

SERENOA AMENITY CENTER

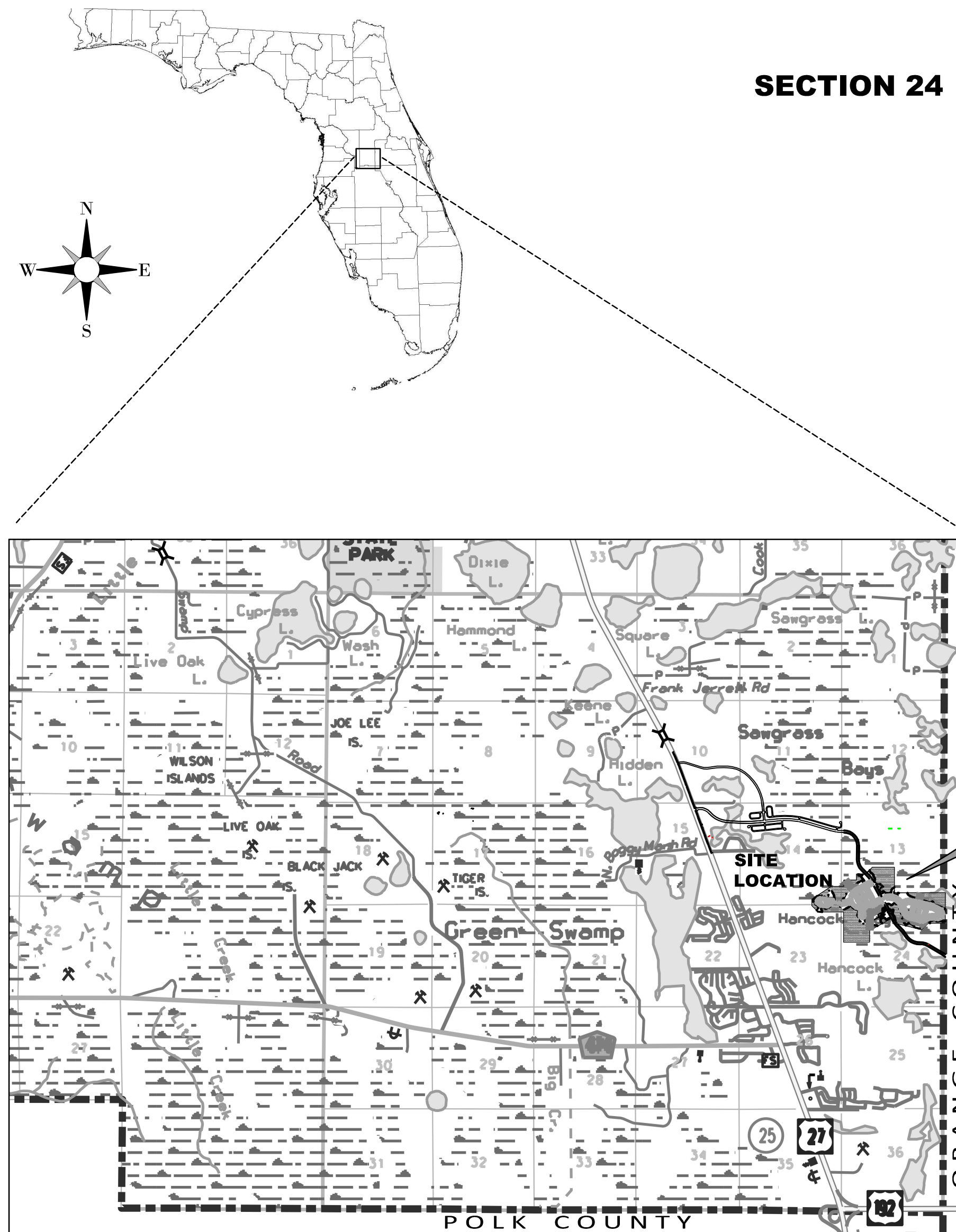
Prepared For:
VK AVALON GROVES, LLC
14025 RIVEREDGE DRIVE, SUITE 175
TAMPA, FL 33637
Phone: (813) 615-1244



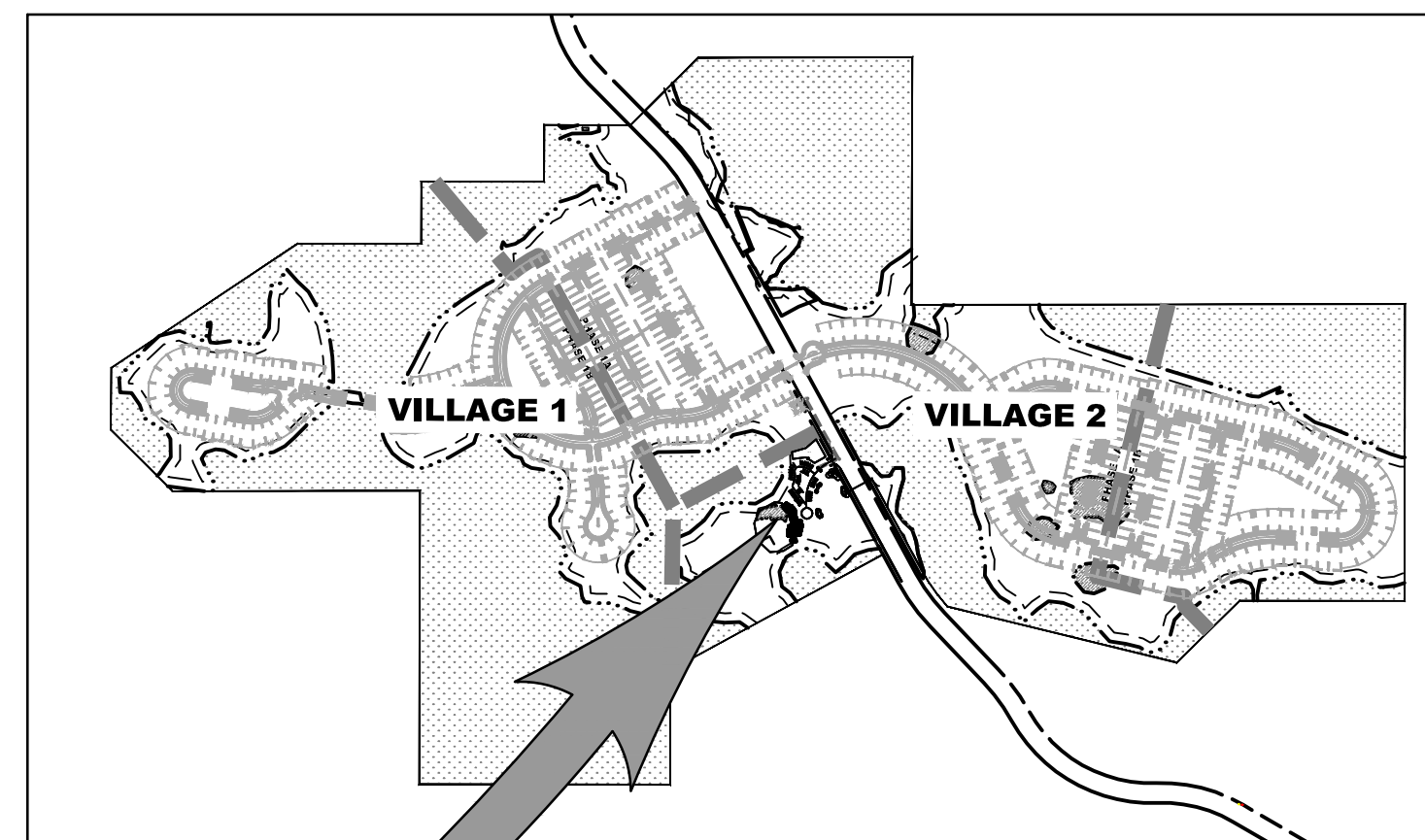
5904-A Hampton Oaks Parkway
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com
**HEIDT
DESIGN**
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture
Engineering Business Certificate of Authorization No. 28782
Landscape Architecture Certificate of Authorization No. LC26000405

SITE PLAN

SECTION 24 TOWNSHIP 24 SOUTH, RANGE 26 EAST
LAKE COUNTY, FLORIDA



LOCATION MAP
(1"=2,000')



SITE MAP
(1"=1,000')

OWNER/DEVELOPER:

VK AVALON GROVES, LLC
14025 RIVEREDGE DRIVE
SUITE 175
TAMPA, FL 33637
ATTN: GREG MEATH,
V.P. LAND DEVELOPMENT
(813) 615-1244

CIVIL ENGINEER:

HEIDT DESIGN, LLC
VICTOR E. BARBOSA P.E.
5904-A HAMPTON OAKS PARKWAY
TAMPA, FLORIDA 33610
(813) 253-5311

GEOTECHNICAL ENGINEER:

FAULKNER ENGINEERING SERVICES,
INC.
DAVID W. FAULKNER, P.E.
2734 CAUSEWAY CENTER DRIVE
TAMPA, FLORIDA 33619
(813) 621-8168

SURVEYOR:

GEOPOINT SURVEYING, INC
JAMIE LEVINER
1403 E. 5TH AVENUE
TAMPA, FL 33605
(813) 248-8888

CALL 48 HOURS BEFORE YOU DIG



1-800-432-4770

DEVELOPMENT REVIEW

PROJECT # 2017020011 APPLICATION REQUEST # 3130
PROJECT NAME: SERENOA AMENITY CENTER
ALTERNATE KEY # 1101701 ORDINANCE # 2016-20
REVIEWER PLEASE SIGN AND DATE BELOW

ENVIRONMENTAL
COMMENTS: _____
PUBLIC SAFETY / EMERGENCY 911 _____
COMMENTS: _____
HEALTH DEPARTMENT
COMMENTS: _____
FIRE
COMMENTS: _____
CONCURRENCY
COMMENTS: _____
PUBLIC WORKS
COMMENTS: _____
PLANNING & ZONING
COMMENTS: _____
LANDSCAPE
COMMENTS: _____
PRELIMINARY/FINAL DEVELOPMENT REVIEW

APPROVAL
DATED _____ MANAGER, PLANNING & ZONING DIVISION (OR DESIGNEE)

SITE DETAILS

ZONING	PUD
ORD #	2016-20
FLUC	URBAN LOW DENSITY
IMP. SURF RATIO (MAX.)	0.60
IMP. SURF RATIO (PROVIDED)	0.17
MAX BLDG. HEIGHT	75 FT.
BUILDING SETBACKS	50 FT.
WETLAND SETBACKS	50 FT.

Sheet List Table	
Sheet Number	Sheet Title
C-100	COVER SHEET
C-101	GENERAL NOTES
C-102	GENERAL NOTES
C-103	GENERAL NOTES
C-104	AERIAL SITE PLAN
C-105	SITE DATA
C-200	TYPICAL ROADWAY SECTIONS
C-300	MASTER GRADING & DRAINAGE PLAN
C-301	GRADING & DRAINAGE PLAN
C-302	GRADING & DRAINAGE PLAN
C-303	GRADING & DRAINAGE PLAN
C-304	GRADING & DRAINAGE PLAN
C-305	STORM STRUCTURE DATA
C-306	CONTROL STRUCTURE DETAILS
C-307	GRADING & DRAINAGE SECTIONS
C-308	DRAINAGE DETAILS
C-400	UTILITY PLAN
C-601	WATER & SEWER DETAILS
C-602	WATER & SEWER DETAILS
C-700	SIGNING, PAVEMENT MARKINGS & SIDEWALK PLAN
C-701	SIGNING, PAVEMENT MARKINGS & SIDEWALK PLAN
C-702	SIGNING, PAVEMENT MARKING, & SIDEWALK DETAILS AND NOTES
C-703	SIGNING, PAVEMENT MARKING, & SIDEWALK DETAILS AND NOTES
C-900	CONSTRUCTION SURFACE WATER MANAGEMENT PLAN
C-901	CONSTRUCTION SURFACE WATER MANAGEMENT PLAN
C-902	PREDEVELOPMENT DRAINAGE AREA MAP
C-903	POST DEVELOPMENT DRAINAGE AREA MAP
C-904	DRAINAGE SUB BASIN MAP

LEGAL DESCRIPTION

DESCRIPTION: A parcel of land lying in Section 24, Township 24 South, Range 26 South, Lake County, Florida, and being more particularly described as follows:

COMMENCE at the Northwest corner said Section 24, run thence along the North boundary of the Northwest 1/4 of said Section 24, N.89°59'54"E., a distance of 215.72 feet; thence S.28°30'29"E., a distance of 18.07 feet to **POINT OF BEGINNING**; thence continue S.28°30'29"E., a distance of 148.88 feet; thence S.61°29'31"W., a distance of 1297.85 feet; thence N.01°02'29"E., a distance of 871.87 feet; thence N.62°08'16"E., a distance of 867.92 feet to the **POINT OF BEGINNING**.

Containing 18.757 acres, more or less.

NOTE: PER LDF CH. 6.06.01F, SOIL REMOVAL OFFSITE SHALL NOT EXCEED 200% OF THE MINIMUM STORMWATER RETENTION/DETENTION VOLUME REQUIRED.

SERENOA
AMENITY CENTER

VK AVALON GROVES, LLC

DATE	DESCRIPTION	DATE	DESCRIPTION
06/22/2017	C-104-105, C-300-305, C-400, C-902		
02/28/2017	REVIEW SUBMITTAL		

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION (INCLUDING BUT NOT LIMITED TO DRAWINGS OR EXHIBITS) MAY BE COPIED, REPRODUCED, OR DISTRIBUTED UNLESS SPECIFIC WRITTEN PERMISSION HAS BEEN OBTAINED FROM HEIDT DESIGN, LLC. IN ADVANCE. CONSENT IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.



ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION: NAVD 88 TO NGVD 29 = +0.86

ADDRESS CONTROL NUMBER	
WATER COMMITMENT	
SEWER COMMITMENT	
SJRWMD	
WATER DEP	
SEWER DEP	
FOLIO	
COUNTY PROJECT NUMBER	
APPLICATION REQUEST NUMBER	

PERMIT / FILE NUMBERS

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

DocuSigned by:
Victor E. Barbosa
VICTOR E. BARBOSA
DATE: 6/27/2017 4:42 PM EDT
REGISTRATION NO. 58548

FILE: COVER
PROJECT NO: KLP-AG-1009

GRADING & DRAINAGE
DESIGN BY: FRANCIS
DRAWN BY: GAULT

UTILITIES
DESIGN BY: FRANCIS
DRAWN BY: GAULT

COVER SHEET
C-100

<p>GENERAL EROSION AND TURBIDITY CONTROL NOTES</p> <ol style="list-style-type: none"> THE SITE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL EROSION AND TURBIDITY CONTROLS AND THE QUALITY AND QUANTITY OF OFFSITE OR WETLAND DISCHARGES. PRIOR TO CONSTRUCTION, THE SITE SUBCONTRACTOR IS RESPONSIBLE FOR HAVING HIS DEWATERING PLAN AND TURBIDITY CONTROL PLAN APPROVED BY THE APPLICABLE REVIEWING AGENCIES. REFER TO THE PROJECT'S PERMIT APPROVALS AND PERMIT CONDITIONS FOR AGENCIES REQUIRING SUCH REVIEW AND APPROVAL. QUESTIONS CONCERNING APPROPRIATE TECHNIQUES SHOULD BE ADDRESSED TO THOSE AGENCIES AND/OR DISCUSSED WITH THE PROJECT ENGINEER AND OWNER. THE APPROPRIATE TURBIDITY AND EROSION CONTROL METHODOLOGIES SELECTED BY THE SITE SUBCONTRACTOR FOR THIS PROJECT SHOULD BE MADE FOLLOWING ASSESSMENT OF THE PLANS AND PROJECT SITE SPECIFIC FACTORS AND AFTER CONSULTATIONS AS NEEDED WITH THE PROJECT ENGINEER AND APPROPRIATE AGENCIES. THE SITE SUBCONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ANY AND ALL NECESSARY PERMITS FOR SUCH ACTIVITY; SEVERAL FACTORS TO CONSIDER ARE LISTED BELOW: <ol style="list-style-type: none"> CLAY CONTENT IN EXCAVATED MATERIALS AND/OR PERMEABILITIES RATES DEPTH OF CUT IN PONDS, TRENCHES, OR UTILITY LINES AMBIENT GROUND WATER LEVELS ACTUAL RAINFALL AMOUNTS AND TIME OF YEAR RELATIVE TO NORMAL RAINY SEASON PROXIMITY TO WETLANDS, WATER BODIES OR OFFSITE PROPERTIES 'CLASS' DESIGNATION OF RECEIVING WATER BODIES (I.E., OUTSTANDING FLORIDA WATERS, SHELLFISH HARVESTING AREAS, ETC.) DENSITY, TYPE, AND PROXIMITY OF UPLAND VEGETATION TO BE RETAINED DURING CONSTRUCTION (FOR USE AS POSSIBLE FILTRATION AREAS) FILL HEIGHT RELATIVE TO NATURAL GRADE AND LENGTH AND STEEPNESS OF THE PROPOSED SLOPES EXISTING TOPOGRAPHY AND DIRECTIONS OF SURFACE FLOW TYPE OF EQUIPMENT USED PROJECT TYPE DURATION OF CONSTRUCTION ACTIVITIES SEPARATION DISTANCE OF ONSITE PROPERTIES AMBIENT QUALITY OF SURFACE AND GROUNDWATER TEMPORARY STOCKPILE LOCATIONS AND HEIGHTS AT THE ONSET OF CONSTRUCTION, THE SITE SUBCONTRACTOR, AS THE PARTY RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN, SHALL ASSESS THE ABOVE DESCRIBED CONDITIONS AND FACTORS WITH RESPECT TO RELATIVE COST EFFECTIVENESS AND SELECT THE APPROPRIATE METHODS OF PROTECTION. A FAIRLY EXTENSIVE LIST OF TECHNIQUES ARE PRESENTED BELOW BUT IT MUST BE STRESSED THAT ANY OR ALL OF THE FOLLOWING MAY BE NECESSARY TO MAINTAIN WATER QUALITY AND QUANTITY STANDARDS. THE CONSTRUCTION SEQUENCING SHOULD BE THOUGHT OUT IN ADVANCE OF INITIATION TO PROVIDE ADEQUATE PROTECTION OF WATER QUALITY. DISCHARGES WHICH EXCEED 29 N.T.U.'S OVER THE BACKGROUND LEVELS ARE IN VIOLATION OF STATE WATER QUALITY STANDARDS. DISCHARGES OF WATER QUANTITIES WHICH AFFECT OFFSITE PROPERTIES OR MAY DAMAGE WETLANDS ARE ALSO PROHIBITED BY REGULATING AGENCIES. THE EROSION AND TURBIDITY CONTROL MEASURES SHOWN HEREON ARE THE MINIMUM REQUIRED FOR AGENCY APPROVAL. ADDITIONAL CONTROL AND MEASURES MAY BE REQUIRED DUE TO THE SITE SUBCONTRACTOR'S CONSTRUCTION SEQUENCE & UNFORESEEN WEATHER CONDITIONS. ANY ADDITIONAL MEASURES DEEMED NECESSARY BY THE SITE SUBCONTRACTOR SHALL BE INCLUDED IN THE LUMP SUM BID WITH NO EXTRAS FOR MATERIALS AND LABOR ALLOWED. HAY BALES OR SILT SCREENS SHALL BE INSTALLED PRIOR TO LAND CLEARING TO PROTECT WATER QUALITY AND TO IDENTIFY AREAS TO BE PROTECTED FROM CLEARING ACTIVITIES AND MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL ALL SOIL IS STABILIZED. FLOATING TURBIDITY BARRIERS SHALL BE IN PLACE IN FLOWING SYSTEMS OR IN OPEN WATER LAKE EDGES PRIOR TO INITIATION OF EARTHWORK AND MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL ALL SOIL IS STABILIZED. NO CLAY MATERIAL SHALL BE LEFT EXPOSED IN ANY STORMWATER STORAGE FACILITY. IF CLAY OR SANDY-CLAYS ARE ENCOUNTERED DURING STORMWATER STORAGE EXCAVATION, THE SITE SUBCONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY BEFORE PROCEEDING WITH FURTHER EXCAVATION. IF THE ENGINEER OF RECORD HAS DETERMINED THAT SUCH SOILS ARE NON-CONFINING AND MUST BE EXCAVATED TO MEET PERMIT AND DESIGN CONDITIONS, EXCAVATION MAY PROCEED AFTER OBTAINING WRITTEN AUTHORIZATION FROM THE APPROPRIATE GOVERNING AGENCY. IF SAID SOILS ARE LEFT EXPOSED AT THE PERMITTED AND DESIGNATED DEPTH, THE SITE SUBCONTRACTOR SHALL OVER-EXCAVATE THE POND'S BOTTOM AND SIDE SLOPES BY A MINIMUM OF TWELVE (12") INCHES AND BACKFILL WITH CLEAN SANDS TO HELP PREVENT SUSPENSION OF FINE PARTICLES IN THE WATER COLUMN. THE INSTALLATION OF TEMPORARY EROSION CONTROL BARRIERS SHALL BE COORDINATED WITH THE CONSTRUCTION OF THE PERMANENT EROSION CONTROL FEATURES TO THE EXTENT NECESSARY TO ASSURE EFFECTIVE AND CONTINUOUS CONTROL OF EROSION AND WATER POLLUTION THROUGHOUT THE LIFE OF THE CONSTRUCTION PHASE. THE TYPE OF EROSION CONTROL BARRIERS USED SHALL BE GOVERNED BY THE NATURE OF THE CONSTRUCTION OPERATION AND SOIL TYPE THAT WILL BE EXPOSED. SILTY AND CLAYEY MATERIAL MAY REQUIRE SOLID SEDIMENT BARRIERS TO PREVENT TURBID WATER DISCHARGE, WHILE SANDY MATERIAL MAY NEED ONLY SILT SCREENS OR HAY BALES TO PREVENT EROSION. FLOATING TURBIDITY CURTAINS SHOULD GENERALLY BE USED IN OPEN WATER SITUATIONS. DIVERSION DITCHES OR SWALES MAY BE REQUIRED TO PREVENT TURBID STORMWATER RUNOFF FROM BEING DISCHARGED TO WETLANDS OR OTHER WATER BODIES. IT MAY BE NECESSARY TO EMPLOY A COMBINATION OF BARRIERS, DITCHES, AND OTHER EROSION/TURBIDITY CONTROL MEASURES IF CONDITIONS WARRANT. WHERE PUMPS ARE TO BE USED TO REMOVE TURBID WATERS FROM CONSTRUCTION AREAS, THE WATER SHALL BE TREATED PRIOR TO DISCHARGE TO THE WETLANDS. TREATMENT METHODS INCLUDE, FOR EXAMPLE, TURBID WATER BEING PUMPED INTO GRASSED SWALES OR APPROPRIATE UPLAND VEGETATED AREAS (OTHER THAN UPLAND PRESERVATION AREAS AND WETLAND BUFFERS), SEDIMENT BASINS, OR CONFINED BY AN APPROPRIATE ENCLOSURE SUCH AS TURBIDITY BARRIERS OR LOW BERMS, AND KEPT CONFINED UNTIL TURBIDITY LEVELS MEET STATE WATER QUALITY STANDARDS. THE PERMITTEE SHALL SCHEDULE HIS OPERATIONS SUCH THAT THE AREA OF UNPROTECTED ERODIBLE EARTH EXPOSED AT ANY ONE TIME IS NOT LARGER THAN THE MINIMUM AREA NECESSARY FOR EFFICIENT CONSTRUCTION OPERATION, AND THE DURATION OF EXPOSED, UNCOMPLETED CONSTRUCTION TO THE ELEMENTS SHALL BE AS SHORT AS PRACTICABLE. CLEARING AND GRUBBING SHALL BE SO SCHEDULED AND PERFORMED SUCH THAT GRADING OPERATIONS CAN FOLLOW IMMEDIATELY THEREAFTER. GRADING OPERATIONS SHALL BE SO SCHEDULED AND PERFORMED THAT PERMANENT EROSION CONTROL FEATURES CAN FOLLOW IMMEDIATELY THEREAFTER IF CONDITIONS ON THE PROJECT PERMIT. WATER DERIVED FROM VARIOUS DEWATERING METHODS SHOULD BE PASSED THROUGH SUFFICIENTLY WIDE AREAS OF EXISTING UPLAND VEGETATION TO FILTER OUT EXCESS TURBIDITY. IF THIS IS NOT SUFFICIENT, THE WATER SHALL BE RETAINED IN PREVIOUSLY CONSTRUCTED PERMANENT STORMWATER PONDS OR ELSE RETAINED IN TEMPORARY SEDIMENTATION BASINS UNTIL THE CLARITY IS SUITABLE TO ALLOW FOR ITS DISCHARGE. PLUGGING THE OUTFALLS FROM COMPLETED STORMWATER PONDS MAY BE NEEDED TO AVOID DISCHARGE. HOWEVER, SUCH SITUATIONS SHOULD BE MONITORED CLOSELY TO PRECLUDE BERM FAILURE IF WATER LEVELS RISE TOO HIGH. WATER CAN BE TRANSPORTED AROUND THE SITE BY THE USE OF INTERNAL SWALES OR BY PUMPS AND PIPES. SHEET FLOW OF NEWLY FILLED OR SCRAPED AREAS MAY BE CONTROLLED OR CONTAINED BY THE USE OF BRUSH BARRIERS, DIVERSION SWALES, INTERCEPTOR DITCHES OR LOW BERMS. FLOW SHOULD BE DIRECTED TOWARD AREAS WHERE SEDIMENTS CAN SUFFICIENTLY SETTLE OUT. EXPOSED SOILS SHALL BE STABILIZED AS SOON AS POSSIBLE, ESPECIALLY SLOPES LEADING TO WETLANDS. STABILIZATION METHODS INCLUDE SOLID SOO, SEEDING AND MULCHING OR HYDROMULCHING TO PROVIDE A TEMPORARY OR PERMANENT GRASS COVER MULCH BLANKETS, FILTER FABRICS, ETC., CAN BE EMPLOYED TO PROVIDE VEGETATIVE COVER. ENERGY DISSIPATORS (SUCH AS RIP RAP, A GRAVEL BED, HAY BALES, ETC.) SHALL BE INSTALLED AT THE DISCHARGE POINT OF PIPES OR SWALES IF SCOURING IS OBSERVED. ATTEMPT TO INSTALL ROADWAY CURB AND GUTTERS AS SOON AS POSSIBLE TO REDUCE THE SURFACE AREA FOR EROSION TO OCCUR. IMPLEMENT STORM DRAIN INLET PROTECTION (HAY BALES OR GRAVEL) TO LIMIT SEDIMENTATION WITHIN THE STORMWATER SYSTEM. PERFORM INSPECTIONS AND PERIODIC CLEANING OF SEDIMENTS WHICH WASH OUT INTO THE STREETS UNTIL ALL SOIL IS STABILIZED. WATER DISCHARGE VELOCITIES FROM IMPOUNDED AREAS AND TEMPORARY SEDIMENTATION BASINS SHALL BE RESTRICTED TO AVOID SCOURING IN RECEIVING AREAS. IF WATER CLARITY DOES NOT REDUCE TO STATE STANDARDS RAPIDLY ENOUGH IN HOLDING PONDS, IT MAY BE POSSIBLE TO USE CHEMICAL AGENTS SUCH AS ALUM TO FLOCCULATE OR COAGULATE THE SEDIMENT PARTICLES. HAY BALES, SILT SCREENS, OR GRAVEL BEDS CAN BE ADDED AROUND THE PIPE OR SWALE DISCHARGE POINTS TO HELP CLARIFY DISCHARGES. SPREADER SWALES MAY HELP DISSIPATE CLOUDY WATER PRIOR TO CONTACT WITH WETLANDS. ALL FUEL STORAGE AREAS OR OTHER HAZARDOUS STORAGE AREAS SHALL CONFORM TO ACCEPTED STATE OR FEDERAL CRITERIA FOR SUCH CONTAINMENT AREAS. VEHICLE OR EQUIPMENT WASHDOWN AREAS WILL BE SUFFICIENTLY REMOVED FROM WETLANDS OR OFFSITE AREAS. FUGITIVE DUST CONTROLS (PRIMARILY BY USING WATER SPRAY TRUCKS) SHALL BE EMPLOYED AS NEEDED TO CONTROL WINDBORNE EMISSIONS. IF THE ABOVE CONTROLS REMAIN INEFFECTIVE IN PRECLUDING RELEASE OF TURBID WATER, ESPECIALLY DURING POND OR UTILITY LINE DEWATERING, THEN THE CONTRACTOR MAY BE COMPELLED TO USE A VERTICAL DEWATERING SYSTEM SUCH AS WELL POINTS OR SOCK DRAINS TO WITHDRAW GROUNDWATER WHICH MAY ALREADY BE CLEAR ENOUGH TO ALLOW FOR DIRECT DISCHARGE TO WETLANDS. ONGOING INSPECTIONS AND PERIODIC MAINTENANCE BY THE SITE SUBCONTRACTOR SHALL OCCUR THROUGHOUT CONSTRUCTION AS NECESSARY TO INSURE THE ABOVE METHODS ARE WORKING SUITABLY. THIS MAY BE NEEDED DAILY, IF CONDITIONS SO WARRANT. SITE SUBCONTRACTORS ARE ENCOURAGED TO OBTAIN AND THOROUGHLY REVIEW THE FLORIDA DEVELOPMENT MANUAL: A GUIDE TO SOUND LAND AND WATER MANAGEMENT, WHICH WAS DEVELOPED BY THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION IN 1988. THIS PROVIDES FAIRLY IN-DEPTH DISCUSSIONS OF RECOMMENDED TECHNIQUES AND ALSO PROVIDES SPECIFIC DESIGN AND TECHNICAL STANDARDS. A COPY OF THIS DOCUMENT IS AVAILABLE FOR REVIEW AT HEIDT DESIGN, LLC. THE CONTRACTOR WILL PERFORM DAILY INSPECTIONS OF ALL ON-SITE WETLANDS WITHIN THE CONSTRUCTION AREA TO ENSURE THAT WATER LEVELS WITHIN THOSE WETLANDS ARE NOT EXCESSIVELY IMPOUNDED PRIOR TO THE TIME WHEN THE PERMITTED CONTROL STRUCTURE OR OUTFALL IS BUILT. WATER LEVELS SIGNIFICANTLY ABOVE NORMAL SHOULD BE CORRECTED AT A FREQUENCY THAT PREVENTS A CHANGE IN THE VEGETATIVE CHARACTER OR HEALTH OF ANY WETLANDS. 	<p>SOIL REUSE REQUIREMENTS</p> <p>AT LEAST THE FOLLOWING SIX (6) TYPES OF MATERIALS ARE PRESENT ON-SITE THAT REQUIRE PROPER HANDLING/TREATMENT BY THE CONTRACTOR, DURING THE COURSE OF SITE DEVELOPMENT/CONSTRUCTION ACTIVITIES, IN ACCORDANCE WITH THE NOTED REUSE REQUIREMENTS FOR EACH TYPE. ALTHOUGH SOME SOIL MATERIAL QUALITY CONTROL TESTING WILL BE RANDOMLY AND PERIODICALLY PERFORMED BY THE PROJECT GEOTECHNICAL CONSULTANT, AS REQUIRED, WORKING FOR THE OWNER, IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO REUSE ONSITE SOIL MATERIALS AS DESCRIBED AND SPECIFIED BELOW. ALL DISCOVERED OR FUTURE FILLING OR MATERIAL REUSE WORK ONSITE NOT IN ACCORDANCE OR COMPLIANCE WITH THESE NOTES, OR ANY FUTURE ADVERSE IMPACTS OR CONSEQUENCES RESULTING FROM THE CONTRACTORS FAILURE TO PROPERLY REUSE SOIL MATERIALS ONSITE AS SPECIFICALLY DESCRIBED BELOW, WILL BE THE CONTRACTORS SOLE RESPONSIBILITY FOR REMEDY AND REPAIR AT HIS COST. IF THE CONTRACTOR HAS ANY QUESTIONS REGARDING ANY OF THE SOIL MATERIALS ONSITE, THE PROJECT GEOTECHNICAL REPORTS (WHICH HE NEEDS TO OBTAIN FROM THE OWNER OR GEOTECHNICAL CONSULTANT/ENGINEER), OR ANY QUESTIONS ASSOCIATED WITH THE NOTES BELOW, IT IS PRESUMED THAT THE CONTRACTOR WILL SATISFACTORILY RESOLVE SUCH QUESTIONS/CONCERNS PRIOR TO SITE DEMOLITION, CLEARING, GRUBBING, STRIPPING AND EXCAVATION OPERATIONS BEGIN.</p> <p>PLEASE NOTE, LOCAL, STATE AND FEDERAL RULES, LAWS, AND REGULATIONS PROHIBITING SOIL REUSE AS DESCRIBED BELOW SHALL TAKE PRECEDENCE AND SHALL BE FOLLOWED TO THE FULLEST EXTENT.</p> <ol style="list-style-type: none"> SITE DEMOLITION DEBRIS (SITE DEMOLITION DEBRIS, NOT GENERALLY CONSIDERED AN ENVIRONMENTAL/CONTAMINATION HAZARD, INCLUDES SUCH ITEMS AS WOOD PIECES, CONCRETE PIECES, PLASTIC PIPE PIECES, CERTAIN METAL/STEEL PIECES, OR SIMILAR. IF ANY SUCH DEBRIS OR OTHER DEMOLITION DEBRIS IS CONSIDERED AN ENVIRONMENTAL/CONTAMINATION HAZARD, OR IF BURIAL ONSITE OF SUCH MATERIALS IS PROHIBITED BY THE GOVERNING ENVIRONMENTAL AGENCY, THEN ALL SUCH MATERIALS SHALL BE HAULLED OFF SITE BY THE CONTRACTOR FOR PROPER DISPOSAL. IN ACCORDANCE WITH ALL APPLICABLE GOVERNING ENVIRONMENTAL AGENCY REQUIREMENTS. IN NO CASE, SHALL ANY SUCH DEBRIS MATERIALS REMAIN, OR BE PLACED BY THE CONTRACTOR, BENEATH ANY TYPE OF STRUCTURE, PAVEMENT, ROADWAY, HOUSE, BUILDING, PIPELINE, SLAB, ETC.) CLEARING AND GRUBBING DEBRIS (SITE CLEARING AND GRUBBING DEBRIS INCLUDES ALL LARGER ORGANIC MATERIALS, SUCH ITEMS AS TREES, STUMPS, LIMBS, BRUSH, VEGETATION, OR SIMILAR; ALL SUCH MATERIALS MUST BE EITHER "BURNED" OR "MULCHED" BY THE CONTRACTOR PRIOR TO REUSE OR DISPOSAL ONSITE.) <p>IF ACCEPTABLE TO THE GOVERNING ENVIRONMENTAL AGENCY, THEN ALL SUCH "BURNED" OR "MULCHED" SITE CLEARING/GRUBBING DEBRIS, IF APPROVED IN WRITING FIRST BY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER, COULD BE:</p> <ol style="list-style-type: none"> PLACED AS "MULCH" MATERIAL SURFACE DRESSING IN FUTURE LANDSCAPE AREAS, STOCKPILING OF SUCH "MULCHED" MATERIALS (AMOUNTS/LOCATIONS), IF ACCEPTABLE, WILL BE DIRECTED BY THE OWNER/GEOTECHNICAL CONSULTANT/LANDSCAPE ARCHITECT/ENGINEER; PLACED IN TEMPORARILY EXCAVATED LITTORAL SHELF AREAS IN SELECTED STORMWATER PONDS, OR IN TEMPORARILY EXCAVATED SELECTED WETLAND MITIGATION PONDS, IN EITHER CASE NOT IN SIDE BANKS AND NOT BELOW THE PERMITTED DESIGN DEPTH OF THE POND, OR SUCH DEBRIS COULD BE BURIED IN TEMPORARILY EXCAVATED PASSIVE RECREATION/PARK AREAS (AT LEAST 30 FEET FROM ANY STRUCTURE) AT APPROVED DEPTHS/LOCATIONS, BUT ALL THESE DISPOSAL AREAS WILL REQUIRE ADEQUATE SOIL MIXING (MIX SOIL WITH THE MULCH) AND THEN REFILLING (WITH COMPACTION) TO REQUIRED DESIGN GRADES; PLACED ALONG THE BOTTOM OF SELECTED FLOODPLAIN MITIGATION PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED EXCAVATION DEPTH OF THE POND, BUT WILL REQUIRE ADEQUATE SOIL COVER; PLACED ALONG THE BOTTOM OF SELECTED DEEPER STORMWATER PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED DESIGN DEPTH, BUT WILL REQUIRE ADEQUATE SOIL COVER. <p>IN ALL INSTANCES, THE MINIMUM POND DEPTH (INCLUDING FLOODPLAIN AND WETLAND MITIGATION AREAS) SHALL BE NO LESS THAN REQUIRED BY THE ENGINEER.</p> <p>ALL ORGANIC DEBRIS BURIAL AREAS IN STORMWATER POND AREAS AND FLOODPLAIN MITIGATION POND AREAS WILL REQUIRE ADEQUATE SOIL COVER OF 18 - 24 INCHES (WITH COMPACTION) BY THE CONTRACTOR, MEANING AT LEAST AN ADEQUATE WEIGHT/THICKNESS OF SOIL MATERIAL OVERTOP THE BURIED ORGANIC DEBRIS, SUCH THAT THERE WILL BE NO FUTURE FLOATING UP OF DEBRIS; AND FOR ALL ORGANIC DEBRIS BURIAL AREAS IN LITTORAL SHELF AREAS, WETLAND MITIGATION POND AREAS, AND PASSIVE RECREATION/PARK AREAS, ADEQUATE SOIL/MULCH MIXING (WITH COMPACTION) WILL BE NECESSARY BY THE CONTRACTOR, SUCH THAT NO SIGNIFICANT FUTURE UNACCEPTABLE SETTLEMENT OF A LITTORAL SHELF AREA, CREATED WETLAND AREA, OR PARK/GRASSED AREA WILL OCCUR.</p> <p>IF ANY OF THESE PROCEDURES ARE CONTEMPLATED BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER IN WRITING, AT THE START OF CONSTRUCTION, WITH SOME SPECIFIC INFORMATION, INCLUDING THE ESTIMATED QUANTITY AND TYPES OF MATERIALS, TO WHICH STORMWATER PONDS, FLOODPLAIN MITIGATION PONDS, WETLAND MITIGATION PONDS, OR PASSIVE RECREATION/PARK AREAS THEY PROPOSE TO USE FOR THIS TYPE OF ORGANIC DEBRIS DISPOSAL, AND WHAT APPROXIMATE ELEVATIONS WILL BE THE TOP AND BOTTOM OF THE ORGANIC DEBRIS.</p> <ol style="list-style-type: none"> MUCK/PEAT ORGANIC MATERIALS (TYPICALLY GENERATED FROM WETLAND OR LOWLAND AREAS, OR SIMILAR AREAS, PERMITTED FOR IMPACT OR DISPLACEMENT, INCLUDING EXCAVATION OF UNSUITABLE ORGANIC MATERIALS AND REFILLING WITH SUITABLE SANDY SOILS TO ACCOMMODATE DEVELOPMENT; INCLUDES SIGNIFICANT ORGANIC PEAT MATERIALS, ORGANIC SANDY MUCK MATERIALS, AND MUCKY OR ORGANIC SAND MATERIALS, DESIGNATED EITHER PT OR A-8, PER THE UNIFIED AND AASHTO SOIL CLASSIFICATION SYSTEMS, RESPECTIVELY; THOSE ORGANIC MATERIALS WHOSE PRESENCE, OR PLACEMENT BY THE CONTRACTOR, IS UNACCEPTABLE BENEATH ANY TYPE OF STRUCTURE, PAVEMENT, ROADWAY, HOUSE, BUILDING, PIPELINE, SLAB, ETC.) <p>IF ACCEPTABLE TO THE GOVERNING ENVIRONMENTAL AGENCY, THEN ALL SUCH MUCK/PEAT (SIGNIFICANT) ORGANIC MATERIALS, IF APPROVED IN WRITING FIRST BY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER, COULD BE:</p> <ol style="list-style-type: none"> PLACED AS "PEAT/MUCK/ORGANIC MATTER" SURFACE LAYER IN NEW OR CREATED WETLAND MITIGATION AREAS, STOCKPILING OF SUCH "SIGNIFICANT ORGANIC" MATERIALS (AMOUNTS/LOCATIONS), IF ACCEPTABLE, WILL BE DIRECTED BY THE OWNER/WETLAND CONSULTANT; PLACED IN TEMPORARILY EXCAVATED LITTORAL SHELF AREAS IN SELECTED STORMWATER PONDS, OR IN TEMPORARILY EXCAVATED SELECTED WETLAND MITIGATION PONDS, IN EITHER CASE NOT IN SIDE BANKS AND NOT BELOW THE PERMITTED DESIGN DEPTH OF THE POND, OR SUCH ORGANIC MATERIALS COULD BE BURIED IN TEMPORARILY EXCAVATED PASSIVE RECREATION/PARK AREAS (AT LEAST 30 FEET FROM ANY STRUCTURE) AT APPROVED DEPTHS/LOCATIONS, BUT ALL THESE DISPOSAL AREAS WILL REQUIRE ADEQUATE SOIL MIXING (MIX SOIL WITH THE ORGANIC MATERIALS) AND THEN REFILLING (WITH COMPACTION) TO REQUIRED DESIGN GRADES; PLACED ALONG THE BOTTOM OF SELECTED FLOODPLAIN MITIGATION PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED EXCAVATION DEPTH OF THE POND, BUT WILL REQUIRE ADEQUATE SOIL COVER; PLACED ALONG THE BOTTOM OF SELECTED DEEPER STORMWATER PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED DESIGN DEPTH, BUT WILL REQUIRE ADEQUATE SOIL COVER. <p>ALL ORGANIC DEBRIS BURIAL AREAS IN STORMWATER POND AREAS AND FLOODPLAIN MITIGATION POND AREAS WILL REQUIRE ADEQUATE SOIL COVER (WITH COMPACTION) BY THE CONTRACTOR, MEANING AT LEAST AN ADEQUATE WEIGHT/THICKNESS OF SOIL MATERIAL OVERTOP THE BURIED ORGANIC DEBRIS, SUCH THAT THERE WILL BE NO FUTURE FLOATING UP OF DEBRIS; AND FOR ALL ORGANIC DEBRIS BURIAL AREAS IN LITTORAL SHELF AREAS, WETLAND MITIGATION POND AREAS, AND PASSIVE RECREATION/PARK AREAS,</p>	<p>ADEQUATE SOIL/ORGANICS MIXING (WITH COMPACTION) WILL BE NECESSARY BY THE CONTRACTOR, SUCH THAT NO SIGNIFICANT FUTURE UNACCEPTABLE SETTLEMENT OF A LITTORAL SHELF AREA, CREATED WETLAND AREA, OR PARK/GRASSED AREA WILL OCCUR.</p> <p>IF ANY OF THESE PROCEDURES ARE CONTEMPLATED BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER IN WRITING, AT THE START OF CONSTRUCTION, WITH SOME SPECIFIC INFORMATION, INCLUDING THE ESTIMATED QUANTITY AND TYPES OF MATERIALS, TO WHICH STORMWATER PONDS, FLOODPLAIN MITIGATION PONDS, WETLAND MITIGATION PONDS, OR PASSIVE RECREATION/PARK/LANDSCAPE BERM AREAS THEY PROPOSE TO USE FOR THIS TYPE OF ORGANIC MATERIAL DISPOSAL, AND WHAT APPROXIMATE ELEVATIONS WILL BE THE TOP AND BOTTOM OF THE ORGANIC MATERIALS.</p> <ol style="list-style-type: none"> TOPSOILS/SITE STRIPPINGS (TYPICALLY GENERATED FROM UPLAND AREAS, AFTER DEMOLITION/CLEARING/GRUBBING/DISCING OPERATIONS; STRIPPING OF SURFICIAL ORGANICS/TOPSOILS BEING A REQUIREMENT OVER AT LEAST ALL STRUCTURE, BUILDING, CONCRETE SLAB AND PAVEMENT AREAS PRIOR TO FILLING TO ACCOMMODATE DEVELOPMENT; INCLUDES TOPSOILS AND ORGANIC LADEN SANDS; THOSE TOPSOILS/ORGANIC SANDS WHOSE PRESENCE, OR PLACEMENT BY THE CONTRACTOR, IS UNACCEPTABLE BENEATH ANY TYPE OF STRUCTURE, PAVEMENT, ROADWAY, HOUSE, BUILDING, PIPELINE, SLAB, ETC.) <p>IF ACCEPTABLE TO THE GOVERNING ENVIRONMENTAL AGENCY, ALL SUCH TOPSOILS/ORGANIC LADEN SAND MATERIALS, IF APPROVED IN WRITING FIRST BY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER, COULD BE:</p> <ol style="list-style-type: none"> PLACED AS FILL IN NEW (LARGER) LANDSCAPE/GRASS COMMON AREAS OR LANDSCAPE BERM AREAS (WITH COMPACTION), STOCKPILING OF SUCH "TOPSOILS/ORGANIC LADEN SAND MATERIALS" (AMOUNTS/LOCATIONS), IF ACCEPTABLE, WILL BE DIRECTED BY THE OWNER/LANDSCAPE CONSULTANT; PLACED IN TEMPORARILY EXCAVATED LITTORAL SHELF AREAS IN SELECTED STORMWATER PONDS, OR IN TEMPORARILY EXCAVATED SELECTED WETLAND MITIGATION PONDS, IN EITHER CASE NOT IN SIDE BANKS AND NOT BELOW THE PERMITTED DESIGN DEPTH OF THE POND, OR SUCH TOPSOILS/ORGANIC LADEN SAND MATERIALS COULD BE BURIED IN TEMPORARILY EXCAVATED PASSIVE RECREATION/PARK AREAS (AT LEAST 30 FEET FROM ANY STRUCTURE) AT APPROVED DEPTHS/LOCATIONS, BUT ALL THESE DISPOSAL AREAS WILL REQUIRE REFILLING (WITH COMPACTION) TO REQUIRED DESIGN GRADES; PLACED ALONG THE BOTTOM OF SELECTED FLOODPLAIN MITIGATION PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED EXCAVATION DEPTH OF THE POND; PLACED ALONG THE BOTTOM OF SELECTED DEEPER STORMWATER PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED DESIGN DEPTH. <p>ALL TOPSOIL/ORGANIC LADEN SAND DISPOSAL AREAS IN LITTORAL SHELF AREAS, WETLAND MITIGATION POND AREAS, PASSIVE RECREATION/PARK AREAS, OR LANDSCAPE/BERM AREAS WILL REQUIRE ADEQUATE COMPACTION BY THE CONTRACTOR, SUCH THAT NO SIGNIFICANT FUTURE UNACCEPTABLE SETTLEMENT OF A LITTORAL SHELF AREA, CREATED WETLAND AREA, PARK/GRASSED AREA, OR LANDSCAPE BERM WILL OCCUR.</p> <p>IF ANY OF THESE PROCEDURES ARE CONTEMPLATED BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER IN WRITING, AT THE START OF CONSTRUCTION, WITH SOME SPECIFIC INFORMATION, INCLUDING THE ESTIMATED QUANTITY AND TYPES OF MATERIALS, TO WHICH STORMWATER PONDS, FLOODPLAIN MITIGATION PONDS, WETLAND MITIGATION PONDS, PASSIVE RECREATION/PARK AREAS, OR LANDSCAPE BERM AREAS THEY PROPOSE TO USE FOR THIS TYPE OF ORGANIC DEBRIS DISPOSAL, AND WHAT APPROXIMATE ELEVATIONS WILL BE THE TOP AND BOTTOM OF THE ORGANIC DEBRIS.</p> <ol style="list-style-type: none"> NON-STRUCTURAL CLAYEY SAND/CLAY MATERIALS (TYPICALLY GENERATED FROM POND/LAKE EXCAVATIONS OR FROM UTILITY PIPELINE/MANHOLE EXCAVATIONS; SUCH CLAYEY SAND/CLAY MATERIALS, WITH TYPICALLY 40% FINES OR MORE PASSING THE NO. 200 SIEVE, DESIGNATED EITHER SC, CL, CH OR A-4 TO A-7, PER THE UNIFIED AND AASHTO SOIL CLASSIFICATION SYSTEMS, RESPECTIVELY; SUCH CLAYEY SAND/CLAY MATERIALS BEING UNSUITABLE OR UNACCEPTABLE FOR REUSE BY THE CONTRACTOR AS BUILDING PAD FILL, STRUCTURAL FILL, ROADWAY EMBANKMENT FILL, AND PIPELINE OR MANHOLE EXCAVATION BACKFILL.) <p>IF ACCEPTABLE TO THE GOVERNING ENVIRONMENTAL AGENCY, ALL SUCH CLAYEY SAND/CLAY MATERIALS, IF APPROVED IN WRITING FIRST BY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER, COULD BE:</p> <ol style="list-style-type: none"> PLACED AS FILL IN NEW (LARGER) LANDSCAPE/GRASS COMMON AREAS OR LANDSCAPE BERM AREAS (WITH COMPACTION), PROVIDE SOME SURFACE DRAINAGE RELIEF, USE WHERE INFILTRATION AND DRAINAGE IS NOT AN IMPORTANT ISSUE, PROVIDE SOME SURFACE SANDY SOILS (MIN. OF 18-INCHES) AS DIRECTED BY THE LANDSCAPE CONSULTANT FOR PLANTING; STOCKPILING OF SUCH "CLAYEY SAND/CLAY MATERIALS" (AMOUNTS/LOCATIONS), IF ACCEPTABLE, WILL BE DIRECTED BY THE OWNER/LANDSCAPE CONSULTANT; PLACED IN TEMPORARILY EXCAVATED LITTORAL SHELF AREAS IN SELECTED STORMWATER PONDS, OR IN TEMPORARILY EXCAVATED SELECTED WETLAND MITIGATION PONDS, IN EITHER CASE NOT IN SIDE BANKS AND NOT BELOW THE PERMITTED DESIGN DEPTH OF THE POND, OR SUCH CLAYEY SAND/CLAY MATERIALS COULD BE BURIED IN TEMPORARILY EXCAVATED PASSIVE RECREATION/PARK AREAS (AT LEAST 30 FEET FROM ANY STRUCTURE) AT APPROVED DEPTHS/LOCATIONS, BUT ALL THESE DISPOSAL AREAS WILL REQUIRE REFILLING (WITH COMPACTION) TO REQUIRED DESIGN GRADES, AND THE TOP 2 FEET (MIN.) BEING SAND MATERIALS (NOT CLAYEY MATERIALS) FOR TURBIDITY CONTROL AND PLANTING; PLACED ALONG THE BOTTOM OF SELECTED FLOODPLAIN MITIGATION PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED EXCAVATION DEPTH OF THE POND; HOWEVER, A 12-INCH LAYER (MIN.) OF SAND MATERIAL OVERTOP THE CLAYEY MATERIALS WILL BE NECESSARY FOR TURBIDITY CONTROL. PLACED ALONG THE BOTTOM OF SELECTED DEEPER STORMWATER PONDS (NOT IN SIDE BANKS), NOT BELOW THE PERMITTED DESIGN DEPTH, HOWEVER, A 12-INCH LAYER (MIN.) OF SAND MATERIAL OVERTOP THE CLAYEY MATERIALS WILL BE NECESSARY FOR TURBIDITY CONTROL. <p>ALL CLAYEY SAND/CLAY DISPOSAL AREAS IN LITTORAL SHELF AREAS, WETLAND MITIGATION POND AREAS, PASSIVE RECREATION/PARK AREAS, OR LANDSCAPE/BERM AREAS WILL REQUIRE ADEQUATE COMPACTION BY THE CONTRACTOR, SUCH THAT NO SIGNIFICANT FUTURE UNACCEPTABLE SETTLEMENT OF A LITTORAL SHELF AREA, CREATED WETLAND AREA, PARK/GRASSED AREA, OR LANDSCAPE BERM WILL OCCUR.</p> <p>IF ANY OF THESE PROCEDURES ARE CONTEMPLATED BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL NOTIFY THE OWNER/GEOTECHNICAL CONSULTANT/ENGINEER IN WRITING, AT THE START OF CONSTRUCTION, WITH SOME SPECIFIC INFORMATION, INCLUDING THE ESTIMATED QUANTITY AND TYPES OF MATERIALS, TO WHICH STORMWATER PONDS, FLOODPLAIN MITIGATION PONDS, WETLAND MITIGATION PONDS, PASSIVE RECREATION/PARK AREAS, OR LANDSCAPE BERM AREAS THEY PROPOSE TO USE FOR THIS TYPE OF CLAYEY SAND/CLAY DISPOSAL, AND WHAT APPROXIMATE ELEVATIONS WILL BE THE TOP AND BOTTOM OF THE CLAYEY MATERIALS.</p> <ol style="list-style-type: none"> STRUCTURAL SAND FILL MATERIALS (TYPICALLY GENERATED FROM POND/LAKE EXCAVATIONS, CUT FROM HIGHER ELEVATION AREAS, OR FROM UTILITY PIPELINE/MANHOLE EXCAVATIONS; SUCH SAND MATERIALS, WITH TYPICALLY 35% FINES OR LESS PASSING THE NO. 200 SIEVE, DESIGNATED EITHER SP, SP-SM, SM OR A-2-4, A-2-6 OR A-3, PER THE UNIFIED AND AASHTO SOIL CLASSIFICATION SYSTEMS, RESPECTIVELY; SUCH SAND MATERIALS BEING SUITABLE OR ACCEPTABLE FOR REUSE BY THE CONTRACTOR AS BUILDING PAD FILL, STRUCTURAL FILL, ROADWAY EMBANKMENT FILL, AND PIPELINE OR MANHOLE EXCAVATION BACKFILL.) <p>ALL STRUCTURAL SAND MATERIALS SHALL BE REUSED ONSITE BY THE CONTRACTOR, PER THE GEOTECHNICAL REPORTS, AS BUILDING PAD FILL, STRUCTURAL FILL, ROADWAY EMBANKMENT FILL, AND PIPELINE OR MANHOLE EXCAVATION BACKFILL; PLACED BY THE CONTRACTOR IN LOOSE LIFTS NOT EXCEEDING 12-INCHES, COMPACTED TO AT LEAST 95% OR 98% MODIFIED PROCTOR (PER ASTM D-1557 OR AASHTO T-180), WHICHEVER IS APPLICABLE DEPENDING UPON THE FUTURE USE OF THE FILLED AREA (SEE GEOTECHNICAL REPORTS); WITH DENSITY TESTING OF EACH FILL LIFT FOR ACCEPTANCE BY THE GEOTECHNICAL CONSULTANT, UPON CONTRACTOR REQUEST, PRIOR TO THE NEXT FILL LIFT BEING PLACED.</p>	<p>REVIEW SUBMITTAL</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1 02/29/2017</td> <td></td> </tr> </tbody> </table> <p>PROJECT NO: KLP-AG-1009 FILE: GNOTES DESIGN BY: FRANCIS DRAWN BY: GAULT</p> <p>FLORIDA PROFESSIONAL ENGINEER</p> <p>This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.</p> <p>Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.</p> <p>VICTOR E. BARBOSA DATE: 02/29/2017 REGISTRATION NO. 58548</p> <p>C-101</p>	DATE	DESCRIPTION	1 02/29/2017	
DATE	DESCRIPTION						
1 02/29/2017							

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5004-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629

www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28792
 Landscape Architecture Certificate of Authorization No. LC26000605

SERENOVA AMENITY CENTER
 GENERAL NOTES
 VK AVALON GROVES, LLC

PREPARED FOR:

R:\AVALON GROVES\AMENITY CENTER COMMERCIAL SITE PLAN\ENGINEERING\NOTES.DWG-C-101 2/17/2016 9:21:13 PM ERIC FRANCIS

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR COMMENTS MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM HEIDT DESIGN, LLC. PERMISSION IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENT AGENCIES TO REPRODUCE THIS DOCUMENT FOR COMPLIANCE WITH A CHAPTER 195.

<p>GENERAL PROJECT DATA</p> <p>FOR IDENTIFICATION OF CONTRACTUAL AGREEMENTS, THIS SET OF DRAWINGS IS DATED _____ ANY REVISIONS THEREAFTER WILL BE NOTED AND DATED ON THE AFFECTED DRAWING(S).</p> <p>EXISTING UTILITY LOCATION</p> <p>THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITIES AND TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATIONS TO THESE UTILITIES WITH THE OWNER OF THE UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLANS OR LOCATED BY THE UTILITY COMPANY. ALL UTILITIES THAT INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED. ANY COST, DELAY OR INCONVENIENCE CAUSED TO THE CONTRACTOR BY THE RELOCATION OF VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT, AND NO EXTRA COMPENSATION WILL BE ALLOWED.</p> <p>A SINGLE POINT UTILITY LOCATION SERVICE HAS BEEN SET UP FOR PARTICIPATING UTILITIES. THE CONTRACTOR IS TO CONTACT THE SUNSHINE STATE ONE CALL CENTER AT LEAST TWO (2) AND NO MORE THAN FIVE (5) WORKING DAYS PRIOR TO THE SPECIFIC CONSTRUCTION ACTIVITY FOR FIELD LOCATION. NOTE THAT NOT ALL UTILITIES PARTICIPATE IN THIS PROGRAM. THE CONTRACTOR SHOULD CONTACT NON-PARTICIPATING UTILITIES SEPARATELY FOR THEIR FIELD LOCATION OF FACILITIES. PER FLORIDA STATUTE 553.851, THE CONTRACTOR OR EXCAVATOR IS REQUIRED TO NOTIFY THE GAS COMPANY TWO (2) WORKING DAYS PRIOR TO STARTING EXCAVATION.</p> <p>SOILS/ENVIRONMENTAL/PERMITS</p> <p>SOILS INVESTIGATIONS FOR THE SITE WERE PROVIDED BY FAULKNER ENGINEERING SERVICES, INC. THE CONTRACTOR IS TO OBTAIN A COPY OF THAT SOILS REPORT FOR REVIEW PRIOR TO CONSTRUCTION; AND THE CONSTRUCTION IS TO CONFORM TO THE RECOMMENDATIONS IN THAT REPORT.</p> <p>ENVIRONMENTAL/CONSERVATION INVESTIGATIONS: BIO-TECH CONSULTING INC. SURVEY INFORMATION PREPARED BY: GEOPPOINT SURVEYING PERMITS AVAILABLE TO CONTRACTOR: _____</p> <p>AS-BUILTS</p> <p>AS-BUILTS SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER TWO WEEKS PRIOR TO FINAL INSPECTION. ALL AS-BUILT DATA SHALL BE PROVIDED BY A FLORIDA LICENSED SURVEYOR, SIGNED, SEALED, AND DATED BY THE RESPONSIBLE PARTY. SEE INDIVIDUAL SECTIONS (SEWER, WATER SYSTEM, ETC.) FOR ADDITIONAL AS-BUILT REQUIREMENTS.</p> <p>PERMITS AND PERMIT REQUIREMENTS</p> <p>THE CONTRACTOR SHALL OBTAIN FROM THE OWNER COPIES OF ALL REGULATORY AND LOCAL AGENCY PERMITS. THE CONTRACTOR SHALL BE EXPECTED TO REVIEW AND ABIDE BY ALL THE REQUIREMENTS AND LIMITATIONS SET FORTH IN THE PERMITS.</p> <p>THE CONTRACTOR SHALL BE FURNISHED A COPY OF THE N.P.D.E.S. NOTICE OF INTENT APPLICATION AND REPORT WHICH WAS FURNISHED TO EPA BY THE OWNER. THE CONTRACTOR SHALL REVIEW THE CONTENTS OF THAT SUBMITTAL INCLUDING CONSTRUCTION COMMENCEMENT AND CESSATION DATES AND ALL OTHER ELEMENTS OF THE SUBMITTAL. HE SHALL EXECUTE AND FILE AN N.O.I. TO EPA AS THE ENTITY RESPONSIBLE FOR OPERATING AND MAINTAINING THE EROSION PROTECTION SYSTEM DURING CONSTRUCTION, NOTING ANY CHANGES AND/OR MODIFICATIONS AND/OR AGREEING TO THE ELEMENTS OF THE ORIGINAL SUBMITTAL. HE SHALL SUBMIT THIS AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL KEEP ON-SITE A COPY OF THE WATER MANAGEMENT DISTRICT AND N.P.D.E.S. PERMITS ISSUED TOGETHER WITH THE INSPECTION REPORTS AND CURRENT PLANS, INCLUDING ANY MODIFICATIONS REQUIRED. HE SHALL ALSO PROVIDE A NOTICE OF TERMINATION TO THE N.P.D.E.S. PERMITTING AUTHORITY AT THE CONCLUSION OF THE PROJECT THAT THE DISCHARGE AND EROSION PROTECTION DEVICE AS SHOWN ON THE PLANS HAVE BEEN IMPLEMENTED AND MAINTAINED THROUGHOUT CONSTRUCTION.</p> <p>LAYOUT AND CONTROL</p> <p>UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR SHALL USE THE GEOMETRY PROVIDED ON THE SURVEY PLAT. BENCHMARK INFORMATION SHALL BE PROVIDED TO THE CONTRACTOR BY THE OWNER OR OWNER'S SURVEYOR. ANY DISCREPANCIES BETWEEN FIELD MEASUREMENTS AND CONSTRUCTION PLAN INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. THE SURVEYOR WHO PRODUCED THE PLAT IS GEOPPOINT SURVEYING, PHONE: 813-248-8888</p> <p>QUALITY CONTROL TESTING REQUIREMENTS</p> <p>ALL TESTING RESULTS SHALL BE PROVIDED TO THE OWNER/OPERATOR, COUNTY, AND THE ENGINEER. TESTING REQUIREMENTS ARE TO BE IN ACCORDANCE WITH THE OWNER/OPERATOR'S SPECIFICATIONS AND REQUIREMENTS. ALL TEST RESULTS SHALL BE PROVIDED (PASSING AND FAILING) ON A REGULAR AND IMMEDIATE BASIS. CONTRACTOR SHALL PROVIDE TESTING SERVICES THROUGH A FLORIDA LICENSED GEOTECHNICAL ENGINEERING FIRM ACCEPTABLE TO THE OWNER AND ENGINEER. NO TESTING TO BE SCHEDULED ON MONDAY OR FRIDAY.</p> <p>SHOP DRAWINGS</p> <p>SHOP DRAWINGS AND CERTIFICATIONS FOR ALL STORM DRAINAGE, WATER SYSTEM, AND PAVING SYSTEM MATERIALS AND STRUCTURES ARE REQUIRED. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE MATERIALS REQUIRED FOR CONSTRUCTION.</p> <p>EARTHWORK</p> <p>EARTHWORK QUANTITIES</p> <p>THE CONTRACTOR SHALL PERFORM HIS OWN INVESTIGATIONS AND CALCULATIONS AS NECESSARY TO ASSURE HIMSELF OF EARTHWORK QUANTITIES. THERE IS NO IMPLICATION THAT EARTHWORK BALANCES AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY IMPORT FILL NEEDED, OR FOR REMOVAL AND DISPOSAL OF EXCESS MATERIALS.</p> <p>EROSION CONTROL</p> <p>EROSION AND SILTATION CONTROL MEASURES ARE TO BE PROVIDED AND INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THESE MEASURES ARE TO BE INSPECTED BY THE CONTRACTOR ON A REGULAR BASIS AND ARE TO BE MAINTAINED OR REPAIRED ON AN IMMEDIATE BASIS, AS REQUIRED. REFER TO ST. JOHN'S RIVER WATER MANAGEMENT DISTRICT PERMIT FOR ADDITIONAL REQUIREMENTS FOR EROSION CONTROL AND SURFACE DRAINAGE.</p> <p>WETLAND PROTECTION</p> <p>THE LIMITS OF THE ON-SITE WETLANDS HAVE BEEN PROVIDED TO THE CONTRACTOR ON THE CONSTRUCTION PLANS OR ON PERMIT MATERIALS. THE WETLANDS AREAS ARE TO BE PROTECTED FROM DISTURBANCE AT ALL TIMES. CONTRACTOR SHALL PROVIDE EROSION, SILTATION, AND DIVERSION MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN A COPY OF EACH PERMIT RELATING TO WETLANDS AND ADHERE TO ALL PROVISIONS AND CONDITIONS THERETO.</p>	<p>LIMITS OF DISTURBANCE</p> <p>AT NO TIME SHALL THE CONTRACTOR DISTURB SURROUNDING PROPERTIES OR TRAVEL ON SURROUNDING PROPERTIES WITHOUT WRITTEN CONSENT FROM THE PROPERTY OWNER. REPAIR OR RECONSTRUCTION OF DAMAGED AREAS ON SURROUNDING PROPERTIES SHALL BE PERFORMED BY THE CONTRACTOR ON AN IMMEDIATE BASIS. ALL COSTS FOR REPAIRS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NO EXTRA COMPENSATION SHALL BE PROVIDED.</p> <p>TREE REMOVAL</p> <p>THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER WHEN ALL WORK IS LAID OUT (SURVEY STAKED), SO THAT A DETERMINATION MAY BE MADE OF SPECIFIC TREES TO BE REMOVED. NO TREES SHOWN ON THE CONSTRUCTION PLANS AS BEING SAVED SHALL BE REMOVED WITHOUT PERMISSION FROM THE OWNER AND ENGINEER.</p> <p>CLEARING AND GRUBBING</p> <p>THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING AND GRUBBING FOR SITE CONSTRUCTION INCLUDING CLEARING FOR PAVING, UTILITIES, DRAINAGE FACILITIES AND BUILDING CONSTRUCTION. SEE PLANS FOR LIMITS OF CLEARING AND GRUBBING. ALL AREAS TO BE CLEARED SHALL BE FIELD STAKED AND REVIEWED BY THE OWNER AND ENGINEER PRIOR TO ANY CONSTRUCTION.</p> <p>MATERIAL STORAGE / DEBRIS REMOVAL</p> <p>ALL MATERIALS EXCAVATED SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STOCKPILED AT ON-SITE LOCATIONS AS SPECIFIED BY THE OWNER. MATERIALS SHALL BE STOCKPILED SEPARATELY AS TO USABLE (NON ORGANIC) FILL STOCKPILES AND ORGANIC (MUCK) STOCKPILES IF MUCK IS ENCOUNTERED. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL UNSUITABLE FILL MATERIALS FROM THE SITE. ALL CLAY ENCOUNTERED SHALL BE EXCAVATED OUT AND REPLACED WITH CLEAN GRANULAR FILL MATERIALS.</p> <p>FILL MATERIAL</p> <p>ALL FILL MATERIALS SHALL NOT CONTAIN MUCK, STUMPS, ROOTS, BRUSH, VEGETATIVE MATTER, RUBBISH OR OTHER MATERIAL THAT WILL NOT COMPACT INTO A SUITABLE AND ENDURING BACKFILL. FILL SHALL BE CLEAN, NON-ORGANIC, GRANULAR MATERIAL WITH NOT MORE THAN 10% PASSING THE NO. 200 SIEVE.</p> <p>COMPACTION</p> <p>FILL MATERIALS PLACED UNDER ROADWAYS SHALL BE COMPACTED TO AT LEAST 98% OF THE MAXIMUM DENSITY AS SPECIFIED IN AASHTO T-180. ALL OTHER FILL AREAS ARE TO BE COMPACTED TO AT LEAST 95% MAXIMUM DENSITY AS SPECIFIED IN AASHTO T-180. FILL MATERIALS SHALL BE PLACED AND COMPACTED IN A MAXIMUM OF 12" LIFTS. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AND OWNER WITH ALL (PASSING AND FAILING) TESTING RESULTS. RESULTS SHALL BE PROVIDED ON A TIMELY AND REGULAR BASIS PRIOR TO CONTRACTOR'S PAY REQUEST SUBMITTAL FOR THE AFFECTED WORK.</p> <p>SANITARY SEWER SYSTEM</p> <p>OWNER/OPERATOR</p> <p>THE ENTITY THAT WILL OPERATE AND MAINTAIN THE SEWER SYSTEM SHOWN ON THESE PLANS IS SANLANDO UTILITIES CORPORATION. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THAT ENTITY.</p> <p>MATERIALS</p> <p>ALL SANITARY SEWER PIPE SHALL BE PVC SEWER PIPE CONFORMING TO ASTM D3034 SDR-26. INSTALLATION OF PVC SEWER PIPE SHALL CONFORM TO ASTM D2321. SEE ASTM C-12, LATEST EDITION, FOR CONSTRUCTION METHODS, EXCEPT FOR BACKFILLING, WHICH WILL BE AS SHOWN ON THE UTILITY DETAIL SHEET. A HORIZONTAL SEPARATION OF AT LEAST 10' SHALL BE MAINTAINED BETWEEN WATER AND SEWER LINES. WHEN WATER AND SEWER LINES CROSS WITH LESS THAN 18" VERTICAL SEPARATION, OR WHEN THE WATER LINE CROSSES BENEATH THE SEWER LINE AT ANY DEPTH, THE SEWER LINE SHALL BE ENCASED IN CONCRETE OR THE SEWER SHALL BE DUCTILE IRON PIPE FOR A DISTANCE OF 10' EITHER SIDE OF THE CROSSING. DUCTILE IRON SANITARY SEWER GRAVITY PIPE SHALL BE PRESSURE CLASS 350 DUCTILE IRON POLYETHYLENE LINED.</p> <p>ALL SEWER FITTINGS SHALL BE PVC MEETING THE REQUIREMENTS OF ASTM D3034. FITTINGS SHALL BE SUITABLE FOR USE WITH SDR-26 GRAVITY SEWER PIPE. ALL FITTINGS SHALL HAVE ELASTOMERIC SEALING GASKETS.</p> <p>JOINTS FOR GRAVITY SEWER PIPE AND ALL FITTINGS SHALL BE ELASTOMERIC RUBBER SEALS. GASKETS SHALL CONFORM TO ASTM F477.</p> <p>SANITARY SEWER MANHOLES SHALL BE PRECAST CONSTRUCTION. THE MINIMUM SIZE DIAMETER OF MANHOLES SHALL BE 48" FOR SEWER LINES 21" IN DIAMETER OR LESS. PRECAST REINFORCED MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-478 SPECIFICATIONS, WITH PRECAST FLEXIBLE JOINT SEALS, RAINWEL, OR APPROVED EQUAL. THE EXTERIOR SURFACES OF ALL MANHOLES SHALL BE PROTECTED BY THE APPLICATION OF TWO COATS KOPPERS BITUMASTIC 300 M, OR APPROVED EQUAL, APPLIED AT THE RATE OF 120 SQUARE FEET PER GALLON PER COAT MINIMUM. EXTERIOR SURFACES SHALL RECEIVE TWO COATS KOPPERS BITUMASTIC 300 M, OR APPROVED EQUAL, APPLIED AT THE RATE OF 120 SQUARE FEET PER GALLON PER COAT MINIMUM.</p> <p>THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO PROVIDE A FLEXIBLE WATERTIGHT SEAL OF THE PIPE TO THE MANHOLE. NO ADHESIVES OR LUBRICANTS SHALL BE EMPLOYED IN THE INSTALLATION OF THE CONNECTOR INTO THE MANHOLE. THE RUBBER FOR CONNECTOR SHALL COMPLY WITH ASTM C443 AND ASTM C923 AND CONSIST OF EPDM AND ELASTOMERS DESIGNED TO BE RESISTANT TO OZONE, WEATHER ELEMENT, CHEMICALS, INCLUDING ACIDS, ALKALIS, ANIMAL AND VEGETABLE FATS, OILS AND PETROLEUM PRODUCTS FROM SPILLS. ALL STAINLESS STEEL ELEMENTS OF THE CONNECTOR SHALL BE TOTALLY NON-MAGNETIC SERIES 316 STAINLESS, EXCLUDING THE WORM SCREW FOR TIGHTENING THE STEEL BAND AROUND THE PIPE WHICH SHALL BE TORQUED BY A BREAKAWAY TORQUE WRENCH AVAILABLE FROM THE PRECAST MANHOLE SUPPLIER, AND SET FOR 60-70 INCH/LBS. THE CONNECTOR SHALL BE INSTALLED IN THE MANHOLE WALL BY ACTIVATING THE EXPANDING MECHANISM IN STRICT ACCORDANCE WITH THE RECOMMENDATION OF THE CONNECTOR MANUFACTURER.</p> <p>CONSTRUCTION METHODS</p> <p>INSTALLATION OF GRAVITY SANITARY SEWER SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.</p> <p>IN LAYING OUT THE SANITARY SEWER IN THE FIELD, THE CONTRACTOR SHALL USE THE STREET C/L OR PROPERTY LINE OFFSETS FOR LOCATING THE SANITARY SEWER MANHOLES AND INVERT ELEVATIONS GIVEN ON THE PLAN AND PROFILE SHEET. IN THE EVENT OF ANY MINOR DIFFERENCES IN ACTUAL LENGTHS OF THE SANITARY SEWER LINES BETWEEN MANHOLES FOR THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL ADJUST THE MANHOLE INVERTS TO MAINTAIN A MINIMUM GRADE AS SHOWN. UNDER NO CIRCUMSTANCES WILL PIPE GRADES LESS THAN 0.30% FOR 8" PIPE OR 0.28% FOR 10" PIPE BE ACCEPTED.</p> <p>THE CONTRACTOR SHALL STAMP AN "S" IN THE CURB TOP AT EACH SANITARY SERVICE LOCATION. STAMPED "S" SHALL BE HIGHLIGHTED WITH GREEN PAINT. SEE ALSO SEWER DETAIL SHEET FOR SEWER LATERAL MARKING. "SAW" CUTS ARE NOT PERMISSIBLE.</p>	<p>DEWATERING</p> <p>IN THE EVENT THAT GROUNDWATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE SANITARY SEWER SYSTEM, DEWATERING SHALL BE CONDUCTED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN, INSTALLATION, OPERATION, AND SUBSEQUENT REMOVAL OF DEWATERING SYSTEMS AND THEIR SAFETY AND CONFORMITY WITH LOCAL COUNTY, STATE AND FEDERAL CODES AND REGULATIONS.</p> <p>AT ALL TIMES DURING CONSTRUCTION, KEEP EXCAVATIONS FREE FROM STANDING WATER. SUMPS, IF REQUIRED, SHALL BE LOCATED OUTSIDE OF LOAD BEARING AREAS SO THAT BEARING SURFACES WILL NOT BE DISTURBED. WATER PUMPED FROM THE EXCAVATION SHALL BE DISCHARGED TO PREVENT RE-ENTRY INTO THE SOIL STRATA BEING DEWATERED. WATER CONTAINING SILT IN SUSPENSION SHALL NOT BE PUMPED INTO SEWER LINES OR ADJACENT STREAMS. THE METHOD OF DISPOSING OF WATER PUMPED FROM THE EXCAVATION SHALL BE APPROVED BY THE ENGINEER, PRIOR TO ACTUAL DISPOSAL.</p> <p>PIPE EMBEDMENT</p> <p>SANITARY SEWER PIPE MUST BE BEDDED TRUE TO LINE AND GRADE WITH UNIFORM AND CONTINUOUS LONGITUDINAL SUPPORT FROM A FIRM BASE. BLOCKING MAY NOT BE USED TO BRING THE PIPE TO GRADE. PIPE BED SHALL BE UNDISTURBED EARTH AND, IN THE EVENT OF OVER-EXCAVATION, THE CONTRACTOR SHALL REPLACE OVER EXCAVATION WITH CLEAN GRANULAR BACKFILL, AS NOTED BELOW, AND COMPACTED TO A DENSITY OF 98% OF THE AASHTO T-180 MAXIMUM DENSITY AND SHAPED TO FIT THE PIPE SO AS TO GIVE IT CONTINUOUS AND UNIFORM LONGITUDINAL SUPPORT.</p> <p>AT ALL LOCATIONS WHERE PIPING IS TO BE INSTALLED IN AN AREA WHERE MUCK WAS NOTED IN THE SOILS TESTING OR AT ANY OTHER LOCATIONS WHERE MUCK OR ORGANIC SOILS ARE ENCOUNTERED, THE TRENCH SHALL BE OVER-EXCAVATED TO REMOVE ALL MUCK OR ORGANIC SOILS, GRANULAR BACKFILL OR AS NOTED BELOW, PLACED AND COMPACTED IN THE TRENCH BOTTOM TO THE ELEVATIONS AND LOCATIONS NOTED ON THE PLANS. BACKFILL NEEDED TO BRING TRENCH TO THE PROPER GRADE SHALL BE COMPACTED TO A MINIMUM DENSITY OF 98% OF THE AASHTO T-180 MAXIMUM DENSITY.</p> <p>TRENCH OR EXCAVATION BOTTOM STABILIZATION MATERIAL</p> <p>A. SAND</p> <p>SAND SHALL BE WELL GRADED, ORGANIC FREE, DURABLE, GRANULAR MATERIAL, AND SHALL PASS A NO. 4 SIEVE. NOT MORE THAN 10% SHALL PASS A NO. 200 SIEVE.</p> <p>B. PIT RUN GRAVEL</p> <p>PIT RUN GRAVEL SHALL BE ORGANIC FREE AND SHALL PASS A 3/4-INCH SIEVE.</p> <p>C. GRANULAR MATERIAL</p> <p>GRANULAR MATERIAL SHALL BE WELL GRADED, ORGANIC AND TOPSOIL FREE, DURABLE AGGREGATE AND SHALL PASS A 3/4-INCH SIEVE. NOT MORE THAN 10% SHALL PASS A NO. 200 SIEVE.</p> <p>TESTING</p> <p>INFILTRATION TESTING OF THE SANITARY SEWER SYSTEM WILL BE REQUIRED TO BE PERFORMED BY THE CONTRACTOR. INFILTRATION SHALL NOT EXCEED 200 GALLONS PER DAY PER INCH OF DIAMETER PER MILE OF LENGTH. IN THE EVENT THAT GROUNDWATER IS NOT ENCOUNTERED DURING SANITARY SEWER CONSTRUCTION, OR IF THE GROUNDWATER ENCOUNTERED IS NOT 24" ABOVE THE TOP OF PIPE, EXFILTRATION TESTING OF THE SANITARY SEWER WILL BE NECESSARY. THE TESTING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR, BUT WILL BE WITNESSED BY THE ENGINEER AND THE UTILITY REPRESENTATIVES. EXFILTRATION SHALL NOT EXCEED 200 GALLONS PER DAY PER INCH OF DIAMETER PER MILE OF LENGTH, INCLUDING MANHOLES.</p> <p>LINE LAMPING WILL BE REQUIRED TO BE PERFORMED BY THE CONTRACTOR AND WITNESSED BY THE ENGINEER AND OWNER/OPERATOR.</p> <p>THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES REQUIRED FOR ALL TESTING. CONTRACTOR SHALL CONTACT THE ENGINEER AND OWNER/OPERATOR IN WRITTEN FORM, SEVENTY-TWO (72) HOURS IN ADVANCE OF PROPOSED TESTING. NO TESTING ON MONDAY OR FRIDAY. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION.</p> <p>AS-BUILT DRAWINGS</p> <p>THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES. AS-BUILT INFORMATION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> LOCATIONS AND INVERTS OF ALL GRAVITY SEWER LINES, MANHOLES, LIFT STATION WETWELLS AND SERVICE LATERALS AND RIM ELEVATION OF ALL MANHOLES. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING PLANS. DISTANCES OF SEWER LINE LAID FROM MANHOLE TO MANHOLE WITH DISTANCE TIES TO LATERALS. <p>TRENCH SAFETY</p> <p>THE CONTRACTOR SHALL RECOGNIZE AND ABIDE BY ALL OSHA EXCAVATION SAFETY STANDARDS, INCLUDING THE FLORIDA TRENCH SAFETY ACT (90-96, LAWS OF FLORIDA). ANY MATERIAL, CONSTRUCTION METHODS, OR MATERIAL COST TO COMPLY WITH THESE LAWS SHALL BE INCIDENTAL TO THE CONTRACT.</p> <p>MINIMUM COVER OVER ALL PIPES SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.</p> <p>ALL PLUGS, CAPS, TEES, BENDS, VALVES, ETC., SHALL BE PROVIDED WITH RESTRAINED JOINTS OR THRUST BLOCKS (RESTRAINED JOINTS PREFERRED).THRUST BLOCK CONSTRUCTION DETAILS, REFER TO UTILITY DETAIL SHEET.</p>	<p>FORCE MAIN</p> <p>OWNER/OPERATOR</p> <p>THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE FORCE MAIN SHOWN ON THESE PLANS IS UTILITIES INC OF FLORIDA, SANLANDO UTILITIES CORPORATION (IN ALL OTHER AREAS). THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THEREQUIREMENTS OF THAT ENTITY.</p> <p>MATERIALS</p> <p>SANITARY SEWER FORCE MAIN SHALL BE POLYVINYL CHLORIDE PLASTIC PIPE (PVC) AND SHALL CONFORM TO ASTM D2241 PLASTIC PIPE (SD PR & CLASS T), ASTM 1784, TYPE I, 2000 PSI DESIGN STRESS. THE PIPE SHALL BE ANSI/AWWA C900, WITH MARKINGS ON EACH SECTION SHOWING CONFORMANCE WITH THE ABOVE SPECIFICATION. JOINTS SHALL BE ELASTOMERIC RUBBER GASKETED CONFORMING TO ASTM D3139 DR 18 PIPE.</p> <p>FITTINGS FOR FORCE MAIN SHALL BE MECHANICAL JOINT, DUCTILE IRON CONFORMING TO ANSI/AWWA C110/A21.10 350 PSI MINIMUM PRESSURE RATING. FITTINGS SHALL BE POLYETHYLENE LINED (MIN. 30 MILS CONFORMING TO ASTM D-1248).</p> <p>ALL PLUGS, CAPS, TEES, VALVES, BENDS, ETC., SHALL BE RESTRAINED JOINTS OR THRUST BLOCKED (RESTRAINED JOINT PREFERRED) PER DETAILS ON UTILITY SHEETS. THREE FOOT MINIMUM COVER OVER FORCE MAIN.</p> <p>STANDARD PLUG VALVES SHALL BE MANUFACTURED BY DEZURIK CORP., PRATT, DRESSER, HOMESTEAD INDUSTRIES, OR APPROVED EQUAL.</p> <p>VALVES SHALL BE FURNISHED WITH A REPLACEABLE CHEVRON PACKING, CAPABLE OF BEING REPACKED WITH THE LINE UNDER PRESSURE.</p> <p>VALVES 4 INCHES IN DIAMETER AND SMALLER SHALL BE WRENCH NUT OPERATED. VALVES LARGER THAN 4 INCHES SHALL BE WORM GEAR OPERATED, EXCEPT WHERE AUTOMATIC OPERATION IS SPECIFIED.</p> <p>AIR RELEASE VALVE DESIGNED FOR SEWAGE SERVICE SHALL BE INSTALLED IN THE TOPS OF PIPES AS INDICATED ON THE DRAWINGS. VALVES SHALL BE DESIGNED TO PERMIT MANUAL RELEASE OF AIR FROM AN EMPTY PIPE DURING FILLING AND SHALL BE CAPABLE OF DISCHARGING ACCUMULATED AIR IN THE LINE WHILE THE LINE IS IN OPERATION AND UNDER PRESSURE. VALVES SHALL BE CAPABLE OF WITHSTANDING OPERATING PRESSURES OF 50 PSI. VALVES SHALL BE VENTED TO THE ATMOSPHERE. THE VALVES SHALL BE VALMATIC, OR APPROVED EQUAL.</p> <p>CHECK VALVES SHALL BE OF THE WEIGHT AND LEVER TYPE, RESILIENT DISK, GRAY IRON, BRONZE TRIM, HORIZONTAL MOUNTED. VALVES SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C508 WITH FLANGED CONNECTIONS. VALVES SHALL HAVE A WORKING PRESSURE OF 200 PSI FOR VALVES 2"-12". VALVES SHALL BE DEZURIK, MUELLER, OR APPROVED EQUAL.</p> <p>CONSTRUCTION METHODS</p> <p>TRENCHING SHALL BE IN ACCORDANCE WITH THE TRENCHING DETAILS PROVIDED ON THE CONSTRUCTION PLANS.</p> <p>COMPACTED BACKFILL FOR ALL PIPE SHALL BE TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 FOR UNDER ROADWAYS. OTHER COMPACTION OF BACKFILL SHALL BE TO THE 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.</p> <p>INSTALLATION OF THE SANITARY SEWER FORCE MAIN SHALL BE IN CONFORMANCE WITH ASTM D2774-72 (LATEST EDITION).</p> <p>MINIMUM COVER OVER ALL PIPES SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.</p> <p>THE FORCE MAIN SHALL BE INSTALLED AS NOTED ON THE PLANS. WHERE APPLICABLE, A LATERAL SEPARATION OF AT LEAST 10' SHALL BE MAINTAINED BETWEEN WATER AND SEWER LINES. WHEN WATER AND SEWER LINES CROSS WITH LESS THAN AN 18" VERTICAL SEPARATION, THE PVC SEWER LINE SHALL BE ENCASED IN CONCRETE OR DUCTILE IRON PIPE USED IN LIEU OF PVC PIPE FOR A DISTANCE OF 10' EITHER SIDE OF THE CROSSING.</p> <p>ALL PLUGS, CAPS, TEES, BENDS, VALVES, ETC., SHALL BE PROVIDED WITH RESTRAINED JOINTS OR THRUST BLOCKS (RESTRAINED JOINTS PREFERRED) PER UTILITY DETAIL SHEET.</p> <p>GREEN MAGNETIC INDICATOR TAPE SHALL BE BURIED IN THE FORCE MAIN TRENCH 18" DIRECTLY ABOVE THE FORCE MAIN. A CONTINUOUS COPPER DETECTOR WIRE SHALL BE ATTACHED TO THE PIPE AND VALVES AS SHOWN ON THE UTILITY SHEETS.</p> <p>CONNECTIONS TO MANHOLE WITH FORCE MAINS SHALL BE MADE BY CORE BORE AND LINK SEAL OR OTHER APPROVED CONNECTION. CONNECTIONS SHALL BE MADE WATERTIGHT AND BE INSTALLED ACCORDING TO THE MANUFACTURERS' RECOMMENDATIONS.</p> <p>TESTING</p> <p>FORCE MAIN SHALL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD M23. FORCE MAIN SYSTEM SHALL BE TESTED FOR TWO (2) HOURS AT 100 PSI. SEVENTY-TWO (72) HOURS WRITTEN ADVANCE NOTIFICATION TO THE ENGINEER AND THE UTILITY COMPANY OF THE TESTING WILL BE REQUIRED. NO TESTING ON MONDAY OR FRIDAY. THE CONTRACTOR SHALL PERFORM SATISFACTORY PROTESTING PRIOR TO NOTIFICATION.</p> <p>AS-BUILT DRAWINGS</p> <p>THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES.</p> <p>AS-BUILT INFORMATION FOR THE FORCE MAIN SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING</p> <ol style="list-style-type: none"> LOCATION OF ALL VALVES, FITTINGS, ETC. LOCATION OF THE FORCE MAIN TIED HORIZONTALLY TO THE BACK OF CURB OR EDGE OF PAVEMENT. CERTIFICATION AS TO THE SYSTEM MEETING THE MINIMUM COVER REQUIREMENTS. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING DRAWINGS.
--	---	--	---

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629

www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28792
 Landscape Architecture Certificate of Authorization No. LC26000405

SERENOVA AMENITY CENTER
 GENERAL NOTES
 VK AVALON GROVES, LLC

PREPARED FOR:

NO.	DATE	DESCRIPTION
1	02/29/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
 FILE: GNOTES
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

FLORIDA PROFESSIONAL ENGINEER

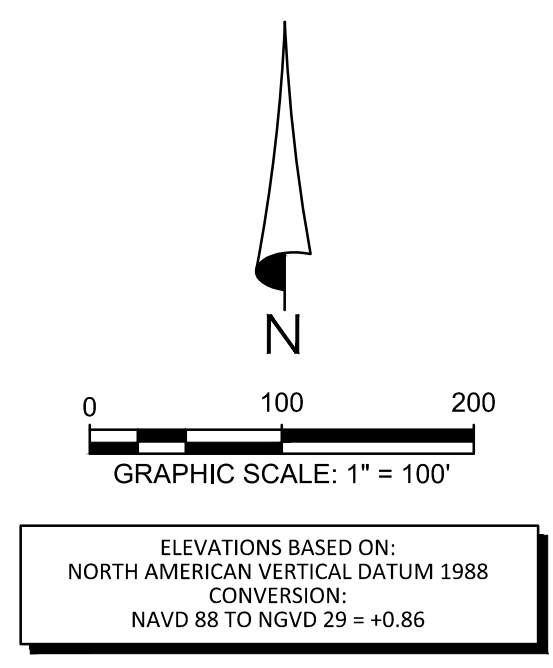
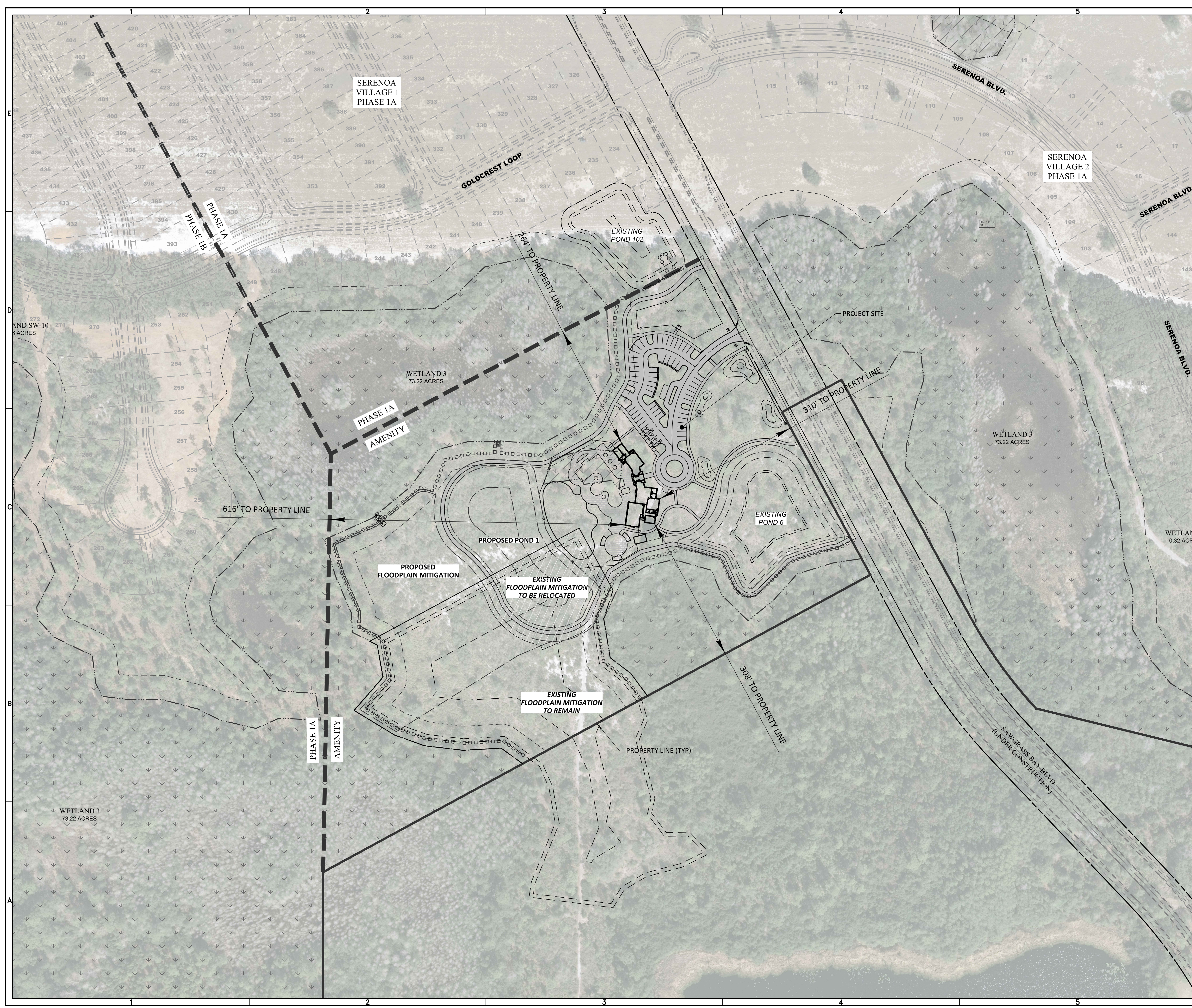
This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-102

<p>RECLAIMED WATER INFRASTRUCTURE SYSTEMS</p> <p><u>OWNER/OPERATOR</u></p> <p>THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE SYSTEM SHOWN ON THESE PLANS IS SANLANDO UTILITIES CORPORATION. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THAT ENTITY.</p> <p><u>PIPE MATERIALS</u></p> <p>POLYVINYL CHLORIDE PLASTIC PIPE (PVC) 4" THROUGH 12" SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C900 (LATEST EDITION) AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI AND HAVE A DR (DIMENSION RATIO) OF 18. ALL PIPE SHALL BE LABELED "RECLAIMED WATER" OR "NON POTABLE WATER" PROMINENTLY ON EACH PIPE JOINT. JOINTS SHALL BE OF THE PUSH-ON TYPE AND COUPLINGS CONFORMING TO ASTM D3139 DR18 PIPE.</p> <p>DUCTILE IRON PIPE (DIP) SHALL BE STANDARD PRESSURE CLASS 350 IN SIZES 4" THROUGH 12" AND CONFORM TO ANSI/AWWA C150/A21.50 (LATEST EDITION). ALL DUCTILE IRON PIPE SHALL HAVE A STANDARD THICKNESS OF CEMENT MORTAR LINING AS SPECIFIED IN ANSI/AWWA C104/A21.4 (LATEST EDITION). PIPE JOINTS SHALL BE OF THE PUSH-ON RUBBER GASKET TYPE CONFORMING TO ANSI/AWWA C111/A21.11 (LATEST EDITION).</p> <p>PIPE SIZES GREATER THAN 12" IN BOTH PVC AND DUCTILE IRON SHALL BE SEPARATELY SPECIFIED ON THE PLANS; WITH THICKNESS CLASSES TO BE SHOWN BASED ON WORKING PRESSURES, PIPE DEPTH AND TRENCH CONDITIONS.</p> <p>FITTINGS FOR DUCTILE IRON PIPE AND PVC C900 PIPE SHALL BE DUCTILE IRON AND SHALL CONFORM TO ANSI/AWWA C110/A21.10 (LATEST EDITION) AND SHALL BE CEMENT LINED IN CONFORMANCE WITH ANSI/AWWA C104/A21.4 (LATEST EDITION).</p> <p>POLYETHYLENE WRAP USED FOR CORROSION PREVENTION ON DUCTILE IRON PIPE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/ASTM D1248. THE MINIMUM NOMINAL THICKNESS SHALL BE 0.008 IN. (8 MILS). INSTALLATION OF POLY WRAP SHALL BE IN ACCORDANCE WITH AWWA C105.</p> <p><u>VALVES</u></p> <p>GATE VALVES SHALL BE RESILIENT SEAT AND SHALL CONFORM TO ANSI/AWWA C509.87 WITH HANDWHEEL OR WRENCH NUT, EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED. MANUFACTURER'S CERTIFICATION OF THE VALVES' COMPLIANCE WITH AWWA SPECIFICATION C509 AND TESTS LISTED THEREIN WILL BE REQUIRED. VALVE BOX PADS SHALL BE 18" X 18" X 4" THICK CONCRETE WITH #4 REINFORCING BARS. PAD TO BE SET AT FINISHED GRADE. VALVES SHALL BE CLOW, MUELLER, KENNEDY, M&H, AMERICAN DARLING, OR APPROVED EQUAL.</p> <p><u>BUTTERFLY VALVES</u></p> <p>BUTTERFLY VALVES SHALL MEET OR EXCEED THE DESIGN STRENGTH TESTING AND PERFORMANCE REQUIREMENTS OF AWWA C504, CLASS 150. VALVES SHALL BE DUCTILE IRON, RESILIENT SEAT, AND BE MANUFACTURED BY KENNEDY, MUELLER, M&H, AMERICAN DARLING, OR APPROVED EQUAL. BUTTERFLY VALVES TO BE USED FOR SIZES GREATER THAN 12".</p> <p><u>AIR RELEASE VALVES</u></p> <p>AIR RELEASE VALVES SHALL BE PLACED AT HIGH POINTS OF THE TRANSMISSION MAIN TO PERMIT ESCAPE OF TRAPPED AIR. THE VALVE SIZE, LOCATION, AND METHOD OF INSTALLATION SHALL BE INDICATED ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER. AIR RELEASE VALVES SHALL BE VALMATIC OR APPROVED EQUAL.</p> <p><u>VALVE BOXES</u></p> <p>VALVE BOXES ON BURIED RECLAIMED WATER MAINS SHALL BE ADJUSTABLE, CAST IRON CONSTRUCTION, WITH A MINIMUM INTERIOR DIAMETER OF 5" WITH COVERS CAST WITH THE INSCRIPTION IN LEGIBLE LETTERING ON THE TOP: RECLAIMED WATER. BOXES SHALL BE SUITABLE FOR THE APPLICABLE SURFACE LOADING AND VALVE SIZE, AND SHALL BE MANUFACTURED BY MUELLER COMPANY, MODEL 10364, OR APPROVED EQUAL.</p> <p><u>PIPE INSTALLATION</u></p> <p>PIPE INSTALLATION OF PVC RECLAIMED WATER MAIN SHALL BE IN CONFORMANCE WITH ASTM D2774 (LATEST EDITION). INSTALLATION OF DUCTILE IRON PIPE RECLAIMED WATER MAIN SHALL BE IN CONFORMANCE WITH AWWA C600.87 (LATEST EDITION).</p> <p>COMPACTED BACKFILL SHALL BE TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 UNDER ALL PAVEMENTS WITH 12" MAXIMUM LIFT THICKNESS. OTHER COMPACTION OF BACKFILL SHALL BE TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 WITH 12" MAXIMUM LIFT THICKNESS. SEE PIPE TRENCHING DETAILS.</p> <p>MINIMUM COVER OVER ALL PIPE SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.</p> <p>RECLAIMED WATER MAINS ARE TO BE INSTALLED SO AS TO PROVIDE A MINIMUM VERTICAL CLEARANCE OF 18" OR A MINIMUM HORIZONTAL CLEARANCE OF 5 FEET FROM ALL SANITARY HAZARDS INCLUDING STORM DRAINAGE PIPES AND STRUCTURES, AS WELL AS SEPTIC TANK DRAINFIELDS AND SEWER PIPING. IF CLEARANCE CANNOT BE ACHIEVED, THE PVC WATER MAIN SHALL BE ENCASED IN CONCRETE OR DUCTILE IRON PIPE USED IN LIEU OF PVC PIPE FOR 10' EACH SIDE OF WATER/STORM SEWER CROSSING. IF WATER/SANITARY SEWER CROSSING THEN SANITARY SEWER PIPE SHALL BE ENCASED OR D.I.P. USED FOR 10' EACH SIDE OF CROSSING.</p> <p>ALL PLUGS, CAPS, TEES, BENDS, VALVES, ETC., SHALL BE PROVIDED WITH THRUST BLOCKS/RODDED RESTRAINTS. FOR THRUST BLOCK CONSTRUCTION DETAILS, REFER TO THE UTILITY DETAIL SHEET.</p> <p><u>PIPE IDENTIFICATION/LOCATION WIRE</u></p> <p>INDICATOR TAPE SHALL BE BURIED IN THE RECLAIMED WATER MAIN TRENCH 18" DIRECTLY ABOVE THE WATER MAIN. A CONTINUOUS COPPER DETECTOR WIRE SHALL BE ATTACHED AS SHOWN ON THE RECLAIMED WATER DETAIL SHEET. INDICATOR TAPE SHALL CALL OUT THAT A RECLAIMED OR NON POTABLE SYSTEM IS BELOW. PIPE SHALL BE COLOR CODED PURPLE IN ADDITION TO MARKING, IF AVAILABLE.</p> <p><u>DISINFECTION AND TESTING</u></p> <p>ALLOWABLE LEAKAGE FOR PVC PRESSURE MAINS WILL BE IN ACCORDANCE WITH AWWA M23.</p> <p>THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES REQUIRED FOR ALL HYDROSTATIC AND LEAKAGE TESTING. CONTRACTOR SHALL CONTACT THE ENGINEER AND OWNER/OPERATOR IN WRITTEN FORM, FORTY-EIGHT (48) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION. TESTING SHALL ONLY BE SCHEDULED ON A TUESDAY, WEDNESDAY OR THURSDAY.</p> <p>THE RECLAIMED WATER SYSTEM SHALL BE TESTED FOR LEAKAGE AT 150 PSI FOR TWO (2) HOURS, WITH ALLOWABLE LEAKAGE IN ACCORDANCE WITH ABOVE STANDARDS.</p>	<p><u>AS-BUILT DRAWINGS</u></p> <p>THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES.</p> <p>AS-BUILT INFORMATION FOR THE WATER SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> 1. LOCATION OF ALL VALVES, FITTINGS AND SERVICES. 2. LOCATION OF THE WATER MAIN TIED HORIZONTALLY TO THE BACK OF CURB OR EDGE OF PAVEMENT. 3. CERTIFICATION AS TO THE SYSTEM MEETING THE MINIMUM COVER REQUIREMENTS. 4. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING PLANS. <p><u>POTABLE WATER / FIRE SYSTEMS</u></p> <p><u>OWNER/OPERATOR</u></p> <p>THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE WATER SYSTEM SHOWN ON THESE PLANS IS SANLANDO UTILITIES CORPORATION. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THAT ENTITY.</p> <p><u>PIPE MATERIALS</u></p> <p>POLYVINYL CHLORIDE PLASTIC PIPE (PVC) 4" THROUGH 12" SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C900 (LATEST EDITION) AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI AND HAVE A DR (DIMENSION RATIO) OF 18. ALL PVC PIPE SHALL BEAR THE NSF LOGO FOR POTABLE WATER. JOINTS SHALL BE OF THE PUSH-ON TYPE AND COUPLINGS CONFORMING TO ASTM D3139 DR18 PIPE.</p> <p>DUCTILE IRON PIPE (DIP) SHALL BE STANDARD PRESSURE CLASS 350 IN SIZES 4" THROUGH 12" AND CONFORM TO ANSI/AWWA C150/A21.50 (LATEST EDITION). ALL DUCTILE IRON PIPE SHALL HAVE A STANDARD THICKNESS OF CEMENT MORTAR LINING AS SPECIFIED IN ANSI/AWWA C104/A21.4 (LATEST EDITION). PIPE JOINTS SHALL BE OF THE PUSH-ON RUBBER GASKET TYPE CONFORMING TO ANSI/AWWA C111/A21.11 (LATEST EDITION).</p> <p>PIPE SIZES GREATER THAN 12" IN BOTH PVC AND DUCTILE IRON SHALL BE SEPARATELY SPECIFIED ON THE PLANS; WITH THICKNESS CLASSES TO BE SHOWN BASED ON WORKING PRESSURES, PIPE DEPTH AND TRENCH CONDITIONS.</p> <p>FITTINGS FOR DUCTILE IRON PIPE AND PVC C900 PIPE SHALL BE DUCTILE IRON AND SHALL CONFORM TO ANSI/AWWA C110/A21.10 (LATEST EDITION) AND SHALL BE CEMENT LINED IN CONFORMANCE WITH ANSI/AWWA C104/A21.4 (LATEST EDITION).</p> <p>POLYETHYLENE WRAP USED FOR CORROSION PREVENTION ON DUCTILE IRON PIPE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/ASTM D1248. THE MINIMUM NOMINAL THICKNESS SHALL BE 0.008 IN. (8 MILS). INSTALLATION OF POLY WRAP SHALL BE IN ACCORDANCE WITH AWWA C105.</p> <p><u>VALVES</u></p> <p>GATE VALVES SHALL BE RESILIENT SEAT AND SHALL CONFORM TO ANSI/AWWA C509.87 WITH HANDWHEEL OR WRENCH NUT, EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED. MANUFACTURER'S CERTIFICATION OF THE VALVES' COMPLIANCE WITH AWWA SPECIFICATION C509 AND TESTS LISTED THEREIN WILL BE REQUIRED. VALVE BOX PADS SHALL BE 18" X 18" X 4" THICK CONCRETE WITH #4 REINFORCING BARS. PAD TO BE SET AT FINISHED GRADE. VALVES SHALL BE CLOW, MUELLER, KENNEDY, M&H, AMERICAN DARLING, OR APPROVED EQUAL.</p> <p><u>BUTTERFLY VALVES</u></p> <p>BUTTERFLY VALVES SHALL MEET OR EXCEED THE DESIGN STRENGTH TESTING AND PERFORMANCE REQUIREMENTS OF AWWA C504, CLASS 150. VALVES SHALL BE DUCTILE IRON, RESILIENT SEAT, AND BE MANUFACTURED BY KENNEDY, MUELLER, M&H, AMERICAN DARLING, OR APPROVED EQUAL. BUTTERFLY VALVES TO BE USED FOR MAIN SIZES GREATER THAN 12".</p> <p><u>AIR RELEASE VALVES</u></p> <p>AIR RELEASE VALVES SHALL BE PLACED AT HIGH POINTS OF THE TRANSMISSION MAIN TO PERMIT ESCAPE OF TRAPPED AIR. THE VALVE SIZE, LOCATION, AND METHOD OF INSTALLATION SHALL BE INDICATED ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER. AIR RELEASE VALVES SHALL BE VAL-MATIC CORPORATION.</p> <p><u>VALVE BOXES</u></p> <p>VALVE BOXES ON BURIED POTABLE WATER MAINS SHALL BE ADJUSTABLE, CAST IRON CONSTRUCTION, WITH A MINIMUM INTERIOR DIAMETER OF 5" WITH COVERS CAST WITH THE INSCRIPTION IN LEGIBLE LETTERING ON THE TOP: WATER. BOXES SHALL BE SUITABLE FOR THE APPLICABLE SURFACE LOADING AND VALVE SIZE, AND SHALL BE MANUFACTURED BY MUELLER COMPANY, MODEL 10364, OR APPROVED EQUAL.</p> <p><u>FIRE HYDRANTS</u></p> <p>FIRE HYDRANTS SHALL CONFORM TO THE LATEST EDITION OF AWWA C502.85 AND SHALL BE FURNISHED COMPLETE WITH WRENCH AND OTHER APPURTENANCES. MANUFACTURER'S CERTIFICATION OF COMPLIANCE WITH AWWA C502 AND TESTS LISTED THEREIN WILL BE REQUIRED. ALL HYDRANTS SHALL BE OF BREAKABLE TYPE, WITH THE BREAKABLE SECTION LOCATED SLIGHTLY ABOVE THE FINISH GROUND LINE. HYDRANTS SHALL CONTAIN TWO, TWO AND ONE-HALF INCH (2-1/2") HOSE CONNECTIONS, AND ONE, FOUR AND ONE-HALF INCH (4-1/2") STEAMER CONNECTIONS WITH NATIONAL STANDARD FIRE HOSE COUPLING SCREW THREADS, FIVE AND ONE-QUARTER INCH (5-1/4") VALVE OPENING, SIX INCH (6") DIAMETER MECHANICAL JOINT INLET, ONE AND ONE-HALF INCH (1-1/2") PENTAGON OPERATING NUT. SHALL OPEN COUNTERCLOCKWISE, SHALL BE PAINTED IN CONFORMANCE WITH LOCAL FIRE DEPT. REQUIREMENTS (COLORS BASED ON DELIVERED FIRE FLOW) WITH THE PRIMER PAINT BEING KOPPER'S "GLAMORTEX" NO. 622 RUST PRIMER, AND THE FINISH BEING KOPPER'S "GLAMORTEX" AND SHALL BE EITHER MUELLER SUPER CENTURION 250 (TRAFFIC MODEL A-423J) OR AMERICAN DARLING B-84-B, NO SUBSTITUTES.</p> <ol style="list-style-type: none"> 1. BLUE PAVEMENT REFLECTORS (RPM'S) SHALL BE PLACED IN THE CENTERLINE OF THE DRIVING LANE DIRECTLY IN FRONT OF EACH FIRE HYDRANT. 2. CONTRACTOR SHALL PROVIDE A POST-CONSTRUCTION FIRE FLOW TEST WITNESSED AND APPROVED BY THE ENGINEER, OWNER/OPERATOR AND LOCAL FIRE OFFICIAL. 3. THERE SHALL BE NO TREES, SHRUBS, ETC., PLANTED AROUND THE FIRE HYDRANTS OR IN AREAS DESIGNATED AS FIRE LANES. 	<p><u>WATER SERVICES</u></p> <p>UNLESS OTHERWISE NOTED IN THE PLANS, THE UTILITY COMPANY SHALL PROVIDE AND INSTALL WATER METERS. CONTRACTOR SHALL CONSTRUCT WATER SERVICE THROUGH THE CURB STOP AS SHOWN ON THE CONSTRUCTION PLANS.</p> <p>POLYETHYLENE (PE) PRESSURE PIPE FOR WATER SERVICES 3/4" THROUGH 2" SHALL BE ENDOT, ENDOPURE, BLUE PIPE AND CONFORM TO AWWA C901.88, MIN 200 PSI.</p> <p>ALL SERVICES SHALL INCLUDE THE FOLLOWING: CURB STOPS, "U" BRANCHES, UNIONS AS REQUIRED, PE SERVICE PIPE AND CORPORATION STOPS AND METER BOX. THE SERVICE SHALL BE COMPLETE THROUGH THE CURB STOP AS SHOWN ON THE DETAIL SHEET, AND SHALL BE OF THE TYPE REQUIRED FOR COMPATIBILITY WITH THE SERVICE LINES SPECIFIED, AND FITTINGS SHALL BE AS MANUFACTURED BY THE MUELLER CORPORATION OR HAYS OR FORD.</p> <p>THE CONTRACTOR SHALL STAMP "W" IN THE CURB TOP AT EACH WATER SERVICE AND A "V" AT ALL VALVE LOCATIONS. STAMPED W'S AND V'S SHALL BE HIGHLIGHTED WITH BLUE PAINT. SEE WATER DETAIL SHEET FOR OTHER SERVICE LOCATION AND MARKING REQUIREMENTS. "SAW" CUTS ARE NOT PERMISSIBLE.</p> <p><u>PIPE INSTALLATION</u></p> <p>PIPE INSTALLATION OF PVC WATER MAIN SHALL BE IN CONFORMANCE WITH ASTM D2774 (LATEST EDITION). INSTALLATION OF DUCTILE IRON PIPE WATER MAIN SHALL BE IN CONFORMANCE WITH AWWA C600.87.</p> <p>COMPACTED BACKFILL SHALL BE TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 UNDER ALL PAVEMENTS WITH 12" MAXIMUM LIFT THICKNESS. OTHER COMPACTION OF BACKFILL SHALL BE TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 WITH 12" MAXIMUM LIFT THICKNESS. SEE PIPE TRENCHING DETAILS.</p> <p>MINIMUM COVER OVER ALL PIPE SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.</p> <p>WATER MAINS ARE TO BE INSTALLED SO AS TO PROVIDE A MINIMUM VERTICAL CLEARANCE OF 18" OR A MINIMUM HORIZONTAL CLEARANCE OF 10 FEET FROM ALL SANITARY HAZARDS, INCLUDING STORM DRAINAGE PIPES AND STRUCTURES, AS WELL AS SEPTIC TANKS, DRAINFIELDS AND SEWER PIPING. IF CLEARANCE CANNOT BE ACHIEVED, THEN DUCTILE IRON WATER MAIN SHALL BE PROVIDED OR 10 FEET EITHER SIDE OF THE CROSSING OR WATER MAIN SHALL BE CONCRETE ENCASED IF A WATER STORM CROSSING, OR THE SEWER MAIN ENCASED IF A SANITARY SEWER WATER CROSSING.</p> <p>ALL PLUGS, CAPS, TEES, BENDS, FIRE HYDRANTS, VALVES, ETC., SHALL BE PROVIDED WITH THRUST BLOCKS/RODDED RESTRAINTS. FOR THRUST BLOCK CONSTRUCTION DETAILS, REFER TO THE UTILITY DETAIL SHEET.</p> <p><u>PIPE IDENTIFICATION/LOCATION WIRE</u></p> <p>BLUE INDICATOR TAPE SHALL BE BURIED IN THE WATER MAIN TRENCH 18" DIRECTLY ABOVE THE WATER MAIN. A CONTINUOUS COPPER DETECTOR WIRE SHALL BE ATTACHED AS SHOWN ON THE WATER DETAIL SHEET.</p> <p><u>DISINFECTION AND TESTING</u></p> <p>ALL PIPE SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651.86.</p> <p>ALLOWABLE LEAKAGE FOR PVC PRESSURE MAINS WILL BE IN ACCORDANCE WITH AWWA M23.</p> <p>THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES REQUIRED FOR ALL HYDROSTATIC AND LEAKAGE TESTING. CONTRACTOR SHALL CONTACT THE ENGINEER AND OWNER/OPERATOR IN WRITTEN FORM, SEVENTY-TWO (72) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION. TESTING SHALL ONLY BE SCHEDULED ON A TUESDAY, WEDNESDAY OR THURSDAY.</p> <p>THE WATER SYSTEM SHALL BE TESTED FOR LEAKAGE AT 150 PSI FOR TWO (2) HOURS, WITH ALLOWABLE LEAKAGE IN ACCORDANCE WITH ABOVE STANDARDS.</p> <p>CONTRACTOR SHALL OBTAIN A COPY OF THE FDEP WATER SYSTEM PERMIT AND PULL BACTERIOLOGICAL TEST SAMPLES FROM THE SAMPLE POINTS SPECIFIED IN THAT PERMIT.</p> <p><u>CONNECTIONS TO EXISTING WATER MAINS</u></p> <p>PRIOR TO THE CONNECTION TO ANY EXISTING MAIN, THE PROPOSED WATER MAIN SHALL BE DISINFECTED, HAVE ENGINEER APPROVED PRESSURE TESTING AND HAVE FDEP CLEARANCE. REFER TO FDEP PERMIT FOR ANY ADDITIONAL REQUIREMENTS.</p>	<p><u>AS-BUILT DRAWINGS</u></p> <p>THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES.</p> <p>AS-BUILT INFORMATION FOR THE WATER SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> 1. LOCATION OF ALL VALVES, FITTINGS, HYDRANTS AND SERVICES. 2. LOCATION OF THE WATER MAIN TIED HORIZONTALLY TO THE BACK OF CURB OR EDGE OF PAVEMENT. 3. CERTIFICATION AS TO THE SYSTEM MEETING THE MINIMUM COVER REQUIREMENTS. 4. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING PLANS.
<p><u>RECLAIMED WATER INFRASTRUCTURE SYSTEMS</u></p> <p><u>OWNER/OPERATOR</u></p> <p>THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE SYSTEM SHOWN ON THESE PLANS IS SANLANDO UTILITIES CORPORATION. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THAT ENTITY.</p> <p><u>PIPE MATERIALS</u></p> <p>POLYVINYL CHLORIDE PLASTIC PIPE (PVC) 4" THROUGH 12" SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C900 (LATEST EDITION) AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI AND HAVE A DR (DIMENSION RATIO) OF 18. ALL PIPE SHALL BE LABELED "RECLAIMED WATER" OR "NON POTABLE WATER" PROMINENTLY ON EACH PIPE JOINT. JOINTS SHALL BE OF THE PUSH-ON TYPE AND COUPLINGS CONFORMING TO ASTM D3139 DR18 PIPE.</p> <p>DUCTILE IRON PIPE (DIP) SHALL BE STANDARD PRESSURE CLASS 350 IN SIZES 4" THROUGH 12" AND CONFORM TO ANSI/AWWA C150/A21.50 (LATEST EDITION). ALL DUCTILE IRON PIPE SHALL HAVE A STANDARD THICKNESS OF CEMENT MORTAR LINING AS SPECIFIED IN ANSI/AWWA C104/A21.4 (LATEST EDITION). PIPE JOINTS SHALL BE OF THE PUSH-ON RUBBER GASKET TYPE CONFORMING TO ANSI/AWWA C111/A21.11 (LATEST EDITION).</p> <p>PIPE SIZES GREATER THAN 12" IN BOTH PVC AND DUCTILE IRON SHALL BE SEPARATELY SPECIFIED ON THE PLANS; WITH THICKNESS CLASSES TO BE SHOWN BASED ON WORKING PRESSURES, PIPE DEPTH AND TRENCH CONDITIONS.</p> <p>FITTINGS FOR DUCTILE IRON PIPE AND PVC C900 PIPE SHALL BE DUCTILE IRON AND SHALL CONFORM TO ANSI/AWWA C110/A21.10 (LATEST EDITION) AND SHALL BE CEMENT LINED IN CONFORMANCE WITH ANSI/AWWA C104/A21.4 (LATEST EDITION).</p> <p>POLYETHYLENE WRAP USED FOR CORROSION PREVENTION ON DUCTILE IRON PIPE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/ASTM D1248. THE MINIMUM NOMINAL THICKNESS SHALL BE 0.008 IN. (8 MILS). INSTALLATION OF POLY WRAP SHALL BE IN ACCORDANCE WITH AWWA C105.</p> <p><u>VALVES</u></p> <p>GATE VALVES SHALL BE RESILIENT SEAT AND SHALL CONFORM TO ANSI/AWWA C509.87 WITH HANDWHEEL OR WRENCH NUT, EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED. MANUFACTURER'S CERTIFICATION OF THE VALVES' COMPLIANCE WITH AWWA SPECIFICATION C509 AND TESTS LISTED THEREIN WILL BE REQUIRED. VALVE BOX PADS SHALL BE 18" X 18" X 4" THICK CONCRETE WITH #4 REINFORCING BARS. PAD TO BE SET AT FINISHED GRADE. VALVES SHALL BE CLOW, MUELLER, KENNEDY, M&H, AMERICAN DARLING, OR APPROVED EQUAL.</p> <p><u>BUTTERFLY VALVES</u></p> <p>BUTTERFLY VALVES SHALL MEET OR EXCEED THE DESIGN STRENGTH TESTING AND PERFORMANCE REQUIREMENTS OF AWWA C504, CLASS 150. VALVES SHALL BE DUCTILE IRON, RESILIENT SEAT, AND BE MANUFACTURED BY KENNEDY, MUELLER, M&H, AMERICAN DARLING, OR APPROVED EQUAL. BUTTERFLY VALVES TO BE USED FOR SIZES GREATER THAN 12".</p> <p><u>AIR RELEASE VALVES</u></p> <p>AIR RELEASE VALVES SHALL BE PLACED AT HIGH POINTS OF THE TRANSMISSION MAIN TO PERMIT ESCAPE OF TRAPPED AIR. THE VALVE SIZE, LOCATION, AND METHOD OF INSTALLATION SHALL BE INDICATED ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER. AIR RELEASE VALVES SHALL BE VALMATIC OR APPROVED EQUAL.</p> <p><u>VALVE BOXES</u></p> <p>VALVE BOXES ON BURIED RECLAIMED WATER MAINS SHALL BE ADJUSTABLE, CAST IRON CONSTRUCTION, WITH A MINIMUM INTERIOR DIAMETER OF 5" WITH COVERS CAST WITH THE INSCRIPTION IN LEGIBLE LETTERING ON THE TOP: RECLAIMED WATER. BOXES SHALL BE SUITABLE FOR THE APPLICABLE SURFACE LOADING AND VALVE SIZE, AND SHALL BE MANUFACTURED BY MUELLER COMPANY, MODEL 10364, OR APPROVED EQUAL.</p> <p><u>PIPE INSTALLATION</u></p> <p>PIPE INSTALLATION OF PVC RECLAIMED WATER MAIN SHALL BE IN CONFORMANCE WITH ASTM D2774 (LATEST EDITION). INSTALLATION OF DUCTILE IRON PIPE RECLAIMED WATER MAIN SHALL BE IN CONFORMANCE WITH AWWA C600.87 (LATEST EDITION).</p> <p>COMPACTED BACKFILL SHALL BE TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 UNDER ALL PAVEMENTS WITH 12" MAXIMUM LIFT THICKNESS. OTHER COMPACTION OF BACKFILL SHALL BE TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 WITH 12" MAXIMUM LIFT THICKNESS. SEE PIPE TRENCHING DETAILS.</p> <p>MINIMUM COVER OVER ALL PIPE SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.</p> <p>RECLAIMED WATER MAINS ARE TO BE INSTALLED SO AS TO PROVIDE A MINIMUM VERTICAL CLEARANCE OF 18" OR A MINIMUM HORIZONTAL CLEARANCE OF 5 FEET FROM ALL SANITARY HAZARDS INCLUDING STORM DRAINAGE PIPES AND STRUCTURES, AS WELL AS SEPTIC TANK DRAINFIELDS AND SEWER PIPING. IF CLEARANCE CANNOT BE ACHIEVED, THE PVC WATER MAIN SHALL BE ENCASED IN CONCRETE OR DUCTILE IRON PIPE USED IN LIEU OF PVC PIPE FOR 10' EACH SIDE OF WATER/STORM SEWER CROSSING. IF WATER/SANITARY SEWER CROSSING THEN SANITARY SEWER PIPE SHALL BE ENCASED OR D.I.P. USED FOR 10' EACH SIDE OF CROSSING.</p> <p>ALL PLUGS, CAPS, TEES, BENDS, VALVES, ETC., SHALL BE PROVIDED WITH THRUST BLOCKS/RODDED RESTRAINTS. FOR THRUST BLOCK CONSTRUCTION DETAILS, REFER TO THE UTILITY DETAIL SHEET.</p> <p><u>PIPE IDENTIFICATION/LOCATION WIRE</u></p> <p>INDICATOR TAPE SHALL BE BURIED IN THE RECLAIMED WATER MAIN TRENCH 18" DIRECTLY ABOVE THE WATER MAIN. A CONTINUOUS COPPER DETECTOR WIRE SHALL BE ATTACHED AS SHOWN ON THE RECLAIMED WATER DETAIL SHEET. INDICATOR TAPE SHALL CALL OUT THAT A RECLAIMED OR NON POTABLE SYSTEM IS BELOW. PIPE SHALL BE COLOR CODED PURPLE IN ADDITION TO MARKING, IF AVAILABLE.</p> <p><u>DISINFECTION AND TESTING</u></p> <p>ALLOWABLE LEAKAGE FOR PVC PRESSURE MAINS WILL BE IN ACCORDANCE WITH AWWA M23.</p> <p>THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES REQUIRED FOR ALL HYDROSTATIC AND LEAKAGE TESTING. CONTRACTOR SHALL CONTACT THE ENGINEER AND OWNER/OPERATOR IN WRITTEN FORM, FORTY-EIGHT (48) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION. TESTING SHALL ONLY BE SCHEDULED ON A TUESDAY, WEDNESDAY OR THURSDAY.</p> <p>THE RECLAIMED WATER SYSTEM SHALL BE TESTED FOR LEAKAGE AT 150 PSI FOR TWO (2) HOURS, WITH ALLOWABLE LEAKAGE IN ACCORDANCE WITH ABOVE STANDARDS.</p>	<p><u>AS-BUILT DRAWINGS</u></p> <p>THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES.</p> <p>AS-BUILT INFORMATION FOR THE WATER SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> 1. LOCATION OF ALL VALVES, FITTINGS AND SERVICES. 2. LOCATION OF THE WATER MAIN TIED HORIZONTALLY TO THE BACK OF CURB OR EDGE OF PAVEMENT. 3. CERTIFICATION AS TO THE SYSTEM MEETING THE MINIMUM COVER REQUIREMENTS. 4. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING PLANS. <p><u>POTABLE WATER / FIRE SYSTEMS</u></p> <p><u>OWNER/OPERATOR</u></p> <p>THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE WATER SYSTEM SHOWN ON THESE PLANS IS SANLANDO UTILITIES CORPORATION. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THAT ENTITY.</p> <p><u>PIPE MATERIALS</u></p> <p>POLYVINYL CHLORIDE PLASTIC PIPE (PVC) 4" THROUGH 12" SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C900 (LATEST EDITION) AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI AND HAVE A DR (DIMENSION RATIO) OF 18. ALL PVC PIPE SHALL BEAR THE NSF LOGO FOR POTABLE WATER. JOINTS SHALL BE OF THE PUSH-ON TYPE AND COUPLINGS CONFORMING TO ASTM D3139 DR18 PIPE.</p> <p>DUCTILE IRON PIPE (DIP) SHALL BE STANDARD PRESSURE CLASS 350 IN SIZES 4" THROUGH 12" AND CONFORM TO ANSI/AWWA C150/A21.50 (LATEST EDITION). ALL DUCTILE IRON PIPE SHALL HAVE A STANDARD THICKNESS OF CEMENT MORTAR LINING AS SPECIFIED IN ANSI/AWWA C104/A21.4 (LATEST EDITION). PIPE JOINTS SHALL BE OF THE PUSH-ON RUBBER GASKET TYPE CONFORMING TO ANSI/AWWA C111/A21.11 (LATEST EDITION).</p> <p>PIPE SIZES GREATER THAN 12" IN BOTH PVC AND DUCTILE IRON SHALL BE SEPARATELY SPECIFIED ON THE PLANS; WITH THICKNESS CLASSES TO BE SHOWN BASED ON WORKING PRESSURES, PIPE DEPTH AND TRENCH CONDITIONS.</p> <p>FITTINGS FOR DUCTILE IRON PIPE AND PVC C900 PIPE SHALL BE DUCTILE IRON AND SHALL CONFORM TO ANSI/AWWA C110/A21.10 (LATEST EDITION) AND SHALL BE CEMENT LINED IN CONFORMANCE WITH ANSI/AWWA C104/A21.4 (LATEST EDITION).</p> <p>POLYETHYLENE WRAP USED FOR CORROSION PREVENTION ON DUCTILE IRON PIPE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/ASTM D1248. THE MINIMUM NOMINAL THICKNESS SHALL BE 0.008 IN. (8 MILS). INSTALLATION OF POLY WRAP SHALL BE IN ACCORDANCE WITH AWWA C105.</p> <p><u>VALVES</u></p> <p>GATE VALVES SHALL BE RESILIENT SEAT AND SHALL CONFORM TO ANSI/AWWA C509.87 WITH HANDWHEEL OR WRENCH NUT, EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED. MANUFACTURER'S CERTIFICATION OF THE VALVES' COMPLIANCE WITH AWWA SPECIFICATION C509 AND TESTS LISTED THEREIN WILL BE REQUIRED. VALVE BOX PADS SHALL BE 18" X 18" X 4" THICK CONCRETE WITH #4 REINFORCING BARS. PAD TO BE SET AT FINISHED GRADE. VALVES SHALL BE CLOW, MUELLER, KENNEDY, M&H, AMERICAN DARLING, OR APPROVED EQUAL.</p> <p><u>BUTTERFLY VALVES</u></p> <p>BUTTERFLY VALVES SHALL MEET OR EXCEED THE DESIGN STRENGTH TESTING AND PERFORMANCE REQUIREMENTS OF AWWA C504, CLASS 150. VALVES SHALL BE DUCTILE IRON, RESILIENT SEAT, AND BE MANUFACTURED BY KENNEDY, MUELLER, M&H, AMERICAN DARLING, OR APPROVED EQUAL. BUTTERFLY VALVES TO BE USED FOR MAIN SIZES GREATER THAN 12".</p> <p><u>AIR RELEASE VALVES</u></p> <p>AIR RELEASE VALVES SHALL BE PLACED AT HIGH POINTS OF THE TRANSMISSION MAIN TO PERMIT ESCAPE OF TRAPPED AIR. THE VALVE SIZE, LOCATION, AND METHOD OF INSTALLATION SHALL BE INDICATED ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER. AIR RELEASE VALVES SHALL BE VAL-MATIC CORPORATION.</p> <p><u>VALVE BOXES</u></p> <p>VALVE BOXES ON BURIED POTABLE WATER MAINS SHALL BE ADJUSTABLE, CAST IRON CONSTRUCTION, WITH A MINIMUM INTERIOR DIAMETER OF 5" WITH COVERS CAST WITH THE INSCRIPTION IN LEGIBLE LETTERING ON THE TOP: WATER. BOXES SHALL BE SUITABLE FOR THE APPLICABLE SURFACE LOADING AND VALVE SIZE, AND SHALL BE MANUFACTURED BY MUELLER COMPANY, MODEL 10364, OR APPROVED EQUAL.</p> <p><u>FIRE HYDRANTS</u></p> <p>FIRE HYDRANTS SHALL CONFORM TO THE LATEST EDITION OF AWWA C502.85 AND SHALL BE FURNISHED COMPLETE WITH WRENCH AND OTHER APPURTENANCES. MANUFACTURER'S CERTIFICATION OF COMPLIANCE WITH AWWA C502 AND TESTS LISTED THEREIN WILL BE REQUIRED. ALL HYDRANTS SHALL BE OF BREAKABLE TYPE, WITH THE BREAKABLE SECTION LOCATED SLIGHTLY ABOVE THE FINISH GROUND LINE. HYDRANTS SHALL CONTAIN TWO, TWO AND ONE-HALF INCH (2-1/2") HOSE CONNECTIONS, AND ONE, FOUR AND ONE-HALF INCH (4-1/2") STEAMER CONNECTIONS WITH NATIONAL STANDARD FIRE HOSE COUPLING SCREW THREADS, FIVE AND ONE-QUARTER INCH (5-1/4") VALVE OPENING, SIX INCH (6") DIAMETER MECHANICAL JOINT INLET, ONE AND ONE-HALF INCH (1-1/2") PENTAGON OPERATING NUT. SHALL OPEN COUNTERCLOCKWISE, SHALL BE PAINTED IN CONFORMANCE WITH LOCAL FIRE DEPT. REQUIREMENTS (COLORS BASED ON DELIVERED FIRE FLOW) WITH THE PRIMER PAINT BEING KOPPER'S "GLAMORTEX" NO. 622 RUST PRIMER, AND THE FINISH BEING KOPPER'S "GLAMORTEX" AND SHALL BE EITHER MUELLER SUPER CENTURION 250 (TRAFFIC MODEL A-423J) OR AMERICAN DARLING B-84-B, NO SUBSTITUTES.</p> <ol style="list-style-type: none"> 1. BLUE PAVEMENT REFLECTORS (RPM'S) SHALL BE PLACED IN THE CENTERLINE OF THE DRIVING LANE DIRECTLY IN FRONT OF EACH FIRE HYDRANT. 2. CONTRACTOR SHALL PROVIDE A POST-CONSTRUCTION FIRE FLOW TEST WITNESSED AND APPROVED BY THE ENGINEER, OWNER/OPERATOR AND LOCAL FIRE OFFICIAL. 3. THERE SHALL BE NO TREES, SHRUBS, ETC., PLANTED AROUND THE FIRE HYDRANTS OR IN AREAS DESIGNATED AS FIRE LANES. 	<p><u>WATER SERVICES</u></p> <p>UNLESS OTHERWISE NOTED IN THE PLANS, THE UTILITY COMPANY SHALL PROVIDE AND INSTALL WATER METERS. CONTRACTOR SHALL CONSTRUCT WATER SERVICE THROUGH THE CURB STOP AS SHOWN ON THE CONSTRUCTION PLANS.</p> <p>POLYETHYLENE (PE) PRESSURE PIPE FOR WATER SERVICES 3/4" THROUGH 2" SHALL BE ENDOT, ENDOPURE, BLUE PIPE AND CONFORM TO AWWA C901.88, MIN 200 PSI.</p> <p>ALL SERVICES SHALL INCLUDE THE FOLLOWING: CURB STOPS, "U" BRANCHES, UNIONS AS REQUIRED, PE SERVICE PIPE AND CORPORATION STOPS AND METER BOX. THE SERVICE SHALL BE COMPLETE THROUGH THE CURB STOP AS SHOWN ON THE DETAIL SHEET, AND SHALL BE OF THE TYPE REQUIRED FOR COMPATIBILITY WITH THE SERVICE LINES SPECIFIED, AND FITTINGS SHALL BE AS MANUFACTURED BY THE MUELLER CORPORATION OR HAYS OR FORD.</p> <p>THE CONTRACTOR SHALL STAMP "W" IN THE CURB TOP AT EACH WATER SERVICE AND A "V" AT ALL VALVE LOCATIONS. STAMPED W'S AND V'S SHALL BE HIGHLIGHTED WITH BLUE PAINT. SEE WATER DETAIL SHEET FOR OTHER SERVICE LOCATION AND MARKING REQUIREMENTS. "SAW" CUTS ARE NOT PERMISSIBLE.</p> <p><u>PIPE INSTALLATION</u></p> <p>PIPE INSTALLATION OF PVC WATER MAIN SHALL BE IN CONFORMANCE WITH ASTM D2774 (LATEST EDITION). INSTALLATION OF DUCTILE IRON PIPE WATER MAIN SHALL BE IN CONFORMANCE WITH AWWA C600.87.</p> <p>COMPACTED BACKFILL SHALL BE TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 UNDER ALL PAVEMENTS WITH 12" MAXIMUM LIFT THICKNESS. OTHER COMPACTION OF BACKFILL SHALL BE TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 WITH 12" MAXIMUM LIFT THICKNESS. SEE PIPE TRENCHING DETAILS.</p> <p>MINIMUM COVER OVER ALL PIPE SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.</p> <p>WATER MAINS ARE TO BE INSTALLED SO AS TO PROVIDE A MINIMUM VERTICAL CLEARANCE OF 18" OR A MINIMUM HORIZONTAL CLEARANCE OF 10 FEET FROM ALL SANITARY HAZARDS, INCLUDING STORM DRAINAGE PIPES AND STRUCTURES, AS WELL AS SEPTIC TANKS, DRAINFIELDS AND SEWER PIPING. IF CLEARANCE CANNOT BE ACHIEVED, THEN DUCTILE IRON WATER MAIN SHALL BE PROVIDED OR 10 FEET EITHER SIDE OF THE CROSSING OR WATER MAIN SHALL BE CONCRETE ENCASED IF A WATER STORM CROSSING, OR THE SEWER MAIN ENCASED IF A SANITARY SEWER WATER CROSSING.</p> <p>ALL PLUGS, CAPS, TEES, BENDS, FIRE HYDRANTS, VALVES, ETC., SHALL BE PROVIDED WITH THRUST BLOCKS/RODDED RESTRAINTS. FOR THRUST BLOCK CONSTRUCTION DETAILS, REFER TO THE UTILITY DETAIL SHEET.</p> <p><u>PIPE IDENTification/LOCATION WIRE</u></p> <p>BLUE INDICATOR TAPE SHALL BE BURIED IN THE WATER MAIN TRENCH 18" DIRECTLY ABOVE THE WATER MAIN. A CONTINUOUS COPPER DETECTOR WIRE SHALL BE ATTACHED AS SHOWN ON THE WATER DETAIL SHEET.</p> <p><u>DISINFECTION AND TESTING</u></p> <p>ALL PIPE SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651.86.</p> <p>ALLOWABLE LEAKAGE FOR PVC PRESSURE MAINS WILL BE IN ACCORDANCE WITH AWWA M23.</p> <p>THE CONTRACTOR SHALL PROVIDE AT HIS OWN EXPENSE ALL NECESSARY TEST PUMPING EQUIPMENT, WATER, WATER METERS, PRESSURE GAUGES, AND OTHER EQUIPMENT, MATERIAL AND FACILITIES REQUIRED FOR ALL HYDROSTATIC AND LEAKAGE TESTING. CONTRACTOR SHALL CONTACT THE ENGINEER AND OWNER/OPERATOR IN WRITTEN FORM, SEVENTY-TWO (72) HOURS IN ADVANCE OF PROPOSED TESTING. THE CONTRACTOR SHALL PERFORM SATISFACTORY PRETESTING PRIOR TO NOTIFICATION. TESTING SHALL ONLY BE SCHEDULED ON A TUESDAY, WEDNESDAY OR THURSDAY.</p> <p>THE WATER SYSTEM SHALL BE TESTED FOR LEAKAGE AT 150 PSI FOR TWO (2) HOURS, WITH ALLOWABLE LEAKAGE IN ACCORDANCE WITH ABOVE STANDARDS.</p> <p>CONTRACTOR SHALL OBTAIN A COPY OF THE FDEP WATER SYSTEM PERMIT AND PULL BACTERIOLOGICAL TEST SAMPLES FROM THE SAMPLE POINTS SPECIFIED IN THAT PERMIT.</p> <p><u>CONNECTIONS TO EXISTING WATER MAINS</u></p> <p>PRIOR TO THE CONNECTION TO ANY EXISTING MAIN, THE PROPOSED WATER MAIN SHALL BE DISINFECTED, HAVE ENGINEER APPROVED PRESSURE TESTING AND HAVE FDEP CLEARANCE. REFER TO FDEP PERMIT FOR ANY ADDITIONAL REQUIREMENTS.</p>	<p><u>AS-BUILT DRAWINGS</u></p> <p>THE CONTRACTOR SHALL PROVIDE VERTICAL AND HORIZONTAL "AS-BUILT" INFORMATION RELATIVE TO ALL CONSTRUCTED UTILITIES AND STRUCTURES.</p> <p>AS-BUILT INFORMATION FOR THE WATER SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> 1. LOCATION OF ALL VALVES, FITTINGS, HYDRANTS AND SERVICES. 2. LOCATION OF THE WATER MAIN TIED HORIZONTALLY TO THE BACK OF CURB OR EDGE OF PAVEMENT. 3. CERTIFICATION AS TO THE SYSTEM MEETING THE MINIMUM COVER REQUIREMENTS. 4. HORIZONTAL AND VERTICAL DATA FOR ANY CONSTRUCTION WHICH DEVIATES FROM THE APPROVED ENGINEERING PLANS.
<p><u>RECLAIMED WATER INFRASTRUCTURE SYSTEMS</u></p> <p><u>OWNER/OPERATOR</u></p> <p>THE ENTITY THAT WILL OWN, OPERATE AND MAINTAIN THE SYSTEM SHOWN ON THESE PLANS IS SANLANDO UTILITIES CORPORATION. THE CONTRACTOR SHALL BE EXPECTED TO MEET ALL THE REQUIREMENTS OF THAT ENTITY.</p> <p><u>PIPE MATERIALS</u></p> <p>POLYVINYL CHLORIDE PLASTIC PIPE (PVC) 4" THROUGH 12" SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C900 (LATEST EDITION) AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI AND HAVE A DR (DIMENSION RATIO) OF 18. ALL PIPE SHALL BE LABELED "RECLAIMED WATER" OR "NON POTABLE WATER" PROMINENTLY ON EACH PIPE JOINT. JOINTS SHALL BE OF THE PUSH-ON TYPE AND COUPLINGS CONFORMING TO ASTM D3139 DR18 PIPE.</p> <p>DUCTILE IRON PIPE (DIP) SHALL BE STANDARD PRESSURE CLASS 350 IN SIZES 4" THROUGH 12" AND CONFORM TO ANSI/AWWA C150/A21.50 (LATEST EDITION). ALL DUCTILE IRON PIPE SHALL HAVE A STANDARD THICKNESS OF CEMENT MORTAR LINING AS SPECIFIED IN ANSI/AWWA C104/A21.4 (LATEST EDITION). PIPE JOINTS SHALL BE OF THE PUSH-ON RUBBER GASKET TYPE CONFORMING TO ANSI/AWWA C111/A21.11 (LATEST EDITION).</p> <p>PIPE SIZES GREATER THAN 12" IN BOTH PVC AND DUCTILE IRON SHALL BE SEPARATELY SPECIFIED ON THE PLANS; WITH THICKNESS CLASSES TO BE SHOWN BASED ON WORKING PRESSURES, PIPE DEPTH AND TRENCH CONDITIONS.</p> <p>FITTINGS FOR DUCTILE IRON PIPE AND PVC C900 PIPE SHALL BE DUCTILE IRON AND SHALL CONFORM TO ANSI/AWWA C110/A21.10 (LATEST EDITION) AND SHALL BE CEMENT LINED IN CONFORMANCE WITH ANSI/AWWA C104/A21.4 (LATEST EDITION).</p> <p>POLYETHYLENE WRAP USED FOR CORROSION PREVENTION ON DUCTILE IRON PIPE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/ASTM D1248. THE MINIMUM NOMINAL THICKNESS SHALL BE 0.008 IN. (8 MILS). INSTALLATION OF POLY WRAP SHALL BE IN ACCORDANCE WITH AWWA C105.</p> <p><u>VALVES</u></p> <p>GATE VALVES SHALL BE RESILIENT SEAT AND SHALL CONFORM TO ANSI/AWWA C509.87 WITH HANDWHEEL OR WRENCH NUT, EXTENSION STEMS AND OTHER APPURTENANCES AS REQUIRED. MANUFACTURER'S CERTIFICATION OF THE VALVES' COMPLIANCE WITH AWWA SPECIFICATION C509 AND TESTS LISTED THEREIN WILL BE REQUIRED. VALVE BOX PADS SHALL BE 18" X 18" X 4" THICK CONCRETE WITH #4 REINFORCING BARS. PAD TO BE SET AT FINISHED GRADE. VALVES SHALL BE CLOW, MUELLER, KENNEDY, M&H, AMERICAN DARLING, OR APPROVED EQUAL.</p> <p><u>BUTTERFLY VALVES</u></p> <p>BUTTERFLY VALVES SHALL MEET OR EXCEED THE DESIGN STRENGTH TESTING AND PERFORMANCE REQUIREMENTS OF AWWA C504, CLASS 150. VALVES SHALL BE DUCTILE IRON, RESILIENT SEAT, AND BE MANUFACTURED BY KENNEDY, MUELLER, M&H, AMERICAN DARLING, OR APPROVED EQUAL. BUTTERFLY VALVES TO BE USED FOR SIZES GREATER THAN 12".</p> <p><u>AIR RELEASE VALVES</u></p> <p>AIR RELEASE VALVES SHALL BE PLACED AT HIGH POINTS OF THE TRANSMISSION MAIN TO PERMIT ESCAPE OF TRAPPED AIR. THE VALVE SIZE, LOCATION, AND METHOD OF INSTALLATION SHALL BE INDICATED ON THE DRAWINGS, OR AS DIRECTED BY THE ENGINEER. AIR RELEASE VALVES SHALL BE VALMATIC OR APPROVED EQUAL.</p> <p><u>VALVE BOXES</u></p> <p>VALVE BOXES ON BURIED RECLAIMED WATER MAINS SHALL BE ADJUSTABLE, CAST IRON CONSTRUCTION, WITH A MINIMUM INTERIOR DIAMETER OF 5" WITH COVERS CAST WITH THE INSCRIPTION IN LEGIBLE LETTERING ON THE TOP: RECLAIMED WATER. BOXES SHALL BE SUITABLE FOR THE APPLICABLE SURFACE LOADING AND VALVE SIZE, AND SHALL BE MANUFACTURED BY MUELLER COMPANY, MODEL 10364, OR APPROVED EQUAL.</p> <p><u>PIPE INSTALLATION</u></p> <p>PIPE INSTALLATION OF PVC RECLAIMED WATER MAIN SHALL BE IN CONFORMANCE WITH ASTM D2774 (LATEST EDITION). INSTALLATION OF DUCTILE IRON PIPE RECLAIMED WATER MAIN SHALL BE IN CONFORMANCE WITH AWWA C600.87 (LATEST EDITION).</p> <p>COMPACTED BACKFILL SHALL BE TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 UNDER ALL PAVEMENTS WITH 12" MAXIMUM LIFT THICKNESS. OTHER COMPACTION OF BACKFILL SHALL BE TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 WITH 12" MAXIMUM LIFT THICKNESS. SEE PIPE TRENCHING DETAILS.</p> <p>MINIMUM COVER OVER ALL PIPE SHALL BE 36" FROM TOP OF PIPE TO FINISHED GRADE. SEE PLAN AND PROFILE SHEETS FOR REQUIRED DEPTH.</p> <p>RECLAIMED WATER MAINS ARE TO BE INSTALLED SO AS TO PROVIDE A MINIMUM VERTICAL CLEARANCE OF 18" OR A MINIMUM HORIZONTAL CLEARANCE OF 5 FEET FROM ALL SANITARY HAZARDS INCLUDING STORM DRAINAGE PIPES AND STRUCTURES, AS WELL AS SEPTIC TANK DRAINFIELDS AND SEWER PIPING. IF CLEARANCE CANNOT BE ACHIEVED, THE PVC WATER MAIN SHALL BE ENCASED IN CONCRETE OR DUCTILE IRON PIPE USED IN LIEU OF PVC PIPE FOR 10' EACH SIDE OF WATER/STORM SEWER CROSSING. IF WATER/SANITARY SEWER CROSSING THEN SANITARY SEWER PIPE SHALL BE ENCASED OR D.I.P. USED FOR 10' EACH SIDE OF CROSSING.</p> <p>ALL PLUGS, CAPS, TEES, BENDS, VALVES, ETC., SHALL BE PROVIDED WITH THRUST BLOCKS/RODDED RESTRAINTS. FOR THRUST BLOCK CONSTRUCTION DETAILS, REFER TO THE UTILITY DETAIL SHEET.</p> <p></p>			



GENERAL LEGEND

- PROPERTY LINE
- - - WETLAND LINE
- - - WETLAND CONS. AREA SETBACK (WCAS) (50')

NOTE:
 THIS EXHIBIT WAS PREPARED FOR ILLUSTRATIVE PURPOSES ONLY. THE LATEST AVAILABLE DIGITAL AERIAL FILES HAVE BEEN USED HOWEVER THIS MAY NOT ACCURATELY DEPICT CURRENT SITE CONDITIONS. ADDITIONAL ENGINEERING, ENVIRONMENTAL REVIEWS, FIELD SURVEYING AND DATA COLLECTION ARE NECESSARY TO CORRECTLY PORTRAY ACTUAL SITE CONDITIONS. THIS EXHIBIT IS SUBJECT TO CHANGE WITHOUT NOTICE BASED ON THE ABOVE.

DATE OF PHOTO: 2014

NOTE:
 FOR SAWGRASS BAY BOULEVARD REFER TO MADDEN MOORHEAD & STOKES, INC. PLANS

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 23752
 Landscape Architecture Certificate of Authorization No. LC26000405

SERENOA AMENITY CENTER AERIAL SITE PLAN

PREPARED FOR: **VK AVALON GROVES, LLC**

NO.	DATE	DESCRIPTION
2	06/22/2017	LAYOUT REVISIONS
1	07/28/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
 FILE: ASP
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

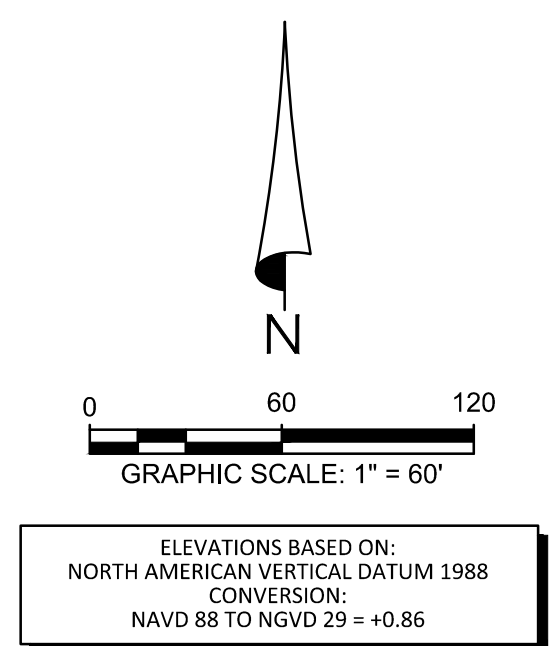
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-104



GENERAL LEGEND

- PROPERTY LINE
- - - WETLAND LINE
- - - WETLAND CONS. AREA SETBACK (WCAS) (50')
- STAKED EROSION CONTROL

SITE PLAN GENERAL INFORMATION:

- OVERALL SITE AREA - 18.80 AC.
- DISTURBED SITE AREA - 11.10 AC.
- BLDG. AREA - 6,700 SQ.FT.
- PARKING SPACES -
 - HANDICAP - 3 SPACES
 - TOTAL SPACES - 58 SPACES
- OPEN SPACE - 16.40 AC.

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
 Landscape Architecture Certificate of Authorization No. LC26000405

SERENOVA AMENITY CENTER
SITE DATA
PREPARED FOR: VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
2	06/27/2017	LAYOUT REVISIONS
1	07/28/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
 FILE: SITE
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

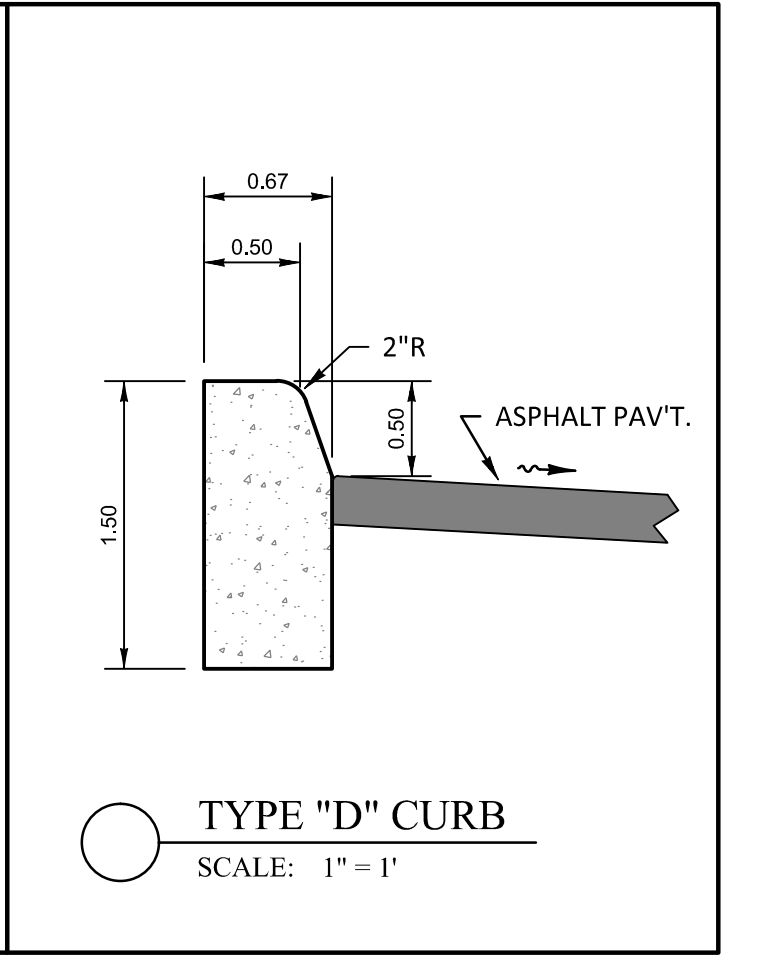
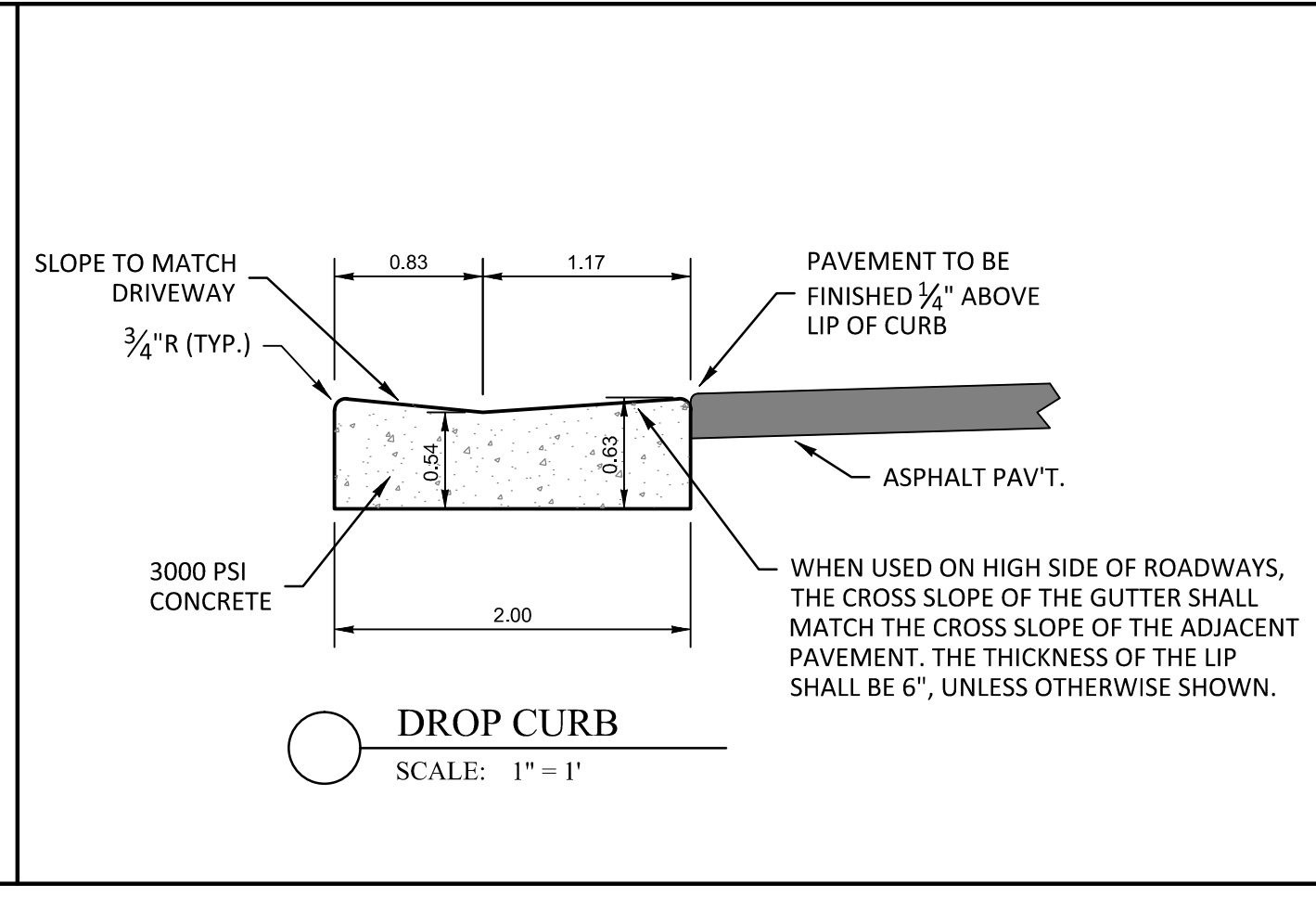
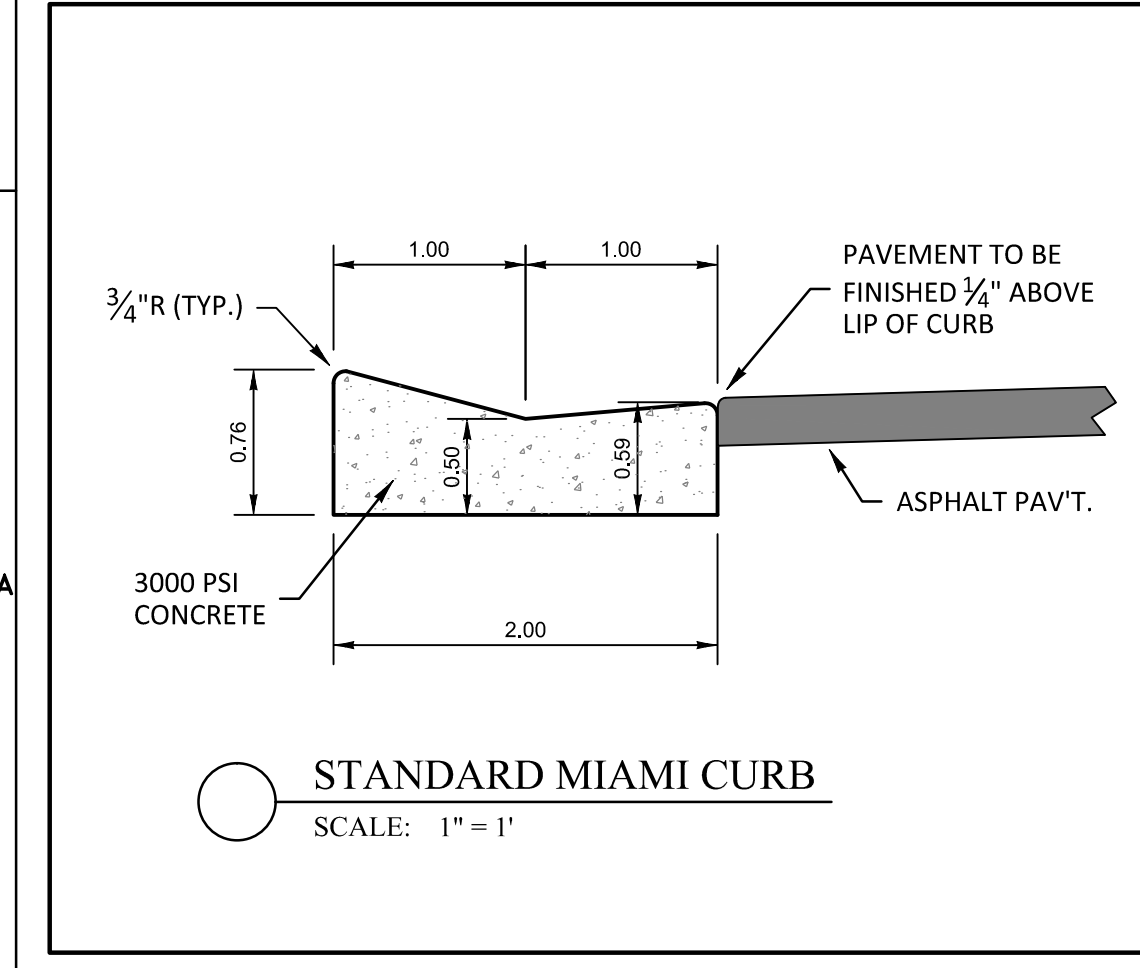
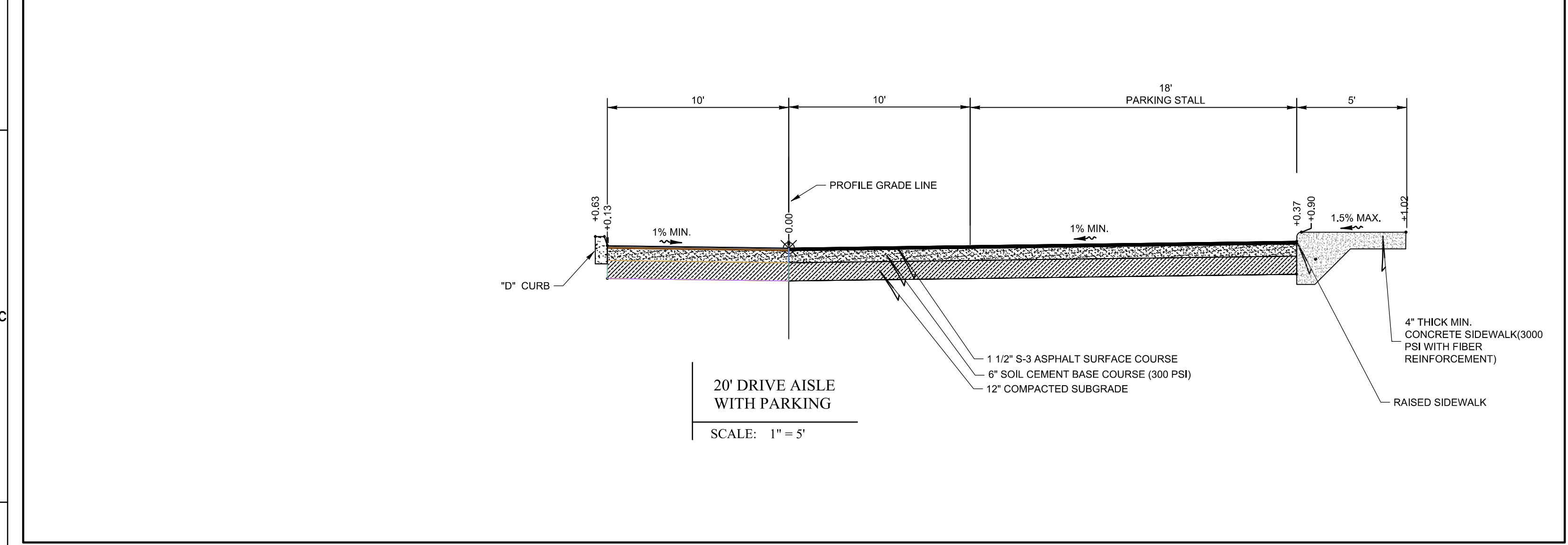
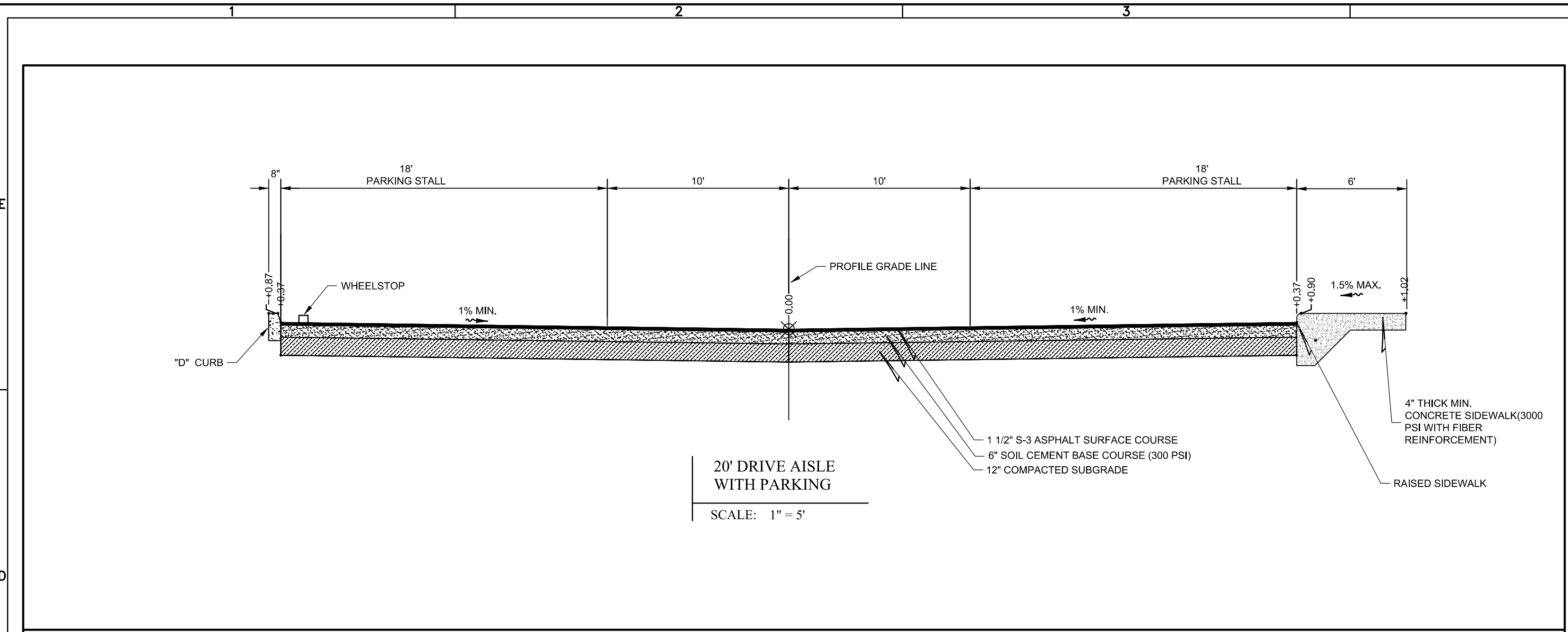
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-105



PAVEMENT CONSTRUCTION NOTES:

1. SUBGRADE
THE FOLLOWING ARE MINIMUM STANDARDS FOR THE STABILIZED SUBGRADE:
WIDTH - THE SUBGRADE SHALL BE TWO (2) FEET WIDER THAN THE BASE COURSE (ONE (1) FOOT EACH SIDE) AND IN THE CASE OF CURB AND GUTTER SHALL EXTEND SIX (6) INCHES BEHIND THE CURB.

DEPTH - THE SUBGRADE SHALL HAVE A MINIMUM DEPTH OF 12-INCHES.

COMPACTION - THE SUBGRADE SHALL BE COMPACTED TO 98% DENSITY HAVING A MINIMUM FLORIDA BEARING VALUE (FBV) OF 50 POUNDS PER SQUARE INCH.

CARE OF SUBGRADE - TRUCKS WILL BE ALLOWED ON FINISHED SUBGRADE TO DUMP BASE COURSE, BUT CONTRACTOR WILL BE REQUIRED TO LEVEL OUT RUTS. IN THE EVENT THE TRUCKS CAUSE TOO MUCH DAMAGE TO THE SUBGRADE, THE COUNTY MANAGER OR DESIGNEE MAY REQUIRE DUMPING, SPREADING, AND HAULING ON THE BASE COURSE.

2. SHOULDERS
THE FOLLOWING ARE MINIMUM STANDARDS FOR SHOULDERS:

WIDTH - SHOULDERS SHALL BE EIGHT FEET WIDE, A REDUCTION IN THE WIDTH REQUIREMENT MAY BE ALLOWED IF APPROVED BY THE COUNTY MANAGER OR DESIGNEE.

DEPTH - SHOULDERS SHALL HAVE A MINIMUM DEPTH OF SIX INCHES.

COMPACTION - SHOULDERS SHALL BE COMPACTED TO A MINIMUM FLORIDA BEARING VALUE OF 50 POUNDS PER SQUARE INCH.

GRADING - SHOULDERS SHALL BE GRADED WITH A MINIMUM CROSS-SLOPE OF 1/2" INCH/FOOT.

3. BASE COURSE
THE FOLLOWING ARE MINIMUM STANDARDS FOR THE BASE COURSE:

MATERIAL - OCALA LIMEROCK OR SOIL CEMENT ARE ACCEPTABLE MATERIAL TYPES FOR THE ROAD BASE. OTHER MATERIALS MAY BE USED IF APPROVED BY THE COUNTY MANAGER OR DESIGNEE. SOIL CEMENT MAY NOT BE UTILIZED ON HEAVY DUTY ROADS WITHOUT SPECIFIC APPROVAL BY THE COUNTY MANAGER OR DESIGNEE.

WIDTH - ALL BASES SHALL BE ONE (1) FOOT WIDER (SIX (6) INCHES EACH SIDE) THAN THE FINISHED SURFACE.

DEPTH - THE BASE SHALL HAVE A MINIMUM DEPTH OF SIX INCHES. HEAVY DUTY ROADS SHALL HAVE A BASE WITH A MINIMUM DEPTH OF EIGHT INCHES PLACED IN TWO LIFTS.

COMPACTION - LIMEROCK BASE SHALL BE COMPACTED TO A MINIMUM 98% DENSITY AS DETERMINED BY AASHTO T-180.

STRENGTH - SOIL CEMENT BASE SHALL HAVE A SEVEN DAY DESIGN COMPRESSIVE STRENGTH OF AT LEAST 300 PSI.

FORMS - NO FORM BOARDS WILL BE REQUIRED UNLESS, IN THE OPINION OF THE COUNTY MANAGER OR DESIGNEE, THE CONTRACTOR IS NOT TAKING PRECAUTIONS TO OBTAIN THE FULL DEPTH AT THE EDGES.

GRADING - THE BASE SHALL BE GRADED AND ROLLED TO CONFORM TO THE GRADE AND CROSS-SLOPE OF THE FINISHED ROADWAY.

PRIME COAT - PRIME COAT SHALL BE APPLIED TO ALL BASE COURSES, AND SAND SEALED.

4. WEARING SURFACE
THE FOLLOWING ARE MINIMUM STANDARDS FOR PAVEMENT WEARING SURFACE:

MATERIAL - TYPE III ASPHALTIC CONCRETE SHALL BE USED FOR THE ROAD WEARING SURFACE. OTHER ASPHALT TYPES MAY BE USED IF REQUIRED BY THE COUNTY MANAGER OR DESIGNEE.

DEPTH - ROADS SHALL HAVE A MINIMUM 1 1/2" INCH DEPTH OF WEARING SURFACE. THE MINIMUM DEPTH MAY BE INCREASED IF REQUIRED BY THE COUNTY MANAGER OR DESIGNEE.

HEAVY DUTY ROADS - HEAVY DUTY SHALL HAVE A WEARING SURFACE CONSISTING OF MINIMUM OF TWO INCHES OF S-1 ASPHALTIC CONCRETE OVERLAPPED WITH A ONE INCH FRICTION COURSE. THE TYPE OF MATERIAL TO BE USED FOR THE FRICTION COURSE SHALL BE DETERMINED BY THE COUNTY MANAGER OR DESIGNEE.

GRADING - ROAD SURFACES SHALL BE GRADED WITH A MINIMUM CROSS-SLOPE OF 1/4" INCH/FOOT.

5. CURB AND GUTTER

THE WIDTH OF CURB AND GUTTER SHALL BE A MINIMUM OF TWENTY-FOUR (24) INCHES AND SHALL BE EITHER FLORIDA DEPARTMENT OF TRANSPORTATION TYPE F (STANDARD CURB AND GUTTER) OR MIAMI TYPE, DEPENDING UPON THE FLOW TO BE HANDLED. FDOT TYPE D (SIMPLE VERTICAL CURBING) WILL NOT BE ACCEPTABLE. FDOT TYPE A (MOUNTABLE MEDIAN CURB) MAY BE USED AROUND MEDIAN DIVIDERS ON THE HIGH SIDE OF PAVEMENT. THERE SHALL BE A STABILIZED SUBGRADE BENEATH ALL CURB AND GUTTER.

NO WATER VALVE BOXES, METERS, PORTIONS OF MANHOLES, OR OTHER APPURTENANCES OF ANY KIND RELATING TO ANY UNDERGROUND UTILITIES SHALL BE LOCATED IN ANY PORTION OF A CURB AND GUTTER SECTION.

THE CURB AND GUTTER FLOW LINE GRADES SHALL RUN PARALLEL TO THE ROAD CENTERLINE GRADE. THE MINIMUM ALLOWABLE FLOW LINE GRADE OF CURBS AND GUTTERS SHALL BE 0.30%, EXCEPT IN INTERSECTIONS WHERE FLATTER GRADES SHALL BE ALLOWABLE.

JOINTS SHALL BE SAWED (UNLESS AN ALTERNATE METHOD IS USED) AT INTERVALS OF TEN (10) FEET, EXCEPT WHERE SHORTER INTERVALS ARE REQUIRED FOR CLOSURES, BUT, IN NO CASE, LESS THAN FOUR (4) FEET. JOINTS SHALL BE CUT ON THE SAME DAY THAT THE CURB AND GUTTER IS POURED.

ALL CROSS-STREET VALLEY GUTTERS SHALL BE CONSTRUCTED OF CONCRETE.

6. DECORATIVE PAVEMENT
THE USE OF DECORATIVE PAVEMENT SHALL BE SUBJECT TO THE APPROVAL OF THE COUNTY MANAGER OR DESIGNEE. THE COUNTY SHALL NOT ASSUME THE MAINTENANCE OF DECORATIVE PAVEMENT SECTIONS. MAINTENANCE SHALL BE THE RESPONSIBILITY OF A HOMEOWNERS ASSOCIATION OR OTHER ACCEPTABLE ENTITY.

THE COUNTY SHALL HAVE THE RIGHT TO MODIFY, ALTER, OR REMOVE ALL OR A PORTION OF THE DECORATIVE PAVEMENT AS NECESSARY FOR ROADWAY IMPROVEMENTS OR IMPROVEMENTS FOR TRAFFIC SAFETY.

BOMANITE PAVEMENT - BOMANITE PAVEMENTS SHALL MEET THE REQUIREMENTS FOR CONCRETE PAVEMENT IN THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THE DEVELOPER SHALL SUBMIT TO THE COUNTY, FOR APPROVAL, MANUFACTURER SPECIFICATIONS CONFIRMING ADHERENCE TO THESE REGULATIONS.

PAVING BRICKS - THE USE OF PAVING BRICKS SHALL BE SUBJECT TO THE APPROVAL OF THE COUNTY. THE DEVELOPER SHALL SUBMIT TO THE COUNTY, FOR APPROVAL, MANUFACTURER'S LITERATURE AND TECHNICAL SPECIFICATIONS REGARDING THE STRUCTURAL STRENGTH, SKID RESISTANCE AND SUBGRADE REQUIREMENTS.

7. TESTING
TESTING SHALL BE PROVIDED AS PART OF CONSTRUCTION AND SHALL BE AT NO COST TO THE COUNTY. TESTING SHALL BE PERFORMED BY AN INDEPENDENT ENGINEERING TESTING LABORATORY CERTIFIED IN THE STATE OF FLORIDA.

THE FOLLOWING ARE MINIMUM TESTING REQUIREMENTS:

SUBGRADE - TESTING FOR THE SUBGRADE THICKNESS, BEARING VALUE AND DENSITY SHALL BE LOCATED NO MORE THAN FIVE HUNDRED (500) FEET APART AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND ON THE CENTERLINE OF THE ROADWAY. THE COUNTY MAY ALSO REQUIRE ADDITIONAL TEST LOCATIONS AS DIRECTED BY THE COUNTY MANAGER OR DESIGNEE. THERE SHALL BE NO LESS THAN ONE (1) TEST PER ROAD. TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT, AASHTO, OR ASTM STANDARDS. CERTIFIED TEST RESULTS SHALL BE SUBMITTED TO THE COUNTY FOR APPROVAL PRIOR TO PROCEEDING WITH THE BASE COURSE.

LIMEROCK BASE - TESTING FOR THE BASE THICKNESS AND DENSITY SHALL BE LOCATED NO MORE THAN 500-FEET APART AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND ON THE CENTERLINE OF THE ROADWAY. THE COUNTY MAY ALSO REQUIRE ADDITIONAL TEST LOCATIONS AS DIRECTED BY THE COUNTY MANAGER OR DESIGNEE. THERE SHALL BE NO LESS THAN ONE TEST PER ROAD. TESTING SHALL INCLUDE: MODIFIED PROCTOR MAXIMUM DENSITY, IN-PLACE FIELD DENSITY AND THICKNESS. TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT, AASHTO, OR ASTM STANDARDS. CERTIFIED TEST RESULTS SHALL BE SUBMITTED TO THE COUNTY FOR APPROVAL PRIOR TO PROCEEDING WITH THE WEARING SURFACE.

SOIL / CEMENT BASE - TESTING FOR THE BASE THICKNESS AND STRENGTH SHALL BE LOCATED NO MORE THAN 500-FEET APART AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND ON THE CENTERLINE OF THE ROADWAY. THE COUNTY MAY ALSO REQUIRE ADDITIONAL TEST LOCATIONS AS DIRECTED BY THE COUNTY MANAGER OR DESIGNEE. THERE SHALL BE NO LESS THAN ONE TEST PER ROAD. TESTING SHALL INCLUDE: TEST CORES TAKEN AFTER SEVEN DAYS TO VERIFY THICKNESS AND TESTING TO VERIFY A MINIMUM SEVEN DAY COMPRESSIVE STRENGTH OF 300 PSI. TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT, AASHTO, OR ASTM STANDARDS. CERTIFIED TEST RESULTS SHALL BE SUBMITTED TO THE COUNTY FOR APPROVAL PRIOR TO PROCEEDING WITH THE WEARING SURFACE.

WEARING SURFACE - TESTING FOR WEARING SURFACE THICKNESS SHALL BE LOCATED NO MORE THAN 500-FEET APART AND SHALL BE STAGGERED TO THE LEFT, RIGHT AND ON THE CENTERLINE OF THE ROADWAY. THE COUNTY MAY ALSO REQUIRE ADDITIONAL TEST LOCATIONS AS DIRECTED BY THE COUNTY MANAGER OR DESIGNEE. THERE SHALL BE NO LESS THAN ONE TEST PER ROAD. TESTING SHALL INCLUDE: CERTIFIED DESIGN MIX SUBMITTED FOR APPROVAL PRIOR TO PLACING ASPHALT. EXTRACTIONS TAKEN IN FIELD AT LEAST ONE PER DAY AND CORINGS TO VERIFY THICKNESS. TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE FDOT, AASHTO, OR ASTM STANDARDS. CERTIFIED TEST RESULTS SHALL BE SUBMITTED TO THE COUNTY FOR APPROVAL.

CONTRACTOR MAY PROPOSE ALTERNATE PAVEMENT DESIGNS. CONTRACTOR SHALL SUBMIT ANY PAVEMENT ALTERNATIVES TO ENGINEER FOR APPROVAL PRIOR TO FINAL SUBGRADE PREPARATIONS.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629

www.HeidtDesign.com

SERENOVA AMENITY CENTER
TYPICAL ROADWAY SECTIONS
VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	02/29/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
FILE: RS-LAKECO
DESIGN BY: FRANCIS
DRAWN BY: GAULT

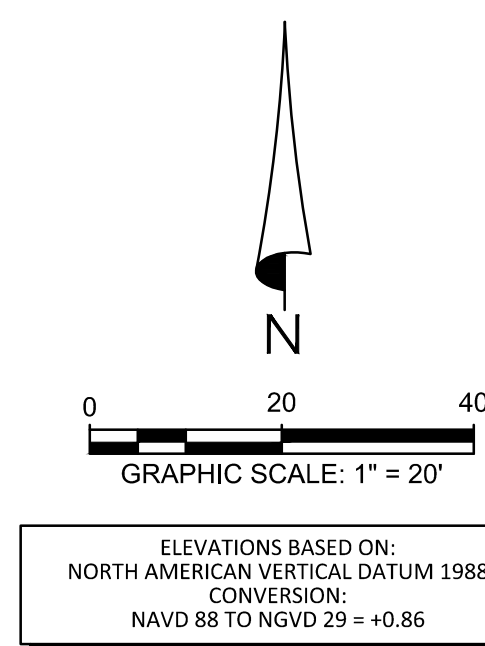
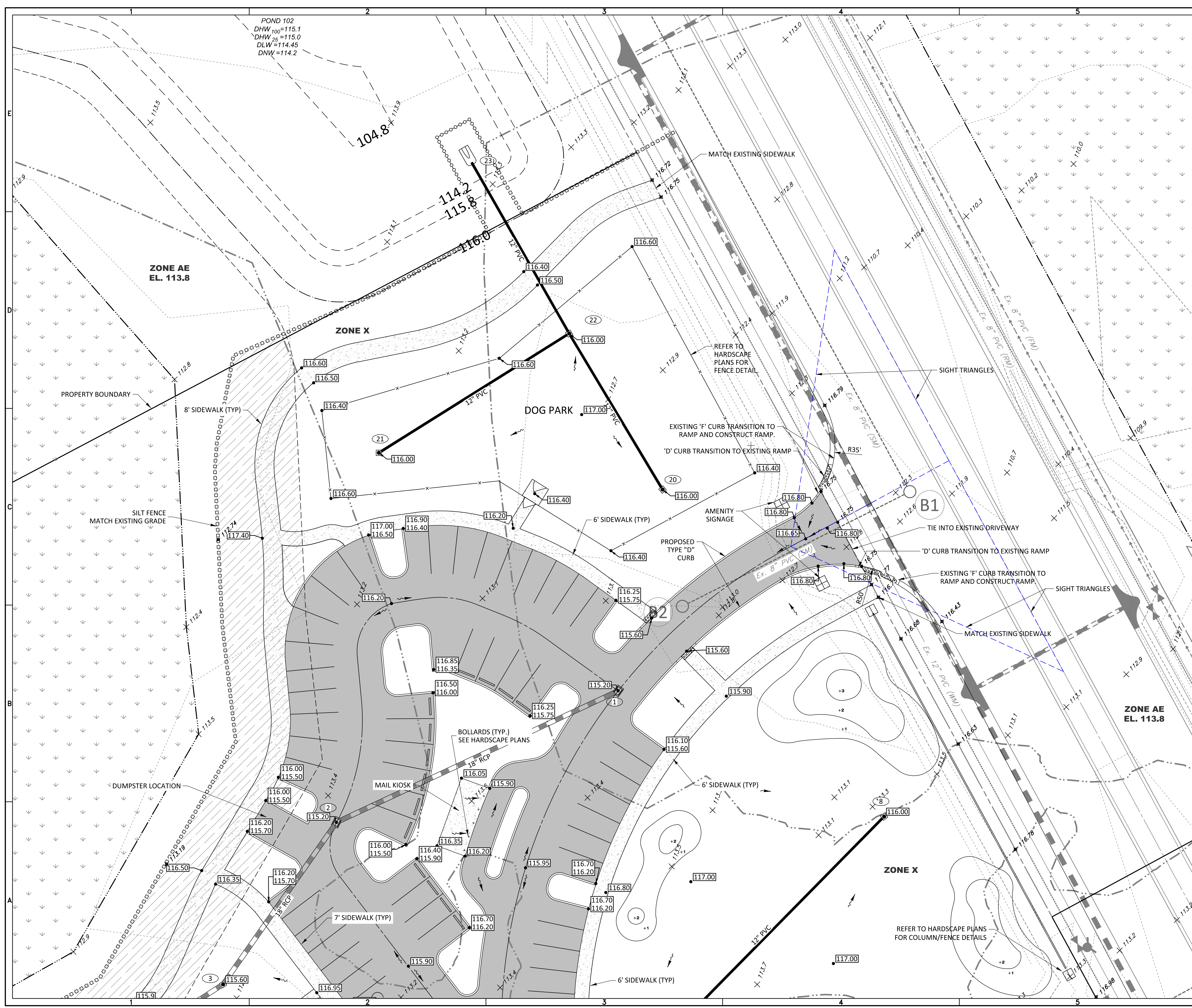
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE: 02/29/2017
REGISTRATION NO. 58548

C-200



DRAINAGE LEGEND

- | EXISTING | PROPOSED | DESCRIPTION |
|----------|----------|--|
| | | STORM DRAINAGE STRUCTURE & PIPE |
| | | STRUCTURE NO. |
| | | DIRECTION OF SURFACE FLOW |
| | | CONTOUR |
| | | FEMA FLOOD LINE |
| | | SPOT ELEVATION GROUND |
| | | SPOT ELEVATION PAVEMENT |
| | | SPOT ELEVATION TOP OF WALK/CURB EDGE OF PAVEMENT |
| | | PROFILE GRADE ELEVATION REFERENCE |
| | | FINISH FLOOR ELEVATION |
| | | SOIL BORING LOCATION (PONDS) |
| | | EXISTING TREE TO BE PROTECTED |
| | | SECTION ID LABEL |
| | | SECTION SHEET NUMBER |

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
 Landscape Architecture Certificate of Authorization No. LC26000005

SERENOVA AMENITY CENTER GRADING & DRAINAGE PLAN

PREPARED FOR: **VK AVALON GROVES, LLC**

NO.	DATE	DESCRIPTION
2	06/27/2017	LAYOUT REVISIONS
1	02/28/2017	REVIEW SUBMITTAL

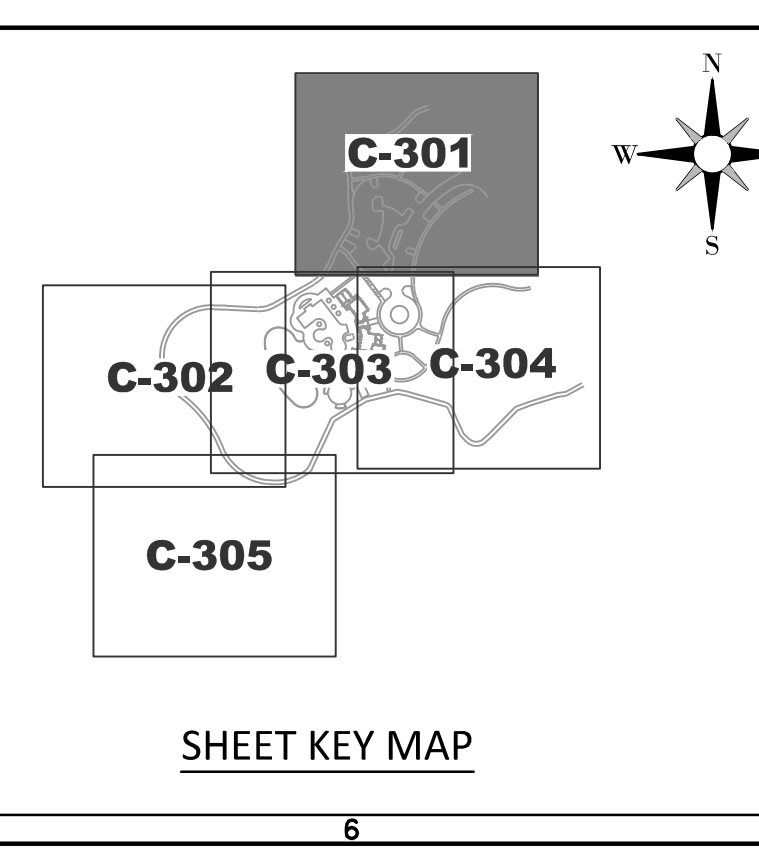
PROJECT NO: KLP-AG-1009
 FILE: GD
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

FLORIDA PROFESSIONAL ENGINEER

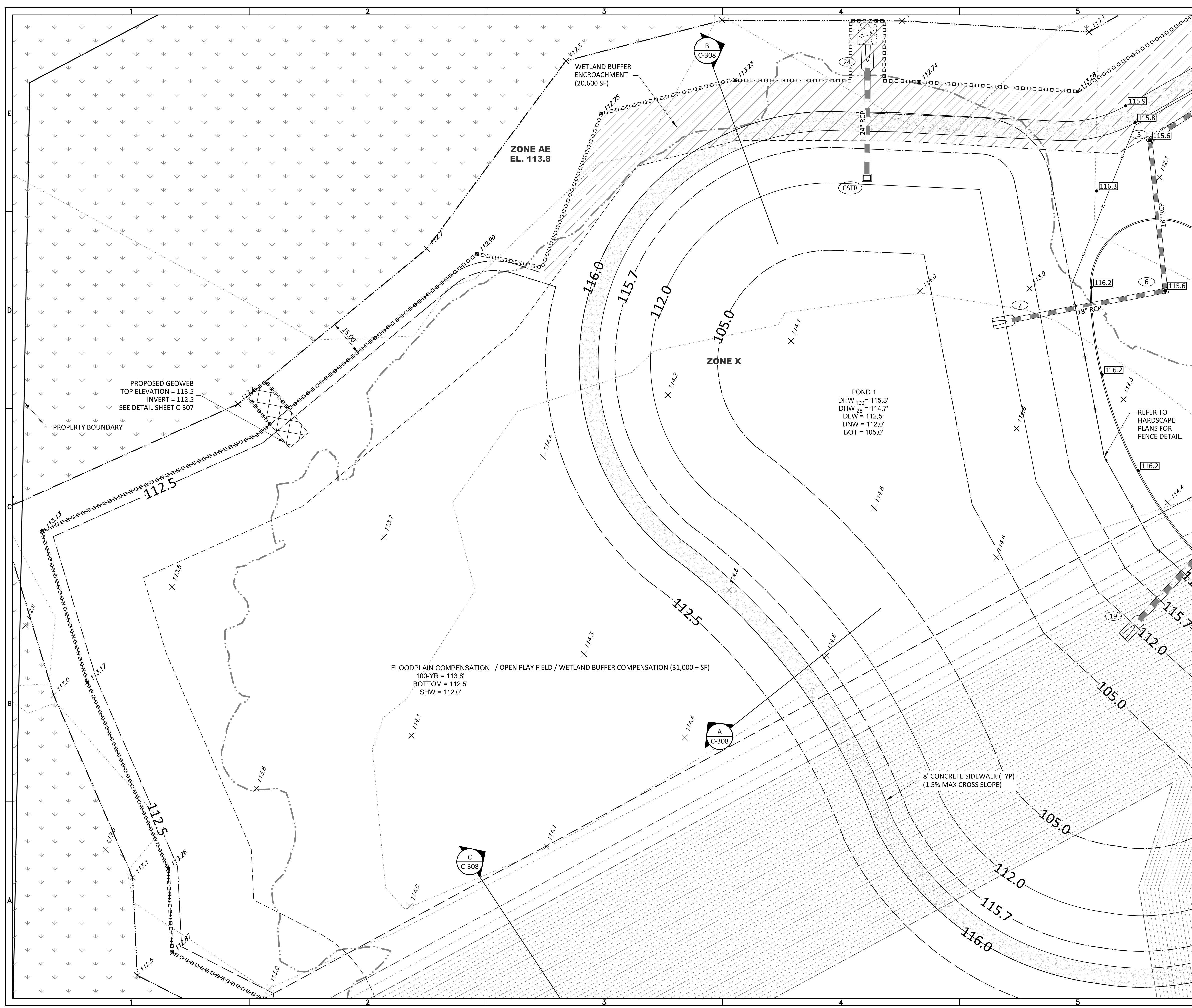
This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.
 Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

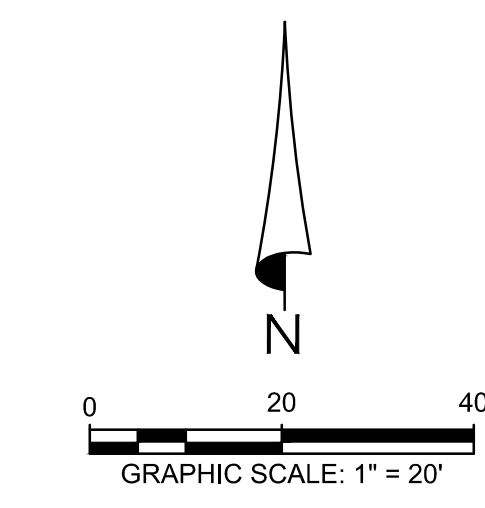
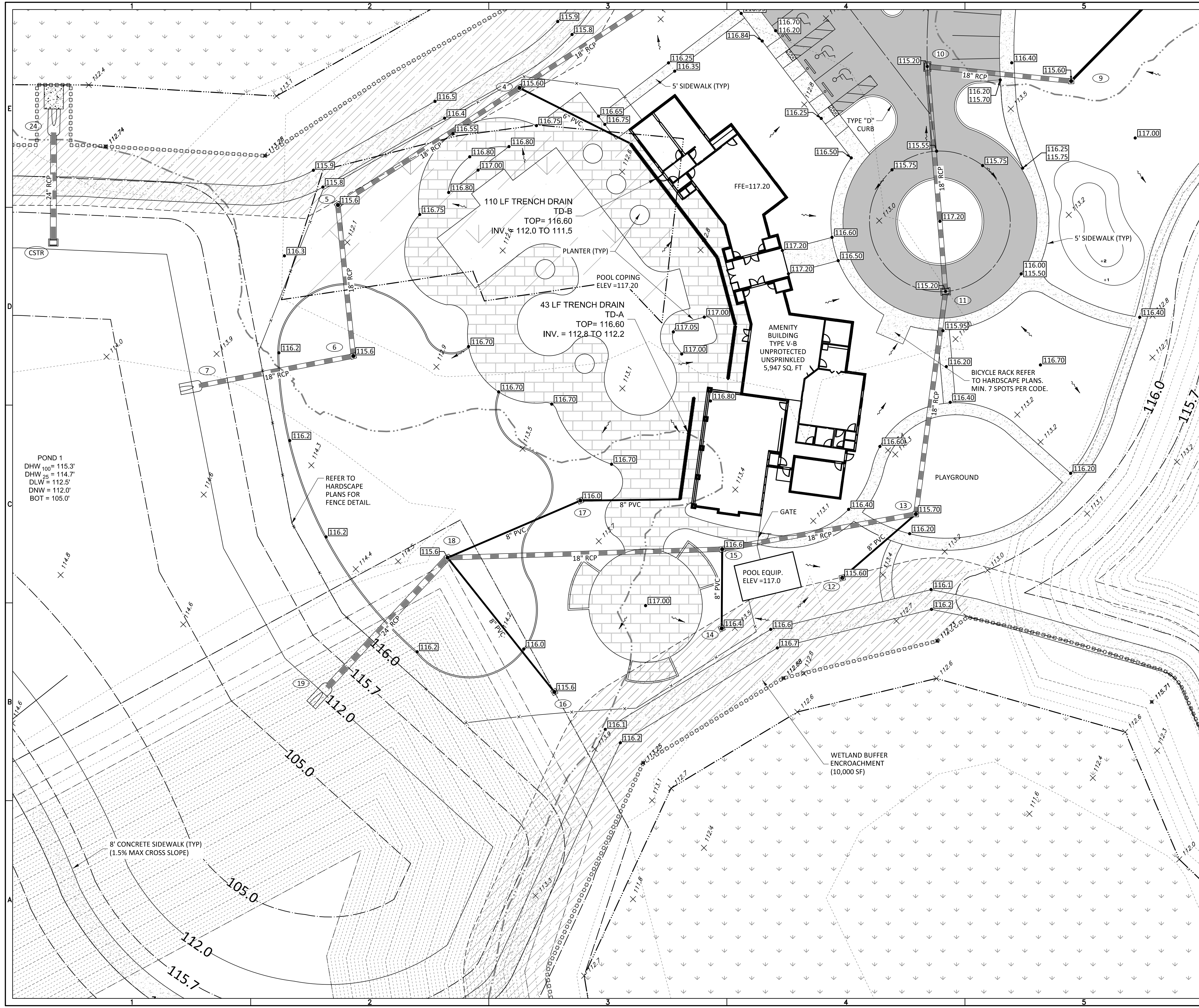
VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-301



© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR COMMENTS MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM HEIDT DESIGN, LLC. PERMISSION IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH F.S. CHAPTER 119.





DRAINAGE LEGEND

- | EXISTING | PROPOSED | |
|----------|----------|-----------------------------------|
| | | STORM DRAINAGE STRUCTURE & PIPE |
| | | STRUCTURE NO. |
| | | DIRECTION OF SURFACE FLOW |
| | | CONTOUR |
| | | FEMA FLOOD LINE |
| | | SPOT ELEVATION GROUND |
| | | SPOT ELEVATION PAVEMENT |
| | | SPOT ELEVATION TOP OF WALK/CURB |
| | | SPOT ELEVATION EDGE OF PAVEMENT |
| | | PROFILE GRADE ELEVATION REFERENCE |
| | | FF=000.00 FINISH FLOOR ELEVATION |
| | | PB-# SOIL BORING LOCATION (PONDS) |
| | | EXISTING TREE TO BE PROTECTED |
| | | SECTION ID LABEL |
| | | SECTION SHEET NUMBER |

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

PREPARED FOR:
SERENOVA AMENITY CENTER GRADING & DRAINAGE PLAN
 VK AVALON GROVES, LLC

DATE	DESCRIPTION

DATE	DESCRIPTION
06/22/2017	LAYOUT REVISIONS
07/28/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
 FILE: GD
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

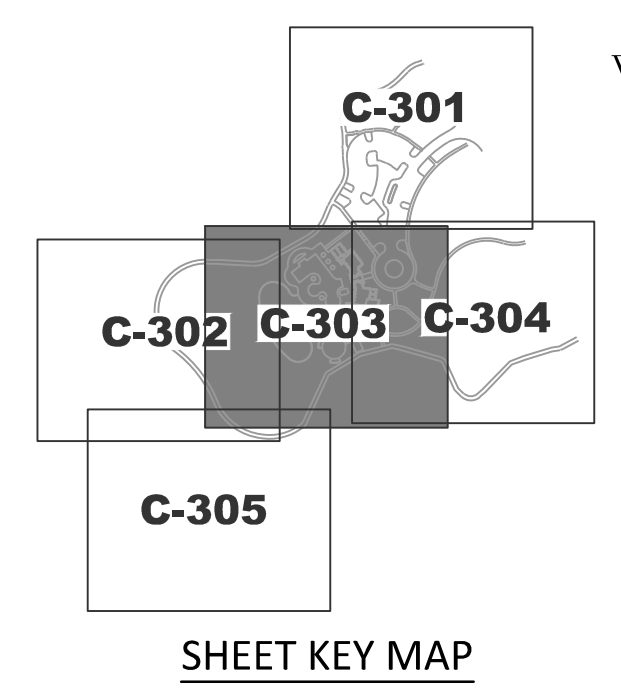
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

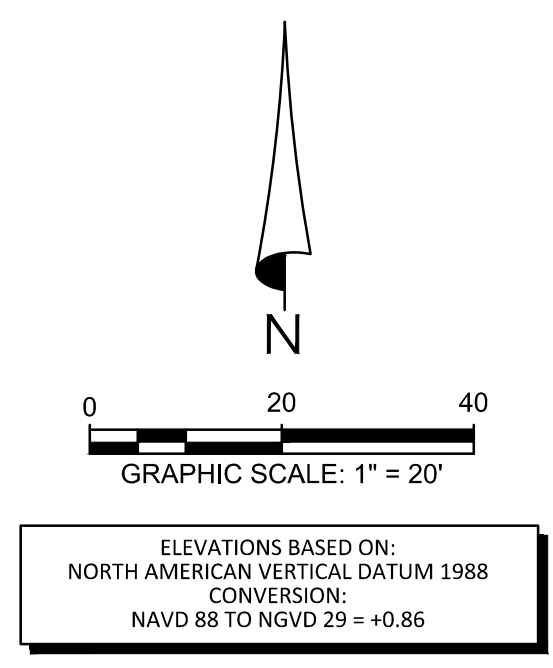
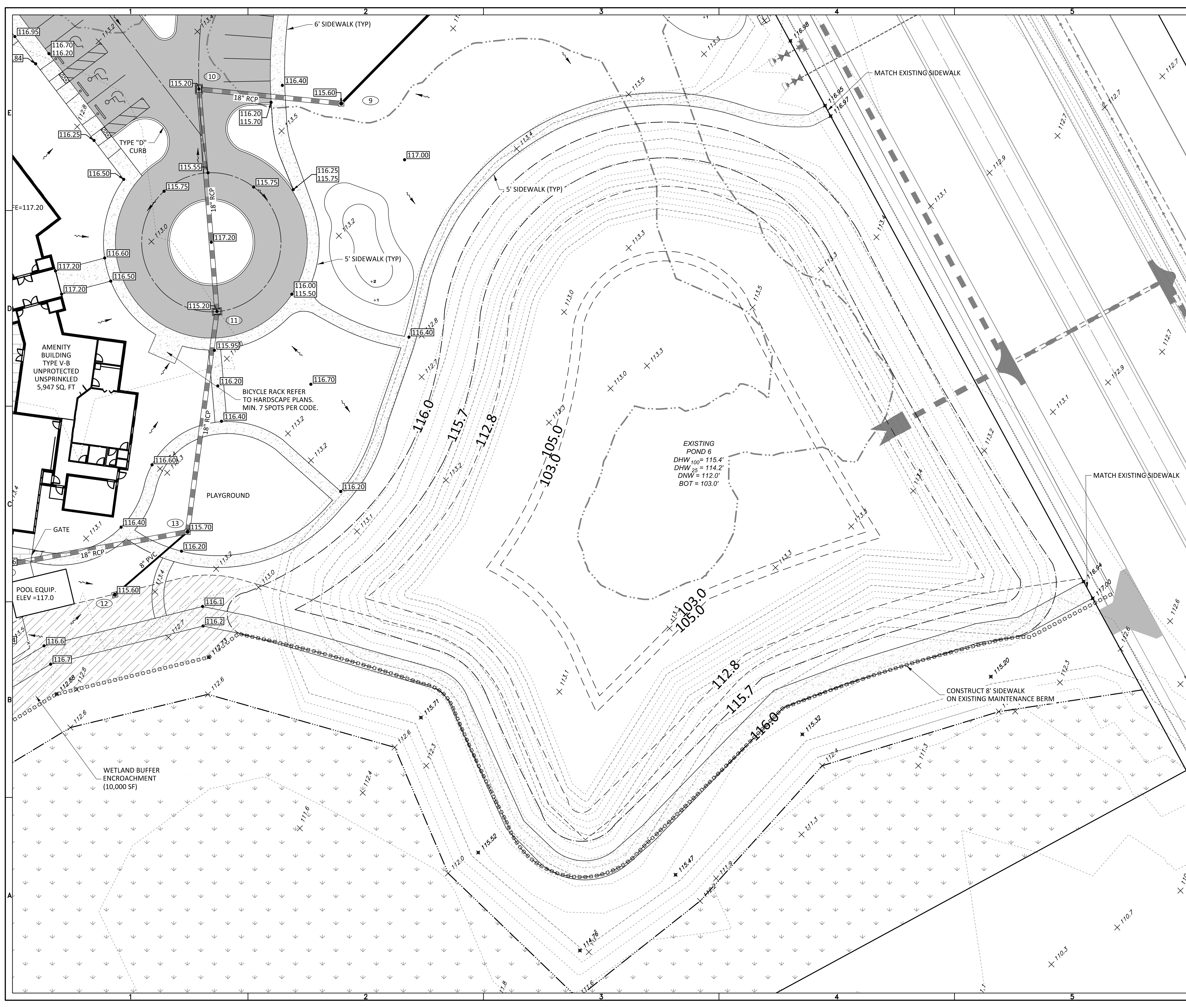
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-303



SHEET KEY MAP



DRAINAGE LEGEND

EXISTING	PROPOSED	DESCRIPTION
		STORM DRAINAGE STRUCTURE & PIPE
		STRUCTURE NO.
		DIRECTION OF SURFACE FLOW
		CONTOUR
		FEMA FLOOD LINE
		SPOT ELEVATION GROUND
		SPOT ELEVATION PAVEMENT
		SPOT ELEVATION TOP OF WALK/CURB
		EDGE OF PAVEMENT
		PROFILE GRADE ELEVATION REFERENCE
		FF=000.00
		PB-#
		EXISTING TREE TO BE PROTECTED
		SECTION ID LABEL
		SECTION SHEET NUMBER

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
 Landscape Architecture Certificate of Authorization No. LC26000405

**SERENOVA
 AMENITY CENTER
 GRADING & DRAINAGE PLAN**

PREPARED FOR:
VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
2	06/22/2017	LAYOUT REVISIONS
1	02/28/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
 FILE: GD
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

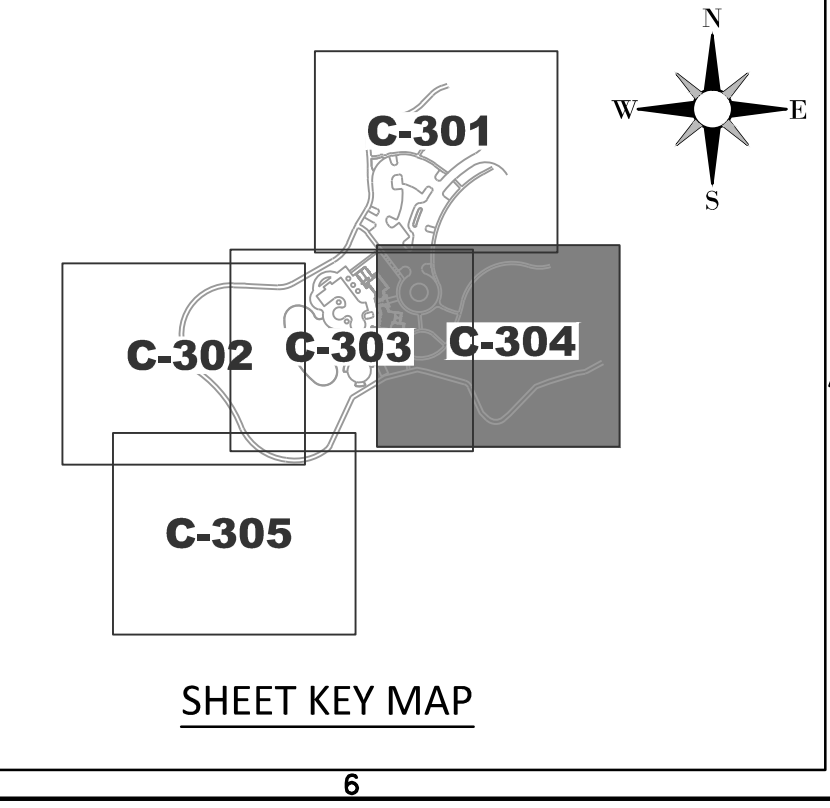
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-304

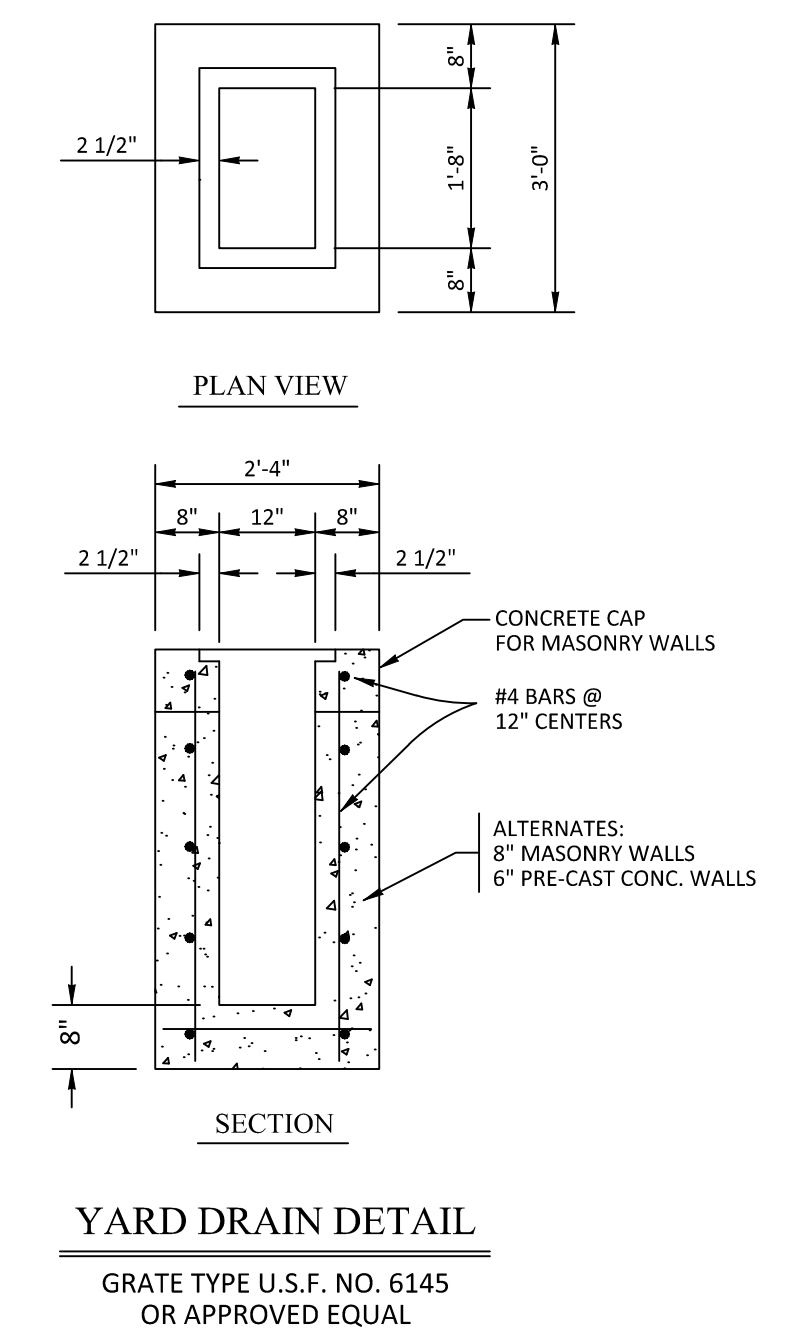


© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR SUBMITTALS MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION IN WRITING FROM HEIDT DESIGN, LLC. PERMISSION IS HEREBY GRANTED SPECIFICALLY TO GOVERNMENTAL AGENCIES TO REPRODUCE THIS DOCUMENTATION IN COMPLIANCE WITH CHAPTER 119.

STRUCTURE TABLE			
STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
1	MODIFIED TYPE C GRATE INLET	115.20	
2	MODIFIED TYPE C GRATE INLET	115.20	
3	CONCRETE YARD DRAIN	115.60	
4	CONCRETE YARD DRAIN	113.78	
5	CONCRETE YARD DRAIN	115.60	
6	CONCRETE YARD DRAIN	112.18	
7	MES 18" RCP		
8	NYLOPLAST YARD DRAIN	116.00	
9	CONCRETE YARD DRAIN	116.23	
10	MODIFIED TYPE C GRATE INLET	115.20	
11	MODIFIED TYPE C GRATE INLET	115.20	
12	NYLOPLAST YARD DRAIN	115.60	
13	CONCRETE YARD DRAIN	114.18	
14	NYLOPLAST YARD DRAIN	115.60	
15	CONCRETE YARD DRAIN	115.82	
16	NYLOPLAST YARD DRAIN	114.38	
17	NYLOPLAST YARD DRAIN	116.00	
18	CONCRETE YARD DRAIN	115.60	
19	MES 24" RCP		
20	NYLOPLAST YARD DRAIN	116.00	

STRUCTURE TABLE			
STR. NO.	STR. TYPE	TOP ELEV.	COMMENTS
21	NYLOPLAST YARD DRAIN	116.00	
22	NYLOPLAST YARD DRAIN	116.00	
23	MES 15" RCP		
24	MES 24" RCP		
CSTR	TYPE C CONTROL STRUCTURE	115.50	
TD-A	TRENCH DRAIN		SEE GRADING SHEETS FOR DETAILS
TD-B	TRENCH DRAIN		SEE GRADING SHEETS FOR DETAILS

PIPE TABLE							
START STR.	END STR.	PIPE DIMENSION & MATERIAL	LENGTH	SLOPE	START INV.	END INV.	FALL IN FEET
1	2	18" RCP	129	0.15%	110.70	110.50	0.20
2	3	18" RCP	82	0.61%	110.50	110.00	0.50
3	4	18" RCP	63	0.32%	110.00	109.80	0.20
4	5	18" RCP	90	0.22%	109.80	109.60	0.20
5	6	18" RCP	63	0.64%	109.20	108.80	0.40
6	7	18" RCP	65	0.31%	108.70	108.50	0.20
9	10	18" RCP	60	0.67%	111.60	111.20	0.40
9	8	12" PVC	142	1.34%	113.50	111.60	1.90
10	11	18" RCP	94	0.53%	111.20	110.70	0.50
11	13	18" RCP	93	0.21%	110.70	110.50	0.20
12	13	8" PVC	40	0.25%	110.60	110.50	0.10
13	15	18" RCP	82	0.25%	110.50	110.30	0.20
14	15	8" PVC	33	0.61%	112.00	111.80	0.20
15	18	18" RCP	114	0.18%	110.30	110.10	0.20
16	18	8" PVC	71	0.42%	111.20	110.90	0.30
17	18	8" PVC	60	0.33%	112.00	111.80	0.20
18	19	24" RCP	73	0.27%	108.80	108.60	0.20
20	22	12" PVC	76	0.40%	113.00	112.70	0.30
22	21	12" PVC	94	0.32%	113.00	112.70	0.30
22	23	12" PVC	82	0.37%	111.30	111.00	0.30
CSTR	24	24" RCP	46	0.22%	110.00	109.90	0.10
TD-A	17	8" PVC	41	0.48%	112.20	112.00	0.20
TD-B	4	8" PVC	51	0.39%	111.50	111.30	0.20

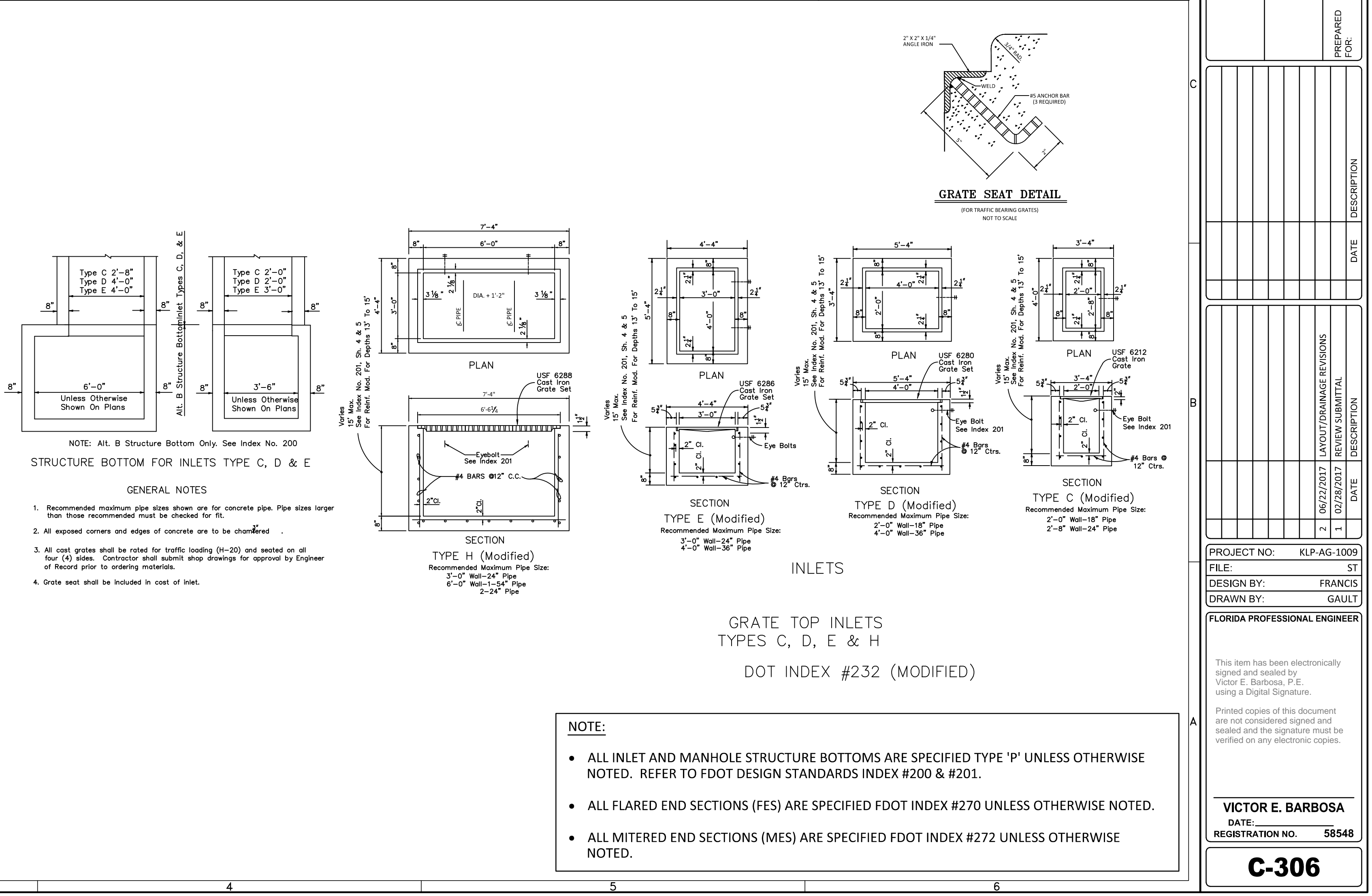
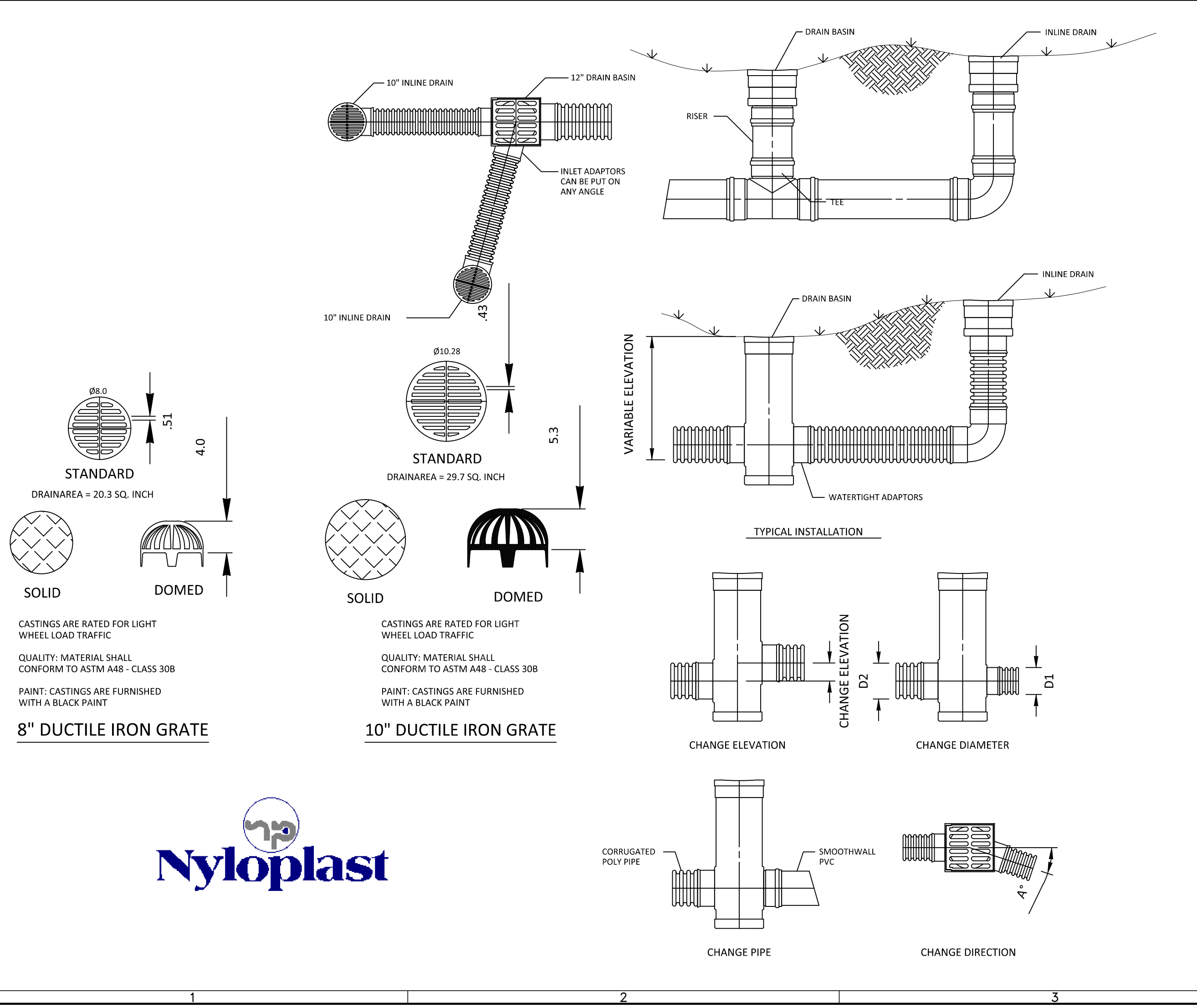


HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

PREPARED FOR:
SERENOVA AMENITY CENTER
STORM STRUCTURE DATA
 VK AVALON GROVES, LLC

ENGINEERING BUSINESS CERTIFICATE OF AUTHORIZATION No. 28752
 LANDSCAPE ARCHITECTURE CERTIFICATE OF AUTHORIZATION No. LC26000405
 PLANNING ENGINEERING CERTIFICATE OF AUTHORIZATION No. 1070861220 PM ERIC FRANCIS



- NOTE:**
- ALL INLET AND MANHOLE STRUCTURE BOTTOMS ARE SPECIFIED TYPE 'P' UNLESS OTHERWISE NOTED. REFER TO FDOT DESIGN STANDARDS INDEX #200 & #201.
 - ALL FLARED END SECTIONS (FES) ARE SPECIFIED FDOT INDEX #270 UNLESS OTHERWISE NOTED.
 - ALL MITERED END SECTIONS (MES) ARE SPECIFIED FDOT INDEX #272 UNLESS OTHERWISE NOTED.

DATE	DESCRIPTION
06/22/2017	LAND/DRAINAGE REVISIONS
07/28/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
 FILE: ST
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

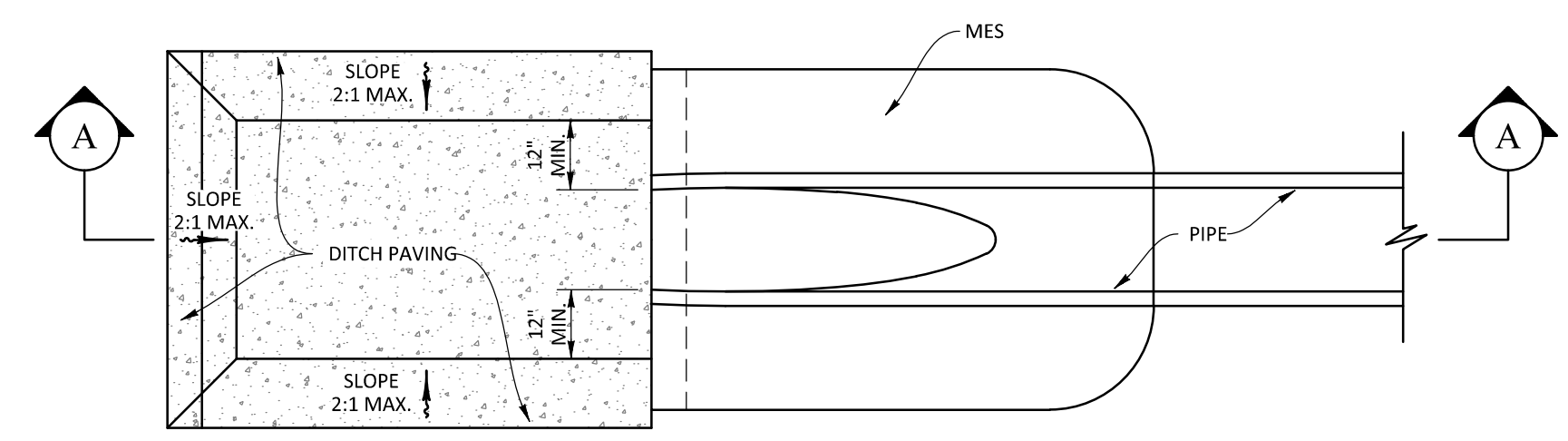
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

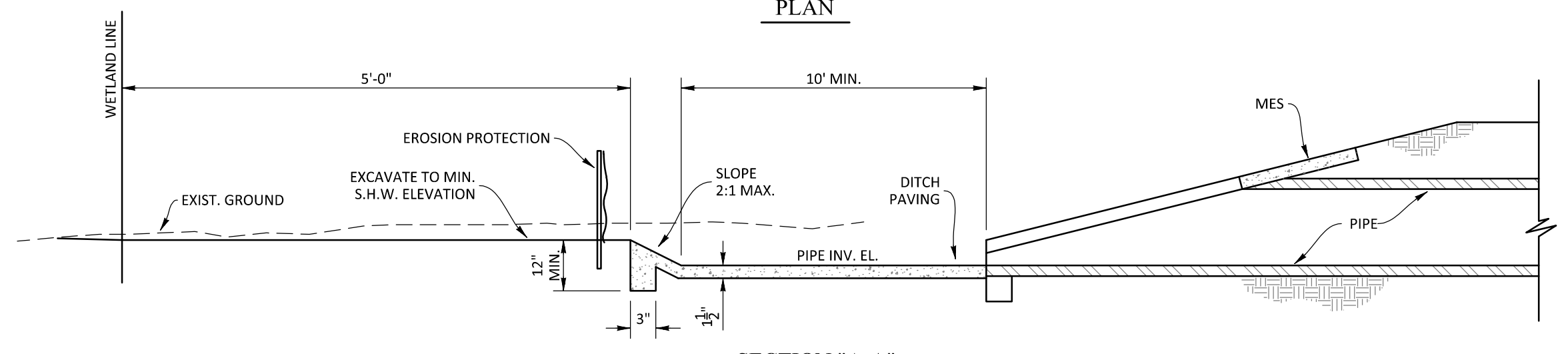
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: 07/28/2017
 REGISTRATION NO. 58548

C-306



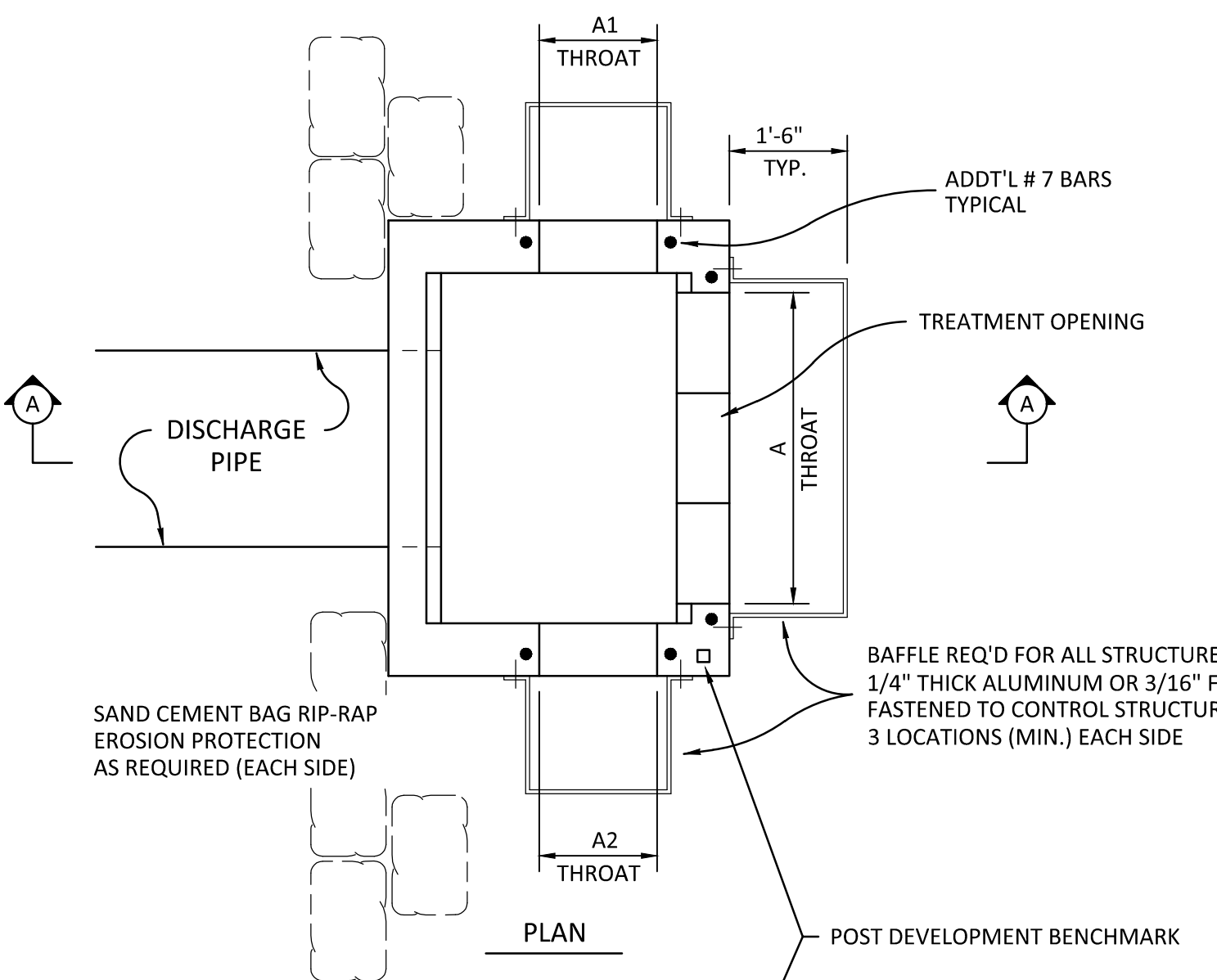
PLAN



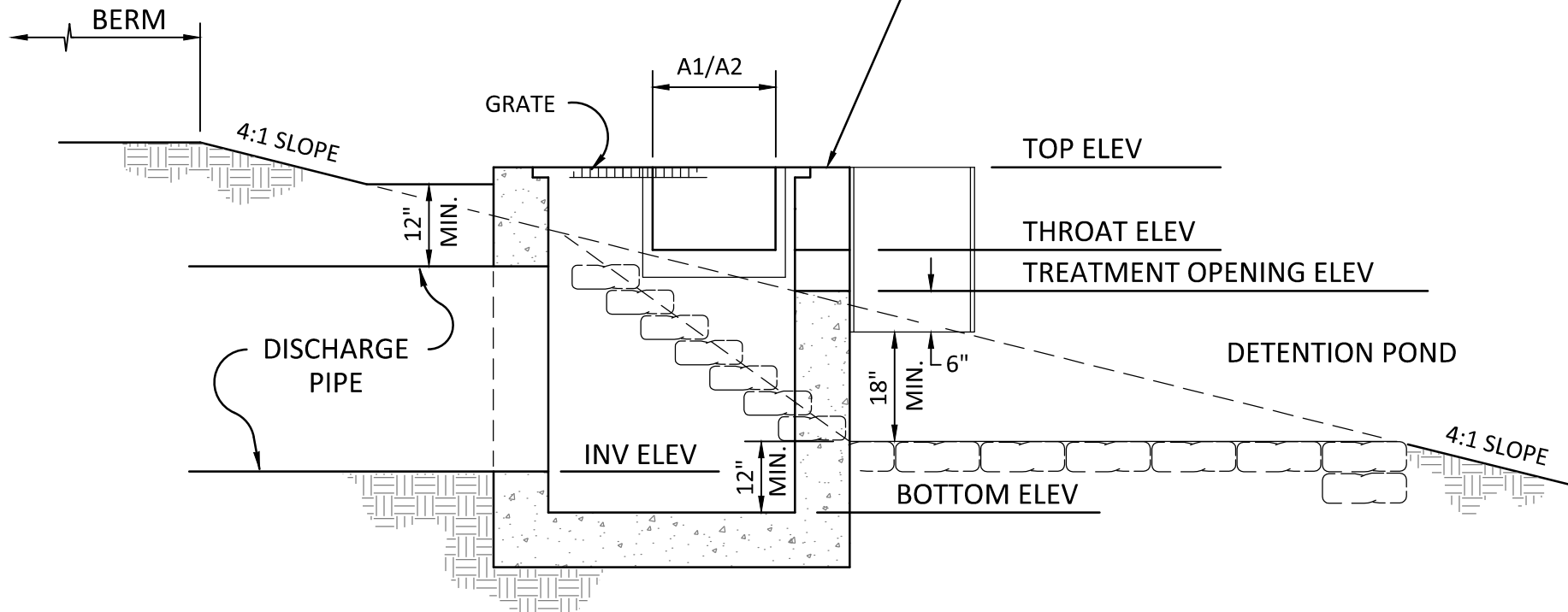
SECTION "A-A"

TYPICAL POND/OUTFALL SUMP DETAIL
DITCH PAVING
SCALE: NTS

CONTROL STRUCTURE DATA															
STR. NO.	FDOT BOX TYPE	STRUCTURE		DISCHARGE PIPE			ATTENUATION AND TREATMENT CONTROLS						REMARKS		
		TOP EL.	BOTTOM EL.	TYPE	SIZE (IN.)	INV. EL. (IN.)	ATTENUATION OPENING		TREATMENT OPENING			ELEV. (FT.)			
		A	B	C	D	F*	ELEV. (FT.)								
CSTR	C	115.5'	109.5'	RCP	24"	110.0'	CS-10	6"	12"	114.5'	2.5"	2.5"	-	112.0'	

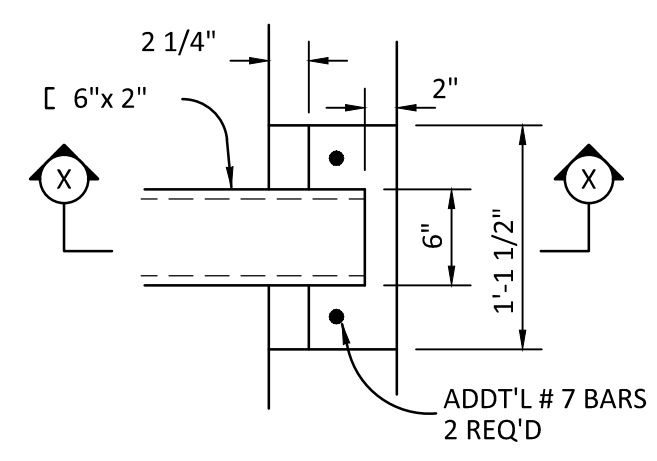


PLAN

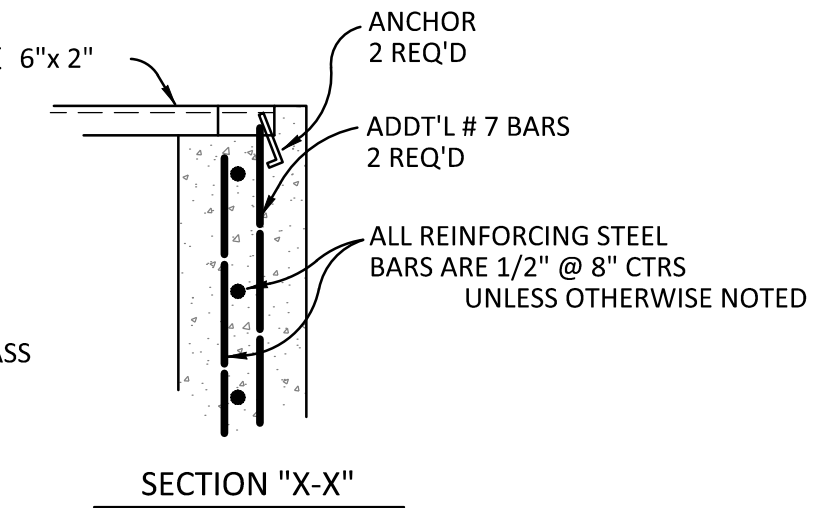


SECTION "A-A"

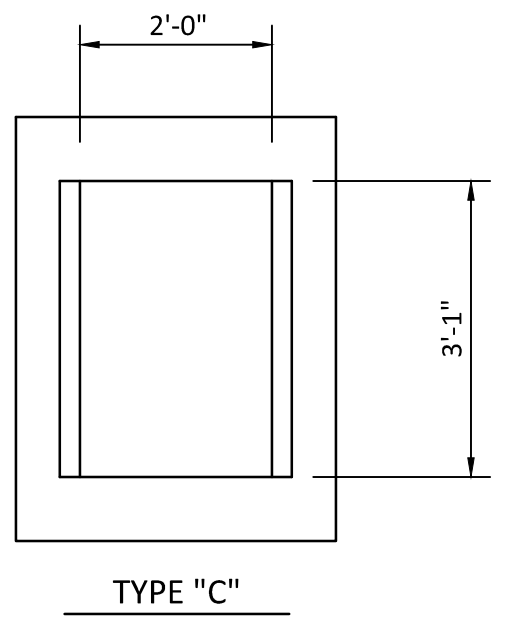
TYPICAL CONTROL STRUCTURE
MODIFIED



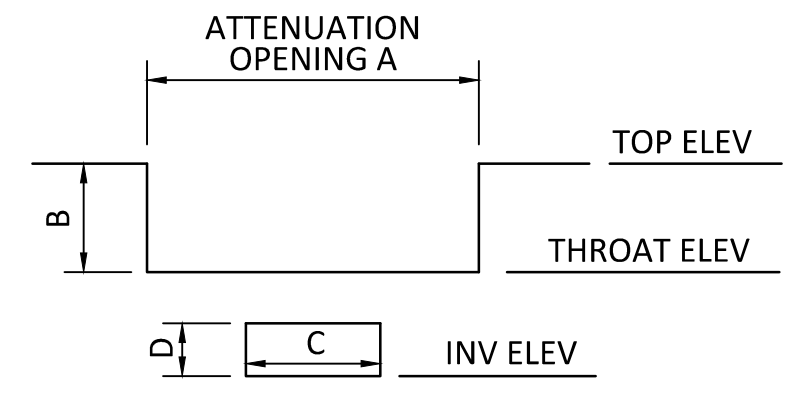
DETAIL "A"



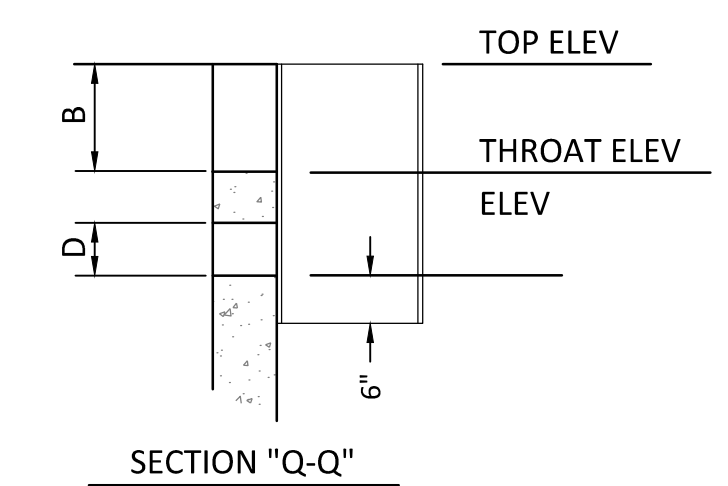
SECTION "X-X"



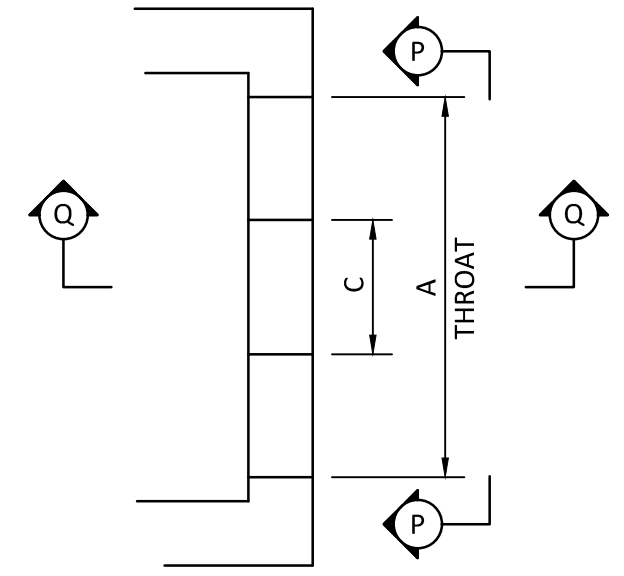
TYPE "C"



SECTION "P-P"

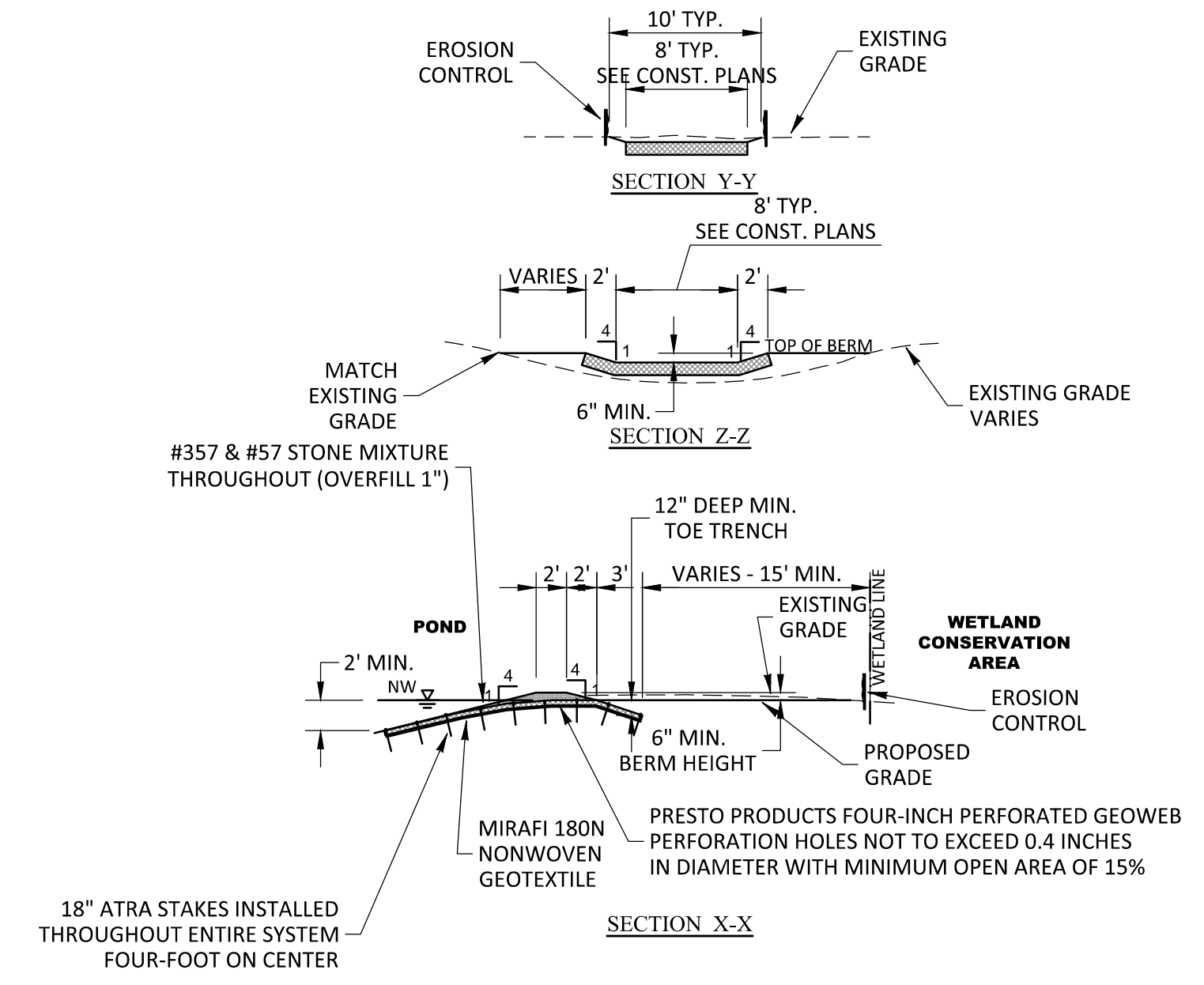


SECTION "Q-Q"

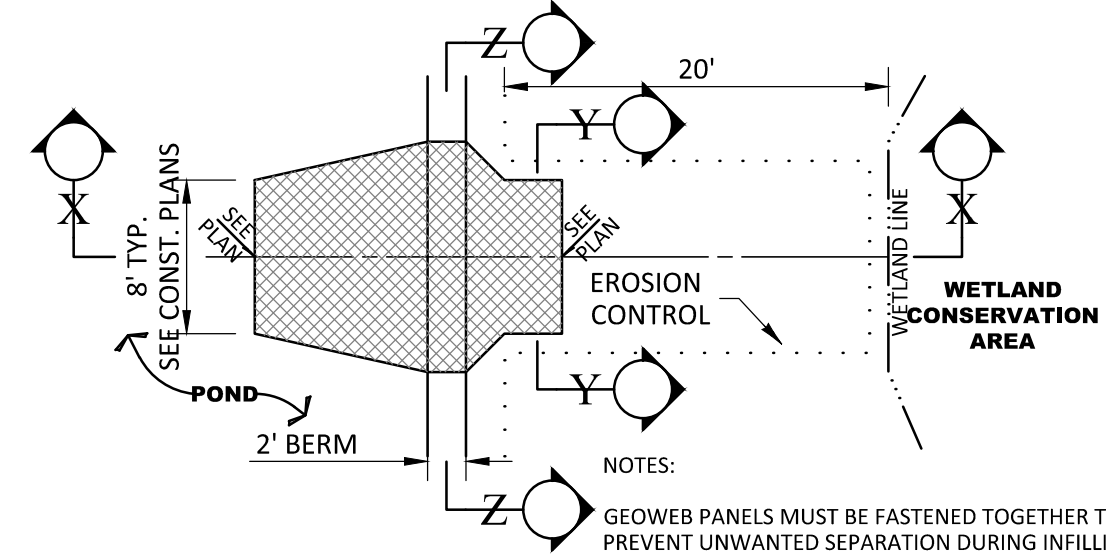


PLAN

TYPE "CS-10"
OPENING



SECTION "X-X"



GEOWEB TYPICAL DETAIL

SCALE: 1" = 10'

ELEVATIONS BASED ON:
NORTH AMERICAN VERTICAL DATUM 1988
CONVERSION:
NAVD 88 TO NGVD 29 = +0.86

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
Landscape Architecture Certificate of Authorization No. LC26000405

PREPARED FOR:
VK AVALON GROVES, LLC

PROJECT NO.: KLP-AG-1009
FILE: CSTR
DESIGN BY: FRANCIS
DRAWN BY: GAULT

FLORIDA PROFESSIONAL ENGINEER
VICTOR E. BARBOSA
DATE: 06/22/2017
REGISTRATION NO. 58548

DATE	DESCRIPTION
06/22/2017	LAYOUT/DRAINAGE REVISIONS
2	

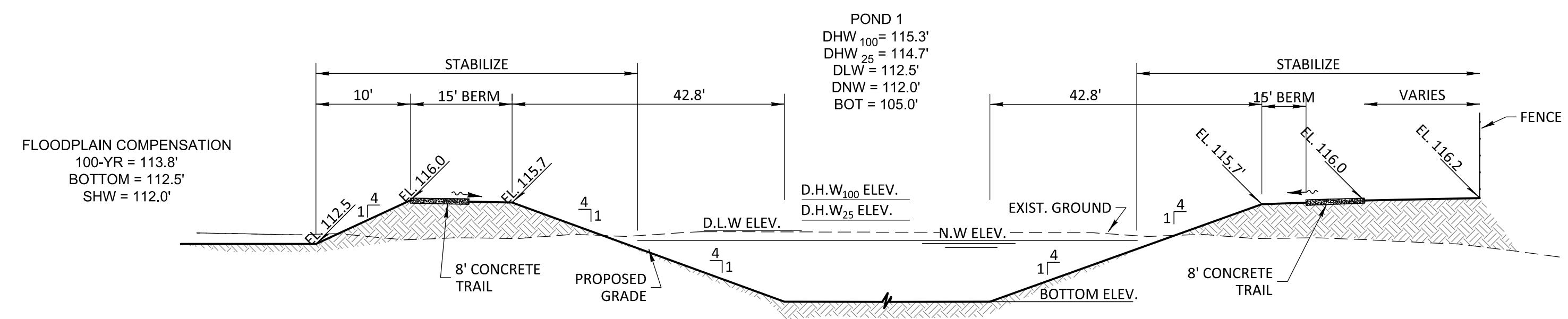
PROJECT NO.: KLP-AG-1009
FILE: CSTR
DESIGN BY: FRANCIS
DRAWN BY: GAULT

FLORIDA PROFESSIONAL ENGINEER
VICTOR E. BARBOSA
DATE: 06/22/2017
REGISTRATION NO. 58548

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

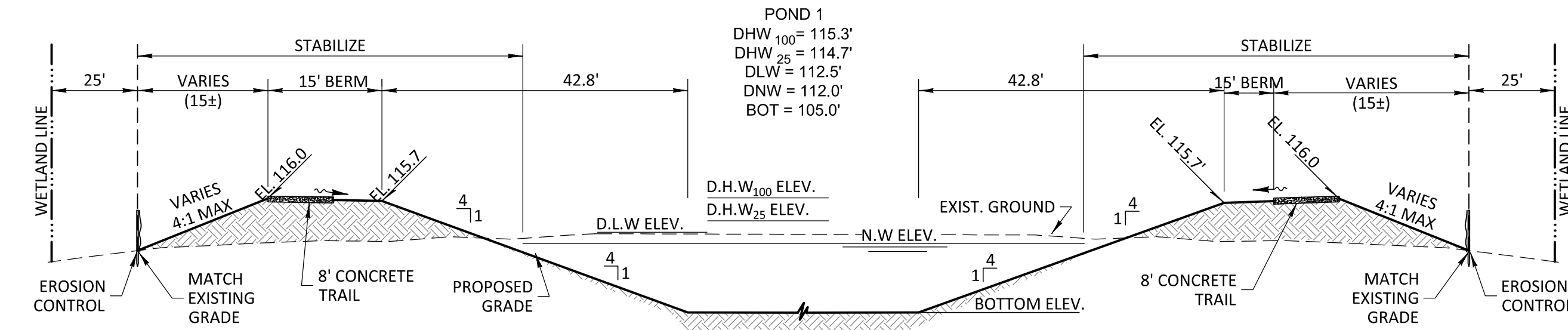
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

C-307



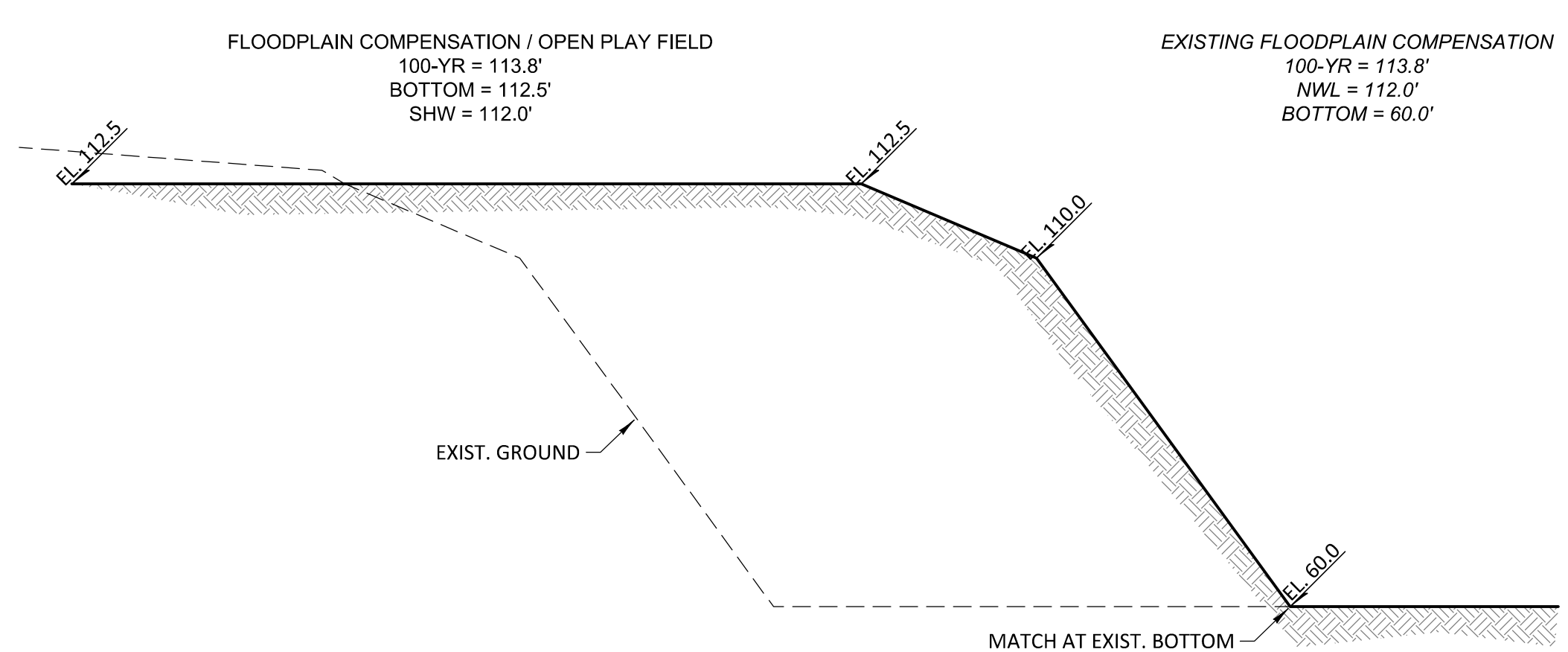
A
 TYPICAL POND SECTION
 C-302 SCALE: N.T.S.

NOTE:
 ALL SLOPES ABOVE THE NW ELEVATION
 STEEPER THAN 5:1 SHALL BE SODDED



B
 TYPICAL POND SECTION
 C-302 SCALE: N.T.S.

NOTE:
 ALL SLOPES ABOVE THE NW ELEVATION
 STEEPER THAN 5:1 SHALL BE SODDED



C
 TYPICAL POND SECTION
 C-305 SCALE: N.T.S.

ELEVATIONS BASED ON:
 NORTH AMERICAN VERTICAL DATUM 1988
 CONVERSION:
 NAVD 88 TO NGVD 29 = +0.86

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
 Landscape Architecture Certificate of Authorization No. LC26000405

SERENOVA AMENITY CENTER
GRADING & DRAINAGE SECTIONS

PREPARED FOR:
VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
2	06/27/2017	LAYOUT/DRAINAGE REVISIONS

PROJECT NO:	KLP-AG-1009
FILE:	SEC
DESIGN BY:	FRANCIS
DRAWN BY:	GAULT

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-308

R-AVALON GROVES/AMENITY CENTER COMMERCIAL SITE PLAN/ENGINEERING/SEC-DWG-C-308 2017/06/21 12:21 PM ERIC FRANCIS

USED FOR INLETS OUTSIDE OF TRAFFIC AREAS

SEE MODIFIED DETAIL FOR STRUCTURES IN TRAFFIC AREAS

HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 1)

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING BARS	WWF
0'-15"	A12	0.20	12"	8"

HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 2)

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING BARS	WWF
0'-6"	A12	0.20	12"	8"
6'-10"	A6	0.20	6"	5"
10'-12"	A4	0.20	4"	5"
10'-15"	B5.5	0.24	5 1/2"	5"

HORIZONTAL WALL REINFORCING SCHEDULES (TABLE 3)

WALL DEPTH	SCHEDULE	AREA (in. ² /ft.)	MAX. SPACING BARS	WWF
0'-5"	A12	0.20	12"	8"
0'-7.5"	A6	0.20	6"	5"
7.5'-10"	B5.5	0.24	5 1/2"	5"
10'-15"	C6.5	0.37	6 1/2"	6"

TYPE C
Recommended Maximum Pipe Size:
2'-0" Wall - 10" Pipe
3'-1" Wall - 24" Pipe (18" where an 18" pipe enters a 2'-0" wall)

TYPE D
Recommended Maximum Pipe Size:
3'-1" Wall - 24" Pipe
4'-1" Wall - 30" Pipe

TYPE E
Recommended Maximum Pipe Size:
3'-0" Wall - 24" Pipe
4'-0" Wall - 30" Pipe

LAST REVISION: 07/01/05 DESCRIPTION: 2016 DESIGN STANDARDS DITCH BOTTOM INLET TYPES C, D, E AND H INDEX NO. 232 SHEET NO. 1 of 7

CAST IRON GRATE NOT PERMITTED ON INLET TYPE D

TYPE C
Approx. Weight 235 Lbs.

TYPE E
Approx. Weight 465 Lbs.

TYPE H (3-GRATE INLET)
Approx. Weight 725 Lbs.

TYPE H (4-GRATE INLET)
Approx. Weight 967 Lbs.

CAST IRON GRATES

TYPE C
Straight Bars 2" x 1/2"
Reticuline Bars 1 1/2" x 3/8"
Bands 2" x 1/2"
Approx. Weight 104 Lbs.

TYPE D
Straight Bars 2" x 1/2"
Reticuline Bars 1 1/2" x 3/8"
Bands 2" x 1/2"
Approx. Weight 190 Lbs.

TYPE E
Straight Bars 2" x 1/2"
Reticuline Bars 1 1/2" x 3/8"
Bands 2" x 1/2"
Approx. Weight 215 Lbs.

TYPE H (2-GRATE INLET)
Straight End-Bearing Bars 2" x 3/8"
Banding Bars 2" x 1/2"
Approx. Total Weight 310 Lbs.

TYPE H (4-GRATE INLET)
Straight End-Bearing Bars 2" x 1/2"
Reticuline Bars 1 1/2" x 3/8"
Banding Bars 2" x 1/2"
Approx. Total Weight 388 Lbs.

STEEL GRATES
NOTE: Steel Grates Are Required On Inlets With Traversable Slots And On Inlets Where Bicycle Traffic Is Anticipated.

GENERAL NOTES

- These inlets are suitable for bicycle traffic and are to be used in ditches, medians and other areas subject to infrequent traffic loadings but are not to be placed in areas subject to any heavy wheel loads. These inlets may be placed in areas subject to occasional pedestrian traffic such as landscaped areas and pavement areas where pedestrians can walk around the inlet.
- Inlets subject to minimal debris should be constructed without slots. Where debris is a problem inlets should be constructed with slots. Slotted inlets located within roadway clear zones and areas subject to pedestrian shall have traversable slots. The traversable slot modification is not adaptable to inlet Type H. Slots may be constructed at either or both ends as shown on plans. Traversable slots shall not be used in areas subject to occasional bicycle traffic.
- Steel grates are to be used on all inlets where bicycle traffic is anticipated. Steel grates are to be used on all inlets with traversable slots. Either cast iron or steel grates may be used on all inlets without slots where bicycle traffic is not anticipated. Either cast iron or steel grates may be used on all inlets with non-traversable slots. Subject to the selection described above, when Alternate G grate is specified in the plans, either the steel grate, hot dip galvanized after fabrication, or the cast iron grate may be used, unless the plans stipulate the particular type.
- For supplementary details see Index No. 201.
- Recommended maximum pipe sizes shown are for concrete pipe. Size for other types of pipe must be checked for fit.
- All exposed edges and corners shall be 1/4" chamfer or tool to 1/4" radius.
- Concrete inlet pavement to be used on inlets without slots and inlets with non-traversable slots only when called for in the plans, but required on all traversable slot inlets. Cost to be included in contract unit price for inlets. Quantities shown are for information only.
- Traversable slots constructed in existing inlets shall be paid for as inlets partial. For conversion work and method of payment see "TRAVERSABLE SLOT INLETS (PARTIAL) FOR EXISTING INLETS."
- Sodding to be used on all inlets not located in paved areas and paid for under contract unit price for Performance Turf, SF.
- For supplementary details see Index No. 201.
- All reinforcing is Grade 60 bars with 2" min. cover unless otherwise noted. Bars to be cut or bent for 1/2" clearance around pipe opening. Provide one additional #4 bar above and at each side of pipe opening.

LAST REVISION: 07/01/10 DESCRIPTION: 2016 DESIGN STANDARDS DITCH BOTTOM INLET TYPES C, D, E AND H INDEX NO. 232 SHEET NO. 3 of 7

TYPE A

TYPE B

TYPE D

TYPE E

TYPE F

DROP CURB

SHOULDER GUTTER

VALLEY GUTTER

CONCRETE CURB AND GUTTER

When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement. The thickness of the lip shall be 6", unless otherwise shown on plans.

Rotate entire section so that gutter cross slope matches slope of adjacent circulating roadway pavement.

For use adjacent to concrete or flexible pavement. For details depicting usage adjacent to flexible pavement, see Sheet 2. Expansion joint, preformed joint filler and joint seal are required between curb & gutter and concrete pavement only, see Sheet 2.

For use adjacent to concrete or flexible pavement. Concrete shown. Expansion joint, preformed joint filler and joint seal are required between curbs and concrete pavement only, see Sheet 2.

TRAFFIC BEARING SECTION FOR USE IN ROUNDABOUT CENTRAL ISLAND CONSTRUCTION

CONCRETE CURB AND GUTTER

LAST REVISION: 07/01/05 DESCRIPTION: 2016 DESIGN STANDARDS CURB & CURB AND GUTTER INDEX NO. 300 SHEET NO. 1 of 2

D	X	DIMENSIONS AND QUANTITIES												S	N	5' CONCRETE SLAB (CY)				SODDING (SY)			
		A		B		C		E		F		G				H		Single	Double	Triple	Quad	Single	Double
18"	2'-0"	1.82	2.18	4.10	2.06	5	1.22	2.9	4.83	7.21	9.79	12.37	1.19	0.38	0.58	0.77	0.96	21	24	27	30		
18"	2'-10"	1.97	2.74	4.71	2.56	6	1.41	3.4	4.92	7.75	10.58	13.42	1.21	0.44	0.65	0.87	1.09	22	25	28	31		
24"	3'-0"	2.90	3.89	5.91	3.50	7	1.73	3.4	5.50	8.92	12.33	15.75	1.29	0.54	0.83	1.12	1.42	24	28	32	35		
30"	4'-0"	2.15	4.95	7.10	4.56	8	2.00	3.4	6.08	10.33	14.58	18.83	1.39	0.66	1.09	1.50	1.91	26	31	35	40		
36"	5'-1"	2.25	6.08	8.33	5.56	9	2.24	3.4	6.67	11.75	16.83	21.92	1.33	0.81	1.36	1.95	2.51	28	34	39	45		
42"	6'-0"	2.34	7.21	9.55	6.56	10	2.45	3.4	7.25	13.25	19.25	25.25	1.38	0.97	1.70	2.45	3.19	30	37	43	50		
48"	6'-6"	2.43	8.34	10.76	7.56	11	2.65	3.4	7.83	14.86	21.83	29.86	1.42	1.13	2.04	2.93	3.84	32	39	47	54		
54"	7'-8"	2.52	9.44	11.96	8.56	12	2.83	3.4	8.42	16.08	23.75	31.42	1.46	1.31	2.44	3.58	4.72	34	42	51	59		
60"	8'-6"	2.62	10.56	13.18	9.56	14	3.00	4.4	9.00	17.50	26.00	34.50	1.50	1.51	2.89	4.28	5.68	36	45	55	64		
66"	9'-2"	2.71	11.68	14.39	10.56	15	3.18	4.4	9.58	18.75	27.92	37.08	1.54	1.68	3.25	4.84	6.43	38	48	58	68		
72"	10'-0"	2.80	12.80	15.60	11.56	16	3.30	4.4	10.16	20.16	30.16	40.16	1.58	1.89	3.74	5.59	7.45	40	51	62	73		
12"	2'-0"	2.27	4.09	6.30	4.03	8	1.22	4.0	4.43	7.21	9.79	12.37	1.19	0.37	0.61	0.81	1.15	14	17	20	23		
18"	2'-10"	2.36	5.12	7.48	5.03	9	1.41	4.0	4.92	7.75	10.58	13.42	1.21	0.44	0.66	0.99	1.31	16	19	22	25		
24"	3'-0"	2.53	7.18	9.71	7.03	11	1.73	4.0	5.50	8.92	12.33	15.75	1.29	0.65	1.00	1.45	2.00	18	22	26	30		
30"	4'-0"	2.70	9.25	11.95	9.03	13	2.00	4.0	6.08	10.33	14.58	18.83	1.39	1.10	1.74	2.39	3.05	20	24	28	32		
36"	5'-1"	2.87	11.31	14.18	11.03	15	2.24	4.0	6.67	11.75	16.83	21.92	1.33	1.32	2.21	3.08	3.96	22	26	30	34		
42"	6'-0"	3.05	13.37	16.42	13.03	17	2.45	4.0	7.25	13.25	19.25	25.25	1.38	1.58	2.74	3.91	5.09	24	28	32	36		
48"	6'-6"	3.22	15.43	18.65	15.03	19	2.65	4.0	7.83	14.86	21.83	29.86	1.42	1.85	3.30	4.73	6.17	26	30	34	38		
54"	7'-8"	3.39	17.49	20.88	17.03	21	2.83	4.0	8.42	16.08	23.75	31.42	1.46	2.14	3.95	5.77	7.58	28	32	36	40		
60"	8'-6"	3.56	19.55	23.11	19.03	23	3.00	4.0	9.00	17.50	26.00	34.50	1.50	2.45	4.66	6.87	9.07	30	34	38	42		
66"	9'-2"	3.72	21.62	25.35	21.03	25	3.18	4.0	9.58	18.75	27.92	37.08	1.54	2.88	5.54	8.18	10.84	32	36	40	44		
72"	10'-0"	3.91	23.68	27.59	23.03	27	3.30	4.0	10.16	20.16	30.16	40.16	1.58	3.34	6.61	9.87	13.13	34	38	42	46		

See General Note No. 5
See Sheet 5 For 3' Slab Quantities

Values shown for estimating pipe quantities and are for information only.

Dimensions permitted to allow use of 8' standard pipe lengths.

Dimensions permitted to allow use of 12' standard pipe lengths.

Concrete slab shall be deepened to form bridge across crown of pipe. See section below.

LAST REVISION: 07/01/02 DESCRIPTION: 2016 DESIGN STANDARDS CROSS DRAIN MITERED END SECTION INDEX NO. 272 SHEET NO. 1 of 6

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

5806-B Breckenridge Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28792
Landscape Architecture Certificate of Authorization No. LC26000005

SERENOVA AMENITY CENTER
DRAINAGE DETAILS

VK AVALON GROVES, LLC

PREPARED FOR:

NO.	DATE	DESCRIPTION
1	02/28/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
FILE: DD
DESIGN BY: FRANCIS
DRAWN BY: GAULT

FLORIDA PROFESSIONAL ENGINEER

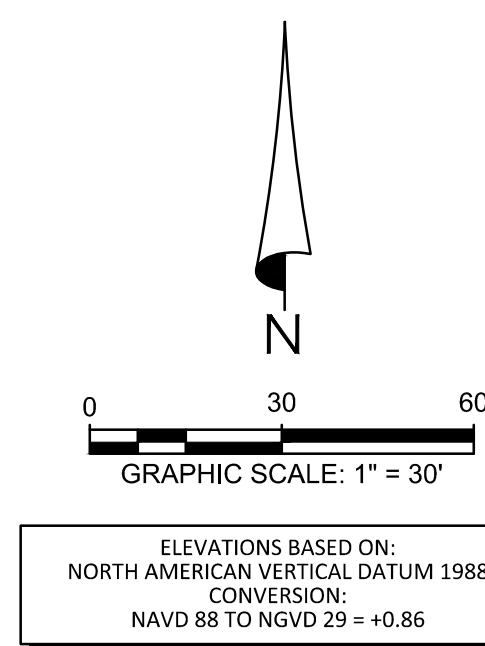
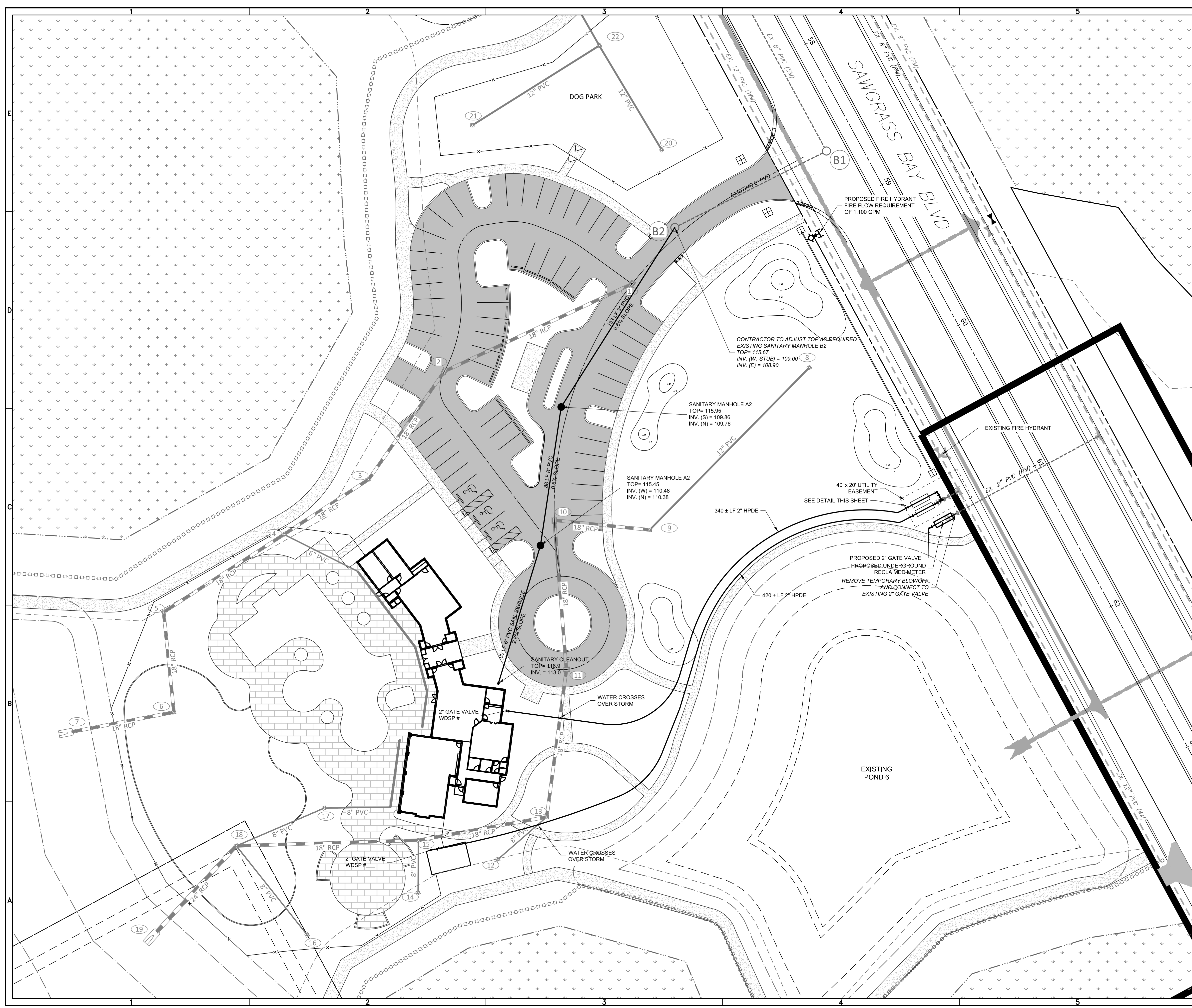
This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

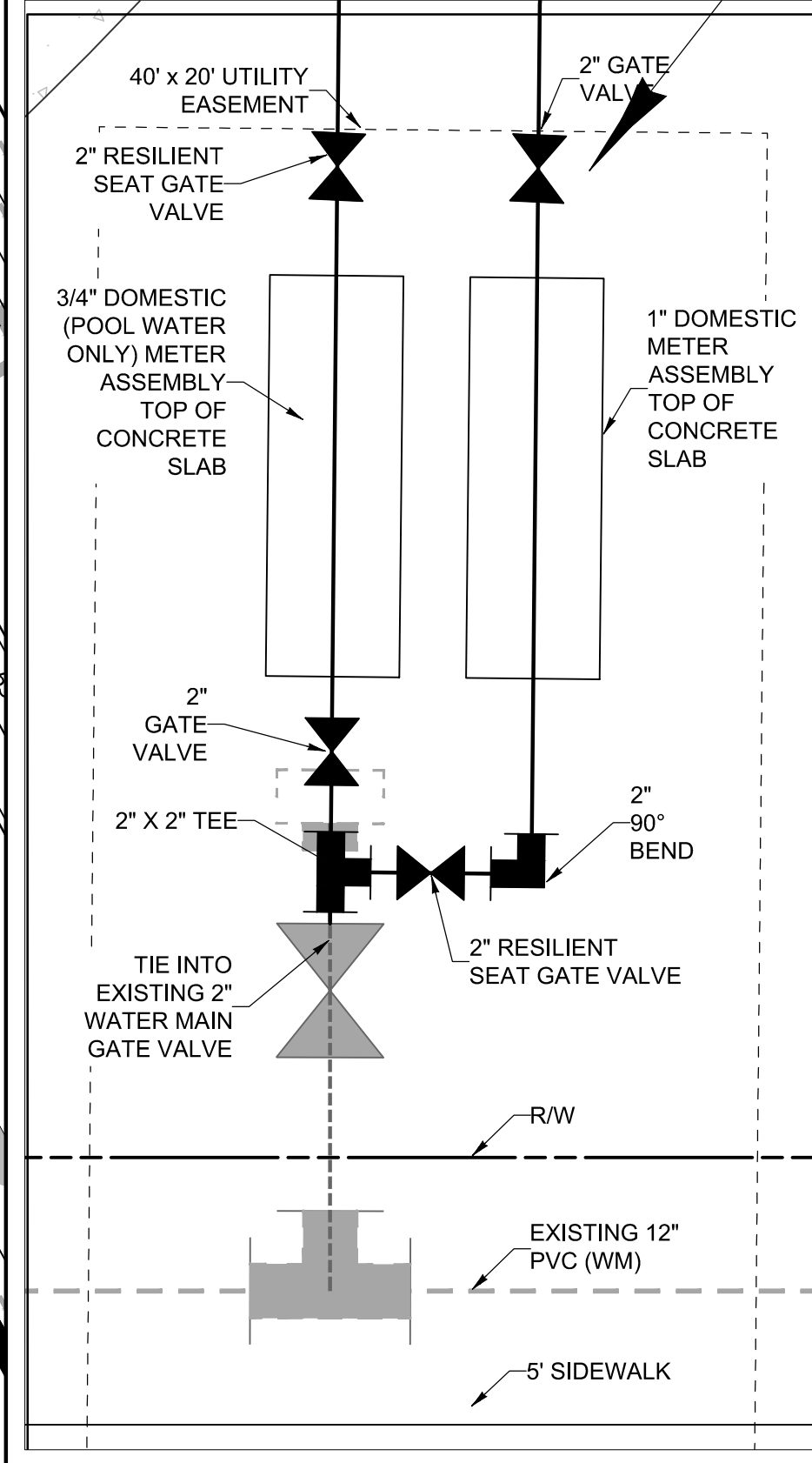
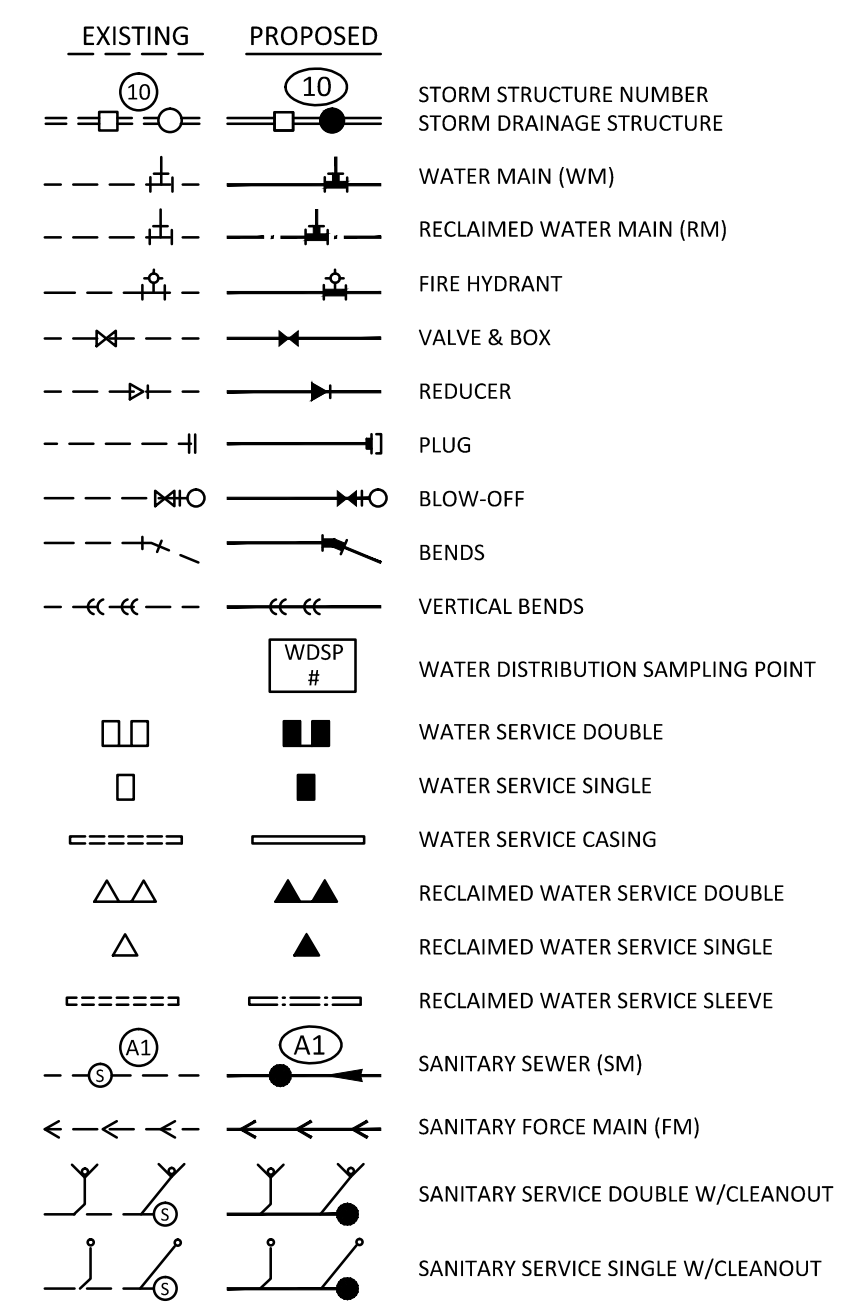
VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-309

© COPYRIGHT 2017, HEIDT DESIGN, LLC. ALL RIGHTS RESERVED. NO DOCUMENTATION INCLUDING BUT NOT LIMITED TO DRAWINGS OR COMMENTS MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING BY HEIDT DESIGN, LLC. PERMISSION TO REPRODUCE THIS DOCUMENTATION IS GRANTED BY HEIDT DESIGN, LLC.



WATER & SEWER LEGEND



WATER METER DETAIL
SCALE: 1"=5'

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

SERENOVA AMENITY CENTER UTILITY PLAN

PREPARED FOR:
VK AVALON GROVES, LLC

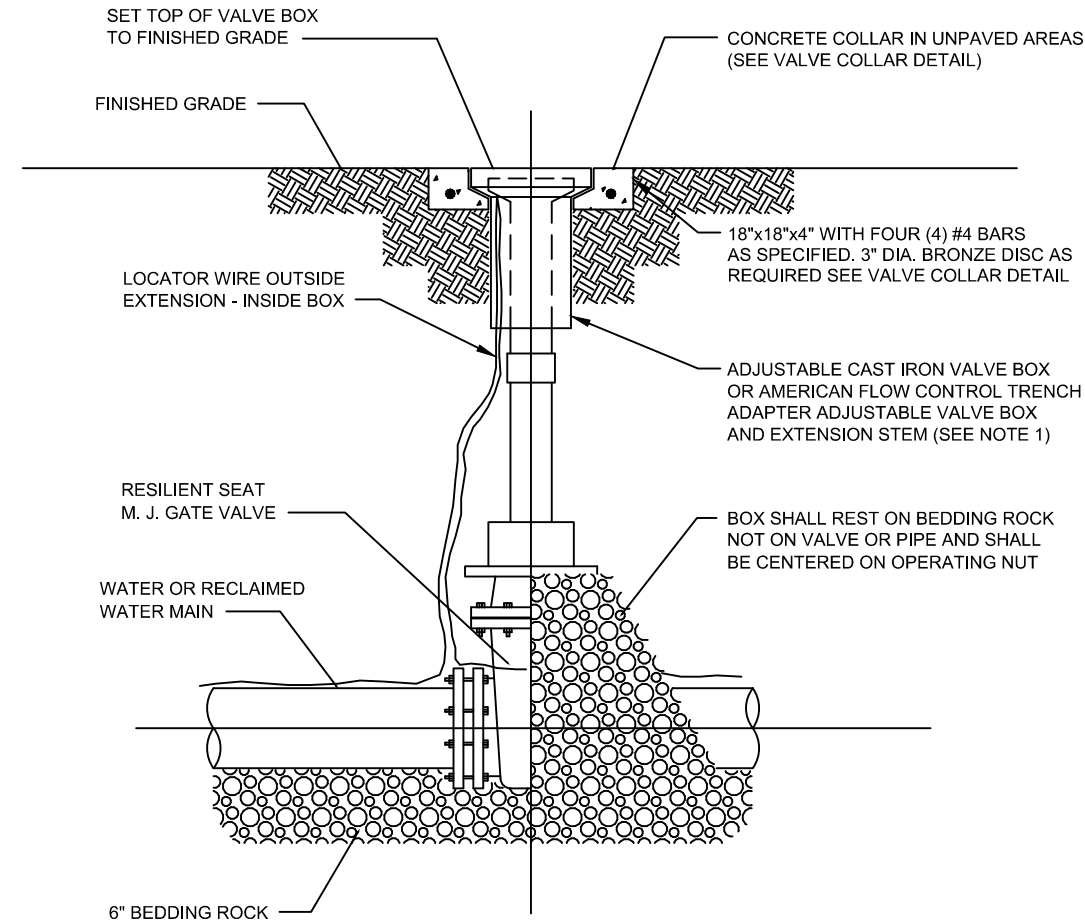
NO.	DATE	DESCRIPTION
2	06/22/2017	LANDSCAPE REVISIONS
1	02/28/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
FILE: WS
DESIGN BY: FRANCIS
DRAWN BY: GAULT

VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-400

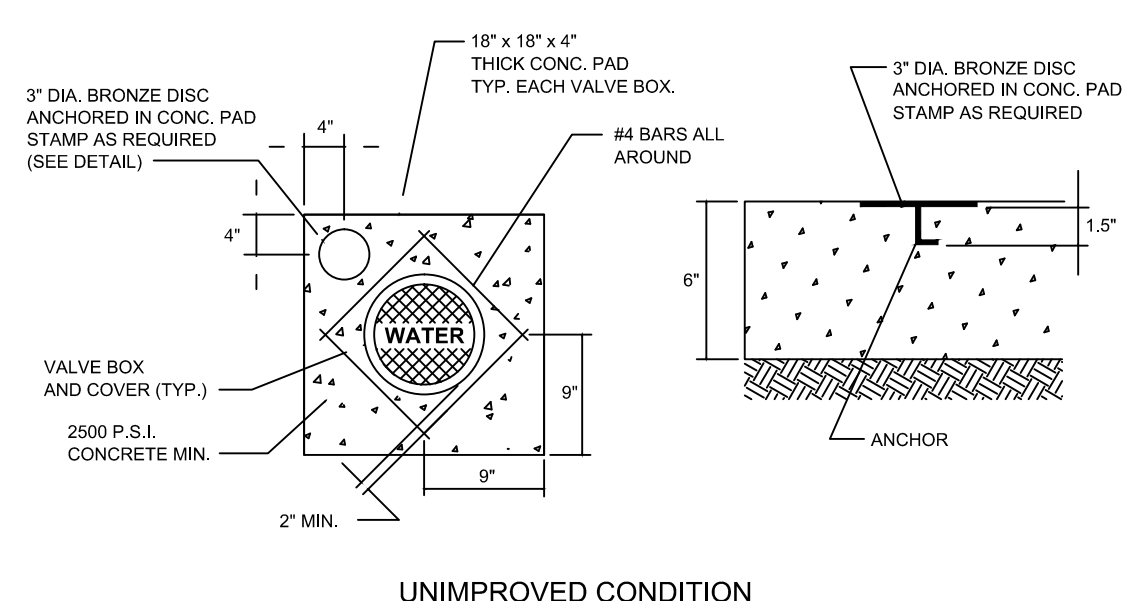
ENGINEERING BUSINESS CERTIFICATE OF AUTHORIZATION No. 28752
 LANDSCAPE ARCHITECTURE CERTIFICATE OF AUTHORIZATION No. LC26000405
 R-AVALON GROVES AMENITY CENTER COMMERCIAL SITE PLANNING DWG-C-401 20170621 12:23 PM ERIC FRANCIS



- NOTES
- PVC EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION, EXCEPT FOR THE AMERICAN FLOW CONTROL TRENCH ADAPTER WITH 2" SQUARE NUT WRENCH AND EXTENSION STEM SPACER AND STOP
 - COVER TO BE MARKED "WATER", "RECLAIMED", "NPM", OR "SEWER" AS APPROPRIATE.
 - VALVES SHALL NOT BE LOCATED IN STREET CURBS.

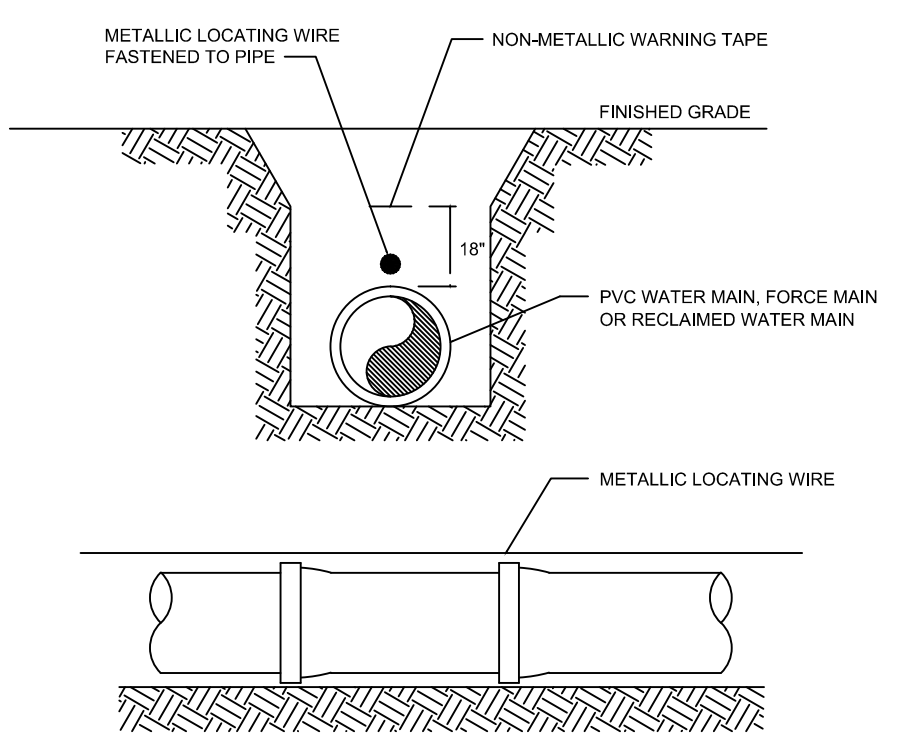
VALVE AND VALVE BOX DETAIL
N.T.S.

	SCALE: NONE	GENERAL DETAILS	STANDARD DETAIL NUMBER
	DATE: 6-26-02	VALVE AND VALVE BOX DETAIL	G-1
	FILE: VALVEBOX.DWG		



VALVE COLLAR DETAIL
N.T.S.

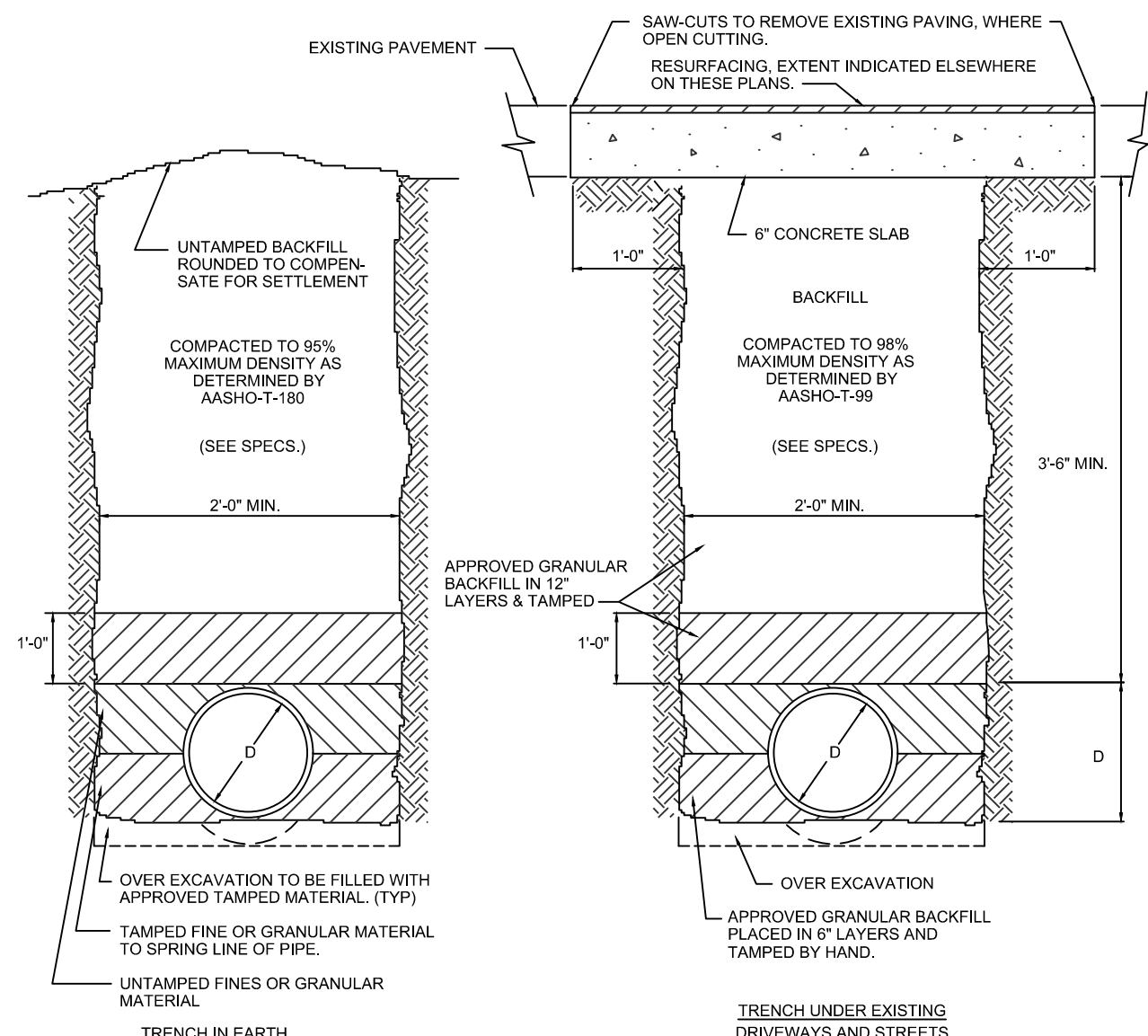
	SCALE: NONE	GENERAL DETAILS	STANDARD DETAIL NUMBER
	DATE: 2-24-04	VALVE COLLAR DETAIL	G-3
	FILE: VALCOLLAR.DWG		



- NOTES
- ALL NON-METALLIC PIPE SHALL REQUIRE CONTINUOUS INSULATED METALLIC LOCATING WIRE (14 GAUGE COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE BURIED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE.
 - THE TRACING WIRE SHALL BE CENTERED ON ALL PIPE (INCLUDING SERVICES) AND TIED INTO ALL HYDRANTS, VALVE BOXES AND METER BOXES. TESTING FOR CONTINUITY IS REQUIRED.
 - USE VINYL TIE-STRAPS AS NECESSARY TO HOLD WIRE DIRECTLY ON THE TOP OF THE PIPE. DUCT TAPE SHALL NOT BE USED.
 - WIRE CONNECTIONS MUST BE CLAMPED TOGETHER AND SEALED FOR MOISTURE.
 - ALL WIRE SPLICE LOCATIONS SHALL BE SHOWN ON THE AS-BUILT DRAWINGS.
 - WIRE AND WARNING TAPE SHALL BE COLOR CODED AS FOLLOWS:
WATER: BLUE
SEWER: GREEN
RECLAIMED: PURPLE

PIPE LOCATING WIRE DETAIL
N.T.S.

	SCALE: NONE	GENERAL DETAILS	STANDARD DETAIL NUMBER
	DATE: 6-3-02	PIPE LOCATING WIRE DETAIL	G-10
	FILE: PIPE-LOC.DWG		



- NOTE
- TRENCHES SHALL BE AS NARROW AS POSSIBLE TO ALLOW FOR SAFE AND PROPER PIPE INSTALLATION. TRENCH SIDES SHALL BE VERTICAL TO A POINT 1'-0" ABOVE THE TOP OF THE PIPE. ABOVE THIS POINT SLOPED SIDES MAY BE USED IF CONDITIONS PERMIT, BUT SHOULD BE KEPT AS NEARLY VERTICAL AS POSSIBLE.
 - FOR TRENCH IN CINDER FILLS, GARBAGE DUMPS, SALT MARSHES, MUCK SOILS OR PLACES WHERE HARMFUL CORROSIVE CONDITIONS EXIST, PIPE SHALL BE PROTECTED WITH AT LEAST 10" OF SAND OR LIMESTONE SCREENINGS ON ALL SIDES AND TAMPED BY HAND IN 4" LAYERS. SEE SPECIFICATIONS. NO ADDITIONAL COMPENSATION FOR CORROSION PROTECTION OF A PIPE WILL BE ALLOWED.

TRENCH DETAILS
N.T.S.

	SCALE: NONE	GENERAL DETAILS	STANDARD DETAIL NUMBER
	DATE: 7-12-01	TRENCH DETAILS	G-11
	FILE: TRENCH.DWG		

PROPOSED UTILITY	MINIMUM HORIZONTAL AND VERTICAL SEPARATION REQUIREMENTS		RECLAIMED WATER		SANITARY SEWER FORCE MAIN		SANITARY SEWER GRAVITY MAIN		STORM SEWER OR VACUUM TYPE SANITARY MAIN	
	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
POTABLE WATER	3'	12"	3'	12"	6"	12"	3'	12"	3'	12" BELOW
RECLAIMED WATER	3'	12"	3'	12"	6"	12"	3'	12"	3'	12" BELOW
SANITARY SEWER FORCE MAIN	6'	12"	6'	12"	6"	12"	3'	12"	3'	12" BELOW
SANITARY SEWER GRAVITY MAIN	6"	12"	6"	12"	6"	12"	3'	12"	3'	12" BELOW
PRE-HYDRANTS IN UNDERGROUND	3'	12"	3'	12"	6"	12"	3'	12"	3'	12" BELOW

7. NEW OR RELOCATED FIRE HYDRANTS WITH UNDERGROUND DRAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODE (F.A.C.), THESE SEPARATION REQUIREMENTS SHALL APPLY TO ALL TYPES OF UTILITY LINES AND EXISTING OR PROPOSED UTILITY LINES.

8. THE FOLLOWING ARE ACCEPTABLE ALTERNATE CONSTRUCTION METHODS FOR THE SEPARATION OF UTILITY LINES. THE SEPARATION OF UTILITY LINES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODE (F.A.C.), THESE SEPARATION REQUIREMENTS SHALL APPLY TO ALL TYPES OF UTILITY LINES AND EXISTING OR PROPOSED UTILITY LINES.

9. THE FOLLOWING ARE ACCEPTABLE ALTERNATE CONSTRUCTION METHODS FOR THE SEPARATION OF UTILITY LINES. THE SEPARATION OF UTILITY LINES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODE (F.A.C.), THESE SEPARATION REQUIREMENTS SHALL APPLY TO ALL TYPES OF UTILITY LINES AND EXISTING OR PROPOSED UTILITY LINES.

10. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER GRAVITY MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE GRAVITY SEWER.

11. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER FORCE MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE SANITARY SEWER FORCE MAINS.

12. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER GRAVITY MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE GRAVITY SEWER.

13. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER FORCE MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE SANITARY SEWER FORCE MAINS.

14. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER GRAVITY MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE GRAVITY SEWER.

15. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER FORCE MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE SANITARY SEWER FORCE MAINS.

16. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER GRAVITY MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE GRAVITY SEWER.

17. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER FORCE MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE SANITARY SEWER FORCE MAINS.

18. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER GRAVITY MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE GRAVITY SEWER.

19. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER FORCE MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE SANITARY SEWER FORCE MAINS.

20. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER GRAVITY MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE GRAVITY SEWER.

21. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER FORCE MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE SANITARY SEWER FORCE MAINS.

22. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER GRAVITY MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE GRAVITY SEWER.

23. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER FORCE MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE SANITARY SEWER FORCE MAINS.

24. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER GRAVITY MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE GRAVITY SEWER.

25. THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND SANITARY SEWER FORCE MAINS SHALL BE 3 FEET. IF THE SEPARATION OF POTABLE WATER MAINS IS LOCATED AT LEAST 3 FEET FROM THE TOP OF THE SANITARY SEWER FORCE MAINS.

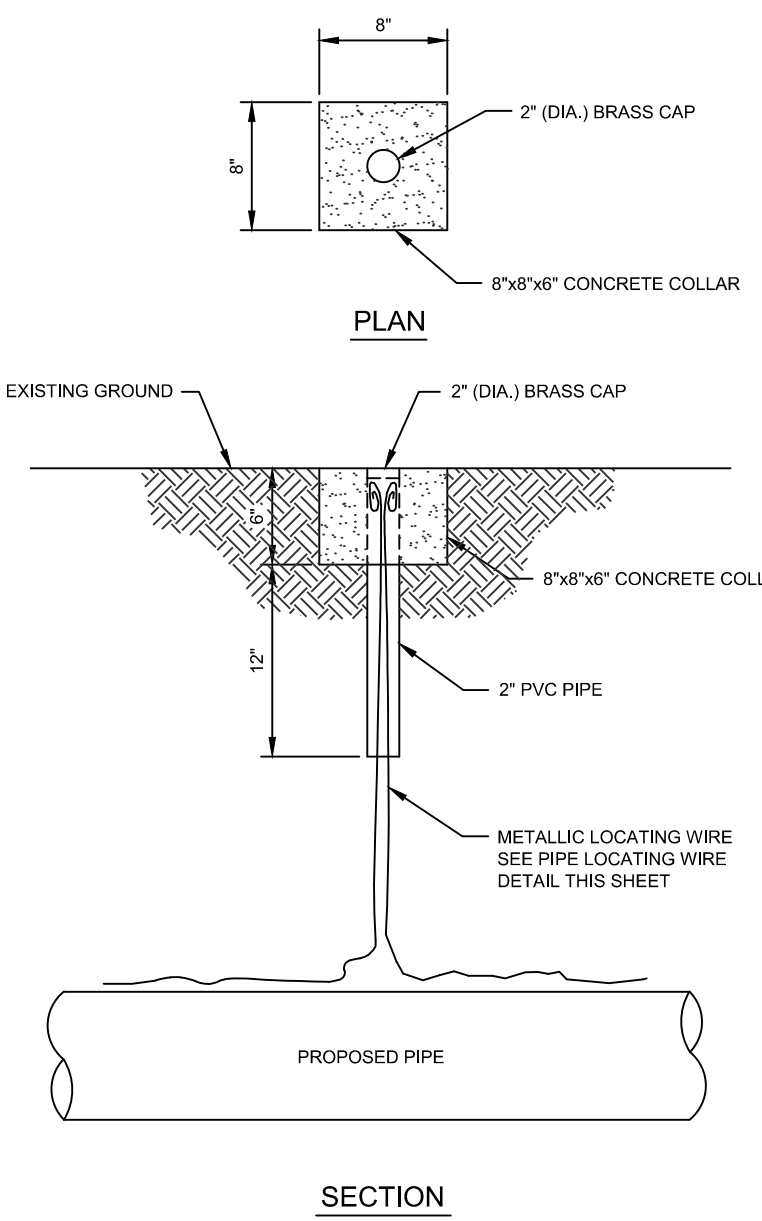
	SCALE: NONE	GENERAL DETAILS	STANDARD DETAIL NUMBER
	DATE: 11-3-2003	MINIMUM HORIZONTAL AND VERTICAL SEPARATION REQUIREMENTS	G-17
	FILE: CLDR.DWG		

FITTING TYPE	PIPE SIZE - INCHES											
	4	6	8	10	12	14	16	18	20	24	30	36
VERT. UP OR HORIZ.	2	3	4	5	6	6	6	7	8	9	10	10
11-14 BEND	5	6	8	10	12	13	15	16	17	20		
22-12 BEND	10	13	17	21	24	27	30	33	36	41		
45 BEND	23	32	42	50	58	66	73	80	87	100		
90 BEND												
VERTICAL DOWN	8	8	10	12	14	16	18	20	22	25		
11-14 BEND	11	16	20	24	28	32	36	40	43	50		
22-12 BEND	23	33	42	51	59	67	75	83	91	105		
45 BEND	56	79	102	122	143	163	183	201	219	253		
90 BEND												
BRANCH OF TEE	20	41	63	83	103	129	141	159	177	210		
DEAD END	56	79	102	122	143	163	182	201	219	253		
REDUCERS												
SIZE	6X4	8X4	8X6	10X6	10X8	12X8	12X10	14X8	14X8			
RESTR. LENGTH	41	74	43	75	41	106	77	42	133	106		
SIZE	18X6	18X8	18X12	18X8	18X12	18X16	20X12	20X16	24X12	24X16		
RESTR. LENGTH	159	137	79	163	111	41	141	78	194	142		

- NOTES
- SAND-SILT SOIL (COHESIONLESS SOIL WITH 30% INTERNAL FRICTION ANGLE. PIPE FRICTION SOIL FRICTION RATIO = 0.6. SOIL DENSITY 90 PCF).
 - PIPE LAYING CONDITION 3 (NO SELECT BEDDING OR BACKFILL).
 - 150 PSI DESIGN PRESSURE. FOR 200 PSI DESIGN PRESSURE (FIRE LINES), INCREASE RESTRAINED LENGTH BY 35%.
 - 3 FOOT MINIMUM COVER ON THE PIPE.
 - ALL RESTRAINED JOINT LENGTHS IN FEET.

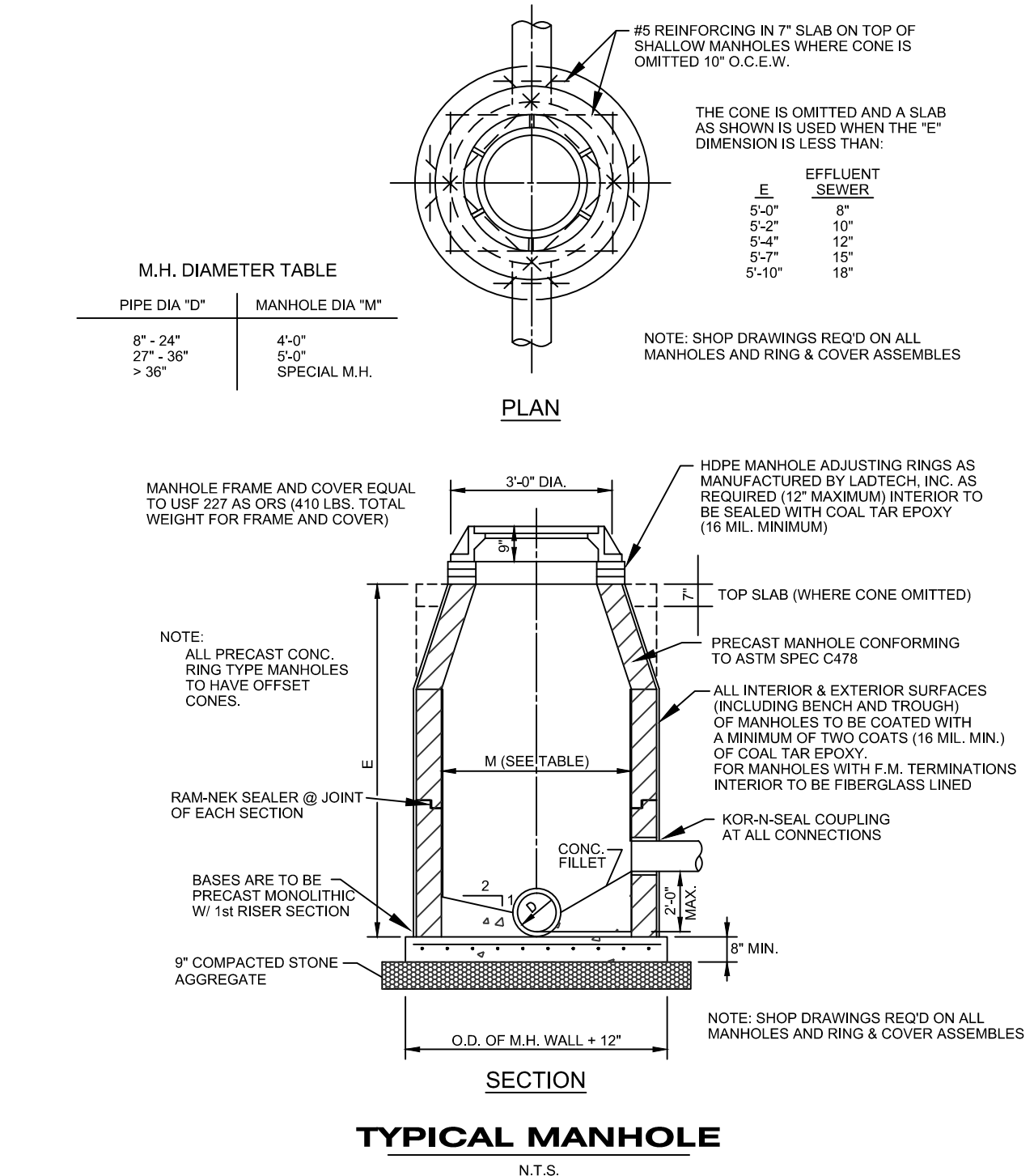
RESTRAINED JOINT PIPE LENGTHS
C900 PVC PIPE
N.T.S.

	SCALE: NONE	GENERAL DETAILS	STANDARD DETAIL NUMBER
	DATE: 7-12-01	RESTRAINED JOINT PIPE LENGTHS C900 PVC PIPE	G-18
	FILE: RLJ.PVC.DWG		



TRACER WIRE PORT DETAIL
N.T.S.

	SCALE: NONE	GENERAL DETAILS	STANDARD DETAIL NUMBER
	DATE: 6-3-02	TRACER WIRE PORT DETAIL	G-23
	FILE: WIREPORT.DWG		



TYPICAL MANHOLE
N.T.S.

	SCALE: NONE	SANITARY DETAILS	STANDARD DETAIL NUMBER
	DATE: 6-3-02	TYPICAL MANHOLE	S-1
	FILE: MANHOLE.DWG		

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629

www.HeidtDesign.com

SERENOVA AMENITY CENTER
WATER & SEWER DETAILS

VK AVALON GROVES, LLC

PREPARED FOR:

NO.	DATE	DESCRIPTION
1	02/29/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
FILE: WSD
DESIGN BY: FRANCIS
DRAWN BY: GAULT

FLORIDA PROFESSIONAL ENGINEER

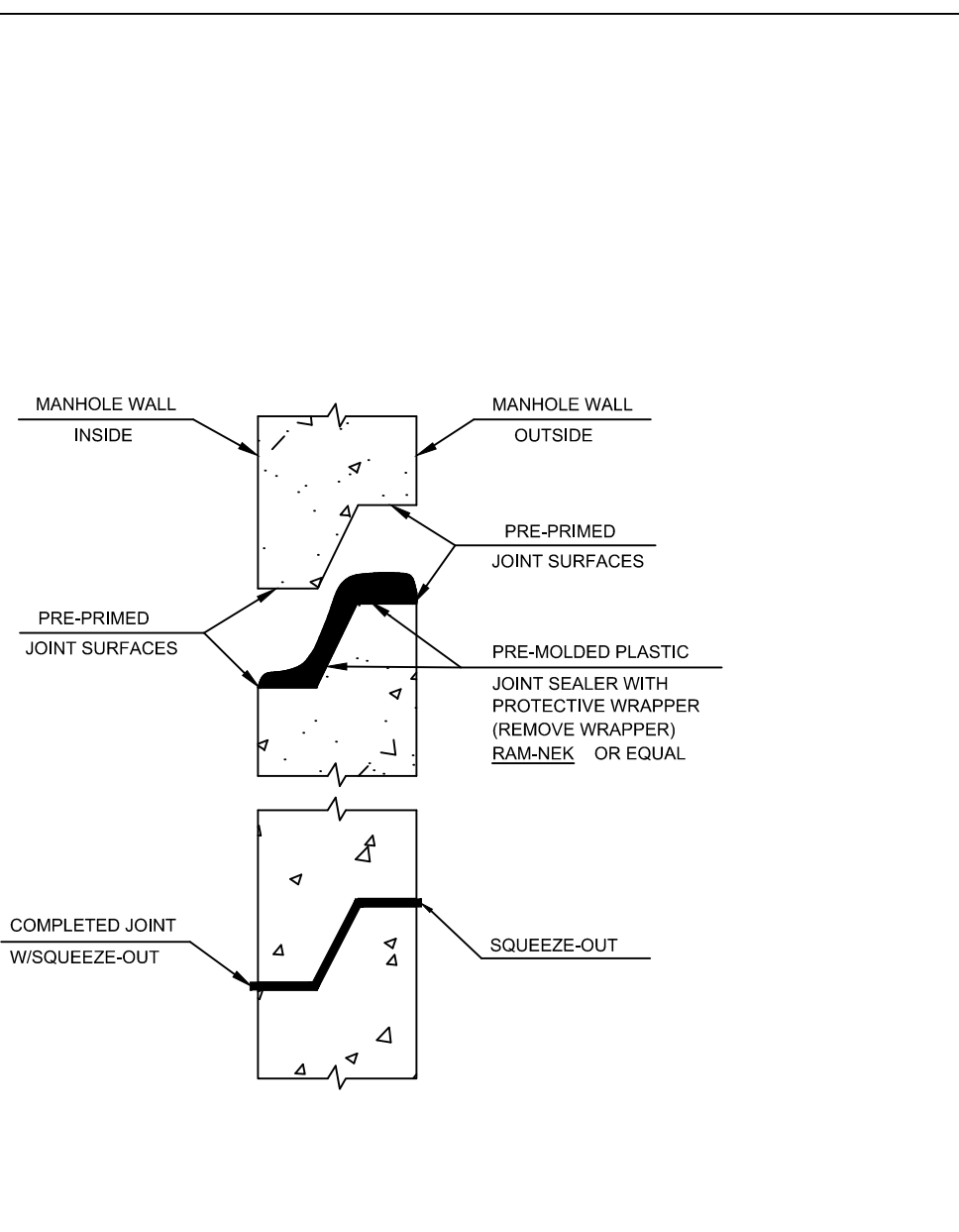
This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

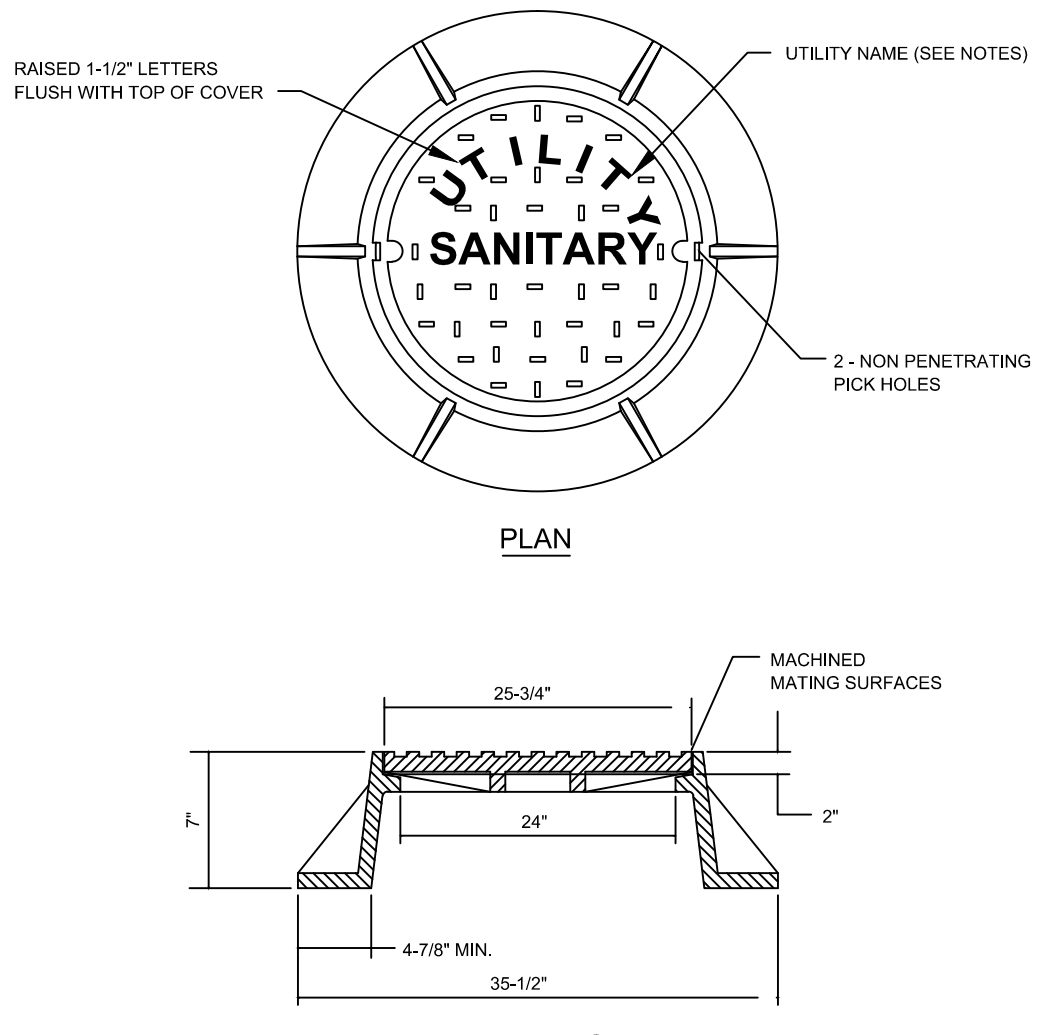
C-601

1 2 3 4 5 6



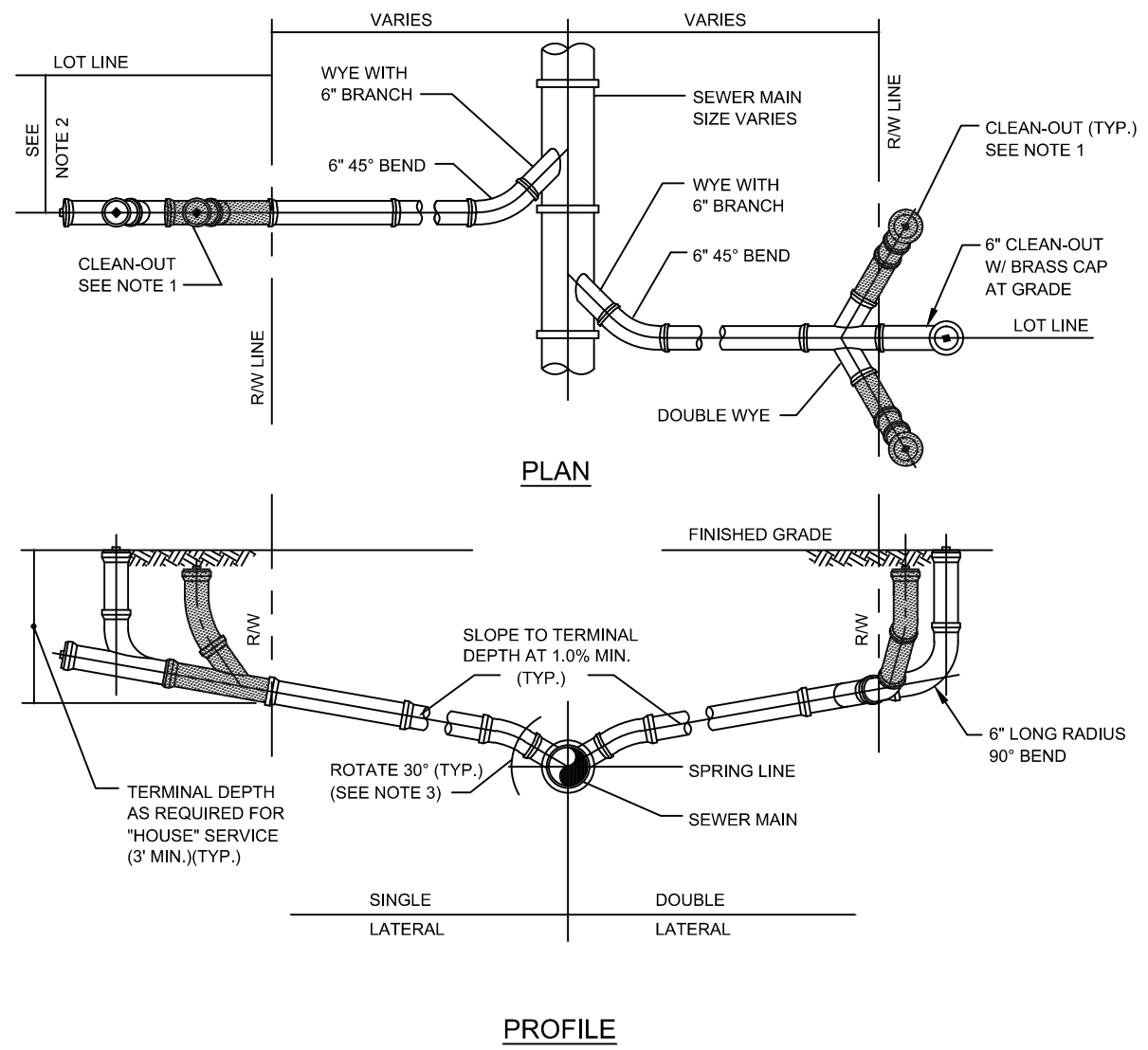
TYPICAL PRECAST STRUCTURE JOINT DETAIL
N.T.S.

Utilities, Inc.	SCALE: NONE	SANITARY DETAILS	STANDARD DETAIL NUMBER
	DATE: 7-12-01	TYPICAL PRECAST STRUCTURE JOINT DETAIL	S-3
	FILE: CONC2.DWG		



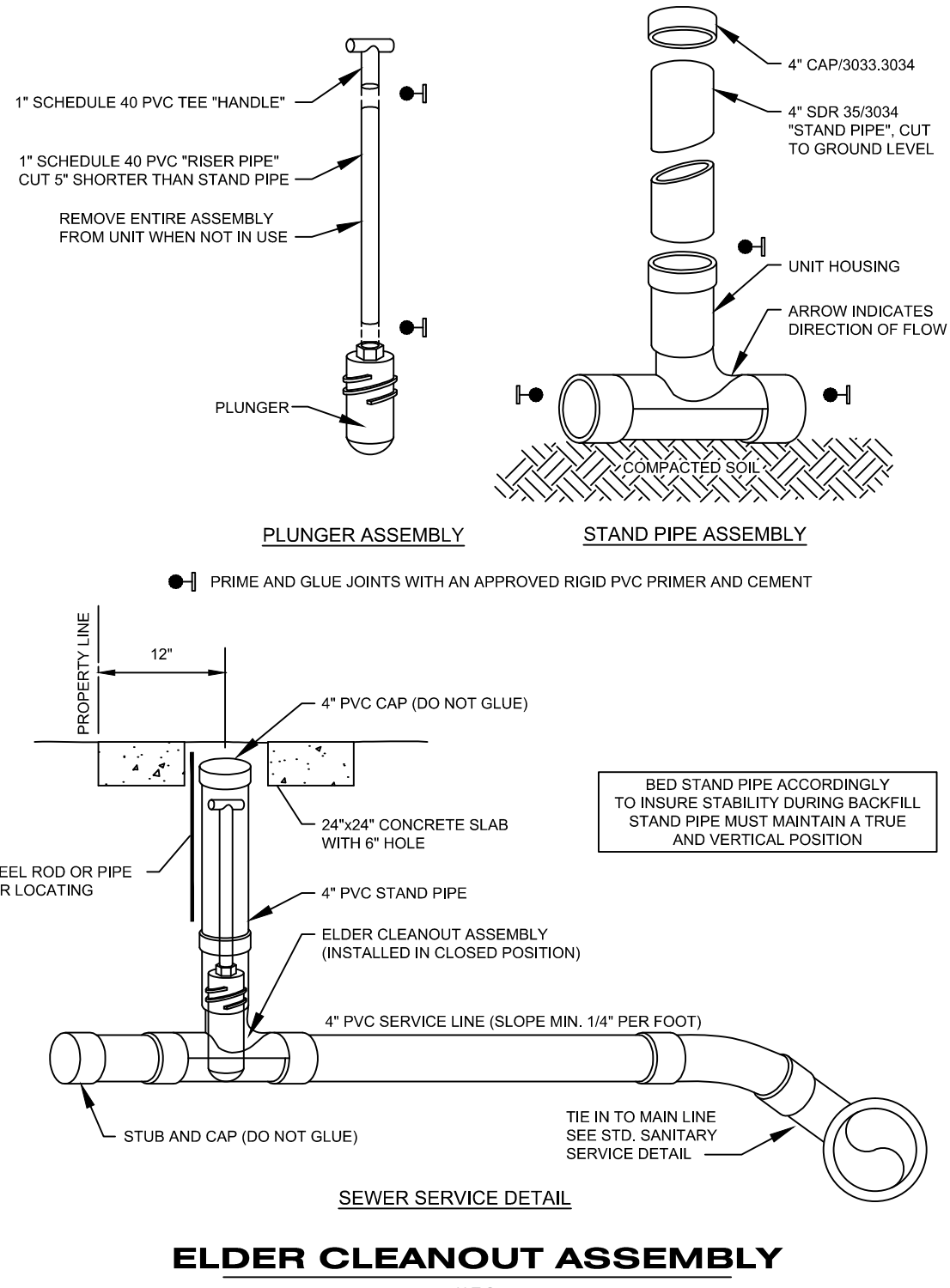
STANDARD MANHOLE FRAME AND COVER
N.T.S.

Utilities, Inc.	SCALE: NONE	SANITARY DETAILS	STANDARD DETAIL NUMBER
	DATE: 6-3-02	STANDARD MANHOLE FRAME AND COVER	S-4
	FILE: MHCOVER.DWG		

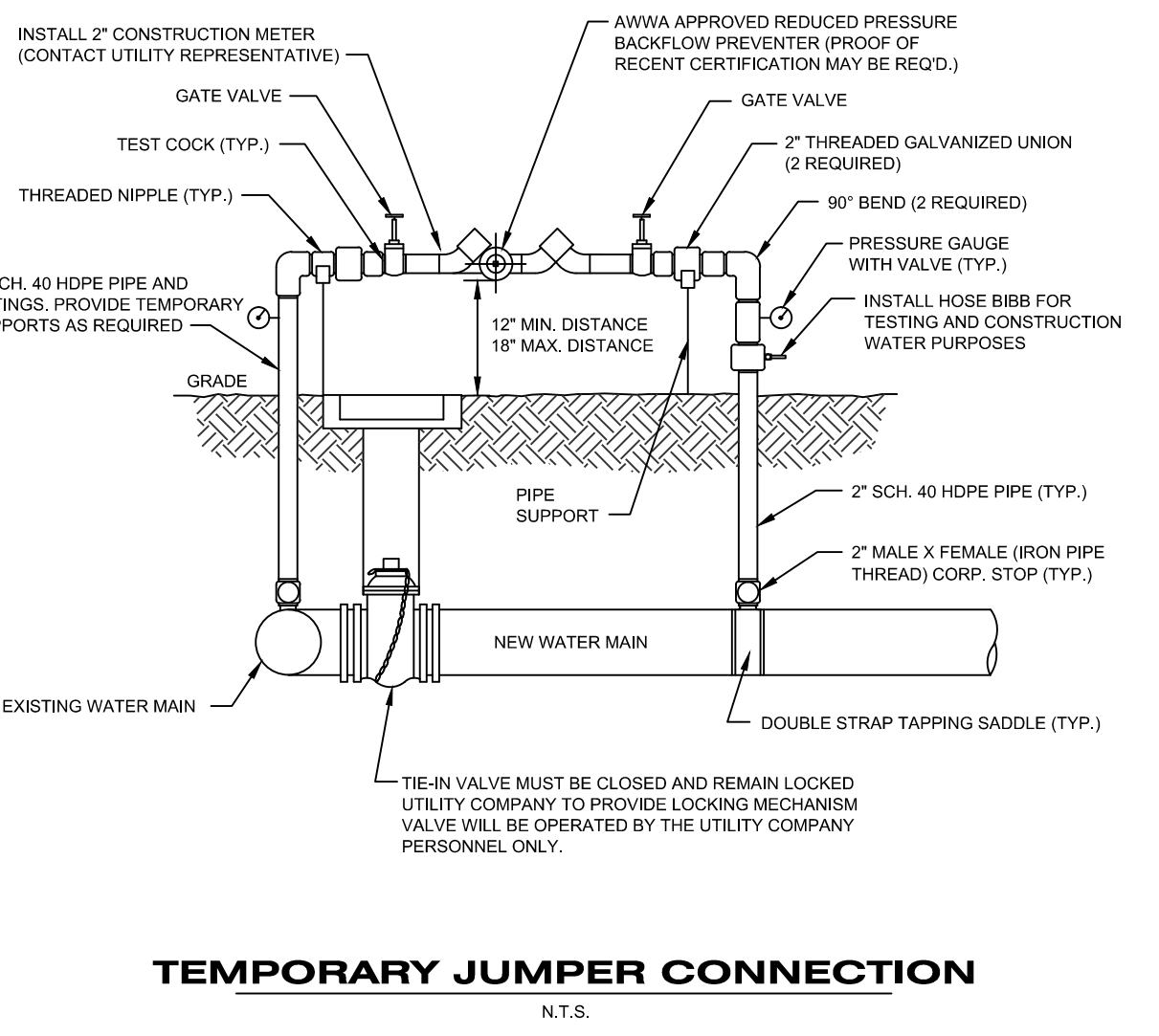


SANITARY SERVICE LATERAL DETAIL
N.T.S.

Utilities, Inc.	SCALE: NONE	SANITARY DETAILS	STANDARD DETAIL NUMBER
	DATE: 6-3-02	SANITARY SERVICE LATERAL DETAIL	S-5
	FILE: SANLAT.DWG		



Utilities, Inc.	SCALE: NONE	SANITARY DETAILS	STANDARD DETAIL NUMBER
	DATE: 7-12-01	ELDER CLEANOUT ASSEMBLY	S-6
	FILE: ELDER.DWG		



TEMPORARY JUMPER CONNECTION
N.T.S.

Utilities, Inc.	SCALE: NONE	WATER DETAILS	STANDARD DETAIL NUMBER
	DATE: 6-3-02	TEMPORARY JUMPER CONNECTION	W-2
	FILE: JUMPER.DWG		

TEMPORARY JUMPER NOTES:

1. A TEMPORARY JUMPER CONNECTION IS REQUIRED AT ALL CONNECTIONS BETWEEN EXISTING ACTIVE WATER MAINS AND PROPOSED NEW WATER MAIN IMPROVEMENTS.
2. THE DETAIL ABOVE IS TO BE USED FOR FILLING ANY NEW WATER MAIN OF ANY SIZE FROM EXISTING ACTIVE WATER MAINS AND FOR FLUSHING OF NEW MAINS UP TO 8" IN DIAMETER (2.5 FPS MINIMAL VELOCITY) AND FOR FILLING BACTERIOLOGICAL SAMPLES FROM ANY NEW WATER MAIN OF ANY SIZE. THE JUMPER CONNECTION SHALL BE MAINTAINED UNTIL AFTER FILLING, FLUSHING, TESTING, AND DISINFECTION OF THE NEW MAIN HAS BEEN SUCCESSFULLY COMPLETED AND CLEARANCE FOR USE FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) & OTHER PERTINENT AGENCIES HAS BEEN RECEIVED BY UTILITIES, INC. THIS JUMPER CONNECTION SHALL ALSO BE USED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI IN THE NEW MAINS ALL THE TIME AFTER DISINFECTION AND UNTIL THE FDEP CLEARANCE LETTER IS OBTAINED. ADEQUATE TRUST BLOCKING AND/OR RESTRAINTS SHALL BE PROVIDED TEMPORARILY AS REQUIRED. PIPE AND FITTINGS USED FOR CONNECTING THE NEW PIPE TO THE EXISTING PIPE SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651, 1992 EDITION. THIS TAPPING SLEEVE AND THE EXTERIOR OF THE MAIN TO BE TAPPED SHALL BE DISINFECTED BY SPRAYING OR SWABING PER SECTION II OF AWWA C651-92.

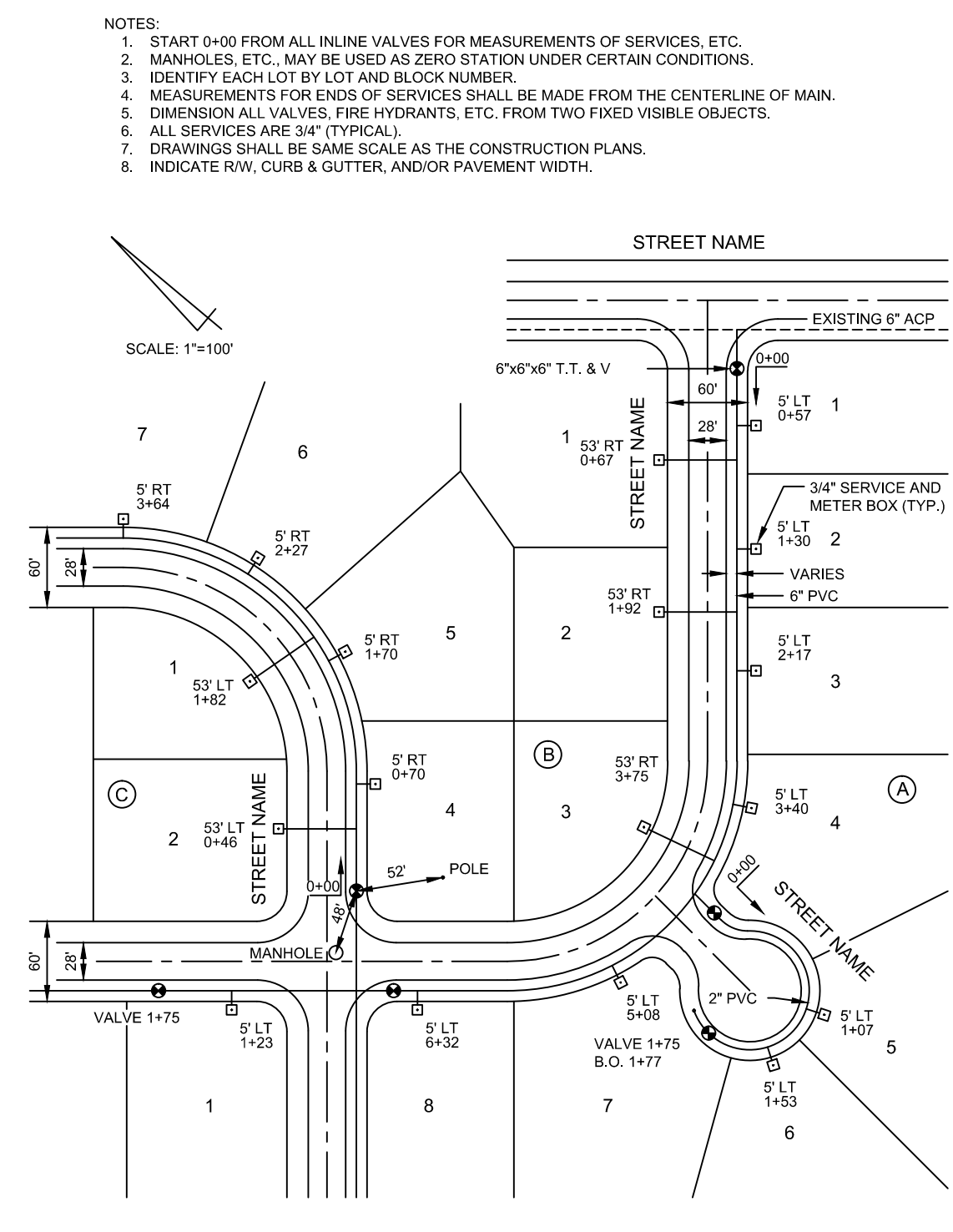
TEMPORARY JUMPER NOTES
N.T.S.

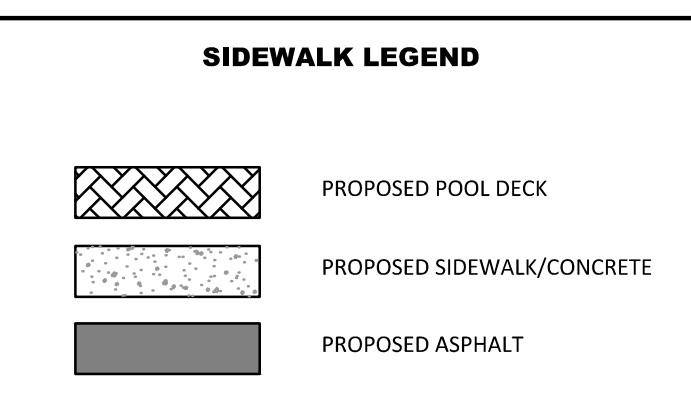
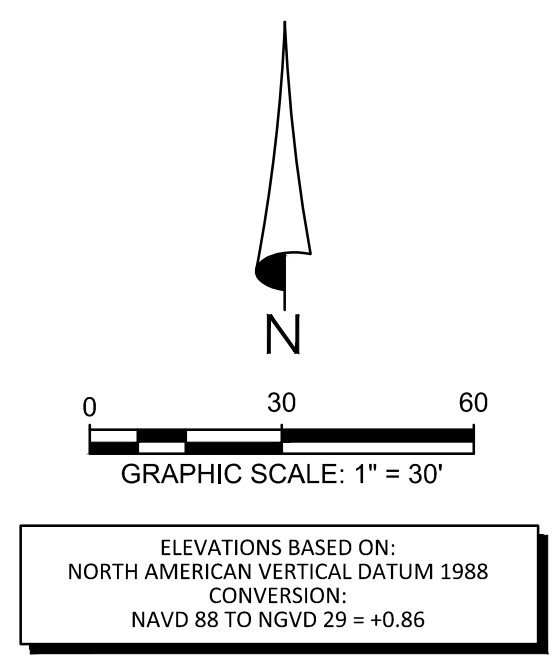
Utilities, Inc.	SCALE: NONE	WATER DETAILS	STANDARD DETAIL NUMBER
	DATE: 7-12-01	TEMPORARY JUMPER NOTES	W-3
	FILE: JUMPNOTES.DWG		

CONTINUED FROM PAGE W-3

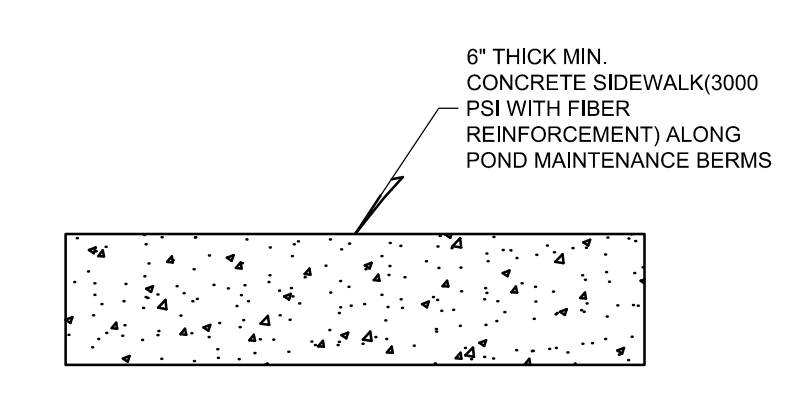
3. FLUSHING OF 10" DIAMETER AND LARGER WATER MAINS MAY BE DONE THROUGH THE TIE-IN VALVE UNDER VERY CONTROLLED CONDITIONS. THE FOLLOWING PROCEDURES SHALL BE FOLLOWED:
 - A. THE TIE-IN VALVES SHALL BE OPERATED AND PRESSURE TESTED IN THE PRESENCE OF THE UTILITY COMPANY AND ENGINEER TO VERIFY WATER TIGHTNESS PRIOR TO TIE-IN. VALVES WHICH ARE NOT WATER TIGHT SHALL BE REPLACED OR A NEW VALVE INSTALLED IMMEDIATELY ADJACENT TO THE LEAKING VALVE.
 - B. THE TEMPORARY JUMPER CONNECTION SHALL BE CONSTRUCTED AS DETAILED. THE JUMPER CONNECTION SHALL BE USED TO FILL THE NEW WATER MAIN AND FOR PROVIDING WATER FOR BACTERIOLOGICAL SAMPLING OF THE NEW MAIN AS REQUIRED BY THE FDEP PERMIT.
 - o FLUSHING SHALL NOT BE ATTEMPTED DURING PEAK DEMAND HOURS OF THE EXISTING WATER MAINS.
 - o ALL DOWNSTREAM VALVES IN THE NEW SYSTEM MUST BE OPEN PRIOR TO OPENING THE TIE-IN VALVE.
 - o PROVIDE FOR AND MONITOR THE PRESSURE AT THE TIE-IN POINT. THE PRESSURE ON THE EXISTING MAIN MUST NOT DROP BELOW 35 PSI.
 - o TIE-IN VALVE SHALL BE OPENED A FEW TURNS ONLY, ENSURING A PRESSURE DROP ACROSS THE VALVE IS ALWAYS GREATER THAN 10 PSI.
 - C. THE TIE-IN VALVE SHALL BE LOCKED CLOSED BY THE UTILITY COMPANY UNTIL FLUSHING BEGINS.
 - D. THE TIE-IN VALVE SHALL BE OPENED ONLY FOR FLUSHING OF THE NEW MAIN. THE PROCEDURE SHALL BE DIRECTED BY THE UTILITY COMPANY AND OBSERVED BY THE ENGINEER.
 - E. AFTER FLUSHING, THE TIE-IN VALVE SHALL BE CLOSED AND LOCKED, THEN VERIFIED BY THE UTILITY.
4. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION DEMONSTRATING THAT THE DOUBLE CHECK BACKFLOW PREVENTION DEVICE HAS BEEN TESTED WITHIN ONE YEAR AT THE TIME OF INSTALLATION, & IS IN GOOD WORKING ORDER AT THE TIME OF INSTALLATION. THE TEST SHALL BE PERFORMED BY A QUALIFIED BACKFLOW PREVENTION TECHNICIAN AS APPROVED BY THE UTILITIES CROSS-CONNECTION CONTROL PROGRAM.
5. EXCEPT AS REQUIRED TO FLUSH LINES OF GREATER THAN 8" IN DIAMETER, THE TIE-IN VALVE SHALL REMAIN CLOSED, LOCKED, AND VERIFIED BY THE UTILITY COMPANY. THE TIE-IN VALVE SHALL REMAIN LOCKED UNTIL THE NEW SYSTEM HAS BEEN CLEARED FOR USE BY FDEP AND ALL OTHER PERTINENT AGENCIES. THE CONTRACTOR SHALL REMOVE THE TEMPORARY JUMPER CONNECTION. THE CORPORATION STOPS ARE TO BE CLOSED AND PLUGGED WITH 2" BRASS PLUGS.
6. UPON RECEIPT OF CLEARANCE FOR USE FROM FDEP AND ALL OTHER PERTINENT AGENCIES, THE CONTRACTOR SHALL REMOVE THE TEMPORARY JUMPER CONNECTION. THE CORPORATION STOPS ARE TO BE CLOSED AND PLUGGED WITH 2" BRASS PLUGS.
7. ALL INSTALLATION AND MAINTENANCE OF THE TEMPORARY JUMPER CONNECTION AND ASSOCIATED BACKFLOW PREVENTION DEVICE, FITTINGS, VALVE, ETC. SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

Utilities, Inc.	SCALE: NONE	WATER DETAILS	STANDARD DETAIL NUMBER
	DATE: 7-12-01	TEMPORARY JUMPER NOTES	W-3A
	FILE: JUMPNOTES.DWG		

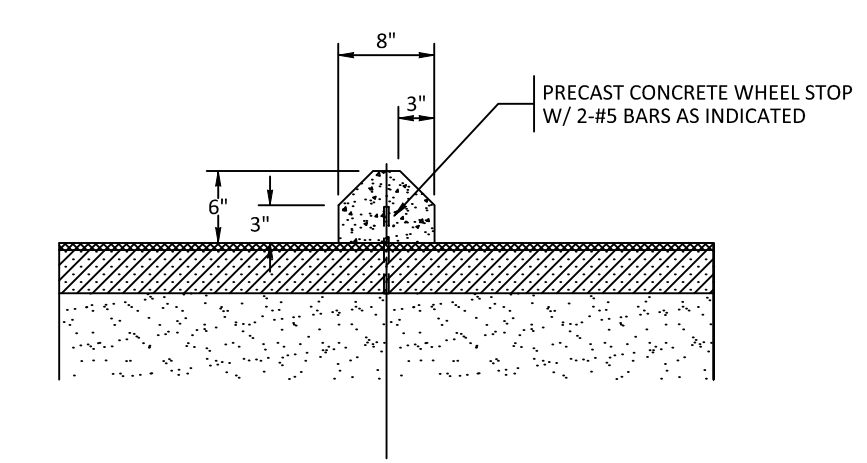




- SIDEWALK NOTES:**
- SIDEWALK INDICATED AS INSTALLED BY DEVELOPER SHALL BE COMPLETED PRIOR TO FINAL INFRASTRUCTURE INSPECTION OR SHALL BE SUBJECT TO COVERAGE UNDER A PERFORMANCE GUARANTEE.
 - SIDEWALK DETECTABLE WARNING SURFACES SHALL BE ALIGNED IN THE DIRECTION OF PEDESTRIAN TRAVEL.



8' TRAIL DETAIL
SCALE: NTS



WHEEL STOP DETAIL
SCALE: NTS

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
Landscape Architecture Certificate of Authorization No. LC26000405

**SERENOA AMENITY CENTER
SIGNING, PAVEMENT MARKINGS &
SIDEWALK PLAN**

PREPARED FOR: **VK AVALON GROVES, LLC**

NO.	DATE	DESCRIPTION
2	06/22/2017	LAYOUT REVISIONS
1	02/28/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
FILE: SPM
DESIGN BY: FRANCIS
DRAWN BY: GAULT

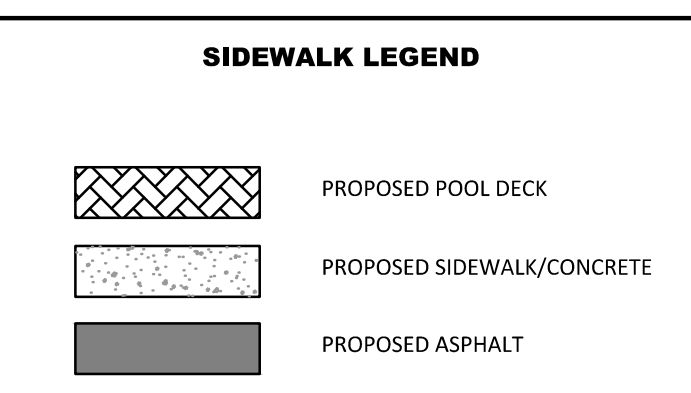
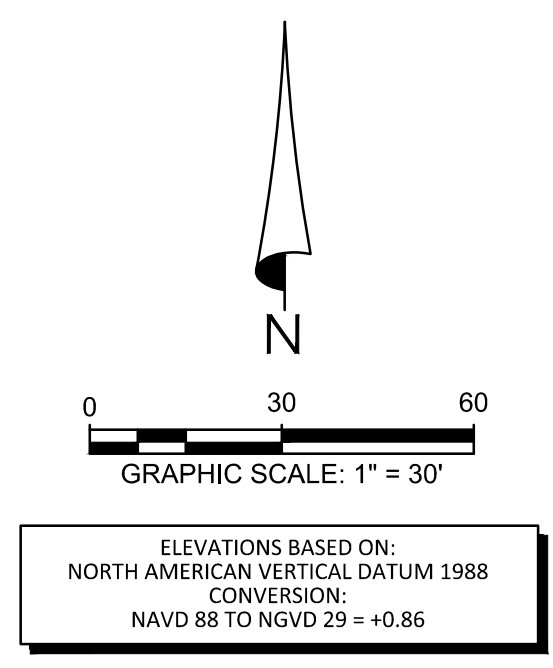
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-700



- SIDEWALK NOTES:**
- SIDEWALK INDICATED AS INSTALLED BY DEVELOPER SHALL BE COMPLETED PRIOR TO FINAL INFRASTRUCTURE INSPECTION OR SHALL BE SUBJECT TO COVERAGE UNDER A PERFORMANCE GUARANTEE.
 - SIDEWALK DETECTABLE WARNING SURFACES SHALL BE ALIGNED IN THE DIRECTION OF PEDESTRIAN TRAVEL.

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
 Landscape Architecture Certificate of Authorization No. LC26000405

**SERENOVA AMENITY CENTER
 SIGNING, PAVEMENT MARKINGS &
 SIDEWALK PLAN**

PREPARED FOR:
VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION	DATE	DESCRIPTION
2	06/22/2017	LAYOUT REVISIONS		
1	07/28/2017	REVIEW SUBMITTAL		

PROJECT NO: KLP-AG-1009
 FILE: SPM
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

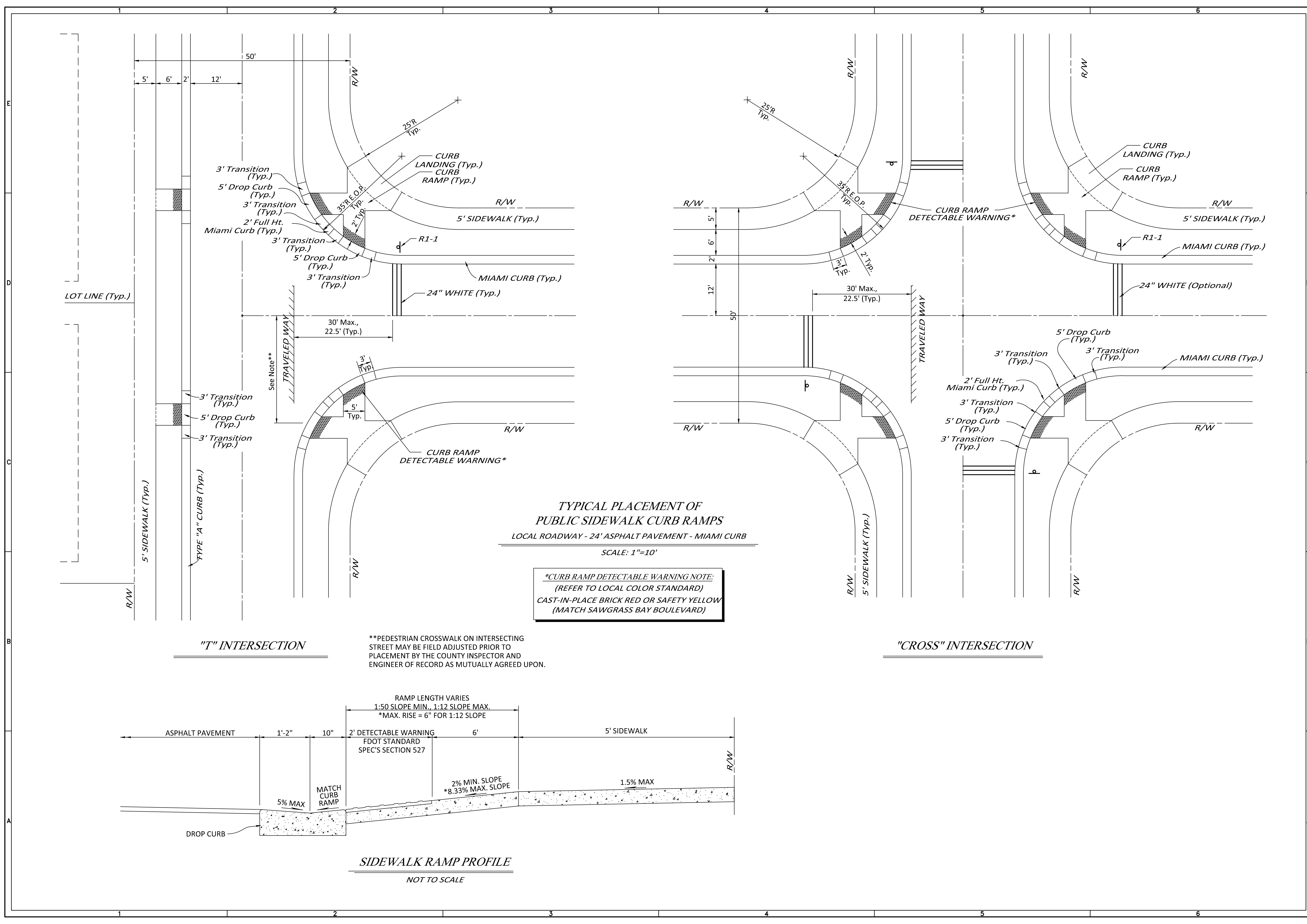
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-701



HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
 Landscape Architecture Certificate of Authorization No. LC26000405
 R-AVALON GROVESAMENITY CENTER COMMERCIAL SITE PLAN/ENGINEERING/DWG-C-702 2017/06/21 2:25 PM ERIC FRANCIS

SERENOVA AMENITY CENTER
SIGNING, PAVEMENT MARKING, & SIDEWALK DETAILS AND NOTES

PREPARED FOR: **VK AVALON GROVES, LLC**

NO.	DATE	DESCRIPTION
1	02/29/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
 FILE: SPM
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

FLORIDA PROFESSIONAL ENGINEER
 This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.
 Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-702

SPECIFICATIONS FOR DESIGN AND INSTALLATION OF TRAFFIC CONTROL DEVICES ON NON-COUNTY ROADS

- 1. ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED IN CONFORMANCE WITH THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS.
2. STREET NAME SIGNS SHALL BE 9" ON ALL ROADS. 9" SIGNS SIGNS SHALL HAVE 6" SERIES B LETTERS. ALL STREET NAME SIGNS ON PRIVATE STREETS (NON-COUNTY MAINTAINED) SHALL BE STANDARD D3 STREET NAMES WITH THE COLORS REVERSED, WHITE BACKGROUND WITH GREEN LETTERS AND BORDER.
3. CONTRACTOR MUST CONTACT ENGINEER OF RECORD PRIOR TO ORDERING STREET NAME SIGNS. APPROVED STREET NAMES CAN NOT BE DETERMINED UNTIL RECORDING OF THE PLAN.
4. EXISTING STRIPING AND OTHER PAVEMENT MARKINGS TO BE REMOVED SHALL BE DONE AS NECESSARY BY HYDROBLASTING. GRINDING IS NOT PERMITTED.

SPECIFICATIONS FOR DESIGN AND INSTALLATION OF TRAFFIC CONTROL DEVICES ON COUNTY ROADS

- 1) PURPOSE: THESE SPECIFICATIONS HAVE BEEN DEVELOPED TO PROVIDE DEVELOPERS WITH A UNIFORM SYSTEM FOR INSTALLATION OF TRAFFIC CONTROL DEVICES ON THE COUNTY ROAD SYSTEM. A UNIFORM SYSTEM PROVIDES FOR REDUCED MAINTENANCE COSTS AND A HIGH STANDARD OF VISIBILITY FOR DRIVERS. ALL REQUIRED TRAFFIC CONTROL DEVICES SHALL BE INSTALLED BY THE DEVELOPER OF THE PROJECT.
2) FLORIDA STATE STATUTE 316.0745: 2.1) ANY AND ALL TRAFFIC CONTROL DEVICES INSTALLED ON THE COUNTY ROAD SYSTEM SHALL CONFORM TO FLORIDA STATE STATUTE 316.0745, UNIFORM SIGNALS AND DEVICES. 2.2) THIS STATUTE REQUIRES THAT ALL DEVICES CONFORM TO FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) SPECIFICATIONS. THE FDOT HAS ADOPTED THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AS THE STANDARDS TO BE USED IN THE STATE OF FLORIDA.
3) PAVEMENT MARKINGS: 3.1) ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC OR PREFORMED TAPES, RAISED PAVEMENT MARKERS SHALL BE CLASS "B". 3.2) PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS SHALL BE INSTALLED ON ALL ROADS CLASSIFIED OTHER THAN RESIDENTIAL WITH AN ADT GREATER THAN 500 VEHICLES, OR IF OTHER CONDITIONS EXIST THAT REQUIRE PAVEMENT MARKINGS, (SEE M.U.T.C.D. SECTION 3B-1).
4) TRAFFIC CONTROL SIGNS: 4.1) ALL SIGN BLANKS SHALL BE OF A TYPE CURRENTLY CERTIFIED BY THE FDOT FOR USE IN THE STATE OF FLORIDA. 4.2) ALL SIGN FACES SHALL BE HIGH INTENSITY PRISMATIC GRADE AND OF A TYPE CURRENTLY CERTIFIED BY THE FDOT FOR USE IN THE STATE OF FLORIDA. 4.3) ALL SIGNS SHALL BE NO LESS THAN THE STANDARD SIZE AS SPECIFIED BY THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. NO MINIMUM SIZE SIGNING SHALL BE ACCEPTED. LARGER SIGNS SHALL BE USED WHEN REQUIRED BY DESIGN SPEED, ETC. 4.4) STREET NAME SIGNS SHALL BE 9" ON COLLECTOR AND ARTERIAL ROADS, 9" SIGNS SHALL HAVE 8" SERIES B LETTERS. ALL STREET NAME SIGNS ON PRIVATE ROADS SHALL BE STANDARD D3 STREET NAME SIGNS WITH THE COLORS REVERSED, WHITE BACKGROUND WITH GREEN LETTERS AND BORDER. AT INTERSECTIONS WITH COUNTY MAINTAINED ROADS, THE COUNTY MAINTAINED ROAD SHALL BE GREEN BACKGROUND WITH WHITE LETTERS AND BORDER. STREET NAME SIGN BRACKETS FOR 6" SIGNS 30" LONG OR LESS, OR 9" SIGNS 24" LONG OR LESS, SHALL HAVE A 5 INCH BLADE OR CROSS. ALL OTHER STREET NAME SIGNS SHALL BE MOUNTED WITH BRACKETS WITH A 12 INCH BLADE OR 8 INCH CROSS. ALL STREET NAME SIGN BRACKETS SHALL BE SUPPLIED WITH BOLTS, SET SCREWS WILL NOT BE ACCEPTED. 4.5) ON ROADS TO BE MAINTAINED BY LAKE COUNTY. ALL SIGNS OTHER THAN STREET NAMES SHALL BE DATE CODED WITH A YELLOW REFLECTIVE LABEL AFFIXED TO THE BACK OF THE SIGN. IT WILL BE PUNCHED TO SHOW MONTH, DAY AND YEAR OF INSTALLATION (SEE SAMPLE LABEL). ALTERNATE LABEL DESIGNS PROVIDING THE DATE CODE INFORMATION MAY BE USED IF A SAMPLE IS SUBMITTED AND APPROVED BY LAKE COUNTY PRIOR TO INSTALLATION.
SAMPLE LABEL: SIZE 2" X 4"

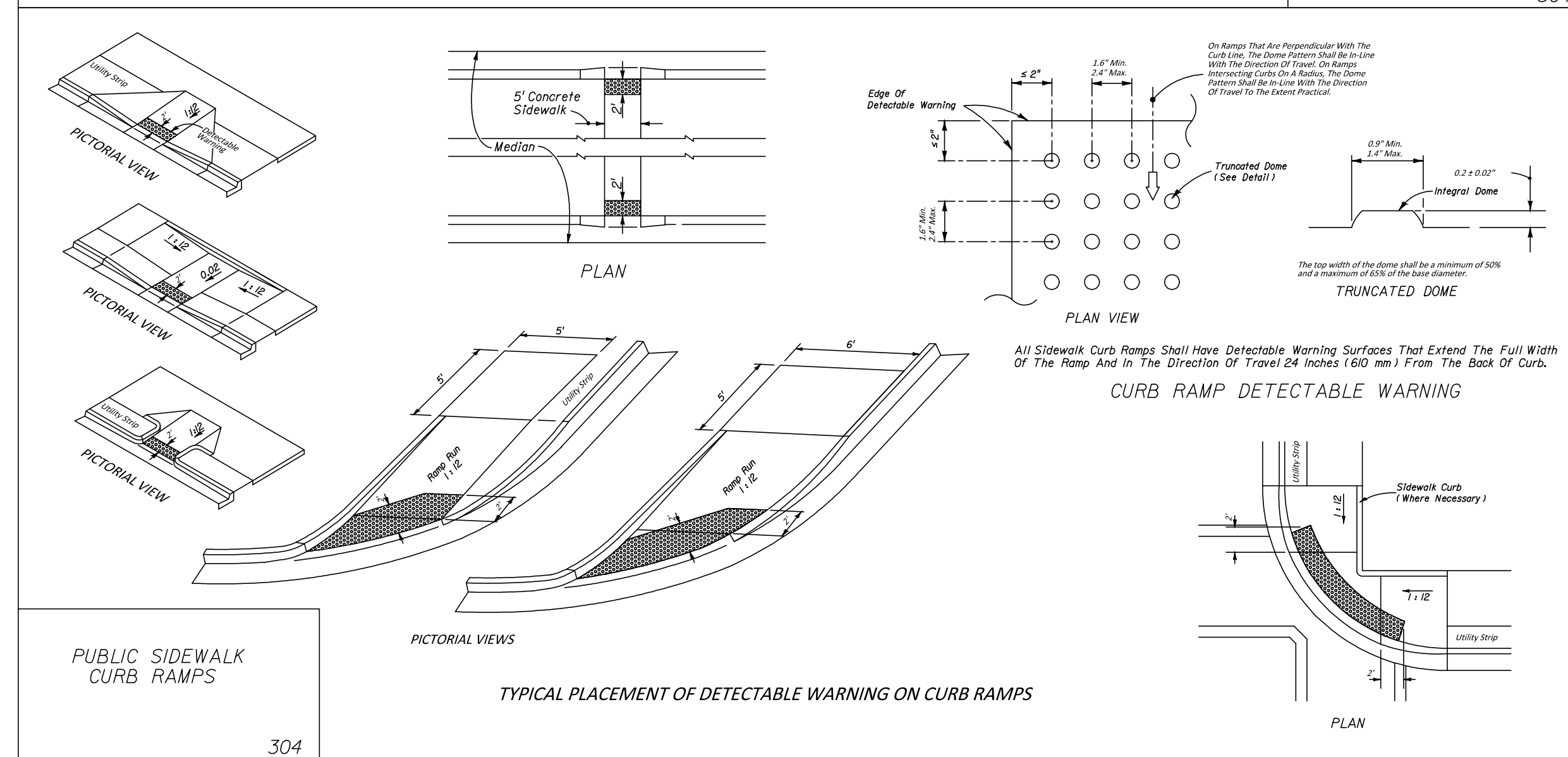
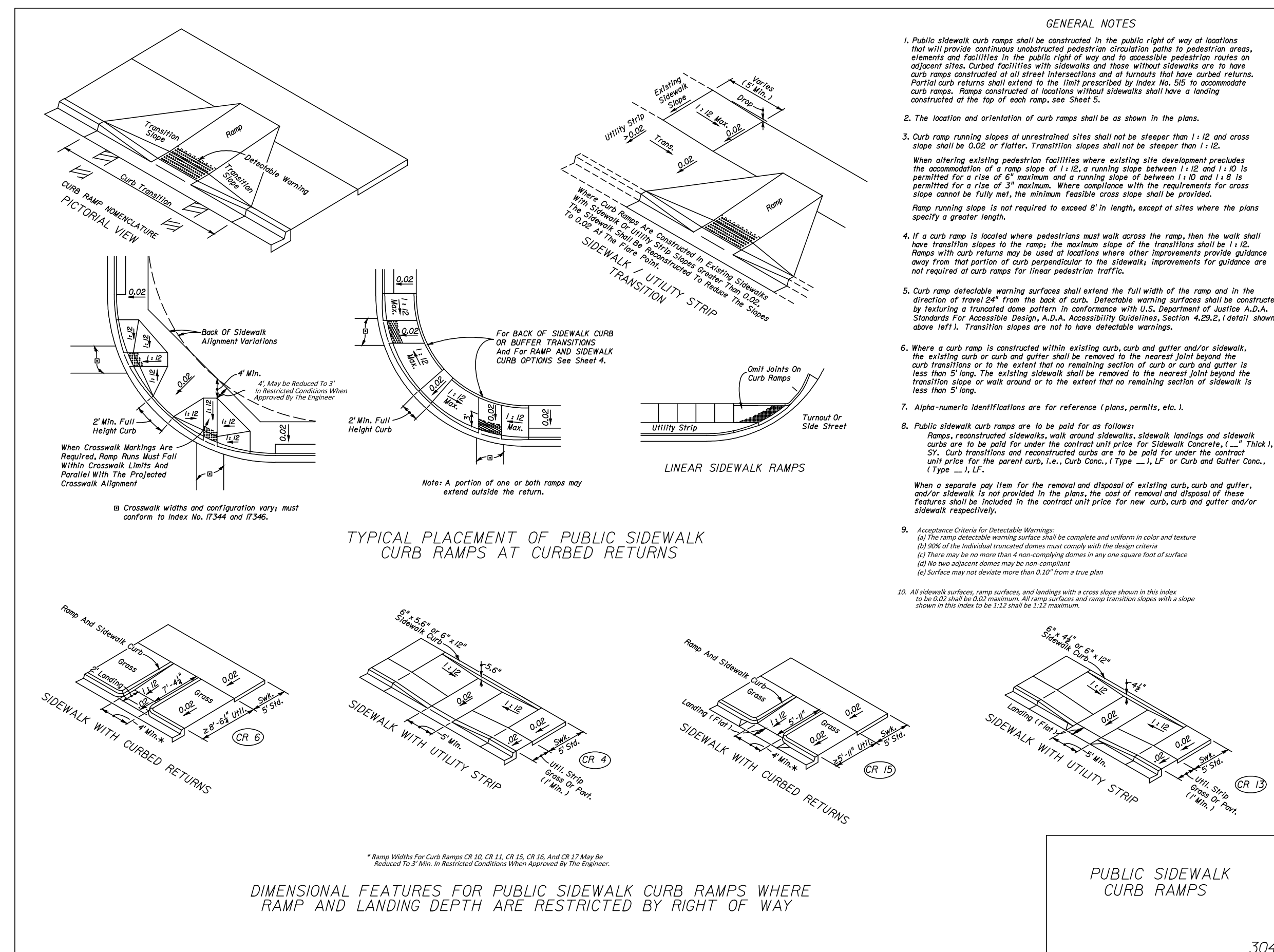
WARNING

REMOVAL OF, OR DEACING ANY TRAFFIC CONTROL DEVICE IS PUNISHABLE BY FINE AND/OR IMPRISONMENT REPORT DAMAGE BY CALLING (727) 847-2411

INSTALLED

J F M A M J J A S O N D
10'S 20'S 30'S - 1 2 3 4 5 6 7 8 9
01 02 03 04 05 06 07 08 09

- 4.6) ALL POST SYSTEMS, MOUNTING BRACKETS AND HARDWARE SHALL BE OF A TYPE CURRENTLY IN USE BY THE LAKE COUNTY PUBLIC WORKS DEPARTMENT AND CURRENTLY CERTIFIED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION FOR USE IN THE STATE OF FLORIDA. ALTERNATIVE SYSTEMS, ETC., SHALL ONLY BE USED IF APPROVED BY THE COUNTY ENGINEER.
5) CERTIFICATION OF MATERIALS: 5.1) ALL TRAFFIC CONTROL DEVICES AND MATERIALS SHALL BE ON THE CURRENT FDOT APPROVED PRODUCTS LIST. PROOF OF CERTIFICATION IS REQUIRED FOR ALL TRAFFIC CONTROL DEVICES. 5.2) A TRAFFIC CONTROL DEVICES SUBMITTAL DATA FORM SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION OF ANY TRAFFIC CONTROL DEVICE. NO TRAFFIC CONTROL DEVICE SHALL BE INSTALLED UNTIL THE CERTIFICATION SUBMITTAL HAS BEEN APPROVED BY THE TRAFFIC OPERATIONS DIVISION. THESE FORMS ARE AVAILABLE FROM THE TRAFFIC OPERATIONS DIVISION. COPIES OF THE APPROVED TRAFFIC CONTROL DEVICES SUBMITTAL DATA FORM SHALL BE SENT TO THE CONTRACTOR AND THE ENGINEERING INSPECTIONS DIVISION.
6) TRAFFIC CONTROL DEVICES PLAN: 6.1) A DETAILED SET OF PLANS FOR REQUIRED TRAFFIC CONTROL DEVICES SHALL BE SUBMITTED FOR ALL ROAD CONSTRUCTION, SITE DEVELOPMENT, SUBDIVISION, AND RIGHT-OF-WAY USE PERMITS. THESE PLANS SHALL BE IN CONFORMANCE WITH FDOT DESIGN STANDARDS. ALL PLANS SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA. 6.2) WITH THE SUBMITTAL OF FINAL PLANS TO THE DEVELOPMENT REVIEW DIVISION, TWO ADDITIONAL SETS OF THE TRAFFIC CONTROL PLAN PORTION OF THE ENTIRE PLAN SHALL BE SUBMITTED. THESE TWO SETS WILL BE FORWARDED TO THE TRAFFIC OPERATIONS DIVISION.
7) COST ESTIMATE: AN ENGINEER'S COST ESTIMATE SHALL BE REQUIRED FOR ALL PROPOSED TRAFFIC CONTROL DEVICES. THE ESTIMATE SHALL BE PROVIDED IN CONJUNCTION WITH THE TRAFFIC CONTROL DEVICES SUBMITTAL DATA FORM (SEE SECTION 5.2).
8) INSPECTION AND ACCEPTANCE: 8.1) UPON COMPLETION OF THE INSTALLATION OF THE TRAFFIC CONTROL DEVICES, THE CONTRACTOR SHALL CALL THE ENGINEERING INSPECTIONS DIVISION FOR AN INSPECTION AT LAKE COUNTY ROAD OPERATIONS. 8.2) THE INSPECTION SHALL BE MADE BY THE ENGINEERING INSPECTION DIVISION WITHIN 48 HOURS (TWO WORKING DAYS) OF THE REQUEST. 8.3) AN INSPECTION REPORT SHALL BE MADE BY THE ENGINEERING INSPECTIONS DIVISION. COPIES OF THE REPORT SHALL BE SENT TO THE ENGINEER AND THE DEVELOPER. 8.4) NO ROADWAY SHALL BE OPEN TO THE PUBLIC UNTIL ALL TRAFFIC CONTROL DEVICES HAVE BEEN INSPECTED AND ACCEPTED BY LAKE COUNTY.



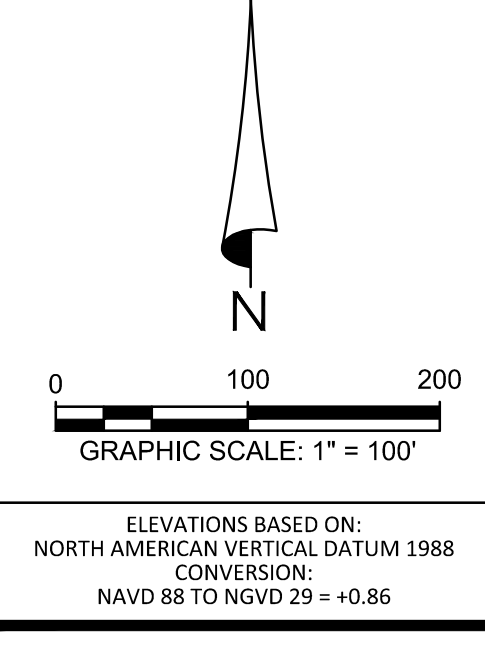
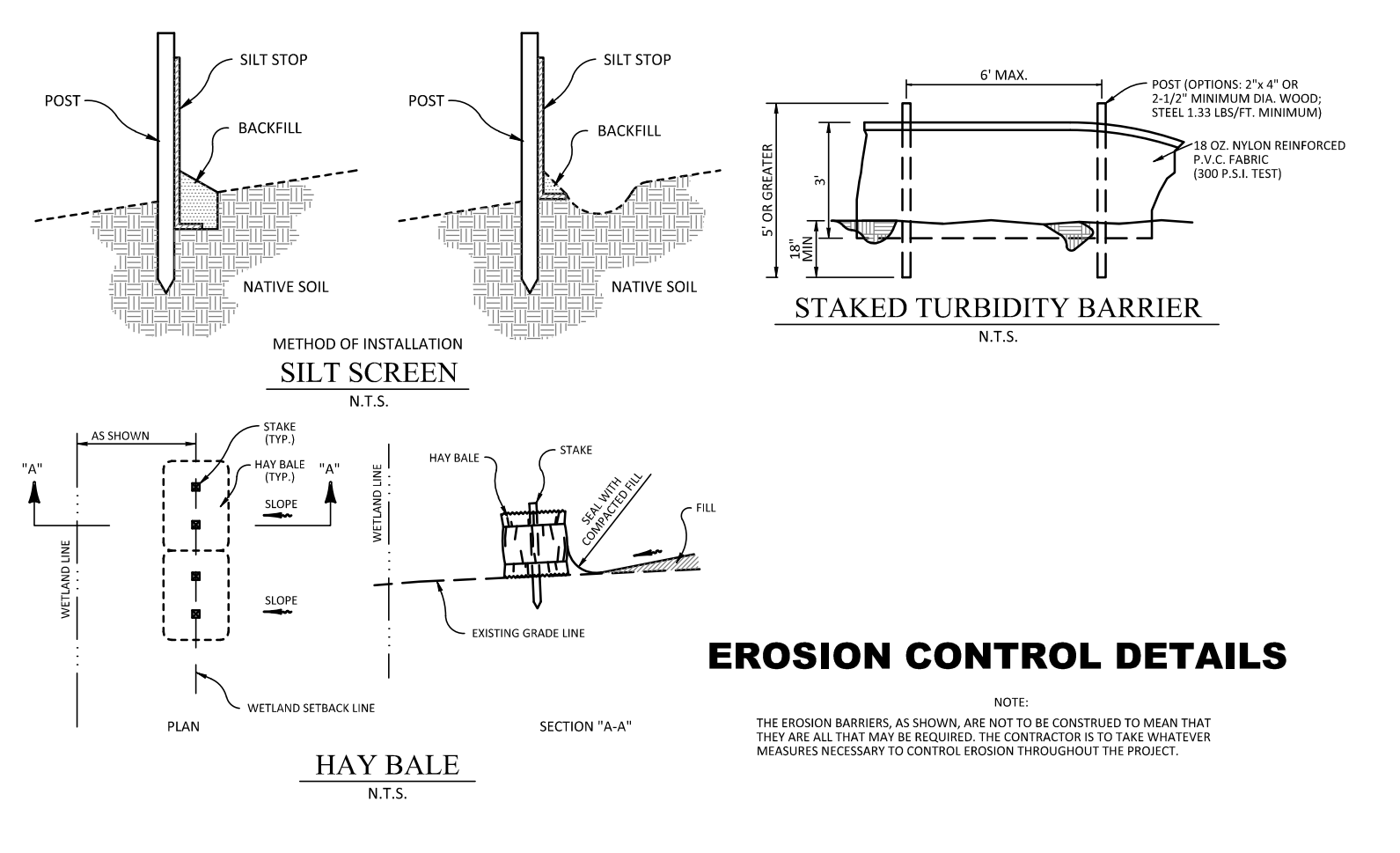
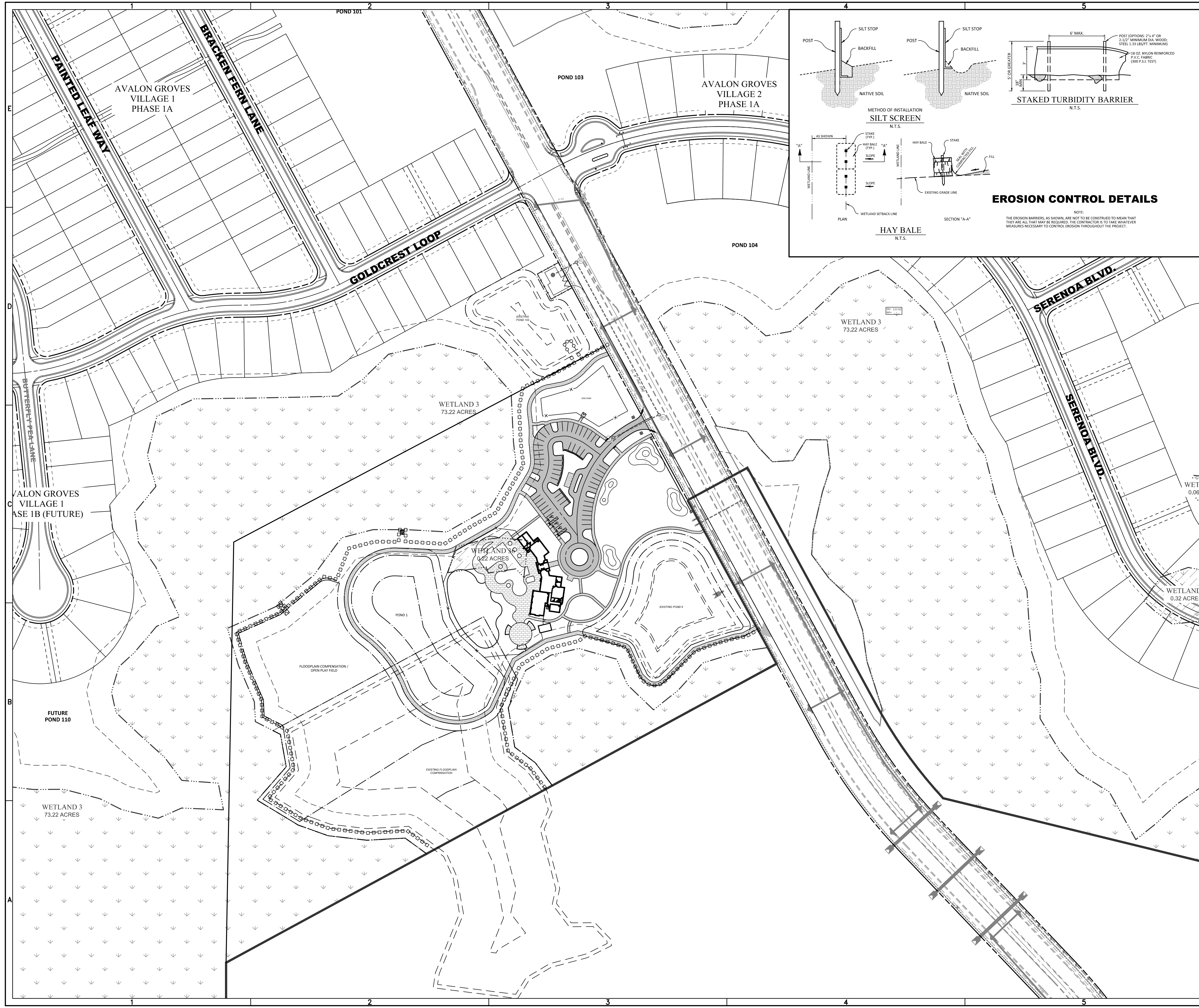
GENERAL NOTES
1. Public sidewalk curb ramps shall be constructed in the public right of way or easement that will provide continuous unobstructed pedestrian circulation paths to pedestrian areas, crossings and facilities in the public right of way and to accessible pedestrian routes on adjacent streets. Curb ramps with sidewalks and those without sidewalks are to have curb ramps constructed at all street intersections and at turnoffs that have curbed returns. Parallel curb returns shall extend to the limit prescribed by note No. 5D to accommodate curb ramps. Those constructed at locations without sidewalks shall have a landing constructed at the top of each ramp, see Sheet 5.
2. The location and orientation of curb ramps shall be as shown in the plans.
3. Curb ramp landing slopes at uncurbed sites shall not be steeper than 1:12 and cross slope shall be 0:00 or flatter. Transition slopes shall not be steeper than 1:12.
When altering existing pedestrian facilities where existing site development precludes the accommodation of a ramp slope of 1:12, a ramping slope between 1:12 and 1:8 is permitted for a rise of 6" maximum and a landing slope of between 1:12 and 1:8 is permitted for a rise of 6" maximum. Where compliance with the requirements for cross slope cannot be fully met, the minimum feasible cross slope shall be provided.
Ramp landing slope is not required to exceed 8' in length, except at sites where the plans specify a greater length.
4. If a curb ramp is located where pedestrians must walk across the ramp, then the walk shall have transition slopes to the ramps. The maximum slope of the transition shall be 1:12. Ramps with curb returns may be used at locations where other improvements provide guidance away from the portion of curb perpendicular to the sidewalk. Improvements for guidance are not required at curb ramps for these pedestrian traffic.
5. Curb ramp detectable warning surfaces shall extend the full width of the ramp and in the direction of travel 24" from the back of curb. Detectable warning surfaces shall be constructed by featuring a truncated dome pattern in accordance with U.S. Department of Justice, A.S.A. Standards for Accessible Design, A.S.A. Accessibility Guidelines, Section 4.25.2, (detail shown above left). Transition slopes are not to have detectable warnings.
6. Where a curb ramp is constructed within existing curb, curb and gutter and/or sidewalk, the existing curb or curb and gutter shall be removed to the nearest joint before the curb transitions or to the extent that no remaining section of curb or curb and gutter is less than 18". The existing sidewalk shall be removed to the nearest joint before the transition slope or walk crosswalk or to the extent that no remaining section of sidewalk is less than 18".
7. Alpha-numeric identifications are for reference (plans, permits, etc.).
8. Public sidewalk curb ramps are to be built for the following:
Ramps, reconstructed sidewalks, walk around sidewalks, sidewalk landings and sidewalk transitions are to be built for the contract unit price for new curb, curb and gutter and/or sidewalk respectively.
Curb transitions and reconstructed curbs are to be built for under the contract unit price for the parent curb, i.e., Curb Conc., 1 Type ---, 1, LF, or Curb and Gutter Conc., 1 Type ---, 1, LF.
When a separate pay item for the removal and disposal of existing curb, curb and gutter, or sidewalk is included in the contract unit price, the cost of removal and disposal of these materials shall be included in the contract unit price for new curb, curb and gutter and/or sidewalk respectively.
9. Accessibility Criteria for Detectable Warnings:
(a) For ramps, detectable warnings shall be complete and uniform in color and texture.
(b) 80% of the individual truncated domes must comply with the design criteria.
(c) No two adjacent domes may be non-compliant.
(d) For other non-ramp areas, a 2" x 2" x 0.15" pattern.
10. All sidewalk surfaces, ramp surfaces, and landings with a cross slope shown in this index shall be 0:00 and 0:00 maximum. All ramp surfaces and ramp transition slopes with a slope shown in this index shall be 1:12 and 1:12 maximum.

HEIDT DESIGN logo and contact information: 5904-A Hampton Oaks Pkwy, Tampa, Florida 33610, Office: 813-253-5311, Fax: 813-464-7629, www.HeidtDesign.com

SERENOVA AMENITY CENTER SIGNING, PAVEMENT MARKING, & SIDEWALK DETAILS AND NOTES. PREPARED FOR: VK AVALON GROVES, LLC. PROJECT NO: KLP-AG-1009, FILE: SPM, DESIGN BY: FRANCIS, DRAWN BY: GAULT, DATE: 02/29/2017, REVIEW SUBMITTAL DESCRIPTION: 1

Table with columns for DATE and DESCRIPTION, containing one entry for 02/29/2017 REVIEW SUBMITTAL.

FLORIDA PROFESSIONAL ENGINEER section with signature of Victor E. Barbosa, P.E., Registration No. 58548, and project number C-702.



- GENERAL LEGEND**
- PROPERTY LINE
 - - - - WETLAND LINE
 - - - - WETLAND CONS. AREA SETBACK (WCAS) (50')
 - STAKED EROSION CONTROL
- NOTE:
1. PONDS TO BE EXCAVATED PRIOR TO EARTHWORK.
2. CONTRACTOR TO DIRECT RUNOFF TO PONDS DURING CONSTRUCTION ACTIVITIES.
3. NOTE DOUBLE ROW SILT FENCE ALONG WETLAND BOUNDARIES.

HEIDT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629
www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
Landscape Architecture Certificate of Authorization No. LC26000405

**SERENOA AMENITY CENTER
CONSTRUCTION SURFACE WATER
MANAGEMENT PLAN**

PREPARED FOR:
VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
2	06/27/2017	LAYOUT REVISIONS
1	07/29/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
FILE: CSWMP
DESIGN BY: FRANCIS
DRAWN BY: GAULT

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-900

STORM WATER POLLUTION PREVENTION PLAN

CONTAINED ON THESE PLANS AND WITHIN THE FOLLOWING NOTES IS A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WHICH HAS BEEN DEVELOPED BY HEIOT DESIGN, LLC IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (FDEP) "NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM" (NPDES) GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES.

THE FOLLOWING ENTITIES ARE IDENTIFIED AS TEAM MEMBERS OF "SWPPP": HEIOT DESIGN, LLC, THE DEVELOPER AS IDENTIFIED IN THE TITLE BOX OF THESE PLANS, AND THE SITE CONTRACTOR AND HIS SUB-CONTRACTORS. EACH TEAM MEMBER HAS SPECIFIC RESPONSIBILITIES AND OBLIGATIONS. IN GENERAL, ALL TEAM MEMBERS, WITH REGARD TO THEIR INVOLVEMENT AND RESPONSIBILITIES ON THE PROJECT, ARE TO IMPLEMENT ALL NECESSARY STORM WATER MANAGEMENT CONTROLS TO ASSURE COMPLIANCE WITH THE NPDES GENERIC PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES, THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT PERMIT, THE APPLICABLE LOCAL GOVERNING AGENCY (I.E. LAKE COUNTY) AND THE GUIDELINES LISTED IN THE SWPPP. THE DUTIES AND RESPONSIBILITIES OF THE TEAM MEMBERS AS THEY PERTAIN TO THE SWPPP ARE AS FOLLOWS:

HEIOT DESIGN, LLC:

A. DEVELOP SWPPP INCLUDING, BUT NOT LIMITED TO, RETENTION/DETENTION PONDS, CONTROL STRUCTURES, EROSION CONTROL METHODS AND LOCATIONS AND STABILIZATION CRITERIA. THIS DESIGN IS INCLUDED WITHIN THESE CONSTRUCTION PLANS AND THE FOLLOWING NOTES AND INSTRUCTIONS.

B. SUBMIT AND OBTAIN THE NECESSARY DESIGN RELATED STORM WATER PERMITS FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT AND OTHER APPLICABLE GOVERNMENTAL BODIES.

C. UPON NOTIFICATION BY THE DEVELOPER OF HIS INTENT TO COMMENCE CONSTRUCTION, SUBMIT A NOTICE OF INTENT TO THE FDEP ON BEHALF OF THE DEVELOPER AND COPY THE CONTRACTOR INCLUDING SWPPP CERTIFICATION AND COPY OF THE PERMIT.

D. SUBMIT TO SRWMD AND THE OPERATOR OF THE MUNICIPAL SEPARATE STORM WATER SYSTEM, IF APPLICABLE, A LETTER OF CONSTRUCTION COMMENCEMENT.

E. COMPLETE AND SUBMIT A NOTICE OF TERMINATION AND CERTIFICATION FOR DEVELOPER. THE NOT'S SHALL BE SUBMITTED NO MORE THAN 30 DAYS AFTER;

1. COMPLETION OF THE PROJECT AND FINAL STABILIZATION OF THE SITE OR

2. WHEN RESPONSIBILITY FOR THE SITE HAS ENDED. FINAL STABILIZATION AS DEFINED BY EPA IS WHEN ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND A UNIFORM (E.G. EVENLY DISTRIBUTED, WITHOUT LARGE BARE AREAS) PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% OF THE NATIVE BACKGROUND VEGETATIVE COVER FOR THE AREA HAS BEEN ESTABLISHED ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES. AS AN ALTERNATIVE, EQUIVALENT PERMANENT STABILIZATION MEASURES (SUCH AS RIPRAP, GABIONS, OR GEOTEXTILES) MAY BE EMPLOYED. THE CLIENT SHALL NOTIFY HEIOT DESIGN, LLC WHEN ONE OF THESE CRITERIA HAS BEEN MET.

CONTRACTOR:

A. SIGN AND RETURN TO HEIOT A CONTRACTORS CERTIFICATION FORM CERTIFYING YOUR UNDERSTANDING OF AND WILLINGNESS TO COMPLY WITH THE STORM WATER POLLUTION PREVENTION PLAN NO LATER THAN 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALSO, EACH SUBCONTRACTOR AFFECTED BY THE SWPPP MUST CERTIFY TO THE CONTRACTOR THAT THEY UNDERSTAND AND SHALL COMPLY WITH THE NPDES PERMIT AND SWPPP. A RECORD OF THESE CERTIFICATIONS SHALL BE MAINTAINED BY THE CONTRACTOR ON SITE.

B. DURING CONSTRUCTION, ASSURE COMPLIANCE WITH THE DESIGNED STORM WATER POLLUTION PREVENTION PLANS PREPARED BY HEIOT DESIGN, LLC AND THE NPDES GENERIC PERMIT FOR STORM WATER DISCHARGES FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES.

C. MAINTAIN A COPY OF THE CONSTRUCTION PLANS, WHICH INCLUDE THE STORM WATER POLLUTION PREVENTION PLAN, THE NOI, AND ALL INSPECTION REPORTS AND CERTIFICATIONS ON SITE.

D. UNDERTAKE ALL REASONABLE BEST MANAGEMENT PRACTICES (BMP'S) TO ASSURE THAT SILTED OR OTHERWISE POLLUTED STORM WATER IS NOT ALLOWED TO DISCHARGE FROM THE SITE DURING ALL PHASES OF CONSTRUCTION. STABILIZATION BMP'S THAT MAY BE USED INCLUDE:

TEMPORARY OR PERMANENT SEEDING, MULCHING, GEOTEXTILES, SODDING, VEGETATIVE BUFFER STRIPS, PROTECTION OF TREES AND PRESERVATION OF MATURE VEGETATION. STRUCTURAL EROSION AND SEDIMENT CONTROL BMP'S THAT MAY BE USED INCLUDE: STRAW BALE DIKES, SILT FENCES, EARTH DIKES, BRUSH BARRIERS, DRAINAGE SWALES, CHECK DAMS, SUBSURFACE DRAIN, PIPE SLOPE DRAIN, LEVEL SPREADERS, STORM DRAIN INLET PROTECTION, OUTLET PROTECTION, SEDIMENT TRAPS, AND TEMPORARY SEDIMENT BASINS. DETENTION PONDS MAY ALSO BE USED AS TEMPORARY SEDIMENT BASINS. ADDITIONAL BMP'S THAT MAY NEED TO BE IMPLEMENTED INCLUDE: PROVIDING PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS. PROVIDING WASTE RECEPTACLES AT CONVENIENT LOCATIONS AND PROVIDING REGULAR COLLECTION OF WASTES, INCLUDING BUILDING MATERIAL WASTES. MINIMIZING OFF-SITE TRACKING OF SEDIMENTS. MAKING ADEQUATE PREPARATIONS, INCLUDING TRAINING AND EQUIPMENT TO CONTAIN SPILLS OF OIL AND HAZARDOUS MATERIALS. COMPLYING WITH APPLICABLE STATE OR LOCAL WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS AND THE USE OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR ALLOWABLE NON-STORM WATER COMPONENTS OF DISCHARGE.

E. NOTIFY HEIOT DESIGN, LLC AND THE DEVELOPER IN WRITING OF ANY NON-STORM WATER POLLUTION SOURCES WHICH ARE BEING STORED, OR OTHERWISE USED DURING THE CONSTRUCTION OF THE PROJECT, I.E., FERTILIZERS, FUELS, PESTICIDES, OTHER CHEMICALS. THIS NOTIFICATION SHOULD BE ACCOMPANIED WITH THE CONTRACTOR'S DESIGN AND METHODS TO PREVENT POLLUTION RUN-OFF FROM THESE SOURCES.

F. DEVELOP A MAINTENANCE AND INSPECTION PLAN WHICH INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

THE SPECIFIC AREAS TO BE INSPECTED AND MAINTAINED THAT INCLUDES ALL THE DISTURBED AREAS AND MATERIAL STORAGE AREAS OF THE SITE.

1. THE EROSION AND SEDIMENT CONTROLS IDENTIFIED IN THE SWPPP TO BE MAINTAINED AND INSPECTED AND THOSE ADDITIONAL CONTROLS THAT THE CONTRACTOR DEEMS NECESSARY.

2. MAINTENANCE PROCEDURES.

3. THE PROCEDURE TO FOLLOW IF ADDITIONAL WORK IS REQUIRED OR WHOM TO CALL.

4. INSPECTIONS AND MAINTENANCE FORMS.

5. THE PERSONNEL ASSIGNED TO EACH TASK.

THE FOLLOWING SHALL BE INSPECTED A MINIMUM OF ONCE A WEEK OR WITHIN 24 HOURS AFTER 0.50 INCHES OF RAINFALL:

- STABILIZATION MEASURES (ONCE A MONTH IF FULLY STABILIZED).
- STRUCTURAL CONTROLS.
- DISCHARGE POINTS.
- CONSTRUCTION ENTRANCES AND EXITS.
- AREAS USED FOR STORAGE OF EXPOSED MATERIALS.

AN INSPECTION FORM SHALL BE COMPLETED FOR EACH INSPECTION. ANY PERMIT VIOLATIONS SHOULD BE NOTED AND CORRECTIVE MEASURES SHALL BE TAKEN NO LATER THAN 7 DAYS AFTER THE INSPECTION OCCURRED. IF REVISIONS TO THE SWPPP ARE NEEDED, A REPORT FORM FOR CHANGES IN THE SWPPP SHALL BE COMPLETED AND A COPY SENT TO HEIOT DESIGN, LLC THE ORIGINAL SHALL BE KEPT ON-SITE AS DOCUMENTATION OF THE CHANGE. IF THE INSPECTION PASSES, A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE SWPPP AND THE NPDES PERMIT MUST BE SIGNED BY A DULY AUTHORIZED REPRESENTATIVE OF THE PRINCIPAL EXECUTIVE OFFICIAL OF THE OPERATOR OF THE SWPPP WITH ONE OF THE FOLLOWING QUALIFICATIONS:

1. HAS SUCCESSFULLY COMPLETED THE FLORIDA STORMWATER, EROSION AND SEDIMENT CONTROL INSPECTOR TRAINING PROGRAM.

2. SUCCESSFULLY COMPLETED A SIMILAR TRAINING PROGRAM.

3. HAS ENOUGH PRACTICAL ON THE JOB TRAINING TO BE QUALIFIED TO PERFORM THE INSPECTIONS.

4. RETAIN INSPECTION REPORTS AND CERTIFICATIONS FOR AT LEAST THREE YEARS.

H. SITE STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICAL BUT IN NO CASE MORE THAN 7 DAYS, IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED.

1. RELEASES IN EXCESS OF REPORTABLE QUANTITIES.

1. THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL IN THE STORMWATER DISCHARGE(S) FROM A FACILITY OR ACTIVITY SHALL BE PREVENTED OR MINIMIZED IN ACCORDANCE WITH THE APPLICABLE STORMWATER POLLUTION PREVENTION PLAN FOR THE FACILITY OR ACTIVITY. THIS PERMIT DOES NOT RELIEVE THE OPERATOR OF THE REPORTING REQUIREMENTS OF 40 CFR PART 117 AND 40 CFR PART 302. WHERE A RELEASE CONTAINING A HAZARDOUS SUBSTANCE IN AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTING QUANTITY ESTABLISHED UNDER EITHER 40 CFR 117 OR 40 CFR 302, OCCURS DURING A 24 HOUR PERIOD:

2. THE OPERATOR IS REQUIRED TO NOTIFY THE STATE WARNING POINT (800-210-0519 OR 850-413-9911) AS SOON AS HE OR SHE HAS KNOWLEDGE OF THE DISCHARGE;

a. THE OPERATOR SHALL SUBMIT WITHIN 14 CALENDAR DAYS OF KNOWLEDGE OF THE RELEASE A WRITTEN DESCRIPTION OF: THE RELEASE (INCLUDING THE TYPE AND ESTIMATE OF THE AMOUNT OF MATERIAL RELEASED), THE DATE THAT SUCH RELEASE OCCURRED, THE CIRCUMSTANCES LEADING TO THE RELEASE, AND REMEDIAL STEPS TO BE TAKEN, TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, NPDES STORMWATER SECTION, MAIL STATION 2500, 2600 BLAIR STONE ROAD, TALLAHASSEE, FLORIDA 32399-2400; AND

b. THE STORMWATER POLLUTION PREVENTION PLAN REQUIRED UNDER PART V OF THIS PERMIT MUST BE MODIFIED WITHIN 14 CALENDAR DAYS OF KNOWLEDGE OF THE RELEASE TO: PROVIDE A DESCRIPTION OF THE RELEASE, THE CIRCUMSTANCES LEADING TO THE RELEASE, AND THE DATE OF THE RELEASE. IN ADDITION, THE PLAN MUST BE REVIEWED TO IDENTIFY MEASURES TO PREVENT THE REOCCURRENCE OF SUCH RELEASES AND TO RESPOND TO SUCH RELEASES, AND THE PLAN MUST BE MODIFIED WHERE APPROPRIATE.

3. THIS PERMIT DOES NOT AUTHORIZE THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL RESULTING FROM AN ON-SITE SPILL.

DEVELOPER:

1. NOTIFY HEIOT OF YOUR INTENT TO COMMENCE CONSTRUCTION. SIGN THE NOTICE OF INTENT FORM AS OPERATOR OF THE STORM WATER DISCHARGE FACILITY AND PERMITTEE AND RETURN TO HEIOT DESIGN, LLC.

2. SIGN A CERTIFICATION OF STORM WATER POLLUTION PREVENTION PLAN AND RETURN TO HEIOT DESIGN, LLC.

3. NOTIFY HEIOT WHEN IT IS TIME TO SUBMIT A NOTICE OF TERMINATION AS DEFINED UNDER PART E OF THE HEIOT DESIGN, LLC SECTION OF THE SWPPP. SIGN AND RETURN TO HEIOT DESIGN, LLC FOR SUBMITTAL TO FDEP A NOTICE OF TERMINATION FORM AND CERTIFICATION.

PRE-DEVELOPED SITE INFORMATION:

TOTAL SITE ACREAGE: 18.80 AC. ±

LAND USE: UNDEVELOPED - AGRICULTURAL

VEGETATION: RANGE LAND, BAHIA GRASS PASTURE

RECEIVING WATERS OR MUNICIPAL SEPARATE STORM WATER SYSTEM: HANCOCK BAYS AND SAWGRASS BAYS

SOIL TYPES: CANDLER, IMMOKALEE, LAKE, MYAKKA, POMELLO, POMPANO, AND TAVARES SANDS

PROJECT INFORMATION:

1. PROJECT TYPE - ROADWAY or SUBDIVISION

2. ANTICIPATED CONSTRUCTION SEQUENCE IS AS FOLLOWS:

- COMPLETE EROSION CONTROL INSTALLATION
- CLEARING AND GRUBBING
- EARTHWORK ACTIVITIES
- STORM WATER SYSTEM CONSTRUCTION
- UTILITY CONSTRUCTION
- BASE AND PAVEMENT CONSTRUCTION
- FINAL STABILIZATION

THE BMP'S LISTED IN PART D OF THE CONTRACTOR SECTION OF THE SWPPP SHALL BE CONSIDERED DURING ALL PHASES OF CONSTRUCTION.

3. ANTICIPATED START DATE: OCTOBER, 2017

4. ANTICIPATED COMPLETION DATE: MARCH, 2018

5. TOTAL ACRES DISTURBED: 11.10±

6. PRE-DEVELOPED "C" FACTOR: 0.6

7. POST-DEVELOPED "C" FACTOR: 0.6

8. THE STORM WATER MANAGEMENT SYSTEM, UPON COMPLETION OF CONSTRUCTION AND APPROPRIATE CERTIFICATION AND AS-BUILT SUBMITTALS WILL BE OPERATED AND MAINTAINED BY AVALON GROVES CDD.

9. THE POTENTIAL SOURCE OF POLLUTION FROM THIS PROJECT IS ON-SITE DEVELOPMENT AND CONSTRUCTION ACTIVITY.

SIDEWALK NOTE:

1. SIDEWALKS SHALL BE CONSTRUCTED OF NATURAL OR COLORED CONCRETE AT LEAST 3,000 PSI IN STRENGTH, FIBER REINFORCED ON A COMPACTED AND NON-YIELDING SUBGRADE WITH MINIMUM OF FOUR INCHES IN THICKNESS. WHEN A SIDEWALK IS CROSSED BY A DRIVEWAY AND CURB RAMPS, THE MINIMUM THICKNESS SHALL BE 6 INCHES.

POND/LAKE EXCAVATION NOTE:

NO EXCAVATION SHALL EXTEND BELOW THE PERMITTED DESIGN DEPTHS/ELEVATIONS SHOWN ON THE DRAWINGS, UNLESS ADDITIONAL TESTING SUPPORTS OTHERWISE AND THE ENGINEER OF RECORD HAS RECEIVED VERBAL AND/OR WRITTEN PERMISSION FROM THE WATER MANAGEMENT DISTRICT. NO LOWER SEMI-CONFINING UNIT CLAYEY SOIL MATERIAL AND/OR NO LIMESTONE MATERIALS SHALL BE EXCAVATED, REGARDLESS IF THESE MATERIALS ARE ENCOUNTERED WITHIN THE PERMITTED EXCAVATION DEPTHS/ELEVATIONS. IF ANY LOWER SEMI-CONFINING UNIT CLAYEY SOIL MATERIALS OR LIMESTONE MATERIALS ARE ENCOUNTERED ABOVE THE PERMITTED DEPTHS/ELEVATIONS, THEN EXCAVATION OPERATIONS SHALL CEASE IN THE GENERAL AREA AND THE ENGINEER OF RECORD SHALL BE NOTIFIED IMMEDIATELY.

GENERAL EROSION AND TURBIDITY CONTROL NOTES

1. THE SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED PRIOR TO CONSTRUCTION, MAINTAINED THROUGHOUT CONSTRUCTION AND UNTIL THE SITE IS PERMANENTLY STABILIZED.

2. ANY OFF SITE DISTURBANCE SHALL BE RESTORED TO THE PRE OR BETTER CONDITION.

3. THE SITE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL EROSION AND TURBIDITY CONTROLS AND THE QUALITY AND QUANTITY OF OFFSITE OR WETLAND DISCHARGES.

4. PRIOR TO CONSTRUCTION, THE SITE SUBCONTRACTOR IS RESPONSIBLE FOR HAVING HIS DEWATERING PLAN AND TURBIDITY CONTROL PLAN APPROVED BY THE APPLICABLE REVIEWING AGENCIES. REFER TO THE PROJECT'S PERMIT APPROVALS AND PERMIT CONDITIONS FOR AGENCIES REQUIRING SUCH REVIEW AND APPROVAL. QUESTIONS CONCERNING APPROPRIATE TECHNIQUES SHOULD BE ADDRESSED TO THOSE AGENCIES AND/OR DISCUSSED WITH THE PROJECT ENGINEER AND OWNER.

5. THE APPROPRIATE TURBIDITY AND EROSION CONTROL METHODOLOGIES SELECTED BY THE SITE SUBCONTRACTOR FOR THIS PROJECT SHOULD BE MADE FOLLOWING ASSESSMENT OF THE PLANS AND PROJECT SITE SPECIFIC FACTORS AND AFTER CONSULTATIONS AS NEEDED WITH THE PROJECT ENGINEER AND APPROPRIATE AGENCIES. THE SITE SUBCONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ANY AND ALL NECESSARY PERMITS FOR SUCH ACTIVITY; SEVERAL FACTORS TO CONSIDER ARE LISTED BELOW:

A. CLAY CONTENT IN EXCAVATED MATERIALS AND/OR PERMEABILITIES RATES

B. DEPTH OF CUT IN PONDS, TRENCHES, OR UTILITY LINES

C. AMBIENT GROUND WATER LEVELS

D. ACTUAL RAINFALL AMOUNTS AND TIME OF YEAR RELATIVE TO NORMAL RAINY SEASON

E. PROXIMITY TO WETLANDS, WATER BODIES OR OFFSITE PROPERTIES

F. 'CLASS' DESIGNATION OF RECEIVING WATER BODIES (I.E., OUTSTANDING FLORIDA WATERS, SHELLFISH HARVESTING AREAS, ETC.)

G. DENSITY, TYPE, AND PROXIMITY OF UPLAND VEGETATION TO BE RETAINED DURING CONSTRUCTION (FOR USE AS POSSIBLE FILTRATION AREAS)

H. FILL HEIGHT RELATIVE TO NATURAL GRADE AND LENGTH AND STEEPNESS OF THE PROPOSED SLOPES

I. EXISTING TOPOGRAPHY AND DIRECTIONS OF SURFACE FLOW

J. TYPE OF EQUIPMENT USED

K. PROJECT TYPE

L. DURATION OF CONSTRUCTION ACTIVITIES

M. SEPARATION DISTANCE OF ONSITE PONDS

N. AMBIENT QUALITY OF SURFACE AND GROUNDWATER

O. TEMPORARY STORAGE LOCATIONS

4. AT THE ONSET OF CONSTRUCTION, THE SITE SUBCONTRACTOR, AS THE PARTY RESPONSIBLE FOR IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN, SHALL ASSESS THE ABOVE DESCRIBED CONDITIONS AND FACTORS WITH RESPECT TO RELATIVE COST EFFECTIVENESS AND SELECT THE APPROPRIATE METHODS OF PROTECTION. A FAIRLY EXTENSIVE LIST OF TECHNIQUES ARE PRESENTED BELOW BUT IT MUST BE STRESSED THAT ANY OR ALL OF THE FOLLOWING MAY BE NECESSARY TO MAINTAIN WATER QUALITY AND QUANTITY STANDARDS. THE CONSTRUCTION SEQUENCING SHOULD BE THOUGHT OUT IN ADVANCE OF INITIATION TO PROVIDE ADEQUATE PROTECTION OF WATER QUALITY.

5. DISCHARGES WHICH EXCEED 29 N.T.U.'S OVER THE BACKGROUND LEVELS ARE IN VIOLATION OF STATE WATER QUALITY STANDARDS. DISCHARGES OF WATER QUANTITIES WHICH AFFECT OFFSITE PROPERTIES OR MAY DAMAGE WETLANDS ARE ALSO PROHIBITED BY REGULATING AGENCIES.

6. THE EROSION AND TURBIDITY CONTROL MEASURES SHOWN HEREON ARE THE MINIMUM REQUIRED FOR AGENCY APPROVAL. ADDITIONAL CONTROL AND MEASURES MAY BE REQUIRED DUE TO THE SITE SUBCONTRACTOR'S CONSTRUCTION SEQUENCE & UNFORESEEN WEATHER CONDITIONS. ANY ADDITIONAL MEASURES DEEMED NECESSARY BY THE SITE SUBCONTRACTOR SHALL BE INCLUDED IN THE LUMP SUM BID WITH NO EXTRAS FOR MATERIALS AND LABOR ALLOWED.

7. HAY BALES OR SILT SCREENS SHALL BE INSTALLED PRIOR TO LAND CLEARING TO PROTECT WATER QUALITY AND TO IDENTIFY AREAS TO BE PROTECTED FROM CLEARING ACTIVITIES AND MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL ALL SOIL IS STABILIZED.

8. FLOATING TURBIDITY BARRIERS SHALL BE IN PLACE IN FLOWING SYSTEMS OR IN OPEN WATER LAKE EDGES PRIOR TO INITIATION OF EARTHWORK AND MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL ALL SOIL IS STABILIZED.

9. NO CLAY MATERIAL SHALL BE LEFT EXPOSED IN ANY STORMWATER STORAGE FACILITY. IF CLAY OR SANDY-CLAYS ARE ENCOUNTERED DURING STORMWATER STORAGE EXCAVATION, THE SITE SUBCONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY BEFORE PROCEEDING WITH FURTHER EXCAVATION. IF THE ENGINEER OF RECORD HAS DETERMINED THAT SUCH SOILS ARE NON-CONFINING AND MUST BE EXCAVATED TO MEET PERMIT AND DESIGN CONDITIONS, EXCAVATION MAY PROCEED AFTER OBTAINING WRITTEN AUTHORIZATION FROM THE APPROPRIATE GOVERNING AGENCY. IF SAID SOILS ARE LEFT EXPOSED AT THE PERMITTED AND DESIGNED DEPTH, THE SITE SUBCONTRACTOR SHALL OVER-EXCAVATE THE POND'S BOTTOM AND SIDE SLOPES BY A MINIMUM OF TWELVE (12") INCHES AND BACKFILL WITH CLEAN SANDS TO HELP PREVENT SUSPENSION OF FINE PARTICLES IN THE WATER COLUMN.

10. THE INSTALLATION OF TEMPORARY EROSION CONTROL BARRIERS SHALL BE COORDINATED WITH THE CONSTRUCTION OF THE PERMANENT EROSION CONTROL FEATURES TO THE EXTENT NECESSARY TO ASSURE EFFECTIVE AND CONTINUOUS CONTROL OF EROSION AND WATER POLLUTION THROUGHOUT THE LIFE OF THE CONSTRUCTION PHASE.

11. THE TYPE OF EROSION CONTROL BARRIERS USED SHALL BE GOVERNED BY THE NATURE OF THE CONSTRUCTION OPERATION AND SOIL TYPE THAT WILL BE EXPOSED. SILTY AND CLAYEY MATERIAL MAY REQUIRE SOLID SEDIMENT BARRIERS TO PREVENT TURBID WATER DISCHARGE, WHILE SANDY MATERIAL MAY NEED ONLY SILT SCREENS OR HAY BALES TO PREVENT EROSION. FLOATING TURBIDITY CURTAINS SHOULD GENERALLY BE USED IN OPEN WATER SITUATIONS. DIVERSION DITCHES OR SWALES MAY BE REQUIRED TO PREVENT TURBID STORMWATER RUNOFF FROM BEING DISCHARGED TO WETLANDS OR OTHER WATER BODIES. IT MAY BE NECESSARY TO EMPLOY A COMBINATION OF BARRIERS, DITCHES, AND OTHER EROSION/TURBIDITY CONTROL MEASURES IF CONDITIONS WARRANT.

12. WHERE PUMPS ARE TO BE USED TO REMOVE TURBID WATERS FROM CONSTRUCTION AREAS, THE WATER SHALL BE TREATED PRIOR TO DISCHARGE TO THE WETLANDS. TREATMENT METHODS INCLUDE, FOR EXAMPLE, TURBID WATER BEING PUMPED INTO GRASSED SWALES OR APPROPRIATE UPLAND VEGETATED AREAS (OTHER THAN UPLAND PRESERVATION AREAS AND WETLAND BUFFERS), SEDIMENT BASINS, OR CONFINED BY AN APPROPRIATE ENCLOSURE SUCH AS TURBIDITY BARRIERS OR LOW BERMS, AND KEPT CONFINED UNTIL TURBIDITY LEVELS MEET STATE WATER QUALITY STANDARDS.

13. THE PERMITTEE SHALL SCHEDULE HIS OPERATIONS SUCH THAT THE AREA OF UNPROTECTED ERODIBLE EARTH EXPOSED AT ANY ONE TIME IS NOT LARGER THAN THE MINIMUM AREA NECESSARY FOR EFFICIENT CONSTRUCTION OPERATION, AND THE DURATION OF EXPOSED, UNCOMPLETED CONSTRUCTION TO THE ELEMENTS SHALL BE AS SHORT AS PRACTICABLE. CLEARING AND GRUBBING SHALL BE SO SCHEDULED AND PERFORMED SUCH THAT GRADING OPERATIONS CAN FOLLOW IMMEDIATELY THEREAFTER. GRADING OPERATIONS SHALL BE SO SCHEDULED AND PERFORMED THAT PERMANENT EROSION CONTROL FEATURES CAN FOLLOW IMMEDIATELY THEREAFTER IF CONDITIONS ON THE PROJECT PERMIT.

14. WATER DERIVED FROM VARIOUS DEWATERING METHODS SHOULD BE PASSED THROUGH SUFFICIENTLY WIDE AREAS OF EXISTING UPLAND VEGETATION TO FILTER OUT EXCESS TURBIDITY. IF THIS IS NOT SUFFICIENT, THE WATER SHALL BE RETAINED IN PREVIOUSLY CONSTRUCTED PERMANENT STORMWATER PONDS OR ELSE RETAINED IN TEMPORARY SEDIMENTATION BASINS UNTIL THE CLARITY IS SUITABLE TO ALLOW FOR ITS DISCHARGE. PLUGGING THE OUTFALLS FROM COMPLETED STORMWATER PONDS MAY BE NEEDED TO AVOID DISCHARGE. HOWEVER, SUCH SITUATIONS SHOULD BE MONITORED CLOSELY TO PRECLUDE BERM FAILURE IF WATER LEVELS RISE TOO HIGH.

15. WATER CAN BE TRANSPORTED AROUND THE SITE BY THE USE OF INTERNAL SWALES OR BY PUMPS AND PIPES.

16. SHEET FLOW OF NEWLY FILLED OR SCRAPED AREAS MAY BE CONTROLLED OR CONTAINED BY THE USE OF BRUSH BARRIERS, DIVERSION SWALES, INTERCEPTOR DITCHES OR LOW BERMS. FLOW SHOULD BE DIRECTED TOWARD AREAS WHERE SEDIMENTS CAN SUFFICIENTLY SETTLE OUT.

17. EXPOSED SOILS SHALL BE STABILIZED AS SOON AS POSSIBLE, ESPECIALLY SLOPES LEADING TO WETLANDS. STABILIZATION METHODS INCLUDE SOLID SOD, SEEDING AND MULCHING OR HYDROMULCHING TO PROVIDE A TEMPORARY OR PERMANENT GRASS COVER MULCH BLANKETS, FILTER FABRICS, ETC., CAN BE EMPLOYED TO PROVIDE VEGETATIVE COVER.

18. ENERGY DISSIPATORS (SUCH AS RIP RAP, A GRAVEL BED, HAY BALES, ETC.) SHALL BE INSTALLED AT THE DISCHARGE POINT OF PIPES OR SWALES IF SCOURING IS OBSERVED.

19. ATTEMPT TO INSTALL ROADWAY CURB AND GUTTERS AS SOON AS POSSIBLE TO REDUCE THE SURFACE AREA FOR EROSION TO OCCUR.

20. IMPLEMENT STORM DRAIN INLET PROTECTION (HAY BALES OR GRAVEL) TO LIMIT SEDIMENTATION WITHIN THE STORMWATER SYSTEM. PERFORM INSPECTIONS AND PERIODIC CLEANING OF SEDIMENTS WHICH WASH OUT INTO THE STREETS UNTIL ALL SOIL IS STABILIZED.

21. WATER DISCHARGE VELOCITIES FROM IMPOUNDED AREAS AND TEMPORARY SEDIMENTATION BASINS SHALL BE RESTRICTED TO AVOID SCOURING IN RECEIVING AREAS.

22. IF WATERS ARE NOT STABILIZED RAPIDLY ENOUGH IN HOLDING PONDS, IT MAY BE POSSIBLE TO USE CHEMICAL AGENTS SUCH AS ALUM TO FLOCCULATE OR COAGULATE THE SEDIMENT PARTICLES.

23. HAY BALES, SILT SCREENS, OR GRAVEL BEDS CAN BE ADDED AROUND THE PIPE OR SWALE DISCHARGE POINTS TO HELP CLARIFY DISCHARGES. SPREADER SWALES MAY HELP DISSIPATE CLOUDY WATER PRIOR TO CONTACT WITH WETLANDS.

24. ALL FUEL STORAGE AREAS OR OTHER HAZARDOUS STORAGE AREAS SHALL CONFORM TO ACCEPTED STATE OR FEDERAL CRITERIA FOR SUCH CONTAINMENT AREAS.

25. VEHICLE OR EQUIPMENT WASHDOWN AREAS WILL BE SUFFICIENTLY REMOVED FROM WETLANDS OR OFFSITE AREAS.

26. FUGITIVE DUST CONTROLS (PRIMARILY BY USING WATER SPRAY TRUCKS) SHALL BE EMPLOYED AS NEEDED TO CONTROL WINDBORNE EMISSIONS.

27. IF THE ABOVE CONTROLS REMAIN INEFFECTIVE IN PRECLUDING RELEASE OF TURBID WATER, ESPECIALLY DURING POND OR UTILITY LINE DEWATERING, THEN THE CONTRACTOR MAY BE COMPELLED TO USE A VERTICAL DEWATERING SYSTEM SUCH AS WELL POINTS OR SOCK DRAINS TO WITHDRAW GROUNDWATER WHICH MAY ALREADY BE CLEAR ENOUGH TO ALLOW FOR DIRECT DISCHARGE TO WETLANDS.

28. ONGOING INSPECTIONS AND PERIODIC MAINTENANCE BY THE SITE SUBCONTRACTOR SHALL OCCUR THROUGHOUT CONSTRUCTION AS NECESSARY TO INSURE THE ABOVE METHODS ARE WORKING SUITABLY. THIS MAY BE NEEDED DAILY, IF CONDITIONS SO WARRANT. SITE SUBCONTRACTORS ARE ENCOURAGED TO OBTAIN AND THOROUGHLY REVIEW THE FLORIDA DEVELOPMENT MANUAL: A GUIDE TO SOUND LAND AND WATER MANAGEMENT, WHICH WAS DEVELOPED BY THE STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION IN 1988. THIS PROVIDES FAIRLY IN-DEPTH DISCUSSIONS OF RECOMMENDED TECHNIQUES AND ALSO PROVIDES SPECIFIC DESIGN AND TECHNICAL STANDARDS. A COPY OF THIS DOCUMENT IS AVAILABLE FOR REVIEW AT HEIOT DESIGN, LLC.

29. THE CONTRACTOR WILL PERFORM DAILY INSPECTIONS OF ALL ON-SITE WETLANDS WITHIN THE CONSTRUCTION AREA TO ENSURE THAT WATER LEVELS WITHIN THOSE WETLANDS ARE NOT EXCESSIVELY IMPOUNDED PRIOR TO THE TIME WHEN THE PERMITTED CONTROL STRUCTURE OR OUTFALL IS BUILT. WATER LEVELS SIGNIFICANTLY ABOVE NORMAL SHOULD BE CORRECTED AT A FREQUENCY THAT PREVENTS A CHANGE IN THE VEGETATIVE CHARACTER OR HEALTH OF ANY WETLANDS.

30. PRIOR TO COMMENCEMENT OF CLEARING & GRUBBING OR ANY SOIL DISTURBANCE, CONTRACTOR SHALL COORDINATE WITH HEIOT DESIGN TO SCHEDULE A PRE-CONSTRUCTION SOIL EROSION AND SEDIMENT CONTROL INSPECTION WITH THE LAKE COUNTY PUBLIC WORKS DEPARTMENT.

31. THE REQUIREMENTS LISTED ABOVE SHALL BE CONSIDERED MINIMUM REQUIREMENTS AND THE CONTRACTOR SHALL USE WHATEVER METHODS HE DEEMS NECESSARY TO PREVENT TURBIDITY AND SILTATION AS MAY BE REQUIRED FOR THE PROJECT.

OWNER'S INSTRUCTIONS FOR MAINTENANCE AND INSPECTION OF STORMWATER FILTER FACILITIES

IT IS THE OWNER'S RESPONSIBILITY TO INSPECT AND MAINTAIN THE WATER DRAINAGE SYSTEMS ON A ROUTINE BASIS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. INSPECTIONS CAN BE ON AN ANNUAL OR SEMI-ANNUAL BASIS, BUT SHOULD ALWAYS BE CONDUCTED FOLLOWING MAJOR STORMS. SYSTEMS THAT INCORPORATE INFILTRATION ARE MOST CRITICAL SINCE POOR MAINTENANCE PRACTICES CAN SOON RENDER THEM INEFFICIENT. VISUAL INSPECTIONS OF SAND FILTERS, CONTROL STRUCTURES, AND OUTFALL PIPES ARE HIGHLY RECOMMENDED. IT SHOULD BE STRESSED THAT GOOD RECORDS SHOULD BE KEPT ON ALL MAINTENANCE OPERATIONS TO HELP PLAN FUTURE WORK AND IDENTIFY FACILITIES REQUIRING ATTENTION.

SAND FILTER SURFACES ARE SOMETIMES SCARIFIED OR BREAK UP SILT DEPOSITS AND RESTORE POROSITY. THIS SHOULD BE ACCOMPLISHED AFTER ALL SEDIMENT HAS BEEN REMOVED FROM THE SURFACE. AFTER REMOVING LARGE DEBRIS (CUPS, PAPER, WOOD, ETC.) IT IS RECOMMENDED THAT RAKING THE TOP 3" WILL PROPERLY SCARIFY THE SURFACE OR IT MAY BE REQUIRED TO REPLACE THE SAND. ANOTHER TECHNIQUE REQUIRES REMOVING THE SAND FOR WASHING.

THE FILTER SYSTEM IS DESIGNED TO HAVE A WET-DRY CYCLE TO INHIBIT ALGAE OR BACTERIAL GROWTH. CLEANOUT FREQUENCY OF FILTER BEDS WILL DEPEND ON WHETHER THEY ARE VEGETATED OR NON-VEGETATED AND WILL BE A FUNCTION OF THEIR STORAGE CAPACITY, INFILTRATION CHARACTERISTICS, VOLUME OF INFLOW, AND SEDIMENT LOAD. FILTER BEDS SHOULD BE INSPECTED CLOSELY AT LEAST ONCE A YEAR.

PERFORATED UNDERDRAIN PIPES ARE LOCATED 2' BELOW THE SAND AND CLEANOUTS ARE LOCATED AT THE END OF THE SYSTEM. IN THE EVENT OF SEDIMENT BUILD-UP IN THE UNDERDRAIN PIPE, CLEANING CAN BE ACCOMPLISHED THROUGHOUT THE CLEANOUT WITH SEVERAL OF THE TECHNIQUES OUTLINED BELOW.

METHODS AND EQUIPMENT FOR CLEANOUT OF SYSTEMS VARIOUS TYPES OF EQUIPMENT ARE AVAILABLE COMMERCIALY FOR MAINTENANCE OF DRAINAGE SYSTEMS. THE MOST FREQUENTLY USED EQUIPMENT AND TECHNIQUES ARE LISTED BELOW.

1. VACUUM PUMP:
THIS DEVICE IS NORMALLY USED TO REMOVE SEDIMENT FROM SUMPS AND PIPES. THE EQUIPMENT FOR THIS SYSTEM IS GENERALLY MOUNTED ON A VEHICLE. IT REQUIRES A 200 - 300 GALLON (0.75' - 1.36M) HOLDING TANK AND A VACUUM PUMP THAT HAS A 10" (254MM) DIAMETER FLEXIBLE HOSE WITH A SERRATED METAL END FOR BREAKING UP CAKE SEDIMENT. A TWO-MAN CREW CAN CLEAN A CATCH BASIN IN 5 TO 10 MINUTES. THIS SYSTEM CAN REMOVE STONES, BRICKS, LEAVES, LITTER AND SEDIMENT DEPOSITS. NORMAL WORKING DEPTH IS 0' - 20' (0 TO 6M).

2. WATER JET SPRAY:
THIS EQUIPMENT IS GENERALLY MOUNTED ON A SELF-CONTAINED VEHICLE WITH A HIGH PRESSURE PUMP AND A 200 - 300 GALLONS (0.760 TO 1.140M) WATER SUPPLY. A 3" (76MM) FLEXIBLE HOSE LINE WITH A METAL NOZZLE THAT DIRECTS JETS OF WATER AT A REVERSE ANGLE, WHICH PROPELS THE NOZZLE FORWARD WHILE BLASTING DEBRIS BACKWARDS TOWARD THE CATCH BASIN. AS THE HOSE LINE IS REELED IN, THE JETTING ACTION FORCES ALL DEBRIS TO THE CATCH BASIN WHERE IT IS REMOVED BY THE VACUUM PUMP EQUIPMENT. NORMAL LENGTH OF HOSE IS APPROXIMATELY 200' (61M). BECAUSE OF THE ENERGY SUPPLIED BY THE WATER JET, IT SHOULD NOT BE USED TO CLEAN ERODIBLE TRENCH WALLS.

HEIOT DESIGN
Civil Engineering • Planning & GIS
Transportation Engineering
Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
Tampa, Florida 33610
Office: 813-253-5311
Fax: 813-464-7629

www.HeiDesign.com

Engineering Business Certificate of Authorization No. 23792
Landscape Architecture Certificate of Authorization No. LC26000405

SERENOVA AMENITY CENTER
CONSTRUCTION SURFACE WATER MANAGEMENT PLAN

PREPARED FOR:
VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
1	02/29/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
FILE: CSWMP
DESIGN BY: FRANCIS
DRAWN BY: GAULT

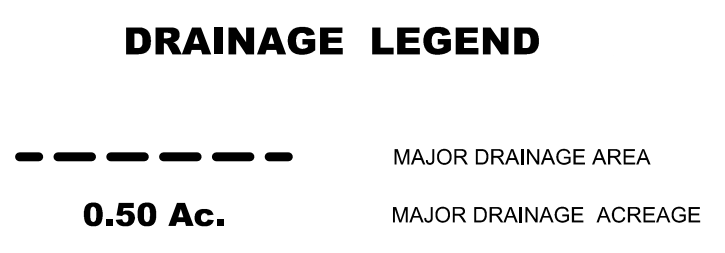
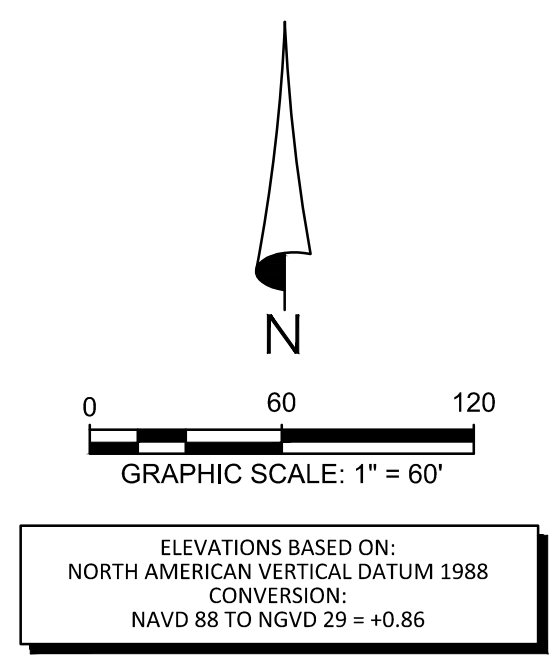
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
DATE: _____
REGISTRATION NO. 58548

C-901



HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
 Landscape Architecture Certificate of Authorization No. LC26000405

SERENOVA
 AMENITY CENTER
 POST DEVELOPMENT DRAINAGE
 AREA MAP

PREPARED FOR:
 VK AVALON GROVES, LLC

NO.	DATE	DESCRIPTION
2	06/27/2017	LAYOUT/DRAINAGE REVISIONS

PROJECT NO: KLP-AG-1009
 FILE: DA-POST
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

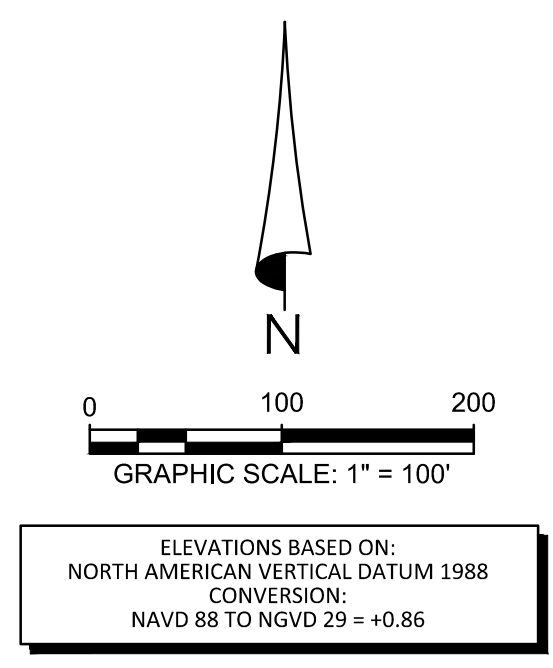
FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-903



DRAINAGE LEGEND

	CATCH BASIN LIMITS
0.50 Ac.	CATCH BASIN ACERAGE
	STORM STRUCTURE NUMBER

HEIDT DESIGN
 Civil Engineering • Planning & GIS
 Transportation Engineering
 Ecological Services • Landscape Architecture

5904-A Hampton Oaks Pkwy.
 Tampa, Florida 33610
 Office: 813-253-5311
 Fax: 813-464-7629
 www.HeidtDesign.com

Engineering Business Certificate of Authorization No. 28752
 Landscape Architecture Certificate of Authorization No. LC26000405
 Landscape Architecture Certificate of Authorization No. LC26000405

SERENOA AMENITY CENTER
DRAINAGE SUB BASIN MAP

PREPARED FOR: **VK AVALON GROVES, LLC**

NO.	DATE	DESCRIPTION
2	06/27/2017	LAYOUT/DRAINAGE REVISIONS
1	02/28/2017	REVIEW SUBMITTAL

PROJECT NO: KLP-AG-1009
 FILE: DA-SUB
 DESIGN BY: FRANCIS
 DRAWN BY: GAULT

FLORIDA PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Victor E. Barbosa, P.E. using a Digital Signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

VICTOR E. BARBOSA
 DATE: _____
 REGISTRATION NO. 58548

C-904