KMA Engineering & Surveying, LLC
3001 Industrial Avenue 2
Ft. Pierce, FL 32946
Phone: (772) 569-5505 Fax: (772) 569-1455

June 7, 2024

City of Fort Pierce
Planning Department
100 N. US Highway 1
Fort Pierce, FL 34950

Re: Sunrise Residential Project Description

We are proposing forty-four (44) single-family residences on 11.54 acres at 3804 Sunrise Boulevard in Fort Pierce, FL. Currently the property is zoned R-3 with a future land use of RM. The site was recently annexed into the City of Ft. Pierce and has an existing Zoning of RS-3 and an existing Future Land Use of RM. The site is bordered by single family RS-3 zoning on the south and west. To the north is a cemetery and the east is a Florida Department of Transportation building, both with industrial zoning. We are proposing a rezoning of Planned Development (PD) with 3.81 units per acre. Below is a table comparing the requested changes from the R-3 zoning

Zoning Requirement	**R-3**	**PD**
Min. Lot Size	7,200 SF	4,920 SF
Min. Lot Width	65’	60’
Min. Lot Depth	100’	70’ (82’ proposed)
Min. Front Yard Depth	25’	15’,20’ for garage
Min. Side Yard Depth	15’	5’
Min. Rear Yard Depth	15’	15’
Max Lot Coverage	35%	40%
Max Building Height	35’	45’
Density	6 units per acre	3.81 units per acre

We are also requesting a reduction of the minimum right-of-way width for the interior roadway from 60’ to 50’. This is common in other municipalities and a proposed section can be found in the civil plans

The site will consist of one ungated entrance in the northwest corner of the site off of Sunrise Boulevard. The 44 residences will be connected by one looped road with an interior sidewalk.

Drainage will be conveyed through interconnected inlets and pipes to three (3) separate dry ponds. The dry ponds will be planted with a variety of wax myrtles and sand cordgrass instead of typically bahia sod. This will add to the aesthetics of the project as well as nutrient removal from the stormwater.

A 10’ landscape buffer will be provided along the perimeter of the site. The south property line contains a 60’ drainage easement. Vegetation in that area will remain untouched but a landscape buffer will occur on the south portion of the easement.

The project will contain a looped water main and a private lift station for the utilities. Dry utilities will be provided in the 10’ utility easement shown on the front of the lots

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A bus stop will be provided onsite and a Routed Bus Plan has been included in the civil drawings. An open space area between lot 35 and lot 50 will be utilized for an amenity center. Future plans will be provided for the City's review.

No phasing is proposed for this project as all infrastructure will be built in one phase. It is possible building permits will be pulled in phases but not until after all infrastructure is complete.

There are no previously approved site plans for this site

The main Public Benefit of the project is the deceased density. Currently the project allows for 6 units per acre which would allow for sixty-nine(69) single family residents. This decreases the number of traffic trips on the existing roads. The decrease in lots size and setbacks allows for a shared amenity lot that all the residents can enjoy.

Should you have any questions or require additional information, please feel free to contact this office at your earliest convenience.

Sincerely,

Blaine Bergstresser, P.E.
Florida License No. 84598

CONSTRUCTION PLANS

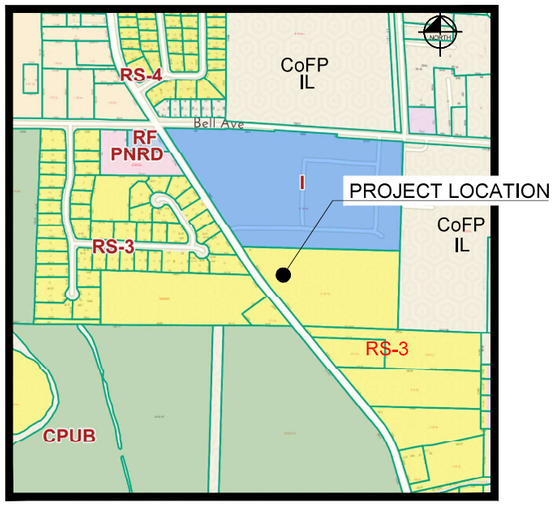
FOR

SUNRISE LAKES

LOCATED AT

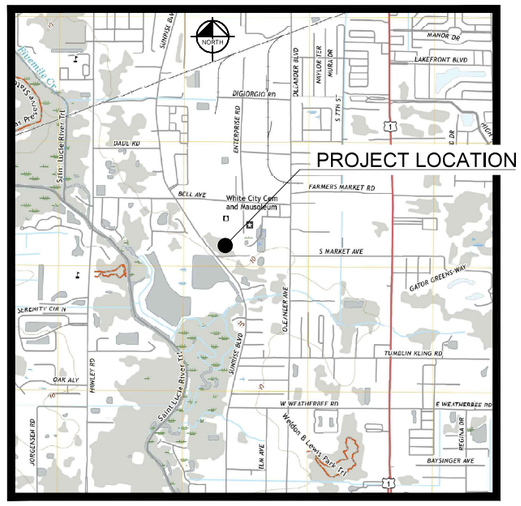
3804 SUNRISE BLVD, FORT PIERCE, FLORIDA

SECTION 33, TOWNSHIP 35S, RANGE 40E



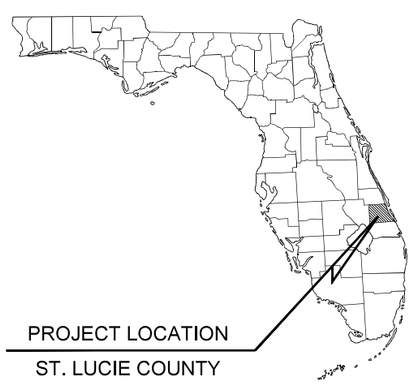
LOCATION MAP

SCALE: NOT TO SCALE



VICINITY MAP

SCALE: NOT TO SCALE



LEGAL DESCRIPTION

THE SOUTH 546 FEET OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4, LYING EAST OF WHITE CITY ROAD (SUNRISE BOULEVARD) IN SECTION 33, TOWNSHIP 35 SOUTH, RANGE 40 EAST, SAID LAND LYING AND BEING IN ST. LUCIE COUNTY, FLORIDA.

SHEET INDEX	
Sheet Number	Sheet Title
C-100	COVER
C-101	GENERAL NOTES
C-200	SITE PLAN
C-201	PRELIMINARY PLAT
C-300	MASTER PAVING GRADING & DRAINAGE PLAN
C-301	PAVING GRADING & DRAINAGE DETAILS
C-302	PAVING GRADING & DRAINAGE DETAILS
C-303	GRADING SECTIONS
C-400	MASTER UTILITIES PLAN
C-500	FPUA DETAILS-01
C-501	FPUA DETAILS-02
C-502	FPUA DETAILS-03
C-503	FPUA DETAILS-04
C-504	FPUA DETAILS-05
C-600	EXISTING CONDITIONS & DEMOLITION
C-601	PHASE ONE EROSION CONTROL
C-700	ROUTING PLAN BUS
C-701	ROUTING PLAN FIRE
--	PHOTO-01

PROJECT TEAM

OWNER/DEVELOPER
DT VENTURES 1, LLC.
PO BOX 92280
ROCHESTER,NY 14692

LANDSCAPE ARCHITECT
PAUL GOULAS, RLA
LANDSCAPE ARCHITECTURAL SERVICES
1708 SE JOY HAVEN ST
PORT ST.LUCIE,FL 34983
772-631-8400

CIVIL ENGINEER
BLAINE BERGSTRESSER, P.E.
KMA ENGINEERING & SURVEYING, LLC
3001 INDUSTRIAL AVE 2
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SURVEYOR
DOUG WALKER, PSM
PRINCIPAL MERIDIAN SURVEYING,INC
4546 CAMBRIDGE ST.
WEST PALM BEACH,FL 33415
561-478-7764

PERMITTING AGENCIES

FORT PIERCE UTILITY AUTHORITY
SHANE OSTRANDER
1701 S. 37TH STREET
FORT PIERCE, FL 34984
SOTRANDER@FPUA.COM
772-466-1600

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
316 NW 5TH ST
OKEECHOBEE, FL 34972
863-462-5260

NORTH ST LUCIE RIVER WATER CONTROL DISTRICT
PATRICIA KUTA
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FORT PIERCE, FL 34945
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772-461-5050

CITY OF FORT PIERCE
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FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES

CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.	24-1001-COVER

SHEET TITLE: COVER

SHEET NUMBER: C-100

GENERAL

1. THE CONTRACTOR AND SUBCONTRACTORS SHALL OBTAIN A COPY OF THE FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (LATEST EDITION) AND BECOME FAMILIAR WITH THE CONTENTS PRIOR TO COMMENCING WORK, AND, UNLESS OTHERWISE NOTED, ALL WORK SHALL CONFORM AS APPLICABLE TO THESE STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS. CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS UNLESS OTHERWISE INDICATED, REMOVING TREES, STUMPS, ROOTS, MUCK, EXISTING PAVEMENT AND ALL OTHER DELETERIOUS MATERIAL.
3. EXISTING UTILITIES SHOWN ARE LOCATED ACCORDING TO THE INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF THE TOPOGRAPHIC SURVEY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE ENGINEER. GUARANTEE IS NOT MADE THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN OR THAT THE LOCATION OF THOSE SHOWN ARE ENTIRELY ACCURATE. FINDING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE DONE BEFORE HE COMMENCES ANY WORK IN THE VICINITY. 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. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES, NOR FOR TEMPORARY BRACING AND SHORING OF SAME. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PROVIDE 48 HOURS MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION. A LIST OF THE UTILITY COMPANIES WHICH THE CONTRACTOR MUST CALL BEFORE COMMENCING WORK IS PROVIDED ON THE COVER SHEET OF THESE CONSTRUCTION PLANS. THIS LIST SERVES AS A GUIDE ONLY AND IS NOT INTENDED TO LIMIT THE UTILITY COMPANIES WHICH THE CONTRACTOR MAY WISH TO NOTIFY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS AND BONDS IF REQUIRED PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE CONSTRUCTION DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, AND SPECIAL CONDITIONS AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.
7. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER.
8. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS ARE TO BE SENT TO THE OWNER AND DESIGN ENGINEER OF RECORD DIRECTLY FROM THE TESTING AGENCY.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING TO THE ENGINEER A CERTIFIED RECORD SURVEY SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA DEPICTING THE ACTUAL FIELD LOCATION OF ALL CONSTRUCTED IMPROVEMENTS THAT ARE REQUIRED BY THE JURISDICTIONAL AGENCIES FOR THE CERTIFICATION PROCESS. ALL SURVEY COSTS WILL BE THE CONTRACTORS RESPONSIBILITY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND MAINTAINING AS-BUILT INFORMATION WHICH SHALL BE RECORDED AS CONSTRUCTION PROGRESSES OR AT THE COMPLETION OF APPROPRIATE CONSTRUCTION INTERVALS AND SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS TO THE OWNER FOR THE PURPOSE OF CERTIFICATION TO JURISDICTIONAL AGENCIES AS REQUIRED. ALL AS-BUILT DATA SHALL BE COLLECTED BY A STATE OF FLORIDA PROFESSIONAL LAND SURVEYOR WHOSE SERVICES ARE ENGAGED BY THE CONTRACTOR.
11. ANY WELLS DISCOVERED ON SITE THAT WILL HAVE NO USE MUST BE PLUGGED BY A LICENSED WELL DRILLING CONTRACTOR IN A MANNER APPROVED BY ALL JURISDICTIONAL AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY WELL ABANDONMENT PERMITS REQUIRED.
12. ANY WELL DISCOVERED DURING EARTH MOVING OR EXCAVATION SHALL BE REPORTED TO THE APPROPRIATE JURISDICTIONAL AGENCIES WITHIN 24 HOURS AFTER DISCOVERY IS MADE.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK THAT WOULD BE AFFECTED. FAILURE TO NOTIFY OWNER OF AN IDENTIFIABLE CONFLICT PRIOR TO PROCEEDING WITH INSTALLATION RELIEVES OWNER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.

EROSION CONTROL

1. THE STORM WATER POLLUTION PREVENTION PLAN ("SWPPP") IS COMPRISED OF THE EROSION CONTROL PLAN, THE STANDARD DETAILS, THE PLAN NARRATIVE, ATTACHMENTS INCLUDED IN SPECIFICATIONS OF THE SWPPP, PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.
2. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE STATE OF FLORIDA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.
3. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO THE OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
4. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY THE PERMITTING AGENCY OR OWNER.
5. EROSION CONTROL PLAN MUST CLEARLY DELINEATE ALL STATE WATERS. PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS MUST BE MAINTAINED ON SITE AT ALL TIMES.
6. THE CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.
7. CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
8. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
9. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL ON SITE. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
11. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
12. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THE PLAN, SHALL BE INITIATED AS SOON AS PRACTICABLE.
13. STABILIZATION PRACTICES SHOULD BE INITIATED AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 7 DAYS WHERE CONSTRUCTION HAS TEMPORARILY CEASED.
14. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 7 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRED IN THESE AREAS. REFER TO SECTION 981 OF THE STANDARD SPECIFICATIONS FOR SEEDING AND MAINTENANCE REQUIREMENTS.
15. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
16. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED AS SOON AS POSSIBLE.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
18. ON-SITE & OFF SITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE EROSION CONTROL PLAN AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
19. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
20. DUE TO GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, ETC.) TO PREVENT EROSION.
21. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY, THIS INCLUDES BACK FILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

POTABLE WATER AND SANITARY SEWER SYSTEM

1. THE CONTRACTOR SHALL CONSTRUCT GRAVITY SEWER LATERALS, MANHOLES GRAVITY SEWER LINES AND DOMESTIC WATER AND FIRE PROTECTION SYSTEM AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS, EQUIPMENT, MACHINERY, TOOLS, MEANS OF TRANSPORTATION AND LABOR NECESSARY TO COMPLETE THE WORK IN FULL AND COMPLETE ACCORDANCE WITH THE SHOWN, DESCRIBED AND REASONABLY INTENDED REQUIREMENTS OF THE CONTRACT DOCUMENTS AND JURISDICTIONAL AGENCY REQUIREMENTS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
2. ALL EXISTING UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR UTILITY LOCATION AND COORDINATION IN ACCORDANCE WITH THE NOTES CONTAINED IN THE GENERAL CONSTRUCTION SECTION OF THIS SHEET.
3. THE CONTRACTOR SHALL RESTORE ALL DISTURBED VEGETATION IN KIND, UNLESS SHOWN OTHERWISE.
4. DEFLECTION OF PIPE JOINTS AND CURVATURE OF PIPE SHALL NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS. SECURELY CLOSE ALL OPEN ENDS OF PIPE AND FITTINGS WITH A WATERTIGHT PLUG WHEN WORK IS NOT IN PROGRESS. THE INTERIOR OF ALL PIPES SHALL BE CLEAN AND JOINT SURFACES WIPED CLEAN AND DRY AFTER THE PIPE HAS BEEN LOWERED INTO THE TRENCH. VALVES SHALL BE PLUMB AND LOCATED ACCORDING TO THE PLANS.
5. ALL PHASES OF INSTALLATION, INCLUDING UNLOADING, TRENCHING, LAYING AND BACK FILLING, SHALL BE DONE IN A FIRST CLASS WORKMANLIKE MANNER. ALL PIPE AND FITTINGS SHALL BE CAREFULLY STORED FOLLOWING MANUFACTURER'S RECOMMENDATIONS. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE COATING OR LINING IN ANY D.I. PIPE FITTINGS. ANY PIPE OR FITTING WHICH IS DAMAGED OR WHICH HAS FLAWS OR IMPERFECTIONS WHICH, IN THE OPINION OF THE ENGINEER OR OWNER, RENDERS IT UNFIT FOR USE, SHALL NOT BE USED. ANY PIPE NOT SATISFACTORY FOR USE SHALL BE CLEARLY MARKED AND IMMEDIATELY REMOVED FROM THE JOB SITE, AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
6. WATER FOR FIRE FIGHTING SHALL BE AVAILABLE FOR USE PRIOR TO COMBUSTIBLES BEING BROUGHT ON SITE.
7. ALL UTILITY AND STORM DRAIN TRENCHES LOCATED UNDER AREAS TO RECEIVE PAVING SHALL BE COMPLETELY BACK FILLED IN ACCORDANCE WITH THE GOVERNING JURISDICTIONAL AGENCY'S SPECIFICATIONS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
8. UNDERGROUND LINES SHALL BE SURVEYED BY A STATE OF FLORIDA PROFESSIONAL LAND SURVEYOR PRIOR TO BACK FILLING.
9. CONTRACTOR SHALL PERFORM, AT HIS OWN EXPENSE, ANY AND ALL TESTS REQUIRED BY THE SPECIFICATIONS AND/OR ANY AGENCY HAVING JURISDICTION. THESE TESTS MAY INCLUDE, BUT MAY NOT BE LIMITED TO, INFILTRATION AND EXFILTRATION, TELEVISION INSPECTION AND A MANDREL TEST ON GRAVITY SEWER. A COPY OF THE TEST RESULTS SHALL BE PROVIDED TO THE UTILITY PROVIDER, OWNER AND JURISDICTIONAL AGENCY AS REQUIRED.

MAINTENANCE

ALL MEASURES STATED ON THE EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A 0.5" RAINFALL EVENT, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED AND RESEEDED AS NEEDED. FOR MAINTENANCE REQUIREMENTS REFER TO SECTION 981 OF THE OF THE FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (LATEST EDITION).
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
6. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED TO 55 CUBIC YARDS / ACRE.
7. ALL MAINTENANCE OPERATIONS SHALL BE DONE IN A TIMELY MANNER BUT IN NO CASE LATER THAN 2 CALENDAR DAYS FOLLOWING THE INSPECTION.

STORM DRAINAGE SYSTEM

1. STANDARD INDEXES REFER TO THE 2021/2022 EDITION OF F.D.O.T. "STANDARD PLANS FOR ROADWAY CONSTRUCTION"
2. ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE CLASS III (ASTM C-76) UNLESS OTHERWISE NOTED ON PLANS. ALL DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS UNLESS OTHERWISE NOTED ON PLANS.
3. PIPE LENGTHS SHOWN ARE APPROXIMATE AND TO CENTER OF DRAINAGE STRUCTURES, WITH THE EXCEPTION OF MITERED END AND FLARED END SECTIONS, WHICH ARE NOT INCLUDED IN LENGTHS.
4. ALL DRAINAGE STRUCTURE GRATES AND COVERS, EITHER EXISTING OR PROPOSED SHALL BE TRAFFIC RATED FOR H-20 LOADINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NECESSARY UPGRADES TO EXISTING DRAINAGE STRUCTURES.
5. CONSTRUCTION OF THE ENTIRE STORMWATER MANAGEMENT SYSTEM SHOWN ON THE PLANS MUST BE COMPLETE AND ALL DISTURBED AREAS STABILIZED IN ACCORDANCE WITH THE PERMITTED PLANS AND CONDITIONS PRIOR TO ANY OF THE FOLLOWING: ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY FOR ANY LOT; INITIATION OF INTENDED USE OF THE INFRASTRUCTURE; OR TRANSFER OF RESPONSIBILITY FOR MAINTENANCE OF THE SYSTEM TO A LOCAL GOVERNMENT OR OTHER RESPONSIBLE ENTITY.
6. THE CONTRACTOR SHALL INSTALL ALL UNDERGROUND STORM WATER PIPING PER JURISDICTION REGULATIONS (MANUFACTURER'S RECOMMENDATIONS SHALL BE UTILITIZED IF MORE STRINGENT).
7. STORM WATER PIPES, STRUCTURES, MINIMUM COVER AND INSTALLATION PROCEDURES TO BE IN ACCORDANCE WITH SOUTH FLORIDA WATER MANAGEMENT DISTRICT STANDARDS.

PAVING/GRADING TESTING AND INSPECTION

1. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING APPLICABLE TESTING WITH THE SOILS ENGINEER. TESTS WILL BE REQUIRED PURSUANT WITH THE SOILS REPORT. UPON COMPLETION OF WORK THE SOILS ENGINEER WILL SUBMIT CERTIFICATIONS TO THE OWNER AND OWNER'S ENGINEER STATING THAT ALL REQUIREMENTS HAVE BEEN MET.
2. A QUALIFIED TESTING LABORATORY SHALL PERFORM ALL TESTING NECESSARY TO ASSURE COMPLIANCE OF THE IN-PLACE MATERIALS AS REQUIRED BY THESE PLANS AND GEOTECHNICAL REPORT, THE VARIOUS AGENCIES AND PERMIT CONDITIONS. SHOULD ANY RETESTING BE REQUIRED DUE TO THE FAILURE OF ANY TESTS TO MEET THESE REQUIREMENTS, THE CONTRACTOR WILL BEAR ALL COSTS OF SAID RETESTING.

DRAINAGE SYSTEM TESTING AND INSPECTION

1. THE STORM DRAINAGE PIPING SYSTEM SHALL BE SUBJECT TO A VISUAL INSPECTION BY THE OWNER'S ENGINEER PRIOR TO THE PLACEMENT OF BACKFILL. CONTRACTOR TO NOTIFY THE ENGINEER 2 FULL BUSINESS DAYS IN ADVANCE TO SCHEDULE INSPECTION.
2. THE CONTRACTOR SHALL MAINTAIN AND PROTECT FROM MUD, DIRT, DEBRIS, ETC. THE STORM DRAINAGE SYSTEM UNTIL FINAL ACCEPTANCE OF THE PROJECT. THE STORM SYSTEM WILL BE REINSPECTED BY THE OWNER'S ENGINEER PRIOR TO APPROVAL FOR CERTIFICATE OF OCCUPANCY PURPOSES. THE CONTRACTOR MAY BE REQUIRED TO RECLEAN PIPES AND INLETS AT THE CONTRACTORS EXPENSE AND PRIOR TO FINAL ACCEPTANCE.

PAVING, GRADING AND DRAINAGE

1. ALL PAVING, CONSTRUCTION, MATERIALS, AND WORKMANSHIP WITHIN COUNTY'S RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH LOCAL OR COUNTY SPECIFICATIONS AND STANDARDS (LATEST EDITION) OR FDOT SPECIFICATIONS AND STANDARDS (LATEST EDITION) IF NOT COVERED BY LOCAL OR COUNTY REGULATIONS.
2. ALL UNPAVED AREAS IN EXISTING RIGHTS-OF-WAY DISTURBED BY CONSTRUCTION SHALL BE REGRADED AND SODDED.
3. TRAFFIC CONTROL ON ALL FDOT, LOCAL AND COUNTY RIGHTS-OF-WAY SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND THE REQUIREMENTS OF THE STATE AND ANY LOCAL AGENCY HAVING JURISDICTION. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
4. THE CONTRACTOR SHALL GRADE THE SITE TO THE ELEVATIONS INDICATED AND SHALL REGRADE WASHOUTS WHERE THEY OCCUR AFTER EVERY RAINFALL UNTIL A GRASS STAND IS WELL ESTABLISHED OR ADEQUATE STABILIZATION OCCURS.
5. ALL OPEN AREAS WITHIN THE PROJECT SITE SHALL BE SODDED UNLESS INDICATED OTHERWISE ON THE LANDSCAPE PLAN.
6. ALL AREAS INDICATED AS PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL PAVEMENT SECTIONS AS INDICATED ON THE DRAWINGS.
7. WHERE EXISTING PAVEMENT IS INDICATED TO BE REMOVED AND REPLACED, THE CONTRACTOR SHALL SAW CUT A MINIMUM 2" DEEP FOR A SMOOTH AND STRAIGHT JOINT AND REPLACE THE PAVEMENT WITH THE SAME TYPE AND DEPTH OF MATERIAL AS EXISTING OR AS INDICATED.
8. WHERE NEW PAVEMENT MEETS THE EXISTING PAVEMENT, THE CONTRACTOR SHALL SAW CUT THE EXISTING PAVEMENT A MINIMUM 2" DEEP FOR A SMOOTH AND STRAIGHT JOINT AND MATCH THE EXISTING PAVEMENT ELEVATION WITH THE PROPOSED PAVEMENT UNLESS OTHERWISE INDICATED.
9. THE CONTRACTOR SHALL INSTALL FILTER FABRIC OVER ALL DRAINAGE STRUCTURES FOR THE DURATION OF CONSTRUCTION AND UNTIL ACCEPTANCE OF THE PROJECT BY THE OWNER. ALL DRAINAGE STRUCTURES SHALL BE CLEANED OF DEBRIS AS REQUIRED DURING AND AT THE END OF CONSTRUCTION TO PROVIDE POSITIVE DRAINAGE FLOWS.
10. IF DEWATERING IS REQUIRED, THE CONTRACTOR SHALL OBTAIN ANY APPLICABLE REQUIRED PERMITS. THE CONTRACTOR IS TO COORDINATE WITH THE OWNER AND THE DESIGN ENGINEER PRIOR TO ANY EXCAVATION.
11. STRIP TOPSOIL AND ORGANIC MATTER FROM ALL AREAS OF THE SITE AS REQUIRED. IN SOME CASES TOPSOIL MAY BE STOCKPILED ON SITE FOR PLACEMENT WITHIN LANDSCAPED AREAS BUT ONLY AS DIRECTED BY THE OWNER.
12. FIELD DENSITY TESTS SHALL BE TAKEN AT INTERVALS IN ACCORDANCE WITH THE LOCAL JURISDICTIONAL AGENCY OR TO FDOT STANDARDS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
13. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED AS PER PLANS. THE AREAS SHALL THEN BE SODDED OR SEEDED AS SPECIFIED IN THE PLANS, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE JOB SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL EARTHEN AREAS WILL BE SODDED OR SEEDED AND MULCHED AS SHOWN ON THE LANDSCAPING PLAN.
14. ALL CUT OR FILL SLOPES SHALL BE 4 (HORIZONTAL) :1 (VERTICAL) OR FLATTER UNLESS OTHERWISE SHOWN.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
16. THE CONTRACTOR SHALL TAKE ALL REQUIRED MEASURES TO CONTROL TURBIDITY, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF TURBIDITY BARRIERS AT ALL LOCATIONS WHERE THE POSSIBILITY OF TRANSFERRING SUSPENDED SOLIDS INTO THE RECEIVING WATER BODY EXISTS DUE TO THE PROPOSED WORK. TURBIDITY BARRIERS MUST BE MAINTAINED IN EFFECTIVE CONDITION AT ALL LOCATIONS UNTIL CONSTRUCTION IS COMPLETED AND DISTURBED SOIL AREAS ARE STABILIZED. THEREAFTER, THE CONTRACTOR MUST REMOVE THE BARRIERS. AT NO TIME SHALL THERE BE ANY OFF-SITE DISCHARGE WHICH VIOLATES THE WATER QUALITY STANDARDS IN CHAPTER 17-302, FLORIDA ADMINISTRATIVE CODE.
17. SOD, WHERE CALLED FOR, MUST BE INSTALLED AND MAINTAINED ON EXPOSED SLOPES WITHIN 48 HOURS OF COMPLETING FINAL GRADING, AND AT ANY OTHER TIME AS NECESSARY, TO PREVENT EROSION, SEDIMENTATION OR TURBID DISCHARGES.
18. THE CONTRACTOR MUST REVIEW AND MAINTAIN A COPY OF THE ENVIRONMENTAL RESOURCE PERMIT COMPLETE WITH ALL CONDITIONS, ATTACHMENTS, EXHIBITS, AND PERMIT MODIFICATIONS IN GOOD CONDITION AT THE CONSTRUCTION SITE. THE COMPLETE PERMIT MUST BE AVAILABLE FOR REVIEW UPON REQUEST BY WATER MANAGEMENT DISTRICT REPRESENTATIVES.
19. THE CONTRACTOR SHALL ENSURE THAT ISLAND PLANTING AREAS AND OTHER PLANTING AREAS ARE NOT COMPACTED AND DO NOT CONTAIN ROAD BASE MATERIALS. THE CONTRACTOR SHALL ALSO EXCAVATE AND REMOVE ALL UNDESIRABLE MATERIAL FROM ALL AREAS ON THE SITE TO BE PLANTED AND PROPERLY DISPOSED OF IN A LEGAL MANNER.
20. THE CONTRACTOR SHALL INSTALL ALL UNDERGROUND STORM WATER PIPING PER MANUFACTURER'S RECOMMENDATIONS.

DEMOLITION

1. CONTRACTOR SHALL SUBMIT DEMOLITION SCHEDULE TO OWNER PRIOR TO PROCEEDING WITH DEMOLITION ACTIVITIES.
2. EXTENT OF SITE CLEARING IS SHOWN ON DRAWINGS.
3. CONTRACTOR SHALL CONDUCT SITE DEMOLITION OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM AUTHORITIES HAVING JURISDICTION.
4. CONTRACTOR SHALL PROVIDE PROTECTION NECESSARY TO PREVENT DAMAGE TO EXISTING IMPROVEMENTS INDICATED ON PLAN "EXISTING TO REMAIN".
5. CONTRACTOR SHALL RESTORE DAMAGED IMPROVEMENTS TO THEIR ORIGINAL CONDITION, AS ACCEPTABLE TO PARTIES HAVING JURISDICTION.
6. CONTRACTOR SHALL REMOVE WASTE MATERIALS AND UNSUITABLE AND EXCESS TOPSOIL FROM PROPERTY AND DISPOSE OF OFF-SITE IN A LEGAL MANNER.
7. CONTRACTOR SHALL DEMOLISH AND COMPLETELY REMOVE FROM SITE MATERIAL INDICATED ON PLAN OR NOTES "TO BE REMOVED".
8. CONTRACTOR SHALL PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT AND OTHER HAZARDS CREATED BY THE DEMOLITION OPERATION
9. ALL MATERIAL REMOVED FROM THIS SITE BY THE CONTRACTOR SHALL BE DISPOSED OF BY THE CONTRACTOR IN A LEGAL MANNER.
10. REFER TO THE TOPOGRAPHIC SURVEY FOR ADDITIONAL DETAILS OF EXISTING STRUCTURES, ETC., LOCATED WITHIN THE PROJECT SITE. UNLESS OTHERWISE NOTED, ALL EXISTING BUILDINGS, STRUCTURES, SLABS, CONCRETE, ASPHALT, DEBRIS PILES, SIGNS, AND ALL APPURTENANCES ARE TO BE REMOVED FROM THE SITE BY THE CONTRACTOR AND PROPERLY DISPOSED OF IN A LEGAL MANNER AS PART OF THIS CONTRACT. SOME ITEMS TO BE REMOVED MAY NOT BE DEPICTED ON THE TOPOGRAPHIC SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE AND DETERMINE THE FULL EXTENT OF ITEMS TO BE REMOVED. IF ANY ITEMS ARE IN QUESTION, THE CONTRACTOR SHALL CONTACT THE OWNER PRIOR TO REMOVAL OF SAID ITEMS.
11. THE CONTRACTOR SHALL REFER TO THE DEMOLITION PLAN FOR DEMOLITION/PRESERVATION OF EXISTING TREES. ALL TREES NOT SPECIFICALLY SHOWN TO BE PRESERVED OR RELOCATED SHALL BE REMOVED AS A PART OF THIS CONTRACT. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO ANY DEMOLITION.

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ENGINEERING & SURVEYING, LLC.
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(772) 569-5505

FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

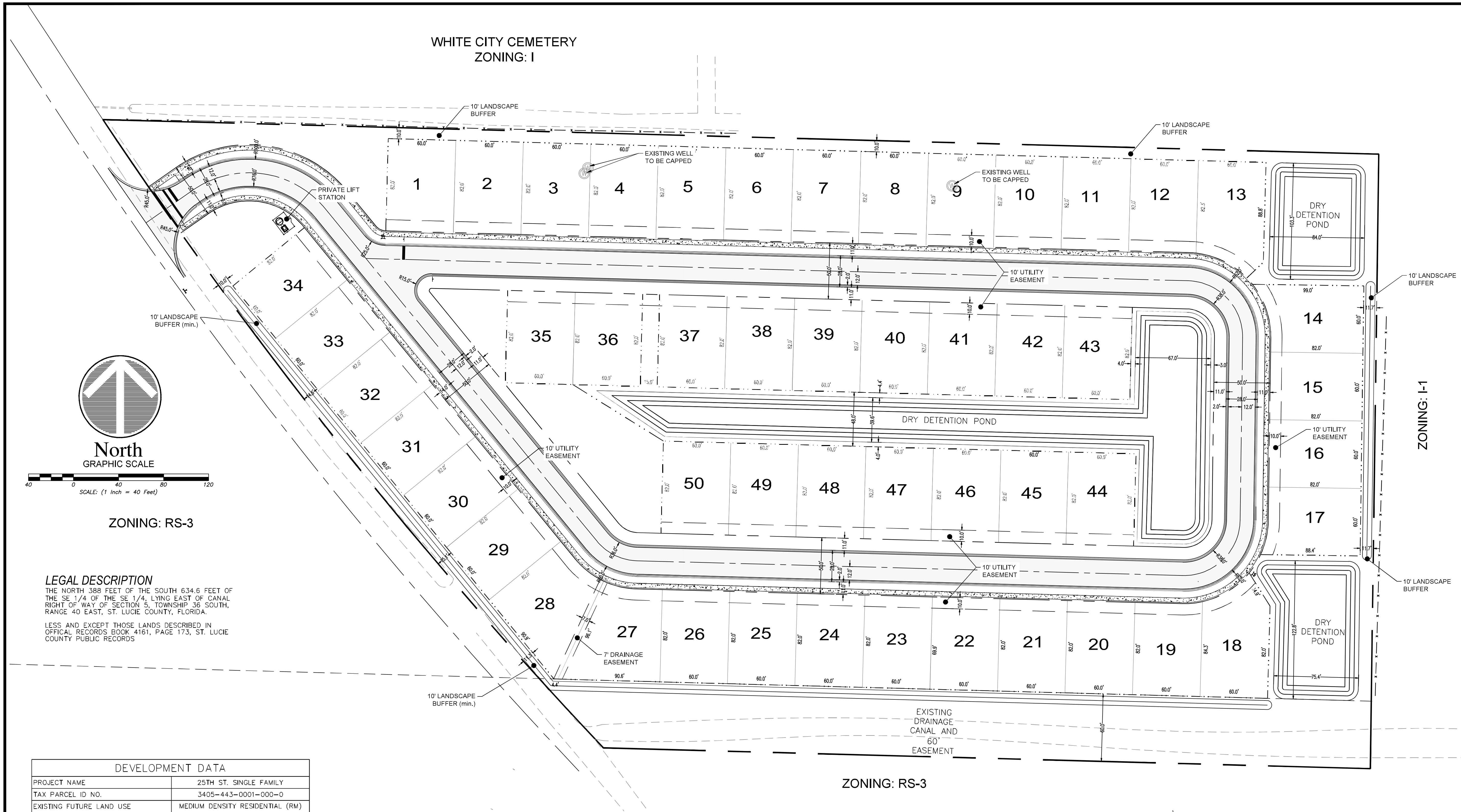
NO. 84598

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-COVER

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
C-101



LEGAL DESCRIPTION

THE NORTH 388 FEET OF THE SOUTH 634.6 FEET OF THE SE 1/4 OF THE SE 1/4, LYING EAST OF CANAL RIGHT OF WAY OF SECTION 5, TOWNSHIP 36 SOUTH, RANGE 40 EAST, ST. LUCIE COUNTY, FLORIDA.

LESS AND EXCEPT THOSE LANDS DESCRIBED IN OFFICAL RECORDS BOOK 4161, PAGE 173, ST. LUCIE COUNTY PUBLIC RECORDS

DEVELOPMENT DATA

PROJECT NAME	25TH ST. SINGLE FAMILY
TAX PARCEL ID NO.	3405-443-0001-000-0
EXISTING FUTURE LAND USE	MEDIUM DENSITY RESIDENTIAL (RM)
PROPOSED FUTURE LAND USE	MEDIUM DENSITY RESIDENTIAL (RM)
EXISTING ZONING	RS-3
PROPOSED ZONING	PLANNED DEVELOPMENT ZONE (PD)
PROJECT USE	SINGLE-FAMILY RESIDENTIAL
MAXIMUM ALLOWABLE DENSITY	RS-3 - 6 DU/AC
PROPOSED DENSITY	PD - 3.81 DU/AC

OPEN SPACE CALCUALTION

TOTAL AREA OF SUBJECT PARCEL	502,682 SF	11.54 AC	100.00%
REQUIRED OPEN SPACE AREA	100,536 SF	2.31 AC	20.00%
AREA OF WETLAND BUFFER	0 SF	0.00 AC	0.00%
AREA OF RETENTION PONDS*	30,161 SF	0.69 AC	6.00%
AREA OF GREEN SPACE	119,476 SF	2.74 AC	23.77%
PROVIDED OPEN SPACE AREA	149,637 SF	3.44 AC	29.77%

*PER SECTION 125-212(b)(3)...stormwater detention and retention facilities providing that no more than 30 percent of the overall open space requirement shall be satisfied in this manner

LAND USE BREAKDOWN

TOTAL AREA OF SUBJECT PARCEL	502,682 SF	11.54 AC	100.00%
AREA OF ONSITE WETLAND	0 SF	0.00 AC	0.00%
AREA OF WETLAND BUFFER	0 SF	0.00 AC	0.00%
TOTAL DEVELOPMENT AREA	502,682 SF	11.54 AC	100.00%

TOTAL DEVELOPMENT AREA	502,682 SF	11.54 AC	100.00%
AREA OF PROPOSED BUILDINGS	150,000 SF	3.44 AC	29.84%
AREA OF PROPOSED IMPERVIOUS	63,131 SF	1.45 AC	12.56%
AREA OF PROPOSED LOT IMPERVIOUS	30,000 SF	0.69 AC	5.97%
AREA OF PROPOSED RETENTION BASE	32,933 SF	0.76 AC	6.55%
TOTAL PROPOSED IMPERVIOUS AREA	276,064 SF	6.34 AC	54.92%
AREA OF PROPOSED LOT PERVIOUS	80,253 SF	1.84 AC	15.96%
AREA OF PROPOSED RETENTION BANK	28,870 SF	0.66 AC	5.74%
AREA OF PROPOSED GREEN SPACE	119,476 SF	2.74 AC	23.77%
TOTAL PROPOSED PERVIOUS AREA	228,599 SF	5.25 AC	45.48%

ZONING	PD
MIN. LOT SIZE	4,920 SF
MIN. LOT WIDTH	60'
MIN. LOT DEPTH	70' (82 PROPOSED)
MIN. ROAD FRONTAGE	25'
MAX. LOT COVERAGE	40%
BUILDING HEIGHT (1 STORY)	45'
MAX. GROSS DENSITY (DU/AC.)	12 DU/AC. (3.81 DU/AC. PROPOSED)
MIN. SETBACKS	
FRONT	15'
SIDE (INTERIOR)	5'
SIDE (CORNER)	5'
GARAGE	20'
REAR	15'

CIVIL ENGINEER

KMA ENGINEERING & SURVEYING, LLC
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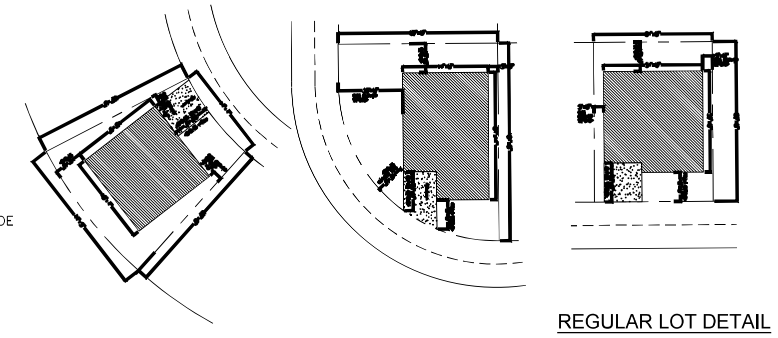
FORT PIERCE, FL 34946
PHONE: (772) 569-5505

OWNER/DEVELOPER

DT VENTURES 1, LLC.
PO BOX 92280
ROCHESTER,NY 14692

NOTES

1. AIR CONDITIONER UNITS WILL HAVE A 5' SIDE SETBACK.



CURVATURE LOT DETAIL
SCALE: N.T.S.

CORNER LOT DETAIL
SCALE: N.T.S.

REGULAR LOT DETAIL
SCALE: N.T.S.

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(772) 569-5505
FBPE C.O.A. # 33705

BY:	DATE:	COMMENT:

REVISIONS:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

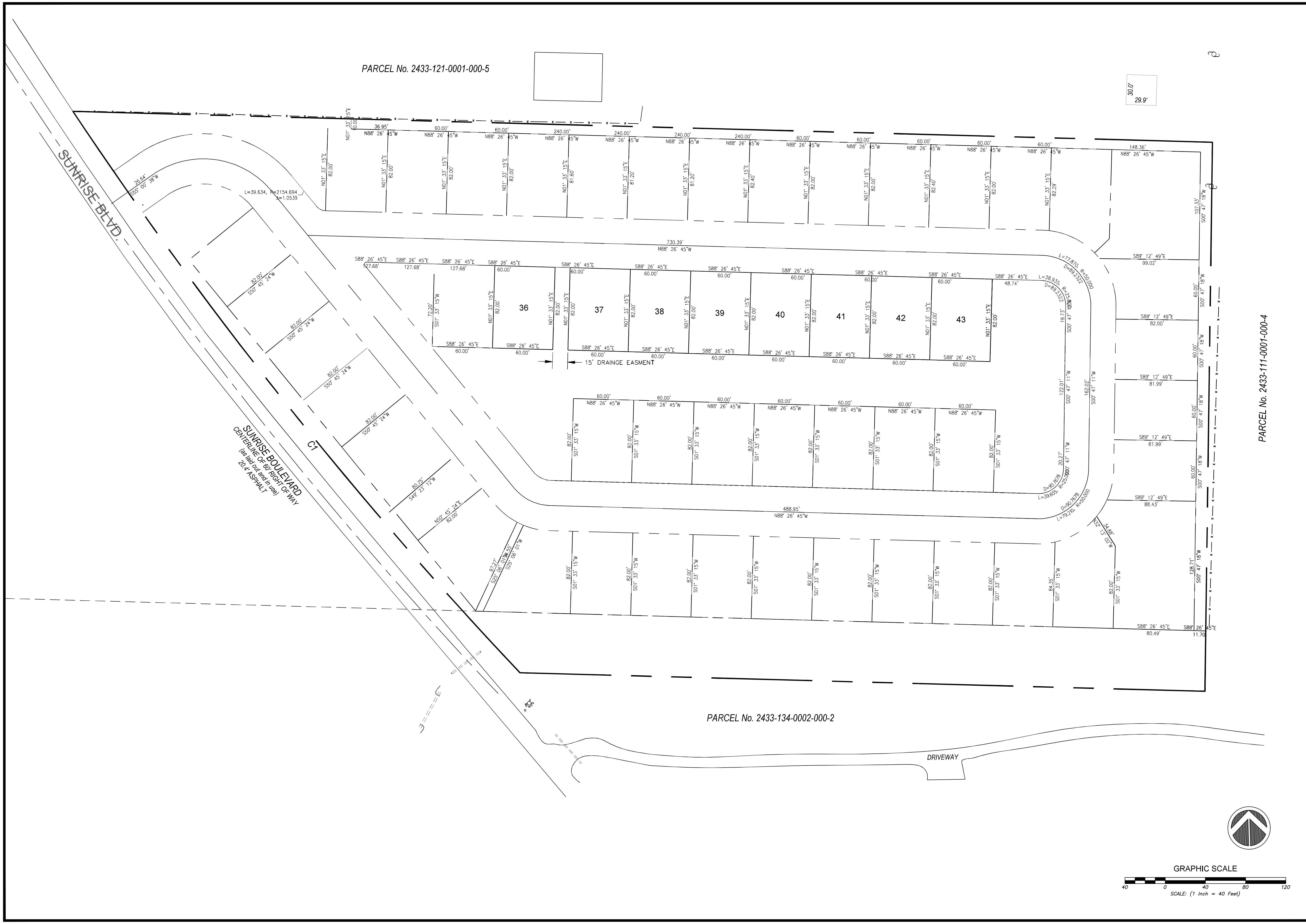
BLAINE ROBERT BERGSTRESSER
LICENSE NO. 84598
STATE OF FLORIDA
PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-SITE

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C-200



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FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER
LICENSE
NO. 84598
STATE OF FLORIDA
PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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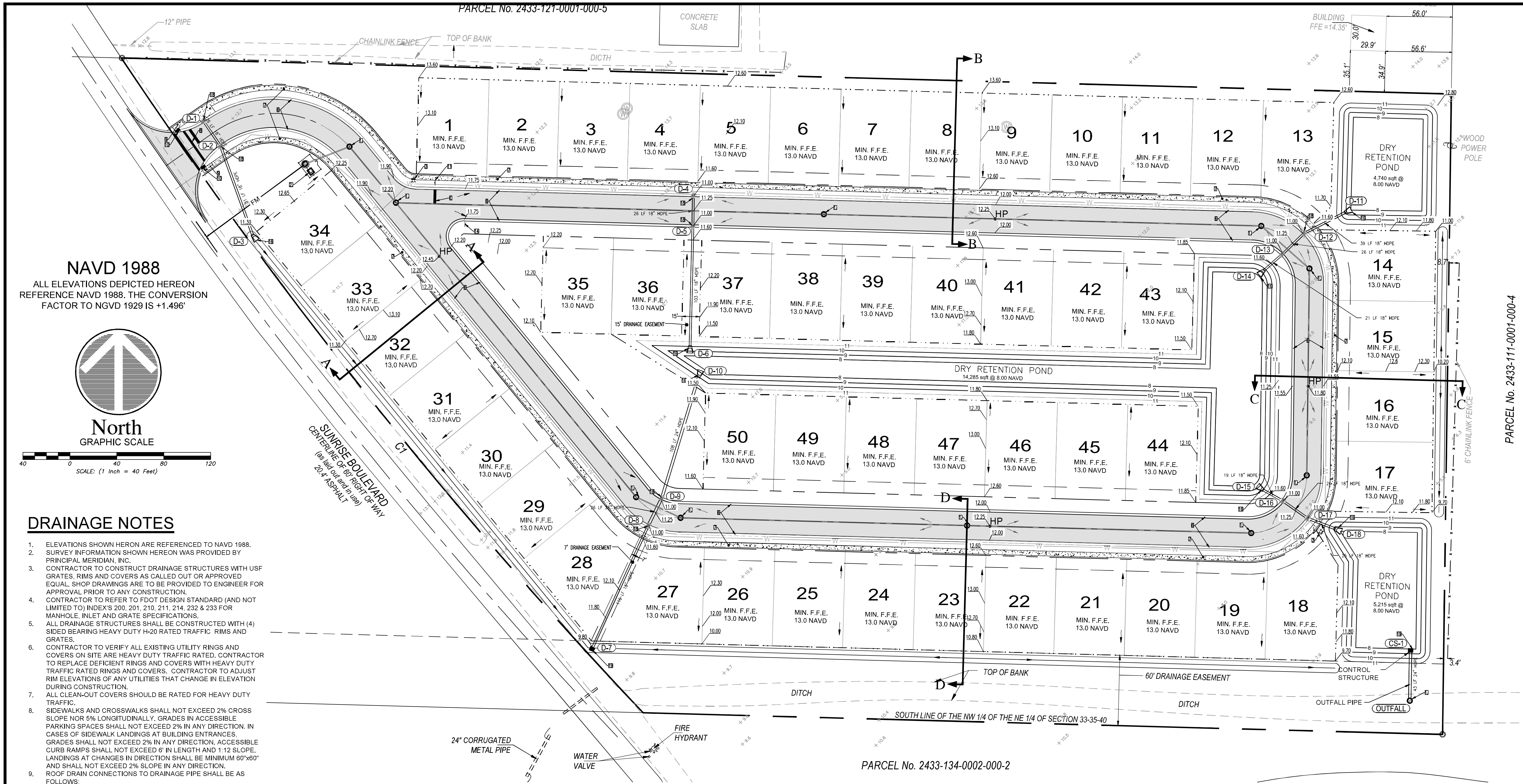
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-X-PLAT-BASE

SHEET TITLE:
PRELIMINARY PLAT

SHEET NUMBER:
C-201



DRAINAGE NOTES

1. ELEVATIONS SHOWN HERON ARE REFERENCED TO NAVD 1988.
2. SURVEY INFORMATION SHOWN HEREON WAS PROVIDED BY PRINCIPAL MERIDIAN, INC.
3. CONTRACTOR TO CONSTRUCT DRAINAGE STRUCTURES WITH USF GRATES, RIMS AND COVERS AS CALLED OUT OR APPROVED EQUAL. SHOP DRAWINGS ARE TO BE PROVIDED TO ENGINEER FOR APPROVAL PRIOR TO ANY CONSTRUCTION.
4. CONTRACTOR TO REFER TO FDOT DESIGN STANDARD (AND NOT LIMITED TO) INDEX'S 200, 201, 210, 211, 214, 232 & 233 FOR MANHOLE, INLET AND GRATE SPECIFICATIONS.
5. ALL DRAINAGE STRUCTURES SHALL BE CONSTRUCTED WITH (4) SIDED BEARING HEAVY DUTY H-20 RATED TRAFFIC RIMS AND GRATES.
6. CONTRACTOR TO VERIFY ALL EXISTING UTILITY RINGS AND COVERS ON SITE ARE HEAVY DUTY TRAFFIC RATED. CONTRACTOR TO REPLACE DEFICIENT RINGS AND COVERS WITH HEAVY DUTY TRAFFIC RATED RINGS AND COVERS. CONTRACTOR TO ADJUST RIM ELEVATIONS OF ANY UTILITIES THAT CHANGE IN ELEVATION DURING CONSTRUCTION.
7. ALL CLEAN-OUT COVERS SHOULD BE RATED FOR HEAVY DUTY TRAFFIC.
8. SIDEWALKS AND CROSSWALKS SHALL NOT EXCEED 2% CROSS SLOPE NOR 5% LONGITUDINALLY. GRADES IN ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION. IN CASES OF SIDEWALK LANDINGS AT BUILDING ENTRANCES, GRADES SHALL NOT EXCEED 2% IN ANY DIRECTION. ACCESSIBLE CURB RAMPS SHALL NOT EXCEED 6' IN LENGTH AND 1:12 SLOPE. LANDINGS AT CHANGES IN DIRECTION SHALL BE MINIMUM 60"x60" AND SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION.
9. ROOF DRAIN CONNECTIONS TO DRAINAGE PIPE SHALL BE AS FOLLOWS:
   - A. FOR ADS N-12 CORRUGATED POLYETHYLENE DRAINAGE PIPE USE ADS DUAL WALL FABRICATED REDUCING SADDLE TEE 4"-24" DIAMETER.
   - B. FOR RCP DRAINAGE PIPE MAKE CONNECTION PER FDOT INDEX 280,CONCRETE COLLAR FOR JOINING MAINLINE PIPE AND STUB PIPE DETAIL
   - C. NOTIFY CONSULTANT FOR CONNECTION METHOD TO STEEL PIPE.
10. ALL DRAINAGE PIPE JOINTS SHALL BE FILTER FABRIC WRAPPED PER FDOT INDEX #280. ALL DRAINAGE PIPE JOINTS NEED TO BE FILTER FABRIC WRAPPED REGARDLESS OF MATERIAL.
11. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
12. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE.
13. EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
14. PRECAST STRUCTURES MAY BE USED AT CONTRACTORS OPTION.
15. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
16. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER".
17. ALL CATCH BASINS WITHIN PROPOSED TRAFFIC AREAS SHALL HAVE BICYCLE PROOF GRATES.
18. CONTRACTOR TO FLUSH AND VACUUM ENTIRE ON-SITE STORM WATER SYSTEM UPON COMPLETION OF PROPOSED WORK.
19. MINIMUM DRAINAGE PIPE SHALL BE 15 INCHES PER CITY OF FORT PIERCE LAND DEVELOPMENT ORDINANCE SEC 119-3 DESIGN STANDARDS; STORMWATER MANAGEMENT; APPROVALS.

DRAINAGE STRUCTURE TABLE

CONSTRUCT D-1
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-2
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-3
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-4
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-5
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-6
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-7
TYPE 'C' D.B.I.
GRATE TOP = 10.00
N INV = 7.00
SUMP = 6.00

CONSTRUCT D-8
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-9
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-10
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-11
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-12
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-13
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-14
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-15
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-16
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-17
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-18
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT CS-1
TYPE 'C' D.B.I.
GRATE TOP = 18.50
ORIFICE =
S INV = 6.00
SUMP = 5.00

CONSTRUCT OUTFALL

CONSTRUCTION NOTES

1. SEWER MANHOLE
2. LIFT STATION
3. FIRE HYDRANT
4. FDOT TYPE 'D' CURB
5. FDOT TYPE 'F' CURB
6. MODIFIED MIAMI CURB
7. CONCRETE SIDEWALK per DETAIL
8. CROSSWALK per DETAILS
9. CURB RAMP per DETAILS
10. 2' TACTILE SURFACE
11. R1-1 STOP SIGN
12. W11-2 PEDISTRIAN SIGN w/ W16-7PL
13. R2-1 SPEED SIGN
14. D3 STREET NAME SIGN
15. MITERED END SECTION
16. FLARED END SECTION
17. YARD DRAIN per DETAIL
18. MIAMI CURB INLET
19. DITCH BOTTOM INLET

HATCH PATTERN L LEGEND

DENOTES ASPHALT PAVEMENT
DENOTES CONCRETE PAVEMENT
DENOTES RIGHT-OF-WAY DEDICATION

STRIPING NOTES

A. 6" SOLID WHITE
B. 6" DOUBLE YELLOW
C. 12" SOLID WHITE
D. 18" SOLID WHITE
E. 24" SOLID WHITE
F. R.P.M.'s per FDOT INDEX 706-001
G. 6" WHITE (6'-10' SKIP)
H. 6" WHITE (10'-30' SKIP)
J. 6" WHITE (2'-4' SKIP)
K. TURN ARROW per FDOT INDEX 711-001
L. 18" YELLOW STRIPE

LINEWORK & SYMBOL LEGEND

DENOTES PROPERTY BOUNDARY
DENOTES RIGHT-OF-WAY
DENOTES CENTERLINE
DENOTES EASEMENT
DENOTES FENCE LINE
DENOTES DRAINAGE PIPE
DENOTES SEWER MANHOLE
DENOTES FIRE HYDRANT
DENOTES GATE VALVE
DENOTES LIGHT POLE
DENOTES STREET SIGN
DENOTES RUNOFF OVERLAND FLOW
20.5 / 20.0 DENOTES PROPOSED ELEVATIONS
x 22.0 DENOTES EXISTING GRADES
DENOTES DRAINAGE STRUCTURE refer to table this sheet
DENOTES DITCH BOTTOM INLET
DENOTES JUNCTION BOX
DENOTES YARD DRAIN
DENOTES DRAINAGE STRUCTURE
DENOTES MITERED/FLARED END SECTION

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FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

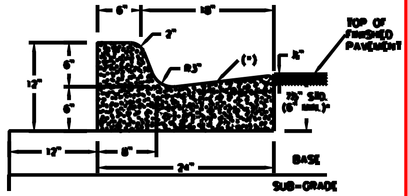
BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-PGD

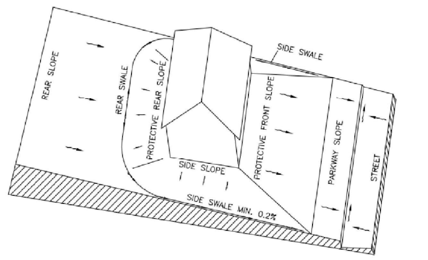
SHEET TITLE:
MASTER PAVING GRADING & DRAINAGE PLAN

SHEET NUMBER:
C-300



* WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT AND THE THICKNESS OF THE LIP SHALL BE 6" UNLESS OTHERWISE SHOWN ON THE PLANS. ASPHALT SURFACE ON HIGH SIDE TO BE FLUSH WITH LIP OF CURB OR CURB & GUTTER.

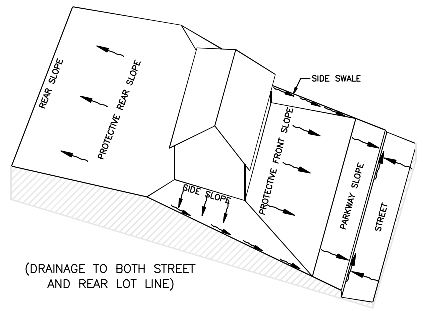
TYPE "F" CURB AND GUTTER
N.T.S



(DRAINAGE TO STREET)

NOTES
1. ALL SLOPES GREATER THAN 6:1 SHALL BE SODDED.
2. ROOF RUNOFF FROM SIDES AND REAR OF HOUSES SHALL BE DIRECTED TOWARD SIDE AND REAR YARD SWALES ACCORDINGLY.

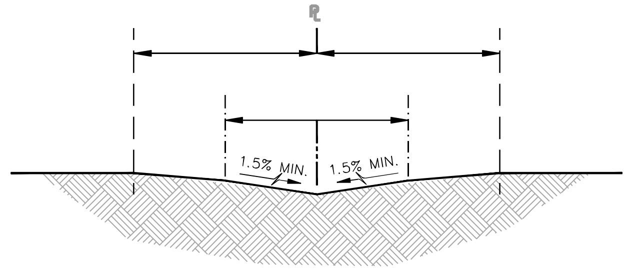
TYPE 'A' LOT GRADING DETAIL
N.T.S.



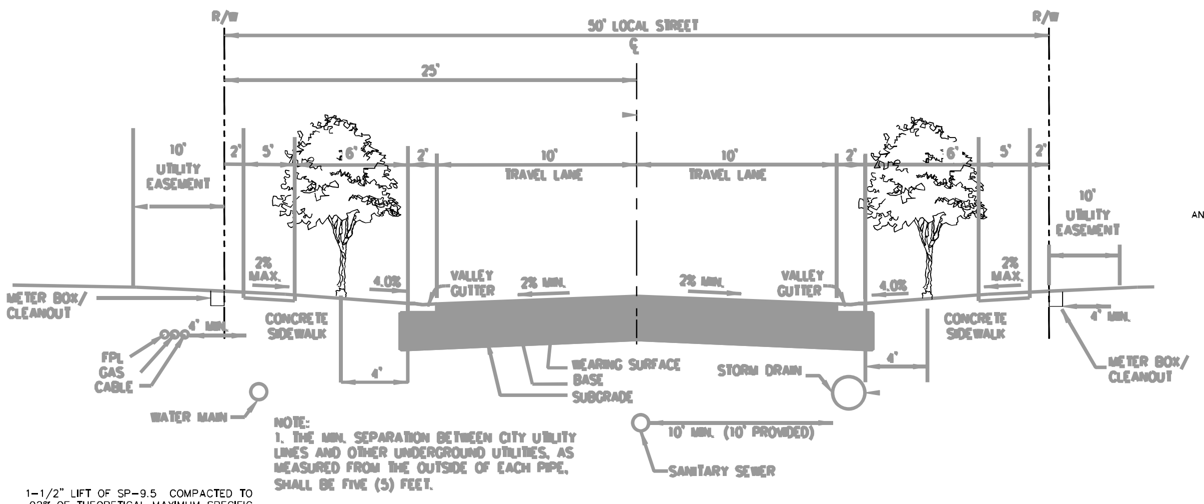
(DRAINAGE TO BOTH STREET AND REAR LOT LINE)

NOTES
1. ALL SLOPES GREATER THAN 6:1 SHALL BE SODDED.
2. ROOF RUNOFF FROM SIDES AND REAR OF HOUSES SHALL BE DIRECTED TOWARD SIDE AND REAR YARD SWALES ACCORDINGLY.

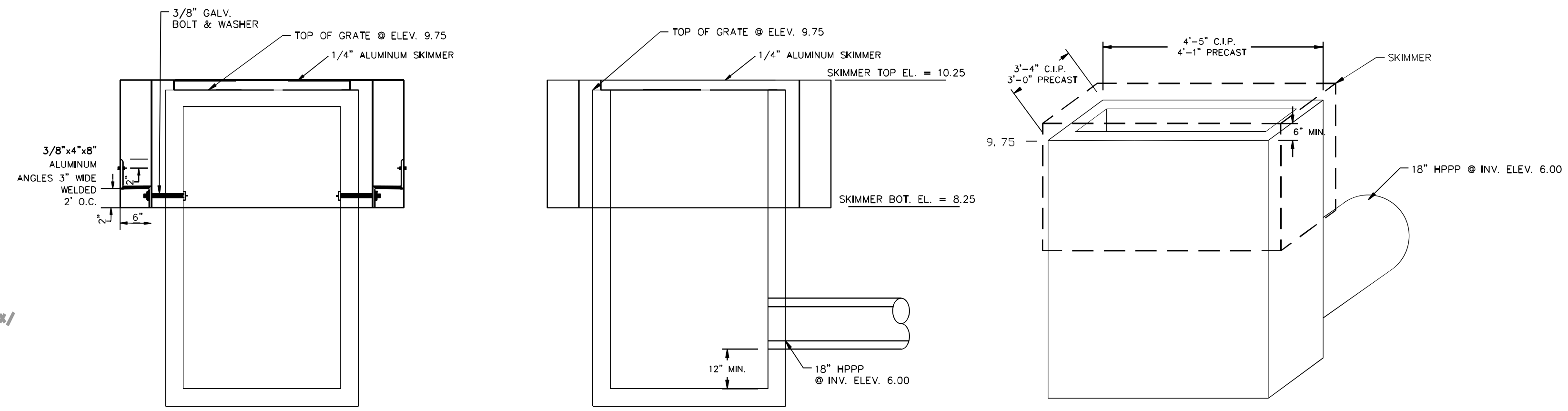
TYPE 'B' LOT GRADING DETAIL
N.T.S.



TYPICAL LOT SWALE SECTION
N.T.S.

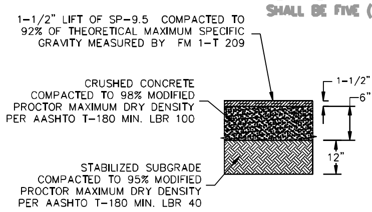


NOTE:
1. THE MIN. SEPARATION BETWEEN CITY UTILITY LINES AND OTHER UNDERGROUND UTILITIES, AS MEASURED FROM THE OUTSIDE OF EACH PIPE, SHALL BE FIVE (5) FEET.

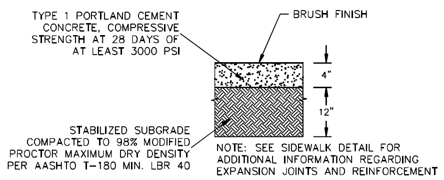


CONTROL STRUCTURE NOTES:
1. CONTRACTOR TO REFER TO FDOT FY 2021-22 STANDARD PLANS INDEX 425-052 FOR REBAR SPACING AND SIZING.

CONTROL STRUCTURE (CS-01)
FDOT TYPE 'C' STRUCTURE

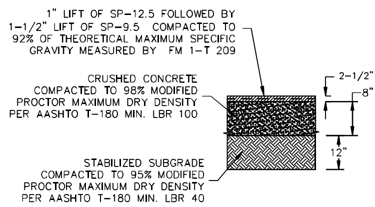


STANDARD DUTY ASPHALT
N.T.S

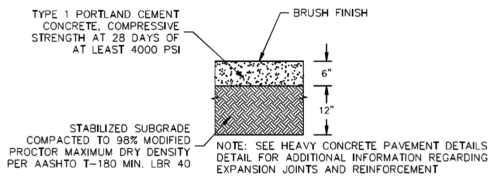


NOTE: SEE SIDEWALK DETAIL FOR ADDITIONAL INFORMATION REGARDING EXPANSION JOINTS AND REINFORCEMENT

STANDARD DUTY CONCRETE
N.T.S



HEAVY DUTY ASPHALT
N.T.S



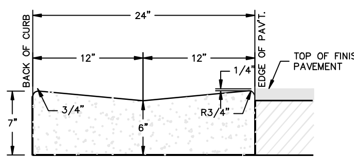
NOTE: SEE HEAVY CONCRETE PAVEMENT DETAILS DETAIL FOR ADDITIONAL INFORMATION REGARDING EXPANSION JOINTS AND REINFORCEMENT

HEAVY DUTY CONCRETE
N.T.S

NOTE:
CONTRACTOR TO REFER TO THE GEOTECHNICAL REPORT FOR SITE WORK SPECIFICATIONS.

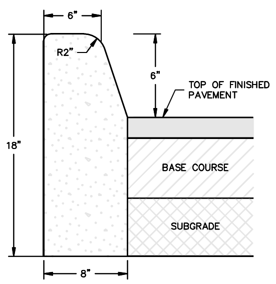
CRUSHED CONCRETE SHALL BE FROM AN FDOT APPROVED PLANT.

CRUSHED CONCRETE GRADATION SHALL BE AVAILABLE ON SITE AND SUBMITTED FOR THE AS-BUILT.



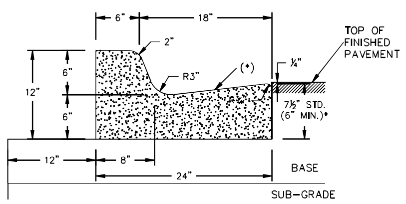
ALL CONCRETE SHALL BE 3,000 PSI

VALLEY GUTTER SECTION
PGKH21A.DWG N.T.S.



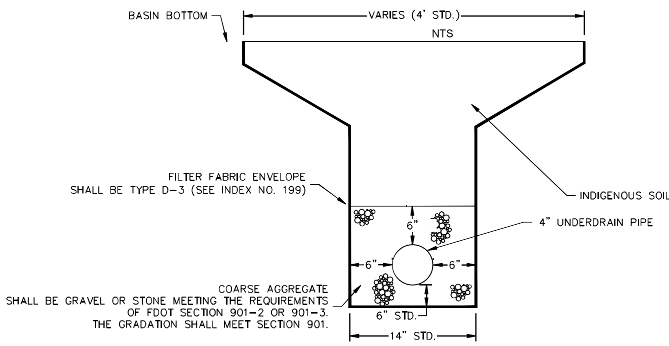
ALL CONCRETE SHALL BE 3,000 PSI

TYPE "D" CURB
PGKH22A.DWG N.T.S.

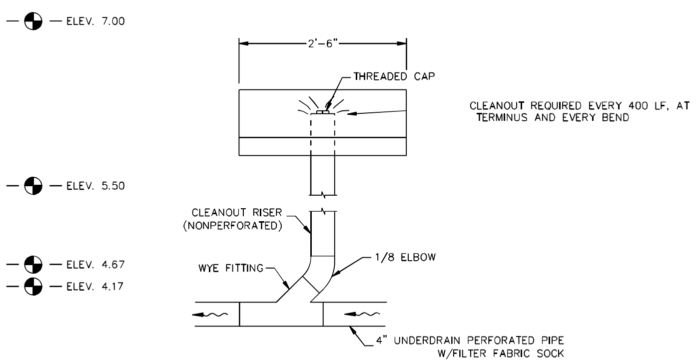


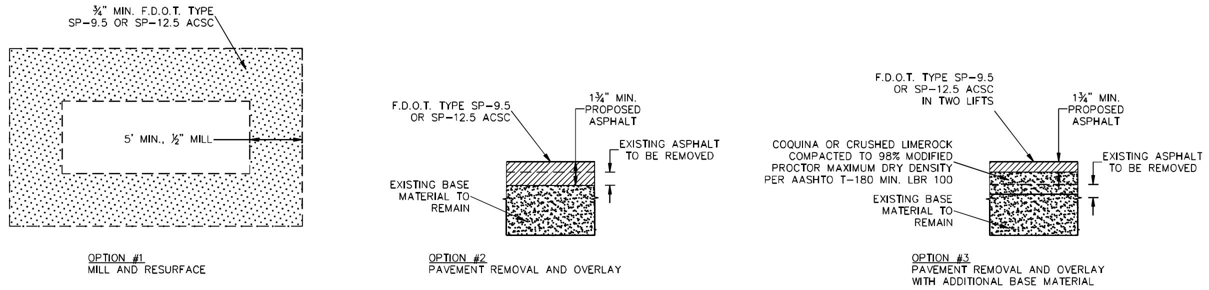
* WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT AND THE THICKNESS OF THE LIP SHALL BE 6" UNLESS OTHERWISE SHOWN ON THE PLANS. ASPHALT SURFACE ON HIGH SIDE TO BE FLUSH WITH LIP OF CURB OR CURB & GUTTER.

TYPE "F" CURB AND GUTTER
N.T.S



UNDERDRAIN TRENCH
N.T.S





ASPHALT PAVEMENT RESTORATION
N.T.S

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5005
FBPE C.O.A. # 33705

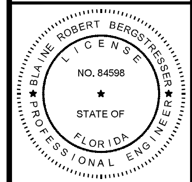
REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP



BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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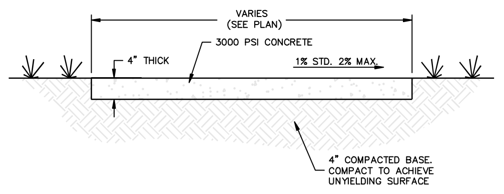
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-PGD

SHEET TITLE:
PAVING GRADING & DRAINAGE DETAILS

SHEET NUMBER:
C-301

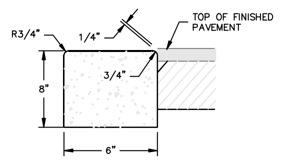


NOTE
SEE SITE PLAN FOR SPECIFIC SIDEWALK LOCATIONS.

SIDEWALK CONSTRUCTION SHALL BE PER FDOT DESIGN STANDARDS INDEX 522-001. DETECTABLE WARNINGS AND CURB RAMPS SHALL BE PER INDEX 522-002.

TYPICAL 4" SIDEWALK SECTION

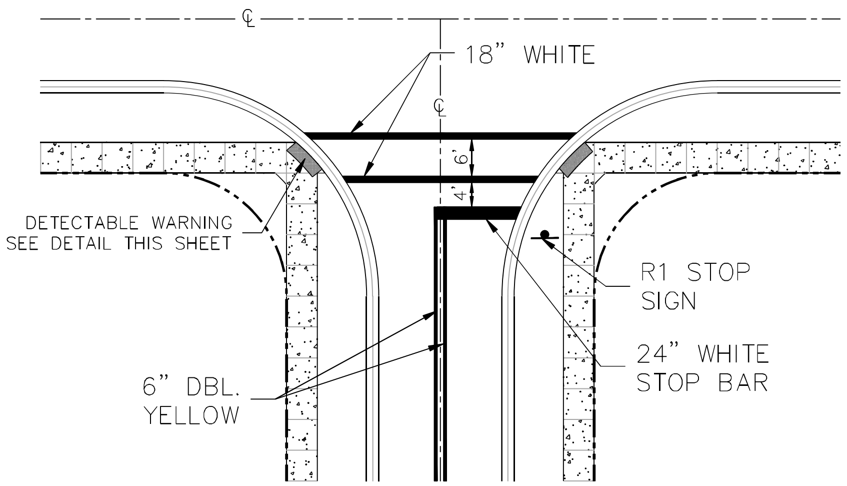
N.T.S.



ALL CONCRETE SHALL BE 3,000 PSI

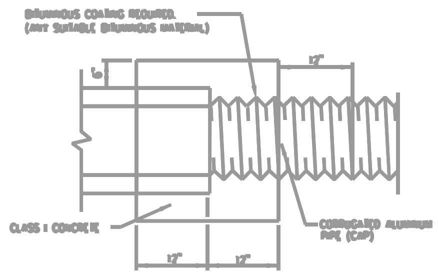
6" EDGE CURB

PGKH24A.DWG N.T.S.



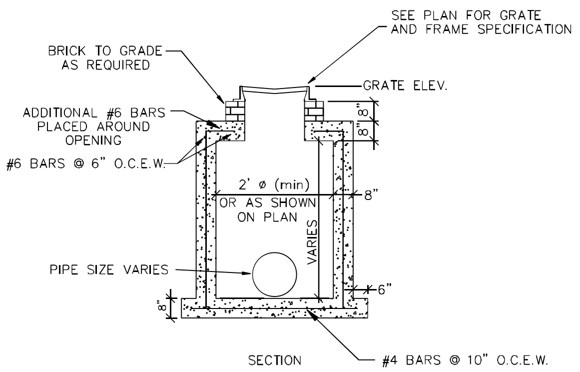
TYPICAL CROSSWALK AND STOP BAR DETAIL

N.T.S.



CONCRETE COLLAR DETAIL

N.T.S.



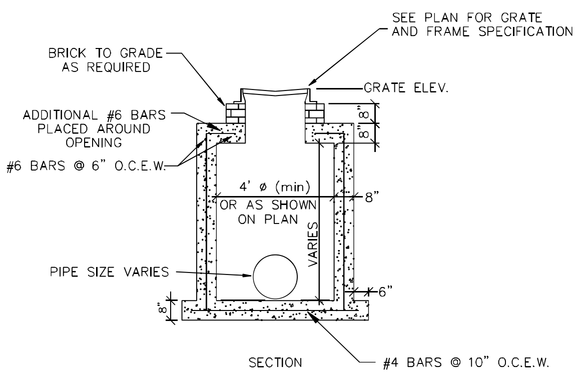
NOTE:

1. TYPE II CEMENT 4000 P.S.I.

2. WALL REINFORCEMENT A.S.T.M. DESIGNATION A185-64 OR EQUAL TO A.S.T.M. C-478.

TYPE C STORM INLET DETAIL

N.T.S



NOTE:

1. TYPE II CEMENT 4000 P.S.I.

2. WALL REINFORCEMENT A.S.T.M. DESIGNATION A185-64 OR EQUAL TO A.S.T.M. C-478.

TYPE D STORM INLET DETAIL

N.T.S

TABLE OF SIDEWALK THICKNESS – 'T'	
LOCATION	'T'
RESIDENTIAL AREAS	4"
AT DRIVEWAYS AND OTHER AREAS	6"

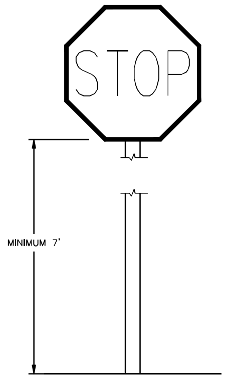
NOTE: CONCRETE TO BE 3,000 P.S.I. AT 28 DAYS

TABLE OF SIDEWALK JOINTS	
TYPE	LOCATION
'A'	P.C. AND P.T. OF CURVES.
'B'	5'– 0" CENTER TO CENTER ON SIDEWALKS. (NOT LESS THAN 4' AND NOT GREATER THAN 10')
'C'	WHERE SIDEWALK ABUTS CONCRETE CURBS, DRIVEWAYS AND SIMILAR STRUCTURES. JUNCTION OF EXISTING AND NEW SIDEWALKS AT INTERVALS NOT GREATER THAN 100'.

RI-1
30" X 30"

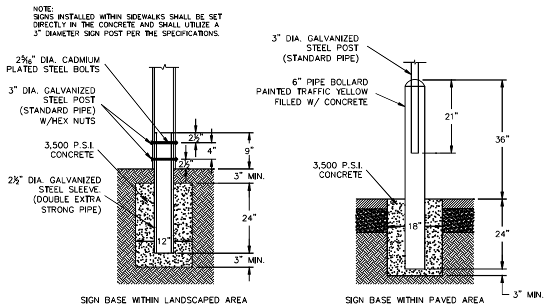
STOP SIGN DIMENSIONS

N.T.S.



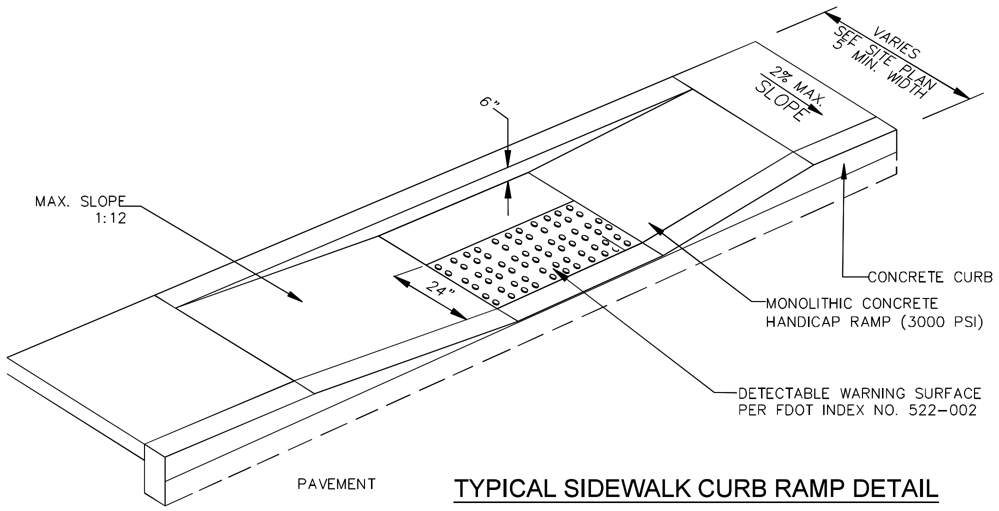
REQUIRED SIGN HEIGHT

N.T.S

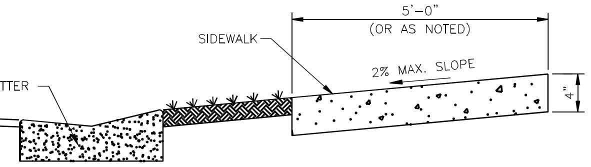


SIGN BASE

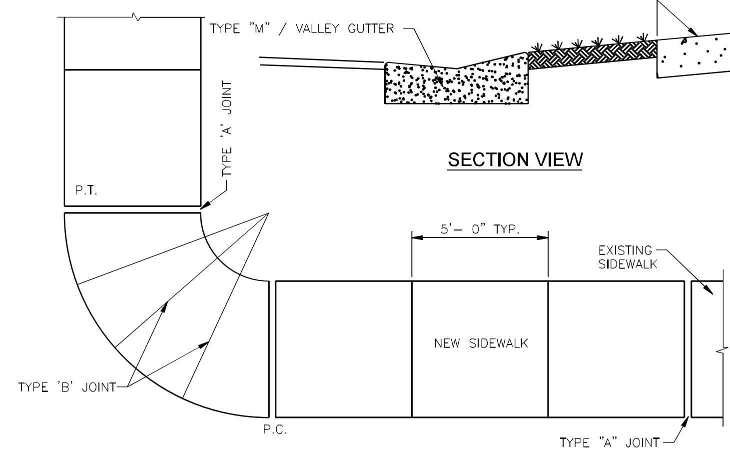
N.T.S



TYPICAL SIDEWALK CURB RAMP DETAIL



SECTION VIEW

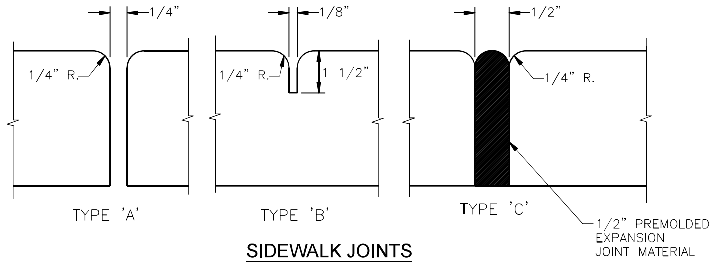


PLAN

NOTES:
ALL CURB RAMPS SHALL BE EMBOSSED WITH A TACTILE SURFACE PER FDOT INDEX NO. 304.

SIDEWALKS CROSSING STREETS SHALL HAVE A TACTILE SURFACE FOR A MINIMUM OF 2' ADJACENT TO EACH CROSSING. TACTILE SURFACES SHALL CONFORM TO THE REQUIREMENTS DESCRIBED IN THE GENERAL NOTES ON FDOT INDEX NO. 304.

SAW CUTTING WILL NOT BE ACCEPTED.



SIDEWALK JOINTS

SIDEWALK CONSTRUCTION

N.T.S.

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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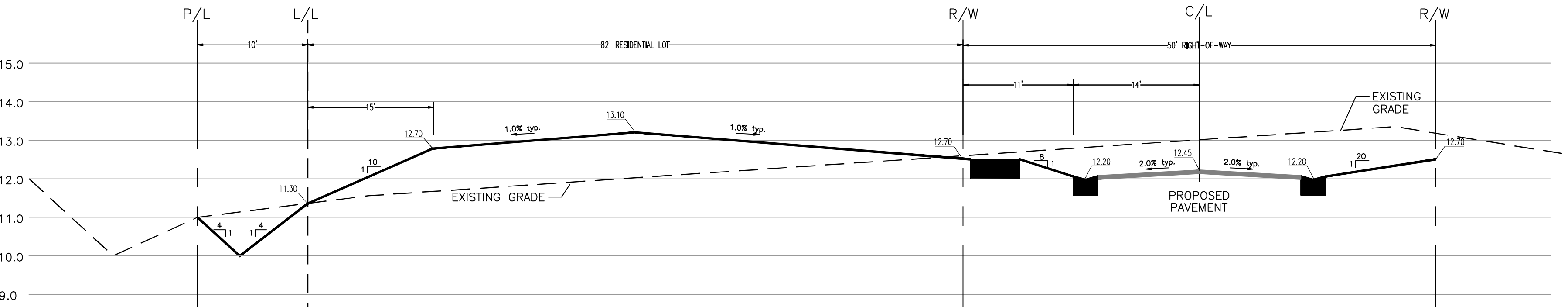
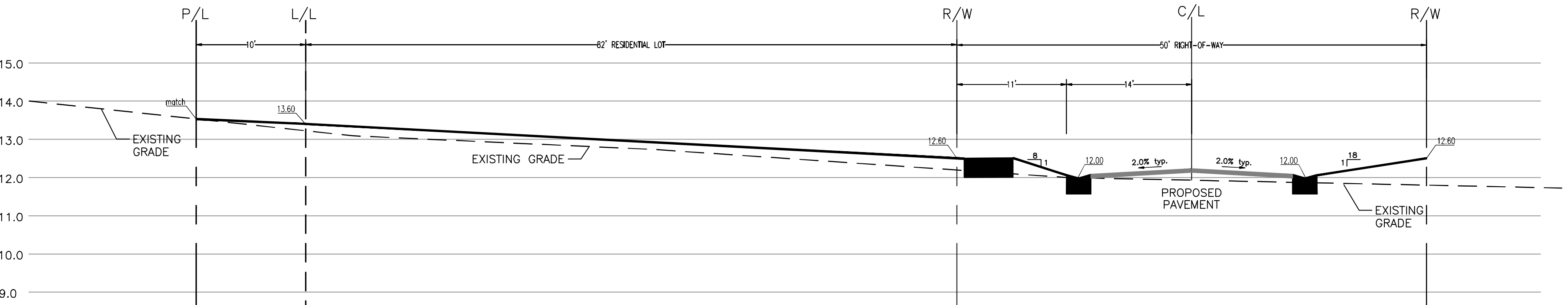
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-PGD

SHEET TITLE:
PAVING GRADING & DRAINAGE DETAILS

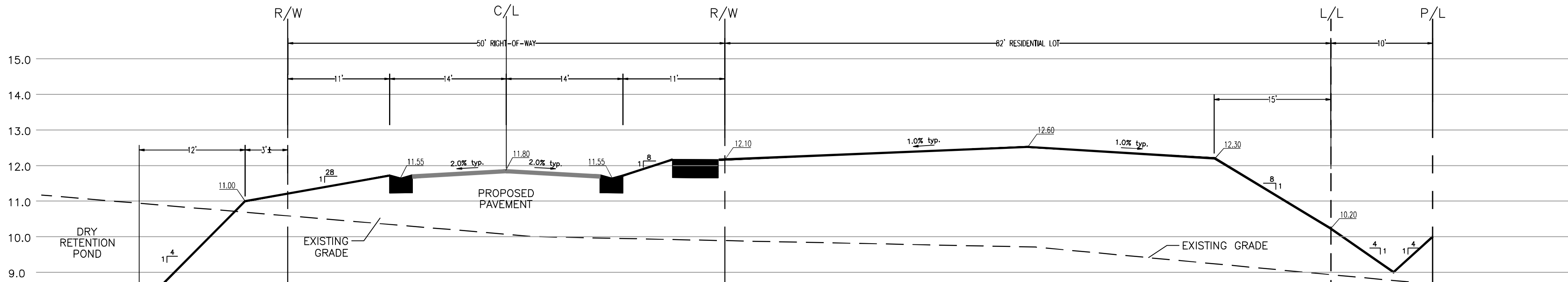
SHEET NUMBER:
C-302



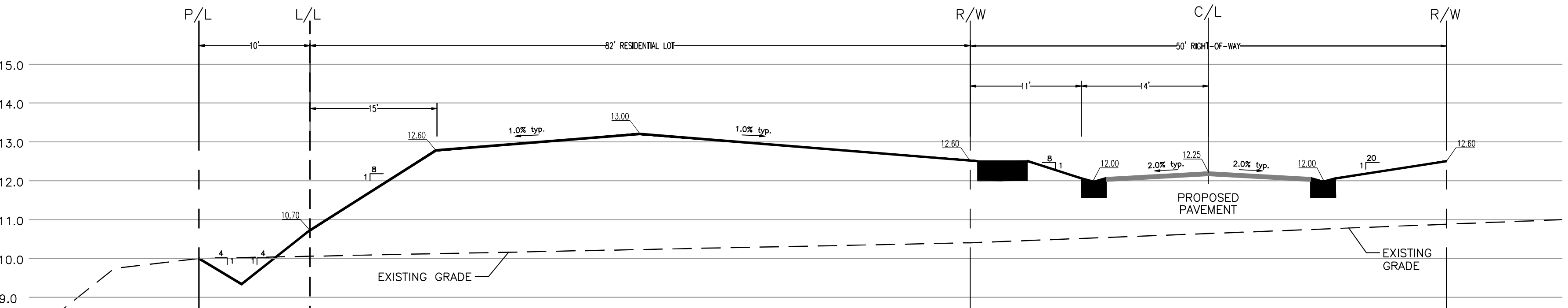
SECTION A-A
SCALE: NOT TO SCALE



SECTION B-B
SCALE: NOT TO SCALE



SECTION C-C
SCALE: NOT TO SCALE



SECTION D-D
SCALE: NOT TO SCALE

KMA
ENGINEERING & SURVEYING, LLC
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5005
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER — LICENSE NO. 84598 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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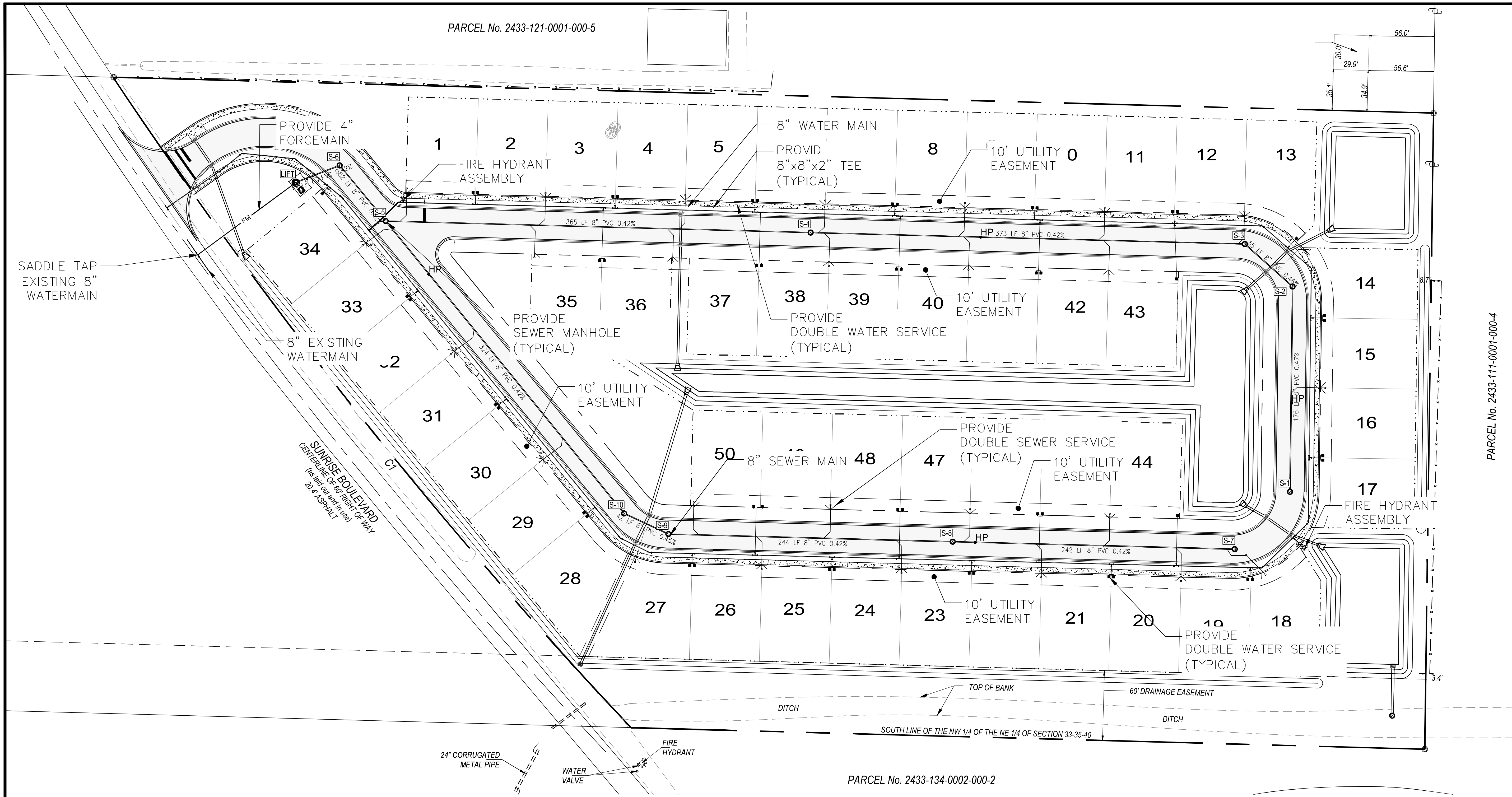
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-PGD

SHEET TITLE:
GRADING SECTIONS

SHEET NUMBER:
C-303

Printed on Tuesday, July 09, 2024, 12:15 PM by Blaine Bergstresser



UTILITY NOTES

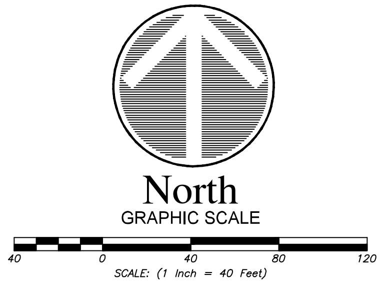
1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD, THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPREITE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
3. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
4. SANITARY SEWER PIPE SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON THE PLANS:
   8" PVC SDR26 PER ASTM D 3034 DEPTHS LESS THAN 15'
5. WATER LINES SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON PLANS:
   6" AND LARGER, PVC C-900 PER ASTM D 2241
   CLASS 200 UNDER ROADS, OTHERWISE CLASS 150
6. MINIMUM TRENCH WIDTH SHALL BE 2 FEET.
7. ALL UTILITIES SHOULD BE KEPT TEN (10') APART (PARALLEL) OR WHEN CROSSING 18" VERTICAL CLEARANCE (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE).
8. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 36" COVER ON ALL WATERLINES AND FORCEMAINS.
9. CROSSINGS AND CONFLICTS MUST BE PER FPUA SPECIFICATIONS.
10. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
11. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 COMPRESSION STRENGTH AT 3000 P.S.I.
12. CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE LOCAL AUTHORITIES WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
13. ALL WATER MAIN INSTALLATIONS SHALL COMPLY WITH THE COLOR CODING REQUIREMENTS OF CHAPTER 62-555.320 FAC.
14. VALVES ARE NOT TO BE PLACED IN CURBS, SIDEWALKS, OR DRIVEWAYS.
15. ALL MANHOLES SHALL BE ADJUSTED TO FINAL GRADE PRIOR TO BEGINNING PAVING.
16. DRIVEWAY APRON IS SHOWN FOR REFERENCE ONLY. DRIVEWAYS ARE TO BE CONSTRUCTED AND PERMITTED AS PART OF THE BUILDING PERMIT PROCESS.
17. TRACER WIRE MUST BE INSTALLED PER FPUA SPEC./QPL.
18. THE PROPERTY OWNER, CONTRACTOR,AND AUTHORIZED REPRESENTATIVES SHALL PROVIDE PICK UP, REMOVAL, AND DISPOSAL OF LITTER WITHIN THE PROPERTY LIMITS AND SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE AREA FORM THE EDGE OF PAVEMENT TO THE PROPERTY LINE.

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE PROJECT DESIGN AND NOTIFYING OWNER AND ENGINEER OF ANY POTENTIAL COST SAVINGS, CONFLICTS, OR DISCREPANCIES IN PLANS PRIOR TO FINAL CONTRACT FOR CONSTRUCTION.
2. CONTRACTOR AND SURVEYOR SHALL COORDINATE WITH KMA ENGINEERING & SURVEYING DAILY PRIOR TO CONSTRUCTION STAKE OUT TO ASSURE PROPER CONSTRUCTION.
3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UNDERGROUND UTILITY NOTIFICATION CENTER AT 811 AND ANY OTHER POTENTIALLY AFFECTED UTILITY PROVIDERS FOR INSTALLATION OF NECESSARY CONDUIT AND CONFLICT AVOIDANCE, ANY NECESSARY UTILITY ADJUSTMENTS/RELOCATIONS, AND FOR GENERAL COORDINATION WITH THESE UTILITY PROVIDERS: FLORIDA POWER AND LIGHT, CITY OF FELLSMERE UTILITY DEPARTMENT, INDIAN RIVER COUNTY UTILITY DEPARTMENT, COMCAST CABLE, AT&T & FLORIDA GAS.
4. CONTRACTOR IS TO EXERCISE CAUTION WHEN WORKING NEAR OVERHEAD OR UNDERGROUND UTILITY LINES. THE LOCATIONS OF THE UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE THE RESPONSIBILITY OF THE CONTRACTOR AND UTILITY PROVIDER TO FIELD LOCATE PRIOR TO WORKING IN THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGED UTILITIES RESULTING FROM THE CONTRACTOR'S WORK.
5. THE CONTRACTOR SHALL VERIFY ALL EXISTING TIE-INS FOR DRAINAGE, WATER, SEWER, PAVING, AND ELEVATIONS, AS NECESSARY, PRIOR TO CONSTRUCTION COMMENCEMENT. THE CONTRACTOR SHALL VERIFY THE ACCURACY AND SUITABILITY OF ALL CONSTRUCTION STAKE-OUTS PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ASSURE COMPLIANCE WITH PLANS, CROSS SECTIONS, DETAILS, AND PERMITS.
6. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT ALL CONSTRUCTION PERMITS AND BONDS HAVE BEEN ACQUIRED PRIOR TO COMMENCING CONSTRUCTION. A COPY OF THE APPROVED CONSTRUCTION PLAN AND ALL PERMITS AND BONDS SHALL BE LOCATED ON THE JOB SITE AT ALL TIMES.
7. THE CONTRACTOR SHALL ENSURE ADEQUATE HORIZONTAL AND VERTICAL SEPARATION AS NECESSARY FOR FDEP AND LOCAL UTILITY PROVIDER SPECIFICATIONS (INCLUDING SERVICES). THESE SEPARATION DISTANCES SHALL BE MEASURED BY THE SURVEYOR AND SUPPLIED TO THE PROJECT ENGINEER ON AS-BUILT PLANS. CONTRACTOR SHALL RECORD ALL SEPARATION DISTANCES ON FIELD SET OF CONSTRUCTION DOCUMENTS.
8. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS AND LABOR TO COMPLETELY CONSTRUCT THE PROJECT AS SHOWN ON THE PLANS AND IN CONFORMANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
9. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT AN AS-BUILT SURVEY CERTIFIED BY A REGISTERED, LICENSED SURVEYOR OF ALL CONSTRUCTED IMPROVEMENTS AT PROJECT COMPLETION.
10. NO DESIGN CHANGES ARE TO OCCUR TO THE APPROVED CONSTRUCTION PLANS WITHOUT PRIOR APPROVAL OF THE PROJECT ENGINEER.

UTILITIES LEGEND

DENOTES PROPERTY BOUNDARY	DENOTES BEND FITTING
DENOTES RIGHT-OF-WAY	DENOTES TEE FITTING
DENOTES CENTERLINE	DENOTES WATER SERVICE
DENOTES EASEMENT	DENOTES SEWER SERVICE
DENOTES FENCE LINE	DENOTES MITERED END SECTION
WM DENOTES WATER MAIN	DENOTES DITCH BOTTOM INLET
FM DENOTES FORCE MAIN	DENOTES DRAINAGE STRUCTURE
S DENOTES SEWER MAIN	DENOTES YARD DRAIN
DENOTES STORM DRAIN	DENOTES LIGHT POLE
DENOTES SEWER MANHOLE	
DENOTES FIRE HYDRANT	
DENOTES GATE VALVE	
DENOTES BLOW-OFF & SAMPLE POINT	



NAVD 1988

ALL ELEVATIONS DEPICTED HEREON REFERENCE NAVD 1988. THE CONVERSION FACTOR TO NGVD 1929 IS +1.496'

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:		
BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

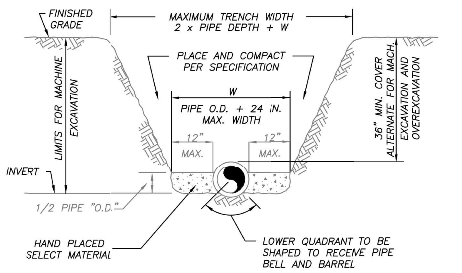
BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-UTILITES

SHEET TITLE: **MASTER UTILITIES PLAN**

SHEET NUMBER: **C-400**



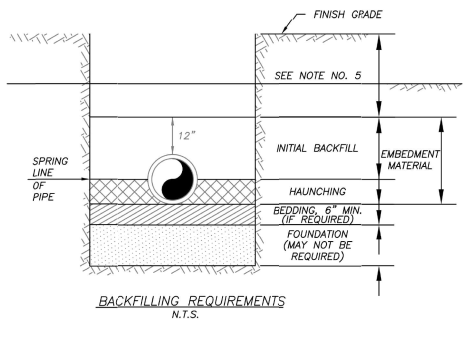
NOTES:

1) THE CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF THE FLORIDA TRENCH SAFETY ACT.

2) INITIAL BACKFILL SHALL BE HAND PLACED TO 12" ABOVE THE PIPE. BACKFILL SHALL BE MECHANICALLY TAMPED TO A MINIMUM OF 100% OF MAX. DENSITY AS DETERMINED BY AASHTO METHOD T-99.

TYPICAL TRENCH DETAIL
N.T.S.

FPUA COMMUNITY PROUD	TYPICAL TRENCH DETAIL			M-1
	03-09	CONCRETE SLAB	SLL / JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC	COMPUTER FILE # MISC DETAILS 200602.DWG		FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL	SCALE:		
	APPROVED: JLC	DATE: 2015		SHEET 1 OF 1



BACKFILLING REQUIREMENTS
N.T.S.

NOTES:

1) IN CERTAIN SOIL CONDITIONS A FOUNDATION MAY BE REQUIRED.

2) BEDDING IS REQUIRED PRIMARILY TO BRING THE TRENCH BOTTOM UP TO GRADE. BEDDING MATERIALS SHALL PROVIDE A UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE.

3) HAUNCHING MATERIAL SHALL BE HAND PLACED TO THE SPRINGLINE OF THE PIPE. MATERIAL SHALL BE CONSOLIDATED UNDER THE PIPE AND HAND TAMPED TO PROVIDE ADEQUATE SIDE SUPPORT.

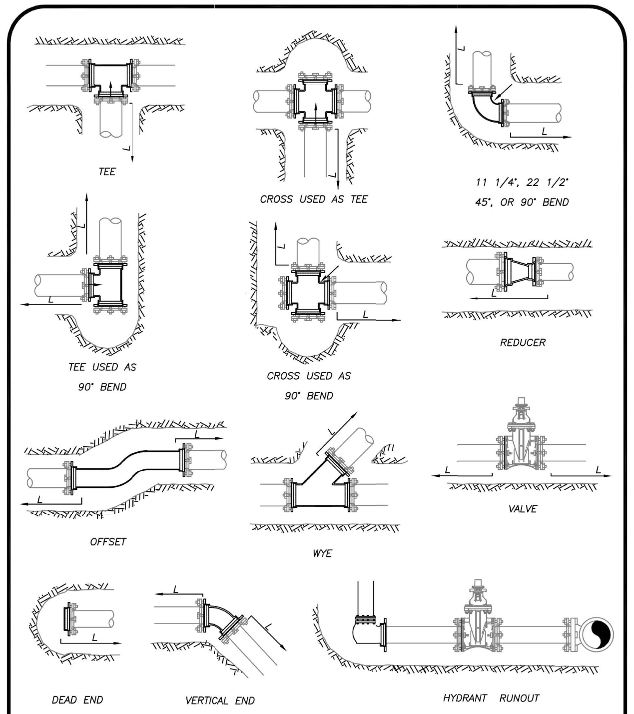
4) INITIAL BACKFILL MATERIAL SHALL BE HAND PLACED TO 12" ABOVE THE TOP OF PIPE. THE SOIL SHALL BE COMPACTED TO 100% MAX. DENSITY.(AASHTO T-99)

5) BACKFILL SHALL BE COMPACTED TO 100% OF MAX. DENSITY AS PER AASHTO T-99, TO A POINT 30" BELOW PROPOSED PROFILE GRADE OR EXISTING GRADE. THE FINAL 30" OF BACKFILL SHALL BE COMPACTED TO 98% OF MAX. DENSITY AS PER AASHTO T-180.

6) DENSITY TEST SHALL BE PERFORMED AT AREAS DETERMINED BY THE UTILITIES ENGINEER OR PERMIT AGENCY HAVING JURISDICTION, AT THE CONTRACTORS EXPENSE.

7) CONTRACTOR TO COMPLY WITH ALL FEDERAL, STATE AND LOCAL TRENCH SAFETY REGULATIONS.

FPUA COMMUNITY PROUD	BACKFILLING REQUIREMENTS			M-2
	03-09	CONCRETE SLAB	SLL / JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC	COMPUTER FILE # MISC DETAILS 200602.DWG		FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL	SCALE:		
	APPROVED: JLC	DATE: 2015		SHEET 1 OF 1



MECHANICAL JOINT ANCHORING REQUIREMENTS
N.T.S.

FPUA COMMUNITY PROUD	MECHANICAL JOINT ANCHORING REQUIREMENTS			M-3
	03-09	CONCRETE SLAB	SLL / JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC	COMPUTER FILE # MISC DETAILS 200602.DWG		FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL	SCALE:		
	APPROVED: JLC	DATE: 2015		SHEET 1 OF 1

MECHANICAL JOINT RESTRAINT NOTES

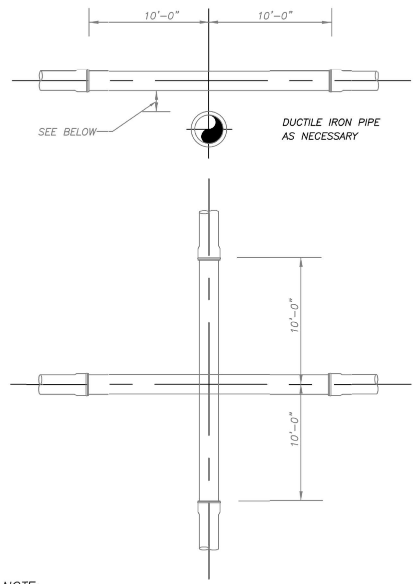
NOTES:

1) THE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE REQUIRED LENGTH TO BE RESTRAINED BASED UPON THE PROJECT AREA SOIL TYPE, PROPOSED TRENCH CONDITIONS AND DEPTH, PRESSURE OF 150 PSI, AND A SAFETY FACTOR OF TWO (2). A DRAWING OF EVERY TYPICAL FITTING ASSEMBLY WITHIN THE PROJECT SHALL BE SUBMITTED WHICH REFLECTS THE RESTRAINT DETAIL PROPOSED FOR USE, INCLUDING LENGTH OF PIPE RESTRAINT.

2) REQUIRED RESTRAINED LENGTH CALCULATIONS SHALL ALSO CONSIDER THE CONDITIONS OF OTHER BENDS OR FITTINGS THAT WILL BE LOCATED WITHIN THE CALCULATED RESTRAINED LENGTH (L) OF THE BEND OR FITTING IN QUESTION.

3) EVERY JOINT OR FITTING MUST BE RESTRAINED ON BOTH SIDES OF THE BEND AND FOR TEES ALONG THE BEND ALSO.

FPUA COMMUNITY PROUD	MECHANICAL JOINT RESTRAINT NOTES			M-4
	03-09	CONCRETE SLAB	SLL / JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC	COMPUTER FILE # MISC DETAILS 200602.DWG		FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL	SCALE:		
	APPROVED: JLC	DATE: 2015		SHEET 1 OF 1

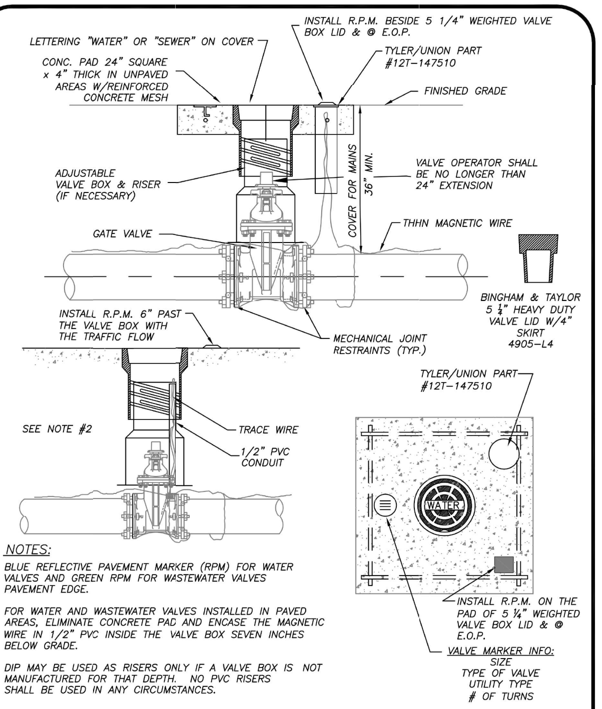


NOTE:

PLEASE REFER TO FORT PIERCE UTILTIES STANDARD SEPARATION STATEMENT FOR WATER / SEWER CONFLICTS.

UTILITY CROSSING DETAIL
N.T.S.

FPUA COMMUNITY PROUD	UTILITY CROSSING DETAIL			M-5
	03-09	CONCRETE SLAB	SLL / JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC	COMPUTER FILE # MISC DETAILS 200602.DWG		FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL	SCALE:		
	APPROVED: JLC	DATE: 2015		SHEET 1 OF 1



NOTES:

1. BLUE REFLECTIVE PAVEMENT MARKER (RPM) FOR WATER VALVES AND GREEN RPM FOR WASTEWATER VALVES PAVEMENT EDGE.

2. FOR WATER AND WASTEWATER VALVES INSTALLED IN PAVED AREAS, ELIMINATE CONCRETE PAD AND ENCASE THE MAGNETIC WIRE IN 1/2" PVC INSIDE THE VALVE BOX SEVEN INCHES BELOW GRADE.

3. DIP MAY BE USED AS RISERS ONLY IF A VALVE BOX IS NOT MANUFACTURED FOR THAT DEPTH. NO PVC RISERS SHALL BE USED IN ANY CIRCUMSTANCES.

TYPICAL GATE VALVE & VALVE BOX DETAIL
N.T.S.

FPUA COMMUNITY PROUD	TYPICAL GATE VALVE & VALVE BOX DETAIL			M-6
	03-09	CONCRETE SLAB	SLL / JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC	COMPUTER FILE # MISC DETAILS 200602.DWG		FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL	SCALE:		
	APPROVED: JLC	DATE: 2015		SHEET 1 OF 1

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FORT PIERCE, FL 34946
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REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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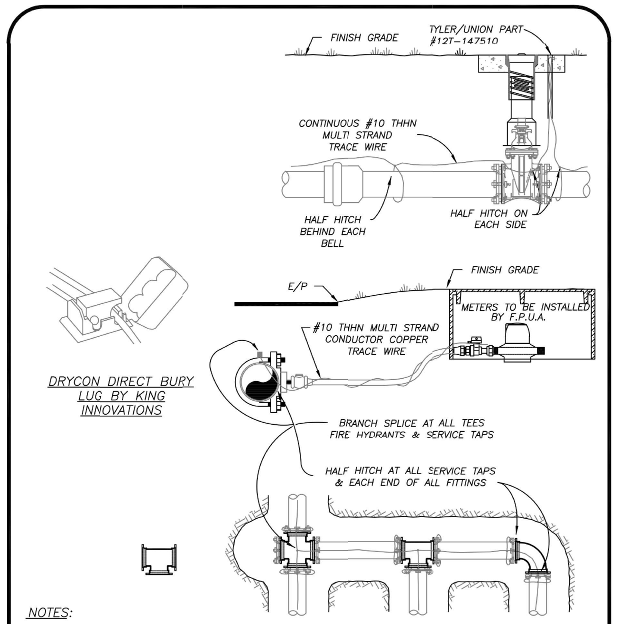
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-FPUA DETAILS

SHEET TITLE: FPUA DETAILS-01

SHEET NUMBER: C-500

Printed on Tuesday, July 09, 2024, 12:15 PM by Blaine Bergstresser



NOTES:

1) TRACE WIRE IS REQUIRED ON ALL PIPE AS NOTED BY UTILITIES ENGINEER AND SHOWN IN STANDARD DETAILS.
2) INCLUDE ALL COST OF MATERIAL & LABOR IN PRICE OF PIPE.
3) CONTRACTOR IS RESPONSIBLE FOR CONTINUITY OF ALL TRACE WIRE.

TRACE WIRE
(N.T.S.)

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY, WATER/WASTEWATER ENGINEERING, 1701 SOUTH 37TH STREET, FT. PIERCE, FLORIDA 34947, 772-466-1600

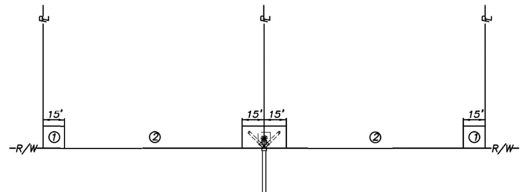
TRACE WIRE DETAIL — M-11

DATE:	REVISION:	BY:	APPD:
03-09	CONCRETE SLAB	SLL	JLC

DESIGNED: JLC — COMPUTER FILE #: MISC DETAILS 200602.DWG
DRAWN BY: SLL — SCALE:
APPROVED: JLC — DATE: 2015
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1

GENERAL POLICY

WHERE COST JUSTIFIED AND OPERATIONALLY FEASIBLE, IT IS THE GENERAL POLICY OF THE F.P.U.A. TO PROVIDE WATER, ELECTRIC, SEWER AND GAS SERVICE FROM THE STREET SIDE OF A PIECE OF PROPERTY. DEPENDING ON FACTORS SUCH AS LOCATION OF EXISTING SUPPLY SOURCE FACILITIES, REAR OR SIDE LOT LINE SUPPLY MAY BE AUTHORIZED, BUT ONLY WITH PRIOR APPROVAL FROM THE F.P.U.A.



NOTES:

1. THE PREFERRED POINT OF CONNECTION TO THE F.P.U.A. SEWER LATERAL, AREA ①, SHALL BE LOCATED IN THE CORNER OF THE PROPERTY SELECTED BY THE F.P.U.A. AS THE BEST LOCATION FOR THE LATERAL. EVERY EFFORT WILL BE MADE TO SELECT THE CORNER WHERE TWO LATERALS CAN BE CONNECTED IN A "Y" CONFIGURATION AS SHOWN.
2. IF PHYSICAL BARRIERS OR OTHER OBSTACLES PREVENT THE CONNECTION OF THE BUILDING SERVICE LINE TO THE F.P.U.A. SEWER LATERAL, WITHIN AREA ①, THE F.P.U.A. ENGINEERING DEPARTMENT MAY AUTHORIZE THE CONNECTION ALONG THE PORTION OF THE R/W LINE MARKED AREA ②.
3. HORIZONTAL SEPARATION OF WATER AND WASTEWATER SERVICES SHOULD BE A MINIMUM OF SIX FEET AND PREFERABLY 10 FEET.
4. THE WASTEWATER LATERAL SHALL BE LOCATED WITHIN RIGHT-OF-WAY AND TERMINATE AT THE PROPERTY LINE.
5. THE F.P.U.A. SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF THE WASTEWATER LATERAL WITHIN THE EASEMENT OR RIGHT-OF-WAY, UP TO THE POINT OF CONNECTION.

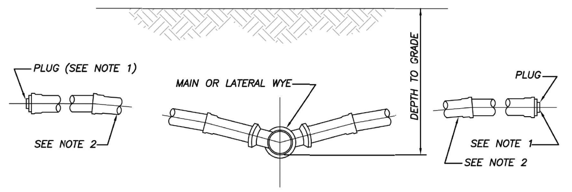
WASTEWATER SERVICE PLACEMENT
(N.T.S.)

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY, WATER/WASTEWATER ENGINEERING, 1701 SOUTH 37TH STREET, FT. PIERCE, FLORIDA 34947, 772-466-1600

WASTEWATER SERVICE PLACEMENT POLICY — S-1

DATE:	REVISION:	BY:	APPD:
02-06	02-15	SLL	

DESIGNED: JJM — COMPUTER FILE #: SEWER DETAIL 200602.DWG
DRAWN BY: SLL — SCALE: N.T.S.
APPROVED: JLC — DATE: 2010
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1



NOTES:

1) BALL TYPE WASTEWATER LOCATOR BY 3M CORP. OR APPROVED EQUAL.
2) MINIMUM SLOPE OF 1/8" PER FOOT, USE GREATER SLOPE WHERE POSSIBLE.
3) SERVICE LATERAL SHALL TERMINATE WITH A CLEANOUT.
4) INSTALL CLEANOUT AT THE PROPERTY LINE. REFER TO DETAIL S-1 FOR SPECIFIC PROPERTY LAYOUT.

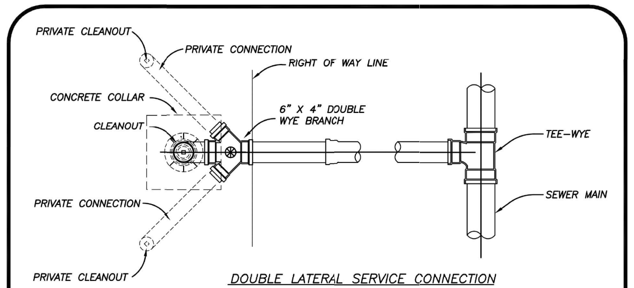
SERVICE CONNECTION
(N.T.S.)

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY, WATER/WASTEWATER ENGINEERING, 1701 SOUTH 37TH STREET, FT. PIERCE, FLORIDA 34947, 772-466-1600

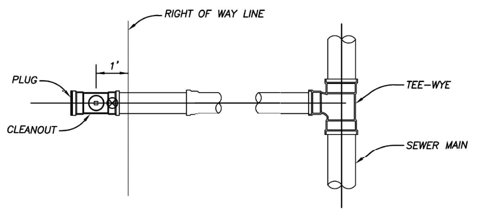
SERVICE CONNECTION WASTEWATER — S-2

DATE:	REVISION:	BY:	APPD:
02-06			

DESIGNED: JLC — COMPUTER FILE #: SEWER DETAIL 200602.DWG
DRAWN BY: SLL — SCALE: N.T.S.
APPROVED: JLC — DATE: 2015
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1



DOUBLE LATERAL SERVICE CONNECTION
AT PROPERTY LINE



SINGLE SERVICE LATERAL CONNECTION

⊛ = BALL TYPE WASTEWATER LOCATOR INSTALLED ABOVE THIS POINT
BALL BY 3M CORP. OR APPROVED EQUAL
SERVICE LATERAL SHALL TERMINATE WITH A CLEANOUT

SERVICE CONNECTION
(N.T.S.)

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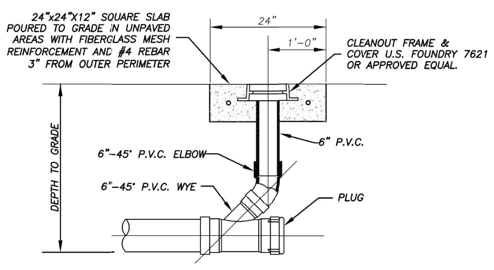
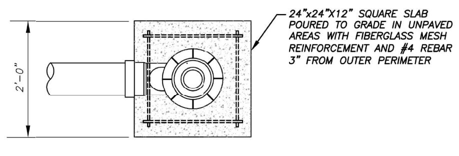
SERVICE CONNECTION WASTEWATER — S-3

DATE:	REVISION:	BY:	APPD:
02-06			

DESIGNED: JLC — COMPUTER FILE #: SEWER DETAIL 200602.DWG
DRAWN BY: SLL — SCALE: N.T.S.
APPROVED: JLC — DATE: 2010
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1



SECTION



PLAN

NOTES:

1) SEE DETAIL S-3 FOR DOUBLE SERVICE CONNECTION.

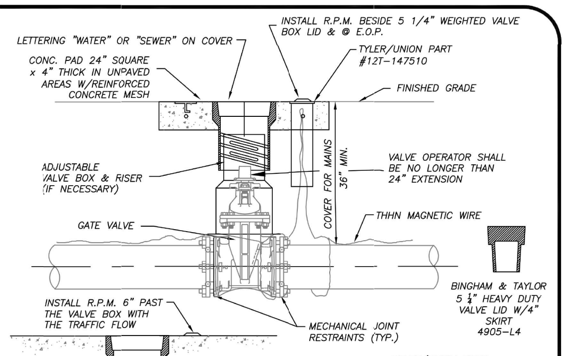
RESIDENTIAL CLEANOUT DETAIL
(N.T.S.)

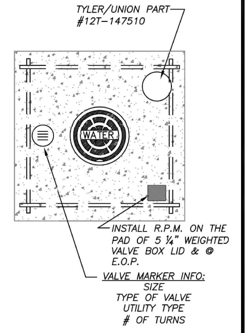
FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY, WATER/WASTEWATER ENGINEERING, 1701 SOUTH 37TH STREET, FT. PIERCE, FLORIDA 34947, 772-466-1600

TERMINAL CLEANOUT DETAIL RESIDENTIAL — S-4A

DATE:	REVISION:	BY:	APPD:
10-06		RBE	

DESIGNED: JLC — COMPUTER FILE #: SEWER DETAIL 200602.DWG
DRAWN BY: SLL — SCALE: N.T.S.
APPROVED: JLC — DATE: 2010
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 3





NOTES:

1. BLUE REFLECTIVE PAVEMENT MARKER (RPM) FOR WATER VALVES AND GREEN RPM FOR WASTEWATER VALVES PAVEMENT EDGE.
2. FOR WATER AND WASTEWATER VALVES INSTALLED IN PAVED AREAS, ELIMINATE CONCRETE PAD AND ENCASE THE MAGNETIC WIRE IN 1/2" PVC INSIDE THE VALVE BOX SEVEN INCHES BELOW GRADE.
3. DIP MAY BE USED AS RISERS ONLY IF A VALVE BOX IS NOT MANUFACTURED FOR THAT DEPTH. NO PVC RISERS SHALL BE USED IN ANY CIRCUMSTANCES.

TYPICAL GATE VALVE & VALVE BOX DETAIL
N.T.S.

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY, WATER/WASTEWATER ENGINEERING, 1701 SOUTH 37TH STREET, FT. PIERCE, FLORIDA 34947, 772-466-1600

TYPICAL GATE VALVE & VALVE BOX DETAIL — M-6

DATE:	REVISION:	BY:	APPD:
03-09	CONCRETE SLAB	SLL	JLC

DESIGNED: JLC — COMPUTER FILE #: MISC DETAILS 200602.DWG
DRAWN BY: SLL — SCALE:
APPROVED: JLC — DATE: 2015
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1

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3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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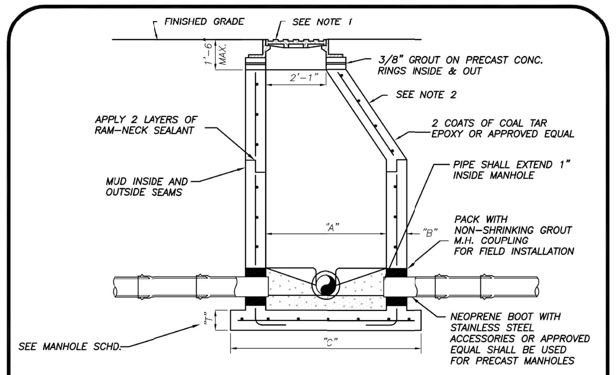
PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-FPUA DETAILS

SHEET TITLE: FPUA DETAILS-02

SHEET NUMBER: C-501



PIPE DIA.	"A"	"B"	"C"	BOT. SLAB "T"
8"-24"	4'-0"	"8"	76"	8"
30"-36"	5'-0"	"8"	88"	10"
42"-48"	6'-0"	"8"	100"	12"

TYPICAL MANHOLE DIMENSIONS

NOTES:

1) MANHOLE FRAME & COVER WITH THE WORDS " SANITARY SEWER" CAST IN THE COVER. U.S. FOUNDRY 170 OR APPROVED EQUAL.

2) ALL CONCRETE MANHOLES TO BE 4000 P.S.I. TO MEET OR EXCEED ASTM C478 ALL CEMENT TO BE TYPE II ACID RESISTANT. REINFORCING AREA OF 0.02 SQ. IN/FT FOR WALL SECTION MIN. TO MEET OR EXCEED ASTM A 185.

3) A MAXIMUM OF 2 LAYERS OF PRECAST CONCRETE RINGS, IF REQUIRED.

4) RAIN GUARDS SHALL BE INSTALLED IN MANHOLES THAT HAVE GRAVITY MAINS 12" OR LESS.

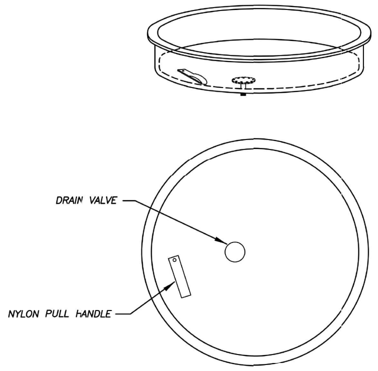
STANDARD MANHOLE
DEPTH 5'-0" AND GREATER
(N.T.S.)

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY

PRECAST MANHOLE DEPTH — 5'- 0" & GREATER — S-7

DATE: 02-08	REVISION:	BY:	APPD:

DESIGNED: JLC — COMPUTER FILE #: SEWER DETAIL 200602.DWG — WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL — SCALE: N.T.S.
APPROVED: JLC — DATE: 2010 — SHEET 1 OF 1



NOTES:

1) SEWER RAIN GUARDS SHALL BE INSTALLED ON ALL MANHOLES WHERE GRAVITY MAINS ARE 12" OR LESS AND IN AREAS DESIGNATED BY ENGINEER TO BE IN A FLOOD AREA.

2) SEWER RAIN GUARDS SHALL BE MANUFACTURED BY PARSON ENVIRONMENTAL PRODUCTS, INC., PART # PMI-23S (PARSON MANHOLE INSERTS) WITH DOUBLE VALVING, OR APPROVED EQUAL.

3) RAINGUARDS MUST BE "SNUG" FIT.

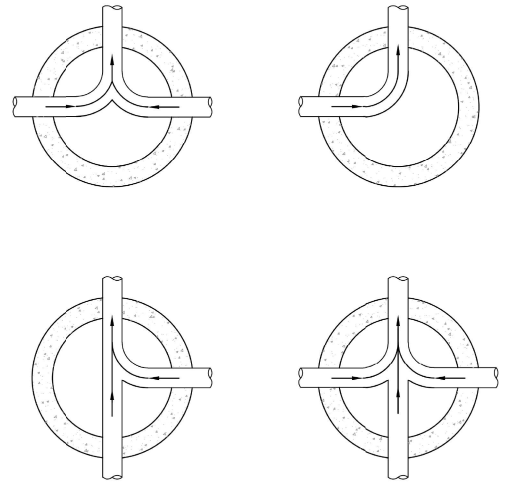
RAINGUARD DETAIL
(N.T.S.)

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY

RAINGUARD — DETAIL — S-11

DATE: 03-09	REVISION:	BY: SLL	APPD: JLC

DESIGNED: SLL — COMPUTER FILE #: SEWER DETAIL 200602.DWG — WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL — SCALE: N.T.S.
APPROVED: JLC — DATE: 2010 — SHEET 1 OF 1



NOTES:

1) INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.

2) SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOWS.

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY

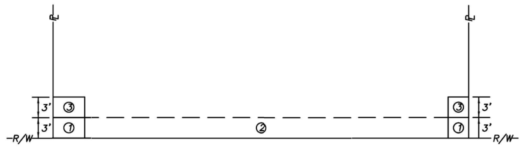
FLOW PATTERNS — FOR INVERT CHANNELS — S-12

DATE:	REVISION:	BY:	APPD:

DESIGNED: JJM — COMPUTER FILE #: SEWER DETAIL 200602.DWG — WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: JJM — SCALE: N.T.S.
APPROVED: JLC — DATE: 2010 — SHEET 1 OF 1

GENERAL POLICY

WHERE COST JUSTIFIED AND OPERATIONALLY FEASIBLE, IT IS THE GENERAL POLICY OF THE F.P.U.A. TO PROVIDE WATER, ELECTRIC, SEWER AND GAS SERVICE FROM THE STREET SIDE OF A PIECE OF PROPERTY. DEPENDING ON FACTORS SUCH AS LOCATION OF EXISTING SUPPLY SOURCE FACILITIES, REAR OR SIDE LOT LINE SUPPLY MAY BE AUTHORIZED, BUT ONLY WITH PRIOR APPROVAL FROM THE F.P.U.A.



NOTES:

1. THE PREFERRED POINT OF CONNECTION TO THE F.P.U.A. WATER METER, AREA ① SHALL BE LOCATED IN THE CORNER OF THE PROPERTY SELECTED BY THE F.P.U.A. AS THE BEST LOCATION FOR THE WATER METER. EVERY EFFORT WILL BE MADE TO SELECT THE CORNER WHERE TWO WATER SERVICES AND METERS CAN BE CONNECTED.

2. IF PHYSICAL BARRIERS OR OTHER OBSTACLES PREVENT THE CONNECTION OF THE BUILDING SERVICE LINE TO THE F.P.U.A. WATER SERVICE, WITHIN AREA ①, THE F.P.U.A. ENGINEERING DEPARTMENT MAY AUTHORIZE THE CONNECTION ALONG THE PORTION OF THE R/W LINE MARKED AREA ②, OR ALONG THE PROPERTY LINES MARKED AREA ③.

3. HORIZONTAL SEPARATION OF WATER AND WASTEWATER SERVICES SHOULD BE A MINIMUM OF 6 FEET AND PREFERABLY 10 FEET.

4. ALL METERS SHALL BE INSTALLED IN AN UNRESTRICTED AREA FOLLOWING EASE OF ACCESS AND PROVIDING ADEQUATE PROTECTION.

5. THE F.P.U.A. SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF THE WATER LATERAL WITHIN THE EASEMENT OR RIGHT-OF-WAY, UP TO THE POINT OF CONNECTION.

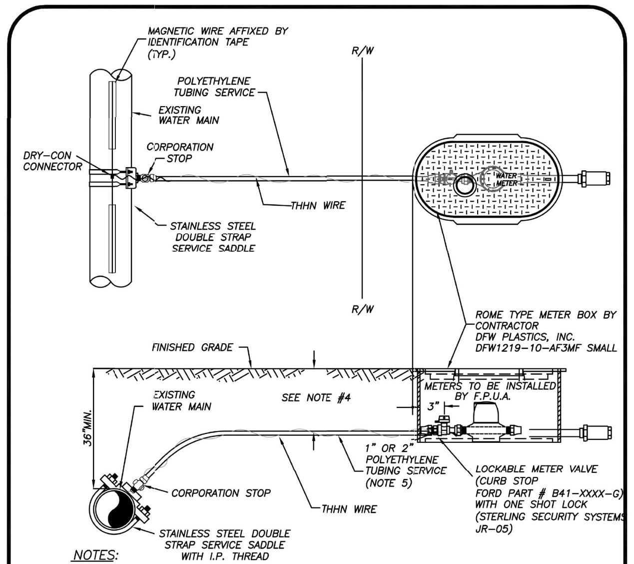
WATER METER PLACEMENT
(N.T.S.)

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY

WATER METER — PLACEMENT POLICY — W-1

DATE: 03-09	REVISION: 02-15	BY: SLL	APPD:

DESIGNED: JLC — COMPUTER FILE #: WATER DETAILS 200602.DWG — WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL — SCALE: N.T.S.
APPROVED: JLC — DATE: 2010 — SHEET 1 OF 1



NOTES:

1. BLUE 10 GAUGE THHN WIRE SHALL BE ATTACHED TO THE SERVICE LINE.

2. WHERE SERVICES UNDER PAVEMENT ARE REQUIRED, THE POLYETHYLENE TUBING SHALL BE INSTALLED WITHIN SCHEDULE 40 PVC CASING PIPE.

3. 1" & 3/4" METER SIZES SHALL REQUIRE A LOCKABLE METER VALVE. (CURB STOP)

4. MINIMUM COVER IN UNPAVED AREAS SHALL BE 30", IN PAVED AREAS OR PLANNED ROADWAYS OR SWALES MIN. COVER SHALL BE 36".

5. FOR 2" COMMERCIAL SERVICE INSTALLATIONS, FPUA WILL INSTALL ABOVE GROUND METER PER DETAIL W-8.

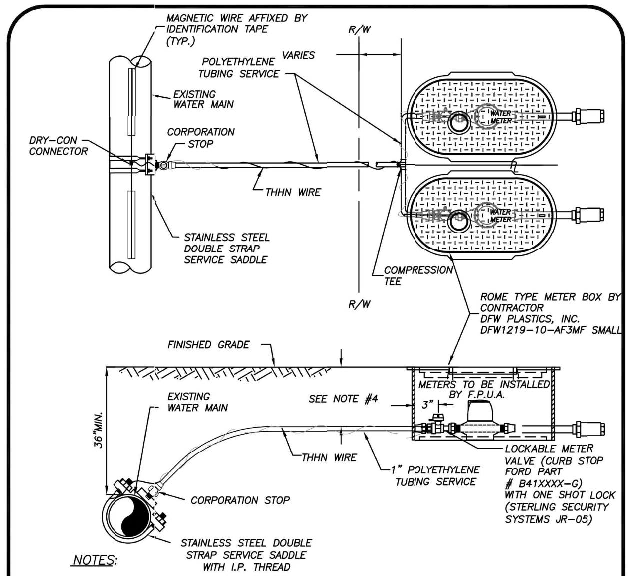
TYPICAL SINGLE WATER SERVICE CONNECTION
(N.T.S.)

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY

TYPICAL SINGLE WATER — SERVICE CONNECTION — W-2

DATE: 13-09	REVISION: DESIGN	BY: SLL	APPD: JLC

DESIGNED: JLC — COMPUTER FILE #: WATER DETAILS 200602.DWG — WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL — SCALE: N.T.S.
APPROVED: JLC — DATE: 2020 — SHEET 1 OF 1



NOTES:

1. BLUE 10 GAUGE THHN WIRE SHALL BE ATTACHED TO THE SERVICE LINE.

2. WHERE SERVICES UNDER PAVEMENT ARE REQUIRED, THE POLYETHYLENE TUBING SHALL BE INSTALLED WITHIN SCHEDULE 40 PVC CASING PIPE.

3. 1" & 3/4" METER SIZES SHALL REQUIRE A LOCKABLE METER VALVE. (CURB STOP)

4. MINIMUM COVER IN UNPAVED AREAS SHALL BE 30", IN PAVED AREAS OR PLANNED ROADWAYS OR SWALES MIN. COVER SHALL BE 36".

TYPICAL DOUBLE WATER SERVICE CONNECTION
(N.T.S.)

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY

TYPICAL DOUBLE WATER — SERVICE CONNECTION — W-3

DATE: 13-09	REVISION: DESIGN	BY: SLL	APPD: JLC

DESIGNED: JLC — COMPUTER FILE #: WATER DETAILS 200602.DWG — WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL — SCALE: N.T.S.
APPROVED: JLC — DATE: 2020 — SHEET 1 OF 1

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES — CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

ROBERT BLAINE BERGSTRESSER — LICENSE NO. 84598 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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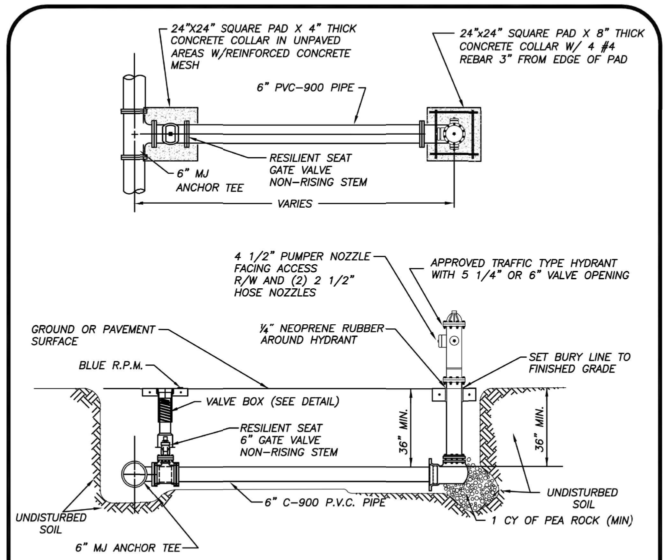
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-FPUA DETAILS

SHEET TITLE: FPUA DETAILS-03

SHEET NUMBER: C-502



NOTES:

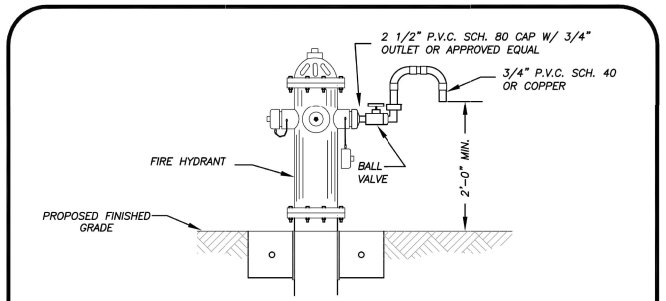
1. HYDRANT SHALL BE INSTALLED PLUMB & TRUE.
2. HYDRANT SHALL BE PAINTED CARNIVAL RED FROM FACTORY.
3. HEEL TO REST IN UNDISTURBED SOIL.
4. THE ONLY HYDRANTS ACCEPTABLE ARE: MUELLER SUPER CENTURION 250 OR AMERICAN DARLING B-84-B-5.
5. HYDRANT ASSEMBLY MUST BE RESTRAINED TO TEE.
6. ALL FITTINGS SHALL BE MECHANICAL JOINT.
7. ENTIRE ASSEMBLY TO BE MECHANICALLY RESTRAINED.
8. BLUE LOCATOR SHALL BE PLACED IN CENTER OF TRAVEL LANE CLOSEST TO HYDRANT.
9. ALL HYDRANT VALVE BOX COVERS SHALL BE PAINTED CARNIVAL RED.
10. LOCATE WIRE SHALL TERMINATE AT HYDRANT ISOLATION VALVE
11. HYDRANTS SHALL BE NO MORE THAN FIFTEEN FEET (15 FT.) FROM THE CURB OF ROADWAYS OR FROM THE EDGE OF PAVEMENT. CLEARANCES OF SEVEN AND ONE HALF FEET (7FT-6IN.) IN FRONT OF AND TO THE SIDES OF THE FIRE HYDRANTS, WITH FOUR FOOT (4 FT.) CLEARANCE TO THE REAR OF HYDRANTS SHALL BE MAINTAINED.

TYPICAL FIRE HYDRANT ASSEMBLY

(N.T.S.)

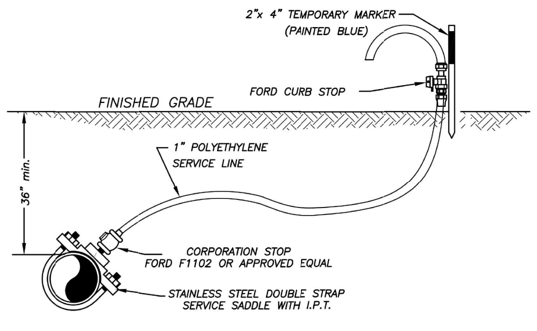
FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY, WATER/WASTEWATER ENGINEERING, 1701 SOUTH 37TH STREET, FT. PIERCE, FLORIDA 34947, 772-466-1600

TYPICAL FIRE HYDRANT ASSEMBLY				W-5
03-09	DESIGN	SLL	JLC	
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JLC	COMPUTER FILE # WATERDETAIL.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL	SCALE: N.T.S.			
APPROVED: JLC	DATE: 2010			SHEET 1 OF 1



BACTERIOLOGICAL SAMPLING POINT @ FIRE HYDRANT

(N.T.S.)



BACTERIOLOGICAL SAMPLING POINT @ WATER MAIN

(N.T.S.)

NOTE:

AFTER TESTING REMOVE 1" P.E. LINE AND CAP WITH BRASS PLUG AT CORPORATION STOP.

FPUA COMMUNITY PROUD — FT. PIERCE UTILITIES AUTHORITY, WATER/WASTEWATER ENGINEERING, 1701 SOUTH 37TH STREET, FT. PIERCE, FLORIDA 34947, 772-466-1600

BACTERIOLOGICAL SAMPLING PONIT DETAIL				W-6
03-09	02-15	SLL	JLC	
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JLC	COMPUTER FILE # WATERDETAIL.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL	SCALE: N.T.S.			
APPROVED: JLC	DATE: 2010			SHEET 1 OF 1

FORT PIERCE UTILITIES AUTHORITY
WATER DISTRIBUTION NOTES

1. ALL CONSTRUCTION MATERIAL, INSTALLATION AND TESTING SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE FORT PIERCE UTILITIES AUTHORITY.
2. WATER MAINS WHERE SPECIFIED AS POLYVINYL CHLORIDE (PVC) SHALL CONFORM TO AWWA C-900 OR C-905, PRESSURE CLASS 150, DR (18). WATER MAINS WHERE SPECIFIED AS POLYETHYLENE (PE) SHALL CONFORM TO AWWA C-901 OR C-906, STANDARD CODE DESIGNATION PE3408, PIPE CLASS 200, DIMENSION RATIO (DR) 17 FOR DIRECT BURY, (DR) 11 FOR DIRECTIONAL BORING, AND (DR) 9 FOR 2 INCH AND SMALLER PIPELINES.
3. WATER MAIN, WHERE SPECIFIED AS DUCTILE IRON PIPE , SHALL CONFORM TO ANSI/AWWA C151/A21.51 AND SHALL BE PRESSURE CLASS 250 (MINIMUM).
4. POLYVINYL CHLORIDE WATER MAIN SHALL BE BLUE IN COLOR OR WHITE IN COLOR WITH BLUE STRIPES. THE USE OF IDENTIFICATION TAPE ATTACHED TO THE TOP OF THE PIPE MAY BE USED IN LIEU OF MARKING ON THE PIPE, ALSO DIP PIPE SHALL REQUIRE THE USE OF IDENTIFICATION TAPE AND THHN WIRE.
5. FITTINGS SHALL BE DUCTILE IRON CONFORMING TO ANSI/AWWA C-110/A21.10, CLASS 250 MIN., CEMENT LINED AND FACTORY COATED
6. GATE VALVES SHALL BE MUELLER RESILIENT SEAT, KENNDY KEN-SEAL, AMERICAN OR APPROVED EQUAL. VALVES SHALL CONFORM TO AWWA C-509.
7. WATER LINES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH FPUA DESIGN AND CONSTRUCTION STANDARDS. THE CONTRACTOR SHALL SUBMIT CERTIFIED DENSITY TESTS AS REQUIRED BY FPUA ENGINEERING AND THE CITY, COUNTY, FDOT. IN CASES WHERE PAVED AREAS FALL WITHIN THE JURISDICTION OF LOCAL OR STATE AGENCIES, THE COMPACTION REQUIREMENTS SHALL NOT BE LESS THAN THE MINIMUM REQUIRED BY THE APPROPRIATE RESPONSIBLE AGENCY.
8. NO FIELD CHANGES OR DEVIATIONS FROM THE DESIGN SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE FPUA ENGINEER AND CITY/COUNTY/FDOT ENGINEER.
9. THE CONTRACTOR SHALL NOTIFY FPUA ENGINEERING AND CITY/COUNTY/FDOT ENGINEERING 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
10. A PRE-CONSTRUCTION CONFERENCE BETWEEN THE ENGINEER, THE CONTRACTOR, FPUA, AND CITY/ COUNTY/FDOT ENGINEER SHALL BE MANDATORY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
11. TRAFFIC CONTROL, BARRICADES, ETC., SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF OF TRANSPORTATION STANDARDS AND APPROVED BY THE CITY ENGINEER.
12. MINIMUM COVER SHALL BE 36 INCHES EXCEPT AS APPROVED BY THE UTILITIES ENGINEER AND CITY/ COUNTY/FDOT ENGINEER. PIPES WITH COVER LESS THAN 30 INCHES SHALL BE CONSTRUCTED OF DUCTILE IRON OR IN PVC CASING.
13. DISTURBED AREAS SHALL BE RESTORED IN CONFORMANCE WITH THE APPLICABLE GOVERNING AGENCY REQUIREMENTS.
14. EXISTING UTILITIES AND DRAINAGE SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION AND PROTECTED BY THE CONTRACTOR.
15. WATER MAINS SHALL BE TESTED AND DISINFECTED IN ACCORDANCE WITH THE APPLICABLE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND AWWA C-651 FOR DISINFECTION.

FORT PIERCE UTILITIES AUTHORITY

WATER DISTRIBUTION				G-1 NOTES
02-06				
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JJM	COMPUTER FILE # DETAIL NOTES 200602.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: JJM	SCALE: N.T.S.			
APPROVED: JLC	DATE: 2010			SHEET 1 OF 2

FORT PIERCE UTILITIES AUTHORITY WASTEWATER CONSTRUCTION NOTES

1. ALL CONSTRUCTION MATERIAL, INSTALLATION AND TESTING SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE FORT PIERCE UTILITIES AUTHORITY.
2. GRAVITY SEWER MAIN SHALL BE POLYVINYL CHLORIDE SDR-26, GREEN OR WHITE IN COLOR, GRAVITY SEWER MAIN SHALL HAVE LOCATOR TAPE WITH "SEWER" MARKED ON TAPE AND SHALL CONFORM TO ASTM D-3034.
3. THE MANHOLE BASE SHALL BE SET ON A FIRM, DRY AND STABLE OR COMPACTED BASE FOUNDATION. IF NECESSARY, THE CONTRACTOR SHALL UTILIZE ROCK TO PROVIDE A FIRM AND SUITABLE MANHOLE BASE FOUNDATION.
4. WASTEWATER LINES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH FPUA DESIGN AND CONSTRUCTION STANDARDS. THE CONTRACTOR SHALL SUBMIT CERTIFIED DENSITY TESTS AS REQUIRED BY FPUA ENGINEERING AND THE CITY ENGINEERING DEPARTMENT. IN CASES WHERE PAVED AREAS FALL WITHIN THE JURISDICTION OF LOCAL OR STATE AGENCIES, THE COMPACTION REQUIRE-MENTS SHALL NOT BE LESS THEN THE MINIMUM REQUIRED BY THE APPROPRIATE RESPONSIBLE AGENCY.
5. A 1% MINIMUM SLOPE SHALL BE MAINTAINED ON ALL SANITARY SERVICE LATERALS.
6. THE CONTRACTOR SHALL FURNISH RECORD DRAWING INFORMATION TO THE ENGINEER CONSISITING OF PIPE SIZES, LOCATION OF SERVICE TEE WYES, DIAMETER OF SERVICES, LOCATION OF ANY FITTINGS, FINAL RIM AND INVERT ELEVATION OF ALL MANHOLES AND ANY OTHER PERTINENT INFORMATION NECESSARY TO LOCATE ITEMS CONSTRUCTED UNDER THIS PROJECT.
7. MAINTAIN SIX FEET AND PREFERABLY 10 FEET HORIZONTAL DISTANCE BETWEEN WATER MAINS AND SEWER MAINS AS A MINIMUM.
8. WASTEWATER FORCE MAINS, WASTEWATER COLLECTION LINES, AND STORM SEWERS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. A MINIMUM VERTICAL DISTANCE OF 12 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE SHALL BE PROVIDED WHENEVER POSSIBLE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE WASTEWATER PIPE JOINTS AND THE WATER PIPE JOINTS ARE EQUIDISTANCE FROM THE POINT OF CROSSING, AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) AT THE CROSSING. SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT ALL CROSSINGS.
9. A PRE-CONSTRUCTION CONFERENCE BETWEEN THE ENGINEER, THE CONTRACTOR, AND FPUA/CITY COUNTY/FDOT SHALL BE MANDATORY PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
10. NO FIELD CHANGES OR DEVIATIONS FORM THE DESIGN SHALL BE MADE WITHOUT PRIOR APPROVAL FPUA/CITY/COUNTY/FDOT ENGINEER,
11. TRAFFIC CONTROL, BARRICADES, ETC. SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS.
12. CONTRACTOR SHALL NOTIFY FORT PIERCE UTILITIES AUTHORITY 48 HOURS PRIOR TO COMMMENCING CONSTRUCTION.
13. WASTEWATER FORCE MAIN SHALL BE POLYVINYL CHLORIDE CONFORMING TO AWWA C-900, AND SHALL BE CLASS 150, DR-18.
14. WASTEWATER FORCE MAIN SHALL BE GREEN IN COLOR.
15. FITTINGS SHALL BE DUCTILE IRON, CONFORMING TO ANSI/AWWA C-110/A21.10 CLASS 250 MIN. AND INTERIOR EPOXY COATED.
16. WASTEWATER FORCE MAIN SHALL BE MARKED BY THE USE OF CONTINUOUS 10 GAUGE THHN WIRE (GREEN IN COLOR) PERMANENTLY ATTACHED TO THE TOP OF THE FORCE MAIN WITH LOCATOR TAPE MARKED "SEWER" ON TAPE IN ACCORDANCE WITH FPUA SPECIFICATIONS.
17. MINIMUM COVER SHALL BE 36 INCHES, PIPES WITH COVER LESS THAN 30 INCHES SHALL REQUIRE PRIOR APPROVAL OF THE UTILITES ENGINEER AND SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE.
18. EACH SERVICE LATERAL WILL BE MARKED WITH A LOCATOR BALL AS MANUFACTURED BY 3M CORPORATION, OR APPROVED EQUAL AS REQUIRED BY FPUA ENGINEER.
19. ALL MANHOLES SHALL HAVE SEWER RAIN GUARDS INSTALLED AS REQUIRED BY FPUA ENGINEER.
20. THE CONTRACTOR SHALL COMPLY WITH THE FLORIDA TRENCH SAFETY ACT REQUIREMENTS.

FORT PIERCE UTILITIES AUTHORITY

WASTEWATER CONSTRUCTION NOTES FPUA REQUIREMENTS				G-2 CONSTRUCTION NOTES
02-06				
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JJM	COMPUTER FILE # DETAIL NOTES 200602.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: JJM	SCALE: N.T.S.			
APPROVED: JLC	DATE: 2010			SHEET 1 OF 1

STANDARD SEPARATION STATEMENT FOR WATER / SEWER CONFLICTS

1. SANITARY SEWER, FORCE MAINS, AND STORM SEWERS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. SANITARY SEWERS, FORCE MAINS AND STORM SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 6 INCHES, PREFERABLY 12 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE WHEN ABOVE, AND AT LEAST 12 INCHES OF SEPARATION WHEN THE WATER MAIN IS BELOW.

WHERE SANITARY SEWER, FORCE MAINS, STORM SEWERS MUST CROSS A WATER MAIN WITH LESS THAN 6 INCHES VERTICAL SEPARATION, BOTH THE SEWER AND WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) CENTERED ON THE CROSSING. (DIP IS NOT REQUIRED FOR STORM SEWERS.) SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED.

ALL CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING (PIPES CENTERED ON THE CROSSING). AT SUCH CROSSINGS PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY OR PRESSURE TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 6 INCHES VERTICAL CLEARANCE, THE NEW PIPE SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWERS) AND NEW PIPES SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENTS ABOVE.

2. A MINIMUM 3-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF STORM SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

A MINIMUM 3-FOOT, AND PREFERABLE 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN VACUUM TYPE SANITARY SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

A MINIMUM 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN "ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

A MINIMUM 6-FOOT, AND PREFERABLE 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN GRAVITY OR PRESSURE TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO 3 FOOT WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10-FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON A 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 6 INCHES ABOVE THE TOP OF THE SEWER.

WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 6 INCHES IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AND THE SEWER OR THE FORCE MAIN SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWER) WITH A MINIMUM VERTICAL DISTANCE OF 6 INCHES. THE WATER MAIN SHOULD ALWAYS BE ABOVE THE SEWER. JOINTS ON THE WATER MAIN SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).

3. ALL DIP SHALL BE PRESSURE CLASS 250 MIN.. ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE DESIGN ENGINEER.

FORT PIERCE UTILITIES AUTHORITY

STANDARD SEPARATION STATEMENT FOR WATER/SEWER CONFLICT				G-3 WATER/SEWER CONFLICT
02-06				
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JJM	COMPUTER FILE # DETAIL NOTES 200602.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: JJM	SCALE: N.T.S.			
APPROVED: JLC	DATE: 2010			SHEET 1 OF 1

KMA ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

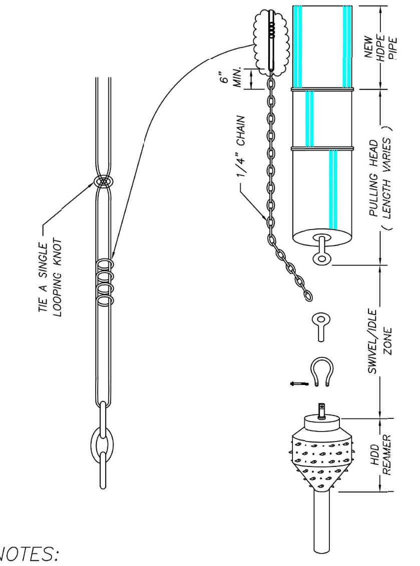
ROBERT BLAINE BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-FPUA DETAILS

SHEET TITLE: FPUA DETAILS-04

SHEET NUMBER: C-503

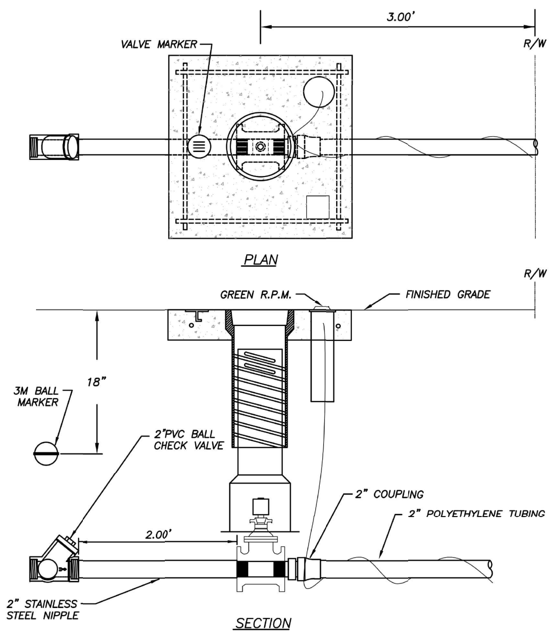


NOTES:

1. WHERE DIRECTIONAL DRILLING LENGTHS EXCEED 750 LINEAR FEET AND/OR HDPE PIPE DIAMETER EXCEED 12 INCHES, A SECOND LENGTH OF TRACE WIRE SHALL BE INSTALLED.
2. TRACE WIRE SHALL CONFORM TO THE FOLLOWING SPECIFICATION:
   MANUFACTURER – COPPERHEAD INDUSTRIES, LLC
   PART NUMBER – 1245B–EHS–500 / 1245B–EHS–1000 / 1245B--EHS–2500
   PART NUMBER DESCRIPTION – 12 (AWG), 45 (JACKET MIL), B (JACKET COLOR: B=BLUE, G=GREEN, ETC.) – EHS (EXTRA HIGH STRENGTH–HARD DRAWN / 1150# BREAKING LOAD STRENGTH) – 500 (WIRE LENGTH IN FEET)

FPUA COMMUNITY PROUD
FT. PIERCE UTILITIES AUTHORITY
WATER/WASTEWATER ENGINEERING
1701 SOUTH 37TH STREET
FT. PIERCE, FLORIDA 34947
772-466-1600

DIRECTIONAL BORE WIRE ATTACHMENT				M–16
03–09	CONCRETE SLAB	SLL	JLC	
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JLC		COMPUTER FILE #: MISC DETAILS 200602.DWG		FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL		SCALE:		
APPROVED: JLC		DATE: 2015		SHEET 1 OF 1



NOTES:

1. FORCE MAIN CONNECTION SHALL CONSIST OF A 2" TAPPING SADDLE, 2" STAINLESS STEEL NIPPLE AND 2" THREADED RESILIENT SEAT GATE VALVE
2. GREEN 10 GAUGE THHN WIRE SHALL BE ATTACHED TO THE SERVICE LINE.
3. WHERE SERVICES UNDER PAVEMENT ARE REQUIRED, THE POLYETHYLENE TUBING SHALL BE INSTALLED WITHIN SCHEDULE 40 PVC CASING PIPE.
4. MINIMUM COVER IN UNPAVED AREAS SHALL BE 30", IN PAVED AREAS OR PLANNED ROADWAYS OR SWALES MIN. COVER SHALL BE 36".

FPUA COMMUNITY PROUD
FT. PIERCE UTILITIES AUTHORITY
WATER/WASTEWATER ENGINEERING
1701 SOUTH 37TH STREET
FT. PIERCE, FLORIDA 34947
772-466-1600

GRINDER STATION CONNECTION				S–16
03–09	DESIGN	SLL	JLC	
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JLC		COMPUTER FILE #: COMPUTER#		FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL		SCALE: N.T.S. SCALE		
APPROVED: JLC		DATE: 2010		SHEET 1 OF 1

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(772) 569-5005
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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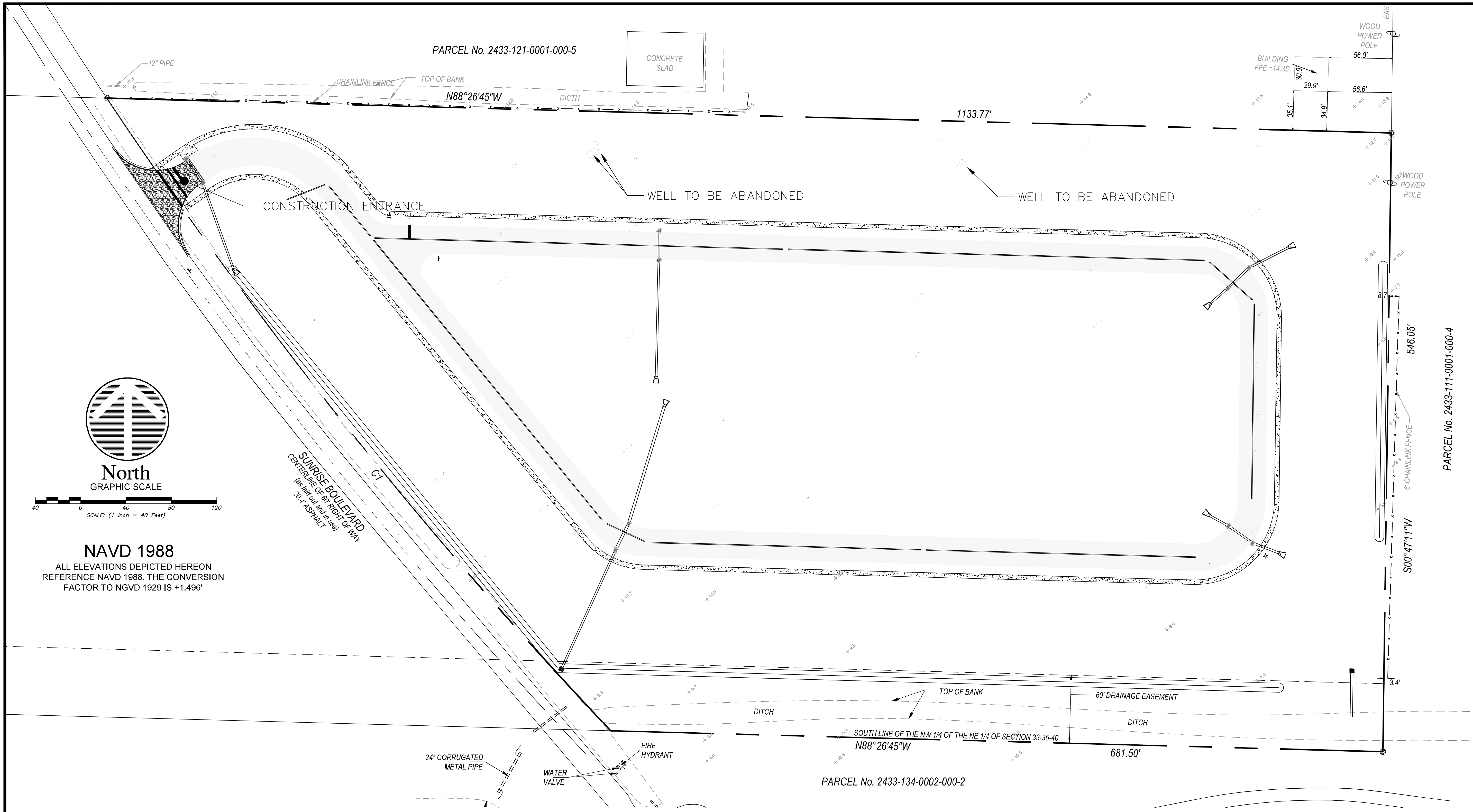
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-FPUA DETAILS

SHEET TITLE: FPUA DETAILS-05

SHEET NUMBER: C-504



PARCEL No. 2433-121-0001-000-5
CONCRETE SLAB
12" PIPE
CHAINLINK FENCE
TOP OF BANK
N88°26'45"W
DICTH
1133.77'
WOOD POWER POLE
BUILDING FFE =14.35'
56.0'
30.0'
29.9'
56.6'
35.1'
34.9'
CONSTRUCTION ENTRANCE
WELL TO BE ABANDONED
WELL TO BE ABANDONED
WOOD POWER POLE
546.05'
PARCEL No. 2433-111-0001-000-4
6' CHAINLINK FENCE
S00°47'11"W
North
GRAPHIC SCALE
40 0 40 80 120
SCALE: (1 inch = 40 Feet)
SUNRISE BOULEVARD
CENTERLINE OF 80' RIGHT OF WAY
(as laid out and in use)
20.4' ASPHALT
C1
NAVD 1988
ALL ELEVATIONS DEPICTED HEREON REFERENCE NAVD 1988. THE CONVERSION FACTOR TO NGVD 1929 IS +1.496'
TOP OF BANK
60' DRAINAGE EASEMENT
DITCH
DITCH
3.4'
SOUTH LINE OF THE NW 1/4 OF THE NE 1/4 OF SECTION 33-35-40
N88°26'45"W
681.50'
24" CORRUGATED METAL PIPE
WATER VALVE
FIRE HYDRANT
PARCEL No. 2433-134-0002-000-2

KMA
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FORT PIERCE, FL 34946
(772) 569-5005
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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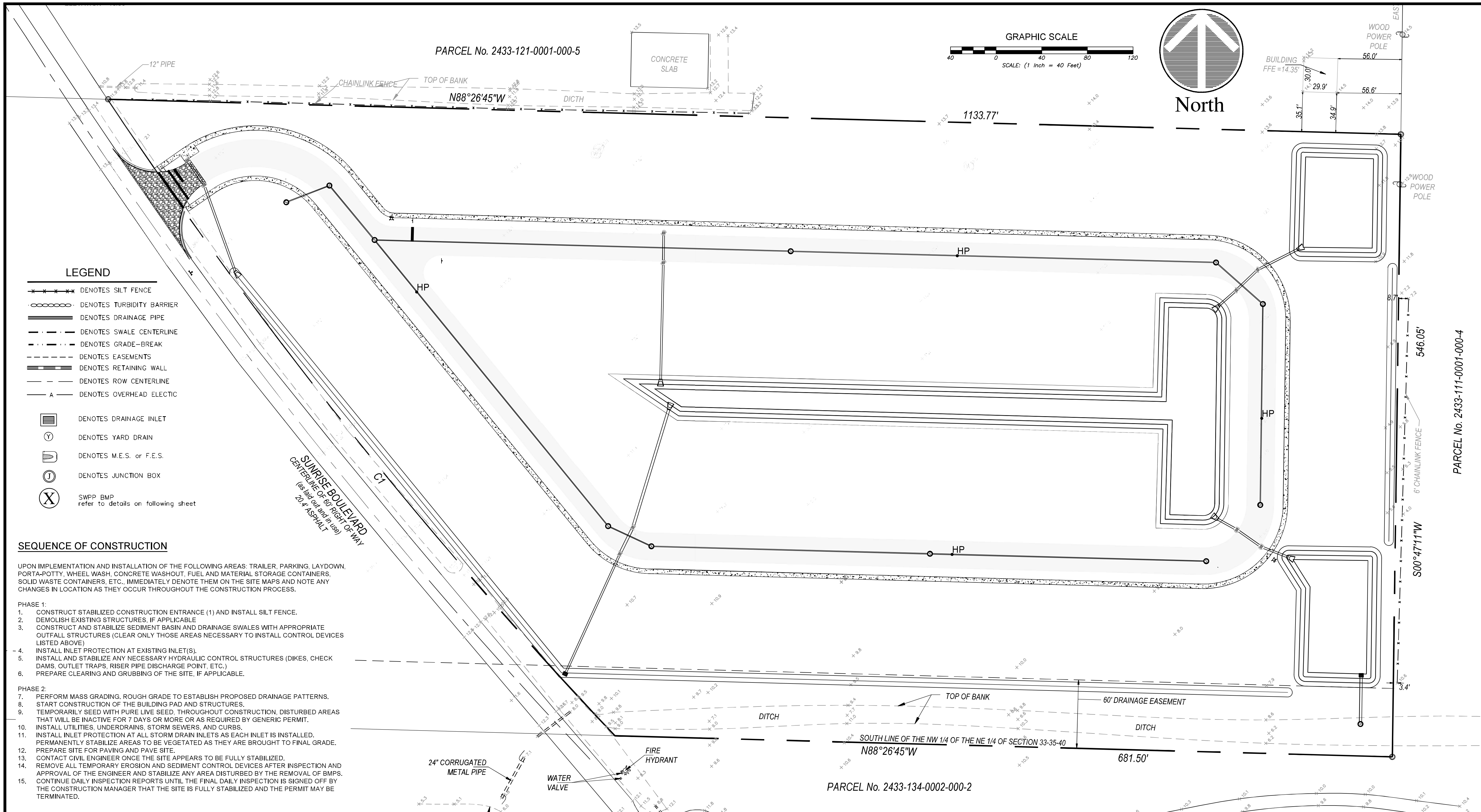
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-EX CON

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION

SHEET NUMBER:
C-600



SEQUENCE OF CONSTRUCTION

UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAYDOWN, PORTA-POTTY, WHEEL WASH, CONCRETE WASHOUT, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.

PHASE 1:

1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE (1) AND INSTALL SILT FENCE.
2. DEMOLISH EXISTING STRUCTURES, IF APPLICABLE
3. CONSTRUCT AND STABILIZE SEDIMENT BASIN AND DRAINAGE SWALES WITH APPROPRIATE OUTFALL STRUCTURES (CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL CONTROL DEVICES LISTED ABOVE)
4. INSTALL INLET PROTECTION AT EXISTING INLET(S).
5. INSTALL AND STABILIZE ANY NECESSARY HYDRAULIC CONTROL STRUCTURES (DIKES, CHECK DAMS, OUTLET TRAPS, RISER PIPE DISCHARGE POINT, ETC.)
6. PREPARE CLEARING AND GRUBBING OF THE SITE, IF APPLICABLE.

PHASE 2:

7. PERFORM MASS GRADING. ROUGH GRADE TO ESTABLISH PROPOSED DRAINAGE PATTERNS.
8. START CONSTRUCTION OF THE BUILDING PAD AND STRUCTURES.
9. TEMPORARILY SEED WITH PURE LIVE SEED, THROUGHOUT CONSTRUCTION, DISTURBED AREAS THAT WILL BE INACTIVE FOR 7 DAYS OR MORE OR AS REQUIRED BY GENERIC PERMIT.
10. INSTALL UTILITIES, UNDERDRAINS, STORM SEWERS, AND CURBS.
11. INSTALL INLET PROTECTION AT ALL STORM DRAIN INLETS AS EACH INLET IS INSTALLED. PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO FINAL GRADE.
12. PREPARE SITE FOR PAVING AND PAVE SITE.
13. CONTACT CIVIL ENGINEER ONCE THE SITE APPEARS TO BE FULLY STABILIZED.
14. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER INSPECTION AND APPROVAL OF THE ENGINEER AND STABILIZE ANY AREA DISTURBED BY THE REMOVAL OF BMPS.
15. CONTINUE DAILY INSPECTION REPORTS UNTIL THE FINAL DAILY INSPECTION IS SIGNED OFF BY THE CONSTRUCTION MANAGER THAT THE SITE IS FULLY STABILIZED AND THE PERMIT MAY BE TERMINATED.

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TEMPORARY CONSTRUCTION EXITS																								
TEMPORARY CONTROL MEASURES																								
SEDIMENT CONTROL BASINS																								
STRIP & STOCKPILE TOPSOIL																								
ROUGH GRADE																								
STORM FACILITIES																								
SITE CONSTRUCTION																								
PERMANENT CONTROL STRUCTURES																								
FOUNDATION / BUILDING CONSTRUCTION																								
FINISH GRADING																								
LANDSCAPING/SEED/FINAL STABILIZATION																								

MAINTENANCE

ALL MEASURES STATED ON THIS SITE MAP, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
6. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.

HALT ALL ACTIVITIES AND CONTACT THE CONSULTANT TO PERFORM INSPECTION AND CERTIFICATION OF BMPS. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH CONSULTANT AND ALL GROUND-DISTURBING CONTRACTORS BEFORE PROCEEDING WITH CONSTRUCTION.

CONTRACTOR TO BE RESPONSIBLE FOR OBTAINING ALL DEWATERING PERMITS NECESSARY FOR CONSTRUCTION

THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR ADDRESSING THIS ISSUE.

SITE PREPARATION SHOULD BE IN ACCORDANCE WITH GEOTECHNICAL INVESTIGATION

NAVD 1988

ALL ELEVATIONS DEPICTED HEREON REFERENCE NAVD 1988. THE CONVERSION FACTOR TO NGVD 1929 IS +1.496'

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FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER, LICENSE NO. 84598, STATE OF FLORIDA, PROFESSIONAL ENGINEER
BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-EX CON

SHEET TITLE: PHASE ONE EROSION CONTROL

SHEET NUMBER: C-601

WHITE CITY CEMETERY
ZONING: I
PARCEL No. 2433-121-0001-000-5

SET MAG NAIL & DISK / LB 8261
ELEVATION = 13.56'

12" PIPE

CHAINLINK FENCE

TOP OF BANK

DITCH

CONCRETE SLAB

BUS STATION

10' LANDSCAPE BUFFER

EAST LINE

WOOD POWER POLE

BUILDING FFE =14.35'

56.0'

30.0'

29.9'

56.6'

35.1'

34.9'

MOUNTABLE MIAMI CURB

DRY DETENTION POND

WOOD POWER POLE

10' LANDSCAPE BUFFER

8.7'

10' LANDSCAPE BUFFER (min.)

DRY DETENTION POND

6' CHAINLINK FENCE

ZONING: I-1
PARCEL No. 2433-111-0001-000-4

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

SUNRISE BOULEVARD
CENTERLINE OF 60' RIGHT-OF-WAY
(as laid out and in use)
20.4 ASPHALT

C1

7' DRAINAGE EASEMENT

10' LANDSCAPE BUFFER (min.)

10' LANDSCAPE BUFFER

DRY DETENTION POND

3.4'

TOP OF BANK

60' DRAINAGE EASEMENT

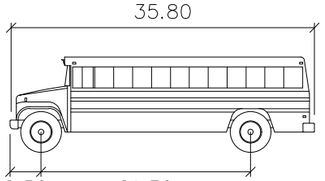
DITCH

North
GRAPHIC SCALE
40 0 40 80 120
SCALE: (1 Inch = 40 Feet)

ZONING: RS-3

ZONING: RS-3

35.80



2.50 21.30

S–BUS–36

	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 37.6

LINEWORK & SYMBOL LEGEND

- DENOTES PROPERTY BOUNDARY
- DENOTES RIGHT-OF-WAY
- DENOTES CENTERLINE
- DENOTES EASEMENT
- DENOTES FENCE LINE
- DENOTES DRAINAGE PIPE
- DENOTES SEWER MANHOLE
- DENOTES FIRE HYDRANT
- DENOTES GATE VALVE
- DENOTES LIGHT POLE
- DENOTES STREET SIGN
- DENOTES RUNOFF OVERLAND FLOW
- 20.5 / 20.0 DENOTES PROPOSED ELEVATIONS
- x 22.0 DENOTES EXISTING GRADES
- DENOTES DRAINAGE STRUCTURE refer to table this sheet
- DENOTES DITCH BOTTOM INLET
- DENOTES JUNCTION BOX
- DENOTES YARD DRAIN
- DENOTES DRAINAGE STRUCTURE
- DENOTES MITERED/FLARED END SECTION

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REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT
INTEGRITY 1ST CONSTRUCTION GROUP

LICENSE NO. 84598 STATE OF FLORIDA BLAINE ROBERT BERGSTRESSER PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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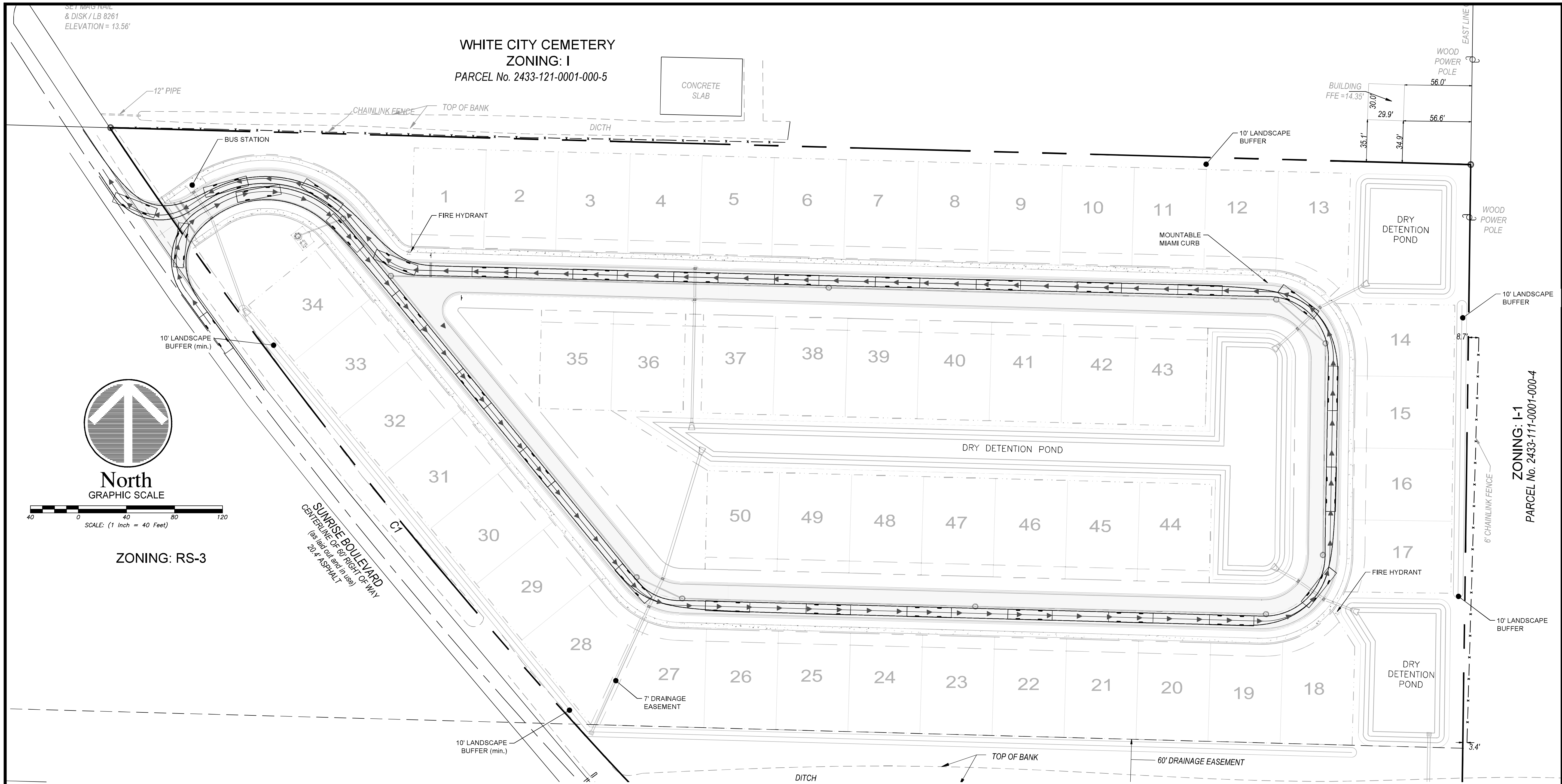
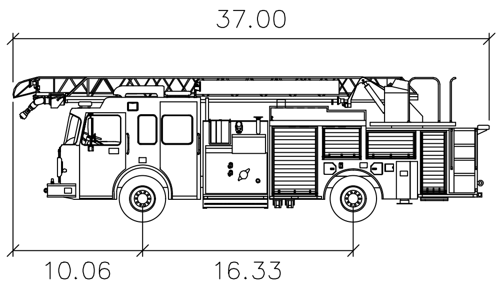
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-BUS-TURN

SHEET TITLE:
ROUTING PLAN BUS

SHEET NUMBER:
C-700



ZONING: RS-3



Smeal Aerial RM 55ft

feet

Width	:	8.33
Track	:	7.88
Lock to Lock Time	:	6.0
Steering Angle	:	48.0

LINEWORK & SYMBOL LEGEND

- DENOTES PROPERTY BOUNDARY
- DENOTES RIGHT-OF-WAY
- DENOTES CENTERLINE
- DENOTES EASEMENT
- DENOTES FENCE LINE
- DENOTES DRAINAGE PIPE
- (S) DENOTES SEWER MANHOLE
- DENOTES FIRE HYDRANT
- DENOTES GATE VALVE
- DENOTES LIGHT POLE
- DENOTES STREET SIGN
- DENOTES RUNOFF OVERLAND FLOW
- 20.5 / 20.0 DENOTES PROPOSED ELEVATIONS
- x 22.0 DENOTES EXISTING GRADES
- DENOTES DRAINAGE STRUCTURE refer to table this sheet
- DENOTES DITCH BOTTOM INLET
- (J) DENOTES JUNCTION BOX
- (Y) DENOTES YARD DRAIN
- (D) DENOTES DRAINAGE STRUCTURE
- DENOTES MITERED/FLARED END SECTION

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FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

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CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

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FLORIDA LICENSE No. 84598
02/24/2022

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PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-BUS-TURN

SHEET TITLE: ROUTING PLAN FIRE

SHEET NUMBER: **C-701**

WHITE CITY CEMETERY
ZONING: I

DRY DETENTION POND

DRY DETENTION POND

DRY DETENTION POND

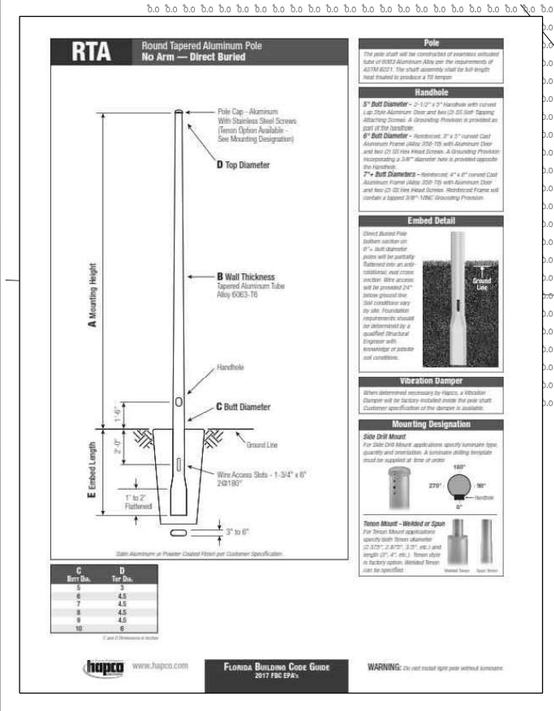
DRY DETENTION POND

EXISTING DRAINAGE CANAL AND 60' EASEMENT

ZONING: RS-3

ZONING: I-1

ZONING: RS-3



Landreth Lighting Luminaire Schedule

Symbol	Manufacturer	Qty	Label	Arrangement	Description	LLF	BUG Rating	Arranged Watts	Arranged Lumens
⊠	Lithonia Lighting	15	SLA	Single	DSX0 LED P5 30K 70CRI T3M MVOLT RPA NLTAIR2 PIRHN HS FINISH TBD: MOUNTED 25' AFG ON ROUND TAPERED ALUMINUM DIRECT BURIED POLE	1.000	B1-U0-G3	90.12	10055

Landreth Lighting Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Entire Site	Illuminance	Fc	0.26	2.0	0.0	N.A.	N.A.
Drive Lane	Illuminance	Fc	1.20	2.0	0.5	2.40	4.00

North
GRAPHIC SCALE
40 0 40 80 120
SCALE: (1 Inch = 40 Feet)

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FORT PIERCE, FL 34946
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FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

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PROJECT
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT
INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

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PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.	24-1001-PHOTO

SHEET TITLE:
PHOTO-01

SHEET NUMBER:

Plotted on Tuesday, July 09, 2024 - 12:17 PM by Blaine Bergstresser

100% GOPHER TORTOISE SURVEY
COMPLETION REPORT

3804 SUNRISE BLVD, FORT PIERCE, FL – 11.34 ACRES
SAINT LUCIE COUNTY
PARCEL ID: 2433-123-0001-000-1
SECTION 33, TOWNSHIP 35 SOUTH AND RANGE 40 EAST

Prepared for:

DT VENTURES 1 LLC
PO Box 92280
Rochester, NY 14692-0280

Prepared By:

Patrick Zuloaga

Florida Fish and Wildlife Conservation Commission Gopher Tortoise Agent

Permit No.: GTA-13-00002D

January 26, 2024

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

An upland habitat survey for gopher tortoise (*Gopherus polyphemus*) was conducted on the approximately 11.34-acre property located on 3804 Sunrise Blvd, Fort Pierce, Florida (see Figure 1). The survey included review of 100% of potential gopher tortoise habitat within the subject property.

The objectives of the survey were to document gopher tortoise burrows within the construction footprint of the property to confirm presence/absence, document the status and location of gopher tortoise burrows, and approximate the number of tortoises that would need relocation. The results of the survey determine the subsequent actions required to develop the subject property.

This Survey Report provides a summary of the survey activities conducted, including methods used and areas surveyed. Survey activities were executed according to the burrow survey methodology from the Florida Fish and Wildlife Conservation Commission (FWC) Gopher Tortoise Permitting Guidelines, April 2008, Revised April 2023, Appendix 4 Methods for Burrow Surveys on Development (Donor) and Recipient Sites, 100% Burrow Survey Protocol. Survey activities were conducted on January 25 and the morning January 26, 2024. The information contained herein is based on the findings from the field survey.

SITE LOCATION AND DESCRIPTION

The ±11.34-acre property is located in White City, a census-designated place (CDP) in Saint Lucie County within Section 33, Township 35 South and Range 40 East. The subject property is along the east side of Sunrise Blvd. The Saint Lucie County Property Appraiser lists the Property Parcel ID as 2433-123-0001-000-1. The Future Land Use designation is residential.

The vegetative component of the subject property is predominantly exotic vegetation, shrub brushland, cabbage palms and scattered hardwoods. An isolated waterbody is present within the north west corner and a water filled ditch runs along the southern boundary of the subject property. The Florida Cooperative Land Cover (CLC) System developed by the Florida Fish and Wildlife Conservation Commission (FWC) classifies the land cover as 1821 – Low Structure Density and 18332 – Fallow Orchards. The predominant land cover classification is Fallow Orchards (1832). Figure 2 provides the CLC map for the subject property.

The vegetative community was characterized in the field as a degraded mixed upland community consisting of shallow ridge and furrows with a sparse canopy and dense shrub stratum. The ridge and furrow landform is a result of the historic orchard land use. The canopy stratum consists primarily of cabbage palm (*Sabal palmetto*), and laurel oak (*Quercus laurifolia*). The shrub stratum consisted of dense ceaserweed (*Urena lobata*), Jack-in-the-bush (*Chromolaena odorata*), Brazillian pepper (*Schinus terebinthifolia*), and shoebutton ardisia (*Ardisia elliptica*). Ground cover stratum was generally limited due to the dense canopy, shrub and vine cover. Limited areas with herbaceous vegetative cover were observed providing suitable forage for gopher tortoises.

The Natural Resources Conservation Service (NRCS) Web Soil Survey lists five soil types within the subject property. Table 1 provides a summary of the soil types present within the subject property. Figure 3 provides the NRCS Web Soil Survey graphically for the subject property. A brief description of each soils type follows.

Table 1. Web Soil Survey Summary

Map Unit Symbol	Map Unit Name	Acres	Percent of property
□□	□□□□□□□□□d□□r□ □□□□□□d□□	□□□□	□□□□□ □
□□	□r□□□□□□□□□□□□r□□□□□□□□□□	□□□□	□□□□□ □
□□□	S□□□□□□□□□d□□ □□□□□□□□□□d□□	□□□□	□□□□□ □
□□□	T□□□□□□d□P□□ □□□□□□d□□	□□□□	□□□□□ □
□□□	□ □d□r□□□□ □□□□d□	□□□□	□□□□□ □
Totals for Area of Interest		**11.1**	**100.0%**

Ankona and Farmton sands is poorly drained soil found in flatwoods on marine terraces. The seasonal high-water table is at a depth of 6 to 18 inches. The gopher tortoise burrowing suitability is rated as "less suited". Less Suited rating states that these soils have characteristics that may limit establishment, maintenance, or use of the site by gopher tortoise. Colonization and population densities may be below average or restricted in the area due to the limiting factors even though all of the other species habitat requirements are met (USDA, 2024).

Arents are Somewhat poorly drained sandy soils found on rises in marine terraces. Depth to water is 18 to 36 inches. This soils type is listed as not rated in the Web Soil Survey gopher tortoise burrowing suitability.

Susanna and Wauchula sands are poorly drained soil found in flatwoods on marine terraces. The seasonal high-water table is at a depth of 6 to 18 inches. The gopher tortoise burrowing suitability is rated as "unsuitable". These soils have characteristics that may limit establishment, maintenance, or use of the site by gopher tortoise. Areas of included soils with better drainage may provide suitable soil properties in some locations (USDA, 2024).

Tantile and Pomona sands are poorly drained soil found in flatwoods on marine terraces. The seasonal high-water table is at a depth of 6 to 18 inches. The gopher tortoise burrowing suitability is rated as "unsuitable" (USDA, 2024).

Winder loamy sand is poorly drained soil found in flats on marine terraces. The seasonal high-water table is at a depth of 12 to 18 inches. The gopher tortoise burrowing suitability is rated as "less suited" (USDA, 2024).

METHODS

The survey activities were completed by an FWC gopher tortoise agent and performed in accordance with those specified in Appendix 4 of the FWC Guidelines. Equipment utilized during the survey included a camera, Trimble DGPS unit, and a handheld datalogger running Solo Field mapping software.

The pedestrian survey was conducted by walking pre-determined transects in an approximate east-west orientation at 50-foot spacing across 100 percent of the subject property (see Figure 4). Apparent burrow activity status (active, inactive, or abandoned), size (juvenile <5 in.; subadult 5-8 in.; adult >8 in.), GPS coordinates, and photographs were recorded for each burrow encountered along each transect. Burrows that were not clearly made by a tortoise were not recorded.

RESULTS/DISCUSSION

The 100 % pedestrian survey of the project area resulted in no potentially occupied burrows. Multiple burrows from other burrowing fauna (i.e., armadillo *[Dasypus novemcinctus*]) were noted during the survey. Figure 4 provides the survey design graphically.

An apparent high-water table and dense vegetative cover provides poor quality gopher tortoise habitat throughout the majority of the subject property. Ponding, saturated soils, and organic soils were observed throughout the property. Optimal forage species (i.e., asgrasses and forbes) were generally absent due to the dense canopy and shrub, and cover. Additionally, approximately 50 percent of the soil types on the property are classified as "unsuitable" while the other 50 percent are listed as "less suited".

In Florida, gopher tortoises are categorized as Threatened on the Endangered Species List and are therefore protected by state law, Chapter 68A - 27.003, FL Administrative Code. An FWC relocation permit is required prior to any disturbance to a burrow or handling of a tortoise. Please note that ground disturbances within 25 feet in any direction from the burrow is prohibited until a relocation permit has been obtained and the tortoise has been relocated to either and offsite recipient site or a suitable onsite relocation area. The findings of this survey are valid for a period of ninety days. A resurvey must be completed prior to construction activities that will occur beyond the ninety-day period.

REFERENCES

Florida Fish and Wildlife Conservation Commission Gopher Tortoise Permitting Guidelines. Revised April 2023. 133 pp.

U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey. Accessed 1/25/2024.

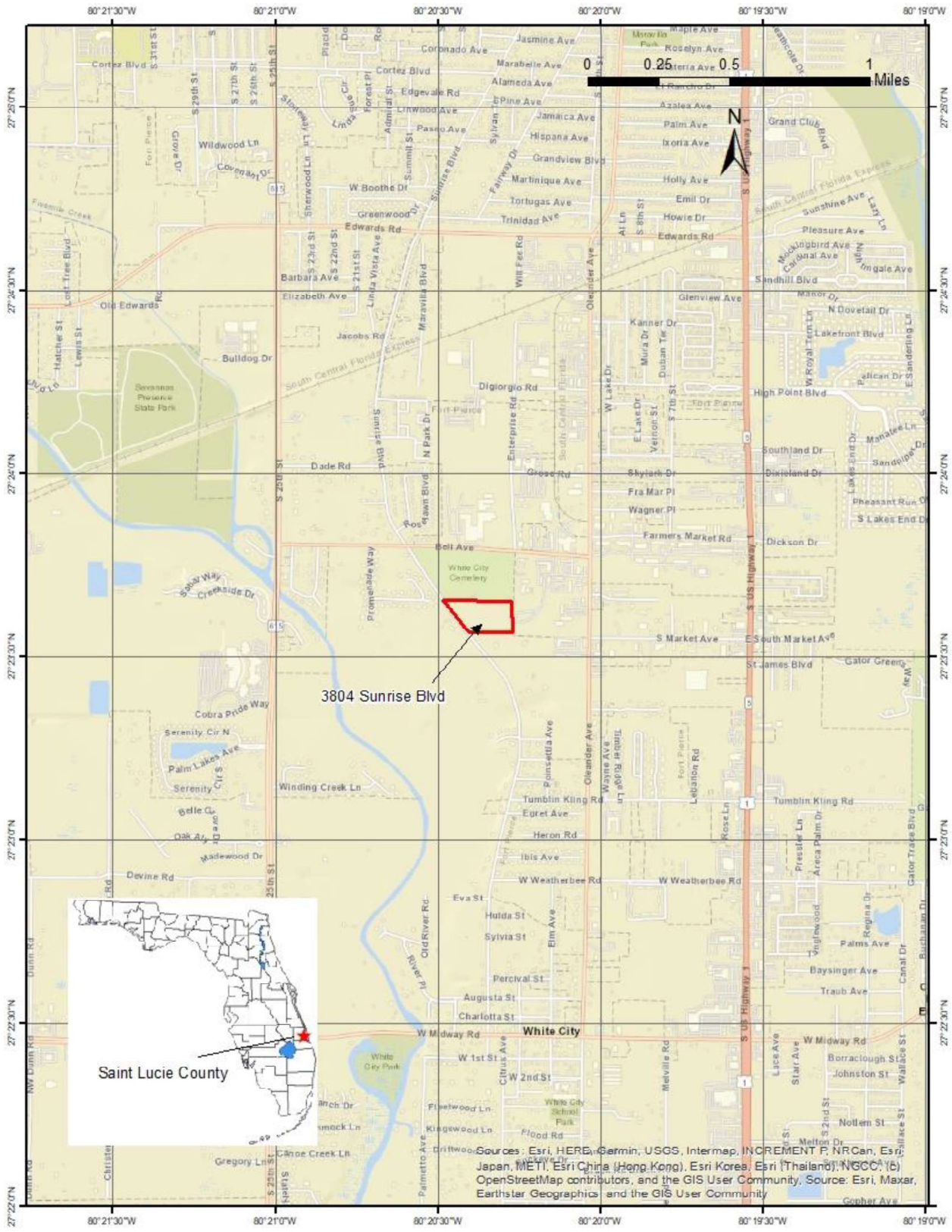

Figure 1. Project Location Map

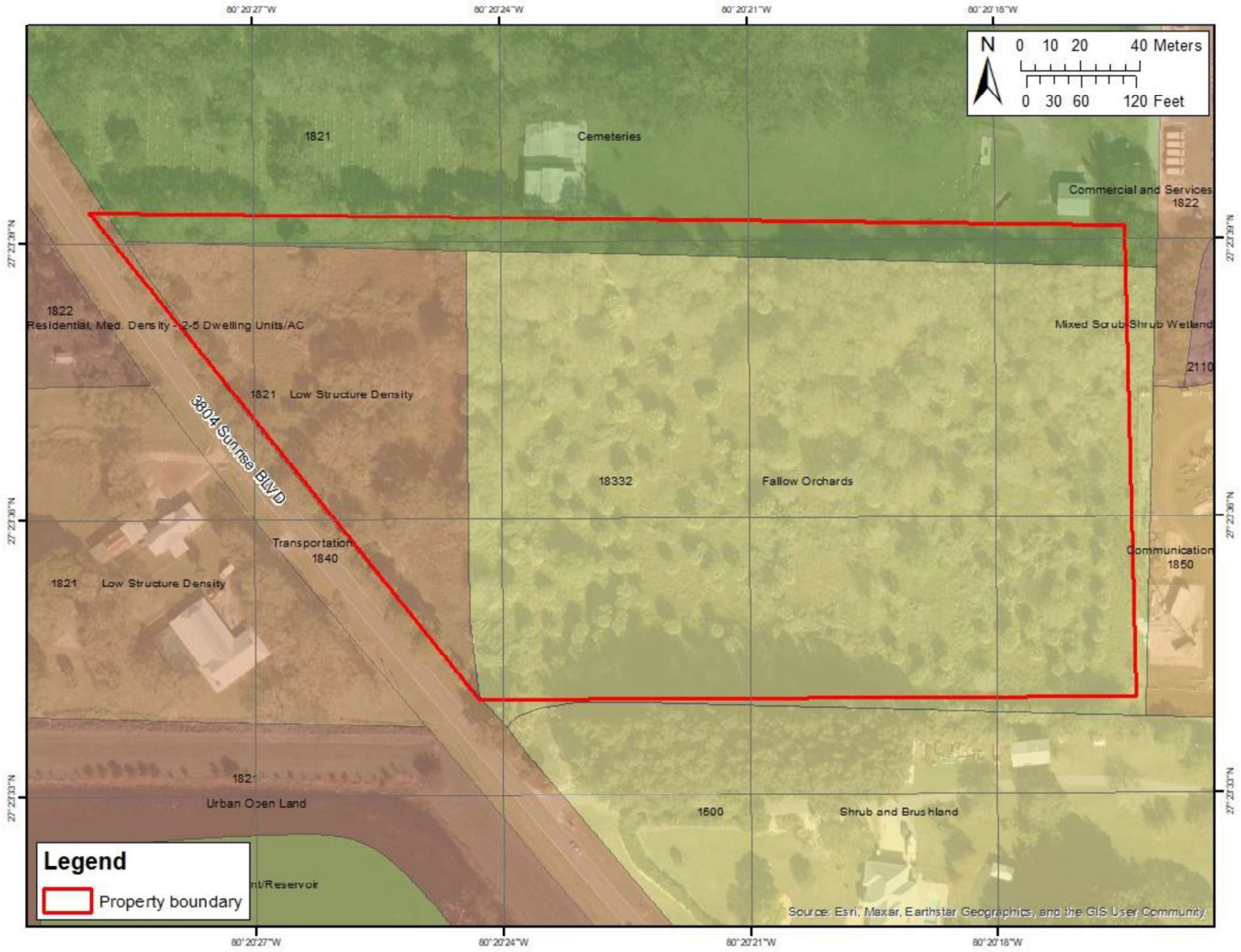

Figure 2. Cooperative Land Cover Map

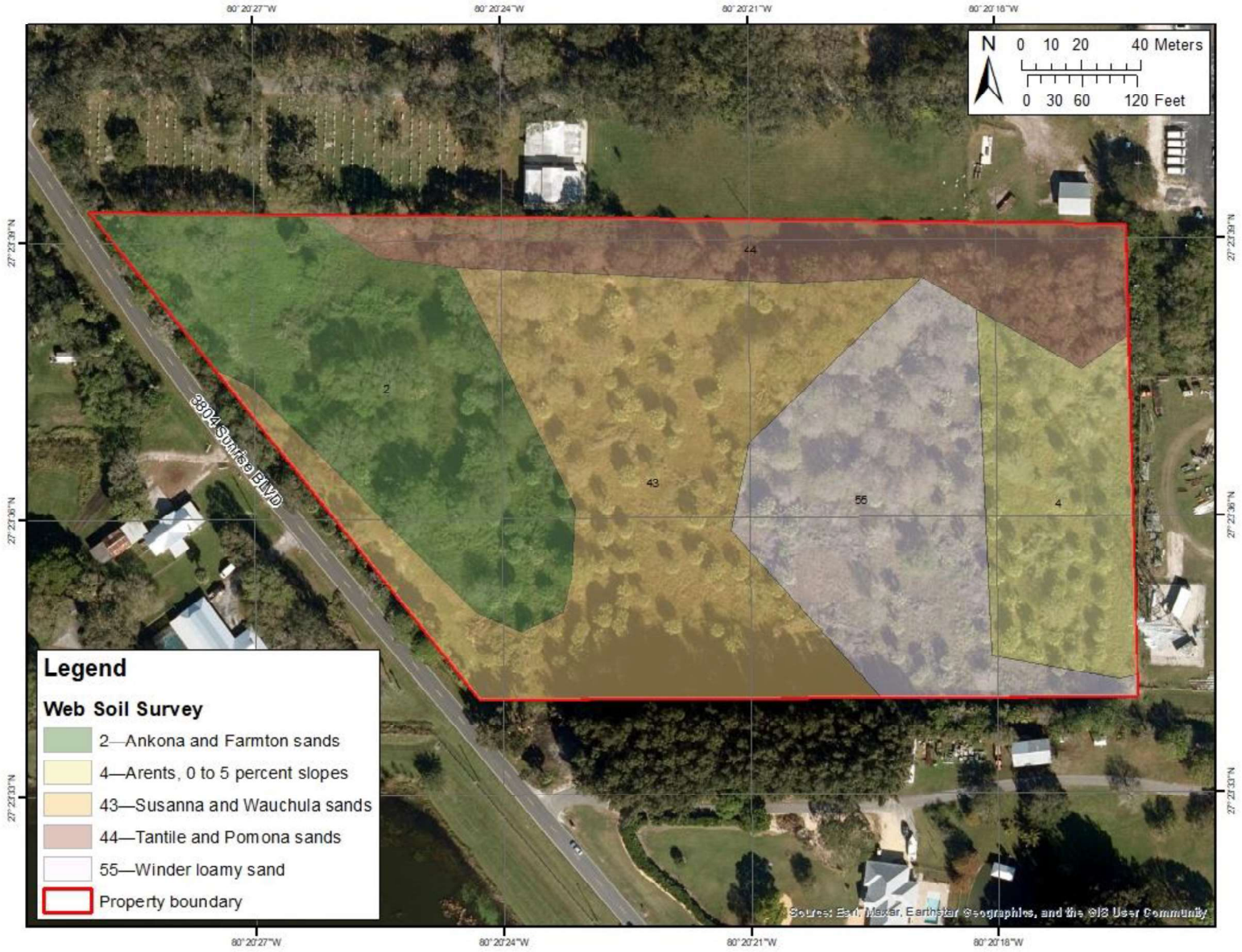

Figure 3. Soils Map

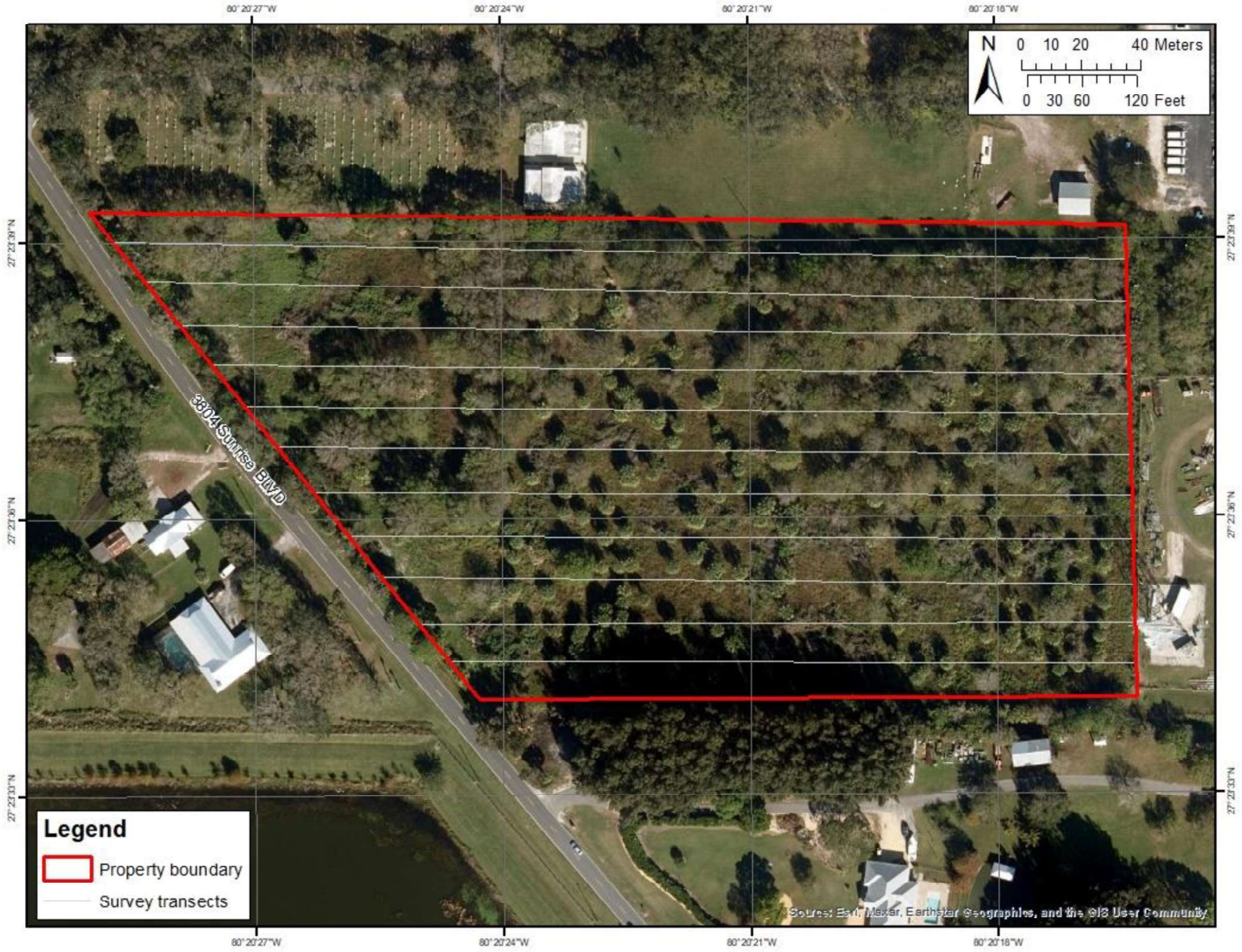

Figure 4. Gopher Tortoise Survey Map

80°20'27"W
80°20'24"W
80°20'21"W
80°20'18"W
27°23'39"N
27°23'36"N

N
0 10 20 40 Meters
0 30 60 120 Feet

3804 Sunrise BLVD

DRY DETENTION POND

DRY DETENTION POND

DRY DETENTION POND

Legend

Species

- Slash pine (Pinus elliottii)
- Laurel oak (Quercus laurifolia)
- Live oak (Quercus virginiana)
- Sabal palm (Sabal palmetto)
- Impact Trees
- Preserved Trees

Stormwater Management Report

for

Sunset Lakes

St Lucie County, Florida

June 2024

Prepared By:

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Certificate of Authorization No. 33705
Engineer's Project No. 20-1045

Blaine R. Bergstresser, P.E.
Florida Lic. No. 84598
Date: 6/7/2024

1. Purpose

The purpose of this report is to provide St Lucie County, the NSLRWCD, and the SFWMD with calculations and documentation which demonstrates that the proposed surface water management system meets the criteria of the master stormwater management system.

2. Background

The subkect parcel consists of some 11.54 acres; the development will include the entirety of the property area. Additional work outside the immediate parcel boundary may include improvements to the Sunrise Boulevard right-of-way, as determined by the county per planning approval.

The site is currently undeveloped; the majority of the site is native forest, consistent with the FLUCCS "Mixed Upland Forest" designation. No wetland areas have been observed on the parcel. According the USGS, the parcel is comprised of 40% "Susanna" sands, 20% "WInder loamy" sands, 20% "Ankona" sands, and 20% others; this mixture of group A/D, B/D, and C/D soils averages to B/D hydrologic group soil. Existing elevations ranging from about 14 NAVD along the north property line to 9.0 NAVD along the south; the existing grades appear to direct stormwater runoff from the north to the south. The southern portion of the property consists of a drainage easement with an east-west ditch that collects runoff. Ultimately, runoff resolves itself to the county right-of-way, where it crosses Sunrise Blvd. and enters the county stormwater management and preservation area know as Platt's Creek. Platt's Creek has a direct connection to the North St Lucie River and the NSLRWCD.

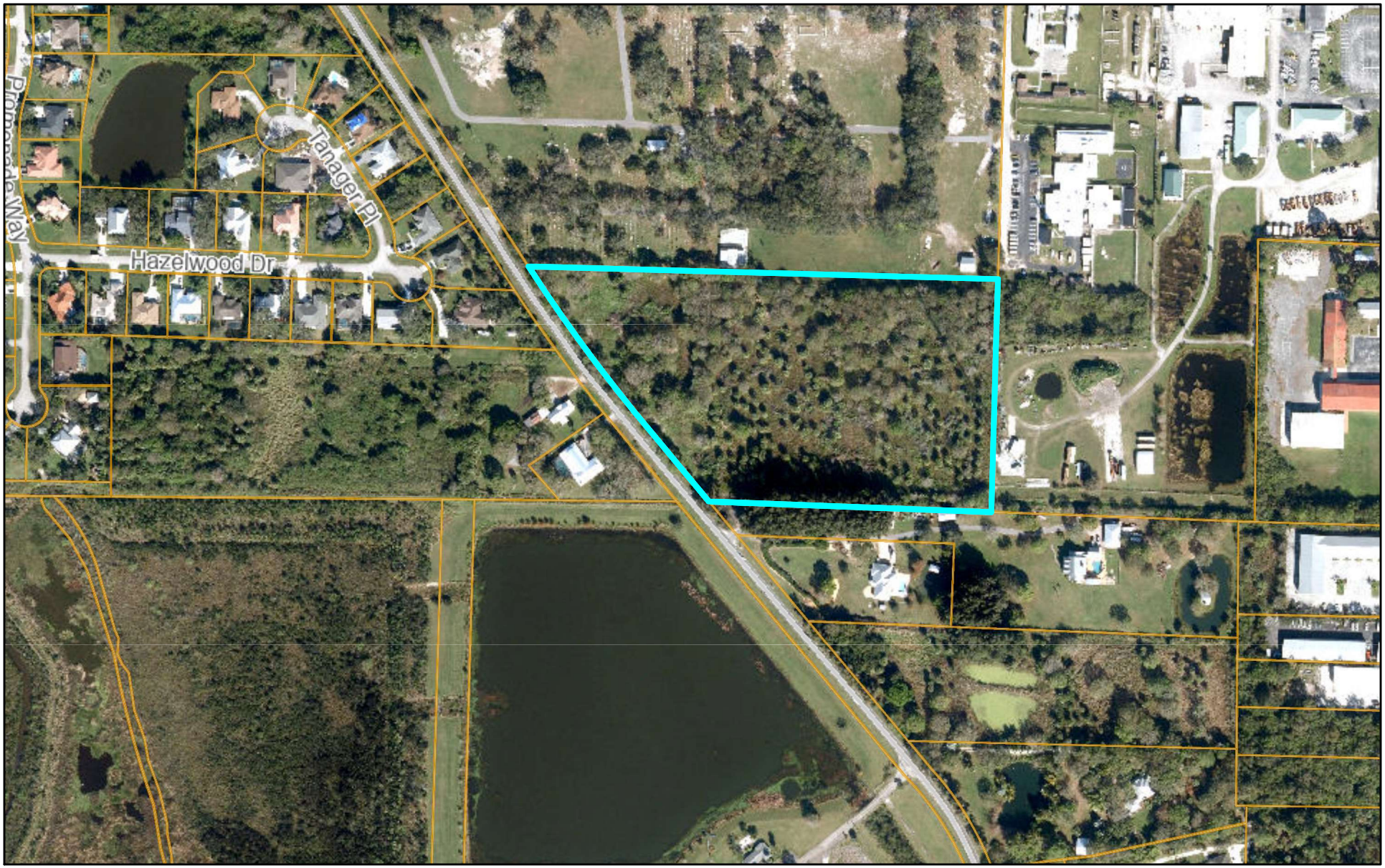
The property is bordered on the south by private residences, on the east by an FDOT storage yard (and cell tower), on the west by Surrise Boulevard, and to the north by the White City Cemetery. Stormwater runoff from offsite is controlled from entering the subject parcel. The parcel is is a FEMA "X" Flood Zone.

3. Proposed System

The proposed Surface-Water Management System (SMS) for the project includes a series of interconnected dry retention ponds capable of providing the necessary water quality treatment and nutrient abatement as required by the state and the district. These will also provide the necessary attenuation required to comply with NSLRWCD's outfall limitations. Outfall shall be controlled by a single drop structure with discharge to the existing ditch along the south of the property, where it will be conveyed to the county right-of-way, and into the Platts's Creek Conservatory.

The SMS has been designed such that the peak stage for the 10-year/24-hour event shall not cause flooding within the proposed vehicular use areas, that the peak stage for the 25-year/3-day event shall not exceed the perimeter berm for the project, and the 100-year/3-day event with Zero discharge shall not stage above the proposed Finish Floor Elevation (14.00 NAVD).

Saint Lucie County Property Appraiser



4/18/2024

1:4,514

0 187.5 375 750 ft

0 55 110 220 m

4. Drainage Calculcations

Proposed Site Data

Area	SF	AC	%
Project Area	502,793	11.54	100.00
Offsite Area	0	0.00	0.00
Drainage Area	502,793	11.54	100.00
Impervious Areas:			
Vehicle Use Areas	65,100	1.49	12.95
Structures (Roofs)	100,000	2.30	19.89
Other Pavement	70,258	1.61	13.97
Dry Pond Base	24,240	0.56	4.82
Wetlands Preserve	0	0.00	0.00
Total Impervious	259,598	5.96	51.63
Pervious Area:			
Dry Retention Bank	24,890	0.57	4.95
Pervious Areas	218,305	5.01	43.42
Total Pervious	243,195	5.58	48.37

Soil Storage

Wet Season
Water Table Elevation = 7.00 NAVD
Avg. Grade Elevation = 11.5 NAVD
Depth to Wet Season W.T. = **4.5 FT**

Soil Storage - Reference SFWMD Permit Manual Vol IV						
Depth to	**Coastal (1)**		**Flatwoods (2)**		**Depression (3)**	
W.T. (ft)	**Storage (in)**	**CN**	**Storage (in)**	**CN**	**Storage (in)**	**CN**
1.0	0.6	94	0.6	94	0.6	94
1.5	1.6	87	1.6	87	1.4	88
2.0	2.5	80	2.5	80	2.1	83
2.5	4.6	70	4.0	72	3.3	76
3.0	6.6	60	5.4	65	4.4	69
3.5	8.8	54	7.2	59	5.6	65
4.0	10.9	48	**9.0**	53	6.8	60

Soil Storage = 9.0 inches
Soil Moisture Storage, S = (0.75)(% Pervious)(Soil Storage)

S =	3.26 inches

Water Quality Calculations

1.0 Inch Over the Project Area

1.0 inch	*	1ft / 12in	*	11.54 Drainage Area (AC)	=	0.96 Treated Volume	ac-ft

OR

2.5 Inches Times the Percent Impervious

(Site Area)	11.54 Project Area (AC)	- (	0.56 Lakes (AC)*	+	0.00 Wetlands (AC)*	+	2.30 Roofs	)	=	8.69 Site Area Acres		
(Impervious Area)			8.69 Site Area (AC)	-	5.58 Pervious Area (AC)	=	3.11 Impervious Area	ac				
(% Impervious)	Impervious Area / Site Area (AC)	*	100 %			=	35.8%					
(2.5 in. * % Imp.)			2.50 inches	*	35.8% Percent Impervious	=	0.89 Inches To Be Treated	inches				
(Treated Volume)	0.89 Treated Inches	*	1ft / 12 inches	*	8.69 Site Area (AC)	=	0.65 Treated Volume	ac-ft				

Required Wet Detention	=	**0.96**	**ac-ft**
Required Dry Detention	=	**0.72**	**ac-ft**
Required Retention	=	**0.48**	**ac-ft**
IMPAIRED BASIN Required Detention (@ 150%)	=	**0.72**	**ac-ft** ⇦
Required Retention per BMPTRAINS	=	**0.00**	**ac-ft**

The "IMPAIRED BASIN" value is the required retention volume necessary to meet SFWMD Water Quality requirements. The retention volume required to achieve the necessary pollution removal per the BMPTRAINS model is 1.154 AC-ft. Refer to details on the preceding pages…

Water Quality is Provided at:	**Elev.**	**9.09 NAVD**	(Dry Retention Area)
Pollution Removal is Achieved at:	**Elev.**	**9.62 NAVD**	(Dry Retention Area)

(See Stage-Storage Section)

Set OVERFLOW at Elevation 9.75 NAVD

STAGE STORAGE CALCULATIONS - DEVELOPED BASIN

SITE DATA/GRADING TABLE

DESCRIPTION	AREA (AC)	GRADING		REMARKS	
		From	To		
EXFILTRATION	0.000	8.00	10.00	VERTICAL	
RT BANK	0.571	8.00	11.00	LINEAR	
RT BOT	0.556	8.00	11.00	VERTICAL	
ROW	2.377	11.00	12.70	LINEAR	103530
LOT SWALE	0.843	11.70	13.10	VERTICAL	36736
OPEN	0.566	11.00	11.50	LINEAR	24650
OTHER	0.000	12.00	13.00	LINEAR	
	4.91		*REC*		

STAGE-AREA/STORAGE TABLE

STAGE (FT)	AREAS								STORAGE VOLUME (ACFT)	STAGE (FT)
	EXFILTRATION	RT BANK	RT BOT	ROW	LOT SWALE	OPEN	OTHER	**TOTAL**		
8.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.556	0.000	8.000
8.25	0.00	0.05	0.56	0.00	0.00	0.00	0.00	0.604	0.145	8.250
8.50	0.00	0.10	0.56	0.00	0.00	0.00	0.00	0.652	0.302	8.500
8.75	0.00	0.14	0.56	0.00	0.00	0.00	0.00	0.699	0.471	8.750
9.00	0.00	0.19	0.56	0.00	0.00	0.00	0.00	0.747	0.652	9.000
9.25	0.00	0.24	0.56	0.00	0.00	0.00	0.00	0.795	0.844	9.250
9.50	0.00	0.29	0.56	0.00	0.00	0.00	0.00	0.842	1.049	9.500
9.75	0.00	0.33	0.56	0.00	0.00	0.00	0.00	0.890	1.265	9.750
10.00	0.00	0.38	0.56	0.00	0.00	0.00	0.00	0.937	1.494	10.000
10.25	0.00	0.43	0.56	0.00	0.00	0.00	0.00	0.985	1.734	10.250
10.50	0.00	0.48	0.56	0.00	0.00	0.00	0.00	1.033	1.986	10.500
10.75	0.00	0.52	0.56	0.00	0.00	0.00	0.00	1.080	2.250	10.750
11.00	0.00	0.57	0.56	0.00	0.00	0.00	0.00	1.128	2.527	11.000
11.25	0.00	0.57	0.56	0.35	0.00	0.28	0.00	1.760	2.888	11.250
11.50	0.00	0.57	0.56	0.70	0.00	0.57	0.00	2.393	3.407	11.500
11.75	0.00	0.57	0.56	1.05	0.84	0.57	0.00	3.586	4.154	11.750
12.00	0.00	0.57	0.56	1.40	0.84	0.57	0.00	3.935	5.094	12.000
12.25	0.00	0.57	0.56	1.75	0.84	0.57	0.00	4.285	6.122	12.250
12.50	0.00	0.57	0.56	2.10	0.84	0.57	0.00	4.634	7.236	12.500
12.75	0.00	0.57	0.56	2.38	0.84	0.57	0.00	4.914	8.430	12.750
13.00	0.00	0.57	0.56	2.38	0.84	0.57	0.00	4.914	9.658	13.000
13.25	0.00	0.57	0.56	2.38	0.84	0.57	0.00	4.914	10.887	13.250
13.50	0.00	0.57	0.56	2.38	0.84	0.57	0.00	4.914	12.115	13.500
13.75	0.00	0.57	0.56	2.38	0.84	0.57	0.00	4.914	13.344	13.750
14.00	0.00	0.57	0.56	2.38	0.84	0.57	0.00	4.914	14.572	14.000
14.25	0.00	0.57	0.56	2.38	0.84	0.57	0.00	4.914	15.801	14.250
14.50	0.00	0.57	0.56	2.38	0.84	0.57	0.00	4.914	17.029	14.500

STAGE STORAGE CALCULATIONS - POST BASIN

SITE DATA/GRADING TABLE

DESCRIPTION	AREA (ACRE)	GRADING		REMARKS
		From	To	
EXFILT	0.000	8.00	11.00	VERTICAL
DRY RT	0.556	8.00	11.00	VERTICAL
DRY RT BANK	0.571	8.00	11.00	LINEAR
	1.13			

WATER QUALITY VOLUME = 0.721 ACFT

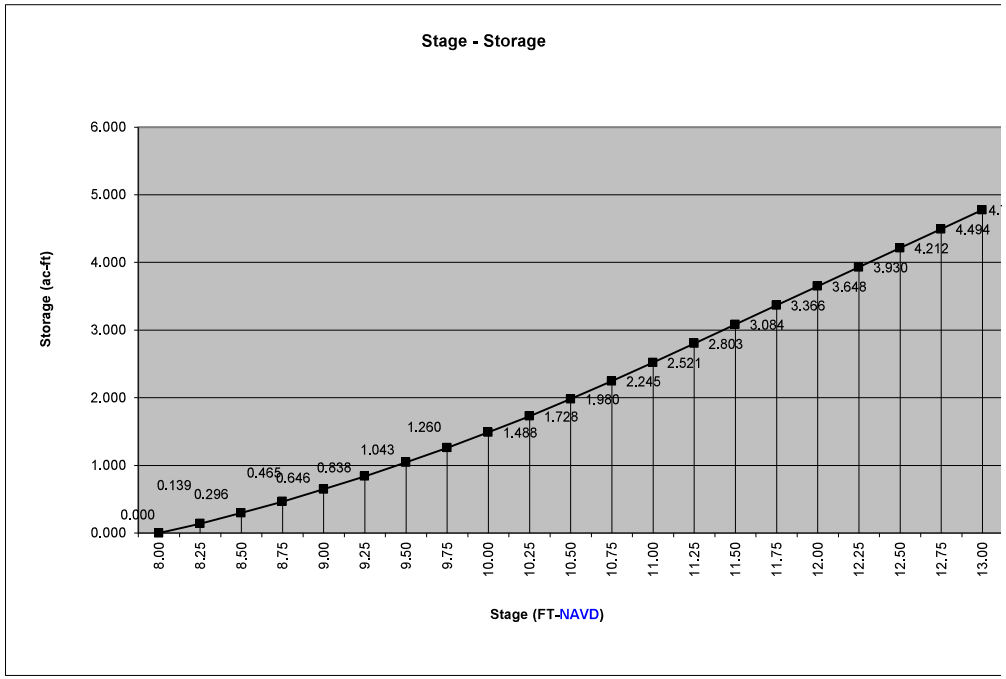
0.72 ACFT COORESPONDS TO AN ELEVATION OF **9.10** 9.00 9.25
0.65 0.84

NUTRIENT ABATEMENT VOLUME = 1.154 ACFT

1.15 ACFT COORESPONDS TO AN ELEVATION OF **9.63** 9.50 9.75
1.04 1.26

EXFILTRATION & RETENTION POND - COMBINED STORAGE

STAGE (FT)	AREAS				STORAGE VOLUME (ACFT)	STAGE (FT)
	EXFILT	DRY RT	DRY RT BANK	TOTAL		
8.00	0.00	0.56	0.00	0.56	0.000	8.00
8.25	0.00	0.56	0.05	0.60	0.139	8.25
8.50	0.00	0.56	0.10	0.65	0.296	8.50
8.75	0.00	0.56	0.14	0.70	0.465	8.75
9.00	0.00	0.56	0.19	0.75	0.646	9.00
9.25	0.00	0.56	0.24	0.79	0.838	9.25
9.50	0.00	0.56	0.29	0.84	1.043	9.50
9.75	0.00	0.56	0.33	0.89	1.260	9.75
10.00	0.00	0.56	0.38	0.94	1.488	10.00
10.25	0.00	0.56	0.43	0.99	1.728	10.25
10.50	0.00	0.56	0.48	1.03	1.980	10.50
10.75	0.00	0.56	0.52	1.08	2.245	10.75
11.00	0.00	0.56	0.57	1.13	2.521	11.00
11.25	0.00	0.56	0.57	1.13	2.803	11.25
11.50	0.00	0.56	0.57	1.13	3.084	11.50
11.75	0.00	0.56	0.57	1.13	3.366	11.75
12.00	0.00	0.56	0.57	1.13	3.648	12.00
12.25	0.00	0.56	0.57	1.13	3.930	12.25
12.50	0.00	0.56	0.57	1.13	4.212	12.50
12.75	0.00	0.56	0.57	1.13	4.494	12.75
13.00	0.00	0.56	0.57	1.13	4.776	13.00
13.25	0.00	0.56	0.57	1.13	5.058	13.25
13.50	0.00	0.56	0.57	1.13	5.340	13.50
13.75	0.00	0.56	0.57	1.13	5.622	13.75
14.00	0.00	0.56	0.57	1.13	5.904	14.00
14.25	0.00	0.56	0.57	1.13	6.186	14.25
14.50	0.00	0.56	0.57	1.13	6.468	14.50
14.75	0.00	0.56	0.57	1.13	6.750	14.75
15.00	0.00	0.56	0.57	1.13	7.032	15.00



Pre-development Discharge

We have included a PRE Development routing model to determine the rate at which runoff leaves the parcel. All events are listed in the ICPR report, compared to the POST Development outfall rates. For all events, the PRE Development rate exceeds the POST Development rate.

There may be additional restrictions on outfall rate, in accordance with NSLRWCD limited discharge requirements. At the time of this report, we are in coordination with County and District officials to determine our legal positive outfall and decide the criteria the project must conform to.

Tailwater Justification

As noted above, we are currently coordinating with County and District officials to determine the legal positive outfall for the site, and decide which authority dictates mandates on that outfall. For the purposes of the preliminary report, we have used the existing ditch to the south of the property, as runoff from the parcel has been in the past. We do not have any information at present as to a time-stage relationship within the ditch. Again, we are currently coordinating...

Post-Development Stage & Discharge

(See Output From ICPR Software)

Event	Rainfall (in.)	Max Stage (FT-NAVD)	PRE Q (cfs)	POST Q (cfs)
25yr-3 day (Berm)	10.00	10.86 < 11.00 Berm	26.21	16.63
10yr-1 day (Roads)	6.00	10.15 < 11.00 Inlet (Min. Pavement)	16.71	7.94
10yr-3 day (Discharge)	8.50	NA	22.52	16.14
100yr-3 day (FFE)	12.23	12.83 < 14.00 FFE (zero discharge)	35.35	0.00

Conclusion

As demonstrated in this drainage report, all the proposed improvements meet the development criteria for St. Lucie County, the NSLRWCD, and the SFWMD for stormwater management and flood protection. All minimum elevations are met for the proposed site improvements, and the discharge rates POST Development are less than PRE Development rates. Please refer to the included ICPR Report for complete details.

Furthermore, we have demonstrated adequate pollution abatement through the use of the dry retention systems. Per the BMPTRAINS Report, the proposed development will generate less-than-or-equal-to nitrogen and phosphorus discharge relative to Pre Development conditions. Please refer to the included BMPTRAINS Report for complete details.

Exfiltration Trench Calculations

EXFILTRATION Volume Provided =	0.000	AC-FT	Exfiltration
FS = 2.0 (per SWERP Vol.II Sect. 4.4) =	0.000	AC-FT	
Required Treatment Volume =	1.154	AC-FT	BMPTRAINS
Additional (Dry Retention) Required =	1.154	AC-FT	DryRetention

Required Minimum Length of Exfiltration Trench, L_{REQ} :

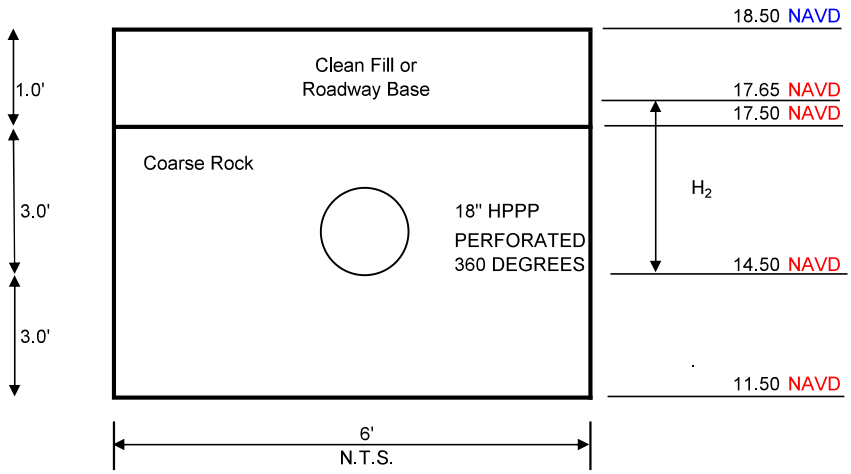
$$L_{REQ} = \frac{V_{REQ}}{K\,(H_2W + 2H_2D_U - D_U^2 + 2H_2D_S) + (1.39 * 10^{-4})\,WD_U}$$

Standard Exfiltration Trench Required Length		
V_{REQ}=	0.000	(ac-ft)
V_{REQ}=	0.000	(ac-in)
K=	1.40E-04	(cfs/ft^2) - ft head
H_2=	3.20	ft
W=	6.00	ft
D_u=	3.00	ft
D_s=	3.00	ft
L_{REQ}=	**0**	**ft**

Volume of Exfiltration Trench Provided, V_{PRO} :

$$V_{PRO} = L_{PRO} * [K\,(H_2W + 2H_2D_U - D_U^2 + 2H_2D_S) + (1.39 * 10^{-4})\,WD_U]$$

Standard Exfiltration Trench Volume Provided			
L_{PRO}=	0	ft	(From design)
K=	1.40E-04	(cfs/ft^2) - ft head	
H_2=	3.20	ft	
W=	6.00	ft	
D_u=	3.00	ft	
D_s=	3.00	ft	
V_{PRO}=	0.00	(ac-in)	
V_{PRO} =	**0.000**	**(ac-ft)**	



ROUTING MODEL CHARACTERISTICS

"PRE" DRAINAGE BASIN CHARACTERISTICS

SITE DATA (CURVE NUMBER) PRE-CONDITION BASIN

GROUND COVER (CONDITION)	SOIL GROUP	AREA (ACRES)	%	CN	AREA × CN
DRAINAGE AREA - NON DCIA		11.54			
BUILDINGS	B/D	0.00	0.0%	98	0
PAVEMENT	B/D	0.00	0.0%	98	0
OTHER IMPERVIOUS	B/D	0.00	0.0%	98	0
WETLANDS	B/D	0.00	0.0%	98	0
PERVIOUS AREA	B/D	11.54	100.0%	77	889
	TOTAL	11.54	100.0%		77

SITE DATA (AREAS BREAKDOWN)

ONSITE AREA	11.54 AC-ft	502793 sqft
OFFSITE TRIBUTARY	0.00 AC-ft	0 sqft
BASIN TOTAL	11.54 AC-ft	502793 sqft
DCIA	0.00 AC-ft	449686 sqft
TOTAL IMPERVIOUS AREA	0.00 AC-ft	
VEHICLE USE AREA =	0.00 AC-ft	0 sqft
BUILDINGS & STRUCTURES =	0.00 AC-ft	0 sqft
OTHER IMPERVIOUS =	0.00 AC-ft	0 sqft
WETLANDS =	0.00 AC-ft	0 sqft
TOTAL PERVIOUS AREA	11.54 AC-ft	
WETLAND BANK =	0.00 AC-ft	0 sqft
GREEN SPACE =	11.54 AC-ft	502793 sqft
IMPERVIOUS AREA LESS ROOFS/WETLANDS =	0.00 AC-ft	
IMPERVIOUS AREA LESS WET SWM AREAS =	0.00 AC-ft	
DRAINAGE AREA LESS WET DETENTION =	11.54 AC-ft	
PERCENTAGE IMPERVIOUS =	0.00%	

RUNOFF

FREQUENCY, YR.	10-YR, 24-HR.	10-YR, 72-HR.	25-YR, 72-HR.	100-YR, 72-HR.
RAINFALL, P (24-HOUR)	6.00 inches	9.50 inches	10.00 inches	12.00 inches
SOIL STORAGE, S	2.99 inches	2.99 inches	2.99 inches	2.99 inches
RUNOFF, Q (IN)	3.48 inches	6.67 inches	7.14 inches	9.04 inches
RUNOFF VOLUME (ACFT)	3.35 AC-ft	6.41 AC-ft	6.86 AC-ft	8.69 AC-ft

RATIONAL METHOD RUNOFF COEFFICIENT = 0.2
(ASSUMING IMPERVIOUS = 0.9 & PERVIOUS = 0.2 & EXCLUDES LAKE AREA)

TIME OF CONCENTRATION

2YR-24HR RAINFALL = 4.80 inches

Sub-Area	FLOW LEGNTH (ft)	SLOPE (ft/ft)	MANNING'S DESC.	MANNING'S n-VALUE	FLOW AREA (sf)	PW (ft)	HYDRO RADIUS (ft)	TRAVEL VELOCITY (ft/sec)	TIME (hr)
BASIN ONE									
SHEET	100	0.0085	WOODS	0.400					0.4115
SHALLOW	300	0.0085	UNPAVED					1.488	0.0560
CHANNEL	100	0.0085	POOR	0.080	12.000	32.000	0.375	0.890	0.0312
PIPED	0	0.0050	24-inch	0.013	3.142	6.283	1.000	8.105	0.0000

Time of Concentration = 0.499 hours
= 30 minutes

ROUTING MODEL CHARACTERISTICS

"POST" DRAINAGE BASIN CHARACTERISTICS

SITE DATA (CURVE NUMBER) - NON-DCIA

GROUND COVER (CONDITION)	SOIL GROUP	AREA (sqft)	AREA (acres)	%	CN	AREA × CN
NON-DCIA AREA			10.12	87.65%		
IMPERVIOUS	B/D	173258	3.98	39.3%	98	390
OTHER	B/D	0	0.00	0.0%	98	0
WET DETENTION/RETETNION	B/D	24240	0.56	5.5%	60	33
PERVIOUS	B/D	243195	5.58	55.2%	60	335
	TOTAL		10.12	100.0%		75 CURVE NUMBER
						76 W/O WET DETENTION

SITE DATA (AREAS BREAKDOWN)

TOTAL PARCEL AREA	11.54 AC-ft		502793 sqft
LESS ROW DEDICATION	0.00 AC-ft		0 sqft
PLUS OFFSITE TRIBUTARY	0.00 AC-ft		0 sqft
BASIN TOTAL	11.54 AC-ft		502793 sqft
DCIA	1.43 AC-ft		62100 sqft
		% DCIA	
TOTAL IMPERVIOUS AREA	5.96 AC-ft		
VEHICLE USE AREA =	1.36 AC-ft	100.00%	59100 sqft
STRUCTURES =	2.30 AC-ft	0.00%	100000 sqft
DRIVEWAYS =	0.14 AC-ft	50.00%	6000 sqft
SIDEWALKS & PATHS =	0.47 AC-ft	0.00%	20258 sqft
LOT IMPERVIOUS =	1.15 AC-ft	0.00%	50000 sqft
DRY RETENTION BOTTOM =	0.56 AC-ft	0.00%	24240 sqft
WET SWM AREAS =	0.00 AC-ft	0.00%	0 sqft
TOTAL PERVIOUS AREA	5.58 AC-ft		
DRY RETENTION BANKS =	0.57 AC-ft		24890 sqft
CONVEYENCE SWALES =	0.00 AC-ft		0 sqft
PRESERVE AREA =	0.00 AC-ft		0 sqft
GREEN SPACE =	5.01 AC-ft		218305 sqft
IMPERVIOUS AREA LESS ROOFS/WETLANDS =	3.11 AC-ft		
IMPERVIOUS AREA LESS WET SWM AREAS =	5.40 AC-ft		235358 sqft
DRAINAGE AREA LESS SWM AREAS =	10.99 AC-ft		
PERCENTAGE IMPERVIOUS =	51.63%		
DIRECTLY CONNECTED IMPERVIOUS AREA =	12.35%		

RUNOFF

FREQUENCY, YR.	10-YR, 24-HR.	10-YR, 72-HR.	25-YR, 72-HR.	100-YR, 72-HR.
RAINFALL, P (24-HOUR)	6.00 inches	9.50 inches	10.00 inches	12.00 inches
SOIL STORAGE, S	3.19 inches	3.19 inches	3.19 inches	3.19 inches
RUNOFF, Q (IN)	3.36 inches	6.52 inches	6.98 inches	8.87 inches
RUNOFF VOLUME (ACFT)	3.23 AC-ft	6.27 AC-ft	6.72 AC-ft	8.53 AC-ft

RATIONAL METHOD RUNOFF COEFFICIENT = 0.59

(ASSUMING IMPERVIOUS = 0.9 & PERVIOUS = 0.2 & EXCLUDES LAKE AREA)

TIME OF CONCENTRATION

2YR-24HR RAINFALL = 4.80 inches

FLOW DESIGNATION	FLOW LEGNTH (ft)	SLOPE (ft/ft)	MANNING'S DESC.	n-VALUE	FLOW AREA (sf)	PW (ft)	HYDRO RADIUS (ft)	TRAVEL VELOCITY (ft/sec)	TIME (hr)
SHEET	100	0.0050	GRASS	0.240					0.3381
SHALLOW	200	0.0050	UNPAVED					1.141	0.0487
CHANNEL	0	0.0100	GUTTER	0.080	2.000	4.000	0.500	1.171	0.0000
PIPED	250	0.0050	18-inch	0.013	1.767	4.712	0.750	6.684	0.0104

Time of Concentration = 0.397 hours

= 24 minutes

Nutrient Loading/Abatement Requirements

ALL POLLUTANT LOADING CONCENTRATIONS LISTED HEREIN ARE BASED BMPTRAINS LAND USE CLASSIFICATIONS (SEE ATTACHED), SUMMERIZED BELOW…

EXISTING CONDITIONS

LAND USE	RUNOFF	NITROGEN	PHOSPHORUS	ANNUAL C
PRE - APOPKA FORESTS	4.94 AC-ft/yr	1.250 mg/l	0.080 mg/l	0.092

TOTAL ANNUAL PHOSPHORUS = 0.49 kg/yr PRE DEVELOPMENT LOADING
TOTAL ANNUAL NITROGEN = 7.62 kg/yr PRE DEVELOPMENT LOADING

POST DEVELOPMENT CONDITIONS

POLLUTANT LOADING CONCENTRATIONS ARE BASED BMPTRAINS LAND USE CLASSIFICATIONS (SEE ATTACHED), SUMMERIZED BELOW…

LAND USE	RUNOFF	NITROGEN	PHOSPHORUS	ANNUAL C
POST - SINGLE FAMILY	9.09 AC-ft/yr	2.07 mg/l	0.33 mg/l	0.169

TOTAL ANNUAL PHOSPHORUS = 3.67 kg/yr POST DEVELOPMENT LOADING
TOTAL ANNUAL NITROGEN = 23.21 kg/yr POST DEVELOPMENT LOADING

REMOVAL REQUIREMENT

=(POST LOADING-PRE LOADING) / POST LOADING

87% PHOSPHORUS REMOVAL
67% NITROGEN REMOVAL

ACCORDING TO THE BMPTRAINS MODEL THE SYSTEM SHALL HAVE TO RETAIN 1.154 ACFT OF RUNOFF TO BALANCE DISCHARGE PRE-V-POST…

1.154 ACFT CORRESPONDS TO AN ELEVATION OF **9.63**

TO REMOVE THE REQUISTE NUTRIENTS, WE HAVE SPECIFIED DRY RETENTION PONDS.

...

Appendix A

IRCP Stormwater Routing Model

Simple Basin: PRE

Scenario:	PRE
Node:	DITCH
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	30.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	11.5400 ac
Curve Number:	77.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin: POST

Scenario:	PRELIM
Node:	STORAGE
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	24.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH323
Peaking Factor:	323.0
Area:	11.5400 ac
Curve Number:	60.0
% Impervious:	51.63
% DCIA:	12.35
% Direct:	0.00
Rainfall Name:	

Comment:

Node: DITCH

Scenario:	PRE
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	6.00 ft

Warning Stage: 9999.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	6.00
0	0	0	9999.0000	6.00

Comment:

Node: NSLRWCD

Scenario: PRELIM
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 6.00 ft
Warning Stage: 9999.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	6.00
0	0	0	9999.0000	6.00

Comment:

Node: STORAGE

Scenario: PRELIM
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 8.00 ft
Warning Stage: 11.00 ft

Stage [ft]	Area [ac]	Area [ft2]
8.00	0.5560	24219
8.25	0.6040	26310
8.50	0.6520	28401
8.75	0.6990	30448
9.00	0.7470	32539
9.25	0.7950	34630
9.50	0.8420	36678
9.75	0.8900	38768
10.00	0.9370	40816
10.25	0.9850	42907
10.50	1.0330	44997
10.75	1.0800	47045

Stage [ft]	Area [ac]	Area [ft2]
11.00	1.1280	49136
11.25	1.7600	76666
11.50	2.3930	104239
11.75	3.5860	156206
12.00	3.9350	171409
12.25	4.2850	186655
12.50	4.6340	201857
12.75	4.9140	214054
13.00	4.9140	214054
13.25	4.9140	214054
13.50	4.9140	214054
13.75	4.9140	214054
14.00	4.9140	214054
14.25	4.9140	214054
14.50	4.9140	214054

Comment:

Drop Structure Link: CS-1		Upstream Pipe		Downstream Pipe	
Scenario:	PRELIM	Invert:	6.00 ft	Invert:	6.00 ft
From Node:	STORAGE	Manning's N:	0.0110	Manning's N:	0.0110
To Node:	NSLRWCD	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	1.50 ft	Max Depth:	1.50 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	0	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	50.00 ft	Top Clip			
FHWA Code:	1	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.00	Op Table:		Op Table:	
Exit Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Horizontal	Default:	0.00 ft
Geometry Type:	Rectangular		

Invert:	9.75 ft		
Control Elevation:	9.75 ft	Op Table:	
Max Depth:	2.00 ft	Ref Node:	
Max Width:	3.00 ft	Discharge Coefficients	
Fillet:	0.00 ft	Weir Default:	3.200
		Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment:

Drop Structure Comment:

Simulation: 100YR-72HR

Scenario: PRE
Run Date/Time: 6/7/2024 8:24:30 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight 0.5 dec
IA Recovery Time: 24.0000 hr

Fact:			
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	12.23 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 10YR-24HR

Scenario: PRE
Run Date/Time: 6/7/2024 8:24:31 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	48.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight 0.5 dec
IA Recovery Time: 24.0000 hr

Fact:			
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	6.00 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 10YR-72HR

Scenario: PRE
Run Date/Time: 6/7/2024 8:24:32 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight 0.5 dec
IA Recovery Time: 24.0000 hr

Fact:			
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	8.40 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Simulation: 25YR-72HR

Scenario: PRE
Run Date/Time: 6/7/2024 8:24:33 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

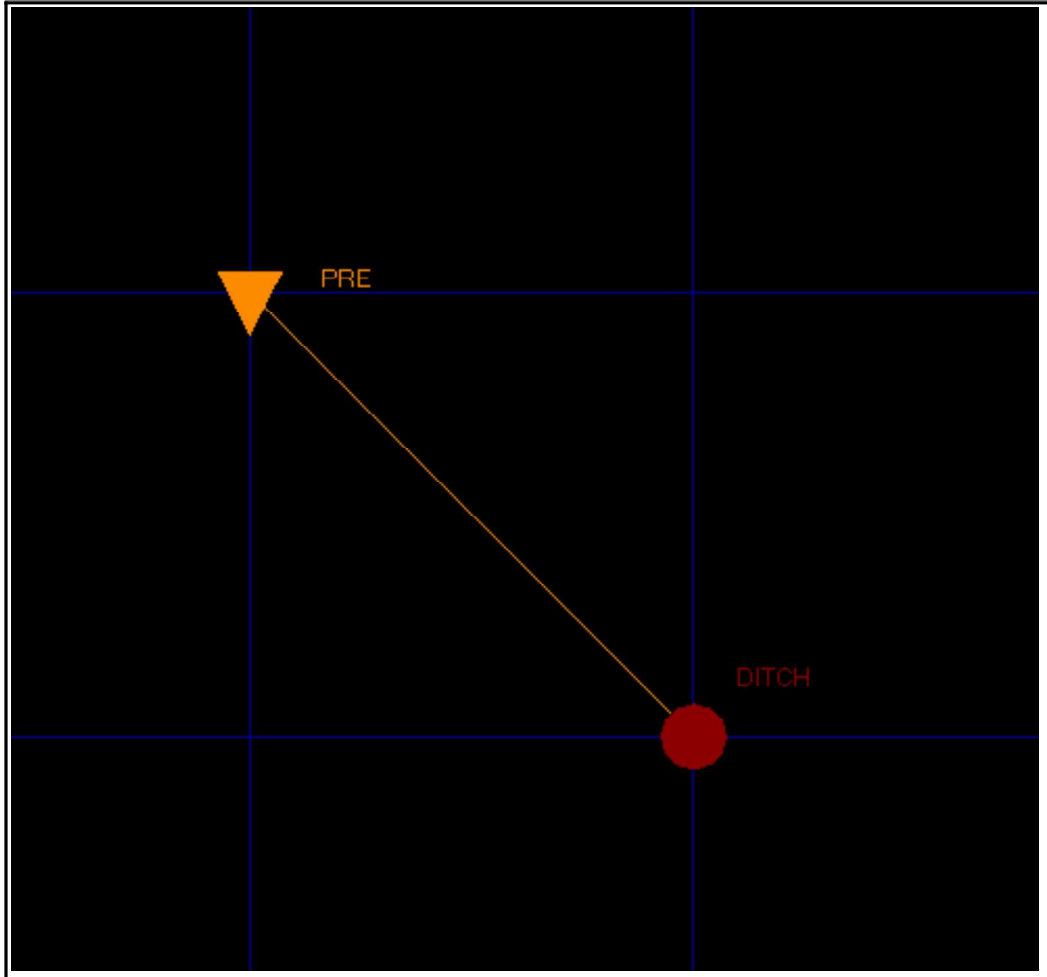
Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight 0.5 dec
IA Recovery Time: 24.0000 hr

Fact:			
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	9.50 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

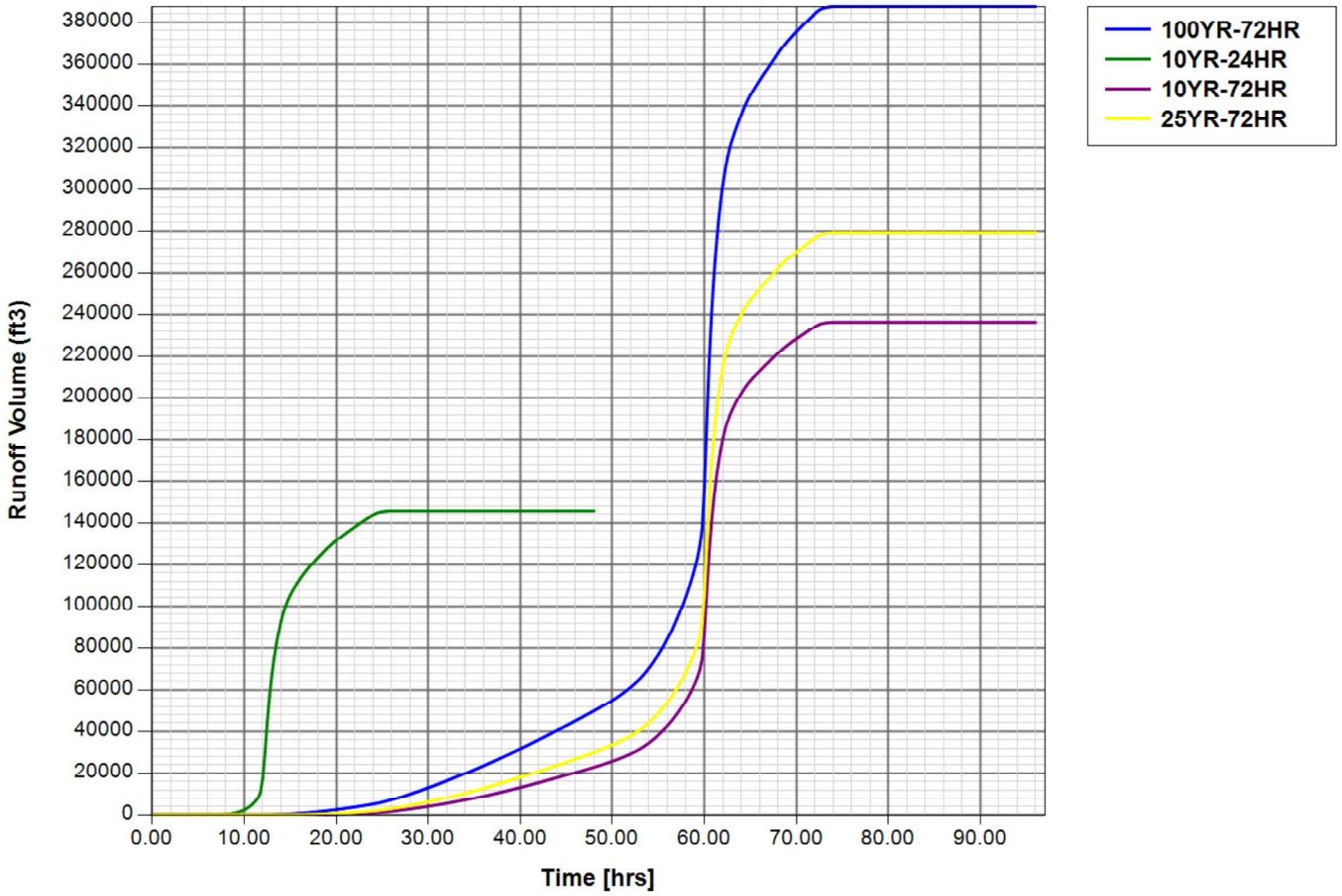
Background Image: PRE



Simple Basin Runoff Summary [PRE]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
PRE	100YR-72HR	35.36	60.2000	12.23	9.25	11.5400	77.0	0.00	0.00
PRE	10YR-24HR	16.71	12.3167	6.00	3.48	11.5400	77.0	0.00	0.00
PRE	10YR-72HR	22.52	60.2000	8.40	5.64	11.5400	77.0	0.00	0.00
PRE	25YR-72HR	26.22	60.2000	9.50	6.66	11.5400	77.0	0.00	0.00

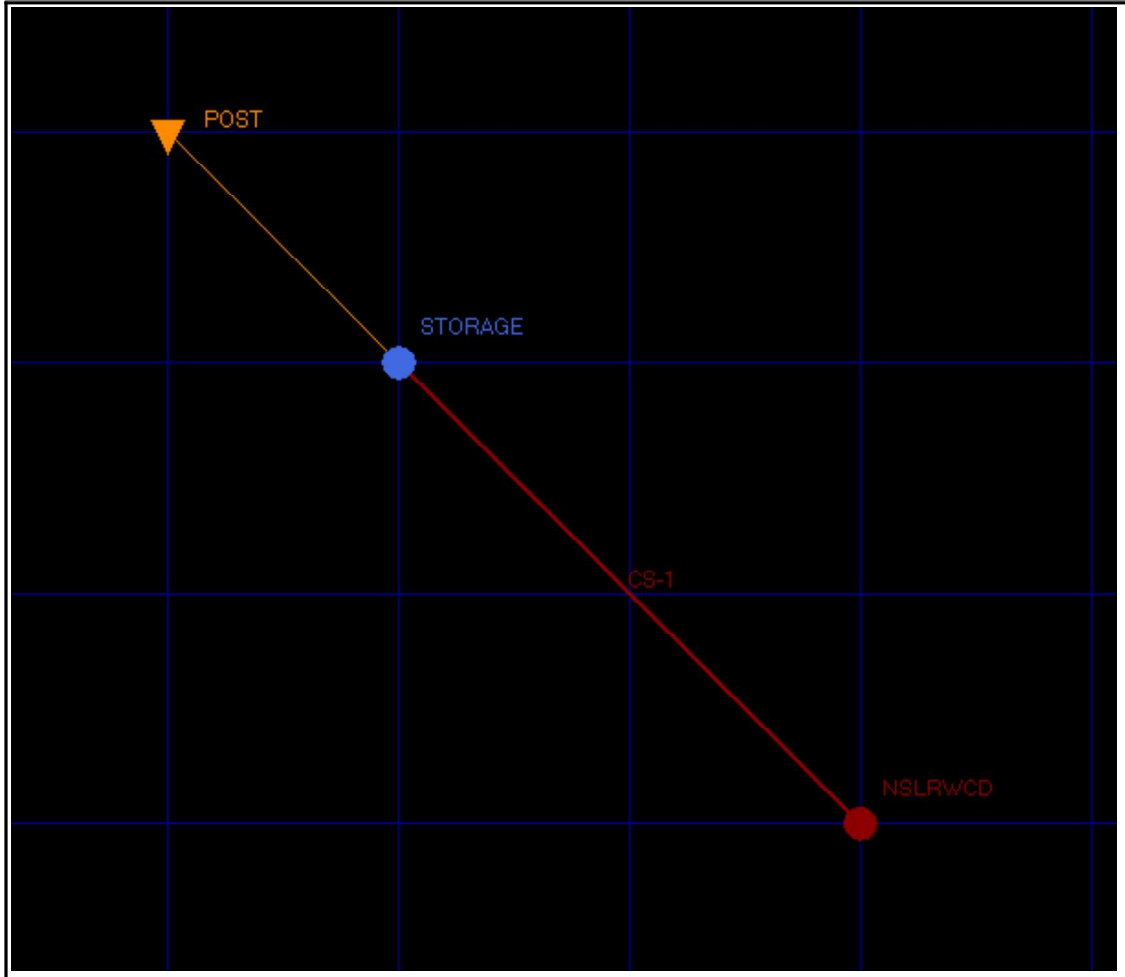
Simple Basin Runoff Volume: PRE



Node Max Conditions [PRE]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
DITCH	100YR-72HR	9999.00	6.00	0.0000	35.35	0.00	0
DITCH	10YR-24HR	9999.00	6.00	0.0000	16.71	0.00	0
DITCH	10YR-72HR	9999.00	6.00	0.0000	22.52	0.00	0
DITCH	25YR-72HR	9999.00	6.00	0.0000	26.21	0.00	0

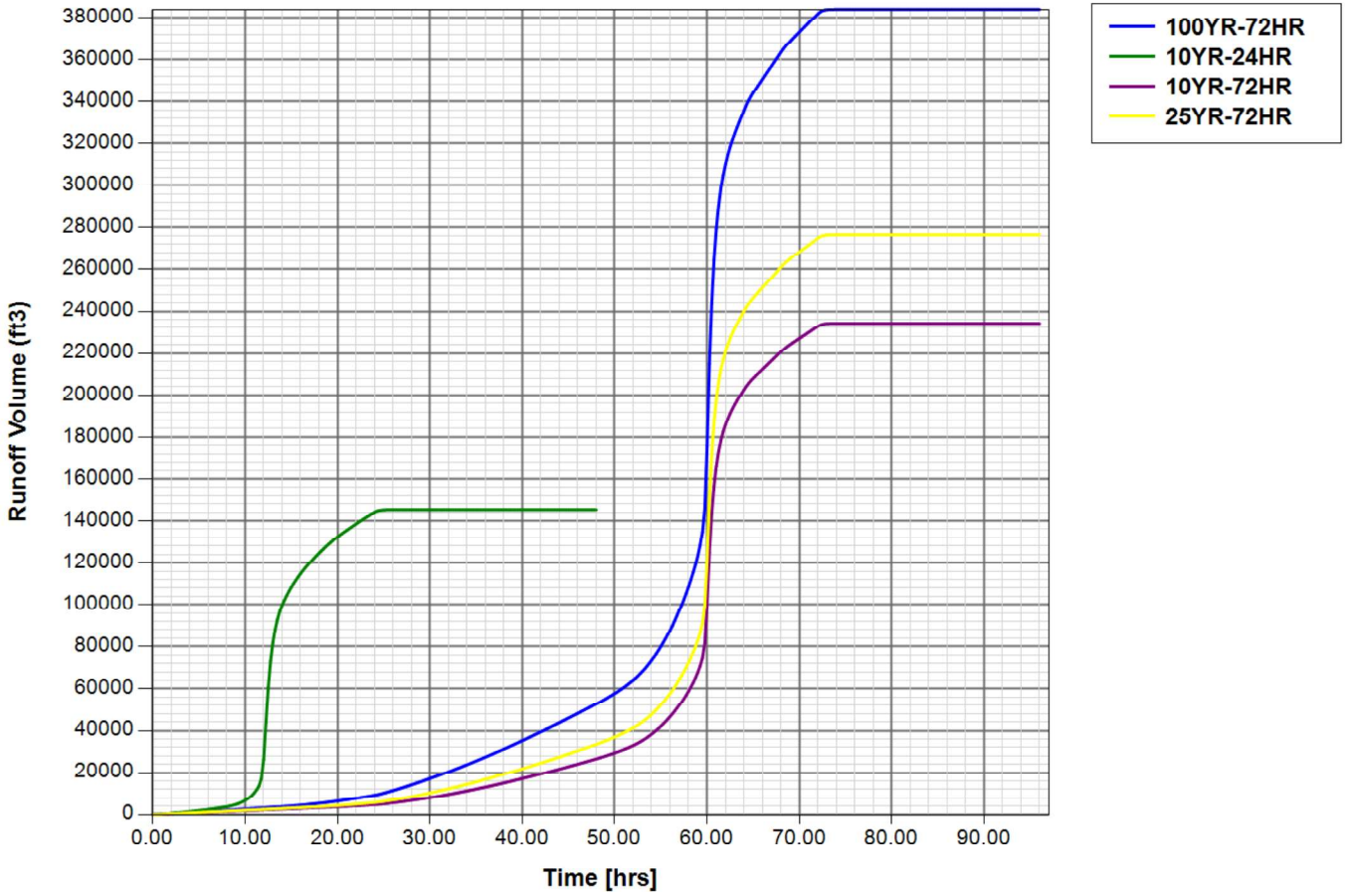
Background Image: PRELIM



Simple Basin Runoff Summary [PRELIM]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
POST	100YR-72HR	45.18	60.1167	12.23	9.16	11.5400	76.2	51.63	12.35
POST	10YR-24HR	21.06	12.2000	6.00	3.47	11.5400	76.8	51.63	12.35
POST	10YR-72HR	28.56	60.1167	8.40	5.59	11.5400	76.4	51.63	12.35
POST	25YR-72HR	33.34	60.1167	9.50	6.60	11.5400	76.3	51.63	12.35

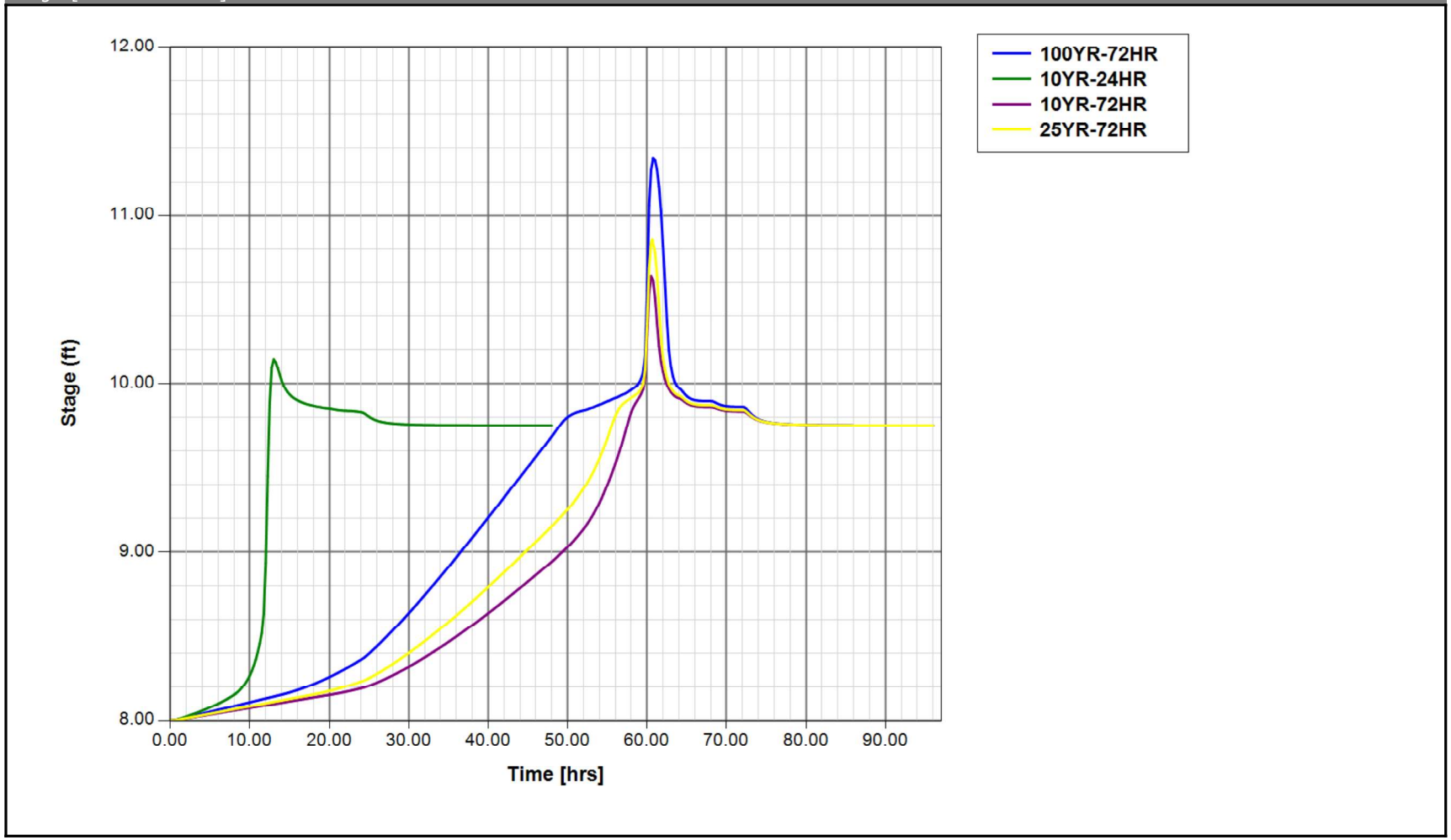
Simple Basin Runoff Volume: POST



Node Max Conditions [PRELIM]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
NSLRWCD	100YR-72HR	9999.00	6.00	0.0000	17.63	0.00	0
NSLRWCD	10YR-24HR	9999.00	6.00	0.0000	7.94	0.00	0
NSLRWCD	10YR-72HR	9999.00	6.00	0.0000	16.14	0.00	0
NSLRWCD	25YR-72HR	9999.00	6.00	0.0000	16.63	0.00	0
STORAGE	100YR-72HR	11.00	11.34	-0.0010	45.18	17.63	86573
STORAGE	10YR-24HR	11.00	10.15	0.0010	21.06	7.95	42029
STORAGE	10YR-72HR	11.00	10.64	-0.0010	28.56	16.14	46130
STORAGE	25YR-72HR	11.00	10.86	0.0010	33.34	16.63	47961

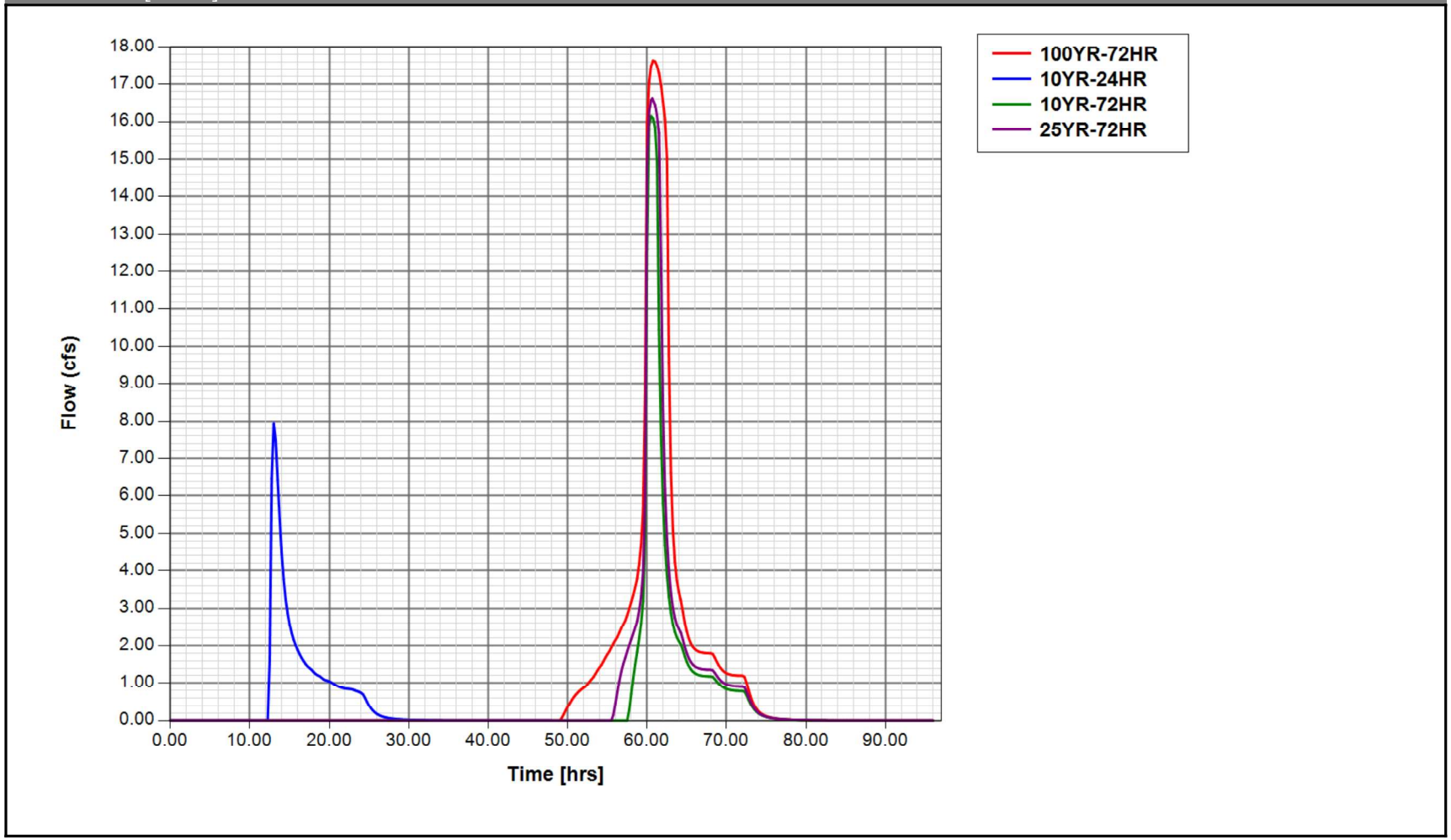
Stage [Node: STORAGE]



Link Min/Max Conditions [PRELIM]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
CS-1 - Pipe	100YR-72HR	17.63	0.00	0.05	0.00	0.00	0.00
CS-1 - Weir: 1	100YR-72HR	17.63	0.00	0.04	2.94	2.94	2.94
CS-1 - Pipe	10YR-24HR	7.94	0.00	-0.04	0.00	0.00	0.00
CS-1 - Weir: 1	10YR-24HR	7.95	0.00	0.03	2.01	2.01	2.01
CS-1 - Pipe	10YR-72HR	16.14	0.00	-0.05	0.00	0.00	0.00
CS-1 - Weir: 1	10YR-72HR	16.14	0.00	-0.04	2.69	2.69	2.69
CS-1 - Pipe	25YR-72HR	16.63	0.00	0.05	0.00	0.00	0.00
CS-1 - Weir: 1	25YR-72HR	16.63	0.00	0.04	2.77	2.77	2.77

Link Flow: CS-1 [PRELIM]



Node Max Conditions [PRE]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
DITCH	100YR-72HR	9999.00	6.00	0.0000	35.35	0.00	0
DITCH	10YR-24HR	9999.00	6.00	0.0000	16.71	0.00	0
DITCH	10YR-72HR	9999.00	6.00	0.0000	22.52	0.00	0
DITCH	25YR-72HR	9999.00	6.00	0.0000	26.21	0.00	0

PRE

Node Max Conditions [PRELIM]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
NSLRWCD	100YR-72HR	9999.00	6.00	0.0000	17.63	0.00	0
NSLRWCD	10YR-24HR	9999.00	6.00	0.0000	7.94	0.00	0
NSLRWCD	10YR-72HR	9999.00	6.00	0.0000	16.14	0.00	0
NSLRWCD	25YR-72HR	9999.00	6.00	0.0000	16.63	0.00	0

POST

Simulation: 100YR-72HR

Scenario: PRELIM
Run Date/Time: 6/7/2024 8:06:59 AM
Program Version: ICPR4 4.07.08

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft		
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~SFWMD-72
		Rainfall Amount:	12.23 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area (1D):	100 ft2
		Energy Switch (1D):	Energy

Comment:

Link: CS-1

Scenario: PRELIM
Type: Drop Structure
From Node: STORAGE
To Node: NSLRWCD
Link Count: 1
Flow Direction: None

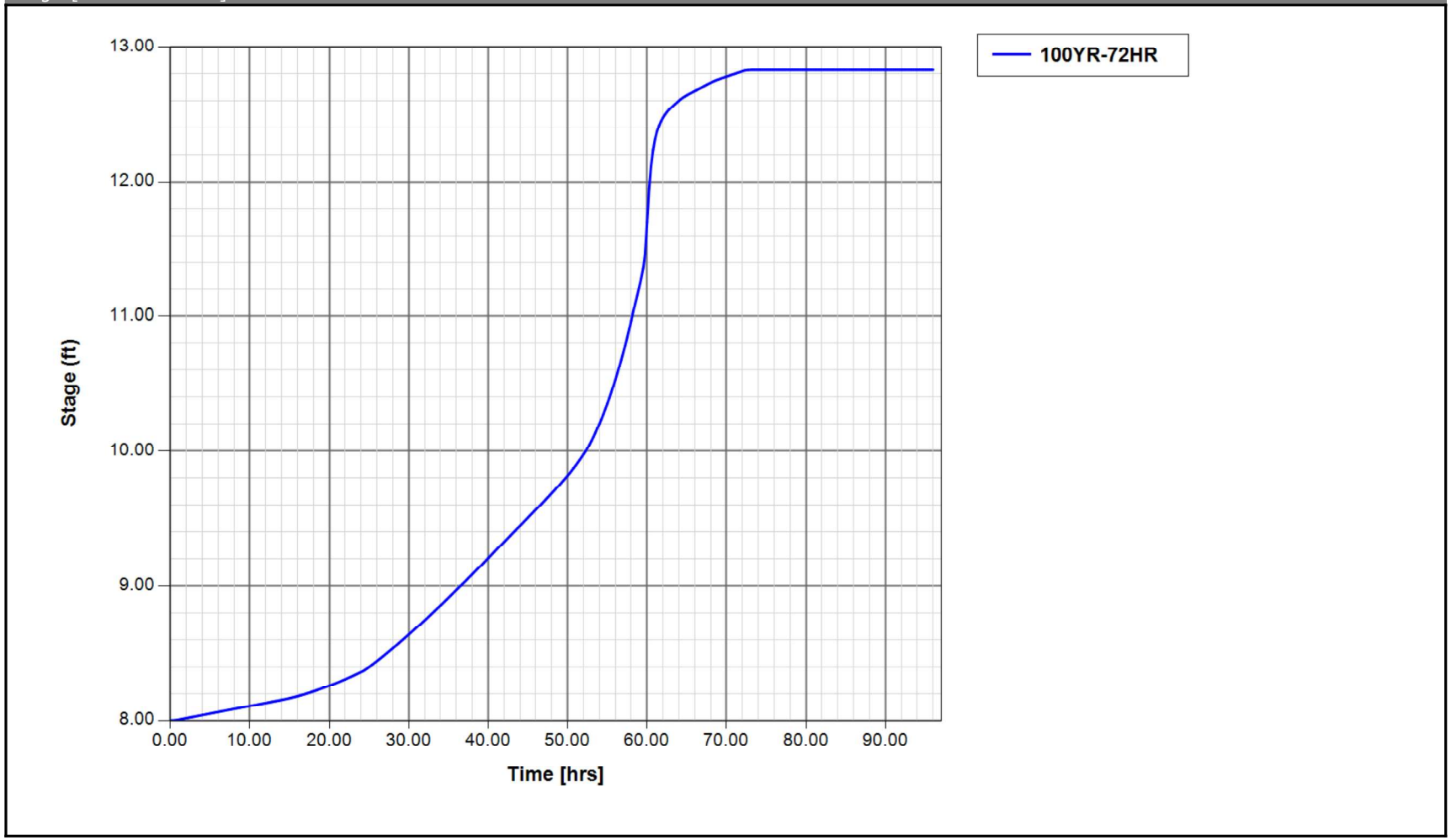
Link Min/Max Conditions [PRELIM]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
CS-1 - Pipe	100YR-72HR	0.00	0.00	0.00	0.00	0.00	0.00
CS-1 - Weir: 1	100YR-72HR	0.00	0.00	0.00	0.00	0.00	0.00

Node Max Conditions [PRELIM]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
STORAGE	100YR-72HR	11.00	12.83	0.0010	45.18	0.00	214054

Stage [Node: STORAGE]



Appendix B

IRCP Retention Recovery Model

Appendix C

USGS Soil Survey & Geotechnical Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for St. Lucie County, Florida

Sunrise Cove Subdivision

April 19, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,770 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: St. Lucie County, Florida
Survey Area Data: Version 17, Sep 6, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 18, 2022—Jan 30, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Ankona and Farmton sands	2.1	22.0%
4	Arents, 0 to 5 percent slopes	1.2	12.1%
43	Susanna and Wauchula sands	3.7	37.6%
44	Tantile and Pomona sands	0.5	5.0%
55	Winder loamy sand	2.3	23.2%
Totals for Area of Interest		**9.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

St. Lucie County, Florida

2—Ankona and Farmton sands

Map Unit Setting

National map unit symbol: 1jptv
Elevation: 0 to 200 feet
Mean annual precipitation: 49 to 58 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Ankona and similar soils: 50 percent
Farmton and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ankona

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 11 inches: sand
E - 11 to 38 inches: sand
Bh - 38 to 48 inches: loamy sand
Btg - 48 to 57 inches: sandy loam
Cg - 57 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 31 to 50 inches to ortstein
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Description of Farmton

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: sand
E - 7 to 34 inches: sand
Bh - 34 to 50 inches: sand
Btg - 50 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Minor Components

Electra

Percent of map unit: 4 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY150FL - Sandy Upland Mesic Flatwoods and Hammocks on Rises and Knolls
Other vegetative classification: Sandy soils on rises and knolls of mesic uplands (G156BC131FL)
Hydric soil rating: No

Waveland

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Lawnwood

Percent of map unit: 3 percent
Landform: Marine terraces on flatwoods
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

4—Arents, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1jptx
Elevation: 0 to 30 feet
Mean annual precipitation: 49 to 58 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Arents and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile

C1 - 0 to 10 inches: sand
C2 - 10 to 51 inches: sand

A/Eb - 51 to 80 inches: sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: F156BY041FL - Sandy Over Loamy Pine Flatwoods and Hammocks
Forage suitability group: Forage suitability group not assigned (G156BC999FL)
Other vegetative classification: Forage suitability group not assigned (G156BC999FL)
Hydric soil rating: No

Minor Components

Canaveral

Percent of map unit: 5 percent
Landform: Dunes on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F156BY060FL - High Sandy Pine and Scrub on Knolls and Ridges
Other vegetative classification: Forage suitability group not assigned (G156BC999FL)
Hydric soil rating: No

Sanitary landfill

Percent of map unit: 5 percent
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Hydric soil rating: Unranked

43—Susanna and Wauchula sands

Map Unit Setting

National map unit symbol: 1jpw5
Elevation: 0 to 30 feet
Mean annual precipitation: 49 to 58 inches

Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Susanna and similar soils: 41 percent
Wauchula and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Susanna

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: sand
E - 6 to 25 inches: sand
Bh - 25 to 29 inches: loamy sand
Btg - 29 to 48 inches: sandy loam
Cg - 48 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 12 to 31 inches to ortstein
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F156BY041FL - Sandy Over Loamy Pine Flatwoods and Hammocks
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G156BC241FL)
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G156BC241FL)
Hydric soil rating: No

Description of Wauchula

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: sand
Eg - 6 to 22 inches: sand
Bh - 22 to 34 inches: sand
Bw - 34 to 38 inches: sand
Btg - 38 to 50 inches: sandy loam
Cg - 50 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F156BY041FL - Sandy Over Loamy Pine Flatwoods and Hammocks
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G156BC241FL)
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G156BC241FL)
Hydric soil rating: No

Minor Components

Ankona

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Chobee

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave

Ecological site: R156BY021FL - Mineral Isolated Marshes and Swamps
Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G156BC345FL)
Hydric soil rating: Yes

Riviera

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F156BY041FL - Sandy Over Loamy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G156BC241FL)
Hydric soil rating: Yes

Winder, drained and bedded

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave, convex
Across-slope shape: Linear
Ecological site: F156BY030FL - Wet Hardwood Forests
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G156BC341FL)
Hydric soil rating: No

Pineda

Percent of map unit: 2 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F156BY041FL - Sandy Over Loamy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G156BC241FL)
Hydric soil rating: Yes

Pepper

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Tantile

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear

Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Wabasso

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Nettles

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

44—Tantile and Pomona sands

Map Unit Setting

National map unit symbol: 1jpw6
Elevation: 0 to 120 feet
Mean annual precipitation: 49 to 58 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Tantile and similar soils: 45 percent
Pomona and similar soils: 43 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tantile

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex

Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: sand
Eg - 5 to 26 inches: sand
Bh - 26 to 34 inches: sand
Bt - 34 to 49 inches: loamy sand
E'g - 49 to 69 inches: sand
Btg - 69 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 18 to 31 inches to ortstein
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Description of Pomona

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: sand
E - 5 to 26 inches: sand
Bh - 26 to 39 inches: sand
E' - 39 to 51 inches: sand
Btg - 51 to 72 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Minor Components

Pepper
Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Nettles
Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Ankona
Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Lawnwood
Percent of map unit: 3 percent

Landform: Marine terraces on flatwoods
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F156BY040FL - Sandy Pine Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

55—Winder loamy sand

Map Unit Setting

National map unit symbol: 1jpwk
Elevation: 0 to 30 feet
Mean annual precipitation: 49 to 58 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Winder, drained and bedded, and similar soils: 67 percent
Winder, hydric, and similar soils: 15 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Winder, Drained And Bedded

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave, convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: loamy sand
E - 6 to 12 inches: sand
Btg1 - 12 to 33 inches: sandy clay loam
Btg2 - 33 to 49 inches: sandy loam
Cg1 - 49 to 61 inches: loamy sand
Cg2 - 61 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 12 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F155XY140FL - Loamy and Clayey Hardwood Hammocks
Forage suitability group: Loamy and clayey soils on flats of hydric or mesic lowlands (G156BC341FL)
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G156BC341FL)
Hydric soil rating: No

Description of Winder, Hydric

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: loamy sand
E - 6 to 12 inches: sand
Btg1 - 12 to 33 inches: sandy clay loam
Btg2 - 33 to 49 inches: sandy loam
Cg1 - 49 to 61 inches: loamy sand
Cg2 - 61 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F155XY140FL - Loamy and Clayey Hardwood Hammocks

Forage suitability group: Loamy and clayey soils on flats of hydric or mesic lowlands (G156BC341FL)
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G156BC341FL)
Hydric soil rating: Yes

Minor Components

Floridana
Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G156BC245FL)
Hydric soil rating: Yes

Hallandale
Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F156AY360FL - Subtropical Moist Hammocks of Miami Ridge / Atlantic Coastal Strip
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Pineda
Percent of map unit: 3 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G156BC241FL)
Hydric soil rating: Yes

Riviera
Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R155XY080FL - Sandy over Loamy Freshwater Isolated Marshes and Swamps
Other vegetative classification: Sandy over loamy soils on flats of hydric or mesic lowlands (G156BC241FL)
Hydric soil rating: Yes

Winder, shell substratum, hydric

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Ecological site: F155XY140FL - Loamy and Clayey Hardwood Hammocks
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G156BC341FL)
Hydric soil rating: Yes

Wabasso, gravelly substratum

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

Wabasso

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F155XY120FL - Sandy Flatwoods and Hammocks
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Hydric soil rating: No

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Appendix D

BMPTRAINS Nutrient Abatement Report

BMPTRAINS Complete Report Ver 4.3.2

Project: SUNRISE COVE Date: 6/6/2024 4:01:55 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	SUBDIVISION
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	56.00

Pre-Condition Landuse Information

Landuse	SJRWMD Apopka Forests/Abandoned Tree Crops: TN=1.250 TP=0.080
Area (acres)	11.54
Rational Coefficient (0-1)	0.09
Non DCIA Curve Number	77.00
DCIA Percent (0-100)	0.00
Nitrogen EMC (mg/l)	1.250
Phosphorus EMC (mg/l)	0.080
Runoff Volume (ac-ft/yr)	4.944
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	7.620
Phosphorus Loading (kg/yr)	0.488

Post-Condition Landuse Information

Landuse	Single-Family: TN=2.070 TP=0.327
Area (acres)	11.54
Rational Coefficient (0-1)	0.17
Non DCIA Curve Number	75.00
DCIA Percent (0-100)	12.28
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	2.070
Phosphorus EMC (mg/l)	0.327
Runoff Volume (ac-ft/yr)	9.094
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	23.212
Phosphorus Loading (kg/yr)	3.667

Catchment Number: 1 Name: SUBDIVISION

Project: SUNRISE COVE
Date: 6/6/2024

Retention Design

Retention Depth (in)	1.200
Retention Volume (ac-ft)	1.154

Watershed Characteristics

Catchment Area (acres)	11.54
Contributing Area (acres)	11.540
Non-DCIA Curve Number	75.00
DCIA Percent	12.28
Rainfall Zone	Florida Zone 2
Rainfall (in)	56.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	67
Provided TN Treatment Efficiency (%)	87
Required TP Treatment Efficiency (%)	87
Provided TP Treatment Efficiency (%)	87

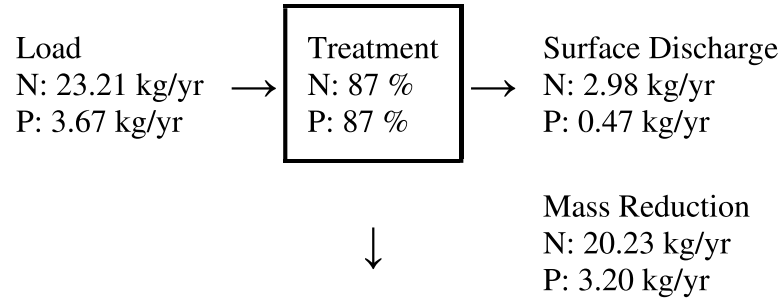
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

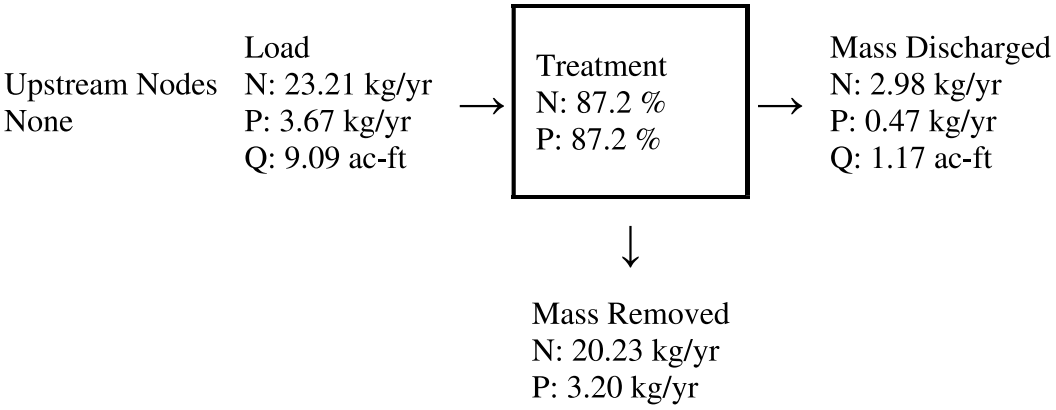
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	20.231
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	3.196
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.2

Project: SUNRISE COVE

Date:6/6/2024

Analysis Type: Net Improvement
BMP Types:
Catchment 1 - (SUBDIVISION) Retention
Based on % removal values to the nearest percent

Routing Summary
Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge		
Total N pre load	7.62 kg/yr	
Total N post load	23.21 kg/yr	
Target N load reduction	67 %	
Target N discharge load	7.62 kg/yr	
Percent N load reduction	87 %	
Provided N discharge load	2.98 kg/yr	6.57 lb/yr
Provided N load removed	20.23 kg/yr	44.61 lb/yr

Phosphorus

Surface Water Discharge		
Total P pre load	.488 kg/yr	
Total P post load	3.667 kg/yr	
Target P load reduction	87 %	
Target P discharge load	.488 kg/yr	
Percent P load reduction	87 %	
Provided P discharge load	.471 kg/yr	1.04 lb/yr
Provided P load removed	3.196 kg/yr	7.047 lb/yr

Appendix E

FEMA FIRM

National Flood Hazard Layer FIRMette

FEMA

80°20'40"W 27°23'52"N

80°20'3"W 27°23'21"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

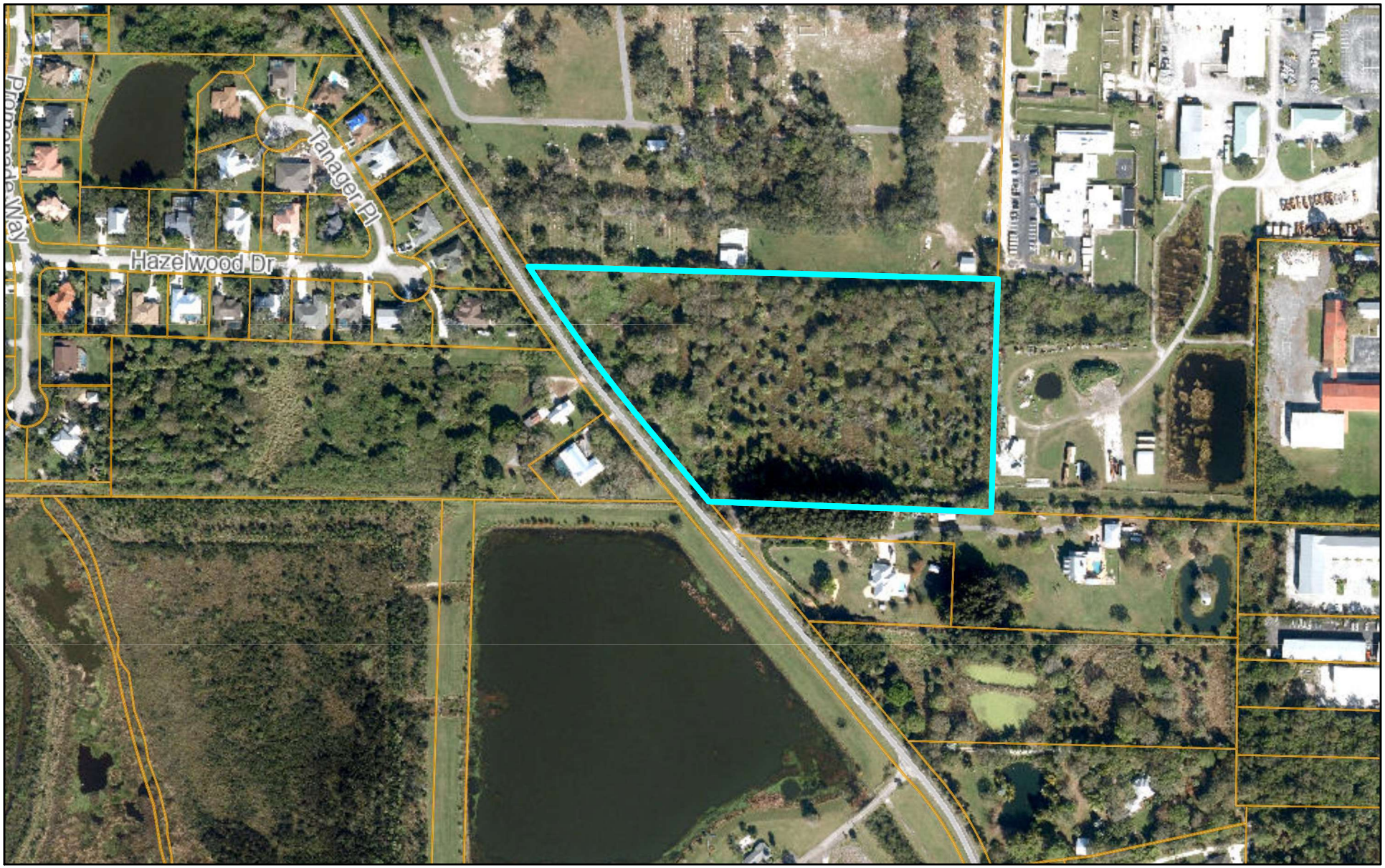
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/6/2024 at 6:46 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Saint Lucie County Property Appraiser



4/18/2024

1:4,514

0 187.5 375 750 ft

0 55 110 220 m

KMA Engineering & Surveying, LLC
3001 Industrial Avenue 2
Ft. Pierce, FL 32946
Phone: (772) 569-5505 Fax: (772) 569-1455

June 7, 2024

City of Fort Pierce
Planning Department
100 N. US Highway 1
Fort Pierce, FL 34950

Re: Sunrise Residential PD Benefits

The main Public Benefit of the project is the deceased density. Currently the project allows for 6 units per acre which would allow for sixty-nine(69) single family residents. This decreases the number of traffic trips on the existing roads. The decrease in lots size and setbacks allows for a shared amenity lot that all the residents can enjoy.

Should you have any questions or require additional information, please feel free to contact this office at your earliest convenience.

Sincerely,

Blaine Bergstresser, P.E.
Florida License No. 84598

KMA Engineering & Surveying, LLC
3001 Industrial Avenue 2
Ft. Pierce, FL 32946
Phone: (772) 569-5505 Fax: (772) 569-1455

July 5, 2024

City of Fort Pierce
Planning Department
100 N. US Highway 1
Fort Pierce, FL 34950

Re: Sunrise Lakes PD Zoning Agreement

Legal Description
The south 546 feet of the northwest ¼ of the northeast ¼, lying east of White City Road (Sunrise Boulevard) in Section 33, Township 35 South, Range 40 East, said land lying and being in St. Lucie County, Florida.

Legal Owners
DT Ventures 1, LLC

Development Timeline
January 2025 to July 2028

Phasing
Project will be constructed in one phase

Zoning Requirement	R-3	PD
Min. Lot Size	7,200 SF	4,920 SF
Min. Lot Width	65'	60'
Min. Lot Depth	100'	70' (82' proposed)
Min. Front Yard Depth	25'	15',20' for garage
Min. Side Yard Depth	15'	5'
Min. Rear Yard Depth	15'	15'
Max Lot Coverage	35%	40%
Max Building Height	35'	45'
Density	6 units per acre	3.81 units per acre

Public Facilities
Fort Pierce Water and Sewer Authority (FPUA)- Water and Sewer provider. Water and sewer available for project

St. Lucie County- Sunrise Boulevard provides access to the site

North St. Lucie River Water Control District (NSLRWCD)- Existing canal on south end of property provides drainage outfall for the project

St. Lucie County School District- White City Elementary School Forest Grove Middle School, Fort Pierce Central High School

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Public Dedications
Existing drainage easement

Required Permits
City of Ft. Pierce Building Permit
Fort Pierce Utility Authority Permit
South Florida Water Management District (SFWMD) Environmental Resource Permit
North St. Lucie Water Control District Connection Permit
St. Lucie County Site Development Permit
Florida Department of Environmental Protection Water Main Extension Permit
Florida Department of Environmental Protection Domestic Wastewater Collection/Transmission System

Required Permits
The development proposed is consistent with local government's comprehensive plan and land development regulations

Conditions, Terms and Restrictions
TBD

Conditions, Terms and Restrictions
Failure of the agreement to address a particular permit, condition, term, or restriction shall not relieve the developer of the necessity of complying with the law governing said permitting requirements, conditions, term, or restriction.

Should you have any questions or require additional information, please feel free to contact this office at your earliest convenience.

Sincerely,

Blaine Bergstresser, P.E.
Florida License No. 84598

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Ft. Pierce, FL 32946
Phone: (772) 569-5505 Fax: (772) 569-1455

June 7, 2024

City of Fort Pierce
Planning Department
100 N. US Highway 1
Fort Pierce, FL 34950

Re: Sunrise Residential Project Description

We are proposing forty-four (44) single-family residences on 11.54 acres at 3804 Sunrise Boulevard in Fort Pierce, FL. Currently the property is zoned R-3 with a future land use of RM. The site was recently annexed into the City of Ft. Pierce and has an existing Zoning of RS-3 and an existing Future Land Use of RM. The site is bordered by single family RS-3 zoning on the south and west. To the north is a cemetery and the east is a Florida Department of Transportation building, both with industrial zoning. We are proposing a rezoning of Planned Development (PD) with 3.81 units per acre. Below is a table comparing the requested changes from the R-3 zoning

Zoning Requirement	**R-3**	**PD**
Min. Lot Size	7,200 SF	4,920 SF
Min. Lot Width	65’	60’
Min. Lot Depth	100’	70’ (82’ proposed)
Min. Front Yard Depth	25’	15’,20’ for garage
Min. Side Yard Depth	15’	5’
Min. Rear Yard Depth	15’	15’
Max Lot Coverage	35%	40%
Max Building Height	35’	45’
Density	6 units per acre	3.81 units per acre

We are also requesting a reduction of the minimum right-of-way width for the interior roadway from 60’ to 50’. This is common in other municipalities and a proposed section can be found in the civil plans

The site will consist of one ungated entrance in the northwest corner of the site off of Sunrise Boulevard. The 44 residences will be connected by one looped road with an interior sidewalk.

Drainage will be conveyed through interconnected inlets and pipes to three (3) separate dry ponds. The dry ponds will be planted with a variety of wax myrtles and sand cordgrass instead of typically bahia sod. This will add to the aesthetics of the project as well as nutrient removal from the stormwater.

A 10’ landscape buffer will be provided along the perimeter of the site. The south property line contains a 60’ drainage easement. Vegetation in that area will remain untouched but a landscape buffer will occur on the south portion of the easement.

The project will contain a looped water main and a private lift station for the utilities. Dry utilities will be provided in the 10’ utility easement shown on the front of the lots

KMA Engineering & Surveying, LLC
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Ft. Pierce, FL 32946
Phone: (772) 569-5505 Fax: (772) 569-1455

A bus stop will be provided onsite and a Routed Bus Plan has been included in the civil drawings. An open space area between lot 35 and lot 50 will be utilized for an amenity center. Future plans will be provided for the City's review.

No phasing is proposed for this project as all infrastructure will be built in one phase. It is possible building permits will be pulled in phases but not until after all infrastructure is complete.

There are no previously approved site plans for this site

The main Public Benefit of the project is the deceased density. Currently the project allows for 6 units per acre which would allow for sixty-nine(69) single family residents. This decreases the number of traffic trips on the existing roads. The decrease in lots size and setbacks allows for a shared amenity lot that all the residents can enjoy.

Should you have any questions or require additional information, please feel free to contact this office at your earliest convenience.

Sincerely,

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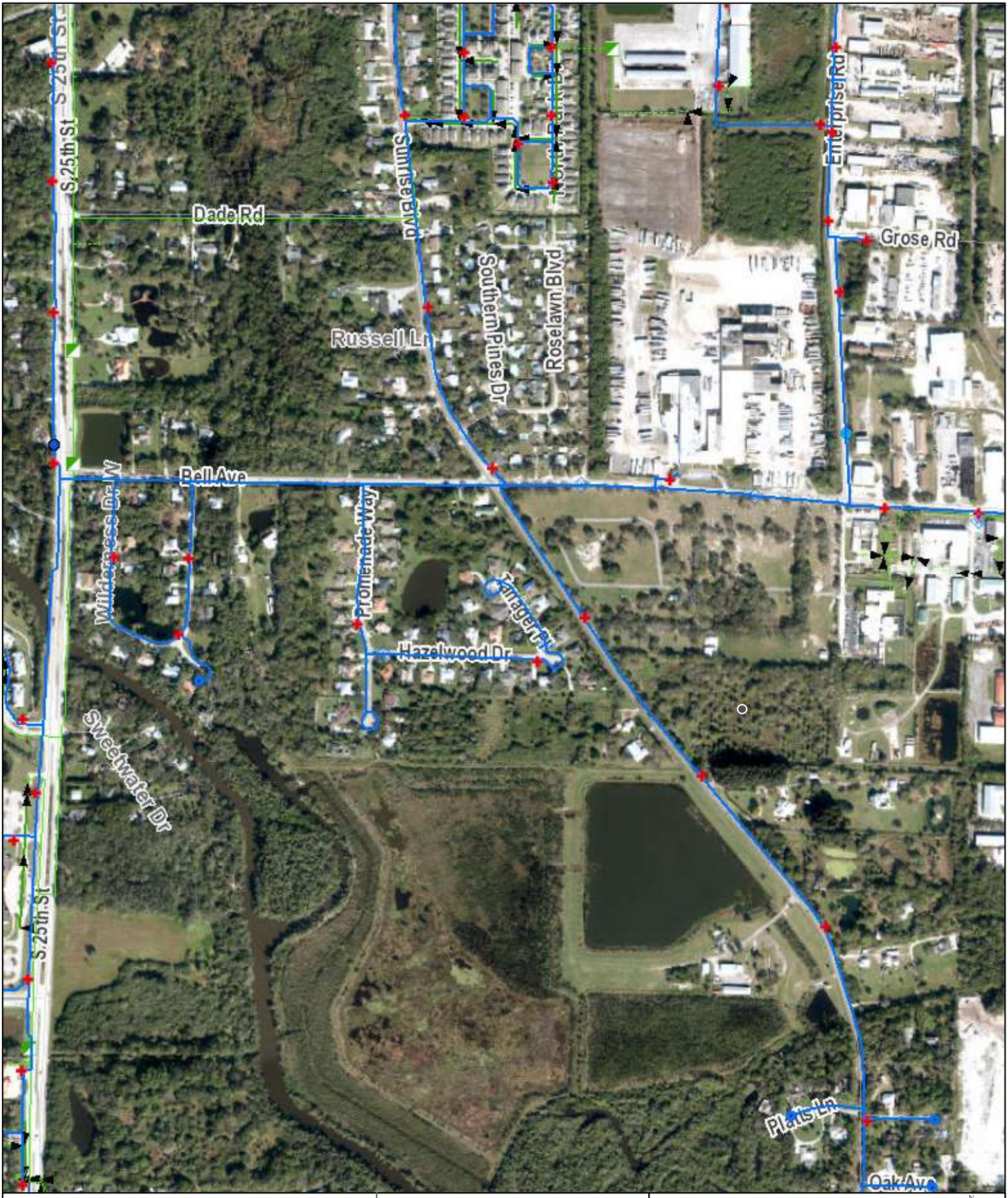


Legend

- Electric Primary Wire
- Transmission Wire
- Gas Main
- Fiber Optic Cable
- Potable Water Main
- Raw Water Main
- Wastewater Force Main
- WW Gravity Main
- Pole
- Fuse

Transformers

- Overhead
- Pad Mount

Valves

- Gas
- Water
- Raw Water
- Waste Water
- Fire Hydrant
- Well
- PS Lift Station

Disclaimer:

The data contained herein is offered "as is", with no claim or warranty as to its accuracy or completeness. The data is for reference only and should not be considered to be of survey precision. Due to formatting restrictions, the information provided in the map may not be represented in the legend.

811 Know what's below. Call before you dig.

Date: 3/25/2024

FPUA COMMUNITY PROUD

N

1 inch = 700 feet

FPUA Web Map

Created By:
Name

(772) 466-1600
FAX (772) 461-1938

KMA
ENGINEERING & SURVEYING

Sunrise Lakes

STORMWATER MAINTENANCE PLAN

AND SEDIMENTATION AND EROSION CONTROL PLAN

I. Project Description

The project consists of fifty (50) single family lots and an amenity center,. The project is served by a stormwater management system that provides stormwater attenuation and water quality pretreatment in accordance with City of Fort Pierce requirements.

The system contains the following features:

Storm Sewer

Stormwater Inlets

Dry Detention Ponds

II. Sedimentation and Erosion Control Measures

A silt fence shall be constructed around the perimeter of the construction areas before construction commences, as shown on the plans. Refer to the Florida Sediment and Erosion Control Manual, latest edition for requirements. Sedimentation and erosion control measures shall be monitored continuously and maintained as necessary.

During periods of dry weather and windy conditions, wind erosion can be a problem in areas that have not been stabilized. When these conditions occur, the soil shall be wetted down as necessary.

III. Pre-construction Meeting and Construction Monitoring Requirements

A pre-construction meeting will be held between the contractor, County inspector and KMA Engineering & Surveying representatives prior to release of the plans. Construction monitoring requirements will be reviewed at the meeting and are specified on the Paving and Drainage Plan (Construction Field Observations)

IV. Release into Service

Prior to release into service, the stormwater system shall be certified by the engineer-of-record, including the submittal of as-built drawings. The following items, at a minimum, will be required:

1. Remove any debris and vegetation in the storm sewer system.
2. After clean-up and stabilization of grassed area, all sedimentation and erosion control temporary measures, such as filter cloth at inlet grates, silt fences, turbidity barriers, hay bales, etc., shall be removed.
3. Removal of all nuisance exotic vegetation.
4. Permanent stabilization of all lake banks, swales, etc.

V. Operation & Maintenance

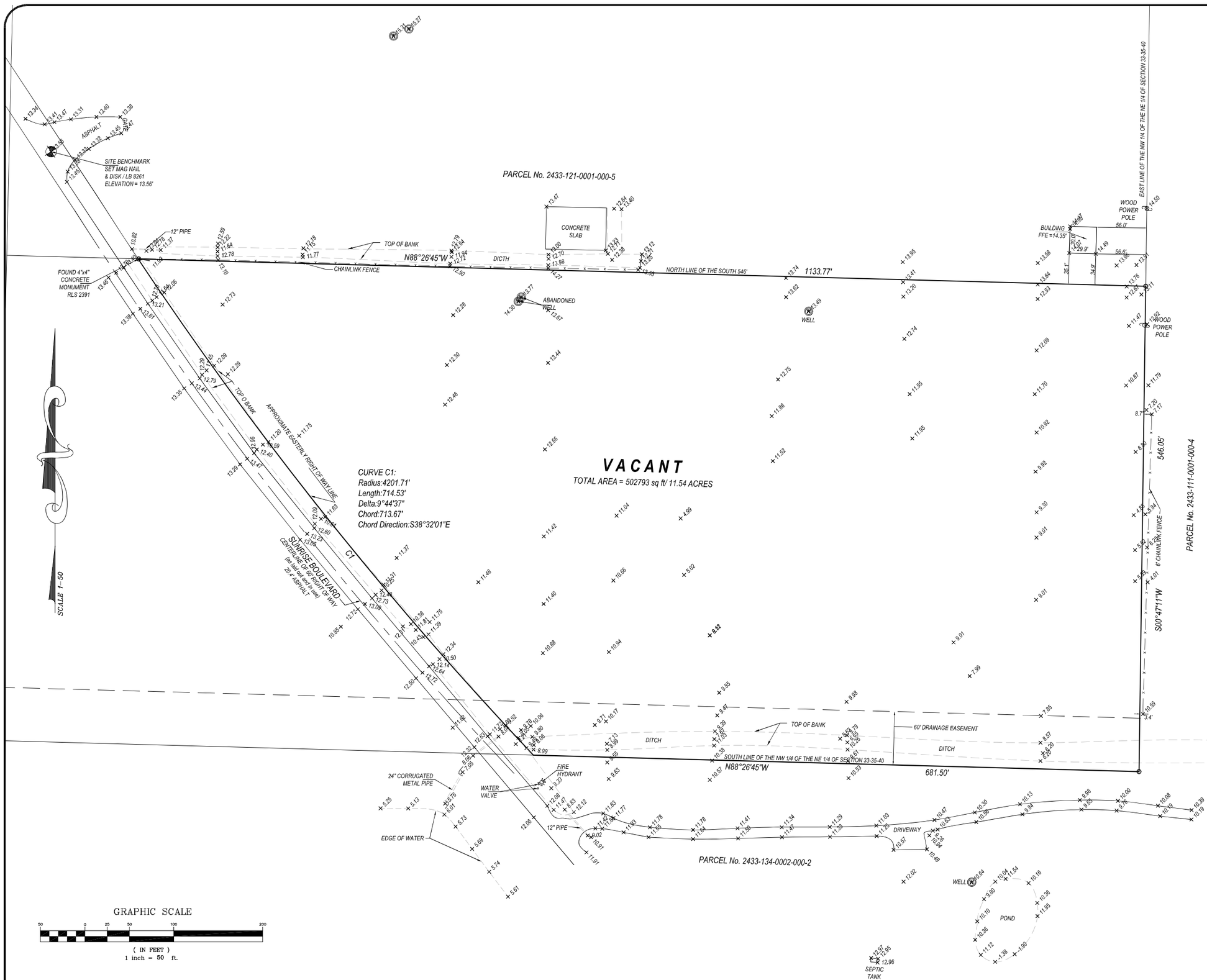
Sunrise Lakes Homeowners Assocaition shall be responsible for the implementation of the Stormwater Maintenance Plan including all catch basins, pipes, and retention pond areas. Maintenance shall occur on a regular basis, monthly or quarterly, and after any severe rainfall events, and shall consist of the following:

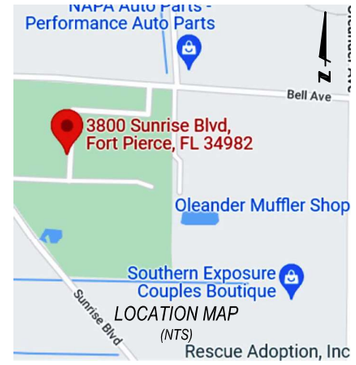
1. All silt, debris, and vegetation shall be removed from all catch basins and pipes.

2. Any deterioration to the structures shall be repaired promptly.
3. No chemicals, oils, greases, or similar wastes shall come in to contact with the stormwater management system. This could result in clogging of the soil in the retention pond areas.
4. No grass clippings shall be disposed of in the system. This will cause clogging of the system and will create ideal conditions for breeding mosquitoes.
5. Inspect the discharge pipes at least once per year to ensure the system is functioning properly.
6. Silt in culverts and inlets shall be removed at least every six months and no less than once a year in order to prevent clogging of the storm pipe and inlets.
7. All nuisance exotic vegetation shall be removed on a monthly basis. All re-growth shall be removed effectively.
8. No fertilizer is to be applied to the grass within the retention area.
9. Lake banks shall be inspected for erosion or shoals at least every six months and no less than one year. Should erosion or shoals appear, they shall be corrected immediately to prevent further issues with the system.
10. Operation and maintenance of all operable control structures.

Blaine Bergstresser,
P.E.

FL Lic. No.84598





PROPERTY ADDRESS:
3804 SUNRISE BLVD
FORT PIERCE, FLORIDA 34982

FLOOD ZONE: *"X"*
PANEL NO: *12111C 0189K*
DATE: *FEBRUARY 19, 2020*

CERTIFIED TO:
DT VENTURES 1 LLC, A FLORIDA LLC.
OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
RAHMAN LE PLLC
ATTORNEYS' TITLE FUND SERVICES LLC

LEGAL DESCRIPTION:
THE SOUTH 546 FEET OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4, LYING EAST OF WHITE CITY ROAD (SUNRISE BOULEVARD) IN SECTION 33, TOWNSHIP 35 SOUTH, RANGE 40 EAST, SAID LAND LYING AND BEING IN ST. LUCIE COUNTY, FLORIDA.

SURVEYORS' NOTES:
1. I HEREBY CERTIFY THIS SURVEY MEETS STANDARDS OF PRACTICE SET FORTH IN RULE 5J-17.050-.052, OF THE FLORIDA ADMINISTRATIVE CODE, ADOPTED BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS, PURSUANT TO CHAPTER 472.027 OF THE FLORIDA STATUTES.
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3. UNDERGROUND OR OBSCURED IMPROVEMENTS WERE NOT LOCATED.
4. DIMENSIONS ARE RECORD AND FIELD UNLESS OTHERWISE NOTED.
5. STATED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
6. THIS FIRM'S CERTIFICATE OF AUTHORIZATION NUMBER IS LB 8261.
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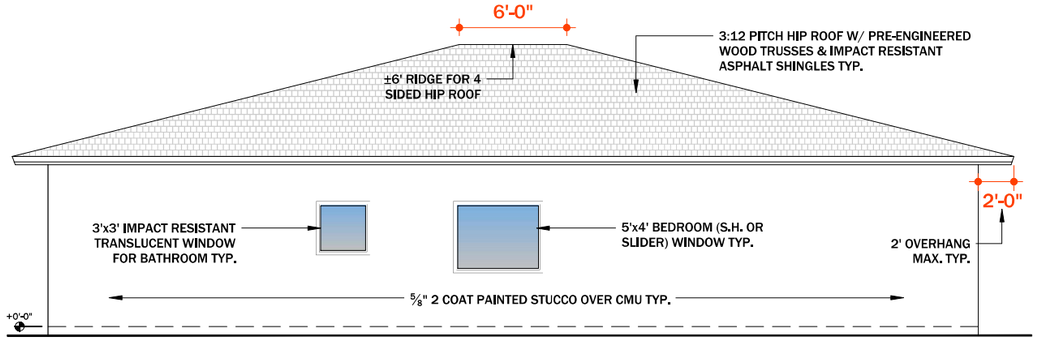
10. ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988. (NAVD'88)
11. NO FIELD VISIT WAS COMPLETED AT THE TIME OF THIS RECERTIFICATION

JOB#	PURPOSE	DB	DRAFT	DATE
22-0387	RECERTIFY BOUNDARY SURVEY	FIELD	AK CD	12-19-23 06-25-22

SIGNED
DOUG WALKER - CERTIFIED SURVEYOR AND MAPPER
PROFESSIONAL LAND SURVEYOR
FLORIDA CERTIFICATE No. 7211

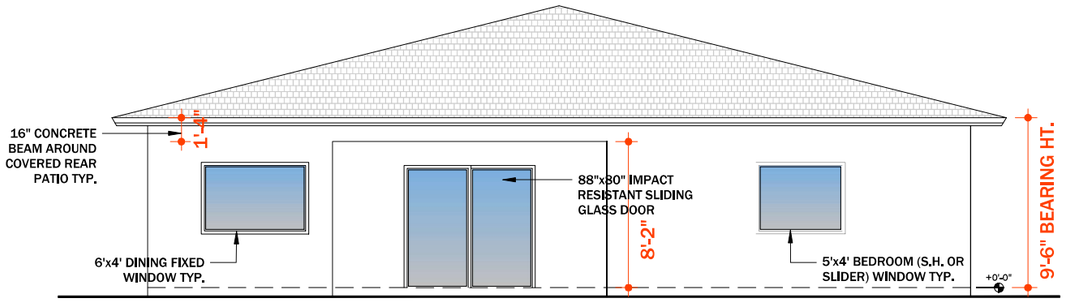
BOUNDARY AND TOPOGRAPHIC SURVEY

PRINCIPAL MERIDIAN SURVEYING, Inc.
LICENSED BUSINESS No. 8261
4546 CAMBRIDGE STREET
WEST PALM BEACH, FL 33415
OFFICE 561-478-7764



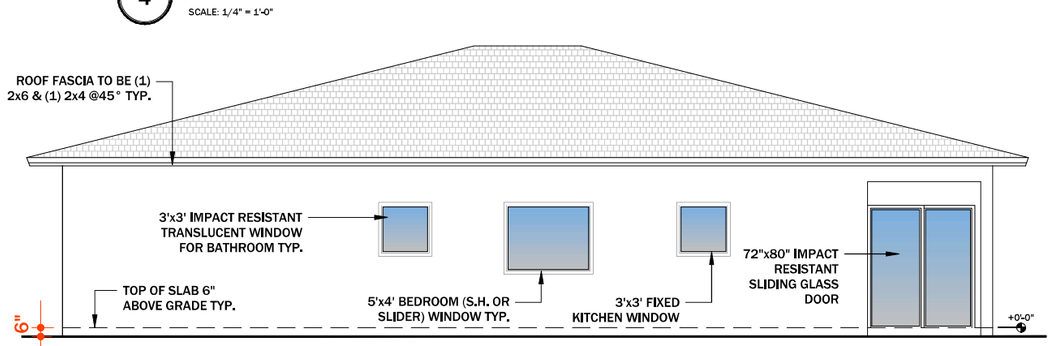
5 PROPOSED SIDE ELEVATION

SCALE: 1/4" = 1'-0"



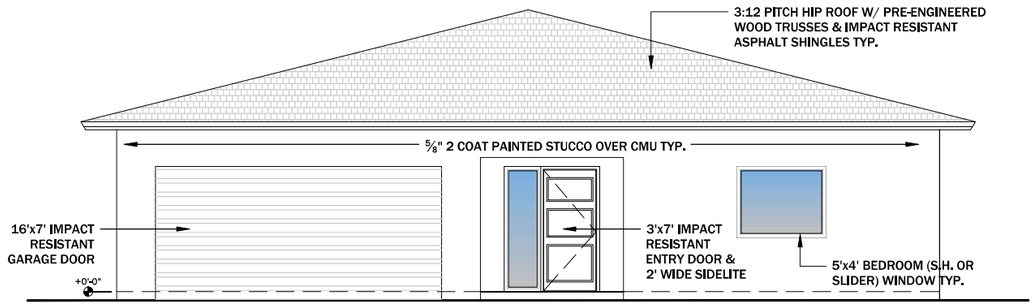
4 PROPOSED REAR ELEVATION

SCALE: 1/4" = 1'-0"



3 PROPOSED SIDE ELEVATION

SCALE: 1/4" = 1'-0"

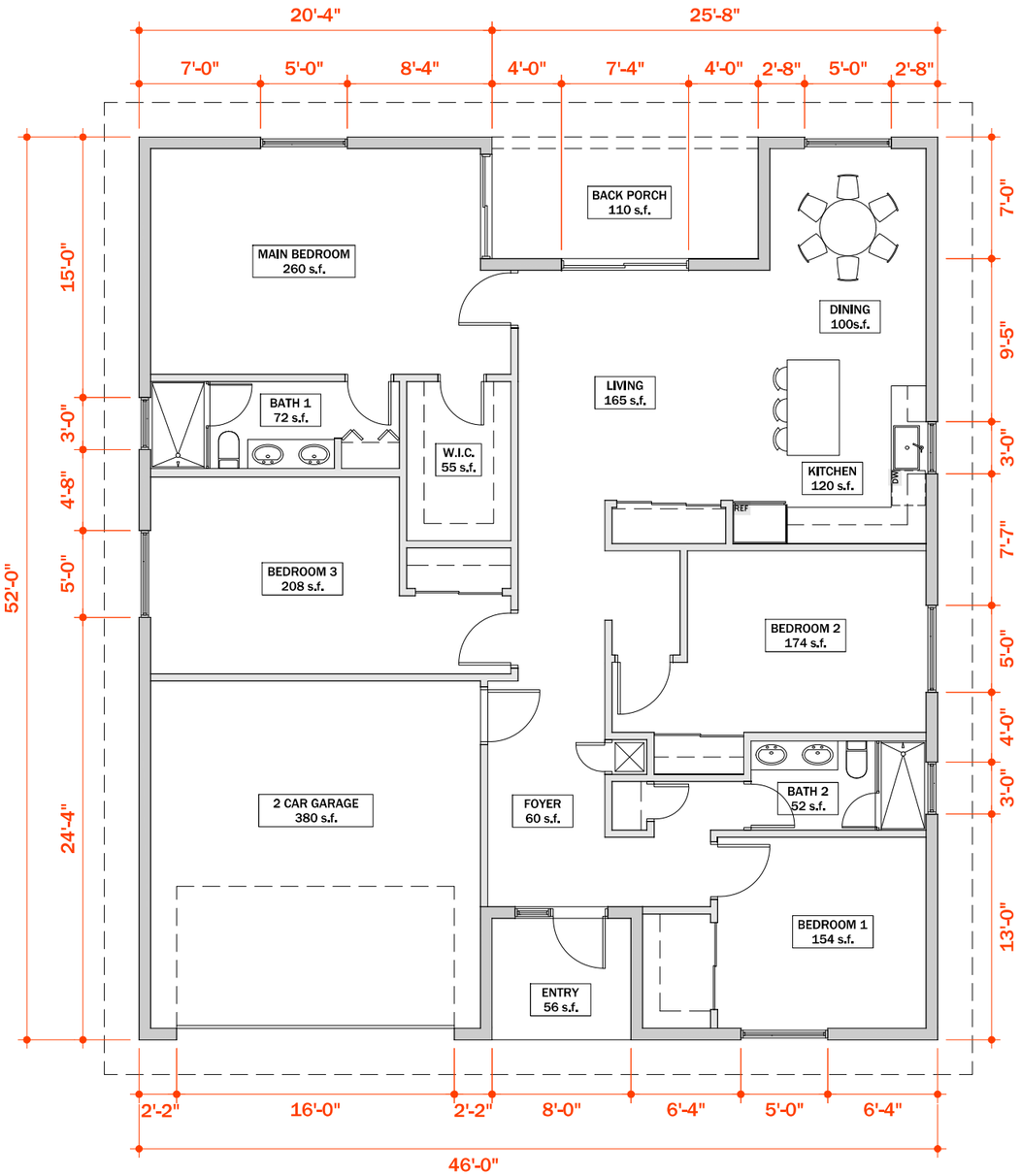


2 PROPOSED FRONT ELEVATION

SCALE: 1/4" = 1'-0"

HOUSE MODEL A: 4 BED 2 BATH / 2,392 S.F.

TOTAL FOOTPRINT: 2,392 S.F.
HVAC SPACE: 1,818 S.F.



1 PROPOSED FLOOR PLAN

SCALE: 1/4" = 1'-0"

VARIES

ALL TERRAIN ARCHITECT

OFFICES:
8051 N TAMIAMI TRAIL
EG
SARASOTA
FL 34243

21266 SUMMERTRACE CIR.
BOCA RATON
FL 33428

PROJECT
SUNRISE LAKES RESIDENTIAL COMMUNITY

3804 SUNRISE BLVD
FORT PIERCE
FL 34982

DATE: 4/15/2024
PROJECT # 24101

REVISION	DATE
1	
2	
3	
4	
5	
6	

NOTES:
1. DO NOT SCALE THE DRAWINGS DUE TO SHEET & PLOTTING DIFFERENTIAL. FOLLOW THE DIMENSIONS & ALWAYS FIELD VERIFY

SCHEMATIC DESIGN

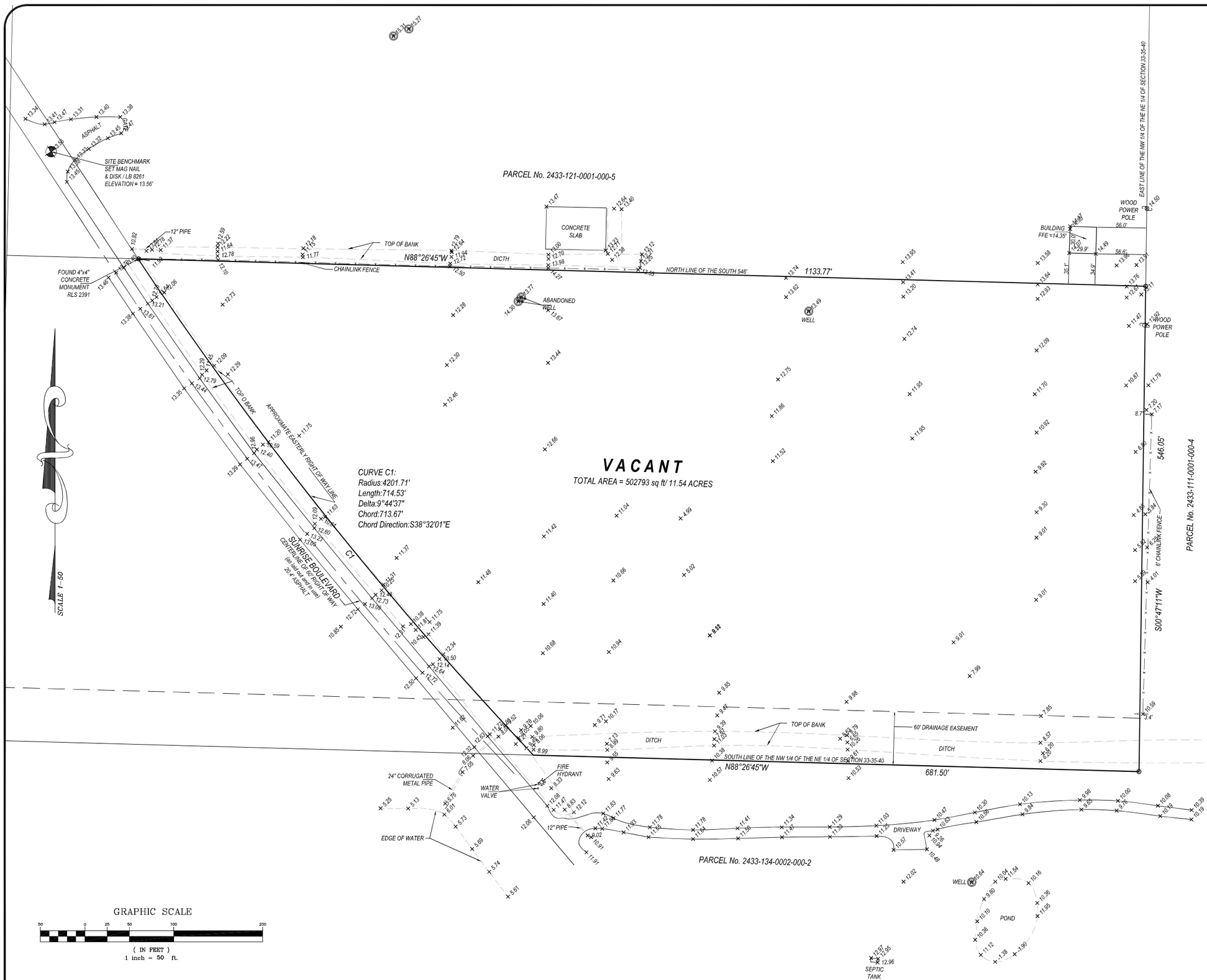
STATE OF FLORIDA
ARTHUR MOLINARI
AR 100808
REGISTERED ARCHITECT

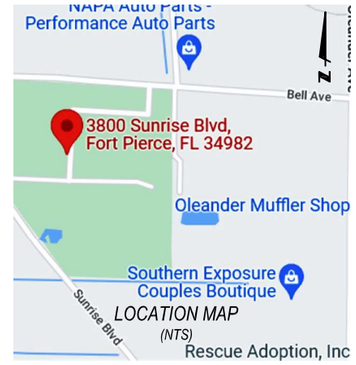
MODEL A PLAN & ELEVATIONS

0' 1' 2' 4' 8'
SCALE: 1/4" = 1'-0"

A-1.0

DRAWN BY: ATA





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BOUNDARY AND TOPOGRAPHIC SURVEY

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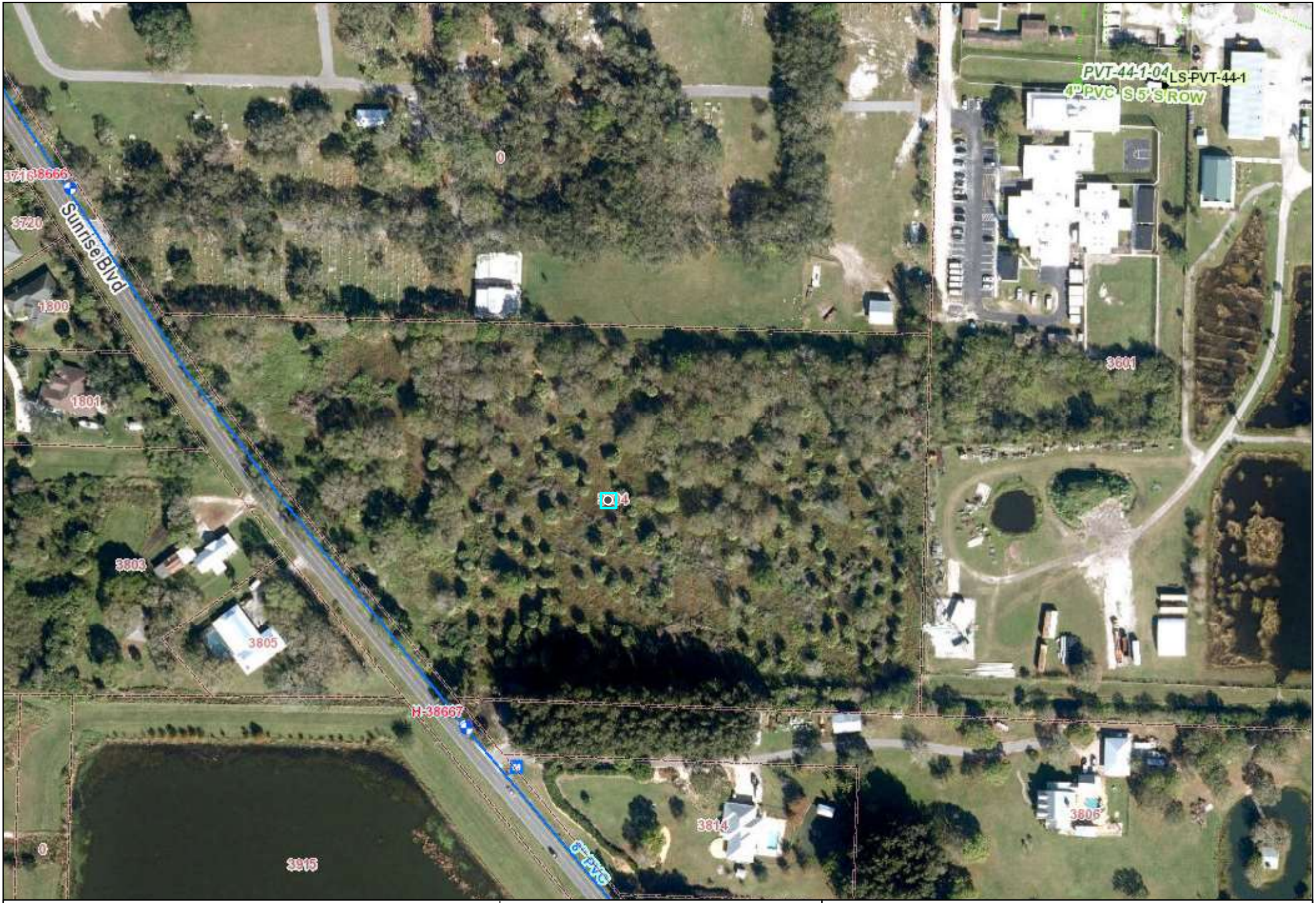
OFFICE 561-478-7764



Legend

- Electric Primary Wire
- Transmission Wire
- Gas Main
- Fiber Optic Cable
- Potable Water Main
- Raw Water Main
- Wastewater Force Main
- WW Gravity Main
- Pole
- Fuse

Transformers

- Overhead
- Pad Mount

Valves

- Gas
- Water
- Raw Water
- Waste Water

- Fire Hydrant
- Well
- PS Lift Station

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811 Know what's **below.** **Call** before you dig.

Date: 3/25/2024

FPUA COMMUNITY PROUD

N

1 inch = 200 feet

FPUA Web Map

Created By:
Name

(772) 466-1600
FAX (772) 461-1938

THE SUNRISE CITY
FORT PIERCE
PLANNING DEPARTMENT
Florida

CONCURRENCY

CAPACITY ANALYSIS

I. Site Data:

	Existing Use	Future Land Use	Zoning
North	Cemetary	P/F	Institution
South	SFR	RU	RS-3 Cou
East	State Use		Light IND
West	SFR	RU	RS-3 Cou

	Future Land Use	Zoning Classification	Maximum Intensity Residential: Dwelling Units per Acre Other: Square Footage	Total Acreage	Flood Zone
Current	RM	RS-3 Cou	RS-3-6 DU/AC	11.54	X & AE
****Proposed**	RM	PD	PD 2.24 DU/AC	11.54	□□□

II. Public Facilities Information:

A. Potable Water:	
□□r□□□□□□ □□	R□□d□□□□□□□□□□□□□□□□□□□□□□□□r□d□□□□□r□□□r□□□ □d□□□□□□□□□□□□r□□□□□□□□□□□□□□d□□□ d□□ □□d□ O□□□r□□□□□□□□□□□□□□□□□□□□□□□□r□d□□□□□r□□□□□r□□□□□□
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B. Wastewater:	
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

C. Parks and Recreation (Residential Classifications Only):
[illegible]

Park Type	LOS	Existing Population Park Demand	Proposed Population Park Demand	Change in Demand
Regional	[illegible]			
Urban District	[illegible]			
Community	[illegible]			
Neighborhood	[illegible]			

D. Public Schools (Residential Classifications Only):
[illegible]
[illegible]

	K-8	High
School Name	White City Elementary & Forest Grove Middle	Fort Pierce Central
City	Fort Pierce	Fort Pierce
Distance	1.5 mi & 1.2 mi	0.8 mi
Current Zoning/FLU Enrollment Demand		
****Proposed Zoning/FLU Enrollment Demand**		
****Change in Demand**		

E. Solid Waste: Residential ([illegible]	
Demand Analysis	[illegible]
Current Zoning/FLU	RS-3
****Proposed Zoning/FLU**	PD
***Change in Demand**	

F. Stormwater:
[illegible]

Impact	

III. Transportation Analysis: *Complete ITE Trip Generation Form (Attached)*

G. Transportation Analysis: Complete ITE Trip Generation Data Form [illegible]		
	AADT	**AM/PM Peak Hour Trips**
Demand Analysis	[illegible]	[illegible]
Current Zoning/FLU	RS-3	
****Proposed Zoning/FLU**	PD	
***Change in Demand**	[illegible]	[illegible] 40 AM, 52 PM
Impact to Capacity	Meets Concurrency	

IV. Project Description

PHASING
[illegible] ☐ [illegible] ☑ [illegible]
[illegible]
[illegible] 50 [illegible] 50 [illegible]
[illegible]
[illegible]
[illegible]

RESIDENTIAL DATA					
Type	**Phase**	**Number of Units**	**Acres**	**Expected beginning date**	**Expected completion date**
[illegible]		50	11.54		
[illegible]					
[illegible]					
[illegible]					

NON-RESIDENTIAL DATA					
Type(s) specify	**Phase**	**Square footage**	**Acres**	**Expecting beginning date**	**Expected completion date**

[illegible]

[illegible]

[illegible]

MICHELLE R. MILLER, CLERK OF THE CIRCUIT COURT - SAINT LUCIE COUNTY
FILE # 5282370 OR BOOK 5087 PAGE 2982, Recorded 12/27/2023 11:19:18 AM Doc Tax: $6405.00

Prepared by and return to:
Javed Rahman, Attorney at Law
RAHMAN | LE PLLC
1000 Southwest 86th Court
Miami, FL 33144
(305) 542-0402
File No 23-407

Parcel Identification No 2433-123-0001-000-1

[Space Above This Line For Recording Data]

WARRANTY DEED

(STATUTORY FORM – SECTION 689.02, F.S.)

This indenture made the 21 day of **December, 2023** between **CONGREGATION OF THE SACRED HEART OF JESUS INC, a Florida Not for Profit corporation**, whose post office address is **2921 Northeast 48th Street, Lighthouse Point, FL 33064**, of the County of Broward, State of Florida, Grantor, to **DT VENTURES 1 LLC, a Florida limited liability company**, whose post office address is **PO Box 92280, Rochester, NY 14692**, of the County of Monroe, State of New York, Grantee:

(Whenever used herein the terms "grantor" and "grantee" include all the parties to this instrument and the heirs, legal representatives, and assigns of individuals, and the successors and assigns of corporations, trusts and trustees.)

Witnesseth, that said Grantor, for and in consideration of the sum of TEN DOLLARS (U.S.$10.00) and other good and valuable considerations to said Grantor in hand paid by said Grantee, the receipt whereof is hereby acknowledged, has granted, bargained, and sold to the said Grantee, and Grantee's heirs and assigns forever, the following described land, situate, lying and being in **Saint Lucie County, Florida**, to-wit:

The South 546 feet of the Northwest 1/4 of the Northeast 1/4, lying East of the White City Road (Sunrise Boulevard), in Section 33, Township 35 South, Range 40 East, said land lying and being in Saint Lucie County, Florida.

a/k/a 3804 Sunrise Boulevard, Fort Pierce, FL 34982 *(for informational purposes only)*

Together with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining.

Subject to taxes for 2024 and subsequent years, not yet due and payable; covenants, restrictions, easements, reservations and limitations of record, if any, but said reference shall not operate to reimpose same.

TO HAVE AND TO HOLD the same in fee simple forever.

And Grantor hereby covenant with the Grantee that the Grantor is lawfully seized of said land in fee simple, that Grantor have good right and lawful authority to sell and convey said land and that the Grantor hereby fully warrant the title to said land and will defend the same against the lawful claims of all persons whomsoever; and that said land is free of all encumbrances except taxes accruing subsequent to December 31, 2023.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]
[SIGNATURE PAGE FOLLOWS]

WARRANTY DEED – Signature Page
PIN: 2433-123-0001-000-1

In Witness Whereof, Grantor have hereunto set Grantor's hand and seal the day and year first above written.

Signed, sealed and delivered in our presence:

WITNESS 1
PRINT NAME: Javed Rahman
WITNESS 1
ADDRESS: 1000 SW 86th Ct. Miami FL

CONGREGATION OF THE SACRED HEART OF JESUS INC,
a Florida Not For Profit Corporation

By: _____
Peter Tan Le, President

WITNESS 2
PRINT NAME: Chabeli Roqueta
WITNESS 2
ADDRESS: 1000 SW 86th Ct. Miami FL

STATE OF FLORIDA
COUNTY OF Miami-Dade

The foregoing instrument was acknowledged before me by means of (X) physical presence or ( ) online notarization this 21 day of December, 2023 by Peter Tan Le, President of Congregation of the Sacred Heart of Jesus Inc, a Florida Not for Profit corporation, on behalf of the corporation.

[Notary Seal]

Javed Rahman
Comm.#HH000009
Expires: May 14, 2024
Bonded Thru Aaron Notary

Signature of Notary Public
Print, Type/Stamp Name of Notary

Personally known: _____ OR Produced Identification: X Type of Identification Produced: FL

MICHELLE R. MILLER, CLERK OF THE CIRCUIT COURT - SAINT LUCIE COUNTY
FILE # 5282370 OR BOOK 5087 PAGE 2982, Recorded 12/27/2023 11:19:18 AM Doc Tax: $6405.00

Prepared by and return to:
Javed Rahman, Attorney at Law
RAHMAN | LE PLLC
1000 Southwest 86th Court
Miami, FL 33144
(305) 542-0402
File No 23-407

Parcel Identification No 2433-123-0001-000-1

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(Whenever used herein the terms "grantor" and "grantee" include all the parties to this instrument and the heirs, legal representatives, and assigns of individuals, and the successors and assigns of corporations, trusts and trustees.)

Witnesseth, that said Grantor, for and in consideration of the sum of TEN DOLLARS (U.S.$10.00) and other good and valuable considerations to said Grantor in hand paid by said Grantee, the receipt whereof is hereby acknowledged, has granted, bargained, and sold to the said Grantee, and Grantee's heirs and assigns forever, the following described land, situate, lying and being in **Saint Lucie County, Florida**, to-wit:

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a/k/a 3804 Sunrise Boulevard, Fort Pierce, FL 34982 *(for informational purposes only)*

Together with all the tenements, hereditaments and appurtenances thereto belonging or in anywise appertaining.

Subject to taxes for 2024 and subsequent years, not yet due and payable; covenants, restrictions, easements, reservations and limitations of record, if any, but said reference shall not operate to reimpose same.

TO HAVE AND TO HOLD the same in fee simple forever.

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[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]
[SIGNATURE PAGE FOLLOWS]

WARRANTY DEED – Signature Page
PIN: 2433-123-0001-000-1

In Witness Whereof, Grantor have hereunto set Grantor's hand and seal the day and year first above written.

Signed, sealed and delivered in our presence:

WITNESS 1
PRINT NAME: Javed Rahman
WITNESS 1
ADDRESS: 1000 SW 86th Ct. Miami FL

CONGREGATION OF THE SACRED HEART OF JESUS INC,
a Florida Not For Profit Corporation

By: _____
Peter Tan Le, President

WITNESS 2
PRINT NAME: Chabeli Roqueta
WITNESS 2
ADDRESS: 1000 SW 86th Ct. Miami FL

STATE OF FLORIDA
COUNTY OF Miami-Dade

The foregoing instrument was acknowledged before me by means of (X) physical presence or ( ) online notarization this 21 day of December, 2023 by Peter Tan Le, President of Congregation of the Sacred Heart of Jesus Inc, a Florida Not for Profit corporation, on behalf of the corporation.

[Notary Seal]

Javed Rahman
Comm.#HH000009
Expires: May 14, 2024
Bonded Thru Aaron Notary

Signature of Notary Public
Print, Type/Stamp Name of Notary

Personally known: _____ OR Produced Identification: X Type of Identification Produced: FL

Record and Return To:
This Instrument Prepared By:

Logan F. Wellmeier, Esq.
Dean, Mead, Minton & Moore
1903 S 25th Street, Suite 200
Fort Pierce, Florida 34947
(772) 464-7700

[blank space above line reserved for recording data]

PLANNED DEVELOPMENT (PD) ZONING DEVELOPMENT AGREEMENT

THIS PLANNED DEVELOPMENT (PD) ZONING DEVELOPMENT AGREEMENT (this "**Agreement**") is made and entered into this ___day of _____, 2024, (the "**Effective Date**") by and between DT VENTURES 1 LLC, a Florida limited liability company (the "**Applicant**"), and the CITY OF FORT PIERCE, a political subdivision of the State of Florida (the "**City**").

WITNESSETH:

WHEREAS, Applicant is the owner and developer of certain real property in the city limits of Fort Pierce, Florida, more particularly described in the legal description attached hereto and incorporated herein as **Exhibit "A"** (the "**Property"**); and

WHEREAS, Applicant intends to develop a Planned Development ("**PD**") to be known as "Sunrise Lakes" consisting of 11.54 acres with 50 single family dwelling units ("**DU**s") (the "**Project**"); and

WHEREAS, Section 125-212 of the Code of Ordinances of the City requires that the Applicant enter into this Agreement with the City as a condition of approval of the Project.

NOW, THEREFORE, the parties do hereby agree as follows:

1. Duration of Agreement. This Agreement shall be effective, shall run with the land and shall be binding on all parties and all persons claiming under it for an initial term of five (5) years from the Effective Date hereof (the "**Expiration Date**"). The Expiration Date may be extended for a period of five (5) years after approval by the Board of City Commissioners (the "**Board**") at a public hearing, unless an instrument has been recorded agreeing to release, amend or modify this Agreement in whole, or in part, as provided below. The foregoing notwithstanding, if the expiration date of any development approvals associated with this Agreement or with the Property are ever extended to a date that is later than the Expiration Date, the Expiration Date shall automatically extend to that later date. A proposed timeline of development is specified on **Exhibit "B"**, attached hereto and by this reference incorporated herein (the "**Development Timeline**").

2. Phasing Requirements. The Development shall be constructed in one Phase.

3. <u>Development Requirements for the Project.</u> The Project shall conform to the following requirements:

A. Lot and Building Dimensions:

i. **Min. Lot Size -** 4,920 square feet
ii. **Min. Lot Width –** 60 feet
iii. **Min. Lot Depth -** 70 feet
iv. **Min. Front Yard Depth –** 15 feet for main structure,20 feet for garage
v. **Min. Side Yard Depth -** 5 feet
vi. **Min. Rear Yard Depth -** 15 feet
vii. **Max Lot Coverage -** 40%
viii. **Max Building Height -** 45 feet
ix. **Density –** 4.33 units per acre
x. **Minimum right-of-way width for the interior roadway** – 50 feet

B. Entrances. The site will consist of one ungated entrance in the northwest corner of the site providing ingress from and egress to Sunrise Boulevard. The DUs will be connected by one looped road with an interior sidewalk.

C. Drainage. Stormwater drainage will be conveyed through interconnected inlets and pipes to three (3) separate dry ponds. The dry ponds will be planted with a variety of wax myrtles and sand cordgrass instead of typical bahia sod, to add to the aesthetics of the Project as well as provide for nutrient removal from the stormwater.

D. Landscaping. Applicant shall provide a 10-foot landscape buffer along the perimeter of the site, with a 10-foot landscape buffer along the southern property line along a 60-foot drainage easement.

E. Utilities. The Project will contain a looped water main and a private lift station to serve the Project's wastewater needs. Dry utility lines and infrastructure will be provided in the 10-foot utility easement shown on the front of each lot.

F. Public Transit Stop and Amenity Center. A bus stop will be provided onsite, and a Routed Bus Plan has been included in the civil drawings. An open space area between lot 35 and lot 50 will be utilized for an amenity center. Future plans will be provided for the City's review.

G. Public Benefit. The Project represents a decreased density from the maximum density permitted by the underlying Future Land Use Designation (Low-density residential (RL)), which permits 6.5 DUs per acre, or seventy-five (75) DUs total. The Project, at 50 DUs, represents a significantly lower number of traffic trips on the existing public roads than does the permitted density.

4. **Public Facilities that will Service the Development.**

A. **Fort Pierce Water and Sewer Authority (FPUA)-** Water and Sewer provider, with water and sewer available to provide for the Project.

B. **St. Lucie County Road Infrastructure-** Sunrise Boulevard provides access to the site.

C. **North St. Lucie River Water Control District (NSLRWCD)**- Existing canal on south end of property provides sufficient drainage outfall to accommodate the Project.

D. **St. Lucie County School District**- White City Elementary School, Forest Grove Middle School, and Fort Pierce Central High School are available to serve the Project.

5. **Reservation or Dedication of Land for Public Purposes.** The south property line contains a 60-foot drainage easement, which shall continue to serve its public drainage-related function through construction and after the development of the Project.

6. **Description of Local Development Permits Required for the Development**. The Development shall require the following approvals:

A. City of Ft. Pierce Building Permit
B. Fort Pierce Utility Authority Permit
C. South Florida Water Management District (SFWMD) Environmental Resource Permit
D. North St. Lucie Water Control District Connection Permit
E. Florida Department of Environmental Protection Water Main Extension Permit
F. Florida Department of Environmental Protection Domestic Wastewater Collection/Transmission System Permit

7. **Project Compliance.** By entering into this Agreement, the Board finds that the Project is consistent with the City's comprehensive plan and land development code. Any failure of this Agreement to address a particular permit, condition, term, or restriction shall not relieve the Applicant of the necessity of complying with the law governing said permitting requirements, conditions, terms, or restrictions. Attached hereto as **Exhibit "C"** is a list of any conditions, terms, restrictions, or other requirements determined by the Board for the public health, safety, or welfare of its citizens.

8. **Destruction.** In the event that all or a portion of the Development should be destroyed by a storm, fire, or other common disaster, Applicant, its grantees, successors or assigns shall have the right to rebuild and/or repair so long as there is strict compliance with the approved master site plan, final site plan(s), subdivision plat(s), and development orders.

9. **Modification, Amendment, and Release.** This Agreement may not be modified, amended, or released, except by written instrument signed by the Board and the Applicant, provided that such modification, amendment, or release has been approved by the Board after public hearing. Notwithstanding anything contained hereinto the contrary, Applicant, its successors in interest and the Board may amend or terminate this Agreement without securing the consent of other property owners

whose property is affected by this Agreement, unless such amendment or termination directly and materially modifies the allowable uses or entitlements of such owners' property.

10. **Governing Law**. This Agreement and the construction and enforcement thereof shall be interpreted under the laws of the State of Florida. The parties hereto agree without reservation of any rights under federal or state law, that in any litigation arising under this Agreement, the parties hereto waive the right to trial before a jury and all such litigation shall be litigated only in a non-jury hearing in the State Courts of Florida, St. Lucie County.

11. **Successors and Assigns.** This Agreement shall be deemed to be a covenant running with the land and shall be binding upon the heirs, legal representatives, successors and assigns of the Applicant and any person, firm, corporation or entity who or which may become the successor in interest to the Property. No subsequent transfer of the Property or any assignment of interest therein shall relieve or discharge the Applicant from any term, condition, obligation or duties set out in this Agreement.

12. **Notice**. Any notice, request, demand, consent, approval, or other communication required or permitted by this Agreement shall be given or made in writing and shall be served as elected by the party giving the notice by any of the following methods: (i) hand delivery to the other party; (ii) delivery by commercial overnight courier service; (iii) mailed by registered or certified mail (postage prepaid), return receipt requested; (iv) mailed by regular U.S. mail; or (v) sent by electronic mail (Email). For purposes of notice, the addressees are as follows:

APPLICANT: DT VENTURES 1 LLC

_____

_____

CITY: City Manager
City of Ft. Pierce
100 N US Hwy 1
Fort Pierce, FL
34950

With required copy to:
City Attorney
City of Ft. Pierce
100 N US Hwy 1
Fort Pierce, FL
34950

Notice given in accordance with the provisions of this Section shall be deemed to be delivered and effective on the date of hand delivery; or on the second day after the date of the deposit with an overnight courier; or on the date upon which the return receipt is signed, or delivery is refused, or the notice is designated by the postal authorities as not delivered if mailed; or on the second business day after the date of mailing by regular U.S. mail. Either party may change its address for the purpose of this Section by written notice to the other party given in accordance with the provisions of this Section.

13. **Entire Agreement.** This Agreement incorporates and includes all prior and contemporaneous negotiations, correspondence, conversations, agreements, and understanding applicable to the matters contained herein, and the parties agree that there are no commitments, agreements, or understandings concerning the subject matter of this Agreement that are not contained in this document. Accordingly, it is agreed that no deviation from the terms hereof shall be predicated upon any prior or contemporaneous representations or agreements, whether oral or written.

14. **Severability.** If any term or provision of this Agreement, or the application thereof to any person or circumstance shall, to any extent, be held invalid or unenforceable for the remainder of this Agreement, then the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable shall not be affected, and every other term and provision of this Agreement shall be deemed valid and enforceable to the extent permitted by law.

15. **Rights of Assignment to Lender**. All rights of the Applicant hereunder may be collaterally assigned to any lender for the Property as security for any loan or construction loan, and in the event of a foreclosure or deed-in-lieu of foreclosure, the lender and/or grantee of any deed-in-lieu of foreclosure, and their respective successors and assigns, shall be bound by this Agreement and entitled to enforce the rights of the Applicant hereunder.

16. **Counterparts.** This Agreement may be executed in any number of identical counterparts each of which shall be deemed to be an original for all purposes but all of which shall constitute one and the same instrument, and a copy of such signature received through electronic transmission shall bind the party whose signature is so received as if such signature were an original. In making proof of this Agreement, it shall not be necessary to produce or account for more of such counterparts than are required to show that each party hereto executed at least one such counterpart.

(SIGNATURES TO FOLLOW ON NEXT PAGE)

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be made and entered into the day and year first written. The date of this Agreement shall be the date on which this Agreement was approved by the City Commission of Fort Pierce.

WITNESSES:

APPLICANT

DT VENTURES 1 LLC, a Florida limited liability company

_____
Print Name: _____
Address: _____
_____

By:_____
Name:_____
Its:_____

_____
Print Name: _____
Address: _____
_____

STATE OF FLORIDA
COUNTY OF _____

The foregoing instrument was acknowledged before me by means of [ ] physical presence or [ ] online notarization, this ___ day of _____, 2024, by _____, as _____ of DT Ventures, 1 LLC, on behalf of said company. Said person is (check one) □ personally known to me, □ produced a driver's license (issued by a state of the United States within the last five (5) years) as identification, or □ produced other identification, to wit:_____.

_____
Print Name:_____
Notary Public, State of Florida
Commission No.: _____
My Commission Expires: _____

CITY OF FT. PIERCE

ATTEST: BOARD OF CITY COMMISSIONERS
CITY OF FT. PIERCE, FLORIDA

_____ By: _____
City Mayor Print

APPROVED AS TO FORM AND
LEGAL SUFFICIENCY:

_____
City Attorney

EXHIBIT A
[LEGAL DESCRIPTION OF THE PROPERTY]

The South 546 feet of the Northwest 1/4 of the Northeast 1/4, lying East of the White City Road (Sunrise Boulevard), in Section 33, Township 35 South, Range 40 East, said land lying and being in Saint Lucie County, Florida.

a/k/a 3804 Sunrise Boulevard, Fort Pierce, FL 34982 (*for informational purposes only)*

EXHIBIT B
[DEVELOPMENT TIMELINE]

Approvals…….	February, 2025
Infrastructure Construction……...	February 2025 - May 2025
Home Construction……	May 2025 – May 2026

EXHIBIT C
[CONDITIONS OF DEVELOPMENT]

CONSTRUCTION PLANS

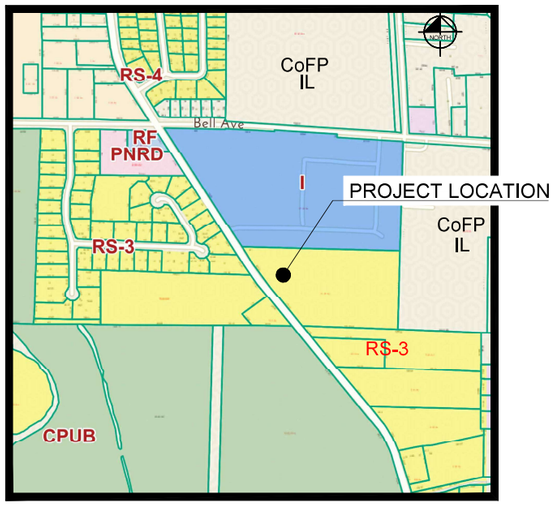
FOR

SUNRISE LAKES

LOCATED AT

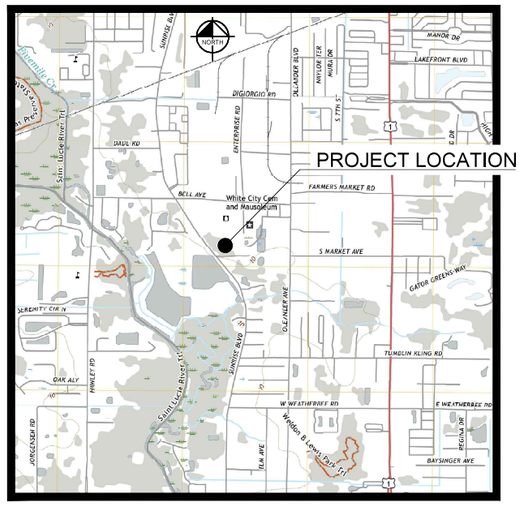
3804 SUNRISE BLVD, FORT PIERCE, FLORIDA

SECTION 33, TOWNSHIP 35S, RANGE 40E



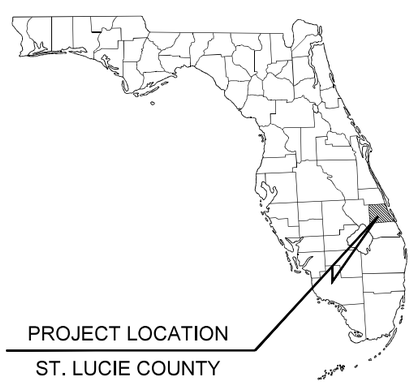
LOCATION MAP

SCALE: NOT TO SCALE



VICINITY MAP

SCALE: NOT TO SCALE



LEGAL DESCRIPTION

THE SOUTH 546 FEET OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4, LYING EAST OF WHITE CITY ROAD (SUNRISE BOULEVARD) IN SECTION 33, TOWNSHIP 35 SOUTH, RANGE 40 EAST, SAID LAND LYING AND BEING IN ST. LUCIE COUNTY, FLORIDA.

SHEET INDEX	
Sheet Number	Sheet Title
C-100	COVER
C-101	GENERAL NOTES
C-200	SITE PLAN
C-201	PRELIMINARY PLAT
C-300	MASTER PAVING GRADING & DRAINAGE PLAN
C-301	PAVING GRADING & DRAINAGE DETAILS
C-302	PAVING GRADING & DRAINAGE DETAILS
C-303	GRADING SECTIONS
C-400	MASTER UTILITIES PLAN
C-500	FPUA DETAILS-01
C-501	FPUA DETAILS-02
C-502	FPUA DETAILS-03
C-503	FPUA DETAILS-04
C-504	FPUA DETAILS-05
C-600	EXISTING CONDITIONS & DEMOLITION
C-601	PHASE ONE EROSION CONTROL
C-700	ROUTING PLAN BUS
C-701	ROUTING PLAN FIRE
--	PHOTO-01

PROJECT TEAM

OWNER/DEVELOPER
DT VENTURES 1, LLC.
PO BOX 92280
ROCHESTER,NY 14692

LANDSCAPE ARCHITECT
PAUL GOULAS, RLA
LANDSCAPE ARCHITECTURAL SERVICES
1708 SE JOY HAVEN ST
PORT ST.LUCIE,FL 34983
772-631-8400

CIVIL ENGINEER
BLAINE BERGSTRESSER, P.E.
KMA ENGINEERING & SURVEYING, LLC
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
772- 569-5505
BLAINEB@KMAFL.COM

SURVEYOR
DOUG WALKER, PSM
PRINCIPAL MERIDIAN SURVEYING,INC
4546 CAMBRIDGE ST.
WEST PALM BEACH,FL 33415
561-478-7764

PERMITTING AGENCIES

FORT PIERCE UTILITY AUTHORITY
SHANE OSTRANDER
1701 S. 37TH STREET
FORT PIERCE, FL 34984
SOTRANDER@FPUA.COM
772-466-1600

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
316 NW 5TH ST
OKEECHOBEE, FL 34972
863-462-5260

NORTH ST LUCIE RIVER WATER CONTROL DISTRICT
PATRICIA KUTA
14666 ORANGE AVENUE
FORT PIERCE, FL 34945
NSLRWCD@BELLSOUTH.NET
772-461-5050

CITY OF FORT PIERCE
CESAR FLORES
100 NORTH US 1
FORT PIERCE, FL 34950
CFLORES@CITYOFFORTPIERCE.COM
772-467-3730

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES

CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.	24-1001-COVER

SHEET TITLE: COVER

SHEET NUMBER: C-100

GENERAL

1. THE CONTRACTOR AND SUBCONTRACTORS SHALL OBTAIN A COPY OF THE FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (LATEST EDITION) AND BECOME FAMILIAR WITH THE CONTENTS PRIOR TO COMMENCING WORK, AND, UNLESS OTHERWISE NOTED, ALL WORK SHALL CONFORM AS APPLICABLE TO THESE STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS. CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS UNLESS OTHERWISE INDICATED, REMOVING TREES, STUMPS, ROOTS, MUCK, EXISTING PAVEMENT AND ALL OTHER DELETERIOUS MATERIAL.
3. EXISTING UTILITIES SHOWN ARE LOCATED ACCORDING TO THE INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF THE TOPOGRAPHIC SURVEY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE ENGINEER. GUARANTEE IS NOT MADE THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN OR THAT THE LOCATION OF THOSE SHOWN ARE ENTIRELY ACCURATE. FINDING THE ACTUAL LOCATION OF ANY EXISTING UTILITIES IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE DONE BEFORE HE COMMENCES ANY WORK IN THE VICINITY. 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. THE OWNER OR ENGINEER WILL ASSUME NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES, NOR FOR TEMPORARY BRACING AND SHORING OF SAME. IF IT IS NECESSARY TO SHORE, BRACE, SWING OR RELOCATE A UTILITY, THE UTILITY COMPANY OR DEPARTMENT AFFECTED SHALL BE CONTACTED AND THEIR PERMISSION OBTAINED REGARDING THE METHOD TO USE FOR SUCH WORK.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PROVIDE 48 HOURS MINIMUM NOTICE TO ALL UTILITY COMPANIES PRIOR TO BEGINNING CONSTRUCTION. A LIST OF THE UTILITY COMPANIES WHICH THE CONTRACTOR MUST CALL BEFORE COMMENCING WORK IS PROVIDED ON THE COVER SHEET OF THESE CONSTRUCTION PLANS. THIS LIST SERVES AS A GUIDE ONLY AND IS NOT INTENDED TO LIMIT THE UTILITY COMPANIES WHICH THE CONTRACTOR MAY WISH TO NOTIFY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS AND BONDS IF REQUIRED PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE CONSTRUCTION DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, AND SPECIAL CONDITIONS AND COPIES OF ANY REQUIRED CONSTRUCTION PERMITS.
7. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER.
8. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS ARE TO BE SENT TO THE OWNER AND DESIGN ENGINEER OF RECORD DIRECTLY FROM THE TESTING AGENCY.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING TO THE ENGINEER A CERTIFIED RECORD SURVEY SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA DEPICTING THE ACTUAL FIELD LOCATION OF ALL CONSTRUCTED IMPROVEMENTS THAT ARE REQUIRED BY THE JURISDICTIONAL AGENCIES FOR THE CERTIFICATION PROCESS. ALL SURVEY COSTS WILL BE THE CONTRACTORS RESPONSIBILITY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND MAINTAINING AS-BUILT INFORMATION WHICH SHALL BE RECORDED AS CONSTRUCTION PROGRESSES OR AT THE COMPLETION OF APPROPRIATE CONSTRUCTION INTERVALS AND SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS TO THE OWNER FOR THE PURPOSE OF CERTIFICATION TO JURISDICTIONAL AGENCIES AS REQUIRED. ALL AS-BUILT DATA SHALL BE COLLECTED BY A STATE OF FLORIDA PROFESSIONAL LAND SURVEYOR WHOSE SERVICES ARE ENGAGED BY THE CONTRACTOR.
11. ANY WELLS DISCOVERED ON SITE THAT WILL HAVE NO USE MUST BE PLUGGED BY A LICENSED WELL DRILLING CONTRACTOR IN A MANNER APPROVED BY ALL JURISDICTIONAL AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY WELL ABANDONMENT PERMITS REQUIRED.
12. ANY WELL DISCOVERED DURING EARTH MOVING OR EXCAVATION SHALL BE REPORTED TO THE APPROPRIATE JURISDICTIONAL AGENCIES WITHIN 24 HOURS AFTER DISCOVERY IS MADE.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK THAT WOULD BE AFFECTED. FAILURE TO NOTIFY OWNER OF AN IDENTIFIABLE CONFLICT PRIOR TO PROCEEDING WITH INSTALLATION RELIEVES OWNER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.

EROSION CONTROL

1. THE STORM WATER POLLUTION PREVENTION PLAN ("SWPPP") IS COMPRISED OF THE EROSION CONTROL PLAN, THE STANDARD DETAILS, THE PLAN NARRATIVE, ATTACHMENTS INCLUDED IN SPECIFICATIONS OF THE SWPPP, PLUS THE PERMIT AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.
2. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE STATE OF FLORIDA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.
3. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO THE OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
4. BEST MANAGEMENT PRACTICES (BMP'S) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY THE PERMITTING AGENCY OR OWNER.
5. EROSION CONTROL PLAN MUST CLEARLY DELINEATE ALL STATE WATERS. PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS MUST BE MAINTAINED ON SITE AT ALL TIMES.
6. THE CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.
7. CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES.
8. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DETAINED AND PROPERLY TREATED OR DISPOSED.
9. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ON SITE OR READILY AVAILABLE TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL ON SITE. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
11. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
12. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THE PLAN, SHALL BE INITIATED AS SOON AS PRACTICABLE.
13. STABILIZATION PRACTICES SHOULD BE INITIATED AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 7 DAYS WHERE CONSTRUCTION HAS TEMPORARILY CEASED.
14. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 7 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRED IN THESE AREAS. REFER TO SECTION 981 OF THE STANDARD SPECIFICATIONS FOR SEEDING AND MAINTENANCE REQUIREMENTS.
15. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
16. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED AS SOON AS POSSIBLE.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.
18. ON-SITE & OFF SITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE EROSION CONTROL PLAN AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.
19. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.
20. DUE TO GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, ETC.) TO PREVENT EROSION.
21. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY, THIS INCLUDES BACK FILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

POTABLE WATER AND SANITARY SEWER SYSTEM

1. THE CONTRACTOR SHALL CONSTRUCT GRAVITY SEWER LATERALS, MANHOLES GRAVITY SEWER LINES AND DOMESTIC WATER AND FIRE PROTECTION SYSTEM AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL FURNISH ALL NECESSARY MATERIALS, EQUIPMENT, MACHINERY, TOOLS, MEANS OF TRANSPORTATION AND LABOR NECESSARY TO COMPLETE THE WORK IN FULL AND COMPLETE ACCORDANCE WITH THE SHOWN, DESCRIBED AND REASONABLY INTENDED REQUIREMENTS OF THE CONTRACT DOCUMENTS AND JURISDICTIONAL AGENCY REQUIREMENTS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
2. ALL EXISTING UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR UTILITY LOCATION AND COORDINATION IN ACCORDANCE WITH THE NOTES CONTAINED IN THE GENERAL CONSTRUCTION SECTION OF THIS SHEET.
3. THE CONTRACTOR SHALL RESTORE ALL DISTURBED VEGETATION IN KIND, UNLESS SHOWN OTHERWISE.
4. DEFLECTION OF PIPE JOINTS AND CURVATURE OF PIPE SHALL NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS. SECURELY CLOSE ALL OPEN ENDS OF PIPE AND FITTINGS WITH A WATERTIGHT PLUG WHEN WORK IS NOT IN PROGRESS. THE INTERIOR OF ALL PIPES SHALL BE CLEAN AND JOINT SURFACES WIPED CLEAN AND DRY AFTER THE PIPE HAS BEEN LOWERED INTO THE TRENCH. VALVES SHALL BE PLUMB AND LOCATED ACCORDING TO THE PLANS.
5. ALL PHASES OF INSTALLATION, INCLUDING UNLOADING, TRENCHING, LAYING AND BACK FILLING, SHALL BE DONE IN A FIRST CLASS WORKMANLIKE MANNER. ALL PIPE AND FITTINGS SHALL BE CAREFULLY STORED FOLLOWING MANUFACTURER'S RECOMMENDATIONS. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE COATING OR LINING IN ANY D.I. PIPE FITTINGS. ANY PIPE OR FITTING WHICH IS DAMAGED OR WHICH HAS FLAWS OR IMPERFECTIONS WHICH, IN THE OPINION OF THE ENGINEER OR OWNER, RENDERS IT UNFIT FOR USE, SHALL NOT BE USED. ANY PIPE NOT SATISFACTORY FOR USE SHALL BE CLEARLY MARKED AND IMMEDIATELY REMOVED FROM THE JOB SITE, AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
6. WATER FOR FIRE FIGHTING SHALL BE AVAILABLE FOR USE PRIOR TO COMBUSTIBLES BEING BROUGHT ON SITE.
7. ALL UTILITY AND STORM DRAIN TRENCHES LOCATED UNDER AREAS TO RECEIVE PAVING SHALL BE COMPLETELY BACK FILLED IN ACCORDANCE WITH THE GOVERNING JURISDICTIONAL AGENCY'S SPECIFICATIONS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
8. UNDERGROUND LINES SHALL BE SURVEYED BY A STATE OF FLORIDA PROFESSIONAL LAND SURVEYOR PRIOR TO BACK FILLING.
9. CONTRACTOR SHALL PERFORM, AT HIS OWN EXPENSE, ANY AND ALL TESTS REQUIRED BY THE SPECIFICATIONS AND/OR ANY AGENCY HAVING JURISDICTION. THESE TESTS MAY INCLUDE, BUT MAY NOT BE LIMITED TO, INFILTRATION AND EXFILTRATION, TELEVISION INSPECTION AND A MANDREL TEST ON GRAVITY SEWER. A COPY OF THE TEST RESULTS SHALL BE PROVIDED TO THE UTILITY PROVIDER, OWNER AND JURISDICTIONAL AGENCY AS REQUIRED.

MAINTENANCE

ALL MEASURES STATED ON THE EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A 0.5" RAINFALL EVENT, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED AND RESEEDED AS NEEDED. FOR MAINTENANCE REQUIREMENTS REFER TO SECTION 981 OF THE OF THE FLORIDA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (LATEST EDITION).
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
6. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED TO 55 CUBIC YARDS / ACRE.
7. ALL MAINTENANCE OPERATIONS SHALL BE DONE IN A TIMELY MANNER BUT IN NO CASE LATER THAN 2 CALENDAR DAYS FOLLOWING THE INSPECTION.

STORM DRAINAGE SYSTEM

1. STANDARD INDEXES REFER TO THE 2021/2022 EDITION OF F.D.O.T. "STANDARD PLANS FOR ROADWAY CONSTRUCTION"
2. ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE CLASS III (ASTM C-76) UNLESS OTHERWISE NOTED ON PLANS. ALL DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS UNLESS OTHERWISE NOTED ON PLANS.
3. PIPE LENGTHS SHOWN ARE APPROXIMATE AND TO CENTER OF DRAINAGE STRUCTURES, WITH THE EXCEPTION OF MITERED END AND FLARED END SECTIONS, WHICH ARE NOT INCLUDED IN LENGTHS.
4. ALL DRAINAGE STRUCTURE GRATES AND COVERS, EITHER EXISTING OR PROPOSED SHALL BE TRAFFIC RATED FOR H-20 LOADINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NECESSARY UPGRADES TO EXISTING DRAINAGE STRUCTURES.
5. CONSTRUCTION OF THE ENTIRE STORMWATER MANAGEMENT SYSTEM SHOWN ON THE PLANS MUST BE COMPLETE AND ALL DISTURBED AREAS STABILIZED IN ACCORDANCE WITH THE PERMITTED PLANS AND CONDITIONS PRIOR TO ANY OF THE FOLLOWING: ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY FOR ANY LOT; INITIATION OF INTENDED USE OF THE INFRASTRUCTURE; OR TRANSFER OF RESPONSIBILITY FOR MAINTENANCE OF THE SYSTEM TO A LOCAL GOVERNMENT OR OTHER RESPONSIBLE ENTITY.
6. THE CONTRACTOR SHALL INSTALL ALL UNDERGROUND STORM WATER PIPING PER JURISDICTION REGULATIONS (MANUFACTURER'S RECOMMENDATIONS SHALL BE UTILITIZED IF MORE STRINGENT).
7. STORM WATER PIPES, STRUCTURES, MINIMUM COVER AND INSTALLATION PROCEDURES TO BE IN ACCORDANCE WITH SOUTH FLORIDA WATER MANAGEMENT DISTRICT STANDARDS.

PAVING/GRADING TESTING AND INSPECTION

1. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING APPLICABLE TESTING WITH THE SOILS ENGINEER. TESTS WILL BE REQUIRED PURSUANT WITH THE SOILS REPORT. UPON COMPLETION OF WORK THE SOILS ENGINEER WILL SUBMIT CERTIFICATIONS TO THE OWNER AND OWNER'S ENGINEER STATING THAT ALL REQUIREMENTS HAVE BEEN MET.
2. A QUALIFIED TESTING LABORATORY SHALL PERFORM ALL TESTING NECESSARY TO ASSURE COMPLIANCE OF THE IN-PLACE MATERIALS AS REQUIRED BY THESE PLANS AND GEOTECHNICAL REPORT, THE VARIOUS AGENCIES AND PERMIT CONDITIONS. SHOULD ANY RETESTING BE REQUIRED DUE TO THE FAILURE OF ANY TESTS TO MEET THESE REQUIREMENTS, THE CONTRACTOR WILL BEAR ALL COSTS OF SAID RETESTING.

DRAINAGE SYSTEM TESTING AND INSPECTION

1. THE STORM DRAINAGE PIPING SYSTEM SHALL BE SUBJECT TO A VISUAL INSPECTION BY THE OWNER'S ENGINEER PRIOR TO THE PLACEMENT OF BACKFILL. CONTRACTOR TO NOTIFY THE ENGINEER 2 FULL BUSINESS DAYS IN ADVANCE TO SCHEDULE INSPECTION.
2. THE CONTRACTOR SHALL MAINTAIN AND PROTECT FROM MUD, DIRT, DEBRIS, ETC. THE STORM DRAINAGE SYSTEM UNTIL FINAL ACCEPTANCE OF THE PROJECT. THE STORM SYSTEM WILL BE REINSPECTED BY THE OWNER'S ENGINEER PRIOR TO APPROVAL FOR CERTIFICATE OF OCCUPANCY PURPOSES. THE CONTRACTOR MAY BE REQUIRED TO RECLEAN PIPES AND INLETS AT THE CONTRACTORS EXPENSE AND PRIOR TO FINAL ACCEPTANCE.

PAVING, GRADING AND DRAINAGE

1. ALL PAVING, CONSTRUCTION, MATERIALS, AND WORKMANSHIP WITHIN COUNTY'S RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH LOCAL OR COUNTY SPECIFICATIONS AND STANDARDS (LATEST EDITION) OR FDOT SPECIFICATIONS AND STANDARDS (LATEST EDITION) IF NOT COVERED BY LOCAL OR COUNTY REGULATIONS.
2. ALL UNPAVED AREAS IN EXISTING RIGHTS-OF-WAY DISTURBED BY CONSTRUCTION SHALL BE REGRADED AND SODDED.
3. TRAFFIC CONTROL ON ALL FDOT, LOCAL AND COUNTY RIGHTS-OF-WAY SHALL MEET THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND THE REQUIREMENTS OF THE STATE AND ANY LOCAL AGENCY HAVING JURISDICTION. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
4. THE CONTRACTOR SHALL GRADE THE SITE TO THE ELEVATIONS INDICATED AND SHALL REGRADE WASHOUTS WHERE THEY OCCUR AFTER EVERY RAINFALL UNTIL A GRASS STAND IS WELL ESTABLISHED OR ADEQUATE STABILIZATION OCCURS.
5. ALL OPEN AREAS WITHIN THE PROJECT SITE SHALL BE SODDED UNLESS INDICATED OTHERWISE ON THE LANDSCAPE PLAN.
6. ALL AREAS INDICATED AS PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TYPICAL PAVEMENT SECTIONS AS INDICATED ON THE DRAWINGS.
7. WHERE EXISTING PAVEMENT IS INDICATED TO BE REMOVED AND REPLACED, THE CONTRACTOR SHALL SAW CUT A MINIMUM 2" DEEP FOR A SMOOTH AND STRAIGHT JOINT AND REPLACE THE PAVEMENT WITH THE SAME TYPE AND DEPTH OF MATERIAL AS EXISTING OR AS INDICATED.
8. WHERE NEW PAVEMENT MEETS THE EXISTING PAVEMENT, THE CONTRACTOR SHALL SAW CUT THE EXISTING PAVEMENT A MINIMUM 2" DEEP FOR A SMOOTH AND STRAIGHT JOINT AND MATCH THE EXISTING PAVEMENT ELEVATION WITH THE PROPOSED PAVEMENT UNLESS OTHERWISE INDICATED.
9. THE CONTRACTOR SHALL INSTALL FILTER FABRIC OVER ALL DRAINAGE STRUCTURES FOR THE DURATION OF CONSTRUCTION AND UNTIL ACCEPTANCE OF THE PROJECT BY THE OWNER. ALL DRAINAGE STRUCTURES SHALL BE CLEANED OF DEBRIS AS REQUIRED DURING AND AT THE END OF CONSTRUCTION TO PROVIDE POSITIVE DRAINAGE FLOWS.
10. IF DEWATERING IS REQUIRED, THE CONTRACTOR SHALL OBTAIN ANY APPLICABLE REQUIRED PERMITS. THE CONTRACTOR IS TO COORDINATE WITH THE OWNER AND THE DESIGN ENGINEER PRIOR TO ANY EXCAVATION.
11. STRIP TOPSOIL AND ORGANIC MATTER FROM ALL AREAS OF THE SITE AS REQUIRED. IN SOME CASES TOPSOIL MAY BE STOCKPILED ON SITE FOR PLACEMENT WITHIN LANDSCAPED AREAS BUT ONLY AS DIRECTED BY THE OWNER.
12. FIELD DENSITY TESTS SHALL BE TAKEN AT INTERVALS IN ACCORDANCE WITH THE LOCAL JURISDICTIONAL AGENCY OR TO FDOT STANDARDS. IN THE EVENT THAT THE CONTRACT DOCUMENTS AND THE JURISDICTIONAL AGENCY REQUIREMENTS ARE NOT IN AGREEMENT, THE MOST STRINGENT SHALL GOVERN.
13. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED AS PER PLANS. THE AREAS SHALL THEN BE SODDED OR SEEDED AS SPECIFIED IN THE PLANS, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE JOB SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL EARTHEN AREAS WILL BE SODDED OR SEEDED AND MULCHED AS SHOWN ON THE LANDSCAPING PLAN.
14. ALL CUT OR FILL SLOPES SHALL BE 4 (HORIZONTAL) :1 (VERTICAL) OR FLATTER UNLESS OTHERWISE SHOWN.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
16. THE CONTRACTOR SHALL TAKE ALL REQUIRED MEASURES TO CONTROL TURBIDITY, INCLUDING BUT NOT LIMITED TO THE INSTALLATION OF TURBIDITY BARRIERS AT ALL LOCATIONS WHERE THE POSSIBILITY OF TRANSFERRING SUSPENDED SOLIDS INTO THE RECEIVING WATER BODY EXISTS DUE TO THE PROPOSED WORK. TURBIDITY BARRIERS MUST BE MAINTAINED IN EFFECTIVE CONDITION AT ALL LOCATIONS UNTIL CONSTRUCTION IS COMPLETED AND DISTURBED SOIL AREAS ARE STABILIZED. THEREAFTER, THE CONTRACTOR MUST REMOVE THE BARRIERS. AT NO TIME SHALL THERE BE ANY OFF-SITE DISCHARGE WHICH VIOLATES THE WATER QUALITY STANDARDS IN CHAPTER 17-302, FLORIDA ADMINISTRATIVE CODE.
17. SOD, WHERE CALLED FOR, MUST BE INSTALLED AND MAINTAINED ON EXPOSED SLOPES WITHIN 48 HOURS OF COMPLETING FINAL GRADING, AND AT ANY OTHER TIME AS NECESSARY, TO PREVENT EROSION, SEDIMENTATION OR TURBID DISCHARGES.
18. THE CONTRACTOR MUST REVIEW AND MAINTAIN A COPY OF THE ENVIRONMENTAL RESOURCE PERMIT COMPLETE WITH ALL CONDITIONS, ATTACHMENTS, EXHIBITS, AND PERMIT MODIFICATIONS IN GOOD CONDITION AT THE CONSTRUCTION SITE. THE COMPLETE PERMIT MUST BE AVAILABLE FOR REVIEW UPON REQUEST BY WATER MANAGEMENT DISTRICT REPRESENTATIVES.
19. THE CONTRACTOR SHALL ENSURE THAT ISLAND PLANTING AREAS AND OTHER PLANTING AREAS ARE NOT COMPACTED AND DO NOT CONTAIN ROAD BASE MATERIALS. THE CONTRACTOR SHALL ALSO EXCAVATE AND REMOVE ALL UNDESIRABLE MATERIAL FROM ALL AREAS ON THE SITE TO BE PLANTED AND PROPERLY DISPOSED OF IN A LEGAL MANNER.
20. THE CONTRACTOR SHALL INSTALL ALL UNDERGROUND STORM WATER PIPING PER MANUFACTURER'S RECOMMENDATIONS.

DEMOLITION

1. CONTRACTOR SHALL SUBMIT DEMOLITION SCHEDULE TO OWNER PRIOR TO PROCEEDING WITH DEMOLITION ACTIVITIES.
2. EXTENT OF SITE CLEARING IS SHOWN ON DRAWINGS.
3. CONTRACTOR SHALL CONDUCT SITE DEMOLITION OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM AUTHORITIES HAVING JURISDICTION.
4. CONTRACTOR SHALL PROVIDE PROTECTION NECESSARY TO PREVENT DAMAGE TO EXISTING IMPROVEMENTS INDICATED ON PLAN "EXISTING TO REMAIN".
5. CONTRACTOR SHALL RESTORE DAMAGED IMPROVEMENTS TO THEIR ORIGINAL CONDITION, AS ACCEPTABLE TO PARTIES HAVING JURISDICTION.
6. CONTRACTOR SHALL REMOVE WASTE MATERIALS AND UNSUITABLE AND EXCESS TOPSOIL FROM PROPERTY AND DISPOSE OF OFF-SITE IN A LEGAL MANNER.
7. CONTRACTOR SHALL DEMOLISH AND COMPLETELY REMOVE FROM SITE MATERIAL INDICATED ON PLAN OR NOTES "TO BE REMOVED".
8. CONTRACTOR SHALL PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT AND OTHER HAZARDS CREATED BY THE DEMOLITION OPERATION
9. ALL MATERIAL REMOVED FROM THIS SITE BY THE CONTRACTOR SHALL BE DISPOSED OF BY THE CONTRACTOR IN A LEGAL MANNER.
10. REFER TO THE TOPOGRAPHIC SURVEY FOR ADDITIONAL DETAILS OF EXISTING STRUCTURES, ETC., LOCATED WITHIN THE PROJECT SITE. UNLESS OTHERWISE NOTED, ALL EXISTING BUILDINGS, STRUCTURES, SLABS, CONCRETE, ASPHALT, DEBRIS PILES, SIGNS, AND ALL APPURTENANCES ARE TO BE REMOVED FROM THE SITE BY THE CONTRACTOR AND PROPERLY DISPOSED OF IN A LEGAL MANNER AS PART OF THIS CONTRACT. SOME ITEMS TO BE REMOVED MAY NOT BE DEPICTED ON THE TOPOGRAPHIC SURVEY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE AND DETERMINE THE FULL EXTENT OF ITEMS TO BE REMOVED. IF ANY ITEMS ARE IN QUESTION, THE CONTRACTOR SHALL CONTACT THE OWNER PRIOR TO REMOVAL OF SAID ITEMS.
11. THE CONTRACTOR SHALL REFER TO THE DEMOLITION PLAN FOR DEMOLITION/PRESERVATION OF EXISTING TREES. ALL TREES NOT SPECIFICALLY SHOWN TO BE PRESERVED OR RELOCATED SHALL BE REMOVED AS A PART OF THIS CONTRACT. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO ANY DEMOLITION.

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FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

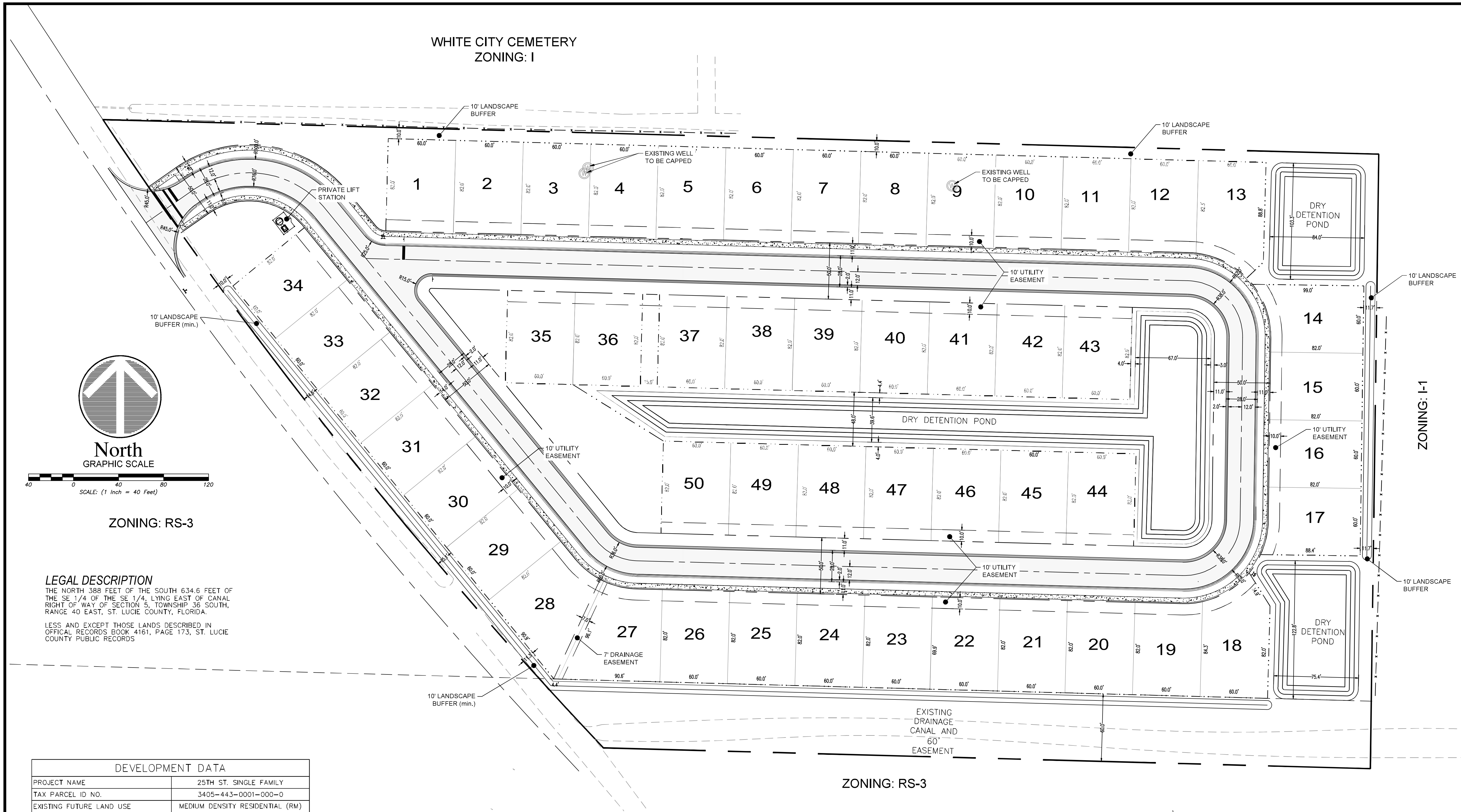
CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

NO. 84598
BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-COVER

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
C-101



LEGAL DESCRIPTION

THE NORTH 388 FEET OF THE SOUTH 634.6 FEET OF THE SE 1/4 OF THE SE 1/4, LYING EAST OF CANAL RIGHT OF WAY OF SECTION 5, TOWNSHIP 36 SOUTH, RANGE 40 EAST, ST. LUCIE COUNTY, FLORIDA.

LESS AND EXCEPT THOSE LANDS DESCRIBED IN OFFICAL RECORDS BOOK 4161, PAGE 173, ST. LUCIE COUNTY PUBLIC RECORDS

DEVELOPMENT DATA	
PROJECT NAME	25TH ST. SINGLE FAMILY
TAX PARCEL ID NO.	3405-443-0001-000-0
EXISTING FUTURE LAND USE	MEDIUM DENSITY RESIDENTIAL (RM)
PROPOSED FUTURE LAND USE	MEDIUM DENSITY RESIDENTIAL (RM)
EXISTING ZONING	RS-3
PROPOSED ZONING	PLANNED DEVELOPMENT ZONE (PD)
PROJECT USE	SINGLE-FAMILY RESIDENTIAL
MAXIMUM ALLOWABLE DENSITY	RS-3 - 6 DU/AC
PROPOSED DENSITY	PD - 3.81 DU/AC

OPEN SPACE CALCUALTION			
TOTAL AREA OF SUBJECT PARCEL	502,682 SF	11.54 AC	100.00%
REQUIRED OPEN SPACE AREA	100,536 SF	2.31 AC	20.00%
AREA OF WETLAND BUFFER	0 SF	0.00 AC	0.00%
AREA OF RETENTION PONDS*	30,161 SF	0.69 AC	6.00%
AREA OF GREEN SPACE	119,476 SF	2.74 AC	23.77%
PROVIDED OPEN SPACE AREA	149,637 SF	3.44 AC	29.77%

*PER SECTION 125-212(b)(3)...stormwater detention and retention facilities providing that no more than 30 percent of the overall open space requirement shall be satisfied in this manner

LAND USE BREAKDOWN			
TOTAL AREA OF SUBJECT PARCEL	502,682 SF	11.54 AC	100.00%
AREA OF ONSITE WETLAND	0 SF	0.00 AC	0.00%
AREA OF WETLAND BUFFER	0 SF	0.00 AC	0.00%
TOTAL DEVELOPMENT AREA	502,682 SF	11.54 AC	100.00%

TOTAL DEVELOPMENT AREA	502,682 SF	11.54 AC	100.00%
AREA OF PROPOSED BUILDINGS	150,000 SF	3.44 AC	29.84%
AREA OF PROPOSED IMPERVIOUS	63,131 SF	1.45 AC	12.56%
AREA OF PROPOSED LOT IMPERVIOUS	30,000 SF	0.69 AC	5.97%
AREA OF PROPOSED RETENTION BASE	32,933 SF	0.76 AC	6.55%
TOTAL PROPOSED IMPERVIOUS AREA	276,064 SF	6.34 AC	54.92%
AREA OF PROPOSED LOT PERVIOUS	80,253 SF	1.84 AC	15.96%
AREA OF PROPOSED RETENTION BANK	28,870 SF	0.66 AC	5.74%
AREA OF PROPOSED GREEN SPACE	119,476 SF	2.74 AC	23.77%
TOTAL PROPOSED PERVIOUS AREA	228,599 SF	5.25 AC	45.48%

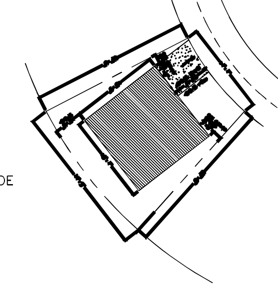
ZONING	PD
MIN. LOT SIZE	4,920 SF
MIN. LOT WIDTH	60'
MIN. LOT DEPTH	70' (82 PROPOSED)
MIN. ROAD FRONTAGE	25'
MAX. LOT COVERAGE	40%
BUILDING HEIGHT (1 STORY)	45'
MAX. GROSS DENSITY (DU/AC.)	12 DU/AC. (3.81 DU/AC. PROPOSED)
MIN. SETBACKS	
FRONT	15'
SIDE (INTERIOR)	5'
SIDE (CORNER)	5'
GARAGE	20'
REAR	15'

CIVIL ENGINEER
KMA ENGINEERING & SURVEYING, LLC
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
PHONE: (772) 569-5505

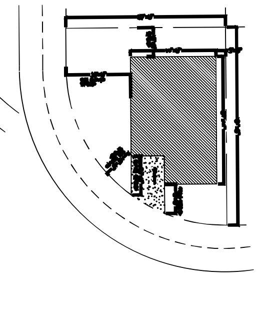
OWNER/DEVELOPER
DT VENTURES 1, LLC.
PO BOX 92280
ROCHESTER,NY 14692

NOTES

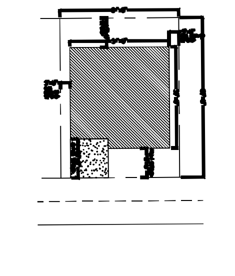
1. AIR CONDITIONER UNITS WILL HAVE A 5' SIDE SETBACK.



CURVATURE LOT DETAIL
SCALE: N.T.S.



CORNER LOT DETAIL
SCALE: N.T.S.



REGULAR LOT DETAIL
SCALE: N.T.S.

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(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:		
BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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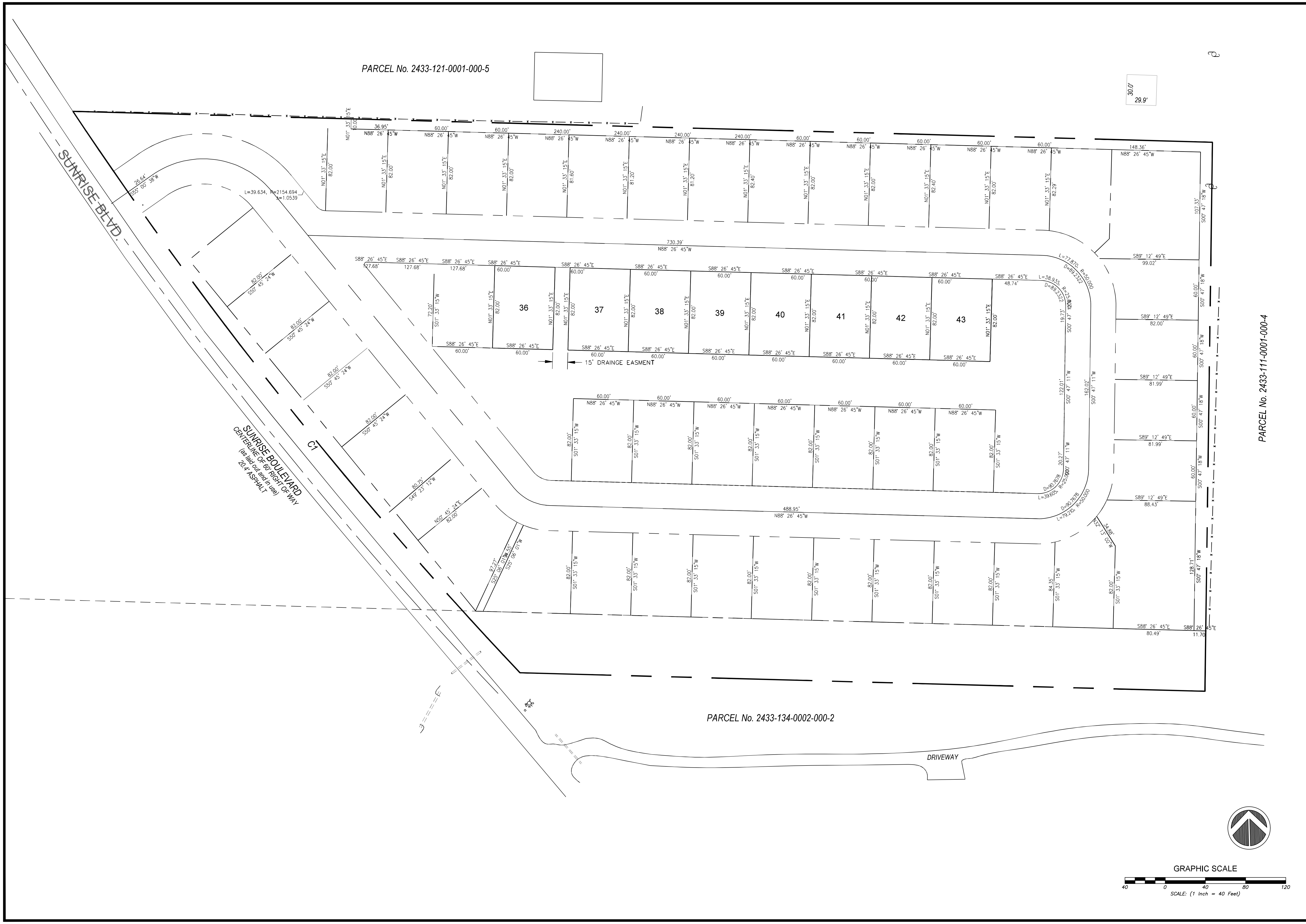
PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-SITE

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C-200



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(772) 569-5005
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER
LICENSE NO. 84598
STATE OF FLORIDA
PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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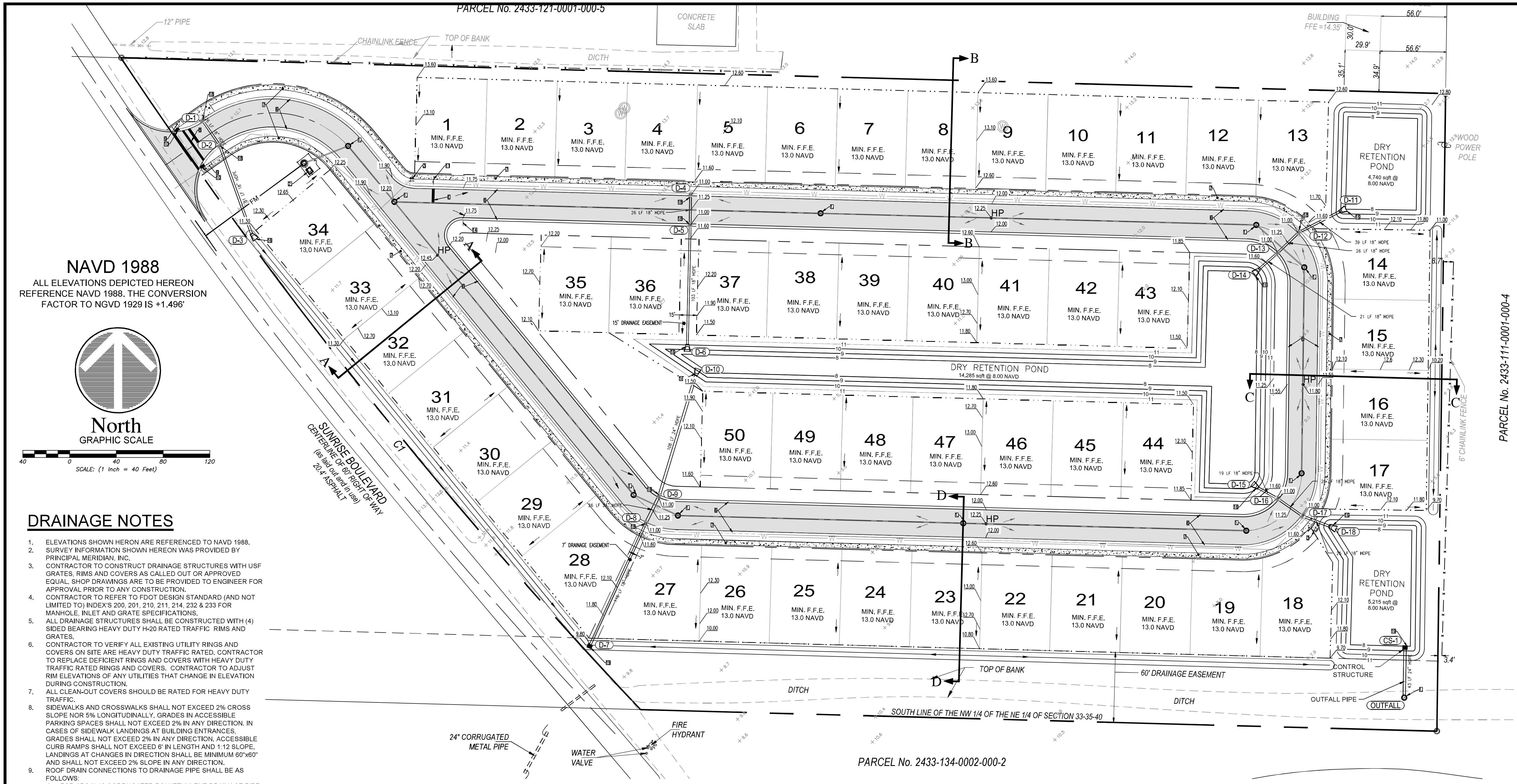
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-X-PLAT-BASE

SHEET TITLE:
PRELIMINARY PLAT

SHEET NUMBER:
C-201

Printed on Tuesday, July 09, 2024, 12:14 PM by Blaine Bergstresser



NAVD 1988

ALL ELEVATIONS DEPICTED HEREON REFERENCE NAVD 1988. THE CONVERSION FACTOR TO NGVD 1929 IS +1.496'

DRAINAGE NOTES

1. ELEVATIONS SHOWN HERON ARE REFERENCED TO NAVD 1988.
2. SURVEY INFORMATION SHOWN HEREON WAS PROVIDED BY PRINCIPAL MERIDIAN, INC.
3. CONTRACTOR TO CONSTRUCT DRAINAGE STRUCTURES WITH USF GRATES, RIMS AND COVERS AS CALLED OUT OR APPROVED EQUAL. SHOP DRAWINGS ARE TO BE PROVIDED TO ENGINEER FOR APPROVAL PRIOR TO ANY CONSTRUCTION.
4. CONTRACTOR TO REFER TO FDOT DESIGN STANDARD (AND NOT LIMITED TO) INDEX'S 200, 201, 210, 211, 214, 232 & 233 FOR MANHOLE, INLET AND GRATE SPECIFICATIONS.
5. ALL DRAINAGE STRUCTURES SHALL BE CONSTRUCTED WITH (4) SIDED BEARING HEAVY DUTY H-20 RATED TRAFFIC RIMS AND GRATES.
6. CONTRACTOR TO VERIFY ALL EXISTING UTILITY RINGS AND COVERS ON SITE ARE HEAVY DUTY TRAFFIC RATED. CONTRACTOR TO REPLACE DEFICIENT RINGS AND COVERS WITH HEAVY DUTY TRAFFIC RATED RINGS AND COVERS. CONTRACTOR TO ADJUST RIM ELEVATIONS OF ANY UTILITIES THAT CHANGE IN ELEVATION DURING CONSTRUCTION.
7. ALL CLEAN-OUT COVERS SHOULD BE RATED FOR HEAVY DUTY TRAFFIC.
8. SIDEWALKS AND CROSSWALKS SHALL NOT EXCEED 2% CROSS SLOPE NOR 5% LONGITUDINALLY. GRADES IN ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION. IN CASES OF SIDEWALK LANDINGS AT BUILDING ENTRANCES, GRADES SHALL NOT EXCEED 2% IN ANY DIRECTION. ACCESSIBLE CURB RAMPS SHALL NOT EXCEED 6' IN LENGTH AND 1:12 SLOPE. LANDINGS AT CHANGES IN DIRECTION SHALL BE MINIMUM 60"x60" AND SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION.
9. ROOF DRAIN CONNECTIONS TO DRAINAGE PIPE SHALL BE AS FOLLOWS:
   A. FOR ADS N-12 CORRUGATED POLYETHYLENE DRAINAGE PIPE USE ADS DUAL WALL FABRICATED REDUCING SADDLE TEE 4"-24" DIAMETER.
   B. FOR RCP DRAINAGE PIPE MAKE CONNECTION PER FDOT INDEX 280,CONCRETE COLLAR FOR JOINING MAINLINE PIPE AND STUB PIPE DETAIL
   C. NOTIFY CONSULTANT FOR CONNECTION METHOD TO STEEL PIPE.
10. ALL DRAINAGE PIPE JOINTS SHALL BE FILTER FABRIC WRAPPED PER FDOT INDEX #280. ALL DRAINAGE PIPE JOINTS NEED TO BE FILTER FABRIC WRAPPED REGARDLESS OF MATERIAL.
11. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
12. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE.
13. EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
14. PRECAST STRUCTURES MAY BE USED AT CONTRACTORS OPTION.
15. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
16. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER".
17. ALL CATCH BASINS WITHIN PROPOSED TRAFFIC AREAS SHALL HAVE BICYCLE PROOF GRATES.
18. CONTRACTOR TO FLUSH AND VACUUM ENTIRE ON-SITE STORM WATER SYSTEM UPON COMPLETION OF PROPOSED WORK.
19. MINIMUM DRAINAGE PIPE SHALL BE 15 INCHES PER CITY OF FORT PIERCE LAND DEVELOPMENT ORDINANCE SEC 119-3 DESIGN STANDARDS; STORMWATER MANAGEMENT; APPROVALS.

DRAINAGE STRUCTURE TABLE

CONSTRUCT D-1
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-2
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-3
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-4
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-5
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-6
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-7
TYPE 'C' D.B.I.
GRATE TOP = 10.00
N INV = 7.00
SUMP = 6.00

CONSTRUCT D-8
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-9
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-10
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-11
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-12
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-13
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-14
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-15
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT D-16
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-17
MIAMI CURB INLET
GRATE TOP = 11.00
W INV = 8.00
S INV = 8.00
SUMP = 7.00

CONSTRUCT D-18
CONCRETE END SECTION
E INV = 9.00

CONSTRUCT CS-1
TYPE 'C' D.B.I.
GRATE TOP = 18.50
ORIFICE =
S INV = 6.00
SUMP = 5.00

CONSTRUCT OUTFALL

CONSTRUCTION NOTES

1. SEWER MANHOLE
2. LIFT STATION
3. FIRE HYDRANT
4. FDOT TYPE 'D' CURB
5. FDOT TYPE 'F' CURB
6. MODIFIED MIAMI CURB
7. CONCRETE SIDEWALK per DETAIL
8. CROSSWALK per DETAILS
9. CURB RAMP per DETAILS
10. 2' TACTILE SURFACE
11. R1-1 STOP SIGN
12. W11-2 PEDISTRIAN SIGN w/ W16-7PL
13. R2-1 SPEED SIGN
14. D3 STREET NAME SIGN
15. MITERED END SECTION
16. FLARED END SECTION
17. YARD DRAIN per DETAIL
18. MIAMI CURB INLET
19. DITCH BOTTOM INLET

HATCH PATTERN L LEGEND

DENOTES ASPHALT PAVEMENT
DENOTES CONCRETE PAVEMENT
DENOTES RIGHT-OF-WAY DEDICATION

STRIPING NOTES

A 6" SOLID WHITE
B 6" DOUBLE YELLOW
C 12" SOLID WHITE
D 18" SOLID WHITE
E 24" SOLID WHITE
F R.P.M.'s per FDOT INDEX 706-001
G 6" WHITE (6'-10' SKIP)
H 6" WHITE (10'-30' SKIP)
J 6" WHITE (2'-4' SKIP)
K TURN ARROW per FDOT INDEX 711-001
L 18" YELLOW STRIPE

LINEWORK & SYMBOL LEGEND

DENOTES PROPERTY BOUNDARY
DENOTES RIGHT-OF-WAY
DENOTES CENTERLINE
DENOTES EASEMENT
DENOTES FENCE LINE
DENOTES DRAINAGE PIPE
DENOTES SEWER MANHOLE
DENOTES FIRE HYDRANT
DENOTES GATE VALVE
DENOTES LIGHT POLE
DENOTES STREET SIGN
DENOTES RUNOFF OVERLAND FLOW
20.5 / 20.0 DENOTES PROPOSED ELEVATIONS
x 22.0 DENOTES EXISTING GRADES
DENOTES DRAINAGE STRUCTURE refer to table this sheet
DENOTES DITCH BOTTOM INLET
DENOTES JUNCTION BOX
DENOTES YARD DRAIN
DENOTES DRAINAGE STRUCTURE
DENOTES MITERED/FLARED END SECTION

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FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

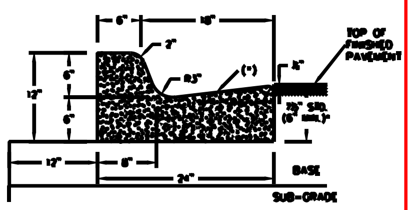
BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-PGD

SHEET TITLE: **MASTER PAVING GRADING & DRAINAGE PLAN**

SHEET NUMBER: **C-300**

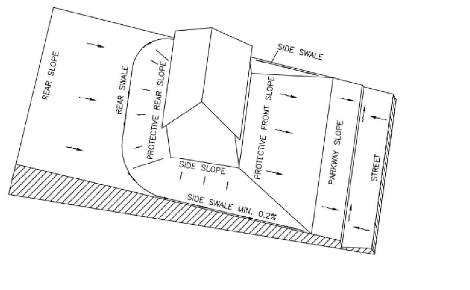
Printed on Tuesday, July 09, 2024, 12:15 PM by Blaine Bergstresser



* WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT AND THE THICKNESS OF THE LIP SHALL BE 6" UNLESS OTHERWISE SHOWN ON THE PLANS. ASPHALT SURFACE ON HIGH SIDE TO BE FLUSH WITH LIP OF CURB OR CURB & GUTTER.

TYPE "F" CURB AND GUTTER

N.T.S



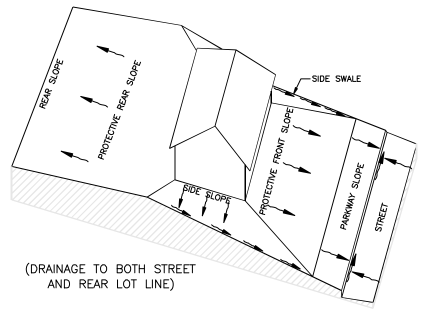
(DRAINAGE TO STREET)

NOTES

1. ALL SLOPES GREATER THAN 6:1 SHALL BE SODDED.
2. ROOF RUNOFF FROM SIDES AND REAR OF HOUSES SHALL BE DIRECTED TOWARD SIDE AND REAR YARD SWALES ACCORDINGLY.

TYPE 'A' LOT GRADING DETAIL

N.T.S.



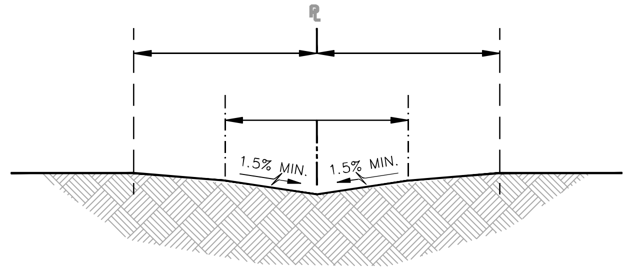
(DRAINAGE TO BOTH STREET AND REAR LOT LINE)

NOTES

1. ALL SLOPES GREATER THAN 6:1 SHALL BE SODDED.
2. ROOF RUNOFF FROM SIDES AND REAR OF HOUSES SHALL BE DIRECTED TOWARD SIDE AND REAR YARD SWALES ACCORDINGLY.

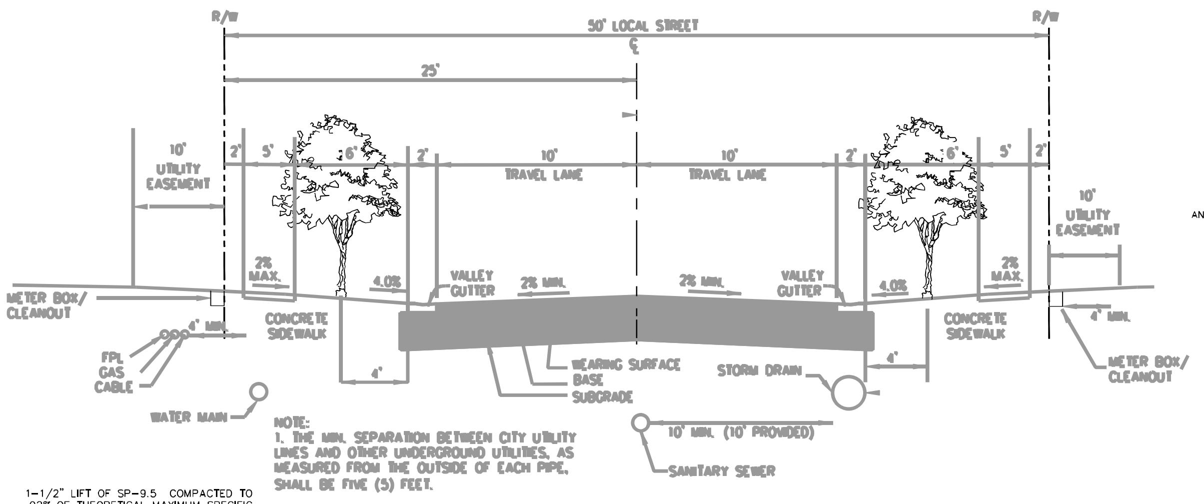
TYPE 'B' LOT GRADING DETAIL

N.T.S.

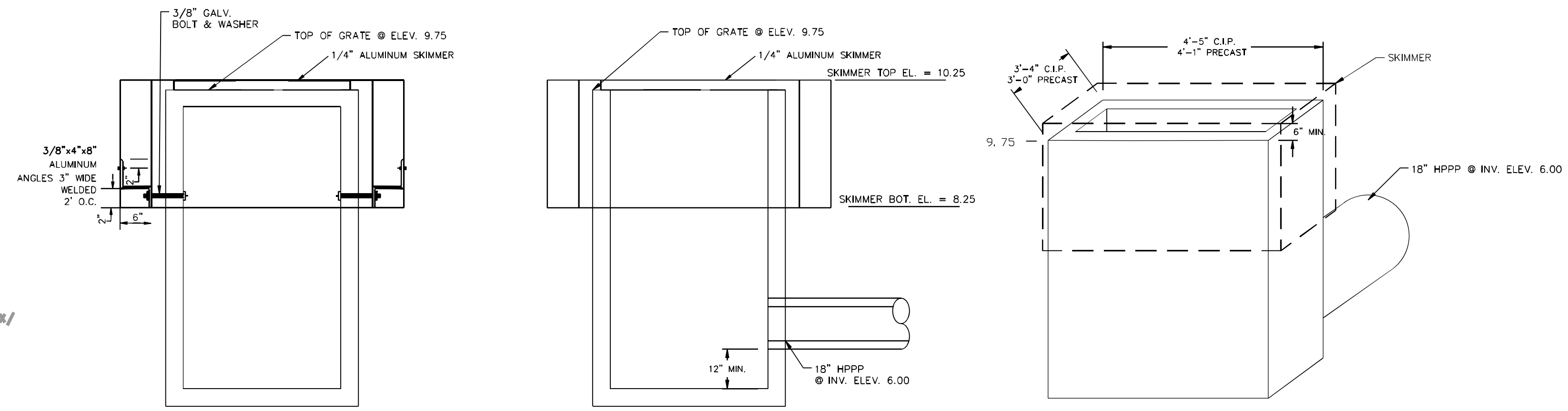


TYPICAL LOT SWALE SECTION

N.T.S.



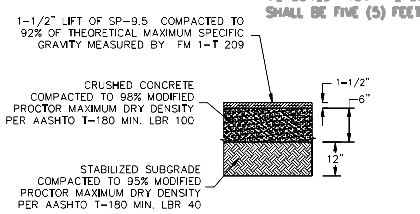
NOTE:
1. THE MIN. SEPARATION BETWEEN CITY UTILITY LINES AND OTHER UNDERGROUND UTILITIES, AS MEASURED FROM THE OUTSIDE OF EACH PIPE, SHALL BE FIVE (5) FEET.



CONTROL STRUCTURE NOTES:
1. CONTRACTOR TO REFER TO FDOT FY 2021-22 STANDARD PLANS INDEX 425-052 FOR REBAR SPACING AND SIZING.

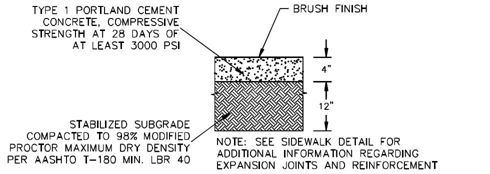
CONTROL STRUCTURE (CS-01)

FDOT TYPE 'C' STRUCTURE



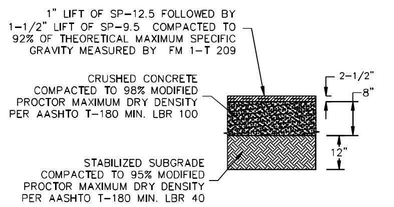
STANDARD DUTY ASPHALT

N.T.S



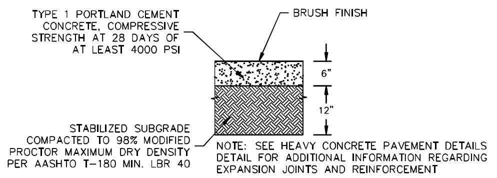
STANDARD DUTY CONCRETE

N.T.S



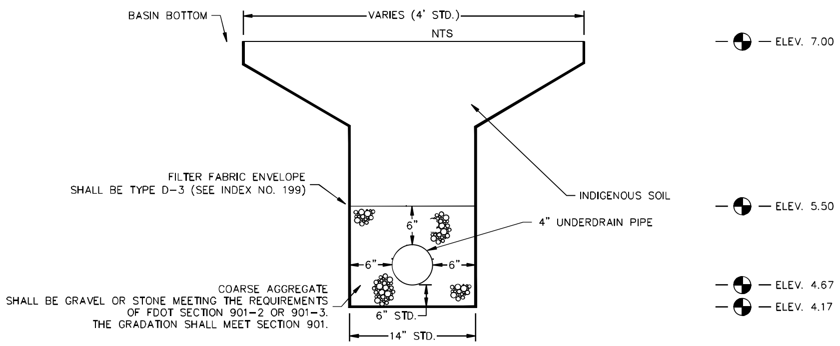
HEAVY DUTY ASPHALT

N.T.S



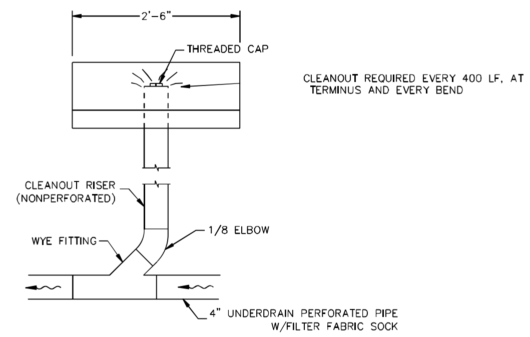
HEAVY DUTY CONCRETE

N.T.S

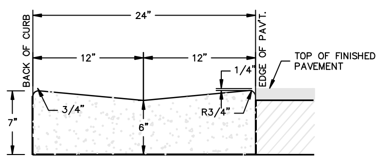


UNDERDRAIN TRENCH

N.T.S



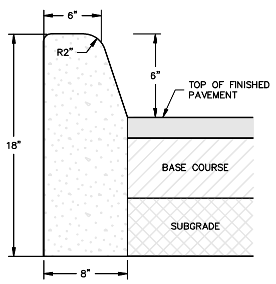
NOTE:
CONTRACTOR TO REFER TO THE GEOTECHNICAL REPORT FOR SITE WORK SPECIFICATIONS.
CRUSHED CONCRETE SHALL BE FROM AN FDOT APPROVED PLANT.
CRUSHED CONCRETE GRADATION SHALL BE AVAILABLE ON SITE AND SUBMITTED FOR THE AS-BUILT.



ALL CONCRETE SHALL BE 3,000 PSI

VALLEY GUTTER SECTION

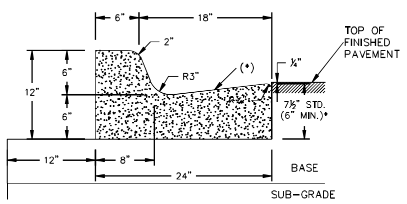
PGKH21A.DWG N.T.S.



ALL CONCRETE SHALL BE 3,000 PSI

TYPE "D" CURB

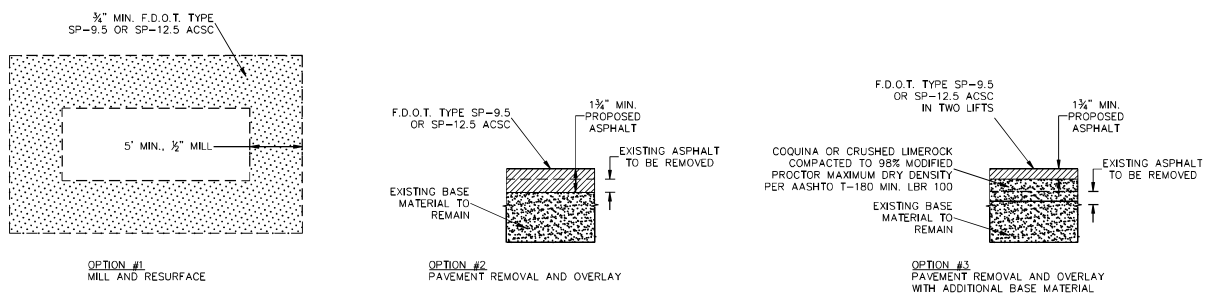
PGKH22A.DWG N.T.S.



* WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT AND THE THICKNESS OF THE LIP SHALL BE 6" UNLESS OTHERWISE SHOWN ON THE PLANS. ASPHALT SURFACE ON HIGH SIDE TO BE FLUSH WITH LIP OF CURB OR CURB & GUTTER.

TYPE "F" CURB AND GUTTER

N.T.S



OPTION #1
MILL AND RESURFACE

OPTION #2
PAVEMENT REMOVAL AND OVERLAY

OPTION #3
PAVEMENT REMOVAL AND OVERLAY WITH ADDITIONAL BASE MATERIAL

ASPHALT PAVEMENT RESTORATION

N.T.S

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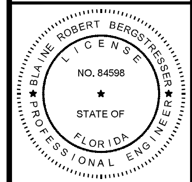
FBPE C.O.A. # 33705

REVISIONS:		
BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

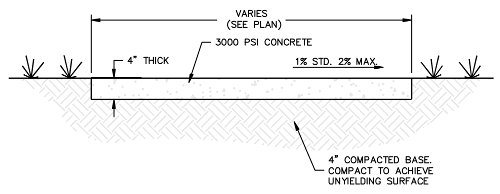


BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-PGD

SHEET TITLE:
PAVING GRADING & DRAINAGE DETAILS

SHEET NUMBER:
C-301

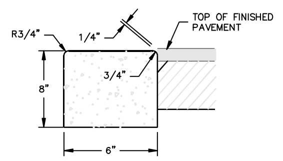


NOTE
SEE SITE PLAN FOR SPECIFIC SIDEWALK LOCATIONS.

SIDEWALK CONSTRUCTION SHALL BE PER FDOT DESIGN STANDARDS INDEX 522-001. DETECTABLE WARNINGS AND CURB RAMPS SHALL BE PER INDEX 522-002.

TYPICAL 4" SIDEWALK SECTION

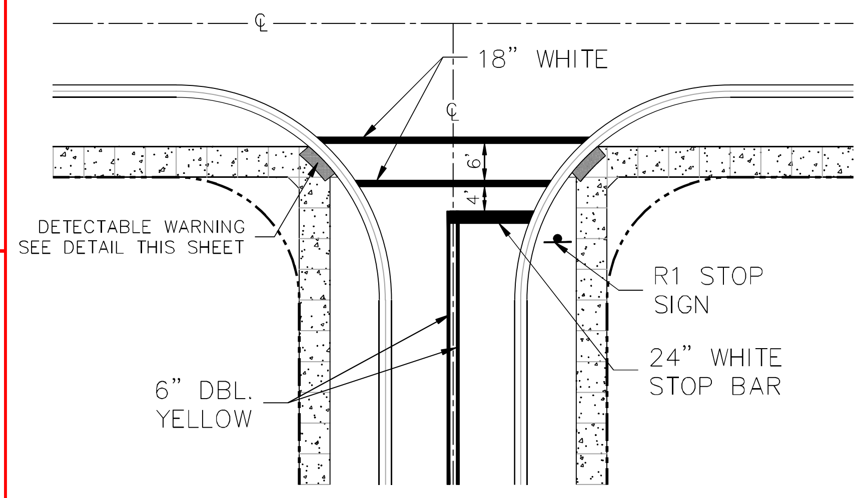
N.T.S.



ALL CONCRETE SHALL BE 3,000 PSI

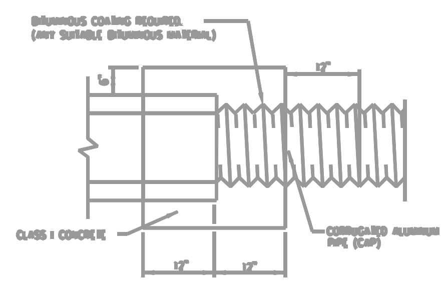
6" EDGE CURB

PGKH24A.DWG N.T.S.



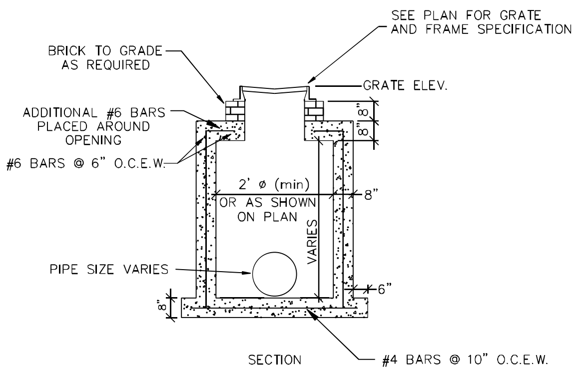
TYPICAL CROSSWALK AND STOP BAR DETAIL

N.T.S.



CONCRETE COLLAR DETAIL

N.T.S.

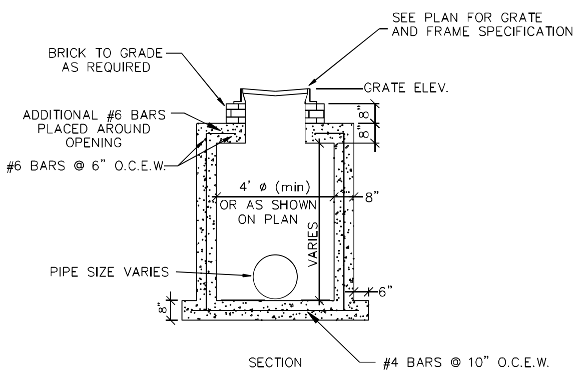


NOTE:

1. TYPE II CEMENT 4000 P.S.I.
2. WALL REINFORCEMENT A.S.T.M. DESIGNATION A185-64 OR EQUAL TO A.S.T.M. C-478.

TYPE C STORM INLET DETAIL

N.T.S



NOTE:

1. TYPE II CEMENT 4000 P.S.I.
2. WALL REINFORCEMENT A.S.T.M. DESIGNATION A185-64 OR EQUAL TO A.S.T.M. C-478.

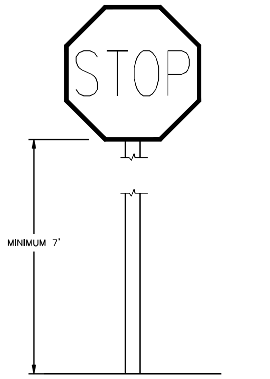
TYPE D STORM INLET DETAIL

N.T.S

R1-1
30" X 30"

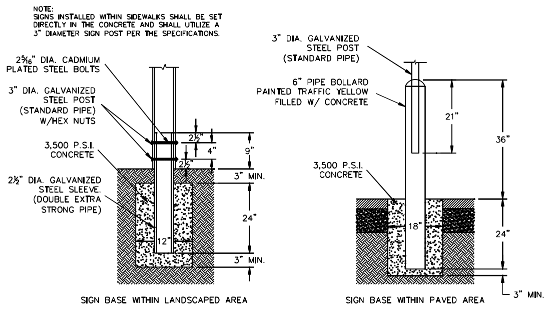
STOP SIGN DIMENSIONS

N.T.S.



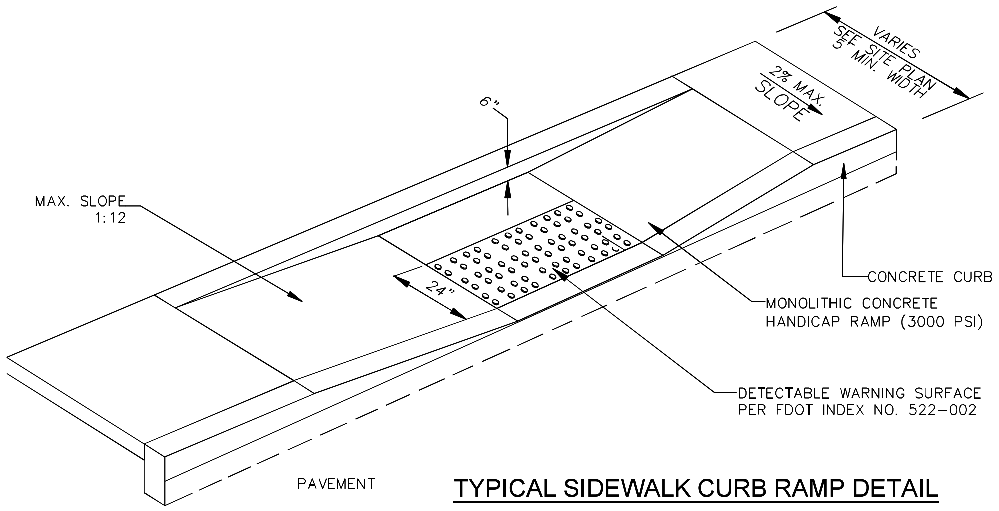
REQUIRED SIGN HEIGHT

N.T.S



SIGN BASE

N.T.S

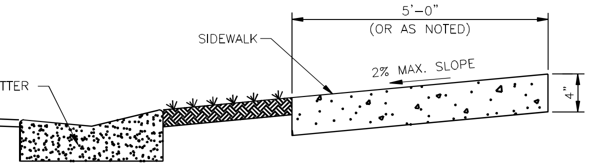


TYPICAL SIDEWALK CURB RAMP DETAIL

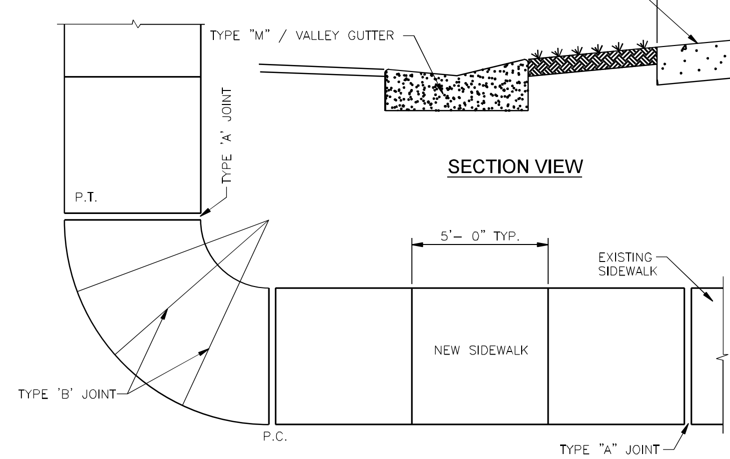
TABLE OF SIDEWALK THICKNESS - 'T'	
LOCATION	'T'
RESIDENTIAL AREAS	4"
AT DRIVEWAYS AND OTHER AREAS	6"

NOTE: CONCRETE TO BE 3,000 P.S.I. AT 28 DAYS

TABLE OF SIDEWALK JOINTS	
TYPE	LOCATION
'A'	P.C. AND P.T. OF CURVES.
'B'	5'- 0" CENTER TO CENTER ON SIDEWALKS. (NOT LESS THAN 4' AND NOT GREATER THAN 10')
'C'	WHERE SIDEWALK ABUTS CONCRETE CURBS, DRIVEWAYS AND SIMILAR STRUCTURES. JUNCTION OF EXISTING AND NEW SIDEWALKS AT INTERVALS NOT GREATER THAN 100'.



SECTION VIEW

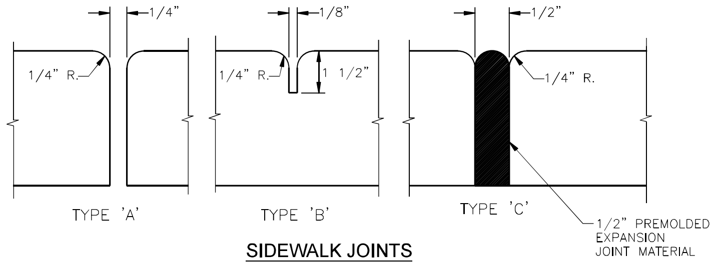


PLAN

NOTES:
ALL CURB RAMPS SHALL BE EMBOSSED WITH A TACTILE SURFACE PER FDOT INDEX NO. 304.

SIDEWALKS CROSSING STREETS SHALL HAVE A TACTILE SURFACE FOR A MINIMUM OF 2' ADJACENT TO EACH CROSSING. TACTILE SURFACES SHALL CONFORM TO THE REQUIREMENTS DESCRIBED IN THE GENERAL NOTES ON FDOT INDEX NO. 304.

SAW CUTTING WILL NOT BE ACCEPTED.



SIDEWALK JOINTS

SIDEWALK CONSTRUCTION

N.T.S.

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:		
BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER
LICENSE
NO. 84598
STATE OF FLORIDA
PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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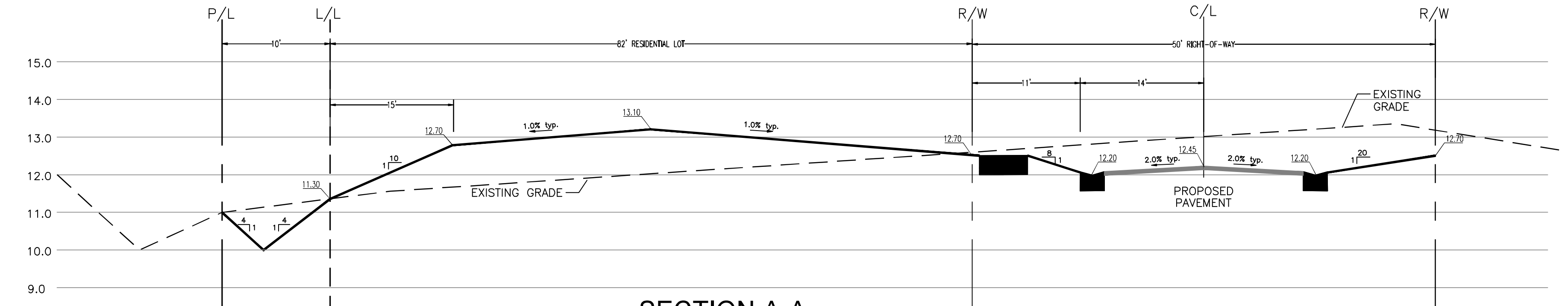
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-PGD

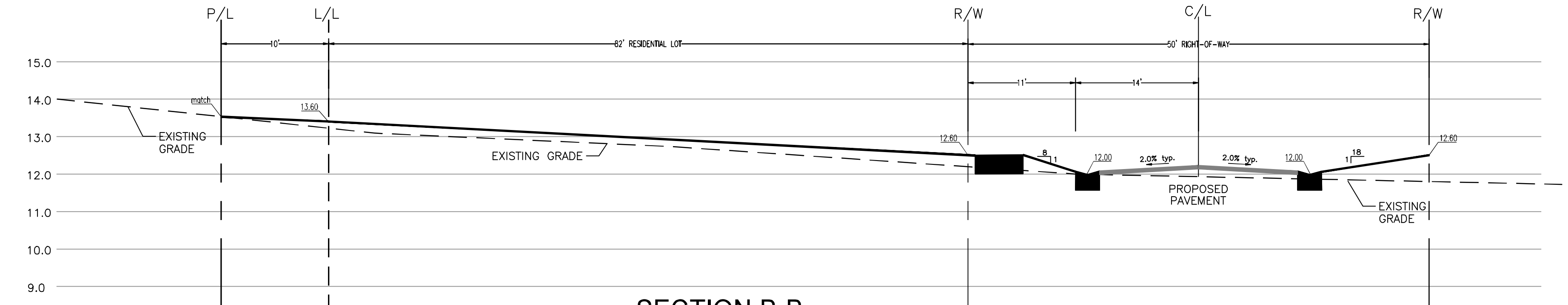
SHEET TITLE:
PAVING GRADING & DRAINAGE DETAILS

SHEET NUMBER:
C-302

Printed on Tuesday, July 09, 2024, 12:15 PM by Blaine Bergstresser



SECTION A-A
SCALE: NOT TO SCALE



SECTION B-B
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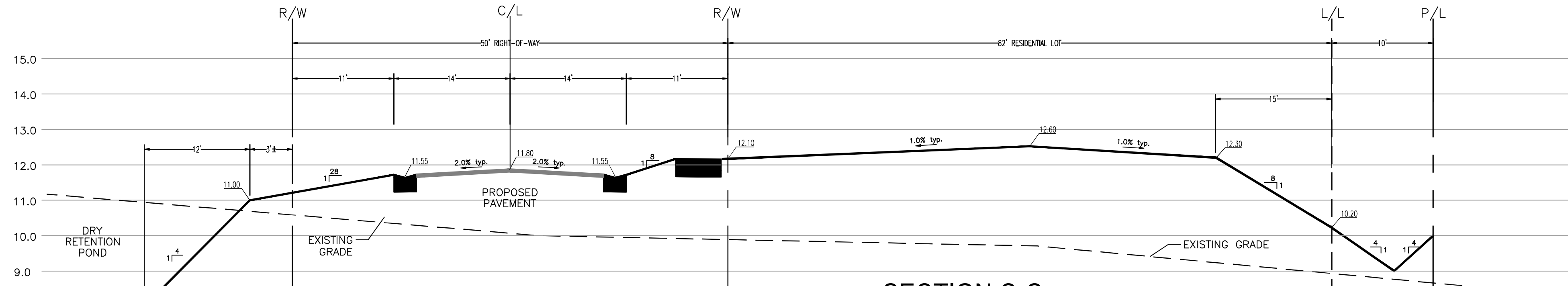
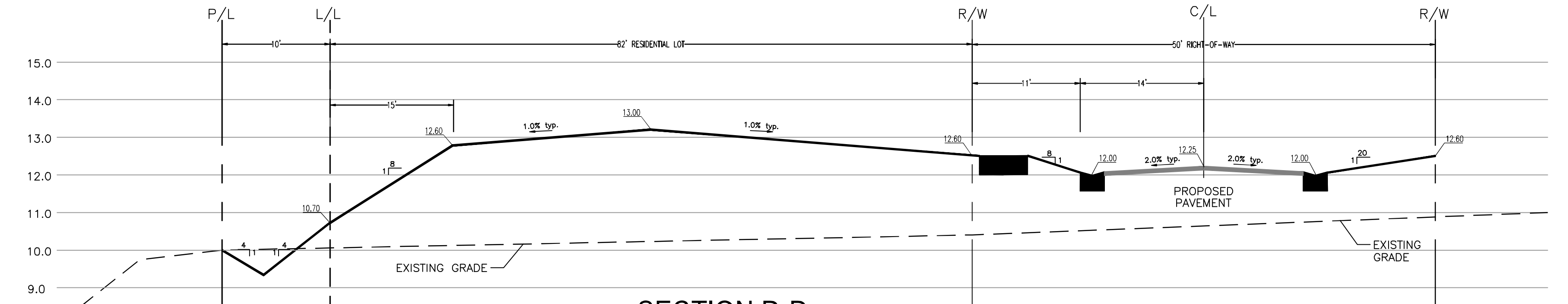


SECTION C-C
SCALE: NOT TO SCALE



SECTION D-D
SCALE: NOT TO SCALE

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ENGINEERING & SURVEYING, LLC
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5005
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

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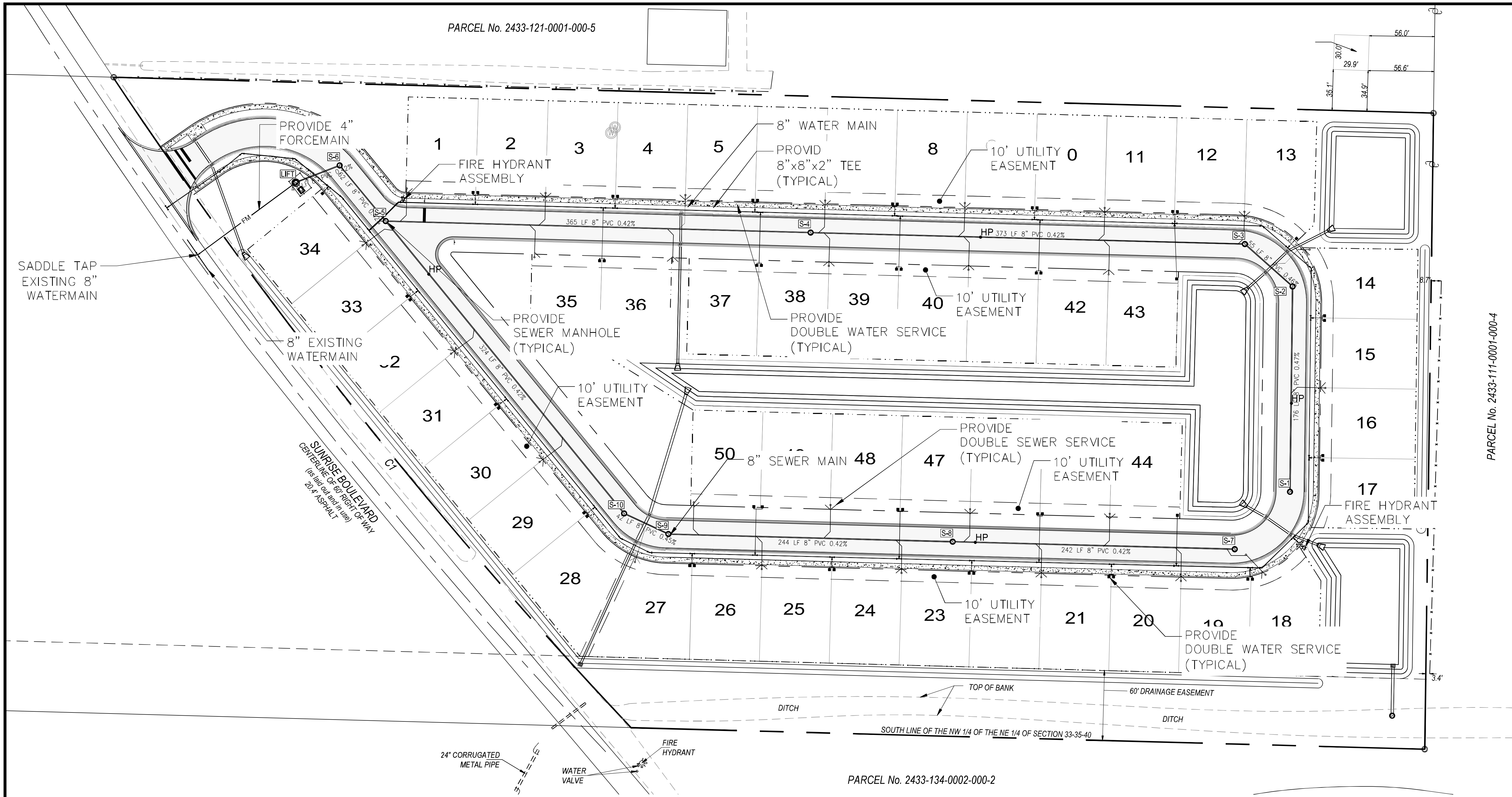
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-PGD

SHEET TITLE:
GRADING SECTIONS

SHEET NUMBER:
C-303



UTILITY NOTES

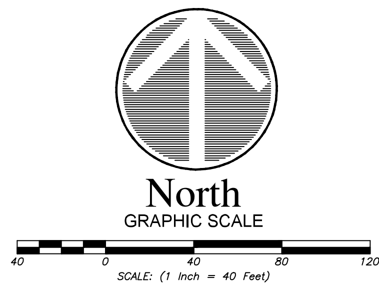
1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD, THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPREITE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
3. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
4. SANITARY SEWER PIPE SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON THE PLANS:
   8" PVC SDR26 PER ASTM D 3034 DEPTHS LESS THAN 15'
5. WATER LINES SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON PLANS:
   6" AND LARGER, PVC C-900 PER ASTM D 2241
   CLASS 200 UNDER ROADS, OTHERWISE CLASS 150
6. MINIMUM TRENCH WIDTH SHALL BE 2 FEET.
7. ALL UTILITIES SHOULD BE KEPT TEN (10') APART (PARALLEL) OR WHEN CROSSING 18" VERTICAL CLEARANCE (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE).
8. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 36" COVER ON ALL WATERLINES AND FORCEMAINS.
9. CROSSINGS AND CONFLICTS MUST BE PER FPUA SPECIFICATIONS.
10. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
11. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 COMPRESSION STRENGTH AT 3000 P.S.I.
12. CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE LOCAL AUTHORITIES WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
13. ALL WATER MAIN INSTALLATIONS SHALL COMPLY WITH THE COLOR CODING REQUIREMENTS OF CHAPTER 62-555.320 FAC.
14. VALVES ARE NOT TO BE PLACED IN CURBS, SIDEWALKS, OR DRIVEWAYS.
15. ALL MANHOLES SHALL BE ADJUSTED TO FINAL GRADE PRIOR TO BEGINNING PAVING.
16. DRIVEWAY APRON IS SHOWN FOR REFERENCE ONLY. DRIVEWAYS ARE TO BE CONSTRUCTED AND PERMITTED AS PART OF THE BUILDING PERMIT PROCESS.
17. TRACER WIRE MUST BE INSTALLED PER FPUA SPEC./QPL.
18. THE PROPERTY OWNER, CONTRACTOR,AND AUTHORIZED REPRESENTATIVES SHALL PROVIDE PICK UP, REMOVAL, AND DISPOSAL OF LITTER WITHIN THE PROPERTY LIMITS AND SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE AREA FORM THE EDGE OF PAVEMENT TO THE PROPERTY LINE.

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE PROJECT DESIGN AND NOTIFYING OWNER AND ENGINEER OF ANY POTENTIAL COST SAVINGS, CONFLICTS, OR DISCREPANCIES IN PLANS PRIOR TO FINAL CONTRACT FOR CONSTRUCTION.
2. CONTRACTOR AND SURVEYOR SHALL COORDINATE WITH KMA ENGINEERING & SURVEYING DAILY PRIOR TO CONSTRUCTION STAKE OUT TO ASSURE PROPER CONSTRUCTION.
3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UNDERGROUND UTILITY NOTIFICATION CENTER AT 811 AND ANY OTHER POTENTIALLY AFFECTED UTILITY PROVIDERS FOR INSTALLATION OF NECESSARY CONDUIT AND CONFLICT AVOIDANCE, ANY NECESSARY UTILITY ADJUSTMENTS/RELOCATIONS, AND FOR GENERAL COORDINATION WITH THESE UTILITY PROVIDERS: FLORIDA POWER AND LIGHT, CITY OF FELLSMERE UTILITY DEPARTMENT, INDIAN RIVER COUNTY UTILITY DEPARTMENT, COMCAST CABLE, AT&T & FLORIDA GAS.
4. CONTRACTOR IS TO EXERCISE CAUTION WHEN WORKING NEAR OVERHEAD OR UNDERGROUND UTILITY LINES. THE LOCATIONS OF THE UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE THE RESPONSIBILITY OF THE CONTRACTOR AND UTILITY PROVIDER TO FIELD LOCATE PRIOR TO WORKING IN THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGED UTILITIES RESULTING FROM THE CONTRACTOR'S WORK.
5. THE CONTRACTOR SHALL VERIFY ALL EXISTING TIE-INS FOR DRAINAGE, WATER, SEWER, PAVING, AND ELEVATIONS, AS NECESSARY, PRIOR TO CONSTRUCTION COMMENCEMENT. THE CONTRACTOR SHALL VERIFY THE ACCURACY AND SUITABILITY OF ALL CONSTRUCTION STAKE-OUTS PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ASSURE COMPLIANCE WITH PLANS, CROSS SECTIONS, DETAILS, AND PERMITS.
6. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT ALL CONSTRUCTION PERMITS AND BONDS HAVE BEEN ACQUIRED PRIOR TO COMMENCING CONSTRUCTION. A COPY OF THE APPROVED CONSTRUCTION PLAN AND ALL PERMITS AND BONDS SHALL BE LOCATED ON THE JOB SITE AT ALL TIMES.
7. THE CONTRACTOR SHALL ENSURE ADEQUATE HORIZONTAL AND VERTICAL SEPARATION AS NECESSARY FOR FDEP AND LOCAL UTILITY PROVIDER SPECIFICATIONS (INCLUDING SERVICES). THESE SEPARATION DISTANCES SHALL BE MEASURED BY THE SURVEYOR AND SUPPLIED TO THE PROJECT ENGINEER ON AS-BUILT PLANS. CONTRACTOR SHALL RECORD ALL SEPARATION DISTANCES ON FIELD SET OF CONSTRUCTION DOCUMENTS.
8. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS AND LABOR TO COMPLETELY CONSTRUCT THE PROJECT AS SHOWN ON THE PLANS AND IN CONFORMANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
9. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT AN AS-BUILT SURVEY CERTIFIED BY A REGISTERED, LICENSED SURVEYOR OF ALL CONSTRUCTED IMPROVEMENTS AT PROJECT COMPLETION.
10. NO DESIGN CHANGES ARE TO OCCUR TO THE APPROVED CONSTRUCTION PLANS WITHOUT PRIOR APPROVAL OF THE PROJECT ENGINEER.

UTILITIES LEGEND

- DENOTES PROPERTY BOUNDARY
- DENOTES RIGHT-OF-WAY
- DENOTES CENTERLINE
- DENOTES EASEMENT
- DENOTES FENCE LINE
- WM — DENOTES WATER MAIN
- FM — DENOTES FORCE MAIN
- S — DENOTES SEWER MAIN
- DENOTES STORM DRAIN
- DENOTES SEWER MANHOLE
- DENOTES FIRE HYDRANT
- DENOTES GATE VALVE
- DENOTES BLOW-OFF & SAMPLE POINT
- DENOTES BEND FITTING
- DENOTES TEE FITTING
- DENOTES WATER SERVICE
- DENOTES SEWER SERVICE
- DENOTES MITERED END SECTION
- DENOTES DITCH BOTTOM INLET
- DENOTES DRAINAGE STRUCTURE
- DENOTES YARD DRAIN
- DENOTES LIGHT POLE



NAVD 1988

ALL ELEVATIONS DEPICTED HEREON REFERENCE NAVD 1988. THE CONVERSION FACTOR TO NGVD 1929 IS +1.496'

KMA ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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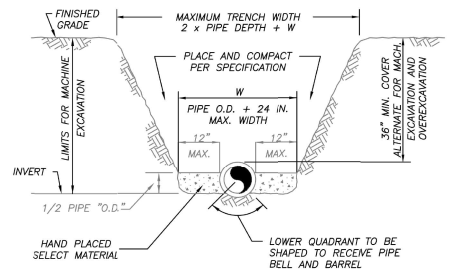
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-UTILITES

SHEET TITLE: **MASTER UTILITIES PLAN**

SHEET NUMBER: **C-400**



NOTES:

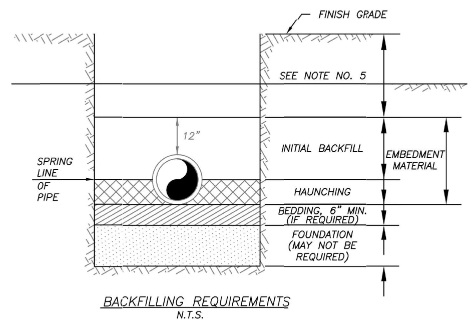
1) THE CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF THE FLORIDA TRENCH SAFETY ACT.

2) INITIAL BACKFILL SHALL BE HAND PLACED TO 12" ABOVE THE PIPE. BACKFILL SHALL BE MECHANICALLY TAMPED TO A MINIMUM OF 100% OF MAX. DENSITY AS DETERMINED BY AASHTO METHOD T-99.

TYPICAL TRENCH DETAIL

N.T.S.

FPUA COMMUNITY PROUD	TYPICAL TRENCH DETAIL	M-1
	03-09 CONCRETE SLAB SLL JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC / COMPUTER FILE #: MISC DETAILS 200602.DWG	FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL / SCALE:	
	APPROVED: JLC / DATE: 2015	SHEET 1 OF 1



BACKFILLING REQUIREMENTS

N.T.S.

NOTES:

1) IN CERTAIN SOIL CONDITIONS A FOUNDATION MAY BE REQUIRED.

2) BEDDING IS REQUIRED PRIMARILY TO BRING THE TRENCH BOTTOM UP TO GRADE. BEDDING MATERIALS SHALL PROVIDE A UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE.

3) HAUNCHING MATERIAL SHALL BE HAND PLACED TO THE SPRINGLINE OF THE PIPE. MATERIAL SHALL BE CONSOLIDATED UNDER THE PIPE AND HAND TAMPED TO PROVIDE ADEQUATE SIDE SUPPORT.

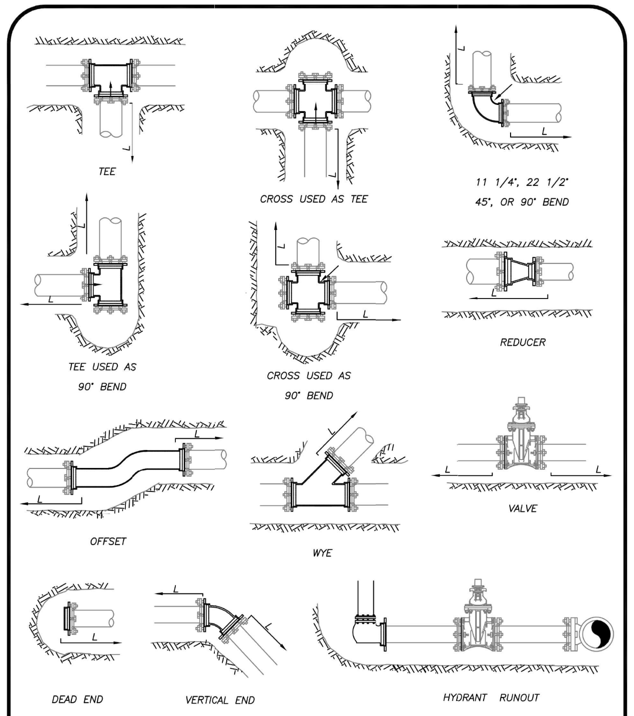
4) INITIAL BACKFILL MATERIAL SHALL BE HAND PLACED TO 12" ABOVE THE TOP OF PIPE. THE SOIL SHALL BE COMPACTED TO 100% MAX. DENSITY.(AASHTO T-99)

5) BACKFILL SHALL BE COMPACTED TO 100% OF MAX. DENSITY AS PER AASHTO T-99, TO A POINT 30" BELOW PROPOSED PROFILE GRADE OR EXISTING GRADE. THE FINAL 30" OF BACKFILL SHALL BE COMPACTED TO 98% OF MAX. DENSITY AS PER AASHTO T-180.

6) DENSITY TEST SHALL BE PERFORMED AT AREAS DETERMINED BY THE UTILITIES ENGINEER OR PERMIT AGENCY HAVING JURISDICTION, AT THE CONTRACTORS EXPENSE.

7) CONTRACTOR TO COMPLY WITH ALL FEDERAL, STATE AND LOCAL TRENCH SAFETY REGULATIONS.

FPUA COMMUNITY PROUD	BACKFILLING REQUIREMENTS	M-2
	03-09 CONCRETE SLAB SLL JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC / COMPUTER FILE #: MISC DETAILS 200602.DWG	FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL / SCALE:	
	APPROVED: JLC / DATE: 2015	SHEET 1 OF 1



MECHANICAL JOINT ANCHORING REQUIREMENTS

N.T.S.

FPUA COMMUNITY PROUD	MECHANICAL JOINT ANCHORING REQUIREMENTS	M-3
	03-09 CONCRETE SLAB SLL JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC / COMPUTER FILE #: MISC DETAILS 200602.DWG	FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL / SCALE:	
	APPROVED: JLC / DATE: 2015	SHEET 1 OF 1

MECHANICAL JOINT RESTRAINT NOTES

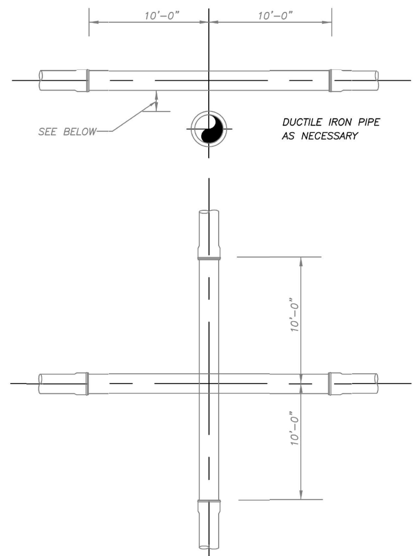
NOTES:

1) THE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE REQUIRED LENGTH TO BE RESTRAINED BASED UPON THE PROJECT AREA SOIL TYPE, PROPOSED TRENCH CONDITIONS AND DEPTH, PRESSURE OF 150 PSI, AND A SAFETY FACTOR OF TWO (2). A DRAWING OF EVERY TYPICAL FITTING ASSEMBLY WITHIN THE PROJECT SHALL BE SUBMITTED WHICH REFLECTS THE RESTRAINT DETAIL PROPOSED FOR USE, INCLUDING LENGTH OF PIPE RESTRAINT.

2) REQUIRED RESTRAINED LENGTH CALCULATIONS SHALL ALSO CONSIDER THE CONDITIONS OF OTHER BENDS OR FITTINGS THAT WILL BE LOCATED WITHIN THE CALCULATED RESTRAINED LENGTH (L) OF THE BEND OR FITTING IN QUESTION.

3) EVERY JOINT OR FITTING MUST BE RESTRAINED ON BOTH SIDES OF THE BEND AND FOR TEES ALONG THE BEND ALSO.

FPUA COMMUNITY PROUD	MECHANICAL JOINT RESTRAINT NOTES	M-4
	03-09 CONCRETE SLAB SLL JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC / COMPUTER FILE #: MISC DETAILS 200602.DWG	FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL / SCALE:	
	APPROVED: JLC / DATE: 2015	SHEET 1 OF 1



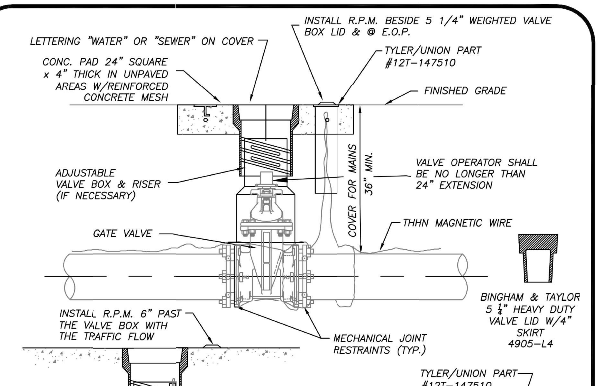
NOTE:

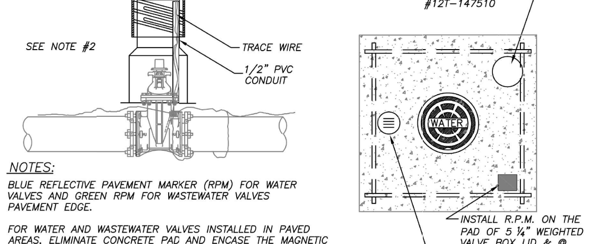
PLEASE REFER TO FORT PIERCE UTILTIES STANDARD SEPARATION STATEMENT FOR WATER / SEWER CONFLICTS.

UTILITY CROSSING DETAIL

N.T.S.

FPUA COMMUNITY PROUD	UTILITY CROSSING DETAIL	M-5
	03-09 CONCRETE SLAB SLL JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC / COMPUTER FILE #: MISC DETAILS 200602.DWG	FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL / SCALE:	
	APPROVED: JLC / DATE: 2015	SHEET 1 OF 1





NOTES:

1. BLUE REFLECTIVE PAVEMENT MARKER (RPM) FOR WATER VALVES AND GREEN RPM FOR WASTEWATER VALVES PAVEMENT EDGE.

2. FOR WATER AND WASTEWATER VALVES INSTALLED IN PAVED AREAS, ELIMINATE CONCRETE PAD AND ENCASE THE MAGNETIC WIRE IN 1/2" PVC INSIDE THE VALVE BOX SEVEN INCHES BELOW GRADE.

3. DIP MAY BE USED AS RISERS ONLY IF A VALVE BOX IS NOT MANUFACTURED FOR THAT DEPTH. NO PVC RISERS SHALL BE USED IN ANY CIRCUMSTANCES.

TYPICAL GATE VALVE & VALVE BOX DETAIL

N.T.S.

FPUA COMMUNITY PROUD	TYPICAL GATE VALVE & VALVE BOX DETAIL	M-6
	03-09 CONCRETE SLAB SLL JLC	WATER/WASTEWATER ENGINEERING
	DESIGNED: JLC / COMPUTER FILE #: MISC DETAILS 200602.DWG	FT. PIERCE UTILITIES AUTHORITY
	DRAWN BY: SLL / SCALE:	
	APPROVED: JLC / DATE: 2015	SHEET 1 OF 1

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FORT PIERCE, FL 34946
(772) 569-5505

FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

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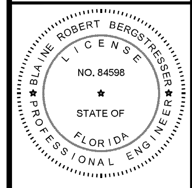
PROJECT: SUNRISE LAKES

CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP



BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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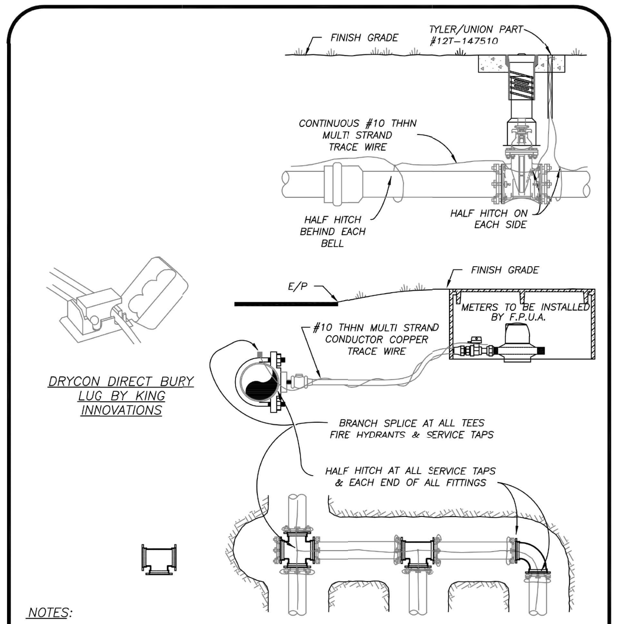
PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-FPUA DETAILS

SHEET TITLE: FPUA DETAILS-01

SHEET NUMBER: C-500

Printed on Tuesday, July 09, 2024, 12:15 PM by Blaine Bergstresser



DRYCON DIRECT BURY LUG BY KING INNOVATIONS

NOTES:

1) TRACE WIRE IS REQUIRED ON ALL PIPE AS NOTED BY UTILITIES ENGINEER AND SHOWN IN STANDARD DETAILS.
2) INCLUDE ALL COST OF MATERIAL & LABOR IN PRICE OF PIPE.
3) CONTRACTOR IS RESPONSIBLE FOR CONTINUITY OF ALL TRACE WIRE.

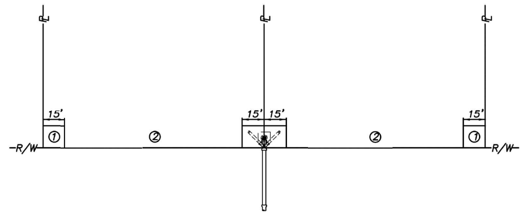
TRACE WIRE
(N.T.S.)

FPUA COMMUNITY PROUD
FT. PIERCE UTILITIES AUTHORITY
WATER/WASTEWATER ENGINEERING
1701 SOUTH 37TH STREET
FT. PIERCE, FLORIDA 34947
772-466-1600

TRACE WIRE DETAIL				M-11
03-09	CONCRETE SLAB	SLL	JLC	
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JLC	COMPUTER FILE # MISC DETAILS 200602.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL	SCALE:			
APPROVED: JLC	DATE: 2015			SHEET 1 OF 1

GENERAL POLICY

WHERE COST JUSTIFIED AND OPERATIONALLY FEASIBLE, IT IS THE GENERAL POLICY OF THE F.P.U.A. TO PROVIDE WATER, ELECTRIC, SEWER AND GAS SERVICE FROM THE STREET SIDE OF A PIECE OF PROPERTY. DEPENDING ON FACTORS SUCH AS LOCATION OF EXISTING SUPPLY SOURCE FACILITIES, REAR OR SIDE LOT LINE SUPPLY MAY BE AUTHORIZED, BUT ONLY WITH PRIOR APPROVAL FROM THE F.P.U.A.



NOTES:

1. THE PREFERRED POINT OF CONNECTION TO THE F.P.U.A. SEWER LATERAL, AREA ①, SHALL BE LOCATED IN THE CORNER OF THE PROPERTY SELECTED BY THE F.P.U.A. AS THE BEST LOCATION FOR THE LATERAL. EVERY EFFORT WILL BE MADE TO SELECT THE CORNER WHERE TWO LATERALS CAN BE CONNECTED IN A "Y" CONFIGURATION AS SHOWN.
2. IF PHYSICAL BARRIERS OR OTHER OBSTACLES PREVENT THE CONNECTION OF THE BUILDING SERVICE LINE TO THE F.P.U.A. SEWER LATERAL, WITHIN AREA ①, THE F.P.U.A. ENGINEERING DEPARTMENT MAY AUTHORIZE THE CONNECTION ALONG THE PORTION OF THE R/W LINE MARKED AREA ②.
3. HORIZONTAL SEPARATION OF WATER AND WASTEWATER SERVICES SHOULD BE A MINIMUM OF SIX FEET AND PREFERABLY 10 FEET.
4. THE WASTEWATER LATERAL SHALL BE LOCATED WITHIN RIGHT-OF-WAY AND TERMINATE AT THE PROPERTY LINE.
5. THE F.P.U.A. SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF THE WASTEWATER LATERAL WITHIN THE EASEMENT OR RIGHT-OF-WAY, UP TO THE POINT OF CONNECTION.

WASTEWATER SERVICE PLACEMENT
(N.T.S.)

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WATER/WASTEWATER ENGINEERING
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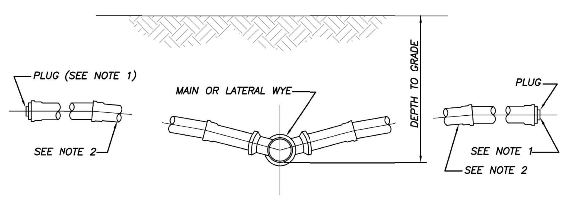
FT. PIERCE, FLORIDA 34947
772-466-1600

WASTEWATER SERVICE PLACEMENT POLICY				S-1
02-06	02-15	SLL		
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JJM	COMPUTER FILE # SEWER DETAIL 200602.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL	SCALE: N.T.S.			
APPROVED: JLC	DATE: 2010			SHEET 1 OF 1



NOTES:

1) BALL TYPE WASTEWATER LOCATOR BY 3M CORP. OR APPROVED EQUAL.
2) MINIMUM SLOPE OF 1/8" PER FOOT, USE GREATER SLOPE WHERE POSSIBLE.
3) SERVICE LATERAL SHALL TERMINATE WITH A CLEANOUT.
4) INSTALL CLEANOUT AT THE PROPERTY LINE. REFER TO DETAIL S-1 FOR SPECIFIC PROPERTY LAYOUT.

SERVICE CONNECTION
(N.T.S.)

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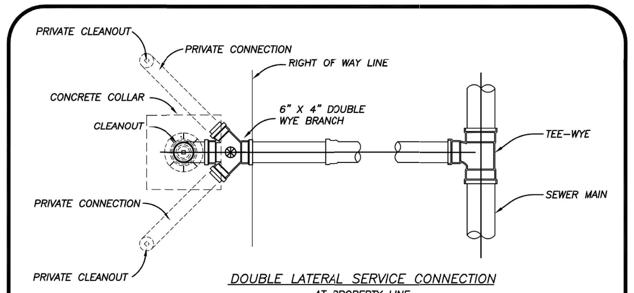
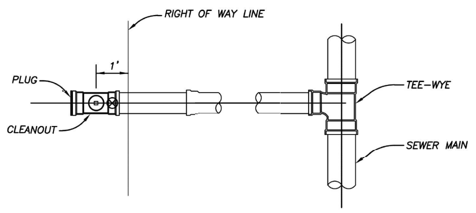
FT. PIERCE, FLORIDA 34947
772-466-1600

SERVICE CONNECTION WASTEWATER				S-2
02-06				
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JLC	COMPUTER FILE # SEWER DETAIL 200602.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL	SCALE: N.T.S.			
APPROVED: JLC	DATE: 2015			SHEET 1 OF 1



DOUBLE LATERAL SERVICE CONNECTION
AT PROPERTY LINE



SINGLE SERVICE LATERAL CONNECTION

⊛ = BALL TYPE WASTEWATER LOCATOR INSTALLED ABOVE THIS POINT
BALL BY 3M CORP. OR APPROVED EQUAL
SERVICE LATERAL SHALL TERMINATE WITH A CLEANOUT

SERVICE CONNECTION
(N.T.S.)

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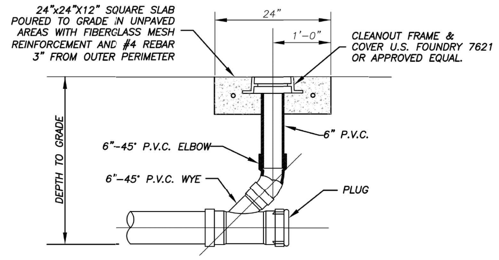
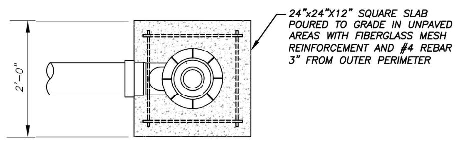
SERVICE CONNECTION WASTEWATER				S-3
02-06				
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JLC	COMPUTER FILE # SEWER DETAIL 200602.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL	SCALE: N.T.S.			
APPROVED: JLC	DATE: 2010			SHEET 1 OF 1



SECTION



PLAN

NOTES:

1) SEE DETAIL S-3 FOR DOUBLE SERVICE CONNECTION.

RESIDENTIAL CLEANOUT DETAIL
(N.T.S.)

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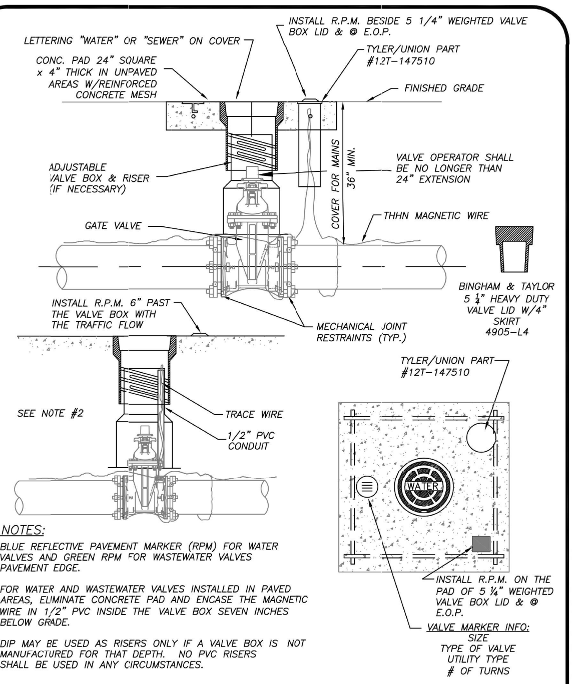
TERMINAL CLEANOUT DETAIL RESIDENTIAL				S-4A
10-06		RBE		
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JLC	COMPUTER FILE # SEWER DETAIL 200602.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL	SCALE: N.T.S.			
APPROVED: JLC	DATE: 2010			SHEET 1 OF 3



NOTES:

1. BLUE REFLECTIVE PAVEMENT MARKER (RPM) FOR WATER VALVES AND GREEN RPM FOR WASTEWATER VALVES PAVEMENT EDGE.
2. FOR WATER AND WASTEWATER VALVES INSTALLED IN PAVED AREAS, ELIMINATE CONCRETE PAD AND ENCASE THE MAGNETIC WIRE IN 1/2" PVC INSIDE THE VALVE BOX SEVEN INCHES BELOW GRADE.
3. DIP MAY BE USED AS RISERS ONLY IF A VALVE BOX IS NOT MANUFACTURED FOR THAT DEPTH. NO PVC RISERS SHALL BE USED IN ANY CIRCUMSTANCES.

TYPICAL GATE VALVE & VALVE BOX DETAIL
N.T.S.

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FT. PIERCE UTILITIES AUTHORITY
WATER/WASTEWATER ENGINEERING
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FT. PIERCE, FLORIDA 34947
772-466-1600

TYPICAL GATE VALVE & VALVE BOX DETAIL				M-6
03-09	CONCRETE SLAB	SLL	JLC	
DATE:	REVISION:	BY:	APPD:	WATER/WASTEWATER ENGINEERING
DESIGNED: JLC	COMPUTER FILE # MISC DETAILS 200602.DWG			FT. PIERCE UTILITIES AUTHORITY
DRAWN BY: SLL	SCALE:			
APPROVED: JLC	DATE: 2015			SHEET 1 OF 1

KMA
ENGINEERING & SURVEYING, LLC.
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FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER
LICENSE
NO. 84598
STATE OF FLORIDA
PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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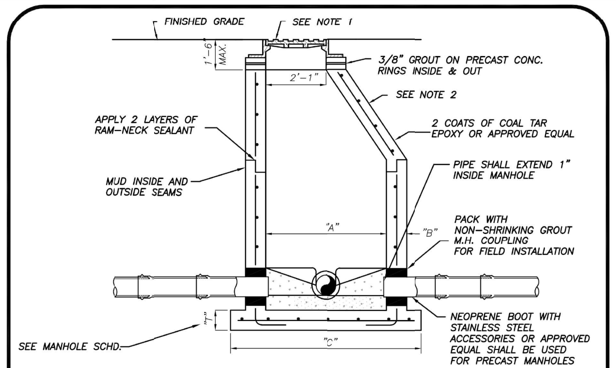
PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-FPUA DETAILS

SHEET TITLE:
FPUA DETAILS-02

SHEET NUMBER:
C-501



PIPE DIA.	"A"	"B"	"C"	BOT. SLAB "T"
8"–24"	4'–0"	"8"	76"	8"
30"–36"	5'–0"	"8"	88"	10"
42"–48"	6'–0"	"8"	100"	12"

TYPICAL MANHOLE DIMENSIONS

NOTES:

1) MANHOLE FRAME & COVER WITH THE WORDS " SANITARY SEWER" CAST IN THE COVER. U.S. FOUNDRY 170 OR APPROVED EQUAL.

2) ALL CONCRETE MANHOLES TO BE 4000 P.S.I. TO MEET OR EXCEED ASTM C478 ALL CEMENT TO BE TYPE II ACID RESISTANT. REINFORCING AREA OF 0.02 SQ. IN/FT FOR WALL SECTION MIN. TO MEET OR EXCEED ASTM A 185.

3) A MAXIMUM OF 2 LAYERS OF PRECAST CONCRETE RINGS, IF REQUIRED.

4) RAIN GUARDS SHALL BE INSTALLED IN MANHOLES THAT HAVE GRAVITY MAINS 12" OR LESS.

STANDARD MANHOLE
DEPTH 5'–0" AND GREATER
(N.T.S.)

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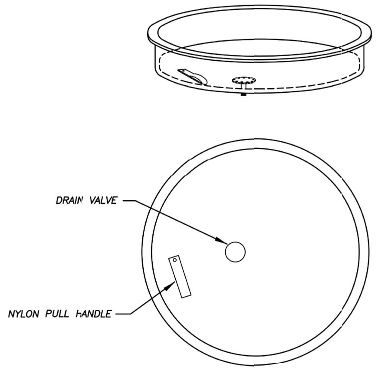
PRECAST MANHOLE DEPTH 5'– 0" & GREATER — S–7
DATE: 02–06 | REVISION: | BY: | APPD:
DESIGNED: JLC | COMPUTER FILE #: SEWER DETAIL 200602.DWG
DRAWN BY: SLL | SCALE: N.T.S.
APPROVED: JLC | DATE: 2010
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1



NOTES:

1) SEWER RAIN GUARDS SHALL BE INSTALLED ON ALL MANHOLES WHERE GRAVITY MAINS ARE 12" OR LESS AND IN AREAS DESIGNATED BY ENGINEER TO BE IN A FLOOD AREA.

2) SEWER RAIN GUARDS SHALL BE MANUFACTURED BY PARSON ENVIRONMENTAL PRODUCTS, INC., PART # PMI–23S (PARSON MANHOLE INSERTS) WITH DOUBLE VALVING, OR APPROVED EQUAL.

3) RAINGUARDS MUST BE "SNUG" FIT.

RAINGUARD DETAIL
(N.T.S.)

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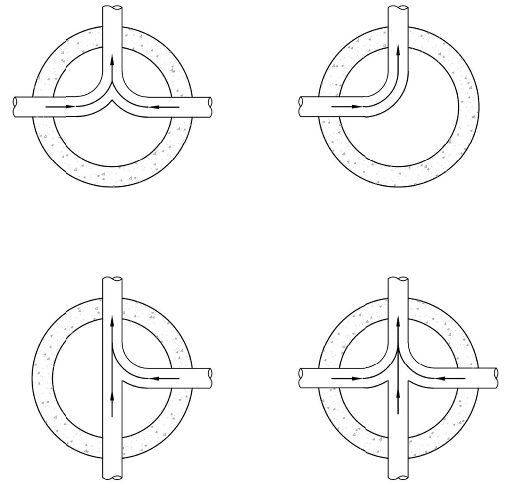
RAINGUARD DETAIL — S–11
DATE: 03–09 | REVISION: | BY: SLL | APPD: JLC
DESIGNED: SLL | COMPUTER FILE #: SEWER DETAIL 200602.DWG
DRAWN BY: SLL | SCALE: N.T.S.
APPROVED: JLC | DATE: 2010
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1



NOTES:

1) INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.

2) SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOWS.

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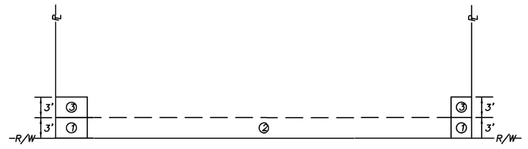
FLOW PATTERNS FOR INVERT CHANNELS — S–12
DATE: | REVISION: | BY: | APPD:
DESIGNED: JJM | COMPUTER FILE #: SEWER DETAIL 200602.DWG
DRAWN BY: JJM | SCALE: N.T.S.
APPROVED: JLC | DATE: 2010
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1

GENERAL POLICY

WHERE COST JUSTIFIED AND OPERATIONALLY FEASIBLE, IT IS THE GENERAL POLICY OF THE F.P.U.A. TO PROVIDE WATER, ELECTRIC, SEWER AND GAS SERVICE FROM THE STREET SIDE OF A PIECE OF PROPERTY. DEPENDING ON FACTORS SUCH AS LOCATION OF EXISTING SUPPLY SOURCE FACILITIES, REAR OR SIDE LOT LINE SUPPLY MAY BE AUTHORIZED, BUT ONLY WITH PRIOR APPROVAL FROM THE F.P.U.A.



NOTES:

1. THE PREFERRED POINT OF CONNECTION TO THE F.P.U.A. WATER METER, AREA ① SHALL BE LOCATED IN THE CORNER OF THE PROPERTY SELECTED BY THE F.P.U.A. AS THE BEST LOCATION FOR THE WATER METER. EVERY EFFORT WILL BE MADE TO SELECT THE CORNER WHERE TWO WATER SERVICES AND METERS CAN BE CONNECTED.

2. IF PHYSICAL BARRIERS OR OTHER OBSTACLES PREVENT THE CONNECTION OF THE BUILDING SERVICE LINE TO THE F.P.U.A. WATER SERVICE, WITHIN AREA ① , THE F.P.U.A. ENGINEERING DEPARTMENT MAY AUTHORIZE THE CONNECTION ALONG THE PORTION OF THE R/W LINE MARKED AREA ② , OR ALONG THE PROPERTY LINES MARKED AREA ③.

3. HORIZONTAL SEPARATION OF WATER AND WASTEWATER SERVICES SHOULD BE A MINIMUM OF 6 FEET AND PREFERABLY 10 FEET.

4. ALL METERS SHALL BE INSTALLED IN AN UNRESTRICTED AREA FOLLOWING EASE OF ACCESS AND PROVIDING ADEQUATE PROTECTION.

5. THE F.P.U.A. SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF THE WATER LATERAL WITHIN THE EASEMENT OR RIGHT–OF–WAY, UP TO THE POINT OF CONNECTION.

WATER METER PLACEMENT
(N.T.S.)

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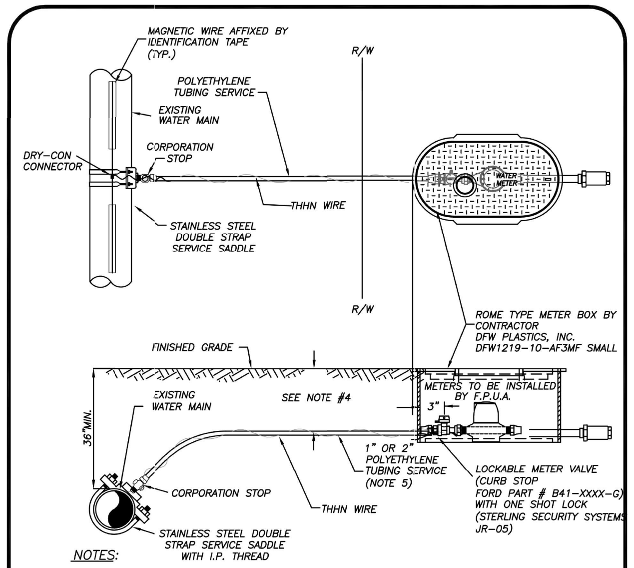
WATER METER PLACEMENT POLICY — W–1
DATE: 03–09 | REVISION: 02–15 | BY: SLL | APPD:
DESIGNED: JLC | COMPUTER FILE #: WATER DETAILS 200602.DWG
DRAWN BY: SLL | SCALE: N.T.S.
APPROVED: JLC | DATE: 2010
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1



NOTES:

1. BLUE 10 GAUGE THHN WIRE SHALL BE ATTACHED TO THE SERVICE LINE.

2. WHERE SERVICES UNDER PAVEMENT ARE REQUIRED, THE POLYETHYLENE TUBING SHALL BE INSTALLED WITHIN SCHEDULE 40 PVC CASING PIPE.

3. 1" & 3/4" METER SIZES SHALL REQUIRE A LOCKABLE METER VALVE. (CURB STOP)

4. MINIMUM COVER IN UNPAVED AREAS SHALL BE 30", IN PAVED AREAS OR PLANNED ROADWAYS OR SWALES MIN. COVER SHALL BE 36".

5. FOR 2" COMMERCIAL SERVICE INSTALLATIONS, FPUA WILL INSTALL ABOVE GROUND METER PER DETAIL W–8.

TYPICAL SINGLE WATER SERVICE CONNECTION
(N.T.S.)

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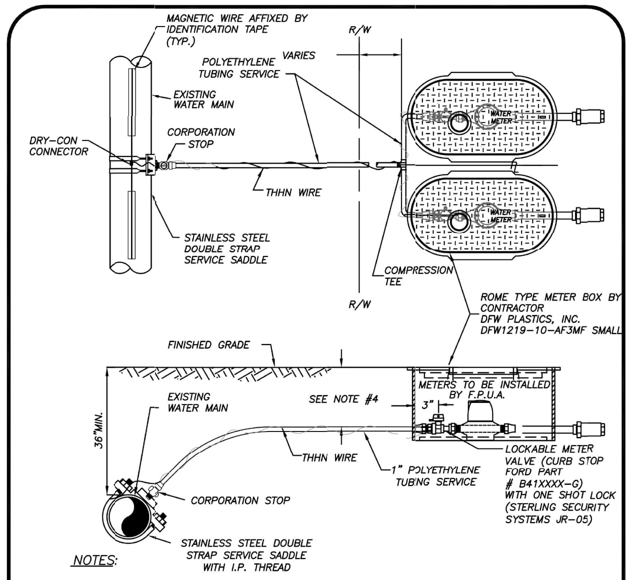
TYPICAL SINGLE WATER SERVICE CONNECTION — W–2
DATE: 03–09 | REVISION: DESIGN | BY: SLL | APPD: JLC
DESIGNED: JLC | COMPUTER FILE #: WATER DETAILS 200602.DWG
DRAWN BY: SLL | SCALE: N.T.S.
APPROVED: JLC | DATE: 2020
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1



NOTES:

1. BLUE 10 GAUGE THHN WIRE SHALL BE ATTACHED TO THE SERVICE LINE.

2. WHERE SERVICES UNDER PAVEMENT ARE REQUIRED, THE POLYETHYLENE TUBING SHALL BE INSTALLED WITHIN SCHEDULE 40 PVC CASING PIPE.

3. 1" & 3/4" METER SIZES SHALL REQUIRE A LOCKABLE METER VALVE. (CURB STOP)

4. MINIMUM COVER IN UNPAVED AREAS SHALL BE 30", IN PAVED AREAS OR PLANNED ROADWAYS OR SWALES MIN. COVER SHALL BE 36".

TYPICAL DOUBLE WATER SERVICE CONNECTION
(N.T.S.)

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TYPICAL DOUBLE WATER SERVICE CONNECTION — W–3
DATE: 03–09 | REVISION: DESIGN | BY: SLL | APPD: JLC
DESIGNED: JLC | COMPUTER FILE #: WATER DETAILS 200602.DWG
DRAWN BY: SLL | SCALE: N.T.S.
APPROVED: JLC | DATE: 2020
WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY — SHEET 1 OF 1

KMA
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FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

ROBERT BLAINE BERGSTRESSER — LICENSE NO. 84598 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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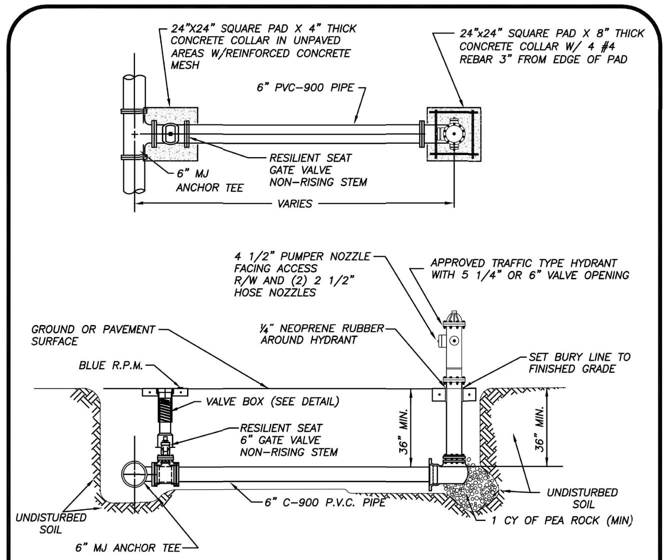
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-FPUA DETAILS

SHEET TITLE: FPUA DETAILS-03

SHEET NUMBER: C-502



NOTES:

1. HYDRANT SHALL BE INSTALLED PLUMB & TRUE.
2. HYDRANT SHALL BE PAINTED CARNIVAL RED FROM FACTORY.
3. HEEL TO REST IN UNDISTURBED SOIL.
4. THE ONLY HYDRANTS ACCEPTABLE ARE: MUELLER SUPER CENTURION 250 OR AMERICAN DARLING B-84-B-5.
5. HYDRANT ASSEMBLY MUST BE RESTRAINED TO TEE.
6. ALL FITTINGS SHALL BE MECHANICAL JOINT.
7. ENTIRE ASSEMBLY TO BE MECHANICALLY RESTRAINED.
8. BLUE LOCATOR SHALL BE PLACED IN CENTER OF TRAVEL LANE CLOSEST TO HYDRANT.
9. ALL HYDRANT VALVE BOX COVERS SHALL BE PAINTED CARNIVAL RED.
10. LOCATE WIRE SHALL TERMINATE AT HYDRANT ISOLATION VALVE
11. HYDRANTS SHALL BE NO MORE THAN FIFTEEN FEET (15 FT.) FROM THE CURB OF ROADWAYS OR FROM THE EDGE OF PAVEMENT. CLEARANCES OF SEVEN AND ONE HALF FEET (7FT-6IN.) IN FRONT OF AND TO THE SIDES OF THE FIRE HYDRANTS, WITH FOUR FOOT (4 FT.) CLEARANCE TO THE REAR OF HYDRANTS SHALL BE MAINTAINED.

TYPICAL FIRE HYDRANT ASSEMBLY

(N.T.S.)

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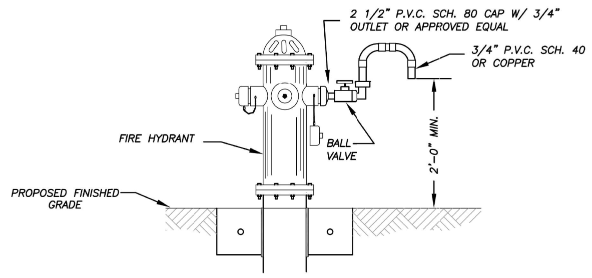
TYPICAL FIRE HYDRANT ASSEMBLY — W-5

DATE:	REVISION:	BY:	APPD:
03-09	DESIGN	SLL	JLC

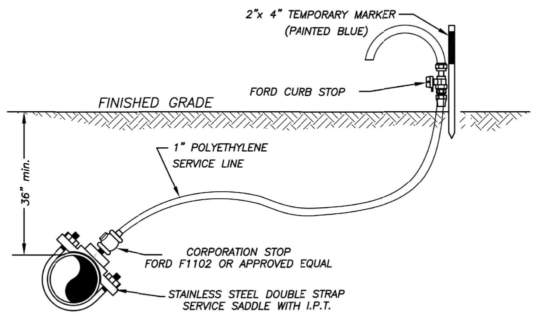
DESIGNED: JLC — COMPUTER FILE #: WATERDETAIL.DWG — DRAWN BY: SLL — SCALE: N.T.S. — APPROVED: JLC — DATE: 2010 — SHEET 1 OF 1

WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY



BACTERIOLOGICAL SAMPLING POINT @ FIRE HYDRANT

(N.T.S.)



BACTERIOLOGICAL SAMPLING POINT @ WATER MAIN

(N.T.S.)

NOTE:

AFTER TESTING REMOVE 1" P.E. LINE AND CAP WITH BRASS PLUG AT CORPORATION STOP.

BACTERIOLOGICAL SAMPLING PONIT DETAIL — W-6

DATE:	REVISION:	BY:	APPD:
03-09	02-15	SLL	JLC

DESIGNED: JLC — COMPUTER FILE #: WATERDETAIL.DWG — DRAWN BY: SLL — SCALE: N.T.S. — APPROVED: JLC — DATE: 2010 — SHEET 1 OF 1

WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY

FORT PIERCE UTILITIES AUTHORITY
WATER DISTRIBUTION NOTES

1. ALL CONSTRUCTION MATERIAL, INSTALLATION AND TESTING SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE FORT PIERCE UTILITIES AUTHORITY.
2. WATER MAINS WHERE SPECIFIED AS POLYVINYL CHLORIDE (PVC) SHALL CONFORM TO AWWA C-900 OR C-905, PRESSURE CLASS 150, DR (18). WATER MAINS WHERE SPECIFIED AS POLYETHYLENE (PE) SHALL CONFORM TO AWWA C-901 OR C-906, STANDARD CODE DESIGNATION PE3408, PIPE CLASS 200, DIMENSION RATIO (DR) 17 FOR DIRECT BURY, (DR) 11 FOR DIRECTIONAL BORING, AND (DR) 9 FOR 2 INCH AND SMALLER PIPELINES.
3. WATER MAIN, WHERE SPECIFIED AS DUCTILE IRON PIPE , SHALL CONFORM TO ANSI/AWWA C151/A21.51 AND SHALL BE PRESSURE CLASS 250 (MINIMUM).
4. POLYVINYL CHLORIDE WATER MAIN SHALL BE BLUE IN COLOR OR WHITE IN COLOR WITH BLUE STRIPES. THE USE OF IDENTIFICATION TAPE ATTACHED TO THE TOP OF THE PIPE MAY BE USED IN LIEU OF MARKING ON THE PIPE, ALSO DIP PIPE SHALL REQUIRE THE USE OF IDENTIFICATION TAPE AND THHN WIRE.
5. FITTINGS SHALL BE DUCTILE IRON CONFORMING TO ANSI/AWWA C-110/A21.10, CLASS 250 MIN., CEMENT LINED AND FACTORY COATED
6. GATE VALVES SHALL BE MUELLER RESILIENT SEAT, KENNDY KEN-SEAL, AMERICAN OR APPROVED EQUAL. VALVES SHALL CONFORM TO AWWA C-509.
7. WATER LINES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH FPUA DESIGN AND CONSTRUCTION STANDARDS. THE CONTRACTOR SHALL SUBMIT CERTIFIED DENSITY TESTS AS REQUIRED BY FPUA ENGINEERING AND THE CITY, COUNTY, FDOT. IN CASES WHERE PAVED AREAS FALL WITHIN THE JURISDICTION OF LOCAL OR STATE AGENCIES, THE COMPACTION REQUIREMENTS SHALL NOT BE LESS THAN THE MINIMUM REQUIRED BY THE APPROPRIATE RESPONSIBLE AGENCY.
8. NO FIELD CHANGES OR DEVIATIONS FROM THE DESIGN SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE FPUA ENGINEER AND CITY/COUNTY/FDOT ENGINEER.
9. THE CONTRACTOR SHALL NOTIFY FPUA ENGINEERING AND CITY/COUNTY/FDOT ENGINEERING 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
10. A PRE-CONSTRUCTION CONFERENCE BETWEEN THE ENGINEER, THE CONTRACTOR, FPUA, AND CITY/ COUNTY/FDOT ENGINEER SHALL BE MANDATORY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
11. TRAFFIC CONTROL, BARRICADES, ETC., SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF OF TRANSPORTATION STANDARDS AND APPROVED BY THE CITY ENGINEER.
12. MINIMUM COVER SHALL BE 36 INCHES EXCEPT AS APPROVED BY THE UTILITIES ENGINEER AND CITY/ COUNTY/FDOT ENGINEER. PIPES WITH COVER LESS THAN 30 INCHES SHALL BE CONSTRUCTED OF DUCTILE IRON OR IN PVC CASING.
13. DISTURBED AREAS SHALL BE RESTORED IN CONFORMANCE WITH THE APPLICABLE GOVERNING AGENCY REQUIREMENTS.
14. EXISTING UTILITIES AND DRAINAGE SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION AND PROTECTED BY THE CONTRACTOR.
15. WATER MAINS SHALL BE TESTED AND DISINFECTED IN ACCORDANCE WITH THE APPLICABLE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND AWWA C-651 FOR DISINFECTION.

WATER DISTRIBUTION — G-1 NOTES

DATE:	REVISION:	BY:	APPD:
02-06			

DESIGNED: JJM — COMPUTER FILE #: DETAIL NOTES 200602.DWG — DRAWN BY: JJM — SCALE: N.T.S. — APPROVED: JLC — DATE: 2010 — SHEET 1 OF 2

WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY

FORT PIERCE UTILITIES AUTHORITY WASTEWATER CONSTRUCTION NOTES

1. ALL CONSTRUCTION MATERIAL, INSTALLATION AND TESTING SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE FORT PIERCE UTILITIES AUTHORITY.
2. GRAVITY SEWER MAIN SHALL BE POLYVINYL CHLORIDE SDR-26, GREEN OR WHITE IN COLOR, GRAVITY SEWER MAIN SHALL HAVE LOCATOR TAPE WITH "SEWER" MARKED ON TAPE AND SHALL CONFORM TO ASTM D-3034.
3. THE MANHOLE BASE SHALL BE SET ON A FIRM, DRY AND STABLE OR COMPACTED BASE FOUNDATION. IF NECESSARY, THE CONTRACTOR SHALL UTILIZE ROCK TO PROVIDE A FIRM AND SUITABLE MANHOLE BASE FOUNDATION.
4. WASTEWATER LINES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH FPUA DESIGN AND CONSTRUCTION STANDARDS. THE CONTRACTOR SHALL SUBMIT CERTIFIED DENSITY TESTS AS REQUIRED BY FPUA ENGINEERING AND THE CITY ENGINEERING DEPARTMENT. IN CASES WHERE PAVED AREAS FALL WITHIN THE JURISDICTION OF LOCAL OR STATE AGENCIES, THE COMPACTION REQUIRE-MENTS SHALL NOT BE LESS THEN THE MINIMUM REQUIRED BY THE APPROPRIATE RESPONSIBLE AGENCY.
5. A 1% MINIMUM SLOPE SHALL BE MAINTAINED ON ALL SANITARY SERVICE LATERALS.
6. THE CONTRACTOR SHALL FURNISH RECORD DRAWING INFORMATION TO THE ENGINEER CONSISITING OF PIPE SIZES, LOCATION OF SERVICE TEE WYES, DIAMETER OF SERVICES, LOCATION OF ANY FITTINGS, FINAL RIM AND INVERT ELEVATION OF ALL MANHOLES AND ANY OTHER PERTINENT INFORMATION NECESSARY TO LOCATE ITEMS CONSTRUCTED UNDER THIS PROJECT.
7. MAINTAIN SIX FEET AND PREFERABLY 10 FEET HORIZONTAL DISTANCE BETWEEN WATER MAINS AND SEWER MAINS AS A MINIMUM.
8. WASTEWATER FORCE MAINS, WASTEWATER COLLECTION LINES, AND STORM SEWERS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. A MINIMUM VERTICAL DISTANCE OF 12 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE SHALL BE PROVIDED WHENEVER POSSIBLE. WHERE THIS MINIMUM SEPARATION CANNOT BE MAINTAINED, THE CROSSING SHALL BE ARRANGED SO THAT THE WASTEWATER PIPE JOINTS AND THE WATER PIPE JOINTS ARE EQUIDISTANCE FROM THE POINT OF CROSSING, AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) AT THE CROSSING. SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT ALL CROSSINGS.
9. A PRE-CONSTRUCTION CONFERENCE BETWEEN THE ENGINEER, THE CONTRACTOR, AND FPUA/CITY COUNTY/FDOT SHALL BE MANDATORY PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
10. NO FIELD CHANGES OR DEVIATIONS FORM THE DESIGN SHALL BE MADE WITHOUT PRIOR APPROVAL FPUA/CITY/COUNTY/FDOT ENGINEER,
11. TRAFFIC CONTROL, BARRICADES, ETC. SHALL BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS.
12. CONTRACTOR SHALL NOTIFY FORT PIERCE UTILITIES AUTHORITY 48 HOURS PRIOR TO COMMMENCING CONSTRUCTION.
13. WASTEWATER FORCE MAIN SHALL BE POLYVINYL CHLORIDE CONFORMING TO AWWA C-900, AND SHALL BE CLASS 150, DR-18.
14. WASTEWATER FORCE MAIN SHALL BE GREEN IN COLOR.
15. FITTINGS SHALL BE DUCTILE IRON, CONFORMING TO ANSI/AWWA C-110/A21.10 CLASS 250 MIN. AND INTERIOR EPOXY COATED.
16. WASTEWATER FORCE MAIN SHALL BE MARKED BY THE USE OF CONTINUOUS 10 GAUGE THHN WIRE (GREEN IN COLOR) PERMANENTLY ATTACHED TO THE TOP OF THE FORCE MAIN WITH LOCATOR TAPE MARKED "SEWER" ON TAPE IN ACCORDANCE WITH FPUA SPECIFICATIONS.
17. MINIMUM COVER SHALL BE 36 INCHES, PIPES WITH COVER LESS THAN 30 INCHES SHALL REQUIRE PRIOR APPROVAL OF THE UTILITES ENGINEER AND SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE.
18. EACH SERVICE LATERAL WILL BE MARKED WITH A LOCATOR BALL AS MANUFACTURED BY 3M CORPORATION, OR APPROVED EQUAL AS REQUIRED BY FPUA ENGINEER.
19. ALL MANHOLES SHALL HAVE SEWER RAIN GUARDS INSTALLED AS REQUIRED BY FPUA ENGINEER.
20. THE CONTRACTOR SHALL COMPLY WITH THE FLORIDA TRENCH SAFETY ACT REQUIREMENTS.

WASTEWATER CONSTRUCTION NOTES FPUA REQUIREMENTS — G-2 CONSTRUCTION NOTES

DATE:	REVISION:	BY:	APPD:
02-06			

DESIGNED: JJM — COMPUTER FILE #: DETAIL NOTES 200602.DWG — DRAWN BY: JJM — SCALE: N.T.S. — APPROVED: JLC — DATE: 2010 — SHEET 1 OF 1

WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY

STANDARD SEPARATION STATEMENT FOR WATER / SEWER CONFLICTS

1. SANITARY SEWER, FORCE MAINS, AND STORM SEWERS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. SANITARY SEWERS, FORCE MAINS AND STORM SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 6 INCHES, PREFERABLY 12 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE WHEN ABOVE, AND AT LEAST 12 INCHES OF SEPARATION WHEN THE WATER MAIN IS BELOW.

WHERE SANITARY SEWER, FORCE MAINS, STORM SEWERS MUST CROSS A WATER MAIN WITH LESS THAN 6 INCHES VERTICAL SEPARATION, BOTH THE SEWER AND WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (DIP) CENTERED ON THE CROSSING. (DIP IS NOT REQUIRED FOR STORM SEWERS.) SUFFICIENT LENGTHS OF DIP MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED.

ALL CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND WATER MAIN PIPE JOINTS ARE EQUIDISTANT FROM THE POINT OF CROSSING (PIPES CENTERED ON THE CROSSING). AT SUCH CROSSINGS PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C., AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY OR PRESSURE TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.

WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 6 INCHES VERTICAL CLEARANCE, THE NEW PIPE SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWERS) AND NEW PIPES SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENTS ABOVE.

2. A MINIMUM 3-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF STORM SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

A MINIMUM 3-FOOT, AND PREFERABLE 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN VACUUM TYPE SANITARY SEWER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

A MINIMUM 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN "ONSITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

A MINIMUM 6-FOOT, AND PREFERABLE 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN GRAVITY OR PRESSURE TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER AND WATER MAIN IN PARALLEL INSTALLATIONS WHENEVER POSSIBLE. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO 3 FOOT WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10-FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON A 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 6 INCHES ABOVE THE TOP OF THE SEWER.

WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 6 INCHES IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF DIP AND THE SEWER OR THE FORCE MAIN SHALL BE CONSTRUCTED OF DIP (EXCEPT STORM SEWER) WITH A MINIMUM VERTICAL DISTANCE OF 6 INCHES. THE WATER MAIN SHOULD ALWAYS BE ABOVE THE SEWER. JOINTS ON THE WATER MAIN SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).

3. ALL DIP SHALL BE PRESSURE CLASS 250 MIN.. ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE DESIGN ENGINEER.

STANDARD SEPARATION STATEMENT FOR WATER/SEWER CONFLICT — G-3 WATER/SEWER CONFLICT

DATE:	REVISION:	BY:	APPD:
02-06			

DESIGNED: JJM — COMPUTER FILE #: DETAIL NOTES 200602.DWG — DRAWN BY: JJM — SCALE: N.T.S. — APPROVED: JLC — DATE: 2010 — SHEET 1 OF 1

WATER/WASTEWATER ENGINEERING — FT. PIERCE UTILITIES AUTHORITY

KMA ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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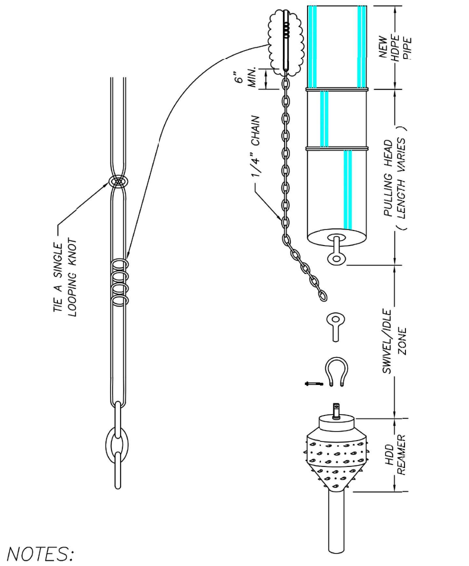
PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-FPUA DETAILS

SHEET TITLE: FPUA DETAILS-04

SHEET NUMBER: C-503



NOTES:

1. WHERE DIRECTIONAL DRILLING LENGTHS EXCEED 750 LINEAR FEET AND/OR HDPE PIPE DIAMETER EXCEED 12 INCHES, A SECOND LENGTH OF TRACE WIRE SHALL BE INSTALLED.
2. TRACE WIRE SHALL CONFORM TO THE FOLLOWING SPECIFICATION:
   MANUFACTURER – COPPERHEAD INDUSTRIES, LLC
   PART NUMBER – 1245B–EHS–500 / 1245B–EHS–1000 / 1245B–-EHS–2500
   PART NUMBER DESCRIPTION – 12 (AWG), 45 (JACKET MIL), B (JACKET COLOR: B=BLUE, G=GREEN, ETC.) – EHS (EXTRA HIGH STRENGTH–HARD DRAWN / 1150# BREAKING LOAD STRENGTH) – 500 (WIRE LENGTH IN FEET)

FPUA COMMUNITY PROUD
FT. PIERCE UTILITIES AUTHORITY
WATER/WASTEWATER ENGINEERING
1701 SOUTH 37TH STREET
FT. PIERCE, FLORIDA 34947
772-466-1600

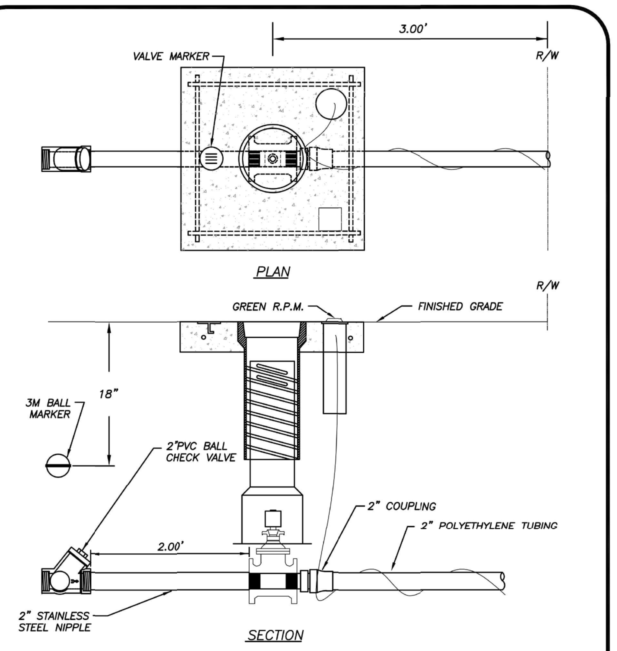
DIRECTIONAL BORE
WIRE ATTACHMENT

M–16

DATE:	REVISION:	BY:	APPD:
03–09	CONCRETE SLAB	SLL	JLC

DESIGNED: JLC
COMPUTER FILE #: MISC DETAILS 200602.DWG
DRAWN BY: SLL
SCALE:
APPROVED: JLC
DATE: 2015

WATER/WASTEWATER ENGINEERING
FT. PIERCE UTILITIES AUTHORITY
SHEET 1 OF 1



NOTES:

1. FORCE MAIN CONNECTION SHALL CONSIST OF A 2" TAPPING SADDLE, 2" STAINLESS STEEL NIPPLE AND 2" THREADED RESILIENT SEAT GATE VALVE
2. GREEN 10 GAUGE THHN WIRE SHALL BE ATTACHED TO THE SERVICE LINE.
3. WHERE SERVICES UNDER PAVEMENT ARE REQUIRED, THE POLYETHYLENE TUBING SHALL BE INSTALLED WITHIN SCHEDULE 40 PVC CASING PIPE.
4. MINIMUM COVER IN UNPAVED AREAS SHALL BE 30", IN PAVED AREAS OR PLANNED ROADWAYS OR SWALES MIN. COVER SHALL BE 36".

FPUA COMMUNITY PROUD
FT. PIERCE UTILITIES AUTHORITY
WATER/WASTEWATER ENGINEERING
1701 SOUTH 37TH STREET
FT. PIERCE, FLORIDA 34947
772-466-1600

GRINDER STATION CONNECTION

S–16

DATE:	REVISION:	BY:	APPD:
03–09	DESIGN	SLL	JLC

DESIGNED: JLC
COMPUTER FILE #: COMPUTER#
DRAWN BY: SLL
SCALE: N.T.S. SCALE
APPROVED: JLC
DATE: 2010

WATER/WASTEWATER ENGINEERING
FT. PIERCE UTILITIES AUTHORITY
SHEET 1 OF 1

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5005
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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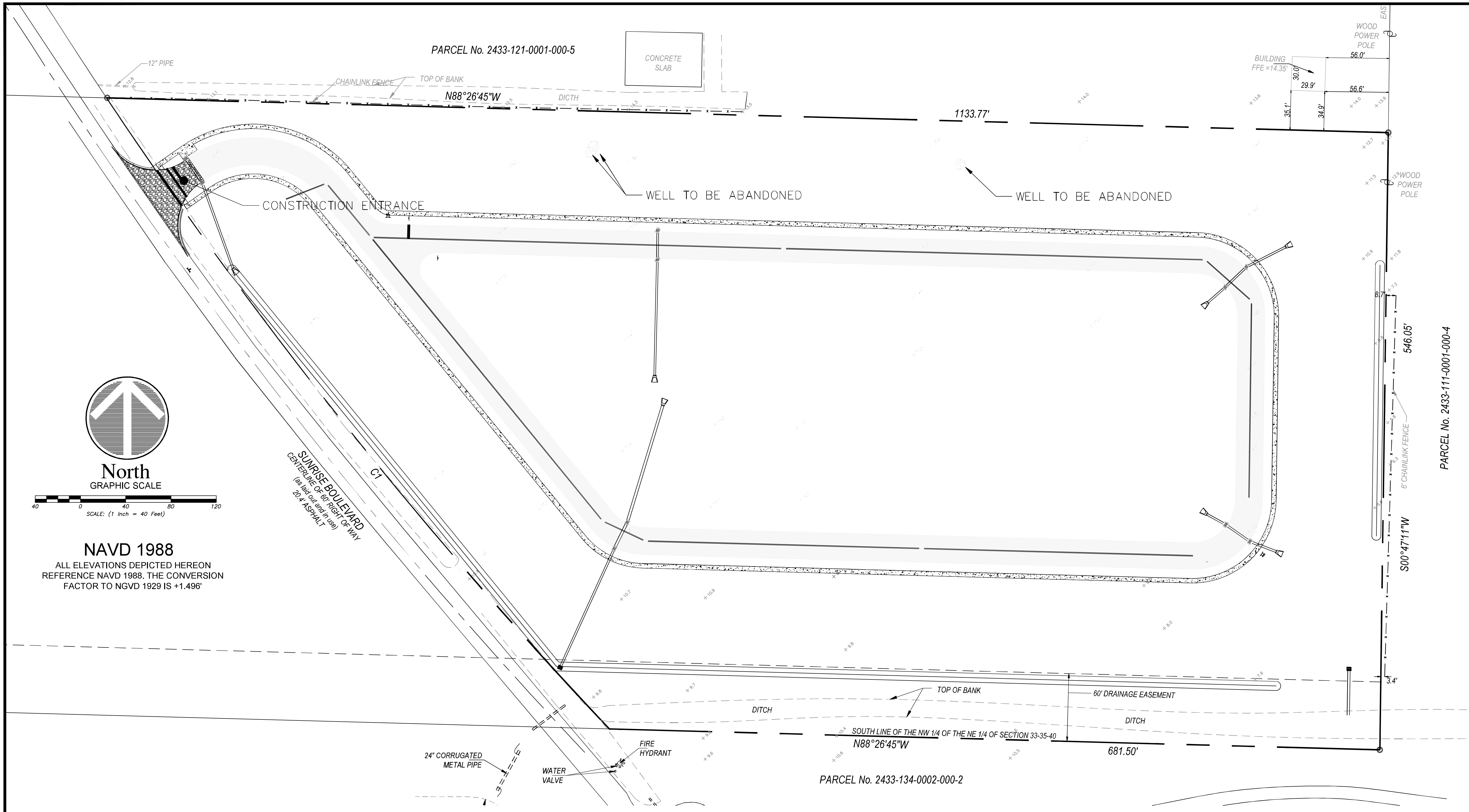
PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-FPUA DETAILS

SHEET TITLE: FPUA DETAILS-05

SHEET NUMBER: C-504


PARCEL No. 2433-121-0001-000-5
CONCRETE SLAB
12" PIPE
CHAINLINK FENCE
TOP OF BANK
N88°26'45"W
DICTH
1133.77'
WOOD POWER POLE
BUILDING FFE =14.35'
56.0'
56.6'
30.0'
29.9'
35.1'
34.9'
CONSTRUCTION ENTRANCE
WELL TO BE ABANDONED
WELL TO BE ABANDONED
WOOD POWER POLE
546.05'
S00°47'11"W
6' CHAINLINK FENCE
PARCEL No. 2433-111-0001-000-4
SUNRISE BOULEVARD
CENTERLINE OF 80' RIGHT OF WAY
(as laid out and in use)
20.4' ASPHALT
C1
North
GRAPHIC SCALE
40 0 40 80 120
SCALE: (1 inch = 40 Feet)
NAVD 1988
ALL ELEVATIONS DEPICTED HEREON
REFERENCE NAVD 1988. THE CONVERSION
FACTOR TO NGVD 1929 IS +1.496'
TOP OF BANK
60' DRAINAGE EASEMENT
DITCH
DITCH
3.4'
SOUTH LINE OF THE NW 1/4 OF THE NE 1/4 OF SECTION 33-35-40
N88°26'45"W
681.50'
FIRE HYDRANT
WATER VALVE
24" CORRUGATED METAL PIPE
PARCEL No. 2433-134-0002-000-2

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5005
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT:
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT:
INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER
LICENSE NO. 84598
STATE OF FLORIDA
PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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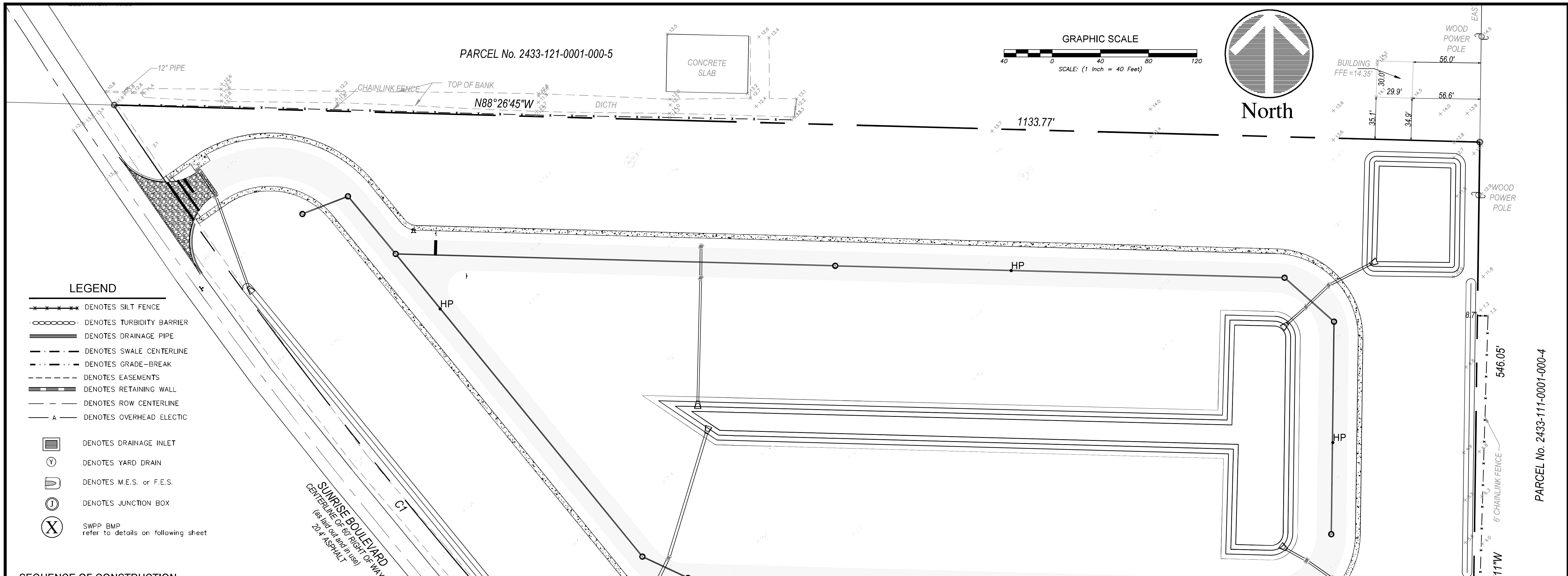
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-EX CON

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION

SHEET NUMBER:
C-600

Printed on Tuesday, July 09, 2024, 12:16 PM by Blaine Bergstresser



SEQUENCE OF CONSTRUCTION

UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAYDOWN, PORTA-POTTY, WHEEL WASH, CONCRETE WASHOUT, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAPS AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.

PHASE 1:

1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE (1) AND INSTALL SILT FENCE.
2. DEMOLISH EXISTING STRUCTURES, IF APPLICABLE
3. CONSTRUCT AND STABILIZE SEDIMENT BASIN AND DRAINAGE SWALES WITH APPROPRIATE OUTFALL STRUCTURES (CLEAR ONLY THOSE AREAS NECESSARY TO INSTALL CONTROL DEVICES LISTED ABOVE)
4. INSTALL INLET PROTECTION AT EXISTING INLET(S).
5. INSTALL AND STABILIZE ANY NECESSARY HYDRAULIC CONTROL STRUCTURES (DIKES, CHECK DAMS, OUTLET TRAPS, RISER PIPE DISCHARGE POINT, ETC.)
6. PREPARE CLEARING AND GRUBBING OF THE SITE, IF APPLICABLE.

PHASE 2:

7. PERFORM MASS GRADING. ROUGH GRADE TO ESTABLISH PROPOSED DRAINAGE PATTERNS.
8. START CONSTRUCTION OF THE BUILDING PAD AND STRUCTURES.
9. TEMPORARILY SEED WITH PURE LIVE SEED, THROUGHOUT CONSTRUCTION, DISTURBED AREAS THAT WILL BE INACTIVE FOR 7 DAYS OR MORE OR AS REQUIRED BY GENERIC PERMIT.
10. INSTALL UTILITIES, UNDERDRAINS, STORM SEWERS, AND CURBS.
11. INSTALL INLET PROTECTION AT ALL STORM DRAIN INLETS AS EACH INLET IS INSTALLED. PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO FINAL GRADE.
12. PREPARE SITE FOR PAVING AND PAVE SITE.
13. CONTACT CIVIL ENGINEER ONCE THE SITE APPEARS TO BE FULLY STABILIZED.
14. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER INSPECTION AND APPROVAL OF THE ENGINEER AND STABILIZE ANY AREA DISTURBED BY THE REMOVAL OF BMPS.
15. CONTINUE DAILY INSPECTION REPORTS UNTIL THE FINAL DAILY INSPECTION IS SIGNED OFF BY THE CONSTRUCTION MANAGER THAT THE SITE IS FULLY STABILIZED AND THE PERMIT MAY BE TERMINATED.

SOIL EROSION/SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

NOTE: GENERAL CONTRACTOR TO COMPLETE TABLE WITH THEIR SPECIFIC PROJECT SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TEMPORARY CONSTRUCTION EXITS																								
TEMPORARY CONTROL MEASURES																								
SEDIMENT CONTROL BASINS																								
STRIP & STOCKPILE TOPSOIL																								
ROUGH GRADE																								
STORM FACILITIES																								
SITE CONSTRUCTION																								
PERMANENT CONTROL STRUCTURES																								
FOUNDATION / BUILDING CONSTRUCTION																								
FINISH GRADING																								
LANDSCAPING/SEED/FINAL STABILIZATION																								

MAINTENANCE

ALL MEASURES STATED ON THIS SITE MAP, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
6. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.

HALT ALL ACTIVITIES AND CONTACT THE CONSULTANT TO PERFORM INSPECTION AND CERTIFICATION OF BMPS. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH CONSULTANT AND ALL GROUND-DISTURBING CONTRACTORS BEFORE PROCEEDING WITH CONSTRUCTION.

CONTRACTOR TO BE RESPONSIBLE FOR OBTAINING ALL DEWATERING PERMITS NECESSARY FOR CONSTRUCTION

THE PRESENCE OF GROUNDWATER SHOULD BE ANTICIPATED ON THIS PROJECT. CONTRACTOR'S BID SHALL INCLUDE CONSIDERATION FOR ADDRESSING THIS ISSUE.

SITE PREPARATION SHOULD BE IN ACCORDANCE WITH GEOTECHNICAL INVESTIGATION

NAVD 1988

ALL ELEVATIONS DEPICTED HEREON REFERENCE NAVD 1988. THE CONVERSION FACTOR TO NGVD 1929 IS +1.496'

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5005
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

ROBERT BLAINE BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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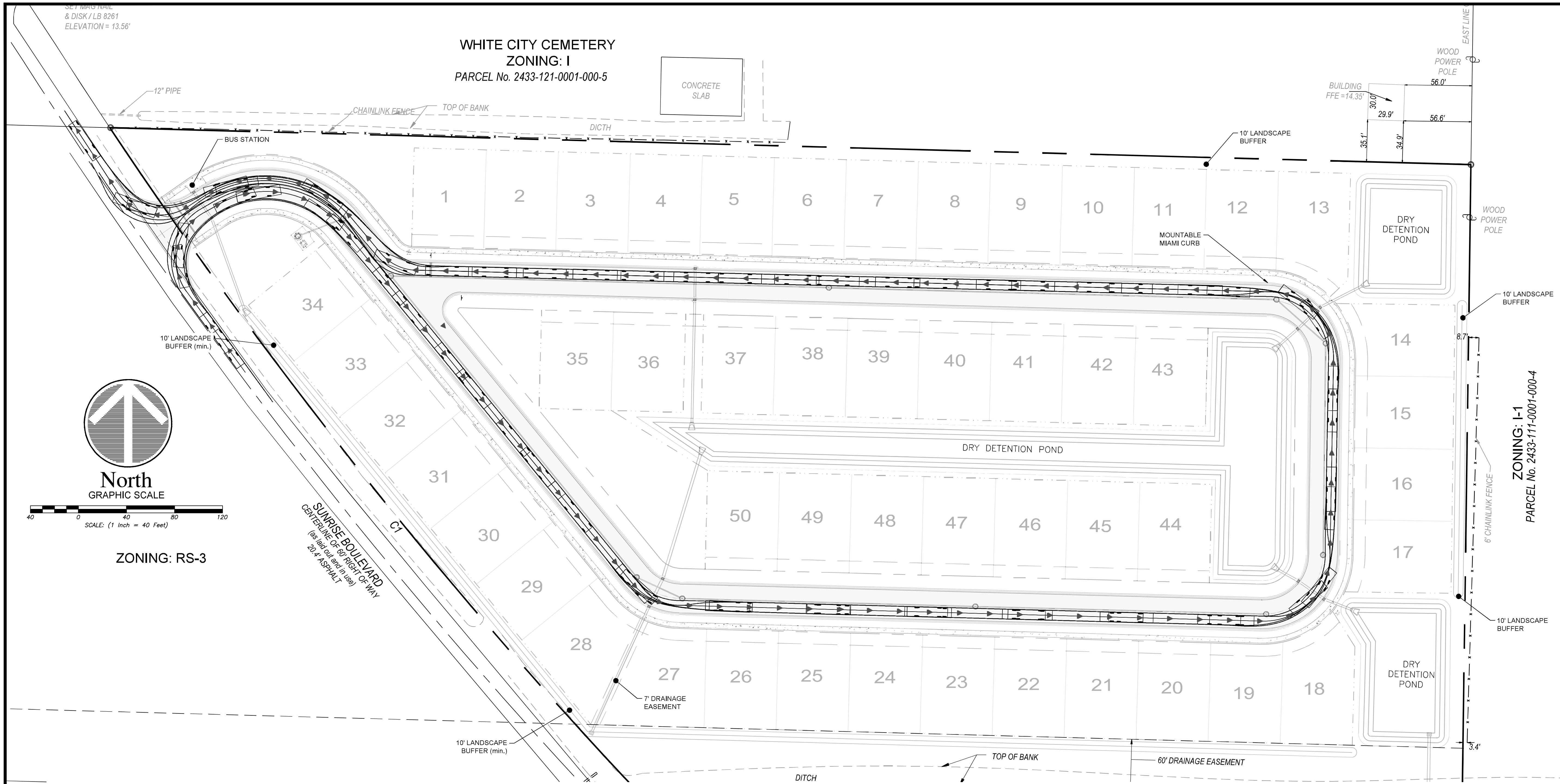
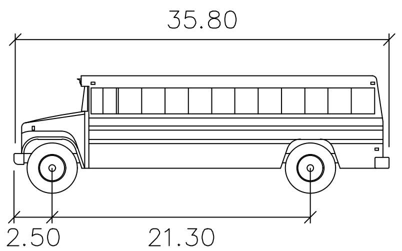
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-EX CON

SHEET TITLE: PHASE ONE EROSION CONTROL

SHEET NUMBER: C-601

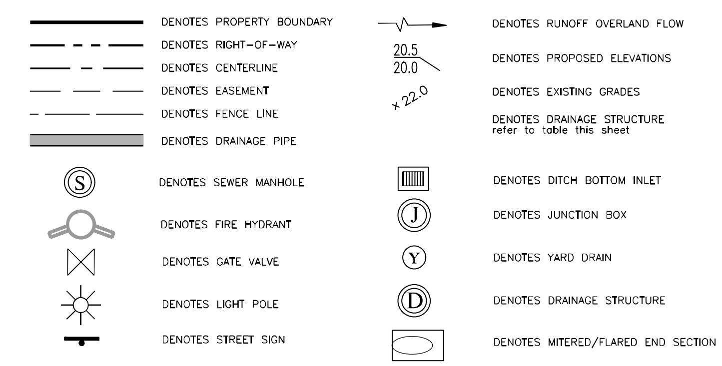

WHITE CITY CEMETERY
ZONING: I
PARCEL No. 2433-121-0001-000-5
CONCRETE SLAB
12" PIPE
CHAINLINK FENCE
TOP OF BANK
DICTH
BUS STATION
BUILDING FFE =14.35'
WOOD POWER POLE
EAST LINE
10' LANDSCAPE BUFFER
MOUNTABLE MIAMI CURB
DRY DETENTION POND
10' LANDSCAPE BUFFER (min.)
North
GRAPHIC SCALE
SCALE: (1 inch = 40 Feet)
ZONING: RS-3
SUNRISE BOULEVARD
CENTERLINE OF 60' RIGHT OF WAY
(as laid out and in use)
20.4' ASPHALT
C1
ZONING: I-1
PARCEL No. 2433-111-0001-000-4
6' CHAINLINK FENCE
7' DRAINAGE EASEMENT
TOP OF BANK
60' DRAINAGE EASEMENT
DITCH
ZONING: RS-3



S-BUS-36

	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 37.6

LINEWORK & SYMBOL LEGEND


DENOTES PROPERTY BOUNDARY
DENOTES RIGHT-OF-WAY
DENOTES CENTERLINE
DENOTES EASEMENT
DENOTES FENCE LINE
DENOTES DRAINAGE PIPE
DENOTES SEWER MANHOLE
DENOTES FIRE HYDRANT
DENOTES GATE VALVE
DENOTES LIGHT POLE
DENOTES STREET SIGN
DENOTES RUNOFF OVERLAND FLOW
DENOTES PROPOSED ELEVATIONS
DENOTES EXISTING GRADES
DENOTES DRAINAGE STRUCTURE refer to table this sheet
DENOTES DITCH BOTTOM INLET
DENOTES JUNCTION BOX
DENOTES YARD DRAIN
DENOTES DRAINAGE STRUCTURE
DENOTES MITERED/FLARED END SECTION

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5005
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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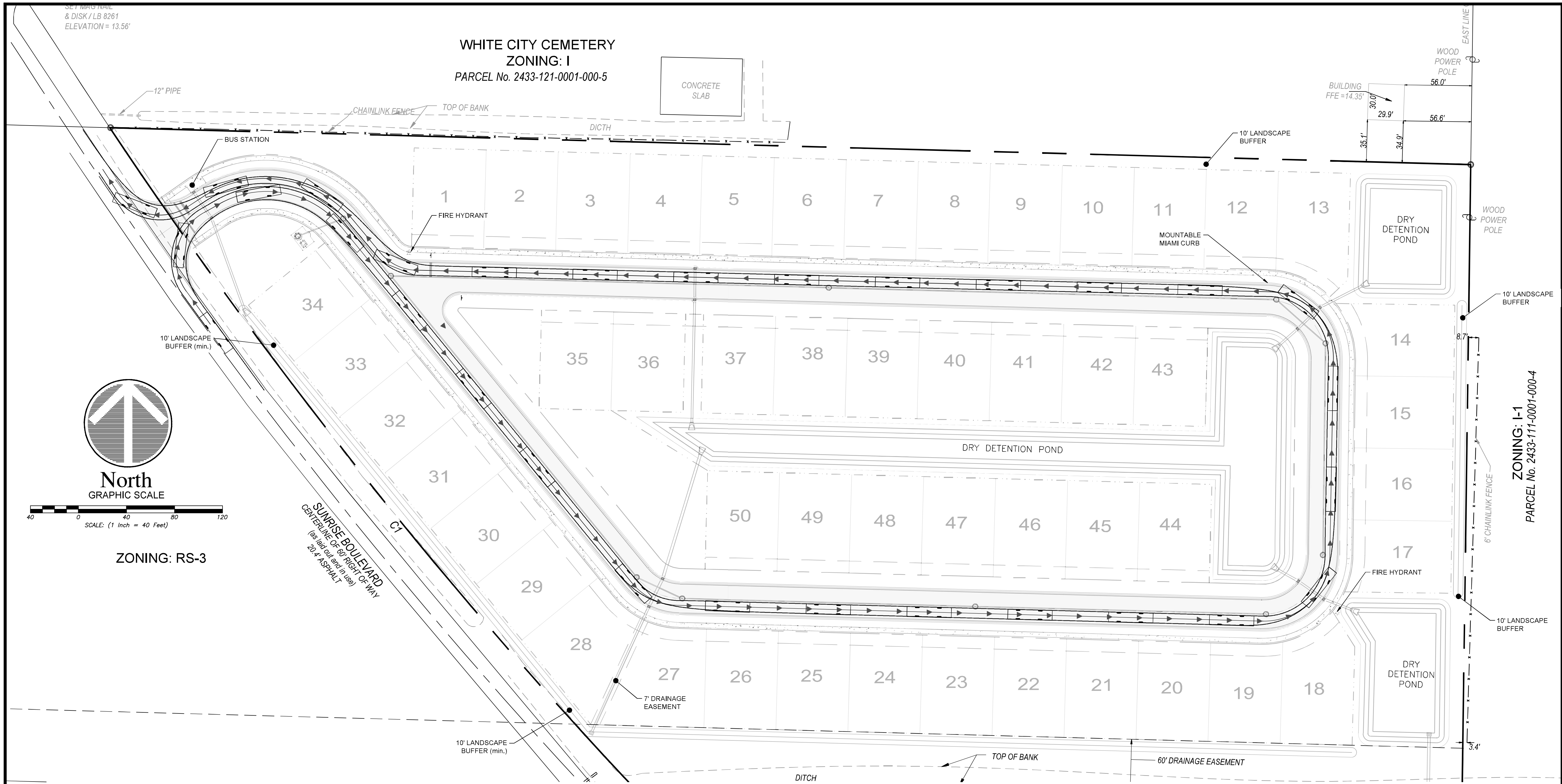
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-BUS-TURN

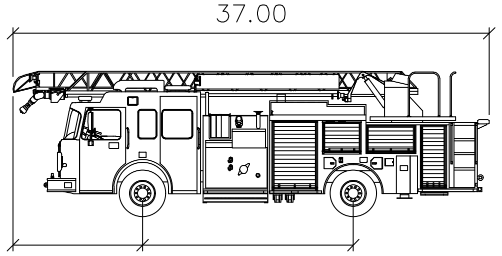
SHEET TITLE:
ROUTING PLAN BUS

SHEET NUMBER:
C-700

Printed on Tuesday, July 09, 2024, 12:16 PM by Blaine Bergstresser



ZONING: RS-3



Smeal Aerial RM 55ft

feet

Width	: 8.33
Track	: 7.88
Lock to Lock Time	: 6.0
Steering Angle	: 48.0

LINEWORK & SYMBOL LEGEND

	DENOTES PROPERTY BOUNDARY		DENOTES RUNOFF OVERLAND FLOW
	DENOTES RIGHT-OF-WAY	20.5 / 20.0	DENOTES PROPOSED ELEVATIONS
	DENOTES CENTERLINE	× 22.0	DENOTES EXISTING GRADES
	DENOTES EASEMENT		DENOTES DRAINAGE STRUCTURE refer to table this sheet
	DENOTES FENCE LINE		
	DENOTES DRAINAGE PIPE		
S	DENOTES SEWER MANHOLE		DENOTES DITCH BOTTOM INLET
	DENOTES FIRE HYDRANT	J	DENOTES JUNCTION BOX
	DENOTES GATE VALVE	Y	DENOTES YARD DRAIN
	DENOTES LIGHT POLE	D	DENOTES DRAINAGE STRUCTURE
	DENOTES STREET SIGN		DENOTES MITERED/FLARED END SECTION

KMA
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FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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PROJECT No.: 24-1001
DRAWN BY: SCB
CHECKED BY: BRB
DATE: 04/02/2024
CAD I.D.: 24-1001-BUS-TURN

SHEET TITLE:
ROUTING PLAN FIRE

SHEET NUMBER:
C-701

Printed on Tuesday, July 09, 2024, 12:16 PM by Blaine Bergstresser

WHITE CITY CEMETERY
ZONING: I

DRY DETENTION POND

DRY DETENTION POND

DRY DETENTION POND

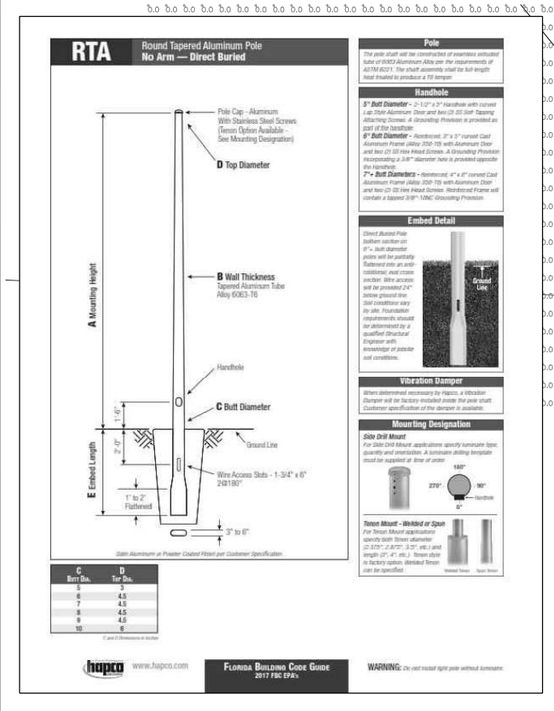
DRY DETENTION POND

EXISTING DRAINAGE CANAL AND 60' EASEMENT

ZONING: RS-3

ZONING: I-1

ZONING: RS-3



Landreth Lighting Luminaire Schedule

Symbol	Manufacturer	Qty	Label	Arrangement	Description	LLF	BUG Rating	Arranged Watts	Arranged Lumens
⊠	Lithonia Lighting	15	SLA	Single	DSX0 LED P5 30K 70CRI T3M MVOLT RPA NLTAIR2 PIRHN HS FINISH TBD: MOUNTED 25' AFG ON ROUND TAPERED ALUMINUM DIRECT BURIED POLE	1.000	B1-U0-G3	90.12	10055

Landreth Lighting Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Entire Site	Illuminance	Fc	0.26	2.0	0.0	N.A.	N.A.
Drive Lane	Illuminance	Fc	1.20	2.0	0.5	2.40	4.00

North
GRAPHIC SCALE
40 0 40 80 120
SCALE: (1 Inch = 40 Feet)

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT
INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.	24-1001-PHOTO

SHEET TITLE:
PHOTO-01

SHEET NUMBER:

Plotted on Tuesday, July 09, 2024 - 12:17 PM by Blaine Bergstresser

100% GOPHER TORTOISE SURVEY
COMPLETION REPORT

3804 SUNRISE BLVD, FORT PIERCE, FL – 11.34 ACRES
SAINT LUCIE COUNTY
PARCEL ID: 2433-123-0001-000-1
SECTION 33, TOWNSHIP 35 SOUTH AND RANGE 40 EAST

Prepared for:

DT VENTURES 1 LLC
PO Box 92280
Rochester, NY 14692-0280

Prepared By:

Patrick Zuloaga

Florida Fish and Wildlife Conservation Commission Gopher Tortoise Agent

Permit No.: GTA-13-00002D

January 26, 2024

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

An upland habitat survey for gopher tortoise (*Gopherus polyphemus*) was conducted on the approximately 11.34-acre property located on 3804 Sunrise Blvd, Fort Pierce, Florida (see Figure 1). The survey included review of 100% of potential gopher tortoise habitat within the subject property.

The objectives of the survey were to document gopher tortoise burrows within the construction footprint of the property to confirm presence/absence, document the status and location of gopher tortoise burrows, and approximate the number of tortoises that would need relocation. The results of the survey determine the subsequent actions required to develop the subject property.

This Survey Report provides a summary of the survey activities conducted, including methods used and areas surveyed. Survey activities were executed according to the burrow survey methodology from the Florida Fish and Wildlife Conservation Commission (FWC) Gopher Tortoise Permitting Guidelines, April 2008, Revised April 2023, Appendix 4 Methods for Burrow Surveys on Development (Donor) and Recipient Sites, 100% Burrow Survey Protocol. Survey activities were conducted on January 25 and the morning January 26, 2024. The information contained herein is based on the findings from the field survey.

SITE LOCATION AND DESCRIPTION

The ±11.34-acre property is located in White City, a census-designated place (CDP) in Saint Lucie County within Section 33, Township 35 South and Range 40 East. The subject property is along the east side of Sunrise Blvd. The Saint Lucie County Property Appraiser lists the Property Parcel ID as 2433-123-0001-000-1. The Future Land Use designation is residential.

The vegetative component of the subject property is predominantly exotic vegetation, shrub brushland, cabbage palms and scattered hardwoods. An isolated waterbody is present within the north west corner and a water filled ditch runs along the southern boundary of the subject property. The Florida Cooperative Land Cover (CLC) System developed by the Florida Fish and Wildlife Conservation Commission (FWC) classifies the land cover as 1821 – Low Structure Density and 18332 – Fallow Orchards. The predominant land cover classification is Fallow Orchards (1832). Figure 2 provides the CLC map for the subject property.

The vegetative community was characterized in the field as a degraded mixed upland community consisting of shallow ridge and furrows with a sparse canopy and dense shrub stratum. The ridge and furrow landform is a result of the historic orchard land use. The canopy stratum consists primarily of cabbage palm (*Sabal palmetto*), and laurel oak (*Quercus laurifolia*). The shrub stratum consisted of dense ceaserweed (*Urena lobata*), Jack-in-the-bush (*Chromolaena odorata*), Brazillian pepper (*Schinus terebinthifolia*), and shoebutton ardisia (*Ardisia elliptica*). Ground cover stratum was generally limited due to the dense canopy, shrub and vine cover. Limited areas with herbaceous vegetative cover were observed providing suitable forage for gopher tortoises.

The Natural Resources Conservation Service (NRCS) Web Soil Survey lists five soil types within the subject property. Table 1 provides a summary of the soil types present within the subject property. Figure 3 provides the NRCS Web Soil Survey graphically for the subject property. A brief description of each soils type follows.

Table 1. Web Soil Survey Summary

Map Unit Symbol	Map Unit Name	Acres	Percent of property
□□	□□□□□□□□□d□□r□ □□□□□□d□□	□□□□	□□□□□ □
□□	□r□□□□□□□□□□□□r□□□□□□□□□□	□□□□	□□□□□ □
□□□	S□□□□□□□□□d□□ □□□□□□□□□□d□□	□□□□	□□□□□ □
□□□	T□□□□□□d□P□□ □□□□□□d□□	□□□□	□□□□□ □
□□□	□ □d□r□□□□ □□□□d□	□□□□	□□□□□ □
Totals for Area of Interest		**11.1**	**100.0%**

Ankona and Farmton sands is poorly drained soil found in flatwoods on marine terraces. The seasonal high-water table is at a depth of 6 to 18 inches. The gopher tortoise burrowing suitability is rated as "less suited". Less Suited rating states that these soils have characteristics that may limit establishment, maintenance, or use of the site by gopher tortoise. Colonization and population densities may be below average or restricted in the area due to the limiting factors even though all of the other species habitat requirements are met (USDA, 2024).

Arents are Somewhat poorly drained sandy soils found on rises in marine terraces. Depth to water is 18 to 36 inches. This soils type is listed as not rated in the Web Soil Survey gopher tortoise burrowing suitability.

Susanna and Wauchula sands are poorly drained soil found in flatwoods on marine terraces. The seasonal high-water table is at a depth of 6 to 18 inches. The gopher tortoise burrowing suitability is rated as "unsuitable". These soils have characteristics that may limit establishment, maintenance, or use of the site by gopher tortoise. Areas of included soils with better drainage may provide suitable soil properties in some locations (USDA, 2024).

Tantile and Pomona sands are poorly drained soil found in flatwoods on marine terraces. The seasonal high-water table is at a depth of 6 to 18 inches. The gopher tortoise burrowing suitability is rated as "unsuitable" (USDA, 2024).

Winder loamy sand is poorly drained soil found in flats on marine terraces. The seasonal high-water table is at a depth of 12 to 18 inches. The gopher tortoise burrowing suitability is rated as "less suited" (USDA, 2024).

METHODS

The survey activities were completed by an FWC gopher tortoise agent and performed in accordance with those specified in Appendix 4 of the FWC Guidelines. Equipment utilized during the survey included a camera, Trimble DGPS unit, and a handheld datalogger running Solo Field mapping software.

The pedestrian survey was conducted by walking pre-determined transects in an approximate east-west orientation at 50-foot spacing across 100 percent of the subject property (see Figure 4). Apparent burrow activity status (active, inactive, or abandoned), size (juvenile <5 in.; subadult 5-8 in.; adult >8 in.), GPS coordinates, and photographs were recorded for each burrow encountered along each transect. Burrows that were not clearly made by a tortoise were not recorded.

RESULTS/DISCUSSION

The 100 % pedestrian survey of the project area resulted in no potentially occupied burrows. Multiple burrows from other burrowing fauna (i.e., armadillo *[Dasypus novemcinctus*]) were noted during the survey. Figure 4 provides the survey design graphically.

An apparent high-water table and dense vegetative cover provides poor quality gopher tortoise habitat throughout the majority of the subject property. Ponding, saturated soils, and organic soils were observed throughout the property. Optimal forage species (i.e., asgrasses and forbes) were generally absent due to the dense canopy and shrub, and cover. Additionally, approximately 50 percent of the soil types on the property are classified as "unsuitable" while the other 50 percent are listed as "less suited".

In Florida, gopher tortoises are categorized as Threatened on the Endangered Species List and are therefore protected by state law, Chapter 68A - 27.003, FL Administrative Code. An FWC relocation permit is required prior to any disturbance to a burrow or handling of a tortoise. Please note that ground disturbances within 25 feet in any direction from the burrow is prohibited until a relocation permit has been obtained and the tortoise has been relocated to either and offsite recipient site or a suitable onsite relocation area. The findings of this survey are valid for a period of ninety days. A resurvey must be completed prior to construction activities that will occur beyond the ninety-day period.

REFERENCES

Florida Fish and Wildlife Conservation Commission Gopher Tortoise Permitting Guidelines. Revised April 2023. 133 pp.

U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey. Accessed 1/25/2024.

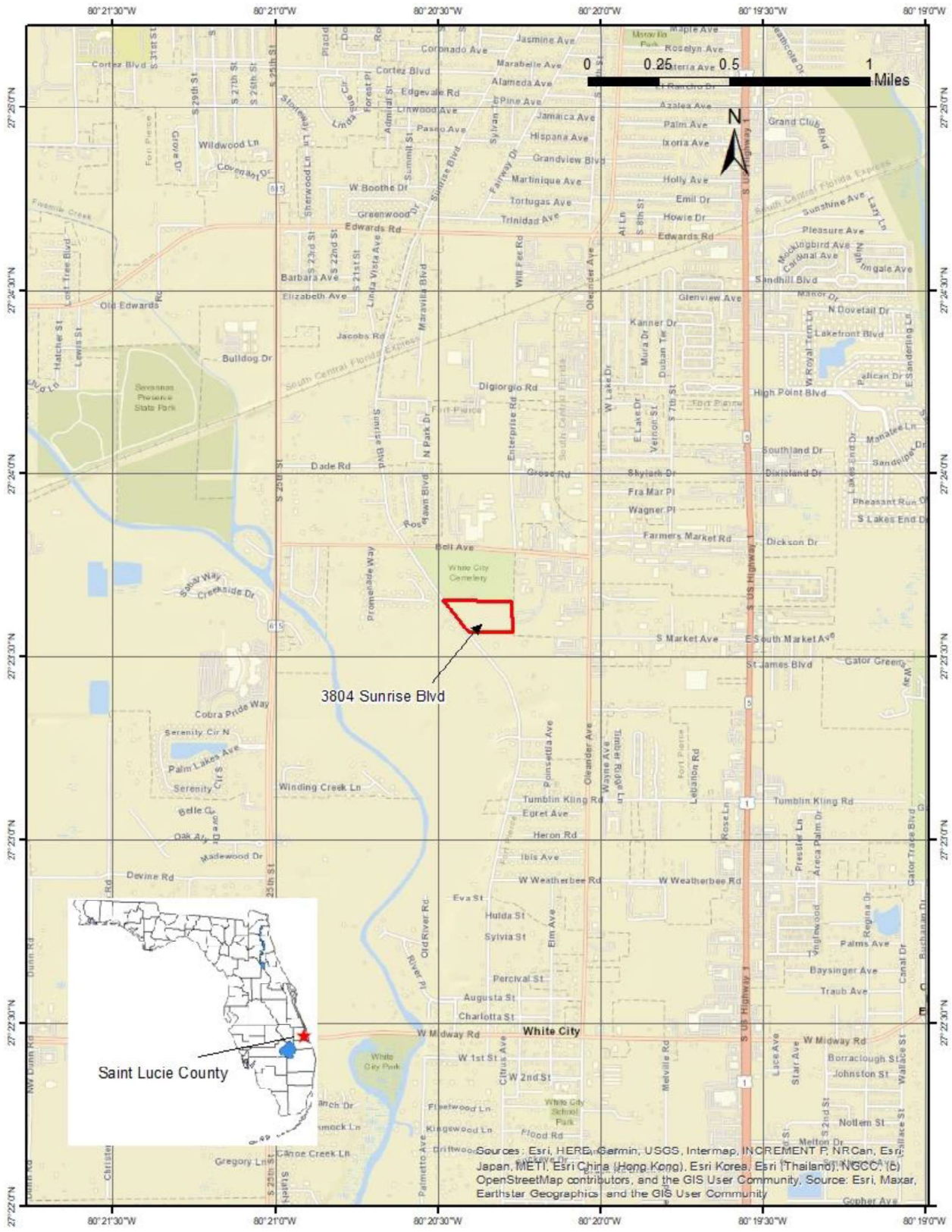


Figure 1. Project Location Map

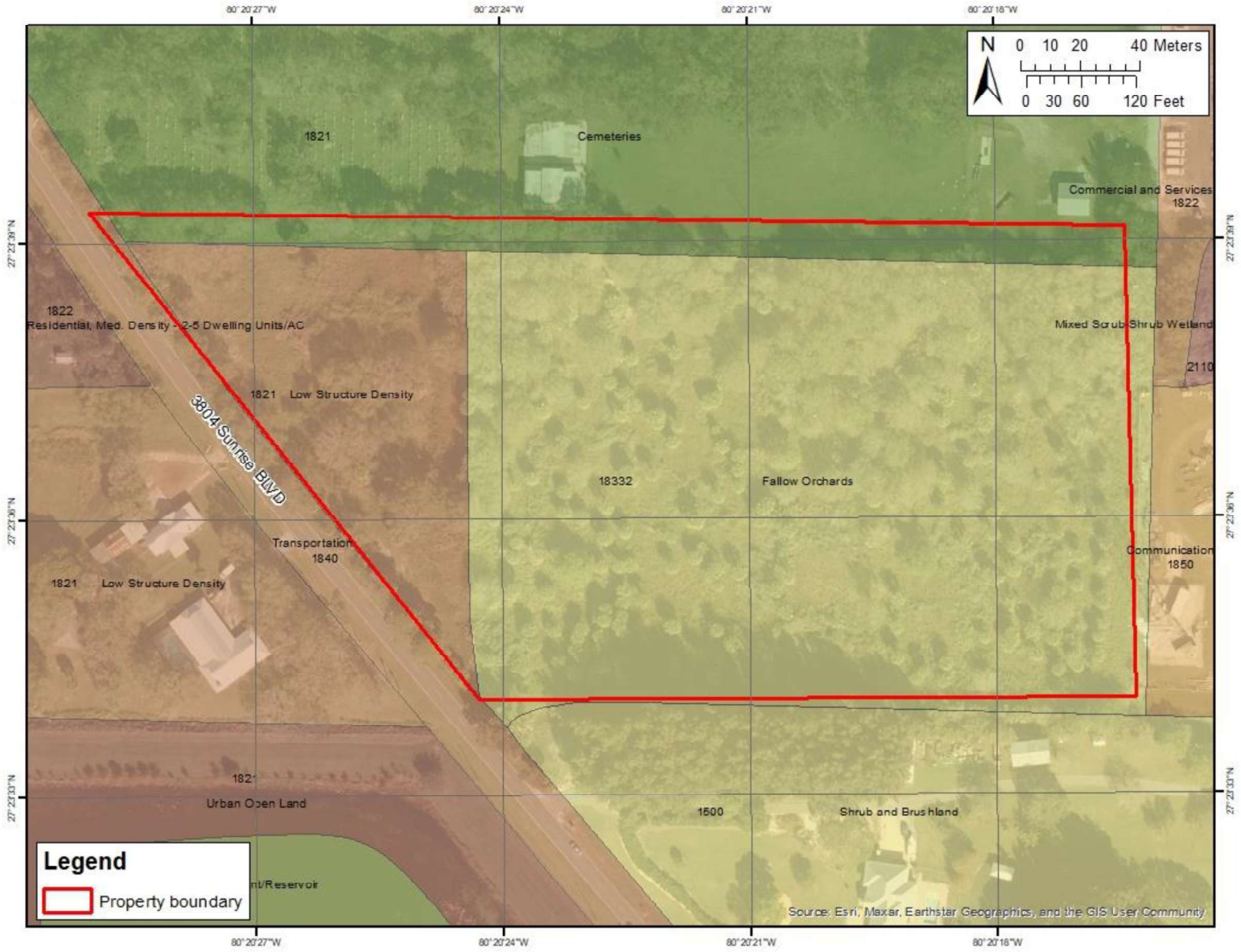


Figure 2. Cooperative Land Cover Map

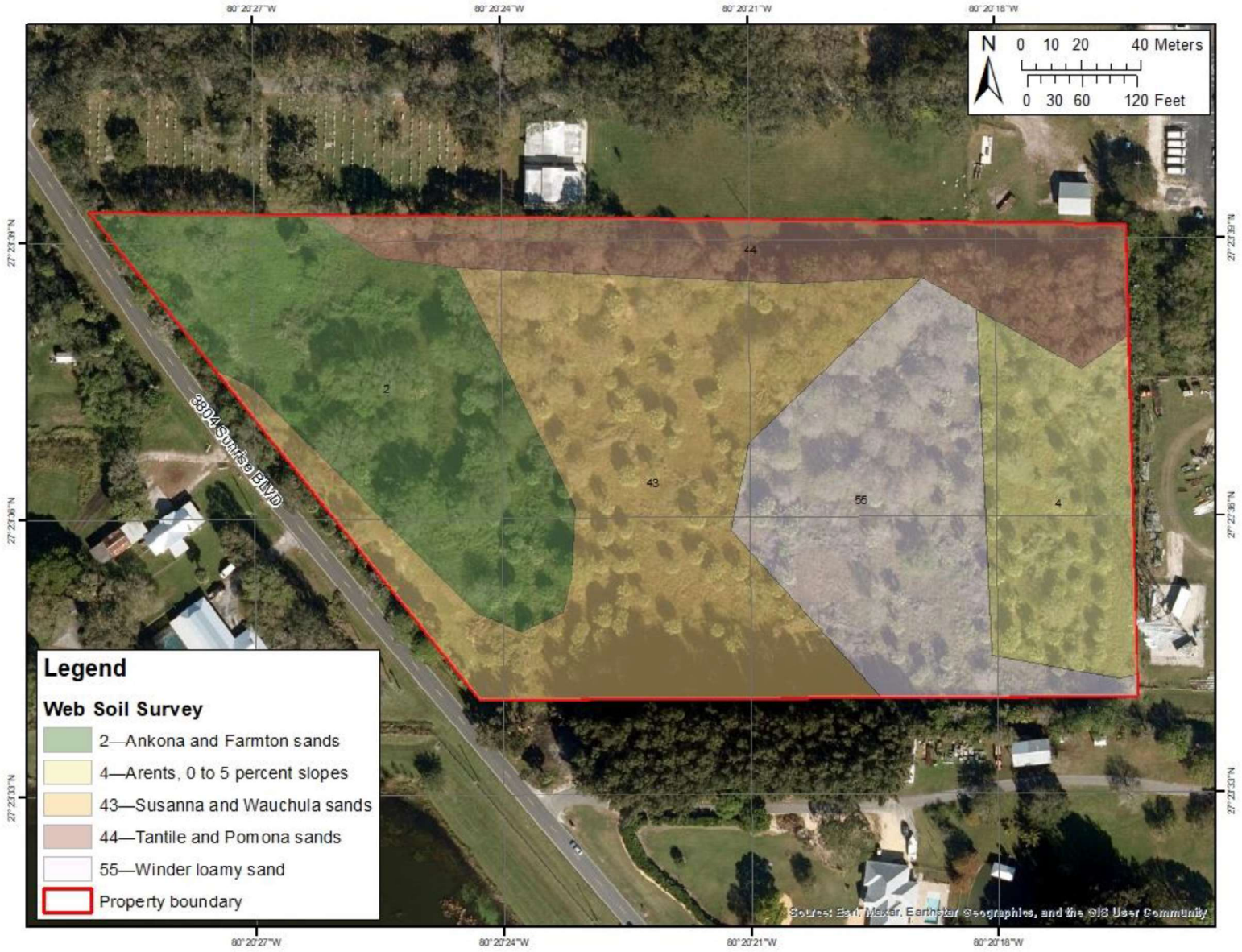


Figure 3. Soils Map

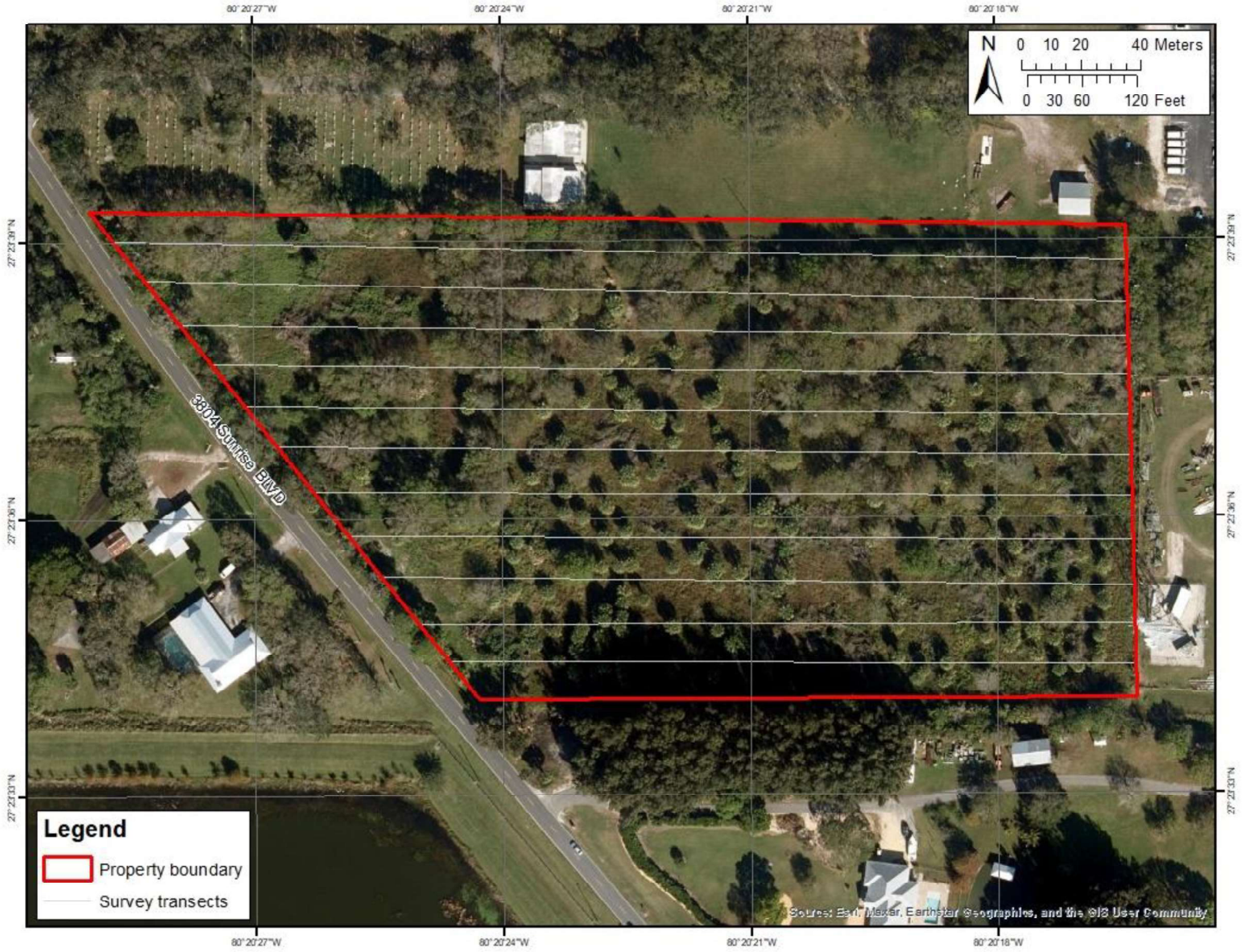
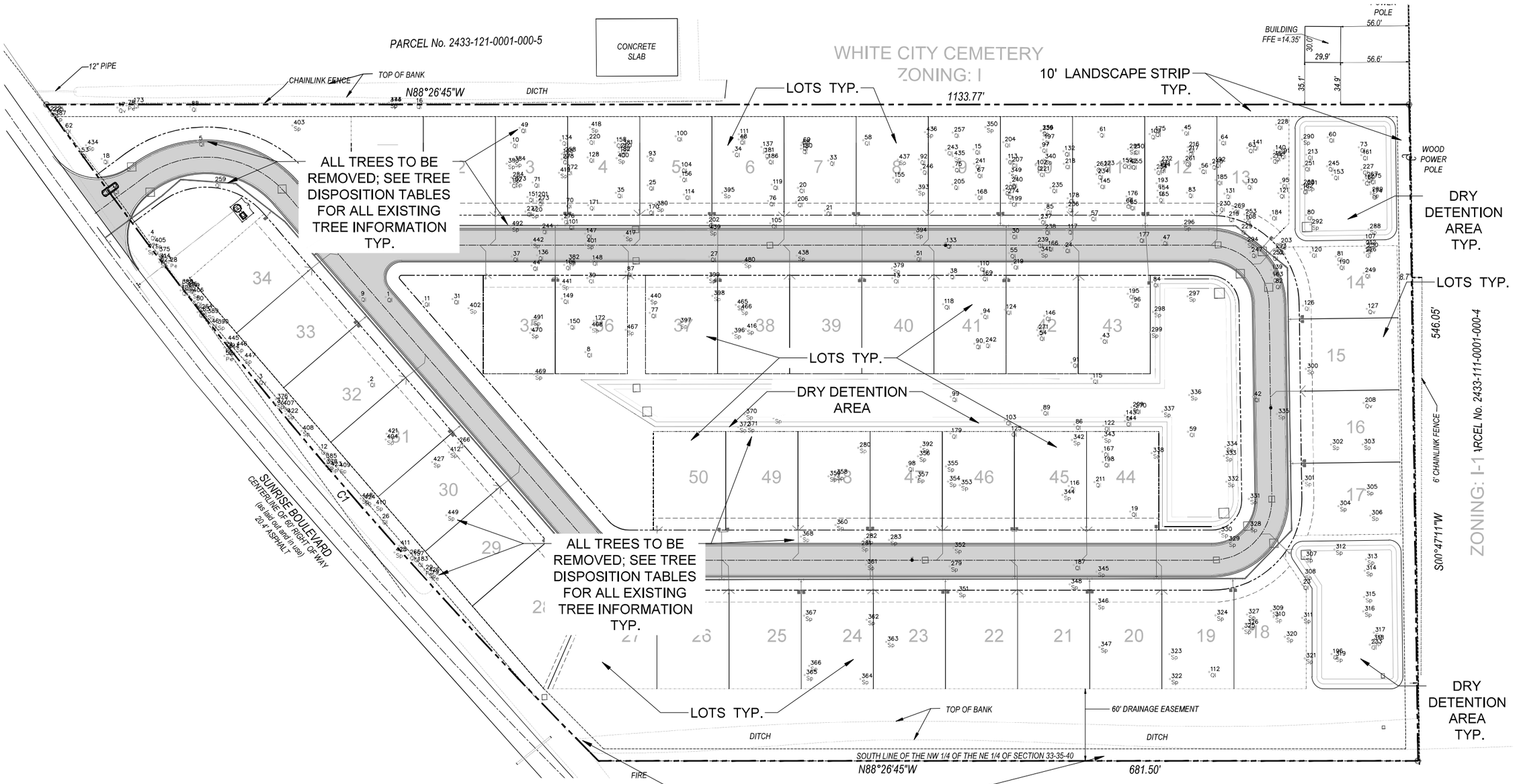


Figure 4. Gopher Tortoise Survey Map



*SEE SHEET TD-2 FOR TREE INVENTORY TABLES

*SEE SHEET TD-3 FOR TREE MITIGATION TABLES & DATA

DRAWING INDEX:

Project Team

Landscape Architect:

LANDSCAPE ARCHITECTURAL SERVICES, LLC

Brandon White | Owner
772-834-1357 | brandon@las-fl.com
Paul Goulas | Owner
772-631-8400 | paul@las-fl.com
1708 SE Joy Haven Street
Port St. Lucie, Fl. 34983

Civil Engineer:

KMA

SUNRISE PROPERTY

3904 Sunrise Blvd.
City of Fort Pierce, Florida

Tree Disposition Plan

Revisions		
Date	Init.	Description
9.12.24	PG	Submittal

REGISTERED LANDSCAPE ARCHITECT PAUL A. GOULAS LA 6666807 STATE OF FLORIDA

PAUL GOULAS, RLA
FLORIDA REG. # LA6666807

Drawn By:	PG
Checked By:	PG
Municipal Project:	
Scale:	

NORTH

SCALE: 1" = 40'

0 20' 40' 80'

TD-1

TREE INVENTORY & DISPOSITION

TREE #	SIZE DBH	TYPE	DISPOSITION
0	54	Laurel Oak	To Be Removed
1	40	Laurel Oak	To Be Removed
2	35	Laurel Oak	To Be Removed
3	35	Live Oak	To Be Removed
4	33	Laurel Oak	To Be Removed
5	31	Laurel Oak	To Be Removed
6	30.6	Laurel Oak	To Be Removed
7	30	Laurel Oak	To Be Removed
8	30	Laurel Oak	To Be Removed
9	29	Laurel Oak	To Be Removed
10	27.2	Laurel Oak	To Be Removed
11	27	Laurel Oak	To Be Removed
12	27	Live Oak	To Be Removed
13	26.5	Laurel Oak	To Be Removed
14	26	Laurel Oak	To Be Removed
15	26	Laurel Oak	To Be Removed
16	26	Laurel Oak	To Be Removed
17	26	Live Oak	To Be Removed
18	25.5	Laurel Oak	To Be Removed
19	25	Laurel Oak	To Be Removed
20	24.6	Laurel Oak	To Be Removed
21	24.4	Laurel Oak	To Be Removed
22	24	Sash Pine	To Be Removed
23	24	Laurel Oak	To Be Removed
24	24	Laurel Oak	To Be Removed
25	24	Laurel Oak	To Be Removed
26	23.5	Laurel Oak	To Be Removed
27	23.5	Laurel Oak	To Be Removed
28	23	Sash Pine	To Be Removed
29	23	Sash Pine	To Be Removed
30	23	Laurel Oak	To Be Removed
31	23	Laurel Oak	To Be Removed
32	22	Sash Pine	To Be Removed
33	22	Laurel Oak	To Be Removed
34	22	Laurel Oak	To Be Removed
35	22	Laurel Oak	To Be Removed
36	21.9	Laurel Oak	To Be Removed
37	21.6	Laurel Oak	To Be Removed
38	21	Laurel Oak	To Be Removed
39	21	Laurel Oak	To Be Removed
40	20	Laurel Oak	To Be Removed
41	20	Laurel Oak	To Be Removed
42	20	Laurel Oak	To Be Removed
43	20	Laurel Oak	To Be Removed
44	20	Laurel Oak	To Be Removed
45	19.4	Laurel Oak	To Be Removed
46	19.3	Laurel Oak	To Be Removed
47	19.2	Laurel Oak	To Be Removed
48	19	Laurel Oak	To Be Removed
49	19	Laurel Oak	To Be Removed
50	18.6	Laurel Oak	To Be Removed
51	18.5	Laurel Oak	To Be Removed
52	18	Sash Pine	To Be Removed
53	18	Laurel Oak	To Be Removed
54	18	Laurel Oak	To Be Removed
55	17.5	Laurel Oak	To Be Removed
56	17.5	Laurel Oak	To Be Removed
57	17.3	Laurel Oak	To Be Removed
58	17.3	Laurel Oak	To Be Removed
59	17.2	Laurel Oak	To Be Removed
60	17.2	Laurel Oak	To Be Removed
61	17.1	Laurel Oak	To Be Removed
62	17	Laurel Oak	To Be Removed
63	17	Laurel Oak	To Be Removed
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Project Team

Landscape Architect:

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Civil Engineer:

KMA

SUNRISE PROPERTY

3904 Sunrise Blvd.
City of Fort Pierce, Florida

Tree Inventory & Disposition Tables

Revisions		
Date	Init.	Description
9.12.24	PG	Submittal

REGISTERED LANDSCAPE ARCHITECT — PAUL A. GOULAS — LA 6666807 — STATE OF FLORIDA

PAUL GOULAS, RLA
FLORIDA REG. # LA6666807

Drawn By:	PG
Checked By:	PG
Municipal Project:	
Scale:	

TD-2

LAUREL OAKS REQUIRING MITIGATION

TREE #	SIZE DBH	TYPE
0	54	Laurel Oak
1	40	Laurel Oak
2	35	Laurel Oak
4	33	Laurel Oak
5	31	Laurel Oak
6	30.6	Laurel Oak
7	30	Laurel Oak
8	30	Laurel Oak
9	29	Laurel Oak
10	27.2	Laurel Oak
11	27	Laurel Oak
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16	26	Laurel Oak
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20	24.6	Laurel Oak
21	24.4	Laurel Oak
23	24	Laurel Oak
24	24	Laurel Oak
25	24	Laurel Oak
26	23.5	Laurel Oak
27	23.5	Laurel Oak
30	23	Laurel Oak
31	23	Laurel Oak
33	22	Laurel Oak
34	22	Laurel Oak
35	22	Laurel Oak
36	21.9	Laurel Oak
37	21.6	Laurel Oak
38	21	Laurel Oak
39	21	Laurel Oak
40	20	Laurel Oak
41	20	Laurel Oak
42	20	Laurel Oak
43	20	Laurel Oak
44	20	Laurel Oak
45	19.4	Laurel Oak
46	19.3	Laurel Oak
47	19.2	Laurel Oak
48	19	Laurel Oak
49	19	Laurel Oak
50	18.6	Laurel Oak
51	18.5	Laurel Oak
53	18	Laurel Oak
54	18	Laurel Oak
55	17.5	Laurel Oak
56	17.5	Laurel Oak
57	17.3	Laurel Oak
58	17.3	Laurel Oak
59	17.2	Laurel Oak
60	17.2	Laurel Oak
61	17.1	Laurel Oak
62	17	Laurel Oak
63	17	Laurel Oak
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68	17	Laurel Oak
69	17	Laurel Oak
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72	16.6	Laurel Oak
73	16.6	Laurel Oak
75	16.5	Laurel Oak
76	16.5	Laurel Oak
77	16.4	Laurel Oak
80	16	Laurel Oak
81	16	Laurel Oak
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86	16	Laurel Oak
87	16	Laurel Oak
88	16	Laurel Oak
89	15.8	Laurel Oak
90	15.5	Laurel Oak
91	15.5	Laurel Oak
92	15.5	Laurel Oak
93	15.2	Laurel Oak
94	15.1	Laurel Oak
95	15	Laurel Oak
96	15	Laurel Oak
97	15	Laurel Oak
98	15	Laurel Oak
99	15	Laurel Oak
100	15	Laurel Oak
101	14.9	Laurel Oak
102	14.5	Laurel Oak
103	14.5	Laurel Oak
104	14.5	Laurel Oak
105	14.5	Laurel Oak
106	14.4	Laurel Oak
107	14	Laurel Oak
108	14	Laurel Oak
109	14	Laurel Oak
110	14	Laurel Oak
Total	**1999.9**	

LIVE OAKS REQUIRING MITIGATION

TREE #	SIZE DBH	TYPE
3	35	Live Oak
12	27	Live Oak
17	26	Live Oak
127	12.4	Live Oak
Total	**100.4**	

PINE TREES REQUIRING MITIGATION

TREE #	SIZE DBH	TYPE
22	24	Slash Pine
28	23	Slash Pine
29	23	Slash Pine
32	22	Slash Pine
52	18	Slash Pine
74	16.5	Slash Pine
78	16	Slash Pine
79	16	Slash Pine
Total	**158.5**	

SABAL PALMS REQUIRING MITIGATION

TREE #	SIZE CT	TYPE
279	10' MIN	Sabal Palm
280	10' MIN	Sabal Palm
281	10' MIN	Sabal Palm
282	10' MIN	Sabal Palm
283	10' MIN	Sabal Palm
284	10' MIN	Sabal Palm
285	10' MIN	Sabal Palm
286	10' MIN	Sabal Palm
287	10' MIN	Sabal Palm
288	10' MIN	Sabal Palm
289	10' MIN	Sabal Palm
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526	10' MIN	Sabal Palm
527	10' MIN	Sabal Palm
528	10' MIN	Sabal Palm
529	10' MIN	Sabal Palm
530	10' MIN	Sabal Palm
531	10' MIN	Sabal Palm
532	10' MIN	Sabal Palm
Total	254	

Mitigation Data:

Total DBH of Native Trees 14" DBH & Larger to be Removed: 2,258.8" DBH

Total Sabal Palms 10' CT & Larger to be Removed: 254 Palms

Tree Mitigation Method TBD

Mitigation Notes:

1. Tree mitigation is for the removal of healthy existing native trees 14" dbh & greater.
2. Palm mitigation is for the removal of existing native palms10' clear trunk height & greater.

Project Team

Landscape Architect:

LANDSCAPE ARCHITECTURAL SERVICES, LLC

Brandon White | Owner
772-834-1357 | brandon@las-fl.com
Paul Goulas | Owner
772-631-8400 | paul@las-fl.com
1708 SE Joy Haven Street
Port St. Lucie, Fl. 34983

Civil Engineer:

KMA

SUNRISE PROPERTY

3904 Sunrise Blvd.
City of Fort Pierce, Florida

Tree Mitigation Tables & Data

Revisions

Date	Init.	Description
9.12.24	PG	Submittal

REGISTERED LANDSCAPE ARCHITECT
PAUL A. GOULAS
LA 6666807
STATE OF FLORIDA

PAUL GOULAS, RLA
FLORIDA REG. # LA6666807

Drawn By:	PG
Checked By:	PG
Municipal Project:	
Scale:	

TD-3

Legal Description

The south 546 feet of the northwest ¼ of the northeast ¼, lying east of White City Road (Sunrise Boulevard) in Section 33, Township 35 South, Range 40 East, said land lying and being in St. Lucie County, Florida.

WHITE CITY CEMETERY
ZONING: I

DRY DETENTION POND

DRY DETENTION POND

DRY DETENTION POND

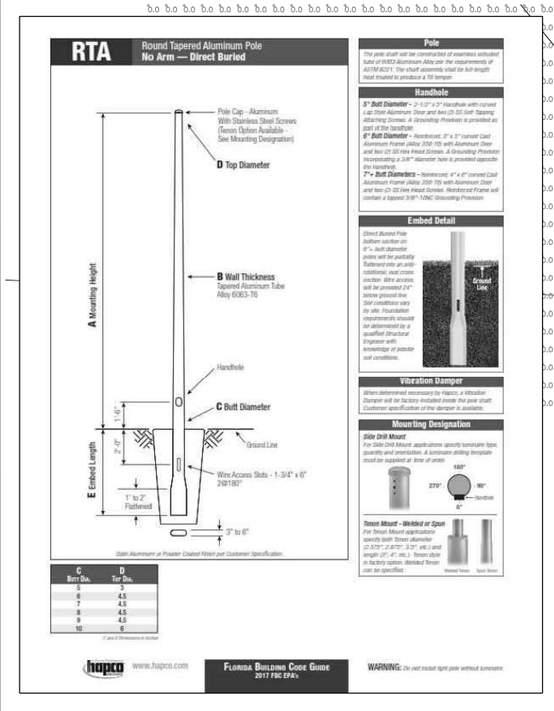
DRY DETENTION POND

EXISTING DRAINAGE CANAL AND 60' EASEMENT

ZONING: RS-3

ZONING: I-1

ZONING: RS-3



Landreth Lighting Luminaire Schedule

Symbol	Manufacturer	Qty	Label	Arrangement	Description	LLF	BUG Rating	Arranged Watts	Arranged Lumens
⊠	Lithonia Lighting	15	SLA	Single	DSX0 LED P5 30K 70CRI T3M MVOLT RPA NLTAIR2 PIRHN HS FINISH TBD: MOUNTED 25' AFG ON ROUND TAPERED ALUMINUM DIRECT BURIED POLE	1.000	B1-U0-G3	90.12	10055

Landreth Lighting Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Entire Site	Illuminance	Fc	0.26	2.0	0.0	N.A.	N.A.
Drive Lane	Illuminance	Fc	1.20	2.0	0.5	2.40	4.00

North
GRAPHIC SCALE
40 0 40 80 120
SCALE: (1 Inch = 40 Feet)

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT
SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT
INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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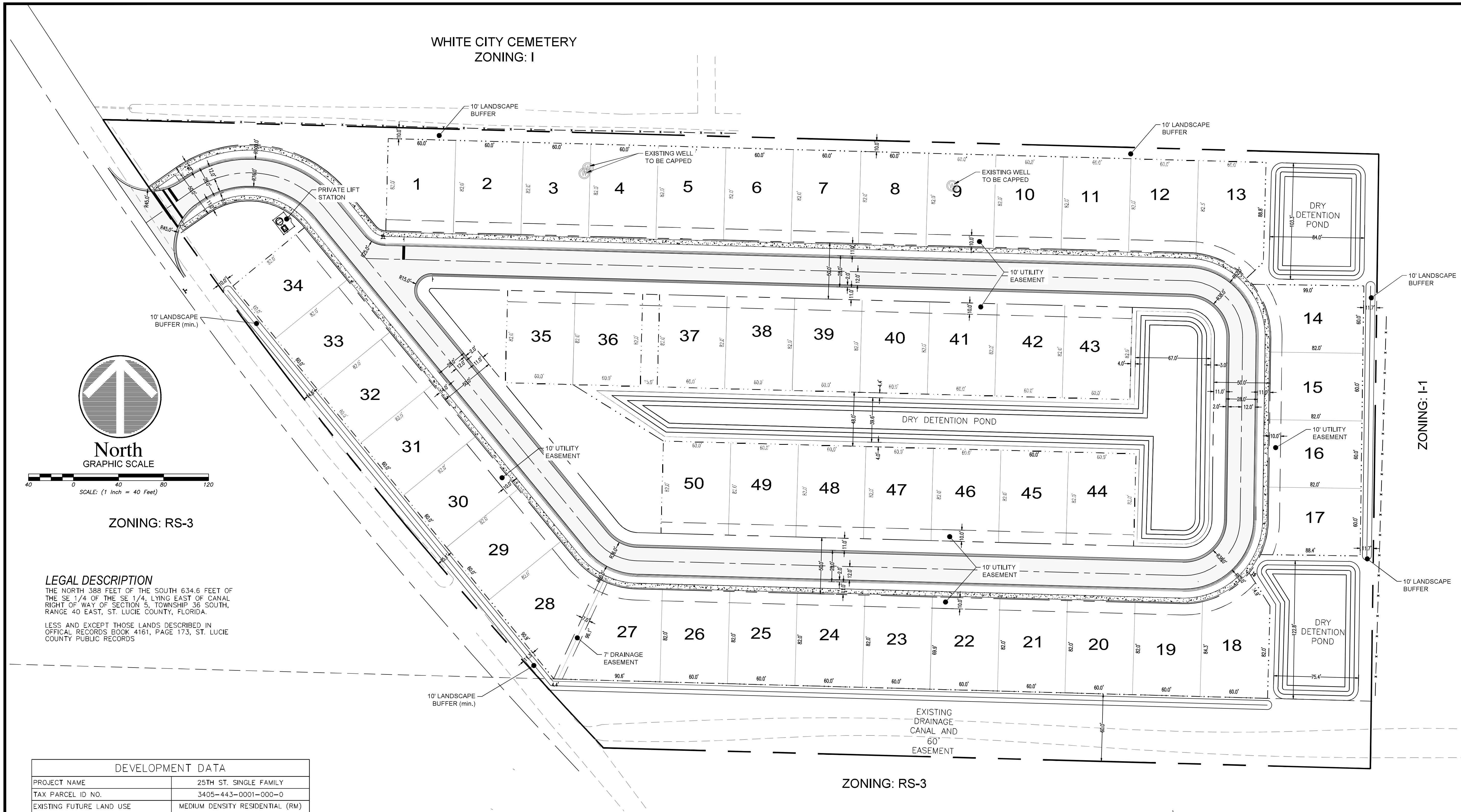
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.	24-1001-PHOTO

SHEET TITLE:
PHOTO-01

SHEET NUMBER:

Plotted on Tuesday, July 09, 2024 - 12:17 PM by Blaine Bergstresser



LEGAL DESCRIPTION

THE NORTH 388 FEET OF THE SOUTH 634.6 FEET OF THE SE 1/4 OF THE SE 1/4, LYING EAST OF CANAL RIGHT OF WAY OF SECTION 5, TOWNSHIP 36 SOUTH, RANGE 40 EAST, ST. LUCIE COUNTY, FLORIDA.

LESS AND EXCEPT THOSE LANDS DESCRIBED IN OFFICAL RECORDS BOOK 4161, PAGE 173, ST. LUCIE COUNTY PUBLIC RECORDS

ZONING: RS-3

DEVELOPMENT DATA	
PROJECT NAME	25TH ST. SINGLE FAMILY
TAX PARCEL ID NO.	3405-443-0001-000-0
EXISTING FUTURE LAND USE	MEDIUM DENSITY RESIDENTIAL (RM)
PROPOSED FUTURE LAND USE	MEDIUM DENSITY RESIDENTIAL (RM)
EXISTING ZONING	RS-3
PROPOSED ZONING	PLANNED DEVELOPMENT ZONE (PD)
PROJECT USE	SINGLE-FAMILY RESIDENTIAL
MAXIMUM ALLOWABLE DENSITY	RS-3 - 6 DU/AC
PROPOSED DENSITY	PD - 3.81 DU/AC

OPEN SPACE CALCUALTION			
TOTAL AREA OF SUBJECT PARCEL	502,682 SF	11.54 AC	100.00%
REQUIRED OPEN SPACE AREA	100,536 SF	2.31 AC	20.00%
AREA OF WETLAND BUFFER	0 SF	0.00 AC	0.00%
AREA OF RETENTION PONDS*	30,161 SF	0.69 AC	6.00%
AREA OF GREEN SPACE	119,476 SF	2.74 AC	23.77%
PROVIDED OPEN SPACE AREA	149,637 SF	3.44 AC	29.77%

*PER SECTION 125-212(b)(3)...stormwater detention and retention facilities providing that no more than 30 percent of the overall open space requirement shall be satisfied in this manner

LAND USE BREAKDOWN			
TOTAL AREA OF SUBJECT PARCEL	502,682 SF	11.54 AC	100.00%
AREA OF ONSITE WETLAND	0 SF	0.00 AC	0.00%
AREA OF WETLAND BUFFER	0 SF	0.00 AC	0.00%
TOTAL DEVELOPMENT AREA	502,682 SF	11.54 AC	100.00%

TOTAL DEVELOPMENT AREA	502,682 SF	11.54 AC	100.00%
AREA OF PROPOSED BUILDINGS	150,000 SF	3.44 AC	29.84%
AREA OF PROPOSED IMPERVIOUS	63,131 SF	1.45 AC	12.56%
AREA OF PROPOSED LOT IMPERVIOUS	30,000 SF	0.69 AC	5.97%
AREA OF PROPOSED RETENTION BASE	32,933 SF	0.76 AC	6.55%
TOTAL PROPOSED IMPERVIOUS AREA	276,064 SF	6.34 AC	54.92%
AREA OF PROPOSED LOT PERVIOUS	80,253 SF	1.84 AC	15.96%
AREA OF PROPOSED RETENTION BANK	28,870 SF	0.66 AC	5.74%
AREA OF PROPOSED GREEN SPACE	119,476 SF	2.74 AC	23.77%
TOTAL PROPOSED PERVIOUS AREA	228,599 SF	5.25 AC	45.48%

ZONING	PD
MIN. LOT SIZE	4,920 SF
MIN. LOT WIDTH	60'
MIN. LOT DEPTH	70' (82 PROPOSED)
MIN. ROAD FRONTAGE	25'
MAX. LOT COVERAGE	40%
BUILDING HEIGHT (1 STORY)	45'
MAX. GROSS DENSITY (DU/AC.)	12 DU/AC. (3.81 DU/AC. PROPOSED)
MIN. SETBACKS	
FRONT	15'
SIDE (INTERIOR)	5'
SIDE (CORNER)	5'
GARAGE	20'
REAR	15'

CIVIL ENGINEER

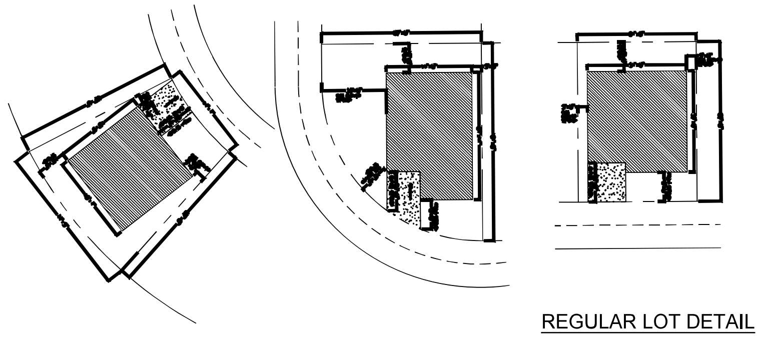
KMA ENGINEERING & SURVEYING, LLC
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
PHONE: (772) 569-5505

OWNER/DEVELOPER

DT VENTURES 1, LLC.
PO BOX 92280
ROCHESTER,NY 14692

NOTES

1. AIR CONDITIONER UNITS WILL HAVE A 5' SIDE SETBACK.



CURVATURE LOT DETAIL
SCALE: N.T.S.

CORNER LOT DETAIL
SCALE: N.T.S.

REGULAR LOT DETAIL
SCALE: N.T.S.

KMA
ENGINEERING & SURVEYING, LLC.
3001 INDUSTRIAL AVE 2
FORT PIERCE, FL 34946
(772) 569-5505
FBPE C.O.A. # 33705

REVISIONS:

BY:	DATE:	COMMENT:

NOT FOR CONSTRUCTION

PROJECT: SUNRISE LAKES
CITY OF FORT PIERCE, FLORIDA

CLIENT: INTEGRITY 1ST CONSTRUCTION GROUP

BLAINE ROBERT BERGSTRESSER LICENSE NO. 84598 STATE OF FLORIDA PROFESSIONAL ENGINEER

BLAINE BERGSTRESSER, P.E.
FLORIDA LICENSE No. 84598
02/24/2022

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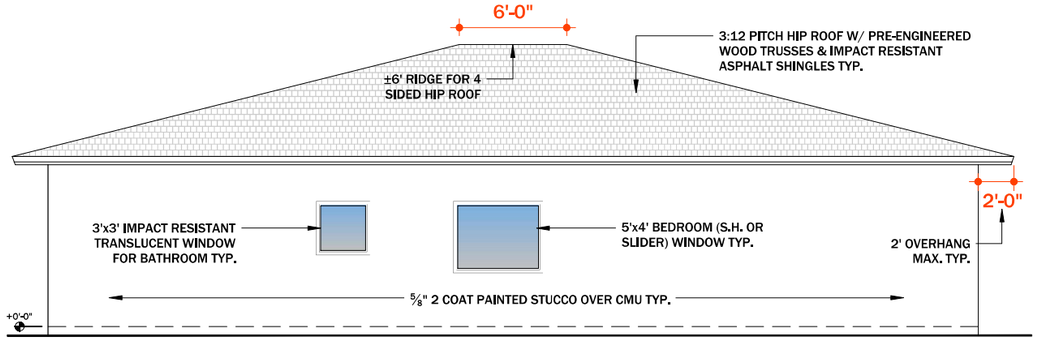
PROJECT No.:	24-1001
DRAWN BY:	SCB
CHECKED BY:	BRB
DATE:	04/02/2024
CAD I.D.:	24-1001-SITE

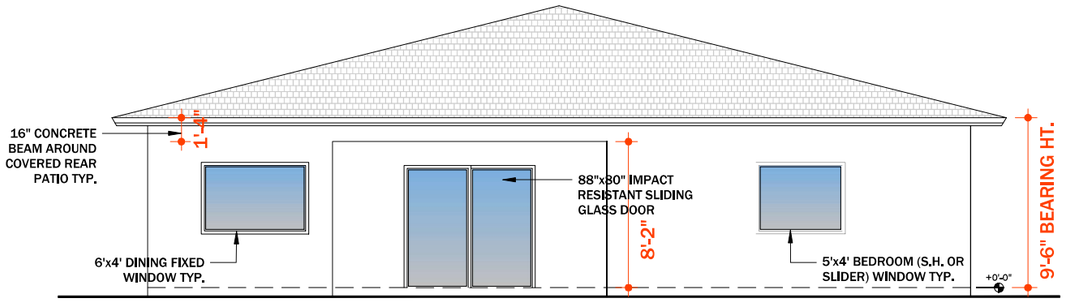
SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C-200



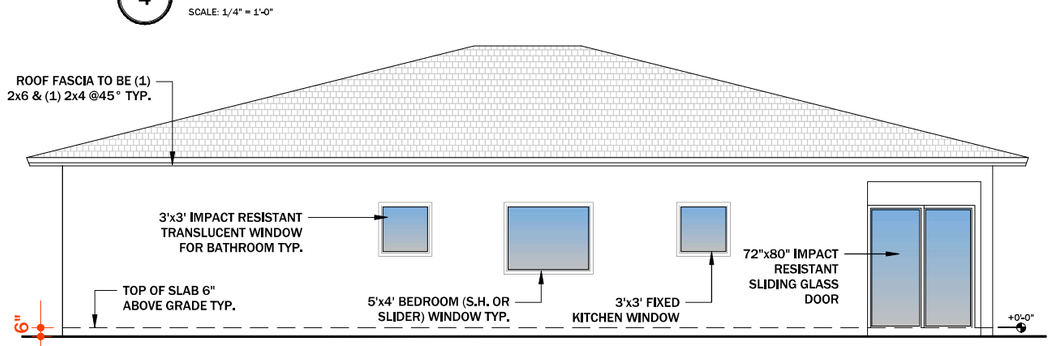
5 PROPOSED SIDE ELEVATION

SCALE: 1/4" = 1'-0"



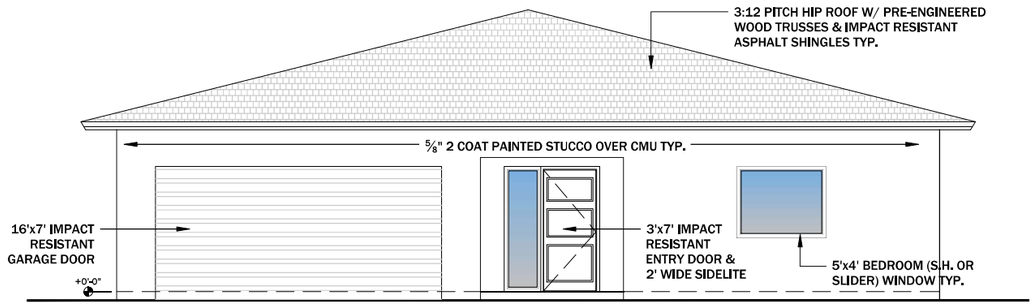
4 PROPOSED REAR ELEVATION

SCALE: 1/4" = 1'-0"



3 PROPOSED SIDE ELEVATION

SCALE: 1/4" = 1'-0"

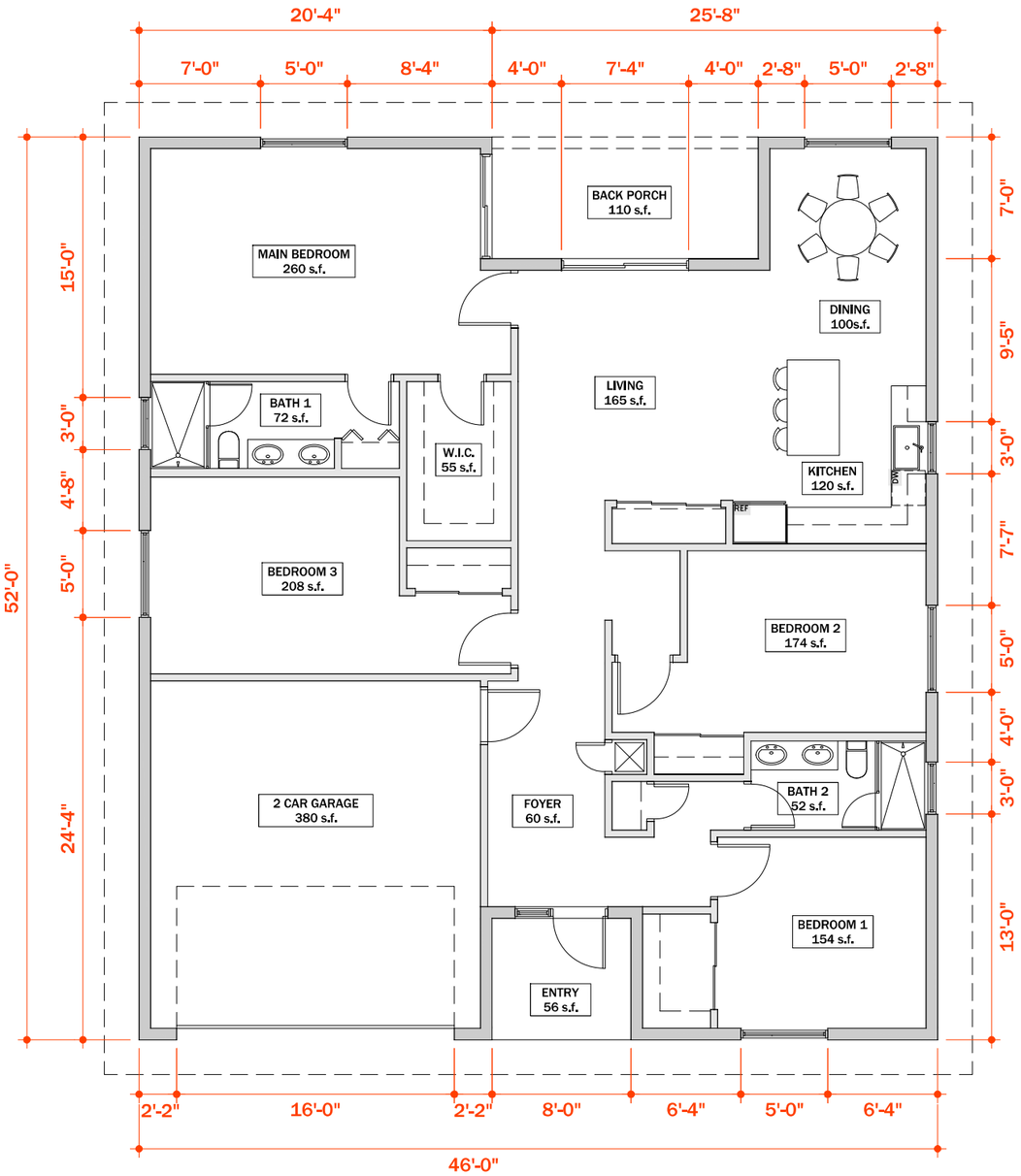


2 PROPOSED FRONT ELEVATION

SCALE: 1/4" = 1'-0"

HOUSE MODEL A: 4 BED 2 BATH / 2,392 S.F.

TOTAL FOOTPRINT: 2,392 S.F.
HVAC SPACE: 1,818 S.F.



1 PROPOSED FLOOR PLAN

SCALE: 1/4" = 1'-0"

VARIES

ALL TERRAIN ARCHITECT

OFFICES:
8051 N TAMIAMI TRAIL
EG
SARASOTA
FL 34243

21266 SUMMERTRACE CIR.
BOCA RATON
FL 33428

PROJECT
SUNRISE LAKES RESIDENTIAL COMMUNITY

3804 SUNRISE BLVD
FORT PIERCE
FL 34982

DATE: 4/15/2024
PROJECT # 24101

REVISION	DATE
1	
2	
3	
4	
5	
6	

NOTES:
1. DO NOT SCALE THE DRAWINGS DUE TO SHEET & PLOTTING DIFFERENTIAL. FOLLOW THE DIMENSIONS & ALWAYS FIELD VERIFY

SCHEMATIC DESIGN

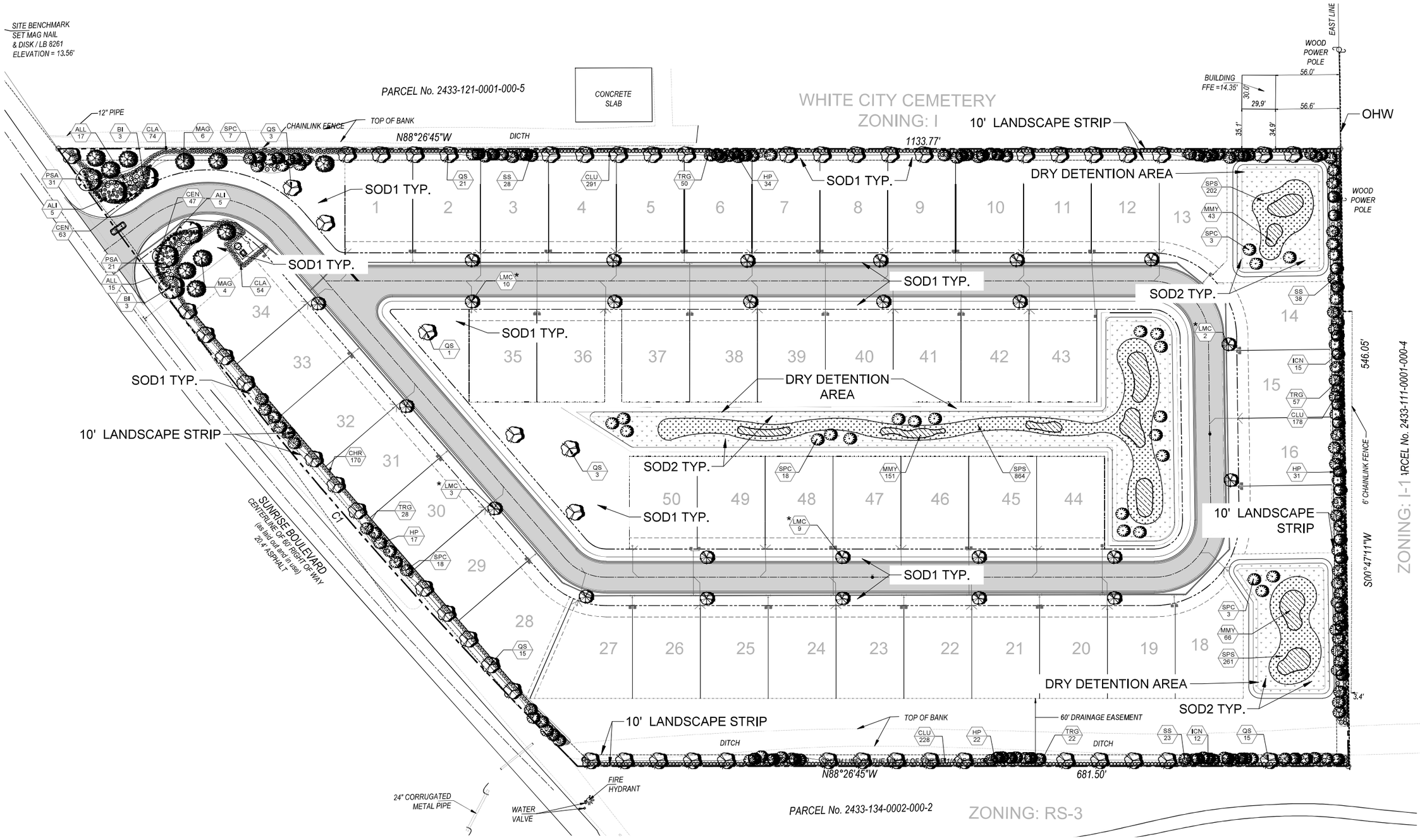
STATE OF FLORIDA
ARTHUR MOLINARI
AR 100808
REGISTERED ARCHITECT

MODEL A PLAN & ELEVATIONS

0' 1' 2' 4' 8'
SCALE: 1/4" = 1'-0"

A-1.0

DRAWN BY: ATA



*ROOT BARRIER TO BE INSTALLED WITH ALL TREES ADJACENT TO STREETS; SEE DETAIL ON SHEET LA-4 TYP.

Know what's below. Call before you dig.

Project Team

Landscape Architect:

LANDSCAPE ARCHITECTURAL SERVICES, LLC

Brandon White | Owner
772-834-1357 | brandon@las-fl.com
Paul Goulas | Owner
772-631-8400 | paul@las-fl.com
1708 SE Joy Haven Street
Port St. Lucie, Fl. 34983

Civil Engineer:

KMA

SUNRISE PROPERTY

3904 Sunrise Blvd.
City of Fort Pierce, Florida

Detail Landscape Plan

PARCEL No. 2433-111-0001-000-4

Revisions		
Date	Init.	Description
6.05.24	PG	Submittal

REGISTERED LANDSCAPE ARCHITECT
PAUL A. GOULAS
LA 6666807
STATE OF FLORIDA

PAUL GOULAS, RLA
FLORIDA REG. # LA6666807

Drawn By:	PG
Checked By:	PG
Municipal Project:	
Scale:	

NORTH

SCALE: 1" = 40'

0 20' 40' 80'

LA-2

O'ROURKE
ENGINEERING & PLANNING

TRAFFIC ANALYSIS

FOR

Integrity First

Prepared for:

Mr. Guiseppe "Joe" Scionti
The Integrity First Group
1812 Aragon Ave, Suite A
Lake Worth Beach, Florida 33461

Prepared by:

O'Rourke Engineering & Planning
3725 S East Ocean Blvd, Suite 201
Stuart, Florida 34996
772-781-7918

April 16, 2024

24164.01.03

Prepared by: O'Rourke Engineering & Planning Certificate of Authorization: #26869 3725 S East Ocean Blvd, Suite 201 Stuart, Florida 34996 772-781-7918	Professional Engineer Susan E. O'Rourke, P.E. Date signed and sealed: 04/16/2024 License #: 42684

O'ROURKE
ENGINEERING & PLANNING

April 16, 2024

Mr. Guiseppe "Joe" Scionti
The Integrity First Group
1812 Aragon Ave, Suite A
Lake Worth Beach, Florida 33461

Re: Integrity First

Dear Mr. Scionti:

O'Rourke Engineering & Planning has completed the analysis of the proposed residential development located on Sunrise Boulevard in St. Lucie County, Florida. The steps in the analysis and the ensuing results are presented herein.

It has been a pleasure working with you. If you have any questions or comments, please give me a call.

Respectfully submitted,

O'Rourke Engineering & Planning

Susan E. O'Rourke, P.E.
Registered Civil Engineer

C6 - Integrity First - TIA

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

INTRODUCTION

O'Rourke Engineering & Planning was retained to prepare a traffic analysis for the proposed development consisting of 50 Single Family dwelling units located on Sunrise Boulevard in St. Lucie County, Florida. The purpose of this report is to determine the project's impact on the surrounding roadway system.

In order to make the determination that the project complies with County Concurrency Guidelines, the following analytical steps were taken:

- summary of the project
- summary of existing lane geometries
- summary of the existing traffic volumes
- assessment of project traffic
- determination of impact area
- summary of buildout cumulative traffic volumes
- summary of levels of service with the project traffic added

Each of these steps is outlined herein.

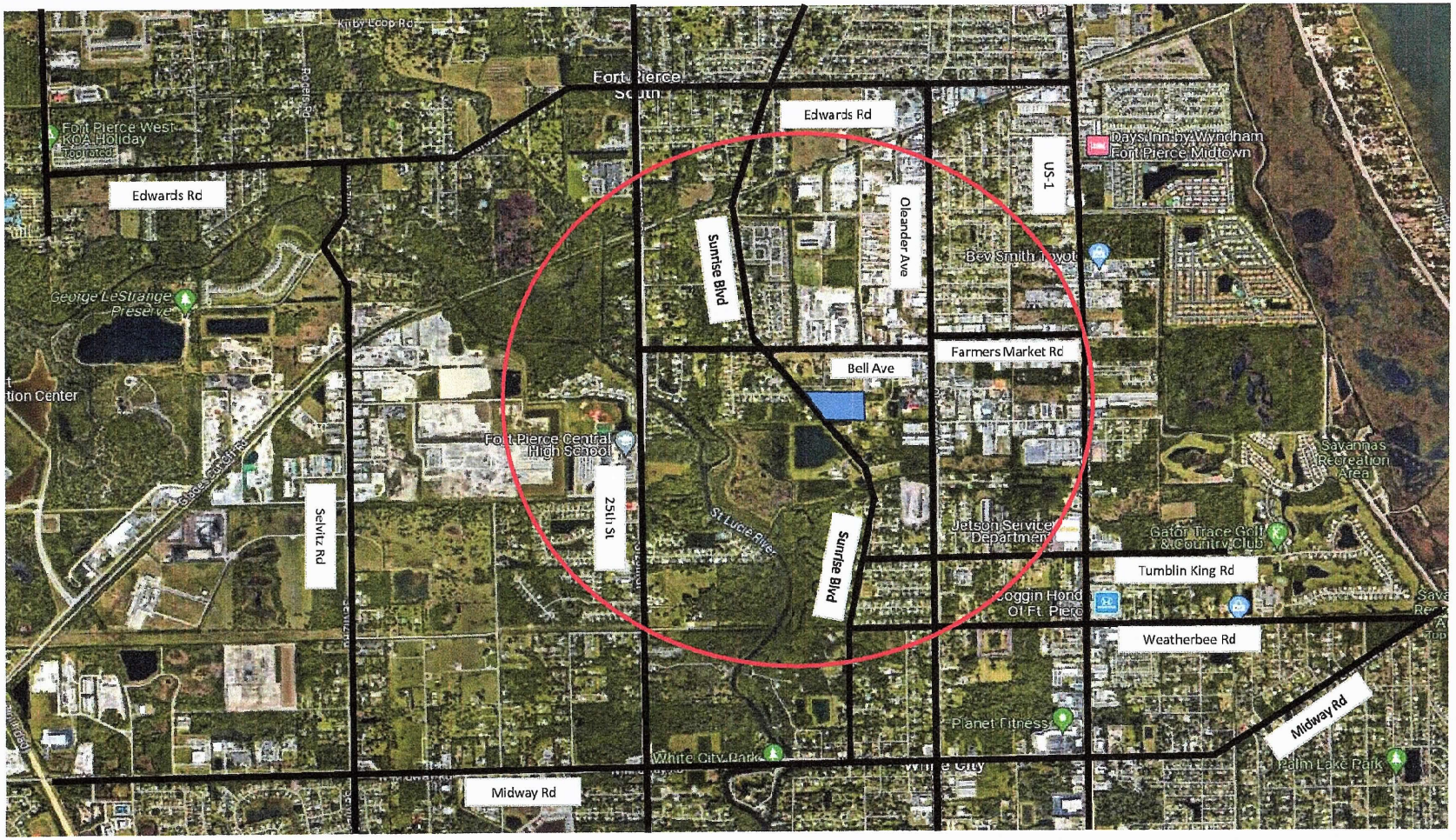
PROJECT DESCRIPTION

The proposed development located on Sunrise Boulevard in St. Lucie County, Florida, will consist of 50 Single Family dwelling units. The site is currently vacant. The project will have access to Sunrise Boulevard via one full access driveway. The project has an anticipated buildout year of 2027. The project location is shown in **Figure 1**. The number of lanes is also shown in **Figure 1**.

PROJECT TRAFFIC

To estimate future traffic generated by the development, the ITE Trip Generation, 11th Edition trip rates for Single Family Detached (Land Use Code 210) was applied to estimate the trips generated by the proposed development. These calculations are shown in **Tables 1a, 1b, and 1c**.

As shown, the project will generate 533 new daily trips. There will be 40 AM peak hour trips with 10 entering the project and 30 trips exiting the project. The project will generate 52 new PM peak hour trips. There will be 33 trips entering the project and 19 trips exiting the project in the PM peak hour.



NTS	O'ROURKE ENGINEERING & PLANNING 3725 S East Ocean Blvd, Suite 201 Stuart, Fl, 34996	Legend = Project Location = 1 Mile Radius
Job Number:	Date:	

Figure 1

Project Location

Integrity First

Table 1 - Trip Generation

Table 1a: Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Single Family Detached	210	50	DU	Ln(T) = 0.92Ln(X) + 2.68	50%	50%	267	266	533
TOTALS							**267**	**266**	**533**

Source: ITE 11th Edition Trip Generation Rates

Table 1b: AM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Single Family Detached	210	50	DU	Ln(T) = 0.91Ln(X) + 0.12	25%	75%	10	30	40
TOTALS							**10**	**30**	**40**

Source: ITE 11th Edition Trip Generation Rates

Table 1c: PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Single Family Detached	210	50	DU	Ln(T) = 0.94Ln(X) + 0.27	63%	37%	33	19	52
TOTALS							**33**	**19**	**52**

Source: ITE 11th Edition Trip Generation Rates

EXISTING CONDITIONS

The study area is defined as the roadways upon which the project has an impact of 1% of the level of service capacity within the radius of development influence of 1 mile. Once the project traffic was assigned, the study area was refined based on the impact percentages.

The study area roadways were defined in terms of existing lane geometrics and existing traffic volumes.

Existing Lane Geometrics and Traffic Control

The study area was reviewed to determine the existing number and type of lanes, and the traffic control along the roadway. Each roadway is described below.

- Sunrise Boulevard is a two-lane undivided major collector roadway with a general north/south alignment.
- Bell Avenue is a two-lane undivided major collector with an east/west alignment.
- Midway Road is a four-lane divided principal arterial with an east/west alignment.
- 25th Street is a four-lane divided principal arterial with a north/south alignment.
- Oleander Avenue is a two-lane minor arterial with a north/south alignment.

Existing Traffic Volumes/ Service Volume

Link volume data was obtained from the St. Lucie County TPO. The count data along with the number of lanes and the associated peak hour/peak direction service volumes will be summarized in the upcoming sections of the report. The service volumes were developed based on the St. Lucie County 2023 Traffic Counts and Level of Service Report. Traffic volumes for the intersection of Sunrise Boulevard and Bell Avenue were counted on April 2, 2024, during the AM and PM peak periods.

Appendix B includes the St. Lucie County 2023 Traffic Counts and Level of Service Report.

PROJECT DISTRIBUTION/ ASSIGNMENT/IMPACT

The project traffic was distributed by general geographic direction and then assigned to the roadway network.

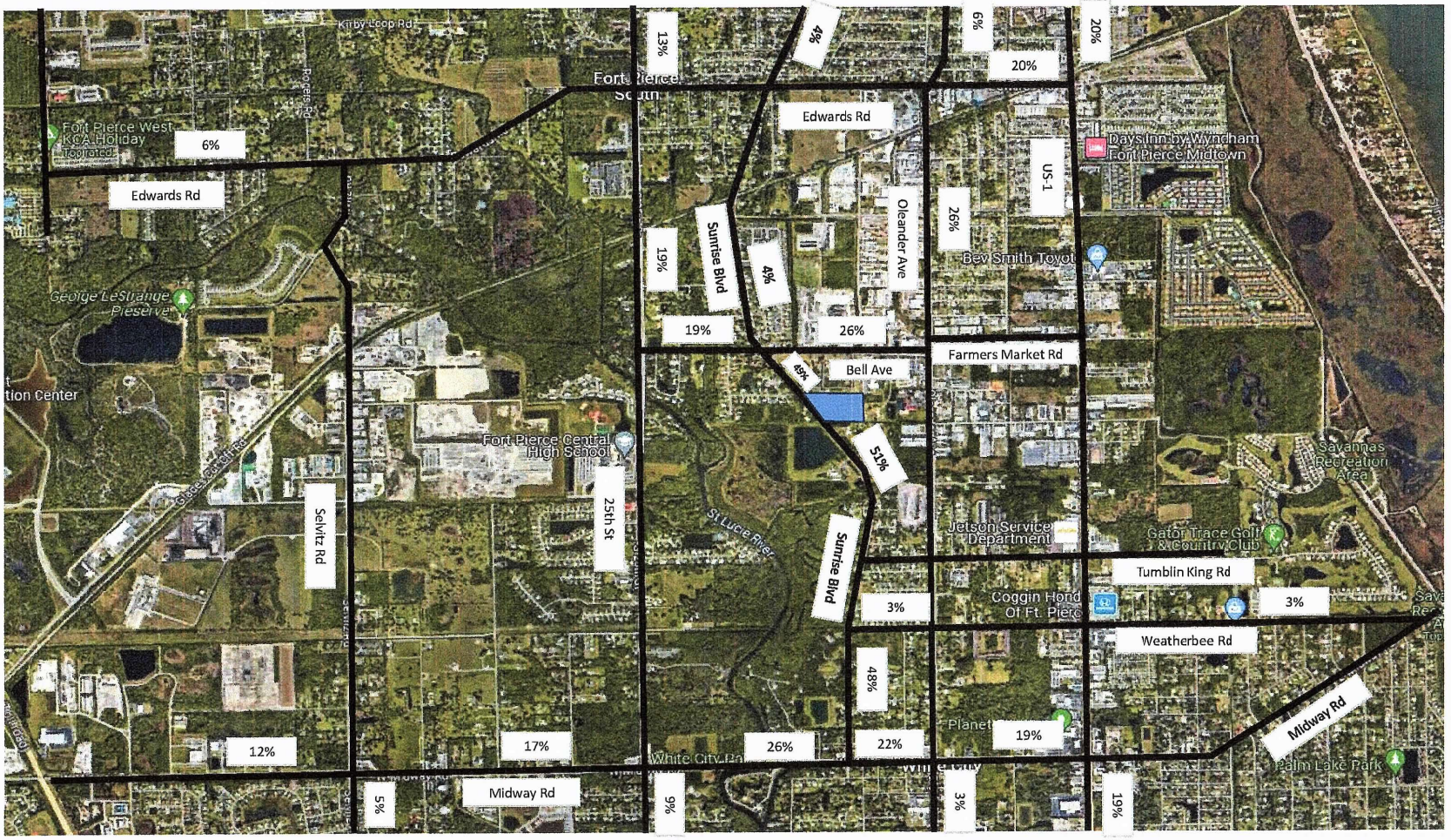
Distribution/ Assignment – This general distribution led to an assignment of trips based on the anticipated ultimate destinations and the roadway paths used to reach those destinations. The project assignment for the proposed development is shown in **Figure 2.**

Impact – Tables 2a and 2b summarize the project impact as a percent of service volume capacity. Significant is defined as 1% or more within the radius of development impact. As shown in **Tables 2a and 2b**, the project is significant on Sunrise Boulevard, Bell Avenue, and Oleander Avenue.

LINK ANALYSIS

The links where the project traffic is significant were analyzed further to ensure they will meet concurrency. A 5-year area wide growth rate was calculated using the FDOT Historical Traffic Count volumes. The calculated growth rate resulted in a rate of 1.16%. Existing traffic volumes were taken from the TPO Level of Service report and grown using the higher of 2.5% per year or 1% plus committed projects. "Other approved" unbuilt projects include Dade & Sunrise, American Silicon, Oleander Oaks, and Napa Auto. Project traffic was then added to create total traffic. **Tables 3a and 3b** summarize the results of the link analysis. As shown, the link of Oleander Avenue from Bell Avenue to Farmer's Market Road is currently operating below the adopted level of service. Based on FS 163.318 the project is not responsible for deficient links. All other significant links will remain at an acceptable level of service at project buildout.

Details of the growth rate calculation and background projects are included in **Appendix C.**



NTS

O'ROURKE ENGINEERING & PLANNING

3725 S East Ocean Blvd, Suite 201
Stuart, Fl, 34996

Job Number:

Date:

Legend

= Project Location

Figure 2

Project Percent Assignment

Integrity First

Table 2a: Percent Impact - AM Peak Hour

Segment	From	To	Direction		Lanes	Is Project Traffic More than 1%of Capacity?	LOS D Directional Peak Hour	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity
Sunrise Blvd	Midway Rd	Project Entrance	NB	IN	2L	No	540	5	51%	0.93%
	Midway Rd	Project Entrance	SB	OUT	2L	Yes	540	15	51%	2.78%
	Project Entrance	Bell Ave	NB	OUT	2L	Yes	540	15	49%	2.78%
	Project Entrance	Bell Ave	SB	IN	2L	No	540	5	49%	0.93%
	Bell Ave	Edwards Road	NB	OUT	2L	No	750	1	4%	0.13%
	Bell Ave	Edwards Road	SB	IN	2L	No	750	0	4%	0.00%
	Edwards Road	Cortez Blvd	NB	OUT	2L	No	600	1	4%	0.17%
	Edwards Road	Cortez Blvd	SB	IN	2L	No	600	0	4%	0.00%
Bell Ave	25th St	Sunrise Blvd	EB	IN	2L	No	790	2	19%	0.25%
	25th St	Sunrise Blvd	WB	OUT	2L	No	790	6	19%	0.76%
	Sunrise Blvd	Oleander Ave	EB	OUT	2L	Yes	600	8	26%	1.33%
	Sunrise Blvd	Oleander Ave	WB	IN	2L	No	600	3	26%	0.50%
Oleander Ave	Kitterman Rd	Midway Rd	NB	IN	2L	No	750	0	3%	0.00%
	Kitterman Rd	Midway Rd	SB	OUT	2L	No	750	1	3%	0.13%
	Bell Ave	Farmer's Market Rd	NB	OUT	2L	Yes	540	8	26%	1.48%
	Bell Ave	Farmer's Market Rd	SB	IN	2L	No	540	3	26%	0.56%
	Farmer's Market Rd	Edwards Road	NB	OUT	2L	Yes	750	8	26%	1.07%
	Farmer's Market Rd	Edwards Road	SB	IN	2L	No	750	3	26%	0.40%
	Edwards Road	Wisteria Ave	NB	OUT	2L	No	750	2	6%	0.27%
	Edwards Road	Wisteria Ave	SB	IN	2L	No	750	1	6%	0.13%
Midway Rd	Selvitz Rd	25th St	EB	IN	4LD	No	2100	2	17%	0.10%
	Selvitz Rd	25th St	WB	OUT	4LD	No	2100	5	17%	0.24%
	25th St	Sunrise Blvd	EB	IN	4LD	No	2100	3	26%	0.14%
	25th St	Sunrise Blvd	WB	OUT	4LD	No	2100	8	26%	0.38%
	Sunrise Blvd	Oleander Ave	EB	OUT	4LD	No	2100	7	22%	0.33%
	Sunrise Blvd	Oleander Ave	WB	IN	4LD	No	2100	2	22%	0.10%
	Oleander Ave	US-1	EB	OUT	4LD	No	2100	6	19%	0.29%
	Oleander Ave	US-1	WB	IN	4LD	No	2100	2	19%	0.10%
25th St	Bell Ave	Edwards Road	NB	OUT	4LD	No	2100	6	19%	0.29%
	Bell Ave	Edwards Road	SB	IN	4LD	No	2100	2	19%	0.10%
	Edwards Road	Cortez Blvd	NB	OUT	4LD	No	2000	4	13%	0.20%
	Edwards Road	Cortez Blvd	SB	IN	4LD	No	2000	1	13%	0.05%
Edwards Road	McNeil Rd	Selvitz Rd	EB	IN	4LD	No	700	1	6%	0.14%
	McNeil Rd	Selvitz Rd	WB	OUT	4LD	No	700	2	6%	0.29%
	Selvitz Rd	25th St	EB	IN	2L	No	880	1	6%	0.11%
	Selvitz Rd	25th St	WB	OUT	2L	No	880	2	6%	0.23%
	Oleander Ave	US-1	EB	OUT	4LD	No	1630	6	20%	0.37%
	Oleander Ave	US-1	WB	IN	4LD	No	1630	2	20%	0.12%

Source: St. Lucie County Traffic Counts and Level of Service Report 2023

In: 10
Out: 30

Table 2b: Percent Impact - PM Peak Hour

Segment	From	To	Direction		Lanes	Is Project Traffic More than 1%of Capacity?	LOS D Directional Peak Hour	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity
Sunrise Blvd	Midway Rd	Project Entrance	NB	IN	2L	Yes	540	17	51%	3.15%
	Midway Rd	Project Entrance	SB	OUT	2L	Yes	540	10	51%	1.85%
	Project Entrance	Bell Ave	NB	OUT	2L	Yes	540	9	49%	1.67%
	Project Entrance	Bell Ave	SB	IN	2L	Yes	540	16	49%	2.96%
	Bell Ave	Edwards Road	NB	OUT	2L	No	750	1	4%	0.13%
	Bell Ave	Edwards Road	SB	IN	2L	No	750	1	4%	0.13%
	Edwards Road	Cortez Blvd	NB	OUT	2L	No	600	1	4%	0.17%
	Edwards Road	Cortez Blvd	SB	IN	2L	No	600	1	4%	0.17%
Bell Ave	25th St	Sunrise Blvd	EB	IN	2L	No	790	6	19%	0.76%
	25th St	Sunrise Blvd	WB	OUT	2L	No	790	4	19%	0.51%
	Sunrise Blvd	Oleander Ave	EB	OUT	2L	No	600	5	26%	0.83%
	Sunrise Blvd	Oleander Ave	WB	IN	2L	Yes	600	9	26%	1.50%
Oleander Ave	Kitterman Rd	Midway Rd	NB	IN	2L	No	750	1	3%	0.13%
	Kitterman Rd	Midway Rd	SB	OUT	2L	No	750	1	3%	0.13%
	Bell Ave	Farmer's Market Rd	NB	OUT	2L	No	540	5	26%	0.93%
	Bell Ave	Farmer's Market Rd	SB	IN	2L	Yes	540	9	26%	1.67%
	Farmer's Market Rd	Edwards Road	NB	OUT	2L	No	750	5	26%	0.67%
	Farmer's Market Rd	Edwards Road	SB	IN	2L	Yes	750	9	26%	1.20%
	Edwards Road	Wisteria Ave	NB	OUT	2L	No	750	1	6%	0.13%
	Edwards Road	Wisteria Ave	SB	IN	2L	No	750	2	6%	0.27%
Midway Rd	Selvitz Rd	25th St	EB	IN	4LD	No	2100	6	17%	0.29%
	Selvitz Rd	25th St	WB	OUT	4LD	No	2100	3	17%	0.14%
	25th St	Sunrise Blvd	EB	IN	4LD	No	2100	9	26%	0.43%
	25th St	Sunrise Blvd	WB	OUT	4LD	No	2100	5	26%	0.24%
	Sunrise Blvd	Oleander Ave	EB	OUT	4LD	No	2100	4	22%	0.19%
	Sunrise Blvd	Oleander Ave	WB	IN	4LD	No	2100	7	22%	0.33%
	Oleander Ave	US-1	EB	OUT	4LD	No	2100	4	19%	0.19%
	Oleander Ave	US-1	WB	IN	4LD	No	2100	6	19%	0.29%
25th St	Bell Ave	Edwards Road	NB	OUT	4LD	No	2100	4	19%	0.19%
	Bell Ave	Edwards Road	SB	IN	4LD	No	2100	6	19%	0.29%
	Edwards Road	Cortez Blvd	NB	OUT	4LD	No	2000	2	13%	0.10%
	Edwards Road	Cortez Blvd	SB	IN	4LD	No	2000	4	13%	0.20%
Edwards Road	McNeil Rd	Selvitz Rd	EB	IN	4LD	No	700	2	6%	0.29%
	McNeil Rd	Selvitz Rd	WB	OUT	4LD	No	700	1	6%	0.14%
	Selvitz Rd	25th St	EB	IN	2L	No	880	2	6%	0.23%
	Selvitz Rd	25th St	WB	OUT	2L	No	880	1	6%	0.11%
	Oleander Ave	US-1	EB	OUT	4LD	No	1630	4	20%	0.25%
	Oleander Ave	US-1	WB	IN	4LD	No	1630	7	20%	0.43%

Source: St. Lucie County Traffic Counts and Level of Service Report 2023

In: 33
Out: 19

Table 3a: Link Analysis - AM Peak Hour

Segment	From	To	Direction		Lanes	Is Project Traffic More than 1% of Capacity?	2023 AADT [1]	D Factor	2023 Volume Peak Hour Peak Direction (TPO)	2023 Volume Peak Hour Directional [1]	Growth Rate [2]	2027 Peak Hour, Direct. Volume (2023 + Growth)	AM Commited Traffic	2027 Peak Hour, Direct. Volume (1% Growth + Committed)	Highest Growth	LOS D Directional Peak Hour	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity	Total Traffic (Peak Direction)	Does Project Meet Concurrency?
Sunrise Blvd	Midway Rd	Project Entrance	SB	OUT	2L	Yes	3,611	0.530	218	218	2.50%	241	7	234	241	540	15	51%	2.78%	256	Yes
	Project Entrance	Bell Ave	NB	OUT	2L	Yes	3,611	0.470	218	193	2.50%	213	2	203	213	540	15	49%	2.78%	228	Yes
Bell Ave	Sunrise Blvd	Oleander Ave	EB	OUT	2L	Yes	4,600	0.480	280	258	2.50%	285	1	270	285	600	8	26%	1.33%	293	Yes
Oleander Ave	Bell Ave	Farmer's Market Rd	NB	OUT	2L	Yes	12,703	0.514	613	613	2.50%	677	86	724	724	540	8	26%	1.48%	732	Yes [3]
	Farmer's Market Rd	Edwards Road	NB	OUT	2L	Yes	12,703	0.514	613	613	2.50%	677	77	715	715	750	8	26%	1.07%	723	Yes

(1) St. Lucie County Traffic Counts and Level of Service Report 2023
(2) Growth rate calculated from FDOT Historical AADT
(3) Existing Roadway Failure, Project Not Responsible For Mitigation

In:	10
Out:	30
Years Grown	4

Table 3b: Link Analysis - PM Peak Hour

Segment	From	To	Direction		Lanes	Is Project Traffic More than 1% of Capacity?	2023 AADT [1]	D Factor	2023 Volume Peak Hour Peak Direction TPO	2023 Volume Peak Hour Directional [1]	Growth Rate [2]	2027 Peak Hour, Direct. Volume (2023 + Growth)	PM Commited Traffic	2027 Peak Hour, Direct. Volume (1% Growth + Committed)	Highest Growth	LOS D Directional Peak Hour	Directional Peak Project Volume	Project Percent Assignment	Directional Percent Project of Capacity	Total Traffic (Peak Direction)	Does Project Meet Concurrency?
Sunrise Blvd	Midway Rd	Project Entrance	NB	IN	2L	Yes	3,611	0.510	230	230	2.50%	254	7	246	254	540	17	51%	3.15%	271	Yes
	Midway Rd	Project Entrance	SB	OUT	2L	Yes	3,611	0.490	230	221	2.50%	244	4	234	244	540	10	51%	1.85%	254	Yes
	Project Entrance	Bell Ave	NB	OUT	2L	Yes	3,611	0.510	230	230	2.50%	254	7	246	254	540	9	49%	1.67%	263	Yes
	Project Entrance	Bell Ave	SB	IN	2L	Yes	3,611	0.490	230	221	2.50%	244	4	234	244	540	16	49%	2.96%	260	Yes
Bell Ave	Sunrise Blvd	Oleander Ave	WB	IN	2L	Yes	4,600	0.560	256	256	2.50%	283	1	267	283	600	9	26%	1.50%	292	Yes
Oleander Ave	Bell Ave	Farmer's Market Rd	SB	IN	2L	Yes	12,703	0.514	581	581	2.50%	641	64	669	669	540	9	26%	1.67%	678	Yes [3]
	Farmer's Market Rd	Edwards Road	SB	IN	2L	Yes	12,703	0.514	581	581	2.50%	641	56	661	661	750	9	26%	1.20%	670	Yes

(1) St. Lucie County Traffic Counts and Level of Service Report Fall 2023
(2) Growth rate calculated from FDOT Historical AADT
(3) Existing Roadway Failure, Project Not Responsible For Mitigation

In:	33
Out:	19
Years Grown	4

INTERSECTION ANALYSIS

The intersection of Bell Avenue and Sunrise Boulevard is a four-way stop, with flashing beacons. There is a single approach on all lanes except the northbound flared right turn lane. The analysis does not reflect the lane since the through and left queues could block access during the peak hour. The intersection was counted during the AM and PM peak hours on April 2, 2024. A seasonal factor of 1.01 was applied to the traffic counts. The growth rate of 2.5% was applied for 3 years, and the background projects consisting of Dade & Sunrise, Oleander Oaks, American Silicone, and Napa Auto were then added. Finally, project traffic was added to determine the 2027 total traffic.

The intersection was analyzed using HCS for unsignalized intersections. As shown in **Table 4**, the Sunrise Boulevard & Bell Avenue intersection will operate at a LOS B in the AM and PM peak hours with the existing lane configuration for Existing and Total Traffic 2027 conditions.

Appendix D includes the intersection analysis and data.

Table 4: Intersection/Driveway Level of Service

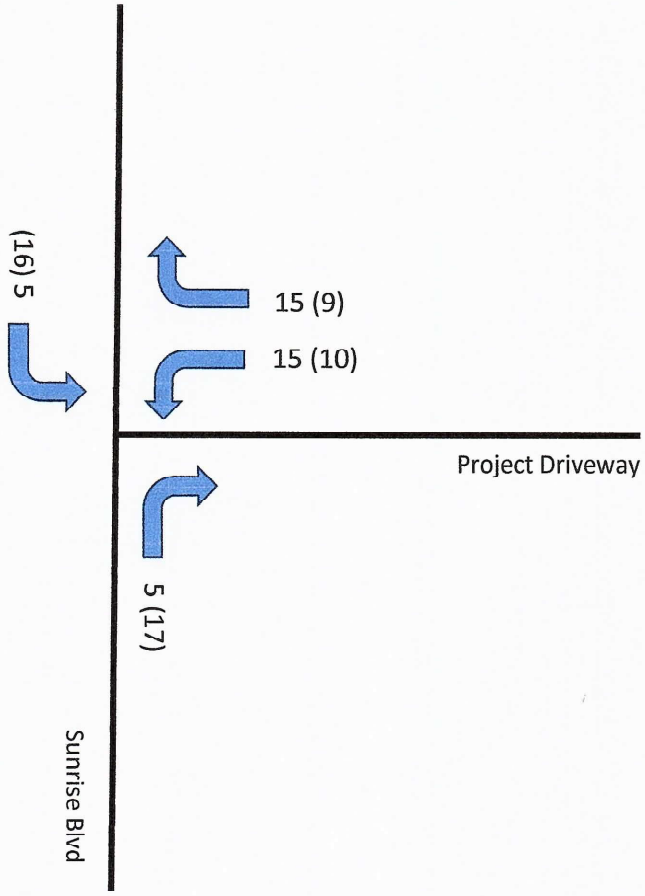
Intersection	Period	Existing		2027 wo/Project		2027 w/Project	
		Delay	LOS	Delay	LOS	Delay	LOS
Sunrise Blvd & Bell Ave	AM	11.4	B	12.7	B	13.0	B
	PM	12.3	B	14.1	B	14.7	B
Sunrise Blvd & Project Driveway	AM	N/A	N/A	N/A	N/A	11.3	B
	PM	N/A	N/A	N/A	N/A	11.6	B

DRIVEWAY ANALYSIS

There will be one project driveway located on Sunrise Boulevard. The driveway on Sunrise Boulevard will be a full access driveway. **Figure 3** illustrates the project traffic at the driveway. The FDOT multi-modal guidebook was used to determine the need for right and left turn lanes at the project driveways. Sunrise Boulevard has a posted speed limit of 35 MPH. The PM peak hour has the highest turning volumes. The Project Driveway has approximately 6% southbound left turns and an approaching volume of 263 vehicles and an opposing volume of 279 vehicles in the peak hour. Therefore, a southbound left-turn lane is not warranted at the Project Driveway. The Project Driveway has a northbound right-turn volume of 17 vehicles in the peak hour and an approach volume of 279 vehicles. Therefore, a northbound right-turn lane is not warranted at the Project Driveway.

The project driveway was analyzed using HCS for unsignalized intersections. As shown in Table 4, the Project Driveway will operate at a LOS B in the AM and PM peak hours at project buildout.

Appendix E includes the driveway analysis and data.



	IN	OUT
AM	10	30
PM	33	19

O'ROURKE ENGINEERING & PLANNING

NTS

3725 S East Ocean Blvd, Suite 201
Stuart, Fl, 34996

Job #:

Date:

Legend

Figure 3

Driveway Volumes

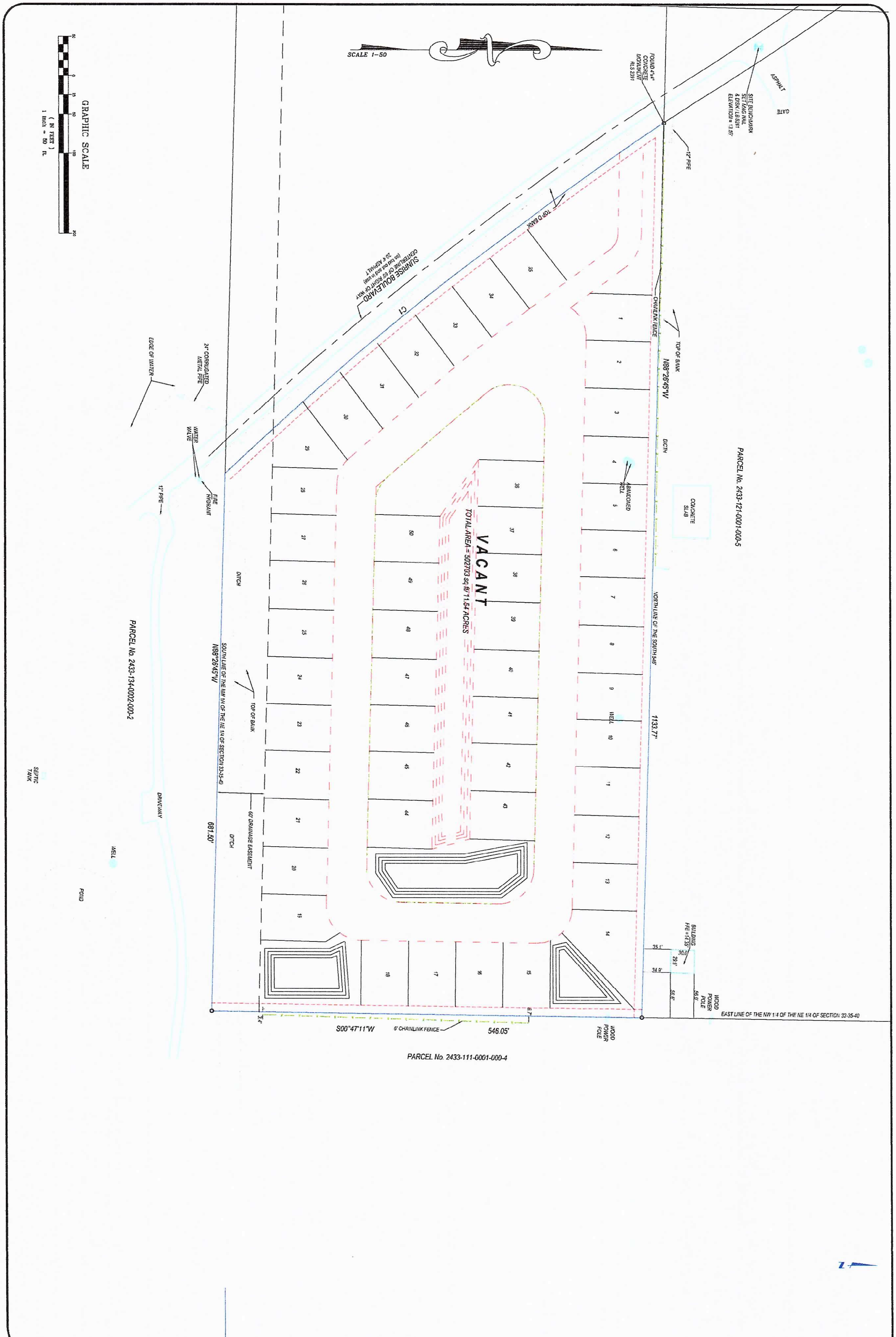
Integrity First

CONCLUSION

With 40 net new AM peak hour trips and 52 net new PM peak hour trips, all links and intersections are projected to operate at acceptable levels of service with the existing roadway network, with the exception of Oleander Avenue from Bell Avenue to Farmer's Market Road, which is currently operating below the adopted level of service. As this is an existing deficiency, the project is not responsible for improvements to this roadway. Therefore, the project meets the requirements for concurrency.

APPENDIX A

Site Plan


SCALE 1=50
GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.
PARCEL No. 2433-121-0001-000-5
PARCEL No. 2433-134-0002-000-2
PARCEL No. 2433-111-0001-000-4
VACANT
TOTAL AREA = 502703 sq ft/ 11.54 ACRES
SUNRISE BOULEVARD
N88°28'45"W
1133.77'
N88°28'45"W
681.50'
S00°47'11"W
546.05'
6' CHAINLINK FENCE
CHAINLINK FENCE
EAST LINE OF THE NW 1/4 OF THE NE 1/4 OF SECTION 33-35-40
60' DRAINAGE EASEMENT
DITCH
TOP OF BANK
WOOD POWER POLE
CONCRETE SLAB
ABANDONED WELL
FIRE HYDRANT
WATER VALVE
12" PIPE
24" CORRUGATED METAL PIPE
EDGE OF WATER
DRIVEWAY
SEPTIC TANK
WELL
POND
ASPHALT
GATE

APPENDIX B

St. Lucie County 2023 Traffic Counts and Level of Service Report

St. Lucie Transportation Planning Organization

Coco Vista Centre
466 SW Port St. Lucie Blvd, Suite 111
Port St. Lucie, FL 34953
772-462-1593 www.stlucietpo.org

Traffic Counts and Level of Service Report
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Roadway Name	Location	AADT	Pk Hr Service Capacity	AM Pk Hr Pk Dir			PM Pk Hr Pk Dir		
				Volume	LOS	V/C	Volume	LOS	V/C
2ND ST	CITRUS AVE to ORANGE AVE	2,152	540	152	C	0.28	159	C	0.29
2ND ST	ORANGE AVE to AVENUE A	2,358	540	147	C	0.27	146	C	0.27
7TH ST	SUNRISE BLVD to GEORGIA AVE	1,700	600	113	C	0.19	133	C	0.22
7TH ST	GEORGIA AVE to DELAWARE AVE	2,700	790	203	C	0.26	217	C	0.28
7TH ST	DELAWARE AVE to CITRUS AVE	3,600	790	252	C	0.32	235	C	0.30
7TH ST	CITRUS AVE to ORANGE AVE	3,600	750	252	C	0.34	235	C	0.31
7TH ST	ORANGE AVE to AVENUE C	2,922	750	207	C	0.28	209	C	0.28
7TH ST	AVENUE C to AE BACKUS AVE	2,922	540	207	C	0.38	209	C	0.39
7TH ST	AE BACKUS AVE to AVENUE D	2,922	750	207	C	0.28	209	C	0.28
7TH ST	AVENUE D to AVENUE H	1,884	750	127	C	0.17	128	C	0.17
10TH ST	DELAWARE AVE to ORANGE AVE	1,358	600	90	C	0.15	80	C	0.13
10TH ST	ORANGE AVE to AVENUE C	1,358	600	90	C	0.15	80	C	0.13
10TH ST	AVENUE C to AVENUE D	1,358	540	90	C	0.17	80	C	0.15
13TH ST	VIRGINIA AVE to NEBRASKA AVE	6,900	750	469	D	0.63	445	D	0.59
13TH ST	NEBRASKA AVE to GEORGIA AVE	6,900	790	469	D	0.59	445	D	0.56
13TH ST	GEORGIA AVE to DELAWARE AVE	4,711	750	231	C	0.31	239	C	0.32
13TH ST	DELAWARE AVE to ORANGE AVE	4,076	750	253	C	0.34	221	C	0.30
13TH ST	ORANGE AVE to AVENUE B	3,336	750	186	C	0.25	179	C	0.24
13TH ST	AVENUE B to AVENUE D	3,336	750	186	C	0.25	179	C	0.24
13TH ST	AVENUE D to AVENUE H	2,975	750	159	C	0.21	159	C	0.21
13TH ST	AVENUE H to AVENUE I	2,975	540	159	C	0.29	159	C	0.29
13TH ST	AVENUE I to AVENUE O	2,975	540	159	C	0.29	159	C	0.29
13TH ST	AVENUE O to AVENUE Q	2,975	540	159	C	0.29	159	C	0.29
17TH ST	GEORGIA AVE to DELAWARE AVE	2,689	600	169	C	0.28	166	C	0.28
17TH ST	DELAWARE AVE to ORANGE AVE	5,700	790	290	C	0.37	274	C	0.35
17TH ST	ORANGE AVE to AVENUE D	2,505	750	140	C	0.19	133	C	0.18
17TH ST	AVENUE D to AVENUE Q	2,505	750	140	C	0.19	133	C	0.18
25TH ST	MIDWAY RD to BELL AVE	19,280	2,100	941	C	0.45	941	C	0.45

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25TH ST	BELL AVE to EDWARDS RD	19,086	2,100	1,120	C	0.53	1,117	C	0.53
25TH ST	EDWARDS RD to CORTEZ BLVD	21,959	2,000	1,072	C	0.54	1,072	C	0.54
25TH ST	CORTEZ BLVD to VIRGINIA AVE	22,500	2,000	1,324	C	0.66	1,090	C	0.55
25TH ST	VIRIGINIA AVE to NEBRASKA AVE	22,168	2,000	1,082	C	0.54	1,082	C	0.54
25TH ST	NEBRASKA AVE to OKEECHOBEE RD	22,168	2,000	1,082	C	0.54	1,082	C	0.54
25TH ST	OKEECHOBEE RD to GEORGIA AVE	21,986	1,630	1,016	D	0.62	1,053	D	0.65
25TH ST	GEORGIA AVE to DELAWARE AVE	21,986	1,630	1,016	D	0.62	1,053	D	0.65
25TH ST	DELAWARE AVE to ORANGE AVE	21,569	1,630	1,053	D	0.65	1,053	D	0.65
25TH ST	ORANGE AVE to AVENUE D	23,000	1,630	1,145	D	0.70	1,325	D	0.81
25TH ST	AVENUE D to AVENUE Q	17,945	1,630	876	D	0.54	876	D	0.54
25TH ST	AVENUE Q to JUANITA AVE	16,821	2,000	821	C	0.41	821	C	0.41
25TH ST	JUANITA AVE to ST LUCIE BLVD	16,315	2,100		B			B	
25TH ST	ST LUCIE BLVD to US 1	7,934	2,100	387	C	0.18	387	C	0.18
33RD ST	OKEECHOBEE RD to DELAWARE AVE	7,200	750	408	D	0.54	366	C	0.49
33RD ST	DELAWARE AVE to ORANGE AVE	6,285	790	290	C	0.37	290	C	0.37
35TH ST	KIRBY LOOP RD to CORTEZ BLVD	5,100	540	369	D	0.68	317	D	0.59
35TH ST	CORTEZ BLVD to VIRGINIA AVE	5,100	790	369	C	0.47	317	C	0.40
35TH ST	VIRGINIA AVE to OKEECHOBEE RD	4,639	750	228	C	0.30	246	C	0.33
53RD ST	ANGLE RD to JUANITA AVE	2,515	540	164	C	0.30	169	C	0.31
AE BACKUS AVE	7TH ST to US 1	960	750	68	C	0.09	70	C	0.09
AIROSO BLVD	PORT ST LUCIE BLVD to THORNHILL DR	17,955	2,100	1,135	C	0.54	939	C	0.45
AIROSO BLVD	THORNHILL DR to CROSSTOWN PKWY	17,955	2,100	1,135	C	0.54	939	C	0.45
AIROSO BLVD	CROSSTOWN PKWY to PRIMA VISTA BLVD	18,600	2,100	932	C	0.44	955	C	0.46
AIROSO BLVD	PRIMA VISTA BLVD to FLORESTA DR	15,302	2,000	763	C	0.38	789	C	0.40
AIROSO BLVD	FLORESTA DR to ST JAMES DR	22,893	2,100	1,290	C	0.61	1,230	C	0.59
ANGLE RD	ORANGE AVE to AVENUE D	8,603	790	421	D	0.53	404	D	0.51
ANGLE RD	AVENUE D to AVENUE Q	8,603	540	421	D	0.78	404	D	0.75
ANGLE RD	AVENUE Q to 53RD ST	8,700	600	583	D	0.97	524	D	0.87
ANGLE RD	53RD ST to KEEN RD	6,000	630	378	C	0.60	325	C	0.52

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BECKER RD	VILLAGE PKWY to I-95	5,800	3,170	441	C	0.14	398	C	0.13
BECKER RD	I-95 to SAVONA BLVD	26,500	2,000	2,031	F	1.02	1,944	D	0.97
BECKER RD	SAVONA BLVD to PORT ST LUCIE BLVD	23,000	2,100	1,443	C	0.69	1,424	C	0.68
BECKER RD	ALBACORE ST to DARWIN BLVD	17,500	1,500	995	C	0.66	986	C	0.66
BECKER RD	PORT ST LUCIE BLVD to ALBACORE ST	17,500	2,100	995	C	0.47	986	C	0.47
BECKER RD	ATHENA DR to FLORIDA'S TURNPIKE	18,000	1,500	1,476	D	0.98	1,276	C	0.85
BECKER RD	DARWIN BLVD to ATHENA DR	18,000	2,000	1,476	C	0.74	1,276	C	0.64
BECKER RD	FLORIDA'S TURNPIKE to SOUTHBEND BLVD	19,500	2,100	1,204	C	0.57	1,169	C	0.56
BECKER RD	SOUTHBEND BLVD to GILSON RD	13,000	920	939	F	1.02	1,004	F	1.09
BELL AVE	25TH ST to SUNRISE BLVD	5,900	790	398	D	0.50	359	C	0.47
BELL AVE	SUNRISE BLVD to OLEANDER AVE	4,600	600	280	C	0.47	256	C	0.43
CALIFORNIA BLVD	CAMEO BLVD to DEL RIO BLVD	8,568	750	520	D	0.69	450	D	0.60
CALIFORNIA BLVD	DEL RIO BLVD to SAVONA BLVD	13,500	920	808	C	0.88	742	C	0.81
CALIFORNIA BLVD	SAVONA BLVD to DEL RIO BLVD	12,000	920	685	C	0.75	803	C	0.87
CALIFORNIA BLVD	DEL RIO BLVD to CROSSTOWN PKWY	18,000	920	1,332	F	1.45	1,109	F	1.21
CALIFORNIA BLVD	CROSSTOWN PKWY to HEATHERWOOD BLVD	21,000	920	1,057	F	1.15	1,053	F	1.15
CALIFORNIA BLVD	HEATHERWOOD BLVD to ST LUCIE WEST BLVD	21,000	920	1,057	F	1.15	1,053	F	1.15
CALIFORNIA BLVD	ST LUCIE WEST BLVD to COUNTRY CLUB DR	9,245	920	564	C	0.61	542	C	0.59
CALIFORNIA BLVD	COUNTRY CLUB DR to UNIVERSITY BLVD	7,685	790	494	C	0.63	497	C	0.63
CALIFORNIA BLVD	UNIVERSITY BLVD to PEACOCK BLVD	7,685	630	494	C	0.78	497	C	0.79
CALIFORNIA BLVD	PEACOCK BLVD to TORINO PKWY	13,000	630	861	F	1.37	763	F	1.21
CAMEO BLVD	PORT ST LUICE BLVD to CALIFORNIA BLVD	5,100	750	363	C	0.48	315	C	0.42
CAMEO BLVD	CALIFORNIA BLVD to CROSSTOWN PKWY	10,409	790	736	D	0.93	619	D	0.78
CAMPBELL RD	PICOS RD to ORANGE AVE	814	540	80	C	0.15	58	C	0.11
CANE SLOUGH RD	US 1 to LENNARD RD	9,637	1,710	487	C	0.28	491	C	0.29
CARLTON RD	CARLTON RD (S) to OKEECHOBEE RD	676	390	40	B	0.10	41	B	0.11
CASHMERE BLVD	PEACOCK BLVD to TORINO PKWY	11,692	630	767	F	1.22	712	F	1.13
CASHMERE BLVD	DEL RIO BLVD to CROSSTOWN PKWY	10,803	920	665	C	0.72	651	C	0.71
CASHMERE BLVD	CROSSTOWN PKWY to HEATHERWOOD BLVD	12,364	920	690	C	0.75	605	C	0.66

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DELAWARE AVE	25TH ST to OKEECHOBEE RD	1,300	1,220	60	C	0.05	60	C	0.05
DELAWARE AVE	OKEECHOBEE RD to 13TH ST	11,500	790	645	D	0.82	613	D	0.78
DELAWARE AVE	13TH ST to 10TH ST	7,451	750	405	D	0.54	386	D	0.52
DELAWARE AVE	10TH ST to 7TH ST	7,451	600	405	D	0.68	386	D	0.64
DELAWARE AVE	7TH ST to US 1	6,900	750	447	D	0.60	402	D	0.54
EAST TORINO PKWY	CASHMERE BLVD to TORINO PKWY	12,553	830	740	C	0.89	731	C	0.88
EAST TORINO PKWY	TORINO PKWY to MIDWAY RD	15,500	880	1,016	F	1.16	987	F	1.12
EASY ST	US 1 to BUCHANAN DR	7,207	750	399	D	0.53	506	D	0.68
EASY ST	BUCHANAN DR to YUCCA DR	7,207	540	399	D	0.74	506	D	0.94
EDWARDS RD	JENKINS RD to MCNEIL RD	11,153	630	513	C	0.81	516	C	0.82
EDWARDS RD	MCNEIL RD to SELVITZ RD	11,153	700	513	C	0.73	516	C	0.74
EDWARDS RD	SELVITZ RD to 25TH ST	15,291	880	769	C	0.87	782	C	0.89
EDWARDS RD	25TH ST to SUNRISE BLVD	17,013	1,630	827	D	0.51	828	D	0.51
EDWARDS RD	SUNRISE BLVD to OLEANDER AVE	15,984	1,630	793	D	0.49	773	D	0.47
EDWARDS RD	OLEANDER AVE to US 1	9,722	1,630	535	C	0.33	467	C	0.29
FARMER'S MARKET RD	OLEANDER AVE to US 1	1,700	750	89	C	0.12	103	C	0.14
FLORESTA DR	OAKLYN ST to PORT ST LUCIE BLVD	14,500	920	975	F	1.06	817	C	0.89
FLORESTA DR	THORNHILL DR to CROSSTOWN PKWY	14,098	880	960	F	1.09	851	D	0.97
FLORESTA DR	PORT ST LUCIE BLVD to THORNHILL DR	14,098	880	960	F	1.09	851	D	0.97
FLORESTA DR	CROSSTOWN PKWY to PRIMA VISTA BLVD	12,183	920	675	C	0.73	619	C	0.67
FLORESTA DR	PRIMA VISTA BLVD to AIROSO BLVD	10,748	920	594	C	0.65	655	C	0.71
FLORESTA DR	SELVITZ RD to BAYSHORE BLVD	4,750	630	341	C	0.54	363	C	0.58
FLORESTA DR	AIROSO BLVD to SELVITZ RD	4,750	880	341	C	0.39	363	C	0.41
FLORIDA'S TURNPIKE	MARTIN C.L. to BECKER RD	47,500	3,020	2,270	C	0.75	2,270	C	0.75
FLORIDA'S TURNPIKE	PORT ST LUCIE BLVD to OKEECHOBEE RD	55,100	3,020	2,791	C	0.92	2,791	C	0.92
FLORIDA'S TURNPIKE	OKEECHOBEE RD to INDIAN RIVER C.L.	43,200	1,680	2,157	C	1.28	2,157	C	1.28
FT PIERCE BLVD	INDRIO RD to EMERSON AVE	3,200	540	217	C	0.40	223	C	0.41
GARDENIA AVE	OLEANDER AVE to US 1	2,780	750	214	C	0.28	204	C	0.27
GATLIN BLVD	W OF I-95 to E OF I-95	49,323	3,170	2,408	C	0.76	2,408	C	0.76

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MIDWAY RD	OKEECHOBEE RD to SHINN RD	6,581	760	331	C	0.44	331	C	0.44
MIDWAY RD	SHINN RD to MCCARTY RD	6,581	630	331	C	0.53	331	C	0.53
MIDWAY RD	MCCARTY RD to I-95	6,581	700	331	C	0.47	331	C	0.47
MIDWAY RD	I-95 to GLADES CUT-OFF RD	20,913	2,100	1,021	C	0.49	1,021	C	0.49
MIDWAY RD	GLADES CUT-OFF RD to EAST TORINO PKWY	23,000	2,100	1,190	C	0.57	1,256	C	0.60
MIDWAY RD	W OF SELVITZ RD to SELVITZ RD	25,000	2,100	1,245	C	0.59	1,298	C	0.62
MIDWAY RD	SELVITZ RD to CHRISTENSEN RD	23,000	2,100	1,176	C	0.56	1,166	C	0.56
MIDWAY RD	CHRISTENSEN RD to 25TH ST	23,000	2,100	1,176	C	0.56	1,166	C	0.56
MIDWAY RD	25TH ST to SUNRISE BLVD	23,000	2,100	1,245	C	0.59	1,147	C	0.55
MIDWAY RD	SUNRISE BLVD to OLEANDER AVE	23,000	2,100	1,245	C	0.59	1,147	C	0.55
MIDWAY RD	OLEANDER AVE to US 1	20,000	2,100	1,011	C	0.48	974	C	0.46
MIDWAY RD	US 1 to WALLACE ST	3,690	790	183	C	0.23	183	C	0.23
MIDWAY RD	WALLACE ST to WEATHERBEE RD	3,690	920	183	C	0.20	183	C	0.20
MIDWAY RD	WEATHERBEE RD to INDIAN RIVER DR	3,690	630	183	C	0.29	183	C	0.29
MORNINGSIDE BLVD	WESTMORELAND BLVD to PORT ST LUCIE BLVD	2,289	920	123	C	0.13	123	C	0.13
MORNINGSIDE BLVD	PORT ST LUCIE BLVD to LYNGATE DR	3,728	880	296	C	0.34	314	C	0.36
NEBRASKA AVE	25TH ST to 13TH ST	3,752	1,710	249	C	0.15	192	C	0.11
OAKRIDGE DR	MOUNTWELL ST to OAKLYN ST	7,113	700	442	C	0.63	385	C	0.55
OHIO AVE	SUNRISE BLVD to COLONIAL RD	3,875	540	205	C	0.38	227	C	0.42
OHIO AVE	COLONIAL RD to US 1	3,875	750	205	C	0.27	227	C	0.30
OKEECHOBEE RD	OKEECHOBEE C.L. to BLUEFIELD RD	11,835	1,580	618	B	0.39	665	B	0.42
OKEECHOBEE RD	BLUEFIELD RD to CARLTON RD	11,835	2,000	618	B	0.31	665	B	0.33
OKEECHOBEE RD	CARLTON RD to SNEED RD	8,931	2,100	449	B	0.21	449	B	0.21
OKEECHOBEE RD	IDEAL HOLDING RD to HEADER CANAL RD	8,931	2,100	449	B	0.21	449	B	0.21
OKEECHOBEE RD	SNEED RD to IDEAL HOLDING RD	8,931	2,100	449	B	0.21	449	B	0.21
OKEECHOBEE RD	HEADER CANAL RD to MIDWAY RD	8,931	2,450	449	B	0.18	449	B	0.18
OKEECHOBEE RD	MIDWAY RD to SHINN RD	8,931	3,110	449	B	0.14	449	B	0.14
OKEECHOBEE RD	SHINN RD to MCCARTY RD	7,079	3,240	335	B	0.10	335	B	0.10
OKEECHOBEE RD	MCCARTY RD to FLORIDA'S TURNPIKE	9,733	3,240	490	B	0.15	490	B	0.15

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OKEECHOBEE RD	FLORIDA'S TURNPIKE to KINGS HWY	9,733	2,100	490	C	0.23	490	C	0.23
OKEECHOBEE RD	KINGS HWY to CROSSROADS PKWY	23,734	4,240	1,195	C	0.28	1,195	C	0.28
OKEECHOBEE RD	CROSSROADS PKWY to I-95	25,375	4,240	1,327	C	0.31	1,327	C	0.31
OKEECHOBEE RD	I-95 to JENKINS RD	32,142	4,240	1,569	C	0.37	1,569	C	0.37
OKEECHOBEE RD	JENKINS RD to MCNEIL RD	32,142	4,040	1,569	C	0.39	1,569	C	0.39
OKEECHOBEE RD	MCNEIL RD to VIRGINIA AVE	31,230	3,170	1,524	C	0.48	1,524	C	0.48
OKEECHOBEE RD	VIRGINIA AVE to HARTMAN RD	15,500	2,100	802	C	0.38	791	C	0.38
OKEECHOBEE RD	HARTMAN RD to 35TH ST	15,500	1,630	802	D	0.49	791	D	0.49
OKEECHOBEE RD	35TH ST to 33RD ST	16,500	1,630	859	D	0.53	822	D	0.50
OKEECHOBEE RD	33RD ST to 25TH ST	16,500	1,630	859	D	0.53	822	D	0.50
OKEECHOBEE RD	25TH ST to GEORGIA AVE	12,000	1,630	695	C	0.43	616	C	0.38
OKEECHOBEE RD	GEORGIA AVE to DELAWARE AVE	12,000	1,710	695	C	0.41	616	C	0.36
OLD DIXIE HWY	US 1 to SR A1A NORTH	830	790	129	C	0.16	123	C	0.16
OLD DIXIE HWY	SR A1A NORTH to ST LUCIE BLVD	1,753	750	82	C	0.11	82	C	0.11
OLD DIXIE HWY	ST LUCIE BLVD to INDRIO RD	2,125	790	172	C	0.22	126	C	0.16
OLD DIXIE HWY	INDRIO RD to INDIAN RIVER C.L.	1,340	870	63	C	0.07	63	C	0.07
OLEANDER AVE	BEACH AVE to KITTERMAN RD	2,970	540	172	C	0.32	194	C	0.36
OLEANDER AVE	KITTERMAN RD to MIDWAY RD	6,162	750	358	C	0.48	358	C	0.48
OLEANDER AVE	MIDWAY RD to WEATHERBEE RD	6,400	750	362	C	0.48	365	C	0.49
OLEANDER AVE	WEATHERBEE RD to BELL AVE	6,400	540	362	D	0.67	365	D	0.68
OLEANDER AVE	BELL AVE to FARMER'S MARKET RD	12,703	540	613	F	1.14	581	F	1.08
OLEANDER AVE	FARMER'S MARKET RD to EDWARDS RD	12,703	750	613	D	0.82	581	D	0.78
OLEANDER AVE	EDWARDS RD to WISTERIA AVE	9,907	750	601	D	0.80	500	D	0.67
OLEANDER AVE	WISTERIA AVE to GARDENIA AVE	9,907	540	601	F	1.11	500	D	0.93
OLEANDER AVE	GARDENIA AVE to VIRGINIA AVE	9,907	790	601	D	0.76	500	D	0.63
OLEANDER AVE	VIRGINIA AVE to SUNRISE BLVD	5,500	600	309	D	0.52	320	D	0.53
ORANGE AVE	OKEECHOBEE C.L. to SNEED RD	5,195	670	303	C	0.45	289	C	0.43
ORANGE AVE	SNEED RD to HEADER CANAL RD	5,195	670	303	C	0.45	289	C	0.43
ORANGE AVE	HEADER CANAL RD to SHINN RD	5,195	670	303	C	0.45	289	C	0.43

* Volumes shown were adjusted using FDOT Seasonal Factors
* AADT = Annual Average Daily Traffic

St. Lucie Transportation Planning Organization

Coco Vista Centre
466 SW Port St. Lucie Blvd, Suite 111
Port St. Lucie, FL 34953
772-462-1593 www.stlucietpo.org

Traffic Counts and Level of Service Report
2023

Roadway Name	Location	AADT	Pk Hr Service Capacity	AM Pk Hr Pk Dir			PM Pk Hr Pk Dir		
				Volume	LOS	V/C	Volume	LOS	V/C
SUNRISE BLVD	MIDWAY RD to BELL AVE	3,611	540	218	C	0.40	230	C	0.43
SUNRISE BLVD	BELL AVE to EDWARDS RD	4,050	750	267	C	0.36	270	C	0.36
SUNRISE BLVD	EDWARDS RD to CORTEZ BLVD	7,600	600	586	D	0.98	511	D	0.85
SUNRISE BLVD	CORTEZ BLVD to VIRGINIA AVE	7,600	750	586	D	0.78	511	D	0.68
SUNRISE BLVD	VIRGINIA AVE to OLEANDER AVE	6,700	750	419	D	0.56	416	D	0.56
SUNRISE BLVD	OLEANDER AVE to 7TH ST	5,053	1,540	291	C	0.19	357	C	0.23
SUNRISE BLVD	7TH ST to US 1	5,053	1,710	291	C	0.17	357	C	0.21
TIFFANY AVE	US 1 to HILLMOOR DR	17,532	2,100	992	C	0.47	904	C	0.43
TIFFANY AVE	HILLMOOR DR to VILLAGE GREEN DR	17,532	2,100	992	C	0.47	904	C	0.43
TIFFANY AVE	VILLAGE GREEN DR to LENNARD RD	4,227	2,100	205	C	0.10	199	C	0.10
TORINO PKWY	CASHMERE BLVD to CALIFORNIA BLVD	7,020	630	449	C	0.71	410	C	0.65
TORINO PKWY	CALIFORNIA BLVD to EAST TORINO PKWY	4,984	630	329	C	0.52	269	C	0.43
TRADITION PKWY	COMMUNITY BLVD to VILLAGE PKWY	7,590	1,710	794	D	0.46	770	C	0.45
TRADITION PKWY	VILLAGE PKWY to W OF I-95	46,500	3,170	2,338	C	0.74	2,116	C	0.67
TULIP BLVD	DARWIN BLVD to PORT ST LUCIE BLVD	9,314	790	610	D	0.77	551	D	0.70
TULIP BLVD	PORT ST LUCIE BLVD to PAAR DR	10,813	790	605	D	0.77	647	D	0.82
TULIP BLVD	PAAR DR to DARWIN BLVD	10,813	790	605	D	0.77	647	D	0.82
TURNPIKE FEEDER RD	TURNPIKE FEEDER RD SB RAMP to US 1	4,920	660		B			B	
TURNPIKE FEEDER RD	INDIAN PINES BLVD to TURNPIKE FEEDER RD SB R...	11,335	870	553	C	0.64	553	C	0.64
TURNPIKE FEEDER RD	INDRIO RD to INDIAN PINES BLVD	13,204	870	644	C	0.74	644	C	0.74
US 1	MARTIN C.L. to LENNARD RD	47,386	4,240	2,354	C	0.56	2,354	C	0.56
US 1	LENNARD RD to PORT ST LUCIE BLVD	47,386	4,040	2,354	C	0.58	2,354	C	0.58
US 1	PORT ST LUCIE BLVD to JENNINGS RD	32,450	3,020	1,612	C	0.53	1,612	C	0.53
US 1	JENNINGS RD to TIFFANY AVE	32,450	3,020	1,612	C	0.53	1,612	C	0.53
US 1	TIFFANY AVE to WALTON RD	32,450	3,020	1,612	C	0.53	1,612	C	0.53
US 1	WALTON RD to VILLAGE GREEN DR	44,760	3,020	2,223	C	0.74	2,223	C	0.74
US 1	VILLAGE GREEN DR to SPANISH LAKES BLVD	46,801	3,170	2,325	C	0.73	2,325	C	0.73
US 1	SPANISH LAKES BLVD to PRIMA VISTA BLVD	46,801	3,170	2,325	C	0.73	2,325	C	0.73
US 1	PRIMA VISTA BLVD to RIO MAR DR	35,621	3,170	1,769	C	0.56	1,769	C	0.56

* Volumes shown were adjusted using FDOT Seasonal Factors
* AADT = Annual Average Daily Traffic

APPENDIX C

Growth Rate

&

Background Projects

Historical Growth Rate Calculation

Segment	From	To	2017 AADT	2022 AADT	5 Year Historical Growth Rate
US-1	Edwards Rd	Weatherbee Rd	33,000	34,000	0.60%
	Weatherbee Rd	Midway Rd	31,000	30,000	-0.65%
25th St	Edwards Rd	Bell Ave	18,200	15,700	-2.91%
	Bell Ave	Midway Rd	19,100	18,100	-1.07%
Sunrise Blvd	Edwards Rd	Bell Ave	3,500	3,700	1.12%
	Bell Ave	Midway Rd	1,550	2,700	11.74%
Midway Rd	25th St	US-1	15,300	17,000	2.13%
Oleander Ave	Edwards Rd	Bell Ave	7,800	10,000	5.09%
	Bell Ave	Midway Rd	6,400	7,200	2.38%
Edwards Rd	25th St	Sunrise Blvd	13,600	16,900	4.44%
	Sunrise Blvd	Oleander Ave	12,100	11,000	-1.89%
	Oleander Ave	US-1	8,500	8,300	-0.48%
Bell Ave	25th St	Sunrise Blvd	3,500	6,800	14.21%
	Sunrise Blvd	Oleander Ave	2,900	5,500	13.66%
		Total	176,450	186,900	1.16%

*Source FDOT Historical Traffic Counts

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 0012 - SR 5/US 1 - S OF CR 611/EDWARDS RD (COUNTY 12)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	34000 C	N 17000	S 17000	9.00	52.30	6.10
2021	30000 C	N 14000	S 16000	9.00	51.80	6.10
2020	41500 C	N 16500	S 25000	9.00	52.60	6.10
2019	33000 F	N 15500	S 17500	9.00	52.50	2.10
2018	33000 C	N 15500	S 17500	9.00	52.40	2.10
2017	33000 C	N 16000	S 17000	9.00	52.00	2.10
2016	32000 C	N 16000	S 16000	9.00	52.30	1.60
2015	30000 C	N 15000	S 15000	9.00	52.70	1.60
2014	28000 C	N 14000	S 14000	9.00	52.50	5.70
2013	30000 C	N 15000	S 15000	9.00	55.90	5.50
2012	34000 C	N 17000	S 17000	9.00	55.80	5.50
2011	29000 C	N 13500	S 15500	9.00	56.20	5.50
2010	32000 C	N 16000	S 16000	11.16	56.34	8.80
2009	33000 C	N 16500	S 16500	11.51	56.49	7.10
2008	34000 C	N 17000	S 17000	11.31	55.19	2.60
2007	45000 C	N 22000	S 23000	11.33	56.77	2.60

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 0016 - CR 615/25 ST S - N OF CR 712/MIDWAY RD (COUNTY 171 AND 16)

YEAR	AADT	DIRECTION 1		DIRECTION 2		*K FACTOR	D FACTOR	T FACTOR
2022	18100 C	N	8800	S	9300	9.00	51.40	5.00
2021	18000 V	N	8600	S	9400	9.00	50.90	7.20
2020	18200 R	N	8700	S	9500	9.00	51.30	31.50
2019	19000 T	N	9100	S	9900	9.00	51.00	7.80
2018	19200 S	N	9200	S	10000	9.00	51.30	5.80
2017	19100 F	N	9100	S	10000	9.00	50.90	10.00
2016	18900 C	N	8900	S	10000	9.00	50.90	6.20
2015	15900 V	N	7800	S	8100	9.00	51.00	4.90
2014	15900 R	N	7800	S	8100	9.00	50.80	5.90
2013	15900 T	N	7800	S	8100	9.00	50.80	8.50
2012	15900 S	N	7800	S	8100	9.00	56.80	4.20
2011	16100 F	N	7900	S	8200	9.00	57.20	6.20
2010	16100 C	N	7900	S	8200	10.32	55.40	6.20
2009	15400 C	N	7800	S	7600	10.27	57.35	6.20
2007	12600 C	N	6100	S	6500	10.31	58.74	5.20

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 0020 - SR 5 / US 1 - N OF CR 712/MIDWAY RD (COUNTY 20)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	30000 C	N 15000	S 15000	9.00	52.30	7.70
2021	34500 C	N 19000	S 15500	9.00	51.80	7.70
2020	27000 C	N 13500	S 13500	9.00	52.60	6.30
2019	32000 S	N 16000	S 16000	9.00	52.50	8.50
2018	32000 F	N 16000	S 16000	9.00	52.40	6.10
2017	31000 C	N 15500	S 15500	9.00	52.00	4.50
2016	31500 C	N 16000	S 15500	9.00	52.30	4.50
2015	29000 C	N 14500	S 14500	9.00	52.70	4.50
2014	29000 C	N 14500	S 14500	9.00	52.50	4.60
2013	28500 C	N 14000	S 14500	9.00	55.90	2.80
2012	32000 C	N 16000	S 16000	9.00	55.80	2.80
2011	28000 F	N 14000	S 14000	9.00	56.20	6.20
2010	28000 C	N 14000	S 14000	11.16	56.34	6.20
2009	27000 C	N 13500	S 13500	11.51	56.49	7.10
2007	39000 F			11.33	56.77	5.70

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
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V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 0027 - CR 611-B/EDWARDS RD - W OF SR 5/US1 (COUNTY 173)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	8300 T	E 4100	W 4200	9.00	51.40	5.00
2021	8300 S	E 4100	W 4200	9.00	50.90	7.20
2020	8500 F	E 4200	W 4300	9.00	51.30	31.50
2019	8900 C	E 4400	W 4500	9.00	51.00	7.80
2018	8500 V	E 4200	W 4300	9.00	51.30	5.80
2017	8500 R	E 4200	W 4300	9.00	50.90	10.00
2016	8300 T	E 4100	W 4200	9.00	50.90	6.20
2015	8300 S	E 4100	W 4200	9.00	51.00	41.80
2014	8300 F	E 4100	W 4200	9.00	50.80	49.50
2013	8300 C	E 4100	W 4200	9.00	50.80	11.90
2012	9000 S	E 4500	W 4500	9.00	56.80	7.10
2011	9000 F	E 4500	W 4500	9.00	57.20	7.60
2010	9000 C	E 4500	W 4500	10.32	55.40	4.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 0168 - CR 605/OLEANDER AVE - N OF CR 712/MIDWAY RD (COUNTY 139)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	7200 T	N 3600	S 3600	9.00	51.40	5.00
2021	7200 S	N 3600	S 3600	9.00	50.90	7.20
2020	7200 F	N 3600	S 3600	9.00	51.30	31.50
2019	7600 C	N 3800	S 3800	9.00	51.00	7.80
2018	6400 V	N 3200	S 3200	9.00	51.30	5.80
2017	6400 R	N 3200	S 3200	9.00	50.90	10.00
2016	6200 T	N 3100	S 3100	9.00	50.90	6.20
2015	6200 S	N 3100	S 3100	9.00	51.00	41.80
2014	6200 F	N 3100	S 3100	9.00	50.80	49.50
2013	6200 C	N 3100	S 3100	9.00	50.80	11.90
2012	6800 S	N 3300	S 3500	9.00	56.80	9.20
2011	6800 F	N 3300	S 3500	9.00	57.20	9.20
2010	6800 C	N 3300	S 3500	10.32	55.40	9.20
2009	9000 C	N 4400	S 4600	10.27	57.35	6.30
2008	10500 C	N 5200	S 5300	10.45	58.06	7.10

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 7002 - ON BELL AVE - E. OF SUNRISE BLVD (COUNTY 102)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	5500 R	E 3000	W 2500	9.00	51.40	5.00
2021	5500 T	E 3000	W 2500	9.00	50.90	7.20
2020	5500 S	E 3000	W 2500	9.00	51.30	31.50
2019	5700 F	E 3100	W 2600	9.00	51.00	7.80
2018	5700 C	E 3100	W 2600	9.00	51.30	5.80
2017	2900 V	E 1500	W 1400	9.00	50.90	10.00
2016	2900 R	E 1500	W 1400	9.00	50.90	6.20
2015	2900 T	E 1500	W 1400	9.00	51.00	41.80
2014	2900 S	E 1500	W 1400	9.00	50.80	49.50
2013	2900 F	E 1500	W 1400	9.00	50.80	11.90
2012	2900 C	E 1500	W 1400	9.00	56.80	7.10
2011	3000 S	E 1600	W 1400	9.00	57.20	12.40
2010	3000 F	E 1600	W 1400	10.32	55.40	12.40
2009	3000 C	E 1600	W 1400	10.27	57.35	12.40
2008	3100 C	E 1600	W 1500	10.45	58.06	8.60

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 7003 - ON BELL AVE - W. OF SUNRISE BLVD (COUNTY 104)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	6800 R	E 2900	W 3900	9.00	51.40	5.00
2021	6800 T	E 2900	W 3900	9.00	50.90	7.20
2020	6900 S	E 2900	W 4000	9.00	51.30	31.50
2019	7200 F	E 3000	W 4200	9.00	51.00	7.80
2018	7200 C	E 3000	W 4200	9.00	51.30	5.80
2017	3500 V	E 1700	W 1800	9.00	50.90	10.00
2016	3500 R	E 1700	W 1800	9.00	50.90	6.20
2015	3500 T	E 1700	W 1800	9.00	51.00	41.80
2014	3500 S	E 1700	W 1800	9.00	50.80	49.50
2013	3500 F	E 1700	W 1800	9.00	50.80	11.90
2012	3500 C	E 1700	W 1800	9.00	56.80	7.10
2011	3000 S	E 1500	W 1500	9.00	57.20	9.50
2010	3000 F	E 1500	W 1500	10.32	55.40	9.50
2009	3000 C	E 1500	W 1500	10.27	57.35	9.50
2008	2500 C	E 1300	W 1200	10.45	58.06	17.50

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
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V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 7007 - ON EDWARDS RD - W. OF SUNRISE BLVD (COUNTY 108)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	16900 R	E 8700	W 8200	9.00	51.40	5.00
2021	17000 T	E 8800	W 8200	9.00	50.90	7.20
2020	17200 S	E 8900	W 8300	9.00	51.30	31.50
2019	18000 F	E 9300	W 8700	9.00	51.00	7.80
2018	18200 C	E 9400	W 8800	9.00	51.30	5.80
2017	13600 V	E 6900	W 6700	9.00	50.90	10.00
2016	13400 R	E 6800	W 6600	9.00	50.90	6.20
2015	13200 T	E 6700	W 6500	9.00	51.00	41.80
2014	13200 S	E 6700	W 6500	9.00	50.80	49.50
2013	13200 F	E 6700	W 6500	9.00	50.80	11.90
2012	13200 C	E 6700	W 6500	9.00	56.80	7.10
2011	14200 F	E 7200	W 7000	9.00	57.20	7.60
2010	14200 C	E 7200	W 7000	10.32	55.40	4.90

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 7041 - SUNRISE BLVD - S OF EDWARDS RD (COUNTY 153)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	3700 T	N 1700	S 2000	9.00	51.40	5.00
2021	3700 S	N 1700	S 2000	9.00	50.90	7.20
2020	3700 F	N 1700	S 2000	9.00	51.30	31.50
2019	3900 C	N 1800	S 2100	9.00	51.00	7.80
2018	3500 V	N 1700	S 1800	9.00	51.30	5.80
2017	3500 R	N 1700	S 1800	9.00	50.90	10.00
2016	3500 T	N 1700	S 1800	9.00	50.90	6.20
2015	3500 S	N 1700	S 1800	9.00	51.00	41.80
2014	3500 F	N 1700	S 1800	9.00	50.80	49.50
2013	3500 C	N 1700	S 1800	9.00	50.80	11.90
2012	3300 S	N 1600	S 1700	9.00	56.80	3.30
2011	3300 F	N 1600	S 1700	9.00	57.20	3.30
2010	3300 C	N 1600	S 1700	10.32	55.40	3.30
2009	3700 C	N 1800	S 1900	10.27	57.35	5.20

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
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FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 7045 - SUNRISE BLVD - N. OF MIDWAY RD WEST (COUNTY 157)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	2700 F	N 1300	S 1400	9.00	51.40	7.40
2021	2700 C	N 1300	S 1400	9.00	50.90	7.40
2020	2500 S	N 1400	S 1100	9.00	51.30	6.00
2019	2700 F	N 1500	S 1200	9.00	51.00	6.00
2018	2700 C	N 1500	S 1200	9.00	51.30	6.00
2017	1550 S	N 750	S 800	9.00	50.90	10.00
2016	1550 F	N 750	S 800	9.00	50.90	6.20
2015	1550 C	N 750	S 800	9.00	51.00	41.80
2014	2100 V	N 1100	S 1000	9.00	50.80	49.50
2013	2100 X	N 1100	S 1000	9.00	50.80	11.90
2012	2100 T	N 1100	S 1000	9.00	56.80	7.10
2011	2100 S	N 1100	S 1000	9.00	57.20	9.80
2010	2100 F	N 1100	S 1000	10.32	55.40	9.80
2009	2100 C	N 1100	S 1000	10.27	57.35	9.80
2008	2900 C	N 1500	S 1400	10.45	58.06	10.20

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 8540 - MIDWAY RD FROM OLECANDER AVE MEVILLE RD (HPMS)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	17000 R	E 8700	W 8300	9.00	51.40	5.00
2021	17100 T	E 8800	W 8300	9.00	50.90	7.20
2020	17300 S	E 8900	W 8400	9.00	51.30	31.50
2019	18100 F	E 9300	W 8800	9.00	51.00	7.80
2018	18300 C	E 9400	W 8900	9.00	51.30	5.80
2017	15300 S	E 7900	W 7400	9.00	50.90	8.80
2016	15100 F	E 7800	W 7300	9.00	50.90	8.80
2015	14900 C	E 7700	W 7200	9.00	51.00	8.80
2014	18300 F	E 8400	W 9900	9.00	50.80	6.60
2013	18300 C	E 8400	W 9900	9.00	50.80	6.60
2012	15900 C	E 8400	W 7500	9.00	56.80	6.60
2011	11400 T	0	0	9.00	57.20	7.60
2010	11400 S	E 5600	W 5800	10.32	55.40	12.00
2009	11400 F	E 5600	W 5800	10.27	57.35	12.00
2008	11600 C	E 5700	W 5900	10.45	58.06	12.00

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 8541 - OLEANDER AVE FROM FARMER MARKET RD TO KANNER DR (HPMS)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	10000 F	N 5400	S 4600	9.00	51.40	7.40
2021	10000 C	N 5400	S 4600	9.00	50.90	7.40
2020	9300 S	N 5100	S 4200	9.00	51.30	8.50
2019	9700 F	N 5300	S 4400	9.00	51.00	8.50
2018	9700 C	N 5300	S 4400	9.00	51.30	8.50
2017	7800 S	N 4100	S 3700	9.00	50.90	11.70
2016	7600 F	N 4000	S 3600	9.00	50.90	11.70
2015	7600 C	N 4000	S 3600	9.00	51.00	11.70
2014	9100 F	N 5000	S 4100	9.00	50.80	6.00
2013	9100 C	N 5000	S 4100	9.00	50.80	6.00
2012	8500 C	N 4200	S 4300	9.00	56.80	6.00
2011	10900 T	0	0	9.00	57.20	7.60
2010	10900 S	N 5500	S 5400	10.32	55.40	10.10
2009	10900 F	N 5500	S 5400	10.27	57.35	10.10
2008	11100 C	N 5600	S 5500	10.45	58.06	10.10

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 8543 - EDWARDS RD/CR 611B FROM S 25 ST TO OLEANDER AVE (COUNTY 502) (HPMS)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	11000 T	E 6000	W 5000	9.00	51.40	5.00
2021	11000 S	E 6000	W 5000	9.00	50.90	19.60
2020	11200 F	E 6100	W 5100	9.00	51.30	19.60
2019	11700 C	E 6400	W 5300	9.00	51.00	19.60
2018	13900 C	E 7100	W 6800	9.00	51.30	5.80
2017	12100 S	E 6200	W 5900	9.00	50.90	10.60
2016	11900 F	E 6100	W 5800	9.00	50.90	10.60
2015	11700 C	E 6000	W 5700	9.00	51.00	10.60
2014	13300 F	E 6700	W 6600	9.00	50.80	5.40
2013	13300 C	E 6700	W 6600	9.00	50.80	5.40
2012	12300 C	E 6300	W 6000	9.00	56.80	5.40
2011	11800 T	0	0	9.00	57.20	7.60
2010	11800 S	E 6000	W 5800	10.32	55.40	10.60
2009	11800 F	E 6000	W 5800	10.27	57.35	10.60
2008	12000 C	E 6100	W 5900	10.45	58.06	10.60

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 94 - ST.LUCIE

SITE: 8549 - S 25TH ST (CR 615) - N OF DADE RD (HPMS)

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2022	15700 F	N 7600	S 8100	9.00	51.40	18.10
2021	15700 C	N 7600	S 8100	9.00	50.90	18.10
2020	16800 S	N 8300	S 8500	9.00	51.30	5.20
2019	17600 F	N 8700	S 8900	9.00	51.00	5.20
2018	17800 C	N 8800	S 9000	9.00	51.30	5.20
2017	18200 S	N 8900	S 9300	9.00	50.90	10.00
2016	17800 F	N 8700	S 9100	9.00	50.90	10.00
2015	17600 C	N 8600	S 9000	9.00	51.00	10.00
2014	16300 C	N 8000	S 8300	9.00	50.80	3.60
2013	14100 C	N 7300	S 6800	9.00	50.80	3.60

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

AMERICAN SILICONE (Fort Pierce, FL)

Traffic Impact Report

September 2021
Revised January 2024

Kimley»Horn

Table 1: Trip Generation Summary

	Land Use	ITE LUC	Size	Units	Trip Rate[1]	Daily Trip Generation				
						Total	In[1]		Out[1]	
DAILY	Retail	820	**7.878**	KSF	135.57	1,068	*50%*	534	*50%*	534
	Coffee/Donut Shop w/ Drive-Through	937	**2.500**	KSF	820.38	2,051	*50%*	1,026	*50%*	1,025
	General Light Industrial	110	**22.680**	KSF	4.96	112	*50%*	56	*50%*	56
	Total Generated Trips					**3,231**	**1,616**		**1,615**	
	Internal Capture[2]	23.8%				742	371		371	
	Total Driveway Trips					**2,489**	**1,245**		**1,244**	
	LUC 820 Pass-by Trips[3]	34%				*278*	*139*		*139*	
	LUC 938 Pass-by Trips[3, 4]	89%				*1,392*	*696*		*696*	
	10% of Adjacent Street Traffic Cap[5]	710				710	355		355	
	Net New External Trips					**1,779**	**890**		**889**	

	Land Use	ITE LUC	Size	Units	Trip Rate[1]	AM Peak Hour Trip Generation				
						Total	In[1]		Out[1]	
AM PEAK HOUR	Retail	820	**7.878**	KSF	0.94	7	*62%*	4	*38%*	3
	Coffee/Donut Shop w/ Drive-Through	937	**2.500**	KSF	88.99	222	*51%*	113	*49%*	109
	General Light Industrial	110	**22.680**	KSF	0.70	16	*88%*	14	*12%*	2
	Total Generated Trips					**245**	**131**		**114**	
	Internal Capture[2]	0.0%				0	0		0	
	Total Driveway Trips					**245**	**131**		**114**	
	LUC 820 Pass-by Trips[3]	34%				*4*	*2*		*2*	
	LUC 938 Pass-by Trips[3, 4]	89%				*198*	*99*		*99*	
	10% of Adjacent Street Traffic Cap[5]	39				39	20		19	
	Net New External Trips					**206**	**111**		**95**	

	Land Use	ITE LUC	Size	Units	Trip Rate[1]	PM Peak Hour Trip Generation				
						Total	In[1]		Out[1]	
PM PEAK HOUR	Retail	820	**7.878**	KSF	10.52	83	*48%*	40	*52%*	43
	Coffee/Donut Shop w/ Drive-Through	937	**2.500**	KSF	43.38	108	*50%*	54	*50%*	54
	General Light Industrial	110	**22.680**	KSF	0.63	14	*13%*	2	*87%*	12
	Total Generated Trips					**205**	**96**		**109**	
	Internal Capture[2]	33.9%				64	32		32	
	Total Driveway Trips					**141**	**64**		**77**	
	LUC 820 Pass-by Trips[3]	34%				*20*	*10*		*10*	
	LUC 938 Pass-by Trips[3, 4]	89%				*64*	*32*		*32*	
	10% of Adjacent Street Traffic Cap[5]	42				42	21		21	
	Net New External Trips					**99**	**43**		**56**	

[1] Vehicle trip rates and directional splits per data and procedures outlined in ITE Trip Generation, 10th Edition

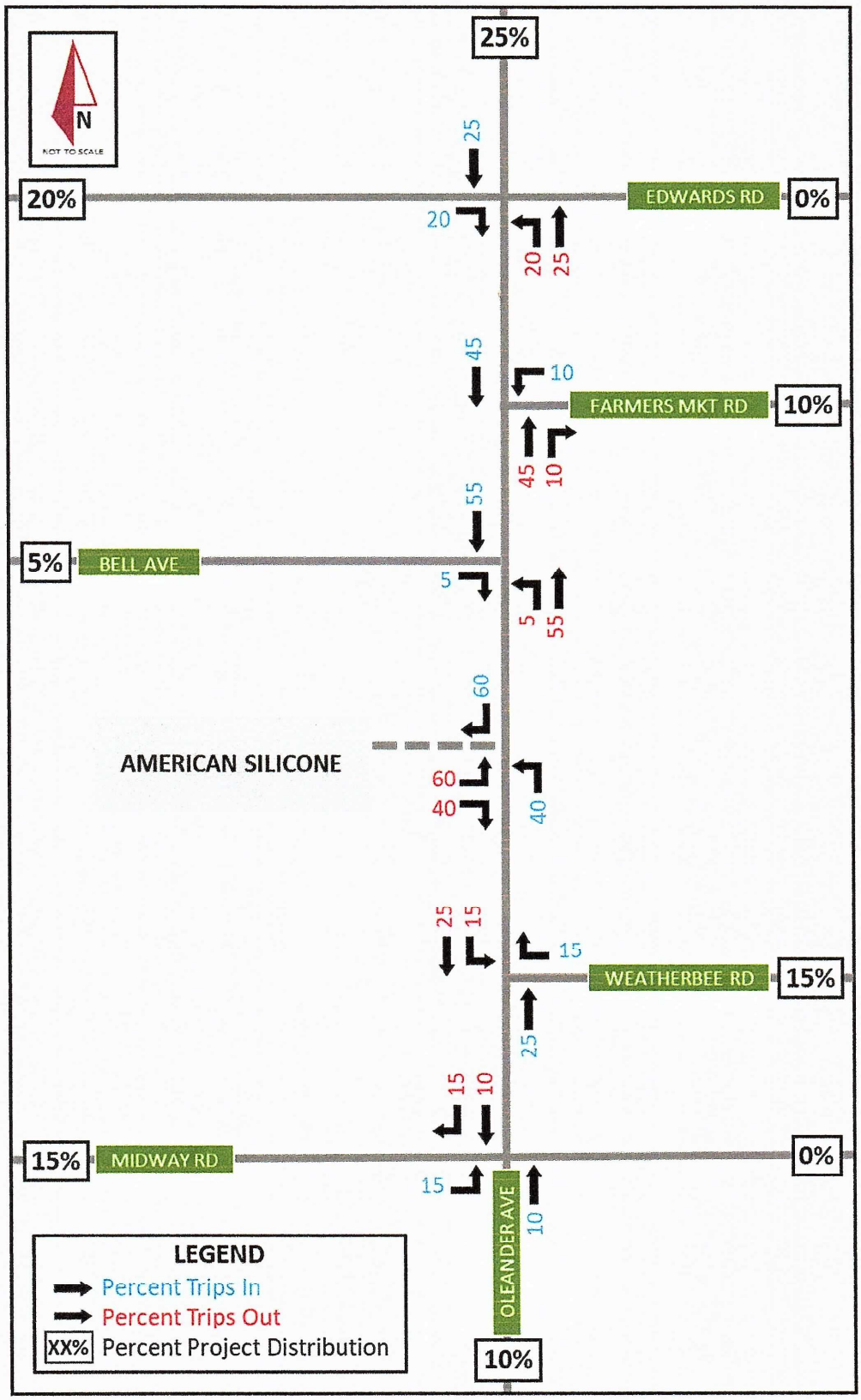
[2] Internal Capture rate per ITE Trip Generation Handbook, 3rd Edition

[3] Pass-by trip rate per ITE Trip Generation Handbook, 3rd Edition, capped at 10% of adjacent street traffic

[4] Pass-by trip rate for LUC 938 (Coffee/Donut Shop w/ Drive-Through Window and No Indoor Seating) was referenced as ITE does not provide a rate for LUC 937

[5] Adjacent Street Traffic on Oleander Avenue from latest St. Lucie TPO Traffic Counts and Level of Service Report:
Daily: 7,100 AM Peak Hour: 388 PM Peak Hour: 421

Figure 1: Project Trip Distribution



O'ROURKE
ENGINEERING & PLANNING

TRAFFIC ANALYSIS

FOR

Dade & Sunrise – Parcels North

Prepared for:

Mrs. Patricia Sesta
EDC
10250 SW Village Parkway, Suite 201
Port St. Lucie, FL 34987

Prepared by

O'Rourke Engineering & Planning
22 SE Seminole St
Stuart, Florida 34994
772-781-7918

February 11, 2022
Revised June 17, 2022
SR22012.0

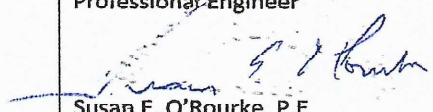
Prepared by: O'Rourke Engineering & Planning Certificate of Authorization: #26869 22 SE Seminole St Stuart, Florida 34994 772-781-7918	Professional Engineer  Susan E. O'Rourke, P.E. Date signed and sealed: 6/17/2022 License #: 42684

Table 1 - Trip Generation

Table 1a: Daily

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Multifamily Housing (Low-Rise)	220	216	DU	T = 6.41(X) + 75.31	50%	50%	730	730	1,460
TOTALS							**730**	**730**	**1,460**

Source: ITE 11th Edition Trip Generation Rates

Table 1b: AM Peak Hour

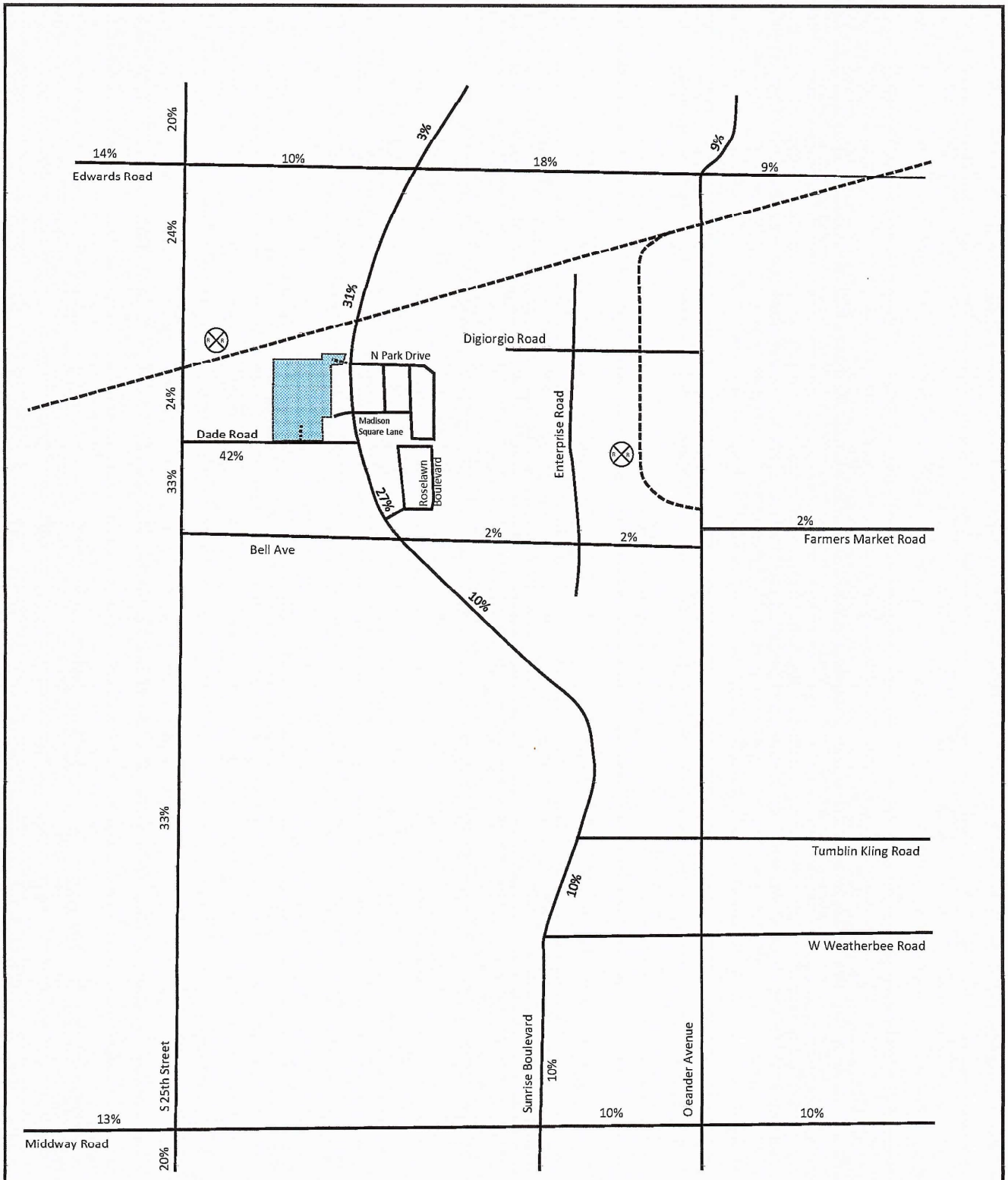
Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Multifamily Housing (Low-Rise)	220	216	DU	T = 0.31(X) + 22.85	24%	76%	22	68	90
TOTALS							**22**	**68**	**90**

Source: ITE 11th Edition Trip Generation Rates

Table 1c: PM Peak Hour

Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Net New Trips		
					In	Out	In	Out	Total
Multifamily Housing (Low-Rise)	220	216	DU	T = 0.43(X) + 20.55	63%	37%	71	42	113
TOTALS							**71**	**42**	**113**

Source: ITE 11th Edition Trip Generation Rates



NTS O'ROURKE ENGINEERING & PLANNING 22 SE Seminole Street Stuart, Fl, 34994 Job Number: SR22012.0 Date: 06-17-22	Legend = Project Location	Figure 2 Percent Assignment Dade & Sunrise - North Parcels

NAPA Auto Parts

Traffic Impact Analysis

December 2022

Kimley»Horn

Table 1: Trip Generation Summary

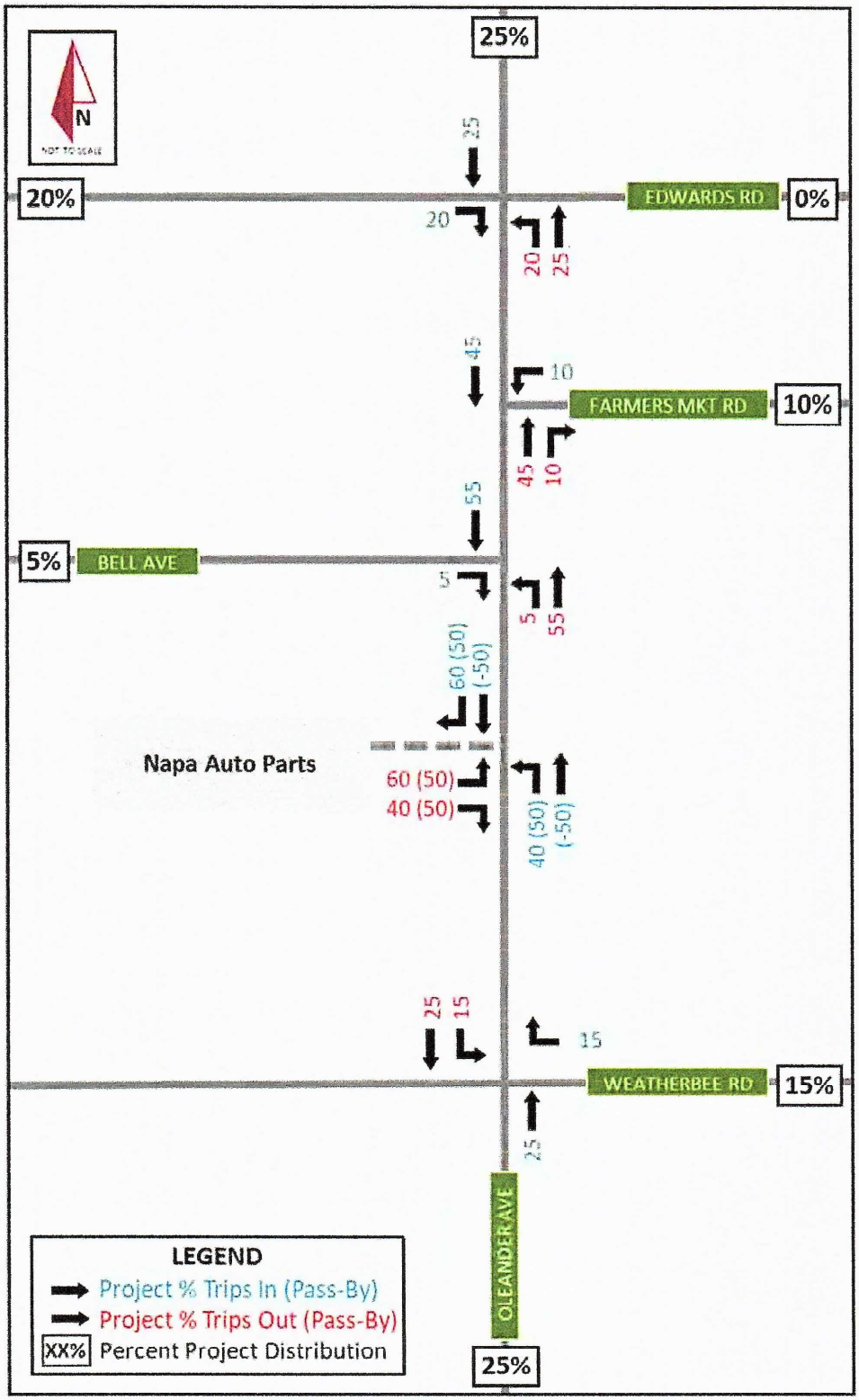
Land Use	Intensity	Daily Trips	AM Peak Hour of Adjacent Street			PM Peak Hour of Adjacent Street		
			Total	In	Out	Total	In	Out
Proposed Development								
Automobile Parts Sales	10 KSF	546	25	14	11	49	23	26
Subtotal		*546*	*25*	*14*	*11*	*49*	*23*	*26*
Pass-By Traffic								
Automobile Parts Sales	43%	235	11	6	5	21	11	10
Subtotal		*235*	*11*	*6*	*5*	*21*	*11*	*10*
Net External Trips		**311**	**14**	**8**	**6**	**28**	**12**	**16**
TOTAL NET EXTERNAL TRIPS		**311**	**14**	**8**	**6**	**28**	**12**	**16**

Note 1: Trip Generation was calculated using the data from ITE's Trip Generation Manual, 11th Edition

Automobile Parts Sales [ITE 843]

Daily	T = 54.57*X; (X is KSF)
AM Peak Hour of Adjacent Street	T = 2.51*X; (X is KSF); (55% in/ 45% out)
PM Peak Hour of Adjacent Street	T = 4.90*X; (X is KSF); (48% in/ 52% out)

Figure 1: Project Trip Distribution



OLEANDER OAKS (Fort Pierce, FL)

Traffic Impact Study

April 2021

Kimley»Horn

Table 1: Trip Generation Summary

	Land Use	ITE LUC	Size	Units	Trip Rate[1]	Daily Trip Generation				
						Total	In[1]		Out[1]	
DAILY	Single-Family Detached Housing	210	63	DU	10.79	680	50%	340	50%	340
	Total Generated Trips					**680**	**340**		**340**	
	Land Use	**ITE LUC**	**Size**	**Units**	**Trip Rate[1]**	**AM Peak Hour Trip Generation**				
						Total	**In[1]**		**Out[1]**	
AM PEAK HOUR	Single-Family Detached Housing	210	63	DU	0.79	50	25%	13	75%	37
	Total Generated Trips					**50**	**13**		**37**	
	Land Use	**ITE LUC**	**Size**	**Units**	**Trip Rate[1]**	**PM Peak Hour Trip Generation**				
						Total	**In[1]**		**Out[1]**	
PM PEAK HOUR	Single-Family Detached Housing	210	63	DU	1.03	65	63%	41	37%	24
	Total Generated Trips					**65**	**41**		**24**	

[1] Vehicle trip rates and directional splits per data and procedures outlined in ITE Trip Generation, 10th Edition

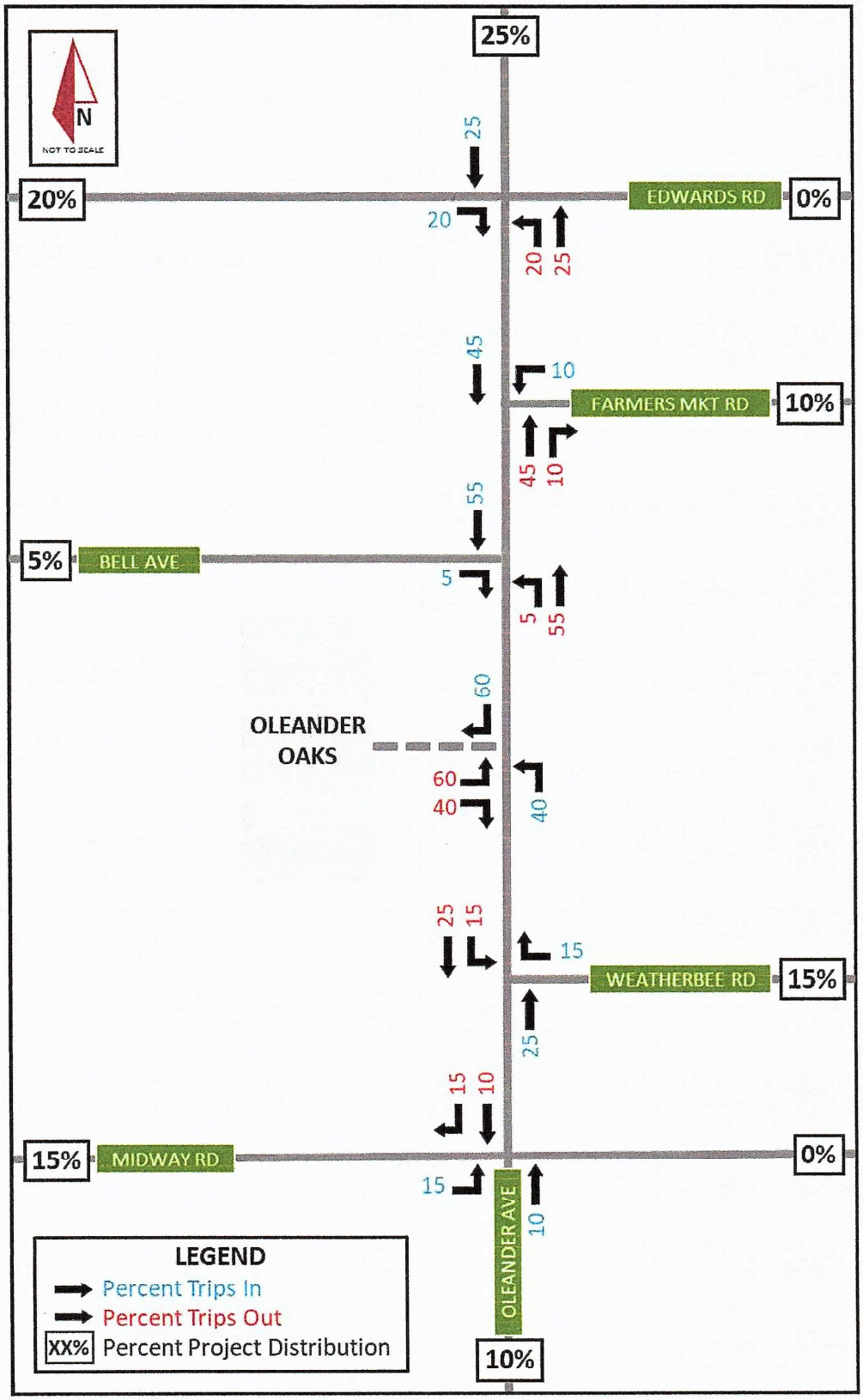
2.2 TRIP DISTRIBUTION AND TRIP ASSIGNMENT

Projected traffic demand of project trips on study roadways was derived with use of the adopted regional travel demand model. Land use data for the project was entered into a new traffic analysis zone (TAZ) within the Greater Treasure Coast Regional Planning Model (GTCRPM) set and situated within the existing roadway network to appropriately represent project access. The model was used to assign trips for all trip purposes between allocated origin and destination pairs using project buildout year model data. Trip distribution for the project was extracted from the completed model assignment and reviewed for logic. The resulting model plots showing percent of daily project distribution are provided in **Appendix C.**

Daily model project distribution was referenced to manually assign project distribution at the study area intersections and driveways in general accordance with model output. **Figure 1** shows the intersection movement project distribution surrounding Oleander Oaks used in this TIS.

Project trip distribution percentages were used to assign anticipated project trips to the study area roadways and intersections. **Figure 2** shows the anticipated AM and PM peak hour project volumes at the study area intersections.

Figure 1: Project Trip Distribution



APPENDIX D

Intersection Analysis

DE TRAFFIC

detraffic.com
(386) 341-4186
Sunrise Blvd at Bell Ave
St. Lucie County, FI

File Name : Sunrise at Bell
Site Code : 00000001
Start Date : 4/2/2024
Page No : 1

Groups Printed- Autmobiles - Commercial

	Sunrise Blvd Southbound				Bell Ave Westbound				Sunrise Blvd Northbound				Bell Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	19	2	24	2	29	3	34	11	17	2	30	7	22	9	38	126
07:15 AM	4	25	4	33	3	29	4	36	19	27	3	49	8	30	11	49	167
07:30 AM	3	36	4	43	6	32	7	45	19	29	4	52	8	39	17	64	204
07:45 AM	3	32	2	37	6	35	4	45	23	27	4	54	11	34	20	65	201
Total	13	112	12	137	17	125	18	160	72	100	13	185	34	125	57	216	698
08:00 AM	5	35	4	44	5	40	9	54	17	35	6	58	10	30	24	64	220
08:15 AM	5	26	6	37	5	32	4	41	18	30	4	52	7	36	27	70	200
08:30 AM	4	25	4	33	4	28	5	37	19	24	3	46	9	31	27	67	183
08:45 AM	3	26	6	35	5	21	4	30	13	27	1	41	9	32	22	63	169
Total	17	112	20	149	19	121	22	162	67	116	14	197	35	129	100	264	772
04:00 PM	6	39	8	53	3	37	6	46	13	26	4	43	1	27	13	41	183
04:15 PM	6	28	9	43	6	40	5	51	15	35	4	54	6	30	12	48	196
04:30 PM	6	31	12	49	4	47	7	58	21	35	5	61	6	29	16	51	219
04:45 PM	5	35	11	51	4	49	6	59	19	26	5	50	5	35	19	59	219
Total	23	133	40	196	17	173	24	214	68	122	18	208	18	121	60	199	817
05:00 PM	4	37	16	57	5	52	3	60	24	29	4	57	5	43	17	65	239
05:15 PM	6	36	10	52	4	47	2	53	26	35	5	66	2	35	15	52	223
05:30 PM	4	27	9	40	2	45	4	51	24	31	4	59	5	31	20	56	206
05:45 PM	4	24	8	36	6	42	6	54	16	32	6	54	4	29	13	46	190
Total	18	124	43	185	17	186	15	218	90	127	19	236	16	138	65	219	858
Grand Total	71	481	115	667	70	605	79	754	297	465	64	826	103	513	282	898	3145
Apprch %	10.6	72.1	17.2		9.3	80.2	10.5		36	56.3	7.7		11.5	57.1	31.4		
Total %	2.3	15.3	3.7	21.2	2.2	19.2	2.5	24	9.4	14.8	2	26.3	3.3	16.3	9	28.6	
Autmobiles	67	466	112	645	66	573	75	714	292	439	62	793	97	488	278	863	3015
% Autmobiles	94.4	96.9	97.4	96.7	94.3	94.7	94.9	94.7	98.3	94.4	96.9	96	94.2	95.1	98.6	96.1	95.9
Commercial	4	15	3	22	4	32	4	40	5	26	2	33	6	25	4	35	130
% Commercial	5.6	3.1	2.6	3.3	5.7	5.3	5.1	5.3	1.7	5.6	3.1	4	5.8	4.9	1.4	3.9	4.1

2022 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL

CATEGORY: 9401 CEN.-W OF US1 TO I95

MOCF: 0.95

WEEK	DATES	SF	PSCF
1	01/01/2022 - 01/01/2022	0.99	1.04
2	01/02/2022 - 01/08/2022	0.99	1.04
3	01/09/2022 - 01/15/2022	0.98	1.03
* 4	01/16/2022 - 01/22/2022	0.97	1.02
* 5	01/23/2022 - 01/29/2022	0.96	1.01
* 6	01/30/2022 - 02/05/2022	0.96	1.01
* 7	02/06/2022 - 02/12/2022	0.95	1.00
* 8	02/13/2022 - 02/19/2022	0.94	0.99
* 9	02/20/2022 - 02/26/2022	0.94	0.99
*10	02/27/2022 - 03/05/2022	0.94	0.99
*11	03/06/2022 - 03/12/2022	0.94	0.99
*12	03/13/2022 - 03/19/2022	0.94	0.99
*13	03/20/2022 - 03/26/2022	0.95	1.00
*14	03/27/2022 - 04/02/2022	0.96	1.01
*15	04/03/2022 - 04/09/2022	0.96	1.01
*16	04/10/2022 - 04/16/2022	0.97	1.02
17	04/17/2022 - 04/23/2022	0.98	1.03
18	04/24/2022 - 04/30/2022	0.99	1.04
19	05/01/2022 - 05/07/2022	0.99	1.04
20	05/08/2022 - 05/14/2022	1.00	1.05
21	05/15/2022 - 05/21/2022	1.01	1.06
22	05/22/2022 - 05/28/2022	1.02	1.07
23	05/29/2022 - 06/04/2022	1.03	1.08
24	06/05/2022 - 06/11/2022	1.04	1.09
25	06/12/2022 - 06/18/2022	1.05	1.11
26	06/19/2022 - 06/25/2022	1.07	1.13
27	06/26/2022 - 07/02/2022	1.08	1.14
28	07/03/2022 - 07/09/2022	1.10	1.16
29	07/10/2022 - 07/16/2022	1.11	1.17
30	07/17/2022 - 07/23/2022	1.09	1.15
31	07/24/2022 - 07/30/2022	1.07	1.13
32	07/31/2022 - 08/06/2022	1.05	1.11
33	08/07/2022 - 08/13/2022	1.03	1.08
34	08/14/2022 - 08/20/2022	1.01	1.06
35	08/21/2022 - 08/27/2022	1.02	1.07
36	08/28/2022 - 09/03/2022	1.03	1.08
37	09/04/2022 - 09/10/2022	1.04	1.09
38	09/11/2022 - 09/17/2022	1.05	1.11
39	09/18/2022 - 09/24/2022	1.03	1.08
40	09/25/2022 - 10/01/2022	1.02	1.07
41	10/02/2022 - 10/08/2022	1.00	1.05
42	10/09/2022 - 10/15/2022	0.98	1.03
43	10/16/2022 - 10/22/2022	0.99	1.04
44	10/23/2022 - 10/29/2022	1.00	1.05
45	10/30/2022 - 11/05/2022	1.02	1.07
46	11/06/2022 - 11/12/2022	1.03	1.08
47	11/13/2022 - 11/19/2022	1.04	1.09
48	11/20/2022 - 11/26/2022	1.03	1.08
49	11/27/2022 - 12/03/2022	1.02	1.07
50	12/04/2022 - 12/10/2022	1.00	1.05
51	12/11/2022 - 12/17/2022	0.99	1.04
52	12/18/2022 - 12/24/2022	0.99	1.04
53	12/25/2022 - 12/31/2022	0.98	1.03

* PEAK SEASON

23-FEB-2023 09:11:22 830UPD 4_9401_PKSEASON.TXT

TURNING MOVEMENT VOLUME COUNTS

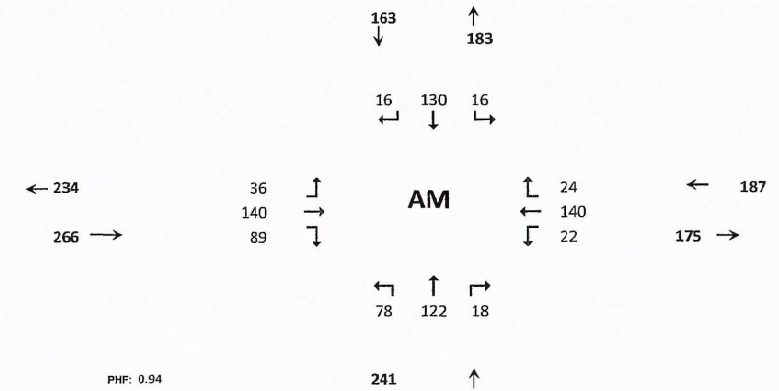
N/S STREET: Sunrise Blvd **E/W STREET:** Bell Ave **CONTROL:** AWSC

FILENAME: C6 - TMC - Sunrise Blvd & Bell Ave.xlsx

COUNT DATE: 4/2/2024 **DAY:** Tuesday **CITY:** St Lucie

REPORT DATE: 4/3/2024 **ANALYSIS YEAR:** 2024 Existing

15 Min Period	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
7:00-7:15	11	17	2	3	19	2	7	22	9	2	23	3	126	698
7:15-7:30	19	27	3	4	25	4	8	30	11	3	29	4	167	792
7:30-7:45	19	29	4	3	36	4	8	39	17	6	32	7	204	825
7:45-8:00	23	27	4	3	32	2	11	34	20	6	35	4	201	804
8:00-8:15	17	35	6	5	35	4	10	30	24	5	40	9	220	772
8:15-8:30	18	30	4	5	26	6	7	36	27	5	32	4	200	
8:30-8:45	19	24	3	4	25	4	9	31	27	4	23	5	183	
8:45-9:00	13	27	1	3	26	6	9	32	22	5	21	4	169	
AM PEAK HOUR IS FROM:			7:30 AM TO 8:30AM											
Volumes	77	121	18	16	129	16	36	139	88	22	139	24	825	
Season Factor	78	122	18	16	130	16	36	140	89	22	140	24	833	
Growth	78	122	18	16	130	16	36	140	89	22	140	24	833	
In/Cut	-	-	-	-	-	-	-	-	-	-	-	-		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	78	122	18	16	130	16	36	140	89	22	140	24	833	

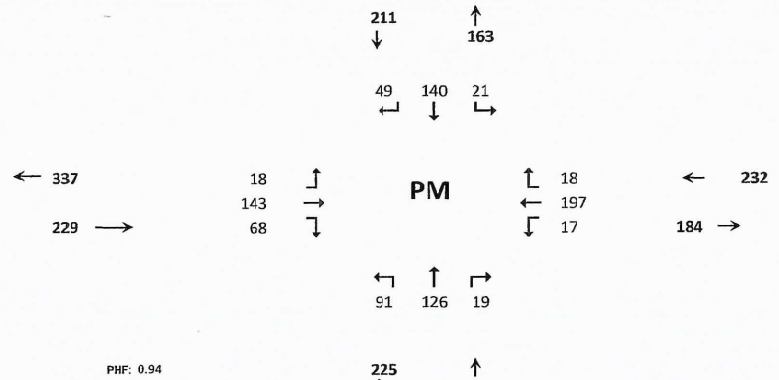


PHF: 0.94
Seasonal Factor: 1.01
Growth Rate: 1
Years Grown: 0

Trips In: 0 Trips Out: 0

Sunrise Blvd & Bell Ave
Existing

15 Min Period lanes	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
4:00-4:15	13	26	4	6	39	8	1	27	13	3	37	6	183	817
4:15-4:30	15	35	4	6	28	9	6	30	12	6	40	5	196	873
4:30-4:45	21	35	5	6	31	12	6	29	15	4	47	7	219	930
4:45-5:00	19	26	5	5	35	11	5	35	13	4	49	6	219	837
5:00-5:15	24	29	4	4	37	16	5	43	17	5	52	3	239	858
5:15-5:30	26	35	5	6	36	10	2	35	15	4	47	2	223	
5:30-5:45	24	31	4	4	27	9	5	31	20	2	45	4	206	
5:45-6:00	16	32	6	4	24	8	4	29	13	6	42	6	190	
PM PEAK HOUR IS FROM:			4:30 PM TO 5:30PM											
Volumes	90	125	19	21	139	49	18	142	67	17	195	18	900	
Season Factor	91	126	19	21	140	49	18	143	68	17	197	18	909	
Growth	91	126	19	21	140	49	18	143	68	17	197	18	909	
In/Cut	-	-	-	-	-	-	-	-	-	-	-	-		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	91	126	19	21	140	49	18	143	68	17	197	18	909	



PHF: 0.94
Seasonal Factor: 1.01
Growth Rate: 1
Years Grown: 0

Trips In: Trips Out:

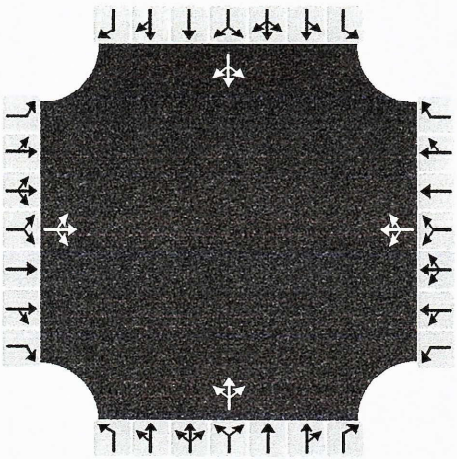
D-3

HCS All-Way Stop Control Report

General and Site Information

Analyst	James Kemp
Agency/Co.	O'Rourke Engineering
Date Performed	4/3/2024
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak Hour
Project Description	Existing
Intersection	Sunrise Blvd & Bell Ave
Jurisdiction	St. Lucie County
East/West Street	Bell Avenue
North/South Street	Sunrise Blvd
Peak Hour Factor	0.94

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	36	140	89	22	140	24	78	122	18	16	130	16
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	282			198			232			172		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.251			0.176			0.206			0.153		
Final Departure Headway, h_d (s)	5.27			5.52			5.59			5.64		
Final Degree of Utilization, x	0.412			0.303			0.360			0.270		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	3.27			3.52			3.59			3.64		

Capacity, Delay and Level of Service

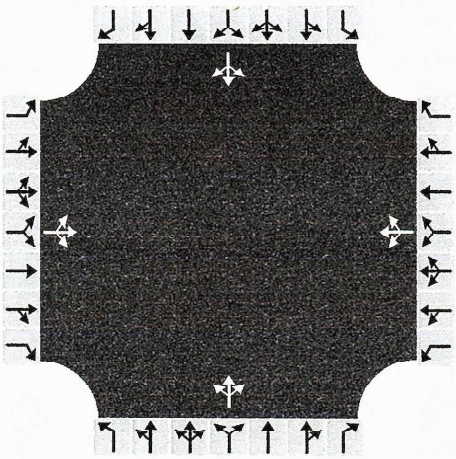
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	282			198			232			172		
Capacity (veh/h)	684			652			644			638		
95% Queue Length, Q_{95} (veh)	2.0			1.3			1.6			1.1		
95% Queue Length, Q_{95} (ft)	50.8			33.0			40.6			27.9		
Control Delay (s/veh)	11.9			10.9			11.7			10.7		
Level of Service, LOS	B			B			B			B		
Approach Delay (s/veh) | LOS	11.9	B		10.9	B		11.7	B		10.7	B	
Intersection Delay (s/veh) | LOS	11.4						B					

HCS All-Way Stop Control Report

General and Site Information

Analyst	James Kemp
Agency/Co.	O'Rourke Engineering
Date Performed	4/3/2024
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak Hour
Project Description	Existing
Intersection	Sunrise Blvd & Bell Ave
Jurisdiction	St. Lucie County
East/West Street	Bell Avenue
North/South Street	Sunrise Blvd
Peak Hour Factor	0.94

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	18	143	68	17	197	18	91	126	19	21	140	49
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	244			247			251			223		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.217			0.219			0.223			0.199		
Final Departure Headway, h_d (s)	5.64			5.76			5.81			5.73		
Final Degree of Utilization, x	0.382			0.395			0.406			0.355		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	3.64			3.76			3.81			3.73		

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	244			247			251			223		
Capacity (veh/h)	638			625			619			628		
95% Queue Length, Q_{95} (veh)	1.8			1.9			2.0			1.6		
95% Queue Length, Q_{95} (ft)	45.7			48.3			50.8			40.6		
Control Delay (s/veh)	12.1			12.5			12.7			11.9		
Level of Service, LOS	B			B			B			B		
Approach Delay (s/veh) | LOS	12.1	B		12.5	B		12.7	B		11.9	B	
Intersection Delay (s/veh) | LOS	12.3						B					

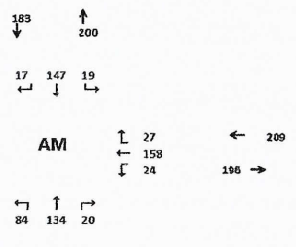
TURNING MOVEMENT VOLUME COUNTS

N/S STREET: Sunrise Blvd
E/W STREET: Bell Ave
CONTROL: AWSC
FILENAME: C6- TMC - Sunrise Blvd & Bell Ave - 4.11.23.dsx
COUNT DATE: 4/2/2024
DAY: Tuesday
CITY: St Lucie
REPORT DATE: 4/3/2024
ANALYSIS YEAR: 2027
Background

15 Min Period	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL:	ONE HOUR SUM
7:00-7:15	11	17	2	3	19	2	7	12	9	1	29	3	126	698
7:15-7:30	19	27	3	4	25	4	8	10	11	5	25	4	167	792
7:30-7:45	19	29	4	3	36	4	8	19	17	6	32	7	204	825
7:45-8:00	23	27	4	3	32	3	11	14	10	6	35	4	201	804
8:00-8:15	17	35	6	5	35	4	10	10	14	5	40	9	220	772
8:15-8:30	18	30	4	5	26	6	7	16	17	5	32	4	200	
8:30-8:45	19	24	3	4	25	4	9	11	17	4	28	5	183	
8:45-9:00	13	27	1	3	26	6	9	12	12	5	21	4	159	
AM PEAK HOUR IS FROM:			7:30 AM TO 8:30AM											
Volumes	77	121	18	16	129	16	36	139	68	22	139	24	625	
Season Factor	78	122	18	16	130	16	36	140	69	22	140	24	633	
Growth	84	132	20	17	140	17	39	151	96	24	151	26	697	
In/Out	-	-	-	-	-	-	-	-	-	-	-	-		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	84	132	20	17	140	17	39	151	96	24	151	26	697	
Other Projects														
Percentage	0%	10%	0%	2%	10%	0%	0%	0%	0%	0%	0%	2%	0%	
In/Out	-	IN	-	OUT	OUT	-	-	-	-	-	-	IN		
PROJECT	0	2	0	1	7	0	0	0	0	0	0	0	0	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	1	0	0	2	0	0	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	6	0	0	5	0	0	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	
Subtotal	0	2	0	1	7	0	0	7	0	0	7	0	24	
Total	84	134	20	19	147	17	39	158	96	24	158	27	922	

PHF: 0.94
Seasonal Factor: 1.01
Growth Rate: 1.025
Years Grown: 3

Project Name	Trips In	Trips Out
Dade & Sunrise	21	68
Oleander Oaks	11	37
American Silicone	111	95
Napa Auto	8	6



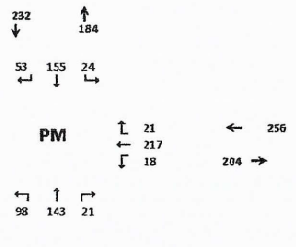
D-6

Sunrise Blvd & Bell Ave
Background

15 Min Period lanes	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL:	ONE HOUR SUM
4:00-4:15	13	26	4	6	39	8	1	27	19	3	37	6	183	817
4:15-4:30	15	35	4	6	28	9	6	30	12	6	40	5	196	873
4:30-4:45	21	35	5	6	31	12	6	29	16	4	47	7	219	900
4:45-5:00	19	26	5	5	35	11	5	35	19	4	49	6	219	887
5:00-5:15	24	29	4	4	37	16	5	43	17	5	52	3	239	858
5:15-5:30	26	35	5	6	36	10	2	35	15	4	47	2	223	
5:30-5:45	24	31	4	4	27	9	5	31	20	1	45	4	206	
5:45-6:00	16	32	6	4	24	8	4	29	13	6	42	6	190	
PM PEAK HOUR IS FROM:			4:30 PM TO 5:30PM											
Volumes	90	125	19	21	139	49	18	142	67	17	191	18	900	
Season Factor	91	126	19	21	140	49	18	143	68	17	197	18	909	
Growth	98	136	21	23	151	53	20	154	73	18	212	20	979	
In/Out	-	-	-	-	-	-	-	-	-	-	-	-		
Percentage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
PROJECT	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	98	136	21	23	151	53	20	154	73	18	212	20	979	
Other Projects														
%	0%	10%	0%	2%	10%	0%	0%	0%	0%	0%	0%	10%		
In/Out	-	IN	-	OUT	OUT	-	-	-	-	-	-	IN		
PROJECT	0	7	0	1	4	0	0	0	0	0	0	1	14	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	2	0	0	1	0	3	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	2	0	0	3	0	5	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	1	0	0	1	0	1	

PHF: 0.94
Seasonal Factor: 1.01
Growth Rate: 1.025
Years Grown: 3

Project Name	Trips In	Trips Out
Dade & Sunrise	7	42
Oleander Oaks	41	24
American Silicone	41	56
Napa Auto	12	16

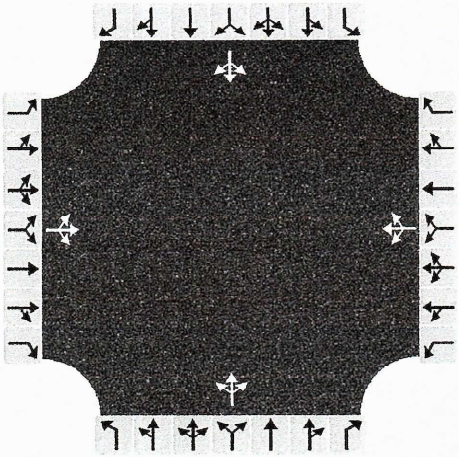


HCS All-Way Stop Control Report

General and Site Information

Analyst	James Kemp
Agency/Co.	O'Rourke Engineering
Date Performed	4/3/2024
Analysis Year	2027
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak Hour
Project Description	Background without Project
Intersection	Sunrise Blvd & Bell Ave
Jurisdiction	St. Lucie County
East/West Street	Bell Avenue
North/South Street	Sunrise Blvd
Peak Hour Factor	0.94

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	39	158	96	24	158	27	84	134	20	19	147	17
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	312			222			253			195		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.277			0.198			0.225			0.173		
Final Departure Headway, h_d (s)	5.54			5.81			5.88			5.95		
Final Degree of Utilization, x	0.479			0.359			0.414			0.322		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	3.54			3.81			3.88			3.95		

Capacity, Delay and Level of Service

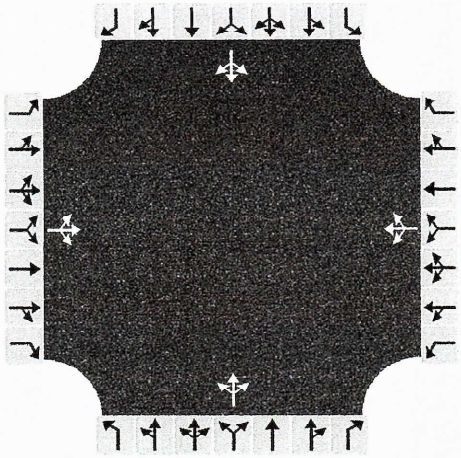
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	312			222			253			195		
Capacity (veh/h)	650			620			612			605		
95% Queue Length, Q_{95} (veh)	2.6			1.6			2.0			1.4		
95% Queue Length, Q_{95} (ft)	66.0			40.6			50.8			35.6		
Control Delay (s/veh)	13.5			12.0			13.0			11.7		
Level of Service, LOS	B			B			B			B		
Approach Delay (s/veh) | LOS	13.5	B		12.0	B		13.0	B		11.7	B	
Intersection Delay (s/veh) | LOS	12.7						B					

HCS All-Way Stop Control Report

General and Site Information

Analyst	James Kemp
Agency/Co.	O'Rourke Engineering
Date Performed	4/3/2024
Analysis Year	2027
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak Hour
Project Description	Background without Project
Intersection	Sunrise Blvd & Bell Ave
Jurisdiction	St. Lucie County
East/West Street	Bell Avenue
North/South Street	Sunrise Blvd
Peak Hour Factor	0.94

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	20	159	73	18	217	21	98	143	21	24	155	53
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	268			272			279			247		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.238			0.242			0.248			0.219		
Final Departure Headway, h_d (s)	6.03			6.13			6.18			6.12		
Final Degree of Utilization, x	0.449			0.464			0.479			0.420		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	4.03			4.13			4.18			4.12		

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	268			272			279			247		
Capacity (veh/h)	597			587			582			588		
95% Queue Length, Q_{95} (veh)	2.3			2.4			2.6			2.1		
95% Queue Length, Q_{95} (ft)	58.4			61.0			66.0			53.3		
Control Delay (s/veh)	13.8			14.3			14.7			13.5		
Level of Service, LOS	B			B			B			B		
Approach Delay (s/veh) | LOS	13.8	B		14.3	B		14.7	B		13.5	B	
Intersection Delay (s/veh) | LOS	14.1						B					

TURNING MOVEMENT VOLUME COUNTS

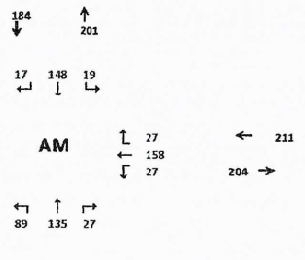
N/S STREET: Sunrise Blvd **E/W STREET:** Bell Ave **CONTROL:** AWSC
FILENAME: G6 - TMC - Sunrise Blvd & Bell Ave - 4.11.23.xlsx
COUNT DATE: 4/2/2024 **DAY:** Tuesday **CITY:** St Lucie
REPORT DATE: 4/3/2024 **ANALYSIS YEAR:** 2027 **Future Total**

15 Min Period	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
7:00-7:15	11	17	2	3	19	2	7	22	9	2	29	3	126	698
7:15-7:30	19	27	3	4	25	4	8	30	11	3	29	4	167	792
7:30-7:45	19	29	4	3	36	4	8	39	17	6	32	7	204	825
7:45-8:00	23	27	4	3	32	2	11	34	20	6	35	8	201	804
8:00-8:15	17	35	6	5	35	4	10	30	24	5	40	9	220	772
8:15-8:30	18	30	4	5	26	6	7	36	27	5	32	4	200	
8:30-8:45	19	24	3	4	25	4	9	31	27	4	28	5	183	
8:45-9:00	13	27	1	3	26	6	9	32	22	5	21	4	169	
AM PEAK HOUR IS FROM:			7:30 AM TO 8:30AM											
Volumes	77	121	18	16	129	16	36	139	88	22	139	24	825	
Season Factor	78	122	18	16	130	16	36	140	89	22	140	24	833	
Growth	84	132	20	17	140	17	39	151	96	24	151	26	897	
In/Out	OUT	OUT	OUT	-	IN	-	-	-	IN	IN	-	-		
Percentage	19%	4%	26%	0%	4%	0%	0%	0%	19%	26%	0%	0%		
PROJECT	6	1	8	0	0	0	0	0	2	3	0	0	20	
Total	89	133	27	17	141	17	39	151	98	27	151	26	917	
Other Projects														
Percentage	0%	10%	0%	2%	10%	0%	0%	0%	0%	0%	0%	2%		
In/Out	-	IN	-	OUT	OUT	-	-	-	-	-	-	IN		
PROJECT	0	2	0	1	7	0	0	0	0	0	0	0	0	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	1	0	0	2	0	0	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	6	0	0	5	0	0	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	
Subtotal	0	2	0	1	7	0	0	7	0	0	7	0	24	
Total	89	135	27	19	148	17	39	158	98	27	158	27	941	

PHF 0.94
Seasonal Factor 1.01
Growth Rate 1.025
Years Grown 3

Trips In	Trips Out
10	30

Project Name	Trips In	Trips Out
Dade & Sunrise	22	68
Oleander Oaks	13	37
American Silicone	111	95
Napa Auto	8	6



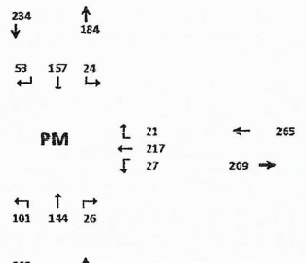
Sunrise Blvd & Bell Ave
Future Total

15 Min Period lanes	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
4:00-4:15	13	26	4	6	39	8	1	27	13	3	37	5	183	817
4:15-4:30	15	35	4	6	28	9	6	30	12	6	40	5	196	873
4:30-4:45	21	35	5	6	31	12	6	29	16	4	47	7	219	900
4:45-5:00	19	26	5	5	35	11	5	35	19	4	49	6	219	887
5:00-5:15	24	29	4	4	37	16	5	43	17	5	52	3	239	858
5:15-5:30	26	35	5	6	36	10	2	35	15	4	47	2	223	
5:30-5:45	24	31	4	4	27	9	5	31	20	2	45	4	206	
5:45-6:00	10	32	6	4	24	8	4	29	13	6	42	8	190	
PM PEAK HOUR IS FROM:			4:30 PM TO 5:30PM											
Volumes	90	125	19	21	139	49	18	141	67	17	195	18	900	
Season Factor	91	126	19	21	140	49	18	141	68	17	197	18	909	
Growth	98	136	21	23	151	53	20	154	73	18	212	20	979	
In/Out	OUT	OUT	OUT	-	IN	-	-	-	IN	IN	-	-		
Percentage	19%	4%	26%	0%	4%	0%	0%	0%	19%	26%	0%	0%		
PROJECT	4	1	5	0	1	0	0	0	6	9	0	0	25	
Total	101	137	26	23	153	53	20	154	79	27	212	20	1004	
Other Projects														
%	0%	10%	0%	2%	10%	0%	0%	0%	0%	0%	0%	2%		
In/Out	-	IN	-	OUT	OUT	-	-	-	-	-	-	IN		
PROJECT	0	7	0	1	4	0	0	0	0	0	0	1	14	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	2	0	0	1	0	3	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	2	0	0	3	0	5	
%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	5%	0%		
In/Out	-	-	-	-	-	-	-	IN	-	-	OUT	-		
Volume	0	0	0	0	0	0	0	1	0	0	1	0	1	

PHF 0.94
Seasonal Factor 1.01
Growth Rate 1.025
Years Grown 3

Trips In	Trips Out
35	19

Project Name	Trips In	Trips Out
Dade & Sunrise	71	42
Oleander Oaks	41	24
American Silicone	43	56
Napa Auto	12	16

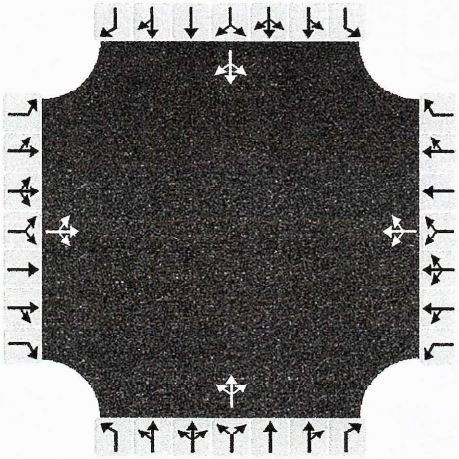


HCS All-Way Stop Control Report

General and Site Information

Analyst	James Kemp
Agency/Co.	O'Rourke Engineering
Date Performed	4/3/2024
Analysis Year	2027
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak Hour
Project Description	Future Total with Project
Intersection	Sunrise Blvd & Bell Ave
Jurisdiction	St. Lucie County
East/West Street	Bell Avenue
North/South Street	Sunrise Blvd
Peak Hour Factor	0.94

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	39	158	98	27	158	27	89	135	27	19	148	17
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	314			226			267			196		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.279			0.200			0.237			0.174		
Final Departure Headway, h_d (s)	5.60			5.88			5.91			6.02		
Final Degree of Utilization, x	0.488			0.368			0.438			0.327		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	3.60			3.88			3.91			4.02		

Capacity, Delay and Level of Service

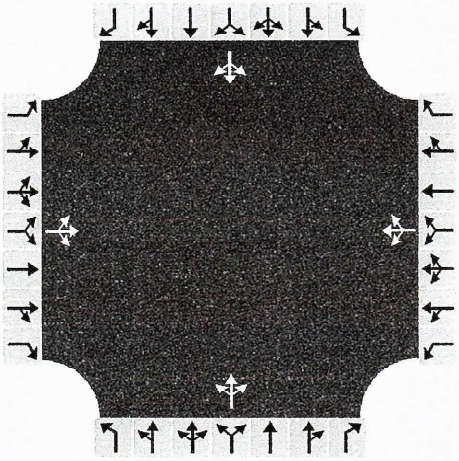
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	314			226			267			196		
Capacity (veh/h)	643			612			609			598		
95% Queue Length, Q_{95} (veh)	2.7			1.7			2.2			1.4		
95% Queue Length, Q_{95} (ft)	68.6			43.2			55.9			35.6		
Control Delay (s/veh)	13.8			12.3			13.4			11.9		
Level of Service, LOS	B			B			B			B		
Approach Delay (s/veh) | LOS	13.8	B		12.3	B		13.4	B		11.9	B	
Intersection Delay (s/veh) | LOS	13.0						B					

HCS All-Way Stop Control Report

General and Site Information

Analyst	James Kemp
Agency/Co.	O'Rourke Engineering
Date Performed	4/3/2024
Analysis Year	2027
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak Hour
Project Description	Future Total with Project
Intersection	Sunrise Blvd & Bell Ave
Jurisdiction	St. Lucie County
East/West Street	Bell Avenue
North/South Street	Sunrise Blvd
Peak Hour Factor	0.94

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	20	159	79	27	217	21	101	144	26	24	157	53
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	274			282			288			249		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.244			0.251			0.256			0.221		
Final Departure Headway, h_d (s)	6.12			6.23			6.27			6.24		
Final Degree of Utilization, x	0.467			0.488			0.502			0.431		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	4.12			4.23			4.27			4.24		

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	274			282			288			249		
Capacity (veh/h)	588			578			574			577		
95% Queue Length, Q_{95} (veh)	2.5			2.7			2.8			2.2		
95% Queue Length, Q_{95} (ft)	63.5			68.6			71.1			55.9		
Control Delay (s/veh)	14.4			15.0			15.4			13.9		
Level of Service, LOS	B			C			C			B		
Approach Delay (s/veh) | LOS	14.4	B		15.0	C		15.4	C		13.9	B	
Intersection Delay (s/veh) | LOS	14.7						B					

APPENDIX E

Driveway Analysis

TURNING MOVEMENT VOLUME COUNTS

N/S STREET: Sunrise Blvd
E/W STREET: Project Driveway
CONTROL: TWSC
FILENAME: C6 - TMC - Sunrise & Project Driveway - 4.11.23.xlsx
COUNT DATE: 4/2/2024
DAY: Tuesday
CITY: St Lucie
REPORT DATE: 4/3/2024
ANALYSIS YEAR: 2027
Future Total

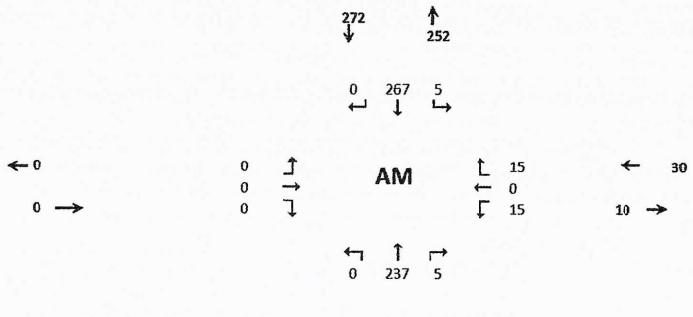
15 Min Period	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
7:00-7:15	0	30	0	0	30	0	0	0	0	0	0	0	60	371
7:15-7:30	0	49	0	0	39	0	0	0	0	0	0	0	88	433
7:30-7:45	0	52	0	0	59	0	0	0	0	0	0	0	111	455
7:45-8:00	0	54	0	0	58	0	0	0	0	0	0	0	112	446
8:00-8:15	0	58	0	0	64	0	0	0	0	0	0	0	122	428
8:15-8:30	0	52	0	0	58	0	0	0	0	0	0	0	110	
8:30-8:45	0	46	0	0	56	0	0	0	0	0	0	0	102	
8:45-9:00	0	41	0	0	53	0	0	0	0	0	0	0	94	
AM PEAK HOUR IS FROM:			7:30 AM TO 8:30AM											
Volumes	0	216	0	0	239	0	0	0	0	0	0	0	455	
Season Factor	0	218	0	0	241	0	0	0	0	0	0	0	460	
Growth	0	235	0	0	260	0	0	0	0	0	0	0	495	
In/Out	-	-	IN	IN	-	-	-	-	-	OUT	-	OUT		
Percentage	0%	0%	51%	49%	0%	0%	0%	0%	0%	51%	0%	49%		
PROJECT	0	0	5	5	0	0	0	0	0	15	0	15	40	
Total	0	235	5	5	260	0	0	0	0	15	0	15	535	
Other Projects														
Percentage	0%	10%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%		
In/Out	-	IN	-	-	OUT	-	-	-	-	-	-	-		
PROJECT	0	2	0	0	7	0	0	0	0	0	0	0	0	
Subtotal	0	2	0	0	7	0	0	0	0	0	0	0	9	
Total	0	237	5	5	267	0	0	0	0	15	0	15	544	

PHF: 0.93
Seasonal Factor: 1.01
Growth Rate: 1.025
Years Grown: 3

Trips In	Trips Out
10	30

Project Name: Dade & Sunrise

Trips In	Trips Out
22	68



Sunrise Blvd & Project Driveway
Future Total

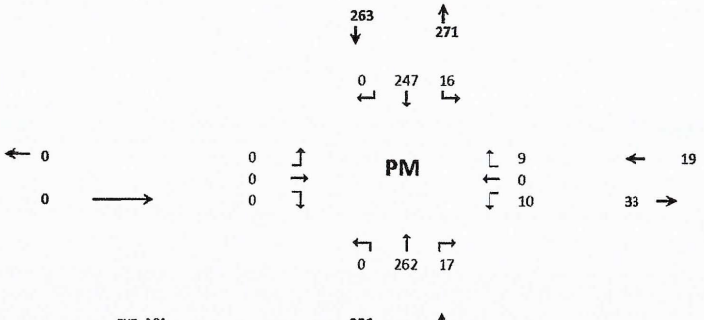
15 Min Period lanes	Northbound NBL	NBT	NBR	Southbound SBL	SBT	SBR	Eastbound EBL	EBT	EBR	Westbound WBL	WBT	WBR	TOTAL	ONE HOUR SUM
4:00-4:15	0	43	0	0	55	0	0	0	0	0	0	0	98	418
4:15-4:30	0	54	0	0	46	0	0	0	0	0	0	0	100	436
4:30-4:45	0	61	0	0	51	0	0	0	0	0	0	0	112	457
4:45-5:00	0	50	0	0	58	0	0	0	0	0	0	0	108	453
5:00-5:15	0	57	0	0	59	0	0	0	0	0	0	0	116	442
5:15-5:30	0	66	0	0	55	0	0	0	0	0	0	0	121	
5:30-5:45	0	59	0	0	49	0	0	0	0	0	0	0	108	
5:45-6:00	0	54	0	0	43	0	0	0	0	0	0	0	97	
PM PEAK HOUR IS FROM:			4:30 PM TO 5:30PM											
Volumes	0	234	0	0	223	0	0	0	0	0	0	0	457	
Season Factor	0	236	0	0	225	0	0	0	0	0	0	0	462	
Growth	0	255	0	0	243	0	0	0	0	0	0	0	497	
In/Out	-	-	IN	IN	-	-	-	-	-	OUT	-	OUT		
Percentage	0%	0%	51%	49%	0%	0%	0%	0%	0%	51%	0%	49%		
PROJECT	0	0	17	16	0	0	0	0	0	10	0	9	52	
Total	0	255	17	16	243	0	0	0	0	10	0	9	549	
Other Projects														
%	0%	10%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%		
In/Out	-	IN	-	-	OUT	-	-	-	-	-	-	-		
PROJECT	0	7	0	0	4	0	0	0	0	0	0	0	11	

PHF: 0.94
Seasonal Factor: 1.01
Growth Rate: 1.025
Years Grown: 3

Trips In	Trips Out
33	19

Dade & Sunrise

Trips In	Trips Out
71	42



E-1

HCS Two-Way Stop-Control Report

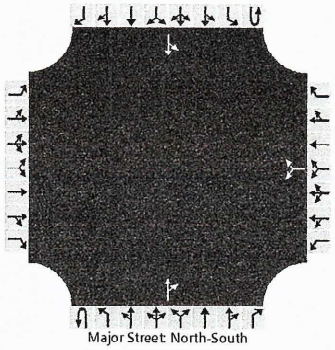
General Information

Analyst	James Kemp
Agency/Co.	O'Rourke Engineering
Date Performed	4/3/2024
Analysis Year	2027
Time Analyzed	AM Peak Hour
Intersection Orientation	North-South
Project Description	Future Total with Project

Site Information

Intersection	Sunrise Blvd & Project Driveway
Jurisdiction	St. Lucie County
East/West Street	Project Driveway
North/South Street	Sunrise Blvd
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						15		15			237	5		5	267	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							32							5		
Capacity, c (veh/h)							600							1298		
v/c Ratio							0.05							0.00		
95% Queue Length, Q_{95} (veh)							0.2							0.0		
95% Queue Length, Q_{95} (ft)							5.1							0.0		
Control Delay (s/veh)							11.3							7.8	0.0	
Level of Service (LOS)							B							A	A	
Approach Delay (s/veh)					11.3								0.2			
Approach LOS					B								A			

HCS Two-Way Stop-Control Report

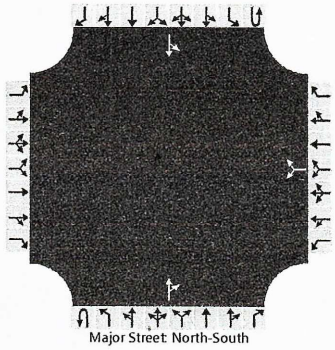
General Information

Analyst	James Kemp
Agency/Co.	O'Rourke Engineering
Date Performed	4/3/2024
Analysis Year	2027
Time Analyzed	PM Peak Hour
Intersection Orientation	North-South
Project Description	Future Total with Project

Site Information

Intersection	Sunrise Blvd & Project Driveway
Jurisdiction	St. Lucie County
East/West Street	Project Driveway
North/South Street	Sunrise Blvd
Peak Hour Factor	0.94
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						10		9			262	17		16	247	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage	Undivided															

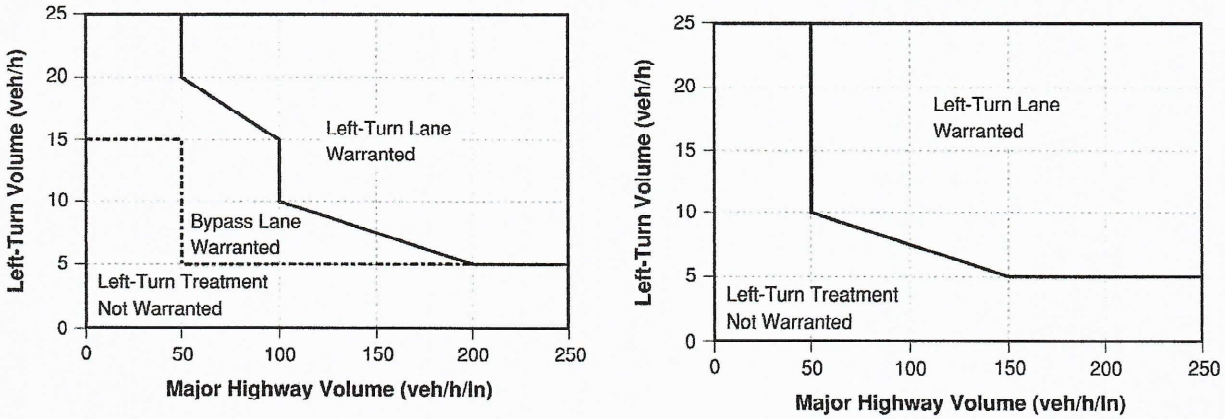
Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							20							17		
Capacity, c (veh/h)							566							1259		
v/c Ratio							0.04							0.01		
95% Queue Length, Q_{95} (veh)							0.1							0.0		
95% Queue Length, Q_{95} (ft)							2.6							0.0		
Control Delay (s/veh)							11.6							7.9	0.1	
Level of Service (LOS)							B							A	A	
Approach Delay (s/veh)					11.6								0.6			
Approach LOS					B								A			

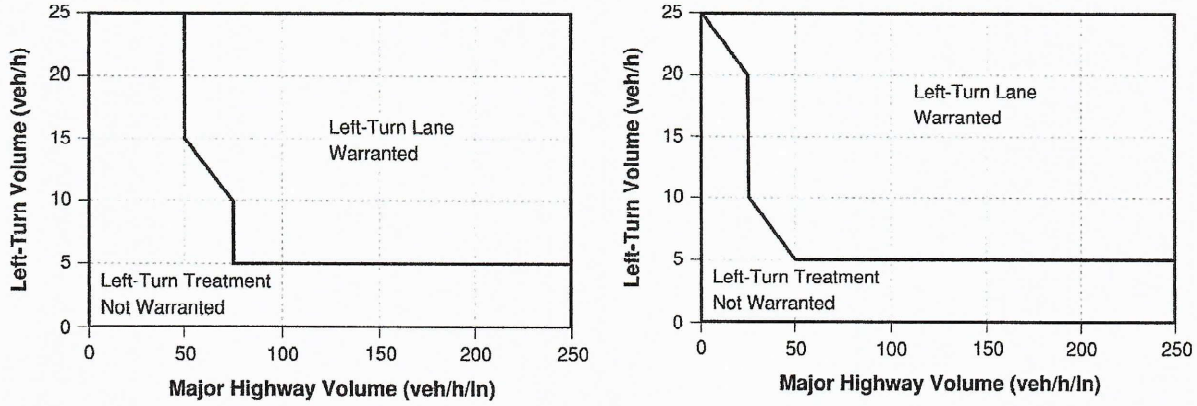
Figure 78 | Left-Turn Lane Warrants for Two-Lane Rural Roadways (Unsignalized)



(a) Three-Leg Intersections

(b) Four-Leg Intersections

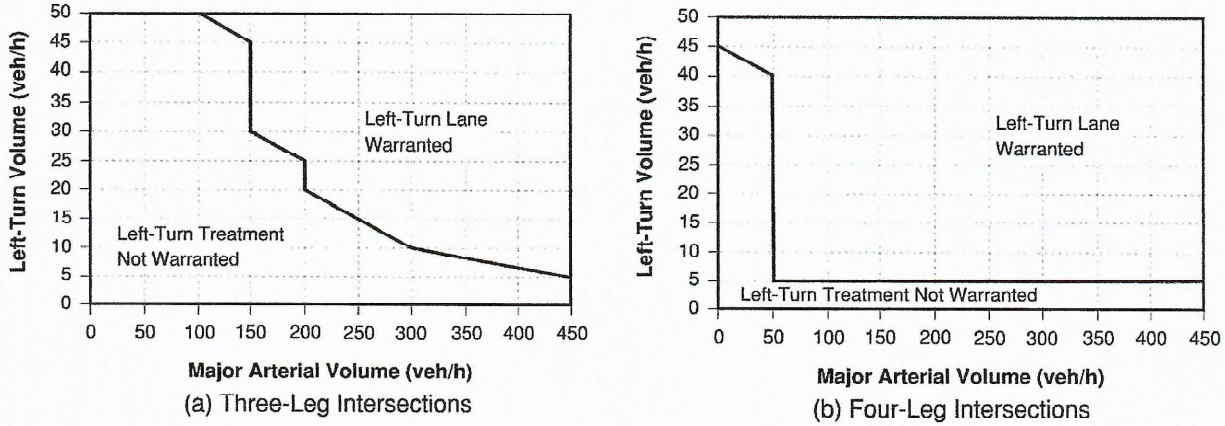
Figure 79 | Left-Turn Lane Warrants for Four-Lane Rural Roadways (Unsignalized)



(a) Three-Leg Intersections

(b) Four-Leg Intersections

Figure 80 | Left-Turn Lane Warrants for Urban and Suburban Arterials

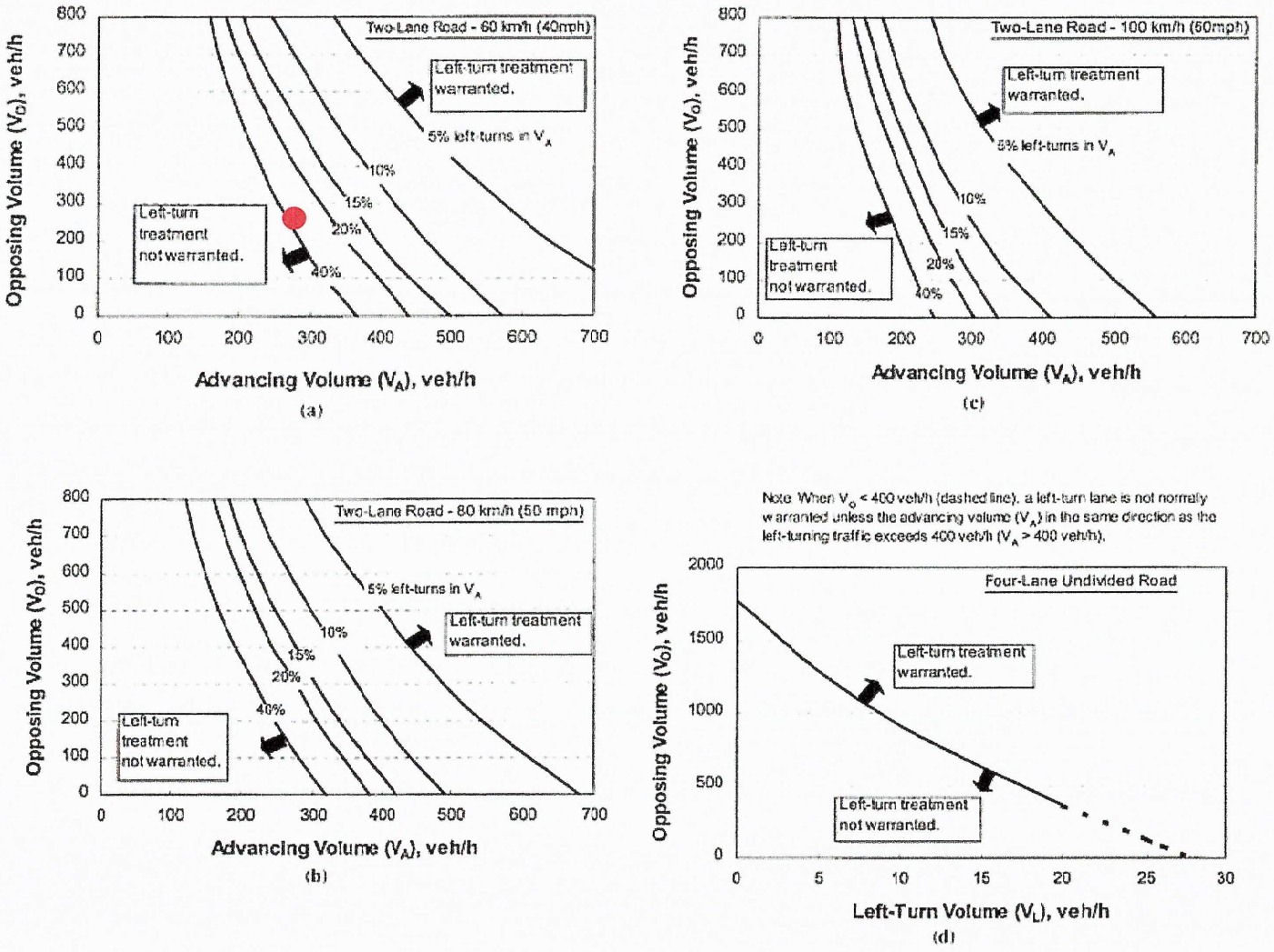


(a) Three-Leg Intersections

(b) Four-Leg Intersections

Source: NCHRP Report 745

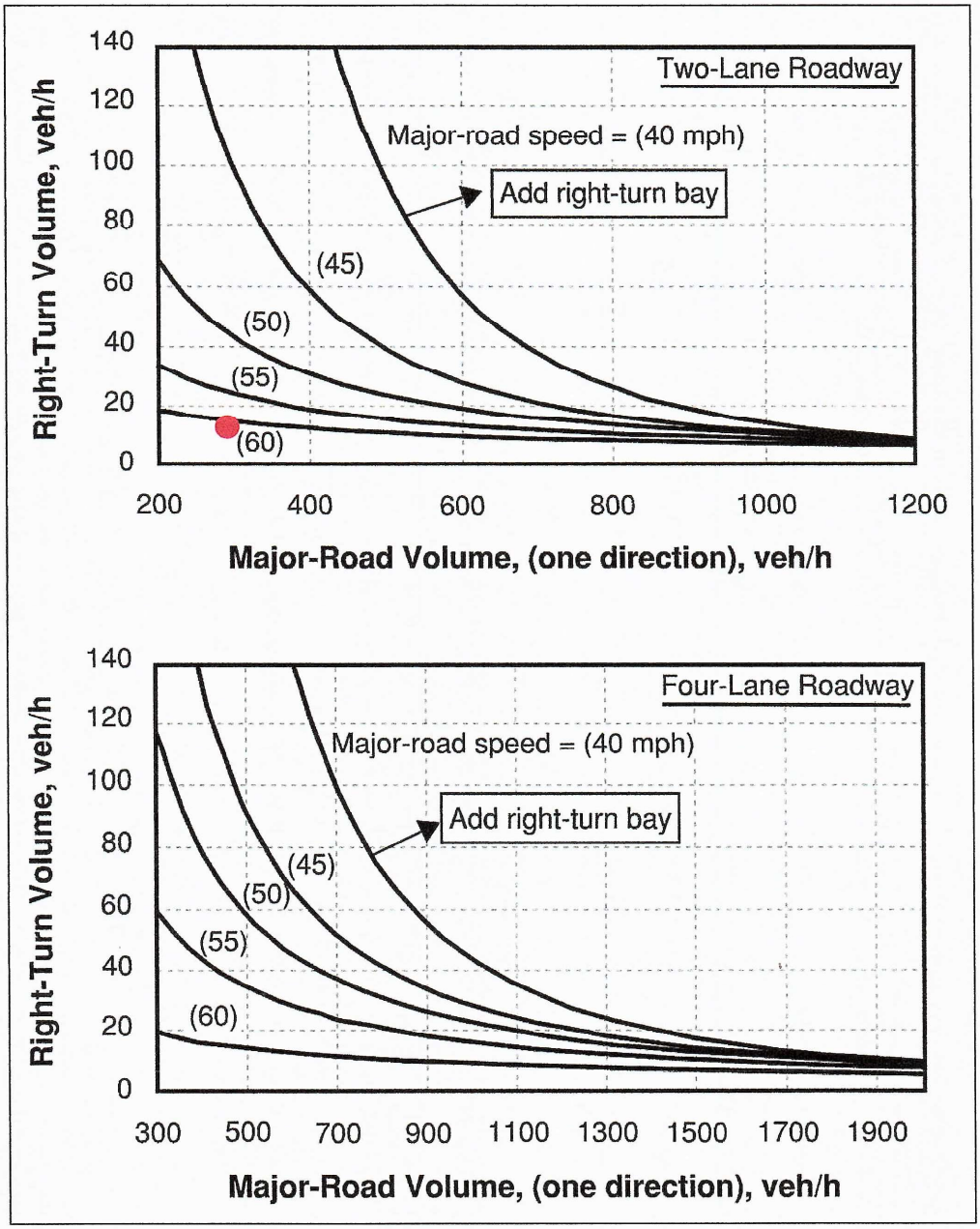
Figure 81 | Left-Turn Lane Warrants (Unsignalized Intersections) – Alternate Method



Source: NCHRP Report 457

E-5

Figure 74 | Recommended Guidelines for Exclusive Right-Turn Lanes to Unsignalized Driveway/Intersection



Source: NCHRP Report 457, TDOT Highway System Access Manual