



**INVITATION FOR BID  
IFB #13-1543CD  
BLACKSTONE PARK EXPANSION SITE WORK**

Manatee County, a political subdivision of the State of Florida, (hereinafter the "County") will receive sealed Bids from individuals, corporations, partnerships, and other legal entities organized under the laws of the State of Florida or authorized to conduct business in the State of Florida.

**NON-MANDATORY INFORMATION CONFERENCE**

In order to insure that all prospective Bidders have sufficient information and understanding of the County's needs, an Information Conference will be held on: **Friday, June 21, 2013 at 9:00 AM** at the **Manatee County Administrative Center, 1112 Manatee Avenue West, 4<sup>th</sup> Floor Osprey Conference Room, Bradenton, FL 34205.** Attendance is not mandatory, but is highly encouraged.

**NOTE:** **Article B.05 Inspection of Site (page 00020-2)** – All potential Contractors, it is mandatory that a site visit be performed at the location to familiarize yourselves with the full scope of the construction site. **A site visit will be done immediately following the informational conference.**

**DEADLINE FOR CLARIFICATION REQUESTS:** **July 2, 2013 at 3:00 PM**  
(Reference Bid Article A.06)

**TIME AND DATE DUE:** **July 16, 2013 at 3:00 PM**

**Important Note:** Lobbying is prohibited (reference Bid Article A.08).

**FOR INFORMATION CONTACT:**  
Chris Daley-CPPB, Contract Specialist  
(941) 749-3048, Fax (941) 749-3034  
[chris.daley@mymanatee.org](mailto:chris.daley@mymanatee.org)  
Manatee County Financial Management Department  
Purchasing Division

AUTHORIZED FOR RELEASE: 

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SECTION 00010  
**INFORMATION TO BIDDERS**

**A.01 OPENING LOCATION**

Sealed Bids will be **publicly opened** at **Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, Florida 34205** in the presence of County officials at the time and date stated, or soon thereafter. All Bidders or their representatives are invited to be present.

Any Bids received after the stated time and date will not be considered. It shall be the sole responsibility of the Bidder to have their Bid **delivered to the Manatee County Purchasing Division** for receipt on or before the stated time and date. If a Bid is sent by **U.S. Mail**, the Bidder shall be responsible for its timely delivery to the Purchasing Division. Bids delayed by mail shall not be considered, shall not be opened at the public opening, and arrangements shall be made for their return at the respondent's request and expense.

**A.02 SEALED & MARKED**

**One original and two copies** of your **signed Bid** shall be submitted in one **sealed** package, clearly marked on the outside **"Sealed Bid #13-1543CD- Blackstone Park Expansion Site Work"** with your company name.

**Address package to:** Manatee County Purchasing Division  
1112 Manatee Avenue West, Suite 803  
Bradenton, Florida 34205

**A.03 SECURING OF DOCUMENTS**

Complete individual copies of the Bidding documents for the project and/or products can be obtained, free of charge, at the Manatee County Property Management Department, 1112 Manatee Avenue West, Suite 868 , Bradenton, FL 34205; (941) 748-4501, extension 3097 or 3003. Documents may be obtained between the hours of 8:00 AM and 4:00 PM Monday through Friday, with the exception of holidays. Complete set of the Bidding document must be used in preparing Bids. The County assumes no responsibility for errors and misinterpretations resulting from the use of incomplete sets of Bidding documents.

**A.04 BID DOCUMENTS**

**Bids** on <http://www.mymanatee.org>, Bid documents and the Notices of Source Selection related to those Bids are available for download in a portable document format (.PDF) file on the Manatee County web page on the Purchasing tab under "Bids." You may view and print these files using Adobe Acrobat software. You may download a free copy of this software (Adobe) from the Owner's web page if you do not have it.

A.04 BID DOCUMENTS (Continued)

**Manatee County collaborates with the Manatee Chamber of Commerce** on distributing solicitations using the RFP Tool web page on the Chambers website: <http://www.Manateechamber.com> to post Bid documents in a portable document format (.PDF) file. This step is in addition to the posting on Manatee County Government web pages.

Manatee County may also use an internet service provider to distribute Bids. A link to that service, <http://www.DemandStar.com>, is provided on this web site under the Tab "DemandStar". Participation in the DemandStar system is not a requirement for doing business with Manatee County.

Note: The County posts the Notice of Source Selection seven (7) calendar days prior to the effective date of the Award.

IT IS THE RESPONSIBILITY OF EACH CONTRACTOR, PRIOR TO SUBMITTING THEIR BID, TO CONTACT THE MANATEE COUNTY PURCHASING DIVISION (see contact information on page one of this document) TO DETERMINE IF ADDENDA WERE ISSUED AND TO MAKE SUCH ADDENDA A PART OF THEIR BID .

A.05 MODIFICATION OF BID SPECIFICATIONS

If a Bidder wishes to recommend changes to the Bid specifications, the Bidder shall furnish in writing, data and information necessary to aid the Owner in evaluating the request to modify the specifications. The Owner is not obligated to make any changes to the Bid specifications. Unless an addendum is issued, the Bid specifications shall remain unaltered. **Bidders must fully comply with the Bid specifications, terms, and conditions.**

A.06 DEADLINE FOR CLARIFICATION REQUESTS

**July 2, 2013 at 3:00 PM** shall be the deadline to submit all inquiries, suggestions, or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids to the Manatee County Purchasing Division.

This deadline has been established to maintain fair treatment for all potential Bidders, while maintaining the expedited nature of the Economic Stimulus that the contracting of this Work may achieve.

A.07 CLARIFICATION & ADDENDA

Each Bidder shall examine all Invitation for Bid documents and shall judge all matters relating to the adequacy and accuracy of such documents. Any inquiries, suggestions or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids shall be made through the Manatee County Purchasing Division. The County shall not be responsible for oral interpretations given by any County employee, representative, or others. The



A.07 CLARIFICATION & ADDENDA (Continued)

issuance of a written addendum is the only official method whereby interpretation, clarification or additional information can be given.

If any addenda are issued to this Invitation for Bid, the County will broadcast the addenda on the DemandStar distribution system to “Planholders” on this web service, and post the documents on the Purchasing Division’s web page at <http://www.mymanatee.org> which can be accessed by clicking on the “Purchasing” button and then clicking on the “Bids” button. It shall be the responsibility of each Bidder, prior to submitting their Bid, to contact Manatee County Purchasing (see contact on page 1) to determine if addenda were issued and to make such addenda a part of their Bid.

A.08 LOBBYING

After the issuance of any Invitation for Bid, prospective Bidders, or any agent, representative or person acting at the request of such Bidder shall not contact, communicate with or discuss any matter relating in any way to the Invitation for Bid with any officer, agent or employee of Manatee County other than the Purchasing Official or as directed in the Invitation for Bid. This prohibition includes the act of carbon copying officers, agents or employees of Manatee County on email correspondence. This requirement begins with the issuance of an Invitation for Bid, and ends upon execution of the final Contract or when the invitation has been canceled. Violators of this prohibition shall be subject to sanctions as provided in the Manatee County Purchasing Code of Law Chapter 2-26.

A.09 UNBALANCED BIDDING PROHIBITED

Manatee County recognizes that large and/or complex projects will often result in a variety of methods, sources, and prices. However, where in the opinion of the County such variation does not appear to be justified, given Bid specifications and industry and market conditions, the Bid will be presumed to be unbalanced. Examples of unbalanced Bids will include:

1. Bids showing omissions, alterations of form, additions not specified or required conditional or unauthorized alternate Bids.
2. Bids quoting prices that substantially deviate, either higher or lower, from those included in the Bids of competitive Bidders for the same line item unit costs.
3. Bids where the unit costs offered are in excess of or below reasonable cost analysis values.

A.09 UNBALANCED BIDDING PROHIBITED (Continued)

In the event the County determines that a Bid is presumed unbalanced, it will request the opportunity to, and reserves the right to, review all source quotes, Bids, price lists, letters of intent, etc., which the Bidder obtained and upon which the Bidder relied upon to develop the Bid. The County reserves the right to reject as non-responsive any presumptive unbalanced Bids where the Bidder is unable to demonstrate the validity and/or necessity of the unbalanced unit costs.

A.10 FRONT END LOADING OF BID PRICING PROHIBITED

Prices offered for performance and/or acquisition activities to occur early in the project schedule, such as mobilization; clearing and grubbing; or maintenance of traffic; that are substantially higher than pricing of competitive Bidders within the same portion of the project schedule, will be presumed to be front end loaded. Front end loaded Bids could reasonably appear to be an attempt to obtain unjustified early payments creating a risk of insufficient incentive for the Contractor to complete the Work or otherwise creating an appearance of an under-capitalized Bidder.

In the event the County determines that a Bid is presumed to be front end loaded, it will request the opportunity to, and reserves the right to, review all source quotes, Bids, price lists, letters of intent, etc., which the Bidder obtained and upon which the Bidder relied upon to develop the pricing or acquisition timing for these Bid items. The County reserves the right to reject as non-responsive any presumptive front end loaded Bids where the Bidder is unable to demonstrate the validity and/or necessity of the front end loaded costs.

A.11 WITHDRAWAL OF OFFERS

Contractors may withdraw offers as follows: a) Mistakes discovered before the opening of a solicitation may be withdrawn by written notice from the Bidder submitting the offer. This request must be received in the office designated for receipt of offers in the solicitation document prior to the time set for delivery and opening of the offers. A copy of the request shall be retained and the unopened offer returned to that Contractor. b) After the responses to a solicitation are opened or a selection has been determined, but before a Contract is signed, a Contractor alleging a material mistake of fact may be permitted to withdraw their offer if: (1) the mistake is clearly evident on the solicitation document; or (2) the Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made. Request to withdraw an offer must be in writing and approved by the Purchasing Official.

A.12 IRREVOCABLE OFFER

Any Bid may be withdrawn up until the date and time set for opening of the Bid. Any Bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a period of ninety (90) days to sell to Manatee County the goods or services set forth in the attached specifications until one or more of the Bids have been duly accepted by the County.

A.13 BID EXPENSES

All expenses for making Bids to the County are to be borne by the Bidder.

A.14 RESERVED RIGHTS

The County reserves the right to accept or reject any and/or all Bids, to waive irregularities and technicalities, and to request resubmission. Also, the County reserves the right to accept all or any part of the Bid and to increase or decrease quantities to meet additional or reduced requirements of the County. Any sole response received by the first submission date may or may not be rejected by the County depending on available competition and current needs of the County. For all items combined, the Bid of the lowest responsive, responsible Bidder will be accepted, unless all Bids are rejected. The lowest responsible Bidder shall mean **that Bidder who makes the lowest Bid to sell goods and/or services of a quality which** meets or exceeds the quality of goods and/or services set forth in the attached specifications or otherwise required by the County, and who is fit and capable to perform the Bid as made.

To be responsive, a Bidder shall submit a Bid which conforms in all material respects to the requirements set forth in the Invitation for Bid. To be a responsible Bidder, the Bidder shall have the capability in all respects to perform fully the Contract requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment, and credit which will assure good faith performance. Also, the County reserves the right to make such investigation as it deems necessary to determine the ability of any Bidder to furnish the service requested. Information the County deems necessary to make this determination shall be provided by the Bidder. Such information may include, but shall not be limited to current financial statements, verification of availability of equipment and personnel, and past performance records.

A.15 APPLICABLE LAWS

Bidder must be authorized to transact business in the State of Florida. All applicable laws and regulations of the State of Florida and ordinances and regulations of Manatee County will apply to any resulting Agreement. Any involvement with any Manatee County procurement shall be in accordance with Manatee County Purchasing Ordinance as amended. Any actual or prospective Bidder who is aggrieved in connection with the solicitation or award of a Contract may protest to the Board of County Commissioners of Manatee County as required in Manatee County Code of Laws.

A.16 COLLUSION

By offering a submission to this Invitation for Bid, the Bidder certifies that he has not divulged, discussed or compared their Bid with other Bidder, and has not colluded with any other Bidder or parties to this Bid whatsoever. Also, Bidder certifies, and in the case of a joint Bid each party thereto certifies as to their own organization, that in connection with this Bid:

A.16 COLLUSION (Continued)

- a. any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices and/or cost data, with any other Bidder or with any competitor;
- b. any prices and/or cost data quoted for this Bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder, prior to the scheduled opening, directly or indirectly to any other Bidder or to any competitor;
- c. no attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a Bid for the purpose of restricting competition;
- d. the only person or persons interested in this Bid, principal or principals is/are named therein and that no person other than therein mentioned has any interest in this Bid or in the Contract to be entered into; and
- e. no person or agency has been employed or retained to solicit or secure this Contract upon an agreement or understanding or a commission, percentage, brokerage, or contingent fee excepting bona fide employees or established commercial agencies maintained by Bidder for purpose of doing business.

A.17 CODE OF ETHICS

With respect to this Bid, if any Bidder violates, directly or indirectly, the ethics provisions of the Manatee County Purchasing Ordinance and/or Florida criminal or civil laws related to public procurement, including but not limited to Florida Statutes Chapter 112, Part II, Code of Ethics for Public Officers and Employees, such Bidder will be disqualified from eligibility to perform the Work described in this Invitation for Bid, and may also be disqualified from furnishing future goods or services to, and from submitting any future Bids to supply goods or services to, Manatee County.

By submitting a Bid, the Bidder represents to the County that all statements made and materials submitted are truthful, with no relevant facts withheld. If a Bidder is determined to have been untruthful in its Bid or any related presentation, such Bidder will be disqualified from eligibility to perform the Work described in this Invitation for Bid, and may also be disqualified from furnishing future goods or services to, and from submitting any future Bids to supply goods or services to, Manatee County.

A.18 BID FORMS

Bids must be submitted on attached County forms, although additional pages may be attached. **Bidders must fully complete all pages of the Bid Forms. Bid Forms must be executed by an authorized signatory who has the legal authority to make the offer and bind the company. Bidders must fully comply with all Bid specifications, terms and conditions.** Failure to comply shall result in Contract default, whereupon, the defaulting Contractor shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by the County.

A.19 LEGAL NAME

Bids shall clearly indicate the legal name, address and telephone number of the Bidder. Bids shall be signed above the typed or printed name and title of the signer. The signer must have the authority to bind the Bidder to the submitted Bid.

A.20 PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES

A person or affiliate who has been placed on the State's convicted vendor list following a conviction for a public entity crime, as that term is defined in Florida Statute (F.S.) § 287.133, may not submit a Bid, Proposal, or reply on a Contract to provide any goods or services to a public entity; may not submit a Bid, Proposal, or reply on a Contract with a public entity for the construction or repair of a public building or public work; may not submit Bids, Proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a Contractor, Supplier, Subcontractor, or Consultant under a Contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in F.S. § 287.017 for CATEGORY TWO for a period of thirty-six (36) months following the date of being placed on the convicted list.

In addition, the Manatee County Code of Laws prohibits the award of any Contract to any person or entity who/which has, within the past five (5) years, been convicted of, or admitted to in court or sworn to under oath, a public entity crime or of any environmental law that, in the reasonable opinion of the Purchasing Official, establishes reasonable grounds to believe the person or business entity will not conduct business in a responsible matter. To insure compliance with the foregoing, the Code requires all persons or entities desiring to Contract with the County to execute and file with the Purchasing Official an affidavit, executed under the pain and penalties of perjury, confirming that person, entity and any person(s) affiliated with the entity, does not have such a record and is therefore eligible to seek and be awarded business with the County. In the case of a business entity other than a partnership or a corporation, such affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, such affidavit shall be executed by the general partner(s). A Public Contracting and Environmental Crimes Certification form is attached for this purpose.

A.21 DISCOUNTS

Any and all discounts must be incorporated in the prices contained in the Bid and not shown separately. The prices as shown on the Bid Form shall be the price used in determining Award.

A.22 TAXES

Manatee County is exempt from Federal Excise and State Sales Taxes. (F.E.T. Exempt Cert. No. 59-78-0089K; FL Sales Tax Exempt Cert. No. 85-8012622206C-6); therefore, the Contractor is prohibited from delineating a separate line item in his Bid for any sales or service taxes. Nothing herein shall affect the Contractor's normal tax liability.

A.23 DESCRIPTIVE INFORMATION

Unless otherwise specifically provided in the specifications, all equipment, materials and articles incorporated in the Work covered by this Contract shall be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in the specifications, reference to any equipment, material, article or patented process, by trade name, brand name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition.

A.24 AMERICANS WITH DISABILITIES ACT

The Board of County Commissioners of Manatee County, Florida, does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of the County's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring reasonable accommodation for an **Information Conference** or **Bid Opening** should contact the person named on the first page of this Bid document at least twenty-four (24) hours in advance of either activity.

A.25 EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

In accordance with the provisions of Title VI of the Civil Rights Act of 1964 and Title 15, Part 8 of the Code of Federal Regulations, Manatee County hereby notifies all prospective offerors that they will affirmatively ensure 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 or national origin in consideration for an Award of Contract.

A.26 MBE/WBE

The State of Florida, **Office of Supplier Diversity** provides the certification process and the database for identifying certified MBE/WBE firms. This service may be directly accessed at: <http://www.osd.dms.state.fl.us/iframe.htm>

If you have any questions regarding this State service, please contact their office at (850) 487-0915.

**A.27 MATHEMATICAL ERRORS**

In the event of multiplication/extension error(s), the unit price shall prevail. In the event of addition error(s) the extension totals will prevail. All Bids shall be reviewed mathematically and corrected, if necessary, using these standards, prior to additional evaluation.

**A.28 DISCLOSURE**

Upon receipt, all inquiries and responses to inquiries related to this Invitation for Bid becomes "Public Records", and shall be subject to public disclosure consistent with Chapter 119, Florida Statutes.

Bids become subject to disclosure thirty (30) days after the opening or if a notice of intended Award decision is made earlier than this time as provided by F.S. 119.071(1)(b). No announcement or review of the offer shall be conducted at the public opening. If the County rejects all offers and concurrently notices its intent to reissue the solicitation, initial offers are exempt until the County provides notice of its intended decision, or thirty (30) days after the opening of the new offers.

Based on the above, Manatee County will receive Bids at the date and time stated, and will make public at the opening the names of the business entities of all that submitted an offer and any amount presented as a total offer without any verification of the mathematics or the completeness of the offer. Upon the expiration of the statutory term for exemption the actual documents may be inspected or copied. When County staff have completed a mathematic validation and inspected the completeness of the offers, tabulation shall be posted on [www.mymanatee.org](http://www.mymanatee.org).

**NOTE: ANY OR ALL STATEMENTS CONTAINED IN THE FOLLOWING SECTIONS: BASIS OF AWARD, TERMS AND CONDITIONS OF THE CONTRACT, OR SPECIFICATIONS, WHICH VARY FROM THE INFORMATION TO BIDDERS, SHALL HAVE PRECEDENCE.**

**END OF SECTION A**

SECTION 00020  
**BASIS OF AWARD**

**B.01 BASIS OF AWARD**

Award shall be to the lowest, responsive, responsible Bidder meeting specifications and having the lowest Total Bid Price for **Bid "A** for the requirements listed on the Bid Form for the Work as set forth in this Invitation for Bid. Bid prices shall include costs for furnishing all labor, equipment and/or materials for the completion of the Work in accordance with and in the manner set forth and described in the Contract documents to the County's satisfaction within the prescribed time.

**Only one schedule for Completion of the Work shall be considered. Only one Award shall be made.**

**NOTE: Inspection of the site is a pre-requisite to be considered for award of this Bid.**

In evaluating Bids, the County shall consider the qualifications of the Bidders; and if required, may also consider the qualifications of the Subcontractors, Suppliers, and other persons and organizations proposed. County may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work.

Whenever two or more Bids are equal with respect to price, the Bid received from a local business shall be given preference in Award. Whenever two or more Bids which are equal with respect to price are received, and neither of these Bids are from a local business, the Award shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Purchasing Division and open to the public.

**B.02 SUBCONTRACTORS**

Subcontractors shall be bound by the terms and conditions of this Contract insofar as it applies to their work, but this shall not relieve the prime Contractor from the full responsibility of the County for the proper completion of all Work to be executed under this Contract.

The employment of unauthorized aliens by any Contractor is considered a violation of Section 274 (e) of the Immigration and Employment Act. If the Contractor knowingly employs unauthorized aliens, such violation shall be cause for unilateral cancellation of this Agreement.



**B.03 QUALIFICATIONS OF BIDDERS**

No person who is not certified or registered as a General Contractor pursuant to Florida Statutes, Chapter 489 on the day the Bid is submitted, and who has continuously held that certification or registration for a period of at least three (3) consecutive years immediately prior to the day the Bid is submitted, may be qualified to bid on this project. In the event that a Bidder is a business organization, including a partnership, corporation, business trust or other legal entity as set forth in F.S. 489.119(2), then the Bidder shall only be qualified to bid on this project if: 1) the Bidder (the business organization) is on the day the Bid is submitted, and for at least three (3) consecutive years immediately prior to the day the Bid is submitted has been, in continuous existence, properly licensed and registered as required by Florida law; and 2) the Bidder, on the day the Bid is submitted, has a certified or registered Qualifying Agent, as required by F.S. 489.119, and that Qualifying Agent has been the same Qualifying Agent of the Bidder for a period of at least three (3) consecutive years immediately prior to the day the Bid is submitted.

A complete list of all Subcontractors proposed for any portion of the Work may be requested of any Bidder deemed necessary by the County. Subcontracts shall be awarded only to those Subcontractors considered satisfactory by the County.

**B.04 PREPARATION OF CONTRACT**

A written notice confirming Award or recommendation thereof will be forwarded to the successful Bidder accompanied by the required number of unsigned counterparts of the Agreement. Within ten (10) days thereafter, successful Bidder shall sign and deliver the required number of counterparts of the Agreement with any other required documents to County. (Note: Contract must be approved in accordance with the Manatee County Code of Laws, Chapter 2-26, and the Administrative Standards and Procedures Manual approved by the County Administrator).

**B.05 INSPECTION OF SITE**

Inspection of the site is a requirement to be considered for award of this Bid. Prior to submitting a Bid, each Bidder shall examine the site and all conditions thereon fully familiarizing themselves with the full scope of the project. Failure to become familiar with site conditions will in no way relieve the successful Bidder from the necessity of furnishing any materials or performing any Work that is required to complete the project in accordance with the plans and specifications. Site visit (s) shall be acknowledged in Section 00300, Bid Form page # 00300-1.

**END OF SECTION B**

SECTION 00030  
**GENERAL TERMS AND CONDITIONS OF THE CONTRACT**

**C.01 CONTRACT FORMS**

The Agreement resulting from the acceptance of a Bid shall be in the form of the Agreement stated in this Bid.

**C.02 ASSIGNMENT OF CONTRACT**

Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract or of his right, title, or interest therein, or his power to execute such Contract, or to assign any monies due or to become due there under to any other person, firm or corporation unless first obtaining the written consent of the County. The giving of such consent to a particular Subcontractor assignment shall not dispense with the necessity of such consent to any further or other assignment.

**C.03 COMPLETION OF WORK**

The Work will be completed and ready for final inspection within the specified calendar days from the date the Contract time commences to run. Only one Bid shall be considered based on **180 calendar days**. Only one Award shall be made.

**C.04 LIQUIDATED DAMAGES**

If the Contractor refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will hinder its completion within the time specified, the County may seek damages. The actual damages for delay will be impossible to determine and in lieu thereof, the Contractor shall pay to the County the sum of **\$1148** as fixed, agreed, and liquidated damages for each calendar day of the delay until the Work is finally accepted by the County and the Contractor and his Surety shall be liable for the amount thereof.

**C.05 PAYMENT**

Contractor may apply for partial payment on monthly estimates, based on the amount of work done or completed in compliance with the provisions of the Contract. Contractor shall submit an application, on a standard pay application form provided or approved by the County, of an approximate estimate of the proportionate value of the Work done, items and locations of the Work performed up to and including the last day of the period then ending. The County will then review said estimate and make any necessary revisions so that the estimate can receive approval for payment. If the Contractor and the County do not agree on the approximate estimate of the proportionate value of the Work done for any pay period, the determination of the County will be binding. The amount of said estimate after deducting any required retainage and all previous payments shall be due and payable to the Contractor, twenty (20) business days if County is its own Engineer of Record (EOR) or twenty-five (25) business days if outside agent

C.05 PAYMENT (Continued)

approval is required after the pay estimate has been approved by the agent for the County.

In accordance with the Prompt Payment Act, F.S. § 218.735(7), a Punch List shall be formulated.

Time allowed for development of punch list:

1. Awarded Contracts with an estimated cost of less than \$10 million will be within thirty (30) calendar days after reaching substantial completion. Substantial completion is defined as reaching beneficial occupancy or use.
2. Awarded Contracts with a cost of \$10 million dollars or more will be within thirty (30) calendar days OR if extended by Contract, up to sixty (60) calendar days after reaching substantial completion. Substantial completion is defined as reaching beneficial occupancy or use.

The final Contract completion date must be at least thirty (30) days after delivery of the list of items. If the list is not provided to the awarded Contractor by the agreed upon date, the Contract completion time must be extended by the number of days the County exceeds the delivery date.

It is the Contractor's responsibility for the care of the materials. Any damage to or loss of said materials is the full responsibility of the Contractor. Any periodical pay estimate signed by the Contractor shall be final as to the Contractor for any or all Work covered by the periodical pay estimate.

Any requests for payment of materials stored on site must be accompanied with a paid receipt. The Contractor warrants and guarantees that title to all work, materials and equipment covered by any application for payment, whether incorporated in the project or not, will pass to the County at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereafter referred to as "Liens").

The Contractor agrees to furnish an affidavit stating that all laborers, material men, and Subcontractors have been paid on the project for Work covered by the application for payment and that a partial or complete release of lien, as may be necessary, be properly executed by the material men, laborers, Subcontractors on the project for Work covered by the application for payment, sufficient to secure the County from any claim whatsoever arising out of the aforesaid Work.

When the Contractor has completed the Work in compliance with the terms of the Contract documents, he shall notify the County in writing that the project is ready for final inspection. The County will then advise the Contractor as to the arrangements for final inspection and what Work, if any, is required to prepare the project or a portion thereof for final inspection. When the County determines the project or portion thereof is ready for final inspection, the County shall perform same. Upon completion of final inspection, the County will notify Contractor of all particulars in

C.05 PAYMENT (Continued)

which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies. When all such errors have been corrected, a final re-inspection will be made. The process will be repeated until, in the opinion of the County, the project has been completed in compliance with the terms of the Contract documents.

When final acceptance has been made by the County, the County will make final payment of the Contract amount, plus all approved additions, less approved deductions and previous payments made. The Contract will be considered complete when all Work has been finished, the final inspection made, approved as-builts received, and the project finally accepted in writing by the County. The Contractor's responsibility shall then terminate except as otherwise stated.

C.06 RETAINAGE

A retainage of 10% of the total Work in place shall be withheld until 50% complete. After 50% completion, the retainage shall be reduced to 5% of the total Work in place until final completion and acceptance of the Work by the County. Upon final acceptance, the remaining retainage shall be included in the final payment.

C.07 WARRANTY AND GUARANTEE PROVISIONS

All work, materials, and equipment furnished as defined herein shall be guaranteed and warranted by the Contractor for a minimum period of three (3) years, unless otherwise specified, from final acceptance by the County to be free from defects due either to faulty materials or equipment or faulty workmanship.

All materials, equipment, and workmanship furnished and installed by the Contractor is warranted and guaranteed by the Contractor to meet the required standards and to accomplish the purposes and functions of the project as defined, detailed, and specified herein.

The County shall, following discovery thereof, promptly give written notice to the Contractor of faulty materials, equipment, or workmanship within the period of the guarantee and the Contractor shall promptly replace any part of the faulty equipment, material, or workmanship at his own cost. These warranty and guarantee provisions create no limitations on the County as to any claims or actions for breach of guaranty or breach of warranty that the County might have against parties other than the Contractor, and do not constitute exclusive remedies of the County against the Contractor.

C.08 ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees for equipment or processes in conjunction with the equipment and/or services being furnished. Contractor shall defend all suits or claims for infringement of any patent, trademark or copyright, and shall save the County harmless from loss on account thereof, including costs and attorney's fees.

C.09 AUTHORIZED PRODUCT REPRESENTATION

The Contractor, by virtue of submitting the name and specifications of a manufacturer's product, will be required to furnish the named manufacturer's product. Failure to perform accordingly may, in the County's sole discretion, be deemed a breach of Contract, and shall constitute grounds for the County's immediate termination of the Contract.

C.10 REGULATIONS

It shall be the responsibility of the Bidder to assure compliance with any OSHA, EPA and/or other federal or State of Florida rules, regulations or other requirements, as each may apply.

C.11 CANCELLATION

Any failure of the Contractor to furnish or perform the Work (including, but not limited to, commencement of the Work, failure to supply sufficient skilled workers or suitable materials or equipment) in accordance with the Contract, the County may order the stop of the Work, or any portion thereof, until the cause for such order has been eliminated. If the Contractor persistently fails to perform the Work in accordance with the Contract, the County reserves the right to terminate the Contract and select the next qualified Bidder or re-advertise this procurement in part or in whole. The County reserves the right to cancel all or any undelivered or unexecuted portion of this Contract with or without cause.

C.12 INDEMNIFICATION

The Contractor covenants and agrees to indemnify and save harmless the County, its agents and employees, from and against all claims, suits, actions, damages, causes of action, or judgments arising out of the terms of the resulting Agreement for any personal injury, loss of life, or damage to the property sustained as a result of the performance or non-performance of services or delivery of goods; from and against any orders, judgments, or decrees, which may be entered against the County, its agents or employees; and from and against all costs, attorney's fees, expenses and other liabilities incurred in the defense of any such claim, suit or action, and the investigation thereof. Nothing in the Award, resulting Agreement, Contract or Purchase Order shall be deemed to affect the rights, privileges and immunities of the County as set forth in F.S. § 768.28.

C.13 MANUALS, SCHEMATICS, HANDBOOKS (IF APPLICABLE)

All manuals, schematics and handbooks shall be provided which are applicable to the equipment delivered. An operators manual, parts manual and technician manual must also be provided. Parts lists (manuals) must include OEM part numbers for items not manufactured by the Bidder. Contractor shall furnish two (2) copies of each.

**C.14 INSURANCE**

The Contractor will not commence Work under a Contract until all insurance under this section and such insurance coverage as might be required by the County has been obtained. The Contractor shall obtain, and submit to purchasing within ten (10) calendar days of request, at his expense, the following minimum amounts of insurance (inclusive of any amounts provided by an umbrella or excess policy):

a. Workers' Compensation/Employers' Liability

Part One - There shall be no maximum limit (other than as limited by the applicable statute) for liability imposed by Florida Workers' Compensation Act or any other coverage required by the Contract documents which are customarily insured under Part One of the standard Workers' Compensation Policy.

Part Two - The minimum amount of coverage required by the Contract documents which are customarily insured under Part Two of the standard Workers' Compensation Policy shall be:

(Each Accident)	<u>\$100,000</u>
(Disease-Policy Limit)	<u>\$500,000</u>
(Disease-Each Employee)	<u>\$100,000</u>

b. Commercial General Liability

The limits are to be applicable only to Work performed under this Contract and shall be those that would be provided with the attachment of the Amendment of Limits of Insurance (Designated Project or Premises) endorsement (ISO Form CG 25 03) a Commercial General Liability Policy with the following minimum limits.

General Aggregate:	
Products/Completed Operations Aggregate	<u>\$1,000,000</u>
Personal and Advertising Injury	<u>\$1,000,000</u>
Each Occurrence	<u>\$1,000,000</u>
Fire Damage (Any One Fire)	<u>\$Nil</u>
Medical Expense (Any One Person)	<u>\$Nil</u>

c. Business Auto Policy

Each Occurrence Bodily Injury and Property Damage Liability Combined	<u>\$300,000</u>
Annual Aggregate (if applicable)	<u>\$1,000,000</u>

d. County's Protective Liability Coverage

The minimum Owner's Protective OPC Policy limits per occurrence and, if subject to an aggregate, annual aggregate to be provided by the Contractor shall be the same as the amounts shown above as the minimum per occurrence and general policy aggregate limits respectively required for the Commercial General Liability coverage. The limits afforded by the OPC Policy and any excess policies shall apply only to the County and the County's officials, officers, agents and employees and only to claims arising out of or in connection with the Work under this Contract.

C.14 INSURANCE (Continued)

e. Property Insurance

**If this Contract includes** construction of or additions to above ground buildings or structures, Contractor shall provide "**Builder's Risk**" insurance with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

f. Installation Floater

**If this Contract does not include** construction of or additions to above ground building or structures, **but does involve** the installation of machinery or equipment, Contractor shall provide an "**Installation Floater**" with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

g. Certificates of Insurance and Copies of Policies

Certificates of Insurance in triplicate evidencing the insurance coverage specified herein shall be filed with the Purchasing Official before operations are begun. The required certificates of insurance shall name the types of policy, policy number, date of expiration, amount of coverage, companies affording coverage, and also shall refer specifically to the Bid number and title of the project. All insurance policies required herein shall be issued by companies that are authorized to do business under the laws of the State of Florida and hold an A.M. Best rating of A- or better. Insurance, as specified herein, shall remain in force and affect for the duration of the project including any warranty periods.

h. **Complete Policies:** The entire and complete insurance policies required herein shall be provided to the County on request.

**ADDITIONAL INSURED:**

**Manatee County, a political subdivision of the State of Florida, shall be specifically named as additional insured on all applicable policies.**

If the initial insurance expires prior to the completion of operations and/or services by the Contractor, renewal certificates of insurance and required copies of policies shall be furnished by the Contractor and delivered to the Purchasing Official thirty (30) days prior to the date of their expiration. Nothing herein shall in any manner create any liability of the County in connection with any claim against the Contractor for labor, services, or materials, or of Subcontractors; and nothing herein shall limit the liability of the Contractor or Contractor's sureties to the County or to any workers, suppliers, material men or employees in relation to this Contract.

C.14 INSURANCE (Continued)

i. Certification Requirements – In order for the certificate of insurance to be accepted it must comply with the following:

1. The certificate holder shall be:  
**Manatee County Board of Commissioners**  
**P.O. Box 1000**  
**Bradenton, FL 34206-1000**
2. Certificate shall be mailed to:  
**Manatee County Purchasing Division**  
**1112 Manatee Avenue West, Suite 803**  
**Bradenton, FL 34205**  
**Attn: Chris Daley-CPPB, Contract Specialist**

C.15 BID BOND/CERTIFIED CHECK

By offering a submission to this Invitation for Bid, the Bidder agrees should the Bidder's Bid be accepted, **to execute the form of Contract and present the same to Manatee County for approval within ten (10) calendar days after notice of Intent to Award.** The Bidder further agrees that failure to execute and deliver said form of Contract **within ten (10) calendar days** will result in damages to Manatee County and as guarantee of payment of same a Bid Bond/Certified Check shall be enclosed within the submitted sealed Bid in the amount of five (5%) percent of the total amount of the Bid. The Bidder further agrees that in case the Bidder fails to enter into a Contract, as prescribed by Manatee County, the Bid Bond/Certified Check accompanying the Bid shall be forfeited to Manatee County as agreed liquidated damages. If the County enters into a Contract with a Bidder, or if the County rejects any and/or all Bids, accompanying bond will be promptly returned.

C.16 PERFORMANCE AND PAYMENT BONDS

The successful Bidder shall furnish surety bonds using the Public Construction Bond form prescribed in F.S. § 255.05, which is provided herein, as security for faithful performance of the Contract awarded as a result of this Bid and for the payment of all persons performing labor and/or furnishing material in connection therewith. Failure to provide the required bonds on the prescribed form may result in successful Bidder being deemed nonresponsive. Bonds must be in the form prescribed in F.S. § 255.05, and must not contain notice, demand or other terms and conditions, including informal pre-claim meetings, not provided for in F.S. § 255.05.

Surety of such bonds shall be in an amount equal to the Bid Award (100% each) issued by a duly authorized and nationally recognized surety company, authorized to do business in the State of Florida, satisfactory to this County. The attorney-in-fact who signs the bonds must file with the bonds, a certificate and effective dated copy of power-of-attorney. Performance and Payment Bonds shall be issued to Manatee County, a political subdivision of the State of Florida, within ten (10) calendar days after notification of Intent to Award.



C.16 PERFORMANCE AND PAYMENT BONDS (Continued)

In addition, pursuant to F.S. § 255.05(1)(b), prior to commencing Work, the Contractor shall be responsible and bear all costs associated to record the Performance and Payment Bond with the Manatee County Clerk of the Circuit Court. A certified copy of said recording shall be furnished to the Purchasing Division upon filing. Pursuant to F.S. § 255.05(1)(b), the County will make no payment to the Contractor until the Contractor has complied with this paragraph.

Furnishing of the recorded Performance and Payment Bonds shall be requisite to execution of a Contract with the County. Said Performance and Payment Bonds will remain in force for the duration of the Contract with the premiums paid by the Contractor. Failure of the successful Bidder to execute such Contract and to supply the required bonds shall be just cause for cancellation of the Award. The County may then contract with another acceptable Bidder or re-advertise this Invitation for Bid. If another Bidder is accepted, and notice given within ninety (90) days after the opening of the Bids, this acceptance shall bind the Bidder as though they were originally the successful Bidder.

Failure of the County at any time to require performance by the Contractor of any provisions set out in the Contract will in no way affect the right of the County, thereafter, to enforce those provisions.

C.17 NO DAMAGES FOR DELAY

No claim for damages or any claim other than for an extension of time shall be made or asserted against the County by reason of any delays. The Contractor shall not be entitled to an increase in the Total Contract Price or payment or compensation of any kind from the County or direct, indirect, consequential impact or other costs, expenses for damages, including but not limited to costs of acceleration or inefficiency arising because of delay, disruption, interference or hindrance from any cause whatsoever; provided, however, that this provision shall not preclude recovery or damages by the Contractor for hindrance or delays due solely to fraud, bad faith, or active interference on part of the County or its agents. Otherwise, the Contractor shall only be entitled to extensions of the Contract time as the sole and exclusive remedy for such resulting delay, in accordance with and to the extent specifically provided above.

C.18 NO INTEREST

Any monies not paid by the County when claimed to be due to the Contractor under this Contract shall not be subject to interest including prejudgment interest. Any monies not paid by the County when claimed to be due to the Contractor for damages awarded in the case of construction delays shall not be subject to prejudgment interest.

C.19 CONSTRUCTION OF CONTRACT

This Contract and the rights and responsibilities hereunder shall not be construed more strongly against either party, regardless of the extent to which such party may have participated in the preparation hereof.

C.20 BE GREEN

All Bidders are encouraged to use as many **environmentally preferable** "green" products, materials, supplies, etc. as possible in order to promote a safe and healthy environment. **Environmentally preferable are products or services that have a reduced adverse effect on the environment.** Provide detail of your organization's initiative and its ability to meet the goal of environmental sustainability.

**END OF SECTION C**

SECTION 00100  
**BID SUMMARY**

**D.01 THE WORK**

The Work included in this Bid consists of all labor, materials, equipment and incidentals required to perform site work necessary for the expansion and construction of new little league ball fields and parking lot at Blackstone Park located in Palmetto, Florida. The site works shall consist of, but not limited to, drainage, paving, earthwork, fencing, ball fields and batting cages.

The successful Contractor shall furnish all shop drawings, working drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all Work required by these specifications.

The successful Contractor shall perform the Work complete, in place and ready for continuous service and shall include any repairs, replacements, and/or restoration required as a result of damages caused prior to acceptance by the Owner.

The successful Contractor shall furnish and install all materials, equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Bid documents or not.

**D.02 SUBCONTRACTORS, SUPPLIERS AND OTHERS**

The identity of Subcontractors, Suppliers, and other persons and organizations (including those who are to furnish the principal items of material and equipment) may be requested by the County for each Bid item from any of the Bidders; and the Bidder shall respond within five (5) days after the date of such request. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, persons or organization if requested by County. If County, after due investigation, has reasonable objection to any proposed Subcontractor, supplier, other person or organization, County may, before the Notice of Award is given, request the apparent successful Bidder to submit an acceptable substitute without an increase in Contract price or Contract time.

#### D.02 SUBCONTRACTORS, SUPPLIERS AND OTHERS (Continued)

If apparent successful Bidder declines to make any such substitution, County may award the Contract to the next lowest qualified Bidder that proposes to use acceptable Subcontractors, Suppliers, and other persons who County does not make written objection to. Contractor shall not be required to employ any Subcontractor, Supplier, other person or organization who Contractor has reasonable objection to.

Subcontractors shall be bound by the terms and conditions of this Contract insofar as it applies to their work, but this shall not relieve the prime Contractor from the full responsibility to the County for the proper completion of all Work to be executed under this Contract.

#### D.03 BIDS

Bids are to be submitted in **triplicate, one original and two copies**, upon the County supplied forms. All blank spaces must be filled in as noted with amounts extended and totaled and no changes shall be made in the wording of the forms or in the items mentioned therein. In the event a change is made in your submittal, the Bidder shall write its initials by the change. Any Bid may be rejected which contains any omissions, alterations, irregularities of any kind, or which shall in any manner fail to conform to Bid requirements.

A Bid made by an individual, either in his/her own or proper person or under a trade or firm name, shall be executed under the individual's signature. If made by a partnership, the Bid shall be executed by two or more of the general partners. If made by a corporation, the Bid shall be executed by its President or other legally authorized corporate officer or agent.

#### D.04 EXAMINATION OF BID DOCUMENTS AND SITE

It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Bid documents thoroughly; (b) visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the Work; (c) consider federal, state, and local codes, laws, and regulations that may affect costs, progress, performance, or furnishing of the Work; (d) study and carefully correlate Bidder's observations with the Bid documents; and (e) notify County of all conflicts, errors, or discrepancies in the Bid document.

Each Bidder may, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies, and obtain any additional information and data which pertain to the physical conditions at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine his Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Bid documents. County will provide each Bidder access to the site to conduct such explorations and tests.

D.04 EXAMINATION OF BID DOCUMENTS AND SITE (Continued)

Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and other lands designated for use by Contractor in performing the Work are identified in the Bid documents.

All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by County unless otherwise provided in the Bid documents.

D.05 MATERIALS AND WORKMANSHIP

All materials and apparatus required for this Work, except as specified otherwise, shall be new, of first class quality, and shall be furnished, delivered, connected and finished in every detail. Construction shall be prescribed by good industry practice and in accordance with manufacturer's recommendations for the type being installed.

Use skilled workman trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this section.

D.06 REGULATIONS AND MATERIAL DISPOSAL

It shall be the responsibility of the Contractor to assure compliance with any OSHA, EPA, federal, state, and/or local rules, regulations or other requirements as each may apply.

D.07 PROJECT CLOSE-OUT

Clean construction site and remove any and all excess materials. Correct any damages to property that may have occurred as a result of installation and/or delivery. Repair and patch all surfaces cut for installation. The Contractor shall remedy any deficiencies promptly should the County determine any Work is incomplete or defective.

When the County determines the Work is acceptable in accordance with this Invitation for Bid, the Contractor shall provide the close out submittals, including but not necessarily limited to the following:

- 1 set Certificate of Warranties
- 1 set Manufacturer's Product Literature (when applicable)
- 1 set Project Record Drawings
- 1 set Subcontractor Information (when applicable)

**D.08 DISCRETIONARY WORK**

This Bid item entails minor increases (that may be directed by staff) to existing Bid item quantities or minor modification items not bid which were unforeseen and necessary during the construction to provide a safe, complete project in accordance with Bid documents. (This will not affect the requirement for change orders involving major modifications to the project.) Payment for all Work under this item shall be made only at the County's discretion in order to satisfactorily complete the project. In general, this item is for unanticipated conflicts and/or design changes required during construction which are necessary to complete the project without changing the initial Scope of Work and without costly delays.

**D.09 PROGRESS REQUIREMENTS**

All Work done under this Contract shall be done with a minimum of inconvenience to the private property owners in the area. The Contractor shall coordinate his Work with private property owners such that existing utility services are maintained and they have access to their property at all times.

**END OF SECTION D**

SECTION 00150

**MANATEE COUNTY LOCAL PREFERENCE LAW AND VENDOR REGISTRATION**

**E.01 Vendor Registration**

All vendors are encouraged to register with Manatee County using the on-line "Vendor Registration" web page on [www.mymanatee.org](http://www.mymanatee.org).

Enclosed are a copy of the current Manatee County law that details the County's Local Preference and the County's definition of a local business.

If you assert that your firm meets the stated definition of a local business, we ask that in addition to registering on the County's web page, you fill out the attached "**Affidavit As To Local Business Form**" that is included in this section, have the completed document notarized, and mail the original to the following address: Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205.

Your cooperation in registering your business with Manatee County will enhance our opportunities to identify sources for goods and services, plus identify local businesses. This information is used for soliciting quotations up to \$250,000.00 and for competitive solicitations of larger purchases.

You will note that Manatee County collaborates with the Manatee Chamber of Commerce, posting Bids on [www.manateechamber.com](http://www.manateechamber.com) as well as using the same vendor categories for registration.

Our staff can assist you with your registration as needed. Our office hours are 8:00 A.M. to 5:00 P.M., Monday through Friday on regular business days. Please call (941) 749-3014 if you wish to have a Purchasing staff member assist you.

**Quick steps to registration:**                      **[www.mymanatee.org](http://www.mymanatee.org)**

A link to "Purchasing" is listed under "Quick Links" on page one of the County web site.

On the left hand side of the Purchasing web page, click on "Vendor Registration".

This will bring up the Vendor Registration form for on-line input. Please note that the definition of a "local business" changed on March 17, 2009. The web page will be updated to include the current law which has been provided in this section of the Bid.

Thank you for reviewing this information and considering registering your business with Manatee County. Registration is not mandatory; however, by taking the time to register, you are helping the County to provide timely notifications of Quotation, Bid and Proposal opportunities to your business.

E.02 Section 2-26-6. Local preference, tie Bids, **local business defined.**

- a) Whenever a responsible local business Bidder and a responsible non-local business Bidder are found, upon the opening of Bids, to have both submitted the lowest responsive Bid, the Bid of the local Bidder shall be awarded the Contract. Should more than one responsible local business Bidder match the responsible non-local business Bidder's lowest responsive Bid, or should no responsible local business Bidder match the lowest responsive Bid but two or more responsible non-local business Bidders submit lowest responsive Bids for equal amounts, then the Award of the Contract shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Purchasing Division and open to the public. Any Bidders seeking to be recognized as local businesses for purposes of this local business preference provision may be required by the terms of the Bid announcement to certify they meet the definition of local business set forth in this section, and to register as a local business with the County in the manner prescribed by the County to facilitate the County's ability to track the Award of Contracts to local businesses and to allow the County to provide future notifications to its local businesses concerning other Bidding opportunities.
- b) Nothing herein shall be deemed to prohibit the inclusion of requirements with respect to operating and maintaining a local place of business in any Invitation for Bids when the Bidder's location materially affects the provisions of the services or supplies that are required by the invitation.
- c) **Local business is defined as a business legally authorized to engage in the sale of the goods and/or services to be procured, and which certifies within its Bid that for at least six (6) months prior to the announcement of the solicitation of Bids it has maintained a physical place of business in Manatee, Desoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one full-time employee at that location.**
- d) **Each solicitation for Bids made by the County shall contain terms expressly describing the local business preference policies of the County, and shall provide that by electing to submit a Bid pursuant to an Invitation for Bid, all Bidders are deemed to understand and agree to those policies.**
- e) For all Contracts for architecture, professional engineering, or other professional services governed by Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, the County shall include the local business status of a firm among the factors considered when selecting which firms are "most highly qualified." In determining which firm is the "most qualified" for purposes of negotiating a satisfactory Contract, preference shall be given to a local business where all other relevant factors are equal.



E.02 Section 2-26-6. Local preference, tie Bids, **local business defined** (Continued)

f) Local preference shall not apply to the following categories of Contracts:

1. Goods or services provided under a cooperative purchasing agreement or similar "piggyback" contract;
2. Contracts for professional services subject to Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, except as provided for in subsection (e) above;
3. Purchases or Contracts which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions of receipt of the funds prohibit the preference;
4. Purchases or Contracts made pursuant to a non-competitive award process, unless otherwise provided by this section;
5. Any Bid announcement which specifically provides that the general local preference policies set forth in this section are suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either the County Commission or County Administrator, or where such suspension is, in the opinion of the County Attorney, required by law.

g) To qualify for local preference under this section, **a local business must certify to the County that it:**

1. Has not within the five (5) years prior to the Bid announcement admitted guilt or been found guilty by any court or state or federal regulatory enforcement agency of violation of any criminal law, or a law or administrative regulation regarding fraud;
2. Is not currently subject to an unresolved citation or notice of violation of any Manatee County Code provision, except citations or notices which are the subject of a current legal appeal, as of the date of the Bid announcement;
3. Is not delinquent in the payment of any fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, except any such sums which are the subject of a current legal appeal.

Ref: Ordinance 09-21 and 09-23 **PASSED AND DULY ADOPTED** in open session, with a quorum present and voting, on the 17<sup>th</sup> day of March, 2009.

**END OF SECTION E**

**MANATEE COUNTY GOVERNMENT  
AFFIDAVIT AS TO LOCAL BUSINESS  
(Complete and Initial Items B-F)**

**A. Authorized Representative**

I, [name] \_\_\_\_\_, am the [title] \_\_\_\_\_ and the duly authorized representative of: [name of business] \_\_\_\_\_, and that I possess direct personal knowledge to make informed responses to these certifications and the legal authority to make this Affidavit on behalf of myself and the business for which I am acting; and by electing to submit a Bid pursuant to this Invitation for Bids, shall be deemed to understand and agree to the local business preference policies of Manatee County; and that I have the direct knowledge to state that this firm complies with all of the following conditions to be considered to be a local business as required by the Manatee County Code of Law, Section 2-26-6.

**B. Place of Business:** I certify that the above business is legally authorized to engage in the sale of goods and/or services and has a physical place of business in Manatee, DeSoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one (1) fulltime employee at that location. The physical address of the location which meets the above criteria is: \_\_\_\_\_ [Initial] \_\_\_\_\_

Business Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

**C. Business History:** I certify that business operations began at the above physical address with at least one fulltime employee on [date] \_\_\_\_\_ [Initial] \_\_\_\_\_

**D. Criminal Violations:** I certify that within the past five (5) years of the date of this Bid announcement, this business has not admitted guilt nor been found guilty by any court or local, state or federal regulatory enforcement agency of violation of any criminal law or administrative regulation regarding fraud. [Initial] \_\_\_\_\_

**E. Citations or Code Violations:** I certify that this business is not currently subject to any unresolved citation or notice of violation of any Manatee County Code provision, with the exception of citations or notices which are the subject of a legal current appeal within the date of this Bid announcement. [Initial] \_\_\_\_\_

**F. Fees and Taxes:** I certify that this business is not delinquent in the payment of fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, with the exception of those which are the subject of a current legal appeal. [Initial] \_\_\_\_\_

*Each of the above certifications is required to meet the qualification of "local business" under Manatee County Code of Laws, 2-26-6.*

Signature of Affiant \_\_\_\_\_

STATE OF FLORIDA  
COUNTY OF \_\_\_\_\_

Sworn to (or affirmed) and subscribed before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by (name of person making statement).

(Notary Seal) Signature of Notary: \_\_\_\_\_

Name of Notary: (Typed or Printed) \_\_\_\_\_

Personally Known \_\_\_\_ OR Produced Identification \_\_\_\_ Type of Identification Produced \_\_\_\_\_

**Submit executed copy to Manatee County Purchasing Division - 1112 Manatee Avenue West - Suite 803 - Bradenton, FL 34205**

SECTION 00300  
**BID FORM**  
**(SUBMIT IN TRIPLICATE)**

**For: IFB #13-1543CD-BLACKSTONE PARK EXPANSION SITE WORK**

<b>TOTAL BID PRICE (BID "A"):</b> _____
<b>Based on a Completion Time of 180 calendar days</b>

Only one schedule for Completion of the Work shall be considered. Only one Award shall be made.

We, the undersigned, hereby declare that we have carefully reviewed the Bid documents, and with full knowledge and understanding of the aforementioned herewith submit this Bid, meeting each and every specification, term, and condition contained in the Invitation for Bids, in its entirety.

We understand that the Bid package, in its entirety, including but not limited to, all specifications, terms, and conditions in their entirety shall be made a part of any Agreement or Contract between Manatee County and the successful Bidder. Failure to comply shall result in Contract default, whereupon, the defaulting Contractor shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by the County.

Communications concerning this Bid shall be addressed as follows: **(Complete all fields)**

Person's Name: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Date: \_\_\_\_\_ FL Contractor License# \_\_\_\_\_

License in the Name of: \_\_\_\_\_

Bidder is a WBE/MBE Vendor? \_\_\_\_\_ Certification \_\_\_\_\_

COMPANY'S NAME: \_\_\_\_\_

AUTHORIZED SIGNATURE(S): \_\_\_\_\_

Name and Title of Above Signer(s) \_\_\_\_\_

CO. MAILING ADDRESS: \_\_\_\_\_

\_\_\_\_\_

STATE OF INCORPORATION \_\_\_\_\_ (if applicable)

TELEPHONE: (\_\_\_\_) \_\_\_\_\_ FAX: (\_\_\_\_) \_\_\_\_\_

Email address: \_\_\_\_\_

**I, \_\_\_\_\_ on [date] \_\_\_\_\_ attest that I have visited the project site(s) to familiarize myself with the full Scope of Work required for the Bid.**

Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_ Acknowledge Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

# BID FORM

(Submit in Triplicate) Section 00300

## BLACKSTONE PARK EXPANSION SITE WORK

Bid "A" Based on Completion Time of 180 Calendar Days

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
<b>DRAINAGE- (100 SERIES)</b>					
100	6" PVC STORM PIPE (SDR 35)	LF	278	\$ _____	\$ _____
101	15" RCP	LF	903	\$ _____	\$ _____
102	18" RCP	LF	279	\$ _____	\$ _____
103	24" RCP	LF	77	\$ _____	\$ _____
104	30" RCP	LF	46	\$ _____	\$ _____
105	19" X 30" ERCP	LF	455	\$ _____	\$ _____
106	24" X 38" ERCP	LF	386	\$ _____	\$ _____
107	29" X 45" ERCP	LF	390	\$ _____	\$ _____
108	6" Treatment Underdrain System with Filter Material (complete per detail)	LF	200	\$ _____	\$ _____
109	Treatment Underdrain Cleanout	EA	4	\$ _____	\$ _____
110	Ball Field 6" Underdrain with Filter Sock	LF	1,770	\$ _____	\$ _____
111	Ball Field Underdrain Cleanout	EA	21	\$ _____	\$ _____
112	20 LF Trench Drain System (complete per detail)	EA	3	\$ _____	\$ _____
113	24" Mitered End Section w/ Grates	EA	2	\$ _____	\$ _____
114	19" x 30" Mitered End Section w/ Grates	EA	2	\$ _____	\$ _____
115	29" x 45" Mitered End Section w/ Grates	EA	1	\$ _____	\$ _____
116	Roof Drain Downspout Connection (complete per detail)	EA	5	\$ _____	\$ _____
117	Roof Drain Storm Cleanout	EA	3	\$ _____	\$ _____
118	FDOT Type 'D' Inlet (bubbler box)	EA	1	\$ _____	\$ _____
119	Type 'J' Inlet	EA	6	\$ _____	\$ _____
120	FDOT Type 'C' Inlet	EA	2	\$ _____	\$ _____
121	FDOT Type 'E' Inlet	EA	7	\$ _____	\$ _____
122	FDOT Manhole Type '7' w/ 'J' Bottom (4' x 4'), Modify Top w/ Frame and Grate	EA	5	\$ _____	\$ _____
123	FDOT Manhole Type '8' w/ 'P' Bottom (4' Dia)	EA	2	\$ _____	\$ _____

Bidder Name: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

# BID FORM

(Submit in Triplicate) Section 00300

## BLACKSTONE PARK EXPANSION SITE WORK

Bid "A" Based on Completion Time of 180 Calendar Days

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
124	Control Structure SCS-1 (complete with skimmers)	EA	1	\$ _____	\$ _____
125	Rip-rap with Filter Fabric	SY	53	\$ _____	\$ _____
	<b>SUBTOTAL (DRAINAGE 100 SERIES ONLY)</b>				\$ _____
	<b>PAVING (200 SERIES)</b>				
200	2" Type S-III Asphaltic Concrete	SY	6,490	\$ _____	\$ _____
201	Bituminous material prime and tack coat	SY	6,490	\$ _____	\$ _____
202	8" Crushed Concrete Base (LBR 100)	SY	6,700	\$ _____	\$ _____
203	12" Stabilized subgrade (LBR 40)	SY	7,100	\$ _____	\$ _____
204	6" of 1/2" Washed Shell with Weed Barrier	SY	27	\$ _____	\$ _____
205	Type 'D' Curb	LF	1,190	\$ _____	\$ _____
206	Valley Crossing	EA	1	\$ _____	\$ _____
207	4" Concrete Sidewalk	SY	500	\$ _____	\$ _____
208	4" Concrete Pad for Bike Rack	SY	24	\$ _____	\$ _____
209	6" Concrete Pavement with 12" Compacted Subgrade	SY	1,530	\$ _____	\$ _____
210	7" Concrete Pavement with 12" Compacted Subgrade	SY	920	\$ _____	\$ _____
211	Dumpster Pad with Enclosure and Gates (complete)	LS	1	\$ _____	\$ _____
212	Wheel Stops	EA	150	\$ _____	\$ _____
213	Signage and Striping (complete)(includes removal of existing striping along 23rd Street West)	LS	1	\$ _____	\$ _____
214	2' Detectable Warning Strips	EA	12	\$ _____	\$ _____
215	3' Detectable Warning Strip	EA	1	\$ _____	\$ _____
216	Maintenance of Traffic (includes preparation of MOT Plans)	LS	1	\$ _____	\$ _____
217	Adjust Existing Utility Pads/Boxes to Finished Grade	LS	1	\$ _____	\$ _____
218	Specialty Paver Curbing	LF	135	\$ _____	\$ _____

Bidder Name: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

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## BLACKSTONE PARK EXPANSION SITE WORK

Bid "A" Based on Completion Time of 180 Calendar Days

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
219	Concrete Pavers - Baseball Paver Design (in-place; complete)	SF	113	\$ _____	\$ _____
220	Concrete Pavers - Diamond Paver Design (in-place; complete)	SF	200	\$ _____	\$ _____
221	Concrete Pavers - Landscape Island Paver Design (in-place; complete)	SF	192	\$ _____	\$ _____
222	Removable Bollard (includes reinforced concrete strip footing)	EA	5	\$ _____	\$ _____
223	Fixed Bollard (includes reinforced concrete strip footing)	EA	3	\$ _____	\$ _____
	<b>SUBTOTAL (PAVING 200 SERIES ONLY)</b>				\$ _____
	<b>EARTHWORK (300 SERIES)</b>				
300	Excavate, place, grade, & compact existing soil material to within 2 feet below finished grade elevation (complete)	LS	1	\$ _____	\$ _____
301	Provide, place, grade, and compact clean, suitable fill material to finished fill elevation (complete)	LS	1	\$ _____	\$ _____
302	Swale Construction	LF	3,768	\$ _____	\$ _____
303	FDOT Gravity Wall (Scheme 1) with Aluminum Handrail	LF	128	\$ _____	\$ _____
304	Best Management Practice (BMP) Maintenance (includes repair, re-installation, and maintenance of existing BMPs installed by others. Also includes SWPPP implementation, inspections, and reporting)	LS	1	\$ _____	\$ _____
305	Staked Hay Bales	LF	90	\$ _____	\$ _____
306	Common Bermudagrass (materials only)	SY	11,130	\$ _____	\$ _____
307	Common Bermudagrass (installation and maintenance only)	SY	11,130	\$ _____	\$ _____
310	Sodding - Bahia (materials only)	SY	9,400	\$ _____	\$ _____
311	Sodding - Bahia (installation and maintenance only)	SY	9,400	\$ _____	\$ _____
	<b>SUBTOTAL (EARTHWORK 300 SERIES ONLY)</b>				\$ _____

Bidder Name: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

# BID FORM

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## BLACKSTONE PARK EXPANSION SITE WORK

Bid "A" Based on Completion Time of 180 Calendar Days

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
<b>FENCING (400 SERIES)</b>					
400	6' High Black Vinyl Chain Link Fence with Black Vinyl Slats around electrical control panels	LF	52	\$ _____	\$ _____
401	6' High x 4' Wide Black Vinyl Chain Link Swing Gate with Black Vinyl Slats	EA	1	\$ _____	\$ _____
402	6' High Black Vinyl Chain Link Fence	LF	1,399	\$ _____	\$ _____
403	7' High Black Vinyl Chain Link Fence	LF	225	\$ _____	\$ _____
404	8' High Black Vinyl Chain Link Fence	LF	302	\$ _____	\$ _____
405	10' High Black Vinyl Chain Link Fence	LF	168	\$ _____	\$ _____
406	12' High Black Vinyl Chain Link Fence	LF	419	\$ _____	\$ _____
407	Black Vinyl Backstop Fence	LF	289	\$ _____	\$ _____
408	8' High x 6' Wide Black Vinyl Chain Link Swing Gate	EA	1	\$ _____	\$ _____
409	Slide Gate for 12' Wide Fence Opening	EA	6	\$ _____	\$ _____
410	Slide Gate for 16' Wide Fence Opening	EA	3	\$ _____	\$ _____
411	Poly-Cap Fence Guard	LF	568	\$ _____	\$ _____
412	Black Vinyl Coated Foul Pole (complete; includes poly-cap fence guard cover)	EA	6	\$ _____	\$ _____
<b>SUBTOTAL (FENCING 400 SERIES ONLY)</b>					\$ _____
<b>BALL FIELDS AND BATTING CAGES (500 SERIES)</b>					
500	Ball Field Identification Sign	EA	3	\$ _____	\$ _____
501	Distance Sign	EA	3	\$ _____	\$ _____
502	Visitor / Home Sign	EA	6	\$ _____	\$ _____
503	4' x 10' Folding Backstop Padding Mats	EA	6	\$ _____	\$ _____
504	5' High Windscreen	LF	1,032	\$ _____	\$ _____
505	6' High Windscreen	LF	282	\$ _____	\$ _____
506	Pitcher's Plate	EA	3	\$ _____	\$ _____

Bidder Name: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

# BID FORM

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## BLACKSTONE PARK EXPANSION SITE WORK

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BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
507	Home Plate	EA	3	\$ _____	\$ _____
508	Bases (set of 3 per each)	EA	3	\$ _____	\$ _____
509	6" Clay Infield Mix - Rolled (includes all 3 ball fields)	LS	1	\$ _____	\$ _____
510	4" Root Zone Mixture Material per Ball Field Turf Detail & Specifications (includes all 3 ball fields)	LS	1	\$ _____	\$ _____
511	14" Imported Fill Material per Ball Field Turf Detail & Specifications (includes all 3 ball fields)	LS	1	\$ _____	\$ _____
512	Tifway 419 Bermudagrass - Rolled (materials only)	SY	11,120	\$ _____	\$ _____
513	Tifway 419 Bermudagrass - Rolled (installation and maintenance only)	SY	11,120	\$ _____	\$ _____
514	4" Concrete Pad for Dugout (10' x 22')	EA	6	\$ _____	\$ _____
515	Dugout Canopy Structure (complete)	EA	6	\$ _____	\$ _____
516	5" Concrete Pad for Bleachers (16' x 30')	EA	6	\$ _____	\$ _____
518	4" Concrete Slab for Batting Cages (69' x 85')	SY	652	\$ _____	\$ _____
519	Batting Cage Netting and Support Post System for 4 Batting Cages (complete)	LS	1	\$ _____	\$ _____
520	Indoor/Outdoor Artificial Turf for Batting Cages	SY	320	\$ _____	\$ _____
521	6' x 12' Home Plate Mats for Batting Cages	EA	4	\$ _____	\$ _____
522	12' Safety Netting with Galvanized Steel Support Posts	LF	525	\$ _____	\$ _____
	<b>SUBTOTAL (BALL FIELDS AND BATTING CAGES 500 SERIES ONLY)</b>				\$ _____

Bidder Name: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_



# BID FORM

(Submit in Triplicate) Section 00300

## BLACKSTONE PARK EXPANSION SITE WORK

Bid "A" Based on Completion Time of 180 Calendar Days

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
	<b>MISCELLANEOUS (600 SERIES)</b>				
600	Construction Surveying & Stakeout (includes collection of record information and record drawing preparation)	LS	1	\$ _____	\$ _____
601	MOBILIZATION	LS	1	\$ _____	\$ _____
	<b>SUBTOTAL (MISCELLANEOUS 600 SERIES ONLY)</b>				\$ _____
	<b>DISCRETIONARY WORK (USED ONLY WITH COUNTY APPROVAL)</b>				\$140,000.00
	<b>TOTAL PRICE FOR BID "A" - Based on Completion Time of <u>180</u> Calendar Days</b>				\$ _____

ADD ON UNIT PRICES FOR ADDITIONAL WORK AS DIRECTED BY THE COUNTY AND ENGINEER  
 The following prices are not included in the total amount, and are to be used only as directed by the COUNTY and ENGINEER.

ITEM NO	DESCRIPTION	ADD or DEDUCT	U/M	UNIT PRICE
1	LABOR, MATERIALS, TOOLS, SERVICES AND INCIDENTALS TO IMPORT UP TO 3,000 CUBIC YARDS (TRUCK MEASURE) OF CLEAN, SUITABLE FILL MATERIAL SHOULD THE COUNTY NOT BE ABLE TO PROVIDE THE REFERENCED STOCKPILE CONSISTING OF 2,600 CUBIC YARDS.		CY	\$ _____

Bidder Name: \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

**SWORN STATEMENT  
THE FLORIDA TRENCH SAFETY ACT**

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR BY AN OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This Sworn Statement is submitted with IFB No. 13-1543CD
2. This Sworn Statement is submitted by \_\_\_\_\_ whose business address is \_\_\_\_\_ and, if applicable, its Federal Employer Identification Number (FEIN) is \_\_\_\_\_. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement \_\_\_\_\_.
3. Name of individual signing this Sworn Statement is: \_\_\_\_\_, Whose relationship to the above entity is: \_\_\_\_\_.
4. The Trench Safety Standards that will be in effect during the construction of this project shall include, but are not limited to: Laws of Florida, Chapters 90-96, TRENCH SAFETY ACT, and OSHA RULES AND REGULATIONS 29 CFR 1926.650 Subpart P, effective October 1, 1990.
5. The undersigned assures that the entity will comply with the applicable Trench Safety Standards and agrees to indemnify and hold harmless the County and Engineer, and any of their agents or employees from any claims arising from the failure to comply with said standard.
6. The undersigned has appropriated the following costs for compliance with the applicable standards:

<u>Trench Safety Measure (Description)</u>	<u>Units of Measure (LF, SY)</u>	<u>Unit Quantity</u>	<u>Unit Cost</u>	<u>Extended Cost</u>
a. _____	_____	_____	\$ _____	_____
b. _____	_____	_____	\$ _____	_____
c. _____	_____	_____	\$ _____	_____
d. _____	_____	_____	\$ _____	_____

7. The undersigned intends to comply with these standards by instituting the following procedures:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

THE UNDERSIGNED, in submitting this Bid, represents that they have reviewed and considered all available geotechnical information and made such other investigations and tests as they may deem necessary to adequately design the trench safety system(s) to be utilized on this project.

\_\_\_\_\_  
(AUTHORIZED SIGNATURE / TITLE)

SWORN to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

**(Impress official seal)**

Notary Public, State of Florida: \_\_\_\_\_

My commission expires: \_\_\_\_\_

SECTION 00430  
**CONTRACTOR'S QUESTIONNAIRE**  
(Submit in Triplicate)

The Bidder warrants the truth and accuracy of all statements and answers herein contained. (Attach additional pages if necessary.)

**THIS QUESTIONNAIRE MUST BE COMPLETED AND SUBMITTED WITH YOUR BID**

1. License #: \_\_\_\_\_

License Issued to: \_\_\_\_\_

Date License Received (MM/DD/YR): \_\_\_\_\_

Company Name: \_\_\_\_\_

\_\_\_\_\_  
Company's Physical Address

\_\_\_\_\_  
City

\_\_\_\_\_ State of Incorporation, if applicable \_\_\_\_\_ (Zip Code)

(\_\_\_\_\_) \_\_\_\_\_ Telephone Number; (\_\_\_\_\_) \_\_\_\_\_ Fax Number

Email Address: \_\_\_\_\_

2. Bidding as an individual \_\_\_ a partnership: \_\_\_ a corporation; \_\_\_ a joint venture \_\_\_

3. If a partnership: list names and addresses of partners; if a corporation: list names of officers, directors, shareholders, and state of incorporation; if joint venture: list names and address of ventures' and the same if any venture are a corporation for each such corporation, partnership, or joint venture:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Your organization has been in business (under this firm's name) as a

\_\_\_\_\_  
For how many years? \_\_\_\_\_ Is this firm in bankruptcy? \_\_\_\_\_

\_\_\_\_\_  
**Years holding a Certified Contractors License**

\_\_\_\_\_  
**Years experience performing this type of project**

**(Attach a list of projects where this specific type of work was performed)**

BIDDER: \_\_\_\_\_

4. (Continued)

Has license ever been suspended, revoked, removed or under investigation?

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5. Describe and give the date and County of the last three government or private work of similar scope you've completed which are similar in cost, type, size, and nature as the one proposed (for a public entity), include contact name and phone number. Provide the budget, actual cost, size and summary of work for each project. Attach additional pages as necessary. (Note: If listing a Manatee County reference they should not be directly associated with this project)

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6. Have you ever been assessed liquidated damages under a Contract during the past five (5) years? If so, state when, where (contact name, address and phone number) and why.

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7. Have you ever failed to complete work awarded to you? Or provide projects not completed within Contract time. If so, state when, where (contact name, address, phone number) and why.

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8. Have you ever been debarred or prohibited from bidding on a governmental entity's construction project? If yes, name the entity and describe the circumstances:

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BIDDER: \_\_\_\_\_

9. What specific steps have you taken to examine the physical conditions at or contiguous to the site, including but not limited to, the location of existing underground facilities? Have you visited the site(s)? \_\_\_\_\_  
Provide date(s) of site visit: \_\_\_\_\_

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10. What specific physical conditions, including, but not limited to, the location of existing underground facilities have you found which will, in any manner, affect cost, progress, performance, or finishing of the Work? \_\_\_\_\_

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11. Will you subcontract any part of this Work? If so, describe which major portion(s):

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12. If any, list (with Contract amount) WBE/MBE to be utilized:

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13. What equipment do you own to accomplish this Work? (A listing may be attached)

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14. What equipment will you purchase/rent for the Work? (Specify which)

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BIDDER: \_\_\_\_\_

15. List the following in connection with the Surety which is providing the Bond(s):

Surety's Name: \_\_\_\_\_

Surety's Address: \_\_\_\_\_

Surety's Address: \_\_\_\_\_

Name, address and phone number of Surety's resident agent for service of process in Florida:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone: (\_\_\_\_\_) \_\_\_\_\_

Email \_\_\_\_\_

BIDDER: \_\_\_\_\_

SECTION 00491  
**PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES CERTIFICATION**  
SWORN STATEMENT PURSUANT TO ARTICLE V,  
MANATEE COUNTY PURCHASING ORDINANCE

**THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.**

This sworn statement is submitted to the Manatee County Board of County Commissioners by

\_\_\_\_\_ [Print individual's name and title]

\_\_\_\_\_ for \_\_\_\_\_ [print name of entity submitting sworn statement]

whose business address is \_\_\_\_\_

and (if applicable) its Federal Employer Identification Number (FEIN) is \_\_\_\_\_. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement:

\_\_\_\_\_

I understand that no person or entity shall be awarded or receive a County Contract for public improvements, procurement of goods or services (including professional services) or a County lease, franchise, concession or management Agreement, or shall receive a grant of County monies unless such person or entity has submitted a written certification to the County that it has not:

- (1) been convicted of bribery or attempting to bribe a public officer or employee of Manatee County, the State of Florida, or any other public entity, including, but not limited to the Government of the United States, any state, or any local government authority in the United States, in that officer's or employee's official capacity; or
- (2) been convicted of an agreement or collusion among Bidders or prospective Bidders in restraint of freedom of competition, by agreement to bid a fixed price, or otherwise; or
- (3) been convicted of a violation of an environmental law that, in the sole opinion of the County's Purchasing Official, reflects negatively upon the ability of the person or entity to conduct business in a responsible manner; or
- (4) made an admission of guilt of such conduct described in items (1), (2) or (3) above, which is a matter of record, but has not been prosecuted for such conduct, or has made an admission of guilt of such conduct, which is a matter of record, pursuant to formal prosecution. An admission of guilt shall be construed to include a plea of nolo contendere; or
- (5) where an officer, official, agent or employee of a business entity has been convicted of or has admitted guilt to any of the crimes set forth above on behalf of such an entity and pursuant to the direction or authorization of an official thereof (including the person committing the offense, if he is an official of the business entity), the business shall be chargeable with the conduct herein above set forth. A business entity shall be chargeable with the conduct of an affiliated entity, whether wholly owned, partially owned, or one which has common ownership or a common Board of Directors. For purposes of this Form, business entities are affiliated if, directly or indirectly, one business entity controls or has the power to control another business entity, or if an individual or group of individuals controls or has the power to control both entities. Indicia of control shall include, without limitation, interlocking management or ownership, identity of interests among family members, shared organization of a business entity following the ineligibility of a business entity under this Article, or using substantially the same management, ownership or principles as the ineligible entity.

(Cont'd.)

Any person or entity who claims that this Article is inapplicable to him/her/it because a conviction or judgment has been reversed by a court of competent jurisdiction shall prove the same with documentation satisfactory to the County's Purchasing Official. Upon presentation of such satisfactory proof, the person or entity shall be allowed to contract with the County.

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR MANATEE COUNTY IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT ANY CONTRACT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE CONTRACTING OFFICER OR THE COUNTY ADMINISTRATOR DETERMINES THAT **SUCH PERSON OR ENTITY HAS MADE FALSE CERTIFICATION.**

\_\_\_\_\_  
[Signature]

STATE OF FLORIDA  
COUNTY OF \_\_\_\_\_

Sworn to and subscribed before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ by \_\_\_\_\_

Personally known \_\_\_\_\_ OR Produced identification \_\_\_\_\_  
[Type of identification]

\_\_\_\_\_  
Notary Public Signature My commission expires \_\_\_\_\_

\_\_\_\_\_  
[Print, type or stamp Commissioned name of Notary Public]

**Signatory Requirement** - In the case of a business entity other than a partnership or a corporation, this affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, this affidavit shall be executed by the general partner(s). In the case of a corporation, this affidavit shall be executed by the corporate president.



SECTION 00500  
**FORM OF AGREEMENT  
BETWEEN THE  
COUNTY OF MANATEE, FLORIDA  
AND THE CONTRACTOR AS IDENTIFIED BELOW  
ON THE BASIS OF A STIPULATED UNIT COST CONTRACT PRICE**

THIS AGREEMENT is made and entered into by and between the COUNTY OF MANATEE, a political subdivision of the State of Florida, hereinafter referred to as the "COUNTY" and **XXXXXXXXXX**, hereinafter referred to as the "CONTRACTOR," duly authorized to transact business in the State of Florida, with offices located at **XXXXXXXXXX**.

**ARTICLE 1. WORK**

CONTRACTOR shall furnish all labor, materials, supplies, and other items required to complete the Work for **IFB #13-1543CD Blacstone Park Expansion Site Work** in strict accordance with Contract documents and any duly authorized subsequent addenda thereto, all of which are made a part hereof.

**ARTICLE 2. COMPENSATION**

As compensation to the CONTRACTOR, the COUNTY shall pay and the CONTRACTOR will accept as full consideration for the performance of all Work required by **IFB #13-1543CD Blacstone Park Expansion Site Work**, subject to additions and deductions as provided therein, the sum of **\$XXXXXX** for Bid "**A**" based on a completion time of **180** calendar days.

**ARTICLE 3. LIQUIDATED DAMAGES**

Time is of the essence in this Agreement. As of the date of this Agreement, the damages that will be suffered by the County in the event of the Contractor's failure to timely complete the Work are impossible to determine. In lieu thereof, it is agreed that if the Contractor fails to achieve substantial completion of the Work within **180** calendar days of issuance of the Notice to Proceed (accounting, however, for any extensions of time granted pursuant to approved change orders), the Contractor shall pay to the County, as liquidated damages (and not as a penalty), the sum of **\$1148** per calendar

day for each day beyond 180 days until the Contractor achieves substantial completion. The County shall have the option of withholding said liquidated damages from any pay application(s) thereafter submitted by the Contractor. Alternatively, the Contractor shall immediately pay said sums to the County upon the County's demand for same.

#### **ARTICLE 4. ENGINEER**

The County of Manatee, Property Management Department, is responsible as the COUNTY and WilsonMiller Stantec as "ENGINEER," designed this project and is responsible for technical/engineering reviews and decisions. The ENGINEER is a member of the COUNTY'S project management team which is collectively responsible in ensuring the Work is completed in accordance with the Contract documents.

All communications involving this project will be addressed to: Alan Meronek, Project Manager, Property Management Department and to the Engineer of Record, Dan Bond, WilsonMiller Stantec. All invoicing will be addressed to the attention of: Alan Meronek (address noted below) with invoice copies sent to Dan Bond, (address noted below).

Manatee County Property Management Dept.  
IFB# 13-1543CD  
Attention: Alan Meroneks  
Project Manager  
1112 Manatee Avenue West, Suite 862  
Bradenton, Florida 34205  
Phone (941) 745-4501 ext. 3097

WilsonMiller Stantec  
IFB# 13-1543CD  
Attn: Dan Bond  
Project Engineer  
6900 Professional Parkway East  
Sarasota, Florida 34240  
Phone (941) 907-6910

Where the terms ENGINEER and/or COUNTY are used in the Contract Documents, it shall mean the COUNTY'S project management team.

## **ARTICLE 5. CONTRACTOR'S REPRESENTATIONS**

In order to induce COUNTY to enter into this Agreement, CONTRACTOR makes the following representations:

- 5.1 CONTRACTOR has familiarized itself with the nature and extent of the Bid documents, Work, site, locality and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- 5.2 CONTRACTOR has studied carefully all drawings of the physical conditions upon which CONTRACTOR is entitled to rely.
- 5.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which pertain to the physical conditions at or contiguous to the site or which otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract price, within the Contract time and in accordance with the other terms and conditions of the Bid documents; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.
- 5.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Bid documents with respect to existing underground facilities at or contiguous to the site and assumes responsibility for the accurate location of said underground facilities. Any additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said underground facilities conducted by the CONTRACTOR will be done at the CONTRACTOR'S expense.

- 5.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Bid.
- 5.6 CONTRACTOR has given COUNTY written notice of all conflicts, errors or discrepancies that have been discovered in the Bid documents and the written resolution thereof by OWNER is acceptable to CONTRACTOR.
- 5.7 CONTRACTOR shall schedule and perform the Work subject to COUNTY'S approval and shall hold COUNTY harmless from all liabilities incurred due to CONTRACTOR'S failure to coordinate with the COUNTY.

#### **ARTICLE 6. CONTRACT DOCUMENTS**

The Contract documents which comprise the entire Agreement between COUNTY and CONTRACTOR concerning the Work consist of the following:

- 6.1 This Agreement and Bid document **IFB #13-1543CD**
- 6.2 Public Construction Bond Form and Insurance Certificate(s)
- 6.3 Drawings/Plans (not attached)
- 6.4 Addendum number ?? to ?? inclusive
- 6.5 CONTRACTOR'S Bid Form
- 6.6 Reports
- 6.7 The following, which may be delivered or issued after the effective date of the Agreement and are not attached hereto: all written change orders and other documents amending, modifying, or supplementing the Contract documents.

6.8 The documents listed in paragraphs above are attached to this Agreement (except as noted otherwise above). There are no Contract documents other than those listed above in this Article 6.

#### **ARTICLE 7. MISCELLANEOUS**

7.1 Terms used in this Agreement are defined in Article 1 of the General Conditions.

7.2 No assignment by a party hereto of any rights under or interest in the Contract documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law); and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignee from any duty or responsibility under the Contract documents.

7.3 COUNTY and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements, and obligations contained in the Contract documents.

**AGREEMENT**  
**IFB #13-1543CD**

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed by their authorized representatives.

**CONTRACTOR**

By: \_\_\_\_\_

\_\_\_\_\_  
Print Name & Title of Signer

Date: \_\_\_\_\_

**COUNTY OF MANATEE, FLORIDA**

By: \_\_\_\_\_  
Melissa M. Wendel, CPPO  
Purchasing Official

Date: \_\_\_\_\_

**MANATEE COUNTY GOVERNMENT  
PUBLIC CONSTRUCTION BOND**

Bond No. \_\_\_\_\_  
(Enter bond number)

BY THIS BOND, We \_\_\_\_\_, located at \_\_\_\_\_, as  
(Name of Contractor) (Address)

Principal and \_\_\_\_\_, a corporation, whose address is  
(Name of Surety)

\_\_\_\_\_

are bound to Manatee County, a political subdivision of the State of Florida, herein called County, in the sum of \$ \_\_\_\_\_, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

WHEREAS, the Contractor has entered into Contract No. IFB #13-1543CD with the County for the project titled Blackstone Park Expansion Site Work, with conditions and provisions as are further described in the aforementioned Contract, which Contract is by reference made a part hereof for the purposes of explaining this bond.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs Contract No. IFB #13-1543CD, between Principal and County for construction of

Blackstone Park Expansion Site Work, the Contract being made a part of this bond by reference, at

(Title of Project)

the times and in the manner prescribed in the Contract; and

2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the Work provided for in the Contract; and

3. Pays County all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that County sustains because of a default by Principal under the Contract; and

4. Performs the guarantee of all Work and materials furnished under the Contract for the time specified in the Contract, then this bond is void; otherwise it remains in full force.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

Any changes in or under the Contract documents and compliance or noncompliance with any formalities connected with the Contract or the changes does not affect Surety's obligation under this bond.

DATED ON \_\_\_\_\_.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print Name & Title

\_\_\_\_\_  
Print Name & Title

*(Corporate Seal)*

*(Corporate Seal)*



**AGENT or BROKER**

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Address  
\_\_\_\_\_

\_\_\_\_\_  
Telephone

Licensed Florida Insurance Agent?  Yes  No

License #: \_\_\_\_\_

State of: \_\_\_\_\_

County of: \_\_\_\_\_

City of: \_\_\_\_\_

SECTION 00700  
**GENERAL CONDITIONS**

**ARTICLE 1. DEFINITIONS**

Whenever used in the Bid documents, the following terms have the meaning indicated which are applicable to both the singular and plural thereof:

Addendum - Written or graphic instruments issued prior to the opening of Bids which clarify or change the Bidding documents or the Contract documents.

Agreement - The written Agreement between Owner and Contractor covering the Work to be performed; other Contract documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form accepted by the Project Representative which is to be used by Contractor in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract documents.

Award - Acceptance of the Bid from the person, firm, or corporation which in the Owner's sole and absolute judgment will under all circumstances best serve the public interest. Award shall be made in accordance with Manatee County Code of Laws.

Bid - The offer of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bidder - One who submits a Bid directly to the Owner, as distinct from a Sub-bidder, who submits a Bid to a Bidder.

Bidding Documents - Consists of the Invitation for Bid, which includes but is not limited to the Bid Form, drawings, technical specifications, terms and conditions, and the proposed Contract documents (including all addenda issued prior to receipt of Bids); and becomes a part of the Agreement.

Bonds - Performance and payment bonds and other instruments of security.

Change Order - A document recommended by the Project Representative which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract price or the Contract time, issued on or after the effective date of the Agreement.

Compensable Delay - Any delay beyond the control and without the fault or negligence of the Contractor resulting from Owner-caused changes in the Work, differing site conditions, suspensions of the Work, or termination for convenience by Owner.

Contract Documents - The Agreement, addenda (which pertain to the Contract documents), Contractor's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award), the bonds, the specifications, special provisions and the drawings, together with all amendments, modifications and supplements issued on or after the effective date of the Agreement.

Contract Price - The monies payable by Owner to Contractor under the Contract documents as stated in the Agreement.

Contract Time - The number of days or the date stated in the Notice to Proceed for the completion of the Work.

Contractor - The person, firm or corporation with whom Owner has entered into an Agreement.

Days - All references to days are to be considered calendar days except as specified differently.

Defective - An adjective which when modifying the Work refers to work that is unsatisfactory, faulty or deficient, or does not conform to the Contract documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract documents, or has been damaged prior to Project Representative's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner).

Discretionary – Payment for all Work that shall be made only at the Owner's discretion in order to satisfactorily complete the project in accordance with the plans and specifications.

Drawings - The drawings which show the character and Scope of Work to be performed and which have been prepared or approved by Engineer and are referred to in the Bidding and Contract documents.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective (date of execution).

Excusable Delay - Any delay beyond the control and without the negligence of the Contractor, the Owner, or any other Contractor caused by events or circumstances such as, but not limited to, acts of God or of the public enemy, fires, floods, freight embargoes, acts of government other than Owner or epidemics. Labor disputes and above average rainfall shall give rise only to excusable delays.

Field Order - A written order issued by Project Representative which orders minor changes in the Work, but which does not involve a change in the Contract price or the Contract time.

Float or Slack Time - The time available in the progress schedule during which an unexpected activity can be completed without delaying substantial completion of the Work.

Inexcusable Delay - Any delay caused by events or circumstances within the control of the Contractor, such as inadequate crewing, slow submittals, etc., which might have been avoided by the exercise of care, prudence, foresight, or diligence on the part of the Contractor.

Non-prejudicial Delay - Any delay impacting a portion of the Work within the available total float or slack time and not necessarily preventing completion of the Work within the Contract time.

Notice of Award - The written notice to the successful Bidder stating Award has been approved by the Board of County Commissioners; or by the Purchasing Official in accordance with Manatee County Code of Laws, Chapter 2-26, Manatee County Purchasing Ordinance.

Notice of Intent to Award - The written notice to the apparent low Bidder stating Award has been recommended with final Award to be authorized by the Board of County Commissioners.

Notice to Proceed - Written notice by Owner (after execution of Contract) to Contractor fixing the date on which the Contract time will commence to run and on which Contractor shall start to perform (ten (10) days from date of such notice) Contractor's obligations under the Contract documents.

Owner - Manatee County, Florida, Board of County Commissioners.

Preconstruction Conference - Prior to starting the Work, a meeting scheduled by Owner with Contractor to review the Work schedules, to establish procedures for handling shop drawings and other submissions, for processing periodical pay estimates, and such other matters as may be pertinent to the project.

Prejudicial Delay - Any excusable or compensable delay impacting the Work and exceeding the total float available in the progress schedule, thus preventing completion of the Work within the Contract time unless the Work is accelerated.

Pre-operation Testing - All field inspections, installation checks, water tests, performance tests and necessary corrections required of Contractor to demonstrate that individual components of the Work have been properly constructed and do operate in accordance with the Contract documents for their intended purposes.

Project - The total construction of which the Work to be provided under the Contract documents may be the whole or a part as indicated elsewhere in the Contract documents.

Project Representative - The authorized representative of Owner who is assigned to the project or any part thereof.

Schedule of Values – Unit prices shall be established for this Contract by the submission of a schedule of values. The Contractor shall submit a schedule of values within ten (10) days of Notice to Proceed date. The schedule shall include quantities and prices of items equaling the Total Bid Price and will subdivide the Work into components in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work. Upon request of the County, the Contractor shall support the values with data which will substantiate their correctness.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a supplier and submitted by Contractor to illustrate material or equipment for some portion of the Work.

Special Provisions: As required to define work or procedures not covered in the standard specifications, and as necessary to supplement or modify items in the standard specifications.

Specifications - Those portions of the Contract documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

Subcontractor - An individual or corporation having a direct contact with Contractor or with any other Subcontractor for the performance of a part of the Work at the site. Such person or firm has contractual relations with the Contractor, not with the Owner.

Substantial Completion - The Work (or a specified part thereof) has progressed to the point when, in the opinion of the Engineer as evidenced by Engineer's definitive certificate of substantial completion, it is sufficiently complete in accordance with Contract documents so that the Work can be utilized for the purposes for which it is intended; or if there be no such certificate issued, when final payment is due.

Successful Bidder - The lowest, responsible and responsive Bidder to whom an Award is made.

Supplier - A manufacturer, fabricator, supplier, distributor, material man or vendor.

Underground Facilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments and any encasement containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or

other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

Unit Price Work - Work to be paid for on the basis of unit prices.

Work - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract documents.

Work Directive Change - A written directive to Contractor, issued on or after the effective date of the Agreement and signed by Owner and recommended by Project Representative ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed or to emergencies. A work directive change may not change the Contract price or the Contract time; but is evidence that the parties expect that the change directed or documented by a work directive change will be incorporated in a subsequently issued change order following negotiations by the parties as to its effect, if any, on the Contract price or Contract time.

Written Amendment - A written amendment of the Contract documents, signed by Owner and Contractor on or after the effective date of the Agreement and normally dealing with the non-engineering or non-technical rather than strictly work related aspects of the Contract documents.

## **ARTICLE 2. PRELIMINARY MATTERS**

Computation of Time: When time is referred to in the Contract documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or legal holiday, such day will be omitted from the computation.

2.1 The Contractor must submit a proposed schedule of the Work at the preconstruction conference. The purpose of this schedule is to enable the Owner to govern the Work, to protect the functions of the local government and its citizens and to aid in providing appropriate surveillance. The Owner shall have the right to reschedule Work provided such rescheduling is in accord with the remainder of terms of the Contract. The schedule shall show, as a minimum, the approximate dates on which each segment of the Work is expected to be started and finished, the proposed traffic flows during each month, the anticipated earnings by the Contractor for each month and the approximate number of crews and equipment to be used. The Owner, after necessary rescheduling and obtaining additional information for specific purposes, shall review and approve the schedule. The Contractor shall also forward to the Owner, as soon as practicable after the first day of each month, a summary report of the progress of the various parts of the Work under the Contract, in fabrication and in the field, stating the existing status, estimated time of completion and cause of delay, if

any. Together with the summary report, the Contractor shall submit any necessary revisions to the original schedule for the Owner's review and approval. In addition, more detailed schedules may be required by the Owner for daily traffic control.

- 2.2 A Notice to Proceed may be given at any time within thirty (30) days after the effective date of the Agreement. The Contract time will commence at the time specified in such notice. Contractor shall start to perform the Work on the date specified in the Notice to Proceed, but no Work shall be done at the site prior to the date on which the Contract time commences to run.
- 2.3 If at any time the materials and appliances to be used appear to the Owner as insufficient or improper for securing the quality of Work required or the required rate of progress, the Owner may order the Contractor to increase his efficiency or to improve the character of his Work and the Contractor shall conform to such an order. The failure of the Owner to demand any increase of such efficiency of any improvement shall not release the Owner from his obligation to secure the quality of Work or the rate of progress necessary to complete the Work within the limits imposed by the Contract. The Owner may require the Contractor to remove from the Work such employees as the Owner deems incompetent, careless, insubordinate or otherwise objectionable, or whose continued employment on the Work is deemed to be contrary to the Owner's interest.
- 2.4 The Owner reserves the right to let other Contracts in connection with this Work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and execution of their Work, and promptly connect and coordinate the Work with theirs.

### **ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, RE-USE**

- 3.1 The Contract documents comprise the entire Agreement between Owner and Contractor concerning the Work. The Contract documents are complementary; what is called for by one is as binding as if called for by all. The Contract documents will be construed in accordance with the laws and ordinances of the State of Florida and Manatee County.

Should a conflict exist within the Contract documents, the precedence in ascending order of authority are as follows: 1) Standard Printed Contract Documents, 2) Special Conditions, 3) General Conditions, and 4) Drawings.

Note: Computed dimensions shall govern over scaled dimensions.

- 3.2 It is the intent of the Contract documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract documents. Any work, materials or equipment that may reasonably be inferred from the Contract documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or

equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract documents) shall be effective to change the duties and responsibilities of Owner, Contractor or Engineer, or any of their agents or employees from those set forth in the Contract documents.

3.3 The Contract documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

3.3.1 A Formal Written Amendment

3.3.2 A Change Order

3.3.3 Administrative Contract Adjustment (ACA)

3.3.4 A Work Directive Change

3.4 In addition, the requirements of the Contract documents may be supplemented and minor variations and deviations in the Work may be authorized in one or more of the following ways:

3.4.1 Discretionary Work – Field Directive

3.4.2 Engineer's approval of a Shop Drawing or sample

#### **ARTICLE 4. CONTRACTOR'S RESPONSIBILITIES**

4.1 Contractor shall keep on the Work at all times during its progress a competent resident superintendent; who shall be the Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the superintendent shall be as binding as if given to Contractor.

4.2 Contractor shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction as required by the Contract documents. Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto and except as otherwise indicated in the Contract documents, all Work at the site shall be performed during regular working hours and Contractor will not permit overtime work or the



performance of work on Saturday, Sunday or legal holiday without Owner's written consent given after prior notice to Engineer (at least seventy-two (72) hours in advance).

- 4.2.1 Contractor shall pay for all additional engineering charges to the Owner for any overtime work which may be authorized. Such additional engineering charges shall be a subsidiary obligation of Contractor and no extra payment shall be made by Owner on account of such overtime work. At Owner's option, overtime costs may be deducted from Contractor's monthly payment request or Contractor's retainage prior to release of final payment.
- 4.3 Unless otherwise specified, Contractor shall furnish and assume full responsibility for all bonds, insurance, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.
- 4.4 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract documents. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable supplier except as otherwise provided in the Contract documents.
- 4.5 Contractor shall be fully responsible to Owner for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect Contract with Contractor just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract documents shall create any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of Owner to pay or to see to the payment of any monies due any such Subcontractor, Supplier or other person or organization.
- 4.6 Permits: Unless otherwise provided, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work.
- 4.7 During the progress of the Work, Contractor shall keep the premises free from accumulation of waste materials rubbish and other debris resulting from the Work. At the completion of the Work, Contractor shall remove all waste

materials, rubbish, and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials and shall leave the site clean and ready for occupancy by Owner. Contractor shall restore to original conditions all property not designated for alteration by the Contract documents.

- 4.8 Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.
- 4.9 Safety and Protection: Contractor shall comply with the Florida Department of Commerce Safety Regulations and any local safety regulations. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to:
- 4.9.1 all employees on the work and other persons and organizations who may be affected thereby;
- 4.9.2 all the work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
- 4.9.3 other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.
- 4.9.4 Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall provide and maintain all passageways, guard fences, lights and other facilities for the protection required by public authority or local conditions. Contractor shall provide reasonable maintenance of traffic way for the public and preservation of the Owner's business, taking into full consideration all local conditions. Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed.
- 4.10 Emergencies: In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, Contractor, without special instruction or authorization from Engineer or Owner, is obligated to act to prevent threatened damage, injury or loss. Contractor shall give Owner prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract documents have been caused thereby. If Owner

determines that a change in the Contract documents is required because of the action taken in response to an emergency, a work directive change or change order will be issued to document the consequences of the changes or variation.

4.11 For substitutes not included with the Bid, but submitted after the effective date of the Agreement, Contractor shall make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will also contain an itemized estimate of all costs and delays or schedule impacts that will result directly or indirectly from review, acceptance and provisions of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by the Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish at Contractor's expense, additional data about the proposed substitute. In rendering a decision, Owner/Engineer and Contractor shall have access to any available float time in the construction schedule. In the event that substitute materials or equipment not included as part of the Bid, but proposed after the effective date of the Agreement, are accepted and are less costly than the originally specified materials or equipment, then the net difference in cost shall be credited to the Owner and an appropriate change order executed.

4.11.1 If a specific means, method, technique, sequence of procedure of construction is indicated in or required by the Contract documents, Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to Engineer if Contractor submits sufficient information to allow Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract documents.

4.11.2 Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. Engineer will be the sole judge of acceptability and no substitute will be ordered, installed or utilized without Engineer's prior written acceptance which will be evidenced by either a change order or an approved shop drawing. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

4.11.3 Contractor shall reimburse Owner for the charges of Engineer and Engineer's Consultants for evaluating each proposed substitute submitted after the effective date of the Agreement and all costs resulting from any delays in the Work while the substitute was undergoing review.

- 4.12 The Contractor shall furnish, free of charge, all labor, stakes, surveys, batter boards for structures, grade lines and other materials and supplies and shall set construction stakes and batter boards for establishing lines, position of structures, slopes and other controlling points necessary for the proper prosecution of the construction work. Where rights-of-way, easements, property lines or any other conditions which make the lay-out of the project or parts of the project critical are involved, the Contractor will employ a competent surveyor who is registered in the State of Florida for lay-out and staking. These stakes and marks shall constitute the field control by and in accord with which the Contractor shall govern and execute the Work. The Contractor will be held responsible for the preservation of all stakes, marks and if for any reason any of the stakes or marks or batter boards become destroyed or disturbed, they will be immediately and accurately replaced by the Contractor.
- 4.13 The Contractor has, by careful examination, satisfied himself as to the nature and location of the Work and all other matters which can in any way affect the Work under this Contract, including, but not limited to details pertaining to boring, as shown on the drawings, are not guaranteed to be more than a general indication of the materials likely to be found adjacent to holes bored at the site of the Work, approximately at the locations indicated. The Contractor shall examine boring data, where available, and make his own interpretation of the subsoil investigations and other preliminary data, and shall base his Bid on his own opinion of the conditions likely to be encountered. In no event shall an extension of time be considered for any conditions that existed at the time of bidding, nor shall the Contractor receive extra compensation for completion of the project as intended by the drawings and in keeping with the Contact documents. No verbal agreement or conversation with any officer, agent or employee of the Owner, before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.
- 4.14 If the Contractor, in the course of the Work, finds that the drawings and/or Contract documents cannot be followed, he shall immediately inform the Owner in writing, and the Owner shall promptly check the accuracy of the information. Any work done after such discovery, until any necessary changes are authorized, will be done at the Contractor's risk.

#### **ARTICLE 5. OWNER'S RESPONSIBILITIES**

- 5.1 Owner shall furnish the data required of Owner under the Contract documents promptly and shall make payments to the Contractor within a reasonable time (no more than twenty (20) days) after the Work has been accepted by the Owner. The form of all submittals, notices, change orders and other documents permitted or required to be used or transmitted under the Contract documents shall be determined by the Owner/Engineer. Standard County forms shall be utilized.

- 5.2 The Owner shall provide the lands upon which the Work under this Contract is to be done, except that the Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of his materials, together with right of access to same.
- 5.3 The Owner shall have the right to take possession of and use any completed portions of the Work, although the time for completing the entire Work or such portions may not have expired, but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract documents.

#### **ARTICLE 6. CHANGES IN THE WORK**

- 6.1 Without invalidating the Agreement and without notice to any Surety, Owner may, at any time, order additions, deletions or revisions in the Work. These will be authorized by a written amendment, a change order, or a work directive change. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract documents (except as otherwise specifically provided).
- 6.2 Contractor shall not be entitled to an increase in the Contract price or an extension of the Contract time with respect to any Work performed that is not required by the Contract documents as amended, modified and supplemented.
- 6.3 Owner and Contractor shall execute appropriate change orders (or written amendments) covering changes in the Work which are ordered by Owner, or which may be required because of acceptance of defective Work.
- 6.4 At any time Engineer may request a quotation from Contractor for a proposed change in the Work and within twenty-one (21) calendar days after receipt, Contractor shall submit a written and detailed proposal for an increase or decrease in the Contract price or Contract time for the proposed change. Engineer shall have twenty-one (21) calendar days after receipt of the detailed proposal to respond in writing. The proposal shall include an itemized estimate of all costs and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in sufficient detail to reasonably permit an analysis by Engineer of all material, labor, equipment, subcontracts, overhead costs and fees, and shall cover all Work involved in the change, whether such Work was deleted, added, changed or impacted. Notwithstanding the request for quotation, Contractor shall carry on the Work and maintain the progress schedule. Delays in the submittal of the written and detailed proposal will be considered non-prejudicial.

## **ARTICLE 7. CHANGE OF CONTRACT PRICE**

- 7.1 The Contract price constitutes the total compensation (subject to authorized adjustments) payable to Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at his expense without change in the Contract price.
- 7.2 The Contract price may only be changed by change order or by a written amendment. Any claim for an increase or decrease in the Contract price shall be based on written notice delivered by the party making the claim to the other party. Notice of the amount of the claim with supporting data shall be delivered within ten (10) days from the beginning of such occurrence and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event.
- 7.3 The value of any Work covered by a change order or of any claim for an increase or decrease in the Contract price shall be determined in one of the following ways (at Owner's discretion):
- 7.3.1 Where the Work involved is covered by unit prices contained in the Contract documents, cost will be determined by application of such unit prices to the quantities of the items involved.
- 7.3.2 By mutual acceptance of lump sum.
- 7.3.3 On the basis of the cost of the Work, plus a 15% Contractor's fee for overhead and profit. (Contractor shall submit an itemized cost breakdown together with supporting data.)
- 7.4 Either Owner or Contractor may make a claim for an adjustment in the Contract price. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment under the following conditions:
- 7.4.1 If the total cost of a particular item of Unit Price Work amounts to 5% or more of the Contract price and the variation in the quantity of the particular item of Unit Price Work performed by Contractor differs by more than 15% from the estimated quantity of such item indicated in the Agreement; and
- 7.4.2 If there is no corresponding adjustment with respect to any other item of Work; and
- 7.4.3 If a Contractor believes that it has incurred additional expense as a result thereof; or

7.4.4 If Owner believes that the quantity variation entitles it to an adjustment in the unit price; or

7.4.5 If the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

#### **ARTICLE 8. CHANGE OF CONTRACT TIME**

8.1 Contract time may only be changed by a change order or a written amendment. Any claim for an extension or shortening of the Contract time shall be based on written notice delivered by the party making the claim to the other party. Notice of the extent of the claim with supporting data shall be delivered within fifteen (15) days from detection or beginning of such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event.

8.2 The Contract time will be extended in an amount equal to time lost due to delays beyond the control of Contractor. Such delays shall include, but not be limited to, acts or neglect by Owner or others performing additional Work; or to fires, floods, epidemics, abnormal weather conditions or acts of God.

8.3 All time limits stated in the Contract documents are of the essence.

#### **ARTICLE 9. WARRANTY, TEST/INSPECTION, CORRECTION**

9.1 Contractor warrants (for a minimum period of three (3) years or as otherwise stated herein) and guarantees to Owner that all Work will be in accordance with the Contract documents and will not be defective; that Owner, representatives of Owner, governmental agencies with jurisdictional interests will have access to the Work at reasonable time for their observation, inspecting and testing (Contractor shall give Engineer timely notice of readiness of the Work for all required approvals and shall assume full responsibility, including costs, in obtaining required tests, inspections, and approval certifications and/or acceptance, unless otherwise stated by Owner).

9.2 If any Work (including work of others) that is to be inspected, tested, or approved is covered without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation. Such uncovering shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice. Neither observations by Engineer nor inspections, tests, or approvals by others shall relieve Contractor from Contractor's obligations to perform the Work in accordance with the Contract documents.

9.3 If the Work is defective, or Contractor fails to supply sufficient skilled workers, or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract documents, Owner may order Contractor to stop the Work, or any portion thereof and terminate payments to the Contractor until the cause for such order has been eliminated. Contractor shall bear all direct, indirect and consequential costs for satisfactory reconstruction or removal and replacement with non-defective Work, including, but not limited to fees and charges of engineers, architects, attorneys and other professionals and any additional expenses experienced by Owner due to delays to other Contractors performing additional Work and an appropriate deductive change order shall be issued. Contractor shall further bear the responsibility for maintaining schedule and shall not be entitled to an extension of the Contract time and the recovery of delay damages due to correcting or removing defective Work.

9.3.1 If Contractor fails within seven (7) days after written notice to correct defective Work, or fails to perform the Work in accordance with the Contract documents, or fails to comply with any other provision of the Contract documents, Owner may correct and remedy any such deficiency to the extent necessary to complete corrective and remedial action. Owner may exclude Contractor from all or part of the site, take possession of all or part of the Work, Contractor's tools, construction equipment and machinery at the site or for which Owner has paid Contractor but which are stored elsewhere. All direct and indirect costs of Owner in exercising such rights and remedies will be charged against Contractor in an amount approved as to reasonableness by Engineer and a change order will be issued incorporating the necessary revisions.

9.3.2 If within three (3) years after the date of completion or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guarantee required by the Contract documents, any Work is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instruction, Owner may have the defective Work corrected/removed and all direct, indirect and consequential costs of such removal and replacement will be paid by Contractor.

## **ARTICLE 10. SUSPENSION/TERMINATION OF WORK**

10.1 Owner may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety (90) days by written notice to Contractor, which will fix the date on which Work will be resumed. Contractor shall be allowed an increase in the Contract price or an extension of the Contract



time, or both, directly attributable to any suspension if Contractor makes an approved claim therefore.

10.2 Owner may terminate the Contract if Contractor commences a voluntary case under any chapter of the Bankruptcy Code or any similar action by filing a petition under any other federal or state law relating to the bankruptcy or insolvency; if a petition is filed against the Contractor under any chapter of the Bankruptcy Code or similar relief under any other federal or state law; if Contractor persistently fails to perform the Work in accordance with the Contract documents; if Contractor disregards laws or regulations of any public body having jurisdiction or the Engineer; or otherwise violates in any substantial way any provisions of the Contract.

10.2.1 Owner may, after giving Contractor (and the Surety, if there is one) seven (7) days written notice and to the extent permitted by laws and regulations, terminate the services of Contractor; exclude Contractor from the site and take possession of the Work and of all Contractor's tools, construction equipment and machinery at the site and use the same to the full extent they could be used (without liability to Contractor for trespass or conversion); incorporate in the Work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case, Contractor shall not be entitled to receive any further payment beyond an amount equal to the value of material and equipment not incorporated in the Work, but delivered and suitably stored, less the aggregate of payments previously made. If the direct and indirect costs of completing the Work exceed the unpaid balance of the Contract price, Contractor shall pay the difference to Owner. Such costs incurred by Owner shall be verified by Owner and incorporated in a change order; but in finishing the Work, Owner shall not be required to obtain the lowest figure for the Work performed. Contractor's obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Agreement.

10.3 If, through no act or fault of Contractor, the Work is suspended for a period of more than ninety (90) days by Owner or under an order of court or other public authority, or Engineer fails to act on any application or fails to pay Contractor any sum finally determined to be due; then Contractor may, upon seven (7) days written notice to Owner terminate the Agreement and recover from Owner payment for all Work executed, any expense sustained plus reasonable termination expenses. In lieu of terminating the Agreement, if Engineer has failed to act on any application of payment or Owner has failed to make any payment as aforesaid, Contractor may upon seven (7) days written notice to Owner stop the Work until payment of all amounts then due.

## **ARTICLE 11. CONTRACT CLAIMS**

- 11.1 The rendering of a decision by Engineer with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment) will be a condition precedent to any exercise by Owner or Contractor of such right or remedies as either may otherwise have under the Contract documents or by laws or regulations in respect of any such claim, dispute or other matter. No action, either at law or at equity, shall be brought in connection with any such claim, dispute or other matter later than thirty (30) days after the date on which Owner/Engineer has rendered such written decision in respect thereof. Failure to bring an action within said thirty (30) day period shall result in Engineer's decision being final and binding on the Contractor. In no event may any such action be brought after the time at which instituting such proceedings would be otherwise barred by the applicable statute of limitations.
- 11.2 Before bringing any action in court pertaining to any claim, dispute or other matter in question(s) arising out of or relating to the Contract documents or the breach thereof, or Engineer's final decision, except for claims which have been waived by the making and acceptance of final payment, the Contractor shall first submit written notice(s) of Contract claims to the Purchasing Official for a decision; within the earlier of sixty (60) days after the last date on which the Contractor provided any goods or services required by the Contract or after the date on which the Contractor knew or should have known such a claim existed. The Manatee County Code of Laws, Section 2-26-63, Contract Claims, details the requirements and process for such a claim.

## **ARTICLE 12. RESIDENT PROJECT REPRESENTATIVE - DUTIES, RESPONSIBILITIES**

- 12.1 Resident Project Representative is Engineer/Owner's Agent, who will act as directed by and under the supervision of the Engineer, and who will confer with Owner/Engineer regarding his actions. Resident Project Representative's dealing in matters pertaining to the on-site Work shall, in general, be only with the Owner/Engineer and Contractor and dealings with Subcontractors shall only be through or with the full knowledge of Contractor.
- 12.2 Resident Project Representative will:
- 12.2.1 Review the progress schedule, schedule of shop drawing submissions and schedule of values prepared by Contractor and consult with Owner/Engineer concerning their acceptability.
  - 12.2.2 Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with Owner/Engineer and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.

- 12.2.3 Serve as Owner/Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist him in understanding the intent of the Contract documents. As requested by Owner/Engineer, assist in obtaining additional details or information when required at the job site for proper execution of the Work.
- 12.2.4 Receive and record date of receipt of shop drawings and samples, receive samples which are furnished at the site by Contractor and notify Owner/Engineer of their availability for examination.
- 12.2.5 Advise Owner/Engineer and Contractor or his superintendent immediately of the commencement of any Work requiring a shop drawing or sample submission if the submission has not been approved by the Owner/Engineer.
- 12.2.6 Conduct on-site observations of the Work in progress to assist Owner/Engineer in determining if the Work is proceeding in accordance with the Contract documents and that completed Work will conform to the Contract documents.
- 12.2.7 Report to Owner/Engineer whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract documents, or does not meet the requirements of any inspections, tests or approvals required or if Work has been damaged prior to final payment; and advise Owner/Engineer when he believes Work should be corrected or rejected or should be uncovered of observation or requires special testing, inspection or approval.
- 12.2.8 Verify that tests, equipment and system start-ups and operating and maintenance instructions are conducted as required by the Contract documents and in the presence of the required personnel, and that Contractor maintains adequate records thereof; observe, record and report to Engineer appropriate details relative to the test procedures and start-ups.
- 12.2.9 Accompany visiting inspectors representing public or other agencies having jurisdiction over the project; record the outcome of these inspections and report to Owner/Engineer.
- 12.2.10 Transmit to Contractor, Owner/Engineer's clarifications and interpretations of the Contract documents.
- 12.2.11 Consider and evaluate Contractor's suggestions or modifications in drawings or Contract Documents and report them with recommendations to Owner/Engineer.

- 12.2.12 Maintain at the job site orderly files for correspondence, reports of job conferences, shop drawings and sample submissions, reproductions of original Contract documents including all addenda, change orders, field orders, additional drawings issued subsequent to the execution of the Contract, Owner/Engineer's clarifications and interpretations of the Contract documents, progress reports and other project related documents.
- 12.2.13 Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions; list of visiting officials and representatives or manufacturers, fabricators, suppliers and distributors; daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures. Send copies to Owner/Engineer.
- 12.2.14 Record names, addresses and telephone numbers of all Contractors, Subcontractors and major Suppliers of materials and equipment.
- 12.2.15 Furnish Owner/Engineer periodic reports as required of progress of the Work and Contractor's compliance with the approved progress schedule and schedule of shop drawing submissions.
- 12.2.16 Consult with Owner/Engineer in advance of scheduling major tests, inspections or start of important phases of the Work.
- 12.2.17 Report immediately the occurrence of any accident.
- 12.2.18 Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to Owner/Engineer, noting particularly their relation to the Schedule of Values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.
- 12.2.19 During the course of the Work, verify that certificates, maintenance and operations manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed, and deliver this material to Owner/Engineer for his review prior to final acceptance of the Work.
- 12.2.20 Before Owner/Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
- 12.2.21 Conduct final inspection in the company of Owner/Engineer and Contractor and prepare a final list of items to be completed or corrected.

12.2.22 Verify that all items on final list have been completed or corrected and make recommendations to Owner/Engineer concerning acceptance.

12.3 Except upon written instructions of Owner/Engineer, Resident Project Representative:

12.3.1 Shall not authorize any deviation from the Contract documents or approve any substitute materials or equipment;

12.3.2 Shall not exceed limitations on Owner/Engineer's authority as set forth in the Contract documents;

12.3.3 Shall not undertake any of the responsibilities of Contractor, Subcontractors or Contractor's superintendent, or expedite the Work;

12.3.4 Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract documents;

12.3.5 Shall not advise on or issue directions as to safety precautions and programs in connection with the Work;

12.3.6 Shall not authorize Owner to occupy the project in whole or in part; and

12.3.7 Shall not participate in specialized field or laboratory tests.

### **ARTICLE 13. APPRENTICES**

13.1 If successful Contractor employs apprentices, he shall be governed and comply with the provisions of F.S. § 446.011.

NOTE: The form of all submittals, notices, change orders and other documents permitted or required to be used or transmitted under the Contract shall be determined by the County. Standard County forms shall be utilized.

**END OF SECTION**

## MAILING LABEL

Cut along the outside border and affix this label to your sealed Bid envelope to identify it as a "Sealed Bid". Be sure to include the name of the company submitting the Bid and the Bid due date and time where requested.

### MAILING LABEL TO AFFIX TO OUTSIDE OF SEALED BID PACKAGE:

**SEALED BID - DO NOT OPEN**

**CONTRACTOR:** \_\_\_\_\_

**SEALED BID NO: 13-1543CD**

**BID TITLE: BLACKSTONE PARK EXPANSION SITE WORK**

**DUE DATE/TIME:** \_\_\_\_\_ @ \_\_\_\_\_



# **BLACKSTONE PARK EXPANSION**

**SITE WORK TECHNICAL SPECIFICATIONS**

**PREPARED FOR**

**MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT**

**FEBRUARY 2013**



**Stantec**

**Stantec Consulting Services, Inc.**  
6900 Professional Parkway East  
Sarasota, FL 34240

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## **SITE WORK TECHNICAL SPECIFICATIONS**

for

# **BLACKSTONE PARK EXPANSION**

**PREPARED FOR**

**MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT**  
**1112 MANATEE AVENUE WEST, SUITE 803**  
**BRADENTON, FLORIDA 34205**

**PREPARED BY**

**STANTEC CONSULTING SERVICES, INC.**  
**6900 PROFESSIONAL PARKWAY EAST**  
**SARASOTA, FLORIDA 34240-8414**



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## **BLACKSTONE PARK EXPANSION – SITE WORK**

Manatee County, Florida

### **MEASUREMENT AND PAYMENT**

#### **PART 1 – GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section. See Stantec construction plans for reference [sheets 1 – 19 of 19; and sheet 1 of 1 (Concrete and Paver Surfacing Plan and Details)]

##### **1.2 SUMMARY**

- A. The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item.
- B. All contract prices included in the Bid Form section will be full compensation for all shop drawings, working drawings, labor, materials, tools, testing, restoration, equipment and incidentals necessary to complete the construction as shown on the Drawings and/or as specified in the Contract Documents to be performed under this Contract. Actual quantities of each item contracted on a unit price basis will be determined upon completion of the construction and payment will be based on actual quantities. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Contract.
- C. The quantities shown are approximate in-place quantities and are given only as a basis of calculation upon which the award of the Contract is to be made. The Owner/Engineer does not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding or discrepancies because of such estimate of quantities. Final payment will be made only for satisfactorily completed in-place quantity of each item that is bid on a unit price basis.
- D. No payment will be made for work constructed outside the authorized limits of work.
- E. Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally.
- F. Where payment for items is shown to be paid for on a lump sum basis, no separate or additional payment will be made for any item of work required to complete the lump sum items. Lump sum items shall be complete, tested and fully operable prior to request for final payment. Contractor may be required to provide a break-down of the lump sum items.
- G. Access to the site is provided by the existing 23<sup>rd</sup> Street West.
- H. Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work associated with the bid item shall be considered to be included in the scope of the appropriate listed bid items

## **BLACKSTONE PARK EXPANSION – SITE WORK**

Manatee County, Florida

### **MEASUREMENT AND PAYMENT**

#### 1.3 UNIT PRICE

- A. Actual quantities of each item contracted on a unit price basis will be determined upon completion of the construction and payment will be based on actual quantities.

#### 1.4 BID ITEM DESCRIPTIONS

- A. A general description of the bid items contained in the various Bid Sections are described below. All items of work referenced in the contract documents, plans, and specifications shall be included in the various lump sum and unit prices in the bid form/contract if not specifically included as a pay item on the bid form.

**Bid Items 100 - 125 (DRAINAGE):** The various bid items for DRAINAGE shall include all drainage piping, drainage structures, rip-rap, underdrain, and underdrain filter material. **This section includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with these bid items in accordance with the contract documents, plans, and specifications.**

**Bid Items 200 - 223 (PAVING):** The various bid items for PAVING shall include all asphalt, base, subgrade, shell, curbing, specialty paver curbing, sidewalks, concrete pads/pavement, concrete surfaces, handicap ramps, detectable warning strips, dumpster pad/enclosure/gates, wheel stops, signage and striping (including the removal of existing striping along 23<sup>rd</sup> Street West), maintenance of traffic, adjustments to existing utility boxes/pads, concrete pavers, and bollards. This section also includes all permitting and permitting fees as may be required for the installation of the dumpster pad/enclosure, work within right-of-way, preparation of traffic control plans as required for maintenance of traffic. **Full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with these bid items in accordance with the contract documents, plans, and specifications shall be included in this section.**

**Bid Items 300 - 311 (EARTHWORK):** The various bid items for EARTHWORK shall include all grading, excavation, loading/unloading/hauling/placement/compaction of fill material, swales, gravity wall, sodding, bermudagrass, tree root protection measures, tree protection, and best management practices controls (including repair, re-installation, and maintenance of existing BMPs installed by others). The best management practices controls shall include temporary dewatering activities (if needed), as well as the implementation of the Stormwater Pollution Prevention Plan (SWPPP) including all inspections and reporting required as part of the SWPPP.

Please note that an entity hired separately by Manatee County will remove the top 6” of existing soil material from within the entire 9.92-acre (+/-) project area and haul the removed soil material to the landfill. The removal and off-site disposal of the top 6” of existing soil material shall not be included as part of this bid. After the top 6” of existing soil material is removed from the site, topographic survey information will be provided to

## **BLACKSTONE PARK EXPANSION – SITE WORK**

Manatee County, Florida

### **MEASUREMENT AND PAYMENT**

the Contractor by Manatee County prior to the Contractor starting work on the site. The Contractor is required to review the topographic survey information and notify the County and Engineer of any issues/discrepancies prior to starting any earthwork activities.

Upon confirmation by the Contractor that the top 6” of existing soil has been satisfactorily removed, the Contractor shall excavate, place, grade, and compact existing soil material to within 2 feet below the finished grade elevations depicted on the construction plans. This includes stockpiling any excess existing soil material on-site for removal by others. In no case shall any existing soil material be placed within 2 feet of finished grade elevation without prior written permission by the County and the Engineer. Once the Contractor balances the site to within 2 feet of finished grade and before any import/off-site fill material is placed, the Contractor shall prepare a topographic survey of the site and confirm that all existing soil material is 2 feet below finished grade. This topographic survey shall also be reviewed and accepted by the County and the Engineer prior to the placement of any additional fill on-site. All work described in this paragraph shall be included as part of Bid Item #300 as indicated on the Bid Proposal Form.

Upon confirmation that the work described above has been satisfactorily completed, the Contractor shall provide, place, grade, and compact clean, suitable fill material to the finished fill elevations depicted on the construction plans. This shall include all finished grading activities for the entire project including the complete construction of the dry retention area. Two stockpiles of clean, suitable fill will be provided on-site by the County for full use by the Contractor. The first stockpile will consist of 10,700 cubic yards (truck measure) and will be located west of the proposed dry retention area. The second stockpile will consist of 2,600 cubic yards (truck measure) and will also be located west of the proposed dry retention area. Prior to use of any of the stockpiled fill material, the Contractor shall confirm the quantity of the stockpiled fill material and notify the County and Engineer of any issues/discrepancies or acceptance of quantities provided. Any claim of discrepancy by the Contractor shall be supported by certified topographic survey data and volumetric calculations detailing the discrepancy amount. The clean, suitable stockpiled fill material shall only be placed within 2 feet below finished grade. In addition to utilizing the stockpiled fill material provided by the County, the Contractor shall also import any additional clean, suitable fill material needed to complete the project to the finished grade elevations. This shall include all hauling, loading/unloading, placement, grading, and compaction of the import fill material. Prior to being transported to the site, all import fill material shall be tested by Manatee County to confirm it is clean of any hazardous materials/contaminants and is suitable for construction of the proposed facilities. Please refer to the enclosed testing criteria/thresholds for all imported fill material. All work described in this paragraph shall be included as part of Bid Item #301 as indicated on the Bid Proposal Form.

## **BLACKSTONE PARK EXPANSION – SITE WORK**

Manatee County, Florida

### **MEASUREMENT AND PAYMENT**

Please note that an alternate bid item has been provided which includes the import of 2,600 cubic yards (truck measure) of clean, suitable fill material by the Contractor should the County be unable to provide the referenced stockpile consisting of 2,600 cubic yards of clean, suitable fill.

**This section includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with all earthwork bid items in accordance with the contract documents, plans, and specifications.**

**Bid Items 400 - 412 (FENCING):** The various bid items for FENCING shall include all posts, rails, fabric, gates, concrete footings/foundations, chains, slats, and poly-cap fence guard. **This section also includes full compensation for furnishing all labor, materials, hardware, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with these bid items in accordance with the contract documents, plans, and specifications.**

**Bid Items 500 - 522 (BALL FIELDS AND BATTING CAGES):** The various pay items for BALL FIELDS AND BATTING CAGES shall include all ball field signage, backstop padding mats, windscreens, pitcher/home plates, bases, infield clay mix, root zone mixture and import fill material per Ball Field Turf Detail & Specifications, concrete pads for dugouts/bleachers/batting cages, dugout canopy structures (including signed and sealed structural design calculations/design plans for the dugout canopy structures), batting cage netting and support post system, artificial turf and home plate mats for batting cages, safety netting and support post system, and all hardware/appurtenances needed to construct all BALL FIELD AND BATTING CAGES pay items per the contract documents, plans, and specifications complete and in-place. Prior to being transported to the site, all import fill material shall be tested by the Contractor to confirm it is clean of any hazardous materials/contaminants and is suitable for construction of the proposed facilities. Please refer to the enclosed testing criteria/thresholds for all imported fill material. **This section also includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with the bid items in accordance with the contract documents, plans, and specifications.**

**Bid Items 600 - 601 (MISCELLANEOUS):** The various pay items for MISCELLANEOUS shall include construction survey/stakeout/record drawings, mobilization, miscellaneous permits not already obtained by the County, and bonding required per the contract documents. **This section includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with these bid items in accordance with the contract documents, plans, and specifications.**

March 20, 2013

Tom Yarger, PMP  
Construction Services Manager  
**Manatee County**  
**Property Management Department**  
1112 Manatee Avenue West, Suite 803  
Bradenton, Florida 34205

Re: Backfill Testing Requirements  
**Blackstone Park Expansion**  
Palmetto, Manatee County  
PSI Project No: 0552863

Dear Mr. Yarger:

Any backfill imported to the site shall be tested by a NELAP-accredited analytical laboratory for the following parameters at a minimum rate of 1 sample per 5,000 cubic yards:

- Volatile Organic Compounds by EPA Method 8260,
- Semi-Volatile Organic Compounds by EPA Method 8270,
- Organochlorine Pesticides by EPA Method 8081,
- Polychlorinated Biphenyls (PCBs) by EPA Method 8082,
- The 8 RCRA Metals by EPA Methods 6010 and 7471, and
- Total Recoverable Petroleum Hydrocarbons by laboratory method Florida Petroleum Residual Organics (FL-PRO).

The laboratory analytical results from the above test methods shall be compared to the Soil Cleanup Target Levels (SCTLs) as listed in Chapter 62-777 of the Florida Administrative Code. Any soil with contaminant concentrations exceeding the SCTLs cannot be used as backfill at the Blackstone Park Expansion project. The laboratory analytical report and source of the backfill shall be provided to Manatee County prior to importing any backfill material to the project site.

With regards to geotechnical testing parameters, the same soil samples referenced above shall be tested for Modified Proctor by ASTM D1157, Wash Sieve Analysis (No. 200 sieve) by ASTM D1140, and Organic Content by ASTM D2974. The criteria for suitable fill material in terms of geotechnical qualities shall meet the following statement: fine sand to slightly silty fine sand with no more than 12% passing a No. 200 sieve and no more than 5% organic content. For additional geotechnical information about the site, please reference PSI's Geotechnical Engineering Services Report dated November 21, 2012.

Respectfully submitted,  
**PROFESSIONAL SERVICE INDUSTRIES, INC.**



Michael J. Bair, ASP  
Principal Consultant

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**SECTION 01001  
SUPPLEMENTARY TECHNICAL SPECIFICATIONS**

**PART 1      GENERAL**

**1.01    SUMMARY**

- A.    This section includes Supplementary Technical Specifications, which amend or supplement the technical specifications of these Contract Documents. All specifications not amended or supplemented remain in full force and effect.

**1.02    ADDITIONS**

- A.    Section 01411, Testing Services (Provided by Contractor)
  - 1.    Add to the first paragraph under 4.01.B: Testing reports shall be provided with each Application for Payment request made by the CONTRACTOR. The testing reports shall include all required testing results for each requested pay item. The ENGINEER and/or COUNTY may withhold payment of pay items if passing testing reports are not provided.

**1.03    MODIFICATIONS**

- A.    Section 02911, Asphaltic Concrete
  - 1.    Paragraph 3.01.D: FM1-T166 shall be replaced with ASTM D1559

**PART 2      SPECIAL PROVISIONS**

These Special Provisions amend or supplement the contract documents and are intended to set forth conditions and requirements that are unique for this project. All other provisions not amended or supplemented shall remain in full force and effect. In case of a discrepancy, these Special Provisions shall govern over any other written specification or drawing.

- SP-1    The CONTRACTOR shall be responsible for the implementation of the NPDES permit conditions and related Stormwater Pollution Prevention Plan (SWPPP) and inspections/reporting for the duration of the project. Upon completion of the project, the CONTRACTOR shall remove all temporary stormwater management measures/BMPs, and dispose of them as required.
- SP-2    The CONTRACTOR shall provide accurate, detailed, and complete (signed and sealed) record drawings, mylars, and a CD containing AutoCAD files of all record drawing sheets to the ENGINEER. The record drawings shall be signed and sealed by a Florida registered land surveyor. The record drawings shall meet the requirements of SWFWMD, the City of Palmetto, and Manatee County and shall be included in the cost of the project.
- SP-3    The CONTRACTOR shall be responsible for obtaining any required temporary dewatering permits through the Florida Department of Environmental Protection (FDEP) and shall provide copies to the OWNER and ENGINEER.

- SP-4 The CONTRACTOR must have the all approved permits readily available at the job site prior to beginning construction. The CONTRACTOR shall be responsible for adhering to all applicable permit conditions. The CONTRACTOR is responsible for obtaining all local, state and federal construction permits not furnished by the COUNTY, including any right-of-way use permits that may be necessary.
- SP-5 The CONTRACTOR shall be responsible for calling Sunshine State One to obtain information on existing utilities in project vicinity. The CONTRACTOR shall notify and cooperate with utility companies and agencies when the CONTRACTOR's operations are close to existing facilities in order to provide time for the utilities to stake the location of their existing facilities. The CONTRACTOR shall cooperate with the utility company and provide schedules, etc., when requested.

The drawings may or may not indicate the presence of existing utilities or facilities in the project area. Existing above or underground utilities, structures, or facilities that are shown on the plans are based on best information made available to the ENGINEER. The existing facilities may be in locations different than those shown on the drawings. It shall be the responsibility of the CONTRACTOR to acquaint himself with the exact location and to avoid conflict with all existing facilities. Where underground or aboveground utilities, structures, or facilities are damaged, they shall be immediately repaired to the specifications of the owner of the utility. If the owner of the utility elects to make such repairs with his own forces, CONTRACTOR shall make arrangements as to protect the COUNTY from all damages. Where such conflicts are unavoidable, every effort shall be made to construct the work so as to cause as little interference as possible with services rendered by the structure disturbed.

- SP-6 Measurement and payment for the Mobilization Bid Item shall include full compensation for the required 100 percent (100%) Performance Bond, 100 Percent (100%) Payment Bond, all required insurance for the project, and any permits not already obtained by the County. This may include those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site and for the establishment of temporary offices, safety equipment and first aid supplies, and sanitary and other facilities/utilities. The mobilization pay item also includes demobilization of all equipment, personnel, supplies and incidentals from the project site upon final completion. Payment for mobilization shall not exceed 10 percent (10%) of the total Contract cost unless the Contractor can prove to the County that his actual mobilization cost exceeds 10 percent (10%). The basis of payment for all work associated with Mobilization shall be paid for under the Lump Sum Pay Item and in accordance with the following schedule:

Percent of Total Contract Amount Earned	Allowable Percent of the Lump Sum Price for Mobilization
5	25
10	50
25	75
100	100

**END OF SECTION 01001**



**SECTION 01050  
SURVEYING (PROVIDED BY CONTRACTOR)**

**PART 1      GENERAL**

**1.01 SECTION INCLUDES**

- A. Survey requirements for the project.

**1.02 QUALITY CONTROL**

- A. Employ a Land Surveyor registered in the State of Florida and acceptable to ENGINEER and OWNER to perform survey functions in this section.

**1.03 SUBMITTALS**

- A. Submit name, address, and telephone number of Surveyor before starting survey work.
- B. On request, submit documentation verifying accuracy of survey work.
- C. Submit a copy of registered site drawing and certificate signed by the Land Surveyor that the elevations and locations of the work are in conformance with Contract Documents.

**1.04 PROJECT RECORD DOCUMENTS**

- A. Maintain a complete and accurate log of control and survey work as it progresses.

**1.05 EXAMINATION**

- A. Verify locations of survey control points and reference points prior to starting work.
- B. Promptly notify ENGINEER of any discrepancies discovered.

**1.06 SURVEY REFERENCE POINTS**

- A. CONTRACTOR shall locate and protect survey control and reference points.
- B. Control datum for survey is that indicated on drawings.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to ENGINEER the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. The Registered Surveyor shall replace dislocated survey control points based on original survey control. Make no changes without prior written notice to ENGINEER.

## **1.07 SURVEY REQUIREMENTS**

- A. Provide field engineering services. Utilize recognized engineering survey practices.
- B. Establish a minimum of two permanent benchmarks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
- C. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Building foundation, column locations, and ground floor elevations.
- D. Periodically verify layouts by same means.

## **1.08 SURVEYS FOR MEASUREMENT AND PAYMENT**

- A. Perform surveys to determine quantities of unit cost work, including control surveys to establish measurement reference lines. Notify ENGINEER prior to starting work.
- B. CONTRACTOR's Surveyor shall sign field notes or keep duplicate field notes.

## **PART 2 PRODUCTS**

Not Used

## **PART 3 EXECUTION**

Not Used

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 BASIS OF PAYMENT**

- A. The cost of the work specified in this section shall be included in all the various pay items or work items described in the schedule and no separate payment will be made, unless a separate pay item is established in the Contract Documents.

**END OF SECTION 01050**

**SECTION 01300  
SHOP DRAWINGS**

**PART 1      GENERAL**

**1.01 SECTION INCLUDES**

- A. Shop drawing submittal procedures.

**1.02 PROCEDURES**

- A. Deliver a minimum of six copies of submittals to ENGINEER at address listed on cover sheet of specifications. Distribution is two copies for the ENGINEER, two copies for the OWNER and two copies returned to the CONTRACTOR. If additional copies are required by the CONTRACTOR, they shall submit them.
- B. Transmit each item under ENGINEER-accepted form. Identify Project, CONTRACTOR, Subcontractor, and major supplier. Identify pertinent drawing sheet and specification section number as appropriate. Identify deviations from contract documents. Approve all submittals prior to forwarding to ENGINEER by stamping and signing approval stamp. Provide space for CONTRACTOR and ENGINEER review stamps.
- C. After ENGINEER review of submittal, revise and resubmit as required, identifying changes made since previous submittal.
- D. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.
- E. Prior to any submittals, a Schedule of Shop Drawings must be submitted and approved by ENGINEER.

**PART 2      PRODUCTS**

**2.01 SHOP DRAWING SUBMITTAL**

- A. All Precast Structures, Frames, Grates, and Covers
- B. Non-Pressure and Pressure Pipe, Fittings, and Appurtenances
- C. Concrete Pipe, Joints, Connections
- D. Concrete, Base, Asphalt Mix Design
- E. All Hardscape, Amenity, and Ball Field Items
- F. Dugouts, Batting Cage, Signs, Bollards
- G. Fencing and Netting
- H. Dumpster Enclosure

**PART 3**      **EXECUTION**

Not Used

**PART 4**      **MEASUREMENT AND PAYMENT**

- A. The cost of the work specified in this section shall be included in all the various pay items or work items described in the schedule and no separate payment will be made unless a separate pay item is established in the Contract Documents.

**END OF SECTION 01300**

**SECTION 01310  
PROGRESS SCHEDULES**

**PART 1      GENERAL**

**1.01 SECTION INCLUDES**

- A. Scheduling requirements, including submittal and revision procedures.

**1.02 FORMAT**

- A. Unless otherwise specified, the CONTRACTOR shall submit a schedule of activities in either of the forms listed below:
  - 1. A horizontal bar chart (minimum sheet size 24" x 36") with separate bar for each major work item. The time sequence shall be designated horizontally at the top of the chart in weeks, months and years. The position of each activity bar shall indicate the work period from beginning to the end of each activity work period.
  - 2. A logic diagram or CPM of all activities showing description, duration, early and late start/finish dates, predecessors, successors, and float time.

**1.03 CONTENT**

- A. The list of activities shall represent the complete scope of the project and shall be subject to approval by the OWNER's representative.
- B. Show complete sequence of construction by activity, with dates for beginning and completion of each activity listed.

**1.04 REVISIONS TO SCHEDULES**

- A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
- B. Show accumulated percentage of completion of each activity, and total percentage of work completed as of the Application for Payment date.
- C. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- D. Provide narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken, or proposed, and its effect.

**1.05 SUBMITTALS**

- A. Submit preliminary outline schedules within 15 days after date of OWNER-CONTRACTOR Agreement for coordination with OWNER's requirements. After review, submit detailed schedules within 15 days, modified to accommodate revisions recommended by ENGINEER.

- B. Submit revised progress schedules with each Application for Payment.

**1.06 SUBMITTAL**

- A. Submit six copies of schedules to ENGINEER.

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

**PART 4 MEASUREMENT AND PAYMENT**

**4.01 BASIS OF PAYMENT**

- A. The cost of the work specified in this section shall be included in all the various pay items or work items described in the schedule and no separate payment will be made, unless a separate pay item is established in the Contract Documents.

**END OF SECTION 01310**

**SECTION 01411  
TESTING SERVICES  
(PROVIDED BY CONTRACTOR)**

**PART 1    GENERAL**

**1.01 SECTION INCLUDES**

- A. Responsibilities of the CONTRACTOR, OWNER, and Testing Laboratory regarding specified tests.
- B. Report specifications.

**1.02 SELECTION AND PAYMENT**

- A. Unless otherwise stated in the Contract Documents, the CONTRACTOR will select and pay for the services of an independent testing laboratory to perform tests required by the technical specifications.
- B. Cost of retests due to failures shall be paid for by the CONTRACTOR in the form of a deduction from the contract amount.
- C. Utilization of a testing laboratory shall in no way relieve the CONTRACTOR of any obligation to perform work in accordance with the requirements of the Contract Documents.

**1.03 SCHEDULING TESTS**

- A. The CONTRACTOR will furnish the name of the testing laboratory to the OWNER at the preconstruction conference.
- B. The CONTRACTOR shall be responsible for scheduling each test by notifying the designated laboratory 24 hours prior to the time the test is to be taken.
- C. The specific requirements, including the type and amount of testing, shall be in accordance with the technical specifications or as otherwise stated in the Contract Documents.
- D. Ample time shall be allowed for the testing process by the CONTRACTOR, since an extension of time will not be allowed for testing delays or retests due to failures.

**1.04 QUALITY ASSURANCE**

- A. All tests shall be performed by qualified personnel under the direction and control of a Professional Engineer registered in the State of Florida and specializing in Geotechnical or Material analysis as applicable.
- B. In addition to the tests required by the Contract Documents, the OWNER's Representative may direct the testing laboratory to take any other tests or material inspections that he feels necessary to achieve the quality of construction that is specified in the Contract Documents.

### **1.05 LABORATORY RESPONSIBILITIES**

- A. Perform inspection, sampling, and testing in accordance with the Contract Documents.
- B. Provide qualified personnel to perform all phases of required services and cooperate with OWNER's Representative and CONTRACTOR in the performance of those services.
- C. Ascertain compliance of materials and related procedures with requirements of the Contract Documents.
- D. Promptly notify the CONTRACTOR and the OWNER's Representative of any irregularities or non-conformance of work, materials, or product.
- E. Perform additional inspections or tests requested by the OWNER's Representative.
- F. Attend pre-construction conferences and progress meetings.

### **1.06 LABORATORY REPORTS**

- A. After each inspection or test, promptly submit a laboratory report to the OWNER, the OWNER's Representative, and the CONTRACTOR.
- B. The report shall include the following:
  - 1. Date of report.
  - 2. Project title and number.
  - 3. Date, time, and location of each sample extraction or inspection.
  - 4. Identification of material and method of test.
  - 5. Results of tests.
  - 6. Evaluation of conformance to contract specifications.
  - 7. Notification of retest requirement due to test failure.
  - 8. Site map showing testing locations.
  - 9. At the completion of construction the testing firm shall provide a certification signed and sealed by a professional engineer licensed in the state of Florida, certifying that the testing program has been completed in accordance with the project specifications and that the completed project complies with the testing criteria contained in the project plans and specifications.

### **1.07 LIMITS ON TESTING LABORATORY AUTHORITY**

- A. Laboratory may not release, revoke or alter the requirements of the Contract Documents.



- B. Laboratory may not approve or accept any portion of the work.
- C. Laboratory may not assume any duties of the CONTRACTOR.
- D. Laboratory has no authority to stop the work.

**1.08 CONTRACTOR RESPONSIBILITIES**

- A. Submit proposed mix designs and samples of proposed materials to the designated laboratory as required by the Contract Documents or as requested by the OWNER's Representative.
- B. Provide access to the site for any tests or inspections.
- C. Provide labor and facilities to obtain, handle, store, and cure test samples and to facilitate material inspection.
- D. Cooperate with laboratory personnel to maximize the efficiency of the testing procedure by periodically updating the construction schedule and adhering to the 24-hour advance notice requirement for tests.

**PART 2    PRODUCTS**

Not Used

**PART 3    EXECUTION**

Not Used

**PART 4    MEASUREMENT AND PAYMENT**

**4.01 BASIS OF PAYMENT**

- A. In accordance with Article 1.02, Selection and Payment, this section.
- B. Testing Services (Provided by CONTRACTOR)

Where no separate pay item for Testing Services (provided by CONTRACTOR) is established in the Contract Documents, the cost of all such work specified in this section shall be included in the prices for the other pay items which are included in the contract and no additional compensation will be allowed.

**END OF SECTION 01411**

**SECTION 01510  
TEMPORARY UTILITIES AND CONTROLS**

**PART 1    GENERAL**

**1.01    REQUIREMENTS**

- A.    Furnish, install, maintain and remove temporary utilities required for construction. See other sections for additional utilities coordination.

**1.02    TEMPORARY TRAILER LOCATION**

The CONTRACTOR shall obtain approval from the OWNER for any proposed temporary trailer (office) location on site.

**1.03    REQUIREMENTS OF REGULATORY AGENCIES**

- A.    Comply with National Electric Code.
- B.    Comply with federal, state and local codes and regulations and with utility company requirements.
- C.    Comply with County Health Department Regulations.

**PART 2    PRODUCTS**

**2.01    MATERIALS, GENERAL**

- A.    Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

**2.02    TEMPORARY ELECTRICITY AND LIGHTING**

- A.    Arrange with utility company and OWNER to provide service required for power and lighting, and pay all costs for service and for power used in the construction, testing and trial operation prior to final acceptance of the work by the OWNER as stipulated by the ENGINEER.
- B.    Install circuit and branch wiring, with area distribution boxes located so that power and lighting are available throughout the construction by the use of construction type power cords.
- C.    Provide adequate artificial lighting for all areas of work when natural light is not adequate for work, and for areas accessible to the public.

**2.03    TEMPORARY HEAT AND VENTILATION**

- A.    Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the work, to meet specified minimum conditions for the

installation of materials, and to protect materials and finishes from damage due to temperature or humidity.

- B. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors or gases.
- C. Portable heaters shall be standard approved units complete with controls.
- D. Pay all costs of installation, maintenance, operation and removal, and for fuel consumed.
- E. Provide connections to existing facilities, extend and supplement with temporary units as required to comply with requirements. Pay all costs of installation, maintenance, operation and removal.

#### **2.04 TEMPORARY TELEPHONE SERVICE**

- A. Arrange with local telephone service company.
- B. Pay all costs for installation, maintenance and removal, and service charges.

#### **2.05 TEMPORARY WATER**

- A. Provide and pay for all required water for construction and consumptive purposes.
- B. CONTRACTOR may utilize existing on-site water supply system for water needed for construction purposes. However, all water used shall be coordinated with the utility company. A temporary meter may be required.
- C. Temporary potable water piping shall be chlorinated prior to use to remove bacteriological contaminants.

#### **2.06 TEMPORARY SANITARY FACILITIES**

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean and maintain facilities and enclosures.

#### **2.07 EROSION AND PROPERTY CONTROL**

- A. Flow of drains and sewers maintained: Adequate provisions shall be made for the flow of sewers, drains and water courses encountered during construction, and the lines and structures which may have been disturbed shall be immediately restored to their original condition at the expense of the CONTRACTOR.
- B. Property Protection: Trees, grass, fences, signboards, poles and all other property shall be protected unless their removal is authorized; and any property damage shall be satisfactorily restored by the CONTRACTOR and at the expense of the CONTRACTOR.

- C. Provide all means necessary for prevention, control and abatement of erosion, siltation and water pollution resulting from construction until final acceptance by OWNER. Provide for mulching, sodding, sandbagging, berms, slope drains, sedimentation structures, or other devices necessary to meet county, state and federal regulation.

## **2.08 CLEANING DURING CONSTRUCTION**

- A. Control accumulation of waste materials and rubbish; periodically dispose of off-site.
- B. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

## **2.09 CHEMICALS, HAZARDOUS WASTES, AND PETROLEUM PRODUCTS**

- A. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with manufacturer's instructions or government regulations as applicable. The CONTRACTOR shall legally dispose of and clean the project site of all chemicals, hazardous wastes, and petroleum products placed or used on the site by the CONTRACTOR.

## **PART 3 EXECUTION**

### **3.01 REMOVAL**

- A. Completely remove temporary materials and equipment when their use is no longer required as determined by the ENGINEER.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore permanent facilities used for temporary services to specified condition.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 BASIS OF PAYMENT**

- A. Unless otherwise specified in the Contract Documents, the cost of temporary utilities and control shall be included in the various lump sum and unit prices in the contract.

**END OF SECTION 01510**

**SECTION 01600  
MATERIAL AND EQUIPMENT**

**PART 1    GENERAL**

**1.01 SCOPE OF WORK**

- A. This section provides general guidelines for products provided, including their transportation and handling, storage and protection, options, substitutions and systems demonstration.

**1.02 SUBSTITUTIONS**

- A. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- B. Request constitutes a representation that CONTRACTOR:
  - 1. Has investigated proposed product and determined that it meets or exceeds, in all aspects, specified product.
  - 2. Will provide the same warranty for substitution as for specified product.
  - 3. Will coordinate installation and make other changes which may be required for work to be complete in all respects.
  - 4. Waives claims for additional costs which may subsequently become apparent.
- C. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.
- D. ENGINEER will determine acceptability of proposed substitution, and will notify CONTRACTOR of acceptance or rejection in writing within a reasonable time.

**PART 2    PRODUCTS**

- 2.01** Only new materials and equipment shall be incorporated in the work. All material and equipment furnished by CONTRACTOR shall be subject to inspection and approved by ENGINEER.
- 2.02** Comply with specifications and referenced standards as minimum requirements.
- 2.03** Components required to be supplied in quantity within a specification section shall be the same, and shall be interchangeable.
- 2.04** Products specified by reference standards or by description only: Any product meeting those standards.
- 2.05** Products specified by naming one or more manufacturers with a provision for substitutions: Submit a request for substitution for any manufacturer not specifically named.

### **PART 3 EXECUTION**

#### **3.01 TRANSPORTATION AND HANDLING**

- A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

#### **3.02 STORAGE AND PROTECTION**

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with weather-tight enclosure as recommended by manufacturer. Provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area. Prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.
- E. Materials, which in the opinion of the ENGINEER, have become so damaged as to be unfit for the use intended or specified shall be removed from the site of the work. CONTRACTOR shall receive no compensation for the damaged material or its removal.

#### **3.03 SYSTEMS DEMONSTRATION**

- A. Prior to final inspection, demonstrate operation of each system to ENGINEER and OWNER.
- B. Instruct OWNER's personnel in operation, adjustment, and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.

### **PART 4 MEASUREMENT AND PAYMENT**

#### **4.01 BASIS OF PAYMENT**

- A. The cost of the work in this section shall be included in all the various pay items or work items described in the schedule and no separate payment will be made, unless a separate pay item is established in the Contract Documents.

**END OF SECTION 01600**

**SECTION 01675  
PRE-CONSTRUCTION VIDEO RECORD**

**PART 1    GENERAL**

**1.01 SECTION INCLUDES**

- A. Requirements for pre-construction color audio-video.

**1.02 SCOPE**

- A. Prior to commencing work, take a continuous color audio-video tape OR DVD recording along entire length of Project to serve as a record of pre-construction conditions.

**1.03 APPROVAL**

- A. NO CONSTRUCTION SHALL BEGIN prior to submittal of tapes or DVDs covering construction area by CONTRACTOR. ENGINEER shall have authority to reject all or any portion of a video not conforming to specifications and order that it be redone at no additional charge. CONTRACTOR shall reschedule unacceptable coverage within five days after being notified. All tapes or DVDs and written records shall become property of the OWNER.

**PART 2    PRODUCTS**

**2.01 AUDIO-VIDEO TAPES OR DVDs**

- A. Audio-video tapes or DVDs shall be new. The video shall be high grade DVD or, one-half inch high energy, extended still frame capable, a VHS, color video cassette for a color video cassette recorder.

**PART 3    EXECUTION**

**3.01 EQUIPMENT**

- A. Furnish all equipment, accessories, materials and labor to perform this service. 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, clarity and be free from distortion and interruptions.

**3.02 RECORDED INFORMATION - AUDIO**

- A. Each video shall begin with current date, project name and OWNER and followed by general location, i.e., name of street, house address, viewing side and direction of progress. Recording shall contain the narrative commentary of electrographer, recorded simultaneously with their fixed elevation video record of the zone of influence of construction.

**3.03 RECORDED INFORMATION - VIDEO**

- A. All video recordings must display the date and time of recording. Date information shall contain the month, day and year. Time information shall contain the hour and minutes. Additional information shall be displayed periodically. Such information shall include, but not be limited to, project name and number, name of street, house address, direction of travel and the viewing side. This transparent information shall appear on the extreme upper left hand third of the screen.

**3.04 LIGHTING**

- A. Perform all videoing during times of good visibility. No videoing shall be done during precipitation, mist or fog.

**3.05 SPEED OF TRAVEL**

- A. Rate of speed in the general direction of travel of the vehicle used during videoing shall not exceed 75 feet per minute. Planning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

**3.06 AREA OF COVERAGE**

- A. Video coverage shall include all surface features located within the zone of 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, headwalls and trees that are contiguous or tree limbs that overhang onto the area of proposed construction activity.

**PART 4 MEASUREMENT AND PAYMENT**

**4.01 BASIS OF PAYMENT**

- A. Unless otherwise specified in the Contract Documents, the cost of the pre-construction video shall be included in the various lump sum and unit prices in the contract.

**END OF SECTION 01675**



**SECTION 01700  
CONTRACT CLOSE-OUT**

**PART 1    GENERAL**

**1.01 SECTION INCLUDES**

- A. Requirements and procedures for Contract Closeout.

**1.02 CLOSE-OUT PROCEDURES**

- A. Comply with procedures stated in General Conditions of the contract for issuance of Certificate of Substantial Completion.
- B. When CONTRACTOR considers work has reached final completion, submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for ENGINEER's inspection.
- C. In addition to submittals required by the conditions of the contract, provide submittals required by governing authorities, and submit a final statement of accounting giving total adjusted contract sum, previous payments, and sum remaining due.
- D. When ENGINEER finds the work is acceptable for final acceptance, close-out documents shall be submitted.

**1.03 FINAL CLEANING**

- A. Execute prior to final inspections.
- B. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Clean or replace filters of mechanical equipment. Clean roofs, gutters, downspouts, and drainage systems.
- C. Clean site, sweep paved areas, rake clean other surfaces.
- D. Remove waste and surplus materials, rubbish, and construction facilities from the project and from the site.

**1.04 PROJECT RECORD DOCUMENTS**

- A. Store documents separate from those used for construction.
- B. Keep documents current; do not permanently conceal any work until required information has been recorded.
- C. At Contract close-out, submit documents with transmittal letter containing date, project title, CONTRACTOR's name and address, list of documents, and signature of CONTRACTOR.

## **1.05 WARRANTIES AND BONDS**

- A. Provide duplicate, notarized copies. Execute CONTRACTOR's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in binder with durable plastic cover.
- B. Submit material prior to final application for payment. For equipment put into use with OWNER's permission during construction, submit within 30 days after first operation. For items of work delayed materially beyond date of substantial completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

## **1.06 SPARE PARTS AND MAINTENANCE MATERIALS**

- A. Provide products, spare parts, and maintenance materials in quantities specified in each section, in addition to that used for construction of work. Delivery to OWNER and obtain receipt prior to final payment.

## **1.07 EVIDENCE OF PAYMENT AND RELEASE OF LIENS**

- A. Submit complete and legally effective releases or waivers of all liens filed in connection with the work in compliance with Contract Documents.

## **1.08 FINAL APPLICATION FOR PAYMENT**

- A. Submit final application for payment in accordance with procedures and requirements stated in the General Terms and Conditions of the Contract.

## **PART 2 PRODUCTS**

Not Used

## **PART 3 EXECUTION**

Not Used

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 BASIS OF PAYMENT**

- A. Unless otherwise specified in the Contract Documents, the cost of complying with this section of the specifications shall be included in the various lump sum and unit prices in the contract.

**END OF SECTION 01700**

**SECTION 01730  
OPERATION AND MAINTENANCE DATA**

**PART 1    GENERAL**

**1.01 SECTION INCLUDES**

- A. Format and content of manuals.
- B. Instruction of OWNER's personnel.
- C. Schedule of submittals.

**1.02 QUALITY ASSURANCE**

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

**1.03 FORMAT**

- A. Prepare data in the form of an instructional manual.
- B. Binders: Commercial quality, 8½ x 11 inch three-ring binders with hardback, cleanable, plastic covers. When multiple binders are used, correlate data into related consistent groupings.
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of project identify subject matter of contents.
- D. Arrange content by systems under section numbers and sequence of Table of Contents of this project manual.
- E. Provide tabbed flyleaf for each separate product and system, with typed description of product and major component parts of equipment.
- F. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold large drawings to size of text pages.

**1.04 CONTENTS, EACH VOLUME**

- A. Table of Contents: Provide title of project; names, addresses, and telephone numbers of ENGINEER, sub-consultants, and CONTRACTOR with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For each Product or System: List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data - Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

- D. Drawings - Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

#### **1.05 MANUAL FOR MATERIALS AND FINISHES**

- A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: As specified in individual product specification sections.

#### **1.06 MANUAL FOR EQUIPMENT AND SYSTEMS**

- A. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- B. Panelboard Circuit Directories: Provide electrical service characteristics, controls and communications.
- C. Include color-coded wiring diagrams as installed.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide control diagrams by controls manufacturer as installed.

- K. Provide CONTRACTOR's coordination drawings, with color-coded piping diagrams as installed.
- L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

#### **1.07 INSTRUCTION OF OWNER PERSONNEL**

- A. Before final inspection, instruct OWNER's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems. A minimum of two man-days shall be provided.
- B. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- C. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

#### **1.08 SUBMITTALS**

- A. Submit four copies of preliminary draft or proposed formats and outlines of contents before start of work. ENGINEER will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by OWNER, submit documents within ten days after acceptance.
- C. Submit four copies of revised volumes of data in final form within ten days after final inspection.

### **PART 2 PRODUCTS**

Not Used

### **PART 3 EXECUTION**

Not Used

### **PART 4 MEASUREMENT AND PAYMENT**

#### **4.01 BASIS OF PAYMENT**

- A. Unless otherwise specified in the Contract Documents, the cost of providing operation and maintenance data shall be included in the various lump sum and unit prices in the contract.

**END OF SECTION 01730**

**SECTION 02488  
COMMON BERMUDA SODDING**

**PART 1    GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and provisions of the Contract including Contract Conditions, Division-1 Specifications, apply to work of this section.

**1.02 SCOPE**

- A. The work specified in this section consists of the establishing of a consistent, dense, healthy stand of common bermuda grass within the areas specified on the drawings. The work shall consist of grading, preparing the soil, fumigating (if specified on plans), and furnishing and placing of grass sod, fertilizing, watering, and maintaining the sodded areas through construction and until final acceptance by the OWNER and LANDSCAPE ARCHITECT.
- B. Grade Elevations: Excavation, filling, rough and finish grading shall be as specified on the drawings and other related documents.

**1.03 RELATED WORK**

- A. Not applicable

**1.04 QUALITY ASSURANCE**

- A. CONTRACTOR shall be a firm with not less than five-years experience in the type of work specified in this section, or provide satisfactory substitute evidence with the OWNER, at its sole discretion, may accept the CONTRACTOR as qualified to perform the work herein specified.
- B. The CONTRACTOR, as part of their bid, shall list not less than six projects completed by their company of similar size and scope to the work specified herein. The six or more projects shall be listed by project name, location, owner's name and phone number, and the total paid cost of work executed. The listed projects shall be considered as representative of the CONTRACTOR's ability to execute the work specified herein. The OWNER, at their sole discretion, reserves the right to reject any bids which either do not respond to this condition or do not represent satisfactory performance of prior work of similar size and scope as that specified herein.
- C. Subcontract sodding work to a single firm specializing in sod work, if service not provided by the CONTRACTOR.
- D. Perform tests in accordance with standards hereinafter specified.

- E. Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.
- F. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto:
  - 1. Florida State Plant Board Standards for Nursery Plants (latest edition).
  - 2. Florida Nurserymen and Growers Association, Approved Planting Practice.
  - 3. Bailey's Hortus Second.
  - 4. State Department of Agriculture Regulations.

#### **1.05 SUBMITTALS**

- A. All submittals shall be submitted to the LANDSCAPE ARCHITECT.
- B. Submit certificates of inspection as required by governmental authorities.
- C. Submit manufacturer's or vendors certified analysis for soil amendments and fertilizer materials.
- D. Submit other data substantiating that materials comply with specified requirements, when applicable.
- E. Submit soil analysis results.
- F. A letter of certification from the sodding contractor as to when the sod was cut, and what type shall be provided to the LANDSCAPE ARCHITECT, at their request, upon delivery of sod to the job site.

#### **1.06 DELIVERY, STORAGE AND HANDLING**

- A. Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- B. No sod, which has been cut for more than 48 hours, may be used unless specifically authorized by the LANDSCAPE ARCHITECT after their careful inspection thereof.
- C. Transportation: Sod must be in a moist condition at the time of cutting and kept in a moist condition until it is placed. Transport sod in either a closed van or in open truck properly covered to prevent windburn, drying, or damage to sod.
- D. Disposal of Surplus Material: Surplus and waste materials resulting from sodding operations shall be legally disposed of by the CONTRACTOR off-site.

## **1.07 JOB CONDITIONS**

- A. Examination of site: The bidder must acknowledge that they have examined the site, plans and specifications and the submission of a quotation shall be considered evidence that examinations have been made.
- B. The sodding contractor shall be fully responsible to acquaint himself with the exact location of all utilities and to avoid conflict with all existing facilities. Hand excavate, as required. Maintain stakes set by others until removal is mutually agreed upon by parties concerned.
- C. If the quantity of the existing or excavated topsoil is inadequate to establish finish grades as specified on the drawings, it shall be the sodding CONTRACTOR's responsibility to provide topsoil in accordance with these specifications.
- D. The sodding CONTRACTOR shall be responsible for complete coordination of sodding operations with the other CONTRACTORS on the job. Repair of damage to plants, grades, lawns, etc., during installation shall not be considered as an extra, and not be charged to the OWNER. Damage caused by other CONTRACTORS will be the responsibility of said CONTRACTOR.

## **1.08 COMPLETION AND ACCEPTANCE**

- A. Completion of the work is defined as the full and exact compliance and conformity with the provisions expressed or implied in the drawings and specifications, and associated change orders.
- B. The acceptability of all material, workmanship, labor and compliance with the specifications, grades and standards is to be solely determined by the LANDSCAPE ARCHITECT.
- C. Right to Reject: The LANDSCAPE ARCHITECT has the right, at any stage of the work, to reject any and all work and materials which, in their opinion, does not meet the requirements of the plans and specifications. Rejected material shall be immediately removed from the site and acceptable material substituted in its place.
- D. Substantial Completion: Upon notification by the CONTRACTOR that the installation is complete, the LANDSCAPE ARCHITECT, will perform a substantial completion site observation to determine if the CONTRACTOR has completed the work in accordance with the plans and specifications. If final acceptance is not given, the LANDSCAPE ARCHITECT will prepare a "punch list". The notification by the CONTRACTOR must be made at least three working days before the anticipated substantial completion site observation.
- E. Final Acceptance: Upon notification by the CONTRACTOR that all defects have been corrected, the LANDSCAPE ARCHITECT will perform a final site observation. Any additional final site observations due to the CONTRACTOR's inability to meet the items listed on the initial or subsequent "punch lists", will be at the expense of the CONTRACTOR according to the LANDSCAPE ARCHITECT's standard hourly rate. Final acceptance will be given upon satisfactory completion of all work, including "punch list" items. The notification by CONTRACTOR must be made at least three working days before the anticipated final site observation.



## **PART 2      PRODUCTS**

### **2.01    TOPSOIL**

- A. For all landscape areas, the CONTRACTOR shall provide and install topsoil as defined on the drawings or within the contract bid forms.
- B. Topsoil shall be fertile, natural topsoil, typical of the locality, obtained from a well-drained site. It shall be without admixture of subsoil or clay and shall be free of stones, lumps, sticks, plants or their roots, toxic substances or other extraneous matter that may be harmful to plant growth or would interfere with future maintenance.
- C. Topsoil shall contain at least two percent of organic matter and shall have a pH range of 6.2-7.2.
- D. Topsoil shall be free from Johnson grass (*Sorghum Halpense*), nut grass (*Cyperus Rotundus*) and all other objectionable herbaceous weeds, grasses and toxic substances. Said topsoil shall be sifted to remove sticks, stones, and debris larger than one-half inch in size.
- E. Soil Testing: The CONTRACTOR shall be responsible for having topsoil tested. Representative samples are to be tested for acidity, fertility and general composition by a recognized commercial or government agency. The CONTRACTOR shall furnish one copy of the soil analysis and recommended amendments (to meet the desired pH, nutritional and organic levels determined to be adequate for the area) prepared by the testing agency, to the LANDSCAPE ARCHITECT prior to application of any amendments or fertilizer.

### **2.02    FERTILIZER**

- A. All fertilizers shall be uniform in composition, free flowing and suitable for application by mechanical spreader equipment. Deliver fertilizers to the site fully labeled according to applicable State Fertilizer Laws. The following information must be shown on the fertilizer bag or package or on a tag:
  - 1. Name and address of manufacturer.
  - 2. Name, brand or trademark.
  - 3. Number of net pounds of ready mixed material in the package.
  - 4. Chemical composition or analysis.
  - 5. Guarantee of analysis.
  - 6. If a brand or grade of fertilizer is delivered in the bulk, a written statement having the above listed information must accompany each load.

- B. Bermuda sod shall have a 27-3-10-analysis fertilizer containing a minimum 2% magnesium, 2% water-soluble magnesium, 2% manganese, 1.5% iron, 3% sulfur and other trace secondaries. A minimum of 6.0 units shall be slow release nitrogen. At least 50 percent of the phosphoric acid shall be form normal super phosphate or an equivalent source, which will provide a minimum of two units of sulfur. Unless otherwise approved by the LANDSCAPE ARCHITECT, Type I fertilizer shall be used.

## **2.03 SOD**

- A. Bermuda sod shall be as specified on the Landscape Drawings.
- B. Pad Size: Cut individual pieces of sod to the supplier's standard width and length. Maximum allowable deviation from standard widths and lengths shall be five percent. Extensively broken pads and torn or uneven ends will not be acceptable.
- C. Strength of Sod Sections: Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10 percent of the section.
- D. Moisture Content: Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- E. Time Limitations: Sod shall be harvested, delivered and installed within a period of 72 hours.
- F. Class of Sod and Composition: The sod used shall be as specified on the plans; nursery grown and well rooted. Each shipment shall be accompanied by a certification verifying the sod as specified. Sod shall be subject to review by the LANDSCAPE ARCHITECT prior to being cut and again before it is laid. The consistency of adherent soil shall be such that it will not break, crumble, or tear during handling and placing of the sod.
- E. Each piece of sod shall be well covered with turf grass, free from noxious weeds and other objectionable plants and shall not contain thatch quantities and substances injurious to growth. The grass shall be mown to a length of no less than 1½-inch nor more than four inches before the sod is cut.
- F. Comply with State and Federal laws with respect to inspection for plant diseases and insect infestation. An inspection certificate to this effect is required by law and shall accompany each shipment and on arrival shall be filed with the LANDSCAPE ARCHITECT.
- G. Thickness of Cut: Machine cut sod at a uniform soil thickness of three-fourths inch, plus or minus one-fourth inch, at the time of cutting. Measurement for thickness excludes top growth and thatch.

## **PART 3      EXECUTION**

### **3.01 GRADE AND SOIL PREPARATION**

- A. Remove all debris, brush, large roots, weeds, and old tree stumps. If extensive grading is needed, remove topsoil and stockpile it for replacement after the rough grade is established. Rough grade should conform to final grade after topsoil is replaced. (See Earthwork Section for required soil preparation in regards to deleterious material.) Replaced topsoil will be sifted as specified.
- B. Remove all debris, brush, large roots, weeds and any other deleterious materials from the top six inches of soil.
- C. Verify grades established during final site preparation as being true to finish contours shown, and maintain such areas until the effective date to begin sodding operations. In such instances where a split responsibility exists between grading and sodding contractors, it shall be the responsibility of the sodding CONTRACTOR to maintain a suitable grade for sodding once they have accepted the grade provided to him.
- D. No sod shall be placed on soil which has been treated with soil sterilants until sufficient time has elapsed to permit dissipation of toxic materials. The CONTRACTOR assumes full responsibility for any loss or damage to sod or seed arising from improper use of sterilants or due to their failure to allow sufficient time to permit dissipation of toxic materials, whether or not such sterilants are specified herein.
- E. Perform a soil analysis on each area to be sodded and shall include a lime requirement analysis if pH is below 6.2. If fill material is to be brought in, it must be tested prior to delivery to the site. Obtain a representative soil sample by collecting samples from 10 locations in the area from the top six inches of soil. Samples shall be combined and thoroughly mixed. Submit a portion for analysis at a Soil Testing Laboratory approved by the LANDSCAPE ARCHITECT with a copy of the testing results given to the LANDSCAPE ARCHITECT for approval. The acceptable pH range shall be 6.2-7.2. OWNER shall pay for this testing.
- F. If the soil is too acidic, (pH too low), dolomite limestone (dolomite) shall be used for increasing soil pH. Application shall be based on a lime requirement analysis which considers both soil buffering capacity and soil pH value.
- G. If the soil is too alkaline, (pH too high), a water degradable form of sulfur shall be used for decreasing soil pH. Application shall be based on soil analysis.
- H. Sifting: All areas to be sodded with bermuda will have the top four inches of topsoil sifted to remove all sticks, stones, and debris greater than one-eighth inch in diameter. No sprigs, shall be set until sifting is complete.
- I. Placing Topsoil: Areas to be sodded shall have a minimum topsoil cover of eight inches. Topsoil shall not be placed when the subgrade is excessively wet, extremely dry, or in a condition otherwise detrimental to the proposed planting or to proper grading.

- J. Tillage: Thoroughly till the area to be sodded to a depth of 12 inches using a plow and disc harrow or rotary tilling machine until a suitable bed has been prepared and no clods or clumps remain. The seed bed should be soft enough to permit penetration of the grass stolons to an adequate depth. The prepared soil shall be loose and reasonably smooth and reasonably free of large clods, roots, and other material which will interfere with the work or subsequent mowing and maintenance operations. No subsequent operations shall be commenced until the LANDSCAPE ARCHITECT has approved the condition of the prepared areas.
- K. Applying Fertilizer: Apply granular fertilizer at the rate of one pound per 1000 square feet and shall be thoroughly incorporated into the top three to four inches of soil for spriggings. Spread the fertilizer uniformly to one or more applications as specified below. The rate and number of applications may vary based on weather conditions and shall be determined by LANDSCAPE ARCHITECT.
1. An initial application of 500 pounds per acre with 10-20-30 fertilizer.
  2. One week after initial fertilizing and sprigs are planted, fertilize with an application of ammonia nitrate at the rate of 150 pounds per acre.
  3. Apply three additional applications of ammonia nitrate if soil pH is low (below 6.2), ammonia sulfate if soil pH is high (above 7.2), each at the rate of 150 pounds per acre, beginning one week after the first application of ammonia nitrate/ammonia sulfate specified in paragraph above, each application applied one week apart, resulting in a total of four applications of ammonia nitrate/ammonia sulfate fertilizer.
  4. On the fourth week after planting, fertilize with a complete (10-10-10) fertilizer at the rate of 50 pounds per acre. Repeat the above cycle (three applications 33-0-0 one week apart followed by 10-10-10 or 8-8-8) until the grass has covered. To avoid burning, fertilize when the grass is dry and water immediately following application.
- L. Soil Fumigation: Sterilize the planting area after tillage, but prior to final grading. Apply Methyl Bromide at the rate of one pound (0.45 kg) per 1000 square feet (9.3m<sup>2</sup>). Treated areas must be covered with a polyethylene cover under which methyl bromide is injected. Follow manufacturer's recommendations and precautions for any soil fumigant used.
- M. Final Grading: Final grade just prior to planting to provide a smooth planting bed. Rake, harrow, or use a grading box to leave the soil surface smooth. Follow contours from design drawings. Roll or cultipack the area to firm the planting bed. Irrigation can be used to settle the soil before planting. Avoid rolling or cultipacking wet soil as compaction may occur.

### **3.02 FERTILIZATION**

- A. Apply fertilizer at a minimum rate of 10 pounds per 1,000 square feet and required additional soil amendments in accordance with the soil sample results.

- B. Incorporate fertilizer and soil amendments into the top two to three inches of soil and rake to provide a final smooth even grade.

### **3.03 SODDING**

- A. Sodding Time: Place sod when the ground is in a workable condition and temperatures are less than 90 degrees Fahrenheit (when possible). Sod shall not be placed during extended drought, unless irrigation is available.
- B. Sod cut for more than 48 hours shall not be used without the concurrence of the LANDSCAPE ARCHITECT. Keep all sod moist and protected from exposure to sun, wind and freezing prior to placing.
- C. Moistening the Soil: During periods of high temperature and after all unevenness in the soil surface has been corrected, lightly irrigate the soil immediately prior to laying the sod.
- D. Starter Strip: Lay the first row of sod in a straight line with subsequent rows placed parallel to and tightly against each other. Stagger lateral joints to promote more uniform growth and strength. Exercise care to insure that the sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air-drying of the roots.
- E. Sloping Surfaces: In ditches place the sod with the longer dimension perpendicular to the flow of water in the ditch. On slopes, starting at the bottom of the slope, place the sod with the longer dimension paralleled to the contours of the ground. Bury the exposed edge of the sod shall be buried flush with the adjacent sod. On slopes where the sod may be displaced during sodding operations, the workmen shall work from ladders or treaded planks.
- F. Staking Sod: Stake sod on all slopes of 2:1 or steeper. Stake sod with not less than four stakes per square yard with at least one stake for each piece of sod. Stakes shall be of lath or similar material, pointed, and driven with the flat side against the slope, six inches into the ground, leaving approximately one-half inch of the top above the ground.
- G. Water sod immediately after installation to prevent excessive drying during progress of the work. CONTRACTOR will be responsible for watering sod through Final Acceptance.
- H. Finished Transitions: At no time will backs of curbs or gaps in transitions (i.e., walks, beds, structures, etc.) be accepted. All transitions will be horizontally and vertically smooth and congruent with adjacent transitions. Cut all buds with a machete or similar tool to provide a neat, uniform, and consistent bedline. Bedlines shall reflect the shape and form indicated on the drawings and shall be laid to the satisfaction of the LANDSCAPE ARCHITECT.

### **3.04 WATER AND ROLLING**

- A. Roll sod with a mechanical roller of no less than two tons as sodding is completed in any one section. All sod areas must be rolled to provide an even sodded appearance with no high and low points.
- B. Immediately following rolling operations irrigate the sod thoroughly to a depth sufficient that the underside of the new sod pad and soil immediately below the sod are thoroughly wet.
- C. No equipment or vehicles shall be allowed to travel over the sodded areas after sodding by CONTRACTORS on the job site.
- D. Supplemental Watering: During periods of intense heat or abnormal rainfall, supplemental watering may be required prior to acceptance of the work.
- E. CONTRACTOR will be responsible for watering in all sodded areas and assure that sodded areas receive 2 to 2½ inches of water per week through Final Acceptance. CONTRACTOR shall make no claim for the loss of sod due to the failure of the irrigation system (if applicable).

### **3.05 MAINTENANCE**

- A. Begin maintenance immediately following the last operation of sod installation. Maintenance includes watering, mowing, replanting, and all other work necessary to produce a uniform strand of grass. The maintenance program will continue for four months or until the newly sodded areas are fully-grown in and have passed final completion inspection by the LANDSCAPE ARCHITECT.
- B. Pest Management: Apply Oftanol at the following rates per 1000 square feet, depending on the formulation used: 5G at 0.9 pounds, 1.5G at three pounds or 2E liquid at three fluid ounces. The application shall be watered into the soil with approximately one-half to one inch of water. All pesticides shall be used in a manner consistent with manufacturer's specifications.
- C. Insects: Inspect the grass daily for the presence of worms. For control, use insecticides such as Diazinon, Dursban, Lannate, and Proxol. Should other turf insects become a problem contact LANDSCAPE ARCHITECT for control recommendations. All insecticides shall be used in a manner consistent with manufacturer's specifications.
- D. Weeds: Begin a weed control program three to four weeks after sod installation. However, do not begin spraying for weeds if the Bermuda grass has not greened up and become established. Also, be sure the soil contains adequate moisture before each application of spray. All herbicides shall be used in a manner consistent with manufacturer's specifications.
  - 1. For control of grassy weeds such as crabgrass, goosegrass, and watersedge apply Monosodium Methanearsonate (MSMA) at the rate of one to two pounds active ingredient per acre. Repeat the application every five to seven days until the weeds are controlled. For grassy weed control use MSMA at the rate of one pound per acre.

2. Broadleaf weeds such as mousseear, chickweed, pennyport and Carolina geranium can be controlled using Buctril at the rate of one-half pound active ingredient per acre. 2-4D should be used at the rate of 1/8 pound per acre. Of the two materials, Buctril is safer than 2-4D for use on Bermuda grass; however, for effective control, it must be applied when the weeds are in the one to two leaf stage.
- E. Water: The CONTRACTOR will assure that all sodded areas are receiving a consistent and uniform amount of water during the maintenance period. CONTRACTOR shall test, if necessary, the irrigation system and check the controller so that the newly sodded areas are receiving 2 to 2½ inches of water per week. The sodding CONTRACTOR is responsible for assuring and providing, if necessary, water to all sodded areas during the maintenance period.
- F. Mowing: Mow at regular intervals using a reel-type mower set to cut at one inch for 419 Bermuda.
- G. Rolling: To provide a smooth, firm surface for future play and operation of mowing equipment, all areas will need to be rolled. The first rolling should begin when the grass is approximately 25 to 50 percent covered.

### **3.06 WARRANTY**

- A. The CONTRACTOR as part of their contract, shall furnish three written guarantees warranting all materials, workmanship, and products for a period of not less than 60 days from the time of Final Acceptance.
- B. The CONTRACTOR will repair all washouts that occur within the warranty period at no additional cost to the OWNER. Repairs that are considered excessive by the LANDSCAPE ARCHITECT and the OWNER (i.e., damage associated with or caused by other Contractors) shall be subject to review and negotiation between the OWNER and CONTRACTOR.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 BASIS OF PAYMENT**

- A. CONTRACTOR will submit a lump sum bid and shall receive full compensation for conforming to the provisions of this section and related drawings. Lump sum paid will be for the complete installation as shown and specified, including any addenda or change orders.
- B. No additional compensation will be allowed. A complete unit cost breakdown, based on a square foot unit, shall be included as a separate item and submitted with the CONTRACTOR's bid. The OWNER reserves the right to reject any bid that does not include said unit cost breakdown.

**END OF SECTION 02488**

**SECTION 02703  
TRENCHING AND BACKFILLING FOR PIPING**

**PART 1    GENERAL**

**1.01    SCOPE**

- A.    The work specified in this section consists of the excavation, bedding, and backfilling of trenches for water main, storm sewer, sanitary sewer, force main, irrigation lines, and utility lines. Also included is the excavation and backfilling of pertinent structures, such as manholes, inlets, pump stations, etc.

**1.02    REFERENCES**

- A.    Referenced standards or specifications such as ASTM, AASHTO, or AWWA, shall be the latest edition.
- B.    WilsonMiller Specifications Sections:  
  
      02817 CLEARING AND GRUBBING  
      02820 EXCAVATION AND EMBANKMENT
- C.    Attachments  
  
      Figure A (Section 02703)

**1.03    SUPPLEMENTAL REQUIREMENTS**

- A.    The requirements in this section are the minimum for this project. Any additional requirements stated in the Contract Documents or otherwise specified by the manufacturer or any governmental agency in a permit, code, or ordinance shall take precedence over the requirements of this section.

**1.04    SUBSURFACE CONDITIONS**

- A.    The CONTRACTOR shall be responsible for determining the subsurface conditions in areas where excavation can be anticipated. The type of soil, depth and thickness of rock and unsuitable materials, ground water table, and other factors that affect cost shall be evaluated prior to submitting a bid.
- B.    The method used to determine subsurface conditions shall be the responsibility of the CONTRACTOR. Soil borings (if provided) only supply information in the exact location of each boring; therefore, on-site exploration of the subsurface is the CONTRACTOR's responsibility. All on-site exploration shall be scheduled with the OWNER and coordinated with jurisdictional agencies and utility companies.

**1.05    PROTECTION**

- A.    With the exception of sheeted excavations for deep pipe installations, wet wells or other poured in place construction activity, all excavations or trenches shall be backfilled immediately after the work is completed. The CONTRACTOR shall plan the daily construction activity whereby trenches are backfilled and compacted in accordance with the accompanying specifications at the end of each work day. Should it be necessary for reasons other than standard construction procedures to leave an excavation open the CONTRACTOR shall isolate and protect the workers and the general public from the entire excavation by barricades, fences, signs, lights or other devices required by the contract documents and/or local agency codes.



- B. The CONTRACTOR shall comply with the applicable trench safety standards specifically set forth in Florida's Trench Safety Act.
- C. Pavement, sidewalk, driveway, curb and gutter, and other structures shall be protected from damage during excavation wherever possible and as directed in the Contract Documents.

## **PART 2    PRODUCTS**

### **2.01    BEDDING MATERIALS**

- A. Crushed stone bedding material: Crushed, washed, and graded in accordance with ASTM C-33, gradation 67.
- B. Sand bedding: Clean sand, free of clay, silt, debris, roots, vegetation, or rock larger than one-half inch in diameter.
- C. Clean 3/8 inch washed shell material.

### **2.02    BACKFILLING MATERIALS**

- A. Select fill: Materials excavated from the limits of construction or imported that conform to AASHTO Standard M-145, Groups A-1 and A-3 and free of rocks or gravel, clay, silt, debris, roots and vegetation.
- B. Common fill: Material that conforms to AASHTO Standard M-145, Groups A-1, A-2, or A-3, free of rocks or gravel, clay, silt, debris, roots and vegetation.

## **PART 3    EXECUTION**

### **3.01    PREPARATION**

- A. Investigate existing conditions and identify line and grade stakes as applicable. Arrange for placement of materials required to minimize the duration of open trenches or excavated areas.
- B. Install well points or other approved methods of dewatering as required so that the discharged water complies with all pertinent ordinances, codes, permits, or requirements of the Contract Documents.
- C. Implement traffic control and protective devices as may be applicable.
- D. For pipe lines placed above the natural ground, embankment shall be placed and compacted to an elevation of at least two feet above the top of the pipe and to a width equal to four pipe diameters prior to trench excavation. The minimum side slopes shall be six feet (horizontal) to one foot (vertical).

### **3.02    CLEARING AND GRUBBING**

- A. Prior to trench excavation, the existing surface that will be disturbed by the excavation operation shall be cleared and grubbed in accordance with WilsonMiller Specification Section 02817 CLEARING AND GRUBBING.

- B. The limits of clearing and grubbing for this section shall be as shown on the plans or as otherwise specified in the Contract Documents. Where the clearing limits are not shown or stated, the limits of clearing and grubbing shall be the smallest area that will facilitate the construction of work specified.

### **3.03 TRENCH WIDTH**

- A. Trenches for pipe construction shall be excavated to a width that will provide enough working space next to the pipe and facilitate proper compaction of backfill material around the haunches of the pipe. All such trench excavation shall comply with the manufacturer's recommendations for the type of pipe used.
- B. Excavation for structures such as manholes, inlets, pump stations, etc. shall be large enough to provide adequate working room. A minimum distance of two feet shall be provided between the outside edge of the structures and the side or wall of the excavation to allow for proper backfilling and compaction.

### **3.04. EXCAVATION**

- A. All trenches shall be excavated by open cut unless otherwise indicated in the Contract Documents.
- B. The length of the open cut trench that is excavated ahead of the pipe laying operation shall not exceed half of the normal daily production length. The excavation and pipe laying operation shall be coordinated so that all pipe laid in one day is fully backfilled except for the last length of pipe in an unfinished run between structures.

### **3.05 ROCK EXCAVATION**

- A. Where rock is encountered during the performance of work specified in this section, the rock shall be excavated in accordance with WilsonMiller Specifications Section 02820 EXCAVATION AND EMBANKMENT.

### **3.06 UNSUITABLE MATERIALS**

- A. Where materials unsuitable for backfilling are encountered during trench excavation, these materials shall be separated from the suitable materials and disposed of off-site or utilized on-site in embankment areas as authorized by the OWNER's Representative.

### **3.07 REPLACEMENT MATERIAL**

- A. Where unsuitable material including rock larger than six inches is excavated and hauled off-site, replacement material shall be acquired from on-site excavation as provided by the Contract Documents or as authorized by the OWNER. Where replacement material is not available from the site, the CONTRACTOR shall furnish fill material from an off-site borrow source. Only materials that conform to Article 2.02 of this section may be used for backfilling operations unless otherwise specified in the Contract Documents or authorized in writing by the OWNER's Representative.

### **3.08 PREPARATION OF TRENCH BOTTOM**

- A. Where rock is encountered at the bottom of the trench, the trench shall be undercut to a depth of at least six inches below the bottom of the pipe to allow for a bedding cushion above the rock.

- B. Where muck, roots or other organic materials are encountered at the bottom of the trench, the trench shall be undercut to remove the unsuitable material to the satisfaction of the OWNER's Representative.
- C. The CONTRACTOR shall dewater the excavation operation as required to provide a dry trench bottom. Prior to beginning work CONTRACTOR shall prepare their dewatering plan and obtain all necessary permits.

### **3.09 BEDDING**

- A. Where the exposed material at the bottom of the trench meets the requirements of Article 2.01 this section, the existing material may be used as bedding, provided it is compacted.
- B. Where the bottom of the trench has been undercut to remove rock or unsuitable material, the bottom shall be brought up to grade by placing and compacting bedding materials conforming to the requirements of Article 2.01 this section.
- C. In exceptionally wet conditions, the CONTRACTOR may request permission from the OWNER's representative to lay the pipe in water. If that request is authorized, the CONTRACTOR shall undercut the existing bottom a minimum of six inches and replace with "bedding material" conforming to Article 2.01A or 2.01C this section. This bedding material shall be tamped and consolidated to provide a solid and unyielding base for the pipe. During this operation, the CONTRACTOR shall continue the dewatering process to facilitate adequate installation of the pipe or structure and to permit observation of the process by the OWNER's representative. The additional undercut excavation, crushed stone bedding, and other associated costs shall be at the CONTRACTOR's expense and no extra compensation will be allowed.

### **3.10 BACKFILLING**

- A. Backfilling of pipe trenches shall be done in three stages as follows:
  - 1. First Stage: Material above the bedding and beneath the haunches compacted in six-inch layers.
  - 2. Second Stage: Material along the sides of the pipe up to at least one foot above the top of the pipe compacted in six-inch layers.
  - 3. Third Stage: Material above the second stage up to the bottom of the subgrade or the finished surface as applicable compacted in 12-inch layers.
- B. Backfilling of structures shall be done in 12- inch compacted layers up to the top of the completed or partially completed structure.
- C. Materials used for backfilling shall comply with the requirements of Article 2.02 this section or as otherwise authorized in writing by the OWNER's representative. For backfilling of pipe, "Select Fill" shall be used for the first and second stages. "Common Fill" shall be used for the third stage of pipe backfill and for backfilling structures.

### **3.11 COMPACTION**

- A. The compaction requirements for backfilling pipe trenches and around structures are listed below under the following categories. These requirements are the minimum percentages of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557).

1. Under and adjacent (within ten feet) to pavement shall be 95 percent except within three feet of bottom of subbase grade it shall be 98 percent.
2. Not under pavement: Any area outside the 10 feet referred to above shall be 95% for all stages.

These requirements are the minimum percentages of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557).

3. Under and adjacent (within ten feet) to structures shall be 95 percent except within three feet of finished grade it shall be 98 percent.
- B. The CONTRACTOR shall add water or dry out the material used for backfilling until the moisture content is within two percent of the optimum moisture required to achieve the maximum compaction.
- C. A density test shall be taken for each 300 lineal foot section of trench or part thereof for each layer.
- D. A density test shall be taken for every other layer for each structure.

#### **PART 4    MEASUREMENT AND PAYMENT**

##### **4.01    BASIS OF PAYMENT**

- A. Unless otherwise specified in the Contract Documents, the cost of trenching and backfilling shall be included in the various lump sum and unit prices in the contract.

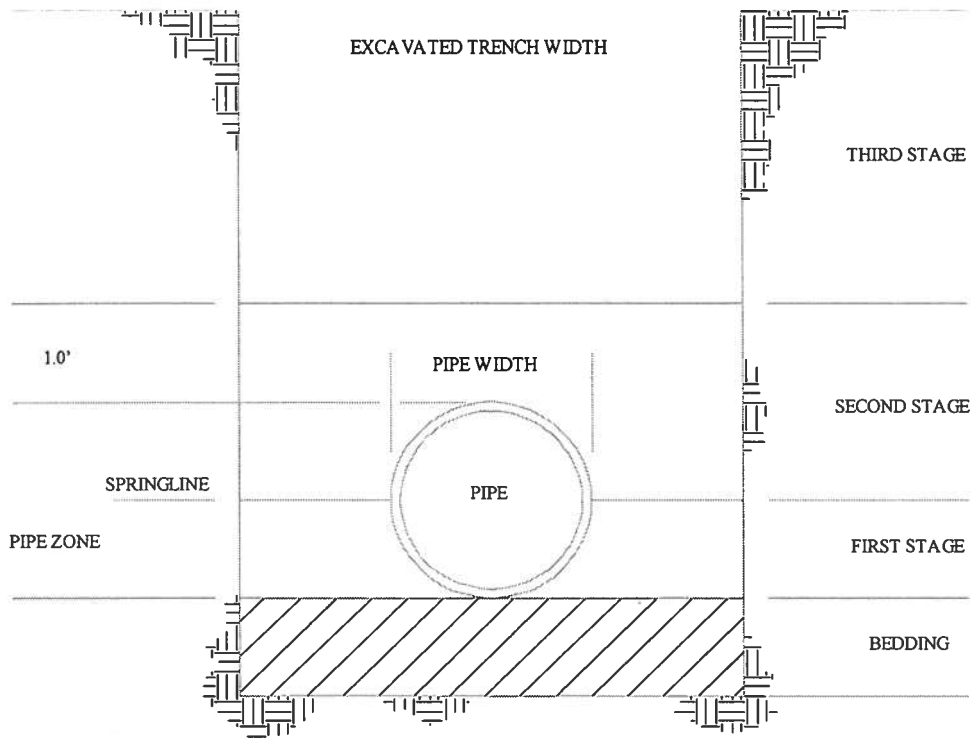


FIGURE A

N.T.S.

**END OF SECTION 02703**

**SECTION 02704  
TEMPORARY TRAFFIC CONTROL**

**PART 1      GENERAL**

**1.01    SCOPE**

- A.    This section specifies temporary traffic control for the project as shown on the plans and/or called for in the specifications. In general, all temporary traffic control shall comply with the latest editions of the Florida Department of Transportation's Standard Specifications for Road and Bridge Construction, herein referred to as FDOTSPEC, the Florida Department of Transportation's Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System, Index 600, and the Federal Highway Administration's Manual on Uniform Traffic Control Devices, Part 6, Temporary Traffic Control.
  
- B.    The main objective of this section is to provide safe and efficient movement of vehicles, bicyclists and pedestrians through or around the work zone, and protect workers and equipment from the traveling public.

The secondary objective of this section is to provide efficient completion of the construction or maintenance activity causing the interruption of normal roadway use, and protection of the work in progress.

**1.02    SPECIFICATIONS AND STANDARDS**

- A.    The work specified in this section shall be in accordance with the documents identified in Article 1.01.A. and the requirements of the authority having jurisdiction over the operation and maintenance of the roadway, bicycle and/or pedestrian path.

**PART 2      PRODUCTS**

**2.01    MATERIALS**

- A.    All materials used for temporary traffic control, including but not limited to signs, signals, pavement markings, channelizing devices, warning lights and barriers shall meet the requirements of the documents identified in Articles 1.01.A. and 1.02.A.

**PART 3      EXECUTION**

**3.01    GENERAL REQUIREMENTS**

- A.    All work required for temporary traffic control shall be executed in accordance with the requirements of the documents identified in Articles 1.01.A. and 1.02.A.

### **3.02 SPECIFIC REQUIREMENTS**

- A. In addition to the CONTRACTOR providing a worksite traffic supervisor in accordance with FDOTSPEC Section 102-3.2, the Traffic Control Plan (TCP) shall be installed, maintained and removed under the direct supervision of an individual who is certified by a Florida Department of Transportation (FDOT) approved training agency, which meets the FDOT's maintenance of traffic training requirement for intermediate or advanced training.
- B. The CONTRACTOR will maintain the existing number of lanes of traffic in each direction at all times by using existing or constructing temporary pavement. There shall be no lane closures or road closures without the prior written approval of the ENGINEER and the authority having jurisdiction over the operation and maintenance of the roadway.
- C. The CONTRACTOR shall not provide detours to re-route vehicle, bicycle and/or pedestrian traffic around the work zone without prior written approval from the ENGINEER and the authority having jurisdiction over the operation and maintenance of the roadways.
- D. If approved by the ENGINEER and the authority having jurisdiction over the operation and maintenance of the roadway, the CONTRACTOR may concurrently construct portions of the work from different phases.
- E. If the CONTRACTOR cannot maintain the existing access to a current residence or business, then the CONTRACTOR shall provide an alternate access, as approved by the ENGINEER.
- F. All surfaces used to maintain traffic through the work zone shall be paved.
- G. Any alterations to the approved traffic patterns must be reviewed and approved by the ENGINEER prior to implementation, unless the alterations are required to avoid eminent danger to the public or the workers present within the approved work zone.
- H. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 BASIS OF PAYMENT**

- A. Payment for temporary traffic control shall be on a lump sum basis in accordance with the accepted bid. Such payment shall constitute full compensation for furnishing all labor, materials, and equipment necessary to complete the MOT Plan in accordance with the plans and specifications.

**END OF SECTION 02704**

**SECTION 02705  
RESTORATION AND GENERAL REQUIREMENTS**

**PART 1    GENERAL**

**1.01    SCOPE**

- A. The work specified in this section consists of restoring existing surfaces or any improvements such as but not limited to pavement, curb and gutter, sidewalk, structures, signs, or landscaping damaged during construction.

**1.02    SPECIFICATIONS AND STANDARDS REFERENCE**

- A. Any reference to a supplementary specification or standard such as ASTM, AWWA, AASHTO, is intended to be a reference to the latest edition of that specification or standard.
- B. All references to "FDOTSPEC" shall mean the latest edition of the "Florida Department of Transportation Standard Specifications for Road and Bridge Construction."
- C. WilsonMiller Specifications Section:

02703 TRENCHING AND BACKFILLING FOR PIPING

**PART 2    PRODUCTS**

**2.01    MATERIALS**

- A. Flexible Pavement: Comply with requirements of Sections 901, 902, 911, 913, 914, 916, and 917 of the FDOTSPEC.
- B. Concrete Pavement, Driveway, Sidewalk, Curb and Gutter: Comply with requirements of Sections 901, 902, 921, 923, 924, and 925 of the FDOTSPEC.
- C. Grassing: Comply with requirements of Section 981, 982, and 983 of the FDOTSPEC.

**PART 3    EXECUTION**

**3.01    GENERAL**

- A. Existing property damaged during construction shall be restored to a condition at least equal to the original condition of the property, unless otherwise specified in the Contract Documents.
- B. Existing roadway or drainage improvements damaged within a roadway or drainage right-of-way or easement shall be restored in accordance with the requirements of the state, county, and city agencies having jurisdiction thereof.



### **3.02 UNDERGROUND FACILITIES**

- A. Existing underground utilities and drainage systems damaged during construction shall be immediately repaired to the specifications of the owner of the damaged system. Where the utility owner elects to make said repairs under their direction, the CONTRACTOR shall pay for such repair costs directly.
- B. Where damage to existing underground utilities is anticipated due to unavoidable conflicts, the CONTRACTOR shall construct their work so as to cause the least amount of interruption of service as possible.
- C. Where construction changes the land surface elevation and existing valve boxes are present, the valve box will be extended or reduced by means of new extension pieces of proper length for the finished grade.

### **3.03 TRENCHING AND BACKFILLING**

- A. Any trenching and backfilling required to satisfy the requirements of this section shall be in accordance with Section 02703, TRENCHING AND BACKFILLING FOR PIPING.

### **3.04 PAVEMENT CUTS**

- A. On dead end streets, collector streets, and high traffic streets, trenching and pipe laying shall be performed in such a manner that at least one-way traffic is maintained at all times.
- B. All trench lines across existing pavements, driveways, sidewalks, curbs, etc. shall be saw cut in straight parallel lines prior to trench excavation.
- C. CONTRACTOR shall exercise care to minimize amount of pavement, sidewalk, driveways, and curbing to be removed.

### **3.05 CONCRETE PAVEMENT, CURB AND GUTTER, ETC.**

- A. Concrete pavement, driveway, sidewalk, and curb and gutter damaged during construction shall be restored to the same dimensions as that removed or as specified in the Contract Documents. All such restoration shall be in accordance with the applicable Sections 345, 350, 520, 522, of FDOTSPEC.
- B. Prior to placing concrete, the subgrade shall be compacted to at least 98% of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557).

### **3.06 FLEXIBLE PAVEMENT**

- A. Stabilized subgrade damaged during construction shall be restored in accordance with Section 160 of FDOTSPEC. The restored stabilized subgrade shall have a minimum bearing value of LBR-40, and be compacted to at least 98% of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557).

- B. Soil cement or shell base damaged during construction shall be restored in accordance with Section 200 of FDOTSPEC. The minimum density of the restored base shall be 98% of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557). After completion of the base course, a bituminous prime coat shall be applied in accordance with Section 300 of FDOTSPEC when applicable prior to placement of asphalt surface course.
- C. Asphalt surfaces damaged during construction shall be replaced with a similar surface in accordance with Section 330 of FDOTSPEC. The material used shall be the same type and the thickness of that damaged, except that the minimum thickness shall be one inch. In the case of multiple layers, each layer or course of the damaged asphalt surface shall be reconstructed to duplicate the original.

### **3.07 LANDSCAPING AND MISCELLANEOUS**

- A. Trees and bushes damaged during construction shall be removed and replaced with equal size and type by the CONTRACTOR at their expense unless otherwise specified in the Contract Documents.
- B. Grassed areas damaged during construction shall be repaired with the same type sod unless otherwise specified in the Contract Documents.
- C. Sodding and grassing and mulching operations shall begin within a maximum of three (3) weeks after utility installation, except in cases of front and back slopes which shall be done immediately following installation completion. Any yards or part of right-of-way in front of private property, that has a grass mat, shall be re-sod with like sod. CONTRACTOR shall maintain disturbed areas until acceptable vegetation is re-established.
- D. Areas without established grass mats in front of vacant lands shall be restored by seeding and mulching. The grass mat shall be restored to the required design or finished grade to permit proper drainage.
- E. Unimproved areas such as an open field or lot having its surface disturbed during construction shall be graded to duplicate the existing conditions and seeded and mulched unless otherwise specified in the Contract Documents.
- F. Any damage to an existing irrigation system caused by the construction operations shall be repaired by the CONTRACTOR prior to the installation of sod, seed, or other landscaping unless otherwise specified in the Contract Documents.
- G. Mailboxes, railroad ties, or any other miscellaneous items damaged during construction shall be repaired to the satisfaction of the OWNER's representative unless otherwise specified in the Contract Documents.

### **3.08 DENSITY TESTS**

- A. Density tests shall be performed in accordance with 3.08B and elsewhere in the specifications as may apply. The CONTRACTOR shall pay for all tests related to restoration work.

- B. Field density tests shall be required for each stage of fill, stabilized subgrade, soil cement base, and asphalt surface in accordance with the frequency listed below unless otherwise authorized by the OWNER's representative.
- \* Transverse Trench Crossing - one/location/stage
  - \* Longitudinal Trench - one/300 LF/stage
  - \* Pavement Repair - one/1000 SY/stage
- C. Concrete shall be tested for slump, air content, and compressive strength every 50 cubic yards for continuous pours. For smaller volume work, the same tests shall be taken for each separate pour. A minimum of four (4) sample cylinders shall be made when testing for compressive strength.

### **3.09 GENERAL REQUIREMENTS**

- A. Maintenance of Service - CONTRACTOR shall provide facilities and be responsible for protection of all structures, buildings and utilities, underground, on the surface, or above ground, against trenching, dewatering or any other activity connected with work covered by this modifications of existing utilities, CONTRACTOR shall provide for maintaining continuous water electric, telephone, gas, sewage and other utilities, to all present customers of such utilities unless approval is obtained in writing from the utility company or OWNER for the interruption of such services.
- B. Existing Facilities - Underground structures shown on the plans are according to the best available information, but it shall be the responsibility of the CONTRACTOR to acquaint himself with the exact location and to avoid conflict with all existing facilities. Where underground structures are damaged, they shall be immediately repaired to the specifications of the owner of the utility. If the owner of the utility elects to make such repairs with their own forces, CONTRACTOR shall make arrangements as to protect the OWNER from all damages. Where such conflicts are unavoidable, every effort shall be made to construct the work so as to cause as little interference as possible with services rendered by the structure disturbed.
- C. Utility Installation Permits - CONTRACTOR shall obtain necessary permits for construction across public and private property, streets, railroads, telephone lines, power lines, etc. CONTRACTOR shall abide by all rules, regulations and requirements of the owner of such property in regard to construction under this contract, including giving of notices, provisions for inspection and employment of such methods of construction as may be required. Costs of any permits shall be incidental to construction and reflected in unit prices bid.
- D. Work in State Rights-of-Way - Construction in state rights-of-way shall comply with the State of Florida Department of Transportation (FDOT) Utility Accommodation Guide.
- E. Work in County/City Rights-of-Way - Construction in county/city rights-of-way shall comply with the utility accommodation manual for the agency having jurisdiction.

- F. Clearing of Excavation Corridor - Only items necessary to provide adequate work space including space for hubs, batter boards, and equipment shall be removed within the right-of-way, easement, or designated construction corridor. Trees, shrubbery, poles, mailboxes, and other items not to be removed shall be protected from damage during construction. When necessary to cut tree roots and branches, such cutting shall be performed with saws in a neat and workmanlike manner.

**PART 4    MEASUREMENT AND PAYMENT**

**4.01    BASIS OF PAYMENT**

- A. There shall be no separate payment for any work defined in this section. The cost of any such restoration work shall be included in the various work items that necessitate the restoration unless otherwise specified in the Contract Documents.

**END OF SECTION 02705**

**SECTION 02707  
STORM SEWERS, PIPE AND STRUCTURES**

**PART 1      GENERAL**

**1.01 SCOPE**

- A. Work specified in this section consists of furnishing and installing a storm drainage system with all the component parts specified in the Contract Documents. Included are storm sewers, pipe culverts, manholes, crossing boxes, inlets, catch basins, pipe end treatments, restoration, and other similar items defined in this section.

**1.02 SPECIFICATION AND STANDARDS REFERENCE**

- A. Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc., are referenced, such references shall be the latest edition.
- B. WilsonMiller Specifications Sections:  
  
02703 TRENCHING AND BACKFILLING FOR PIPING  
02705 RESTORATION AND GENERAL REQUIREMENTS  
03030 CONCRETE CONSTRUCTION
- C. All references to "FDOTSPEC" shall mean the latest edition of the "Florida Department of Transportation Standard Specifications for Road and Bridge Construction".
- D. All references to "FDOT INDEX BOOK" shall mean the latest edition of the "FDOT Roadway and Traffic Design Standards".

**PART 2      PRODUCTS**

**2.01 CORRUGATED ALUMINUM ALLOY CULVERTS**

- A. Aluminum alloy culvert pipe shall meet requirements of Section 945, FDOTSPEC. Where bituminous-coated aluminum pipe is specified, bituminous coating shall meet requirements of AASHTO M 190, for Type A, (Fully Bituminous Coated).

**2.02 CORRUGATED STEEL PIPE AND PIPE ARCH**

- A. Corrugated steel pipe, including round culvert pipe, pipe arch and under-drain, and coupling bands for each type, shall conform to requirements of Section 943, FDOTSPEC. Corrugated steel pipe shall be bituminous coated, both sides, in accordance with requirements of AASHTO M 190, Type A, (Fully Bituminous Coated).

**2.03 REINFORCED CONCRETE PIPE**

- A. Reinforced concrete pipe materials shall conform to Section 941, FDOTSPEC.

- B. Reinforced Concrete Pipe (Round) - Unless otherwise specified, reinforced concrete pipe shall meet the requirements of ASTM Designation C 76, "Standard Specification for Reinforced Concrete Pipe", Class III, Wall Thickness B. Lifting holes will not be permitted in pipe. CONTRACTOR shall only use pipe joint lubricants supplied by or recommended by pipe manufacturer. Lubricant shall be water-soluble, non-toxic, and inhibitor to bacterial growth, and shall be non-detrimental to the elastomeric seal and pipe. Mineral oil, petroleum jelly, hydrogenated vegetable fat (i.e. Crisco(r), cooking oil, grease, etc.) shall not be used. Joints for round reinforced concrete pipe shall be made by use of "O-Ring", round synthetic rubber gaskets meeting the requirements of Sections 430-7 and 942-1, FDOTSPEC. An 18-inch wide Mirafi wrap shall be centered on each joint.
- C. Reinforced Concrete Pipe (Elliptical) - Elliptical concrete pipe shall meet the requirements of ASTM C 507, except exceptions and modifications to ASTM C 76, as specified in Section 941-1.3, FDOTSPEC shall apply also to elliptical pipe. Standard elliptical pipe shall meet requirements of Table I for Class HE-III and special elliptical pipe shall meet requirements of Table I for Class HE-IV. Lifting holes will not be permitted in pipe. Joints for elliptical concrete pipe shall be designed in accordance with ASTM C443 and AASHTO M198 and provide a rubber gasketed watertight connection. For pipe sizes greater than 58" X 91" use same joint as arch pipe. An 18-inch wide Mirafi wrap shall be centered on each joint.
- D. Reinforced Concrete Pipe (Arch Pipe) - Arch concrete pipe shall meet the requirements of ASTM C 506, except exceptions and modifications to ASTM C 76, as specified in 941.1.3., FDOTSPEC shall apply where applicable to arch pipe. Lifting holes will not be permitted in pipe. Joints for arch concrete pipe - field joints for arch concrete pipe shall be made with a pre-formed plastic gasket material. Gasket material shall meet the requirements of Section 942-2, FDOTSPEC. Material shall be "Ram Nek" as manufactured by K.T. Snyder Co. or approved equal. An 18-inch wide Mirafi wrap shall be centered on each joint.

**2.04 CORRUGATED POLYETHYLENE PIPE**

- A. Corrugated polyethylene pipe shall meet the requirements of AASHTO M294 specification except size range shall be expanded through 36-inch diameter. Minimum pipe values shall be as follows:

DIAMETER	INTERIOR	PIPE STIFFNESS	N FACTOR
12"	Smooth	45 psi	.12
15"	Smooth	42 psi	.12
18"	Smooth	40 psi	.12
24"	Smooth	34 psi	.12
30"	Smooth	28 psi	.12
36"	Smooth	22 psi	.12

**2.05 MORTAR, BRICK, AND REINFORCING BARS**

- A. Mortar used for constructing and plastering manholes, catch basins, drop inlets and junction boxes shall meet the requirements of ASTM Specification Serial Designation C 270. CONTRACTOR shall use either a Portland cement-hydrated lime mixture cement or a Portland cement mixture with masonry cement added for

improved workability. However, the same materials must be used throughout the project. Mortar materials shall be proportioned by volume and shall be as follows:

One (1) part Type I Portland Cement - ASTM C-150

Three (3) parts Aggregate (sand) - ASTM C-144

Addition of masonry cement, ASTM C-91 will be permitted to improve workability of mortar.

- B. Brick used in construction of manholes, catch basins, drop inlets and junction boxes shall be Portland cement concrete meeting the requirements of ASTM Serial Designation C-55, Grade P II.
- C. All bars shall be deformed Reinforcing Steel and shall meet the requirements of Specifications for Billet-Steel Bars for Concrete Reinforcement (ASTM A-15), and to Specifications for Deformation on Deformed Steel Bars (ASTM A-305) for concrete reinforcement. All bars shall be lapped and placed in accordance with ACI Requirements and Specifications.

## **2.06 STRUCTURES**

- A. Structures shall be precast or cast in place. Work specified in this section shall consist of furnishing all concrete, reinforcing steel, ties, forms, labor, materials, and placing of all embedded pipe sleeves, fixtures, joist anchors, etc., necessary to complete the work shown on the plans and specified herein, all in accordance with the Southern Building Code and the American Concrete Institute Building Code Requirements for Reinforced Concrete (ACI 318). All concrete shall develop 3,000 psi compressive strength in 28 days. Coarse aggregate shall be no smaller than 1/2-inch in diameter.

## **2.07 IRON CASTINGS**

- A. Frames, covers and gratings shall be of the type and duty shown on the plans. Iron castings shall conform to ASTM A-48, Class 30, gray cast iron. All castings shall be true to pattern in form and dimension, free from faults or other defects. Bearing surfaces between cast frames, cover and grates shall be machined fitted together and match-marked to prevent rocking. All covers shall have a concealed type pick-hole (non-penetrating), and shall have the words "storm sewer" cast thereon.

## **2.08 CROSSING BOXES (CONFLICT BOXES)**

- A. Conflict boxes shall be constructed at the location and depth indicated on the plans and in accordance with details shown.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. Pipe and structures shall be constructed at the location and elevations specified on the plans and in accordance with the details specified in the Contract Documents.

### **3.02 TRENCHING AND BACKFILLING**

- A. Excavation, bedding, and backfilling of trenches during the construction of a storm drainage system shall comply with the requirements of WilsonMiller Specifications Section 02703, TRENCHING AND BACKFILLING.

### **3.03 MATERIAL HANDLING**

- A. Pipe and accessories shall be loaded and unloaded by lifting with hoists or skidding in a manner that will avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground. In distributing material at the site of the work, each piece shall be off-loaded near the place where it is to be laid in the trench.

### **3.04 PIPE LAYING**

- A. In general, corrugated metal pipe shall be installed in accordance with the Handbook for Steel Drainage and Highway Construction Products, published by the American Iron and Steel Institute. In general, concrete pipe shall be installed in accordance with the Concrete Pipe Installation Manual, published by the American Concrete Pipe Association.
- B. Laying of pipe in finished trenches shall be commenced at the lowest point, and shall progress up-grade. All pipe shall be carefully laid, true to the lines and grades given, with hubs up-grade and tongue end fully entered into the hub. When pipe with quadrant reinforcement, or circular pipe with elliptical reinforcement is used, pipe shall be installed in a position such that manufacturer's marks designating "top" and "bottom" of the pipe shall not be more than five degrees from the vertical plane through the longitudinal axis of the pipe. Any pipe that is not in true alignment or which shows any settlement after laying shall be taken up and re-laid without additional compensation. Pipe and joints shall be kept clean at all times.

### **3.05 SAND CEMENT RIP RAP**

- A. Where the plans and specifications call for sand cement construction, bags shall be made of burlap. Paper bags will not be permitted.

### **3.06 PIPE END TREATMENTS**

- A. Where storm drains connect to a lake, location of the headwall or end section shown on the plans shall be adjusted to fit the slope of the lake bank. Length of pipe at each end treatment shall be adjusted accordingly, and the quantity of pipe paid for shall be the actual length installed.
- B. If mitered ends are called for on the plans, mitered end section shall be constructed so that the top of the pipe end will match and intersect the designed slope of the lake bank, and the concrete collar slope shall conform to the mitered end detail.



- C. Storm drainage CONTRACTOR and lake excavation CONTRACTOR shall coordinate the location and installation of the headwall or mitered end section to be constructed at the lake bank. All "field adjustments" to end treatment location or elevation shall be approved by the ENGINEER of Record prior to construction.

### **3.07 JOINING ARCH CONCRETE PIPE**

- A. Joint Design - CONTRACTOR shall furnish the ENGINEER with details in regard to configuration of the joint and the amount of gasket material required to affect a satisfactory seal. Joint surfaces which are to be in contact with the gasket material shall not be brushed or wiped with a cement slurry. Minor voids may be filled with cement slurry provided that all excess cement slurry is removed from the joint surface at the point of manufacture.
- B. Primer - Prior to application of gasket material, a primer of the type recommended by the manufacturer of the gasket material shall be applied to all joint surfaces which are to be in contact with the gasket material. The surface to be primed shall be thoroughly cleaned and dry when primer is applied.
- C. Application of Gasket - Prior to placing a section of pipe in the trench, gasket material shall be applied to form a continuous gasket around the entire circumference of the leading edge of the tongue. The paper wrapper on the exterior surface of the gasket materials shall be left in place until immediately prior to joining of sections. The gasket material shall be checked to assure it is bonded to the joint surface, immediately prior to placing a joint in the trench. Plastic gasket material shall be applied only to surfaces which are dry. A hand heating device shall be kept at the job site to dry joint surfaces immediately before application of the plastic gasket material. When the atmospheric temperature is below 60°F, plastic joint seal gaskets shall either be stored in an area warmed to above 70°F, or artificially warmed to this temperature in a manner satisfactory to the ENGINEER.
- D. Installation of Arch Concrete Pipe - Handling of a section of pipe after the gasket material has been affixed shall be carefully controlled to avoid displacement of gaskets or contamination of gasket material with dirt or other foreign material. Any gasket displaced or contaminated in handling of the pipe shall be removed and repositioned or replaced as directed. Pipe shall be installed in a dry trench. The bottom of the trench shall be carefully shaped so as to minimize the need for realignment of sections of pipe after they are placed in the trench. Care shall be taken to properly align each section of pipe to the gaskets coming into contact. Realignment of a joint after the gaskets come into contact tends to reduce the effectiveness of the seal and shall be held to a minimum. When pipes are joined, the entire joint shall be filled with gasket material and there shall be evidence of squeeze-out of gasket material for the entire internal and external circumference of the joint. Excess material on the interior of the pipe shall be trimmed to provide a smooth interior surface. After the pipe is in its final position, joint shall be carefully examined to determine the gasket material is satisfactorily adhering to all surfaces of the joint and the entire joint is filled with gasket material. If a joint is defective, the leading section of pipe shall be removed and the joint resealed.

- E. In addition to the required gasketed joint, a filter fabric jacket shall be included. The filter fabric jacket shall conform to FDOT Miscellaneous Drainage Detail Index No. 280 Sheet 1.

### **3.08 INSTALLATION OF CORRUGATED POLYETHYLENE PIPE**

- A. Pipe shall be joined by split corrugated couplings at least seven corrugations wide and exceeding soil tightness requirements of the AASHTO Standard Specifications for Highway Bridges Section 23 (2.23.2). Unless otherwise specified by the ENGINEER, a mastic type gasket shall be utilized.
- B. Pipe and accessories shall be unloaded by using skidways, hoists or dropping on non-paved areas, in a manner that does not damage the pipe.
- C. Pipe shall be installed in accordance with ASTM 2321 specifications.

### **3.09 PLACING OF CONCRETE FOR STRUCTURES**

- A. Concrete shall be deposited in clean wet form as nearly as practicable in its final position to avoid segregation. Concrete placing shall be carried on at such a rate that the concrete is, at all times, plastic and flows readily into the spaces between the bars. Concreting shall be a continuous operation until the panel or section is completed. Walls and slabs shall be poured monolithically unless shown otherwise on the plans. All structural concrete shall be mechanically vibrated.
- B. No concrete shall be allowed a free fall of more than four feet or allowed to strike against a vertical or inclined surface or reinforcement above point of deposit. Placing by means of pumping may be allowed, contingent upon the adequacy of the equipment for this particular work. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced.
- C. Placing of concrete shall be so regulated the pressure caused by wet concrete shall not exceed that used in the design of the forms. After the concrete has taken its initial set, care shall be exercised to avoid jarring the forms or placing any strain on the ends of projecting reinforcement.
- D. Joints between the junction box and manhole walls and incoming and out-going pipes shall be sealed with Portland Cement Mortar to form a watertight joint. All pipes in manholes or catch basins shall be sawed off flush with the inside face of the structure and sawed ends of these pipes shall be grouted with Portland Cement Mortar to a smooth uniform covering with no steel exposed.

### **3.10 FINAL INSPECTION OF STORM WATER SYSTEM**

- A. Each sewer, upon completion, or at such time as the ENGINEER may direct, is to be cleaned and inspected. All repairs or alterations shown necessary by these inspections shall be made; all broken or cracked pipe removed; all excessive infiltration or exfiltration corrected; all deposits in pipe and manholes removed; and the sewer left clean, true to line and grade and ready for use. Each section of pipe from manhole to manhole is to show a full circle of light from either end. Each manhole shall be to the specified form and size, to the proper depth and watertight.

### **3.11 ADJUSTING EXISTING STRUCTURES**

- A. Existing manholes, catch basins, inlets, conflict boxes, monument boxes, etc., within the limits of the proposed work, that do not conform to the finished grade of the proposed pavement, or to the finished grade designated on the plans for such structures, shall be cut down or extended, and made to conform to the grade of the new pavement, or to the designated grade of the structure if outside of the proposed pavement area. The materials and construction methods for this work shall conform to the requirements specified above. Where manholes are to be raised, the adjustment may, at the CONTRACTOR's option, be made by the use of adjustable extension rings of the type which do not require the removal of the existing manhole frame. The extension device shall provide positive locking action and shall permit adjustment in height as well as diameter. The particular type of device used shall be submitted to the ENGINEER for review.

### **3.12 RESTORATION**

- A. Existing surfaces or property improvements damaged during the construction of work specified in this section shall be repaired in accordance with the requirements of WilsonMiller Specifications Section 02705 RESTORATION AND GENERAL REQUIREMENTS.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 METHOD OF MEASUREMENT**

- A. The quantities of storm sewer and pipe culvert to be paid for under this section shall be the lengths of the various types and sizes of pipe satisfactorily completed according to the Contract Documents. The pay quantity shall be in linear feet measured along the centerline of the pipe with no deductions for manholes, inlets, crossing boxes, or catch basins.

For pipe other than the main line where the pipe connects to a manhole, inlet, conflict box, or catch basin, the measurement of the pipe shall extend to the center of the applicable structure.

Where a pipe terminates with a headwall, endwall, mitered end or other end treatment, the measurement of the pipe shall extend to the end of the pipe. This method also applies where pipe connects to a control structure, weir, or cast in place structures.

- B. The quantities for manholes, inlets, conflict boxes, and mitered end sections paid for under this section shall be the number of the various types and sizes satisfactorily completed according to the Contract Documents.
- C. The quantities of existing structure adjustment to be paid for under this section shall be the number of existing manholes, inlets, conflict boxes or other similar structure satisfactorily adjusted, unless otherwise specified.

#### **4.02 BASIS OF PAYMENT**

- A. The quantities, determined by the methods described above, shall be paid for at the contract unit prices established for each pay item. Such payment shall constitute full compensation for all work specified in this section including all labor, materials, equipment, and other incidental costs required to construct the work defined in this section.
  
- B. Unless otherwise specified in the Contract Documents, restoration work shall not be paid for separately. The cost of any such restoration work shall be included in the various work items that necessitate the restoration.

**END OF SECTION 02707**

**SECTION 02813  
SEEDING, MULCHING, AND SODDING**

**PART 1    GENERAL**

**1.01    DESCRIPTION**

- A.    Work specified in this section consists of the required sodding, grassing and mulching, or hydro-seeding/mulching in conformity with the lines and grades shown on the plans.

**PART 2    PRODUCTS**

**2.01    SODDING**

- A.    The sod shall be Argentine Bahia and shall be well matted with grass roots. It shall be sufficiently thick to secure a dense stand of live grass with a minimum thickness of two inches. The sod shall be live, fresh and uninjured at the time of planting. It shall be shaded and kept moist from the time of digging until planting.
- B.    Fertilizer to be used shall be a standard balanced fertilizer, such as 6-6-6, 8-8-8, 10-10-10, with 25 percent organic.

**2.02    GRASSING AND MULCHING**

A.    Seed

- 1.    Unless other types of seed are called for in the plans or have been approved as an acceptable blend, permanent type grass seed shall be a mixture of 20 parts of Bermuda seed and 80 parts of Pensacola Bahia seed. Quick-growing type grass shall be species which will provide an early ground cover during the particular season when planting is done and will not later compete with the permanent grass. The separate types of seed used shall be thoroughly mixed immediately before sowing. Seed which has become wet shall not be used.
  - a.    The Bermuda seed shall be an equal mixture of hulled and unhulled seed. The Pensacola Bahia seed shall be scarified seed, having a minimum active germination of 40 percent and a total germination of 85 percent. All seed shall meet the requirements of the State Department of Agriculture and Consumer Services and all applicable state laws.

B.    Mulch

- 1.    Unless otherwise approved by the ENGINEER, the mulch material used shall normally be dry mulch. Dry mulch shall be straw or hay consisting of oat, rye or wheat straw, or of pangola, peanut, coastal bermuda or bahia grass hay. Only undeteriorated mulch which can readily be cut into the soil shall be used.

C.    Fertilizer

- 1.    Commercial fertilizers shall comply with the state fertilizer laws. The numerical designations for fertilizer indicate the minimum percentages (respectively) of (1.)

total nitrogen, (2.) available phosphoric acid, and (3.) water soluble potash, contained in the fertilizer. The chemical designation shall be 12-8-8. At least 50 percent of the phosphoric acid shall be from normal super phosphate or an equivalent source which will provide a minimum of two units of sulfur. Unless otherwise approved by the ENGINEER, Type I fertilizer shall be used.

D. Dolomitic Limestone

1. Shall be an approved product, designated for agricultural use.

E. Water

1. The water used in the grassing operations may be obtained from any approved spring, pond, lake, stream or municipal source. The water shall be free of excess and harmful chemicals, acids, alkalies or any substance which might be harmful to plant growth or obnoxious to local residents or traffic. Brackish or salt water shall not be used.

F. Fertilizer Spreader

1. The device for spreading fertilizer and dolomitic limestone shall be capable of uniformly distributing the material at the specified rate.

G. Seed Spreader

1. The seed spreader shall be an approved mechanical hand spreader or other approved type of spreader.

H. Equipment for Cutting Mulch into Soil

1. The mulching equipment shall be a type capable of cutting the specified materials uniformly into the soil and to the required depth. Harrows will not be allowed.

I. Rollers

1. A cultipacker, traffic roller or other suitable equipment will be required for rolling the grassed areas.

**2.03 HYDRO-SEEDING/MULCHING**

A. Seed (all seed shall meet the requirements of the State Department of Agriculture)

1. Argentine Bahia - Scarified seed
2. Gulf Rye (or Brown Top Millet as approved) Note: to be used in conjunction with permanent type seed (1) above, during particular seasons when early ground cover is desired, as directed by the ENGINEER.

B. Mulch

1. The mulch material shall be wood cellulose fiber material for use in hydro-seeding slurry, especially prepared for this purpose, or an approved substitute.

2. It shall be processed in such a manner that it will contain no growth-inhibiting or germination-inhibiting factors and shall be dyed an appropriate color for readily determining the rate of spread by visual observation. It shall be manufactured in such manner that after agitation in slurry tanks, with fertilizer, grass seed and water (and with other additives which may be approved for use), the fibers in the material will readily become uniformly suspended in the solution to form a homogeneous slurry; also that when the slurry is hydraulically sprayed on the ground, the mulch material will act to form a blotter-like ground cover impregnated uniformly with grass seed, and will allow the absorption of water and permit rainfall and watering to percolate to the undersoil.

The CONTRACTOR shall, if requested, submit appropriate certification from the producer or the supplier, that the material meets all of the above requirements, based upon laboratory and field tests of the product.

The air dry weight (as defined by the Technical Association of the Pulp and Paper Industry, for wood cellulose) shall be marked on each package by the producer.

C. Fertilizer

1. The fertilizer to be used shall be a standard balance fertilizer, such as 6-6-6, 8-8-8 or 10-10-10, with 25 percent organic unless otherwise recommended for any particular area as approved by the ENGINEER. Select acid forms of recommended fertilizer if pH adjustments is indicated by soil tests.

D. Water

1. The water used in the grassing operations may be obtained from any approved spring, pond, lake, stream or municipal water system. The water shall be free of excess and harmful chemicals, acids, alkalis, or any substance which might be harmful to plant growth or produce obnoxious odor. Salt water shall not be used.

E. Equipment

1. The equipment for mixing the slurry and for applying the slurry over the areas to be seeded shall be especially designed for this purpose, and shall meet the approval of the ENGINEER. It shall be capable of applying a uniform slurry, (and of the mulch, when specified to be included), in a uniform application over the entire area to be hydro-seeded.

**PART 3**    **EXECUTION**

**3.01 SODDING**

- A. Immediately before the sod is placed, fertilizer shall be applied evenly at the equivalent rate of approximately 20 pounds of 6-6-6 per 1,000 square feet and shall be cut into the soil with suitable equipment.
- B. The sod shall be taken up in 12-inch by 12-inch squares, except where the plans may call for narrower strips. The sod shall be firmly embedded by light tamping.



- C. After the sod has been placed, it shall be thoroughly watered. Water shall not be applied between the hours of 8:00 AM and 4:00 PM.
- D. Sodding includes maintaining sod until growth is established. All erosion, siltation and maintaining grades is the responsibility of the CONTRACTOR until the ENGINEER determines root system has adequately "survived" and taken "hold".

### **3.02 GRASSING AND MULCHING**

- A. Fertilizing, seeding or mulching operations will not be permitted when wind velocities exceed 15 miles per hour. Seed shall be sown only when the soil is moist and in proper condition to induce growth. No seeding shall be done when the ground is frozen, unduly wet or otherwise not in a tillable condition.
- B. Whenever a suitable length of roadway slopes or adjacent areas has been graded, it shall be made ready, approved by the ENGINEER, and grassed in accordance with these specifications. Grassing shall be incorporated into the project at the earliest practical time in the life of the contract.
- C. All grassing shall be completed on shoulder areas prior to the placement of the friction course on adjacent pavement.
- D. The several operations involved in the work shall proceed in the following sequence: Fertilizing (and/or application of limestone) and preparation of the ground, spreading of mulch, seeding, cutting-in mulch and rolling.
- E. The ground over which the seed is to be sown shall be prepared by disk-harrowing and thoroughly pulverizing the soil to a suitable depth. The prepared soil shall be loose and reasonably smooth. It shall be reasonably free of large clods, roots, and other material which will interfere with the work or subsequent mowing and maintenance operation. No subsequent operations shall be commenced until the ENGINEER has approved the condition of the prepared areas.
- F. The fertilizer and/or limestone shall be spread uniformly in one or more applications as specified below:
  - 1. An initial application of 500 pounds per acre.
  - 2. Unless otherwise directed, a second application of 400 to 500 pounds per acre shall be applied within 90 calendar days after the initial application on projects which have not been accepted prior to this time.
  - 3. Unless otherwise directed, a third application of 400 to 500 pounds per acre shall be applied within 270 to 360 calendar days after the initial application on projects which have not been accepted prior to this time.
- G. On steep slopes or other areas where machine-spreading may not be practicable, the spreading may be done by hand. Immediately after the fertilizer is spread, it shall be mixed with the soil to a depth of approximately four inches.
- H. The plans or special provisions may designate that a separate application of fertilizer and/or dolomitic limestone be made subsequent to other operations.



- I. While the soil is still loose and moist, the seed shall be scattered uniformly over the grassing area. Unless shown otherwise in the plans or the special provisions, the rate of spread for the permanent type seed mixture shall be 150 pounds per acre.
- J. Seed of an approved quick-growing species of grass, such as rye, Italian rye, millet, or other cereal grass, shall be spread in conjunction with the permanent type seed mixture. The type of quick-growing seed used shall be appropriate to provide an early ground cover during the particular season when planting is done. The rate of spread shall be 30 pounds per acre.
- K. When mulching, approximately two inches, loose thickness, of the mulch material shall then be applied uniformly over the seeded area, and the mulch material cut into the soil with the equipment specified, so as to produce a loose mulched thickness of three to four inches. Care shall be exercised that the materials are not cut too deeply into the soil.
- L. Immediately after completion of the seeding, the entire grassed or mulched area shall be rolled thoroughly with the equipment specified. At least two trips over the entire area will be required.
- M. The seeded areas shall be watered so as to provide optimum growth conditions for the establishment of the grass. In no case, however, shall the period of maintaining such moisture be less than two weeks after the planting.
- N. On steep slopes, where the use of a machine for the cutting-in process described above is not practicable, the construction operations shall be modified as follows:
  - 1. The fertilizer shall be applied uniformly, at the rate specified, and shall be raked in and thoroughly mixed with the soil to a depth of approximately two inches.
  - 2. The seeding operations shall follow the fertilizing.
  - 3. The mulch material, in lieu of being cut into the soil, may be anchored down. Anchoring shall be done by either of the following methods:
    - a. Placing a layer of soil, approximately two inches thick by nine inches wide, along the upper limits of the mulch, and spotting soil piles over the rest of the area at a maximum spacing of four feet.
    - b. Spreading a string net over the mulch, using stakes driven flush with the top of the mulch, at six foot centers, and stringing parallel and perpendicular, with diagonals in both directions.

### **3.03 HYDRO-SEEDING/MULCHING**

- A. The ground areas to be hydro-seeded/mulched shall be clean earth, free of tree limbs, stumps, roots, rocks, etc.
- B. Seed and Fertilizer - The proportions of seed and fertilizer used in the slurry shall be as follows or as otherwise approved by the ENGINEER.
  - 1. Gulf Rye or Brown Top Millet seed at 40 pounds per acre.

2. Scarified Argentine Bahia seed at 100 pounds per acre.
  3. Apply fertilizer at the equivalent rate of 10 pounds of 6-6-6 per 1,000 square feet unless otherwise approved by the ENGINEER.
- C. Mulching -When the mulch material is to be included in the slurry mixture, it shall be applied at the rate of 1,000 pounds of mulch material per acre, when the moisture content of the "air-dry" mulch does not exceed ten percent. If this moisture content exceeds ten percent, a proportional increase of mulch material shall be made, as directed by the ENGINEER. The application of the slurry over the seeding areas shall be in accordance with the directions of the manufacturer of the hydro-seeding equipment, and as directed by the ENGINEER. The slurry mixture shall be maintained uniform by continuous agitation during the application.
- D. Watering -The hydro-seeding areas shall be watered so as to provide optimum growth conditions for the establishment of the grass. In no case, however, shall the period of maintaining such moisture be less than four weeks after planting.

### **3.04 MAINTENANCE**

The CONTRACTOR shall, at their expense, maintain the planted or sodded areas in a satisfactory condition until final acceptance or completion of the project, whichever is the latest. Such maintenance shall include the filling, leveling and repairing of any washed or eroded areas as may become necessary, equipment damaged areas, etc. The ENGINEER, at any time, may require replanting or resodding of any areas in which the establishment of the grass stand does not appear to be developing satisfactorily. Replanting or replacement shall be at the CONTRACTOR's expense.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 METHOD OF MEASUREMENT**

The quantity to be paid for shall be the area in square yards of sodding, grassing and mulching, or hydro-seeding/mulching, completed and accepted. The quantity shall be determined by the actual measurement in place within the lines which were authorized. When this work is required for restoration due to pipeline installation, all disturbed areas will be covered.

### **4.02 BASIS OF PAYMENT**

The quantity of sodding, grassing and mulching, or hydroseeding/mulching, as determined above, shall be paid for at the contract unit price per square yard for these items, which price and payment shall be full compensation for all labor and material, transportation and any other items necessary for satisfactorily performing the work described on the plans and in conformity with these specifications. When this work is required for restoration due to pipeline installation, the costs will be included in the pipeline unit prices.

**END OF SECTION 02813**

**SECTION 02814**  
**CONCRETE CURBS, GUTTERS, MANHOLE FRAMES, STORM INLETS, ETC.**

**PART 1      GENERAL**

**1.01 SCOPE**

- A. These specifications make reference to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, hereafter referenced as FDOTSPEC. Work covered in this section consists of furnishing all labor, equipment, materials and the performing of all operations necessary for construction of:
1. All concrete curbs, gutters, walks, medians, aprons, etc.
  2. All storm water inlets including throat inlets, catch basins, and grated inlets.
  3. Adjustment or installation of sanitary and storm manhole frames and covers, or grates, inlet grates, gate-valve boxes, and other similarly exposed utilities in paved areas.

**1.02 SPECIFICATION AND STANDARDS REFERENCE**

- A. Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc., are referenced, such references shall be the latest edition.

**PART 2      PRODUCTS**

**2.01 CONCRETE CONSTRUCTION**

- A. All concrete and concrete work shall conform to the following specifications unless otherwise noted on the plans. All concrete specified in this section shall attain a minimum compressive strength of 3,000 psi in 28 days.
- B. Concrete Mix Materials
1. Coarse aggregate shall be hard, clean, washed gravel or crushed stone. Minimum aggregate size shall not be larger than one inch nor smaller than one-half inch equivalent diameter. Fine aggregate shall be clean, sharp sand. Water shall be clean, fresh, free from injurious amounts of minerals, organic substances, acids or alkalis. Cement shall be Type I, domestic Portland cement, meeting the requirements of ASTM C 150.
- C. Concrete Admixtures
1. Air-entrainment admixtures in concrete are permitted in accordance with manufacturer's specifications provided specified strength and quality are maintained and unless admixtures appears to be causing abnormal field results, and total entrained air content does not exceed five percent. No other admixture of any type will be permitted without written approval of the ENGINEER.

D. Reinforcement Steel

1. Reinforcing bars shall be intermediate grade, new billet-steel, deformed bars, free of loose rust, scale, dirt or oil, and shall conform to ASTM A15 "Specifications for Billet-Steel Bars for Concrete Reinforcement." Rebar deformations shall conform to ASTM A305. Welded wire fabric for concrete reinforcement shall conform to ASTM A185, "Specifications for Welded Steel Wire Fabric for Concrete Reinforcement." All reinforcement steel shall be placed, spliced, lapped, etc. in accordance with the ACI Standard 318, Building Code Requirements For Reinforced Concrete.

E. Transit Or Ready-Mixed Concrete

1. Transit or ready-mixed concrete may be used provided it meets the requirements of ASTM C 94, Ready Mixed Concrete, and provided the central plant producing the concrete, the batching, mixing and transportation equipment, in the opinion of the ENGINEER, is suitable for the production and transportation of the specified concrete.

**PART 3**      **EXECUTION**

**3.01 CONSTRUCTION METHODS**

- A. Work shall be performed to lengths and cross-sections shown on the plans. Forms shall be of sufficient strength to resist pressure of the concrete without springing. Bottom forms shall not be removed within twenty-four hours after concrete has been placed. Side or top forms shall not be removed within 12 hours after concrete has been placed. Upon removal of forms, minor defects shall be corrected with a rich mix of cement mortar. Curbs, gutters, walks or medians shall be finished until a smooth surface is attained. Final finish shall be a light broom finish. When completed, concrete shall be cured as specified.

**3.02 PLACING OF CONCRETE**

- A. Concrete shall be deposited in clean wet forms and as nearly as practicable in its final position to avoid segregation. Concrete placing shall be carried on at such a rate the concrete is at all times plastic and flows readily into spaces between the bars. Concreting shall be a continuous operation until the panel or section is completed. All structural concrete shall be vibrated. No concrete shall be allowed a free fall of more than four feet or allowed to strike against a vertical or inclined surface or reinforcement above the point of deposit. Placing by means of pumping may be allowed, contingent upon the adequacy of the equipment for this particular work. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced. Placing of concrete shall be so regulated pressure caused by wet concrete shall not exceed that used in the design of the forms. After concrete has taken its initial set, care shall be exercised to avoid jarring the forms or placing any strain on the ends of projecting reinforcement.

**3.03 MACHINE-LAYING**

- A. Machine laying of work will be permitted, providing all quality conditions of conventional construction are met.

- B. As a specific requirement for machine-laid curb and gutter, contraction joints shall be sawed unless an alternate method of constructing them is approved in writing by the ENGINEER. Joints shall be sawed as soon as the concrete has hardened to the degree that excessive raveling will not occur and before uncontrolled shrinkage cracking begins. Contraction joints shall be spaced at intervals of ten feet except where a lesser interval is required for closure, but no section shall be less than four feet in length.

### **3.04 CURING**

- A. As soon as practicable after finishing, all concrete shall be covered with burlap and kept moist for a period of seven days or, an approved membrane curing compound may be applied at the CONTRACTOR's option. Where membrane curing compound is used, no walking or other traffic will be allowed over the slab for 72 hours after application unless the surface is protected by burlap or heavy building paper. Curing shall meet the requirements of FDOTSPEC Section 520-8.

### **3.05 JOINTS**

- A. Construction Joints: Joints not shown or specified shall be located as to least impair the strength and appearance of the work. Placement of concrete shall be carried on at such a rate that the surfaces of concrete which have not been carried to joint levels will not have attained initial set before additional concrete is placed thereon.
- B. Contraction Joints: Curbs-and-gutters, and valley gutters shall be constructed with contractions joints at intervals of ten feet except where shorter intervals are required for closures, but no joint shall be constructed at intervals of less than four feet. Sidewalks and concrete medians shall be constructed with contraction joints at intervals equal to the width of the walk or median respectively unless otherwise noted on the plans. Contraction joints may be of the open type, tooled or sawed. Construction and construction procedures of contraction joints shall conform to the specifications set forth in the FDOTSPEC.
- C. Expansion Joints: Curbs, curb-and-gutters, and valley gutters shall be constructed with expansion joints at all inlets, all radius points, all points where operations cease for any considerable time and at intervals of not more than 500 feet. Walks and concrete medians shall be constructed with expansion joints at points of walk or median termination against an unyielding surface and at intervals not to exceed 90 feet. Expansion joints shall be constructed with PVC slips encasing the reinforcing bars. Expansion joint material shall be one-half inch bituminous impregnated expansion joint material which meets the requirements of FDOTSPEC, 932-1.1. Expansion joints between the sidewalk and the curb or driveway or at fixed objects and sidewalk intersections shall be one-half-inch joints, formed with a preformed joint filler meeting the requirements specified in FDOTSPEC, 932-1.1.

### **3.06 CONTRACTORS RESPONSIBILITIES**

- A. Prior to placing any concrete, the CONTRACTOR shall give the ENGINEER sufficient advance notice of same. No concrete shall be placed on any subgrade or in any formwork until the subgrade, formwork, reinforcing steel, anchor bolts and other imbedded items have been reviewed.
- B. CONTRACTOR is fully responsible for all concrete and concrete work and finishes, and shall reject all delivered concrete and finishes not meeting these specifications. CONTRACTOR shall also be responsible for securing laboratory tests or reports if such tests or reports are requested by ENGINEER.
- C. ENGINEER may, at their discretion, request that specified tests be conducted and reports furnished at the CONTRACTOR's expense. Normally the ENGINEER will not require testing of more than one set of four compression test cylinders per 50 cubic yards, (or part thereof). In no case shall there be less than one test for each day concrete is poured.
- D. From each test, one cylinder shall be tested by the laboratory at seven days, and two at 28 days, or as directed by the ENGINEER. One cylinder shall be kept as a reserve.

### **3.07 EXCAVATION AND BACKFILL**

- A. Excavation shall be to the required depth, and supporting earth, base, or subgrade shall be compacted. When the plans call for a stabilized subgrade under the curb or gutter, subgrade shall be stabilized, and tested if required, as set forth elsewhere in these specifications and as indicated on the plans. When the plans call for a soil-cement base, subgrade supporting the curb or gutter shall be compacted by watering, rolling or tamping to 95 percent of maximum density as determined by AASHTO-T-180. Subgrades for walks and concrete medians shall be compacted to a firm, even surface, by means of rolling, watering and/or tamping.
- B. After the concrete has set sufficiently, but not later than three days after placing, the spaces in front and back shall be backfilled with suitable material and compacted. When street bases are to be constructed adjacent to curbs, gutters, etc., the curbs, gutters, etc., shall be properly backfilled and shall cure for a period of not less than three days before any base material is placed against it.

### **3.08 STORM WATER INLETS**

- A. Construction of storm water inlets shall include all work and materials necessary for final construction by CONTRACTOR of throat inlets, catch basins, grated manholes, or other storm water inlets.
- B. Construction of throat inlets shall be to the lines, elevations and dimensions shown on the plans and include forming of the throat and construction of the top slab with frame and cover, and supporting walls.



- C. Construction of grated inlets, catch basins, manholes, etc. shall be to the elevations and dimensions shown on the plans. Construction shall include any reasonable adjustment and realignment of the grate necessary (if grates are installed by the previous CONTRACTOR), or the installation of inlet grates. Frames shall be secured in mortar and the mortar struck smooth inside and out.

### **3.09 MANHOLE FRAMES AND COVERS**

- A. Manhole frames with covers or grates in paved areas shall be installed/adjusted flush with the final paved surface. Frames and covers shall be milled to prevent rocking of the cover when passed over by a motor vehicle. Frames shall be secured in mortar or concrete and surfaces struck smooth inside and out. Gate valve boxes and other similarly exposed utilities shall be raised or lowered as required to insure a flush, even surface with the adjacent paved area.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 BASIS OF PAYMENT**

- A. Payment shall be made on a unit price basis in accordance with the construction contract.
- B. Units of payment stated in the contract cover the following:
  - 1. Concrete Curbs, Gutters, Walks, Medians and Valley Crossing: Payment for concrete curb-and-gutters, vertical curbs, and valley gutters shall be on the basis of actual lineal feet in place. Payment for valley crossings shall be on a per unit basis. Concrete medians shall be paid on the basis of actual square feet in place. Concrete walks shall be paid on the basis of actual linear feet completed unless otherwise noted. Concrete aprons, inlet channels, etc., shall be paid on the basis of actual square feet completed, unless otherwise noted. Unit cost for the construction of the above stated work shall include all equipment, labor and materials; shall include all excavation, trenching, subgrade compaction, backfilling, etc., necessary to perform the work in accordance with the plans, specifications, and good construction practices.
  - 2. Storm Water Inlets: Payment for storm water inlets, as defined herein, shall be on a unit basis. Unit cost of construction shall include all labor, equipment, materials, excavation, backfilling, structural adjustments, etc., necessary to perform the work in accordance with the plans, specifications and good construction practice. Payment for the installation or adjustment of manhole frames and covers or grates shall be included in the cost of storm water inlets. Unit costs shall include all materials, equipment, labor backfilling, etc., necessary to perform the work in accordance with the plans, specifications, and good construction practice. Costs for adjustment of gate-valve boxes and other similar utilities in paved areas shall be considered as incidental.

**END OF SECTION 02814**

**SECTION 02820  
EXCAVATION AND EMBANKMENT**

**PART 1      GENERAL**

**1.01    SCOPE**

- A.    Work specified in this section consists of excavation and embankment required for roadways, lakes, ditches, swales, berms, canals, parking areas, site fill, building pads, retention areas, structure excavation, and other similar work described herein or shown on the plans. This section includes preparation of subgrades, construction of embankments, utilization or disposal of materials excavated, and compaction and finish grading of excavated areas and embankments. All work shall conform to the proposed alignment, elevations, slopes, and cross-sections shown on the plans.

**1.02    SPECIFICATION AND STANDARDS REFERENCE**

- A.    Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc. are referenced, such references shall be latest edition.

**PART 2      PRODUCTS**

Not Used

**PART 3      EXECUTION**

**3.01    CLASSIFICATION OF EXCAVATION**

- A.    General: Included in the excavation under this section are materials of whatever nature encountered within the required limits of excavation (except material removed during clearing and grubbing). Determination of sub-surface conditions and its effect on construction costs are the sole responsibility of the CONTRACTOR. Sub-surface conditions between soil borings that may be provided can vary greatly from those conditions found at the location where the sample was extracted.

Locating existing underground utilities shall be the responsibility of the CONTRACTOR. In the event of any utility conflict, the CONTRACTOR shall immediately inform the utility company, OWNER and the ENGINEER of the conflict. CONTRACTOR shall be responsible for the immediate repair of any utility lines damaged during construction. CONTRACTOR shall notify all utility companies or utility owners, both public or private of their intent to perform such work and coordinate field location of utility lines prior to commencement of construction.

Where separate classification is provided in the proposal, excavation specified under this section may be listed as any of the following classes: (1) Regular Excavation, (2) Swale Excavation, (3) Subsoil Excavation, (4) Rock Excavation, (5) Lake Excavation (unclassified).

For any of the above classifications not specifically listed as a separate pay item in the proposal or included as part of another pay item, all excavation of such type shall be included under the item of Regular Excavation. If the item of Regular Excavation is not



listed in the proposal, all costs included in the excavation of roadway, swales, subsoil, rock, lakes, structures (including utilization or disposal of materials) shall be incidental to the general cost of the project and no additional compensation will be allowed.

- B. Regular Excavation: Regular Excavation shall consist of excavation of materials necessary for construction of roadways, ditches, sidewalks, building pads, retention ponds, and other surfaces as shown in the plans. Excavated material suitable for embankment shall be utilized in areas requiring fill with all excess material spread or stockpiled on site where shown on the plans or as directed by the OWNER's representative.
- C. Swale Excavation: Swale Excavation shall consist of excavation of swales and ditches as indicated on the plans and shall include the utilization of suitable excavated materials in areas requiring fill with all excess material spread or stockpiled on site where shown on the plans or as directed by the OWNER's representative.
- D. Subsoil Excavation: Subsoil Excavation shall consist of the excavation and off-site disposal of muck, clay, roots, or any other material that is determined to be unsuitable by the OWNER's Geotechnical Engineer in its original position and that is excavated below the finished grading template. If provided in the plans or Contract Documents unsuitable material shall be stockpiled in areas on site designated by the OWNER.
- E. Rock Excavation: Rock Excavation shall consist of excavation of rock and boulders necessary for construction of roadways, ditches, lakes, and other cut sections shown on the plans. It shall also include the utilization and disposal of excavated rock and boulders according to Articles 3.02, 3.03, and 3.04 in this section.

For the purpose of classifying rock excavation as a pay item, the rock strata encountered shall be of such thickness and hardness as to preclude removal by using a modern 3/4 yard hydraulic backhoe maintained in excellent operating condition, Caterpillar 235 or equal.

- F. Rock Blasting: All blasting is strictly prohibited.
- G. Lake Excavation (Unclassified): Lake Excavation (Unclassified) shall consist of excavation of all material necessary for construction of lakes according to the depths, dimensions, side slopes, and in the locations shown in the plans. It shall also include the utilization of excavated materials and the disposal of unsuitable materials in accordance with Articles 3.02 and 3.03 in this section. All materials excavated shall be considered as "unclassified". CONTRACTOR shall be responsible for any investigation of sub-surface conditions and subsequent determination of the amount of rock, roots, and other materials to be incorporated into his price.

CONTRACTOR shall construct the lake banks in strict accordance with the ordinances or laws governing the excavation. All slopes must be equal to the specified slopes. The bottom of the lake shall not be excavated below the specified depth without prior written approval of the OWNER and the governing agency.

- H. Structure Excavation: Work specified in this sub-article consists of excavating for bridge foundations, box culverts, pipe culverts, sewers, pipe lines, retaining walls, pump stations, manholes, inlets, catch basins, sewage and water treatment plants and other similar type facilities shown on the plans. It shall also include (1) the construction and removal of cofferdams, sheeting, bracing, etc.; (2) dewatering; (3) disposal of structures (of whatever type) encountered during excavation; (4) disposal of unsuitable materials; (5) bedding materials; (6) backfilling and the compacting thereof; (7) utilization of excess suitable materials according to article 3.02 this section.

Material excavated (of whatever nature) shall be classified for utilization or disposal according to Articles 3.02 and 3.03. The excavation shall be of such size and depth as to facilitate the construction and/or installation of each structure according to the location and elevations shown in the plans. Rock blasting, rock excavation, demolition of structures or foundations, or any unusual or undefined work that may be necessary to complete the excavation for a structure shall be considered as work included in Structure Excavation.

If the excavation requires the use of cofferdams, dewatering, sheeting, or bracing, all such work will be done in strict compliance with all permit requirements and any laws or ordinances that may apply to the work being performed. It shall be the responsibility of the CONTRACTOR to familiarize himself with any regulations applicable and to satisfy said regulations at his own expense.

The structure shall be constructed or laid in dry dewatered excavation unless otherwise approved by the ENGINEER. In such cases where the excavation is unstable or has water in sufficient quantities that make uniform bedding impossible, the bottom of the excavation shall be stabilized as required. If washed shell is used, it shall be a graded according to the sieve analysis listed below:

100 percent passing 1½" screen  
0 percent passing 5/8" screen

After the structure is complete, backfilling shall be performed in a careful manner so as not to disturb or damage the completed structure. The backfill material shall conform to the requirements of Sub-article 3.04.C., except that the size of rock shall not exceed 3 1/2 inches in diameter. The backfill material shall be compacted to the same or greater density as the adjacent existing earth.

### **3.02 UTILIZATION OF EXCAVATION MATERIALS**

- A. General: All excavated materials suitable for embankment shall be utilized in the embankment areas shown in the plans or as otherwise specified in the Contract Documents. After the requirements for embankment have been satisfied, the surplus suitable excavated material shall be deposited in areas on-site as directed by the OWNER's representative, unless otherwise specified in the Contract Documents.

On projects where excavation does not provide enough material to satisfy embankment requirements, excavated materials shall first be utilized in the roadway or other permanent structure embankment, then into other embankment areas shown in the plans.

- B. Classification of Materials: Material shall be classified as "suitable" if it meets all the requirements of Sub-article 3.04.C. of this Section. A rock strata that can be excavated and split or screened to meet the requirements of Sub-article 3.04.C. shall be considered as "suitable" for embankment.

Material such as muck, or any other material containing excessive amounts of organic, silt, clay, or other deleterious materials shall be classified as "unsuitable" for embankment unless otherwise specified or classified by the ENGINEER.

The term "unclassified" simply refers to material that has not been defined as suitable or unsuitable.

If a dispute arises over the classification of materials, the final determination shall be made by the ENGINEER.

- C. Rock and Boulders: Rock and boulders shall be utilized on site as embankment unless otherwise specified. In all cases, the alteration or replacement of excavated material shall be at the CONTRACTOR's expense unless otherwise provided in the plans or Contract Documents.

- D. Muck: Although muck or other material high in organic content will not generally be permitted in embankment areas, certain conditions may require or permit its utilization. Muck will not be permitted in embankment unless specifically stated on the plans or specified herein. When so specified the placement of muck or other similar material will only be permitted outside of an imaginary downward 2:1 slope starting from the outward edge of roadway structure or other permanent structure.

- E. Top Soil: Where top of the existing surface is high in organic content, it may be necessary to strip the topsoil and reuse it or dispose of it. Topsoil shall be stripped and stockpiled on-site for later use as a layer under sod, grassing, or in landscaped areas. When an item of topsoil is not listed as a separate pay item in the Contract Documents, the placement of the stockpiled topsoil shall be included in the item of Clearing and Grubbing or Excavation. When topsoil is listed as a pay item, it shall be placed in locations shown in the plans to a specified thickness and to a finished elevation that will allow for the placement of sod, ground cover or other landscape related surface.

The material utilized as topsoil shall be suitable for plant growth and free from appreciable quantities of hard clods, stiff clay, hardpan, gravel, brush, large roots, refuse, or other deleterious materials. The organic content shall be at least 1.5 percent. The characteristics of the material shall be such that it can be adjusted to have a pH value between 5.0 and 8.0, or as approved by the ENGINEER.

### **3.03 DISPOSAL OF EXCAVATED MATERIALS**

- A. Disposal of Surplus Materials: Ownership of all suitable excavated materials shall be retained by the OWNER unless otherwise stated in the plans or Contract Documents to be surplus material. When so specified the surplus material shall become the property of the CONTRACTOR to be disposed of outside the project limits. The cost of the disposal and furnishing the disposal area shall be included in the item requiring excavation and no additional compensation will be given.

- B. Disposal of Unsuitable Materials: Unsuitable excavated material as defined in Sub-article 3.02.B. shall become the property of the CONTRACTOR to be disposed of outside the project limits. The cost of the disposal and furnishing the disposal area shall be included in the item requiring excavation and no additional compensation will be given.

**3.04 EMBANKMENT**

- A. General: Embankments shall be constructed true to lines and grades shown in the plans or ordered by the ENGINEER. Material used in embankments shall be obtained from on-site excavation and/or from off-site borrow sources secured by the CONTRACTOR.
- B. Site Preparation: Subsequent to clearing and prior to placement of embankment material, the existing earth surface shall be compacted six feet beyond the building and pavement structure limits and in other areas shown in the plans or stated in the Supplementary Conditions. The existing surface shall be compacted at a moisture content such that the specific density requirement can be attained. Soil one foot below the compacted surface shall attain a density of 95 percent of the maximum theoretical density as determined by the Modified Proctor Density (ASTM-D-1557). Field density tests shall be conducted in accordance with ASTM D-1556, D-2167, D-2922, or D-2937 (latest revisions) by a certified laboratory or soils engineer approved by the OWNER. The location and number of the tests shall be verified by the ENGINEER.
- C. Requirements for Embankment Materials: 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 or similar foundation. Material designated as unsuitable in the soil borings or as classified as unsuitable by the ENGINEER shall be removed from the embankment and disposed of off-site. Utilization of material in embankment construction shall be in accordance with plan details or as directed by the ENGINEER.

The maximum size of rock which will be permitted in the completed embankment are as follows:

In top 12 inches -----	3 1/2 inches
12 inches to 2 feet -----	6 inches
In the 2 feet depth below ---	Not to exceed the compacted thickness of the layer being placed

When and where approved by the ENGINEER, the CONTRACTOR may place larger rocks outside the 2-to-1 slope of any structure embankment. Where such rock is utilized in any embankment, enough fine material shall be deposited and compacted between individual rocks so as to completely fill any voids that may occur during the placement of such material. No rock shall be utilized in any building pad embankment areas.

- D. Borrow Material: The use of borrow material shall be resorted to only when sufficient quantities of suitable material are not available from the various types of excavation required on the drawings. When borrow is required the material shall conform to the requirements of article 3.04.C. and shall be approved by the ENGINEER prior to

placement. Borrow material shall be obtained from areas furnished by the CONTRACTOR at his expense. Borrow sources shall comply with all local requirements applicable for the excavation and sale of fill material.

- E. Construction Requirements: Embankment material shall be placed in horizontal layers not to exceed 12 inches thickness measured loose. Each layer shall be leveled and compacted in accordance with Sub-article 3.04.F. No fill material shall be placed where area is wet. Dewatering may be required prior to filling operation, either by pumping or well pointing. Water shall not be allowed to stand on or adjacent to fill areas that could saturate the material.

When embankments are constructed on a hill or slope, slope shall be "stepped" so as to permit the embankment to be placed in horizontal layers and compacted as stated above. Upon completion of the embankment steps on a slope, steps shall be dressed to conform to the specified slope.

For any embankments not covered above, construction methods shall be approved by the ENGINEER prior to placement.

- F. Compaction Requirements: Materials shall be compacted at a moisture content such that the specific density can be attained. If necessary, water shall be added to the material, or the moisture content shall be lowered by manipulating the material or allowing it to dry, as is appropriate. Each layer of material shall be compacted by the use of a smooth drum vibratory roller or other method approved by the engineer. The top 12" of natural ground shall be compacted in accordance with be requirements listed below.

Field density tests shall be conducted in accordance with ASTM D-1556, D-2167, D-2922, or D-2937 (latest revisions) by a certified laboratory or soils engineer approved by the OWNER according to the Compaction Requirements stated below:

Embankment Area	Density <sup>1</sup> Below 3'	Density <sup>1</sup> 0' to 3'	Testing Frequency/Lift
Building Pads <sup>2</sup>	95%	98%	1 Ea/2000 SF, Minimum 2 Ea/Structure
Pavement Areas <sup>3</sup>	95%	98%	1 Ea/500 SY
Retention Areas <sup>4</sup>	95%	95%	1 Ea/500 SY
Other Areas	N/A	N/A	N/A

<sup>1</sup> The percentage listed shall be the minimum acceptable amount of the maximum theoretical density as determined by the Modified Proctor Density (ASTM-D-1557).

<sup>2</sup> Includes future building pads and lots.

<sup>3</sup> Includes any permanent pavement structure such as curb and gutter, sidewalk, roadway, shoulder, driveway, or any other similar surface.

<sup>4</sup> Includes earth berms, water retention slopes, dikes, and other similar areas.

CONTRACTOR shall be responsible for scheduling of all soil testing. These soil testing costs shall be borne by the CONTRACTOR unless stated otherwise in the plans or specifications. Where the testing costs are borne by the OWNER, in the event of a test failure all subsequent tests required to pass density shall be at the expense of



the CONTRACTOR. The OWNER may deduct this expense from the CONTRACTOR's payment or request payment directly from CONTRACTOR.

### **3.05 FINISH GRADING**

- A. General: As a final grading operation the surface of the earthwork shall be shaped to conform to the lines, grades, and contours shown on the plans. Hand dressing will be required in confined areas where equipment operation is restricted or where the equipment finished surface is unsatisfactory in the judgment of the ENGINEER.

CONTRACTOR shall take necessary precautions to prevent erosion of slopes before and after finish grading. Any erosion of whatever consequence shall be repaired at the expense of the CONTRACTOR until final acceptance of the project.

- B. Tolerances: In final shaping of the surface of earthwork a tolerance of 0.1 foot above or below the plan elevations and contours will be allowed with the following exceptions:
1. In areas where sod, ground cover or other finish landscape surface will be used, an allowance shall be made for the thickness of sod, etc. that will result in the finish landscape elevation to be within the above tolerance.
  2. Earthwork shall be shaped to match adjacent pavement, curb, sidewalk, structures, etc. with applicable allowance for sod, etc.

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 METHOD OF MEASUREMENT**

- A. General:
1. VOLUMETRIC - When payment is made on a volumetric basis, calculations shall be based on the method of average end areas or the grid cell method, unless the ENGINEER determines that another method will provide a more accurate result. The existing elevations shown on the plans or field survey taken by the ENGINEER shall be incorporated into the volume calculations. Should any of these existing elevations appear to be in error, the CONTRACTOR shall notify the ENGINEER in writing and resolve the dispute prior to disturbing the existing surface in question. Once the existing surface is disturbed by clearing, excavating, or any other construction, the CONTRACTOR's right to dispute the existing elevations shown by the ENGINEER will be nullified. After the excavation or embankment is completed, the finished surface shall be measured in place by field survey paid for by the CONTRACTOR and these cross-sections shall be incorporated into the volume calculations.
  2. LOOSE VOLUME - In special cases as shown in the Contract Documents, payment shall be made on a loose volume basis as measured in trucks or other hauling equipment. The volume capacity of each truck shall be measured and recorded by the OWNER's representative. Before unloading on-site, the OWNER's representative shall compare the loaded truck to its recorded

capacity and record the actual volume on the load ticket. Only load tickets that have been so recorded and collected by the OWNER's representative at the point of dumping shall be included in the quantity for payment.

3. LUMP SUM - The proposal may contain items of work that are to be paid for on a lump sum basis. Additionally, the Contract Documents may provide for a lump sum payment for the entire project. The lump sum payment for individual items or for the entire project shall constitute full compensation for the completion of all work specified in the plans and specifications.
  4. PLAN QUANTITY - When cross sectioning finished surfaces is not feasible, the ENGINEER may specify the final pay quantity of any item to be the original plan quantity. When so specified in the Contract Documents, such quantity will be revised only in the event that it is determined to differ by more than 10 percent of the original plan quantity. Such revisions will be determined by calculation of quantities from the plan sheets as applicable. Field measurement will not be considered except to verify that the work was accomplished in substantial compliance with the plan dimensions.
- B. Regular Excavation: Measurement of regular excavation shall include only the net volume of material excavated between the original ground surface and the surface of the completed earthwork. The pay quantity shall be the plan quantity in accordance with article 4.01.A., unless otherwise stated in the Contract Documents.
- C. Swale Excavation: Measurement of swale excavation shall include only materials excavated within the line and grades indicated in the plans or as directed by the ENGINEER. Measurement may be by volume or lineal feet as called for in the Contract Documents.
- D. Subsoil Excavation: Measurement of subsoil excavation shall include only material excavated within the lines and grades indicated on the plans or as directed by the ENGINEER. Where the limits of subsoil excavation are not shown or vary from the limits shown on the plans, the pay quantity shall be determined by cross-sectioning measurements in accordance with the volumetric method described in Article 4.01.A. When the final pay quantity is more or less than the original plan quantity, an appropriate adjustment shall be made to the applicable pay quantity for imported fill so that the loss or increase is compensated provided that the unsuitable material is to be disposed off-site. A lower than plan volume will require less fill replacement and a higher than plan volume will require more fill replacement than originally calculated. However, if the subsoil excavation is displaced by on-site excavation, a quantity adjustment will not be made. Where no separate pay item is included in the contract, all such work involving the excavation and disposal of unsuitable material shall be considered incidental to the cost of the applicable excavation item.
- E. Rock Excavation: When rock excavation is listed as a separate pay item in the Contract Documents, measurement of rock excavation shall be by cross-sectioning method prior to and after the rock layer is excavated. CONTRACTOR shall allow enough time between operations to facilitate this field survey work.

If Rock Excavation is not listed as a separate pay item in the Contract Document, the cost of all such work shall be included in the unit price for Regular Excavation, Swale Excavation, Subsoil Excavation, Lake Excavation (Unclassified), or other items which may require the excavation of rock or boulders.

- F. Lake Excavation (Unclassified): Measurement of Lake Excavation (Unclassified) shall include only the net volume of material excavated between the ground surface and bottom of the lake using the VOLUMETRIC method as described in the first paragraph of Article 4.01.A. Any unauthorized overdigging or excavation below the plan bottom elevation will not be included in the measurement for payment.

If the sections indicate that the depths or bank slopes do not conform to the permitted design slopes or indicate that they are steeper, the CONTRACTOR shall correct the deficiency. Further, the CONTRACTOR shall pay for the expense of re-sectioning the lakes to document that said correction has been accomplished.

OWNER shall have the option of deducting the re-sectioning costs from the CONTRACTOR's payment, or the OWNER may request separate payment directly from the CONTRACTOR.

- G. Structure Excavation: Unless otherwise specified, there shall be no measurement for structure excavation. The cost of structure excavation shall be incidental to the cost of the applicable structure and no separate pay item will be established.
- H. Pavement Removal: Measurement for pavement removal shall be by the square yard as measured in place prior to removal unless otherwise specified in the Contract Documents. When no separate pay item is included, the cost of such work shall be incidental to the item of clearing and grubbing or excavation as applicable.
- I. Topsoil: Measurement for topsoil shall be by the square yard as measured in place in locations shown in the plans or as directed by the ENGINEER. Placement of topsoil shall be to the thickness specified in the plans or Contract Documents, and it shall include the cost of furnishing the material as specified in Article 3.02.E. If enough excavated material is not available to satisfy the topsoil requirements, suitable topsoil shall be imported and the cost of furnishing and hauling this imported material shall be included in the unit price of the topsoil item.
- J. Embankment: When there is not enough suitable excavated material to satisfy the requirements of embankment, a separate item called Embankment or Borrow may be established in the Contract Documents to facilitate completion. Payment will be made only for material required to complete the embankment to the plan dimensions and elevations. Material placed beyond the limits shown on the plans will not be measured for payment.

For Embankment, the pay quantity shall be the plan quantity unless otherwise stated in the plans or Contract Documents. The measurement for embankment shall be the in place volume of material placed above the original surface elevation within the dimensions and elevations indicated on the plans less the neat volume of excavation. No allowance will be made for subsidence or shrinkage.



For Borrow, the pay quantity shall be made on a loose volume basis unless otherwise specified in the plans or Contract Documents. The method of measurement shall be in accordance with the second paragraph of Article 4.01.A., LOOSE VOLUME.

- K. **Berm Construction:** Measurement for Berm Construction shall include only materials excavated within the lines and grades indicated in the plans or as directed by the ENGINEER. Measurement may be by volume or lineal feet as defined in the Contract Documents.
- L. **Finish Grading:** Measurement for Finish Grading shall only include areas that require a change in elevation to meet the new design grade. Placement of sod to an existing elevation would require finish grading to facilitate placement of sod. If there is no pay item for finish grading, the cost of all such work shall be incidental to the applicable item of excavation or embankment.

#### **4.02 BASIS OF PAYMENT**

- A. **General:** Prices and payments for the various work items included in this section shall constitute full compensation for all work described herein and shall include excavation, hauling, placing, compacting, and dressing of the finish surface. Said payments shall also include the following items when no separate pay item is included in the contract:
  - 1. Removal and disposal of existing pavement
  - 2. Clearing and grubbing
  - 3. Providing disposal areas
  - 4. Furnishing of borrow areas
  - 5. Permits and waiver costs
- B. **Excavation and Embankment:** Cost of utilizing suitable excavated materials and disposing of unsuitable excavated materials shall be included in the cost of the applicable excavation item, unless otherwise stated in the plans or Contract Documents.

When separate classifications of Excavation and/or Embankment are listed as pay items in the contract, the quantities determined as provided above shall be paid at the contract unit price per cubic yard, square yard, lineal foot or lump sum as applicable. Such payment shall constitute full compensation for all items as described in this section or as stated in the plans or Contract Documents.

- C. **PAY ITEMS:** For all work specified in this section, payment shall be made in accordance with the list of pay items established or as otherwise defined in the Contract Documents. The description of a pay item in the proposal section may vary from the descriptions stated in this section.

**END OF SECTION 02820**

**SECTION 02822  
RIPRAP**

**PART 1      GENERAL**

**1.01    SCOPE**

- A.    The work specified in this section consists of the construction or riprap, composed of sand and cement or rubble as specified in the Contract Documents. The riprap shall be placed against the embankment or other work to be protected, in accordance with these specifications and in conformity with the lines, grades, dimensions and notes shown in the plans.

**1.02    SPECIFICATIONS AND STANDARDS REFERENCE**

- A.    Any reference to a supplementary specification or standard such as ASTM, AWWA, AASHTO, is intended to be a reference to the latest edition of that specification or standard.
- B.    All references to "FDOTSPEC" shall mean the latest edition of the "Florida Department of Transportation Standard Specifications for Road and Bridge Construction."

**PART 2      MATERIALS**

**2.01    SAND-CEMENT**

- A.    Portland Cement used shall be Type I from an approved domestic manufacturer.
- B.    Fine Aggregate shall meet the requirements of FDOTSPEC Subsection 902-3.3.
- C.    Sacks shall be made of burlap unless otherwise approved by the ENGINEER and shall hold the sand-cement mixture without significant leakage when handled. The sack material shall be permeable and absorptive enough to permit passage of sufficient water to provide for hydration of the cement.

The sacks shall be uniform in size and strong enough to stand handling without ripping and splitting. Only one type and size of sack shall be used at any one location.

- D.    Grout used shall be mixed from portland cement and fine aggregate as specified above in this section.

**2.02    RUBBLE**

- A.    Rubble shall consist of broken rock or stone locally available. The material shall of sufficient hardness so as not to break or crumble while loading or placing, similar to the cap rock stratum found in southwest Florida.
- B.    The pieces shall be roughly angular and shall be reasonably free from thin, flat, or elongated pieces. The rubble shall be a graded mixture of individual pieces ranging

in size from three inches to 12 inches with at least 50 percent composed of pieces that measure six inches across the shortest dimension, unless otherwise specified.

- C. Bedding material shall be a crushed stone in accordance with ASTM C-33, gradation 67.

### **PART 3      CONSTRUCTION METHODS**

#### **3.01 SAND-CEMENT RIPRAP**

- A. **Mixing Materials:** The sand and cement shall be proportioned in the ratio of five cubic feet of sand (loose volume) to 94 pounds (one bag) of cement. If the materials are proportioned by weight, sand shall be assumed to have a unit weight of 85 pounds per cubic foot (loose volume). Sand may be batched at the moisture content occurring in the stockpile.

The sand and cement shall be mixed until the mixture is of uniform color.

- B. **Filling Sacks:** The mixed material shall be accurately measured into each sack, with care being taken to place the same amount of material in each sack, and at least the top six inches of the sacks shall remain unfilled to allow for proper tying for folding and to insure against breaking of the sack during placing.
- C. **Placing:** The filled sacks shall be placed with their tied or folded ends all in the same direction unless otherwise shown in the plans. The sacks shall be laid with broken joints, in a regular pattern. The sacks shall be rammed or packed against each other so as to form a close and molded contact after the sand and cement mixture has set up. Sacks ripped or torn in placing shall be removed and replaced with sound, unbroken sacks. All sacks shall then be thoroughly saturated with water.
- D. **Grouting:** Immediately after watering, all openings between sacks shall be filled with dry grout composed of one part portland cement and five parts sand.
- E. **Toe Walls:** Toe walls of riprap for fill slopes may be constructed of poured-in-place concrete in lieu of sand-cement in sacks. If sand-cement in sacks is used for the toe walls, the entire trench excavated for the toe walls shall be filled with sand-cement in sacks.

#### **3.02 RUBBLE RIPRAP (Rock RipRap)**

- A. Rubble shall be dumped in place and arranged to form a compact layer conforming to the neat lines called for and to the specified thickness, plus or minus three inches. It shall be placed in such manner that the small pieces are not segregated but are evenly distributed and placed so that they fill the voids between the larger pieces.
- B. Bedding material will only be required if shown on the plan detail.

- C. Filter fabric shall be placed on the prepared surface prior to placement of rubble. The fabric shall be Mirafi 700X or as approved by the OWNER's representative and it shall be overlapped three feet at any seam or break in the fabric.

#### **PART 4      MEASUREMENT AND PAYMENT**

##### **4.01    METHOD OF MEASUREMENT**

- A. The quantities of Sand-Cement Riprap to be paid for under this section shall be the volume in cubic yards of sand-cement bags satisfactorily placed according to the details in the plans, unless otherwise specified.
- B. Rubble Riprap shall be measured in square yards and satisfactorily placed according to the details in the plans.

When payment is by the ton, a certificate of scale weight shall be provided by a facility approved by the OWNER's representative. Only the rubble actually used shall be included in the quantity to be paid.

When payment is by the square yard, the area to be included for payment shall be the actual area satisfactorily completed according to the details in the plans or as otherwise authorized by the OWNER's representative. The dimensions used for payment purposes shall be measured parallel to the completed surface of riprap.

##### **4.02    BASIS OF PAYMENT**

- A. The quantities as determined according to the above shall be paid for at the contract unit price as established in the Contract Documents for RIPRAP (SAND-CEMENT) or RIPRAP (RUBBLE). This price and payment shall be full compensation for all the work specified in this section and shall include all materials, equipment, labor, and other incidental costs required to satisfactorily complete the work according to the details in the plans. The cost of excavation for the placement of riprap and backfilling and finish grading after placement shall also be included in the contract unit price for riprap.

**END OF SECTION 02822**

**SECTION 02828  
CHAIN LINK FENCE AND GATE**

**PART 1    GENERAL**

**1.01    SCOPE**

- A. Work specified in this section covers materials and work necessary for the chain link fence and gate, complete, as shown on the plans.

**1.02    MANUFACTURER**

- A. Like items of materials provided hereunder shall be the end products of one manufacturer in order to achieve standardization for appearance, maintenance, and replacement.

**1.03    SPECIFICATION AND STANDARDS REFERENCE**

- A. Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc., are referenced, such references shall be latest edition.

**PART 2    PRODUCTS**

**2.01    FENCE MATERIALS**

- A. The use of a manufacturer's name and model or catalog number is for the purpose of establishing standard of quality and general configuration. Products of other manufacturers will be considered in accordance with the General Conditions.
- B. Materials shall be new and products of recognized, reputable manufacturers. Used, rerolled, or re-galvanized materials are not acceptable.
- C. All materials shall be hot-dip galvanized after fabrication. Fabric, posts and other appurtenances shall have a minimum zinc coating of 1.2 ounces per square foot of surface, and fused and bonded with black vinyl meeting the requirements of ASTM F668-11, Class 1.
- D. Fabric: Chain link fence fabric (height per plan), woven of No. 9-gauge wire in two-inch diamond-mesh pattern, selvages knuckled (top and bottom).
- E. Posts: Federal Specification RR-F-191, fence, posts, gates, and accessories, except as hereinafter modified. Standard lengths for setting in ground or in concrete as required for conditions shown.
- F. Line Posts: Use galvanized 2 ½ inch outside diameter, meeting the requirements of ASTM A 120, Schedule 40 steel pipe, weight per linear foot per ASTM F 1043.
- G. End, Corner, Angle and Pull Posts: For end, corner, angle, and pull posts, use 2.875 inch outside diameter standard weight steel pipe, weight per linear foot per ASTM F 1043.
- H. Gate Posts: Follow manufacturer's recommendations.

- I. Post Tops: Post tops shall be pressed steel, or malleable iron, designed as a weather-tight closure cap for tubular posts. Provide one cap for each post, unless equal protection is afforded by combination post top cap and barbed wire supporting arm where barbed wire is required. Where top rail is used, provide tops to permit passage of top rail.
- J. Tension Wire: Tension wire shall be zinc or aluminum-coated coil spring steel wire not less than No. 7 gauge (0.177 inch in diameter). Provide tie clips of manufacturer's standard as approved for attaching the wire to the fabric, at intervals not exceeding 24 inches.
- K. Stretcher Bars: Stretcher bars shall be one-piece lengths equal to full height of fabric with a minimum cross-section of 3/16 inch by three-fourths inch. Provide one stretcher bar for each gate and end post and two for each corner and pull post.
- L. Stretcher Bar Bands: Bar bands shall be heavy-pressed steel, spaced not over 15 inches on center to secure stretcher bars to tubular end, corner, pull, and gate posts.
- M. Top Rail: Not less than 18 foot long tubular steel, 1-5/8 inch outside diameter, weight 2.27 pounds per linear foot. Couplings to be outside-sleeve type and at least six inches long. Provide springs at one coupling in five to permit expansion in rail as recommended by the manufacturer. Top rail to extend through line post tops to form continuous brace from end-to-end of each fence.
- N. Brace pipe shall be of the same material as the top rail and shall be installed midway between the top rail and extend from the terminal post to the first adjacent line post. Braces shall be securely fastened to the posts by heavy-pressed steel and malleable fittings, then securely trussed from line post to base of terminal post with a three-eighths inch truss rod and tightener.
- O. Fittings: Malleable steel, cast iron, or pressed steel, galvanized to meet the requirements of ASTM A 153. Fittings to include stretcher bars and clamps, clips, tension rods, brace rods, hardware, fabric bands and fastenings, and all accessories.

## **2.02 GATE MATERIALS**

- A. Gate shall be swing or sliding as indicated, complete with latches, stops, keepers, hinges, or rollers and roller tracks.
- B. Gate frames shall be constructed of tubular members welded at all corners or assembled with fittings. On steel, welds shall be painted with zinc-based paint. Where corner fittings are used, gates shall have truss rods of 5/16-inch minimum nominal diameter to prevent sag or twist. Gate leaves shall have vertical intermediate bracing as required, spaced so that no members are more than eight feet apart. Gate leaves 10 feet or larger shall have a horizontal brace or one 5/16-inch minimum diagonal truss rod.
- C. Fabricate frames of standard weight pipe 1.90 inch outside diameter, weight 2.72 pounds per linear foot.

- D. Gate fabric shall be the same type as used in the fence construction. Fabric shall be attached securely to the gate frame at intervals not exceeding 15 inches.
- E. Gate hinges shall be of adequate strength for gate and with large bearing surfaces for clamping in position. Hinges shall not twist or turn under the action of the gate. Gates shall be capable of being opened and closed easily by one person.
- F. Gate latches, stops, and keepers shall be provided for all gates. Latches shall have a plunger-bar arranged to engage the center stop, except that for single gates of openings less than 10 feet wide a forked latch may be provided. Latches shall be arranged for locking with padlocks. Center stops shall consist of device arranged to be set in concrete and to engage a plunger-bar on the latch of double gates. No stop is required for single gates. Keepers shall consist of a mechanical device for securing the free end of the gate when in the full open position.
- G. Double Gate: Size and configuration shall be as indicated. Provide gate stops for all double gates, consisting of mushroom type or flush plate with anchors. Set in concrete to engage the center drop rod or plunger bar. Provide locking device and padlock eyes as an integral part of the latch, requiring one padlock for locking both gate leaves.

### **2.03 CHAIN AND LOCK MATERIALS**

- A. Immediately upon installation of chain link fence and gates, case hardened chain of adequate length to secure gate and a locked padlock shall be installed to keep the site clear except when CONTRACTOR is working on-site. Key and/or combination to be provided to Owner.

### **2.04 CONCRETE**

- A. All concrete and concrete work shall conform to the following specifications unless otherwise noted on the plans. All concrete specified in this section shall attain a minimum compressive strength of 3,000 psi in 28 days.
- B. Concrete Mix Materials: Coarse aggregate shall be hard, clean, washed gravel or crushed stone. The maximum aggregate size shall not be larger than one inch nor smaller than one-half inch equivalent diameter. Fine aggregate shall be clean, sharp sand. Water shall be clean, fresh, free from injurious amounts of materials, organic substances, acids or alkalis. Cement shall be Type I, Domestic Portland Cement, conforming to ASTM C150-latest revision.
- C. Concrete Admixtures: Air-entrainment admixtures in concrete are permitted in accordance with manufacturer's specifications provided the specified strength and quality are maintained and unless the admixtures appear to be causing abnormal field results, and provided that the total entrained air content does not exceed 5.0 percent. No other admixture of any type will be permitted without the written approval of the ENGINEER.
- D. Transit or Ready-Mixed Concrete: Transit or ready-mixed concrete may be used provided it meets the requirements of ASTM C94, Ready Mixed Concrete, specifications herein stated and provided the central plant producing the concrete,



the batching, mixing and transportation equipment, in the opinion of the ENGINEER, is suitable for the production and transportation of the specified concrete.

### **PART 3    EXECUTION**

#### **3.01    INSTALLATION OF CHAIN LINK FENCE AND GATE**

- A.    Installation of fencing shall meet the requirements of ASTM F 567.
  
- B.    Fencing shall be installed in straight lines between angle points. Fencing installation shall be in accordance with the manufacturer's recommendations and with these Specifications. Post holes shall be to the minimum depths noted below finished grade. Post space shall not exceed 10 feet on centers and in true lines. Posts shall be plumb and to the depths noted. Top rail of the fence shall be at the top of the fabric. Concrete shall cure prior to installing accessories. Chain link fabric shall be fastened to end posts with stretcher bars and clamps and to line posts and top rail with wire or bands at approximately 14-inch centers and 24-inch center, respectively. Gate posts shall be braced diagonally to adjacent line posts to ensure stability. Gates shall be hung and adjusted so gates operate from open or closed position in accordance with the manufacturer's recommendations.
  
- C.    Cleanup: CONTRACTOR shall clean up and finish grade all areas disturbed by his construction.

### **PART 4    MEASUREMENT AND PAYMENT**

#### **4.01    METHOD OF MEASUREMENT**

- A.    Quantities to be paid for under this section shall be in lineal feet and include all gates, posts, fixtures, etc., complete in place.

#### **4.02    BASIS OF PAYMENT**

- A.    Payment shall be made on a unit price basis in accordance with the accepted proposal. OWNER reserves the right to add to or deduct from the scope of the work, and such additions or deductions will be made at the unit price established in the proposal.

**END OF SECTION 02828**



**SECTION 02911  
ASPHALTIC CONCRETE**

**PART 1      GENERAL**

**1.01 SCOPE**

- A. The work consists of the application of hot bituminous mixtures of the type and thickness specified on the construction plans which shall be composed of a mixture of:
  - 1. Aggregate.
  - 2. Mineral filler, if necessary to produce the desired stability hereinafter described; and
  - 3. Asphalt cement.
- B. The application of hot bituminous mixtures shall be properly placed upon a prepared base of the type called for on the construction plans in accordance with lines, grades, thickness, and typical section(s) shown including the conditioning of existing surface or base.

**PART 2      PRODUCTS**

**2.01 ASPHALT MIXES**

- A. Except for friction courses and base courses, the hot bituminous mixture shall be of the type called for on the construction plans and shall conform to hot mix design criteria as outlined in the latest edition of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

**2.02 FRICTION COURSE**

- A. The asphaltic concrete friction course shall be in accordance with Section 337, Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, latest edition.

**PART 3      EXECUTION**

**3.01 APPLICATION OF ASPHALT MIXES**

- A. Limitation of Operations
  - 1. The mixture shall be spread only when the air temperature (in the shade) is above 40° Fahrenheit and rising.
  - 2. The temperature of the mixture at the time of spreading shall be within 25° Fahrenheit of the temperature set by the ENGINEER for this stage of the operation. The temperatures thus set by the ENGINEER shall be between 250° Fahrenheit and 340° Fahrenheit.

3. Any mixture caught in transit by a sudden rain may be laid only at the CONTRACTOR's risk. Should such mixture prove unsatisfactory, it shall be removed and replaced with satisfactory mixture at the CONTRACTOR's expense. In no case shall the mixture be laid while rain is falling or when there is water on the surface to be covered.

#### B. Joints

1. Transverse joints: Placing of the mixture shall be as continuous as possible and the roller shall not pass over the unprotected end of the freshly laid mixture except when the laying operation is to be discontinued long enough to permit the mixture to become chilled. When the laying operation is thus interrupted, or laying operation is to commence from a cold joint, a transverse joint shall be construction by cutting back on the previous run to expose the full depth of the mat.
2. Longitudinal joints: Where only a portion of the width of pavements is to be laid, the exposed edge shall be vertical. If traffic has rolled over the edge the ENGINEER may require the rolled edge trimmed back to a vertical face prior to construction the adjacent strip.
3. General: When the fresh mixture is laid against the exposed edges of joints (trimmed or formed) it shall be placed on close contact with the exposed edge so that an even, well compacted joint will be produced after rolling without having an open joint or unlevel surface condition.
4. Layered placement of hot bituminous mixture shall be accomplished to cause longitudinal joints to be offset 6 to 12 inches laterally between successive layers.

#### C. Finished Surface Requirements

1. For the purpose of testing the finished surface, the CONTRACTOR shall provide a 15-foot straight edge and a standard template cut to the true cross-section of the road. These shall be available at all times during construction so that the ENGINEER may check the finished surface. The CONTRACTOR shall provide and designate some employee whose duty it is to use the straight edge and template in checking all rolled surface under the direction of the ENGINEER. Vertical measurements from a string line between curbs to determine crown may be accepted as an alternate. The finished surface shall be such that it will not vary more than one-fourth inch from the 15-foot straight edge. Any irregularity of the surface exceeding the above limits shall be corrected.
2. The CONTRACTOR shall be responsible for obtaining a smooth surface on all pavement courses placed. The finished surface shall be of uniform thickness texture and compaction. The surface shall have no pulled, torn, loosened portions and shall be free of segregation, sand streaks, sand spots, ripples or roller marks, depressions that show up after initial rolling, and roller depressions. Any area of the surface which does not meet the

foregoing requirements shall be corrected at the CONTRACTOR's expense.

3. Correction of unacceptable pavement or portion thereof shall be determined in one of the following methods, only if approved by the ENGINEER:

- a. Remove and replace - if correction is made by removing and replacing the pavement, the removal must be for the full depth of the course and extend at least 50 feet on either side of the defective area, for the full width of the paving lane.
- b. Overlaying - if correction is made by overlaying, the overlay shall cover the length of the defective area and taper uniformly to a feather edge thickness at a minimum distance of 50 feet on either side of the defective area and for the entire width of roadway.

D. Compaction

1. The complete pavement will be accepted with respect to in-place density when the following criteria has been met:

- a. Ninety-five percent of laboratory density (FM 1-T166) has been achieved.
- b. Laboratory density (FM-T166) will be determined from a sample of the hot mix obtained in the field.
- c. In-place density will be determined from field cores obtained during thickness evaluation.

E. Tests (Allowable Deficiencies - Thickness)

1. The average thickness of the compaction in-place mixture shall be determined as shown on the construction plans typical cross-section(s) for that particular roadway(s) to be constructed. The pavement shall not be approved or accepted unless the following criteria has been met:

- a. The compacted in-place pavement has not exceeded a deficiency of  $\frac{1}{4}$  inch in thickness as determined by the measured depths of two-inch diameter cores taken at random at a rate of one every 500 SY.
- b. Not more than 20 percent of the total cores taken for than roadway (thickness and type) shall be deficient with no individual core exceeding the  $\frac{1}{4}$ -inch tolerance. Roadway pavement indicating an average thickness of  $1\frac{1}{4}$  inch shall not have an individual core of less than one-inch in-place thickness.
- c. Core lengths shall not exceed the average pavement thickness by more than three-eighths inch and shall be calculated as the next lower thickness.

- d. All testing required such as mixture, density, cores, etc. shall be the responsibility of the CONTRACTOR with the testing performed by an independent testing laboratory, testing results submitted to and approved by the ENGINEER.

F. Care to be Exercised

1. The CONTRACTOR shall use extreme care when applying prime coats, tack coats or laying the asphaltic concrete to insure the materials being applied do not come in contact with surface of adjacent structures such as but not limited to curb, inlets, etc., other than those surfaces designed for contact. Any material allowed to come in contact with surfaces other than those scheduled shall be cleaned by any method acceptable to the ENGINEER that does not destroy the function or aesthetic value of the structure. Any surface after cleaning that remains objectionable to the ENGINEER may result in removing and replacing the objectionable section. All removal, replacement or attempts to clean surfaces shall be at the CONTRACTOR's expense.
2. The CONTRACTOR shall use extreme care in using equipment adjacent to structures such as, but not limited to curbs, inlets, etc. to prevent damage to those structures such as roller scars, grader scars, etc. The ENGINEER may direct removal and replacement of those objectionable surfaces that have in his opinion destroyed the functional or aesthetic value of the structure. Cost of removal and replacement shall be at the CONTRACTOR's expense.

**PART 4**      **MEASUREMENT AND PAYMENT**

**4.01**    **METHOD OF MEASUREMENT**

- A. The quantity to be paid for under this section shall be the number of square yards of asphaltic surface and/or friction course actually completed and accepted, for the various types required by the approved plans.
- B. In determining the quantity of asphaltic concrete surface and/or friction course, the length to be used in the calculation shall be the actual length measured along the surface of the pavement and the width as specified by the approved plans.

**4.02**    **BASIS OF PAYMENT**

- A. The quantity of asphaltic concrete surface and/or friction course shall be paid for at the contract unit price per square yard for the various types required by the approved plans.
- B. The above price and payment shall be full compensation for all the work specified in this section and shall include all materials, equipment, tools, labor, testing laboratory, and incidentals necessary to complete the work.

**END OF SECTION 02911**

**SECTION 02912**  
**BASE COURSE, PRIME AND TACK COAT, AND STABILIZED SUBGRADE**

**PART 1    GENERAL**

**1.01    SCOPE**

- A. The soil-cement base course work specified in this section consists of construction of a base course composed of soil and Portland cement uniformly mixed, moistened, compacted, finished and cured in accordance with these specifications, and shall conform to the lines, grades, thicknesses and typical cross-sections shown on the plans. The base shall be designed to have a seven-day in-situ compressive strength of 250 psi minimum. Seven-day laboratory design compressive strength shall be a minimum of 300 psi.
- B. The shell base course work specified in this section consists of construction of a base course composed of shell. It shall be constructed on the prepared subbase in accordance with these specifications and in conformity with the lines, grades, notes and typical cross-sections shown on the plans. Where so shown on the plans, the base shall be constructed in two courses. Where the plans do not specify double-course base, the base may be constructed in either one or two courses.
- C. The prime and tack coat work consists of applying bituminous materials on a previously prepared base in accordance with these specifications and in conformity with the lines, grades, dimensions and notes shown on the plans.
- D. The stabilized subgrade work shall consist of bringing the bottom of excavations and top of embankments of the roadway between the outer limits of the paving or base course to a surface conforming to the grades, lines and cross-sections shown on the plans, and to a uniform density.
- E. The base material must meet the requirements of the local transportation entity or it will not be considered.
- F. The base material specified on the drawings shall be the basis for the bid.

**PART 2    PRODUCTS**

**2.01    SOIL CEMENT BASE**

- G. Portland cement shall comply with the latest specifications for Portland cement, AASHTO M-85, AASHTO M-134 or ASTM C-150 for the type specified. A one-cubic-foot sack of Portland cement shall be considered to weight 94 pounds. The amount of cement used shall be sufficient to obtain the required compressive strength, however, under no circumstances shall the amount be more than 9 percent by weight. No minimum cement content is required.
- H. Water for use with cement shall be clean and free of substances deleterious to the hardening of the soil-cement.

- I. The soil to be used for the base course shall consist of bank-run shell, limerock, crushed portland cement concrete, approved borrow material or a combination of these materials proportioned as approved by the laboratory. The soil shall be free of organic debris, trash, roots or any other substance considered deleterious to the hardening of the soil-cement. Proposed recycled materials will be considered on a case-by-case basis.

- 1. Specific requirements for soil

Limerock Bearing Ratio .....Minimum 100 (per FM S-515)

Plastic Index .....Maximum 10 percent (per FM 1-T090)

Liquid Index .....Maximum 25 percent (per FM 1-T089)

Gradation:	Sieve Size	Minimum % Passing
	2 - inch	100 percent
	#4	55 percent
	10	37 percent

- J. Soil cement for base construction shall have a LBR value of not less than 100. One LBR test shall be required from the source of the soil cement base material.

- K. The CONTRACTOR shall submit for approval a design mix for the soil proposed for use in soil-cement construction prepared by an independent testing laboratory approved by the ENGINEER. The design mix submittal shall include the results of tests run to verify that the soil meets the material requirements. Results of test used to establish the cement content, and a final design laboratory sample shall also be submitted. Laboratory testing for design mix evaluation shall be accomplished using water from the source proposed for use during construction. The design mix shall be submitted to the Engineer for approval a minimum of 15 calendar days prior to beginning of soil-cement construction. The minimum cement content shall be determined by Florida Test Method FM 5-520-Laboratory Design of Soil-Cement Mixtures. The soil material, used in producing a soil-cement mixture, shall be obtained from a commercial source where soil properties are consistently uniform, and the mixture shall be processed in a central mix plant that automatically weighs components and automatically records the weight of each component on a printed ticket or tape. Mixed in place soil cement will not be authorized.

## 2.02 SHELL BASE

The materials shall not contain excessive amounts of sand and fine particles to prevent proper bonding.

At least 97 percent of the material shall pass a 3½-inch sieve. Not less than ten percent nor more than 20 percent of the material shall pass the Number 200 sieve by washing.

The portion of the material passing the Number 40 sieve shall be non-plastic.

Shell for base construction shall have an LBR value of not less than 100. One LBR test shall be taken per each 1,500 SY area. Each source of shell base materials must be specifically approved for usage.

Each deposit proposed for use shall be inspected by the ENGINEER prior to use. Acceptance or rejection will be made on production of a uniform material consistently meeting this specification. The ENGINEER may require a certified copy of current Florida Department of Transportation (FDOT) quality assurance for each source.

### **2.03 CRUSHED CONCRETE BASE**

Crushed concrete conforming to the gradation and other requirements of Section 204-2 of the most recent FDOT Standard Specifications for Road and Bridge Construction.

### **2.04 PRIME AND TACK COAT**

For the prime and tack coat, any one of the following types or grades of prime and tack materials may be used at the option of the CONTRACTOR unless a particular type and grade are called for on the plans.

1. Prime Coat
  - a. Cutback Asphalt, Grade RC-70 or RC-250.
  - b. Emulsified Asphalt, Grade RS-2, SS-1, SS-1H or Special MS.
2. Tack Coat
  - a. Emulsified Asphalt, Grade S, RS-2, AE-90, SS-1, SS-1H or Special MS.

## **PART 3 EXECUTION**

### **3.01 CONSTRUCTION OF SOIL CEMENT BASE**

#### **A. Equipment**

3. For performing the work specified in this section, the CONTRACTOR may use any machine, combination of machines or equipment that will produce the completed soil-cement base course meeting the requirements for soil pulverization, cement application, mixing, water application, incorporation of materials, compaction, finishing and curing as controlled by these specifications. Special attention is directed to the necessity for utilizing compaction equipment which will produce the required density in a particular soil-cement blend.

#### **B. Preparation**

1. Before other construction operations are begun, the areas to be paved shall be graded and shaped as required to construct the soil-cement base in conformance with the grades, lines, thicknesses and typical cross-sections shown on the plans. Any additional soil needed shall be placed as directed by the ENGINEER. The subgrade shall be firm and able to support without displacement the construction equipment and compaction hereinafter specified. Any unsuitable soil or materials, including material retained on a three-inch sieve, shall be removed and replaced with acceptable material. Soft or yielding subgrade shall be corrected and made stable before construction proceeds.



2. The subgrade in both cuts and fills shall be compacted to density of 98 percent of the maximum density as determined by AASHTO T-180 (modified). The subgrade shall be shaped prior to making the density tests. Subgrade LBR shall be as shown on the construction plans. Test results of subgrade density and LBR shall be provided to the ENGINEER for review prior to the construction of the base material.

C. Plant Mix

1. A plant mixture of soil-cement material shall be utilized. The plant should demonstrate the ability to properly proportion the cement to obtain a uniform mix, meeting all specifications.

D. Compaction

1. Prior to the beginning of compaction the mixture shall be in a loose condition for its full depth and shall be within approximately two percent of the optimum moisture. The loose mixture shall be uniformly compacted to the specified density within three hours. During compaction operations, shaping may be required to obtain uniform compaction and required grade and cross-section. No soil cement shall be applied when the soil or subgrade is frozen. The air temperature shall be at least 40° Fahrenheit in the shade and rising, or over 50° Fahrenheit.

E. Finishing

1. After the mixture has been compacted, the surface of the soil-cement shall be shaped, if necessary, to the required lines, grades and cross-section. During shaping operations, the surface shall be lightly scarified to loosen any imprints left by the compacting or shaping equipment. The resulting surface shall then be compacted to the specified density with steel-wheel or pneumatic tire rollers, or both. Rolling shall be supplemented by broom-dragging as required. Surface compaction and finishing shall be done in such a manner as to produce, in not longer than three hours, a smooth, dense surface, free of surface compaction planes, cracks, ridges or loose materials.

F. Uniformity

1. Any portion of the soil-cement that has a density less than 95 percent of the maximum density, determined as specified, shall be corrected by additional rolling. If the time limits set forth herein have been exceeded, the base shall be left undisturbed and shall be tested (after seven days of curing) to determine its suitability. If it is found unsuitable, it shall be removed and replaced by the CONTRACTOR without additional compensation. The CONTRACTOR may, at his option, remove and replace the deficient base rather than wait for the results of the seven-day test.

G. Construction Joints

1. At the end of each day's construction, a straight transverse construction joint shall be formed by cutting back into the completed work to form a true vertical face. The construction joint thus formed shall be located so as to exclude all of that part of the base at the end of the run from being considered a part of the finished base if it



does not have full depth, is not thoroughly compacted, is not properly proportioned, or is not properly mixed.

#### H. Curing

1. After the soil-cement base has been finished as specified herein, it shall be protected against drying for seven days, as specified herein. The finished soil-cement base shall be maintained in a moist condition by application of water until the curing material is applied. The curing material shall not be applied until the finished soil-cement base has been inspected by the ENGINEER and such inspection has determined that the base material is hardening in a uniform and satisfactory manner. The bituminous material and construction shall be in accordance with the specifications for Prime and Tack Coat for base courses. The actual rate of application shall be sufficient to provide complete coverage without excessive runoff. At the time the bituminous material is applied, the soil-cement surface shall be dense, free of all loose and extraneous material and shall contain sufficient moisture to permit penetration of the bituminous material. Water shall be applied in sufficient quantity to fill the surface voids of the soil-cement immediately before the bituminous curing material is applied.

#### I. Opening to Traffic

1. After the seven-day curing period, the completed portion may be open to all traffic, provided the soil-cement is either protected or has hardened sufficiently to prevent marring or distorting of the surface by the equipment or traffic, and provided the curing as specified is not impaired.
  - a. The curing material shall be adequately maintained during the seven-day protection period so that all of the soil-cement will be covered effectively during this period.
  - b. Finished portions of soil-cement that are used by equipment during the construction of an adjoining section shall be protected in such a manner as to prevent the equipment from marring or damaging the completed work.
  - c. When the air temperature may be expected to reach the freezing point, sufficient protection from freezing shall be given the soil-cement for seven days after its construction and until it has hardened. Other curing materials such as moist earth, straw or hay may be used upon approval.

#### J. Maintenance

1. The CONTRACTOR shall maintain the base to a true and satisfactory surface until the wearing surface is constructed. Should any repairs or patching be necessary, they shall extend to the full depth of the base and shall be made in a manner that will assure restoration of a uniform base course conforming to the requirements of these specifications. In no case shall repairs be made by adding a thin layer of soil-cement to the completed work. The CONTRACTOR may, at his option, make full-depth repairs with concrete to small or minor areas such as manholes, inlets or the like.

K. Testing

1. Tests are a necessary part of soil-cement base construction. The following tests will be made by the laboratory:
  - a. Determinations of Cement Applied
  - b. Field Density - Tests shall be taken per each 500 SY maximum area or per each 500 feet per lane, whichever is less.
  - c. Moisture-Density Test
  - d. Bag Samples - Bag samples shall be taken at least once daily at intervals not to exceed 5,000 SY and molded in the laboratory at field moisture content based on standard proctor density test (AASHTO T-99). Each specimen shall be four inches in diameter and six inches in height. The specimens shall be cured for seven days and tested for compressive strength. The bag samples shall have a minimum strength of 250 psi.
  - e. Six-Inch Diameter Cores - For each day's placement of base material, field cores of six inch diameter shall be taken after seven days curing time at intervals of one every 500 SY or at intervals closer if necessary to isolate areas showing below minimum requirements. The cores shall be used to determine thickness of base and compression tested to determine strength of base material. The cores shall have an average compressive strength of 250 psi. The minimum compressive strength core break shall be 200 psi. Cores with less than 200 psi shall require the CONTRACTOR to isolate the area of base with additional cores and compressive tests for determining limits of the unacceptable base. That portion determined unacceptable shall be removed and replaced with new material, retested after seven days as outlined above. Where the base is more than one-half inch deficient in thickness, the area covered by this deficient base shall be replaced. The one-half inch deficiency may be accepted only if found in minor isolated areas. Additional cores will be required to determine size of deficient area.
  - f. Test Results - After receipt of the test reports from the laboratory stating that there is a satisfactory soil-cement base, the ENGINEER may allow the wearing surface to be placed.
  - g. All tests shall be performed by a testing laboratory, approved by the ENGINEER. The testing laboratory shall be under the direction of a Professional Engineer with at least five years of materials testing experience. All tests shall be performed at the CONTRACTOR's expense.

L. Grade Stakes

1. The CONTRACTOR shall make every effort to preserve the grade stakes until the job is completed. Destroyed or moved stakes shall be replaced at the CONTRACTOR's expense.

### 3.02 CONSTRUCTION OF SHELL BASE

#### A. Equipment

1. This work may be performed with any machine, combination of machine or equipment that will produce the specified results.

#### B. Transporting Shell

1. The shell shall be transported (over material previously spread) to the point where it is to be used. It shall then be dumped on the end of the preceding spread. In no case shall material be dumped directly on the subbase.

#### C. Spreading Shell

1. The shell shall be spread uniformly. All segregated areas of fine or coarse material shall be removed and replaced with well graded shell. For double-course base, the material shall be spread in two courses. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or enough additional to bear the weight of the construction equipment without disturbing the subbase.

#### D. Compacting and Finishing Base

1. For double-course base, the first course shall be bladed if necessary to secure a uniform surface and shall be compacted to the density specified below immediately prior to spreading the second course. No other finishing of this course is required.
  - a. After spreading is completed, the entire surface shall be scarified and shaped so as to produce the exact grade and cross-section after compaction. For double-course bases, this scarifying shall extend to a depth sufficient to penetrate slightly the surface of the first course.
  - b. As soon as proper conditions of moisture are attained, the material shall be compacted to a density of 98 percent of the maximum density obtainable under AASHTO Method T-180 (modified). Where the base is being constructed in one course and the specified thickness is more than six inches, the density specified above shall be obtained in both the bottom half and the top half of the base. During final compacting operations, if blading 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 determinations on the finished base.
  - c. The surface shall be "hard-planed" with a blade grader immediately prior to the application of the prime coat to remove the tin-glazed or cemented surface, leaving a granular or porous condition that will allow free penetration of the prime material. The materials planed from the base shall be removed from the base area.

- d. If, at any time, the subbase material should become mixed with the base course material, the CONTRACTOR shall excavate and remove the mixture. He shall reshape and compact the subgrade, and replace the materials removed with clean base material. The clean base material shall then be shaped and compacted as specified above.

E. Testing Surface

1. The finished surface of the base course shall be checked with a templet cut to the required cross-section and with a 15 foot straight edge laid parallel to the centerline of the road or other approved testing devices. All irregularities greater than  $\pm 1/4$  inch shall be corrected by scarifying and removing or adding rock, as may be required, after which the entire areas shall be recompacted as specified herein. On every project at least one of each of the following density tests shall be made by the laboratory at intervals not exceeding 500 SY unless otherwise specified.
  - a. Modified Proctor Maximum Density Determination Tests. Tests shall be taken per each 500 SY maximum area.
  - b. Field In-Place Density Tests.

F. Thickness

1. After the base is completed, test holes shall be dug or cores taken at intervals of not more than 500 SY, or at closer intervals if necessary. Where the base is deficient in thickness, the area covered by this deficient base shall be reworked by scarifying to a depth of at least three inches and adding more base material, so that after proper compacting the thickness will conform to the plans.

All tests shall be performed by an independent testing laboratory, approved by the ENGINEER. The testing laboratory shall be under the direction of a Professional Engineer with at least five years of materials testing experience.

G. Grade Stakes

4. The CONTRACTOR shall make every effort to preserve the grade stakes until the job is completed. Destroyed or moved stakes shall be replaced at the CONTRACTOR's expense.

**3.03 CONSTRUCTION OF CRUSHED CONCRETE BASE**

A. Equipment

1. This work may be performed with any machine, combination of machine or equipment that will produce the specified results.

B. Transporting Crushed Concrete

1. The crushed concrete shall be transported (over material previously spread) to the point where it is to be used. It shall then be dumped on the end of the preceding spread. In no case shall material be dumped directly on the subbase.

C. Spreading Crushed Concrete

1. The crushed concrete shall be spread uniformly. All segregated areas of fine or coarse material shall be removed and replaced with well graded material. For double-course base, the material shall be spread in two courses. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or enough additional to bear the weight of the construction equipment without disturbing the subbase.

D. Compacting and Finishing Base

1. For double-course base, the first course shall be bladed if necessary to secure a uniform surface and shall be compacted to the density specified below immediately prior to spreading the second course. No other finishing of this course is required.
  - a. After spreading is completed, the entire surface shall be scarified and shaped so as to produce the exact grade and cross-section after compaction. For double-course bases, this scarifying shall extend to a depth sufficient to penetrate slightly the surface of the first course.
  - b. As soon as proper conditions of moisture are attained, the material shall be compacted to a density of 98 percent of the maximum density obtainable under AASHTO Method T-180 (modified). Where the base is being constructed in one course and the specified thickness is more than six inches, the density specified above shall be obtained in both the bottom half and the top half of the base. During final compacting operations, if blading 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 determinations on the finished base.
  - c. The surface shall be "hard-planed" with a blade grader immediately prior to the application of the prime coat to remove the tin-glazed or cemented surface, leaving a granular or porous condition that will allow free penetration of the prime material. The materials planed from the base shall be removed from the base area.
  - d. If, at any time, the subbase material should become mixed with the base course material, the CONTRACTOR shall excavate and remove the mixture. He shall reshape and compact the subgrade, and replace the materials removed with clean base material. The clean base material shall then be shaped and compacted as specified above.

E. Testing Surface

1. The finished surface of the base course shall be checked with a templet cut to the required cross-section and with a 15 foot straight edge laid parallel to the centerline of the road or other approved testing devices. All irregularities greater than  $\pm 1/4$  inch shall be corrected by scarifying and removing or adding rock, as may be required, after which the entire areas shall be recompactd as specified herein. On every project at least one of each of the following density tests shall be made by the laboratory at intervals not exceeding 500 SY unless otherwise specified.

- a. Modified Proctor Maximum Density Determination Tests. Tests shall be taken per each 500 SY maximum area.
- b. Field In-Place Density Tests.

F. Thickness

- 1. After the base is completed, test holes shall be dug or cores taken at intervals of not more than 500 SY, or at closer intervals if necessary. Where the base is deficient in thickness, the area covered by this deficient base shall be reworked by scarifying to a depth of at least three inches and adding more base material, so that after proper compacting the thickness will conform to the plans.

All tests shall be performed by an independent testing laboratory, approved by the ENGINEER. The testing laboratory shall be under the direction of a Professional Engineer with at least five years of materials testing experience.

G. Grade Stakes

- 1. The CONTRACTOR shall make every effort to preserve the grade stakes until the job is completed. Destroyed or moved stakes shall be replaced at the CONTRACTOR's expense.

**3.04 APPLICATION OF PRIME AND TACK COAT**

A. Equipment

- 1. This work may be performed with any machines, combination of machines, or equipment that will produce the specified results.

B. Cleaning the Base

- 1. Before any bituminous material is applied, all loose material, dust, caked clay and foreign materials which might prevent proper bond with existing surface shall be moved to the shoulders. Particular care shall be taken to clean the outer edges of the strip to be treated in order to insure that the tack coat will adhere. Where the prime or tack coat is applied adjacent to the curb and gutter or valley gutter, such concrete surfaces are to be protected and kept free of bituminous material.

C. Weather Limitations

- 1. No bituminous material shall be applied when the temperature of the air is less than 40° Fahrenheit in the shade, or when the weather conditions or the condition of the existing surface is unsuitable.

D. Application of Prime Coat

- 1. The surface to be primed shall be clean and contain optimum moisture. The temperature of the prime material shall be between 100° and 150° Fahrenheit. The exact temperature shall be such as will insure uniform distribution. The material shall be applied by means of a pressure distributor.



The amount of bituminous material applied shall be at the rate of approximately 0.10 to 0.25 gallons per square yard, dependent upon the type of base materials. The rate of application shall be sufficient so as to coat the surface thoroughly and uniformly without having any excess to form pools or to flow off the base. A light, uniform application of clean sand shall be applied prior to opening the primed base to traffic. To cure the prime coat in such cases, the sand shall be rolled with a traffic roller in conjunction with traffic. If warranted by traffic conditions, the application shall be made only on one-half of the width of the base at one time, care being taken to secure the correct amount of bituminous material at the joint. The base shall be sufficiently moist in order to obtain maximum penetration of the asphalt.

**E. Application of Tack Coat**

1. Where a bituminous surface is to be laid and a tack coat is required, both shall be applied as herein specified. On newly constructed base courses, the application of the tack coat (when one is required) shall follow the application of the prime coat, immediately before the wearing surface is applied. In general, a tack coat will not be required on primed bases, except in areas which have become excessively dirty and cannot be cleaned, or in areas where the prime has cured and lost bonding effect. The tack coat shall be applied with a pressure distributor. The bituminous material shall be heated to a suitable consistency as designated. The bituminous material shall be applied only in the amount necessary to bond the wearing surface to the base. The rate of application shall be between 0.02 and 0.08 gallons per square yard. The exact rate shall be designated by the ENGINEER. The tack coat shall be applied sufficiently in advance of the wearing surface to permit drying. However, it shall not be applied so far in advance or over such an area as to lose its adhesiveness as a result of being covered with dust or other foreign material. The tack coat shall be kept free from traffic until the wearing surface is laid.

**3.05 PREPARATION OF STABILIZED SUBGRADE**

**A. Subbase**

1. The work shall consist of bringing the bottom of excavations and the top of embankments of the roadway to a surface conforming to the grades, lines and cross sections shown on the plans.

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 whole subbase brought to line and grade, allowing for subsequent compaction.

- a. All submerged stumps, roots or other organic matter encountered in the preparation of the subbase shall be removed.
- b. The subbase shall be stabilized to the minimum Bearing Ratio and depth shown on the plans. LBR tests shall be taken per each 1,500 SY area or per each 1,500 feet of roadway, whichever is less. If the natural in-place soils do not meet the required stability, sufficient borrow material for stabilization shall be uniformly mixed with in-place soils to produce the load Bearing Ratio. Material used for stabilization must be specifically approved for usage. Borrow material shall be included in the cost of subbase bid item.

- c. The stabilized subbase in both cuts and fills shall be compacted to a density as determined by AASHTO T-180 (modified). The subbase shall be shaped prior to making the density tests.
- d. The subbase shall be firm and able to support the construction equipment without displacement. The minimum density acceptable at any location will be 98 percent of the maximum density as determined by AASHTO T-180 (modified). Load Bearing Ratio determinations shall be made by the Limerock Bearing Ratio Method, Test Method D of AASHTO T-180 as modified by the Florida Department of Transportation's Research Bulletin 22-B, revised April, 1972. Soft or yielding subgrade shall be corrected and made stable before construction proceeds.
- e. Density tests shall be made before work proceeds.
- f. The required density shall be maintained until the base of pavement has been laid or until the aggregate materials for the base of pavement course have been spread in place.
- g. After the subbase has been prepared, and immediately before any base material is placed, the subbase shall be tested for substantial compliance as to crown and elevation. Material shall be removed or added, as the condition necessitates, and again stabilized and compacted to bring all portions of the subbase to the specified elevation, stability and density.

#### **PART 4    MEASUREMENT AND PAYMENT**

##### **4.01 SOIL-CEMENT BASE**

###### **A. Method of Measurement**

- 1. The quantity to be paid for under this section shall be the number of square yards of soil-cement base course actually completed and accepted. In determining the quantity of soil-cement base course, the length to be used in the calculations shall be the actual length measures along the surface of the base and the width shall be the width of the base actually constructed, both within the neat lines shown on the plans.

###### **B. Basis of Payment**

- 1. This work shall be paid for at the contract unit price per square yard of completed and accepted soil-cement base course. The contract unit price shall be full payment for furnishing all materials, equipment tools, labor, testing and incidentals necessary to complete the work and for carrying out the maintenance provisions in this specification.
- 2. Any additional earth required for the base course in accordance with Paragraph 3.01,B.1 herein, will be paid for at the contract unit price per cubic yard for excavation.
- 3. No allowance shall be made for any materials used or work done outside the lines established by the ENGINEER.



#### **4.02 SHELL BASE**

##### **A. Method of Measurement**

1. The quantity to be paid for under this section shall be the number of square yards of base acceptably completed. The length to be used in the calculation shall be the actual length measured along the surface of the completed base, and the width of the base actually constructed, both within the neat lines shown on the plans.

##### **B. Basis of Payment**

1. The quantity determined as provided above shall be paid for at the contract unit price per square yard for base, complete, in place and accepted. Such price and payment shall be full compensation for performing and completing all the work described in this section and shall include furnishing all materials, equipment, tools, labor, testing and incidentals necessary to complete the work.

#### **4.03 CRUSHED CONCRETE BASE**

##### **A. Method of Measurement**

1. The quantity to be paid for under this section shall be the number of square yards of base acceptably completed. The length to be used in the calculation shall be the actual length measured along the surface of the completed base, and the width of the base actually constructed, both within the neat lines shown on the plans.

##### **B. Basis of Payment**

1. The quantity determined as provided above shall be paid for at the contract unit price per square yard for base, complete, in place and accepted. Such price and payment shall be full compensation for performing and completing all the work described in this section and shall include furnishing all materials, equipment, tools, labor, testing and incidentals necessary to complete the work.

#### **4.04 PRIME AND TACK COAT**

##### **A. Method of Measurement**

1. The quantity to be paid for under this section shall be the number of square yards of prime or tack coat actually completed and accepted.
2. In determining the quantity of prime or tack coat, the length to be used in the calculation shall be the actual length measured along the surface of the pavement and the width shall be the width of pavement actually constructed, both within the neat lines shown on the plans.

##### **B. Basis for Payment**

1. The quantity of prime or tack coat determined, as provided in Paragraph A above, shall be paid for at the contract unit price per square yard for this item.

2. When no separate bid item for prime is provided in the proposal, the prime coat shall not be paid for directly, and the cost shall be included in the contract unit price for the base course on which it is applied.
3. When no separate bid item for tack coat is provided in the proposal, the tack coat shall not be paid for directly, and the cost shall be included in the contract unit price for the pavement to be laid over the tack coat.
4. The prices and payments provided for herein shall be full compensation for all materials (including sand covering where required) for heating, hauling and applying, and for all equipment, tools, labor and incidentals necessary to complete the work covered by this section.

#### **4.05 STABILIZED SUBGRADE**

##### **A. Method of Measurement**

1. The quantity to be paid for under this section shall be the number of square yards of subgrade acceptably completed. The length to be used in the calculation shall be the actual length measured along the surface of the completed subgrade, and the width of the subgrade actually constructed, both within the neat lines shown on the plans.

##### **B. Basis of Payment**

1. The quantity determined as provided above shall be paid for at the contract unit price per square yard for subgrade, complete, in place and accepted. Such price and payment shall be full compensation for performing and completing all the work described in this section and shall include furnishing all materials, equipment, tools, labor, testing and incidentals necessary to complete the work.

**END OF SECTION 02912**

**SECTION 02924  
PAVEMENT MARKING, STRIPING, AND SIGNS**

**PART 1      GENERAL**

**1.01    SCOPE**

- A.    This section specifies pavement traffic painting, marking, striping, and signing shown on the plans or called for in the specifications. In general, all pavement traffic painting, marking, striping, and signing shall comply with the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, hereafter referenced "FDOTSPEC" and the Manual on Uniform Traffic Control Devices, U.S. Department of Transportation, Federal Highway Administration, hereafter referenced as "MUTCD" and the Florida Department of Transportation Roadway and Traffic Design Standards, hereafter referenced by index number.

**1.02    SPECIFICATION AND STANDARDS REFERENCE**

- A.    Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc., are referenced, such references shall be the latest edition.

**PART 2      PRODUCTS**

**2.01    SIGN PANELS AND POSTS**

- A.    Sign panels shall be aluminum. All signposts shall be steel flanged channel installed in accordance with FDOT index number 11865.

**2.02    SIGN BLANKS AND FACES**

- A.    Regulatory and Warning signs as defined in the MUTCD shall be "High Intensity" reflectorized grade.
- B.    Street name and guide signs as defined in the MUTCD shall be "Standard reflectorized grade."
- C.    CONTRACTOR shall submit documentation from the sign suppliers which identifies the reflector grade of each sign. All materials shall meet the requirements of FDOTSPEC.

**2.03    SIGN HARDWARE**

- A.    Signs shall be attached to posts in accordance with FDOT index number 11865.

**2.04    PAVEMENT STRIPING AND PAINTING**

- A.    Thermoplastic Striping and Marking - Thermoplastic pavement striping shall be reflective and meet the requirements of FDOTSPEC, Section 711.

- B. Painted Striping and Marking - Painted striping shall be reflectorized and meet the requirements of FDOTSPEC, Section 710.

## **2.05 REFLECTIVE PAVEMENT MARKERS**

- A. Reflective pavement markers and their installation shall meet the requirements of FDOTSPEC, Section 706.

## **PART 3 EXECUTION**

Not Used

## **PART 4 MEASUREMENT AND PAYMENT**

### **4.01 BASIS OF PAYMENT**

- A. Payment for pavement marking, striping, and signing shall be on a lump sum basis in accordance with the accepted bid. Such payment shall constitute full compensation for furnishing all labor, materials, and equipment necessary to complete the construction on accordance with the plans and specifications.

**END OF SECTION 02924**

**SECTION 10002**  
**NATURAL TURF ATHLETIC PLAYING FIELD**

PART ONE - GENERAL

1.01 RELATED DOCUMENTS:

- A. All Final Construction Documents, and all Contract Documents defined in the Agreement shall apply to this Section, including general provisions of the Agreement and any Supplementary Conditions and Division 1 Specification Sections of the Design Criteria Package.

1.02 DESCRIPTION:

A. SCOPE

Natural turf athletic fields is referred to as the "Playing Field System" in this specification section and is composed of the following subsystems/requirements:

1. Earthwork Requirements:

Excavation, trenching, grading, filling, back filling, compaction, and disposal of spoil materials.

2. Playing Field Requirements:

Root zone soil materials and amendments.

Tifway 419 Bermudagrass

1.03 SUBMITTALS

A. SUBMITTALS REQUIRED PRIOR TO CONTRACTOR SELECTION

1. Pre-bid Materials Inspection and Testing: The CONTRACTOR shall pre-qualify proposed deviations from the specified root zone materials, drainage material, and sod with the LANDSCAPE ARCHITECT. All costs associated with Pre-bid testing shall be borne by the CONTRACTOR. Proposed substitutes received after bids have been submitted will be rejected. Materials testing requirements are described in this Section.

2. CONTRACTOR Qualification Requirements: The CONTRACTOR shall provide proof of three (3) or more sport field installation projects which have been in use successfully for three (3) or more years. To be included as a qualified installer, the CONTRACTOR shall submit the following for review by the LANDSCAPE ARCHITECT and OWNER for acceptance or rejection of the proposed CONTRACTOR.
  - a) If any portion of the NATURAL TURF ATHLETIC PLAYING FIELD scope of work will not be provided directly by the CONTRACTOR, provide the name of a single SUBCONTRACTOR for each of the subsystems referenced in Article 1.02.A of this Section. The SUBCONTRACTOR shall specialize in the scope of work to be performed and provide proof of three (3) or more sport field installation projects for which the work they intend to perform under this contract has been in use successfully for three (3) or more years.
  - b) Listing of employees to be used on this project and their experience level.
  - c) Listing of equipment proposed to use for construction.
  - d) Listing of special consultants necessary to complete the project.
3. Submit a detailed construction schedule for field installation, including grow-in period to the LANDSCAPE ARCHITECT and OWNER for review and approval.

#### B. SUBMITTALS REQUIRED AFTER AWARD OF CONTRACT

1. Test Reports: The following reports shall be scheduled and coordinated with the LANDSCAPE ARCHITECT and the OWNER's designated testing firm.

Field reports and testing requirements are specified in this Section. The submission of test data and reports shall be accomplished in an expeditious and timely manner to allow adequate time for review and re-testing, if necessary, and to allow sufficient time to approve all samples and proposed materials, prior to delivery of materials to the site and initiation of all playing field work. All costs associated with untimely test scheduling shall be the responsibility of the CONTRACTOR.

2. Shop Drawings: Submit shop drawings to the LANDSCAPE ARCHITECT, and Engineer of Record for approval. Submit Shop Drawings for approval of the associated field grading and drainage system design including layout and connections.

3. Material Certifications: Manufacturer's or vendors certified analysis for soil amendments, fertilizers and sod shall be submitted to the LANDSCAPE ARCHITECT and Engineer of Record.
4. Samples: Immediately upon notice to proceed submit multiple samples simultaneously to insure meeting this requirement. Re-submit any materials accepted as alternates in the pre-bid submittals. All phase one testing materials shall be submitted, tested and approved 21-days after Notice to Proceed for the playing field system subcontract. Submit samples of each of the following materials:
  - Fill Material: Provide a one-gallon sample of each 1,000-ton lot(s) of fill material for testing.
  - Sod: Submit a one square foot sample of the proposed sod with one inch of soil below the thatch layer.
5. Supplier List: Submit list of procured and contracted suppliers of all materials required for the Playing Field System no later than 21-days after Notice to Proceed for the playing field system subcontract. Contacts and phone numbers shall be included for verification.
6. Submit underdrain and grade verification survey, prior to sodding of the fields.
7. Grow in and Maintenance Procedures: Submit to the LANDSCAPE ARCHITECT the proposed grow in procedures including fertilization rates, watering rates, weed killers or other chemical applications, including rates for grow in and post grow in maintenance for approval.

#### 1.04 QUALITY ASSURANCE

- A. Codes and Standards: Comply with all local, State and Federal rules, regulations and ordinances including but not limited to those which apply to sloping of excavation, trenching and safety of workers, as well as the latest version of OSHA requirements.
- B. The following publications of the issues listed below, but referred to thereafter by basic designation only, from a part of this specification to the extent indicated by the reference thereto:
  1. Florida State Plant Board Standards for Nursery Plants (latest edition).
  2. Florida Nurserymen and Growers Association, Approved Planting Practice.
  3. Bailey's Hortus Second.

4. State Department of Agriculture Regulations.
- C. Soil Testing and Inspection Service: The CONTRACTOR shall employ and pay for a qualified independent geotechnical testing and inspection laboratory to perform soil testing and inspection service during earthwork operations, the CONTRACTOR will provide necessary means to assure cooperation with testing firm.
- D. CONTRACTOR Testing and Verification: Agents representing the CONTRACTOR and OWNER shall be present during the preparation and packaging of samples from the processed sand, the sand and peat blend and the drainage material. Certification of this testing shall be submitted to the LANDSCAPE ARCHITECT.

The sample shall consist of cross-sections taken from the top, bottom, and sides of the stockpile. A one-gallon sample in a sealed plastic bag shall be packaged and shipped to the CONTRACTOR's testing firm.

- E. Project Schedule: Provide a bar chart project schedule that lists the types of work to be performed and length of time for each, including grow-in period.
- F. Materials Testing after Award of Contract: The CONTRACTOR shall schedule and coordinate the testing of all materials during construction including specified materials, materials previously accepted as alternates and materials pre-qualified during the pre-bid phase. Copies of the test reports shall be submitted to the LANDSCAPE ARCHITECT. The LANDSCAPE ARCHITECT reserves the right to contract with an independent testing agency to verify and confirm data at any time during the course of the Playing Field System installation. The CONTRACTOR shall assist and cooperate in obtaining samples for testing by the independent testing agency if requested. The OWNER shall pay for all required testing.

Testing shall be performed in the following phases:

1. Phase One - Materials Selection and Definition Prior to Construction:

The CONTRACTOR shall pay for all costs for subsequent testing required to gain approval of rejected materials, if needed.

- a) Root Zone Mix Testing: The root zone mix shall be evaluated using the most current USGA, United States Golf Association, testing protocol as a guideline. Soil tests will be randomly taken from the soils that will be utilized as the root zone profile, for each



field area. These tests will determine current pH, calcium, potassium, phosphorus and magnesium levels. The pH will be adjusted by incorporating dolomite limestone or elemental sulfur uniformly in the root soil profile, prior to planting.

The test results will establish the specifications for approval or rejection of all subsequent submittals during construction.

- b) **Root Zone Mix Formulation and Testing:** The CONTRACTOR shall produce a representative sample of the proposed root zone mix by using the defined ratio of approved processed sand and approved peat. The ratio of sand/peat shall be based on laboratory testing and performance criteria established by the specifications. The physical and performance characteristics of the sample developed by the CONTRACTOR's testing agent shall define the root zone mix.

The following are minimum standards for the root zone soil particle sizes:

- The root zone soils shall be made up of mostly well drained sandy soils,
  - The root zone soils should be free of roots, rocks, and other debris,
  - The majority of the soil particle sizes should be in the 0.5 to 0.25-diameter sieve (mm).
  - Organic content should be a maximum of 10% or less,
  - Total clay, silt, and very fine particle sizes should be less than 5%.
- c) Upon approval of the root zone mix the test results will establish the specifications for approval or rejection of all subsequent submittals during construction.
- d) **Nematode Testing:** The sod supplier shall show proof that nematode testing and/or treatment has been performed within the last two years prior to harvest. The supplier shall guarantee to the CONTRACTOR and the LANDSCAPE ARCHITECT that these tests and their data are reliable. If not, the CONTRACTOR's Testing Agent shall determine a nematode essay. Plant pathogenic nematode threshold shall be determined on the sod materials and growing medium. Plant pathogenic nematodes shall not exceed critical threshold values for sod or growing medium at time of delivery.

2. Phase Two - Quality Control Testing during Construction: The CONTRACTOR shall pay for all subsequent testing required to gain approval of rejected materials, if needed. ALL MATERIALS SHALL BE TESTED AND APPROVED BEFORE DELIVERY TO THE PLAYING FIELD SYSTEM SITE. The CONTRACTOR shall coordinate with and notify the LANDSCAPE ARCHITECT and the CONTRACTOR's testing firm when testing samples are scheduled to be taken. Materials that are approved for delivery and materials to be tested are to be stored separately from other soil sources. The LANDSCAPE ARCHITECT reserves the right to conduct random sampling and/or independent testing at any time during the field installation.
- a) Root Zone Mix Testing: Processed peat shall not be mixed with any sand until the OWNER's testing firm has approved the particle size distribution and determined that the peat and sand materials are uniform and representative of the approved samples per Phase One Testing Requirements. After approval of the Phase One root zone components and mix, the CONTRACTOR prepares the processed sand in lots of 1000 tons.
  - b) Fertility Testing During Maintenance Period: If determined to be required by the LANDSCAPE ARCHITECT, the OWNER shall assign a local testing laboratory(s) to be used for soil and tissue tests during the maintenance period. Soil and/or tissue samples may be submitted for testing of the installed grass material through substantial completion. The local testing laboratory shall make recommendations to the CONTRACTOR for fertilizer ratios and rates and application of macro and micronutrients during the maintenance period. Copies of this report shall be submitted to the LANDSCAPE ARCHITECT and CONTRACTOR.
  - c) Sod Supplier Grow-in Program: Upon approval of a grass material submit to the LANDSCAPE ARCHITECT the location of the sod supply from which the sod will be harvested. The Sod Supplier shall submit to an on-site inspection of the area to be used as the material source. During the grow-in and harvest period, the LANDSCAPE ARCHITECT shall be allowed to inspect the source at any time.
  - d) The Sod Supplier shall submit a grow-in schedule for the playing field turf including but not limited to:
    - Watering
    - Fertilization (rates, ratios)
    - Weed Control
    - Pest Control
    - Mowing

- e) Sod Harvesting Procedure: Uniformity of cut is required. Sod shall be big roll cut in approximate widths of greater than or equal to 30 inches and minimum lengths of 50 feet having 3/4 inch of topsoil below thatch layer across the width and length of each section. Thickness and width shall be kept to strict dimensions. Edges shall be cut at 90-degree angles to provide for tight fit during installation.

The LANDSCAPE ARCHITECT may reject sod not meeting specifications as determined by their sole judgment.

#### 1.05 JOB CONDITIONS

- A. Site Information: Data in subsurface investigation reports was used for the basis of the bid process and is available to the CONTRACTOR for information only. Conditions are not intended as representations or warranties of accuracy or continuity between soil borings. CONTRACTOR will be responsible for interpretations or conclusions drawn from this report.

Additional test borings and other exploratory operations may be performed by CONTRACTOR, at the CONTRACTOR's option; however, no change in the Contract Sum will be authorized for such additional exploration.

- B. The OWNER will allow access to the Project Site by way of existing roads within the park. The CONTRACTOR shall coordinate with the OWNER's representative and schedule all use of the roads to accommodate the requirements of the park's operations. Such coordination may include, but shall not be limited to:
  - 1. Restricting times the access drives may be available for construction.
  - 2. Restricting CONTRACTOR's hours of operation.
  - 3. Restrictions which may be required by emergency services.
  - 4. Noise and dust control.
  - 5. Frequency of pavement cleaning.
  - 6. Restricting areas for parking or storage of CONTRACTOR's vehicles, equipment, and materials.
  - 7. Special project safety requirements.
  - 8. Maintenance responsibilities and coordination.

- C. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- D. Existing Bench Marks: Carefully preserve and maintain existing benchmarks, vertical/horizontal control, monuments, property line pipes and pins, and other reference points. If disturbed or destroyed, restore or replace at no additional cost to the OWNER.

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- B. Root Zone Mix: Blend approved root zone materials at an approved location that is not at the Playing Field System site. Deliver approved lots in clean, washed and covered trucks to eliminate contamination during transportation. Stockpile of material on site shall be coordinated with the OWNER and placed in an area free of contamination such as low, wet and/or refuse areas if Playing Field System area is not available.
- C. Sod: All sod shall be transported and planted at the site within twenty-four (24) hours after cutting. Sod cutting and shipping shall be coordinated with the sod installers. Sod must be in a moist condition at the time of cutting and kept in a moist condition until it is placed. Transport sod in either a closed van or in open truck properly covered to prevent windburn, drying, or damage to sod.
- D. Plant material must be acceptable at the time of planting and approved by the LANDSCAPE ARCHITECT.
- E. Disposal of Surplus Material: Surplus and waste materials resulting from sodding operations shall be legally disposed of by the CONTRACTOR off-site.

#### 1.07 COMPLETION DATES/OBSERVATIONS

- A. Completion of the work is defined as the full and exact compliance and conformity with the provisions expressed or implied in the drawings and specifications, and associated change orders.
- B. The acceptability of all material, workmanship, labor and compliance with the specifications, grades and standards is to be solely determined by the LANDSCAPE ARCHITECT.

- C. Right to Reject: The LANDSCAPE ARCHITECT has the right, at any stage of the work, to reject any and all work and materials which, in their opinion, does not meet the requirements of the plans and specifications. Rejected material shall be immediately removed from the site and acceptable material substituted in its place.
- D. General: Field completion and observations shall be separated into 2 phases, "Initial Completion" and "Substantial Completion."
1. Initial Completion: Scheduled date for Initial Completion shall be no later than one month before Playing Field System Substantial Completion. The CONTRACTOR shall notify the LANDSCAPE ARCHITECT in writing, 7 days prior to scheduling the date for the "Initial Completion" field review. A punch list of items shall be provided in written form and must be completed before the Playing Field System will be considered as "Initially Complete". To be considered "Initially Complete" the following items shall be provided:
    - a) Rough grading completed.
    - b) Root zone mixture in place or incorporation of soil amendments are compacted and to grade.
    - c) Pre-plant dolomite and fertilizer incorporation into the top 10-12 inches of root zone profile.
    - d) Rough laser grade of field surface.
    - e) Irrigation system installed, tested, and adjusted.
    - f) Fumigation with Methyl Bromide (if specified).
    - g) Final laser grade to 0.5-inch of specification by survey.
    - h) Certified sod areas laid, seams tight, joints filled.
    - i) Topdress entire turf surface with same root zone mixture that the fields were built from, or USGA sand, twice before "Substantially Complete" or "Playable" condition.
    - j) Roll entire turf surface with a maximum of two (2) -ton double steel drum roller.

2. Substantial Completion: The CONTRACTOR shall notify the LANDSCAPE ARCHITECT in writing, 7 days prior to scheduling a date for the "Substantial Completion" field review. This date shall occur at least one week prior to the Substantial Completion date set for the entire project. To be considered "Substantially Complete" or "Playable" the following items shall be provided:
  - a) All "Initial Completion" punch list items are complete.
  - b) Grow-In Log compiled in a loose-leaf 3-ring binder detailing all work done on fields from installation through Substantial Completion. Log shall include product information sheets and manufacturer's representatives contacted with phone numbers.
  - c) In addition to top dressings as required for "Initial Completion" a minimum of one top dressing performed on total field turf surfaces.
  - d) Root depth of 3-1/2 inch averaged over the entire field as determined by eight (8) core samples equally representative of the field areas as determined by the LANDSCAPE ARCHITECT.
  - e) Absence of all joints and cracks in sod installation as to appear "seamless."
  - f) Dense, green, consistent turf void of any bare or patchy areas. Smooth, level playing surface compacted and level to grading tolerances.
  - g) Written warranties/guarantees.
  - h) Turf maintained at a height of 3/4 inch to one inch mowed with reel-type equipment.
  - i) Insect and weed free turf. No off type bermudagrass (common) or torpedo species.

#### 1.08 WARRANTY/GUARANTEE

- A. General: Warranties/Guarantees specified in this Article shall not deprive the OWNER of other rights it may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties/guarantees made by the CONTRACTOR under requirements of the Contract Documents.

## 1.09 FIELD GROW - IN MAINTENANCE

- A. General: Perform all operations necessary to maintain the Playing Field System through the date of Substantial Completion. The grow-in of the bermudagrass will not stop after the initial grow-in period is completed. Minimum grow-in will be 12-weeks for sodded fields. However, LANDSCAPE ARCHITECT inspection shall identify project completeness and field playability. At that time an extended maintenance agreement may or may not be negotiated at the OWNER's request. CONTRACTOR shall be onsite to direct all field subcontractors during this period.
- B. Grow In Schedule: Project schedules should be adjusted to maximize seasonal effects for the grow-in period. Bermudagrass is a warm season grass and grows more aggressively when temperatures are well above 60 degrees, and the length of daylight is longer. Depending upon project schedule, increased rate and fertility applications may be approved by the LANDSCAPE ARCHITECT to counteract the effect of shorter and cooler days in the project schedule.
- C. Minimum Requirements: The following list of items represents the minimum operations necessary to maintain the fields during the installation period. Prepare and present to the OWNER and LANDSCAPE ARCHITECT in writing a maintenance schedule prior to installation for consideration. Representative schedule items shall include, but not be limited to the following:
1. Mowing: Turf shall be maintained to a neat uniform appearance using only reel-type, clean, sharp, non-contaminated equipment. Turf shall be maintained to a height of 3/4 to 1 inch during Initial and Substantial Completion. Remove grass clippings only when an unsightly condition will occur. Frequency will be dependent on the removal of no more than 1/3 of the blade height at any one time to maintain the desired turf height. Mowing pattern shall vary with each cut.
  2. Rolling: The turf field shall be rolled in two directions on initial planting of the sod. Care shall be taken not to damage irrigation heads. Additional rolling shall, be accompanied by additional aerification operations. Two (2) -ton rollers maximum.
  3. Top Dressing: In addition to the initial top dressing during the sod installation to fill in gaps between sod, two (2) lifts of 1/8 to 1/4 inch will be required using the same root zone mix as specified previously. Additional top dressing as required to ensure a smooth and safe playing surface may be required. Care shall be used to avoid smothering sod. A minimum of one top dressing shall occur prior to both Initial Completion and Substantial Completion.
  4. Sod Replacement/Patching: Certified sod of the same type and source shall be used when necessary. All patches shall be a minimum of 12 inches in width and length when using sod.

5. Verticutting/Slicing: The newly sodded field shall be verticut at a time if and when determined during the grow-in period by the LANDSCAPE ARCHITECT and CONTRACTOR to be beneficial to the grass. All loose material created by this operation shall be removed from the playing field and disposed of.
  6. Sod Fertilization: Four days after sod installation the CONTRACTOR shall apply by spray, Panasea Plus, a liquefied sea plant extract at 4 ounces per 1000 square feet. Apply an additional application every 5-7 days. One week after the installation of the sod and the initial fertilization, apply one half pounds of N of Scott's product 8420 (9-0-32) or equivalent per 1000 square feet every 5-7 days until rootzone surface is stabilized and turf clippings are able to be collected. At that time take soil and tissue samples and submits to the testing laboratory assigned by the OWNER's testing firm for results. The results and recommendations shall be submitted to the OWNER for consideration and approval. An appropriate fertilizer and rate shall be applied as recommended by the fertility tests throughout Substantial Completion. Both granular and liquid fertilizers can be used.
- D. Pesticide Application: All treatments will comply with local and state codes. Utilize only commercially licensed personnel and applicators to perform these operations. Treatment shall be made according to the needs of the field as determined by the LANDSCAPE ARCHITECT and CONTRACTOR.
- E. Weed Control: Three to four weeks after planting the weed control program should begin only if the bermudagrass has greened up, rooted and begun to spread. The root zone mix shall contain adequate moisture prior to any herbicide application. Do not spray on a day when the temperature is expected to exceed 90 degrees Fahrenheit. Follow all safety procedures, read all labels and properly calibrate all equipment.

Broadleaf weeds (i.e. such as clover, mouse ear, chickweed, dandelion, pennywort and carolina geranium) can be controlled by using a 2,4-D product such as Trimec at label rates. Repeat after 7 days if desired results are not achieved.

Grassy type weeds (i.e. such as crabgrass, goosegrass and nutsedge) can be treated with a product such as Monosodium Methanearsonate (MSMA) at a rate of one to two pounds active ingredient per acre. Repeat the application every 10 to 14 days until the desired results are achieved.

Other products types maybe utilized if pre-approved by LANDSCAPE ARCHITECT and OWNER.



- F. Irrigation System: The system shall be adjusted on a continual basis as necessary to maintain specified coverage. Heads shall be adjusted to elevation when necessary. All repairs to lines, valves, heads, field mixes shall be performed in a timely manner repairing to the previous condition and specifications. Heads shall be cleaned as necessary to insure full pop-up and flush lowered positions.
- G. Irrigation Frequency: Watering duration for the first 14-21 days after sodding is critical to the success of the grow-in procedure. The root zone soil must be kept damp at all times in order to grow new sprigs, to initiate roots, and establish quickly. The CONTRACTOR shall provide continual daylong observation during daylight hours, night watering is not necessary, if the root zone is saturated during the daylight. The top 2-4 inches of soil should not be allowed to dry out during the entire twelve-week grow-in period. Watering should be adjusted if rainfall events occur. The controller shall be set for appropriate watering intervals with adequate instructions to the OWNER.
- H. Grow-In Log: Record a daily log of all maintenance activities performed on the field through Substantial Completion. Log shall include list of all pesticide labels and rate of application used. The log shall also include a detailed record of agridrain weir positions and run times of both the surface and subsurface irrigation systems. These daily records shall be submitted to the OWNER and LANDSCAPE ARCHITECT on a weekly basis through Substantial Completion.

## PART 2 - PRODUCTS

### 2.01 ACCEPTABLE MATERIALS

### 2.02 SOIL MATERIALS

General: All fill material, regardless of intended use category, shall be clean and free from organic matter, roots, brush or other vegetation, trash, debris or other detrimental substances, and rocks or unbroken lumps larger than 3 inch, and shall be tested and approved by the soil testing and inspection agency prior to delivery and placement.

Trench Backfill: Existing soils obtained from Playing Field System excavations, excluding broken and pulverized weathered bedrock.

Unacceptable Soil Materials: Existing onsite material or asphalt materials not suitable for fill.

### 2.03 GROWING MEDIUM MATERIALS AND MIXES

- A. Root Zone Mixture: Provide an 80% sand/ 20% peat mix with an organic range of 0.80 percent organic matter on a dry weight basis. Percentage of peat in the sand-peat mix shall be as determined through laboratory testing using performance criteria as outlined under Root Zone Mixture Performance and Testing.

THE CONTRACTOR WILL REVIEW THE FOLLOWING MATERIAL AND PERFORMANCE REQUIREMENTS WITH THE CONTRACTOR'S TESTING FIRM.

1. Processed Sand: The sand shall be non-calcareous, clean and processed and meet the following particle size criteria. Calcareous sand meeting the following criteria will be acceptable only if proven that a local source within a 100-mile radius cannot be found to supply non-calcareous material meeting the following criteria.

Size	Sieve MESH	Diameter of Sieve (mm)	Allowable Range Percent Retained
Gravel	10	2.00	less than, equal to 3%
Very Coarse	18	1.00	less than, equal to 7%
Coarse	35	0.50	at least 60% particles in this range
Medium	60	0.25	
Fine	100	0.15	20% maximum
Very Fine	270	0.05	5% maximum
Silt		0.002	5% maximum
Clay		less than 0.002	3% maximum

No more than 10% including 3% fine gravel combined for sieve meshes 10 and 18. Minimum of 80% combined fractions for sieve meshes 35, 60 and 100. Combined fractions no more than 10% for material less than or equal to 0.05 in size.

2. Processed Peat: Canadian Peat shall be free of sticks, stones and other debris and comply with the following:

Parameter	Specifications
Total ash	15% or less
pH	6.5 to 7.5
% Moisture	30 to 50%
Sieve Size	% Passing
2.0 mm	95-100
1.0 mm	Greater than 80

Florida peat is not acceptable.

3. Root Zone Mixture Performance and Testing: United States Golf Association (USGA) physical evaluation protocol. Water retention shall be 30 cm tension. Tests shall determine compliance with specified mixing ratio and provide calibration data for the quality control program.

Tests shall comply with the following criteria on a core compacted to 14.3 ft. - lb./inches squared:

<b>Test Requirement</b>	<b>Performance</b>
Infiltration Rate inches/hour	10 to 14
Bulk Density, grams/cc	1.2 to 1.6
Total Porosity, percent	35 to 55%
Saturation percentage @ 30 cm Tension	35 to 65%

Peat content will be verified using the Walkley-Black organic matter determination process.

4. Admixtures: The OWNER's testing firm shall propose inorganic admixtures to improve water retention of the root zone mix if the need is indicated by test results. The pH reaction of the root zone mix shall be adjusted to pH 5.5 - 6.5 by either adding sulfur or by adding dolomitic agricultural limestone as needed according to test results.

#### 2.04 SOD AND GRASS MATERIALS

- A. Sod: Celebration Bermuda shall be used. Sod shall be grown in a sand based soil medium similar to the root zone mixture specified in this section. Sod shall be 9 - 12 months old; machine stripped to a uniform thickness of 3/4" soil below thatch layer no more than 24 hours prior reinstallation, free of objectionable grasses and broad-leafed weeds.

Sod shall be big roll cut in industry standards not less than 30 inches in width and minimum lengths of 50 feet. Sod not displaying the specified soil medium shall be accepted at the sole discretion of the LANDSCAPE ARCHITECT.

- B. Sod Not Grown in the Specified Soil Medium: At the sole discretion of the LANDSCAPE ARCHITECT sod not grown in the specified soil medium may be accepted if it can be thoroughly proven that the specified material cannot be found within a 250-mile radius. At no cost to the OWNER the following additional requirements apply to sod grown in a non-specified soil medium:

Soil medium shall be a free draining material acceptable to the OWNER's representative in particle size and soil characteristics. Sample(s) shall be submitted to the LANDSCAPE ARCHITECT.

Aerate the sod installation after Substantial Completion, remove all cores, and top dress with a tested and approved root zone mix at a time within the warranty period that the OWNER deems appropriate for the health of the sod. This will be in addition to the top dressings required during installation of the field through Substantial Completion.

## SOD

- A. Bermuda sod shall be specified on the Landscape Drawings.
- B. Pad Size: Cut individual pieces of sod 30-inch width and 50-foot length. Maximum allowable deviation from standard widths and lengths shall be five percent (5%). Extensively broken pads and torn or uneven ends will not be acceptable.
- C. Strength of Sod Sections: Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10 percent (10%) of the section.
- D. Moisture Content: Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- E. Time Limitations: Sod shall be harvested, delivered and installed within a period of 24 hours.
- F. Class of Sod and Composition: The sod used shall be as specified on the plans; nursery grown and well rooted. Each shipment shall be accompanied by a certification verifying the sod as specified. Sod shall be subject to review by the LANDSCAPE ARCHITECT prior to being cut and again before it is laid. The consistency of adherent soil shall be such that it will not break, crumble, or tear during handling and placing of the sod.
- G. Each piece of sod shall be well covered with turf grass, free from noxious weeds and other objectionable plants and shall not contain thatch quantities or substances injurious to growth. The grass shall be mown to a length of no less than 1½-inch nor more than 2½-inches before the sod is cut.
- H. Comply with state and federal laws with respect to inspection for plant diseases and insect infestation. An inspection certificate to this effect is required by law and shall accompany each shipment and on arrival shall be filed with the LANDSCAPE ARCHITECT.
- I. Thickness of Cut: Machine cut sod at a uniform soil thickness of three-fourths inch ( $\frac{3}{4}$ "), plus or minus one-fourth inch ( $\frac{1}{4}$ "), at the time of cutting. Measurement for thickness excludes top growth and thatch.

## PART 3 - EXECUTION

### 3.01 EXAMINATION AND PROTECTION

- A. Verification of Conditions: Examine areas and conditions under which all work of this Section is being performed. Do not proceed with any work until unsatisfactory conditions have been corrected. Commencement of work implies acceptance of all areas and conditions.
- B. Protection of Work: Protect all on-going work, so as not to delay work due to weather or project related construction. This includes but is not limited to the use of tarps, geotextile, plywood, and other protective measures.
- C. Protection of Persons and Property: Provide all necessary measures to protect workmen and passersby. Barricade open excavations occurring as part of the work, as required by municipal or other authorities having jurisdiction.

Protect adjacent construction throughout the entire operation. Protect newly graded areas from destruction by weather or runoff. Protect structures, utilities, pavements, and other improvements from damage caused by settlement, lateral movement, undermining, and washout.

- D. Unanticipated Conditions: Notify the LANDSCAPE ARCHITECT immediately upon finding evidence of previous structures, filled materials which penetrate below designated excavation levels, or other conditions which are not shown or which cannot be reasonably assumed from existing surveys and geotechnical reports. Secure the written instruction and approval before proceeding with further work in such areas.

### 3.02 EARTHWORK EXECUTION

- A. General: Remove material of every nature or description encountered in obtaining required lines and grades. Excavate and/or place and compact fill to provide for elevation(s) required by Drawings. Excavation is all considered unclassified and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.

Conform to elevations and grades required within a tolerance of plus or minus one-half inch ( $\frac{1}{2}$ " ) in 50 feet either direction.

### 3.03 PLACEMENT AND COMPACTION OF SOIL MATERIALS

- A. Remove all debris, brush, large roots, weeds, and old tree stumps. If extensive grading is needed, remove topsoil and stockpile it for replacement after the rough grade is established. Rough grade should conform to final grade after topsoil is replaced. (See Earthwork Section for required soil preparation in regards to deleterious material.) Replaced topsoil will be sifted as specified.

- B. Drainage Fill: Shape surface of areas under root zone mixture to line, grade, and cross-section, with finish surface not more than one-half inch ( $\frac{1}{2}$ " ) in 50 feet either direction above or below required subgrade elevation. Avoid over compaction by utilizing rubber-tire machinery as soon as practical.
- C. Grade Verification: Verify grades established during final site preparation as being true to finish contours shown, and maintain such areas until the effective date to begin sodding operations. In such instances where a split responsibility exists between grading and sodding contractors, it shall be the responsibility of the sodding CONTRACTOR to maintain a suitable grade for sodding once they have accepted the grade provided to him. A certified survey verifying compliance with Contract Documents shall be performed at 50-foot centers to verify grade and elevation of the subgrade. Submit copy of surveyor's certification, signed and sealed, to LANDSCAPE ARCHITECT prior to sodding the field.

#### 3.04 PLAYING FIELD ROOT ZONE MATERIAL INSTALLATION

- A. Root Zone Mixture: Every load of root zone mix delivered to site or mixed onsite shall be visually inspected for excessive contamination and obvious clumps of peat not properly ground into the blend. If samples appear to be contaminated or visually different from a uniform blend, a sample shall be sent to the CONTRACTOR's Testing Agent for testing.

Apply the root zone soil mixture over the completed field irrigation system to the depth and finish grades indicated on the drawings. Material shall be installed in a moist condition. Root zone mixture shall be installed within one-half inch ( $\frac{1}{2}$ " ) in 50 feet either direction plus or minus of elevation shown on Drawings when compacted except where shown flush to adjoining conditions per the Drawings. CONTRACTOR shall move the root zone mix from the stockpile in such a manner that contaminated materials are not tracked onto the field from the tracks or tires. If determined by the OWNER that contamination is occurring; onsite samples will be taken and tested by an independent Testing Agent at the expense of the CONTRACTOR. Any contamination or over compacted conditions will require immediate action by the CONTRACTOR to satisfy the intent of the specifications.

- B. Compaction of Root Zone Mix: Operate the irrigation system and thoroughly flood the field. Fill all low spots to finish grade with root zone mix and water in. This process shall be repeated as required to bring field to finish grade specifications and tolerance forming a smooth, firm surface. Finish grades and

material depths shall be verified utilizing laser operated survey instruments. Machinery with turf type tires should be used whenever practical. If roller is used to obtain field grade, surface shall be scarified prior to laying sod. Field compaction shall not exceed bulk density as performed in laboratory testing.

- C. Grade Verification: A certified survey shall be performed at 50 foot centers to verify that base grade before installation and grade elevation of the root zone mix material after compaction is in compliance with the requirements of the Contract Documents.

### 3.05 SOD INSTALLATION

- A. Perform a soil analysis on each area to be sodded and shall include a lime requirement analysis if pH is below 6.2. If fill material is to be brought in, it must be tested prior to delivery to the site. Obtain a representative soil sample by collecting samples from ten (10) locations in the area from the top six inches (6") of soil. Samples shall be combined and thoroughly mixed. Submit a portion for analysis at a Soil Testing Laboratory approved by the LANDSCAPE ARCHITECT with a copy of the testing results given to the LANDSCAPE ARCHITECT for approval. The acceptable pH range shall be 6.2 – 7.2. CONTRACTOR shall pay for this testing.
1. If the soil is too acidic (pH too low), dolomite limestone (dolomite) shall be used for increasing soil pH. Application shall be based on a lime requirement analysis which considers both soil buffering capacity and soil pH value.
  2. If the soils is too alkaline (pH too high), a water degradable form of sulfur shall be used for decreasing soil pH. Application shall be based on soil analysis.
- B. Pre-installation Fertilization: Immediately prior to laying sod and after compaction of the root zone mix is complete, the following fertilization shall occur:
1. Incorporate into the upper 4 inches (4") of the root zone mix a fertilizer with the following ratios:
    - 3.8 pounds N (40% soluble, 60% slow release)
    - 6.5 pounds of P205
    - 6.5 pounds K20
  2. Just prior to sprig installation an additional application of 10-20-30 at 500 lbs. / acre rate shall be applied to the soil surface.
- C. Laying Sod: The entire area shall be approved by the LANDSCAPE ARCHITECT prior to laying sod. Areas to receive sod shall be firm and the irrigation and drainage system shall be fully operational. Lay sod within 24 hours from time of stripping. Sod not placed within 24 hours may be rejected.

- A. Sodding Time: Place sod when the ground is in a workable condition and temperatures are less than 90 degrees Fahrenheit (when possible). Sod shall not be placed during extended drought, unless irrigation is available.
- B. Sod cut for more than 24 hours shall not be used without the concurrence of the LANDSCAPE ARCHITECT. Keep all sod moist and protected from exposure to sun, wind and freezing prior to placing.
- C. Moistening the Soil: During periods of high temperature and after all unevenness in the soil surface has been corrected, lightly irrigate the soil immediately prior to laying the sod.
- D. Starter Strip: Lay the first row of sod in a straight line with subsequent rows placed parallel to and tightly against each other. Stagger lateral joints to promote more uniform growth and strength. Exercise care to insure that the sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air-drying of the roots.
- D. Water sod immediately after installation to prevent excessive drying during progress of the work. CONTRACTOR will be responsible for watering sod through Final Acceptance.
- E. Finished Transitions: At no time will backs of curbs or gaps in transitions (i.e., walks, beds, structures, etc.) be accepted. All transitions will be horizontally and vertically smooth and congruent with adjacent transitions. Cut all buds with a machete or similar tool to provide a neat, uniform, and consistent bedline. Bedlines shall reflect the shape and form indicated on the Drawings and shall be laid to the satisfaction of the LANDSCAPE ARCHITECT.
- F. Lay sod to form a solid mass with tightly fitted joint. Overlap all ends and trim to butt right. Butt sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards when necessary to avoid damage to subgrade. Tamp or roll lightly to ensure contact with subgrade.
- G. Patching: All patches necessary to fill in undesirable areas shall be of a minimum size of 12 inches in length and width. Patches shall be of the same source and type as the original installation and shall be installed at specified finish grade and watered in firm.
- H. No equipment or vehicles shall be allowed to travel over the sodded areas after sodding by CONTRACTOR on the job site.
- I. Top Dress Sod Field: If sod has been approved by the LANDSCAPE ARCHITECT after laying and rolling of sod, fill joints and seams with approved root zone mixture. Broom or sweep excess material to avoid smothering turf. Sod areas requiring more than 0.25-inch of top dress to meet specified grade shall be



lifted. Root zone mix shall be added below the sod area and thoroughly compacted prior to the re-installation of the sod area. Thoroughly walk all seams to verify that all have been filled and that all low or irregular areas have been brought to specified grade tolerances.

### 3.06 ESTABLISHMENT WATERING OF SOD

- A. General: Begin irrigation as sod is completed in any one section and water to a depth of four inches (4") below the new sod pad. After a short drying period, roll the sod area in two (2) directions to ensure contact with soil mixture and to smooth the area. Water sod areas, as required, through Substantial Completion and until OWNER takes possession. Adjust irrigation heads as required for spray pattern and depth to finish grade.

### 3.07 FIELD LAYOUT INSTALLATION

- A. General: Layout of the field and all painted lines and logos shall be by the Design/Builder following Substantial Completion and acceptance of the playing fields by the LANDSCAPE ARCHITECT.

### 3.08 FIELD QUALITY CONTROL

- A. Quality Control During Construction: Allow testing service to inspect and approve each subgrade and fill layer before further backfill or construction work is performed.
- B. Subgrade Material: One test for every 5000 square foot of compacted subgrade material, or major fraction thereof, but in no case less than two (2) tests for each day's work.
- C. Acceptance of Sod: At the end of each day, the LANDSCAPE ARCHITECT shall inspect in place material for conformance with requirements. Unacceptable sod areas shall be removed immediately from the site and replaced the following workday. This preliminary acceptance does not guarantee final acceptance at Substantial Completion.
- D. Grass Root Depth: Sod shall display a minimum average of roots 3-1/2 inch in depth prior to acceptance of Substantial Completion.
- E. Grade Verification: A certified survey shall be made of the as-built condition of the subgrade and installed sod layers for conformance to specified elevations.

### 3.09 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Remove waste materials, including materials not allowed for fill, backfill or site grading as specified within, trash, and debris, and properly dispose of it off property at CONTRACTOR's expense.

### 3.10 INSPECTION AND ACCEPTANCE

- A. When the Play Field System installation work is completed, including maintenance, LANDSCAPE ARCHITECT will make inspection with CONTRACTOR to determine acceptability.
  - 1. The playing surfaces have complete healthy bermudagrass coverage with no bare areas or weeds (less than 1%). This includes Common Bermudagrass or other off-type grasses, other than Celebration Bermudagrass.
  - 2. The playing surfaces should be free of any insect damage.
  - 3. The final grade verification (+ or - 1/2") of the fields will be verified by survey and match field specifications.
  - 4. Random sampling of root depth on the bermudagrass playing surfaces will be a minimum of 3-1/2" at the time of acceptance.
- B. All work may be inspected for acceptance in portions as agreeable to LANDSCAPE ARCHITECT, provided each portion of work offered for inspection is complete, including maintenance.
- C. When inspected work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by LANDSCAPE ARCHITECT and found to be acceptable. Remove rejected materials promptly from the project site.

### 3.11 WARRANTY

- A. The CONTRACTOR as part of their contract, shall furnish three (3) written guarantees warranting all materials, workmanship, and products for a period of not less than 60 days from the time of Final Acceptance.
- B. The CONTRACTOR will repair all washouts that occur within the warranty period at no additional cost to the OWNER.

**END OF SECTION 10002**

## GEOTECHNICAL ENGINEERING SERVICES REPORT

For the

**BLACKSTONE PARK – ADDITIONAL LITTLE  
LEAGUE FIELDS AND PARKING  
23<sup>RD</sup> STREET SITE  
PAMETTO, FLORIDA**

Prepared for

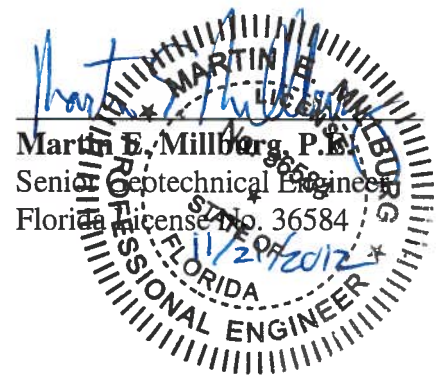
**Manatee County Property Management Dept.  
1112 Manatee Ave., Suite 803  
Bradenton, FL 34205**

Prepared by

Professional Service Industries, Inc.  
5801 Benjamin Center Drive  
Suite 112  
Tampa, Florida 33634  
Telephone (813) 886-1075  
Fax (813) 888-6514

**PSI Project No. 0775-1607 rev 2**

**September 20, 2012 (Reissued November 21, 2012)**



**David S. Harris, P.E.**  
Project Engineer  
Florida License No. 68377

September 20, 2012 (Reissued November 21, 2012)

Manatee County Property Management Dept.  
1112 Manatee Ave., Suite 803  
Bradenton, FL 34205

Attention: Tom Yarger, PMP  
Construction Services Manager

Re: Geotechnical Engineering Services Report  
**Blackstone Park – Additional Little League Fields and Parking**  
23<sup>rd</sup> Street Site  
Palmetto, Florida  
PSI Project No. 0775-1607 rev 1

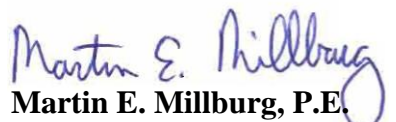
Dear Mr. Yarger:


Professional Service Industries, Inc. (PSI) is pleased to present our geotechnical engineering services report for the referenced project. The results of the study are discussed in the accompanying report, three (3) copies of which are enclosed. We have updated this report with information regarding the regulatory status of the allowable pond depth.

Should there be any questions, please do not hesitate to contact our office at (813) 886-1075. PSI would be pleased to continue providing construction materials testing (CMT) services throughout the implementation of the project. We look forward to working with you and your organization on this and future projects.

Respectfully submitted,

**Professional Service Industries, Inc.**

  
**Martin E. Millburg, P.E.**  
Senior Geotechnical Engineer  
Florida License No. 36584

  
**David S. Harris, P.E.**  
Project Engineer  
Florida License No. 68377

Enclosures

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## **1.0 PROJECT INFORMATION**

### **1.1 PROJECT AUTHORIZATION**

Professional Service Industries, Inc. (PSI) has completed a geotechnical exploration for the proposed Additional Little League Fields and Parking for the Blackstone Park complex located at 2112 14<sup>th</sup> Ave. W., in Palmetto, Florida. Our services were authorized by Manatee County and conducted per PSI proposal No. 775-77690, issued August 30, 2012.

### **1.2 PROJECT DESCRIPTION**

Based on the information provided, baseball fields, parking areas, and stormwater ponds are planned for the above referenced site. A 1- to 2-story concession stand/storage building is planned in conjunction with this development. A stormwater pond is planned for the west end of this site.

We anticipate building loads will not exceed wall and column loads of 4 kips per foot and 50 kips, respectively. We anticipate the maximum fill or cut depth at this site will not exceed 3 feet.

The geotechnical recommendations presented in this report are based on the available project information, building location, and the subsurface materials described in this report. If any of this project description information is incorrect or has changed, please inform PSI so that we may amend, if appropriate, the recommendations presented in this report.

### **1.3 PURPOSE AND SCOPE OF SERVICES**

The purpose of this study is to explore the subsurface conditions at the site to provide foundation, stormwater management and pavement recommendations for the proposed construction. The subsurface materials encountered were then evaluated with respect to the available project characteristics. In this regard, engineering assessments of the following items have been formulated:

1. Feasibility of utilizing a shallow foundation system for support of the proposed structure, with a slab-on-grade floor member.
2. Design parameters required for the foundation system, including allowable bearing pressures, foundation sizes, foundation levels and soil subgrade treatments.
3. General pavement section recommendations and construction considerations.
4. Soil subgrade preparation, including stripping, grubbing and compaction. Engineering criteria for placement and compaction of approved structural fill materials.



5. Suitability and availability of materials on-site that may be moved during site grading for use as structural fill in the building area and as general backfill.
6. General location and description of potentially deleterious materials encountered in the borings which may interfere with construction progress or structure performance, including existing fills or surficial organics.
7. Stormwater design criteria such as depth to confining layer, infiltration rate and porosity.
8. Identification of groundwater levels and an estimation of seasonal high groundwater levels.

The following services have been provided in order to achieve the preceding objectives:

1. Executed a requested program of subsurface exploration consisting of subsurface sampling and field testing. We performed two (2) Standard Penetration Test (SPT) borings to depths of 20 feet below the existing ground surface within the proposed building footprint. In the borings, samples were collected and Standard Penetration Test resistances were measured virtually continuously for the top 10 feet and on intervals of 5 feet thereafter. Hand augers were used in the upper 4 feet to reduce the potential for damaging any unknown utilities.
2. We performed four (4) hand auger borings in proposed pavement areas.
3. One (1) Double Ring Infiltrometer (DRI) test was performed in the proposed stormwater retention area at a depth of 2 feet below the existing ground surface.
4. We performed two (2) hand auger borings in proposed stormwater retention area.
5. An environmental study being performed at this site included the installation of a monitoring well in the proposed pond area and groundwater elevations. That data was reviewed and used to help establish an estimated Seasonal High Water Level.
6. Visually classified representative soil samples in the laboratory using the Unified Soil Classification System (USCS). Identified soil conditions and formed an opinion of the soil stratigraphy at each boring location.
7. The results of the exploration have been used in the engineering analysis and the formulation of recommendations. The results of the subsurface exploration, including the recommendations and the data on which they are based, are presented in this written report supervised by a professional engineer.

## 2.0 SITE AND SUBSURFACE CONDITIONS

### 2.1 SITE LOCATION AND DESCRIPTION

Blackstone Park is a sports complex with baseball and soccer fields located the Northeast Corner of 21<sup>st</sup> Street West and 14<sup>th</sup> Avenue West in Palmetto, Florida. The property address is 2112 14th Ave W, Palmetto, FL 34221

The project site is located within Section 11, of Township 34 South, Range 17 East, according to the "Palmetto, Florida," Quadrangle map. Site elevation is approximately +10 feet.

### 2.2 MANATEE COUNTY SOIL SURVEY

The "Soil Survey of Manatee County, Florida," published by the USDA SCS, was reviewed for general near-surface soil information within the project vicinity. The SCS indicates that *Bradenton fine sand, limestone substratum*, is the predominant mapping unit. A brief description of the mapped soil group is provided below.

<b>Soil Series</b>	<b>Depth (inches)</b>	<b>Unified Classification</b>	<b>USDA Seasonal High Groundwater Table Depth (feet)</b>
(5) Bradenton fine sand, limestone substratum	40 to 80	SP, SC, SP-SM, SP-SC, Limestone	0 to 1

Bradenton soils are composed of sandy and loamy marine deposits over limestone. This soil type is poorly drained with a low available water capacity and moderately high to high permeability. The seasonal high water table is normally at a depth of 0 to 1 foot.

It should be noted that information contained in the USDA Soil Survey is very general and may be outdated. It may not therefore be reflective of actual soil and groundwater conditions, particularly if recent development in the project vicinity has modified soil conditions or surface/subsurface drainage.

### 2.3 FIELD INVESTIGATION

Subsurface conditions at the site were explored by drilling a total of eight (8) soil borings at the approximate locations shown on the Boring Location Plan included on **Sheet 2** of the **Appendix**.

Two (2) Standard Penetration Test (SPT) borings were performed to depths of 20 feet within the areas of the proposed building. In each boring, samples were collected and SPT resistances were measured virtually continuously for the top 10 feet and on intervals of 5 feet thereafter.

Four (4) hand auger borings were performed to depths of 5 feet in the proposed pavement areas, and two (2) hand auger borings were performed to depths of 5 feet in the proposed stormwater pond. Soil samples were taken at each soil change.



One (1) Double Ring Infiltrometer (DRI) test was performed in the proposed stormwater management area at a depth of 2 feet below the existing ground surface.

The number of borings, boring locations and boring depths were selected by Stantec and PSI. The borings were located in the field by PSI personnel by measuring distances from known site reference points based on the site plan provided to PSI.

Elevations of the ground surface at the boring locations were not provided to PSI and should be determined by others prior to construction. Therefore, all references to depth of the various materials encountered are from the existing grade at the time of drilling (September 13, 2012). The SPT borings were advanced utilizing rotary mud drilling methods and soil samples were routinely obtained at selected intervals during the drilling process. Drilling and sampling techniques were accomplished in general accordance with ASTM standards. Select soil samples were returned to our laboratory for visual classification. Classifications were performed in general accordance with the Unified Soil Classification System (USCS).

## **2.4 SUBSURFACE CONDITIONS**

The subsurface conditions at the site consist primarily of sandy soils from the ground surface to about three to five feet. This layer was underlain by limestone and other calcareous and/or clayey soils to the boring termination depths. The soil profiles presented on **Sheet 3** of the **Appendix** include soil descriptions, stratifications and penetration resistances. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during field operations is also shown on these boring logs.

## **2.5 GROUNDWATER INFORMATION**

Groundwater was not encountered in any of the borings. However, we think the clayey soils at this site prevented accurate water levels from being obtained in the limited time during which the field work was completed. We expect the shallow clayey soils will act to inhibit downward percolation of groundwater, resulting in a perched water table in the upper 5 feet of soils during rainy periods.

A monitoring well was installed about 50 to 75 feet northeast of SW-2. The ground surface elevation at that location was about 10.9' NGVD 29 elevation. The groundwater elevation on 9/20/2012 was reported to be about 5.5' NGVD 29 elevation. Since this water level was obtained during after an exceptionally rainy summer and during a rainy period, we think this water level represents the Seasonal High Water Level in the pond.

## **2.6 DOUBLE RING INFILTRATION TEST RESULTS**

PSI performed one (1) Double Ring Infiltration Test in the proposed underground stormwater retention area. The test was performed at a depth of 2 feet below the ground surface on September 12, 2012. The soil at this depth is slightly silty, slightly clayey to clayey sand (USCS Classification SP-SC/SP-SM, SP-SM/SC). The results of the test yielded a stabilized



infiltration rate of 1.2 inches per hour or 2.4 feet per day. A graph of the test results is included on **Sheet 4** in the **Appendix** of this report.

### **3.0 EVALUATION AND RECOMMENDATIONS**

#### **3.1 GENERAL**

Based on our observations, it is our opinion that subsurface soil conditions at the project site are generally favorable for the planned development from a geotechnical engineering perspective provided that the recommendations presented herein are followed. It should be noted that hard limestone and/or very stiff clay was encountered within about 3 to 5 feet from the ground surface at several boring locations. If excavations into this material are required during construction, specialized rock excavating equipment may be required to remove these hard shallow soils.

The following design recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered. If there are any changes in these project criteria, including project location on the site, a review must be made by PSI to determine if any modifications in the recommendations will be required. The findings of such a review should be presented in a supplemental report.

Once final design plans and specifications are available, a general review by PSI is strongly recommended as a means to check that the evaluations made in preparation of this report are correct and that earthwork and foundation recommendations are properly interpreted and implemented.

#### **3.2 SITE PREPARATION**

The following are our recommendations for overall site preparation. These recommendations should be used as a guideline for the project general specifications prepared by the design engineer.

1. Organics, vegetation or any other deleterious materials present within proposed building and pavement areas should be removed. All encountered deleterious materials should be removed and disposed of properly. At a minimum, it is recommended that the clearing operations extend at least 5 feet beyond the development perimeters.
2. The proposed footprint area should be compacted to a minimum depth of 1 foot below stripped grade to a dry density of at least 95% of the modified Proctor maximum dry density within the proposed structure areas. Any area where the recommended density has not been achieved should be undercut to firm soils and backfilled with structural fill.

3. Following satisfactory completion of the initial compaction, the structure areas may be brought up to finished subgrade levels, if needed, using structural fill. The on-site clayey soils are well suited for use as fill. Off-site fill soils should be tested and approved by PSI prior to hauling to the site. Imported fill should consist of fine sand with less than 12% passing the No. 200 sieve, free of rubble, organics, clay, debris and other unsuitable material. Fill should be tested and approved prior to acquisition. Approved sand fill should be placed in loose lifts not exceeding 12 inches in thickness and should be compacted to a minimum density of 95% of the modified Proctor maximum dry density. Density tests to confirm compaction should be performed in each fill lift before the next lift is placed.
4. Prior to beginning compaction, soil moisture contents may need to be controlled in order to facilitate proper compaction. If additional moisture is necessary to achieve compaction objectives, then water should be applied in such a way that it will not cause erosion or removal of the subgrade soils. A moisture content within the percentage range needed to achieve compaction (typically +/- 3%) is recommended prior to compaction of the natural ground and fill.
5. After compaction, building foundation excavations can begin. All foundation excavations should be observed by the geotechnical engineer or their representative to evaluate the extent of any loose, soft, or otherwise undesirable materials, if present. If the foundation excavations appear suitable as load bearing materials, the bottom of the foundation excavations should be compacted to a minimum density of 95% of the modified Proctor maximum dry density for a minimum depth of one foot below the bottom of the footing depth, as determined by field density/ compaction tests. Backfill soils placed adjacent to footings or walls should be carefully compacted with a light rubber-tired roller or vibratory plate compactor to avoid damaging the footings or walls. Approved sand fills to provide foundation embedment constraint should be placed in loose lifts not exceeding 12 inches and should be compacted to a minimum density of 95% of the modified Proctor maximum dry density.
6. If soft pockets or debris are encountered in the footing excavations, the unsuitable materials should be removed and the proposed footing elevation may be re-established by backfilling after the undesirable material has been removed. This backfilling may be done with a very lean concrete or with a well-compacted, suitable fill such as clean sand, gravel, or crushed FDOT No. 57 or FDOT No. 67 stone. Backfill should be compacted to a minimum density of 95% of the modified Proctor maximum dry density.
7. Immediately prior to reinforcing steel placement, it is suggested that the bearing surfaces of all footing and floor slab areas be compacted using hand operated mechanical tampers. In this manner, any localized areas which have been loosened by excavation operations should be adequately recompacted.

8. A representative from our firm should be retained to provide on-site observation of earthwork and ground modification activities. Density tests should be performed in the top 1 foot of compacted existing ground, each fill lift, and the bottom of foundation excavations. It is important that PSI be retained to observe that the subsurface conditions are as we have discussed herein, and that foundation construction, ground modification and fill placement is in accordance with our recommendations.

### **3.3 SHALLOW FOUNDATION RECOMMENDATIONS**

With proper subgrade preparation, column footings and continuous wall foundations can be designed for a net allowable soil bearing pressure of 2,500 pounds per square foot, based on dead load plus design live load. Minimum dimensions of 24 inches for column footings and 18 inches for continuous footings should be used in foundation design to account for variable subsurface conditions, regardless of whether the maximum allowable foundation bearing pressures have been fully developed.

Exterior footings should be at a depth of at least 12 to 18 inches below the final exterior grade. The greater depth reduces the potential that adjacent excavations or erosion may undermine the exterior footings. Interior footings may bear on properly compacted soils at a minimum depth of 12 inches, if desired.

The foundation excavations should be observed by a representative of PSI prior to steel or concrete placement to confirm that the compacted fill foundation materials are capable of supporting the design loads and are consistent with the materials discussed in this report. If the foundation excavations appear suitable as load bearing materials, the bottom of the foundation excavations should be compacted to a minimum density of 95% of the modified Proctor maximum dry density for a minimum depth of one foot below the bottom of the footing depth, as determined by field density compaction tests. Soft or loose soil zones encountered at the bottom of the footing excavations should be removed and replaced with fill soils (as directed above), lean concrete or dense graded compacted crushed stone (FDOT No. 57). Some of the foundations may bear in clayey soils, which can be difficult to compact as specified. If compaction of clayey soils is not able to be achieved, clayey soils can be excavated and replaced as specified in Section 3.2, Item 6. Another option is to have the geotechnical engineer inspect the foundation excavation to verify the clayey soils are suitable as foundation bearing soils.

After opening, footing excavations should be observed and concrete placed as quickly as possible to avoid exposure of the footing bottoms to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond. The foundation concrete should be placed promptly after the excavation is made.

### **3.4 SETTLEMENT**

The settlement of shallow foundations supported on compacted sand fill should occur rapidly after loading. Thus, the expected settlement should occur during construction as structural loads are imposed. Provided the recommended site preparation operations are properly performed,



any organic materials have been removed and the recommendations previously stated are utilized, the total settlement of wall and isolated column footings should not exceed approximately 1 inch. Differential settlement is estimated to be on the order of 50 percent of the total settlement. Settlement of this magnitude is usually considered tolerable for the anticipated construction; however, the tolerance of the proposed structure to the predicted total and differential settlement should be confirmed by the structural engineer.

### **3.5 FLOOR SLAB RECOMMENDATIONS**

Slab-on-grade construction should be supported on soils compacted to a minimum dry density of at least 95% of their modified Proctor value. We have assumed no extraordinary floor slab performance requirements such as very low allowable deflections or smoothness requirements are necessary. Any cuts that are made in the building pad for utility installation should be backfilled with clean granular materials that are compacted to at least 95 percent of their ASTM D-1557 maximum dry density. Material to be placed within 12 inches of the bottom of the slab should have no single particle greater than 3 inches in size, and should meet the requirements of approved structural fill (Item 3, Section 3.2).

The floor slab should be reinforced to reduce the risk of cracking due to settlement. An impervious membrane should be installed between the soil subgrade and bottom of floor slabs to be overlain with moisture sensitive coverings to avoid slab moisture problems. Floor slab design should conform to American Concrete Institute (ACI) design standards and practices.

### **3.6 PAVEMENT RECOMMENDATIONS**

The recommended fill materials or compacted in-place soils should be acceptable for construction and support of a flexible (limerock, crushed concrete or shell base) or rigid (Portland cement) type pavement section after subgrade preparation. Any fill utilized to elevate the cleared pavement areas to subgrade elevation should consist of clean to slightly silty fine sands (SP/SP-SM) uniformly compacted to a minimum density of 95 percent of the modified Proctor maximum dry density (ASTM D-1557) up to the bottom of the pavement subgrade.

The upper 12 inches of subgrade immediately beneath the pavement base should be compacted to a density of no less than 98 percent of the modified Proctor value.

#### **3.6.1 BASE**

The choice of pavement base type basically will depend on final pavement grades. If there is a minimum separation of 18-inches between the bottom of the base and the normal seasonal high groundwater level at this site like the borings and USDA system suggests, a limerock, or bank-run shell base can be utilized.

Limerock, bank-run shell base and crushed concrete base materials should meet FDOT requirements including compaction to 98 percent of its maximum dry density as determined by the modified Proctor test (ASTM D-

1557) and a minimum LBR of 100. Crushed concrete should be graded in accordance with FDOT Standard Specification Section 204.

Based on the expected traffic conditions, we recommend that the base course be a minimum of 6 inches thick in light duty areas and 8 inches thick in medium duty areas. If heavy duty traffic areas are expected, such as in a loading area, thicker flexible pavement sections or a rigid concrete pavement section should be used. Traffic should not be allowed on the subgrade as the base is placed to avoid rutting.

### **3.6.2 ASPHALTIC CONCRETE PAVEMENT**

Based on the results of our evaluation, it is recommended that the total asphaltic concrete thickness consist of Type S-1 (or SP-12.5) asphaltic concrete material with a minimum of 1½ inches for parking and 2 inches for driveway areas. The asphaltic concrete should meet standard FDOT material requirements and placement procedures as outlined in the current FDOT Standard Specifications for Road and Bridge Construction. The asphaltic concrete should be compacted to a minimum of 98% of the Marshall maximum laboratory unit weight (or 93% of the maximum theoretical specific gravity (Gmm) if using type SP-12.5). Flexible pavement design recommendations are summarized in the following table.

<b>FLEXIBLE PAVEMENT RECOMMENDATIONS</b>		
<b>Material</b>	<b>Minimum Thickness (inches)</b>	
	<b>Light Traffic</b>	<b>Medium Traffic</b>
Type S-1 Asphaltic Concrete	1.5	2.0
Base Minimum LBR = 100	6.0	8.0
Stabilized Subgrade Minimum LBR = 40	12.0	12.0

### **3.6.3 RIGID CONCRETE PAVEMENT**

Rigid (concrete) pavements could also be used. The concrete should have a minimum compressive strength of 4,000 psi at 28 days when tested in accordance with ASTM C-39. Based on our experience, a minimum thickness of 5 inches should be utilized for standard duty applications and a minimal thickness of 7 inches should be utilized for medium duty applications. The rigid pavement should be dowelled in accordance with FDOT Standard Index 305, as designed by the civil engineer.

The upper 12 inches of subgrade immediately beneath the pavement surface should be compacted to a density of no less than 98 percent of the modified Proctor value. Rigid pavement design recommendations are summarized in the following table.

<b>RIGID PAVEMENT RECOMMENDATIONS</b>		
<b>Material</b>	<b>Minimum Thickness (inches)</b>	
	<b>Light Traffic</b>	<b>Medium Traffic</b>
Portland Cement (Concrete 4,000 psi minimum)	5	7
Compacted Subgrade	12	12

All pavement materials and construction procedures should conform to the more stringent of Florida DOT or appropriate county/city requirements.

### **3.7 POND DESIGN RECOMMENDATIONS**

DRIT-1 was performed in the proposed stormwater retention area. Low infiltration rates may preclude the design of a dry retention pond on this site, and a “wet” pond may be a preferred alternative. Also, the shallow limestone encountered on the site may cause difficulty in excavating a pond. Our understanding is that SWFWMD requires at least 2 feet of cover be left in place over rock. This consideration may also impact pond design at this site.

#### **3.7.1 BASE OF AQUIFER**

For the design of the stormwater retention area, the base of the aquifer can be determined by the depth to the confining layer. A confining layer is generally regarded as a soil stratum that will significantly impede the infiltration of water. Based on the soil borings performed on the site, the layer of weathered limestone beginning at approximately three feet is the top of the confining layer.

The Southwest Florida Water Management District (SWFWMD) Part B Basis of Review Section 6.4.1 b. reads:

“Depth - The detention or retention area shall not be excavated to a depth that breaches an aquitard such that it would allow for lesser quality water to pass, either way, between the two systems. In those geographical areas of the District where there is not an aquitard present, the depth of the pond shall not be excavated to within two (2) feet of the underlying limestone which is part of a drinking water aquifer.”

Since limestone is typically considered to be the drinking water aquifer, excavating any closer than 2 feet above the rock (found at a depth of 3 feet) may not be permitted by SWFWMD. SWFWMD would regard that limestone to be part of the aquifer. If it can be demonstrated that the limestone was not part of a drinking water aquifer, possibly by researching local wells and their construction and water source, it may be possible to avoid the 2 foot buffer.

Communication with SWFWMD regarding this issue is included in the Appendix of this report. SWFWMD data indicates water supply wells in the area obtain their water from a



depth of about 35 feet or deeper. Accordingly, SWFWMD may not regard the upper limestone formation encountered by PSI in the pond area to be part of a drinking water aquifer. Excavation near or into this upper limestone formation may be permitted. We suggest this issue be verified with SWFWMD in a pre-application meeting prior to submitting a permit application for this stormwater pond.

**3.7.2 FILLABLE POROSITY**

The porosity of a soil is the percentage of the total volume of the material that is occupied by pores or interstices. These pores may be filled with water or air and are referred to as void space. Generally, it is assumed 90 percent of the unsaturated void space is available for filling. From St. Johns Water Management District, special publication SJ93-SP10 (1993), the value for fillable porosity for fine sands can be expected to vary from 20 to 30 percent. Based on the soil profile encountered, we believe a value on the order of 20% should be assumed for the fillable porosity.

**3.7.3 SUMMARY OF STORMWATER POND DESIGN RECOMMENDATIONS**

Approximate Depth to Confining Layer	3 feet deep
Estimated Seasonal High Groundwater Depth	Elevation 5.5' NGVD 29
Stabilized Infiltration Rate	2.4 ft/day
Fillable Porosity	20 percent

**3.8 FILL AVAILABILITY**

Only a few feet of fine sand and slightly silty fine sand (SP, SP-SM) that was encountered in the upper 3 feet of the borings performed in the building and parking areas can be considered for use as fill material. The material encountered in the majority of the borings should not be used as structural fill material for this project due to the elevated clay content.

**4.0 CONSTRUCTION CONSIDERATIONS**

**4.1 GENERAL**

It is recommended that PSI be retained to provide observation and testing of construction activities involved in the foundation, earthwork and related activities of this project. This will promote project continuity and will reduce the potential for misinterpretation of our recommendations

**4.2 DRAINAGE AND GROUNDWATER CONCERNS**

Water should not be allowed to collect in the foundation excavations, on the floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected





rainwater, groundwater, or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slabs. The grades should be sloped away from the building and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building.

### **4.3 EXCAVATIONS**

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its “Construction Standards for Excavations, 29 CFR, Part 1926, Subpart P”. This document was issued to better insure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavations or footing excavations, be constructed in accordance with current OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractors “responsible person”, as defined in 29 CFR, Part 1926, should evaluate the soil exposed in the excavations as part of the contractor’s safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in all local, state, and federal safety regulations.

We are providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor’s or other party’s compliance with local, state, and federal safety or other regulations. It is the policy of PSI not to provide recommendations regarding temporary slopes during construction which is the sole responsibility of the contractor as indicated above.

### **5.0 REPORT LIMITATIONS**

The Geotechnical Engineer warrants that the findings, recommendations, specifications or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed. The services provided were conventional in nature and did not include any special services that may lessen the risk of conditions that can contribute to moisture, mold or other microbial contaminant growth in buildings. You may be aware that mold is abundant throughout nature and is comprised of a wide variety of microscopic fungi. Due to its nature, the potential for mold infestations cannot be completely eliminated.

The scope of services also does not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface



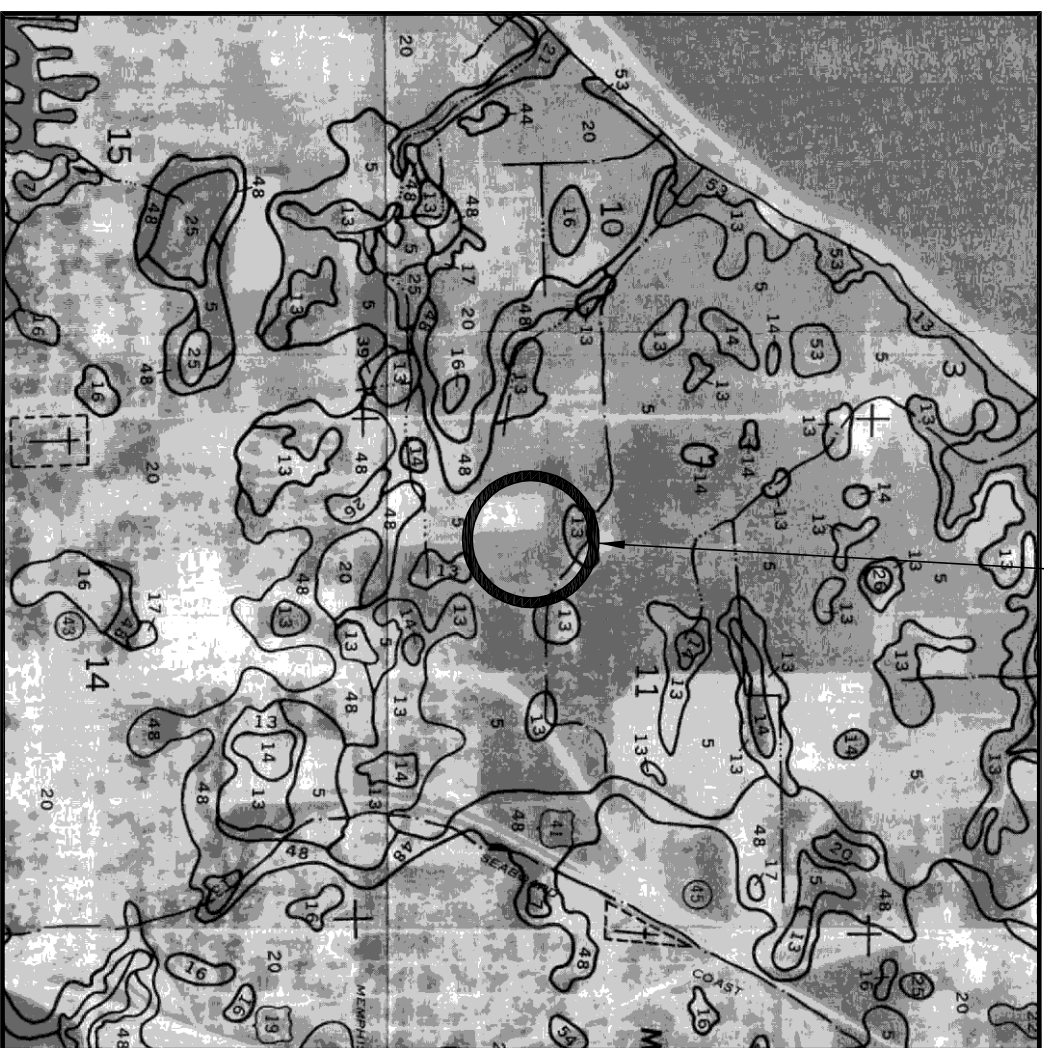
water, groundwater, or air on or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

Florida is underlain by a soluble limestone formation, which can dissolve and result in surface subsidence and the formation of sinkholes. A more comprehensive assessment of the site for the potential for sinkhole development typically includes Ground Penetrating Radar (GPR) studies and the extension of deeper soil borings into the underlying limestone formation. Such an assessment is beyond the scope of this proposed study, but can be performed at significant additional cost, if desired.

The recommendations submitted are based on the available subsurface information obtained by PSI and design details furnished by Stantec for the proposed project. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be notified immediately to determine if changes in the recommendations are required.

After the plans and specifications are more complete, the Geotechnical Engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of Manatee County and its consultants for the specific application to the proposed Additional Little League Fields and Parking at Blackstone Park located at 2112 14<sup>th</sup> Ave. West in Palmetto, Florida.

## **APPENDIX**

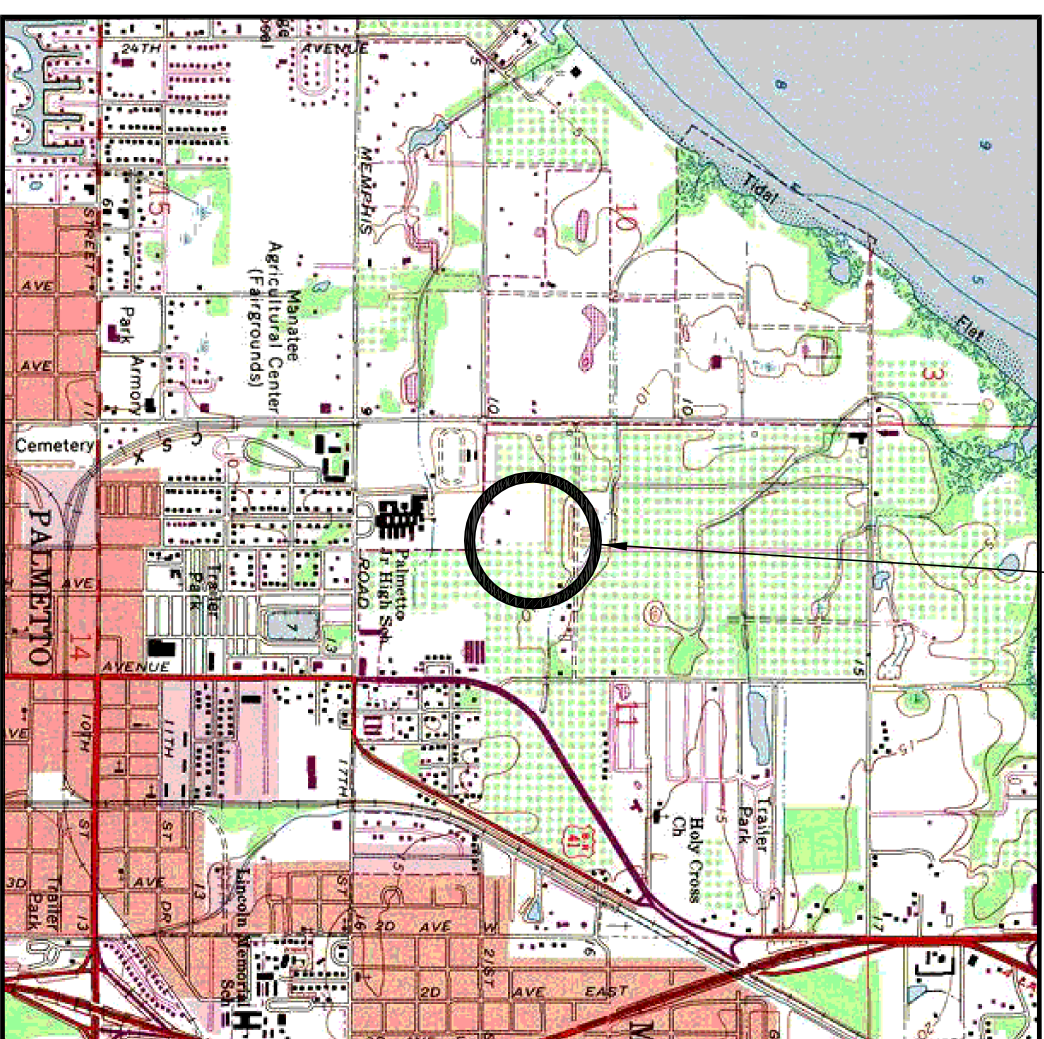


APPROXIMATE SITE LOCATION

REFERENCE: USDA SCS, "SOIL SURVEY OF MANATEE COUNTY, FLORIDA"  
 TOWNSHIP: 34 SOUTH  
 RANGE: 17 EAST  
 SECTION: 11

ISSUED: 1983  
 PHOTO: 1979  
 SCALE: 1" = 2000'

## USDA VICINITY MAP



APPROXIMATE SITE LOCATION

REFERENCE: USGS "PALMETTO, FLORIDA" QUADRANGLE MAP  
 TOWNSHIP: 34 SOUTH  
 RANGE: 17 EAST  
 SECTION: 11

MAP VERSION: 1984  
 PHOTO REVISSED: -  
 SCALE: 1" = 2000'

## USGS VICINITY MAP



DRAWN	DJG
CHECKED	DH
APPROVED	MEM
SCALE	NOTED

USDA & USGS VICINITY MAPS  
**BLACKSTONE PARK**  
 MANATEE COUNTY, FLORIDA



**psj** Information  
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DATE: SEPT 12    PROJ. NO.: 07751607    SHEET 1



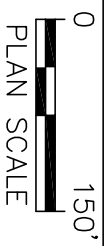


## LEGEND

-  Approximate SPT boring location
-  Approximate Hand Auger boring location

NOTE: Based upon site plan provided to PSI by WilsonMiller Stantec

## BORING LOCATION PLAN

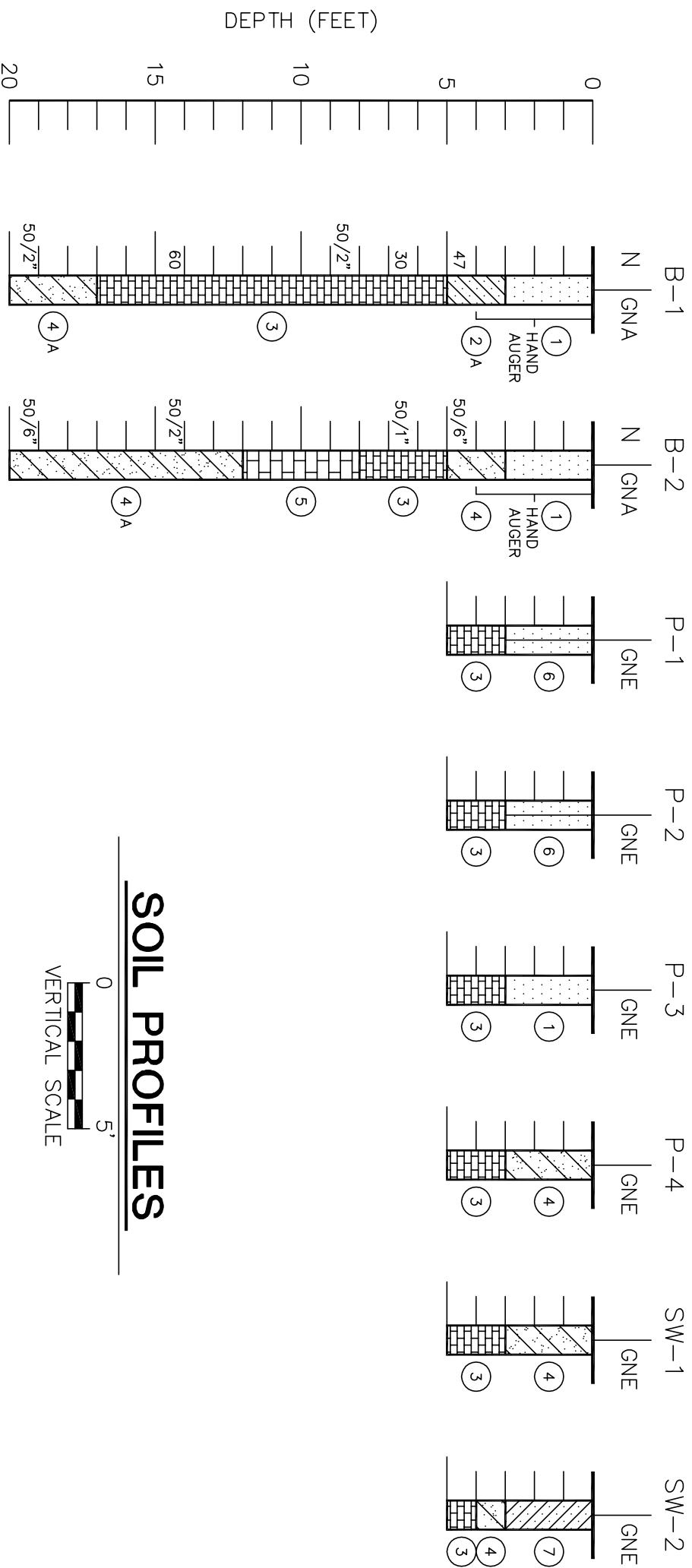


DRAWN	DJG
CHECKED	DH
APPROVED	MEM
SCALE	NOTED

GEOTECHNICAL SERVICES  
**BLACKSTONE PARK**  
 MANATEE COUNTY, FLORIDA

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DATE	SEPT 12	PROJ. NO.	07751607	SHEET	2
------	---------	-----------	----------	-------	---



## SOIL PROFILES



## LEGEND

- ① Brown to gray fine SAND (SP)
  - ② Gray clayey SAND (SC)
  - ③ Weathered LIMESTONE
  - ④ Gray or green slightly clayey to slightly silty fine SAND (SP-SC/SP-SM)
  - ⑤ LIMESTONE
  - ⑥ Dark gray slightly silty fine SAND (SP-SM)
  - ⑦ Gray slightly silty to clayey fine SAND (SP-SM/SC)
- SP Unified Soil Classification System (ASTM D 2487)  
 group symbol as determined by visual review
- GNA Groundwater level not apparent
- GNE Groundwater level not encountered
- N SPT N-value in blows/foot
- 50/6" Fifty blows for six inches
- A Calcareous

DRAWN	DJG
CHECKED	DH
APPROVED	MEM
SCALE	NOTED

GEOTECHNICAL SERVICES  
**BLACKSTONE PARK**  
 MANATEE COUNTY, FLORIDA

**Information**  
*To Build On*  
 Engineering • Consulting • Testing

DATE SEPT 12 PROJ. NO. 07751607 SHEET 3

**From:** [rob.brown@mymanatee.org](mailto:rob.brown@mymanatee.org) [<mailto:rob.brown@mymanatee.org>]  
**Sent:** Wednesday, November 14, 2012 12:22 PM  
**To:** Michael Bair  
**Subject:** Fw: Blackstone Park

Mike:

According to Hank Barker (SWFWMD), this stipulation that Marty is referencing is used primarily in the northern part of the District and not applicable here. A review of well construction data in the area shows that the beginning of the Intermediate Aquifer System (IAS) where potable wells could be constructed, would be at -25 msl.

**Rob Brown**

*Natural Resources Department*  
Manager, Environmental Protection Division  
(941)742-5980 ext. 1870  
cell: (941) 737-5218  
202 6th Avenue East  
Bradenton, FL 34208  
[www.MyManatee.org/naturalresources](http://www.MyManatee.org/naturalresources)



----- Forwarded by Robert Brown/MCG on 11/14/2012 12:16 PM -----

From: Wes Ripperger/MCG  
To: Robert Brown/MCG@MCG  
Date: 11/14/2012 11:14 AM  
Subject: Fw: Blackstone Park

---

Hey Rob,

Hank Barker (SWFWMD Hydrologist) looked into the formation surrounding Blackstone Park. Attached below is the well data from ROMP TR 8-1 and surrounding wells.

**Wes Ripperger**

*Natural Resources Department*  
Environmental Specialist  
(941)742-5980 ext. 1878  
cell: (352) 281-9182  
202 6th Avenue East  
Bradenton, FL 34208  
[www.MyManatee.org/naturalresources](http://www.MyManatee.org/naturalresources)



----- Forwarded by Wes Ripperger/MCG on 11/14/2012 11:06 AM -----

From: Hank Barker <[Henry.Barker@swfwmd.state.fl.us](mailto:Henry.Barker@swfwmd.state.fl.us)>  
To: "[wes.ripperger@mymanatee.org](mailto:wes.ripperger@mymanatee.org)" <[wes.ripperger@mymanatee.org](mailto:wes.ripperger@mymanatee.org)>  
Date: 11/14/2012 10:34 AM

Subject: RE: Blackstone Park

---

Hey Wes, ROMP TR 8-1 shows the IAS starts at about -25 ft. msl. Attached is the well construction for this area.

**From:** [wes.ripperger@mymanatee.org](mailto:wes.ripperger@mymanatee.org) [<mailto:wes.ripperger@mymanatee.org>]

**Sent:** Wednesday, November 14, 2012 9:36 AM

**To:** Hank Barker

**Subject:** Blackstone Park

Hank,

The location of the park is 2112 14th Ave W, Palmetto. The lat/long is 27 31 59.79, 82 34 46.72. Any data that would assist us in resolving this ERP issue would be very helpful.

Thanks again,

**Wes Ripperger**

*Natural Resources Department*

Environmental Specialist

(941)742-5980 ext. 1878

cell: (352) 281-9182

202 6th Avenue East

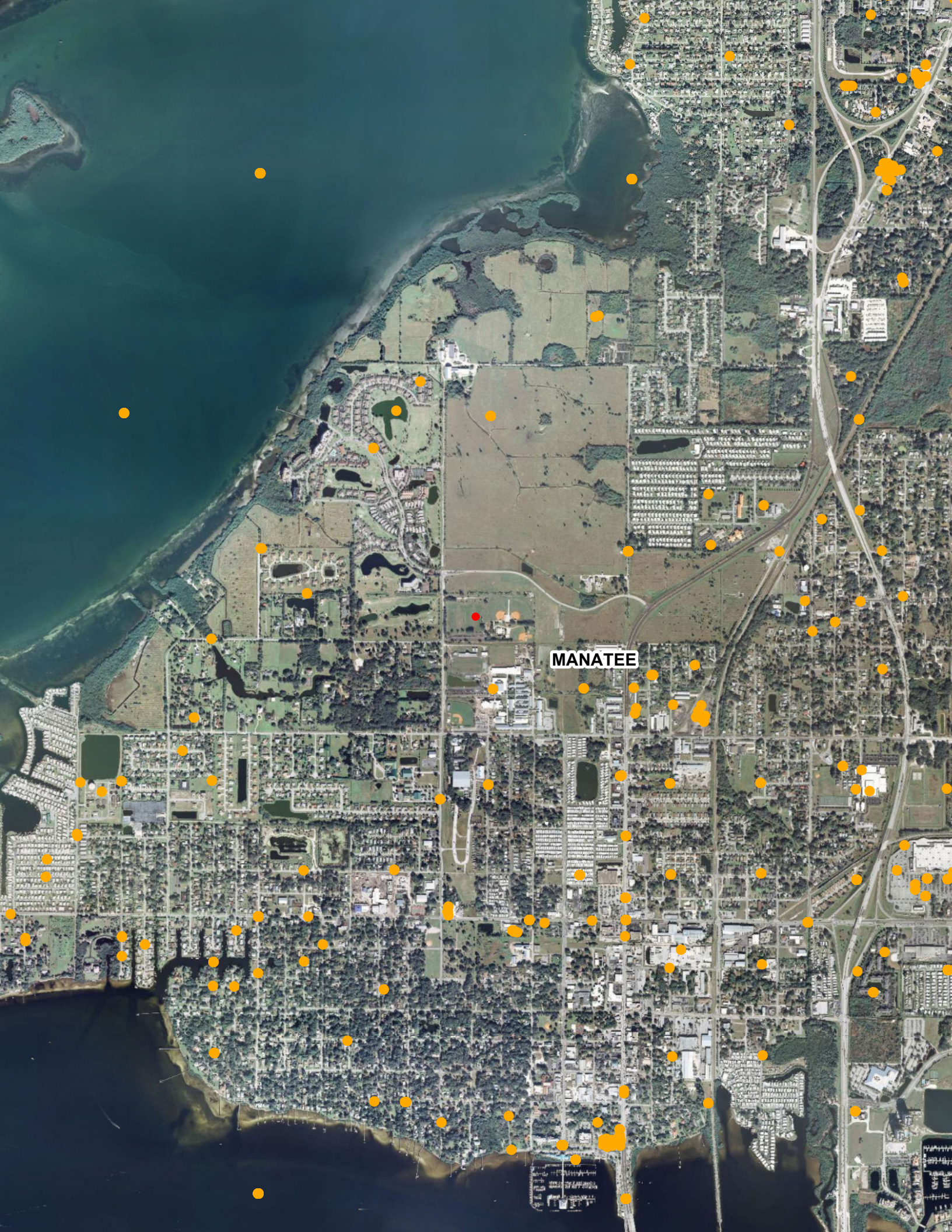
Bradenton, FL 34208

[www.MyManatee.org/naturalresources](http://www.MyManatee.org/naturalresources)



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MANATEE



## **HEALTH AND SAFETY PLAN**

For the

**BLACKSTONE PARK EXPANSION PROJECT  
PALMETTO, MANATEE COUNTY, FLORIDA**

Prepared for

**MANATEE COUNTY GOVERNMENT  
PROPERTY MANAGEMENT DEPARTMENT  
1112 MANATEE AVENUE WEST, SUITE 803  
BRADENTON, FLORIDA 34205**

Prepared by

**PROFESSIONAL SERVICE INDUSTRIES, INC.  
5801 BENJAMIN CENTER DRIVE, SUITE 112  
TAMPA, FLORIDA 33634  
TELEPHONE (813) 886-1075**

**PSI PROJECT NO: 0552863**

**MARCH 20, 2013**

March 20, 2013

**Manatee County Property Management Department**

1112 Manatee Avenue West, Suite 803  
Bradenton, Florida 34205

Re: Health and Safety Plan  
**Blackstone Park Expansion**  
Palmetto, Manatee County  
PSI Project No. 0552863

Professional Service Industries, Inc. (PSI) is pleased to provide this Health and Safety Plan (HASP) related to an upcoming construction project at the subject site. Site tasks include source removal activities, earth work, and other general construction activities. This document should be used as general guidelines for site workers. PSI recommends that each trade review this document as a starting point in developing their own HASP tailored to their scope of work. PSI assumes no liability for subcontractors hired by others.

Thank you for choosing PSI as your consultant for this important project. If you have any questions or comments, or if we can be of additional service, please contact the undersigned at (813) 886-1075.

Respectfully submitted,

**PROFESSIONAL SERVICE INDUSTRIES, INC.**



Christopher Forestt  
Project Scientist



Michael Bair, ASP  
Principal Consultant

P:\552-Env\0552863 - vacant parcel Palmetto Manatee Co\Blackstone HASP.docx

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# 1 EMERGENCY RESPONSE INFORMATION

Follow procedures implemented as required by 29 CFR (1)(1)(ii).

First Aid Kit(s), Fire Extinguisher(s), and Eye-Wash Bottle(s) are available at the PSI vehicle or other designated area: \_\_\_\_\_.

Emergency Muster Point: \_\_\_\_\_.

## 1.1 EMERGENCY CONTACTS

Project Manager: Mike Bair	(813) 927-0068 (mobile)
Health & Safety Officer: Chris Forestt	(813) 299-3130 (mobile)
Fire Department	911
Police Department	911
State Police	911
Ambulance	911
Poison Control Center	911
USEPA Environmental Response Team	(201) 321-6460
US Coast Guard Environmental Response Team	(800) 424-8802
Association of American Railroads Response Team	(202) 293-4048

## 1.2 EMERGENCY HOSPITAL INFORMATION

Hospital Name: Manatee Memorial Hospital

Hospital Phone Number: (941) 746-5111

Hospital Address: 206 Second Street East, Bradenton, Florida 34208

Approximate Distance and Time to Hospital: ~4 Miles; 9 Minutes

***A hospital map and directions are included as an attachment and the copy is usually placed in the front cover of this Health and Safety Plan for quick reference.***

## 1.3 ADDITIONAL PROJECT CONTACT INFORMATION

Client: Manatee County Government

Site Owner: Manatee County Government

Contact: Mr. Tom Yarger or Mr. Charlie Bishop

Other: \_\_\_\_\_.

## 2 SITE INFORMATION

A site map (**Appendix A**) and recent summary of contaminant concentrations are included as attachments.

### 2.1 SITE DESCRIPTION

#### 2.1.1 SITE TYPE

<input checked="" type="checkbox"/> <b>Active</b>	<input type="checkbox"/> Landfill	<input type="checkbox"/> Residential	<input checked="" type="checkbox"/> <b>Recreational</b>
<input type="checkbox"/> Inactive	<input type="checkbox"/> Industrial	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Nature Area
<input type="checkbox"/> Secure	<input type="checkbox"/> Commercial	<input type="checkbox"/> Military	<input type="checkbox"/> Unknown
<input checked="" type="checkbox"/> <b>Unsecured</b>	<input checked="" type="checkbox"/> <b>Other (Specify): vacant land</b>		

The subject property is located at the southeast corner of the intersection of 23<sup>rd</sup> Street West and 14<sup>th</sup> Avenue in Palmetto, Manatee County, Florida. Blackstone Park consists of approximately 12.13 acres. The vacant parcel, which is the location of the Park Expansion project, is located to the north and east of Blackstone Park and consists of approximately 19.55 acres.

Properties adjacent to the subject site consist of 23<sup>rd</sup> Street West and former agricultural property to the north; former agricultural property and pasture land to the east; Palmetto High School to the south; and 14<sup>th</sup> Avenue West and residential property to the west. Baseball fields, a parking lot, and a stormwater pond are under consideration for development on the vacant property to the north and east of Blackstone Park. A conceptual site layout is provided in **Appendix A**.

#### 2.1.2 SURROUNDING POPULATION

<input checked="" type="checkbox"/> <b>Residential</b>	<input type="checkbox"/> Industrial	<input type="checkbox"/> Urban
<input type="checkbox"/> Rural	<input checked="" type="checkbox"/> <b>Other (Specify): Golf Course &amp; School</b>	

### 2.2 SITE HISTORY

The subject site was historically utilized for agricultural purposes. PSI conducted environmental sampling at the subject site to evaluate current conditions of the soil and groundwater. The intent of this effort was to develop information with respect to future expansion of the site with additional recreational facilities in terms of impact to human health and the environment.

### 2.3 SITE CONTAMINATION

#### VACANT PARCEL

In particular, Dieldrin and Arsenic were detected most often at the Vacant Parcel. Detections of Dieldrin appear to be more consistent within the top 6 inches and decrease in total number of detections and concentration with depth. This trend is suggestive of a surface application which is consistent with historical uses of Dieldrin. Dieldrin is a common pesticide used generally from 1948 through 1974 in agricultural settings.

The detections of Arsenic appear to be the “opposite” to that of the Dieldrin at the Vacant Parcel. Higher concentrations of Arsenic were detected in the 2 to 4 foot range and decreased

in total number of detections and concentration toward the surface. This trend is suggestive of a natural occurrence of the Arsenic. In fact, scientific evidence has documented that Arsenic concentrations are elevated in the soil type found on-site and in this area of the State.

Five groundwater samples were collected throughout the Vacant Parcel. As noted, concentrations of Arsenic were not detected in any of the groundwater samples. It does not appear that Arsenic is leaching out of the soil to any degree that would result in groundwater contamination. Dieldrin was noted in two groundwater samples collected to the north of the Park.

Summary tables of site contaminant concentrations are provided in **Appendix B**.

### 3 HAZARD ANALYSIS

All personnel at the site removing the top 6 inches shall have completed OSHA HAZWOPER 40-Hour training and annual 8-Hour refresher courses. After the top 6 inches has been removed, all on-site workers shall be informed of the contents of this HASP. Documentation of their understanding and commitment to abide by the HASP shall be provided by signing this plan on the attached sign-in sheets.

Material Safety Data Sheets (MSDSs) are attached (from internet) within **Appendix C**.

Please also reference **PSI's SHM-11: Excavation, Shoring, and Trenching Program** for additional information (included in **Appendix F**).

#### 3.1 SITE ACTIVITIES

- |  |   |
|--|---|
| <input type="checkbox"/> Preliminary Assessment (PA)<br><input type="checkbox"/> Site Investigation (SI)<br><input type="checkbox"/> Remedial Investigation<br><input type="checkbox"/> Feasibility Study (FS) | <input type="checkbox"/> Pre-Design<br><input type="checkbox"/> Remedial Design<br><input checked="" type="checkbox"/> <b>Remedial Action</b><br><input type="checkbox"/> Other |
|--|---|

Remediation activities by PSI to include source removal using heavy equipment to remove contaminated soils. The depth of the excavation will be 6 inches.

#### 3.2 HAZARD EVALUATION

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> <b>Heat Stress</b>         | <input type="checkbox"/> Cold Stress                          | <input checked="" type="checkbox"/> <b>Noise</b>           |
| <input type="checkbox"/> Oxygen Deficiency                     | <input type="checkbox"/> Radiological                         | <input checked="" type="checkbox"/> <b>Biological</b>      |
| <input checked="" type="checkbox"/> <b>Organic Chemicals</b>   | <input type="checkbox"/> Inorganic Chemicals                  | <input checked="" type="checkbox"/> <b>Excavation</b>      |
| <input checked="" type="checkbox"/> <b>Explosion/Flammable</b> | <input checked="" type="checkbox"/> <b>Dangerous Wildlife</b> | <input checked="" type="checkbox"/> <b>Falling Objects</b> |
| <input type="checkbox"/> Confined Spaces                       | <input checked="" type="checkbox"/> <b>Electrical</b>         | <input type="checkbox"/> Other                             |

Physical hazards associated with this site include potential injury from heavy machinery operations including crushing or other bodily damage. In addition, overhead drops, subsurface utilities, sharps, loud noise, flying debris, and thermal dangers are associated with large equipment usage and activities proximal to these machines.

Other environmental hazards associated with onsite activities include: uneven ground surfaces (trips, falls), weather (heat stresses, inclement conditions), biological threats (insects, biting animals, others), and sampling activity exposures (chemical contaminants, laboratory preservative acids, sharps, etc.).

#### 3.3 OVERALL HAZARD EVALUATION

- High                                       **Medium**                                       Low

**Justification:** Medium overall hazard classification due to the on-site traffic and use of heavy equipment/machinery performing excavations and land development.

#### 3.4 ACTIVITIES OF GREATEST CONCERN

- Heavy equipment operations and movement.





### **3.5 SITE CONTROL MEASURES**

- High visibility vests will be worn at all times.
- Hard hats will be worn while on-site for head protection.
- No smoking except in designated areas (if allowed).
- All personnel to review HASP and attend “Tailgate” Meeting as initial training.

### **3.6 ACCIDENT PREVENTION PLANNING**

- Keep non-involved personnel at least 5’ from work spaces where possible. Lines of communication should be predetermined in case of an emergency.
- Hard hats, long pants, steel-toe boots, gloves (leather or protective), ear plugs (or similar), and eye protection (safety glasses) will be worn on-site.
- High visibility clothing (vest, shirt, or similar) will be worn at all times.
- Hand signals, eye contact, and/or other communications between equipment operators and ground crew members will be addressed during task-planning.
- Prior to task initiation, equipment operators will discuss (with proximal ground crew members) potential hazards associated with each machine (swing radius, pinch points, emergency stop buttons, etc.) prior to operation.
- Equipment and foot traffic patterns regarding scopes of work will be discussed with all personnel to avoid pedestrians and heavy equipment working near one another.
- Surgical PVC-type, Latex, or Nitrile gloves will be worn by any personnel in contact with soil or groundwater for chemical exposure protection.
- Sunscreen will be used for skin protection. PSI intends to provide shaded areas for rest through the use of temporary canopies.
- All staff members are responsible to call for STOP-WORK (activities to be ceased) when a safety issue is identified until it is addressed.



## 5 ADDITIONAL MONITORING

### 5.1 HEAT STRESS MONITORING

METHOD:  **Pulse Rate**  **Body Temp**  **WBGT**

ACTION GUIDELINES: Specify initial work/rest schedules based upon ambient temperatures (beginning at 70 F), humidity and % sunshine. Then specify physiological monitoring methods and results to modify initial work/rest schedules.

**Pulse Rate:** Determine normal resting pulse rate. Monitor pulse rate as soon as possible at beginning of rest period. If rate is > 40 beats per minute above normal, shorten the next work period by one-third (1/3) without changing the rest period. If pulse rate is > 40 BPM above normal at the beginning of the next rest period, shorten following work cycle again by 1/3. Repeat.

**Body Temp:** Determine body temperature at the end of the work cycle and before drinking. If the temp >99.6 F (37.6 C), shorten the next work cycle by 1/3 without changing the rest cycle. Repeat. Do NOT permit a worker to wear semipermeable or impermeable clothing when his/her body temperature exceeds 100.6 C (38.1 C).

**WBGT:** Use ACGIH TLVs.

**Cold Stress:** Use ACGIH TLVs.

### 5.2 DUST MONITORING:

SCHEDULE: To Be Determined

TYPE OF DUST:  **Not Required**  **Respirable**  **Total**

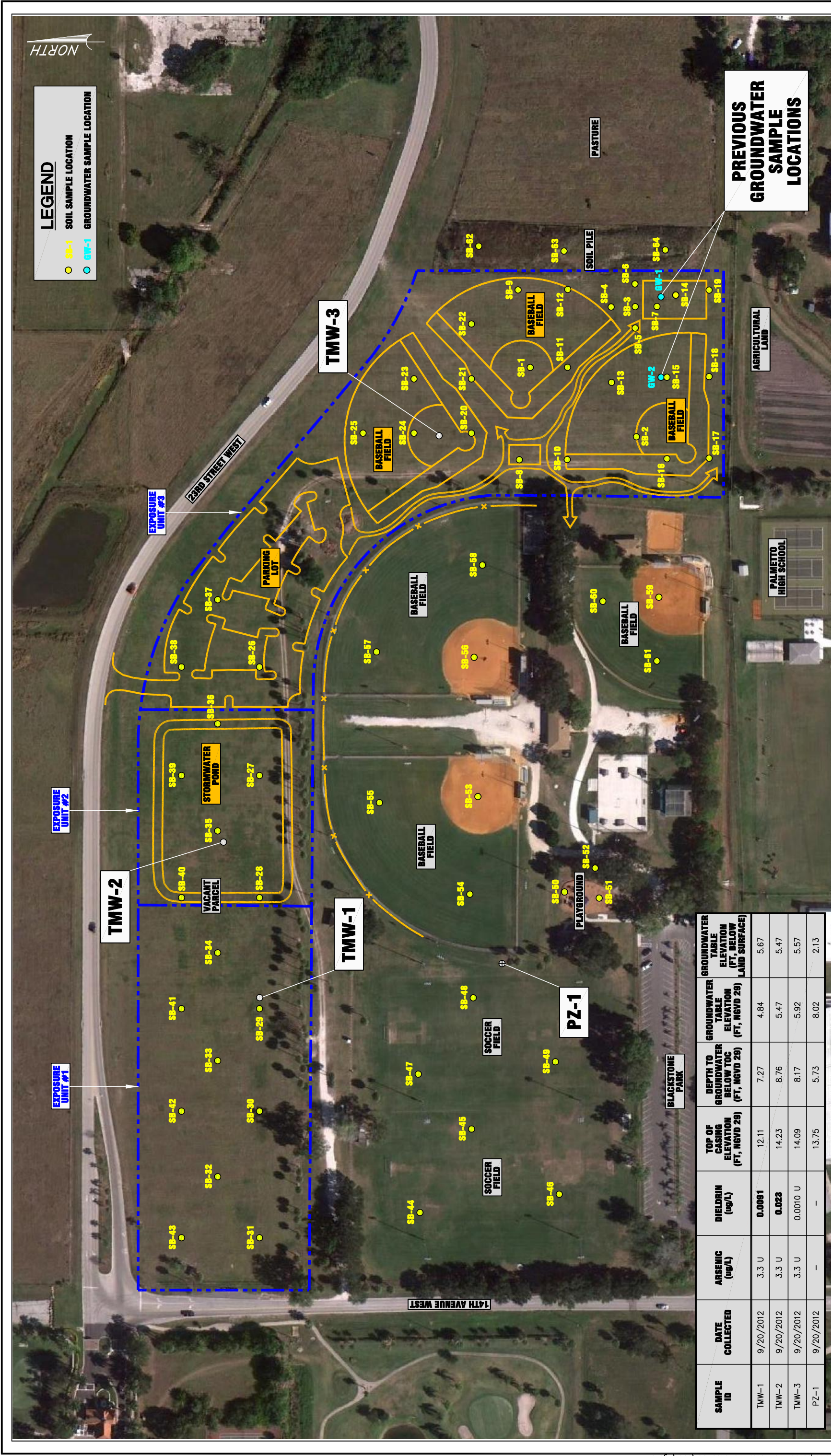
ACTION GUIDELINES:

0 - _____ =	Level _____ Ensemble
_____ - _____ =	Upgrade to Level _____
_____ - _____ =	Upgrade to Level _____
_____ - _____ =	Upgrade to Level _____

COMMENTS: Dust levels should be kept to a minimum by misting working surface and drive areas with potable water. Dust shall not be allowed to leave the job site. Excess water should not be used such that puddles are formed within the job site.

## APPENDIX A - FIGURE(S)





SAMPLE ID	DATE COLLECTED	ARSENIC (ug/L)	DIELDRIN (ug/L)	TOP OF CASING ELEVATION (FT, NGVD 29)	DEPTH TO GROUNDWATER BELOW TOC (FT, NGVD 29)	GROUNDWATER TABLE ELEVATION (FT, NGVD 29)	GROUNDWATER TABLE ELEVATION (FT, BELOW LAND SURFACE)
TMW-1	9/20/2012	3.3 U	0.0091	12.11	7.27	4.84	5.67
TMW-2	9/20/2012	3.3 U	0.023	14.23	8.76	5.47	5.47
TMW-3	9/20/2012	3.3 U	0.0010 U	14.09	8.17	5.92	5.57
PZ-1	9/20/2012	-	-	13.75	5.73	8.02	2.13

PROJ. NO.  
**0552863**

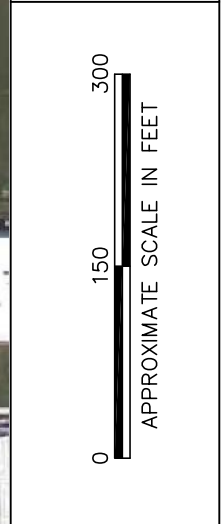
DRAWN BY  
**DJG**

DATE CREATED  
**6/4/12**

SCALE: 1" = 150'

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5801 Benjamin Center Drive, Suite 112  
Tampa, Florida 33634  
(813) 886-1075  
(813) 249-0301 fax



## CONCEPTUAL SITE LAYOUT

PALMETTO, MANATEE COUNTY, FLORIDA

FIGURE No.  
**1**

P:\552-Env\0552863 - vacant parcel Palmetto Manatee Co\cd\figure 1



## APPENDIX B - TABLE(S)

# Groundwater Analytical Results

Blackstone Park

Sample ID	Date Collected	Arsenic (ug/L)	Dieldrin (ug/L)
_GCTL		10	0.002
_NADSC		100	0.2
GW-1	10/28/2010	4.8 U	0.0014 U
GW-2	10/28/2010	4.8 U	0.0014 U
TMW-1	9/20/2012	3.3 U	<b>0.0091</b>
TMW-2	9/20/2012	3.3 U	<b>0.023</b>
TMW-3	9/20/2012	3.3 U	0.0010 U

# TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

## BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'	DDE, 4,4'	DDT, 4,4'	Aldrin	BHC, b'	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-1 (0'-2')	28-Oct-2010	0.0019 U	0.0018 U	0.00067 U	0.0023 U	0.0019 U	0.021	0.0017 U	0.0014 U	0.0018 U	0.0067 U	0.97	-	-
SB-2 (0'-2')	28-Oct-2010	0.0019 U	0.0018 U	0.00068 U	0.0023 U	0.0019 U	0.056	0.0017 U	0.0014 U	0.0018 U	0.0068 U	2.1	-	-
SB-3 (0'-2')	28-Oct-2010	0.0019 U	0.0018 U	0.00066 U	0.0023 U	0.0019 U	0.17	0.0016 U	0.0013 U	0.0018 U	0.0066 U	0.95	-	-
SB-4(0-6")	26-Nov-2010	0.00042 U	0.029	0.0084	0.00062 I	0.00012 U	0.190	0.00018 U	-	0.00012 U	-	-	-	-
SB-4(6"-2)	26-Nov-2010	0.0004 U	0.0012	0.0003 U	0.00012 U	0.00012 U	0.0085	0.00017 U	-	0.00012 U	-	-	-	-
SB-4(2'-4)	26-Nov-2010	0.00047 U	0.0019	0.00035 U	0.00014 U	0.00014 U	0.00015 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-5(0-6")	26-Nov-2010	0.00042 U	0.0074	0.0013	0.00012 U	0.00012 U	0.130	0.00018 U	-	0.00012 U	-	-	-	-
SB-5(6"-2)	26-Nov-2010	0.00042 U	0.00022 U	0.00032 U	0.00012 U	0.00012 U	0.018	0.00018 U	-	0.00012 U	-	-	-	-
SB-5(2'-4)	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-6(0-6")	26-Nov-2010	0.00041 U	0.015	0.0076	0.00082 I	0.00012 U	0.180	0.00018 U	-	0.00012 U	-	-	-	-
SB-6(6"-2)	26-Nov-2010	0.00042 U	0.00061 I	0.00031 U	0.00012 U	0.00012 U	0.0056	0.00018 U	-	0.00012 U	-	-	-	-
SB-6(2'-4)	26-Nov-2010	0.00046 U	0.00058 I	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-7(0-6")	26-Nov-2010	0.00042 U	0.00062 I	0.00031 U	0.00012 U	0.00012 U	0.017	0.00018 U	-	0.00014 U	-	-	-	-
SB-7(6"-2)	26-Nov-2010	0.00042 U	0.00022 U	0.00031 U	0.00012 U	0.00029 I	0.0016	0.00018 U	-	0.00012 U	-	-	-	-
SB-7(2'-4)	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00013 U	0.00013 U	0.00014 U	0.0002 U	-	0.00013 U	-	-	-	-
SB-8(0-6")	26-Nov-2010	0.00042 U	0.0022	0.0027	0.0015	0.00012 U	0.120	0.00018 U	-	0.00012 U	-	-	-	-
SB-8(6"-2)	26-Nov-2010	0.00042 U	0.0006 I	0.00031 U	0.00012 U	0.00012 U	0.0027	0.00018 U	-	0.00087 I	-	-	-	-
SB-8(2'-4)	26-Nov-2010	0.00048 U	0.00037 I	0.00035 U	0.00014 U	0.00014 U	0.00015 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-9(0-6")	26-Nov-2010	0.00041 U	0.0024	0.001 I	0.00012 U	0.00012 U	0.0066	0.00018 U	-	0.00012 U	-	-	-	-
SB-9(6"-2)	26-Nov-2010	0.00045 U	0.0014	0.00034 U	0.00013 U	0.00013 U	0.00014 U	0.00019 U	-	0.00013 U	-	-	-	-
SB-9(2'-4)	26-Nov-2010	0.00036 U	0.00075 I	0.00027 U	0.00011 U	0.00011 U	0.00011 U	0.00016 U	-	0.00011 U	-	-	-	-
SB-10(0-6")	26-Nov-2010	0.00042 U	0.00022 U	0.00031 U	0.00012 U	0.00012 U	0.088	0.00018 U	-	0.00012 U	-	-	-	-
SB-10(6"-2)	26-Nov-2010	0.00041 U	0.00022 U	0.00031 U	0.00018 I	0.00012 U	0.014	0.00018 U	-	0.00012 U	-	-	-	-
SB-10(2'-4)	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-



# TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

## BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'-	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-11(0'-6")	26-Nov-2010	0.00043 U	0.0021	0.0054	0.00019 I	0.00013 U	0.090	0.00018 U	-	0.00013 U	-	-	-	-
SB-11(6"-2')	26-Nov-2010	0.00043 U	0.0004 I	0.00032 U	0.00013 U	0.00081 I	0.025	0.00019 U	-	0.00013 U	-	-	-	-
SB-11(2'-4')	26-Nov-2010	0.00045 U	0.00024 U	0.00033 U	0.00013 U	0.00013 U	0.00014 U	0.00019 U	-	0.00013 U	-	-	-	-
SB-12(0'-6")	26-Nov-2010	0.00041 U	0.0047	0.0017	0.00082 I	0.0012	0.021	0.00018 U	-	0.00012 U	-	-	-	-
SB-12(6"-2')	26-Nov-2010	0.00044 U	0.00061 I	0.00033 U	0.00013 U	0.00013 U	0.0026	0.00019 U	-	0.00013 U	-	-	-	-
SB-12(2'-4')	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00014 U	0.00076 I	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-13(0'-6")	26-Nov-2010	0.00041 U	0.0012	0.0027	0.00012 U	0.00012 U	0.015	0.00018 U	-	0.00012 U	-	-	-	-
SB-13(6"-2')	26-Nov-2010	0.00043 U	0.00062 I	0.00032 U	0.00013 U	0.00096 I	0.012	0.00018 U	-	0.00013 U	-	-	-	-
SB-13(2'-4')	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00013 U	0.00013 U	0.00024 I	0.0002 U	-	0.00013 U	-	-	-	-
SB-14(0'-6")	26-Nov-2010	0.00043 U	0.003	0.0039	0.00013 U	0.00023 I	0.034	0.00019 U	-	0.00076 I	-	-	-	-
SB-14(6"-2')	26-Nov-2010	0.00042 U	0.00032 I	0.00031 U	0.00012 U	0.00012 U	0.0039	0.00018 U	-	0.0006 I	-	-	-	-
SB-14(2'-4')	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-15(0'-6")	26-Nov-2010	0.00042 U	0.0023	0.00031 U	0.0014	0.0044	0.037	0.00018 U	-	0.00012 U	-	-	-	-
SB-15(6"-2')	26-Nov-2010	0.00042 U	0.00022 U	0.00031 U	0.00012 U	0.0006 I	0.035	0.00018 U	-	0.00012 U	-	-	-	-
SB-15(2'-4')	26-Nov-2010	0.00045 U	0.00024 U	0.00034 U	0.00013 U	0.00013 U	0.00014 U	0.0002 U	-	0.00013 U	-	-	-	-
SB-16(0'-6")	26-Nov-2010	0.00041 U	0.0031	0.004	0.0019	0.00012 U	0.038	0.00018 U	-	0.00012 U	-	-	-	-
SB-16(6"-2')	26-Nov-2010	0.00042 U	0.00058 I	0.00032 U	0.00012 U	0.0012	0.017	0.00018 U	-	0.00012 U	-	-	-	-
SB-16(2'-4')	26-Nov-2010	0.00048 U	0.00079 I	0.00036 U	0.00014 U	0.00014 U	0.0003 I	0.00021 U	-	0.00014 U	-	-	-	-
SB-17(0'-6")	26-Nov-2010	0.00041 U	0.018	0.00031 U	0.0015	0.00012 U	0.190	0.00018 U	-	0.00045 I	-	-	-	-
SB-17(6"-2')	26-Nov-2010	0.00042 U	0.00083 I	0.00031 U	0.00023 I	0.00012 U	0.053	0.00018 U	-	0.00012 U	-	-	-	-
SB-17(2'-4')	26-Nov-2010	0.00046 U	0.00039 I	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-18(0'-6")	26-Nov-2010	0.00042 U	0.0027	0.0021	0.00012 U	0.00012 U	0.034	0.00018 U	-	0.00019 I	-	-	-	-
SB-18(6"-2')	26-Nov-2010	0.00043 U	0.0033	0.0013	0.00013 U	0.00013 U	0.062	0.00019 U	-	0.00013 U	-	-	-	-
SB-18(2'-4')	26-Nov-2010	0.00046 U	0.00076 I	0.00035 U	0.00014 U	0.00014 U	0.0003 I	0.0002 U	-	0.00014 U	-	-	-	-

# TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

## BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'-	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-19(0-6")	26-Nov-2010	0.00042 U	0.002	0.00082 I	0.00012 U	0.00012 U	0.010	0.00018 U	-	0.00012 U	-	-	-	-
SB-19(6"-2')	26-Nov-2010	0.00043 U	0.00023 U	0.00032 U	0.00012 U	0.00012 U	0.018	0.00018 U	-	0.00012 U	-	-	-	-
SB-19(2'-4')	26-Nov-2010	0.00045 U	0.00024 U	0.00033 U	0.00013 U	0.00013 U	0.00014 U	0.00019 U	-	0.00013 U	-	-	-	-
SB-20(0-6")	27-Feb-2012	0.00026 U	0.019	0.00032 U	0.0019	0.00038 U	0.59	0.00096 U	0.00075 U	0.00034 U	0.0063	0.88 I	-	-
SB-20(6"-2')	27-Feb-2012	0.00026 U	0.00047 U	0.00032 U	0.000052 U	0.00038 U	0.027	0.00096 U	0.00075 U	0.00034 U	0.00051 U	2.6	-	-
SB-20(2'-4')	27-Feb-2012	0.00032 U	0.00058 U	0.00040 U	0.000065 U	0.00047 U	0.0012 U	0.0012 U	0.00094 U	0.00043 U	0.00064 U	4.6	-	-
SB-21(0-6")	27-Feb-2012	0.00026 U	0.0094	0.00032 U	0.000052 U	0.00038 U	0.085	0.00096 U	0.00075 U	0.00034 U	0.00051 U	0.49 I	-	-
SB-21(6"-2')	27-Feb-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.00096 U	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.97 I	-	-
SB-21(2'-4')	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0011 U	0.0011 U	0.00087 U	0.00040 U	0.00059 U	5.6	-	-
SB-22(0-6")	27-Feb-2012	0.00028 U	0.0079	0.00034 U	0.000056 U	0.00040 U	0.1	0.0010 U	0.00080 U	0.00037 U	0.00054 U	0.35 U	-	-
SB-22(6"-2')	27-Feb-2012	0.00032 U	0.00057 U	0.00039 U	0.000063 U	0.00046 U	0.0012 U	0.0012 U	0.00091 U	0.00042 U	0.00062 U	1.1 I	-	-
SB-22(2'-4')	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000057 U	0.00041 U	0.0010 U	0.0011 U	0.00083 U	0.00038 U	0.00056 U	3.4	-	-
SB-23(0-6")	27-Feb-2012	0.00030 U	0.0063	0.00038 U	0.000061 U	0.00044 U	0.066	0.0011 U	0.00088 U	0.00040 U	0.00060 U	0.39 U	7.8	0.017 I
SB-23(6"-2')	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000058 U	0.00042 U	0.0011 U	0.0011 U	0.00084 U	0.00038 U	0.00057 U	0.37 U	-	-
SB-23(2'-4')	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000057 U	0.00041 U	0.0010 U	0.0010 U	0.00082 U	0.00038 U	0.00056 U	9.9	-	-
SB-24(0-6")	27-Feb-2012	0.00026 U	0.0066	0.00032 U	0.00047 I	0.00038 U	0.2	0.00096 U	0.0011 I	0.00034 U	0.00086 I	0.32 U	-	-
SB-24(6"-2')	27-Feb-2012	0.00027 U	0.00049 U	0.00034 U	0.000054 U	0.00039 U	0.017	0.0010 U	0.00078 U	0.00036 U	0.00053 U	0.34 U	-	-
SB-24(2'-4')	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0011 U	0.0011 U	0.00086 U	0.00039 U	0.00058 U	3.6	-	-
SB-25(0-6")	27-Feb-2012	0.00026 U	0.0018 I	0.00032 U	0.00049 I	0.00038 U	0.031	0.00096 U	0.00075 U	0.00034 U	0.00032	0.31 U	-	-
SB-25(6"-2')	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0069	0.0011 U	0.00087 U	0.00040 U	0.00059 U	4.3	-	-
SB-25(2'-4')	27-Feb-2012	0.00029 U	0.00053 U	0.00036 U	0.000059 U	0.00042 U	0.0011 U	0.0011 U	0.00085 U	0.00039 U	0.00058 U	1.6	-	-
SB-26(0-6")	27-Feb-2012	0.00027 U	0.0069	0.00033 U	0.00068 I	0.00038 U	0.033	0.00098 U	0.00077 U	0.00035 U	0.00052 U	3	-	-
SB-26(6"-2')	27-Feb-2012	0.00028 U	0.0017 I	0.00035 U	0.000056 U	0.00040 U	0.0010 U	0.0010 U	0.00081 U	0.00037 U	0.00055 U	4.3	-	-
SB-26(2'-4')	27-Feb-2012	0.000058 U	0.00010 U	0.000072 U	0.000012 U	0.000084 U	0.00022 U	0.00022 U	0.00017 U	0.000076 U	0.00011 U	0.38 U	-	-

# TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

## BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-27(0'-6")	27-Feb-2012	0.000052 U	0.00081	0.000064 U	0.000059 U	0.000076 U	0.0027	0.00019 U	0.00015 U	0.000068 U	0.00010 U	0.32 U	14	0.063
SB-27(6"-2')	27-Feb-2012	0.000056 U	0.00010 U	0.000070 U	0.000011 U	0.000080 U	0.00020 U	0.00020 U	0.00016 U	0.000074 U	0.00011 U	3.8	-	-
SB-27(2'-4')	27-Feb-2012	0.000054 U	0.000098 U	0.000068 U	0.000011 U	0.000078 U	0.00020 U	0.00020 U	0.00016 U	0.000072 U	0.00011 U	0.33 U	-	-
SB-28(0'-6")	27-Feb-2012	0.000052 U	0.0005	0.000066 U	0.000011 U	0.000076 U	0.0053	0.00019 U	0.00015 U	0.000070 U	0.00010 U	0.34 U	-	-
SB-28(6"-2')	27-Feb-2012	0.000052 U	0.000092 U	0.000064 U	0.000010 U	0.000074 U	0.0012	0.00019 U	0.00015 U	0.000068 U	0.00010 U	5	-	-
SB-28(2'-4')	27-Feb-2012	0.000056 U	0.00010 U	0.000070 U	0.000011 U	0.000080 U	0.00020 U	0.00020 U	0.00016 U	0.000074 U	0.00011 U	0.35 U	-	-
SB-29(0'-6")	27-Feb-2012	0.000052 U	0.00045	0.000064 U	0.000010 U	0.000074 U	0.0016	0.00019 U	0.00015 U	0.000068 U	0.00010 U	2.7	-	-
SB-29(6"-2')	27-Feb-2012	0.000054 U	0.0005	0.000066 U	0.000011 U	0.000076 U	0.001	0.00020 U	0.00015 U	0.000070 U	0.00010 U	5.2	-	-
SB-29(2'-4')	27-Feb-2012	0.000058 U	0.00011 U	0.000072 U	0.000012 U	0.000084 U	0.00022 U	0.00022 U	0.00017 U	0.000078 U	0.00012 U	0.87 I	-	-
SB-30(0'-6")	27-Feb-2012	0.000054 U	0.00013	0.000068 U	0.000011 U	0.000078 U	0.00043 I	0.00020 U	0.00016 U	0.000072 U	0.00011 U	0.73 I	-	-
SB-30(6"-2')	27-Feb-2012	0.000053 U	0.0026	0.000065 U	0.000011 U	0.000076 U	0.021	0.00019 U	0.00015 U	0.000069 U	0.00010 U	2.7	-	-
SB-30(2'-4')	27-Feb-2012	0.000058 U	0.00010 U	0.000072 U	0.000011 U	0.000082 U	0.00020 U	0.00022 U	0.00017 U	0.000076 U	0.00011 U	0.91 I	-	-
SB-31(0'-6")	27-Feb-2012	0.000054 U	0.00055	0.000066 U	0.000011 U	0.000076 U	0.0024	0.00020 U	0.00015 U	0.000070 U	0.00077	0.34 U	-	-
SB-31(6"-2')	27-Feb-2012	0.000052 U	0.000094 U	0.000064 U	0.000010 U	0.000076 U	0.0014	0.00019 U	0.00015 U	0.000068 U	0.00010 U	1.5	-	-
SB-31(2'-4')	27-Feb-2012	0.000060 U	0.00011 U	0.000074 U	0.000012 U	0.000086 U	0.00022 U	0.00022 U	0.00017 U	0.000080 U	0.00012 U	2.1	-	-
SB-32(0'-6")	27-Feb-2012	0.000054 U	0.0015	0.000066 U	0.000011 U	0.000078 U	0.005	0.00020 U	0.00015 U	0.000070 U	0.00011 U	0.89 I	-	-
SB-32(6"-2')	27-Feb-2012	0.000056 U	0.00010 U	0.000068 U	0.000011 U	0.000080 U	0.00020 U	0.00020 U	0.00016 U	0.000074 U	0.00011 U	0.86 I	-	-
SB-32(2'-4')	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000057 U	0.00041 U	0.0010 U	0.0010 U	0.00082 U	0.00038 U	0.00056 U	3.3	-	-
SB-33(0'-6")	27-Feb-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.019	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.34 U	5.3	0.0062 U
SB-33(6"-2')	27-Feb-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.018	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.86 I	-	-
SB-33(2'-4')	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000058 U	0.00042 U	0.0011 U	0.0011 U	0.00084 U	0.00038 U	0.00057 U	11	-	-
SB-34(0'-6")	27-Feb-2012	0.00026 U	0.00047 U	0.00032 U	0.000052 U	0.00038 U	0.0066	0.00096 U	0.00075 U	0.00034 U	0.00051 U	0.74 I	-	-
SB-34(6"-2')	27-Feb-2012	0.00025 U	0.00045 U	0.00031 U	0.000051 U	0.00036 U	0.0048	0.00093 U	0.00073 U	0.00033 U	0.00049 U	0.98 I	-	-
SB-34(2'-4')	27-Feb-2012	0.00031 U	0.00056 U	0.00039 U	0.000062 U	0.00045 U	0.0011 U	0.0012 U	0.00090 U	0.00041 U	0.00061 U	12	-	-

# TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

## BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'-	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-35(0-6")	27-Feb-2012	0.00027 U	0.01	0.0054	0.00067 I	0.00038 U	0.042	0.00098 U	0.00077 U	0.00035 U	0.00052 U	0.61 I	-	-
SB-35(6"-2)	27-Feb-2012	0.00026 U	0.00046 U	0.00032 U	0.000052 U	0.00037 U	0.00094 U	0.00095 U	0.00074 U	0.00034 U	0.00051 U	1.3	-	-
SB-35(2'-4)	27-Feb-2012	0.00028 U	0.00050 U	0.00034 U	0.000056 U	0.00040 U	0.0010 U	0.0010 U	0.00080 U	0.00037 U	0.00054 U	9.6	-	-
SB-36(0-6")	27-Feb-2012	0.00027 U	0.00049 U	0.00034 U	0.00049 I	0.00040 U	0.0072	0.0010 U	0.00079 U	0.00036 U	0.005	3.8	-	-
SB-36(6"-2)	27-Feb-2012	0.00030 U	0.00055 U	0.00038 U	0.000061 U	0.00044 U	0.0011 U	0.0011 U	0.00088 U	0.00040 U	0.00060 U	9.4	-	-
SB-36(2'-4)	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000057 U	0.00041 U	0.0010 U	0.0011 U	0.00083 U	0.00038 U	0.00056 U	1.5	-	-
SB-37(0-6")	27-Feb-2012	0.00027 U	0.00048 U	0.00033 U	0.000054 U	0.00039 U	0.0017 I	0.00099 U	0.00077 U	0.00035 U	0.00053 U	5.6	-	-
SB-37(6"-2)	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000058 U	0.00042 U	0.0011 U	0.0011 U	0.00084 U	0.00038 U	0.00057 U	4.9	-	-
SB-37(2'-4)	27-Feb-2012	0.00034 U	0.00061 U	0.00042 U	0.000068 U	0.00049 U	0.0012 U	0.0012 U	0.00097 U	0.00045 U	0.00066 U	1.3 I	-	-
SB-38(0-6")	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000056 U	0.00040 U	0.0010 U	0.0010 U	0.00081 U	0.00037 U	0.00055 U	8.9	-	-
SB-38(6"-2)	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0011 U	0.0011 U	0.00086 U	0.00039 U	0.00058 U	8.4	-	-
SB-38(2'-4)	27-Feb-2012	0.00030 U	0.00055 U	0.00038 U	0.000061 U	0.00044 U	0.0011 U	0.0011 U	0.00088 U	0.00040 U	0.00060 U	2.6	-	-
SB-39(0-6")	27-Feb-2012	0.00027 U	0.00025	0.00034 U	0.000054 U	0.00039 U	0.00099 U	0.0010 U	0.00078 U	0.00036 U	0.00053 U	6.8	-	-
SB-39(6"-2)	27-Feb-2012	0.00029 U	0.00053 U	0.00036 U	0.000059 U	0.00042 U	0.0011 U	0.0011 U	0.00085 U	0.00039 U	0.00058 U	7.7	-	-
SB-39(2'-4)	27-Feb-2012	0.00035 U	0.00063 U	0.00044 U	0.000070 U	0.00051 U	0.0013 U	0.0013 U	0.0010 U	0.00046 U	0.00069 U	4.7	-	-
SB-40(0-6")	27-Feb-2012	0.00026 U	0.013	0.0019	0.000053 U	0.00038 U	0.00096 U	0.068	0.00076 U	0.00035 U	0.00052 U	0.62 I	-	-
SB-40(6"-2)	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000057 U	0.00041 U	0.0021 I	0.0010 U	0.00082 U	0.00038 U	0.00056 U	2.8	-	-
SB-40(2'-4)	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000057 U	0.00041 U	0.0010 U	0.0010 U	0.00082 U	0.00038 U	0.00056 U	5.5	-	-
SB-41(0-6")	27-Feb-2012	0.00026 U	0.0044	0.0014	0.000052 U	0.00038 U	0.00095 U	0.018	0.00075 U	0.00034 U	0.00051 U	0.63 I	-	-
SB-41(6"-2)	27-Feb-2012	0.00027 U	0.00049 U	0.00034 U	0.000055 U	0.00040 U	0.0042	0.0010 U	0.00079 U	0.00036 U	0.00054 U	1.2 I	-	-
SB-41(2'-4)	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0011 U	0.0011 U	0.00086 U	0.00039 U	0.00058 U	29	-	-
SB-42(0-6")	27-Feb-2012	0.00026 U	0.00046 U	0.00032 U	0.000051 U	0.00037 U	0.0059	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.30 U	-	-
SB-42(6"-2)	27-Feb-2012	0.00027 U	0.00049 U	0.00034 U	0.000055 U	0.00040 U	0.0010 U	0.0010 U	0.00079 U	0.00036 U	0.00054 U	2.1	-	-
SB-42(2'-4)	27-Feb-2012	0.00029 U	0.00053 U	0.00036 U	0.000059 U	0.00042 U	0.0011 U	0.0011 U	0.00085 U	0.00039 U	0.00058 U	5.4	-	-

# TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

## BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'	DDE, 4,4'	DDT, 4,4'	Aldrin	BHC, b'	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-43(0-6")	27-Feb-2012	0.00026 U	0.00046 U	0.00032 U	0.000052 U	0.00037 U	0.0085	0.00095 U	0.00074 U	0.00034 U	0.00051 U	1.3	-	-
SB-43(6"-2)	27-Feb-2012	0.00026 U	0.00087 I	0.00032 U	0.000051 U	0.00037 U	0.0030 I	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.51 I	-	-
SB-43(2'-4')	27-Feb-2012	0.00029 U	0.00053 U	0.00036 U	0.000059 U	0.00042 U	0.0011 U	0.0011 U	0.00085 U	0.00039 U	0.00058 U	1.8	-	-
SB-44 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000054 U	0.00039 U	0.00098 U	0.00099 U	0.00077 U	0.00035 U	0.00053 U	1.5	-	-
SB-45 (0-6")	20-Mar-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.00096 U	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.64 I	-	-
SB-46 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000053 U	0.00038 U	0.00097 U	0.00098 U	0.00077 U	0.00035 U	0.00052 U	0.52 I	-	-
SB-47 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000053 U	0.00038 U	0.00097 U	0.00098 U	0.00077 U	0.00035 U	0.00052 U	0.33 U	-	-
SB-48 (0-6")	20-Mar-2012	0.00026 U	0.00073 I	0.00033 U	0.000053 U	0.00038 U	0.00096 U	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.59 I	-	-
SB-49 (0-6")	20-Mar-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.00092 U	0.00097 U	0.00076 U	0.00035 U	0.0021	0.75 I	-	-
SB-50 (0-6")	20-Mar-2012	0.00025 U	0.00045 U	0.00031 U	0.000051 U	0.00036 U	0.00092 U	0.00093 U	0.00073 U	0.00033 U	0.00049 U	0.43 I	-	-
SB-51 (0-6")	20-Mar-2012	0.00026 U	0.00046 U	0.00032 U	0.000051 U	0.00037 U	0.00093 U	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.55 I	-	-
SB-52 (0-6")	20-Mar-2012	0.00025 U	0.00045 U	0.00031 U	0.000050 U	0.00036 U	0.00091 U	0.00092 U	0.00072 U	0.00033 U	0.00049 U	0.29 U	-	-
SB-53 (0-6")	20-Mar-2012	0.00026 U	0.00029	0.0012	0.000052 U	0.00037 U	0.00094 U	0.00095 U	0.00074 U	0.00034 U	0.00051 U	1.5	-	-
SB-54 (0-6")	20-Mar-2012	0.00026 U	0.00047 U	0.00032 U	0.000052 U	0.00038 U	0.00095 U	0.00096 U	0.00075 U	0.00034 U	0.00051 U	7.4	-	-
SB-55 (0-6")	20-Mar-2012	0.00027 U	0.00049 U	0.00034 U	0.000054 U	0.00039 U	0.00099 U	0.0010 U	0.00078 U	0.00036 U	0.00053 U	1.1 I	-	-
SB-56 (0-6")	20-Mar-2012	0.00032 I	0.0054	0.0014	0.000052 U	0.00037 U	0.00094 U	0.00095 U	0.00074 U	0.00034 U	0.00051 U	2.6	-	-
SB-57 (0-6")	20-Mar-2012	0.00028 U	0.00072 I	0.00035 U	0.000057 U	0.00041 U	0.0010 U	0.0010 U	0.00082 U	0.00038 U	0.0028	1.2 I	-	-
SB-58 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000054 U	0.00039 U	0.00098 U	0.00099 U	0.00077 U	0.00035 U	0.00053 U	1.3	-	-
SB-59 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000053 U	0.00038 U	0.00097 U	0.00098 U	0.00077 U	0.00035 U	0.00052 U	2.7	-	-
SB-60 (0-6")	20-Mar-2012	0.00027 U	0.00049 U	0.00034 U	0.000055 U	0.00040 U	0.0010 U	0.0010 U	0.00079 U	0.00036 U	0.00054 U	1.1 I	-	-
SB-61 (0-6")	20-Mar-2012	0.00029 U	0.00052 U	0.00036 U	0.000058 U	0.00042 U	0.0011 U	0.0011 U	0.00084 U	0.00038 U	0.00057 U	3.3	-	-
SB-62 (1-2)	20-Mar-2012	0.00026 U	0.0036	0.0047	0.000051 U	0.00037 U	0.031	0.00094 U	0.00073 U	0.00034 U	0.00065 I	0.31 U	-	-
SB-62 (5-6)	20-Mar-2012	0.00026 U	0.00046 U	0.0012	0.000052 U	0.00037 U	0.0034 I	0.00095 U	0.00074 U	0.00034 U	0.00051 U	0.99 I	-	-
SB-62 (9-10')	20-Mar-2012	0.00027 U	0.00092 I	0.004	0.000054 U	0.00039 U	0.0017 I	0.00099 U	0.00077 U	0.00035 U	0.00053 U	1.1 I	-	-

# TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

## BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-63 (1-2')	20-Mar-2012	0.00026 U	0.00046 U	0.00032 U	0.000051 U	0.00037 U	0.00093 U	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.45 I	-	-
SB-63 (5-6')	20-Mar-2012	0.00026 U	0.00046 U	0.0024	0.000051 U	0.00037 U	0.02	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.88 I	-	-
SB-63 (9-10')	20-Mar-2012	0.00026 U	0.015	0.0063	0.000053 U	0.00038 U	0.11	0.00097 U	0.00076 U	0.0011 I	0.0017 I	0.63 I	-	-
SB-64 (1-2')	20-Mar-2012	0.00026 U	0.00046 U	0.00032 U	0.000052 U	0.00037 U	0.00094 U	0.00095 U	0.00074 U	0.00034 U	0.00051 U	1.4	-	-
SB-64 (5-6')	20-Mar-2012	0.00027 U	0.00049 U	0.00034 U	0.000055 U	0.00040 U	0.0010 U	0.0010 U	0.00079 U	0.00036 U	0.00054 U	1.1 I	-	-
SB-64 (9-10')	20-Mar-2012	0.00027 U	0.00049 U	0.00034 U	0.000054 U	0.00039 U	0.00099 U	0.0010 U	0.00078 U	0.00036 U	0.00053 U	1.3 I	-	-

### NOTES

all concentrations reported in mg/kg

U = analyte not detected above noted concentration

I = analyte detected between MDL and PQL; see lab report for additional details

## APPENDIX C - MSDS(S)



# Right to Know Hazardous Substance Fact Sheet

Common Name: **DIELDRIN**

Synonyms: HEOD; Octalox®; Quintox®

Chemical Name: 2,7:3,6-Dimethanonaphth[2,3-b]Oxirene, 3,4,5,6,9,9-Hexachloro-1a,2,2a,3,6,6a,7,7a-Octahydro-, (1aR,2R,2aS,3S,6R,6aR,7S,7aS)-rel-

Date: November 1998 Revision: January 2009

CAS Number: 60-57-1

RTK Substance Number: 0683

DOT Number: UN 2761

## Description and Use

**Dieldrin** is a white (when pure) to light-tan, crystalline (sand-like) or flaked powder with a chemical-like odor. It was used as an insecticide. Manufacturing and use of **Dieldrin** has been discontinued in the United States.

- ▶ **ODOR THRESHOLD = 0.041 ppm**
- ▶ Odor thresholds vary greatly. Do not rely on odor alone to determine potentially hazardous exposures.

## Reasons for Citation

- ▶ **Dieldrin** is on the Right to Know Hazardous Substance List because it is cited by OSHA, ACGIH, DOT, NIOSH, DEP, IARC, IRIS and EPA.
- ▶ This chemical is on the Special Health Hazard Substance List.

SEE GLOSSARY ON PAGE 5.

## FIRST AID

### Eye Contact

- ▶ Immediately flush with large amounts of water for at least 30 minutes, lifting upper and lower lids. Remove contact lenses, if worn, while flushing. Seek medical attention.

### Skin Contact

- ▶ Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

### Inhalation

- ▶ Remove the person from exposure.
- ▶ Begin rescue breathing (using universal precautions) if breathing has stopped and CPR if heart action has stopped.
- ▶ Transfer promptly to a medical facility.

## EMERGENCY NUMBERS

Poison Control: 1-800-222-1222

CHEMTREC: 1-800-424-9300

NJDEP Hotline: 1-877-927-6337

National Response Center: 1-800-424-8802

## EMERGENCY RESPONDERS >>>> SEE LAST PAGE

### Hazard Summary

Hazard Rating	NJDHSS	NFPA
<b>HEALTH</b>	2	-
<b>FLAMMABILITY</b>	0	-
<b>REACTIVITY</b>	0	-
CARCINOGEN POISONOUS GASES ARE PRODUCED IN FIRE DOES NOT BURN		

Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe

- ▶ **Dieldrin** can affect you when inhaled and by passing through the skin.
- ▶ **Dieldrin** should be handled as a CARCINOGEN--WITH EXTREME CAUTION.
- ▶ Contact can irritate and burn the eyes with possible eye damage.
- ▶ **Dieldrin** can cause nausea, vomiting, loss of appetite and weight, and weakness.
- ▶ Exposure can cause headache, dizziness, lightheadedness, and passing out.
- ▶ High or repeated exposure can cause tremors, muscle twitching and seizures (convulsions), and may lead to coma and death.
- ▶ Repeated exposure may cause personality changes.
- ▶ **Dieldrin** may damage the liver.
- ▶ **Dieldrin** does not burn, however, it is often dissolved in a liquid carrier which may be flammable or combustible.

## Workplace Exposure Limits

OSHA: The legal airborne permissible exposure limit (PEL) is **0.25 mg/m<sup>3</sup>** averaged over an 8-hour workshift.

NIOSH: The recommended airborne exposure limit (REL) is **0.25 mg/m<sup>3</sup>** averaged over a 10-hour workshift.

ACGIH: The threshold limit value (TLV) is **0.25 mg/m<sup>3</sup>** averaged over an 8-hour workshift.

- ▶ **Dieldrin** may be a CARCINOGEN in humans. There may be no safe level of exposure to a carcinogen, so all contact should be reduced to the lowest possible level.
- ▶ The above exposure limits are for air levels only. When skin contact also occurs, you may be overexposed, even though air levels are less than the limits listed above.



### Determining Your Exposure

- ▶ Read the product manufacturer's Material Safety Data Sheet (MSDS) and the label to determine product ingredients and important safety and health information about the product mixture.
- ▶ For each individual hazardous ingredient, read the New Jersey Department of Health and Senior Services Hazardous Substance Fact Sheet, available on the RTK Program website ([www.nj.gov/health/eoh/rtkweb](http://www.nj.gov/health/eoh/rtkweb)) or in your facility's RTK Central File or Hazard Communication Standard file.
- ▶ You have a right to this information under the New Jersey Worker and Community Right to Know Act, the Public Employees Occupational Safety and Health (PEOSH) Act if you are a public worker in New Jersey, and under the federal Occupational Safety and Health Act (OSHA) if you are a private worker.
- ▶ The New Jersey Right to Know Act requires most employers to label chemicals in the workplace and requires public employers to provide their employees with information concerning chemical hazards and controls. The federal OSHA Hazard Communication Standard (29 CFR 1910.1200) and the PEOSH Hazard Communication Standard (N.J.A.C. 12:100-7) require employers to provide similar information and training to their employees.

This Fact Sheet is a summary of available information regarding the health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

### Health Hazard Information

#### Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to **Dieldrin**:

- ▶ Contact can irritate and burn the eyes with possible eye damage.
- ▶ **Dieldrin** can cause nausea, vomiting, loss of appetite and weight, and weakness.
- ▶ Exposure can cause headache, dizziness, lightheadedness, and passing out.

#### Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to **Dieldrin** and can last for months or years:

#### Cancer Hazard

- ▶ **Dieldrin** may be a CARCINOGEN in humans since it has been shown to cause liver cancer in animals.
- ▶ Many scientists believe there is no safe level of exposure to a carcinogen.

#### Reproductive Hazard

- ▶ **Dieldrin** may damage the developing fetus and may decrease fertility in males and females.
- ▶ **Dieldrin** concentrates in breast milk and, therefore, may be transferred to breastfeeding infants.

#### Other Effects

- ▶ High or repeated exposure can cause tremors, muscle twitching and seizures (convulsions), and may lead to coma and death.
- ▶ Repeated exposure may cause personality changes such as depression, anxiety or irritability.
- ▶ **Dieldrin** may damage the liver.

### Medical

#### Medical Testing

Before beginning employment and at regular times thereafter, (at least annually), the following are recommended:

- ▶ Blood **Dieldrin** level (Norm = less than 1 mg/100 ml; level should not exceed 15 mg/100 ml).
- ▶ Exam of the nervous system

If symptoms develop or overexposure is suspected, the following are recommended:

- ▶ Liver function tests

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under the OSHA Access to Employee Exposure and Medical Records Standard (29 CFR 1910.1020).

#### Mixed Exposures

- ▶ More than light alcohol consumption can cause liver damage. Drinking alcohol can increase the liver damage caused by **Dieldrin**.

### Workplace Controls and Practices

Very toxic chemicals, or those that are reproductive hazards or sensitizers, require expert advice on control measures if a less toxic chemical cannot be substituted. Control measures include: (1) enclosing chemical processes for severely irritating and corrosive chemicals, (2) using local exhaust ventilation for chemicals that may be harmful with a single exposure, and (3) using general ventilation to control exposures to skin and eye irritants. For further information on workplace controls, consult the NIOSH document on Control Banding at [www.cdc.gov/niosh/topics/ctrlbanding/](http://www.cdc.gov/niosh/topics/ctrlbanding/).

The following work practices are also recommended:

- ▶ Label process containers.
- ▶ Provide employees with hazard information and training.
- ▶ Monitor airborne chemical concentrations.
- ▶ Use engineering controls if concentrations exceed recommended exposure levels.
- ▶ Provide eye wash fountains and emergency showers.
- ▶ Wash or shower if skin comes in contact with a hazardous material.
- ▶ Always wash at the end of the workshift.
- ▶ Change into clean clothing if clothing becomes contaminated.
- ▶ Do not take contaminated clothing home.
- ▶ Get special training to wash contaminated clothing.
- ▶ Do not eat, smoke, or drink in areas where chemicals are being handled, processed or stored.
- ▶ Wash hands carefully before eating, smoking, drinking, applying cosmetics or using the toilet.

In addition, the following may be useful or required:

- ▶ Use a vacuum or a wet method to reduce dust during clean-up. **DO NOT DRY SWEEP.**
- ▶ Use a high efficiency particulate air (HEPA) filter when vacuuming. Do not use a standard shop vacuum.

### Personal Protective Equipment

The OSHA Personal Protective Equipment Standard (29 CFR 1910.132) requires employers to determine the appropriate personal protective equipment for each hazard and to train employees on how and when to use protective equipment.

The following recommendations are only guidelines and may not apply to every situation.

#### Gloves and Clothing

- ▶ Avoid skin contact with **Dieldrin**. Wear personal protective equipment made from material which can not be permeated or degraded by this substance. Safety equipment suppliers and manufacturers can provide recommendations on the most protective glove and clothing material for your operation.
- ▶ Safety equipment manufacturers recommend Nitrile and Natural Rubber for gloves, and Tyvek® as a protective clothing material.
- ▶ All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

#### Eye Protection

- ▶ Wear eye protection with side shields or goggles.
- ▶ If additional protection is needed for the entire face, use in combination with a face shield. A face shield should not be used without another type of eye protection.

#### Respiratory Protection

**Improper use of respirators is dangerous.** Respirators should only be used if the employer has implemented a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing, and medical exams, as described in the OSHA Respiratory Protection Standard (29 CFR 1910.134).

- ▶ Where the potential exists for exposure over **0.25 mg/m<sup>3</sup>**, use a NIOSH approved supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.
- ▶ Exposure to **50 mg/m<sup>3</sup>** is immediately dangerous to life and health. If the possibility of exposure above **50 mg/m<sup>3</sup>** exists, use a NIOSH approved self-contained breathing apparatus with a full facepiece operated in a pressure-demand or other positive-pressure mode equipped with an emergency escape air cylinder.

### Fire Hazards

If employees are expected to fight fires, they must be trained and equipped as stated in the OSHA Fire Brigades Standard (29 CFR 1910.156).

- ▶ **Dieldrin** does not burn, however, it is often dissolved in a liquid carrier which may be flammable or combustible.
- ▶ **POISONOUS GASES ARE PRODUCED IN FIRE**, including *Hydrogen Chloride* and *Chlorine*.
- ▶ Use water spray to keep fire-exposed containers cool.

### Spills and Emergencies

If employees are required to clean-up spills, they must be properly trained and equipped. The OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) may apply.

If **Dieldrin** is spilled, take the following steps:

- ▶ Evacuate personnel and secure and control entrance to the area.
- ▶ Eliminate all ignition sources.
- ▶ Moisten spilled material first or use a HEPA-filter vacuum for clean-up and place into sealed containers for disposal.
- ▶ Ventilate and wash area after clean-up is complete.
- ▶ DO NOT wash into sewer.
- ▶ It may be necessary to contain and dispose of **Dieldrin** as a HAZARDOUS WASTE. Contact your state Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.

### Handling and Storage

Prior to working with **Dieldrin** you should be trained on its proper handling and storage.

- ▶ **Dieldrin** may react violently with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE) and STRONG ACIDS (such as HYDROCHLORIC, SULFURIC and NITRIC).
- ▶ **Dieldrin** is not compatible with MINERAL ACIDS; ACID CATALYSTS; PHENOLS; METALS (such as COPPER, ZINC, and IRON and their SALTS); and ALKALI METALS (such as MAGNESIUM, SODIUM and POTASSIUM).
- ▶ Store in tightly closed containers in a cool, well-ventilated area away from HIGH TEMPERATURES.
- ▶ **Dieldrin** is slightly corrosive to METALS.

### Occupational Health Information Resources

The New Jersey Department of Health and Senior Services, Occupational Health Service, offers multiple services in occupational health. These services include providing informational resources, educational materials, public presentations, and industrial hygiene and medical investigations and evaluations.

#### For more information, please contact:

New Jersey Department of Health & Senior Services  
Right to Know Program  
PO Box 368  
Trenton, NJ 08625-0368  
Phone: 609-984-2202  
Fax: 609-984-7407  
E-mail: [rtk@doh.state.nj.us](mailto:rtk@doh.state.nj.us)  
Web address: <http://www.nj.gov/health/eoh/rtkweb>

***The Right to Know Hazardous Substance Fact Sheets are not intended to be copied and sold for commercial purposes.***

## GLOSSARY

**ACGIH** is the American Conference of Governmental Industrial Hygienists. They publish guidelines called Threshold Limit Values (TLVs) for exposure to workplace chemicals.

**Acute Exposure Guideline Levels (AEGLs)** are established by the EPA. They describe the risk to humans resulting from once-in-a lifetime, or rare, exposure to airborne chemicals.

**Boiling point** is the temperature at which a substance can change its physical state from a liquid to a gas.

A **carcinogen** is a substance that causes cancer.

The **CAS number** is unique, identifying number, assigned by the Chemical Abstracts Service, to a specific chemical.

**CFR** is the Code of Federal Regulations, which are the regulations of the United States government.

A **combustible** substance is a solid, liquid or gas that will burn.

A **corrosive** substance is a gas, liquid or solid that causes destruction of human skin or severe corrosion of containers.

**DEP** is the New Jersey Department of Environmental Protection.

**DOT** is the Department of Transportation, the federal agency that regulates the transportation of chemicals.

**EPA** is the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

**ERG** is the Emergency Response Guidebook. It is a guide for emergency responders for transportation emergencies involving hazardous substances.

**Emergency Response Planning Guideline (ERPG)** values provide estimates of concentration ranges where one reasonably might anticipate observing adverse effects.

A **fetus** is an unborn human or animal.

A **flammable** substance is a solid, liquid, vapor or gas that will ignite easily and burn rapidly.

The **flash point** is the temperature at which a liquid or solid gives off vapor that can form a flammable mixture with air.

**IARC** is the International Agency for Research on Cancer, a scientific group.

**Ionization Potential** is the amount of energy needed to remove an electron from an atom or molecule. It is measured in electron volts.

**IRIS** is the Integrated Risk Information System database on human health effects that may result from exposure to various chemicals, maintained by federal EPA.

**LEL or Lower Explosive Limit**, is the lowest concentration of a combustible substance (gas or vapor) in the air capable of continuing an explosion.

**mg/m<sup>3</sup>** means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

A **mutagen** is a substance that causes mutations. A **mutation** is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

**NFPA** is the National Fire Protection Association. It classifies substances according to their fire and explosion hazard.

**NIOSH** is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

**NTP** is the National Toxicology Program which tests chemicals and reviews evidence for cancer.

**OSHA** is the federal Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

**PEOSHA** is the New Jersey Public Employees Occupational Safety and Health Act, which adopts and enforces health and safety standards in public workplaces.

**Permeated** is the movement of chemicals through protective materials.

**ppm** means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

**Protective Action Criteria (PAC)** are values established by the Department of Energy and are based on AEGLs and ERPGs. They are used for emergency planning of chemical release events.

A **reactive** substance is a solid, liquid or gas that releases energy under certain conditions.

**STEL** is a Short Term Exposure Limit which is usually a 15-minute exposure that should not be exceeded at any time during a work day.

A **teratogen** is a substance that causes birth defects by damaging the fetus.

**UEL or Upper Explosive Limit** is the highest concentration in air above which there is too much fuel (gas or vapor) to begin a reaction or explosion.

**Vapor Density** is the ratio of the weight of a given volume of one gas to the weight of another (usually *Hydrogen*), at the same temperature and pressure.

The **vapor pressure** is a force exerted by the vapor in equilibrium with the solid or liquid phase of the same substance. The higher the vapor pressure the higher concentration of the substance in air.





## Right to Know Hazardous Substance Fact Sheet

**Emergency  
Responders  
Quick Reference**

Common Name: **DIELDRI**N

Synonyms: HEOD; Octalox®; Quintox®

CAS No: 60-57-1

Molecular Formula: C<sub>12</sub>H<sub>8</sub>Cl<sub>6</sub>O

RTK Substance No: 0683

Description: White (when pure) to light-tan, crystalline or flaked powder with a chemical-like odor

### HAZARD DATA

Hazard Rating	Firefighting	Reactivity
<b>2 - Health</b> <b>0 - Fire</b> <b>0 - Reactivity</b> <b>DOT#:</b> UN 2761 <b>ERG Guide #:</b> 151 <b>Hazard Class:</b> 6.1 (Poison)	<b>Dieldrin</b> does not burn, however, it is often dissolved in a liquid carrier which may be flammable or combustible. <b>POISONOUS GASES ARE PRODUCED IN FIRE</b> , including <i>Hydrogen Chloride</i> and <i>Chlorine</i> . Use water spray to keep fire-exposed containers cool.	<b>Dieldrin</b> may react violently with <b>OXIDIZING AGENTS</b> (such as <b>PERCHLORATES</b> , <b>PEROXIDES</b> , <b>PERMANGANATES</b> , <b>CHLORATES</b> , <b>NITRATES</b> , <b>CHLORINE</b> , <b>BROMINE</b> and <b>FLUORINE</b> ) and <b>STRONG ACIDS</b> (such as <b>HYDROCHLORIC</b> , <b>SULFURIC</b> and <b>NITRIC</b> ). <b>Dieldrin</b> is not compatible with <b>MINERAL ACIDS</b> ; <b>ACID CATALYSTS</b> ; <b>PHENOLS</b> ; <b>METALS</b> (such as <b>COPPER</b> , <b>ZINC</b> , and <b>IRON</b> and their <b>SALTS</b> ); and <b>ALKALI METALS</b> (such as <b>MAGNESIUM</b> , <b>SODIUM</b> and <b>POTASSIUM</b> ).

### SPILL/LEAKS

**Isolation Distance:**

Spill: 25 meters (75 feet)

Fire: 800 meters (1/2 mile)

Moisten spilled material first or use a HEPA-filter vacuum for clean-up and place into sealed containers for disposal.

Ventilate and wash area after clean-up is complete.

DO NOT wash into sewer.

**Dieldrin** is very toxic to aquatic life and bees. It is also persistent in the environment.

### PHYSICAL PROPERTIES

**Odor Threshold:** 0.041 ppm

**Flash Point:** Noncombustible

**Vapor Density:** 13.2 (air = 1)

**Vapor Pressure:**  $8 \times 10^{-7}$  mm Hg at 68°F (20°C)

**Specific Gravity:** 1.75 (water = 1)

**Water Solubility:** Insoluble

**Boiling Point:** Decomposes

**Melting Point:** 347° to 349°F (175° to 176°C)

**Molecular Weight:** 380.9

### EXPOSURE LIMITS

**OSHA:** 0.25 mg/m<sup>3</sup>, 8-hr TWA

**NIOSH:** 0.25 mg/m<sup>3</sup>, 10-hr TWA

**ACGIH:** 0.25 mg/m<sup>3</sup>, 8-hr TWA

**IDLH:** 50 mg/m<sup>3</sup>

The Protective Action Criteria values are:

PAC-1 = 0.75 mg/m<sup>3</sup>

PAC-2 = 2.5 mg/m<sup>3</sup>

PAC-3 = 50 mg/m<sup>3</sup>

### PROTECTIVE EQUIPMENT

**Gloves:** Nitrile and Natural Rubber

**Coveralls:** Tyvek®

**Respirator:** >0.25 mg/m<sup>3</sup> - Supplied air  
>0.75 mg/m<sup>3</sup> - SCBA

### HEALTH EFFECTS

**Eyes:** Irritation and burns

**Skin:** No information available

**Inhalation:** Headache, nausea, vomiting, dizziness, lightheadedness, and passing out

**Chronic:** Cancer (liver) in animals

### FIRST AID AND DECONTAMINATION

**Remove** the person from exposure.

**Flush** eyes with large amounts of water for at least 30 minutes. Remove contact lenses if worn. Seek medical attention.

**Quickly** remove contaminated clothing and immediately wash contaminated skin with large amounts of soap and water.

**Begin** artificial respiration if breathing has stopped and CPR if necessary.

**Transfer** promptly to a medical facility.



Health	3
Fire	1
Reactivity	2
Personal Protection	E

## Material Safety Data Sheet Arsenic MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Arsenic

**Catalog Codes:** SLA1006

**CAS#:** 7440-38-2

**RTECS:** CG0525000

**TSCA:** TSCA 8(b) inventory: Arsenic

**CI#:** Not applicable.

**Synonym:**

**Chemical Name:** Arsenic

**Chemical Formula:** As

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Arsenic	7440-38-2	100

**Toxicological Data on Ingredients:** Arsenic: ORAL (LD50): Acute: 763 mg/kg [Rat]. 145 mg/kg [Mouse].

### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

**Serious Skin Contact:** Not available.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious Ingestion:** Not available.

### Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** Some metallic oxides.

**Fire Hazards in Presence of Various Substances:** Flammable in presence of open flames and sparks, of heat, of oxidizing materials.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:**

Material in powder form, capable of creating a dust explosion. When heated to decomposition it emits highly toxic fumes.

**Special Remarks on Explosion Hazards:** Not available.

### Section 6: Accidental Release Measures

**Small Spill:** Use appropriate tools to put the spilled solid in a convenient waste disposal container.

**Large Spill:**

Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### Section 7: Handling and Storage

**Precautions:**

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, moisture.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:** Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

TWA: 0.01 from ACGIH (TLV) [United States] [1995] Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Lustrous solid.)

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 74.92 g/mole

**Color:** Silvery.

**pH (1% soln/water):** Not applicable.

**Boiling Point:** Not available.

**Melting Point:** Sublimation temperature: 615°C (1139°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 5.72 (Water = 1)

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:** Insoluble in cold water, hot water.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.



**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Reactive with oxidizing agents, acids, moisture.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

### Section 11: Toxicological Information

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 145 mg/kg [Mouse].

**Chronic Effects on Humans:**

**CARCINOGENIC EFFECTS:** Classified A1 (Confirmed for human.) by ACGIH. Causes damage to the following organs: kidneys, lungs, the nervous system, mucous membranes.

**Other Toxic Effects on Humans:**

Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are as toxic as the original product.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations

**Waste Disposal:**

### Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Arsenic UNNA: UN1558 PG: II

**Special Provisions for Transport:** Not available.

### Section 15: Other Regulatory Information

**Federal and State Regulations:**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Arsenic California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Arsenic Pennsylvania RTK: Arsenic Massachusetts RTK: Arsenic TSCA 8(b) inventory: Arsenic

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:****WHMIS (Canada):**

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):**

R22- Harmful if swallowed. R45- May cause cancer.

**HMIS (U.S.A.):**

**Health Hazard:** 3

**Fire Hazard:** 1

**Reactivity:** 2

**Personal Protection:** E

**National Fire Protection Association (U.S.A.):**

**Health:** 3

**Flammability:** 1

**Reactivity:** 2

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

**Section 16: Other Information****References:**

-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Liste des produits purs tératogènes, mutagènes, cancérigènes. Répertoire toxicologique de la Commission de la Santé et de la Sécurité du Travail du Québec. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangereuses au Canada. Centre de conformité international Ltée. 1986.

**Other Special Considerations:** Not available.

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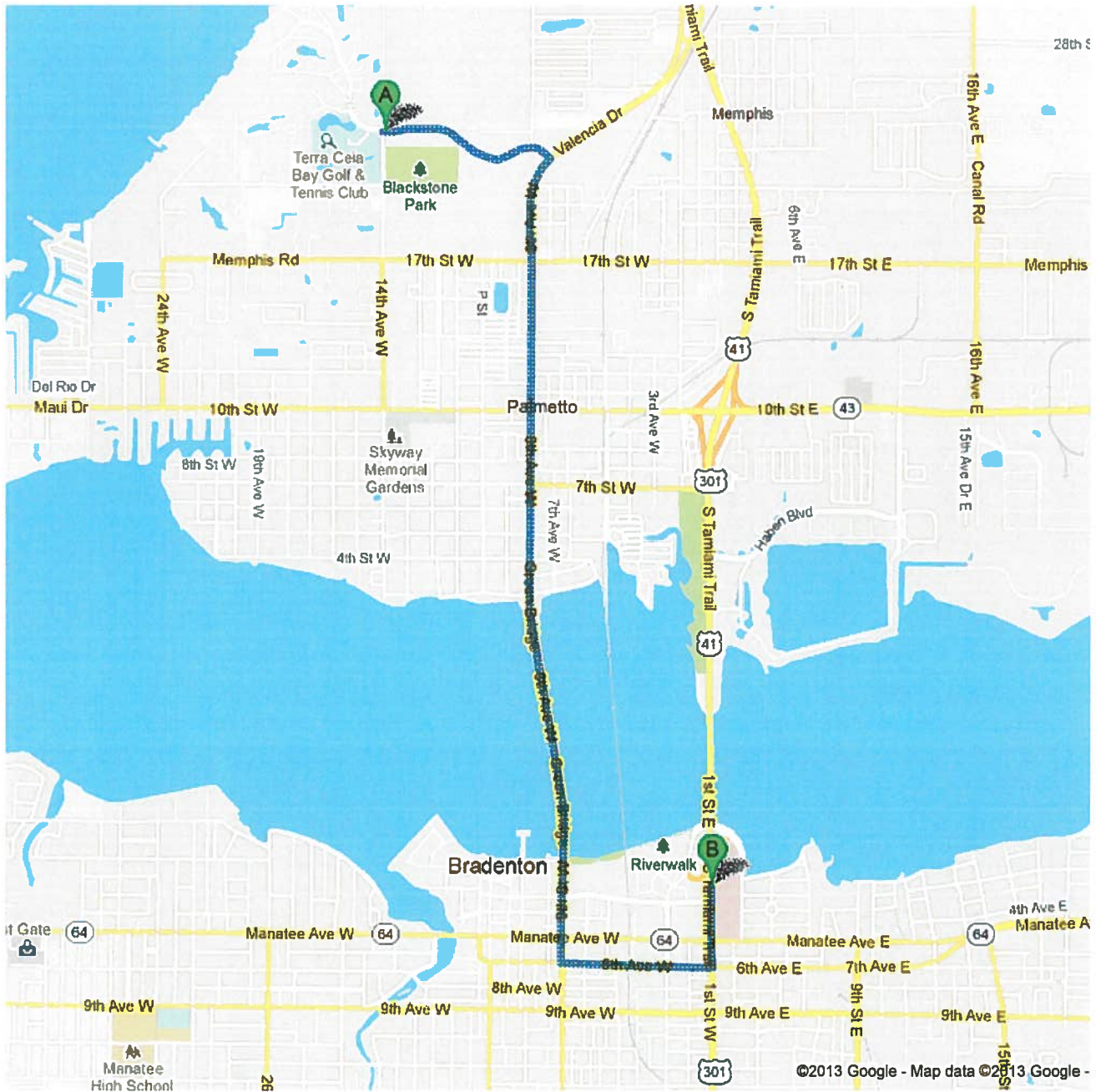
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## APPENDIX D - HOSPITAL ROUTE & MAP



**Directions to Manatee Memorial Hospital**  
206 Second Street East, Bradenton, FL 34208  
4.2 mi – about 9 mins



**A** 14th Ave W & 23rd St W, Palmetto, FL 34221

- 
1. Head east on **23rd St W** toward **8th Ave W**  
About 1 min go 0.6 mi  
total 0.6 mi
  -  2. Turn right onto **Valencia Dr** go 0.1 mi  
total 0.7 mi
  -  3. Continue onto **US-41 BUS S/8th Ave W**  
Continue to follow US-41 BUS S  
About 5 mins go 2.7 mi  
total 3.4 mi
  -  4. Turn left onto **6th Ave W**  
About 1 min go 0.5 mi  
total 3.9 mi
  -  5. Turn left onto **S Tamiami Trail**  
Destination will be on the right  
About 2 mins go 0.3 mi  
total 4.2 mi

**B** **Manatee Memorial Hospital**  
206 Second Street East, Bradenton, FL 34208

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2013 Google

Directions weren't right? Please find your route on [maps.google.com](http://maps.google.com) and click "Report a problem" at the bottom left.

## **APPENDIX E - DAILY SIGN IN SHEET(S)**



# SITE HEALTH & SAFETY MEETING SIGN-IN SHEET

SITE & PSI PROJECT #: \_\_\_\_\_ DATE: \_\_\_\_\_

TASKS/SCOPE: \_\_\_\_\_

HAZARDS & TOPICS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NAME (Print Please)	SIGNATURE	COMPANY







**JSA(S)**

## **EXCAVATION, SHORING AND TRENCHING PROGRAM**

**“While PSI normally does not create excavations employees should never enter an excavation that does not meet the requirements set out in this program.”**

### **1.0 PURPOSE**

The purpose of this policy is to provide guidelines that are necessary to meet the requirements of the OSHA excavation standard 29 CFR1926 Subpart P. Excavations have a very high potential of becoming hazardous if safety requirements are not strictly followed. Professional Service Industries, Inc. (PSI) employees involved in the process of performing excavation or working near or in an excavation are to use the guidelines in this procedure to determine if it is safe to work in these areas.

### **2.0 POLICY**

While PSI does not typically perform excavation or trenching, PSI employees are occasionally exposed to these types of hazards. This program provides guidelines for PSI managers to ensure safe work practices apply to all operations where PSI employees may be exposed to excavation, shoring and trenching hazards under normal working conditions and non-routine tasks, whether PSI controls the site or not.

As a minimum, PSI work sites will comply with federal, state, and local regulations pertaining to the protection of workers who may be exposed to these hazards.

### **3.0 RESPONSIBILITIES**

- 3.1 Employees** – Are responsible for adhering to the guidelines of this procedure. Employees shall read and understand this procedure, use good work practices, and follow applicable safety rules and regulations.
- 3.2 Supervisors** – Are responsible for ensuring that employees adhere to the guidelines of this procedure. The supervisor or designee, prior to working at an excavation, shall conduct a site survey to ensure proper shoring techniques.
- 3.3 Branch/Department Managers (Site Safety Officer)** – Are responsible for program implementation training and compliance with federal, state and local regulations. The local Branch/Department Manager or designee will be the Excavation, Shoring and Trenching Administrator of this program.
- 3.4 Corporate Safety Department** – Will maintain the Excavation, Shoring and Trenching Program and revise the program as needed. The Corporate Safety Department will provide assistance when requested by local PSI offices.

## 4.0 KEY POINTS

- 4.1** It shall be the responsibility of the job site supervisor (competent person), typically not a PSI employee, to verify through daily inspections, that the job is complying with this procedure, for work being performed in the excavation.
- 4.2** Conditions in and around an excavation may vary daily due to changes in weather conditions, the type of work being performed and the equipment being used in the area. An audit form will be filled out daily by the PSI job site designee. (See Attachment III.)
- 4.3** OSHA 1926 Subpart P -Excavation, Trenching and Shoring covers the entire excavation standard. This standard should be followed in any situation not covered in this procedure.

### 4.4 COMPETENT PERSON

There shall be a competent person on each job site where excavation is being performed. The competent person, who is typically not a PSI employee, will be responsible for the following:

- Perform inspections as dictated by the work being performed in the trench.
- Perform inspections after every rainstorm or other events such as snowstorm, windstorm, thaw, earthquake or any dramatic changes in the weather.
- Perform inspections whenever fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom or other similar conditions exist.
- Perform inspections whenever there is a change in size, location or placement of the soil pile.
- Perform inspections whenever there is an indication of a change or movement in adjacent structures.
- Perform soil analysis using visual test, a pocket penetrometer, thumb penetration tests, sheervane or torvane tests, dry strength test, plasticity or wet thread test or any combination of these tests.

## 5.0 DEFINITIONS:

- 5.1 ACCEPTED ENGINEERING PRACTICES** - are procedures compatible with the standards of practice required of a registered professional engineer.
- 5.2 ADJACENT STRUCTURE STABILITY** - refers to the stability of the foundation(s) of adjacent structures whose location may create surcharges, changes in soil conditions, or other disruptions that have the potential to extend into the failure zone of the excavation or trench.
- 5.3 BRACE (TRENCH)** – is a horizontal member of the shoring system whose ends bear against the uprights or stringers.
- 5.4 COMPETENT PERSON** - means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them
- 5.5 CONFINED SPACE** - is a space that, by design and/or configuration, has limited openings for entry and exit, unfavorable natural ventilation, may contain or produce hazardous substances, and/or is not intended for continuous employee occupancy.
- 5.6 EXCAVATION** - An **Excavation** is any man-made cut, cavity, trench, or depression in an earth surface that is formed by earth removal. A **Trench** is narrow excavation (in relation to its length) made below the surface of the ground. In general, the width of a trench is not greater than 15 ft. (4.6 m). If a form or other structure installed or constructed in an excavation reduces the distance between the form and the side of the excavation to 15 ft. (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.
- 5.7 HAZARDOUS ATMOSPHERE** - is an atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic, or otherwise harmful may cause death, illness, or injury to persons exposed to it.
- 5.8 INGRESS AND EGRESS** - mean "entry" and "exit," respectively. In trenching and excavation operations, they refer to the provision of safe means for employees to enter or exit an excavation or trench.
- 5.9 KICKOUTS** – are accidental releases or failures of a shore or brace.

- 5.10 PROTECTIVE SYSTEMS** - refers to a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, and from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.
- 5.11 REGISTERED PROFESSIONAL ENGINEER** - is a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer who is registered in any state is deemed to be a "registered professional engineer" within the meaning of Subpart P when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.
- 5.12 SIDES, WALLS, OR FACES** - are the vertical or inclined earth surfaces formed as a result of excavation work.
- 5.13 SLOPE** – is the angle with the horizontal at which a particular earth material will stand indefinitely without movement.
- 5.14 STRINGERS** – are the horizontal members of a shoring system whose sides bear against the uprights or earth.
- 5.15 SUPPORT SYSTEM** - refers to structures such as underpinning, bracing, and shoring that provide support to an adjacent structure or underground installation or to the sides of an excavation or trench.
- 5.16 SUBSURFACE ENCUMBRANCES** - include underground utilities, foundations, streams, water tables, transformer vaults, and geological anomalies.
- 5.17 SURCHARGE** - means an excessive vertical load or weight caused by spoil, overburden, vehicles, equipment, or activities that may affect trench stability.
- 5.18 TABULATED DATA** - are tables and charts approved by a registered professional engineer and used to design and construct a protective system.
- 5.19 TRENCH** – is a narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench is not greater than 15 ft.
- 5.20 TRENCH JACK** – is a screw or hydraulic type jack used as cross bracing in a trench shoring system.
- 5.21 TRENCH SHIELD** – is a shoring system composed of steel plates and bracing

welded or bolted together, which support the walls of a trench from the ground level to the trench bottom and which can be moved along as work progresses.

**5.22 UNDERGROUND INSTALLATIONS** - include, but are not limited to, utilities (sewer, telephone, fuel, electric, water, and other product lines), tunnels, shafts, vaults, foundations, and other underground fixtures or equipment that may be encountered during excavation or trenching work.

**5.23 UNCONFINED COMPRESSIVE STRENGTH** - is the load per unit area at which soil will fail in compression. This measure can be determined by laboratory testing or it can be estimated in the field using a pocket penetrometer, by thumb penetration tests, or by other methods.

**5.24 UNSTABLE SOIL** – are earth materials that, because of their nature or the influence of related conditions, cannot be depended upon to remain in place without extra support, such as would be furnished by a system of shoring.

**5.25 UPRIGHTS** – are the vertical members of a shoring system.

**5.26 DEFINITIONS THAT ARE NO LONGER APPLICABLE.** For a variety of reasons, several terms commonly used in the past are no longer used in revised Subpart P. These include the following:

- **Angle of Repose** - Conflicting and inconsistent definitions have led to confusion as to the meaning of this phrase. This term has been replaced by **Maximum Allowable Slope**.
- **Bank, Sheet Pile, and Walls** - Previous definitions were unclear or were used inconsistently in the former standard.
- **Hard Compact Soil** and **Unstable Soil** - The new soil classification system in revised Subpart P uses different terms for these soil types.

## 6.0 SPECIAL HEALTH AND SAFETY CONSIDERATIONS

**6.1 COMPETENT PERSON** - The designated competent person should have and be able to demonstrate the following:

- Training, experience, and knowledge of:
  - soil analysis
  - use of protective systems; and
  - requirements of 29 CFR Part 1926 Subpart P.

- Ability to detect
  - conditions that could result in cave-ins;
  - failures in protective systems;
  - hazardous atmospheres; and
  - other hazards including those associated with confined spaces.
- Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

**6.2 SURFACE CROSSING OF TRENCHES** - Surface crossing of trenches should be discouraged; however, if trenches must be crossed, such crossings are permitted only under the following conditions:

- Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.
- Walkways or bridges must be provided for foot traffic. These structures shall:
  - have a minimum safety factor of 4; the **safety factor**, is a multiplier applied to the calculated maximum load (force, torque, bending moment or a combination) to which a component or assembly will be subjected.
  - have minimum clear width of 20 in. (0.51m);
  - be fitted with standard side rails; and
  - extend a minimum of 24 in. (.61 m) past the surface edge of the trench.

**6.3 INGRESS AND EGRESS** - Access to and exit from the trench require the following conditions:

- Trenches 4 ft. or more in depth should be provided with a fixed means of egress.
- Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 ft. laterally to the nearest means of egress.
- Ladders must be secured and extended a minimum of 36 in. (0.9 m) above the landing.
- Metal ladders should be used with caution, particularly when electric utilities are present.



**6.4 EXPOSURE TO VEHICLES** - Precautions to protect employees from being injured or killed by vehicle traffic include:

- Providing employees with and requiring them to wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility materials.
- Requiring a designated, trained flag person along with signs, signals, and barricades when necessary.

**6.5 EXPOSURE TO FALLING LOADS** - Employees must be protected from loads or objects falling from lifting or digging equipment. Precautions designed to ensure their protection include:

- Employees are not permitted to work under raised loads.
- Employees are required to stand away from equipment that is being loaded or unloaded.
- Equipment operators or truck drivers may stay in their equipment during loading and unloading only if the equipment is properly equipped with a cab shield or adequate canopy.

**6.6 WARNING SYSTEMS FOR MOBILE EQUIPMENT** - The following steps should be taken to prevent vehicles from accidentally falling into the trench:

- Barricades must be installed where necessary.
- Hand or mechanical signals must be used as required.
- Stop logs must be installed if there is a danger of vehicles falling into the trench.
- Soil should be graded away from the excavation; this will assist in vehicle control and channeling of run-off water away from the trench.

**6.7 HAZARDOUS ATMOSPHERES AND CONFINED SPACES** - Employees shall not be permitted to work in hazardous and/or toxic atmospheres. Such atmospheres include those with:

- Less than 19.5% or more than 23.5% oxygen,
- A combustible gas concentration greater than 10% of the lower flammable limit, or
- Concentrations of hazardous substances that exceed those specified in the Threshold Limit Values for Airborne Contaminants established by the ACGIH (American Conference of Governmental Industrial Hygienists).

All operations involving such atmosphere must be conducted in accordance with OSHA requirements for occupational health and environmental controls (see Subpart D of 29 CFR 1926) for personal protective equipment and for lifesaving equipment (see Subpart E, 29 CFR 1926). Engineering controls (e.g., ventilation) and respiratory protection may be required. (See SHM 8, Respiratory Protection Program and SHM 12, Confined Space Entry Program for further information)

When testing for atmospheric contaminants, the following should be considered:

- Testing should be conducted before employees enter the trench and should be done regularly to ensure that the trench remains safe.
- The frequency of testing should be increased if equipment is operating in the trench.
- Testing frequency should also be increased if welding, cutting, or burning is done in the trench.

Employees required to wear respiratory protection must be trained, fit-tested, and enrolled in a respiratory protection program. Some trenches qualify as confined spaces. When this occurs, compliance with the Confined Space Standard is also required.

Trenches or excavations 4 feet or deeper will be considered a confined space. For trenches and excavations with no other hazards, a confined space permit will not be required. For any trench or excavation with any known hazard (oxygen deficient/enriched, seeping water, contaminated soil, under ground utility concerns, etc.) will be classified as a permit-required confined space and subject to the OSHA standard 1910.146 Permit-Required Confined Space, and PSI policy SOP SF-12 Confined Space Entry Program.

**6.8 EMERGENCY RESCUE EQUIPMENT** - Emergency rescue equipment is required when a hazardous atmosphere exists or can reasonably be expected to exist. Requirements are as follows:

- Respirators must be of the type suitable for the exposure. Employees must be trained in their use and a respirator program must be instituted.
- Attended (at all times) lifelines must be provided when employees enter bell-bottom pier holes, deep confined spaces, or other similar hazards.

## **7.0 EXCAVATION OPERATIONS**

These steps must be followed for all excavations that PSI is the controlling contractor.

- 7.1** A survey shall be made of the site to be excavated prior to digging to locate all underground pipelines, electrical conduits, sewer lines, and any other underground utilities. When excavation approaches the estimated location of these installations, the exact location shall be determined and secured. Utility companies shall be contacted at least 48 hours prior to beginning excavation operations and the utility excavations must be protected when opened.
- 7.2** Any other recognizable hazard to the excavation work should be identified at this time and precautionary measures taken.
- 7.3** The approximate size (length, depth and width) of the excavation shall be established before the excavation begins.
- 7.4** Excavations that are 4 ft. or deeper will require a confined space entry permit. Any excavation can be classified as a confined space, and if so classified, all confined space requirements are in effect.
- 7.5** When possible, before machine excavation begins, pipelines should be depressurized and hand digging should be completed around pipelines, utilities, and cathodic protection system components. (Use caution when excavating around lines that may be severely corroded).

## **8.0 SEQUENCE OF EXCAVATION PROCEDURE**

- 8.1** The soil type shall be identified as the excavation is being opened.
- 8.2** Evaluate the possible influence by:
  - Changes in materials from exposure to air, sun, water or temperatures.
  - Loading imposed by structures, equipment, or stored material.
  - Vibration from equipment, traffic, or other sources.
- 8.3** Determine the method of protection from cave-ins to be used: sloping or shoring.
- 8.4** Develop an action plan to prevent movement of the side, walls or faces of the excavation, and communicate the plan to all affected personnel.

- 8.5** The field supervisor for the job shall have the responsibility for carrying out the action plan.

## **9.0 REQUIREMENTS**

- 9.1** The walls and faces of all excavations in which employees are exposed to danger from moving soil shall be guarded by a shoring system, sloping of the ground, or some other accepted equivalent means.
- 9.2** All materials, whether excavated or otherwise, shall be effectively stored and retained at least 2 ft. from the edge of all excavations that personnel may enter.
- 9.3** Excavations exceeding 5 ft. in depth shall be shored or laid back to a stable slope. Refer to Attachment I as a guide in sloping of banks. These diagrams are for soil types A and B. Soil type A means cohesive soils with an unconfined compressive strength of 1.5 tons per square foot or greater. Examples of cohesive soils are: clay, silty clay, sandy clay and clay loam. Cemented soils such as caliche and hard pan are also considered Type A soil. Type B soil means cohesive soils with an unconfined compressive strength greater than 0.5 tons per square foot. Examples of Type B soil are: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.

In most cases Type B soil should be used as a guideline for shoring or sloping, unless testing shows it to be a Type A soil. Attachment I identifies the minimum requirements for trench timbering and shoring.

- 9.4** All slopes shall be excavated to no more than the maximum allowable slope, except for areas where solid rock allows for line drilling or presplitting.
- 9.5** When employees are required to be in excavations 4 ft. or more in depth, an adequate means of access and egress, such as a ladder, stairs and etc. shall be provided, so that no more than 25 ft. of lateral travel for employees is required.
- 9.6** Personal protective equipment shall be listed on the excavation permit. This equipment could include items such as goggles, chemical suit, rubber boots, chemical gloves, SCBA, and/or other respiratory protection systems.
- 9.7** When employees are exposed to public vehicular traffic, they will be furnished warning vests or other suitable garments marked with or made of reflectorized or high-visibility materials. The PSI supervisor or his/her designee is responsible for issuing these. The PSI supervisor or his/her designee is also responsible for ensuring that all affected employees wear the required safety equipment.
- 9.8** No employee shall be permitted underneath loads handled by lifting or digging

equipment. Employees will stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped in accordance with OSHA 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.

- 9.9** Employees shall not work in excavations in which there is accumulated water or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and life line.

If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations will be monitored by the job site supervisor. The job site supervisor will inspect the job site prior to any work. This inspection will cover all equipment and any other conditions that could affect the safety of the employees.

- 9.10** A competent person shall be stationed at the top of the excavation to serve as "hole watch" for employees working down in the excavation. The hole watch should have a means of contacting help if an emergency occurs. A hole watch will be required if the excavation is 5 ft. or greater in depth.
- 9.11** All excavations shall be barricaded in a manner that provides adequate physical protection.
- 9.12** Excavations that have a potential for the presence of hydrocarbon vapor or any oxygen deficiency shall be tested before employees are permitted to enter.
- 9.13** When it is necessary to have employees cross the excavation, a crossing and walkway must be in place, and there must be barricades (railings) to prevent anyone from falling into the excavation.
- 9.14** Employees are prohibited in the excavation when heavy equipment is digging.
- 9.15** Excavations or trenches 20 ft. or deeper shall have a protective system designed by a registered professional engineer.
- 9.16** Excavations under the base of a footing or other foundation will require a support system designed by a registered professional engineer.
- 9.17** Sidewalks and pavement shall not be undermined unless a support system is in

place.

## **10.0 TRAINING**

- 10.1** The Department Manager will train all employees who might be exposed to excavation and trenching hazards on the requirements of this procedure. This training will enable the employee to recognize the hazards of excavation and trenching and will familiarize the employee with the procedures to follow to minimize these hazards.
- 10.2** Training will be documented with the employee's name, employee number, job title, signature, signature of the trainer, and test score. The Department Manager will determine when the employee has received and understood the training. This will be based on the written test given at the training session and observation by the supervisor or manager.
- 10.3** Training will include the following:
- Instruction, experience, and knowledge of:
    - soil analysis
    - use of protective systems; and
    - requirements of 29 CFR Part 1926 Subpart P.
  - Ability to detect
    - conditions that could result in cave-ins;
    - failures in protective systems;
    - hazardous atmospheres; and
    - other hazards including those associated with confined spaces
- 10.4** The Department Manager will re-train any time the following changes occur:
- Deficiencies in training (employee has not retained knowledge of excavation, shoring and trenching safety protection).
  - Work place changes

## APPENDIX I

### OVERVIEW: SOIL MECHANICS

A number of stresses and deformations can occur in an open excavation or trench. For example, increases or decreases in moisture content can adversely affect the stability of a trench or excavation. The following show some of the more frequently identified causes of trench failure.

**A. TENSION CRACKS** - Tension cracks usually form parallel to the top edge of the trench at a horizontal distance of 0.5 to 0.75 times the depth of the trench, measured from the top of the vertical face of the trench.

**B. SLIDING** or sloughing of the trench walls may occur as a result of tension cracks.

**C. TOPPLING** - In addition to sliding, tension cracks can cause toppling. Toppling occurs when the trench's vertical face shears along the tension crack line and topples into the excavation.

**D. SUBSIDENCE AND BULGING** – an unsupported excavation can create an unbalanced stress in the soil, which in turn, causes subsidence at the surface and bulging of the vertical face of the trench. If uncorrected, this condition can cause face failure and entrapment of workers in the trench.

**E. HEAVING OR SQUEEZING** - Bottom heaving or squeezing is caused by the downward pressure created by the weight of adjoining soil. This pressure causes a bulge in the bottom of the cut. Heaving and squeezing can occur even when shoring or shielding has been properly installed.

**F. BOILING** – Boiling is evidenced by an upward water flow into the bottom of the cut. A high water table is one of the causes of boiling. Boiling produces a "quick" condition in the bottom of the cut, and can occur even when shoring or trench boxes are used.

**G. UNIT WEIGHT OF SOILS** - Refers to the weight of one unit of a particular soil. The weight of soil varies with the type and moisture content. One cubic foot of soil can weigh from 110 pounds to 140 pounds or more, and one cubic meter (35.3 cubic feet) of soil can weigh more than 3,000 pounds.

### DETERMINATION OF SOIL TYPE

OSHA categorizes soil and rock deposits into four types, A through D, as follows:

**A. STABLE ROCK** is natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed. It is usually identified by a rock name such as granite or

sandstone. Determining whether a deposit is of this type may be difficult unless it is known whether cracks exist and whether or not the cracks run into or away from the excavation.

**B. TYPE A SOILS** are cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (tsf) (144 kpa) or greater. Examples of Type A cohesive soils are often: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. (No soil is Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, is part of a sloped, layered system where the layers dip into the excavation on a slope of 4 horizontal to 1 vertical [4H: 1V] or greater, or has seeping water.

**C. TYPE B SOILS** are cohesive soils with an unconfined compressive strength greater than 0.5 tsf (48 kpa) but less than 1.5 tsf (144 kpa). Examples of Type B soils are: angular gravel; silt; silt loam; previously disturbed soils, unless otherwise classified as Type C; soils that meet the unconfined compressive strength or cementation requirement of Type A soils, but are fissured or subject to vibration; dry unstable rock; and layered systems sloping into the trench at a slope less than 4H:1V (only if the material would be classified as a Type B soil).

**D. TYPE C SOILS** are cohesive soils with an unconfined compressive strength of 0.5 tsf (48 kpa) or less. Other Type C soils include granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stable. Also included in this classification is material in a sloped, layered system where the layers dip into the excavation or have a slope of four horizontal to one vertical (4H:1V) or greater.

**E. LAYERED GEOLOGICAL STRATA** Where soils are configured in layers, (i.e., where a layered geologic structure exists), the soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e., where a Type C soil rests on top of stable rock.

## TEST EQUIPMENT AND METHODS FOR EVALUATING SOIL TYPE

Many kinds of equipment and methods are used to determine the type of soil prevailing in an area, as described below:

**A. POCKET PENETROMETER** - Penetrometers are direct-reading, spring-operated instruments used to determine the unconfined compressive strength of saturated cohesive soils. Once pushed into the soil, an indicator sleeve displays the reading. The instrument is calibrated in either tons per square foot (tsf) or kilograms per square centimeter (ksc). However, penetrometers can have error rates in the range of  $\pm 20$  to 40%.

**B. SHEARVANE (TORVANE)** - To determine the unconfined compressive strength of soil with a sheervane, the blades of the vane are pressed into a level section of undisturbed soil, and the torsional knob is slowly turned until soil failure occurs. The direct instrument



reading must be multiplied by 2 to provide results in tons per square foot (tsf) or kilograms per square centimeter (kpa).

**C. THUMB PENETRATION TEST** - The thumb penetration procedure involves an attempt to press the thumb firmly into the soil in question. If the thumb makes an indentation in the soil only with great difficulty, the soil is probably Type A. If the thumb penetrates no further than the length of the thumb nail, it is probably Type B soil, and if the thumb penetrates the full length of the thumb, it is Type C soil. The thumb test is subjective and is therefore the least accurate of the three methods.

**D. DRY STRENGTH TEST** - Dry soil that crumbles freely or with moderate pressure into individual grains are granular. Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can be broken only with difficulty) is probably clay in combination with gravel, sand, or silt. If the soil breaks into clumps that do not break into small clumps (and the soil can be broken only with difficulty), the soil is considered unfissured unless there is visual indication of fissuring.

**E. PLASTICITY OR WET THREAD TEST** - This test is conducted by molding a moist sample of the soil into a ball and attempting to roll it into a thin thread approximately 1/8 inch (3mm) in diameter (thick) by 2 inches (50mm) in length. The soil sample is held by one end. If the sample does not break or tear, the soil is considered cohesive.

**F. VISUAL TEST** - A visual test is a qualitative evaluation of conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil to be excavated. If the soil remains in clumps, it is cohesive, if it appears to be coarse-grained sand or gravel, it is considered granular. The evaluator also checks for signs of vibration.

During the visual test, the evaluator should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has previously been disturbed, and observe the open side of the excavation for indications of layered geologic structuring.

The evaluator should also look for signs of bulging, boiling, or sloughing, as well as signs of surface water seeping from the sides of the excavation or from the water table. If there is standing water in the cut, the evaluator should check for "quick" conditions. In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

## **SHORING TYPES**

Shoring is the provision of a support system for trench faces used to prevent the movement of soil, underground utilities, roadways, and foundations. Shoring or shielding is used when the location or

depth of the cut makes sloping back the sides of the excavation to the maximum allowable slope impractical. Shoring systems consist of posts, walls, struts, and sheeting. There are two basic types of shoring:

1. Timber
2. Aluminum Hydraulic.

**A. HYDRAULIC SHORING** - A hydraulic shoring system is a prefabricated strut and/or wall system manufactured of aluminum or steel. Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install or remove hydraulic shoring. Other advantages of most hydraulic systems are that they:

- \* Are light enough to be installed by one worker;
- \* Are gauge-regulated to ensure even distribution of pressure along the trench line;
- \* Can have their trench faces "preloaded" to use the soil's natural cohesion to prevent movement; and
- \* Can be adapted easily to various trench depths and widths.

All shoring should be installed from the top down and removed from the bottom up. Hydraulic shoring should be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.

**B. PNEUMATIC SHORING** - works in a manner similar to hydraulic shoring. The primary difference is that pneumatic shoring uses air pressure in place of hydraulic pressure. A disadvantage to the use of pneumatic shoring is that an air compressor must be on site.

1. **Screw Jacks** - Screw jack systems differ from hydraulic and pneumatic systems in that the struts of a screw jack system must be adjusted manually. This creates a hazard because the worker is required to be in the trench in order to adjust the strut. In addition, uniform "preloading" cannot be achieved with screw jacks and their weight creates handling difficulties.
2. **Single-Cylinder Hydraulic Shores** are generally used in water system, as an assist to timber shoring systems, and in shallow trenches where face stability is required.
3. **Underpinning** - This process involves stabilizing adjacent structures, foundations, and other intrusions that may have an impact on the excavation. As the term indicates, underpinning is a procedure in which the foundation is physically reinforced. Underpinning should be conducted only under the direction and with the approval of a registered professional engineer.

Stable Rock	Vertical	90 deg
Type A	3/4:1	53 deg
Type B	1:1	45 deg

Type C	1 1/2:1	34 deg
Type A (short-term)	1/2:1	63 deg

(For a maximum excavation depth of 12 ft.)

**B. BENCHING** There are two basic types of benching: simple and multiple. The type of soil determines the horizontal to vertical ratio of the benched side.

As a general rule, the bottom vertical height of the trench must not exceed 4 ft. (1.2 m) for the first bench. Subsequent benches may be up to a maximum of 5 ft. (1.5m) vertical in Type A soil and 4 ft. (1.2m) in Type B soil to a total trench depth of 20 ft. (6.0m). All subsequent benches must be below the maximum allowable slope for that soil type. For Type B soil, the trench excavation is permitted in cohesive soil only.

## **SPOIL**

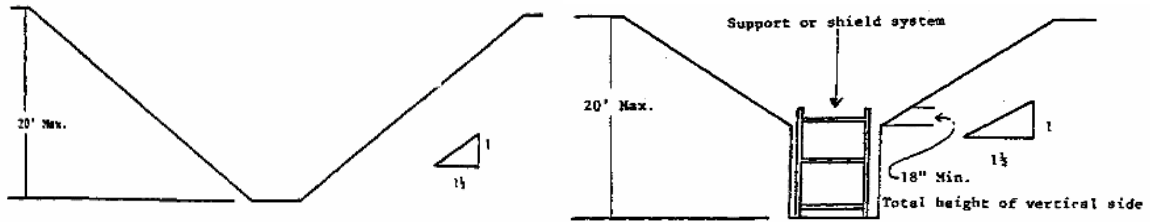
**A. TEMPORARY SPOIL** - Temporary spoil must be placed no closer than 2 ft. (0.61m) from the surface edge of the excavation, as measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.

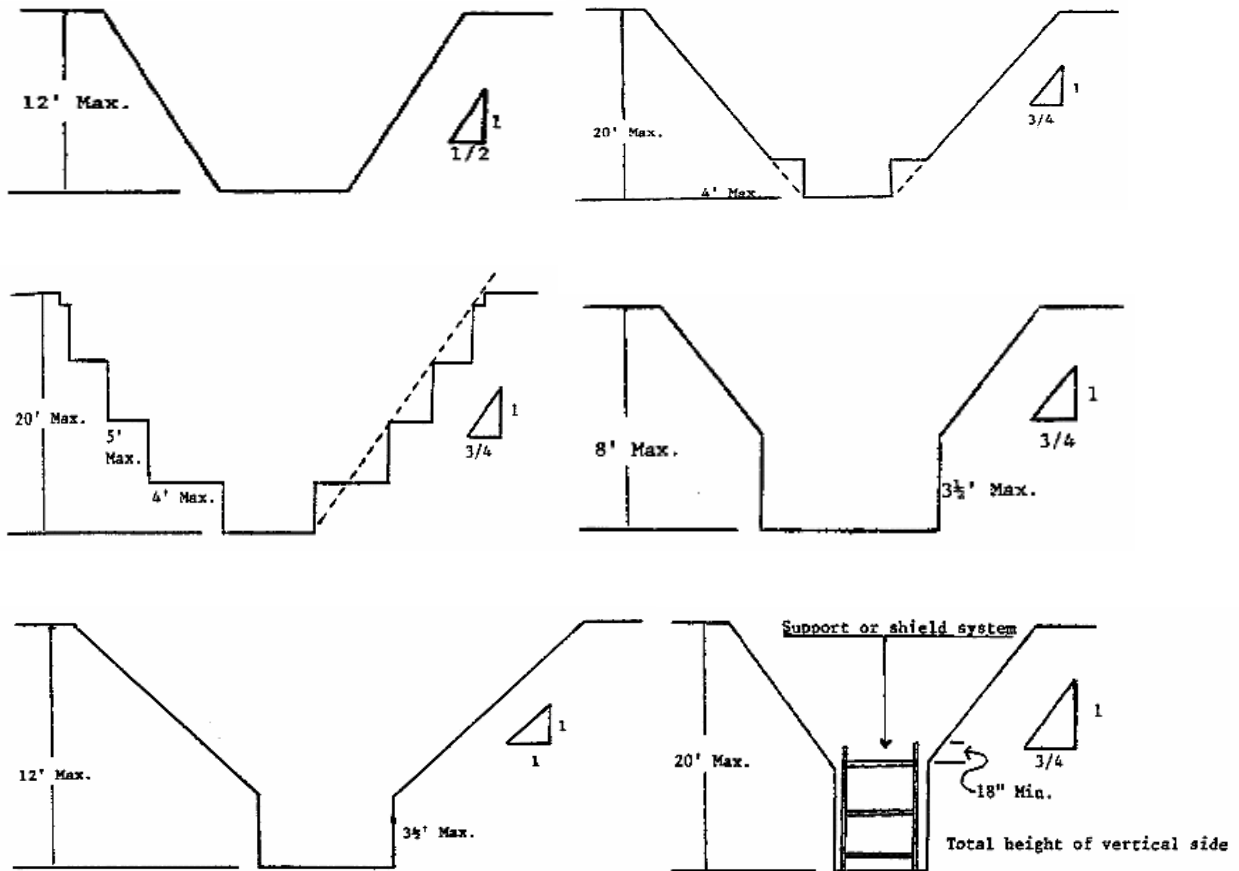
**B. PERMANENT SPOIL** - Permanent spoil should be placed as far as practical from the excavation. Permanent spoil is often created where underpasses are built or utilities are buried. The improper placement of permanent spoil, i.e. insufficient distance from the working excavation, can cause an excavation to be out of compliance with the horizontal-to-vertical ratio requirement for a particular excavation. This can usually be determined through visual observation. Permanent spoil can change undisturbed soil to disturbed soil and dramatically alter slope requirements.

### Attachment I

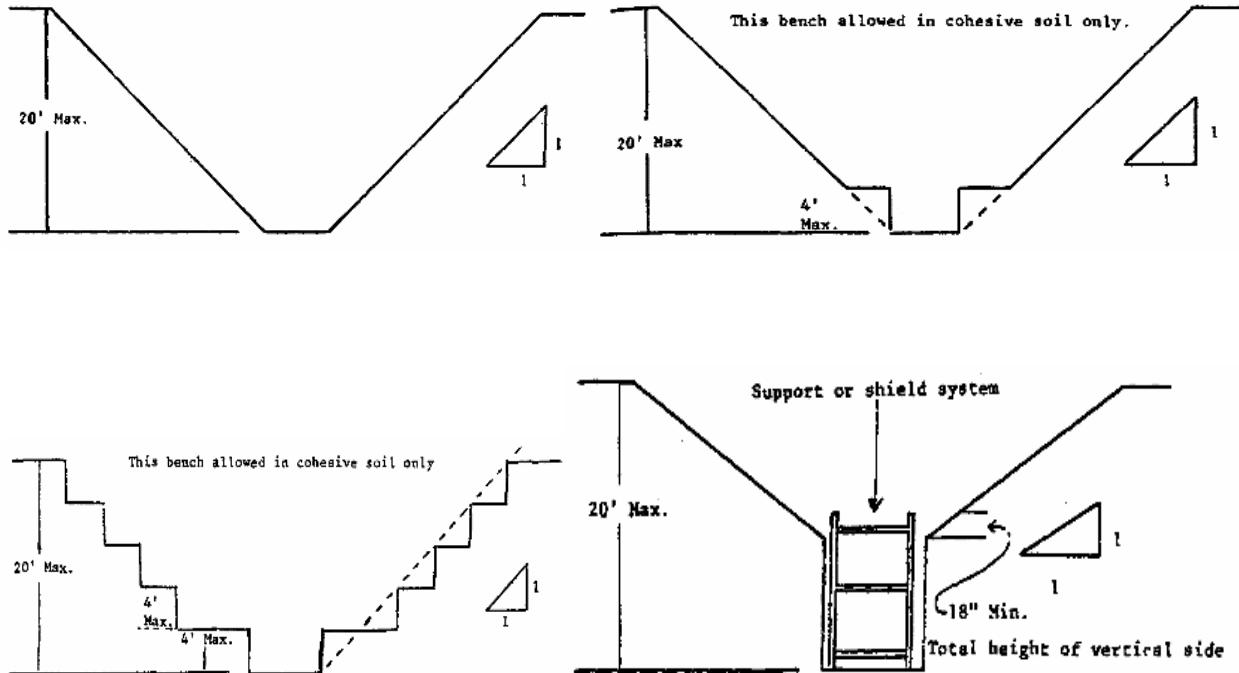
#### Approved Protection for "Type C" Soils (Preferred)



#### Approved Protection for "Type A" Soils (if encountered)



### Approved Protection for "Type B" Soils (if encountered)



## Attachment II

### SITE ASSESSMENT QUESTIONS

1. Is the cut, cavity or depression a trench or an excavation?.....  Yes  No
2. Is the cut, cavity or depression more than 4 ft (1.2m) in depth?.....  Yes  No
3. Is there water in the cut, cavity, or depression?..... Yes  No
4. Are there adequate means of ingress and egress?  Yes  No
5. Are there surface encumbrances?  Yes  No
6. Is there exposure to vehicular traffic?  Yes  No
7. Are adjacent structures stabilized?  Yes  No
8. Does mobile equipment have a warning system? Yes  No
9. Is a Competent Person in charge of the operation?  Yes  No
10. Is equipment operating in or around the cut, cavity, or depression?  Yes  No
11. Are procedures required to monitor, test, and control hazardous atmosphere?  Yes  No
12. Did a Competent Person determine soil type?  Yes  No
13. Was a soil testing device used to determine soil type?  Yes  No
14. Is the spoil placed 2 ft (0.6 m) or more from the edge of the cut, cavity, or depression?  Yes  No
15. Is the cut, cavity, or depression depth 20 ft (6.1 m) or more?  Yes  No
16. Has a registered professional engineer approved the procedure if the depth is more than 20 ft (6.1 m)?  Yes  No
17. Does the procedure require benching or multiple benching? Shoring? Shielding? Yes  No
18. If provided, do shields extend at least 18 in (0.5 m) above the surrounding area if it is sloped toward the excavation?  Yes  No
19. If shields are used, is the depth of the cut more than 2 ft (0.6 m) below the bottom of the shield?  Yes  No

20. Are any required surface crossings of the cut, cavity, or depression the proper width and fitted with hand rails?  Yes  No
21. Are means of egress from the cut, cavity, or depression no more than 25 ft (7.6 m) from the work?  Yes  No
22. Is emergency rescue equipment required?  Yes  No
23. Is there documentation of the minimum daily excavation inspection?  Yes  No

## Attachment III

### PRE-SITE ASSESSMENT CHECKLIST - (DAILY CHECKLIST)

Initial if the condition is true:

- \_\_\_\_\_ 1. Is the cut, cavity or depression a trench or an excavation?
- \_\_\_\_\_ 2. Is the cut, cavity or depression more than 4 ft. (1.2m) in depth?
- \_\_\_\_\_ 3. Is there water in the cut, cavity, or depression?
- \_\_\_\_\_ 4. Are there adequate means of ingress and egress?
- \_\_\_\_\_ 5. Are there surface encumbrances?
- \_\_\_\_\_ 6. Is there exposure to vehicular traffic?
- \_\_\_\_\_ 7. Are adjacent structures stabilized?
- \_\_\_\_\_ 8. Does mobile equipment have a warning system?
- \_\_\_\_\_ 9. Is a Competent Person in charge of the operation?
- \_\_\_\_\_ 10. Is equipment operating in or around the cut, cavity, or depression?
- \_\_\_\_\_ 11. Are procedures required to monitor, test, and control hazardous atmosphere?
- \_\_\_\_\_ 12. Did a Competent Person determine soil type?
- \_\_\_\_\_ 13. Was a soil testing device used to determine soil type?
- \_\_\_\_\_ 14. Is the spoil placed 2 ft (0.6 m) or more from the edge of the cut, cavity, or depression?
- \_\_\_\_\_ 15. Is the cut, cavity, or depression depth 20 ft (6.1 m) or more?
- \_\_\_\_\_ 16. Has a registered professional engineer approved the procedure if the depth is?  
more than 20 ft (6.1 m)?
- \_\_\_\_\_ 17. Does the procedure require benching or multiple benching? Shoring? Shielding?
- \_\_\_\_\_ 18. If provided, do shields extend at least 18 in (0.5 m) above the surrounding area if it is s  
toward the excavation?
- \_\_\_\_\_ 19. If shields are used, is the depth of the cut more than 2 ft (0.6 m) below the bottom of th  
shield?
- \_\_\_\_\_ 20. Are any required surface crossings of the cut, cavity, or depression the proper width an  
fitted with hand rails?
- \_\_\_\_\_ 21. Are means of egress from the cut, cavity, or depression no more than 25 ft (7.6 m) from  
work?
- \_\_\_\_\_ 22. Is emergency rescue equipment required?
- \_\_\_\_\_ 23. Is there documentation of the minimum daily excavation inspection?

The Pre-Check (DAILY CHECKLIST) list will be completed prior to start and will be completed daily by a Competent Person and filed with the Excavation Permit.



State of Florida  
Department of Environmental Protection  
Generic Permit  
For  
Stormwater Discharge from Large and Small Construction Activities

February 2009

This permit is issued under the provisions of Section 403.0885, Florida Statutes, and applicable rules of the Florida Administrative Code pursuant to the Department's federally-approved National Pollutant Discharge Elimination System (NPDES) stormwater regulatory program. Stormwater discharge associated with large construction activity, as defined at 40 CFR Part 122.26(b)(14)(x) and herein, is regulated pursuant to Section 402(p)(2) of the federal Clean Water Act (CWA). Stormwater discharge associated with small construction activity, as defined at 40 CFR 122.26(b)(15) and herein, is regulated pursuant to Section 402(p)(6) of the CWA. This permit constitutes authorization to discharge stormwater associated with large and small construction activities to surface waters of the State, including through a Municipal Separate Storm Sewer System (MS4). Until this permit is terminated, modified, or revoked, permittees that have properly obtained coverage under this permit are authorized to discharge to surface waters of the State, including through an MS4, in accordance with the terms and conditions of this permit.

## Part I. General Provisions

### A. Applicability and Coverage

1. Federal law prohibits the point source discharge of pollutants, including the discharge of stormwater associated with large or small construction activities pursuant to 40 CFR Part 122 and as defined in Part II of this permit, to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. The State of Florida has authority to administer the NPDES stormwater program pursuant to Section 403.0885, F.S. Operators that have stormwater discharge associated with large or small construction activities to surface waters of the State, including through a Municipal Separate Storm Sewer System (MS4), must obtain coverage either under a generic permit issued pursuant to Chapter 62-621, F.A.C., or an individual permit issued pursuant to Chapter 62-620, F.A.C.

2. Coverage under this generic permit is available for stormwater discharges from large and small construction activities to surface waters of the State as defined in Section 403.031, F.S., including stormwater discharges associated with construction activity to surface waters of the State through an MS4.

3. This generic permit does not constitute authorization under Part IV of Chapter 373, F.S., for the construction, alteration, operation, maintenance, abandonment, or removal of any stormwater management system, dam, impoundment, reservoir, or appurtenant work or works, including dredging or filling in, on or over wetlands and other surface waters, as determined by the methodology authorized in Subsection 373.421(1), F.S.

4. This generic permit authorizes the discharge of stormwater associated with construction activity under the State's federally-approved NPDES stormwater program only and does not supersede the requirement to obtain a stormwater discharge authorization pursuant to an environmental resource permit (ERP) under Part IV, Chapter 373, F.S.; an environmental resource permit from a Department-approved delegated local government; or any other required federal, state, or local government permit.

### B. Eligibility

1. This permit authorizes the discharge of stormwater associated with large and small construction activity, as defined in Part II of this permit, occurring after the effective date of this permit.

2. This permit authorizes stormwater discharge associated with construction activity that is mixed with stormwater discharges associated with industrial activity other than construction, where:

- a. the industrial source other than construction is located on the same site as the construction activity;
- b. stormwater discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit; and
- c. stormwater discharges associated with industrial activity from the areas of the site where industrial activity other than construction are occurring are in compliance with the terms of a different generic permit (e.g., Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity) or individual permit authorizing such discharges.

3. Limitations on Coverage. The following stormwater discharges from construction sites are not authorized by this permit:

- a. stormwater discharges that originate from the site after construction activities have been completed and the site has undergone final stabilization;

b. discharges that are mixed with sources of non-stormwater, other than discharges identified in Part IV.A.3. of this permit;

c. stormwater discharge associated with construction activity that is covered under an existing generic or individual permit. Such discharges may be authorized under this permit after the existing individual permit or generic permit term of coverage expires, provided the existing permit did not establish numeric limitations for such discharges; or

d. stormwater discharge associated with construction activity that the Department has determined to be or may reasonably be expected to be causing or contributing to a violation of a surface water quality standard.

### C. Obtaining Authorization

1. In order for stormwater discharge associated with construction activity to be authorized under this generic permit, an operator must:

a. Meet the eligibility requirements in Part I.B. of this permit;

b. Develop and implement a stormwater pollution prevention plan (SWPPP) in accordance with the requirements of Part V of this permit; and

c. Submit a completed Notice of Intent (NOI) in accordance with the requirements of Part III of this permit, including submittal of the appropriate processing fee as established in paragraph 62-4.050(4)(d), F.A.C.

2. The Department may deny coverage under this permit or require submittal of a revised NOI based on the Department's determination that the NOI is incomplete, the permit fee has not been paid, or the submittal otherwise is not in accordance with the requirements of this generic permit.

## Part II. Definitions

For the purposes of this generic permit, the following definitions shall apply, unless otherwise indicated:

1. "Best Management Practices" or "BMPs" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of surface waters. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

2. "Construction Activity" means the act or process of developing or improving land which involves the disturbance of soils and includes clearing, grading, and excavation.

3. "Commencement of Construction" means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

4. "Department" or "DEP" means the Florida Department of Environmental Protection.

5. "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of at least 70% for all unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (e.g., geotextiles) have been employed.

6. "Large Construction Activity" means construction activity that results in the disturbance of five (5) or more acres of total land area. Large construction activity also includes the disturbance of less than five acres of total land area that is part of a larger common plan of development or sale that will ultimately disturb five acres or more.

7. "Municipal Separate Storm Sewer System" or "MS4" means a large, medium, or small MS4 as defined in Chapter 62-624, F.A.C.

8. "NOI" means notice of intent to be covered by this permit (see Part III of this permit).

9. "NOT" means notice of termination (see Part VIII of this permit).

10. "NPDES" means the Department's federally-approved National Pollutant Discharge Elimination System program.

11. "Operator" means the person, firm, contractor, public organization or other legal entity that owns or operates the construction activity and that has authority to control those activities at the project necessary to ensure compliance with the terms and conditions of this permit.

12. "Qualified Inspector" means a person that:

a. has successfully completed and met all requirements necessary to be fully certified through the DEP Stormwater Erosion and Sedimentation Control Inspector Training Program;

b. has successfully completed an equivalent formal training program; or

c. is qualified by other training or practical experience in the field of stormwater pollution prevention and erosion and sedimentation control.

13. "Small Construction Activity" means construction activity that results in the disturbance of equal to or greater than one (1) acre and less than five (5) acres of total land area. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one acre and less than five acres.

14. "Stormwater" means the flow of water which results from, and which occurs immediately following, a rainfall event.

15. "Stormwater discharge associated with construction activity" means the discharge of stormwater from large or small construction activities, including areas where soil disturbing activities, construction materials handling or storage, equipment storage or maintenance are located.

16. "Surface Waters of the State" means those surface waters that are defined in section 403.031, F.S.

17. "Water Management District" or "WMD" means the Northwest Florida Water Management District, the Suwannee River Water Management District, the St. Johns River Water Management District, the Southwest Florida Water Management District or the South Florida Water Management District.

### **Part III. Notice of Intent Requirements**

#### **A. Deadlines for Notification.**

1. Operators seeking coverage under this generic permit to authorize stormwater discharge associated with construction activity for new large or small construction activities, for which commencement of construction begins after the effective date of this permit, shall file an NOI for coverage under this permit at least two (2) days before commencement of construction.

2. For construction activities where the operator changes, the new operator shall file an NOI for coverage under this permit at least two (2) days before assuming control of the project and the previous operator shall file an NOT to terminate permit coverage in accordance with Part VIII of this permit.

#### **B. Contents of Notice of Intent.**

1. In order to obtain coverage under this permit, the operator of the construction activity having an associated stormwater discharge shall submit a completed Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), including the applicable permit processing fee as specified in paragraph 62-4.050(4)(d), F.A.C. By completing, signing, and submitting an NOI, the operator is certifying that they meet all eligibility requirements of this permit and are informing the Department of their intent to be covered by, and comply with, the terms and conditions of this generic permit. The Notice of Intent shall be signed in accordance with Part VII.C. of this permit by the operator.

C. Where to Submit.

1. NOIs shall be submitted either electronically or by paper copy.
  - a. The Department encourages the electronic submission of NOIs through the NPDES Stormwater Program's electronic permitting application available at <http://www.dep.state.fl.us/water/stormwater/npdes/>.
  - b. If the operator chooses to submit the NOI by paper copy, the NOI shall be submitted to the following address:

NPDES Stormwater Notices Center, MS# 2510  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

2. A copy of the NOI or letter from DEP confirming coverage under this generic permit shall be posted at the construction site in a prominent place for public viewing (such as alongside a building permit).

D. Additional Notification.

1. Projects that discharge stormwater associated with construction activity to a municipal separate stormwater system (MS4) shall submit a copy of the NOI to the operator of the MS4.

E. Period of Coverage.

1. Coverage under this generic permit is effective two (2) days after the date of submittal of a complete NOI to the Department.
2. Coverage under this generic permit is limited to a term not to exceed five years from the effective date of coverage.

F. Permit Coverage Renewal.

1. If the project will continue to have stormwater discharge associated with construction activity beyond the initial five year term of coverage, the operator shall submit a new NOI at least two (2) days before expiration of the current term of coverage under this permit.

**Part IV. Special Conditions, Management Practices and Other Non-numeric Limitations**

A. Prohibition of Non-Stormwater Discharges.

1. Except as provided in paragraphs I.B.2. and IV.A.3., all discharges covered by this permit shall be composed entirely of stormwater associated with construction activity.
2. Except as specified in IV.A.3. below, discharges of material other than stormwater associated with construction activity must be in compliance with a Department permit (other than this permit) issued for the discharge, or be exempt therefrom.
3. The following non-stormwater discharges are authorized by this permit provided the non-stormwater component of the discharge is in compliance with paragraph V.D.5.: discharges from fire fighting activities; fire hydrant flushings; waters used to spray off loose solids from vehicles (wastewaters from a more thorough cleaning, including the use of detergents or other cleaners is not authorized by this part) or control dust in accordance with Part V.D.2.c.(2); potable water sources including waterline flushings; irrigation drainage; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; and foundation or footing drains where flows are not contaminated with process materials such as solvents.
4. Discharges resulting from ground water dewatering activities at construction sites are not covered by this permit. Applicants for these discharges must obtain coverage under the Department's Generic Permit for the Discharge of Produced Ground Water from any Non-contaminated Site Activity pursuant to subsection 62-621.300(2), F.A.C.

#### B. Releases in Excess of Reportable Quantities.

1. The discharge of hazardous substances or oil in the stormwater discharge(s) from a facility or activity shall be prevented or minimized in accordance with the applicable stormwater pollution prevention plan for the facility or activity. This permit does not relieve the operator of the reporting requirements of 40 CFR part 117 and 40 CFR part 302. Where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 CFR 117 or 40 CFR 302, occurs during a 24 hour period:
  - a. The operator is required to notify the State Warning Point (800-320-0519 or 850-413-9911) as soon as he or she has knowledge of the discharge;
  - b. The operator shall submit, within 14 calendar days of knowledge of the release, a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and remedial steps to be taken, to the Florida Department of Environmental Protection, NPDES Stormwater Section, Mail Station 2500, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and
  - c. The stormwater pollution prevention plan required under Part V of this permit must be modified within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the recurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.
2. This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

### **Part V. Stormwater Pollution Prevention Plan**

A. A stormwater pollution prevention plan shall be developed and implemented for each construction site covered by this permit. Stormwater pollution prevention plans shall be prepared in accordance with good engineering practices. Equivalent erosion and sediment control plans prepared as an

environmental resource permit requirement under Part IV, Chapter 373, F.S., may serve as the pollution prevention plan provided all of the elements of this section are included in such an alternative plan. The plan shall identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharge associated with construction activity. In addition, the plan shall describe and ensure the implementation of best management practices which will be used to reduce the pollutants in stormwater discharge associated with construction activity and to assure compliance with the terms and conditions of this permit. Facilities must implement the provisions of the stormwater pollution prevention plan required under this part as a condition of this permit. Failure to develop and implement a stormwater pollution prevention plan in accordance with the requirements of this part shall be deemed a violation of this permit and the permittee shall be subject to enforcement action.

#### B. Deadlines for Plan Preparation and Compliance.

##### 1. The pollution prevention plan shall:

- a. Be completed (including certification by the operator in accordance with Part VII.C.) prior to the submittal of an NOI to be covered under this permit and updated as appropriate;
- b. The plan shall provide for compliance with the terms and schedule of the plan beginning with the initiation of construction activities.

#### C. Keeping Plans Current.

1. The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the State or an MS4, including the addition of or change in location of stormwater discharge points, and which has not otherwise been addressed in the plan. The permittee also shall amend the plan if it proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part V.D.1. of this permit, or in otherwise achieving the general objectives of controlling pollutants in stormwater discharge associated with construction activity. In addition, the plan shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the stormwater pollution prevention plan (see Part V.D.6.). Amendments to the plan shall be prepared, signed, dated and kept as attachments to the original plan.

#### D. Contents of Plan.

1. Site Description. Each plan shall provide a description of pollutant sources and other information as indicated:

- a. A description of the nature of the construction activity;
- b. A description of the intended sequence of major activities which disturb soils for major portions of the site (e.g., grubbing, excavation, grading);
- c. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other construction activities;
- d. Existing data describing the soil or the quality of any discharge from the site and an estimate of the size of the drainage area for each discharge point;
- e. A site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, an outline of areas which may not be disturbed, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters, wetlands and locations where stormwater is discharged to a surface water or MS4; and

f. The latitude and longitude of each discharge point and the name of the receiving water(s) for each discharge point.

2. Controls. Each plan shall include a description of appropriate controls, BMPs and measures that will be implemented at the construction site. The plan shall clearly describe for each major activity identified in Part V.D.1.b. appropriate control measures and the timing during the construction process that the measures will be implemented. For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls shall be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls shall be removed after final stabilization. All controls shall be consistent with the performance standards for erosion and sediment control and stormwater treatment as set forth in Rule 62-40.432, F.A.C., the applicable environmental resource permitting requirements of the DEP or appropriate WMD relating to performance standards for erosion and sediment control and stormwater treatment and the guidelines contained in the State of Florida Erosion and Sediment Control Designer and Reviewer Manual, FDOT, FDEP (2007), incorporated by reference in Rule 62-621.300(4)(a), F.A.C., and available on the Department's website at <http://www.dep.state.fl.us/water/stormwater/npdes>.

a. Erosion and Sediment Controls.

(1) Stabilization Practices. Each plan shall provide a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation and other appropriate measures. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site and when stabilization measures are initiated shall be included in the plan. Stabilization measures shall be initiated as soon as practicable, but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased.

(2) Structural Practices. Each plan shall include a description of structural practices to divert flows from exposed soils, store flows, retain sediment on-site or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, diversions, swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, coagulating agents and temporary or permanent sediment basins. Structural BMPs shall be placed on upland soils unless a State of Florida wetland resource management permit or environmental resource permit issued pursuant to Chapter 373, F.S., and applicable regulations of the DEP or WMD authorize otherwise.

(3) Sediment Basins.

(a) For drainage basins with 10 or more disturbed acres at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage basins with 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, a combination of smaller sediment basins and/or sediment traps and other BMPs should be used. At a minimum, silt fences or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.



(b) For drainage basins of less than 10 acres, sediment basins and/or sediment traps are recommended but not required. At a minimum, silt fences or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.

(c) Areas that will be used for permanent stormwater infiltration treatment (e.g., stormwater retention ponds) should not be used for temporary sediment basins unless appropriate measures are taken to assure removal of accumulated fine sediments, which may cause premature clogging and loss of infiltration capacity, and to avoid excessive compaction of soils by construction machinery or equipment.

b. Permanent Stormwater Management Controls.

Each plan shall include a description of stormwater management controls or BMPs (e.g., stormwater detention or retention systems, vegetated swales, velocity dissipation devices at discharge points) that will be installed during the construction process to control pollutants in stormwater discharges that will occur during construction and after construction operations have been completed. This generic permit only addresses the installation of stormwater management controls and not the ultimate operation and maintenance of such controls after the construction activities have been completed and the site has undergone final stabilization. Under this generic permit, permittees are only responsible for the installation and maintenance of stormwater management BMPs prior to final stabilization of the site, and are not responsible for maintenance after stormwater discharges associated with construction activity have been eliminated from the site. However, all stormwater management systems and BMPs shall be operated and maintained in perpetuity after final stabilization in accordance with requirements set forth in the State of Florida environmental resource permit issued under Part IV, Chapter 373, F.S.

c. Controls for Other Potential Pollutants.

(1) Waste Disposal. The plan shall assure that waste, such as discarded building materials, chemicals, litter and sanitary waste are properly controlled in accordance with all applicable state, local and federal regulations. This permit does not authorize the discharge of solid materials, including building materials, to surface waters of the State or an MS4.

(2) The plan shall assure that off-site vehicle tracking of sediments and the generation of dust is minimized.

(3) The plan shall be consistent with applicable State and local waste disposal, sanitary sewer or septic system regulations.

(4) The plan shall address the proper application rates and methods for the use of fertilizers, herbicides and pesticides at the construction site and set forth how these procedures will be implemented and enforced. Nutrients shall be applied only at rates necessary to establish and maintain vegetation.

(5) The plan shall ensure that the application, generation and migration of toxic substances are limited and that toxic materials are properly stored and disposed.

3. Maintenance. The plan shall include a description of procedures that will be followed to ensure the timely maintenance of vegetation, erosion and sediment controls, stormwater management practices and other protective measures and BMPs so they will remain in good and effective operating condition.

4. Inspections. At least once every seven calendar days and within 24 hours of the end of a storm that is 0.50 inches or greater, a qualified inspector (provided by the operator) shall inspect all points of discharge into surface waters of the State or an MS4; disturbed areas of the construction site that have not been finally stabilized; areas used for storage of materials that are exposed to precipitation; structural controls; and locations where vehicles enter or exit the site as follows:

a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the stormwater system. The stormwater management system and erosion and sediment control measures identified in the plan

shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion and sediment control and stormwater treatment measures are effective in preventing or minimizing the discharge of pollutants, including retaining sediment onsite pursuant to Rule 62-40.432, F.A.C. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

b. Based on the results of the inspection, all maintenance operations needed to assure proper operation of all controls, BMPs, practices or measures identified in the stormwater pollution prevention plan shall be done in a timely manner, but in no case later than 7 calendar days following the inspection. If needed, pollution prevention controls, BMPs and measures identified in the plan shall be revised as appropriate, but in no case later than 7 calendar days following the inspection. Such modifications shall provide for timely implementation of any changes to the plan within 7 calendar days following the inspection.

c. A report summarizing the scope of the inspection; name(s) and qualifications of personnel making the inspection; the date(s) of the inspection; rainfall data; major observations relating to the implementation of the stormwater pollution prevention plan; and actions taken in accordance with paragraph V.D.4.b. of this permit, shall be made and retained, in accordance with Part VI of this permit, as part of the stormwater pollution prevention plan. Such reports shall identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report shall contain a certification that the facility is in compliance with the stormwater pollution prevention plan and this permit. The report shall be signed in accordance with Part VII.C. of this permit.

5. Non-Stormwater Discharges. Except for flows from fire fighting activities, sources of non-stormwater listed in Part IV.A.3. of this permit that are combined with stormwater discharges associated with construction activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention and treatment measures for the non-stormwater component(s) of the discharge.

6. Contractor/Subcontractor Certification.

a. The stormwater pollution prevention plan must clearly identify, for each measure identified in the plan, the contractor(s) and/or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement in Part V.D.6.b. of this permit. All certifications must be included in the stormwater pollution prevention plan.

b. Certification Statement for Contractors/Subcontractors. All contractors and subcontractors identified in a stormwater pollution prevention plan in accordance with Part V.D.6.a. of this permit shall sign a copy of the following certification statement before conducting any activities at the site:

"I certify under penalty of law that I understand, and shall comply with, the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."

The certification must include the name and title of the person providing the signature in accordance with Part VII.C. of this permit; the name, address and telephone number of the contracting firm; and the date the certification is made.

## **Part VI. Retention of Records**

A. The permittee shall retain copies of stormwater pollution prevention plans and all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized.

B. The permittee shall retain a copy of the stormwater pollution prevention plan and all reports, records and documentation required by this permit at the construction site, or an appropriate alternative location as specified in the NOI, from the date of project initiation to the date of final stabilization.

## **Part VII. Standard Permit Conditions**

A. Any permit noncompliance constitutes a violation of Section 403.161, F. S. and is grounds for enforcement action; for permit coverage termination, or revocation; or for denial of permit coverage renewal.

B. All of the general conditions listed in Rule 62-621.250, F.A.C., are adopted herein by reference.

C. Signatory Requirements.

1. All Notices of Intent, Notices of Termination, stormwater pollution prevention plans, reports, certifications or information either submitted to the Department or the operator of a municipal separate storm sewer system, or that this permit requires be maintained by the permittee, shall be signed as set forth in Rule 62-620.305, F.A.C.

2. Inspection reports prepared pursuant to Part V.D.4.c. of this permit shall be signed by the qualified inspector that prepared them as well as by a responsible authority for the operator as specified in Part VII.C.1. above.

3. Any person signing documents under this permit, except contractor/subcontractor certifications under Part V.D.6., shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

## **Part VIII. Termination of Coverage**

A. Notice of Termination.

1. Where a site has been finally stabilized (see Part II for the definition of final stabilization) and all stormwater discharges authorized by this permit are eliminated, the permittee shall submit a completed Notice of Termination (DEP Form 62-621.300(6)), signed in accordance with Part VII.C. of this permit, within 14 days of final stabilization of the site to terminate coverage under this permit.

2. Elimination of stormwater discharges associated with construction activity means that all disturbed soils at the site have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all stormwater discharges associated with construction activity from the site that are authorized by this generic permit have otherwise been eliminated.

3. For construction activities where the operator changes, the existing operator shall file an NOT in accordance with this Part within 14 days of relinquishing control of the project to a new operator.

B. Where to Submit.

1. A permittee shall submit a Notice of Termination either electronically or by paper copy.

a. The Department encourages the electronic submission of NOTs through the NPDES Stormwater Program's electronic permitting application available at

<http://www.dep.state.fl.us/water/stormwater/npdes/>.

b. If the operator chooses to submit the NOT by paper copy, the NOT shall be submitted to the following address:

NPDES Stormwater Notices Center, MS# 2510  
Florida Department of Environmental Protection  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

2. Projects that discharged stormwater associated with construction activity to a municipal separate storm sewer system (MS4) shall submit a copy of the NOT to the operator of the MS4.



# Florida Department of Environmental Protection

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Rick Scott  
Governor

Jennifer Carroll  
Lt. Governor

Herschel T. Vinyard, Jr.  
Secretary

March 19, 2013

Charlie Bishop  
Manatee County Property Management Department  
1112 Manatee Avenue West, Suite 803  
Bradenton, FL 34205

RE: **Facility ID: FLR10MO58**  
Blackstone Park Expansion  
County: Manatee

Dear Permittee:

The Florida Department of Environmental Protection has received and processed your *Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities* (NOI) and the accompanying processing fee. This letter acknowledges that:

- your NOI is complete;
- your processing fee is paid-in-full; and
- you are covered under the *Generic Permit for Stormwater Discharge from Large and Small Construction Activities* (CGP), DEP Document No. 62-621.300(4)(a).

Your project identification number is **FLR10MO58**. Please include this number on all future correspondence to the Department regarding this permit.

This letter is **not** your permit; however, this letter does serve as **verification of permit coverage**. A copy of the permit language is available online at [www.dep.state.fl.us/water/stormwater/npdes/docs/cgp.pdf](http://www.dep.state.fl.us/water/stormwater/npdes/docs/cgp.pdf) or by contacting the NPDES Stormwater Notices Center.

Your permit coverage became effective **March 16, 2013** and will expire **March 15, 2018**. To terminate your coverage prior to this expiration date, you must file a *National Pollutant Discharge Elimination System (NPDES) Stormwater Notice of Termination*, DEP Form 62-621.300(6) (NOT). An NOT must be filed within 14 days of either (a) your final stabilization of the site or (b) your relinquishment of control of the construction

March 19, 2013

activities to a new operator. To renew your coverage beyond the expiration date, you must submit a new NOI and processing fee to the Department no later than two days before coverage expires.

Until your permit coverage is terminated, modified, or revoked, you are authorized to discharge stormwater from the construction site referenced in your NOI to surface waters in accordance with the terms and conditions of the CGP. Some key conditions of the CGP are:

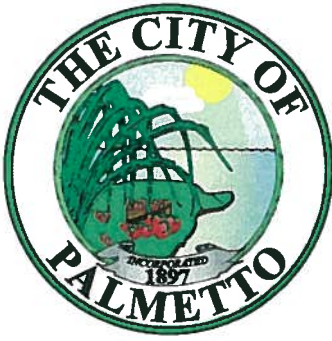
- implementation of your stormwater pollution prevention plan (SWPPP);
- conducting and documenting routine inspections; and
- retaining the records required by the permit (including your SWPPP) at the construction site or the alternate location specified in your NOI.

If you have any questions concerning this acknowledgment letter, please contact the NPDES Stormwater Notices Center at (866) 336-6312.

Sincerely,

A handwritten signature in black ink that reads "Theodore Williams". The signature is written in a cursive style with a horizontal line above the first few letters.

Theodore Williams  
Data Entry Operator  
NPDES Stormwater Program



## Department of Public Works

600 17th Street West  
Palmetto, Florida 34221  
Phone (941) 723-4580 • FAX: (941) 723-4539  
Suncom 599-4580

March 5, 2013

Dan Bond  
Wilson Miller Stantec  
6900 Professional Pkwy East Suite 100  
Sarasota, FL 34240-8414

Re: **Blackstone Park Expansion**  
**Project# 09-600**  
**Palmetto, Florida 34221**

Dear Mr. Bond,

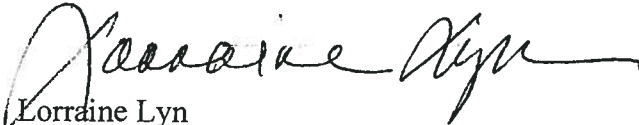
This letter will confirm that the City of Palmetto approved the construction plans for the above referenced project. Approval is contingent upon the following stipulations:

None

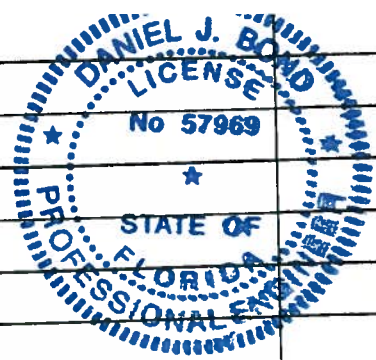
This approval is valid for one (1) year. A building permit application must be submitted within the one year timeframe.

Feel free to contact me if you have any questions.

Sincerely,

  
Lorraine Lyn  
City Planner

cc: Alan Tusing, Director of Public Works  
Neal Mazzei, Building Official



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△			
△			
NO.	DATE	DESCRIPTION	BY

**STATUS : REVISIONS** *2-19-13*

PROJECT MANAGER J. MICHAEL BELL, P.E. FLORIDA LICENSE NO. 40874	ENGINEER TECHNICIAN CARLOS L. LUGO	PROJECT ENGINEER DANIEL J. BOND, P.E. FLORIDA LICENSE NO. 579
---	---------------------------------------	---

DRC Member	OK	Signature	Date
Deputy Director of Operations	✓	<i>[Signature]</i>	2/28/13
City Planner	✓	<i>[Signature]</i>	2/28/13
Fire Marshall	✓	<i>[Signature]</i>	3-5-13
City Engineer	✓	<i>[Signature]</i>	3/4/2013
DRC Coordinator			

Stipulations	Yes	
	No	

PROJECT FILE # 09-600

Director of Public Works	<i>[Signature]</i>	Date
		2-28-13

RECEIVED  
 FEB 19 2013  
 City of Palmetto Planning Department

PROJECT NUMBER  
**21561237 210**

PRINTED  
 FEB 19 2013

DATE <b>DECEMBER 2012</b>	INDEX NUMBER <b>D-21561237-001</b>
------------------------------	---------------------------------------





# Southwest Florida Water Management District

2379 Broad Street, Brooksville, Florida 34604-6899  
(352) 796-7211 or 1-800-423-1476 (FL only)  
SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)  
On the Internet at: [WaterMatters.org](http://WaterMatters.org)

An Equal  
Opportunity  
Employer

**Bartow Service Office**  
170 Century Boulevard  
Bartow, Florida 33830-7700  
(863) 534-1448 or  
1-800-492-7862 (FL only)

**Sarasota Service Office**  
6750 Fruitville Road  
Sarasota, Florida 34240-9711  
(941) 377-3722 or  
1-800-320-3503 (FL only)

**Tampa Service Office**  
7601 Highway 301 North  
Tampa, Florida 33637-6759  
(813) 985-7481 or  
1-800-836-0797 (FL only)

February 13, 2013

Manatee County Property Management  
Attn: Charlie Bishop  
1112 Manatee Avenue West, Suite 803  
Bradenton, FL 34205

Subject: **Notice of Intended Agency Action  
ERP General Construction**

Project Name: Blackstone Park Expansion  
App ID/Permit No: 676759 / 44041165.000  
County: MANATEE  
Sec/Twp/Rge: S11/T34S/R17E

Dear Permittee(s):

Your Environmental Resource Permit has been approved contingent upon no objection to the District's action being received by the District within the time frames described in the enclosed Notice of Rights.

Approved construction plans are part of the permit, and construction must be in accordance with these plans. These drawings are available for viewing or downloading through the District's Application and Permit Search Tools located at [www.WaterMatters.org/permits](http://www.WaterMatters.org/permits).

The District's action in this matter only becomes closed to future legal challenges from members of the public if such persons have been properly notified of the District's action and no person objects to the District's action within the prescribed period of time following the notification. The District does not publish notices of intended agency action. If you wish to limit the time within which a person who does not receive actual written notice from the District may request an administrative hearing regarding this action, you are strongly encouraged to publish, at your own expense, a notice of intended agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Publishing notice of intended agency action will close the window for filing a petition for hearing. Legal requirements and instructions for publishing notice of intended agency action, as well as a noticing form that can be used is available from the District's website at [www.WaterMatters.org/permits/noticing](http://www.WaterMatters.org/permits/noticing). If you publish notice of intended agency action, a copy of the affidavit of publishing provided by the newspaper should be sent to the District's Tampa Service Office, for retention in the File of Record for this agency action.

If you have questions, please contact Robin McGill, at the Tampa Service Office, extension 2072. For assistance with environmental concerns, please contact Blake Meinecke, extension 2141.

Sincerely,

Michelle K. Hopkins, P.E.  
Bureau Chief  
Environmental Resource Permit Bureau  
Regulation Division

Enclosures:   Approved Permit w/Conditions Attached  
                  [Statement of Completion](#)  
                  Notice of Authorization to Commence Construction  
                  Notice of Rights  
cc:             Daniel J. Bond, P.E., Stantec Consulting Services, Inc.

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT  
ENVIRONMENTAL RESOURCE  
GENERAL CONSTRUCTION  
PERMIT NO. 44041165.000**

**EXPIRATION DATE:** February 13, 2018

**PERMIT ISSUE DATE:** February 13, 2013

This permit is issued under the provisions of Chapter 373, Florida Statutes, (F.S.), and the Rules contained in Chapters 40D-4 and 40D-40, Florida Administrative Code, (F.A.C.). The permit authorizes the Permittee to proceed with the construction of a surface water management system in accordance with the information outlined herein and shown by the application, approved drawings, plans, specifications, and other documents, attached hereto and kept on file at the Southwest Florida Water Management District (District). Unless otherwise stated by permit specific condition, permit issuance constitutes certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341. All construction, operation and maintenance of the surface water management system authorized by this permit shall occur in compliance with Florida Statutes and Administrative Code and the conditions of this permit.

**PROJECT NAME:** Blackstone Park Expansion

**GRANTED TO:** Manatee County Property Management  
Attn: Charlie Bishop  
1112 Manatee Avenue West, Suite 803  
Bradenton, FL 34205

**OTHER PERMITTEES:** N/A

**ABSTRACT:** This permit authorization is for the construction of a new surface water management system serving three new regulation Little League fields, a parking lot, a concession building, bleachers, sidewalks and associated drainage and utility infrastructure on the north and east sides of the park. The proposed pond will provide water quality treatment and attenuation of the 25-year, 24-hour storm event. The project discharges to a water body that is verified as impaired for nutrients (Terra Ceia Bay - WBID 1797A); therefore, water quality certification is waived as a condition of this permit. The post-development curve number calculations include 1.10 acres of future impervious area. A formal permit modification will be required for this construction.

**OP. & MAIN. ENTITY:** Manatee County Property Management

**OTHER OP. & MAIN. ENTITY:** N/A

**COUNTY:** MANATEE

**SEC/TWP/RGE:** S11/T34S/R17E

**TOTAL ACRES OWNED  
OR UNDER CONTROL:**

31.00

**PROJECT SIZE:** 9.92 Acres

**LAND USE:** Government

**DATE APPLICATION FILED:** January 30, 2013

**AMENDED DATE:** N/A

**I. Water Quantity/Quality**

POND No.	Area Acres @ Top of Ban	Treatment Type
Pond	1.37	EFFLUENT FILTRATION
	Total: 1.37	

Water Quantity/ Quality Comments:

The project discharges to an impaired water body. Nutrient loading calculations were provided that demonstrate that the retention depth required to meet net improvement is less than a half an inch. Therefore, presumptive criteria was used. The water quality treatment method will be effluent filtration. The existing park facilities will be routed around the perimeter of the proposed project to avoid commingling with the new surface water management system. The peak discharge rate for the post-development conditions is less than the pre-development peak discharge rate for the 25-year, 24-hour storm event. The post-development weighted curve number calculation includes 2.72 acres of proposed impervious area plus 1.10 acres of future impervious area (i.e. 3.82 acres total).  
 A mixing zone is not required.  
 A variance is not required.

**II. 100-Year Floodplain**

Encroachment (Acre-Feet of fill)	Compensation (Acre-Feet of excavation)	Compensation Type	Encroachment Result* (feet)
0.00	0.00	No Encroachment	N/A

\*Depth of change in flood stage (level) over existing receiving water stage resulting from floodplain encroachment caused by a project that claims Minimal Impact type of compensation.

**III. Environmental Considerations**

No wetlands or other surface waters exist within the project area.

## Specific Conditions

1. If the ownership of the project area covered by the subject permit is divided, with someone other than the Permittee becoming the owner of part of the project area, this permit shall terminate, pursuant to Rule 40D-1.6105, F.A.C. In such situations, each land owner shall obtain a permit (which may be a modification of this permit) for the land owned by that person. This condition shall not apply to the division and sale of lots or units in residential subdivisions or condominiums.
2. Unless specified otherwise herein, two copies of all information and reports required by this permit shall be submitted to the Regulation Department at the District Service Office that services this permit. The permit number, title of report or information and event (for recurring report or information submittal) shall be identified on all information and reports submitted.
3. The Permittee shall retain the design engineer, or other professional engineer registered in Florida, to conduct on-site observations of construction and assist with the as-built certification requirements of this project. The Permittee shall inform the District in writing of the name, address and phone number of the professional engineer so employed. This information shall be submitted prior to construction.
4. Within 30 days after completion of construction of the permitted activity, the Permittee shall submit to the Regulation Department at the District Service Office that services this permit a written statement of completion and certification by a registered professional engineer or other appropriate individual as authorized by law, utilizing the required Statement of Completion and Request for Transfer to Operation Entity form identified in Chapter 40D-1, F.A.C., and signed, dated, and sealed as-built drawings. The as-built drawings shall identify any deviations from the approved construction drawings.
5. The District reserves the right, upon prior notice to the Permittee, to conduct on-site research to assess the pollutant removal efficiency of the surface water management system. The Permittee may be required to cooperate in this regard by allowing on-site access by District representatives, by allowing the installation and operation of testing and monitoring equipment, and by allowing other assistance measures as needed on site.
6. The operation and maintenance entity shall submit inspection reports in the form required by the District, in accordance with the following schedule.

For systems utilizing effluent filtration or exfiltration **or** systems utilizing effluent filtration or exfiltration **and** retention or wet detention, the inspections shall be performed 18 months after operation is authorized and every 18 months thereafter.

7. Prior to installation of the filter media, the Permittee's contractor shall submit a certified test of the media to the Permittee's Professional Engineer and the District. The test shall address the following parameters: uniformity coefficient, effective grain size, sieve analysis, percent silts, clays and organic matter, and permeability testing (constant head). If testing indicates the actual permeability rate is less than the value specified in the permitted design, a permit modification will be required to lengthen the effluent filtration system. The Permittee shall also notify the District Service Office that services this permit, at least 48 hours prior to commencement of construction of the effluent filtration system, so that District staff may observe this construction activity.
8. For dry bottom detention systems, the detention area(s) shall become dry within 36 hours after a rainfall event. If a detention area is regularly wet, this situation shall be deemed to be a violation

of this permit.

9. Certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341 is waived.
10. If limestone bedrock is encountered during construction of the surface water management system, the District must be notified and construction in the affected area shall cease.
11. The Permittee shall notify the District of any sinkhole development in the surface water management system within 48 hours of discovery and must submit a detailed sinkhole evaluation and repair plan for approval by the District within 30 days of discovery.
12. The District, upon prior notice to the Permittee, may conduct on-site inspections to assess the effectiveness of the erosion control barriers and other measures employed to prevent violations of state water quality standards and avoid downstream impacts. Such barriers or other measures should control discharges, erosion, and sediment transport during construction and thereafter. The District will also determine any potential environmental problems that may develop as a result of leaving or removing the barriers and other measures during construction or after construction of the project has been completed. The Permittee must provide any remedial measures that are needed.
13. This permit is issued based upon the design prepared by the Permittee's consultant. If at any time it is determined by the District that the Conditions for Issuance of Permits in Rules 40D-4.301 and 40D-4.302, F.A.C., have not been met, upon written notice by the District, the Permittee shall obtain a permit modification and perform any construction necessary thereunder to correct any deficiencies in the system design or construction to meet District rule criteria. The Permittee is advised that the correction of deficiencies may require re-construction of the surface water management system.

#### **GENERAL CONDITIONS**

1. The general conditions attached hereto as Exhibit "A" are hereby incorporated into this permit by reference and the Permittee shall comply with them.

**Michelle K. Hopkins, P.E.**

---

Authorized Signature

## EXHIBIT A

### GENERAL CONDITIONS:

1. All activities shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit.
2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications, shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.
3. For general permits authorizing incidental site activities, the following limiting general conditions shall also apply:
  - a. If the decision to issue the associated individual permit is not final within 90 days of issuance of the incidental site activities permit, the site must be restored by the permittee within 90 days after notification by the District. Restoration must be completed by re-contouring the disturbed site to previous grades and slopes re-establishing and maintaining suitable vegetation and erosion control to provide stabilized hydraulic conditions. The period for completing restoration may be extended if requested by the permittee and determined by the District to be warranted due to adverse weather conditions or other good cause. In addition, the permittee shall institute stabilization measures for erosion and sediment control as soon as practicable, but in no case more than 7 days after notification by the District.
  - b. The incidental site activities are commenced at the permittee's own risk. The Governing Board will not consider the monetary costs associated with the incidental site activities or any potential restoration costs in making its decision to approve or deny the individual environmental resource permit application. Issuance of this permit shall not in any way be construed as commitment to issue the associated individual environmental resource permit.
4. Activities approved by this permit shall be conducted in a manner which does not cause violations of state water quality standards. The permittee shall implement best management practices for erosion and a pollution control to prevent violation of state water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.
5. Water quality data for the water discharged from the permittee's property or into the surface waters of the state shall be submitted to the District as required by the permit. Analyses shall be performed according to procedures outlined in the current edition of Standard Methods for the Examination of Water and Wastewater by the American Public Health Association or Methods for Chemical Analyses of Water and Wastes by the U.S. Environmental Protection Agency. If water quality data are required, the permittee shall provide data as required on volumes of water discharged, including total volume discharged during the days of sampling and total monthly volume discharged from the property or into surface waters of the state.
6. District staff must be notified in advance of any proposed construction dewatering. If the dewatering activity is likely to result in offsite discharge or sediment transport into wetlands or surface waters, a written dewatering plan must either have been submitted and approved with the permit application or submitted to the District as a permit prior to the dewatering event as a permit modification. A water use permit may be required prior to any use exceeding the thresholds in Chapter 40D-2, F.A.C.

7. Stabilization measures shall be initiated for erosion and sediment control on disturbed areas as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased.
8. Off-site discharges during construction and development shall be made only through the facilities authorized by this permit. Water discharged from the project shall be through structures having a mechanism suitable for regulating upstream stages. Stages may be subject to operating schedules satisfactory to the District.
9. The permittee shall complete construction of all aspects of the surface water management system, including wetland compensation (grading, mulching, planting), water quality treatment features, and discharge control facilities prior to beneficial occupancy or use of the development being served by this system.
10. The following shall be properly abandoned and/or removed in accordance with the applicable regulations:
  - a. Any existing wells in the path of construction shall be properly plugged and abandoned by a licensed well contractor.
  - b. Any existing septic tanks on site shall be abandoned at the beginning of construction.
  - c. Any existing fuel storage tanks and fuel pumps shall be removed at the beginning of construction.
11. All surface water management systems shall be operated to conserve water in order to maintain environmental quality and resource protection; to increase the efficiency of transport, application and use; to decrease waste; to minimize unnatural runoff from the property and to minimize dewatering of offsite property.
12. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District a written notification of commencement indicating the actual start date and the expected completion date.
13. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the occupation of the site or operation of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of that phase or portion of the system to a local government or other responsible entity.
14. Within 30 days after completion of construction of the permitted activity, the permittee shall submit a written statement of completion and certification by a registered professional engineer or other appropriate individual as authorized by law, utilizing the required Statement of Completion and Request for Transfer to Operation Entity form identified in Chapter 40D-1, F.A.C. Additionally, if deviation from the approved drawings are discovered during the certification process the certification must be accompanied by a copy of the approved permit drawings with deviations noted.
15. This permit is valid only for the specific processes, operations and designs indicated on the approved drawings or exhibits submitted in support of the permit application. Any substantial deviation from the approved drawings, exhibits, specifications or permit conditions, including construction within the total land area but outside the approved project area(s), may constitute grounds for revocation or enforcement action by the District, unless a modification has been applied for and approved. Examples of substantial deviations include excavation of ponds, ditches or sump areas deeper than shown on the approved plans.
16. The operation phase of this permit shall not become effective until the permittee has complied with the requirements of the conditions herein, the District determines the system to be in compliance with the permitted plans, and the entity approved by the District accepts responsibility for operation and maintenance of the system. The permit may not be transferred to the operation and maintenance entity approved by the District until the



operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall request transfer of the permit to the responsible operation and maintenance entity approved by the District, if different from the permittee. Until a transfer is approved by the District, the permittee shall be liable for compliance with the terms of the permit.

17. Should any other regulatory agency require changes to the permitted system, the District shall be notified of the changes prior to implementation so that a determination can be made whether a permit modification is required.
18. This permit does not eliminate the necessity to obtain any required federal, state, local and special District authorizations including a determination of the proposed activities' compliance with the applicable comprehensive plan prior to the start of any activity approved by this permit.
19. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40D-4 or Chapter 40D-40, F.A.C.
20. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the activities authorized by the permit or any use of the permitted system.
21. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under section 373.421(2), F.S., provides otherwise.
22. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of the permitted system or the real property at which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rule 40D-4.351, F.A.C. The permittee transferring the permit shall remain liable for any corrective actions that may be required as a result of any permit violations prior to such sale, conveyance or other transfer.
23. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with District rules, regulations and conditions of the permits.
24. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the District and the Florida Department of State, Division of Historical Resources.
25. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SOUTHWEST FLORIDA  
WATER MANAGEMENT DISTRICT

NOTICE OF  
**AUTHORIZATION**  
TO COMMENCE CONSTRUCTION

Blackstone Park Expansion

---

PROJECT NAME

Government

---

PROJECT TYPE

MANATEE

---

COUNTY

S11/T34S/R17E

---

SEC(S)/TWP(S)/RGE(S)

Manatee County Property Management

---

PERMITTEE

APPLICATION ID/PERMIT NO: 676759 / 44041165.000

DATE ISSUED: February 13, 2013



Michelle K. Hopkins, P.E.

---

Issuing Authority

THIS NOTICE SHOULD BE CONSPICUOUSLY  
DISPLAYED AT THE SITE OF THE WORK

## Notice of Rights

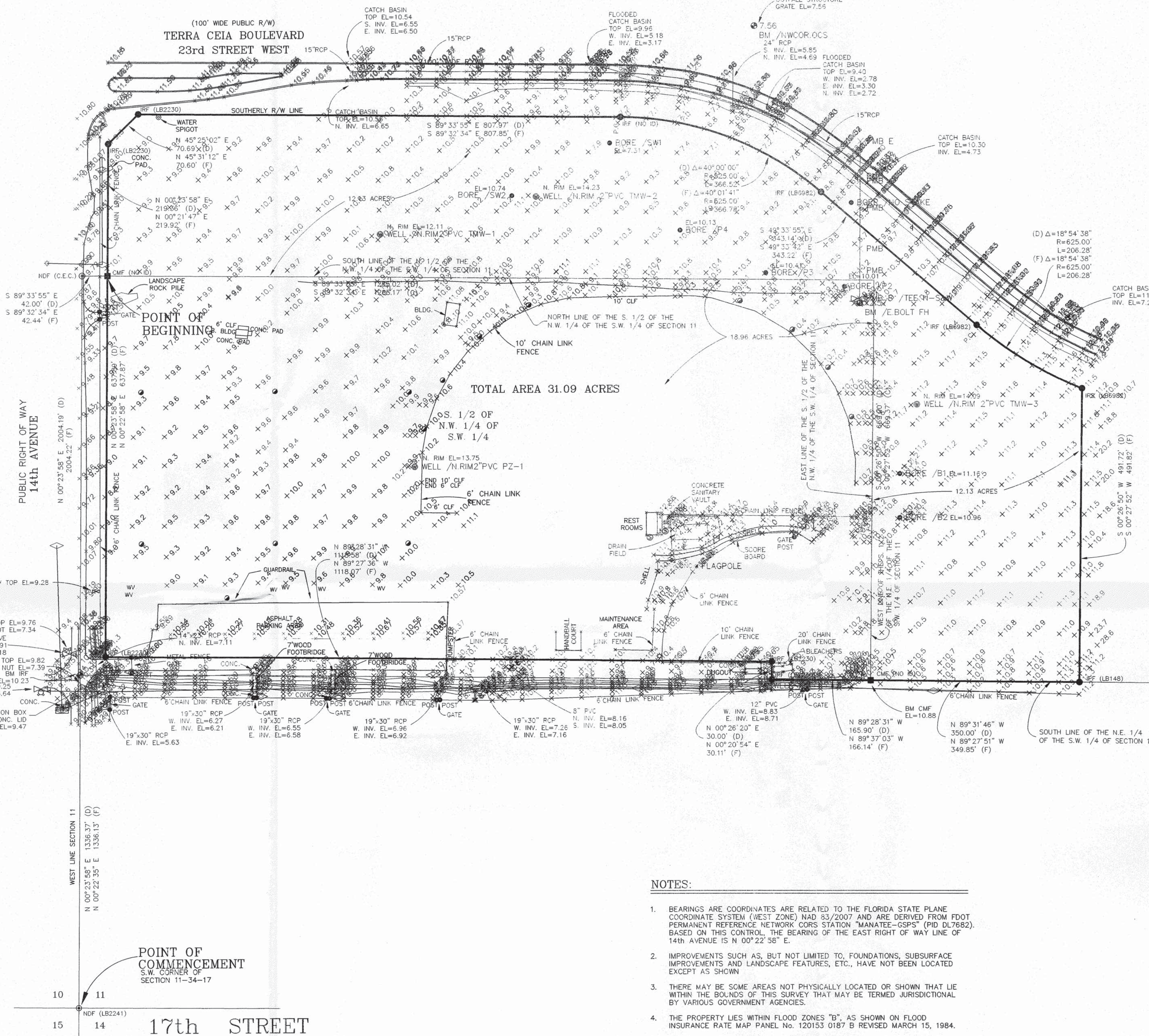
### ADMINISTRATIVE HEARING

1. You or any person whose substantial interests are or may be affected by the District's intended or proposed action may request an administrative hearing on that action by filing a written petition in accordance with Sections 120.569 and 120.57, Florida Statutes (F.S.), Uniform Rules of Procedure Chapter 28-106, Florida Administrative Code (F.A.C.) and District Rule 40D-1.1010, F.A.C. Unless otherwise provided by law, a petition for administrative hearing must be filed with (received by) the District within 21 days of receipt of written notice of agency action. "Written notice" means either actual written notice, or newspaper publication of notice, that the District has taken or intends to take agency action. "Receipt of written notice" is deemed to be the fifth day after the date on which actual notice is deposited in the United States mail, if notice is mailed to you, or the date that actual notice is issued, if sent to you by electronic mail or delivered to you, or the date that notice is published in a newspaper, for those persons to whom the District does not provide actual notice.
2. Pursuant to Subsection 373.427(2)(c), F.S., for notices of intended or proposed agency action on a consolidated application for an environmental resource permit and use of sovereignty submerged lands concurrently reviewed by the District, a petition for administrative hearing must be filed with (received by) the District within 14 days of receipt of written notice.
3. Pursuant to Rule 62-532.430, F.A.C., for notices of intent to deny a well construction permit, a petition for administrative hearing must be filed with (received by) the District within 30 days of receipt of written notice of intent to deny.
4. Any person who receives written notice of an agency decision and who fails to file a written request for a hearing within 21 days of receipt or other period as required by law waives the right to request a hearing on such matters.
5. Mediation pursuant to Section 120.573, F.S., to settle an administrative dispute regarding District intended or proposed action is not available prior to the filing of a petition for hearing.
6. A request or petition for administrative hearing must comply with the requirements set forth in Chapter 28.106, F.A.C. A request or petition for a hearing must: (1) explain how the substantial interests of each person requesting the hearing will be affected by the District's intended action or proposed action, (2) state all material facts disputed by the person requesting the hearing or state that there are no material facts in dispute, and (3) otherwise comply with Rules 28-106.201 and 28-106.301, F.A.C. Chapter 28-106, F.A.C. can be viewed at [www.flrules.org](http://www.flrules.org) or at the District's website at [www.WaterMatters.org/permits/rules](http://www.WaterMatters.org/permits/rules).
7. A petition for administrative hearing is deemed filed upon receipt of the complete petition by the District Agency Clerk at the District's Tampa Service Office during normal business hours, which are 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding District holidays. Filings with the District Agency Clerk may be made by mail, hand-delivery or facsimile transfer (fax). The District does not accept petitions for administrative hearing by electronic mail. Mailed filings must be addressed to, and hand-delivered filings must be delivered to, the Agency Clerk, Southwest Florida Water Management District, 7601 Highway 301 North, Tampa, FL 33637-6759. Faxed filings must be transmitted to the District Agency Clerk at (813) 987-6746. Any petition not received during normal business hours shall be filed as of 8:00 a.m. on the next business day. The District's acceptance of faxed petitions for filing is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation, available for viewing at [www.WaterMatters.org/about](http://www.WaterMatters.org/about).

## **JUDICIAL REVIEW**

1. Pursuant to Sections 120.60(3) and 120.68, F.S., a party who is adversely affected by District action may seek judicial review of the District's action. Judicial review shall be sought in the Fifth District Court of Appeal or in the appellate district where a party resides or as otherwise provided by law.
2. All proceedings shall be instituted by filing an original notice of appeal with the District Agency Clerk within 30 days after the rendition of the order being appealed, and a copy of the notice of appeal, accompanied by any filing fees prescribed by law, with the clerk of the court, in accordance with Rules 9.110 and 9.190 of the Florida Rules of Appellate Procedure (Fla. R. App. P.). Pursuant to Fla. R. App. P. 9.020(h), an order is rendered when a signed written order is filed with the clerk of the lower tribunal.





**DESCRIPTION:**

COMMENCE AT THE SOUTHWEST CORNER OF SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST; THENCE N 00°23'58" E ALONG THE WEST LINE OF SECTION 11, A DISTANCE OF 2004.19 FEET; THENCE S 89°33'55" E, A DISTANCE OF 42.00 FEET TO THE POINT OF BEGINNING; THENCE S 89°33'55" E, A DISTANCE OF 1285.02 FEET; THENCE S 00°26'50" W, A DISTANCE OF 669.90 FEET; THENCE N 89°28'31" W, A DISTANCE OF 165.90 FEET; THENCE N 00°26'20" E, A DISTANCE OF 30.00 FEET; THENCE N 89°28'31" W, A DISTANCE OF 1118.58 FEET TO THE EASTERLY MAINTAINED RIGHT-OF-WAY OF 14TH AVENUE WEST; THENCE N 00°23'58" E ALONG SAID MAINTAINED RIGHT-OF-WAY, A DISTANCE OF 637.89 FEET TO THE POINT OF BEGINNING.

LYING AND BEING IN SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST, MANATEE COUNTY, FLORIDA.

SUBJECT TO PERTINENT EASEMENTS, RESTRICTIONS AND RIGHT OF WAYS OF RECORD.

CONTAINING 18.96 ACRES.

TOGETHER WITH THE FOLLOWING DESCRIBED PARCEL:

A PARCEL OF LAND LOCATED IN SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST, MANATEE COUNTY, FLORIDA, DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHWEST CORNER OF SAID SECTION 11, RUN NORTH 00°23'58" EAST ALONG THE WEST LINE OF AFORESAID SECTION 11, A DISTANCE OF 2004.19 FEET TO THE NORTH LINE OF THE SOUTH 1/2 OF THE NORTHWEST 1/4 OF AFORESAID SECTION 11; THENCE SOUTH 89°33'55" EAST, ALONG SAID SOUTH LINE OF THE NORTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11, A DISTANCE OF 42.00 FEET TO THE INTERSECTION OF AFORESAID APPARENT MAINTAINED WESTERLY RIGHT-OF-WAY LINE OF 14TH AVENUE, ALSO BEING THE POINT OF BEGINNING; THENCE NORTH 00°23'58" EAST, ALONG SAID APPARENT MAINTAINED WESTERLY RIGHT-OF-WAY LINE OF 14TH AVENUE, A DISTANCE OF 219.36 FEET TO THE INTERSECTION OF AFORESAID APPARENT MAINTAINED WESTERLY RIGHT-OF-WAY LINE AND THE PROPOSED SOUTHERLY RIGHT-OF-WAY LINE OF TERRA CEIA BOULEVARD, A 100 FOOT WIDE RIGHT-OF-WAY; THENCE NORTHEASTERLY, EASTERLY AND SOUTHEASTERLY, ALONG SAID PROPOSED SOUTHERLY RIGHT-OF-WAY LINE OF TERRA CEIA BOULEVARD, THE FOLLOWING FIVE COURSES: NORTH 45°25'02" EAST, A DISTANCE OF 70.69 FEET; THENCE SOUTH 89°33'55" EAST, A DISTANCE OF 807.97 FEET TO THE POINT OF CURVATURE OF A CURVE, TO THE RIGHT, HAVING A RADIUS OF 525.00 FEET; THENCE SOUTHEASTERLY, ALONG THE ARC OF SAID CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 40°00'00", A DISTANCE OF 366.52 FEET TO THE POINT OF TANGENCY; THENCE SOUTH 49°33'55" EAST, A DISTANCE OF 343.14 FEET TO THE POINT OF CURVATURE OF A CURVE TO THE LEFT, HAVING A RADIUS OF 625.00 FEET; THENCE SOUTHEASTERLY, ALONG THE ARC OF SAID CURVE TO THE LEFT, THROUGH A CENTRAL ANGLE OF 18°54'38", A DISTANCE OF 206.28 FEET; THENCE LEAVING AFORESAID PROPOSED SOUTHERLY RIGHT-OF-WAY LINE OF TERRA CEIA BOULEVARD, RUN SOUTH 00°26'50" WEST, A DISTANCE OF 491.72 FEET TO THE SOUTH LINE OF THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF AFORESAID SECTION 11; THENCE NORTH 89°31'46" WEST, ALONG SAID SOUTH LINE OF THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11, A DISTANCE OF 350.00 FEET TO THE EAST LINE OF THE SOUTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF AFORESAID SECTION 11; THENCE NORTH 00°26'50" EAST, ALONG SAID WEST LINE OF THE SOUTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11, A DISTANCE OF 669.90 FEET TO AFORESAID SOUTH LINE OF THE NORTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11; THENCE NORTH 89°33'55" WEST, ALONG AFORESAID SOUTH LINE OF THE NORTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11, A DISTANCE OF 1285.02 FEET TO THE POINT OF BEGINNING. LYING AND BEING IN SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST, MANATEE COUNTY, FLORIDA.

SUBJECT TO PERTINENT EASEMENTS, RIGHTS-OF-WAY AND RESTRICTIONS OF RECORD.

CONTAINING 12.13 ACRES, MORE OR LESS.

**LEGEND:**

- 4"x4" CONCRETE MONUMENT FOUND (AS NOTED)
- 5/8" IRON ROD FOUND OR SET (AS NOTED)
- ⊙ PK NAIL & DISK FOUND (UNLESS OTHERWISE NOTED)
- ⊙ BENCH MARK
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT
- P.C. POINT OF CURVATURE
- P.T. POINT OF TANGENCY
- IPF IRON PIPE FOUND
- IRS IRON ROD SET
- NDF NAIL & DISK FOUND
- CM CONCRETE MONUMENT
- R/W RIGHT-OF-WAY
- ID IDENTIFICATION
- (F) FIELD DATA
- (D) DEED DATA
- LB LICENSED BUSINESS
- BLDG. BUILDING
- Δ DELTA (CENTRAL ANGLE)
- R RADIUS
- L ARC LENGTH
- FT. FEET
- FDOT FLORIDA DEPARTMENT OF TRANSPORTATION
- CONC. CONCRETE
- BM BENCH MARK
- NAD NORTH AMERICAN DATUM
- PVC POLYVINYL CHLORIDE PIPE
- RCP REINFORCED CONCRETE PIPE
- EL ELEVATION
- INV INVERT
- ☉ LIGHT POLE
- ⊕ POWER POLE
- ⊕ FIRE HYDRANT
- 4 SIGN
- ☒ VERIZON BOX
- ☒ GTE UTILITY BOX
- ⊙ SANITARY MANHOLE
- ⊕ GRATE INLET
- OVERHEAD UTILITY LINE
- ORNAMENTAL TREE SIZE AND CONDITION
- PINE TREE SIZE AND CONDITION
- PALM TREE
- OAK TREE SIZE AND CONDITION
- CEDAR TREE SIZE AND CONDITION
- EXISTING ELEVATION

**NOTES:**

1. BEARINGS ARE COORDINATES ARE RELATED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM (WEST ZONE) NAD 83/2007 AND ARE DERIVED FROM FDOT PERMANENT REFERENCE NETWORK CORRS STATION "MANATEE-GSPS" (PID D17682). BASED ON THIS CONTROL, THE BEARING OF THE EAST RIGHT OF WAY LINE OF 14th AVENUE IS N 00°22'58" E.
2. IMPROVEMENTS SUCH AS, BUT NOT LIMITED TO, FOUNDATIONS, SUBSURFACE IMPROVEMENTS AND LANDSCAPE FEATURES, ETC., HAVE NOT BEEN LOCATED EXCEPT AS SHOWN.
3. THERE MAY BE SOME AREAS NOT PHYSICALLY LOCATED OR SHOWN THAT LIE WITHIN THE BOUNDS OF THIS SURVEY THAT MAY BE TERMED JURISDICTIONAL BY VARIOUS GOVERNMENT AGENCIES.
4. THE PROPERTY LIES WITHIN FLOOD ZONES "B", AS SHOWN ON FLOOD INSURANCE RATE MAP PANEL NO. 120153 0187 B REVISED MARCH 15, 1984.
5. THIS SURVEY HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT OR ABSTRACT AND THEREFORE DOES NOT NECESSARILY INDICATE ALL THE ENCUMBRANCES ON THE PROPERTY.
6. ELEVATIONS ARE BASED ON N.G.V.D. 1929 MSL DATUM, NGS BENCHMARK "PORT ST. JOHN" ELEVATION 4.91 AND "PALM SHORES" ELEVATION 6.43, AS PUBLISHED.

NOTE: THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

**CERTIFICATE OF SURVEYOR**

I, THE UNDERSIGNED PROFESSIONAL SURVEYOR & MAPPER, HEREBY CERTIFY THAT THIS RECORD OF LAND SURVEY WAS PREPARED UNDER MY DIRECT SUPERVISION THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF IS A TRUE AND CORRECT REPRESENTATION OF THE LAND AS SHOWN AND DESCRIBED HEREON, AND THAT IT MEETS THE MINIMUM TECHNICAL STANDARDS FOR SURVEYING IN THE STATE OF FLORIDA, CHAPTER 5J-17.050, OF THE FLORIDA ADMINISTRATIVE CODE.

FLORIDA CERTIFICATE No. LS4292  
 DATE OF CERTIFICATION 10/16/12  
 DATE OF FIELD SURVEY 10/05/12

BY: *[Signature]*  
 R.E.M. EDGEMAN, P.S.M.

REVISION	BY	DATE

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**BOUNDARY & TOPOGRAPHIC SURVEY**  
 OF  
**BLACKSTONE PARK**  
 LOCATED IN  
 SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST  
 MANATEE COUNTY, FLORIDA

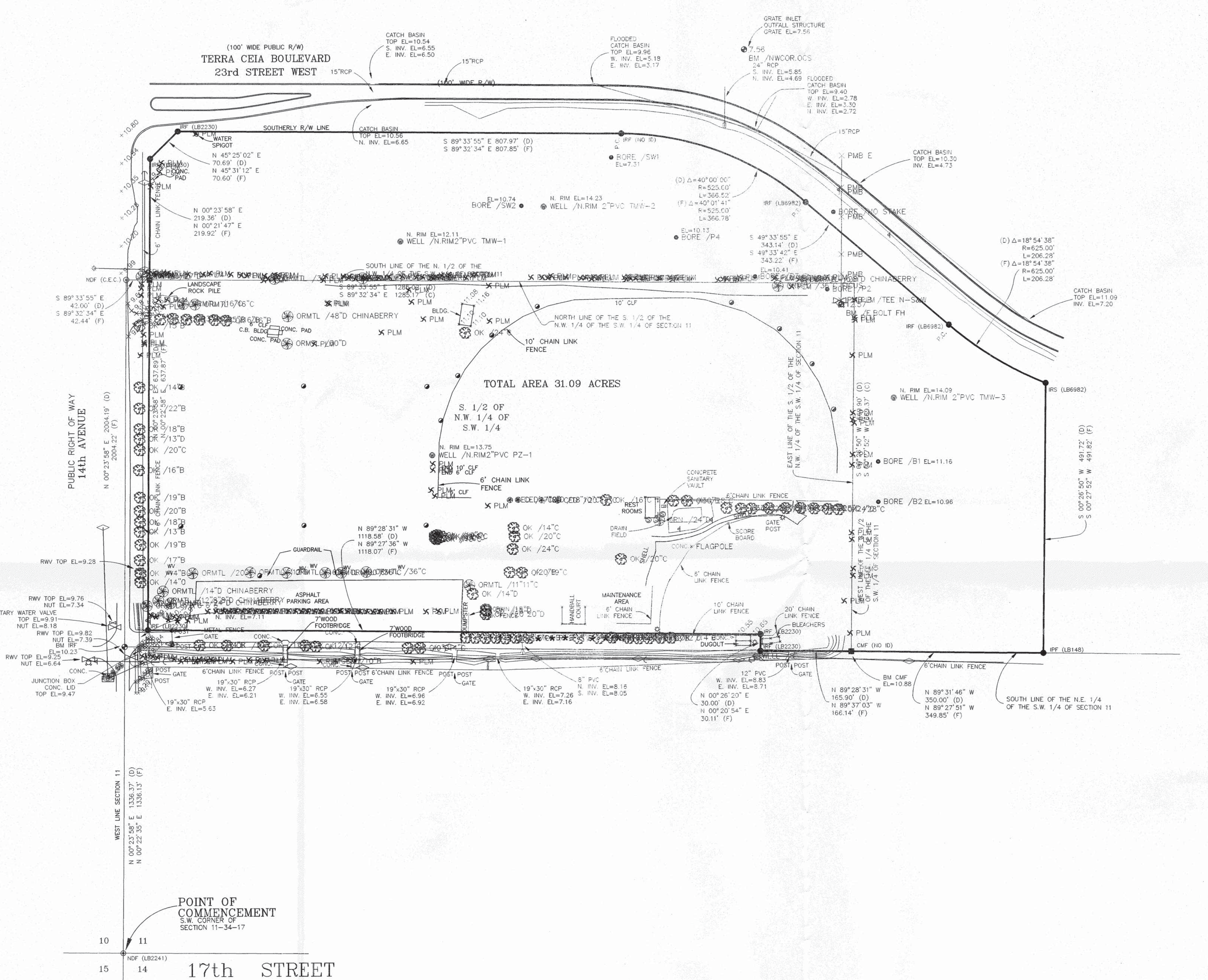


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 POST OFFICE BOX 648 BRADENTON, FL 34208 | 201 56 AVENUE DRIVE EAST BRADENTON, FL 34208  
 E-MAIL: ZNS@ZNS.COM | TELEPHONE (941) 748-8080 | FAX (941) 748-3316

DRAWING: T:\Blackstone\BkSton-1s1.dwg DATE 10/16/12 SCALE 1" = 100'  
 DRAWN: bernie JOB NO. 00-43245 FIELD BOOK 658 PAGE 19-21 & 32-34 SHEET 1 OF 2





- LEGEND:**
- 4"x4" CONCRETE MONUMENT FOUND (AS NOTED)
  - 5/8" IRON ROD FOUND OR SET (AS NOTED)
  - PK NAIL & DISK FOUND (UNLESS OTHERWISE NOTED)
  - ⊙ BENCH MARK
  - P.O.B. POINT OF BEGINNING
  - P.O.C. POINT OF COMMENCEMENT
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  - P.T. POINT OF TANGENCY
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  - R/W RIGHT-OF-WAY
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  - VERIZON BOX
  - GTE UTILITY BOX
  - SANITARY MANHOLE
  - GRATE INLET
  - OVERHEAD UTILITY LINE
  - ORN /24" ORNAMENTAL TREE SIZE AND CONDITION
  - ★ PN /12" PINE TREE SIZE AND CONDITION
  - ✕ PLM PALM TREE
  - OK /14" OAK TREE SIZE AND CONDITION
  - CED /10" CEDAR TREE SIZE AND CONDITION
  - EXISTING ELEVATION

SCALE 1" = 100'

BOUNDARY & TOPOGRAPHIC SURVEY  
OF  
BLACKSTONE PARK  
LOCATED IN  
SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST  
MANATEE COUNTY, FLORIDA

NOTE: THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

K:\Plot Files\Projects\Blackstone Park\BlkSton-tree.plt

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REVISION	BY	DATE

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E-MAIL: ZNS@ZNSINC.COM | TELEPHONE (941) 748-8080 | FAX (941) 748-3316

DRAWING: T:\Blackstone\BlkSton-tsl.dwg      DATE: 10/16/12      SCALE: 1" = 100'  
DRAWN: Bernie      JOB NO.: 00-43245      FIELD BOOK: 658      PAGE: 19-21 & 32-34      SHEET: 2 OF 2





# **BLACKSTONE PARK EXPANSION**

## **STORMWATER POLLUTION PREVENTION PLAN**

**PREPARED FOR**

**MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT  
1112 MANATEE AVENUE WEST, SUITE 803  
BRADENTON, FL 34205**

**MARCH 2013**



**Stantec**

**Stantec Consulting Services, Inc.**  
6900 Professional Parkway East  
Sarasota, FL 34240

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# **STORMWATER POLLUTION PREVENTION PLAN**

for

## **BLACKSTONE PARK EXPANSION**

**PREPARED BY**

**STANTEC CONSULTING SERVICES, INC.**  
**6900 PROFESSIONAL PARKWAY EAST**  
**SARASOTA, FLORIDA 34240**



**BLACKSTONE PARK EXPANSION**  
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- III. CONTRACTOR'S LIST/CERTIFICATION
  
- IV. STORMWATER POLLUTION PLAN INSPECTION REPORT FORM
  
- V. BMP SITE MAP AND BMP DETAILS
  
- VI. SOILS MAP AND INFORMATION

**I. NOTICE OF INTENT TO USE GENERIC PERMIT FOR  
STORMWATER DISCHARGE FROM LARGE AND  
SMALL CONSTRUCTION ACTIVITIES  
[DEP FORM 62-621.300(4)(b)]**



**NOTICE OF INTENT  
TO USE  
GENERIC PERMIT FOR STORMWATER  
DISCHARGE FROM LARGE AND SMALL  
CONSTRUCTION ACTIVITIES  
(RULE 62-621.300(4), F.A.C.)**

This Notice of Intent (NOI) form is to be completed and submitted to the Department before use of the Generic Permit for Stormwater Discharge From Large and Small Construction Activities provided in subsection 62-621.300(4), F.A.C. The type of project or activity that qualifies for use of the generic permit, the conditions of the permit and additional requirements to request coverage are specified in the generic permit document [DEP Document 62-621.300(4)(a)]. **The appropriate generic permit fee, as specified in paragraph 62-4.050(4)(d), F.A.C., shall be submitted with this NOI in order to obtain permit coverage. Permit coverage will not be granted without submittal of the appropriate generic permit fee.** You should familiarize yourself with the generic permit document and the attached instructions before completing this NOI form. **Please print or type information in the appropriate areas below.**

**I. IDENTIFICATION NUMBER:** Project ID: \_\_\_\_\_

**II. APPLICANT INFORMATION:**

A. Operator Name: <b>Manatee County Property Management Department</b>		B. Operator Status: <b>M</b>	
C. Address: <b>1112 Manatee Avenue West, Suite 803</b>			
D. City: <b>Bradenton</b>		E. State: <b>FL</b>	F. Zip Code: <b>34205</b>
G. Responsible Authority: <b>Charlie Bishop, Director</b>			
H. Responsible Authority's Phone No.: <b>(941) 748-4501</b>			
I. Responsible Authority's Fax No.: <b>(941) 749-3018</b>			
J. Responsible Authority's E-mail Address: <b>charlie.bishop@mymanatee.org</b>			

**III. PROJECT/SITE LOCATION INFORMATION:**

A. Project Name: <b>Blackstone Park Expansion</b>		
B. Project Address/Location: <b>2112 14<sup>th</sup> Avenue West</b>		
C. City: <b>Palmetto</b>	D. State: <b>FL</b>	E. Zip Code: <b>34221</b>
F. County: <b>Manatee</b>	G. Latitude: <b>27° 32' 05"</b>	Longitude: <b>82° 34' 42"</b>
H. Is the site located on Indian Country Lands? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		I. Water Management District: <b>SWFWMD</b>
J. Project Contact: <b>Charlie Bishop, Director</b>		
K. Project Contact's Phone No.: <b>(941) 748-4501</b>		
L. Project Contact's Fax No.: <b>(941) 749-3018</b>		
M. Project Contact's E-mail Address: <b>charlie.bishop@mymanatee.org</b>		

**IV. PROJECT/SITE ACTIVITY INFORMATION:**

A. Indicate whether the project is Large or Small Construction (check only one):	<input checked="" type="checkbox"/> Large Construction (Project will disturb five or more acres of land.)
	<input type="checkbox"/> Small Construction (Project will disturb one or more acres but less than five acres of land.)
B. Approximate total area of land disturbance from commencement through completion of construction: <b>9.92± acres</b>	
C. SWPPP Location:	<input type="checkbox"/> Address in Part II above <input checked="" type="checkbox"/> Address in Part III above <input type="checkbox"/> Other address (specify below)
D. SWPPP Address:	
E. City:	F. State:      G. Zip Code:
H. Construction Period:	Start Date: <b>March 2013</b> Completion Date: <b>September 2014</b>

**V. DISCHARGE INFORMATION:**

A. MS4 Operator Name (if applicable): <b>N/A</b>
B. Receiving Water Name: <b>Headwaters of Terra Ceia Bay</b>

**VI. CERTIFICATION<sup>1</sup>:**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

<sup>1</sup> Signatory requirements are contained in Rule 62-620.305, F.A.C.

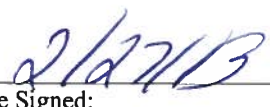
Responsible Authority Name and Official Title (Type or Print):

**Charlie Bishop, Director, Manatee County Property Management Department**

Responsible Authority Signature:



Date Signed:



## **II. CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN**

**BLACKSTONE PARK EXPANSION  
STORMWATER POLLUTION PREVENTION PLAN**

**CERTIFICATION**

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

\_\_\_\_\_  
Signature (Operator and/or Responsible Authority)

\_\_\_\_\_  
Date

Charlie Bishop, Director, Manatee County Property Management Department  
Printed Name, Title, and Company



**I. SITE DESCRIPTION**

**A. PROJECT NAME AND LOCATION:**

The Blackstone Park Expansion project is located at 2112 14<sup>th</sup> Avenue West, Palmetto, FL 34221. The park is located south of 23<sup>rd</sup> Street West, east of 14<sup>th</sup> Avenue West.

**B. OWNER NAME AND ADDRESS:**

Manatee County Property Management Department  
1112 Manatee Avenue West, Suite 803  
Bradenton, FL 34205

**C. NATURE OF CONSTRUCTION ACTIVITY:**

This project will consist of three new regulation Little League fields, a parking lot, a concession building, bleachers, sidewalks, and associated utility and drainage infrastructure located on the north and east sides of the existing Blackstone Park facilities.

Soil disturbing activities will include: clearing and grubbing; installing a stabilized construction entrance, and other erosion and sediment controls; grading; storm sewer, utilities, and building foundations; construction of driveway and parking areas; and preparation for final planting and seeding.

**D. SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES:**

1. Install stabilized construction entrance and utilities
2. Clearing, grubbing, and grading
3. Stockpile borrow material
4. Construct building pad, foundation, and building
5. Install storm sewer, curb and gutter, fencing, concrete
6. Apply base material to parking areas and roads
7. Complete grading and install permanent seeding and plantings
8. Complete final paving

**E. SITE AREA:**

The property is approximately 31± acres of which approximately 10± acres will be disturbed by construction activities.

**F. RUNOFF DATA:**

The Pre-Development Weighted Curve Number is approximately 80, and the Post-Development Weighted Curve Number is approximately 90. During construction the Weighted Curve Number will vary from 80 to 90.

**G. EXISTING SOIL DATA:**

The soils within the project boundaries consist of: Bradenton (#5). Please see Section VI for additional soils information.

**H. DISCHARGE POINT INFORMATION:**

The project will be discharged from the dry retention area located at Latitude 27° 32' 05" and Longitude 82° 34' 42" into the headwaters of Terra Ceia Bay.

**I. SITE MAP:**

The Construction Plans are being used as the site map.

**II. CONTROL DESCRIPTION**

For each construction phase, install perimeter controls such as silt fences and berms, install stabilized construction entrances, and install possible sediment basins necessary for installation of controls but prior to clearing or grading of any other portions of the site. Perimeter controls shall be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls shall be removed after final stabilization. After the entire site is stabilized, the accumulated sediment will be removed from the basin.

**A. TEMPORARY STABILIZATION:**

Stock piles and disturbed portions of the site where construction activity temporarily ceases for at least 21 days will be stabilized with temporary seed and mulch as soon as practicable but in no case more than 14 days from the last construction activity in that area. The temporary seed and mulch shall be installed in accordance with Stantec Specification Section 02813.

Areas of the site that are to be paved will be temporarily stabilized by applying base material until bituminous pavement can be applied.

**B. PERMANENT STABILIZATION:**

Disturbed portions of the site where construction activities permanently cease shall be stabilized with sod in accordance with Stantec Specification Section 02813, or with permanent seed and mulch as soon as practical but in no case more than 14 days after the last construction activity in accordance with Stantec Specification Section 02813.

**C. STRUCTURAL CONTROLS:**

Silt fences, staked turbidity barriers, swales, storm drain inlet protection, rock outlet protection, and temporary or permanent sediment basins.

See the construction plans for locations and details of structural controls.

**D. SEDIMENT BASINS:**

For drainage basins with ten or more disturbed acres at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from off-site areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage basins with ten or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, a combination of smaller sediment basins and/or sediment traps and other BMPs should be used. At a minimum, silt fences or equivalent sediment controls are required for all side-slope and down-slope boundaries of the construction area.

For drainage basins of less than ten acres, sediment basins and/or sediment traps are recommended but not required. At a minimum, silt fences or equivalent sediment controls are required for all side-slope and down-slope boundaries of the construction area.

Areas that are designed by a qualified professional engineer for permanent stormwater detention purposes (e.g. dry retention area) should be used for sediment basins.

Areas that are designated for permanent stormwater infiltration treatment (e.g. dry retention area) should not be used for temporary sediment basins unless appropriate measures are taken to assure removal of accumulated fine sediments, which may cause premature clogging and loss of infiltration capacity and to avoid excessive compaction of soils by construction machinery or equipment.

All construction de-watering will be contained onsite, at specified locations, and either directed to a temporary sedimentation basin or allowed to infiltrate the soil. The Southwest Florida Water Management District and Florida Department of

Environmental Protection oversees the requirements of temporary de-watering methods.

**E. PERMANENT STORMWATER MANAGEMENT CONTROLS:**

Stormwater management will be provided through the use of swales, catch basins, pipes, curb and gutter, and other conveyance mechanisms for the developed area. When construction is complete, excess run-off generated within the project site will be conveyed to the constructed dry retention area. The stormwater management system has been designed by a professional engineer to keep peak flow rates from the 24-hour/25-year storm event, from having adverse off-site impacts. When construction is complete, the site will drain to the onsite retention basin area and discharge at a rate as permitted by Southwest Florida Water Management District.

**III. POTENTIAL POLLUTANT CONTROLS**

**A. WASTE MATERIALS:**

All waste materials will be collected and stored in a securely lidded metal dumpster rented from a County licensed solid waste management company. The dumpster will meet all local, county, and any state solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied once per week or more often, if necessary. No construction waste materials will be buried onsite. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the office trailer and the individual who manages the day-to-day site operations will be responsible for seeing that these procedures are followed. All sanitary waste will be collected from the portable units a minimum of three times per week by a licensed sanitary waste management contractor, as required by local regulation.

**B. OFF-SITE VEHICLE TRACKING:**

A stabilized construction entrance will be provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance will be swept as required to remove any excess mud, dirt or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

**C. APPLICATION RATES:**

Application rates for all fertilizers, herbicides, and pesticides used at the construction site shall be in accordance with the manufacturer's recommendations. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealed plastic bin to avoid spills.

#### **D. TOXIC SUBSTANCES:**

All hazardous waste materials will be disposed of in the manner specified by local or state regulation or by the manufacturer. Site personnel will be instructed in these practices, and the individual who manages day-to-day site operations will be responsible for seeing that these practices are followed.

#### **IV. MAINTENANCE/INSPECTION PROCEDURES**

##### **EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:**

These are the inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All control measures will be inspected at least once each week and following any storm event of 0.50-inches or greater.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24-hours of report.
- Built-up sediment will be removed from silt fence or hay bales when it has reached one-half the height of the fence or hay bale.
- Sediment shall be removed from the storm drain inlet or curb inlet sediment protection device and restored to its original dimensions when the sediment has accumulated to one-half of the design depth.
- Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- The sediment basin will be inspected for depth of sediment, and built up sediment will be removed when it reaches ten percent (10%) of the design capacity, or at the end of the job.
- Diversion dike, if required, will be inspected and any breaches promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector is attached.
- The Site Superintendent will be responsible for inspections, maintenance and repair activities, filling out the inspection and maintenance report, and, if necessary, revising the Stormwater Pollution Prevention Plan consistent with modifications made due to unforeseen causes.
- Personnel selected for inspection and maintenance responsibilities will receive training from the Site Superintendent for inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

## **V. NON-STORM WATER DISCHARGES**

It is expected that the following non-storm water discharges will occur during construction:

- Water from water line flushing
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred)
- Groundwater (from temporary dewatering excavation)
- Water used to control dust

All non-storm water discharges will be directed to the sediment basin prior to discharge.

### **III. CONTRACTOR'S LIST/CERTIFICATION**



**CONTRACTOR'S LIST**

<b>Name/Title</b>	<b>Company Name</b>	<b>Address</b>	<b>Telephone Number</b>	<b>Fax Number</b>	<b>Control Measure Responsibility</b>



**CONTRACTOR / SUBCONTRACTOR CERTIFICATION:**

"I certify under penalty of law that I understand, and shall comply with the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name and Title

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
City, State, Zip

**IV. STORMWATER POLLUTION PLAN  
INSPECTION REPORT FORM**

## Stormwater Pollution Prevention Plan Inspection Report Form

**Inspections must occur at least once a week and within 24 hours of the end of a storm event that is 0.50 inches or greater.**

Project Name: Blackstone Park Expansion FDEP NPDES Stormwater Identification Number: FLR

Location	Rain data	Type of control (see below)	Date installed / modified	Current Condition (see below)	Correction Action / Other Remarks

**Condition Code:**

- G = Good
- M = Marginal, needs maintenance or replacement soon
- C = Needs to be cleaned
- O = Other

P = Poor, needs immediate maintenance or replacement

**Control Type Codes**

1. Silt Fence	10. Storm drain inlet protection	19. Reinforced soil retaining system	28. Tree protection
2. Earth dikes	11. Vegetative buffer strip	20. Gabion	29. Detention pond
3. Structural diversion	12. Vegetative preservation area	21. Sediment Basin	30. Retention pond
4. Swale	13. Retention Pond	22. Temporary seed / sod	31. Waste disposal / housekeeping
5. Sediment Trap	14. Construction entrance stabilization	23. Permanent seed / sod	32. Dam
6. Check dam	15. Perimeter ditch	24. Mulch	33. Sand Bag
7. Subsurface drain	16. Curb and gutter	25. Hay Bales	34. Other
8. Pipe slope drain	17. Paved road surface	26. Geotextile	
9. Level spreaders	18. Rock outlet protection	27. Rip-rap	

**Inspection Information:**

Name \_\_\_\_\_ Qualification \_\_\_\_\_ Date \_\_\_\_\_

The above signature also shall certify that this facility is in compliance with the Stormwater Pollution Prevention Plan and the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities if there are not any incidents of non-compliance identified above.

\*\*\*\*\*

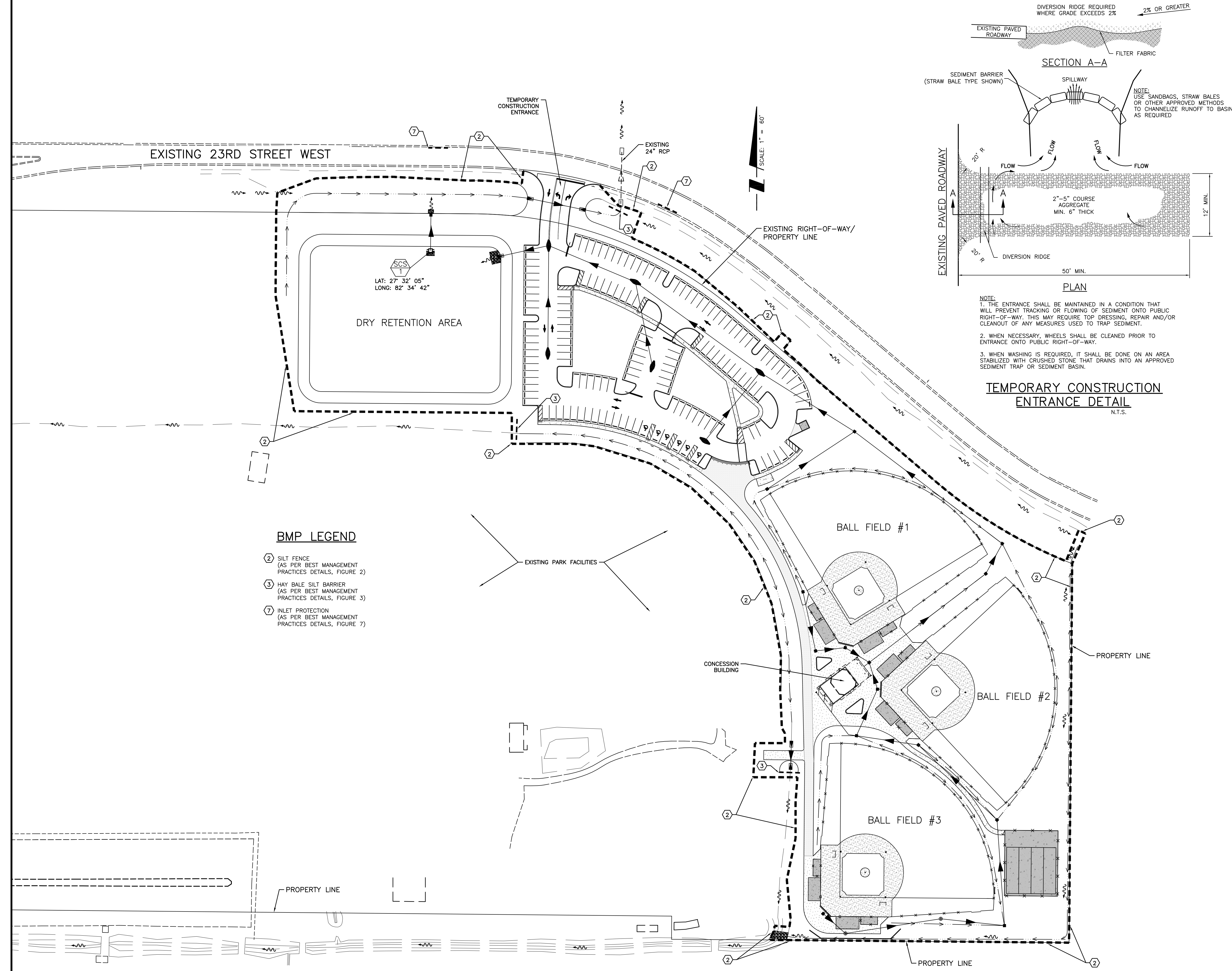
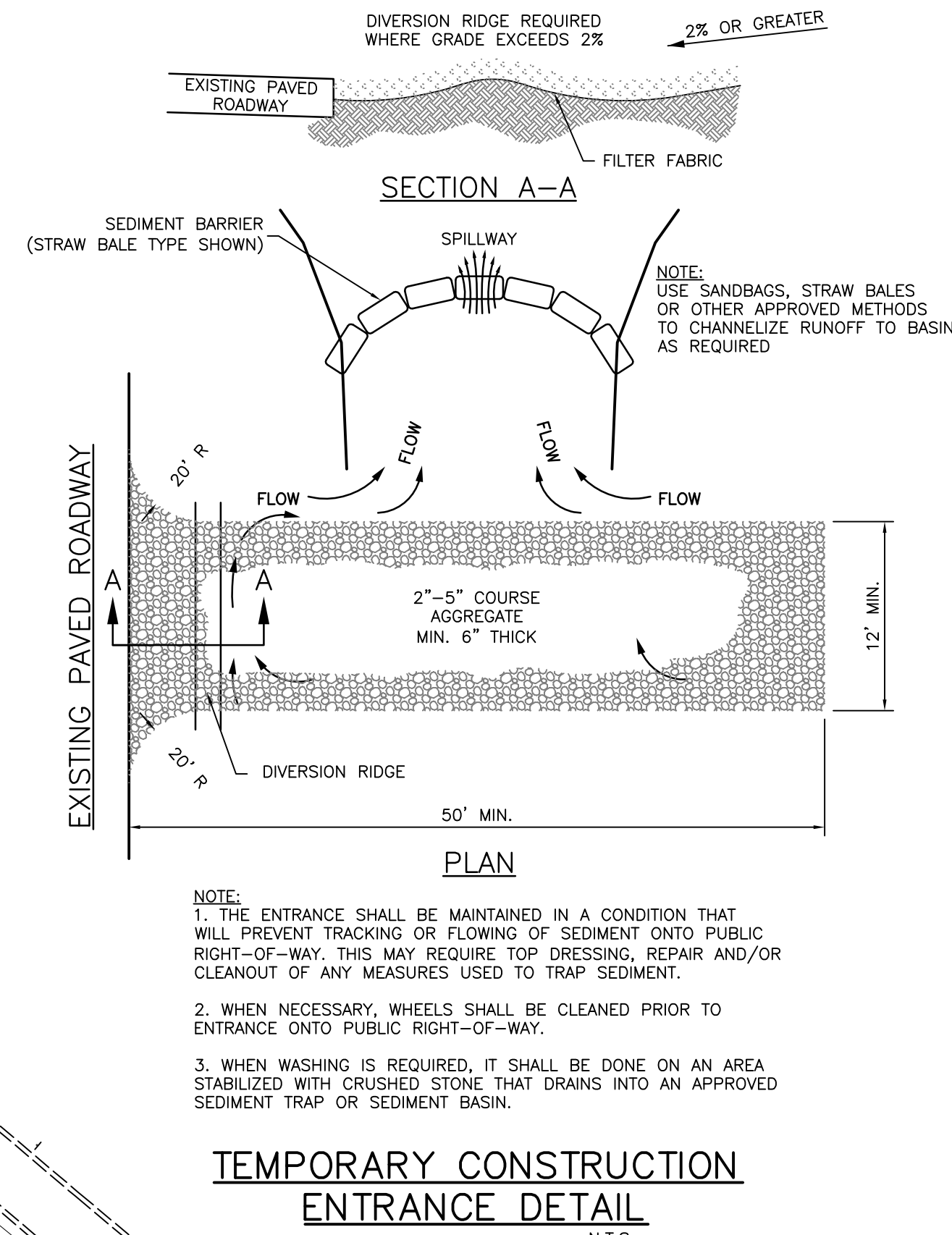
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name (Responsible Authority) \_\_\_\_\_ Date \_\_\_\_\_

## V. BMP SITE MAP AND BMP DETAILS

**BEST MANAGEMENT NOTES**

1. A COPY OF THIS BEST MANAGEMENT PRACTICES PLAN AND THE STORMWATER POLLUTION PREVENTION PLAN, SHALL BE KEPT AT THE PROJECT SITE AT ALL TIMES.
2. THE CONTRACTOR SHALL ABIDE BY ALL APPLICABLE REQUIREMENTS AND CONDITIONS OF THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFMD) PERMIT(S) AND HAVE A COPY OF THE PERMIT(S) ON SITE. IF IT IS NECESSARY FOR GROUNDWATER DEWATERING TO DISCHARGE OFFSITE, THEN THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITTING FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP). THE CONTRACTOR SHALL BEAR ALL RESPONSIBILITY AND COSTS FOR OBTAINING AND/OR MODIFYING ALL APPLICABLE PERMITTING FOR THE DISCHARGE OF GROUNDWATER DEWATERING AND FOR COMPLYING WITH ALL SWFMD AND FDEP PERMITTING CONDITIONS.
3. THE CONTRACTOR SHALL IMPLEMENT OTHER BEST MANAGEMENT PRACTICES AS DIRECTED BY THE ENGINEER OF RECORD OR OTHER REGULATORY AGENCIES.
4. THE CONTRACTOR SHALL STAGE CONSTRUCTION IN PHASES WHENEVER POSSIBLE TO MINIMIZE SOIL LOSS AND CONTROL EROSION.
5. THE CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION ENTRANCE TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. THE PAVED STREET ADJACENT TO THE SITE ENTRANCE WILL BE SWEEP AS REQUIRED TO REMOVE ANY EXCESS MUD, DIRT OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE SHALL BE COVERED WITH A TARP/AULIN.
6. THE CONTRACTOR SHALL DIRECT ONSITE RUNOFF TO THE STORMWATER MANAGEMENT SYSTEM DURING CONSTRUCTION.
7. CONTRACTOR SHALL SPRINKLE OR OTHERWISE APPLY WATER TO AFFECTED CONSTRUCTION AREAS TO CONTROL BOTH SIGNIFICANT WIND EROSION AND FUGITIVE DUST.
8. ALL INLET GRATES SHALL BE WRAPPED IN FILTER FABRIC AND ALL INLETS SHALL BE PROTECTED WITH SILT SCREENS OR HAY BALES IN ACCORDANCE WITH THE BMP PLAN. SILT BARRIERS SHALL REMAIN IN PLACE UNTIL SODDING AROUND INLETS IS COMPLETE. INLET GRATES SHOULD REMAIN WRAPPED UNTIL PROJECT IS COMPLETE.
9. FOR DRAINAGE BASINS WITH 10 OR MORE DISTURBED ACRES AT ONE TIME, A TEMPORARY (OR PERMANENT) SEDIMENT BASIN PROVIDING 3,600 CUBIC FEET OF STORAGE PER ACRE DRAINED, OR EQUIVALENT CONTROL MEASURES, SHALL BE PROVIDED WHERE ATTAINABLE UNTIL FINAL STABILIZATION. THE 3,600 CUBIC FEET OF STORAGE AREA PER ACRE DRAINED DOES NOT APPLY TO FLOWS FROM OFFSITE AREAS AND FLOWS FROM ONSITE AREAS THAT ARE EITHER UNDISTURBED OR HAVE UNDERGONE FINAL STABILIZATION WHERE SUCH FLOWS ARE DIVERTED AROUND BOTH THE DISTURBED AREA AND THE SEDIMENT BASIN. FOR DRAINAGE BASINS WITH 10 OR MORE DISTURBED ACRES AT ONE TIME AND WHERE A TEMPORARY SEDIMENT BASIN PROVIDING 3,600 CUBIC FEET OF STORAGE PER ACRE DRAINED, OR EQUIVALENT CONTROLS IS NOT ATTAINABLE, A COMBINATION OF SMALLER SEDIMENT BASINS AND/OR SEDIMENT TRAPS AND OTHER BMPs SHOULD BE USED. AT A MINIMUM, SILT FENCES, OR EQUIVALENT SEDIMENT CONTROLS ARE REQUIRED FOR ALL SIDESLOPE AND DOWNSLOPE BOUNDARIES OF THE CONSTRUCTION AREA.
10. AREAS THAT ARE DESIGNATED FOR PERMANENT STORMWATER INFILTRATION TREATMENT SYSTEMS (E.G., STORMWATER RETENTION PONDS) SHOULD NOT BE USED FOR TEMPORARY SEDIMENT BASINS UNLESS APPROPRIATE MEASURES ARE TAKEN TO ASSURE REMOVAL OF ACCUMULATED FINE SEDIMENTS, WHICH MAY CAUSE PREMATURE CLOGGING AND LOSS OF INFILTRATION CAPACITY, AND TO AVOID EXCESSIVE COMPACTION OF SOILS BY CONSTRUCTION MACHINERY OR EQUIPMENT.
11. DEWATERING WILL OCCUR, AS REQUIRED, FOR ALL EXCAVATION ACTIVITY INCLUDING, BUT NOT LIMITED TO, STORM SEWERS, SANITARY SEWERS, WATER LINES AND OTHER UTILITIES.
12. ALL CONSTRUCTION DEWATERING SHALL BE CONTAINED ONSITE, AT SPECIFIED LOCATIONS, AND ALLOWED TO INFILTRATE THE SOIL. UNLESS FDEP PERMITTING IS OBTAINED FOR OFFSITE DISCHARGE, ALL DEWATERING GROUNDWATER DISCHARGE SHALL BE ROUTED THROUGH A TEMPORARY SEDIMENT SUMP PRIOR TO DISCHARGE TO WETLANDS, OTHER SURFACE WATER, OR OFFSITE. THE GENERAL PROCESS OF THE DEWATERING SYSTEM IF DEPICED HEREIN SHALL BE ADHERED TO DURING CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL APPLICABLE APPROVALS FOR ANY MODIFICATIONS HE PROPOSES.
13. THE DEWATERING SYSTEM SHALL USE A PUMP AND PIPING THAT IS LESS THAN 6 INCHES IN DIAMETER AND OPERATE LESS THAN A TOTAL OF SIX MONTHS. ANY DEVIATION FROM THIS REQUIREMENT SHALL REQUIRE A WATER USE PERMIT. THE COST OF A WATER USE PERMIT AND ASSOCIATED MATERIALS SHALL BE BORNE BY THE CONTRACTOR.
14. LAY SOD AROUND ALL INLETS, MITERED ENDWALLS, HEADWALLS, SWALES, POND SLOPES, AND A THREE FOOT (3') WIDE STRIP ADJACENT TO EDGE OF PAVEMENT OR AS DIRECTED BY THE ENGINEER AS SOON AS PRACTICAL TO PREVENT EROSION. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASE SHALL BE STABILIZED WITH SOD OR WITH PERMANENT SEED AND MULCH IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. PERMANENT STABILIZATION SHALL OCCUR AS SOON AS PRACTICAL BUT IN NO CASE MORE THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY.
15. SODDING INCLUDES MAINTAINING SLOPES AND SOD UNTIL COMPLETION AND ACCEPTANCE OF TOTAL PROJECT OR GROWTH IS ESTABLISHED, WHICHEVER COMES LAST. UNTIL THEN, ALL EROSION, SILTATION, AND MAINTENANCE OF GRADES AND GRASS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
16. TOP SOIL STOCK PILES AND DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY WILL TEMPORARILY CEASE FOR AT LEAST 21 DAYS SHALL BE STABILIZED WITH TEMPORARY SEED AND MULCH AS SOON AS PRACTICABLE BUT IN NO CASE MORE THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THAT AREA. THE TEMPORARY SEED AND MULCH SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
17. ALL SILTATION AND EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED AT A MINIMUM OF ONCE PER WEEK OR AFTER ANY 1/2" OR GREATER RAINFALL EVENT. THE CONTRACTOR SHALL MAINTAIN RECORDS OF ALL MAINTENANCE AND INSPECTIONS, ON SITE, UNTIL CONSTRUCTION IS COMPLETE. COPIES SHALL BE FURNISHED TO THE ENGINEER OR OWNER, UPON REQUEST.
18. THE SITE SUPERINTENDENT, WILL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, FILING OUT THE INSPECTION AND MAINTENANCE REPORT AND IF NECESSARY, REVISING THE STORMWATER POLLUTION PREVENTION PLAN CONSISTENT WITH MODIFICATIONS MADE DUE TO UNFORESEEN CAUSES, AS DICTATED BY FIELD CONDITIONS.
19. PERSONNEL SELECTED FOR INSPECTION AND MAINTENANCE RESPONSIBILITIES SHALL RECEIVE TRAINING FROM THE SITE SUPERINTENDENT FOR INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS USED ONSITE IN GOOD WORKING ORDER.
20. A MAINTENANCE INSPECTION REPORT SHALL BE MADE AFTER EACH INSPECTION. A COPY OF THE REPORT FORM TO BE COMPLETED BY THE INSPECTOR IS INCLUDED IN THE STORMWATER POLLUTION PREVENTION PLAN.
21. SILT FENCE SHALL BE INSPECTED FOR DEPTH OF SEDIMENT, TEARS, TO INSURE IF THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS, AND TO INSURE THAT THE FENCE POSTS ARE INSTALLED FIRMLY IN THE GROUND.
22. SILTATION ACCUMULATIONS GREATER THAN THE LESSER OF 12 INCHES OR ONE-HALF OF THE DEPTH OF THE SILTATION CONTROL BARRIER OR CONTROL DEVICES SHALL BE IMMEDIATELY REMOVED AND PLACED IN UPLAND AREAS. ALL SILTATION BARRIERS SHALL THEN BE RESTORED TO THEIR ORIGINAL CONDITIONS.
23. THE SEDIMENT BASIN SHALL BE INSPECTED FOR DEPTH OF SEDIMENT, AND BUILT UP SEDIMENT WILL BE REMOVED WHEN IT REACHES 10 PERCENT OF THE DESIGN CAPACITY OR AT THE END OF THE JOB, WHICHEVER COMES FIRST.
24. DIVERSION DIKE, IF REQUIRED, SHALL BE INSPECTED AND ANY BREACHES PROMPTLY REPAIRED.
25. TEMPORARY AND PERMANENT SEEDING AND PLANTING SHALL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
26. ALL MEASURES SHALL BE MAINTAINED IN GOOD WORKING ORDER; IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.
27. THE LOCATION OF SILT FENCE AND OTHER BMP FACILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THESE FACILITIES ARE PLACED IN A LOCATION AND MANNER THAT DOES NOT CONFLICT WITH THE LIMITS OF CONSTRUCTION OR AREAS TO BE PROTECTED AS SET FORTH IN THESE PLANS.



**BMP LEGEND**

- ② SILT FENCE (AS PER BEST MANAGEMENT PRACTICES DETAILS, FIGURE 2)
- ③ HAY BALE SILT BARRIER (AS PER BEST MANAGEMENT PRACTICES DETAILS, FIGURE 3)
- ⑦ INLET PROTECTION (AS PER BEST MANAGEMENT PRACTICES DETAILS, FIGURE 7)

**CONSTRUCTION SURFACE WATER MANAGEMENT PLAN (CSWMP) CERTIFICATION**

OWNER/APPLICANT SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
 OWNER: CHARLIE BISHOP  
 TITLE: DIRECTOR  
 COMPANY: MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT

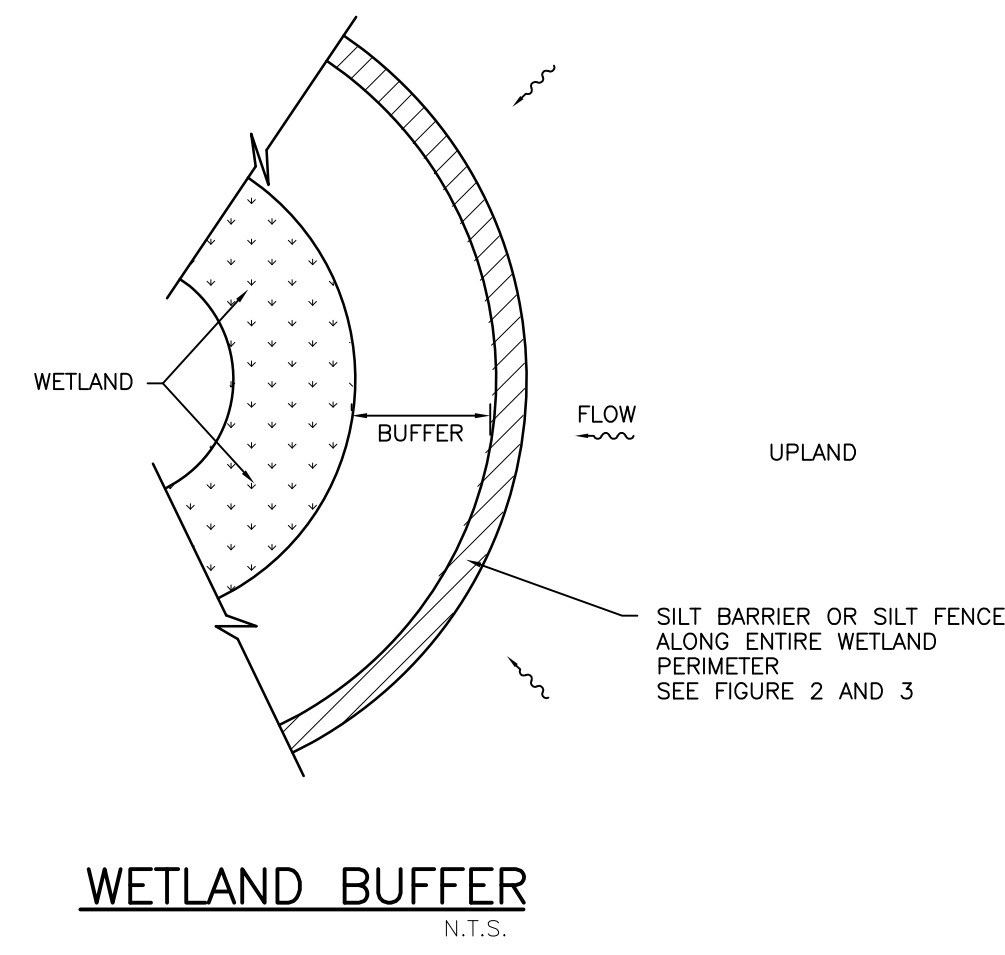
REV. NO.	REVISION	DATE	DRAWN BY / EMP. NO.	CHECKED BY / EMP. NO.	WM APPROVED BY:

**WilsonMiller Stantec**  
 6900 Professional Parkway East, Sarasota, FL 34240  
 Phone: 941-907-6900 • Fax: 941-907-6910

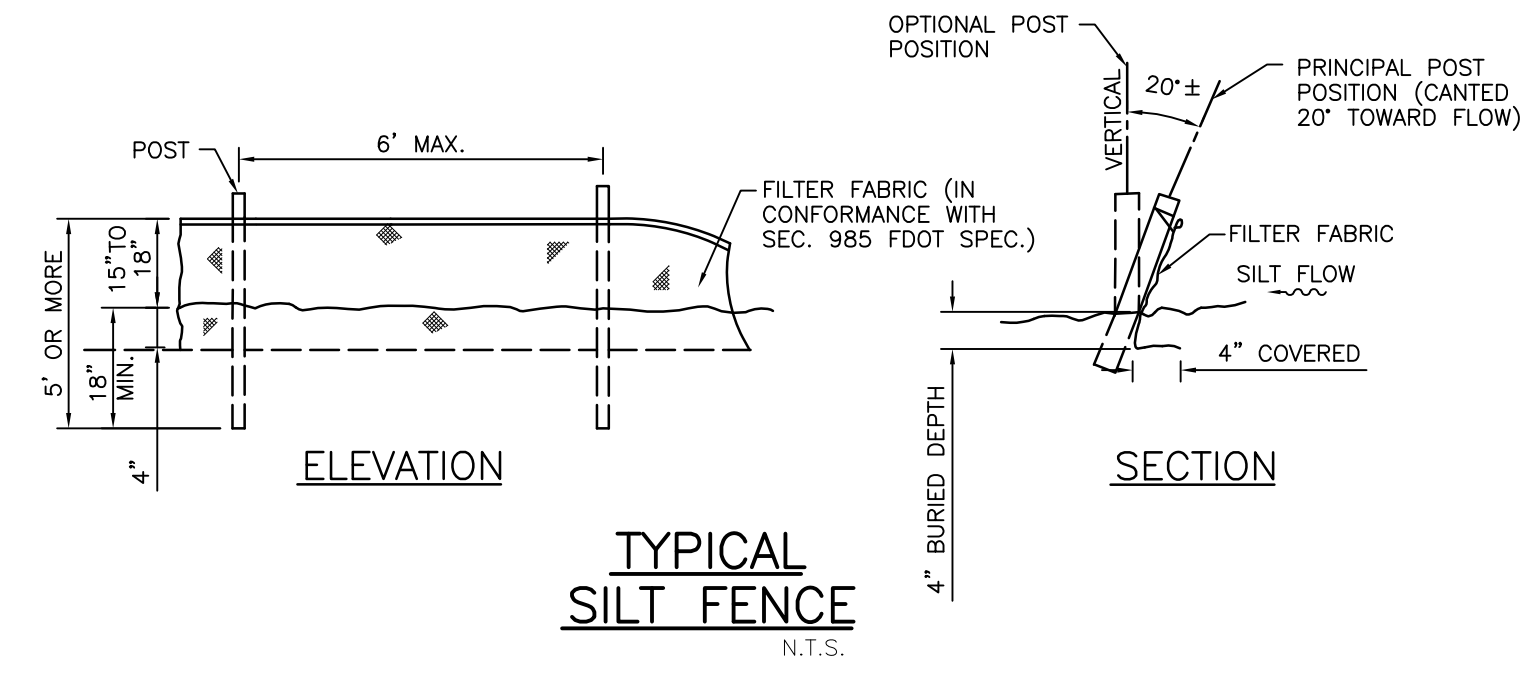
CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS  
 PROJECT: BLACKSTONE PARK EXPANSION

DATE: DECEMBER 2012	TITLE: BEST MANAGEMENT PRACTICES PLAN	DRAWN BY: NA	PROJECT NUMBER: 215611237
HORIZONTAL SCALE: 1" = 60'	INDEX NUMBER: D-215611237-018	VERTICAL SCALE: NA	SHEET NUMBER: 18 OF 19
SEC: 11	TWP: 34S	RGE: 17E	CROSS REFERENCE FILE NO.: PROJECT NUMBER: 215611237

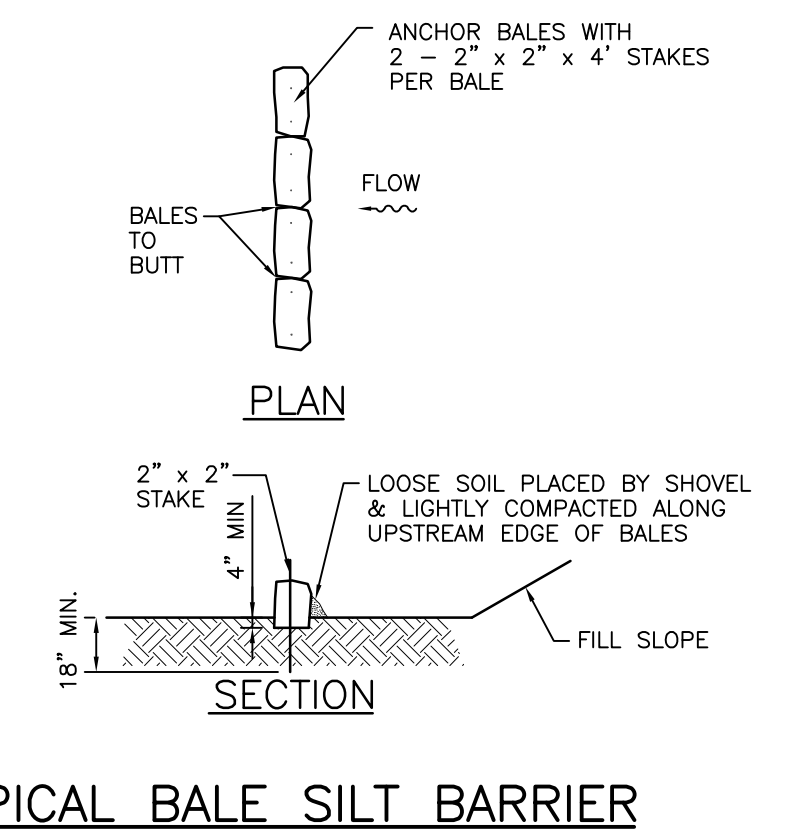




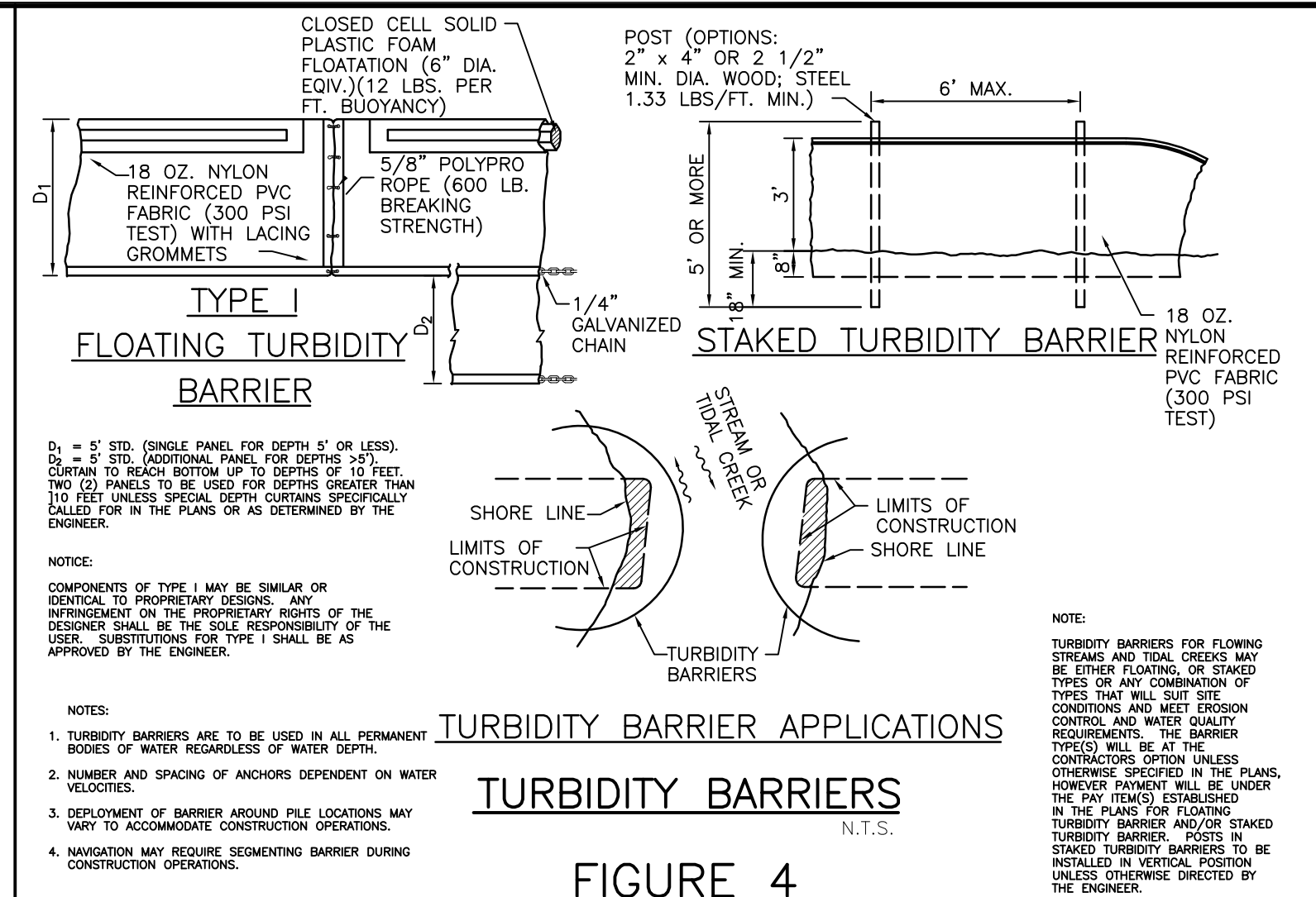
**WETLAND BUFFER**  
N.T.S.  
**FIGURE 1**



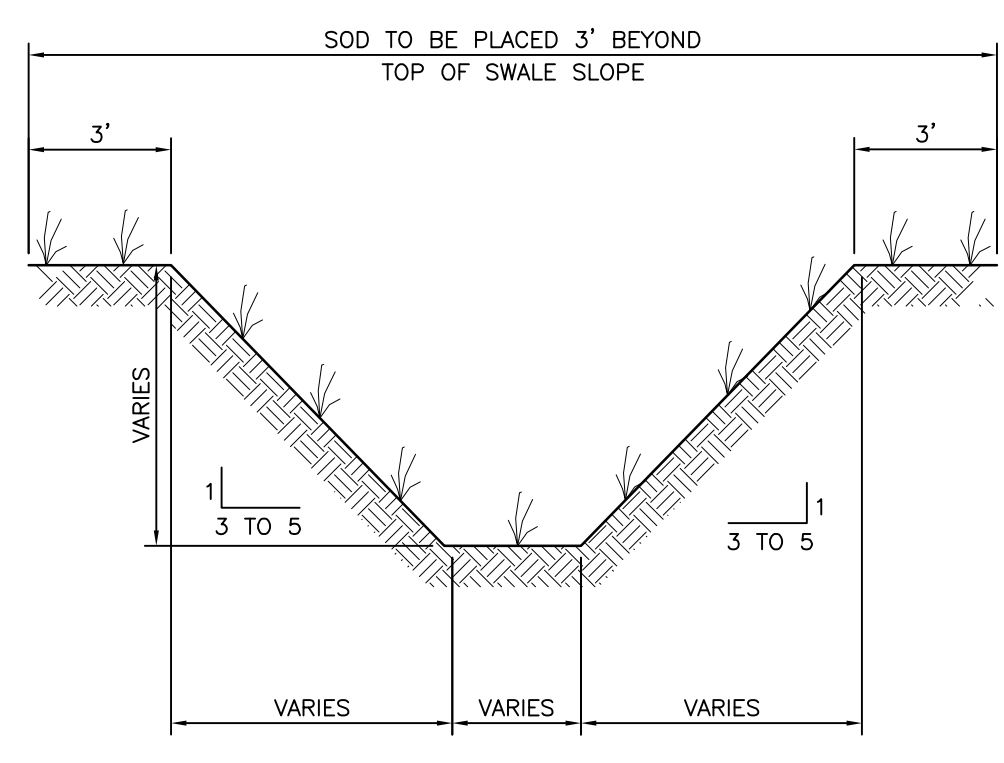
**TYPICAL SILT FENCE**  
N.T.S.  
**FIGURE 2**



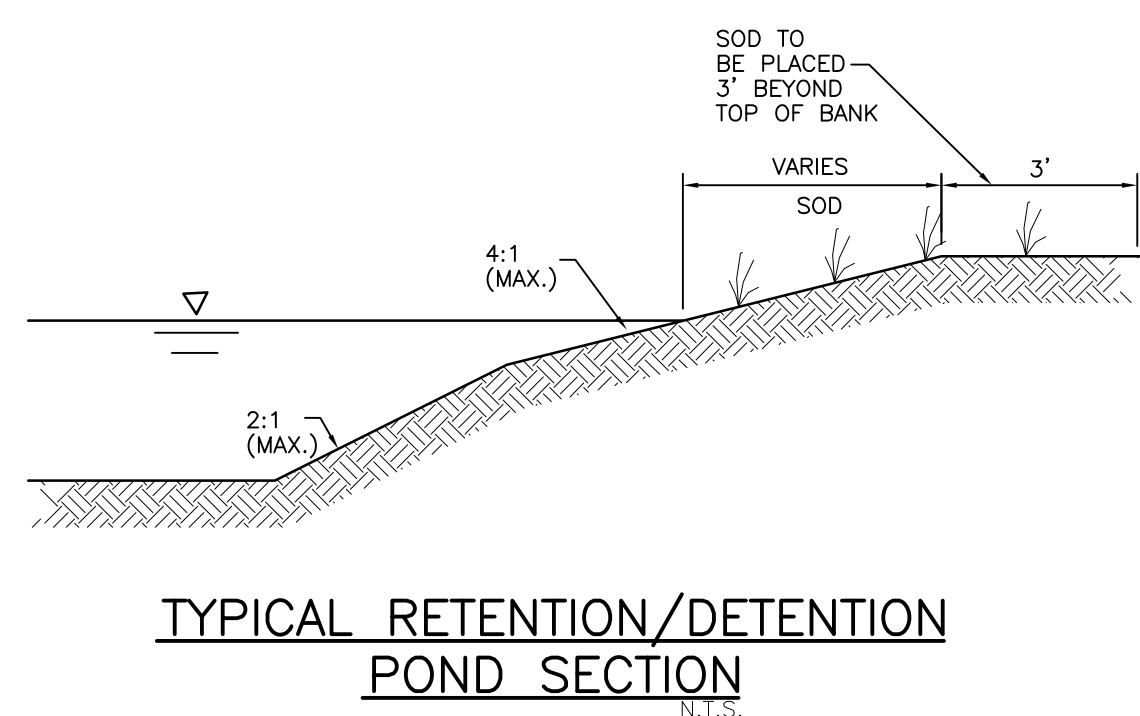
**TYPICAL BALE SILT BARRIER**  
N.T.S.  
**FIGURE 3**



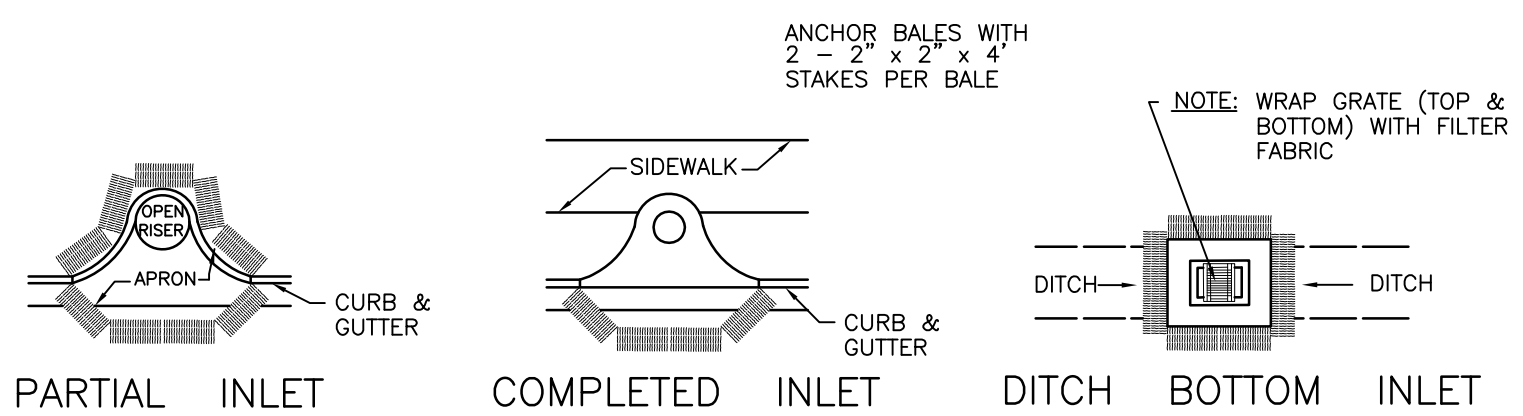
**TURBIDITY BARRIER APPLICATIONS**  
N.T.S.  
**FIGURE 4**



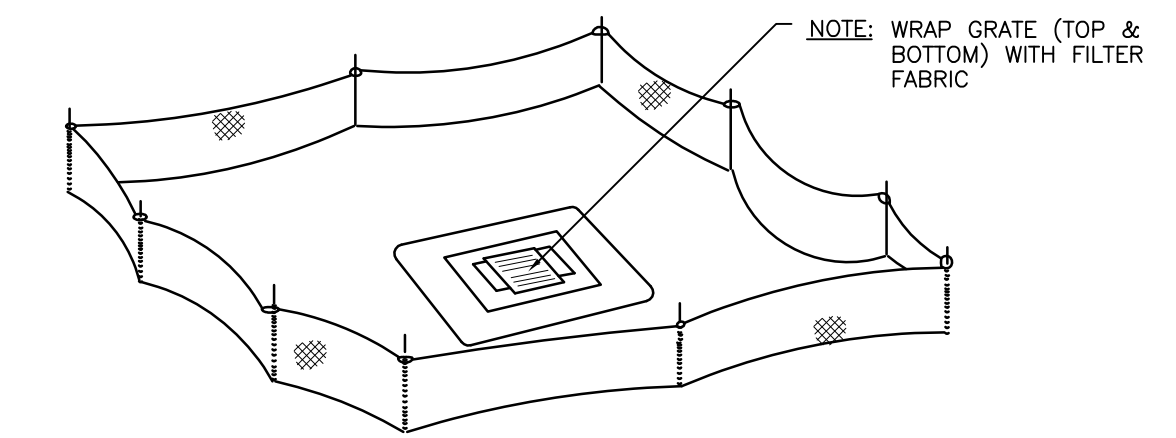
**TYPICAL SWALE SECTION**  
N.T.S.  
**FIGURE 5**



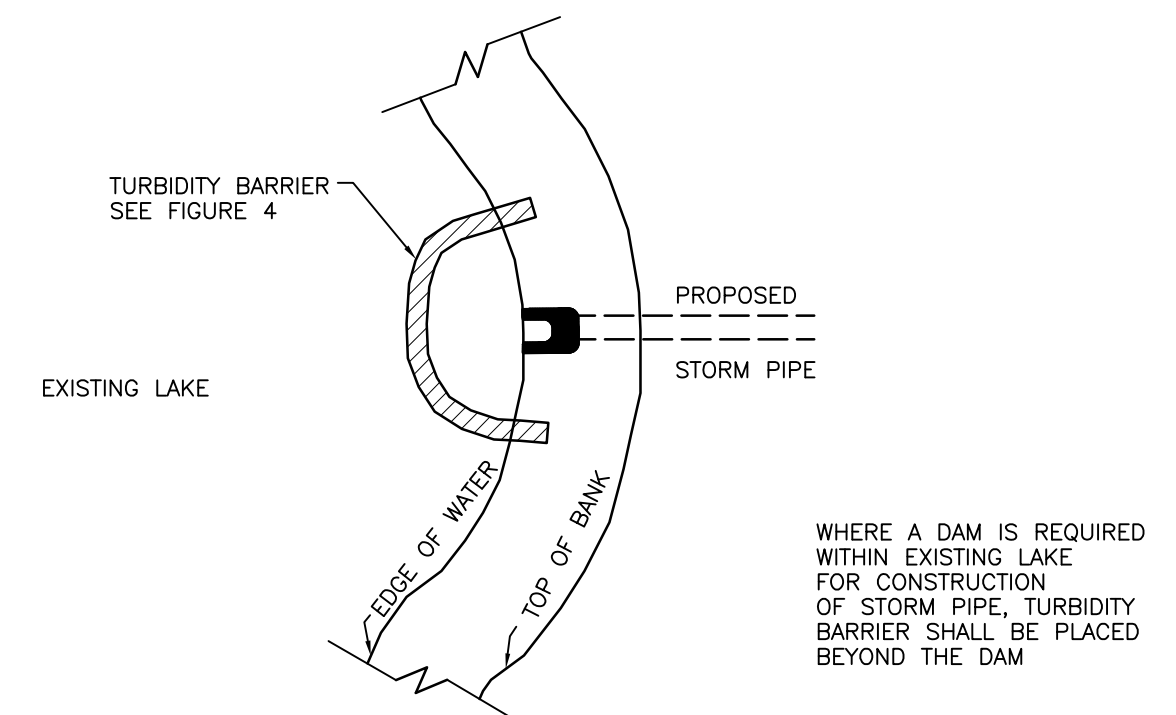
**TYPICAL RETENTION/DETENTION POND SECTION**  
N.T.S.  
**FIGURE 6**



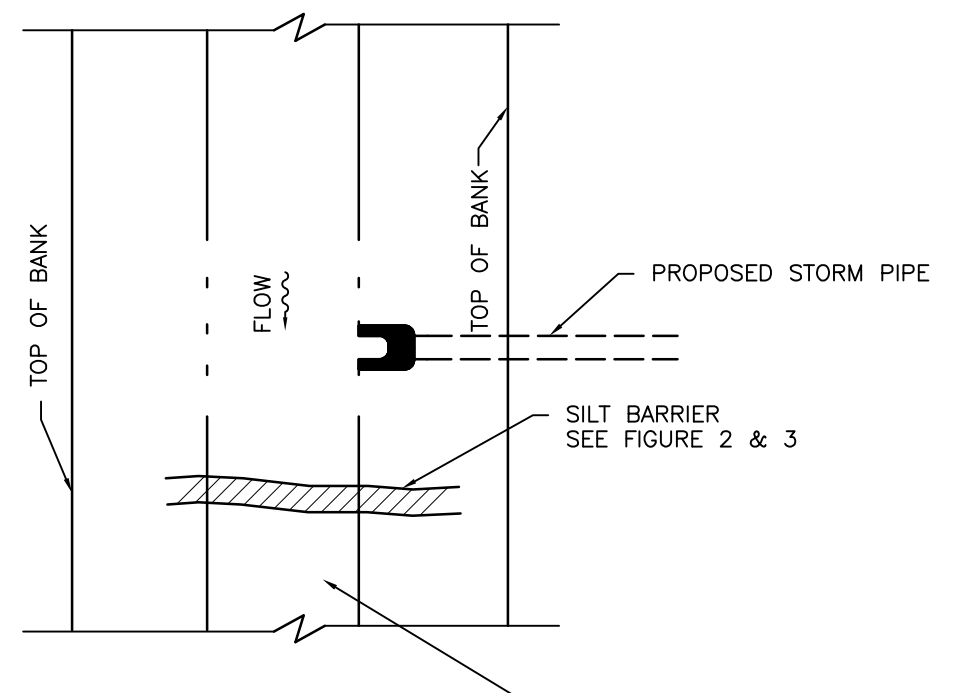
**PROTECTION AROUND INLETS OR SIMILAR STRUCTURES**  
N.T.S.  
**FIGURE 7**



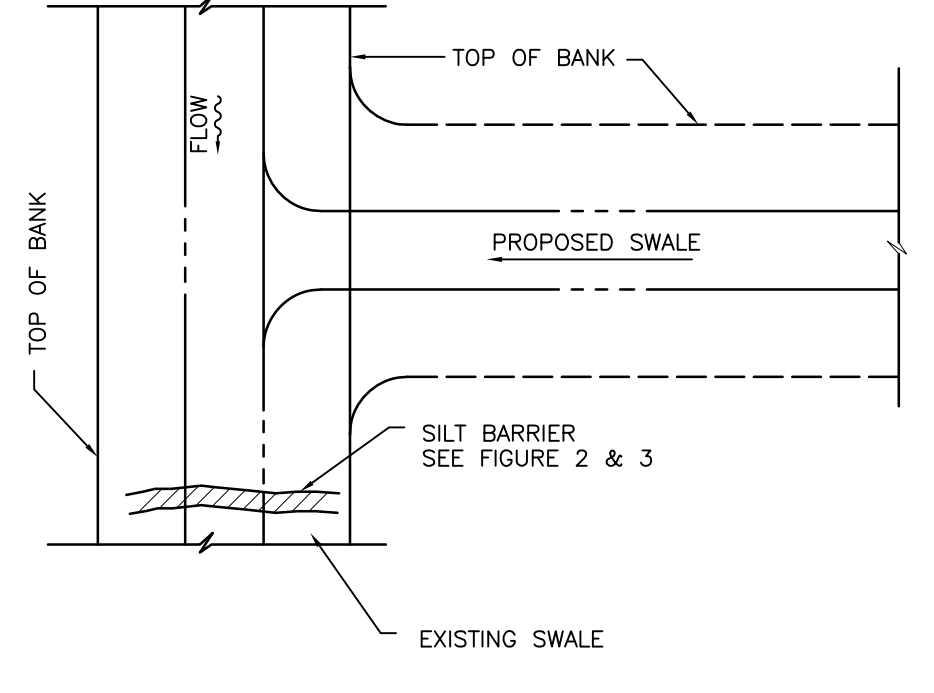
**STAKED SILT BARRIER OR SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS**  
N.T.S.  
**FIGURE 8**



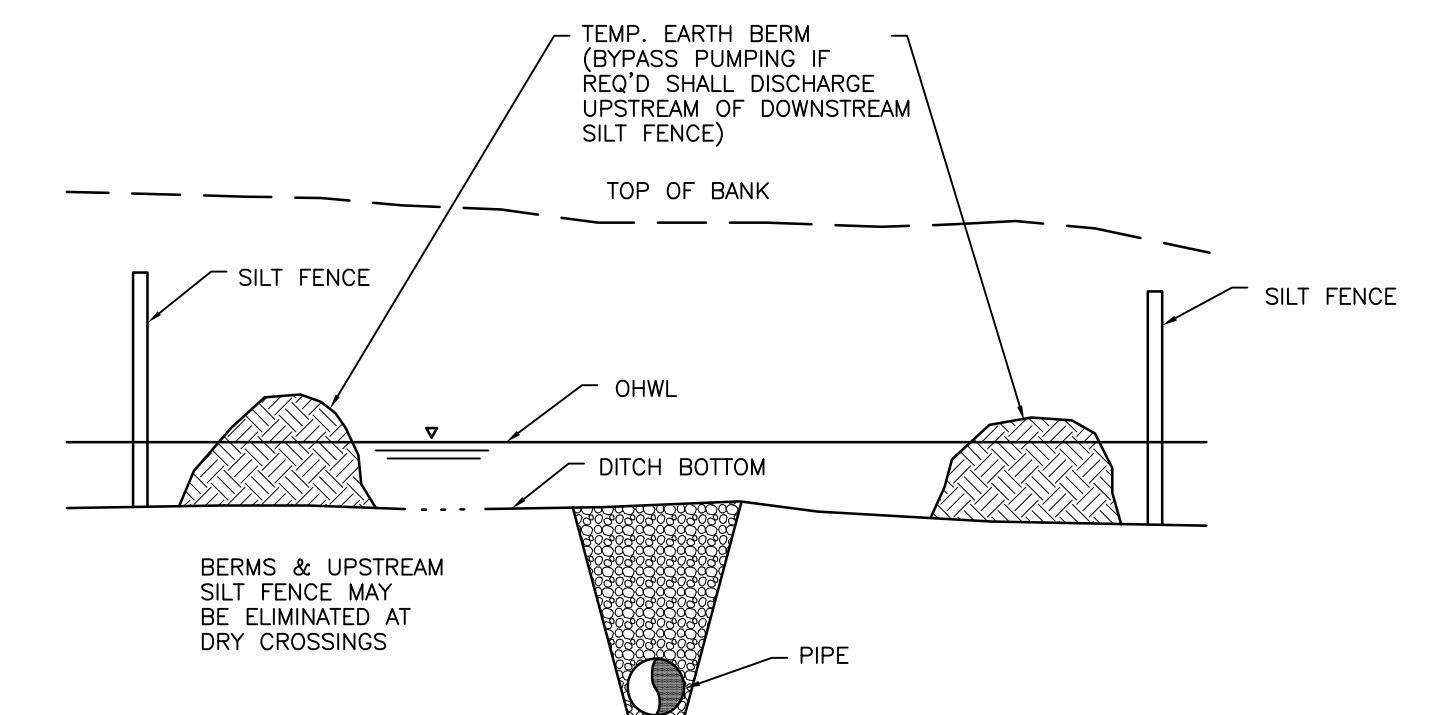
**TURBIDITY BARRIER AT CONNECTION OF STORM PIPE TO EXISTING LAKE**  
N.T.S.  
**FIGURE 9**



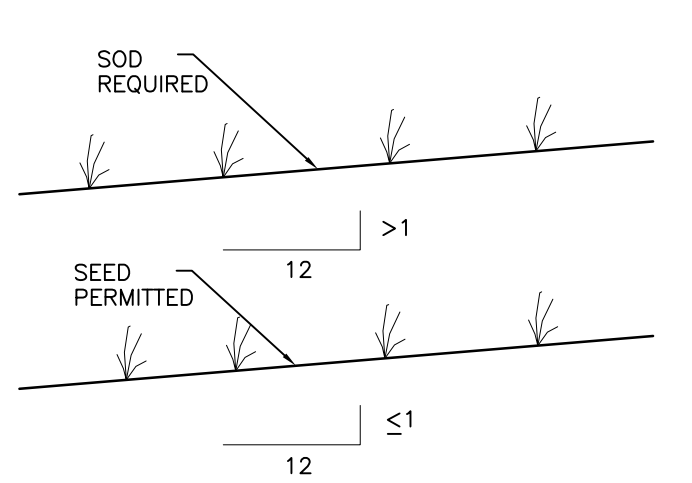
**SILT BARRIER AT CONNECTION OF STORM PIPE TO EXISTING SWALE**  
N.T.S.  
**FIGURE 10**



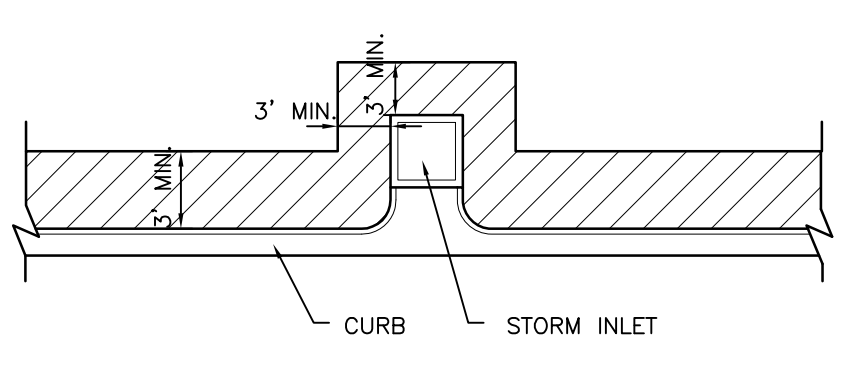
**SILT BARRIER AT CONNECTION OF SWALE TO EXISTING SWALE**  
N.T.S.  
**FIGURE 11**



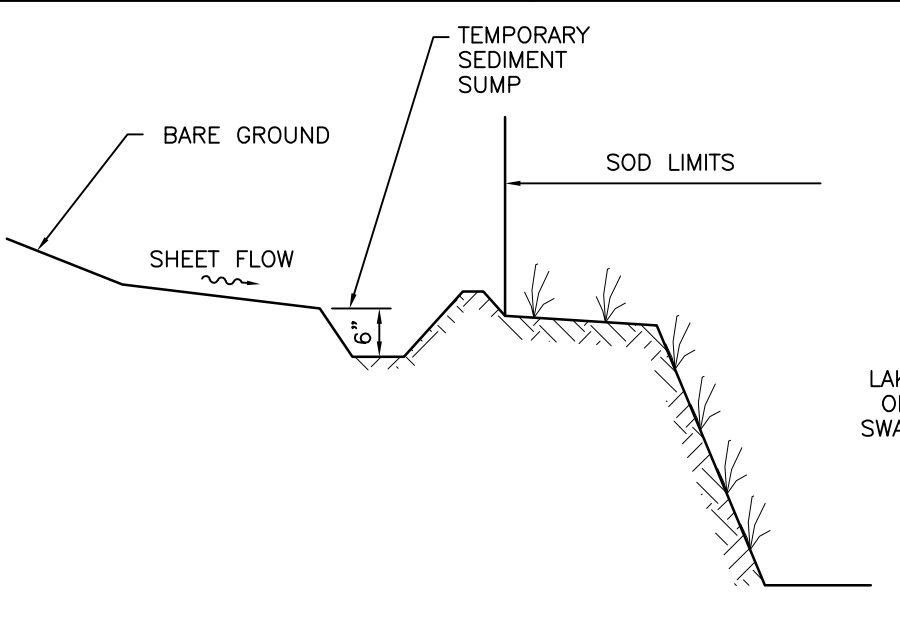
**UNDERGROUND PIPE CROSSING**  
N.T.S.  
**FIGURE 12**



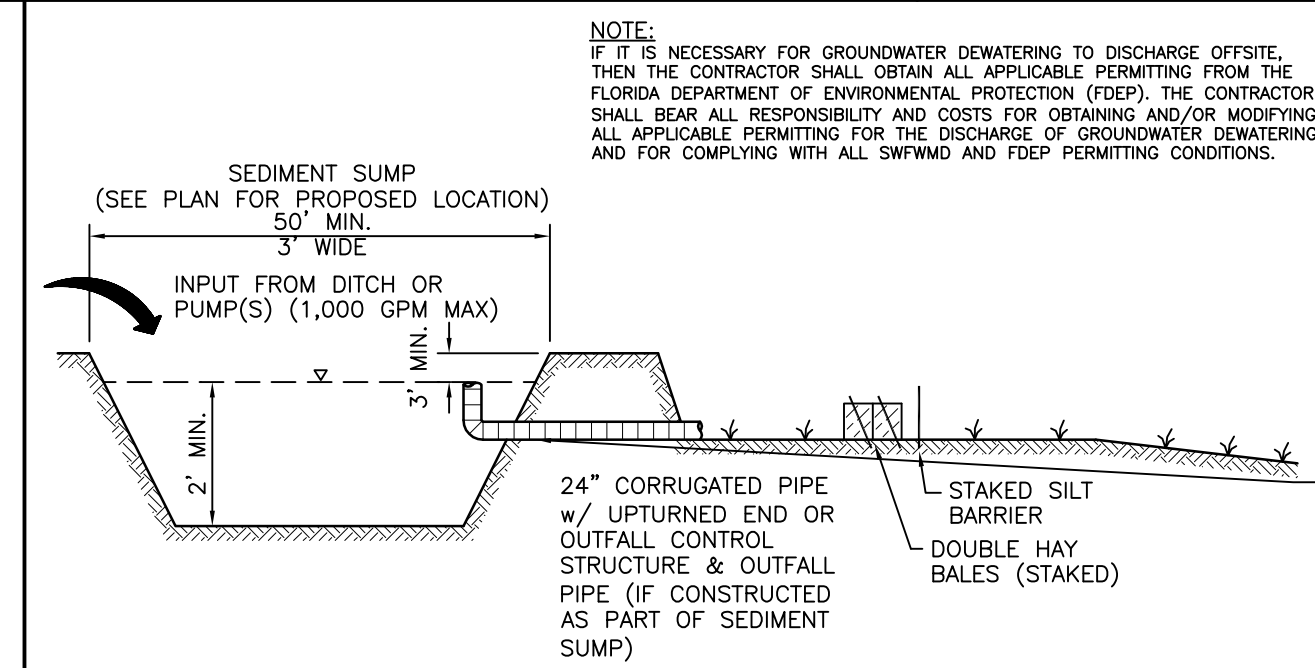
**GRASS SLOPES**  
N.T.S.  
**FIGURE 13**



**SOD ALONG CURB AND AROUND INLET**  
N.T.S.  
**FIGURE 14**



**TEMPORARY SEDIMENT SUMP**  
N.T.S.  
**FIGURE 15**



**SEDIMENT SUMP SECTION**  
N.T.S.  
**FIGURE 16**

**CONSTRUCTION SURFACE WATER MANAGEMENT PLAN (CSWMP) CERTIFICATION**

OWNER/APPLICANT SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

OWNER: CHARLIE BISHOP  
TITLE: DIRECTOR  
COMPANY: MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT

REV. NO.	REVISION	DATE	DRAWN BY / EMP. NO.	CHECKED BY / EMP. NO.	WM APPROVED BY:	ACTIVITY	INITIALS/EMP. NO.	DATE
						DESIGNED BY:		
						DRAWN BY:	CLL/096591	12/2012
						CHECKED BY:		
						CONTRACT ADMIN. BY:		

**WilsonMiller Stantec**

6900 Professional Parkway East, Sarasota, FL 34240  
Phone: 941-907-6900 • Fax: 941-907-6910

CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS

PROJECT: BLACKSTONE PARK EXPANSION

DATE: DECEMBER 2012  
HORIZONTAL SCALE: AS SHOWN  
VERTICAL SCALE: AS SHOWN

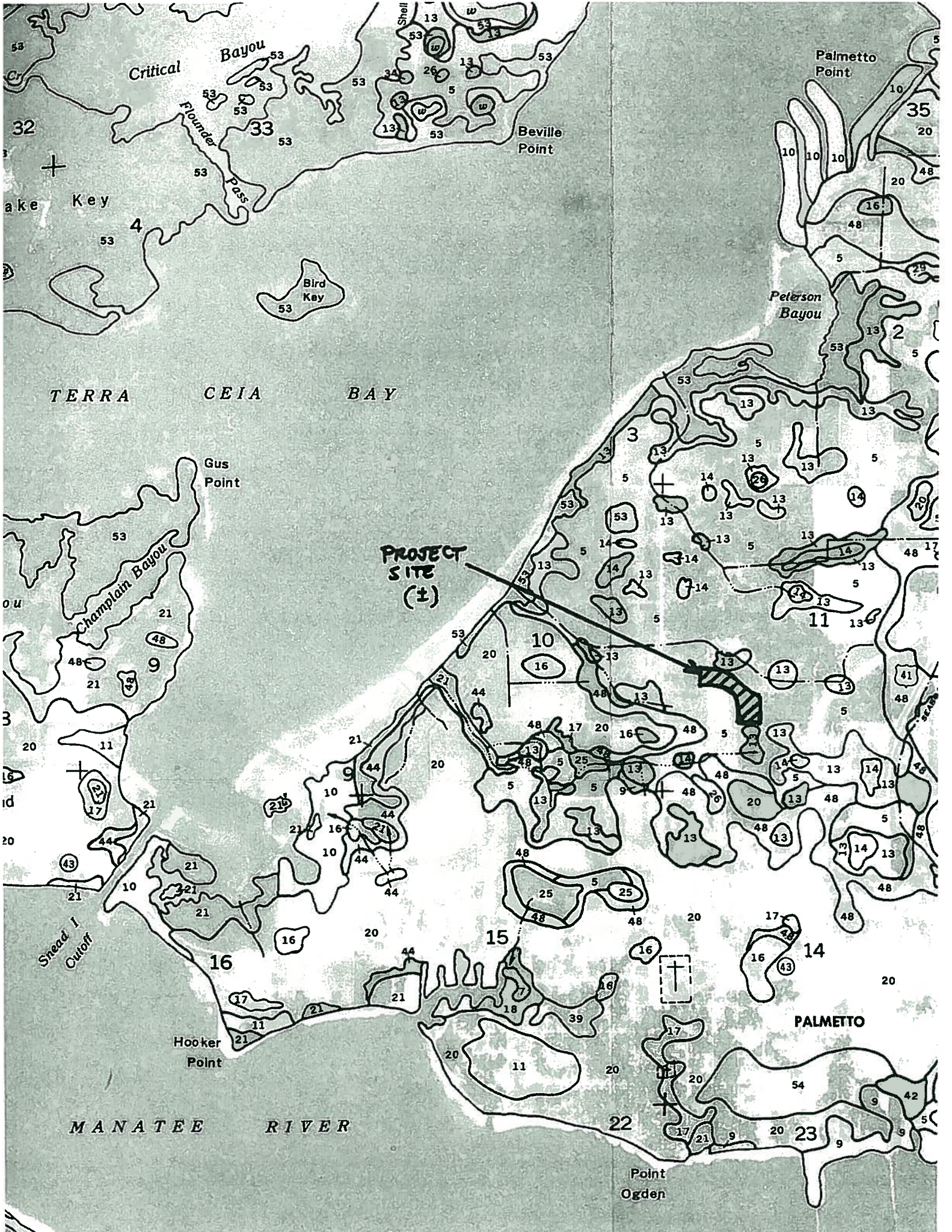
TITLE: BEST MANAGEMENT PRACTICES DETAILS

DANIEL J. BOND, P.E.  
FLORIDA LICENSE NO. 57869  
INDEX NUMBER: D-215611237-019  
SHEET NUMBER: 19 OF 19

PROJECT NUMBER: 215611237  
CROSS REFERENCE FILE NO.:  
PROJECT NUMBER: 215611237-01C-702ED.dwg

## **VI. SOILS MAP AND INFORMATION**





Critical Bayou

Palmetto Point

Beville Point

Lake Key

Bird Key

Peterson Bayou

TERRA CEIA BAY

Gus Point

PROJECT SITE (±)

Champlain Bayou

Shead I Cutoff

Hooker Point

PALMETTO

MANATEE RIVER

Point Ogden



TABLE 15.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Map symbol and soil name	Hydro-logic Group	Flooding			High water table			Bedrock		Cemented pan		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hardness	Uncoated steel	Concrete
1 Adamsville Variant	C	None	---	---	0.5-1.5	Apparent	Jun-Nov	>60	---	---	---	Low	High.
2. Beaches													
3 Braden	B	Rare	---	---	2.5-3.5	Apparent	Jun-Oct	>60	---	---	---	Moderate	Moderate.
4 Bradenton	D	None	---	---	0-1.0	Apparent	Jun-Dec	>60	---	---	---	High	Low.
5 Bradenton	B/D	None	---	---	0-1.0	Apparent	Jun-Dec	40-80	Soft	---	---	High	Low.
6 Broward Variant	B/D	None	---	---	0-1.0	Apparent	Jun-Oct	20-40	Soft	---	---	Moderate	High.
7: Canova*	B/D	None	---	---	+2.-0	Apparent	Jan-Dec	>60	---	---	---	High	Low.
Anclote	D	None	---	---	0-1.0	Apparent	Jun-Dec	>60	---	---	---	Moderate	Moderate.
Okeelanta*	A/D	None	---	---	+1-0	Apparent	Jun-Jan	>60	---	---	---	High	Moderate.
8, 9 Canaveral	C	None	---	---	1.0-3.0	Apparent	Jun-Nov	>60	---	---	---	Moderate	Low.
10 Canaveral	C	None	---	---	2.5-5.0	Apparent	Jan-Dec	>60	---	---	---	Moderate	Low.
11 Cassia	C	None	---	---	1.5-3.5	Apparent	Jul-Jan	>60	---	---	---	Moderate	High.
12 Cassia	B	None	---	---	3.5-5.0	Apparent	Jul-Jan	>60	---	---	---	Moderate	High.
13 Chobee	B/D	None	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	Moderate	Low.
14* Chobee Variant	D	None	---	---	+2-1.0	Apparent	Jul-Dec	>60	---	---	---	High	Low.
15, 16 Delray	B/D	None	---	---	0-1.0	Apparent	Jun-Mar	>60	---	---	---	Moderate	Low.
17: Delray	B/D	None	---	---	0-1.0	Apparent	Jun-Mar	>60	---	---	---	Moderate	Low.



See footnote at end of table.