INVITATION TO BID (ITB)

Subject: NE 23rd Drive Parking Lot Construction

ITB #: 2016-02

Due Date/Time: January 03, 2017, 2:30 p.m. Eastern Time

Submit To: City Clerk

City of Wilton Manors

2020 Wilton Drive

Wilton Manors, FL 33305

CITY OF WILTON MANORS
NE 23RD DRIVE PARKING LOT CONSTRUCTION

CALENDAR OF EVENTS

Listed below are important dates and times by which the actions noted must be completed. If the City finds it necessary to change any of these dates or times, the change may be accomplished by addendum. All dates are subject to change.

ACTION	COMPLETION DATE
Issue ITB	December 1, 2016
MANDATORY - Pre Bid Meeting - City of Wilton Manors Chambers	**December 15, 2016, 10:00 a.m.**
Deadline for Questions	December 18, 2016
Response to Questions	December 22, 2016
Deadline for Submitting Proposals	**January 03, 2017, 2:30 p.m.**
Evaluation Committee Review	January 10, 2017
Select Short List for Presentations	January 10, 2017
Reference Checks	January 12, 2017
Presentation	TBD
Final Ranking and Selection	January 17, 2017
Contract Negotiation	January 18, 2017
City Commission Approval of Contract	January 24, 2017 or later

CITY OF WILTON MANORS
OFFICE OF THE CITY CLERK
2020 WILTON DRIVE
WILTON MANORS, FL 33305
Ph: (954) 390-2123; Fax: (954) 390-2199

CITY OF WILTON MANORS
INVITATION TO BID

ISSUE DATE: 11/22/16
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BIDS MUST BE RECEIVED PRIOR TO 2:30 P.M. ON: JANUARY 03, 2017

TITLE: NE 23RD DRIVE PARKING LOT CONSTRUCTION

Bidder Must Complete the Following:

Vendor Name: Vendor Contact Person:	Total Bid Discount (Section 1.04) _____
Street Address: City, State, Zip: (See General Conditions in Section 1.01)	Bids are firm for Acceptance for 120 days (see Section 1.05) Yes_____ No_____ Other _____
If this invitation was mailed to an incorrect address, Mark "X" here ☐ and we will adjust our records Area Code and Telephone Number: ( ) _____ (800) _____ FAX: ( ) _____ EMAIL: _____	State or reference any variances (see Section 1.06) Vendor Web Site Address: http:// _____ NO BID – If not submitting a bid, state reason below and return one copy of this form (see Section 1.07):
Delivery - Calendar Days After Receipt of Purchase Order (Section 1:02): _____Days	Payment Terms (see Section 1.03): _____ Days _____%, Net _____ Accept payment via City's P-Card: _____ Yes, _____ No

How to Submit Bids/Proposals: it will be the sole responsibility of the Bidder to ensure that his or her bid reaches the City of Wilton Manors, Office of the City Clerk, 2020 Wilton Drive, Wilton Manors, Florida 33305, prior to the bid opening date and time listed. **DO NOT submit by facsimile (fax) or email. Facsimile and emailed bids will not be accepted. Please submit five (5) copies of your bid.**

Each bid envelope must be sealed with the following information **OUTSIDE** of the envelope:

BID/RFP Number:. 2016-02 Title: NE 23RD Drive Parking Lot Opens: January 03, 2017

Vendor Certification: I, the below signed, hereby agree to furnish the required articles(s) or services(s), at the price(s) and terms stated subject to all instructions, conditions, specifications, and all attachments hereto. I have read all attachments and filly understand what is required. By submitting this bid, I certify that I will accept a contract if approved by the City and such acceptance covers all terms, conditions, and specifications contained in this bid. I certify that I have not divulged to, discussed with, or compared this bid with any other Bidder(s) and have not colluded with any other Bidder(s) or parties to this bid. I certify I am authorized to contractually bind the bidding firm.

_____ _____
Signature of Authorized Representative | Title (Typed or Printed)

_____ _____
Name of Authorized Representative (Typed or Printed) | Date

CITY OF WILTON MANORS - INVITATION TO BID
GENERAL CONDITIONS

These instructions are standard for all contracts for commodities or services issued through the City of Wilton Manors. The City may delete, supersede, or modify any of these standard instructions for a particular contract by indicating such change in the Invitation to Bid (ITB) and/or Legal Advertisement.

PART I BIDDER PROPOSAL PAGE(S) CONDITIONS:

1.01 BIDDER ADDRESS: The City maintains vendor mailing lists for each specific Commodity Class Item. Invitation to Bid (ITB) will be mailed to all Bidders who have requested to be placed on the applicable vendor mailing list. Requests may also be mailed to unregistered Bidders. Neither the mailing of one ITB to the vendor, nor a bid in return, will register a vendor on our system for and future ITB. If you wish purchase orders to be sent to a different address, please so indicate on your bid. If you wish payments sent to a different address, please so indicate on your invoice.

1.02 DELIVERY: Time will be of the essence for any orders placed as a result of this ITB. The City reserves the right to cancel any orders, or part thereof, without obligation if delivery is not made in accordance with the schedule specified by the Bidder and accepted by the City.

1.03 INVOICING, PAYMENT TERMS AND CASH DISCOUNTS: The service provider shall submit invoices to the City no later than 30 days after a service request is resolved. In addition, invoices generated between September 15th – September 30th of each fiscal year shall be submitted to the City no later than October 15th of the next/new fiscal year. Payment terms, unless otherwise stated in this ITB, will be considered to be net 30 days after the date of satisfactory delivery at the place of acceptance and receipt of correct invoice at the office specified, whichever occurs last. Bidder may offer cash discounts for prompt payment but they will not be considered in determination of award. If a Bidder offers a discount, it is understood that the discount time will be computed from the date of satisfactory delivery, at the place of acceptance, and receipt of correct invoice, at the office specified, whichever occurs last**.**

Indicate whether or not the Bidder is willing to accept payment via the City's P-Card.

1.04 TOTAL BID DISCOUNT: If Bidder offers a discount for award of all items listed in the bid, such discount shall be deducted from the total of the firm net unit prices bid and shall be considered in tabulation and award of bid**.**

1.05 BIDS FIRM FOR ACCEPTANCE: Bidder warrants, by virtue of bidding, that his bid and the prices quoted in his bid will be firm for acceptance by the City for a period of ninety (90) days from the date of bid opening unless otherwise stated in the ITB**.**

1.06 VARIANCES: For purposes of bid evaluation, Bidder's must indicate any variances, no matter how slight, from ITB General Conditions in the space provided in the Bidder Proposal Pages.

No variations or exceptions by a Bidder will be considered or deemed a part of the bid submitted unless such variances or exceptions are listed in the bid and referenced in the space provided on the Bidder Proposal Pages. If variances are not stated, or referenced as required, it will be assumed that the product or service fully complies with the City's terms, conditions, and specifications**.**

By receiving a bid, City does not necessarily accept any variances contained in the bid. All variances submitted are subject to review and approval by the City. If any bid contains material variances that, in the City's sole opinion, make that bid conditional in nature, the City reserves the right to reject the bid or part of the bid that is declared by the City as conditional.

1.07 NO BIDS: If you do not intend to bid please indicate the reason in the space provided in the ITB such as insufficient time to respond; product or service not offered; unable to meet specifications; schedule would not permit; or any other reason. Failure to bid or return no bid comments prior to the bid due and opening date and time, indicated in this ITB, may result in your firm being deleted from our Bidder's registration list for the commodity class Item requested in this ITB.

Part II DEFINITIONS/ORDER OF PRECEDENCE:

2.01 BIDDING DEFINITIONS: The City will use the following definitions in this Invitation to Bid and any other document used in the bidding process:

BID – a price and terms quote received in response to an ITB.

BIDDER – Person or firm submitting a Bid.

CONTRACT – A deliberate verbal or written agreement between two or more competent parties to perform or not to perform a certain act or acts, including all types of agreements, regardless of what they may be called, for the procurement or disposal of equipment, materials, supplies, services or construction.

CONTRACTOR – Successful Bidder or Proposer who is awarded a Contract to provide professional services to the City.

FIRST RANKED PROPOSER – That Proposer, responding to a City RFP, whose Proposal is deemed by the City to be the lowest and most responsive and responsible Prosper.

INVITATION TO BID (ITB) – when the City is requesting bids from qualified Bidders.

P-CARD – City's purchasing, debit or credit card.

PROPOSAL – a proposal received in response to an RFP.

PROPOSER – Person or firm submitting a Proposal.

REQUEST FOR PROPOSALS (RFP) – when the City is requesting proposals from qualified Proposers.

RESPONSIVE BIDDER – A person whose bid conforms in all material respects to the terms and conditions included in the ITB.

RESPONSIBLE BIDDER – A person who has the capability in all respects to perform in full the contract requirements, as stated in the ITB, and the integrity and reliability that will assure good faith performance.

SERVICE PROVIDER – Successful Bidder or Proposer who is awarded a Contract to provide professional services to the City.

SELLER or CONTRACTOR – Successful Bidder or Proposer who is awarded a Purchase Order or Contract to provide goods or services to the City.

The following terms may be used interchangeably by the City: ITB, or RFP; Bid or Proposal; Bidder, Proposer, Seller; Contractor or Consultant; and Contract, Award, Agreement or Purchase Order**.**

2.02 SPECIAL CONDITIONS: Any and all Special Conditions contained in Part VI of this ITB that may be in variance or conflict with these General Conditions shall have precedence over the General Conditions. If no changes or deletions to General Conditions are made in the Special Conditions, then the General Conditions shall prevail in their entirety,

PART III BIDDING AND AWARD PROCEDURES:

3.01 SUBMISSION AND RECEIPT OF BIDS: To receive consideration, bids must be received prior to the bid opening date and time. Unless otherwise specified, Bidders should use the Bidder Proposal Page form provided in this ITB. These forms may be duplicated, but failure to use the forms may cause the bid to be rejected. Any erasures or corrections on the bid must be made in ink and initialed by Bidder in ink. **All information submitted by the Bidder shall be printed, typewritten or filled in with pen and ink along with a digital/electronic Adobe PDF copy on a flash/jump drive or CD and five (5) copies of the proposal.** Bids shall be signed in ink. Separate bids must be submitted for each ITB issued by the City in separate sealed envelopes properly marked according to the instructions on page 1 of this ITB. When a particular ITB or RFP requires multiple copies of bids or proposals they may be included in a single envelope or package properly sealed and identified. Facsimile (FAX) and emailed bids will not be accepted. Bids will be publicly opened in the City Commission Chambers, or other designated area, in the presence of Bidders, the public, and City staff. Bidders and the public are invited and encouraged to attend bid openings. Bids will be tabulated and made available for review by Bidder's and the public in accordance with applicable regulations.

3.02 TAXES: The City of Wilton Manors is exempt from Federal Excise and State of Florida Sales taxes on direct purchase of tangible property. The exemption number for Federal Excise taxes is **59-84-007OK,** and State Sales Tax exemption number is **16-21-196526-54C.**

3.03 WARRANTIES OF USAGE: Any quantities listed in this ITB as estimated or projected are provided for tabulation and information purposes only. No warranty or guarantee of quantities is given or implied. It is understood that the Contractor will furnish the City's needs as they arise.

3.04 APPROVED EQUAL: If the technical specifications call for a specific brand name, manufacturer, make, model, or vendor catalog number with acceptance of "APPROVED EQUAL", it shall be for the purpose of establishing a level of quality and/or features that are desired and acceptable to the City. In such cases, the City will be receptive to any unit that would be considered by qualified City personnel as an "Approved Equal". In that the specified make and model represent a level of quality and features desired by the City, the Bidders must state clearly in their bid any variance from those specifications. It is the Bidder's responsibility to provide adequate information in his or her bid to enable the City to ensure that the bid meets the required criteria. If adequate information is not submitted with the bid, the bid may be rejected. The City will be the sole judge in determining if the item bid qualifies as an "Approved Equal".

3.05 MINIMUM AND MANDATORY TECHNICAL SPECIFICATIONS: The technical specifications may include minimum, mandatory, or required items. If any Bidder is unable to meet or exceed these items and/or feels that the technical specifications are overly restrictive, the Bidder must notify the Leisure Services Director in the manner specified in Part VI – Special Conditions. For questions of a material nature, the Leisure Services Director must receive notification at least seven (7) days before bid due and open date. If no such notification is received prior to that deadline, the City will consider the technical specifications to be acceptable to all Bidders.

3.06 MISTAKES: Bidders are cautioned to examine all terms, conditions, specifications, drawings, exhibits, addenda, delivery instructions and special conditions pertaining to the ITB. Failure of the Bidder to examine all pertinent documents shall not entitle him to any relief from the conditions imposed in the contract.

3.07 SAMPLES AND DEMONSTRATIONS: Samples or inspection of product may be requested by the City to determine suitability. Unless otherwise specified, samples may be requested after the date of bid opening and if requested, should be received by the City within seven (7) working days of the request. Samples, when requested, must be furnished free of expense to the City. If not used in testing or destroyed, samples will be returned to the Bidder upon request within thirty (30) calendar days of bid award at the Bidder's expense. When required, the City may request full demonstrations of units prior to award. When such demonstrations are requested, the Bidder shall respond promptly and arrange a demonstration at a convenient location. Failure to provide samples or demonstrations as specified by the City may result in rejection of a Bid.

3.08 LIFE CYCLE COSTING: If so specified in the ITB, the City may elect to evaluate equipment proposed on the basis of total cost of ownership. In using Life Cycle Costing, the following factors may be considered: estimated useful life; maintenance costs; cost of supplies; labor intensity; energy usage; environmental impact; and residual value. The City reserves the right

to use these or any other applicable criteria, in its sole opinion, that will most accurately estimate the total cost of use and ownership.

3.09 BIDDING ITEMS WITH RECYCLED CONTENT: In addressing environmental concerns, the City of Wilton Manors encourages Bidders to submit bids or alternate bids containing items with recycled content. When submitting bids containing items with recycled content, the Bidder shall provide adequate documentation so that the City may verify the recycled content. The City prefers packaging consisting of materials that are degradable or able to be recycled. When specifically stated in the ITB, the City may give preference to bids containing items manufactured with recycled material or packaging that is able to be recycled.

3.10 USE OF OTHER GOVERNMENTAL CONTRACTS: The City reserves the right to reject any or all bids, or parts of bids, and utilize other available governmental contracts if such action is in the City's best interest.

3.11 QUALIFICATIONS/INSPECTION: Bids will only be considered from firms normally engaged in providing the types of commodities and/or services specified herein. The City reserves the right to inspect the Bidder's facilities and equipment; to interview the Bidder's personnel; and to take any other action necessary to determine a Bidder's ability to perform. The Leisure Services Director or Designee reserves the right to reject any bid when an inability to perform has been determined by the City through evaluation and or examination of evidence.

3.12 BID SECURITY: A bid security can be in the form of a bid bond, postal money order, cashiers check, or irrevocable letter of credit, in an amount of five percent (5%) of the total bid price, payable to the City of Wilton Manors and conditioned upon the successful Bidder entering into Contract as specified within fifteen (15) days after award of Contract and furnish the necessary documents to the City including, but not limited to: insurance certificates, Public Construction Bond, etc. in the amount stated herein. All bonds shall be written by a surety authorized to conduct business in the State of Florida and shall have a registered agent in the State of Florida. A Bid Bond shall be written by a Surety licensed to do business in Florida and named in the current list of "Companies" Holding Certificates of Authority as Acceptable Sureties on Federal Bonds" as published in Circular 570(amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of Treasury.

Bid Security of the successful Bidder shall be forfeited to the City of Wilton Manors not as penalty, but as liquidated damages for the cost and expense incurred should said Bidder fail to enter into Contract, or fail to comply with any other requirements of the Specifications or of his Proposal. The CITY then may award the Contract to the next lowest and/or most responsive and responsible Bidder, or the Work may be readvertised or may be performed by CITY forces without Contract as the City Commission may deem to be in the best interest of the CITY. Bid security will be returned to the successful bidder after acceptance of the performance bond or irrevocable letter of credit, if required; acceptance of insurance coverage, if required; full execution of contract documents, if required; or any other specified special condition.

3.13 PUBLIC RECORDS: Florida law provides that municipal records shall at all times be open for personal inspection by any person (Section 119.01, Florida Statutes, The Public Records Law). Information and materials received by the City in connection with an ITB response shall be deemed to be public records and subject to public inspection upon award, recommendation for award, or 10 days after bid opening, whichever occurs first. However, certain exemptions to the public records law are statutorily provided for in Section 119.07, F.S. If the Proposer / Bidder believes any of the information contained in his or her response is exempt from the Public Records Law, then the Proposer / Bidder, must in his or her response, specifically identify the material which is deemed to be exempt and cite the legal authority for the exemption. Otherwise, the City will treat all materials received as public records**.**

3.14 PROHIBITION OF INTEREST: No contract will be awarded to a bidding firm who has City elected officials, officers or employees affiliated with it, unless the bidding firm has fully complied with current Florida State Statutes relating to this issue. Bidders must disclose any such affiliation. Failure to disclose any such affiliation will result in disqualification of the Bidder and removal of the Bidder from the City's Bidder lists and prohibition from engaging in any business with the City.

3.15 LOBBYING: Proposers, their agents, and associates shall not contact or solicit any City Commissioner, City employee, or official regarding this RFP during any phase of this RFP except as set forth in Section 2-268 of the City's Code of Ordinances. The Code of Ordinances is available for review at **www.wiltonmanors.com**. Failure to comply with this provision may result in disqualification of the Proposer, at the option of the City. Only that individual listed as the contact person in the specifications shall be contacted.

3.16 RESERVATIONS FOR AWARD AND REJECTION OF BIDS: The City reserves the right to accept or reject any or all bids, or part of bids, and to waive minor irregularities or variations to specifications contained in bids and minor irregularities in the bidding process. The City also reserves the right to award the contract on a split order basis; lump sum basis; individual item basis; or any such combination as shall best serve the interest of the City.

The City reserves the right to make an award to the lowest, most responsive and responsible Bidder whose product or service meets the terms, conditions, and specifications of the ITB and whose bid is considered to best serve the City's interest. In determining the responsiveness of the offer and the responsibility of the Bidder, the following shall be considered when applicable: the ability, capacity and skill of the Bidder to perform as required; whether the Bidder can perform promptly, or within the time specified, without delay or interference; the character, integrity, reputation, judgment, experience and efficiency of the Bidder; the quality of past performance by the Bidder; the previous and existing compliance by the Bidder with related laws and ordinances; the sufficiency of the Bidder's financial resources; the availability, quality and adaptability of the Bidder's supplies or services to the required use; the ability of the Bidder to provide future maintenance, service or parts; and the ability of the Bidder to comply with the technical specifications contained within this ITB.

If the ITB provides for a contract trial period, the City reserves the right, in the event the selected Bidder does not perform satisfactorily, to award a trial period to the next ranked Bidder or to award a contract to the next ranked Bidder, if that Bidder has successfully provided services to the City in the past. This procedure to continue until a Bidder is selected or the contract is re-bid, at the sole option of the City.

3.17 LEGAL REQUIREMENTS: Applicable provisions of all federal, state and county laws, and all local ordinances, rules and regulations, shall govern development, submittal and evaluation of all bids received in response hereto and shall govern any and all claims and disputes which may arise between person(s) submitting a bid response hereto and the City by and through its officers, employees and authorized representatives, or any other person, natural or otherwise. Lack of knowledge by any Bidder shall not constitute a cognizable defense against the legal effect thereof**.**

PART IV BONDS AND INSURANCE

4.01 PERFORMANCE BOND/IRREVOCABLE LETTER OF CREDIT: If a performance bond or irrevocable letter of credit is required within this ITB, the Contractor shall within fifteen (15) working days after notification of award, furnish to the City a Performance Bond or an Unconditional Irrevocable Letter of Credit payable to the City of Wilton Manors, Florida, in the face amount specified in the ITB as surety for faithful performance under the terms and conditions of the contract. If the bond is on an annual coverage basis, renewal for each succeeding year shall be submitted to the Office of the City Clerk thirty (30) days prior to the termination date of the existing Performance Bond. A surety company of recognized standing, authorized to do business in the State of Florida and having a resident agent, must execute the Performance Bond. If a Letter of Credit is chosen, it must be in a form acceptable to the City, drawn on a local (Broward, Miami-Dade or Palm Beach County) bank acceptable to the City and issued in favor of the City of Wilton Manors, Florida. If a Bidder wishes to use a non-local bank, he must have prior City approval of the requirements to draw against the Letter of Credit**.**

Acknowledgement and agreement is given by both parties that the amount herein set for the Performance Bond or Irrevocable Letter of Credit is not intended to be, nor shall be deemed to be, in the nature of liquidated damages nor is it intended to limit the liability of the Contractor to the City in the event of a material breach of this Agreement by the Contractor**.**

4.02 INSURANCE: If the Contractor is required to go on to City property to perform work or services as a result of ITB award, the Contractor shall assume full responsibility and expense to obtain all necessary insurance as required by the City or specified within this ITB.

The Contractor shall provide to the Risk Manager original certificates of coverage. The Contractor must receive notification of approval of those certificates by the City's Risk Manager prior to engaging in any activities under this contract. The Contractor's insurance will be subject to the approval of the City's Risk Manager. The certificates of coverage must list the City as an ADDITIONAL INSURED and shall have no less than thirty (30) days written notice of cancellation or material change, or such other notice as is required by the insurance

policy. Further modification of the insurance requirements may be made at the sole discretion of the City's Risk Manager if circumstances change or adequate protection of the City is not presented. Bidder, by submitting his or her bid, agrees to abide by such modifications**.**

PART V PURCHASE ORDER AND CONTRACT TERMS:

5.01 COMPLIANCE TO SPECIFICATIONS, LATE DELIVERIES/PENALTIES: Items offered or services to be rendered may be tested for compliance to bid specifications. Items delivered which do not conform to bid specifications may be rejected and returned at Bidder's expense. Any non-compliance resulting in contract termination for cause; or delivery of items not conforming to specifications; or late delivery may also result in:

- Bidder's name being removed from the City's Bidders mailing list;
- All City Departments being advised to refrain from doing business with the Bidder; and/or
- All other remedies in law or equity.

5.02 ACCEPTANCE, CONDITION, AND PACKAGING: The material delivered in response to this ITB award shall remain the property of the Bidder until the City has made a physical inspection of the material and said material has been accepted to the satisfaction of the City. The material must comply fully with the terms of the ITB; be of the required quality; and be new; and be of the latest applicable technology. All shipping containers shall be suitable for storage and shipment by common carrier, and all bid prices shall include standard commercial packaging. The City will not accept substitutes of any kind. Any substitutes or material not meeting required specifications will be returned at the Bidder's expense. The City will make payment only after receipt and acceptance of materials or services by the City.

5.03 SAFETY STANDARDS: All manufactured items and fabricated assemblies shall comply with applicable requirements of the Occupational Safety and Health Act of 1970, as amended, and shall be in compliance with Chapter 442, Florida Statutes. A completed Material Safety Data Sheet (MSDS) must accompany any toxic substance listed in Section 38F-41.03 of the Florida Administrative Code delivered as a result of this order.

5.04 ASBESTOS STATEMENT: All material supplied must be 100% asbestos free. Bidder, by virtue of bidding, certifies that any material or equipment supplied will be 100% asbestos free.

5.05 OTHER GOVERNMENTAL ENTITIES: If awarded a contract as a result of this ITB, the Bidder will, if he/she has sufficient capacity or quantities available, provide to other requesting governmental agencies the products or services awarded in accordance with the terms and conditions of this ITB and the resulting contract. Prices shall be F.O.B. delivered to the requesting agency.

5.06 VERBAL INSTRUCTIONS PROCEDURE: No negotiations, decisions, or actions shall be initiated or executed by the Contractor as a result of any discussions with any City employee. Only

those communications that are in writing from an authorized City representative may be considered. The City will recognize only written communications from Contractors, which are assigned by a person designated as authorized to bind the Contractor, as duly authorized expressions on behalf of Contractors.

5.07 INDEPENDENT CONTRACTOR: The Contractor is an independent contractor under this Agreement. Personal services provided by the Contractor shall be by employees of the Contractor and subject to supervision by the Contractor, and shall not be considered officers, employees or agents of the City. Personnel policies, Federal and State tax responsibilities, Social Security taxes, health insurance, employee benefits, purchasing policies (unless otherwise stated in this ITB), and other similar administrative procedures applicable to services rendered under this contract shall be those of the Contractor and shall represent the Contractor's responsibility.

5.08 INDEMNITY/HOLD HARMLESS AGREEMENT: The Contractor agrees to protect, defend, indemnify, and hold harmless the City of Wilton Manors and its commissioners, officers, employees and agents from and against any and all losses, penalties, damages, settlements, claims, costs, charges for other expenses, or liabilities of every and any kind including attorney fees and costs (at the trial level and on appeal), in connection with or arising directly or indirectly from the Contractor's negligent act or omission, wrongful conduct or breach of the contract . Without limiting the foregoing, any and all such claims, suits, or other actions relating to personal injury, death, damage to property, defects in materials or workmanship, actual or alleged violations of any applicable Statute, ordinance, administrative order, rule or regulation, or decree of any court shall be included in the indemnity hereunder.

5.09 TERMINATION FOR CAUSE: If, through any cause, the Contractor shall fail to fulfill in a timely and proper manner its obligations under this Agreement, or if the Contractor shall violate any of the provisions of this Agreement, the City may upon written notice to the Contractor, terminate the right of the Contractor to proceed under this Agreement, or with such part or parts of the Agreement as to which there has been default, and may hold the Contractor liable for any damages caused to the City by reason of such default and termination. In the event of such termination, any completed services performed by the Contractor under this Agreement shall, at the option of the City, become the City's property and the Contractor shall be entitled to receive equitable compensation for any work completed to the satisfaction of the City. The Contractor, however, shall not be relieved of liability to the City for damages sustained by the City by reason of any breach of the Agreement by the Contractor, and the City may withhold any payment to the Contractor for the purpose of setoff until such time as the amount of damages due to the City from the Contractor can be determined.

5.10 TERMINATION FOR CONVENIENCE: The City reserves the right, in its best interest as determined by the City, to cancel any contract awarded by giving written notice to the Contractor thirty (30) days prior to the effective date of such cancellation.

5.11 CANCELLATION FOR UNAPPROPRIATED FUNDS: The obligation of the City for payment to a Contractor is limited to the availability of funds appropriated in a current fiscal year, and

continuation of the contract into a subsequent fiscal year is subject to appropriation of funds, unless otherwise authorized by law. The City's fiscal year begins on October 1st and ends on September 30th.

5.12 RECORDS/AUDIT: The Contractor shall maintain during the term of the contract all accounting records and reports in accordance with generally accepted accounting practices and standards for records directly related to this contract. The form of all records and reports shall be subject to the approval of the City. The Contractor agrees to make available to the City, during normal business hours and in Broward, Dade or Palm Beach Counties, all books of account, reports and records relating to this contract for the duration of the contract and retain them for a minimum period of one (1) year beyond the last day of the contract term.

5.13 PERMITS, TAXES, LICENSES: The successful Contractor shall, at his or her own expense, obtain all necessary permits, and shall pay all licenses, fees and taxes required to comply with all Federal, State, local and municipal laws, ordinances, rules and regulations applicable to business to be carried out under this contract.

5.14 LAWS/ORDINANCES: The Contractor shall observe and comply with all Federal, State, local and municipal laws, ordinances rules and regulations that would apply to this contract.

5.15 NON-DISCRIMINATION: Contractor shall comply with the provisions of Section 2-268(v) and 2-269(b) of the Wilton Manors Code of Ordinances. Contractor shall require that all subcontractors comply with Section 2-269 (b) of the Wilton Manors Code of Ordinances. Contractor hereby agrees to execute a Domestic Partnership Certification Form, a copy of which is attached hereto.

5.16 EQUAL EMPLOYMENT OPPORTUNITY: The City of Wilton Manors, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 and the Regulations of the Department of Commerce (15 CFR, Part 8) issued pursuant to such Act, hereby notifies all prospective Proposers that they will affirmatively ensure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to participate in response to this advertisement and will not be discriminated against on the grounds of race, color, creed, sex, age or national origin in consideration for an award.

5.17 AMERICANS WITH DISABILITIES ACT: The City Commission of the City of Wilton Manors, Broward County, Florida, does not discriminate upon the basis of any individual's disability status. This nondiscrimination policy involves every aspect of the City's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring reasonable accommodation for the public meetings specified herein (i.e. Information Conference or Proposal Opening), should contact the person named on the first page of this document at least twenty-four (24) hours in advance of the activity.

5.18 UNUSUAL CIRCUMSTANCES: If during a contract term where costs to the City are to remain firm, or adjustments are restricted by a percentage or a Consumer Price Index cap, and unusual circumstances that could not have been foreseen by either party to the contract occur and those circumstances significantly affect the Contractor's cost in providing the

required items or services, then the Contractor may request adjustments to the costs to the City to reflect the changed circumstances. The circumstances must be beyond the control of the Contractor, and the requested adjustments must be fully documented. The City may, after examination, refuse to accept the adjusted costs if they are not properly documented, increases are considered to be excessive, or decreases are considered to be insufficient. In the event the City does not wish to accept the adjusted costs and the matter cannot be resolved to the satisfaction of the City, the City will reserve the following options:

1. The contract can be canceled by the City upon giving thirty (30) days written notice to the Contractor with no penalty to the City. The Contractor shall fill all City requirements submitted to the Contractor until the termination date contained in the notice.

2. The City can require the Contractor to continue to provide the items and services at the firm fixed (non-adjusted) cost until the termination of the contract term then in effect.

3. If the City, in its interest and in its sole opinion, determines that the Contractor in a capricious manner has attempted to use this section of the contract to relieve themselves of a legitimate obligation under the contract, and no unusual circumstances have occurred, then the City reserves the right to take any and all action under law or equity. Such action shall include, but not be limited to, declaring the Contractor in default and disqualifying him for receiving any business from the City for a stated period of time.

If the City does agree to adjusted costs, these adjusted costs shall not be invoiced to the City until the Contractor receives notice in writing signed by a person authorized to bind the City in such matters.

5.19 ELIGIBILITY: If applicable, the Contractor must first register with the Department of State of the State of Florida, in accordance with Florida State Statutes, prior to entering into a contract with the City.

5.20 PUBLIC ENTITY CRIMES: In accordance with Section 287.133, Florida Statutes, a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a proposal on a contract to provide any goods or services to a public entity, may not submit a proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit proposals on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or vendor under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017 for Category Two for a period of 36 months from the date of being placed on the convicted vendor list.

5.21 PATENTS AND ROYALTIES: The Contractor, without exception, shall indemnify and hold harmless the City and its employees from liability of any nature and kind, including, but not limited to, costs and expenses for or on account of any copyrighted, patented or un-patented invention, process, or article manufactured or used in the performance of the contract, including its use by the City. If the Contractor uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the

bid prices shall include all royalties or costs arising from the use of such design, device, or materials in any way involved in the work.

5.22 ASSIGNMENT: Contractor shall not transfer or assign the performance required by this ITB without the prior written consent of the City. Any award issued pursuant to this ITB, and any monies that may become due hereunder, are not assignable except with the prior written approval of the City Manager.

5.23 LITIGATION VENUE: The parties waive the privilege of venue and agree that all litigation between them in the State courts shall take place in Broward County, Florida, and that all litigation between them in the Federal courts shall take place in the Southern District in and for the State of Florida.

5.24 PUBLIC RECORDS: The City of Wilton Manors is public agency subject to Chapter 119, Florida Statutes. The Contractor shall comply with Florida's Public Records Law. Specifically, the Contractor shall:

5.24.1 Keep and maintain public records required by the CITY to perform the service;

5.24.2 Upon request from the CITY's custodian of public records, provide the CITY with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in chapter 119, Fla. Stat., or as otherwise provided by law;

5.24.3 Ensure that public records that are exempt or that are confidential and exempt from public record disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and, following completion of the contract, Contractor shall destroy all copies of such confidential and exempt records remaining in its possession after once the Contractor transfers the records in its possession to the CITY; and

5.24.4 Upon completion of the contract, Contractor shall transfer to the CITY, at no cost to the CITY, all public records in Contractor's possession All records stored electronically by Contractor must be provided to the CITY, upon request from the CITY's custodian of public records, in a format that is compatible with the information technology systems of the CITY.

5.24.5 The failure of Contractor to comply with the provisions set forth in the Agreement shall constitute a Default and Breach of the Agreement, for which, the City may terminate the Agreement.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT

CITY CLERK
2020 WILTON DRIVE
WILTON MANORS, FLORIDA 33305
(954) 390-2123
ksims@wiltonmanors.com

PART VI - SPECIAL CONDITIONS

6.01 **PURPOSE:** The City of Wilton Manors, Florida (City) is actively seeking a qualified Contractor, hereinafter referred to as Contractor, **to provide construction services for NE 23rd Drive Parking Lot** to the City in full accordance with the specifications, terms, and conditions contained in this Invitation to Bid (ITB). The work will include but not be limited to site preparation, earthwork, roadway and walkway replacement and construction, drainage installation, landscaping, irrigation systems, pavement restoration, site furnishings.

6.02 **INFORMATION OR CLARIFICATION:** For information concerning procedures for responding to this ITB, contact Kathryn Sims, City Clerk at (954) 390-2123. For information of a technical nature direct questions to Daren Jairam, Purchasing Coordinator at djairam@wiltonmanors.com. Such contact is to be for clarification purposes only. Material changes, if any, to the technical specifications or bidding procedures will only be transmitted by written addendum from the City.

6.03 **QUESTIONS AND ADDENDUM:** Any questions that Bidders wish to have addressed and which might require an addendum must be submitted to the City in writing by **December 18, 2016** and will be answered in writing on **December 22, 2016** on the City of Wilton Manors website at www.wiltonmanors.com. To facilitate receipt of questions, they must be sent via email to djairam@wiltonmanors.com, ATTENTION: **Daren Jairam, Purchasing Coordinator**.

It will be the responsibility of the Bidder to review the answers to these questions prior to submitting a bid. It is the Proposer's responsibility to ascertain if any addenda have been issued, to obtain all such addenda, and to return executed addenda with the bid. Proposers should continue to monitor the City's website.

Written questions received after **December 22, 2016** may not be answered. Only written questions answered by a formal written Addendum will be binding.

PLEASE NOTE: No portion of your bid response can be sent via facsimile (FAX) or electronic email. It is in the best interest of the Bidder to attend the scheduled Pre-Bid Meeting:

City of Wilton Manors Chambers
2020 Wilton Drive
Wilton Manors, Florida 33305
MANDATORY PRE BID MEETING – DECEMBER 15, 2016 at 10:00 a.m.

6.04 SITE VISIT: Bidders are encouraged to inspect the location and equipment to be serviced prior to submission of a bid. No variation in price or conditions shall be permitted based on claim of ignorance. Submission of the bid is evidence that the Bidder has familiarized himself/herself with the nature and extent of the work and any conditions that may, in any manner, affect the scope of the work and/or materials required. Inspections will only be allowed at the mandatory pre-bid meeting.

6.05 COMPETENCY OF BIDDERS: Bids shall be considered only from firms that have been continuously engaged in providing products or services similar to those specified herein for a reasonable period and that are presently engaged in the provision of these services. It may be necessary to produce evidence that they have established a satisfactory record of performance for a reasonable period of time.

6.06 PERFORMANCE: It is the intention of the City to purchase services and/or products as specified herein from a source of supply that will give prompt and convenient shipment and service. Any failure of a successful Bidder to comply with these conditions may be cause for terminating any resulting contract immediately upon notice by the City. The City reserves the right to make purchases from other sources, when necessary, should a successful Bidder be unable to supply services and/or products on a timely basis and such delay may cause harm to the affected City department or to City residents.

6.07 CONTRACT TERM: This section is intentionally left blank

6.08 PRICE: Bidder will quote a fixed cost on the Bidder Proposal Page for the maintenance of the items listed in Part VII – Technical Specifications/Scope of Services. Pricing shall include all labor costs associated with the project including, but not limited to, personnel salaries, benefits and supervision.

6.09 COST ADJUSTMENTS: Costs for all services purchased under this contract shall remain firm and unchanged

6.10 WARRANTY OF USAGE: The items and quantities listed on the Bidder Proposal Page represent the City's estimate of annual usage and should be used by the Bidder as a guide. The City, for tabulation and award purposes, will also use the items and quantities listed Bidder Proposal Page. However, no warranty is given or implied as to the actual items and/or dollar amount that will be purchased.

6.11 EVALUATION/AWARD: Award will be made in total to the lowest, most responsive, responsible Bidder whose product or service meets the terms, conditions, and specifications of the ITB and whose bid is considered to best serve the City's interest. The City reserves the right to compare specific items, at its discretion, to determine the low responsible Bidder. Tie bids will be decided by the City Manager whose decision will be final. It is anticipated that an award will be made within 30 days of bid opening. A copy of the bid tabulation will be sent to any Bidder who provides a self-addressed, stamped envelope with their bid.

6.12 INSURANCE: The Contractor shall furnish proof of Workers' Compensation Insurance, General Liability Insurance and Comprehensive Automobile Liability Insurance. The coverage is to remain in force at all times during the contract period. The following minimum insurance coverage is required. The City is to be added as an "Additional Insured" with relation to Commercial General Liability Insurance. Any costs for adding the City as "Additional Insured" will be at the Contractor's expense.

Workers' Compensation & Employer's Liability Insurance
Limits: Workers' Compensation: Statutory
Employer's Liability: $100,000.00

Commercial General Liability Insurance
Limits: Combined Bodily Injury/Property Damage: $500,000.00

Comprehensive Automobile Liability - Owned, Leased and Hired Vehicles
Limits: Combined Bodily Injury/Property Damage: $300,000.00

A copy of any current Certificate of Insurance should be included with your bid. In the event that you are the successful Bidder, you will be required to provide a Certificate naming the City as an "Additional Insured".

6.13 GENERAL CONDITIONS: Except as noted in the Special Conditions (Part VI) or Technical Specifications/Scope of Services (Part VII), all terms and conditions of the general conditions contained within this ITB are included by reference.

PART VII – TECHNICAL SPECIFICATIONS/SCOPE OF SERVICE

7.01 SCOPE OF SERVICES will consist of the following items:

A. The WORK to be performed under this Contract shall consist of furnishing and installing all tools, equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The WORK shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.

B. The NE 23rd Drive Parking Lot Project Contract Documents are comprised of two volumes and are summarized as follows:

Volume I Front End Documents and Technical Specifications

Volume II General Drawings

C. A brief description of the Work is stated in the NOTICE TO CONTRACTORS. To determine the full scope of the Project or any particular part of the Project, coordinate the applicable information in these Contract Documents.

7.02 WORK COVERED BY CONTRACT DOCUMENTS

A. The work of this Contract comprises the construction of site work for the NE 23rd Drive Parking Lot. The work will include but not be limited to site preparation, earthwork, roadway and walkway replacement and construction, drainage installation, landscaping, irrigation systems, pavement restoration, site furnishings.

B. Project Identification: NE 23rd Drive Parking Lot
   1. Project Location: 1008 NE 23rd Drive, Wilton Manors, Florida

C. Owner: City of Wilton Manors
   1. City's Representative: David Archacki, Utilities Director, or designated representative.
   2. Engineer: Jason McClair - City Engineer or Designated Representative

7.03 NOTICE TO BIDDERS

A. The successful bidder, in order to be considered responsive, must possess the appropriate License as described in the Contract Documents.

B. It should also be noted that the successful bidder will, at the time of the pre-construction conference, be required to show that each of the CONTRACTOR'S subcontractors is in compliance with the City's City Code of Ordinances.

7.04 STANDARD SPECIFICATION

A. All materials and workmanship shall meet the requirements of the CONSTRUCTION STANDARDS AND SPECIFICATIONS.
   1. These Special Provisions are supplemental to the above Specifications and Standards.

7.05 SITE INVESTIGATION

A. The CONTRACTOR, by virtue of signing the Contract, acknowledges that CONTRACTOR and all subcontractors have satisfied themselves to the nature and location of the work, the general and local conditions including, but not restricted to: those bearing upon transportation; disposal, handling and storage of materials; access roads to the site; the conformation and conditions of the work area; and the character of equipment and facilities needed preliminary to and during the performance of the work. Failure on the part of the CONTRACTOR to completely or properly evaluate the site conditions shall not be grounds for additional compensation.

B. Soil boring information will not be furnished to the CONTRACTOR. The CONTRACTOR, by virtue of signing the Contract, acknowledges that CONTRACTOR and subcontractors have satisfied themselves as to the nature and extent of soil and (underground) water conditions on the project site. No additional payment will be made to the CONTRACTOR because of differences between actual conditions and those shown by the boring logs.

7.06 WORK BY OTHERS

A. Concurrent Work by Other CONTRACTORS. The CONTRACTOR'S attention is directed to the fact that other CONTRACTORS may conduct work at the site during the performance of the WORK under this Contract. The CONTRACTOR shall conduct its operations so as to cause little or no delay to WORK of such other CONTRACTORS, and shall cooperate fully with such CONTRACTORS to provide continued safe access to their respective portions of the site, as required to perform work under their respective contracts.

B. Interference with Work on Utilities. The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.

7.07 WORK SEQUENCE

A. The CONTRACTOR shall schedule and perform the work in such a manner as to result in the least possible disruption to roadways, driveways, and utilities. Utilities shall include but not be limited to water, sewerage, drainage structures, ditches and canals, gas, electric, television and telephone. Prior to commencing with the WORK, CONTRACTOR shall perform a location investigation of existing underground utilities and facilities in accordance with Section 01530 entitled "Protection of Existing Facilities" and shall have obtained all required permits and permissions, CONTRACTOR shall also deliver written notice to the CITY, ENGINEER, and property occupants (private and public) of all planned disruption to roadway, driveways, temporary displacement of fences, mailboxes, street signs and traffic signs, and utilities 72 hours in advance of disruption.

B. Because this parking lot will be partially open to the public at all times, it will be necessary to sequence portions of this project. The CONTRACTOR shall be responsible to coordinate construction activities with CONTRACTOR of adjacent phases and sections.

7.08 WORK SCHEDULE

A. Time is of the essence in completing this project. Because time is of the essence the CONTRACTOR shall commit the necessary resources to this project to complete it in a

timely manner. Those resources may include multiple working crews, working overtime, etc. Because time is of the essence, the CONTRACTOR'S construction progress will be monitored closely on a weekly basis. The Construction progress will be measured with the construction schedule submitted by the CONTRACTOR. If the ENGINEER determines that the CONTRACTOR does not meet the CPM as specified in Section 01311, the CONTRACTOR will be required to commit those resources necessary to ensure the completion of the project in a timely manner including working overtime, adding other work crews, etc. All costs incurred to implement measure to complete the work in timely manner will be borne by the CONTRACTOR at no additional cost to the OWNER.

B. SCHEDULE

1. CONTRACTOR shall submit scheduling information for the work as required in Section 01311 "Construction Progress Documentation".

2. No separate payment shall be made for preparation and/or revision of the schedule.

C. On-Site Work Hours: Work hours shall be defined at the pre-construction meeting and shall comply with all permit conditions. Except otherwise indicated, work shall be performed during normal business working hours of 7:30 a.m. to 4:00 p.m., Monday through Friday.

7.09 COMPUTATION OF CONTRACT TIME

A. It is the CONTRACTOR'S responsibility to provide clear and convincing documentation to the ENGINEER as to the effect additional work will have with respect to additional contract time extension that may be justified. If additional quantities of work can be carried out concurrent with other existing construction activities without disrupting the critical path of the project then no contract time extension will be granted. The CONTRACTOR is obligated to provide documentation to the ENGINEER if additional elements of work affect the critical path of the project. If work set forth in the original scope of the project is deleted, the contract time may be reduced. This contract is a calendar day contract. While the CONTRACTOR may be granted time to suspend work operations for vacations or holidays, contract time will not be suspended. During suspensions, the CONTRACTOR shall be responsible for all maintenance of traffic and liability without additional compensation from the CITY.

7.10 CONTRACTOR USE OF PREMISES

A. The CONTRACTOR's use of the project site shall be limited to its construction operations. The CONTRACTOR will arrange for storage of materials and a copy of an agreement for use of other property shall be furnished to the ENGINEER.

7.11 PRE-CONSTRUCTION CONFERENCE

A. After the award of Contract, a Pre-construction Work Conference will be held between the CONTRACTOR, the ENGINEER, the CITY, other interested Agencies, representatives of Utility Companies and others affected by the work. The ENGINEER will set the time and place of this conference. The CONTRACTOR shall bring to the conference a copy of the proposed work schedule for the approval by the ENGINEER of the proposed methods and manner of executing the work including sequences of operation and time schedule. The work shall be performed in accordance with such schedule or approved amendments thereto.

7.12 UTILITY LOCATIONS

A. As far as possible, all existing utility lines in the project area have been shown on the plans. However, the CITY does not guarantee that all lines are shown, or that said lines are in their true location. It shall be the CONTRACTOR'S responsibility to identify and locate all underground or overhead utility lines or equipment affected by the project. No additional payment will be made to the CONTRACTOR because of discrepancies in actual and plan location of utilities and damages suffered as a result thereof.

B. The CONTRACTOR shall notify each utility company involved at least thirty (30) days prior to the start of construction to arrange for positive underground location, relocation or support of its utility where that utility may be in conflict with or endangered by the proposed construction. The CONTRACTOR shall pay for relocation of water mains or other utilities for the convenience of the CONTRACTOR. The CONTRACTOR shall pay for all charges by utility companies for temporary support of its utilities. All costs of permanent utility relocations to avoid conflict shall be the responsibility of the CONTRACTOR and the utility company involved.

C. The CONTRACTOR shall schedule and coordinate their work in such a manner that they are not delayed by the utility companies relocating or supporting their utilities. No compensation will be paid to the CONTRACTOR for any loss of time or delay.

D. All overhead, surface, and underground structures and/or utilities encountered are to be carefully protected from damage or displacement. All damage to said structures and/or utilities is to be completely repaired within a reasonable time; needless delay will not be tolerated. The CITY reserves the right to remedy any damage by ordering outside parties to make repairs at the expense of the CONTRACTOR. All repairs made by the CONTRACTOR are to be made to the satisfaction of the utility owner and shall be inspected by a representative of the utility owner and the ENGINEER.

E. The CONTRACTOR should be aware of the Sunshine State One Call Center, which has a free locating service for CONTRACTORS and excavators. Within forty-eight hours before excavating, dial toll free 1-800-432-4770, and a locator will be dispatched to the work location. CONTRACTOR shall reasonably notify other utility companies not notified by Sunshine State One Call Center.

F. The permits listed below will be obtained for the project by the CITY prior to beginning construction. The CONTRACTOR is responsible for compliance with any and all permit conditions. In the event that the CITY must obtain permits in addition to those listed below, the CONTRACTOR shall not have any claim for damages arising from any delay caused by the CITY'S obtaining said additional permits.

1. Broward County EPGM/South Florida Water Management District

G. Permits to be obtained by the CONTRACTOR include, but are not limited to the following:

1. City of Wilton Manors Building Permit
2. Local, County, and State contracting licenses
3. BCEPGM Tree removal and trimming permits (if necessary)
4. BCEPGM: Dewatering permit (if necessary)

7.13 LINE AND GRADE

A. The ENGINEER has provided vertical and horizontal control for layout of the work in the form of benchmarks and reference points located adjacent to the work. From these controls provided, the CONTRACTOR shall develop and make all detailed surveys needed for construction and shall establish all working points, lines and elevations necessary to perform the work. A Professional Land Surveyor registered in the State of Florida shall supervise this surveying work.

7.14 PROTECTION AND RESTORATION OF SURVEY MONUMENTS

A. The CONTRACTOR shall carefully protect from disturbance all survey monuments, stakes and bench marks, whether or not established by CONTRACTOR, and shall not remove or destroy any surveying point until it has been properly witnessed by the ENGINEER. All major survey monuments that have been damaged by the CONTRACTOR such as section corners, 1/4 section corners, property corners or block control points shall be replaced at the CONTRACTOR'S expense with markers of a size and type approved by the ENGINEER. The replacement shall be under the supervision of a Florida Registered Land Surveyor where directed by the ENGINEER.

7.15 EQUIPMENT

A. All equipment necessary and required for the proper construction of all facilities shall be on the construction site, in first-class working condition.

7.16 STORAGE SITES

A. The CONTRACTOR shall furnish, at CONTRACTOR’s expense, properly zoned areas suitable for field office, material storage and equipment service and storage. No material may be stored in the public right of way without prior authorization by the agency having jurisdiction. The CONTRACTOR shall keep these areas in a clean and

orderly condition so as not to cause a nuisance or sight obstruction to motorists or pedestrians.

7.17 OWNERSHIP OF EXISTING MATERIALS

A. All materials removed or excavated from the job site shall remain the property of the CITY until released by the Contract Administrator, at which time it shall become the property of the CONTRACTOR, who shall dispose of it in a manner satisfactory to the ENGINEER.

7.18 EXCESS MATERIAL

A. Upon direction of the ENGINEER, all vegetation, debris, concrete or other unsuitable materials shall be disposed of in areas provided by the CONTRACTOR and approved by the ENGINEER. Any excess material desired to be retained by the CITY shall be delivered by the CONTRACTOR to a designated area within a 5-mile radius of the project, at no extra cost to the CITY.

7.19 AUDIO-VISUAL PRECONSTRUCTION RECORD

A. General:

1. The CONTRACTOR shall engage the services of a professional electrographer. A responsible commercial firm known to be skilled and regularly engaged in the business of preconstruction color audio-video documentation shall prepare the color audio-video dvd's. The electrographer shall furnish to the ENGINEER a list of all equipment to be used for the audio-video recording i.e., manufacturer's name, model number, specifications and other pertinent information. Additional information to be furnished by the electrographer are the names and addresses of two references that the electrographer has performed color audio-video recording for on projects of a similar nature within the last 12 months.

2. Prior to beginning the work, the CONTRACTOR shall have a continuous color audio-video recording taken along the entire length of the project to serve as a record of preconstruction conditions. No construction shall begin prior to review and approval of the video covering the construction area by the ENGINEER. The ENGINEER shall have the authority to reject all or any portion of the videos not conforming to the specifications and order that it be redone at no additional charge. The CONTRACTOR shall reschedule unacceptable coverage within five days after being notified. The ENGINEER shall designate those areas, if any, to be omitted from or added to the audio-video coverage.

B. Digital Video Disk (DVD):

1. DVD's shall be new. Reprocessed dvd's will not be acceptable. They shall be interchangeable with the color dvd player and shall be compatible for playback with a standard player-receiver, DVD format. Any other format must be approved by ENGINEER.

2. CONTRACTOR shall provide the ENGINEER and the CITY with one complete set of dvd's for the project area.

C. Equipment:

1. All equipment, accessories, materials and labor to perform this service shall be furnished by the CONTRACTOR.

2. The total audio-video system shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume and clarity and be free from distortion and interruptions.

3. When conventional wheeled vehicles are used, the distance from the camera lens to the ground shall not be less than twelve feet. In some instances audio-video recording coverage may be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance approved by the ENGINEER.

4. The color video camera used in the recording system shall have a horizontal resolution of 300 lines at center, a luminance signal to noise ratio of 45 dB and a minimum illumination requirement of 25 foot-candles.

D. Recorded Information - Video

1. All video recordings must, by electronic means, display continuously and simultaneously generated with the actual transparent digital information to include the date and time of recording, and station numbers as shown on the drawings. The date information shall contain the month, day and year. The time information shall contain the hour, minutes and seconds. Additional information shall be displayed periodically. Such information shall include, but not be limited to, project name, contract number, property address, direction of travel and the viewing side. This transparent information shall appear on the extreme upper left hand third of the screen.

2. All video recording shall be done during times of good visibility. No video recording shall be done during precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording and to produce bright, sharp video recordings of those subjects.

3. The rate of speed of the vehicle used during video recording shall not exceed 10 miles per hour. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

4. DVD coverage shall include all surface features located within the zone influence of construction supported by appropriate audio coverage. Such coverage shall include,

but not be limited to, existing driveways, sidewalks, curbs, pavements, ditches, mailboxes, landscaping, culverts, fences, signs and headwalls within the area covered.

E. Payment:

1. Compensation for the audio-video preconstruction record shall be included in the lump sum price bid for Mobilization.

7.20 ADJUSTING EXISTING VALVES, METERS, CATCH BASINS, AND MANHOLES

A. It shall be the CONTRACTOR'S responsibility to coordinate and have all adjustments made to existing water meters, valves, and structures encountered during construction, in order to meet all final grades, unless otherwise instructed by the ENGINEER or the respective utility owner. All valves and manholes shall be accessible during all phases of the work for emergency access. Omission of such structures from the Contract Plans does not relieve the CONTRACTOR from making such adjustments as may be deemed necessary. The CONTRACTOR shall take this provision into account when personally investigating the site prior to bidding. No additional payment shall be made for these adjustments.

7.21 CONFLICT STRUCTURES

A. The CONTRACTOR shall abide by the following criteria concerning conflicts between new drainage, water, or sewer construction and existing utilities.

1. The CONTRACTOR shall verify the location of all utilities suspected of being potential conflicts prior to ordering drainage or sewer structures for these locations and inform the ENGINEER as to CONTRACTOR’S findings.

2. The ENGINEER shall have full authority to direct the placement of conflict structures, the relocation of structures shown in the plans, and the addition, deletion, or relocation of any pipe or structure shown in the plans in order to facilitate construction, expedite completion and avoid conflicts with existing utilities.

3. Where an existing utility is to pass through a conflict structure, the CONTRACTOR shall protect the utility form damage by whatever means the utility owner and the ENGINEER deem necessary.

4. In no case shall there be less than 6 inches between any two (2)-pipe lines within the structure or between pipelines and the structure.

7.22 ENVIRONMENTAL PROTECTION

A. The CONTRACTOR shall furnish all labor and equipment and perform all work required for the prevention of environmental pollution during and as a result of the work under this contract. For the purpose of this contract, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to

human life, affect other species of importance to man, or degrade the utility of the environment for aesthetic and recreational purposes. The control of environmental pollution requires consideration of air, water, land and involves noise, solid waste management and management of radiant energy and radioactive materials, as well as other pollutants. Environmental pollution prevention shall be in accordance with NPDES requirements with no additional cost to the CITY.

B. The CONTRACTOR shall follow all requirements as described in the Coastal Construction Control Line Permit.

7.23 MAINTENANCE AND PROTECTION OF TRAFFIC

A. The CONTRACTOR shall provide all necessary traffic control devices in order to redirect, protect, warn or maintain existing vehicular and pedestrian traffic during the course of construction.

B. TRAFFIC CONTROL

1. The CONTRACTOR is required to submit a conceptual Traffic Control Plan at the Pre-Construction Conference. This preliminary plan should identify the phases of construction that the CONTRACTOR plans to proceed with and identify traffic flows during each phase. The ENGINEER will have ten (10) days to notify the CONTRACTOR of any comments. Once the conceptual plan for maintaining traffic has been approved, the CONTRACTOR will be required to submit a detailed plan showing each phase's Maintenance and Protection Plan prior to starting construction of any phase.

2. The "Maintenance of Traffic" plan shall include pedestrian traffic as well as vehicular traffic.
It shall be the responsibility of the CONTRACTOR for any necessary Construction, Pavement Marking and Signage or any Pedestrian Signalization and/or Signal Modification to accommodate an alternate safe walk route.

3. The CONTRACTOR, at all times, shall conduct the work in such a manner as to insure the least obstruction to traffic as is practical. Convenience of the general public and of the residents adjacent to the work shall be provided for in a satisfactory manner, as determined by the ENGINEER.

4. Sidewalks, gutters, drains, fire hydrants and private drives shall, insofar as practical, be kept in condition for their intended uses. Fire hydrants on or adjacent to the work shall be kept accessible to fire apparatus at all times, and no material or obstruction shall be placed within twenty (20) feet of any such hydrant.

5. All existing stop and street name signs will be maintained as long as deemed necessary by the ENGINEER.

6. The CONTRACTOR shall furnish a sufficient number of protective devices to protect and divert the vehicular and pedestrian traffic from working areas closed to traffic, or to protect any new work. Failure to comply with this requirement will result in the

ENGINEER shutting down the work until the CONTRACTOR provides the necessary protection.

7. Any time traffic is diverted for a period of time that will exceed one-work day temporary pavement markings will be required. Existing pavement markings that conflict with the new work zone traffic pattern must be obliterated. Painting over existing pavement markings (black out) is not permitted.

7.24 MAINTENANCE AND PROTECTION OF EXISTING DRAINAGE SYSTEM

A. It shall be the responsibility of the contractor to maintain positive drainage on the surface and to ensure that the existing underground drainage system continues to function as intended during the construction of the new drainage system. The contractor shall submit a plan to maintain the existing drainage patterns and underground system for the approval of the CONSULTANT prior to beginning any work on the existing or new drainage systems. The cost of maintaining positive drainage and preparing the maintenance plan shall be included under maintenance of traffic and existing drainage system, of the Schedule of Prices Bid.

7.25 APPLICATION FOR PAYMENT FOR STORED MATERIALS

A. Application for payment for stored materials may not be made by the CONTRACTOR.

7.26 SPECIAL CONDITIONS FOR CONSTRUCTION BY OTHER AGENCIES

A. It will be the CONTRACTOR'S responsibility to coordinate construction schedules with other contractors so as to minimize disruptions, and inconveniences. The project site shall be safe at all times for construction workers.

PART VIII – PERFORMANCE EVALUATION AND MONITORING

8.01 LIQUIDATED DAMAGES: Failure to respond to requests by the City of Wilton Manors within twenty four (24) hours regarding inadequate maintenance of the construction site will result in a $100.00 per day deduction from the following payment. Examples of inadequate maintenance include but are not limited to: not maintaining sediment and erosion control plan, allowing trash / debris to be scattered throughout the site, etc.

8.02 DISPUTE RESOLUTION: Any disputes pertaining to this bid between the City of Wilton Manors and the Contractor shall be settled internally with the appropriate City staff making the final decision using the following protocol: 1. Department Superintendent / Supervisor; 2). Department Director; 3). City Manager.

The Finance Director shall be present and included during any dispute resolution meetings pertaining to this Bid. If a dispute cannot be resolved through the protocol set forth in this section, the dispute shall be brought to a court of competent jurisdiction. The Venue shall be in Broward County and the laws of Florida shall be controlling.

CITY OF WILTON MANORS
NE 23rd DRIVE PARKING LOT
BID SCHEDULE

Item	GENERAL	Quantity	Unit	Unit Price	Amount
1	Mobilization	1	LS	$	$
2	Maintenance of Traffic	1	LS	$	$
3	Bonds and Insurance	1	LS	$	$
4	Permit Allowance	1	AL	$ 5,000.00	$ 5,000.00
5	Construction Contingency	1	AL	$ 10,000.00	$ 10,000.00
6	Indemnification	1	LS	$ 25.00	$ 25.00
GENERAL SUBTOTAL					**$ _____**
DRAINAGE					
7	Furnish and Install Drainage Catch Basin (48" Round) w/ Frame/Grate	3	EA	$	$
8	Furnish and Install 18" RCP Drainage Pipe	20	LF	$	$
9	Furnish and Install 18" RCP Exfiltration Trench	65	LF	$	$
10	Furnish and Install Pollution Retardant Baffle	4	EA	$	$
DRAINAGE SUBTOTAL					**$_____**
ROADWAY					
11	Remove and Dispose of Existing Asphalt Pavement	25	SY	$	$
12	Clear and Grade Site Area	1,250	SY	$	$
13	Compaction of Subgrade (12")	955	SY	$	$
14	Furnish and Install Limerock Base (8")	955	SY	$	$
15	Furnish and Install Asphalt Pavement - Type S-1 (1-1/4")	955	SY	$	$
16	Furnish and Install Asphalt Pavement - Type S-III (3/4")	955	SY	$	$
17	Furnish and Install Concrete Type D Curb	620	LF	$	$
18	Furnish and Install Concrete Drop Curb (at curb ramps)	40	LF	$	$
19	Furnish and Install Concrete Sidewalk (4" Thickness)	165	SY	$	$
ROADWAY SUBTOTAL					**$ _____**
HARDSCAPE					
20	Remove Existing 6' Wood Fence	151	LF	$	$
21	Furnish and Install 6' Concrete Panel Wall with Footers	188	LF	$	$
22	Furnish and Install Pay Station Base Connection	1	EA	$	$
23	Furnish and Install Bicycle Rack	1	EA	$	$
24	Furnish and Install Trash Receptable	1	EA	$	$
25	Furnish and Install Pole Mounted Dog Waste Bag Dispenser	1	EA	$	$
HARDSCAPE SUBTOTAL					**$ _____**
PAVEMENT MARKINGS AND SIGNAGE					
26	Furnish and Place 6" Thermoplastic Striping (solid line)	420	LF	$	$
27	Furnish and Place 24" Thermoplastic Striping (stop bars)	24	LF	$	$
28	Furnish and Place Thermoplastic Pavement Symbols	4	EA	$	$
29	Furnish and Install Pedestrian Detectable Warnings for ADA Ramps	7	EA	$	$
30	Furnish and Install Sign with Post	3	EA	$	$
31	Furnish and Install Wheel Stops	22	EA	$	$

PAVEMENT MARKINGS AND SIGNAGE SUBTOTAL **$ _____**

LANDSCAPE

32	Furnish and Install Relocated Sabal palmetto, Cabbage Palm, 'Varies'	2	EA	$	$
33	Furnish and Install Conocarpus erectus, Green Buttonwood (B&B, 12' HT, 6' SPRD, 3" CAL)	7	EA	$	$
34	Furnish and Install Conocarpus erectus 'Sericeus', Silver Buttonwood (B&B, 12' HT, 6' SPRD, 3" CAL)	8	EA	$	$
35	Furnish and Install Senna suranttensis, Glaucous Cassia (B&B, 10' HT, 5' SPRD, 2-1/2" CAL)	5	EA	$	$
36	Furnish and Install Chrysobalanus icaco 'Horizontalis', Horizontal Cocoplum (24" HT, 24" SPRD, 24" SP. OC)	240	EA	$	$
37	Furnish and Install Muhlenbergia capillaris, Pink Muhly (24" HT, Full, 24" SP. OC)	196	EA	$	$
38	Furnish and Install Zamia pumila, Coontie Palm (24" HT, Full, 30" SP. OC)	42	EA	$	$
39	Furnish and Install Paspalum notatum, Bahia Grass (Full sod)	200	SY	$	$
40	Protect Existing Tree	1	EA	$	$

LANDSCAPE SUBTOTAL **$ _____**

IRRIGATION

41	Furnish and Install Turf Spray: Toro 570Z-6P-XF-COM-PC MPR, 12'	1	LS	$	$
42	Furnish and Install Turf Strip Spray: Toro 570Z-6P-XF-COM-PC MPR	1	LS	$	$
43	Furnish and Install Dripline: Toro RGP-412 (18)	1	LS	$	$
44	Furnish and Install Remote Control Valve: Toro P-220	1	LS	$	$
45	Furnish and Install Pressure Vaccum Breaker: Zurn 720A	1	LS	$	$
46	Furnish and Install Wall Mount Controller: Toro TMCE-424-OD-4H	1	LS	$	$
47	Furnish and Install Wired Rain Sensor	1	LS	$	$
48	Furnish and Install Water Meter (1") with Meter Box	1	LS	$	$
49	Furnish and Install Lateral Line: PVC SCH. 40	1	LS	$	$
50	Furnish and Install Mainline: PVC SCH. 40	1	LS	$	$
51	Furnish and Install Pipe Sleeve: PVC SCH. 40	1	LS	$	$

IRRIGATION SUBTOTAL **$ _____**

ELECTRICAL

52	Furnish and Install Light Fixture/Pole/Footer (Complete)	9	EA	$	$
53	Furnish and Install UG Cable 5#8	1	LS	$	$
54	Furnish and Install PVC Conduit (2")	1	LS	$	$
55	Furnish and Install Panelboard (240 V 3R 100A 1Ph)	1	LS	$	$
56	Furnish and Install Lighting Contactor (100A 3P)	1	LS	$	$
57	Furnish and Install Photocell	1	LS	$	$
58	Furnish and Install Meter and Panelboard Support	1	LS	$	$
59	Furnish and Install Disconnect Switch (100A 2P)	1	LS	$	$

ELECTRICAL SUBTOTAL **$ _____**

TOTAL BASE AMOUNT **$ _____**

SEE TECHNICAL SPECIFICATIONS SECTION

SEE NE 23RD DRIVE PARKING PROJECT PLANS

QUESTIONS:

Have you made a site visit? _____ Yes, _____ No

How soon after award can you begin work? _____ Days.

Provide a minimum of five references for whom, you have performed similar work: (Fill in ALL fields)

(1) Company Name:_____

Address:_____

Contact Name:_____Telephone:_____

Email:_____

(2) Company Name:_____

Address:_____

Contact Name:_____Telephone:_____

Email:_____

(3) Company Name:_____

Address:_____

Contact Name:_____Telephone:_____

Email:_____

(4) Company Name:_____

Address:_____

Contact Name:_____Telephone:_____

Email:_____

(5) Company Name:_____

Address:_____

Contact Name:_____Telephone:_____

Email: _____

Number of years experience the Bidder has had in providing similar services: _____Years

Have you ever failed to complete work awarded to you? _____ If so, where and why?

_____

_____

_____

List any licenses, permits or certifications, etc., you hold for performing this type of work:

_____

_____

_____

The Bidder understands that the information contained in these proposal pages is to be relied upon by the City in awarding the proposed contract, and such information is warranted by the Bidder to be true. The Bidder agrees to furnish such additional information, prior to acceptance of any proposal relating to the qualifications of the Bidder, as may be required by the City.

Please review the Bidder Proposal Page to make sure all questions have been answered. Attach additional sheets if necessary. Failure to answer each question could result in the disqualification of your bid.

CHECK LIST:

____ HAVE YOU INCLUDED FIVE (5) COPIES OF YOUR BID?

____ HAVE YOU INCLUDED AN ELECTRONIC/DIGITAL COPY ON A FLASH/JUMP DRIVE OR CD?

____ ARE ALL SPACES FILLED IN ON THE BIDDERS PROPOSAL PAGE?

____ HAVE YOU INCLUDED COPIES OF RELATED CERTIFICATIONS, BUSINESS LICENSE AND TAX RECEIPT?

____ HAVE YOU INCLUDE A COPY OF YOUR CERTIFICATE OF LIABILITY INSAURANCE?

------- ARE ATTACHMENTS A – E FILLED OUT AND SUBMITTED WITH YOUR PROPOSAL?

ATTACHMENT A

NON-DISCRIMINATION AFFIDAVIT

I, the undersigned, hereby duly sworn, depose and say that the organization or business entity represented herein shall not discriminate against any person in its operations, activities or delivery of services under any agreement it enters into with the City of Wilton Manors. The same shall affirmatively comply with all applicable provisions of federal, state and local equal employment laws and shall not engage in or commit any discriminatory practice against any person based on race, age, religion, color, gender, sexual orientation, national origin, marital status, physical or mental disability, political affiliation or any other factor which cannot be lawfully used as a basis for service delivery.

It is the policy of the City of Wilton Manors that Minority/Women - Owned Business Enterprises (MWBE) shall have the maximum opportunity to participate in all contracts. The City of Wilton Manors will accept MWBE certifications from Broward County and any State of Florida certification.

Further, City Code Section 2-269 requires that all contracting agencies of the City, or any department thereof, acting for or on behalf of the City, shall include in all contracts and property contracts hereinafter executed or amended in any manner or as to any portion thereof, a provision obligating the contractor not to unlawfully discriminate (as proscribed by federal, state, county, or other local law) on the basis of the fact or perception of a person's race, color, creed, religion, national origin, ancestry, age above the age of 21, sexual orientation, gender identity or expression, marital status, pregnancy, familial status, veterans status, political affiliation, or physical or mental disability and such person's association with members of classes protected under this chapter or in retaliation for or opposition to any practices forbidden under this chapter against any employee of, any City employee working with, or applicant for employment with such contractor and shall require such contractor to include a similar provision in all subcontracts executed or amended there under.

By: _____

Title: _____

STATE OF FLORIDA
COUNTY OF _____

Sworn to and subscribed before me this __ day of _____, 2016, by _____.

_____
Signature of Notary Public

_____ Personally known, or
_____ Produced Identification

_____
Type of ID Produced

ATTACHMENT B

DOMESTIC PARTNERSHIP CERTIFICATION FORM

I, the undersigned, hereby duly sworn, depose and say that the organization or business entity represented herein shall abide by the provisions of the City of Wilton Manors Code Section 2-268(v) in any activities or delivery of services under any agreement it enters into with the City of Wilton Manors.

The City of Wilton Manors Code Section 2-268(v) (see attached), establishes a Domestic Partner Benefits Requirement as described below:

> *"Domestic Partner Benefits Requirement means a requirement for City Contractors to provide equal benefits for Domestic Partners. Contractors with five (5) or more employees contracting with the City, in an amount of $20,000 or more ("Covered Contracts"), shall provide benefits to Domestic Partners of its employees on the same basis as it provides benefits to the spouses of employees and/or the dependents of the spouses of employees. A Domestic Partnership Certification Form will be included in all competitive solicitations and by virtue of the execution of the Domestic Partnership Certification Form, the contractor will certify whether it complies with the Domestic Partner Benefits Requirement."*

By: _____

Title: _____

Company: _____

STATE OF FLORIDA
COUNTY OF_____

Sworn, to and subscribed before me this _____day of _____, _____,

by_____.

_____
Signature of Notary Public

_____ Personally known, or
_____ Produced Identification
_____
Type of ID Produced

CITY OF WILTON MANORS, FLORIDA

ORDINANCE NO. 2013 – 0013

(Excerpt – Section 3, "Domestic Partner Benefits Requirement")

Effective October 1, 2013

. . .

Section 3: Section 2-268 of the Code of Ordinances is amended by creating Subsection (v) as follows:

Section 2-268(v).

1. For purposes of this Section, the following definitions shall apply:

Domestic Partner shall mean any two (2) adults of the same or opposite sex, who have registered as domestic partners with Broward County, or any other jurisdiction with a domestic partner registry pursuant to state or local law authorizing such registration, or with an internal registry maintained by the employer of at least one (1) of the domestic partners. A Contractor (as hereinafter defined) may institute an internal registry to allow for the provision of equal benefits to employees with a domestic partner who does not register their partnerships pursuant to a governmental body authorizing such registration, or who are located in a jurisdiction where no such governmental domestic partnership registry exists. A Contractor that institutes such registry shall not impose criteria for registration that are more stringent than those required for domestic partnership registration by Broward County, Florida.

Cash equivalent shall mean the amount of money paid to an employee with a Domestic Partner in lieu of providing benefits to the employee's Domestic Partner. The cash equivalent is equal to the employer's direct expense of providing benefits to an employee for his or her spouse.

Competent to contract shall mean the two partners are mentally competent to contract.

Dependent shall mean a person who lives within the household of a domestic partnership and is:

(1) A biological child or adopted child of a domestic partner; or

(2) A dependent as defined under IRS regulations; or

(3) A ward of a domestic partner as determined in a guardianship proceeding.

Domestic Partner Benefits Requirement means a requirement for City Contractors to provide equal benefits for Domestic Partners. Contractors with five (5) or more employees contracting with the City, in an amount of $20,000 or more ("Covered Contracts"), shall provide benefits to Domestic Partners of its employees on the same basis as it provides benefits to the spouses of employees and/or the dependents of the spouses of employees. The Domestic Partner Benefits Requirement will be included in solicitations. A Domestic Partnership Certification Form will be included in all competitive solicitations and by virtue of the execution of the Domestic Partnership Certification Form, the contractor will certify whether it complies with the Domestic Partner Benefits Requirement.

Equal Benefits means the equality of benefits between employees with spouses and/or dependents of spouses and employees with Domestic Partners and/or dependents of Domestic Partners, and/or between spouses of employees and/or dependents of spouses and Domestic Partners of employees and/or dependents of Domestic Partners.

2. Equal Benefits Requirements.

A. All solicitations for Covered Contracts which are advertised shall include the requirement to provide equal benefits in the procurement specifications.

B. As part of the solicitation response, the Contractor shall certify that the Contractor:

1. Currently complies with the conditions of this Section; or

2. Will comply with the conditions of this Section at time of contract award; or

3. Will not comply with the conditions of this Section at time of contract award; or

4. Does not need to comply with the conditions of this Section because of allowable exemption.

The certification shall be in writing and signed by an authorized officer of the Contractor.

3. Mandatory Contract Provisions Pertaining to Equal Benefits. Unless otherwise exempt, every covered contract shall contain language that obligates the contractor to comply with the applicable provisions of this Section by providing the Domestic Partnership Certification Form.

4. Exception and Waiver. The provisions of this Section shall not apply where:

A. The Contractor does not provide benefits to the spouse of an employee or the dependents of employee's spouse.

B. The Contractor is a religious organization, association, society or any non-profit charitable or educational institution or organization operated, supervised or controlled by or in conjunction with, a religious organization, association or society.

C. The Contractor is a governmental entity.

D. The Contract is for the sale or lease of property.

E. The Covered Contract is necessary to respond to an emergency.

F. The provisions of this Section would violate grant requirements.

G. The Contractor provides an employee the cash equivalent of benefits because the Contractor is unable to provide benefits to employees' Domestic Partners despite making reasonable efforts to provide them.

H. Upon a majority vote, the City Commission may waive compliance of this Section under the following circumstances:

1. Where only one (1) solicitation response is received;

2. Where more than one (1) solicitation response is received, but the solicitation demonstrates that none of the proposed solicitations can comply with the requirements of

this Section; or

3. Where the cost of the Bid, as submitted by the lowest responsive bidder which complies with the requirements of this Section, would be at least five percent (5%) greater than the lowest responsive bid submitted by the bidder which does not comply with the requirements of this Section but would otherwise have been responsive if compliance with this Section would not have been listed as a requirement in the Bid specifications.

I. In fiscal Year 2014, for a Covered Contract with a Contractor who provides reasonable assurances that the Contractor will provide benefits to employees' Domestic Partners in Fiscal Year 2014.

5. Grandfather. It is the intention of the City Commission that Contractors with existing contracts with the City be exempt from the application of this Ordinance until such contracts are renewed or amended.

ATTACHMENT C

NON-DEBARMENT AFFIDAVIT

_____ Being first duly sworn, deposes and says that:

He/She is _____ of _____the Proposer ("Respondent") that has submitted the attached Proposal. By offering a submission to this RFP, the Respondent certifies and affirms that to the best of his/her knowledge and belief, that:

1.The Respondent is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in any transaction of any Federal, state or local agency; and

2. The Respondent has not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property; and

3. The Respondent is not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 2 of this affidavit; and

4. The Respondent has not within a three-year period preceding this proposal had one or more public transactions(Federal, State or local) terminated for cause or default; and

5. The Respondent will submit a revised Debarment Affidavit immediately if the status changes.

If the Respondent cannot certify that he/she is not debarred, he/she shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract. Failure to submit a debarment affidavit will disqualify the contractor from the award of any contract.

_____Check here if an explanation is attached to this affidavit.

By:_____

Print Name:_____

Title:_____

Date:_____

STATE OF FLORIDA)
COUNTY OF BROWARD)

The foregoing Agreement was acknowledged before me this _____ day of _____, 2016, by _____, who has affirmed that he/she has been duly authorized to execute the above document. He/she is personally known to me or has produced _____ as identification.

NOTARY'S SEAL:

_____
NOTARY PUBLIC, STATE OF FLORIDA

_____
Name of Acknowledger, typed, printed, or Stamped

ATTACHMENT D

DRUG-FREE WORKPLACE CERTIFICATION

Preference must be given to vendors submitting a certification with their bid/proposal certifying they have a drug-free workplace in accordance with Section 287.087, Florida Statutes. This requirement affects all public entities of the State and becomes effective January 1, 1991. The special condition is as follows:

IDENTICAL TIE BIDS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program, a business shall:

1) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3) Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5) Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6) Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

_____

COMPANY NAME

_____

VENDOR'S SIGNATURE

Must be executed and returned with attached proposal to be considered.

ATTACHMENT E

NON-COLLUSIVE AFFIDAVIT

State of _____)

County of_____)

_____ being first duly sworn deposes and says that:

(1) He/she is the _____,(Owner, Partner, Officer, Representative or Agent) of _____ the Proposer that has submitted the attached Proposal;

(2) He/she is fully informed respecting the preparation and contents of the attached Proposal and of all pertinent circumstances respecting such Proposal;

(3) Such Proposal is genuine and is not a collusive or sham Proposal;

(4) Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Proposer, firm, or person to submit a collusive or sham Proposal in connection with the Work for which the attached Proposal has been submitted; or to refrain from proposing in connection with such Work; or have in any manner, directly or indirectly, sought by agreement or collusion, or communication, or conference with any Proposer, firm, or person to fix the price or prices in the attached proposal or of any other Proposer, or to fix any overhead, profit, or cost elements of the Proposal price or the Proposal price of any other Proposer, or to secure trough any collusion, conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposed Work;

(5) The price or prices quoted in the attached Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Proposer or any other of its agents, representatives, owners, employees or parties in interest, including this affiant.

By: _____

Title: _____

Company: _____

STATE OF FLORIDA
COUNTY OF_____

Sworn, to and subscribed before me this _____day of _____, _____,

by_____.

Signature of Notary Public

_____ Personally known, or
_____ Produced Identification
_____
Type of ID Produced

TECHNICAL SPECIFICATIONS

CITY OF WILTON MANORS
NE 23rd DRIVE PARKING LOT

NOVEMBER 2016

CHEN•MOORE
&ASSOCIATES

TECHNICAL SPECIFICATIONS
PROJECT NO. 125.024

NE 23rd DRIVE PARKING LOT

SECTION TECHNICAL SPECIFICATIONS (Volume I) PAGES

DIVISION 1 GENERAL REQUIREMENTS

DIVISION 2 SITEWORK

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 01001
GENERAL REQUIREMENTS

PART 1 PROJECT DESCRIPTION

1.01 GENERAL

A. A brief description of the Work is stated in the NOTICE TO CONTRACTORS. To determine the full scope of the project or any particular part of the project, coordinate the applicable information in these Contract Documents and review the available project drawings.

B. The Work under this Contract shall be performed by the Contractor as required by the Owner. Work will be authorized by a Notice to Proceed issued to the Contractor. The Contractor shall complete all work within the number of calendar days stipulated in the Contract unless an extension in the time of completion is granted by the ENGINEER, as stated in the Instructions to Bidders. Upon satisfactory completion of the work and compliance with applicable provisions in the Contract Documents, the Contractor will receive final payment for all work done.

C. The following additional information, though not all-inclusive, is given to assist contractors in their evaluation of the work required to meet the project objectives.

D. The Contractor shall become familiar with the existing operating conditions of the Owner's water system, sewage transmission system and pumping stations and take such into consideration in planning and scheduling work. No extra claims shall be made for work required to achieve conditions beyond those obtainable under normal operation of the existing transmission, collection and pumping facilities necessary to accomplish the Work.

1.02 DOT SPECIFICATIONS

A. Portions of The Florida Department of Transportation Standard Specifications for Road and Bridge Construction and their Roadway and Traffic Design Standards, hereinafter referred to as the DOT Standard Specifications, are referred to herein and amended, in part, and the same are hereby made a part of this Contract to the extent of such references and shall be as binding upon the Contract as though reproduced herein. Such reference shall mean the current edition, including all supplements. In case of a conflict in the requirements of the DOT Specifications and the requirements stated herein, the requirements herein shall prevail.

B. Contractor shall be required to submit MOTs for work in the county and state highways and City streets. Contractor shall coordinate with MOTs for nearby or highway work and obtain approval for all traffic control as required by the permits contained elsewhere in this Section.

PART 2 SEQUENCE OF OPERATIONS

2.01 SCHEDULING

A. General: Prepare and submit schedule in accordance with the provisions of Section 01311, Construction Progress Documentation.

B. Plan the work and carry it out with minimum interference to the operation of the existing facilities. Prior to starting the work, confer with the ENGINEER to develop an approved work schedule which will permit the facilities to function normally as practical. It may be necessary to do certain parts of the construction work outside normal working hours in order to avoid undesirable conditions. The Contractor shall do this work at such times, and at no additional cost to the Owner. Do not make connections between existing work and new work until necessary inspection and tests have been completed on the new work and it is found to conform in all respects to the requirements of the Contract Documents.

C. No work shall be started until the Contractor has received approved shop drawings, established material/delivery dates for all equipment, and received approval of the construction schedule from the ENGINEER. The Contractor shall have sufficient manpower, equipment, and material to complete the project.

D. No work shall commence without express consent of the ENGINEER.

E. If a privately owned staging area is required, no work shall commence until approval of the facility is obtained from City Planning and Zoning in accordance with Section 47-19.2 of the Unified Land Development Regulations. Submit a copy of the approval and agreement to the ENGINEER.

2.02 MOBILIZATION AND DEMOBILIZATION

A. Contractor shall be responsible for mobilization and demobilization of labor, materials and equipment. Payment for mobilization and demobilization shall be included in the lump sum price indicated in the Proposal for the project.

2.03 COORDINATION

A. Contractor shall cooperate in the coordination of separate activities in a manner that will provide the least interference with the Owner's operations and other contractors and utility companies working in the area, and in the interfacing and connection of the separate elements of the overall project work.

B. If any difficulty or dispute should arise in the accomplishment of the above, the problem shall be brought immediately to the attention of the ENGINEER.

2.04 SHUTDOWN OF EXISTING OPERATIONS OR UTILITIES

A. Continuous operation of the Owner's service functions is of critical importance. The Contractor's work shall not result in the interruption of sewage, water, or solid waste service to any customers.

B. Minimizing conflicts with the ongoing area-wide commercial activities is of critical importance. The Contractor's work shall minimize the interruption of operations at any facility or business.

C. Connections to existing services or utilities, or other work that requires the temporary shutdown of any existing operations or utilities shall be planned in detail with appropriate scheduling of the work and coordinated with the ENGINEER. Two business days advanced notice shall be given in order that the ENGINEER may witness the shutdown, tie-in, and startup. The temporary shutdown must be approved by the Owner. All tie-in and bypass operations shall be the responsibility of the Contractor and are considered incidental to the cost of construction and provided at no additional cost to the Owner.

D. All materials and equipment (including emergency equipment) necessary to expedite the tie-in shall be on hand and in proper working order prior to the shutdown of existing services or utilities.

2.05 OPERATION OF EXISTING SYSTEM PROHIBITED

A. At no time undertake to close off any utility lines or open valves or take any other action which would affect the operation of existing systems. The Owner’s forces will operate all valves. Provide at least one business day notice to Owner prior to any operations.

2.06 BYPASS PUMPING

A. Wastewater flows shall be controlled through the pipeline sections and pump stations where work is being performed. Under no circumstances, can portions of the system be removed from service for periods of time in excess of that approved by the Owner. The Contractor shall be responsible to assess conditions and capacities of the existing sewer lines and pump stations and accommodate it in the project workplan in order to implement an acceptable bypass plan at no additional cost to the Owner. Bypass pumping will be required for all sewer and pump station reconstruction that would result in shutdown of existing facilities. The Contractor shall supply the necessary pumps, conduits, and other equipment to not only divert flow around the pump station, manhole or pipe section in which work is to be performed, but also to transmit the flow in downstream sewer lines and/or pump stations without surcharge. The bypass systems shall be of sufficient capacity to handle existing flows plus additional flows that may occur during periods of high tide or rainfall. Emergency backup pumping capability must be available in addition to the primary bypass system. The Contractor will be responsible for furnishing the necessary labor, power, and supervision to set up and operate the pumping and bypass systems. When pumping is in operation, all engines shall be equipped in a manner to keep the pump noise to a minimum and comply with the City noise ordinances.

B. Bypass pumping operations shall comply with all applicable City ordinances.

C. The Contractor shall be responsible for any damage to properties or buildings connected to the sewer system, and to the pipeline, which result from the flow control activities.

D. The Contractor shall submit a bypass pumping plan for all proposed bypass pumping operations.

PART 3 SITE CONDITIONS

3.01 SITE INVESTIGATION AND REPRESENTATION

A. The Contractor acknowledges satisfaction as to the general nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, availability of labor, water, electric power, roads, and uncertainties of weather, river stages, or similar physical conditions, the character of equipment and facilities needed preliminary to and during the prosecution of the work, and all other matters which can in any way affect the work or the cost thereof under this Contract.

B. Failure by the Contractor to become acquainted with the physical conditions and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the Work.

C. The Contractor warrants that as a result of examination and investigation of all the aforesaid data, the Contractor can perform the work in a good and workmanlike manner and to the satisfaction of the Owner. The Owner assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefore is assumed by the Owner.

3.02 INFORMATION ON SITE CONDITIONS

A. General: Information obtained by the ENGINEER regarding site conditions, subsurface information, groundwater elevations, existing construction of site facilities as applicable, and similar data will be available for inspection at the office of the ENGINEER upon request. Such information is offered as supplementary information only. The ENGINEER does not assume any responsibility for the completeness or interpretation of such supplementary information.

3.03 UTILITIES

A. The Contractor shall be responsible for determining and/or confirming, at his cost, the locations of all utilities within the project area, and shall be responsible for contacting each utility for location and notification prior to commencing work.

B. The Contractor shall contact potentially affected utilities as provided in Section 01060, Regulatory Requirements & Permits.

C. The Contractor shall contact Sunshine State One Call at 811 or visit www.callsunshine.com at least 2 business days (10 business days for water crossings) prior to any excavation and make arrangements for locating all utilities in the project area.

3.04 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

A. Where the Contractor's operations could cause damage or inconvenience to utilities, telephone, television, power, water, or sewer systems, the operations shall be suspended until all arrangements necessary for the protection of these utilities and services have been made by the Contractor with the owner of the utility affected.

B. Notify all utility offices which are affected by the construction operation at least 2 business days in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities.

C. The Contractor shall be solely and directly responsible to the Owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.

D. Neither the Owner nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the Work.

E. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is granted.

F. In the event the Contractor encounters water service lines or sewer laterals that interfere with trenching, he may, by obtaining prior approval of the property owner, the ENGINEER, cut the service, dig through, and restore the service with similar and equal materials at the Contractor's expense.

G. The Contractor shall replace, at his own expense, all existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract documents or ordered by the Engineer.

H. Telephone and communications drops and signal systems may extend throughout the project area. Properly located cable, conduit, interface equipment, pull or junction boxes and other signal or systems equipment damaged by the Contractor shall be replaced at the Contractor’s expense.

a. Damaged cable shall be replaced as an entire run, from junction box to junction box.

b. Notify Broward County Engineering two business days in advance of the need to remove traffic detection loops.

c. Contractor shall verify marked cables and signal systems prior to excavation.

3.05 INTERFERING STRUCTURES

A. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground.

B. Protect underground and aboveground existing structures from damage, whether or not they lie within the limits of the easements obtained by the Owner. Where such existing fences, gates, sheds, buildings, or any other structure must be removed in order to properly carry out the construction, or are damaged during construction, restore to their original condition to the satisfaction of the property owner involved at the Contractor's own expense. Notify the Engineer of any damaged underground structure, and make repairs or replacements before backfilling.

C. Without additional compensation, the Contractor may remove and shall replace in a condition as good as or better than original, such small miscellaneous structures as fences, mailboxes, and signposts that interfere with the Contractor's operations.

3.06 EASEMENTS AND WORK ON PRIVATE PROPERTY

A. Where portions of the work are located on public or private property, easements and permits will be obtained by the Owner, except as otherwise noted in these Specifications. Easements will provide for the use of property for construction purposes to the extent indicated on the easements. Copies of these easements and permits are available upon request to the Owner. It shall be the Contractor's responsibility to determine the adequacy of the easement obtained in every case and to abide by all requirements and provisions of the easement. The Contractor shall confine his construction operations to within the easement limits or street right-of-way limits or make special arrangements with the property owners or appropriate public agency for the additional area required. Any damage to property, either inside or outside the limits of the easements provided by the Owner or street rights-of-way, shall be the responsibility of the Contractor as specified herein. The Contractor shall provide immediate notice to the owner of any damage to fencing and provide temporary fencing as required to provide a functionally similar level of security. The Contractor shall remove, protect, and replace all fences or other items encountered on public or private property. Before final payment will be authorized by the Engineer, the Contractor will be required to furnish the Owner with written releases from property owners or public agencies where side agreements or special easements have been made by the Contractor or where the Contractor's operations, for any reason, have not been kept within the construction right-of-way obtained by the Owner or the street right-of-way.

B. The Contractor shall be responsible for all damage to private property where work related activities have occurred without proper easement or authorization. The City may withhold payment to the Contractor pending resolution of any claims by private owners.

C. It is anticipated that the required easements and permits will be obtained before construction is started. However, should the procurement of any easement or permit be delayed, the Contractor shall schedule and perform the work around these areas until such a time as the easement or permit has been secured.

D. Prior to removing an existing structure or item, provide written notice to the Owner at least 14 days in advance of the anticipated removal.

E. The Contractor shall not engage in private construction activities within the project area without the presence of a contract with the private owner of the property containing a hold harmless clause protecting the City from any and all damages that occur during the performance of the privately authorized work.

PART 4 SAFETY AND CONVENIENCE

4.01 SAFETY AND ACCESS

A. The Contractor shall do all work necessary to protect the general public from hazards, including, but not limited to, surface irregularities or unramped grade changes in pedestrian sidewalk or walkway, and trenches or excavations in roadway. Barricades, lanterns, and proper signs shall be furnished in sufficient amount to safeguard the public and the work. All barricades and signs shall be clean and serviceable, in the opinion of the Engineer.

B. During construction, the Contractor shall construct and at all times maintain satisfactory and substantial temporary chain link fencing, solid fencing, railing, barricades or steel plates, as applicable, at all openings, obstructions, or other hazards in streets, sidewalks, floors, roofs, and walkways. All such barriers shall have adequate warning lights as necessary, or required, for safety. All lights shall be regularly maintained, and in a fully operational state at all times.

C. The Contractor shall notify all residences and businesses of planned construction at least 5 (five) business days prior to the start of work in the block where they are located. Such notices shall be brochures or door-hangers with sufficient information to describe the extent and duration of the planned work. Notification activities shall be coordinated with the ENGINEER.

D. Homeowners and business owners shall be provided reasonable access. The Contractor shall provide temporary sidewalks, bridges or driveway access, including safe passage over open excavations as required.

4.02 ACCIDENT REPORTS

A. In addition, the Contractor must promptly report in writing to the ENGINEER all accidents whatsoever arising out of, or in connection with, the performance of the

work whether on, or adjacent to, the site, giving full details and statements of witnesses. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the ENGINEER.

B. If a claim is made by anyone against the contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the ENGINEER, giving full details of the claim.

4.03 SAFE ACCESS BY FEDERAL, STATE, AND LOCAL GOVERNMENT OFFICIALS

A. Authorized representatives of the state, federal, or local governmental agencies, shall at all times have safe access to the work, and the Contractor shall provide proper facilities for such access and inspection.

4.04 PROTECTION OF PROPERTY

A. Protect stored materials located adjacent to the proposed work. Notify property owners affected by the construction at least two business days in advance of the time construction begins. During construction operations, construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be cut off from access to his residence or place of business for a period exceeding 2 hours, unless the Contractor has made special arrangements with the affected persons.

B. The Contractor shall identify and isolate his active work zone in such a manner as to exclude all personnel not employed by him, the ENGINEER, and the Owner.

4.05 FIRE PREVENTION AND PROTECTION

A. The Contractor shall perform all work in a fire-safe manner. He shall supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. The Contractor shall comply with applicable federal, state, and local fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.

4.06 ACCESS FOR POLICE, FIRE, AND POSTAL SERVICE

A. Notify the fire department and police department before closing any street or portion thereof. No closing shall be made without the Owner's approval of MOT plan. Notify said departments when the streets are again passable for emergency vehicles. Do not block off emergency vehicle access to consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, without special written permission from the fire department. Conduct operations with the least interference to fire equipment access, and at no time prevent such access. MOT plans that result in restricted access for emergency vehicles must be submitted and approved 2 weeks prior to the proposed closing with separate and specific notification made to the ENGINEER to provide for appropriate agency coordination.

B. The Contractor shall leave a night emergency telephone number or numbers with the police department, the Engineer, and the Owner, so that contact may be made easily at all times in case of barricade and flare trouble or other emergencies.

C. Maintain postal service facilities in accordance with the requirements of the U.S. Postal Service. Move mailboxes to temporary locations designated by the U.S. Postal Service, and at the completion of the work in each area, replace them in their original location and in a condition satisfactory to the U.S. Postal Service.

PART 5 PRESERVATION, RESTORATION, AND CLEANUP

5.01 SITE RESTORATION AND CLEANUP

A. At all times during the work, keep the premises clean and orderly, and upon completion of the Work, repair all damage caused by equipment and leave the project free of rubbish or excess materials of any kind.

B. Stockpile excavated materials in a manner that will cause the least damage to adjacent lawns, grassed areas, gardens, shrubbery, or fences, regardless of whether these are on private property, or on state, county, or city rights-of-way. Remove all excavated materials from grassed and planted areas, and leave these surfaces in a condition equivalent to their original condition. Replace excavated areas as specified in Section 02221, Trench Excavation and Backfill, raked and graded to conform to their original contours.

5.02 FINISHING OF SITE, BORROW, AND STORAGE AREAS

A. Upon completion of the project, all areas used by the Contractor shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property. Areas used for the deposit of waste materials shall be finished to properly drain and blend with the surrounding terrain. Grassed areas shall be restored as specified.

5.03 HISTORIC PRESERVATION

A. The Contractor shall coordinate with the historic preservation representative supplied by the owner for initial excavation operations. If the project work should uncover prehistoric or historic artifacts associated with Native American cultures, early colonial cultures, or American settlements, all project activities in the area shall cease immediately.

B. All such discoveries shall be reported to the Division of Historical Resources. Review and Compliance Section at (800) 847-7278.

C. Project activities in the affected area cannot resume without authorization from the Division of Historic Resources.

PART 6 PERMITS

6.01 GENERAL

A. Permits To Be Obtained by the Owner Include the Following:

a. BCEPGM: Stormwater Drainage Permit

B. Permits to be Obtained by the Contractor Include, but Are Not Limited to the Following:

a. City Building permits.
b. Local, County, and State contracting licenses.
c. MOT approval from local, county, and state agencies as required.
d. Tree removal and trimming permits as required.
e. SFWMD/BCEPGM: Dewatering permit as required.
f. FDEP: NPDES Notice of Intent

C. The Contractor shall comply with all applicable permit conditions.

END OF SECTION

SECTION 01005 – TECHNICAL PROVISIONS

PART 1 GENERAL

1.01 SCOPE

A. Work under this contract includes furnishing materials, labor, tools equipment, supervision and incidentals necessary to construct infrastructure improvements.

1.02 RELATED DOCUMENTS

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

B. “SPECIFICATIONS” referred to in the project documents are to include and incorporate the following:

1. CONSTRUCTION STANDARDS AND SPECIFICATIONS, including any revisions.

a. The above-referenced specifications are made a part of all projects or improvements let for bid by the City’s Public Services Department. It is mandatory that prospective bidders and Contractors familiarize themselves with and comply with these referenced specifications when preparing their proposals and during construction of any work awarded.

b. LIQUIDATED DAMAGES: The City of Wilton Manors brings to the Contractors attention that if Contractor fails to complete the work within the contract time, the Contractor will pay to the City, as liquidated damages and not as a penalty, the sum of $1,000.00 for each and every day of the first 30-day period and $1,500.00 for each and every day thereafter which may exceed the stipulated time for its completion or expiration of the contract time that the work remains incomplete. The City and the Contractor agree that if the work is not completed within the contract time, the City's damages will result from loss of parking revenue and special events, such as the boat show.

c. FAILURE TO COMPLETE WORK ON TIME: If all the work called for under the contract is not completed before or upon the expiration of the Contract time, damage will be sustained by the City. Since it is and will be impracticable to determine the actual damage which the City will sustain in the event of and by reason of such delay, it is therefore agreed that the Contractor will pay to the City the sum specified for each and every calendar day beyond the time prescribed to complete the work not as a penalty, but as a predetermined liquidated damage. The Contractor agrees to pay such liquidated damages as are herein provided, and in case the same are not paid, agrees that the City may deduct the amount thereof from any money

due or that may become due to the Contractor under the contract. This provision will not limit any right or remedy the City may have in the event of any other default by the Contractor other than failing to complete the work within the contract time.

2. The written specifications package entitled "NE 23rd Drive Parking Lot"

1.03 ITEMS SPECIFIED ON DRAWINGS

A. Items of material, equipment, machinery and the like may be specified on the Drawings and not in the Technical Specifications. The CONTRACTOR shall provide such items in accordance with the General Notes on the Drawings.

1.04 FIELD LAYOUT OF THE WORK AND RECORD DRAWINGS

A. After completion of construction, the CONTRACTOR shall provide two sets of As-Built Drawings with all the As-Built information; all locations, coordinates, dimensions and elevations of the constructed facilities, certified, signed and sealed thereon by a Land Surveyor registered in the State of Florida. All elevations shall refer to N.A.V.D. (North American Vertical Datum) and all state plane coordinates shall be NAD 83 (with 1990 adjustment). The cost of such field layout and recording work shall be the responsibility of the CONTRACTOR. The As-Built utility information shall meet the requirements of the City of Wilton Manors.

1.05 SALVAGE

A. Any existing equipment or material, including but not limited to valves, pipes, fittings, couplings, etc., which is removed as a result of construction under this project may be designated as salvage by the CONTRACT ADMINISTRATOR, and if so, shall be delivered clean to the CITY at a location directed by the CONTRACT ADMINISTRATOR. Any equipment or material not worthy of salvaging shall be disposed of by the CONTRACTOR at a suitable location in accordance with all applicable regulations, ordinances and laws at no additional cost to the CITY.

1.06 POWER

A. The CONTRACTOR shall furnish and pay for all electrical power required for the construction, testing and trial operation, prior to final acceptance by the CITY.

1.07 WATER SUPPLY

A. All water required for testing, flushing, and construction shall be furnished by the CITY and paid for by the CONTRACTOR. The purchase price shall be the prevailing rate as published by the CITY. The quantity of water used shall be determined by reading the meter at the start and at the finish of construction. The CONTRACTOR shall make all arrangements and incur all expense involved in having the CITY furnish and install the necessary water meters. Each water service line shall be provided with a vacuum relief or backflow preventer which shall meet the requirements of ASA A40.6, latest revision, and the local administrative authority.

1.08 MAINTENANCE

A. The CONTRACTOR shall fully cooperate at all times with the CITY in order to maintain the operation of the existing water and/or sewer system with the least amount of interference and interruption possible. The schedule, plans and work of the CONTRACTOR shall at all times be subject to alteration and revision if necessary for public health and safety considerations. The creation of a public nuisance will not be permitted.

B. It may be necessary to interrupt the operation of the existing water and/or sewer system. In all cases where the CONTRACTOR must cause an interruption, CONTRACTOR shall prepare and submit to the ENGINEER four (4) working days prior to commencing the work, a complete description of the proposed procedure and a time schedule, which CONTRACTOR will guarantee. At least forty-eight (48) hours prior to the time proposed for starting the work, the ENGINEER will notify the CONTRACTOR whether or not the work will be permitted as proposed.

1. The ENGINEER reserves the right to require the CONTRACTOR to work 24 hours per day in all cases where, in ENGINEER'S opinion, interference with operation of the system may result in dangerous health hazards or offensive conditions.

2. In no case will the CONTRACTOR be permitted to interfere with the existing system until all materials, supplies, equipment, tools and incidentals necessary to complete the work are on the site. Backup equipment on key equipment items shall be required on work necessitating interference with the existing system.

1.09 SITE RESTORATION

A. The CONTRACTOR shall remove all excess material and shall clean up and restore the site to its original condition or better. All damage, as a result of work under this Contract, done to existing structures, pavement, driveways, paved areas, curbs and gutters, sidewalks, shrubbery, grass, trees, utility poles, utility pipe lines, conduits, drains, catch basins, flagstones, rocked, graveled, or stabilized areas of driveways, and including all obstructions not specifically named herein, shall be repaired, or replaced, as determined by the ENGINEER. Site restoration shall be done in a timely manner as the work progresses. Site restoration work shall be completed on private property within 30 days after being disturbed.

1.10 SANITARY FACILITIES

A. The CONTRACTOR shall provide temporary facilities at the site as directed by the ENGINEER.

1.11 STANDARDS

A. Wherever in these TECHNICAL SPECIFICATIONS or in the drawings name and/or number refer to certain standards or regulations, the applicable publication shall be the latest revision thereof. Reference by abbreviation is made in accordance with the Section 01070, "Abbreviations of Institutions."

1.12 QUALITY OF ITEMS

A. All material furnished for this project shall be new and unused. Any material, which has become excessively weathered or damaged since manufacture, shall not be considered as new. ENGINEER shall be the sole judge as to what constitutes excessive weathering or damage.

1.13 TESTING

A. The City of Wilton Manors Engineering Minimum Design and Construction Standards may require that materials and equipment supplied meet given standards and testing to demonstrate conformance to the standards is a part of those standards. The cost of these tests shall be the obligation of the CONTRACTOR and no extra charge shall be made to the CITY on account of such testing.

B. The CITY will select a recognized, independent testing laboratory to make tests on concrete, reinforcing steel, soils and other materials for the construction phase, which the CITY may decide to test for conformity with the TECHNICAL SPECIFICATIONS. The CONTRACTOR shall supply the necessary samples for this testing without cost to the CITY. The costs for actual testing shall be paid by the CITY except for tests which fail to meet the minimum specified tolerances set forth in the drawings and the TECHNICAL SPECIFICATIONS. The cost of the tests that fail will be charged to the CONTRACTOR by deducting the cost from the Contract price, or will be paid directly to the testing laboratory by the CONTRACTOR.

C. Construction in areas where installation and restoration must satisfy the additional requirements of a local, state or federal authority may require testing to demonstrate conformance. The CONTRACTOR shall ascertain the extent of testing required by regulatory agencies within these areas. The CONTRACTOR is responsible for performing such tests, including but not limited to, tests of compaction, and all costs for these tests shall be the obligation of the CONTRACTOR and no extra charge shall be made to the CITY on account of such testing.

1.14 UTILITY CROSSINGS

A. It is intended that wherever existing utilities must be crossed that the pipe may be deflected up to 75% of the manufacturer's recommended limits, but shall not exceed the allowable limits of the CITY. Adequate cover shall be used to adequately clear the obstruction. However, when in the opinion of the ENGINEER, this procedure is not feasible ENGINEER may direct the use of fittings to clear a utility crossing as detailed on the Drawings. The cost of such crossing including joint restraints shall be on the basis of the schedule of pay items applied.

B. Deflections and adjustments of the proposed water and/or sewer mains to avoid all other existing utilities shall be verified/determined in the field during construction.

1.15 BASIS OF MEASUREMENT

A. Where mains are to be paid for on a unit price per linear foot basis, the number of linear feet will be determined by measurement along the centerline of the pipe in place, including fittings. Square yardage will be determined by the actual number of square yards installed.

1.16 ADJUSTMENT AND RELOCATION OF EXISTING LINES

A. When the drawings indicate that existing lines must be deflected, the pipe may be deflected up to 75% of the manufacturer's recommended limits but shall not exceed the allowable limits of the CITY. The CONTRACTOR will need to be directed by the ENGINEER. If the ENGINEER determines that the use of new pipe and fittings is required for deflection, the CONTRACTOR will be directed to use this method. The price for either method shall be based upon the unit prices bid. This does not apply to connections to existing system (Paragraph 1.17, this Section).

1.17 CONNECTION TO EXISTING SYSTEM

A. The CONTRACTOR shall perform all work necessary to locate, excavate and prepare for connection to the existing mains as shown on the Drawings. The cost of this work and for the actual connection to the existing main shall be based upon the unit prices for installing the pipe and appurtenances and shall not result in any additional cost to the CITY. The cost of ductile iron sleeves shall be included in the fittings unit price.

B. Additional valves used for the CONTRACTOR's convenience shall not be considered as an extra cost payable by the CITY for the tie-in to the existing system.

C. During all phases of the work, (i.e. installation, testing and restoration), the CONTRACTOR shall ensure at all times the safe operation of the existing water and/or sewage systems. Service to the customers shall be maintained with the least amount of interference and interruption as possible.

1.18 RELOCATIONS

A. The CONTRACTOR shall be responsible for the relocation of structures that are shown on the drawings, including, but not limited to, light poles, signs, fences, piping, conduits and drains that interfere with the proposed positioning of the water/sewer mains. The cost of all such relocations shall be included in the prices bid for the appropriate items.

1.19 UTILITIES

A. Existing utilities are shown on the Drawings insofar as information is reasonably available; however, it will be the responsibility of the CONTRACTOR to preserve all existing utilities whether shown on the Drawings or not. If utility conflicts are encountered by the CONTRACTOR during construction, CONTRACTOR shall give sufficient notice to the CITY so that they may make the necessary adjustments. Damage to any utility, which in the opinion of the CITY is caused by carelessness on the part of the CONTRACTOR shall be repaired at the expense of the CONTRACTOR.

1.20 GUARANTEE

A. The CONTRACTOR shall guarantee the equipment, material and labor performed under the Contract against any and all failures in proper use and operation for a period of one (1) year from date of written acceptance by the CITY.

B. The CONTRACTOR shall also obtain warranties from manufacturers for each piece of equipment furnished so that the manufacturer's warranty fully covers the equipment for a period of one (1) year from the date of written acceptance by the CITY, unless otherwise specified in the specifications.

1.21 PERFORMANCE OF WORK

A. The CONTRACTOR shall provide all personnel and equipment required to complete all work specified herein and on the Drawings. In an emergency situation, if the CITY determines that it must provide staff and/or equipment to assist the CONTRACTOR in the satisfactory performance of the Contract terms and conditions, the CONTRACTOR at the applicable prevailing wage rates shall reimburse the CITY.

B. CONTRACTOR shall provide forty-eight (48) hours advance written notice to the CITY for approval of CONTRACTOR'S intention to work overtime on weekdays or to work on the weekends.

1.22 BARRICADING (SAFETY)

A. The CONTRACTOR shall be responsible for the furnishing and maintaining of all required barricades, either the lighted or the reflector type, to ensure the public's safety during open trench work or for any other potentially unsafe or hazardous construction activities. Barricades shall be located and displayed in conformance with the most stringent regulations required by the governing agencies. All costs for barricading, including any permits, shall be the responsibility of the CONTRACTOR.

B. All work in public rights-of-way and on private property shall be done in strict compliance with these specifications and Florida Department of Transportation Minimum Standards. Failure to so comply will result in cessation of operations and the removal of project related obstructions from the right-of-way until compliance is achieved.

1.23 EMERGENCY ACCESS AND SECURITY

A. In order to provide protection to the workers and residents, the CONTRACTOR shall maintain emergency access to the property at all times during construction. These access ways shall be protected and delineated with lighted barricades or other such devices as approved by the regulatory agency. Both ends of the emergency access way shall be blocked in accordance with the MOT permit approved by the CITY with signage indicating that this access way is to be used by emergency vehicles only.

B. No trenches or holes shall be left open after working hours. In the event a trench must be left open after hours, it shall be done so only with the express written

permission from the ENGINEER, and it shall be the CONTRACTOR'S responsibility to provide proper protection of the open trench or hole as required by the regulatory agency. In addition, the CONTRACTOR shall provide a security guard at the site whenever the CONTRACTOR'S personnel are not present, 24 hours per day/ 7 days per week. It shall be the Security Guard's responsibility to protect the open trench or hole from trespassers and to direct emergency personnel on site. The Security Guard shall not have any other responsibilities such as operating pumps or equipment but shall be dedicated to protecting the trench or open hole. The Security Guard shall be equipped with a wireless telephone capable of calling 911 to report an emergency and shall keep that telephone on their person at all times. In addition to this provision the CONTRACTOR shall maintain trench safety and comply with current OSHA regulations and the Trench Safety Act. The CONTRACTOR shall maintain and keep all safety barricades, signage, flashers, and detours, in operating condition. A copy of the approved MOT plans, and details, shall be on site at all times.

C. All roads are to be maintained during the described construction as to always allow Emergency Access. This item will be paid for under the bid item for Mobilization as named in the Bid Schedule.

1.24 VIBRATORY COMPACTION

A. The use of vibratory compaction equipment shall be limited to a total gross weight of three (3) tons. The use of vibratory equipment shall be limited to compacting backfill of utility trenches and subgrade of paved areas only. If approved in writing by the ENGINEER, larger vibratory compaction equipment may be allowed if operated in a static mode only.

1.25 REPORTING OF DAMAGE CLAIMS

A. The CONTRACTOR shall keep the CITY informed of any damage claims made against the CONTRACTOR during the construction period. All claims for automobile damage, property damage/bodily injury will be reported to the CONTRACT ADMINISTRATOR within 24 hours of receipt of notice. CONTRACTOR will conduct a timely investigation of the claim and determine if they will honor the claim and/or report to their insurance carrier. CONTRACTOR will advise the City of Wilton Manors in writing of their decision/referral to carrier.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01010 – SUMMARY OF WORK

PART 1 GENERAL

1.01 SCOPE

A. The WORK to be performed under this Contract shall consist of furnishing and installing all tools, equipment, materials, supplies, and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The WORK shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.

B. The NE 23rd Drive Parking Lot Project Contract Documents are comprised of two volumes and are summarized as follows:

Volume I Front End Documents and Technical Specifications

Volume II General Drawings

C. A brief description of the Work is stated in the NOTICE TO CONTRACTORS. To determine the full scope of the Project or any particular part of the Project, coordinate the applicable information in these Contract Documents.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. The work of this Contract comprises the construction of site work for the NE 23rd Drive Parking Lot. The work will include but not be limited to site preparation, earthwork, roadway and walkway replacement and construction, drainage installation, landscaping, irrigation systems, pavement restoration, site furnishings.

B. Project Identification: NE 23rd Drive Parking Lot

1. Project Location: 1008 NE 23rd Drive, Wilton Manors, Florida

C. Owner: City of Wilton Manors

1. City's Representative: David Archacki, Utilities DIrector, or designated representative.

2. Engineer: Jason McClair - City Engineer or Designated Representative

1.03 NOTICE TO BIDDERS

A. The successful bidder, in order to be considered responsive, must possess the appropriate License as described in the Contract Documents.

B. It should also be noted that the successful bidder will, at the time of the pre-construction conference, be required to show that each of the CONTRACTOR'S subcontractors is in compliance with the City's City Code of Ordinances.

1.04 STANDARD SPECIFICATION

A. All materials and workmanship shall meet the requirements of the CONSTRUCTION STANDARDS AND SPECIFICATIONS.

1. These Special Provisions are supplemental to the above Specifications and Standards.

1.05 SITE INVESTIGATION

A. The CONTRACTOR, by virtue of signing the Contract, acknowledges that CONTRACTOR and all subcontractors have satisfied themselves to the nature and location of the work, the general and local conditions including, but not restricted to: those bearing upon transportation; disposal, handling and storage of materials; access roads to the site; the conformation and conditions of the work area; and the character of equipment and facilities needed preliminary to and during the performance of the work. Failure on the part of the CONTRACTOR to completely or properly evaluate the site conditions shall not be grounds for additional compensation.

B. Soil boring information will not be furnished to the CONTRACTOR. The CONTRACTOR, by virtue of signing the Contract, acknowledges that CONTRACTOR and subcontractors have satisfied themselves as to the nature and extent of soil and (underground) water conditions on the project site. No additional payment will be made to the CONTRACTOR because of differences between actual conditions and those shown by the boring logs.

1.06 WORK BY OTHERS

A. Concurrent Work by Other CONTRACTORS. The CONTRACTOR'S attention is directed to the fact that other CONTRACTORS may conduct work at the site during the performance of the WORK under this Contract. The CONTRACTOR shall conduct its operations so as to cause little or no delay to WORK of such other CONTRACTORS, and shall cooperate fully with such CONTRACTORS to provide continued safe access to their respective portions of the site, as required to perform work under their respective contracts.

B. Interference with Work on Utilities. The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.

1.07 WORK SEQUENCE

A. The CONTRACTOR shall schedule and perform the work in such a manner as to result in the least possible disruption to roadways, driveways, and utilities. Utilities shall include but not be limited to water, sewerage, drainage structures, ditches and canals, gas, electric, television and telephone. Prior to commencing with the WORK, CONTRACTOR shall perform a location investigation of existing underground utilities and facilities in accordance with Section 01530 entitled "Protection of Existing Facilities" and shall have obtained all required permits and permissions, CONTRACTOR shall also deliver written notice to the CITY, ENGINEER, and property occupants (private and public) of all planned disruption to roadway, driveways, temporary displacement of fences, mailboxes, street signs and traffic signs, and utilities 72 hours in advance of disruption.

B. Because this parking lot will be partially open to the public at all times, it will be necessary to sequence portions of this project. The CONTRACTOR shall be responsible to coordinate construction activities with CONTRACTOR of adjacent phases and sections.

1.08 WORK SCHEDULE

A. Time is of the essence in completing this project. Because time is of the essence the CONTRACTOR shall commit the necessary resources to this project to complete it in a timely manner. Those resources may include multiple working crews, working over time, etc. Because time is of the essence, the CONTRACTOR'S construction progress will be monitored closely on a weekly basis. The Construction progress will be measured with the construction schedule submitted by the CONTRACTOR. If the ENGINEER determines that the CONTRACTOR does not meet the CPM as specified in Section 01311, the CONTRACTOR will be required to commit those resources necessary to ensure the completion of the project in a timely manner including working over time, adding other work crews, etc. All costs incurred to implement measure to complete the work in timely manner will be borne by the CONTRACTOR at no additional cost to the OWNER.

B. SCHEDULE

1. CONTRACTOR shall submit scheduling information for the work as required in Section 01311 "Construction Progress Documentation".

2. No separate payment shall be made for preparation and/or revision of the schedule.

C. On-Site Work Hours: Work hours shall be defined at the pre-construction meeting and shall comply with all permit conditions. Except otherwise indicated, work shall be performed during normal business working hours of 7:30 a.m. to 4:00 p.m., Monday through Friday.

1.09 COMPUTATION OF CONTRACT TIME

A. It is the CONTRACTOR'S responsibility to provide clear and convincing documentation to the ENGINEER as to the effect additional work will have with respect to additional contract time extension that may be justified. If additional quantities of work can be carried out concurrent with other existing construction activities without disrupting the critical path of the project then no contract time extension will be granted. The CONTRACTOR is obligated to provide documentation to the ENGINEER if additional elements of work affect the critical path of the project. If work set forth in the original scope of the project is deleted, the contract time may be reduced. This contract is a calendar day contract. While the CONTRACTOR may be granted time to suspend work operations for vacations or holidays, contract time will not be suspended. During suspensions, the CONTRACTOR shall be responsible for all maintenance of traffic and liability without additional compensation from the CITY.

1.10 CONTRACTOR USE OF PREMISES

A. The CONTRACTOR's use of the project site shall be limited to its construction operations. The CONTRACTOR will arrange for storage of materials and a copy of an agreement for use of other property shall be furnished to the ENGINEER.

1.11 PRE-CONSTRUCTION CONFERENCE

A. After the award of Contract, a Pre-construction Work Conference will be held between the CONTRACTOR, the ENGINEER, the CITY, other interested Agencies, representatives of Utility Companies and others affected by the work. The ENGINEER will set the time and place of this conference. The CONTRACTOR shall bring to the conference a copy of the proposed work schedule for the approval by the ENGINEER of the proposed methods and manner of executing the work including sequences of operation and time schedule. The work shall be performed in accordance with such schedule or approved amendments thereto.

1.12 UTILITY LOCATIONS

A. As far as possible, all existing utility lines in the project area have been shown on the plans. However, the CITY does not guarantee that all lines are shown, or that said lines are in their true location. It shall be the CONTRACTOR'S responsibility to identify and locate all underground or overhead utility lines or equipment affected by the project. No additional payment will be made to the CONTRACTOR because of discrepancies in actual and plan location of utilities and damages suffered as a result thereof.

B. The CONTRACTOR shall notify each utility company involved at least thirty (30) days prior to the start of construction to arrange for positive underground location, relocation or support of its utility where that utility may be in conflict with or endangered by the proposed construction. The CONTRACTOR shall pay for relocation of water mains or other utilities for the convenience of the CONTRACTOR. The CONTRACTOR shall pay for all charges by utility companies for temporary support of its utilities. All costs of permanent utility relocations to avoid conflict shall be the responsibility of the CONTRACTOR and the utility company involved.

C. The CONTRACTOR shall schedule and coordinate their work in such a manner that they are not delayed by the utility companies relocating or supporting their utilities. No compensation will be paid to the CONTRACTOR for any loss of time or delay.

D. All overhead, surface, and underground structures and/or utilities encountered are to be carefully protected from damage or displacement. All damage to said structures and/or utilities is to be completely repaired within a reasonable time; needless delay will not be tolerated. The CITY reserves the right to remedy any damage by ordering outside parties to make repairs at the expense of the CONTRACTOR. All repairs made by the CONTRACTOR are to be made to the satisfaction of the utility owner and shall be inspected by a representative of the utility owner and the ENGINEER.

E. The CONTRACTOR should be aware of the Sunshine State One Call Center, which has a free locating service for CONTRACTORS and excavators. Within forty-eight hours before excavating, dial toll free 1-800-432-4770, and a locator will be dispatched to the work location. CONTRACTOR shall reasonably notify other utility companies not notified by Sunshine State One Call Center.

F. The permits listed below will be obtained for the project by the CITY prior to beginning construction. The CONTRACTOR is responsible for compliance with any and all permit conditions. In the event that the CITY must obtain permits in addition to those listed below, the CONTRACTOR shall not have any claim for damages arising from any delay caused by the CITY'S obtaining said additional permits.

1. Broward County EPGM/South Florida Water Management District
   - Surface Water Management

G. Permits to be obtained by the CONTRACTOR include, but are not limited to the following:

1. City of Wilton Manors Building Permit
2. Local, County, and State contracting licenses
3. BCEPGM Tree removal and trimming permits (if necessary)
4. BCEPGM: Dewatering permit (if necessary)

1.13 LINE AND GRADE

A. The ENGINEER has provided vertical and horizontal control for layout of the work in the form of benchmarks and reference points located adjacent to the work. From these controls provided, the CONTRACTOR shall develop and make all detailed surveys needed for construction and shall establish all working points, lines and elevations necessary to perform the work. A Professional Land Surveyor registered in the State of Florida shall supervise this surveying work.

1.14 PROTECTION AND RESTORATION OF SURVEY MONUMENTS

A. The CONTRACTOR shall carefully protect from disturbance all survey monuments, stakes and bench marks, whether or not established by CONTRACTOR, and shall not remove or destroy any surveying point until it has been properly witnessed by the ENGINEER. All major survey monuments that have been damaged by the

CONTRACTOR such as section corners, 1/4 section corners, property corners or block control points shall be replaced at the CONTRACTOR'S expense with markers of a size and type approved by the ENGINEER. The replacement shall be under the supervision of a Florida Registered Land Surveyor where directed by the ENGINEER.

1.15 EQUIPMENT

A. All equipment necessary and required for the proper construction of all facilities shall be on the construction site, in first-class working condition.

1.16 STORAGE SITES

A. The CONTRACTOR shall furnish, at CONTRACTOR's expense, properly zoned areas suitable for field office, material storage and equipment service and storage. No material may be stored in the public right of way without prior authorization by the agency having jurisdiction. The CONTRACTOR shall keep these areas in a clean and orderly condition so as not to cause a nuisance or sight obstruction to motorists or pedestrians.

1.17 OWNERSHIP OF EXISTING MATERIALS

A. All materials removed or excavated from the job site shall remain the property of the CITY until released by the Contract Administrator, at which time it shall become the property of the CONTRACTOR, who shall dispose of it in a manner satisfactory to the ENGINEER.

1.18 EXCESS MATERIAL

A. Upon direction of the ENGINEER, all vegetation, debris, concrete or other unsuitable materials shall be disposed of in areas provided by the CONTRACTOR and approved by the ENGINEER. Any excess material desired to be retained by the CITY shall be delivered by the CONTRACTOR to a designated area within a 5-mile radius of the project, at no extra cost to the CITY.

1.19 AUDIO-VISUAL PRECONSTRUCTION RECORD

A. General:

1. The CONTRACTOR shall engage the services of a professional electrographer. A responsible commercial firm known to be skilled and regularly engaged in the business of preconstruction color audio-video documentation shall prepare the color audio-video dvd's. The electrographer shall furnish to the ENGINEER a list of all equipment to be used for the audio-video recording i.e., manufacturer's name, model number, specifications and other pertinent information. Additional information to be furnished by the electrographer are the names and addresses of two references that the electrographer has performed color audio-video recording for on projects of a similar nature within the last 12 months.

2. Prior to beginning the work, the CONTRACTOR shall have a continuous color audio-video recording taken along the entire length of the project to serve as a record of preconstruction conditions. No construction shall begin prior to review and approval of the video covering the construction area by the ENGINEER. The ENGINEER shall have the authority to reject all or any portion of the videos not conforming to the specifications and order that it be redone at no additional charge. The CONTRACTOR shall reschedule unacceptable coverage within five days after being notified. The ENGINEER shall designate those areas, if any, to be omitted from or added to the audio-video coverage.

B. Digital Video Disk (DVD):

1. DVD's shall be new. Reprocessed dvd's will not be acceptable. They shall be interchangeable with the color dvd player and shall be compatible for playback with a standard player-receiver, DVD format. Any other format must be approved by ENGINEER.

2. CONTRACTOR shall provide the ENGINEER and the CITY with one complete set of dvd's for the project area.

C. Equipment:

1. All equipment, accessories, materials and labor to perform this service shall be furnished by the CONTRACTOR.

2. The total audio-video system shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume and clarity and be free from distortion and interruptions.

3. When conventional wheeled vehicles are used, the distance from the camera lens to the ground shall not be less than twelve feet. In some instances audio-video recording coverage may be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance approved by the ENGINEER.

4. The color video camera used in the recording system shall have a horizontal resolution of 300 lines at center, a luminance signal to noise ratio of 45 dB and a minimum illumination requirement of 25 foot-candles.

D. Recorded Information - Video

1. All video recordings must, by electronic means, display continuously and simultaneously generated with the actual transparent digital information to include the date and time of recording, and station numbers as shown on the drawings. The date information shall contain the month, day and year. The time information shall contain the hour, minutes and seconds. Additional information shall be displayed periodically. Such information shall include, but not be limited to, project name, contract number, property address, direction of travel and the

viewing side. This transparent information shall appear on the extreme upper left hand third of the screen.

2. All video recording shall be done during times of good visibility. No video recording shall be done during precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording and to produce bright, sharp video recordings of those subjects.

3. The rate of speed of the vehicle used during video recording shall not exceed 10 miles per hour. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

4. DVD coverage shall include all surface features located within the zone influence of construction supported by appropriate audio coverage. Such coverage shall include, but not be limited to, existing driveways, sidewalks, curbs, pavements, ditches, mailboxes, landscaping, culverts, fences, signs and headwalls within the area covered.

E. Payment:

1. Compensation for the audio-video preconstruction record shall be included in the lump sum price bid for Mobilization.

1.20 ADJUSTING EXISTING VALVES, METERS, CATCH BASINS, AND MANHOLES

A. It shall be the CONTRACTOR'S responsibility to coordinate and have all adjustments made to existing water meters, valves, and structures encountered during construction, in order to meet all final grades, unless otherwise instructed by the ENGINEER or the respective utility owner. All valves and manholes shall be accessible during all phases of the work for emergency access. Omission of such structures from the Contract Plans does not relieve the CONTRACTOR from making such adjustments as may be deemed necessary. The CONTRACTOR shall take this provision into account when personally investigating the site prior to bidding. No additional payment shall be made for these adjustments.

1.21 CONFLICT STRUCTURES

A. The CONTRACTOR shall abide by the following criteria concerning conflicts between new drainage, water, or sewer construction and existing utilities.

1. The CONTRACTOR shall verify the location of all utilities suspected of being potential conflicts prior to ordering drainage or sewer structures for these locations and inform the ENGINEER as to CONTRACTOR’S findings.

2. The ENGINEER shall have full authority to direct the placement of conflict structures, the relocation of structures shown in the plans, and the addition, deletion, or relocation of any pipe or structure shown in the plans in order to facilitate construction, expedite completion and avoid conflicts with existing utilities.

3. Where an existing utility is to pass through a conflict structure, the CONTRACTOR shall protect the utility from damage by whatever means the utility owner and the ENGINEER deem necessary.

4. In no case shall there be less than 6 inches between any two (2)-pipe lines within the structure or between pipelines and the structure.

1.22 ENVIRONMENTAL PROTECTION

A. The CONTRACTOR shall furnish all labor and equipment and perform all work required for the prevention of environmental pollution during and as a result of the work under this contract. For the purpose of this contract, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life, affect other species of importance to man, or degrade the utility of the environment for aesthetic and recreational purposes. The control of environmental pollution requires consideration of air, water, land and involves noise, solid waste management and management of radiant energy and radioactive materials, as well as other pollutants. Environmental pollution prevention shall be in accordance with NPDES requirements with no additional cost to the CITY.

B. The CONTRACTOR shall follow all requirements as described in the Coastal Construction Control Line Permit.

1.23 MAINTENANCE AND PROTECTION OF TRAFFIC

A. The CONTRACTOR shall provide all necessary traffic control devices in order to redirect, protect, warn or maintain existing vehicular and pedestrian traffic during the course of construction.

B. TRAFFIC CONTROL

1. The CONTRACTOR is required to submit a conceptual Traffic Control Plan at the Pre-Construction Conference. This preliminary plan should identify the phases of construction that the CONTRACTOR plans to proceed with and identify traffic flows during each phase. The ENGINEER will have ten (10) days to notify the CONTRACTOR of any comments. Once the conceptual plan for maintaining traffic has been approved, the CONTRACTOR will be required to submit a detailed plan showing each phase's Maintenance and Protection Plan prior to starting construction of any phase.

2. The "Maintenance of Traffic" plan shall include pedestrian traffic as well as vehicular traffic.

   It shall be the responsibility of the CONTRACTOR for any necessary Construction, Pavement Marking and Signage or any Pedestrian Signalization and/or Signal Modification to accommodate an alternate safe walk route.

3. The CONTRACTOR, at all times, shall conduct the work in such a manner as to insure the least obstruction to traffic as is practical. Convenience of the general

public and of the residents adjacent to the work shall be provided for in a satisfactory manner, as determined by the ENGINEER.

4. Sidewalks, gutters, drains, fire hydrants and private drives shall, insofar as practical, be kept in condition for their intended uses. Fire hydrants on or adjacent to the work shall be kept accessible to fire apparatus at all times, and no material or obstruction shall be placed within twenty (20) feet of any such hydrant.

5. All existing stop and street name signs will be maintained as long as deemed necessary by the ENGINEER.

6. The CONTRACTOR shall furnish a sufficient number of protective devices to protect and divert the vehicular and pedestrian traffic from working areas closed to traffic, or to protect any new work. Failure to comply with this requirement will result in the ENGINEER shutting down the work until the CONTRACTOR provides the necessary protection.

7. Any time traffic is diverted for a period of time that will exceed one-work day temporary pavement markings will be required. Existing pavement markings that conflict with the new work zone traffic pattern must be obliterated. Painting over existing pavement markings (black out) is not permitted.

1.24 MAINTENANCE AND PROTECTION OF EXISTING DRAINAGE SYSTEM

A. It shall be the responsibility of the contractor to maintain positive drainage on the surface and to ensure that the existing underground drainage system continues to function as intended during the construction of the new drainage system. The contractor shall submit a plan to maintain the existing drainage patterns and under ground system for the approval of the CONSULTANT prior to beginning any work on the existing or new drainage systems. The cost of maintaining positive drainage and preparing the maintenance plan shall be included under maintenance of traffic and existing drainage system, of the Schedule of Prices Bid.

1.25 APPLICATION FOR PAYMENT FOR STORED MATERIALS

A. Application for payment for stored materials may not be made by the CONTRACTOR.

1.26 SPECIAL CONDITIONS FOR CONSTRUCTION BY OTHER AGENCIES

A. It will be the CONTRACTOR'S responsibility to coordinate construction schedules with other contractors so as to minimize disruptions, and inconveniences. The project site shall be safe at all times for construction workers.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01012 – N.I.C. ITEMS

PART I GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Contract Requirements, and Division I - General Requirements shall govern the work under this section.

1.02 ITEMS TO BE PROVIDED UNDER SEPARATE CONTRACTS

A. The following items of work are not included in the Contract (N.I.C. ITEMS) and shall be executed under separate contracts directly by the OWNER, other public entities, or other utilities:

B. All other items indicated on the Drawings as N.I.C. ITEMS, and any items listed in the proposal form as N.I.C. ITEMS.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SUBMITTALS

A. See Section 01340, Submittal Procedures, and all other references to document submittals, Submittals shall include, but are not limited to:

1. Schedule of Values: Submit schedule on OWNER's form.

2. Application for Payment.

3. Final Application for Payment.

1.02 SCHEDULE OF VALUES

A. Prepare a schedule of values for the Work.

B. Unit Price Work: Reflect unit price quantity and price breakdown from conformed Bid Form.

C. Lump Sum Work:

1. Reflect schedule of values format included in conformed Bid Form.

2. List Bonds and insurance premiums, mobilization, demobilization, facility startup, and contract closeout separately.

3. Break down by Divisions 2 through 16 with appropriate subdivision of each Specification.

D. An unbalanced or front-end loaded schedule will not be acceptable.

E. Summation of the complete schedule of values representing all the Work shall equal the Contract Price.

1.03 APPLICATION FOR PAYMENT

A. Transmittal Summary Form: Attach one Summary Form with each detailed Application for Payment and include Request for Payment of Materials and Equipment on Hand as applicable. Execute certification by authorized officer of CONTRACTOR.

B. Use detailed Application for Payment Form provided by OWNER.

C. Include accepted schedule of values for each portion of Work and the unit price breakdown for the Work to be paid on unit price basis, and a listing of OWNER-selected equipment, if applicable, and allowances, as appropriate.

D. Preparation:

1. Round values to nearest dollar.

2. List each Change Order and Written Amendment executed prior to date of submission as separate line item. Totals to equal those shown on the Transmittal Summary Form.

3. Submit Application for Payment, including a Transmittal Summary Form and detailed Application for Payment Form, a listing of materials on hand as applicable, and such supporting data as may be requested by OWNER.

1.04 MEASUREMENT—GENERAL

A. Weighing, measuring, and metering devices used to measure quantity of materials for Work shall be suitable for purpose intended and conform to tolerances and Specifications as specified in National Institute of Standards and Technology, Handbook 44.

B. Whenever pay quantities of material are determined by weight, material shall be weighed on scales furnished by CONTRACTOR and certified accurate by state agency responsible. Weight or load slip shall be obtained from weigher and delivered to CONSTRUCTION MANAGER or OWNER's representative at point of delivery of material.

C. If material is shipped by rail, car weights will be accepted provided that actual weight of material only will be paid for and not minimum car weight used for assessing freight tariff, and provided further that car weights will not be acceptable for material to be passed through mixing plants.

D. Vehicles used to haul material being paid for by weight shall be weighed empty daily and at such additional times as required by CONSTRUCTION MANAGER. Each vehicle shall bear a plainly legible identification mark.

E. Materials that are specified for measurement by the cubic yard measured in the vehicle shall be hauled in vehicles of such type and size that actual contents may be readily and accurately determined. Unless all vehicles are of uniform capacity, each vehicle must bear a plainly legible identification mark indicating its water level capacity. Vehicles shall be loaded to at least their water level capacity. Loads hauled in vehicles not meeting above requirements or loads of a quantity less than the capacity of the vehicle, measured after being leveled off as above provided, will be subject to rejection, and no compensation will be allowed for such material.

F. Where measurement of quantities depends on elevation of existing ground, elevations obtained during construction will be compared with those shown on

Drawings. Variations of 1 foot or less will be ignored, and profiles shown on Drawings will be used for determining quantities.

G. Units of measure shown on Bid Form shall be as follows, unless specified otherwise. All methods of measurement shall be approved by the CONSTRUCTION MANAGER.

Item	Method of Measurement
AC	Acre—Field Measure
CY	Cubic Yard—Field Measure within limits specified or shown, or measured in vehicle by volume, as specified
EA	Each—Field Count
GAL	Gallon—Field Measure
HR	Hour
LB	Pound(s)—Weight Measure by Scale
LF	Linear Foot—Field Measure
LS	Lump Sum—Unit is one; no measurement will be made
SF	Square Foot
SY	Square Yard
TON	Ton—Weight Measure by Scale (2,000 pounds)

1.05 PAYMENT

A. General:

1. Progress payments will be made monthly.

2. The date for CONTRACTOR's submission of monthly Application for Payment.

1.06 NONPAYMENT FOR REJECTED OR UNUSED PRODUCTS

A. Payment will not be made for following:

1. Loading, hauling, and disposing of rejected or unused material.

2. Quantities of material wasted or disposed of in manner not called for under Contract Documents.

3. Rejected loads of material, including material rejected after it has been placed by reason of failure of CONTRACTOR to conform to provisions of Contract Documents.

4. Material not unloaded from transporting vehicle.

5. Defective Work not accepted by OWNER.

6. Material remaining on hand after completion of Work.

1.07 MOBILIZATION

A. See Section 01505, Mobilization, for payment limitations.

B. Payment for mobilization will be made at the lump sum price named in the Bid Schedule. Payment for mobilization will be made in equal monthly amounts during the duration of the original contract time.

1.08 MAINTENANCE OF TRAFFIC

A. See Section 01570, Traffic Regulations, and all other references to traffic control and maintenance, as well as parking control and maintenance in this document and any regulatory requirements.

B. Payment for maintenance of traffic will be made at the lump sum price named in the Bid Schedule. Payment for maintenance of traffic and parking activities will be made in equal monthly amounts during the duration of the original contract time.

1.09 BONDS AND INSURANCE

A. Payment for bonds and insurance will be made at the lump sum price named in the Bid Schedule. The CONTRACTOR may request payment for this bid item after the Initial Notice to Proceed has been issued.

B. Bonds and Insurance are limited to 2.5% of the Total Bid Price. Any amount in excess of 2.5% will be moved to Line Item No. 2, Page 01505-1, Mobilization. However, the total bid amount will not change. The 2.5% ceiling on Bonds and Insurance is not responsiveness, just an instruction on the amount the CITY will pay for Bonds and Insurance.

1.10 PERMIT ALLOWANCE

A. Measurement for payment for permit fees will be based upon the actual permit fees required by the CONTRACTOR from the various agencies having jurisdiction for construction of the project, all in accordance with the Contract Documents. The allowance for permit fee amounts shown on the bid schedule is an estimate of permit fees required for the project and is a cost pass through item. The permit fees are based on allowances and OWNER will reconcile the actual cost with the CONTRACTOR by change order. The CONTRACTOR shall produce documentation upon request verifying actual cost. Only permit fees substantiated and approved by the ENGINEER will be paid as part of this bid item.

B. Because payment for permit fees will be paid as part of this bid item, payment for permit fees will not be paid as part of mobilization.

1.11 CONSTRUCTION CONTIGENCY

A. The work included in this item is related to project work not identified or reasonably anticipated through the Contract Documents, which includes, but is not limited to, permit allowance to obtain all permits necessary, the relocation of certain existing utility structures and the removal and disposal of any existing utility infrastructure encountered that are deemed unnecessary by the governing utility company. This is

an allowance, and any work to be completed under this item must be specifically approved in writing by the OWNER prior to completing the work, including the mutually agreed upon cost of said work.

1.12 CONSIDERATION FOR INDEMNIFICATION (OWNER/ENGINEER)

A. Measurement for payment for indemnification of the OWNER and ENGINEER will be based upon the lump sum named for such work, all in accordance with the requirements of the contract documents.

B. Payment will be twenty-five dollars for consideration for indemnification named in the bid schedule and shall constitute full compensation for indemnifying the OWNER and ENGINEER as specified in the contract documents.

1.13 FURNISH AND INSTALL DRAINAGE STRUCTURES WITH FRAME AND GRATES

A. Measurement for payment to furnish and install drainage structures, frame and grate will be based upon the actual quantity, each, of such structures constructed, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing drainage structures with frame and grate will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the completed installation of the structure, frame and grate, including but not limited to excavation, dewatering, backfill and compaction and full compliance with the Trench Safety Act.

1.14 FURNISH AND INSTALL DRAINAGE PIPE AND EXFILTRATION

A. Measurement for payment for furnishing and installing drainage pipe will be based upon the number of linear feet of such pipe actually constructed as determined by measurement along the centerline of the pipe in place, not including through structures, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing drainage pipe will be made at the unit price per linear foot of pipe named in the Bid Schedule which price shall constitute full compensation for all pipes, connection to structures, excavation, dewatering, bedding, backfilling, compaction, exfiltration trenching, relocation of existing utilities as required, material costs associated and full compliance with the Trench Safety Act.

1.15 FURNISH AND INSTALL POLLUTION RETARDANT BAFFLE BOXES

A. Measurement for payment for furnishing and installing baffle boxes will be based upon the actual quantity, each, of such baffle boxes actually installed, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing baffle boxes will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for furnishing and installing such baffle boxes.

1.16 REMOVE AND DISPOSE OF EXISTING ASPHALT PAVEMENT

A. Measurement for payment to remove and dispose of existing pavement will be based upon the actual number of square yards of such pavement actually removed not covered in any other line item, all in accordance with the Contract Documents.

B. Payment for removal and disposal of existing pavement will be made at the unit price per square yard of pavement named in the Bid Schedule not covered under any other line item, which price shall constitute full compensation for the removal and disposal of such pavement and include the removal of asphalt pavement and underlying base course.

1.17 STABILIZATION OF SUBGRADE

A. Measurement for payment for compaction of subgrade will be based upon the number of square yards of such materials actually compacted in place at the depth indicated, all in accordance with the requirements of the Contract Documents.

B. Payment for compacting of subgrade will be made at the unit price per square yard named in the Bid Schedule, which price shall constitute full compensation for handling, cleaning, positioning and compacting of said bedding to a LBR of 40, importing fill material as needed and disposal of excess waste or unsuitable material.

1.18 FURNISH AND PLACE LIMEROCK BASE

A. Measurement for payment for furnishing and placing limerock base material will be based upon the number of square yards of such materials actually compacted in place at the depth indicated, all in accordance with the requirements of the Contract Documents. No reuse will be allowed.

B. Payment for furnishing and placing of limerock base material will be made at the unit price per square yard at the depth indicated and named in the Bid Schedule, which price shall constitute full compensation for applying prime coat and furnishing all such material, in place, including all transportation, handling, cleaning, positioning and compacting of said bedding and disposal of waste or unsuitable material.

1.19 FURNISH AND PLACE ASPHALT CONCRETE PAVEMENT

A. Measurement for payment of asphalt concrete pavement will be based upon the number of square yards of such asphalt concrete pavement actually constructed with newly compacted subgrades, as detailed in the drawings, all in accordance with the requirements of the Contract Documents.

B. Payment for placement of asphalt concrete pavement at the thickness indicated will be made at the unit price per square yard for such placement as named and at the thickness indicated in the Bid Schedule which price will constitute full compensation for applying a tack coat, and furnishing, placing and compacting all asphalt surface, complete in place to the cross section and thicknesses shown on the drawings;

including replacing brass valve tabs, adjusting valve box and manhole rim elevations and all cleanup of the area disturbed by this construction.

1.20 FURNISH AND INSTALL CONCRETE CURB

A. Measurement for payment for furnishing and installing curb will be based upon the number of linear feet of such curb actually constructed as determined by measurement along the centerline of the curb in place, including depressed curb and gutter section for driveway, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing curb will be made at the unit price per linear foot of curb named in the Bid Schedule, which shall constitute full compensation for complete installation including, grading, 4” rock curb pad, forming, saw cutting of pavement and cleanup of all areas disturbed by this construction.

C. Patching of newly installed curb will not be accepted. Damage including, but not limited to severe chips and cracks will be replacements in segments as directed by ENGINEER. No compensation for this curb replacement will be considered.

1.21 FURNISH AND INSTALL CONCRETE SIDEWALK

A. Measurement and payment for furnishing and installing sidewalks will be based upon the actual number of square yards of such sidewalks constructed as shown in the drawings, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing sidewalks will be made at the unit price per square yard and thickness and type named in the Bid Schedule and detailed on the drawings which price shall constitute full compensation for completing said work, including all earthwork, compaction of subgrade, backfilling of sidewalk, construction of the 6” thick concrete sidewalk, furnishing and setting for expansion joint material, furnishing and installing PVC sleeve for future irrigation connections as directed by ENGINEER, disposal of excess material, and the appurtenant items for which separate payment is not specifically included in the Bid Schedule. Readjusting water meter boxes that need to be raised or lowered to meet sidewalk elevation will also be included in compensation for the installation of sidewalk (any meter box relocation which does not include plumbing services will be included in the price of sidewalk installation).

1.22 FURNISH AND INSTALL HARDSCAPE ELEMENTS

A. Measurement for payment to construct hardscape elements, which include but are not limited to parking pay stations, trash receptacles, bicycle racks, and dog waste bag dispensers, will be based upon actual quantity, each of such hardscape element furnished and installed, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing hardscape elements, which include but are not limited to parking pay stations, trash receptacles, bicycle racks, and dog waste bag dispensers, will be made at the unit price each, named in the Bid Schedule which

price shall constitute full compensation for the completed installation of the hardscape elements and associated conduit, wires, connections to concrete, anchors, base plates, and other appurtenances per design drawings.

1.23 FURNISH AND INSTALL THERMOPLASTIC PAVEMENT MARKINGS

A. Measurement for payment for furnishing and placing thermoplastic pavement markings will be based upon the number of linear feet of such markings actually constructed as determined by measurement along the centerline of the pavement markings in place, all in accordance with the requirements of the Contract Documents and Section 02577.

B. Payment for furnishing and placing thermoplastic pavement markings will be made at the unit price per linear foot of pavement markings named in the Bid Schedule, which price shall constitute payment for all colors, widths and types.

1.24 FURNISH AND PLACE THERMOPLASTIC PAVEMENT SYMBOLS

A. Measurement for payment for furnishing and placing thermoplastic pavement symbols will be based upon the number of each of such pavement symbols actually constructed as in place, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and placing thermoplastic pavement symbols will be made at the unit price, each, of pavement symbols named in the Bid Schedule. Payment for pavement symbols shall constitute full payment for all such symbols required and shall include but not be limited to directional arrows, handicapped designation including hatch between parking spots and any blue, white, or amber lane striping to accompany pavement markings symbol and striping.

1.25 FURNISH AND INSTALL ADA DETECTABLE WARNING SURFACES

A. Measurement for payment for furnishing detectable warning pavers will be based upon the actual number, each, of such ADA detectable warning surfaces furnished and installed, all in accordance with requirements of the Contract Documents, whether they be constructed of pavers or plate materials as specified in the plans.

B. Payment for furnishing and installing detectable warning surfaces for ADA ramps will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the complete installation of the detectable warnings.

1.26 FURNISH AND INSTALL TRAFFIC SIGNS

A. Measurement for payment to furnish and install the traffic signs will be based upon actual quantity, each, of such signs furnished and installed, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing the traffic signs will be made at the unit price each, named in the Bid Schedule which price shall constitute full compensation for the removal of existing sign being replaced (when applicable) and the completed

installation of the new sign including sign post and footer. Sign post is considered an in-sequential cost from the actual sign installation.

1.27 RELOCATE EXISTING TREES

A. Measurement for payment to relocate existing trees will be based upon the actual number of trees relocated, all in accordance with the Contract Documents.

B. Payment for relocation of trees will be made at the unit price for each tree named in the Bid Schedule which price shall constitute full compensation for the relocation of all trees complete. No additional compensations will be made for watering and maintaining trees for the duration of the contract.

1.28 FURNISH AND INSTALL TREES AND PLANTS

A. Measurement for payment for furnishing and installing trees and plants will be based upon the actual number, of each tree or plant installed all in accordance with requirements of the Contract Documents.

B. Payment for furnishing and installing trees and plants will be made at the unit price, each, named in the Bid Schedule which price shall constitute full compensation for the plant material and complete installation. No additional compensations will be made for watering, fertilizing, staking and any other tree maintenance needed for the duration of the contract and six (6) months warranty period.

C. Trees shall be guyed and protected as shown on the drawings.

1.29 FURNISH AND INSTALL SOD

A. Measurement for payment for furnishing and installing sod will be based upon the number of square yards of sod actually installed, all in accordance with the requirements of the Contract Documents.

B. Payment for sod will be made at the unit price per square yard of sod named in the Bid Schedule

1.30 INSTALL NEW IRRIGATION SYSTEM

A. Measurement for payment for furnishing and installing a complete irrigation system for the parking lot landscaped areas will be made a lump sum fee. This lump sum of such irrigation systems constructed will be in accordance with all the requirements provided within the Contract Documents.

B. Payment for constructing an irrigation system will be made at the lump sum price, named in the Bid Schedule which price shall constitute full compensation for the installation of the irrigation systems complete, including but not limited to irrigation piping, restraints, connections, fittings, risers, sprinkler heads controllers, control valves, electrical wiring, panels, conduits, sleeves, rain gauge sensors, pumps, services, meter boxes, meters, main taps, etc. and all else necessary for a complete

and functional installation for all areas shown on the plans. All work shall meet the approval of the ENGINEER.

1.31 FURNISH AND INSTALL ELECTRICAL EQUIPMENT

A. Measurement for payment to furnish and install electrical conduits will be paid as a lump sum all inclusive of all work as required in the Contract Documents for the E drawings.

B. This lump sum payment shall be inclusive of all electrical work including all conduits, equipment, other materials and labor required to provide for lighting, power distribution and transmission line relocation, including spare equipment as required in 16527 as required in the Contract Documents.

1.32 FURNISH AND INSTALL LIGHT POLES, FOUNDATIONS AND FIXTURES

A. Measurement for payment for furnishing and installing light pole assemblies will be based upon the actual number, each, or such light pole assemblies installed all in accordance with the Contract Documents..

B. Payment for furnishing and installing each light pole assembly will be made at the unit price named in the Bid Schedule which price shall constitute full compensation for the construction of each light pole assembly completed including but not limited to removal and disposal of existing poles and foundation, precast foundations, fixtures, transformers and other required appurtenances, and high performance coating as detailed in the plans

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01031 – ALTERATION PROJECT PROCEDURES

PART 1 GENERAL

1.01 REQUIREMENTS

A. Coordinate work of trades and schedule elements of alterations and renovation work by procedure and methods to expedite completion of the work.

B. In addition to demolition and that specifically shown, cut, move or remove items necessary to provide access or to allow alterations and new work to proceed. Include such items as:

1. Repair or removal of hazardous or unsanitary conditions.

2. Removal of abandoned items and items serving no useful purpose, such as abandoned piping, conduit and wiring.

3. Removal of unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals and deteriorated concrete, shall be removed from the site expeditiously.

4. Cleaning of surfaces and removal of surface finished as needed to install new work and finishes.

5. Protection as required for existing trees to remain.

6. For purposes of all existing underground utilities work, coordinate as required by use of special telephone number shown on engineering drawings.

7. Site storage for all existing benches, signals, signs, light poles, fire hydrants, manhole covers and grates to be relocated.

C. Patch, repair and refinish existing items to remain, to the specified condition for each material, with a professional transition to adjacent new items of construction.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

1.03 ALTERATIONS, CUTTING AND PROTECTION

A. Assign the work of moving, removal, cutting, patching and protection to trades qualified to perform the work in a manner to cause least damage to each type of work, and provide means of returning surfaces to appearance of new work.

B. Perform cutting and removal work to remove minimum necessary, and in a manner to avoid damage to adjacent work.

1. Cut finish surfaces such as paving, masonry, tile, plaster or metals, by methods to terminate surfaces in a straight line at a natural point of division.

C. Perform cutting and patching as specified in Section 01045.

D. Protect existing finishes, equipment, and adjacent work which is scheduled to remain, from damage.

1. Protect existing and new work from weather and extremes of temperature.

PART 2 PRODUCTS

2.01 PRODUCTS FOR PATCHING, EXTENDING AND MATCHING

A. General Requirements that work be complete:

1. Provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing work.

a. Generally Contract Documents will not define products or standards of working conduct present in existing construction; CONTRACTOR shall determine products in inspection and any necessary testing by use of the existing as a sample of comparison.

2. Presence of a product, finish, or type of construction, requires that patching, extending or matching shall be performed as necessary to make work complete and consistent to existing identical standards of quality.

PART 3 EXECUTION

3.01 PERFORMANCE

A. Patch and extend existing work using skilled mechanics who are capable of matching existing quality. Quality of patched or extended work shall be not less than that specified for new work.

3.02 DAMAGED SURFACES

A. Patch and replace any portion of an existing finished surface with the exception of concrete curb or gutter which is found to be damaged, lifted, discolored, or shows other imperfections. Damaged curbing shall be replaced in sections as directed by the engineer.

1. Provide adequate support of substrate prior to patching the finish.

2. Refinish patched portions of painted or coated surfaces in a manner to produce uniform color and texture over entire surface.

3. When existing surface finish cannot be matched, refinish entire surface to nearest intersections.

3.03 TRANSITION FROM EXISTING TO NEW WORK

A. When new work abuts or is finished flush with existing work, make a smooth transition. Patched work shall match existing adjacent work in texture and appearance so that the patch of transition is invisible at a distance of five feet.

1. When finished surfaces are cut in such a way that a smooth transition with new work is not possible, terminate existing surface in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finished surface.

3.04 CLEANING

A. Perform periodic and final cleaning as specified in Section 01710.

1. Clean OWNER occupied areas daily.

2. Clean spillage, overspray, and heavy collection of dust in OWNER occupied areas immediately.

B. At completion of work of each trade, clean area and make surfaces ready for work of successive trades.

C. At completion of alterations work in each area, provide final cleaning and return space to a condition suitable for use by OWNER.

3.05 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work in this section. Payment for work shall be included in all other work.

END OF SECTION

SECTION 01045 – CUTTING AND PATCHING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. CONTRACTOR shall be responsible for all cutting, fitting and patching, including attendant excavation and backfill, required to complete the work or to:

1. Make its several parts fit together properly.

2. Uncover portions of the work to provide for installation of ill-timed work.

3. Remove and replace defective work.

4. Remove and replace work not conforming to requirements of Contract Documents.

5. Remove samples of installed work as specified for testing.

6. Provide routine penetrations of nonstructural surfaces for installation of piping and electrical conduit.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

1.03 SUBMITTALS

A. Submit a written request to ENGINEER well in advance of executing any cutting or alteration, which affects:

1. Work of the OWNER or any separate CONTRACTOR.

2. Structural value of integrity of any element of the project.

3. Integrity of effectiveness of weather-exposed or moisture-resistant elements or systems.

4. Efficiency, operational life, maintenance or safety of operational elements.

5. Visual qualities of sight-exposed elements.

B. Request shall include:

1. Identification of the project.

2. Description of the affected work.

3. The necessity for cutting, alteration or excavation.

4. Effect on work of OWNER or any separate CONTRACTOR, or on structural or weatherproof integrity of project.

5. Description of proposed work:

   a. Scope of cutting, patching, alteration, or excavation.
   b. Trades who will execute the work.
   c. Products proposed to be used.
   d. Extent of refinishing to be done.

6. Alternatives to cutting and patching.

7. Cost proposal, when applicable.

8. Written permission of any separate CONTRACTOR whose work will be affected.

C. Should conditions of work or the schedule indicate a change of products from original installation, CONTRACTOR shall submit request for substitution as specified in Section 01600, paragraph 1.08.

D. Submit written notice to ENGINEER designating the date and time the work will be uncovered.

PART 2 PRODUCTS

2.01 MATERIALS

A. Comply with specifications and standards for each specific product involved.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect existing conditions of project, including elements subject to damage or to movement during cutting and patching.

B. After uncovering the work, inspect conditions affecting installation of products, or performance of work.

C. Report unsatisfactory or questionable conditions affecting installation of products, or performance of work.

3.02 PREPARATION

A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of work.

B. Provide devices and methods to protect other portions of project from damage.

C. Provide protection from elements for that portion of the project, which may be exposed by cutting and patching, work, and maintain excavations free from water.

3.03 PERFORMANCE

A. Execute cutting and demolition by methods, which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.

B. Execute excavating and backfilling by methods, which will prevent settlement or damage to other work.

C. Employ original Installer or Fabricator to perform cutting and patching for:

1. Weather-exposed or moisture-resistant elements.

2. Sight-exposed finished surfaces.

D. Execute fitting and adjustment of products to provide a finished installation to comply with specified product, functions, tolerances and finishes.

E. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.

F. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

G. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:

1. For continuous surfaces, refinish to nearest intersection.

2. For an assembly, refinish entire unit.

3.04 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section, it shall be included in the unit price bid of any item requiring cutting and patching, including pavement restoration.

END OF SECTION

SECTION 01050 – PROJECT MANAGEMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination Drawings.
2. Special Project Procedures
3. Administrative and supervisory personnel.
4. Project meetings.
5. Requests for Interpretation (RFIs).

B. Related Sections include the following:

1. Section 01200, “Project Meetings”
2. Section 01311, "Construction Progress Documentation"
3. Section 01340, "Submittal Procedures"
4. Section 1700, "Contract Closeout "

1.03 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.04 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for City and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.

2. Preparation of the Schedule of Values.

3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.

5. Progress meetings.

6. Project closeout activities.

1.05 SUBMITTALS

A. Key Personnel Names: Within 5 days of notice to proceed, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1.06 SPECIAL PROJECT PROCEDURES

A. Discrepancies, Errors: Should discrepancies or errors appear in the drawings or specifications concerning materials, workmanship, or quantity of work to be

performed, the Contractor will be required to immediately notify the City before proceeding with the work. If the Contractor fails to notify the City and proceeds with the work, Contractor will be required to correct the errors at his/her own expense. In the event of a conflict between the drawings and specifications, the City will decide on the way to perform the work or supply the materials.

B. Dimensions and Measurements: The figured dimensions on the drawings or notes including dimensions shall be used for construction instead of measurements of the drawings by scale. No scale measurements shall be used as a dimension for construction. Dimensions on all drawings as well as the detail drawings themselves are subject in every case to measurements of adjacent or previously completed work. All such measurements necessary shall be taken before undertaking any work dependent upon such data. Field verification of dimensions on plans is mandatory since actual locations, distances, and levels will be governed by actual field conditions.

C. Discrepancies or Inconsistencies: Should any discrepancy or inconsistency appear between larger and smaller scale drawings in any of the divisions of the specifications or in any of the contract documents, such discrepancy shall be immediately submitted to the City for correction before proceeding with the work in question. In no case shall the Contractor make any alterations, erasures, changes or modifications in the drawings or specifications.

1. Should it appear that any of the work as specified or shown by the drawings is not sufficiently detailed or explained, the Contractor shall apply to the City for such further details or information as may be necessary for full understanding of the work in question.

2. The data set forth in these specifications and indicated on the drawings are as accurate as can be obtained, but their extreme accuracy is not guaranteed. Final application thereto shall be determined on the job as conditions may demand and subject to the approval of the City.

D. Plans and Specifications Acknowledgment by Subcontractors and Suppliers: All Subcontractors and Suppliers must submit, through the General Contractor to the City Engineer, a statement on their individual letterhead stationary, signed and sealed with their corporate seal, or a notarized statement on their letterhead stationery in the absence of a corporate seal, that the individual Subcontractor or Supplier:

1. Has received or reviewed a FULL set of approved plans and specifications for the project,

2. Is aware that items concerning their particular trade may be shown and/or detailed in other trades or sections of the plans and specifications, and

3. Will comply with said plans, specifications and all applicable codes and permit requirements.

E. In the event a Subcontractor or Supplier notes a mistake or details appear incomplete, or if there are questions or concerns with the plans and specifications, the Subcontractor or Supplier will immediately notify the General Contractor. No work will proceed until such conflicts or questions are resolved in writing.

F. The Subcontractor will not be permitted to start work, nor will any Shop drawings/submittals be accepted for review from a supplier until this letter of acknowledgment is received and approved by the General Contractor and City Engineer. Also, the City will not process any pay request for the work of any Subcontractor or Supplier whose acknowledgment letter is not on file with the City.

1.07 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.

2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. City Project Number

2. City Project Name.

3. Date.

4. Name of Contractor.

5. RFI number, numbered sequentially.

6. Specification Section number and title and related paragraphs, as appropriate.

7. Drawing number and detail references, as appropriate.

8. Field dimensions and conditions, as appropriate.

9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.

10. Contractor's signature.

11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

12. Identify each page of attachments with the RFI number and sequential page number.

C. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above. Word Template is available upon request from the City Engineer's Office.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Engineer's Action: Engineer will review each RFI, determine action required, and return it. Allow seven working days for Engineer's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Engineer's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.

2. Engineer's action may include a request for additional information, in which case Engineer's time for response will start again.

3. Engineer's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Engineer in writing within 10 days of receipt of the RFI response.

E. On receipt of Engineer's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Engineer within seven days if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log bi-weekly. Include the following:

1. Project name.

2. Name and address of Contractor.

3. RFI number including RFIs that were dropped and not submitted.

4. RFI description.

5. Date the RFI was submitted.

6. Date Engineer's response was received.

7. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01060 – REGULATORY REQUIREMENTS & PERMITS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. CONTRACTOR shall comply with all building codes appropriate to the project, including those of:

1. National Electric Code.

2. Florida Building Code. (Latest Revision)

B. CONTRACTOR shall comply with these codes, laws, regulations, rules, directives of all agencies, boards, districts, and governmental bodies having jurisdiction.

C. CONTRACTOR shall obtain and pay the cost of all building permits, fees, tie-in or connection charges associated with the project.

D. Any and all engineering permits have been obtained from the Agencies listed below by the CITY. The CONTRACTOR is responsible for compliance with any and all permit conditions. In the event that the CITY must obtain permits in addition to those listed below, the CONTRACTOR shall not have any claim for damages arising from any delay caused by the CITY'S obtaining said additional permits. (Permits are available for viewing at the office of the design engineer.)

1. Broward County EPGMD/South Florida Water Management District
   - Surface Water Management

E. The CONTRACTOR shall obtain construction permits from Wilton Manors Building Department and file a NOI with FDEP for NPDES compliance.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

1.03 MEASUREMENT AND PAYMENT

A. CONTRACTOR shall be reimbursed for permit fees as described in Section 01025.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01070 – ABBREVIATIONS OF INSTITUTIONS

PART 1 GENERAL

1.01 GENERAL

A. Wherever in these Specifications references are made to the standards, specifications, or other published data of the various international, national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these Specifications, the following acronyms or abbreviations, which may appear in these Specifications, shall have the meanings indicated herein.

1.02 ABBREVIATIONS

AAMA	Architectural Aluminum Manufacturer's Association
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHAM	Association of Home Appliance Manufacturers
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANS	American Nuclear Society
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ASA	American Standards Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASLE	American Society of Lubricating Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society

AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
BCEPD	Broward County Environmental Protection Department
BCHCED	Broward County Highway Construction & Engineering Division
BCPHU	Broward County Public Health Unit
BCTED	Broward County Traffic Engineering Division
BCWRMD	Broward County Water Resource Management Division
BCWWS	Broward County Water & Wastewater Services Division
BHMA	Builders Hardware Manufacturer's Association
CBM	Certified Ballast Manufacturers
CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed Gas Association
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
DIPRA	Ductile Iron Pipe Research Association
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
EPA	Environmental Protection Agency
FBC	Florida Building Code
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FM	Factory Mutual System
FPL	Florida Power & Light
FS	Federal Specifications
HI	Hydraulics Institute
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
IP	Institute of Petroleum (London)
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
MPTA	Mechanical Power Transmission Association
MSS	Manufacturers Standardization Society
MTI	Marine Testing Institute
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association

NLGI	National Lubricating Grease Institute
NMA	National Microfilm Association
NSF	National Sanitation Foundation
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PPI	Plastics Pipe Institute
RCRA	Resource Conservation and Recovery Act
RIS	Redwood Inspection Service
RVIA	Recreational Vehicle Industry Association
RWMA	Resistance Welder Manufacturer's Association
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Makers Association
SB	Southern Bell
SFWMD	South Florida Water Management District
SMA	Screen Manufacturers Association
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SPI	Society of the Plastics Industry, Inc.
SPIB	Southern Pine Inspection Bureau
SPR	Simplified Practice Recommendation
SSA	Swedish Standards Association
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
TAPPI	Technical Association of the Pulp and Paper Industry
TFI	The Fertilizer Institute
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WEF	Water Environment Federation
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01090 – REFERENCE STANDARDS

PART 1 GENERAL

1.01 GENERAL

A. Titles of Sections and Paragraphs: Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.

B. Applicable Publications: Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the WORK is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.

C. Specialists, Assignments: In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the WORK; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Without limiting the generality of other requirements of the Specifications, all work specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.

B. References herein to "Building Code" shall mean "Florida Building Code". References to "Mechanical Code" or "Uniform Mechanical Code," "Plumbing Code" or "Uniform Plumbing Code," "Fire Code" or "Uniform Fire Code," shall mean Uniform Mechanical Code, Uniform Plumbing Code and Uniform Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" shall mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the WORK is advertised for bids, as adopted by the agency having jurisdiction, shall apply to the

WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.

C. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the ENGINEER for clarification and directions prior to ordering or providing any materials or furnishing labor. The CONTRACTOR shall bid for the most stringent requirements.

D. The CONTRACTOR shall construct the WORK specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.

E. Applicable Standard Specifications: References in the Contract Documents to "Standard Specifications" shall mean the CONSTRUCTION STANDARDS AND SPECIFICATIONS, Office of the City Engineer, City of Fort Lauderdale, January 1982, including any revisions and/or ARCHITECTURAL CONSTRUCTION SPECIFICATIONS, Office of the City Engineer, City of Fort Lauderdale, January 1982, including any revisions.

1. The above-referenced specifications are made a part of all projects or improvements let for bid by the City's Public Services Department (Engineering and Architectural Bureau). It is mandatory that prospective bidders and Contractors familiarize themselves with and comply with these referenced specifications when preparing their proposals and during construction of any work awarded.

F. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

G. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

1.03 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.

2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

   a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.04 REGULATIONS RELATED TO HAZARDOUS MATERIALS

A. The CONTRACTOR is responsible that all work included in the Contract Documents, regardless if shown or not, shall comply with all EPA, OSHA, RCRA, NFPA, and any other Federal, State, and Local Regulations governing the storage and conveyance of hazardous materials, including petroleum products.

B. Where no specific regulations exist, all chemical, hazardous, and petroleum product piping and storage in underground locations must be installed with double containment piping and tanks, or in separate concrete trenches and vaults, or with an approved lining which cannot be penetrated by the chemicals, unless waived in writing by the OWNER.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01152 – APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:

1. Division 01 Section "Alteration Project Procedures" for administrative procedures for handling changes to the Contract.

2. Division 01 Section "Measurement and Payment" for administrative requirements governing use of unit prices.

3. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.03 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.04 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of

1. Contractor's Construction Schedule. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

   a. City’s Form - Periodic Estimate for Partial Payment.
   b. Submittals Schedule.
   c. Contractor's Construction Schedule.

2. Submit the Schedule of Values to City Representative at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

   a. Project name and location.
   b. Project Number
   c. Contractor's name and address.
   d. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

   a. Related Specification Section or Division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value.
      1) Percentage of the Contract Sum to nearest one percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.

4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

a. Differentiate between items stored on-site and items stored off-site. For items stored off-site include evidence of insurance or bonded warehousing.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as General Conditions expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.05 APPLICATIONS FOR PAYMENT

A. The General Contractor must meet with the City Representative on or about the 25th of each month. The City Representative will go over the pay items and agree on the quantities and the dollar amounts of the work completed during the month. A copy of the agreed amounts will be signed by the parties and a copy will be left with each representative.

B. The General Contractor will make up a partial pay request using the City-supplied forms and submit the request to the City Representative before the first of the upcoming month.

C. Each pay request must be accompanied by a partial release of lien by the General Contractor and by all Subcontractors, suppliers, and for all labor, as outlined below.

1. Starting with the second (2nd) pay request and for each and every pay request thereafter, the General Contractor shall submit partial release of liens from all Subcontractors, suppliers, and laborers covering the preceding month's request (SEE FOLLOWING EXAMPLE).

2. EXAMPLE: In the first (1st) pay request, payment is requested by General Contractor for the asbestos contractor and the electrician. The General Contractor must attach his partial release of lien.

3. For the second (2nd) pay request, the General Contractor must attach his partial release of lien from the asbestos contractor and the electrician for the amounts billed in the 1st pay request; i.e., the General Contractor will be running one (1) month behind with the releases from the Subcontractors, suppliers, etc., until the final pay request.

D. For each payment application requesting payment for undergrounding allowance for undergrounding work for overhead utilities, written authorization of payment from each utility being requested must be received with payment application.

E. For the final pay request, the General Contractor will be required to submit FINAL release of liens for ALL Subcontractors, suppliers, etc., and for ALL labor BEFORE FINAL PAYMENT WILL BE MADE.

F. No partial payments, after the first payment, will be made until all partial release of liens are submitted for the preceding month's billing, as described

G. Each Application for Payment shall be consistent with previous applications and payments as certified by and paid for by City.

H. Payment Application Forms: Use City Form “PERIODIC ESTIMATE FOR PARTIAL PAYMENT” as form for Applications for Payment.

1. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. City will return incomplete applications without action.

2. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

I. Release of Lien: With each Application for Payment, submit release of lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial release of lien on each item for amount requested in previous application, after deduction for retainage, on each item.

2. When an application shows completion of an item, submit final release of lien.

3. City reserves the right to designate which entities involved in the Work must submit release of lien forms.

J. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Products list.
5. Submittals Schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. Copies of building permits.
8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
9. Initial progress report.
10. Report of preconstruction conference.

K. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. Evidence that claims have been settled.
5. Final liquidated damages settlement statement.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01200 – PROJECT MEETINGS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. OWNER's Representative shall schedule and administer a preconstruction meeting, progress meetings at a minimum of every two weeks on a day established by the OWNER's Representative and specially called meetings throughout progress of the work.

1. Prepare agenda for meetings.

2. Distribute written notice of each meeting five (5) days in advance of meeting date.

3. Make physical arrangements for meetings.

4. Preside at meetings.

5. Record the minutes; include significant proceedings and decisions.

6. Reproduce and distribute copies of minutes within three days after each meeting.

   a. To participants in the meeting.
   b. To parties affected by decisions made at the meeting.
   c. Furnish three copies of minutes to OWNER's Representative.

B. Representative of CONTRACTOR, subcontractor and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

C. ENGINEER shall attend all meetings.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

1.03 PRE-CONSTRUCTION MEETING

A. Schedule after date of Notice to Proceed.

B. Location: A central site, convenient for all parties, designated by OWNER's Representative.

C. Attendance:

1. The CONTRACTOR and its superintendent.

2. ENGINEER and ENGINEER'S professional consultants.

3. Resident Project Representative.

4. Representatives of the OWNER.

5. Major subcontractors.

6. Major Suppliers.

7. Governmental representatives as appropriate.

8. Others as requested by CONTRACTOR, OWNER or ENGINEER.

D. Suggested Agenda:

1. Distribution and discussion of:

   a. List of major subcontractors and suppliers.
   b. Projected Construction Schedules.
   c. Shop drawings and other submittals.
   d. Traffic maintenance plan.
   e. Community Public Relations.

2. Critical work sequencing.

3. Procurement of major equipment and materials requiring a long lead time.

4. Project Coordination

   a. Designation of responsible personnel.

5. Procedures and processing of:

   a. Field decisions.
   b. Proposal requests.
   c. Submittals.
   d. Change Orders.
   e. Applications for Payment

6. Adequacy of distribution of Contract Documents.

7. Procedures for maintaining Record Documents.

8. Use of premises:

   a. Office, work and storage areas.
   b. OWNER's requirements.

9. Construction facilities, controls and construction aids.

10. Temporary utilities.

11. Safety procedures.

12. Security procedures.

13. Housekeeping procedures.

1.04 PROGRESS MEETINGS

A. Schedule regular biweekly meetings on a day established by the OWNER's Representative as required.

B. Hold called meetings as required by progress of the work.

C. Location of the meetings: Project field office of OWNER's Representative.

D. Attendance

1. OWNER's Representative and OWNER's professional consultants as needed.

2. ENGINEER.

3. Subcontractors as active on the site.

4. Suppliers as appropriate to the agenda.

5. Governmental representatives as appropriate.

6. Others, as requested by CONTRACTOR, OWNER or ENGINEER.

E. Suggested Agenda:

1. Review, approval of minutes of previous meeting.

2. Review of work progress since previous meeting.

3. Field observations, problems, and conflicts.

4. Problems, which impeded Construction Schedule.

5. Review of off-site fabrication, delivery schedules.

6. Corrective measures and procedures to regain projected schedule.

7. Revisions to Construction Schedule.

8. Progress, schedule, during succeeding work period.
9. Coordination of schedules.
10. Community Public Relations.
11. Review submittal schedules; expedite as required.
12. Maintenance of quality standards.
13. Pending changes and substitutions.
14. Review proposed changes for:
    a. Effect on Construction Schedule and on completion date.
    b. Effect on other contracts of the Project.
15. Other business.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01311 – CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Preliminary Construction Schedule.
2. Contractor's Construction Schedule.
3. Submittals Schedule.
4. Daily construction reports.
5. Material location reports.
6. Field condition reports.
7. Special reports.

B. Related Sections include the following:

1. Section 01152 – Applications for Payment
2. Section 01050 – Project Management
3. Section 01340 – Submittal Procedures
4. Section 01311 – Construction Photographs
5. Section 01400 – Quality Control

1.03 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.

2. Predecessor Activity: An activity that precedes another activity in the network.

3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either City or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

G. Milestone: A key or critical point in time for reference or measurement.

H. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

I. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.04 SUBMITTALS

A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.

2. Specification Section number and title.

3. Submittal category (action or informational).

4. Name of subcontractor.

5. Description of the Work covered.

6. Scheduled date for Engineer's final release or approval.

B. Preliminary Construction Schedule: Submit three opaque copies.

1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.

C. Preliminary Network Diagram: Submit three opaque copies, large enough to show entire network for entire construction period. Show logic ties for activities.

D. Contractor's Construction Schedule: Submit three opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

E. CPM Reports: Concurrent with CPM schedule, submit three copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.

2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.

3. Total Float Report: List of all activities sorted in ascending order of total float.

F. Daily Construction Reports: Submit two copies at monthly intervals.

G. Material Location Reports: Submit two copies at monthly intervals.

H. Field Condition Reports: Submit two copies at time of discovery of differing conditions.

I. Special Reports: Submit two copies at time of unusual event.

1.05 COORDINATION

A. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.

2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 PRODUCTS

2.01 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 20 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

C. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

1. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following: The schedule shall clearly indicate the critical path and all activities associated with it. The dependencies shall be clearly delineated.

2. All activities with a time duration exceeding five (5) days shall be shown as separate items.

3. Include procurement process activities for the following long lead items and major items as separate activities in schedule. Procurement cycle activities

include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

4. Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.

5. Where materials require more than one (1) week fabrication or order time, this order/fabrication time shall be shown.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. City-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

2. Work Restrictions: Show the effect of the following items on the schedule:

   a. Use of premises restrictions.
   b. Environmental control.

3. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

   a. Subcontract awards.
   b. Submittals.
   c. Purchases.
   d. Fabrication.
   e. Sample testing.
   f. Deliveries.
   g. Installation.
   h. Tests and inspections.
   i. Adjusting.
   j. Curing.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, Final Completion, and Certificate of Occupancy.

F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

G. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

1. Microsoft Project 2000 for Windows 2000 operating system.

2.03 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 10 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

2.04 REPORTS

A, Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (refer to special reports).
10. Stoppages, delays, shortages, and losses.
11. Emergency procedures.
12. Orders and requests of authorities having jurisdiction.
13. Change Orders received and implemented.
14. Construction Change Directives received and implemented.
15. Services connected and disconnected.
16. Equipment or system tests and startups.
17. Partial Completions and occupancies.
18. Substantial Completions authorized.

B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.05 SPECIAL REPORTS

A. General: Submit special reports directly to City within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise City in advance when these events are known or predictable.

PART 3 EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.

2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.

3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Engineer, City Representative, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have

completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

SECTION 01340 – SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Sections include the following:

1. Section 01152, Applications for Payment
2. Section 01050, Project Management
3. Section 01311, Construction Progress Documentation
4. Section 01340, Construction Photographs
5. Section 01400, Quality Control
6. Section 01700, Contract Closeout
7. Section 01720, Project Record Documents
8. Divisions 02 through 16 Sections for specific requirements for submittals in those Sections.

1.03 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Engineer's responsive action.

B. Informational Submittals: Written information that does not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.04 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. City reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

3. Resubmittal Review: Allow 10 days for review of each resubmittal.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.

2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by City.

3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Contractor.
    d. Name and address of subcontractor.
    e. Name and address of supplier.
    f. Name of manufacturer.
    g. Submittal number or other unique identifier, including revision identifier.
        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).

h. Number and title of appropriate Specification Section.
i. Drawing number and detail references, as appropriate.
j. Location(s) where product is to be installed, as appropriate.
k. General Contractor's stamp of approval must be on all submittals, indicating that the Contractor has reviewed and approved prior to submitting to the City.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Engineer observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Engineer will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Provide locations on form for the following information:

a. Project name.
b. Date.
c. Destination (To:).
d. Source (From:).
e. Names of subcontractor, manufacturer, and supplier.
f. Category and type of submittal.
g. Submittal purpose and description.
h. Specification Section number and title.
i. Drawing number and detail references, as appropriate.
j. Transmittal number, numbered consecutively.
k. Remarks.
l. Signature of transmitter.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.

2. Note date and content of revision in label or title block and clearly indicate extent of revision.

3. Resubmit submittals until they are marked "Approved as submitted" or "Approved as noted".

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, Fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating "Approved as submitted" or "Approved as noted" by Engineer.

PART 2 PRODUCTS

2.01 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Standard color charts.
e. Manufacturer's catalog cuts.
f. Wiring diagrams showing factory-installed wiring.
g. Printed performance curves.
h. Operational range diagrams.
i. Mill reports.
j. Standard product operation and maintenance manuals.
k. Compliance with specified referenced standards.
l. Testing by recognized testing agency.
m. Application of testing agency labels and seals.
n. Notation of coordination requirements.

4. Submit Product Data before or concurrent with Samples.

5. Number of Copies: Submit five copies of Product Data, unless otherwise indicated. Engineer will return two copies. Mark up and retain one returned copy as a Project Record Document.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Dimensions.
b. Identification of products.
c. Fabrication and installation drawings.

d. Roughing-in and setting diagrams.
e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
f. Shopwork manufacturing instructions.
g. Templates and patterns.
h. Schedules.
i. Design calculations.
j. Compliance with specified standards.
k. Notation of coordination requirements.
l. Notation of dimensions established by field measurement.
m. Relationship to adjoining construction clearly indicated.
n. Seal and signature of professional engineer if specified.
o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 24 by 36 inches (750 by 1000 mm).

3. Number of Copies: Submit five opaque copies of each submittal. City will retain three copies; remainder will be returned.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as City's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. City will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. City will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product.

2. Number and name of room or space.

3. Location within room or space.

4. Number of Copies: Submit five copies of product schedule or list, unless otherwise indicated. City will return two copies.

    a. Mark up and retain one returned copy as a Project Record Document.

F. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation" for Construction Manager's action.

G. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

H. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.

2. Number of Copies: Submit four copies of subcontractor list, unless otherwise indicated. City will return two copies.

a. Mark up and retain one returned copy as a Project Record Document.

2.02 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. City will not return copies.

2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

D. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

E. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

F. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

G. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

H. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

I. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

J. Construction Photographs: Comply with requirements specified in Section 01380.

PART 3 EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ENGINEER'S ACTION

A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. Approved as submitted

2. Approved as noted

3. Revise and resubmit

4. Rejected.

C. Informational Submittals: Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

SECTION 01380 – CONSTRUCTION PHOTOGRAPHS

PART 1 GENERAL

1.01 GENERAL

A. Employ competent photographer to take construction record photographs periodically, monthly at a minimum, during course of the work.

1.02 RELATED REQUIREMENTS

A. Section 01010: Summary of Work.

B. Section 01720: Project Record Documents.

1.03 PHOTOGRAPHY REQUIRED

A. Provide photographs taken on cutoff date for each scheduled application for Payment.

B. Provide photographs taken at each major stage of construction.

C. Provide photographs taken of change order work.

D. Provide five prints of each view.

E. Negatives:

1. Remain property of photographer.

2. Require that photographer maintain negatives for a period of two years from Date of Substantial Completion of entire Project.

3. Photographer shall agree to furnish additional prints to OWNER and the ENGINEER at commercial rates applicable at time of purchase.

1.04 COSTS OF PHOTOGRAPHY

A. CONTRACTOR shall pay costs for specified photography and prints.

1. Parties requiring additional photography or prints will pay photographer directly.

1.05 DIGITAL PHOTOGRAPHY

A. At OWNER and ENGINEER’s discretion, digital photography may be used for all construction photographs except aerial progress photographs.

PART 2 PRODUCTS

2.01 PRINTS

A. Color:

1. Paper: Single weight, color print paper.
2. Finish: Smooth surface, glossy.
3. Size: 8-inch x 10-inch.

B. Identify each print on back, listing:

1. Name of Project.
2. Specific Location.
3. Date and time of exposure.
4. Name and address of photographer.
5. Photographer's numbered identification of exposure.

PART 3 EXECUTION

3.01 TECHNIQUE

A. Factual presentation.

B. Correct exposure and focus.

1. High resolution and sharpness.
2. Maximum depth-of-field.
3. Minimum distortion.

3.02 VIEWS REQUIRED

A. Photograph from locations to adequately illustrate condition of construction and state of progress.

B. Photographs shall include aerial photographs showing the entire construction area.

3.03 DELIVERY OF PRINTS

A. Deliver prints to the ENGINEER to accompany each Application for Payment.

B. Distribution of prints as soon as processed, is anticipated to be as follows:

1. OWNER (one set).
2. ENGINEER (two sets).
3. Project Record File (one set to be stored by CONTRACTOR).
4. CONTRACTOR (one set).

3.04 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section, it shall be included in the price of all other work.

END OF SECTION

SECTION 01400 – QUALITY CONTROL

PART 1 GENERAL

1.01 DEFINITION

A. Specific quality control requirements for the WORK are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the WORK beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

1.02 INSPECTION AT PLACE OF MANUFACTURE

A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the ENGINEER at the place of manufacture.

B. The presence of the ENGINEER at the place of manufacturer, however, shall not relieve the CONTRACTOR of the responsibility for furnishing products, materials, and equipment which comply with all requirements of the Contract Documents. Compliance is a duty of the CONTRACTOR, and said duty shall not be avoided by any act or omission on the part of the ENGINEER.

1.03 SAMPLING AND TESTING

A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, as applicable to the class and nature of the article or materials considered; however, the OWNER reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the ENGINEER will insure the OWNER that the quality of the work is in full accord with the Contract Documents.

B. Any waiver by the OWNER of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial WORK, shall not be construed as a waiver of any requirements of the Contract Documents.

C. Notwithstanding the existence of such waiver, the ENGINEER reserves the right to make independent investigations and tests, and failure of any portion of the WORK to meet any of the requirements of the Contract Documents, shall be reasonable cause for the ENGINEER to require the removal or correction and reconstruction of any such work in accordance with the General Conditions.

1.04 INSPECTION AND TESTING LABORATORY SERVICE

A. Inspection and testing laboratory service shall comply with the following:

1. CONTRACTOR will pay for services of an independent firm to perform material testing required by the OWNER.

2. The independent firm will perform inspections, testings, and other services specified in individual specification sections and as required by the ENGINEER.

3. Reports will be submitted to the ENGINEER in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

4. The CONTRACTOR shall cooperate with the OWNER or independent firm and furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.

5. The CONTRACTOR shall notify ENGINEER 48 hours prior to the expected time for operations requiring inspection and laboratory testing services.

6. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the ENGINEER. The CONTRACTOR shall bear all costs from such retesting at no additional cost to the OWNER.

7. For samples and tests required for CONTRACTOR'S use, the CONTRACTOR shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the CONTRACTOR'S use shall be included in the Contract Price.

8. CONTRACTOR shall bear all costs should materials for testing are not ready for testing at time specified by CONTRACTOR for test.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 INSTALLATION

A. Inspection: The CONTRACTOR shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.

B. Measurements: The CONTRACTOR shall verify measurements and dimensions of the WORK, as an integral step of starting each installation.

C. Manufacturer's Instructions: Where installations include manufactured products, the CONTRACTOR shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

END OF SECTION

SECTION 01410 – TESTING LABORATORY SERVICES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. CONTRACTOR will employ and pay for the services of an Independent Testing laboratory to perform certain specified testing required by the OWNER.

1. CONTRACTOR shall cooperate with the laboratory to facilitate the execution of its required services.

2. Employment of the laboratory by the CONTRACTOR for specific testing shall in no way relieve the CONTRACTOR's obligations to perform the work of the Contract as specified.

3. CONTRACTOR shall pay for all material testing.

4. The following tests will be provided by the CONTRACTOR as necessary.

    a. Density
    b. Proctor
    c. LBR
    d. Carbonate Content
    e. Gradation
    f. Plastic Index and Liquid Limit
    g. Organic Content
    h. Concrete Compressive Strength and Slump
    i. Asphalt Extraction

B. CONTRACTOR shall pay for all other testing including bacteriological testing.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract: Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.

1.03 QUALIFICATION OF LABORATORY

A. Meet "Recommended Requirements for Independent Laboratory Qualification", published by American Council of Independent Laboratories.

B. Meet basic requirements of ASTM E-329.

C. Authorized to operate in the state in which the project is located.

D. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of Natural Bureau of Standards during the most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.

E. Testing Equipment

1. Calibrated at reasonable intervals by devices of accuracy traceable to either:

a. National Bureau of Standards.
b. Accepted values of natural physical constants.

1.04 LABORATORY DUTIES

A. Cooperate with OWNER's Representative and CONTRACTOR; provide qualified personnel after due notice.

B. Perform specified inspections, sampling and testing of materials and methods of construction:

1. Comply with specified standards.

2. Ascertain compliance of materials with requirements of Contract Documents.

C. Promptly notify OWNER's Representative and CONTRACTOR of observed irregularities of deficiencies of work or products.

D. Promptly submit written report of each test and inspection; one copy each to OWNER's Representative, OWNER, CONTRACTOR, and one copy to Record Document File. Each report shall include:

1. Date issued.

2. Project title, number and Parcel number.

3. Testing laboratory name, address and telephone number.

4. Name and signature of laboratory inspector.

5. Date and time of sampling or inspection.

6. Record of temperature and weather conditions.

7. Date of test.

8. Identification of fill product and specification section.

9. Location of sample or test in the project.

10. Type of inspection or test.

11. Results of tests and compliance with Contract Documents.

12. Interpretation of test results, when requested by OWNER's Representative.

E. Perform additional tests as required by the OWNER's Representative.

1.05 LIMITATION OF AUTHORITY OF TESTING LABORATORY

A. Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on requirements of Contract documents.

2. Approve or accept any portion of the work.

3. Perform any duties of the CONTRACTOR.

1.06 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel and provide access to work.

B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.

C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes, which require control by the Testing Laboratory.

D. Furnish copies of Products test reports as required.

E. Furnish incidental labor and facilities:

1. To provide access to work to be tested.

2. To obtain and handle samples at the project site or at the source of the product to be tested.

3. To facilitate inspections and tests.

4. For storage of test samples.

F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

1. When tests or inspections cannot be performed after such notice, reimburse OWNER for laboratory personnel and travel expenses incurred due to CONTRACTOR's negligence.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section, it shall be included in the price for all other work.

END OF SECTION

SECTION 01505 – MOBILIZATION

PART 1 GENERAL

1.01 GENERAL

A. Mobilization shall include the obtaining of all permits; moving onto the site of all equipment; temporary buildings, and other construction facilities; and implementing security requirements; all as required for the proper performance and completion of the WORK. Mobilization shall include the following principal items:

1. Moving on to the site of all CONTRACTOR's equipment required for first month operations.

2. Installing temporary construction power, wiring, and lighting facilities.

3. Developing construction water supply.

4. Providing field office trailers for the CONTRACTOR, complete with all specified furnishings and utility services including telephones, telephone appurtenances, and copying machine.

5. Providing all on-site communication facilities, including telephones and radio pagers.

6. Providing on-site sanitary facilities and potable water facilities.

7. Arranging for and erection of CONTRACTOR's work, site access, and storage.

8. Obtaining all required permits (including NOI and SWIP permits as needed).

9. Having all OSHA required notices and establishment of safety programs.

10. Having the CONTRACTOR's superintendent at the job site full time.

11. Submitting initial submittals.

12. Audio-Visual preconstruction record as described in Section 01010.

13. Project identification and signs.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 PAYMENT FOR MOBILIZATION

A. The CONTRACTOR's attention is directed to the condition that no payment for mobilization, or any part thereof will be approved for payment under the Contract until all mobilization items listed in Paragraph 1.01.A. above have been completed as specified.

END OF SECTION

SECTION 01510 – TEMPORARY UTILITIES

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

A. It shall be the CONTRACTOR's responsibility to provide equipment that is adequate for the performance of the WORK under this Contract within the time specified. All equipment shall be kept in satisfactory operating condition, shall be capable of safety and efficiently performing the required WORK, and shall be subject to inspection and approval by the OWNER's representative at any time within the duration of the Contract. All work hereunder shall conform to the applicable requirements of the OSHA Standards for Construction.

1.02 JOB CONDITIONS

A. Scheduled Uses: The CONTRACTOR shall, in conjunction with establishment of job progress schedule, establish a schedule for implementation and termination of service for each temporary utility or facility; at earliest feasible time, and when acceptable to OWNER and ENGINEER change over from use of temporary utility service to permanent service.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 INSTALLATION OF POWER DISTRIBUTION SYSTEM

A. Power: The CONTRACTOR shall provide all necessary power required for its operations under the Contract, and shall provide and maintain all temporary power lines required to perform the WORK in a safe and satisfactory manner.

3.02 INSTALLATION OF LIGHTING

A. Construction Lighting: All WORK conducted at night or under conditions of deficient daylight shall be suitable lighted to insure proper WORK and to afford adequate facilities for inspection and safe working conditions.

3.03 WATER SUPPLY

A. General: The OWNER will furnish reasonable quantities of water required by the CONTRACTOR in performance of the WORK under the Contract; however, the CONTRACTOR shall provide all facilities necessary to convey the water from the OWNER-designated source to the points of use in accordance with the requirements of the Contract Document. The CONTRACTOR shall pay all permit and water charges.

B. Potable Water: All drinking water on the site during construction shall be furnished by the CONTRACTOR and shall be bottled water or water furnished in acceptable metal dispensers. Notices shall be posted conspicuously throughout the site warning the CONTRACTOR's personnel that piped water may be contaminated.

C. Water Connections: The CONTRACTOR shall not make connection to, or draw water from, any fire hydrant or pipeline without first obtaining permission of the authority having jurisdiction over the use of said fire hydrant or pipeline and from the agency owning the affected water system. For each such connection made, the CONTRACTOR shall first attach to the fire hydrant or pipeline a valve and a meter, if required by the said authority, of a size and type acceptable to said authority and agency. The CONTRACTOR shall pay all permit and water charges.

D. Removal of Water Connections: Before final acceptance of the WORK on the project, all temporary connections and piping installed by the CONTRACTOR shall be entirely removed, and all affected improvements shall be restored to their original condition, or better, to the satisfaction of the ENGINEER and to the agency owning the affected utility.

3.04 INSTALLATION OF SANITARY FACILITIES

A. Toilet Facilities: Fixed or portable chemical toilets shall be provided wherever needed for the use of CONTRACTOR's employees. Toilets at construction job sites shall conform to the requirements of Subpart D, Section 1926.51 of the OSHA Standards for Construction.

B. Sanitary and Other Organic Wastes: The CONTRACTOR shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wasted from any other source related to the CONTRACTOR's operations shall be disposed of away from the site in a manner satisfactory to the ENGINEER and in accordance with all laws and regulations pertaining thereto.

3.05 INSTALLATION OF FIRE PROTECTION

A. Fire Protection: The construction of the WORK shall be connected with the CONTRACTOR's water supply system and shall be adequately protected against damage by fire. Hose connections and hose, water casks, chemical equipment, or other sufficient means shall be provided for fighting fires in the temporary structures and other portions of the WORK, and responsible persons shall be designated and instructed in the operation such fire apparatus so as to prevent or minimize the hazard of fire. The CONTRACTOR's fire protection program shall conform to the requirements of Subpart F of the OSHA Standards for Construction.

3.06 INSTALLATION OF COMMUNICATIONS

A. Telephone Services: The CONTRACTOR shall provide and maintain at all time during the progress of the WORK not less than one telephone in good working order, at its own field construction office, at or near the site of the WORK included in the

Contract. Each such telephone shall be connected to an established exchange for toll service and with all other telephones utilized by the CONTRACTOR.

B. Telephone Use: The CONTRACTOR shall permit the ENGINEER, the OWNER, or their authorized representatives or employees free and unlimited use of said telephone facilities for all calls that do not involve published toll charges. Calls originated by the ENGINEER, the OWNER, their authorized representatives or employees who involve toll or the CONTRACTOR at the rates charged by the telephone company shall bill message unit charge to the OWNER.

3.07 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section, it shall be included in the lump sum price for Mobilization.

END OF SECTION

SECTION 01520 – CONSTRUCTION AIDS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Furnish, install and maintain required construction aids, remove on completion of work.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

PART 2 PRODUCTS

2.01 MATERIALS, GENERAL

A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.02 CONSTRUCTION AIDS

A. Provide construction aids and equipment required by personnel and to facilitate execution of the work; scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes and other such facilities and equipment.

1. Refer to respective sections for particular requirements for each trade.

2. Provide protective coverings for finished surfaces.

B. Maintain facilities and equipment in first-class condition.

PART 3 EXECUTION

3.01 PREPARATION

A. Consult with OWNER's Representative, review site conditions and factors which affect construction procedures and construction aids including adjacent properties and public facilities which may be affected by execution of the work.

3.02 GENERAL

A. Comply with applicable requirements specified in sections of Division 2 through 4 (as applicable).

B. Relocate construction aids as required by progress of construction, by storage or work requirements, and to accommodate legitimate requirements of OWNER and other Contractors employer at the site.

3.03 REMOVAL

A. Completely remove temporary materials, equipment and services:

1. When construction needs can be met by use of permanent construction.

2. At completion of project.

B. Clean, repair damage caused by installation or by use of temporary facilities.

1. Remove foundations and underground installations for construction aids.

2. Grade areas of site affected by temporary installations to required elevations and slopes, and clean the area.

C. Restore permanent facilities used for temporary purposes to specified condition.

3.04 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section, it shall be included in the price of all other work.

END OF SECTION

SECTION 01530 – PROTECTION OF EXISITNG FACILITIES

PART 1 GENERAL

1.01 GENERAL

A. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.

B. The CONTRACTOR shall verify the exact locations and depths of all utilities shown and the CONTRACTOR shall make exploratory excavations of all utilities that may interfere with the WORK. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's work. When such exploratory excavations show the utility location as shown to be in error, the CONTRACTOR shall so notify the ENGINEER.

C. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

1.02 RIGHTS-OF-WAY

A. The CONTRACTOR shall not do any work that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon the rights-of-way involved until notified by the ENGINEER that the OWNER has secured authority from the proper party. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin work, if required by said party, and shall remove, shore, support or otherwise protect such pipeline, transmission line, ditch, fence, or structure or replace the same. When two or more contracts are being executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the OWNER shall determine the sequence and order of the WORK. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the OWNER to the CONTRACTOR so desiring, to the extent, amount, in the manner, and at the times permitted. No such decision as to the method or time of conducting the WORK or the use of territory shall be made the basis of any claim for delay or damage, except as provided for temporary suspension of the WORK in the General Conditions of the Contract.

1.03 PROTECTION OF STREET OR ROADWAY MARKERS

A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper

authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. All survey markers or points disturbed by the CONTRACTOR shall be accurately restored after all street or roadway resurfacing has been completed.

1.04 RESTORATION OF PAVEMENT

A. General: All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement OWNER. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.

B. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.

C. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.

D. Restoration of Sidewalks or Private Properties: Wherever sidewalks or private properties and driveways have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or driveways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions before proceeding with the final restoration or, if no such period of times is so fixed, the CONTRACTOR shall maintain said temporary sidewalks or driveways until the final restoration thereof has been made. The CONTRACTOR shall restore all private properties within thirty (30) days after a complaint is received by the OWNER.

1.05 EXISTING UTILITIES AND IMPROVEMENTS

A. General: The CONTRACTOR shall protect all Underground Utilities and other improvements which may be impaired during construction operations. It shall be the CONTRACTOR's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.

B. Utilities to be Moved: In the case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the CONTRACTOR, be notified by the OWNER to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the ENGINEER a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.

C. Where the proper completion of the WORK requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is indicated, the CONTRACTOR shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the ENGINEER and the OWNER of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.

D. OWNER's Right of Access: The right is reserved to the OWNER and to the OWNERs of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the WORK of this Contract.

E. Underground Utilities Indicated: Existing utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the CONTRACTOR.

F. Underground Utilities Not Indicated: In the event that the CONTRACTOR damages any existing utility lines that are not indicated or the locations of which are not made known to the CONTRACTOR prior to excavation, a written report thereof shall be made immediately to the ENGINEER. If directed by the ENGINEER, repairs shall be made by the CONTRACTOR under the provisions for changes and extra work contained in the General Conditions.

G. All costs of locating, repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not shown in the Contract Documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the work which was interrupted or idled by removal or relocation of such utility facilities, and which was necessarily idled during such work will be paid for as extra work in accordance with the provisions of the General Conditions.

H. Approval of Repairs: All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement OWNER and the ENGINEER before being concealed by backfill or other work.

I. Maintaining in Service: All oil and gasoline pipelines, power, and telephone or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm

drain lines, poles, and overhead power and communication wires and cables encountered along the line of the WORK shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the ENGINEER are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

J. Existing Water Services: CONTRACTOR shall protect and provide temporary support for existing water services. Any water service damaged by the CONTRACTOR, shall be replaced at the CONTRACTOR's expense, with a new water service complete with new water main tap.

1.06 TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

A. General: The CONTRACTOR shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or OWNER. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the CONTRACTOR or a certified tree company under permit from the jurisdictional agency and/or the OWNER. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.

B. Trimming: Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to the trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over 1-1/2 inches in diameter shall be coated with an asphaltic emulsion material.

C. Replacement: The CONTRACTOR shall immediately notify the jurisdictional agency and/or the OWNER if any tree is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the OWNER, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree at CONTRACTOR’s own expense. The tree shall be of a like size and variety as the tree damaged, or, if of a smaller size, the CONTRACTOR shall pay to the OWNER of said tree a compensatory payment acceptable to the tree OWNER, subject to the approval of the jurisdictional agency or OWNER. The size of the trees shall be not less than 1-inch diameter nor less than 6 feet in height.

1.07 NOTIFICATION BY THE CONTRACTOR

A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way the CONTRACTOR shall notify the respective authorities representing the OWNERs or agencies responsible for such facilities not less than 3 days nor more than 7 days prior to excavation so that a representative of said OWNERs or agencies can be present during such work if they so desire. The CONTRACTOR shall also notify the

Sunshine State One Call Center 1-800-432-4770 at least 2 days, but no more than 14 days, prior to such excavation.

PART 2 PRODUCTS

2.01 MATERIALS, GENERAL

A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.02 FENCING

A. Materials to CONTRACTOR's option, minimum fence height = 6 feet.

2.03 BARRIERS

A. Materials to CONTRACTOR's option, as appropriate to serve required purpose.

PART 3 EXECUTION

3.01 GENERAL

A. Install facilities of a neat and reasonable uniform appearance, structurally adequate for required purposes.

B. Maintain barriers during entire construction period.

C. Relocate barriers as required by progress of construction.

3.02 TREE AND PLANT PROTECTION

A. Preserve and protect existing trees and plants adjacent to work areas.

B. Consult with OWNER's Representative and remove agreed-on roots and branches which interfere with work.

1. Employ qualified tree surgeon to remove branches, and to treat cuts.

C. Protect root zones of trees and plants.

1. Do not allow vehicular traffic and parking.

2. Do not store materials or products.

3. Prevent dumping of refuse or chemically injurious materials or liquids.

4. Prevent puddling or continuous running water.

D. Carefully supervise all work to prevent damage.

E. Replace trees and plants which are damaged or destroyed due to work operations under this contract.

3.03 REMOVAL

A. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed, and when approved by OWNER's Representative.

B. Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

3.04 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section, it shall be included in the price of all other work.

END OF SECTION

SECTION 01550 – SITE ACCESS AND STORAGE

PART 1 GENERAL

1.01 HIGHWAY LIMITATIONS:

A. The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

1.02 TEMPORARY CROSSINGS:

A. General: Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, and hospitals. Safe and adequate public transportation stops and pedestrian crossings at intervals not exceeding 300 feet shall be provided. The CONTRACTOR shall cooperate with parties involved in the delivery of mail and removal of trash and garbage so as to maintain existing schedules for such services. Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access for reasonable periods of time.

B. Temporary Bridges: Wherever necessary, the CONTRACTOR shall provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases as the CONTRACTOR shall secure the written consent of the individuals or authorities concerned to omit such temporary bridges or steel plates, which written consent shall be delivered to the ENGINEER prior to excavation. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossing shall conform to the requirements of the authority having jurisdiction in each case, and the CONTRACTOR shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.

C. Street Use: Nothing herein shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. No street shall be closed to the public without first obtaining permission of the ENGINEER and proper governmental authority. Where excavation is being performed in primary streets or highways, one lane in each direction shall be kept open to traffic at all times unless otherwise indicated. Toe boards shall be provided to retain excavated material if required by the ENGINEER or the agency having jurisdiction over the street or highway. Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the CONTRACTOR

to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.

D. Traffic Control: For the protection of traffic in public or private streets and ways, the CONTRACTOR shall provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of Broward County and the "Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1).

The CONTRACTOR shall take all necessary precautions for the protection of the WORK and the safety of the public. All barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The CONTRACTOR shall station such guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. All signs, signals, and barricades shall conform to the requirements of the Florida Department of Transportation.

The CONTRACTOR shall submit 3 copies of a traffic control plan to the ENGINEER for approval a minimum of 2 weeks prior to construction. The ENGINEER reserves the right to observe these traffic control plans in use and to make any changes as field conditions warrant. Any changes shall supersede these plans and be done solely at the CONTRACTOR's expense.

The CONTRACTOR shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.

1.03 CONTRACTOR'S WORK AND STORAGE AREA:

A. The CONTRACTOR shall designate and arrange for the use of a portion of the property, adjacent to the WORK for its exclusive use during the term of the Contract as a storage and shop area for its construction operations relative to this Contract.

B. The CONTRACTOR shall make its own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the WORK.

C. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK.

1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are all products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.

2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.

3. The CONTRACTOR shall develop and submit to the ENGINEER a plan for storing and disposing of the materials above.

4. The CONTRACTOR shall obtain and submit to the ENGINEER a single EPA number for wastes generated at the site.

5. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials.

6. All hazardous materials which are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

1.04 PARKING:

A. The CONTRACTOR shall:

1. Provide temporary parking areas for ENGINEER and OWNER's use.

2. The CONTRACTOR shall direct its employees to park in designated areas secured by the CONTRACTOR.

3. Traffic and parking areas shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The CONTRACTOR shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section, it shall be included in the price of Mobilization and of all other work.

END OF SECTION

SECTION 01560 – TEMPORARY CONTROLS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Provide and maintain methods, equipment, and temporary construction, as necessary, to provide controls over environmental conditions at the construction site and related area under CONTRACTOR's control; remove physical evidence of temporary facilities at completion of work.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

1.03 NOISE CONTROL

A. Provide all necessary requirements for noise control during the construction period.

1. Noise procedures shall conform to all applicable OSHA requirements and local ordinances having jurisdiction on the work.

2. Noise levels during nighttime hours shall not exceed 55 db measured at the property line of a residence.

1.04 DUST CONTROL

A. Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent air-borne dust from dispersing into the atmosphere.

1.05 WATER CONTROL

A. Provide methods to control surface water to prevent damage to the project, the site, or adjoining properties.

1. Control fill, grading and ditching to direct surface drainage away from excavations, pits, tunnels and other construction areas; and to direct drainage to proper runoff.

B. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface and water.

C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.

1.06 PEST CONTROL

A. Provide pest control as necessary to prevent infestation of construction or storage area.

1. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.

2. Should the use of pesticides be considered necessary, submit an informational copy of the proposed program to OWNER with a copy to ENGINEER. Clearly indicate:

a. The area or areas to be treated.
b. The pesticide to be used, with a copy of the manufacturer's printed instructions.
c. The pollution preventative measures to be employed.

B. The use of any pesticide shall be in full accordance with the manufacturer's printed instructions and recommendations.

1.07 RODENT CONTROL

A. Provide rodent control as necessary to prevent infestation of construction or storage area.

1. Employ methods and use materials, which will not adversely affect conditions at the site or on adjoining properties

2. Should the use of rodenticide be considered necessary, submit an informational copy of the proposed program to OWNER with a copy to OWNER's Representative. Clearly indicate:

a. the area or areas to be treated.
b. the rodenticide to be used, with a copy of the manufacturer's printed instructions.
c. the pollution preventative measures to be employed.

B. The use of any rodenticide shall be in full accordance with the manufacturer's printed instructions and recommendations.

1.08 DEBRIS CONTROL

A. Maintain all areas under CONTRACTOR's control free of extraneous debris.

B. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking area, or along access roads and haul routes.

1. Provide containers for deposit of debris as specified in Section 01710 - Cleaning.

2. Prohibit overloading of trucks to prevent spillage on access and haul routes.

a. Provide periodic inspection of traffic areas to enforce requirements.

C. Schedule periodic collections and disposal of debris as specified in Section 01710 - Cleaning.

1. Provide additional collections and disposal of debris whenever the periodic schedule is to prevent accumulation.

1.09 POLLUTION CONTROL

A. Provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations.

B. Provide equipment and personnel, perform emergency measures required to contain any spillage, and to remove contaminated soils or liquids.

1. Excavate and dispose of any contaminated earth off-site and replace with suitable compacted fill and topsoil.

C. Take special measures to prevent harmful substances from entering public waters.

2. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams or in sanitary or storm sewers.

D. Provide systems for control of atmospheric pollutants.

1. Prevent toxic concentrations of chemicals.
2. Prevent harmful dispersal of pollutants into the atmosphere.

1.10 EROSION CONTROL

A. Plan and execute construction and earthwork, by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas to prevent erosion and sedimentation.

1. Hold the areas of bare soil exposed at one time to a minimum
2. Provide temporary control measures such as berms, dikes and drains.
3. Provide silt screens as required preventing surface water contamination.

B. Construct fills and waste areas by selective placement to eliminate surface silts or clays, which will erode.

C. Periodically inspect earthwork to detect any evidence of the start of erosion, apply corrective measures as required to control erosion.

D. All erosion control procedures must comply with the National Pollutant Discharge Elimination System (NPDES).

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION

SECTION 01570 – TRAFFIC REGULATIONS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Provide, operate and maintain equipment, services and personnel, with traffic control and protective devices, as required to expedite vehicular traffic flow on haul routes, at site entrances, on-site access roads, and parking areas.

B. Remove temporary equipment and facilities when no longer required, restore grounds to original, or specified conditions.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

1.03 TRAFFIC SIGNALS AND SIGNS

A. Provide and operate traffic control and directional signals or signs required to direct and maintain an orderly flow of traffic in all areas under CONTRACTOR's control, or affected by CONTRACTOR's operations.

1.04 FLAGPERSON

A. Provide qualified and suitably equipped flag-person when construction operations encroach on traffic lanes, as required for regulation of traffic.

1.05 FLARES AND LIGHTS

A. Provide flares and lights during periods of low visibility:

1. To clearly delineate traffic lanes and to guide traffic.

2. For use of flag-person in directing traffic.

B. Provide illumination of critical traffic and parking areas.

1. Maintain free vehicular access to and through parking areas.

2. Prohibit parking on or adjacent to access roads, or in non-designated areas.

1.06 HAUL ROUTES

A. Consult with OWNER and governing authorities, establish public thoroughfares which will be used as haul routes and site access.

B. Confine construction traffic to designated haul routes.

C. Provide traffic control at critical areas of haul routes to expedite traffic flow, to minimize interference with normal public traffic.

1.07 EMERGENCY ACCESS

A. In order to provide protection to the workers and residents, the Contractor shall maintain emergency access to all adjacent properties at all times during construction. If a road is required to be closed to vehicular traffic and the distance of the closure exceeds 150 feet between stabilized surfaces, or prevents access to properties for a distance that exceeds 150 feet, the Contractor shall provide a 10 foot wide stabilized access way on one side of the trench capable of supporting a Fire Truck. Contractor shall also provide stabilized access ways across the trench or unstabilized area a minimum of 6 feet in width at a spacing not to exceed 100 feet capable of supporting foot traffic. These access ways shall be protected and delineated with lighted barricades or other such devices as approved by the regulatory agency. Both ends of the emergency access way shall be blocked in accordance with the MOT permit approved by the City of Wilton Manors with signage indicating that this access way is to be used by emergency vehicles only.

No trenches or holes shall be left open after working hours. In the event a trench must be left open after hours, it shall be done so only with the express written permission from the Engineer, and it shall be the Contractor's responsibility to provide proper protection of the open trench or hole as required by the regulatory agency. In addition the Contractor shall provide a security guard at the site whenever the Contractor's personnel are not present, 24 hours per day/ 7 days per week. It shall be the Security Guard's responsibility to protect the open trench or hole from trespassers and to direct emergency personnel on site. The Security Guard shall not have any other responsibilities such as operation pumps or equipment but shall be dedicated to protecting the trench or open hole. The Security Guard shall be equipped with a wireless telephone capable of calling 911 to report an emergency and shall keep that telephone on their person at all times. In addition to this provision the contractor shall maintain trench safety and comply with current OSHA regulations and the Trench Safety Act. The contractor shall maintain and keep all safety barricades, signage, flashers, and detours, in operation condition. A copy of the approved MOT plans, and details, shall be on site at all times.

B. Measurement and payment for security guard services shall be included in the utility pipe installation unit price. Measurement for temporary emergency access ways will be paid for under the specified line item at the unit price described in the bid schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 MEASUREMENT AND PAYMENT

A. There shall be no special measurement and payment for work under the section; it shall be included in the lump sum price bid for Maintenance of Traffic.

END OF SECTION

SECTION 01590 – FIELD OFFICES AND SHEDS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Furnish, install and maintain temporary field offices during entire construction period if requested by CONTRACTOR and approved by OWNER.

B. Furnish, install and maintain storage and work sheds needed for construction.

C. Furnish, install and maintain project sign. Draft Sign displayed at the end of this section. The overall dimensions of the project sign shall be 4 feet by 8 feet. Shop drawing for sign to be approved by OWNER prior to installation.

C. At completion of work, remove field offices, sheds and contents.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

1.03 OTHER REQUIREMENTS

A. Prior to installation of offices and sheds, consult the ENGINEER Representative on location, access and related facilities.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

A. Comply with requirements of applicable Federal, State, and Local codes and regulations.

1.05 REQUIREMENTS FOR FACILITIES

A. Construction:

1. Structurally sound, weathertight, with floors raised above ground.

2. Temperature transmission resistance: Compatible with occupancy and storage requirements.

3. At CONTRACTOR's option, portable or mobile buildings may be used.

a. Mobile homes, when used, shall be modified for office use.

B. CONTRACTOR's Office and Facilities:

1. Size: As required for general use and to provide space for project meeting.

2. Lighting and temperature control.

3. Telephone: One direct line instrument, minimum.

4. Furnishings in meeting area.

   a. Conference table and chairs for at least eight persons.
   b. Racks and files for project Record Documents in or adjacent to the meeting area.

5. Other furnishings: CONTRACTOR's option.

6. One ten inch outdoor-type thermometer.

7. One locking closet for Troxler unit.

C. Storage Sheds:

1. To requirements of various trades.

2. Dimensions: Adequate for storage and handling of products.

3. Ventilation: Comply with specified and code requirements for products stored.

4. Heating and Cooling: Adequate to maintain temperatures specified in respective sections for the products stored.

D. Field Office:

Should the OWNER deem necessary, the CONTRACTOR shall provide and maintain a field office for the exclusive use of the CONSULTANT during progress of the work. The field office shall be set in the project area at a location obtained by the CONTRACTOR and approved by the CONSULTANT.

The structure shall contain not less than 350 square feet, shall be structurally sound, appropriately insulated for the proposed occupancy and storage requirements and meet all applicable fire, plumbing, and electrical codes. The structure shall be watertight with suitable windows, doors and locks, property screened and provided with adequate lighting, heating, air conditioning, and electrical power outlets. Sanitary facilities with regular servicing shall be provided in or near the field office for the use of the CONSULTANT and CONSULTANT'S representatives. The field office shall be equipped with two desks, one drafting table, one four-drawer legal size filing cabinet with lock, four chairs, one drafting stool, one rack for hanging drawings, electric water cooler with a continuous supply of potable water, two telephones, a plain paper FAX machine with copier capabilities, all necessary paper products, office supplies, and incidental items, with a lockable storage room that is suitable for the storage of a troxler density machine.

The CONTRACTOR shall provide electric power, water, sanitary, and telephone service for the duration of the Contract. Telephone service shall include one line for local and long distance with call forwarding and call waiting, and an additional line for a FAX machine. The CONTRACTOR shall also provide two (2) portable cellular phones, and cellular calling service (1,200 minutes per month minimum) for the CONSULTANT's use for the duration of the contract. The field office shall provide suitable space for CONTRACTOR's employees/operations and shall include, at a minimum, a meeting room with conference table and chairs for at least eight (8) people, and plan racks and file cabinets for Project Record Documents. A telephone answering machine shall be provided; in addition, one (1) or more of CONTRACTOR's supervisory personnel shall be available at all times during working hours, and shall be "on-call" twenty-four hours per day, seven days per week in the event of emergencies. The CONTRACTOR shall provide regular periodic maintenance and cleaning for the local office and maintenance/repairs for the office equipment and furnishings. The cost for these services shall be considered incidental to the CONTRACTOR's pay item for mobilization and no additional compensation shall be allowed. Charges for long distance calls will be paid for by the party making the call.

A trailer having equal facilities and floor space, meeting all applicable building codes for anchoring systems, may be used in place of the above-described Field Office, if approved by the CONSULTANT, and local authorities.

The field office and its contents shall remain the property of the CONTRACTOR and shall be removed upon completion of the Work. At the completion of the Project, the CONTRACTOR shall remove the foundations and water/sewer lines, if requested. CONTRACTOR shall clean the site and remove all debris. At the CONSULTANT's request, the site shall be graded to an even surface and left in as good (or better) condition than existed prior to installation of the local office. The field office shall be considered an incidental item of construction, and compensation for the facilities shall be included with the payment for mobilization, Item No. 1 in the Base Bid Schedule. The CONTRACTOR shall be responsible for obtaining any/all permits required for the field office and/or storage areas, including all fees associated with such permits.

PART 2 PRODUCTS

2.01 MATERIALS, EQUIPMENT, FURNISHINGS

A. May be new or used, but must be serviceable, adequate for required purpose, and must not violate applicable codes or regulations.

PART 3 EXECUTION

3.01 PREPARATION

A. Obtain all required site, electrical and any other related permits

B. Fill and grade sites for temporary structures to provide surface drainage.

3.02 INSTALLATION

A. Construct temporary field office and storage sheds on proper foundations, provide connections for utility services.

1. Secure portable or mobile buildings when used.

2. Provide steps and landings at entrance doors.

B. Mount thermometer at convenient outside location, not in direct sunlight.

3.03 MAINTENANCE AND CLEANING

A. Provide periodic maintenance and weekly cleaning for temporary structures, furnishings, equipment and services.

3.04 REMOVAL

A. Remove temporary field offices, contents and services at a time no longer needed.

B. Remove storage sheds when no longer needed.

C. Remove foundations and debris; grade site to required elevations and clean the areas.

3.05 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section, it shall be included in the lump sum price for Mobilization.

END OF SECTION

SECTION 01600 – MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Material and equipment incorporated into the work:

1. Conform to applicable specifications and standards.

2. Comply with size, make, type and quality specified, or as specifically approved in writing by the OWNER's Representative.

3. Manufactured and fabricated products:

   a. Design, fabricate and assemble in accord with the best engineering and shop practices.

   b. Manufacture like parts of duplicate units to standard sizes and gauges to be interchangeable.

   c. Two or more items of the same kind shall be identical, by the same manufacturer.

   d. Products shall be suitable for service conditions.

   e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.

4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

1.03 MANUFACTURER'S INSTRUCTIONS

A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to OWNER's Representative. Maintain one set of complete instructions at the job site during installation and until completion.

B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with OWNER's Representative for further instructions.

2. Do not proceed with work without clear instructions.

C. Perform work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.04 TRANSPORTATION AND HANDLING

A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site. Products shall be delivered to the job site on an "as needed" basis.

1. Deliver products in undamaged condition, in manufacturers' original containers or packaging, with identifying labels intact with legible markings.

2. Immediately upon delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.

3. Pipe and materials shall not be strung out along installation routes for longer than two (2) weeks prior to installation.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

C. Coordinate deliveries to avoid conflict with Work and conditions at site:

1. Work of other contractors, or OWNER.

2. Limitations of storage space.

3. Availability of equipment and personnel for handling products.

4. OWNER's use of premises.

D. Deliver products in undamaged condition in original containers or packaging, with identifying labels intact and legible.

E. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.

F. Immediately on delivery, inspect shipment to assure:

1. Product complies with requirements of Contract Documents and reviewed submittals.

2. Quantities are correct.

3. Containers and packages are intact, labels are legible.

4. Products are properly protected and undamaged.

G. Provide equipment and personnel necessary to handle products, including those provided by OWNER, by methods to prevent soiling or damage to products or packaging.

H. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.

I. Handle products by methods to prevent bending or overstressing.

J. Lift heavy components only at designated lifting points.

1.05 STORAGE

A. Store products in accord with manufacturer's instructions, with seals and labels intact and legible.

1. Store products subject to damage by the elements in weather-tight enclosures.

2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.

3. Store unpacked products on shelves, in bins or in neat piles, accessible for inspection.

B. Exterior Storage

1. Provide substantial platforms, blocking or skids to support fabricating products above ground, prevent soiling or staining.

a. Cover products, subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Provide adequate ventilation to avoid condensation.

2. Store loose granular materials on solid surface such as paved areas, or provide plywood or sheet materials to prevent mixing with foreign matter.

a. Provide surface drainage to prevent flow or ponding of rainwater.

b. Prevent mixing of refuse or chemically injurious materials or liquids.

1.06 MAINTENANCE OF STORAGE

A. Maintain periodic system of inspection of stored products on scheduled basis to assure that:

1. State of storage facilities is adequate to provide required conditions.

2. Required environmental conditions are maintained on continuing basis.

3. Surfaces of products exposed to elements are not adversely affected.

    a. Any weathering of products, coatings and finishes is not acceptable under requirements of Contract Documents.

B. Mechanical and electrical equipment which requires servicing during long term storage shall have complete manufacturer's instructions for servicing accompanying each item, with notice of enclosed instructions shown on exterior of package.

1.07 PROTECTION AFTER INSTALLATION

A. Provide protection of installed products to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.

B. Control traffic to prevent damage to equipment and surfaces.

C. Provide coverings to protect finished surfaces from damage.

1. Cover projections, wall corners, and jambs, sills and soffits of openings, in areas used for traffic and for passage of products in subsequent work.

2. Protect finished floors and stairs from dirt and damage.

    a. In areas subject to foot traffic, secure heavy paper, sheet goods, or other materials in place.

    b. For movement of heavy products, lay planking or similar materials in place.

    c. Cover wall and floor surfaces in the vicinity of construction personnel activities and all finished surfaces used by construction personnel.

D. Waterproofed surfaces

1. Prohibit use of surfaces for traffic of any kind, and for storage of any products.

2. When some activity must take place in order to carry out the Contract, obtain recommendations of installer for protection of surface.

    a. Install recommended protection; remove on completion of that activity.

    b. Restrict use of adjacent unprotected areas.

E. Lawns and landscaping

1. Prohibit traffic of any kind across planted lawn and landscaped areas.

F. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.

1.08 SUBSTITUTIONS AND PRODUCT OPTIONS

A. Limitations on substitutions.

1. During bidding period, Instructions to Bidders govern times for submitting requests for substitutions under requirements specified in this section.

2. Substitutions will not be considered when indicated on shop drawings or product data submittals without separate formal request, when requested directly by Subcontractor or supplier, or when acceptance will require substantial revision of Contract Documents.

3. Substitute products shall not be ordered or installed without written acceptance.

4. Only one (1) request for substitution for each product will be considered. When substitution is not accepted, provide specified product.

B. Products List

1. Within 15 days after Contract Date submit to ENGINEER a complete list of major products proposed to be used, with the name of the manufacturer and the installing Subcontractor.

C. Contractors Options

1. For products specified only by reference standard, select any product meeting that standard.

2. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named or approved equal, which complies with the Specifications.

3. For products specified by naming one or more products or manufacturers and "or approved equal," CONTRACTOR must submit a request as for substitutions for any product or manufacturer not specifically named.

D. Substitutions

1. For a period of 15 days after Contract Date, ENGINEER will consider written request from CONTRACTOR for substitution of products.

2. Identify product by specification Section and Article Numbers. Provide manufacturer's name and address, trade name of product, and model of catalog number. List fabricators and suppliers as appropriate.

3. List similar projects using product, dates of installation, and names of ENGINEER and OWNER.

4. List availability of maintenance services and replacement materials.

5. Submit a separate request for each product, supported with complete data, with drawings and samples as appropriate, including:

    a. Comparison of the qualities and performance of the proposed substitution with that specified.

    b. Changes required in other elements of the work because of the substitution.

    c. Effect on the construction schedule.

    d. Cost data comparing the proposed substitution with the product specified.

    e. Any required license fees or royalties.

    f. Availability of maintenance services, and source of replacement materials.

6. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the CONTRACTOR.

7. The ENGINEER will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the ENGINEER's decision shall be final.

8. The ENGINEER may require the CONTRACTOR to furnish at the CONTRACTOR's expense additional data about the proposed substitute.

9. The OWNER may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

10. Acceptance by the ENGINEER of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.

11. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR work, the work of its Subcontractors and of other Contractors, and shall effect such changes without cost to the OWNER.

E. Contractors Representation:

1. A request for a substitution constitutes a representation that CONTRACTOR:

    a. Has investigated the proposed product and determined that it is equal to or superior in all respects to that specified.

b. Will provide the same guarantees or bonds for the substitution as for the product specified.

c. Will coordinate the installation of an accepted substitution into the work, and make such other changes as may be required to make the work complete in all respects.

d. Waives all claims for additional costs, under CONTRACTOR'S responsibility, which may subsequently become apparent.

F. Submittal Procedures

1. Submit three (3) copies of request for substitution.

2. ENGINEER will review requests for substitutions with reasonable promptness, and notify CONTRACTOR, in writing, of the decision to accept or reject the requested substitution.

3. During the bidding period, ENGINEER will record acceptable substitutions in Addenda.

4. After award of Contract, ENGINEER will notify CONTRACTOR, in writing, of decision to accept or reject requested substitutions in Addenda.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION

SECTION 01700 – CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.

2. Warranties.

3. Final cleaning.

B. Related Sections include the following:

1. Section 01152, Applications for Payment

2. Section 01380, Construction Photographs

3. Section 01720, Project Record Documents

4. Divisions 02 through 16 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.03 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

2. Submit list of all subcontractors including names, addresses (with zip code) and telephone numbers and dollar amount of work performed.

3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

4. Prepare and submit Project Record Documents, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

5. Complete final cleaning requirements, including touchup painting.

6. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

2. Results of completed inspection will form the basis of requirements for Final Completion.

1.04 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."

2. Submit final releases of lien from all subcontractors and suppliers

3. Submit pest-control final inspection report and warranty.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Final payment will only be made after ALL unconditional release of liens from all subcontractors and suppliers are received by the City.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.05 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order.

2. Include the following information at the top of each page:

    a. Project number.
    b. Project name
    c. Date.
    d. Name of Contractor.
    e. Page number.

1.06 WARRANTIES

A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by City during construction period by separate agreement with Contractor.

C. Submit Certificate of Occupancy to the City Engineer.

PART 2 PRODUCTS

3.01 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 EXECUTION

3.01 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

    a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Sweep concrete floors broom clean.
g. Remove labels that are not permanent.
h. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
i. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
j. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on City's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION

SECTION 01710 – CLEANING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Execute cleaning, during progress of the Work, and at completion of the Work, as required by the General Conditions.

1.02 RELATED REQUIREMENTS

A. All applicable sections of the Specifications.

B. Conditions of the Contract.

1.03 DISPOSAL REQUIREMENTS

A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 PRODUCTS

2.01 MATERIALS

A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.

B. Use only those cleaning materials and methods recommended by cleaning material manufacturer.

PART 3 EXECUTION

3.01 DURING CONSTRUCTION

A. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulation of waste material, rubbish and windblown debris, resulting from Construction Work.

B. Provide on-site containers for the collection of waste materials, debris and rubbish.

C. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

D. The OWNER's Representative reserves the right to direct the CONTRACTOR to remove waste materials

E. Mechanical Sweeping: CONTRACTOR shall maintain on site a mechanical sweeping device for removing debris from existing, temporary and permanent pavement.

3.02 DUST CONTROL

A. Perform operations so that dust and other contaminants resulting from Construction Work operations will not cause any damages or maintenance problems to adjacent properties.

B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.

3.03 FINAL CLEANING

A. Employ skilled workmen for final cleaning.

B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.

C. Polish glossy surfaces to a clear shine.

D. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.

E. Prior to final completion, or OWNER occupancy, CONTRACTOR shall conduct an inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify the entire work is clean.

F. All storage and staging areas shall be cleaned and returned to prior conditions or better as per requirements of this section.

3.04 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION

SECTION 01720 – PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.

2. Record Specifications.

3. Record Product Data.

1.03 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set of marked-up Record Prints.

B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one copy of each Product Data submittal.

1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 PRODUCTS

2.01 RECORD DRAWINGS

A. Record Prints: Maintain one set of black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an understandable drawing technique.
c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
   1) Document with photographs.

2. Content: Types of items requiring marking include, but are not limited to, the following:

   a. Dimensional changes to Drawings.
   b. Revisions to details shown on Drawings.
   c. Depths of foundations.
   d. Locations and depths of underground utilities.
   e. Revisions to routing of piping and conduits.
   f. Revisions to electrical circuitry.
   g. Actual equipment locations.
   h. Changes made by Change Order or Work Change Directive.
   i. Changes made following Engineer's written orders.
   j. Details not on the original Contract Drawings.
   k. Field records for variable and concealed conditions.
   l. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

7. Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Engineer. Make corrections where required.

B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Identification: As follows:

   a. Project number.
   b. Project name.

c. Date.
d. Designation "PROJECT RECORD DRAWINGS."
e. Name of Contractor.

2.02 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.

5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.03 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

2. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.04 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 EXECUTION

3.01 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.

C. Record Documents of water, sewer and drainage must be provided for the General Contractor by a Professional Land Surveyor and must be satisfactory for approval by the OWNER and shall comply with the latest approved version of the CADD City Standards.

D. Final pay request will not be processed until Record Documents have been completed and submitted to the City.

END OF SECTION

DIVISION 2 - SITEWORK

SECTION 02010 – SUBSURFACE INVESTIGATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

A. Provide all labor, materials, necessary equipment and services to complete the sub-surface investigation work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

B. The sub-surface investigation for conditions of the project site is the sole responsibility of the CONTRACTOR. In preparing the Bid, the CONTRACTOR shall make all sub-surface or surface investigations necessary to provide proper background and knowledge to determine the nature and extent of work required.

C. OWNER or OWNER's Representative provides no sub-surface information, and makes no warranties or guarantees concerning the nature of materials to be encountered on the site.

1.03 RELATED WORK

A. Section 02110 - Clearing.

B. Section 02200 - Earthwork.

C. Section 02400 – Storm Drainage Facilities

D. All applicable sections under Divisions 1 through 16.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section; it shall be included in the price of all other work.

END OF SECTION

SECTION 02050 - DEMOLITION

PART 1 GENERAL

1.1 WORK INCLUDED

A. Provide labor, materials, equipment and services to complete the site demolition work, as indicated on the drawings, as specified herein or both.

1.2 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies

B. Building Codes

1.3 JOB CONDITIONS

A. Protection:
Erect barriers, fences, guardrails, enclosures, and shoring to protect personnel, structures, and utilities remaining intact.

Protect designated trees and plants from damages during construction activities.

Protect existing objects and vegetation designated to remain, and, in the event of damage, immediately make all repairs, replacements and dressings to damaged plants necessary to the approval of the Landscape Architect and the City.

B. Maintaining Traffic:
1. Conduct operations to avoid interference with roads, streets, driveways, sidewalks, and adjacent facilities. Contractor shall maintain access to all properties adjacent to and / or affected by the work, including vehicular, pedestrian, and service movements. Contractor shall submit a Maintenance of Traffic Plan to the City of Wilton Manors for approval as a requirement for Notice to Proceed.
2. Provide alternate routes around closed or obstructed traffic ways as required by governing agencies and per the approved M.O.T.

C. Dust Control:
1. Prevent dust from demolition operations from being a nuisance to adjacent property owners. Methods used for dust control are subject to approval by the Architect prior to use.

D. Burning:
1. Burning will not be permitted
2. No explosives.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 INSPECTION

A. Verify that structures to be demolished are discontinued in use and ready for removal.

B. Do not commence work until conditions and requirements of applicable public agencies are complied with.

3.2 PREPARATION

A. Notification:
1. Notify the Owner in writing at least three full working days prior to commencing demolition.

3.3 CLARIFICATION

A. The drawings do not purport to show all objects existing on the site.

B. Before commencing the work, verify with the Landscape Architect objects to be removed and objects to be preserved.

3.4 SCHEDULING

A. Schedule work with necessary consideration for other activities on the site.

B. Avoid interference with the use of, and passage to and from, adjacent facilities.

3.5 DISCONNECTION OF UTILITIES

A. Before commencing site operations, disconnect or arrange for the disconnection of utility services designated to be removed, performing such work in accordance with the requirements of the utility company or agency involved.

3.6 PROTECTION OF EXISTING LANDSCAPE AND IRRIGATION

A. Protect trees to be relocated and irrigation equipment in place during demolition, as designated on the plans.

3.7 PROTECTION OF UTILITIES

A. Preserve in operating condition active utilities adjacent to or traversing the site and/or designated to remain.

3.8 DEMOLITION OF SITE STRUCTURES

A. Demolish site structure or site feature items designated to be removed or which are required to be removed to perform the work.

B. Demolition of surfaces and objects to be removed and reconstructed shall be performed in such a manner as to achieve clean, straight, and true edges of adjacent surfaces to remain, without damage to the adjacent surface or object.

3.9 OTHER DEMOLITION

A. Removal of Debris

1. Removal of all debris from the site shall be in accordance with applicable City Codes.

END OF SECTION

SECTION 02110 – CLEARING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Provide all labor, materials, necessary equipment and services to complete the clearing work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

B. Under this section, the CONTRACTOR shall do all clearing, grubbing, root-raking, and necessary clean-up operations in connection with the construction of the work and its related site work.

C. The work shall consist of the removal and disposal of trees, stumps, roots, limbs, brush, fences, asphalt, etc. from all project areas as designated on the drawings as specified herein, and as directed by the ENGINEER on the site.

D. The CONTRACTOR shall remove all refuse, asphalt pavement, concrete pavement, glass, metal, stone, plaster, lumber, paper materials, and any and all trash found in clearing and adjacent areas as directed by the ENGINEER.

E. The CONTRACTOR shall furnish all services, labor, transportation, materials, and equipment necessary for the performance of these operations. All clearing and cleanup operations shall be accomplished to the complete satisfaction of the ENGINEER.

1.03 RELATED WORK

A. Section 02010 – Sub-surface Investigation

B. Section 02200 - Earthwork.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 TREE REMOVAL AND TREE PRESERVATION

A. No trees shall be removed if located outside of the right-of-way and dedicated easement.

B. Within the rights-of-way and easements, no trees with a trunk diameter of 3" or greater at 4-1/2" above grade shall be removed without the approval of the

ENGINEER with the exception of Australian Pines, Meleleuca or Florida Holly. Trees shall be evaluated on an individual basis in accordance with following:

a. Type and size of tree.
b. Proximity to proposed and/or existing utility lines and/or exfiltration trench.
c. Change in adjacent grades for swale excavation.
d. Proximity to proposed sidewalk.
e. Proximity to proposed edge of roadway.
f. Living condition of the tree.

C. If trees are determined to remain, Biobarrier shall be installed in accordance with the Biobarrier detail as shown on the Landscape Plans.

3.02 MEASUREMENT AND PAYMENT

A. Measurement and payment for this item will be made as lump sum per Section 01025.

END OF SECTION

SECTION 02140 – DEWATERING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Provide all labor, materials, necessary equipment and services to complete the dewatering work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

1.03 RELATED WORK

A. Section 02200 - Earthwork

B. Section 02400 - Storm Drainage Facilities

D. Section 02221 - Excavation and Backfilling for Utilities

PART 2 PRODUCTS

2.01 EQUIPMENT

A. Dewatering, where required, may include the use of temporary reservoirs and diking, well points, sump pumps, temporary pipelines for water disposal, rock or gravel placement, and other means. Standby pumping equipment must be maintained on the job site and operate within any local noise ordinance limits. All safety requirements, fencing, etc. shall be installed and maintained by the CONTRACTOR.

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. The CONTRACTOR shall provide all equipment necessary for dewatering. It shall have on hand, at all times, sufficient pumping equipment and machinery in good working condition and shall have available, at all times, competent workmen for the operation of the pumping equipment. Adequate standby equipment shall be kept available at all times to insure efficient dewatering and maintenance of dewatering operation during power failure.

B. Dewatering for structures and pipelines shall commence when groundwater is first encountered, and shall be continuous until such times as water can be allowed to rise in accordance with the provisions of this Section or other requirements.

C. At all times, site grading shall promote drainage. Surface runoff shall be diverted

from excavations, Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity from the excavation to maintain a bottom free from standing water.

D. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at proposed bottom of excavation.

E. If foundation soils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with pea rock at no additional cost to the OWNER.

F. The CONTRACTOR shall maintain the water level below the bottom of excavation in all work areas where groundwater occurs during excavation construction, backfilling, and up to acceptance.

G. The CONTRACTOR shall prevent flotation by maintaining a positive and continuous removal of water. The CONTRACTOR shall be fully responsible and liable for all damages which may result from failure to adequately keep excavations dewatered.

H. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sand-packed and/or other means used to prevent pumping of fine sands or silts from the sub-surface. A continual check by the CONTRACTOR shall be maintained to ensure that the sub-surface soil is not being removed by the dewatering operation.

I. The CONTRACTOR shall dispose of water from the WORK in a suitable manner without damage to adjacent property. CONTRACTOR shall be responsible for obtaining any permits that may be necessary to dispose of water. No water shall be drained into work built or under construction without prior consent of the ENGINEER. Water shall be filtered using a silt box or another approved method to remove sand and fine-sized soil particles before disposal into any drainage system. The ENGINEER prior to being used shall approve dewatering disposal points. Storm drains used by the CONTRACTOR for dewatering shall be cleaned by a jet vac, or other method approved by the ENGINEER after dewatering is complete.

J. The release of groundwater to its static level shall be performed in such a manner as to maintain the undisturbed state of the natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, and sewers.

K. Dewatering of trenches and other excavations shall be considered, as incidental to the construction of the WORK and all costs thereof shall be included in the various contract prices in the Bid Forms, unless a separate bid item has been established for dewatering.

L. The CONTRACTOR shall submit a dewatering plan to the ENGINEER for review. The CONTRACTOR is advised that the Broward County Environmental Protection Department (BCEPD) and/or SFWMD may require that a dewatering plan, prepared by a State of Florida licensed Professional Engineer or Registered Professional

Geologist, be submitted and approved prior to issuance of a dewatering permit.

M. The CONTRACTOR is advised that the BCEPD may have identified contaminated sites within 1/4-mile radius of the project site. The CONTRACTOR may be required to provide testing and monitoring of the dewatering operations, and to institute dewatering methods and controls, as required by BCEPD.

3.02 QUALITY CONTROL

A. It shall be the sole responsibility of the CONTRACTOR to control the rate and effect of the dewatering in such a manner as to avoid all objectionable settlement and subsidence.

B. All dewatering operations shall be adequate to assure the integrity of the finished project and shall be the responsibility of the CONTRACTOR.

C. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points shall be established and observed at frequent intervals to detect any settlement, which may develop. The responsibility for conducting the dewatering operation in a manner, which will protect adjacent structures and facilities, rests solely with the CONTRACTOR. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the CONTRACTOR.

3.03 CONTRACTOR SUBMITTALS

A. Prior to commencement of excavation, the CONTRACTOR shall submit a detailed plan and operation schedule for dewatering of excavations. The CONTRACTOR may be required to demonstrate the system proposed and to verify that adequate equipment, personnel, and materials are provided to dewater the excavations at all locations and times. The CONTRACTOR's dewatering plan is subject to review by the ENGINEER and regulatory agencies.

3.04 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section. It shall be included in the appropriate unit price bid.

END OF SECTION

SECTION 02200 - EARTHWORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Provide all labor, materials, necessary equipment and services to complete the Earthwork, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

B. Including but not necessarily limited to the following:

1. Excavation, including demucking
2. Backfilling
3. Filling
4. Grading, general site and building pads
5. Compaction

C. There shall be no classification of excavation for measurement of payment regardless of materials encountered.

D. The work of this Section includes all earthwork required for construction of the WORK. Such earthwork shall include, but not be limited to, the loosening, removing, loading, transporting, depositing, and compacting in its final location of all materials wet and dry, as required for the purposes of completing the work specified in the Contract Documents, which shall include, but not be limited to, the furnishing, placing, and removing of sheeting and bracing necessary to safely support the sides of all excavation; all pumping, ditching, draining, and other required measures for the removal or exclusion of water from the excavation; the supporting of structures above and below the ground; all backfilling around structures and all backfilling of trenches and pits; the disposal of excess excavated materials; borrow of materials to makeup deficiencies for fills; and all other incidental earthwork, all in accordance with the requirement of the Contract Documents.

1.03 RELATED WORK

A. Section 02210 - Site Grading.

B. All applicable sections of Division 1, 2, 3, and 4.

1.04 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Codes: All codes, as referenced herein, are specified in Section 01090, "Reference Standards".

B. Commercial Standards:

ASTM D 422 Method for Particle-Size Analysis of Soils.

ASTM D 698 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-lb (2.49-kg) Rammer and 12-in (304.8-mm) Drop.

ASTM D 1556 Test Method for Density of Soil in Place by the Sand Cone Method.

ASTM D 1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in (457-mm) Drop.

ASTM D 1633 Test Method for Compressive Strength of Molded Soil-Cement Cylinders.

ASTM D 2419 Test Method for Sand Equivalent Value of Soils and Fine Aggregate.

ASTM D 2487 Classification of Soils for Engineering Purposes.

ASTM D 2901 Test Method for Cement Content of Freshly-Mixed Soil-Cement.

ASTM D 2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

ASTM D 4253 Test Methods for Maximum Index Density of Soils Using a Vibratory Table.

ASTM D 4254 Test Methods for Minimum Index Density of Soils and Calculation of Relative Density.

1.05 SUBSOIL INFORMATION

A. There are no representations of any type made as to sub-surface conditions.

1.06 SITE INSPECTION

A. CONTRACTOR shall visit the site and acquaint with all existing conditions. CONTRACTOR shall investigate the site and sub-surface conditions with no cost to the OWNER if CONTRACTOR chooses to. Such sub-surface investigations shall be performed only under time schedules and arrangements approved in advance by the OWNER's Representative and ENGINEER.

1.07 TOPOGRAPHIC INFORMATION

A. The existing grades shown on the drawings are approximate only and no representation is made as to their accuracy or consistency. The CONTRACTOR shall verify all existing grades to the extent necessary to insure completion of the job to the proposed grades indicated on the drawings.

1.08 DISPOSAL OF SURPLUS OR UNSUITABLE MATERIAL

A. Unsuitable material encountered during the course of construction shall be removed from the construction site at the expense of the CONTRACTOR. Unsuitable material shall not be stockpiled on-site. All suitable material shall be stockpiled on-site at areas designated by the ENGINEER.

1.09 BENCH MARKS AND MONUMENTS

A. CONTRACTOR shall employ a registered surveyor to lay out lines and grades as indicated. A surveyor registered in the State of Florida shall establish benchmarks. Benchmarks shall be permanent and easily accessible and maintained and replaced if disturbed or destroyed. All benchmarks shall be NGVD 29.

1.10 UTILITIES

A. Before starting site operations, disconnect or arrange for the disconnection of all utility services designated to be removed.

B. Locate all existing active utility lines traversing the site and determine the requirements for their protection. Preserve in operating condition all active utilities adjacent to or traversing the site and/or designated to remain.

C. Observe rules and regulations governing respective utilities in working under requirements of this section. Adequately protect utilities from damage, remove or replace as indicated, specified or required. Remove, plug or cap inactive or abandoned utilities encountered in excavation. Record the location of all utilities.

1.11 QUALITY ASSURANCE

A. A SOILS ENGINEER may be retained by the OWNER to observe performance of work in connection with excavating, filling, grading, and compaction. The CONTRACTOR shall re-adjust all work performed that does not meet technical or design requirements but make no deviations from the Contract documents without specific and written acceptance of the ENGINEER.

B. Where soil material is required to be compacted to a percentage of maximum density, the maximum density at optimum moisture content will be determined in accordance with ASTM D 1557. Where cohesionless, free draining soil material is required to be compacted to a percentage of relative density, the calculation of relative density will be determined in accordance with ASTM D 4253 and D 4254. Field density in-place tests will be performed in accordance with ASTM D 1556, ASTM D 2922, or by such other means acceptable to the ENGINEER.

C. In case the tests of the fill or backfill show non-compliance with the required density, the CONTRACTOR shall accomplish such remedy as may be required to insure compliance. Subsequent testing to show compliance shall be by a testing laboratory selected by the OWNER and shall be at the CONTRACTOR's expense.

D. Particle size analysis of soils and aggregates will be performed using ASTM D 422.

E. Determination of sand equivalent value will be performed using ASTM D 2419.

F. Unified Soil Classification System: References in these specifications to soil classification types and standards are set forth in ASTM D 2487. The CONTRACTOR shall be bound by all applicable provisions of said ASTM D 2487 in the interpretation of soil classifications.

G. Requirements of all applicable building codes and other public agencies having jurisdiction upon the work.

PART 2 PRODUCTS

2.01 SUITABLE FILL AND BACKFILL MATERIAL REQUIREMENTS

A. General: Fill, backfill, and embankment materials shall be suitable selected or processed clean, fine earth, rock, or sand, free from grass, roots, brush, or other vegetation.

B. Fill and backfill materials to be placed within 6 inches of any structure or pipe shall be free of rocks or unbroken masses of earth materials having a maximum dimension larger than 3 inches.

C. Suitable Materials: Soils not classified as unsuitable as defined in Paragraph entitled, "Unsuitable Material" herein, are defined as suitable materials and may be used in fills, backfilling, and embankment construction subject to the specified limitations. In addition, when acceptable to the ENGINEER, some of the material listed as unsuitable may be used when thoroughly mixed with suitable material to form a stable composite.

D. Suitable materials may be obtained from on-site excavations, may be processed on-site materials, or may be imported. If imported materials are required to meet the requirements of this Section or to meet the quantity requirements of the project the CONTRACTOR shall provide the imported materials at no additional expense to the OWNER, unless a unit price item is included for imported materials in the bidding schedule.

E. The following types of suitable materials are designated and defined as follows:

1. Type A (one inch minus granular backfill): Crushed rock, gravel, or sand with 100 percent passing a 1-inch sieve and a sand equivalent value not less than 50.

2. Type B (one half inch minus granular backfill): Crushed rock, gravel, or sand with 100 percent passing a 1/2-inch sieve and a sand equivalent value not less than 50.

3. Type C (sand backfill): Sand with 100 percent passing a 3/8-inch sieve, at least 90 percent passing a number 4 sieve, and a sand equivalent value not less than 30.

4. Type D (coarse rock backfill): Crushed rock or gravel with 100 percent passing a 1-inch sieve and not more than 10 percent passing a Number 4 sieve.

5. Type E (pea gravel backfill): Crushed rock or gravel with 100 percent passing a 1/2-inch sieve and not more than 10 percent passing a Number 4 sieve.

6. Type F (coarse drainrock): Crushed rock or gravel meeting the following gradation requirements:

Sieve Size	Percentage Passing
2-inch	100
1-1/2-inch	90-100
1-inch	20-55
3/4-inch	0-15
No. 200	0-3

7. Type G (aggregate base): Crushed rock aggregate base material of such nature that it can be compacted readily by watering and rolling to form a firm, stable base for pavements. At the option of the CONTRACTOR, the grading for either the 1-1/2-inch maximum size or 3/4-inch maximum size shall be used. The sand equivalent value shall be not less than 22, and the material shall meet the following gradation requirements.

	Percentage Passing	
Sieve Size	1-1/2 inch Max.	3/4-inch Max.
2-inch	100	-
1-1/2 inch	90-100	-
1-inch	-	100
3/4-inch	50-85	90-100
No. 4	25-45	35-55
No. 30	10-25	10-30
No. 200	2-9	2-9

8. Type H (graded drainrock): Drainrock shall be crushed rock or gravel, durable and free from slaking or decomposition under the action of alternate wetting or drying. The material shall be uniformly graded and shall meet the following gradation requirements.

Sieve Size	Percentage Passing
1-inch	100
3/4-inch	90-100
3/8-inch	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

The drainrock shall have a sand equivalent value not less than 75. The finish-graded surface of the drainrock immediately beneath hydraulic structures shall be stabilized to provide a firm, smooth surface upon which to construct reinforced concrete floor slabs. The CONTRACTOR shall use, at its option, one of the asphalt types listed below:

	Type 1	Type 2	Type 3
Designation	SC-70	SC-250	RS-1
Spray Temperature (°F)	135-175	165-200	70-120
Coverage (gal/ sq yd)	0.50	0.50	0.50

If the surface remains tacky, sufficient sand shall be applied to absorb the excess asphalt.

9. Type I: Any other suitable material as defined herein.

10. Type J (cement-treated backfill): Material which consists of Type H material, or any mixture of Types B, C, G and H materials which has been cement-treated so that the cement content of the material is not less than 5 percent by weight when tested in accordance with ASTM D 2901. The ultimate compressive strength at 28 days shall be not less than 400 psi when tested in accordance with ASTM D 1633.

11. Type K (topsoil): Stockpiled topsoil materials, which have been obtained at the site by removing soil to a depth not exceeding 2 feet. Removal of the topsoil shall be done after the area has been stripped of vegetation and debris as specified.

12. Type L (Class I crushed stone): Manufactured angular, granular crushed stone, rock, or slag, with 100 percent passing a 1-inch sieve and less than 5 percent passing a Number 4 sieve.

13. Type M (aggregate subbase): Crushed rock aggregate subbase material that can be compacted readily by watering and rolling to form a firm stable base. The sand equivalent value shall be not less than 18 and shall meet the following gradation requirements.

Sieve Size	Percentage Passing
3-inch	100
2-1/2 inch	87-100
No. 4	35-95
No. 200	0-29

14. Type N (trench plug): Low permeable fill material, a nondispersible clay material having a minimum plasticity index of 10.

2.02 UNSUITABLE MATERIAL

A. Unsuitable soils for fill material shall include soils which, when classified under ASTM D 2487, fall in the classifications of Pt, OH, CH, MH or OL.

B. In addition, any soil, which cannot be compacted sufficiently to achieve the percentage of maximum density specified for the intended use, shall be classed as unsuitable material.

2.03 USE OF FILL, BACKFILL, AND EMBANKMENT MATERIAL TYPES

A. The CONTRACTOR shall use the types of materials as designated herein for all required fill, backfill, and embankment construction hereunder.

B. Where these Specifications conflict with the requirements of any local agency having jurisdiction, or with the requirements of a material manufacture, the ENGINEER shall be immediately notified. In case of conflict therewith, the CONTRACTOR shall use the most stringent requirement, as determined by the ENGINEER.

C. Fill and backfill types shall be used in accordance with the following provisions:

i. Embankment fills shall be constructed of Type I material, as defined herein, or any mixture of Type I and Type A through Type H materials.

2. Pipe zone backfill, as defined under "Pipe and Utility Trench Backfill" herein, shall consist of the following materials for each pipe material listed below. Where pipelines are installed on grades exceeding 4 percent, and where backfill materials are graded such that there is less than 10 percent passing a Number 4 sieve, trench plugs of Type J or N material shall be provided at maximum intervals of 200 feet or as shown on the Drawings.

a. Mortar coated pipe, concrete pipe, and uncoated ductile iron pipe shall be provided Type A, B, C, D, E, or L pipe zone backfill material.

b. Coal tar enamel coated pipe, polyethylene encased pipe, tape wrapped pipe, and other non-mortar coated pipe shall be backfilled with Type C pipe zone backfill material.

c. Plastic pipe and vitrified clay pipe shall be backfilled with Type L pipe zone backfill material.

3. Trench zone backfill for pipelines as defined under "Pipe and Utility Trench Backfill" shall be Type I backfill material or any of Types A through H backfill materials or any mixture thereof, except that Type K material may be used for trench zone backfill in agricultural areas unless otherwise shown or specified.

4. Final backfill material for pipelines under paved area, as defined under "Pipe and Utility Trench Backfill" shall be Type G backfill material. Final backfill under areas not paved shall be the same material as that used for trench backfill, except that Type K material shall be used for final backfill in agricultural areas unless otherwise shown or specified.

5. Trench backfill and final backfill for pipelines under structures shall be the same material as used in the pipe zone, except where concrete encasement is required by the Contract Documents.

6. Aggregate base materials under pavements shall be Type G material constructed to the thickness shown or specified. Where specified or shown, aggregate subbase shall be Type M Material.

7. Backfill around structures shall be Type I material, or Types A through Type H materials, or any mixture thereof.

8. Backfill materials beneath structures shall be as follows:

   a. Drainrock materials under hydraulic structures or other water retaining structure with underdrain systems shall be Type H material.

   b. Under concrete hydraulic structures or other water retaining structures without underdrain systems, Types G or H materials shall be used.

   c. Under structures where groundwater must be removed to allow placement of concrete, Type F material shall be used.

   d. Under all other structures, Type D, E, G, or H material shall be used.

9. Backfill used to replace pipeline trench over-excavation shall be a layer of Type F material with a 6-inch top filter layer of Type E material or filter fabric to prevent migration of fines for wet trench conditions or the same material as used for the pipe zone backfill if the trench conditions are not wet. Filter fabric shall be Mirafi 140 N, Mirafi 700X, or equal.

10. The top 6 inches of fill on reservoir roofs, embankment fills around hydraulic structures, and all other embankment fills shall consist of Type K material, topsoil.

2.04 EMBANKMENT

A. The maximum sizes of rock, which will be permitted in the completed fill areas, are as follows:

Depth Below Finish Grade	Maximum Allowable Diameter
Top 4 inches	1 inch
4 inches to 12 inches	3-1/2 inches
12 inches to 2 feet	6 inches
2 feet to 4 feet	12 inches
4 feet to 8 feet	24 inches
Below 8 feet	36 inches

B. Embankments shall be constructed of material containing no muck, stumps, roots, brush, vegetable matter, rubbish or other material that will not compact into a suitable and enduring roadbed, and material designated as undesirable shall be removed from the site. Where embankments are constructed adjacent to bridge end bents or abutments, rock larger than 3-1/2 inches in diameter shall not be placed within three feet of the location of any abutment.

C. Fill material containing debris, sod, and biodegradable materials shall not be used as fill in construction areas.

D. Fill material required for the building pads and for pavement subgrade shall be granular fill, free of organic material.

E. Fill material required for pervious and sodded areas shall have a maximum organic component of 10%. CONTRACTOR shall provide, at CONTRACTOR'S cost, organic content test results for approval by the ENGINEER.

PART 3 EXECUTION

3.01 JOB CONDITIONS

A. Protection: Use all means necessary to protect existing objects and vegetation. In the event of damage, immediately make all repairs, and replacements necessary to the acceptance of the OWNER's Representative and ENGINEER at no cost to the OWNER.

3.02 BACKFILL, FILLING & GRADING

A. Grades:

1. Cut, backfill, fill and grade to proper grade levels indicated. The proposed grades shown on the drawings are for establishing a finished grade over the site.

B. Filling:

1. Fill material shall be placed in horizontal layers and spread to obtain a uniform thickness.

2. After compaction, layers of fill are not to exceed twelve (12) inches for cohesive soils or eight (8) inches for noncohesive soils.

3.03 STRUCTURE, ROADWAY, AND EMBANKMENT EXCAVATION

A. General: Except when specifically provided to the contrary, excavation shall include the removal of all materials of whatever nature encountered, including all obstructions of any nature that would interfere with the proper execution and completion of the work. The removal of said materials shall conform to the lines and grades shown or ordered. Unless otherwise provided, the entire construction site shall be stripped of all vegetation and debris, and such material shall be removed from the site prior to performing any excavation or placing any fill. The CONTRACTOR shall furnish, place, and maintain all supports and shoring that may be required for the sides of the excavations, and all pumping, ditching, or other measure for the removal or exclusion of water, including taking care of storm water, groundwater, and wastewater reaching the site of the work from any source so as to prevent damage to the work or adjoining property. Excavations shall be sloped or otherwise supported in a safe manner in accordance with applicable State safety requirements and the requirements of OSHA Safety and Health Standards for Construction (29CFR1926).

B. Excavation Beneath Structures and Embankments: Except where otherwise specified for a particular structure or ordered by the ENGINEER, excavation shall be carried to the grade of the bottom of the footing or slab. Where shown or ordered, areas beneath structures or fills shall be over-excavated. The subgrade areas beneath embankments shall be excavated to remove not less than the top [6 inches] of native material and where such subgrade is sloped, the native material shall be benched. When such over excavation is shown, the CONTRACTOR shall perform both over-excavation and subsequent backfill to the required grade. When such over-excavation is not shown but is ordered by the ENGINEER, such over-excavation and any resulting backfill will be paid for under a separate unit price bid item if such bid item has been established; otherwise payment will be made in accordance with a negotiated price. After the required excavation or over-excavation has been completed, the exposed surface shall be scarified to a depth of 6 inches, brought to optimum moisture content, and rolled with heavy compaction equipment to obtain density as specified in Paragraph 3.14.I.

C. Excavation Beneath Paved Areas: Excavation under areas to be paved shall extend to the bottom of the aggregate base or subbase, if such base is called for; otherwise it shall extend to the paving thickness. After the required excavation has been completed, the top 12 inches of exposed surface shall be scarified, brought to optimum moisture content, and rolled with heavy compaction equipment to obtain density as specified in Paragraph 3.14.I. The finished subgrade shall be even, self-draining, and in conformance with the slope of the finished pavement. Areas that could accumulate standing water shall be regraded to provide a self-draining subgrade.

D. Notification of ENGINEER: The CONTRACTOR shall notify the ENGINEER at least 3 days in advance of completion of any structure excavation and shall allow the

ENGINEER a review period of at least one day before the exposed foundation is scarified and compacted or is covered with backfill or with any construction materials.

3.04 PIPELINE AND UTILITY TRENCH EXCAVATION

A. General: Unless otherwise shown or ordered, excavation for pipelines and utilities shall be open-cut trenches. Trench widths shall be kept as narrow as is practical for the method of pipe zone densification selected by the CONTRACTOR, but shall have a minimum width at the bottom of the trench equal to the outside diameter of the pipe plus 24 inches for mechanical compaction methods and 18 inches for water consolidation methods. The maximum width at the top of the pipe shall be equal to the outside diameter of the pipe plus 36 inches for pipe diameters 18 inches and larger and to the outside diameter of the pipe plus 24 inches for pipe diameters less than 18 inches, or as shown on the Drawings.

B. Trench Bottom: Except when pipe bedding is required, the bottom of the trench shall be excavated uniformly to the grade of the bottom of the pipe. The trench bottom shall be given a final trim, using a string line for establishing grade, such that each pipe section when first laid will be continually in contact with the ground along the extreme bottom of the pipe. Rounding out the trench to form a cradle for the pipe will not be required. Excavations for pipe bells and welding shall be made as required.

C. Open Trench: The maximum amount of open trench permitted in any one location shall be 300 feet, or the length necessary to accommodate the amount of pipe installed in a single day, whichever is greater. All trenches shall be fully backfilled at the end of each day or, in lieu thereof, shall be covered by heavy steel plates adequately braced and capable of supporting vehicular traffic in those locations where it is impractical to backfill at the end of each day. The above requirements for backfilling or use of steel plate will be waived in cases where the trench is located further than 100 feet from any traveled roadway or occupied structure. In such cases, however, barricades and warning lights meeting OSHA requirements shall be provided and maintained.

D. Trench Over-Excavation: Where the Drawings indicate that trenches shall be over-excavated, they shall be excavated to the depth shown, and then backfilled to the grade of the bottom of the pipe.

E. Over-Excavation: When ordered by the ENGINEER, whether indicated on the Drawings or not, trenches shall be over-excavated beyond the depth shown. Such over-excavation shall be to the depth ordered. The trench shall then be backfilled to the grade of the bottom of the pipe. All work specified in this Section shall be performed by the CONTRACTOR when the over-excavation ordered by the ENGINEER is less than 6 inches below the limits shown. When the over-excavation ordered by the ENGINEER is 6 inches or greater below the limits shown, additional payment will be made to the CONTRACTOR for that portion of the work which is located below said 6-inch distance. Said additional payment will be made under separate unit price bid items for over-excavation and bedding if such bid items have been established; otherwise payment will be made in accordance with a negotiated price.

F. Where pipelines are to be installed in embankment or structure fills, the fill shall be constructed to a level at least one foot above the top of the pipe before the trench is excavated.

3.05 OVER-EXCAVATION NOT ORDERED, SPECIFIED, OR SHOWN

A. Any over-excavation carried below the grade ordered, specified, or shown, shall be backfilled to the required grade with the specified material and compaction. The CONTRACTOR at its own expense shall perform such work.

3.06 EXCAVATION IN LAWN AREAS

A. Where excavation occurs in lawn areas, the sod shall be carefully removed, kept damp, and stockpiled to preserve it for replacement. Excavated material may be placed on the lawn; provided that a drop cloth or other suitable method is employed to protect the lawn from damage. The lawn shall not remain covered for more than 72 hours. Immediately after completion of backfilling and testing of the pipeline, the sod shall be replaced and lightly rolled in a manner so as to restore the lawn as near as possible to its original condition. CONTRACTOR shall provide new sod if stockpiled sod has not been replaced within 72 hours.

3.07 EXCAVATION IN VICINITY OF TREES

A. Except where trees are shown to be removed, trees shall be protected from injury during construction operations. No tree roots over 2 inches in diameter shall be cut without express permission of the ENGINEER. Trees shall be supported during excavation by any means previously reviewed and approved by the ENGINEER.

3.08 ROCK EXCAVATION

A. Rock is defined as follows:

1. Rock shall be classified as material having a blow count in excess of 30 blows per foot from a Standard Penetration Test (ASTM D-1586) and exceeding 1000 psi from an Unconfined Compression Strength Test (ASTM D-2938); and,

2. General Excavation - Any material that cannot be excavated with a single-toothed ripper drawn by a crawler tractor having a minimum draw bar pull rated at not less than 71,000 lbs. (Caterpillar D9N or equivalent), and occupying an original volume of at least 2 cubic yards or more; and,

3. Trench Excavation - Any material that cannot be excavated with a backhoe having a break out force rated at not less than 44,000 lbs. (Caterpillar 235D or equivalent), and occupying an original volume of at least 2 cubic yards.

B. Rock excavation shall include removal and disposal of the following: (1) all boulders measuring 1/3 of a cubic yard or more in volume; (2) all rock material in ledges, bedding deposits, and unstratified masses which cannot be removed without systematic drilling and blasting; (3) concrete or masonry structures which have been

abandoned; and (4) conglomerate deposits which are so firmly cemented that they possess the characteristics of rock as described in Paragraph 3.09(A).

C. Said rock excavation shall be performed by the CONTRACTOR; provided, that should the quantity of rock excavation be affected by any change in the scope of the work, an appropriate adjustment of the contract price will be made under a separate bid item if such bid item has been established; otherwise payment will be made in accordance with a negotiated price.

D. Explosives and Blasting: Blasting will not be permitted, except by express permission of the ENGINEER on a case-by-case basis. The use of explosives will be subject to the approval and regulations of all agencies having jurisdiction. If blasting is utilized at the site of the WORK, the CONTRACTOR shall take all precautions and provide all protective measures necessary to prevent damage to property and structures or injury to person. Prior to blasting, the CONTRACTOR shall secure all permits required by law for blasting operations and shall provide any additional hazard insurance required by the OWNER. The CONTRACTOR shall have a fully qualified and experienced blasting foreman in charge of all blasting operations.

E. The CONTRACTOR will be held responsible for all and shall make good any damage caused by blasting or resulting from its possession or use of explosives on the WORK.

F. All operations involving the handling, storage, and use of explosives shall be conducted in accordance with the requirements of the OSHA Standards for Construction, and in accordance with all local laws and regulations.

3.09 DISPOSAL OF EXCESS EXCAVATED MATERIAL

A. The CONTRACTOR shall remove and dispose of all excess excavated material at a site selected by the CONTRACTOR and reviewed by the ENGINEER.

3.10 DISPOSAL OF UNSUITABLE EXCAVATED MATERIAL

A. The CONTRACTOR shall remove and dispose of all unsuitable excavated material. This shall include muck, tree roots, rocks, garbage, debris, or any other material designated as unsuitable by Paragraph 2 of this Section. Disposal shall be at a site selected by the CONTRACTOR that is designated as an approved disposal site for the unsuitable material.

3.11 BACKFILL - GENERAL

A. Backfill shall not be dropped directly upon any structure or pipe. Backfill shall not be placed around or upon any structure until the concrete has attained sufficient strength to withstand the loads imposed. Backfill around water retaining structures shall not be placed until the structures have been tested, and the structures shall be full of water while backfill is being placed.

B. Except for drainrock materials being placed in over-excavated areas or trenches, backfill shall be placed after all water is removed from the excavation.

3.12 PLACING AND SPREADING OF BACKFILL MATERIALS

A. Backfill materials shall be placed and spread evenly in layers. When compaction is achieved using mechanical equipment the layers shall be evenly spread so that when compacted each layer shall not exceed 6 inches in thickness.

B. During spreading each layer shall be thoroughly mixed as necessary to promote uniformity of material in each layer. Pipe zone backfill materials shall be manually spread around the pipe so that when compacted the pipe zone backfill will provide uniform bearing and side support.

C. Where the backfill material moisture content is below the optimum moisture content water shall be added before or during spreading until the proper moisture content is achieved.

D. Where the backfill material moisture content is too high to permit the specified degree of compaction the material shall be dried until the moisture content is satisfactory.

3.13 COMPACTION - GENERAL

A. Compact each layer of fill in designated areas with approved equipment to achieve a maximum density at optimum moisture, AASHTO T 180 - latest edition.

1. Building Pads: compaction shall be to 98% of maximum density, unless otherwise shown on the drawings or specifications. Building pads shall be within plus or minus one-tenth (0.1) of a foot of the elevations shown on the plans.

2. Refer to Sections 02513 Asphaltic Concrete Paving - General and 02515 Portland Cement Concrete Paving for compaction requirements in the affected areas.

3. Under landscaped area, compaction shall be to density as specified in Paragraph 3.14.I., unless otherwise shown on the Drawings.

B. No backfill shall be placed against any masonry or other exposed building surface until permission has been given by the OWNER's Representative, and in no case until the masonry has been in place seven days.

C. Heavy construction equipment will not be permitted within ten (10) feet of any masonry or other exposed building surface.

D. Compaction in limited areas shall be obtained by the use of mechanical tampers or approved hand tampers. When hand tampers are used, the materials shall be deposited in layers not more than four inches thick. The hand tampers used shall be suitable for this purpose and shall have a face area of not more than 100 square

inches. Special precautions shall be taken to prevent any wedging action against masonry, or other exposed building surfaces.

3.14 COMPACTION OF FILL, BACKFILL, AND EMBANKMENT MATERIALS

A. Each layer of Types, A, B, C, G, H, I, and K backfill materials as defined herein, where the material is graded such that at least 10 percent passes a No. 4 sieve, shall be mechanically compacted to the specified percentage of maximum density. Equipment that is consistently capable of achieving the required degree of compaction shall be used and each layer shall be compacted over its entire area while the material is at the required moisture content.

B. Each layer of Type D, E, F, and J backfill materials shall be compacted by means of at least 2 passes from a flat plate vibratory compactor. When such materials are used for pipe zone backfill, vibratory compaction shall be used at the top of the pipe zone or at vertical intervals of 24 inches, whichever is the least distance from the subgrade.

C. Type L material requires mechanical spreading and placement to fill voids but does not require mechanical compaction or vibration.

D. Fill on reservoir and structure roofs shall be deposited at least 30 days after the concrete roof slab has been placed. Equipment weighing more than 10,000 pounds when loaded shall not be used on a roof. A roller weighing not more than 8,000 pounds shall be used to compact fill on a roof.

E. Flooding, ponding, or jetting shall not be used for fill on roofs, backfill around structures, backfill around reservoir walls, for final backfill materials, or aggregate base materials.

F. Pipe zone backfill materials that are granular may be compacted by a combination of flooding and vibration using concrete vibrators or by jetting, when acceptable to the ENGINEER.

G. Pipeline trench zone backfill materials, containing 5 percent or less of material passing a No. 200 sieve, may be compacted using flooding and jetting or vibration if the CONTRACTOR uses effective procedures that yield the specified compaction test results. Flooding and jetting shall not be done in such a manner that the pipe or nearby utilities are damaged, in areas of poorly draining or expansive soils, or where the use of the procedure is prohibited by any agency having jurisdiction over the street or right-of-way. Approved jet pipes or immersible vibrators shall be used so that each backfill layer is saturated and consolidated to its full depth before the next layer is placed. Jet pipes shall be kept at least 6 inches away from the pipe where the backfills being consolidated and 2 feet away from other pipes or utilities.

H. Equipment weighing more than 10,000 pounds shall not be used closer to walls than a horizontal distance equal to the fill at that time. Hand operated power compaction equipment shall be used where use of heavier equipment is impractical or restricted due to weight limitations.

I. Compaction Requirements: The following compaction test requirements shall be in accordance with AASHTO T-180. Where agency or utility company requirements govern, the highest compaction standards shall apply.

Location or Use of Fill	Percentage of Maximum Density
Pipe zone backfill portion above bedding for flexible pipe.	98
Pipe zone backfill bedding and over-excavated zones under bedding/pipe for flexible pipe, including trench plugs.	98
Pipe zone backfill portion above bedding for rigid pipe.	98
Pipe zone backfill bedding and over-excavated zones under bedding/pipe for rigid pipe.	98
Final backfill, beneath paved areas or structures	98
Final backfill, not beneath paved areas or structures	95
Trench zone backfill, not beneath paved areas or structures, including trench plugs	95
Embankments	98
Embankments, beneath paved areas or structures	98
Backfill beneath structures, hydraulic structures	98
Backfill around structures	98
Topsoil (Type K material)	80
Aggregate base or subbase Type G or M material)	98

J. Trench Backfill Requirements: the pipe has been structurally designed based upon the trench configuration specified herein.

K. The CONTRACTOR shall maintain the indicated trench cross section up to a horizontal plane lying 6 inches above the top of the pipe.

L. If, at any location under said horizontal plane, the CONTRACTOR slopes the trench walls or exceeds the maximum trench widths indicated in the Contract Documents, the pipe zone backfill shall be “improved” or the pipe class increased as specified herein, at no additional cost to the OWNER. “Improved” backfill shall mean sand-cement backfill or other equivalent materials acceptable to the ENGINEER.

M. If the allowable deflection specified for the pipe is exceeded, the CONTRACTOR shall expose and reground or replace the pipe, repair all damaged lining and coating, and reinstall the pipe zone material and trench backfill as specified at no additional expense to the OWNER.

3.15 PIPE AND UTILITY TRENCH BACKFILL

A. Pipe zone Backfill: The pipe zone is defined as that portion of the vertical trench cross-section lying between a plane 6 inches below the bottom surface of the pipe, i.e., the trench subgrade, and a plane at a point 6 inches above the top surface of the pipe. The bedding for flexible pipe is defined as that portion of pipe zone backfill material between the trench subgrade and the bottom of the pipe. The bedding for rigid pipe is defined as that portion of the pipe zone backfill material between the trench subgrade and a level line which varies from the bottom of the pipe to the springline as shown.

B. Bedding shall be provided for all sewers, drainage pipelines, and other gravity flow pipelines. Unless otherwise specified or shown, for other pipelines the bedding may be omitted if all the following conditions exist.

1. The pipe bears on firm, undisturbed native soil, which contains only particles that will pass a one-inch sieve.

2. The trench excavation is not through rock or stones.

3. The trench subgrade soils are classified as suitable fill and backfill materials per Paragraph 2.01.

4. The trench subgrade soils have, as a maximum, a moisture content that allows compaction.

C. Where bedding is required, after compacting the bedding the CONTRACTOR shall perform a final trim using a stringline for establishing grade, such that each pipe section when first laid will be continually in contact with the bedding along the extreme bottom of the pipe. Excavation for pipe bells and welding shall be made as required.

D. The pipe zone shall be backfilled with the specified backfill material. The CONTRACTOR shall exercise care to prevent damage to the pipeline coating, cathodic bonds, or the pipe itself during the installation and backfill operations.

E. Trench Zone Backfill: After the pipe zone backfill has been placed as specified above, and after all excess water has completely drained from the trench, backfilling

of the trench zone may proceed. The trench zone is defined as that portion of the vertical trench cross-section lying between a plane 6 inches above the top surface of the pipe and a plane at a point 18 inches below the finished surface grade, or if the trench is under pavement, 18 inches below the roadway subgrade. If flooding, ponding, or jetting is used the pipe shall be filled with water to prevent flotation.

F. Final Backfill: Final backfill is all backfill in the trench cross-sectional area within 18 inches of finished grade, of if the trench is under pavement, all backfill within 18 inches of the roadway subgrade.

3.16 EMBANKMENT CONSTRUCTION

A. The area where an embankment is to be constructed shall be cleared of all vegetation, roots and foreign material. Following this, the surface shall be moistened, scarified to a depth of 6 inches, and rolled or otherwise mechanically compacted as specified in Paragraph 3.14.I. Embankment fill material shall be placed and spread evenly in approximately horizontal layers. Each layer shall be moistened or aerated, as necessary. Unless otherwise approved by the ENGINEER, each layer shall not exceed 6 inches of compacted thickness. The embankment fill and the scarified layer of underlying ground shall be compacted to 95 percent of maximum density under structures and paved areas, and 90 percent of maximum density elsewhere.

B. When an embankment fill is to be made and compacted against hillsides or fill slopes steeper than 4:1, the slopes of hillsides or fills shall be horizontally benched to key the embankment fill to the underlying ground. A minimum of 12 inches normal to the slope of the hillside or fill shall be removed and recompacted as the embankment fill is brought up in layers. Material thus cut shall be recompacted along with the new fill material at the CONTRACTOR's expense. Hillside of fill slopes 4:1 or flatter shall be prepared in accordance with Paragraph A, above.

C. Where embankment or structure fills are constructed over pipelines, the first 4 feet of fill over the pipe shall be constructed using light placement and compaction equipment that does not damage the pipe. Heavy construction equipment shall maintain a minimum distance from the edge of the trench equal to the depth of the trench until at least 4 feet of fill over the pipe has been completed.

3.17 CORRECTION OF GRADE

A. Bring to required grade levels areas where settlement, erosion or other grade changes occur.

3.18 MAINTENANCE AND PROTECTION OF WORK

A. While construction is in progress adequate drainage for the roadbed shall be maintained at all times.

The CONTRACTOR shall maintain all earthwork construction throughout the life of the contract, unless otherwise provided, and shall take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water.

CONTRACTOR shall repair at CONTRACTOR'S expense, except as otherwise provided herein, any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work.

All channels excavated as a part of the contract work shall be maintained against natural shoaling or other encroachments to the lines, grades, and cross sections shown on the plans, until final acceptance of the project.

3.19 AS-BUILT SURVEY

A. At the completion of the work and prior to final inspection of the area, the CONTRACTOR shall provide the ENGINEER with an as-built topographic survey made by a registered Surveyor, of the State of Florida.

B. The surveyor is to certify on the survey whether or not the as-built conditions conform to the elevations shown on the Drawings to within plus or minus two-hundredth (0.02) of a foot.

3.20 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section, it shall be included in the unit price per square yard bid for compaction of subgrade when constructing new roads and shall be included in the cost of all other work called out in the bid schedule requiring earth work.

END OF SECTION

SECTION 02210 – SITE GRADING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

A. The work covered by this section shall include all labor, equipment, services and materials necessary for bringing the entire site to elevations shown in the plans. The work included in this section shall include all necessary excavations for streets, ditches and swales. It shall include the construction of embankments and fills by the loading, movement, deposition and compaction of suitable fill materials resulting from above listed excavations. It shall include stockpiling of any excess material to an on-site location as specified by the OWNER.

B. It shall include rough grading within the roadways, driveways, swales and parking lots to the elevations or cross-section details shown on the drawings.

C. It shall include the erection and maintenance of any barricades that are required for accident prevention and property protection.

D. It shall include removal and legal disposal of muck, rock boulders or any foreign material interfering with construction.

1.03 RELATED WORK

A. Section 02110 - Clearing

B. Section 02200 - Earthwork

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 GENERAL

A. The CONTRACTOR shall be familiar with all work to be performed as specified and shown on the Drawings. CONTRACTOR shall ascertain where all excavation will be required and shall be solely responsible for all excavating to complete the Contract.

3.02 PAYMENT

A. No extra payment will be allowed for type or classification of material in excavation.

3.03 MATCHING EXISTING GRADES

A. Where existing roadbed surfaces are not at the elevation required prior to subgrade compaction, the CONTRACTOR shall perform any such excavation, filling, earthmoving and grading as may be necessary to attain the proper compacted subgrade elevation before proceeding with base course construction.

3.04 UNSUITABLE MATERIAL

A. All muck, large rocks and boulders encountered during the work under this Contract shall be removed and legally disposed of in a manner approved by the OWNER's Representative.

3.05 EXCAVATION

A. All excavation shall be unclassified regardless of material encountered.

B. The CONTRACTOR shall make probings or sounding for sub-surface rock to ascertain its location and depth.

C. It shall be the CONTRACTOR's responsibility to be familiar with soil conditions on the site. Borings, in addition to those provided by others, if any, shall be acquired by the CONTRACTOR, at the CONTRACTOR's expense.

D. Any wet excavated materials shall be drained before hauling or moving.

3.06 EMBANKMENT (FILL)

A. Embankment shall be constructed from suitable materials resulting from roadway or site excavation or approved materials furnished from off-site borrow areas.

B. Embankments shall be placed in successive layers of not more than eight inches in thickness, measured loose, for the full width of the embankment.

C. Each layer of the material used in the formation of roadbed embankments shall be compacted at optimum moisture content to a density as specified in Section 02200, Paragraph 3.14.I.

D. The existing material on the site may vary as to stability. The CONTRACTOR shall be familiar with the soil characteristics by site inspection borings, probings, etc., prior to bidding, as to the sub-surface character of the material.

E. All unstable soil shall be removed and shall be replaced by material approved by the ENGINEER.

3.07 GRADING

A. The material excavated shall be transported and spread over the entire work site and shall be graded so that the finished grade shall be within +0.1 feet of the grades indicated by the grade stakes and control point elevations shown on the plans and by

the cross-sections. Due to the minimal slope of the roadways, swale grades shall be within +0.05 feet of the grades indicated on the plans.

B. The disposal of large rocks in excess of 8", within roadways and parking areas is prohibited. Where allowable, the disposal of large rocks by burial in areas designated by the ENGINEER shall have a minimum 30 inches of cover below finished grade elevation.

3.08 FINISH GRADING

A. Following completion of the paving work, all swales, etc., adjacent to the roadway shall be shaped and graded to the elevations and cross-sections shown on the drawings. The finished surface shall be maintained until seeding and mulching work is completed.

3.09 SURVEYS

A. All initial surveys, including detail construction stakes, will be furnished by the CONTRACTOR.

B. The CONTRACTOR will carefully maintain bench marks, monuments, stakes and other reference points, and if disturbed or destroyed, be replaced as directed at the CONTRACTOR's expense.

3.10 MEASUREMENT AND PAYMENT

A. Measurement and payment for this item will be made per square yard.

END OF SECTION

SECTION 02221 – EXCAVATION AND BACKFILLING UTILITIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

A. The work shall consist of furnishing all materials, labor and equipment for excavation, trenching and backfilling for utilities. "Utilities" shall include storm water drains, culverts, water mains, gravity sewers, sewage force mains and appurtenant structures.

1.03 RELATED WORK

A. 02200 - Earthwork

B. 02210 - Site Grading

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 EXCAVATION

A. General: This work shall consist of the excavation of whatever substances shall be encountered to the depths as shown on the plans. Excavated materials not required for fill or backfill shall be removed from the work site as directed by the ENGINEER and shall be considered to be a part of the bid price of the utility pipe for which excavation and backfill is required.

B. Excavation for structures and other accessories shall have a minimum clearance of twelve inches and a maximum clearance of twenty-four inches on all sides.

C. Excavation shall not be carried below the required depths as indicated by the plans. Excess excavation below the required level shall be backfilled at the CONTRACTOR's expense with sharp sand, gravel or other suitable material thoroughly compacted and approved by the ENGINEER.

D. Any unstable soil shall be removed and shall be replaced by material acceptable to the ENGINEER. The removal and replacement of such unstable soil shall be considered to be part of the bid price of the pipe for which excavation and backfill is required.

E. Water shall not be permitted to accumulate in the excavated area. It shall be removed by pumping or other means as approved by the ENGINEER. The removal of water shall be considered to be a part of the bid price of the pipe for which excavation and backfill is required.

Well points, pumps or other approved means shall be used to keep the ground water sufficiently low in the opinion of the ENGINEER to permit the placing of concrete, masonry or pipe in first class condition, and sufficiently long thereafter to protect the concrete, masonry or joints against washing or damage.

The CONTRACTOR shall also use such other means as may be necessary to keep the excavation in satisfactory condition for the construction of the work, and the use of well points, or other approved method, will not relieve the CONTRACTOR of CONTRACTOR'S responsibility to make structures water tight.

F. Banks and trenches shall be vertical unless shown otherwise on plans. The width of the trench shall be no less than 8" and no more than twelve inches, or as approved by the ENGINEER, on each side of the pipe bell for pipe up to 16" diameter. Bell holes shall be accurately excavated by hand.

G. If the bottom of the trench is rock, the excavation shall be carried eight inches below the invert of the pipe and backfilled with thoroughly compacted sharp sand, gravel or other suitable material approved by the ENGINEER.

H. Rock excavation shall include any rock encountered, which cannot be removed with a 3/4-yard backhoe under normal operating conditions. Rock excavation shall be incidental to construction of all piping systems and no separate payment will be made.

I. Whenever it is necessary, in the interest of safety, to brace or shore the sides of the trench, such bracing or shoring shall be considered to be part of the bid price of the pipe for which excavation and backfill is required.

The CONTRACTOR shall furnish, put in place and maintain such sheeting, bracing, as may be required to support the side of the excavation, and to prevent any movement which can in any way damage the work or endanger adjacent structures. If the ENGINEER is of the opinion that supports are insufficient, the ENGINEER may order additional supports. The compliance with such order shall not release the CONTRACTOR from CONTRACTOR'S responsibility for the sufficiency of the sheeting. The CONTRACTOR shall leave all sheeting in place. The ENGINEER may require sheeting to be cut off at any specified elevation, but in no case will any sheeting be left closer than two (2) feet below the natural surface, nor cut off below the elevation of the top of the pipe.

3.02 BACKFILLING

A. After pipes, structures and other appurtenances have been installed, the trench or opening shall be backfilled with material free from large stones or clods of a quality acceptable to the ENGINEER.

B. Backfill around the pipe and to a point twelve inches above the top of the pipe shall be placed in six inch layers compacted with 20 pound hand tampers or mechanical tampers suitable for this purpose. Backfilling shall follow lying closely, and shall not be more than one hundred (100) feet behind completed lying. Backfill over pipe shall be carefully placed by experienced labor and thoroughly consolidated without shock to the pipe, and carried up uniformly on both sides of the pipe. No backfilling with bulldozers will be permitted adjacent to pipe line.

C. Within roadway right-of-ways, or within areas where pavements are to be constructed over the pipe, the remainder of the trench shall be placed in six-inch layers (compacted thickness) and shall be compacted to that as noted in Section 02200. CONTRACTOR will be responsible for correcting settlement in all backfilled areas whether under the pavement or otherwise.

D. In areas where no pavement is to be constructed, the backfill above the twelve inch line above the pipe shall be compacted to firmness approximately equal to that of the soil adjacent to the pipe trench or to that as noted in Section 02200. Backfill below the 12-inch line shall be compacted in 6-inch layers (compacted thickness) and shall be compacted to 98% of maximum density as determined by AASHTO T-180.

3.03 EXPLOSIVES

A. The use of explosives will not be permitted.

3.04 PAYMENT AND MEASUREMENT

A. No separate payment is provided for work covered by this Section. All costs in connection with Excavation and Backfilling, including testing, shall be included in the bid price of any item for which excavation and backfilling is required.

END OF SECTION

SECTION 02400 – STORM DRAINAGE FACILITIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

A. Provide all labor, materials, necessary equipment and services to complete the Storm Drainage Facilities work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

1.03 RELATED WORK

A. Section 02110 - Clearing

B. Section 02200 - Earthwork

C. Section 02601 - Subterranean Structures

1.04 CLEARING

A. Clearing or installation of pipe and all drainage structures shall be confined within the working limits of the trenches. Trees, utility poles, survey monuments, underground and overhead utilities shall be suitably protected and preserved.

1.05 EXISTING UTILITIES

A. Furnish temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, cables, etc., and other obstructions encountered in the progress of the work.

B. When the grade of alignment of the pipe is obstructed by existing utility structures, such as conduits, ducts, pipes, branch connections to water or sewer mains, and other obstructions, the obstructions shall be permanently supported, relocated, removed or reconstructed by the CONTRACTOR in cooperation with the OWNERs of such structures. The ENGINEER shall make no deviation from the required line or grade except as directed in writing.

C. It shall be the responsibility of the CONTRACTOR to notify the OWNERs of existing utilities in the area of construction a minimum of 48 hours prior to any excavation adjacent of such utilities, so that field locations of said utilities may be established.

D. It shall be the responsibility of the contractor to maintain positive drainage on the surface and to ensure that the existing under ground drainage system continues to function as intended during the construction of the new drainage system. The

contractor shall submit a plan to maintain the existing drainage patterns and under ground system for the approval of the CONSULTANT prior to beginning any work on the existing or new drainage systems.

1.06 PROJECT RECORD DOCUMENTS

A. Accurately record as-built locations of pipe runs, connections, catch basins, cleanouts, top elevations and invert elevations.

B. Identify and describe unexpected variations of sub-surface conditions and location of any utilities encountered.

PART 2 PRODUCTS

2.01 PIPE

A. REINFORCED CONCRETE CULVERT PIPE:

1. Concrete pipe shall be produced by a reputable manufacturer engaged in the full time business of manufacturing concrete pipe. Pipe manufacturer shall produce the pipe from an approved, permanent plant acceptable to the ENGINEER.

2. All concrete pipe shall be reinforced and shall conform to the requirements of A.S.T.M. C-76. Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe." All pipe shall be the Class III. Pipe shall have an interior surface, which is smooth, uniform and free from rough spots, irregularities and projections. Nominal pipe lengths shall be 8' unless authorized otherwise by the OWNER's Representative. Lifting holes will not be permitted.

3. Concrete pipe shall be either bell or spigot, unless approved by engineer.

4. Internal rubber gasket joints will be used at CONTRACTOR's option. The internal rubber gasket joint shall be supplied by the pipe manufacturer and shall be completely compatible in every respect with the pipe furnished. The pipe manufacturer shall install the rubber gasket on the inside of the bell or groove on the pipe at the plant. All materials and accessories for the rubber gasket joint and the methods of jointing shall be in strict conformance with the pipe manufacturer's direction and recommendation. Joint must be completely watertight.

5. Cement grout joints shall be completely water tight and acceptable to the OWNER's Representative. A full bed of mortar shall be placed in the bell and/or groove and on the tongue and/or spigot. The annular space in the pipe joint shall be wiped with cement mortar to insure the joint is filled and to present a smooth surface. The complete exterior periphery of the joint shall have a standard cement grout diaper joint. Diaper shall be installed within the aid of an approved cloth ring. Cement mortar joints shall be made in the dry. Mortar and grout shall be one part Portland Cement to two parts by weight of sand. Mortar shall have enough water to make a stiff mixture that can be molded and worked. Cement

mortar joints shall not be covered until inspected and approved by the OWNER's Representative.

B. CONTRACTOR shall only use the pipe material as specified on the plans. Alternate materials will not be allowed unless approved by the ENGINEER in writing.

C. The CONTRACTOR shall install all drainage structures and pipe in the locations shown on the drawings and/or as approved by the OWNER. Pipe shall be of the type and sizes specified on the drawings and shall be laid accurately to line and grade. Structures shall be accurately located and properly oriented.

D. Excavation and Backfilling for Utilities – The provisions in Section 02305, Excavation and Backfilling for Utilities shall govern all work under this Section.

E. Storage and Handling of Pipe – All pipe shall be protected against impact, shock and free fall, and only equipment of sufficient capacity and proper design shall be used in the handling of the pipe. Storage of pipe on the job shall be in accordance with the pipe manufacturer's recommendations.

F. Damage to Pipe

1. Pipe which is defective from any cause, including damage caused by handling, and determined by the OWNER as un-repairable, shall be unacceptable for installation and shall be replaced at no cost to the OWNER and as directed by the OWNER; and,

2. Pipe that is damaged or disturbed through any cause prior to acceptance of the work, shall be repaired realigned or replaced as directed by the OWNER, at the CONTRACTOR's expense.

G. Manholes, catch basins and drain inlets shall be constructed as soon as the pipe laying reaches the location of the structures. Should the CONTRACTOR continue his pipe laying without making provisions for completion of the structures, the OWNER shall have the authority to stop the pipe laying operations until the structure is completed.

H. Any structure, which is mis-located or oriented improperly, shall be removed and re-built in its proper location, alignment and orientation at the CONTRACTOR's expense.

2.02 SUBMITTALS.

A. Submit copies of product and material information and data.

PART 3 EXECUTION

3.01 EXCAVATIONS

A. Trenches shall be kept as nearly vertical as possible and, if required, shall be properly sheeted and braced. Where, in the opinion of the ENGINEER, damage

could result from withdrawing sheeting, the sheeting shall be left in place. Not more than 100 feet of trench shall be opened at any one time or in advance of pipe laying unless permitted by the ENGINEER.

1. Except in rock, water-bearing earth or where a granular or concrete base is to be used, mechanical excavation of trenches shall be stopped above the final grade elevation so that the pipe may be laid on a firm, undisturbed native earth bed. If over digging occurs, all loosened earth shall be removed and the trench bottom brought back to grade with granular material.

2. Excavations and trenches in rock shall be carried to a depth of not less than 12" below the pipe bottom. This space shall be filled with granular material or washed rock.

3. Width of trenches shall be such as to provide adequate space for placing and jointing pipe properly, but in every case the trench shall be kept to a minimum width.

4. Any unstable soil encountered shall be removed and replaced with gravel, crushed rock or rock and sand suitably compacted.

3.02 PREPARATION TO TRENCH BOTTOM

A. Water shall not be allowed in the trenches while the trench bottom is being prepared or while pipe is being installed, unless directed by the ENGINEER.

B. A continuous trough shall be shaped to receive the bottom quadrant of the pipe barrel. Bell holes shall be excavated so that after placement, only the barrel of the pipe receives bearing pressure from the trench bottom.

Preparation of the trench bottom and placement of the pipe shall be placed in the trench bottom a minimum of 8" below the bottom of the pipe, and a trough as described above shall be formed to uniformly support the bottom quadrant of the pipe barrel.

Bedding material, when required, shall be in accordance with Section 02221, Excavation and Backfilling for Utilities for work described within this Section.

3.03 INSTALLATION OF DRAINAGE PIPE

A. Pipe shall be protected during handling against impact shocks and free falls. Pipe shall be kept clean at all times and no pipe shall be used that does not conform to the Specifications.

B. The laying of the pipe shall be commenced at the lowest point with spigot ends pointing in the direction of flow. All pipes shall be laid with ends abutting and true to line and grade. They shall be laid in accordance with manufacturer's requirements as approved by the ENGINEER.

C. Pipe shall be laid accurately to the line and grade as designated on the plans. Preparatory to making pipe joints, all surfaces of the portions of the pipe to be jointed or of the factory made jointing material shall be clean and dry. Lubricant, primers, adhesive, etc., shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or factory-fabricated joints shall then be placed, fitted, joined and adjusted in such a manner as to obtain a water tight line. As soon as possible after the joint is made, sufficient backfill material shall be placed along each side of the pipe to prevent movement of pipe off line and grade.

D. The exposed ends of all pipes shall be suitably plugged to prevent earth, water, or other substances from entering the pipe when construction is not in progress.

E. Unloading and Handling: All pipes shall be unloaded and handled with reasonable care. Pipes shall not be rolled or dragged over gravel or rock during handling. The CONTRACTOR shall take necessary precautions to ensure the method used in lifting or placing the pipe does not induce stress fatigue in the pipe and the lifting device used uniformly distributes the weight of the pipe along its axis or circumference.

F. Each length of pipe shall be inspected for defects and cracks before carefully lowered into the trench. Any damaged or any pipe that has had its grade disturbed after laying shall be removed and replaced. Bituminous coated pipe shall be handled with special care and repair of damaged coating shall conform with AASHTO M190.

G. Lay pipe on prepared foundation starting at the downgrade end according to line and grade with the necessary drainage structures, fittings, bends and appurtenances as shown on the drawings. Rigid pipes shall be laid with the bell or groove ends upgrade with the spigot or tongue fully inserted. Reinforced concrete pipe shall be installed in accordance with ASTM C1479.

3.04 BACKFILLING TRENCHES

A. No trenches or excavations shall be backfilled until the trench and installation has been inspected and written approval given by the OWNER's Representative. Under no circumstances shall water be permitted to rise in unbackfilled trenches after pipe has been placed. Trenches shall be backfilled with approved material, free of large clods, stones or rocks and carefully deposited in layers not to exceed 6 inches until enough fill has been placed to provide a cover of not less than 1' above the pipe. Each layer shall be placed, then carefully and uniformly tamped, so as to eliminate the possibility of pipe displacement. The remainder of backfill materials shall then be placed, moistened and compacted in 6 inch layers to density as specified in Section 02200, Paragraph 3.14.I.

B. Whenever the trenches have been improperly filled or if settlement occurs, they shall be refilled, compacted, smoothed off and made to conform to grade. Unless otherwise directed or shown on the plans, backfill in trenches in or through roadways shall be made as specified above, except that the entire fill above 1' over the pipe shall be deposited in layers not to exceed 8" in thickness, moistened, and compacted to density equal to or greater than that of adjacent material so that pavement can be placed immediately.

3.05 CONCRETE ENCASEMENT OF DRAINAGE PIPE

A. Trenches in which encasement for pipe are to be placed, may be excavated completely with mechanical equipment. Prior to formation of the encasement, temporary supports consisting of timber wedges or masonry shall be used to support the pipe in place. Temporary supports shall have minimum dimensions and shall support the pipe at no more than two places, one at the bottom of the barrel of the pipe adjacent to the shoulder of the socket and the other near the spigot end.

3.06 DRAINAGE STRUCTURES

A. All structures shall be built to the line and grade shown on drawings. All reinforced concrete work shall be in strict conformance with the concrete specifications contained herein. After erection of the forms and placing of the steel, the CONTRACTOR must have inspection and approval from the ENGINEER before placing any concrete. After removal of the forms, the CONTRACTOR shall backfill around each structure with approved granular fill. The fill shall be placed in layers not exceeding 8" in depth measured loose and compacted to density as specified in Section 02200, Paragraph 3.14.I. No defects of any kind in the pipe section will be accepted. All pipe stubs shall be made of the same type of pipe. Pipe stubs shall be sealed with a concrete plug, water tight. The ends of the pipes, which enter masonry, shall be neatly cut to fit the inner face of the masonry. Cutting shall be done before the pipes are built in.

3.07 INSPECTION

A. All storm sewers shall be lamped and physically inspected by the ENGINEER prior to acceptance of the work. Repairs or misalignment shown necessary by the tests shall be corrected at the CONTRACTOR's expense. All sewers shall be thoroughly cleaned before being placed into use and shall be kept clean until final acceptance by the ENGINEER.

3.08 RESTORATION OF SURFACES AND/OR STRUCTURES

A. The CONTRACTOR shall restore and/or replace paving, curbing, sidewalks, fences and survey points, or any other disturbed surfaces or structures to a condition equal to that before the work was begun and to the satisfaction of the ENGINEER. Relative to restoration of surfaces and/or structures, the CONTRACTOR shall comply with all requirements of governing agencies including city, town, county and state.

3.09 ABANDONMENT OF PIPELINE IN PLACE

A. All drainage pipelines or structures shown on the drawings to be abandoned in place shall be properly cut and plugged after new mains and provisions for proper drainage are installed. The pipeline shall be filled with concrete one foot from end of pipe as specified in Division 3 - Concrete, and section 03010. Excavation, backfill, and restoration shall be executed in accordance with requirements for removing existing and installing new pipelines.

3.10 MEASUREMENT AND PAYMENT

A. Measurement and payment will be based on the actual quantities installed as more specifically discussed and described in SECTION 01025 for MEASUREMENT AND PAYMENT.

END OF SECTION

SECTION 02510 – CONCRETE SIDEWALK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. The work specified in this Section consists of the construction of concrete sidewalk in accordance with these Specifications and in conformity with the lines, grades, dimensions and notes shown on the plans.

1.03 RELATED WORK

A. Section 02200 - Earthwork
B. Section 02110 - Clearing
C. Section 02515 - Portland Cement Concrete Paving
D. Section 03010 - Concrete
E. Section 03300 - Cast-In-Place Concrete
F. Section 03370 - Concrete Curing

PART 2 PRODUCTS

2.01 CONCRETE

A. Concrete shall be Class I Concrete, with a minimum compressive strength of 3,000 psi in accordance with Section 345, Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

2.02 FORMS

A. Forms for this work shall be made of either wood or metal and shall have a depth equal to the plan dimensions for the depth of concrete being deposited against them. They shall be straight, free from warp or bends, and of sufficient strength when staked, to resist the lateral pressure of the concrete without displacement from lines and grade. Forms shall be cleaned each time they are used and shall be oiled prior to placing the concrete.

2.03 SUBGRADE AND GRADING

A. Excavation shall be made to the required depth, and the foundation material upon which the sidewalk is to be set shall be compacted to a firm, even surface, true to grade and cross-section, and shall be moist at the time that the concrete is placed.

2.04 JOINTS

A. Contraction joints may be of the open type or may be sawed. Staking a metal bulkhead in place and depositing the concrete on both sides shall form open type contraction joints. After the concrete has set sufficiently to preserve the width and shape of the joint, the bulkhead shall be removed. After the sidewalk has been finished over the joint, the slot shall be edged with a tool having a 1/2-inch radius.

If the CONTRACTOR elects to saw the contraction joints, a slot approximately 1/8 inch wide and not less than 1-1/2 inches deep shall be cut with a concrete saw after the concrete has set, and within the following periods of time:

Contraction joints shall be constructed at not more than 20-foot intervals, and shall be in place within 12 hours after finishing.

PART 3 EXECUTION

3.01 PLACING

A. The concrete shall be placed in the forms to the required depth and shall be vibrated and spaded until mortar entirely covers its surface.

3.02 FINISHING

A. Screeding: The concrete shall be struck-off by means of a wood screed, used perpendicular to the forms, and floated in order to obtain the required grade and remove surplus water and laitance.

B. Surface requirements: The concrete shall be given a broom finish. The surface variations shall not be more than 1/4 inch under a ten-foot straightedge, nor more than 1/8 inch on a five-foot transverse section. The exposed edge of the slab shall be carefully finished with an edging tool having a radius of 1-1/2 inch.

3.03 CURING

A. The concrete shall be continuously cured for a period of at least 72 hours. Curing shall be commenced after finishing has been completed and as soon as the concrete has hardened sufficiently, to permit application of the curing material without marring the surface.

B. Wet burlap, white-pigmented curing compound, waterproof paper or polyethylene sheets may be used for the curing of grey concrete only.

3.04 COLORED CONCRETE (NOT USED)

A. Colored – Conditioned Concrete shall be placed, finished, and cured in strict accordance with applicable requirements of this Section and Sections 03010, 03370, and the requirements of the chosen manufacturer.

3.05 MEASUREMENT AND PAYMENT

A. Measurement and payment will be based on the actual quantities installed as more specifically discussed and described in Section 01025 for MEASUREMENT AND PAYMENT.

END OF SECTION

SECTION 02513 – ASPHALTIC CONCRETE PAVING – GENERAL

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

A. This section of the specifications covers the control and general conduct of asphalt paving construction for roads and parking areas.

B. All work within the right-of-way shall be constructed using materials and methods in accordance with the drawings and Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

C. Provide all labor, materials, necessary equipment and services to complete the Asphaltic Concrete Paving work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

D. Including, but not necessarily limited to the following:

1. Preparation of subgrade.
2. Installation and compaction of base course.
3. Spreading of asphalt surface course.

1.03 RELATED WORK

A. Section 02200 – Earthwork

B. Section 02400 – Storm Drainage Facilities

C. Section 02515 - Portland Cement Concrete Paving

1.04 TRAFFIC CONTROL

A. The CONTRACTOR shall provide and maintain access to and from all properties along the line of CONTRACTOR'S work. The CONTRACTOR shall also provide temporary bypasses and maintain them in a safe and usable condition whenever the public cannot do detouring of traffic to parallel routes without hardship or excessive increases in travel.

1.05 SPECIAL SUBGRADE CONDITIONS

A. When special subgrade conditions are encountered for which these "Asphaltic Concrete Paving Specifications" are not applicable, portions of these specifications

shall be deleted or revised to provide a properly finished paved surface. A requested revision or deletion of the specifications shall be accompanied with reports and laboratory tests on existing field conditions. Any change from these "Asphaltic Concrete Paving Specifications" shall be approved by the ENGINEER and shall be in effect only for a specified area or paving project.

1.06 QUALITY ASSURANCE

A. D.O.T. Standard Specifications.

1. Work and materials shall conform to all applicable requirements of Florida Department of Transportation "Standard Specifications for Road and Bridge Construction - 1982" (referred to herein as D.O.T.).

B. American Society for Testing and Materials.

1. ASTM 3515-80 "Standard Specification for Hot-Mixed, Job Laid, Bituminous Paving mixtures."

1.07 SUBMITTALS

A. Provide copies of materials, notarized certificates of compliance signed by material producer and CONTRACTOR, certifying that each material item complies with, or exceeds, specified requirements.

1.08 JOB CONDITIONS

A. Apply prime and tack coats when ambient temperature is above 50 degrees, and when temperature has not been below 35 degrees for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

B. Construct asphalt concrete surface course only when atmospheric temperature is above 40 degrees, and when base is dry. Base course may be placed when air temperature is above 30 degrees, and rising.

1.09 LOCATIONS, LAYOUT AND GRADES

A. Locate and layout paved areas and right-of-ways with reference to benchmarks, property lines or buildings according to the drawings and as accepted by the ENGINEER.

B. Determine locations of paved edges and right-of-way line from surveyor's permanent reference monuments and information on the drawings.

C. Where permanent reference monuments are not available, obtain proper line locations from authorities having jurisdiction.

D. Establish and maintain required lines and elevations.

1.10 PAYMENT ADJUSTMENT – BITUMINUS MATERIALS

A. On Contracts having an original Contract time of more than 365 calendar days, the CITY will adjust the bid unit price for bituminous material, excluding cutback and emulsified asphalt to reflect increases or decreases in the Asphalt Price Index (API) of bituminous material from that in effect during the month in which bids were received. The Contractor will not be given the option of accepting or rejecting this adjustment. Bituminous adjustments will be made only when the current AFI (CAPI) varies by more than 5% of the API prevailing in the month when bids were received BAPI, and then only on the portion that exceeds 5%.

FDOT will determine the API for each month by averaging quotations in effect on the first day of the month at all terminals that could reasonably be expected to furnish bituminous material to projects in the State of Florida.

The API will be available on the Construction Office website by the 15th of each at the following URL:

www.dot.state.fl.us/construction/fuel&Bit/Fuel&Bit.htm

Payment on progress estimates will be adjusted to reflect adjustments in the prices for bituminous materials in accordance with the following:

$ Adjustment = (ID) (Gallons)

Where ID = Index Difference = [CAPI - 0.95(BAPI)] when the API has decreased between the month of bid and month of this progress estimate.

Where ID = Index Difference = [CAPI – 1.05(BAPI)] when the API has increased between the month of bid and month of this progress estimate.

Payment will be made on the current progress estimate to reflect the index difference at the time work was performed.

For asphalt concrete items payable by the ton, the number of gallons will be determined assuming a mix design with 6.25% liquid asphalt weighing 8.58 lb/gal.

Asphalt concrete items payable by the square yard will be converted to equivalent tons assuming a weight of 100 lb/yd^2 per inch.

PART 2 PRODUCTS

2.01 FILL

A. All fill shall be clean rock and sand (maximum rock size = 1 inch).

B. Fill shall be compacted thoroughly as per Section 02200 - Earthwork.

2.02 LIMEROCK

A. Limerock shall be obtained from pits for which all overburden has been removed previous to blasting and shall show no tendency to air slake and must undergo the following chemical requirements.

	Percent
1. Carbonates of Calcium	Min.70.0 (Miami Limerock) and Magnesium.
	95.0 (Ocala Limerock)
2. Oxides of Iron and Aluminum	Max. 2.0
3. Organic Matter	Max. 0.5

4. Any constituents of other than the above shall be silica or inert material.

5. The material shall be crushed to such size that not less than 97% shall pass a 3-1/2" sieve and it shall be graded uniformly down to dust. All fine material shall consist entirely of dust of fracture.

6. Limerock from on-site may be used if the material meets the requirements of this section of the specifications.

B. All limerock shall comply with requirements set forth under D.O.T. Section 911.

C. Equipment: The equipment for constructing the rock base shall be in first class working condition and shall include:

1. Three wheel roller weighing not less than ten tons.

2. Self-propelled blade grader weighing not less than three tons. The wheelbase shall be not less than fifteen feet and blade length not less than ten feet.

3. Scarifiers shall have teeth space not to exceed 4-1/2 inches.

   a. Provision for furnishing water at the construction site by tank or hose at a rate not less than 50 gallons per minute.

2.03 PRIME COAT

A. Prime coat shall be Grade RC-70, cut-back asphalt, D.O.T. Section 916-2.

B. Prime coat shall have full compatibility with surface treatment asphalt.

C. The bituminous material shall conform to the requirements of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Section 300-2.

D. The sand for cover shall be clean dry sand.

2.04 TACK COAT

A. The bituminous material to be used for the tack coat shall conform to the requirements of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Section 300-2.

2.05 ASPHALT

A. The asphaltic concrete surface course shall be in accordance Florida Department of Transportation Standard Specifications for Type S-1 and Type S-3 Asphaltic Concrete Surface Course.

B. Pavement within public road right-of-way, which has been disturbed by this construction, shall be replaced with the same type and thickness to match the existing pavement section.

C. General composition of mixtures:

1. The aggregate in the asphaltic concrete shall be crushed stone and manufactured sand screening of natural sand or combination of both when necessary to meet requirements of composition of mix. All aggregate shall have a Los Angeles abrasion loss of less than 40%.

2. The mineral aggregate shall be so graded, and the prescribed constituents, prepared as hereinafter set out, shall be combined in such proportions as to produce a mixture conforming to the following general composition limits by weight:

		S-1	S-3
Constituent	Passing Sieve	Percent by Weight	Percent by Weight
Course Aggregate	3/4"	100	100
	1/2"	80-100	100
	3/8"	75-93	88-100
	No. 4	47-75	60-90
Total Course Aggregate	No. 10	31-53	40-70
Fine Aggregate	No. 40	19-35	20-45
	No. 80	7-21	10-30
Filler	No. 200	2-6	2-6

Constituent	Percent by Weight	
Total Fine Aggregate and Filler No. 10	100	100
Total Mineral Aggregate	100	100
Total Mix	100	100
Total Mineral Aggregate	91-95	
Asphalt Cement	5-9*	
(Bitumen) Total Mix	100	

*For highly absorptive aggregates the upper limit may be raised.

2.06 SEAL COATING

A. Homogeneous mixture of emulsified coal tar pitch, asbestos, sand and other inert fillers. It shall be easily remixed if settlement occurs in storage (except in the case of freezing). It shall be capable of application and complete coverage by rubber squeegee, brush, or approved mechanical method, to the surface of bituminous pavements at the spreading rate of point two (.2) to point three (.3) gallons per square yard in two (2) coats.

B. Approved product: "TARFEX" manufactured by Bitucote Products Co. or approved equal.

PART 3 EXECUTION

3.01 PREPARATION OF SUBGRADE

A. This work consists of bringing the bottom of excavations and top of embankments of the roadway between the outer limits of the shoulders or base course to a surface conforming to the grades, lines, and cross sections shown on the plans. The subgrade shall be of uniform density ready to receive the rock base of the paving course.

B. All soft and yielding material and other portions of the subgrade which will not compact readily shall be removed and replaced with suitable material and the entire subgrade brought to line and grade to provide a foundation of uniform compaction and supporting power.

C. Stumps, roots, and other deleterious organic matter encountered in the preparation of the subgrade shall be removed.

D. Where fills are required on areas covered or partly covered by existing paving, the entire area of such existing paving shall be scarified to a depth of at least six inches, and the scarified material spread evenly over the area to be filled to a width not less than that of the proposed paving.

E. Material for fills shall consist of sand or other suitable material approved by the ENGINEER free from stumps, roots, brushes, and other deleterious organic matter.

F. Where fill is more than one foot (1') in depth, the backfill material above the ground water table shall be compacted on one (8") depth lifts. Each individual layer of fill under the rock base shall have a density as specified in Section 02200, Paragraph 3.14.I. unless shown otherwise on the plans. Each individual layer of fill under the shoulder area shall have a density as specified in Section 02200, Paragraph 3.14.I., unless shown otherwise on the plans.

G. The bottom of all excavated areas and the top of all fills where rock base is to be constructed shall be thoroughly compacted by rolling. Water shall be used to insure thorough compaction. The stability of the top 12 inch thickness of the subgrade immediately under the base, for the full base width plus one foot (1') on each side, shall be at least LBR 40 as determined by AASHTO T-180.

H. Bring subgrade, which has been properly filled and shaped to a firm unyielding surface, by rolling an entire area with an approved vibratory power roller weighing a minimum of 10 tons.

1. Thoroughly compact area inaccessible to the roller with approved hand tamper.

2. Apply water sufficiently to compact the subgrade where the subgrade is of a dry, sandy nature and cannot be rolled.

I. The subgrade shall be maintained free from ruts, depressions or other irregularities until rock base material is spread.

J. For all roads and streets other than State Highway, the stabilized subgrade shall have a minimum Limerock Bearing Ratio (LBR) of 40, unless otherwise noted on the plans.

K. Where the bearing value of the existing subgrade is adequate without addition of stabilizing material, the subgrade shall be scarified and disked, harrowed, bladed or tilled for removal of boulders, roots, etc. to assure uniformity and thorough mixing of material to the full width and depth of required stabilization. The compacted subgrade shall conform to the lines, grades and cross-section shown on the plans.

L. Test subgrade for crown and elevation after preparation and immediately before base of paving course is laid.

1. Remove or add material and compact to bring to a correct elevation and uniform bearing if the subgrade is found not to be at the specified elevation at all points.

2. Adjust the manhole rims, catch basin frames and valve boxes where necessary to match proposed finish grade.

3.03 CONSTRUCTION OF BASE COURSE

A. This work consists of construction of lime rock base course for the asphaltic concrete wearing surface. The base course shall be constructed on the prepared subgrade in a 8" thick limerock bases constructed in two four inch lifts as shown on the drawings. Twelve (12) inch thick limerock bases shall be constructed in two six-inch lifts. The limerock base shall be a minimum LBR of 100.

B. Spreading Rock: The rock shall be transported to the points where it is to be used over rock previously placed, and dumped on the end of the preceding spread. It shall then be spread uniformly with hand tools, or mechanical equipment. In no case shall rock be dumped directly on the subgrade. No hauling shall be done over the subgrade.

C. Compacting Rock

1. Following spreading, the rock shall be rolled with a three wheel roller weighing not less than ten tons, water being added as required, until the entire depth of base is compacted into a dense unyielding mass.

2. No greater area of rock base shall be placed during any one day than that which can be rolled and compacted on the same day.

D. Finishing Base

1. After watering and rolling, the entire surface shall be thoroughly scarified to a depth not less than four inches (4") and shaped to exact slopes and cross section, re-watered and again thoroughly rolled. Rolling shall continue until the entire depth of base is bonded and compacted into a dense, unyielding mass, true to grade and cross section.

a. Any irregularities, which may develop in the surface during such finishing, shall be corrected by the removal or addition of rock as the case may be.

b. If at any time the subgrade material becomes churned up and mixed with the base rock, the CONTRACTOR shall dig out and remove the mixture, reshape and compact the subgrade and replace the materials removed with clean rock which shall be watered and rolled until satisfactorily compacted.

c. Where cracks or checks appear in the base either before or after priming, which in the opinion of the ENGINEER would impair the structural efficiency of the base course, the CONTRACTOR shall remove such cracks or checks by re-scarifying, reshaping, watering, rolling and adding rock where necessary.

d. During final compacting operations, if grading of any areas is necessary to obtain the true grade and cross section, the compacting operations for such

areas shall be completed prior to making the density tests on the finished base.

E. Inferior Rock: If in the opinion of the ENGINEER at any time during the progress of the work, rock of inferior quality is being delivered to the construction site, a laboratory analysis of the rock shall be made. Should the results of such tests indicate that the rock does not conform to specifications, the CONTRACTOR shall, at CONTRACTOR's own expense, remove such inferior material from the area indicated and deliver and spread satisfactory rock on said area.

F. Testing Surface: The finished surface of the rock base shall be true to the required cross section. Any irregularities in the grade greater than 1/4", as determined by placing a ten foot straight edge parallel with the centerline, shall be corrected by scarifying to a depth of three inches (3"), removing or adding rock as may be required and again watering, rolling, and compacting the scarified area. In testing the surface for irregularities, the measurements under the straight edge shall not be taken in small holes caused by individual pieces of rock having been pulled out by the road grader.

G. Thickness Determination: Thickness of the base shall be measured by intervals as required by the ENGINEER. Measurements shall be taken at various points on the cross section. The measurements shall be taken in holes through the base of not less than three inches (3") in diameter. Where the base is more than 1/2" less than the required compacted thickness, the CONTRACTOR shall correct such areas by scarifying and adding rock. The affected areas shall then be watered, rolled and brought to a satisfactory state of completion, and of required thickness and cross section.

H. Density: Density determinations shall be made by the CONTRACTOR or at intervals required by the ENGINEER. An average required density shall be as specified in Section 02200, Paragraph 3.14.I. No section of base shall be accepted when more than 10% of tests fall below 98% of maximum density and in no case shall a density of less than 96% of maximum be accepted.

I. Testing: The CONTRACTOR shall coordinate with ENGINEER for all testing. One test shall be made in accordance with AASHTO, T-180 for each class of material in the subgrade and base.

1. In place density tests in accordance with AASHTO T-147 shall be made in the locations shown on the plans. Two copies of the test reports will be sent directly to the ENGINEER for evaluation.

2. Any material, which fails to meet these specifications, shall be removed, replaced, and retested, all at the CONTRACTOR's expense.

3. Tests shall be taken at least every 1,000 square yards and taken at locations and lifts as directed by the ENGINEER.

3.04 PRIME COAT FOR BASE COURSE

A. Cleaning the prepared base:

1. Before any bituminous material is applied, all loose material: dust, dirt, caked clay and foreign matter which might prevent proper bond with the existing surface shall be moved to the shoulders, to the full width of the treatment, by means of revolving brooms or approved mechanical sweepers and by mechanical blowers, of approved types, supplemented by hand sweeping. Dust and other loose materials not removed by mechanical means shall be removed with hand brooms. Particular care shall be taken to clean the outer edges of the strip to be treated in order to insure that the prime coat will adhere. Sweeping and blowing shall be continued until all the loose dust and dirt is removed from the surfaces.

2. Application of bituminous material shall be made during the same day surface has been swept and as soon as practical thereafter.

B. Application for prime coat:

1. The bituminous material shall be applied to the clean dry surface of the rock base at such temperature as will insure uniform distribution. The amount applied will be at the rate of approximately 0.10 to 0.20 gallons per square yard of base area. The application shall be made by means of self-propelled pressure distributor operating under a pressure not less than 20 pounds per square inch. Application of bituminous material shall be made on only one-half of the width of base at one time.

2. The primed base shall then be covered with a uniform layer of clean sand, and kept thoroughly and uniformly covered by additional sand or sweeping until it shows no signs of picking up under traffic. For a period of one week after priming, the CONTRACTOR shall again broom any area where insufficient cover sand or excess of bituminous material causes "bleeding" and, if necessary, spread additional sand on such area.

C. Prime coat finish: After prime has cured or sat and been sanded, the shoulder shall be shaped to conform to all grade lines and cross sections and the entire area shall be rolled and compacted with a rubber tired roller or a power roller before asphalt surface is laid on the finished base.

3.05 BITUMINOUS TACK COAT

A. Before applying any bituminous material, all loose material: dust, dirt and foreign material, which might prevent proper bond with the existing surface, shall be removed for the full width of the application.

B. Application for tack coat:

1. The surface to receive the tack coat shall be clean and dry. The tack coat shall be clean and dry. The tack coat shall be applied with a pressure distributor except that on small jobs, if approved by the ENGINEER, the application may be made by other approved mechanical methods or by hand methods. The pressure distributor shall operate at a pressure not less than 20 pounds per square inch

and at a consistency such that it can be properly pumped and sprayed uniformly over the surface.

2. The bituminous material shall be applied in a thin uniform layer. The rate of application shall be between 0.02 and 0.10 gallon per square yard. The tack coat shall be applied sufficiently in advance of the laying of the wearing surface to permit drying, but shall not be applied so far in advance that it might lose adhesiveness as a result of being covered with dust or other foreign material. The tack coat surface shall be kept free from traffic until the wearing surface is laid.

3.06 ASPHALTIC CONCRETE WEARING SURFACE COURSE

A. Cleaning and preparing base:

1. Prior to the laying of the asphaltic concrete, the base of pavement to be covered shall be cleaned of all loose deleterious material by the use of power brooms or blowers. A tack coat shall be applied on all pavements. The tack coat shall not be applied so far in advance of laying operations as to allow shifting and sand or weather conditions to nullify its effectiveness.

2. After the surface has been thoroughly cleaned, all holes shall be filled with asphaltic concrete, if necessary, and thoroughly compacted to conform to the existing surface and to form a smooth surface.

B. Placing asphaltic concrete: The asphaltic concrete surface course shall be applied after the tack coat may be permitted a reasonable time for drying but not to an extent that the tack coat is allowed to lose its adhesiveness.

1. Machine spreading: Upon arrival the mixture shall be dumped into the approved mechanical spreader and immediately spread and struck off to the full width required and to such appropriate loose depth for each successive course that when the work is completed the required weight of the mixture per square yard or the specified thickness will be secured. An excessive amount of mixture shall be carried ahead of the screen at all times. Hand raking shall be done behind the machine as required.

2. Hand spreading: In limited areas, where, on account of irregularities or unavoidable obstacles, the use of mechanical spreading and finishing equipment is impractical, the mixture may be spread by hand, when so authorized by the ENGINEER.

3. The mixture shall be laid only when the surface to be covered is dry and only when weather conditions are suitable.

4. All structures which will be in actual contact with asphaltic mixture, including the face or surface of curbs or gutters and their vertical faces of existing pavements, shall be painted with a uniform coating of asphalt material to provide a closely bonded, watertight joint.

5. Where necessary, due to the traffic requirements, the mixture shall be laid in strips in such manner as to provide for the passage of traffic.

6. Any mixtures caught in transit by a sudden rain may be laid at the CONTRACTOR's risk. In no case shall the mixture be laid while rain is falling or when there is water on the surface to be covered.

7. The depth of the layer being spread shall be gauged as directed, and where the thickness fails to average the specified thickness, immediate steps shall be taken to correct the depth.

8. Before any rolling is started, the course surface shall be checked, any inequalities adjusted, and all drippings, fat sand accumulations from the screed and fat spots from any source shall be removed and replaced with satisfactory material.

9. Straight-edging and back patching shall be done after initial completion has been obtained and while the material is still hot. Any irregularity greater than 1/4" either longitudinally or traversely shall be corrected at this time.

10. No skin patching shall be done. When a depression is to be corrected while the mixture is hot, the surface shall be well scarified before the addition of fresh mixture. If irregularities occur and are not corrected while the mixture is still hot, the irregularities shall be cut out the full depth of the layer and replaced with fresh mixture.

C. Compacting mixture: After the spreading, the mixture shall be rolled when it has set sufficiently or come to the proper condition to be rolled, and when the rolling does not cause undue displacement or shoving.

1. The motion of the roller shall at all times be slow enough to avoid displacement and shall at once be corrected by the use of rakes and fresh mixture where required. The rolling shall include all transverse, longitudinal, and diagonal rolling, as may be necessary to obtain the maximum density.

2. The seal rolling with tandem steel rollers weighing from five to eight tons shall follow as close behind the spreader as is possible without picking up, or displacing or blistering the material.

3. Rolling with the self-propelled pneumatic-tired rollers shall follow as soon as possible and as close behind the seal rolling as the heat of the mixture will permit. The rolling shall be done while pavement temperature is between 175^{o} and 240^{o}F, and to such an extent that the self-propelled traffic roller shall cover every area of the surface with at least ten passes. Final rolling with tandem steel rollers shall be done after the rolling with self-propelled pneumatic tired rollers is completed. This final rolling shall be done before the pavement temperature is lower than 175^{o}F., and shall be continued until all roller marks or tire marks are eliminated.

4. Self-propelled pneumatic rollers shall be used for the rolling of patching and leveling courses. At the option of the CONTRACTOR, a steel-wheeled roller may be used to supplement the self-propelled pneumatic-tired rollers but not more than one steel-wheeled roller may be used in conjunction with the necessary number of self-propelled pneumatic-tired rollers. After final completion, the finished pavement shall at no point have a density less than 95% of the laboratory compacted density.

5. Rolling with the self-propelled pneumatic-tired roller shall proceed at a speed from six to twelve miles per hour and the rate of rolling shall not exceed 3,000 square yards per hour per roller. A sufficient number of self-propelled pneumatic-tired rollers shall be used so that the rolling of the surface for the required number of 10 passes within this maximum rolling rate shall not delay any other phase of the placing operation and not result in excessive cooling of the mixture before the rolling is complete. In the event that the rolling is not properly maintained to schedule as outlined above, the laying operation shall be discontinued until the rolling operations are sufficiently caught up.

6. In all places inaccessible to a roller, such as adjacent to curbs, headers, gutters, bridges, manholes, etc., the required compaction shall be secured with tamps. Depressions, which may develop before the completion of the rolling, shall be remedied by loosening the mixture laid and adding new material to bring such depressions to a true surface.

7. Should any depressions remain after final compaction has been obtained, the mixture shall be removed sufficiently and new material added to form a true and even surface. All high spots, high joints and honeycombs shall be adjusted as directed by the ENGINEER.

8. The mixture, after compaction, shall be of the thickness shown on the plans. The surface, after compactions, at no place shall snow an excess of asphalt and any area showing such excess or other defect, shall be cut out and replaced with fresh mixture and immediately compacted to conform with the surrounding area. Any mixture which becomes loose or broken, mixed with dirt in the wearing course shall be removed and replaced with fresh mixture which shall be immediately compacted to conform with surrounding areas.

9. Gasoline or oil from rollers shall not be allowed to deposit on the pavement and any pavement damaged by such deposits shall be removed and replaced as directed by the ENGINEER.

10. Any mixture remaining unbonded after rolling shall be removed and replaced.

D. Protection of pavement: After the completion of the pavement, no vehicular traffic of any kind shall be permitted on the pavement until it has set sufficiently as approved by the ENGINEER.

3.07 ABUTTING EXISTING PAVING

A. Meet elevation of existing paving and structures, facilities and utilities where applicable by sawcutting and removing no less than two (2) feet from abuttment. Milling of asphalt for a width of two (2) feet is an alternative if approved by engineer. Do not cover access covers, manhole tops, water meters or other similar devices.

3.08 PAVEMENT EDGES

A. Make edges of paved area conform to details and sections as shown on drawings.

3.09 SEAL COATING

A. Preparation of surface: Pavement to be sealed must be sound and free of loose dust, dirt, stones, or other foreign matter:

1. Repair any breaks or holes.

2. Scrape off accumulations of oil or fuel drippings and scrub with detergent and water. Remove all traces of detergent.

3. Soft or damaged spots must be repaired.

4. Flush entire area with clean water.

5. Pavement should be damp (no puddles or excess water) when seal coating is applied.

B. MIXING: Stir seal coating to a uniform consistency, use no solvents for thinning. Dilute seal coating with ten (10) percent to twenty (20) percent clean water, stirring to uniform consistency.

C. Application:

1. Seal coat may be applied to dampened surface with a rubber squeegee, soft bristled push broom, or approved mechanized equipment.

2. Seal coating may be poured directly onto pavement in a ribbon or windrow. Squeegee is placed on pavement at a slight angle to edge line of pavement and pulled in a window along pavement in parallel lines, always working excess material toward bottom edge of squeegee.

3. Seal coating should be applied in two (2) thin coats. After first coat is completely dry to touch, a second coat may be applied at right angles to the first. Rate of application will depend on porosity of surface.

4. Allow to cure for twenty-four (24) hours before opening to traffic.

5. Do not apply seal coating when temperature is below fifty (50) degrees Fahrenheit, or falling, before sealer is dry, or rain appears imminent or forecast.

6. Apply in strict accord with manufacturers published instructions.

3.10 FIELD QUALITY CONTROL

A. Test in place asphalt concrete course for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by OWNER's Representative and ENGINEER.

1. In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:

a. Base Course: Not greater than 1/2" of specified thickness.

b. Surface Course: Not greater than 1/4" of specified thickness.

2. Test finished surface of each asphalt concrete course for smoothness, using 10' straight edge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness.

a. Base Course Surface: 1/4".

b. Wearing Course Surface: 1/8".

B. Check surface area at intervals as directed by the ENGINEER.

C. Finish grade shall be within +0.01 feet of the grades indicated on the plans or + 0.05 feet as long as no ponding of water is observed after final paving.

3.11 CLEAN UP

A. Remove all debris and excess material immediately from project site.

B. Take down all barricades and temporary traffic markers, signals and signs only after all work included in this section is finished and inspected, and only after so directed by the ENGINEER.

C. Leave project area clean, orderly and free of any hazardous conditions.

3.12 CONSTRUCTION OF SWALES

A. This work consists of regrading existing swales and construction of new swales adequate for conveying storm water along the right-of-way to catch basins. The swale shall be shaped according to the cross section shown on the plan. In areas adjacent to existing roadways all swales shall be regraded to match their existing condition prior to construction, unless otherwise noted.

B. Requirements: All soft and yielding material and other portions of the swale which will not compact readily shall be removed and replaced with suitable material and the entire swale area brought to the proper grade. Stumps, roots, and other deleterious organic matter encountered during the shaping for the swale shall be removed.

C. The bottom of all excavated areas and the top of all fills of swale areas shall be thoroughly compacted by rolling. Water shall be used as necessary to insure thorough compaction. The stability of the top 12" thickness of swale area shall be at least LBR 40 as determined by ASSHTO T-180. Sufficient stabilizing material shall be added to swale area soil as required to provide the specified stability.

D. The CONTRACTOR shall place sod over existing areas damaged by construction. The sod shall match the existing sod type in the affected areas.

3.13 MEASUREMENT AND PAYMENT

A. Measurement and payment will be based on the actual quantities installed as more specifically discussed and described in SECTION 01025 for MEASUREMENT AND PAYMENT.

END OF SECTION

SECTION 02515 – PORTLAND CEMENT CONCRETE PAVEMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Provide all labor, materials, necessary equipment and services to complete the Portland Cement Concrete Paving work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

B. Including, but not necessarily limited to the following:

1. Fill, subgrade, and limerock base.

2. Concrete formwork.

3. Concrete reinforcement.

4. Expansion and contraction joints.

5. Concrete paving.

1.03 RELATED WORK

A. Section 02200 - Earthwork

B. Section 02513 - Asphaltic Concrete Paving - General

1.04 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies: Perform work in accordance with local building and other applicable codes.

B. Applicator Qualifications: Minimum of five years experience on 5 comparable concrete projects.

C. Inspection and Testing: Performed in accordance with Section 01410 unless otherwise specified.

1. Test cylinders - as per ASTM C-39.

a. Minimum of three (3) concrete test cylinders shall be taken for every 75 or less cubic yards of concrete placed.

b. Minimum of one (1) additional test cylinder shall be taken during any cold weather concreting, and be cured on job site under same conditions as the concrete it represents.

2. Slump test - as per ASTM C-143:

a. Minimum of one (1) slump test shall be taken for each set of test cylinders taken.

1.05 SUBMITTALS

A. Test Reports: Reports of concrete compression, yield, air content, and slump tests.

B. Certificates:

1. Manufacturer's certification that materials meet specification requirements.

2. Material content per cubic yard of each class of concrete furnished.

a. Dry weights of cement.

b. Saturated surface-dried weights of fine and coarse aggregate.

c. Quantities, type and name of admixtures.

d. Weight of water.

3. Ready-mix delivery tickets, ASTM C-94.

C. Shop Drawings:

1. Show sizes and dimensions for fabrication and placing of reinforcing steel and bar supports.

2. Indicate bar schedules, stirrup spacing, and diagrams of bend bars.

3. Detail items of form systems affecting appearance of Architectural concrete surfaces such as joints, tie holes liners, patterns and textures. Show items in relation to entire form system.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver reinforcement to project site in bundles marked with metal tags indicating bar size and length.

B. Handle and store materials to prevent contamination.

1.07 JOB CONDITIONS

A. Allowable concrete temperatures:

1. Hot weather: Maximum 90 degrees F as per ASTM C-94.

B. Do not place concrete during rain, unless protection is provided.

PART 2 PRODUCTS

2.01 FILL

A. As specified in Section 02513 - Asphaltic Concrete Paving - general.

2.02 SUBGRADE

A. As specified in Section 02513 - Asphaltic Concrete Paving – general.

2.03 LIMEROCK BASE

A. As specified in Section 02513 - Asphaltic Concrete Paving - general.

2.04 READY-MIXED CONCRETE

A. Cement: ASTM C-150, normal Type 1.

B. Admixtures:

1. Air entraining: ASTM C-260.

2. Chemical: Type (as required) ASTM C-494.

3. Fly ash and pozzolans: ASTM C-618.

C. Coarse aggregate: Not less than 50% clean, hard, crushed stone conforming to requirements of Table 2, size number 467 ASTM C-33.

D. Slump Range: 2-4 inches - tested according to ASTM designation C143 (AASHTO T119).

E. Air content: 5% + 1%.

F. Mix proportioning:

1. 28 day compressive strength of cured laboratory samples 3,000 psi.

2. Minimum cement content 5-sacks/cubic yard.

G. Curing Material: Liquid membrane, ASTM C-309, Type 1.

H. Mixes:

1. ASTM C-94.

2. Mix concrete only in quantities for immediate use.

3. Do not retemper or use set concrete.

2.05 REINFORCEMENT

A. Reinforcing Steel Bars: 60 psi yield strength; deformed billet steel bars; ASTM A-615, plain finish.

B. Welded Steel Wire Fabric: Plain type, ASTM A-185, hot dip galvanized, plain finish.

C. Tie Wire: FS QQ-W-461-G, annealed steel, black, 16-gage minimum.

D. Bar Supports: Conform to "Bar Support Specifications," CRSI Manual of Standard Practice.

2.06 FORMWORK AND ACCESSORIES

A. Formwork: Matched, tight fitting and adequately stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of concrete, conform with ACU 347, Chapter 3, Material and Form Work.

B. Lumber:

1. Softwood framing lumber: Kiln dried, PS-20.

2. Boards less than 1-1/2 inch thick and 2 inches wide, used for basic forms and form liners: Kiln dried.

3. Grade marked by grading rules agency approved by American Lumber Standards Committee.

4. Light framing or studs for board or plywood forms, 2 inches to 4 inches width and thickness, construction standard grade.

5. Boards for basic forms, construction standard grade.

6. Board surface: Smooth.

C. Plywood:

1. Exterior type softwood plywood, PS 1-66.

2. Each panel stamped or branded indicating veneer grades, species, type and identification.

3. Wood faced plywood for Architectural concrete surfaces.

a. Panel veneer grades: B-C.

b. Mill-oiled sides and mill-sealed edges of panels.

D. Ties:

1. Material: Steel

2. Type: Snap ties

3. Depth of breakback: 1 in.

4. Maximum diameter, 1/4 in.

E. Form coatings:

1. Non-staining type.

2. Agent: Pine oil derivative.

2.07 EXPANSION AND CONTRACTION JOINTS

A. Minimum 3/4-inch thick asphaltic impregnated fiberboard as per ASTM D-1751.

2.08 OTHER

A. Water: Clean and potable.

PART 3 EXECUTION

3.01 BARRICADES

A. Provide substantial temporary barricades around all areas of operation and maintain until work under this section is completed and approved.

B. Install temporary traffic, markers, signals, and signs as per D.O.T. Standard Specifications to:

1. Eliminate potentially hazardous conditions.

2. Maintain adequate traffic patterns free of conflict with work under this Contract.

3.02 PREPARATION OF SUBGRADE

A. Ensure rough grading has brought subgrade to required elevations.

B. Fill soft spots and hollows with additional fill.

C. Level and compact subgrade, to receive limerock base for concrete walks, curbs and gutters, to a density as specified in Section 02200, Paragraph 3.14.I.

3.03 FORMWORK

A. CONTRACTOR is responsible for the design, construction, removal and complete safety of formwork and shoring.

B. Form construction shall be provided to shape, lines dimensions of members shown: substantial, tight enough to prevent leakage, and properly braced or tied to maintain position and size, form sides and bottoms of members unless specifically excepted.

C. Fill voids of plywood joints with sealant and tool smooth.

D. Form vertical surfaces to full depth and securely position to required lines and levels. Ensure form ties are not placed so as to pass through concrete.

E. Arrange and assemble formwork to permit easy dismantling and stripping, and to prevent damage to concrete during formwork removal.

3.04 REINFORCING

A. Reinforce concrete curbs and gutters. Allow for minimum 1-1/2 inch concrete cover.

B. Do not extend reinforcing through expansion and contraction of joints. Provide dowelled joints through expansion and contraction joints, with one end of dowels fitted with capping sleeve to allow free movement.

3.05 FORMING EXPANSION AND CONTRACTION JOINTS

A. Place expansion and contraction joints at 20 foot intervals or as indicated on drawings. Where possible, make joints of curbs coincide with joints in paving slabs. When sidewalks abut building, provide continuous joint filled.

B. Fill joints with filler of required profiles set perpendicular to longitudinal axis of walks, curbs and gutters. Recess 1/2 inch below finished concrete surface.

3.06 INSPECTION

A. Assure that excavation and formwork are completed, and excess water is removed.

B. Check that reinforcement is secured in place.

C. Verify that expansion joint material, anchors, and other embedded items are secured in position.

3.07 PREPARATION FOR PLACEMENT

A. Notify the ENGINEER and other inspectors at least 36 hours prior to inspection.

B. Equipment forms, and reinforcing shall be clean and wet down, reinforcing firmly secured in place, runways set up and not resting on or displacing reinforcing.

3.08 PLACING CONCRETE

A. Place concrete, screed and wood float surfaces to a smooth and uniform finish, free of open texturing and exposed aggregate.

B. Avoid working mortar to surface.

C. Round all edges, including edges of expansion and contraction joints, with 1/2 inch of radius edging tool.

D. Where concrete curbs are adjacent to pavement slabs, make concrete curbs and gutters integral with slabs. Make expansion and contraction joints of curbs coincide with slab joints.

E. Ensure finished surfaces do not vary from true lines, levels or grade by more than 1/8 inch in 10 feet when measured with straightedge.

F. Apply curing compound on finished surfaces immediately after finishing. Apply in accordance with manufacturer's recommendations.

3.09 PROTECTION OF COMPLETED WORK

A. During curing period, protect concrete from damaging mechanical disturbances, water flow, loading, shock, and vibration.

3.10 CLEAN UP

A. Remove all debris and excess material immediately from project site.

B. Take down all barricades and temporary traffic markers, signals and signs only after all work included in this section is finished and inspected, and only after so directed by OWNER's Representative.

C. Leave project area neat, orderly and free of any hazardous conditions.

3.11 MEASUREMENT AND PAYMENT

A. Measurement and payment will be based on the actual quantities installed as more specifically discussed and described in SECTION 01025 for MEASUREMENT AND PAYMENT.

END OF SECTION

SECTION 02577 – PAVEMENT MARKINGS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this section.

1.02 WORK INCLUDED

A. The work covered by this section shall include the furnishing of all labor, equipment and materials necessary to construct and install all pavement marking, striping and car stops in accordance with the plans and these specifications.

1.03 RELATED WORK

A. Section 02513 - Asphaltic Concrete Paving - General

B. Section 02515 - Portland Cement Concrete Paving

1.04 QUALITY ASSURANCE

A. Perform all work in accordance with the requirements of local agencies.

1.05 SUBMITTALS

A. Submit copies of product and material information and data..

PART 2 PRODUCTS

2.01 Chlorinated rubber-alkyd type, as per Fed Spec. No. TT-P-115, Type III, or shall be Code T-1, conforming to Section 971-12.2 of the Florida Department of Transportation Standard Specifications.

1. Paint shall be factory mixed, quick drying and non-bleeding type.

2. Color shall be as per D.O.T. requirements.

3. Striping, arrows, lane markers and stop bars shall be provided with paint containing reflective additive.

2.02 Thermoplastic paint shall conform to the applicable Technical Specifications of the Florida Department of Transportation and City of Fort Lauderdale Standards

2.03 Traffic paint shall conform to the applicable Technical Specifications of the Florida Department of Transportation and City of Fort Lauderdale Standards

2.04 Reflectors shall be in accordance with City of Fort Lauderdale Standards.

PART 3 EXECUTION

3.01 TRAFFIC AND LANE MARKINGS

A. Sweep dust and loose material from the sealed surface.

B. Apply paint striping as indicated on the drawings, with suitable mechanical equipment to produce uniform straight edges.

1. Apply in not less than (2) two coats as per manufacturer's recommended rates of applications.

C. Protect pavement markings until completely dry in accordance with manufacturers recommendations.

3.02 MEASUREMENT AND PAYMENT

A. Measurement and payment will be based on the actual quantities installed as more specifically discussed and described in SECTION 01025 for MEASUREMENT AND PAYMENT.

SECTION 02810 – UNDERGROUND IRRIGATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 SUMMARY

A. This Section includes the following:

2. Pipe and fittings, valves, sprinkler heads and accessories; and,

3. Irrigation control system.

1.03 WORK INCLUDED

A. The work is to include the furnishing of all labor, supplies, equipment and materials necessary to complete the installation of the pipe and fittings, valves, and sprinkler heads, controller, etc as shown on the Drawings as well as all other related responsibilities described in these Specifications and accompanying Plans.

B. The system is a fully automatic system comprised of numerous zones operated by the controller. This system has been designed to provide 100% coverage. It is the responsibility of the Contractor to insure the entire system is installed according to applicable laws, rules, regulations and conventions.

1.04 RELATED WORK

A. Section 02110 – Clearing

B. Section 02200 – Earthwork

C. Section 02221 – Excavation and Backfilling for Utilities

D. Section 02610 – Piping, General

E. Section 02641 – Valves, General

F. Section 02900 – Landscape Work

1.05 REFERENCE STANDARDS

A. American Society of Testing and Materials

1. ANSI/ASTM D2282 – Acrylonitrile-Butadiene-Styrene (ABS) Plastic pipe (SDR-PR);

2. ANSI/ASTM D2564 – Solvent Cement for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings;

3. ASTM B32 – Solder Metal;

4. ASTM B42 – Seamless Copper Pipe, Standard Sizes;

5. ASTM B88 – Seamless Copper Water Tube;

6. ASTM D1784 – Rigid and Chlorinated Polyvinyl Compounds

7. ATSM D2235 – Solvent Cement for Acrylonitrile - Butadiene - Styrene (ABS) Plastic Pipe and Fittings;

8. ASTM D2466 – Polyvinyl Plastic Pipe Fittings, Schedule 40; and,

9. ASTM D2467 – Polyvinyl Plastic Pipe Fittings, Schedule 80.

B. FS O-F-506 – Flux, Soldering; Paste and Liquid.

C. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum).

1.06 QUALITY ASSURANCE

A. Responsibility for Assuring Quality Work:

1. The CONTRACTOR's Superintendent shall be well versed in standard plumbing procedures, PVC assembly procedures, blueprint reading and coordination with other contracts or services in the project area.

2. All employees shall be competent and highly skilled in their particular job in order to properly perform the work assigned to them. The CONTRACTOR shall be responsible for maintaining the quality of material on the job throughout the duration of his responsibility.

B. Requirements of Regulatory Agencies:

1. All work and materials shall be in full accordance with the latest rules and regulations of safety order of Division of Industrial Safety; the Florida Building Code, the Uniform Building Code and other applicable laws and regulations, including any regulatory authorities having jurisdiction, and Plumbing Codes; and,

2. Should the contract documents be at variance with the aforementioned rules and regulations, notify the OWNER for instructions before proceeding with work affected.

C. Testing:

1. Preliminary inspection of completed installation will be made prior to backfilling of trenches and during hydrostatic testing; and,

3. Final inspection shall be made in conjunction with the final inspection of sod, shrub and tree planting.

D. Permits and Inspections:

1. Any permits for the installation or construction of any work included under this contract, which are required by any of the legally constituted authorities having jurisdiction, shall be obtained and paid for by the CONTRACTOR, each at the proper time; and,

2. The CONTRACTOR shall also arrange for and pay all costs in connection with any inspection and examination required by these authorities.

1.07 SUBMITTALS

A. Shop drawing or irrigation system design, including but not limited to piping, sprinkler heads, valves, wiring, and controls, if not provided in drawings.

B. CONTRACTOR shall furnish 2 manufacturer's service manuals to the OWNER. Manuals may be loose-leaf and shall contain complete drawings of all equipment installed showing components and catalog numbers together with the manufacturer's name and address.

B. Loose equipment to furnish: Loose irrigation equipment, operating keys and spare parts if shown on the drawings.

1. 3 quick coupler keys and matching swivel hose cells;

2. 2 valve keys for gate valves;

3. 2 keys for each controller;

4. 2 sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project; and,

5. 2 cover lifting tools for valve boxes.

D. Record Drawings:

The CONTRACTOR shall maintain one record set of blueline prints of the irrigation system in good condition at the site and mark on them the exact 'record'. The CONTRACTOR shall make a daily record of all work installed during each day. Drawings shall indicate the exact location of check valves, gate valves, wire locations, head layout, automatic valves, quick couplers, irrigation, drainage piping, etc. Locations should be shown by the triangular system of measurements from

easily identified permanent features, such as buildings, curbs, fences, walks, and by GPS, etc. Drawings shall show approved substitutions if any, of material including manufacturer's name and catalogue number. Drawings shall be to scale and all information shall be recorded in a neat, orderly way.

1. At the time of the irrigation mainline test, the CONTRACTOR shall provide a preliminary set of 'Record' drawings to the OWNER; and,

2. On or before the date of substantial inspection, the CONTRACTOR shall deliver 2 sets of As-Built drawings to the OWNER. The delivery of the prints shall not relieve the CONTRACTOR of the responsibility of furnishing required information that may have been omitted.

3. Immediately upon installation of any work which deviates from what is shown on the prints, the CONTRACTOR shall clearly indicate such changes in red pencil on the prints. Such changes shall include, but not be limited to, changes in (1) material, (2) sizes of material, (3) location, and (4) quantities. Dimensions shall be used where required such as, but not limited to underground utilities.

E. Substitutions:

1. The CONTRACTOR shall use materials as specified herein. Material other than that specified will be permitted only after written application by CONTRACTOR and written approval by the OWNER;

2. Substitutions will only be allowed when in the best interest of the OWNER; and,

3. The installation of any approved substitution is the CONTRACTOR's responsibility. Any changes required for installation of any approved substitution must be made to the satisfaction of the OWNER and without additional cost to the OWNER.

1.08 LOCATION

A. Bidders shall personally examine the sites and fully acquaint themselves with all of the existing conditions in order that no misunderstanding may afterwards arise as to the character or as to the extent of the work to be done; and, likewise, in order to advise and acquaint themselves with all precautions to be taken in order to avoid injury to persons or property of another. No additional compensation will be granted because of any unusual difficulties which may be encountered in the execution or maintenance of any portion of the work.

PART 2 MATERIALS

2.00 All materials to be as specified below or approved equal.

2.01 PIPE

A. Pipe locations shown on the plan are schematic and shall be adjusted in field.

B. All PVC pipe shall be new and free from defects and shall be continuously marked indicating size, schedule, type and Department of Commerce Standard Reference. Pipe shall be furnished in standard length of 20 feet.

C. Main: Main line PVC Class 200 SDR 21, non-gasketed, with solvent welded schedule 40 PVC fittings sized as noted on plans.

D. Laterals: All lateral pipe shall be PVC Class 200 SDR 21, non-gasketed, with solvent welded schedule 40 PVC fittings sized as noted on plans.

E. Galvanized Steel Pipe: All pressure mains which are exposed to possible damage, such as above ground, shall be threaded end, standard weight, Schedule 40 galvanized or coated steel.

F. Sleeves: All sleeves to be PVC Schedule 40 and sized as twice the size of the pipe it is carrying.

G. Conduit: All electrical conduit shall be gray PVC Schedule 40 with Underwriters' Laboratories label.

H. Risers & Nipples: to be Schedule 80 NPT riser threshold, length to be determined by use.

2.02 PIPE FITTINGS AND JOINTS

A. Main: Main line pipe joints shall be "belled" solvent-weld type.

B. Laterals: All PVC lateral pipe shall have PVC solvent weld Schedule 40 fittings and joints. The primer and solvent glue shall be compatible with the pipe and fittings. No male threaded PVC fittings are to be used, with the exception of street ells and riser adapters.

C. Galvanized Steel Pipe: Galvanized steel pipe shall have threaded standard, 150 pound galvanized malleable fittings.

D. All sprinkler heads shall be connected to the supply line with flexible pipe and ells, (Rain Bird flex pipe and barbed ells O.A.F.) as shown on the details.

2.03 SPRINKLER HEADS

A. All pop-up heads shall be mounted on flexible type swing joints.

B. 6” pop-up spray body.

B. Shall include a 30 psi pressure regulating device.

C. Use screens in all heads.

D. Pop-up sprays shall be Rain Bird RD1800 Series or equal.

2.03 DRIPLINE

A. Dripline Tubing with Emitters

1. Tubing, conforming to an outside diameter of 0.634 inches and an inside diameter of 0.536 inches and wall thickness of 0.049 inches.

2. Factory installed, pressure-compensating, inline emitters welded to the inner circumference of the polyethylene tubing at spacing specified by model number

3. Inline emitters designed to pressure-compensate by lengthening the emitter's turbulent flow path.

4. Consistent flow rate from each installed inline emitter when emitter inlet pressure is supplied between recommended operating range of 8.5 to 60 PSI.

5. Filtration for dripline tubing and emitters shall be 120 mesh (125 micron).

6. Dripline shall be Rain Bird XFD-09-12 or equal with 0.9 GPH emitters spaced 12" on-center.

B. Dripline Fittings.

1. Directional fittings and flush cap fittings constructed from molded UV-resistant ABS material with Buna-N rubber seal for long-term, leak free connections.

2. Adapters constructed from UV-resistant ABS materials for use exclusively with Easy Fit Compression Fittings.

3. Fittings are intended for use with polyethylene tubing from .630" to .710" OD to provide a leak-free compression fit.

4. Maximum pressure loss for the adapters estimated to be 0.1 PSI per adapter.

5. Operating pressure range for fittings and adapters is 0 to 60 PSI.

6. Compression fittings shall be Rain Bird Easy Fit Compression Fittings or equal.

2.04 IRRIGATION CONTROL WIRE

A. Irrigation control wire shall be thermoplastic solid copper, single conductor, low voltage irrigation controller wire suitable for direct burial and continuous operation at rated voltages.

B. Wire size, number and color as follows: #14 White for Common; #14 Black for Spare Common; #14 Red for Hot Wires; #14 Yellow for Spare Hot Wire.

2.05 WIRE CONNECTORS

A. All splices in irrigation control wire shall be accomplished with 3M-DBY,DBR connectors or approved equal.

2.08 AUTOMATIC CONTROL VALVES

A. The remote control valves shall be Rain Bird PESB series or equivalent.

7. The electric remote control valve shall be a normally closed 24 VAC 50/60 Hz (cycles/sec) solenoid actuated globe pattern. The valve pressure rating shall not be less than 200 psi.

8. The valve body shall be constructed of heavy-duty glass-filled UV-resistant nylon and have stainless steel studs and flange nuts; diaphragm shall be of nylon reinforced nitrile rubber.

9. The valve shall have both internal and external manual open/close control (internal and external bleed) for manually opening and closing the valve without electrically energizing the solenoid. The valve's internal bleed shall prevent flooding of the valve box.

10. The valve shall house a fully-encapsulated, one-piece solenoid. The solenoid shall have a captured plunger with a removable retainer for easy servicing and a leverage handle for easy turning. This 24 VAC 50/60 Hz solenoid shall open with 19.6 VAC minimum at 200 PSI (13,8 Bars). At 24 VAC, average inrush current shall not exceed .41 amps. Average holding current shall not exceed 0.28 amps.

11. The valve shall have a brass flow control stem for accurate manual regulation and/or shut-off of outlet flow. The valve must open or close in less than 1 minute at 200 PSI (13,8 Bars) and less than 30 seconds at 20 PSI (1,4 Bars).

12. The PESB valve shall have a self-cleaning stainless steel screen designed for use in dirty water applications.

13. The valve construction shall be such as to provide for all internal parts to be removable from the top of the valve without disturbing the valve installation.

B. Pressure Regulation

1. Electric remote control plastic valves shall have a pressure regulating module (Rain Bird PRS-D or equal) capable of regulating outlet pressure between 15 and 100 PSI. The regulating module shall have an adjusting knob for setting pressure and Schrader valve connection for monitoring pressure. The pressure shall be adjustable from the regulating module when the valve is internally manually bled or electrically activated.

C. Dripline Filtration

1. Basket style body and jar-top cap constructed of heavy-duty glass-filled, UV-resistant polypropylene, with 150 PSI (10,3 bar) operating pressure rating.

2. Indicator incorporated into filter cap that changes color from green to red during operation when the filter element requires cleaning.
3. Standard 200 mesh (75 micron) filter screen constructed of stainless steel attached to propylene frame.
4. Normally-open in-line pressure regulating device, constructed of durable, UV resistant non-corrosive material able to accommodate an inlet pressure rating of not less than 150 PSI, with preset outlet pressure of approximately 40 PSI.

D. The remote control valves shall be Rain Bird PESB series or equivalent.

2.09 GATE VALVES & ISOLATION VALVES

A. Size range 1” to 3” with all bronze body, solid wedge, screw-in bonnet and non-rising stem.

B. Class 125 threaded end connections

B. Gate valves shall be Nibco T-113 or equal.

2.10. VALVE BOXES

A. Specifications:

1. Valve boxes shall be used as durable, rigid enclosures for valves or other irrigation system components requiring subsurface protection for installation and maintenance.

2. Shall be made of structural foam HPDE resin that is resistant to ultra-violet light, weather, moisture and chemical action of soils.

3. Body and black lid shall be composed of 100% recycled HDPE.

4. Body shall have 2 large center knock-outs to accommodate up to 3.5” diameter pipe and 11 knock-outs to accommodate up to 2” diameter pipe. The knock-outs shall be molded into the sides that can be readily removed. The knock-outs shall remain an integral part of the body unless removed to run pipes or wires through.

5. Body shall have corrugated sides to provide strength both before and after knock-outs are removed.

6. Body shall have a grooved feature on one end, for inserting a shovel blade or other prying tool to provide easy lid removal.

7. Body shall have a wide flange which anchors box to grade, which minimizes settling.

8. Lid shall have beveled edges which help prevent damage from lawn equipment.

9. Body shall have a stepped feature on the bottom that securely interlocks two boxes together when mated bottom-to-bottom for use in a deep installation.

10. There shall be no hole in the valve box lid unless the bolt hole knock-out is removed in order to use the locking bolt.

11. Lids shall be clearly marked with the words “IRRIGATION CONTROL VALVE” molded onto the top. Lids shall have a marking area measuring at least 6” by 2” that is suitable for branding or other means of identification.

B. Sizes:

1. Standard rectangular size dimensions: 14.5” length x 9.4” width x 12.1" height.

2. Standard extension rectangular size dimensions: 20” length x 14.75” width x 6.75” height.

3. Jumbo rectangular size dimensions: 18.7” length x 12.2” width x 12.1” height.

4. Jumbo extension rectangular size dimensions: 19.8” length x 13.3” width x 6.8” height.

5. 7” round size dimension: 6.4” top diameter x 9” height x 9.8” bottom diameter.

C. Shall include a 5-year trade warranty.

2.11. CONTROLLER

A. The controller shall be of a hybrid type that combines electro-mechanical and microelectronic circuitry capable of fully automatic or manual operation. The controller shall be housed in a wall-mountable, weather resistant plastic cabinet with a key-locking cabinet door suitable for outdoor installation. The controller shall have a base unit with 4 stations as well as three expansion slots capable of receiving station modules of three stations each to create a controller of up to 13 stations.

B. The controller shall have three separate and independent programs which can have different start times, station timing and watering days. Each program shall have up to 4 start times available. The controller shall stack multiple start times in sequence to prevent hydraulic overload. The controller shall be capable of operating two 24 VAC solenoid valves per station plus a master valve or remote pump start relay. The controller shall operate on 120 VAC± 20% at 60Hz. The controller shall have an electronic, diagnostic circuit breaker that shall sense a station with an electrical overload or short circuit and shall bypass that station and continue operating all other stations.

C. The controller shall have a 365-day calendar with a permanent day off feature that allows a day(s) of the week to be turned OFF on any cycle. The controller shall have Cycle+Soak water management software which is capable of operating each station for a maximum cycle time and a minimum soak time to reduce water run-off. The controller shall be capable storing historical evapotranspiration data and adjusting daily runtimes based on rainfall and humidity collected by an external weather sensing module.

2.12. VACUUM BREAKER

A. The Pressure Vacuum Breaker shall be ASSE 1020 approved, and supplied with full port ball valves.

B. The main body and bonnet shall be bronze (ASTM B584), the loaded-air inlet shall use an silicone elastomer spring and seat disc.

C. The entire assembly shall be accessible for maintenance and testing without removing the device from the line.

D. The Pressure Vacuum Breaker shall be a WILKINS Model 720A or equal.

PART 3 EXECUTION

3.01 PIPE LAYOUT

A. Pipe locations shown on the plan are schematic and shall be adjusted in the field. When laying out mainlines place a maximum of 18" away from either the back of curb, front of walk, back of walk, or other hardscape to allow for ease in locating and protection from physical damage. Install all lateral pipe near edges of pavement or against buildings whenever possible to allow space for plant root balls. Always install piping inside project property boundary.

B. Pipe sizes shall conform to those shown on the drawings. No substitutions of smaller pipe sizes shall be permitted, but substitutions of larger sizes may be approved. All damaged and rejected pipe shall be removed from the site at the time of said rejection.

C. Contractor to ensure all mainline piping is properly restrained using mechanical joint fittings, restraining collars, threaded rods, thrust blocks, etc., as and where required. Contractor shall refer to pipe manufacturer's recommended installation practices for further direction.

D. Lay out irrigation system mainlines and lateral lines. Make the necessary adjustments as required to take into account all site obstructions and limitations prior to excavating trenches.

E. Cut all pipe square and deburr. Clean pipe and fittings of foreign material, then apply a small amount of primer while ensuring that any excess is wiped off immediately. Primer should not puddle or drip from pipe or fittings. Next apply a thin coat of PVC cement. First apply a thin layer to the pipe, then a thin layer inside the fitting, and finally another very thin layer on the pipe. Insert the pipe into the fitting. Insure that the pipe is inserted to the bottom of the fitting, then turn the pipe a 1/4 turn and hold for 10 seconds. Make sure that the pipe doesn't recede from the fitting. If the pipe isn't at the bottom of the fitting upon completion, the glue joint is unacceptable and must be discarded.

F. Pipes must cure a minimum of 30 minutes prior to handling and placing into trenches. A longer curing time may be required; refer to the manufacturer's specifications. The pipe must cure a minimum of 24 hours prior to filling with water.

3.02 SPRINKLER LAYOUT

A. Stake all sprinkler head locations. Adjust location and make the necessary modifications to nozzle types, etc. required to insure 100% head to head coverage.

B. Spray heads shall be installed 4" from sidewalks or curbed roadways and 12" from uncurbed roadways and building foundations. Rotors shall be installed 4" from sidewalks or curbed roadways, 12" from building foundations, and 36" from uncurbed roadways.

C. Shrub heads shall be installed on 3/4" SCH 40 PVC risers. The risers shall be set at a minimum of 18" off sidewalks, roadway curbing, building foundations, and/or any other hardscaped areas. Shrub heads shall be installed to a standard height of 4" below maintained height of plants and shall be installed within planted masses to be less visible and offer protection. Paint all shrub risers with flat black or forest green paint, unless irrigation system will be installed from a reuse water system with purple PVC risers.

D. Locate valves prior to excavation. Insure that their location provides for easy access and that there is no interference with physical structures, plants, trees, poles, etc. Valve boxes must be placed a minimum of 12" and a maximum of 15" from the edge of pavement, curbs, etc., and the top of the box must be 2" above finish grade. No valve boxes shall be installed in turf areas without approval by the irrigation designer; only in shrub beds. Never install valve boxes in sport field areas.

3.03 CONTROL WIRING

A. Irrigation control wire shall be thermoplastic solid copper, single conductor, low voltage irrigation controller wire suitable for direct burial and continuous operation at rated voltages.

B. Tape and bundle control wires every 10' and run adjacent to the mainline. At all turns in direction make a 2' coil of wire. At all valve boxes coil wire around a 3/4" piece of PVC pipe to make a coil using 30 linear inches of wire. Make electrical connections with 3M-DBY & DBR connectors.

C. Number all wires using an electrical book of numbers according to the plans. Number wires in all valve boxes, junction boxes and at the controller.

D. Wire sized, numbered and colored as follows:

1. #12 white for common

2. #12 spare black common

3. #12 red for hot wires

4. #12 spare yellow hot wire

E. Run spare wires into every RCV valve box. Install a minimum of 2 common and 4 hot wires in all directions to every RCV connected to its respective controller.

3.04 CONTROLLER GROUNDING

A. A. Contractor to utilize 4"X8'X5/8" copper grounding plates, 5/8"X10' copper clad grounding rods, 'One Strike' CAD wells at all connection points, #6 bare copper wire, and earth contact material. Install these and other required components as outlined below. Contractor to verify that the earth to ground resistance does not exceed 10 ohms. Contractor shall provide a written certification on a licensed electrical contractors letter head showing the date of the test, controller location, and test results. Each controller shall be so grounded and tested.

1. Electronic equipment and wires/cables connected to the electronic equipment shall be installed outside of the sphere of influence of the ground grid. This is necessary, to avoid re-injecting the discharged lightning energy into the equipment and the underground wires and cables.

2. Space grounding electrodes to prevent overlapping of spheres of influence. Rod spacing shall be twice the rod length. Examples - space 8-foot rods 16 feet apart, space 10-foot rods 20 feet apart. See figures 2 to 8 for spacing of electrodes in various ground grids.

3. During the installation process, it is usually necessary to bend grounding conductors as they are installed inside the equipment, through conduit, and inside buildings. Sharp bends in conductors create complex ground geometry that shall be avoided. Straight wire runs and simple geometry provide significantly better grounding. These bends must have a minimum included angle of 90° and a minimum radius of 8”, which equates to a standard 1 ½” pvc sweep ell. Bonding/shielding conductors shall be installed 12” to 15” below the ground surface, directly over the major bundles of wires/cables, and shall be connected to all the grounding grids at the equipment locations.

4. Ground rods shall be driven a minimum of 8' into the ground in a vertical or oblique position. The angle of the rod relative to the vertical shall be no more than 45°.

5. Ground plates shall be installed in a horizontal position a minimum of 30" below ground level and below the frost line. The plate shall be installed flat at the bottom of the trench.

6. "Earth contact materials" may be poured in the trench in powder form or they can be mixed with water to create a slurry. The latter minimizes dust particles in the air and makes for a cleaner installation. When mixing earth contact material, use 3.5 gallons of water with 50 pounds of material. Proper protective equipment shall be worn per the manufacturer's instructions.

7. Conduit and sweep ells used in grounding grids shall be plastic, as metallic types increase the inductance of the grounding conductors.

8. Ground clamps should be used to connect grounding conductors to ground rods on a temporary basis. Once satisfactory results are achieved, the clamps shall be replaced by permanent welded connections. Solder shall never be used in making connections as it melts during a lightning discharge. The basic tools necessary for installing a grounding grid are:

    1. A machine capable of cutting a trench that is 6" wide and 36" deep.

    2. A sledgehammer or power hammer to drive ground rods into the soil.

    3. A ground rod sleeve that prevents the top of a ground rod from mushrooming when it is being driven into the soil.

    4. A flint igniter to start the exothermic reaction in a cadweld one-shot.

3.05 POWER SUPPLY

A. Electrical supply for pumps and controllers to be provided by irrigation contractor. Contractor to coordinate with local utilities for the installation of and connection to available site power supply for required electrical components as set forth in the 100% IRRIGATION PLANS.

B. All electrical installation to comply with the National Electrical Code and any and all other applicable electrical codes, laws and regulations. A licensed electrician shall perform all electrical hook-ups

3.06. VALVES

A. No valves shall be set under roads, pavement or walks.

B. Clean interior of valves of foreign matter before installation.

C. Where pressure control valves are installed adjacent to remote control valve, they shall be housed in the same valve box.

D. Set valve box cover flush with finished grade.

E. Sequence all valves so that the farthest valve from the P.O.C. operates first and the closest to the P.O.C. operates last. The closest valve to the P.O.C. should be the last valve in the programmed sequence.

F. Adjust the flow control on each RCV to ensure shut off in 10 seconds after deactivation by the irrigation controller.

G. Using 3" high number stencils, paint the valve number in white on the lid of each valve box.

3.07 SLEEVING

A. Furnish and install where pipe and control wires pass under walks, paving, walls, and other similar areas.

B. Sleeving to be twice line size or greater to accommodate retrieval for repair of wiring or piping and shall extend 12 inches beyond edges of paving or construction.

3.08 TRENCHING AND BACKFILLING

A. Trenching

1. Excavate straight and vertical trenches with smooth, flat or sloping bottoms. Trench width and depth should be sufficient to allow for the proper vertical and horizontal separation between piping as shown in the pipe installation detail on the detail sheet.

2. Protect existing landscaped areas. Remove and replant any damaged plant material upon job completion. The replacement material shall be the same genus, species, and size of the material it is replacing. The final determination as to what needs to be replaced and the acceptability of the replacement material shall be solely determined by the owner or owner's representative.

B. Backfilling

1. The backfill 6" below and 6" above all piping shall be clean sand. All other trench backfill can be native material but shall not contain anything larger than 2" in diameter.

2. Main line pipe depth measured to the top of pipe shall be 36" minimum, including at vehicular crossings.

3. Lateral line depths measured to top of pipe shall be:

a. 18" minimum for 3/4"-3" PVC with a 30" minimum at vehicular crossings;

b. 24" minimum for 4" PVC and above with a 30" minimum at vehicular crossings.

4. Contractor shall backfill all piping, both mainline and laterals, prior to performing any pressure tests. The pipe shall be backfilled with the exception of 2' on each side of every joint (bell fittings, 90's, tees, 45's, etc.). These joints shall not be backfilled until all piping has satisfactorily passed its appropriate pressure test as outlined below.

3.09 TEST AND FLUSHING

A. Prior to the placement of heads, flush all lines for a minimum of 10 minutes or until lines are completely clean of debris, whichever is longer.

B. Use screens in heads and adjust heads for proper coverage avoiding excess water on walls, walks and paving.

C. Remove all remote control valves and cap using a threaded cap. Fill mainline with water and pressurize the system to 125 PSI. Monitor the system pressure at two gauge locations; the gauge locations must be at opposite ends of the mainline. With the same respective pressures, monitor the gauges for two hours. There can be no loss in pressure at either gauge for solvent-welded pipe. Gasketed piping shall lose no more water than allowed per the Florida State Building Code, Volume II Plumbing, Part VI, Appendix 'F'. Refer to this section for the formula to be used to calculate the maximum allowable water loss during the testing time. If these parameters are exceeded, locate the problem; repair it; wait 24 hours and retry the test. This procedure must be followed until the mainline passes the test.

D. The lateral lines must be filled and visually checked for leaks. Any leaks detected must be repaired. No pressure test of the lateral lines is required.

E. Once the mainline and lateral lines have passed their respective tests and the system is completely operational, a coverage test and demonstration of the system is required. The irrigation contractor must demonstrate to the owner or his/her representative that proper coverage is obtained and that the system works automatically from the controller. This demonstration requires that each zone be turned on in the proper sequence as shown on the plans from the controller. Each zone will be inspected for proper coverage and function. The determination of proper coverage and function will be solely determined by the owner or owner's representative.

F. Operational Testing - Upon completion of backfilling, finish grading and contouring, test the entire system for proper operation, including electrically actuating the remote control valves. Run each zone until water begins to puddle or run off. This will allow determination of the number of irrigation start times necessary to meet the weekly evapotranspiration requirements of the planting material in each zone. In sandy soils no puddling will occur. In these cases, calculate the required run times.

3.10 INSPECTION

A. The CONTRACTOR shall maintain proper facilities and provide safe access for inspection to all parts of the work.

B. Irrigation inspection shall consist of a minimum of:

1. Mainline pressure test;

2. Coverage test; and,

3. Final irrigation inspection.

C. If the laws, ordinances or any public authority require any work to be specifically tested or approved, the CONTRACTOR shall give the OWNER 3 days notice of its readiness for inspection.

D. The CONTRACTOR shall be solely responsible for notifying the OWNER where and when such work is in readiness for testing.

E. If any work should be covered up without approval of the OWNER it must be uncovered, if required, for examination at CONTRACTOR's expense.

F. No inspection will commence without 'Record' drawings and without completing previously noted corrections, or without preparing the system for inspection.

3.11 RESPONSIBILITY PRIOR TO FINAL ACCEPTANCE

A. The CONTRACTOR shall be responsible for maintenance until the inspection for completion and final acceptance. The responsibilities include the following:

B. Repair of all damage to installed material and equipment as needed.

C. Adjustment of all sprinkler heads with regard to proper height after landscape installation, arc coverage, radius and operation at least once a week.

D. The system shall be operational at least one month prior to Substantial Completion. Once a week after Substantial Completion, the CONTRACTOR shall clean, repair and adjust all valves and other controls. Also, check to insure that they are opening and closing properly.

E. Once a week the controllers shall be checked to insure that the clocks have the right time, that the program is properly set and that is properly operating all of the valves correctly. Following inspections, the pump enclosure is to be locked.

END OF SECTION

SECTION 02900 – LANDSCAPE WORK

PART 1 GENERAL

1.01 DESCRIPTION

A. A. Provide labor, materials, necessary equipment and services to complete the Trees, Plants and Groundcover work, as indicated on the Contract drawings, as specified herein or both.

B. Installation: All plant materials shall be of the specific size and quantity indicated on the drawings and in these specifications and shall be installed in strict accordance with sound nursery practices and shall include maintenance and watering for all work outlined on the drawings and specifications until acceptance.

C. Quantities and Locations: The Design Consultant and Florida Atlantic University (FAU) reserve the right to adjust the number and locations of the designated types and species to be used at any of the locations shown, in order to provide for any modifications which might become necessary.

1.02 EQUIPMENT

A. Maintain all equipment, tools and machinery while on the project in sufficient quantities and capacity for proper execution of the work.

1.03 RELATED WORK

A. Section 02210 - Site Grading

B. Section 02910 - Sodding

1.04 QUALITY ASSURANCE

A. Responsibility for Assuring Quality Work: The CONTRACTOR'S Superintendent shall be well versed in Florida plant material, planting operations, blue print reading, and coordination with other performing contracts or services in the job area.

All employees shall be competent and highly skilled in their particular job in order to properly perform the work assigned to them. The CONTRACTOR shall be responsible for maintaining the quality of the material on the job throughout the duration of the CONTRACT.

B. Correct Grade of Plants: In the event that it becomes apparent that any nursery supplying plants for this work has knowingly and consistently represented the grade of plants as being higher than their actual grades as determined under these provisions, all plants already delivered from such sources shall be removed from the job at the CONTRACTOR'S expense, and no further plants will be accepted from such nursery until written evidence is submitted and confirmed that all material for delivery has been inspected and approved by inspectors of the State Plant Board as being of the grade as represented.

C. Authority for Nomenclature, Species, Etc.: All plant material shall conform to the names given in Hortus Third, 1976 edition. Names of varieties not included therein conform generally with names accepted in the nursery trade.

D. Grade Standards: All plant materials shall be nursery grown except where specified as collected material, and shall comply with all required inspections, grading standards and plant regulations as set forth by the Florida Department of Agriculture's "Grades and Standards for Nursery Plants" revised 1973, or with any superseding specifications that may be called for on the Plans or in the Specifications. ALL PLANTS NOT LISTED IN THE GRADES AND STANDARDS FOR NURSERY PLANTS, shall conform to a Florida No. 1 as to: (1) Health and Vitality, (2) Condition of Foliage, (3) Root System, (4) Freedom from Pest or Mechanical Damage, (5) Heavily Branched and Densely Foliated according to the accepted normal shape of the species, or sport, (6) Form and branching habit.

E. Balled and Burlapped (B&B) and Wire Balled and Burlapped (WB&B) Plants: These plants shall be properly protected until they are planted. The plant shall be handled only by the earth ball and not be the plant itself.

Any (B&B) or (WB&B) plant which shows evidence of having handled by a method other than the method outlined above, and resulting in a cracked or broken ball or of the roots being loosened within the ball shall be rejected.

For plants grown in soil of loose texture, which does not readily adhere to the root system, (especially in the case of large plant material), WB&B plants may be specified. For WB&B plants, before plant is removed from the hole, sound hog wire shall be placed around the burlapped ball and looped and tensioned until the burlapped ball is substantially packaged by the tightened wire netting, such as to prevent disturbing of the loose soil around the roots during handling. Any wire, synthetic material or chemically treated material will be removed from the rootball at planting time, all ties shall be removed from the rootball and around the trunk at planting.

F. Container Grown Plants (CG): Any Container Grown (CG) plants, which have became "pot bound" or for which the top system is out of proportion (larger) to the size of the container, will not be acceptable.

With metal containers, unless the root-ball system slips easily and unbroken from the can, a nursery can-cutter shall be used to slit the can in such a way that the can may be opened fully.

CG plants shall not be removed from the can until immediately before planting, and with all due care to prevent damage to the root system.

G. Submit to the ENGINEER the names and locations of nurseries proposed as sources of acceptable plant material. The ENGINEER reserves the right to visit the nursery to inspect and/or select the specified material.

H. The ENGINEER will be included in the hand selecting of all Green Buttonwood trees for the project.

1.05 DELIVERY, STORAGE AND HANDLING

A. Inspection and Transporting: Movement of nursery stock shall comply with all Federal, State, and local laws and regulations. Therefore, required inspection certificates shall accompany each shipment, and shall be filed with the ENGINEER.

Wrap root balls with burlap. Wire wraps burlap if root ball is not sufficiently compacted. Palms will not require burlap wrapping if the following requirements are met:

1. Dug from marl or heavy soil that adheres to roots and retains shape without shattering.

2. Moistened material used to cover ball and roots not exposed to wind and sun.

3. Transport material on vehicles large enough to allow plants not to be crowded. Plants shall be covered to prevent wind damage during transit and shall be kept moist, fresh and protected at all times. Such protection shall encompass the entire period, which the plants are in transit, being handled, or are in temporary storage.

B. All plant material shall not remain on the work site longer than two (2) days prior to being installed.

1.06 SUBSTITUTIONS

A. Substitutions of plant types or change in the size of plant material will only be permitted upon submission of documented proof that the particular plant type and size specified is not obtainable.

B. Where B&B or WB&B plants are specified, CG plants of the same species, etc., will not be accepted. Where a B&B or WB&B is not specified on a particular plant material, B&B, WB&B or CG plants may be used provided they meet all specifications.

1.07 GUARANTEE

A. All new and relocated palms and trees shall be guaranteed for a minimum of one (1) calendar year from the time of final acceptance.

B. All new groundcover plantings shall be guaranteed for a minimum of one (1) calendar year from the time of final acceptance.

1.08 REPLACEMENT

A. The guaranteeing of plant material shall be construed to mean the complete and immediate replacement of plant material if it is:

1. Not in a healthy growing condition.

2. There is a question to its survival ability at the end of the guarantee period.

3. It is dead.

1.09 SIZE, QUALITY AND GRADE OF REPLACEMENT

A. Replacement plant material shall be of the same species, quality and grade as that of the plant to be replaced. The size of the replacement shall not necessarily be the same size as the original specified plant at its initial planting but shall closely match specimens of the same species. Replacements shall be guaranteed for a period equal to the originally specified guarantee. This guarantee period shall begin at time of plant replacement.

1.10 GUARANTEE NULL AND VOID

A. The guarantee shall be null and void for plant material which is damaged or dies as a result of "Act of God" limited to hail, freeze, lightening, winds which exceed hurricane force, and lethal yellowing, providing the plant was in a healthy growing condition prior to these "Acts of God".

PART 2 MATERIALS

2.01 PLANT MATERIAL

A. Florida No. 1: Except where another grade is specifically called for in the Plans, all plant material shall be no less than Florida No. 1 at the time of final inspection immediately prior to the acceptance by the OWNER.

B. Habit of Growth: All plant material shall have a habit of growth that is normal for that species and shall be sound, healthy, vigorous and free from insects, plant diseases, injuries, and dead limbs.

C. Branching, Leafing, Measurements and Ball Sizes:

1. Trees and Shrubs: Requirements for the measurement, branching character, ball diameter, depth and other standards shall follow the Code of Standards recommended by the American Association of Nursery Stock, Bulletin Z-60.1-1973 and as revised.

2. Palms: Requirements for the measurement of clear trunk, clear wood and graywood ball diameter and depth shall comply with requirements as set forth by the Florida department of Agriculture's "Grades and Standards for Nursery Plants, Part II for Palms and Trees".

D. Die-Back and Leaf-Drop: Plant material showing signs of die-back or leaf-drop will not be accepted and must be removed from the job immediately if so directed by the ENGINEER. Therefore, any plant material with tendencies toward leaf-drop or

dieback must be root pruned early enough to provide a sound network of hair roots prior to relocation to the job site.

E. Mechanical Destruction of Foliage: Mechanical destruction of foliage resulting from root pruning shall not effect more than 10% of the total foliage prior to planting on the job site. Loss of foliage caused by seasonal change will be accepted.

F. Spanish Moss: If Spanish Moss (Tillandsia usneoides) exists on plant material, it shall be completely removed prior to planting on the job site.

G. Palms: Before transporting, see Delivery, Storage and Handling; for requirements related to wrapping of root balls.

1. Remove a minimum of fronds from the crown of the palms to facilitate transporting and handling.

2. Palms with burn marks, nail holes, and frond boots on trunk shall not be accepted.

3. Using untreated burlap strip or untreated cotton twine, tie Sabal Palmetto buds and leave in place until Palmetto is established. Tying shall be as set forth in Florida Department of Agriculture's "Grades and Standards for Nursery Plants". Tying of other palms shall be at the option of the CONTRACTOR.

4. To reduce head volume, Palm fronds may be taper trimmed by not more than one-third (1/3).

5. Palm trees showing cable or chain marks and equipment scars shall be rejected.

H. Chlorosis: The allowable level of Chlorosis in foliage shall be as set forth in the Florida Department of Agriculture's "Grades and Standards for Nursery Plants".

2.02 PLANTING SOILS

A. General Type: All plant material with the exception of Sabal palmetto shall be planted with planting soil mixed with 50% original soil, if the soil is of good quality, as determined by the ENGINEER. The planting soils shall be sandy loam (50% sand, and 50% muck) typical of the locality. The soil must be taken from ground that has never been stripped, with a slight acid reaction (5.5 to 6.5 ph) and without an excess of calcium or carbonate. Soil shall be delivered in a loose friable condition.

B. Special Type: Planting soil for palms shall be a good grade of salt free sand, which is free of all weeds.

2.03 WATER

A. Water shall be potable, from municipal water supplies or other sources, which are approved by a public health department.

2.04 MULCH

A. Mulch shall be Eucalyptus mulch or other approved non-native tree bark mulch. It must be uniformly shredded and be free from pieces of bark larger than 1", foreign matter, weed seeds and any other organic or inorganic material. Submit sample for approval. CONTRACTOR shall apply one application at initial installation and a second application prior to final acceptance.

2.05 FERTILIZER

A. New Plant Material: Trees, palms and shrubs, fertilize with Agriform planting tablets, 20-20-5 formula, 21 gram or approved equal.

B. New Ground Covers: Fertilize with an approved fertilizer of fifty percent (50%) or greater organic 6-6-6 or 8-8-8 with minor elements including, but not limited to, iron zinc and manganese.

C. Composition of Quality: All fertilizer shall be uniform in composition and dry. Granular fertilizer shall be free flowing and delivered in manufacturers standard container with name of material, weight and guaranteed analysis printed on container. Tabletized fertilizer shall be delivered in unopened containers or boxes. All bags, containers or boxes shall be fully labeled with the manufacturer's analysis. Submit labels to ENGINEER for approval prior to placement of fertilizer.

D. All shall comply with the State of Florida fertilizer laws.

2.06 PRUNING PAINT

A. Pruning Paint shall be commercial tree paint, which is waterproof, antiseptic, adhesive, elastic and free of kerosene, water, cresol and any other substances harmful to plant material.

2.07 VEGETATIVE ROOT INHIBITOR

A. A vegetative root inhibitor shall consist of a polypropylene fabric with root control time-release modules of Trifluralin with an effective life of 100 years or approved equal.

B. Vegetative root inhibitor shall Bio-Barrier as manufactured by Reemay, Inc. or approved equal.

PART 3 EXECUTION

3.01 INSPECTION

A. Utilities: The location and existence of utilities (overhead and underground) shall be thoroughly investigated and verified by the CONTRACTOR before the work begins in the area of said utilities. The CONTRACTOR shall exercise care in digging and work so as not to damage existing utilities in said areas, such as underground pipes, cables, wires, etc. Should such overhead or underground obstructions be

encountered which interfere with planting, the ENGINEER shall be consulted immediately in order for a decision to made on the relocations of plant material to clear such obstruction. The CONTRACTOR shall be responsible for the immediate repair of any damage to utilities caused by CONTRACTOR's work.

3.02 PREPARATION

A. Staking Plant Locations: Plant locations must be staked or marked prior to plant hole excavation or placing on deck, by scaling the plants from existing features found on-site and shown on the plans or by given dimensions if shown.

B. Spacing of Shrubs: Shrub beds located next to another bed, walkway, structure, etc., shall have the plants along the perimeter spaced so that the plants can mature properly without growing into the other bed, walkway, structure, etc.

C. Excavation of Plant Holes: Excavation of plant holes shall be roughly cylindrical in shape with the sides approximately vertical. The ENGINEER reserves the right to adjust the size and shape of the plant hole and the location of the plant in the hole to compensate for unanticipated structures or unanticipated factors. All plant holes shall be sufficiently deep to allow the rootball to set on existing soil and have root collar at grade level. Plants shall be centered in the holes with the tree trunk locations scaled from existing permanent structures as shown on the drawings. Plants shall be set straight or plumb in locations. All plant holes to accommodate plants with ball sizes less than 24" in diameter shall be at least 18" greater than the diameter of the ball. All plants holes to accommodate plants with ball sizes two feet (2') and larger in diameter shall be at least twice the diameter of the ball. The excavated material from the plant holes may not be used to back-fill around the plant material. Such material shall be disposed of either on the project site or off the site as directed by the ENGINEER. Plant holes for shrub material planted in mass shall meet all requirements listed above for plant holes. However, they shall not be individual holes but one continuous hole or excavation. Plant holes for hedge material shall also meet all requirements listed above for plant holes, however, a continuous trench shall be used in lieu of individual holes.

3.03 INSTALLATION

A. Setting of Plants:

1. When lowered into the hole the plant shall rest on the prepared hole bottom such that the roots after settlement are level, or slightly above the level of its previous growth condition and the final level of the ground around the plant shall conform to the surrounding grade. The plants shall be set straight or plumb or normal to the relationship of their growth prior to transplanting. The ENGINEER reserves the right to realign any plant material after it has been set.

2. Palms of the Sabal species may be set deeper than the depth of their original growth condition in order to lessen the necessity for support or bracing. For such deeper planting however, it will be required that the underlying soil be friable and that the clear trunk requirements set forth in the plant list be maintained from the

finished grade and NOT from the previous grade of the palm trees before it was transplanted.

3. Plant material of the shrub category and smaller must be handled by the ball only. Plant material too large for hand handling, if moved by winch or crane, must be thoroughly protected from chain, rope or cable marks, girdling, bark slippage, limb breakage and any other damage that might occur by improper handling or negligence.

4. All palm trees handled by the trunks must be wrapped with burlap and wood battens, held in place by banding strips as called for in the details.

B. Backfilling:

1. Use planting soils specified in Article 2.02, Planting Soil. Backfill to the bottom two thirds of the planting hole and firmly tamp and settle by watering as backfilling progresses. After having tamped and settled the bottom two thirds (2/3) of the hole, thoroughly puddle with water and fill remaining one third (1/3) of the hole with planting soil, tamping and watering to eliminate air pockets.

C. Application of Fertilizer:

1. Fertilize New Planting (Trees, Palms and Shrubs) as follows:

a. Specified Container Size — Application Rate

1 gallon container	1 tablet
3 gallon container	2 tablets
5 gallon container	3 tablets
7 gallon container	5 tablets

b. Large tubs or boxes and B&B material shall receive one (1) tablet for each one-half (1/2) inch of trunk diameter (measured three (3) feet from ground). For large shrubs, one (1) tablet for each one (1) foot of height or spread.

D. Mulch: Within 24 hours after planting, planting areas must be mulched as called for in these specifications. The mulch shall be uniformly applied to a depth of two (2) inches over all shrub, tree and groundcover areas and any areas indicated on the plans.

E. Staking and Guying shall be installed within 24 hours; in accordance with details.

F. Initial Watering: Initially, water the plant material to develop uniform coverage and deep-water penetration of at least six inches (6"). Avoid erosion, puddling, and washing soil away from plant roots.

G. Hand Watering: Provide hand watering of plant material as necessary subject to weather conditions, to maintain healthy growing conditions until final acceptance. This shall be in addition to water received from irrigation system, if any.

H. Pruning:

1. The amount of general pruning shall be limited to the minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots as a result of transplanting operations. Pruning shall be done in such a manner as not to change the natural habit of shape of a plant, and in accordance with National Arborist Association standards for pruning.

2. All broken or damaged roots shall be cut off smoothly. The tops of all trees shall be pruned in a manner complying with standard horticultural practices. All cut surfaces of one-half inch (1/2") or more in diameter above ground level shall be treated with approved commercial tree paint.

I. Weeding: In the event that weeds or undesirable vegetation becomes prevalent to such an extent that they threaten plant material, they shall be removed as directed by the ENGINEER. If necessary, the plant material and/or planting soil shall be replaced as needed to eliminate the weeds at the expense of the CONTRACTOR.

3.04 CLEANING AND PROTECTION

A. Disposal of Trash: All debris and other objectionable material created through planting operations and landscape construction shall be removed completely on a daily basis from the job or as directed by the ENGINEER. Excess soil shall be disposed of as directed by the ENGINEER.

B. Responsibility for Protection and Restoration of Property: The CONTRACTOR shall be responsible for all damage to property whether it is accidental or necessary for the completion of the contract.

C. Protection Against Mechanical Damage: The CONTRACTOR's responsibility for protection against mechanical damage shall include providing protection from vehicles and providing warning signs and barricades as might be necessary and CONTRACTOR shall repair, restore and replace any planting areas which become damaged as a result of any negligence of the CONTRACTOR or CONTRACTOR’s employees in complying with these requirements. Coordination shall be with the OWNER and the ENGINEER.

D. Responsibility Prior to Final Acceptance:

1. Maintenance shall begin immediately after each plant is planted and continue until final acceptance.

2. Plants shall be watered by hose, soaking thoroughly each day for the first two weeks (14 calendar days) and every other day for the following two week period. Soaking then shall continue on a twice weekly basis for another period of three (3) weeks for material over five feet (5') height, amounting to a total of 28 days after installation of planting under five feet (5') and a total of 45 days for plants over five feet (5'). All watering is required without regard to an irrigation system.

3. Plant maintenance shall include watering, pruning, weeding, cultivating, mulching, tightening and repairing of guys, stakes, braces, etc., replacement of sick or dead plants, resetting plants to proper grades or upright position and maintenance of the watering saucer, and all other care needed for proper growth of the plants. Plant material rejected during the course of the construction shall be removed within five (5) working days and replaced before the inspection for completion will be scheduled.

4. During the maintenance period and up to the issuance of Certificate of Final Acceptance, the CONTRACTOR shall do all seasonal spraying and/or dusting of all planting. The materials and methods shall be in accordance with the highest standard nursery practices and as recommended by the CITY Agent, or Horticultural ENGINEER and approved by the ENGINEER, prior to implementation.

5. Planting areas and plants shall be protected against trespassing and damage. If any plants become damaged or injured they shall be treated or replaced, as directed and in compliance with this specification. No work shall be done within or over planting areas or adjacent to plants without proper safeguards and protection.

3.05 MEASUREMENT AND PAYMENT

A. Measurement and payment will be based on actual quantities installed as more specifically discussed and described in SECTION 01025 of MEASUREMENT AND PAYMENT.

END OF SECTION

DIVISION 3 - CONCRETE

SECTION 03010 – CONCRETE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Provide all labor, materials, necessary equipment and services to complete the concrete work, as indicated on the drawings, as specified herein or both, except as for items specifically indicated as "NIC ITEMS".

B. Including but not necessarily limited to the following:

1. Form work, shoring, bracing and anchorage.

2. Concrete reinforcement and accessories.

3. Cast-in-place concrete.

4. Plugging abandoned pipelines and/or structures in place.

1.03 RELATED WORK

A. Section 02510 - Concrete sidewalk

B. Section 02513 - Asphaltic Concrete Paving - General

C. Section 02515 - Portland Cement Concrete Paving.

D. Section 03300 - Cast-in-Place Concrete.

E. All applicable sections of Division 1, 2, 3 and 4.

1.04 QUALITY ASSURANCE

A. All work shall be in accordance with ACI 301, latest edition, a copy of which shall be maintained on site.

B. Requirements of Regulatory Agencies: perform work in accordance with local building and other applicable codes.

C. Installation: Performed only by skilled workmen with satisfactory record of performance on completed projects of comparable size and quality.

D. Inspection and Testing:

1. Test Cylinders - As per ASTM C-39.

a. Minimum of three (3) concrete test cylinder shall be taken for every 75 or less cubic yards of concrete placed each day.

b. Minimum of one (1) slump test shall be taken during any cold weather concreting, and be cured on job site under same conditions as the concrete it represents.

2. Slump Test - As per ASTM C-143.

a. Minimum of one (1) slump test shall be taken for each set of test cylinders taken.

1.05 SUBMITTALS

A. Test Reports: Reports of concrete compression, yield, air content and slump tests.

B. Certificates:

1. Manufacturer's certification that materials meet specification requirements.

2. Material content per cubic yards of each class of concrete furnished.

a. Dry weights of cement.
b. Saturated surface-dried weights of fine and course aggregate.
c. Quantities, type and name of all mixtures.
d. Weight of water.

3. Ready-mix delivery tickets as per ASTM C-94.

C. Shop Drawings:

1. Show sizes and dimensions for fabrication and placing of reinforcing steel and bar supports.

2. Indicate reinforcement sizes, spaces, locations and quantities or reinforcing steel, and wire fabric, bending and cutting schedules, splicing and supporting and spacing devices.

3. Indicate formwork dimensioning, materials, arrangement of joints and ties.

4. Shop drawings shall be prepared under seal of a Professional Structural Engineer, registered in the State of Florida.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver reinforcement to project site in bundles marked with metal tags indicating bar size and length.

B. Handle and store materials to prevent contamination.

1.07 JOB CONDITIONS

A. Allowable concrete temperatures:

1. Hot weather: Maximum 90 degrees F as per ASTM C-94.

B. Do not place concrete during rain, unless protection is provided.

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Materials shall conform to ACI 301, latest edition.

B. Plywood forms: Douglas Fir Species, solid one side, form grade, sound undamaged sheets.

C. Lumber: Southern Pine Species, No. 2 Grade, with grade stamp clearly visible.

D. Form Ties: Removable, snap-off metal, of fixed and adjustable length, cone ends.

E. Tubular Column Type: Round, spirally wound laminated fiber material, clearly visible.

2.02 REINFORCING STEEL

A. Reinforcing steel shall conform to ASTM A615, 60 ksi yield grade billet steel reformed bars; uncoated finish.

B. Welded steel wire fabric shall conform to ANSI/ASTM A185, plain type; coiled rolls, uncoated finish.

2.03 CONCRETE MATERIALS

A. Cement: shall conform to ASTM C150, normal Type II Portland, gray color.

B. Fine and coarse aggregate shall conform to ASTM C33.

C. Water: clean and not detrimental to concrete.

2.04 ADMIXTURES

A. Air Entraining: ASTM C-260

B. Chemical: Type (as required) ASTM C-494.

C. Fly Ash and Pozzolans: ASTM C-618

D. Color - Conditioned Concrete: ASTM C-494 and ASTM C-979

2.05 ACCESSORIES

A. Non-shrink grout: pre-mixed compound with non-metallic aggregate, cement, water reducing and plasticizing agents; capable of minimum compressive strength of 3500 psi.

B. Construction joints: locate and install construction joints, which are not shown on drawings, so as not to impair strength and appearance of the structure, as acceptable to the ENGINEER. Place construction joints perpendicular to the main reinforcement, continue reinforcement across construction joints.

C. Expansion joints: shall be a minimum of 3/4-inch thick asphalt impregnated fiberboard as per ASTM D-1751.

D. Form release agent shall be a colorless material, which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete.

E. Water shall be clear and potable.

2.06 CURING MATERIALS

A. Water shall be clean and potable.

B. Absorptive mat shall be burlap fabric of 9 oz./sq. yd. clean, roll goods complying with AASHTO M182, Class 3.

C. Membrane curing compound shall conform to ASTM C309.

D. Clear Sealer: "Clear Bond" as manufactured by Guardian Chemical Co., Dayton Day-Chem Cure-W (J-9-A) or approved equal.

E. Color curing compound shall be liquid membrane-forming conforming to ASTM C 309 two- component Lithochrome Colorwax by L.M. Scofield Company, or approved equal, color to match admixture for color-conditioned concrete.

2.07 CONCRETE MIX

A. Mix concrete in accordance with ASTM C94.

B. Concrete:

1. Compressive strength (28 days): 3000 psi.

2. Slump: 4(+) 1 inch.

C. Concrete / Flowable fill for grouting and plugging:

Compressive strength (28 days) 2000 psi.

Slump: as required to grout and plug.

PART 3 EXECUTION

3.01 FORMWORK ERECTION

A. Verify lines, levels, and measurement before proceeding with formwork.

B. Hand trimmed sides and bottom of earth forms; remove loose dirt.

C. Align form joints.

D. Do not apply form release agent where concrete surfaces receive special finishes or applied coatings, which may be affected by agent.

E. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors and other inserts.

3.02 REINFORCING

A. Place, support and secure reinforcement against displacement.

3.03 PLACING CONCRETE

A. Color Conditioned concrete, when batching, shall not be less than one-third of the capacity of the mixing drum (a minimum of four yards for a ten yard mixer) and will be in full cubic yard increments.

B. Notify ENGINEER minimum 24-hours prior to commencement of concreting operations.

C. Scratch, float, trowel, broom or belt finish surfaces, as scheduled or indicated on the Drawings.

D. Place 2000 psi concrete for pugging and grouting pipelines and structures in-place as required after proper connection to new service and function of system is complete.

3.04 TOLERANCES

A. Provide Class B tolerance to floor slabs according to ACI 301. Pitch to drains 1/4 inch per foot.

3.05 FINISHES FOR EXPOSED SURFACES

A. Provide exposed surfaces with finishes as called for on the Drawings.

3.06 CONCRETE CURING

A. Curing for standard grey work after finishing, cure concrete by keeping moist for one (1) week after placement. Floors and vertical surfaces may be sprayed with an approved curing compound to retard evaporation of water, if spraying is not objectionable because of future finishing requirements. Begin curing operations as soon as concrete has attained its initial set. Keep exposed concrete surface moist for at least one (1) week.

B. Apply a liquid membrane-forming compound, conforming with ASTM C 309, color to match that of the color condition concrete. Apply on flat work immediately after the finishing operation pursuant to the manufacturers recommendations.

3.07 MEASUREMENT AND PAYMENT

A. No separate measurement and payment is provided for work covered by this Section. All costs in connection with concrete work shall be included in the bid price of any item in the bid schedule for which concrete products, materials, or appurtenances are required.

END OF SECTION

SECTION 03100 – CONCRETE FORMWORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Formwork for Cast-In-Place Concrete, with shoring, bracing, and anchorage.

B. Openings for other affected work.

C. Form accessories.

D. Stripping forms.

1.03 RELATED WORK

A. Section 03010 - Concrete.

B. Section 03200 - Concrete Reinforcement.

C. Section 03300 - Cast-In-Place Concrete.

1.04 SYSTEM DESCRIPTION

A. Design, engineer and construct formwork, shoring and bracing to meet design code requirements, so that resultant concrete conforms to required shapes, lines, and dimensions.

1.05 QUALITY ASSURANCE

A. Construct and erect concrete formwork in accordance with ACI 301 and 347.

1.06 SUBMITTALS

A. Indicate pertinent dimensions, materials, and arrangement of joints and ties.

B. Prepare shop drawings under seal of Professional Structural Engineer registered in the State of Florida.

C. Manufacturers certification that materials meet specification requirements.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and handle materials in accordance with manufacturers recommendations.

B. Deliver form materials in manufacturer's packaging with installation instructions.

C. Store off ground in ventilated and protected area to prevent deterioration from moisture or damage.

D. Remove packaging from void forms.

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Plywood: Douglas Fir Species; medium density overlaid one side grade; sound, undamaged sheets with straight edges.

B. Lumber: Southern Pine Species; No. 2 grade; with grade stamp clearly visible.

C. Tubular Column: Round, of spirally wound laminated fiber type; surface treated with release agent; of size required.

2.02 FORMWORK ACCESSORIES

A. Form Ties: Snap-off metal of adjustable length; cone type; 1 1/2 inch break back dimension; free of defects that will leave holes no larger than 1-1/4 inches diameter in concrete surface.

B. Form Release Agent: Colorless material which will not stain concrete, absorb moisture, or impair natural bonding in color characteristics of coating intended for use on concrete.

C. Fillets for Chamfered Corners: Wood strips or rigid PVC plastic in maximum possible lengths.

D. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required; or strength and character to maintain formwork in place while placing concrete.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify lines, levels, and measurements before proceeding with formwork.

3.02 PREPARATION

A. Hand-trim sides and bottoms of earth forms; remove loose dirt prior to placing concrete.

B. Minimize form joints. Symmetrically align joints and make weathertight to prevent leakage of mortar.

C. Arrange and assemble formwork to permit dismantling, stripping, so that concrete is not damaged during its removal.

D. Arrange forms to allow stripping without removal of principal shores, where required to remain in place.

3.03 ERECTION

A. Provide bracing to ensure stability of formwork. Strengthen formwork liable to be overstressed by construction loads.

B. Camber slabs and beams to achieve ACI 301 tolerances.

C. Provide temporary ports in formwork to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain. Close ports with tight fitting panels, flush with inside face of forms, neatly lifted so that joints will be apparent in exposed concrete surfaces.

D. Provide expansion strips on external corners of beams and columns, where exposed.

E. Install void forms. Protect from moisture before concrete placement. Protect from crushing during concrete placement.

F. Construct formwork to maintain tolerances in accordance with ACI 301.

3.04 APPLICATION OF FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's instructions. Apply prior to placing reinforcing steel, anchoring devices, and embedded items.

B. Do not apply form release agent where concrete surfaces are scheduled to receive special finishes or applied coverings, which may be affected by agent. Soak contact surfaces of untreated forms with clean water. Keep surfaces wet prior to placing concrete.

3.05 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for work embedded in or passing through concrete.

B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

C. Install accessories in accordance with manufacturer's instructions, level and plumb. Ensure items are not disturbed during concrete placement.

3.06 FORM REMOVAL

A. Notify ENGINEER prior to removing formwork.

B. Do not remove forms and shoring until concrete has sufficient strength to support its own weight, and construction and design loads which may be imposed upon it. Remove load-supporting forms when concrete has attained 75 percent of required 28-day compressive strength, provided construction is reshored.

C. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees F for 24-hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

D. Formwork supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28-days. Determine potential compressive strength of inplace concrete by testing field-cured specimens representative of concrete location of members.

E. Reshore structural members due to design requirements or construction conditions to permit successive construction.

F. Remove formwork progressively so no unbalanced loads are imposed on structure.

G. Do not damage concrete surfaces during form removal.

H. Store reusable forms for exposed architectural concrete to prevent damage to contact surfaces.

I. Remove formwork in same sequence as concrete placement to achieve similar concrete surface coloration.

3.07 CLEANING

A. Clean forms to remove foreign matter as erection proceeds.

B. Ensure that water and debris drain to exterior through clean-out ports.

3.08 MEASUREMENT AND PAYMENT

A. No separate measurement and payment is provided for work covered by this Section. All costs in connection with concrete formwork shall be included in the bid price of any item in the bid schedule for which concrete formwork is required.

END OF SECTION

SECTION 03200 – CONCRETE REINFORCEMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Reinforcing steel bars, welded steel wire fabric, fabricated steel bar or rod mats for cast-in-place concrete.

B. Support chairs, bolsters, bar supports, spaces, for supporting reinforcement.

1.03 RELATED WORK

A. Section 03010 - Concrete.

B. Section 03100 - Concrete Formwork.

C. Section 03300 - Cast-In-Place Concrete.

1.04 QUALITY ASSURANCE

A. Perform concrete reinforcement work in accordance with CRSI Manual and Standard Practice, and Documents 63 and 65.

B. Conform to ACI 301.

1.05 SUBMITTALS

A. Indicate sizes, spacings, locations and quantities of reinforcing steel, bending and cutting schedules, splicing, stirrup spacing, supporting and spacing devices.

B. Prepare shop drawings under seal of Professional Structural ENGINEER registered in the State of Florida.

C. Submit mill test certificates and supplied concrete reinforcing, indicating physical and chemical analysis.

PART 2 PRODUCTS

2.01 MATERIALS

A. Reinforcing Steel: ASTM A615, 60-ksi-yield grade billet-steel, deformed bars, uncoated finish.

B. Welded Steel Wire Fabric: ANSI/ASTM A185 plain type; in coiled rolls; uncoated finish.

C. Stirrup Steel: ANSI/ASTM A82.

2.02 ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gauge annealed type.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during installation and placement of concrete, including load bearing pad on bottom to prevent vapor barrier puncture.

C. Chairs, Bolsters, Bar Supports, Spacers Adjacent to Architectural Concrete Surfaces: Plastic coated or stainless steel type; sized and shaped as required.

2.03 FABRICATION

A. Fabricate in accordance with ACI 315, providing concrete cover specified in Section 03300.

B. Locate reinforcing splices not indicated on Drawings at points of minimum stress. Indicate location of splices on shop drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Before placing concrete, clean reinforcement of foreign particles or coatings.

B. Place, support, and secure reinforcement against displacement. Do not deviate from alignment or measurement.

C. Do not dispose or damage vapor barrier required by Section 03300.

3.08 MEASUREMENT AND PAYMENT

A. No separate measurement and payment is provided for work covered by this Section. All costs in connection with concrete reinforcement work shall be included in the bid price of any item in the bid schedule for which concrete reinforcement is required.

END OF SECTION

SECTION 03300 – CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Provide all labor, materials, necessary equipment and services to complete the Cast-In-Place Concrete Work, as indicated on the drawings, as specified herein or both except as for items specifically indicated as "NIC ITEMS".

B. Including but not necessarily limited to the following:

1. Cast-In-Place concrete walls, footings, foundation walls, paving, walks, slabs, formwork, reinforcing and all other components as indicated on the Drawings.

1.03 RELATED WORK

A. Section 03010 - Concrete.

B. Section 03100 - Concrete Form work.

C. Section 03200 - Concrete Reinforcement.

D. Section 03370 - Concrete Curing.

E. Section 02510 - Concrete Sidewalk

1.04 QUALITY ASSURANCE

A. Applicator Qualifications: Minimum of five years experience on 5 comparable concrete projects.

B. Requirements of Regulatory Agencies: Perform work in accordance with local building codes.

C. Allowable Tolerances: Flat work true to plane 1/8 inch in 10 feet.

D. Slump tests as per ASTM C-143, and test cylinders as per ASTM C-39.

1.05 TESTS

A. Submit proposed mix design of each class of concrete to appointed firm for review prior to commencement of work.

B. Testing firm will take cylinders and perform slump and air entrainment tests in accordance with ACI 301.

C. Tests of cement and aggregates will be performed to ensure conformance with requirements stated herein.

D. Three (3) concrete test cylinders will be taken for every 75 cu. yds. or less of each class of concrete placed each day.

E. One (1) slump test will be taken for each set of test cylinders taken.

F. All testing shall be at the expense of the CONTRACTOR.

1.06 SUBMITTALS

A. Provide product data for specified products.

B. Test Reports: Reports of concrete compression, yield, air content, and slump tests.

C. Certificates:

1. Manufacturer's certification that materials meet specification requirements.

2. Material content per cubic yard of each class of concrete furnished.

a. Dry weights of cement.
b. Saturated surface-dried weights of fine and coarse aggregate.
c. Quantities, type and name of admixtures.
d. Weight of water.

3. Ready-mix delivery tickets, ASTM C-94.

D. Shop Drawings:

1. Show sizes and dimensions for fabrication and placing of reinforcing steel and bar supports.

2. Indicate bar schedules, stirrup spacing, and diagrams of bend bars.

3. Detail items of form systems affecting appearance of architectural concrete surfaces such as joints, tie holes, liners, patterns and textures. Show items in relation to entire form system.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver reinforcement to project site in bundles marked with metal tags indicating bar size and length.

B. Handle and store materials to prevent contamination.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Allowable concrete temperatures:
- Hot Weather: Maximum 90° F as per after C-94.

B. Do not place concrete during rain, unless protection is provided.

PART 2 PRODUCTS

2.01 MATERIALS & MANUFACTURERS

A. Concrete Ready-Mix concrete ASTM C-94.

1. Cement:

   a. ASTM C 150, Type II

2. Admixtures:

   a. Air entraining: ASTM C-260
   b. Chemical: Type (as required) ASTM C-494.
   c. Fly ash and pozzolans: ASTM C-618
   d. Vapor Barrier: 6-mil thick film of type recommended for below grade application.

3. Coarse aggregate: Not less than 50% clean, hard, crushed stone conforming to requirements of Table 2, size number 467 ASTM C-33.

4. Slump 4 in. maximum; plus tolerance 0, minus tolerance 1 in.

5. Air content: 5% + 1%.

6. Mix proportioning:

   a. In accordance with ASTM C-94.
   b. 28 day compressive strength of moist cured laboratory samples 3,000 PSI.
   c. Use set retarding admixtures during hot weather only when approved by ENGINEER.
   d. Minimum cement contents 5 sacks/cubic yards.
   e. Add air-entraining agent to concrete work exposed to exterior.

7. Curing Material: Liquid membrane, ASTM C-309, Type 1.

8. Mixes:

   a. ASTM C-94.
   b. Mix concrete only in quantities for immediate use.
   c. Do not retemper or use set concrete.

B. Bars.

1. Deformed billet steel: ASTM A 615, Grade 60.

C. Wire Fabric:

1. Welded Wire Fabric Steel: ASTM A 185

D. Tie Wire: FS QQ-W-461-G, annealed steel, black 16 ga. minimum.

E. Bar supports: Conform to "Bar Support Specification," CRSI Manual of Standard Practice.

F. Forms:

1. Conform with ACI 347, Chapter 3, Material and Form Work.

2. Lumber:

a. Softwood framing lumber: Kiln dried, PS-20.
b. Boards less than 1 1/2 in. thick and 2 in. wide, used for basic forms and form liners: Kiln dried.
c. Grade marked by grading rules agency approved by American Lumber Standards Committee.
d. Light framing or studs for board or plywood forms, 2 in. to 4 in. width and thickness Construction Standard grade.
e. Boards for basic forms Construction Standard grade.
f. Board surface: Smooth.

3. Plywood:

a. Exterior type softwood plywood, PS 1-66.
b. Each panel stamped or branded indicating veneer grades, species, type and identification.
c. Wood faced plywood for architectural concrete surfaces.
   1) Panel veneer grades: B - C.
   2) Mill-oiled sides and mill-sealed edges of panels.

4. Ties:

a. Materials: Stainless Steel.
b. Type: Snap Ties.
c. Depth of breakback: 1 in.
d. Maximum diameter 1/4 in.

5. Form coatings:

a. Non-staining type.
b. Agent: Pine oil derivative.

G. Water: Clean and potable.

PART 3 EXECUTION

3.01 FORMWORK

A. Conform to ACI 347, Chapter 2, Construction; and Article 4.2, architectural Concrete.

B. Framing, Bracing and Plywood Form Liners: APA Form V 345-72.

C. Provide temporary openings in framework for concrete placement.

D. Fill voids of plywood joints with sealant and tool smooth.

E. CONTRACTOR is responsible for the design, construction, removal and complete safety of formwork and shoring.

F. Form construction shall be provided to shape, lines dimensions of members shown; substantial, tight enough to prevent leakage, and properly braced or tied to maintain position and size, form sides and bottoms of members unless specifically excepted.

3.02 REINFORCING

A. Fabrication shall be provided to latest ACI Manual of Practice ACI-315.

B. Reinforcing free from excessive rust, scale or coating reducing bond. Bars bent cold in fabrication plant. Chairs, support bars, and other accessories furnished to carry and provide coverage as required by ACI Manual.

C. Unless otherwise indicated the minimum coverage is 3 in. for footings (slabs to have 3/4 in. minimum). Call any "crowding" of reinforcement to ENGINEERs attention during placing.

D. Splices shall be Mesh 6 in. lap, bars 30 diameter minimum.

E. Conduit or pipes embedded in concrete must have specific approval and be located to avoid cracking or reduction in strength. Provide extra strong pipe sleeves where pipes are allowed to pierce concrete beams or walls.

F. Placement:

1. Bar supports: CRSI 65.

2. Reinforcing bars: CRSI 63.

G. Steel Adjustment:

1. Move within allowable tolerances to avoid interference with other reinforcing steel, conduits, expansion joints, or embedded items.

2. Do not move bars beyond allowable tolerances without concurrence of ENGINEER.

3. Do not heat, bend or cut bars without concurrence of ENGINEER.

H. Splices:

1. Lap splices: Tie securely with wire to prevent displacement of splices during placement of concrete.

2. Splice devices: Install in accordance with manufacturer's written instructions.

3. Welding: Perform in accordance with AWS Standards.

4. Do not splice bars except at locations shown on drawings without concurrence of ENGINEER.

I. Wire Fabric:

1. Install in longest practicable length.

2. Lap adjoining pieces one full mesh minimum, and lay splices with 16-gage wire.

3. Offset end laps in adjacent widths to prevent continuous laps.

J. Cleaning: Remove dirt, grease, oil, loose mill scale, excessive rust, and foreign matter that will reduce bond with concrete.

K. Protection During Concreting: Keep reinforcing steel in proper position during concrete placement.

3.03 JOINTS

A. Construction pours shall be continuous pours except where joints are indicated. No additional joints except by special acceptance in writing by the ENGINEER. Allow no construction or interrupted pour joints in any exposed surface, unless treated as part of design.

1. Where indicated and as detailed, provide saw cut type construction joints of sizes as called for on the drawings.

B. Expansion joints shall be constructed as shown on drawings.

1. Expansion material shall be 1/2" continuous full depth strips set 1/2" below finish surface with 1/2" x 1/2" joint sealant filler above.

3.04 BUILT-IN ANCHORING DEVICES, FIXTURES, PIPE SLEEVES AND OTHER INSERTS

A. Build-in and coordinate as required and called for on the drawings all items to be constructed into concrete such as anchoring devices, fixtures, piping, sleeves and other inserts and items as required for a complete installation.

3.05 INSPECTION

A. Assure the excavation and formwork are completed, with smooth rubbed finish and that excess water is removed.

B. Check that reinforcement is secured in place.

C. Verify that expansion joint material, anchors, and other embedded items are secured in position.

D. Verify anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, held securely, and will not cause hardship in placing concrete.

3.06 CONCRETE QUALITY

A. Design of mix shall be a laboratory designed mix to satisfy the following requirements and shall be approved by the ENGINEER.

1. Ready mixed concrete as per ASTM C-94 with 28 day strength 3,000 PSI minimum, for all standard grey concrete work.

2. Proportion the concrete to work readily into forms and around reinforcement, without excessive manipulation, segregation or water gain. Approved additives may be used to achieve the above results.

3. Slump shall be maximum 3 in. for footings, and for all other concrete shall be 3 in. to 5 in.

4. Submit for approval representative test results by independent laboratory to substantiate proposed mix design.

3.07 PREPARATION FOR POURS

A. Notify the OWNER's Representative, ENGINEER and other inspectors at least 36 hours prior to inspection.

B. Equipment forms, and reinforcing shall be clean and wet down, reinforcing firmly secured in place, runways set up and not resting on or displaying reinforcing.

C. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Apply bonding agent in accordance with manufacturer's instruction.

D. At locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels, and pack solid with non-shrink grout.

3.08 PLACING

A. Mixing and conveying shall be as per ASTM C-94 and as follows:

1. Maximum elapsed time from addition of water to placing in forms -60 minutes, (total mixing time).

2. Concrete handled and placed by methods, which keep concrete plastic, prevent separation of materials, and do not displace reinforcement.

B. Deposit as close as possible to final position to avoid segregation of materials. Restrict drop to 3 foot maximum (less for exposed concrete), using tremie if necessary.

1. Compact by mechanical vibration to thoroughly work around reinforcing and eliminate honeycomb.

C. Place concrete in accordance with ACI 301.

D. Hot Weather Placement: ACI 301.

E. Cold Weather Placement: ACI 301.

F. Ensure reinforcement, inserts, embedded parts and formed joints are not disturbed during concrete placement.

G. Maintain concrete cover around reinforcing as follows:

Item	Coverage
Beams	1 1/2 inch
Supported Slabs	3/4 inch
Column Ties	1 1/2 inch
Walls (exposed to weather or backfill)	2 inch
Footings and Concrete Formed Against Earth	3 inch
Slabs on Fill	2 inch

H. Place concrete continuously between predetermined construction and control joints. Do not break or interrupt successive pours such that cold joints occur.

I. Saw cut control joints at an optimum time after finishing. Use 3/16 inch thick blade, cutting 1/3 depth of slab thickness.

J. Separate exterior slabs on fill from vertical surfaces with joint filler. Extend joint filler from bottom of slab to within 1/2 inch of finished slab surface.

K. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify ENGINEER upon discovery.

3.09 CONCRETE CURING

A. Curing for standard grey work after finishing, cure concrete by keeping moist for one (1) week after placement. Floors and vertical surfaces may be sprayed with an approved curing compound to retard evaporation of water, if spraying is not objectionable because of future finishing requirements. Begin curing operations as soon as concrete has attained its initial set. Keep exposed concrete surface moist for at least one (1) week.

B. Apply a liquid membrane-forming compound, conforming to ASTM C 309, color to match that of the color condition concrete. Apply on flat work immediately after the finishing operation pursuant to the manufacturers recommendations.

3.10 CONCRETE FINISHING

A. Unexposed concrete work shall be patched and repaired immediately after removal of forms.

1. Cut off metal ties a minimum of 1 in. back from surface of concrete.

2. Moderate honeycomb cut out and prepared for patching. Severe honeycomb with exposed steel reinforcing is to be removed or "united" at the discretion of the ENGINEER.

3. Wet areas for patching and pack carefully with rich mortar rubbed to match surface.

B. Provide concrete surfaces to be left exposed, walls, columns, beams, with smooth rubbed finish.

C. Provide Class B tolerances to floor slabs and toppings according to ACI 301.

D. Pitch to drains 1/4 inch per foot.

E. Exposed concrete work shall be patched and repaired as accepted by ENGINEER after consultation. Patching and rubbing will be kept to a minimum if possible, but when necessary will be done with great care to obtain maximum degree of matching in color and texture to adjacent finished concrete surfaces.

F. Monolithic finish using care to obtain a level surface; floors out of level or with variation greater than 1/8 in. in 10 feet shall be corrected.

G. All finishes shall be as called for on the drawings.

3.11 SEPARATE FLOOR TOPPINGS

A. Prior to placing, roughen concrete base course and remove foreign materials. Broom and vacuum clean.

B. Place dividers, edge strips, reinforcing and other items to be cast in.

C. Apply bonding agent on base course in accordance with manufacturer's instructions. Apply sand and cement slurry coat on base course immediately prior to placing toppings.

D. Place concrete floor toppings to required lines and levels.

3.12 PATCHING

A. Notify ENGINEER immediately upon removal of forms.

B. Patch imperfections.

3.13 DEFECTIVE CONCRETE

A. Modify or replace concrete not conforming to required levels and lines, details, and elevations.

B. Repair or replace concrete not properly placed or of the specified type.

3.14 FIELD QUALITY CONCRETE

A. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.15 PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. During curing period, protect concrete from damaging mechanical disturbances, water flow, loading, shocking, and vibration.

3.16 APPLICATION OF BOND COAT FOR CONCRETE LEVELING COAT FOR PAVERS AND TEXTURED SURFACES

A. Provide installation as per manufacturer's standard printed specifications, instructions and recommendations.

3.17 MEASUREMENT AND PAYMENT

A. No separate measurement and payment is provided for work covered by this Section. All cast in place concrete shall be included in the bid price of the relevant item in the bid schedule.

END OF SECTION

SECTION 03370 – CONCRETE CURING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Maintenance of conditions for proper concrete curing.

1.03 RELATED WORK

A. Section 02510 - Concrete Sidewalk

B. Section 03010 - Concrete

C. Section 03300 - Cast-in-Place Concrete

1.04 QUALITY ASSURANCE

A. Conform to requirements of ACI 301.

1.05 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings.

B. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.

1.06 SUBMITTALS

A. Provide product data for specified products.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient temperature at 70 degrees F. for three (3) days.

PART 2 PRODUCTS

2.01 MATERIALS

A. Water: Clean and not detrimental to concrete.

B. Absorptive Mat: Burlap fabric of 9 oz./sq. yd. clean, roll goods.

C. Curing Compound: As per ASTM C309.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify concrete surfaces are ready for curing.

3.02 CURING COMPOUND

A. Apply curing compound in two (2) coats with second coat at right angles to first.

B. Apply in accordance with manufacturer's instructions.

3.03 SPRAYING

A. Spray water over slab areas; maintain wet for three (3) days.

3.04 ABSORPTIVE MAT

A. Saturate burlap side of burlap fabric mat. Place over slab areas, burlap side down; lap edges and ends 12 inches. Maintain in place for seven (7) days.

3.05 CONCRETE CURING

A. Curing for standard grey work after finishing, cure concrete by keeping moist for one (1) week after placement. Floors and vertical surfaces may be sprayed with an approved curing compound to retard evaporation of water, if spraying is not objectionable because of future finishing requirements. Begin curing operations as soon as concrete has attained its initial set. Keep exposed concrete surface moist for at least one (1) week.

B. Apply a liquid membrane-forming compound, conforming with ASTM C 309, color to match that of the color condition concrete. Apply on flat work immediately after the finishing operation pursuant to the manufacturers recommendations.

C. Cure concrete as scheduled or indicated.

D. Remove absorptive mat after curing.

3.06 MEASUREMENT AND PAYMENT

A. No separate measurement and payment is provided for work covered by this Section. All costs in connection with concrete curing shall be included in the bid price of any item in the bid schedule for which concrete curing is required.

END OF SECTION

DIVISION 4 - MASONRY

SECTION 04100 - MORTAR

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. All applicable provisions of the Bidding and Contract Requirements, and Division 1 - General Requirements shall govern the work under this Section.

1.02 WORK INCLUDED

A. Mortar and grout for unit masonry, and stucco.

1.03 RELATED WORK

A. Section 03300 - Cast-In-Place Concrete.

B. Section 04110 - Cement Stucco.

C. Section 04200 - Unit Masonry System.

1.04 SUBMITTALS

A. Submit manufacturers certifications that product used meets the specifications.

B. Include design mix, environmental conditions, and admixture limitations.

C. Submit manufacturer's installation instructions.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Maintain materials and surrounding air temperature to minimum 50 degrees F. prior to, during and 48-hours after completion of masonry work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Portland Cement: ASTM C150, normal - Type 1.

B. Masonry Cement: ASTM C98, for general use.

C. Mortar Aggregate: ASTM 144, standard masonry type; clean, dry protected against dampness and foreign matter.

D. Grout Course Aggregate: Maximum 3/8 inch.

E. Grout Fine Aggregate: Mason's sand.

F. Hydrated Lime: ASTM C207, Type S.

G. Quicklime: ASTM C5, non-hydraulic type.

H. Premix Mortar: ASTM C387, using grey cement.

I. Water: clean and potable.

2.02 MIXES

A. Mortar for Load Bearing Walls and Partitions: ASTM C270, Type M, 2500 PSI.

B. Mortar for Non-load Bearing Walls and Partitions: ASTM C270, Type 2500 PSI.

C. Mortar for Reinforced Masonry: ASTM C476, Type PM.

D. Pointing Mortar: ASTM C270, Type M.

E. Pointing Mortar: One Part Portland cement, 1/8 part hydrated lime, and two parts graded (80 mesh) aggregate, proportioned by volume. Add aluminum tristerate calcium, stearate, or ammonium sterate equal to two percent (2%) of Portland cement weight (for exposed surfaces).

2.03 MORTAR MIXING

A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C270.

B. If water is lost by evaporation, retemper within two (2) hours of mixing. Do not retemper mortar after two (2) hours of mixing.

PART 3 EXECUTION

3.01 INSTALLATION

A. After inspection of concrete grout spaces by ENGINEER, plug cleanout holes in masonry units. Brace against wet grout pressure.

B. Install mortar and grout in accordance with Section 04200 and Section 03300.

C. Work grout into cores and cavities to eliminate voids.

D. Do not displace reinforcing steel placing grout.

E. Clean concrete grout spaces of excess mortar and debris.

3.02 MEASUREMENT AND PAYMENT

A. No separate measurement and payment is provided for work covered by this Section. All costs in connection with mortar products and work shall be included in the bid price of the applicable item in the bid schedule.

END OF SECTION

DIVISION 13 – SPECIAL CONSTRUCTION

SECTION 13000 – PARKING CONTROL EQUIPMENT (FOR REFERENCE ONLY)

PART 1 GENERAL

1.01 RELATED DOCUMENTS

B. All applicable provisions of the Bidding and Contract Requirements, and Division 1, General Requirements shall govern the work under this section.

B. Parking master meters are to be installed per the “Strada BNA Installation Manual” from Parkeon, as provided by the City.

PART 2 PRODUCTS

2.01 TECHNICAL DATA

A. TERMINAL

1. Dimensions (H x W x D): 61.5 x 16.9 x 11.4 in.

    a. Height with solar panel: 68.5 in.
    b. Weight with solar panel: 286 lbs.
    c. Thickness: 11 gauge steel construction, vault door 3/8 in. manganese steel

2. Power: Solar, AC mains and battery powered models available

3. Temperature range: Outdoor operation from -13oF to 130oF

4. Solar panel: 10W

5. Payment systems: Coin, bill, magnetic card, smart card and token

6. Ticket printing: Thermal graphic

7. Ticket capacity: Up to 6500

8. Ticket types: Self adhesive or paper

9. Ticket size (W x L):

10. 2.36 x 2.76 in. (standard size)

11. Display: 160 x 80 pixels, 2 x 4 in. graphical area, separate static area for permanent display of time & date.

12. Bill payment: Ergonomic and patented bill entrance: no flap, sensor detecting bill introduction, 4-way bill insertion, quick bill management cycle, high validation rate

13. Coin payment: Parkeon MSX motorized electronic acceptor, holds 50 coins in escrow, handling 14 coin denominations, including test token

14. Power consumption: Less than 3mA in standby mode

15. Operating System: 32 Bit Risc Processor, IrDA interface for PDA communication, memory, backed up with exchangeable data module.

2.02 STANDARDS:

A. ADA Standard for front & side reach (48 in.)
FCC for radio communications

1. Patented Collection System: Coinbox

2. Capacity: 2800 quarters

3. Volume: 164 ounces

4. Dimensions: (H x W x D): 6.7 x 5.7 x 11.4 in.

5. Weight: Empty 7.1 lbs., full 55 lbs.

B. Bill Stacker:

1. Capacity: 550 bills

2. Dimensions (H x W x D): 7.09 x 3.94 x 5.51 in

3. Weight empty: 2.87 lbs, full 3.75 lbs.

4. Colors: Avail-able in multiple colors.

PART 3 EXECUTION

3.01 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section.

END OF SECTION

DIVISION 16 - ELECTRICAL

SECTION 16000 – ELECTRICAL GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. The general provisions of the Contract, including General Conditions, apply to all the work specified in the Electrical 16000 Sections.

1.02 LAWS, PERMITS, FEES AND NOTICES

A. Secure and pay all permits, fees and licenses necessary for the proper execution of the work. Submit all notices and comply with all laws, ordinances, rules and regulations of any public agency bearing on the work. Contractor shall be a licensed electrical contractor in the county of construction.

1.03 DEPARTURES

A. If any departures from the Contract Drawings or Specifications are deemed necessary, details of such departures and the reasons therefore shall be submitted as soon as practicable to the CONSULTANT for advance written approval.

1.04 GUARANTEES

A. Final Acceptance
Furnish written guarantee covering all materials, workmanship, labor and equipment for a period of one (1) year from the date of acceptance as described in the Contract General Conditions.

B. The CITY reserves the right to operate and use all materials and equipment failing to meet the requirements of the Contract Documents until such unacceptable materials and equipment are replaced or repaired to the satisfaction of the CONSULTANT.

1.05 AS-BUILT INFORMATION

A. A set of "red-lined" electrical drawings shall be carefully maintained at the job site. Actual conditions are to be put on the drawings in red on a daily basis so the drawings will continuously show locations and routes of cable trays, conduits, pull-boxes, circuit numbers, and other information required by the CONSULTANT.

1.06 JOB SITE VISIT

A. Visit the project site before submitting a bid. Verify all dimensions shown and determine the characteristics of existing facilities which will affect performance of the work, but which are not shown on Drawings or described within these Specifications.

1.07 CLEANUP

A. Maintain a continuous cleanup during the progress of the work and use appointed storage areas for supplies. The premises shall be kept free from accumulations of waste materials and rubbish.

1.08 CUTTING AND PATCHING

A. Cut and prepare all openings, chases and trenches required for the installation of equipment and materials. Repair, remodel and finish in strict conformance with the quality of workmanship and materials in the surroundings. Obtain written permission from the CONSULTANT for any alterations to structural members before proceeding.

1.09 MAINTENANCE

A. Render all necessary measures to ensure complete protection and maintenance of all systems, materials, and equipment prior to final acceptance. Any materials or equipment not properly maintained or protected to assure a factory new condition at the time of final acceptance shall be replaced immediately at no additional cost to the CITY.

1.10 WATERPROOFING

A. Whenever any work penetrates any waterproofing, seal and render the work waterproof. All work shall be accomplished so as not to void or diminish any waterproofing bond or guarantee.

1.11 TESTS

A. Conduct an initial operating test of equipment test prior to the CONSULTANT's final approval. The Contractor shall demonstrate the equipment to operate in accordance with the requirements of these Specifications. The final acceptance tests shall be performed in the presence of the CONSULTANT or an authorized representative. The electrical contractor shall furnish all instruments, electricity and personnel required for the tests.

1.12 SUMMARY OF ELECTRICAL WORK

A. Provide all labor, materials, tools, supplies, equipment, and temporary utilities to complete the work shown on the Drawings and specified herein. All systems are to be completely installed and fully operational. Minimally the work includes, but is not necessarily limited to:

1. Lighting and power raceways and wire.

2. Parking Lot Lighting Equipment.

3. New Power service to parking lot lighting control panel as called out on drawings.

4. UL Listed Time Clock.

5. New Power to Parking Meters.

6. New Lighting Poles and fixtures.

7. ~~New Landscape lighting.~~

8. New spare raceways for future event power and lighting.

9. New Grounding.

10. Start-up testing and documentation.

11. New Electrical and Lighting equipment.

12. Demolition as indicated on drawings.

13. New Pull Boxes, Terminal Boxes & Water Proof splices.

14. Coordination with FPL of new power service to parking lot lighting equipment.

1.13 CODES AND STANDARDS

A. General Applicable provisions of the following codes and standards and other codes and standards required by the State of Florida and local jurisdictions are hereby imposed on a general basis for electrical work (in addition to specific applications specified by individual work sections of these specifications):

1. U.L.: Electrical materials shall be approved by the Underwriters' Laboratories, Inc. This applies to materials which are covered by U.L. standards. Factory applied labels are required.

2. National Electrical Code

3. Local Electrical Code

4. OSHA: Standards of the Occupational Safety and Health Administration are to be complied with.

5. NEMA: National Electrical Manufacturers Association Standards are to be met wherever standards have been established by that agency, and proof is specifically required with material submittals for switchboards, motor control centers, panelboards, cable trays, motors, switches, circuit breakers, and fuses.

6. ANSI: American National Standards Institute.

7. NESC: National Electrical Safety Code.

8. FBC: Florida Building Code.

1.14 ELECTRICAL TEMPORARY FACILITIES

A. The electrical contractor shall include in his bid the cost of furnishing, installing, maintaining, and removing all materials and equipment required to provide temporary light and power to perform the work of all trades during construction and until work is completed.

B. The existing BCTED Traffic Control enclosures shall remain operational during the construction period; any outage needed during construction shall be kept to a minimum and closely coordinated with the BCTED personnel, the CITY, the police department, and the Engineer.

C. The Contractor shall submit for review and approval its proposed sequence of demolition and equipment installation.

D. Safety

1. All reasonable safety requirements shall be observed to protect workers and the public from shock and fire hazards. Ground fault interrupters shall be employed in accordance with codes.

2. Ground wires are required in all circuits. All metallic cases shall be grounded.

3. Rain tight cabinets shall be used for all equipment employed in outdoor or in wet areas.

1.15 EXCAVATING FOR ELECTRICAL WORK

A. General

1. Excavation or drilling, backfill and repair of paving and grassing is to be in the bid of the electrical contractor. The actual work need not be performed by electrical trades. However, the electrical contractor is responsible for all excavation, drilling, dewatering, backfilling, tamping, and repair of pavements and grassing required in support of electrical work. All areas disturbed by electrical work shall be repaired to their original condition, or as indicated on the Drawings.

B. Coordination

1. The electrical contractor must check for existing utilities before commencing any excavation or drilling.

2. Contract Drawings and other trades are to be consulted to avoid interferences with other utilities on this project.

3. In the event of damage to existing utilities, the CONSULTANT shall be immediately notified, and damage shall be immediately repaired.

4. The CITY is to be consulted to ascertain locations of existing interferences by referring to "As Built" drawings and CITY's experience. The excavations are to be scheduled at the CITY's convenience.

C. Precautions

1. The electrical contractor must take every reasonable precaution to avoid interferences. When working in the vicinity of any interference or existing utilities, excavations shall be dug by hand.

1.16 ELECTRICAL SUBMITTAL

A. Submittals for Approval.

1. Refer to Contract General Conditions for additional instructions on the General Conditions and this Section, the more stringent requirements shall apply.

2. Shop drawings and manufacturer's data sheets are required for all electrical materials.

3. Submittals will not be accepted for partial systems. Submit all materials for each specifications section at one time. Submittals must be arranged, correlated, indexed and bound in orderly sets for ease of review.

4. Samples are to be supplied for any approved substitute

5. The following numbers of copies are required:

Shop drawings	8 sets
Samples	2 each
Manufacturer's data	8 sets
Certifications	2 sets
Test reports	8 sets
Warranties/Guarantees	2 sets

6. Submit shop drawings, manufacturer's data, and certifications on all items of electrical work prior to the time such equipment and materials are to be ordered. CONTRACTOR shall not order any equipment or materials without approval from the CONSULTANT. Submittals will not be accepted for partial system submittals; submit all data at one time. Submittals will be promptly marked "FURNISH AS SUBMITTED, "FURNISH AS CORRECTED," or “REVISE AND RESUBMIT.” The distribution and disposition of reviewed shop drawings shall be in accordance with Section 01340 of these Specifications.

7. Time delays caused by rejection of submittals are not cause for extra charges to CITY or time extensions.

8. Contractor shall be responsible for investigating existing systems or shop drawings in order to fully integrate the new equipment into the system. Adequate shop drawings may or may not exist for all existing systems.

B. Operation and Maintenance Manuals

1. Submit to the CONSULTANT 5 copies of all manufacture's service, installation and operation manuals, instructions and bulletins. These manuals shall be subject to review of the CONSULTANT. If acceptable they shall be forwarded to the CITY. If not acceptable they shall returned to the contractor for revision and resubmittal. Manuals shall contain but not be limited to the following:

a. Brief description of systems and basic features.
b. Manufacturer's name and model number for all components in the system.
c. List of local factory authorized service companies.
d. Operating instructions.
e. Maintenance instructions.
f. Trouble shooting instructions.
g. Manufacturer's literature describing each piece of equipment.
h. Power and control wiring diagrams.
i. Parts Lists.

1.17 ELECTRICAL PRODUCTS

A. Standard Products

1. Unless otherwise indicated in writing by the CONSULTANT, the products to be furnished under this specification shall be the manufacturer's latest design. Units of equipment and components of the same purpose and rating shall be interchangeable throughout the project. All products shall be newly manufactured. Defective equipment or equipment damaged in the course of installation or testing shall be replaced or repaired in a manner meeting with the approval of the CONSULTANT at no additional expense to the CITY.

B. Delivery, Storage, and Handling

1. Deliver products to project properly identified with names, model numbers, types, grades, compliance labels and similar information needed for distinct identification; adequately packaged or protected to prevent deterioration during shipment, storage and handling. Store in a dry, well ventilated, indoor space, except where prepared and protected by the manufacturer specifically for exterior instructions for storage locations.

C. Substitutions

1. Comply with instructions in the Contract General Conditions and Special Conditions and obtain pre-approval of the CONSULTANT regarding substitutions.

1.18 ELECTRICAL IDENTIFICATION

A. Color Coding Conductor colors shall be in accordance with the N.E.C. and NFPA requirements. Refer also to applicable sections of these specifications. Three phase feeder and branch circuits shall be identified as follows:

120/240V 1Phase	120/208V 3 Phase	277/480V 3 Phase
A- Black	A- Black	A- Brown
B-Red	B- Red	B- Purple
	C- Blue	C- Yellow
Neutral – White	Neutral – White	Neutral – Gray
Ground – Green	Ground – Green	Ground – Green

B. Nameplates

1. The following items shall be equipped with nameplates: All motors, motor starters, pushbutton stations, control panels, time switches, disconnect or relays in separate enclosures, receptacles, high voltage boxes and cabinets. All light switches and outlets shall carry a phenolic plate with the supply Special Electrical systems shall be identified at junction and pull boxes, terminal cabinets and equipment racks.

2. Nameplates shall adequately describe the function of the particular equipment involved. Nameplates for panelboards and switchboards shall include the panel designation, voltage and phase of the supply. For example, "Panel A, 277/480V, 3-phase, 4-wire." The name of the machine on the motor nameplates for a particular machine shall be the same as the one used on all motor starters, disconnect and P.B. station nameplates for that machine. Normal power nameplates shall be laminated phenolic plastic, white front and back with black core, with lettering etched through the outer covering; black engraved letters on white background. Lettering shall be 3/16 inch high at pushbutton stations, thermal overload switches, receptacles, wall switches and similar devices, where the nameplate is attached to the device plate. At all other locations, lettering shall 1/4 inch high, unless otherwise detailed on the Drawings. Nameplates shall be securely fastened to the equipment with No. 4 Phillips, round-head, cadmium plated, steel self-tapping screws or nickel-plated brass bolts. Motor nameplates may be non-ferrous metal not less than 0.03 inch thick, die stamped. In lieu of separate plastic nameplates, engraving directly on device plates is acceptable. Engraved lettering shall be filled with contrasting enamel. Equipment nameplate schedule for all equipment shall be submitted with shop drawing submittal for CONSULTANT's approval.

3. All junction and splice boxes shall be labeled using permanent label tags attached to boxes; not covers.

C. Wire and Cable Identification

1. All wire and cable shall be identified at each termination point and at each lighting control panel, pull box, splice box, junction box, terminal box, and manhole. Provide permanent, waterproof, non-metallic (paper unacceptable) tags indicating the circuit number in 3/16 inch letters.

2. Individual wires within equipment enclosures shall be identified using the equipment manufacturer's shop drawing wire numbers. Panel wire numbers and terminal numbers shall agree. Wire markers shall be T&B shrink-kon HVM marker heat shrink system or an approved equal.

D. Signs

1. Warning signs shall comply with OSHA requirements and reasonable safety precautions.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.01 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section. The Contractor shall submit for payment a document or form listing all installed equipment and work performed for the dates that each payment covers.

END OF SECTION

SECTION 16050 – BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.01 SUBMITTALS

A. Submit data sheets on all items per Section 16000.

1.02 APPROVED MATERIALS

A. All materials shall be U.L. approved

PART 2 PRODUCTS

2.01 GROUNDING MATERIALS

A. All ground rods shall be 20 foot 5/8" copperclad, unless otherwise indicated.

B. Ground wires shall be soft drawn copper sized per National Electrical Code, unless otherwise indicated.

2.02 CONDUIT

A. Galvanized Rigid Conduit (ANSI C80.1)

1. Rigid galvanized steel conduit “RGS” shall be U.L. approved, Schedule 40, mild steel pipe, zinc-coated on the inside and outside. Fittings shall be zinc-coated, U.L. approved. Comply with ANSI Spec C80.1 and Federal Spec WW-C-581.

B. PVC Conduit

1. PVC conduit shall be Schedule 80 unless otherwise noted, and shall be U.L. approved. Comply with Federal Spec WC-1094 and NEMA TC-1.

C. Flexible Conduit

1. All flexible conduits shall be liquid tight, made of corrosion resistant plated steel with extruded polyvinyl covering and watertight connectors.

2.03 CABLE, WIRE AND CONNECTORS

A. 600 Volt Power Wiring

1. Cable shall be rated for 600 volts and shall meet the requirements below:

a. Conductors shall be stranded.

b. All wire shall be brought to the job in unbroken packages and shall bear the date of manufacturing; not older than 12 months.

c. Type of wire shall be THWN except where required otherwise by the contract drawings.

d. No wire smaller than No. 12 gauge shall be used unless specifically indicated.

e. Conductor metal shall be copper.

f. All conductors shall be meggered after installation and insulation must be in compliance with the National Electrical Code.

2.04 TERMINATIONS AND SPLICES (600 VOLTS AND LESS)

A. Terminations of power cable shall be by means of U.L. approved connectors. All connectors shall meet U.L. 486B and shall be compatible with the conductor material.

B. Terminate all control and instrumentation cable with fork type compression lugs.

C. Splicing of power, control, or instrumentation wiring will not be allowed except by written approval of the CONSULTANT. Where splicing is allowed, splices shall be made with approved compression connectors, and splices shall be made waterproof regardless of location.

D. Where splicing is allowed inside pull boxes or enclosures; the Contractor shall use a water proof splices; these shall be 3M Scothcast Electrical Insulating Resin 4 with a 2 part epoxy insulating and encapsulating resin; no equal shall be allowed. Use these splice kits per the manufacturer's instructions.

2.05 CONCRETE MANHOLES AND PULL BOXES

A. Where indicated on plans; provide precast traffic rated concrete pull boxes and Quazite traffic rated pull boxes as indicated on the drawings. Pull boxes shall be installed on firmly compacted ground level and plumb at the elevations indicated on the drawings. Pull boxes shall be equipped with pulling-in irons opposite and below each duct way entrance. Pull boxes shall have cable supports so that each cable is supported at a minimum of 3 foot intervals within the pull box. Cable supports shall be fastened with galvanized bolts and shall be fabricated of fiberglass or galvanized steel.

B. Make provision for drainage as indicated on the drawings.

C. Traffic rated covers shall be provided for pull boxes with identification as follows:

1. "ELECTRIC" where voltages within are 600 volts and less.

2.06 BOXES

A. Boxes for wiring devices (switches and receptacles) installed outdoors shall be weatherproof fiberglass with polycarbonate cover plates. Junction boxes shall be fiberglass with gasketed covers. All boxes shall be securely mounted plumb and level in readily accessible locations. Indoor boxes shall have stainless steel cover plates.

B. All outdoor junction boxes and pull boxes shall be NEMA 4X stainless steel or fiberglass.

C. All fixtures shall be installed with its own dedicated pull box sized per NEC.

2.07 AUXILIARY GUTTERS

A. Gutters shall be provided per NEC article 374.

B. Minimum gauge steel shall be 12. Gutters shall be painted with one prime coat and two finish coats. Final coats shall match other electrical enclosures.

C. Submit shop drawing for all gutters.

D. Outdoor shall be NEMA 4X.

2.08 PANELBOARDS

A. Cabinets shall be of code gauge with ample wiring gutters for all wires and connections, minimum of 4 inches on all sides, minimum of 20 inches wide. Hinged door covering all switching device handles shall be included in all panel trims. Doors shall have semi-flush type cylinder lock and catch. All locks shall be master keyed with all other power and lighting panel boards. Provide a type-written directory on the inside of the door, under clear plastic frame.

B. Branch circuits shall be quick make, quick break, bolt on, thermal magnetic circuits of the number of poles type, size and interrupting rating indicated. Ground fault interrupting breakers shall be provided where indicated. Panel shall be provided with main circuit breaker where indicated.

C. Panel bus structure shall be for voltage, phase and capacity indicated. Bus bars shall be silver plated and sized in accordance with UL standards. Provide full size neutral and ground busses.

D. Where indicated on drawings, panel shall be provided with electrically operated, mechanically held, magnetic contactor of the size and rating indicated.

E. Manufacturer shall be Square D or an approved equal.

F. Material and NEMA rating of panelboards shall be as indicated on drawings.

G. Provide and install PPE Arc Flash protective labels per NEC 110.16.

2.10 MOUNTING AND SUPPORTING ELECTRICAL EQUIPMENT

A. Furnish and install all supports, hangers, and inserts required to mount fixtures, conduits, cables, pull boxes, and other equipment furnished under this section or furnished for installation under this section.

B. Perforated straps and wire are not permitted for supporting electrical devices. Anchors shall be of approved types.

C. All supports, hangers, hardware, etc. used outdoors, in corrosive atmosphere, or in hazardous areas shall be non-ferrous, corrosion resistant, or 316 stainless steel. Supports shall be selected to avoid galvanic reactions. Support devices shall be submitted for approval.

2.11 SAFETY DISCONNECT SWITCH

A. Fusible and non-fusible disconnect switches shall be heavy-duty, NEMA type H, quick-make, quick-break, visible blades, 600 volt, 3 pole with full cover interlock. Outside switches shall have copper Lugs.

B. Unless otherwise indicated, disconnects shall be 3-pole, non-fusible switch in a NEMA 4x, stainless steel enclosure.

C. Switches shall be horsepower rated, as manufactured by the Square D Co., or equal.

E. Provide 2 N.O. contacts to open when the switch is opened.

F. Units provided as main service disconnects, shall be heavy duty and service entrance rated. Mains shall be equipped with 100kAIC rated current limiting fuses.

PART 3 EXECUTION

3.01 GROUNDING

A. Provide ground system as indicated on the drawings and as required by the National Electrical Code.

B. All raceways require grounding conductors. Metallic raceways are not adequate grounding paths. Bonding conductors through the raceway systems shall be continuous from main switch ground buses to panel ground bars of panelboards, and from panel grounding bars of panelboards, and motor control centers to branch circuit outlets, motors, lights, etc. THESE GROUND CONDUCTORS ARE REQUIRED THROUGHOUT THE PROJECT REGARDLESS OF WHETHER CONDUIT RUNS SHOW GROUND CONDUCTORS ON THE DRAWINGS.

C. All connections made below grade shall be of the exothermic type.

3.02 GROUND TESTING

A. The CONTRACTOR shall test ground resistance of each grounding electrode or combination of electrodes. Testing shall not be performed within 48 hours of rainfall. All test equipment shall be provided by the CONTRACTOR and approved by the CONSULTANT. Dry season resistance of each electrode(s) shall not exceed 10 ohms. If such resistance cannot be obtained with the system as installed, the CONTRACTOR shall provide additional grounding rods as required.

B. All grounding system continuity shall be checked with a low range ohmmeter.

C. The CONTRACTOR shall provide a written report for all grounding resistance tests to the CONSULTANT. The report shall be signed by the tester and shall include: test date, time, weather conditions on test date and for three (3) consecutive days prior to the test date location and results.

3.03 CONDUIT

A. Locations: Conduits shall be used as follows:

1. Galvanized rigid conduit shall be used for all power service drop risers.

2. Schedule 80 PVC conduit shall be used underground and embedded in concrete. Where conduit turns up to come out of the ground, Schedule 80 PVC shall be used. All underground conduits shall have a minimum of 24 inches cover, under roadways shall have minimum 36 inches cover.

B. Installation

1. Conduits subjected to rough handling or usage shall be removed from the premises.

2. Conduits must be kept dry and free of water or debris with approved pipe plugs or caps. Care shall be given that plugs or caps be installed before pouring of concrete.

3. Where conduits pass through exterior concrete walls or fittings below grade, the entrances shall be made watertight. This shall be done by providing pipe sleeves in the concrete with one half inch minimum clearance around the conduits and caulking with askum and sealant, or by means of conduit entrance seals.

4. In furred ceilings, conduit runs shall be supported from structure, not furring.

5. Conduits entering panelboards, pull boxes, or outlet boxes shall be secured in place by galvanized locknuts and bushings, one (1) locknut outside and one (1) locknut inside of box with bushing on conduit end. The locknuts shall be tightened against the box without deforming the box. Bushings shall be of the insulating type.

6. Field conduit bends shall be made with standard tools and equipment manufactured especially for conduit bending.

7. Where embedded conduits cross expansion joints, furnish and install offset expansion joints or sliding expansion joints. Sliding expansion joints shall be made with straps and clamps.

8. Exposed runs of conduits shall be installed with runs parallel or perpendicular to walls, structural members or intersections of vertical planes and ceilings, with right angle turns consisting of symmetrical bends or pull boxes as indicated on the drawings. Bends and offsets shall be avoided where possible.

9. Conduits in structural slabs shall be placed between the upper and the lower layers of reinforcing steel, requiring careful bending of conduits. Conduits embedded in concrete slabs shall be spaced not less than eight (8) inches on centers or as widely spaced as possible where they converge at panels or junction boxes. Conduits

running parallel to slab supports, such as beams, columns and structural walls, shall be installed not less than 12 inches from such supporting elements. To prevent displacement during concrete pour, saddle supports for conduit, outlet boxes, junction boxes, inserts, etc., shall be secured.

10. Conduit runs shall always be concealed except where indicated on plans.

11. Pull wires shall be installed in all empty conduits. Pull wires shall be No. 12 gauge copper. All pull wires shall be identified with conduit number at each end.

12. The use of running threads is prohibited, and where some such device is necessary, split couplings, Erickson couplings, or equal shall be used. Where watertight conduit installations are required, watertight conduit unions shall be used.

13. Where conduits are run individually, they shall be supported by approved pipe straps, secured by means of toggle bolts on hollow masonry; expansion shields and machine screws or standard preset inserts on concrete or solid masonry; machine screws or bolts on metal surfaces, and wood screws on wood construction. The use of perforated straps or wires will not be permitted.

14. Concrete inserts and pipe straps shall be galvanized. Steel bolts, galvanized or cadmium-plated. Individual hangers, trapeze hangers and rods shall be prime-coated and painted.

15. Wire shall not be installed until all work of any nature that may cause damage is completed, including pouring of concrete. Mechanical means shall not be used in pulling in wires No. 8 or smaller.

16. Underground conduits not under concrete slabs, are to be buried at least two (2) feet below finished grade for circuits rated 600 volts or less, except under traffic areas where motor vehicles may cross. Under traffic areas, conduits are to be buried at least three (3) feet below finished grade.

17. All conduits shall be cleaned by pulling a brush swab through before installing cables.

18. All conduits shall be sealed at each end with electrical putty. Special care shall be taken at all equipment where entrance of moisture could be detrimental to equipment.

19. Where steel conduit penetrates ground or concrete, the conduit shall be painted with two (2) coats of asphaltic base paint one (1) foot on each side of penetration.

20. No more than two (2) feet of flexible conduit shall be used at connections of all motors, transformers, irrigation pumps or valves, field instruments, and other items of equipment where vibration is present.

3.04 WIRES, CABLES AND CONNECTIONS

A. Cables pulled into conduits shall be pulled using pulling eyes attached to conductors.

B. Where exposed in manholes and pull boxes, cables shall be wrapped using 3M 77 Scotch electrical fireproofing tape or approved equal. Wrapping shall be made using 50 percent lap.

C. Shields shall be grounded at all splice and termination points.

D. A loop of each conductor shall be provided in each manhole to facilitate the addition of future tee splices.

3.05 BOXES

A. Installation of boxes shall be in accordance with the National Electrical Code requirements.

B. Boxes shall be mounted plumb and level in accessible locations and mounting shall be secure, vibration resistant, and galvanically compatible. Hardware shall be used that is specifically intended for the purpose. When mounted in corrosive, damp or wet locations, stainless steel hardware shall be utilized.

C. Enclosure sizes called out in the drawings are minimum; the Contractor shall increase the enclosure or box size as required by the NEC.

3.06 WIRING DEVICES

A. Wiring devices shall be installed in devices boxes approved for the application. All connections shall be made with screw terminals.

3.07 SUPPORTING DEVICES

A. All surface or slab mounted devices (control panels, transformers, etc.) shall be securely anchored to the slabs, concrete pads, or floors. Refer to details on the drawings, and where installation instructions or recommendations are made by manufacturer, these recommendations shall be adhered to; provide all 316 SS fasteners and additional material as required.

3.08 MEASUREMENT AND PAYMENT

A. Measurement and payment will be based on the actual quantities installed as more specifically discussed and described in SECTION 01025 for MEASUREMENT AND PAYMENT.

END OF SECTION

SECTION 16527 – OUTDOOR LIGHTING SYSTEMS

PART 1 GENERAL

1.01 SCOPE

A. The Contractor shall furnish all materials, parts, equipment and labor necessary for the erection and construction of the lighting, poles and landscape electrical system as specified and/or implied by these drawings and specifications. All materials for a complete and functional system shall be provided.

1. Major components include:

a. Poles, pole foundation/bases, hand holes, and fixtures and accessories, refer to drawings

b. Mounting arms, internal house shields, as required per drawings

c. Prewired step down transformer, primary and secondary fusing and GFCI receptacle with while in use cover shall be provided and prewired inside pole/ arm fixture, refer to drawings.

d. Fixture with mounting equipment and lamps

e. One (1) spare lamps of each type and wattage shall be provided.

f. One (1) spare pole with fixture shall be provided.

g. Fuses, lighting contactors, service racks, and pull boxes and terminal boxes shall be provided and installed as required.

h. Landscape lighting per the landscape drawings

1.02 COORDINATION

A. Contractor shall coordinate with pole vendor and luminaire vendor to be sure all pole mounted equipment is included.

B. Contractor shall coordinate mounting location with other trades, utilities and the like and avoid conflicts.

1.03 CONTRACTOR'S DUTIES

A. All work performed under this contract shall be performed in accordance with all provisions of these specifications or drawings and must be approved in writing by the Owner or his representative. The Contractor shall be presumed to have made a reasonable inspection of the premises prior to the time of bidding and shall be held responsible for all information available through such inspections. The Contractor shall immediately upon discovery,

bring to the attention of the Owner and Engineer any conflicts which may occur among the various provisions of the specifications and plans.

1.04 MATERIAL QUALITY

A. All materials supplied by the Contractor under the provisions of these specifications and drawings shall be new materials of the kind and character called for by the specifications. Defective equipment or material damaged in the course of installation or tests shall be replaced or repaired in a manner satisfactory to the Owner. All materials and equipment to be furnished under these specifications shall be the standard product of a manufacturer regularly engaged in the production of such material and shall be the manufacturer's current standard design.

1.05 ALTERNATE MATERIALS

A. No substitution of materials shall be permitted.

1.06 SUBMITTALS OF PLANS AND SPECIFICATIONS

A. Provide submittals per the general conditions.

B. Minimum submittal data

1. Lighting layout design showing luminaire mounting heights.

2. Drawings of the Roadway and Landscape Lighting Structure meeting or exceeding specified criteria as indicated on the drawings.

3. Water Proof Splice kits.

4. Distribution Blocks.

5. Pull Boxes, Terminal Boxes, including manufacturer's traffic loading data per details.

6. Written statements of model number and manufacturer for all equipment bid.

7. Written warranty from the manufacturer covering entire structure as outlined in specifications.

8. Certified Engineer, independent of manufacturer, shall verify and sealed wind load test of luminaire assembly to meet or exceed structural strength per Florida Building Code wind loading requirements, latest edition.

9. Complete U.L. Test Report – Bidder shall supply for the Owner's review and retention a copy of the Underwriter's Laboratory report covering the luminaire assembly being provided.

1.07 CODES, PERMITS AND LICENSES

A. All work shall comply with the applicable rules of the NATIONAL ELECTRICAL CODE, the NATIONAL ELECTRICAL SAFETY CODE, the NATIONAL FIRE CODES, (published by

the National Fire Protection Association), state and local codes and ordinances and the terms and conditions of the services of the electrical utility, as well as any other authorities that may have lawful jurisdiction pertaining to the work specified. None of the terms or provisions of this specification shall be construed as waiving any other rules, regulations or requirements of these authorities. The Contractor shall procure all necessary permits or licenses to carry out his work, and shall pay the lawful fee therefore, as well as for any inspection fee or the cost of any certificate of approval.

B. All electrical materials used shall be Underwriter Laboratory listed, including but not limited to the luminaire assembly unit.

C. In any instance where these specifications call for materials for construction of a better quality or larger size than required by the codes, the provisions of these specifications shall take precedence. Conversely, should the codes call for better quality or larger size, the codes will govern.

1.08 FINAL APPROVAL

A. The entire electrical system shall be tested by the Contractor in the presence of the Owner/Engineer.

B. Every local switch, panel board breaker and safety switch shall be operated under load conditions. Every fixture shall be lighted and all special equipment such as irrigation controllers shall be tested and operated. Any defects in workmanship, material or equipment, or any ground or short circuits shall be corrected by the Contractor before final acceptance.

PART 2 PRODUCTS

2.01 LIGHT STRUCTURE SYSTEM

A. Decorative poles, coordinate mounting requirements with base, per manufacturer recommendations, see detail indicated on drawings.

B. Fixture consisting of lamp, lamp socket, ballast, lens

C. U.L. listed fusing for the lamp circuits.

D. Provide hand hole in poles.

E. Provide Cavity in Pole arm and provide prewired 240V:120V step down transformer, fuses, GFCI receptacle. Provide label at GFCI cover plate: “1.0 Amp Max”

2.02 LAMPS

A. Lamps shall be provided per drawings, including spares.

2.03 POWER DISTRIBUTION BLOCK

A. Provide power distribution blocks as manufactured by SQ D or an approved equal. Distribution blocks are to be installed inside landscape terminal boxes per details. Provide individual distribution blocks for hot, neutral, and grounding per circuit, as required.

2.04 WATER PROOF SPLICE KITS

A. Provide water proof splice kits at all splice locations. These kits shall use 3M's Resin 4 with a 2 part insulating and encapsulating epoxy resin as manufactured by 3M products under the Scotchcast line of water proof kits. Splice kit shall be 100% water proof.

2.05 WIRE HARNESS

A. Provide wiring harness as may be required.

2.06 LIGHTNING PROTECTION

E. All Parking lot light fixtures shall be provided at each structure at least one copper-clad steel ground rod of not less than 5/8" in diameter and not less than 10' in length.

F. Refer to electrical details of the pole assembly for surge arrestor and fusing.

2.07 LIGHTING MATERIALS

A. Parking Lot Lighting fixtures assemblies shall be provided as indicated and tagged on the drawings. The XX shall call out the fixture number designation on the drawings.

B. Tag – LP-XX

1. Pole Light assembly shall be provided as indicated by drawings. Including hand hole assembly and fusing per detail on drawings. Wind load data shall meet the latest edition of the Florida Building Code wind load requirements.

2. Manufacturer, model and assembly shall be as detailed on the drawings.

3. Provide high power factor ballast.

4. Voltage per plans.

PART 3 EXECUTION

3.01 INSTALLATION

A. Backfill – The pole base shall be installed in an excavation as prescribed by the Broms or UBC standards for foundation design.

B. Electrical Wiring – The pole and the luminaries shall be designed such that all wiring remains underground before entering the base of the pole and that no wiring shall be exposed to sun or weather as it transitions through the pole and to the ballast and on to each lamp.

3.02 TESTING

A. Contractor shall perform and provide final testing in the presence of Owner and Engineer at night time. Time shall be convenient to the Owner and Engineer.

3.03 WARRANTY

A. Provide Manufacturer's Warranty as follows:

1. Pole Warranty:
   A. 0-5 Years, Full Replacement plus $300 Labor Reimbursement
   B. 6-10 Years, Full Replacement

2. Fixture Warranty:
   A. 2 Years Full Replacement
   B. 5 Year Paint Warranty
   C. 2 Year Ballast Warranty
   D. 1 Year Lamp Warranty
   E. 1 Year Transformer Warranty

END OF SECTION

SECTION 16901 – CONTROL PANEL

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The Contractor shall furnish, install and place into lighting control panel.

B. The Supplier shall review all plans and specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 16000 – Electrical General Requirements

B. Section 16050 - Basic Materials and Methods

C. Section 16527 – Outdoor Lighting Systems

1.03 SINGLE INSTRUMENT SUPPLIER

A. The Supplier shall be limited to the following or an approved equal:

1. C.C. Control (561) 478-3737

B. The Contractor shall assign to the Supplier full responsibility for the functional operation of all new control systems. The Contractor shall have said supplier perform all engineering necessary to select, to furnish, to supervise installation, connection, to place into operation all sensors, alarm equipment, control panels, accessories, and all other equipment as specified herein.

C. The foregoing shall enable the Contractor and the Owner to be assured that the full responsibility for the requirements of this section will reside in an organization which is qualified and experienced in the water treatment field and its process technology on a functional system basis.

D. The Supplier shall be UL 508 listed manufacturer.

1.04 INSTALLATION WORK

A. Nothing in this part of the specifications shall be construed as requiring the Contractor to utilize personnel supplied by his assigned instrument manufacturer's organization or any division there of, to accomplish the physical installation of any elements instruments, accessories or assemblies specified herein. However, the Contractor shall employ installers who are skilled and experienced in the installation and connection of all elements, instruments, accessories and assemblies; portions of their work shall be supervised or checked as specified herein.

1.05 PREPARATION OF SUBMITTAL OF DRAWINGS AND DATA

A. Submittal data and O&M manuals shall be provided as per Section 01340. The following indicates minimum requirements. It is incumbent upon the Contractor to coordinate the work specified in these Sections so that a complete instrumentation and control will be provided and will be supported by accurate shop and record drawings. As part of the responsibility as assigned by the Contractor, the Supplier shall prepare and submit through the Contractor, complete and organized shop drawings, as specified herein. Interface between instruments, motor starters, flow meters, and existing instruments shall be included in his shop drawing submittal.

B. In order to provide a fully coordinated system, shop drawings by other equipment vendors associated with the control panel systems shall be reviewed and approved by the Contractor before submittal to the Engineer for approval.

C. During the period of preparation of this submittal, the Contractor shall authorize direct informal liaison between his Supplier and the Engineer for exchange of technical information. As a result of this liaison certain minor refinements and revisions in the systems as specified may be authorized informally by the Engineer, but these shall not alter the scope of work or cause increase or decrease in the Contract price. During this informal exchange no oral statement by the Engineer shall be construed to give formal approval of any component or method, nor shall any statement be construed to grant formal exception to, or variation from these specifications.

D. Operation and Maintenance Manual

1. Submit two preliminary O & M for review and comment by the Engineer. Provide six final O & M, bound in a three ring binder. O & M shall minimally include the following: approved submittal data, startup corrected as built shop drawings. O & M shall be neatly and logically arranged with a contents page followed by tabbed sections.

E. Drawing Files

1. All engineered drawings shall be prepared using AutoCAD Release 2010 or later. Final “as built” drawing files shall be provided to the Engineer.

1.06 ADDITIONAL TECHNICAL SERVICES

A. At no additional cost to the Owner, the Contractor shall provide the services of qualified technical representatives of the Supplier.

1.07 GUARANTEE

A. The Contractor shall guarantee all equipment and installation, as specified herein, for a period of one (1) year following the date of completion of the work. To fulfill this obligation, the Contractor shall utilize technical service personnel designated by the Supplier to which the Contractor originally assigned project responsibility for instrumentation.

1.08 ADDITIONAL PROVISIONS

A. The applicable provisions of the following sections under Electrical Work shall apply the work and equipment specified herein, the same as if stated in full herein:

1. Codes and Standards

2. Equipment Materials and Workmanship

3. Testing

4. Grounding

5. Equipment Anchoring

6. Conductor and Equipment Identification

1.09 NEWEST MODEL COMPONENTS

A. All meters, instruments and other components shall be the most recent field proven models marketed by their manufacturers at the time of the submittal of shop drawings unless otherwise specified to match existing equipment. All technical data publications included with the submittal shall be the most recent issue.

1.10 COORDINATION

A. I & C supplier shall coordinate with his supplier and other Contractors on the project. Where large subsystems are provided, the I & C supplier shall coordinate before the bid to be certain all equipment, engineering and labor are provided. Coordination items minimally include: equipment dimensions, heat rejection, power requirements, control and signal requirements and interconnection requirements.

1.11 TEST PROCEDURE DEVELOPMENT AND DOCUMENTATION

A. I & C subcontractor shall prepare and submit to the Engineer for review a detailed description of the test procedures that he proposed to perform to demonstrate conformance of the complete system.

PART 2 PRODUCTS

2.01 COMPONENT CRITERIA

A. Designation of Components

1. In these specifications and on the drawings, all system, meters, instruments and other elements are represented schematically and are designated by numbers, as derived from criteria in Instrument Society of America Standard ANSI/ISA S5.1-1973. The nomenclature and numbers designated herein and on the drawings shall be employed exclusively throughout shop drawing, data sheets and similar materials. Any other symbols, nomenclature unique to the manufacturer's standard methods shall not replace these prescribed above, used herein and on the Drawings.

B. Matching Style, Appearance and Type

1. All instruments to be panel mounted at the control panels shall have matching style and general appearance. Instruments performing similar functions shall be of the same type, model, or class and shall be one (1) manufacturer.

2.02 DETAILED SYSTEMS DRAWINGS AND DATA

A. Content

The Contractor shall submit detailed shop drawings and data prepared and organized by the Supplier designated at the time of bidding. The quantity of submitted sets shall be no less than 6 sets. These drawings and data shall be submitted as a complete bound package at one time within 30 calendar days after date of notice to proceed.

1. Drawings showing definite diagrams for every control system shall be provided. These diagrams shall show and identify each component using legend and symbols from ISA standard S5.4, each having the format of ISA Standard S5.1 as used on the project drawings.

2. Data sheet for each component, together with a technical product brochure or bulletin shall be provided. The data sheets shall show:

a. Component function description used herein and on the drawings;

b. Manufacturer's model number or other product designation;

c. Project tag number used herein and on the drawings;

d. Project system loop of which the component is a part;

e. Project location or assembly at which the component is to be installed;

f. Special requirements or features.

3. A complete index shall appear in the front of each bound submittal volume.

4. Drawing shall show both schematic and wiring diagrams for control circuits. Complete details on the circuit interrelationship of all devices within and outside each control panel shall be submitted. Control devices and pertinent mechanical relationships including mechanical parameters as a minimum shall include instrument ranges, sizes, set points and the like. The diagrams shall consist of component layout drawings to scale, showing numbered terminals on components together with the unique number of the wire to be connected to each terminal. The Contractor shall furnish all necessary equipment supplier's shop drawings to facilitate inclusion of this information by the system supplier. Schematic and wiring diagram criteria shall be followed as established in NEMA Standards Publication ANSI/NEMA 1CS-1-1978, "Industrial Control and Systems".

5. Assembly and construction drawings for each control panel and for other special enclosed control assemblies for field installation shall be provided. These drawings

shall include dimensions, identification of all components, surface preparation and finish data, name plates and the like. These drawings also shall define exactly the style and overall appearance of the assembly; a finish treatment sample shall be provided when requested.

6. Installation anchoring and mounting details for all components and assemblies to be field mounted, including conduit connection or entry details shall be provided.

7. Complete detailed bill of materials including a master bill of materials listing all field mounted devices, control panels and other equipment that will be shipped to the job site and a bill of materials for each control panel listing all devices within the panel shall be provided.

B. Organization and Binding

1. The organization of the original shop drawing submittal shall be compatible to the eventual inclusion with the technical manuals submittal and shall include final alternations reflecting “as built” conditions. Accordingly, the initial multiple copy shop drawing shall be separately bound in 3-ring binders.

2.03 TECHNICAL MANUALS

A. Two preliminary O&M manual shall be submitted to the Engineer for review and comment. Assuming a favorable review the Supplier shall incorporate comments and forward the six final copies to the Engineer. If the preliminary O&M is not acceptable, the Supplier shall resubmit.

B. Six (6) final sets of technical manuals shall be supplies for the Owner as a condition for final acceptance of the project. Each set shall consist of one (1) or more volumes, each of which shall be bound in a standard size, 3-ring, loose leaf, vinyl plastic hard cover binder suitable for bookshelf storage. Binder ring size shall not exceed 3 inches.

C. In addition to updated shop drawing information to reflect actual existing conditions, each set of technical manuals shall include installation, connection, operating, trouble shooting, maintenance and overhaul instructions in complete detail. This shall provide the Owner with comprehensive information on all systems and components to enable operation, service, maintenance and repair. Exploded or other detailed views of all instruments, assemblies, and accessory components shall be included together with the complete parts lists and ordering instructions.

2.04 SPARE PARTS

A. The Contractor shall include, as part of the bid package, a list of recommended spare parts covering items required under these specifications.

B. Minimum spare parts shall be provided boxed and identified including the following:

1. 6-pilot light lamps of each size and type used.

2. 1-TVSS of each type used.

3. 1- HOA switch of each type used.

4. 2-Photo cells.

5. 1- lightning surge suppressor of each type used.

6. 6- fuses of each type used.

Also provide other spares as noted by the particular sections and paragraphs of these specifications.

2.05 CONTROL PANEL

A. General

1. Supplier shall construct the control panel to properly control internal and external equipment. No attempt is made to specify or indicate on plans, all required equipment but rather to set forth the minimum requirements.

B. Engineering

1. Supplier shall provide system engineering and produce detailed fully engineered, coordinated and completed drawings.

C. Construction

1. Control panel construction shall be per these specification and plans.

D. Signal and Control Circuit Wiring

1. Wire Type and Sizes: Conductors shall be flexible stranded copper wire; these shall be UL listed TFFN, THWN, THHN and shall be rated 600v. Wire for control signal circuits shall be #16 AWG unless otherwise noted. All instrumentation cables shall be shielded #18 AWG with a copper drain wire unless otherwise noted. All special instrumentation cable such as between sensor and transmitter shall be supplied by the Supplier. Contractor shall increase wire size per load or impedance requirements.

2. Wire Insulation Colors: Unless otherwise specified, conductors supplying 120vac power on the line side of the disconnecting switch shall have black insulation for the ungrounded conductor. The grounded circuit conductor shall have white insulation. Insulation for 120vac control power within the control panel downstream of the power circuit breakers shall be red for the hot and white for the neutral. All wiring for foreign voltages within the control panel shall be yellow. Wiring for DC control circuits shall be Brown for + and Gray for –.

3. Wiring control: All wiring shall be run in plastic wireways except 91) field wiring, (2) wiring between mating blocks in adjacent sections, (3) wiring run from components on a swing-out panel to components on a part of the fixed structure, (4) wiring run to panel mounted components on the door and the like. Wiring run on a swing out panel to other components on a fixed panel shall be made up in nylon wire ties bundles and secured so that bundles are not strained at the terminals.

a. Wiring run to control devices on the front panels shall be tied together at short intervals with nylon ties and secured to the inside of the panel using adhesive mounts.

b. Wiring to rear terminals on panel mounted instruments shall be run in plastic wares secured to horizontal brackets run above or below the instruments in the same plane as the rear of the instruments.

c. Care shall be exercised to properly insulate the ungrounded side of the loop to prevent ground loops from occurring.

d. Conformance to the above wiring installation requirements shall be reflected by details shown on the shop drawings for the Engineer's review.

4. Wire Marking: Each signal, alarm, control, and indicting circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on all shop drawings. These numbers shall be marked on all conductors using white plastic heatshrink sleeves with typewritten characters. Instrument signal conductors shall be tagged with unique multiple digit numbers. Black and White wires from the circuit breaker panelboard shall be tagged indicating the branch circuit breaker number.

5. Terminal Blocks: Terminal blocks shall be molded plastic with barriers and box lug terminals, and shall be rated 15 amps at 600v and mounted securely to rails. White marking strips fastened to molded sections shall be provided and wire numbers and circuit identifications shall be marked thereon with permanent marker. Terminal blocks shall be Buchanan or an approved equal.

E. Enclosures

1. Unless otherwise indicated, all enclosures shall be provided with the following:

a. Subplate for mounting equipment.

b. Padlockable, pocketed exterior doors.

c. Where required provide stainless steel piano hinged dead fronts with quarter turn latches.

2. Unless otherwise indicated, enclosures which shall be installed outside shall be NEMA 4X, 316ss. Outer door shall be gasketed, piano hinged and provided with 3 point padlockable handle. Sunshields shall be provided on the top, back and sides. Where required, all accessories such as stand kits, drip shields, sunshields and the like shall be 316 stainless steel.

3. Enclosure dimensions shall be the responsibility of the Supplier. Dimensions shown on plans are given as a minimum.

2.06 CONTROL PANEL EQUIPMENT

A. General Purpose Relays

1. In the control panel shall be the plug in type with contacts rated 10 amps at 120 vac as a minimum. The quantity and type of contacts shall be as required to accomplish the desired control task. Each relay shall be enclosed in a clear plastic heat and shock resistant dust cover. Relays shall have manual buttons and pilot lights. Sockets for relays shall have screw type terminals and be installed on mounting rails. Relays shall be Potter and Brumfield or an approved equal. Differing mounting sockets shall be used to prohibit improper relay installations.

B. Slave or Interposing Relays

1. Additional and signal isolators and signal converters shall be installed as required.

C. Control Circuit Breakers

1. Circuit breakers shall be single pole, 120vac, 15 amp rating or as required to protect wires and equipment; mounted on the inside of the enclosure or equipment remote from the enclosure.

D. Name Plates

1. Name Plates shall be supplied for identification of control panels and all field mounted equipment like the photocell. These name plates shall identify the instrument or meter, descriptively as to the function of the system. Name plates shall be fabricated from black faced, white centered, laminated engraving plastic. A name plate shall be provided for each electrical component and the like, mounted inside the control panels. These shall uniquely identify each control component. Adhesives shall be acceptable for attaching name plates. Painted surfaces must be prepared to allow permanent bonding of adhesives. Name plates shall be provided for instruments, function titles for each group of instruments and other components mounted on the front of the control panels as shown. Proposed colors, styles, height and text shall be submitted for approval.

E. Ground Bus

1. Provide drilled and tapped, size as required, with individual grounding lugs.

F. Vapor Guard

1. Moisture absorbing vapor guard shall be provided in each control panel.

G. Power Circuit Breakers

1. Square-D or equal.

2. Ratings shall be indicated on drawings.

H. Fuses

1. Bussman 600 volt.

I. Ground Fault Interrupting Receptacle

1. Leviton Duplex Receptacle or equal.

2. AC receptacle box shall be Steel City 58351-1/2 or equal.

3. Covers shall be Steel City 58-C-5 or equal.

J. Selector Switches

1. Square-D, Class 9001, Type K or equal.

2. Operators shall be black knob type or key switch, 3-position or 2-position as noted

3. Selector switches shall be spring return where noted.

K. TVSS

1. Provide a TVSS as indicated on the drawings.

2.07 LIGHTNING/SURGE PROTECTION

A. Surge and Lightning Arrestors

1. Control panel shall be provided with surge and lightning arrestors as specified.

2. Lightning Surge Suppressor

a. Lightning surge suppressors shall be APT, XF Series, 80KA

2.08 NAMEPLATES, NAME TAGS AND SERVICE LEGENDS

A. All components provided under this section, both field and panel mounted, shall be provided with permanently mounted name tags bearing the entire tag identification of the component. Panel mounted tags shall be plastic; field mounted tags shall be stamped stainless steel.

2.09 WIRE MARKERS

A. Wire markers shall be permanent ink, machine printer, with clear heat shrink tubing.

B. Wire numbers shall agree with panel terminal numbers.

C. The panel drawings refer to nameplates and service legends: nameplates are defined as inscribed laminated plastic plates mounted near or under the panel's interior.

D. Service legends and nameplates shall be engraved, rigid, laminated plastic. Service legends and nameplates shall be fastened to the panel by screws or with a specially applied adhesive. Fastening shall not depend only on the adhesive.

PART 3 EXECUTION

3.01 INSTALLATION, TESTING, START UP AND INSTRUCTION

A. General

1. Under the supervision of a Supplier, all systems specified in this section shall be installed, connected, calibrated and tested, and in coordination with the Owner and Engineer shall be started to place the process in operation.

B. Installation and Connection

1. The Contractor shall install and connect all field mounted components and assemblies. The installation personnel shall be provided with a final reviewed copy of the shop drawings and data.

2. Bends shall be formed with the proper tools and to uniform radii and shall be made without deforming or thinning the walls of the tubing.

3. The Contractor shall have a technical field representative of the Supplier to instruct these installation personnel on any and all installation requirements; thereafter the technical field representative shall be readily available by telephone to answer questions and to provide clarification when needed by installation personnel.

4. After all installation and connection work has been completed, the technical field representative shall check all for correctness, verifying polarity of electric power and all such similar details. The technical field representative shall certify in writing to the Contractor that for each loop or system he has completed such check out and that any discrepancies have been corrected by the installation personnel.

5. The field representative of the Supplier shall coordinate all work required to interface the new equipment, including all required modifications to the existing equipment and related devices.

C. Control Panel Manufacturer

1. Control panels shall be manufactured according to these plans and specifications.

D. Training

1. The City’s maintenance personnel shall be provided with training prior to start up.

2. One (1) hour training session shall be provided. Training shall be at a time convenient to the Owner.

3. Operating and maintenance personnel shall be instructed in the functions and operation of the lighting controls including any readjustment, resetting or checking, maintenance by them from time to time. This instruction shall be scheduled at a time

arranged with the Owner at least two (2) weeks in advance. Instruction shall be given by qualified persons employed by the Supplier.

F. Start up

1. When all systems are assessed by the Contractor to have been successfully carried through complete operational tests with a minimum of simulation, and the Engineer concurs in his assessment.

END OF SECTION

NE 23RD DRIVE PARKING PROJECT

WILTON MANORS, FLORIDA

BID SUBMITTAL

DATE OF ISSUE: 10/26/2016

City of Wilton Manors
2020 Wilton Drive
Wilton Manors, Florida 33305

AGENCY COMMISSION/COUNCIL

Gary Resnick	Mayor
Scott Newton	Vice Mayor
Julie A. Carson	Commissioner
Justin Flippen	Commissioner
Tom Green	Commissioner

ADMINISTRATION/STAFF

David Archacki	Emergency Management & Utilities Director
Roberta Moore	Community Development Services Director
Bob Mays	Finance Director

SECTION 26, TOWNSHIP 49S, RANGE 42E

LOCATION MAP
N.T.S

PROJECT LOCATION

INDEX OF DRAWINGS

Always call 811 two full business days before you dig to have underground utilities located and marked.
Sunshine811.com

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500 West Cypress Creek Road
Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com

CERTIFICATES OF AUTHORIZATION
EB4593 LC26000425

PROJECT NUMBER	15-125.024
CLIENT PROJECT NUMBER	AMENDMENT 26
DRAWING NUMBER	COV-1

01 OF 15

Plot Date: 10/26/2016 12:03:41 PM Username: JTamo Layout Name: COV-1
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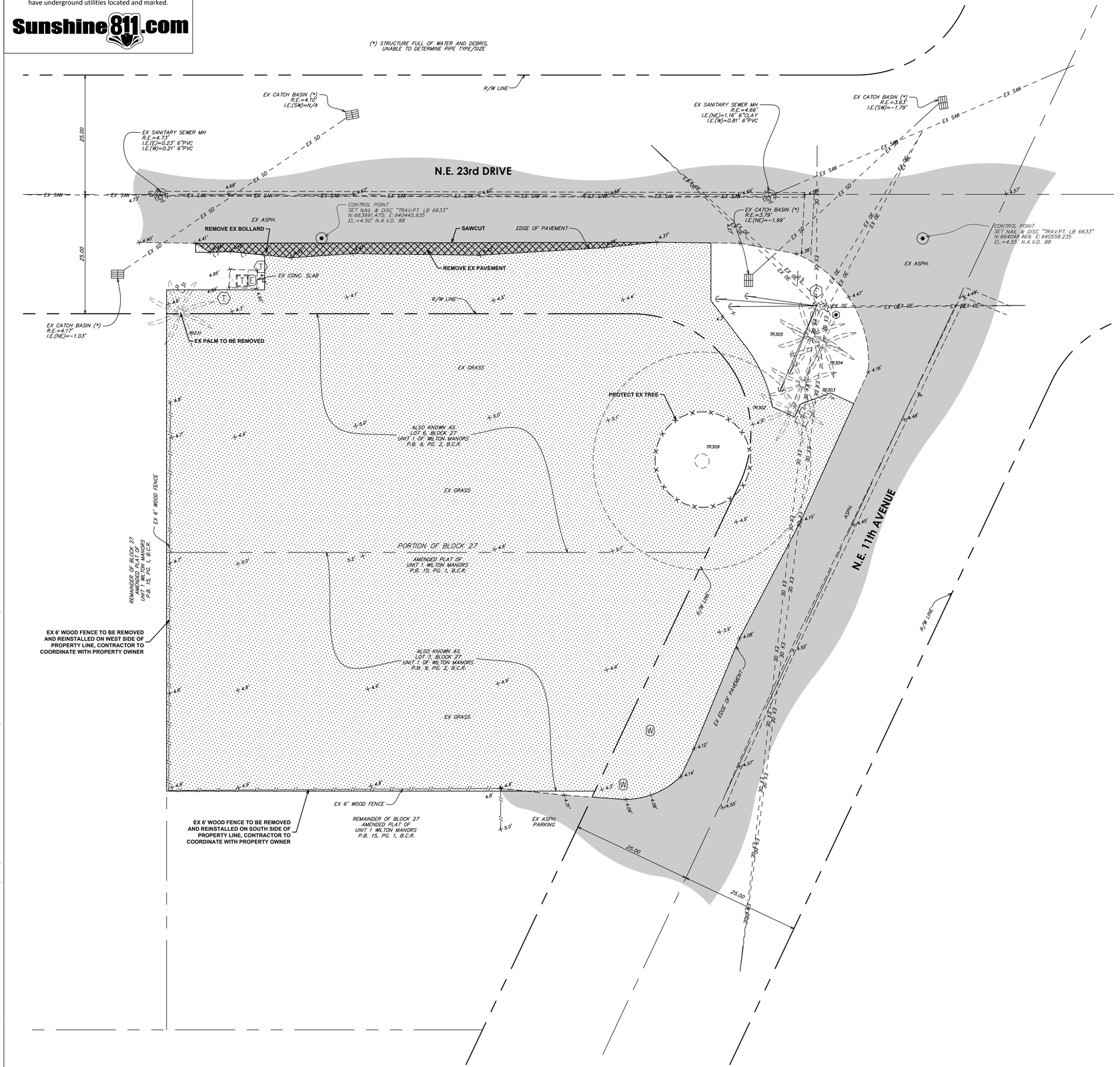

EXISTING CONDITIONS NOTES:

1. EXISTING CONDITIONS PRESENTED ARE BASED ON A TOPOGRAPHIC SURVEY PROVIDED BY STONER & ASSOCAITES, INC., PROJECT NUMBER 16-8342, DATE OF SURVEY 02/08/16. ADDITIONAL INFORMATION WAS OBTAINED FROM AS-BUILTS AND RECORD DRAWINGS PROVIDED BY UTILITY COMPANIES, G.I.S. INFORMATION AND FIELD VISITS.
2. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), ESTABLISHED FROM CITY OF WILTON MANORS BENCH MARK NETWORK (FEBRUARY 1988, COMPILED BY DARBY AND WAY, INC.) BENCHMARK WM58 (WHS76), A 50d SPIKE AND DISK IN POWER POLE #286-CM-3 AT SOUTHEAST CORNER OF INTERSECTION OF N.E. 20th DRIVE AND N.E. 7th AVENUE. ELEVATION=5.023'.
3. THE HORIZONTAL COORDINATES SHOWN HEREON ARE BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM (EAST ZONE), NORTH AMERICAN DATUM 1983/1990 ADJUSTMENT (N.A.D. 83/90). THE COORDINATES FOR EACH CONTROL POINT WERE ESTABLISHED BY UTILIZING A COMBINATION OF GPS OBSERVATIONS AND/OR CONVENTIONAL SURVEY MEASUREMENTS. THE FOLLOWING MONUMENT WAS UTILIZED AS THE BASIS OF THE COORDINATES AND IS DESCRIBED AS FOLLOWS: EASTERN BROWARD COUNTY HORIZONTAL GPS COUNTY NETWORK CONTROL POINT I24, A PK NAIL AND WASHER STAMPED "BCED GPS K23"; NORTHING COORDINATES: 664576.951; EASTING COORDINATES: 938877.959.
4. CONTRACTOR IS TO PROTECT ALL EXISTING TREES, SIGNS, AND ABOVE GROUND UTILITIES NOT IMPACTED BY THIS PLAN.

TREE TABLE

TREE ID#	COMMON NAME	TRUNK DIAMETER
231	CABBAGE PALM	15"
302	CABBAGE PALM	15"
303	CABBAGE PALM	15"
304	CABBAGE PALM	15"
305	CABBAGE PALM	15"
309	UNKNOWN TREE	36"

LEGEND

- ANCHOR
- BOLLARD / GUARD POST
- CATCH BASIN
- CABLE TV RISER
- ELECTRIC METER
- ELECTRIC WIRE PULL BOX
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- SIGN ON POST
- TELEPHONE CABINET
- TELEPHONE VAULT
- TELEPHONE WIRE PULL BOX
- WATER METER
- WOOD POWER
- SPOT ELEVATION
- TR111 PALM No. 111 (SEE TREE TABLE)
- TR113 TREE No. 113 (SEE TREE TABLE)

ABBREVIATIONS

- P.B. PLAT BOOK
- L.B. LICENSED BUSINESS
- PG. PAGE
- B.C.R. BROWARD COUNTY RECORDS
- ℄ CENTERLINE
- EL. ELEVATION
- CONC. CONCRETE
- N.A.V.D. 88 NORTH AMERICAN VERTICAL DATUM OF 1988
- NAD NORTH AMERICAN DATUM
- MH MANHOLE
- R.E. RIM ELEVATION
- I.E. INVERT ELEVATION
- N: NORTHING COORDINATES
- E: EASTING COORDINATES
- N/A NOT-APPLICABLE
- ASPH. ASPHALT
- R/W RIGHT OF WAY
- N/D NAIL AND DISC
- PCP. PERMANENT CONTROL POINT
- IRC. IRON ROD AND CAP
- PVC. POLYVINYL CHLORIDE
- ASPHALT AREA
- CONCRETE AREA
- CENTER LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- EASEMENT LINE
- EX OE OVERHEAD ELECTRIC LINES
- EX SD STORM DRAINAGE PIPES
- EX SAN SANITARY SEWER PIPES
- REMOVE MATERIAL FROM AREA
- CLEARING & GRUBBING AREA

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500 West Cypress Creek Road
Suite 630
Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com
CERTIFICATES OF AUTHORIZATION
EB4593 LC26000425

REGISTRATION
JASON MCCLAIR, P.E.
REGISTRATION NO. 56962
DATE: _____

SUB-CONSULTANT

CLIENT
WILTON MANORS Island City
PUBLIC SERVICES DEPARTMENT
2020 WILTON DRIVE
WILTON MANORS, FL 33305

PROJECT INFORMATION

NE 23RD DRIVE PARKING PROJECT

WILTON MANORS, FLORIDA

PROJECT NUMBER
15-125.024

CLIENT PROJECT NUMBER
AMENDMENT 26

VERIFY SCALES
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REVISIONS

DATE OF ISSUE
10/26/2016

DESIGNED BY
JM

DRAWN BY
TN

CHECKED BY
JM

DRAWING TITLE
EXISTING CONDITIONS AND DEMOLITION PLAN

DRAWING NUMBER
EC-1
02 OF 15

BID SUBMITTAL

Plot Date: 10/26/2016 12:04:33 PM Username: JTamo Layout Name: EC-1
Folder Path: V:\Projects\2015\15-125.024 - ne 23rd drive parking\Design\CAD\Plans Filename: 15-125.024 Existing Conditions and Demolition Plan.dwg

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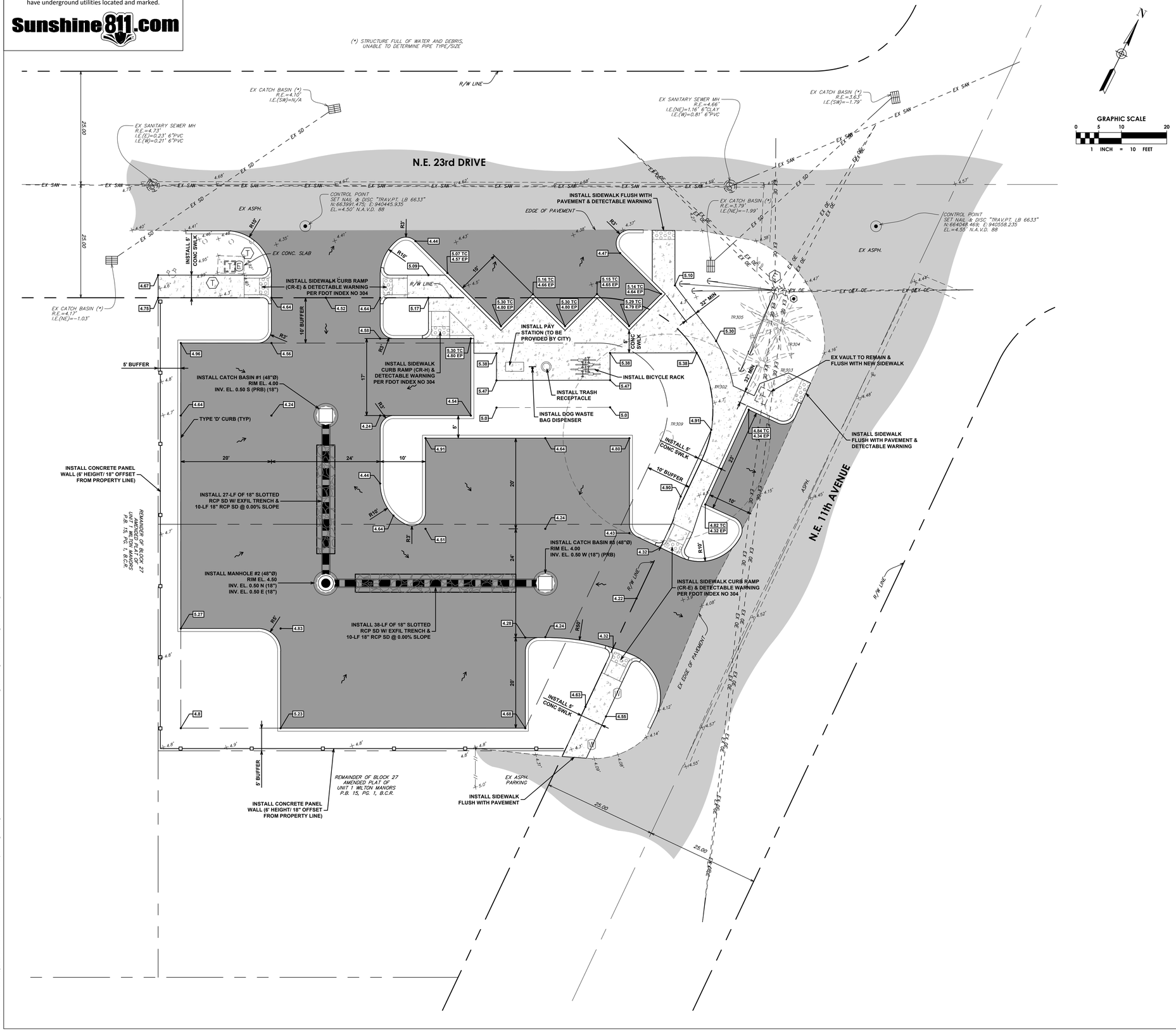

GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS, WHETHER SHOWN OR NOT, AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
2. THE HORIZONTAL AND VERTICAL LOCATIONS OF THE EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND ARE BASED ON FIELD OBSERVATION AND/OR AVAILABLE PLANS. THE EXACT LOCATION MAY VARY. IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE PLANS THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF RECORD.
3. ALL EXISTING MANHOLES, VALVES, ETC. ARE TO BE ADJUSTED TO MATCH PROPOSED ELEVATIONS.
4. ANY EXISTING ITEM DISTURBED DURING CONSTRUCTION IS TO BE RESTORED TO EQUAL OR BETTER QUALITY.
5. PAVEMENT AND DRIVEWAY RESTORATION ARE TO MATCH EXISTING GRADE UNLESS OTHERWISE NOTED.
6. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO TAKE THE NECESSARY PRECAUTIONS TO ENSURE PROPER SAFETY AND WORKMANSHIP WHEN WORKING IN THE VICINITY OF EXISTING UTILITY LINES.
7. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH FPL ON ANY WORK IN THE VICINITY OF OVERHEAD OR UNDERGROUND POWER LINES.
8. CONTRACTOR SHALL VERIFY PROPER CLEARANCE BELOW EXISTING OVERHEAD POWER LINES PRIOR TO WORKING WITHIN THE VICINITY OF POWER LINES.

PAVING, GRADING AND DRAINAGE NOTES:

1. ALL SIDEWALKS SHALL MEET ALL A.D.A. REQUIREMENTS (5% MAX. LONGITUDINAL SLOPE AND 2% MAX. TRANSVERSE SLOPE).
2. ALL INLETS SHALL BE TYPE 'C' AND MANHOLES SHALL BE TYPE 'P-7' 4'Ø, ALL H-20 RATED, UNLESS OTHERWISE NOTED ON PLAN.
3. CONCRETE PIPE FOR STORM SEWERS SHALL CONFORM TO ASTM L76-79, TABLE III, WALL B, OR LATEST REVISION. ALL PIPE SHALL HAVE MODIFIED TONGUE AND GROOVE JOINTS, AND HAVE RUBBER GASKETS, UNLESS OTHERWISE SPECIFIED.
4. BEDDING AND INITIAL BACKFILL OVER DRAINAGE PIPE SHALL BE SAND WITH NO ROCK LARGER THAN 1" DIAMETER.
5. BACKFILL MATERIAL UNDER PAVED AREAS SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
6. BACKFILL MATERIAL UNDER AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
7. DRAINAGE STRUCTURES AND LINES TO BE CLEANED PRIOR TO ENGINEER'S ACCEPTANCE.
8. CONTRACTOR TO PROVIDE DETAILED AS-BUILTS SURVEYS THAT CLEARLY DEFINE THE AREAS OF WORK COMPLETED UNDER THIS CONTRACT INCLUDING BUT NOT LIMITED TO ALL RIM ELEVATIONS (EXISTING AND PROPOSED STRUCTURES), ALL INVERTS, BOTTOM OF STRUCTURE, SUFFICIENT SWALE ELEVATIONS TO DEMONSTRATE THAT SWALES DRAIN TO INLETS, LOCATION OF EXFILTRATION TRENCH, LOCATION OF DRIVEWAY RESTORATION, AND RESTORED ASPHALT PAVEMENT.

LEGEND

- ANCHOR
- BOLLARD / GUARD POST
- CATCH BASIN
- CABLE TV RISER
- ELECTRIC METER
- ELECTRIC WIRE PULL BOX
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- SIGN ON POST
- TELEPHONE CABINET
- TELEPHONE VAULT
- TELEPHONE WIRE PULL BOX
- WATER METER
- WOOD POWER
- SPOT ELEVATION
- PALM
- TREE
- ASPHALT AREA
- CONCRETE AREA
- CENTER LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- EASEMENT LINE
- OVERHEAD ELECTRIC LINES
- STORM DRAINAGE PIPES
- SANITARY SEWER PIPES
- PROPOSED STORM DRAIN PIPE WITH EXFILTRATION TRENCH
- PROPOSED CATCH BASIN OR INLET
- PROPOSED STORM MANHOLE
- PROPOSED ELEVATION
- PROPOSED SURFACE FLOW ARROW
- PROPOSED ASPHALT
- PROPOSED CONCRETE

ABBREVIATIONS

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NAD	NORTH AMERICAN DATUM
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E:	EASTING COORDINATES
N/A	NOT-APPLICABLE
ASPH.	ASPHALT
R/W	RIGHT OF WAY
N/D	NAIL AND DISC
PCP	PERMANENT CONTROL POINT
IRC	IRON ROD AND CAP
PVC	POLYVINYL CHLORIDE

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JM

DRAWN BY
TN

CHECKED BY
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DRAWING TITLE
PAVING, GRADING AND DRAINAGE PLAN

DRAWING NUMBER
PGD-1
03 OF 15

Plot Date: 10/27/2016 12:20:18 PM Username: JTamo Layout Name: PGD-1
Folder Path: V:\Projects\2015\15-125.024 - ne 23rd drive parking\Design\CAD\Plans Filename: 15-125.024 Paving Grading and Drainage Plan.dwg

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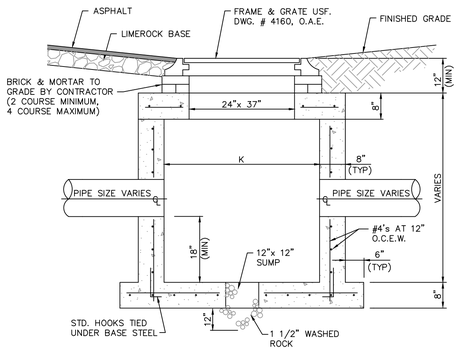
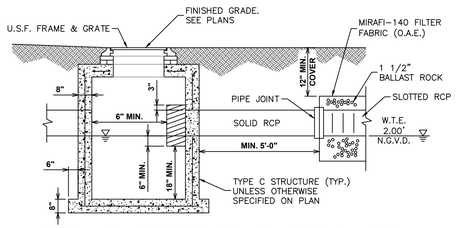
CATCH BASIN TYPE	DIMENSIONS
	K
B	4'ø
E	5'ø
F	6'ø
G	7'ø
H	7'◍
I	8'ø

NOTE
ALL STORM MANHOLES SHALL HAVE A 2'ø OPENING IN THE TOP SLAB W/ A FRAME & COVER U.S.F. # 420, O.A.E.

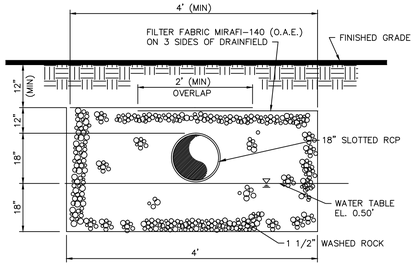


TYPICAL CATCH BASIN
N.T.S.



PIPES SHALL TERMINATE 5 FEET FROM END OF TRENCH (CAP ENDS OF PIPE) OR CONNECT TO ADDITIONAL CATCH BASINS AS REQUIRED.
1. SIDES AND TOP OF TRENCH TO BE LINED WITH EQUAL. OVERLAP LINER A MINIMUM OF 2 FEET
2. TRENCH LINER MATERIAL, MIRAFI OR APPROVED AT TOP OF THE TRENCH.
3. BALLAST ROCK SHALL BE FROM FRESH WATER, WASHED AND FREE OF DELETERIOUS MATTER.
4. ALL EXFILTRATION TRENCHES SHALL HAVE A POLLUTION RETARDANT BAFFLE AT EACH CONNECTION POINT TO A STRUCTURE. (SEE POLLUTION RETARDANT BAFFLE DETAIL)

DRAINFIELD CONNECTION TO STRUCTURE DETAIL
N.T.S.



DRAINFIELD
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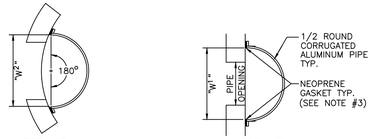
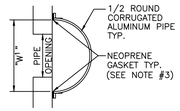
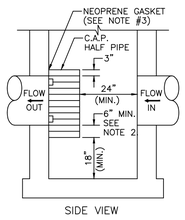
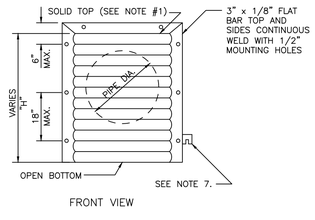






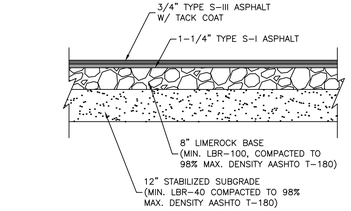


PIPE DIA.	W[1] (IN)	W[2] (IN)	T (GAUGE)	H (IN)
15"	21"	21"	16	VARIES
18"	24"	24"	16	VARIES
21"	30"	30"	16	VARIES
24"	30"	36"	16	VARIES
30"	36"	42"	14	VARIES
36"	42"	48"	14	VARIES
42"	48"	54"	14	VARIES
48"	54"	60"	14	VARIES
54"	60"	66"	14	VARIES

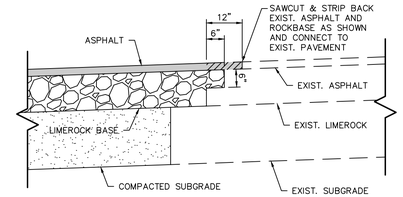
1. RECTANGULAR STRUCTURE
2. ROUND STRUCTURE

NOTES:
1. ALUMINUM SHEET OF SAME THICKNESS (GAUGE) AS PIPE SHALL BE WELDED TO CLOSE OPENING AT THE TOP.
2. THE BOTTOM ELEVATION OF THE POLLUTION RETARDANT BAFFLE MUST BE AT LEAST 2' BELOW CONTROL ELEVATION.
3. NEOPRENE ADHESIVE BACKED GASKET, OR APPROVED EQUAL (1" x 2") SHALL BE INSTALLED ON THE SIDES AND TOP OF ALL BAFFLES.
4. POLLUTION RETARDANT BAFFLE TO BE FASTENED IN PLACE WITH 3/8"x4" STAINLESS STEEL "RED HEADS", OR APPROVED EQUAL.
5. ALL EXFILTRATION TRENCHES SHALL HAVE A POLLUTION RETARDANT BAFFLE AT EACH CONNECTION POINT TO A STRUCTURE (SEE EXFILTRATION TRENCH DETAIL).
6. FIBERGLASS BAFFLES ARE NOT PERMITTED.
7. MOUNTING BRACKETS MAY BE ADDED TO FLAT BARS TO EASE INSTALLATION IN ROUND STRUCTURES. SPACING TO MATCH HOLES IN FLAT BARS.

POLLUTION RETARDANT BAFFLE
N.T.S.

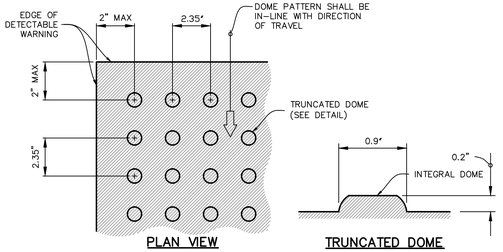


TYPICAL PAVEMENT SECTION
N.T.S.

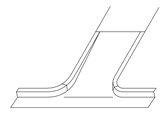


CONNECTION TO EXISTING PAVEMENT DETAIL
N.T.S.

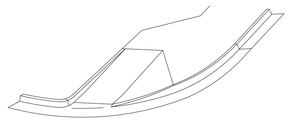
NOTES
1. DETECTABLE WARNING SURFACE AS REQUIRED PER AMERICAN WITH DISABILITIES ACT DESIGN STANDARDS REQUIRED AT ALL CONCRETE SIDEWALK LANDINGS WITHIN PROJECT LIMITS.
2. STAMPED CONCRETE IS NOT PERMITTED FOR DETECTABLE WARNING SURFACES. ARMOR TILE OR AN APPROVED EQUAL SHALL BE USED.
3. WHEN NOT PLACED ON CURB RAMPS, DETECTABLE WARNINGS SHALL BE PLACED ON THE WALKING SURFACES ADJOINING A VEHICULAR WAY. THE BOUNDARY BETWEEN THE AREAS SHALL BE DEFINED BY A CONTINUOUS DETECTABLE WARNING WHICH IS 36" WIDE.
4. UNLESS NOT PLACED DIRECTLY ON A RAMP, DETECTABLE WARNING SURFACE MUST NOT EXCEED 2% SLOPE IN ANY DIRECTION.
5. WHEN PLACED ON CURB RAMPS, DETECTABLE WARNING SURFACE SHALL EXTEND THE FULL LENGTH AND WIDTH OF THE RAMP. FOR RAMPS WITHIN FDOT RIGHT-OF-WAY, REFER TO THE LATEST VERSION OF THE FDOT DESIGN STANDARDS INDEX #304.
6. CONSTRUCTION OF DETECTABLE WARNING SURFACE IS NOT LIMITED TO CONCRETE MATERIAL, HOWEVER, PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST INFORM TO THE ENGINEER OF RECORD THE PROPOSED MATERIAL FOR THE DETECTABLE WARNING SURFACE. CONTRACTOR MUST ENSURE THAT THE FOLLOWING TRUNCATED DOME CRITERIA IS MET:
   A. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES. THE MATERIAL USED TO PROVIDE CONTRAST SHOULD CONTRAST BY AT LEAST 70%
   B. 90% OF THE INDIVIDUAL TRUNCATED DOMES MUST COMPLY WITH THE SPECIFIED DIMENSIONS AND DESIGN CRITERIA.
   C. NO TWO ADJACENT DOMES MAY BE NON-COMPLIANT.
   D. SURFACE MAY NOT DEVIATE MORE THAN 0.1" FROM A TRUE PLAN.



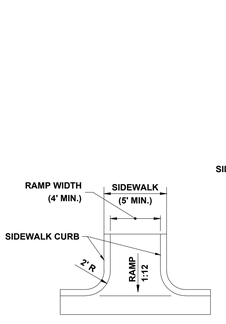
DETECTABLE WARNING
N.T.S.


PICTORIAL VIEW

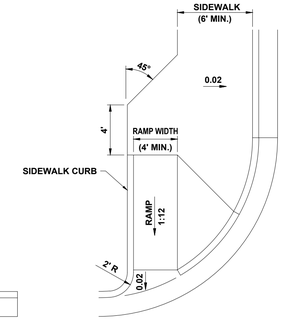
CR-E


PICTORIAL VIEW

CR-H



CR-E

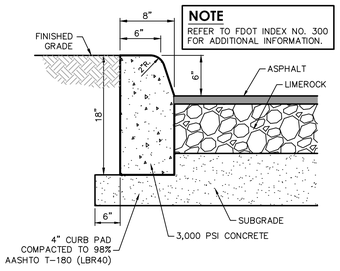


CR-H

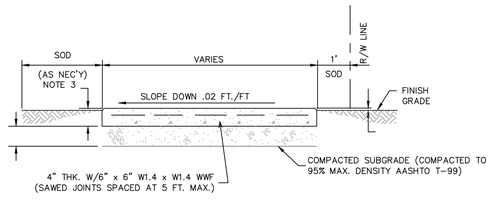
DIMENSIONAL FEATURES OF SIDEWALK CURB RAMPS FOR LINEAR PEDESTRIAN TRAFFIC

NOTE:
REFER TO FDOT INDEX 304 FOR ADDITIONAL INFORMATION.

SIDEWALK CURB RAMPS
N.T.S.



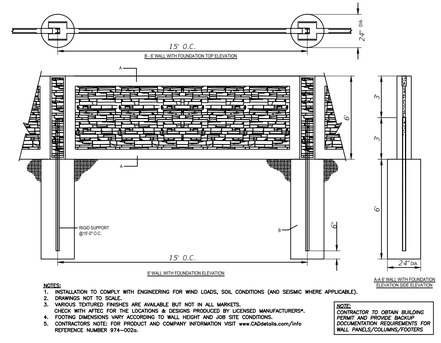
TYPE 'D' CONCRETE CURB
N.T.S.



SECTION

NOTES
1. CONCRETE TO BE CLASS 1, 2,500 PSI IN 28 DAYS.
2. USE OF FIBER REINFORCED CONCRETE IS PROHIBITED.
3. 4" THICK MIN. (TYP.); 6" THICK AT DRIVEWAYS, EXTENDED TWO-FEET BEYOND DRIVE, ON BOTH SIDES.
4. SIDEWALK SLOPES SHALL MEET THE REQUIREMENTS OF THE AMERICAN WITH DISABILITIES ACT.
5. INCLUDES ANY CUT AND/OR FILL TO ACHIEVE DESIGN SLOPES.
6. PROVIDE 1/8" CONSTRUCTION JOINTS AT 5' c.c., MINIMUM DEPTH 1/2".
7. PROVIDE 1/2" EXPANSION JOINTS W/ NON-RISING FILLER AT 30'c.c.
8. CURE ALL CONCRETE WITH CLEAN SAND, PLASTIC MEMBRANE, OR OTHER APPROVED METHOD.

CONCRETE SIDEWALK SECTION
N.T.S.



NOTES:
1. INSTALLATION TO COMPLY WITH ENGINEERING FOR WIND LOADS, SOIL CONDITIONS (AND SEISMIC WHERE APPLICABLE).
2. DRAWINGS NOT TO SCALE.
3. VARIOUS TEXTURED FINISHES ARE AVAILABLE BUT NOT IN ALL MARKETS. CHECK WITH ARTEC FOR THE LOCATIONS & DESIGNS PRODUCED BY LICENSED MANUFACTURERS*.
4. FOOTING DIMENSIONS VARY ACCORDING TO WALL HEIGHT AND JOB SITE CONDITIONS.
5. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 974-002a.

NOTE: CONTRACTOR TO OBTAIN BUILDING PERMIT AND PROVIDE BACKUP DOCUMENTATION REQUIREMENTS FOR WALL PANELS/COLUMNS/FOOTERS

CONCRETE PANEL WALL
N.T.S.

CHEN•MOORE &ASSOCIATES
500 West Cypress Creek Road
Suite 630
Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com
CERTIFICATES OF AUTHORIZATION
EB4593 LC26000425

REGISTRATION
JASON MCCLAIR, P.E.
REGISTRATION NO. 56962
DATE: _____

SUB-CONSULTANT

CLIENT
WILTON MANORS Island City
PUBLIC SERVICES DEPARTMENT
2020 WILTON DRIVE
WILTON MANORS, FL 33305

PROJECT INFORMATION

NE 23RD DRIVE PARKING PROJECT

WILTON MANORS, FLORIDA

PROJECT NUMBER
15-125.024

CLIENT PROJECT NUMBER
AMENDMENT 26

VERIFY SCALES
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REVISIONS

DATE OF ISSUE
10/26/2016

DESIGNED BY
JM

DRAWN BY
TN

CHECKED BY
JM

DRAWING TITLE
PAVING, GRADING AND DRAINAGE DETAILS

DRAWING NUMBER
PGDD-1
04 OF 15

BID SUBMITTAL

Plot Date: 10/26/2016 12:06:21 PM Username: JTamo Layout Name: PGDD-1
Folder Path: V:\Projects\2015\15-125.024 - ne 23rd drive parking\Design\CADD\Plans Filename: 15-125.024 Paving Grading and Drainage Details.dwg

Always call 811 two full business days before you dig to have underground utilities located and marked.

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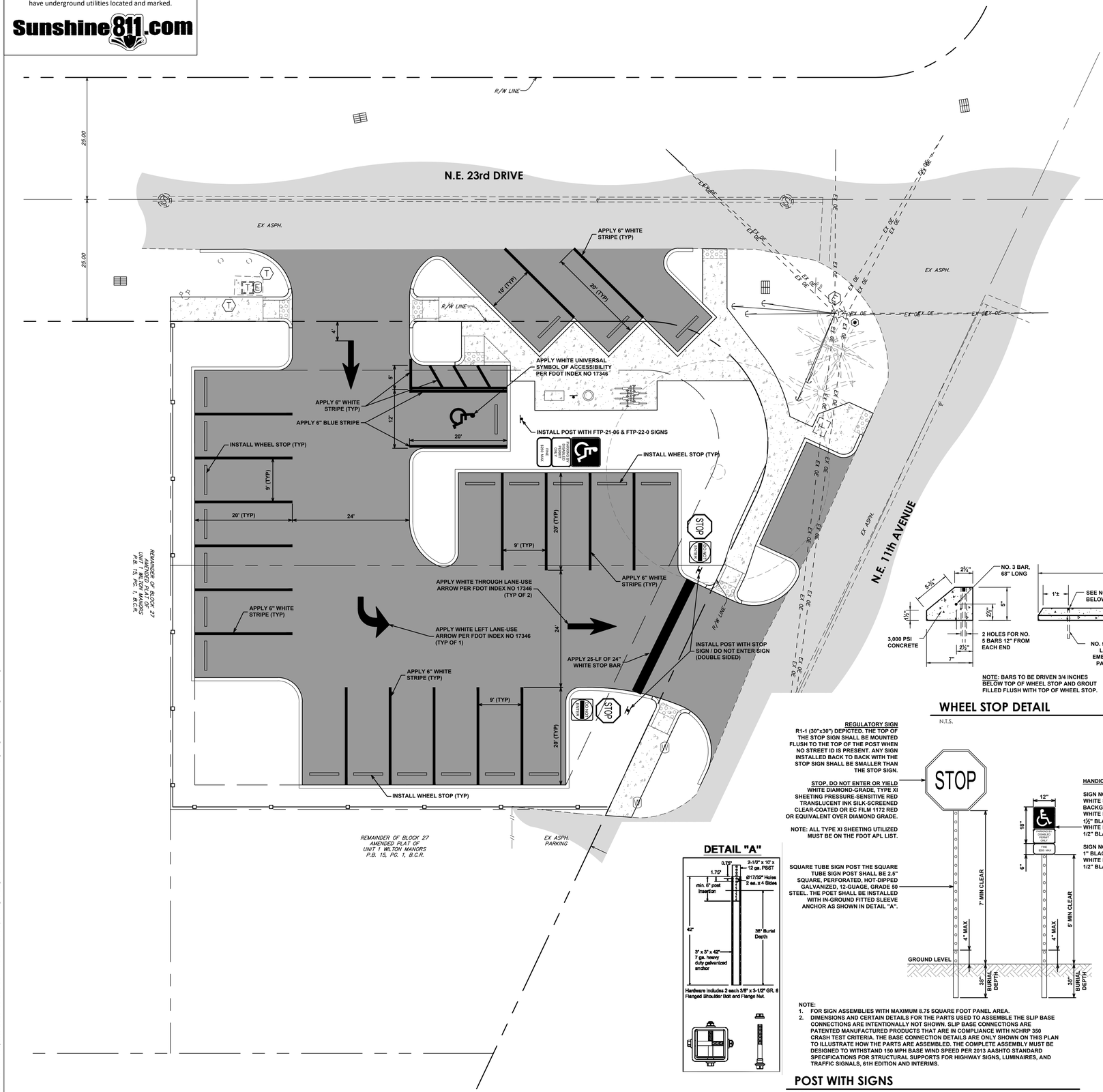


LEGEND

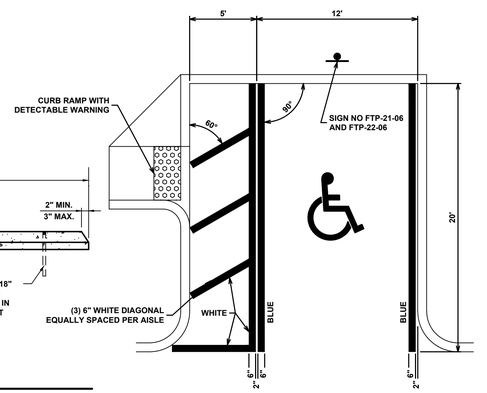
ANCHOR
BOLLARD / GUARD POST
CATCH BASIN
CABLE TV RISER
ELECTRIC METER
ELECTRIC WIRE PULL BOX
FIRE HYDRANT
SANITARY SEWER MANHOLE
SIGN ON POST
TELEPHONE CABINET
TELEPHONE VAULT
TELEPHONE WIRE PULL BOX
WATER METER
WOOD POWER
PALM
TREE
ASPHALT AREA
CONCRETE AREA
CENTER LINE
RIGHT-OF-WAY LINE
PROPERTY LINE
EASEMENT LINE
OVERHEAD ELECTRIC LINES
PROPOSED ASPHALT
PROPOSED STREET SIGN AND POST

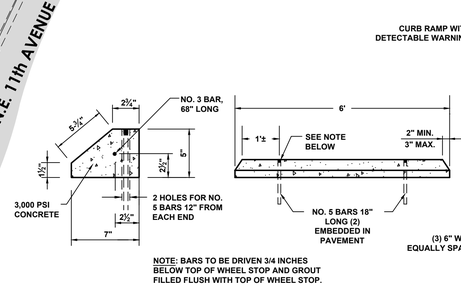
ABBREVIATIONS

P.B.	PLAT BOOK
PG.	PAGE
B.C.R.	BROWARD COUNTY RECORDS
℄	CENTERLINE
EL.	ELEVATION
CONC.	CONCRETE
ASPH.	ASPHALT
R/W	RIGHT OF WAY

SIGNING AND MARKING NOTES:

1. ALL SIGNING, PAVEMENT MARKINGS AND PLACEMENT OF REFLECTIVE PAVEMENT MARKERS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES MANUAL (MUTCD), LATEST VERSION.
2. ALL PAVEMENT MARKING SHALL BE HOT APPLIED THERMOPLASTIC MANUFACTURED AND APPLIED IN ACCORDANCE WITH FDOT STANDARD SPECIFICATION SECTION 711, LATEST EDITION.
3. ALL SIGNS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
4. ALL `R1-1' SIGNS SHALL BE DIAMOND GRADE.
5. THE PUBLIC ROADWAYS INDICATED IN THESE PLANS HAVE BEEN DESIGNED SUBSTANTIALLY IN ACCORDANCE WITH "THE MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS-STATE OF FLORIDA".





NOTE: BARS TO BE DRIVEN 3/4 INCHES BELOW TOP OF WHEEL STOP AND GROUT FILLED FLUSH WITH TOP OF WHEEL STOP.

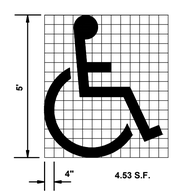
WHEEL STOP DETAIL

N.T.S.

NOTE:
1. ALL PAVEMENT MARKINGS SHALL BE ALKYD BASED THERMOPLASTIC AND FULLY RETROREFLECTORIZED.
2. ALL PAVEMENT MARKINGS ON PAVER SYSTEMS SHALL BE 3M 5730/31 TAPE AND APPLIED WITH AN E44 CONTACT CEMENT AS PER MANUFACTURER'S SPECIFICATIONS.
3. BLUE PAVEMENT MARKINGS SHALL BE TINTED TO MATCH SHADE 15180 OF FEDERAL STANDARDS 595A.
4. THE FTP-22-06 PANEL SHALL BE MOUNTED BELOW THE FTP-21-06 SIGN.

HANDICAP STRIPING DETAIL

N.T.S.



USE OF PAVEMENT SYMBOL IN ACCESSIBLE PARKING SPACES IS OPTIONAL, WHEN USED THE SYMBOL SHALL BE 3' OR 5' HIGH AND WHITE IN COLOR.

UNIVERSAL SYMBOL OF ACCESSIBILITY

N.T.S.

REGULATORY SIGN
R1-1 (30"x30") DEPICTED. THE TOP OF THE STOP SIGN SHALL BE MOUNTED FLUSH TO THE TOP OF THE POST WHEN NO STREET ID IS PRESENT. ANY SIGN INSTALLED BACK TO BACK WITH THE STOP SIGN SHALL BE SMALLER THAN THE STOP SIGN.

STOP, DO NOT ENTER OR YIELD
WHITE DIAMOND-GRADE, TYPE XI SHEETING PRESSURE-SENSITIVE RED TRANSLUCENT INK SILKSCREENED CLEAR-COATED OR EC FILM 1172 RED OR EQUIVALENT OVER DIAMOND GRADE.

NOTE: ALL TYPE XI SHEETING UTILIZED MUST BE ON THE FDOT APL LIST.

SQUARE TUBE SIGN POST
THE SQUARE TUBE SIGN POST SHALL BE 2.5" SQUARE, PERFORATED, HOT-DIPPED GALVANIZED, 12-GUAGE, GRADE 50 STEEL. THE POET SHALL BE INSTALLED WITH IN-GROUND FITTED SLEEVE ANCHOR AS SHOWN IN DETAIL "A".

HANDICAP SIGN

SIGN NO FTP-21-06
WHITE SYMBOL ON BLUE BACKGROUND WITH 1/2" WHITE BORDER
½" BLACK LETTERS ON WHITE BACKGROUND WITH 1/2" BLACK BORDER

SIGN NO FTP-22-06
1" BLACK LETTERS ON WHITE BACKGROUND WITH 1/2" BLACK BORDER

NOTE:
1. FOR SIGN ASSEMBLIES WITH MAXIMUM 8.75 SQUARE FOOT PANEL AREA.
2. DIMENSIONS AND CERTAIN DETAILS FOR THE PARTS USED TO ASSEMBLE THE SLIP BASE CONNECTIONS ARE INTENTIONALLY NOT SHOWN. SLIP BASE CONNECTIONS ARE PATENTED MANUFACTURED PRODUCTS THAT ARE IN COMPLIANCE WITH NCHRP 350 CRASH TEST CRITERIA. THE BASE CONNECTION DETAILS ARE ONLY SHOWN ON THIS PLAN TO ILLUSTRATE HOW THE PARTS ARE ASSEMBLED. THE COMPLETE ASSEMBLY MUST BE DESIGNED TO WITHSTAND 150 MPH BASE WIND SPEED PER 2013 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 61H EDITION AND INTERIMS.

POST WITH SIGNS

N.T.S.

BID SUBMITTAL

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Ft. Lauderdale, FL 33309
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WILTON MANORS, FLORIDA

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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REVISIONS

DATE OF ISSUE
10/26/2016

DESIGNED BY
JM

DRAWN BY
TN

CHECKED BY
JM

DRAWING TITLE

PAVEMENT MARKING AND SIGNAGE PLAN

DRAWING NUMBER
PMS-1
05 OF 15

Plot Date: 10/27/2016 1:21:30 PM Username: JTamo Layout Name: PMS-1
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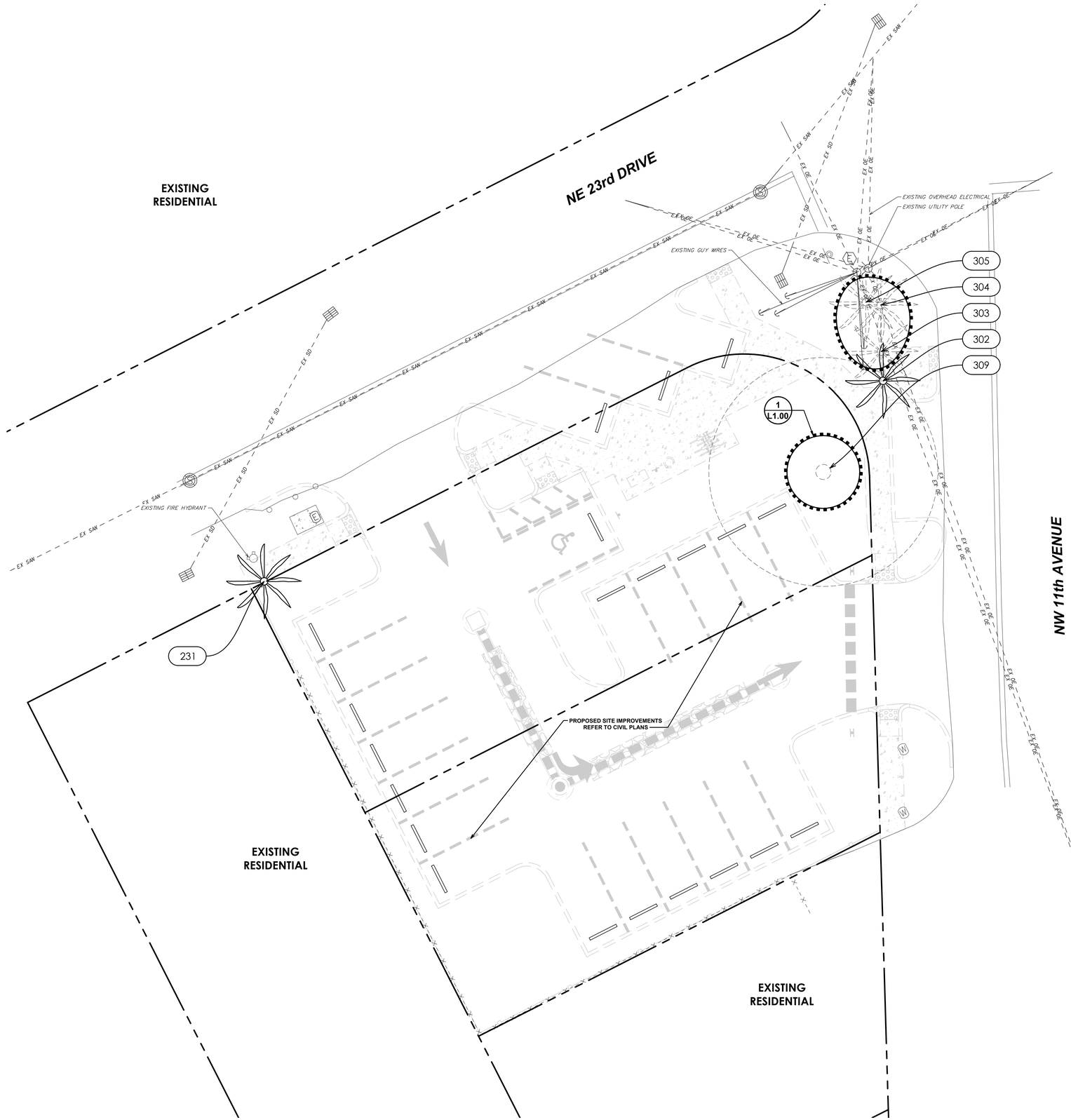

N

GRAPHIC SCALE
0 5 10 20
1 INCH = 10 FEET

Always call 811 two full business days before you dig to have underground utilities located and marked.
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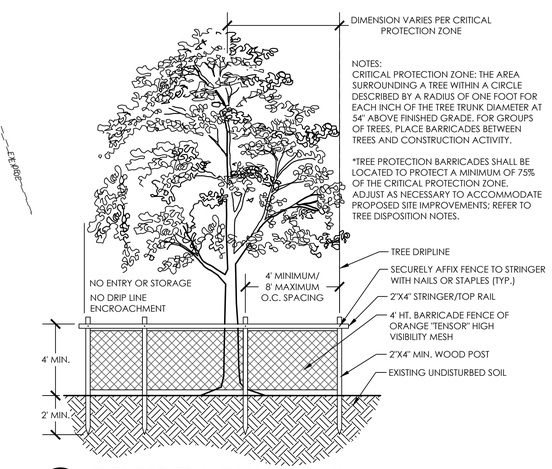
TREE DISPOSITION TABLE

TREE ID#	COMMON NAME	BOTANICAL NAME	DBH (IN)	CT (FT)	CANOPY SPREAD (SF)	CANOPY AREA (SF)	DISPOSITION
231	CABBAGE PALM	SABAL PALMETTO	15		15	176.63	RELOCATE
302	CABBAGE PALM	SABAL PALMETTO	15		15	176.63	RELOCATE
303	CABBAGE PALM	SABAL PALMETTO	15		15	176.63	REMAIN
304	CABBAGE PALM	SABAL PALMETTO	15		15	176.63	REMAIN
305	CABBAGE PALM	SABAL PALMETTO	15		15	176.63	REMAIN
309	MANGO	MANGIFERA INDICA	36		45	1,589.63	REMAIN

TREE DISPOSITION NOTES

1. ROOT PRUNING AND WATERING PRIOR TO CONSTRUCTION:
   - 1.1. TREE ROOT PRUNING AND TRIMMING, SHALL BE PERFORMED UNDER THE SUPERVISION OF A CERTIFIED & LICENSED ARBORIST.
   - 1.2. ROOT PRUNE TREES A MINIMUM OF EIGHT (8) WEEKS PRIOR TO CONSTRUCTION. PRIOR TO ROOT PRUNING, THOROUGHLY WATER THE ROOT ZONE WITH AT LEAST 2 TO 3 INCHES OF WATER FOR 2 TO 3 DAYS PRIOR TO ROOT PRUNING. SEE BELOW FOR RELOCATION TIMELINE.
     - 1.2.1. PROVIDE TEMPORARY IRRIGATION FOR EACH TREE THROUGHOUT THE DURATION OF CONSTRUCTION.
     - 1.2.2. ROOT PRUNE TREES, SHOWN ON PLAN IN AREAS WHERE ROOTS WILL CONFLICT WITH CONSTRUCTION ACTIVITY. PRUNING OF ROOTS SHOULD BE DONE IN A MANNER TO PRESERVE THE GREATEST AMOUNT OF THE ROOT BASE AS POSSIBLE.
     - 1.2.3. BACKFILL TRENCH WITH PLANTING SOIL.
     - 1.2.4. FERTILIZE WITHIN THE ROOT ZONE (SEE NOTE 1.4).
   - 1.3. ROOT PRUNING SHALL BE ACCOMPLISHED BY DIGGING A TRENCH AROUND THE TREE IN AREAS WHERE PROPOSED SITE WORK WILL BE PERFORMED. TRENCHING SHALL BE AT A MINIMUM OF 24" DEEP. ROOT PRUNE ONLY WITH A MECHANICAL ROOT-PRUNING SAW OR A TRENCHER WITH A MAXIMUM TRENCH WIDTH OF 8".
   - 1.4. ALL EXPOSED ROOTS SHALL BE CUT OFF SMOOTHLY, WITH SHARP INSTRUMENTS. BACKFILL TRENCHES WITH SOIL CONSISTING OF 30% SILICA SAND AND 70% MUCK. WATER THOROUGHLY AFTER ROOT PRUNING, AND ONCE WEEKLY DURING THE ROOT REGENERATION PERIOD, WITH A SOLUBLE FERTILIZER THAT HAS A 20.20.20 ANALYSIS AT MANUFACTURER'S RECOMMENDED RATE.
2. BRACING AND GUYING OF TREES AFTER ROOT PRUNING
   - 2.1. BRACING AND GUYING SHALL BE PROVIDED TO ASSURE THE TREES' STABILITY DURING THE ROOT REGENERATION PERIOD; AS PER THE APPLICABLE DETAIL(S).
3. ROOT ZONE PROTECTION
   - 3.1. DURING THE ENTIRE CONSTRUCTION PERIOD ALL REASONABLE EFFORTS SHALL BE MADE TO PROTECT THE ROOT ZONE FROM DAMAGE. TREE PROTECTION BARRICADING SHALL BE ERECTED AROUND THE TREES. ALL PLANT MATERIAL DESIGNATED TO BE SAVED, OR OUTSIDE OF THE LIMITS OF CONSTRUCTION, SHALL BE PROTECTED DURING CONSTRUCTION WORK. WORK UNDER THESE ITEMS WILL INCLUDE CONSTRUCTION AND MAINTENANCE OF TEMPORARY BARRICADE FENCING TO PROTECT THE ROOT ZONES OF EXISTING TREES AND OTHER PLANTINGS.
   - 3.2. A PROTECTION BARRIER OR TEMPORARY FENCE OF AT LEAST 4 FEET IN HEIGHT SHALL BE INSTALLED AROUND EACH TREE TO BE PROTECTED AND PRESERVED. THE TREE PROTECTION SHALL BE INSTALLED PRIOR TO THE ACTUAL CONSTRUCTION START AND MAINTAINED FOR THE DURATION OF THE PROJECT.
   - 3.3. TREE BARRICADE FENCING SHALL BE: AS PER THE APPLICABLE DETAIL(S).



1 TREE PRESERVATION FENCING
1/4" = 1'-0" 329343-24

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REGISTRATION
CRISTOBAL A. BETANCOURT, RLA
REGISTRATION NO. 6666941
DATE: _____

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PUBLIC SERVICES DEPARTMENT
2020 WILTON DRIVE
WILTON MANORS, FL 33305

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VERIFY SCALES
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REVISIONS

DATE OF ISSUE
10/26/2016

DESIGNED BY
CJS

DRAWN BY
CJS

CHECKED BY
EDH

DRAWING TITLE

TREE DISPOSITION PLAN

DRAWING NUMBER
L1.00
06 OF 15

Plot Date: 10/27/2016 3:07:34 PM Username: JTamo Layout Name: L1.00
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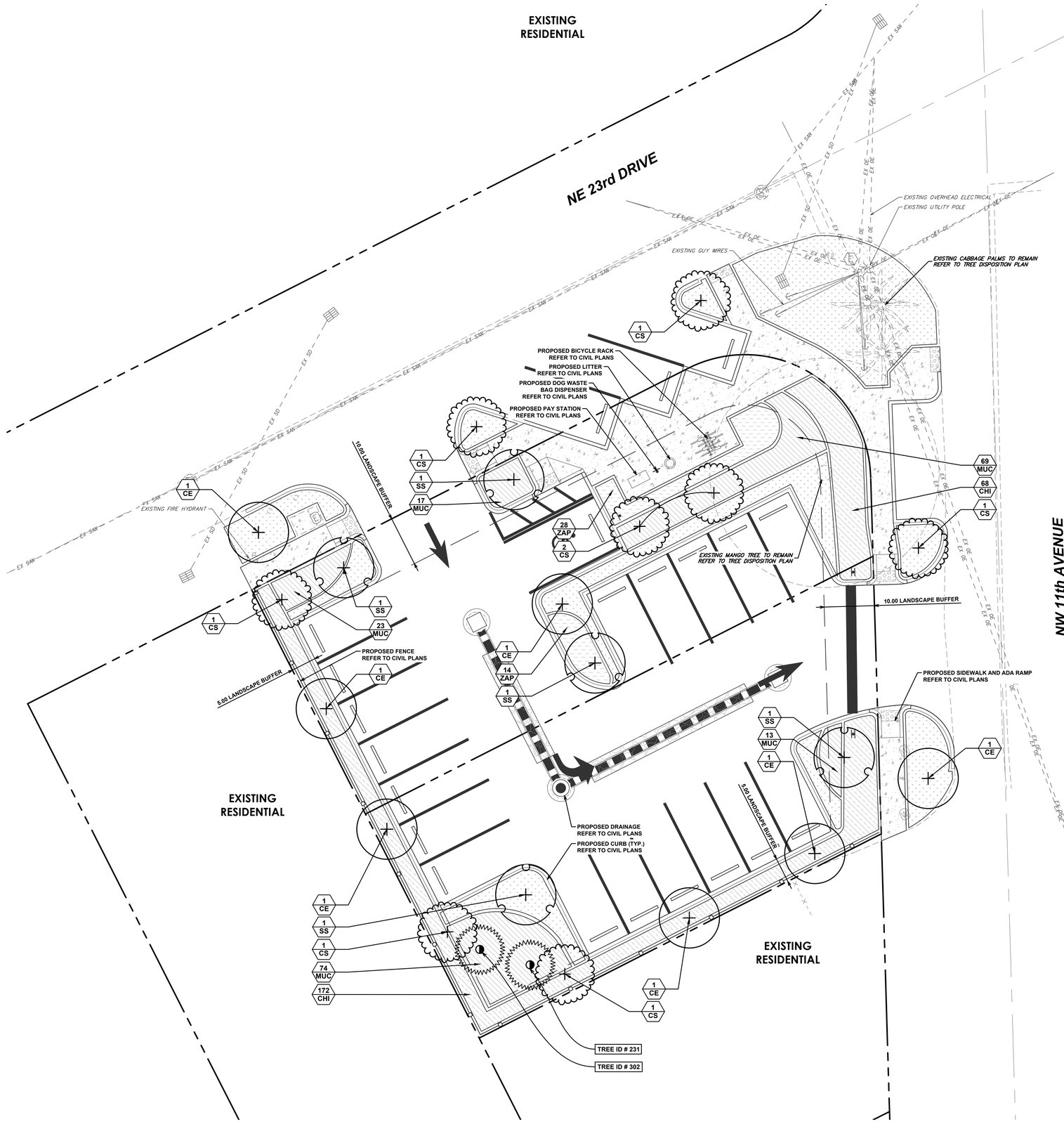

N

GRAPHIC SCALE
0 5 10 20
1 INCH = 10 FEET

Always call 811 two full business days before you dig to have underground utilities located and marked.
Sunshine811.com

PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL NAME	CONT	SIZE
+	CE	7	Conocarpus erectus Green Buttonwood	B & B	12` HT, 6` SPR, 3" CAL
+	CS	8	Conocarpus erectus `Sericeus` Silver Buttonwood	B & B	12` HT, 6` SPR, 3" CAL
+	SS	5	Senna surattensis Glaucous Cassia	B & B	10` HT, 5` SPRD, 2-1/2" CAL

RELOCATED PALMS	CODE	QTY	BOTANICAL NAME	CONT	SIZE
	SP-R	2	Sabal palmetto Cabbage Palm	Relocated	Varies

SHRUB AREAS	CODE	QTY	BOTANICAL NAME	CONT	SIZE	SPACING
	CHI	240	Chrysobalanus icaco `Horizontalis` Horizontal Cocoplum	3 gal	24" HT, 24" SPRD	24" o.c.
	MUC	196	Muhlenbergia capillaris Pink Muhly	3 gal	24" HT, FULL	24" o.c.
	ZAP	42	Zamia plumila Coontie Palm	7 gal	24" HT, FULL	30" o.c.

GROUND COVERS	CODE	QTY	BOTANICAL NAME	CONT	SIZE
	SOD	1,763 sf	Paspalum notatum Bahia Grass	Sod	FULL

LANDSCAPE REQUIREMENTS

Perimeter Landscape Buffer	Required	Provided
Abutting right-of-way	10'	10'
Abutting common property	5'	5'
One tree per 30 l.f. property line (within right-of-way) *134 l.f.*	5	6

Vehicular Use Area (VUA)	Required	Provided
1 Tree / 6 Shrubs per 1,000 s.f. VUA: *Total VUA:* *8,459 s.f.* *Site Impervious:* *9,912 s.f. (66.8%)* *Site Pervious:* *4,919 s.f. (33.2%)*	9 / 54	11/ 117
Shade Tree	25%	50%
Flowering Tree	20%	23%
Native Tree	40%	78%

Required Minimum Landscape	Required	Provided
1 Tree / 20 shrubs per 1,500 s.f. permeable area: *Site Pervious:* *4,919 s.f. (33.2%)*	3 / 60	5/ 60

Species Variety	Required	Provided
Trees *Total 17 Required Trees* Green Buttonwood (Proposed) Silver Buttonwood (Proposed) Glaucous Cassia (Proposed) Mango (Existing) Cabbage Palm (Existing)	4 species	5 species
Shrubs *Total 114 Required Shrubs* Cocoplum (Proposed) Pink Muhly (Proposed) Coontie (Proposed)	2 species	3 species

BID SUBMITTAL

CHEN•MOORE &ASSOCIATES
500 West Cypress Creek Road
Suite 630
Ft. Lauderdale, FL 33309
954.730.0707
www.chenmoore.com
CERTIFICATES OF AUTHORIZATION
EB4593 LC26000425

REGISTRATION
CRISTOBAL A. BETANCOURT, RLA
REGISTRATION NO. 6666941
DATE: _____

SUB-CONSULTANT

CLIENT
PUBLIC SERVICES DEPARTMENT
2020 WILTON DRIVE
WILTON MANORS, FL 33305

PROJECT INFORMATION

NE 23RD DRIVE PARKING PROJECT

WILTON MANORS, FLORIDA

PROJECT NUMBER
15-125.024

CLIENT PROJECT NUMBER
AMENDMENT 26

VERIFY SCALES
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REVISIONS

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10/26/2016

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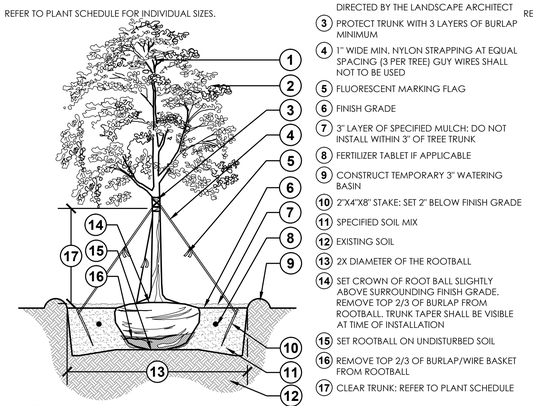
LANDSCAPE PLAN

DRAWING NUMBER
L2.00
07 OF 15

Plot Date: 10/27/2016 3:08:31 PM Username: JTamo Layout Name: L2.00
Folder Path: V:\Projects\2015\15-125.024 - ne 23rd drive parking\Design\CAD\Plans Filename: 15-125.024 LNP.dwg

CALIPER MEASUREMENTS NOTES:
1. CALIPER MEASUREMENT IS 6" FROM TOP OF ROOT BALL FOR TREES WITH 6" CALIPER OR LESS.
2. CALIPER MEASUREMENT IS12" FROM TOP OF ROOT BALL FOR TREES WITH 6" CALIPER GREATER.

REFER TO PLANT SCHEDULE FOR INDIVIDUAL SIZES.



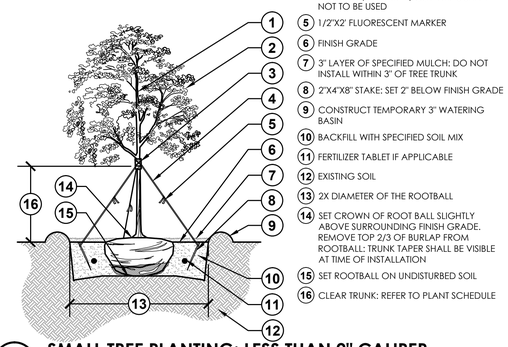
1. DO NOT PRUNE CENTRAL LEADER
2. PRUNE DAMAGED OR DEAD WOOD IMMEDIATELY PRIOR TO PLANTING USING ACCEPTABLE NURSERY PRACTICES OR AS DIRECTED BY THE LANDSCAPE ARCHITECT
3. PROTECT TRUNK WITH 3 LAYERS OF BURLAP MINIMUM
4. 1" WIDE MIN. NYLON STRAPPING AT EQUAL SPACING (3 PER TREE) GUY WIRES SHALL NOT TO BE USED
5. FLUORESCENT MARKING FLAG
6. FINISH GRADE
7. 3" LAYER OF SPECIFIED MULCH: DO NOT INSTALL WITHIN 3" OF TREE TRUNK
8. FERTILIZER TABLET IF APPLICABLE
9. CONSTRUCT TEMPORARY 3" WATERING BASIN
10. 2"X4"X8" STAKE: SET 2" BELOW FINISH GRADE
11. SPECIFIED SOIL MIX
12. EXISTING SOIL
13. 2X DIAMETER OF THE ROOTBALL
14. SET CROWN OF ROOT BALL SLIGHTLY ABOVE SURROUNDING FINISH GRADE. REMOVE TOP 2/3 OF BURLAP FROM ROOTBALL. TRUNK TAPER SHALL BE VISIBLE AT TIME OF INSTALLATION
15. SET ROOTBALL ON UNDISTURBED SOIL
16. REMOVE TOP 2/3 OF BURLAP/WIRE BASKET FROM ROOTBALL
17. CLEAR TRUNK; REFER TO PLANT SCHEDULE

1 LARGE TREE PLANTING: 2" CALIPER AND GREATER

1/4" = 1'-0" 329343-17

CALIPER MEASUREMENTS NOTES:
1. CALIPER MEASUREMENT IS 6" FROM TOP OF ROOT BALL FOR TREES WITH 6" CALIPER OR LESS.
2. CALIPER MEASUREMENT IS12" FROM TOP OF ROOT BALL FOR TREES WITH 6" CALIPER GREATER.

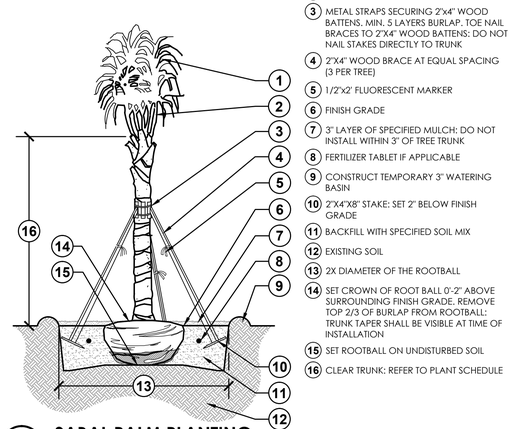
REFER TO PLANT SCHEDULE FOR INDIVIDUAL SIZES.



1. DO NOT PRUNE CENTRAL LEADER
2. PRUNE DAMAGED OR DEAD WOOD IMMEDIATELY PRIOR TO PLANTING USING ACCEPTABLE NURSERY PRACTICES OR AS DIRECTED BY THE LANDSCAPE ARCHITECT
3. PROTECT TRUNK WITH 3 LAYERS OF BURLAP MINIMUM
4. 1" WIDE MIN. NYLON STRAPPING AT EQUAL SPACING (3 PER TREE) GUY WIRES SHALL NOT TO BE USED
5. 1/2"X2' FLUORESCENT MARKER
6. FINISH GRADE
7. 3" LAYER OF SPECIFIED MULCH: DO NOT INSTALL WITHIN 3" OF TREE TRUNK
8. 2"X4"X8" STAKE: SET 2" BELOW FINISH GRADE
9. CONSTRUCT TEMPORARY 3" WATERING BASIN
10. BACKFILL WITH SPECIFIED SOIL MIX
11. FERTILIZER TABLET IF APPLICABLE
12. EXISTING SOIL
13. 2X DIAMETER OF THE ROOTBALL
14. SET CROWN OF ROOT BALL SLIGHTLY ABOVE SURROUNDING FINISH GRADE. REMOVE TOP 2/3 OF BURLAP FROM ROOTBALL: TRUNK TAPER SHALL BE VISIBLE AT TIME OF INSTALLATION
15. SET ROOTBALL ON UNDISTURBED SOIL
16. CLEAR TRUNK: REFER TO PLANT SCHEDULE

2 SMALL TREE PLANTING: LESS THAN 2" CALIPER

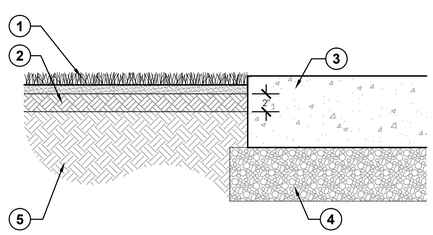
1/4" = 1'-0" 329343-18



1. DO NOT HURRICANE CUT FRONDS
2. UNITE FRONDS PRIOR TO INSPECTION
3. METAL STRAPS SECURING 2"x4" WOOD BATTENS. MIN. 5 LAYERS BURLAP. TOE NAIL BRACES TO 2"X4" WOOD BATTENS: DO NOT NAIL STAKES DIRECTLY TO TRUNK
4. 2"X4" WOOD BRACE AT EQUAL SPACING (3 PER TREE)
5. 1/2"X2' FLUORESCENT MARKER
6. FINISH GRADE
7. 3" LAYER OF SPECIFIED MULCH: DO NOT INSTALL WITHIN 3" OF TREE TRUNK
8. FERTILIZER TABLET IF APPLICABLE
9. CONSTRUCT TEMPORARY 3" WATERING BASIN
10. 2"X4"X8" STAKE: SET 2' BELOW FINISH GRADE
11. BACKFILL WITH SPECIFIED SOIL MIX
12. EXISTING SOIL
13. 2X DIAMETER OF THE ROOTBALL
14. SET CROWN OF ROOT BALL 0'-2" ABOVE SURROUNDING FINISH GRADE. REMOVE TOP 2/3 OF BURLAP FROM ROOTBALL: TRUNK TAPER SHALL BE VISIBLE AT TIME OF INSTALLATION
15. SET ROOTBALL ON UNDISTURBED SOIL
16. CLEAR TRUNK: REFER TO PLANT SCHEDULE

3 SABAL PALM PLANTING

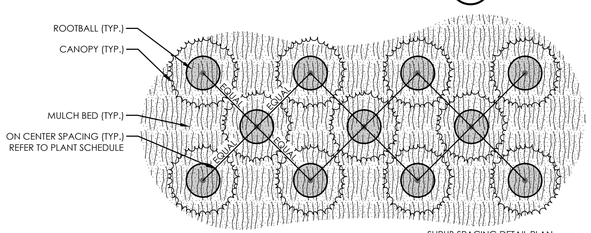
1/4" = 1'-0" 329343-21



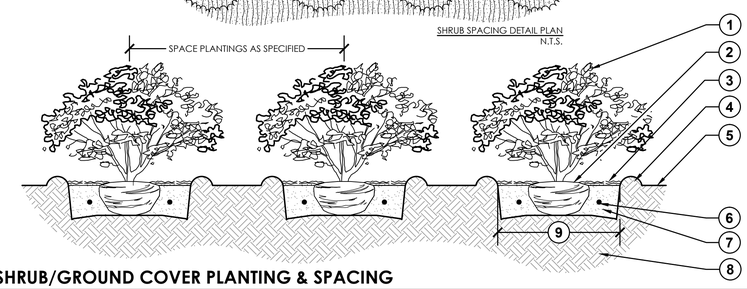
1. SOD (AS SPECIFIED)
2. PLANTING MIX: 80% SILICA SAND, 20% ORGANIC
3. SIDEWALK OR CURB
4. SUB-BASE
5. NATIVE SOIL

4 SOD PLANTING

1 1/2" = 1'-0" 329333-03



SHRUB SPACING DETAIL PLAN
N.T.S.



1. PLANT MATERIAL SHALL NOT BE PRUNED PRIOR TO INSTALLATION: AFTER PLANTS HAVE BEEN INSTALLED, EACH PLANT SHALL BE PRUNED FOR UNIFORMITY
2. SET CROWN OF ROOT SLIGHTLY ABOVE SURROUNDING FINISH GRADE: TRUNK TAPER SHALL BE VISIBLE AT TIME OF INSTALLATION
3. 3" LAYER OF SPECIFIED MULCH: DO NOT INSTALL WITHIN 3" OF TREE TRUNK
4. CONSTRUCT TEMPORARY 3" WATERING BASIN
5. FINISH GRADE
6. FERTILIZER TABLET IF APPLICABLE.
7. BACKFILL WITH SPECIFIED SOIL MIX
8. EXISTING SOIL
9. 2X DIAMETER OF THE ROOTBALL

5 SHRUB/GROUND COVER PLANTING & SPACING

1" = 1'-0" 32 9333-08

LANDSCAPE SPECIFICATIONS

1. GENERAL
 1.1. WORK PERFORMED SHALL COMPLY WITH THE FOLLOWING:
  1.1.1. THESE GENERAL NOTES, CONSTRUCTION DOCUMENTS AND SPECIFICATIONS.
  1.1.2. ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES, ORDINANCES AND REGULATIONS.
 1.2. SOURCE OF BASE AND SURVEY INFORMATION IS ASSUMED TO BE CORRECT. IF SITE DISCREPANCIES ARE PRESENT, CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE IMMEDIATELY. IF CONTRACTOR CONTINUES WORK WITHOUT THE PROPER NOTIFICATION, CONTRACTOR DOES SO AT HIS OWN RISK.
 1.3. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, SUPERVISION, AND EQUIPMENT REQUIRED FOR THE WORK AS SHOWN ON THE CONSTRUCTION DOCUMENTS DESCRIBED HEREIN.
 1.4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUB-CONTRACTORS AS REQUIRED TO COMPLETE THE WORK OF THIS PROJECT.
 1.5. CONTRACTOR SHALL VERIFY LOCATIONS OF PERTINENT SITE IMPROVEMENTS INSTALLED UNDER OTHER CONTRACTS. IF ANY PART OF THIS PLAN CANNOT BE FOLLOWED DUE TO SITE CONDITIONS, CONTACT OWNER'S REPRESENTATIVE FOR INSTRUCTIONS PRIOR TO COMMENCING WORK.
 1.6. CONTRACTOR TO NOTIFY "SUNSHINE STATE ONE CALL OF FLORIDA, INC." AT 1-800-432-4770 TWO FULL BUSINESS DAYS PRIOR TO DIGGING FOR UNDERGROUND UTILITY LOCATIONS.
 1.7. CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALL UTILITY LOCATIONS AND INSTALLING FACILITIES SO AS TO NOT CONFLICT. THE LOCATION OF EXISTING UTILITIES OR SITE FEATURES AS SHOWN ON THE PLANS MAY VARY IN RELATION TO ACTUAL EXISTING CONDITIONS. ANY DIFFERING SITE CONDITIONS FROM THAT WHICH IS REPRESENTED HEREON, WHETHER ABOVE, ON OR BELOW THE SURFACE OF THE GROUND, SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT AND THE OWNER IN WRITING. NO CLAIM FOR EXPENSES INCURRED BY THE CONTRACTOR DUE TO DIFFERING SITE CONDITIONS WILL BE ALLOWED IF THE CONTRACTOR FAILS TO PROVIDE THE REQUIRED WRITTEN NOTIFICATION OF SUCH CONDITIONS FOR REVIEW BY THE LANDSCAPE ARCHITECT AND THE OWNER.
 1.8. CONTRACTOR SHALL NOTIFY ALL APPROPRIATE UTILITY COMPANIES OF PROPOSED START OF WORK IN ACCORDANCE WITH THEIR STANDARD REQUIREMENTS, INCLUDING BUT NOT LIMITED TO, WATER, SANITARY SEWER, POWER, NATURAL GAS, TELEPHONE AND CABLE TV COMPANIES.
 1.9. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO TAKE THE NECESSARY PRECAUTIONS TO ENSURE PROPER SAFETY AND WORKMANSHIP WHEN WORKING IN THE VICINITY OF EXISTING UTILITY LINES.
 1.10. PERFORM EXCAVATION IN THE VICINITY OF UNDERGROUND UTILITIES WITH CARE AND BY HAND, IF NECESSARY. THE CONTRACTOR BEARS FULL RESPONSIBILITY FOR THIS WORK AND DISRUPTION OF DAMAGE TO UTILITIES SHALL BE REPAIRED IMMEDIATELY AND AT NO EXPENSE TO THE OWNER.
 1.11. THE SUCCESSFUL BIDDER SHALL FURNISH TO THE OWNER A UNIT PRICE BREAKDOWN FOR ALL MATERIALS. THE OWNER MAY, AT ITS DISCRETION, ADD OR DELETE FROM THE MATERIALS UTILIZING THE UNIT PRICE BREAKDOWN SUBMITTED.
 1.12. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL REQUIRED PERMITS ARE OBTAINED AND ARE IN HAND AT THE JOB SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL ABIDE BY ALL PERMIT CONDITIONS.
2. PRE-CONSTRUCTION RESPONSIBILITY
 2.1. UPON RECEIPT OF NOTICE OF AWARD, THE CONTRACTOR SHALL ARRANGE A PRE-CONSTRUCTION CONFERENCE TO INCLUDE ALL INVOLVED GOVERNMENTAL AGENCIES, ALL AFFECTED UTILITY OWNERS, THE OWNER, THE LANDSCAPE ARCHITECT, ANY OTHER PERTINENT PARTIES AND HIMSELF.
 2.2. CONTRACTOR SHALL PROVIDE TEMPORARY SANITARY FACILITIES ONSITE. LOCATION TO BE DETERMINED BY THE OWNER. JANITORIAL SERVICES SHALL BE PROVIDED BY CONTRACTOR THROUGHOUT THE DURATION OF PROJECT.
 2.3. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE, LOCATION, ELEVATION, AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION.
 2.4. IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE PLANS; THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT.
 2.5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS FOR THE FIELD LOCATIONS AND FOR ANY TREES PROPOSED FOR RELOCATION. THIS SHALL BE DONE IN A TIMELY MANNER TO MINIMIZE IMPACT ON CONSTRUCTION SCHEDULE. ANY DELAY CAUSED BY THE CONTRACTOR BY THE RELOCATION OF TREES SHALL BE INCIDENTAL TO THE CONTRACT AND NO EXTRA COMPENSATION WILL BE ALLOWED.
 2.6. CONTRACTOR SHALL VERIFY LIMITS OF CONSTRUCTION AS NOTED ON THE PLANS, ANY WORK PERFORMED OUTSIDE OF THE AGREED UPON LIMITS OF CONSTRUCTION SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR.
3. SITE DEMOLITION
 3.1. ITEMS SHALL REMAIN UNLESS OTHERWISE NOTED ON THE PLAN(S). REMOVE DESIGNATED ITEMS SHOWN ON THE PLAN TO THE FULL DEPTH OF THEIR CONSTRUCTION UNLESS OTHERWISE NOTED.
 3.2. ALL HARDSCAPE DESIGNATED FOR REMOVAL SHALL BE SAW CUT, LEAVING UNIFORM EDGES TO THE GREATEST EXTENT POSSIBLE. MATERIAL EDGES TO REMAIN SHALL BE SHORED UP AND PROTECTED DURING CONSTRUCTION TO PRESERVE EDGE INTACT. REPAIRS TO DAMAGED EDGES SHALL BE REPAIRED BY CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
 3.3. NO EXISTING MATERIAL SHALL BE USED IN NEW CONSTRUCTION UNLESS NOTED ON THE PLANS OR APPROVED DURING THE SHOP DRAWING APPROVAL PROCESS.
 3.4. SALVAGE EXISTING MATERIALS AS INDICATED ON THE PLANS. SALVAGED MATERIALS SHALL BE HANDLED WITH CARE AND STORED ON-SITE OR AS DIRECTED BY OWNER. CLEAN ALL DEBRIS AND CONSTRUCTION MATERIAL FROM SALVAGED ITEMS; REUSE AS DIRECTED BY OWNER'S REPRESENTATIVE.
 3.5. REMOVE DEMOLISHED MATERIALS FROM SITE AND DISPOSE OF AS REQUIRED BY LOCAL, STATE OR FEDERAL LAWS.
 3.6. CONTRACTOR SHALL PROTECT ADJACENT WATER BODIES, COASTAL DUNE SYSTEMS AND PROPERTIES FROM DAMAGE BY SEDIMENTATION OR OTHER POTENTIAL CONSTRUCTION RELATED CAUSES.
 3.7. ALL IRRIGATION IN DEMOLITION AREA TO BE CAPPED AND ADJUSTED AS NECESSARY TO ENSURE OVERALL SYSTEM IS NOT AFFECTED.
4. TREE PRESERVATION
 4.1. ALL TREES TO BE PRESERVED AS INDICATED ON THE TREE DISPOSITION PLAN SHALL BE PROTECTED BY A TREE PROTECTION BARRICADE, UNLESS OTHERWISE NOTED ON PLAN.
 4.2. TREE PROTECTION BARRICADES SHALL BE PROVIDED BY LANDSCAPE CONTRACTOR AROUND THE DRIP LINE OF EXISTING TREES TO BE PRESERVED IN PLACE, AS SHOWN ON PLAN. PRESERVATION BARRICADES SHALL BE LEFT IN PLACE THROUGHOUT DURING ALL PHASES OF CONSTRUCTION.
 4.3. PRIOR TO ANY CONSTRUCTION A TREE PROTECTION BARRICADE INSPECTION SHALL BE CONDUCTED BY THE LANDSCAPE ARCHITECT, OWNER OR GOVERNING MUNICIPALITY. REFER TO PLANS FOR TREE PRESERVATION BARRICADE FENCING DETAIL.
 4.4. IF EXCAVATION IN THE VICINITY OF A PROTECTED TREE IS REQUIRED, CONTRACTOR SHALL ROOT PRUNE TREES, UNDER THE SUPERVISION OF A CERTIFIED ARBORIST IN ACCORDANCE TO THE FOLLOWING CONDITIONS:
  4.4.1. ROOT PRUNE TREES A MINIMUM OF EIGHT (8) WEEKS PRIOR TO CONSTRUCTION. PRIOR TO ROOT PRUNING, THOROUGHLY WATER THE ROOT ZONE WITH AT LEAST 2 TO 3 INCHES OF WATER FOR 2 TO 3 DAYS PRIOR TO ROOT PRUNING. SEE BELOW FOR RELOCATION TIMELINE.
   1. PROVIDE TEMPORARY IRRIGATION FOR EACH TREE THROUGHOUT THE DURATION OF CONSTRUCTION.
   2. ROOT PRUNE TREES, SHOWN ON PLAN IN AREAS WHERE ROOTS WILL CONFLICT WITH CONSTRUCTION ACTIVITY. PRUNING OF ROOTS SHOULD BE DONE IN A MANNER TO PRESERVE THE GREATEST AMOUNT OF THE ROOT BASE AS POSSIBLE.
   3. BACKFILL TRENCH WITH PLANTING SOIL.
   4. FERTILIZE WITHIN THE ROOT ZONE (SEE BELOW).
  4.4.2. ROOT PRUNING SHALL BE ACCOMPLISHED BY DIGGING A TRENCH AROUND THE TREE IN AREAS WHERE PROPOSED SITE WORK WILL BE PERFORMED. TRENCHING SHALL BE AT A MINIMUM OF 24" DEEP. ROOT PRUNE ONLY WITH A MECHANICAL ROOT-PRUNING SAW OR A TRENCHER WITH A MAXIMUM TRENCH WIDTH OF 8".
  4.4.3. ALL EXPOSED ROOTS SHALL BE CUT OFF SMOOTHLY, WITH SHARP INSTRUMENTS. BACKFILL TRENCHES WITH SOIL CONSISTING OF 30% SILICA SAND AND 70% MUCK. WATER THOROUGHLY AFTER ROOT PRUNING, AND ONCE WEEKLY DURING THE ROOT REGENERATION PERIOD, WITH A SOLUBLE FERTILIZER THAT HAS A 20.20.20 ANALYSIS AT MANUFACTURER'S RECOMMENDED RATE.
 4.5. THE CONTRACTOR SHALL FIELD STAKE THE LIMIT OF ROOT PRUNING. LIMITS OF ROOT PRUNING SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO ANY EXCAVATION. DO NOT ROOT PRUNE FOR IRRIGATION OR ELECTRICAL LINES WITHIN DRIP LINES OF EXISTING TREES. COORDINATE ALL TRENCHING REQUIRED FOR UTILITY WORK WITH THE LANDSCAPE PLANS.
 4.6. ROOT PRUNING SHALL OCCUR IN ACCORDANCE WITH TREE RELOCATION NOTES AS NOTED ON PLANS.
5. PLANTING SOIL
 5.1. ALL TREES SHALL BE PLANTED WITH A MINIMUM OF 12" TOPSOIL AROUND AND BENEATH THE ROOTBALL.
 5.2. ALL TREES SHALL BE PLANTED WITH A MINIMUM OF 6" TOPSOIL AROUND AND BENEATH THE ROOTBALL.
 5.3. MINIMUM TOPSOIL SHALL BE 2" FOR SODDED GRASS AREAS.
 5.4. PLANTING SOIL MIX SHALL BE A WEED FREE MIX AS FOLLOWS:
  5.4.1. DICOT TREES & SHRUBS: 50% SAND, 40% MUCK & 10% PEAT
  5.4.2. MONOCOT PALMS: 70% SAND & 30% MUCK
  5.4.3. TURF: 80% SAND, 10% PEAT & 10% MUCK
6. LANDSCAPE PLANTING
 6.1. THIS PLAN HAS BEEN DESIGNED TO MEET OR EXCEED ALL APPLICABLE CODES.
 6.2. THE PLANTING PLAN SHALL BE INSTALLED IN COMPLIANCE WITH ALL EXISTING CODES AND APPLICABLE DEED RESTRICTIONS.
 6.3. PLANT MATERIAL: ALL PLANT MATERIAL SHALL BE FLORIDA #1 OR BETTER AS ESTABLISHED BY "GRADES AND STANDARDS FOR NURSERY PLANTS" OF THE STATE OF FLORIDA, DEPARTMENT OF AGRICULTURE.
 6.4. ALL PLANT MATERIAL SHALL BE TRUE TO THE BOTANICAL NAME, GENUS, SPECIES AND/OR HYBRID DESIGNATION.
 6.5. ALL TREES, SHRUBS AND GROUNDCOVERS SHALL BE OF THE SIZES (HEIGHT & SPREAD) AS SPECIFIED IN THE PLANT LIST. CONTAINER SIZE IS FOR REFERENCE PURPOSES ONLY. ALL PLANT MATERIAL SHALL MEET OR EXCEED THE MINIMUM SIZES AT INSTALLATION, AS SPECIFIED IN THE PLANT LIST.
 6.6. QUANTITIES LISTED ON THE PLANT LIST ARE FOR ESTIMATING PURPOSES. CONTRACTOR SHALL VERIFY ALL QUANTITIES, MULCH, TOPSOIL, FERTILIZER, ETC. SHALL BE INCLUDED IN THE UNIT COST OF THE PLANTS.
 6.7. WHERE THERE IS A DISCREPANCY EITHER IN QUANTITIES, PLANT NAMES, SIZES OR SPECIFICATIONS BETWEEN THE PLAN OR PLANT LIST, THE PLAN TAKES PRECEDENCE.
 6.8. ALL SUBSTITUTIONS AND CHANGES SHALL BE APPROVED IN WRITING PRIOR TO INSTALLATION. ANY DISCREPANCIES BETWEEN PLANS, SITE AND SPECIFICATIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT, THE OWNER AND/OR GOVERNING MUNICIPALITY.
 6.9. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING FINAL GRADING OF ALL ASSOCIATED PLANTING AREAS.
 6.10. AFTER FINAL GRADE, LANDSCAPE AREAS ARE TO BE RAKED TO A DEPTH OF 6". ALL ROCK AND FOREIGN INORGANIC MATERIALS SHALL BE REMOVED AND DISPOSED OF PROPERLY OFF-SITE.
 6.11. ALL PLANTING HOLES TO BE HAND DUG EXCEPT WHERE MACHINE DUG HOLES WILL NOT ADVERSELY AFFECT EXISTING TREES, DAMAGE UTILITIES OR OTHER IMPROVEMENTS.
 6.12. ALL PLANTING BEDS IN OPEN AREAS AND AROUND BUILDING FOUNDATIONS SHALL BE EXCAVATED TO A DEPTH OF TWENTY-FOUR INCHES (24") AND BACK FILLED WITH SOIL MIX AS SPECIFIED IN SECTION 5.00. PLANTING BED SHALL BE FREE FROM ROCK, CONSTRUCTION DEBRIS OR OTHER EXTRANEOUS MATERIAL.
 6.13. ALL PLANTING BEDS IN MEDIANS, HARDSCAPE AREAS OR AREAS ENCOMPASSED BY IMPERVIOUS MATERIAL SHALL BE EXCAVATED TO A DEPTH OF THIRTY-SIX INCHES (36") OR UNTIL NATIVE SOILS ENCOUNTERED TO ENSURE DRAINAGE. BACK FILL WITH SOIL MIX AS SPECIFIED IN SECTION 5.00. PLANTING BED SHALL BE FREE FROM ROCK, CONSTRUCTION DEBRIS OR OTHER EXTRANEOUS MATERIAL.
 6.14. EXCAVATE PLANTING PITS TO A DEPTH SO THAT THE TRUNK FLARE AND FIRST ORDER LATERAL ROOT(S) WILL BE PLANTED AT FINISH GRADE OR SLIGHTLY HIGHER. ADVENTITIOUS ROOTS ARE NOT CONSIDERED FIRST ORDER ROOTS.
 6.15. BURLAP, SYNTHETIC STRING, CORDS AND/OR LIFTING ROPES SHALL BE REMOVED FROM THE ROOTBALLS BEFORE ANY TREES ARE PLANTED. THE TOP 1/3RD OF BURLAP MUST BE REMOVED FROM HE TOP OF THE ROOTBALLS. THE TOP 1/3RD OF WIRE BASKETS SHALL BE COMPLETELY REMOVED AND THE BOTTOM 2/3RDS SHALL BE CUT BEFORE THE TREES ARE INSTALLED.
 6.16. NO PLUNGING OF ANY TREE OR PALM WILL BE ACCEPTED.
 6.17. NO PLANT MATERIAL WILL BE ACCEPTED SHOWING EVIDENCE OF CABLE, CHAIN MARKS, EQUIPMENT SCARS, OR OTHERWISE DAMAGED.
 6.18. PLANT MATERIAL WILL NOT BE ACCEPTED WHEN THE BALL OF EARTH SURROUNDING ITS ROOTS HAS BEEN CRACKED, BROKEN OR OTHERWISE DAMAGED.
 6.19. ALL TREES SPECIFIED AS FIELD GROWN OR B&B TREES SHALL BE ROOT-PRUNED AT THE NURSERY A MINIMUM OF (8) WEEKS PRIOR TO PLANTING.
 6.20. ALL PLANT MATERIAL PLANTED WITHIN THE SIGHT DISTANCE TRIANGLE AREAS SHALL BE MAINTAINED TO PROVIDE UNOBSTRUCTED CROSS-VISIBILITY AT A HORIZONTAL LEVEL BETWEEN 30 INCHES AND 8 FEET ABOVE ADJACENT STREET GRADE.
 6.21. NO CANOPY TREES SHALL BE PLANTED WITHIN 12 FEET OF A LIGHT POLE. NO PALM SPECIES SHALL BE PLANTED WITHIN 6 FEET OF A LIGHT POLE.
 6.22. GROUND COVER PLANTINGS SHALL PROVIDE NOT LESS THAN 50 PERCENT COVERAGE IMMEDIATELY UPON PLANTING AND 100 PERCENT COVERAGE WITHIN 6 MONTHS AFTER PLANTING.
 6.23. TREES AND PALMS SHALL BE MAINTAINED TO ALLOW FOR CLEAR PASSAGE 8' IN ALL PEDESTRIAN AREAS.
 6.24. ALL LANDSCAPE MATERIAL SHALL BE SETBACK A MINIMUM OF 10' FROM ANY FIRE HYDRANT.
 6.25. CONTRACTOR SHALL REMOVE ALL NURSERY STAKES, CONDUIT, FLAGGING AND NURSERY TAPE PRIOR TO STAKING.
 6.26. CONTRACTOR SHALL STAKE & GUY ALL TREES AND PALMS AT TIME OF PLANTING AS PER THE APPROPRIATE DETAIL. CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND/OR REPAIR OF ALL STAKING AND GUYING DURING WARRANTY PERIOD AND REMOVAL & DISPOSAL OF STAKING AFTER ESTABLISHMENT/WARRANTY PERIOD.
 6.27. TREES THAT CANNOT STAND WITHOUT THE SUPPORT OF STAKES AND/OR GUYS SHALL BE REJECTED.
7. TURF GRASSES
 7.1. ALL AREAS NOT USED FOR BUILDINGS, VEHICULAR USE AREAS, WALKS OR PLANTING BEDS SHALL BE GRASSED. GRASSING SHALL EXTEND TO ANY ABUTTING STREET PAVEMENT EDGE AND TO THE MEAN WATERLINE OF ANY ABUTTING CANAL, LAKE OR WATERWAY. REFER TO PLANTING SCHEDULE FOR ESTIMATED QUANTITY AND SPECIES.
8. MULCH & FERTILIZER
 8.1. ALL PLANTING BEDS AND WATER BASINS FOR TREES SHALL BE COVERED WITH A 3" MINIMUM DEPTH OF SHREDDED FLORI-MULCH, MELALEUCA OR EUCALYPTUS MULCH GRADE 'B' OR BETTER, UNLESS OTHERWISE SPECIFIED.
 8.2. INDIVIDUAL TREES PLANTED IN LAWN AREAS SHALL BE MULCHED WITH A MINIMUM 3' DIAMETER MULCH RING.
 8.3. MULCH SHALL NOT BE INSTALLED WITHIN 3" OF TREE TUNKS.
 8.4. FERTILIZER MIX AS FOLLOWS;
  8.4.1. DICOT TREES & SHRUBS: NPK 18-4-2, SLOW RELEASE W/ MICRONUTRIENTS
  8.4.2. MONOCOT PALMS: NPK 8-2-12, SLOW RELEASE W/ MICRONUTRIENTS
  8.4.3. TURF: NPK 16-4-8, SLOW RELEASE W/ MICRONUTRIENTS
9. WATERING
 9.1. ALL LANDSCAPED AREAS WILL BE IRRIGATED BY AN UNDERGROUND, AUTOMATIC, RUST-FREE IRRIGATION SYSTEM PROVIDING 100% COVERAGE AND 50% SPRAY OVERLAP. THE SYSTEM SHALL BE MAINTAINED IN GOOD WORKING ORDER AND DESIGNED TO MINIMIZE WATER ON IMPERVIOUS SERVICES AND NOT OVERSPRAY WALKWAYS. A RAIN SENSOR DEVICE SHALL BE INSTALLED TO OVERRIDE THE IRRIGATION CYCLE OF THE SYSTEM WHEN ADEQUATE RAINFALL HAS OCCURRED.
 9.2. ALL PLANT MATERIAL SHALL BE WATERED IN AT TIME OF PLANTING IN ACCORDANCE WITH STANDARD NURSERY PRACTICES. IN ADDITION, CONTRACTOR WILL CONTINUE THE WATERING OF PLANT MATERIAL UNTIL SUBSTANTIAL COMPLETION AND THE LANDSCAPE IS TURNED OVER TO THE OWNER.
10. PROJECT CLOSEOUT
 10.1. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER. UPON FINAL CLEAN UP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH. THE PAVED AREAS SHALL BE SWEPT BROOM CLEAN.
 10.2. THE CONTRACTOR SHALL RESTORE, REPLACE OR AS DIRECTED BY THE LANDSCAPE ARCHITECT, ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY THE WORK OF THE CONTRACTOR, HIS EQUIPMENT, EMPLOYEES OR THOSE OF HIS SUB-CONTRACTORS. THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THAT OF THE EXISTING ADJACENT AREAS. THE RESTORATION WORK SHALL BE AT THE CONTRACTOR'S EXPENSE. SUITABLE MATERIALS AND METHODS SHALL BE USED FOR SUCH RESTORATION.
 10.3. WHERE MATERIAL OR DEBRIS HAS WASHED OR FLOWED INTO OR BEEN PLACED IN WATER COURSES, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL OR DEBRIS SHALL BE REMOVED AND SATISFACTORILY DISPOSED OF DURING PROGRESS OF THE WORK. THESE AREAS SHALL BE KEPT IN A CLEAN AND NEAT CONDITION.
 10.4. THE CONTRACTOR SHALL MAINTAIN ACCURATE AND COMPLETE RECORDS OF WORK ITEMS COMPLETED.
 10.5. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE LANDSCAPE ARCHITECT OF RECORD COMPLETE SETS OF "AS-BUILT" CONSTRUCTION DRAWINGS. THESE DRAWINGS SHALL BE MARKED TO SHOW "AS-BUILT" CONSTRUCTION CHANGES AND DIMENSIONED LOCATIONS AND ELEVATIONS OF ALL IMPOVEMENTS INCLUDING PRODUCT/EQUIPMENT AS SPECIFIED OR REVISED DURING THE SHOP DRAWING SUBMITTAL PROCESS. AS-BUILT DRAWINGS SHALL BE SIGNED AND SEALED BY A FLORIDA REGISTERED LAND SURVEYOR.
11. GUARANTEE
 11.1. ALL NEW PLANT MATERIAL SHALL BE GUARANTEED FOR 1 YEAR FROM TIME OF FINAL ACCEPTANCE OF PROJECT. ANY PLANT MATERIAL NOT IN A HEALTHY GROWING CONDITION WILL BE REPLACED IN KIND BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER WITHIN 10 DAYS OF NOTIFICATION.
 11.2. FOR ALL REPLACEMENT PLANT MATERIAL, THE WARRANTY PERIOD SHALL BE EXTENDED AN ADDITIONAL 90 DAYS BEYOND THE ORIGINAL WARRANTY PERIOD. REPLACEMENT MATERIAL SHALL BE REPLACED IN KIND AS IT RELATES TO SPECIES, QUANTITY AND SIZE.
 11.3. ALL TREES THAT LEAN OR ARE BLOWN OVER, CAUSED BY WINDS LESS THAN 74 MPH AS DETERMINED BY THE NATIONAL HURRICANE CENTER, WILL BE RE-SET AND BRACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

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CERTIFICATES OF AUTHORIZATION
EB4593 LC26000425

REGISTRATION
CRISTOBAL A. BETANCOURT, RLA
REGISTRATION NO. 6666941
DATE: _____

SUB-CONSULTANT

CLIENT
WILTON MANORS Island City
PUBLIC SERVICES DEPARTMENT
2020 WILTON DRIVE
WILTON MANORS, FL 33305

PROJECT INFORMATION

NE 23RD DRIVE PARKING PROJECT

WILTON MANORS, FLORIDA

PROJECT NUMBER
15-125.024

CLIENT PROJECT NUMBER
AMENDMENT 26

VERIFY SCALES
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REVISIONS

DATE OF ISSUE
10/26/2016

DESIGNED BY
CJS

DRAWN BY
CJS

CHECKED BY
EDH

DRAWING TITLE

LANDSCAPE DETAILS AND SPECIFICATIONS

DRAWING NUMBER
L2.01
08 OF 15

Plot Date: 10/27/2016 3:08:33 PM Username: JTamo Layout Name: L2.01
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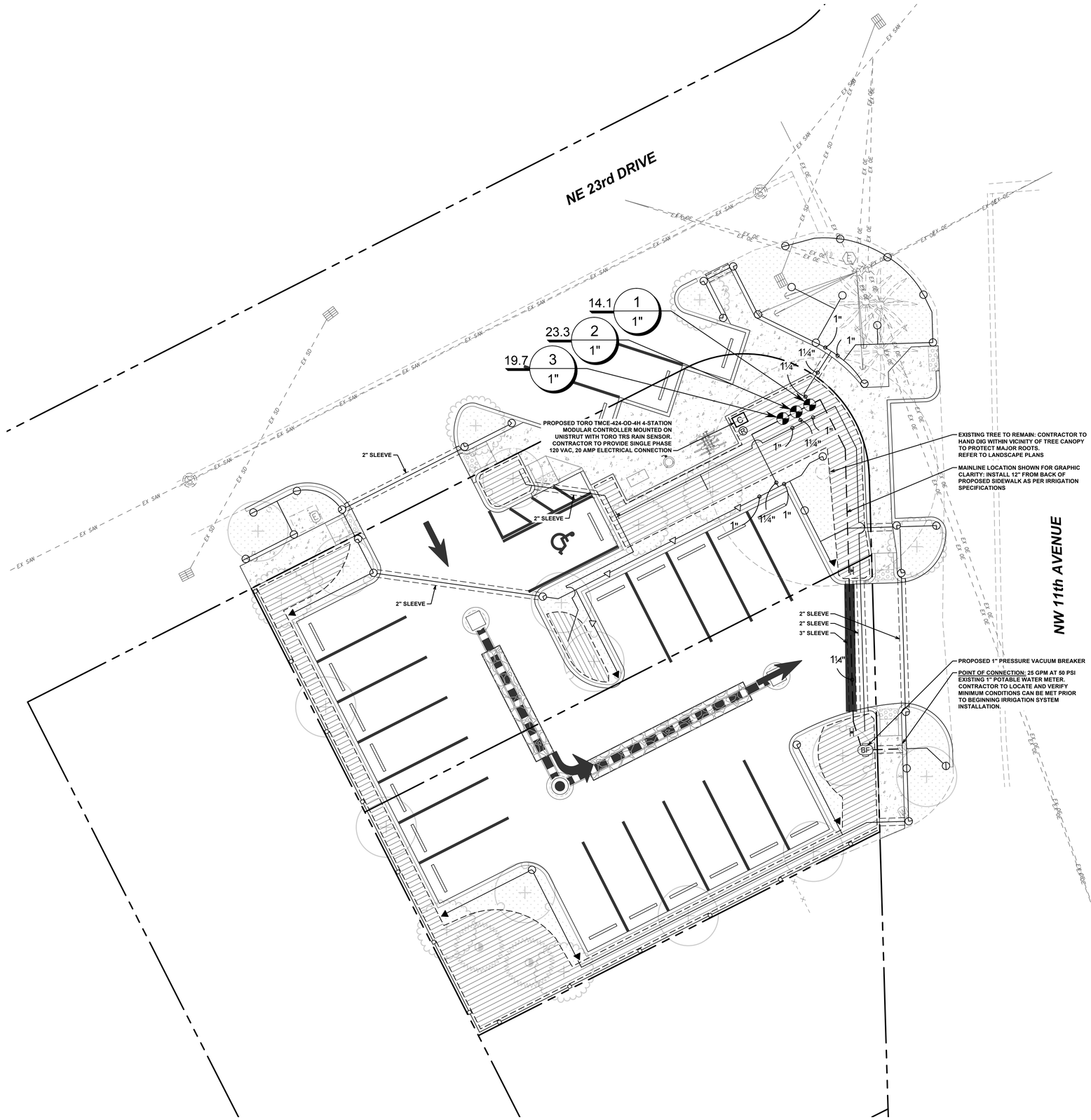

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GRAPHIC SCALE
0 5 10 20
1 INCH = 10 FEET

Always call 811 two full business days before you dig to have underground utilities located and marked.
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IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY	ARC	PSI	GPM	RADIUS
○	Toro 570Z-6P-XF-COM-PC MPR 12' radius	3	360	30	1.92	12'
◐	Toro 570Z-6P-XF-COM-PC MPR 12' radius	13	180	30	0.96	12'
◔	Toro 570Z-6P-XF-COM-PC MPR 12' radius	17	90	30	0.48	12'
◑	Toro 570Z-6P-XF-COM-PC MPR 12' radius	2	120	30	0.64	12'
◀	Toro 570Z-6P-XF-COM-PC MPR Turf Strip Spray	6	EST	30	0.43	4'x15'
◁	Toro 570Z-6P-XF-COM-PC MPR Turf Strip Spray	4	SST	30	0.88	4'x30'

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
▭	Area to Receive Dripline Toro RGP-412 (18) Landscape Dripline 5/8" with Rootguard Protection and 1.02gph emitters at 12" o.c. Dripline lateral rows spaced at 18" apart, with emitters offset for triangular pattern.	1,500 l.f.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
◓	Toro P-220 1-1/2" Remote Control Valve. Low Flow Operating Capability, Globe Configuration. Pressure Regulator.	3
BF	Zurn 720A 1" Pressure vacuum breaker.	1
C	Toro TMCE-424-OD-4H 4-station outdoor modular wall mount controller on unistrut.	1
®	Toro TRS Wired rain sensor.	1
———	Irrigation Lateral Line: PVC Schedule 40 PVC Schedule 40 irrigation pipe.	960 l.f.
— — —	Irrigation Mainline: PVC Schedule 40 PVC Schedule 40 irrigation pipe.	100 l.f.
= = =	Pipe Sleeve: PVC Schedule 40 Typical pipe sleeve for irrigation pipe. Pipe sleeve size shall allow for irrigation piping and their related couplings to easily slide through sleeving material. Extend sleeves 18 inches beyond edges of paving or construction.	220 l.f.

Valve Callout
Valve Number
Valve Flow
Valve Size

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	PSI	PSI @ POC	GPM	PRECIP
1	Toro P-220	1"	Turf Spray	32.70	37.91	14.08	1.17 in/h
2	Toro P-220	1"	Area for Dripline	37.28	45.55	23.26	1.13 in/h
3	Toro P-220	1"	Turf Spray	35.21	42.11	19.70	0.86 in/h

GENERAL NOTES

1. CONTRACTOR TO VERIFY LOCATION OF ALL EXISTING UTILITIES.
2. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO TAKE THE NECESSARY PRECAUTIONS TO ENSURE PROPER SAFETY AND WORKMANSHIP WHEN WORKING IN THE VICINITY OF EXISTING UTILITY LINES.
3. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH FPL ON ANY WORK IN THE VICINITY OF OVERHEAD OR UNDERGROUND POWER LINES.
4. CONTRACTOR SHALL VERIFY PROPER CLEARANCE BELOW EXISTING OVERHEAD POWER LINES PRIOR TO WORKING WITHIN THE VICINITY THE POWER LINES.
5. MAINLINE LOCATION, WHERE SHOWN, IS FOR GRAPHIC CLARITY PURPOSES ONLY. INSTALL AT THE BACK OF CURB, FRONT OF WALK, BACK OF WALK, OR ADJACENT TO OTHER HARDSCAPES TO FACILITATE FUTURE LOCATION AND TO PROTECT FROM DAMAGE. ENSURE MAINLINE IS INSTALLED ACCORDING TO THE IRRIGATION SPECIFICATIONS AND DETAILS.
6. IF IT IS NECESSARY TO HAVE PIPING UNDER HARDSCAPE ITEMS, SUCH AS ROADS, WALKS AND PATIOS, THE PIPES MUST BE SLEEVED WITH THE SLEEVE DIAMETER BEING AT LEAST TWICE THE SIZE OF THE PIPE IT IS CARRYING.
7. ANY MAJOR DESIGN CHANGES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT OF RECORD PRIOR TO CONSTRUCTION; CONTRACTOR PROCEEDS WITH CHANGES AT OWN RISK.
8. NO SUBSTITUTIONS SHALL BE PERMITTED, EXCEPT WITH WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT OF RECORD.

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IRRIGATION PLANS

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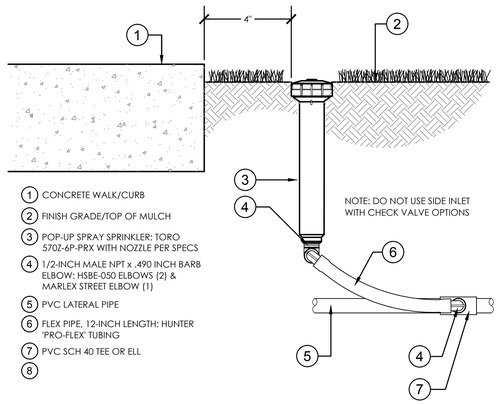
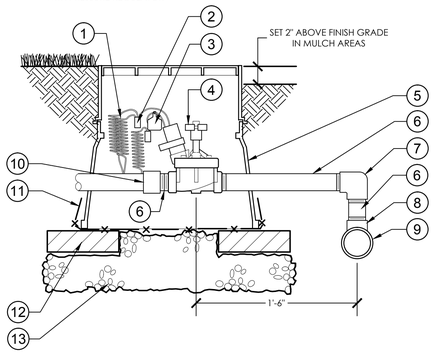


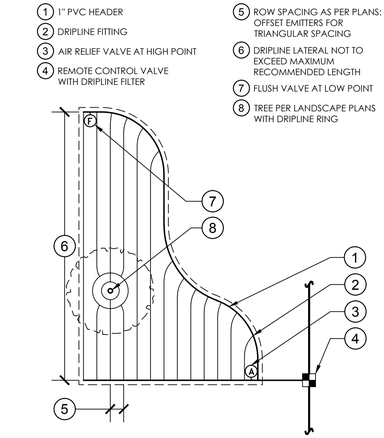
1. CONCRETE WALK/CURB
2. FINISH GRADE/TOP OF MULCH
3. POP-UP SPRAY SPRINKLER: TORO 570Z-6P-PRX WITH NOZZLE PER SPECS
4. 1/2-INCH MALE NPT x .490 INCH BARB ELBOW: HSBE-050 ELBOWS (2) & MARLEX STREET ELBOW (1)
5. PVC LATERAL PIPE
6. FLEX PIPE, 12-INCH LENGTH: HUNTER 'PRO-FLEX' TUBING
7. PVC SCH 40 TEE OR ELL
8.

1 6" POP-UP SPRAY

3" = 1'-0" 32 8403.13-06



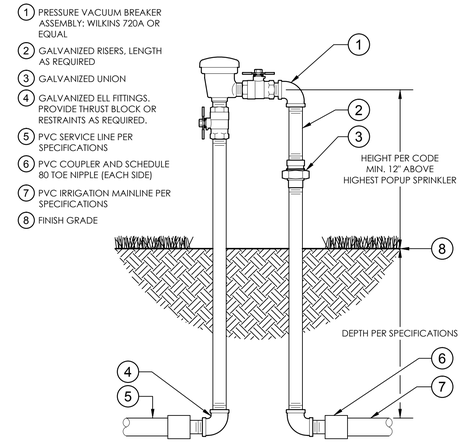
1. 30-INCH LINEAR LENGTH OF WIRE, COILED
2. WATERPROOF CONNECTION (1 OF 2)
3. ZONE ID TAG
4. REMOTE CONTROL VALVE WITH PRESSURE REGULATOR
5. STANDARD VALVE BOX
6. PVC SCH 80 NIPPLE
7. PVC SCH 40 ELL
8. PVC SCH 40 TEE
9. PVC MAINLINE PIPE
10. PVC SCH 40 ADAPTER
11. 1/2" WIRE CLOTH GOPHER SCREEN WRAP ALL SIDES
12. BRICK (1 OF 4)
13. 6-INCH MINIMUM DEPTH 3/4" WASHED GRAVEL



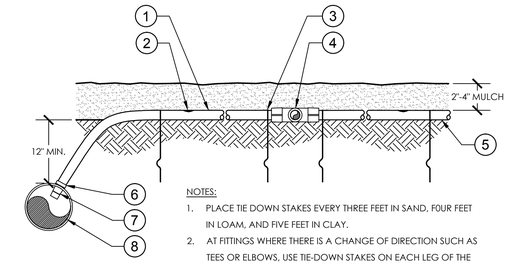
1. 1" PVC HEADER
2. DRIPLINE FITTING
3. AIR RELIEF VALVE AT HIGH POINT
4. REMOTE CONTROL VALVE WITH DRIPLINE FILTER
5. ROW SPACING AS PER PLANS: OFFSET EMITTERS FOR TRIANGULAR SPACING
6. DRIPLINE LATERAL NOT TO EXCEED MAXIMUM RECOMMENDED LENGTH
7. FLUSH VALVE AT LOW POINT
8. TREE PER LANDSCAPE PLANS WITH DRIPLINE RING

2 TYPICAL DRIPLINE LAYOUT

1 1/2" = 1'-0" 32 8413.56-92



1. PRESSURE VACUUM BREAKER ASSEMBLY: WILKINS 720A OR EQUAL
2. GALVANIZED RISERS, LENGTH AS REQUIRED
3. GALVANIZED UNION
4. GALVANIZED ELL FITTINGS, PROVIDE THRUST BLOCK OR RESTRAINTS AS REQUIRED.
5. PVC SERVICE LINE PER SPECIFICATIONS
6. PVC COUPLER AND SCHEDULE 80 TOE NIPPLE (EACH SIDE)
7. PVC IRRIGATION MAINLINE PER SPECIFICATIONS
8. FINISH GRADE



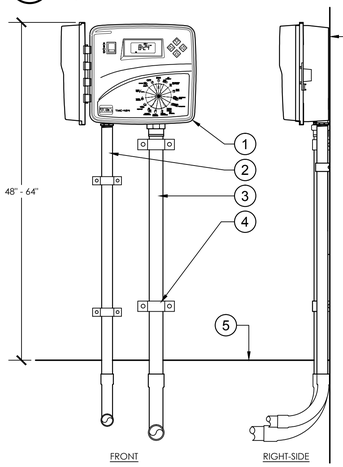
1. ON-SURFACE DRIPLINE
2. INLINE DRIP EMITTER OUTLET
3. TIE DOWN STAKE (TYPICAL)
4. EASY FIT COMPRESSION TEE
5. FINISH GRADE
6. RATCHET CLAMP (INCLUDED WITH ADAPTER)
7. INSERT ADAPTER FOR PVC PIPE
8. PVC LATERAL PIPE MINIMUM 1" IN DIAMETER MINIMUM 12" DEPTH

NOTES:

1. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
2. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.

3 TYPICAL DRIPLINE AND HEADER

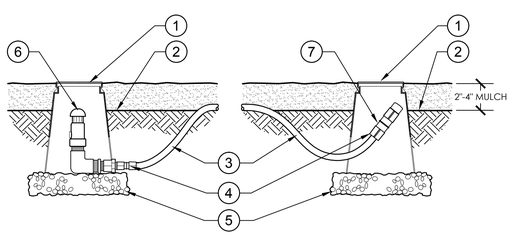
1 1/2" = 1'-0" 32 8413.56-86



1. TORO TMC-424E OUTDOOR CONTROLLER
2. CONDUIT FOR ELECTRICAL POWER PER CODE
3. CONDUIT FOR FIELD CONTROL WIRES
4. SECURE CONDUIT TO WALL WITH APPROPRIATE PIPE CLAMPS
5. FINISHED GRADE
6. WALL

7 WALL MOUNT CONTROLLER

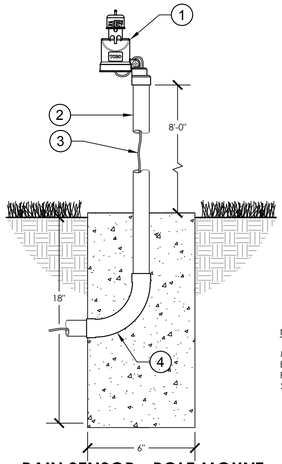
1 1/2" = 1'-0" 32 8409.13-35



1. SUBTERRANEAN EMITTER BOX
2. FINISH GRADE
3. ON-SURFACE DRIPLINE
4. EASY FIT COUPLING
5. 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
6. AIR RELIEF VALVE
7. FLUSH CAP FOR EASY FIT COMPRESSION FITTINGS

4 AIR RELIEF AND FLUSH VALVE

1 1/2" = 1'-0" 32 8413.56-87



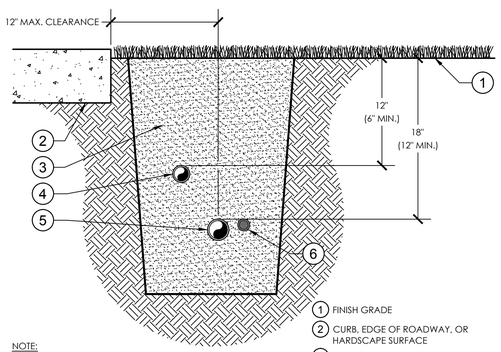
1. TORO TRS RAIN SENSOR
2. 3/4", 8' HT GALVANIZED PIPE
3. RUN LEAD WIRE TO CONTROLLER
4. 3/4" SWEEP ELL

NOTE:

MOUNT WHERE DEVICE WILL BE EXPOSED TO UNOBSTRUCTED RAINFALL, BUT NOT IN PATH OF SPRINKLER SPRAY.

8 RAIN SENSOR - POLE MOUNT

3" = 1'-0" 32 8409.83-02



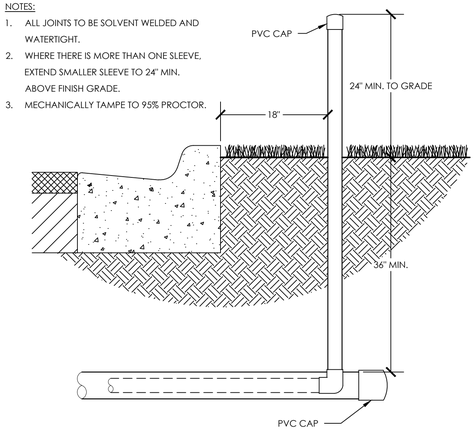
NOTE:

- FIELD ADJUST PIPING AS NECESSARY TO AVOID CONFLICT WITH DRAINAGE STRUCTURES, UTILITIES, AND PLANTINGS.
- REFER TO FLORIDA BUILDING CODE APPENDIX F FOR MINIMUM PIPE DEPTH OF COVER.
- WHERE MINIMUM PIPE DEPTH OF COVER IS NOT POSSIBLE, PIPE SLEEVING SHALL BE NECESSARY TO PROTECT PIPE IN SHALLOW AREAS.

1. FINISH GRADE
2. CURB, EDGE OF ROADWAY, OR HARDSCAPE SURFACE
3. BACKFILL PER IRRIGATION SPECIFICATIONS
4. IRRIGATION LATERAL PIPE 12" DEPTH, 6" MINIMUM DEPTH
5. IRRIGATION MAINLINE PIPE 18" DEPTH, 12" MINIMUM DEPTH
6. IRRIGATION CONTROL WIRE IN CONDUIT (SIZE AS REQUIRED)

9 MAINLINE AND LATERAL PIPING

1 1/2" = 1'-0" 32 8409.76-37



10 PIPE SLEEVING DETAIL

1" = 1'-0" 32 8409.76-22

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Plot Date: 2016-10-26 6:32:35 PM Username: SBortak Layout Name: L3.01
Folder Path: V:\Projects\2015\15-125.024 - ne 23rd drive parking\Design\CAD\Plans Filename: 15-125.024 Irrigation Plan.dwg

IRRIGATION SPECIFICATIONS

1. GENERAL

1.1. THE SYSTEM HAS BEEN DESIGNED TO CONFORM WITH THE REQUIREMENTS OF ALL APPLICABLE CODES. SHOULD ANY CONFLICT EXIST, THE REQUIREMENTS OF THE CODES SHALL PREVAIL. IT IS THE RESPONSIBILITY OF THE OWNER/INSTALLATION CONTRACTOR TO INSURE THE ENTIRE SYSTEM IS INSTALLED ACCORDING TO ALL APPLICABLE LAWS, RULES, REGULATIONS AND CONVENTIONS. IRRIGATION CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS ACCORDING TO FEDERAL, STATE AND LOCAL LAWS.

1.2. CONTRACTOR TO VERIFY LOCATION OF ALL EXISTING UTILITIES.

1.3. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO TAKE THE NECESSARY PRECAUTIONS TO ENSURE PROPER SAFETY AND WORKMANSHIP WHEN WORKING IN THE VICINITY OF EXISTING UTILITY LINES.

1.4. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE AND VERIFY PROPER CLEARANCE WITH FPL ON ANY WORK IN THE VICINITY OF OVERHEAD OR UNDERGROUND POWER LINES.

1.5. THE CONTRACTOR MUST SUBMIT FOR APPROVAL, PRIOR TO INSTALLATION, COPIES OF THE MANUFACTURER'S CUT SHEETS/SPECIFICATIONS FOR ALL COMPONENTS TO BE USED IN THE IRRIGATION SYSTEM.

1.6. THE IRRIGATION CONTRACTOR SHALL BE CERTIFIED AS A CERTIFIED IRRIGATION CONTRACTOR BY THE IRRIGATION ASSOCIATION. THE CERTIFICATION SHALL BE CURRENT AND IN GOOD STANDING.

2. SCOPE OF WORK

2.1. THE WORK SPECIFIED IN THIS SECTION CONSISTS OF FURNISHING ALL COMPONENTS NECESSARY FOR THE INSTALLATION, TESTING, AND DELIVERY OF A COMPLETE, FULLY FUNCTIONAL AUTOMATIC LANDSCAPE IRRIGATION SYSTEM THAT COMPLETELY COMPLIES WITH THE 100% IRRIGATION PLANS, SPECIFICATIONS, NOTES, DETAILS AND ALL APPLICABLE LAWS, REGULATIONS, CODES AND ORDINANCES. THIS WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, THE PROVIDING OF ALL REQUIRED MATERIAL (PIPE, VALVES, FITTINGS, CONTROLLERS, WIRE, PRIMER, GLUE, ETC.), LAYOUT, PROTECTION OF THE PUBLIC, EXCAVATION, ASSEMBLY, INSTALLATION, BACK FILLING, COMPACTING, REPAIR OF ROAD SURFACES, CONTROLLER AND LOW VOLTAGE FEEDS TO VALVES, CLEANUP, MAINTENANCE, GUARANTEE AND AS-BUILT PLANS.

2.2. ALL IRRIGATED AREAS SHALL PROVIDE 100% HEAD-TO-HEAD COVERAGE FROM A FULLY AUTOMATIC IRRIGATION SYSTEM WITH A RAIN SENSOR AS SHOWN. THE RAIN SENSOR SHALL BE INSTALLED TO PREVENT ITS ACTIVATION BY ADJACENT HEADS. ALL WATERING PROCEDURES SHALL CONFORM TO LOCAL CODES, AS WELL AS THIS PROJECT'S REGIONAL WATER MANAGEMENT DISTRICT RESTRICTIONS AND REGULATIONS. ZONES ARE PRIORITIZED FIRST BY PUBLIC SAFETY AND THEN BY HYDRAULIC CONCERNS. THIS SEQUENCING WILL BE A MANDATORY PUNCH LIST ITEM. THESE PLANS HAVE BEEN DESIGNED TO SATISFY/EXCEED THE FLORIDA BUILDING CODE (FBC) APPENDIX F AND THE FLORIDA IRRIGATION SOCIETY STANDARDS AND SPECIFICATIONS FOR TURF AND LANDSCAPE IRRIGATION SYSTEMS, FOURTH EDITION.

2.3. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES 72 HOURS PRIOR TO COMMENCEMENT OF WORK.

2.4. IT IS THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO FAMILIARIZE THEMSELVES WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, RETAINING WALLS, STRUCTURES AND UTILITIES. DO NOT WILLFULLY INSTALL THE SPRINKLER SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTION, GRADE DIFFERENCES OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE DESIGN. SUCH OBSTRUCTIONS, OR DIFFERENCES, SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER' AUTHORIZED REPRESENTATIVE. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.

2.5. IRRIGATION CONTRACTOR SHALL REPAIR OR REPLACE ALL EXISTING SITE ITEMS DAMAGED BY THEIR WORK. IRRIGATION CONTRACTOR SHALL COORDINATE THEIR WORK WITH OTHER CONTRACTORS FOR THE LOCATION AND INSTALLATION OF PIPE SLEEVES AND LATERALS THROUGH WALLS, UNDER ROADWAYS AND PAVING, ETC.

2.6. THE CONTRACTOR SHALL TAKE IMMEDIATE STEPS TO REPAIR, REPLACE, OR RESTORE ALL SERVICES TO ANY UTILITIES WHICH ARE DISRUPTED DUE TO THEIR OPERATIONS. ALL COSTS INVOLVED IN DISRUPTION OF SERVICE AND REPAIRS DUE TO NEGLIGENCE ON THE PART OF THE CONTRACTOR SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

3. SUBMITTALS

3.1. THE CONTRACTOR SHALL PROVIDE FOR APPROVAL PRIOR TO INSTALLATION, MANUFACTURER'S PRODUCT DESCRIPTION SHEETS/SPECIFICATIONS FOR ALL MAJOR COMPONENTS OF THE IRRIGATION SYSTEM. MODEL NUMBERS SHALL BE HIGHLIGHTED OR CIRCLED.

3.2. NO SUBSTITUTIONS OR DEVIATIONS FROM THE SPECIFIED BRANDS, MODELS, OR SIZES SHALL BE PERMITTED, EXCEPT WITH WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT OF RECORD.

3.3. ANY MAJOR DESIGN CHANGES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT OF RECORD PRIOR TO CONSTRUCTION; CONTRACTOR PROCEEDS WITH CHANGES AT OWN RISK. DESIGN CHANGES, SUBSTITUTIONS, OR DEVIATIONS NOT APPROVED BY THE LANDSCAPE ARCHITECT OF RECORD WILL RESULT IN REJECTION AND REPLACEMENT OF MATERIALS AT NO ADDITIONAL COST TO THE OWNER.

4. POST CONSTRUCTION DOCUMENTATION

4.1. DOCUMENTATION:

4.1.1. PROVIDE THE MANUFACTURERS' RECOMMENDED OPERATING INSTRUCTIONS FOR ALL MAJOR COMPONENTS INCORPORATED INTO THE IRRIGATION SYSTEM.

4.1.2. PROVIDE SYSTEM OPERATION MANUALS, MAINTENANCE SCHEDULES, RECOMMENDED SCHEDULE OF OPERATION INCLUDED AVERAGE APPLICATION RATES WITH SEASONAL ADJUSTMENTS FOR EACH ZONE.

4.1.3. PROVIDE ALL REQUIRED TESTING AND INSPECTION CERTIFICATES TO THE OWNER OR OWNER'S REPRESENTATIVE

4.2. AS-BUILT DRAWINGS: PROVIDE RECORD DRAWINGS AND PLANS SHOWING ALL CHANGES IN THE DESIGN TO INDICATE THE ACTUAL INSTALLATION AND LOCATION OF ALL EQUIPMENT AND MATERIALS. THE FOLLOWING SPECIFIC ITEMS MUST BE INCLUDED:

4.2.1. LOCATION AND SIZE OF MAINLINE PIPING, LATERAL PIPING, AND PIPE SLEEVING.

4.2.2. ISOLATION VALVES

4.2.3. REMOTE CONTROL VALVE LOCATIONS, SIZES, NUMBER, AND AREA OF COVERAGE SHOWN USING DIFFERENT COLORS.

4.2.4. SPLICE BOXES AND LOW VOLTAGE WIRING PATH.

4.2.5. CONTROLLER AND RAIN SHUTOFF DEVICES.

4.2.6. POINT OF CONNECTION INCLUDING THE TYPE OF WATER SOURCE, SIZE, FLOW RATE, AND OPERATING PRESSURE.

4.2.7. DATE AND SCALE.

4.2.8. CONTRACTOR'S NAME, ADDRESS, AND TELEPHONE NUMBER.

4.2.9. THE AS-BUILT DRAWINGS SHALL BE SIGNED BY A FLORIDA REGISTERED LANDSCAPE ARCHITECT OR PROFESSIONAL ENGINEER.

4.3. CONTRACTOR SHALL FURNISH FIVE EXTRA UNITS OF EACH TYPE OF POPUP SPRAY AND EMITTER THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS. INCLUDE TOOLS TO SERVICE THESE PRODUCTS.

5. FINAL ACCEPTANCE

5.1. FINAL ACCEPTANCE OF THE IRRIGATION SYSTEM WILL BE GIVEN AFTER THE FOLLOWING DOCUMENTS AND CONDITIONS HAVE BEEN COMPLETED AND APPROVED. FINAL PAYMENT WILL NOT BE RELEASED UNTIL THESE CONDITIONS ARE SATISFIED.

5.1.1. FINAL WALK-THRU AND CORRECTION OF ALL PUNCH LIST ITEMS.

5.1.2. COMPLETION AND ACCEPTANCE OF AS-BUILT RECORD DRAWINGS.

5.1.3. TURNOVER OF ALL REQUIRED PARTS AND TOOLS AS OUTLINED IN THE PROJECT SPECIFICATIONS.

6. GUARANTEE

6.1. FULLY WARRANT THE LANDSCAPE IRRIGATION SYSTEM FOR A PERIOD OF ONE (1) YEAR AFTER THE WRITTEN FINAL ACCEPTANCE.

6.2. DURING THE WARRANTY PERIOD, ENFORCE MANUFACTURER'S AND SUPPLIER'S WARRANTIES, MALFUNCTIONS, DEFICIENCIES, BREAKS, DAMAGES, DISREPAIR OR OTHER DISORDERS DUE TO MATERIALS, WORKMANSHIP, OR INSTALLATION BY THE CONTRACTOR AND HIS SUPPLIERS SHALL BE IMMEDIATELY AND PROPERLY CORRECTED.

6.3. REPAIR DAMAGES PROMPTLY WHICH ARE CAUSED BY SYSTEM MALFUNCTION.

7. POINT OF CONNECTION (P.O.C.)

7.1. THE POC IS AN EXISTING 1" POTABLE WATER METER, UTILIZING AN EXISTING MUNICIPAL POTABLE WATER MAIN. THE POC SHALL BE CAPABLE OF SUPPLYING A MINIMUM OF 25 GPM AT 50 PSI. CONTRACTOR SHALL VERIFY THESE MINIMUM CONDITIONS CAN BE MET PRIOR TO BEGINNING IRRIGATION SYSTEM INSTALLATION.

7.2. IF THE CONDITIONS CAN NOT BE MET, THE CONTRACTOR MUST NOTIFY THE DESIGNER PRIOR TO PROCEEDING WITH THE WORK. IF THE CONTRACTOR DOES NOT DO SO, THE CONTRACTOR PROCEEDS AT THEIR OWN RISK AND BECOMES RESPONSIBLE FOR ANY FUTURE WORK REQUIRED TO MAKE THE SYSTEM PERFORM AS REQUIRED.

8. PIPING

8.1. MAINLINE PIPE: PVC SCHEDULE 40, NON-GASKETED, SOLVENT WELD, WITH PVC SCHEDULE 40 FITTINGS.

8.2. LATERAL PIPE: PVC SCHEDULE 40, NON-GASKETED, SOLVENT WELD, WITH PVC SCHEDULE 40 FITTINGS.

8.3. THREADED PIPE: PVC SCHEDULE 80.

8.4. PIPE LOCATIONS SHOWN ON THE PLAN ARE SCHEMATIC AND SHALL BE ADJUSTED IN THE FIELD. WHEN LAYING OUT MAINLINES PLACE A MAXIMUM OF 12" AWAY FROM EITHER THE BACK OF CURB, FRONT OF WALK, BACK OF WALK, OR OTHER HARDSCAPE TO ALLOW FOR EASE IN LOCATING AND PROTECTION FROM PHYSICAL DAMAGE. INSTALL ALL LATERAL PIPE NEAR EDGES OF PAVEMENT OR AGAINST BUILDINGS WHENEVER POSSIBLE TO ALLOW SPACE FOR PLANT ROOT BALLS. ALWAYS INSTALL PIPING INSIDE PROJECT PROPERTY BOUNDARY.

8.5. PIPES SHALL ALWAYS BE PLACED IN PLANTING BEDS. IF IT IS NECESSARY TO HAVE PIPING UNDER HARDSCAPES, SUCH AS ROADS, WALKS, AND PATIOS, THE PIPES MUST BE SLEEVED USING SCH 40 PVC WITH THE SLEEVE DIAMETER BEING TWICE THE SIZE OF THE PIPE IT IS CARRYING WITH A MINIMUM SLEEVE SIZE OF 2'.

8.6. PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWINGS. NO SUBSTITUTIONS OF SMALLER PIPE SIZES SHALL BE PERMITTED, BUT SUBSTITUTIONS OF LARGER SIZES MAY BE APPROVED. ALL DAMAGED AND REJECTED PIPE SHALL BE REMOVED FROM THE SITE AT THE TIME OF SAID REJECTION.

8.7. CONTRACTOR TO ENSURE ALL MAINLINE PIPING IS PROPERLY RESTRAINED USING MECHANICAL JOINT FITTINGS, RESTRAINING COLLARS, THREADED RODS, THRUST BLOCKS, ETC., AS AND WHERE REQUIRED. CONTRACTOR SHALL REFER TO PIPE MANUFACTURER'S RECOMMENDED INSTALLATION PRACTICES FOR FURTHER DIRECTION.

8.8. PVC PIPE JOINT COMPOUND AND PRIMER: SLOW-DRYING, HEAVY DUTY CEMENT AND TINTED (PURPLE) PRIMER THAT IS COMPATIBLE WITH THE CEMENT. THE PVC CEMENT SHALL BE WELD-ON 2711 GREY AND THE PRIMER SHALL BE WELD-ON P70 PURPLE PRIMER, OR APPROVED EQUALS.

8.9. MAIN LINE PIPE DEPTH MEASURED TO THE TOP OF PIPE SHALL BE 18" MINIMUM, 36" MINIMUM AT VEHICULAR CROSSINGS.

8.10. LATERAL LINE DEPTHS MEASURED TO TOP OF PIPE SHALL BE 12" MINIMUM, 30" MINIMUM AT VEHICULAR CROSSINGS.

9. LAYOUT

9.1. LAY OUT IRRIGATION SYSTEM MAINLINES AND LATERAL LINES. MAKE THE NECESSARY ADJUSTMENTS AS REQUIRED TO TAKE INTO ACCOUNT ALL SITE OBSTRUCTIONS AND LIMITATIONS PRIOR TO EXCAVATING TRENCHES.

9.2. STAKE ALL SPRINKLER HEAD LOCATIONS. ADJUST LOCATION AND MAKE THE NECESSARY MODIFICATIONS TO NOZZLE TYPES, ETC. REQUIRED TO INSURE 100% HEAD TO HEAD COVERAGE. REFER TO THE EDGE OF PAVEMENT DETAIL ON THE IRRIGATION DETAIL SHEET.

9.3. SPRAY HEADS SHALL BE INSTALLED 4" FROM SIDEWALKS OR CURBED ROADWAYS AND 12" FROM UNCURBED ROADWAYS AND BUILDING FOUNDATIONS. ROTORS SHALL BE INSTALLED 4" FROM SIDEWALKS OR CURBED ROADWAYS, 12" FROM BUILDING FOUNDATIONS, AND 36" FROM UNCURBED ROADWAYS.

9.4. SHRUB HEADS SHALL BE INSTALLED ON 3/4" SCH 40 PVC RISERS. THE RISERS SHALL BE SET AT A MINIMUM OF 18" OFF SIDEWALKS, ROADWAY CURBING, BUILDING FOUNDATIONS, AND/OR ANY OTHER HARDSCAPED AREAS. SHRUB HEADS SHALL BE INSTALLED TO A STANDARD HEIGHT OF 4" BELOW MAINTAINED HEIGHT OF PLANTS AND SHALL BE INSTALLED WITHIN PLANTED MASSES TO BE LESS VISIBLE AND OFFER PROTECTION. PAINT ALL SHRUB RISERS WITH FLAT BLACK OR FOREST GREEN PAINT, UNLESS IRRIGATION SYSTEM WILL BE INSTALLED FROM A REUSE WATER SYSTEM WITH PURPLE PVC RISERS.

9.5. LOCATE VALVES PRIOR TO EXCAVATION. INSURE THAT THEIR LOCATION PROVIDES FOR EASY ACCESS AND THAT THERE IS NO INTERFERENCE WITH PHYSICAL STRUCTURES, PLANTS, TREES, POLES, ETC. VALVE BOXES MUST BE PLACED A MINIMUM OF 12" AND A MAXIMUM OF 15" FROM THE EDGE OF PAVEMENT, CURBS, ETC., AND THE TOP OF THE BOX MUST BE 2" ABOVE FINISH GRADE. NO VALVE BOXES SHALL BE INSTALLED IN TURF AREAS WITHOUT APPROVAL BY THE IRRIGATION DESIGNER; ONLY IN SHRUB BEDS. NEVER INSTALL VALVE BOXES WITHIN A SPORTS FIELD OR DESIGNATED PLAY AREA.

8. ELECTRICAL POWER SUPPLY

8.1. ELECTRICAL SUPPLY FOR PUMP AND CONTROLLER SHALL TO BE PROVIDED BY THE IRRIGATION CONTRACTOR. CONTRACTOR TO COORDINATE WITH LOCAL UTILITIES FOR THE INSTALLATION OF AND CONNECTION TO AVAILABLE SITE POWER SUPPLY FOR REQUIRED ELECTRICAL COMPONENTS AS SET FORTH IN THE 100% IRRIGATION PLANS.

8.2. ALL ELECTRICAL INSTALLATION TO COMPLY WITH THE NATIONAL ELECTRICAL CODE AND ANY AND ALL OTHER APPLICABLE ELECTRICAL CODES, LAWS AND REGULATIONS. A LICENSED ELECTRICIAN SHALL PERFORM ALL ELECTRICAL HOOK-UPS. POWER FOR THE PUMP SHALL BE 230 VOLT, 3 PHASE; CONTROLLER SHALL BE 120 VOLT, 20 AMP.

9. CONTROL WIRING

9.1. IRRIGATION CONTROL WIRE SHALL BE THERMOPLASTIC SOLID COPPER, SINGLE CONDUCTOR, LOW VOLTAGE IRRIGATION CONTROLLER WIRE SUITABLE FOR DIRECT BURIAL AND CONTINUOUS OPERATION AT RATED VOLTAGES.

9.2. ALL CONTROL WIRING SHALL BE PLACED IN PVC SCHEDULE 40 GRAY ELECTRICAL CONDUIT. AT TURNS IN DIRECTION UTILIZE JUNCTION BOXES.

9.3. TAPE AND BUNDLE CONTROL WIRES EVERY 10' AND RUN ADJACENT TO THE MAINLINE. AT ALL TURNS IN DIRECTION MAKE A 2' COIL OF WIRE. AT ALL VALVE BOXES COIL WIRE AROUND A 3/4" PIECE OF PVC PIPE TO MAKE A COIL USING 30 LINEAR INCHES OF WIRE. MAKE ELECTRICAL CONNECTIONS WITH 3M-DBY,DBR CONNECTORS.

9.4. NUMBER ALL WIRES USING AN ELECTRICAL BOOK OF NUMBERS ACCORDING TO THE PLANS. NUMBER WIRES IN ALL VALVE BOXES, JUNCTION BOXES AND AT THE CONTROLLER.

9.5. WIRE SIZED, NUMBERED AND COLORED AS FOLLOWS:

#14 WHITE FOR COMMON

#14 SPARE BLACK COMMON

#14 RED FOR HOT WIRES

#14 SPARE YELLOW HOT WIRE

10. CONTROLLER GROUNDING

10.1. CONTRACTOR TO UTILIZE 4'X8'X5/8" COPPER GROUNDING PLATES, 5/8"X10' COPPER CLAD GROUNDING RODS, 'ONE STRIKE' CAD WELLS AT ALL CONNECTION POINTS, #6 BARE COPPER WIRE, AND EARTH CONTACT MATERIAL. INSTALL THESE AND OTHER REQUIRED COMPONENTS AS OUTLINED IN THE DETAIL. CONTRACTOR TO VERIFY THAT THE EARTH TO GROUND RESISTANCE DOES NOT EXCEED 10 OHMS. CONTRACTOR SHALL PROVIDE A WRITTEN CERTIFICATION ON A LICENSED ELECTRICAL CONTRACTORS LETTER HEAD SHOWING THE DATE OF THE TEST, CONTROLLER LOCATION, AND TEST RESULTS. EACH CONTROLLER SHALL BE SO GROUNDED AND TESTED.

11. VALVES

11.1. SEQUENCE ALL VALVES SO THAT THE FARTHEST VALVE FROM THE P.O.C. OPERATES FIRST AND THE CLOSEST TO THE P.O.C. OPERATES LAST. THE CLOSEST VALVE TO THE P.O.C. SHOULD BE THE LAST VALVE IN THE PROGRAMMED SEQUENCE.

11.2. ADJUST THE FLOW CONTROL ON EACH RCV TO ENSURE SHUT OFF IN 10 SECONDS AFTER DEACTIVATION BY THE IRRIGATION CONTROLLER.

11.3. USING 3" HIGH NUMBER STENCILS, PAINT THE VALVE NUMBER IN WHITE ON THE LID OF EACH VALVE BOX.

12. EQUIPMENT

12.1. BUBBLERS SHALL BE INSTALLED USING SCH 80 NIPPLES AND SHALL BE PLACED AT THE BASE OF TREES FOR LOW LEVEL WATERING.

12.2. ALL POP-UP HEADS AND SHRUB RISERS SHALL BE PRESSURE COMPENSATING. ALL POP-UP HEADS SHALL BE MOUNTED ON FLEX-TYPE SWING JOINTS.

12.3. ALL SPRINKLER EQUIPMENT NOT OTHERWISE DETAILED OR SPECIFIED SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS, AND IN ACCORDANCE WITH LOCAL AND STATE LAWS.

13. TRENCHING

13.1. EXCAVATE STRAIGHT AND VERTICAL TRENCHES WITH SMOOTH, FLAT OR SLOPING BOTTOMS. TRENCH WIDTH AND DEPTH SHOULD BE SUFFICIENT TO ALLOW FOR THE PROPER VERTICAL AND HORIZONTAL SEPARATION BETWEEN PIPING AS SHOWN IN THE PIPE INSTALLATION DETAIL ON THE DETAIL SHEET.

13.2. PROTECT EXISTING LANDSCAPED AREAS. REMOVE AND REPLANT ANY DAMAGED PLANT MATERIAL UPON JOB COMPLETION. THE REPLACEMENT MATERIAL SHALL BE THE SAME GENUS, SPECIES, AND SIZE OF THE MATERIAL IT IS REPLACING. THE FINAL DETERMINATION AS TO WHAT NEEDS TO BE REPLACED AND THE ACCEPTABILITY OF THE REPLACEMENT MATERIAL SHALL BE SOLELY DETERMINED BY THE OWNER OR OWNER'S REPRESENTATIVE.

14. INSTALLATION

14.1. CUT ALL PIPE SQUARE AND DEBURR. CLEAN PIPE AND FITTINGS OF FOREIGN MATERIAL, THEN APPLY A SMALL AMOUNT OF PRIMER WHILE ENSURING THAT ANY EXCESS IS WIPED OFF IMMEDIATELY. PRIMER SHOULD NOT PUDDLE OR DRIP FROM PIPE OR FITTINGS. NEXT APPLY A THIN COAT OF PVC CEMENT. FIRST APPLY A THIN LAYER TO THE PIPE, THEN A THIN LAYER INSIDE THE FITTING, AND FINALLY ANOTHER VERY THIN LAYER ON THE PIPE. INSERT THE PIPE INTO THE FITTING. INSURE THAT THE PIPE IS INSERTED TO THE BOTTOM OF THE FITTING, THEN TURN THE PIPE A 1/4 TURN AND HOLD FOR 10 SECONDS. MAKE SURE THAT THE PIPE DOESN'T RECEDE FROM THE FITTING. IF THE PIPE ISN'T AT THE BOTTOM OF THE FITTING UPON COMPLETION, THE GLUE JOINT IS UNACCEPTABLE AND MUST BE DISCARDED.

14.2. PIPES MUST CURE A MINIMUM OF 30 MINUTES PRIOR TO HANDLING AND PLACING INTO TRENCHES. A LONGER CURING TIME MAY BE REQUIRED; REFER TO THE MANUFACTURER'S SPECIFICATIONS. THE PIPE MUST CURE A MINIMUM OF 24 HOURS PRIOR TO FILLING WITH WATER.

15. BACKFILLING

15.1. THE BACKFILL 6" BELOW AND 6" ABOVE ALL PIPING SHALL BE CLEAN SAND. ALL OTHER TRCNCH BACKFILL CAN BE NATIVE MATERIAL BUT SHALL NOT CONTAIN ANYTHING LARGER THAN 2" IN DIAMETER.

15.2. CONTRACTOR SHALL BACKFILL ALL PIPING, BOTH MAINLINE AND LATERALS, PRIOR TO PERFORMING ANY PRESSURE TESTS. THE PIPE SHALL BE BACKFILLED WITH THE EXCEPTION OF 2' ON EACH SIDE OF EVERY JOINT (BELL FITTINGS, 90'S, TEES, 45'S, ETC.). THESE JOINTS SHALL NOT BE BACKFILLED UNTIL ALL PIPING HAS SATISFACTORILY PASSED ITS APPROPRIATE PRESSURE TEST AS OUTLINED BELOW.

16. TESTING & FLUSHING

16.1. LEAKAGE TESTING

16.1.1. REMOVE ALL REMOTE CONTROL VALVES AND CAP USING A THREADED CAP. FILL MAINLINE WITH WATER AND PRESSURIZE THE SYSTEM TO 125 PSI. MONITOR THE SYSTEM PRESSURE AT TWO GAUGE LOCATIONS; THE GAUGE LOCATIONS MUST BE AT OPPOSITE ENDS OF THE MAINLINE. WITH THE SAME RESPECTIVE PRESSURES, MONITOR THE GAUGES FOR TWO HOURS.

16.1.2. PVC SOLVENT-WELD PIPE CONNECTIONS SHALL HAVE NO LEAKAGE. GASKETED PIPING SHALL LOSE NO MORE WATER THAN ALLOWED PER THE FLORIDA STATE BUILDING CODE, VOLUME II PLUMBING, PART VI, APPENDIX 'F'. REFER TO THIS SECTION FOR THE FORMULA TO BE USED TO CALCULATE THE MAXIMUM ALLOWABLE WATER LOSS DURING THE TESTING TIME.

16.1.3. REPAIR ALL LEAKS AND RETEST MAINLINE PIPING UNTIL THE TEST IS SUCCESSFUL.

16.1.4. LATERAL PIPE MUST BE FILLED AND VISUALLY CHECKED FOR LEAKS. ANY LEAKS DETECTED MUST BE REPAIRED. NO PRESSURE TEST OF THE LATERAL LINES IS REQUIRED.

16.2. FLUSHING:

16.2.1. PRIOR TO THE PLACEMENT OF HEADS, FLUSH ALL LINES FOR A MINIMUM OF 10 MINUTES OR UNTIL LINES ARE COMPLETELY CLEAN OF DEBRIS, WHICHEVER IS LONGER.

16.2.2. USE SCREENS IN HEADS AND ADJUST HEADS FOR PROPER COVERAGE AVOIDING EXCESS WATER ON WALLS, WALKS AND PAVING.

16.3. OPERATIONAL TESTING:

16.3.1. UPON COMPLETION OF BACKFILLING, FINISH GRADING AND CONTOURING, TEST THE ENTIRE SYSTEM FOR PROPER OPERATION, INCLUDING ELECTRICALLY ACTUATING THE REMOTE CONTROL VALVES. RUN EACH ZONE UNTIL WATER BEGINS TO PUDDLE OR RUN OFF. THIS WILL ALLOW DETERMINATION OF THE NUMBER OF IRRIGATION START TIMES NECESSARY TO MEET THE WEEKLY EVAPOTRANSPIRATION REQUIREMENTS OF THE PLANTING MATERIAL IN EACH ZONE. IN SANDY SOILS NO PUDDLING WILL OCCUR. IN THESE CASES, CALCULATE THE REQUIRED RUN TIMES.

16.3.2. ONCE THE MAINLINE AND LATERAL LINES HAVE PASSED THEIR RESPECTIVE TESTS AND THE SYSTEM IS COMPLETELY OPERATIONAL, A COVERAGE TEST AND DEMONSTRATION OF THE SYSTEM IS REQUIRED. THE IRRIGATION CONTRACTOR MUST DEMONSTRATE TO THE OWNER OR HIS/HER REPRESENTATIVE THAT PROPER COVERAGE IS OBTAINED AND THAT THE SYSTEM WORKS AUTOMATICALLY FROM THE CONTROLLER. THIS DEMONSTRATION REQUIRES THAT EACH ZONE BE TURNED ON IN THE PROPER SEQUENCE AS SHOWN ON THE PLANS FROM THE CONTROLLER. EACH ZONE WILL BE INSPECTED FOR PROPER COVERAGE AND FUNCTION. THE DETERMINATION OF PROPER COVERAGE AND FUNCTION WILL BE SOLELY DETERMINED BY THE OWNER OR OWNER'S REPRESENTATIVE.

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PROJECT INFORMATION

NE 23RD DRIVE PARKING PROJECT

WILTON MANORS, FLORIDA

PROJECT NUMBER
15-125.024

CLIENT PROJECT NUMBER
AMENDMENT 26

VERIFY SCALES
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REVISIONS

DATE OF ISSUE
10/26/2016

DESIGNED BY
CJS

DRAWN BY
CJS

CHECKED BY
EDH

DRAWING TITLE

IRRIGATION DETAILS

DRAWING NUMBER
L3.02
10 OF 15

Plot Date: 2016-10-26 6:32:06 PM Username: SBortak Layout Name: L3.02
Folder Path: V:\Projects\2015\15-125.024 - ne 23rd drive parking\Design\CAD\Plans Filename: 15-125.024 Irrigation Plan.dwg

ELECTRICAL NOTES

E1. DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO CIVIL PLANS FOR EXACT LOCATION OF ALL EQUIPMENT CONFIRM WITH OWNERS REPRESENTATIVE. ALL WORK SHALL BE DONE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND SHALL COMPLY WITH ALL LOCAL RULES AND ORDINANCES. MINIMUM WIRE SIZE SHALL BE #12 A.W.G., EXCLUDING CONTROL WIRING. UNLESS OTHERWISE NOTED ALL CONDUCTORS SHALL BE COPPER WITH THHN OR THWN INSULATION.

E2. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS. CAST ALLOY WITH THREADED HUBS IN WET OR DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS. DISCONNECT SWITCHES SHALL BE H.P. RATED , HEAVY DUTY, QUICK-MADE, QUICK-BREAK ENCLOSURES AS REQUIRED BY EXPOSURE. MOTOR STARTERS SHALL BE MANUAL OR MAGNETIC , WITH OVERLOAD RELAYS IN EACH HOT LEG.

E3. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL RE-QUIREMENTS NECCESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

E4. ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED BY THE LATEST EDITION OF THE N.E.C. ALL MATERIALS SHALL BE NEW AND BEAR UNDERWRITERS' LABELS WHERE APPLICABLE.

E5. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. BE FULLY OPERATIVE , AND ACCEPTED BY ENGINEER/ARCHITECT. ELECTRICAL CONTRACTOR SHALL PAY FOR ALL PERMITS & FEES, AS REQUIRED.

E6. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGESS OF CONSTRUCTION.

E7. CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FROM A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.

E8. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THEREBY. ALL REQUIRED INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY OF PROPERTY DAMAGE FOR THE DURATION OF THE WORK. CONTRACTOR SHALL PAY FOR ALL PREMITS , FEES , INSPECTIONS , AND TESTING.

E9. THE ELECTRICAL INSTALLATION SHALL MEET ALL STANDARD REQUIREMENTS OF POWER AND TELEPHONE COMPANIES.

E10. FURNISH AND INSTALL DISCONNECT SWITCHES AND WIRING FOR AIR CONDITIONING SYSTEM AS PER MANUFACTURERS RECOMMENDATIONS. CONTROLS ARE TO BE SUPPLIED BY AIR CONDITIONING CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR.

E11. ALL RACEWAYS UNDERGROUND SHALL BE A MINIMUM OF 1/2"CONDUIT. ALL CIRCUIT BREAKERS , TWO AND THREE POLE , TO BE COMMON TRIP. NO TIE HANDLES , OR TANDENS WILL BE ACCEPTED.

E12. ALL FUSES , UNLESS NOTED ON DRAWING , SHALL BE CURRENT LIMITED FUSES (C.L.) RATED FOR 200,000 A.I.C. ALL NEW ELECTRICAL PANELS SHALL BE PROVIDED WITH COPPER BUS AND GROUND BARS.

E13. CONTRACTOR SHALL SEAL ALL NEW PENETRACTIONS THROUGH EXISTING DRAFTSTOP AS REQUIRED.

E14. EQUIPMENT SHALL BE OF MATERIALS SUITABLE FOR AND NEMA RATED FOR THE ENVIRONMENT IN WHICH THEY ARE TO BE INSTALLED.

ELECTRICAL DRAWING NOTES

1. ALL WORK PERFORMED SHALL BE DONE BY A LICENSED ELECTRICAL CONTRACTOR AND IN A FIRST CLASS WORKMANLIKE MANNER. SAID CONTRACTOR SHALL MEET ALL REQUIREMENTS SET FORTH BY ANY LOCAL ORDINANCE AND/OR GOVERNING AUTHORITIES.
2. ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, LATEST EDITION NEC AND THE LATEST EDITIONS OF ALL LOCAL CODES, RULES, AND ORDINANCES HAVING JURISDICTION.
3. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS, AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK SHOWN AND/OR NOTED ON THE DRAWINGS AND SPECIFICATIONS.
4. ALL REQUIRED INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
5. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO BID AND VERIFY ALL CONDITIONS, LOCATIONS, DIMENSIONS AND COUNTS AS SHOWN AND/OR NOTED ON THE DRAWINGS. THIS SHALL INCLUDE ANY AND ALL FABRICATIONS REQUIRED PRIOR TO INSTALLATION.
6. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR FOR THE ADVANCED ORDERING OF LONG LEAD ITEMS SO AS NOT TO INTERFERE WITH THE PRODUCTION OF OTHER TRADES RESULTING IN ANY DOWN OR LAG TIME.
7. CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN (1) YEAR FROM DATE OF ACCEPTANCE, UNLESS INDICATED OR SPECIFIED OTHERWISE.
8. CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THEREBY.
9. ALL ELECTRICAL EQUIPMENT, DEVICES, WIRE, ETC., SHALL BE LISTED FOR THE INTENDED USE, WITH UNDERWRITER'S LABORATORIES, INC. (UL) WHERE STANDARDS HAVE BEEN ESTABLISHED BY UL. AS A MINIMUM, ALL EQUIPMENT SHALL MEET APPLICABLE STANDARDS FOR THE TYPE OF EQUIPMENT AND INTENDED USE OF THE FOLLOWING:

   A. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).
   B. ILLUMINATING ENGINEERS SOCIETY (IES).
   C. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).
   D. NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA).

   NOTE:
   THESE STANDARDS ARE SUBORDINATE TO CODES AND STANDARDS SET BY UL.

10. IT IS NOT THE INTENT OF THESE PLANS AND/OR SPECIFICATIONS TO SHOW EVERY DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR SHALL BE EXPECTED TO PROVIDE ALL ITEMS AND EQUIPMENT NECESSARY FOR A COMPLETE AND FULLY FUNCTIONAL ELECTRICAL SYSTEM.
11. ALL CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY. EXACT ROUTING SHALL BE DETERMINED IN THE FIELD, UNLESS OTHERWISE NOTED. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL THE PROPER NUMBER OF CONDUCTORS IN ALL RACEWAYS AS REQUIRED TO ACCOMPLISH THE PROPER FUNCTIONING OF THE DEVICE OR EQUIPMENT AS SHOWN.
12. THE ELECTRICAL CONTRACTOR SHALL KEEP ALL AREAS IN WHICH WORK IS BEING PER-FORMED, FREE FROM DEBRIS AT ALL TIMES AND SAID AREAS SHALL BE LEFT BROOM CLEAN AT THE END OF EACH WORKING DAY.
13. CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS, AND TESTING.
14. ENGINEERING EXPENSES THAT ARE INCURRED DUE TO REVISIONS OR SUBSTITUTIONS REQUESTED BY THE CONTRACTOR SHALL BE PAID FOR BY THAT CONTRACTOR.
15. COORDINATE ALL ELECTRICAL SITE WORK WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION.
16. ALL CONDUCTORS SHALL BE IN CONDUITS. ALL CONDUITS SHALL BE INTERMEDIATE (IMC) OR RIGID GALVANIZED STEEL (RGS) EXCEPT THAT: (a) POLYVINYL CHLORIDE (PVC) CONDUITS MAY BE USED IN CONCRETE SLABS AND UNDERGROUND PROVIDED ELBOWS AND RISERS ARE RGS; (b) ELECTRICAL METALLIC TUBING (EMT) MAY BE USED IN OR ON WALLS OR CEILING WHERE NOT SUBJECT TO MECHANICAL DAMAGE, DAMP CONDITIONS OR CORROSIVE CONDITIONS; (c) LIQUID-TIGHT FLEXIBLE CONDUIT WHERE REQUIRED; (d) FLEXIBLE METALLIC CONDUIT WHERE REQUIRED IN DRY LOCATIONS; (e) THE USE OF AC OR MC CABLES SHALL BE PROHIBITED. ALL CONDUITS IN HAZARDOUS AREAS (PER NEC) SHALL MEET THE REQUIREMENTS OF NEC CHAPTER 5.
17. FOR UNDERGROUND ELECTRICAL CONDUITS, PROVIDE PULL BOXES, SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WHERE CONDUITS PASS UNDERNEATH PAVED AREAS THEY SHALL BE RGS. WHERE UNDERGROUND CONDUITS ARE NOT EXPOSED TO MECHANICAL DAMAGE OR ARE NOT UNDER PAVED AREAS, THEY MAY BE SCHEDULE 40 PVC, BUT ALL CONDUIT RISERS SHALL BE RGS. RGS CONDUITS SHALL EXTEND A MINIMUM OF 18" BELOW GRADE.
18. APPLY BITUMASTIC COATING TO ALL METALLIC CONDUITS IN SLABS OR UNDERGROUND.
19. ALL CONDUCTORS SHALL BE COPPER U.O.N., TYPE THHN OR THWN INSULATION, RATED 75°C WET/DRY EXCEPT WHERE OTHERWISE REQUIRED BY U.L. OR CODES UNLESS OTHERWISE NOTED. MINIMUM WIRE SIZE SHALL BE #12 AWG EXCLUDING CONTROL WIRING.
20. WIRE WAYS SHALL BE SIZED AS REQUIRED, PER NEC, UNLESS OTHERWISE NOTED.
21. ALL ELECTRICAL EQUIPMENT SHALL BE RAINTIGHT WHERE EXPOSED TO THE WEATHER. ALL FLEX CONDUITS CONNECTED TO SUCH EQUIPMENT SHALL BE LIQUID-TIGHT.
22. CIRCUIT BREAKERS SHALL BE BOLT-ON U.O.I., INVERSE TIME-TYPE (THERMAL-MAGNETIC). TWO AND THREE-POLE CIRCUIT BREAKERS SHALL HAVE COMMON TRIP. ALL PANELBOARDS SHALL HAVE COPPER BUS.
23. BALLASTS SHALL HAVE MIN. POWER FACTOR OF 0.90. BALLASTS FOR METAL HALIDE AND HIGH PRESSURE SODIUM FIXTURES SHALL BE CONSTANT WATTAGE TYPE WITH 5% LAMP WATTS FOR 10% NOMINAL LINE VOLTAGE VARIATION.
24. PROVIDE LAMPS WITH FIXTURES, SEE LUMINAIRE SCHEDULE FOR LAMP TYPE.
25. ALL CONNECTIONS TO GROUND RODS & BUILDING STEEL SHALL BE MADE WITH UL APPROVED WELDED CONNECTIONS, UNLESS OTHERWISE NOTED.
26. PROVIDE A FUSE HOLDER AND FUSE IN THE PRIMARY SIDE OF EACH UNGROUNDED CONDUCTOR FOR EACH BALLAST (BUSSMAN HEB AND FNQ OR EQUAL), AT THE HAND HOLE OF EACH EXTERIOR POLE MOUNTED LIGHTING FIXTURE OR J-BOX FOR WALL OR GROUND MOUNTED EXTERIOR FIXTURES.
27. PROVIDE TEMPORARY ELECTRICAL SERVICE FOR USE BY ALL TRADES DURING CON-STRUCTION AND REMOVE SAME AT COMPLETION OF PROJECT,
28. THE ELECTRICAL CONTRACTOR SHALL FURNISH A COMPLETE SET OF AS-BUILT DRAWINGS, SHOWING ALL CHANGES AND DEVIATIONS TO THE ARCHITECT/ENGINEER PRIOR TO COMPLETION OF THE PROJECT.
29. PREPARE AND AFFIX A TYPEWRITTEN DIRECTORY TO THE INSIDE COVER OF EACH PANELBOARD INDICATING LOADS SERVED BY EACH CIRCUIT.

ELECTRICAL SYMBOLS LEGEND

NOT ALL SYMBOLS SHOWN ARE FOR THIS PROJECT

- A — FIXTURE TYPE
- POLE MOUNTED WITH SINGLE ARM LUMINAIRE
- LP24 a — SWITCH POLE TYPE; PANEL/CIRCUIT NUMBER
- POLE MOUNTED WITH DOUBLE ARM LUMINAIRE
- P/B — BELOW GRADE CONCRETE PULL BOX NEAR LIGHT POLE - BROOKS BROTHERS OR EQUAL

ELECTRICAL SYMBOLS LEGEND: POWER

- DUPLEX RECEPTACLE
- PANELBOARD
- UPWR — UNDERGROUND POWER FEEDER

ELECTRICAL SYMBOLS LEGEND: SYSTEMS

- DUPLEX RECEPTACLE
- UTELE — UNDERGROUND TELEPHONE FEEDER

ELECTRICAL SYMBOLS LEGEND: OTHER

- H-24 — LABEL OR PANEL-CIRCUIT
- XX — LABEL OR KEYED NOTE
- EXISTING TO REMAIN LINETYPE
- EXISTING TO BE REMOVED (DEMO) LINETYPE
- EXISTING TO BE RELOCATED LINETYPE
- NEW LINETYPE

ELECTRICAL SYMBOLS LEGEND: ABBREVIATIONS

A	ABOVE COUNTER
AG	ABOVE COUNTER & GFI
A.F.	ARC FAULT
A.F.F.	ABOVE FINISHED FLOOR
A.S.W.	ABOVE SHOW WINDOW RCPT.
B.F.C.	BELOW FINISHED CEILING
B.F.G.	BELOW FINISHED GRADE
C.B.	CIRCUIT BREAKER
CL	CENTER LINE
EC	EMPTY CONDUIT
EM/E	EMERGENCY
ER	EXISTING DEVICE TO REMAIN
ERL	EXISTING RELOCATED
EX	EXISTING TO BE REMOVED
G	GROUND FAULT INTERRUPTER
NE	ABOVE GROUND
M.B.	MORNING BRIGHT
N.S.	NEW SYSTEM
N.O.N.	UNLESS OTHERWISE NOTED
WP.	WEATHER PROOF
XFMR.	TRANSFORMER

DWG. SHT	SHEET DESCRIPTIONS	DD/CD	SUBMISSION	DATE
E-001	ELECTRICAL SYMBOLS LEGEND & GENERAL NOTES	CD	100% CD	08/23/2016
E-101	PHOTOMETRIC PARKING LOT PLAN	CD	100% CD	08/23/2016
E-201	ELECTRICAL PARKING LOT PLAN	CD	100% CD	08/23/2016
E-301	ELECTRICAL DETAILS & PANEL SCHEDULE	CD	100% CD	08/23/2016

NOTE: DRAWINGS WILL BE GIVEN TO THE OWNER'S REPRESENTATIVE FOR REVIEW.

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EB4593 LC26000425

REGISTRATION

DATE: _____

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SUB-CONSULTANT

project CAINE ENGINEERING INCORPORATED
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MECHANICAL ELECTRICAL PLUMBING/FIRE PROTECTION
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PHONE: (954) 767-0024
www.projectcaine.com
#PEO0008660; CA#3860

CLIENT

PUBLIC SERVICES DEPARTMENT
2020 WILTON DRIVE
WILTON MANORS, FL 33305

PROJECT INFORMATION

NE 23RD DRIVE PARKING

WILTON MANORS, FLORIDA

PROJECT NUMBER
15-125.024

CLIENT PROJECT NUMBER

VERIFY SCALES
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REVISIONS

DATE OF ISSUE
10/26/2016

DESIGNED BY
RBC

DRAWN BY
VNW

CHECKED BY
RBC

DRAWING TITLE
ELECTRICAL SYMBOLS LEGEND & GENERAL NOTES

DRAWING NUMBER
E-001
12 OF 15

Plot Date: 10/26/2016 2:07:54 PM Username: JTamo Layout Name: E-001
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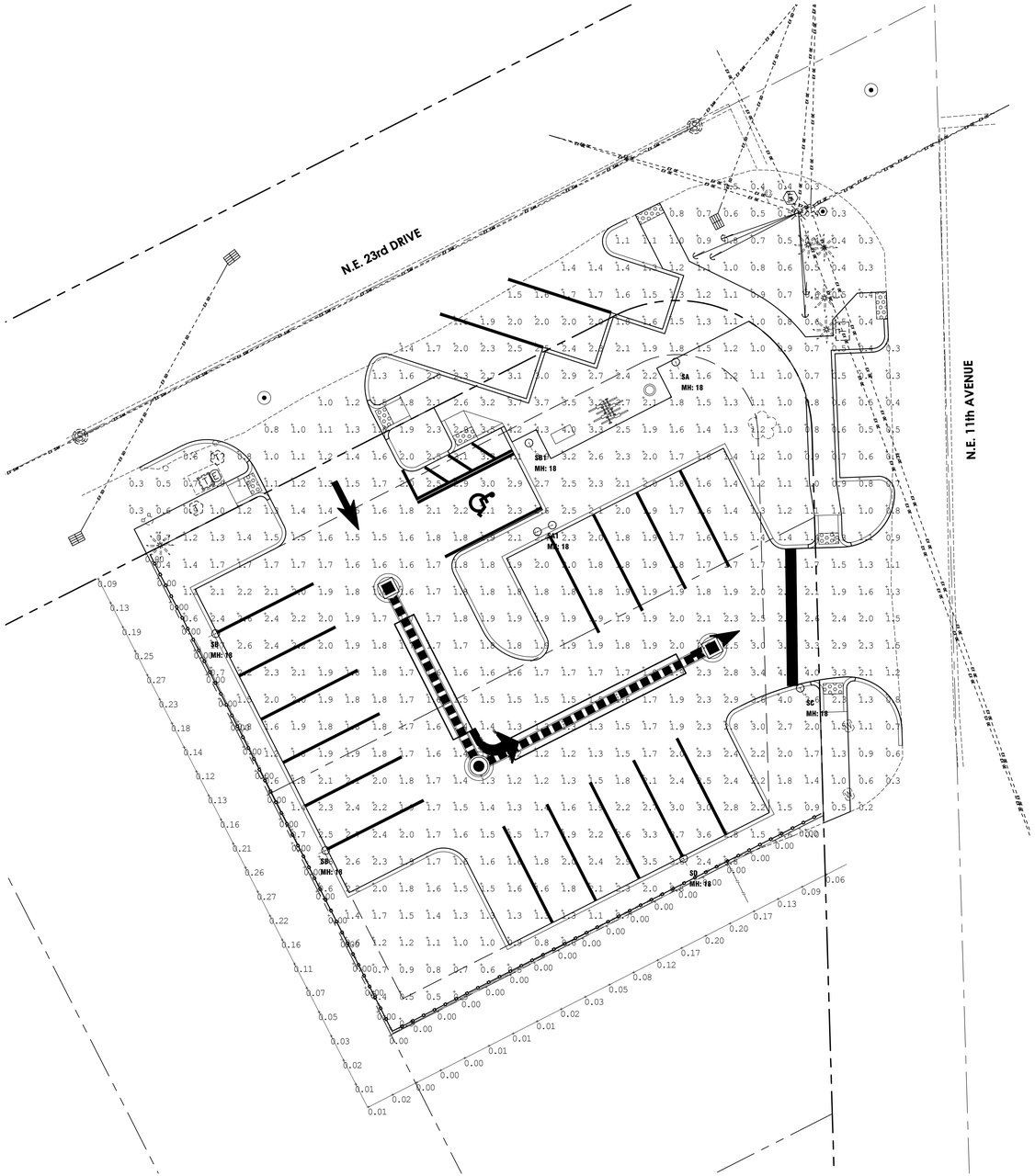

1 PHOTOMETRIC PARKING LOT PLAN
E-101 SCALE: 3/32" = 1'-0"

PHILIPS
LUMEC

Urban

Domus Small

DOS

LED

Project:
Location:
Cat.No:
Type:
Qty:
Notes:

The Domus Series of products – Domus, Domus 55, and Domus Small – are all designed to complement each other and bring balance to any environment. Their charm is undeniable. Simplicity, refinement, and elegance, all fuse together to create harmonious beauty through designed equilibrium.

Ordering guide example: DOS-30W16LED4K-T-LE4F-240-HS-DALI -DBA-1A-BKTX

Prefix	Lamp or LED	Lamp Type	Optical System	Ballast	Luminaire Options	Driver Options	Adaptor	Mounting	Configuration	Pole*	Finish
DOS	24W16LED4K	T	LE2F Type 2	120 120V	HS House Side Shield	AST Adjustable Start Time	MAS Adaptor for an existing mounting supplied by others for 1-1/4 NPT nipple	DBA	1A		BE2TX Textured Midnight Blue
Domus Small LED	30W16LED4K		LE3F Type 3	208 208V	SIP2 Surge Protection, 20KV 20KA 120-277	CLO Constant Light Output		DBB	2		BE6TX Textured Ocean Blue
	35W32LED4K		LE4F Type 4	240 240V		DALI Digitally Adressable Lighting Interface Dynadimmer		DBC	M		BE8TX Textured Royal Blue
	55W32LED4K		LE5F Type 5	277 277V		OTL Over The Life		DBF			BG2TX Textured Sandstone
	24W16LED3K					CDMGP Dimming Level determined by user					BKTX Textured Black
	30W16LED3K					Economy Profile					BRTX Textured Bronze
	35W32LED3K					CDMGE25					GN4TX Textured Blue Green
	55W32LED3K					CDMGE50					GN6TX Textured Forest Green
						CDMGE75					GN8TX Textured Dark Forest Green
						Median Profile					GNTX Textured Green
						CDMGM25					GR Gray Sandtex
						CDMGM50					GY3TX Textured Medium Grey
						CDMGM75					NP Natural Aluminum
						Safety Profile					RD2TX Textured Burgundy
						CDMGS25					RD4TX Textured Scarlet
						CDMGS50					TG Hammertone Gold
						CDMGS75					TS Hammertone Silver
											WHTX Textured White

* Consult Philips.com/luminaires for details and the complete line of Philips poles and brackets.

Luminaire Schedule

Project: WILTON MANORS PARKING LOT --- JUL - 14 - 2016

Symbol	Qty	Label	Description	Lumens/Lamp	LLD	LDD	BF	LLF	Lum. Watts	Total Watts
	1	SA	PHILIPS LUMEC DOS-55W32LED4K-T-LE5F POLE MOUNT 10' A.F.G.	N.A.	0.900	0.900	1.000	0.810	53.9	53.9
	1	SA1	PHILIPS LUMEC DOS-55W32LED4K-T-LE5F POLE MOUNT 10' A.F.G.	N.A.	0.900	0.900	1.000	0.810	53.9	107.8
	2	SB	PHILIPS LUMEC DOS-55W32LED4K-T-LE4F-HS POLE MOUNT 10' A.F.G.	N.A.	0.900	0.900	1.000	0.810	53.9	107.8
	1	SB1	PHILIPS LUMEC DOS-55W32LED4K-T-LE4F POLE MOUNT 10' A.F.G.	N.A.	0.900	0.900	1.000	0.810	53.7	53.7
	1	SC	PHILIPS LUMEC DOS-55W32LED4K-T-LE3F POLE MOUNT 10' A.F.G.	N.A.	0.900	0.900	1.000	0.810	54.3	54.3
	1	SD	PHILIPS LUMEC DOS-55W32LED4K-T-LE2F-HS POLE MOUNT 10' A.F.G.	N.A.	0.900	0.900	1.000	0.810	53.4	53.4

Calculation Summary

Project: WILTON MANORS PARKING LOT --- JUL - 14 - 2016

Label	Avg	Max	Min	Avg/Min	Max/Min
SPILL 10' INTO ADJ RESID	0.11	0.27	0.00	N.A.	N.A.
SPILL TO ADJ RESIDENTIAL	0.00	0.00	0.00	N.A.	N.A.
PARK & DRIVE	1.91	4.1	0.0	2.39	5.13

2 PHOTOMETRIC PARKING LOT SCHEDULE
E-101 SCALE: NTS

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&ASSOCIATES
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954.730.0707
www.chenmoore.com
CERTIFICATES OF AUTHORIZATION
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REGISTRATION

DATE: _____

ROBERT B. CAINE LICENSE No. 37637 STATE OF FLORIDA PROFESSIONAL ENGINEER

SUB-CONSULTANT

project CAINE ENGINEERING INCORPORATED
RESPONSIVE ENGINEERING
MECHANICAL ELECTRICAL PLUMBING/FIRE PROTECTION

CLIENT

PUBLIC SERVICES DEPARTMENT
2020 WILTON DRIVE
WILTON MANORS, FL 33305

PROJECT INFORMATION

NE 23RD DRIVE PARKING

WILTON MANORS, FLORIDA

PROJECT NUMBER
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CLIENT PROJECT NUMBER

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REVISIONS

DATE OF ISSUE
10/26/2016

DESIGNED BY
RBC

DRAWN BY
VNW

CHECKED BY
RBC

DRAWING TITLE
PHOTOMETRIC PARKING LOT PLAN

DRAWING NUMBER
E-101

Plot Date: 10/26/2016 2:08:05 PM Username: iTamo Layout Name: E-101
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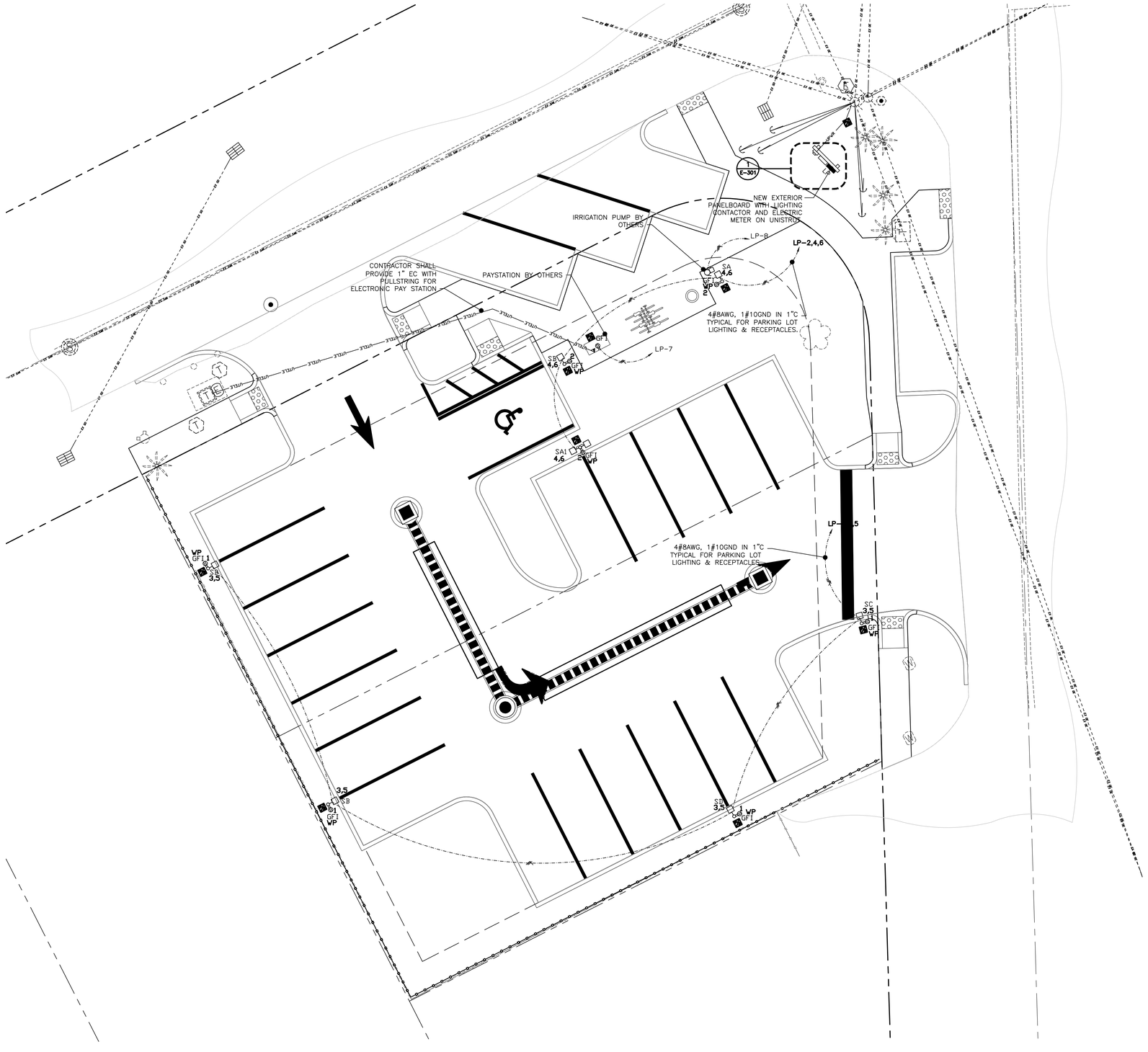

1 ELECTRICAL PARKING LOT PLAN
E-201 SCALE: 1/8" = 1'-0"

ELECTRICAL SITE NOTES:

1. ELECTRICAL LIGHTING INDICATED ON THIS PLAN SHALL BE AS NOTED. COORDINATE WITH PHOTOMETRIC PLANS ON SHEET E-101 FOR FIXTURE AND POLE TYPES.
2. CONTRACTOR SHALL CIRCUIT TO NEW PANEL 'LP' INDICATED ON THIS SHEET.
3. ALL LIGHTING SHALL BE CONTROLLED VIA NEW LIGHTING CONTACTOR AND A NEW PHOTOCELL. REFER TO SHEET E301 FOR LIGHTING CONTROL DIAGRAM.
4. CONTRACTOR TO INSTALL NEW PULL BOXES NEAR NEW SITE LIGHTING FIXTURES AS SHOWN.

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#PE0000000000, CA#28587

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PUBLIC SERVICES DEPARTMENT
2020 WILTON DRIVE
WILTON MANORS, FL 33305

PROJECT INFORMATION

NE 23RD DRIVE PARKING

WILTON MANORS, FLORIDA

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DESIGNED BY
RBC

DRAWN BY
VNW

CHECKED BY
RBC

DRAWING TITLE
ELECTRICAL PARKING LOT PLAN

DRAWING NUMBER
E-201

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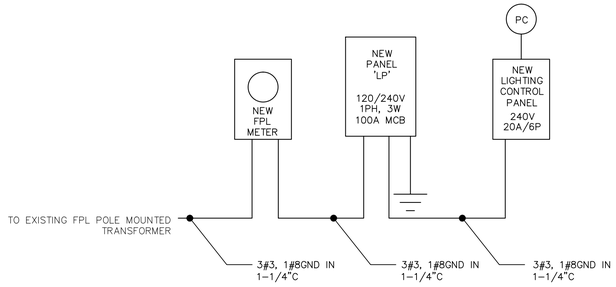
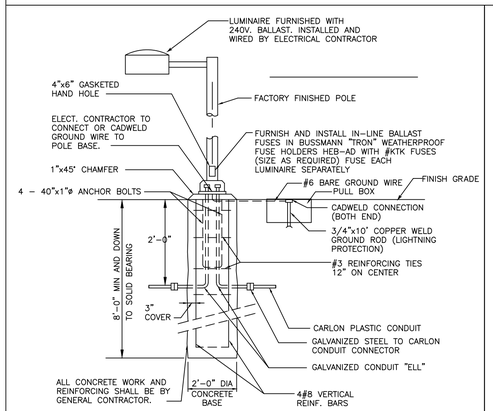
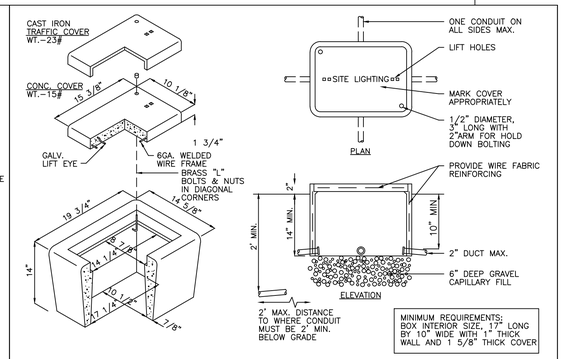


SINGLE LINE DIAGRAM
No Scale

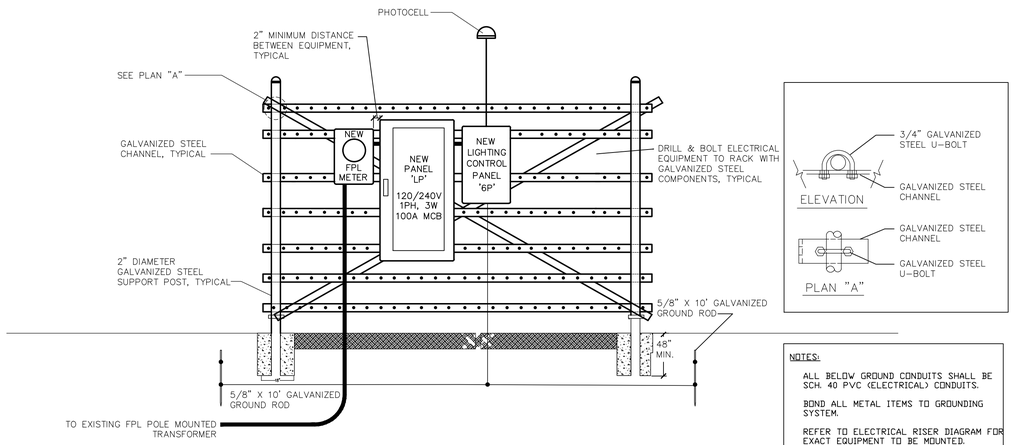


TYPICAL PARKING LOT LIGHTING WITH CONCRETE BASE
N.T.S.
(OVERALL MOUNTING HEIGHT POLE AND CONCRETE BASE PER TYPICAL 20'-0" A.F.G.)



TYPICAL SITE LIGHTING PULL BOX DETAIL
N.T.S

2 TYPICAL ELECTRICAL DETAILS
E-301 SCALE: NTS



1 TYPICAL STRUT SUPPORT DETAIL
E-301 Scale: NTS

NOTES:

ALL BELOW GROUND CONDUITS SHALL BE SCH. 40 PVC (ELECTRICAL) CONDUITS.

BOND ALL METAL ITEMS TO GROUNDING SYSTEM.

REFER TO ELECTRICAL RISER DIAGRAM FOR EXACT EQUIPMENT TO BE MOUNTED.

CONTRACTOR SHALL SIZE STRUT SUPPORT AS REQUIRED.

PANEL LP

VOLTAGE (L-N):	120	ENCLOSURE TYPE:	3R
VOLTAGE (L-L):	240	MOUNTING:	SURFACE
PHASES, WIRES:	1 ϕ, 3 W	AIC RATING:	10K
MINIMUM BUS CAPACITY (A):	100 A	NOTES:	----
MAIN O.C. DEVICE (A):	100 A		

CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA) A	PHASE LOADS (VA) B	POLE	TRIP AMPS	DESCRIPTION	CKT NO
1	OUTDOOR RECEPTACLES	20	1	720	540	1	20	OUTDOOR RECEPTACLES	2
3,5	PARKING LOT LTG	20	2		220	220	2	20	PARKING LOT LTG	4,6
3,5	PARKING LOT LTG	20	2	0	0	2	20	PARKING LOT LTG	4,6
7	PAY STATION	20	1		600	1000	1	20	IRRIGATION PUMP	8
9	SPARE	20	1	0	0	1	20	SPARE	10
11	SPARE	20	1		0	0	1	20	SPARE	12
13	SPARE	20	1	0	0	1	20	SPARE	14
				CONNECTED LOAD PHASE TOTALS (VA)					
				1260	2040				

	CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
Equipment	0.6	1.00	0.6
Lighting	0.4	1.25	0.6
Motors	0.0	1.00	0.0
Motors (Largest)	1.0	1.25	1.3
Receptacles (0 - 10 KVA)	1.3	1.00	1.3
TOTAL:	3.3		3.7
LOAD (AMPS):	15.9		17.6

DEMAND LOAD	3.7 KVA
SPARE CAPACITY	8.8 KVA
SPARE CAPACITY	42.4 AMPS
SPARE CAPACITY	71%

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLT	# LAMPS	LAMP TYPE	INPUT WATTS	MOUNTING	REMARKS
SA	SINGLE LED SITE LIGHT FIXTURE	LUMEC	DOS55W32LED4K-T-LE5F-VOLT-DBC-1A-AM6-BRTX		---	LED 4000K	54W	18' ALUMINUM POLE	
SA1	TWIN LED SITE LIGHT FIXTURE	LUMEC	DOS55W32LED4K-T-LE5F-VOLT-LR-DBC-2-AM6-BRTX		---	LED 4000K	108W	18' ALUMINUM POLE	
SB	SINGLE LED SITE LIGHT FIXTURE	LUMEC	DOS55W32LED4K-T-LE4F-VOLT-HS-DBC-1A-AM6-BRTX		---	LED 4000K	54W	18' ALUMINUM POLE	
SB1	SINGLE LED SITE LIGHT FIXTURE	LUMEC	DOS55W32LED4K-T-LE4F-VOLT-DBC-1A-AM6-BRTX		---	LED 4000K	54W	18' ALUMINUM POLE	
SC	SINGLE LED SITE LIGHT FIXTURE	LUMEC	DOS55W32LED4K-T-LE3F-VOLT-DBC-1A-AM6-BRTX		---	LED 4000K	54W	18' ALUMINUM POLE	
SD	SINGLE LED SITE LIGHT FIXTURE	LUMEC	DOS55W32LED4K-T-LE2F-VOLT-DBC-1A-AM6-BRTX		---	LED 4000K	54W	18' ALUMINUM POLE	

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EB4593 LC26000425

REGISTRATION

DATE: _____

ROBERT B. CAINE LICENSE No. 37637 STATE OF FLORIDA PROFESSIONAL ENGINEER

SUB-CONSULTANT

project CAINE ENGINEERING INCORPORATED
RESPONSIVE ENGINEERING
MECHANICAL ELECTRICAL PLUMBING/FIRE PROTECTION
1968 EAST SUNRISE BLVD, SUITE #1
FORT LAUDERDALE, FLORIDA 33304
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#PE0000208421 CAA13007

CLIENT

PUBLIC SERVICES DEPARTMENT
2020 WILTON DRIVE
WILTON MANORS, FL 33305

PROJECT INFORMATION

NE 23RD DRIVE PARKING

WILTON MANORS, FLORIDA

PROJECT NUMBER
15-125.024

CLIENT PROJECT NUMBER

VERIFY SCALES
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

REVISIONS

DATE OF ISSUE
10/26/2016

DESIGNED BY
RBC

DRAWN BY
VNW

CHECKED BY
RBC

DRAWING TITLE
ELECTRICAL PARKING LOT PLAN

DRAWING NUMBER
E-301
15 OF 15

Plot Date: 10/26/2016 2:08:10 PM Username: jTamo Layout Name: E-301
Folder Path: V:\Projects\2015\15-125.024 - NE 23rd Drive Parking\Design\CAD\Plans Filename: Wilton Manors_Electrical_Binded.dwg

CITY OF WILTON MANORS

NE 23rd DRIVE PARKING LOT

BID SCHEDULE

Item	GENERAL	Quantity	Unit	Unit Price	Amount
1	Mobilization	1	LS	$	$
2	Maintenance of Traffic	1	LS	$	$
3	Bonds and Insurance	1	LS	$	$
4	Permit Allowance	1	AL	$ 5,000.00	$ 5,000.00
5	Construction Contingency	1	AL	$ 10,000.00	$ 10,000.00
6	Indemnification	1	LS	$ 25.00	$ 25.00
	GENERAL SUBTOTAL				**$**
	DRAINAGE				
7	Furnish and Install Drainage Catch Basin (48" Round) w/ Frame/Grate	3	EA	$	$
8	Furnish and Install 18" RCP Drainage Pipe	20	LF	$	$
9	Furnish and Install 18" RCP Exfiltration Trench	65	LF	$	$
10	Furnish and Install Pollution Retardant Baffle	4	EA	$	$
	DRAINAGE SUBTOTAL				**$**
	ROADWAY				
11	Remove and Dispose of Existing Asphalt Pavement	25	SY	$	$
12	Clear and Grade Site Area	1,250	SY	$	$
13	Compaction of Subgrade (12")	955	SY	$	$
14	Furnish and Install Limerock Base (8")	955	SY	$	$
15	Furnish and Install Asphalt Pavement - Type S-1 (1-1/4")	955	SY	$	$
16	Furnish and Install Asphalt Pavement - Type S-III (3/4")	955	SY	$	$
17	Furnish and Install Concrete Type D Curb	620	LF	$	$
18	Furnish and Install Concrete Drop Curb (at curb ramps)	40	LF	$	$
19	Furnish and Install Concrete Sidewalk (4" Thickness)	165	SY	$	$
	ROADWAY SUBTOTAL				**$**

	HARDSCAPE				
20	Remove Existing 6' Wood Fence	151	LF	$ _____	$ _____
21	Furnish and Install 6' Concrete Panel Wall with Footers	188	LF	$ _____	$ _____
22	Furnish and Install Pay Station Base Connection	1	EA	$ _____	$ _____
23	Furnish and Install Bicycle Rack	1	EA	$ _____	$ _____
24	Furnish and Install Trash Receptable	1	EA	$ _____	$ _____
25	Furnish and Install Pole Mounted Dog Waste Bag Dispenser	1	EA	$ _____	$ _____
	HARDSCAPE SUBTOTAL				**$** _____
	PAVEMENT MARKINGS AND SIGNAGE				
26	Furnish and Place 6" Thermoplastic Striping (solid line)	420	LF	$ _____	$ _____
27	Furnish and Place 24" Thermoplastic Striping (stop bars)	24	LF	$ _____	$ _____
28	Furnish and Place Thermoplastic Pavement Symbols	4	EA	$ _____	$ _____
29	Furnish and Install Pedestrian Detectable Warnings for ADA Ramps	7	EA	$ _____	$ _____
30	Furnish and Install Sign with Post	3	EA	$ _____	$ _____
31	Furnish and Install Wheel Stops	22	EA	$ _____	$ _____
	PAVEMENT MARKINGS AND SIGNAGE SUBTOTAL				**$** _____
	LANDSCAPE				
32	Furnish and Install Relocated Sabal palmetto, Cabbage Palm, 'Varies'	2	EA	$ _____	$ _____
33	Furnish and Install Conocarpus erectus, Green Buttonwood (B&B, 12' H	7	EA	$ _____	$ _____
34	Furnish and Install Conocarpus erectus 'Sericeus', Silver Buttonwood (B	8	EA	$ _____	$ _____
35	Furnish and Install Senna suranttensis, Glaucous Cassia (B&B, 10' HT,	5	EA	$ _____	$ _____
36	Furnish and Install Chrysobalanus icaco 'Horizontalis', Horizontal Cocop	240	EA	$ _____	$ _____
37	Furnish and Install Muhlenbergia capillaris, Pink Muhly (24" HT, Full, 24	196	EA	$ _____	$ _____
38	Furnish and Install Zamia pumila, Coontie Palm (24" HT, Full, 30" SP. C	42	EA	$ _____	$ _____
39	Furnish and Install Paspalum notatum, Bahia Grass (Full sod)	200	SY	$ _____	$ _____
40	Protect Existing Tree	1	EA	$ _____	$ _____
	LANDSCAPE SUBTOTAL				**$** _____

	IRRIGATION				
41	Furnish and Install Turf Spray: Toro 570Z-6P-XF-COM-PC MPR, 12'	1	LS	$ _____	$ _____
42	Furnish and Install Turf Strip Spray: Toro 570Z-6P-XF-COM-PC MPR	1	LS	$ _____	$ _____
43	Furnish and Install Dripline: Toro RGP-412 (18)	1	LS	$ _____	$ _____
44	Furnish and Install Remote Control Valve: Toro P-220	1	LS	$ _____	$ _____
45	Furnish and Install Pressure Vaccum Breaker: Zurn 720A	1	LS	$ _____	$ _____
46	Furnish and Install Wall Mount Controller: Toro TMCE-424-OD-4H	1	LS	$ _____	$ _____
47	Furnish and Install Wired Rain Sensor	1	LS	$ _____	$ _____
48	Furnish and Install Water Meter (1") with Meter Box	1	LS	$ _____	$ _____
49	Furnish and Install Lateral Line: PVC SCH. 40	1	LS	$ _____	$ _____
50	Furnish and Install Mainline: PVC SCH. 40	1	LS	$ _____	$ _____
51	Furnish and Install Pipe Sleeve: PVC SCH. 40	1	LS	$ _____	$ _____
	IRRIGATION SUBTOTAL				**$** _____
	ELECTRICAL				
52	Furnish and Install Light Fixture/Pole/Footer (Complete)	9	EA	$ _____	$ _____
53	Furnish and Install UG Cable 5#8	1	LS	$ _____	$ _____
54	Furnish and Install PVC Conduit (2")	1	LS	$ _____	$ _____
55	Furnish and Install Panelboard (240 V 3R 100A 1Ph)	1	LS	$ _____	$ _____
56	Furnish and Install Lighting Contactor (100A 3P)	1	LS	$ _____	$ _____
57	Furnish and Install Photocell	1	LS	$ _____	$ _____
58	Furnish and Install Meter and Panelboard Support	1	LS	$ _____	$ _____
59	Furnish and Install Disconnect Switch (100A 2P)	1	LS	$ _____	$ _____
	ELECTRICAL SUBTOTAL				**$** _____
	TOTAL BASE AMOUNT				**$** _____