CONSTRUCTION PLANS

FOR

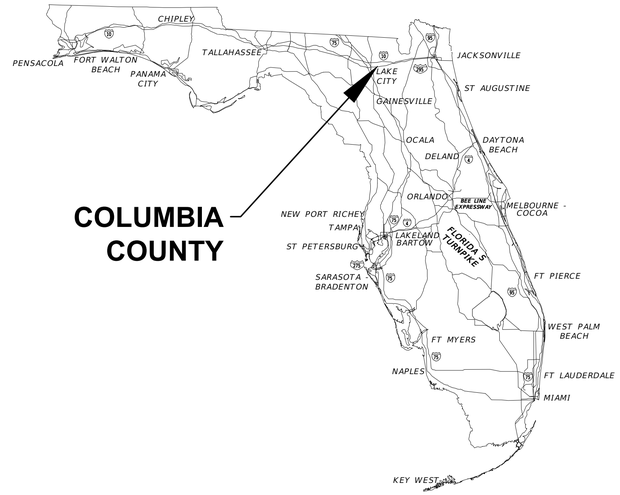
TIMBERWOLF ESTATES

VICINITY MAP

COLUMBIA COUNTY, FL

SECTION 01, TOWNSHIP 4S, RANGE 17E

PROJECT LOCATION



PLANS PREPARED FOR:
FLORIDA GATEWAY COLLEGE
149 SE COLLEGE PLACE
LAKE CITY, FL, 32025
(386) 754-4325
RANDAL.THOMAS@FGC.EDU

CONFORMED SET
CONSTRUCTION DOCUMENTS

CHRISTOPHER LANCE JONES LICENSE No. 88477 STATE OF FLORIDA PROFESSIONAL ENGINEER

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY:
Christopher L Jones
Digitally signed by Christopher L Jones
Date: 2025.11.11 13:11:10 -05'00'
ON THE DATE ADJACENT TO THE SEAL.

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JONES ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE
LAKE CITY, FL 32025
CHRISTOPHER LANCE JONES, P.E. NO. 88477

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

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JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

COVER SHEET

REVISION HISTORY

NO.	DATE	DESCRIPTION

START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
CHECKED BY: LJ

CHRISTOPHER L. JONES
PE# 88477
DATE

PROJECT NO. J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. G100

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_cov\01 \G100 COVER SHEET
Date Created: March 17, 2025 Date Last Saved: July 6, 2025 Date Plotted: November 11, 2025

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT THE JOB SITE TO INSURE THAT ALL NEW WORK WILL FIT IN THE MANNER INTENDED ON THE PLANS. SHOULD ANY CONDITIONS EXIST THAT ARE CONTRARY TO THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF SUCH DIFFERENCES IMMEDIATELY AND PRIOR TO COMMENCING WORK.

2. NO FIELD CHANGES OR DEVIATIONS FROM THE PLANS ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE ENGINEER.

3. THE CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS AS SET FORTH BY THE ISSUED SUWANNEE RIVER WATER MANAGEMENT DISTRICT ENVIRONMENTAL RESOURCE PERMIT, STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION DRINKING WATER FACILITY PERMIT, AND FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION DOMESTIC WASTEWATER COLLECTION/TRANSMISSION SYSTEM PERMIT AS REQUIRED.

4. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE IN A SECURE MANNER. ALL OPEN TRENCHES AND EXCAVATED AREAS SHALL BE PROTECTED FROM ACCESS BY THE GENERAL PUBLIC.

5. THE SITE IS LOCATED IN SECTION 1, TOWNSHIP 4 SOUTH, RANGE 17 EAST, COLUMBIA COUNTY, FLORIDA.

6. TOPOGRAPHIC INFORMATION PROVIDED BY PITMAN ENGINEERING & FLORIDA GEOGRAPIC INFORMATION OFFICE LiDAR DATA. CONTRACTOR SHALL VERIFY ELEVATIONS ON PLANS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

7. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED. IF A CORNER MONUMENT IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHOULD INFORM THE ENGINEER AND NOTIFY:

GEODETIC INFORMATION CENTER
6001 EXECUTIVE BOULEVARD
ROCKVILLE, MARYLAND 20652
TELEPHONE 301.443.8319

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GAINING COMPLETE FAMILIARITY WITH THE PROJECT SITE INCLUDING ACCESS LIMITATIONS, SUBSURFACE SOIL CONDITIONS, AND GROUNDWATER TABLE.

9. T HE CONTRACTOR SHALL REVIEW AND BECOME FAMILIAR WITH ALL REQUIRED UTILITY CONNECTIONS PRIOR TO BIDDING. CONTRACTOR SHALL PROVIDE ALL WORK AND MATERIALS REQUIRED TO COMPLETE CONNECTION TO THE EXISTING UTILITIES. THIS INCLUDES BUT IS NOT LIMITED TO MANHOLE CORING, WET TAPS, PAVEMENT REPAIRS AND DIRECTIONAL BORING.

10. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CALL IN AN 811 DIG TICKET AT LEAST THREE (3) NORMAL WORKING DAYS PRIOR TO BEGINNING TRENCHING OR EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES IN THE AREA TO AIDE IN LOCATING POTENTIAL UNDERGROUND SERVICES.

11. THE LOCATION AND SIZE OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY AND BASED ON THE BEST AVAILABLE INFORMATION TO THE ENGINEER AT THE TIME OF THE TOPOGRAPHIC SURVEY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE ENGINEER OR OWNER. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL EXISTING UTILITIES. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO DIGGING THROUGH ELECTRONIC METHODS AND HAND EXCAVATION IN COORDINATION WITH ALL UTILITY COMPANIES. FURTHERMORE, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. ANY CONFLICTS OF EXISTING UTILITIES AND PROPOSED IMPROVEMENTS SHALL BE RESOLVED WITH THE OWNER/ENGINEER AND/OR UTILITY SERVICE PROVIDER PRIOR TO BEGINNING CONSTRUCTION OPERATIONS.

12. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF ANY UNDERGROUND CONDUIT AND/OR PIPING REQUIRED FOR UTILITIES PRIOR TO BEGINNING SUBGRADE WORK. THE CONTRACTOR SHALL COORDINATE RELOCATION OF ALL EXISTING UTILITIES WITH THE APPLICABLE UTILITY COMPANIES.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING UTILITIES IN PROJECT AREA AT ALL TIMES DURING CONSTRUCTION TO INCLUDE PROVIDING DIRECT SUPPORT AND/OR SHORING EXCAVATED AREAS AS NECESSARY. THE CONTRACTOR SHALL NOTIFY THE AFFECTED UTILITY COMPANIES PRIOR TO ATTEMPTING ANY FACILITY SUPPORT. IF A UTILITY COMPANY REQUIRES THAT ONLY THEIR CREWS MAY SUPPORT THEIR FACILITIES, THEN THE CONTRACTOR SHALL PROVIDE FOR THE REQUIRED COORDINATION AND PAYMENT. COST FOR THIS WORK SHALL BE INCLUDED IN THE BID UNIT PRICES FOR THIS PROJECT.

14. ALL EXISTING WATER VALVES, FIRE HYDRANTS, WATER METERS/SERVICES, AND APPURTENANCES AFFECTED BY CONSTRUCTION SHALL BE ADJUSTED AS NECESSARY. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

15. THE "TRENCH SAFETY ACT" SHALL BE INCORPORATED IN THIS CONTRACT AS ENACTED BY THE LEGISLATURE OF THE STATE OF FLORIDA TO BE IN EFFECT AS OF OCTOBER 1, 1990.

16. THE CONTRACTOR SHALL RESTORE ALL DRAINAGE SWALES/DITCHES AND REPAIR OR REPLACE ALL DRAINAGE STRUCTURES AFFECTED BY CONSTRUCTION ACTIVITIES. RESTORED DRAINAGE SWALES/DITCHES SHALL MEET ALL ORIGINAL CONDITIONS (INCLUDING LOCATION, GRADE, SOD TYPE, ETC). REPAIRED OR REPLACED DRAINAGE STRUCTURES SHALL MEET ALL ORIGINAL CONDITIONS (INCLUDING LOCATION, ELEVATION, SIZE, MATERIAL, ETC). PRE AND POST CONSTRUCTION AS-BUILT INFORMATION SHALL BE PROVIDED FOR ALL DISTURBED DRAINAGE FACILITIES. THE COST FOR DRAINAGE FACILITY RESTORATION/REPAIR/REPLACEMENT WORK SHALL BE INCLUDED IN THE BID UNIT PRICES FOR THIS PROJECT.

17. CONTRACTOR SHALL PROVIDE ACTUAL INVERT ELEVATIONS ON ALL DRAINAGE STRUCTURES, INCLUDING CULVERTS, PRIOR TO PLACING ANY BASE MATERIAL. DEVIATIONS FROM THE PLANS SHALL BE APPROVED BY THE ENGINEER BEFORE CONTINUING WORK.

18. THE CONTRACTOR SHALL RESTORE/REPLACE ALL EXISTING PAVEMENT, DRIVEWAYS, SIDEWALKS, MAILBOXES, SOD, LANDSCAPING, CONDUIT, CABLE, IRRIGATION SYSTEMS, ETC AFFECTED BY CONSTRUCTION ACTIVITIES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE PROVIDED.

19. CONCRETE AND ASPHALT DRIVEWAYS SHALL BE RESTORED/REPLACED FROM SAW CUT TO EDGE OF ROADWAY PAVEMENT. COST FOR THIS WORK SHALL BE INCLUDED IN THE BID UNIT PRICES FOR THIS PROJECT.

20. SOD SHALL BE REPLACED FOR THE FULL WIDTH DISTURBED AND TYPE SHALL MATCH THE EXISTING SPECIES UNLESS OTHERWISE SPECIFIED IN THE PLANS. COST FOR THIS WORK SHALL BE INCLUDED IN THE BID UNIT PRICES FOR THIS PROJECT.

21. ALL DISTURBED AREAS NOT SODDED SHALL BE SEEDED WITH A MIXTURE OF LONG-TERM VEGETATION AND QUICK GROWING SHORT-TERM VEGETATION FOR THE FOLLOWING CONDITIONS. FOR THE MONTHS FROM SEPTEMBER THROUGH MARCH, THE MIX SHALL CONSIST OF 70 POUNDS PER ACRE OF LONG-TERM SEED AND 20 POUNDS PER ACRE OF WINTER RYE. FOR THE MONTHS OF APRIL THOUGH AUGUST, THE MIX SHALL CONSIST OF 70 PER ACRE OF LONG-TERM SEED AND 20 POUNDS PER ACRE OF MILLET.

22. THE CONTRACTOR SHALL WASTE ALL EXCESS EARTH ON SITE AS DIRECTED BY THE ENGINEER.

23. ALL SITE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES .

24. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER CONTRACTORS WITHIN PROJECT AREA.

25. CONTRACTOR SHALL PERFORM SURVEY AND PERFORM TESTING UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

26. THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE F.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (CURRENT EDITION) AND THE F.D.O.T. DESIGN STANDARDS (CURRENT EDITION), AWWA SPECIFICATIONS, AND STATE REQUIREMENTS FOR EDUCATIONAL FACILTIIES.

27. THE CONTRACTOR SHALL BE RESPONSIBLE TO SCHEDULE PRE-CONSTRUCTION MEETINGS AND BECOME FAMILIAR WITH ALL APPLICABLE AGENCY PROCEDURES PRIOR TO COMMENCING WORK. THE OWNER, ARCHITECT, AND ENGINEER MUST BE INVITED AT LEAST FIVE (5) DAYS PRIOR TO ATTEND SUCH SCHEDULED MEETINGS.

28. IF UNSUITABLE MATERIAL IS ENCOUNTERED DURING GRADING, CONTRACTOR SHALL REMOVE UNSUITABLE MATERIAL TO A DEPTH OF 24" BELOW FINISHED GRADE WITHIN THE CONSTRUCTION LIMITS.

29. THE CONTRACTOR SHALL NOTIFY THE COLLEGE AT LEAST 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION.

30. CONTRACTOR SHALL SUBMIT A NOTICE OF CONSTRUCTION COMMENCEMENT TO THE WATER MANAGEMENT DISTRICT AT LEAST 48 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.

31. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST 48 HOURS IN ADVANCE OF THE PRESSURE AND LEAKAGE TESTS.

32. NO FINAL TESTING OR PRESSURE TESTING WILL BE ACCEPTED UNLESS WITNESSED BY THE CITY'S REPRESENTATIVE.

33. NO WORK SHALL BE PERFORMED ON SATURDAY OR SUNDAY WITHOUT WRITTEN NOTIFICATION TO THE COLLEGE.

34. CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY MEETING THE REQUIREMENTS OF CHAPTER 61G17 F.A.C. FOR THE STORMWATER MANAGEMENT SYSTEMS. INCLUDE HORIZONTAL AND VERTICAL DIMENSIONAL DATA SO THAT IMPROVEMENTS ARE LOCATED AND DELINEATED RELATIVE TO THE BOUNDARY. PROVIDE SUFFICIENT DETAILED DATA TO DETERMINE WHETHER THE IMPROVEMENTS WERE CONSTRUCTED IN ACCORDANCE WITH THE PLANS. SUBMIT THE SURVEY TO THE ENGINEER ON REPRODUCIBLE 20LB. VELLUM.

35. THE CONTRACTOR SHALL SUBMIT A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM NOTICE OF INTENT ALONG WITH SUPPORTING DOCUMENTATION TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AT LEAST 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMIT FEES.

36. IF DURING CONSTRUCTION OR OPERATION OF THE STORM WATER MANAGEMENT SYSTEM, A STRUCTURAL FAILURE IS OBSERVED THAT HAS THE POTENTIAL TO CAUSE THE DIRECT DISCHARGE OF SURFACE WATER INTO THE FLORIDIAN AQUIFER SYSTEM, CORRECTIVE ACTIONS DESIGNED OR APPROVED BY A REGISTERED PROFESSIONAL SHALL BE TAKEN AS SOON AS PRACTICAL TO CORRECT THE FAILURE. A REPORT PREPARED BY A REGISTERED PROFESSIONAL MUST BE PROVIDED AS SOON AS PRACTICAL TO THE DEPARTMENT FOR REVIEW AND APPROVAL THAT PROVIDES REASONABLE ASSURANCE THAT THE BREACH WILL BE PERMANENTLY CORRECTED.

WATER MAINS

1. UNLESS OTHERWISE APPROVED BY THE ENGINEER, ALL WATER SYSTEM CONSTRUCTION SHALL BE INSTALLED, INSPECTED, AND TESTED IN ACCORDANCE WITH THE CITY OF LAKE CITY MINIMUM DESIGN AND CONSTRUCTION STANDARDS MANUAL, LATEST EDITION. IN CASE OF DISCREPANCIES BETWEEN THE CONSTRUCTION PLANS AND THE CITY SPECIFICATIONS, THE MOST RESTRICTIVE SHALL GOVERN.

2. THE CONTRACTOR SHALL MAINTAIN EXISTING WATER MAINS IN SERVICE DURING CONSTRUCTION. IN THE EVENT OF INTERRUPTIONS TO SERVICE ARE REQUIRED DURING CONSTRUCTION, SUCH INSTANCES SHALL BE MINIMIZED.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STAKING OUT THE PIPE LINE LOCATION AND NOTIFYING THE ENGINEER AT LEAST TWO (2) WORKING DAYS PRIOR TO THE COMMENCEMENT OF THE WATER SYSTEM.

4. THE CONTRACTOR SHALL COORDINATE THE TIE-INS TO THE EXISTING WATER SYSTEM WITH THE CITY OF LAKE CITY UTILITIES MAINTENANCE MANAGER AT LEAST TWO (2) WORKING DAYS PRIOR TO THE INTENDED TIME OF CONNECTION. THE METHOD AND CONDITIONS OF THE TIE-INS SHALL BE IN ACCORDANCE WITH THE CURRENT CITY UTILITIES STANDARDS AND PROCEDURES.

5. CONFLICTS BETWEEN PROPOSED WATER LINES THAT CROSS SANITARY SEWER, STORM SEWER, FORCE MAINS, OR RECLAIMED WATER LINES SHALL CROSS ABOVE SUCH PIPELINES BY A MINIMUM OF TWELVE INCHES.

6. PVC PIPE POTABLE WATER LINE

  a. ALL PVC PIPE OF NOMINAL DIAMETER FOUR THROUGH TWELVE INCHES SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA STANDARD C-900, LATEST EDITION. THE PVC PIPE SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 150 PSI AND SHALL HAVE A DIMENSION RATIO (DR) OF 18. PIPE SHALL HAVE THE SAME OUTSIDE DIAMETER (OD) AS DUCTILE IRON PIPE.

  b. ALL PVC PIPE OF NOMINAL DIAMETER 14 THROUGH 24 INCHES SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA STANDARD C905, LATEST EDITION. THE PVC PIPE SHALL HAVE A MINIMUM WORKING PRESSURE RATING OF 165 PSI AND SHALL HAVE A DR OF 26. PIPE SHALL BE THE SAME O.D. AS DUCTILE IRON PIPE.

7. DUCTILE IRON PIPE (D.I.P.) SHALL BE CEMENT-MORTAR LINED CLASS 350 MECHANICAL, OR PUSH-ON JOINT, AND SHALL MEET ALL REQUIREMENTS FOT EH FOLLOWING: ANSI/AWWA C104/A 21,4; ANSI/AWWA C11/A 21,11 (FOR RUBBER GASKET JOINTS); ANSI/AWWA C150/21 ,50 (FOR THICKNESS DESIGN) AND ANSI/AWWA C151A 21,51 (FOR D.I.P. MOLDS).

8. FITTINGS SHALL BE DUCTILE IRON, CEMENT-MORTAR LINED, MECHANICAL JOINT, RATED AT 350 psf MEETING ALL REQUIREMENTS OF THE FOLLOWING ANSI/AWWA C104/A21,4; ANSI/AWWA C110/A21,10; AND ANSI/AWWA C111/A21,11.

9. ALL DEDICATED FIRE SERVICE LINES TO BUILDING SHALL BE POLYVINYL CHLORIDE (PVC), ANSI/AWWA C-900, DR 14, AND SHALL HAVE A MINIMUM PRESSURE RATING OF 305 PSI.

10. ALL PIPE, PIPE FITTINGS, PIPE JOINT PACKING AND JOINTING MATERIALS, VALVES, FIRE HYDRANTS, AND METERS INSTALLED UNDER THIS PROJECT SHALL CONFORM TO APPLICABLE AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS.

11. ALL PUBLIC WATER SYSTEM COMPONENTS, EXCLUDING FIRED HYDRANTS, THAT WILL BE INSTALLED UNDER THIS PROJECT AND THAT WILL COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF INTERNATIONAL STANDARD 61 AS ADOPTED IN RULE 62-555.335 F.A.C., OR OTHER APPLICABLE STANDARDS, REGULATIONS, OR REQUIREMENTS REFERENCED IN PARAGRAPH 62-555.320(3)(B), F.A.C..

12. ALL PIPE AND PIPE FITTINGS INSTALLED UNDER THIS PROJECT SHALL CONTAIN NO MORE THAN 8.0% LEAD, AND ANY SOLDER OR FLUX USED IN THIS PROJECT WILL CONTAIN NO MORE THAN 0.2% LED.

13. NEW OR ALTERED WATER MAINS INCLUDED IN THIS PROJECT SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE AWWA STANDARDS OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED PROCEDURES.

14. ALL WATER MAIN TEES, BENDS, PLUGS, AND HYDRANTS INSTALLED UNDER THIS PROJECT SHALL BE PROVIDED WITH RESTRAINED JOINTS TO PREVENT MOVEMENT IN ACCORDANCE WITH THE UTILITY COMPANY DESIGN AND CONSTRUCTION STANDARDS.

15. ALL WATER MAINS SHALL HAVE A MINIMUM OF 36 INCHES OF COVER FROM FINISHED GRADE UNLESS OTHERWISE NOTED IN THE PLANS.

16. ALL WATER MAINS SHALL BE BLUE IN COLOR OR MARKED WITH A CONTINUOUS STRIPE LOCATED WITHIN THE TOP 90 DEGREES OF THE PIPE. SAID STRIPE SHALL BE A MINIMUM OF 2 INCHES IN WIDTH AND SHALL BE BLUE IN COLOR. A WARNING TAPE SHALL BE BURIED 12 TO 18 INCHES ABOVE THE LINE.

17. ALL WATER MAINS SHALL BE INSTALLED WITH CONTINUOUS, INSULATED 10 GAUGE SOLID COPPER WIRE TAPED DIRECTLY ON TOP OF THE PIPE FOR LOCATION PURPOSES. ALL SPLICING SHALL BE WATER TIGHT. TERMINATE INSULATED LOCATOR WIRES, CAPABLE OF EXTENDING 12 INCHES ABOVE TOP OF BOX, AT EACH VALVE BOX PAD.

18. LOCATOR BALLS SHALL BE PROVIDED AT THE END OF ALL WATER SERVICE LATERALS. THE LOCATOR BALLS SHALL BE SECURED TO THE LATERALS WITH A PLASTIC TIE STRAP.

19. WATER AND SANITARY SEWER LATERALS SHALL BE LEFT UNCOVERED UNTIL INSPECTED BY THE ENGINEER OR THE ENGINEER'S INSPECTOR.

20. THE CONTRACTOR SHALL PROVIDE TEMPORARY STAKES (2" BY 2" WOODEN STAKES) AT THE END OF EACH LATERAL. EACH STAKE SHALL INDICATE EITHER WATER OR SANITARY SEWER LATERAL. CONTRACTOR SHALL MAINTAIN THE STAKES UNTIL AN AS-BUILT SURVEY OF WATER AND SANITARY SEWER MAINS AND LATERALS ARE COMPLETE AND APPROVED BY THE ENGINEER.

21. CONTRACTOR SHALL INSTALL TEMPORARY BLOWOFFS AT ENDS OF PROPOSED WATER MAINS AND SERVICE LATERALS TO ASSURE ADEQUATE FLUSHING AND DISINFECTION/CHLORINATION.

22. ALL WATER MAINS SHALL BE STERILIZED IN ACCORDANCE WITH THE LATEST APPLICABLE SECTION OF AWWA C-651 AND CITY OF LAKE CITY PUBLIC WORKS SPECIFICATIONS. CONTRACTOR SHALL NOTIFY THE CITY UTILITIES INSPECTOR 48 HOURS PRIOR TO ARRANGE FOR CHLORINATION AND BACTERIOLOGICAL SAMPLING OF THE WATER SYSTEM. SECTIONS OF PIPE TO BE DISINFECTED SHALL FIRST BE FLUSHED WITH PIG(Sp TO REMOVE ANY SOLIDS OR CONTAMINATED MATERIAL. IF NO HYDRANT EXISTS AT THE END OF THE MAIN, A BLOW-OFF VALVE LARGE ENOUGH TO DEVELOP A VELOCITY OF 2.5 FEET PER SECOND IN THE MAIN SHALL BE PROVIDED.

23. ALL TAPS REQUIRED FOR CHLORINATION OR FLUSHING PURPOSE, OR FOR TEMPORARY RELEASE OF AIR, SHALL BE PROVIDED BY THE CONTRACTOR. FOLLOWING CHLORINATION, ALL TREATED WATER SHALL BE THOROUGHLY FLUSHED UNTIL THE WATER SHOWS A CHLORINE FREE RESIDUE NOT IN EXCESS OF THAT NORMALLY CARRIED IN THE SYSTEM. AFTER DISINFECTION, THE CONTRACTOR SHALL SEAL ALL SUCH TAPS TO THE CITY'S SATISFACTION.

24. AFTER FLUSHING, WATER SAMPLES COLLECTED ON TWO SUCCESSIVE DAYS FROM THE TREATED PIPING SYSTEM SHALL SHOW ACCEPTABLE BACTERIOLOGICAL RESULTS. ALL BACTERIOLOGICAL TESTING SHALL BE WITNESSED BY THE CITY AT THE EXPENSE OF THE CONTRACTOR.

25. THE CONTRACTOR SHALL PROVIDE POTABLE WATER TEST REPORTS IN ACCORDANCE WITH FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REQUIREMENTS AFTER DISINFECTION OF THE SYSTEM.

26. ALL WATER MAINS SHALL BE HYDROSTATIC TESTED AT 150 PSI MINIMUM FOR A PERIOD OF 2 HOURS PROVIDED THE ROAD BASE IS IN PLACE.

GRAVITY SEWER SYSTEM NOTES

1. UNLESS OTHERWISE APPROVED BY THE ENGINEER, ALL WATER SYSTEM CONSTRUCTION SHALL BE INSTALLED, INSPECTED, AND TESTED IN ACCORDANCE WITH THE CITY OF LAKE CITY MINIMUM DESIGN AND CONSTRUCTION STANDARDS MANUAL., LATEST EDITION. IN CASE OF DISCREPANCIES BETWEEN THE CONSTRUCTION PLANS AND THE CITY SPECIFICATIONS, THE MOST RESTRICTIVE SHALL GOVERN.

2. ALL SANITARY SEWER MAINS AND LATERALS SHALL HAVE A MINIMUM OF 36 INCHES OF COVER.

3. PRIOR TO COMMENCING WORK WHICH REQUIRES CONNECTING NEW WORK TO EXISTING LINES OR APPURTENANCES, THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF EXISTING CONNECTION POINTS AND NOTIFY THE OWNER OR ENGINEER OF RECORD OF ANY CONFLICTS OR DISCREPANCIES.

4. PVC PIPE & FITTINGS (4"-15") SHALL BE SDR 26 CONFORMING TO THE REQUIREMENTS OF ASTM D3034. PVC PIPE & FITTINGS (18" OR GREATER) SHALL BE SDR 26 CONFORMING TO THE REQUIREMENTS OF ASTM F679 T-1.

5. MAXIMUM LAYING LENGTHS OF ALL PVC GRAVITY PIPE SIZES (4"-18") SHALL BE 13 FEET. MAXIMUM LAYING LENGTHS OF ALL PVC GRAVITY PIPE SIZES GREATER THAN 18 INCHES SHALL BE 12 FEET.

6. ALL SANITARY SEWER LINES SHALL BE GREEN IN COLOR OR MARKED WITH A CONTINUOUS STRIPE LOCATED WITHIN THE TOP 90 DEGREES OF THE PIPE. SAID STRIPE SHALL BE A MINIMUM OF 2 INCHES IN WIDTH AND SHALL BE GREEN IN COLOR. A WARNING TAPE SHALL BE BURIED 12 TO 18 INCHES ABOVE THE LINE.

7. LOCATOR BALLS SHALL BE PROVIDED AT THE END OF ALL SANITARY SEWER SERVICE LATERALS. THE LOCATOR BALLS SHALL BE SECURED TO THE LATERALS WITH A PLASTIC TIE STRAP.

8. ALL PIPE SHALL BE INSTALLED TO THE HOMING MARK ON THE SPIGOT. THE CITY SHALL BE GIVEN OPPORTUNITY TO CHECK ALL JOINTS N THIS MANNER BEFORE BACKFILLING.

9. THE CONTRACTOR SHALL MARK THE EXACT LOCATION OF THE TERMINATION POINT OF EACH INSTALLED SERVICE BY INDENTING THE LETTER "S" INTO THE WET CONCRETE CURB. NO SAW CUTS WILL BE ALLOWED TO INDICATE THE TERMINATION POINT OF THE SERVICE. WHERE NO CONCRETE CURB EXISTS, LOCATIONS SHALL BE ADEQUATELY MARKED BY A 4" X 4" X 18" CONCRETE PAD AND BY INDENTING THE LETTER "S" INTO THE TOP OF THE WET CONCRETE PAD. NO SAW CUTS WILL BE ALLOWED TO INDICATE LOCATION.

10. GRAVITY SEWERS SHALL BE REQUIRED TO PASS A LOW-PRESSURE AIR LEAKAGE TEST BEFORE ACCEPTANCE. EACH SECTION SHALL BE TESTED BETWEEN CONSECUTIVE MANHOLES. THE CONTRACTOR SHALL FLUSH ALL SEWERS WITH WATER SUFFICIENT IN VOLUME TO OBTAIN FREE FLOW THROUGH EACH LINE. FLUSHING WATER AND DEBRIS SHALL NOT ENTER ANY PUMP STATION, WET WELL, OR EXISTING SEWER. DURING FLUSHING WATER WILL BE PUMPED FROM THE SEWER SYSTEM TO AN ACCEPTABLE DISCHARGE LOCATION. A VISUAL INSPECTION SHALL BE MADE AND ALL OBSTRUCTIONS REMOVED. THE CONTRACTOR SHALL NOTIFY THE CITY INSPECTOR 48 HOURS PRIOR TO PERFORMING ANY LEAKAGE TEST.

11. ALL GRAVITY SEWER PIPING SHALL BE SUBJECT TO A VISUAL INSPECTION BY THE OWNER OR ENGINEER OF RECORD. THE CONTRACTOR SHALL NOTIFY THE OWNER/ENGINEER 48 HOURS IN ADVANCE TO SCHEDULE THE INSPECTION.

12. THE OWNER/ENGINEER WILL REQUIRE A VIDEO INSPECTION OF THE GRAVITY SEWER LINE TO CHECK FOR ALIGNMENT AND DEFLECTION. THE FIRST INSPECTION WILL BE WITHIN 30 DAYS AFTER PIPE INSTALLATION, PROVIDED THE ROAD BASE IS IN PLACE AND THE MANHOLE RINGS AND COVERS ARE TO GRADE. IF THE SEWER IS 12 BELOW THE FINISHED GRADE, THE VIDEO INSPECTION SHALL BE PERFORMED ONCE THE TRENCH HAS BEEN COMPACTED UP TO THE ROAD BASE. A VIDEO INSPECTION MAY ALSO BE PERFORMED BEFORE THE END OF THE ONE YEAR WARRANTY PERIOD.

13. THE CONTRACTOR SHALL BE REQUIRED TO REPAIR OR REPLACE ANY PIPELINE WITH CRACKED, BROKEN, DEFECTIVE PIPE, PIPE MISALIGNMENT, VERTICAL SAGS IN EXCESS OF 1/2", AND RING DEFLECTION OF PVC PIPE IN EXCESS OF 5%. THE OWNER/ENGINEER RESERVES THE RIGHT TO PASS A MANDREL THROUGH THE PVC TO DETERMINE RING DEFLECTION.

14. SUCCESSFUL PASSAGE OF THE LEAKAGE TEST AND/OR THE VIDEO INSPECTION IS REQUIRED BEFORE ACCEPTANCE BY THE OWNER/ENGINEER. VIDEO INSPECTION SHALL BE PROVIDED ON DIGITAL COMPACT DISK (DVD) FOR REVIEW.

15. THE CONTRACTOR SHALL PROVIDE THREE COPIES OF CERTIFIED UTILITY RECORDS DRAWINGS, SIGNED AND SEALED BY A PROFESSIONAL SURVEYOR. THE RECORD DRAWINGS SHALL SHOW THE LOCATIONS OF ALL WATER MAINS AND SERVICES AND ENGINEER OF RECORD. THE DEVELOPERS ENGINEERS SHALL PROVIDE TWO COMPLETE SET OF RECORD DOCUMENTS, ALSO A COMPLETE SET OF RECORD DOCUMENTS, IN COMPUTER FORM TO THE CITY. THIS DOCUMENTATION SHALL BE ON COMPACT DISK (CD) IN AUTOCAD VERSION 14 OR ABOVE OR DXF FORMAT AND IN FLORIDA STATE PLAIN (NAD83 WEST). IN ADDITION TO THE COMPACT DISK THE ENGINEER SHALL PROVIDE A DOCUMENT LISTING THE LAYERS AND COLORS/LINETYPE UTILIZED IN PREPARATION OF THE DRAWING. THESE COMPUTER FILES SHALL CONTAIN ALL THE INFORMATION SHOWN ON THE RECORD DRAWING.

16. CONTRACTOR SHALL PROVIDE ESRI SHAPE FILES ON COMPACT DISK (CD) FOR THE WATER VALVES, SEWER MANHOLES, STORM WATER MANHOLES, AND FORCE MAIN VALVES IN FLORIDA STATE PLAIN (NAD83 WEST) PROJECTION.

STANDARD SEPARATION OF WATER/SEWER CONFLICTS

1. NEW OR RELOCATED, UNDERGROUND WATER MAINS INCLUDED IN THIS PROJECT SHALL HAVE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET, WITH TEN FEET BEING PREFERRED, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY-TYPE SANITARY SEWER, EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.. IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A SIX FEET HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST EIGHTEEN INCHES ABOVE THE TOP OF THE SEWER.

2. THE HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS MAY BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST TWELVE INCHES ABOVE THE TOP OF THE SEWER. WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF TWELVE INCHES IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF D.I.P. (IF AVAILABLE IN THE PROPOSED SIZE) WITH A MINIMUM VERTICAL DISTANCE OF SIX INCHES. THE WATER MAIN SHOULD BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).

3. NEW OR RELOCATED, UNDERGROUND WATER MAINS THAT ARE INCLUDED IN THIS PROJECT AND THAT WILL CROSS ANY EXISTING PROPOSED GRAVITY OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST TWELVE INCHES ABOVE THE OTHER PIPELINE.

4. NEW OR RELOCATED, UNDERGROUND WATER MAINS THAT ARE INCLUDED IN THIS PROJECT AND THAT WILL CROSS ANY EXISTING PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER WILL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST TWELVE INCHES ABOVE THE OTHER PIPELINE.

5. AT THE UTILITY CROSSING DESCRIBED ABOVE, SEPARATION DISTANCE SHALL NOT APPLY WHERE A WATER SERVICE PIPE CROSSES A SEWER PIPE, PROVIDED THE WATER SERVICE PIPE IS SLEEVED TO AT LEAST FIVE FEET HORIZONTALLY FROM THE SEWER PIPE CENTERLINE ON BOTH SIDES OF SUCH CROSSINGS PIPE MATERIAL LISTED IN FLORIDA BUILDING CODE SECTION 603.2.

6. MAXIMUM OBTAINABLE SEPARATION OF RECLAIMED WATER LINES AND DOMESTIC WATER LINES SHALL BE PRACTICED. A MINIMUM HORIZONTAL SEPARATION OF FIVE FEET CENTER ON CENTER OR THREE FEET OUTSIDE TO OUTSIDE SHALL BE MAINTAINED BETWEEN RECLAIMED WATER LINES AND EITHER PORTABLE WATER MAINS OR SEWAGE COLLECTION LINES. A MINIMUM VERTICAL CLEARANCE OF TWELVE INCHES MUST BE MAINTAINED BETWEEN RECLAIMED WATER LINES AND POTABLE WATER MAINS OR SEWAGE COLLECTION LINES. AT CROSSINGS, THE PROVISIONS OF F.A.C. RULE62-604 AND 10 STATES STANDARDS APPLY.

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_cov01 \C100 GENERAL NOTES
Date Created: March 7, 2025   Date Last Saved: July 6, 2025   Date Plotted: November 11, 2025

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
GENERAL NOTES
COLUMBIA COUNTY, FL

START DATE:	REVISION HISTORY		
	NO.	DATE	DESCRIPTION
07/23/2024			
DESIGNED BY:			
LJ			
DRAFTED BY:			
LJ			
CHECKED BY:			
LJ			

CHRISTOPHER L. JONES
PE# 88477

DATE

PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C100

EROSION CONTROL NOTES

1. THIS EROSION AND SEDIMENTATION CONTROL PLAN COMPLIES WITH THE REQUIREMENTS OF THE "FLORIDA DEVELOPMENT MANUAL" AND THE "FLORIDA EROSION AND SEDIMENT CONTROL INSPECTOR'S MANUAL".

2. THE CONTRACTOR SHALL ADHERE TO COLUMBIA COUNTY, SRWMD, AND OTHER GOVERNING AUTHORITIES FOR EROSION AND SEDIMENT CONTROL REGULATIONS. IF THE CONTRACTOR NEEDS TO CHANGE THIS PLAN TO MORE EFFECTIVELY CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL USE BMP's FROM THE "FLORIDA EROSION AND SEDIMENT CONTROL INSPECTOR'S MANUAL".

3. THE CONTRACTOR SHALL ADJUST AND REVISE THIS PLAN TO MEET ACTUAL FIELD CONDITIONS. ANY REVISIONS SHALL BE APPROVED BY THE REVIEWING AGENCIES.

4. SEDIMENT AND EROSION CONTROL FACILITIES, STORM DRAINAGE FACILITIES AND DETENTION BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION.

5. EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL AND REPLACED AS NECESSARY.

6. SEDIMENT AND EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL ALL CONSTRUCTION IS COMPLETE AND UNTIL A PERMANENT GROUND COVER HAS BEEN ESTABLISHED.

7. ALL OPEN DRAINAGE SWALES SHALL BE GRASSED AND RIPRAP SHALL BE PLACED AS REQUIRED TO CONTROL EROSION.

8. SILT FENCES SHALL BE LOCATED ON SITE TO PREVENT SEDIMENT AND EROSION FROM LEAVING PROJECT LIMITS.

9. CONTRACTOR SHALL PLACE A DOUBLE ROW OF SILT FENCE IN AREAS WHERE RUNOFF FROM DISTURBED AREAS MAY ENTER WETLANDS.

10. DURING CONSTRUCTION AND AFTER CONSTRUCTION IS COMPLETE, ALL STRUCTURES SHALL BE CLEANED OF ALL DEBRIS AND EXCESS SEDIMENT.

11. ALL GRADED AREAS SHALL BE STABILIZED IMMEDIATELY WITH A TEMPORARY FAST-GROWING COVER AND/OR MULCH.

12. A PAD OF RUBBLE RIP RAP SHALL BE PLACED AT THE BOTTOM OF ALL COLLECTION FLUMES AND COLLECTION PIPE OUTLETS. GRANITE OR LIMESTONE RIPRAP IS REQUIRED, NO BROKEN CONCRETE WILL BE ACCEPTED.

13. ALL SIDE SLOPES STEEPER THAN 3:1 SHALL BE ADEQUATELY PROTECTED FROM EROSION THROUGH THE USE OF HAY BALES OR SODDING.

14. ALL STABILIZATION PRACTICES SHALL BE INITIATED AS SOON AS PRACTICABLE IN AREAS OF THE JOB WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY STOPPED, BUT IN NO CASE SHALL THE DISTURBED AREA BE LEFT UNPROTECTED FOR MORE THAN SEVEN DAYS.

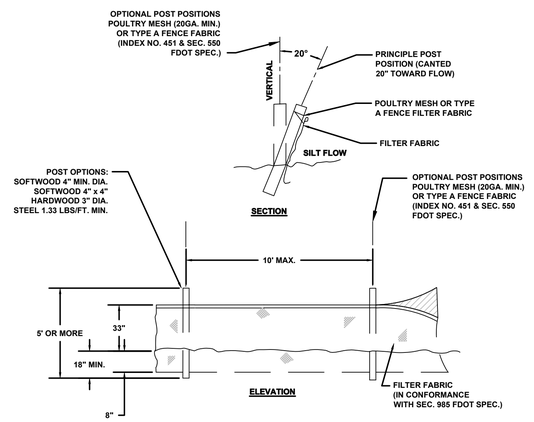
15. ALL WASTE GENERATED ON THE PROJECT SHALL BE DISPOSED OF BY THE CONTRACTOR IN AREAS PROVIDED BY CONTRACTOR.

16. LOADED HAUL TRUCKS SHALL BE COVERED WITH TARPS.

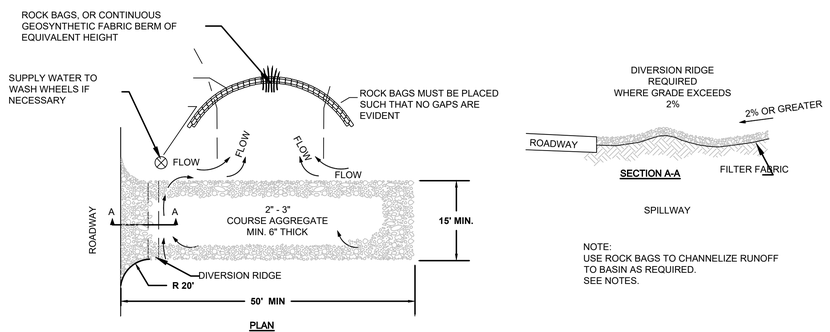
17. EXCESS DIRT SHALL BE REMOVED DAILY.

18. QUALIFIED PERSONNEL SHALL INSPECT THE AREA USED FOR STORAGE OF STOCKPILES, THE SILT FENCE AND STRAW BALES, THE LOCATION WHERE VEHICLES ENTER OR EXIT THE SITE, AND THE DISTURBED AREAS THAT HAVE NOT BEEN FINALLY STABILIZED, AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM OF 0.25 INCHES OR GREATER.

19. SITES THAT HAVE BEEN FINALLY STABILIZED WITH SOD OR GRASSING SHALL BE INSPECTED AT LEAST ONCE EVERY WEEK.



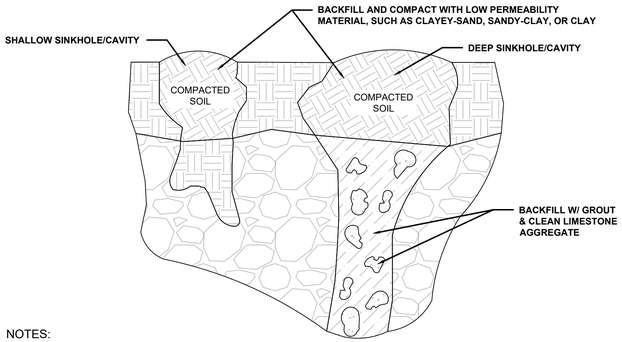
TYPE IV SILT FENCE OR EQUIVALENT



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. ROCK BAGS OR SANDBAGS SHALL BE PLACED SUCH THAT NO GAPS ARE EVIDENT.

TEMPORARY CONSTRUCTION ENTRANCE
(DETAIL NOT USED)



NOTES:

THE FOLLOWING SHALL BE PERFORMED IN THE EVENT ANY KARST FEATURES FORM DURING CONSTRUCTION - E.G. SOLUTION CAVITIES, CHIMNEYS, SINKHOLES.

1. NOTIFY THE WATER MANAGEMENT DISTRICT AND THE APPLICABLE MUNICIPAL OR COUNTY PUBLIC WORKS IMMEDIATELY WHEN THE FEATURES ARE ENCOUNTERED. THE METHOD OF REPAIR SHALL BE SUBMITTED FOR REVIEW, COMMENT, AND APPROVAL PRIOR TO ATTEMPTING ANY REPAIR.
2. SHALLOW KARST FEATURES ARE TYPICALLY LESS THAN 5' DEEP AND ONLY HAVE SMALL VOIDS IN THE LIMESTONE. THE FEATURE CAN BE REPAIRED BY BACKFILLING WITH A LOWER PERMEABILITY MATERIAL SUCH AS CLAYEY-SAND OR CLAY. COMPACT THE BACKFILL AND CREATE A SMALL MOUND SLIGHTLY ABOVE GRADE TO ACCOUNT FOR SETTLING.
3. DEEP KARST FEATURES SHALL BE REPAIRED MORE PERMANENTLY. EXCAVATE THE FEATURE TO THE LIMESTONE BEDROCK. PLUG VOIDS IN THE BEDROCK WITH CLEAN GROUT. BACKFILL OVER THE PLUG WITH A LOWER-PERMEABILITY MATERIAL SUCH AS CLAYEY-SAND OR CLAY. COMPACT THE BACKFILL TO GRADE.

KARST FEATURE REPAIR DETAIL

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
EROSION & SEDIMENT CONTROL PLAN
COLUMBIA COUNTY, FL

REVISION HISTORY

NO.	DATE	DESCRIPTION

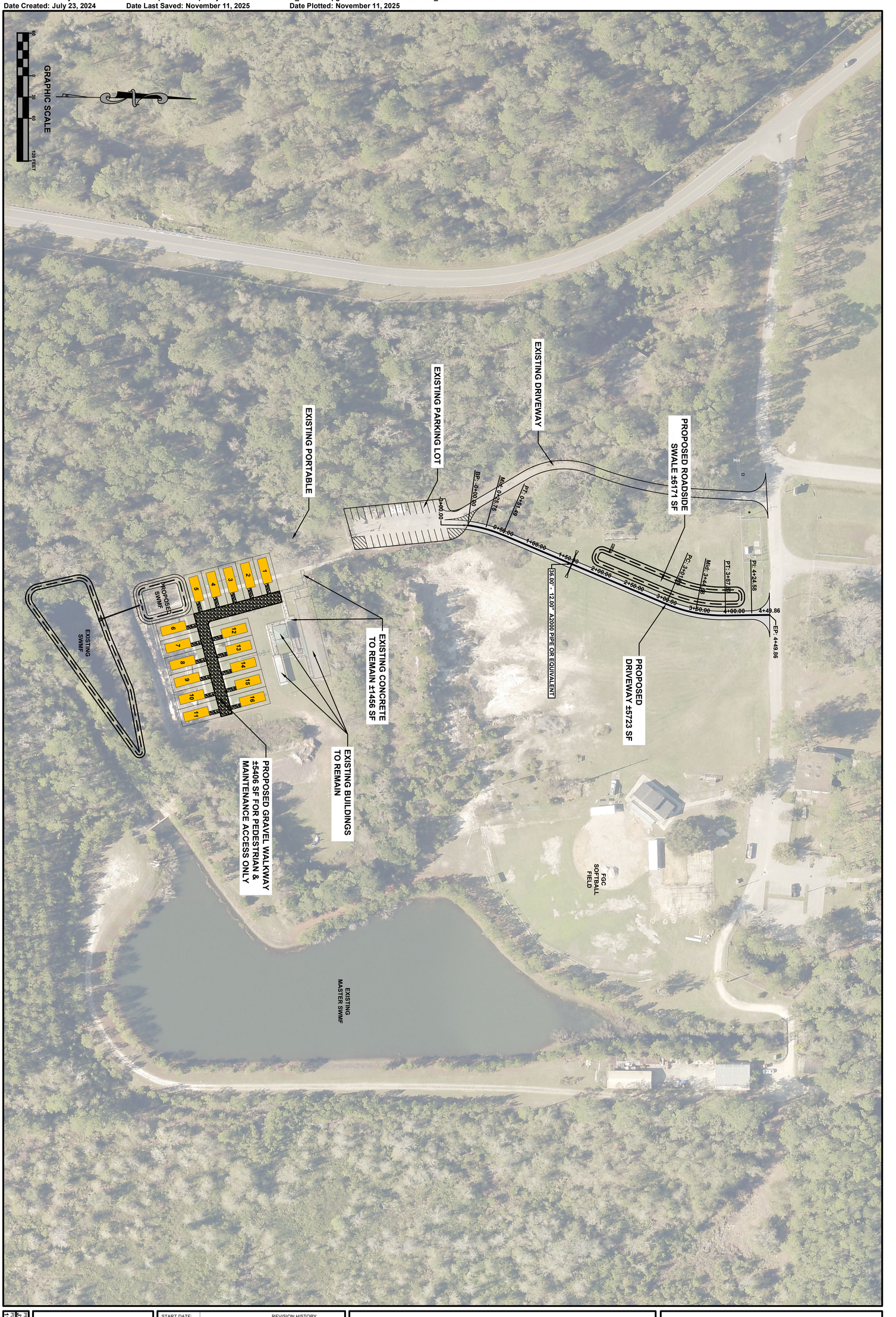
START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
CHECKED BY: LJ

CHRISTOPHER L. JONES
PE# 88477
DATE

PROJECT NO. J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C101

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J230130FGC_esc01 \C101 EROSION & SEDIMENT CONTROL PLAN
Date Created: April 2, 2025 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_dsn01 \C200 OVERALL SITE PLAN
Date Created: July 23, 2024 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025



PROJECT NO.	J240723FGC
DATE	11/11/2025
SHEET NO.	C200

CHRISTOPHER T. JONES, P.E. #88477
DATE

START DATE:	REVISION HISTORY		
07/23/2024	NO.	DATE	DESCRIPTION
DESIGNED BY:			
LJ			
DRAFTED BY:			
LJ			
CHECKED BY:			
LJ			

TIMBERWOLF ESTATES
OVERALL SITE PLAN
COLUMBIA COUNTY, FL

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_dsn01 \C201 GEOMETRIC PLAN
Date Created: July 23, 2024 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025

PROJECT NO.	J240723FGC
DATE	11/11/2025
SHEET NO.	C201

CHRISTOPHER T. JONES, PE# 89427

START DATE:	REVISION HISTORY		
07/23/2024	NO.	DATE	DESCRIPTION
DESIGNED BY:			
LJ			
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LJ			
CHECKED BY:			
LJ			

TIMBERWOLF ESTATES
GEOMETRIC PLAN
COLUMBIA COUNTY, FL

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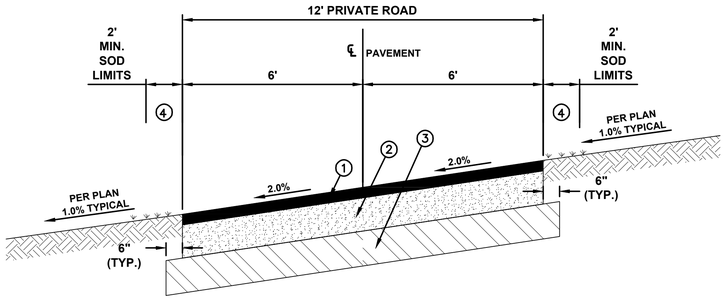
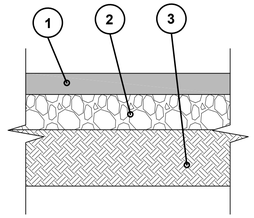
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET



TYPICAL ROADWAY SECTION

N.T.S.

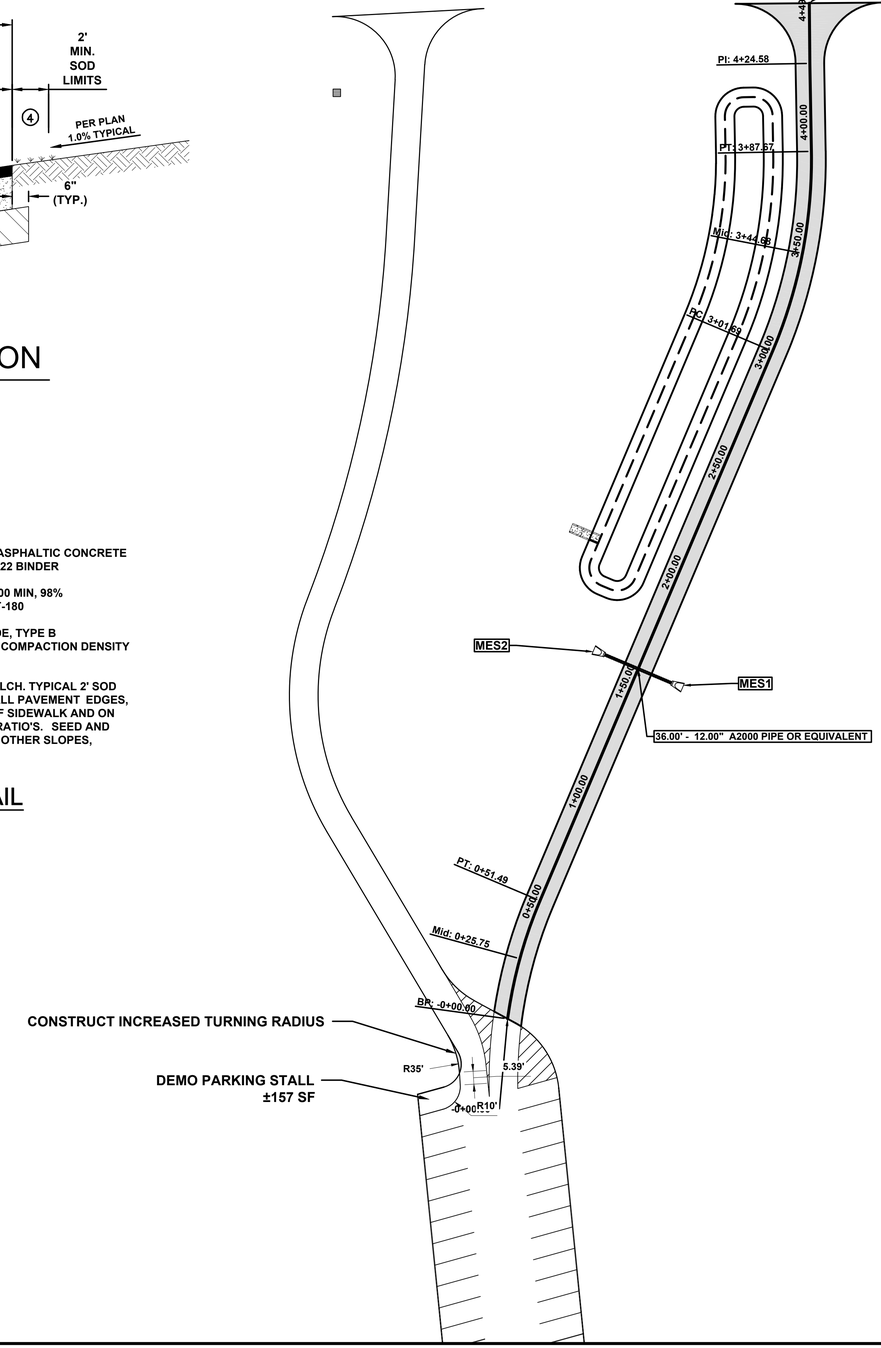


SPECIFICATIONS:

1. 1.5" MINIMUM THICK TYPE SP-9.5 ASPHALTIC CONCRETE SURFACE,TRAFFIC LEVEL C, PG-722 BINDER
2. 6" THICK LIMEROCK BASE, LBR 100 MIN, 98% COMPACTION DENSITY AASHTO T-180
3. 12" THICK COMPACTED SUBGRADE, TYPE B STABILIZATION, LBR 40 MIN., 98% COMPACTION DENSITY AASHTO T-180
4. GRASSING BY SOD AND SEED MULCH. TYPICAL 2' SOD STRIPS SHALL BE USED ALONG ALL PAVEMENT EDGES, BACK OF CURBING, EACH SIDE OF SIDEWALK AND ON ALL SLOPES STEEPER THAN 6:1 RATIO'S. SEED AND MULCH SHALL BE USED FOR ALL OTHER SLOPES, MEDIAN AND DISTURBED AREAS.

STANDARD DUTY ASPHALT DETAIL

N.T.S.



GRAPHIC SCALE

30 0 15 30 60 FEET

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
GEOMETRIC PLAN-ROADWAY
COLUMBIA COUNTY, FL

REVISION HISTORY

NO.	DATE	DESCRIPTION

START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
CHECKED BY: LJ

CHRISTOPHER L. JONES
PE# 88477
DATE

PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C202

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_dsn01 \C202 GEOMETRIC PLAN-ROADWAY
Date Created: July 23, 2024 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_dsn01 \C300 STORMWATER PLAN
Date Created: July 23, 2024 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025

TIMBERWOLF ESTATES
STORMWATER PLAN
COLUMBIA COUNTY, FL

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

REVISION HISTORY

NO.	DATE	DESCRIPTION

START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
CHECKED BY: LJ

CHRISTOPHER L. JONES
PE# 88477
DATE

PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C300

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_dsn01 \C301 STORMWATER PLAN-ROADWAY
Date Created: July 23, 2024 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
STORMWATER PLAN-ROADWAY
COLUMBIA COUNTY, FL

START DATE:	REVISION HISTORY		
	NO.	DATE	DESCRIPTION
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DESIGNED BY:			
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LJ			
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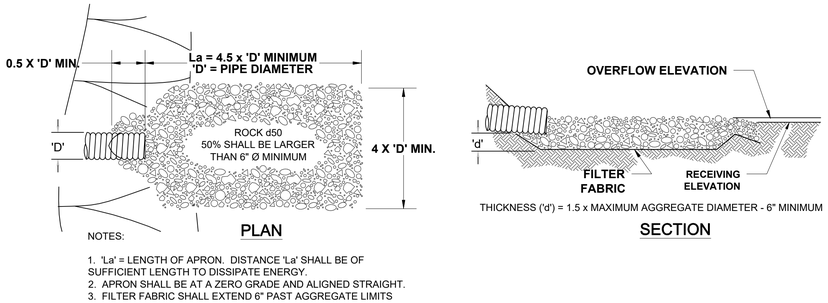
LJ			

CHRISTOPHER L. JONES
PE# 88477

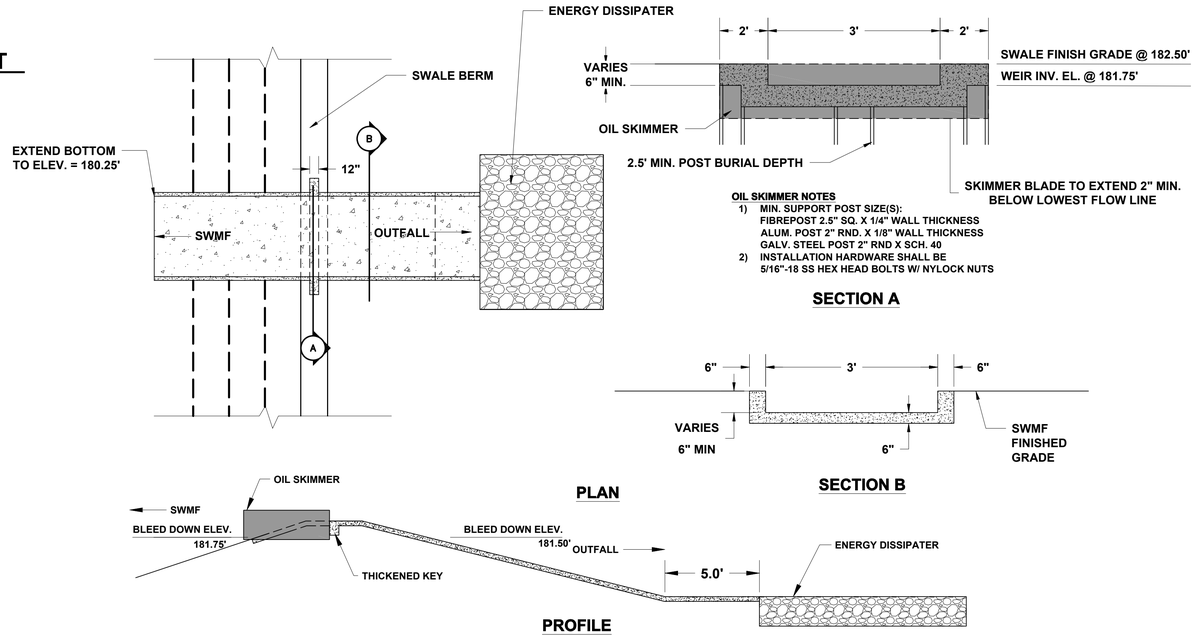
DATE

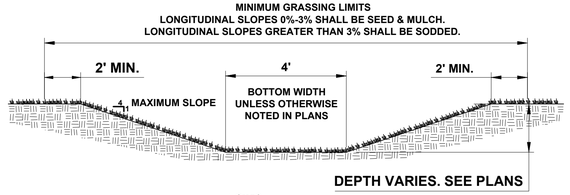
PROJECT NO.: J240723FGC	SHEET NO. C301
PLOT DATE: 11/11/2025	

1 C302 STORMWATER MANAGEMENT FACILITY FOR PRETREATMENT
SCALE: N.T.S.



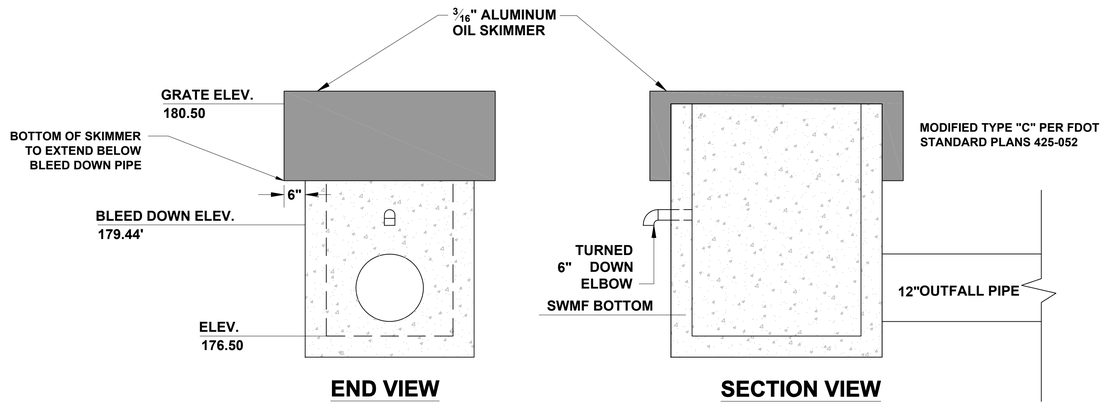
2 C302 ENERGY DISSIPATER DETAIL
SCALE: N.T.S.





3 C302 TYPE "B" GRASSED SWALE
SCALE: N.T.S.

4 C302 EMERGENCY OVERFLOW RECTANGULAR WEIR
SCALE: N.T.S.



5 C302 OUTLET CONTROL STRUCTURE
SCALE: N.T.S.

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ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
STORMWATER DETAILS
COLUMBIA COUNTY, FL

REVISION HISTORY

NO.	DATE	DESCRIPTION

START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
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CHRISTOPHER L. JONES
PE# 86477
DATE

PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C302

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_det01 \C302 STORMWATER DETAILS
Date Created: July 15, 2025 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025

NOTES:

WATER AND SANITARY SEWER DEMAND:
a. AVERAGE DAILY DEMAND = 16 UNITS x 200 GPD/UNIT = 3,200 GPD
b. MAXIMUM DAILY DEMAND = 3,200 GPD X 2.5 = 8,000 GPD
c. PEAK DEMAND = 3,200 GPD X 4.5 = 14,400 GPD

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
UTILITY PLAN
COLUMBIA COUNTY, FL

REVISION HISTORY

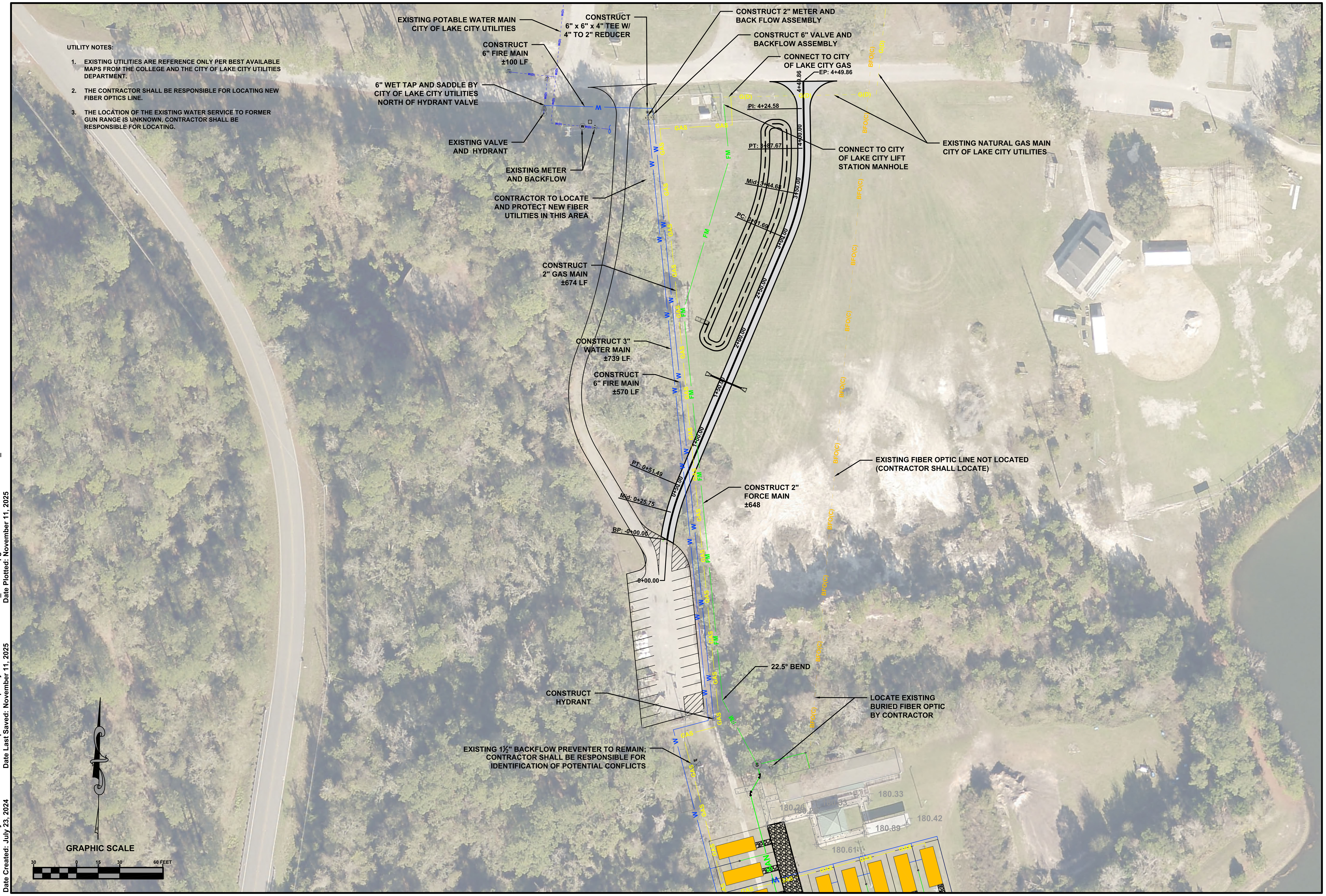
NO.	DATE	DESCRIPTION

START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
CHECKED BY: LJ

CHRISTOPHER L. JONES
PE# 88477

DATE

PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C400



File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_dsn01 \C401 UTILITY PLAN-ROADWAY
Date Plotted: November 11, 2025
Date Created: July 23, 2024
Date Last Saved: November 11, 2025

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
UTILITY PLAN-ROADWAY
COLUMBIA COUNTY, FL

START DATE:	REVISION HISTORY		
07/23/2024	NO.	DATE	DESCRIPTION
DESIGNED BY:			
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CHRISTOPHER L. JONES
PE# 88477

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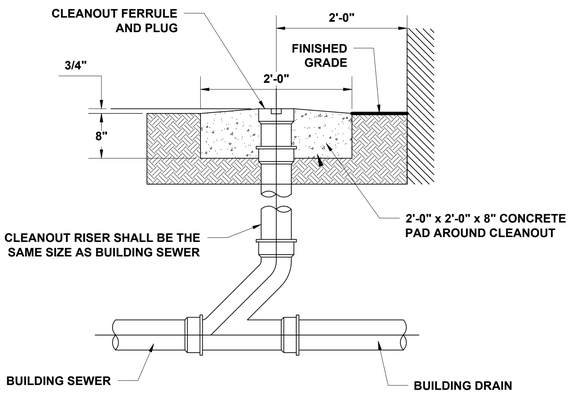
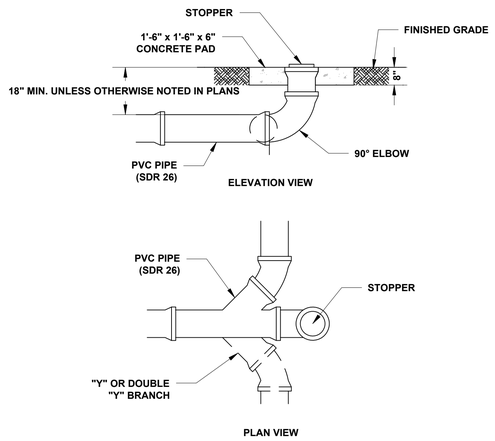
PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C401

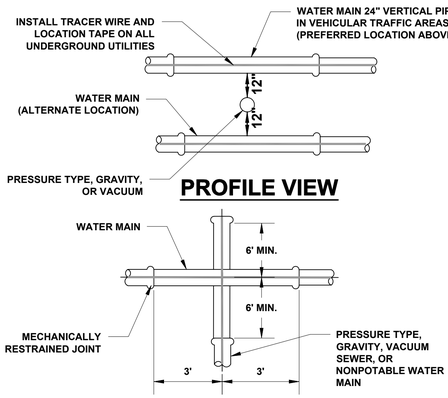


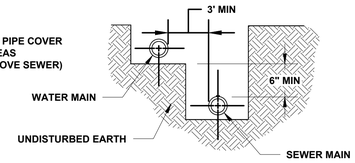
TYPICAL BUILDING CLEANOUT DETAIL

N.T.S.



CLEANOUT IN EARTHEN AREAS

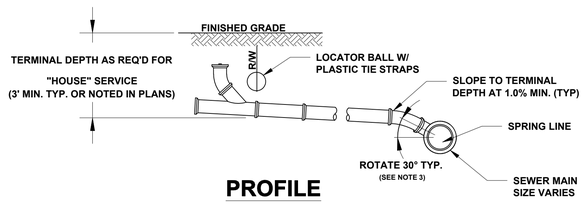




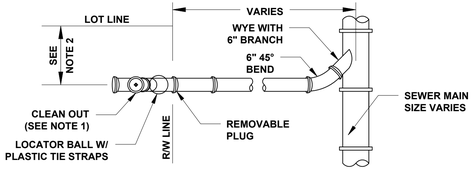
NOTES:
1. THE MINIMUM HORIZONTAL DISTANCE BETWEEN THE OUTSIDE OF A WATER MAIN AND SEWER MAIN SHALL BE 6' WITH A PREFERRED 10' SEPARATION.
2. WHERE A 10 FOOT PARALLEL SEPARATION CANNOT BE MAINTAINED BETWEEN A WATERMAIN AND A SEWER MAIN OR NON-POTABLE WATER MAIN, THEN THE WATER MAIN SHALL BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF AT LEAST 6 INCHES ABOVE THE TOP OF THE SEWER MAIN OR NON-POTABLE WATER MAIN. THE HORIZONTAL SEPARATION SHALL BE NO LESS THAN 3'.
3. CONTRACTOR SHALL MAINTAIN 24" VERTICAL PIPE COVER THROUGHOUT VEHICULAR TRAFFIC AREAS. ENGINEER SHALL BE NOTIFIED IMMEDIATELY IN THE EVENT THE RECOMMENDED COVER CAN NOT BE ACHIEVED.
4. CONTRACTOR SHALL MAINTAIN 1 FOOT VERTICAL SEPARATION BETWEEN WATER AND SANITARY SEWER LINES; A MINIMUM SEPARATION OF 6 INCHES CAN BE USED ONLY WHEN 1 FOOT IS NOT POSSIBLE.
5. FOR ALL PIPE CROSSINGS, THE PIPE JOINTS SHALL BE ARRANGED SO THAT ALL PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING WITH NO LESS THAN SIX FEET BETWEEN ANY TWO JOINTS.
6. IF THE HORIZONTAL OR VERTICAL CLEARANCE LISTED HEREIN CANNOT BE ACHIEVED THE WATERMAIN CAN BE ENCASED IN 4" OF CONCRETE.

WATER/SEWER PIPE SEPARATION DETAIL

N.T.S.



PROFILE

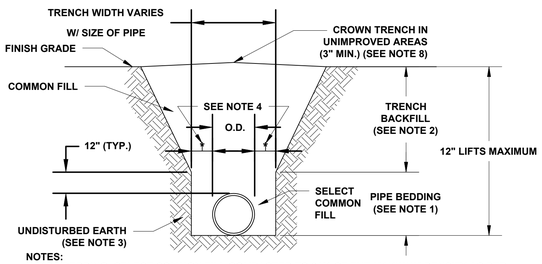


PLAN

NOTES:
1. CLEAN-OUT (SHOWN LIGHTER) SHALL BE INSTALLED BY THE BUILDER IN ACCORDANCE WITH STANDARD PLUMBING CODE.
2. LOCATE SINGLE LATERAL AS CLOSE TO LOT LINE AS POSSIBLE, 25' MAXIMUM.
3. INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER MAIN BELOW SPRING LINE.
4. CONTRACTOR SHALL PROVIDE LOCATOR BALLS w/PLASTIC TIE STRAPS. LOCATOR BALLS SHALL BE SECURED TO LATERAL w/PLACTIC TIE STRAPS.

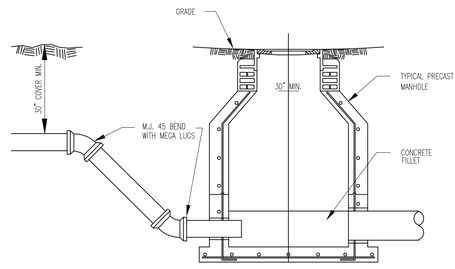
SANITARY SEWER SERVICE LATERAL

N.T.S.



NOTES:
1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK WILL BE REQUIRED IF OVER-EXCAVATION OCCURS.
4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
7. PROVIDE TRENCH SLOPING AND BRACING AS REQUIRED FOR SAFETY.
8. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN PAVED AREAS SHALL COMPLY WITH THE REQUIREMENTS OF THE ROAD CONSTRUCTION SPECIFICATIONS.

TRENCH AND BACKFILL DETAIL



OPENING INTO EXISTING MANHOLE IS TO BE DONE BY CORING METHOD ONLY, IN THE PRESENCE OF CITY INSPECTOR.

NOTES:
COORDINATE CONNECTION WITH CITY OF LAKE CIT UTILITIES

FORCE MAIN TIE INTO MANHOLE

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
UTILITY DETAILS-SANITARY
COLUMBIA COUNTY, FL

REVISION HISTORY

NO.	DATE	DESCRIPTION

START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
CHECKED BY: LJ

CHRISTOPHER L. JONES
PE# 88477
DATE

PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO.: C402

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_det01 1C402 UTILITY DETAILS-SANITARY
Date Created: July 15, 2025 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025

PUMP SPECIFICATIONS

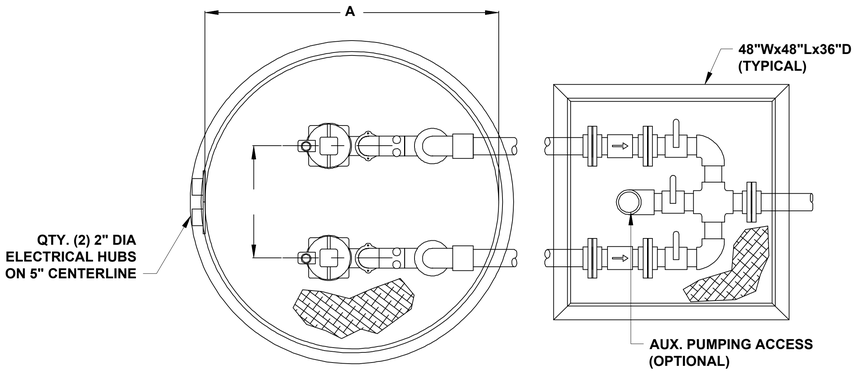
PUMPS REQ'D	2
MANUFACTURER	MYERS
MODEL NUMBER	WGL20-21
PUMP SIZE	--
DESIGN FLOW (GPM)	31.00
DESIGN HEAD (FEET)	21.00
IMPELLER DIA. (IN)	
MOTOR HP REQ'D	2 HP
SPEED (RPM)	3450
ELECTRICAL	230V/1Ø/60Hz

TANK

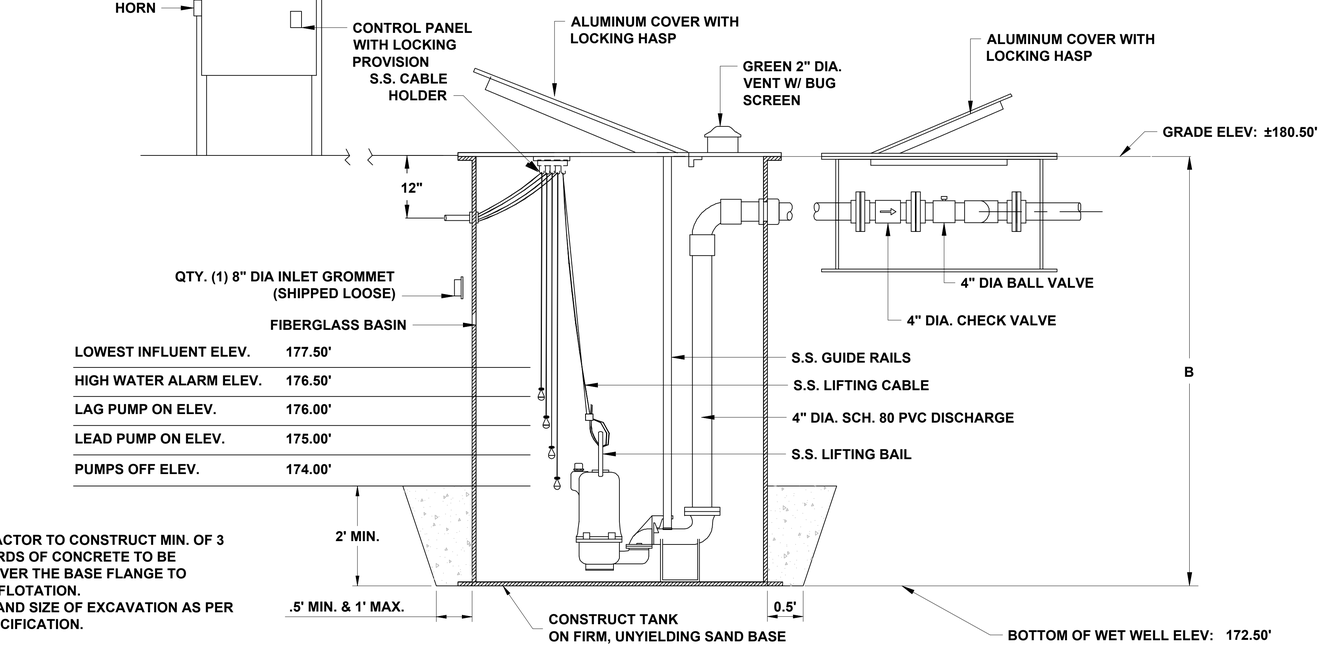
A (DIA)	B (HEIGHT)
36"	72"
[48"]	84"
60"	[96"]
OTHER___	108"
	120"
	OTHER____

NOTES:

1. WATER AND SANITARY SEWER DEMAND:
   a. AVERAGE DAILY DEMAND = 16 UNITS x 200 GPD/UNIT + 3 WASHING MACHINES X 750 GPD/UNIT =5,450 GPD
   b. MAXIMUM DAILY DEMAND = 5,450 GPD X 2.5 = 13,625 GPD
   c. PEAK DEMAND = 5,450 GPD X 4.5 = 24,525 GPD = 17.03 GPM
2. ALTERNATIVE SYSTEM MEETING THE FOLLOWING DESIGN CRITERIA IS ALLOWED:
   a. DESIGN FLOW: 31 GPM
   b. TOTAL DYNAMIC HEAD: 21 FEET



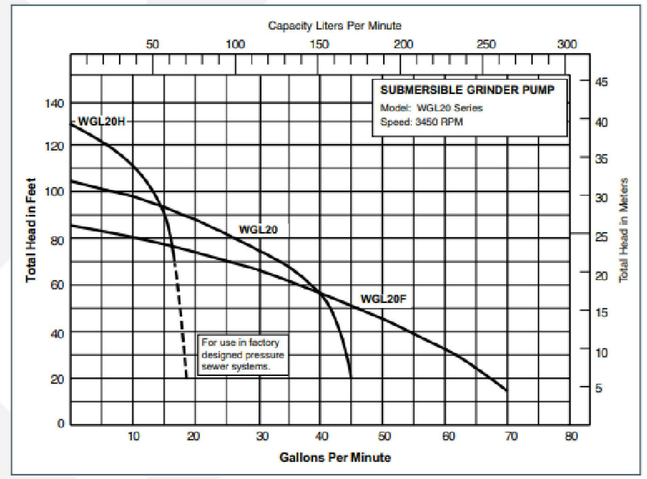
1 C403 FIBERGLASS LIFT STATION PLAN
SCALE: N.T.S.



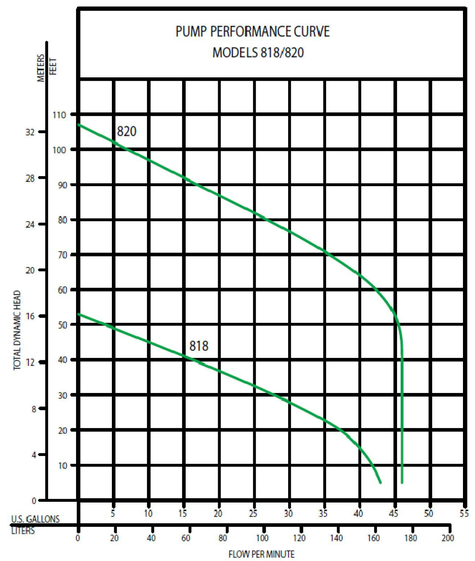
NOTE:
1. CONTRACTOR TO CONSTRUCT MIN. OF 3 CUBIC YARDS OF CONCRETE TO BE PLACED OVER THE BASE FLANGE TO PREVENT FLOTATION.
2. SLOPE AND SIZE OF EXCAVATION AS PER OSHA SPECIFICATION.

2 C403 FIBERGLASS LIFT STATION SECTION
SCALE: N.T.S.

3450 RPM



3 C403 MYERS WGL20 PUMP CURVE
SCALE: N.T.S.



4 C403 ALTERNATIVE: ZOELER 818 PUMP CURVE
SCALE: N.T.S.

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
UTILITY DETAILS-PUMP STATION
COLUMBIA COUNTY, FL

REVISION HISTORY

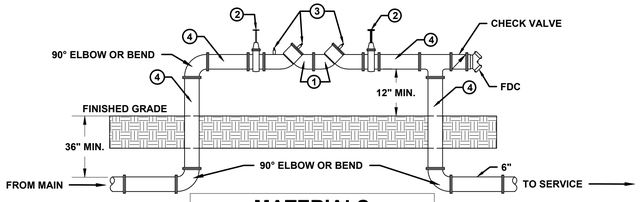
NO.	DATE	DESCRIPTION

START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
CHECKED BY: LJ

CHRISTOPHER L. JONES
PE# 86477
DATE

PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C403

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_det01 \C403 UTILITY DETAILS-PUMP STATION
Date Created: July 15, 2025 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025

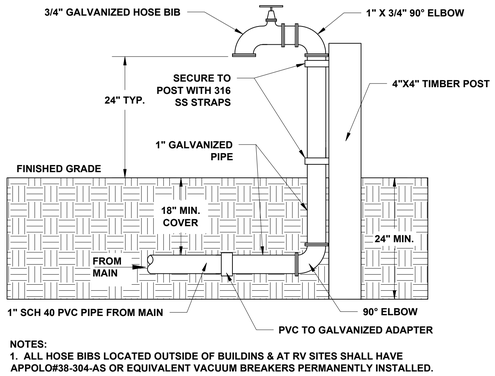


MATERIALS	
ITEM	DESCRIPTION
1	6" BACKFLOW PREVENTER
2	6" GATE VALVE
3	6" TEST COCKS
4	DUCTILE IRON PIPE- FLANGED END x FLANGED END - 6"

NOTES:

1. ALL MATERIAL USED FOR BACKFLOW PREVENTER SHALL BE DUCTILE IRON PIPE.
2. UNDER NO CONDITION WILL ANY CONNECTION BE ALLOWED BETWEEN THE SERVICE METER AND A BACKFLOW PREVENTER USED FOR SYSTEM CONTAINMENT. BACKFLOW PREVENTER SHALL ALWAYS BE INSTALLED DOWNSTREAM OF METER.
3. UNDER NO CIRCUMSTANCES, SHALL TEST PORTS BE MODIFIED OR UTILIZED FOR THIS OR OTHER APPLICATION OTHER THAN BACKFLOW DEVICE TESTING.
4. PROVIDE AND INSTALL COVER OVER BACKFLOW PREVENTER AS REQ'D BY LOCAL AUTHORITIES.

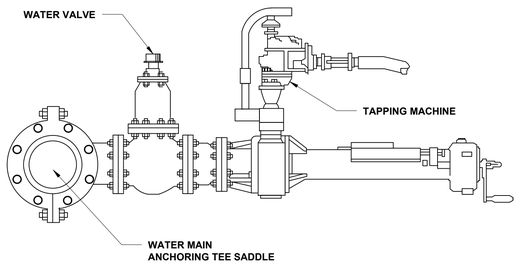
DOUBLE CHECK BACKFLOW PREVENTER W/ FDC



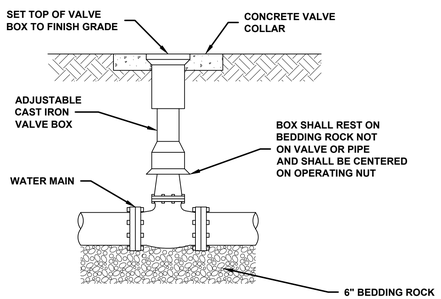
NOTES:

1. ALL HOSE BIBS LOCATED OUTSIDE OF BUILDINS & AT RV SITES SHALL HAVE APPOLO#38-304-AS OR EQUIVALENT VACUUM BREAKERS PERMANENTLY INSTALLED.

HOSE BIB DETAIL



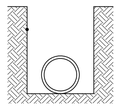
WET TAP AND SADDLE ASSEMBLY



NOTES:

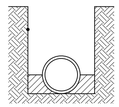
1. PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
2. THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO COME UP TO 4 FOOT DEPTH BELOW FINISHED GRADE.

VALVE AND BOX DETAIL



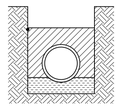
TYPE 1

FLAT-BOTTOM TRENCH*. LOOSE BACKFILL.
E '= 50 PSI (340 KPA), K = 0.110



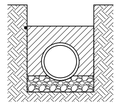
TYPE 2

FLAT-BOTTOM TRENCH*. BACKFILL LIGHTLY CONSOLIDATED TO CENTRLINE OF PIPE.
E '= 200 PSI (1,380 KPA), K = 0.110



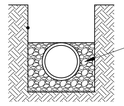
TYPE 3

PIPE BEDDED ON 4" MINIMUM OF LOOSE SOIL++. BACKFILL LIGHTLY CONSOLIDATED TO TOP OF PIPE.
E '= 400 PSI (2,760 KPA), K = 0.102



TYPE 4

PIPE BEDDED ON SAND, GRAVEL OR CRUSHED STONE TO DEPTH OF 1/8 PIPE DIAMETER, 4" MINIMUM. BACKFILL COMPACTED TO TOP OF PIPE. (APPROXIMATELY 80% STANDARD PROCTOR, AASHTO T-99 OR ASTM D698)
E '= 1000 PSI (6,900 KPA), K = 0.096



TYPE 5

PIPE EMBEDDED IN COMPACTED GRANULAR MATERIAL TO CENTERLINE OF PIPE. COMPACTED GRANULAR OR SELECT++ MATERIAL TO TOP OF PIPE. (APPROXIMATELY 90% STANDARD PROCTOR, AASHTO T-99 OR ASTM D 698)
E '= 2000 PSI (13,800 kPa), K = 0.083

NOTE: USE TYPE 5 BEDDING WHERE PIPE COVER IS LESS THAN 12 INCHES, ALL OTHER BEDDING SHALL BE TYPE 4 FOR THIS PROJECT.

NOTE: ++ "LOOSE SOIL" OR "SELECT MATERIAL" IS DEFINED AS NATIVE SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL AND FROZEN EARTH.

PVC INSTALLATION STANDARD AWWA C605

N.T.S.

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
UTILITY DETAILS-WATER DISTRIBUTION
COLUMBIA COUNTY, FL

REVISION HISTORY

NO.	DATE	DESCRIPTION

START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
CHECKED BY: LJ

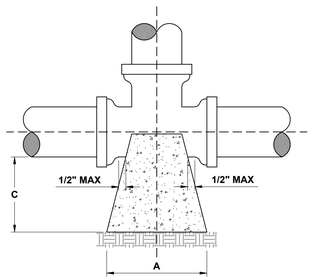
CHRISTOPHER L. JONES
P.E# 88477
DATE

PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C404

File Location: G:\My Drive\Jones Land Development Group\Projects\2024\J240723FGC_FGC Campground\H.CADD\J240723FGC_det01 \C404 UTILITY DETAILS-WATER DISTRIBUTION
Date Created: July 15, 2025 Date Last Saved: November 11, 2025 Date Plotted: November 11, 2025

THRUST BLOCK FOR BENDS																
SIZE	90° BEND			SQ. FT. BEARING	45° BEND			SQ. FT. BEARING	22 1/2° BEND			SQ. FT. BEARING	11 1/4° BEND			SQ. FT. BEARING
	A	C	C	SURFACE	A	B	C	SURFACE	A	B	C	SURFACE	A	B	C	SURFACE
4"	16"	16"	18"	1.78	14"	16"	18'	1.56	14"	16"	18"	1.56	14"	16"	18"	1.56
6"	22"	32"	18"	4.89	16'	18"	18"	2.00	14"	16"	18"	1.56	14"	16"	18"	1.56
8"	32"	36'	18"	8.00	24"	28"	18"	4.67	16"	18"	18"	2.00	14"	16"	18"	1.56
10"	36"	46"	18"	11.50	26"	36"	18"	6.50	20"	24"	18"	3.33	14"	18"	18"	1.75
12"	44"	56"	24"	17.11	32"	40"	24"	8.89	24"	30"	24"	5.00	16"	20"	24"	2.22
14"	52"	62"	24"	22.39	36"	48"	24"	12.00	26"	36"	24"	6.50	20"	24"	24"	3.33
16"	58"	72"	24"	29.00	40"	54"	24"	15.00	32"	38"	24"	8.44	22"	26"	24"	3.97
18"	64"	80"	24"	35.56	46"	60"	24"	19.17	36"	42"	24"	10.50	24"	32"	24"	5.33
20"	72"	88"	24"	44.00	52"	66"	24"	23.83	38"	48"	24"	12.67	26"	36"	24"	6.50
24"	96"	96"	24"	63.78	64"	78"	24"	34.67	46"	56"	24"	17.89	32"	40"	24"	8.89
30"	122"	102"	24"	86.11	72"	94"	24"	47.00	56"	62"	24"	24.11	36"	48"	24"	12.00
36"	166"	104"	24"	123.33	88"	108"	24"	66.00	64"	78"	24"	34.67	44"	54"	24"	16.50

THRUST BLOCK FOR TEES & PLUGS				
SIZE	TEE			SQ. FT. BEARING
	A	B	C	SURFACE
4"	16"	16'	18"	1.78
6"	20"	24"	18"	3.33
8"	26"	32"	18"	5.78
10"	32"	40"	18"	8.89
12"	36"	48"	24'	12.00
14"	40"	56"	24"	15.56
16"	48"	60"	24"	20.00
18"	56"	64"	24"	14.89
20"	60"	76"	24"	31.67
24"	72"	90"	24"	45.00
30"	86"	102"	24"	60.67
36"	116"	108"	24"	86.11



NOTES:

1. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED SOIL

2. THESE TABLES SHOW MINIMUM SIZES FOR THRUST BLOCKS IN GOOD SOIL (A-1 THRU A-3, CLEAN SANDS AND GRAVELS) WITH MINIMUM BEARING CAPACITY OF 2000 PSI.

3. POOR SOILS A-4 THRU A-8, SILTY SOILS, CLAYS, MUCK AND PEAT WILL REQUIRE LARGER THRUST BLOCKING.

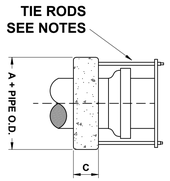
4. BOTH CONCRETE THRUST BLOCKS AND TIE RODS MUST BE USED WHEN, IN THE JUDGEMENT OF THE ENGINEER, THE NATURE AND CRITICIALITY OF AN INSTALLATION IS SUCH AS TO REQUIRE POSITIVE ASSURANCE OF STABILITY.

5. THE USE OF THRUST BLOCKS SHALL BE LIMITED TO SITUATIONS SUCH AS POINT REPAIR WHERE EXPOSING SEVERAL JOINTS OF PIPE IS NOT FEASIBLE DUE TO EXISTING GROUND CONDITIONS.

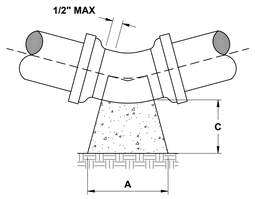
6. CONCRETE COLLARS WITH TIE RODS MAY BE USED ON DEAD END LINES AT THE CONTRACTOR'S DISCRETION. NUMBER OF TIE RODS SHALL BE AS FOLLOWS:

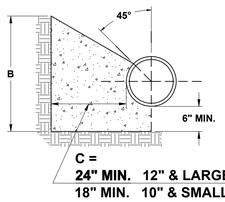
3" - 8" DIAMETER MAIN --- 2 TIE RODS PER JOINT
10" - 12" DIAMETER MAIN --- 4 TIE RODS PER JOINT
14" - 20" DIAMETER MAIN --- 6 TIE RODS PER JOINT
24" - 36" DIAMETER MAIN --- 8 TIE RODS PER JOINT
42" - 48" DIAMETER MAIN --- 10 TIE RODS PER JOINT

7. MAXIMUM TEST PRESSURE TO BE 150 PSI.



* HEIGHT =
B + PIPE O.D.





C =
24" MIN. 12" & LARGER PIPE
18" MIN. 10" & SMALLER PIPE

THRUST BLOCK SIZE CHART

LENGTH (L) TO BE RESTRAINED

NOMINAL PIPE SIZE (IN.)	HORIZONTAL BENDS				VERTICAL OFFSETS		VALVES OR DEAD-ENDS
	90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	45° BENDS (SEE NOTE 4)		
					LU (FT.)	Li (FT.)	L (FT.)
4	20	8	4	2	20	3	50
6	28	10	5	2	28	4	70
8	36	14	6	3	36	5	90
10	40	18	8	4	45	6	110
12	50	20	9	4	52	8	120
14	56	23	10	5	60	9	140
16	60	26	11	6	67	10	160
18	69	29	12	6	74	12	180
20	75	32	13	7	80	13	195
24	76	33	15	7	81	14	200
30	88	36	18	9	97	16	235
36	100	40	20	10	110	20	270
42	115	48	23	11	125	24	300
48	125	52	25	12	140	30	340

PVC PIPE RESTRAINT NOTES:

1. THIS SCHEDULE SHALL BE UTIIIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THE ABOVE SCHEDULE, AT A MINIMUM. UNLESS OTHERWISE INDICATED, ALL REQUIRED RESTRAINTS SHALL BE INCLUDED IN PRICE OF FITTING, VALVE OR PIPE.

2. ASSUMPTIONS: PVC PIPE, SAFETY FACTOR = 1.5, TEST PRESSURE = 150 PSI, SOIL = GM OR SM, TRENCH TYPE 3, DEPTH OF COVER = 30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE.

3. BENDS AND VALVES: SHALL BE RESTRAINED ON EACH SIDE OF FITTING.

4. VERTICAL OFFSETS: ARE APPROX. 3 FEET COVER ON TOP AND APPROX. 8 FEET COVER ON BOTTOM. PER THE DETAILS, Lu IS THE RESTRAINED LENGTH FOR THE UPPER (TOP) LEVEL. Li IS THE RESTRAINED LENGTH FOR THE LOWER (DEEPER) LEVEL. ASSUME 45 DEGREE BENDS.

5. TEES: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE ABOVE FOR RESTRAINT LENGTH ON TEE " BRANCH" LINE.

6. HDPE TO PVC TRANSITION: THE PVC PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).

7. THE INSTALLATION OF BELL HARNESS RESTRAINTS AT PVC JOINTS (DR-18 & 25 PIPE) SHALL BE COMPLETED PER THE MANUFACTURERS RECOMMENDATION, WHICH INCLUDES NOT OVER TIGHTENING THE PARALLEL RODS/NUTS. THESE NUTS SHOULD ONLY BE SNUG TIGHT. THE HOME MARKS ON THE PIPE SHOULD ALWAYS BE VISIBLE AFTER THE RESTRAINT IS INSTALLED. OVERHOMING THE JOINT MAY CAUSE A FAILURE AT THE BELL RESULTING IN A SERVICE OUTAGE.

TEES (NOTE 5)		
RUN SIZE	BRANCH SIZE	L (FT.)
4"	4"	F.O.
6"	6" 4"< LESS	10 F.O.
8"	8" 6"< LESS	30 F.O.
10"	10" 8" 6"< LESS	48 14 F.O.
12"	12" 10" 8"< LESS	65 35 F.O.
16"	16" 12" 10"< LESS	100 40 F.O.
20"	20" 16" 12"< LESS	130 80 F.O.
24"	24" 20" 16" 12"< LESS	130 90 40 F.O.
30"	30" 24" 20" 16"< LESS	140 80 50 F.O.
36"	36" 30" 24" 20"< LESS	180 120 50 F.O.
42"	42" 36" 30" 24" 20"< LESS	220 160 80 40 F.O.
48"	48" 42" 36" 30" 24"< LESS	250 180 90 40 F.O.

REDUCERS	
SIZE	L (FT.)
6X4	35
8X6	35
8X4	65
10X8	35
10X6	65
12X10	35
12X8	65
16X12	65
16X10	95
20X18	35
20X16	65
20X12	120
24X20	65
24X18	95
24X16	120
30X24	80
30X20	150
36X30	80
36X24	150
42X36	80
42X30	150
48X42	80
48X36	150

PVC PIPE RESTRAINT JOINT SCHEDULE

JONES
ENGINEERING & CONSULTING, LLC
855 SW BAYA DRIVE LAKE CITY, FL 32025
386.965.9000 LJONES@JONESENGINEERING.NET

TIMBERWOLF ESTATES
UTILITY DETAILS-THRUST BLOCK SCHED.
COLUMBIA COUNTY, FL

REVISION HISTORY

NO.	DATE	DESCRIPTION

START DATE: 07/23/2024
DESIGNED BY: LJ
DRAFTED BY: LJ
CHECKED BY: LJ

CHRISTOPHER L. JONES
PE# 88477
DATE

PROJECT NO.: J240723FGC
PLOT DATE: 11/11/2025
SHEET NO. C405