January 20, 2017 BOARD OF COUNTY COMMISSIONERS ORANGE COUNTY, FLORIDA Addendum No. 3 / IFB Y17-729-CC East Orange Regional Park

Revised Bid Opening Date: January 31, 2017

This addendum is hereby incorporated into the bid documents of the project referenced above. The following items are clarifications, corrections, additions, deletions and/or revisions to, and shall take precedence over, the original documents. <u>Underlining</u> indicates additions, deletions are indicated by <u>strikethrough</u>.

- A. The bid opening date is changed from January 24, 2017 at 2:00 P.M. to January 31, 2017 at 2:00 P.M.
- B. Additions, Deletions, and Revisions:
 - 1. Revision: The following "East Orange County Park Multipurpose Field" drawings have been revised and are attached:
 - a. DRAWING SHEET C100 OVERALL SITE DEVELOPMENT PLAN dated 1-19-17
 - i. General Revision for Permitting
 - b. DRAWING SHEET C101 SITE DEVELOPMENT PLAN dated 1-19-17
 i. General Revision for Permitting
 - c. DRAWING SHEET C102 SITE DEVELOPMENT PLAN dated 1-19-17
 - i. General Revision for Permitting
 - d. DRAWING SHEET C200 OVERALL GRADING & DRAINAGE PLAN dated 1-19-17
 - i. General revision for permitting
 - e. DRAWING SHEET C201 GRADING & DRAINAGE PLAN dated 1-19-17
 - i. General revision for permitting
 - f. DRAWING SHEET C202 GRADING & DRAINAGE PLAN dated 1-19-17
 - i. General revision for permitting
 - g. DRAWING SHEET C301 UTILITY PLAN dated 1-19-17
 - i. General revision for permitting
 - h. DRAWING SHEET C401- SITE DETAIL SHEET dated 1-19-17
 - i. General revision for permitting
 - i. DRAWING SHEET C402 SITE DETAIL SHEET dated 1-19-17
 - i. General revision for permitting
 - i. DRAWING SHEET C403 DRAINFIELD PLAN/SECTION dated 1-19-17
 - i. General revision for permitting
 - k. DRAWING SHEET C404 -FIRE TANK PLAN/SECTION dated 1-19-17
 - i. General revision for permitting
 - I. DRAWING SHEET L.01 SITE LANDSCAPE PLAN dated 1-19-17

- i. General revision for permitting
- m. DRAWING SHEET L.02 SITE LANDSCAPE PLAN dated 1-19-17
 - i. General revision for permitting
- n. DRAWING SHEET LD.01 LANDSCAPE NOTES AND DETAILS dated 1-19-17
 - i. General revision for permitting
- o. DRAWING SHEET LD.02 LANDSCAPE SPECIFICATIONS dated 1-19-17
 - i. General revision for permitting
- p. DRAWING SHEET LI.01 IRRIGATION PLAN dated 1-19-17
 - i. General revision for permitting
- q. DRAWING SHEET LI.02 IRRIGATION PLAN dated 1-19-17
 - i. General revision for permitting
- r. DRAWING SHEET LID.01 IRRIGATION DETAILS dated 1-19-17
 - i. General revision for permitting
- 2. Addition: The following drawings have been added to the "East Orange County Park Multipurpose Field" and are attached:
 - a. DRAWING SHEET E001 ELECTRICAL GENERAL NOTES AND DETAILS dated 1-19-17
 - b. DRAWING SHEET E101 SITE DEVELOPMENT PLAN-ELECTRICAL dated 1-19-17
 - c. DRAWING SHEET E102 SITE DEVELOPMENT PLAN-ELECTRICAL dated 1-19-17

C. Questions and Answers:

 Question (applies to the site drawings titled "East Orange County Park Multipurpose Field") On the Civil Drawings it calls out for New Light Poles LP around the Soccer Fields but the details/specs/plans are not provided. Please advise.

Answer: Site electrical and lighting plans are included in this addendum.

- 2. Question (applies to the site drawings titled "East Orange County Park Multipurpose Field"): On the Civil Sheets it does not show any grass parking locations or details, but on A102 of the Recreation Building and sheet C100 of the Concession/Storage/Restroom Building it shows a grass parking area. Are we responsible for the Grass Parking Lot? If so please provide plans/details. Answer: Please use sheet C100 in civil set as the development plan for the project. There are only 2-lit ball fields and no provision for grass parking.
- 3. Question (applies to the site drawings titled "East Orange County Park Multipurpose Field"): Is Laser Grading required for the Soccer Fields? If so please provide the specification.

Answer: Laser Grading will be required for grading of the sport fields. Tolerances for laser grading is 1/4" maximum variation in 10 feet and between 1/4" to 1/2" maximum in the plane of the field.

4. Question (applies to the site drawings titled "East Orange County Park Multipurpose Field"): Is any Soil fumigation required for the Soccer Fields? If so please provide the specification.

Answer: Soil Fumigation is included on landscape drawings (LD02), included as part of this addendum.

5. Question (applies to the site drawings titled "East Orange County Park Multipurpose Field"): Can crushed concrete be used as a base course in lieu of soil cement?

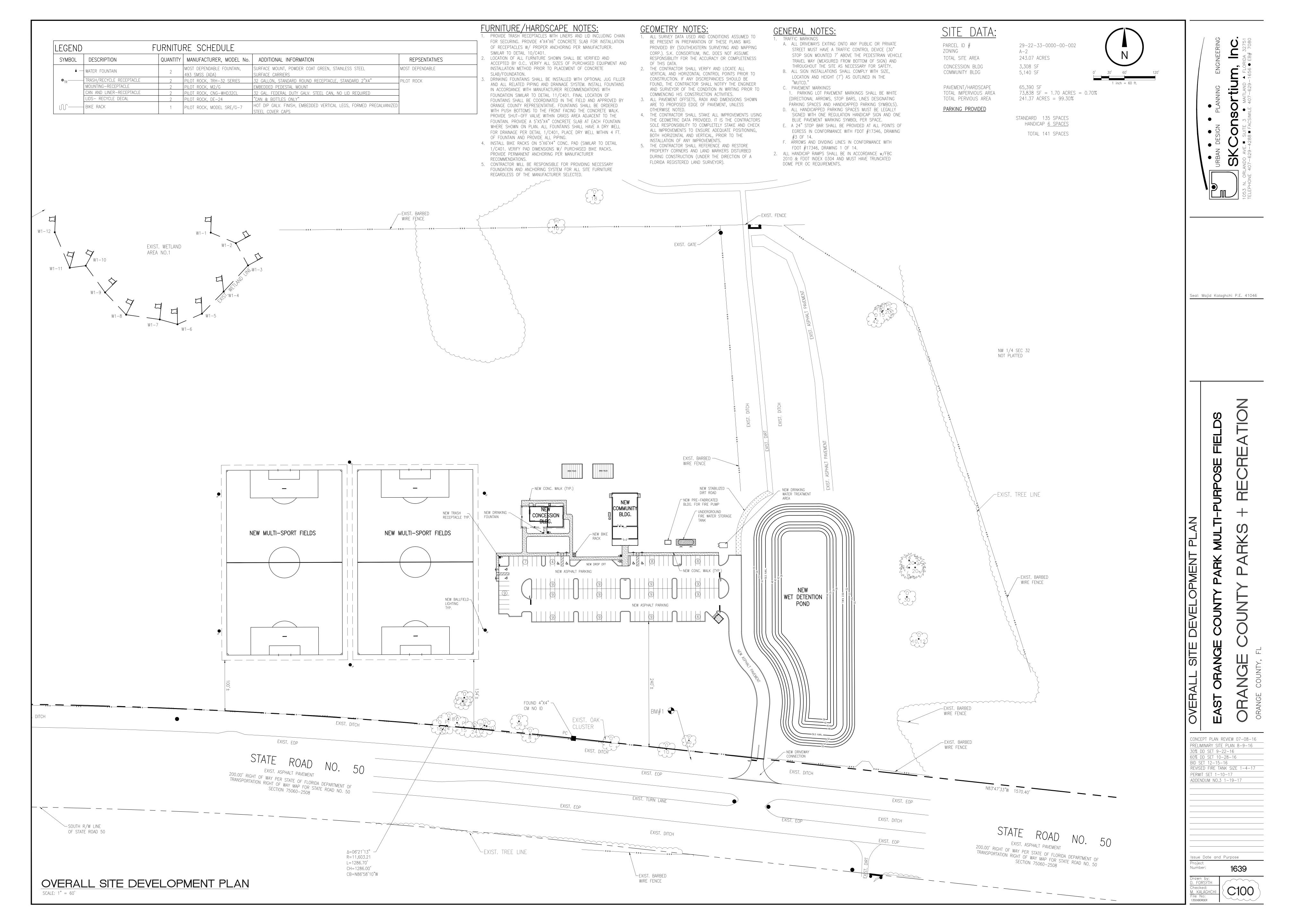
Answer: Due to the potential for asbestos and other deleterious materials to be present in crushed concrete, crushed concrete is not permitted.

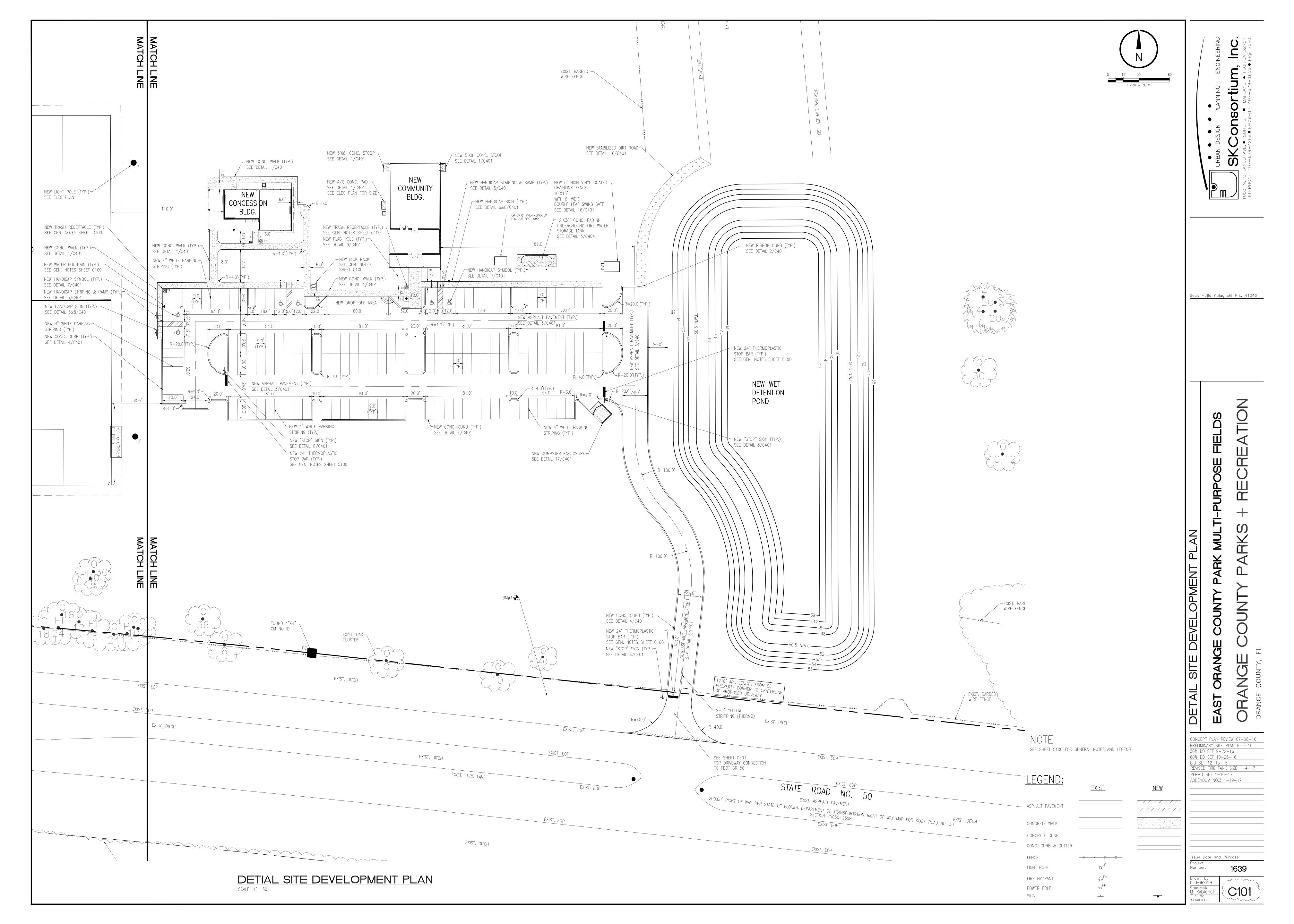
D. ACKNOWLEDGEMENT OF ADDENDA

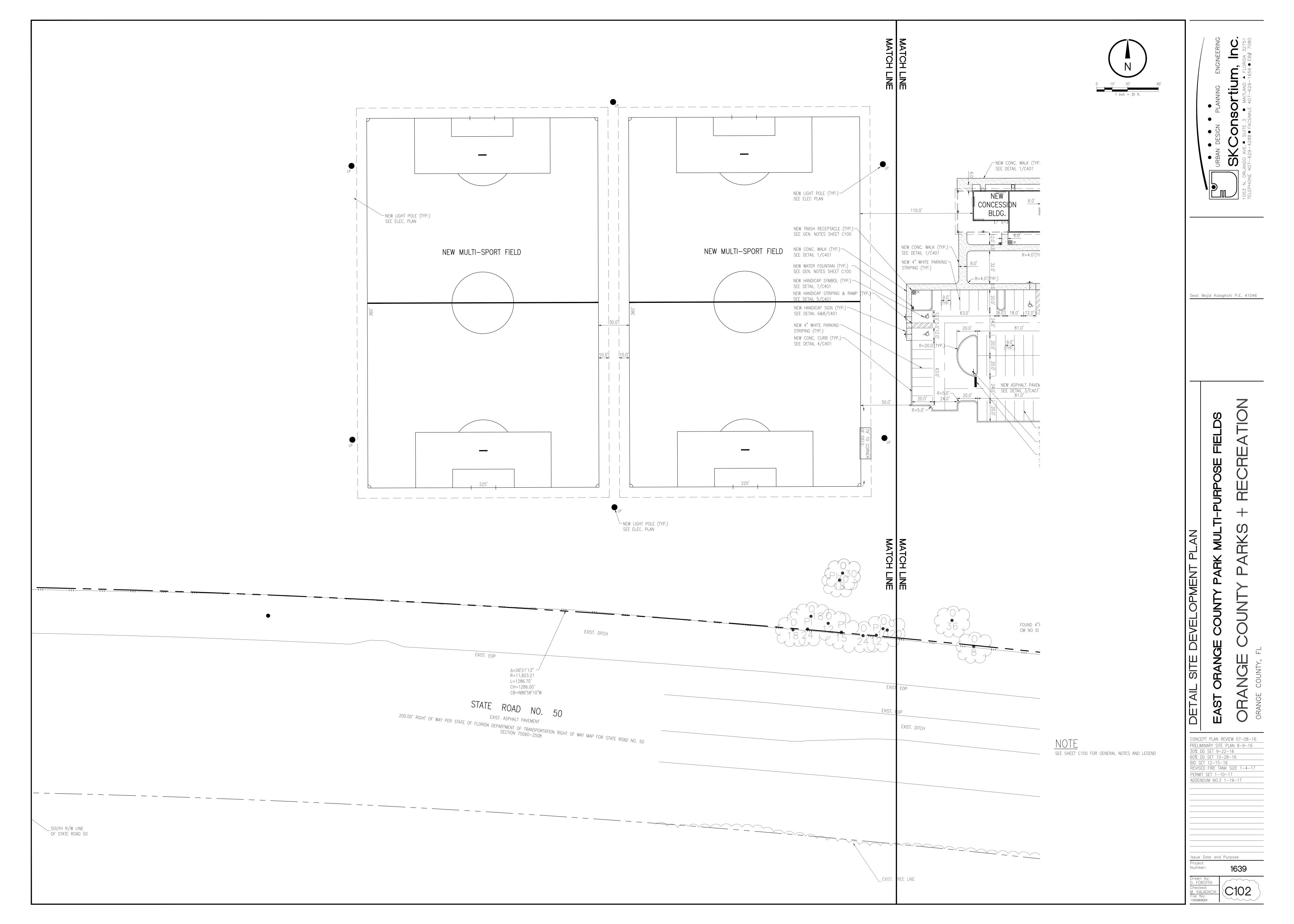
- a. The Bidder/Proposer shall acknowledge receipt of this addendum by completing the applicable section in the solicitation or by completion of the acknowledgement information on the addendum. Either form of acknowledgement must be completed and returned not later than the date and time for receipt of the bid or proposal.
- b. All other terms and conditions of the IFB remain the same.

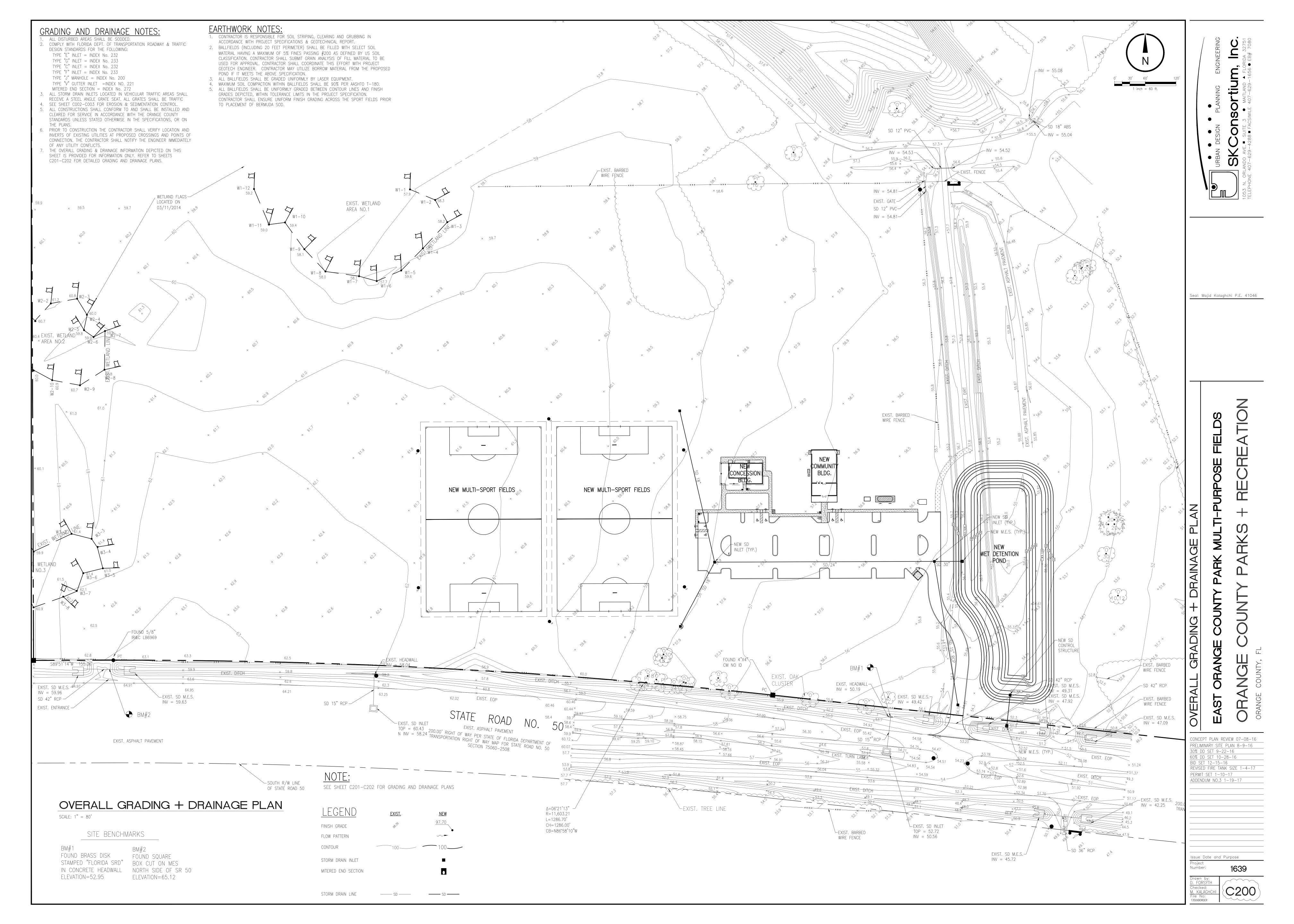
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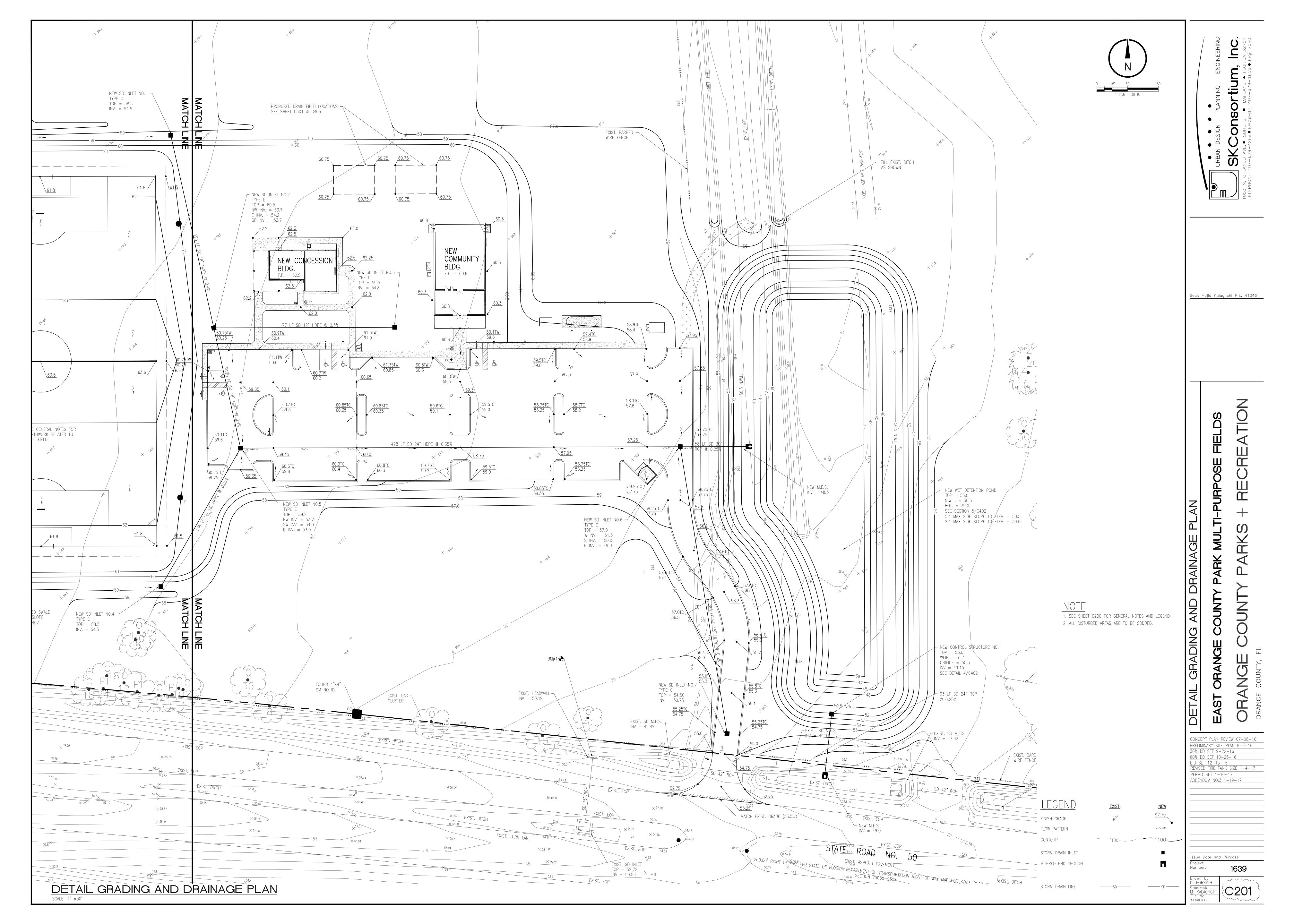
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Name of Firm	

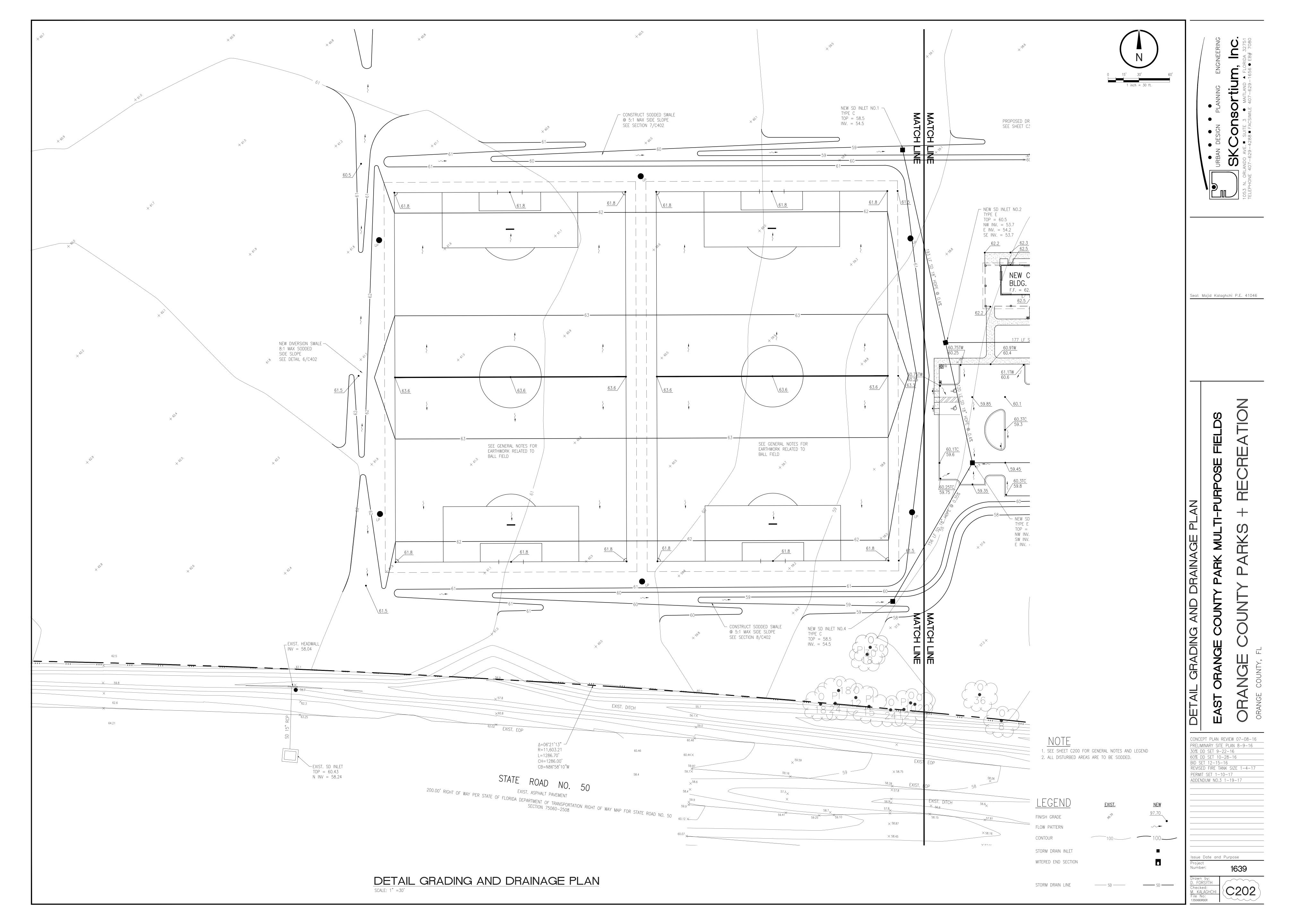


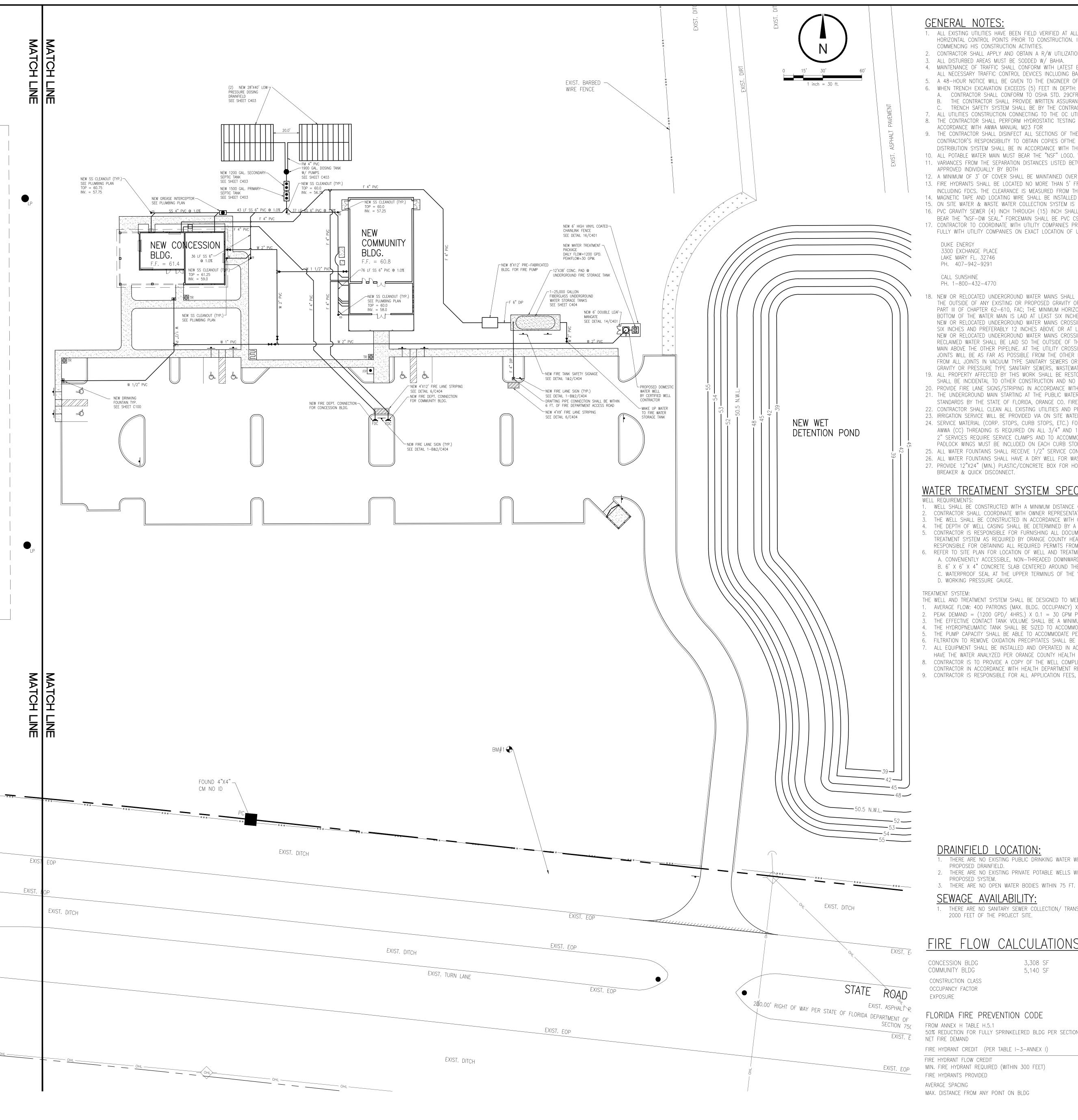












GENERAL NOTES:

- 1. ALL EXISTING UTILITIES HAVE BEEN FIELD VERIFIED AT ALL POINTS OF CONNECTION TO, AND AT ALL AREAS OF CONFLICT W/ OCU MAINS. THE CONTRACTOR SHALL REVERIFY AND LOCATE ALL VERTICAL AND HORIZONTAL CONTROL POINTS PRIOR TO CONSTRUCTION. IF ANY DISCREPANCIES SHOULD BE FOUND, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND SURVEYOR OF THE CONDITION IN WRITING PRIOR TO
- COMMENCING HIS CONSTRUCTION ACTIVITIES. 2. CONTRACTOR SHALL APPLY AND OBTAIN A R/W UTILIZATION PERMIT THROUGH
- 3. ALL DISTURBED AREAS MUST BE SODDED W/ BAHIA. 4. MAINTENANCE OF TRAFFIC SHALL CONFORM WITH LATEST EDITION OF FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS. CONTRACTOR IS RESPONSIBLE FOR PLACEMENT OF
- ALL NECESSARY TRAFFIC CONTROL DEVICES INCLUDING BARRICADES, FLASHING LIGHTS, TEMPORARY SIGNAGE, MARKINGS, ETC. 5. A 48-HOUR NOTICE WILL BE GIVEN TO THE ENGINEER OF RECORD AND OCPU CONSTRUCTION DEPT. (407-254-9798) PRIOR TO CONSTRUCTION & TESTING OF ANY UTILITY SHOWN ON THESE PLANS.
- A. CONTRACTOR SHALL CONFORM TO OSHA STD. 29CFR. SECTION 1926.650. B. THE CONTRACTOR SHALL PROVIDE WRITTEN ASSURANCE OF COMPLIANCE WITH
- C. TRENCH SAFETY SYSTEM SHALL BE BY THE CONTRACTOR.
- 7. ALL UTILITIES CONSTRUCTION CONNECTING TO THE OC UTILITY SYSTEM SHALL CONFORM TO ORANGE COUNTY STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL DATED FEB. 2011. 8. THE CONTRACTOR SHALL PERFORM HYDROSTATIC TESTING OF ALL NEWLY-INSTALLED WATER DISTRIBUTION SYSTEM IN ACCORDANCE WITH AWWA STANDARD C600 FOR DUCTILE-IRON PIPE. TESTING SHALL BE IN
- 9. THE CONTRACTOR SHALL DISINFECT ALL SECTIONS OF THE WATER DISTRIBUTION THEREOF FROM THE LOCAL WATER UTILITY, ENGINEER OF RECORD, AND FDER, PRIOR TO PLACING IN SERVICE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN COPIES OF THE FDEP WATER AND SEWER PERMITS FROM THE OWNER AND MAINTAIN THEM ON THE JOB SITE AT ALL TIMES. DISINFECTION OF THE WATER
- DISTRIBUTION SYSTEM SHALL BE IN ACCORDANCE WITH THE FDEP WATER PERMIT, AND RECEIVE APPROVAL PERFORMED IN ACCORDANCE WITH AWWA 651 "DISINFECTING WATER MAINS." 10. ALL POTABLE WATER MAIN MUST BEAR THE "NSF" LOGO. WATER MAIN SHALL BE PER AWWA C-900, DR-18. FIRE MAINS SHALL BE PER AWWA C-900 DR-14
- 11. VARIANCES FROM THE SEPARATION DISTANCES LISTED BETWEEN WATER AND SANITARY/STORM SEWERS/RECLAIM WATER LISTED IN OCU STANDARDS MUST COMPLY WITH 62-555-.314(5), FAC AND MUST BE
- 12. A MINIMUM OF 3' OF COVER SHALL BE MAINTAINED OVER ALL WATER MAINS. 13. FIRE HYDRANTS SHALL BE LOCATED NO MORE THAN 5' FROM THE EDGE OF THE CURB, THERE SHALL BE A MIN. CLEARANCE OF 4' TO THE REAR, AND THERE SHALL BE A MIN. 7.5' FROM SIDE
- INCLUDING FDCS. THE CLEARANCE IS MEASURED FROM THE FACE OF THE PORT. THE CENTER OF THE OUTLETS SHALL NOT BE LESS THAN 18" ABOVE GRADE.
- 14. MAGNETIC TAPE AND LOCATING WIRE SHALL BE INSTALLED WITH ALL NON METALLIC
- 15. ON SITE WATER & WASTE WATER COLLECTION SYSTEM IS PRIVATELY OWNED AND MAINTAINED. 16. PVC GRAVITY SEWER (4) INCH THROUGH (15) INCH SHALL BE SDR 35. JOINTS SHALL BE INTEGRAL BELL ELASTOMERIC GASKET IN ACCORDANCE WITH ASTM D3212 AND ASTM F477. ALL PVC SEWER SHALL
- BEAR THE "NSF-DW SEAL." FORCEMAIN SHALL BE PVC C900 DR-18 AND PVC CERTAINTEED CERTA-LOK PIPE AT DIRECTIONAL BORE. 17. CONTRACTOR TO COORDINATE WITH UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION ACTIVITY FOR DIG PERMITS, ELECTRICAL PERMITS OR OTHER PERMITS AS APPLICABLE. CONTRACTOR IS TO COORDINATE FULLY WITH UTILITY COMPANIES ON EXACT LOCATION OF UNDERGROUND UTILITIES PRIOR TO EXCAVATION. THE FOLLOWING COMPANIES SHALL BE CONTACTED BY THE CONTRACTOR:

3300 EXCHANGE PLACE LAKE MARY FL. 32746

CALL SUNSHINE

18. NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX FEET AND PREFERABLY 10 FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY OR PRESSURE TYPE SANITARY SEWER, STORM SEWER, WASTEWATER FORCEMAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, FAC; THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND THE GRAVITY TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE

BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER. NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY OR VACUUM TYPE SANITARY SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES AND PREFERABLY 12 INCHES ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE. NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING EXISTING OR PROPOSED PRESSURE TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCEMAIN OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS ATLEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE. AT THE UTILITY CROSSINGS DESCRIBED ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPE LINE. ALTERNATIVELY AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM TYPE SANITARY SEWERS OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, FAC, AND AT LEAST SIX FEET FROM ALL JOINTS IN

- GRAVITY OR PRESSURE TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, FAC. 19. ALL PROPERTY AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTED UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. THE COST FOR SUCH RESTORATION SHALL BE INCIDENTAL TO OTHER CONSTRUCTION AND NO EXTRA COMPENSATION WILL BE ALLOWED.
- 20. PROVIDE FIRE LANE SIGNS/STRIPING IN ACCORDANCE WITH OC REQUIREMENTS. 21. THE UNDERGROUND MAIN STARTING AT THE PUBLIC WATER UTILITY POINT OF CONNECTION HAS BEEN DESIGNED TO NFPA 24. INSTALLATION AND TESTING MUST BE IN ACCORDANCE WITH NFPA 24 AND
- STANDARDS BY THE STATE OF FLORIDA, ORANGE CO. FIRE CODE, CHAPTER 24, SECTION 24.13(b), NFPA 24, 2002 EDITION.
- 22. CONTRACTOR SHALL CLEAN ALL EXISTING UTILITIES AND PRE-TEST PRIOR TO SCHEDULING FOR TESTING/INSPECTION BY ORANGE COUNTY. 23. IRRIGATION SERVICE WILL BE PROVIDED VIA ON SITE WATER WELL. 24. SERVICE MATERIAL (CORP. STOPS, CURB STOPS, ETC.) FOR 3/4", 1", AND 2" SERVICES SHALL BE BRASS COMPRESSION FITTINGS. FLARED FITTINGS ARE ACCEPTABLE UNDER CONTROLLED CONDITIONS. AN
- AWWA (CC) THREADING IS REQUIRED ON ALL 3/4" AND 1" CORPORATION STOPS USED WITH DIRECT PIPE TAPPING ON DUCTILE IRON PIPE OR WITH SERVICE CLAMPS ON PVC PIPE. INSTALLATION OF 2" SERVICES REQUIRE SERVICE CLAMPS AND TO ACCOMMODATE 1 1/2" OR 2" METERS, 2" BALL ANGLE METER VALVES (CTS X FLANGE) WITH SLOTTED HOLES ON THE FLANGE FACE ARE REQUIRED. PADLOCK WINGS MUST BE INCLUDED ON EACH CURB STOP OR BALL METER VALVE. 25. ALL WATER FOUNTAINS SHALL RECEIVE 1/2" SERVICE CONNECTIONS.
- 26. ALL WATER FOUNTAINS SHALL HAVE A DRY WELL FOR WASTE DISCHARGE IN ACCORDANCE WITH DETAIL 18/C401
- 27. PROVIDE 12"X24" (MIN.) PLASTIC/CONCRETE BOX FOR HOSE BIBB ASSEMBLY. VERIFY BOX TO ENSURE PROPER OPERATION OF HOSE BIBB. ALL HOSE BIBB ASSEMBLY WILL BE EQUIPPED WITH VACUUM BREAKER & QUICK DISCONNECT.

WATER TREATMENT SYSTEM SPECS

- WELL SHALL BE CONSTRUCTED WITH A MINIMUM DISTANCE OF 200 FEET FROM ANY ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM.
- CONTRACTOR SHALL COORDINATE WITH OWNER REPRESENTATIVE ON FINAL LOCATION OF WATER WELL AND TREATMENT PACKAGE. THE WELL SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 64E-8, DRINKING WATER SYSTEMS.
- 4. THE DEPTH OF WELL CASING SHALL BE DETERMINED BY A CERTIFIED WELL CONTRACTOR BASED UPON FIELD CONDITIONS.
- CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL DOCUMENTS INCLUDING CERTIFIED SHOP DRAWINGS FOR PLACEMENT OF A PUBLIC DRINKING WATER SUPPLY WELL ALONG WITH APPROPRIATE TREATMENT SYSTEM AS REQUIRED BY ORANGE COUNTY HEALTH DEPARTMENT OR FDEP AND SPECIFICATIONS HERE IN INCLUDING FLORIDA ADMINISTRATIVE CODE CHAPTER 64E-8. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FROM GOVERNMENTAL AGENCIES HAVING JURISDICTION PRIOR TO PLACEMENT OF SYSTEM.
- REFER TO SITE PLAN FOR LOCATION OF WELL AND TREATMENT SYSTEM. WELL SHALL BE EQUIPPED WITH: A. CONVENIENTLY ACCESSIBLE, NON-THREADED DOWNWARD OPENING, TAP, LOCATED AT LEAST 12 INCHES ABOVE GRADE BETWEEN STORAGE/TREATMENT EQUIPMENT.
- B. 6' X 6' X 4" CONCRETE SLAB CENTERED AROUND THE WELL. C. WATERPROOF SEAL AT THE UPPER TERMINUS OF THE WELL CASING. VENTS SHALL BE DIRECTED DOWNWARD AND PROTECTED WITH #20 MESH SCREEN. D. WORKING PRESSURE GAUGE.
- THE WELL AND TREATMENT SYSTEM SHALL BE DESIGNED TO MEET THE FOLLOWING MINIMUM REQUIREMENTS: 1. AVERAGE FLOW: 400 PATRONS (MAX. BLDG. OCCUPANCY) X 3 GPD = 1200 GPD
- 2. PEAK DEMAND = (1200 GPD/ 4HRS.) X 0.1 = 30 GPM PEAK DEMAND 3. THE EFFECTIVE CONTACT TANK VOLUME SHALL BE A MINIMUM OF 1000 GALLONS.
- 4. THE HYDROPNEUMATIC TANK SHALL BE SIZED TO ACCOMMODATE PEAK DEMAND NOTED ABOVE.
- 5. THE PUMP CAPACITY SHALL BE ABLE TO ACCOMMODATE PEAK FLOWS NOTED ABOVE. 6. FILTRATION TO REMOVE OXIDATION PRECIPITATES SHALL BE REQUIRED IF THEY INVALIDATE MICRO BIOLOGICAL TESTS.
- ALL EQUIPMENT SHALL BE INSTALLED AND OPERATED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL HAVE THE WATER ANALYZED PER ORANGE COUNTY HEALTH DEPARTMENT/FDEP REQUIREMENTS WITH TEST RESULTS NOT TO EXCEED THE MAXIMUM CONTAMINANT LEVELS.
- 8. CONTRACTOR IS TO PROVIDE A COPY OF THE WELL COMPLETION REPORT TO ORANGE COUNTY HRS/FDEP ALL TESTING, APPROVALS AND CLEARANCE OF THE SYSTEM SHALL BE OBTAINED BY CONTRACTOR IN ACCORDANCE WITH HEALTH DEPARTMENT REQUIREMENTS.
- 9. CONTRACTOR IS RESPONSIBLE FOR ALL APPLICATION FEES, TESTING, COSTS, ETC. ASSOCIATED WITH PERMITTING AND PLACEMENT OF WELL AND TREATMENT SYSTEM.

DRAINFIELD LOCATION:

- 1. THERE ARE NO EXISTING PUBLIC DRINKING WATER WELLS WITHIN 200 FT. OF
- 2. THERE ARE NO EXISTING PRIVATE POTABLE WELLS WITHIN 75 FT. OF THE OF THE
- PROPOSED SYSTEM. 3. THERE ARE NO OPEN WATER BODIES WITHIN 75 FT. OF THE SYSTEM.

1. THERE ARE NO SANITARY SEWER COLLECTION/ TRANSMISSION SYSTEM (GRAVITY) WITHIN 2000 FEET OF THE PROJECT SITE.

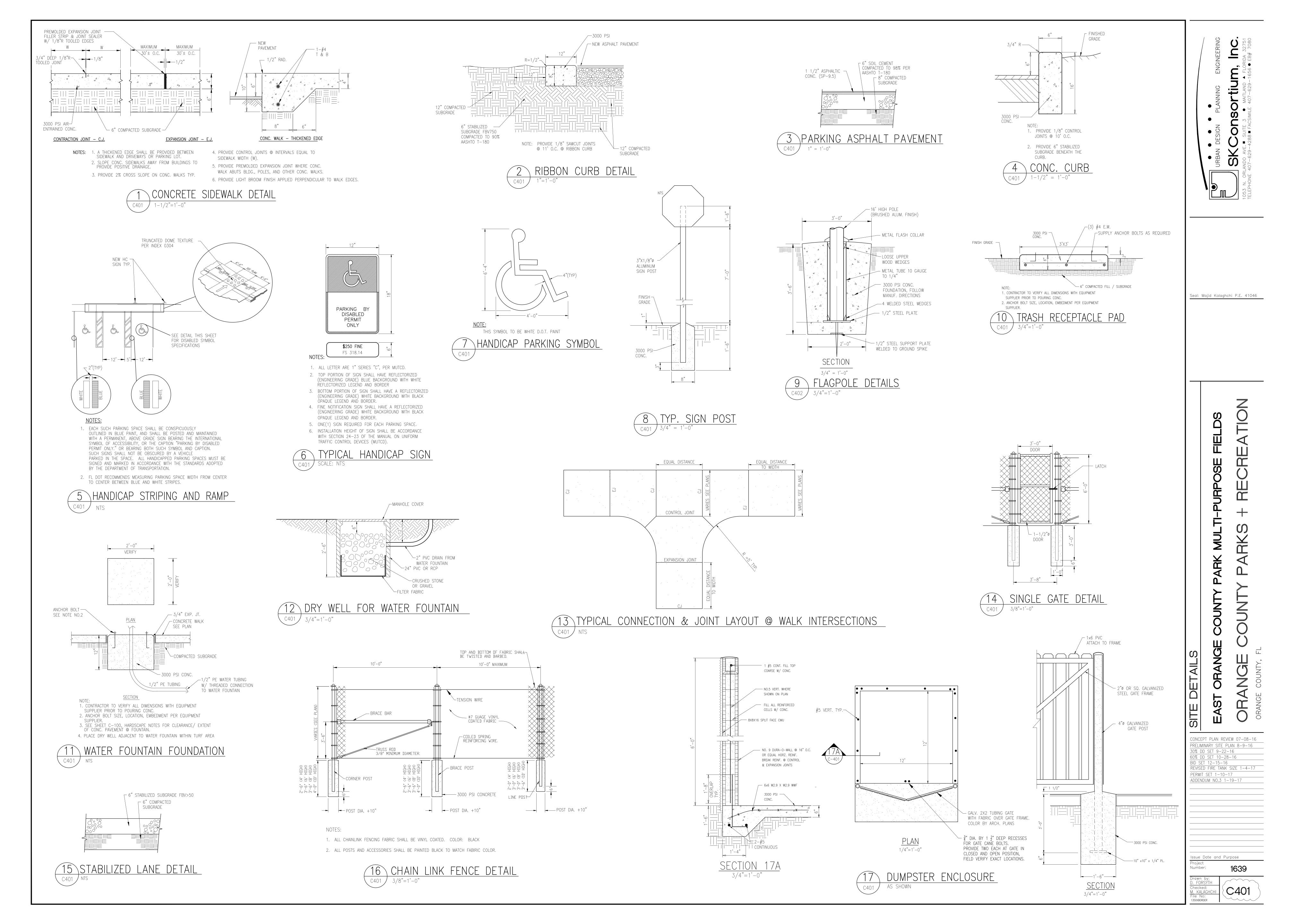
FIRE FLOW CALCULATIONS

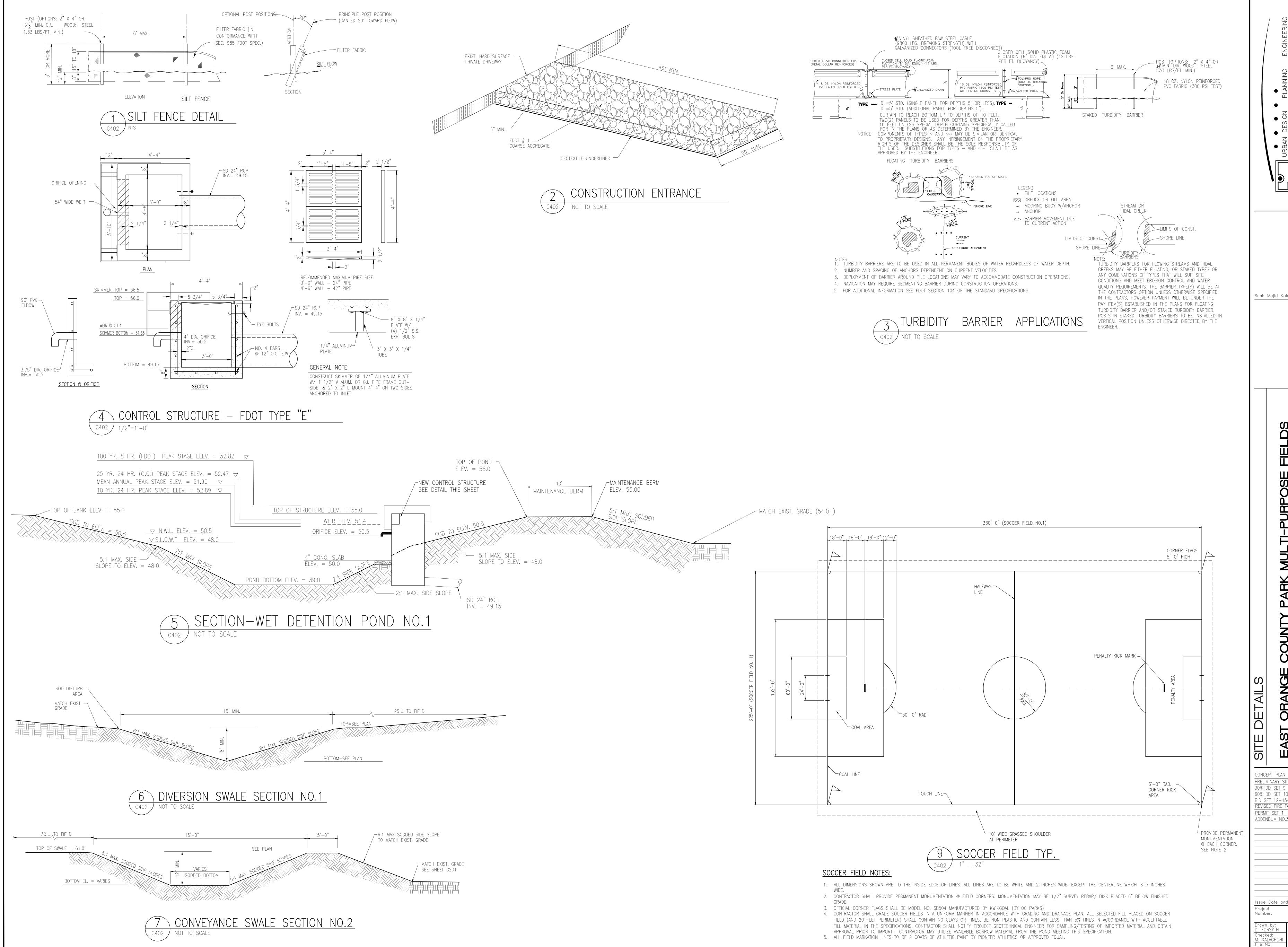
CONCESSION BLDG 3,308 SF		<u>LEGEND</u>	EXIST.	<u>NEW</u>
COMMUNITY BLDG 5,140 SF		WATER LINE	W	——
CONSTRUCTION CLASS OCCUPANCY FACTOR	FBC IIB COMBUSTIBLE	SANITARY SEWER LINE	SS	———SS——
	NO EXPOSURE HAZARDS	FORCE MAIN	FM	——FM——
FLORIDA FIRE PREVENTION CODE		POWER POLE	PP PP	
FROM ANNEX H TABLE H.5.1 50% REDUCTION FOR FULLY SPRINKELERED BLDG PER SECTION H.5.2 NET FIRE DEMAND	1500 GPM 750 GPM 750 GPM	WATER VALVE CLEAN-OUT	⊠ co _O	CO •
FIRE HYDRANT CREDIT (PER TABLE I-3-ANNEX I)	FLOW CREDIT	SANITARY SEWER MANHOLE	0	
FIRE HYDRANT FLOW CREDIT MIN. FIRE HYDRANT REQUIRED (WITHIN 300 FEET)	1000 GPM FOR EACH HYDRANT AT 300 FT. FROM BLDG.	FIRE HYDRANT	Ç, FH	
FIRE HYDRANTS PROVIDED AVERAGE SPACING MAX. DISTANCE FROM ANY POINT ON BLDG	1 REQUIRED: 500 FEET ACTUAL: 300' REQUIRED: 300 FEET ACTUAL: 150'	OVERHEAD POWER LINE BURIED TELEPHONE LINE	—— ОНL—— —— ВТL——	

Seal: Majid Kalaghchi P.E. 41046

CONCEPT PLAN REVIEW 07-08-16 PRELIMINARY SITE PLAN 8-9-16 PERMIT SET 1-10-17

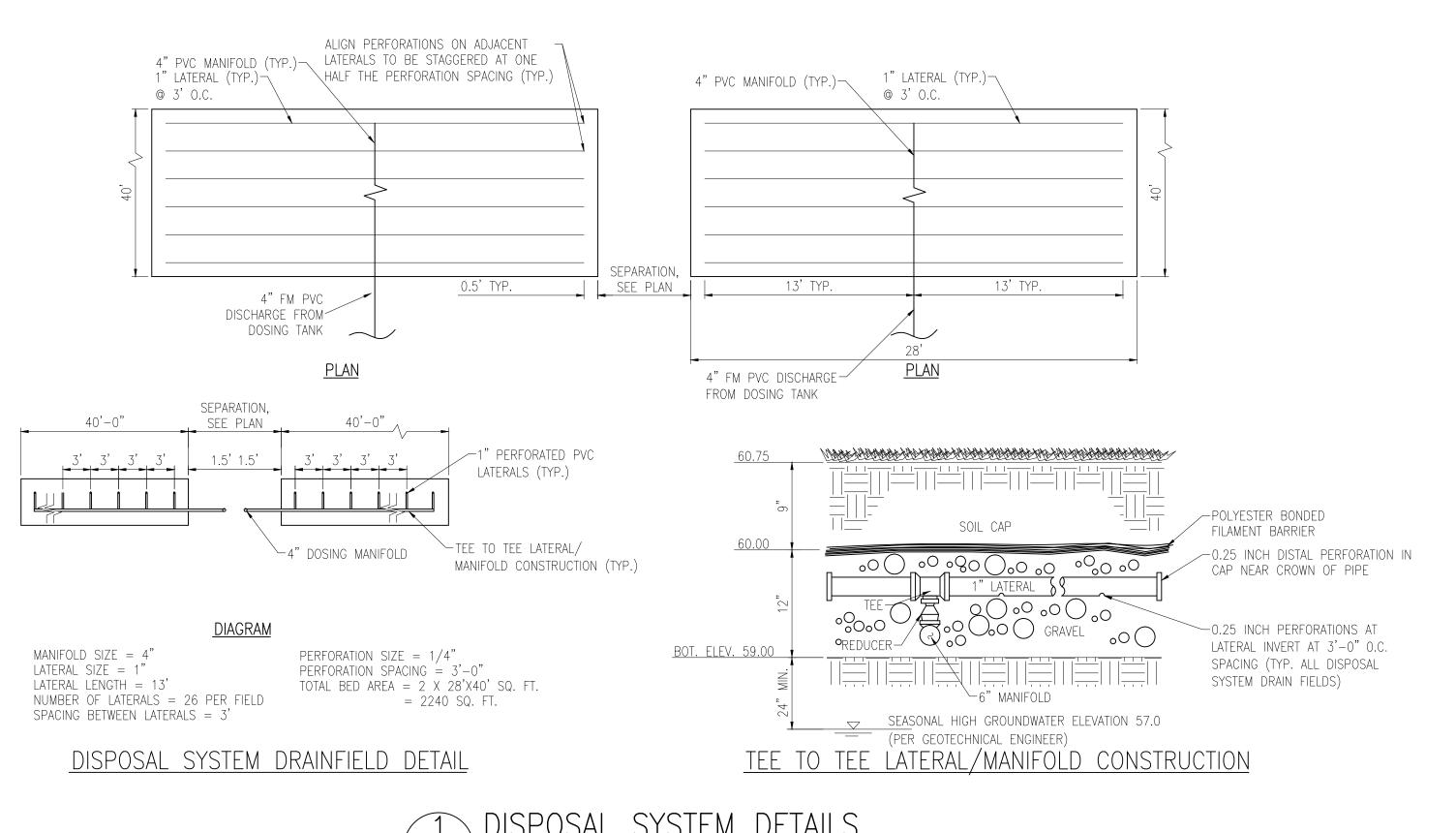
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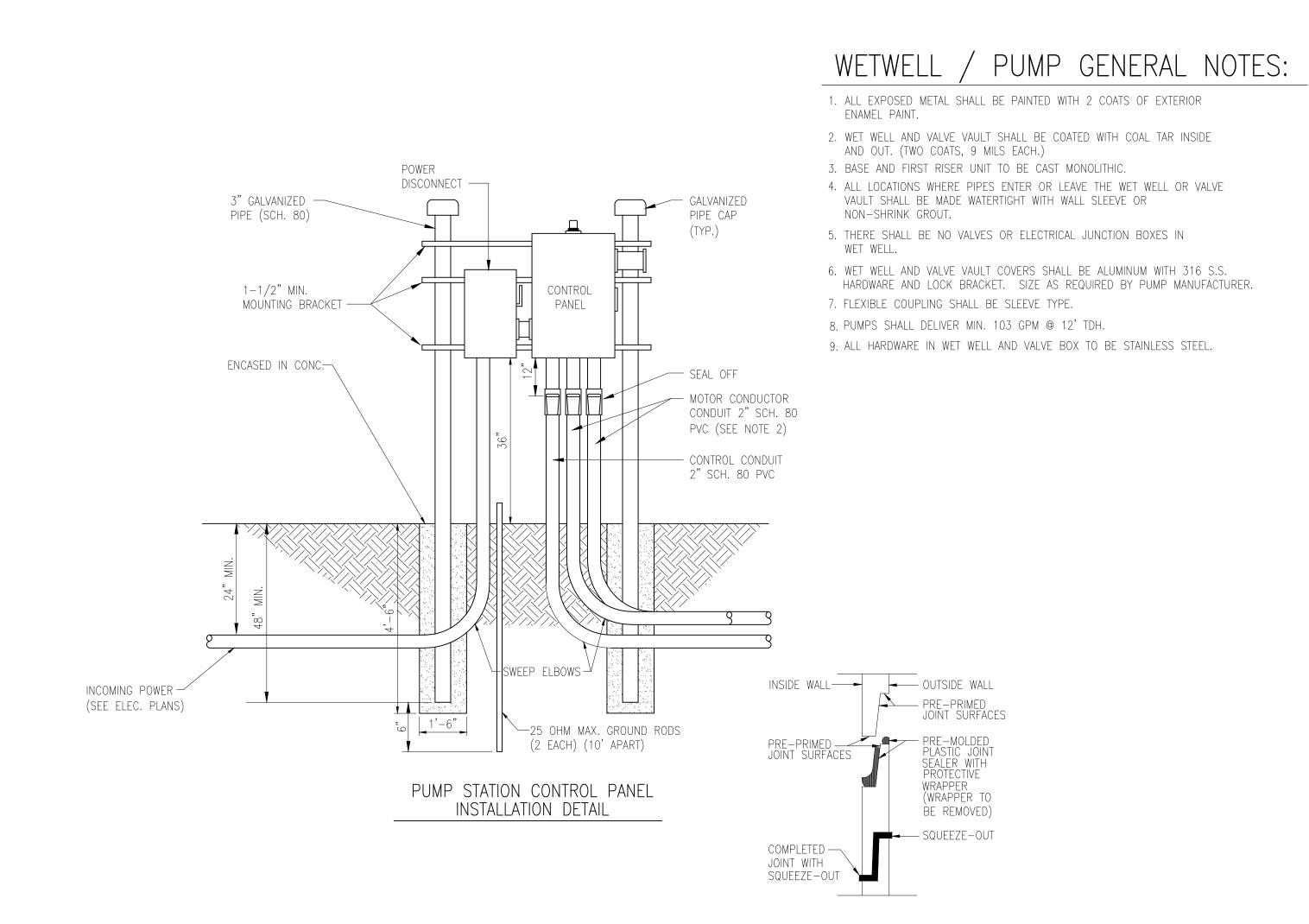
Seal: Majid Kalaghchi P.E. 41046

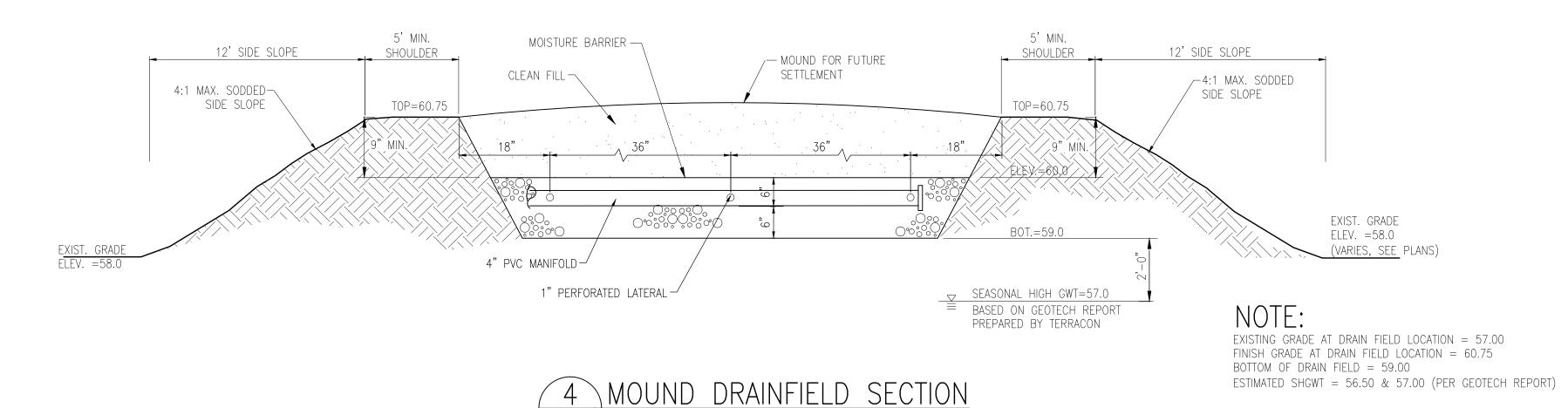
CONCEPT PLAN REVIEW 07-08-16 PRELIMINARY SITE PLAN 8-9-16 PERMIT SET 1-10-17 ADDENDUM NO.3 1-19-17



DISPOSAL SYSTEM DETAILS

C403 NTS





SANITARY SEWER SYSTEMS GENERAL NOTES

<u>SPECIFICATIONS</u>

1.) ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH STATE OF FLORIDA DEPT. OF HEALTH AND REHABILITATIVE SERVICES, CHAPTER 10D-6, FAC STANDARDS FOR ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS, ISSUED JULY 16, 2013

2.) CONTRACTOR SHALL BE EXPERIENCED IN METHODS OF CONSTRUCTION AND LICENSING PROCEDURES REQUIRED BY H.R.S. AND HAVE DOCUMENTED EXPERIENCE IN THIS TYPE OF

SEPTIC TANKS

- 1.) TANK SHALL BE CONSTRUCTED OF MINIMUM 3000 PSI (28 DAY) PRECAST REINFORCED CONCRETE.
 2.) TANK SHALL HAVE A MINIMUM CAPACITY OF 1200 & 1500 GALLONS EACH.
- 3.) EACH TANK SHALL BE WATERTIGHT AND HAVE TWO COMPARTMENTS. THE FIRST COMPARTMENT SHALL HAVE A MINIMUM EFFECTIVE CAPACITY OF AT LEAST TWO—THIRDS OF THE TOTAL CAPACITY REQUIRED. EACH COMPARTMENT SHALL HAVE ACCESS MANHOLES WITH A MINIMUM AREA OF 225 SF. MANHOLES SHALL BE LOCATED SO AS TO ALLOW ACCESS TO THE INLET AND OUTLET DEVICES. THE ACCESS SHALL EXTEND TO WITHIN 8 INCHES OF FINISHED GRADE. EACH SEPTIC TANK SHALL BE COVERED
- 4.) THE LIQUID DEPTH OF THE COMPARTMENTS SHALL BE AT LEAST 42 INCHES. A MINIMUM FREEBOARD OF 15 PERCENT OF THE TANK SHALL BE PROVIDED.
- 5.) FLOW BETWEEN ADJACENT TANK COMPARTMENTS SHALL INTERCONNECT USING EITHER A 4 INCH MINIMUM DIAMETER HOLE OR EQUIVALENT SIZE SLOT.
- 6.) MINIMUM OF 4 INCHES DIAMETER INLET DEVICE AND VENTED OUTLET TEE SHALL BE PROVIDED IN ACCORDANCE WITH CHAPTER 10D-6 FAC.
 7.) TANK OPENINGS SHALL BE SEALED USING A BONDING COMPOUND THAT WILL ADHERE TO THE
- CONSTRUCTION MATERIALS OF THE TANK AND THE INLET AND OUTLET DEVICES.

 8.) TANK SHALL BE PROVIDED WITH A SUITABLE LEGEND CAST OR STAMPED INTO THE WALL AT THE INLET END, TO BEGIN WITHIN 6 INCHES OF THE TOP OF THE WALL. THE LEGEND SHALL IDENTIFY THE MANUFACTURER, THE STATE HEALTH OFFICES DESIGNATED APPROVAL NUMBER FOR THE TANK AND THE
- EFFECTIVE CAPACITY OF THE TANK IN GALLONS.

 9.) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN NECESSARY DEPT. OF HEALTH AND REHABILITATIVE SERVICES AND STATE HEALTH OFFICE APPROVALS.

DOSING TANK

1.) DOSING TANK SHALL HAVE A SINGLE CHAMBER WITH A MINIMUM CAPACITY OF 1900 GALLONS, AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478.

WET WELL SHALL HAVE A MIN. DIAMETER OF 4'-0".

56.00

WITH A MINIMUM OF 4 INCHES OF SOIL COVER.

WET WELL TOP ELEV. 61.00
SS 6" PVC INFLOW 56.00
BOTTOM 51.00
PUMP OFF 52.50
1ST PUMP ON 55.00
2ND PUMP ON 55.00

ALARM

DOSING SYSTEMS

- 1.) TWO SUBMERSIBLE DOSING PUMPS SHALL BE SUPPLIED IN EACH DISPOSAL SYSTEM TO TRANSPORT SEPTIC TANK OVERFLOW TO THE DRAINFIELD. PUMPS SHALL BE RATED TO DISCHARGE AT THE FOLLOWING RATE AND MUST BE CERTIFIED BY THE MANUFACTURER TO BE SUITABLE FOR SEWAGE SEPTIC SYSTEM SERVICE:
- 2.) PUMP OPERATION SHALL BE CONTROLLED BY FOUR LEVEL CONTROL SWITCHES:
- A. HIGH WATER ALARM LEVEL
 B. START LEVEL FOR TWO PUMPS

LOW LEVEL SHUT OFF

103 GPM @ 12 FT. TDH

- D. PUMPS MUST CLOSE ALTERNATELY

 3.) FLOAT SWITCHES SHALL BE SEALED FROM THE CORROSIVE ATMOSPHERE IN THE TANK AND ALL ELECTRICAL CONTACTS AND BELAYS SHALL BE MOUNTED OUTSIDE OF THE TANK
- RELAYS SHALL BE MOUNTED OUTSIDE OF THE TANK.
 4.) FLOAT SWITCHES SHALL BE FASTENED TO A SUPPORT PIPE TO ENABLE THE FLOATS TO BE ADJUSTED TO ANY HEIGHT.
 5.) PROVISIONS SHALL BE MADE TO PREVENT GASES IN THE CHAMBER FROM FOLLOWING THE ELECTRICAL CONDUITS
- INTO THE CONTROL BOX.
- 6.) THE HIGH WATER ALARM SWITCH MUST BE ON A SEPARATE CIRCUIT FROM THE PUMP LEVEL CONTROLS.
 7.) THE CONTROL PANEL SHALL INCLUDE CONTACT RELAYS FOR EACH PUMP, AN ALTERNATING RELAY CIRCUIT, RUN LIGHT FOR EACH
- 8.) PUMP SHALL DOSE ALTERNATELY.
 9.) AN AUDIO AND VISUAL HIGH WATER ALARM SHALL BE PROVIDED IN A CONSPICUOUS LOCATION VISIBLE BY SYSTEM USERS.

PUMP, CIRCUIT BREAKERS FOR EACH PUMP, AND H.O.A. SWITCHES FOR EACH PUMP WITH OVERLOAD PROTECTION.

- ALARM SHALL BE WATERPROOF AND WARRANTED BY THE MANUFACTURER FOR OUTDOOR USE.
- 10.) CONTROL PANEL SHALL BE POLE MOUNTED AND SHALL HAVE A WATER TIGHT DEAD FRONT.11.) POWER SERVICE TO PUMP SHALL BE FROM BUILDING MEP.

DOSING PUMP DISCHARGE PIPE (OTHER THAN PERFORATED LATERALS)

1.) DOSING TANK DISCHARGE PIPE SHALL CONFORM TO ASTM D2241 FOR STANDARD DIMENSION RATIO 26-160 PSI PIPE. PVC COMPOUNDS USED IN THE EXTRUSION OF THE PIPE SHALL MEET OR EXCEED THE REQUIREMENTS OF THE MATERIAL SECTION OF ASTM D2241, RUBBER RINGS SHALL CONFORM TO ASTM F477.

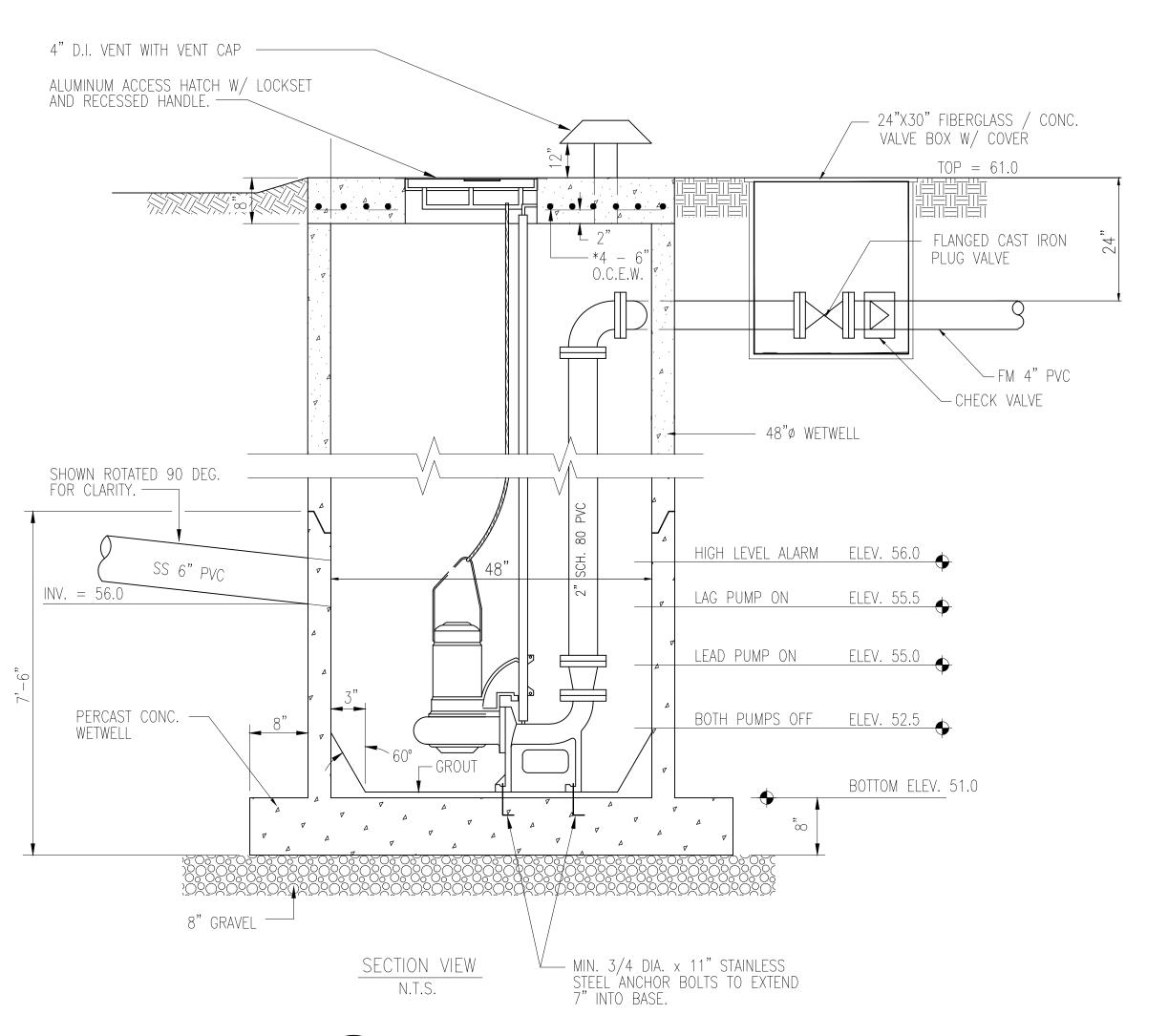
<u>DRAINFIELDS</u>

- 1.) ALL PORTIONS OF THE MANIFOLD PIPE AND PERFORATED DRAIN PIPE SHALL BE INSTALLED IN AGGREGATE CONFORMING TO ASTM C330-87 MEETING F.D.O.T. SPECIFICATIONS UNDER SECTION 901, "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1991" AND H.R.S. CHAPTER 10D-6 GRADATION REQUIREMENTS.
- 2.) PERFORATED PLASTIC PIPE SHALL CONFORM TO THE STANDARDS OF ASTM D3034-89.

 LATERAL PIPE SHALL BE 1" DIAMETER PVC WITH ONE ROW OF 0.25 INCH DIAMETER HOLES.

 PERFORATIONS SHALL BE LOCATED ON THE CENTERLINE OF THE BOTTOM OF THE PIPE AND SHALL
- PERFORATIONS SHALL BE LOCATED ON THE CENTERLINE OF THE BOTTOM OF THE PIPE AN BE SPACED @ 3' O.C.

 3.) ALL PVC PIPE SHALL CONFORM TO THE STANDARDS OF ASTM D-3034-89.
- 4.) EXISTING GROUND TO BE EXCAVATED OR FILLED AS REQUIRED BY GEOTECHNICAL ENGINEER RECOMMENDATIONS AND REPLACED WITH CLEAN, FREE—DRAINING FINE SAND SOIL OF THE UNIFIED SOIL CLASSIFICATION SP TO PROPOSED
- GRADE ELEVATION.
 5.) SEASONAL HIGH GROUNDWATER ELEVATION PROVIDED BY UNIVERSAL ENGINEERING AT 2.5 FT. BELOW EXIST. GRADE.



3 DOSING TANK/WET WELL DETAIL

1/2" = 1'-0"

URBAN DESIGN PLANNING ENGINEERING SKCONSORTHUM, INC.

1053 N. ORLANDO AVE. SUITE 3 • MAITLAND A FLORIDA 32751
TELEPHONE 407-629-4288 FACSIMILE 407-629-1656 • EB# 7080

Seal: Majid Kalaghchi P.E. 41046

JNTY PARK MULTI-PURPOSE FIELDS
JNTY PARKS + RECREATIC

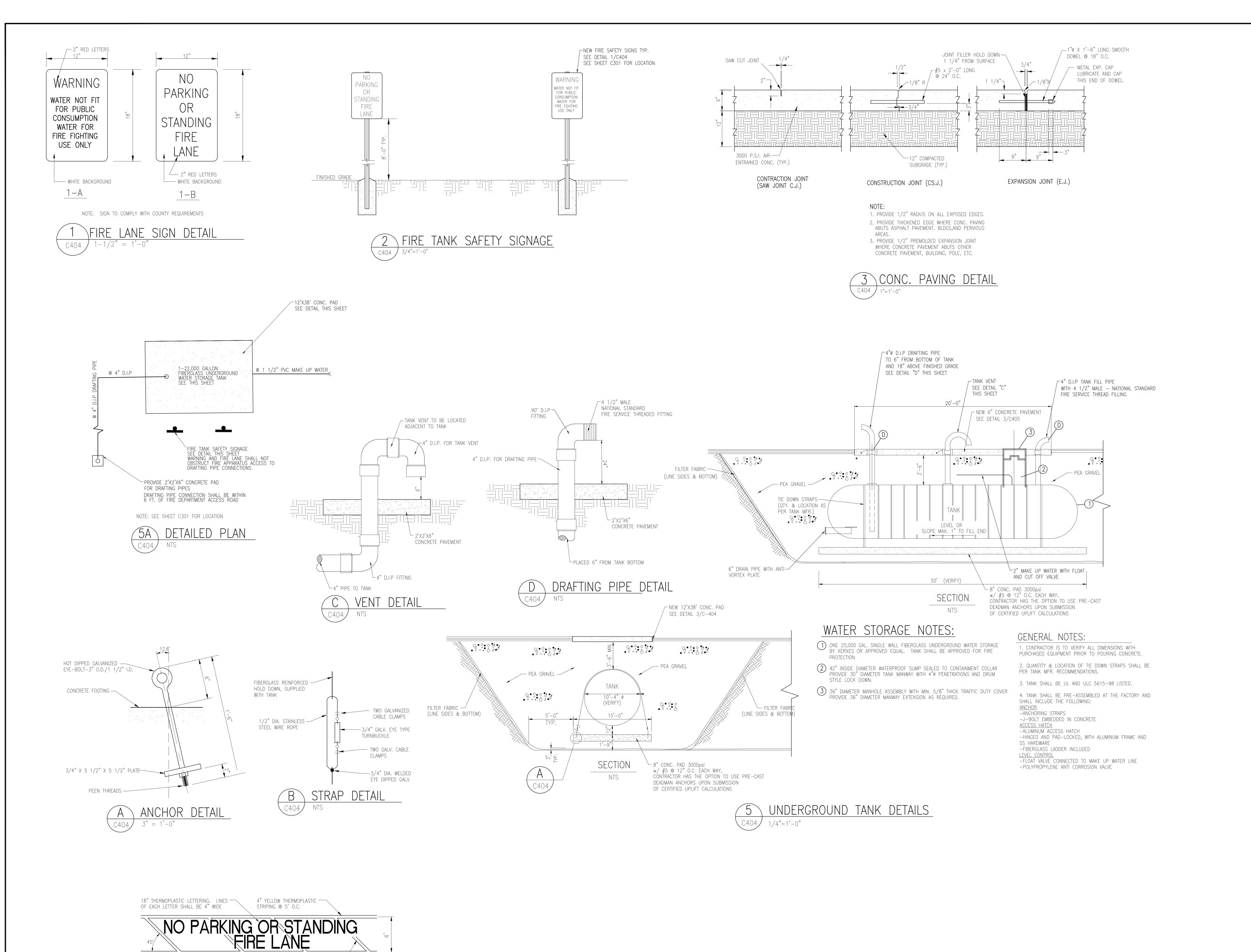
CONCEPT PLAN REVIEW 07-08-16
PRELIMINARY SITE PLAN 8-9-16
30% DD SET 9-22-16
60% DD SET 10-28-16

30% DD SET 9-22-16
60% DD SET 10-28-16
BID SET 12-15-16
REVISED FIRE TANK SIZE 1-4-17
PERMIT SET 1-10-17

ADDENDUM NO.3 1-19-17

ssue Date and Purpose Project

Drawn by:
D. FORSYTH
Checked:
M. KALAGHCHI
File No:



4" YELLOW THERMOPLASTIC —

STRIPING @ 5' O.C.

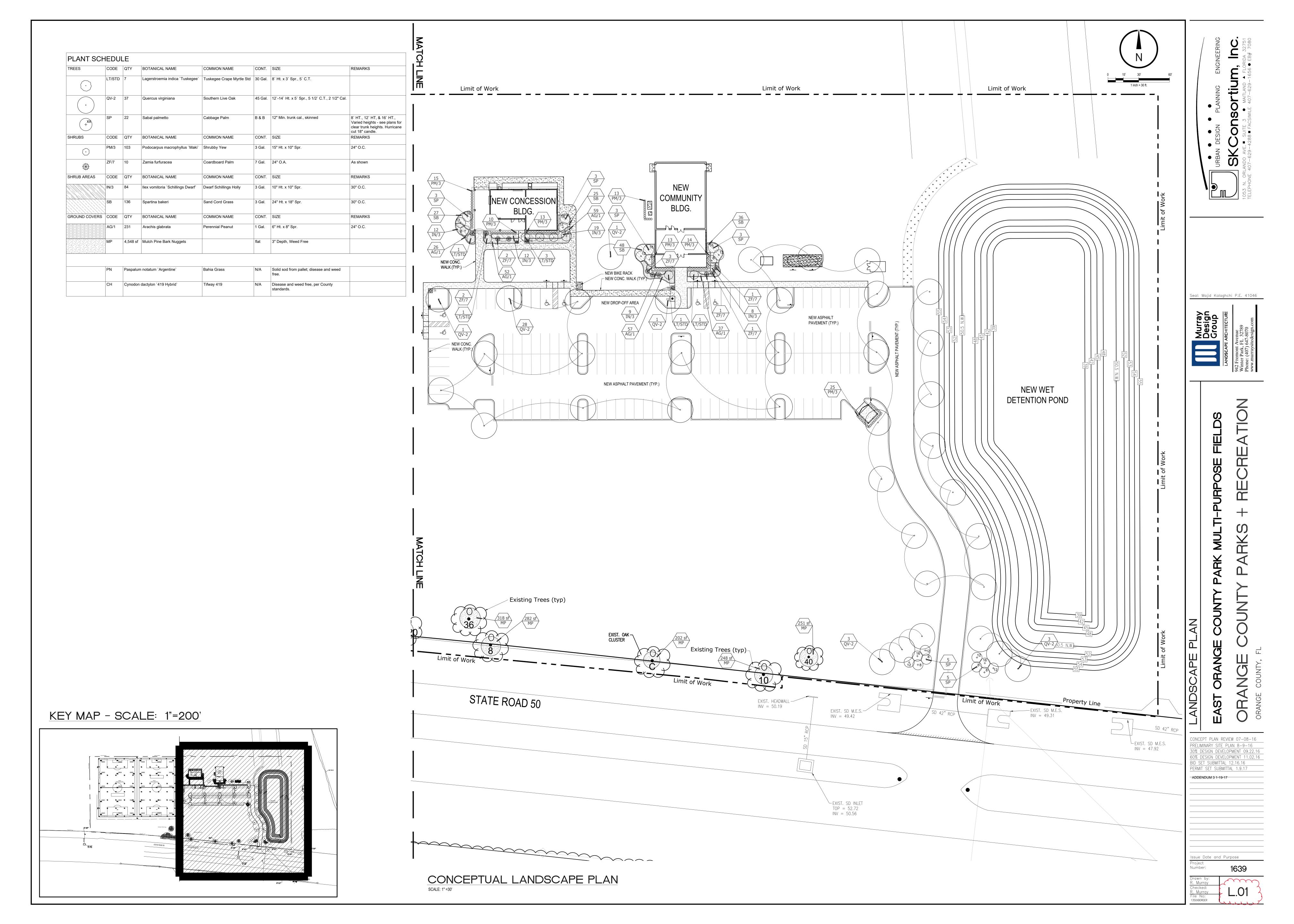
LANE STRIPPING DETAIL

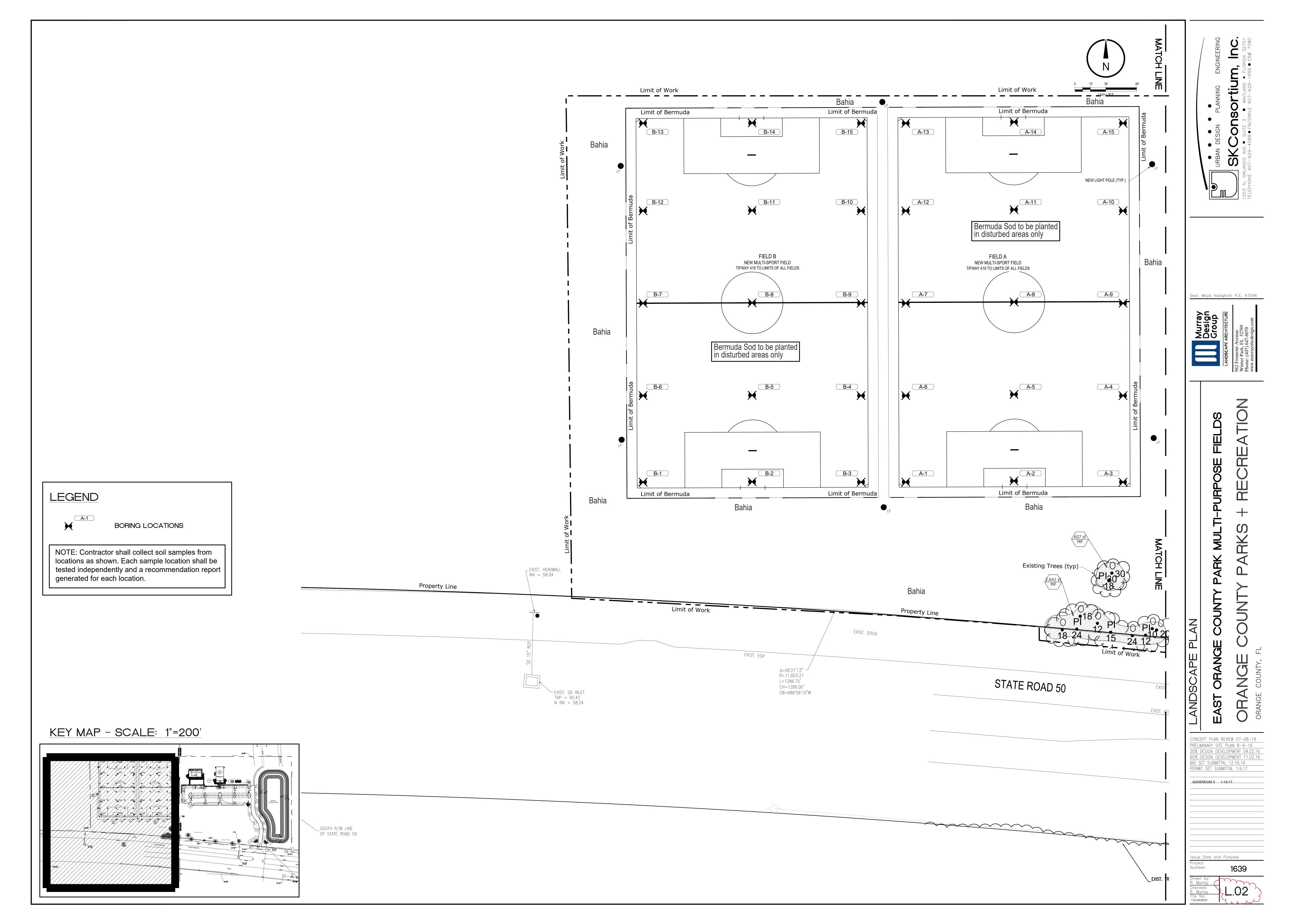
Seal: Majid Kalaghchi P.E. 41046

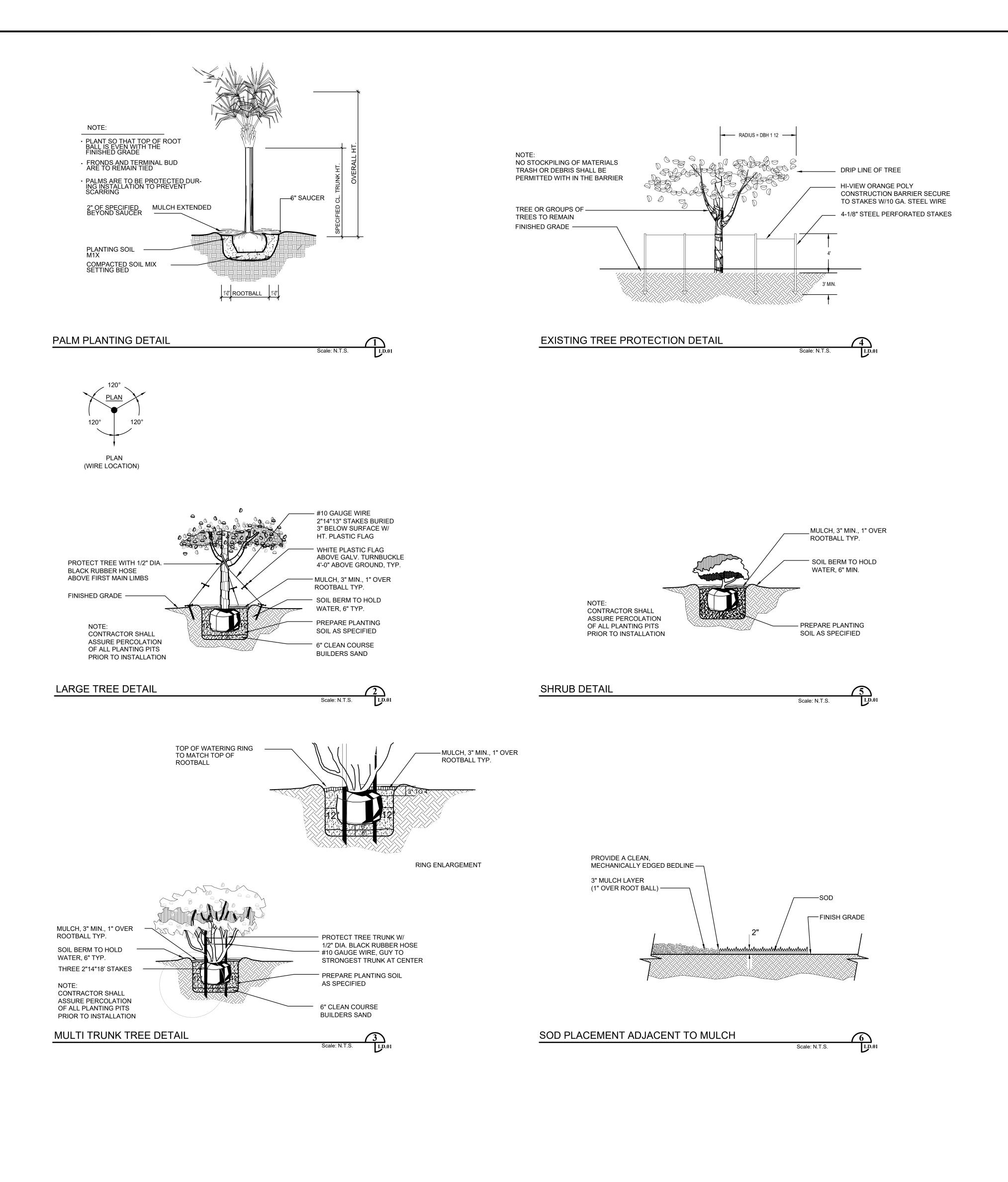
CONCEPT PLAN REVIEW 07-08-16

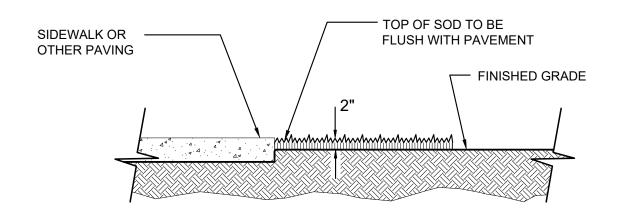
PRELIMINARY SITE PLAN 8-9-16 30% DD SET 9-22-16 60% DD SET 10-28-16 BID SET 12-15-16 REVISED FIRE TANK SIZE 1-4-17

PERMIT SET 1-10-17 ADDENDUM NO.3 1-19-17

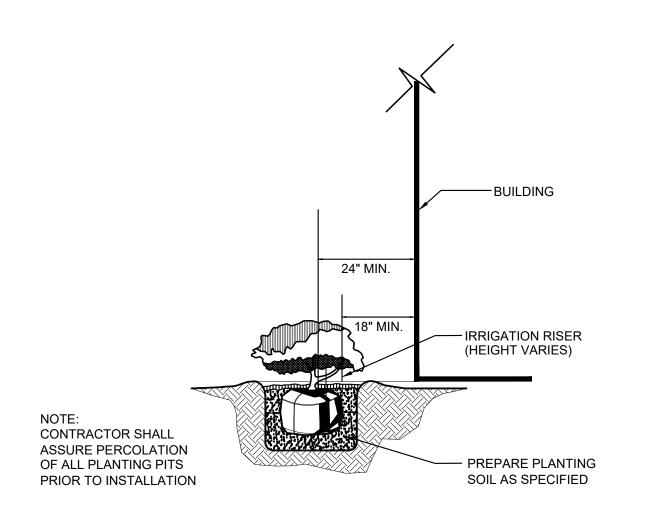


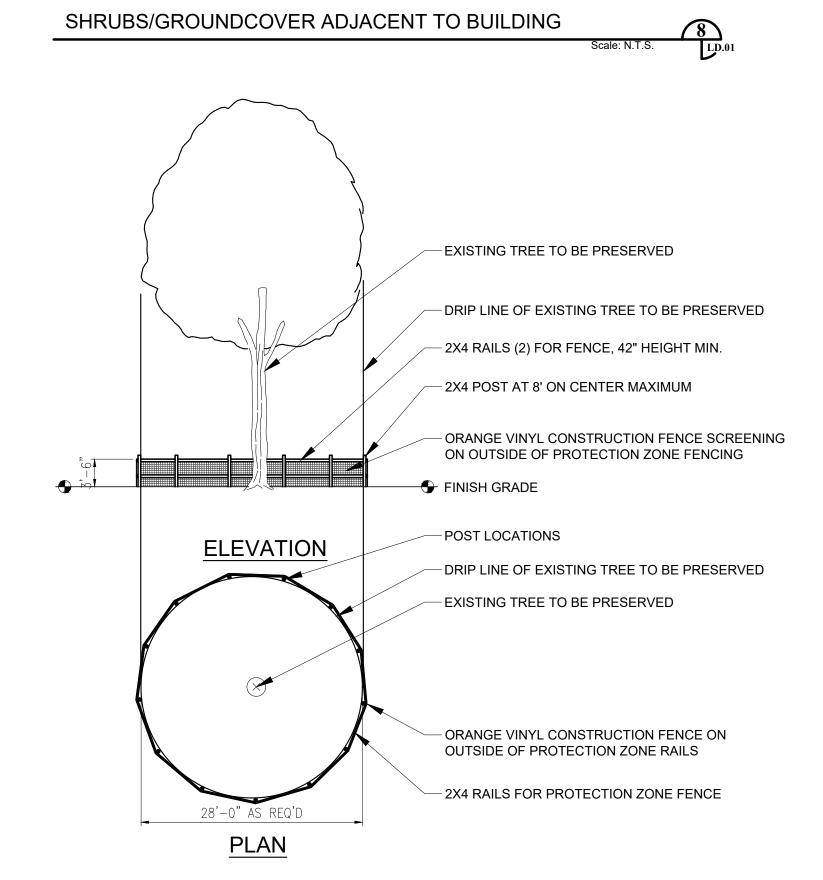






SOD PLACEMENT ADJACENT TO PAVEMENT





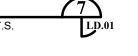
TREE PROTECTION NOTES:

- TREES TO BE PRESERVED SHALL SURROUNDED BY 2X4 POSTS AT 8' ON CENTER MAXIMUM. INSTALL
 2- 2X4 RAILS, THE TOP RAIL LOCATED AT A 42" HEIGHT. LOCATE PROTECTION FENCE AT TREE DRIP
 LINE. A MINIMUM PROTECTION DIAMETER IS 12" WIDTH PER 1" CALIPER OF THE TREE. INSTALL
 ORANGE CONSTRUCTION FENCE ON TOP OF THE 2X4 FENCING FOR SAFETY.
- 2. ALL TREE PROTECTION MEASURES SHALL CONFORM TO ALL ORANGE COUNTY LAND DEVELOPMENT
 REGULATIONS
- REGULATIONS.
 3. DO NOT STORE ANY PETROLEUM PRODUCTS, SOLVENTS, OR ANY CHEMICALS WITHIN THE
- DO NOT STORE ANY MECHANICAL EQUIPMENT OR GANGBOXES WITHIN THE PROTECTION ZONE.
 DO NOT PARK ANY CONSTRUCTION VEHICLES, TRUCK, FOUR WHEELERS, PROJECT GOLF CARTS, ETC.
- WITHIN THE PROTECTION ZONE.

 6. DO NOT THROW TRASH INTO OR STORE TRASH RECEPTACLES WITHIN THE TREE PROTECTION ZONE.

 7. THE PROTECTION ZONE SHALL NOT BE USED AS A LUNCHEON AREA FOR ANY CONSTRUCTION.
- THE PROTECTION ZONE SHALL NOT BE USED AS A LUNCHEON AREA FOR ANY CONSTRUCTION WORKERS ON THE JOB SITE.
- DO NOT STORE ANY PORT-O-LETS OR TEMPORARY ONSITE RESTROOM FACILITIES WITHIN THE PROTECTION ZONE.

TREE PROTECTION DETAIL



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TELEPHONE 407-629-4288 FACSIMILE 407-629-1656 • EB# 7080

Seal: Majid Kalaghchi P.E. 41046

LANDSCAPE ARCHITECTURE

Winter Park, FL 32789
Phone: (407) 647-8070
www.murraysitedesign.com

SE COUNTY PARK MULTI-PURPOSE FIELDS
COUNTY PARKS + RECREATION

CONCEPT PLAN REVIEW 07-08-16

PRELIMINARY SITE PLAN 8-9-16

30% DESIGN DEVELOPMENT 09.22.16

60% DESIGN DEVELOPMENT 11.02.16

BID SET SUBMITTAL 12.16.16

PERMIT SET SUBMITTAL 1.9.17

—ADDENDUM 3	1-19-17

Issue Date and Purpose
Project

Drawn by:
R. Murray
Checked:
R. Murray
File No:

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. IRRIGATION SYSTEM: Section 02960

approval for such permit.

1.03 QUALITY ASSURANCE

A. REFERENCE SPECIFICATIONS AND STANDARDS 1. Standards as established by the Florida Nursery Growers Association (FNGA).

found damaged or root bound are to be rejected prior to planting.

B. TESTS AND INSPECTIONS

1. Plants shall be subject to inspection and approval of the Owner's representative at place of growth and/or upon delivery for conformity to specifications. Such approval shall not impair the right of inspection and rejection during progress of work. Inspection and tagging of plant material by Owner Representative's approval of the plant material in regards to their health and vigor. The health and vigor of the plant material is the sole responsibility of the Contractor. Trees that are

2. The Landscape Contractor shall be responsible for proper plant growth in existing on-site soils. Prior to commitment of plant shipments, the Contractor shall examine the soils in all areas of work by conducting soil tests and filling test holes with water to determine if soil chemistry and drainage is satisfactory. Any unsatisfactory conditions shall be brought to the immediate attention of the Owner's Representative for possible remedial action or plant material substitutions. The Owner's Representative reserves the right to make changes or substations in plant type or quantities for the purposes of insuring proper plant growth. Any failure of plant material during the warranty period due to soil conditions shall be the responsibility of the Landscape Contractor.

3. The Landscape Contractor shall test the irrigation water source to verify that the quality of water is suitable for the plant material prior to planting. Any findings of unsuitable water shall immediately be brought to the Landscape Architect and owner's Representative attention for a solution. Any failure of plant material during the warranty period due to water source shall be the responsibility of the Landscape Contractor.

1. All planting shall be performed by personnel familiar with planting procedure and under supervision of a qualified planting foreman.

2. All work shall comply with applicable codes and regulations 3. The work shall be coordinated with other trades to prevent conflicts.

1.04 SUBMITTALS

A. Submit documentation to Owner's Representative within fourteen (14) days after award of Contract, indicating quantities of plant material, availability and source of plant material. Contractor shall be responsible for all material listed on the plant list unless noted otherwise. Any and all substitutions due to unavailability must be requested in writing prior to confirmation of ordering.

B. All material shall be subject to inspection and approval by Owner's Representative. Contractor shall coordinate a material tagging trip with the Landscape Architect for all tree, specimen and accent materials as indicated in the pre-construction meeting.

1.05 PROJECT CONDITIONS A. Sequencing: Do not commence planting until site grading, soil import, and preparation has been completed. B. Inspect and approve all sprinkler work and finish grading prior to the start of shrub and groundcover planting as specified. Trees may be planted in advance of irrigation system installation provided adequate provision is made for interim watering at the Contractor's own expense.

A. The Contractor shall guarantee all tree and shrub/groundcover plantings for a period of twelve (12) months, and all sod for six (6) months after the date of final acceptance. During this period, the Contractor shall continue the observation of plants and guarantee work. The Contractor shall submit monthly observation reports to the Owner with a copy to the Landscape Architect during the guarantee period. The purpose of these reports is to state any maintenance deficiencies observed. It is the Contractor's responsibility to report these to protect his guarantee. Failure to submit reports eliminates any claims that the guarantee is not valid due to improper maintenance

B. Replacement of Defective Plants: Any dead plants or plants showing indication of probable non-survial or lack of health and vigor, or which do not exhibit the characteristics to meet specifications, shall be replaced within two weeks of notice from Owner or Landscape Architect. All replacement plants shall be furnished/ installed at no additional cost to the Owner and shall be guaranteed for a period of twelve (12) months for all tree and shrub/groundcover replacements and for six (6) months for the replacement of sod after the date of the replacements. All replacements shall meet original specifications.

C. The Contractor shall notify the Owner and Landscape Architect ten days prior to the end of the guarantee period and such guarantee shall be extended until notification is received. D. At the end of the guarantee period, all plants that are dead or in unsatisfactory growth shall be

1.07 PRODUCT HANDLING

replaced within two weeks.

 A. Delivery Plant transportation shall comply with all Federal and State regulations. Deliver fertilizer to site in original unopened containers bearing manufacturer's guaranteed

chemical analysis, name, trademark and conformance to State Law. The Contractor shall furnish Owner's Representative receipts for all amendments Deliver all plants with legible identification labels.

a. Label trees, evergreens, bundles of containers of like shrubs or groundcover plants. b. State correct plant name and size indicated on plant list. c. Use durable waterproof labels with water-resistant ink, which will remain legible for at

Protect plant material during delivery to prevent damage to root ball or desiccation of leaves. The Contractor shall notify the Owner's Representative three (3) days in advance of delivery of all plant materials and shall submit an itemized list of the plants in each delivery.

Store plant material in shade and protect from weather.

C. Handling: The Contractor is cautioned to exercise care in handling, loading, unloading, and storing of plant materials. Plant materials that have been damaged in any way shall be discarded.

If they have been installed, they shall be replaced.

1.08 VERIFICATION OF DIMENSIONS AND QUANTITIES

A. All scaled dimensions are approximate. Before proceeding with any work, carefully check and verify all dimensions and quantities. Immediately inform the Owner's Representative of any discrepancies between the Drawings, Specifications, and actual conditions. Do not do work in any area where there is a significant discrepancy until approval to proceed has been received from the Owner's Representative.

1.09 OWNER TAGGED MATERIALS A. Contractor shall leave all tags on material previously tagged by the Owner's Representative until final acceptance.

1.10 JOB CONDITIONS

A. Protection: The Landscape Contractor shall protect all materials and work against injury from any causes and shall provide and maintain all necessary safeguards for the protection of the public. He shall be held responsible for any damage or injury to person or property, which may occur as a result of his negligence in the prosecution of the work.

1.11 PRODUCT HANDLING A. Existing Conditions:

> 1. The Landscape Contractor shall exercise care in digging and other work so as not to damage existing work including, but not limited to, plant material, irrigation materials, underground pipes and cables, and the pipes and hydrants of watering systems. Should such overhead or underground obstructions be encountered which interfere with planting, the Landscape Architect shall be consulted and will adjust the location of plants to clear such obstruction. The Landscape Contractor shall be responsible for the immediate repair of any damage caused by

> 2. Should any objectionable materials such as old concrete, bricks or other debris be encountered during planting operations, the Landscape Contractor shall bring it to the attention of the Owner to coordinate removal of the material from the site. 3. The Landscape Contractor shall be responsible for proper plant growth in existing on-site soils. Any unsatisfactory conditions shall be brought to the immediate attention of the

> Landscape Architect for possible remedial action or plant material substitutions. The Owner/Landscape Architect reserves the right to make changes or substitutions in plant type or quantities for the purposes of insuring proper plant growth.

1.12 SAMPLE AND TESTS A. Owner's Representative reserves the right to take and analyze samples of materials for

conformity to specifications at any time. Contractor shall furnish samples upon request of Owner's Representative. Rejected materials shall be immediately removed from the site at Contractor's expense. Contractor shall pay cost of testing of materials not meeting specifications. Include quantity of tests to be included as a part of bid.

PART 2.00 PRODUCTS

2.01 MATERIALS A. GENERAL

1. Nomenclature: All trees, shrubs and plants shall be true to name as established by the American Joint Committee on Horticultural Nomenclature publication "Standard Plant Names". The designated authority for the identification of all material shall be the two publications of L.H. Bailey, "Hortus III" and "Manual of Cultivated Plants", and all specimens shall be true to type,

2. Grade Standards and Quality: All plants shall be nursery grown and shall comply with all required inspection, grading standards and plant regulations as set forth in the Florida Department of Agriculture "Grades and Standards for Nursery Plants", Parts 1 and 2 includin

a. The minimum grade for all trees and shrubs shall be Florida No. 1 unless otherwise indicated and all plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall have healthy, well-developed root systems and shall be free of disease and insect pests, eggs or larvae.

a. The minimum acceptable size of all plants, measured after pruning, with branches in normal positions, shall conform to the specified sizes as shown on the plans. Sizes specified are minimum standards. Plants shall be equal to or larger than all categories (height, spread caliper, container) of size specification. Substantial deviations from these measurements must on the plans. Sizes specified are minimum standards. Plants shall be approved by Landscape Architect. Caliper of tree trunks shall be measured one foot above root ball for trees under 6 inches in caliper.

b. Clear trunk of all types of palms shall be measured from the finished grade to the beginning of the fronds. The booted portion of the head of the palm shall be in proportion to the

4. Plant Protection: Plants shall be protected upon arrival at the site, by being thoroughly watered, kept moist, and properly maintained until planted.

B. PLANT MATERIALS: In reference to method of cultivation, root system status, plants for landscaping shall be classified under the following designations:

 Container Grown Plants: a. Container grown plants shall have been grown in a container large enough and for sufficient time for the root system to have developed well to hold its soil together firm and whole. No plants shall be loose in the container. Plants, which have become root bound or for which

the system is too large for the size of the container, will not be acceptable. b. All containers shall be cut and opened fully, in a manner such as will not damage the root system. Container grown plants shall not be removed from the container until immediately before planting, when all due care shall be taken to prevent damage to the root system. c. Any container grown material that was previously tagged for the job by the Owner/Landscape Architect shall have the locking tag visible on the tree until substantial completion has been awarded.

Balled and Burlapped Trees: a. Plants so classified shall be dug with firm natural root balls of earth coming from singular climatic and soil conditions as those on the project site and of sufficient diameter and depth to include most of the fibrous roots. The root ball of these plants shall be properly wrapped with burlap sack material and remain protected and wet until they are planted. The plant shall be handled only by the earth ball and not by the plant itself. All balled and burlapped plants which cannot be planted immediately upon delivery shall be set on the ground and shall be well protected with soil, wet soil, wet moss, or other acceptable material. The plants shall be set with the burlap cover intact and with the burlap showing, until final inspection. Burlap: Shall be pure burlap, 100% organic material with the ability to decompose.

c. Roots Plus: All Oak trees classified as balled and burlap shall be tagged as a roots plus

product and the tag shall remain until substantial completion has been awarded. Any

material previously tagged at a nursery by the Owner/Landscape Architect shall have the

nursery's locking tag visible on the three until substantial completion has been awarded. Bare Root Plants: No bare root plants shall be used unless otherwise specified. 4. Grow Bag Plants: No grow bag plants shall be used.

C. Planting Materials:

a. Topsoil shall be a friable loam, typical of cultivated topsoils locally, containing at least 5 percent of decayed organic matter (humus). It shall be taken from a well-drained, arable site. It shall be reasonably free of weeds, subsoil, stones, clods, sticks, roots or other objectionable extraneous matter or debris. It shall not contain toxic materials and shall have an acidity range of pH 6.0 to 7.0 Topsoil from nut grass infested areas will not be

acceptable. b. Soil testing shall be performed and analyzed by a laboratory registered by the state. Testing shall include fertility and suitability analysis with written recommendations for fertilizer or amendments, which shall take precedence over rates or analysis specified in this section. Soil testing shall be the Contractor's responsibility. Submit test results to the Landscape Architect and owner for review.

Soil tests for sports fields shall have diagram for testing locations (15) individual soil tests per field. Sample shall not be conglomerated into one sample. Each sample shall be tested individually. With 30 total tests and results conglomerated into a single report showing recommendations for each of the 30 sample locations. Each report shall be graphically

referenced back to plan sample location diagram. c. Soil Preparation: Prior to placing mix and backfill, or commencing with planting, rototill any or all areas that have been previously compacted over 90 percent for other construction 2. Fertilizer: Fertilizer shall be a complete balanced blend formula, of which part of the elements

shall be derived from organic sources. It shall contain nitrogen and potassium as well as recommended micronutrients such as magnesium, iron, copper, zinc, boron, and manganese in Nitrogen shall be applied over all turf, shrub and tree areas at a rate of 1 pound per 1,000 square feet. The complete fertilizer analysis shall be approved by the Landscape Architect and

3. Weed Control: All planting beds shall be treated with the pre-emergent Treflan, as manufactured by Elanco Products Company, Division of Eli-Lilly Company, Indianapolis, Indiana, or equal. Contractor shall apply the pre-emergent prior to mulching as per manufacturer's

4. Mulch: Wood mulch shall be pine nugget mulch, grade #1, clean, bright and free of weeds, moss, sticks and other debris. Water: Suitable water for the irrigation of the new plantings during the progress of construction shall be provided and provided and paid for the by the Contractor, who shall also furnish

6. Stakes and Ties: Stakes and tree ties shall be provided in accordance with the requirements of Paragraph 3.03.C19 hereinafter.

PART 1 - GENERAL

adequate watering equipment.

1.1 RELATED DOCUMENTS A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION OF WORK A. This section includes the furnishing and installation of grassing materials at areas indicated on the

drawings. B. Soil preparation.

C. Soil placement and fine grading. D. Soil testing.

E. Soil amendments as recommended by soil test results.

F. Soil treatment with pre-emergent and post-emergent herbicides. G. Maintenance/grow-in program to include the furnishing and installation of fertilization, herbicides and insecticides and all necessary maintenance including mowing and hand weeding. Re-application of grassing materials as necessary to insure a healthy, dense, weed- free stand of

H. Coordination with irrigation system installation/adjustment as shown on plans and as specified in LI.01, LI.02 and LD.01 - PLANTING IRRIGATION for purposes of continued watering for turf establishment and adjustment of heads in relation to turf height to prevent head damage during

1.3 QUALITY ASSURANCE

A. Comply with regulations of all governing agencies when applying herbicides and pesticides. Applications shall follow manufacturer instructions.

B. Grassing shall be performed by a turf specialist knowledgeable with climate conditions and planting requirements of the geographical area and whose work has resulted in successful lawn establishment. Installer shall maintain an experienced full-time supervisor on the project site when grassing operations are in progress. C. Installation equipment shall be properly maintained, professional grade, and employed so as not

damage to turf or field incurs. D. A.S.P.A. (American Sod Producers Association) - Guideline Specifications to Sodding. E. Athletic Fields: Design, Construction and Maintenance by the University of Florida - Institute of

Food and Agricultural Sciences (IFAS) - Bulletin #202. 2009 Pest Control Guide for Turfgrass Managers by the University of Florida/IFAS F. Root zone Construction: Standard Guide for Construction of High Performance Sand-Based Root

zones for Athletic Fields ASTM Designation: F2396-11 G. Root zone coarse sand report: Submit analysis report for the mix specified in PART 2 -

MATERIALS. 1. Before delivery of root zone coarse sand (USGA Construction Sand), furnish a soil analysis produced by a licensed qualified soil testing laboratory confirming compliance with the specified horticultural requirements. This soil analysis shall include percentages of organic matter (including, but not limited to, silt, clay and organic content) and present levels of

phosphorous, potassium and acidity (pH). 2. The analysis shall also include the infiltration rate performance in inches per hour. A range of 10 to 20 inches per hour is required. 3. Provide a complete laboratory analysis of the fill placed beneath the root zone coarse sand

prior to the delivery of the sand to the site. That analysis shall include particle size, ph, and percentages of sand, silt, clay and organic matter. Deliver the analysis to the Owner's Representative, project engineer and the project landscape architect. H. All sod specified herein shall be certified Tifway 419 Bermuda grass. Provide sod source including

name and telephone number of sod farm. 1.3 QUALITY ASSURANCE A. Comply with regulations of all governing agencies when applying herbicides and pesticides.

Applications shall follow manufacturer instructions. B. Grassing shall be performed by a turf specialist knowledgeable with climate conditions and planting requirements of the geographical area and whose work has resulted in successful lawn establishment. Installer shall maintain an experienced full-time supervisor on the project site when grassing operations are in progress.

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10 to 20 inches per hour is required. 3. Provide a complete laboratory analysis of the fill placed beneath the root zone coarse sand prior to the delivery of the sand to the site. That analysis shall include particle size, ph, and percentages of sand, silt, clay and organic matter. Deliver the analysis to the Owner's Representative, project engineer and the project landscape architect.

H. All sod specified herein shall be certified Tifway 419 Bermuda grass. Provide sod source including name and telephone number of sod farm.

1.4 DELIVERY, STORAGE; & HANDLING

when in use on-site and keep away from public.

A. Deliver, store, protect and handle products to site under provisions of Division 1. B. Do not deliver more grassing materials than can be installed within 24 hours of delivery. C. Store all chemicals off-site. Keep all pesticides, herbicides and fertilizers in a secure area

A. Coordinate work under provisions of Division 1. B. Coordinate installation of underground sprinkler system, piping and heads. C. Utilities: Determine location of underground utilities and perform work in a manner which will

avoid possible damage. Hand excavate, as required.

1.6 JOB CONDITIONS

 A. Planting time: Best to install sod during the active growing season. B. When work on the project has progressed sufficiently to commence root zone placement and planting, then the planting operations shall be conducted only under favorable weather conditions which are normal for such work as determined by accepted sports field sodding

A. Provide a 90 day warranty from the date of final completion and acceptance. After a period of ninety days a warranty inspection will be performed by a certified agronomist approved by the County at the expense of the contractor. The warranty inspection will be performed to

infestations, contamination by other grass species, overall color of the turf and general health. B. If during the warranty and replacement period any of the turf is found to be damaged or destroyed due to vandalism, poor maintain practices, over-use, malicious mischief and/or vehicle rutting, then the responsibility of replacing those grass areas is not that of the

determine the health of the turf including the presence of any noxious weed growth, insect

A. Weeds: Includes Torpedograss, Bahiagrass, St. Augustine, Nut Sedge, Dandelion, Goosegrass, Dollar Weed, Quackgrass, Dogfennel, Horseweed or Marestail, Morning Glory, Rushes, Common Bermuda, and any other weed or grass noted in "Weeds of Southern Turfgrasses", as published by the University of Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences.

B. Submit manufacturer data on herbicides, pesticides and fertilizers.

C. Submit maintenance/operation instructions for continuing Owner maintenance. Include seasonal cutting instructions and height, watering rates, soil amendment, fertilization, herbicide and insecticide application rates and frequencies.

2.1 ROOT ZONE COARSE SAND (USGA Construction Sand)

A. The contractor shall provide an 8" deep layer of root zone coarse sand, which shall be noncalcareous, clean and processed meeting the following criteria:

Sleve Diameter of Allowable Range Percent the Coarse and Medium range

No more than 10% including 3% fine gravel combined for sieve meshes 10 and 18. Combined fractions no more than 10% for materials less than or equal to 0.05 in size.

B. Topsoil shall be a loamy sand, sandy loam, clay loam, loam, silt loam, sandy clay loam or other soil approved by the County's representative. It shall not have a mixture of subsoil and shall contain no slag, cinders, stones, lumps of soil, sticks, roots, trash or other extraneous materials larger than 1.5 inches (40 mm) in diameter. Topsoil must also be free of viable plants or plant parts of common Bermuda grass, quack grass Johnson grass, nut sedge, poison ivy, Canada thistle, or others as may be specified. All topsoil shall be tested by a reputable laboratory for pH and soluble salts. If needed, pH correction material shall be applied at a rate sufficient to correct the pH to a range of 6.0 to 7.0. Soluble salts shall not be higher than 500 parts per million.

C. The root zone sand shall be free of any and all toxic substances, grass, roots, weeds, stones, weed seeds and insects.

D. The final ph shall be between 6.0 and 7.0 E. Organic matter shall be no more than 1% or as specified by an agronomist.

2.2 FERTILIZER:

A. Fertilization is specified in Section 3.1.B 2.3 HERBICIDES/INSECTICIDES/PESTICIDES/SOIL FUMIGANTS:

A. "Roundup" (Glyphosate) post-emergent herbicide, to kill emergent weeds prior to placement of root zone mix and as otherwise required. B. Delay the use of post emergent herbicides as long as possible, and for at least the first four weeks, to allow the turf to become established. "Monument" may be used for nutsedge

C. "Ronstar" pre-emergent herbicide. D. Pesticides: Sod Webworms, Mole Crickets - "Orthene". Fire Ants: "Amdro". E. Apply herbicide to all weeds or grassed areas to be removed. Apply when wind speeds are

below 5 mph and minimize any drift or overspray onto the landscaping to remain. Utilize a sticker/spreader to enhance performance of herbicide if recommended by manufacturer. Thoroughly wash any new or existing plant foliage that is prayed with herbicide and replace any plants killed or damage by the misuse of herbicides.

after light rolling and natural settlement. Allow for turf thickness where turf is adjacent to G. Provide testing of topsoil. Provide representative samples from each turf areas as shown on the plan diagrams (15 individual samples per field as shown on the plan). Each sample shall be tested individually and a recommendation report shall be generated for each sample taken. The samples shall not be aggregated together for composite sampling. The collection and testing of the samples as required shall be performed at the contractor's sole expense.

F. Spread topsoil to minimum depth required to meet lines, grades, and specified elevations

The comprehensive report shall be provided to the owner and its agent at the completion of H. The objective of pre-planting fumigation shall be to kill nematodes, soil-borne fungi and insects, and effectively kill plant propagules such as Bermuda grass stolons and rhizomes, nutsedge tubers and most broadleaf and grassy weed seeds.

A. Sod shall be Tifway 419 Bermuda grass. All sod shall be "Blue Tag" certified turf grass from a certified Bermuda sod grower. Any and all replacement sod required for repairs shall be from the same grower to maintain consistent color, texture and density.

1. Sod shall be strongly rooted Tifway 419 Bermuda sod, true-to-type, high quality grass which has been propagated in a controlled cultural environment, grown on fumigated farms not less than two years old, free of noxious weeds and undesirable native grasses. Provide only sod capable of vigorous growth and development when planted (not

2.5 Thickness of Cut: Turfgrass sod shall be machine cut at a uniform soil thickness of 0.60 inch (15 mm), plus or minus 0.25 inch (6 mm), at the time of cutting. Measurement for thickness shall exclude top growth and thatch. 2.6 Pad Size: Individual pieces of turfgrass sod shall be cut to the supplier's standard width and

length. Maximum allowable deviation from standard widths and lengths shall be plus or minus 0.5 inch (15 mm) on width and plus or minus five percent on length. Broken pads and torn or uneven ends will not be acceptable.

2.7 Strength of Turf Sod Sections: Standard size sections of turfgrass sod shall be strong enough that it can be picked up and handled without damage. 2.8 Moisture Content: Turfgrass sod shall not be harvested or transplanted when its moisture

content (excessively dry or wet) may adversely affect its survival. 2.9 Mowing Height: Before harvesting, the turfgrass shall be mowed uniformly at a height of 1 to 2.5 inches (25 to 60 mm) on cool season grasses (i.e., bluegrass, bentgrass, rve and fescue), and 0.75 to 1.50 inches (20 to 40 mm) on warm season grasses (i.e., zoysia grass,

2.10 Time Limitations: Turfgrass sod shall be harvested, delivered and installed/transplanted within a period of 24 hours, unless a suitable preservation method is approved by owner prior to delivery. Turfgrass sod not transplanted within this period shall be inspected and approved by the inspecting officer or his representative prior to its installation.

PART 3 - EXECUTION

Bermuda grass, St. Augustine grass, etc.)

3.1 Grading and Drainage A. Construct and Prepare Subgrade--Contour the sub- grade in accordance with specifications at a suggested tolerance of 612.5 mm (1/2 in.) within 3 m (10 ft) of linear direction as specified in 5.5.6. The subgrade should be installed at a depth such to accommodate the final profile depth of root zone and any gravel layer (if included). The subgrade should be compacted sufficiently (suggested 85 % minimum to 90 % maximum proctor density) to prevent future settling. Subgrade should be designed to conform to surface contour of finished playing

B. Surface Drainage--To maintain adequate surface drainage, all field installations should

include a minimum of 0.5 % slope gradient (simple slope or crown) to remove water off of

the playing field in case of a storm event with severe rainfall intensity and to facilitate the use of tarps. It is recommended that an adequate number of small size surface drainage inlets be installed in the perimeter of the installation (in out-of-play areas) and tied into the drainage collection system for removal of surface runoff with the subsurface drainage water. NOTE --In planning and designing projects, consideration shall be given to the permeability of the root zone when determining the slope of the finished surface and the need for adjacent surface drainage systems. Further consideration shall be given in cold climates where frost penetration may impact the permeability of the root zone when determining the slope of the

finish surface and the need for adjacent surface drainage systems. Generally, the need for improved surface drainage increases as the permeability of the root zone decreases.

A. Placement: place 8" of root zone coarse sand to achieve final elevations indicated on

engineer's grading plans. B. Fumigate/sterilize soil after tillage and topsoil placement but before final grading. Apply fumigant per label instructions in order to meet objective noted above. Allow sufficient time

after soil fumigation before commencing planting operations so turf is not damaged. C. Areas to be sodded shall be cultivated to a depth of 4" below finish grade and treated with colloidal phosphate at a rate of one cubic yard per 1,000 square feet and dolomitic limestone at a rate of two tons per acre (if recommended by soil test results). Limestone, colloidal phosphate and fertilizer shall be thoroughly incorporated into the top 4" of soil with other soil amendments as recommended by soil test results and as approved by the County representative. Prior to planting, the soil pH shall be between 6.0 and 7.0.

D. Place fertilizer at a ratio of 1-2-4 (example 5/10/20 formulation). The nitrogen source shall be slow-release urea-formaldehyde applied at 1 lb. of nitrogen per 1,000 sq. ft. of turf. The starter fertilizer shall contain a basic micro-nutrient package.

E. All soil amendments shall be uniformly incorporated into the top 4" of soil. Rototill or mix 2" of

the coarse sand to 2" of depth of soil prior to placement of final lift of 6" of coarse sand. Place the remaining 6" of coarse sand. Rototill all areas to receive the Bermuda sod in two passes in the same direction. F. Provide grades to the elevations indicated on the engineer's plan. Compact to 92% of the maximum dry unit weight according to ASTM D1557.

G. Final Grading: Remove all construction debris, vegetation, roots, rocks, weeds, depressions, undulations and irregularities. Smooth the surface with a trap rake machine with drag. Apply a pre-emergent herbicide/fertilizer (15-0-15) application (Ronstar .67% Oxadiazon), per manufacturer's instructions at the rate of 300 lbs. /acre, just prior to grassing installation.

3.3 Sod Planting & Grow In Maintenance

surface, unless equipped with turf-type tires.

A. No turfgrass sod shall be placed on soil which has been chemically treated until sufficient time has elapsed to permit dissipation of all toxic materials. Contractor shall assume full responsibility for any loss or damage to turfgrass sod arising from improper use of chemicals or due to his failure to allow sufficient time to permit dissipation of toxic residues, whether or not such materials are specified herein. B. No heavy machinery such as tractors, hydrospray tanks, or trucks should be allowed on the

C. Moistening the Soil: During periods of higher than optimal temperature for the species being specified, and after all unevenness in the soil surface has been corrected, the soil shall be <u>lightly</u> moistened immediately prior to installation of the turfgrass sod. D. Sodding: Sod to be installed in 48" rolls. Sod must be planted within 24 hours of harvesting.

E. Starter Strip: The first row of turfgrass sod shall be laid in a straight line, with subsequent rows

Lay sod in straight lines butted tightly together without stretching.

placed parallel to and tightly against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Care shall be exercised to insure that the pieces are not stretched or overlapped and that all joints are butted tightly to prevent voids that would cause air drying of the roots. F. Sloping Surfaces: On 3:1 or greater slopes, traditional size (1 sq yd / 1 sq m) turfgrass sod shall be laid across the angle of the slope (perpendicular), with staggered joints and secured

by tamping, pegging, stapling or other approved methods of temporarily securing each piece. Large-roll turfgrass sod shall be laid in the direction of the slope, with temporary securing being at the discretion of the installation contractor. G. Swales and Intermittent Waterways: The installation of turfgrass sod within drainways or intermittent waterways shall be determined after considering maximum channel velocities for storms of a designated intensity. Traditional size turfgrass sod shall be laid perpendicular to the direction of flow and pegged to resist washout during the establishment period, while

discretion of the installation contractor. H. Watering and Rolling: The installation contractor shall water the turfgrass sod immediately after transplanting to prevent drying. As sodding is completed in any one section, the entire area shall be lightly rolled. It shall then be thoroughly watered to a depth sufficient to ensure the underside of the new sod pad and soil immediately below the pad are thoroughly wet. The general contractor shall be responsible for having adequate water available at the site prior to and during installation.

I. Hand Topdressing: After the field has dried, hand topdress any cracks between sod caused

large-roll pieces shall be laid in the direction of the flow, with temporary securing being at the

by shrinkage. Allow four weeks for rooting prior to using the field for traffic and/or play. J. Fertilization: After planting, new turf grass shall be fertilized as required. The nitrogen source during grow-in will be mostly water soluble (21-0-0 and 15-0-15). Potassium and nitrogen shall be added in a balanced ratio (15-0-15), alternating every seven days with 21-0-0. Apply four weekly applications of fertilizer (two 15-0-15 and two 21-0-0 at the rate .50 lbs. nitrogen/potassium/1,000 sq. ft.) for the first 30 days of grow-in. Micro nutrient sprays of iron, magnesium and manganese shall be applied to aid in turf establishment. Supplemental liquid potassium and iron (such as 0-0-28, plus iron) shall be applied every two weeks in conjunction with an insecticide application, if insects are active. Any and all granular fertilizations shall be watered-in immediately to avoid foliar turf grass burn.

K. Mowing: Use reel mowers with sharp blades. The first mowing shall not be attempted until the

turfgrass sod is firmly rooted and securely in place. Provide first mowing when Bermuda

grass reaches one inch height, just after the field has been rolled with a 2.5 ton double steel drum, then reduce the height over time until the turf grass becomes established at 3/4" height. Continue to mow as long as grass clipping are observed (generally 2-3 times/week). Do not mow when the turf grass is extremely wet to avoid tire rutting. L. Weed control: Use of post-emergent herbicides for control of grassy weeds should be discouraged and avoided the first four weeks. Certified "Blue Tag" sod is guaranteed to be weed and insect free, therefore post-emergents should not be needed. Use "Monument" to control nutsedgegrass after the initial four week grow-in period. Delay herbicide applications as long as possible to allow the turf grass to become well established. Hand pulling of weeds shall be conducted if only a few weeds are present however, if many weeds emerge, the use

of selective post-emergent herbicides may be required. For the first 2-3 weeks care not to

operate any heavy equipment on the newly installed sod for fear of tire rutting the field. Turf tired tractors can be used, but not on saturated soils. Apply fertilizers and pesticides on dryer fields, if at all possible initially. M. Maintenance Rolling: Sodded areas shall be rolled throughout the grow-in period to push roots into the soil, to settle or "firm" the root zone and to smooth the surface to prevent mower scalping. Weekly rolling should be performed until the eventual permanent mowing height is

N. Field Topdressing: The fields should be broadcast sand topdressed using USGA construction sand, the last week of the grow-in period in order to achieve consistent coverage of exposed O. Pest Control: The fields shall be kept insect free (sod web worms, fire ants and mole crickets)

during the grow-in period. P. Clean-up: All excess soil, grass materials, stones, and other waste shall be removed from the site daily and not allowed to accumulate. Paved areas must be kept clean at all times. Q. Grow-in maintenance: The Contractor shall provide grow-in maintenance of turf to extend for 30 days after placement of all turf and playing fields or until Certificate of Occupancy has been issued, whichever is longer. Maintenance shall begin immediately upon placement of the sod and shall continue until final acceptance inspection of entire project is held. Maintenance shall include watering, fertilizer applications mowing, pesticide applications,

rolling, topdressing, replanting, and all other work necessary to produce a uniform, pest-free, weed-free and healthy turf playing field. 4 Watering: The general contractor shall supply adequate water to the site. The single-most important factor in the successful rooting of newly installed turfgrass sod is adequate, regular watering. Watering should begin immediately after installation. The amount of water required will vary depending upon season, weather, temperature, wind, slope and turfgrass variety. The general contractor shall designate the party responsible to ensure adequate water

supply and application. 4.1 First Week: The contractor shall provide all labor and arrange for all watering necessary for rooting of the turfgrass sod. Soil on sod pads shall be kept moist at all times. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least 4 inches (100 mm). Watering should be done during the heat of the day to prevent wilting. No watering shall

to maintain adequate moisture in the upper 4 inches (100 mm) of soil, necessary for the

take place at night. The contractor shall have the irrigation water tested to assure it's acceptability for use on Bermuda sod. 4.2 Second and Subsequent Weeks: The contractor shall water the turfgrass sod as required

5 Irrigation: The fields shall be irrigated immediately after installation with enough water to keep the root zone mix moist at all times without being saturated. 5.1 GUARANTEE AND REPLACEMENT

promotion of deep root growth.

5.3 INSPECTION AND REVIEW:

promptly from project site.

5.4 REQUEST FOR FINAL ACCEPTANCE

B. The General Contract warrantee period shall also include field grading and/or settlement, sod viability, and all other aspects of installation.

A. Replacement of sod necessary during the grow-in maintenance period shall be the

5.2 FINISHING: A. During grassing work, keep pavements clean and work area in an orderly condition at all

A. When grass work is completed, the Owner's Representative or landscape architect will, upon request, make an inspection to determine acceptability to commence 30 day grow-in/guarantee period. B. When inspected sodding work does not comply with coverage, weed-free or insect-free requirements, replace rejected work and continue specified maintenance until re-inspected by

the Owner's Representative and found to be acceptable. Remove rejected grassing materials

A. At the end of a minimum 30 day grow-in period the Contractor shall submit to the Owner a

written request for acceptance of the field turf. The request shall be submitted at least ten days prior to the anticipated date of acceptance. When inspected grassing work does not comply with coverage or weed requirements, replace rejected work and continue specified maintenance until re-inspected by the County representative or landscape architect and found to be acceptable. Remove rejected plants and grassing materials promptly from project site. B. If Acceptance is denied, the contractor shall utilize all methods necessary to achieve 5.5 PROTECTION:

A. Protect grassing work and materials from damage due to grassing operations, operations by other Contractors and trades and trespassers. Maintain protection during installation and maintenance periods. Protect sodded areas against damage from erosion as required. Treat, repair or replace damaged grass work as directed. Replace/repair turf areas damaged by improper use of fertilizers, herbicides, insecticides, fungicides, nematicides or other

B. When applying herbicides, insecticides, fungicides or pesticides/nematicides coordinate use with university personnel. Post signs when chemicals are in-use or when areas are to be off limits to students or university personnel. Contractor shall assume responsibility for protecting public when chemicals are present or in use on project site.

PART 3.00 EXECUTION

maximum slope.

c. Puncture Vine

d. Morning Glory.

e. Johnson Grass.

A. Insure that final grades to +/- 0.61m (0.1') have been established prior to commencing planting operations. Provide for inclusion of all amendments, settling, etc. Landscape Contractor shall be responsible for finish grading all planting areas as indicated on Civil Engineer's plans and as directed by the Owner's Representative. B. Inspect trees, shrubs and liner stock plant material for injury, insect infestation and trees and

C. Do not begin planting of trees until deficiencies are corrected or plants replaced.

3.02 PREPARATION

grading plans and the Owner's Representative

job site. or other site inspections, and in all cases:

shall be normal stock for type listed.

All planted areas to be planted shall be loosened to 30cm (12") except 2:1 or steeper slopes. 2. Soil to be used for planting shall be free of rocks over 1.5cm (1/2") in diameter, and free of foreign debris, refuse, plants or roots, clods, weeds, sticks, solvents, petroleum products concrete, base rock, or other deleterious or extraneous material. Soil shall be free of soil-borne diseases and capable of sustaining healthy plant life. Materials not meeting these specifications shall be removed. Aesthetic Grading:

aesthetic grading plans 2. Fill dirt, if required, shall be locally obtained material from naturally drained sources, free from dry, organic debris, stones larger than 1-inch diameter and other materials harmful to successful drainage and plant growth. Soil shall be well mixed and contain no more than 25

3. Berms shall be gently rolling and parabolic with uniform levels or slopes with no more than 4:1

Contractor shall be responsible for regarding of ponds and berm grading as indicated on the

4. Contractor shall contact the Landscape Architect for approval of all aesthetic grading prior to any planting. Minor grading modifications may be required to establish the final grades.

2. Finished grading shall insure proper drainage of site as determined by the civil engineer's

3. All areas shall be graded such that final grades will be 5cm (2") below adjacent paved areas, sidewalks, valve boxes, headers, clean-outs, drains, manholes, etc. or as indicated on 4. Surface drainage shall be away from all structure foundations at 1/4" per foot to aid in water

5. Remove or redistribute excess soil before application of fertilizer. Make allowances when

6. Weeding: Before and during preliminary and finish grading, dig out all weeds and grasses by the roots and dispose-of off the site. Grasses not of the perennial type less than 2-1/2" high and not bearing seeds, may be turned under. Perennial weeds and grasses to be removed include, but are not limited to the following: b. St. Augustine.

establishing finish grades for earth excavation from planting pits and mulch.

7. Trenches: If sprinkler system has been installed after grading and fertilizing has been completed, re-till the trench backfill and fertilize to the depth specified for the area, to conform to specified requirements. 8. Eliminate all erosion scars prior to commencing maintenance period.

. Also remove other noxious or invasive weeds encountered on the site.

approved by Owner. 3.03 MATERIALS CONDITION A. All plant materials shall be approved by the Owner's Representative as they are delivered to the

Disposal of excess soil: Dispose of any unacceptable or excess soil at an off-site location

healthy and vigorous growth; free from plant disease, insect pests, or their eggs; and with healthy normal root systems well filling their containers, but not to the point of being rootbound Plants shall not be pruned prior to delivery, except as authorized by the Owner's Representative. Spray all trees to eliminate insects and fungus, and apply foliar anti-transpirant Dimensions: The height and spread of all plants shall be measured with branches in their

3. Actual planting shall be performed during those periods when weather and soil conditions are

normal position. Where dimensions of any plant materials are omitted from the Plant List, plants

1. Conditions: Plants shall be symmetrical as typical for the variety and species: in a condition of

suitable and in accord with locally accepted practice. 4. Only as many plants as can be planted and watered on that same day shall be distributed in a 5. Containers shall be opened and plants shall be removed in such a manner that the ball of earth surrounding the roots is not broken and they shall be planted and watered as herein specified immediately after removal from the containers. Containers shall not be opened prior to placing the plants in the planting area

the planting areas have been properly graded and prepared as herein specified, and the work approved by the Owner's Representative 7. The relative position of each tree and plant is subject to approval by the Owner's Representative, and shall, if necessary to achieve project design objectives, be relocated as 8. Remove each plant from its container and plant in such manner that when settled, it will bear

6. Do not do any planting, other than specimen trees, until all operations involved with the

installation of the sprinkler system have been completed, final grades have been established,

the same relation to the constructed finished grade as it bore to the grade in the container before being transplanted. Place each plant in the center of the pit and backfill, unless otherwise specified, with the prepared soil. Filling will not be permitted around trunks or stems. Properly cut off all broken or fraved roots. B. Layout of major plantings: Locations for plants and outlines of areas to be planted shall be marked on the ground by the contractor before any planting pits are dug. All such locations shall be approved by the Owner's Representative. If underground construction or utility line is

encountered in the excavation of planting areas, other locations for planting may be selected by

the Owner's Representative. Planting of trees, shrubs and groundcovers: . Excavation for planting shall include the stripping and stacking of all acceptable topsoil encountered within the areas to be excavated for trenches, tree holes, plant pits and planting 2. Excess soil generated from the planting holes and not used as backfill or in establishing the

final grades, shall be removed from the site 3. Protect all areas from excessive compaction when trucking plants or other material to the planting site. Compacted areas shall be cross-ripped to 12" and tilled. Center plants in pit or trench.

5. Face plants with fullest growth toward the best public views.

7. All excavated holes shall have vertical sides with roughened surfaces and shall be of a size that is twice the diameter and one-half times the depth of the settled, it will bear the same relation to the constructed finished grade as it root ball for all shrubs. Trees 15 gallon and smaller to be planted as above, trees 24" box or larger to be excavated to the depth of the root ball (allow 1-2" for settling) and as space allows, 24" clear of the root ball on all sides. 3. Layout areas and set stakes/flags for trees at locations indicated on Drawings. Secure approval

from Owner's Representative before excavating pits. Make necessary adjustments as directed.

a. Specimen trees to be planted prior to construction of finish grades shall be located by

backfill as directed. Loosen compacted soil at sides and bottoms by scarifying or other

approved method. Set tree to finish grade and fill the pit with prepared soil, progressively

9. When hardpan or muck is encountered, break through to clean soil and backfill with prepared

surveyor for position and finish-grade relationship to top of root ball

settling the soil about the root ball by water jetting and flooding to remove voids.

6. Set plant plumb and hold rigidly in position until soil has been tamped firmly around ball or

10. Set tree in center of pit in a vertical position so that crown of ball will be level with finish grade after allowing for watering and settling. 11. Prepare watering basin same width as tree plant ball. Water thoroughly immediately following

grade. Remove all basins in lawn areas and smooth to finish grade prior to laying sod. soaker hoses to maintain moisture supply.

14. Can removal: a. Cut cans on two sides with an acceptable can cutter.

b. Do not injure root ball.

15. Box removal: Remove bottom of plant boxes before planting.

Plant tablets: a. During installation, Gro-Power 7 gram or Agroform 21 gram tablets, or approved equal, shall

easily verified by the Owner's Representative.

a. The remainder of the hole shall then be backfilled and tamped firm. b. After backfilling, an earthen basin shall be constructed around each plant. Each basin shall be of a depth sufficient to hold at least two (2) inches of water. The basins shall be

9. Pruning: Pruning shall be limited to the minimum necessary to remove injured twigs and branches. Pruning may not be done prior to delivery of plants. 10. Staking and guying: The Contractor shall be responsible to maintain trees in a straight and plumb position throughout the warranty period. If the Contractor chooses to stake and guy the trees, staking shall be completed immediately after planting. All stakes shall be installed plumb and as indicated in details. The Contractor shall remove the staking and guying materials once the trees are established.

Planting of flowering annuals: 1. Flowering annuals shall be grown in 4" pots as indicated on the plans. Annuals shall remain in their flats until transplanting. The flat's soil shall contain sufficient moisture so that it will not fall apart when lifting the plants.

intervals called out in the drawings. Triangular spacing shall be used unless otherwise noted on the drawings. Each annual bed shall receive a thin layer of annual mulch. 3. Each rooted plant shall be planted with its proportionate amount of flat soil. Plantings shall be immediately sprinkled after planting until the entire area is soaked to the full depth of each hole.

trampling or other operations of this Contract shall be repaired immediately. Sod planting: 1. Preparing soil: Remove rocks, weeds, and debris from area to be sodded. If dirt is compacted, work up soil to a depth of 6 inches and break up all clods. Soil prep all areas as noted elsewhere

2. Grading and rolling: Carefully smooth all surfaces to be sodded. Roll areas to expose soil depressions or surface irregularities. Re-grade as required. 3. Laying sod: Lay first strip of sod slabs along a straight line (use a string in irregular areas). Butt joints tightly, do not overlap edges. On second strip, stagger joints much as in laying bricks. Use a sharp knife to cut sod to fit curves, edges and sprinkler heads. Sod shall be laid within 72 hours of harvesting and 12 hours from time of delivery.

4. Watering: Do not lay whole lawn before watering. When a conveniently large area has been

sodded, water lightly to prevent drying. Continue to lay sod and to water until installation is

5. Rolling sod: After laying all sod, roll lightly to eliminate irregularities and to form good contact between the sod and soil. Avoid a very heavy roller or excessive initial watering which may

3.04 CLEAN-UP

the Contract area, leaving the premises in a clean condition. All walks shall be left in a clean and safe condition.

3.07 PROTECTION

3.05 OBSERVATION SCHEDULE A. Orange County shall develop meeting schedule. 3.06 FIELD QUALITY CONTROL A. All inspections herein specified shall be made by the Owner's Representative as the work

planting as specified. Trees may be planted in advance of irrigation system installation provided adequate provision is made for interim watering at the Contractor's own expense. 3.08 FINAL ACCEPTANCE OF INSTALLATION

A. Maintain all planted areas free of debris and insects. Mow, cultivate, weed and water all areas

4. Fill all depressions and eroded channels with sufficient soil mix to adjust grade to assure proper

5. Address any items noted in the punch list from the substantial completion walk-through.

drainage, compact lightly and replant the filled areas in accord with Drawing's requirements.

planting. Backfill all voids which develop with additional prepared planting soil to bring to finish 12. Monitor tree and shrub root balls for adequate moisture content. Deep water and/or provide 13. All plants which settle deeper than the surrounding grade shall be raised to the correct level. After the plant has been placed, additional backfill shall be added to the hole to cover

approximately one-half of the height of the root ball. At this stage, water shall be added to the

top of the partly filled hole to thoroughly saturate the root ball and adjacent soil.

c. Do not cut cans with spade or ax

b. Remove sides of box without damage to root ball after positioning plant and partially

be provided in each planting hole as per quantities and application of the manufactures b. Planting tablets shall be set with each plant on the top of the root ball while the plants are still in their containers so the required number of tablets to be used in each hole can be

Plant tablets shall be located 1/3 depth of the root ball.

constructed of amended backfill materials. Remove basin in all turf areas after initial

2. The annuals shall be planted in straight rows and evenly spaced, unless otherwise noted, and at

The planting area shall then be mulched with appropriate fine bedding mulch. 4. Care shall be exercised at all times to protect the plants after planting. Any damage to plants by

in specifications.

6. Irrigation: Water thoroughly the complete lawn surface. Soil should be moistened at least 8 inches deep. Repeat sprinkling at regular intervals to keep sod moist at all times until rooted. After sod is established, decrease frequency and increase amount of water per application as

A. After all planting operations have been completed; remove all trash, excess soil, empty plant containers and rubbish from the property. All scars, ruts or other marks in the ground caused by this work shall be repaired and the ground left in a neat and or the last working day of each week. All trash shall be removed completely from the site. B. The Contractor shall leave the site area broom-clean and shall wash down all paved areas within

Replacement: Replace all dead or dying sod with equal material as directed by the Owner's

B. Protect work completed by other trades from damage.

A. Continuously protect all lawn areas, plant materials, and supports until final acceptance of the B. Inspect and approve all landscape irrigation work and finish grading prior to the start of shrub

B. Prior to final approval of work, do the following: 1. Re-seed, re-sod or replant areas where necessary for full and even coverage. Remove all debris resulting from landscape work. 3. Re-grade, lightly compact and replant around sprinkler heads where necessary to maintain proper vertical positioning in relation to general grade.

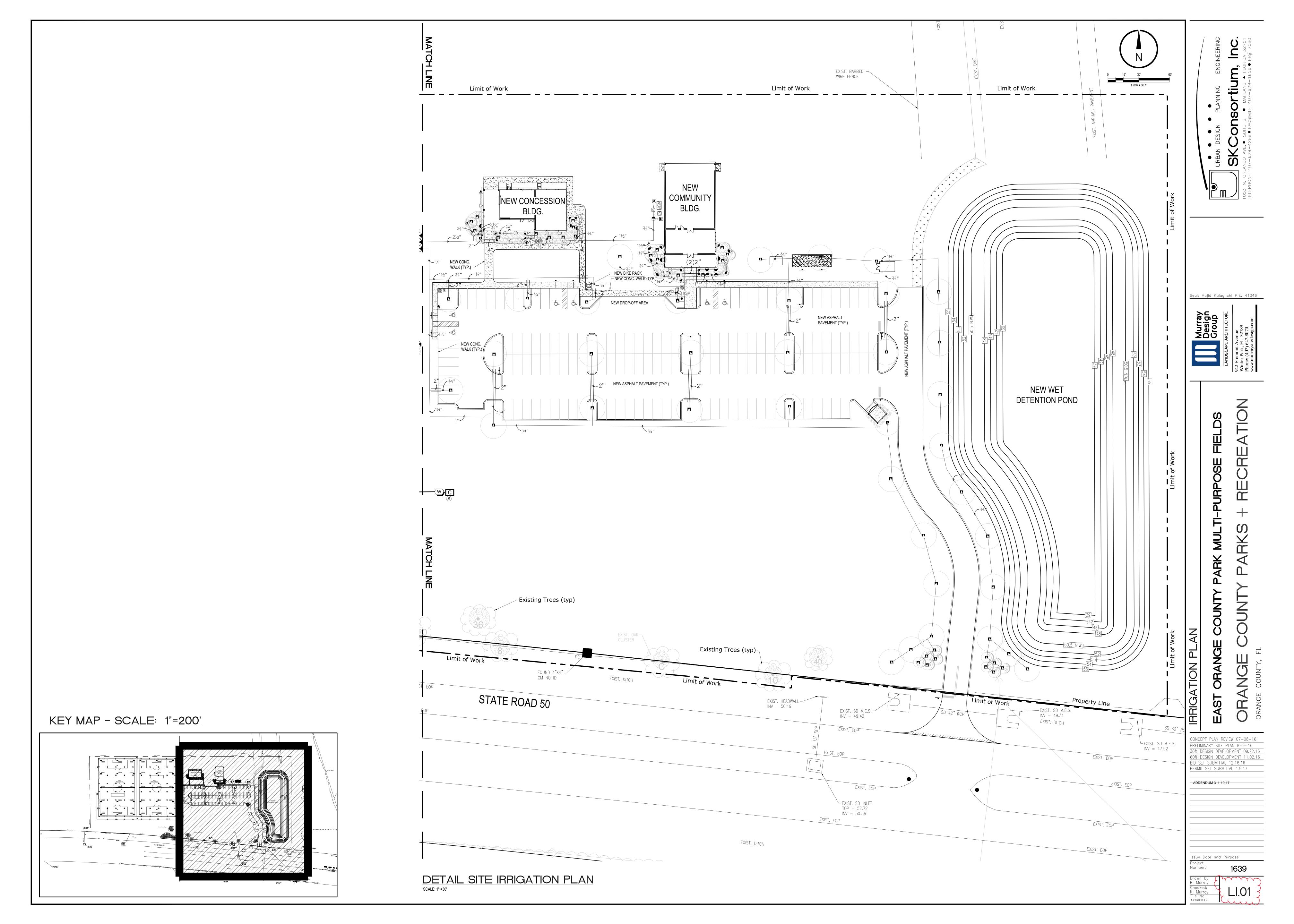
until final acceptance of work by the Owner's Authorized Representative.

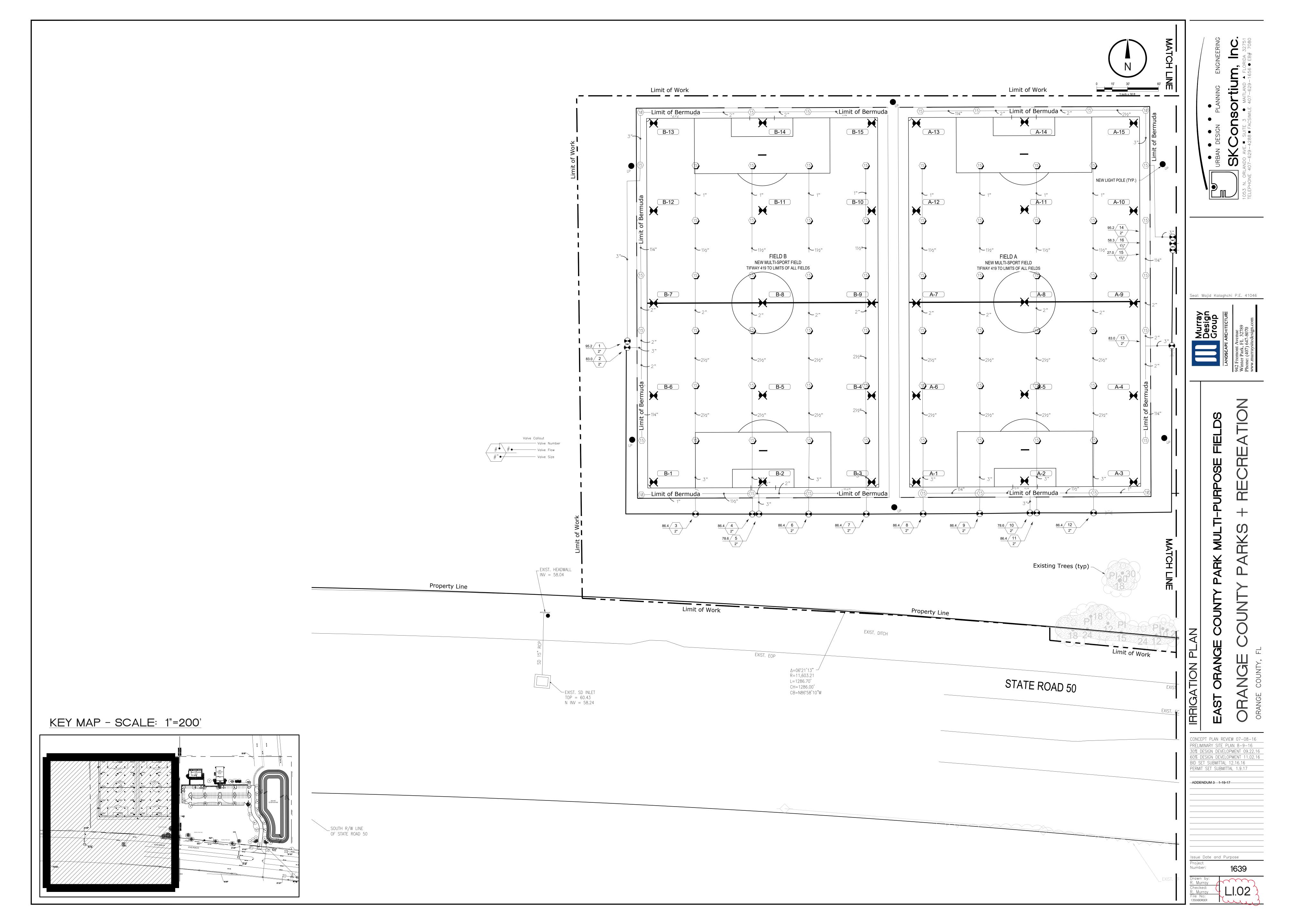
Seal: Maiid Kalaahchi P.F. 41046

ray Up

CONCEPT PLAN REVIEW 07-08-16 PRELIMINARY SITE PLAN 8-9-16 30% DESIGN DEVELOPMENT 09.22.16 60% DESIGN DEVELOPMENT 11.02.16 BID SET SUBMITTAL 12.16.16

ADDENDUM 3 1-19-17





IRRIGATION SCHEDULE

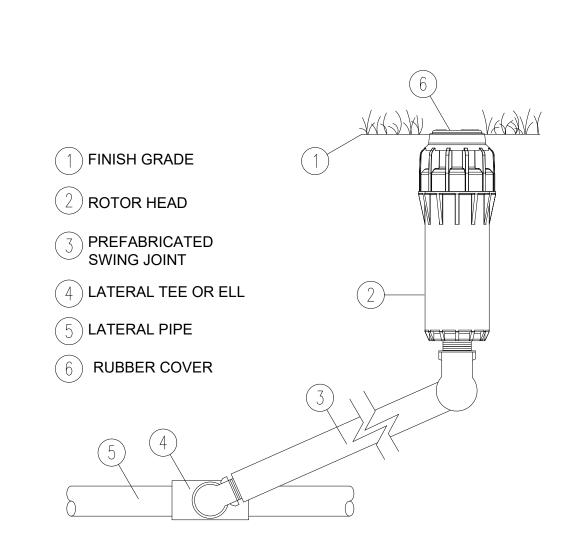
IRRIGATION	N_9CUEDOLE					
SYMBOL	MANUFACTURER/MODEL	QTY	ARC	<u>PSI</u>	<u>GPM</u>	RADIUS
\blacksquare	Hunter PROS-06-PRS30 5` strip spray	1	LCS	30	0.65	5'x15'
	Hunter PROS-06-PRS30 5` strip spray	2	RCS	30	0.65	5'x15'
	Hunter PROS-06-PRS30 5` strip spray	1	SST	30	1.30	5'x30'
•	Hunter PROS-12-PRS30 5` strip spray	1	RCS	30	0.65	5'x15'
\triangleleft	Hunter PROS-12-PRS30 5` strip spray	1	SST	30	1.30	5'x30'
③	Hunter PROS-12-PRS30 8` radius	1	90	30	0.24	8'
•	Hunter PROS-12-PRS30 10` radius	6	180	30	0.88	10'
•	Hunter PROS-12-PRS30 10` radius	8	90	30	0.42	10'
lacktriangle	Hunter PROS-12-PRS30 12' radius	10	180	30	1.30	12'
\odot	Hunter PROS-12-PRS30 12` radius	4	90	30	0.67	12'
•	Hunter PROS-12-PRS30 15` radius	4	180	30	1.86	15'
•	Hunter PROS-12-PRS30 15` radius	5	90	30	0.97	15'
•	Hunter PROS-12-PRS30 15` radius	3	120	30	1.30	15'
\odot	Hunter PROS-12-PRS30 adjustable arc	1	Adj	30		12'
ullet	Hunter PROS-12-PRS30 adjustable arc	1	Adj	30		15'
	Two Hunter PCB-25	66	360	30	0.50	1'
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	<u>QTY</u>		<u>PSI</u>	<u>GPM</u>	RADIUS
⟨1∅ ⟩	Hunter I-40-06-SS with 222700 stabilizer flange	4		70	12.2	51'
\(\) 15\(\)	Hunter I-40-06-SS with 222700 stabilizer flange	28		70	16.6	57'
(15)	Hunter I-40-06-SS-ON with 222700 stabilizer flange	48		70	14.4	56'
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	<u>QTY</u>				
Θ	Rain Bird PESB in 12"X18" Ametek Valve Box	16				
X 4	Clow 3" Gasket Isolation Valve in 10" Ametek Valve Box	2				
С	Hunter IC-2000-PP 20 Station Controller Plastic Pedestal	1				
$\langle \underline{S} \rangle$	Hunter MINI-CLIK Rain Sensor	1				
$\langle \mathbf{w} \rangle$	5" Well with Starite 10hp 90 series pump see note 26	1				
	Irrigation Lateral Line: PVC Schedule 40	7,800 l.f.				
	Irrigation Mainline: PVC 3" Schedule 40	1,000 l.f.				
	Pipe Sleeve: Schedule 40 Extend sleeves 18 inches beyond edges of paving or construction.	300 l.f.				

WATERING SCHEDULE

NUMBER	MODEL	TYPE	PRECIP	GPM
1	Rain Bird PESB	Turf Rotor	1.15 in/h	95.2
2	Rain Bird PESB	Turf Rotor	1.15 in/h	83.0
3	Rain Bird PESB	Turf Rotor	0.47 in/h	86.4
4	Rain Bird PESB	Turf Rotor	0.47 in/h	86.4
5	Rain Bird PESB	Turf Rotor	1.15 in/h	78.6
6	Rain Bird PESB	Turf Rotor	0.47 in/h	86.4
7	Rain Bird PESB	Turf Rotor	0.47 in/h	86.4
8	Rain Bird PESB	Turf Rotor	0.47 in/h	86.4
9	Rain Bird PESB	Turf Rotor	0.47 in/h	86.4
10	Rain Bird PESB	Turf Rotor	1.15 in/h	86.4
11	Rain Bird PESB	Turf Rotor	0.47 in/h	78.6
12	Rain Bird PESB	Turf Rotor	0.47 in/h	86.4
13	Rain Bird PESB	Turf Rotor	1.15 in/h	83.0
14	Rain Bird PESB	Turf Rotor	1.15 in/h	95.2
15	Rain Bird PESB	Bubbler	NA	27.0
16	Rain Bird PESB	Shrub Spray	1.58 in/h	58.3

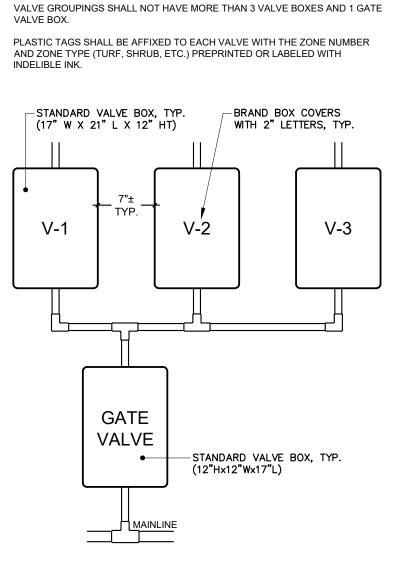
IRRIGATION NOTES:

- 1. THE PLANS AND DRAWINGS ARE DIAGRAMMATIC OF THE WORK TO BE PERFORMED. SOME COMPONENTS MAY BE SHOWN OUTSIDE THE WORK AREA FOR CLARITY. THE WORK SHALL BE EXECUTED IN A MANNER TO AVOID CONFLICTS WITH UTILITIES AND OTHER ELEMENTS OF CONSTRUCTION, INCLUDING LANDSCAPE MATERIALS. ALL DEVIATIONS FROM THE PLANS SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE BEFORE BEING INSTALLED. THE CONTRACTOR SHALL NOT WILLFULLY INSTALL ANY ASPECT OF THE IRRIGATION SYSTEM AS SHOWN ON THE PLANS AND DRAWINGS, WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS, GRADE DIFFERENCES, OR DISCREPANCIES EXIST THAT MIGHT NOT HAVE BEEN KNOWN DURING THE DESIGN OF THE IRRIGATION SYSTEM. IN THE EVENT THAT NOTIFICATION OF THE CONFLICT IS NOT APPROVED BY THE OWNER'S REPRESENTATIVE, THE CONTRACTOR WILL ASSUME FULL RESPONSIBILITY FOR ALL REVISIONS.
- 2. THE IRRIGATION SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE PLANS, IRRIGATION SYSTEM SPECIFICATIONS AND ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL COMPLY WITH ALL PREVAILING LOCAL CODES, ORDINANCES, AND REGULATIONS.
- 3. CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS, INCLUDING UTILITY LOCATIONS, BEFORE INSTALLATION OF THE IRRIGATION SYSTEM. ALL UTILITIES AND STRUCTURES MAY NOT BE SHOWN ON THE PLANS - CONTRACTOR TO VERIFY. COORDINATE ALL IRRIGATION SYSTEM CONSTRUCTION WITH EXISTING AND NEW PLANTINGS TO AVOID CONFLICT OR INTERFERENCE WITH LOCATION OF PIPING, SLEEVING, CABLES, AND SERVICE UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION WITH ALL OTHER CONSTRUCTION ON SITE, ESPECIALLY LANDSCAPE INSTALLATION. IRRIGATION SYSTEM SHALL BE RELOCATED AT NO ADDITIONAL COST FOR ANY CONFLICT WITH LANDSCAPE INSTALLATION OR ANY OTHER SITE CONSTRUCTION OR EXISTING CONDITIONS. ALL COMPONENTS THAT ARE NOT CONTAINED WITHIN THE SPECIFIC AREAS SHOWN OR CALLED OUT ON THE DRAWINGS WILL NOT BE ACCEPTED. ALL PIPING AND OTHER COMPONENTS ARE TO REMAIN WITHIN THE PROPERTY OF THE OWNER.
- 4. WHERE EXISTING OR NEW TREES, LIGHT STANDARDS, SIGNS, ELECTRONIC CONTROLLERS AND/OR OTHER OBJECTS ARE AN OBSTRUCTION TO AN IRRIGATION SPRINKLER'S PATTERN, THE COMPONENT AND PIPING SHALL BE RELOCATED AS NECESSARY TO OBTAIN PROPER COVERAGE OF AN IRRIGATION SPRINKLER'S PATTERN, THE COMPONENT AND PIPING SHALL BE RELOCATED AS NECESSARY TO OBTAIN THE PROPER COVERAGE WITHOUT DAMAGING THE OBSTRUCTION. OWNER'S REPRESENTATIVE SHALL DETERMINE WHETHER AN OBSTRUCTION OCCURS OR NOT.
- COMPONENT SPACING ARE MAXIMUM. DO NOT EXCEED SPACING SHOWN OR NOTED ON THE PLANS. COMPONENT SPACING MAY BE ADJUSTED TO ACCOMMODATE CHANGES IN TERRAIN AND PLANTING LAYOUT AS LONG AS THE MODIFIED SPACING DO NOT EXCEED THE SPACING SHOWN IN THE PLANS. UNLESS SHOWN OTHERWISE, CONTRACTOR SHALL PROVIDE 100% COVERAGE.
- 6. ALL MATERIALS AND EQUIPMENT SHOWN SHALL BE NEW AND INSTALLED AS DETAILED ON THE PLANS. IF THE DRAWINGS DO NOT THOROUGHLY DESCRIBE THE TECHNIQUES TO BE USED, THE INSTALLER SHALL FOLLOW THE INSTALLATION METHODS AND INSTRUCTIONS RECOMMENDED BY THEIR MANUFACTURER.
- 7. THE LOCATION OF THE IRRIGATION MAINLINE SHALL BE IDENTIFIED IN THE FIELD AND APPROVED BY THE OWNER'S REPRESENTATIVE BEFORE INSTALLATION.
- 8. IRRIGATION CONTRACTOR SHALL ADJUST ALL SPRINKLERS, CONTROLLER AND OTHER DEVICES TO OBTAIN SPECIFIED OPERATING PARAMETERS, INCLUDING COVERAGE, OPERATING PRESSURE, FLOW RATES AND OPERATION TIME, AS INDICATED ON THE DRAWINGS AND IN THE IRRIGATION SYSTEM SPECIFICATIONS.
- 9. CONTRACTOR TO PROVIDE INSTALLATION SHOP DRAWINGS AND MANUFACTURER PRODUCT INFORMATION FOR ALL IRRIGATION COMPONENTS. ALL INSTALLATIONS SHALL BE AS RECOMMENDED BY MANUFACTURERS. THE QUANTITIES SHOWN IN THE LEGENDS AND SYMBOL SHEETS SHALL NOT BE USED FOR BIDDING PURPOSES. THE CONTRACTOR WILL BE RESPONSIBLE FOR CONDUCTING A COMPREHENSIVE MATERIALS TAKEOFF TO DETERMINE THE ACTUAL QUANTITIES OF MATERIAL NECESSARY TO EXECUTE THE WORK DESCRIBED IN THE DOCUMENTS.
- 10. ALL TRENCHES SHALL BE BACKFILLED WITH CLEAN, DEBRIS-FREE MATERIALS. CLEAN SAND SHALL BE USED FOR BEDDING MATERIAL IF PARENT SOIL CANNOT BE ADEQUATELY RID OF ROCK AND OTHER EXTRANEOUS DEBRIS. PULLING PIPE SHALL BE PROHIBITED.
- 11. ALL MAINLINE CHANGE OF DIRECTION FITTINGS SHALL BE THRUST BLOCKED PER DETAIL. INSTALL LEEMCO RESTRAINT FITTINGS ON MAINLINE ISOLATION VALVES.
- 12. ALL SOLVENT WELDING SHALL BE PRECEDED BY PRIMING OF THE FITTINGS AND PIPE AS RECOMMENDED BY THE MANUFACTURER.
- 13. IRRIGATION CONTRACTOR TO LABEL ALL VALVE BOX COVERS WITH THE CORRESPONDING CONTROLLER ZONE NUMBER. NUMBERING SIZE 1". PROVIDE TAGS TO ALL VALVES AS SHOWN PER DETAILS.
- 14. CONTRACTOR TO PLACE BUBBLERS AT OUTER EDGE OF ROOT BALL, NOT OUTER EDGE OF PLANTING HOLE.
- 15. THE CONTROL WIRE SHALL BE 14 GAUGE SINGLE STRAND UL LISTED FOR DIRECT BURIAL. ALL WIRE SPLICES SHALL BE MADE WITH 3M-DBY CONNECTORS
- 16. LOCATE ALL VALVES WITH A MINIMUM OFFSET OF 3'-0" FROM BACK OF CURB OR EDGE OF PAVEMENT.
- 17. ALL VALVES (SOLENOID, GATE, ISOLATION, AIR RELIEF AND FLUSH), SURGE PROTECTORS AND FILTERS SHALL BE LOCATED WITHIN THE SPECIFIED VALVE BOXES.
- 18. ALL IRRIGATION LINES UNDER PAVEMENT SHALL BE INSTALLED WITHIN SCH 40 PVC SLEEVES AS NOTED. IRRIGATION COMMUNICATION CABLE SHALL HAVE IT'S OWN SEPARATE SLEEVE UNLESS NOTED OTHERWISE.
- 19. ALL UNSIZED PIPE SHALL BE 3/4".
- 20. IRRIGATION LATERAL LINES TO BE BURIED AT A DEPTH OF 18" UNLESS NOTED OTHERWISE
- 21. IRRIGATION MAINLINES TO BE BURIED AT A DEPTH OF 24" UNLESS NOTED OTHERWISE.
- 22. ALL COMPONENTS INSTALLED BY THE IRRIGATION CONTRACTOR, SHALL BE LOCATED ON THE "AS-BUILT" DRAWINGS. THE EXACT LOCATION AND DEPTH BELOW FINISH GRADE OF ALL COMPONENTS SHALL BE NOTED ON THE "AS-BUILT" DRAWINGS.
- 23. IRRIGATION CONTRACTOR SHALL SECURE ANY AND ALL NECESSARY PERMITS FOR THE WORK PRIOR TO COMMENCEMENT OF HIS OPERATIONS ON-SITE. COPIES OF THE PERMITS SHALL BE SENT TO THE LANDSCAPE SUPERVISOR. WORK IN THE RIGHT OF WAY SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF LOCAL AND/OR STATE HIGHWAY JURISDICTION.
- 24. INSTALLATION OF WORK SHALL BE COORDINATED WITH OTHER CONTRACTORS IN SUCH A MANNER AS TO ALLOW FOR A SPEEDY AND ORDERLY FLOW OF VEHICULAR TRAFFIC AND COMPLETION OF ALL WORK ON THE SITE.
- 25. INSTALL NIBCO ISOLATION VALVE BEFORE EACH GROUP OF VALVE.
- 26. ALL BALL FIELD HEADS TO BE INSTALLED ON 1" PREFABRICATED SWING JOINT.
- 27. IRRIGATION PUMPING SYSTEM SHALL INCLUDE A 5" WELL WITH A STARITE 10 HP SUBMERSIBLE PUMP TO PRODUCE 95 GPM @ 70 PSI. THE PUMP SYSTEM SHALL INCLUDE A CYCLE STOP CSV2B VALVE, WX103 TANK, PRESSURE SWITCH, PRESSURE GAUGE AND ALL FITTINGS REQUIRED. ALL EQUIPMENT SHALL BE INSTALLED IN A FIBERGLASS ENCLOSURE.
- 28. THE OWNER SHALL PROVIDE 230 VOLT THREE PHASE POWER TO WELL LOCATION. FINAL CONNECTION TO THE PUMP SHALL BE MADE BY THE WELL DRILLER.
- 29. ALL MAINLINES SHALL BE PRESSURE TESTED AT 100 PSI FOR THE PERIOD OF TWO HOURS. THE MAINLINE SHALL MAINTAIN A PRESSURE FOR THE TWO HOUR PERIOD OF 95 PSI OR GREATER.



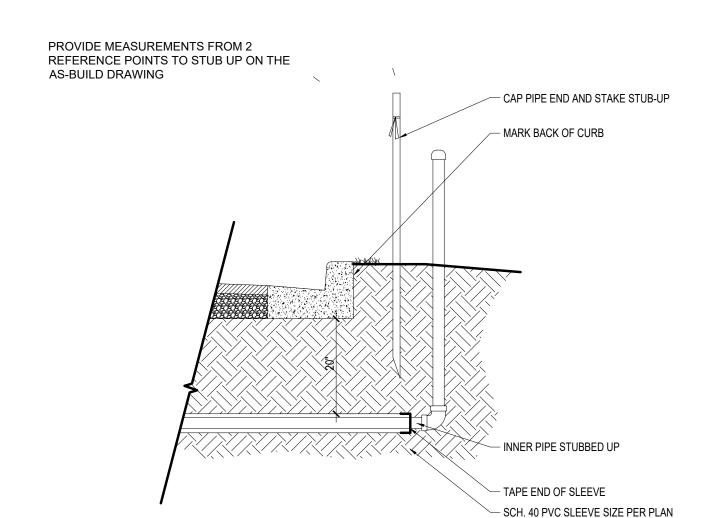
BALL FIELD ROTOR HEAD

IRRIGATION DETAIL



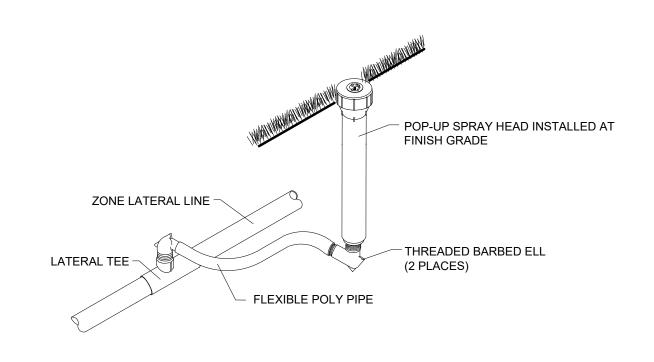
VALVE BOX DETAIL

SCALE: NTS



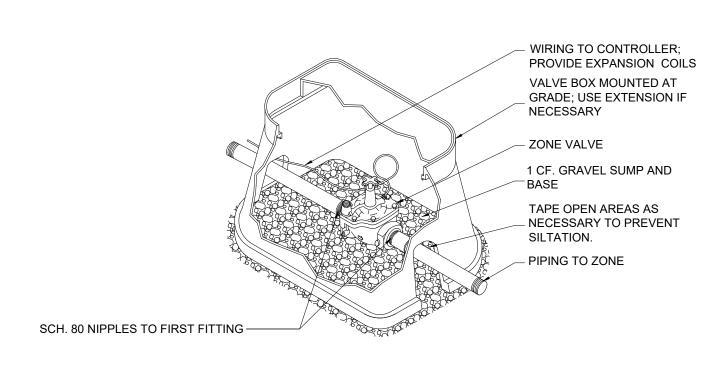
SLEEVING ROUGH-IN DETAIL

SCALE: NTS



SPRAY HEAD INSTALLATION DETAIL

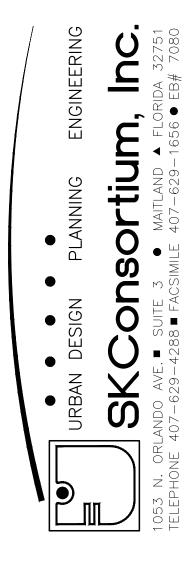
SCALE: NTS



INSTALL EACH VALVE TAP IN A VERTICAL ORIENTATION TO ASSURE THE PROPER VALVE DEPTH.

ZONE VALVE INSTALLATION DETAIL

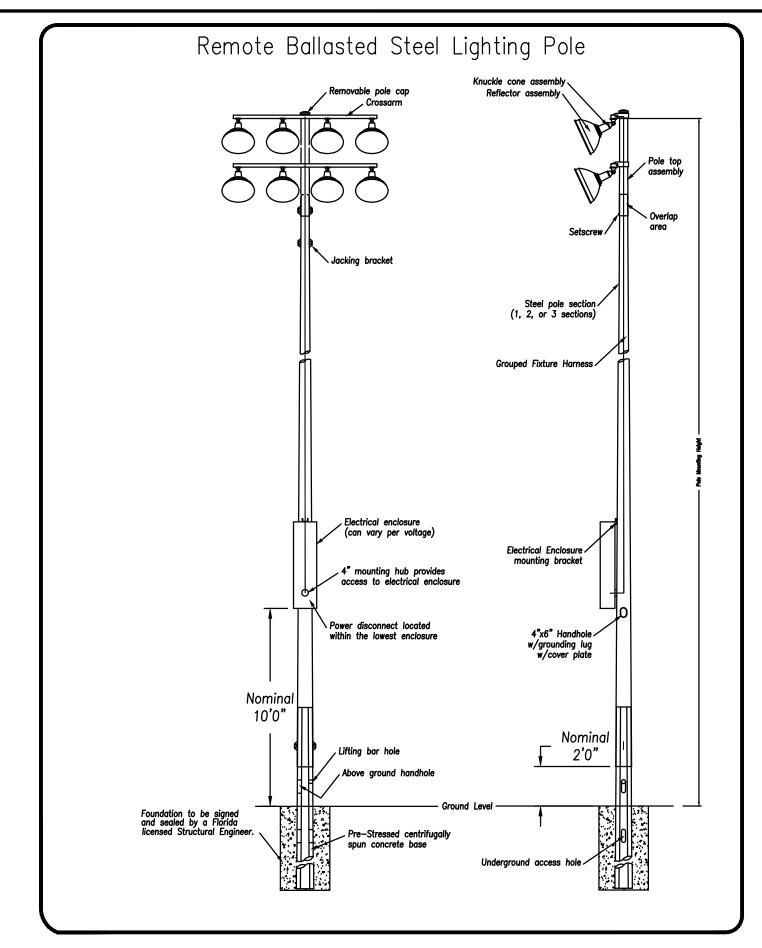
SCALE: NTS

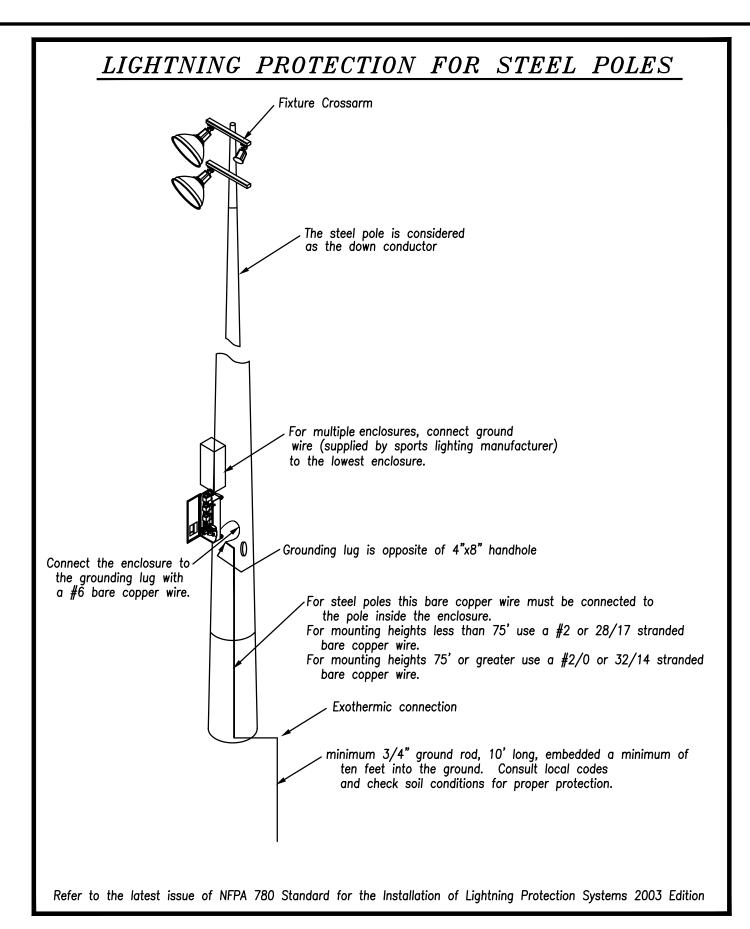


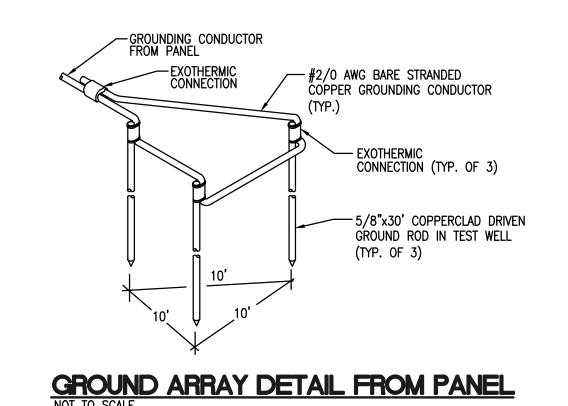
Seal: Majid Kalaghchi P.E. 41046 Murray Design Group

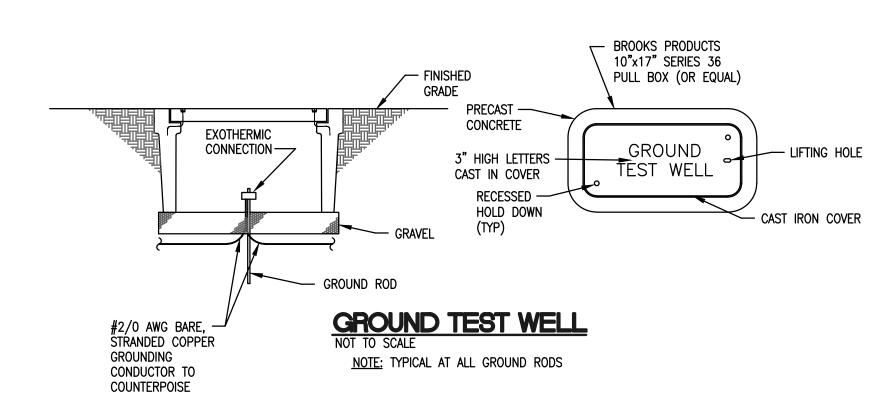
CONCEPT PLAN REVIEW 07-08-16 PRELIMINARY SITE PLAN 8-9-16 30% DESIGN DEVELOPMENT 09.22.16 60% DESIGN DEVELOPMENT 11.02.16 BID SET SUBMITTAL 12.16.16

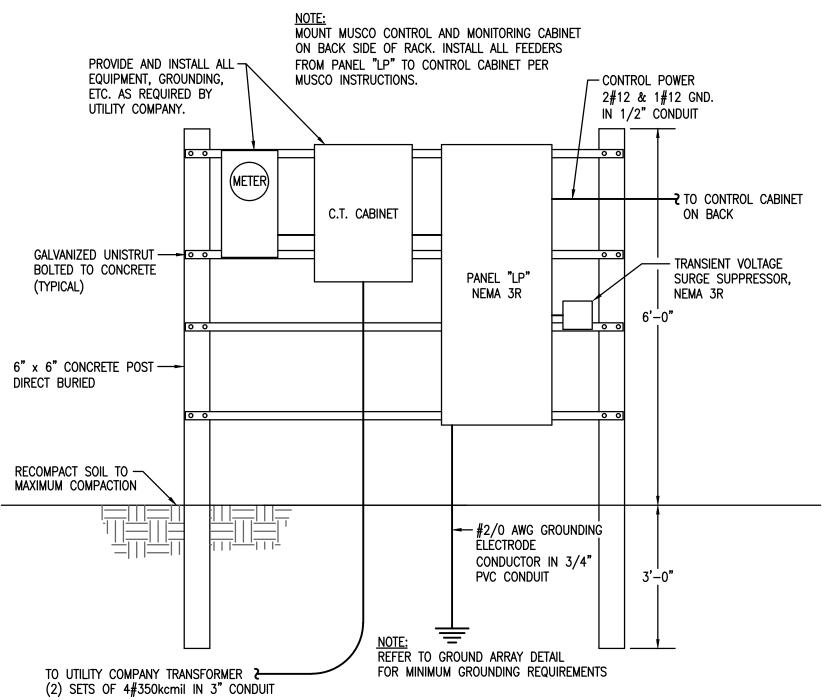
ADDENDUM 3 1-19-17











SERVICE AND METER EQUIPMENT RACK

DANIEL LOCATION FOLLIBRIENT	D101/		DANEL D		TION					(O) TA OF	0004/40	0174 111	NO DATINO AOV
, · · · · · · · · · · · · · · · · · · ·					<u>DESIGNATION: LP</u> <u>VOLTAGE: 208Y/120V,3ø,4W</u> BOARD RATING: 600A MANUFACTURER: SQUARE D								
				BOARD RATING: 600A					_			JUARE D	MOUNTING: SURFACE
			MAINS: 6	JUA M	IAIN B	REAK	<u>.ER</u>			STYLE: HO	<u> </u>		<u>NEMA TYPE: 3R</u>
LOAD DESCRIPTION	WAT PH A	rs per p Ph b	HASE PH C	BKR	POLE	скт	скт	POLE	BKR	WATT: PH A	S PER PH PH B		LOAD DESCRIPTION
POLE S3	5158			60	3	1	2	3	60	6190			POLE S5
-		5158		-	 -	3	4	_	_		6190		-
_			5158	1 _	_	5	6	_	_			6190	I_
POLE S4	5158			60	3	17	8	3	60	6190			POLE S5
_		5158		_	_	9	10	_	_		6190		_
_			5158	_	-	11	12	_	_			6190	-
POLE S7	5158			60	3	13	14	3	60	6190			POLE S6
		5158		_	-	15	16	-	_		6190		
			5158	_	_	17	18	ı	_			6190	_
POLE S8	5158			60	3	19	20	3	60	6190			POLE S6
_		5158		-	_	21	22	-	-		6190		_
_			5158	-	_	23	24	ı	1			6190	_
IRRIGATION PUMP	7437			100	3	25	26	2	20	1015			PARKING LOT LIGHTS
_		7437		_		27	28	ı	-		1015		_
_			7437	_	_	29	30	1	20			300	LIGHTING CONTROL (NOTE 1)
DRINKING WATER WELL PUMP	1319			20	3	31	32	Х	Х	Χ			SPACE
_		1319			_	33	34	Х	Х		X		SPACE
_			1319	_		35	36	Х	Χ			X	SPACE
SPACE	X			Х	Х	37	38	Х	Х	Χ			SPACE
SPACE		Х		X	X	39	40	Х	Х		Х		SPACE
SPACE			Х	X	X	41	42	Х	Х			Х	SPACE
SPACE	X			Х	X	43	44	3	30	χ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			SPD
SPACE		Х		X	X	45	46	_	_		Χ		_
SPACE			Х	X	X	47	48	_	-			Х	-
PANELBOARD SUB-TOTALS	29388	29388	29388							25775	25775		PANELBOARD SUB-TOTALS
LOAD CALCULATIONS:	CONNEC	TED LOAD	(WATTS)	DEN	MAND	FACT	OR	EST	IMATED		LOAD (\	WATTS)	NOTES:
LIGHTING		138506			1.2					17313	3		1. PROVIDE CIRCUIT BREAKER
RECEPTACLES (FIRST 10 KW)		Χ		1.00					Χ			WITH HANDLE LOCK.	
RECEPTACLES (REMAINDER)		X		0.50						X			
HVAC (WORST CASE)		X			1.0					X			
WATER HEATING		Χ			1.0					Х]	
KITCHEN		X			0.6				X				1
MISCELLANEOUS		26268		,,,,,,,,	1.0		,,,,,,			26268			
PANELBOARD TOTALS:	164	774W (45	8A)						19	99401W (554A)		

GENERAL NOTES

1. WIRING SHOWN ON PLAN IS SCHEMATIC AND INTENDED TO SHOW REQUIRED CIRCUITING. PROVIDE PROPER NUMBER OF WIRES IN EACH

CONDUIT AS REQUIRED BY INDICATED CIRCUITRY. 2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE AMERICANS WITH

DISABILITIES ACT (ADA) AND 2011 NATIONAL ELECTRICAL CODE (NEC). 3. ALL BRANCH CIRCUITS FOR 120 VOLT, 20 AMP CIRCUITS EXCEEDING

EIGHTY FEET IN LENGTH SHALL BE #10 AWG ENTIRE CIRCUIT MINIMUM. 4. ALL EMPTY CONDUIT (EC) SHALL BE PROVIDED WITH NYLON PULL WIRES.

5. TYPE AC CABLE AND ELECTRICAL NON-METALLIC TUBING SHALL NOT BE PERMITTED.

6. COORDINATE THE REQUIRED SIZE OF ALL CIRCUIT BREAKERS FEEDING EQUIPMENT WITH APPROVED EQUIPMENT SHOP DRAWINGS AND OWNER REPRESENTATIVES PRIOR TO ORDERING PANELBOARDS. BREAKERS SHALL BE SIZED PER THE NEC, THE EQUIPMENT NAME PLATE AND MANUFACTURER'S RECOMMENDATIONS.

7. THE POWER COMPANY SHALL BE CONTACTED WITHIN 10 DAYS OF THE AWARD OF THE CONTRACT BY THE CONTRACTOR TO VERIFY THE ACTUAL AVAILABLE SHORT CIRCUIT FAULT CURRENT (SCC) AT THE TRANSFORMER SECONDARY BUSHINGS. THE CONTRACTOR SHALL PROVIDE ÉLECTRICAL DISTRIBUTION AND UTILIZATION EQUIPMENT AND PANELBOARDS WHICH HAVE AIC/WITHSTAND RATINGS GREATER THAN THE AVAILABLE SCC.

8. ALL CONDUIT IN OR UNDER SLAB, OR UNDERGROUND SHALL BE PVC SCHEDULE 40.

9. ALL CONDUIT ABOVE SLAB, WHETHER EXPOSED OR CONCEALED, SHALL BE EMT, IMC, OR RIGID GALVANIZED STEEL.

10. FLEXIBLE METAL RACEWAYS SHALL NOT EXCEED 6' IN LENGTH. 11. "LIQUID-TIGHT" TYPE FLEXIBLE WEATHERPROOF RACEWAYS SHALL HAVE A

METALLIC INTERIOR, AND NOT EXCEED 6' IN LENGTH.

12. ALL BOXES AND BOX COVERS SHALL BE METAL.

13. ALL CONDUIT SHALL BE PARALLEL AND PERPENDICULAR TO STRUCTURAL

14. ALL BENDS SHALL BE MADE IN CONDUIT USING PROPER EQUIPMENT AND MEET NATIONAL ELECTRICAL CODE (NEC) REQUIREMENTS.

15. ALL WIRE, INCLUDING BUT NOT LIMITED TO FEEDERS AND BRANCH CIRCUIT WIRING, SHALL BE COPPER.

16. ALL BREAKERS SHALL BE "FULL SIZE". NO TANDEM, PIGGY BACK, TWIN, OR HALF SIZE BREAKERS WILL BE ACCEPTED.

17. ALL DEVICES SHALL BE COMMERCIAL OR SPECIFICATION GRADE.

18. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY POWER AND TEMPORARY LIGHTING DURING CONSTRUCTION. TEMPORARY POWER SHALL PROVIDE ADEQUATE POWER FOR NORMAL CONSTRUCTION USE. TEMPORARY LIGHTING SHALL PROVIDE ADEQUATE LIGHT SO THAT THE INDIVIDUAL TRADES WORK CAN BE COMPLETED.

19. ALL ELECTRICAL EQUIPMENT SHALL BE UL LISTED.

20. A (GREEN) INSULATED COPPER GROUND CONDUCTOR SHALL BE INSTALLED IN ALL RACEWAYS.

21. GROUNDING SYSTEM SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250 AND APPLICABLE REQUIREMENTS OF IEEE STANDARDS 142 AND 241.

22. TEST RESISTANCE TO GROUND (EARTHING CONNECTION) WITH RESISTANCE TESTER SUBSEQUENT TO FINAL INSTALLATION. WHERE TEST INDICATES RESISTANCE TO GROUND IS OVER 5 OHMS, TAKE APPROPRIATE ACTION TO REDUCE RESISTANCE TO 5 OHMS OR LESS, BY DRIVING ADDITIONAL PROPERLY SPACED GROUND RODS AND TREATING SOIL IN PROXIMITY OF GROUND RODS WITH COMMON SALT, COPPER SULFATE OR MAGNESIUM SULFATE. RETEST TO DEMONSTRATE COMPLIANCE.

23. CONDUCTORS ARE SIZED FOR VOLTAGE DROP PER N.E.C. ARTICLE 210.19(A)(1) INFORMATIONAL NOTE No. 4 AND THE 2014 F.B.C. ENERGY CONSERVATION CODE C405.7.3.1&2. ELECTRICAL CONTRACTOR SHALL PERFORM VOLTAGE DROP CALCULATIONS IN ACCORDANCE WITH N.E.C. ARTICLE 210.19 (A)(1) INFORMATIONAL NOTE No. 4 AND THE 2014 F.B.C. ENERGY CONSERVATION CODE C405.7.3.1&2 ON ANY CIRCUITS THAT ARE INSTALLED THAT DIFFER FROM THE DESIGN SHOWN IN THESE PLANS. FEEDER CONDUCTORS SHALL BE SIZED FOR A MAXIMUM VOLTAGE DROP OF 2% AND BRANCH CIRCUIT CONDUCTORS 3% AT DESIGN LOAD.

ELECTRICAL SYMBOL LIST

POLE MOUNTED LIGHTING FIXTURES BY MUSCO LIGHTING.

PARKING LIGHTING FIXTURE. 20A, 2 POLE, 125V GROUNDED DUPLEX RECEPTACLE.

BRANCH CIRCUIT WIRING, HASH MARKS INDICATE NUMBER OF LP-1,3,5 CONDUCTORS (GROUND CONDUCTOR NOT SHOWN) THREE CONDUCTORS PLUS GROUND REQUIRED (UNLESS OTHERWISE NOTED). LP-1,3,5 INDICATES HOMERUN TO CONTROL CABINET / PANEL BOARD AND CIRCUIT NUMBER DESIGNATIONS.

CONDUIT RUN BELOW GRADE OR SLAB.

JUNCTION BOX.

NONFUSED DISCONNECT SWITCH.

TRANSFORMER. PANELBOARD.

IN-GRADE PULL BOX.

GROUND FAULT CIRCUIT INTERRUPTER.

WP WEATHERPROOF (NEMA-3R).

	PARKING	LIGH	TING F	FIXTURE SC	HEDULE		
FIXTURE	FIXTURE DESCRIPTION	L	AMPS		MANUFACTURER	VOLTS	REMARKS
TYPE	PIXTURE DESCRIPTION	QTY	TYPE	NAME	CATALOG #	VOLIS	NEMPINS
SLA	LED AREA LIGHT, DIE CAST ALUMINUM HOUSING, TYPE 4 DISTRIBUTION, CONSTANT LIGHT OUTPUT DRIVER, FLAT TEMPERED GLASS LENS, GRAY FINISH	-	183W LED 4000K	PHILIPS (OR EQUAL)	RVM190W112LED4K-LE4-UNIV-CLO-GY3	208	MOUNTING HEIGHT 30' AFG VERIFY FIXTURE AND POLE COLOR WITH OWNER.
SLAA	SAME AS "SLA" WITH (2) FIXTURES ON (1) POLE	_	183W LED 4000K	PHILIPS (OR EQUAL)	RVM190W112LED4K-LE4-UNIV-CLO-GY3	208	MOUNTING HEIGHT 30' AFG VERIFY FIXTURE AND POLE COLOR WITH OWNER.
SLB	LED AREA LIGHT, DIE CAST ALUMINUM HOUSING, TYPE 2 DISTRIBUTION, CONSTANT LIGHT OUTPUT DRIVER, FLAT TEMPERED GLASS LENS, GRAY FINISH	-	183W LED 4000K	PHILIPS (OR EQUAL)	RVM190W112LED4K-LE2-UNIV-CLO-GY3	208	MOUNTING HEIGHT 30' AFG VERIFY FIXTURE AND POLE COLOR WITH OWNER.
SLC	LED POST-TOP LIGHT, DIE CAST ALUMINUM HOUSING, TYPE 5 DISTRIBUTION, CONSTANT LIGHT OUTPUT DRIVER, POLYCARBONATE GLOBE, GRAY FINISH	_	50W LED 4000K	PHILIPS (OR EQUAL)	PBDP10250W64LED4K-MP-PC-C-LE5- UNIV-CLO-GR	208	MOUNTING HEIGHT 15' AFG VERIFY FIXTURE AND POLE COLOR WITH OWNER.
SLA/SLB POLE	37 FOOT OVERALL ROUND DIRECT BURIED PRE-CAST CONCRETE POLE, RATED FOR 180MPH AT 5 EPA, GRAY COLOR, WITH SINGLE FIXTURE POLE TOP MOUNTING BRACKET	_	-	(OR EQUAL)	POLE - TYPE I-O 37 FT MOUNTING BRACKET - SB-19	-	
SLAA POLE	37 FOOT OVERALL ROUND DIRECT BURIED PRE-CAST CONCRETE POLE, RATED FOR 180MPH AT 5 EPA, GRAY COLOR, WITH DOUBLE FIXTURE POLE TOP MOUNTING BRACKET	_	_	(OR EQUAL)	POLE - TYPE I-O 37 FT MOUNTING BRACKET - SB-218	-	
SLC POLE	22 FOOT OVERALL ROUND DIRECT BURIED PRE—CAST CONCRETE POLE, RATED FOR 150MPH AT 3 EPA, GRAY COLOR	_	-	PRE-CAST SPECIALTIES (OR EQUAL)	POLE - TYPE I-O 22 FT	_	

	SPORTS LIGHTING FIXTURE SUMMARY													
POLE	FI	XTURE		CONTROLS		VOLTS	FEEDER SIZE	DISTANCE	VOLTAGE					
NO.	QTY	FLA	CAB. NO.	ZONE	CONT. ID	VOLIS	TEEDER SIZE	(FEET)	DROP %					
S 3	7	43.0	1	2	C1	208	3#3/0, #1G, 2°C.	850	2.35					
S4	7	43.0	1	2	C2	208	3#1/0, #4G, 1 1/2°C.	600	2.58					
S 5	8	51.6	1	2	C3	208	3#2, #6G, 1 1/4°C.	350	2.86					
S6	8	51.6	1	2	C4	208	3#2/0, #3G, 2°C.	650	2.80					
S 5	8	51.6	1	3	C5	208	3#2, #6G, 1 1/4°C.	350	2.86					
S6	8	51.6	1	3	C6	208	3#2/0, #3G, 2°C.	650	2.80					
S7	7	43.0	1	3	C7	208	3#3, #6G, 1 1/4°C.	330	2.96					
S8	7	43.0	1	3	C8	208	3#6, #10G, 1"C.	50	0.88					

NOTE: ALL LIGHTING FIXTURES IN THIS SUMMARY SHALL BE FURNISHED AND INSTALLED BY MUSCO SPORTS LIGHTING AND CONTROLLED THROUGH SPORTS LIGHTING

CONTACTOR CONTROL PANEL.

	PARKING LIGHTING FIXTURE SUMMARY									
POLES	FIX	XTURE		CONTROLS		VOLTS	FEEDER SIZE	DISTANCE	VOLTAGE	
POLES	QTY	FLA	CAB. NO.	ZONE	CONT. ID	VOLIS	FEEDER SIZE	(FEET)	DROP %	
PARKING LOT	14	9.76	1	4	С9	208	2#6, #6G, 1"C.	925	2.02	

NOTE: LIGHTING FIXTURES IN THIS SUMMARY SHALL BE CONTROLLED THROUGH SPORTS LIGHTING CONTACTOR CONTROL PANEL.

AUGUSTO E. BOBES JR. P.E. FLORIDA P.E. # 39410

BOBES ASSOCIATES CONSULTING ENGINEERS 150 CIRCLE DRIVE, MAITLAND, FL 32751 TELEPHONE: 407.628.0882 E-MAIL: INFO@BOBESENG.COM FLORIDA STATE P.E. NUMBER: 5131

CONCEPT PLAN REVIEW 07-08-16 PRELIMINARY SITE PLAN 8-9-16

60% DD SET 10-28-16

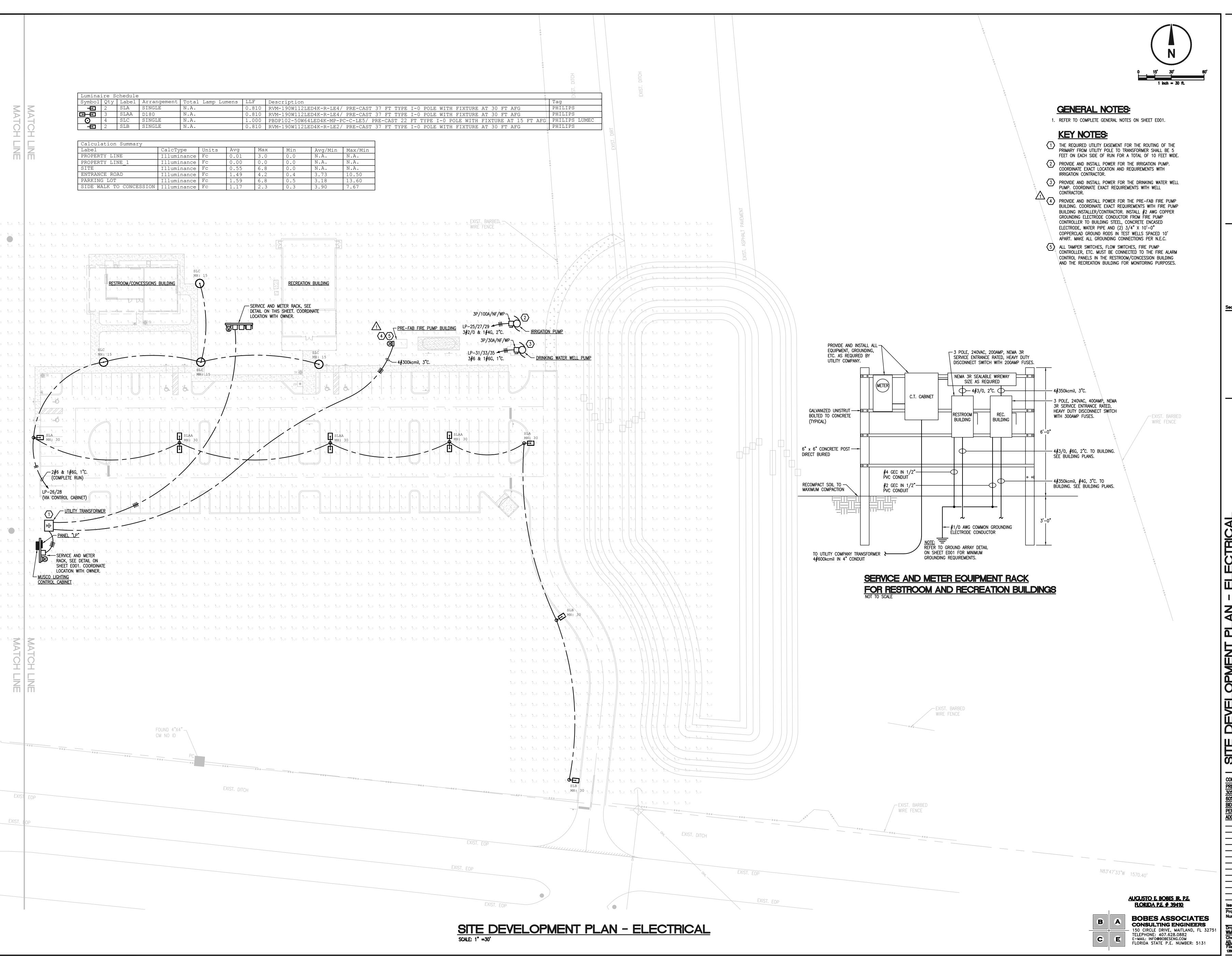
ADDENDUM NO.3 1-19-17

Issue Date and Purpose

PERMIT SET 1-10-17

Seal: Majid Kalaghchi P.E. 41046

AND



Seal: Majid Kalaghchi P.E. 41046

PERMIT SET 1-10-17 ADDENDUM NO.3 1-19-17

