7. LOCATION FOR POWER SHOWN IS APPROXIMATE AND SUBJECT TO CHANGE. CONTRACTOR TO VERIFY FINAL LOCATION AND DESIGN WITH UTILITY COMPANY PRIOR TO CONSTRUCTION.
8. CONTRACTOR SHALL COORDINATE CABLE/FIBER OPTIC CONDUIT AND SERVICE INSTALLATION WITH UTILITY COMPANY.
9. ALL WATER SERVICE INSTALLATIONS, INCLUDING BACKFLOW DEVICES, ARE SUBJECT TO FIELD VERIFICATION AND APPROVAL BY THE WATER DEPARTMENT INSPECTOR.

SUGGESTED UTILITY DEPTHS:

3 COORDINATE WITH UTILITY PROVIDERS AND FOLLOW UTILITY PROVIDERS STANDARDS IF CONFLICT EXISTS.

- GAS: 24"
- PRIMARY ELECTRIC: 24"
- SECONDARY ELECTRIC: 24"
- DOMESTIC WATER: 48"
- FIRE SERVICE LINE: 48"

REFER TO SHEET C503 FOR ON-SITE WATER SYSTEM PLAN

REFER TO SHEETS C504 - C507 FOR FIRE PROTECTION LINE PLAN & PROFILES

REFER TO SHEET C800 FOR FIRE FLOW CALCULATIONS

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1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

OVERALL UTILITY PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

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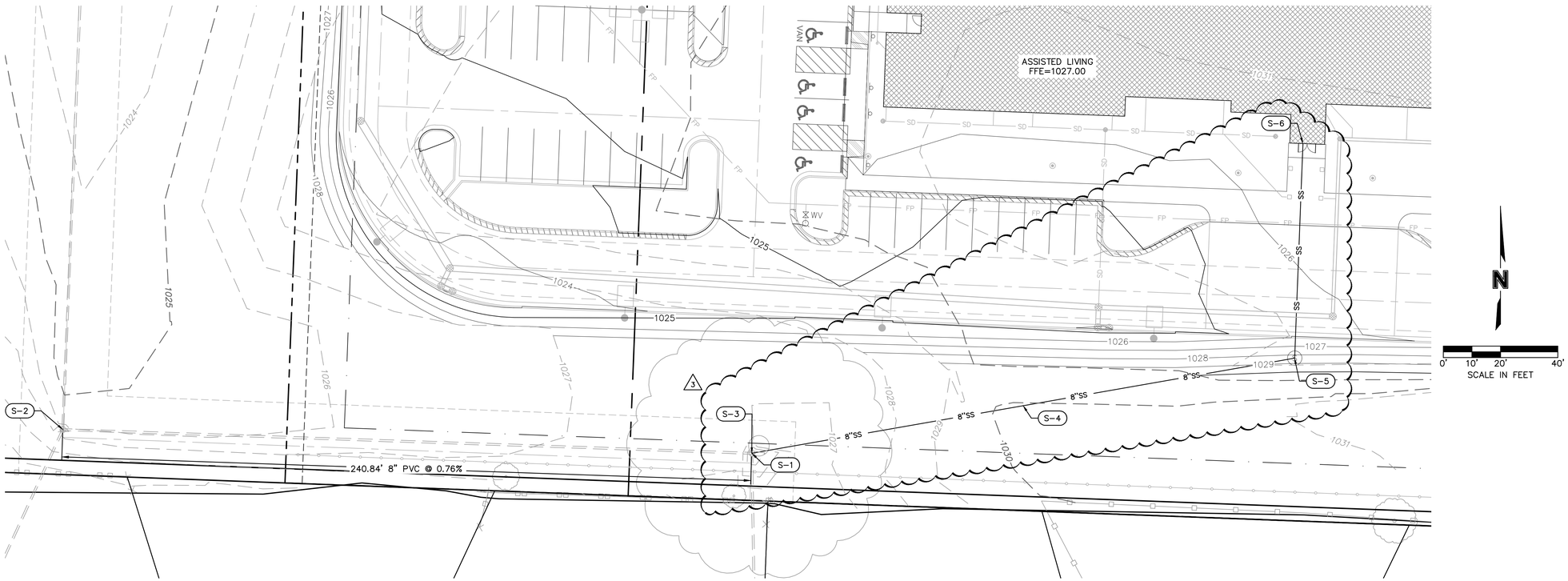

SANITARY KEYNOTES:

(S-1) EXISTING SANITARY MANHOLE #41178
RIM=1029.97±
FL IN=1000.25± (S 8" PVC)
FL OUT=1000.18± (W 8" PVC)

(S-2) EXISTING SANITARY MANHOLE #41183
RIM=1028.36±
FL IN=1001.36± (SSW 8" PVC)
FL IN=998.34 (E 8" PVC)
FL OUT=998.13± (N 8" PVC)

(S-3) CONNECT TO EXISTING SANITARY SEWER MANHOLE #41178 PER CITY OF LEE'S SUMMIT DESIGN CRITERIA AND SPECIFICATIONS. (REFER TO LEE'S SUMMIT STANDARD DRAWING SAN-5)
~~PROPOSD FL ELEV. IN 1000.08~~

3

(S-4) INSTALL 188.54 LF 8" DIA. PVC PIPE (SDR-26) PIPE @ 4.78% PER CITY OF LEE'S SUMMIT DESIGN CRITERIA AND SPECIFICATIONS. (REFER TO SHEET C502 FOR DETAILS)

(S-5) INSTALL STANDARD 4' I.D. CONCRETE MANHOLE PER CITY OF LEE'S SUMMIT DESIGN CRITERIA AND SPECIFICATIONS. (REFER TO LEE'S SUMMIT STANDARD DRAWING SAN-2)
RIM ELEV.=1028.70
FL IN ELEV.=1009.90
FL OUT ELEV.=1009.70

(S-6) CONNECTION POINT TO BUILDING. (REFER TO MPE PLANS FOR CONTINUATION)

NOTES:

1. DOWNSPOUTS SHALL NOT BE CONNECTED TO SANITARY SEWER. DOWNSPOUTS CONNECT TO STORM SEWER AND SHALL NOT DISCHARGE TO SANITARY SEWER.
2. TEN FEET OF HORIZONTAL SEPARATION AND TWO FEET OF VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN WATER LINES AND THE SANITARY SERVICE LINE.
3. ALL FOUNDATION DRAINS SHALL BE DISCHARGED INTO STORM SEWER SYSTEM.
4. CONTRACTOR TO VERIFY INVERT ELEVATION AT THE MAIN BEFORE ANY SANITARY SEWER IS INSTALLED OR ANY STRUCTURES ARE CONSTRUCTED. CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
5. CONTRACTOR TO REPLACE ANY EXISTING FENCE THAT IS REMOVED OR DAMAGED DURING THE CONSTRUCTION PROCESS.

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SEAL

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RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

SANITARY SEWER PLAN

ISSUE DATE:
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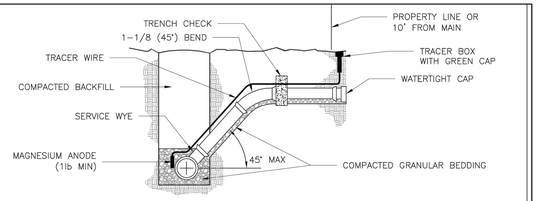

STANDARD INSTALLATION
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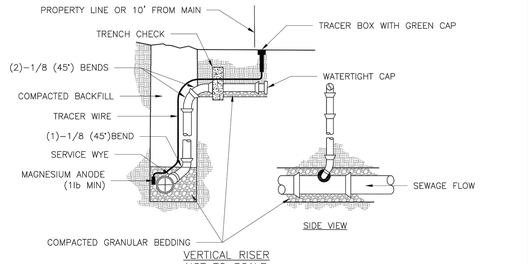


VERTICAL RISER
NOT TO SCALE

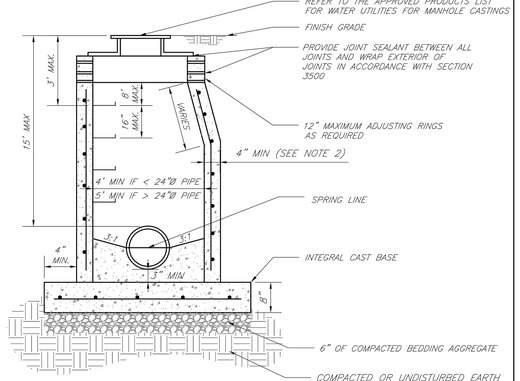
NOTES:
1. ALL SEWER STUBS SHALL BE CONSTRUCTED TO PROPERTY LINE OR 10' MINIMUM FROM THE MAIN. WHERE SIDEWALKS ARE PRESENT, CONTRACTOR SHALL EXTEND SERVICE LINE UNDER EXISTING SIDEWALK TO TWO FEET BEYOND.
2. ALL NEW CONSTRUCTION OFF SEWER STUBS SHALL BE TEMPORARILY MARKED WITH A MARKING STAKE, 36" ABOVE GROUND AND PAINTED GREEN.
3. IMPERVIOUS TRENCH CHECKS SHALL BE PLACED ON BUILDING SEWER STUBS (AT LEAST 5' AWAY FROM THE SANITARY SEWER MAIN).
4. TRENCH CHECKS ON THE BUILDING SEWER STUBS SHALL EXTEND 6" BELOW THE BOTTOM OF THE PIPE. LENGTH SHALL BE A MINIMUM OF 12". THE HEIGHT OF THE TRENCH CHECK SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE. THE WIDTH OF THE TRENCH CHECK SHALL BE THE WIDTH OF THE TRENCH.
5. SEE SPECIFICATION SECTION 2100 FOR SEWER MAIN BEDDING AND BACKFILL.
6. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER.
7. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP. WIRE SHALL BE TAPED OR TIED TO THE PIPE AT 5' INTERVALS.
8. TRACER WIRE BOX SHALL BE INSTALLED WITHIN 1.0' OF PROPERTY LINE.
9. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

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

BUILDING SEWER STUB AND RISER

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

SAN-1



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

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STANDARD PRECAST MANHOLE – SANITARY SEWER

Date: 02/13
Drawn By: JN
Checked By: DL
FILE: SAN-2
Rev: 1/14
Rev:

SANITARY SEWERS

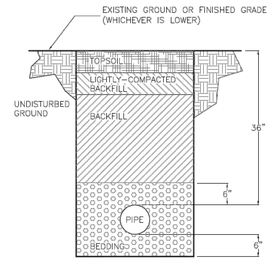
a. Maximum depth of sanitary sewer shall be 15 feet.

b. Materials for sanitary sewer mains based on depths of bury, measured from finished grade to the top of the pipe, are given in the table below:

Pipe Size (in)	Depth of Bury (ft)	Pipe Material	PVC	
			SDR	ASTM
4-15	3 - 15	PVC	26	D3034
18-36	3 - 15	PVC	26	D2241

4. Trench Design

a. Minimum Cover: A minimum of 36 inches of cover shall be over the top of the pipe. This minimum cover shall be from the top of the pipe to finished grade as shown below.



b. Bedding: Bedding aggregate shall be placed from a level 6 inches below the bottom of the pipe to a level 6 inches above the top of the pipe.

c. Backfill

i. See Paragraph 2102.2.C.2.

TABLE OF BEDDING DEPTHS & SIDE CLEARANCES				
D	ROCK A	ROCK B	SOIL A	SOIL B
4"-18"	6"	6"	4"	6"
21"-24"	9"	9"	4"	7"
27"-30"	9"	9"	4"	8"

HAND PACKED & HAND TAMPED BACKFILL
GRANULAR FILL
CONCRETE

D NOMINAL PIPE SIZE
A FILL BELOW PIPE (SEE TABLE)
B SIDE CLEARANCES (SEE TABLE)
P AREA TRANSVERSE STEEL EXPRESSED AS A % OF AREA OF CONCRETE AT CROWN

STANDARD EMBEDMENTS
NOT TO SCALE

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RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

SANITARY SEWER DETAILS

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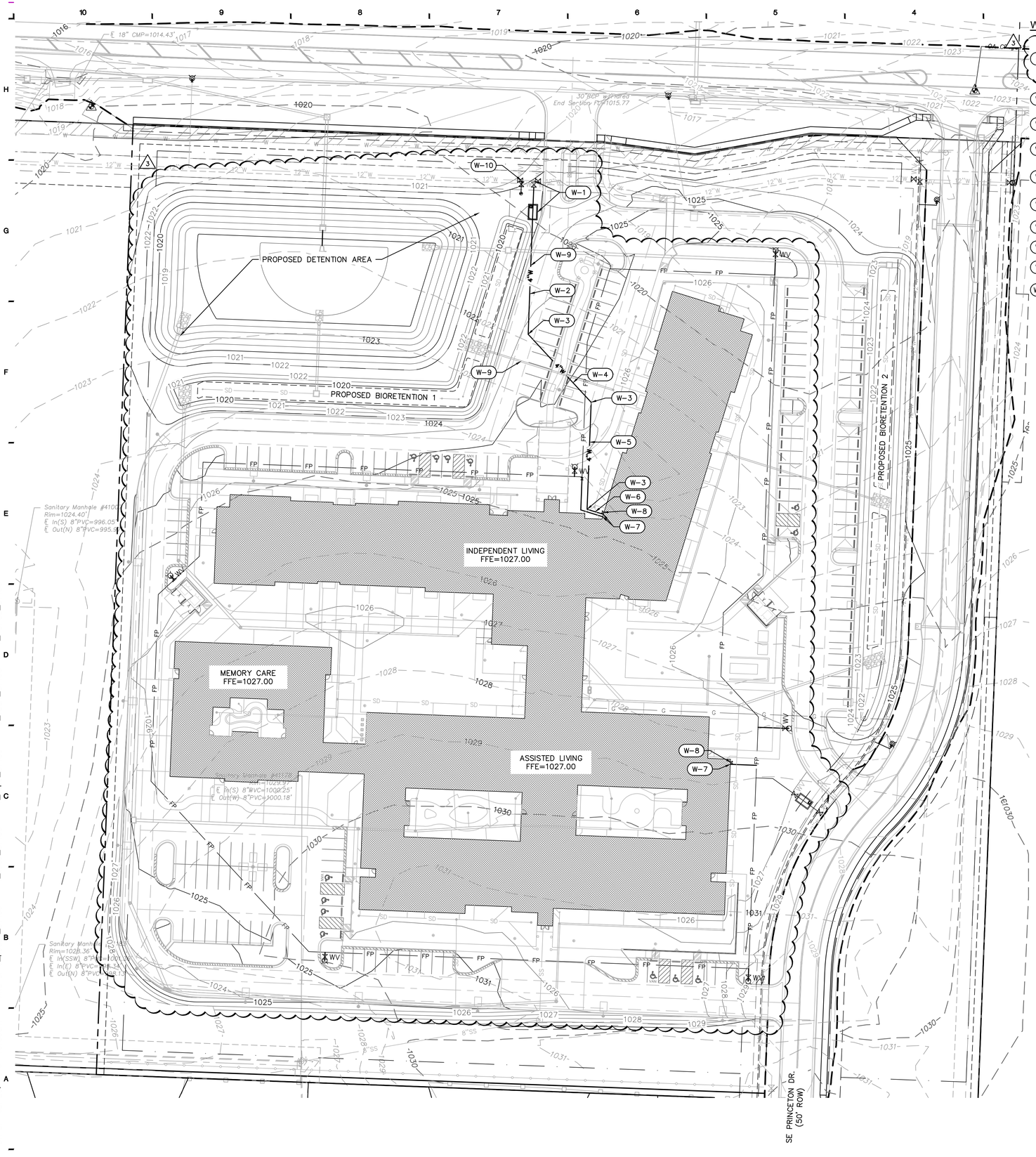

WATER KEYNOTES:

- W-1 UTILIZE 4" STUB FROM 12" PUBLIC WATER MAIN. INSTALL 4"x 3" REDUCER. INSTALL 3" SCH. 80 PVC WATER LINE TO METER VAULT. INSTALL CONCRETE METER VAULT WITH 3" WATER METER PER CITY OF LEE'S SUMMIT STANDARDS AND SPECIFICATIONS. REFER ALSO TO DETAILS ON SHEETS C508 & C509
- W-2 INSTALL 91.84 LF 4" SCH 80 PVC WATER LINE PER CITY OF LEE'S SUMMIT STANDARDS AND SPECIFICATIONS. REFER TO SHEETS C508 & C509 FOR DETAILS.
- W-3 INSTALL 4" MJ 45° ELL W/TB PER CITY OF LEE'S SUMMIT STANDARDS AND SPECIFICATIONS. REFER TO SHEETS C508 & C509 FOR DETAILS.
- W-4 INSTALL 73.82 LF 4" SCH 80 PVC WATER LINE PER CITY OF LEE'S SUMMIT STANDARDS AND SPECIFICATIONS. REFER TO SHEETS C508 & C509 FOR DETAILS.
- W-5 INSTALL 85.20 LF 4" SCH 80 PVC WATER LINE PER CITY OF LEE'S SUMMIT STANDARDS AND SPECIFICATIONS. REFER TO SHEETS C508 & C509 FOR DETAILS.
- W-6 INSTALL 13.56 LF 4" SCH 80 PVC WATER LINE PER CITY OF LEE'S SUMMIT STANDARDS AND SPECIFICATIONS. REFER TO SHEETS C508 & C509 FOR DETAILS.
- W-7 CONNECTION POINT TO BUILDING. REFER TO MEP PLANS FOR CONTINUATION.
- W-8 FIRE DEPARTMENT CONNECTION (FDC).
- W-9 UTILITY CROSSINGS. MAINTAIN MINIMUM 24" VERTICAL SEPARATION.
- W-10 12" PUBLIC WATER MAIN IMPROVEMENT. CONTRACTOR SHALL CONNECT TO EXISTING 2" STUB AND GATE VALVE, INSTALL WATER METER FOR IRRIGATION PER CITY OF LEE'S SUMMIT STANDARDS AND SPECIFICATIONS.

3 NOTES:
REFER TO SHEETS C504 – C507 FOR FIRE PROTECTION LINE PLAN AND PROFILES.

N

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RYAN V. JEPPSON 7-25-19
PROFESSIONAL ENGINEER
MO# PE-2012024241

WATER SYSTEM PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENGR. REVIEW CMMTS.- 07/19/2019

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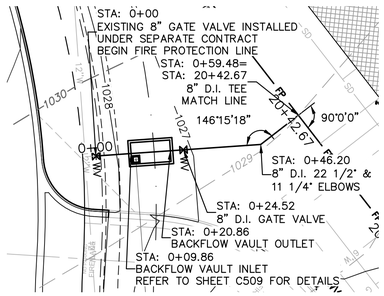

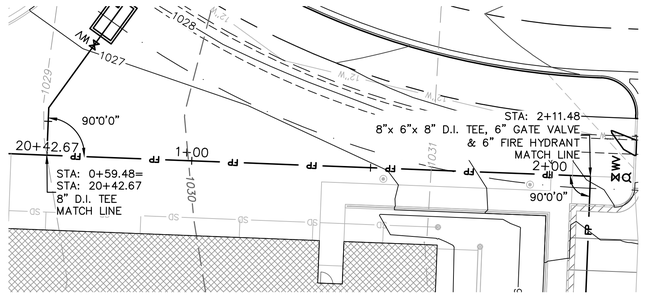

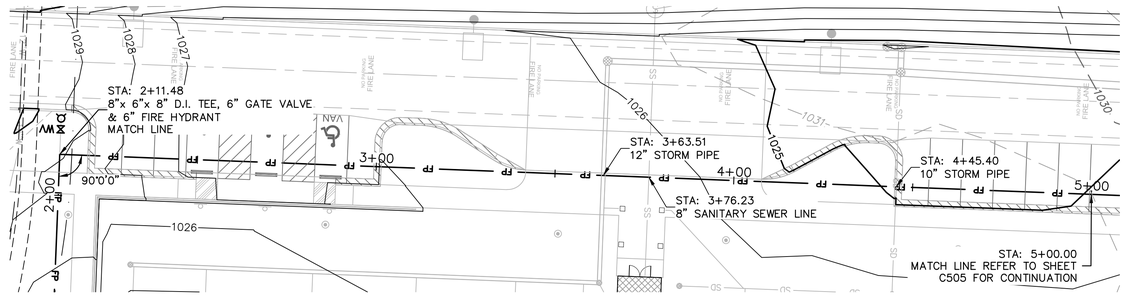

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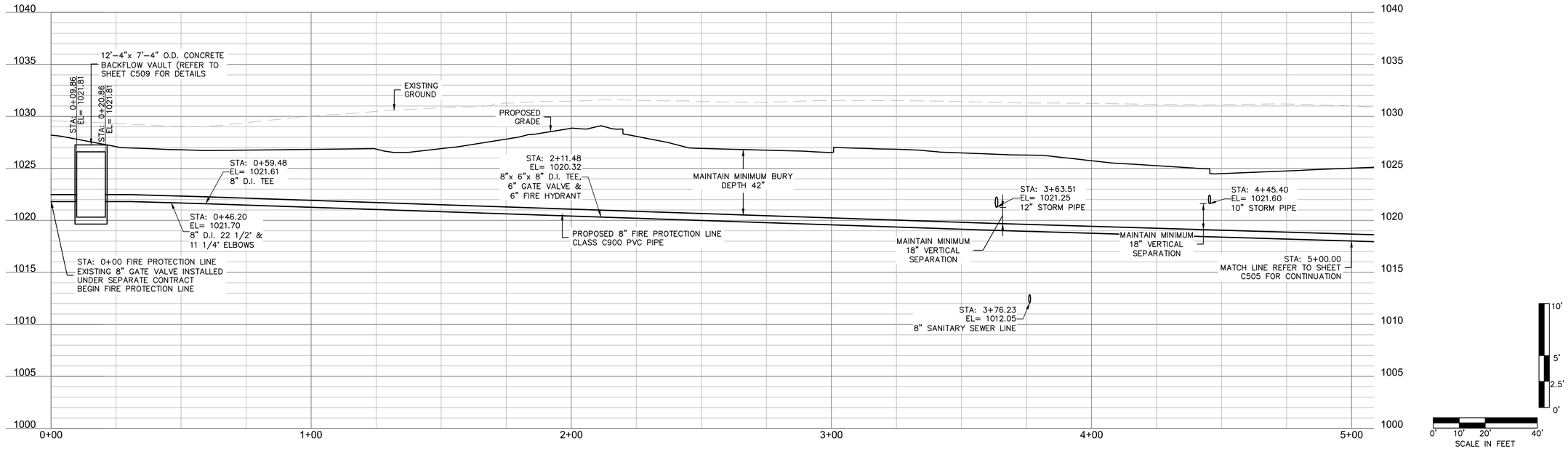

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FIRE PROTECTION LINE
PLAN & PROFILE

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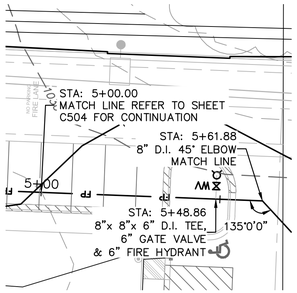

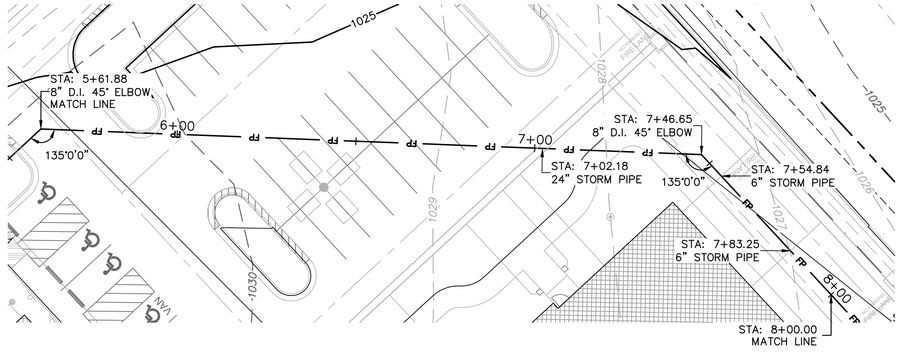

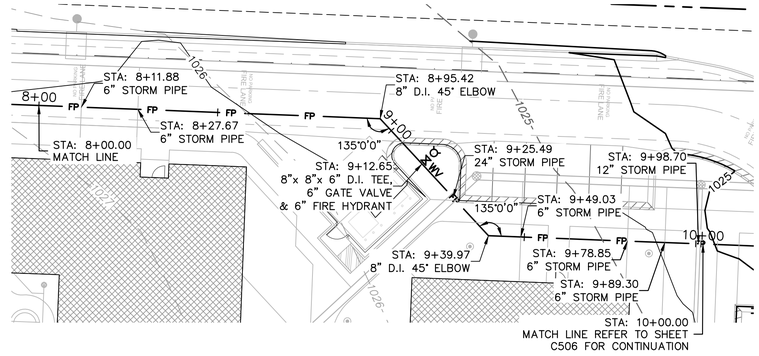

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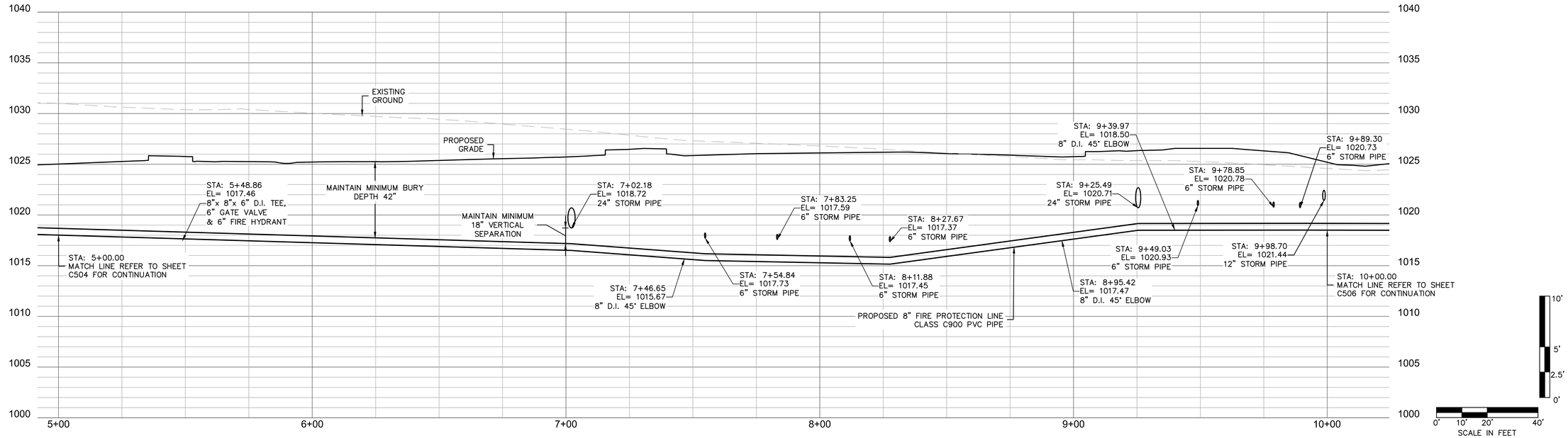

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LEE'S SUMMIT SENIOR COMMUNITY
1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-18-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

FIRE PROTECTION LINE PLAN & PROFILE

ISSUE DATE:
6-14-2019
REVISIONS:

PROJECT NO.: 11811

C505

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Olsson Project #018-1450

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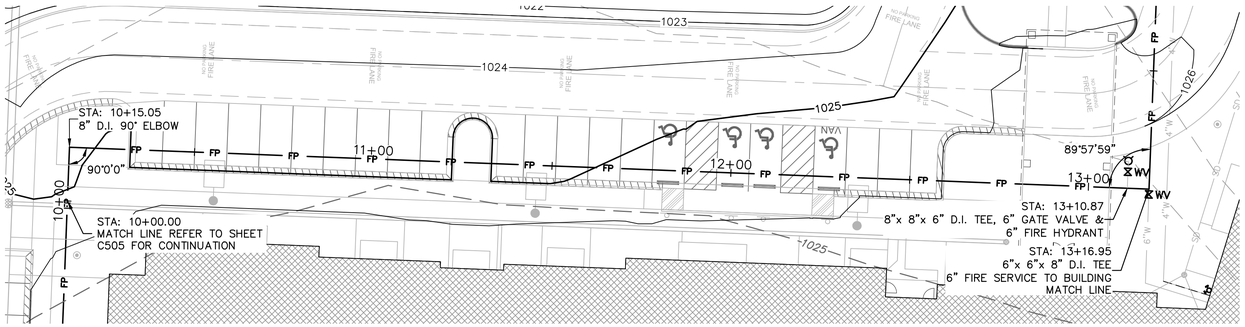

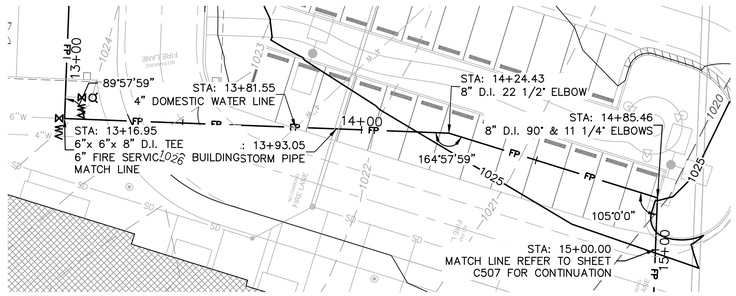

FIRE PROTECTION LINE
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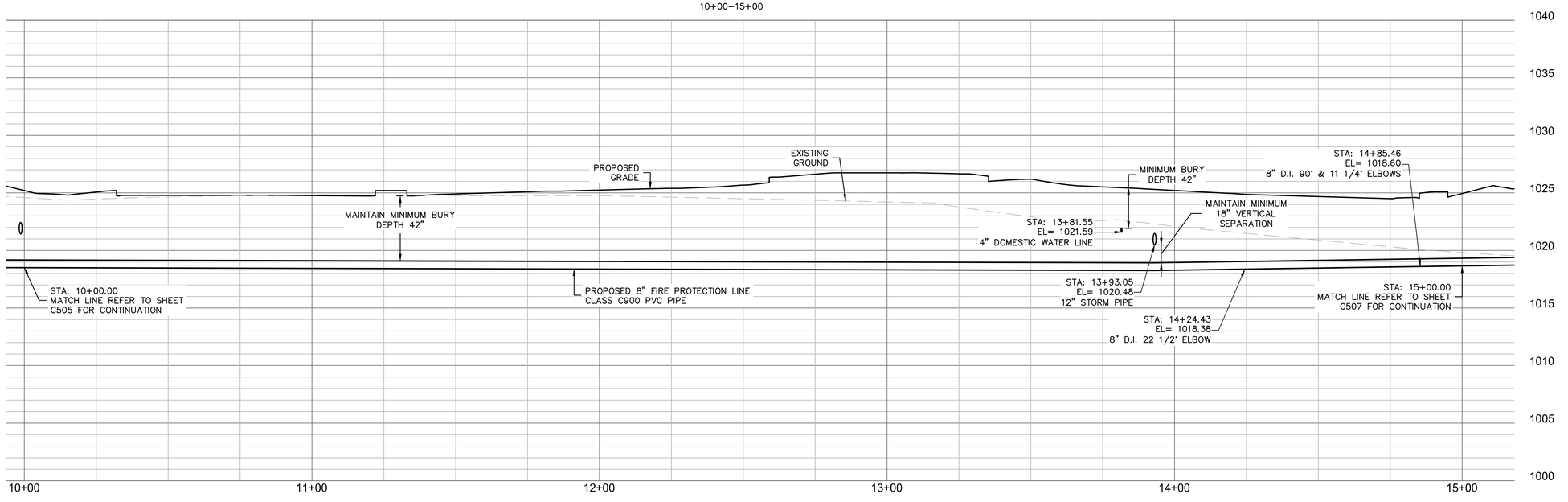

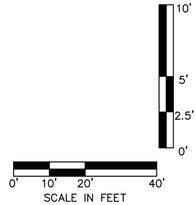

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315 NICHOLS RD. STE 228 - KANSAS CITY, MO 64112 - T 816.531.1698 F 816.531.1978

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

FIRE PROTECTION LINE
PLAN & PROFILE

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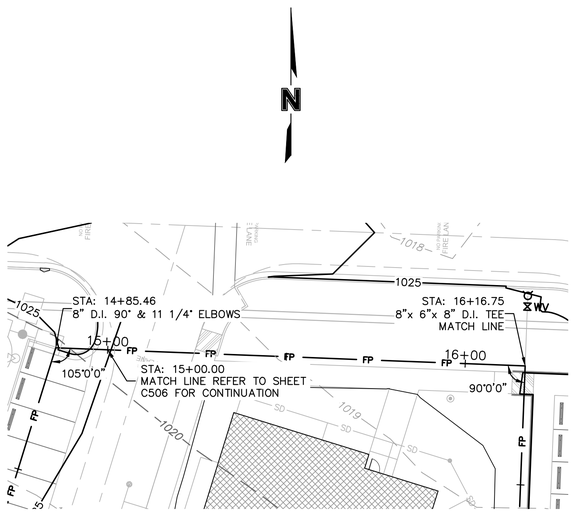

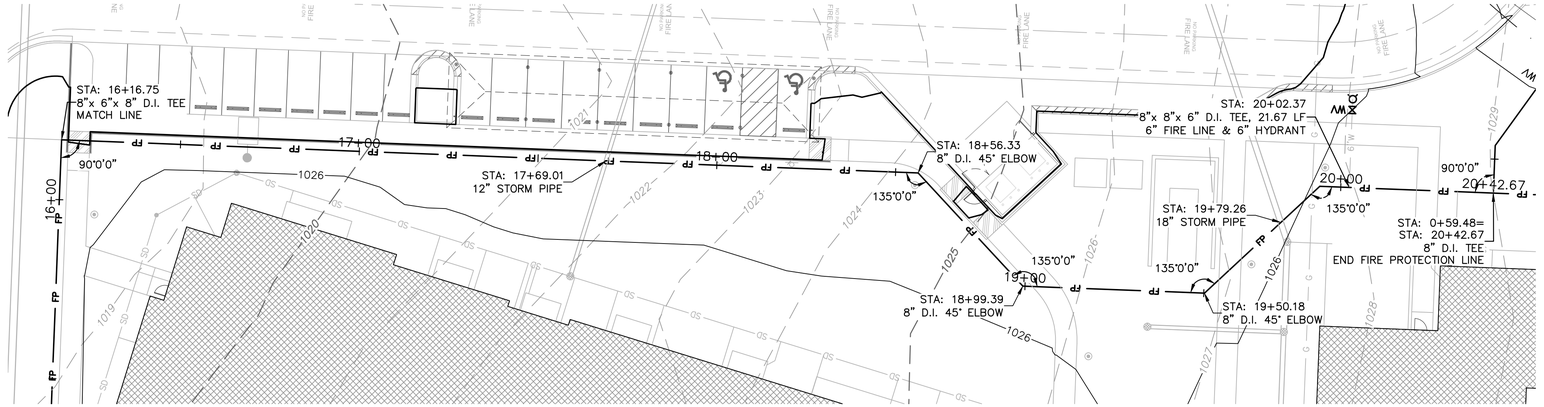

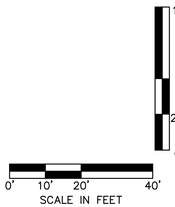

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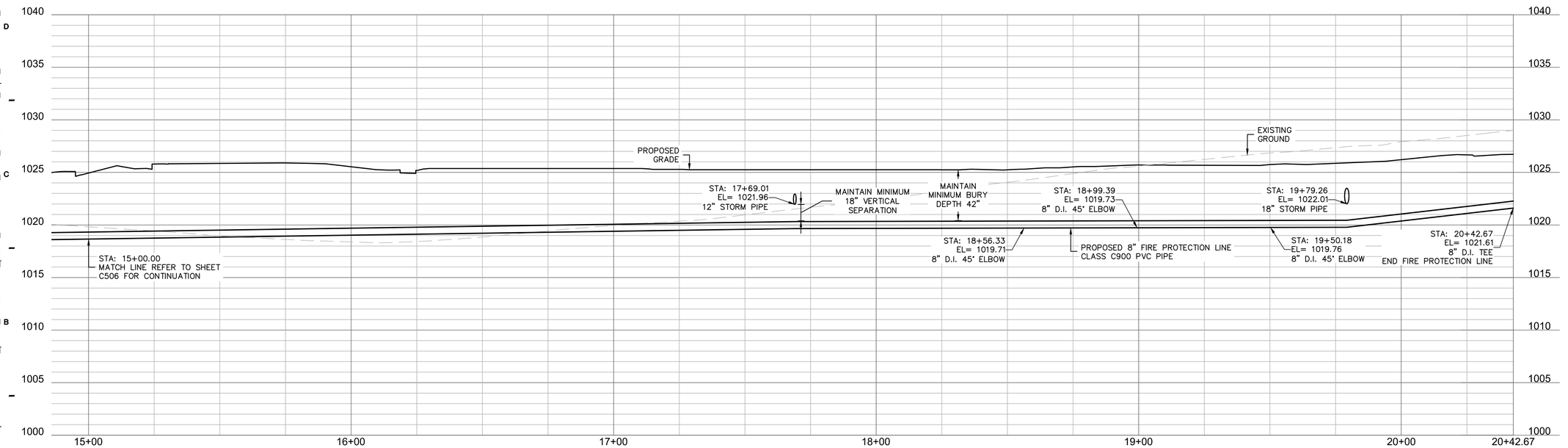

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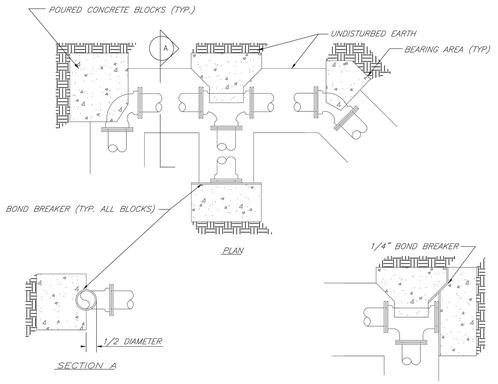
REQUIRED CONCRETE BEARING AREA (SQUARE FEET – SF)

NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	4.7	6.7	4.0	4.0	4.0
8	8.4	11.8	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	18.8	26.7	14.4	7.4	4.0
14	25.7	36.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	REST. JT.	32.5	16.5	8.3
20	REST. JT.	REST. JT.	40.1	20.4	10.3
24	REST. JT.	REST. JT.	REST. JT.	29.4	14.8

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



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	HORIZONTAL THRUST BLOCKS	

REQUIRED CONCRETE VOLUME (CUBIC FEET – CF)

NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	50.5	71.4	38.6	19.7	9.9
8	89.8	126.9	68.7	35.0	17.6
10	140.2	198.3	107.1	54.7	27.5
12	202.0	REST. JT.	154.6	78.8	39.6
14	REST. JT.	REST. JT.	210.4	107.3	53.9
16	REST. JT.	REST. JT.	REST. JT.	140.1	70.4
18	REST. JT.	REST. JT.	REST. JT.	177.3	89.1
20	REST. JT.	REST. JT.	REST. JT.	REST. JT.	110.0
24	REST. JT.	REST. JT.	REST. JT.	REST. JT.	158.4

NOTES:
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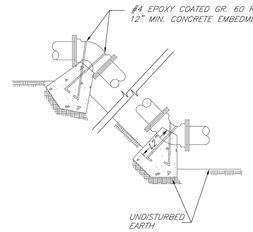
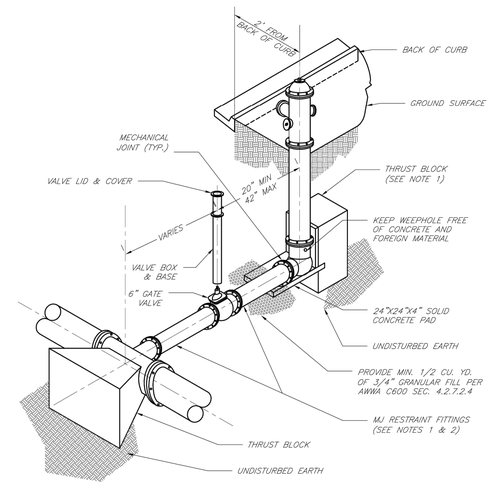
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



	LEE'S SUMMIT MISSOURI PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063	Date: 02/13 Drawn By: JN Checked By: DL FILE: WAT-2 Rev: 1/14 Rev:
	VERTICAL THRUST BLOCKS	



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

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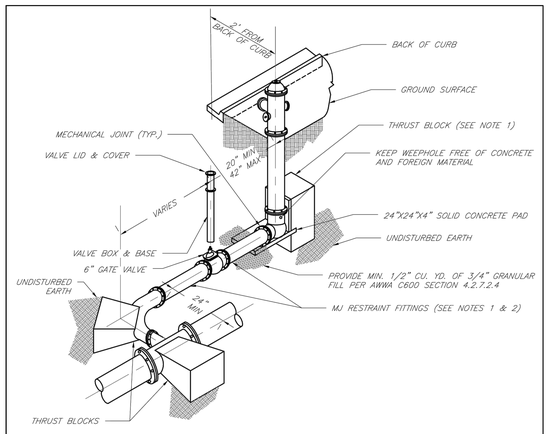
	HYDRANT INSTALLATION – STRAIGHT SET	



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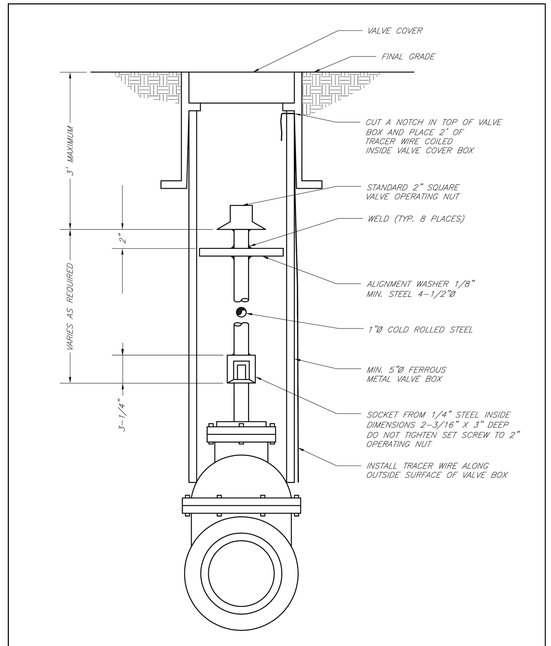
	HYDRANT WITH 90 DEGREE BEND	



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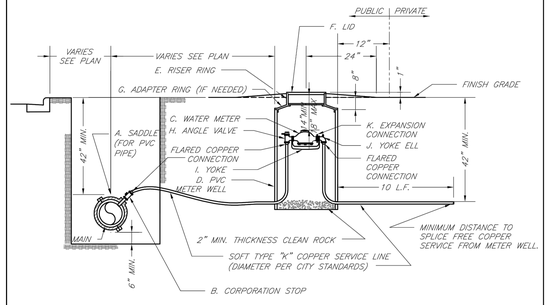
	VALVE STEM EXTENSION AND VALVE BOX	



TYPICAL METER INSTALLATION – 2" AND SMALLER
NOT TO SCALE

NOTES:
1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.
2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.
3. CITY TO FURNISH ITEMS A-K.
4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.
5. 42" MINIMUM BURY DEPTH FOR ALL SERVICE LINES.
6. EXCAVATION FOR TAP TO EXPOSE 4 LINEAR FEET OF MAIN.
7. NO SPLICES ALLOWED BETWEEN METER AND MAIN.
8. SERVICE CONNECTION TAP AT APPROXIMATELY 45 DEGREES.
9. LID AND RISER RING SHALL BE SET SO THAT GROUND WATER WILL DRAIN AWAY FROM THE WELL.
10. CONTACT WATER UTILITIES, 816-969-1900, FOR REQUIREMENTS OF A METER LARGER THAN 2"

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	SERVICE CONNECTION/METER WELL	

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WATER SYSTEM DETAILS

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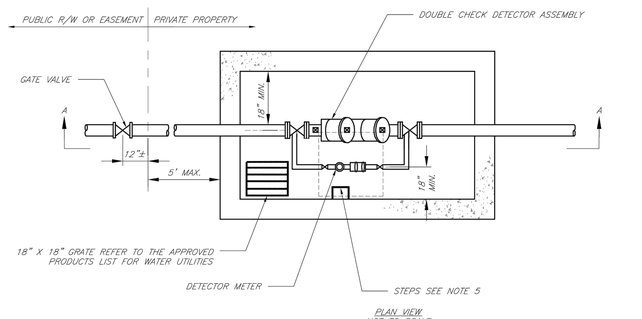
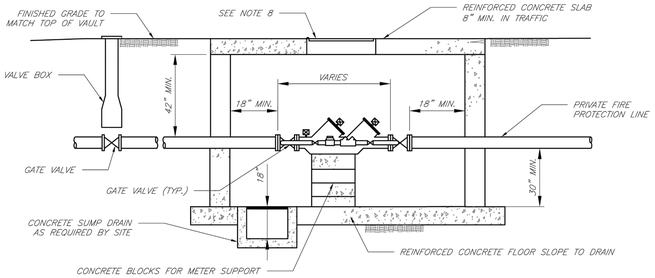


PLAN VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE

GENERAL NOTES:

1. METER VAULT WALLS TO BE POURED OR PRECAST CONCRETE. METER VAULT ROOF TO BE REINFORCED CONCRETE WITH OPENING CENTERED OVER DETECTOR METER. REINFORCED WALLS AND SLABS ARE TO BE DESIGNED BY OWNERS' ENGINEER OR PRECAST ENGINEER.
2. METER VAULT TO BE LOCATED, WHEN POSSIBLE, OUTSIDE TRAFFIC AREA AND WHERE SURFACE WATER WILL NOT DRAIN INTO IT. PROVIDE CONCRETE SUMP TO DRAIN TO AN ABOVE GROUND DISCHARGE POINT.
3. ALL PIPE AND FITTINGS FROM THE CITY WATER MAIN THROUGH THE VAULT SHALL BE PROVIDED WITH RESTRAINED JOINT FITTINGS.
4. ALL FITTINGS FOR THE DETECTOR METER TO BE BRASS.
5. STEPS SHALL BE IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST FOR WATER UTILITIES AND SHALL BE ON 16" CENTERS.
6. A DEPARTMENT OF NATURAL RESOURCES APPROVED DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER MUST BE USED. FOR A COPY OF THE MISSOURI DEPARTMENT OF NATURAL RESOURCES APPROVED BACKFLOW PREVENTION ASSEMBLIES, CONTACT WATER UTILITIES AT 816-969-1900.
7. ALL VALVES SHALL HAVE RISING STEMS.
8. MANHOLE COVER SHALL BE A BILCO K-1 MODEL UNLESS IN A VEHICLE TRAFFIC AREA. SEE THE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR TRAFFIC CONDITIONS. THE COVER SHALL HAVE A 1-3/4" ø HOLE DRILLED FOR A TOUCH/READ DEVICE.
9. A MINIMUM OF 18" CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING, VALVES, APPURTENANCES, ETC.
10. CONTACT PUBLIC WORKS ENGINEERING FOR VAULTS THAT INCLUDE A FIRE DEPARTMENT CONNECTION OR A 3" OR LARGER METER.

CITY OF LEE'S SUMMIT, MO
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MO 64063

Project: STANDARD DRAWINGS

DETAIL VAULT FOR DOUBLE CHECK DETECTOR CHECK

Drawn By: AS
Checked By: DL
Date: 1/14
Rev: 1/14

of

WAT-12

3 NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL BERKO WHT500 – 500 WATT WELL HOUSE HEATER, 208 VOLT SINGLE PHASE. REFER TO MEP PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. CONTRACTOR SHALL COORDINATE WITH THE BUILDING FIRE SUPPRESSION DESIGNER OR PROJECT MEP TO DETERMINE IF TAMPER SWITCHES ARE REQUIRED TO BE INSTALLED ON THE BACKFLOW PER AHJ'S CURRENT ACCEPTED VERSION OF THE IFC OR CURRENT NFPA STANDARDS. SHOULD TAMPER SWITCHES BE REQUIRED, CONTRACTOR SHALL COORDINATE WITH THE BUILDING FIRE SUPPRESSION DESIGNER OR PROJECT MEP FOR DIRECTION.

GENERAL NOTES:

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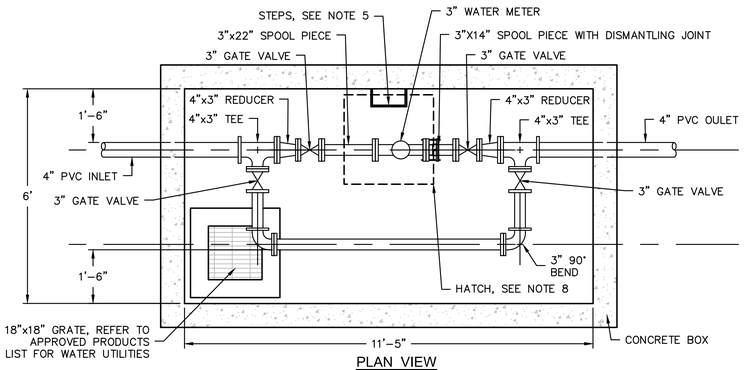
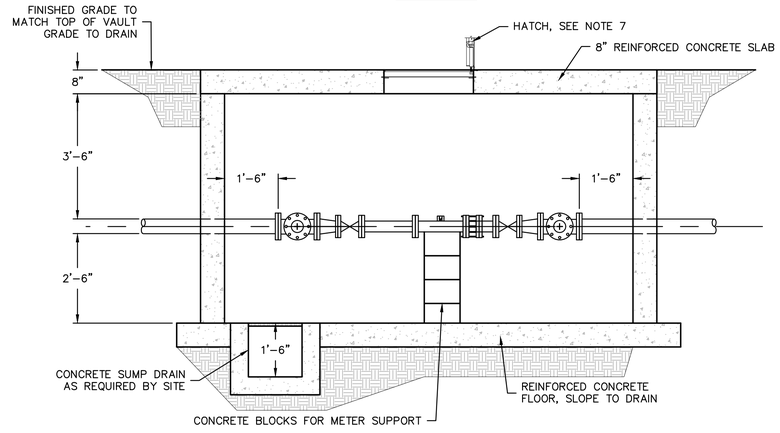


PLAN VIEW



SECTIONAL VIEW

WATER METER VAULT
SCALE: 1/2" = 1'-0"

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MO# PE-2012024241

WATER SYSTEM DETAILS

ISSUE DATE:
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REVISIONS:
3 ENGR. REVIEW CMMTS. - 07/19/2019

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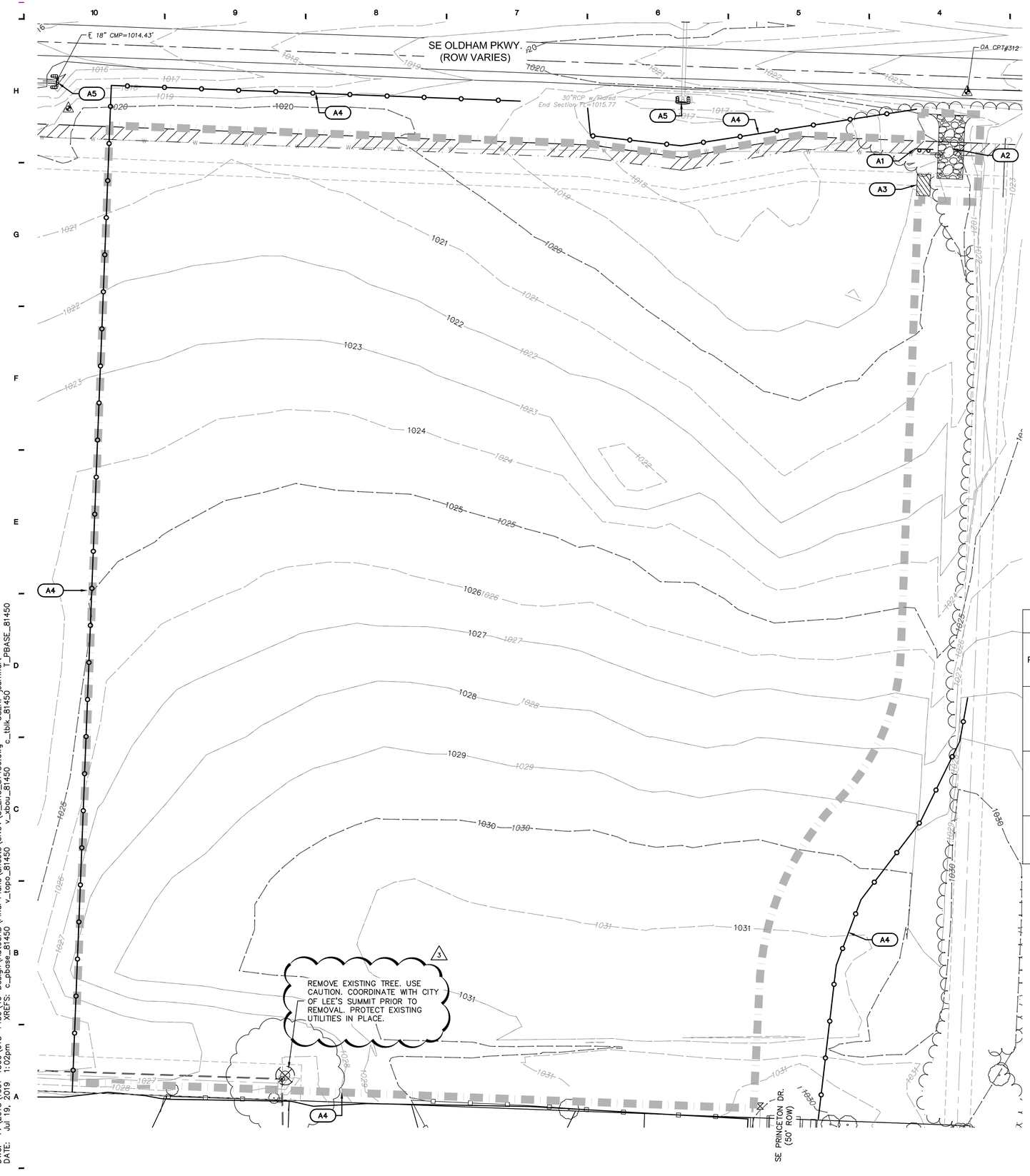

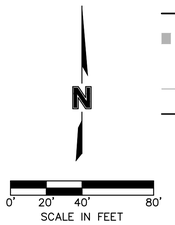

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- FILTER SOXX
- LIMITS OF DISTURBANCE (10.47 AC)
- SWPPP SIGN
- 1020 EXISTING GRADE CONTOUR
- 1020 PROPOSED GRADE CONTOUR
- GRAVEL FILTER BAGS
- TREES TO BE REMOVED
- TREES TO BE PROTECTED
- TEMPORARY CONCRETE WASHOUT
- TEMPORARY CONSTRUCTION ENTRANCE
- X1 EROSION CONTROL REFERENCE NUMBER
- F.E.S. INLET PROTECTION
- AREA INLET PROTECTION
- CURB INLET PROTECTION

EROSION CONTROL STAGING CHART

PROJECT STAGE	EROSION CONTROL BMP REFERENCE NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
A - PRE CONSTRUCTION	A1	SWPPP SIGN	C	INSTALL AS INDICATED ON PLANS
	A2	TEMPORARY CONSTRUCTION ENTRANCE	B	INSTALL PER APWA DETAIL ESC-01
	A3	CONCRETE WASHOUT	B	INSTALL PER APWA DETAIL ESC-01
	A4	FILTER SOXX	C	INSTALL PER APWA DETAIL ESC-10
	A5	F.E.S. INLET PROTECTION	C	INSTALL AS INDICATED ON PLANS
B - INTERIM BMP'S	B1	AREA INLET PROTECTION	C	INSTALL PER APWA DETAIL ESC-07
	B2	SILT FENCE	C	INSTALL PER APWA DETAIL ESC-03
	B3	CURB INLET PROTECTION	C	INSTALL PER APWA DETAIL ESC-15
	B4	F.E.S. INLET PROTECTION	C	INSTALL PER DETAIL ON SHEET C7.5
	B5	FILTER SOXX PROTECTION	C	INSTALL AS INDICATED ON PLANS
C - FINAL STABILIZATION	N/A	SOD AND STABILIZE ALL DISTURBED AREAS WITHIN 14 DAYS OF COMPLETION OF GRADING ACTIVITIES IN ANY AREA GREATER THAN 0.25 ACRES		SEE LANDSCAPE PLANS FOR DETAILS
	N/A	REMOVE EROSION CONTROL PROTECTION WHEN SOIL IS STABILIZED		

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LEE'S SUMMIT SENIOR COMMUNITY
1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

EROSION CONTROL PLAN PRE-CONSTRUCTION

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

C600

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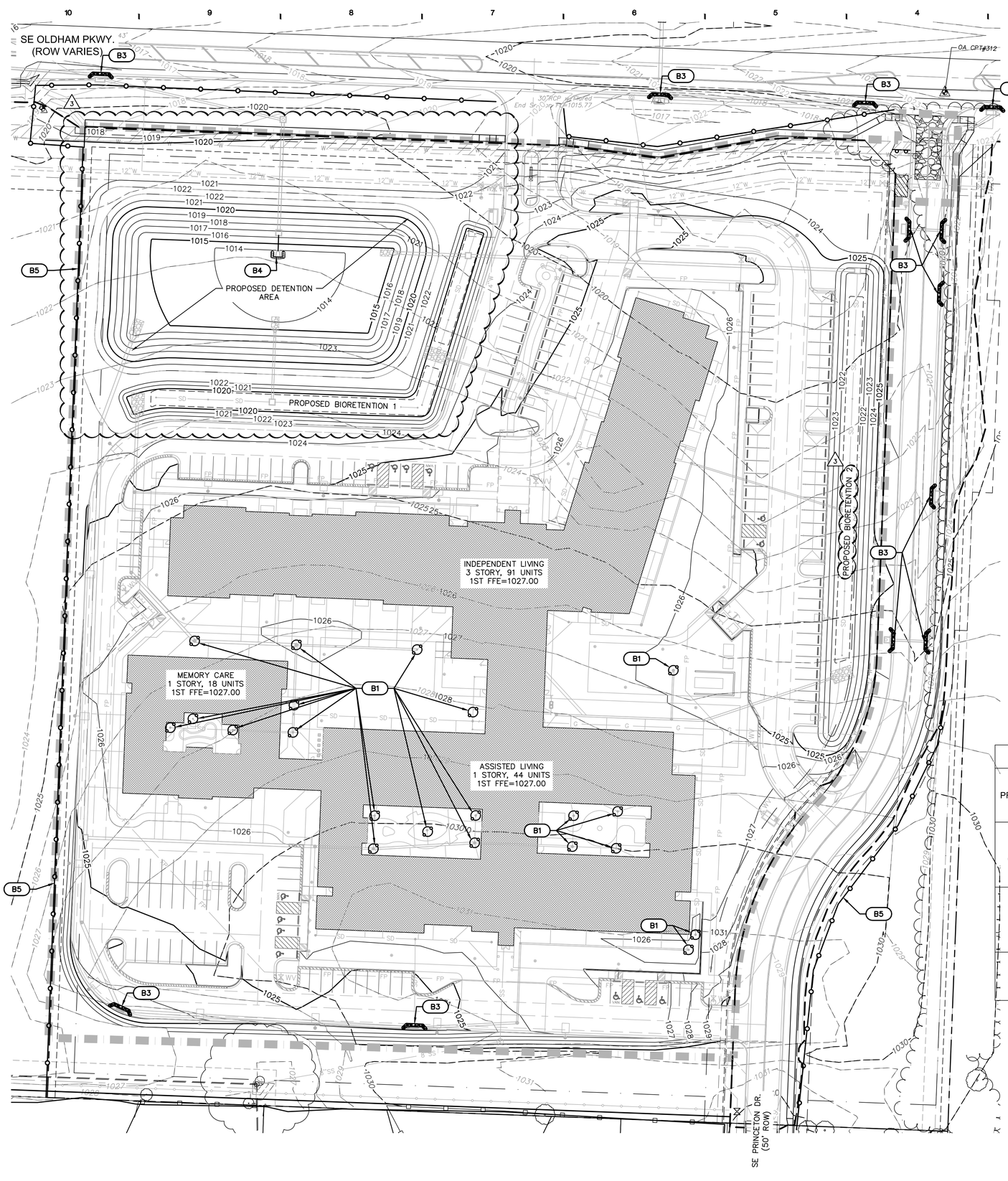

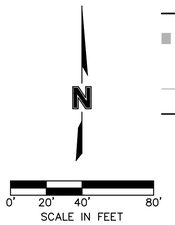

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- FILTER SOXX
- LIMITS OF DISTURBANCE (9.98 AC)
- SWPPP SIGN
- EXISTING GRADE CONTOUR
- PROPOSED GRADE CONTOUR
- GRAVEL FILTER BAGS
- TREES TO BE REMOVED
- TREES TO BE PROTECTED
- TEMPORARY CONCRETE WASHOUT
- TEMPORARY CONSTRUCTION ENTRANCE
- EROSION CONTROL REFERENCE NUMBER
- STAGING/STOCKPILE AREA
- STABILIZATION. "LANDLOK (S2)" SHALL BE USED OR APPROVED EQUAL. CONTACTOR TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL. SEED WITH PERENNIAL SEEDING TO MEET SWPPP REQUIREMENTS. INSTALL PER DETAIL AND MANUFACTURER RECOMMENDATIONS.
- F.E.S. INLET PROTECTION
- AREA INLET PROTECTION
- CURB INLET PROTECTION

EROSION CONTROL STAGING CHART

PROJECT STAGE	EROSION CONTROL BMP REFERENCE NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
A – PRE CONSTRUCTION	A1	SWPPP SIGN	C	INSTALL AS INDICATED ON PLANS
	A2	TEMPORARY CONSTRUCTION ENTRANCE	B	INSTALL PER APWA DETAIL ESC-01
	A3	CONCRETE WASHOUT	B	INSTALL PER APWA DETAIL ESC-01
	A4	FILTER SOXX	C	INSTALL PER APWA DETAIL ESC-10
	A5	F.E.S. INLET PROTECTION	C	INSTALL AS INDICATED ON PLANS
B – INTERIM BMP'S	B1	AREA INLET PROTECTION	C	INSTALL PER APWA DETAIL ESC-07
	B2	SEDIMENT FENCE	C	INSTALL PER APWA DETAIL ESC-10
	B3	CURB INLET PROTECTION	C	INSTALL PER APWA DETAIL ESC-06
	B4	F.E.S. INLET PROTECTION	C	INSTALL PER DETAIL ON SHEET C7.5
	B5	FILTER SOXX PROTECTION	C	INSTALL PER DETAIL ON SHEET C7.5
C – FINAL STABILIZATION	N/A	SOD AND STABILIZE ALL DISTURBED AREAS WITHIN 14 DAYS OF COMPLETION OF GRADING ACTIVITIES IN ANY AREA GREATER THAN 0.25 ACRES		SEE LANDSCAPE PLANS FOR DETAILS
	N/A	REMOVE EROSION CONTROL PROTECTION WHEN SOIL IS STABILIZED		

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SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
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PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

EROSION CONTROL PLAN CONSTRUCTION

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENGR. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

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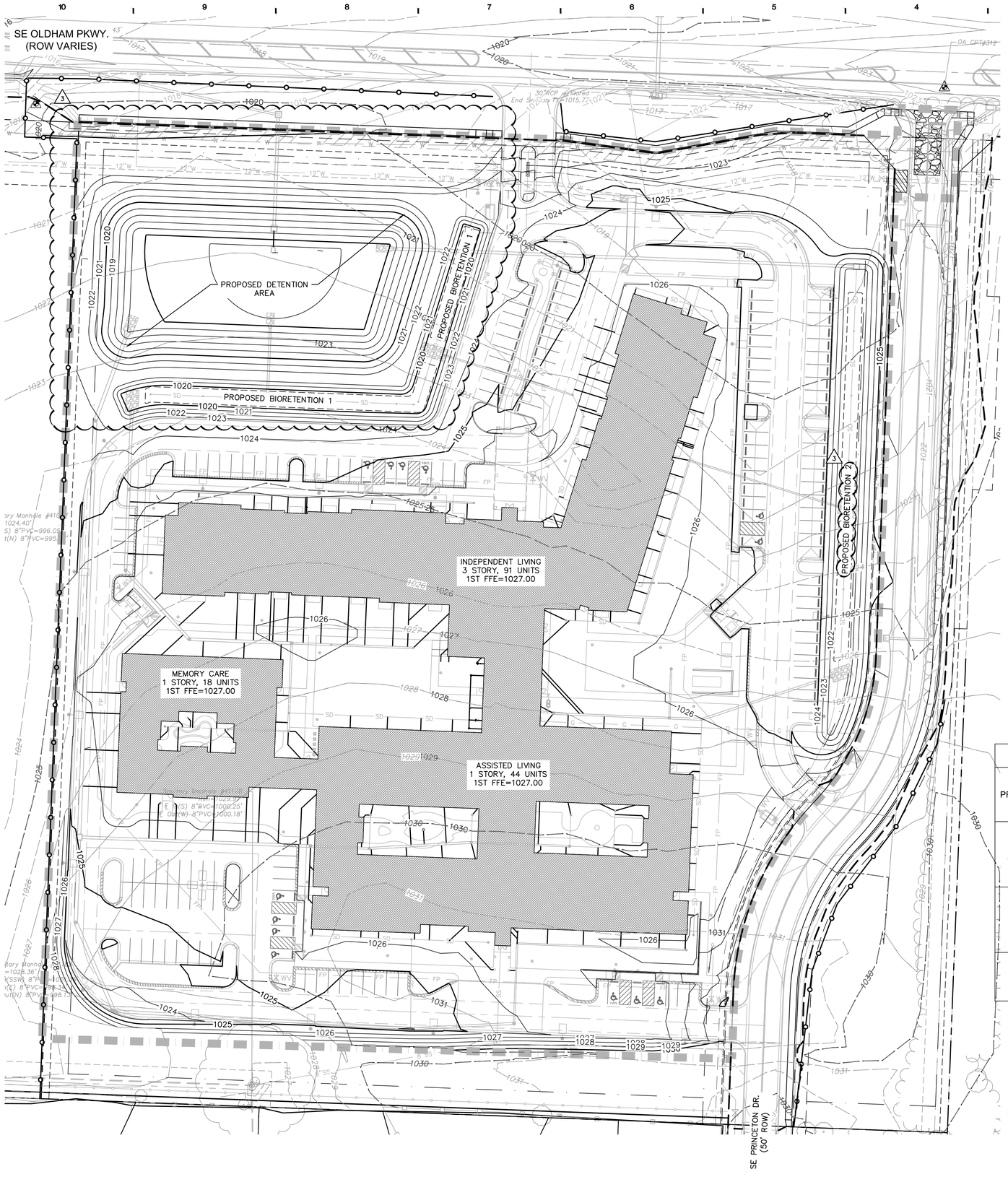

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- FILTER SOXX
- LIMITS OF DISTURBANCE (9.98 AC)
- SWPPP SIGN
- 1020 EXISTING GRADE CONTOUR
- 1020 PROPOSED GRADE CONTOUR
- X1 EROSION CONTROL REFERENCE NUMBER

STABILIZATION. "LANDLOK (S2)" SHALL BE USED OR APPROVED EQUAL CONTACTOR TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL. SEED WITH PERENNIAL SEEDING TO MEET SWPPP REQUIREMENTS. INSTALL PER DETAIL AND MANUFACTURER RECOMMENDATIONS.

EROSION CONTROL STAGING CHART

PROJECT STAGE	EROSION CONTROL BMP REFERENCE NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
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	A4	FILTER SOXX	C	INSTALL PER APWA DETAIL ESC-10
	A5	F.E.S. INLET PROTECTION	C	INSTALL AS INDICATED ON PLANS
B – INTERIM BMP'S	B1	AREA INLET PROTECTION	C	INSTALL PER APWA DETAIL ESC-24
	B2	SILT FENCE	C	INSTALL PER APWA DETAIL ESC-10
	B3	CURB INLET PROTECTION	C	INSTALL PER APWA DETAIL ESC-15
	B4	F.E.S. INLET PROTECTION	C	INSTALL PER DETAIL ON SHEET C7.5
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PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

EROSION CONTROL PLAN
POST CONSTRUCTION

ISSUE DATE:
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REVISIONS:
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PROJECT NO.: 11811

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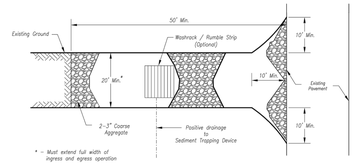
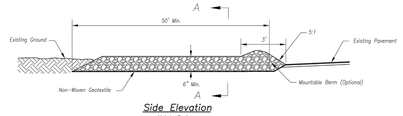


Plan View
Not to Scale



Side Elevation
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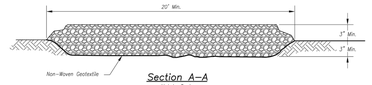


Section A-A
Not to Scale

Notes for Construction Entrance:

1. Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6"- to 8"-inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

1. Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

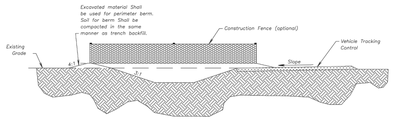
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout area shall include a flat subsurface pit sized according to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs shall be placed at the construction site entrance, washout pit, and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

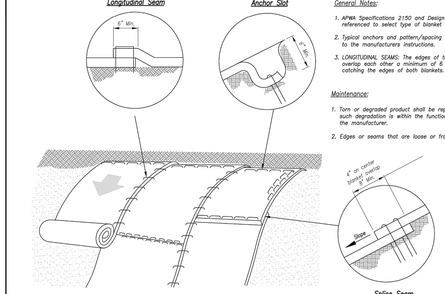
1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for washed concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris shall be disposed of in accordance with regulations for the job site in a water-tight container and disposed of properly.
4. Concrete washout areas shall remain in place until all concrete for the project is placed.
5. When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.



CONCRETE WASHOUT

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

AMERICAN PUBLIC WORKS ASSOCIATION	KANSAS CITY METRO CHAPTER	
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT	STANDARD DRAWING NUMBER ESC-01	ADOPTED: 10/24/2016



Installation on Slopes

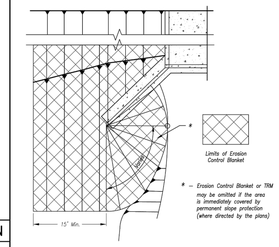
Splice Seam

General Notes:

1. APWA Specifications 2150 and Design Guidance 5100 shall be referenced to select type of blanket or mat to be used.
2. Typical anchors and pattern/spacing shall be installed according to the manufacturers instructions.
3. LONGITUDINAL SEAMS: The edges of the blanket or mat should overlap each other a minimum of 6 inches, with anchors catching the edges of both blankets.

Maintenance:

1. Torn or degraded product shall be repaired or replaced, unless such degradation is within the functional longevity specified by the manufacturer.
2. Edges or seams that are loose or frayed shall be secured.



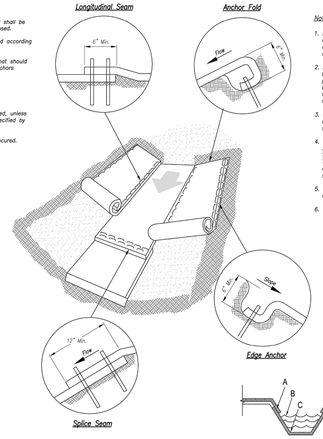
Partial Box Culvert Plan
Not to Scale

- Erosion Control Blanket or TRM may be omitted if the area is immediately covered by permanent slope protection (where directed by the plans)

Installation Around Culvert Slope

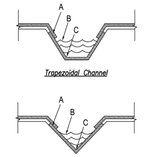
Notes for Installation on Slopes:

1. Erosion Control Blankets and TRMs shall be laid in the direction of the slope. In order for blanket to be in contact with the soil, lay blanket loosely, avoiding stretching.
2. ANCHOR SLOTS: The top of the blanket should be "slotted in" at the top of the slope and anchored in place with anchors 6 inches apart. The slots should be 6 inches wide x 6 inches deep with the blanket anchored in the bottom of the slot, then backfilled, tamped and seeded.
3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 6 inches in direction of water flow. Stagger splice seams.
4. TERMINAL FOLD: The bottom edge of the blanket shall be turned under a minimum of 4 inches, then anchored in place with anchors 9 inches apart.



Notes for Installation in Channels:

1. Erosion Control Blankets and TRMs shall be laid in the direction of the flow, with the first course at the centerline of channel, where applicable. In order for the mat to be in contact with the soil, lay the mat loosely, avoiding stretching.
2. ANCHOR FOLD: The top of the mat should be folded under, buried and secured with wood or other approved anchors placed 6 inches apart. The top edge of the mat should be buried in a slot 6 inches wide x 6 inches deep, anchored in the bottom of the slot, backfilled, and the mat folded over the top as shown in detail.
3. SPLICE SEAM: When splices are necessary, overlap end a minimum of 12 inches in direction of water flow. Stagger splice seams.
4. CHECK SLOTS: Establish check slots transverse to slope every 30 feet. The slots should be 6 inches wide x 6 inches deep. The mat shall be cut to a length 12 inches beyond the slot. The top of the downstream mat shall be slotted in, secured and buried similar to the edge anchor fold. The upstream mat shall then cover the slot and be anchored as shown.
5. EDGE ANCHORS: Lay outside edge of mat into trench at top of the slope and anchor.
6. TERMINUS: The bottom edge of the mat shall be anchored.



Trapezoidal Channel

Critical Points:

A – Overlaps and seams;

B – Projected water line;

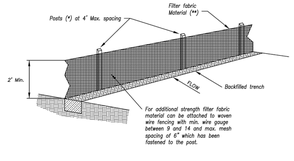
C – Channel bottom / side slope vertices;

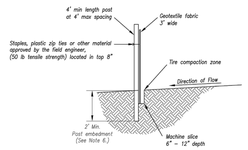
V Channel

Installation in Channels

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

AMERICAN PUBLIC WORKS ASSOCIATION	KANSAS CITY METRO CHAPTER	
EROSION CONTROL BLANKETS AND TURF REINFORMENT MATS	STANDARD DRAWING NUMBER ESC-02	ADOPTED: 10/24/2016





Notes:

1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
2. Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
4. Attach fabric to upstream side of post.
5. Install posts a minimum of 2' into the ground.
6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

(*) POSTS
- MIN. LENGTH 4'
- HARDWOOD 1 ½" x 1 ½"
- NO.2 SOUTHERN PINE 2 ½" x 2 ½"
- STEEL 1.33 LB/FT

(**) – Geotextile Fabric shall meet the requirements of AASHTO M288

SILT FENCE DETAILS
Not to Scale

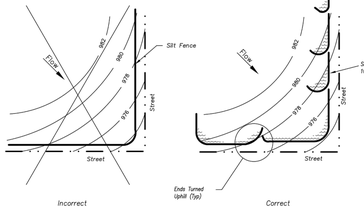
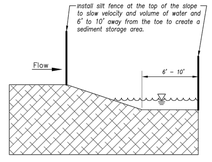
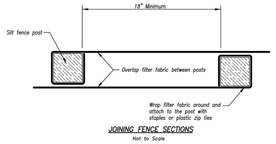


Figure A



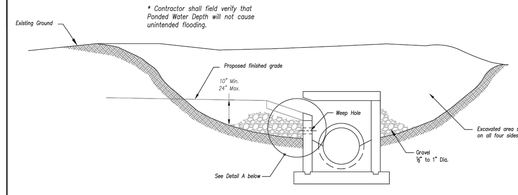


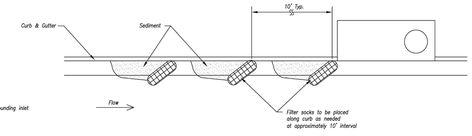
JOINING FENCE SECTIONS
Not to Scale

SILT FENCE LAYOUT
Not to Scale

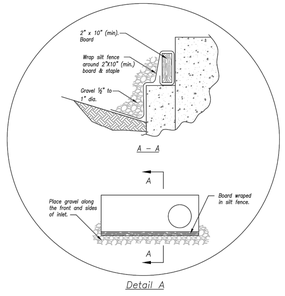
Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	KANSAS CITY METRO CHAPTER	
SILT FENCE	STANDARD DRAWING NUMBER ESC-03	ADOPTED: 10/24/2016





On Grade Curb Inlet Protection



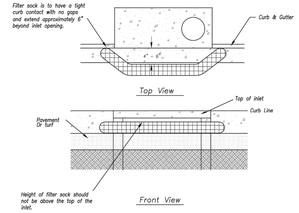
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" X 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

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



Sump Inlet Sediment Filter

LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

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

AMERICAN PUBLIC WORKS ASSOCIATION	KANSAS CITY METRO CHAPTER	
CURB INLET PROTECTION	STANDARD DRAWING NUMBER ESC-06	ADOPTED: 10/24/2016

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OF AUTHORITY NO. 000073

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LEE'S SUMMIT SENIOR COMMUNITY
1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

EROSION CONTROL DETAILS

ISSUE DATE:
6-14-2019

REVISIONS:

PROJECT NO.: 11811

C603

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Olsson Project #018-1450

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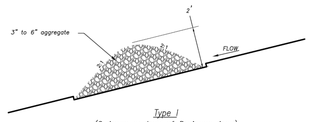
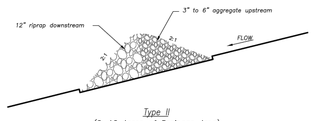


Type I
(2 Acres or less of Drainage Area)
Not to Scale

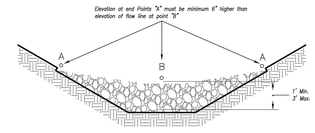


Type II
(2–10 Acres of Drainage Area)
Not to Scale

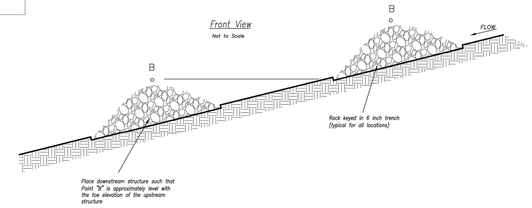
ROCK DITCH CHECK

Temporary Rock Ditch Check Spacing	
Ditch Centerline Slope (%)	Spacing Interval (Feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29

Note: Use this spacing only for Rock Ditch Checks.



Front View
Not to Scale



Spacing Between Check Dams (all types)
Not to Scale

Notes:

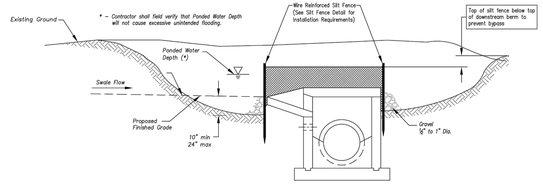
1. Rock check dams shall be used only for drainage areas less that 10 acres unless approved by the City Engineer.
2. Use rock checks only in situations where the ditch slope exceeds 6%.

Maintenance:

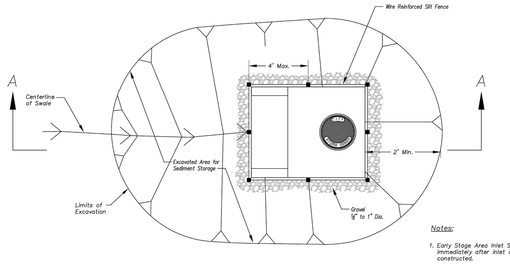
1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of the ditch check.
2. Replace and reshape as necessary to maintain function and integrity of installation.

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

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



Section A–A
Not to Scale

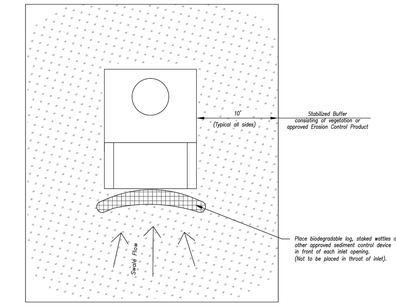


Plan
Not to Scale

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

Notes:

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



Plan
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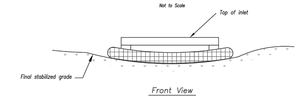


Front View
Not to Scale

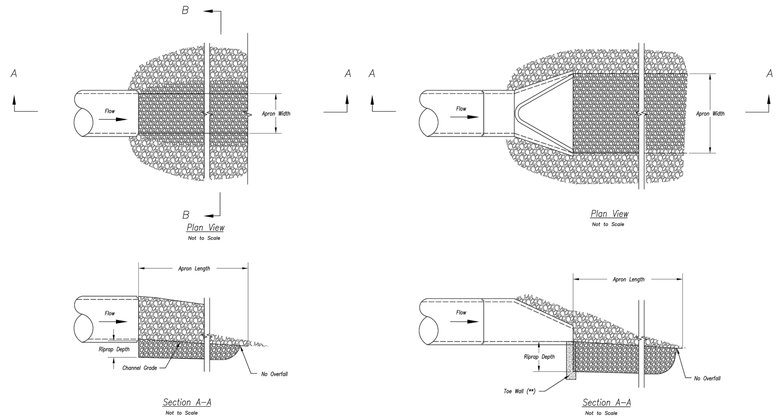
LATE STAGE AREA INLET
(Area inlets at final grade and existing inlets)

Maintenance:

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

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

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



Notes:

1. Rock all sides steeper than 3:1.
2. Stabilize all disturbed areas downstream of outlet to the limits of disturbance.
3. Alternative outlet protection and slope stabilization measures may be used with approval by the Engineer.
4. Install riprap apron so that it is no higher than flowline of pipe.
5. Reference APWA Specification 2650 for rock type, size, and placement.

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

AMERICAN PUBLIC WORKS ASSOCIATION
KANSAS CITY METRO CHAPTER
OUTLET PROTECTION
STANDARD DRAWING NUMBER ESC-14
ADOPTED: 10/24/2016

TEMPORARY & PERMANENT VEGETATION REQUIREMENTS:

TOPSOIL REQUIREMENTS:

PERMANENT AND TEMPORARY SEEDING –
LOOSEN COMPACTED SOILS TO A DEPTH OF 4 INCHES. IF RAINFALL CAUSES THE SURFACE TO BECOME SEALED OR CRUSTED, LOOSEN IT JUST PRIOR TO SEEDING. SLOPES STEEPER THAN 33 PERCENT (3:1) GRADE SHOULD BE GROOVED OR FURROWED ON THE CONTOUR BEFORE SEEDING. A GOOD SEEDBED IS WELL PULVERIZED, LOOSE, AND UNIFORM.

PERMANENT SEEDING –
A MINIMUM OF 4 INCHES OF LOOSE TOPSOIL SHOULD BE SPREAD ON AREAS TO BE SEEDED.

LIME REQUIREMENTS:

PERMANENT AND TEMPORARY SEEDING –
LIME SHOULD BE APPLIED ACCORDING TO SOIL TEST RECOMMENDATIONS. IF THE PH OF THE SOIL IS UNKNOWN, LIME SHALL BE INCORPORATED INTO THE TOP 4 INCHES OF SOIL AT THE RATE OF 1500 POUNDS EFFECTIVE NEUTRALIZING MATERIAL (ENM) PER ACRE. SOILS WITH A PH OF SIX OR HIGHER NEED NOT BE LIMED.

FERTILIZER REQUIREMENTS:

PERMANENT SEEDING –
FERTILIZER SHOULD BE APPLIED BASED ON SOIL TESTS. WHEN THESE ARE NOT POSSIBLE, A 13–13–13 GRADE FERTILIZER SHALL BE INCORPORATED INTO THE TOP 4 INCHES OF SOIL AT THE RATE OF 500 POUNDS PER ACRE.

TEMPORARY SEEDING –
FERTILIZER SHOULD BE APPLIED BASED ON SOIL TESTS. WHEN THESE ARE NOT POSSIBLE, A 10–10–10 GRADE FERTILIZER SHALL BE INCORPORATED INTO THE TOP 4 INCHES OF SOIL AT THE RATE OF 200 POUNDS PER ACRE.

SEED REQUIREMENTS:

PERMANENT SEEDING –
SEED MIX SHALL CONSIST OF NINETY PERCENT (90%) TALL FESCUE AND TEN PERCENT (10%) ANNUAL RYEGRASS. SEED MIXTURE SHALL BE APPLIED AT A RATE OF 400 POUNDS PER ACRE.

TEMPORARY SEEDING – SEED MIX SHALL CONSIST OF ANY COMBINATION OF TALL FESCUE, ANNUAL RYEGRASS, SUDAN, MILLET, WHEAT, OR OATS. SEED MIXTURE SHALL BE APPLIED AT A RATE OF 200 POUNDS PER ACRE.

DORMANT SEASON SEEDING – SEED MIX SHALL CONSIST OF 80 PERCENT (80%) TALL FESCUE, TEN PERCENT (10%) ANNUAL RYEGRASS, AND TEN PERCENT (10%) SPRING OATS. SEED MIXTURE SHALL BE APPLIED AT A RATE OF 600 POUNDS PER ACRE.

MULCH REQUIREMENTS:

PERMANENT AND TEMPORARY SEEDING –
WHERE SLOPES ARE LESS THAN 25 PERCENT (4:1) GRADE, CEREAL GRAIN MULCH IS REQUIRED AT THE RATE OF 100 POUNDS PER 1,000 SQUARE FEET (4,500 LBS/ACRE). CEREAL GRAIN MULCH SHALL MEET THE REQUIREMENTS OF SECTION 802 OF THE MISSOURI STATE SPECIFICATIONS FOR HIGHWAY CONSTRUCTION FOR TYPE 1 MULCH. WHERE SLOPES ARE 25 PERCENT (4:1) OR GREATER GRADE, TYPE 3 MULCH ("HYDROMULCH") MEETING THE REQUIREMENTS OF SECTION 802 OF THE STATE SPECIFICATIONS SHALL BE USED. TYPE 3 MULCH SHALL BE APPLIED AT A MINIMUM RATE OF 2,000 LBS/ACRE.

DATES FOR SEEDING:

PERMANENT SEEDING – MARCH 1 TO JUNE 1 AND AUGUST 15 TO NOVEMBER 1
TEMPORARY SEEDING – CAN OCCUR DURING ANY SEASON, HOWEVER WINTER IS THE LEAST TOLERANT.
DORMANT SEASON SEEDING – DECEMBER 15 TO FEBRUARY 29

TREE PROTECTION DETAIL
NOT TO SCALE

TREE PRESERVATION NOTES

1. GRADING AROUND TREES TO BE LIMITED TO OUTSIDE THE DRIPLINE UNLESS OTHERWISE NOTED ON THESE PLANS.

2. THERE SHALL BE NO GRADING OR FILLING WITHIN THE PROTECTED CRITICAL ROOT ZONES OF PROTECTED TREES UNLESS OTHERWISE NOTED ON THESE PLANS.

3. NO VEHICLES OR EQUIPMENT SHALL BE DRIVEN OR PARKED UNDER THE DRIPLINE OF PROTECTED TREES. NO MATERIALS SHALL BE STORED UNDER THE DRIPLINE OF PROTECTED TREES.

4. TREE FENCE AND SILT FENCE FOR ALL PROTECTED TREES MUST BE PROPERLY MAINTAINED THROUGHOUT CONSTRUCTION.

5. ALL REQUIRED TREE, SILT FENCING AND COMPOST FILTER SOCK SHALL REMAIN IN PLACE UNTIL ALL GRADING AND LANDSCAPING ACTIVITIES HAVE CEASED AND SHALL ONLY BE REMOVED UPON THE REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT.

6. ATTACHMENTS (WIRES, FENCES, ETC.) OTHER THAN THOSE APPROVED FOR GUYING, BRACING OR WRAPPING MUST NOT BE ATTACHED TO PROTECTED TREES.

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LEE'S SUMMIT SENIOR COMMUNITY
1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

STARK WILSON DUNCAN ARCHITECTS INC.
315 NICHOLS RD. STE 228 - KANSAS CITY, MO 64112 - T 816.531.1698 F 816.531.1978

SEAL
STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

EROSION CONTROL DETAILS

ISSUE DATE:
6-14-2019

REVISIONS:

PROJECT NO.: 11811

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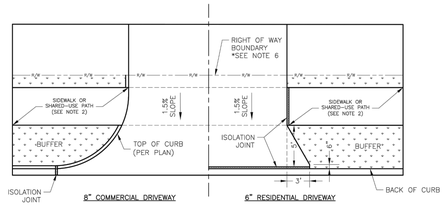

DRIVEWAY WITH BUFFER
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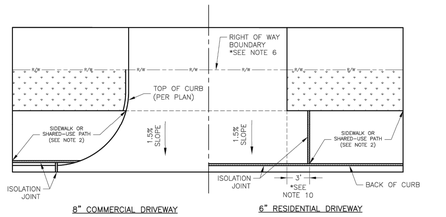

DRIVEWAY WITHOUT BUFFER
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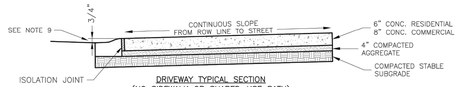
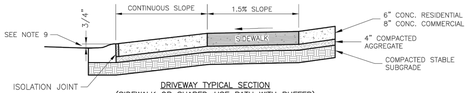
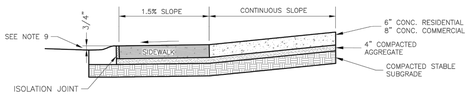


DRIVEWAY TYPICAL SECTION
(NO SIDEWALK OR SHARED-USE PATH)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITH BUFFER)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITHOUT BUFFER)
NOT TO SCALE

GENERAL NOTES
1. SUBGRADE SHALL BE STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. ALL DRIVE APPROACHES SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) FOR SLOPE REQUIREMENTS WHEN SIDEWALK IS REQUIRED (SEE ADA RAMP RETROFIT DETAIL GEN-3B, SIDEWALK/SHARED USE PATH RAMP AT DRIVEWAY DETAIL).
3. JOINT AT BACK OF CURB LINE SHALL BE AN ISOLATION JOINT FOR RESIDENTIAL DRIVEWAYS.
4. KCMMB 4K CONCRETE MIX IS REQUIRED FOR ALL CURBS.
5. COMMERCIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, SHALL BE KCMMB 4K CONCRETE MIX.
6. RESIDENTIAL DRIVEWAYS, IN THE PUBLIC RIGHT OF WAY, KCMMB 4K CONCRETE MIX IS RECOMMENDED. OTHER CONCRETE MIXES NEEDS TO BE APPROVED BY CITY INSPECTOR.
7. A JOINT MUST BE INSTALLED AT THE RIGHT OF WAY BOUNDARY FOR PROPERTY DELINEATION.
8. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
9. ¾" FROM TOP OF CURB TO FLOWLINE AT DRIVEWAY (TYPE CG-1 CURB ONLY). MUST MAINTAIN ORIGINAL FLOWLINE OF CURB.
10. SIDEWALK ADJOINING CURB SHALL BE 6" THICK, EXTENDING 3' FROM THE DRIVEWAY.
11. THE MAXIMUM WIDTH OF A RESIDENTIAL DRIVEWAY IS 36 FEET WITHIN THE RIGHT OF WAY.

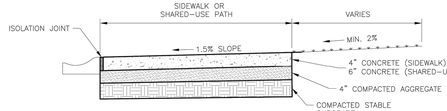
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

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

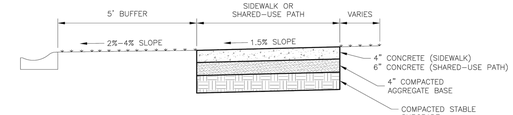
Project No.
Sheet No. #

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #

GEN-1



SIDEWALK/SHARED-USE PATH WITHOUT BUFFER
NOT TO SCALE



SIDEWALK/SHARED-USE PATH WITH BUFFER
NOT TO SCALE

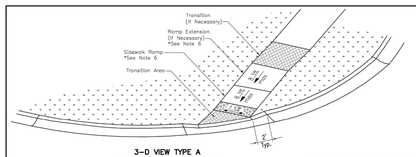
GENERAL NOTES:
1. SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. 1.5% CROSS SLOPE MUST BE MAINTAINED THROUGH DRIVEWAYS.
3. KCMMB 4K CONCRETE MIX SHALL BE REQUIRED FOR ALL SIDEWALKS/SHARED-USE PATHS OR AS APPROVED BY THE CITY INSPECTOR.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

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

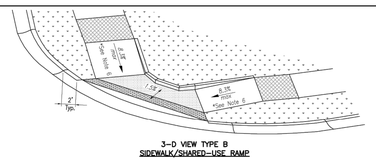
SIDEWALK/SHARED-USE PATH DETAIL

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

GEN-2

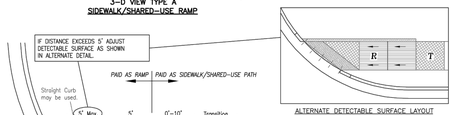


3-D VIEW TYPE A
SIDEWALK/SHARED-USE RAMP



3-D VIEW TYPE B
SIDEWALK/SHARED-USE RAMP

LEGEND
R SIDEWALK RAMP
TS TURNING SPACE
DETECTABLE WARNING SURFACE
T TRANSITION

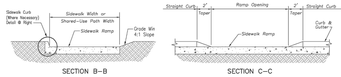


TYPE A SIDEWALK/SHARED-USE RAMP
Not to Scale

ALTERNATE DETECTABLE SURFACE LAYOUT

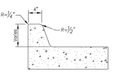
TYPE B SIDEWALK/SHARED-USE RAMP
Not to Scale

SECTION A-A

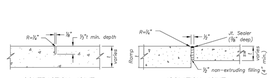


SECTION B-B SECTION C-C

TYPE A & B SIDEWALK RAMP
Not to Scale

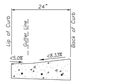


SIDEWALK CURB DETAIL
Not to Scale



CONTRACTION JOINT ISOLATION JOINT

JOINT DETAILS
Not to Scale



CURB & GUTTER DETAIL AT RAMP
Not to Scale

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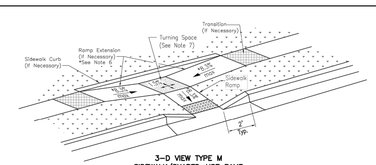
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
ADA RAMP RETROFIT DETAIL

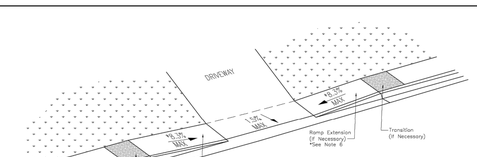
Project No.
Sheet No. #

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #

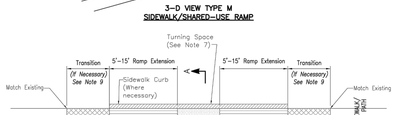
GEN-3A



3-D VIEW TYPE M
SIDEWALK/SHARED-USE RAMP



3-D VIEW SIDEWALK/SHARED-USE RAMP
AT DRIVEWAY



TYPE M SIDEWALK/SHARED-USE RAMP
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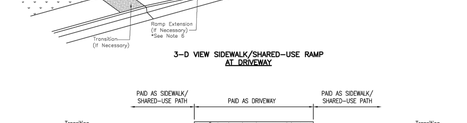
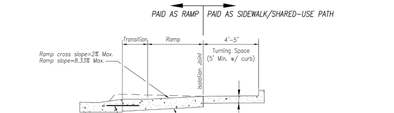
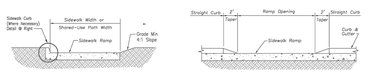


SIDEWALK/SHARED USE RAMP
AT DRIVEWAY WITH ADJOINING CURB



SECTION A-A



SECTION B-B SECTION C-C

TYPE M SIDEWALK RAMP
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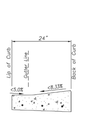

CURB & GUTTER DETAIL AT RAMP
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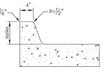

SIDEWALK CURB DETAIL
Not to Scale

LEGEND
R SIDEWALK RAMP
TS TURNING SPACE
DETECTABLE WARNING SURFACE
T TRANSITION

SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:
1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 150' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
ADA MAXIMUM CROSS SLOPE = 2.0%
*ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5%, SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).

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

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

Project No.
Sheet No. #

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #

GEN-3B

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315 NICHOLS RD. STE 228 - KANSAS CITY, MO 64112 - T 816.531.1698 F 816.531.1978

LEE'S SUMMIT SENIOR COMMUNITY
1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

SITE DETAILS

ISSUE DATE:
6-14-2019

REVISIONS:

PROJECT NO.: 11811

C700

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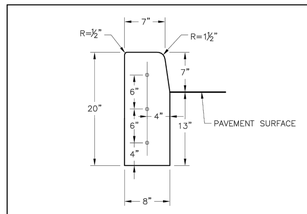
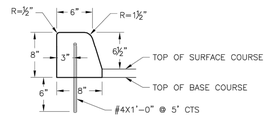
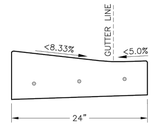


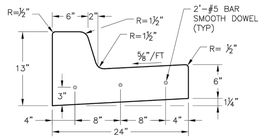
STRAIGHT CURB
(TYPE C-1)



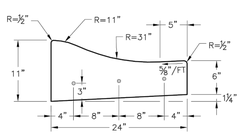
DOWELLED CURB
(TYPE DC)



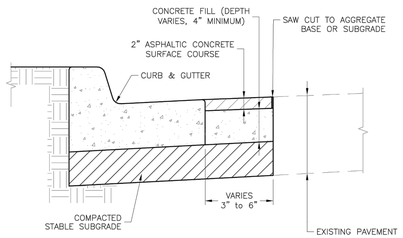
CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)



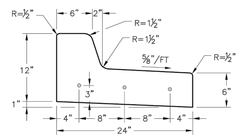
STRAIGHT BACK CURB & GUTTER
(TYPE CG-1)



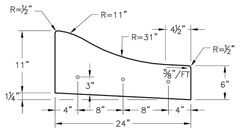
ROLL BACK CURB & GUTTER
(TYPE CG-2)



CURB REPLACEMENT DETAIL



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



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

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 APROXIMATELY 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 CURB.
5. ASPHALTIC CONCRETE SURFACE COURSE 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.

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

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
SHEET NAME: CURB & GUTTER DETAIL

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #:

GEN-4

TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES

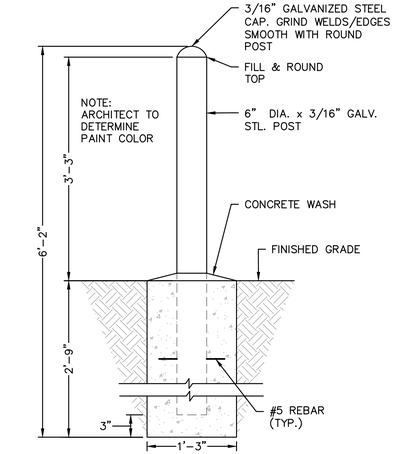
Street Classification	Pavement Option	AC Surface (in.)	AC Base (in.)	MoDOT Type 5 Base (in.)	Geogrid(1)	Chemical Subgrade Stabilization(2) (in.)
Residential Local/Access	A	2	4	6	--	6
	B	2	4	10	Geogrid	--
Residential Collector	A	2	5.5	6	--	9
	B	2	5.5	12	Geogrid	--
Commercial Industrial Local/Collector	A	2	7.5	6	--	9
	B	2	7.5	12	Geogrid	--

TABLE LS-3: MINIMUM PCC PAVEMENT THICKNESSES

Street Classification	PCC (in.)	Aggregate Base (in.)	Subgrade Stabilization(1) (in.)
Residential Local/Access	6	4	--
Residential Collector	6	4	6
Commercial Industrial Local/Collector	8	4	9

(1) Subgrade Stabilization and 4" aggregate base may be replaced by approved geogrid and 6" of aggregate base

LS5200 16 October 2016



BOLLARD DETAIL
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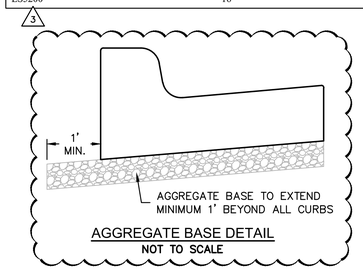

AGGREGATE BASE DETAIL
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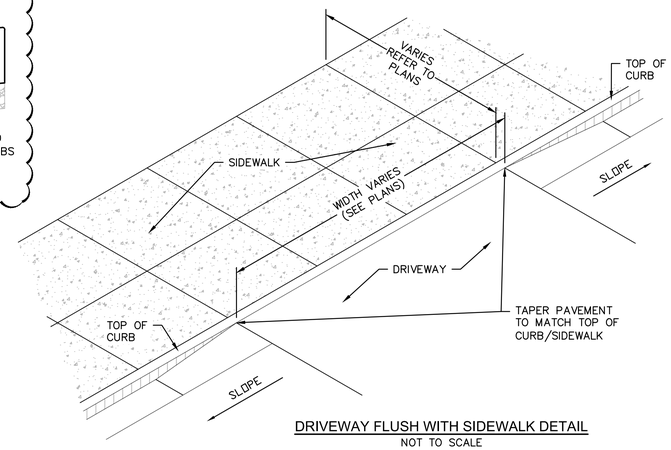

DRIVEWAY FLUSH WITH SIDEWALK DETAIL
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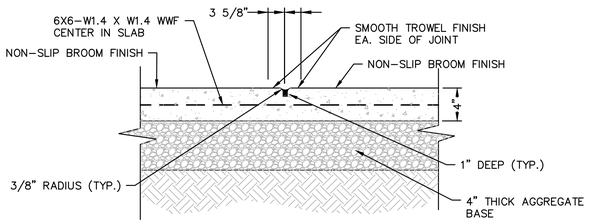

SIDEWALK TOOLED JOINT DETAIL
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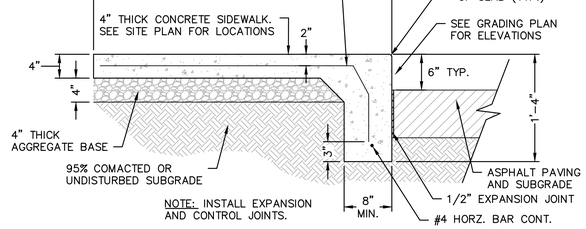

TURN DOWN SIDEWALK DETAIL
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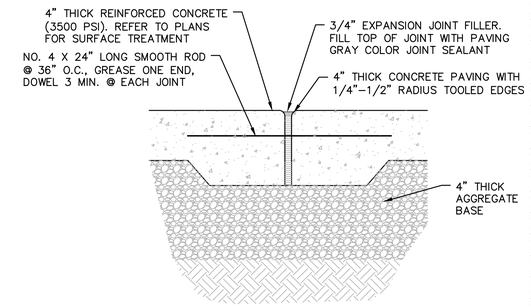
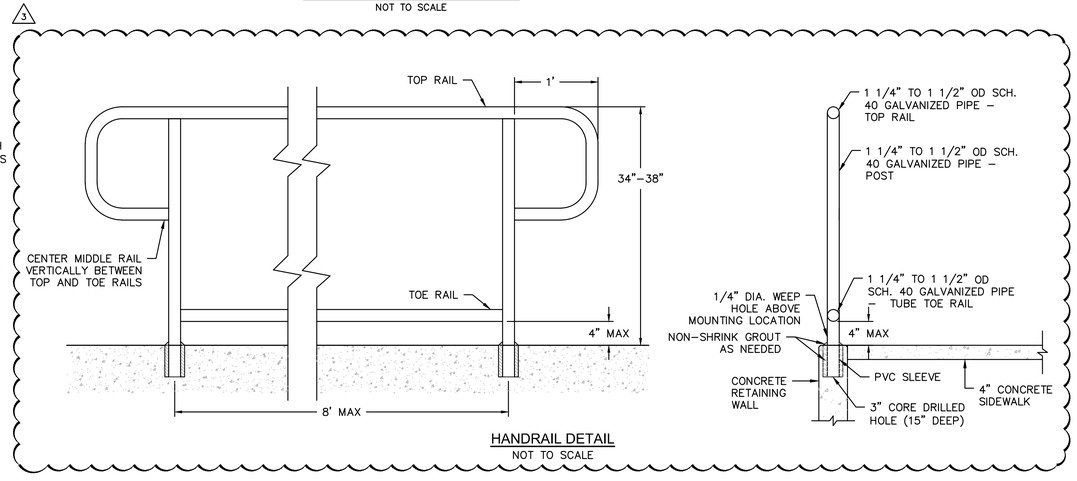


SIDEWALK EXPANSION JOINT DETAIL
NOT TO SCALE

NOTE:
EXPANSION JOINTS SHALL BE PLACED BETWEEN THE SIDEWALK AND ALL STRUCTURES AND DRIVEWAYS. EXPANSION JOINTS SHOULD ALSO BE PLACED AT NOT GREATER THAN 100 FOOT INTERVALS.



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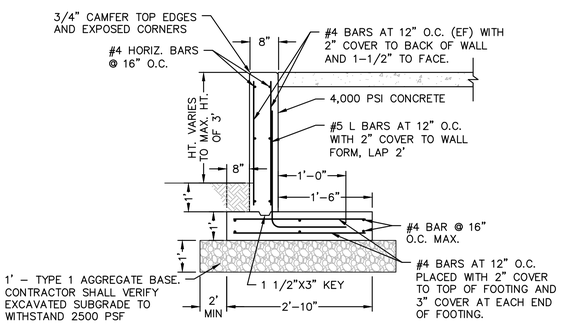

RETAINING WALL DETAIL - MAX. 3' HIGH
NOT TO SCALE

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LEE'S SUMMIT SENIOR COMMUNITY
1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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315 NICHOLS RD. STE 228 - KANSAS CITY, MO 64112 - T 816.531.1698 F 816.531.1978

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

SITE DETAILS

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

C701

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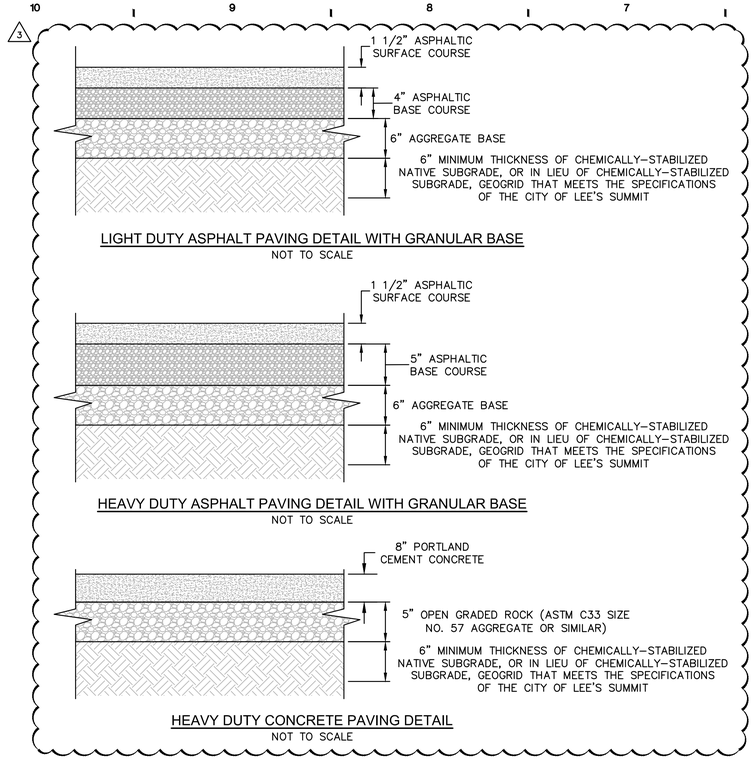


LIGHT DUTY ASPHALT PAVING DETAIL WITH GRANULAR BASE
NOT TO SCALE

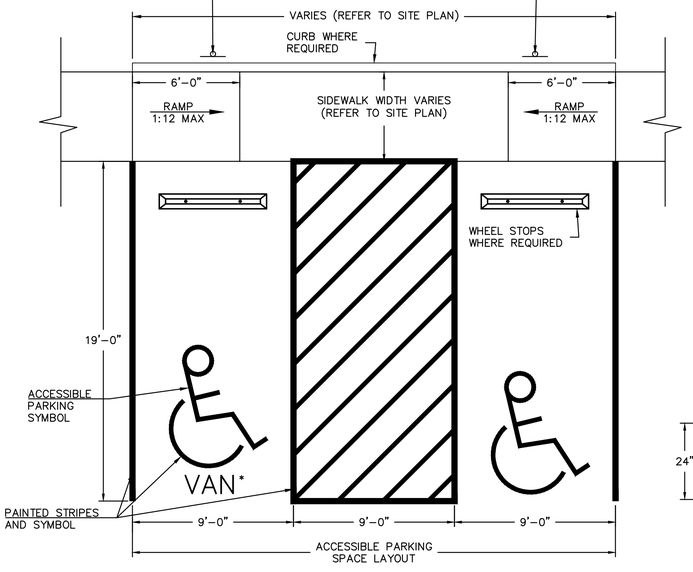
HEAVY DUTY ASPHALT PAVING DETAIL WITH GRANULAR BASE
NOT TO SCALE

HEAVY DUTY CONCRETE PAVING DETAIL
NOT TO SCALE

ACCESSIBLE PARKING SPACE SIGN ** (PER MUTCD) CENTERED ON EACH ACCESSIBLE SPACE. SIGNS FOR STANDARD ACCESSIBLE PARKING SPACES SHALL BE LOCATED 5' ABOVE THE GROUND SURFACE AT THE BOTTOM OF THE SIGN. THE SIGN SHALL BE AT LEAST 12" BY 18" AND MEET THE REQUIREMENTS AS REFERENCED IN SECTION 29-381 OF THE LEE'S SUMMIT GENERAL CODE OF ORDINANCES.

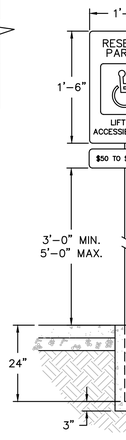
* SEE SITE PLAN FOR "LIFT VAN ACCESSIBLE ONLY" STALL LOCATION

** "LIFT VAN ACCESSIBLE ONLY" PARKING SIGN PLACED IN FRONT OF DESIGNATED STALL NOTED ON SITE PLAN

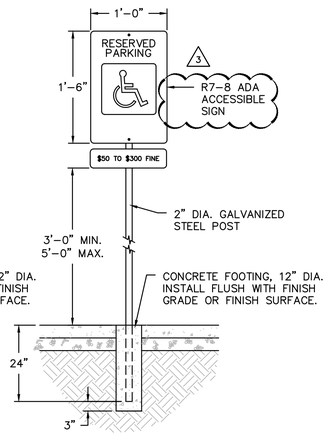


ACCESSIBLE PARKING SPACE LAYOUT DETAIL (TYP.)
NOT TO SCALE

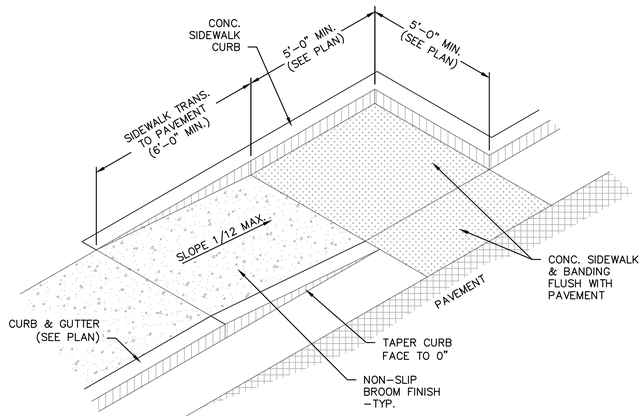
NOTE
EVERY PARKING SPACE REQUIRED BY THIS SECTION SHALL BE IDENTIFIED BY A SIGN, MOUNTED ON A POLE OR OTHER STRUCTURE, LOCATED BETWEEN 36 INCHES (3 FEET) AND 60 INCHES (5 FEET) ABOVE THE GROUND MEASURED FROM THE BOTTOM OF THE SIGN, AT THE HEAD OF THE PARKING SPACE. THE SIGN SHALL BE AT LEAST 12" BY 18" IN AREA AND MEET THE REQUIREMENTS SET FORTH IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS REFERENCED IN SECTION 29-381 OF THE LEE'S SUMMIT GENERAL CODE OF ORDINANCES.



POLE MOUNTED LIFT VAN ACCESSIBLE SIGN
NOT TO SCALE



POLE MOUNTED ACCESSIBLE SIGN
NOT TO SCALE



TYPE 1 SIDEWALK RAMP DETAIL
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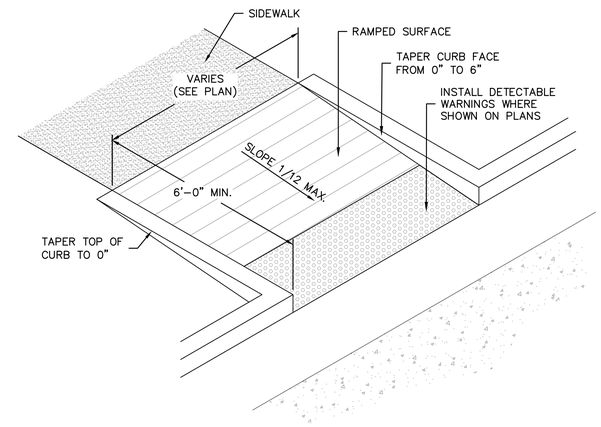

TYPE 2 SIDEWALK RAMP DETAIL
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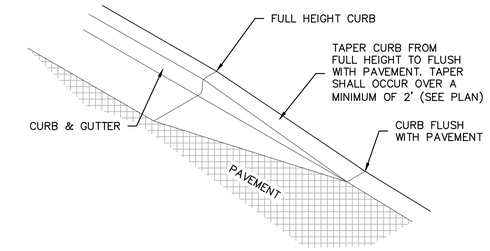

CURB TRANSITION DETAIL
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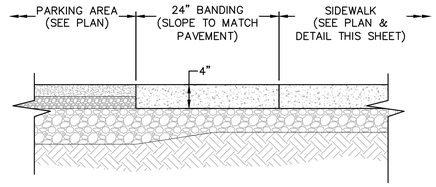
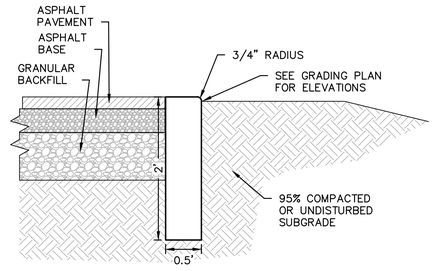
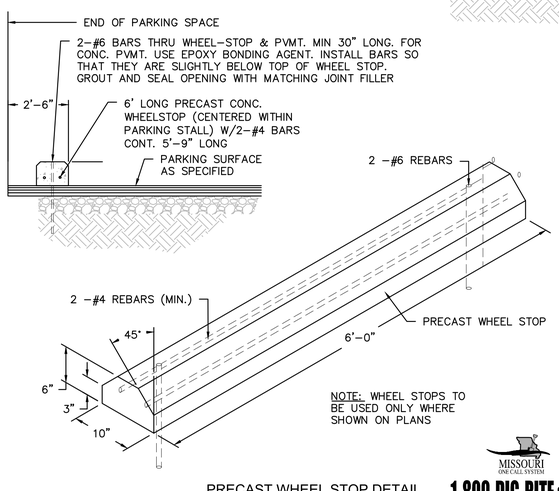


CONCRETE SIDEWALK & BANDING FLUSH WITH PAVEMENT
NOT TO SCALE

NOTE:
CONTRACTOR SHALL SUBMIT A PAVEMENT JOINTING PLAN AND JOINT DETAILS FOR ALL CONCRETE PAVEMENT FOR APPROVAL BY THE ENGINEER.



FLUSH CURB DETAIL
NOT TO SCALE



NOTE: WHEEL STOPS TO BE USED ONLY WHERE SHOWN ON PLANS

PRECAST WHEEL STOP DETAIL
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LEE'S SUMMIT SENIOR COMMUNITY
1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

SITE DETAILS

ISSUE DATE:
6-14-2019
REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811
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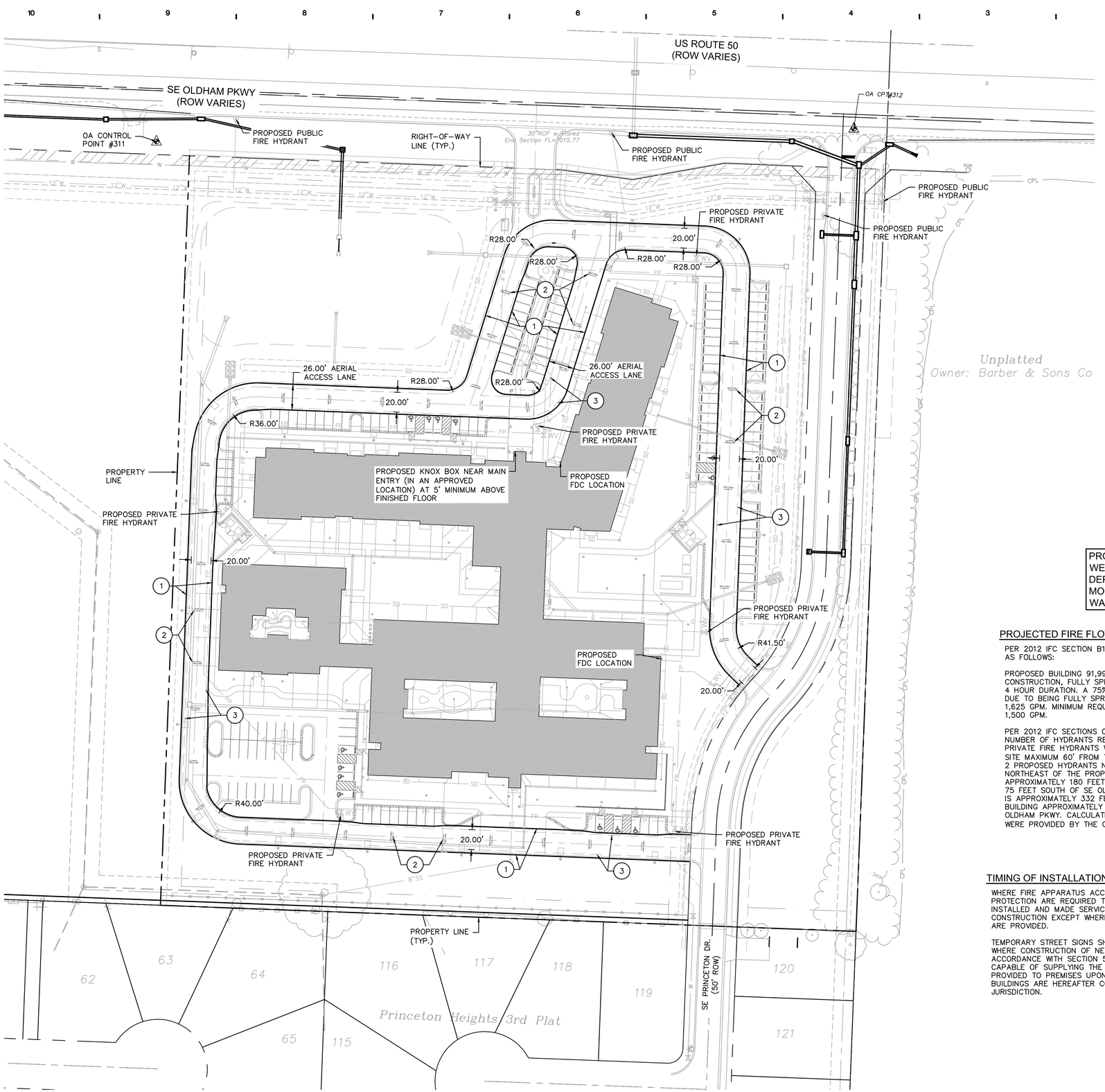

FIRE LANE LEGEND

1. LIMITS OF EMERGENCY ACCESS SHALL BE DEMARCATED ON BOTH SIDES BY A SINGLE 4" WIDE RED SOLID PAINTED LINE. REFER TO SHEET C101 FOR PAVEMENT MARKING NOTES.
2. NO PARKING FIRE LANE — 12" MIN. HEIGHT FIRE LANE TEXT SHALL BE PAINTED RED AND OCCUR EVERY 50' O.C. MAX SPACING. REFER TO SHEET C101 FOR PAVEMENT MARKING NOTES.
3. INDICATES DRIVE PATH FOR EMERGENCY VEHICLES

PROJECTED FIRE FLOW CALCULATIONS WERE PROVIDED BY LEE'S SUMMIT WATER DEPARTMENT BASED ON THEIR COMPUTER MODEL OF THE PROPOSED OFF-SITE WATER MAIN DISTRIBUTION SYSTEM.

PROJECTED FIRE FLOW CALCULATIONS:

PER 2012 IFC SECTION B105, THE REQUIRED FLOW IS AS FOLLOWS:

PROPOSED BUILDING 91,995 S.F., TYPE V-A CONSTRUCTION, FULLY SPRINKLED: 6,500 GPM FOR 4 HOUR DURATION. A 75% REDUCTION IS ALLOWED DUE TO BEING FULLY SPRINKLED, BRINGING IT TO 1,625 GPM. MINIMUM REQUIRED PER FIRE CODE IS 1,500 GPM.

PER 2012 IFC SECTIONS C103, C104 AND C105, THE NUMBER OF HYDRANTS REQUIRED IS 2. 6 NEW PRIVATE FIRE HYDRANTS WILL BE INSTALLED ON THE SITE MAXIMUM 60' FROM THE BUILDING. THERE ARE 2 PROPOSED HYDRANTS NEAR THE SITE. ONE IS NORTHEAST OF THE PROPOSED BUILDING APPROXIMATELY 180 FEET ON SE PRINCETON DRIVE 75 FEET SOUTH OF SE OLDHAM PKWY. THE SECOND IS APPROXIMATELY 332 FEET NORTHWEST OF THE BUILDING APPROXIMATELY FEET SOUTH OF SE OLDHAM PKWY. CALCULATED FLOWS AND PRESSURES WERE PROVIDED BY THE CITY OF LEE'S SUMMIT.

FLOW TEST RESULTS:
FLOW 3,500 GPM ANTICIPATED
RESIDUAL PRESSURE 58.78 PSI
STATIC PRESSURE 76.08 PSI
CALCULATED FLOW:
QR = QF x (HR/HF)^0.54

QR = FLOW AVAILABLE AT DESIRED RESIDUAL PRESSURE (DESIRED RESIDUAL PRESSURE = 20 PSI)
QF = FLOW OBTAINED DURING FLOW TEST
HR = PRESSURE DROP TO THE DESIRED RESIDUAL PRESSURE
HF = PRESSURE DROP DURING THE TEST

QR = 3,500 GPM x [(76.08 PSI – 20 PSI)/ (76.08 PSI – 58.78 PSI)]^0.54

QR = 6,977.98 GPM PER CITY MODEL

WITH THE EXISTING FLOW, FRICTION AND FITTING LOSSES, FLOWS AT HYDRANTS WILL EXCEED THE MINIMUM OF 1,500 GPM AS REQUIRED IN SECTION B105 OF THE 2012 IFC.

TIMING OF INSTALLATION:

WHERE FIRE APPARATUS ACCESS ROADS OR A WATER SUPPLY FOR FIRE PROTECTION ARE REQUIRED TO BE INSTALLED, SUCH PROTECTION SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING TIME OF CONSTRUCTION EXCEPT WHERE APPROVED ALTERNATIVE METHOD OF PROTECTION ARE PROVIDED.

TEMPORARY STREET SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHERE CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES IN ACCORDANCE WITH SECTION 505.2. IFC 507.1 – AN APPROVED WATER SUPPLY CAPABLE OF SUPPLYING THE REQUIRED FIRE FLOW FOR PROTECTION SHALL BE PROVIDED TO PREMISES UPON WHICH FACILITIES, BUILDINGS OR PORTIONS OF BUILDINGS ARE HEREAFTER CONSTRUCTED OR MOVED INTO OR WITHIN JURISDICTION.

N

0' 25' 50' 100'
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SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

EMERGENCY VEHICLE ACCESS PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

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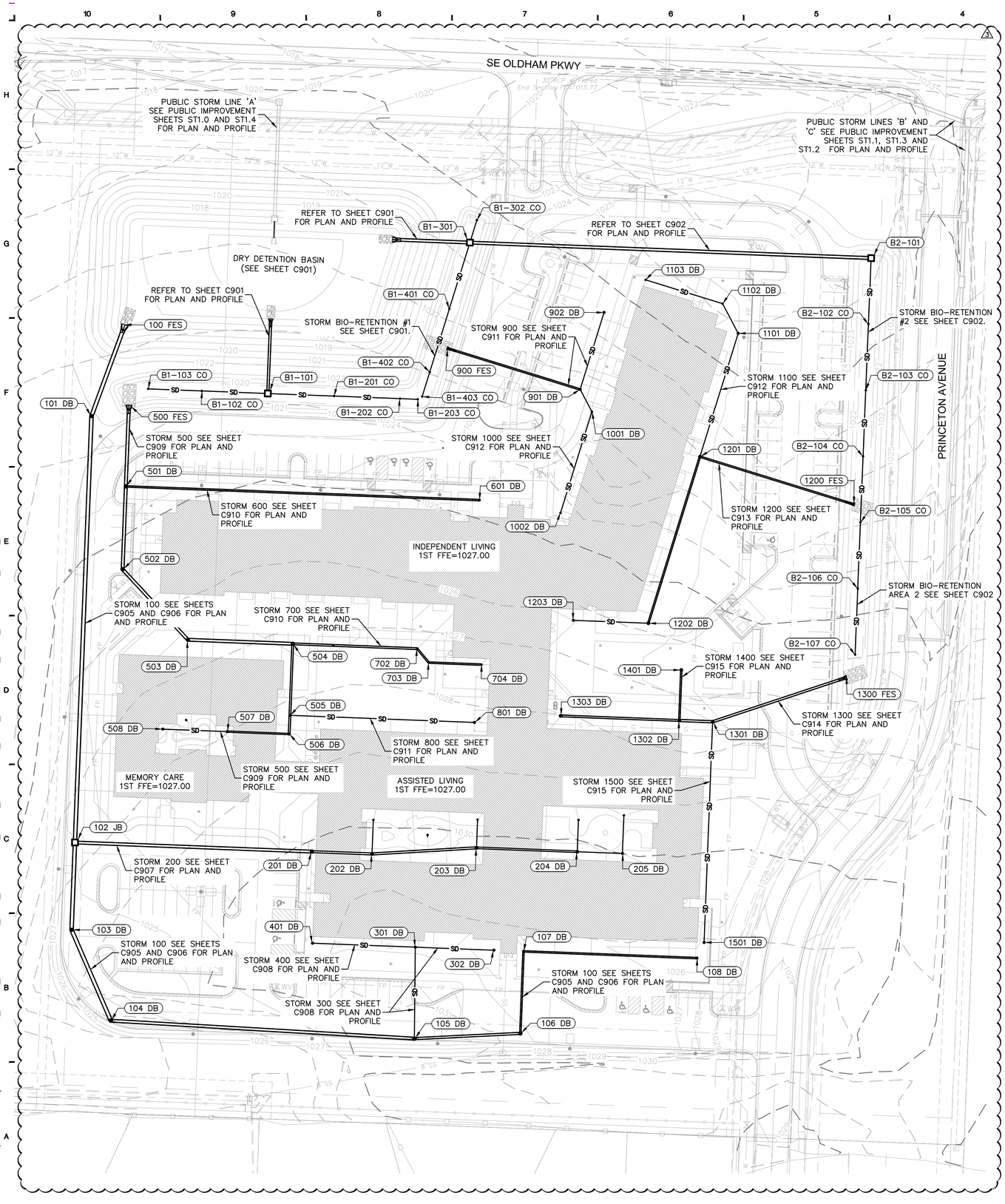
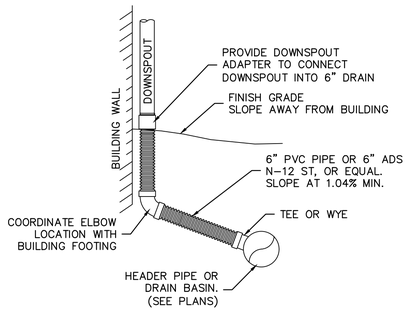


GENERAL STORM NOTES:

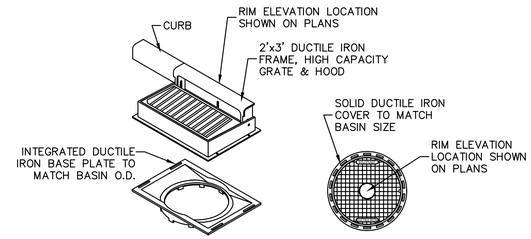
1. ALL HP AND N-12 HDPE OR EQUAL (UNLESS NOTED OTHERWISE ON PLANS). INSTALL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. ALL 12" AND LARGER STORM PIPE SHALL BE ADS HP STORM PIPE WITH n=0.012, OR EQUAL (UNLESS OTHERWISE NOTED ON PLANS). INSTALL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
3. ALL 10" AND SMALLER STORM PIPE SHALL BE HDPE ADS N-12 ST WITH n=0.012, OR EQUAL (UNLESS OTHERWISE NOTED ON PLANS). INSTALL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
4. ALL NYLOPLAST STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. NYLOPLAST STRUCTURES IN PAVEMENT AND CURB SHALL BE INSTALLED WITH CONCRETE COLLARS PER MANUFACTUER'S SPECIFICATIONS.
6. TOP ELEVATIONS GIVEN FOR NYLOPLAST STRUCTURES ARE TO FINISH GRADE AND DO NOT INCLUDE HEIGHT OF DOME LIDS OR CASTINGS.
7. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18" VERTICAL CLEARANCE BETWEEN CROSSING UTILITIES.
8. CONTRACTOR SHALL INSTALL ALL BENDS, WYES, FITTINGS AND PIPE NECESSARY FOR STORM SEWER CONNECTIONS.
9. SHOP DRAWINGS MUST BE SUBMITTED FOR REVIEW TO THE ENGINEER 14 DAYS PRIOR TO FABRICATION FOR ALL PRE-CAST CONCRETE STORM SEWER STRUCTURES. FAILURE TO DO SO SHALL RESULT IN REJECTION.
10. ALL HP AND HDPE STORM DRAINS SHALL HAVE A MINIMUM SLOPE OF 1.0% UNLESS NOTED OTHERWISE ON PLANS.
11. STORM STRUCTURE INLET TOPS SHALL BE SLOPED TO MATCH BACK OF CURB PROFILE & SIDEWALK CROSS SLOPE.
12. SEE MEP, STRUCTURAL AND ARCHITECTURAL PLANS FOR CONTINUATION OF UNDERDRAINS PICKING UP ROOF DRAINS, FOUNDATION DRAINS, AND DRAIN TILES UNDER PAVEMENT.
13. ALL STORM LINES SHALL HAVE A MINIMUM OF 12" COVER UNLESS SPECIFIED OTHERWISE ON PLANS.
14. SEE SHEET C903 FOR STORM PIPE BEDDING DETAIL.



DOWNSPOUT CONNECTION DETAIL
NOT TO SCALE

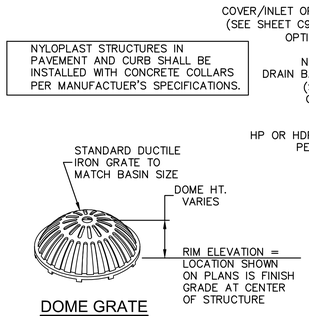
LEGEND

- RIGHT-OF-WAY LINE
- PROPERTY LINE
- UTILITY EASEMENT
- BUILDING SETBACK
- 1315 CONTOUR - EXISTING GRADE
- 1313 CONTOUR - FINISHED GRADE
- GAS PR. GAS LINE
- P-OH PR. POWER LINE - OVERHEAD
- P-UG PR. POWER LINE - UNDERGROUND
- SS PR. SANITARY SEWER LINE
- SD PR. STORM SEWER LINE
- TEL PR. TELEPHONE LINE
- W PR. WATER LINE
- FO EX. FIBER OPTIC LINE
- GAS EX. GAS LINE
- P-OH EX. POWER LINE - OVERHEAD
- P-UG EX. POWER LINE - UNDERGROUND
- SS EX. SANITARY SEWER LINE
- SD EX. STORM SEWER LINE
- TEL EX. TELEPHONE LINE
- W EX. WATER LINE
- X BARBED WIRE FENCE
- IRON FENCE
- WOOD FENCE

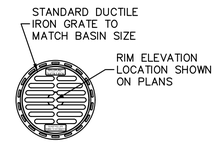


BAR GRATE CASTINGS | CURB INLET CASTINGS | SOLID COVER

NYLOPLAST STRUCTURES IN PAVEMENT AND CURB SHALL BE INSTALLED WITH CONCRETE COLLARS PER MANUFACTUER'S SPECIFICATIONS.



DOME GRATE



STANDARD GRATE

DRAIN BASIN DETAILS
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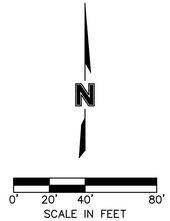

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PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM MANAGEMENT PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
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PROJECT NO.: 11811

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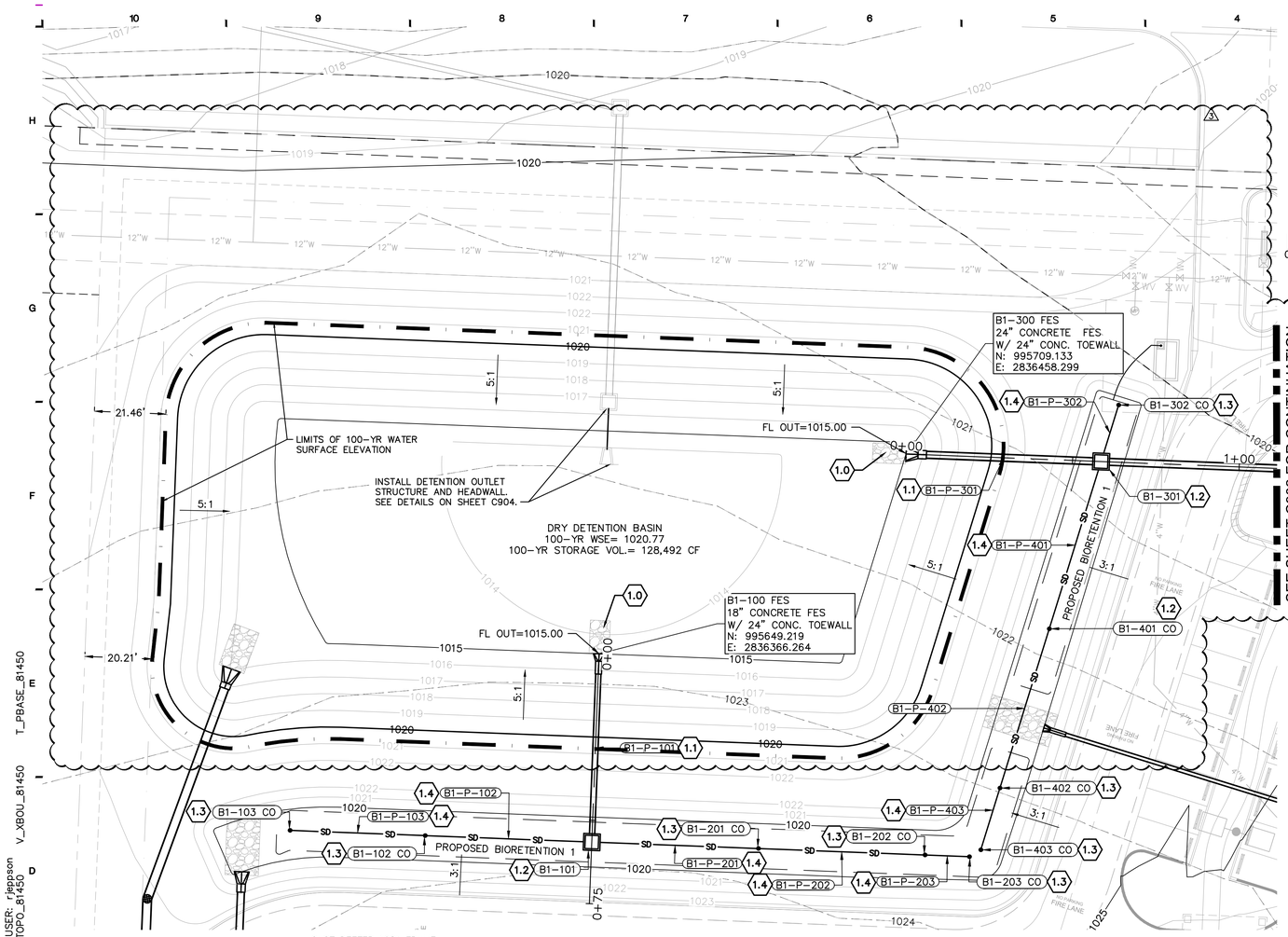
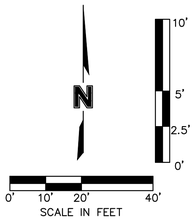
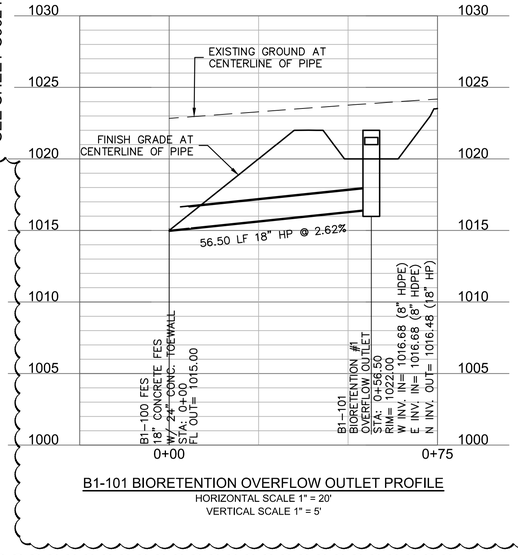


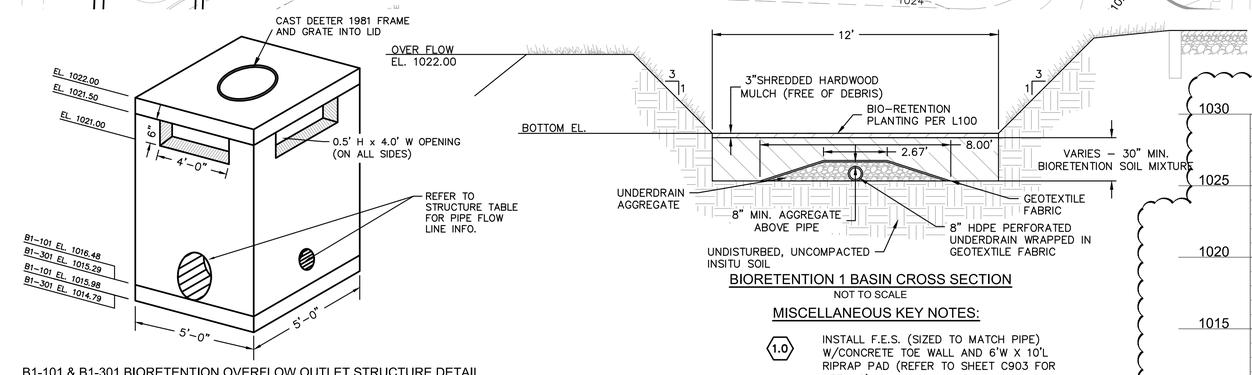


PIPES				
PIPE ID	LENGTH (LF)	PIPE	SLOPE	STRUCTURE CONNECTIONS
B1-P-101	56.50	18" HP	2.62%	DN: B1-100 FES UP: B1-101
B1-P-102	50.00	8" HDPE	0.50%	DN: B1-101 UP: B1-102 CO
B1-P-103	40.54	8" HDPE	0.50%	DN: B1-102 CO UP: B1-103 CO
B1-P-201	50.00	8" HDPE	0.50%	DN: B1-101 UP: B1-201 CO
B1-P-202	50.00	8" HDPE	0.50%	DN: B1-201 CO UP: B1-202 CO
B1-P-203	13.34	8" HDPE	0.50%	DN: B1-202 CO UP: B1-203 CO
B1-P-301	58.56	24" HP	0.50%	DN: B1-300 FES UP: B1-301
B1-P-302	17.75	8" HDPE	0.50%	DN: B1-301 UP: B1-302 CO
B1-P-401	52.50	8" HDPE	0.50%	DN: B1-301 UP: B1-401 CO
B1-P-402	50.00	8" HDPE	0.50%	DN: B1-401 CO UP: B1-402 CO
B1-P-403	19.39	8" HDPE	0.50%	DN: B1-402 CO UP: B1-403 CO

STRUCTURES	
STRUCTURE ID	DESCRIPTION
B1-101	BIORETENTION #1 OVERFLOW OUTLET RIM = 1022.00 W INV IN = 1016.68 (8" HDPE) E INV IN = 1016.68 (8" HDPE) N INV OUT = 1016.48 (18" HP) N: 995592.759; E: 2836364.072
B1-102 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1020.00 W INV IN = 1016.93 (8" HDPE) E INV OUT = 1016.93 (8" HDPE) N: 995594.697; E: 2836314.110
B1-103 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1020.00 E INV OUT = 1017.13 (8" HDPE) N: 995596.267; E: 2836273.602
B1-201 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1020.00 E INV IN = 1016.93 (8" HDPE) W INV OUT = 1016.93 (8" HDPE) N: 995590.822; E: 2836414.035
B1-202 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1020.00 E INV IN = 1017.18 (8" HDPE) W INV OUT = 1017.18 (8" HDPE) N: 995588.885; E: 2836463.997
B1-203 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1020.00 W INV OUT = 1017.25 (8" HDPE) N: 995588.368; E: 2836477.327
B1-301	BIORETENTION #1 OVERFLOW OUTLET RIM = 1022.00 E INV IN = 1015.49 (24" HP) S INV IN = 1016.62 (8" HDPE) N INV IN = 1016.62 (8" HDPE) W INV OUT = 1015.29 (24" HP) N: 995706.864; E: 2836516.812
B1-302 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1020.00 S INV OUT = 1016.71 (8" HDPE) N: 995723.821; E: 2836522.068
B1-401 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1020.00 S INV IN = 1016.88 (8" HDPE) N INV OUT = 1016.88 (8" HDPE) N: 995656.718; E: 2836501.270
B1-402 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1020.00 S INV IN = 1017.13 (8" HDPE) N INV OUT = 1017.13 (8" HDPE) N: 995608.959; E: 2836486.467
B1-403 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1020.00 N INV OUT = 1017.23 (8" HDPE) N: 995590.441; E: 2836480.727



B1-101 BIORETENTION OVERFLOW OUTLET PROFILE
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'



B1-101 & B1-301 BIORETENTION OVERFLOW OUTLET STRUCTURE DETAIL
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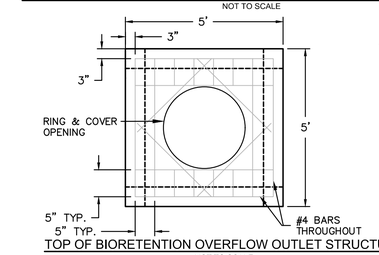


TOP OF BIORETENTION OVERFLOW OUTLET STRUCTURE
NOT TO SCALE

BIORETENTION 1 BASIN CROSS SECTION
NOT TO SCALE

BIORETENTION OVERFLOW OUTLET STRUCTURE NOTES:

1. BOTTOM TO BE POURED IN PLACE.
2. PIPE TO BE ON GRADE BEFORE BOTTOM IS CONSTRUCTED.
3. RAM-NEK ALL JOINTS (OR EQUAL).
4. #4 BARS @ 10" C.C. VERT. & HOR. IN WALLS & BOTTOM.
5. REINFORCING BARS SHALL BE CUT OR BENT AT PIPE OPENINGS.
6. ALL PIPES SHALL FIT FLUSH WITH INSIDE FACE OF BOX.
7. BOTTOM OF BOX TO BE FILLED WITH CONCRETE TO 6" ABOVE INVERT OF PIPE FORMING CHANNELS TOWARD OUTLET PIPE FROM ALL INLET PIPES.
8. ALL CONCRETE SHALL HAVE 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
9. ALL REINFORCING BARS TO BE DEFORMED BARS AND MEET REQUIREMENTS OF 1966 ASTM STANDARDS NO. A-615-68 MIN. GRADE 40.
10. MUST MAINTAIN 6" CLEARANCE BETWEEN THE PIPE AND WALLS FOR PRECAST BOXES.

MISCELLANEOUS KEY NOTES:

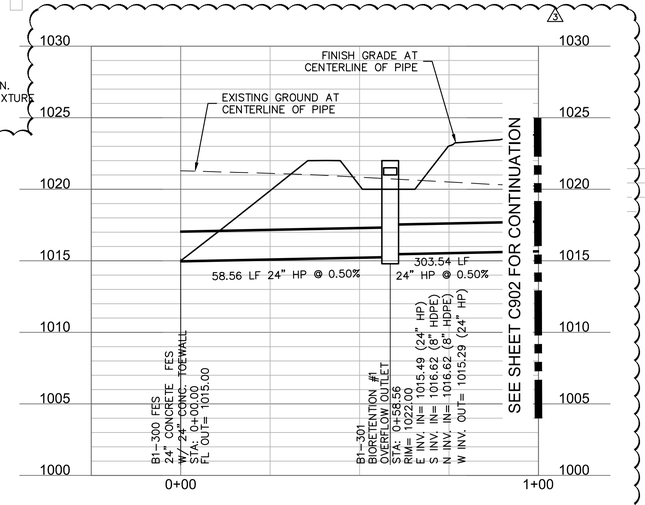
1.0 INSTALL F.E.S. (SIZED TO MATCH PIPE) W/CONCRETE TOE WALL AND 6'W X 10'L RIPRAP PAD (REFER TO SHEET C903 FOR DETAILS)

1.1 INSTALL STORM PIPE. SEE PIPE TABLE THIS SHEET (REFER TO SHEET C903 FOR BEDDING DETAIL)

1.2 INSTALL BIORETENTION BASIN 1 OVERFLOW OUTLET STRUCTURE. SEE STRUCTURE TABLE THIS SHEET (REFER TO THIS SHEET FOR DETAILS)

1.3 INSTALL STORM CLEAN OUT (REFER TO SHEET C903 FOR DETAILS)

1.4 INSTALL PERFORATED HDPE UNDERDRAIN. SEE PIPE TABLE THIS SHEET (REFER TO BIORETENTION CROSS SECTION DETAIL THIS SHEET).



B1-301 & B2-101 BIORETENTION OVERFLOW OUTLET PROFILE
STA: 0+00 TO 1+00.00
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

LEGEND

- RIGHT-OF-WAY LINE
- PROPERTY LINE
- UTILITY EASEMENT
- BUILDING SETBACK
- 1315 CONTOUR - EXISTING GRADE
- 1313 CONTOUR - FINISHED GRADE
- GAS PR. GAS LINE
- P-OH PR. POWER LINE - OVERHEAD
- P-UG PR. POWER LINE - UNDERGROUND
- SS PR. SANITARY SEWER LINE
- SD PR. STORM SEWER LINE
- TEL PR. TELEPHONE LINE
- W PR. WATER LINE
- FO EX. FIBER OPTIC LINE
- GAS EX. GAS LINE
- P-OH EX. POWER LINE - OVERHEAD
- P-UG EX. POWER LINE - UNDERGROUND
- SS EX. SANITARY SEWER LINE
- SD EX. STORM SEWER LINE
- TEL EX. TELEPHONE LINE
- W EX. WATER LINE

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SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

ENLARGED STORMWATER DETAILS

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

C901

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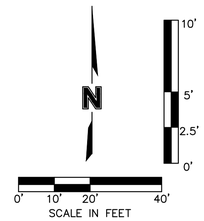
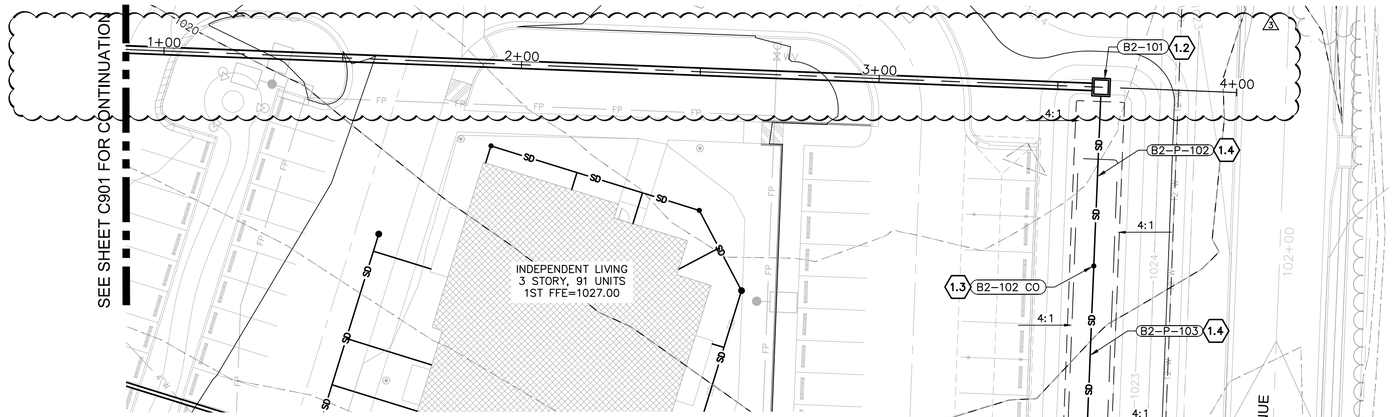
USER: rjeppson
T_PBASE_81450

PIPES				
PIPE ID	LENGTH (LF)	PIPE	SLOPE	STRUCTURE CONNECTIONS
B2–P–101	303.54	24" HP	0.50%	DN: B2–101 UP: B1–301
B2–P–102	50.00	8" HDPE	0.50%	DN: B2–101 UP: B2–102 CO
B2–P–103	50.00	8" HDPE	0.50%	DN: B2–102 CO UP: B2–103 CO
B2–P–104	50.00	8" HDPE	0.50%	DN: B2–103 CO UP: B2–104 CO
B2–P–105	50.00	8" HDPE	0.50%	DN: B2–104 CO UP: B2–105 CO
B2–P–106	50.00	8" HDPE	0.50%	DN: B2–105 CO UP: B2–106 CO
B2–P–107	50.00	8" HDPE	0.50%	DN: B2–106 CO UP: B2–107 CO

STRUCTURES	
STRUCTURE ID	DESCRIPTION
B2–101	BIORETENTION #2 OVERFLOW OUTLET RIM = 1024.00 S INV IN = 1017.21 (8" HDPE) W INV OUT = 1017.01 (24" HP) N: 995695.103; E: 2836820.128
B2–102 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1021.50 S INV IN = 1017.46 (8" HDPE) N INV OUT = 1017.46 (8" HDPE) N: 995645.145; E: 2836818.074
B2–103 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1021.50 S INV IN = 1017.71 (8" HDPE) N INV OUT = 1017.71 (8" HDPE) N: 995595.186; E: 2836816.047
B2–104 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1021.50 S INV IN = 1017.96 (8" HDPE) N INV OUT = 1017.96 (8" HDPE) N: 995545.227; E: 2836814.033
B2–105 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1021.50 S INV IN = 1018.21 (8" HDPE) N INV OUT = 1018.21 (8" HDPE) N: 995495.267; E: 2836812.019
B2–106 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1021.50 S INV IN = 1018.46 (8" HDPE) N INV OUT = 1018.46 (8" HDPE) N: 995445.308; E: 2836810.005
B2–107 CO	STORM CLEAN OUT W/ WATER TIGHT LID RIM = 1021.50 N INV OUT = 1018.71 (8" HDPE) N: 995395.348; E: 2836807.991





LEGEND

1315	RIGHT–OF–WAY LINE
1313	PROPERTY LINE
	UTILITY EASEMENT
	BUILDING SETBACK
	CONTOUR – EXISTING GRADE
	CONTOUR – FINISHED GRADE
GAS	PR. GAS LINE
P–OH	PR. POWER LINE – OVERHEAD
P–UG	PR. POWER LINE – UNDERGROUND
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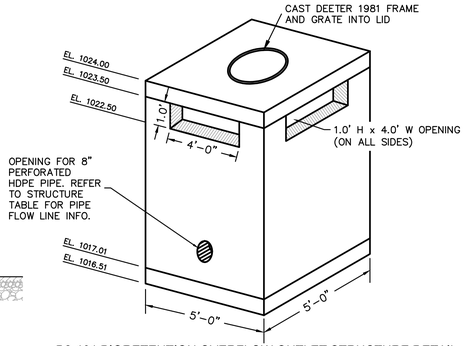
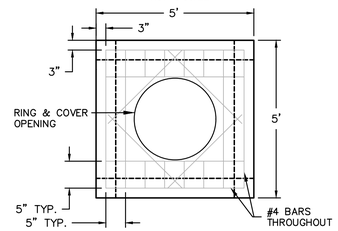
SS	EX. SANITARY SEWER LINE
SD	EX. STORM SEWER LINE
TEL	EX. TELEPHONE LINE
W	EX. WATER LINE

OVERFLOW OUTLET STRUCTURE NOTES:

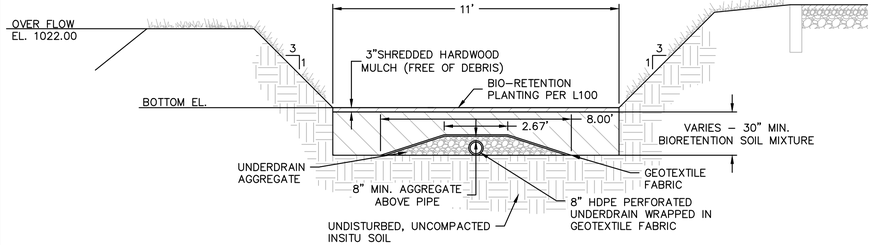
1. BOTTOM TO BE POURED IN PLACE.
2. PIPE TO BE ON GRADE BEFORE BOTTOM IS CONSTRUCTED.
3. RAM–NEK ALL JOINTS (OR EQUAL).
4. #4 BARS @ 10" C.C. VERT. & HOR. IN WALLS & BOTTOM.
5. REINFORCING BARS SHALL BE CUT OR BENT AT PIPE OPENINGS.
6. ALL PIPES SHALL FIT FLUSH WITH INSIDE FACE OF BOX.
7. BOTTOM OF BOX TO BE FILLED WITH CONCRETE TO 6" ABOVE INVERT OF PIPE FORMING CHANNELS TOWARD OUTLET PIPE FROM ALL INLET PIPES.
8. ALL CONCRETE SHALL HAVE 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
9. ALL REINFORCING BARS TO BE DEFORMED BARS AND MEET REQUIREMENTS OF 1966 ASTM STANDARDS NO. A–615–68 MIN. GRADE 40.
10. MUST MAINTAIN 6" CLEARANCE BETWEEN THE PIPE AND WALLS FOR PRECAST BOXES.



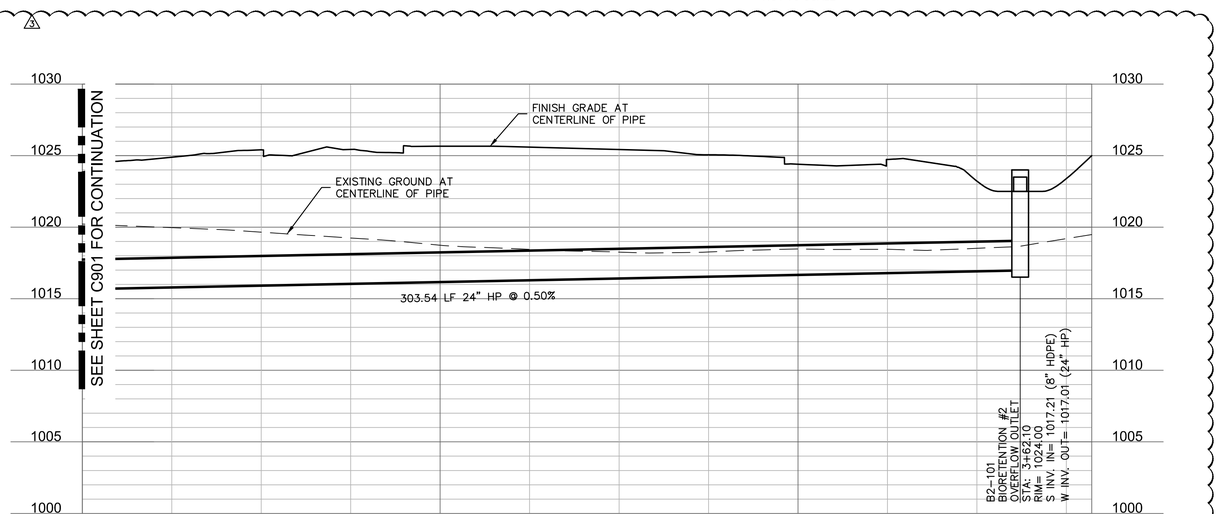
B2-101 BIORETENTION OVERFLOW OUTLET STRUCTURE DETAIL
NOT TO SCALE



TOP OF BIORETENTION OVERFLOW OUTLET STRUCTURE
NOT TO SCALE



BIORETENTION 2 BASIN CROSS SECTION
NOT TO SCALE



B1-301 & B2-101 BIORETENTION OVERFLOW OUTLET PROFILE
STA: 1+00 TO 3+82.11
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

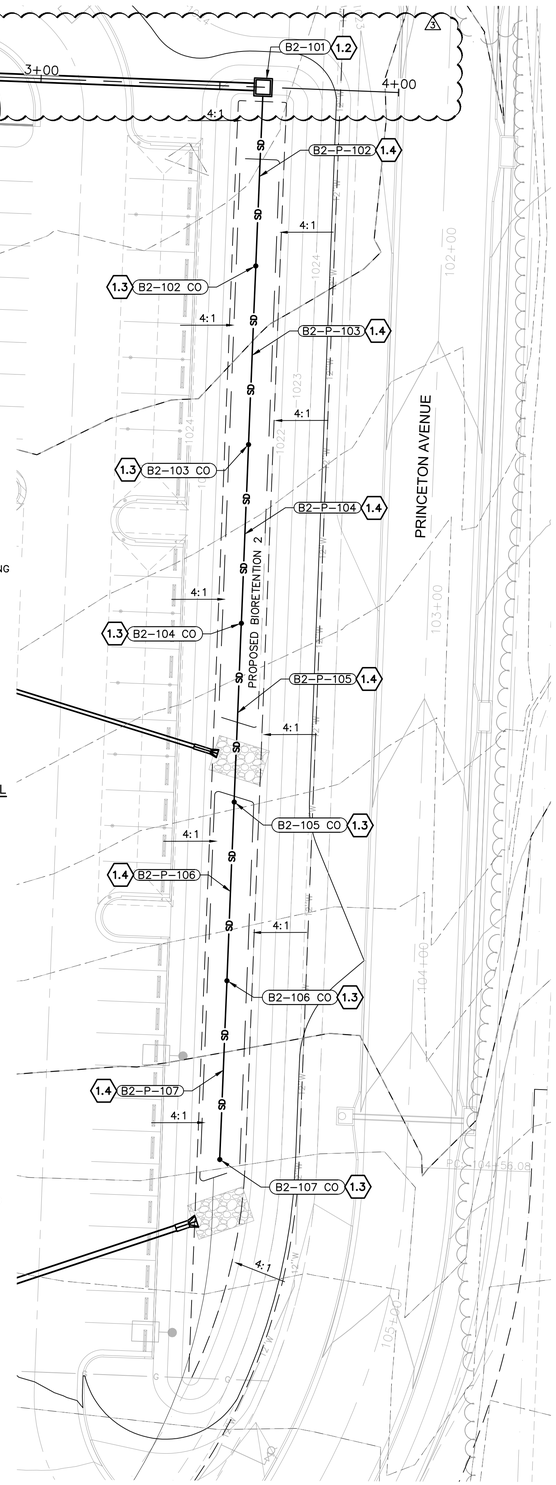
MISCELLANEOUS KEY NOTES:

1.1 INSTALL STORM PIPE. SEE PIPE TABLE THIS SHEET (REFER TO SHEET C903 FOR BEDDING DETAIL)

1.2 INSTALL BIORETENTION #2 OVERFLOW OUTLET STRUCTURE. SEE STRUCTURE TABLE THIS SHEET (REFER TO THIS SHEET FOR DETAILS)

1.3 INSTALL STORM CLEAN OUT (REFER TO SHEET C903 FOR DETAILS)

1.4 INSTALL PERFORATED HDPE UNDERDRAIN. SEE PIPE TABLE THIS SHEET (REFER TO BIORETENTION CROSS SECTION DETAIL THIS SHEET).



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REVISIONS:
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PROJECT NO.: 11811

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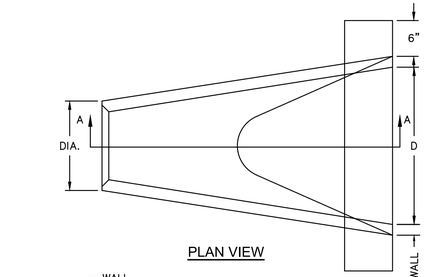
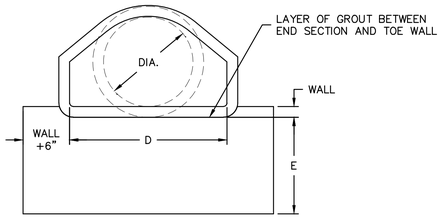
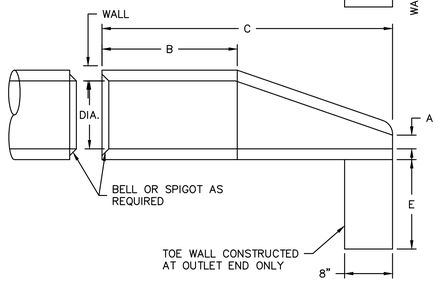


PLAN VIEW



END VIEW

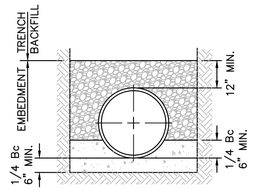


SECTION A-A

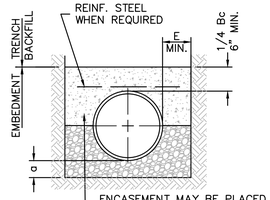
REINFORCEMENT					
ADJOINING PIPE DIA.	BARREL SECTION REINFORCEMENT			FLARE SECTION REINFORCEMENT (ONE LAYER ONLY IN CENTER OF WALL)	
	CIRCULAR		ELLIPTICAL		
	INNER CAGE SQ. IN./ LIN. FT.	OUTER CAGE SQ. IN./ LIN. FT.	SQ. IN./ LIN. FT.	AREA OF LONGITUDINAL SQ. IN./ LIN. FT.	AREA OF TRANSVERSE SQ. IN./ LIN. FT.
12"	0.07			0.048	0.048
15"	0.07			0.054	0.054
18"	0.07		0.07	0.060	0.060
21"	0.07		0.07	0.066	0.066
24"	0.07		0.07	0.072	0.072
30"	0.14		0.12	0.084	0.084
36"	0.12	0.09	0.13	0.096	0.096

DIMENSIONS						
DIA.	WALL	A	B MIN.	C MIN.	D	E
12"	2"	4"	4'-0"	6'	2'-0"	18"
15"	2 1/4"	6"	3'-10"	6'	2'-6"	18"
18"	2 1/2"	9"	3'-10"	6'	3'-0"	18"
21"	2 3/4"	9"	3'-2"	6'	3'-6"	18"
24"	3"	9 1/2"	2'-6"	6'	4'-0"	24"
30"	3 1/2"	1-0"	1'-7"	6'	5'-0"	24"
36"	4"	1'-3"	2'-10"	8'	6'-0"	24"

CONCRETE FLARED END SECTION (F.E.S.) DETAILS
NOT TO SCALE

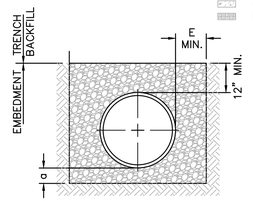


CLASS A
CONCRETE CRADLE

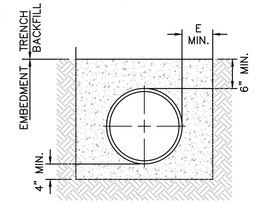


CLASS A
CONCRETE ARCH

LEGEND
OUTSIDE DIA. OF PIPE
EMBEDMENT BELOW PIPE
GRANULAR EMBEDMENT
CONCRETE
UNDISTURBED EARTH



CLASS B
FIRST CLASS BEDDING



CONCRETE ENCASEMANT

STORM PIPE BEDDING DETAILS
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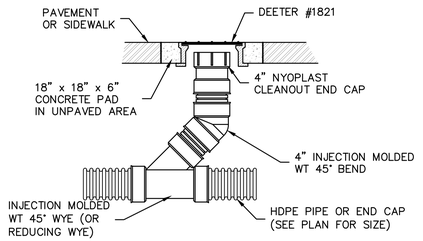

HDPE CLEANOUT DETAIL
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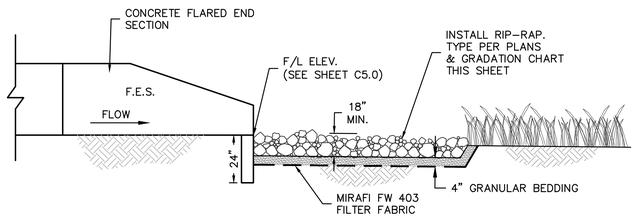

RIP-RAP APRON DETAIL PROFILE VIEW
NOT TO SCALE

NOTES:
1. RIPRAP SHALL BE PLACED IN SUCH A MANNER AS TO AVOID SEGREGATION OF VARIOUS SIZES OF ROCK, AND DISTRIBUTED SO THAT THERE WILL BE NO LARGE ACCUMULATION OF EITHER THE LARGER OR SMALLER SIZES OF STONE.
2. INDIVIDUAL ROCKS SHALL BE PLACED IN TIGHT CONTACT WITH ONE ANOTHER IN SUCH A WAY TO PRODUCE THE LEAST AMOUNT OF VOID SPACES.
3. RIPRAP SHALL BE SOLID, UNFRACTURED ROCK OR CONCRETE, BULKY IN SHAPE WITH SHARP, ANGULAR EDGES.
4. GRANULAR BEDDING SHALL CONSIST OF 1" CLEAN, FRACTURED LIMESTONE.
5. INSTALL FILTER FABRIC ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

CLASSIFICATION & GRADATION OF RIPRAP			
RIPRAP DESIGNATION	PERCENT (%) SMALLER THAN GIVEN BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D_{50} (INCHES)*
TYPE M	70-100 50-70 35-50 2-10	21 18 12 4	12

*d_{50} = MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION).

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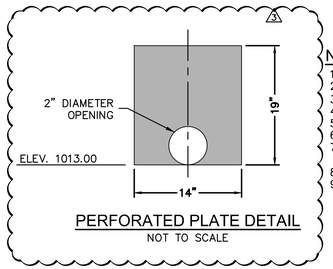
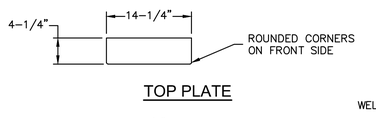


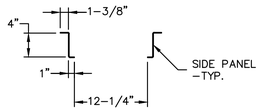
PERFORATED PLATE DETAIL
NOT TO SCALE

NOTES:

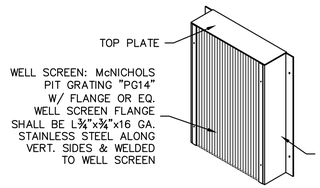
1. BOTTOM TO BE POURED IN PLACE.
2. PIPE TO BE ON GRADE BEFORE BOTTOM IS CONSTRUCTED.
3. RAM-NEK ALL JOINTS (OR EQUAL).
4. REINFORCING BARS SHALL BE CUT OR BENT AT PIPE OPENINGS.
5. ALL PIPES SHALL FIT FLUSH WITH INSIDE FACE OF BOX.
6. ALL CONCRETE SHALL HAVE 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
7. ALL REINFORCING BARS TO BE DEFORMED BARS AND MEET REQUIREMENTS OF 1966 ASTM STANDARDS NO. A-615-68 MIN. GRADE 40.
8. MUST MAINTAIN 6" CLEARANCE BETWEEN THE PIPE AND WALLS FOR PRECAST BOXES.
9. CONTROL STRUCTURE SHALL BE CONSTRUCTED ACCORDING TO GREENE COUNTY STANDARD JUNCTION BOX FIGURE 109.2 (GREENE COUNTY STORM WATER DESIGN STANDARDS), INCLUDING REBAR SIZE & PLACEMENT. WALL THICKNESS & DIMENSIONS MAY VARY IF A PRECAST BOX IS USED.



TOP PLATE



SIDE PANEL LAYOUT



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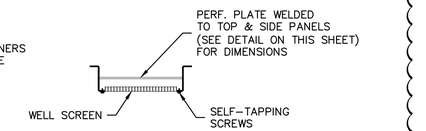
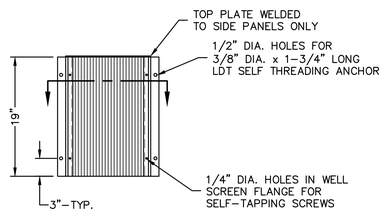


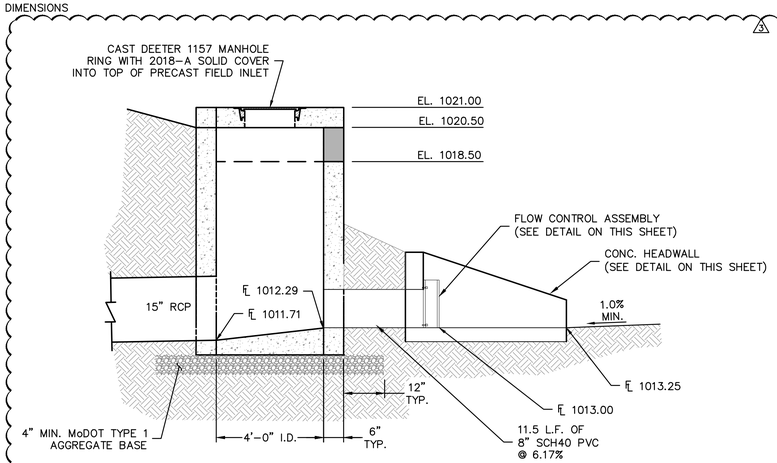
SECTION A-A



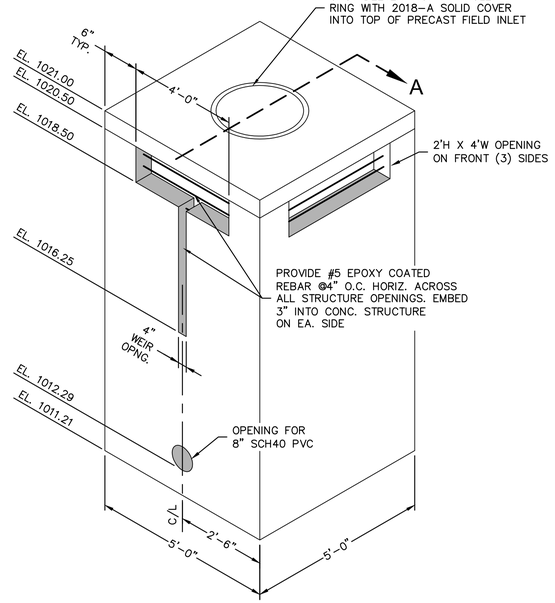
FRONT

NOTE:

FLOW CONTROL ASSEMBLY DETAILS
NOT TO SCALE



SECTION A



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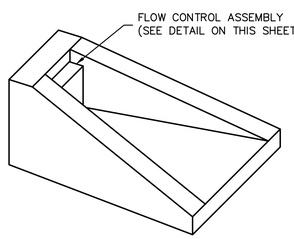

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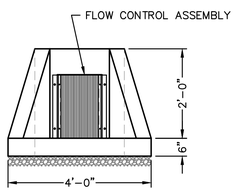

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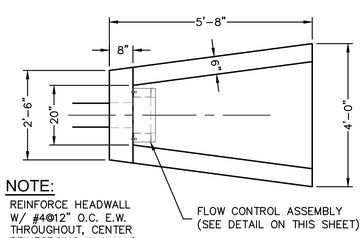
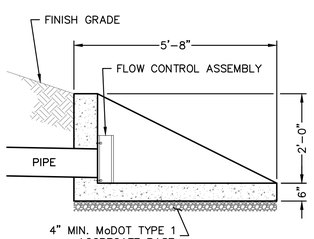


NOTE:
REINFORCE HEADWALL W/ #4@12" O.C. E.W. THROUGHOUT, CENTER REINFORCING IN WALLS & SLAB

PLAN



SECTION

CONC. HEADWALL DETAILS
NOT TO SCALE

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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM WATER DETAILS

ISSUE DATE:
6-14-2019

REVISIONS:
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PROJECT NO.: 11811

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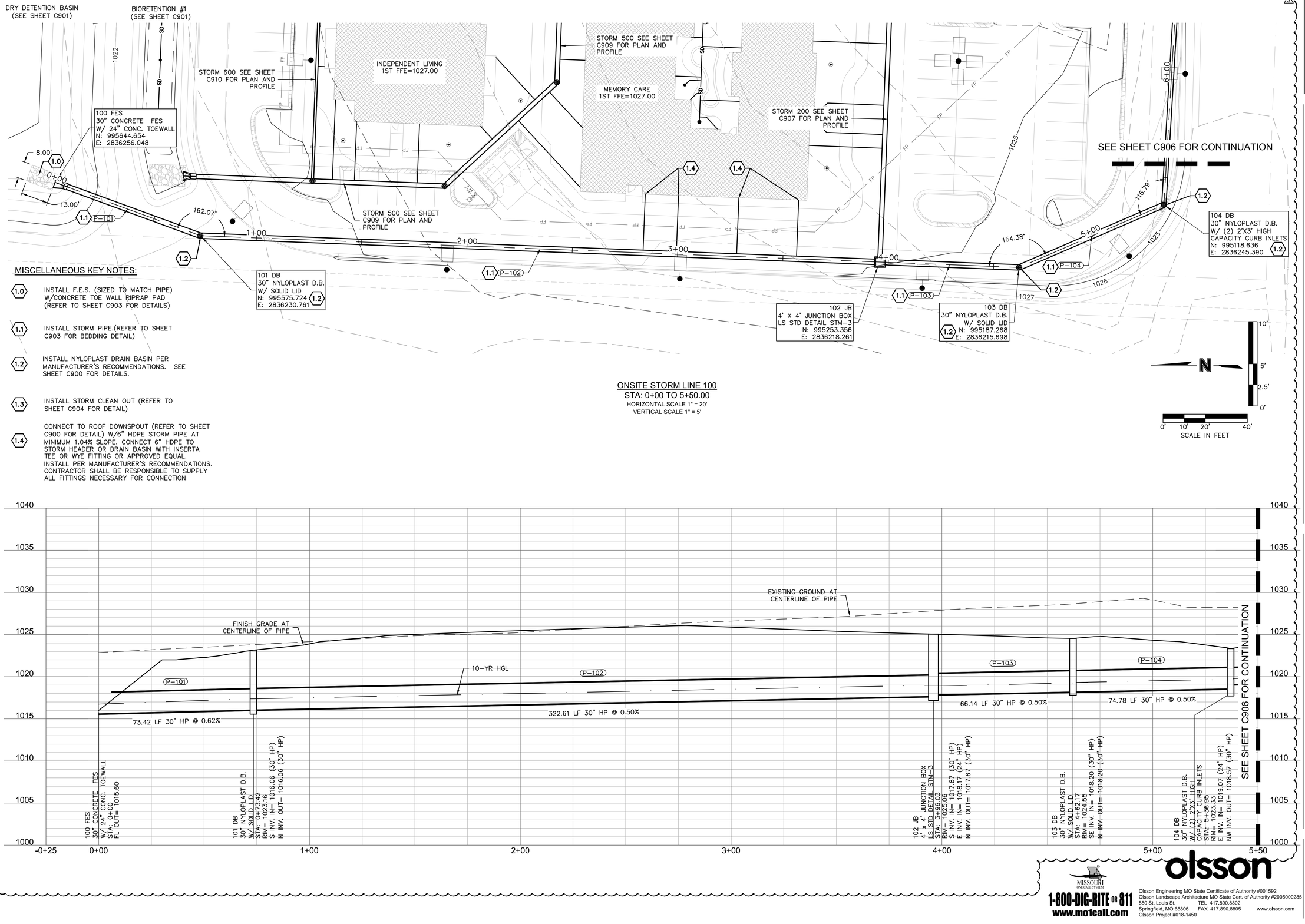

MISCELLANEOUS KEY NOTES:

1.0 INSTALL F.E.S. (SIZED TO MATCH PIPE) W/CONCRETE TOE WALL RIPRAP PAD (REFER TO SHEET C903 FOR DETAILS)

1.1 INSTALL STORM PIPE.(REFER TO SHEET C903 FOR BEDDING DETAIL)

1.2 INSTALL NYLOPLAST DRAIN BASIN PER MANUFACTURER'S RECOMMENDATIONS. SEE SHEET C900 FOR DETAILS.

1.3 INSTALL STORM CLEAN OUT (REFER TO SHEET C904 FOR DETAIL)

1.4 CONNECT TO ROOF DOWNSPOUT (REFER TO SHEET C900 FOR DETAIL) W/6" HDPE STORM PIPE AT MINIMUM 1.04% SLOPE. CONNECT 6" HDPE TO STORM HEADER OR DRAIN BASIN WITH INSERTA TEE OR WYE FITTING OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY ALL FITTINGS NECESSARY FOR CONNECTION

ONSITE STORM LINE 100
STA: 0+00 TO 5+50.00
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19

RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM LINE 100 PLAN & PROFILE

ISSUE DATE:
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REVISIONS:
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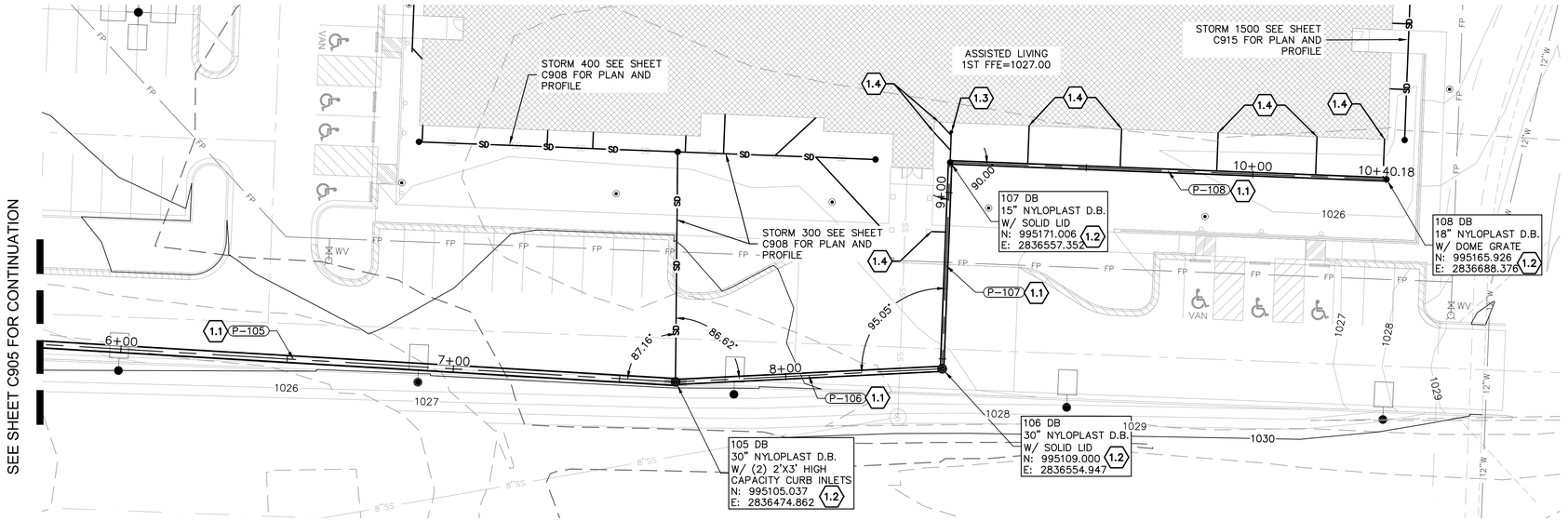

ONSITE STORM LINE 100
STA: 5+25.00 TO 10+50.00
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

MISCELLANEOUS KEY NOTES:

1.1 INSTALL STORM PIPE.(REFER TO SHEET C903 FOR BEDDING DETAIL)

1.2 INSTALL NYLOPLAST DRAIN BASIN PER MANUFACTURER'S RECOMMENDATIONS. SEE SHEET C900 FOR DETAILS.

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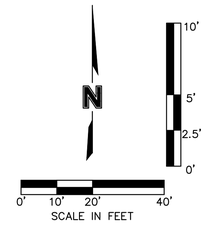

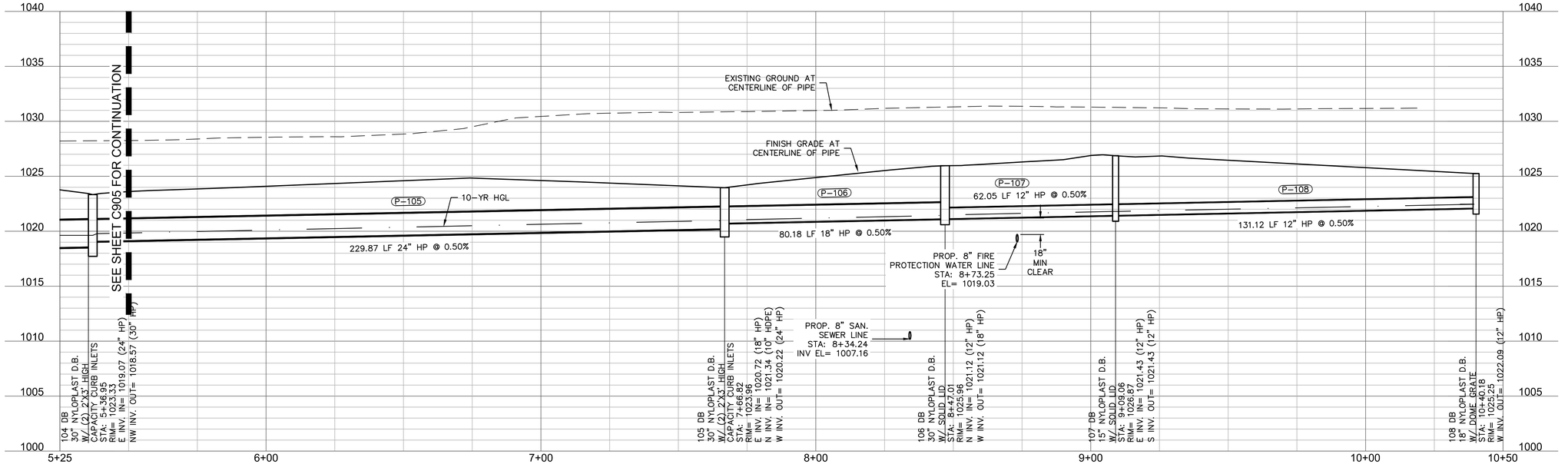

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RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241
7-19-19

STORM LINE 100
PLAN & PROFILE

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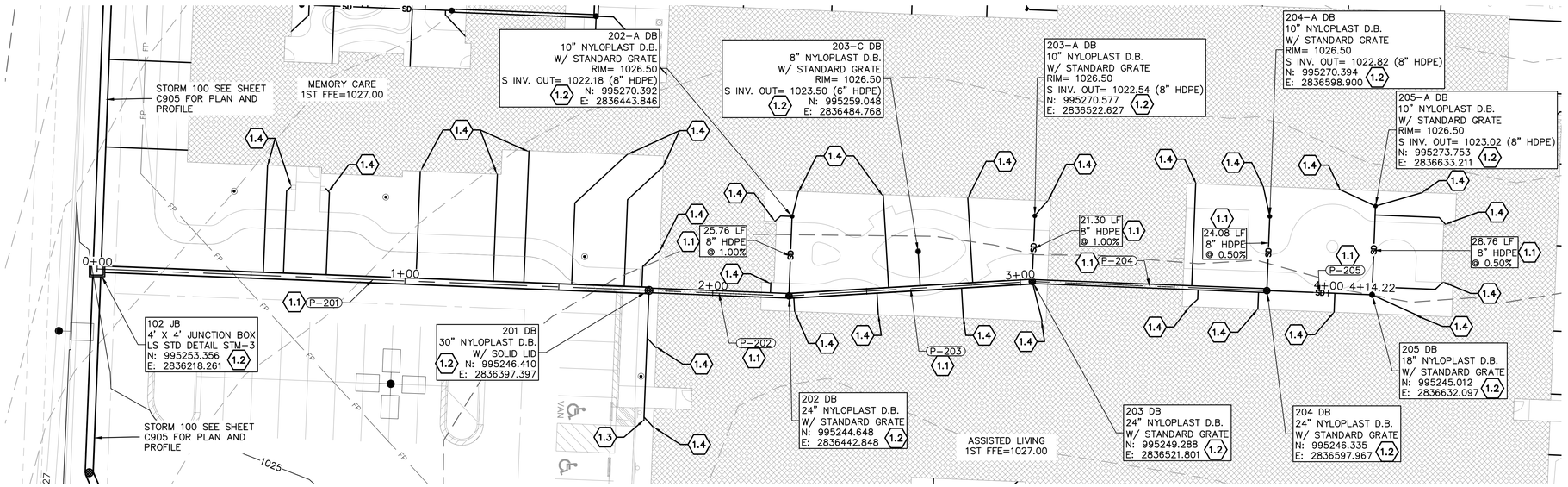
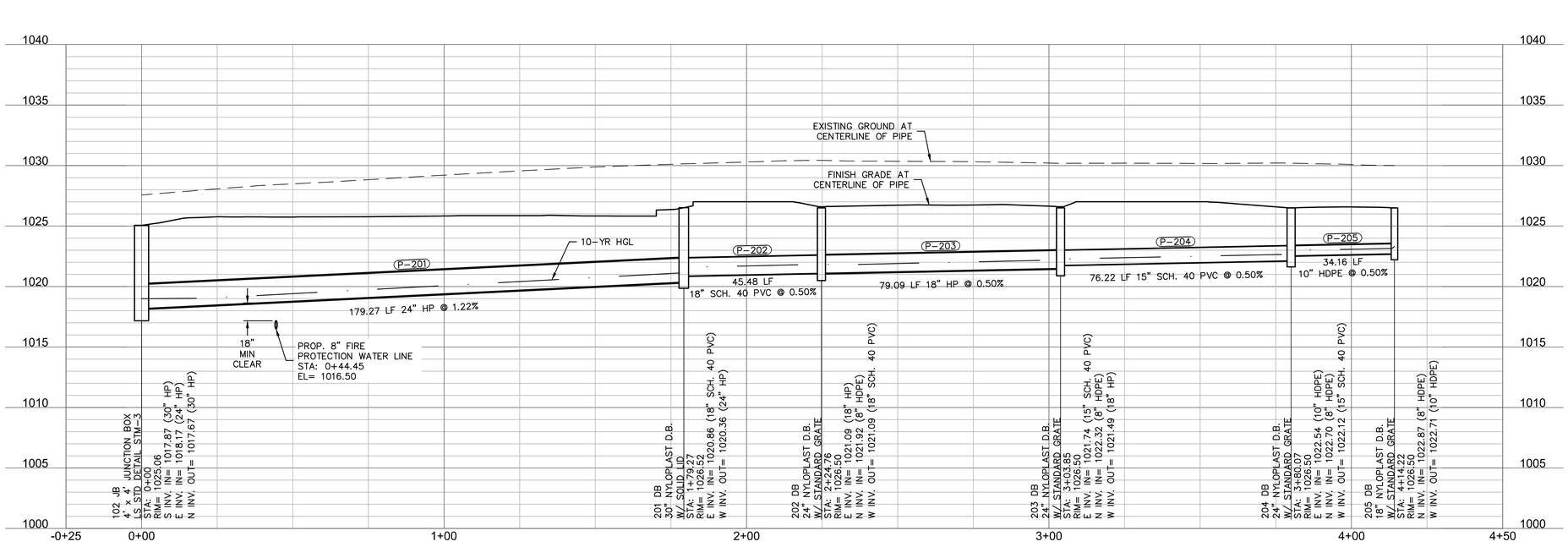
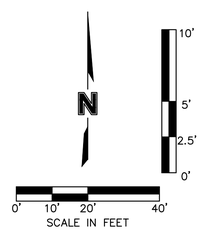


ONSITE STORM LINE 200
STA: 0+00 TO 4+50.00
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'





MISCELLANEOUS KEY NOTES:

1.1 INSTALL STORM PIPE.(REFER TO SHEET C903 FOR BEDDING DETAIL)

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1.3 INSTALL STORM CLEAN OUT (REFER TO SHEET C904 FOR DETAIL)

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PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE–2012024241

STORM LINE 200
PLAN & PROFILE

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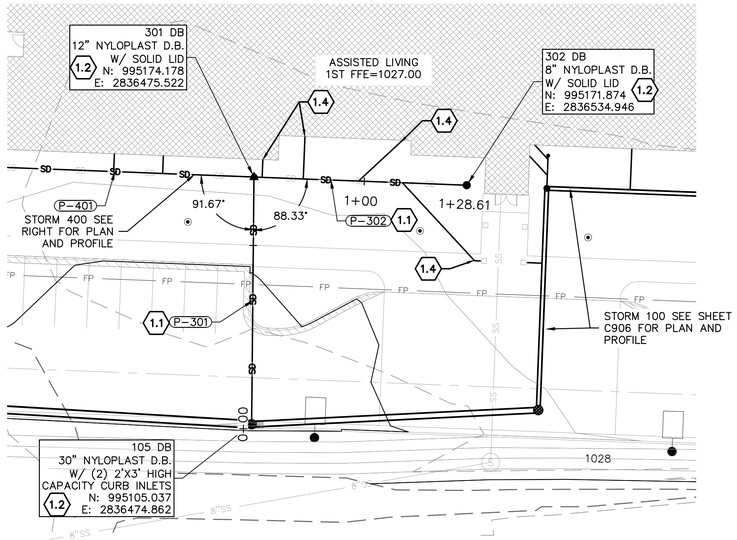
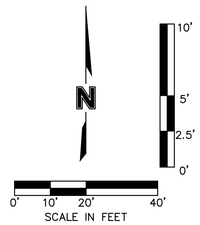
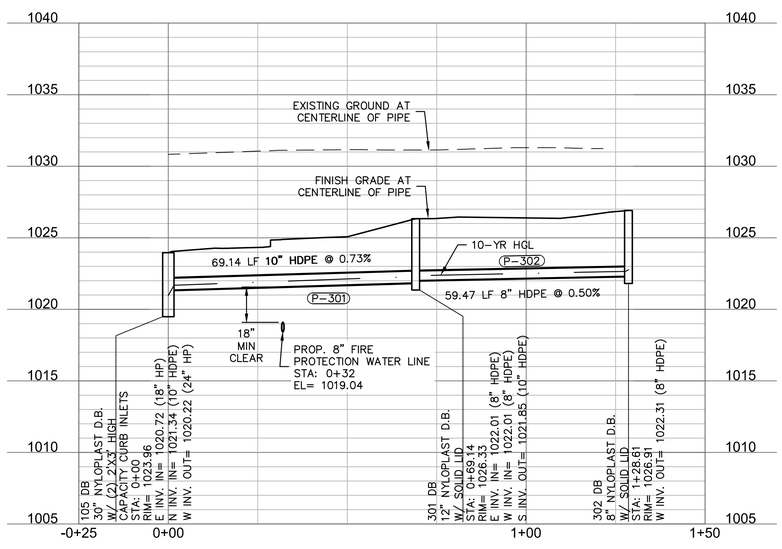


ONSITE STORM LINE 300
STA: 0+00 TO 1+21.52
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'





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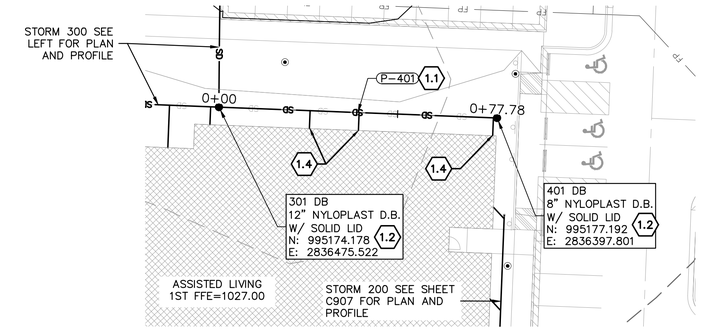
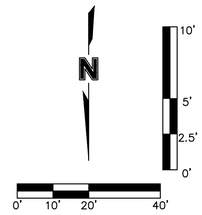
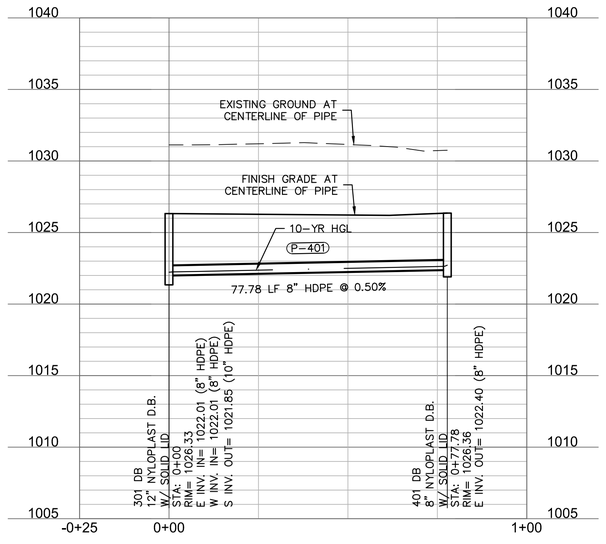


ONSITE STORM LINE 400
STA: 0+00 TO 0+77.78
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'





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PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM LINES 300 & 400 PLAN & PROFILE

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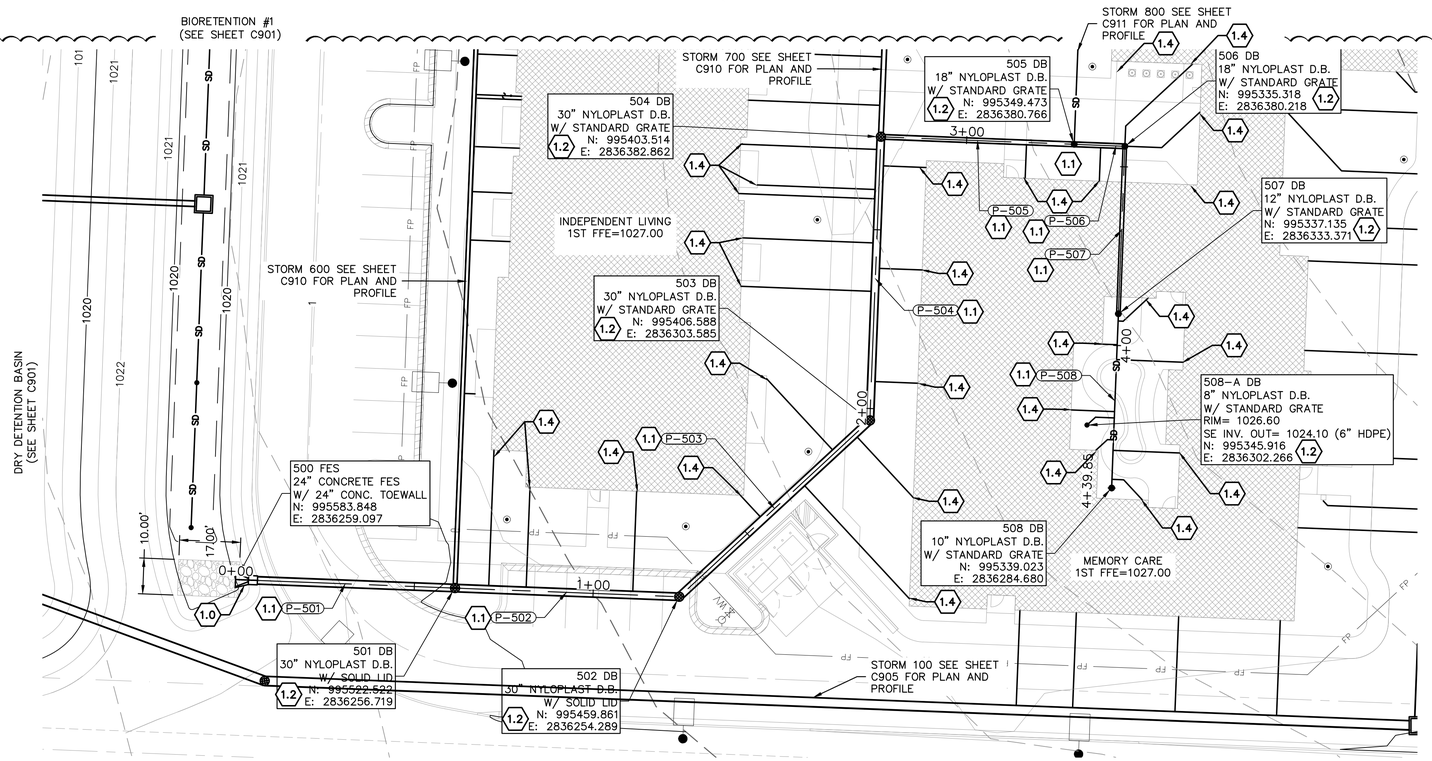
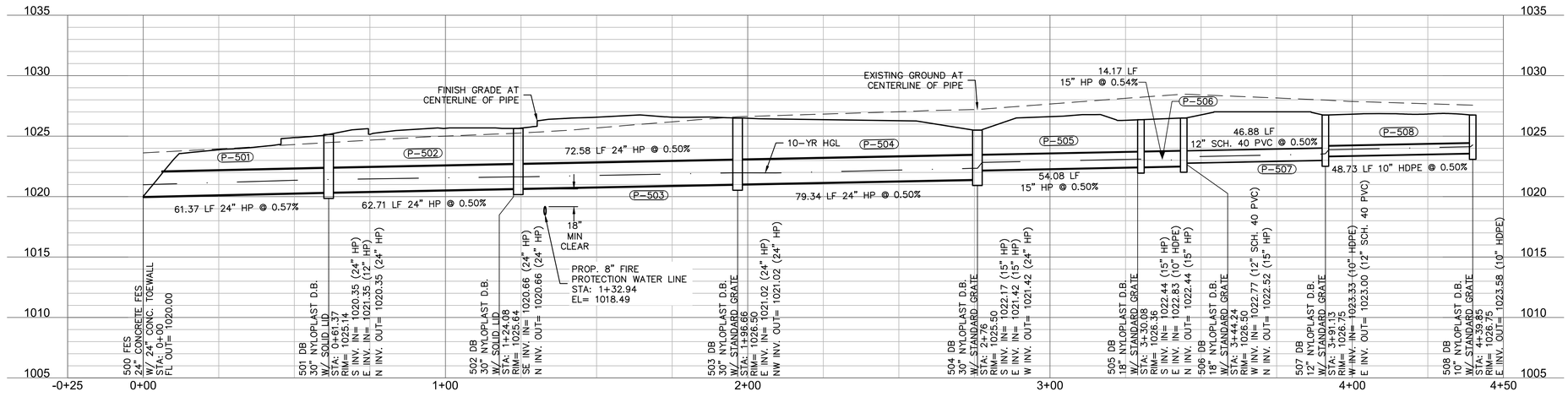


ONSITE STORM LINE 500
STA: 0+00 TO 4+39.85
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'



MISCELLANEOUS KEY NOTES:

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1.1 INSTALL STORM PIPE.(REFER TO SHEET C903 FOR BEDDING DETAIL)

1.2 INSTALL NYLOPLAST DRAIN BASIN PER MANUFACTURER'S RECOMMENDATIONS. SEE SHEET C900 FOR DETAILS.

1.3 INSTALL STORM CLEAN OUT (REFER TO SHEET C904 FOR DETAIL)

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N

10' 5' 2.5' 0'

0' 10' 20' 40'
SCALE IN FEET

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NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM LINE 500
PLAN & PROFILE

ISSUE DATE:
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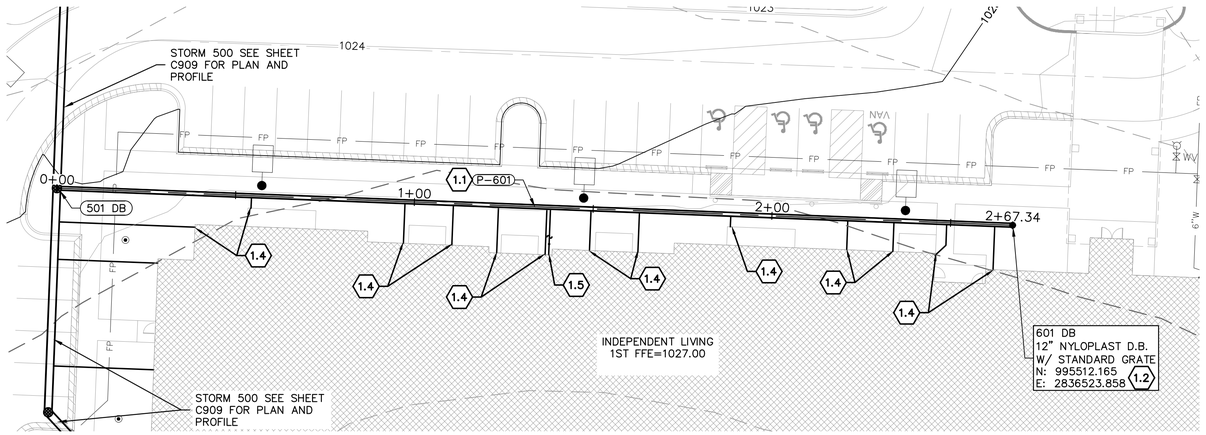
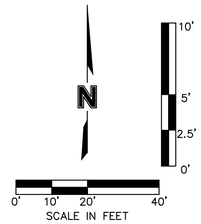
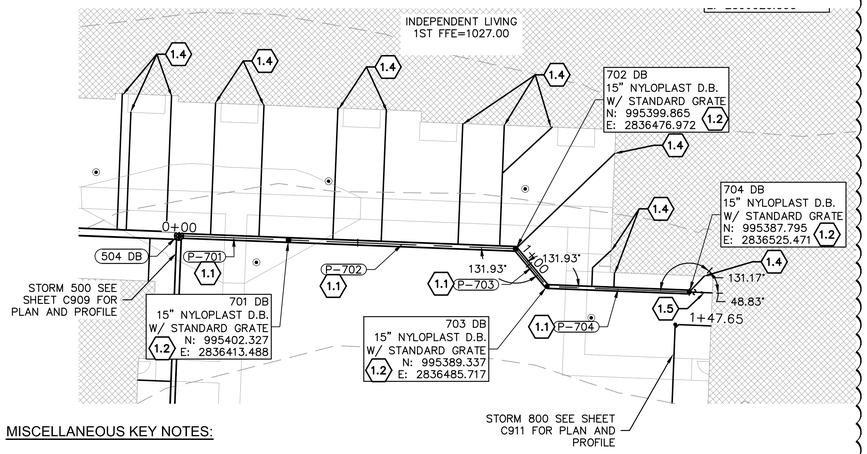


ONSITE STORM LINE 600
STA: 0+00 TO 2+67.34
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'





MISCELLANEOUS KEY NOTES:

(1.1) INSTALL STORM PIPE.(REFER TO SHEET C903 FOR BEDDING DETAIL)

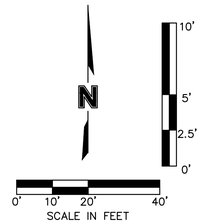
(1.2) INSTALL NYLOPLAST DRAIN BASIN PER MANUFACTURER'S RECOMMENDATIONS. SEE SHEET C900 FOR DETAILS.

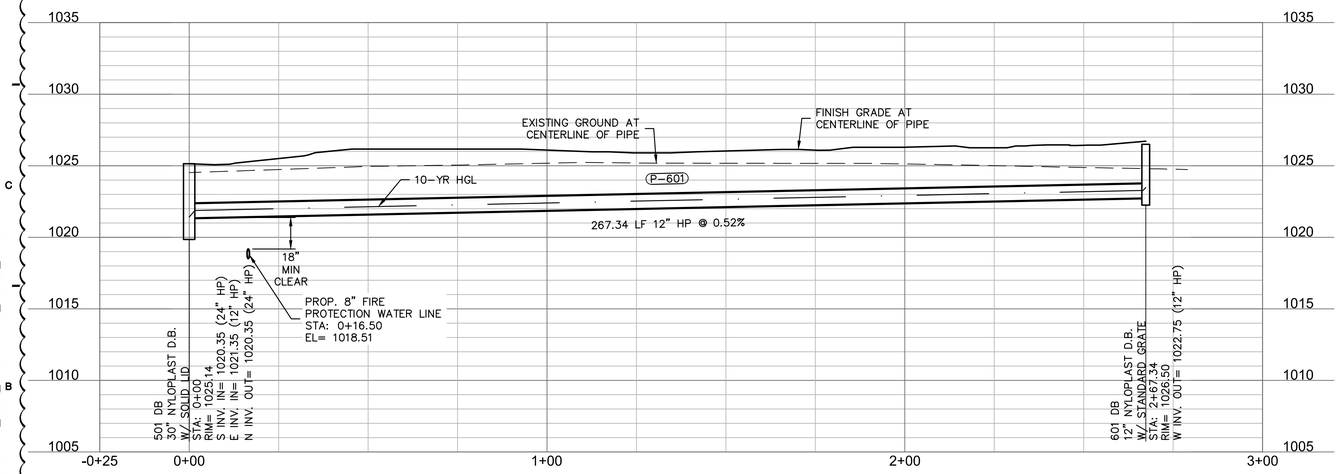
(1.3) INSTALL STORM CLEAN OUT (REFER TO SHEET C904 FOR DETAIL)

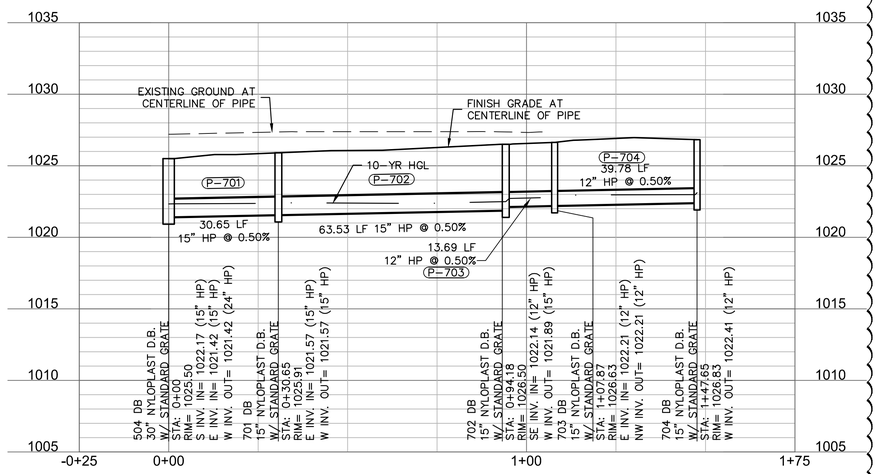
(1.4) CONNECT TO ROOF DOWNSPOUT (REFER TO SHEET C900 FOR DETAIL) W/6" HDPE STORM PIPE AT MINIMUM 1.04% SLOPE. CONNECT 6" HDPE TO STORM HEADER OR DRAIN BASIN WITH INSERTA TEE OR WYE FITTING OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY ALL FITTINGS NECESSARY FOR CONNECTION

(1.5) CONNECT TO INTERIOR ROOF DRAIN AT MINIMUM 2.08% SLOPE. REFER TO MEP PLANS FOR SIZE AND MATERIAL. CONNECT TO HEADER PIPE OR DRAIN BASIN WITH INSERTA TEE PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY ALL FITTINGS NECESSARY FOR CONNECTION

ONSITE STORM LINE 700
STA: 0+00 TO 1+47.65
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'







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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM LINES 600 & 700 PLAN & PROFILE

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

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Olsson Project #018-1450

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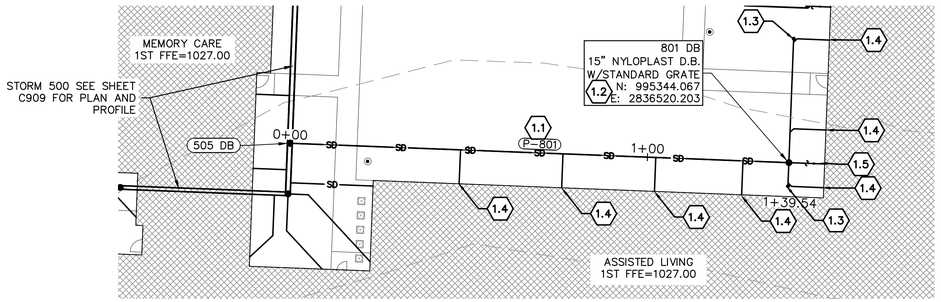
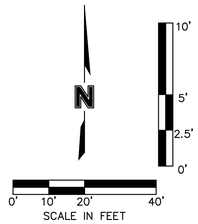
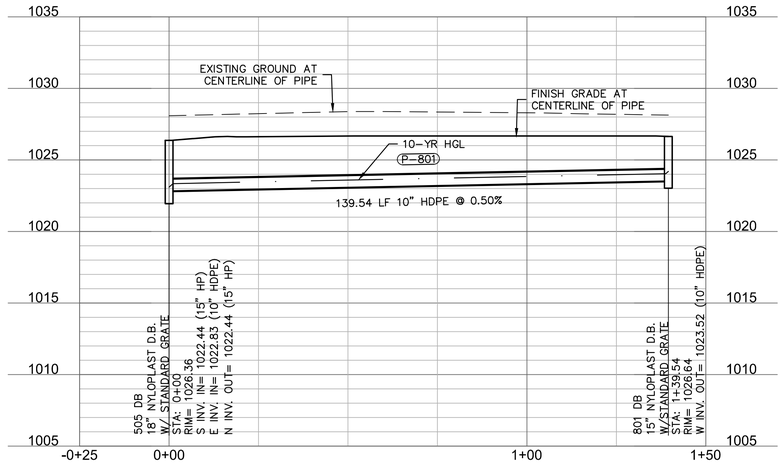
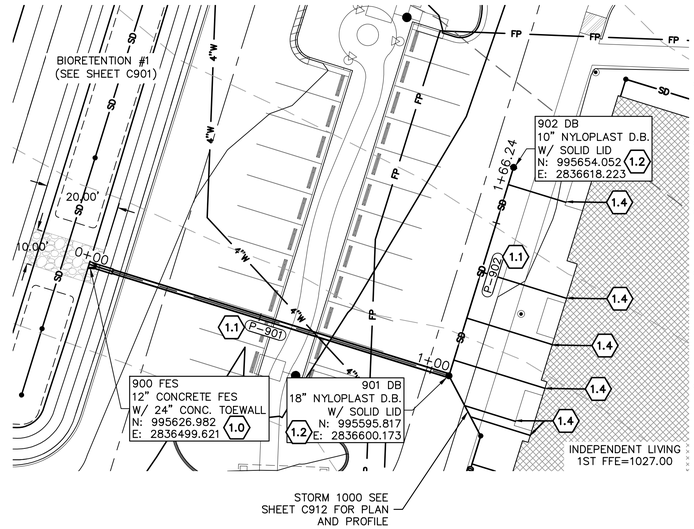


ONSITE STORM LINE 800
STA: 0+00 TO 1+39.54
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'







MISCELLANEOUS KEY NOTES:

1.0 INSTALL F.E.S. (SIZED TO MATCH PIPE) W/CONCRETE TOE WALL RIPRAP PAD (REFER TO SHEET C903 FOR DETAILS)

1.1 INSTALL STORM PIPE.(REFER TO SHEET C903 FOR BEDDING DETAIL)

1.2 INSTALL NYLOPLAST DRAIN BASIN PER MANUFACTURER'S RECOMMENDATIONS. SEE SHEET C900 FOR DETAILS.

1.3 INSTALL STORM CLEAN OUT (REFER TO SHEET C904 FOR DETAIL)

1.4 CONNECT TO ROOF DOWNSPOUT (REFER TO SHEET C900 FOR DETAIL) W/6" HDPE STORM PIPE AT MINIMUM 1.04% SLOPE. CONNECT 6" HDPE TO STORM HEADER OR DRAIN BASIN WITH INSERTA TEE OR WYE FITTING OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY ALL FITTINGS NECESSARY FOR CONNECTION

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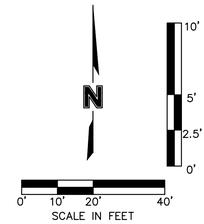
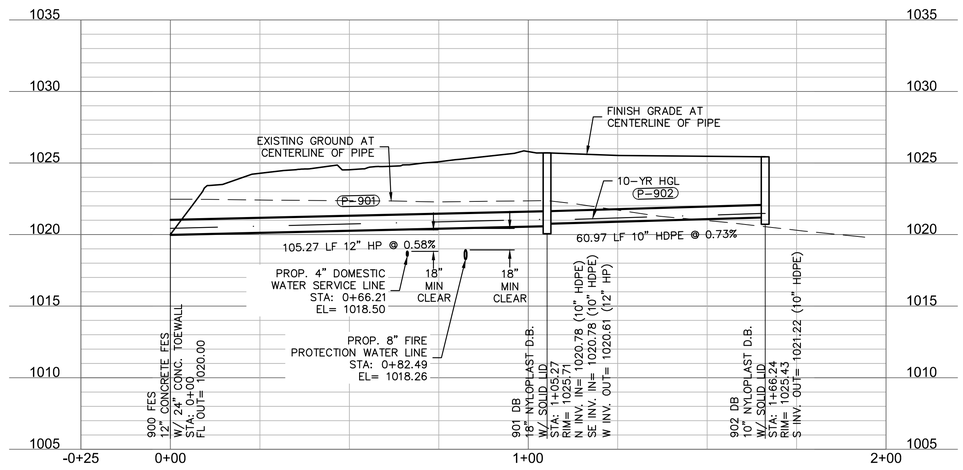
ONSITE STORM LINE 900
STA: 0+00 TO 1+66.24
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'





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SEAL

RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM LINES 800 & 900 PLAN & PROFILE

ISSUE DATE:
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REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

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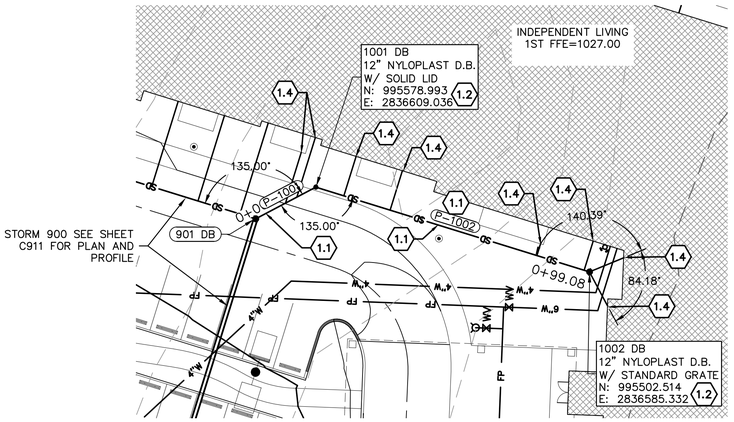

ONSITE STORM LINE 1000

STA: 0+00 TO 0+99.08

HORIZONTAL SCALE 1" = 20'

VERTICAL SCALE 1" = 5'

MISCELLANEOUS KEY NOTES:

1.1 INSTALL STORM PIPE.(REFER TO SHEET C903 FOR BEDDING DETAIL)

1.2 INSTALL NYLOPLAST DRAIN BASIN PER MANUFACTURER'S RECOMMENDATIONS. SEE SHEET C900 FOR DETAILS.

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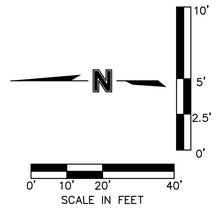
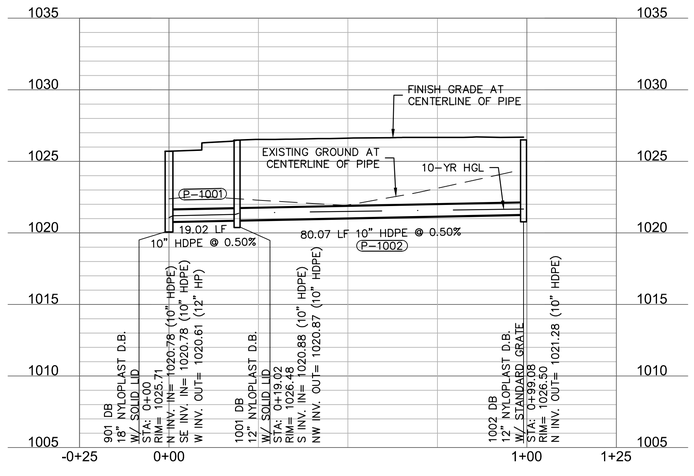
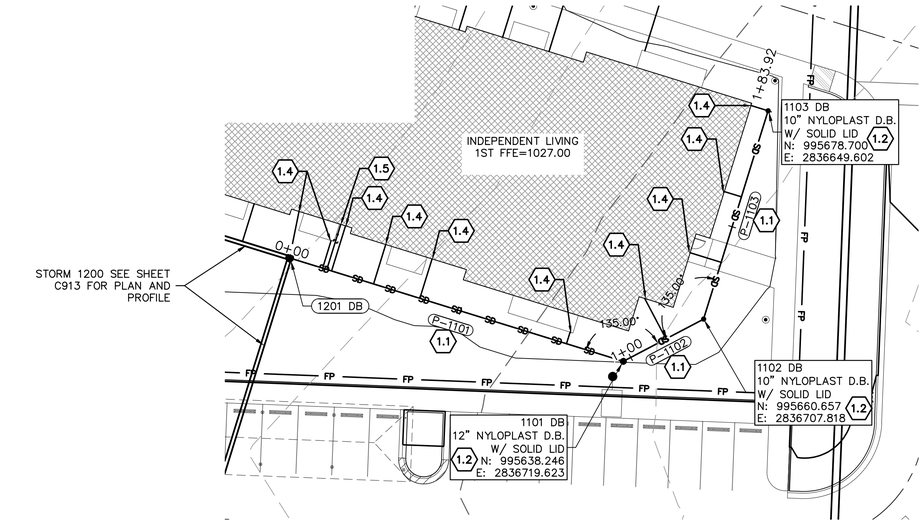




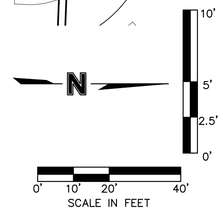


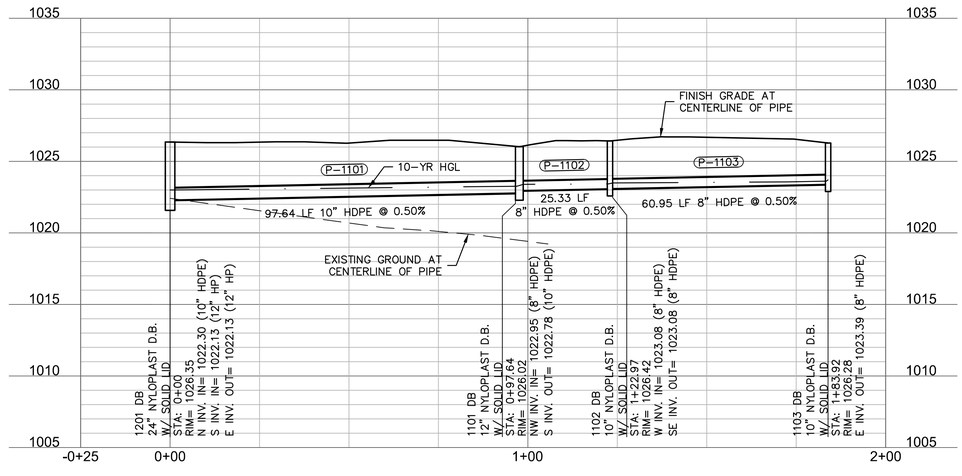
ONSITE STORM LINE 1100

STA: 0+00 TO 1+83.92

HORIZONTAL SCALE 1" = 20'

VERTICAL SCALE 1" = 5'





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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM LINES 1000 & 1100 PLAN & PROFILE

ISSUE DATE:

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REVISIONS:

3 ENG. REVIEW CMMTS. - 07/19/2019

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DATE: Jul 19, 2019 2:40pm XREFS: c_pbase_81450 C_TBLK_81450

MISCELLANEOUS KEY NOTES:

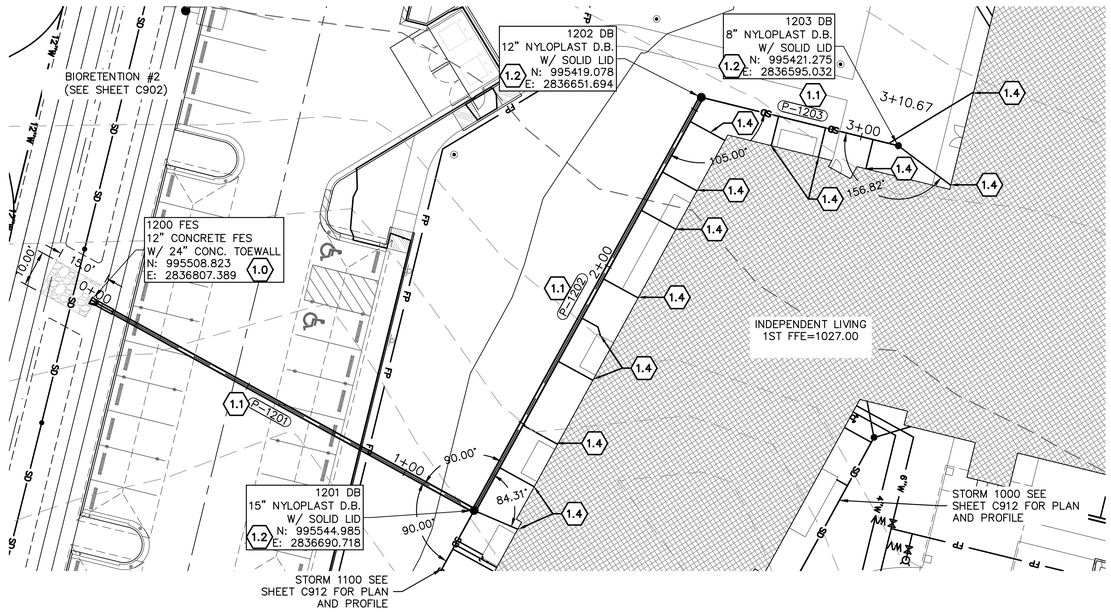
1.0 INSTALL F.E.S. (SIZED TO MATCH PIPE) W/CONCRETE TOE WALL RIPRAP PAD (REFER TO SHEET C903 FOR DETAILS)

1.1 INSTALL STORM PIPE.(REFER TO SHEET C903 FOR BEDDING DETAIL)

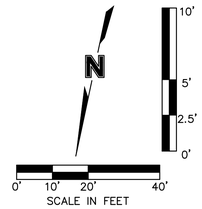
1.2 INSTALL NYLOPLAST DRAIN BASIN PER MANUFACTURER'S RECOMMENDATIONS. SEE SHEET C900 FOR DETAILS.

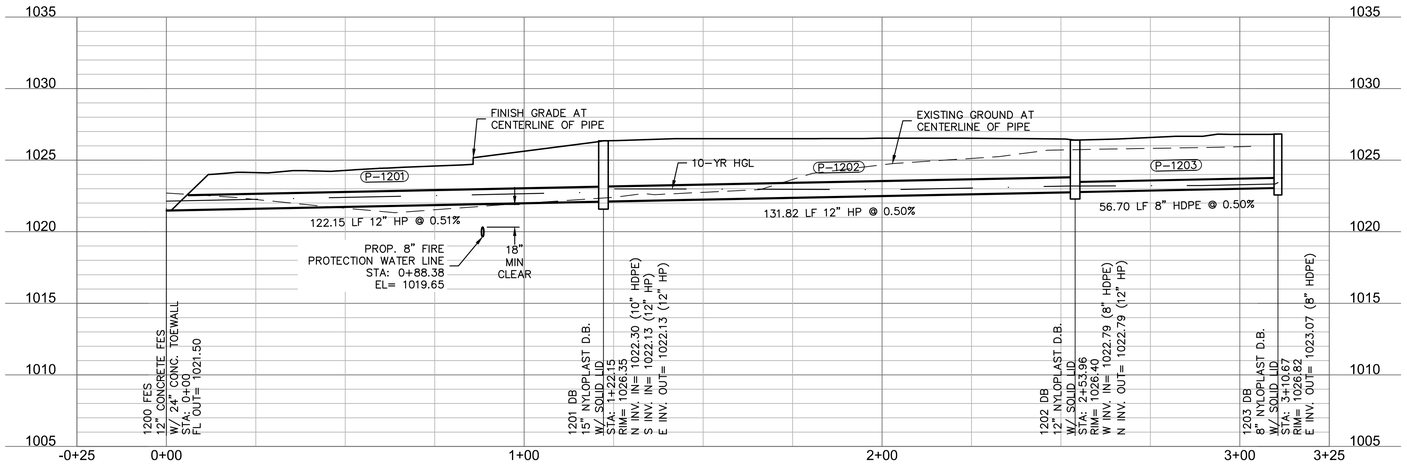
1.3 INSTALL STORM CLEAN OUT (REFER TO SHEET C904 FOR DETAIL)

1.4 CONNECT TO ROOF DOWNSPOUT (REFER TO SHEET C900 FOR DETAIL) W/6" HDPE STORM PIPE AT MINIMUM 1.04% SLOPE. CONNECT 6" HDPE TO STORM HEADER OR DRAIN BASIN WITH INSERTA TEE OR WYE FITTING OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY ALL FITTINGS NECESSARY FOR CONNECTION



ONSITE STORM LINE 1200
STA: 0+00 TO 3+10.67
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'





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RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM LINE 1200
PLAN AND PROFILE

ISSUE DATE:
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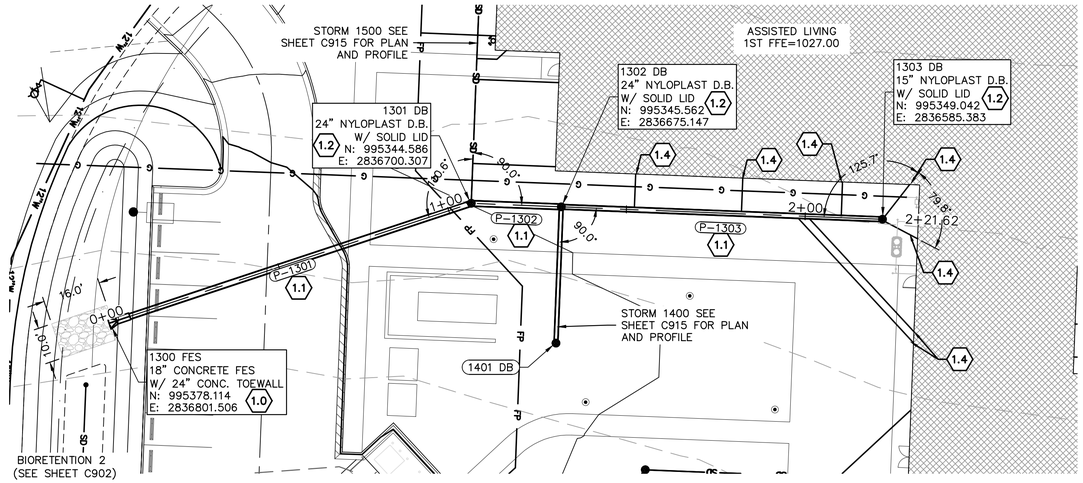
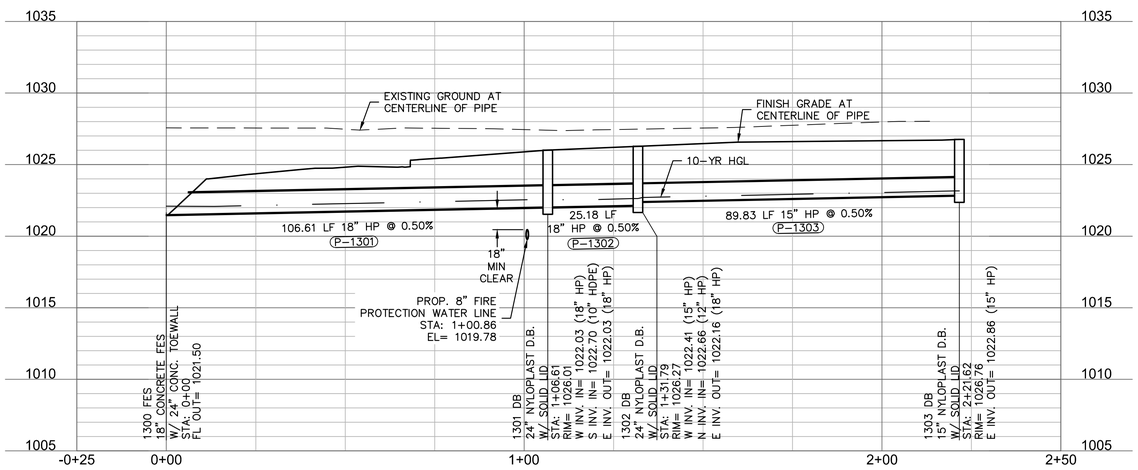


ONSITE STORM LINE 1300
STA: 0+00 TO 2+21.62
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'



MISCELLANEOUS KEY NOTES:

1.0 INSTALL F.E.S. (SIZED TO MATCH PIPE) W/CONCRETE TOE WALL RIPRAP PAD (REFER TO SHEET C903 FOR DETAILS)

1.1 INSTALL STORM PIPE.(REFER TO SHEET C903 FOR BEDDING DETAIL)

1.2 INSTALL NYLOPLAST DRAIN BASIN PER MANUFACTURER'S RECOMMENDATIONS. SEE SHEET C900 FOR DETAILS.

1.3 INSTALL STORM CLEAN OUT (REFER TO SHEET C904 FOR DETAIL)

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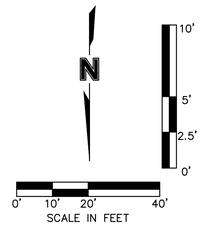

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STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM LINE 1300
PLAN & PROFILE

ISSUE DATE:
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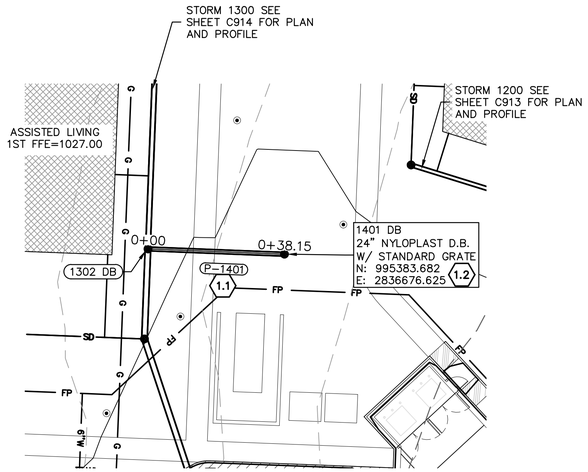
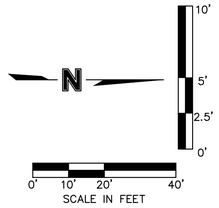
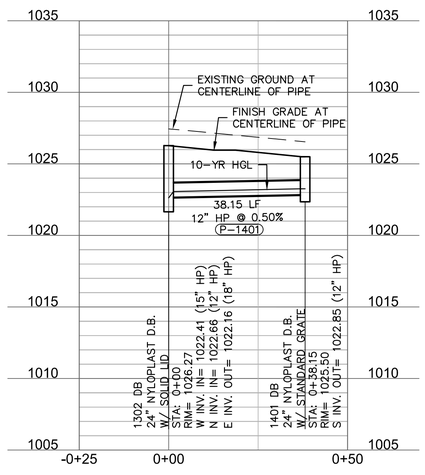
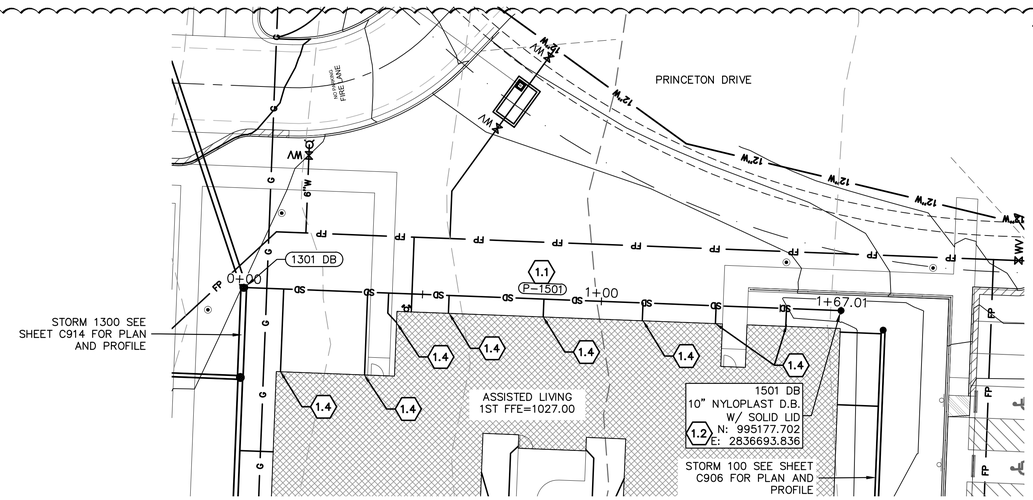


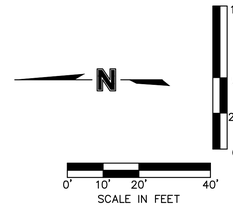
ONSITE STORM LINE 1400
STA: 0+00 TO 0+38.15
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

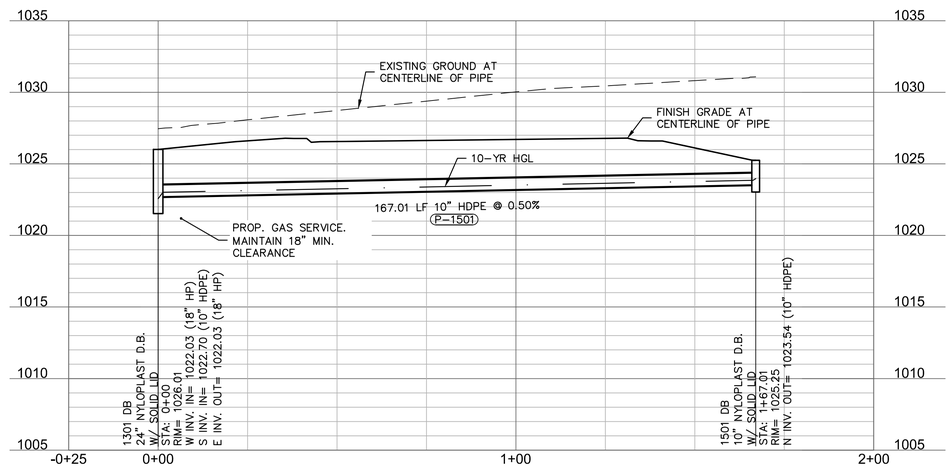






ONSITE STORM LINE 1500
STA: 0+00 TO 1+67.01
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'





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OF AUTHORITY NO. 000073

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1701 S.E. OLDHAM PARKWAY
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STARK WILSON DUNCAN ARCHITECTS INC.
315 NICHOLS RD. STE 228 - KANSAS CITY, MO 64112 - T 816.531.1698 F 816.531.1978

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM LINES 1400 & 1500 PLAN & PROFILE

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

C915

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Olsson Project #018-1450

DWG: F:\2018\1001-1500\018-1450\40-Design\AutoCAD\Final Plans\Sheets\GNCV\C_STM12_81450.DWG USER: rjeppson
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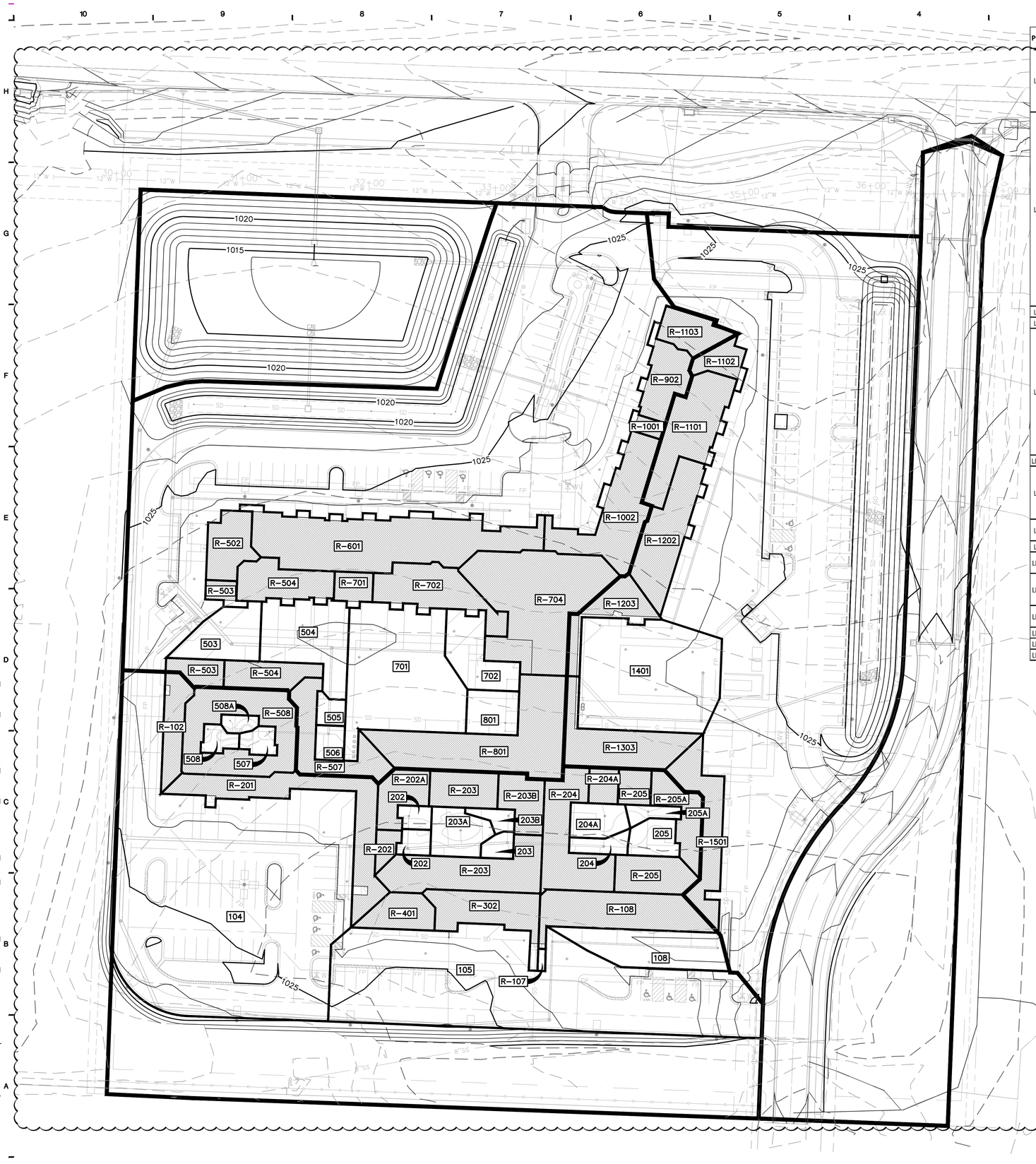

PIPE RUN	Inlet No.	Area (AC)	C	C(1.1)	C(1.25)	Tc (min)	2-yr (IN/HR)	10-yr (IN/HR)	25-yr (IN/HR)	100-yr (IN/HR)	Q2(CFS)	Q10(CFS)	Q25(CFS)	Q100(CFS)
LINE 100	R-102	0.03	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.19	0.27	0.34	0.43
	104	0.80	0.82	0.90	1.00	5	5.81	8.35	9.98	12.6	3.80	5.47	7.19	10.03
	105	0.51	0.77	0.85	0.96	5	5.81	8.35	9.98	12.6	2.28	3.28	4.31	6.18
	R-107	0.00	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.01	0.02	0.02	0.03
	108	0.08	0.30	0.33	0.38	5	5.81	8.35	9.98	12.6	0.14	0.20	0.26	0.37
	R-108	0.09	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.48	0.69	0.87	1.10
LINE 200	R-201	0.10	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.56	0.81	1.01	1.28
	R-202	0.01	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.06	0.09	0.11	0.14
	R-202A	0.03	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.19	0.27	0.34	0.42
	202	0.01	0.57	0.63	0.72	5	5.81	8.35	9.98	12.6	0.04	0.06	0.07	0.10
	202A	0.01	0.54	0.59	0.67	5	5.81	8.35	9.98	12.6	0.03	0.05	0.06	0.09
	R-203	0.12	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.69	0.99	1.24	1.57
	R-203B	0.03	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.18	0.26	0.33	0.42
	203	0.01	0.31	0.34	0.39	5	5.81	8.35	9.98	12.6	0.02	0.03	0.04	0.05
	203A	0.04	0.58	0.64	0.73	5	5.81	8.35	9.98	12.6	0.13	0.18	0.24	0.34
	203B	0.01	0.51	0.56	0.63	5	5.81	8.35	9.98	12.6	0.03	0.05	0.06	0.09
	R-204	0.08	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.43	0.62	0.79	0.99
	R-204A	0.02	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.08	0.12	0.15	0.19
	204	0.02	0.42	0.46	0.52	5	5.81	8.35	9.98	12.6	0.04	0.05	0.07	0.10
	204A	0.03	0.66	0.72	0.82	5	5.81	8.35	9.98	12.6	0.10	0.15	0.20	0.28
	R-205	0.06	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.32	0.46	0.57	0.73
	R-205A	0.04	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.21	0.30	0.38	0.48
	205	0.02	0.59	0.64	0.73	5	5.81	8.35	9.98	12.6	0.08	0.12	0.16	0.23
	205A	0.01	0.46	0.51	0.58	5	5.81	8.35	9.98	12.6	0.03	0.05	0.06	0.09
LINE 300	R-302	0.06	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.34	0.49	0.61	0.77
LINE 400	R-401	0.03	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.18	0.26	0.33	0.41
LINE 500	R-502	0.04	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.22	0.32	0.40	0.50
	R-503	0.03	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.17	0.24	0.30	0.38
	503	0.05	0.42	0.46	0.53	5	5.81	8.35	9.98	12.6	0.13	0.19	0.24	0.35
	R-504	0.08	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.46	0.67	0.84	1.06
	504	0.09	0.39	0.42	0.48	5	5.81	8.35	9.98	12.6	0.20	0.29	0.38	0.55
	505	0.01	0.35	0.39	0.44	5	5.81	8.35	9.98	12.6	0.02	0.03	0.05	0.07
	506	0.01	0.30	0.33	0.38	5	5.81	8.35	9.98	12.6	0.02	0.04	0.05	0.07
	R-507	0.05	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.30	0.43	0.54	0.68
	507	0.01	0.70	0.77	0.88	5	5.81	8.35	9.98	12.6	0.05	0.08	0.10	0.14
	R-508	0.10	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.57	0.82	1.03	1.30
	508	0.01	0.70	0.77	0.87	5	5.81	8.35	9.98	12.6	0.05	0.07	0.09	0.13
	508A	0.01	0.55	0.60	0.68	5	5.81	8.35	9.98	12.6	0.03	0.04	0.05	0.07
LINE 600	R-601	0.19	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	1.06	1.52	1.91	2.41
LINE 700	R-701	0.02	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.10	0.14	0.17	0.22
	701	0.20	0.39	0.42	0.48	5	5.81	8.35	9.98	12.6	0.45	0.65	0.85	1.22
	R-702	0.07	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.39	0.56	0.70	0.88
	702	0.05	0.43	0.48	0.54	5	5.81	8.35	9.98	12.6	0.13	0.19	0.25	0.37
	R-704	0.17	0.95	1.05	1.19	5	5.81	8.35	9.98	12.6	0.95	1.37	1.80	2.59
LINE 800	R-801	0.15	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.81	1.16	1.46	1.84
	801	0.03	0.41	0.45	0.52	5	5.81	8.35	9.98	12.6	0.08	0.11	0.15	0.21
LINE 900	R-902	0.04	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.24	0.35	0.44	0.55
LINE 1000	R-1001	0.01	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.05	0.07	0.08	0.10
	R-1002	0.09	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.52	0.75	0.95	1.20
LINE 1100	R-1101	0.08	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.46	0.66	0.82	1.04
	R-1102	0.02	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.13	0.18	0.23	0.29
	R-1103	0.03	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.17	0.25	0.32	0.40
LINE 1200	R-1202	0.08	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.43	0.62	0.78	0.98
	R-1203	0.04	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.23	0.33	0.42	0.52
LINE 1300	R-1303	0.08	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.41	0.60	0.75	0.95
LINE 1400	1401	0.22	0.52	0.57	0.64	5	5.81	8.35	9.98	12.6	0.67	0.96	1.27	1.82
LINE 1500	R-1501	0.06	0.95	1.00	1.00	5	5.81	8.35	9.98	12.6	0.35	0.51	0.64	0.81

LEGEND

DRAINAGE AREA BOUNDARY

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MISSOURI CERTIFICATE
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STARK WILSON DUNCAN ARCHITECTS INC.
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LEE'S SUMMIT SENIOR COMMUNITY

1701 SE. OLDHAM PARKWAY

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM DRAINAGE AREAS

ISSUE DATE:
6-14-2019

REVISIONS:
1 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

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Olsson Project #018-1450

DWG: F:\2018\1001-1500\018-1450\40-Design\AutoCAD\Final Plans\Sheets\GNCV\C_DRN_81450.dwg USER: rjeppson
DATE: Jul 19, 2019 2:29pm XREFS: C_PSTRM_81450 C_TBLK_81450 C_PBASE_81450 T_PBASE_81450

10-YEAR PRIVATE STORM SEWER HYDRAULIC CALCULATIONS

MyReport

Line No.	Line ID	Line Length (ft)	Line Size (in)	n-val Pipe	Invert Dn (ft)	Invert Up (ft)	Line Slope (%)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	HGL Dn (ft)	HGL Up (ft)	Vel Ave (ft/s)	Defl Ang (Deg)	J-Loss Coeff	Minor Loss (ft)	Energy Loss (ft)	Known Q (cfs)	Flow Rate (cfs)	Capac Full (cfs)
1	P-1301	106.609	18	0.012	1021.50	1022.03	0.50	1023.15	1026.01	1022.02	1022.57	3.70	161.670	0.95 z	0.19	0.000	0.00	2.07	8.02
2	P-1501	167.010	10	0.012	1022.70	1023.54	0.50	1026.01	1025.25	1023.02	1023.85	2.71	-69.450	1.00	0.11	0.841	0.51	0.51	1.68
3	P-1302	25.179	18	0.012	1022.03	1022.16	0.52	1026.01	1026.28	1022.57	1022.63 j	3.01	20.550	1.00 z	n/a	0.000	0.00	1.56	8.17
4	P-1401	38.149	12	0.012	1022.66	1022.85	0.50	1026.28	1025.50	1023.07	1023.26	3.16	90.000	1.00 z	0.16	0.000	0.96	0.96	2.72
5	P-1303	89.832	15	0.012	1022.41	1022.86	0.50	1026.28	1026.76	1022.70	1023.16	2.68	0.000	1.00 z	n/a	0.000	0.60	0.60	4.95
6	P-501	61.372	24	0.012	1020.00	1020.35	0.57	1022.16	1025.14	1020.98	1021.42	5.55	92.221	1.00 z	n/a	0.000	0.00	8.97	18.50
7	P-502	62.708	24	0.012	1020.35	1020.66	0.49	1025.14	1025.64	1021.42	1021.63	4.65	0.000	0.75 z	n/a	0.000	0.32	7.45	17.23
8	P-503	72.582	24	0.012	1020.66	1021.02	0.50	1025.64	1026.50	1021.63	1021.97	4.80	-45.000	0.75 z	n/a	0.000	0.43	7.13	17.26
9	P-504	79.336	24	0.012	1021.02	1021.42	0.50	1026.50	1025.50	1021.97	1022.34 j	4.67	-45.000	1.00 z	n/a	0.000	0.96	6.70	17.40
10	P-505	54.080	15	0.012	1022.17	1022.44	0.50	1025.50	1026.30	1022.82	1023.10	4.10	90.000	1.00 z	n/a	0.000	0.03	2.67	4.94
11	P-801	139.542	10	0.012	1022.83	1023.52	0.49	1026.30	1026.50	1023.34	1024.03	3.30	-90.000	1.00	0.17	0.688	1.16	1.16	1.67
12	P-506	14.170	15	0.012	1022.44	1022.52	0.56	1026.30	1026.50	1023.10	1023.00	2.84	0.000	1.00 z	0.18	0.000	0.04	1.48	5.26
13	P-507	46.881	12	0.012	1022.77	1023.00	0.49	1026.50	1026.75	1023.29	1023.52	3.49	90.000	0.15	0.03	0.229	0.51	1.44	2.70
14	P-508	48.728	8	0.012	1023.33	1023.58	0.51	1026.75	1026.75	1023.87	1024.12	3.06	0.000	1.00	0.15	0.250	0.93	0.93	0.94
15	P-601	267.340	12	0.012	1021.35	1022.75	0.52	1025.14	1026.50	1021.88	1023.28 j	3.64	-90.000	1.00	n/a	1.405	1.52	1.52	2.79
16	P-701	30.649	15	0.012	1021.42	1021.57	0.49	1025.50	1025.91	1022.34	1022.38	3.43	0.000	0.15	0.03	0.090	0.79	3.07	4.89
17	P-702	63.531	15	0.012	1021.57	1021.89	0.50	1025.91	1026.50	1022.41	1022.49 j	3.25	0.000	0.78 z	n/a	0.000	0.56	2.28	4.96
18	P-703	13.690	12	0.012	1022.14	1022.21	0.51	1026.50	1025.43	1022.71	1022.78	3.70	48.020	0.78	0.17	0.070	0.35	1.72	2.76
19	P-704	39.780	12	0.012	1022.21	1022.41	0.50	1025.43	1026.83	1022.95	1022.98	2.57	-48.080	1.00	0.13	0.095	1.37	1.37	2.74
20	P-1201	122.147	12	0.012	1021.50	1022.13	0.52	1022.63	1026.35	1022.14	1022.77	3.86	-162.780	1.00	0.23	0.630	0.00	2.04	2.77
21	P-1202	131.815	12	0.012	1022.13	1022.79	0.50	1026.35	1026.40	1023.00	1023.20 j	2.23	-90.000	0.97 z	n/a	0.000	0.62	0.95	2.73
22	P-1203	56.705	8	0.012	1022.79	1023.07	0.49	1026.40	1026.82	1023.20	1023.34 j	1.99	75.000	1.00	n/a	0.194	0.33	0.33	0.92
23	P-1101	97.638	10	0.012	1022.30	1022.78	0.49	1026.35	1026.02	1023.00	1023.26	2.79	90.000	0.75	0.13	0.357	0.66	1.09	1.66

Project File: ONSITE STORM 10-YR.stm | Number of lines: 49 | Date: 7/19/2019

NOTES: ** Critical depth

Storm Sewers

10-YEAR PRIVATE STORM SEWER HYDRAULIC CALCULATIONS

MyReport

Line No.	Line ID	Line Length (ft)	Line Size (in)	n-val Pipe	Invert Dn (ft)	Invert Up (ft)	Line Slope (%)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	HGL Dn (ft)	HGL Up (ft)	Vel Ave (ft/s)	Defl Ang (Deg)	J-Loss Coeff	Minor Loss (ft)	Energy Loss (ft)	Known Q (cfs)	Flow Rate (cfs)	Capac Full (cfs)
24	P-1102	25.330	8	0.012	1022.95	1023.08	0.51	1026.02	1026.42	1023.39	1023.42	2.06	-45.000	0.75	0.07	0.072	0.18	0.43	0.94
25	P-1103	60.948	8	0.012	1023.08	1023.39	0.51	1026.42	1026.28	1023.49	1023.62 j	1.71	-45.000	1.00	n/a	0.187	0.25	0.25	0.93
26	P-101	73.421	30	0.012	1015.60	1016.06	0.63	1018.27	1023.16	1016.76	1017.38	6.36	110.146	0.36 z	0.19	0.000	0.00	15.34	35.17
27	P-102	322.611	30	0.012	1016.06	1017.67	0.50	1023.16	1025.06	1017.38	1018.99	5.83	-17.925	1.00 z	0.53	0.000	0.27	15.34	31.39
28	P-201	179.271	24	0.012	1018.17	1020.36	1.22	1025.06	1026.52	1018.99	1021.12 j	4.05	-90.000	0.15 z	n/a	0.000	0.81	4.66	27.08
29	P-202	45.485	18	0.012	1020.86	1021.09	0.51	1026.52	1026.60	1021.59	1021.84	4.44	0.000	1.00 z	n/a	0.000	0.15	3.85	8.09
30	P-203	79.090	18	0.012	1021.09	1021.49	0.51	1026.60	1026.60	1021.84	1022.19 j	4.00	-5.584	1.00 z	n/a	0.000	1.20	3.38	8.09
31	P-204	76.223	15	0.012	1021.74	1022.12	0.50	1026.60	1026.50	1022.27	1022.66	3.70	5.584	1.00 z	n/a	0.000	0.67	1.87	4.94
32	P-205	34.155	10	0.012	1022.54	1022.71	0.50	1026.50	1026.50	1022.98	1023.15	3.15	0.000	1.00 z	0.15	0.170	0.58	0.93	1.67
33	P-205A	28.763	8	0.012	1022.87	1023.02	0.52	1026.50	1026.50	1023.31	1023.34	1.79	-90.000	1.00	0.07	0.067	0.35	0.35	0.94
34	P-204A	24.077	8	0.012	1022.70	1022.82	0.50	1026.50	1026.50	1022.95	1023.07 j	2.30	-90.000	1.00	n/a	0.120	0.27	0.27	0.92
35	P-203B	21.305	8	0.012	1022.32	1022.43	0.52	1026.60	1026.75	1022.58	1022.69	2.41	-84.416	1.00	0.09	0.109	0.31	0.31	0.94
36	P-103	66.140	30	0.012	1017.87	1018.20	0.50	1025.06	1024.49	1018.99	1019.28 j	5.01	0.000	0.55 z	n/a	0.000	0.00	10.41	31.38
37	P-104	74.780	30	0.012	1018.20	1018.57	0.49	1024.49	1023.66	1019.28	1019.65	5.14	-29.530	0.87 z	n/a	0.000	5.47	10.41	31.25
38	P-105	229.870	24	0.012	1019.07	1020.22	0.50	1023.66	1024.16	1019.80	1021.00	4.55	-57.300	1.00 z	0.29	0.000	3.28	4.94	17.33
39	P-301	69.140	10	0.012	1021.34	1021.85	0.74	1024.16	1026.33	1021.69	1022.23	3.26	-93.140	1.00 z	n/a	0.000	0.00	0.75	2.04
40	P-401	77.779	8	0.012	1022.01	1022.40	0.50	1026.33	1026.36	1022.25	1022.64 j	2.28	-90.000	1.00	n/a	0.390	0.26	0.26	0.93
41	P-302	59.469	8	0.012	1022.01	1022.31	0.50	1026.33	1026.91	1022.35	1022.65	2.70	90.000	1.00	0.11	0.300	0.49	0.49	0.93
42	P-106	80.180	18	0.012	1020.72	1021.12	0.50	1024.16	1025.96	1021.06	1021.48	2.93	-4.600	1.00 z	n/a	0.000	0.00	0.91	8.04
43	P-107	62.052	12	0.012	1021.12	1021.43	0.50	1025.96	1026.87	1021.52	1021.83	3.11	-90.000	1.00 z	n/a	0.000	0.02	0.91	2.73
44	P-108	131.123	12	0.012	1021.43	1022.09	0.50	1026.87	1025.25	1021.83	1022.49	3.06	90.000	1.00 z	0.15	0.000	0.89	0.89	2.74
45	P-202A	25.763	8	0.012	1021.92	1022.05	0.50	1026.60	1026.85	1022.19	1022.32	2.41	-90.000	1.00	0.09	0.130	0.32	0.32	0.93
46	P-901	105.271	12	0.012	1020.00	1020.61	0.58	1021.13	1025.71	1020.44	1021.07	3.44	17.220	1.00 z	n/a	0.000	0.00	1.17	2.94

Project File: ONSITE STORM 10-YR.stm | Number of lines: 49 | Date: 7/19/2019

NOTES: ** Critical depth

Storm Sewers

10-YEAR PRIVATE STORM SEWER HYDRAULIC CALCULATIONS

MyReport

Line No.	Line ID	Line Length (ft)	Line Size (in)	n-val Pipe	Invert Dn (ft)	Invert Up (ft)	Line Slope (%)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	HGL Dn (ft)	HGL Up (ft)	Vel Ave (ft/s)	Defl Ang (Deg)	J-Loss Coeff	Minor Loss (ft)	Energy Loss (ft)	Known Q (cfs)	Flow Rate (cfs)	Capac Full (cfs)
47	P-1001	19.015	10	0.012	1020.78	1020.87	0.47	1025.71	1026.48	1021.20	1021.29	2.99	45.000	0.75	0.10	0.090	0.07	0.82	1.63
48	P-1002	80.068	10	0.012	1020.88	1021.28	0.50	1026.48	1026.50	1021.39	1021.66	2.60	45.000	1.00 z	n/a	0.299	0.75	0.75	1.68
49	P-902	60.969	10	0.012	1020.78	1021.22	0.72	1025.71	1025.43	1021.07	1021.48 j	2.28	-90.000	1.00 z	n/a	0.000	0.35	0.35	2.02

Project File: ONSITE STORM 10-YR.stm | Number of lines: 49 | Date: 7/19/2019

NOTES: ** Critical depth

Storm Sewers

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1701 S.E. OLDHAM PARKWAY
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-19-19
RYAN V. JEPPSON
PROFESSIONAL ENGINEER
MO# PE-2012024241

STORM CALCULATIONS

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811
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100-YEAR PRIVATE STORM SEWER HYDRAULIC CALCULATIONS

MyReport

Line No.	Line ID	Line Length (ft)	Line Size (in)	n-val Pipe	Invert Dn (ft)	Invert Up (ft)	Line Slope (%)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	HGL Dn (ft)	HGL Up (ft)	Vel Ave (ft/s)	Defl Ang (Deg)	J-Loss Coeff	Minor Loss (ft)	Energy Loss (ft)	Known Q (cfs)	Flow Rate (cfs)	Capac Full (cfs)
1	P-1301	106.609	18	0.012	1021.50	1022.03	0.50	1023.15	1026.01	1022.20	1022.75	4.33	161.670	0.95 z	n/a	0.000	0.00	3.58	8.02
2	P-1501	167.010	10	0.012	1022.70	1023.54	0.50	1026.01	1025.25	1023.11	1023.95	3.05	-69.450	1.00	0.14	0.839	0.81	0.81	1.68
3	P-1302	25.179	18	0.012	1022.03	1022.16	0.52	1026.01	1026.28	1022.75	1022.79 j	3.61	20.550	1.00 z	n/a	0.000	0.00	2.77	8.17
4	P-1401	38.149	12	0.012	1022.66	1022.85	0.50	1026.28	1025.50	1023.26	1023.45	3.71	90.000	1.00	0.21	0.190	1.82	1.82	2.72
5	P-1303	89.832	15	0.012	1022.41	1022.86	0.50	1026.28	1026.76	1022.79	1023.24	2.99	0.000	1.00 z	0.14	0.000	0.95	0.95	4.95
6	P-501	61.372	24	0.012	1020.00	1020.35	0.57	1022.16	1025.14	1021.33	1021.72	6.41	92.221	1.00 z	n/a	0.000	0.00	14.46	18.50
7	P-502	62.708	24	0.012	1020.35	1020.66	0.49	1025.14	1025.64	1021.72	1021.91	5.56	0.000	0.75 z	n/a	0.000	0.50	12.05	17.23
8	P-503	72.582	24	0.012	1020.66	1021.02	0.50	1025.64	1026.50	1021.91	1022.24 j	5.69	-45.000	0.75 z	n/a	0.000	0.73	11.55	17.26
9	P-504	79.336	24	0.012	1021.02	1021.42	0.50	1026.50	1025.50	1022.24	1022.60 j	5.51	-45.000	1.00 z	n/a	0.000	1.61	10.82	17.40
10	P-505	54.080	15	0.012	1022.17	1022.44	0.50	1025.50	1026.30	1023.07	1023.34	4.54	90.000	1.00	0.32	0.270	0.07	4.30	4.94
11	P-801	139.542	10	0.012	1022.83	1023.52	0.49	1026.30	1026.50	1023.66	1024.50	3.37	-90.000	1.00	0.18	0.838	1.84	1.84	1.67
12	P-506	14.170	15	0.012	1022.44	1022.52	0.56	1026.30	1026.50	1023.66	1023.14	2.96	0.000	1.00 z	n/a	0.000	0.07	2.39	5.26
13	P-507	46.881	12	0.012	1022.77	1023.00	0.49	1026.50	1026.75	1023.48	1023.71	3.87	90.000	0.15	0.03	0.230	0.82	2.32	2.70
14	P-508	48.728	8	0.012	1023.33	1023.58	0.51	1026.75	1026.75	1024.00	1024.64	4.30	0.000	1.00	0.29	0.641	1.50	1.50	0.94
15	P-601	267.340	12	0.012	1021.35	1022.75	0.52	1025.14	1026.50	1022.07	1023.47	4.00	-90.000	1.00	0.25	1.399	2.41	2.41	2.79
16	P-701	30.649	15	0.012	1021.42	1021.57	0.49	1025.50	1025.91	1022.60	1022.72	4.12	0.000	0.15	0.04	0.131	1.44	4.91	4.89
17	P-702	63.531	15	0.012	1021.57	1021.89	0.50	1025.91	1026.50	1022.76	1022.87	3.12	0.000	0.78	0.14	0.154	0.88	3.47	4.96
18	P-703	13.690	12	0.012	1022.14	1022.21	0.51	1026.50	1025.43	1023.01	1023.05	3.63	48.020	0.78	0.16	0.058	0.00	2.59	2.76
19	P-704	39.780	12	0.012	1022.21	1022.41	0.50	1025.43	1026.83	1023.22	1023.38	3.31	-48.040	1.00	0.17	0.169	2.59	2.59	2.74
20	P-1201	122.147	12	0.012	1021.50	1022.13	0.52	1022.63	1026.35	1022.50	1023.36	4.11	-162.780	1.00	0.26	0.856	0.00	3.23	2.77
21	P-1202	131.815	12	0.012	1022.13	1022.79	0.50	1026.35	1026.40	1023.62	1023.79	1.91	-90.000	0.97	0.06	0.196	0.98	1.50	2.73
22	P-1203	56.705	8	0.012	1022.79	1023.07	0.49	1026.40	1026.82	1023.84	1023.93	1.49	75.000	1.00	0.03	0.090	0.52	0.52	0.92
23	P-1101	97.638	10	0.012	1022.30	1022.78	0.49	1026.35	1026.02	1023.62	1024.14	3.17	90.000	0.75	0.12	0.519	1.04	1.73	1.66

Project File: ONSITE STORM 100-YR.stm | Number of lines: 49 | Date: 7/19/2019

NOTES: ** Critical depth

100-YEAR PRIVATE STORM SEWER HYDRAULIC CALCULATIONS

MyReport

Line No.	Line ID	Line Length (ft)	Line Size (in)	n-val Pipe	Invert Dn (ft)	Invert Up (ft)	Line Slope (%)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	HGL Dn (ft)	HGL Up (ft)	Vel Ave (ft/s)	Defl Ang (Deg)	J-Loss Coeff	Minor Loss (ft)	Energy Loss (ft)	Known Q (cfs)	Flow Rate (cfs)	Capac Full (cfs)
24	P-1102	25.330	8	0.012	1022.95	1023.08	0.51	1026.02	1026.42	1024.26	1024.33	1.98	-45.000	0.75	0.05	0.070	0.29	0.69	0.94
25	P-1103	60.948	8	0.012	1023.08	1023.39	0.51	1026.42	1026.28	1024.37	1024.43	1.15	-45.000	1.00	0.02	0.057	0.40	0.40	0.93
26	P-101	73.421	30	0.012	1015.60	1016.06	0.63	1018.27	1023.16	1017.24	1017.83	7.57	110.146	0.36 z	n/a	0.000	0.00	26.91	35.17
27	P-102	322.611	30	0.012	1016.06	1017.67	0.50	1023.16	1025.06	1017.84	1019.45	7.18	-17.925	1.00	0.80	1.608	0.43	26.91	31.39
28	P-201	179.271	24	0.012	1018.17	1020.36	1.22	1025.06	1026.52	1020.26	1021.34 j	3.69	-90.000	0.15 z	n/a	0.456	1.28	7.59	27.08
29	P-202	45.485	18	0.012	1020.86	1021.09	0.51	1026.52	1026.60	1021.86	1022.09	5.06	0.000	1.00	0.40	0.230	0.24	6.31	8.09
30	P-203	79.090	18	0.012	1021.09	1021.49	0.51	1026.60	1026.60	1022.49	1022.61	3.60	-5.584	1.00	0.24	0.198	1.96	5.56	8.09
31	P-204	76.223	15	0.012	1021.74	1022.12	0.50	1026.60	1026.50	1022.85	1022.95	3.13	5.584	1.00	0.20	0.188	1.09	3.09	4.94
32	P-205	34.155	10	0.012	1022.54	1022.71	0.50	1026.50	1026.50	1023.17	1023.34	3.48	0.000	1.00	0.19	0.170	0.96	1.53	1.67
33	P-205A	28.763	8	0.012	1022.87	1023.02	0.52	1026.50	1026.50	1023.52	1023.56	1.76	-90.000	1.00	0.05	0.052	0.57	0.57	0.94
34	P-204A	24.077	8	0.012	1022.70	1022.82	0.50	1026.50	1026.50	1023.15	1023.19	2.14	-90.000	1.00	0.09	0.070	0.47	0.47	0.92
35	P-203B	21.305	8	0.012	1022.32	1022.43	0.52	1026.60	1026.75	1022.85	1022.87	1.90	-84.416	1.00	0.07	0.044	0.51	0.51	0.94
36	P-103	66.140	30	0.012	1017.87	1018.20	0.50	1025.06	1024.49	1020.26	1019.67	5.10	0.000	0.55 z	0.34	0.000	0.00	18.89	31.38
37	P-104	74.780	30	0.012	1018.20	1018.57	0.49	1024.49	1023.66	1019.67	1020.04	6.28	-29.520	0.87 z	0.53	0.000	10.03	18.89	31.25
38	P-105	229.870	24	0.012	1019.07	1020.22	0.50	1023.66	1024.16	1020.08	1021.28	5.39	-57.320	1.00 z	0.43	0.000	6.18	8.86	17.33
39	P-301	69.140	10	0.012	1021.34	1021.85	0.74	1024.16	1026.33	1021.80	1022.33	3.73	-93.140	1.00 z	0.20	0.000	0.00	1.18	2.04
40	P-401	77.779	8	0.012	1022.01	1022.40	0.50	1026.33	1026.36	1022.33	1022.70	2.56	-90.000	1.00	0.11	0.385	0.41	0.41	0.93
41	P-302	59.469	8	0.012	1022.01	1022.31	0.50	1026.33	1026.91	1022.47	1022.77	2.97	90.000	1.00	0.14	0.300	0.77	0.77	0.93
42	P-106	80.180	18	0.012	1020.72	1021.12	0.50	1024.16	1025.96	1021.28	1021.58	2.88	-4.570	1.00 z	n/a	0.000	0.00	1.50	8.04
43	P-107	62.052	12	0.012	1021.12	1021.43	0.50	1025.96	1026.87	1021.65	1021.96	3.56	-90.000	1.00	0.20	0.311	0.03	1.50	2.73
44	P-108	131.123	12	0.012	1021.43	1022.09	0.50	1026.87	1025.25	1022.16	1022.60 j	3.01	90.000	1.00 z	n/a	0.472	1.47	1.47	2.74
45	P-202A	25.763	8	0.012	1021.92	1022.05	0.50	1026.60	1026.85	1022.49	1022.51	1.80	-90.000	1.00	0.06	0.047	0.51	0.51	0.93
46	P-901	105.271	12	0.012	1020.00	1020.61	0.58	1021.13	1025.71	1020.58	1021.19	3.94	17.220	1.00 z	n/a	0.000	0.00	1.85	2.94

Project File: ONSITE STORM 100-YR.stm | Number of lines: 49 | Date: 7/19/2019

NOTES: ** Critical depth

100-YEAR PRIVATE STORM SEWER HYDRAULIC CALCULATIONS

MyReport

Line No.	Line ID	Line Length (ft)	Line Size (in)	n-val Pipe	Invert Dn (ft)	Invert Up (ft)	Line Slope (%)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	HGL Dn (ft)	HGL Up (ft)	Vel Ave (ft/s)	Defl Ang (Deg)	J-Loss Coeff	Minor Loss (ft)	Energy Loss (ft)	Known Q (cfs)	Flow Rate (cfs)	Capac Full (cfs)
47	P-1001	19.015	10	0.012	1020.78	1020.87	0.47	1025.71	1026.48	1021.34	1021.43	3.32	45.000	0.75	0.13	0.090	0.10	1.30	1.63
48	P-1002	80.068	10	0.012	1020.88	1021.28	0.50	1026.48	1026.50	1021.56	1021.79	2.96	45.000	1.00	0.18	0.313	1.20	1.20	1.68
49	P-902	60.969	10	0.012	1020.78	1021.22	0.72	1025.71	1025.43	1021.19	1021.55 j	2.43	-90.000	1.00 z	n/a	0.000	0.55	0.55	2.02

Project File: ONSITE STORM 100-YR.stm | Number of lines: 49 | Date: 7/19/2019

NOTES: ** Critical depth

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SEAL

STATE OF MISSOURI
RYAN V. JEPPSON
NUMBER PE-2012024241
PROFESSIONAL ENGINEER
7-18-19
RYAN V. JEPPSON
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MO# PE-2012024241

STORM CALCULATIONS

ISSUE DATE:
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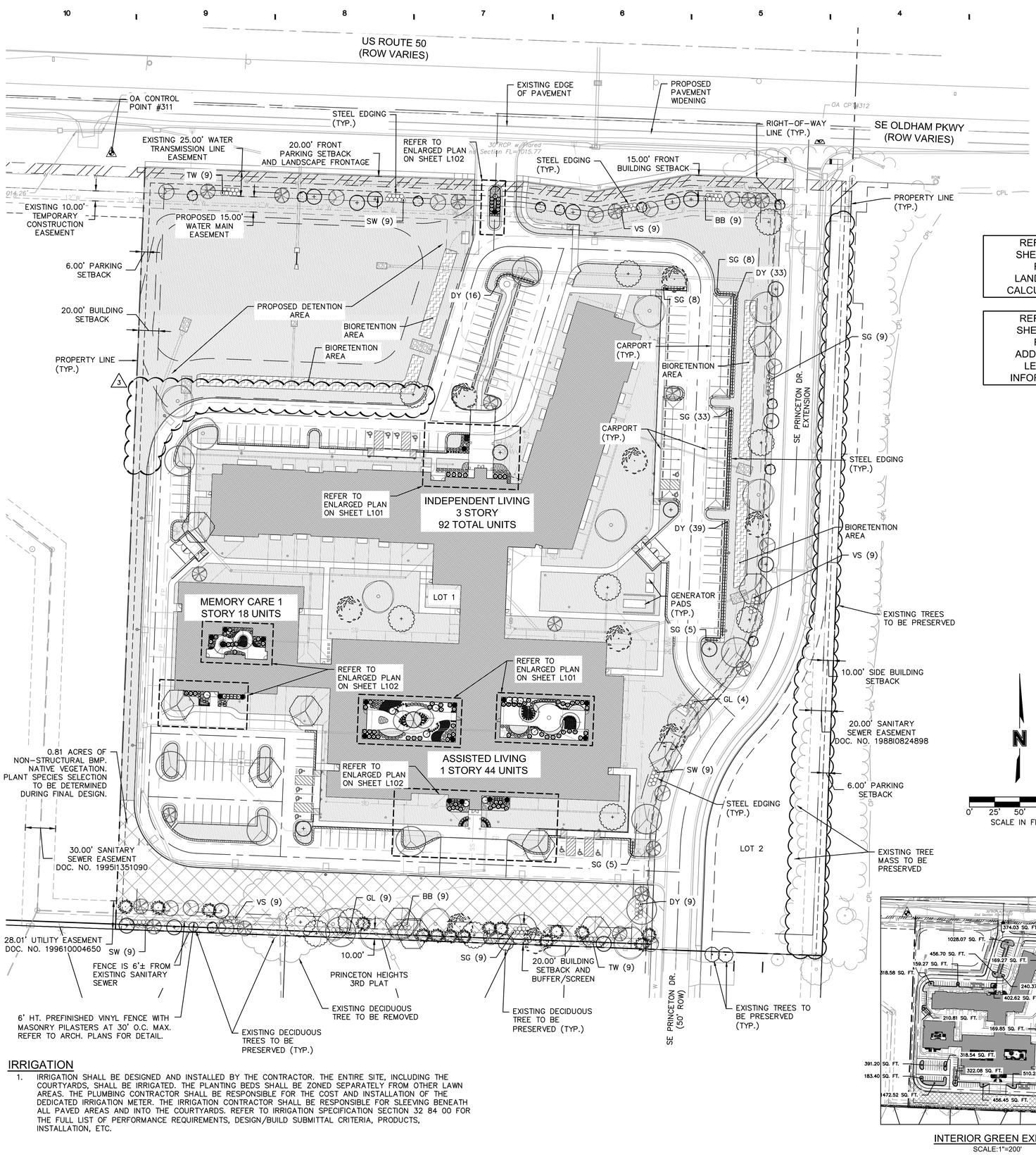


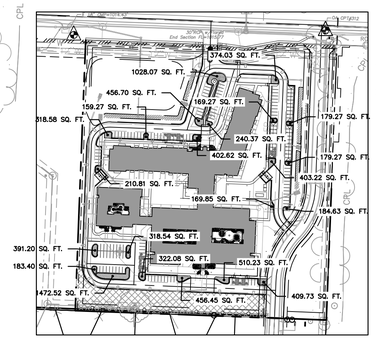
REFER TO SHEET L103 FOR LANDSCAPE CALCULATIONS

REFER TO SHEET L101 FOR ADDITIONAL LEGEND INFORMATION

PLANT LEGEND					
TREES	BOTANICAL / COMMON NAME	SIZE	CONTAINER	SPACING	QTY
	Taxodium distichum Baldcypress	3" Cal.	B&B		9
	Celtis occidentalis Hackberry	3" Cal.	B&B		13
	Robinia pseudoacacia var. 'Inermis' Thornless Black Locust	3" Cal.	B&B		11
	Juniperus virginiana 'Canaertii' Canaerti Juniper	8' Ht.	B&B		15
	Amelanchier arborea Serviceberry	3" Cal.	B&B		17
	Cercis canadensis Eastern Redbud	3" Cal.	B&B		13
	Aesculus pavia Red Buckeye	3" Cal.	B&B		11
	Chionanthus virginicus American Fringe Tree	3" Cal.	B&B		19
	Acer saccharum Sugar Maple	3" Cal.	B&B		10
	Quercus coccinea Scarlet Oak	3" Cal.	B&B		13
SHRUBS	BOTANICAL / COMMON NAME	SIZE	NOTES	SPACING	QTY
SW	Hypericum x 'Sunny Boulevard Sunny Boulevard St. John's Wort	5 Gal	Min. Ht. of 18" AFTER installed AND Pruned		27
VS	Itea virginica 'Little Henry' TM Virginia Sweetspire	5 Gal	Min. Ht. of 18" AFTER installed AND Pruned		27
GL	Juniperus chinensis 'Gold Lace' Gold Lace Juniper	5 Gal	Min. Ht. of 18" AFTER installed AND Pruned		13
SG	Juniperus chinensis 'Sea Green' Sea Green Juniper	5 Gal	Min. Ht. of 18" AFTER installed AND Pruned		77
BB	Euonymus alatus 'Rudy Haag' Rudy Haag Burning Bush	5 Gal	Min. Ht. of 18" AFTER installed AND Pruned		18
TW	Physocarpus opulifolius 'Tiny Wine' Tiny Wine Ninebark	5 Gal	Min. Ht. of 18" AFTER installed AND Pruned		18
DY	Taxus x densiformis Densiformis Yew	5 Gal	Min. Ht. of 18" AFTER installed AND Pruned		97
BIORETENTION AREAS: A SINGLE ROW OF SHRUBS LENGTHWISE DOWN THE CENTER, THEN TWO ROWS OF GRASSES AND WILDFLOWERS ON EACH SIDE OF THE ROW OF SHRUBS.					
SHRUBS	BOTANICAL / COMMON NAME	SIZE	CONTAINER	SPACING	QTY
	Cephalanthus occidentalis Buttonbush	1 Qt.		6' o.c.	33
	Prunus virginiana Chokecherry	1 Qt.		6' o.c.	33
	Sambucus canadensis Elderberry	1 Qt.		6' o.c.	33
GRASSES & WILDFLOWERS	BOTANICAL / COMMON NAME	SIZE	CONTAINER	SPACING	QTY
	Elymus canadensis Virginia Wildrye	2.5" peat pot		2' o.c.	199
	Lobelia siphilitica Great Blue Lobelia	2.5" peat pot		2' o.c.	199
	Panicum virgatum Switchgrass	2.5" peat pot		2' o.c.	199
GROUNDCOVER					
	TURF GRASS – SOD				
	TURF GRASS – NATIVE SEED MIX – REFER TO SPECIFICATIONS				
	PEA GRAVEL				

IRRIGATION

1. IRRIGATION SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR. THE ENTIRE SITE, INCLUDING THE COURTYARDS, SHALL BE IRRIGATED. THE PLANTING BEDS SHALL BE ZONED SEPARATELY FROM OTHER LAWN AREAS. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST AND INSTALLATION OF THE DEDICATED IRRIGATION METER. THE IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR SLEEVING BENEATH ALL PAVED AREAS AND INTO THE COURTYARDS. REFER TO IRRIGATION SPECIFICATION SECTION 32 84 00 FOR THE FULL LIST OF PERFORMANCE REQUIREMENTS, DESIGN/BUILD SUBMITTAL CRITERIA, PRODUCTS, INSTALLATION, ETC.



INTERIOR GREEN EXHIBIT
SCALE:1"=200'

HATCH LEGEND

INTERIOR GREEN SPACE

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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

STARK WILSON DUNCAN ARCHITECTS INC.
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SEAL

STATE OF MISSOURI
JANE K. DONEY EARNHART
NUMBER LA-00013
LANDSCAPE ARCHITECT
07-15-2019

JANE K. DONEY EARNHART
LANDSCAPE ARCHITECT
MO# LA-00013

Jane Earnhart

LANDSCAPE PLAN

ISSUE DATE:
6-14-2019

REVISIONS:
3 ENG. REVIEW CMMTS. - 07/19/2019

PROJECT NO.: 11811

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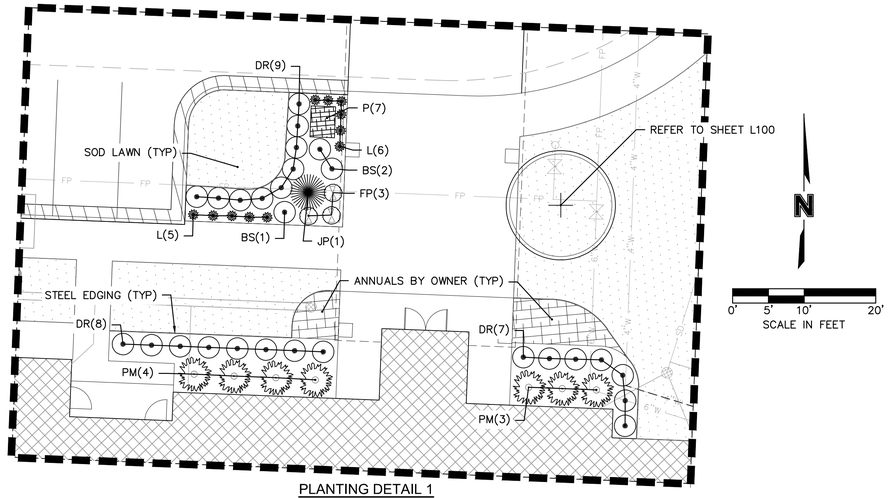
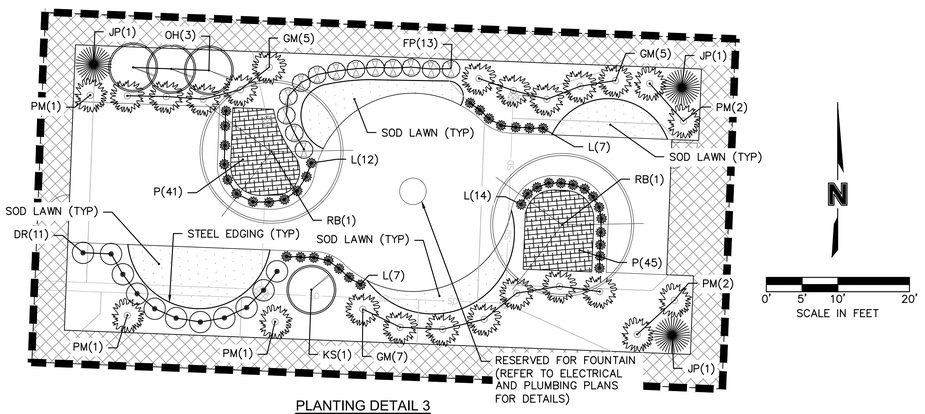
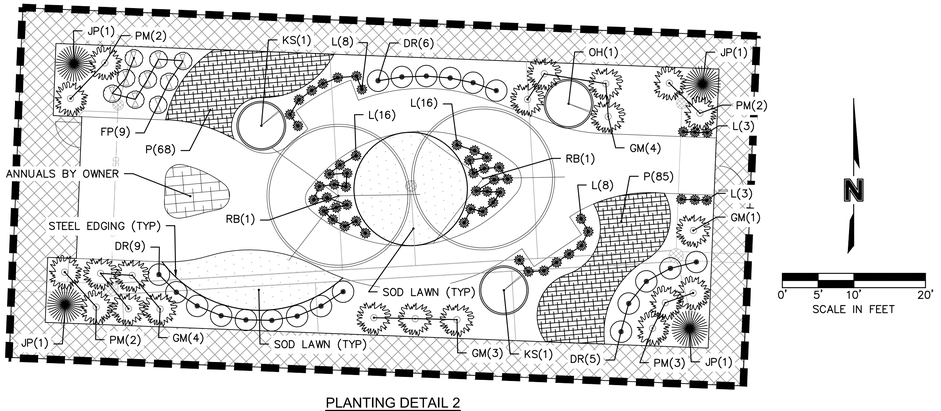


PLANTING DETAIL 1
INDEPENDENT LIVING ENTRANCE
SCALE: 1"=10'



PLANTING DETAIL 3
ASSISTED LIVING COURTYARD #2
SCALE: 1"=10'



PLANTING DETAIL 2
ASSISTED LIVING COURTYARD #1
SCALE: 1"=10'

LEGEND

- PROPERTY LINES
- RIGHT-OF-WAY (ROW)
- ROAD CENTERLINE
- EASEMENT LINES
- SETBACK LINES
- FOUND MONUMENT
- TEMPORARY BENCHMARK
- EXIST. POWER POLE
- EXIST. ELECTRIC BOX
- EXIST. ELECTRIC VAULT
- EXIST. ELECTRIC METER
- EXIST. GUY WIRE
- EXIST. TELEPHONE PEDESTAL
- EXIST. FIRE HYDRANT
- EXIST. WATER METER
- EXIST. WATER VALVE
- GAS MARKER — EXIST. GAS MARKER
- EXIST. CABLE VAULT
- EXIST. SANITARY MANHOLE
- EXIST. FLARED END SECTION
- EXIST. DECIDIOUS TREE
- EXIST. SIGN
- PROP. SANITARY SEWER CLEANOUT
- PROP. FIRE HYDRANT
- PROP. GATE VALVE
- PROP. SIGN
- P-OH — EXIST. OVERHEAD ELECTRIC
- TEL — EXIST. UNDERGROUND TELEPHONE
- G — EXIST. GAS LINE
- SD — EXIST. STORM SEWER LINE
- EX. WOOD FENCE
- 8"SS — PROP. SANITARY SEWER SERVICE
- PROP. STORM SEWER 12" OR LARGER
- SD — SD — PROP. STORM SEWER 10" OR SMALLER
- E — E — PROP. UNDERGROUND ELECTRIC
- 12"W — PROP. PUBLIC WATER MAIN
- IRR — PROP. IRRIGATION LINE
- 6"W — PROP. WATER SERVICE
- FP — PROP. FIRE PROTECTION LINE

"THESE QUANTITIES ARE FOR SHEET L101 ONLY"

PLANT LIST

Qty	Abbrev.	Scientific Name	Common Name	Size	Notes
Trees					
4	RB	Betula nigra	River Birch	2" Caliper	
Shrubs/Perennials					
3	BS	Spiraea x bumalda 'goldflume'	Bumald Spirea	3 Gallon	
8	JP	Pinus parviflora 'venus'	Japanese White Pine	5 Gallon	
3	KS	Viburnum carlesii 'compactum'	Koreanspice Viburnum	5 Gallon	
4	OH	Hydrangea quercifolia	Oakleaf Hydrangea	3 Gallon	
29	GM	Juniperus procumbens 'Green Mound'	Green Mound Juniper	3 Gallon	
105	L	Liriope	Liriope	1 Quart	
25	FP	Nandina domestica 'Fire Power'	Fire Power Nandina	2 Gallon	
246	P	Phlox subulata	Creeping Phlox	1 Quart	18" o.c.
55	DR	Rosa meidriflora	Coral Drift Rose	3 Gallon	
23	PM	Pinus mugo 'Mops'	Dwarf Mugo Pine	3 Gallon	

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SEAL

STATE OF MISSOURI
JANE K. DONEY EARNHART
NUMBER LA-00013
LANDSCAPE ARCHITECT

JANE K. DONEY EARNHART
LANDSCAPE ARCHITECT
MO# LA-00013

Jane Earnhart

ENLARGED
LANDSCAPE PLAN

ISSUE DATE:
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REVISIONS:

PROJECT NO.: 11811

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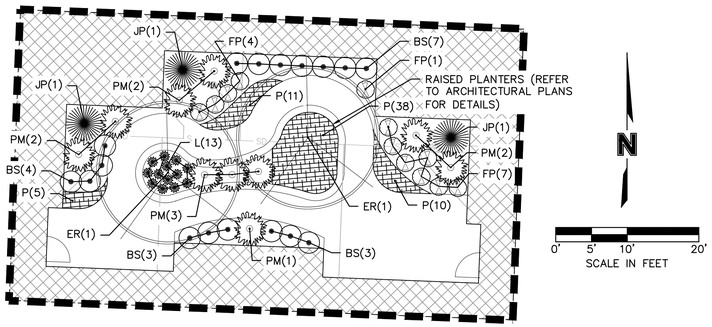
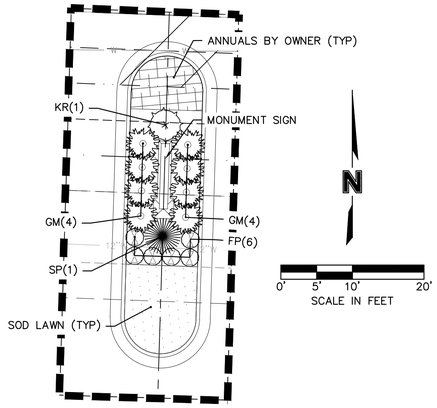
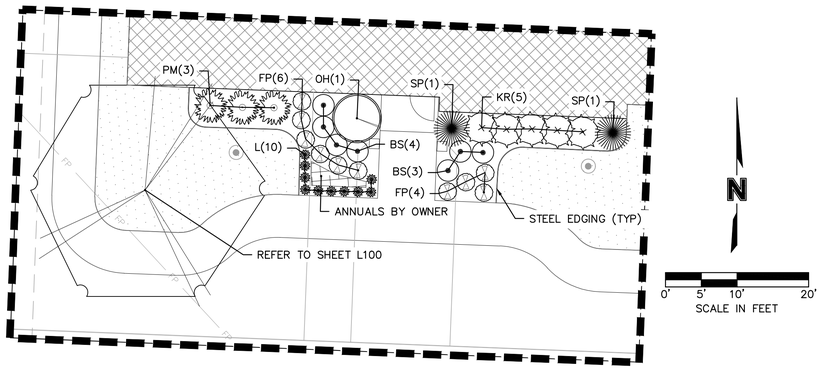


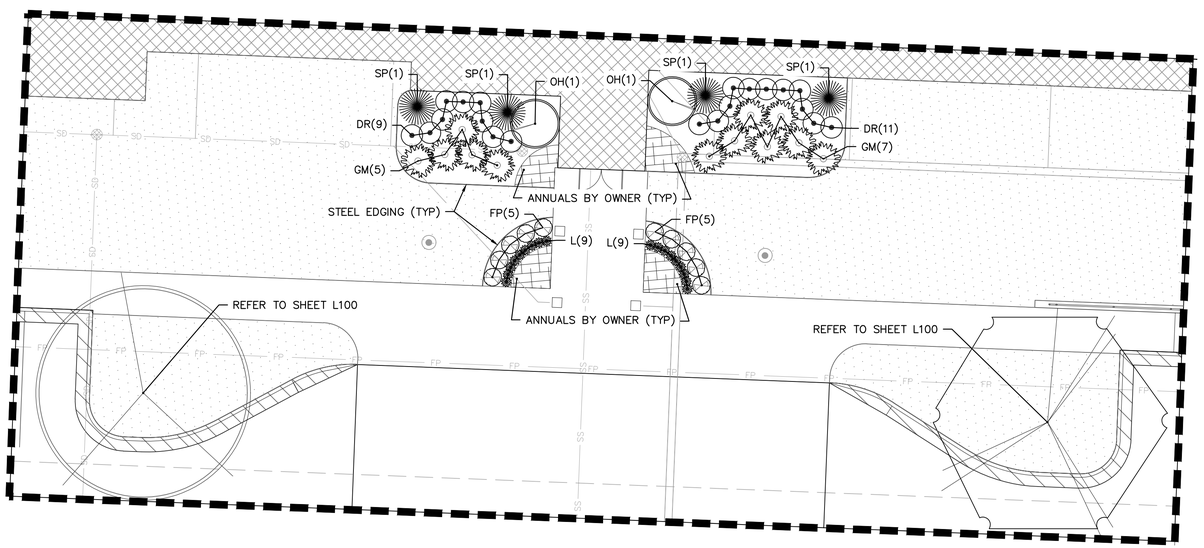
PLANTING DETAIL 4
MEMORY CARE COURTYARD
SCALE: 1"=10'



PLANTING DETAIL 7
DRIVEWAY ISLAND
SCALE: 1"=10'



PLANTING DETAIL 5
MEMORY CARE ENTRANCE
SCALE: 1"=10'



PLANTING DETAIL 6
ASSISTED LIVING ENTRANCE
SCALE: 1"=10'

LEGEND

- PROPERTY LINES
- RIGHT-OF-WAY (ROW)
- ROAD CENTERLINE
- EASEMENT LINES
- SETBACK LINES
- FOUND MONUMENT
- TEMPORARY BENCHMARK
- EXIST. POWER POLE
- EXIST. ELECTRIC BOX
- EXIST. ELECTRIC VAULT
- EXIST. ELECTRIC METER
- EXIST. GUY WIRE
- EXIST. TELEPHONE PEDESTAL
- EXIST. FIRE HYDRANT
- EXIST. WATER METER
- EXIST. WATER VALVE
- EXIST. GAS MARKER
- EXIST. CABLE VAULT
- EXIST. SANITARY MANHOLE
- EXIST. FLARED END SECTION
- EXIST. DECIDIOUS TREE
- EXIST. SIGN
- PROP. SANITARY SEWER CLEANOUT
- PROP. FIRE HYDRANT
- PROP. GATE VALVE
- PROP. SIGN
- EXIST. OVERHEAD ELECTRIC
- EXIST. UNDERGROUND TELEPHONE
- EXIST. GAS LINE
- EXIST. STORM SEWER LINE
- EX. WOOD FENCE
- PROP. SANITARY SEWER SERVICE
- PROP. STORM SEWER 12" OR LARGER
- PROP. STORM SEWER 10" OR SMALLER
- PROP. UNDERGROUND ELECTRIC
- PROP. PUBLIC WATER MAIN
- PROP. IRRIGATION LINE
- PROP. WATER SERVICE
- PROP. FIRE PROTECTION LINE

TURF GRASS – SOD

"THESE QUANTITIES ARE FOR SHEET L102 ONLY"

PLANT LIST

Qty	Abbrev.	Scientific Name	Common Name	Size	Notes
Trees					
2	ER	Cercis canadensis	Eastern Redbud	2" Caliper	
Shrubs/Perennials					
24	BS	Spiraea x bumalda 'goldflume'	Bumald Spirea	3 Gallon	
3	JP	Pinus parviflora 'venus'	Japanese White Pine	5 Gallon	
3	OH	Hydrangea quercifolia	Oakleaf Hydrangea	3 Gallon	
20	GM	Juniperus procumbens 'Green Mound'	Green Mound Juniper	3 Gallon	
7	SP	Juniperus chinenis 'Spearmint'	Spearmint Juniper	4' Ht.	
41	L	Liriope	Liriope	1 Quart	
38	FP	Nandina domestica 'Fire Power'	Fire Power Nandina	2 Gallon	
64	P	Phlox subulata	Creeping Phlox	1 Quart	18" o.c.
20	DR	Rosa meidriflora	Coral Drift Rose	3 Gallon	
13	PM	Pinus mugo 'Mops'	Dwarf Mugo Pine	3 Gallon	
6	KR	Rosa 'Radtko'	Double Knockout Rose	5 Gallon	

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SEAL

STATE OF MISSOURI
JANE K. DONEY EARNHART
NUMBER LA-00013
LANDSCAPE ARCHITECT
17-12-2019

JANE K. DONEY EARNHART
LANDSCAPE ARCHITECT
MO# LA-00013

Jane Earnhart

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LANDSCAPE PLAN

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PROJECT NO.: 11811

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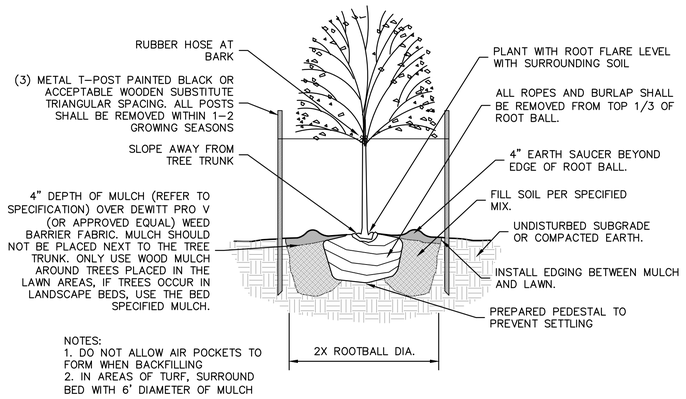
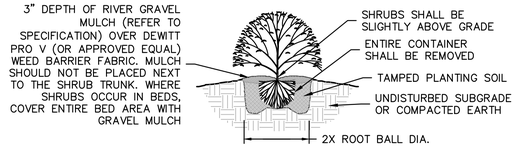


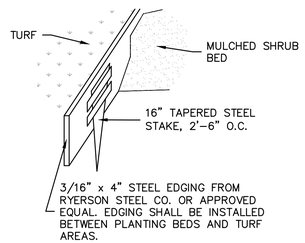
NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
2. IN AREAS OF TURF, SURROUND BED WITH 6' DIAMETER OF MULCH

DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

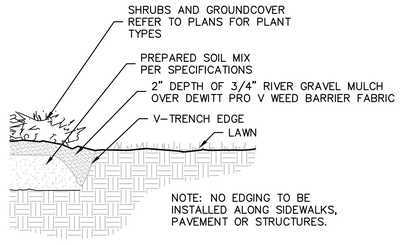


SHRUB PLANTING DETAIL
NOT TO SCALE

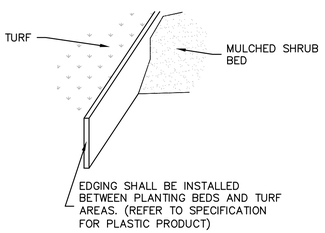
NOTES:
1. MINIMUM ROOT SPREAD TO BE IN ACCORDANCE WITH AAN STANDARDS
2. PRUNE DAMAGED LIMBS OR ROOTS AFTER INSTALLATION
3. MAKE SURE ROOTS DO NOT DRY OUT DURING INSTALLATION
4. SOAK GENEROUSLY TO COMPACT AND SETTLE



STEEL EDGING DETAIL
NOT TO SCALE

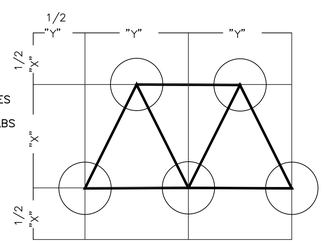


"V" TRENCH EDGING DETAIL
TO BE USED AROUND TREES PLACED IN LAWN AREA
NOT TO SCALE

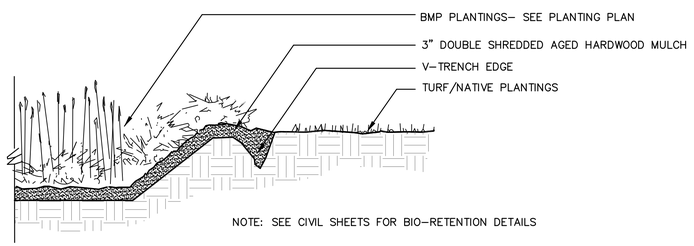


PLASTIC EDGING DETAIL
NOT TO SCALE

NOTE:
SPACING PATTERN APPLIES TO ALL PERENNIALS, GROUNDCOVERS AND BULBS UNLESS OTHERWISE SPECIFIED.
X=
Y=



GROUNDCOVER LAYOUT DETAIL
NOT TO SCALE



NOTE: SEE CIVIL SHEETS FOR BIO-RETENTION DETAILS

BIO-RETENTION EDGE DETAIL
NOT TO SCALE

LANDSCAPE CALCULATIONS

A. STREET FRONTAGE – LOT 1

1. ONE TREE SHALL BE PLANTED FOR EACH 30 FEET OF STREET FRONTAGE, PUBLIC OR PRIVATE, WITHIN THE LANDSCAPE SETBACK ABUTTING SAID STREET FRONTAGE. A MINIMUM 20' WIDE LANDSCAPE STRIP SHALL BE PROVIDED ALONG THE FULL LENGTH OF ANY STREET FRONTAGE.

   SE OLDHAM PARKWAY – 704 LF FRONTAGE
   24 TREES REQUIRED
   24 TREES PROVIDED

   SE PRINCETON DRIVE – 798 LF FRONTAGE
   27 TREES REQUIRED
   27 TREES PROVIDED

2. IN COMMERCIAL AND INDUSTRIAL DISTRICTS, 20' PARKING SETBACK (AND LANDSCAPE BUFFER)

3. ONE SHRUB SHALL BE PROVIDED FOR EACH 20 FEET OF STREET FRONTAGE, OR PORTION THEREOF, WITHIN THE LANDSCAPE SETBACK ABUTTING SUCH FRONTAGE. SUCH SHRUBS MAY BE CLUSTERED OR ARRANGED WITHIN THE SETBACK.

   SE OLDHAM PARKWAY – 704 LF FRONTAGE
   36 SHRUBS REQUIRED
   36 SHRUBS PROVIDED

   SE PRINCETON DRIVE – 798 LF FRONTAGE
   40 SHRUBS REQUIRED
   40 SHRUBS PROVIDED

B. OPEN YARD AREAS – LOT 1

1. THE MINIMUM OPEN YARD AREA LANDSCAPING REQUIREMENTS SHALL BE TWO SHRUBS PER 5,000 SQUARE FEET OF TOTAL LOT AREA.

   455,406 SF LOT, LESS 91.994 SF BUILDING = 363,412 SF DIVIDED BT 5,000 = 73 x 2 = 146
   REQUIRED = 146 SHRUBS
   PROVIDED = 147 SHRUBS (ALONG CARPORT/PARKING)

2. ALL PORTIONS OF THE SITE NOT COVERED WITH PAVING OR BUILDINGS SHALL BE LANDSCAPED. OPEN AREAS NOT COVERED WITH OTHER MATERIALS SHALL BE COVERED WITH SOD. GROUND COVER SHALL BE UTILIZED ON ALL SLOPES IN EXCESS OF 3:1 SLOPE.

3. IN ADDITION TO THE TREES REQUIRED BASED UPON STREET FRONTAGE, ADDITIONAL TREES SHALL BE REQUIRED AT A RATIO OF ONE TREE FOR EVERY 5,000 SQUARE FEET OF LOT AREA NOT COVERED BY BUILDING/STRUCTURES.

   455,406 SF LOT, LESS 91.994 SF BUILDING = 363,412 SF DIVIDED BT 5,000 = 73
   REQUIRED = 73 TREES
   PROVIDED = 79 TREES

C. TRASH STORAGE CONTAINERS

1. A DETAILED DRAWING OF ENCLOSURE AND SCREENING METHODS TO BE USED IN CONNECTION WITH TRASH STORAGE CONTAINERS ON THE PROPERTY SHALL BE INCLUDED WITH THE LANDSCAPING PLAN.

   PROVIDED = REFER TO ARCHITECTURAL SHEETS

D. PARKING LOT LANDSCAPING – LOT 1

1. LANDSCAPE ISLANDS, STRIPS OR OTHER PLANTING AREAS SHALL BE LOCATED WITHIN THE PARKING LOT AND CONSTITUTE AT LEAST 5% OF THE ENTIRE AREA DEVOTED TO PARKING SPACES, AISLES OR DRIVEWAYS.

   104,944 SF TOTAL PARKING AREA
   5,247 SF LANDSCAPE ISLAND AREA REQUIRED
   8,953 SF LANDSCAPE ISLAND AREA PROVIDED

2. SCREENING TO A HEIGHT OF 2.5 FEET MUST BE PROVIDED ALONG THE EDGE OF THE PARKING LOT OR LOADING AREA CLOSEST TO AND PARALLEL TO THE STREET.

   SCREENING IS PROVIDED ALONG PARKING.

E. BUFFER/SCREEN – LOT 1

1. BUFFER/SCREEN BETWEEN DEVELOPMENT OF DIFFERING LAND USES ADJOINING ONE ANOTHER OR SEPARATED FROM ONE ANOTHER BY ONLY A STREET OR ALLEY SHALL COMPLY WITH TABLE 14.1.

   WESTERN BOUNDARY – NONE REQUIRED, COMMERCIAL ZONING

   NORTHERN BOUNDARY – NONE REQUIRED, COMMERCIAL ZONING

   EASTERN BOUNDARY – NONE REQUIRED, COMMERCIAL ZONING

   SOUTHERN BOUNDARY – BUFFER ALONG RESIDENTIAL DEVELOPMENT

   REQUIRED = H, HIGH IMPACT SCREENING – USE SIX-FOOT HIGH OPAQUE VINYL FENCE, AND LOW IMPACT SCREENING ON BOTH SIDES OF FENCE.

   532.10 LF BY 20' DEPTH = 10,642 SF LOW IMPACT SCREENING "C" (SHADE TREE 1/750 SF, ORNAMENTAL TREES 1/750 SF, EVERGREEN TREES 1/750 SF, SHRUBS 1/200 SF).

   SHADE TREES REQUIRED = 15 (COMBINED BOTH SIDES OF FENCE)
   ORNAMENTAL TREES REQUIRED = 15 (COMBINED BOTH SIDES OF FENCE)
   EVERGREEN TREES REQUIRED = 15 (COMBINED BOTH SIDES OF FENCE)
   SHRUBS REQUIRED = 54 (COMBINED BOTH SIDES OF FENCE)

   PROVIDED = SIX FOOT HIGH OPAQUE VINYL FENCE, AND LOW IMPACT SCREENING "C"
   SHADE TREES: 15
   ORNAMENTAL TREES: 15
   EVERGREEN TREES: 15
   SHRUBS: 54

LANDSCAPE NOTES

1. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL UTILITY LINES AND OTHER ABOVE OR BELOW GROUND OBSTRUCTIONS SO THAT PROPER PRECAUTIONS SHALL BE TAKEN NOT TO DISTURB OR DAMAGE SUCH IMPROVEMENTS. REFER TO CIVIL AND MEP DRAWINGS FOR PROPOSED AND EXISTING UTILITY LOCATIONS.
2. STANDARDS SET FORTH IN "AMERICAN STANDARDS FOR NURSERY STOCK" REPRESENT GENERAL GUIDELINE SPECIFICATIONS ONLY AND WILL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIAL.
3. THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL NOT MEETING SPECIFICATIONS.
4. ALL TREES SHALL BE CALIPERED AND UNDERSIZED TREES SHALL BE REJECTED. SPECIFIED CALIPER MEASUREMENT FOR TREES SHALL BE MEASURED AT 6" ABOVE THE GRADE.
5. ANY MATERIAL WHICH DIES, OR DEFOLIATES (PRIOR TO ACCEPTANCE OF THE WORK) WILL BE PROMPTLY REMOVED AND REPLACED.
6. THE CONTRACTOR IS RESPONSIBLE FOR SOIL SAMPLING AND TESTING TO DETERMINE EXACT FERTILIZER REQUIREMENTS.
7. PLANTS AND OTHER MATERIALS ARE QUANTIFIED AND SUMMARIZED FOR THE CONVENIENCE OF THE CITY AND LOCAL GOVERNING BODIES. CONFIRM AND INSTALL SUFFICIENT QUANTITIES TO COMPLETE THE WORK AS DRAWN.
8. BACKFILL TREE AND SHRUB PITS WITH A PREPARED PLANTING MIX AS FOLLOWS UNLESS NOTED OTHERWISE:
   2 PARTS BY VOLUME TOPSOIL
   1 PART BY VOLUME BROWN RIVER SAND
   1 PART BY VOLUME PEAT MOSS
   1 LB. COMMERCIAL FERTILIZER PER CY OF MIX.
9. A PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO ALL SHRUB BEDS PRIOR TO THE INSTALLATION OF ANY PLANT MATERIAL.
10. ALL LAWN AREAS SHALL RECEIVE A MINIMUM OF 6" OF IMPORTED OR STOCKPILED FINELY GRADED TOPSOIL. ALL PLANTING BEDS AND TREE PITS SHALL RECEIVE A MINIMUM OF 24" OF THE SPECIFIED PLANTING MIX.
11. ALL LANDSCAPE PLANTING AREAS, EXCLUDING TURF AREAS SHALL BE MULCHED WITH A 2"-3" LAYER OF 1"-2" DIAMETER RIVER STONE AFTER INSTALLATION OF PLANT MATERIAL. REFER TO PLANS FOR LOCATION OF MULCH OR IF NOT SPECIFIED, THEN THE PLANTS SHALL BE MULCHED WITH WOOD MULCH.
12. ALL WOODY SHRUB PLANTING MATERIAL SHALL MEASURE A MINIMUM OF 18" IN HEIGHT AT THE TIME OF PLANTING.
13. INSTALL BED EDGING TO SEPARATE ALL MULCHED PLANTING AREAS AND GRAVEL AREAS FROM TURF AREAS. REFER TO DETAIL ON THIS SHEET. ALSO, STEEL EDGING SHALL BE INSTALLED IN LAWN AREAS AS SHOWN FOR GRADE BREAK TRANSITIONS. REFER TO PLAN FOR V-TRENCH AND STEEL EDGING LOCATIONS.
14. INSTALL WOVEN BLACK LANDSCAPE WEED BARRIER FABRIC (DEWITT 20 YEAR, 4.1 OZ. WOVEN WEED BARRIER FABRIC OR EQUAL) IN ALL PLANTING BEDS AND UNDER GRAVEL MULCH AREAS. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
15. THE PLAN IS SUBJECT TO CHANGES BASED ON PLANT SIZE AND MATERIAL AVAILABILITY. ANY DEVIATION TO THE APPROVED FINAL LANDSCAPE PLAN SHALL REQUIRE THE WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
16. LANDSCAPE CONTRACTOR SHALL PROVIDE UNIT COSTS AND POSSIBLE ALTERNATES FOR PLANT MATERIAL TO THE LANDSCAPE ARCHITECT.
17. KILL AND REMOVE ALL EXISTING WEEDS FROM THE SITE AREA PRIOR TO PLANTING.
18. THE ENTIRE SURFACE TO BE PLANTED OR SEEDED SHALL BE REASONABLY SMOOTH AND FREE FROM STONES, ROOTS, OR OTHER DEBRIS.
19. ALL DISTURBED AREAS OF THE SITE, SHRUBBED AREAS, SHALL BE HYDROSEEDED WITH AN IMPROVED TURF-TYPE TALL FESCUE AT A RATE OF 10 LBS/1,000 SF.
20. HYDROSEED MIX SHALL INCLUDE:
    CONWED OR SILVA FIBER – 1,500 LBS/AC.
    FERTILOME 9-13-7 FERTILIZER – 500 LBS/AC
    CONWEB TACKIFIER – 40 LBS/AC (7 LBS/100 GAL)
21. ALL AREAS DESIGNATED TO BE HYDROSEEDED SHALL BE SCARIFIED PRIOR TO SEEDING TO ENSURE A FIRM BUT FRIABLE SEED BED.
22. PRIOR TO HYDROSEED GERMINATION, A PREMERGENT HERBICIDE SHALL BE APPLIED. THE CONTRACTOR IS RESPONSIBLE FOR COMPATIBILITY OF HERBICIDE WITH HYDROSEEDED PLANT MATERIAL.
23. PERMANENT SEEDING SEASON RUNS FROM MARCH 1ST TO JUNE 1ST AND SEPTEMBER 15TH TO NOVEMBER 1ST. SEEDING AND MULCHING MUST BE DONE WHENEVER WORK IS COMPLETE REGARDLESS OF THE SEASON. WHENEVER SEEDING AND MULCH IS INSTALLED OUTSIDE THE PERMANENT SEEDING SEASON, THE CONTRACTOR WILL BE RESPONSIBLE FOR REPLANTING AND MULCHING ANY AREAS WHERE GROWTH HAS NOT BECOME ESTABLISHED DURING THE NEXT PERMANENT SEEDING SEASON.
24. THE CONTRACTOR IS RESPONSIBLE FOR COMPLETELY MAINTAINING THE WORK (INCLUDING BUT NOT LIMITED TO; WATERING, MULCHING, SPRAYING, FERTILIZING, ETC.) OF ALL PLANTING AND TURF AREAS UNTIL TOTAL ACCEPTANCE OF THE WORK BY THE LANDSCAPE ARCHITECT AND OWNER.
25. LANDSCAPE CONTRACTOR IS TO BE RESPONSIBLE FOR WATERING ALL PLANT MATERIALS UNTIL FINAL ACCEPTANCE OF THE PROJECT.
26. CONTRACTOR WILL STAKE OR MARK ALL PLANT MATERIAL LOCATIONS PRIOR TO INSTALLATION. CONTRACTOR SHALL HAVE OWNERS REPRESENTATIVE APPROVE ALL STAKING PRIOR TO INSTALLATION.

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Jane Earnhart

LANDSCAPE DETAILS & NOTES

ISSUE DATE:
6-14-2019
REVISIONS:

PROJECT NO.: 11811

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BIO-RETENTION AND NATIVE VEGETATION PLANTING NOTES

1. NATIVE VEGETATION:
   NATIVE VEGETATION LIVE HERBACEOUS AND GRASS PLANTS
   LIVE HERBACEOUS PLANTS: ALL LIVE HERBACEOUS PERENNIAL PLANTS, TUBERS, BULBS, PLUGS AND DORMANT ROOTSTOCKS OF HERBACEOUS PERENNIAL PLANTS SHALL BE FREE FROM INSECTS AND DISEASE. PRIOR TO DELIVERY OF ANY MATERIALS TO THE SITE, SUBMIT TO THE OWNER A COMPLETE LIST OF ALL LIVE HERBACEOUS PERENNIAL PLANTS, TUBERS, BULBS, PLUGS AND DORMANT ROOTSTOCKS OF HERBACEOUS PERENNIAL PLANTS AND GRASSES TO BE USED DURING THIS PORTION OF THE WORK.

   LIVE HERBACEOUS PERENNIAL PLANTS, TUBERS, BULBS, PLUGS AND DORMANT ROOTSTOCKS OF HERBACEOUS PERENNIAL PLANTS SHALL BE FROM WITHIN A 150 MILE RADIUS OF THE PROJECT SITE. ANY SPECIES NOT WITHIN A 150 MILE RADIUS WILL BE APPROVED BY THE OWNER. SPECIES SHALL BE TRUE TO THEIR SCIENTIFIC NAME AS SPECIFIED. ALL LIVE HERBACEOUS PLANTS SHALL BE POTTED, NURSERY GROWN STOCK UNLESS APPROVED IN WRITING BY THE OWNER. ALL LIVE HERBACEOUS PERENNIAL PLANTS, TUBERS, BULBS, AND DORMANT ROOTSTOCKS OF HERBACEOUS PERENNIAL PLANTS SHALL BE INSPECTED AND APPROVED BY THE OWNER PRIOR TO INSTALLATION.

2. QUALITY ASSURANCE
   QUALIFICATIONS OF WORKMEN: PROVIDE AT LEAST ONE PERSON WHO SHALL BE PRESENT AT ALL TIMES DURING EXECUTION OF THIS PORTION OF THE WORK WHO SHALL BE THOROUGHLY FAMILIAR WITH PLANTING OF LIVE NATIVE PLANTS. SAID PERSON SHALL DIRECT ALL WORK PERFORMED UNDER THIS SECTION.

3. PLANTING SEASON
   PLANTING OF ALL LIVE HERBACEOUS PERENNIAL PLANTS, TUBERS, BULBS, AND DORMANT ROOTSTOCKS OF HERBACEOUS PERENNIAL PLANTS SHALL BE COMPLETED AFTER APRIL 15 BUT NO LATER THAN JUNE 15.

4. PLANT INSTALLATION
   LIVE PLANT MATERIALS (HERBACEOUS AND GRASS PLANTS). NATIVE LIVE PLANT MATERIALS SPECIFIED FOR BIORETENTION FACILITIES AND OTHER NATIVE VEGETATION AREAS SHALL BE PLANTED AS SPECIFIED IN THE PLANS AND APPLICABLE LANDSCAPING STANDARDS WITH THE EXCEPTION THAT PESTICIDES, HERBICIDES, AND FERTILIZER SHALL NOT BE APPLIED DURING PLANTING UNDER ANY CIRCUMSTANCES. FURTHERMORE, PESTICIDES, FERTILIZER, AND ANY OTHER SOIL AMENDMENTS SHALL NOT BE APPLIED TO THE BIORETENTION FACILITY DURING LANDSCAPE CONSTRUCTION, PLANT ESTABLISHMENT, OR MAINTENANCE. DURING THE FIRST SEASON OF GROWTH, REMOVAL OF DEAD/FAILED VEGETATION AND REPLACEMENT WITH THE SAME SPECIES AND LOCATION IS REQUIRED TO ACHIEVE BMP CONSTRUCTION COMPLETION. PESTICIDES, HERBICIDES, AND/OR FERTILIZERS SHALL NOT, UNDER ANY CIRCUMSTANCES, BE APPLIED DURING LANDSCAPE CONSTRUCTION, PLANT ESTABLISHMENT, OR FOR A MINIMUM PERIOD OF 2 MONTHS AFTER INITIAL PLANTING.

5. WATERING OF PLANTS
   NEW VEGETATION WILL BE WATERED ONCE PER WEEK IN THE ABSENCE OF RAINFALL. THE EQUIVALENT OF ONE-HALF INCH OF WATER PER WEEK OVER THE BIORETENTION CELL AREA AND OTHER NATIVE VEGETATION AREAS WILL BE PROVIDED WEEKLY FOR THE FIRST TWO MONTHS, IN THE ABSENCE OF RAINFALL, TO ESTABLISH VEGETATION, AND BI-WEEKLY AFTER THE FIRST TWO MONTHS, IN THE ABSENCE OF RAINFALL, UNTIL OCTOBER 1. WATER IS TO BE PROVIDED BY THE CONTRACTOR, OR PAID FOR BY THE CONTRACTOR.

6. FINAL ACCEPTANCE
   AFTER COMPLETION OF OF LIVE STOCK, THE CONTRACTOR SHALL SCHEDULE WITH OWNER A PROVISIONAL ACCEPTANCE INSPECTION OF THE WORK.

   PROVISIONAL ACCEPTANCE: THE WORK SHALL BE CONSIDERED 80% COMPLETE AFTER ALL LIVE PLANTS HAVE BEEN INSTALLED AND THE CONTRACTOR HAS COMPLETED ALL REQUIRED CLEAN UP, REMOVAL, AND REPAIR OF SITE CONDITIONS.

   FINAL ACCEPTANCE: THE WORK SHALL BE CONSIDERED 100% COMPLETE AFTER YEAR 3 OF THE MAINTENANCE PLAN IS COMPLETED AS OUTLINED ON THIS SHEET, CONTRACTOR HAS MET OR EXCEEDED THE PERFORMANCE STANDARDS OF THIS SECTION, AND COMPLETED ALL REQUIRED CLEAN UP, REMOVAL, AND REPAIR OF PLANT MATERIALS AFTER SITE ESTABLISHMENT AND MAINTENANCE PERIOD.

7. REPAIR AND MAINTENANCE
   CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION, MAINTENANCE, AND REPAIR OF NATIVE VEGETATION DURING THE FIRST YEAR AFTER INSTALLATION. CONTRACTOR WILL REMOVE INVASIVE WEEDS AS NECESSARY. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSISTENT AND ADEQUATE WATER APPLICATION THROUGHOUT THE GROWING SEASON. CONTRACTOR SHALL CORRECT EROSION AND DRAINAGE PROBLEMS THROUGHOUT THE ONE-YEAR MAINTENANCE PERIOD. CONTRACTOR SHALL REMOVE SILT FENCING AT THE END OF THE COMPLIANCE PERIOD.

8. CONTRACTOR WARRANTY
   THE CONTRACTOR SHALL GUARANTEE PLANTED AREAS IN THE BIORETENTION CELL AND OTHER NATIVE VEGETATION AREAS FOR A PERIOD OF ONE YEAR FOLLOWING CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPLACEMENT OF NATIVE VEGETATION THAT WAS INSTALLED AT CONSTRUCTION DURING THE FIRST GROWING YEAR AFTER CONSTRUCTION THAT HAS DIED AS A RESULT OF IMPROPER MAINTENANCE, DISEASE, OR POOR PLANTING TECHNIQUES.

9. HARDWOOD MULCH & TURF REINFORCEMENT MAT (TRM)
   A. HARDWOOD MULCH AND NETTING IN BOTTOM OF BIORETENTION BASIN. DOUBLE SHREDDED AGED HARDWOOD MULCH SHALL CONSIST OF THE BARK FROM HARDWOOD TREES WHICH HAS BEEN MILLED AND SCREENED TO A MAXIMUM 4 INCH IN LENGTH. PARTICLE SIZE AND PROVIDE A UNIFORM TEXTURE FREE FROM SAWDUST, FOREIGN MATERIALS, AND ANY ARTIFICIALLY INTRODUCED CHEMICAL COMPOUNDS THAT WOULD BE DETRIMENTAL TO PLANT OR ANIMAL LIFE. IF AGED DOUBLE SHREDDED HARDWOOD MULCH FLOATS IN RAIN EVENTS AFTER INSTALLATION, THE CONTRACTOR SHALL INSTALL BIODEGRADABLE GEO JUTE NETTING (BY OUTSIDEPRIDE.COM OR APPROVED EQUAL). NETTING SHALL BE PLACED OVER MULCH IN ALL BIORETENTION CELLS FOLLOWING PLANTING AND MULCH PLACEMENT. NETTING SHALL BE INSTALLED FOLLOWING MANUFACTURES SPECIFICATIONS.
   B. TURF REINFORCEMENT MAT (TRM) ON ALL OTHER NATIVE VEGETATION AREAS. ALL NATIVE VEGETATION AREAS SHALL UTILIZE TRM (EXCEPT BOTTOM OF BASIN). INSTALL NORTH AMERICAN GREEN SC150 (OR APPROVED EQUAL) PRIOR TO INSTALLING PLUGS.

10. ALL MATERIALS USED SHALL MEET OR EXCEED APPLICABLE FEDERAL, STATE, COUNTY AND LOCAL LAWS AND REGULATIONS.

11. TREES AND SHRUBS SPECIFIED WITHIN THE NATIVE VEGETATION AREAS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

12. ALL PLUGS SHALL BE QUALITY PLANT MATERIAL WHICH SHALL MEET ALL INDUSTRY STANDARDS. PLUGS SHALL BE INSTALLED IMMEDIATELY UPON DELIVERY TO THE SITE.

GENERAL NOTES

1. REFER TO ADDITIONAL INFORMATION WITHIN SPECIFICATION SECTIONS 329210, 329220 AND 329300.

BMP ESTABLISHMENT & MAINTENANCE PLAN

BIORETENTION & NATIVE VEGETATION MAINTENANCE PLAN
SHORT -TERM: YEAR 1

1. INSPECT THE BIORETENTION POND BOTTOMS WEEKLY FOR THE FIRST THREE MONTHS TO VERIFY PLANTS ARE ALIVE AND GROWING. HAVE PLANTS THAT APPEAR DEAD OR THAT ARE NOT GROWING NORMALLY ASSESSED BY A PERSON QUALIFIED TO DETERMINE THE CAUSES AND PROVIDE REMEDIES. IMPLEMENT REMEDIES IN THE APPROPRIATE SEASON.
2. VERIFY THE PLANTINGS ARE RECEIVING ADEQUATE MOISTURE. FOR THE FIRST THREE MONTHS, THE BIORETENTION PLANTINGS AND ALL OTHER NATIVE VEGETATION AREAS SHOULD RECEIVE AT LEAST 1-INCH OF WATER WEEKLY FROM RAINFALL AND/OR SUPPLEMENTAL WATERING. PROVIDE ADDITIONAL WATERING IF REQUIRED. NO ADDITIONAL WATERING IS NECESSARY IF THE SOIL IS WET AT THE SURFACE.
3. INSPECT BIORETENTION PLANTINGS AND ALL OTHER NATIVE VEGETATION AREAS FOR GROWTH OF SPECIES NOT IN THE PLAN (INVASIVE SPECIES). ELIMINATE INVASIVE PLANTS AT THE SOONEST POSSIBLE TIME. HAND WEED AND PRUNE INVASIVE PLANTS, WHENEVER POSSIBLE. ASSURE THAT THE BIORETENTION BASIN DRAINS COMPLETELY WITHIN A 48-HOUR PERIOD, OR AS PER DESIGN SPECIFICATIONS. IF THE BASIN DOES NOT DRAIN AS DESIGNED, IDENTIFY WHY PLANNED DRAINAGE IS NOT OCCURRING. CORRECT THE IDENTIFIED PROBLEMS SO THAT THE BASIN WILL DRAIN IN LESS THAN 48-HOURS OR PER DESIGN SPECIFICATIONS.
5. CUT GRASSES NO SHORTER THAN 6 INCHES IN LATE SPRING PRIOR TO THE MATURATION OF WEED SEED.
6. INSPECT AND MAINTAIN INLET AND OUTLET STRUCTURES TO ASSURE FUNCTION. REMOVE ANY OBSTRUCTIONS.
7. COMPLETE THE FIRST ANNUAL INSPECTION OF THE BIORETENTION AREAS AND ALL OTHER NATIVE VEGETATION AREAS CONDITION DURING THE FALL TO ASSESS VEGETATION ESTABLISHMENT. REPLACE DEAD PLANTS IF NECESSARY.
8. RE-DISTRIBUTE MULCH IF IT BECOMES MISPLACED FROM FLOATING OR STORMWATER INFLOW, REMOVE TRASH, AND INSPECT FOR VEGETATION THAT MAY BE STRESSED FROM EXTENDED PONDING OF WATER.

MID- AND LONG-TERM: YEAR 2
DURING THE SECOND YEAR, MORE OF THE PLANNED PLANT SPECIES WILL BE MORE NOTICEABLE AND VIGOROUS IN THEIR GROWTH.

1. CUT THE PLANTINGS WITHIN THE BIORETENTION BASIN AND ALL OTHER NATIVE VEGETATION AREAS IN THE EARLY SPRING TO REMOVE DEAD VEGETATION. DO NOT CUT VEGETATION LOWER THAN 8 INCHES ABOVE THE GROUND. NEVER CUT THE NATIVES AFTER AUGUST 1ST.
2. INSPECT THE BIORETENTION AREAS AND ALL OTHER NATIVE VEGETATION AREAS FOR PROPER DRAINAGE. IF PONDING IS EVIDENT BY STANDING WATER OR OTHER OBSERVED CONDITIONS, IDENTIFY AND CORRECT THE PROBLEM.
3. INSPECT BIORETENTION PLANTINGS AND ALL OTHER NATIVE VEGETATION AREAS FOR GROWTH OF INVASIVE SPECIES AT LEAST TWICE PER YEAR. ELIMINATE INVASIVE PLANTS AT THE SOONEST POSSIBLE TIME.
4. RE-DISTRIBUTE MULCH IF IT BECOMES MISPLACED FROM FLOATING OR STORMWATER INFLOW, REMOVE TRASH.

LONG-TERM: YEAR 3 AND BEYOND
DURING THE THIRD AND SUCCEEDING YEARS, MORE OF THE PLANNED PLANT SPECIES WILL BE MORE NOTICEABLE AND VIGOROUS IN THEIR GROWTH.

1. AFTER YEAR 3, NATIVE VEGETATION SHOULD BE SELF-SUSTAINING.
2. CUT THE PLANTINGS WITHIN THE BIORETENTION BASIN AND ALL OTHER NATIVE VEGETATION AREAS IN THE EARLY SPRING TO REMOVE DEAD VEGETATION. DO NOT CUT VEGETATION LOWER THAN 8 INCHES ABOVE THE GROUND. NEVER CUT THE NATIVES AFTER AUGUST 1ST.
3. INSPECT THE BIORETENTION AREAS AND ALL OTHER NATIVE VEGETATION AREAS FOR PROPER DRAINAGE. IF PONDING IS EVIDENT BY STANDING WATER OR OTHER OBSERVED CONDITIONS, IDENTIFY AND CORRECT THE PROBLEM.
4. INSPECT BIORETENTION PLANTINGS AND ALL OTHER NATIVE VEGETATION AREAS FOR GROWTH OF INVASIVE SPECIES AT LEAST TWICE PER YEAR. ELIMINATE INVASIVE PLANTS AT THE SOONEST POSSIBLE TIME.
5. RE-DISTRIBUTE MULCH IF IT BECOMES MISPLACED FROM FLOATING OR STORMWATER INFLOW, REMOVE TRASH.

SODDING NOTES

1. ALL DISTURBED AREAS SHALL BE SODDED WITH TURF-TYPE TALL FESCUE SOD WITH A MINIMUM OF 3 CULTIVARS.
2. ALL LAWN AREAS SHALL RECEIVE A MINIMUM 6-INCH DEPTH OF TOPSOIL COMPACTED TO 85% MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.
3. THE ENTIRE SURFACE TO BE SODDED SHALL BE REASONABLY SMOOTH AND FREE FROM STONES, ROOTS, OR OTHER DEBRIS.
4. SOD SHALL BE MACHINE STRIPPED AT A UNIFORM SOIL THICKNESS OF APPROXIMATELY ONE INCH (PLUS OR MINUS 1/4-INCH). THE MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH, AND SHALL BE DETERMINED AT THE TIME OF CUTTING IN THE FIELD. PRECAUTIONS SHALL BE TAKEN TO PREVENT DRYING AND HEATING. SOD DAMAGED BY HEAT AND DRY CONDITIONS, AND SOD CUT MORE THAN 18 HOURS BEFORE BEING INCORPORATED INTO THE WORK SHALL NOT BE USED.
5. HANDLING OF SOD SHALL BE DONE IN A MANNER THAT WILL PREVENT TEARING, BREAKING, DRYING AND OTHER DAMAGE. PROTECT EXPOSED ROOTS FROM DEHYDRATION. DO NOT DELIVER MORE SOD THAN CAN BE LAID WITHIN 24 HOURS.
6. MOISTEN PREPARED SURFACE IMMEDIATELY PRIOR TO LAYING SOD. WATER THOROUGHLY AND ALLOW SURFACE TO DRY BEFORE INSTALLING SOD. FERTILIZE, HARROW OR RAKE FERTILIZER IN THE TOP 1-1/2-INCHES OF TOPSOIL, AT A UNIFORM RATE OF ONE POUND OF NITROGEN PER 1000 S.F.
7. SOD SHALL BE CAREFULLY PLACED IN THE DIRECTION PARALLEL WITH THE SLOPE OF THE AREA TO BE SODDED. SOD STRIPS SHALL BE BUTTED TOGETHER BUT NOT OVERLAPPED WITH THE SEAMS STAGGERED ON EACH ROW.
8. FERTILIZER SHALL BE 20-10-5 COMMERCIAL FERTILIZER OF THE GRADE, TYPE, AND FORM SPECIFIED AND SHALL COMPLY WITH THE RULES OF THE STATE OF MISSOURI DEPT. OF AGRICULTURE. FERTILIZER SHALL BE IDENTIFIED ACCORDING TO THE PERCENT N, P, K, IN THAT ORDER.
9. ALL SOD ON SLOPES GREATER THAN 5:1 AND WITHIN DETENTION AREAS SHALL BE STAKED.
10. SATURATE SOD WITH FINE WATER SPRAY WITHIN TWO HOURS OF PLANTING. DURING FIRST WEEK AFTER PLANTING, WATER DAILY OR MORE FREQUENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A MINIMUM DEPTH OF FOUR INCHES BELOW SOD.
11. CONTRACTOR SHALL PROVIDE FULL MAINTENANCE FOR SODDED TURF GRASS FOR A PERIOD OF 30 DAYS AFTER THE DATE OF FINAL ACCEPTANCE. AT THE END OF THE MAINTENANCE PERIOD, A HEALTHY, WELL-ROOTED, EVEN-COLORED, VIABLE TURF MUST BE ESTABLISHED. THE TURF GRASS SHALL BE FREE OF WEEDS, OPEN JOINTS, BARE AREAS, AND SURFACE IRREGULARITIES.

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LANDSCAPE DETAILS & NOTES

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